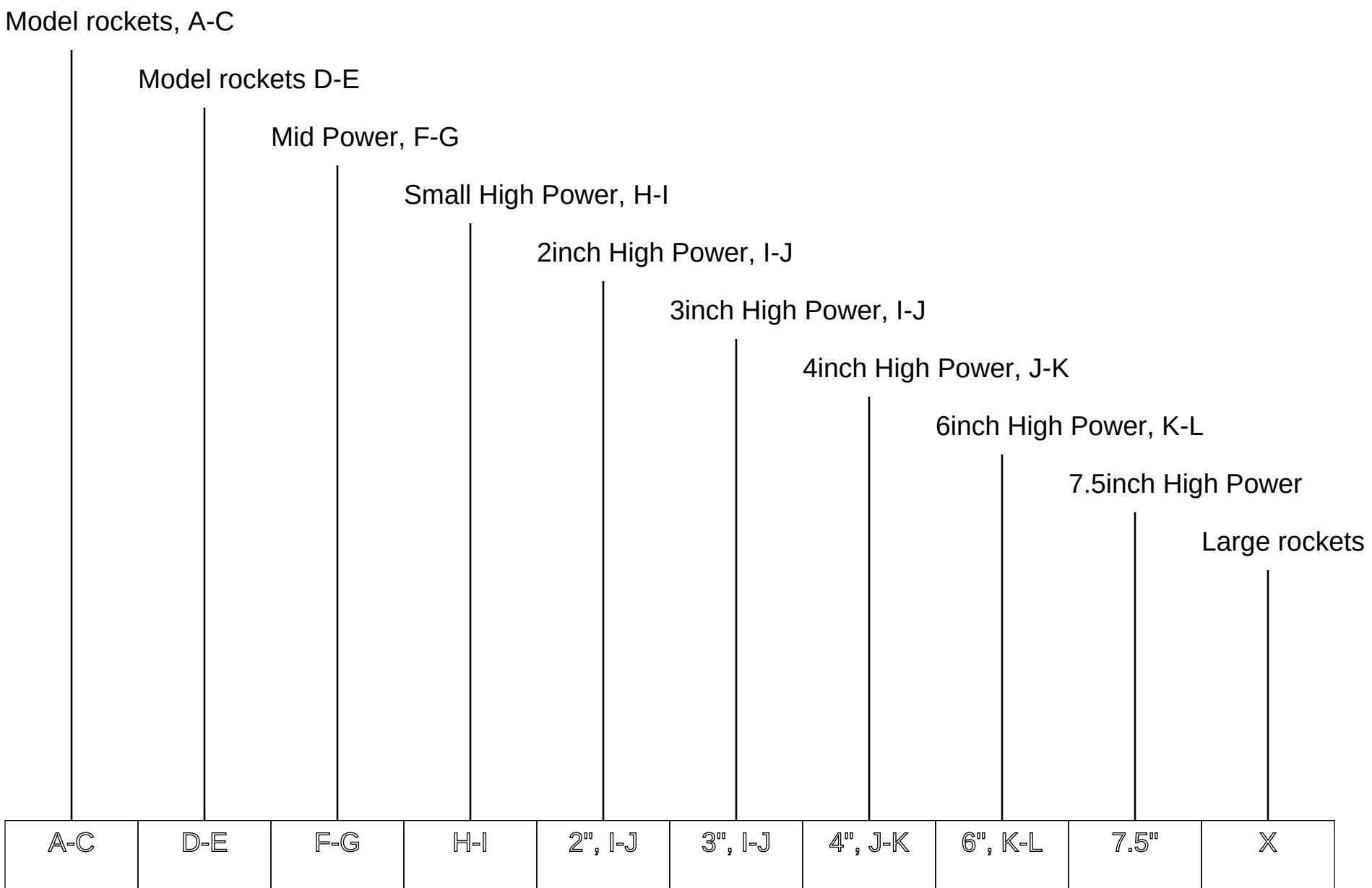
Rocket Trajectory Nomograms

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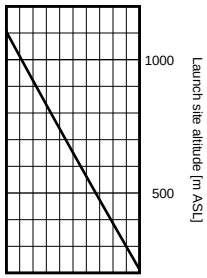

Model rockets, A-C
Model rockets D-E
Mid Power, F-G
Small High Power, H-I
2inch High Power, I-J
3inch High Power, I-J
4inch High Power, J-K
6inch High Power, K-L
7.5inch High Power
Large rockets
A-C
D-E
F-G
H-I
2", I-J
3", I-J
4", J-K
6", K-L
7.5"
X

Aerotech D24T

I_{tot}	=	18.0 Ns
F_{avg}	=	14.8 N
t_{burn}	=	1.22 s
d	=	18 mm

Data source:
Aerotech

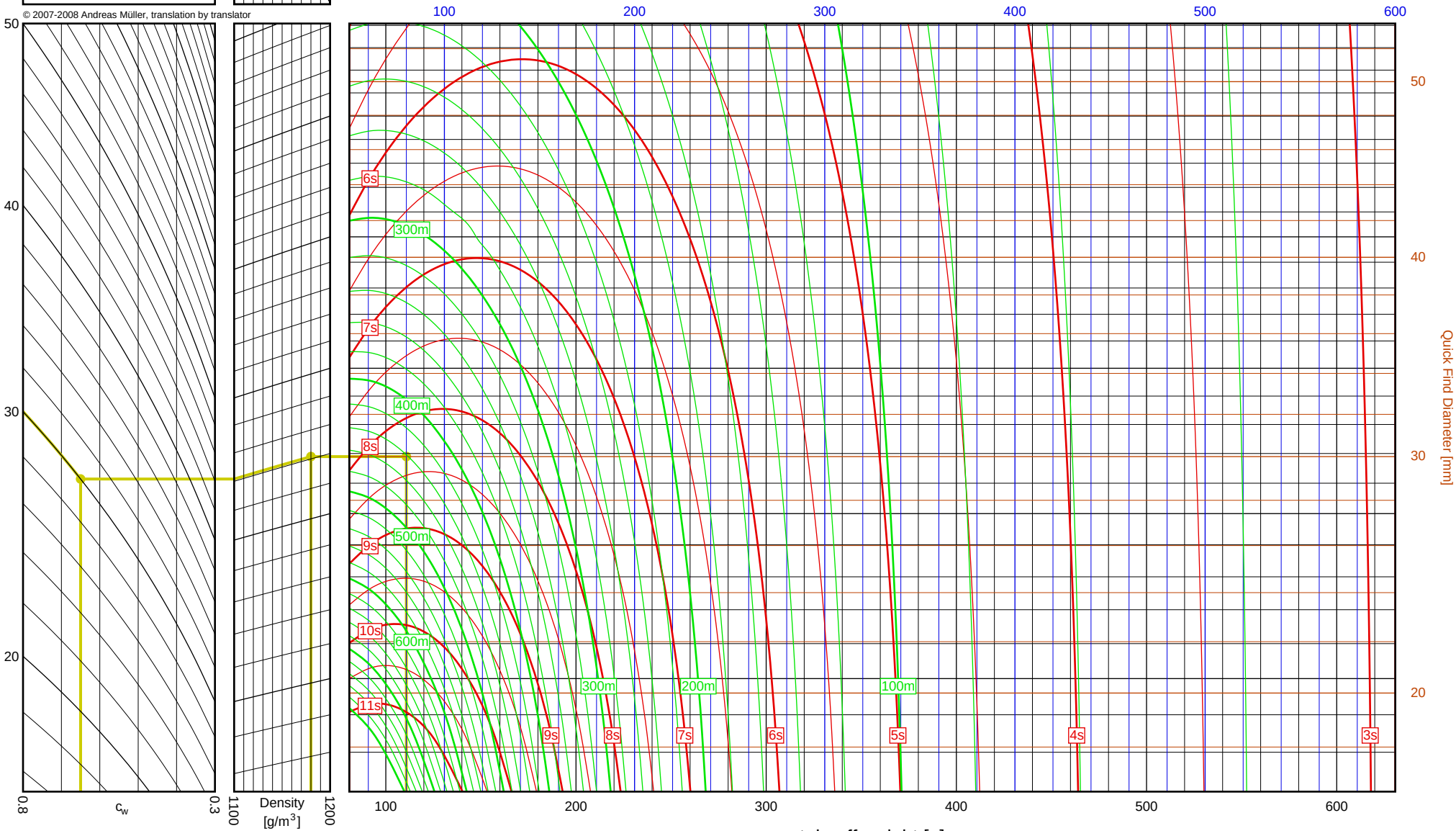
© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.111kg
Results: time to apogee: 8.3s, expected altitude: 442m

empty weight [g]

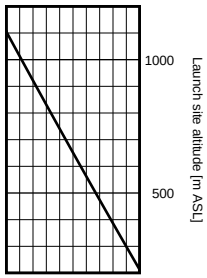


Aerotech D7-RC

I_{tot}	=	18.5 Ns
F_{avg}	=	6.5 N
t_{burn}	=	2.87 s
d	=	24 mm

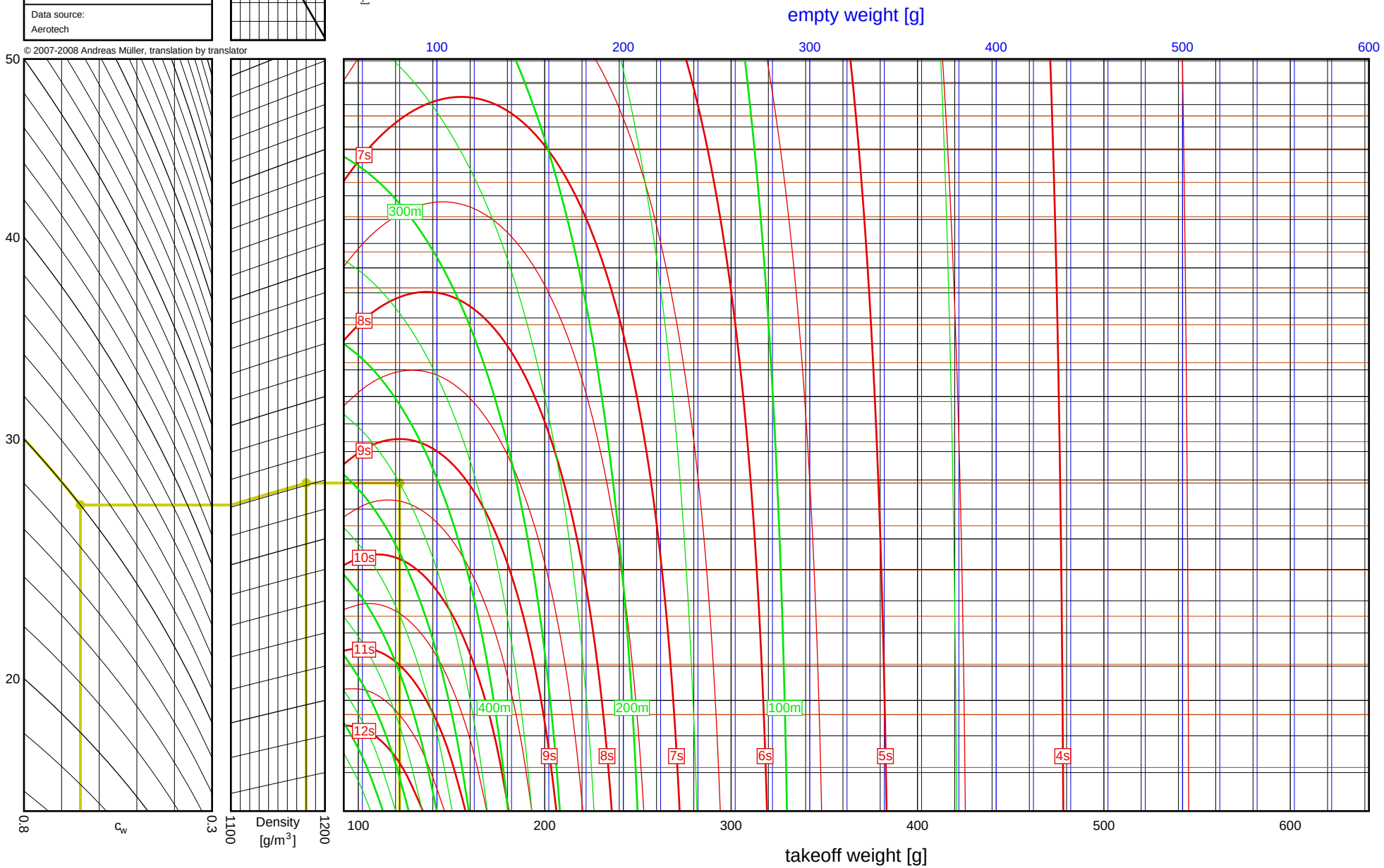
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.122kg
Results: time to apogee: 9.4s, expected altitude: 450m

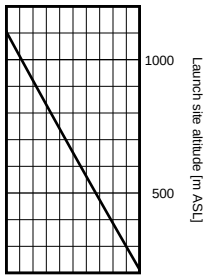


Aerotech D9W

I_{tot}	=	18.8 Ns
F_{avg}	=	10.0 N
t_{burn}	=	1.88 s
d	=	24 mm

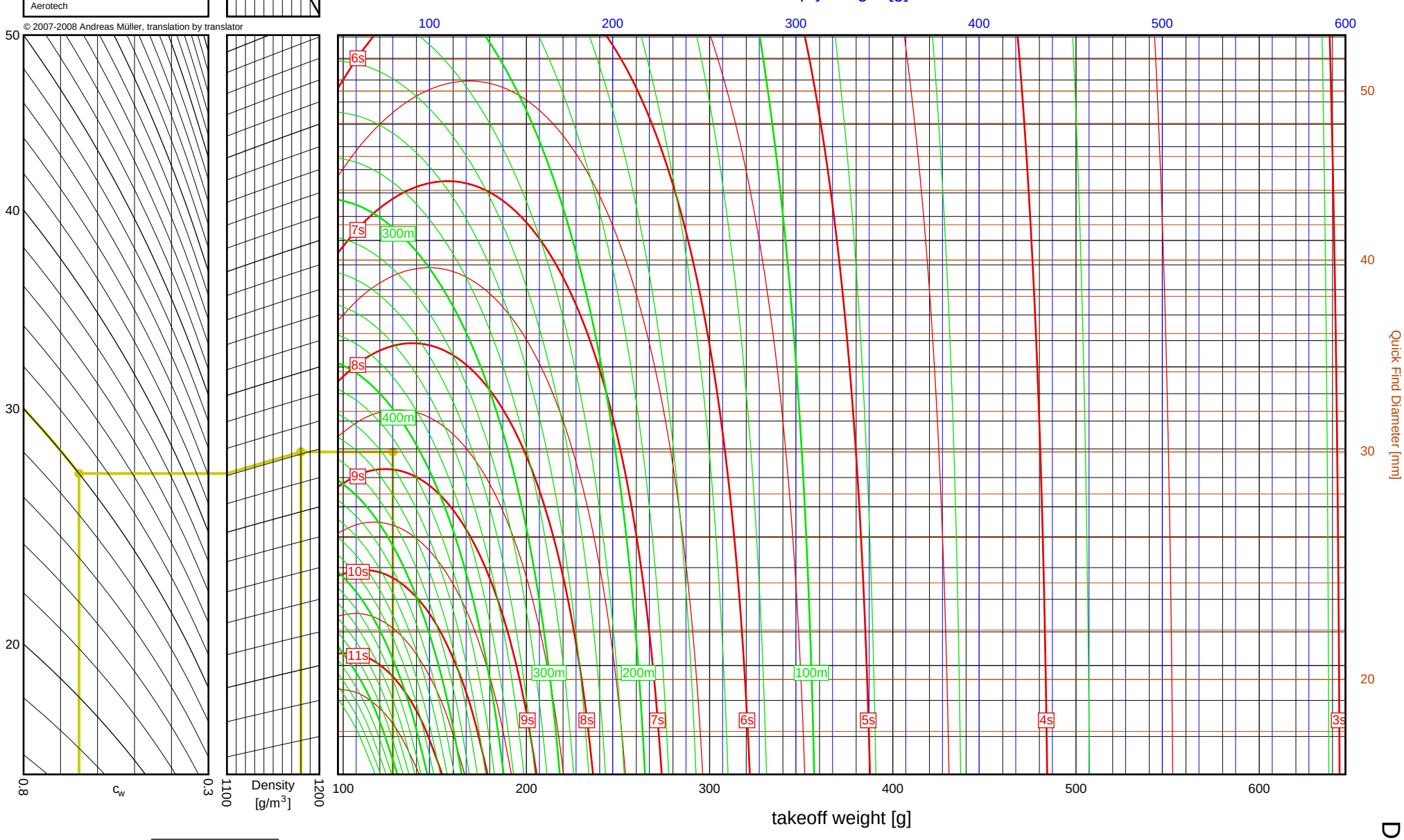
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.127kg
Results: time to apogee: 8.9s, expected altitude: 429m

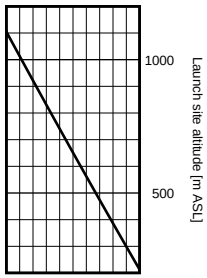


Aerotech D13W

I_{tot}	=	19.2 Ns
F_{avg}	=	11.3 N
t_{burn}	=	1.70 s
d	=	18 mm

Data source:
Aerotech

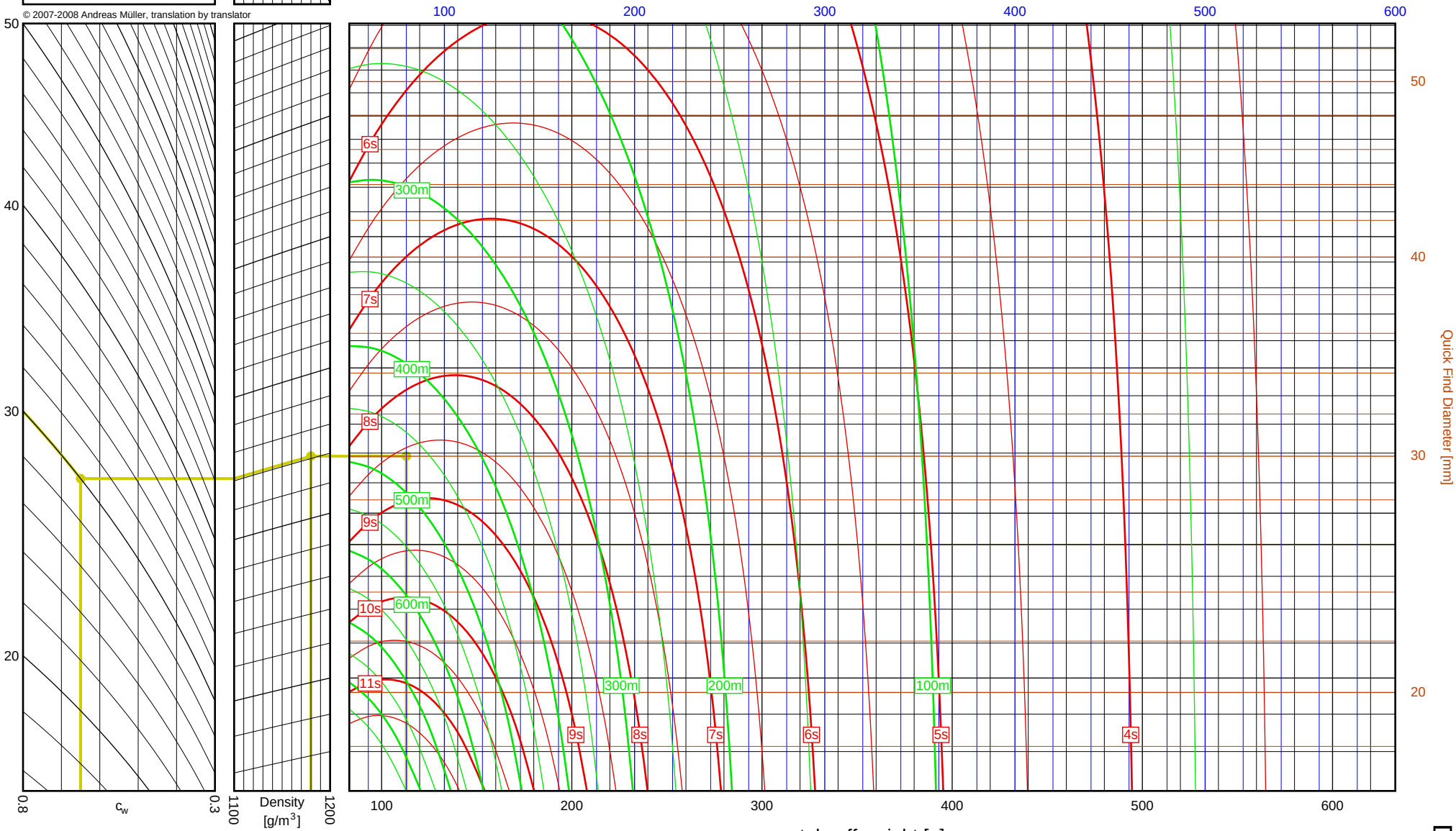
© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.113kg
Results: time to apogee: 8.6s, expected altitude: 469m

empty weight [g]

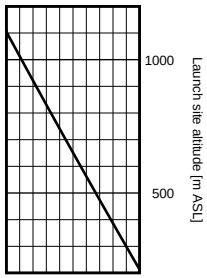


Aerotech D21T

I_{tot}	=	19.6 Ns
F_{avg}	=	20.8 N
t_{burn}	=	0.94 s
d	=	18 mm

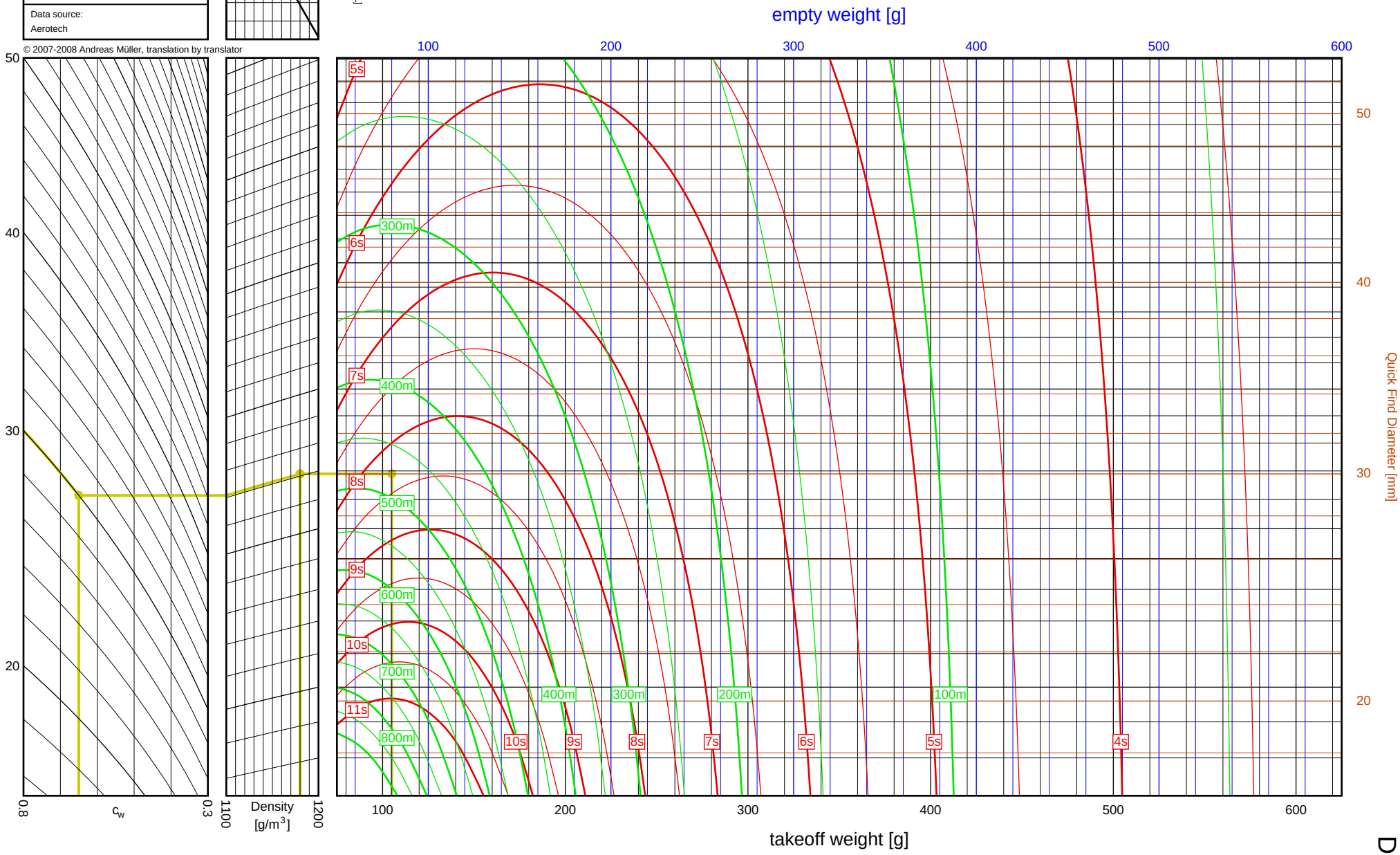
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.105kg
Results: time to apogee: 8.3s, expected altitude: 477m

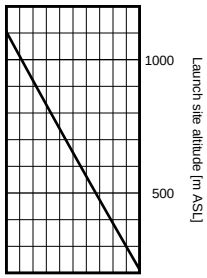


Aerotech D15T

I_{tot}	=	19.6 Ns
F_{avg}	=	14.0 N
t_{burn}	=	1.40 s
d	=	24 mm

Data source:
Aerotech

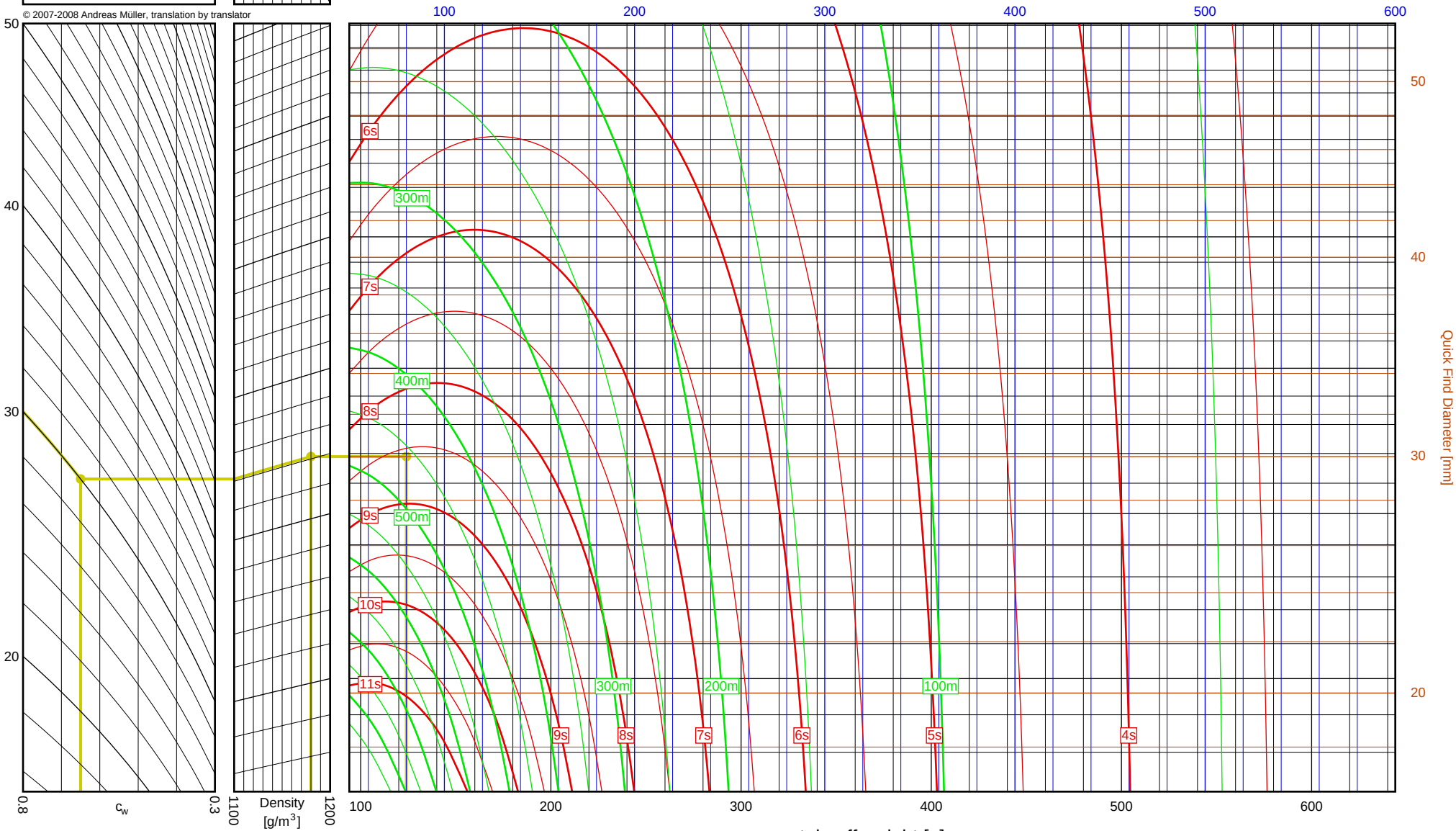
© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.124kg
Results: time to apogee: 8.6s, expected altitude: 459m

empty weight [g]



D15T

D15T

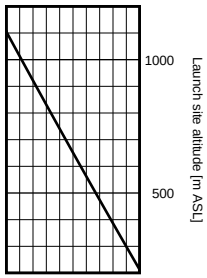
D-E

Aerotech E11J

I_{tot}	=	32.9 Ns
F_{avg}	=	11.6 N
t_{burn}	=	2.83 s
d	=	24 mm

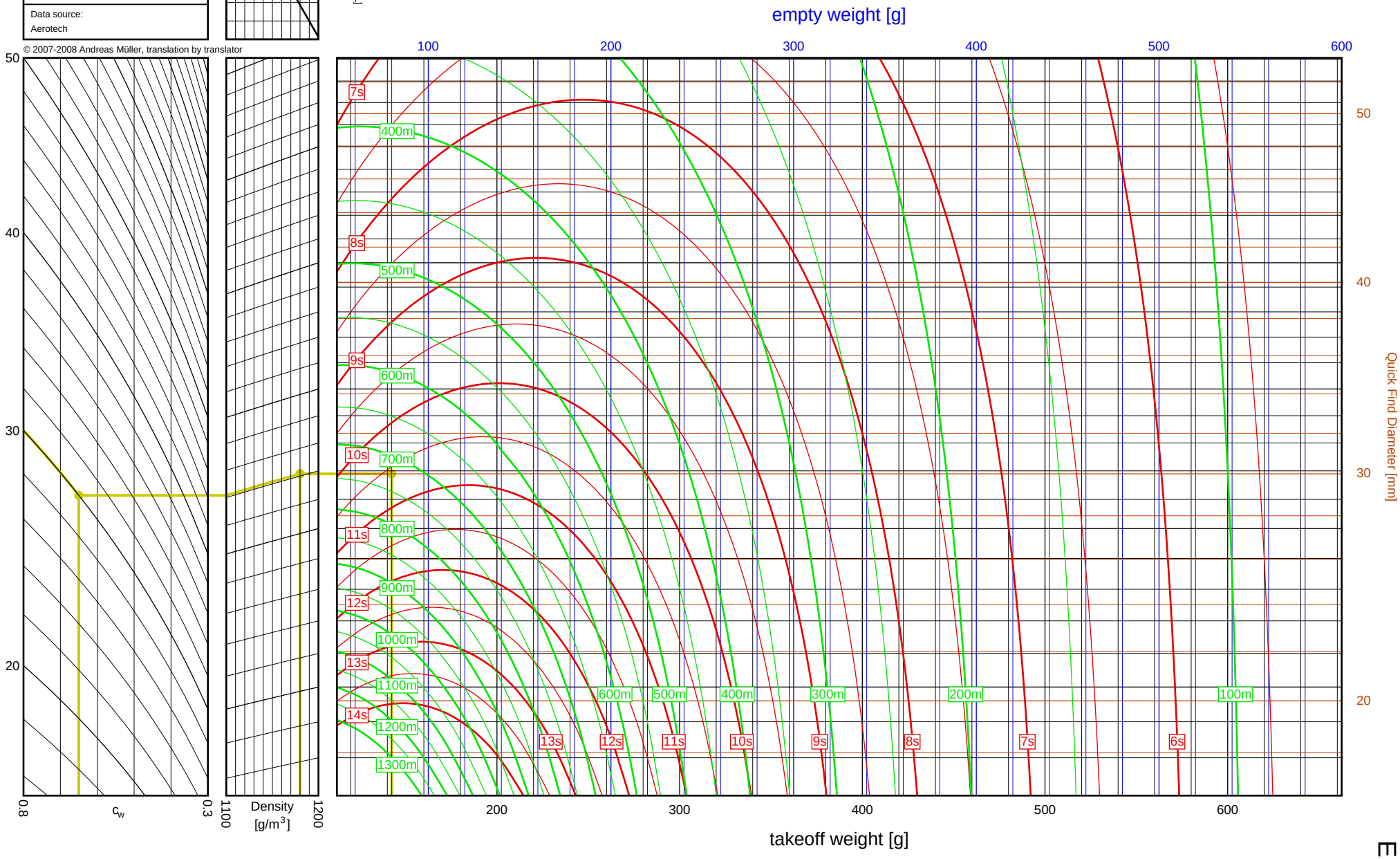
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.142kg
Results: time to apogee: 10.6s, expected altitude: 725m



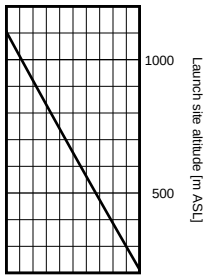
Aerotech

E12J-RC

I_{tot}	=	34.2 Ns
F_{avg}	=	11.2 N
t_{burn}	=	3.05 s
d	=	24 mm

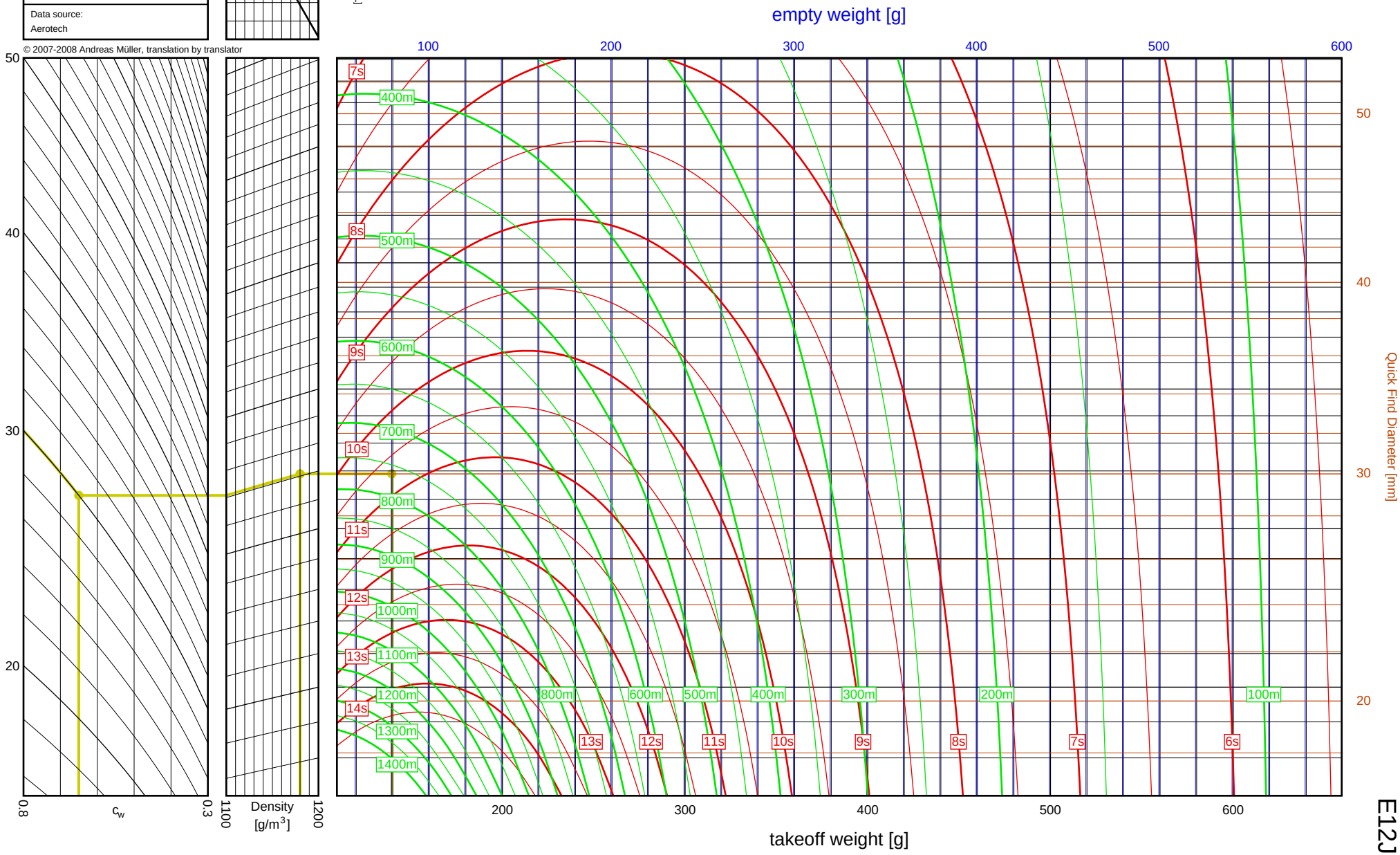
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.139kg
Results: time to apogee: 10.7s, expected altitude: 764m

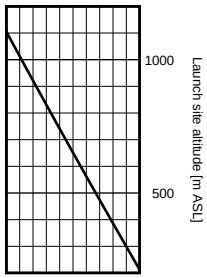


Aerotech E23T

I_{tot}	=	35.3 Ns
F_{avg}	=	22.5 N
t_{burn}	=	1.57 s
d	=	29 mm

Data source:
Aerotech

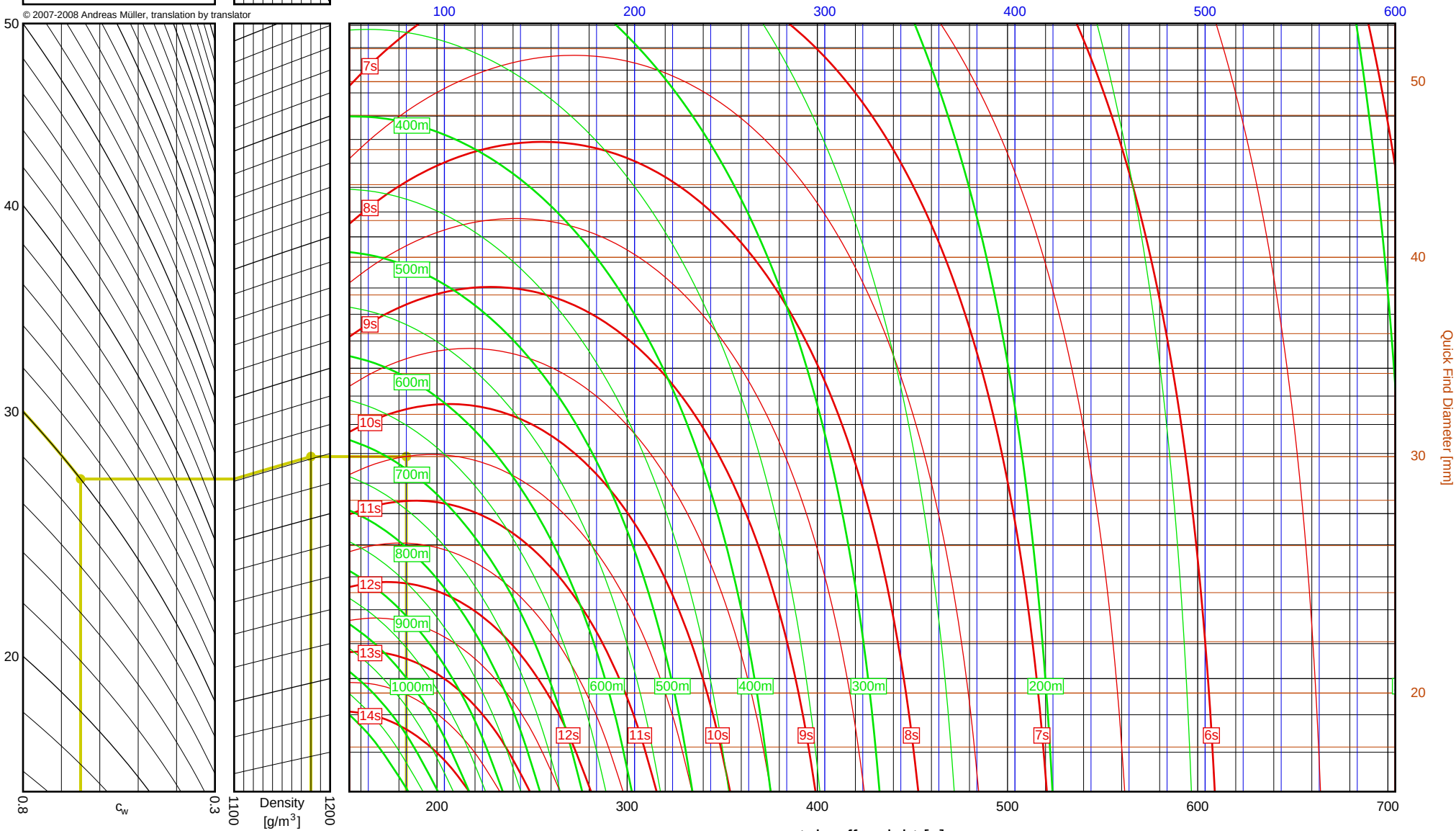
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.184kg
Results: time to apogee: 10.5s, expected altitude: 686m

empty weight [g]



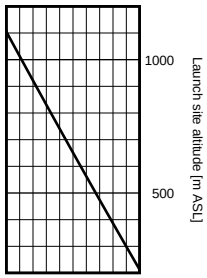
Aerotech

E16W

I_{tot}	=	38.4 Ns
F_{avg}	=	14.1 N
t_{burn}	=	2.72 s
d	=	29 mm

Data source:
Aerotech

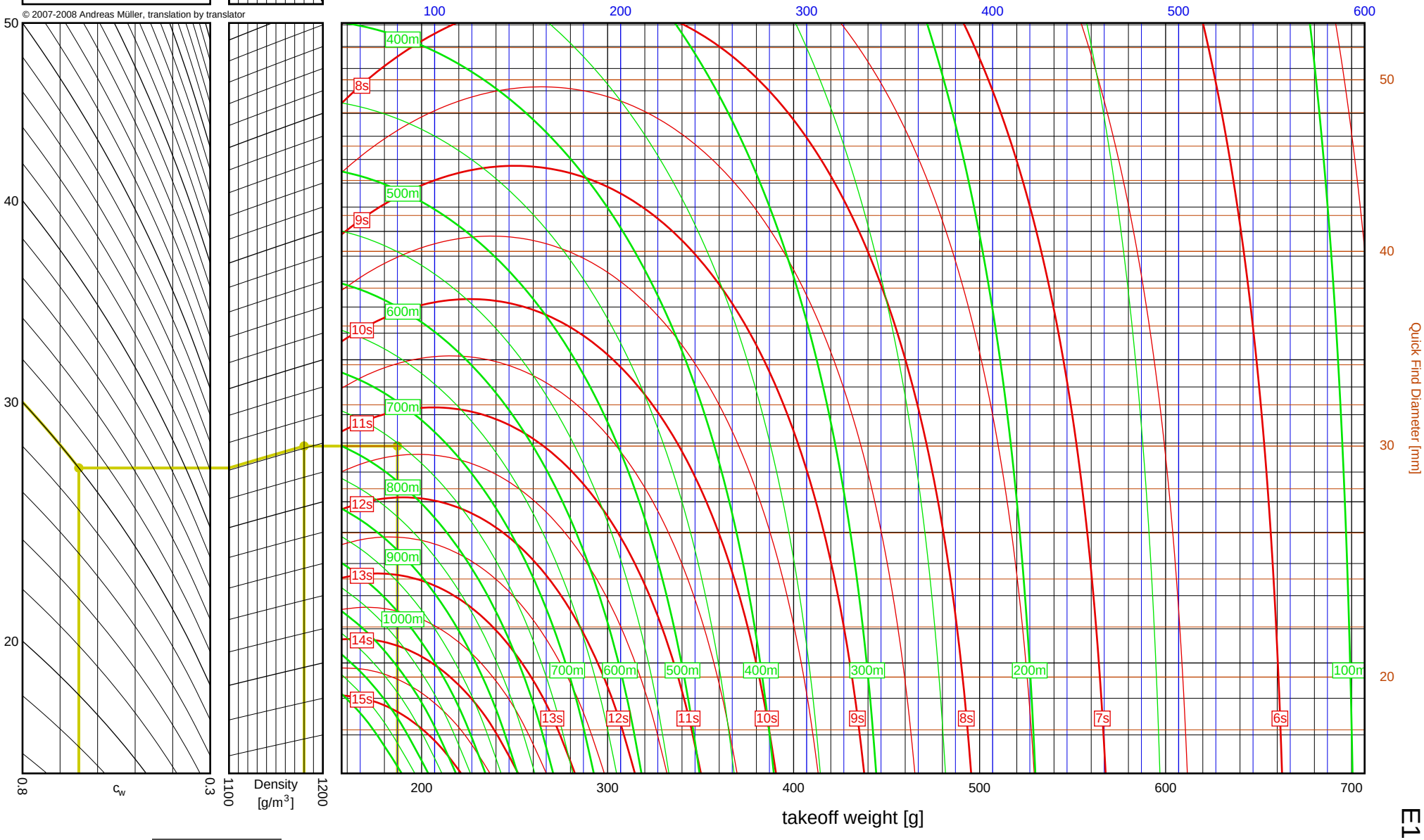
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.187kg
Results: time to apogee: 11.4s, expected altitude: 754m

empty weight [g]



E16W

D-E 2

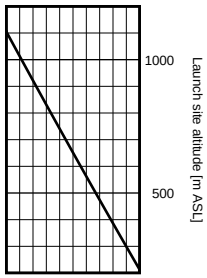
E16W

Aerotech E30T

I_{tot}	=	39.5 Ns
F_{avg}	=	32.4 N
t_{burn}	=	1.22 s
d	=	24 mm

Data source:
Aerotech

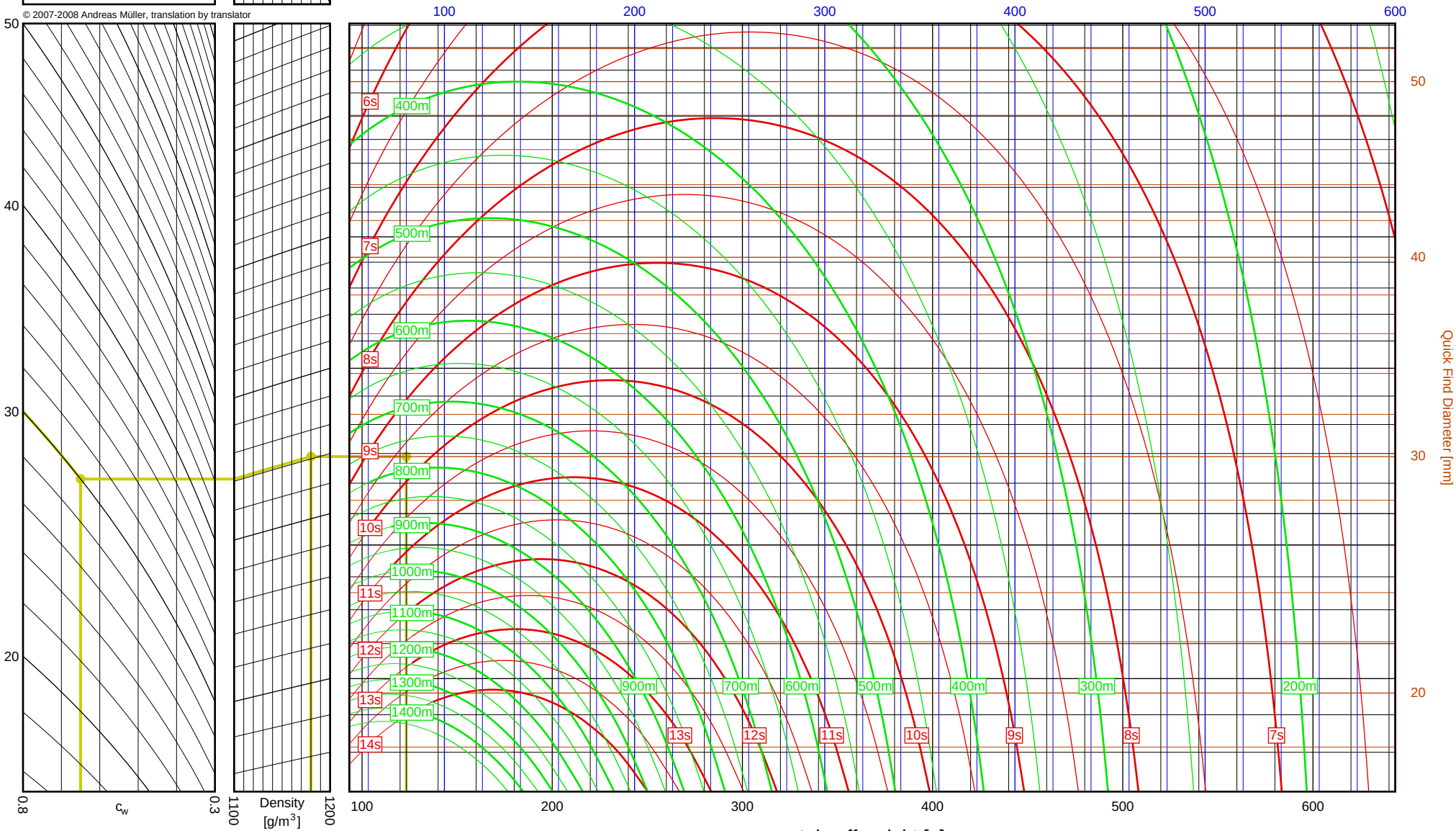
© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.123kg
Results: time to apogee: 9.7s, expected altitude: 777m

empty weight [g]

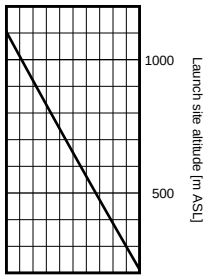


Aerotech E28T

I_{tot}	=	39.7 Ns
F_{avg}	=	32.5 N
t_{burn}	=	1.22 s
d	=	24 mm

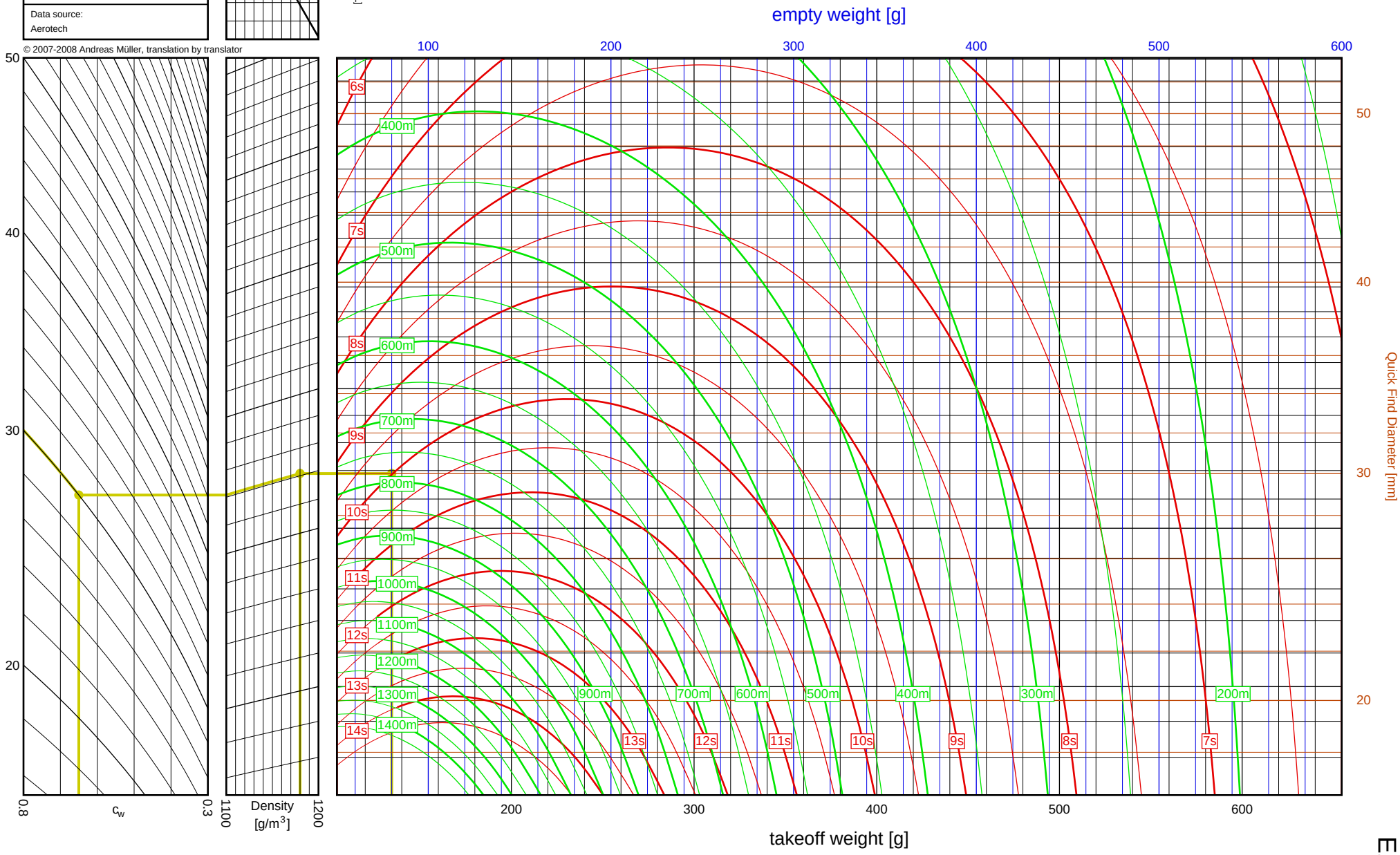
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.135kg
Results: time to apogee: 10.0s, expected altitude: 785m

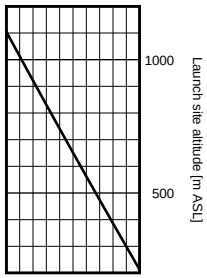


Aerotech E15W

I_{tot}	=	39.8 Ns
F_{avg}	=	15.1 N
t_{burn}	=	2.64 s
d	=	24 mm

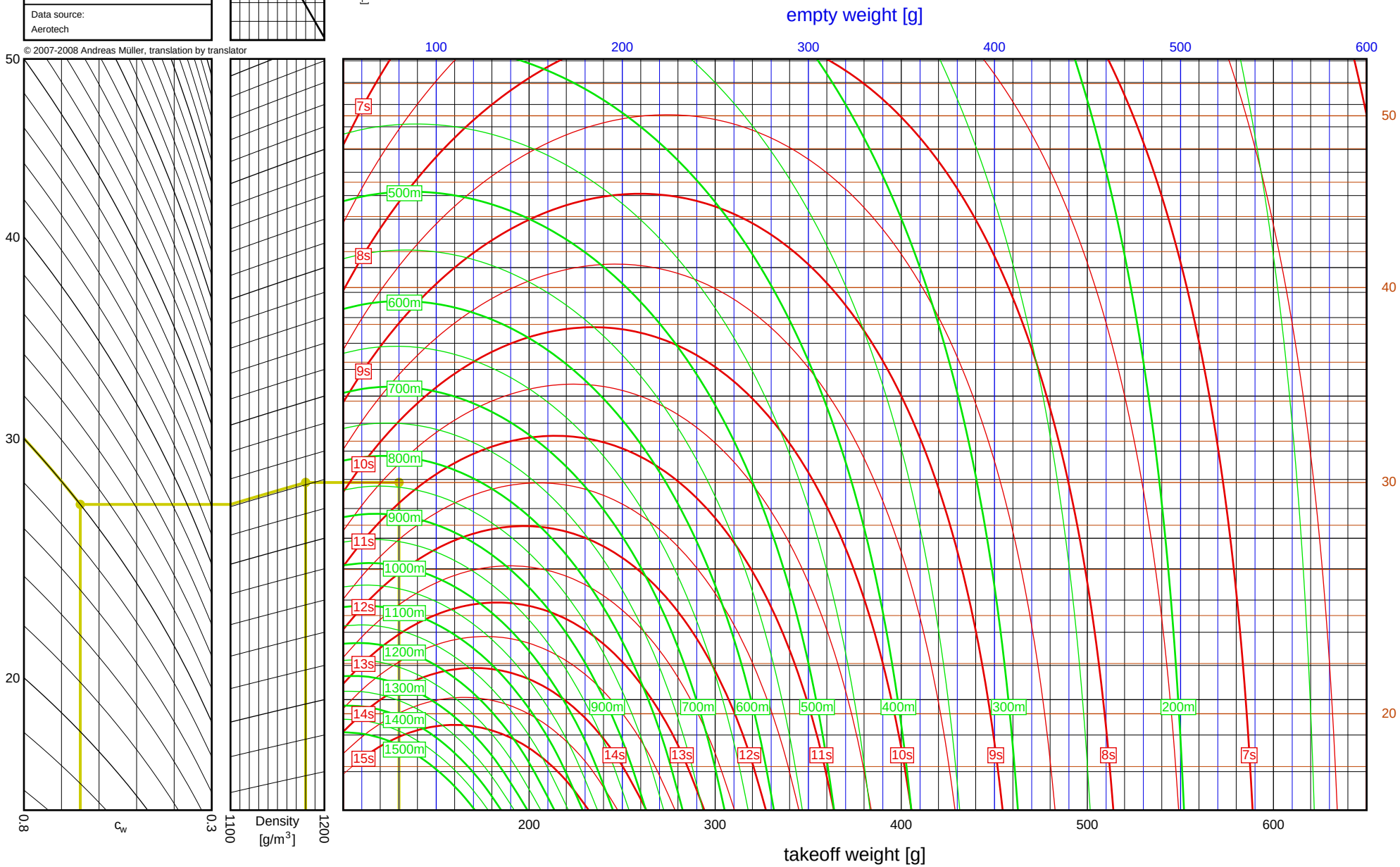
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.130kg
Results: time to apogee: 10.7s, expected altitude: 843m



E15W

D-E 2

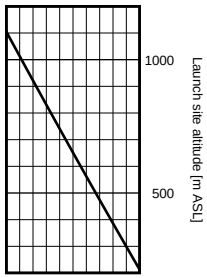
E15W

Aerotech E18W

I_{tot}	=	39.8 Ns
F_{avg}	=	18.1 N
t_{burn}	=	2.20 s
d	=	24 mm

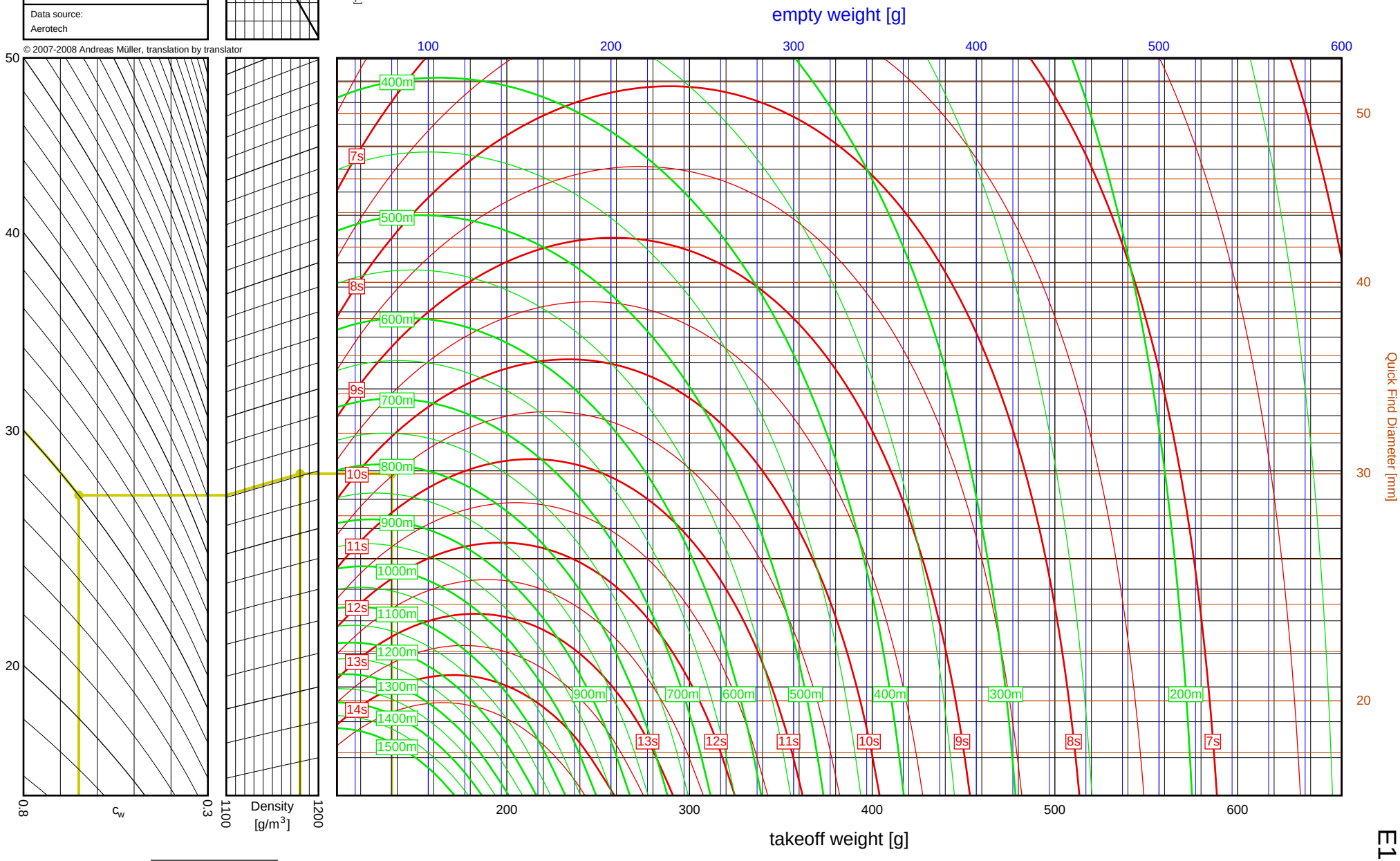
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.137kg
Results: time to apogee: 10.5s, expected altitude: 816m

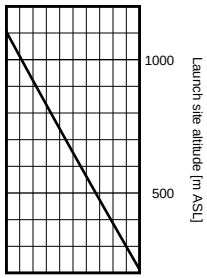


Aerotech F12J

I_{tot}	=	43.2 Ns
F_{avg}	=	14.7 N
t_{burn}	=	2.93 s
d	=	24 mm

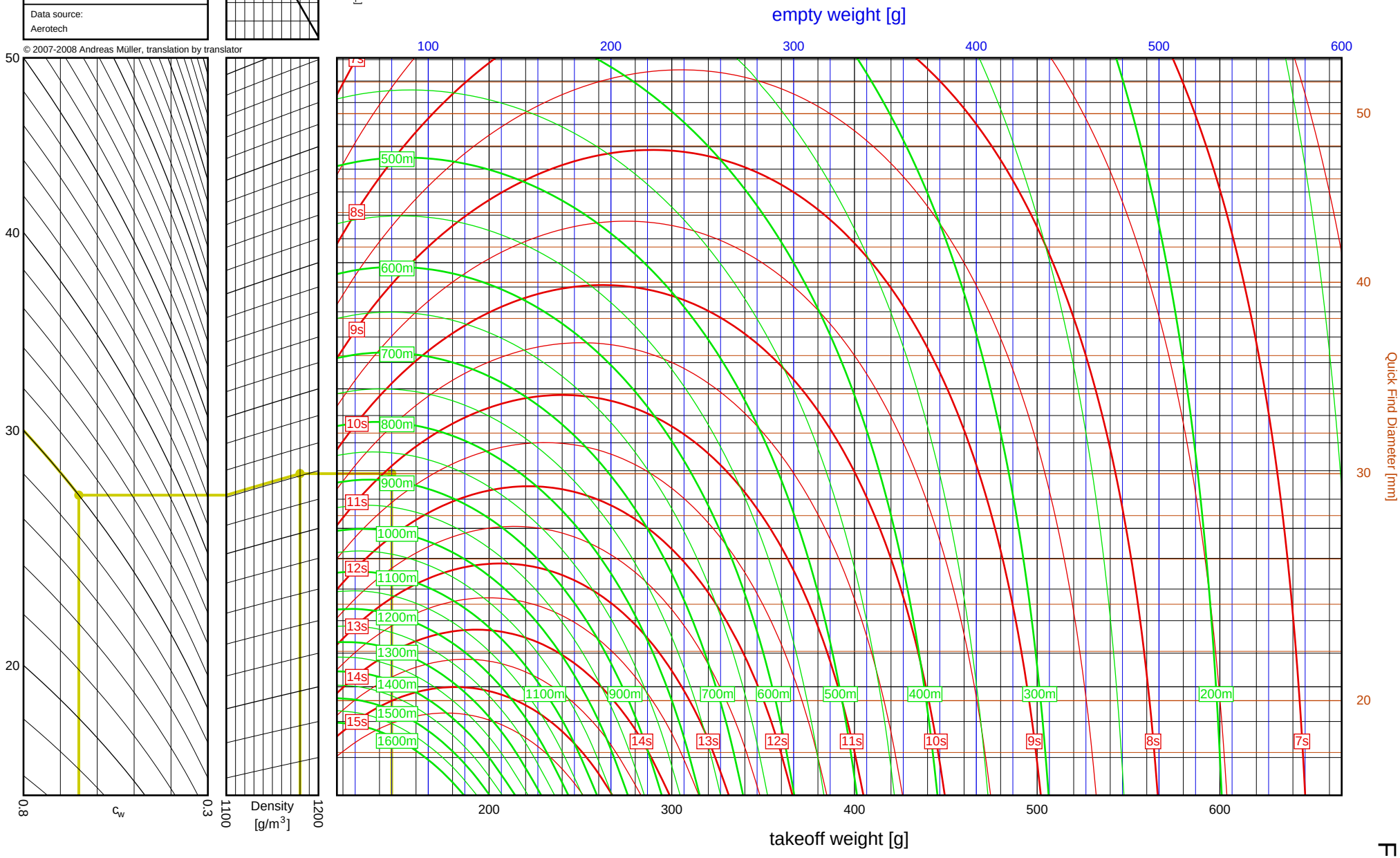
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 30mm, drag = 0.65, density = 1180 g/m^3, weight = 0.147kg
Results: time to apogee: 11.1s, expected altitude: 887m

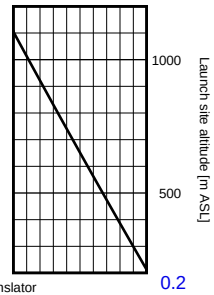


Aerotech F62T

I_{tot}	=	46.2 Ns
F_{avg}	=	46.2 N
t_{burn}	=	1.00 s
d	=	29 mm

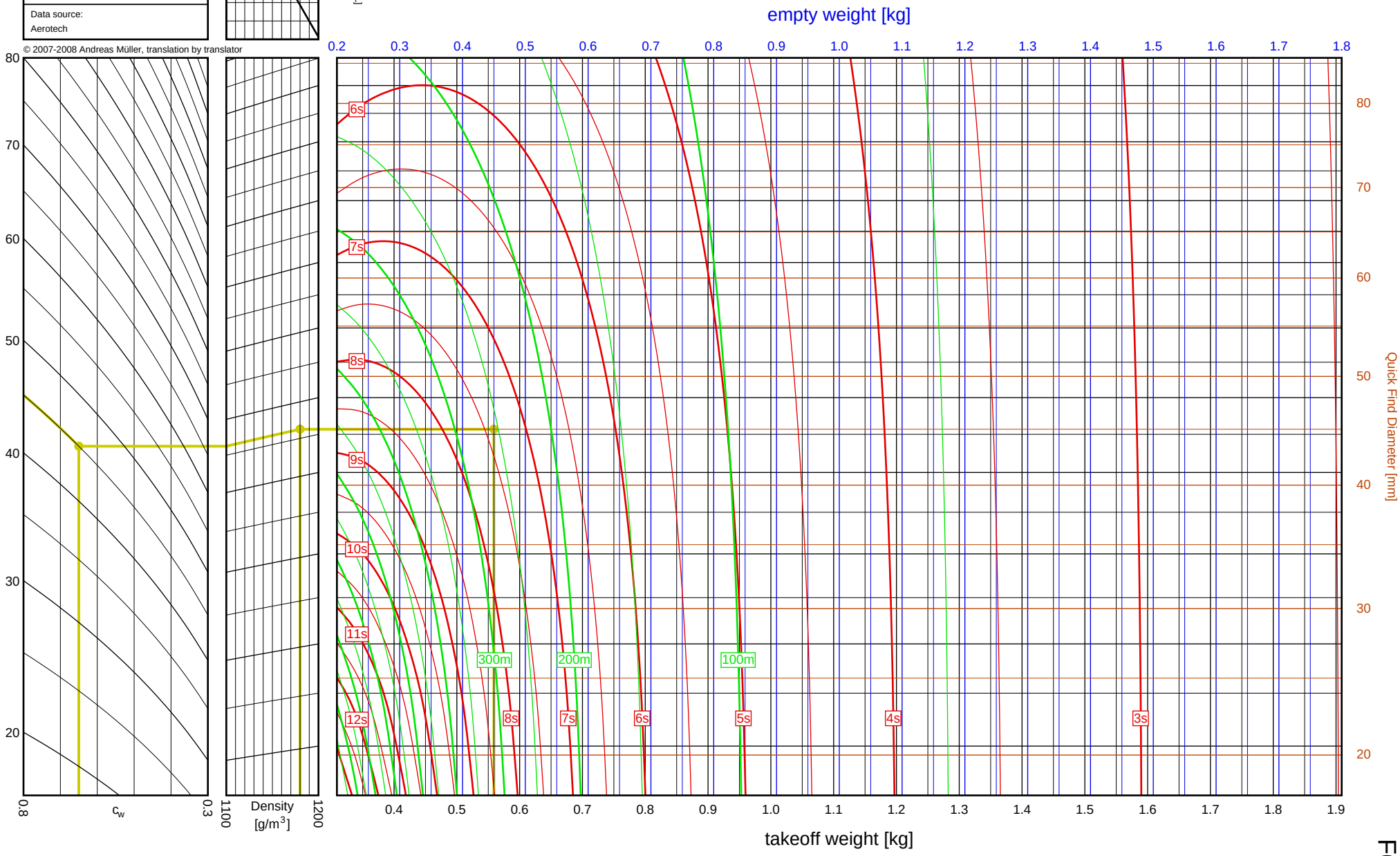
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.559kg
Results: time to apogee: 7.4s, expected altitude: 255m



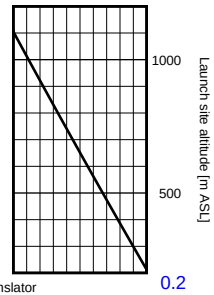
Aerotech

F24W

I_{tot}	=	47.3 Ns
F_{avg}	=	22.2 N
t_{burn}	=	2.13 s
d	=	24 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.512kg
Results: time to apogee: 8.0s, expected altitude: 286m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

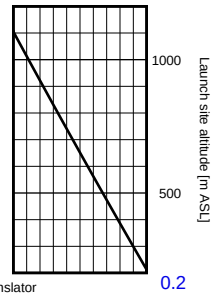
Density [g/m^3]

Aerotech F27R

I_{tot}	=	49.5 Ns
F_{avg}	=	20.4 N
t_{burn}	=	2.42 s
d	=	29 mm

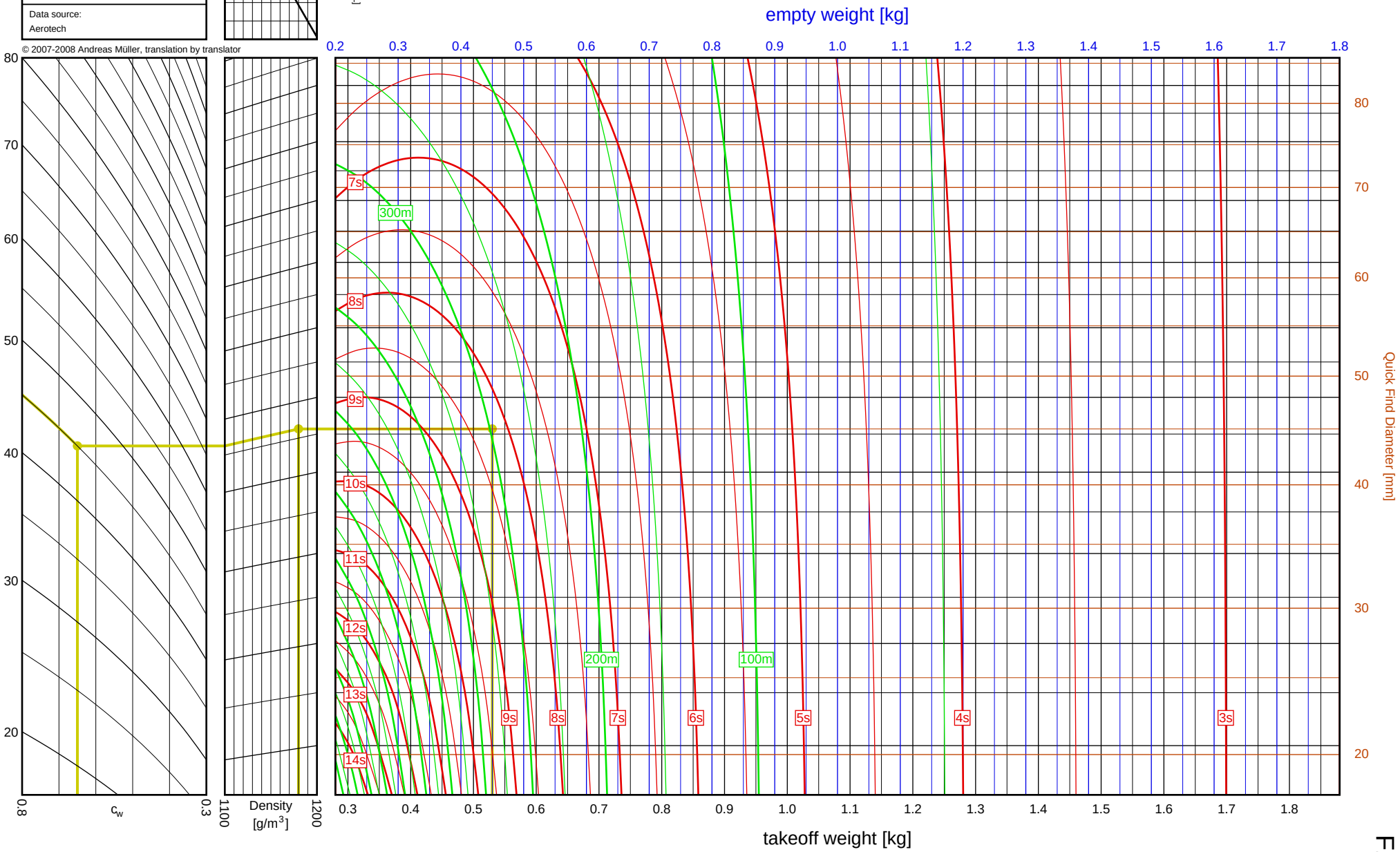
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.530kg
Results: time to apogee: 8.2s, expected altitude: 297m

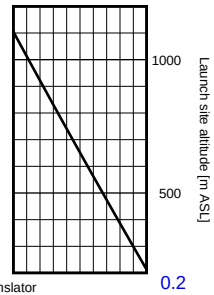


Aerotech F39T

I_{tot}	=	49.7 Ns
F_{avg}	=	37.3 N
t_{burn}	=	1.33 s
d	=	24 mm

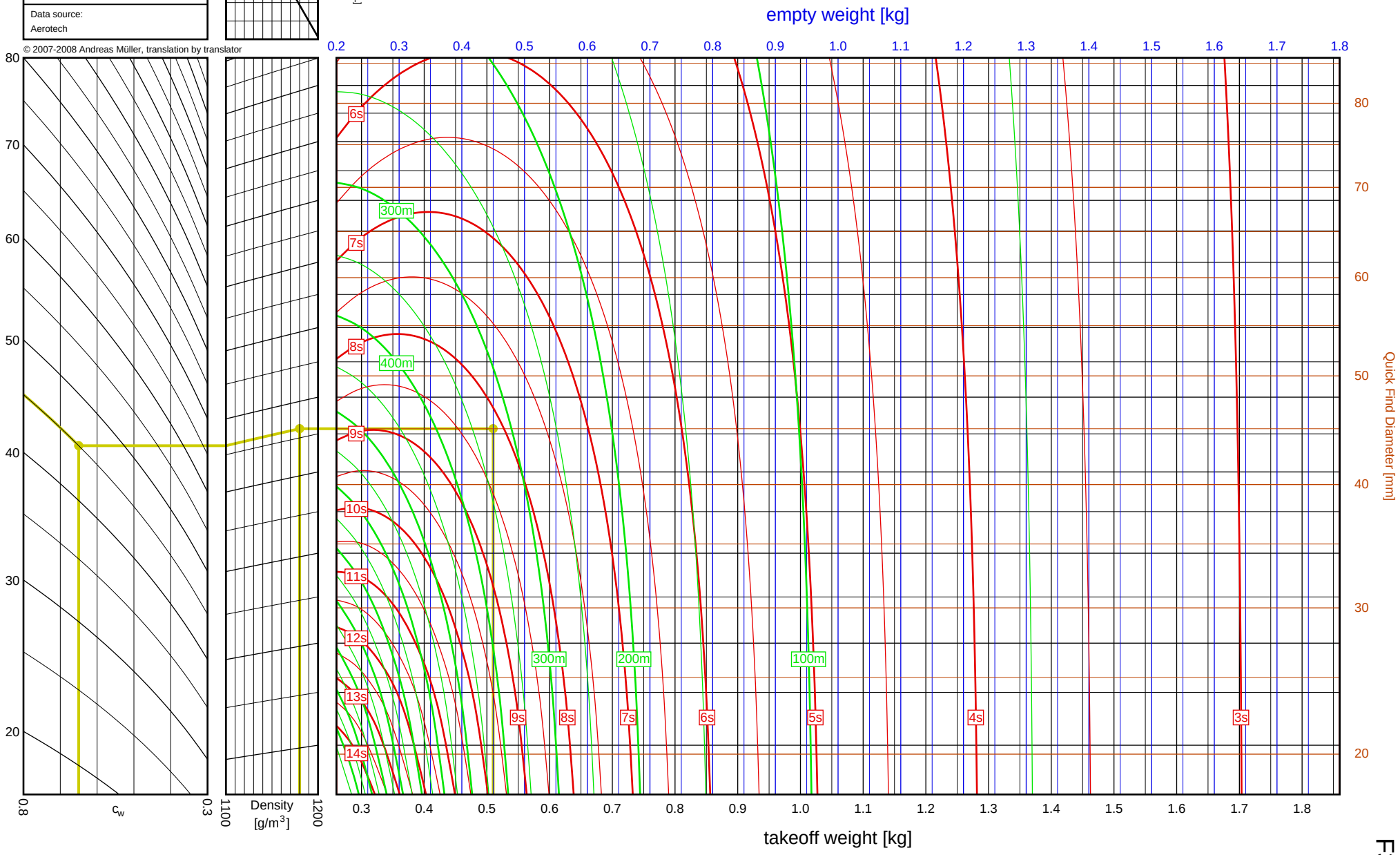
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.510kg
Results: time to apogee: 8.1s, expected altitude: 323m

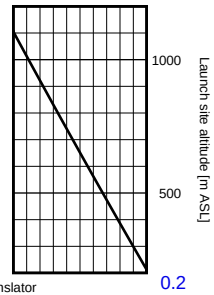


Aerotech F37W

I_{tot}	=	50.7 Ns
F_{avg}	=	31.7 N
t_{burn}	=	1.60 s
d	=	29 mm

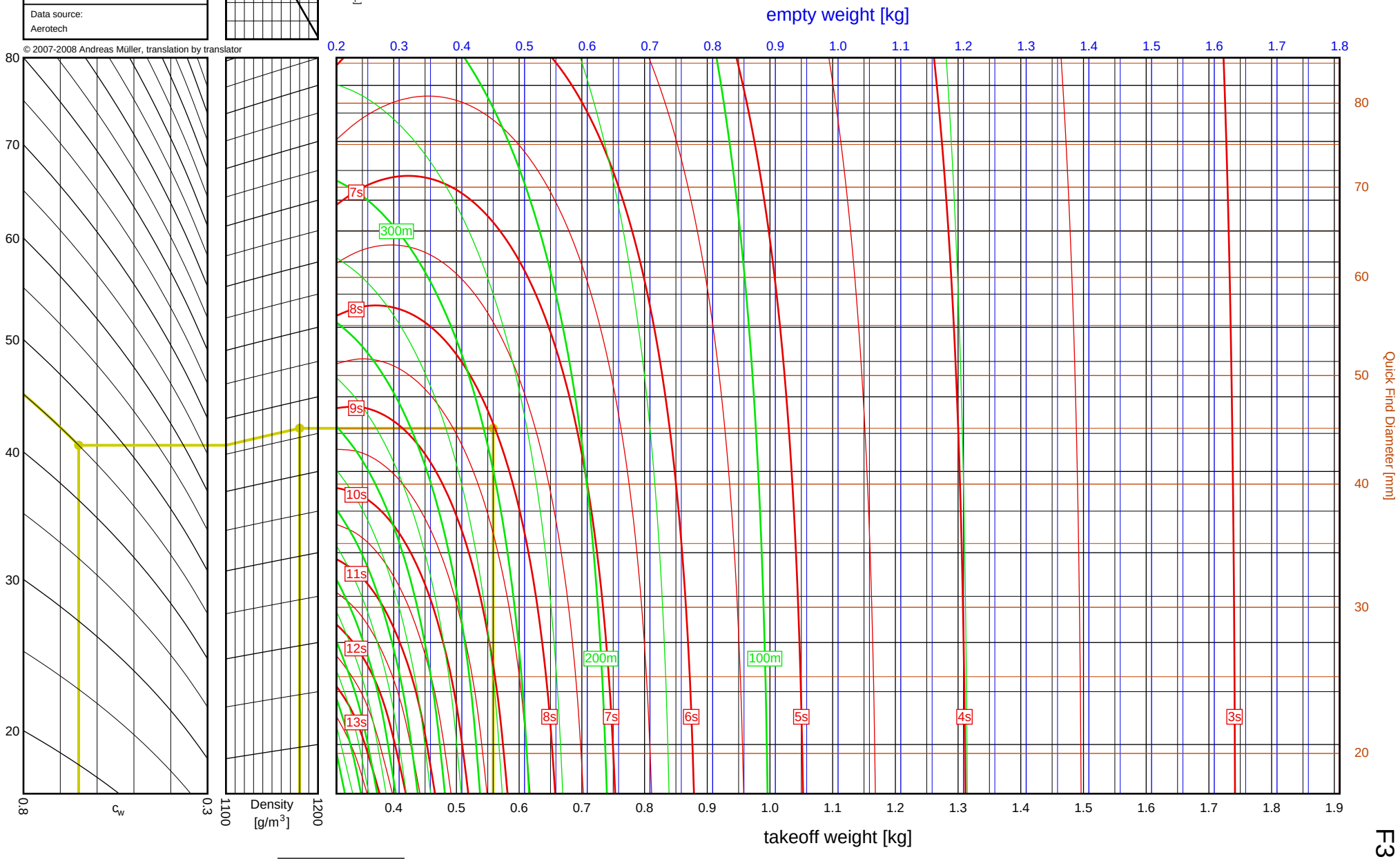
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.559kg
Results: time to apogee: 8.0s, expected altitude: 288m



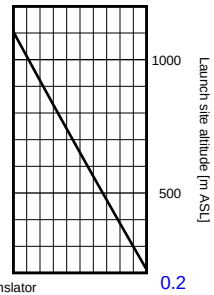
Aerotech

F23FJ

I_{tot}	=	52.8 Ns
F_{avg}	=	23.8 N
t_{burn}	=	2.22 s
d	=	29 mm

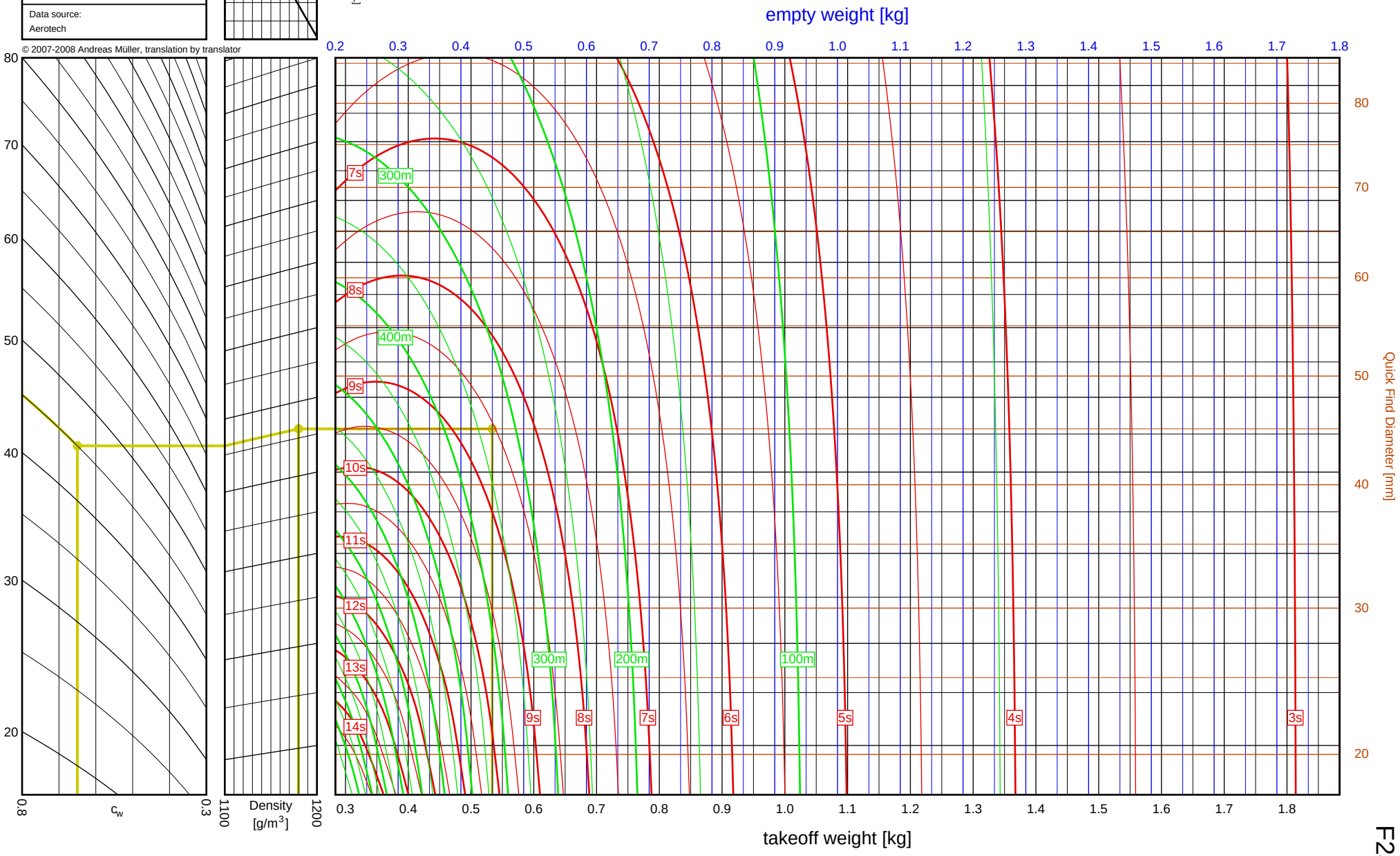
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.534kg
Results: time to apogee: 8.5s, expected altitude: 331m



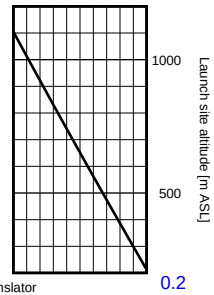
Aerotech

F21W

I_{tot}	=	55.8 Ns
F_{avg}	=	22.2 N
t_{burn}	=	2.52 s
d	=	24 mm

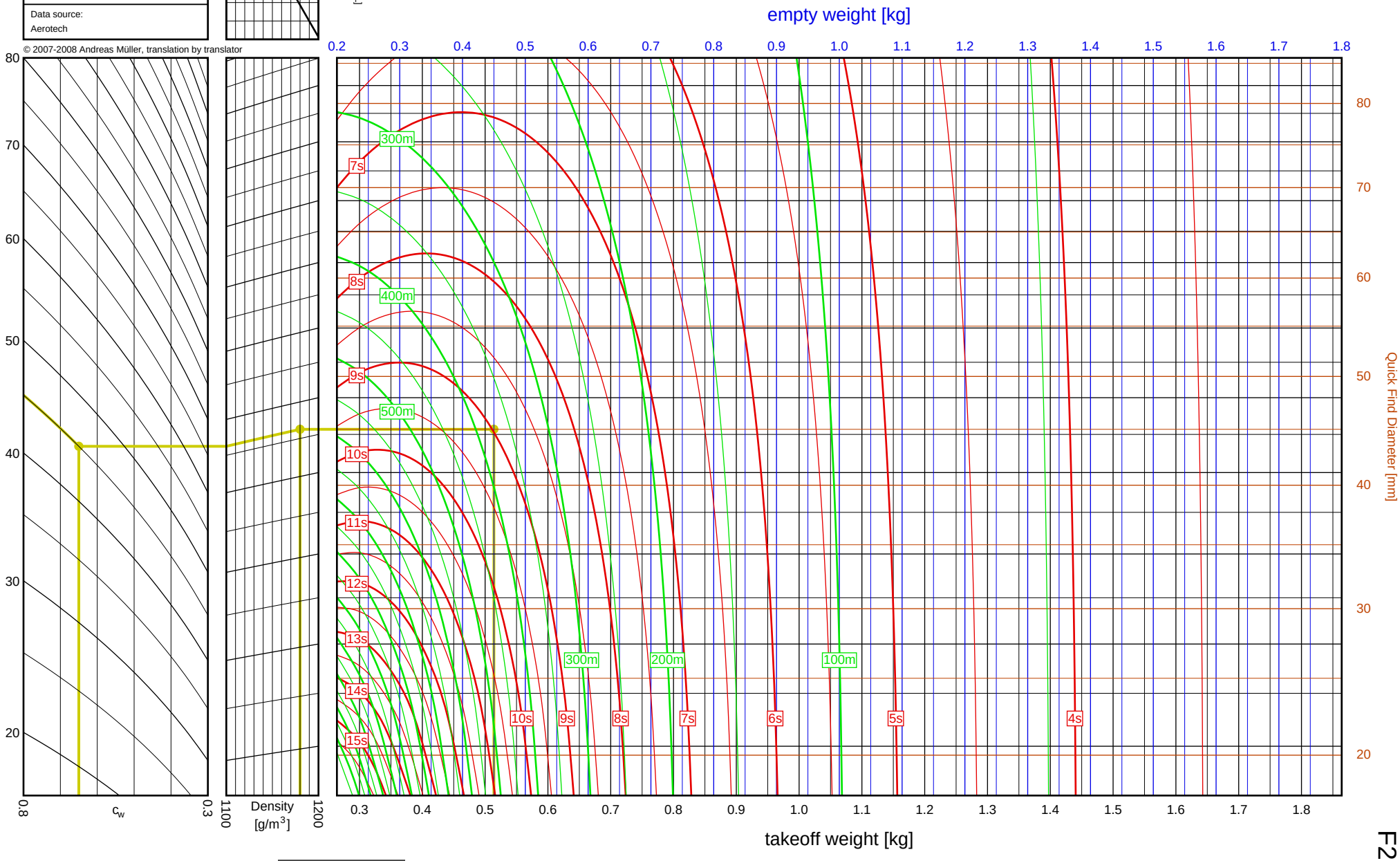
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.514kg
Results: time to apogee: 9.0s, expected altitude: 373m



F21W

Aerotech F42T

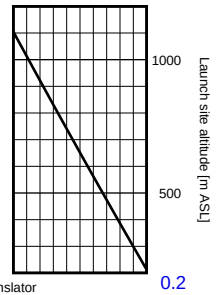
I_{tot}	=	55.9 Ns
F_{avg}	=	38.0 N
t_{burn}	=	1.47 s
d	=	29 mm

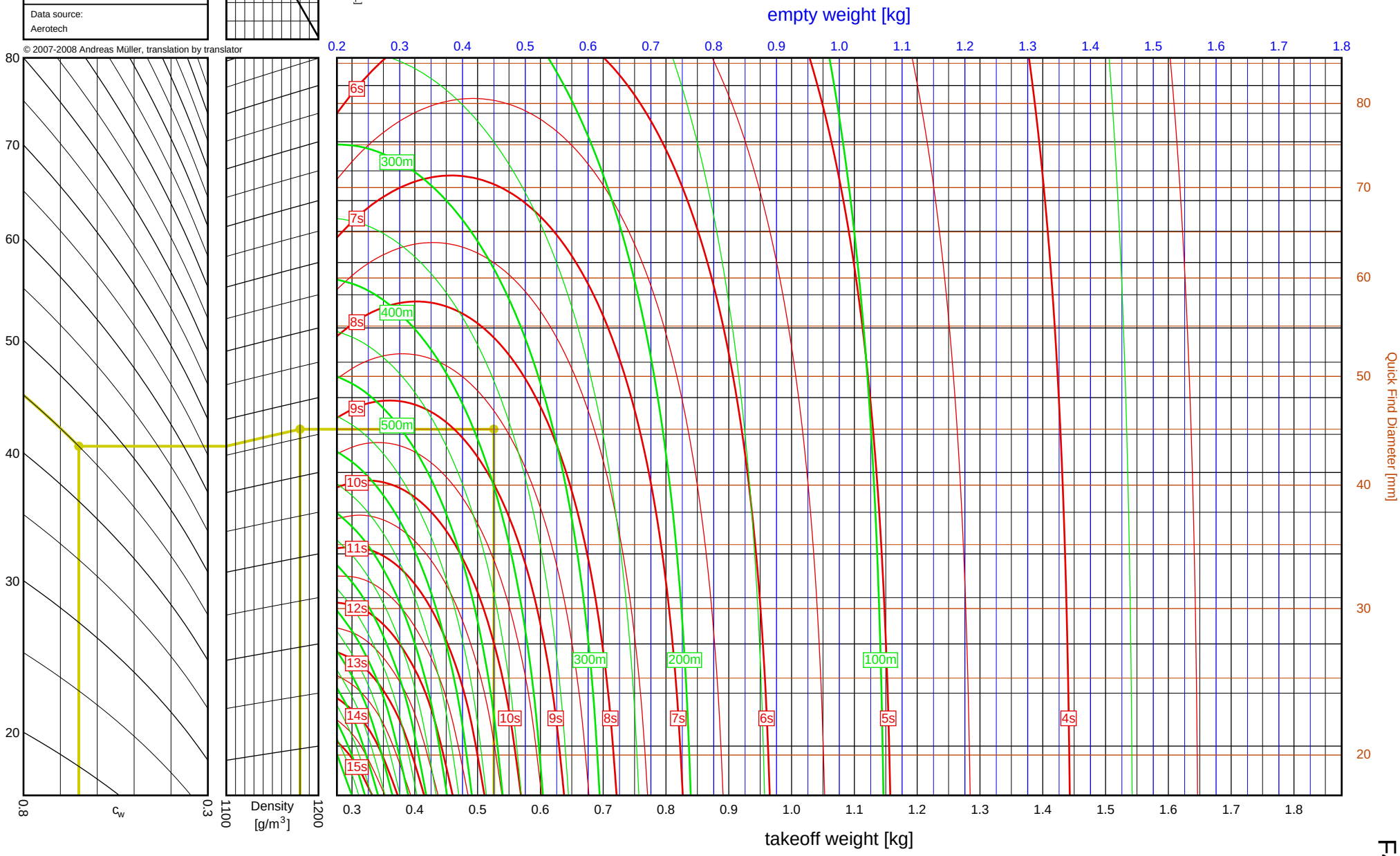
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.526kg
Results: time to apogee: 8.6s, expected altitude: 373m



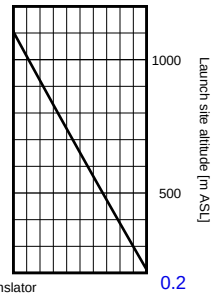


Aerotech F35W

I_{tot}	=	57.6 Ns
F_{avg}	=	36.0 N
t_{burn}	=	1.60 s
d	=	24 mm

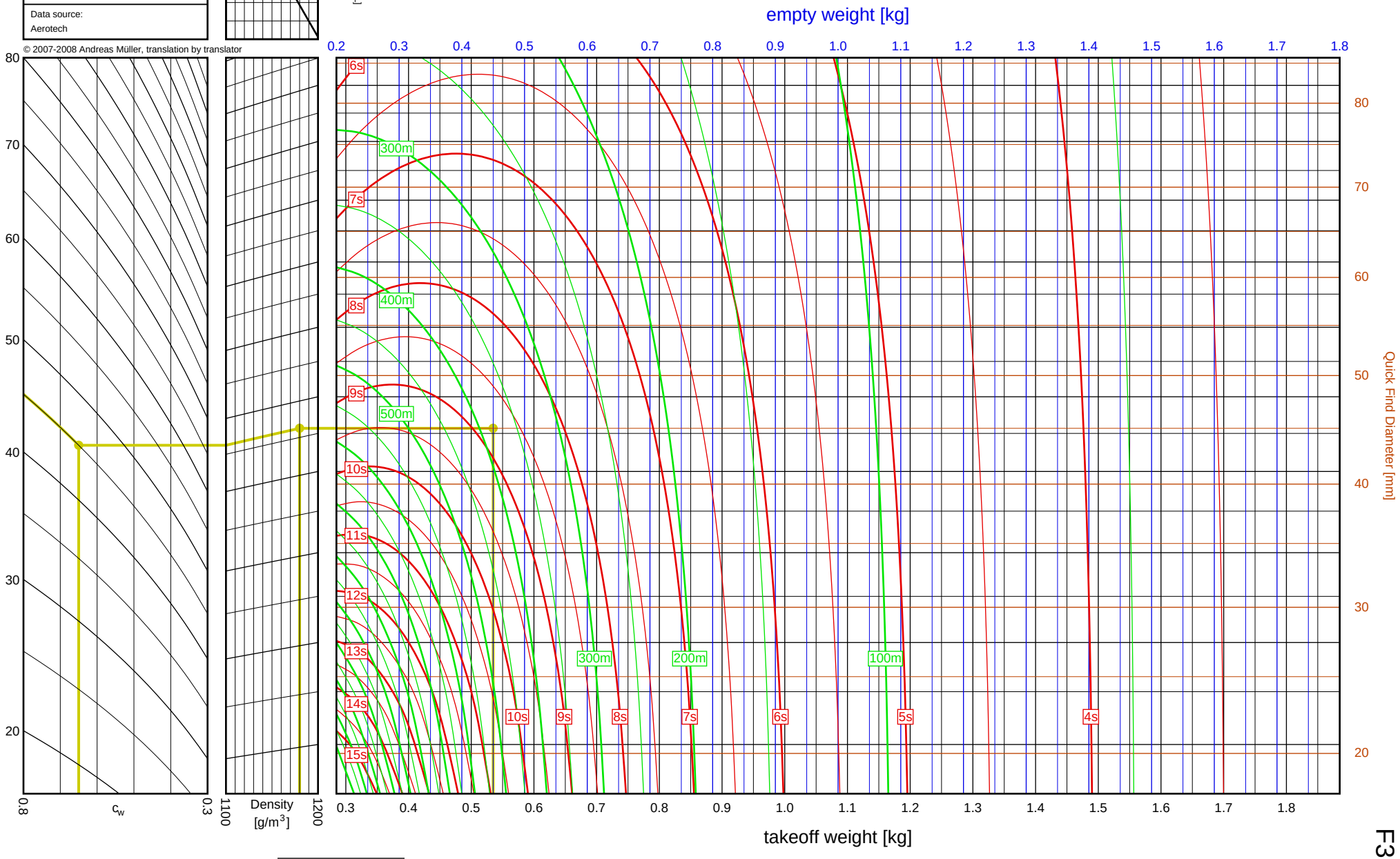
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.535kg
Results: time to apogee: 8.8s, expected altitude: 381m

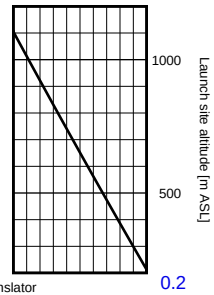


Aerotech F20W

I_{tot}	=	60.6 Ns
F_{avg}	=	22.6 N
t_{burn}	=	2.68 s
d	=	29 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.525kg
Results: time to apogee: 9.3s, expected altitude: 413m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

F20W

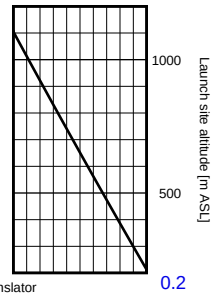
Aerotech

F26FJ

I_{tot}	=	62.5 Ns
F_{avg}	=	23.9 N
t_{burn}	=	2.61 s
d	=	29 mm

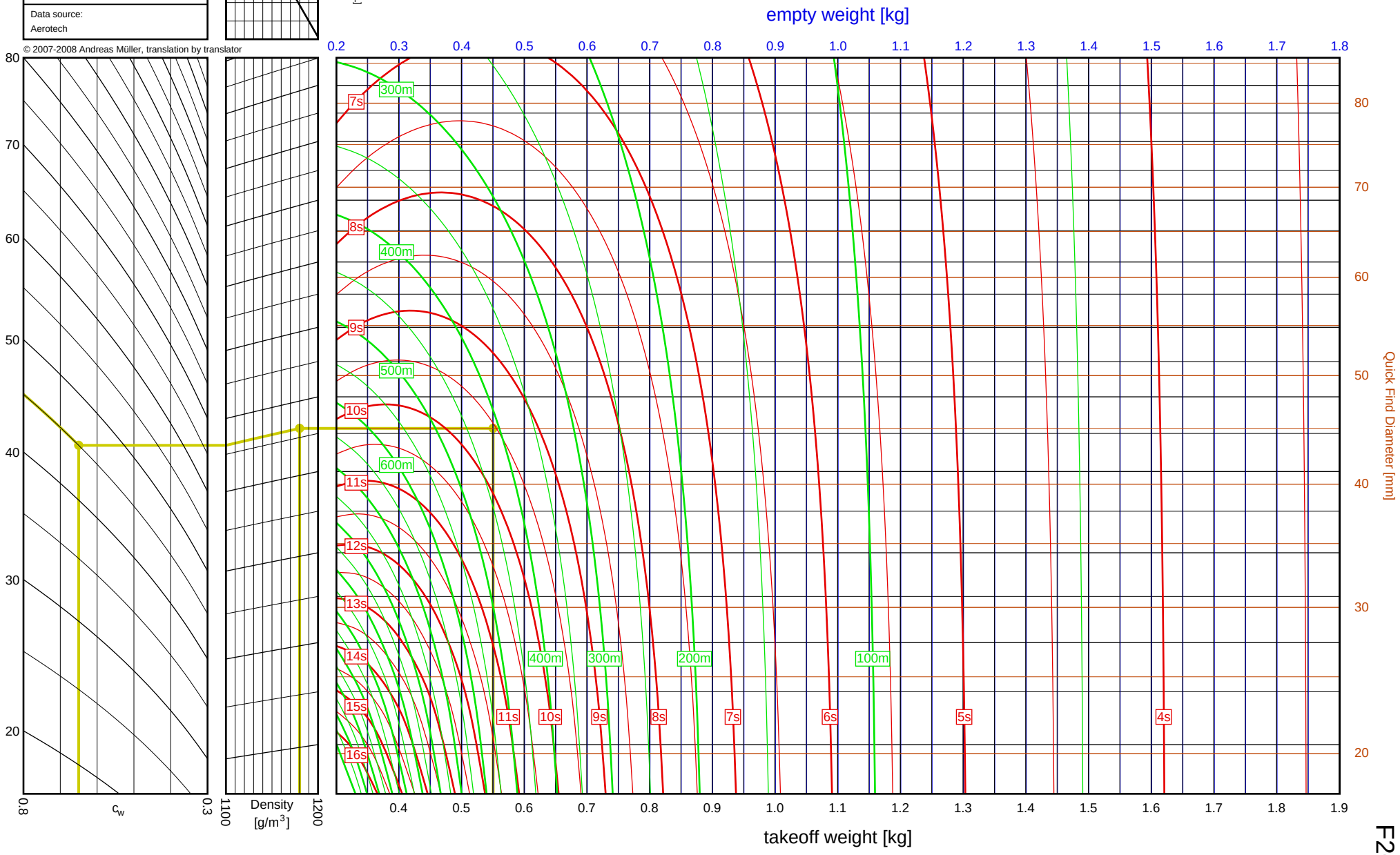
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.551kg
Results: time to apogee: 9.5s, expected altitude: 409m



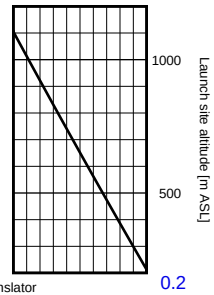
Aerotech

F22J

I_{tot}	=	65.0 Ns
F_{avg}	=	19.6 N
t_{burn}	=	3.31 s
d	=	29 mm

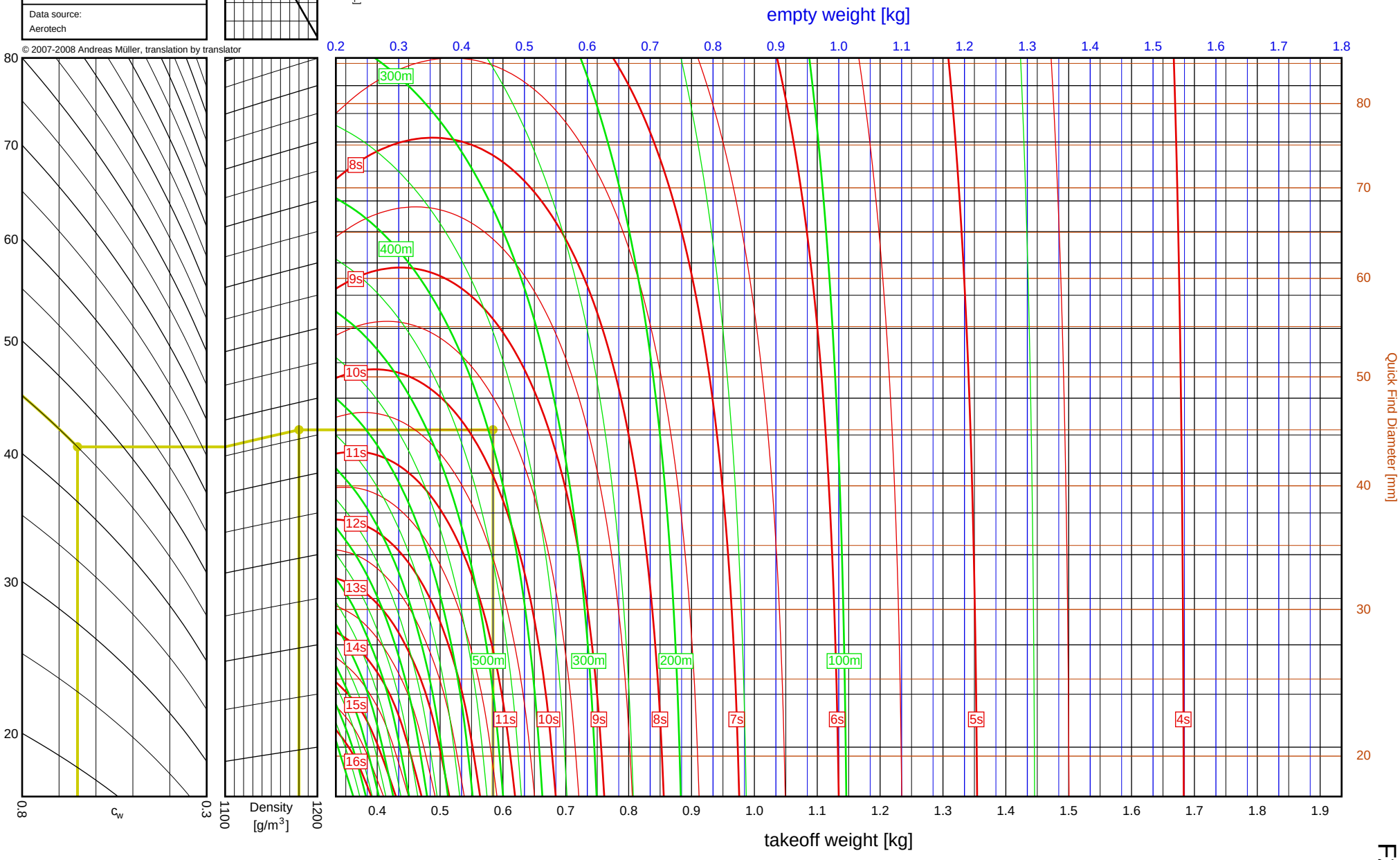
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.584kg
Results: time to apogee: 9.7s, expected altitude: 393m

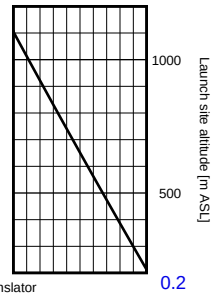


Aerotech F50T

I_{tot}	=	68.7 Ns
F_{avg}	=	48.1 N
t_{burn}	=	1.43 s
d	=	29 mm

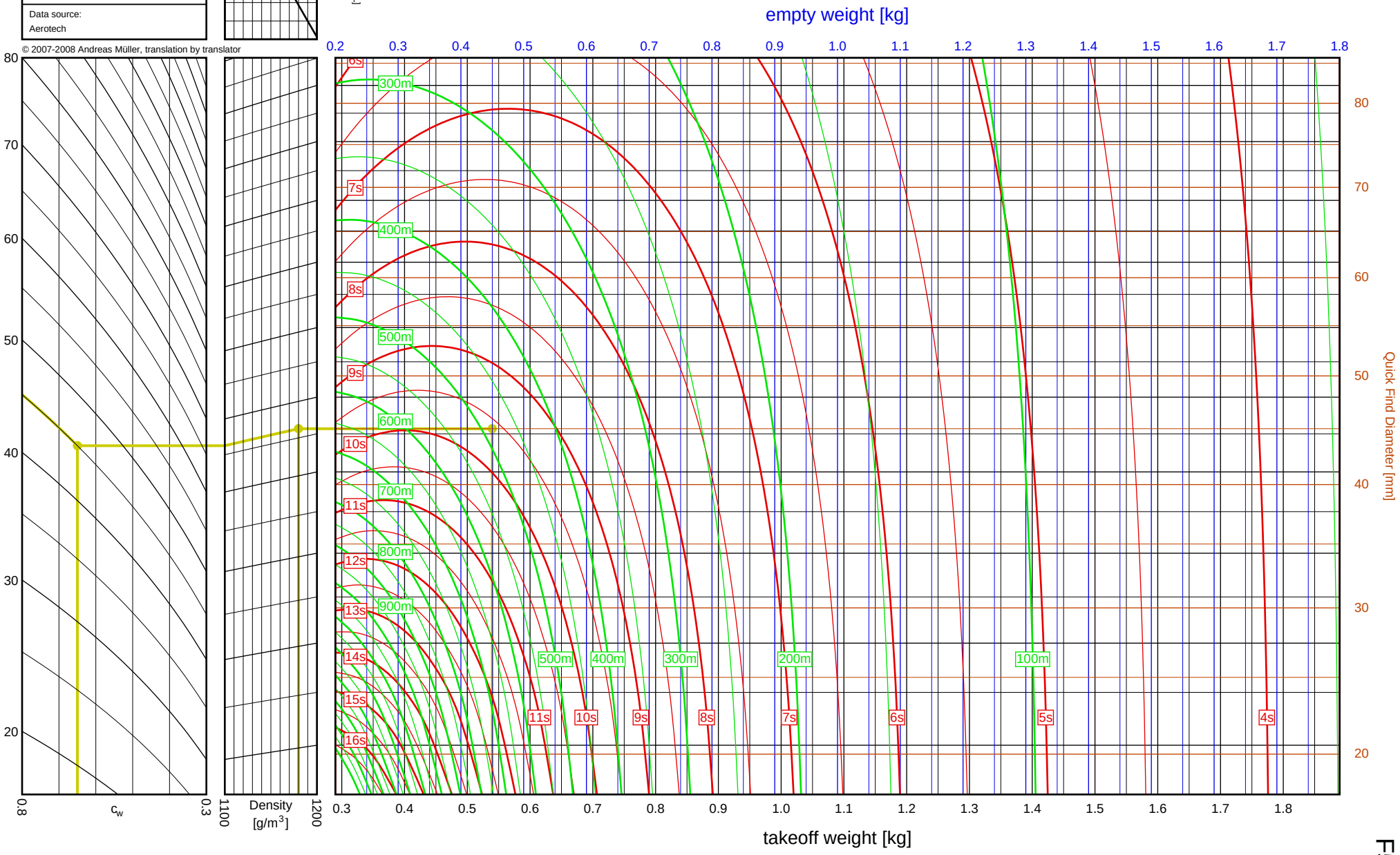
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.540kg
Results: time to apogee: 9.6s, expected altitude: 485m

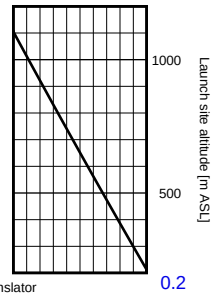


Aerotech F25W

I_{tot}	=	70.8 Ns
F_{avg}	=	26.3 N
t_{burn}	=	2.69 s
d	=	29 mm

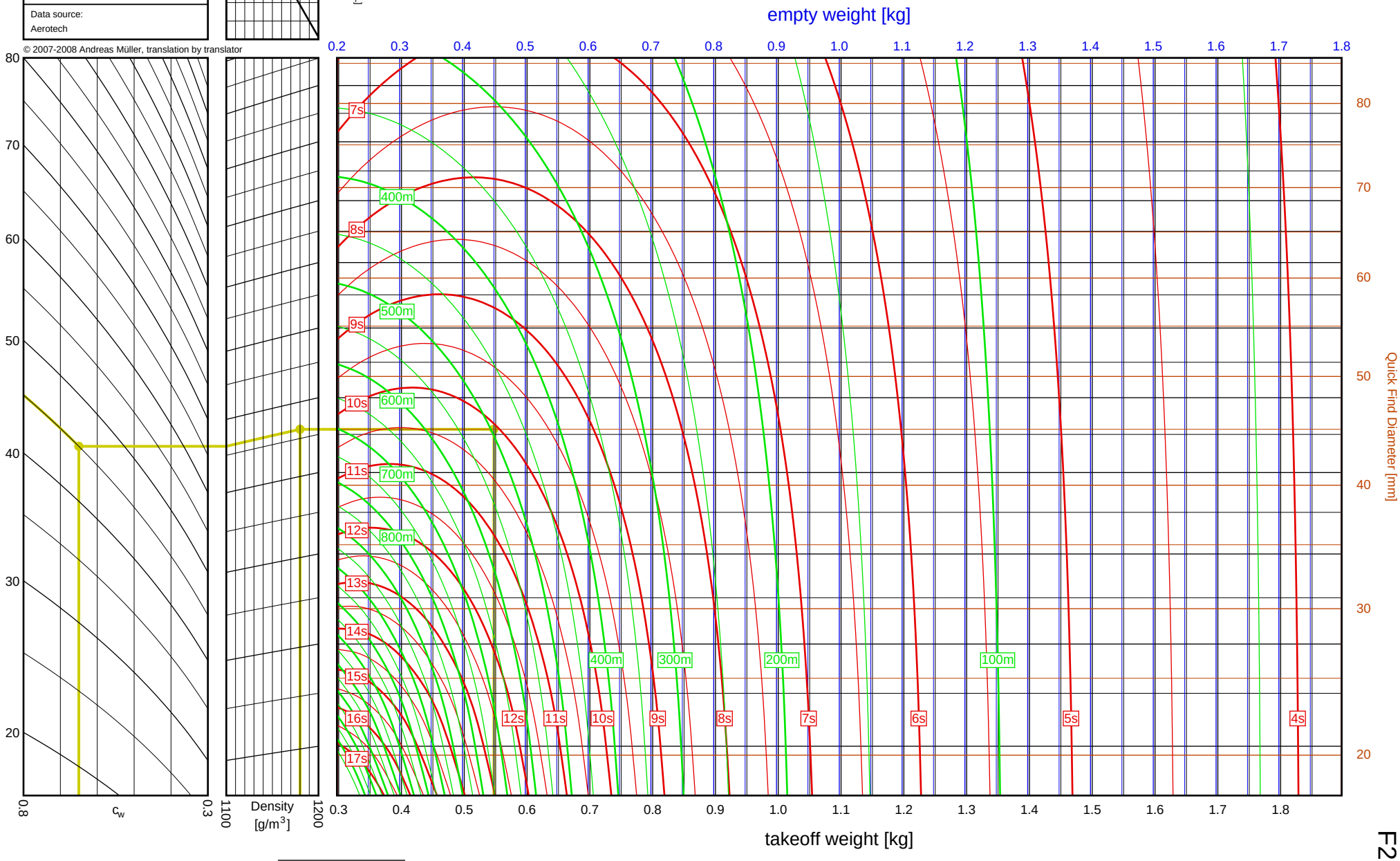
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.547kg
Results: time to apogee: 10.1s, expected altitude: 496m

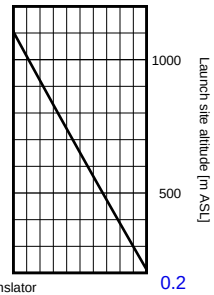


Aerotech F52T

I_{tot}	=	73.0 Ns
F_{avg}	=	51.4 N
t_{burn}	=	1.42 s
d	=	29 mm

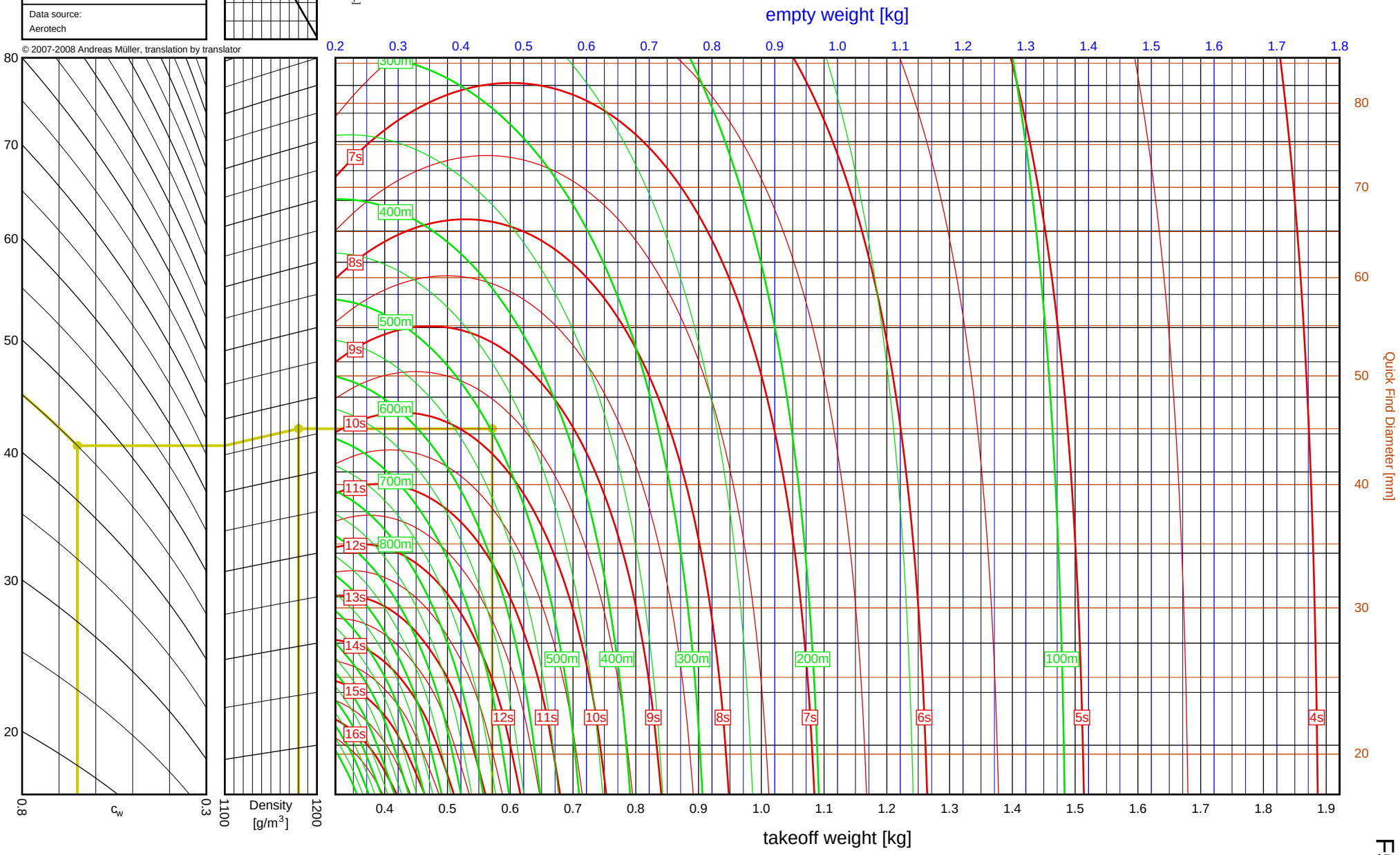
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.571kg
Results: time to apogee: 9.8s, expected altitude: 498m



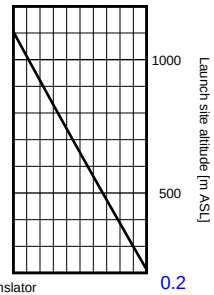
Aerotech

G104T

I_{tot}	=	76.9 Ns
F_{avg}	=	85.5 N
t_{burn}	=	0.90 s
d	=	29 mm

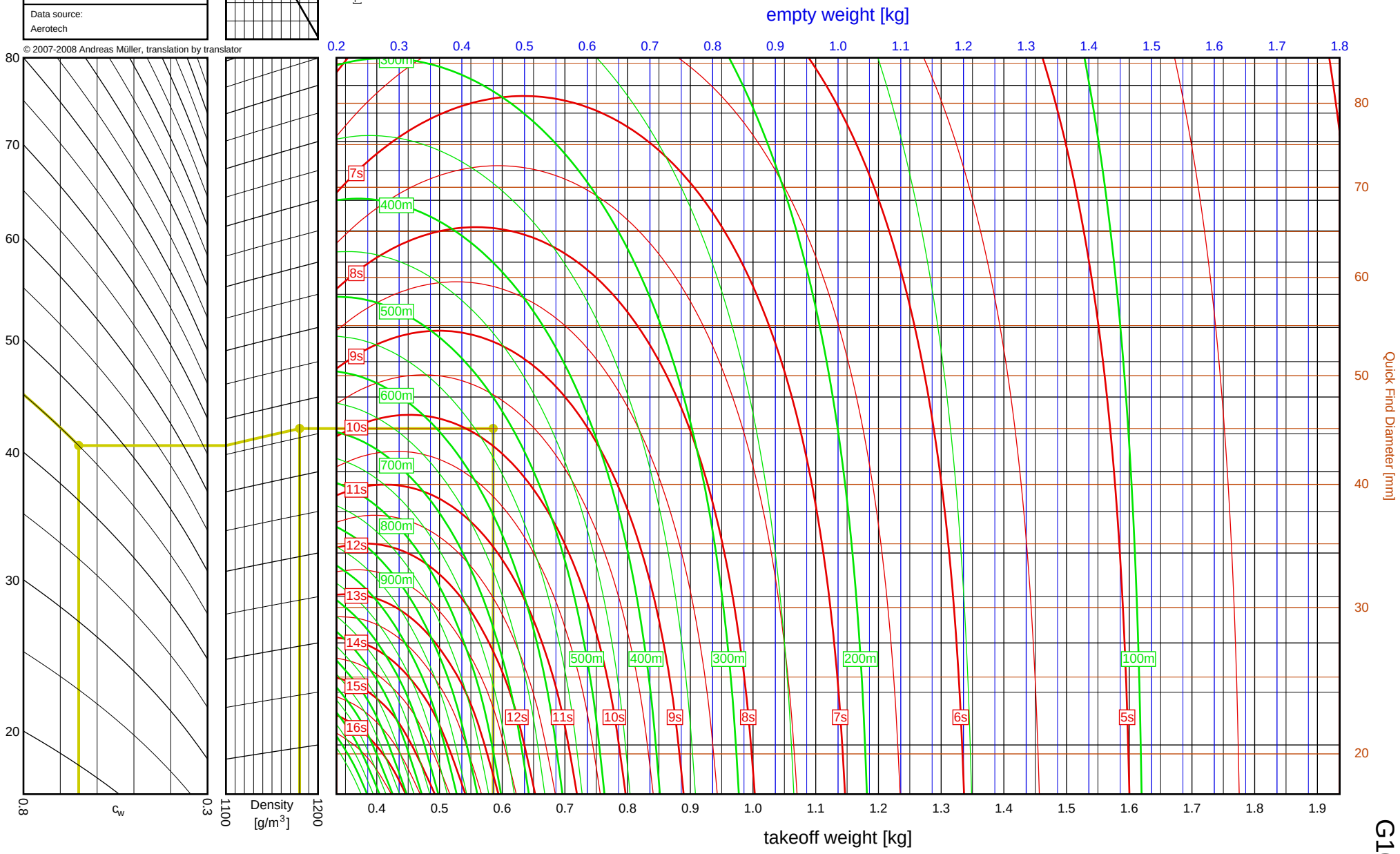
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.586kg
Results: time to apogee: 9.8s, expected altitude: 526m

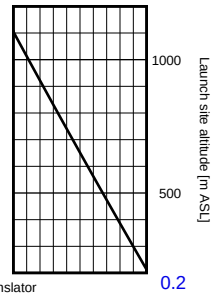


Aerotech F40W

I_{tot}	=	78.1 Ns
F_{avg}	=	37.9 N
t_{burn}	=	2.06 s
d	=	29 mm

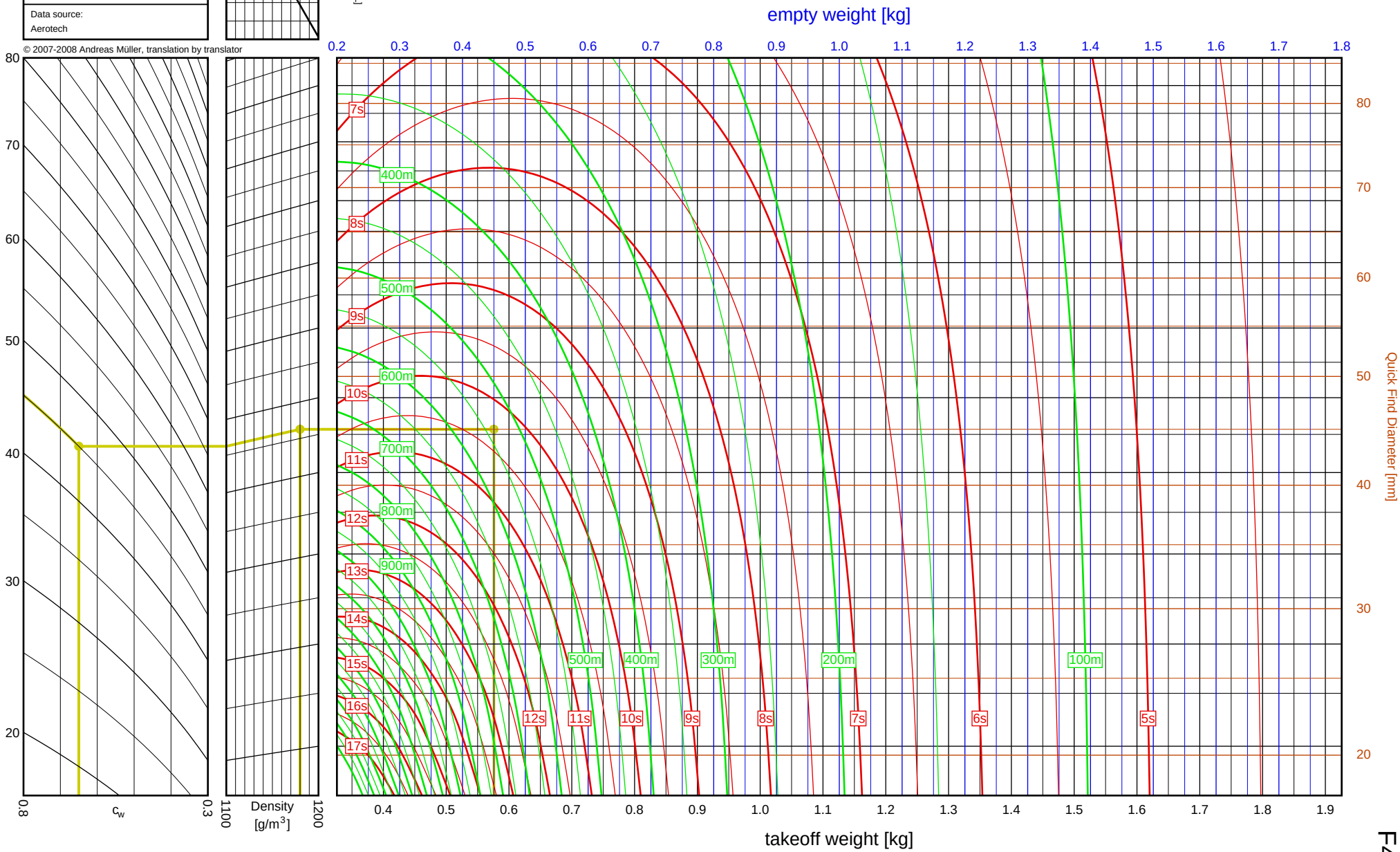
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.576kg
Results: time to apogee: 10.3s, expected altitude: 537m

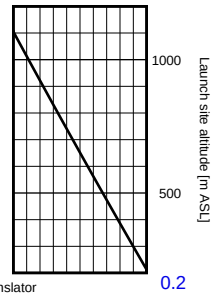


Aerotech G54W

I_{tot}	=	81.1 Ns
F_{avg}	=	53.7 N
t_{burn}	=	1.51 s
d	=	29 mm

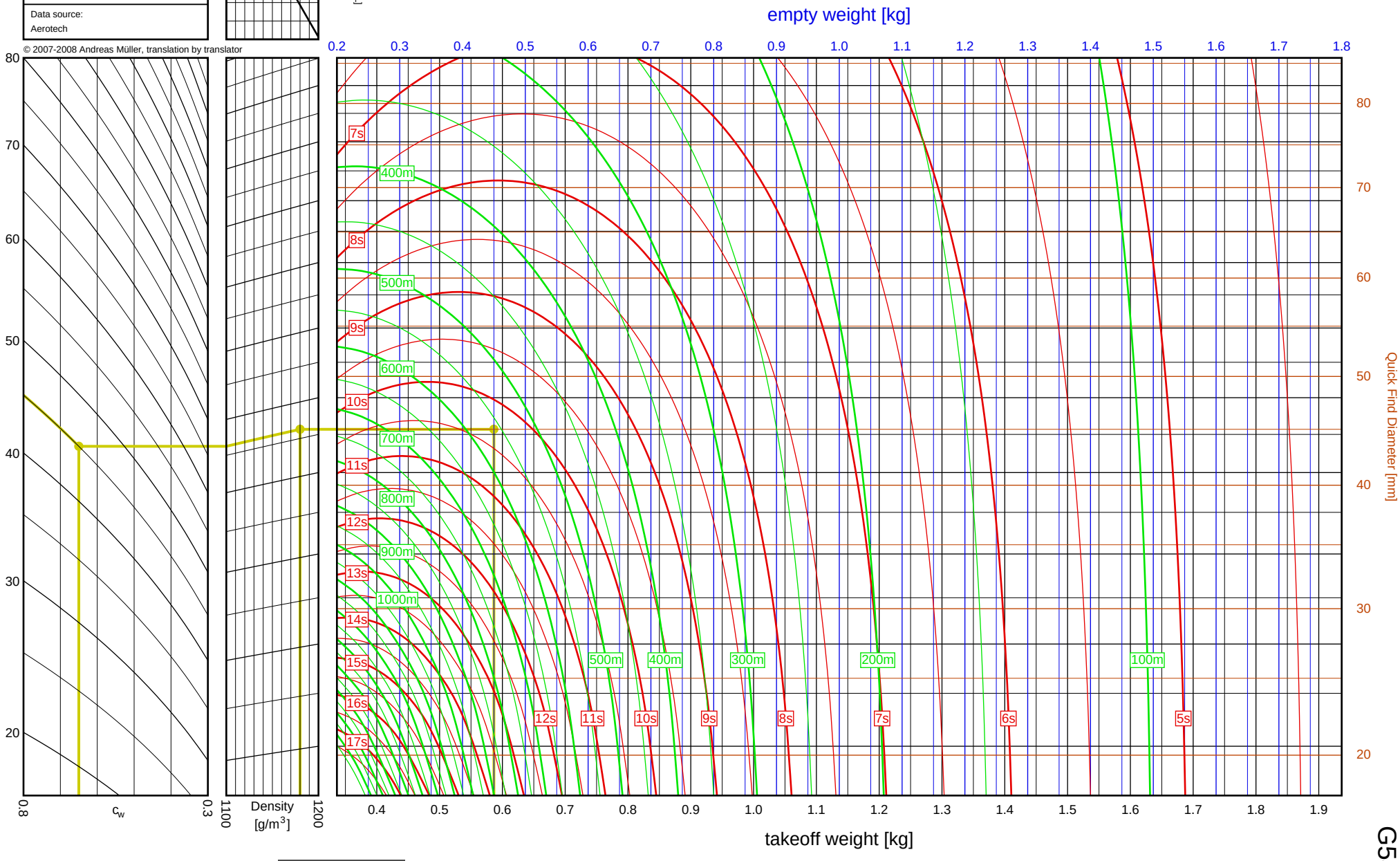
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.587kg
Results: time to apogee: 10.3s, expected altitude: 561m

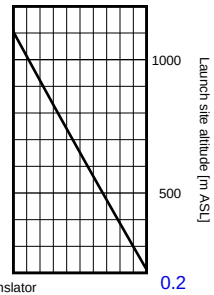


Aerotech G142

I_{tot}	=	84.6 Ns
F_{avg}	=	93.9 N
t_{burn}	=	0.90 s
d	=	29 mm

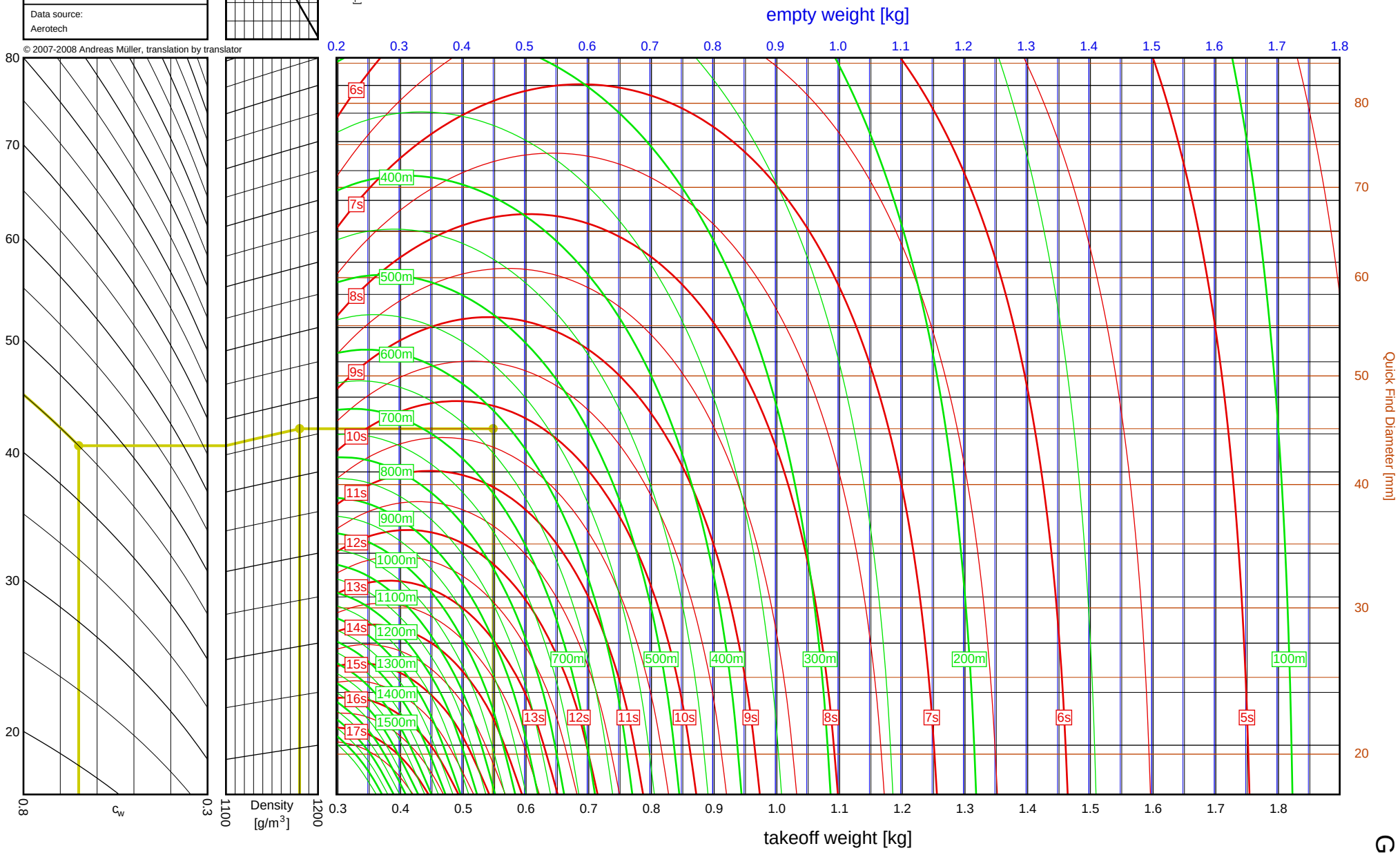
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.548kg
Results: time to apogee: 10.3s, expected altitude: 621m



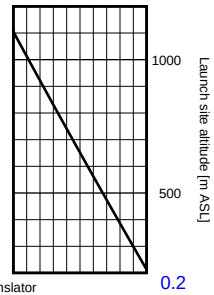
Aerotech

G38FJ

I_{tot}	=	86.8 Ns
F_{avg}	=	32.9 N
t_{burn}	=	2.64 s
d	=	29 mm

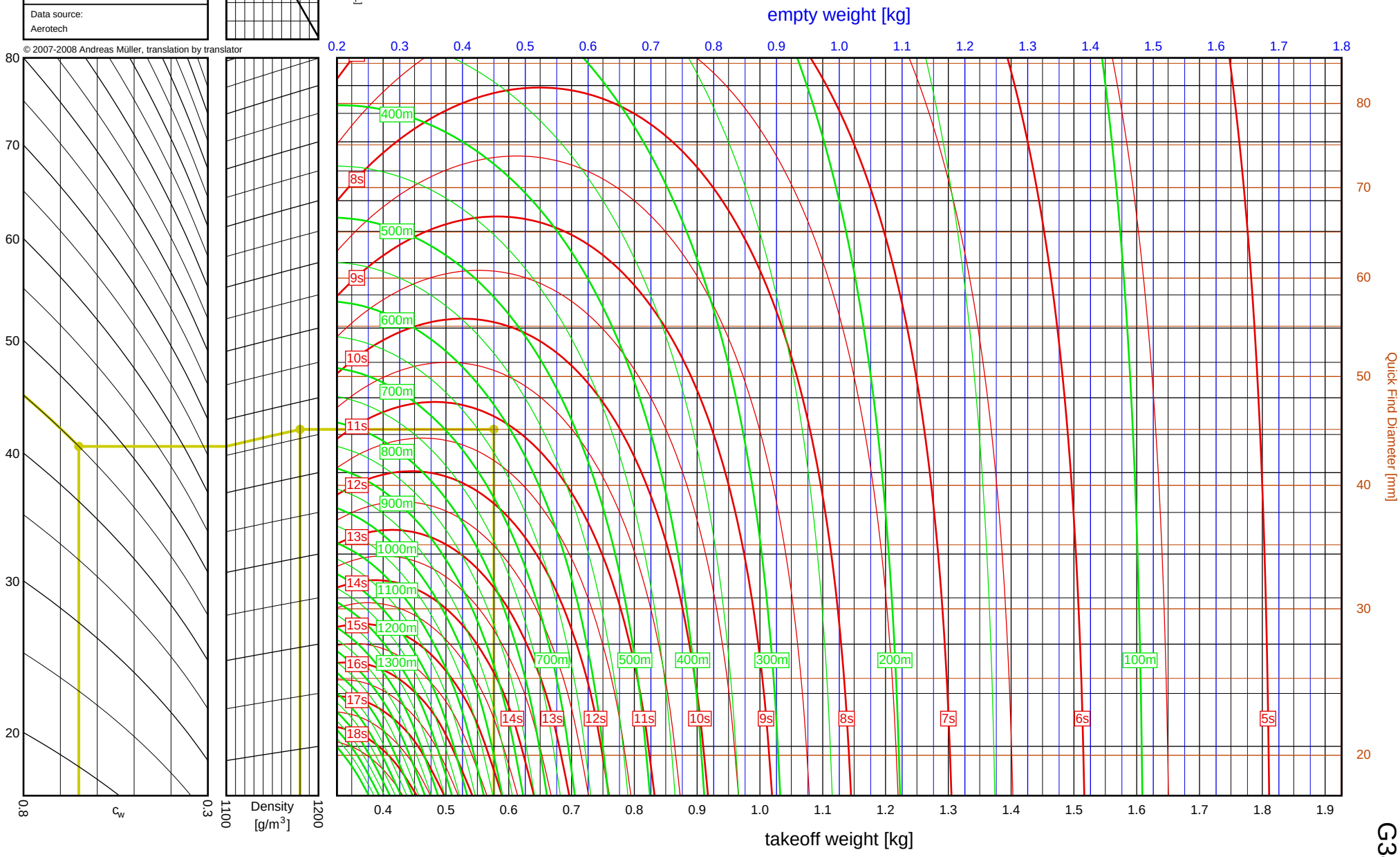
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.576kg
Results: time to apogee: 11.1s, expected altitude: 626m



G38FJ

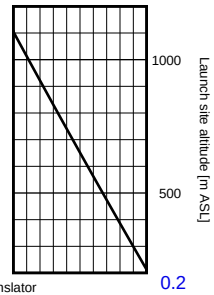
G38FJ

Aerotech G53FJ

I_{tot}	=	92.1 Ns
F_{avg}	=	49.8 N
t_{burn}	=	1.85 s
d	=	29 mm

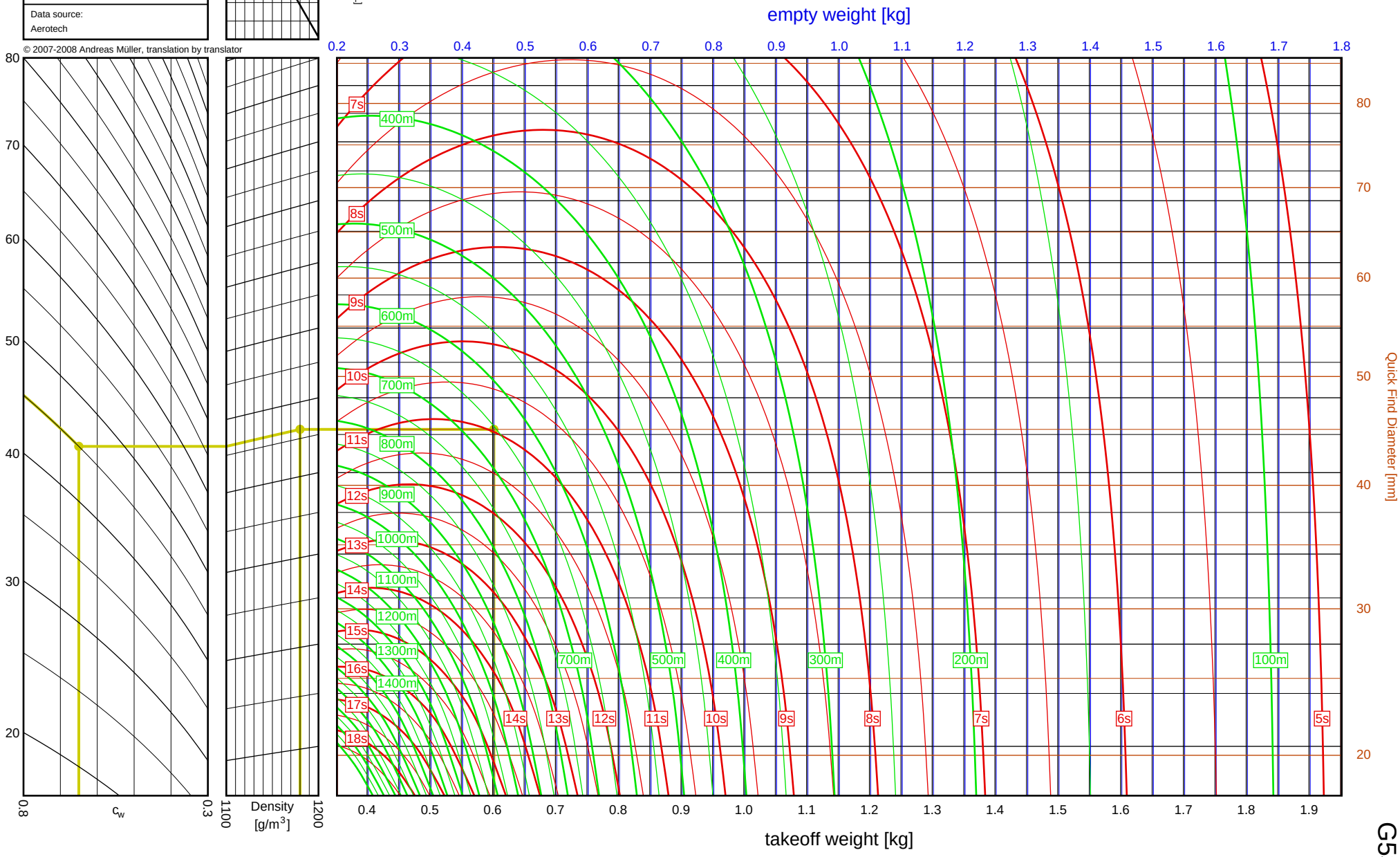
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.602kg
Results: time to apogee: 11.0s, expected altitude: 654m



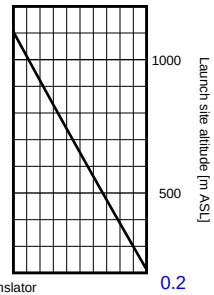
Aerotech

G33J

I_{tot}	=	98.4 Ns
F_{avg}	=	30.1 N
t_{burn}	=	3.27 s
d	=	29 mm

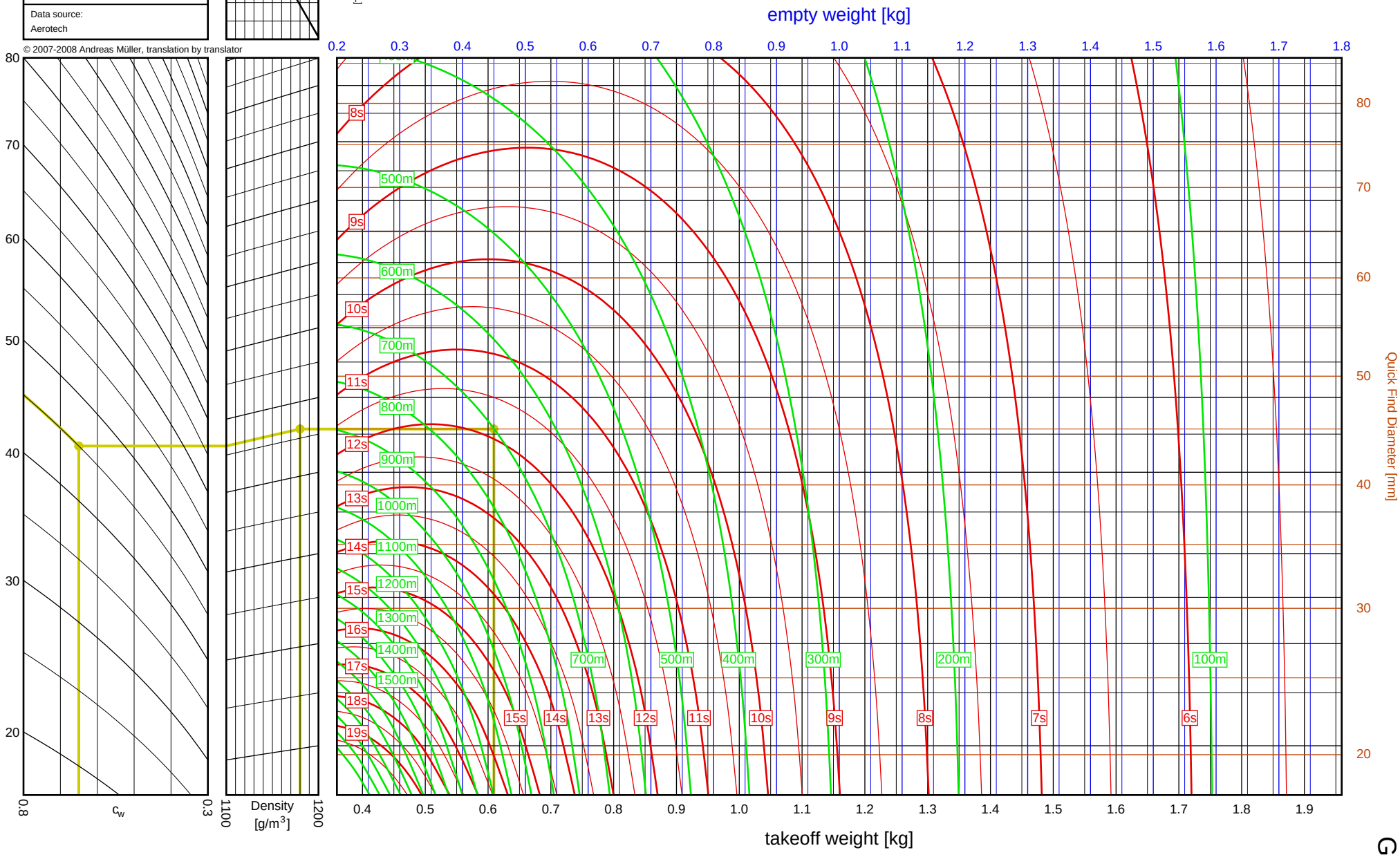
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.609kg
Results: time to apogee: 11.9s, expected altitude: 701m



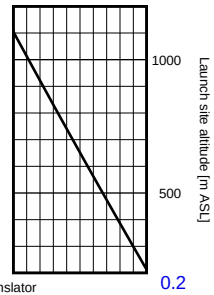
Aerotech

G40W

I_{tot}	=	99.0 Ns
F_{avg}	=	43.1 N
t_{burn}	=	2.30 s
d	=	29 mm

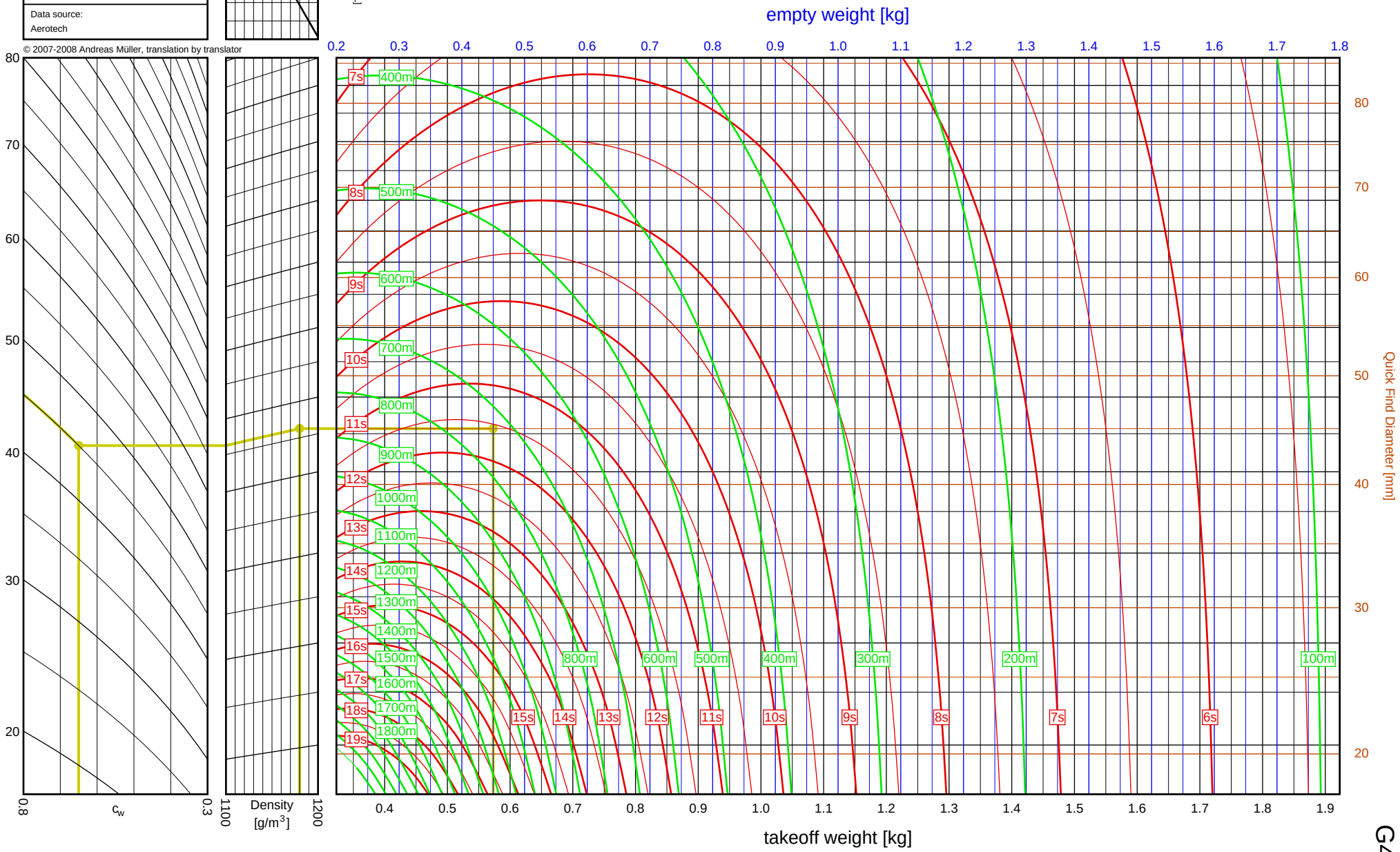
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.573kg
Results: time to apogee: 11.6s, expected altitude: 731m

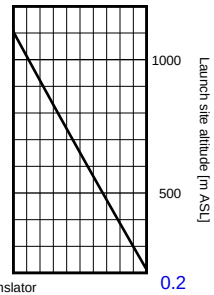


Aerotech G35EJ

I_{tot}	=	101.0 Ns
F_{avg}	=	34.7 N
t_{burn}	=	2.91 s
d	=	29 mm

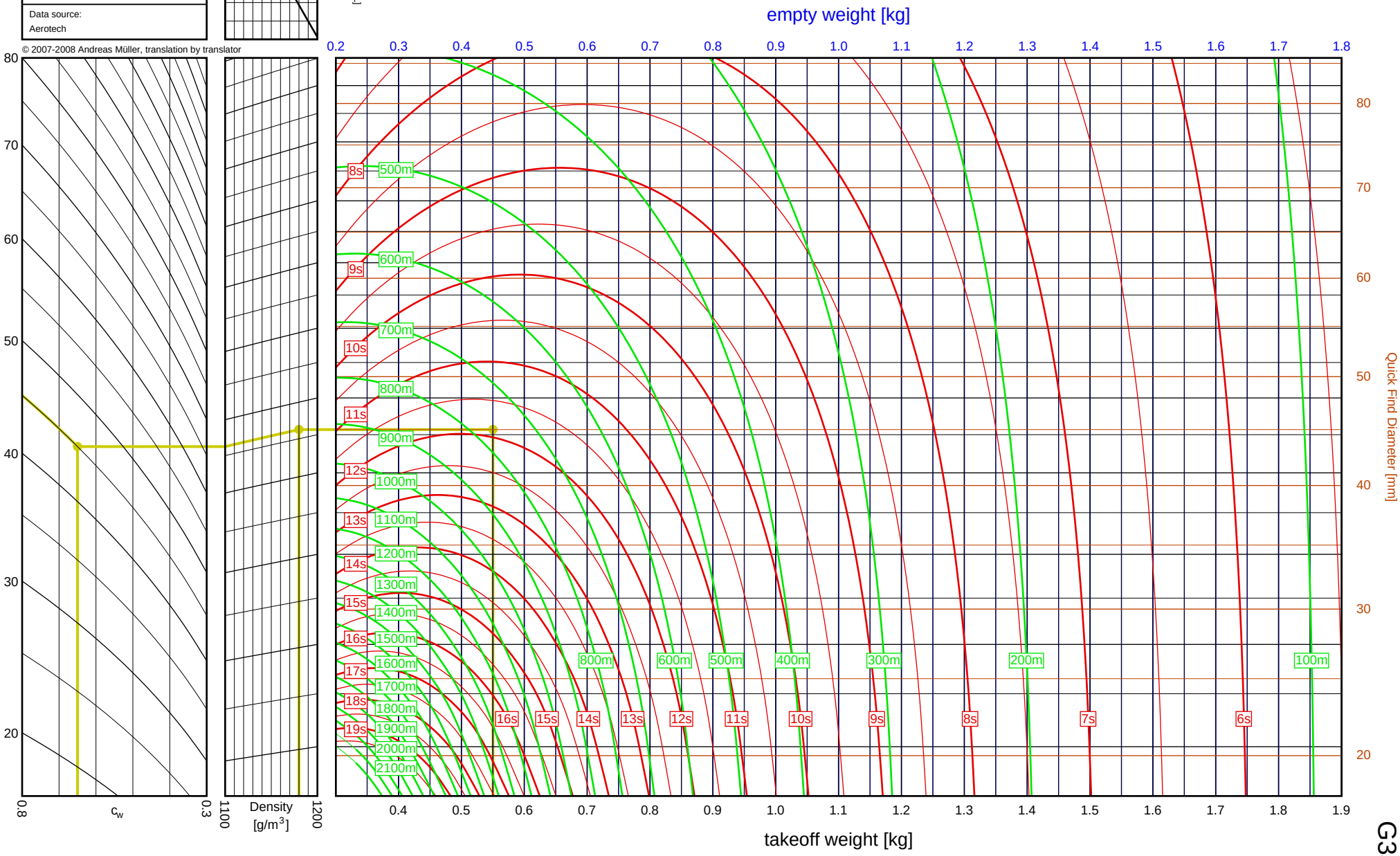
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.551kg
Results: time to apogee: 11.9s, expected altitude: 766m

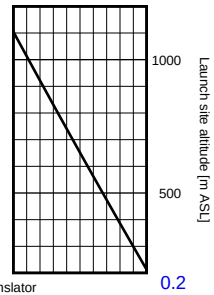


Aerotech G77R

I_{tot}	=	101.7 Ns
F_{avg}	=	79.6 N
t_{burn}	=	1.28 s
d	=	29 mm

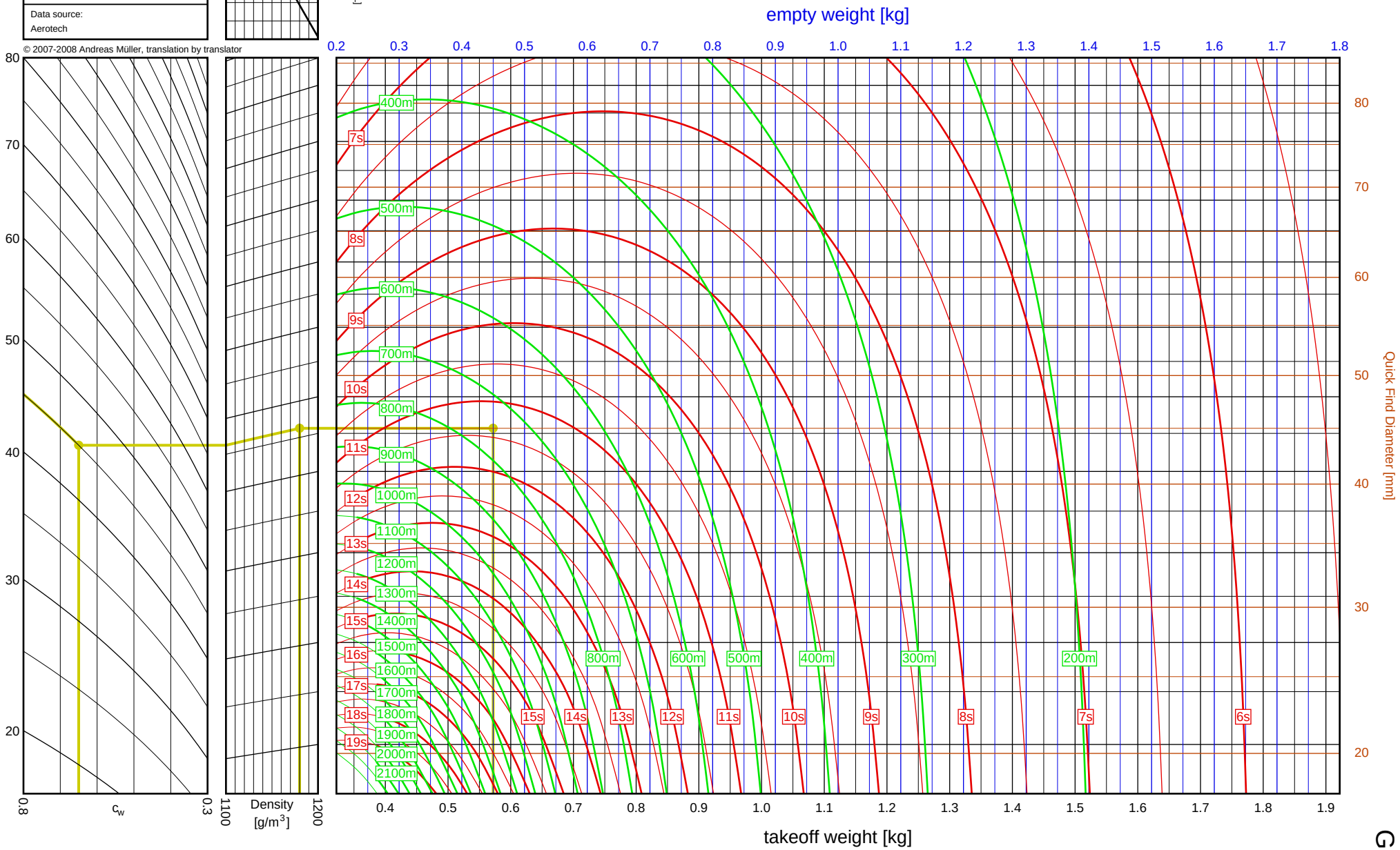
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.572kg
Results: time to apogee: 11.4s, expected altitude: 750m



G77R

F-G

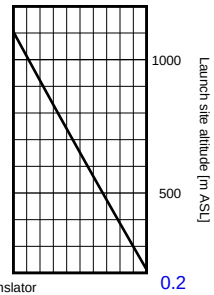
G77R

Aerotech G79W

I_{tot}	=	106.4 Ns
F_{avg}	=	55.2 N
t_{burn}	=	1.93 s
d	=	29 mm

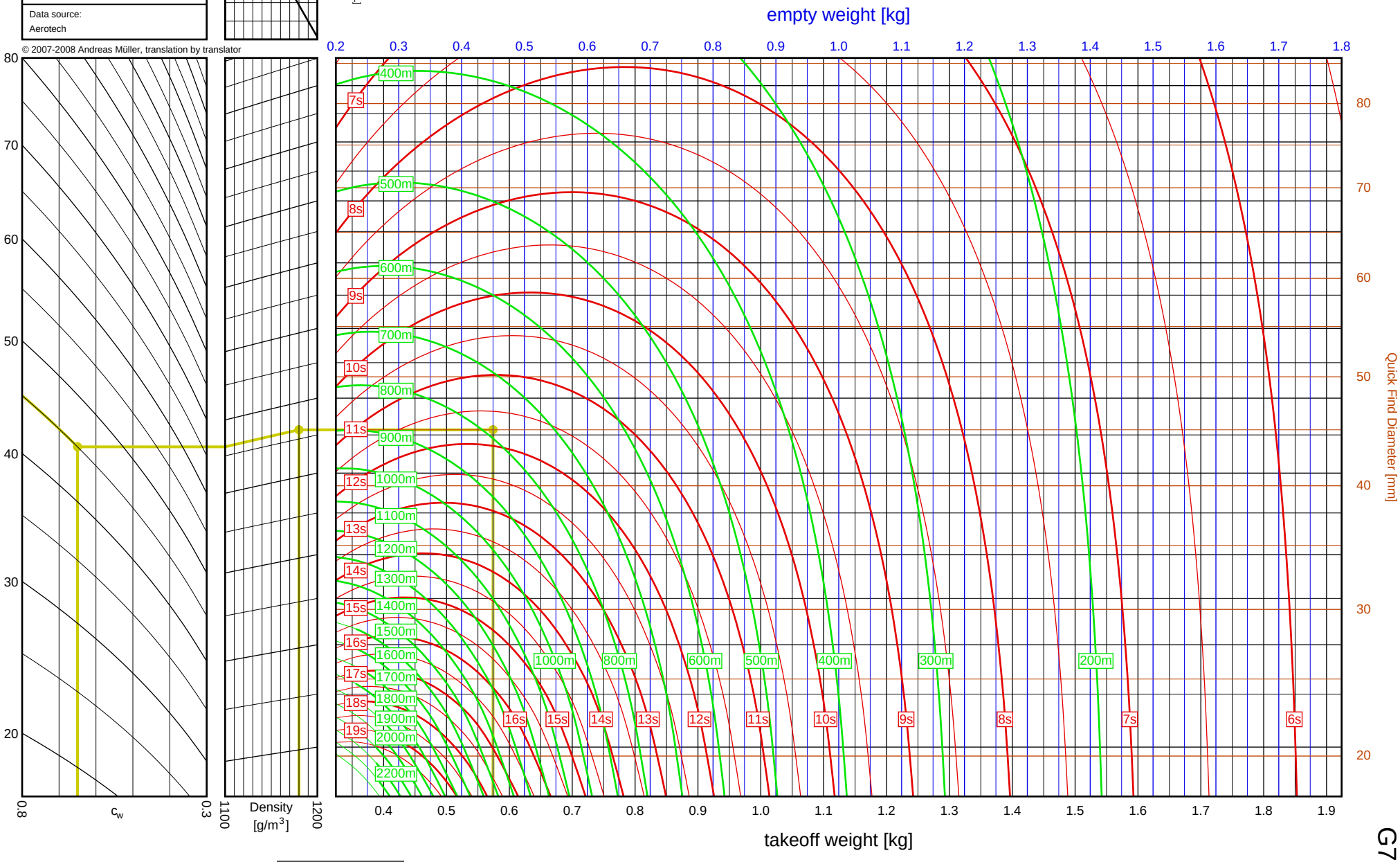
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.574kg
Results: time to apogee: 11.8s, expected altitude: 787m



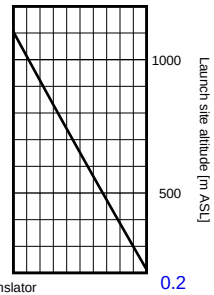
Aerotech

G71R

I_{tot}	=	106.9 Ns
F_{avg}	=	62.9 N
t_{burn}	=	1.70 s
d	=	29 mm

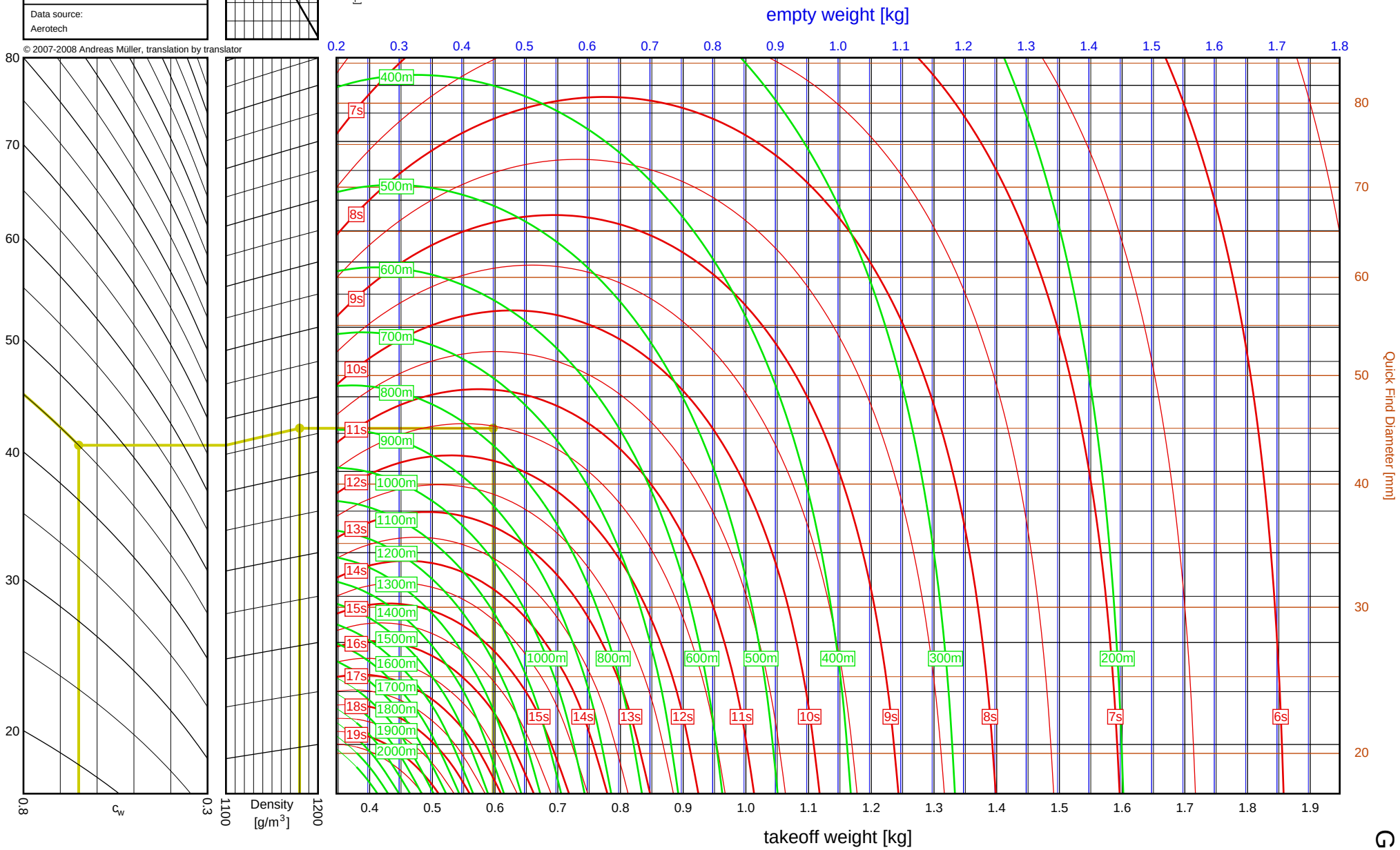
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.597kg
Results: time to apogee: 11.5s, expected altitude: 774m

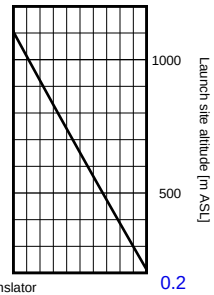


Aerotech G67R

I_{tot}	=	109.5 Ns
F_{avg}	=	68.5 N
t_{burn}	=	1.60 s
d	=	38 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.641kg
Results: time to apogee: 11.7s, expected altitude: 752m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

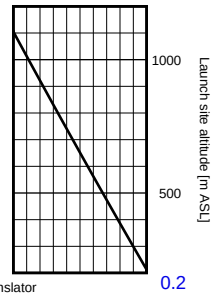
Density [g/m^3]

Aerotech G78G

I_{tot}	=	109.8 Ns
F_{avg}	=	74.6 N
t_{burn}	=	1.47 s
d	=	29 mm

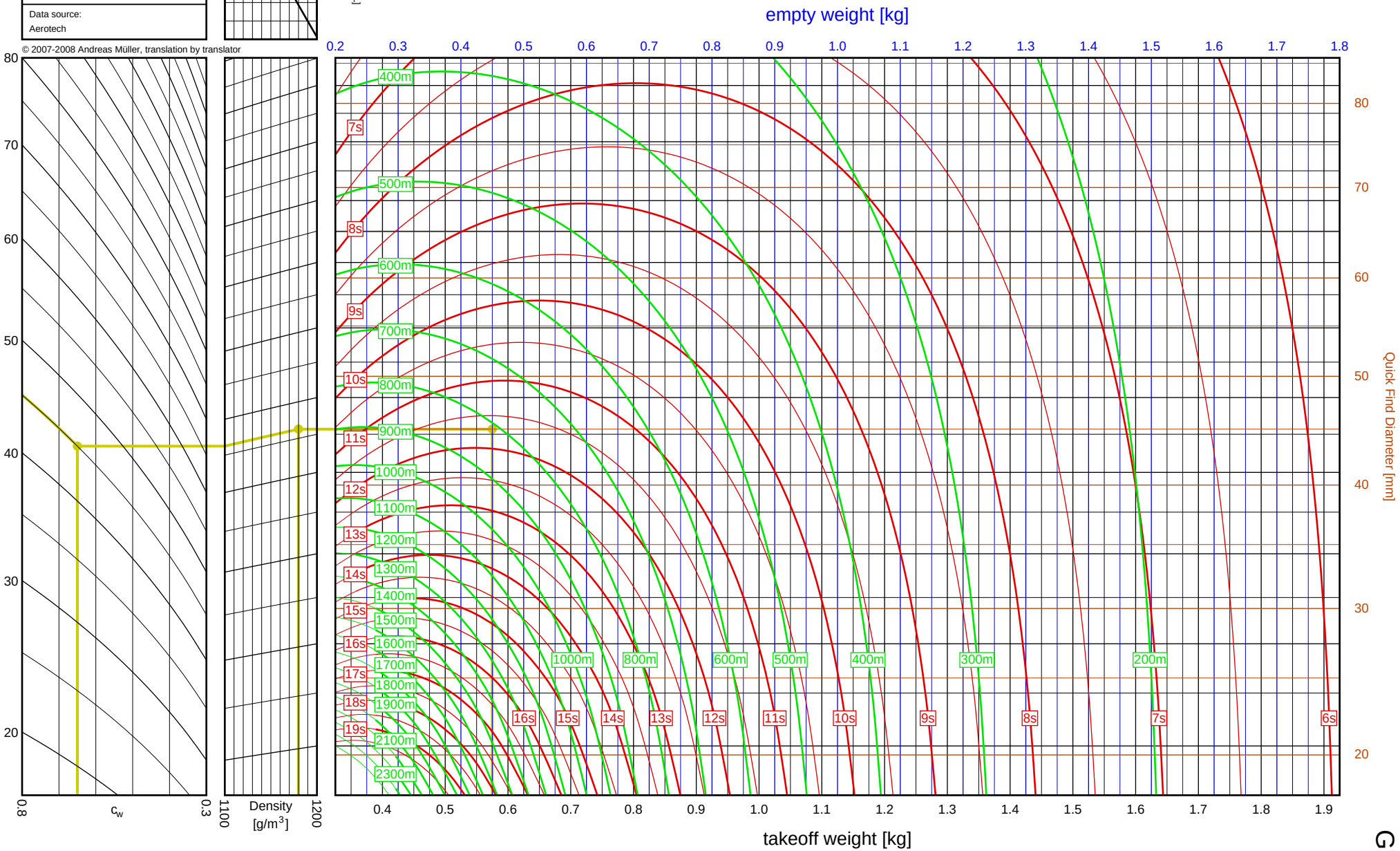
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.575kg
Results: time to apogee: 11.7s, expected altitude: 811m

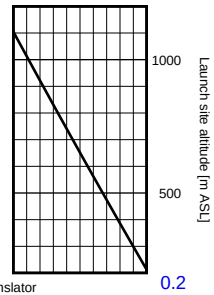


Aerotech G61W

I_{tot}	=	110.8 Ns
F_{avg}	=	54.3 N
t_{burn}	=	2.04 s
d	=	38 mm

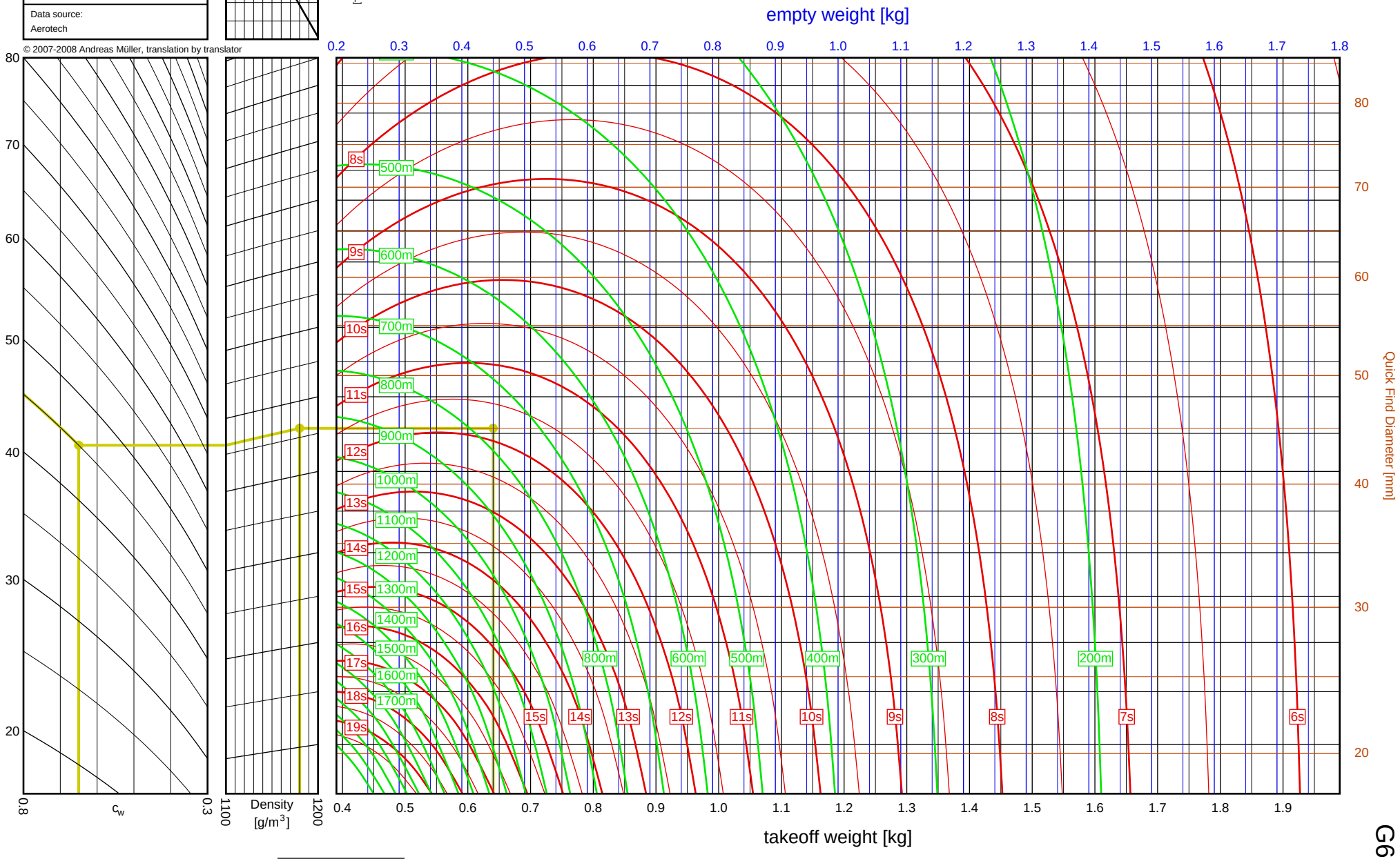
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.640kg
Results: time to apogee: 11.8s, expected altitude: 768m



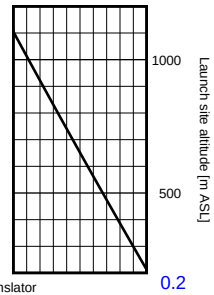
Aerotech

G339N

I_{tot}	=	112.1 Ns
F_{avg}	=	312.2 N
t_{burn}	=	0.36 s
d	=	38 mm

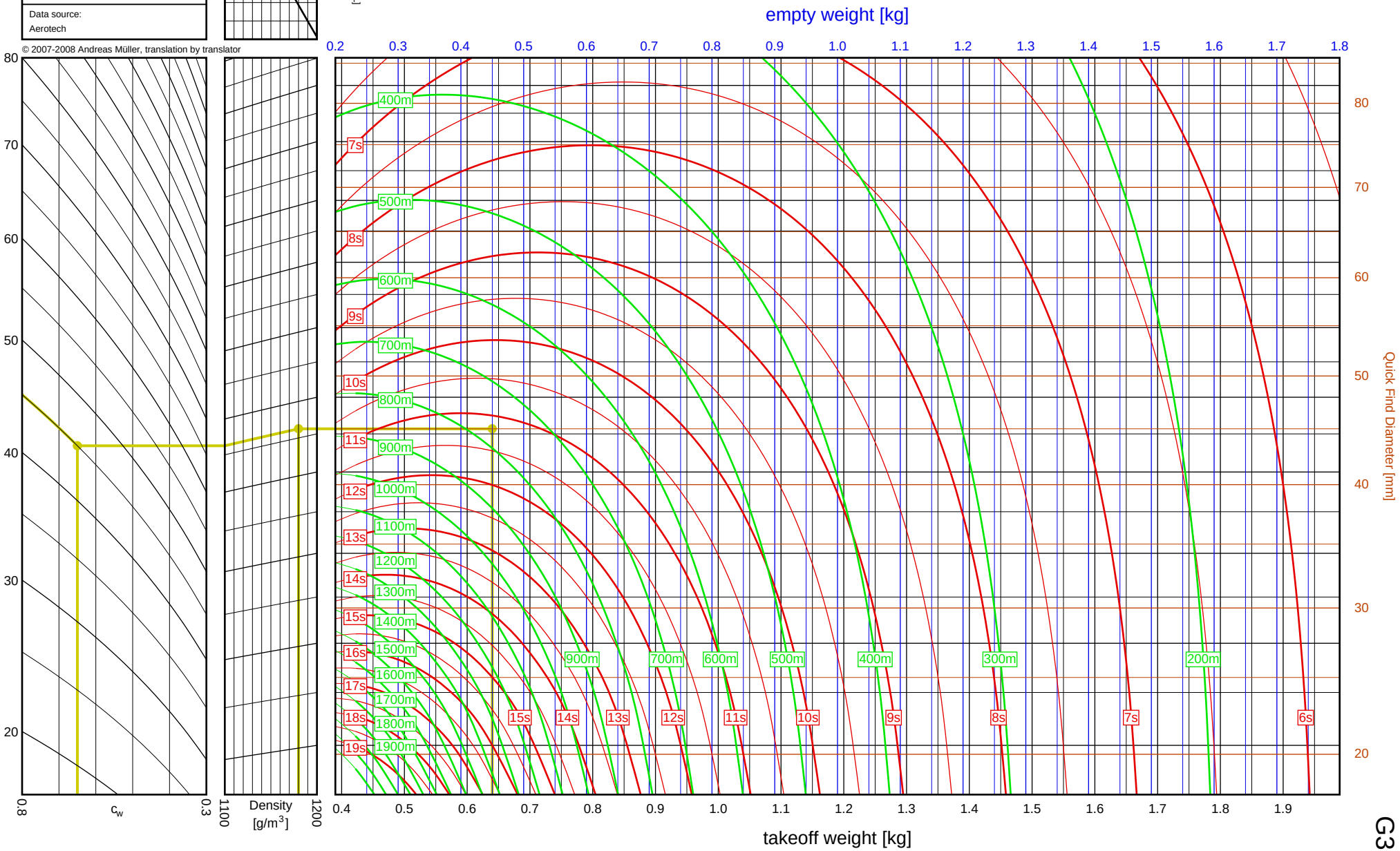
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.640kg
Results: time to apogee: 11.2s, expected altitude: 770m



G339N

F-G

G339N

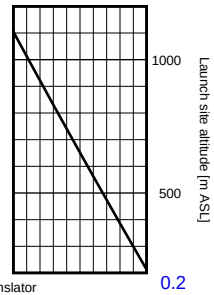
Aerotech

G76G

I_{tot}	=	114.5 Ns
F_{avg}	=	57.2 N
t_{burn}	=	2.00 s
d	=	29 mm

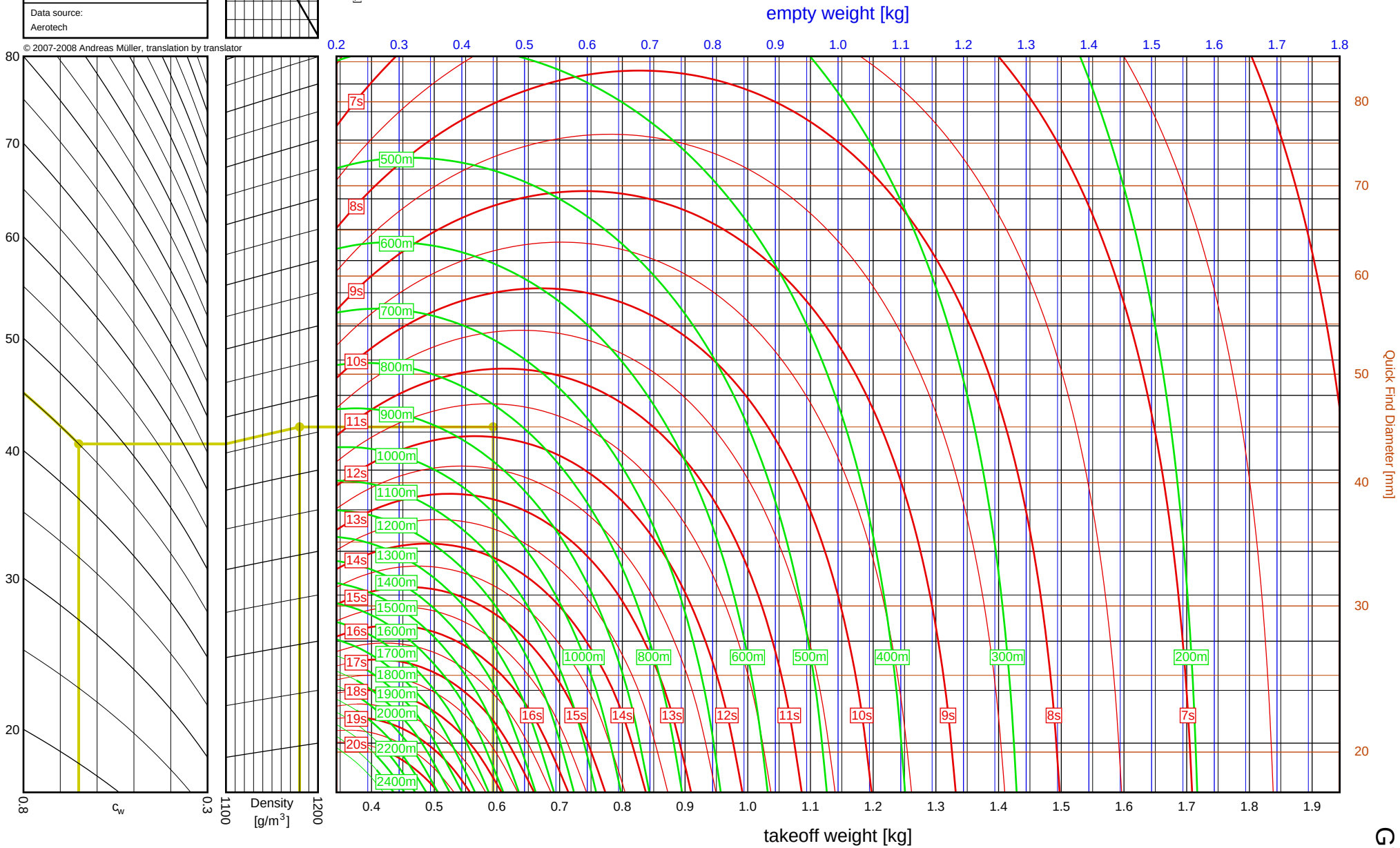
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.594kg
Results: time to apogee: 11.9s, expected altitude: 839m

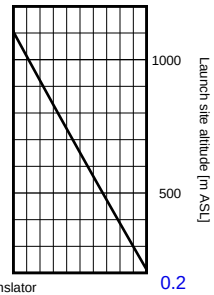


Aerotech G64W

I_{tot}	=	118.8 Ns
F_{avg}	=	56.8 N
t_{burn}	=	2.09 s
d	=	29 mm

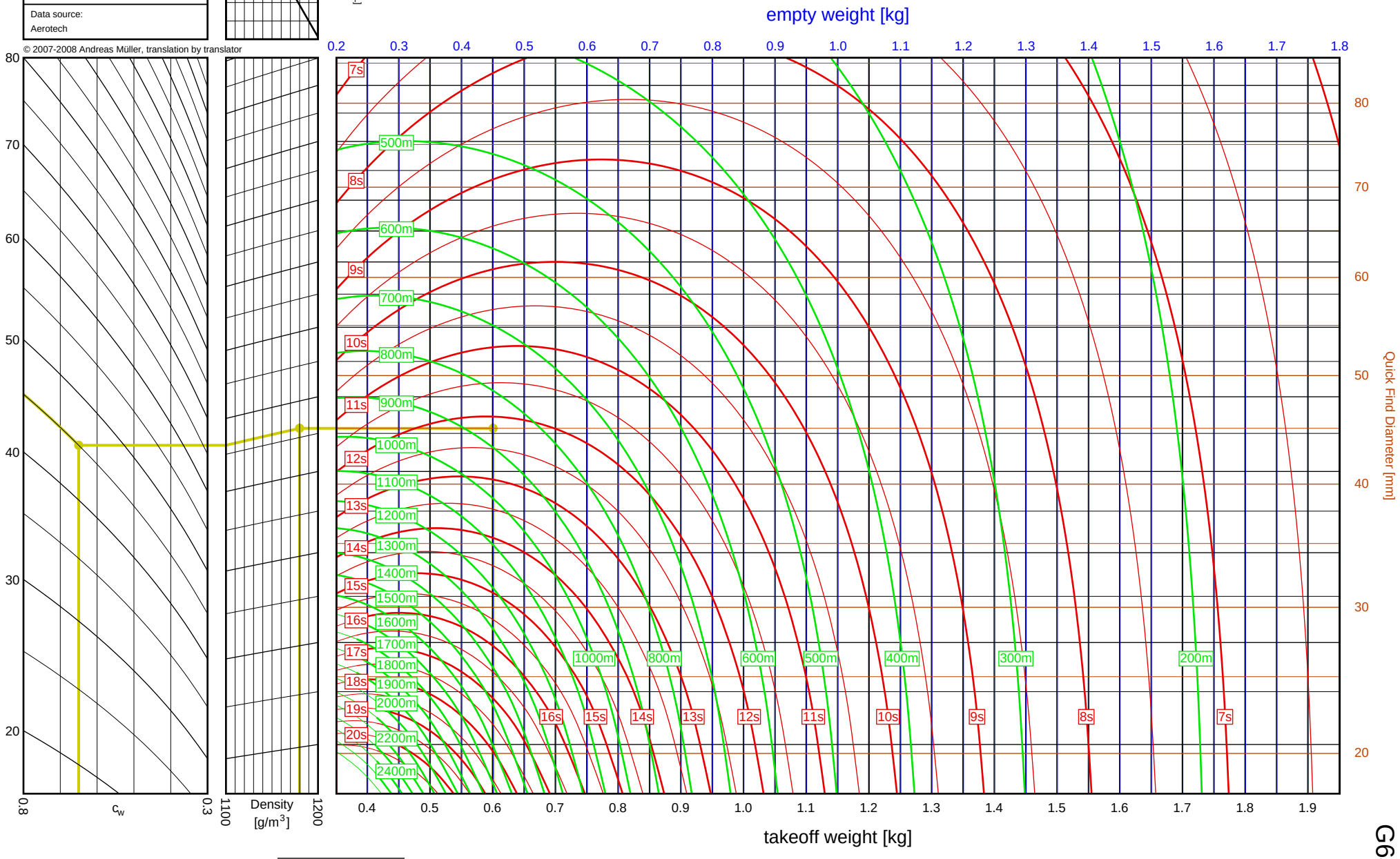
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.601kg
Results: time to apogee: 12.2s, expected altitude: 865m

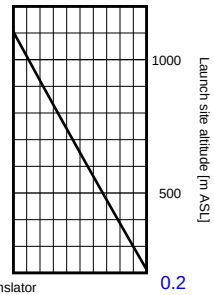


Aerotech G80T

I_{tot}	=	133.2 Ns
F_{avg}	=	73.7 N
t_{burn}	=	1.81 s
d	=	29 mm

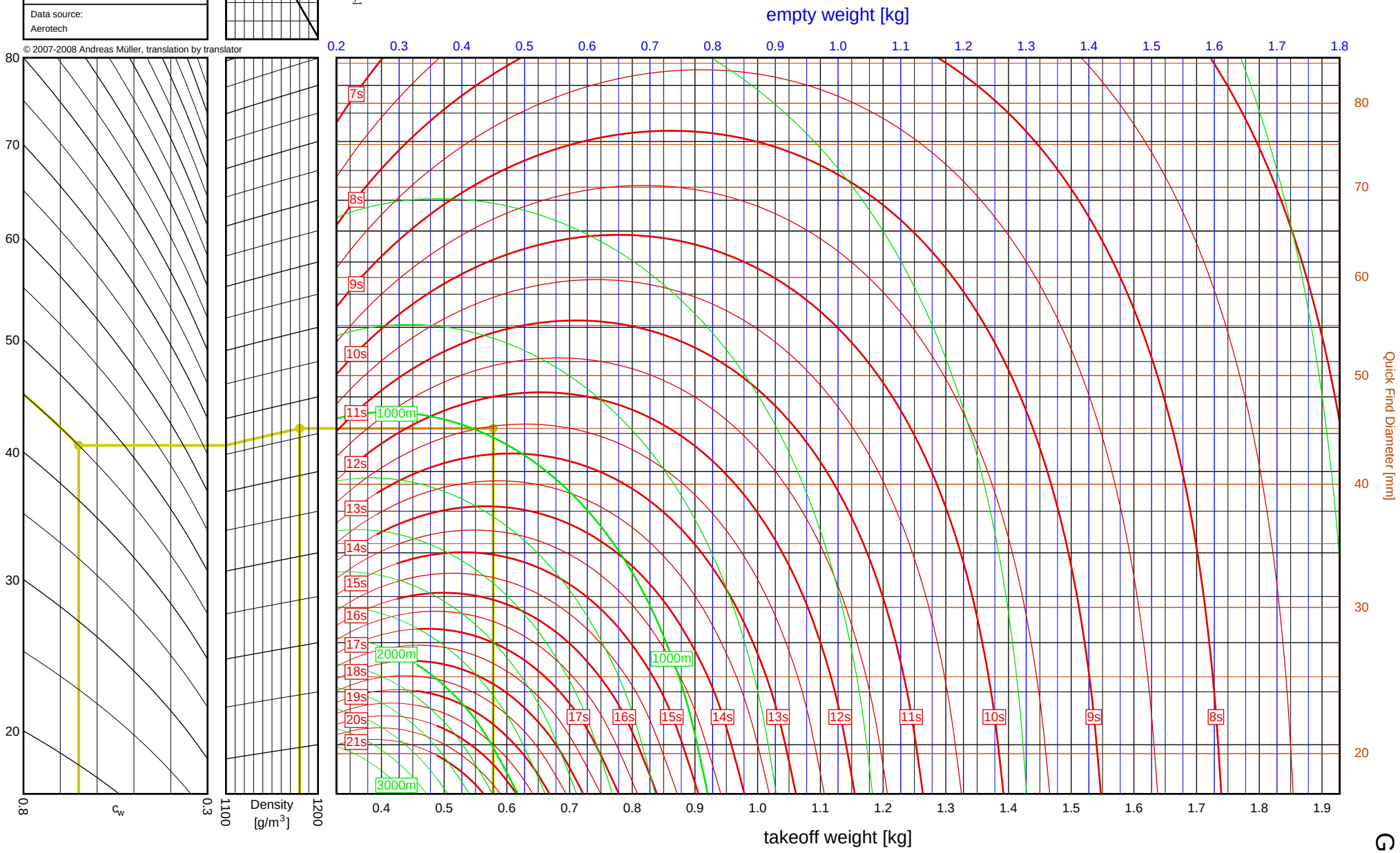
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.578kg
Results: time to apogee: 12.5s, expected altitude: 980m



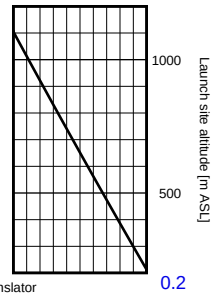
Aerotech

G69N

I_{tot}	=	136.3 Ns
F_{avg}	=	68.2 N
t_{burn}	=	2.00 s
d	=	38 mm

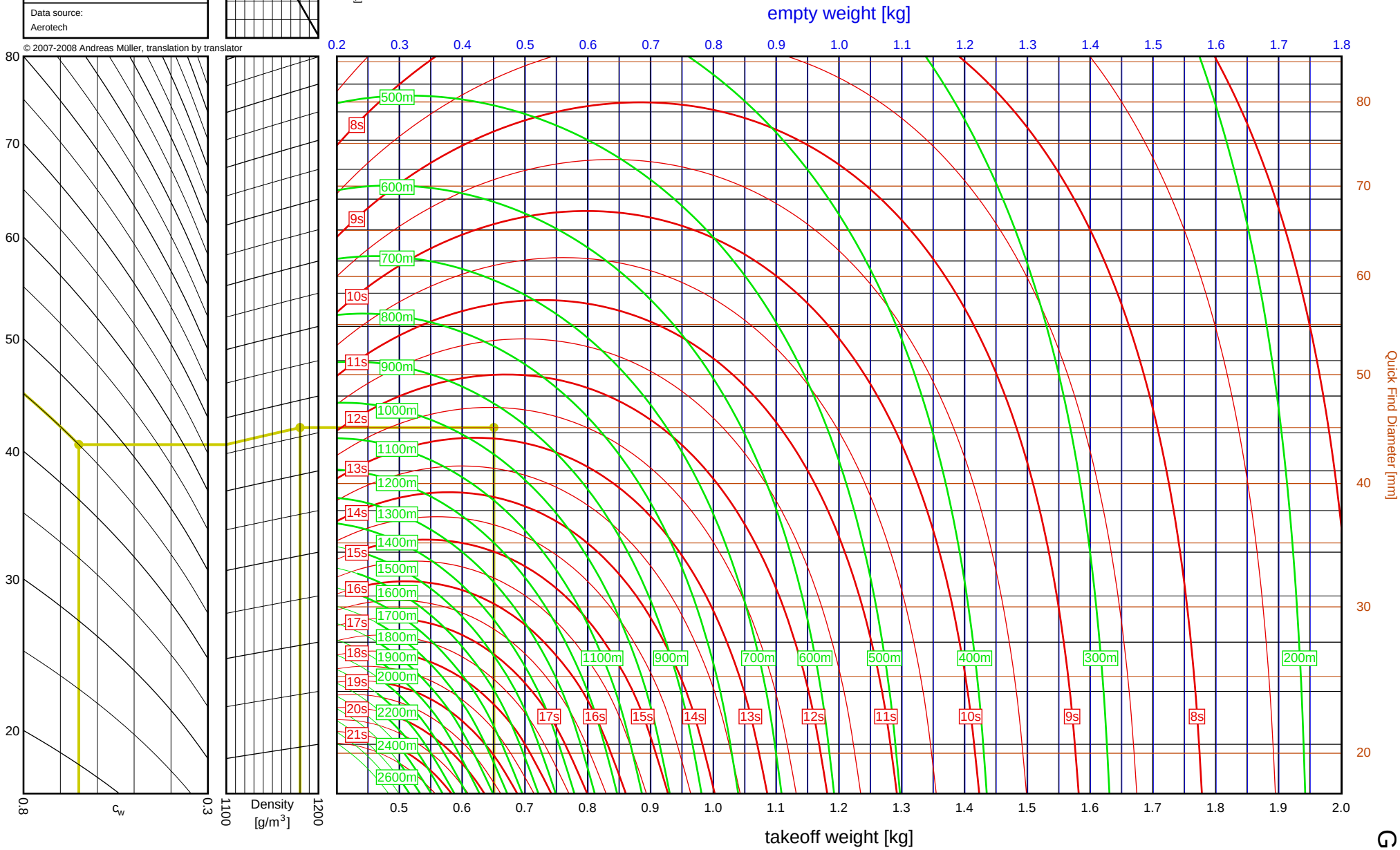
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.651kg
Results: time to apogee: 12.8s, expected altitude: 947m



G69N

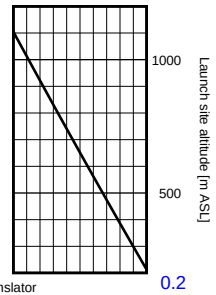
G69N

Aerotech G75J

I_{tot}	=	161.4 Ns
F_{avg}	=	73.4 N
t_{burn}	=	2.20 s
d	=	29 mm

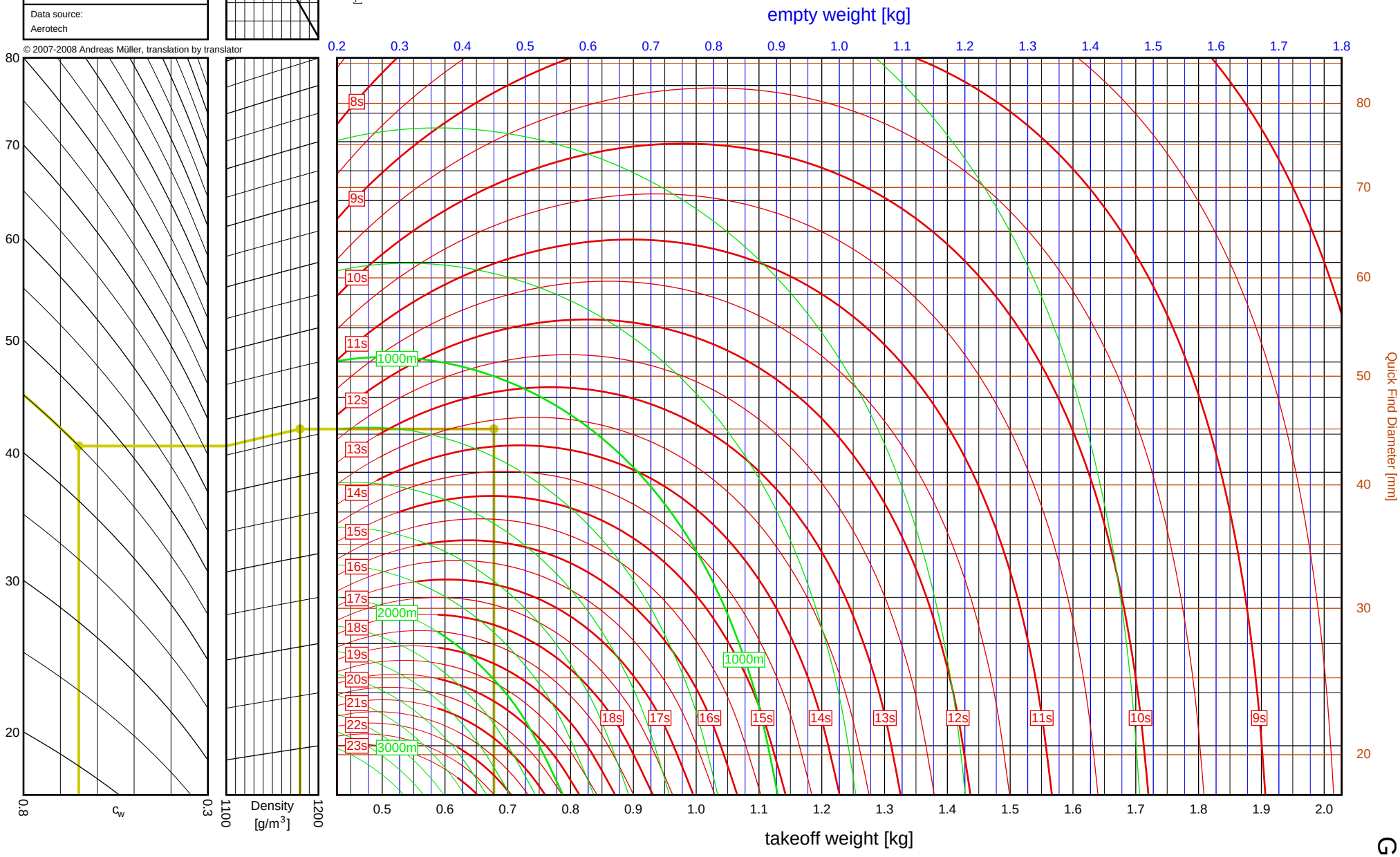
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 45mm, drag = 0.65, density = 1180 g/m^3, weight = 0.678kg
Results: time to apogee: 13.7s, expected altitude: 1127m

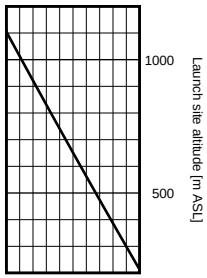


Aerotech

H238T

I_{tot}	=	151.2 Ns
F_{avg}	=	189.1 N
t_{burn}	=	0.80 s
d	=	29 mm

Data source:
Aerotech

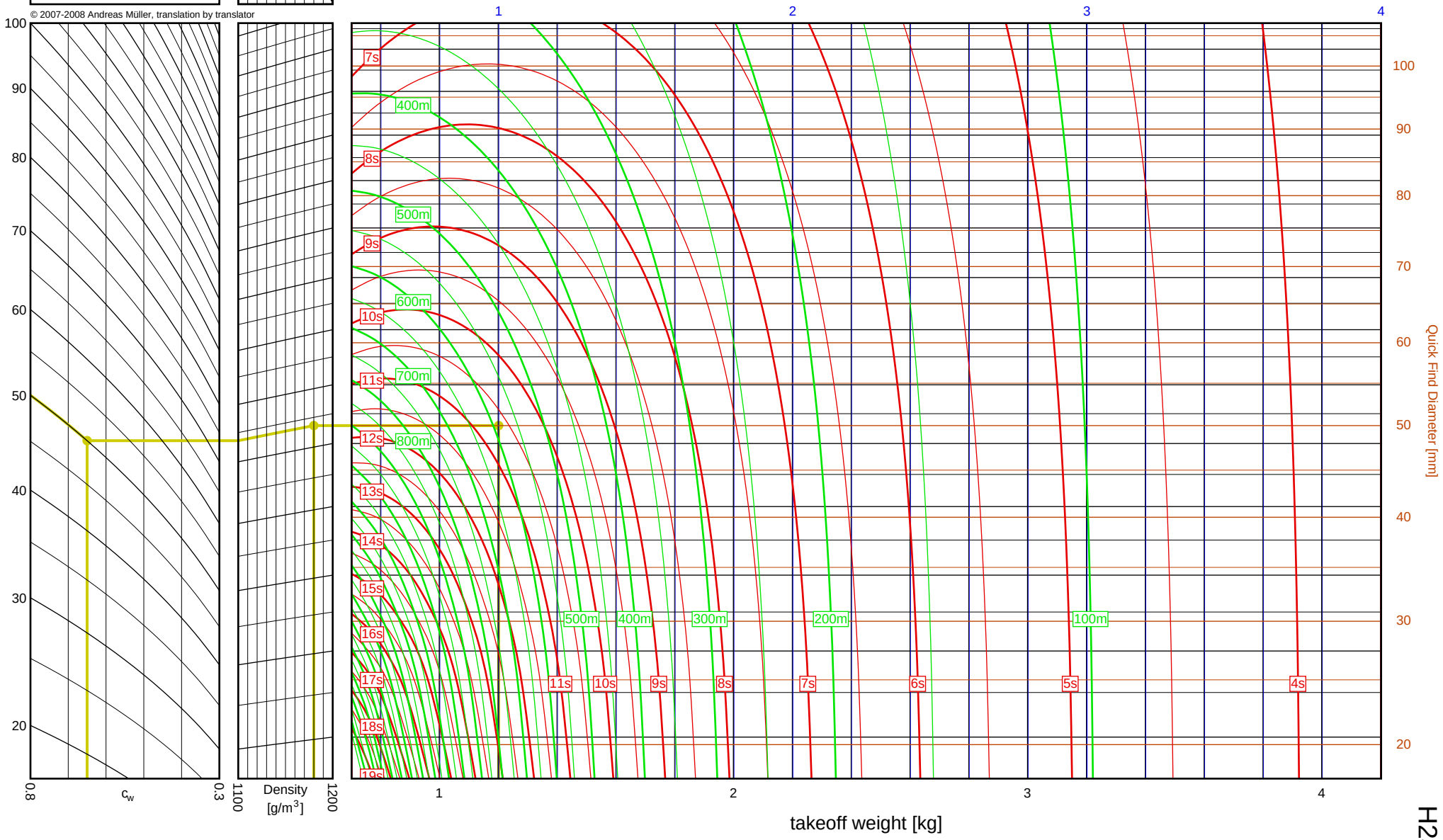


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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.202kg
Results: time to apogee: 10.6s, expected altitude: 589m

empty weight [kg]



H238T

H238T

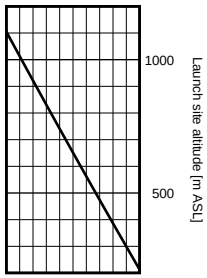
H-I

Aerotech H128W

I_{tot}	=	155.8 Ns
F_{avg}	=	103.8 N
t_{burn}	=	1.50 s
d	=	29 mm

Data source:
Aerotech

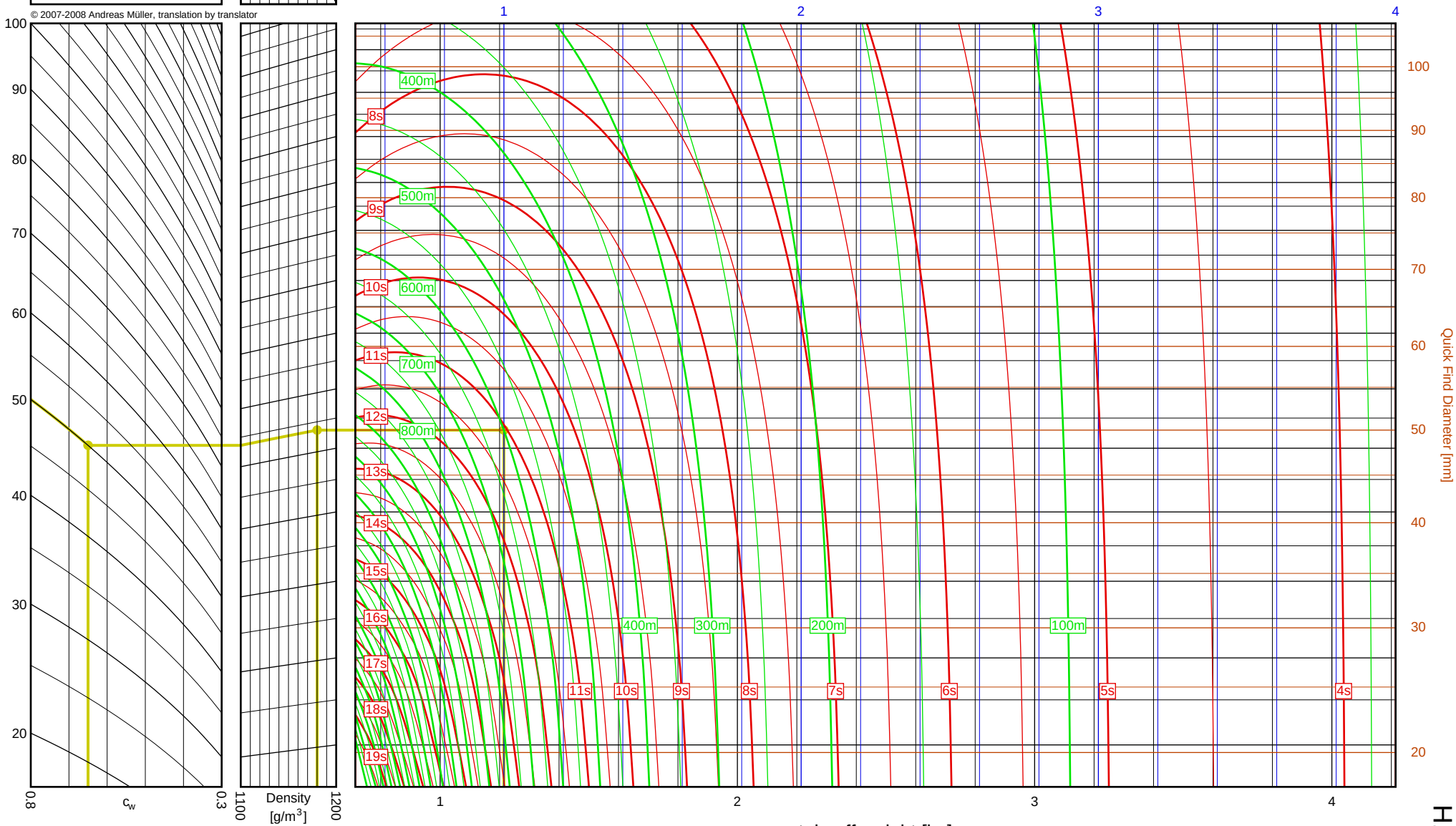
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.215kg
Results: time to apogee: 11.1s, expected altitude: 600m

empty weight [kg]

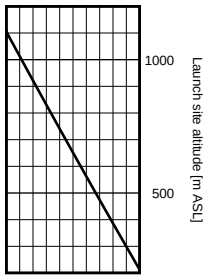


Aerotech H165R

I_{tot}	=	160.9 Ns
F_{avg}	=	153.2 N
t_{burn}	=	1.05 s
d	=	29 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.204kg
Results: time to apogee: 11.2s, expected altitude: 644m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

H165R

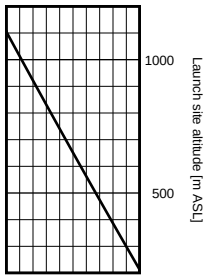
H-I

Aerotech H55W

I_{tot}	=	161.2 Ns
F_{avg}	=	58.7 N
t_{burn}	=	2.75 s
d	=	29 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.188kg
Results: time to apogee: 11.6s, expected altitude: 638m

empty weight [kg]

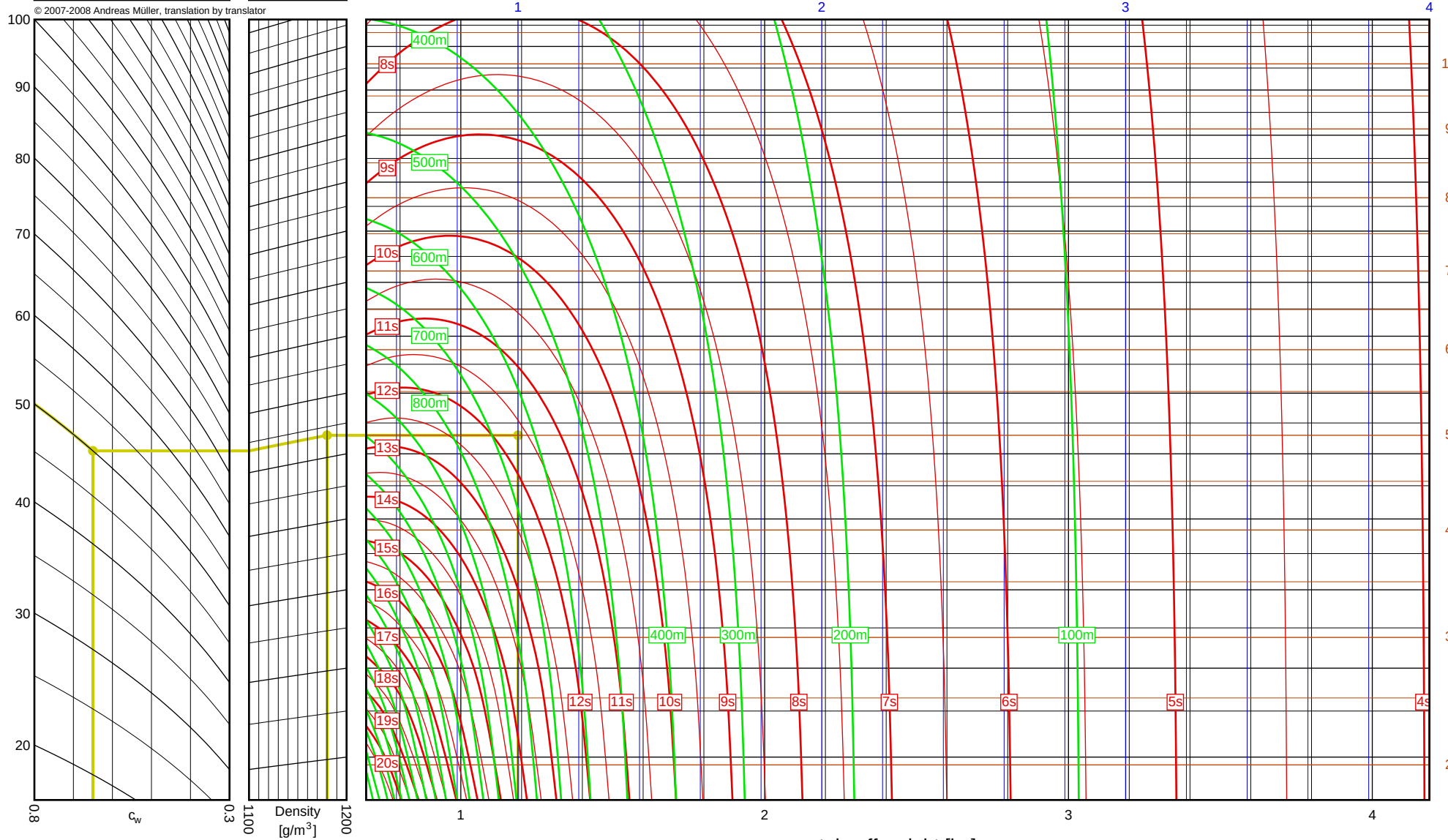
takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

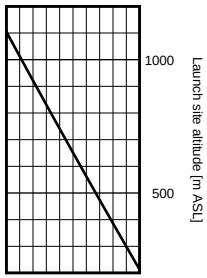


Aerotech H73J

I_{tot}	=	162.7 Ns
F_{avg}	=	46.5 N
t_{burn}	=	3.50 s
d	=	38 mm

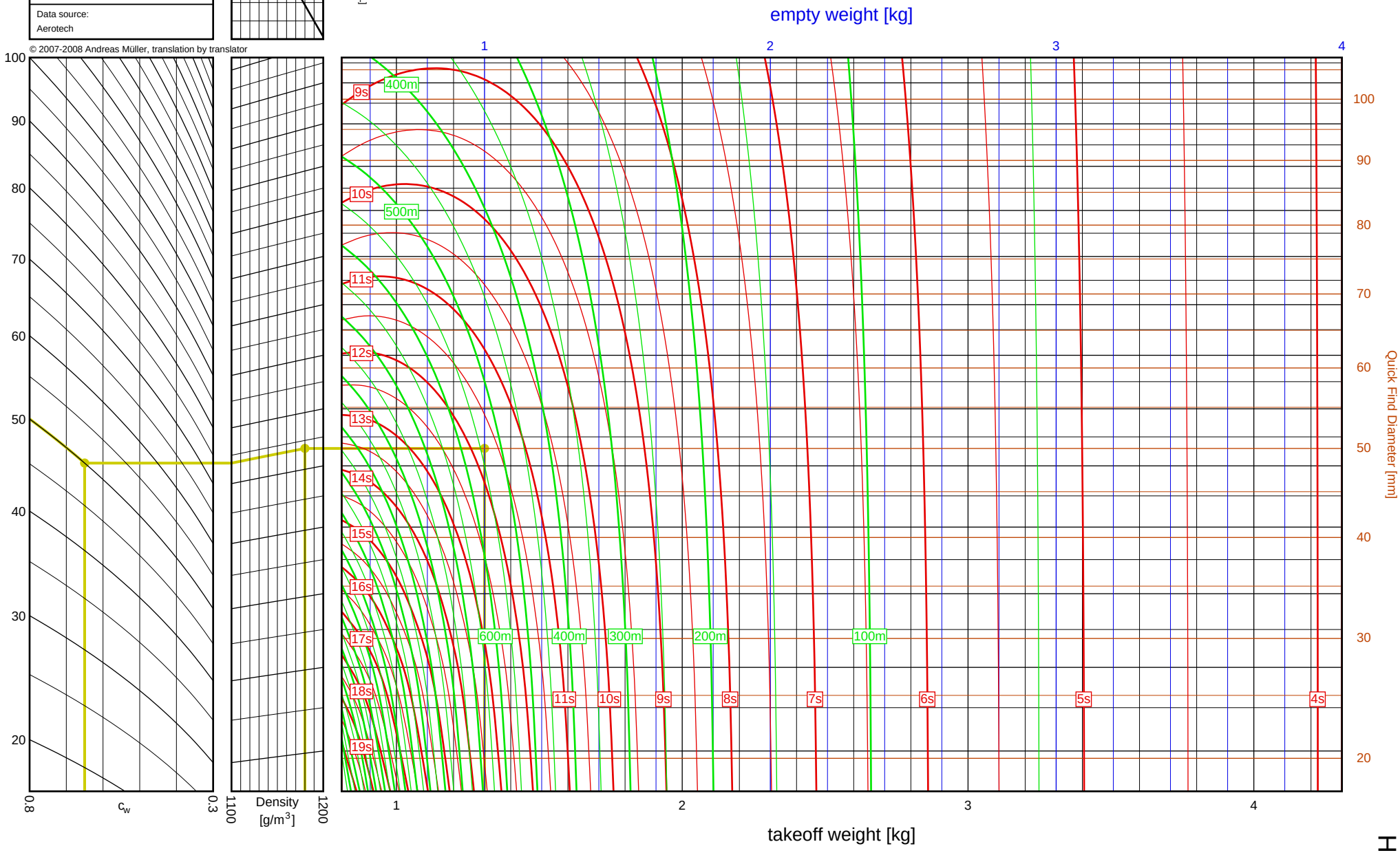
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.308kg
Results: time to apogee: 11.8s, expected altitude: 540m

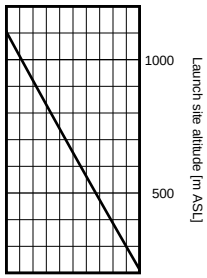


Aerotech H97J

I_{tot}	=	179.4 Ns
F_{avg}	=	112.1 N
t_{burn}	=	1.60 s
d	=	29 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.282kg
Results: time to apogee: 12.0s, expected altitude: 712m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

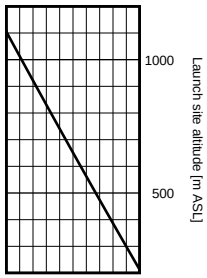
H97J

Aerotech H180W

I_{tot}	=	196.8 Ns
F_{avg}	=	140.5 N
t_{burn}	=	1.40 s
d	=	29 mm

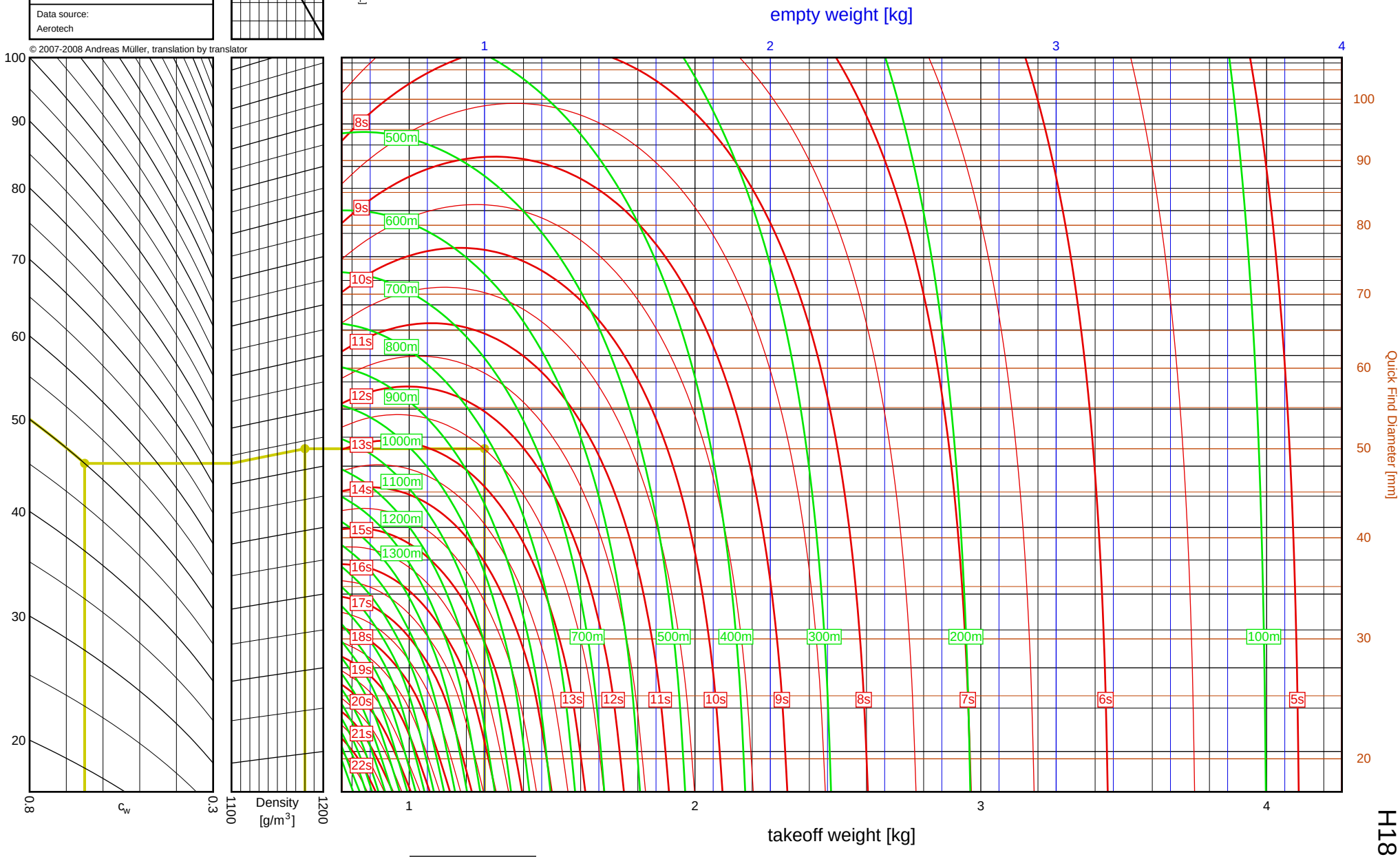
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.264kg
Results: time to apogee: 12.5s, expected altitude: 822m



Aerotech H123W

I_{tot}	=	197.6 Ns
F_{avg}	=	76.0 N
t_{burn}	=	2.60 s
d	=	38 mm

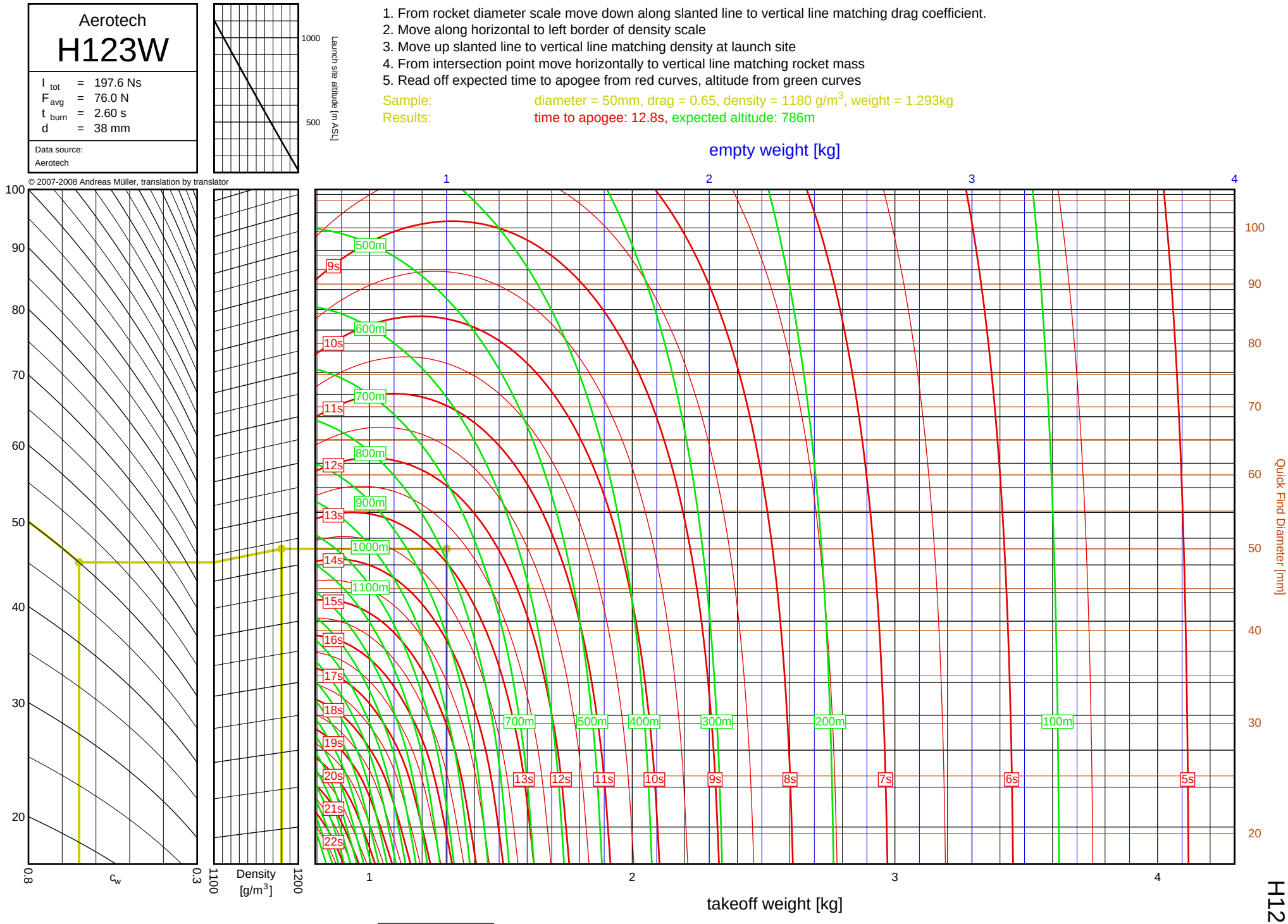
Data source: Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.293kg

Results: time to apogee: 12.8s, expected altitude: 786m



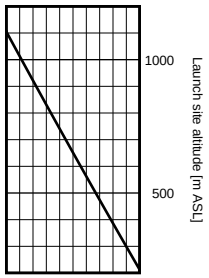
Aerotech

H210R

I_{tot}	=	210.1 Ns
F_{avg}	=	208.0 N
t_{burn}	=	1.01 s
d	=	29 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.249kg
Results: time to apogee: 12.8s, expected altitude: 908m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

H210R

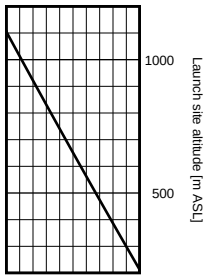
H210R

Aerotech H148R

I_{tot}	=	214.2 Ns
F_{avg}	=	142.8 N
t_{burn}	=	1.50 s
d	=	38 mm

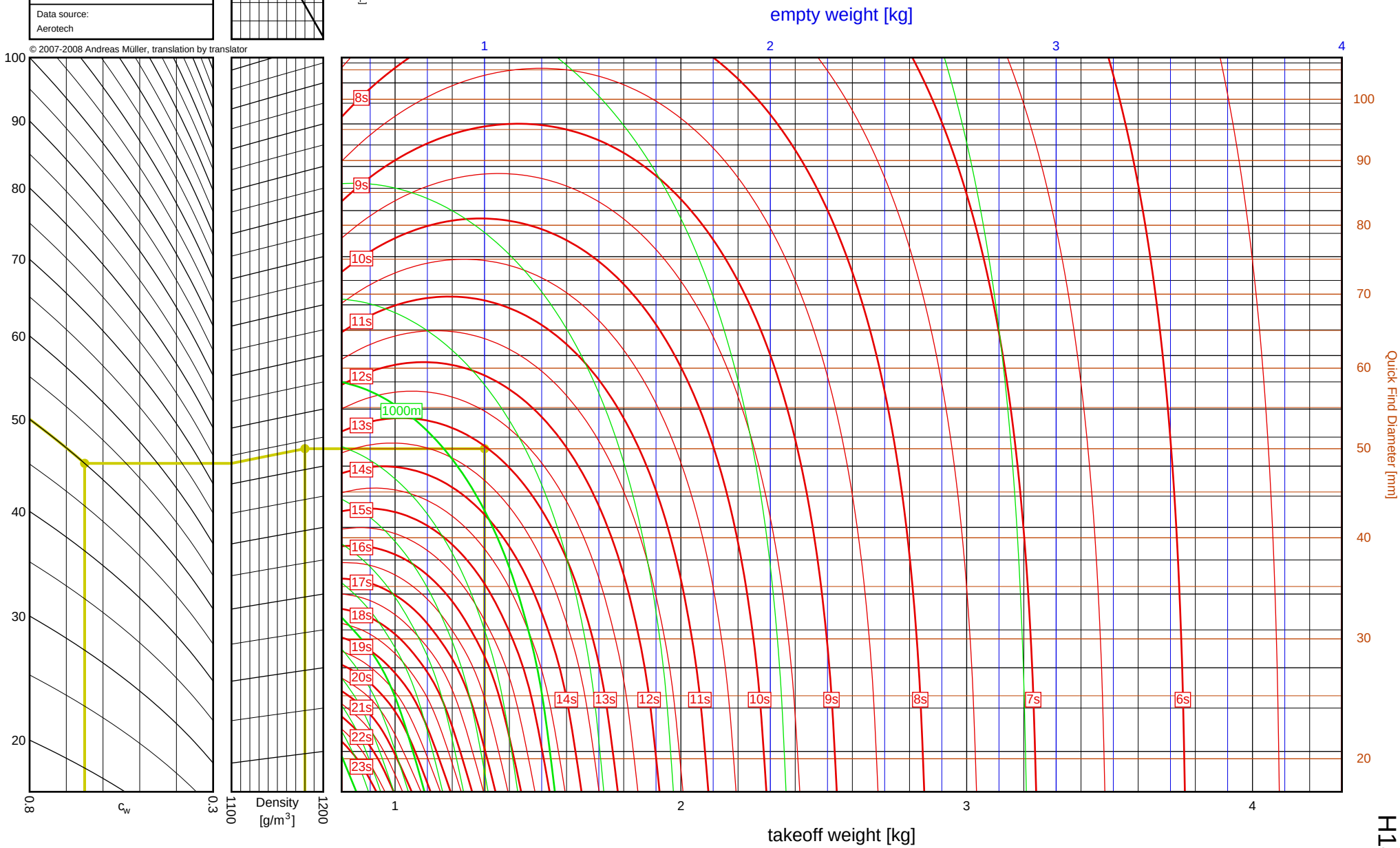
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.313kg
Results: time to apogee: 13.0s, expected altitude: 899m



H148R

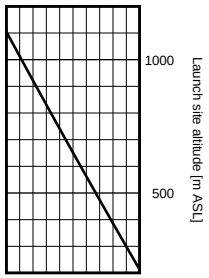
H148R

Aerotech H220T

I_{tot}	=	215.4 Ns
F_{avg}	=	215.4 N
t_{burn}	=	1.00 s
d	=	29 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.246kg
Results: time to apogee: 12.9s, expected altitude: 931m

empty weight [kg]

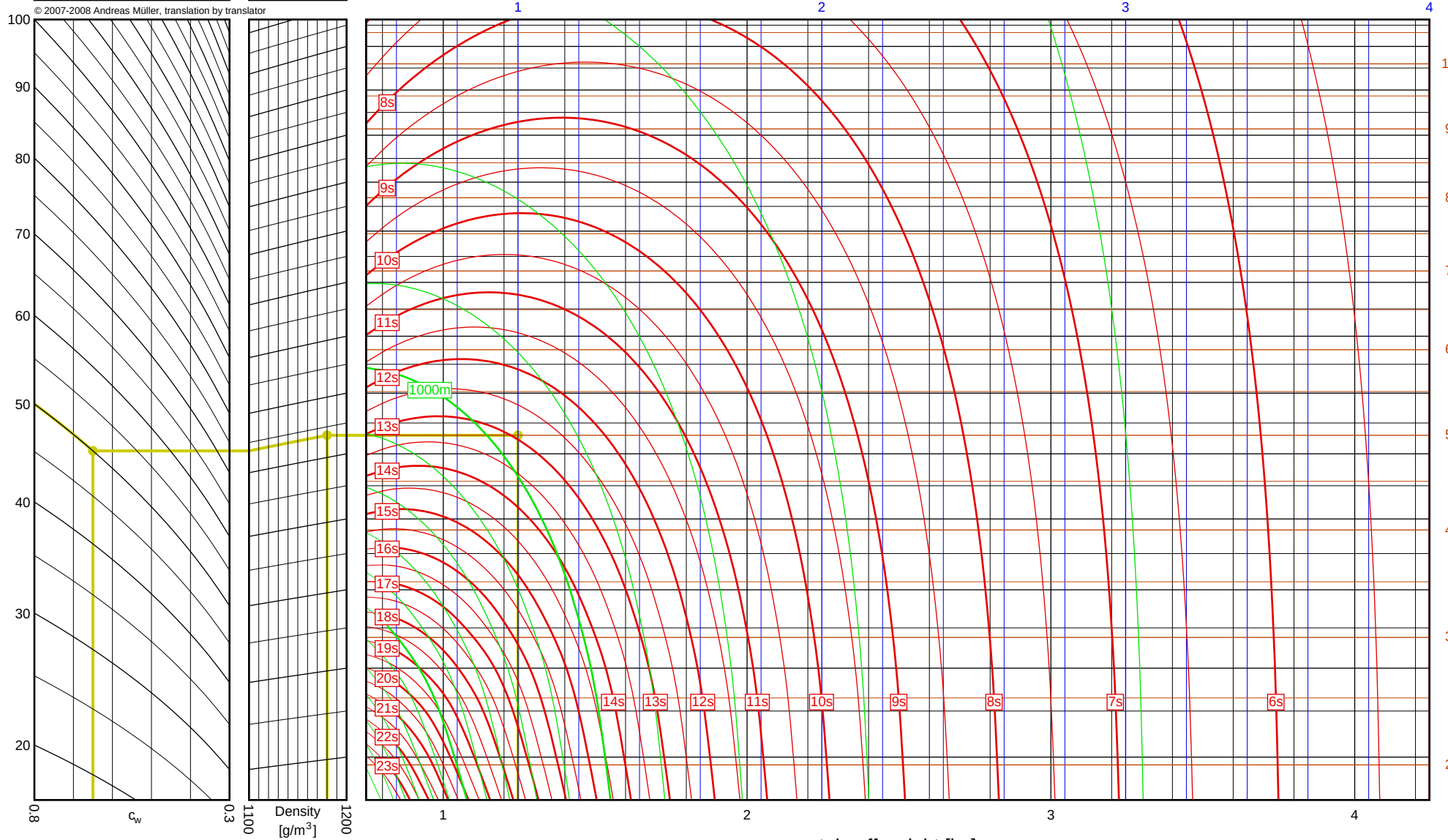
takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]



4-11

H220T

H-I

4

H220T

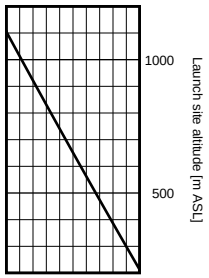
Aerotech

H669N

I_{tot}	=	219.7 Ns
F_{avg}	=	667.9 N
t_{burn}	=	0.33 s
d	=	38 mm

Data source:
Aerotech

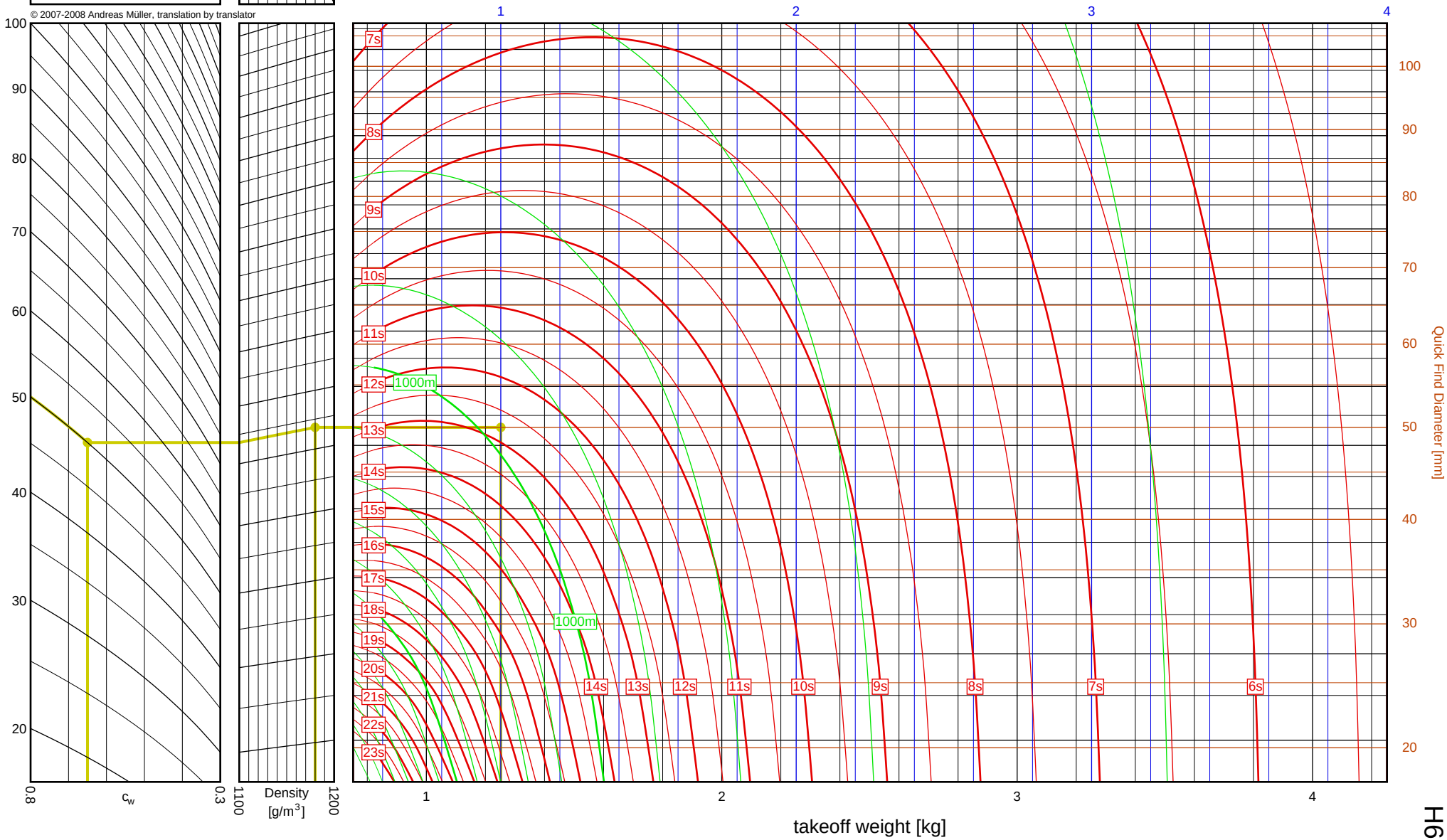
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.252kg
Results: time to apogee: 12.8s, expected altitude: 950m

empty weight [kg]

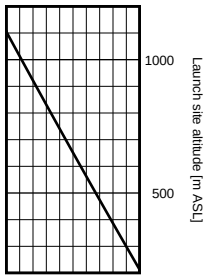


Aerotech H242T

I_{tot}	=	219.9 Ns
F_{avg}	=	183.3 N
t_{burn}	=	1.20 s
d	=	38 mm

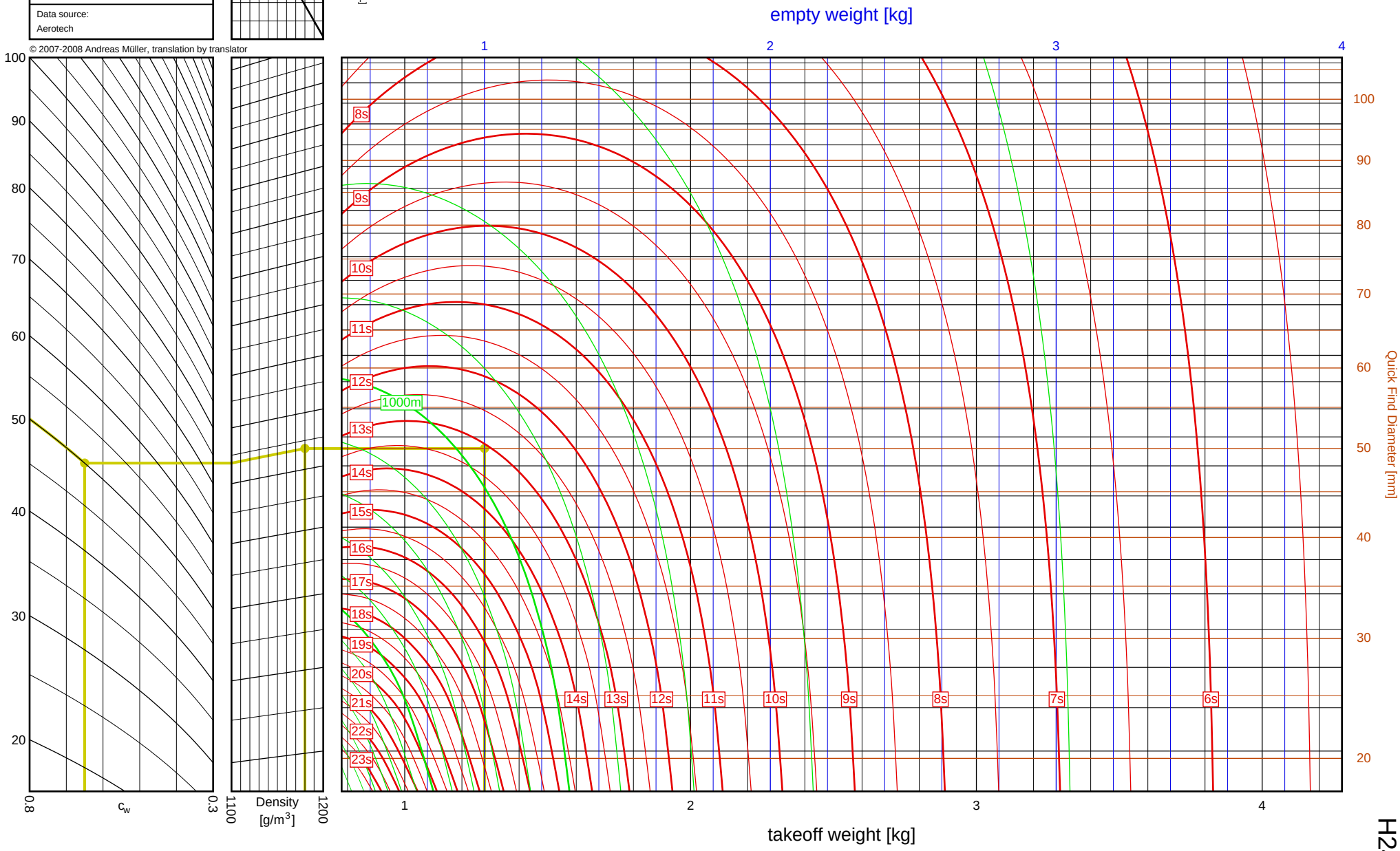
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.279kg
Results: time to apogee: 13.1s, expected altitude: 932m



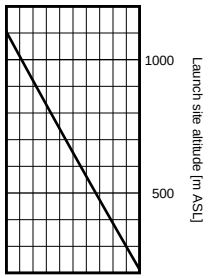
Aerotech

H250G

I_{tot}	=	231.0 Ns
F_{avg}	=	251.1 N
t_{burn}	=	0.92 s
d	=	29 mm

Data source:
Aerotech

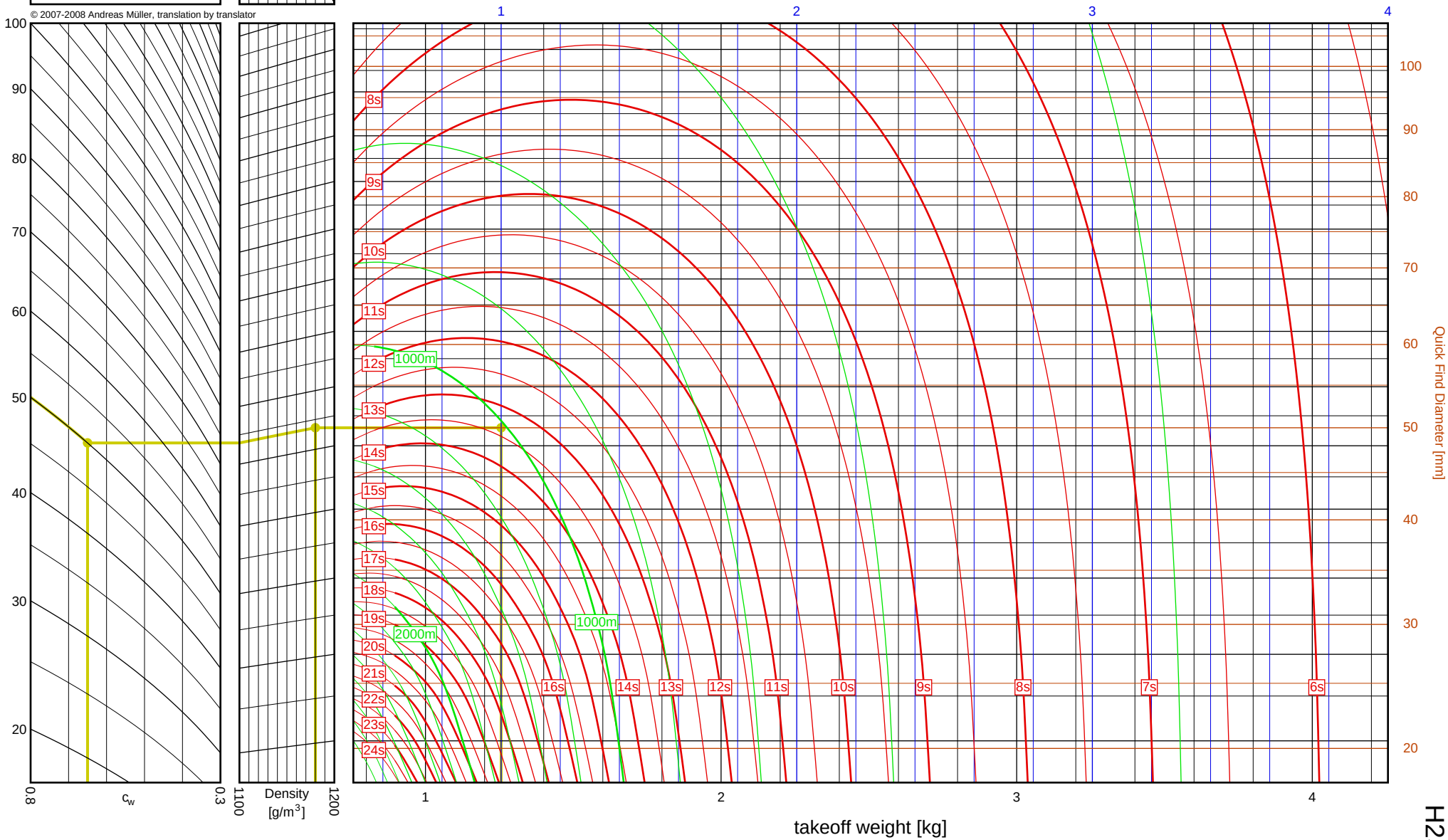
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.256kg
Results: time to apogee: 13.4s, expected altitude: 1014m

empty weight [kg]



4-14

H250G

H250G

H-I

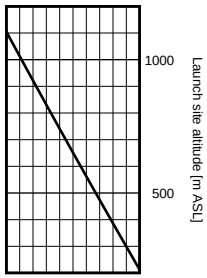
Aerotech

H112J

I_{tot}	=	280.7 Ns
F_{avg}	=	82.6 N
t_{burn}	=	3.40 s
d	=	38 mm

Data source:
Aerotech

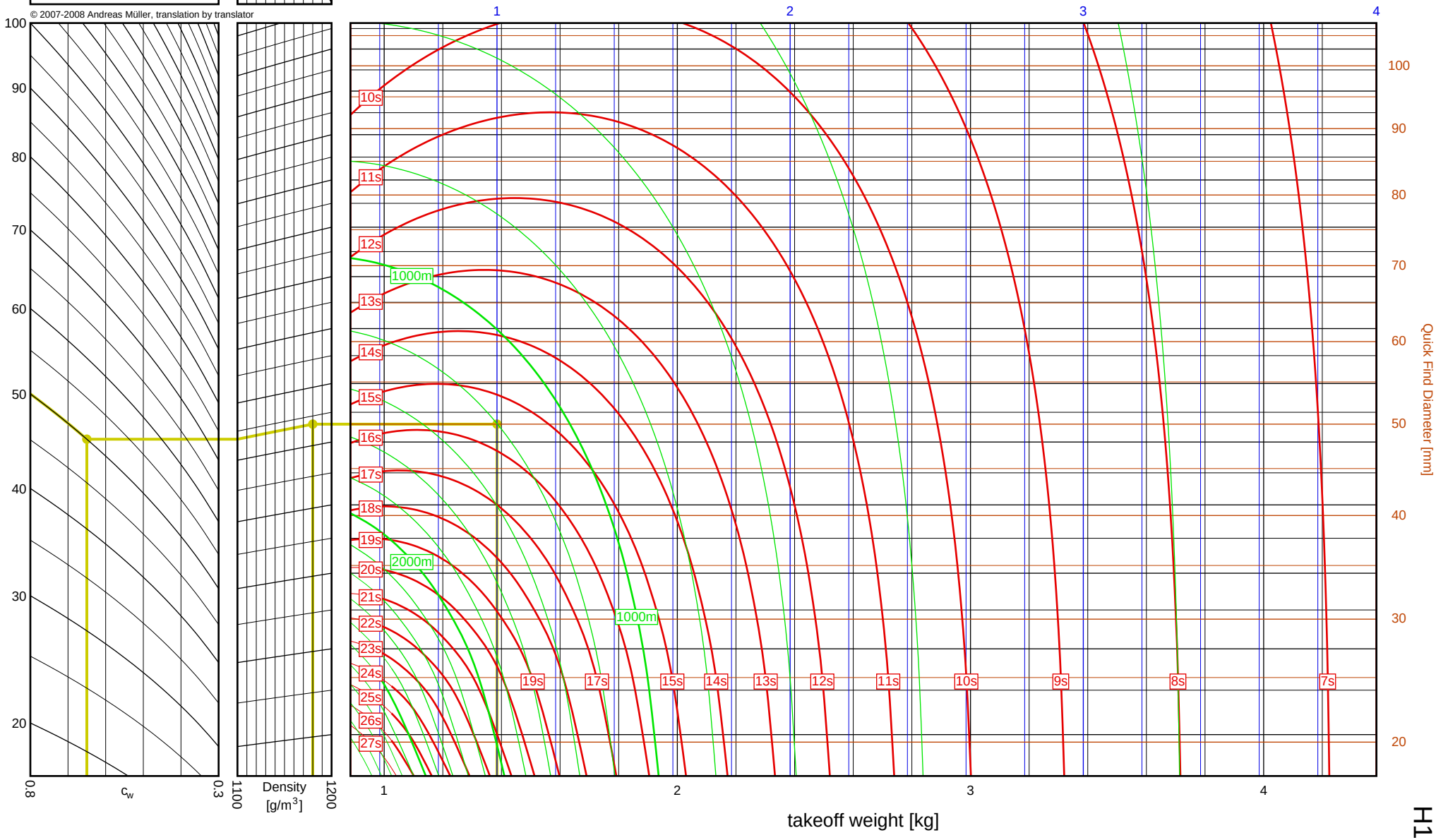
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.385kg
Results: time to apogee: 15.5s, expected altitude: 1202m

empty weight [kg]



H112J

H-I

H112J

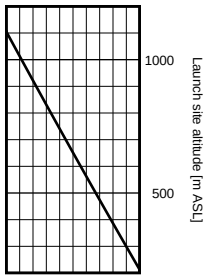
Aerotech

H268R

I_{tot}	=	309.7 Ns
F_{avg}	=	262.5 N
t_{burn}	=	1.18 s
d	=	29 mm

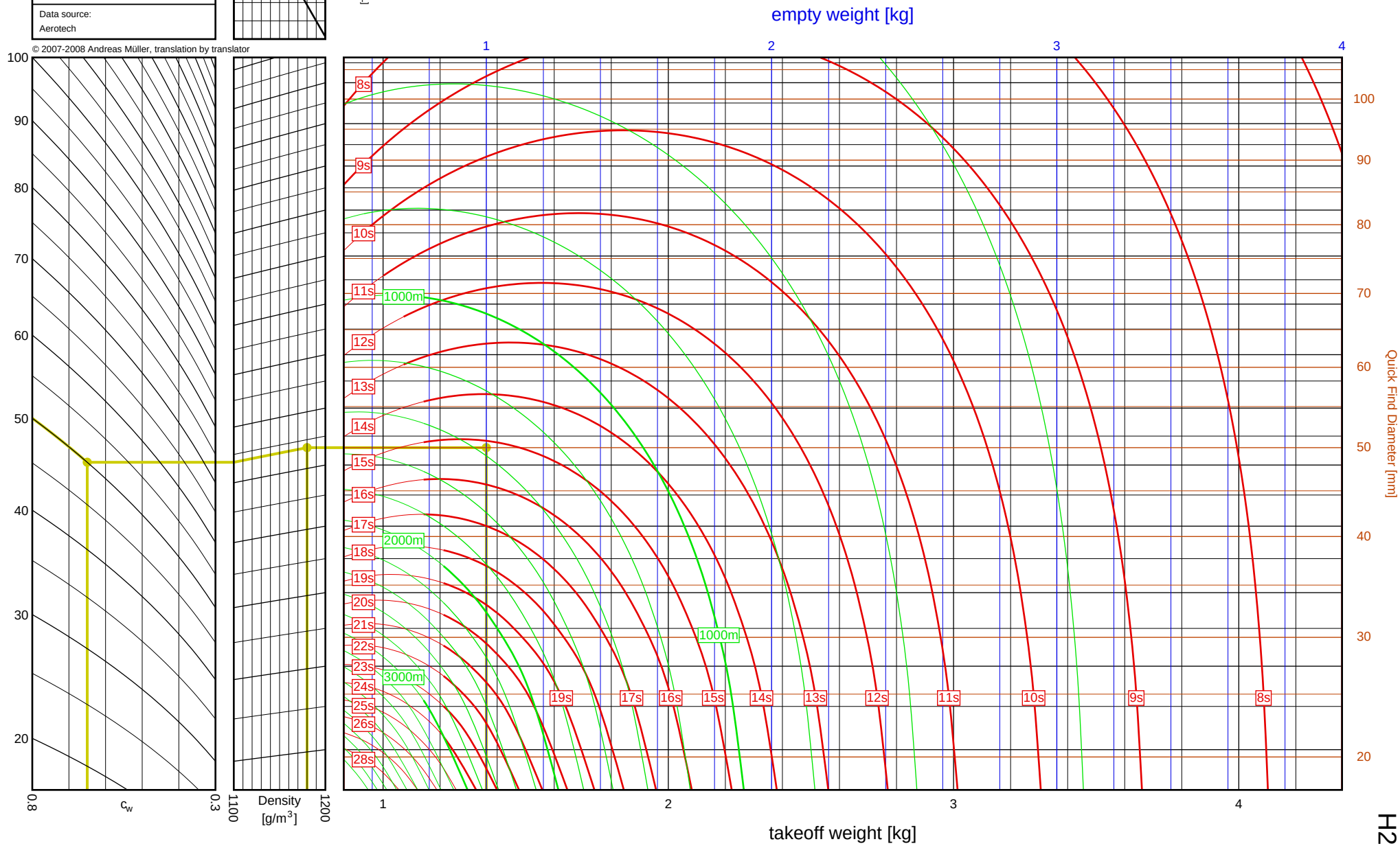
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.362kg
Results: time to apogee: 15.2s, expected altitude: 1374m

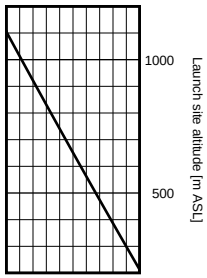


Aerotech I357T

I_{tot}	=	317.7 Ns
F_{avg}	=	288.8 N
t_{burn}	=	1.10 s
d	=	38 mm

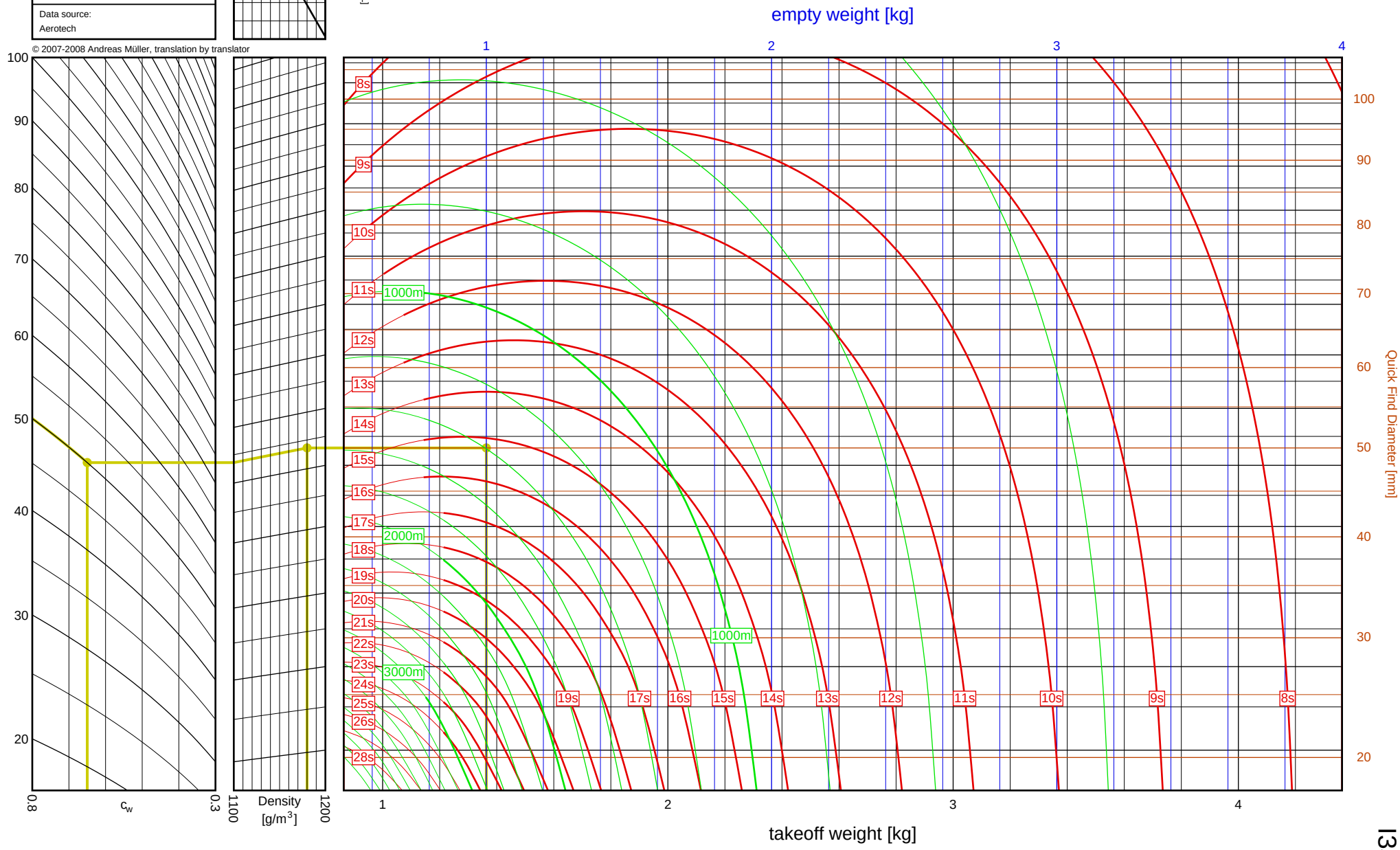
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.363kg
Results: time to apogee: 15.2s, expected altitude: 1398m

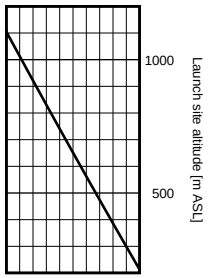


Aerotech I218R

I_{tot}	=	317.9 Ns
F_{avg}	=	211.9 N
t_{burn}	=	1.50 s
d	=	38 mm

Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.375kg
Results: time to apogee: 15.5s, expected altitude: 1410m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

I218R

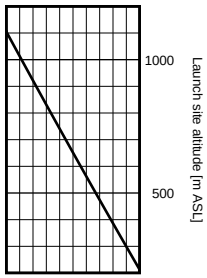
Aerotech

H999N

I_{tot}	=	320.0 Ns
F_{avg}	=	972.6 N
t_{burn}	=	0.33 s
d	=	38 mm

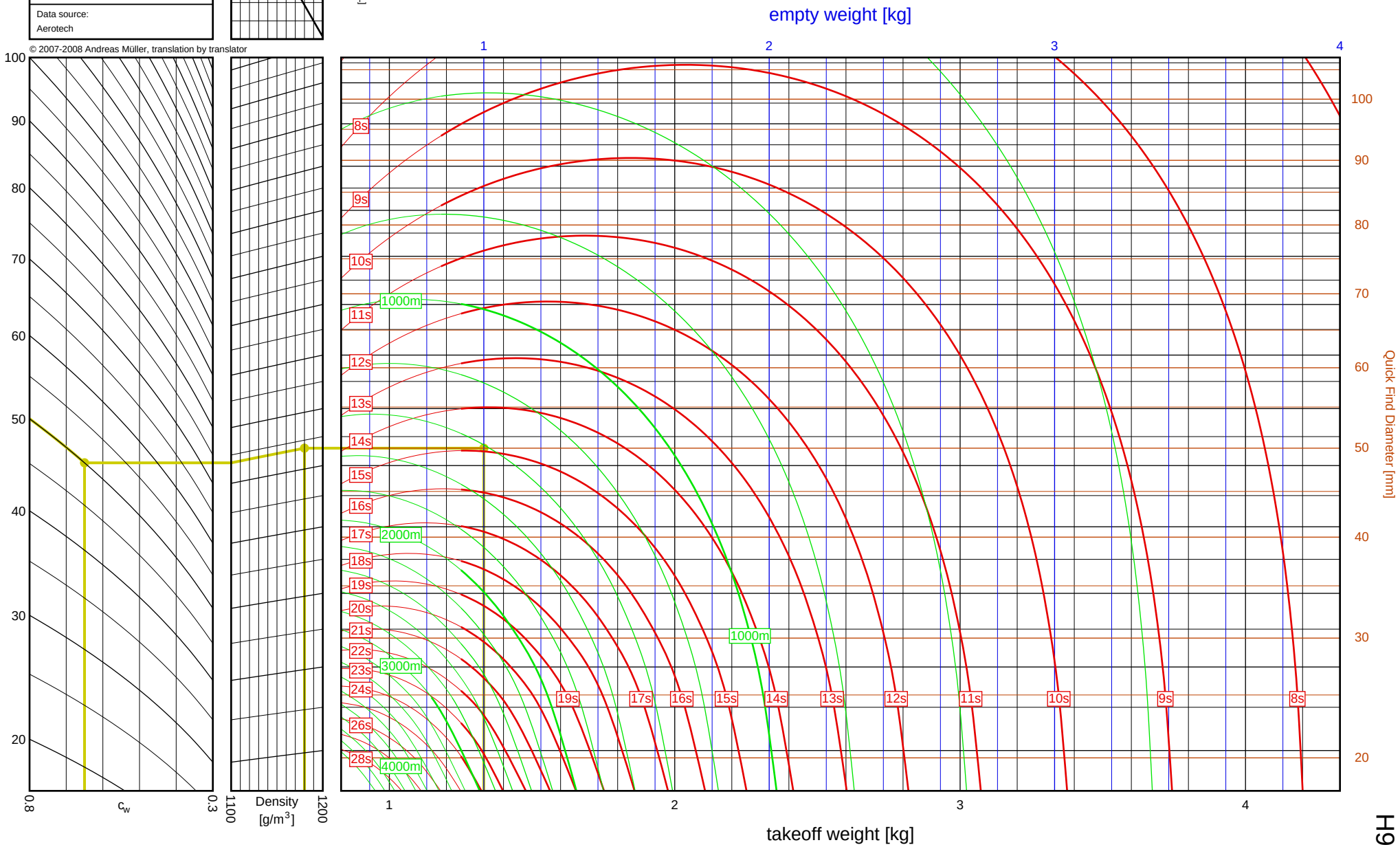
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.331kg
Results: time to apogee: 14.9s, expected altitude: 1413m



H999N

H-I

4

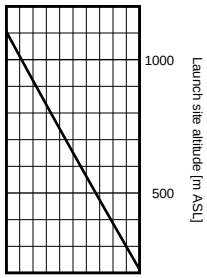
H999N

Aerotech
I200W

I_{tot}	=	326.8 Ns
F_{avg}	=	181.2 N
t_{burn}	=	1.80 s
d	=	29 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.358kg
Results: time to apogee: 15.7s, expected altitude: 1459m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

9s 10s 11s 12s 13s 14s 15s 16s 17s 18s 19s 20s 21s 22s 23s 24s 25s 27s 29s

1000m 2000m 3000m 4000m

21s 19s 17s 16s 15s 14s 13s 12s 11s 10s 9s 8s

I200W

H-I 4

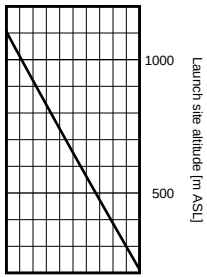
I200W

Aerotech I161W

I_{tot}	=	333.5 Ns
F_{avg}	=	145.0 N
t_{burn}	=	2.30 s
d	=	38 mm

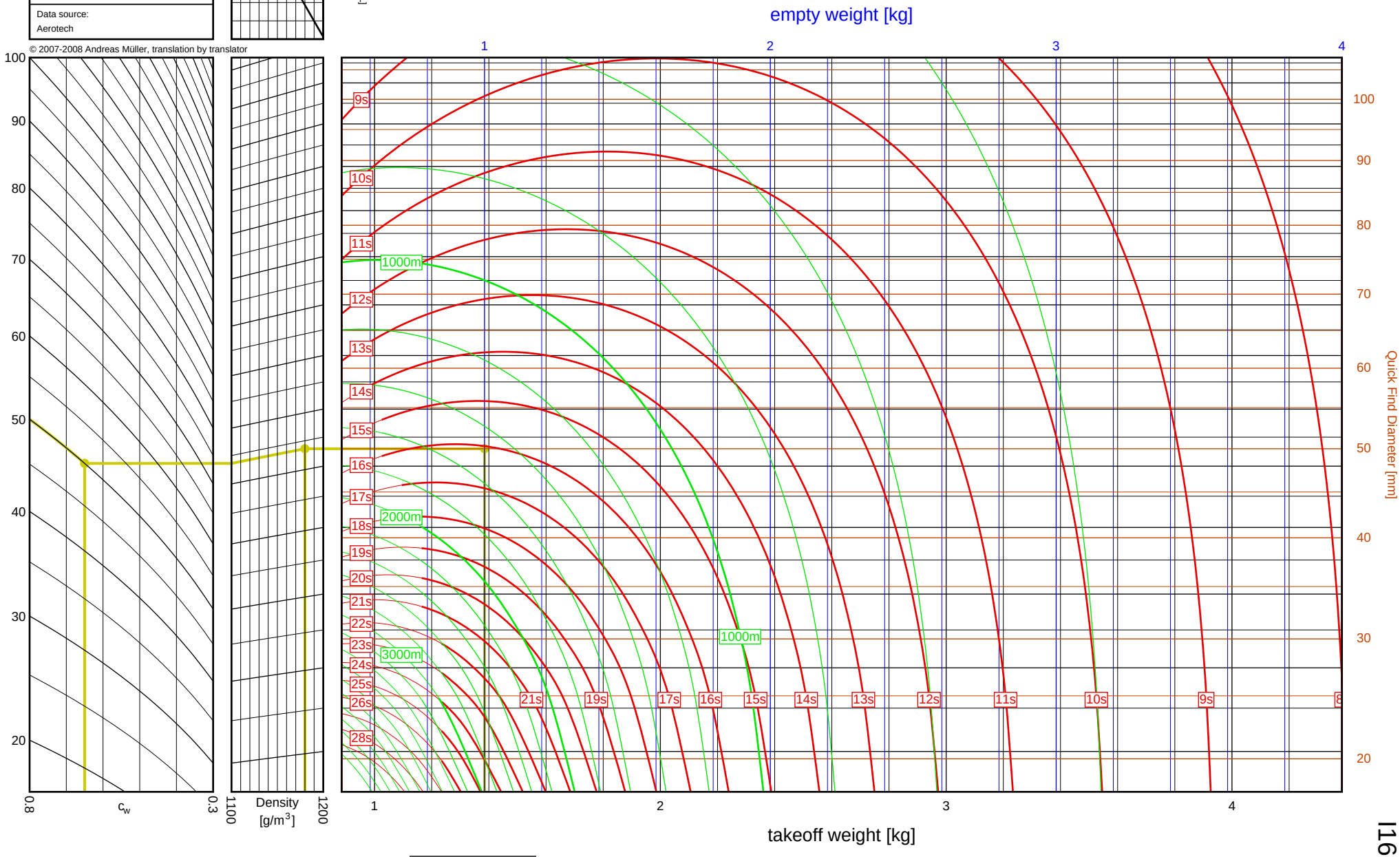
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.385kg
Results: time to apogee: 16.1s, expected altitude: 1477m

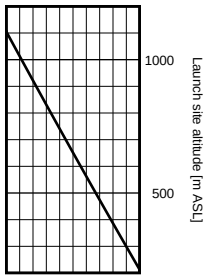


Aerotech I245G

I_{tot}	=	350.5 Ns
F_{avg}	=	239.5 N
t_{burn}	=	1.46 s
d	=	38 mm

Data source:
Aerotech

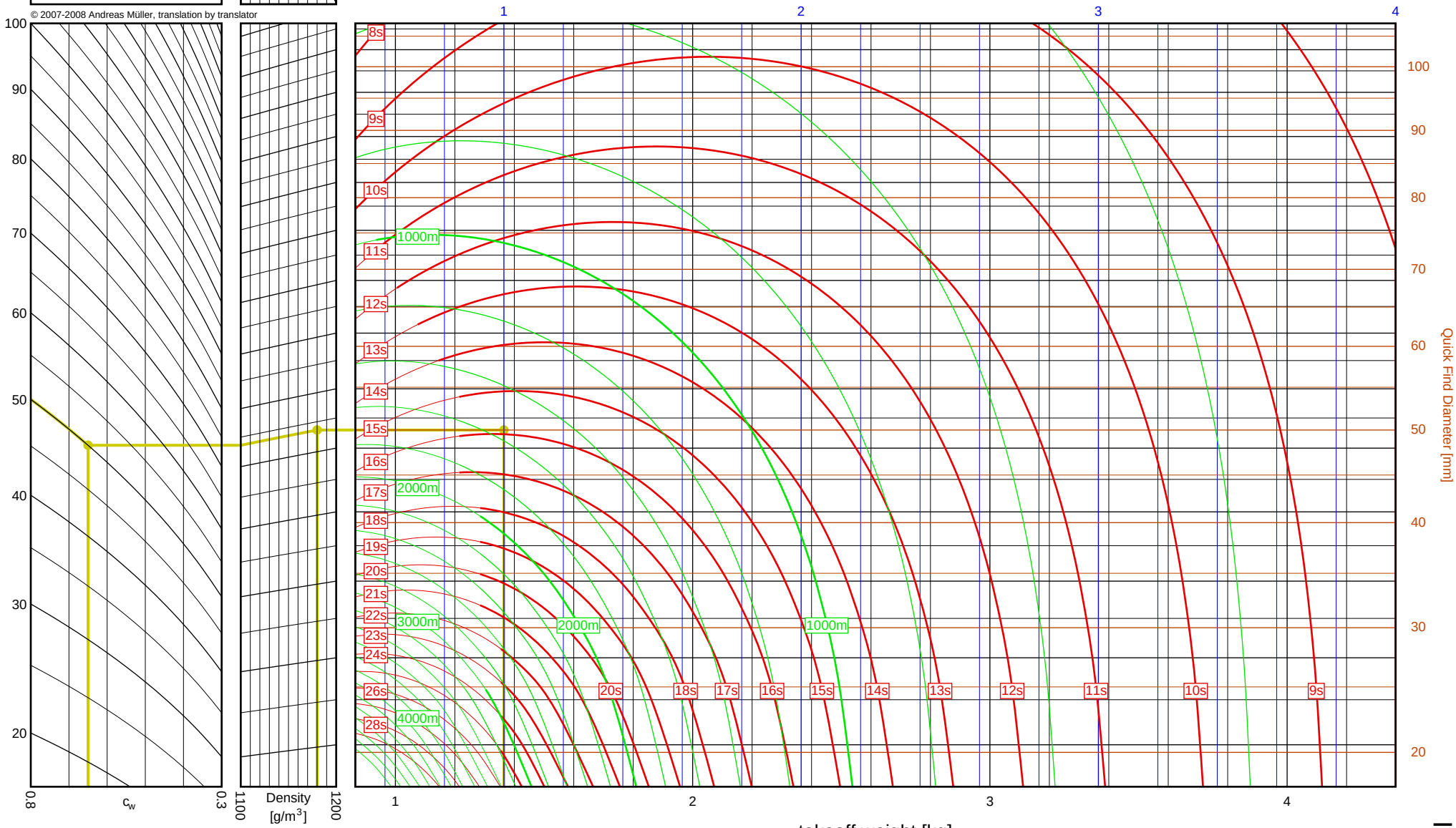
© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.365kg
Results: time to apogee: 15.9s, expected altitude: 1560m

empty weight [kg]

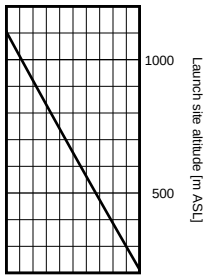


Aerotech
I225FJ

I_{tot}	=	371.3 Ns
F_{avg}	=	206.3 N
t_{burn}	=	1.80 s
d	=	38 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.486kg
Results: time to apogee: 16.5s, expected altitude: 1622m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

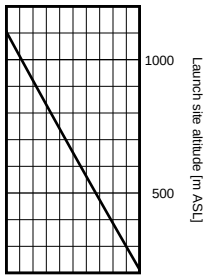
I225FJ

Aerotech I154J

I_{tot}	=	375.4 Ns
F_{avg}	=	104.3 N
t_{burn}	=	3.60 s
d	=	38 mm

Data source: Aerotech

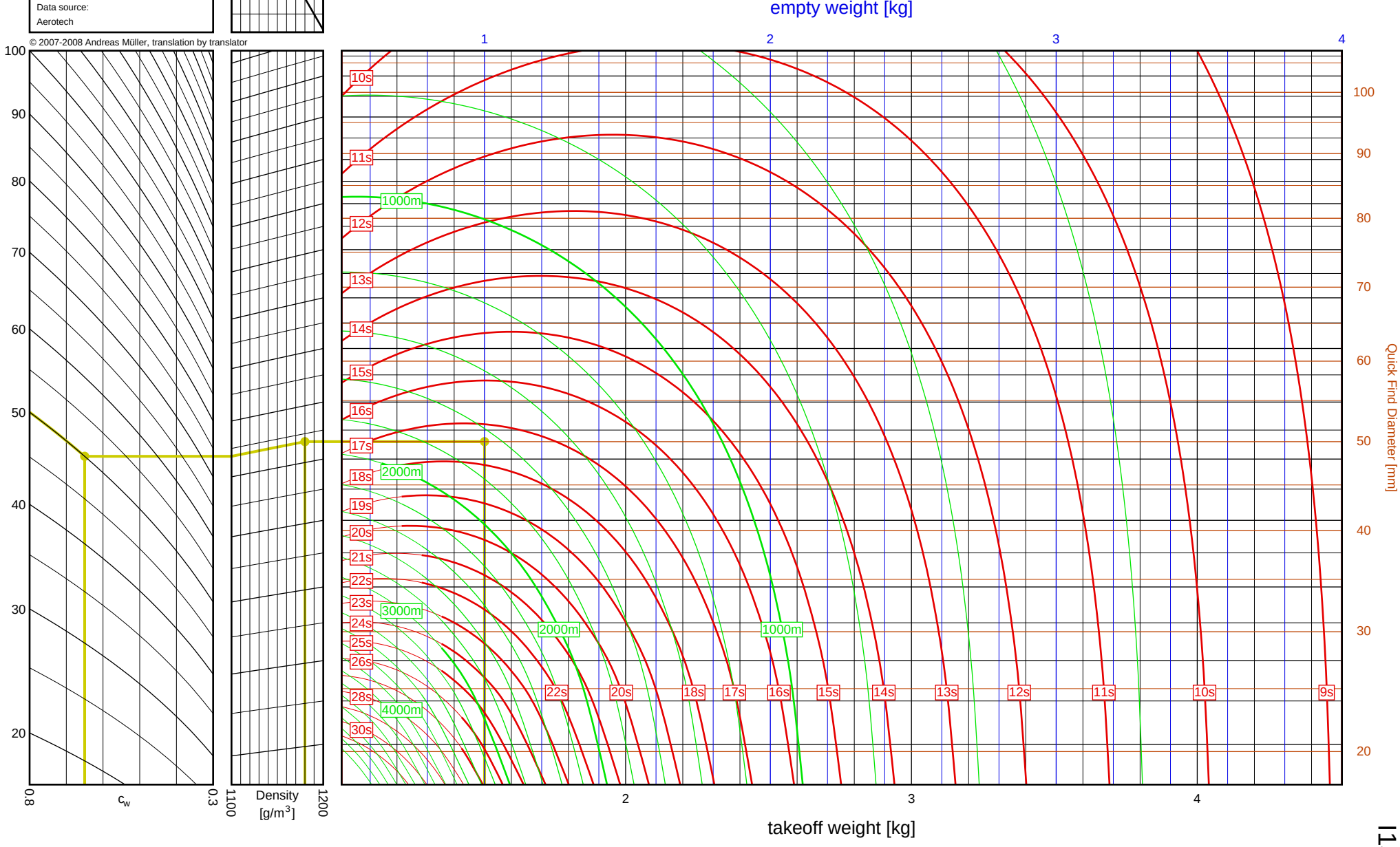
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 1.506kg

Results: time to apogee: 17.4s, expected altitude: 1651m



Aerotech I357T

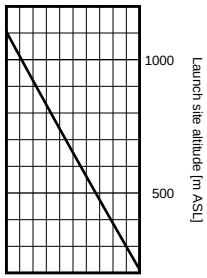
I_{tot}	=	317.7 Ns
F_{avg}	=	288.8 N
t_{burn}	=	1.10 s
d	=	38 mm

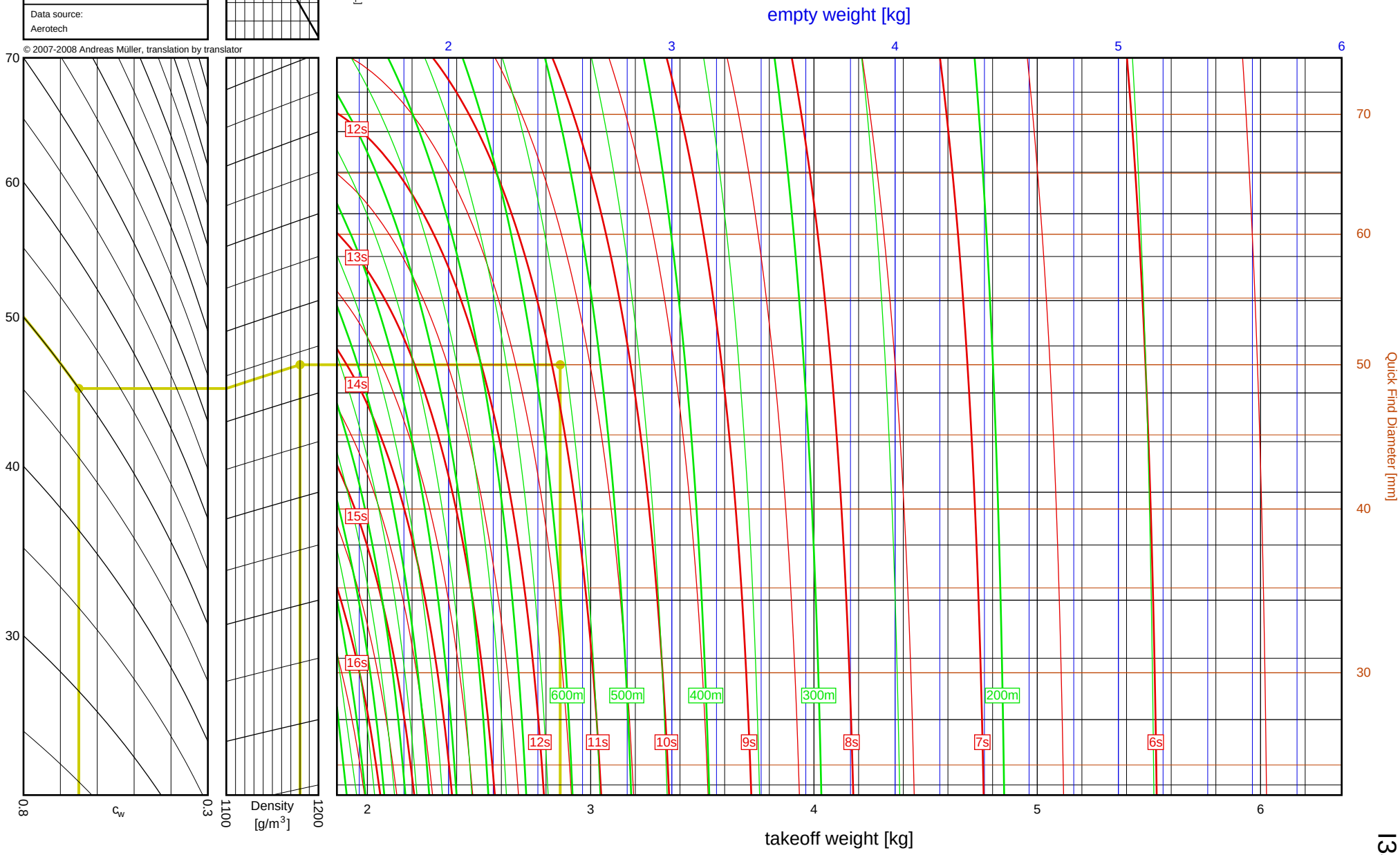
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.863kg
Results: time to apogee: 10.9s, expected altitude: 559m





Aerotech I218R

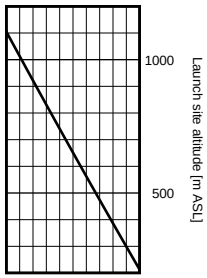
I_{tot}	=	317.9 Ns
F_{avg}	=	211.9 N
t_{burn}	=	1.50 s
d	=	38 mm

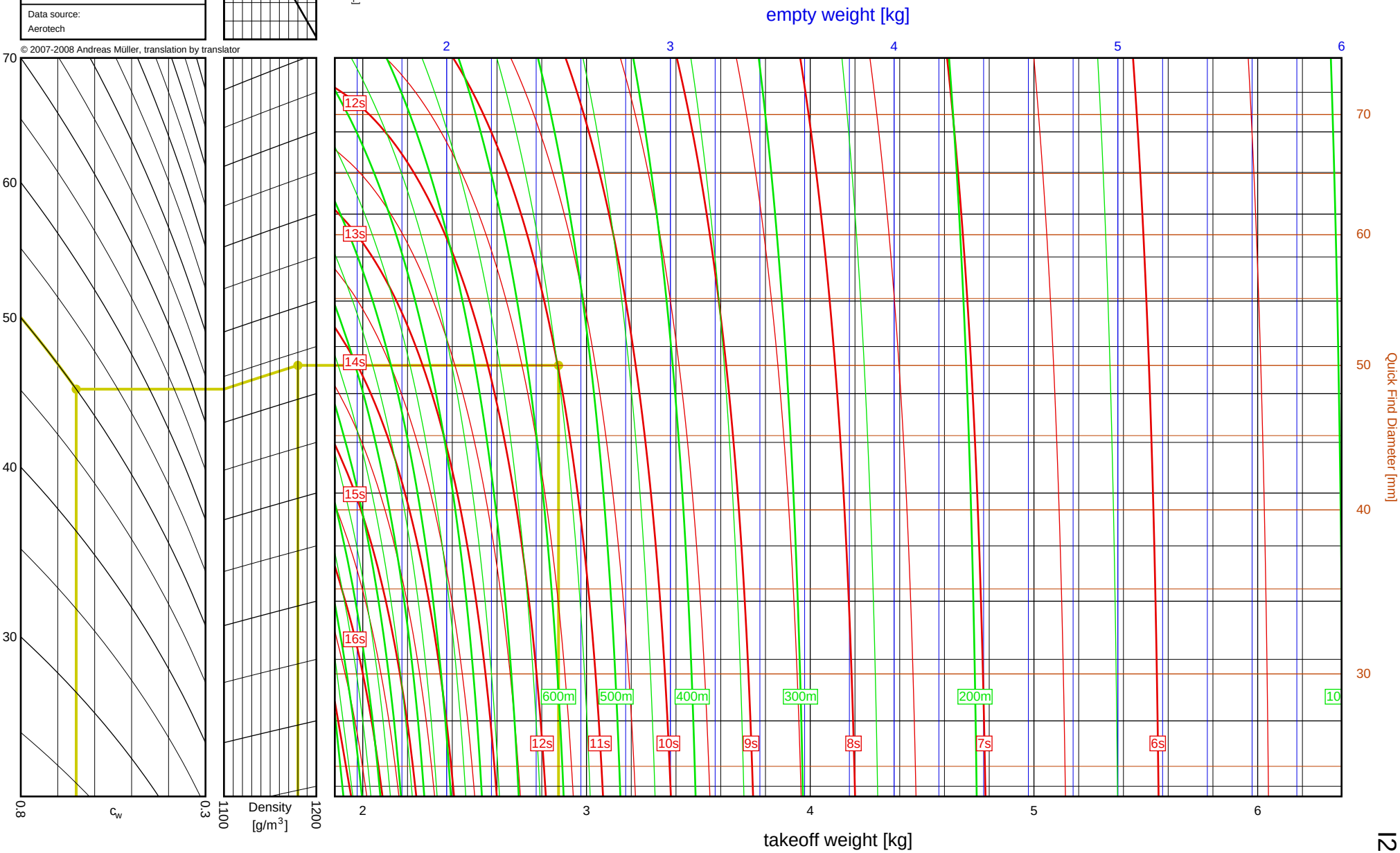
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.875kg
Results: time to apogee: 11.0s, expected altitude: 548m



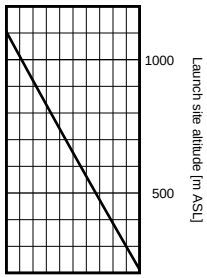


Aerotech I200W

I_{tot}	=	326.8 Ns
F_{avg}	=	181.2 N
t_{burn}	=	1.80 s
d	=	29 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.858kg
Results: time to apogee: 11.3s, expected altitude: 577m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

I200W

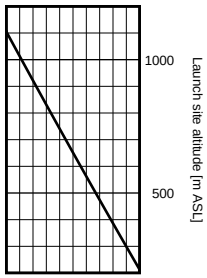
I200W

Aerotech I161W

I_{tot}	=	333.5 Ns
F_{avg}	=	145.0 N
t_{burn}	=	2.30 s
d	=	38 mm

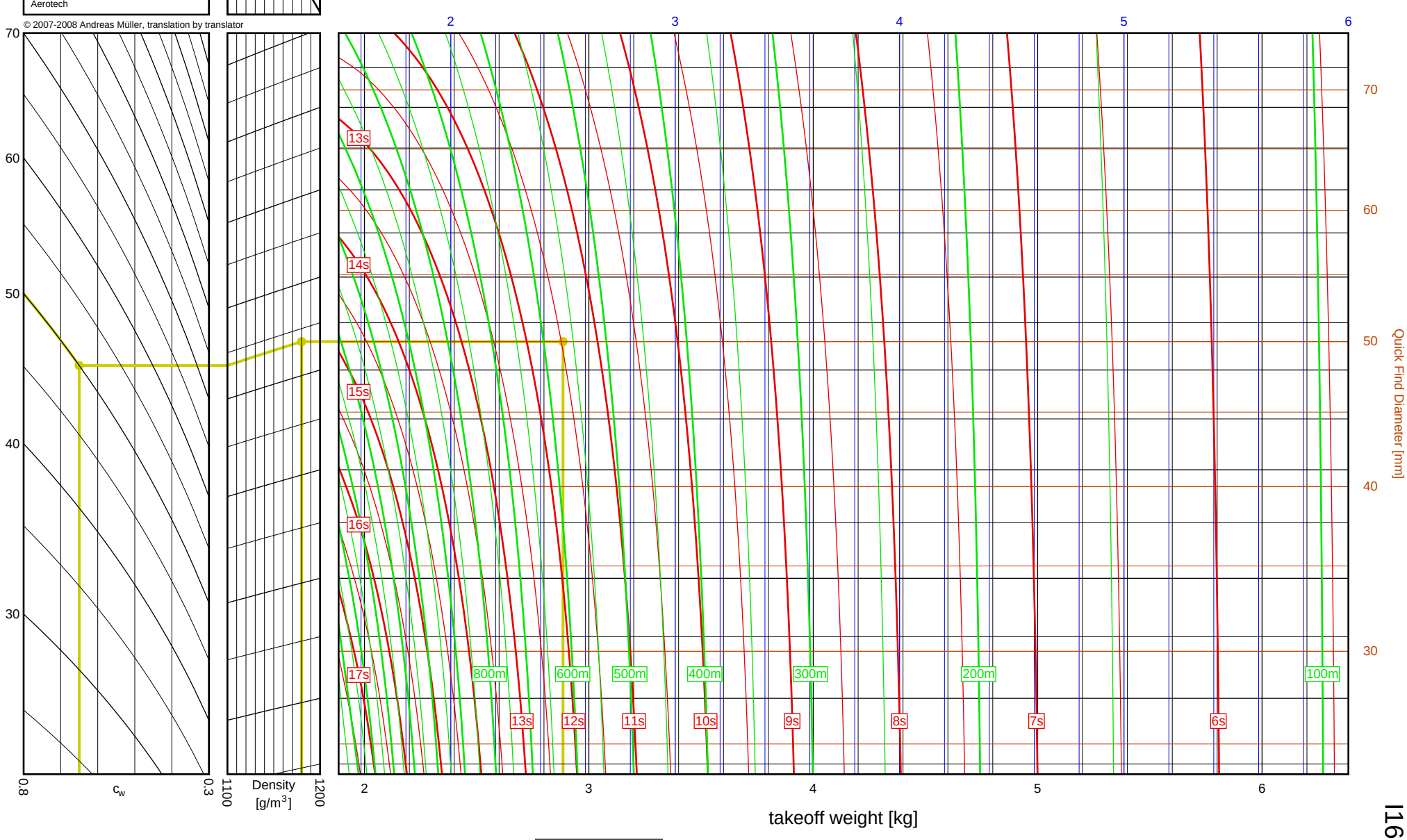
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.885kg
Results: time to apogee: 11.5s, expected altitude: 567m



I161W

Aerotech I245G

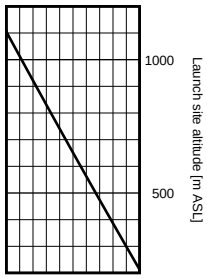
I_{tot}	=	350.5 Ns
F_{avg}	=	239.5 N
t_{burn}	=	1.46 s
d	=	38 mm

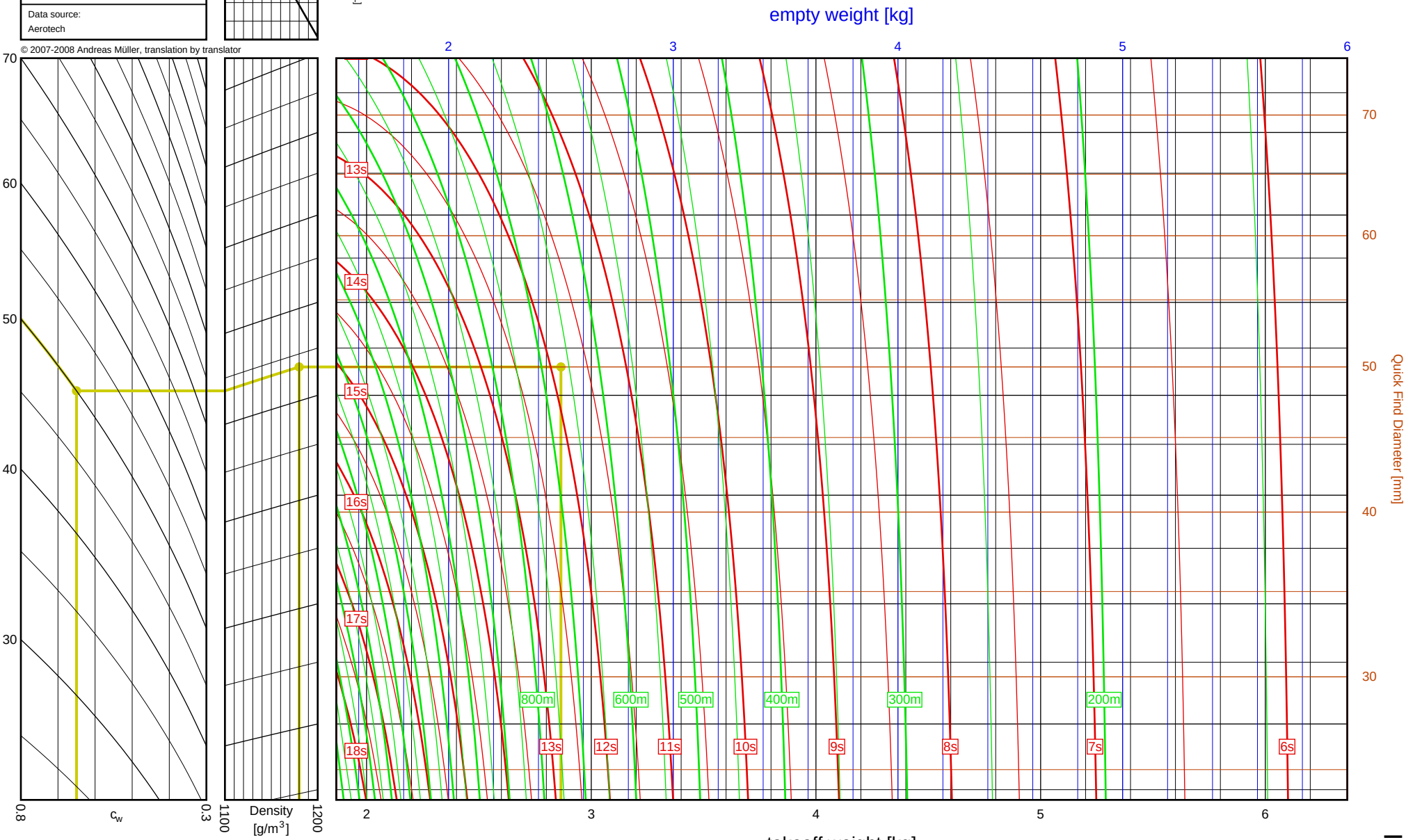
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.865kg
Results: time to apogee: 11.9s, expected altitude: 664m



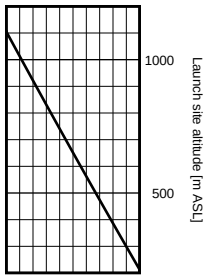


Aerotech I225FJ

I_{tot}	=	371.3 Ns
F_{avg}	=	206.3 N
t_{burn}	=	1.80 s
d	=	38 mm

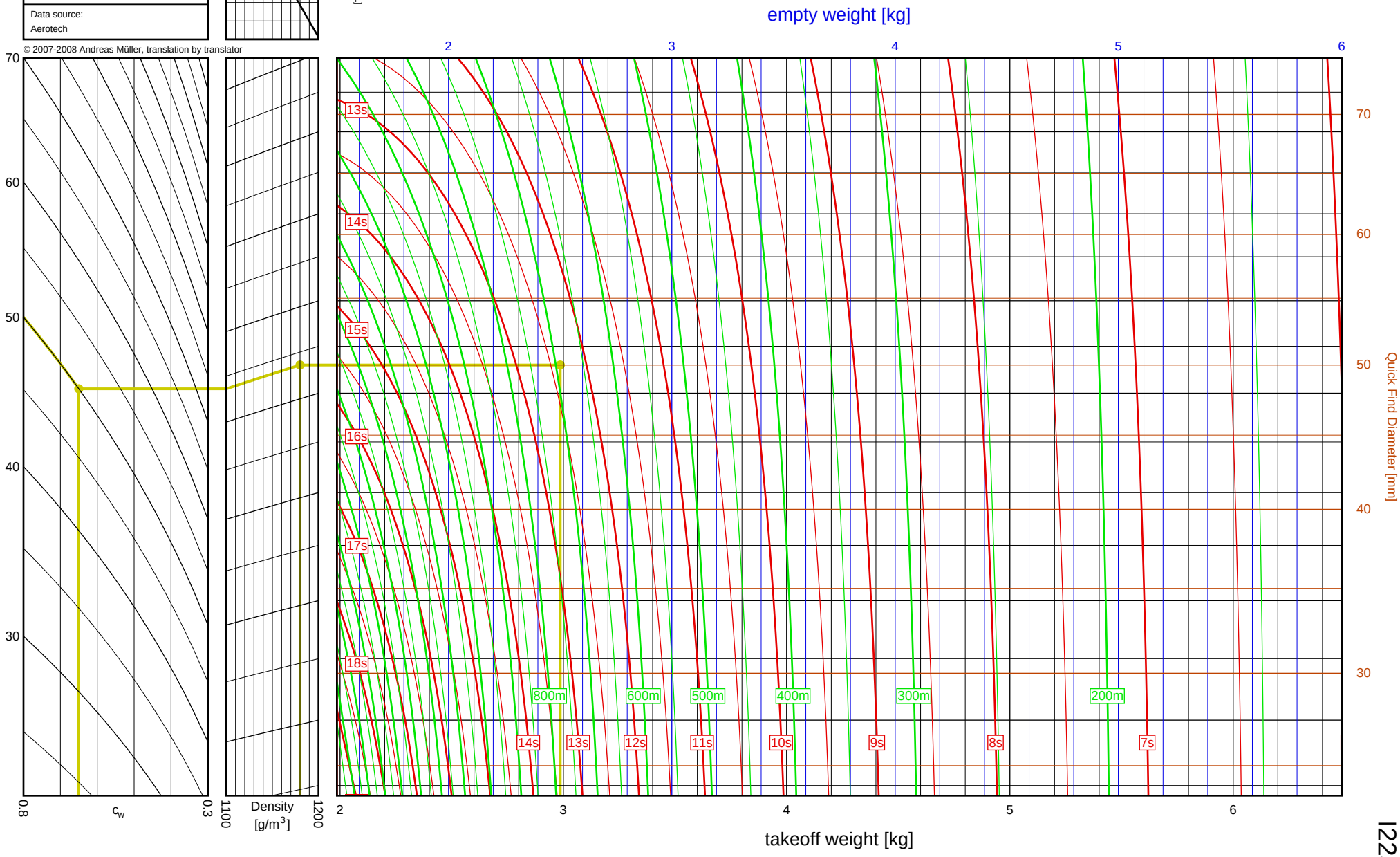
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.986kg
Results: time to apogee: 12.4s, expected altitude: 692m

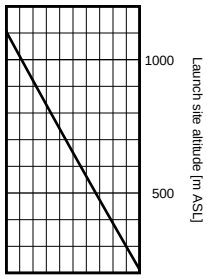


Aerotech I154J

I_{tot}	=	375.4 Ns
F_{avg}	=	104.3 N
t_{burn}	=	3.60 s
d	=	38 mm

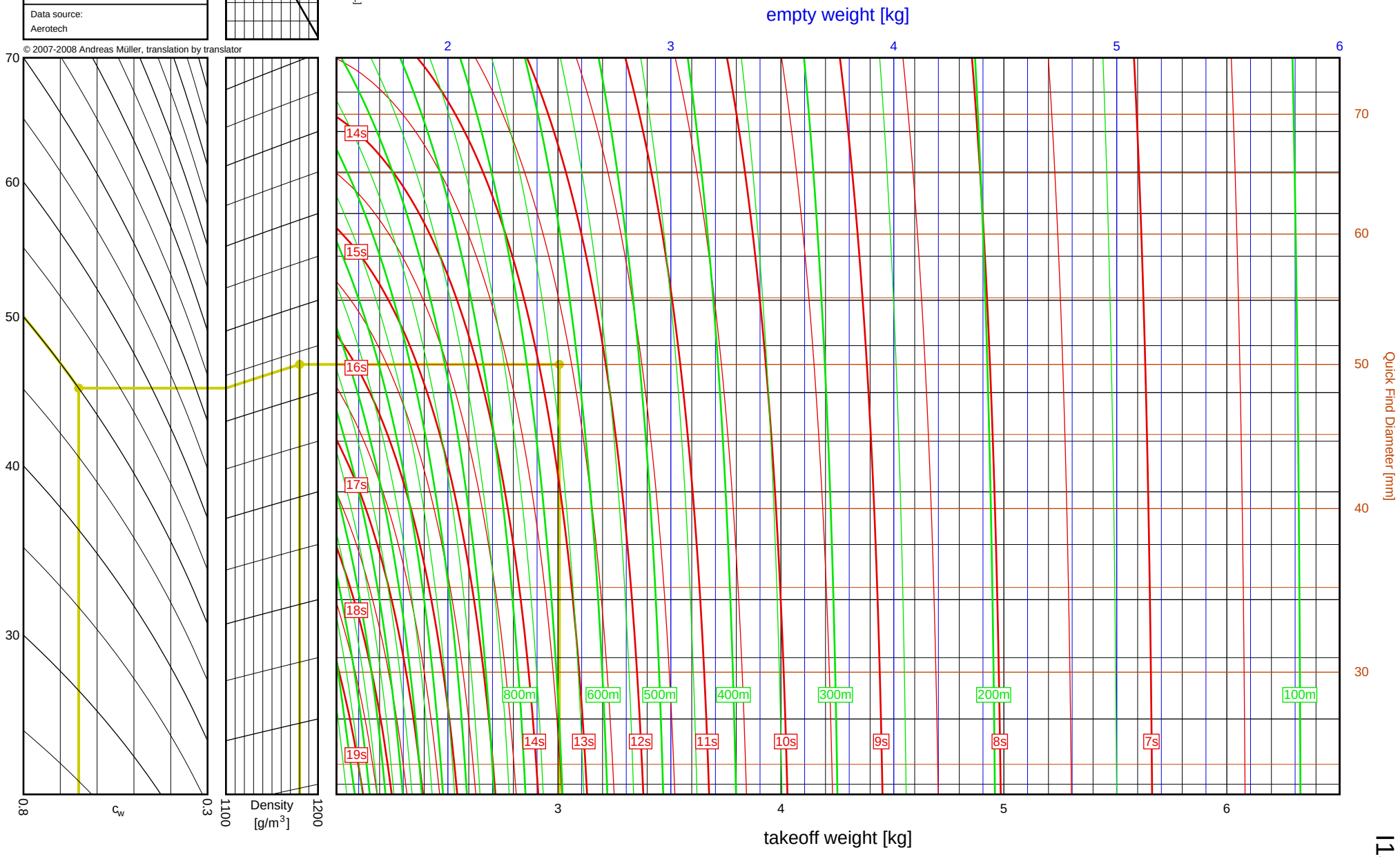
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.006kg
Results: time to apogee: 12.7s, expected altitude: 634m



Aerotech I300T

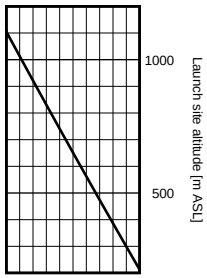
I_{tot}	=	413.1 Ns
F_{avg}	=	258.2 N
t_{burn}	=	1.60 s
d	=	38 mm

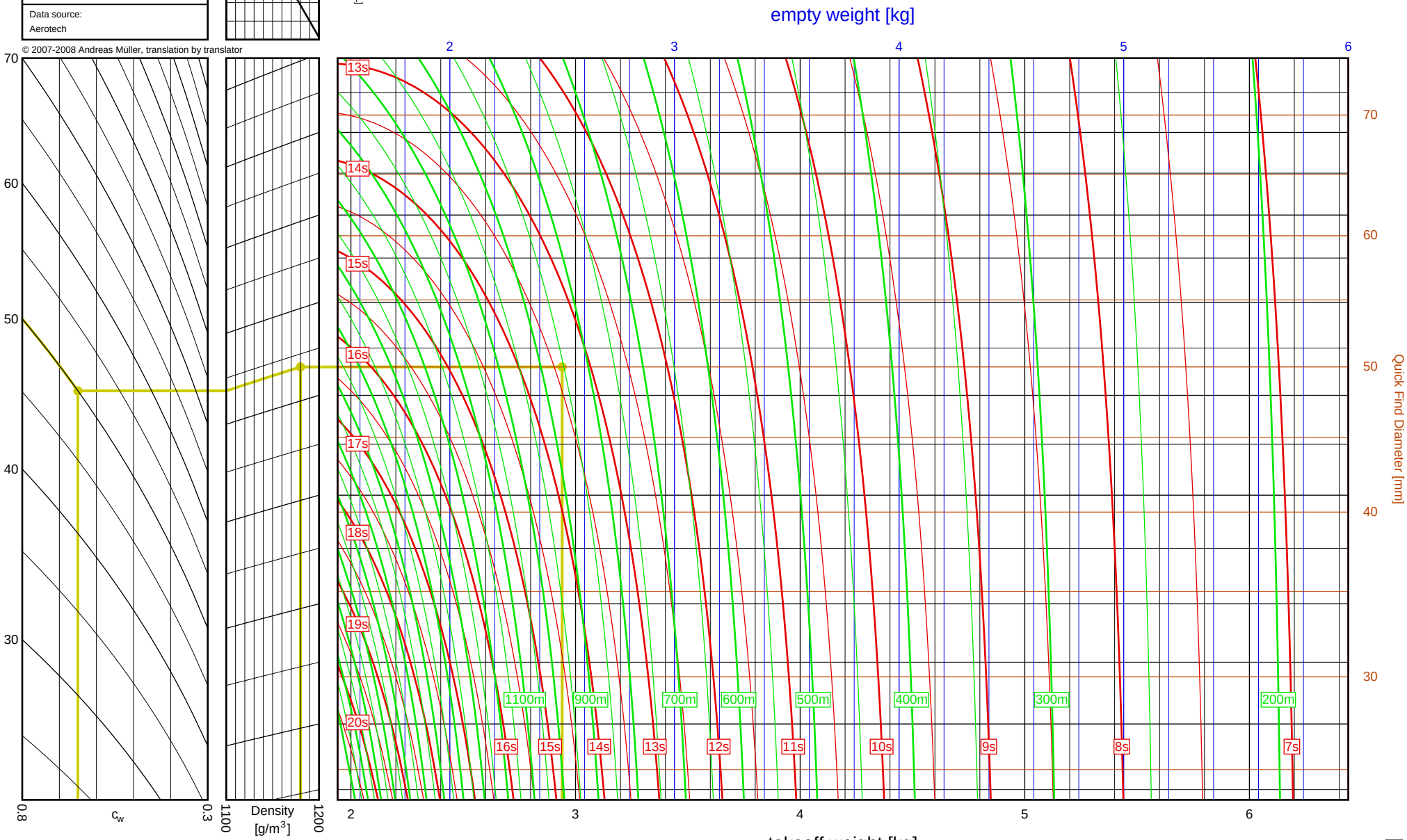
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.941kg
Results: time to apogee: 13.4s, expected altitude: 854m



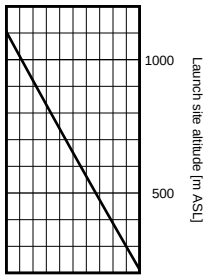


Aerotech I285R

I_{tot}	=	415.0 Ns
F_{avg}	=	276.6 N
t_{burn}	=	1.50 s
d	=	38 mm

Data source:
Aerotech

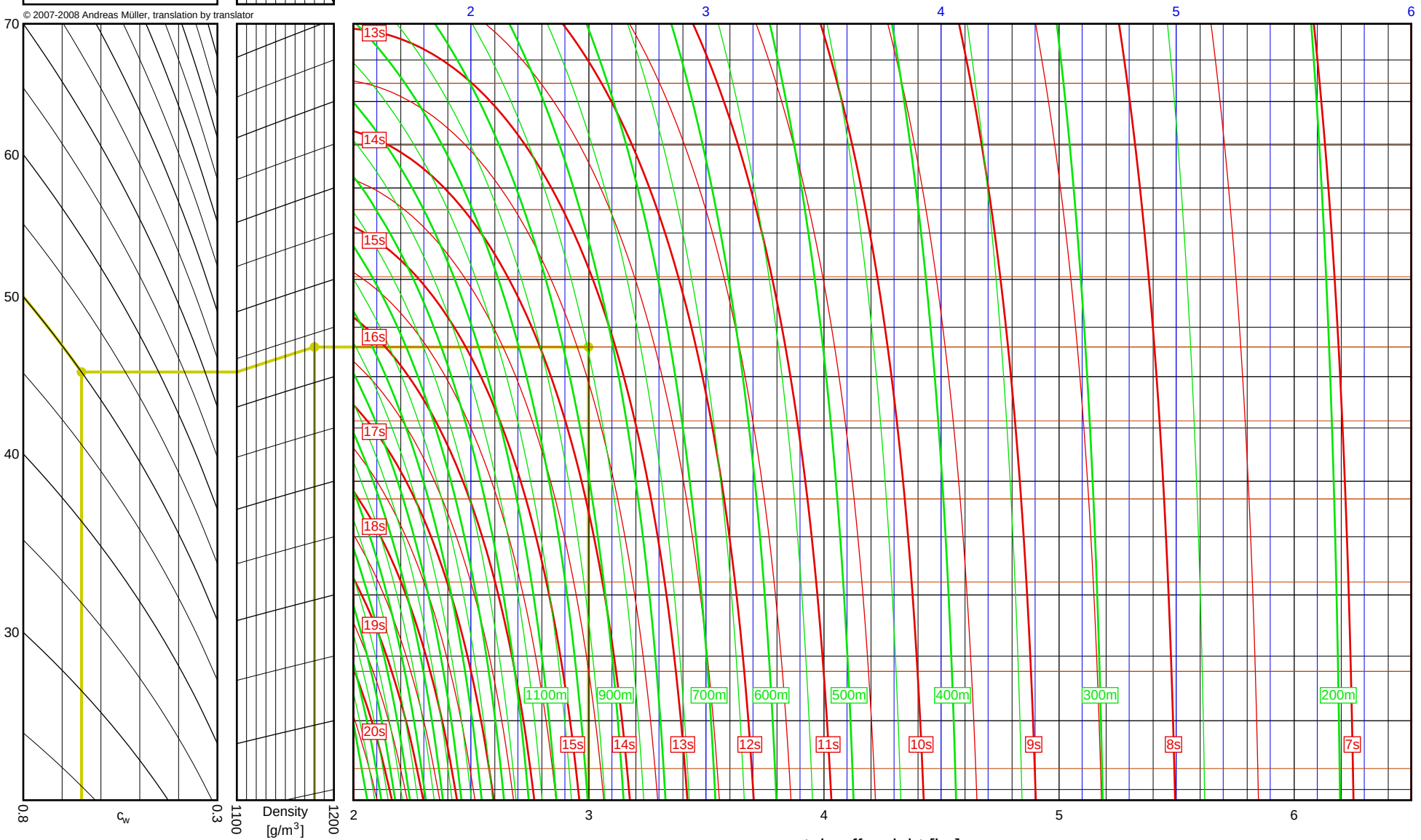
© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.998kg
Results: time to apogee: 13.4s, expected altitude: 848m

empty weight [kg]



5-9

I285R

I285R

Aerotech I211W

I_{tot}	=	421.2 Ns
F_{avg}	=	191.4 N
t_{burn}	=	2.20 s
d	=	38 mm

Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.976kg
Results: time to apogee: 13.7s, expected altitude: 856m

Launch site altitude [m ASL]: 1000, 500

empty weight [kg]: 2, 3, 4, 5, 6

Diameter [mm]: 70, 60, 50, 40, 30

Quick Find Diameter [mm]: 70, 60, 50, 40, 30

c_w: 0.8, 0.3

Density [g/m^3]: 1100, 1200

takeoff weight [kg]: 2, 3, 4, 5, 6

14s, 15s, 16s, 17s, 18s, 19s, 20s, 21s

1100m, 900m, 700m, 600m, 500m, 400m, 300m, 200m

16s, 15s, 14s, 13s, 12s, 11s, 10s, 9s, 8s, 7s

Aerotech I1299N

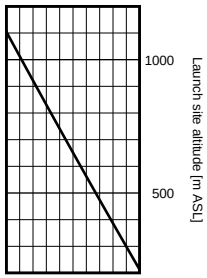
I_{tot}	=	424.4 Ns
F_{avg}	=	1248.4 N
t_{burn}	=	0.34 s
d	=	38 mm

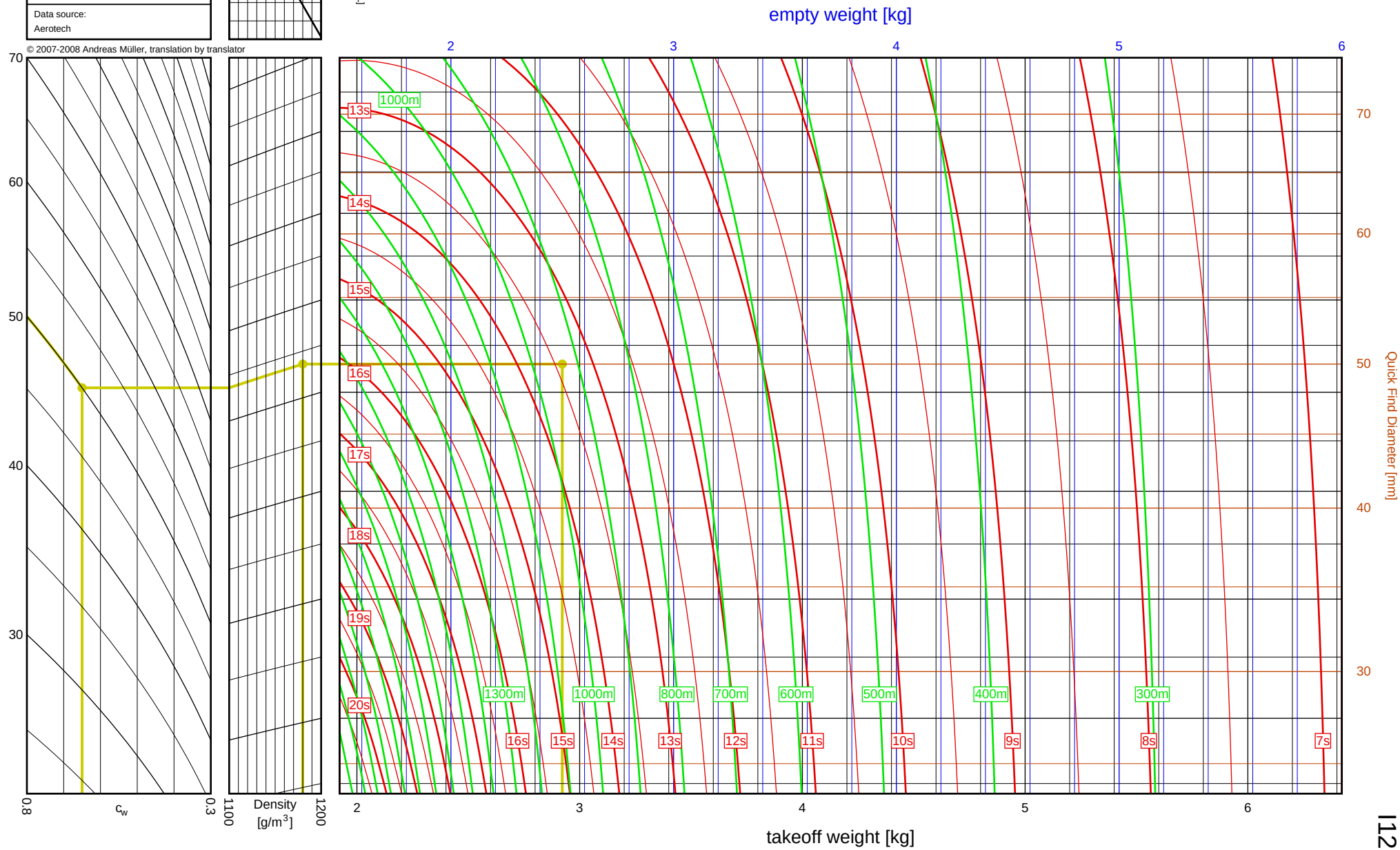
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 2.922kg
Results: time to apogee: 13.4s, expected altitude: 933m





I1299N

2", I-J

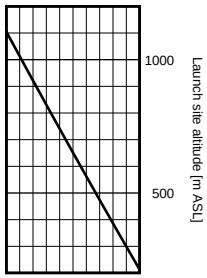
I1299N

Aerotech I195J

I_{tot}	=	443.0 Ns
F_{avg}	=	156.5 N
t_{burn}	=	2.83 s
d	=	38 mm

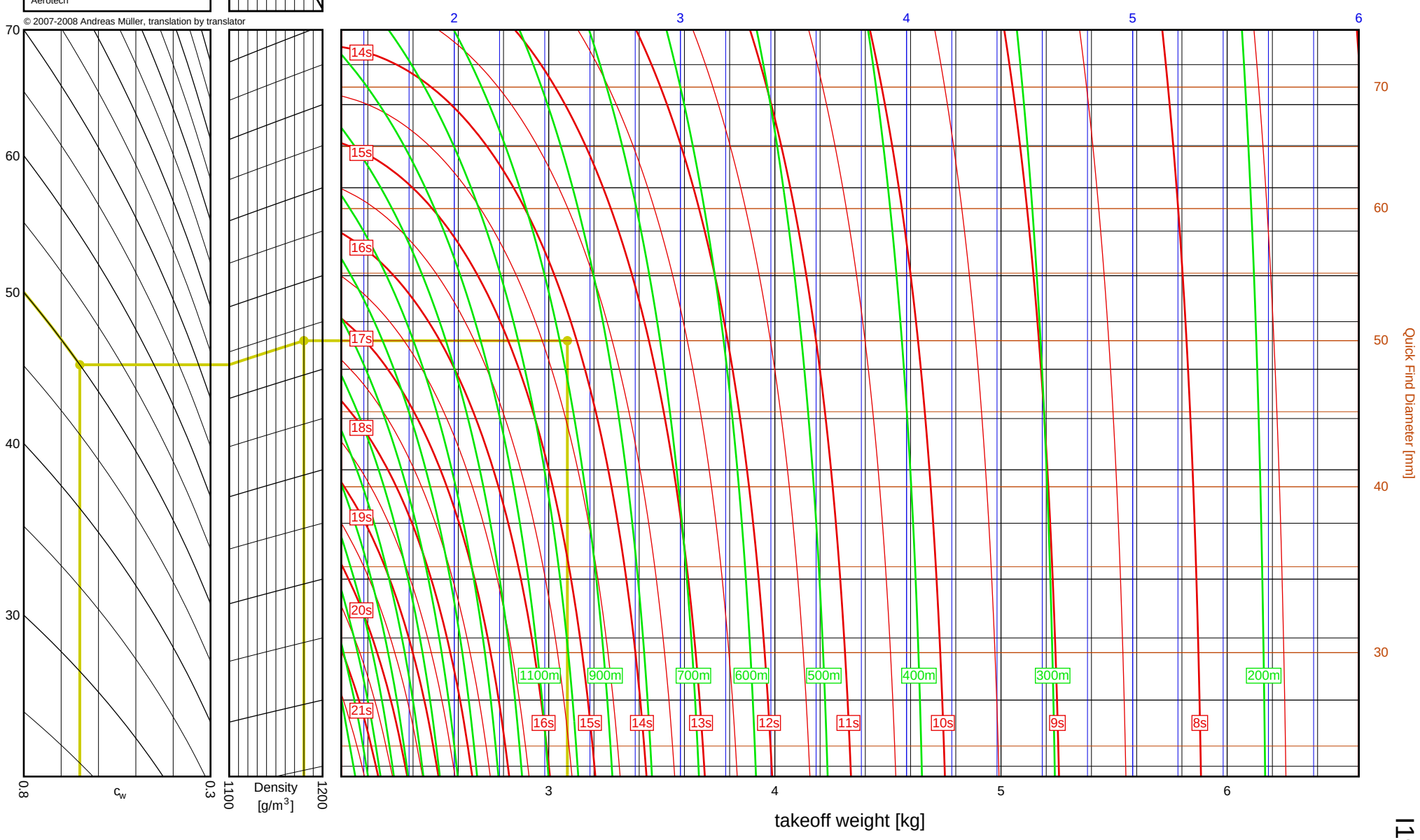
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.082kg
Results: time to apogee: 14.1s, expected altitude: 883m

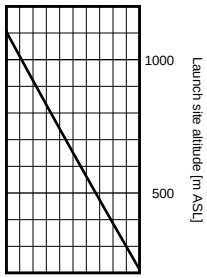


Aerotech I305FJ

I_{tot}	=	443.9 Ns
F_{avg}	=	277.4 N
t_{burn}	=	1.60 s
d	=	38 mm

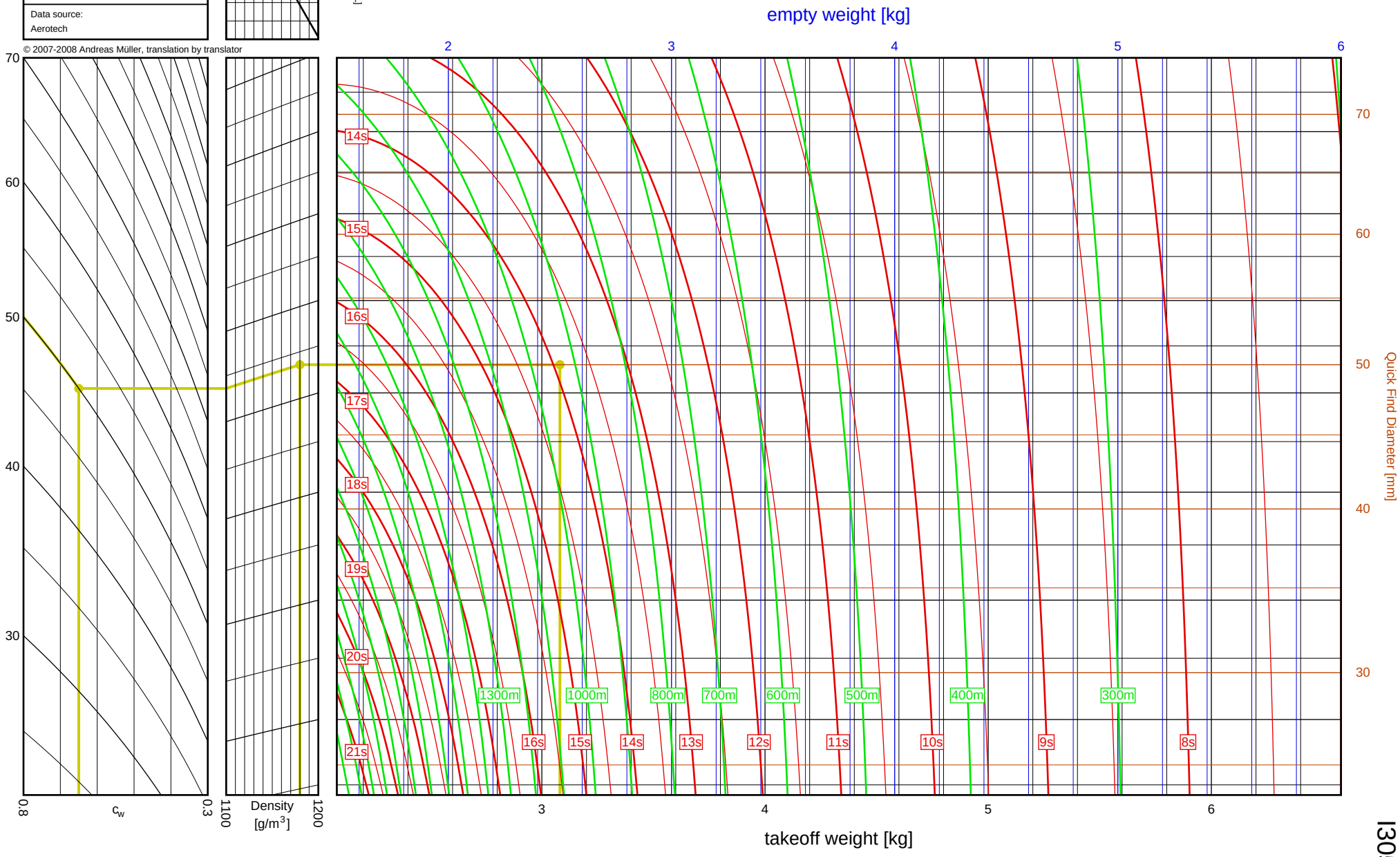
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.081kg
Results: time to apogee: 13.9s, expected altitude: 933m

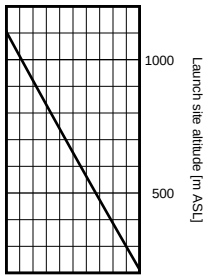


Aerotech I435T

I_{tot}	=	517.4 Ns
F_{avg}	=	369.6 N
t_{burn}	=	1.40 s
d	=	38 mm

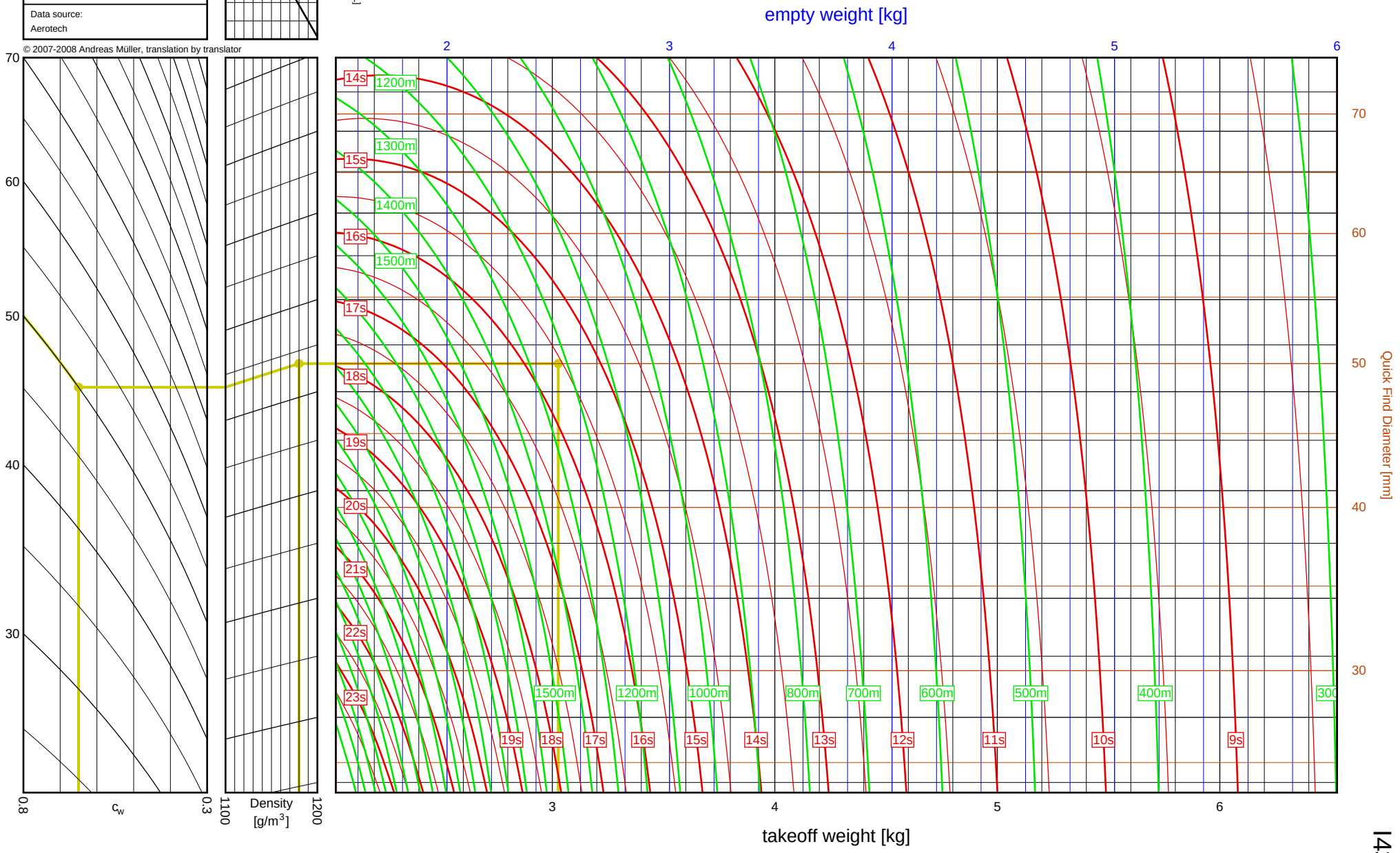
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.027kg
Results: time to apogee: 15.6s, expected altitude: 1223m

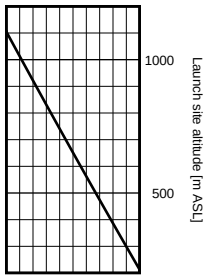


Aerotech I284W

I_{tot}	=	529.8 Ns
F_{avg}	=	294.4 N
t_{burn}	=	1.80 s
d	=	38 mm

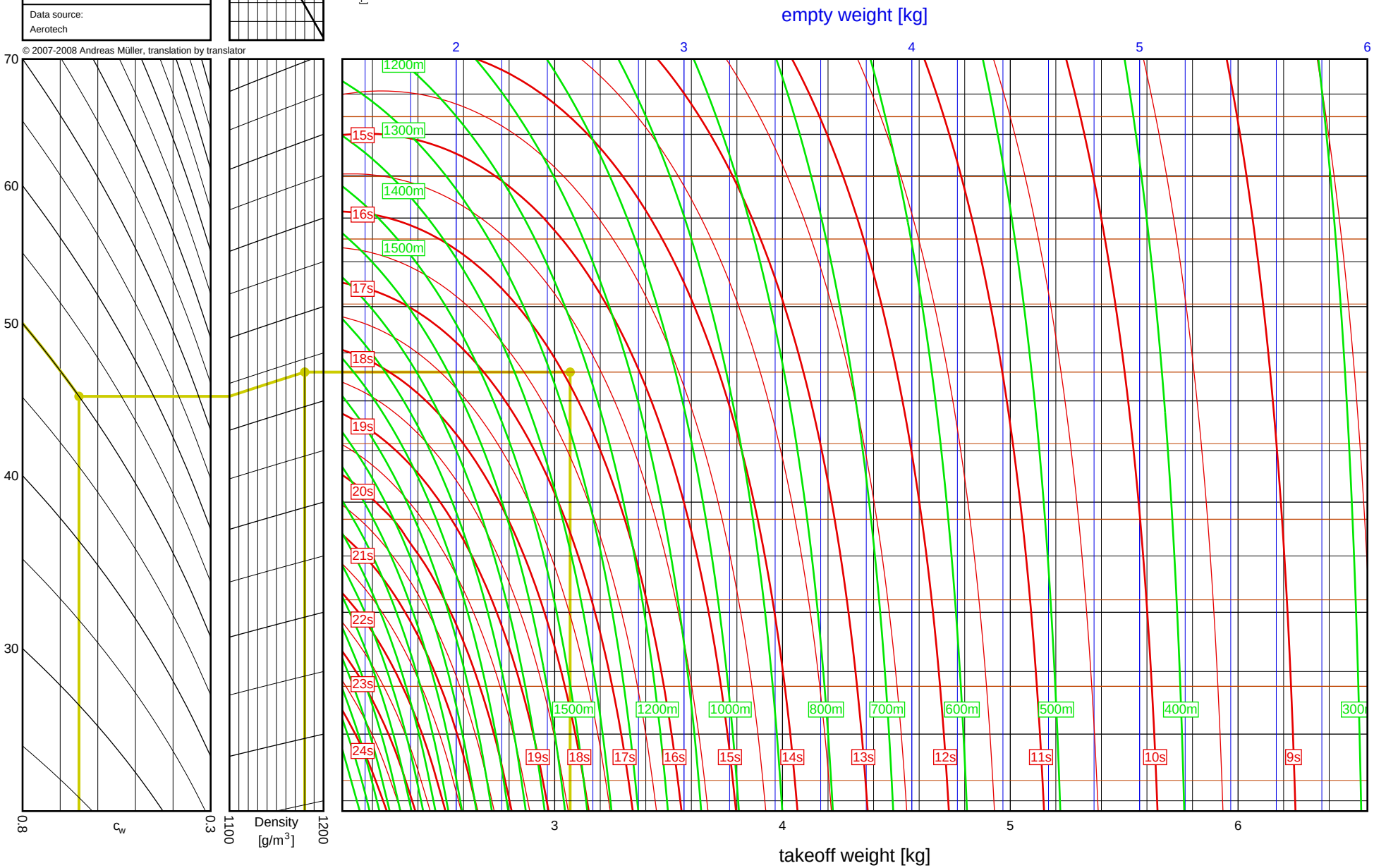
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.068kg
Results: time to apogee: 15.9s, expected altitude: 1248m



I284W

2", I-J

I284W

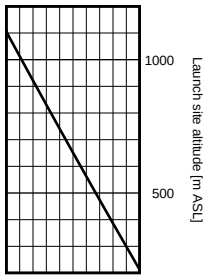
Aerotech

I366R

I_{tot}	=	537.1 Ns
F_{avg}	=	358.0 N
t_{burn}	=	1.50 s
d	=	38 mm

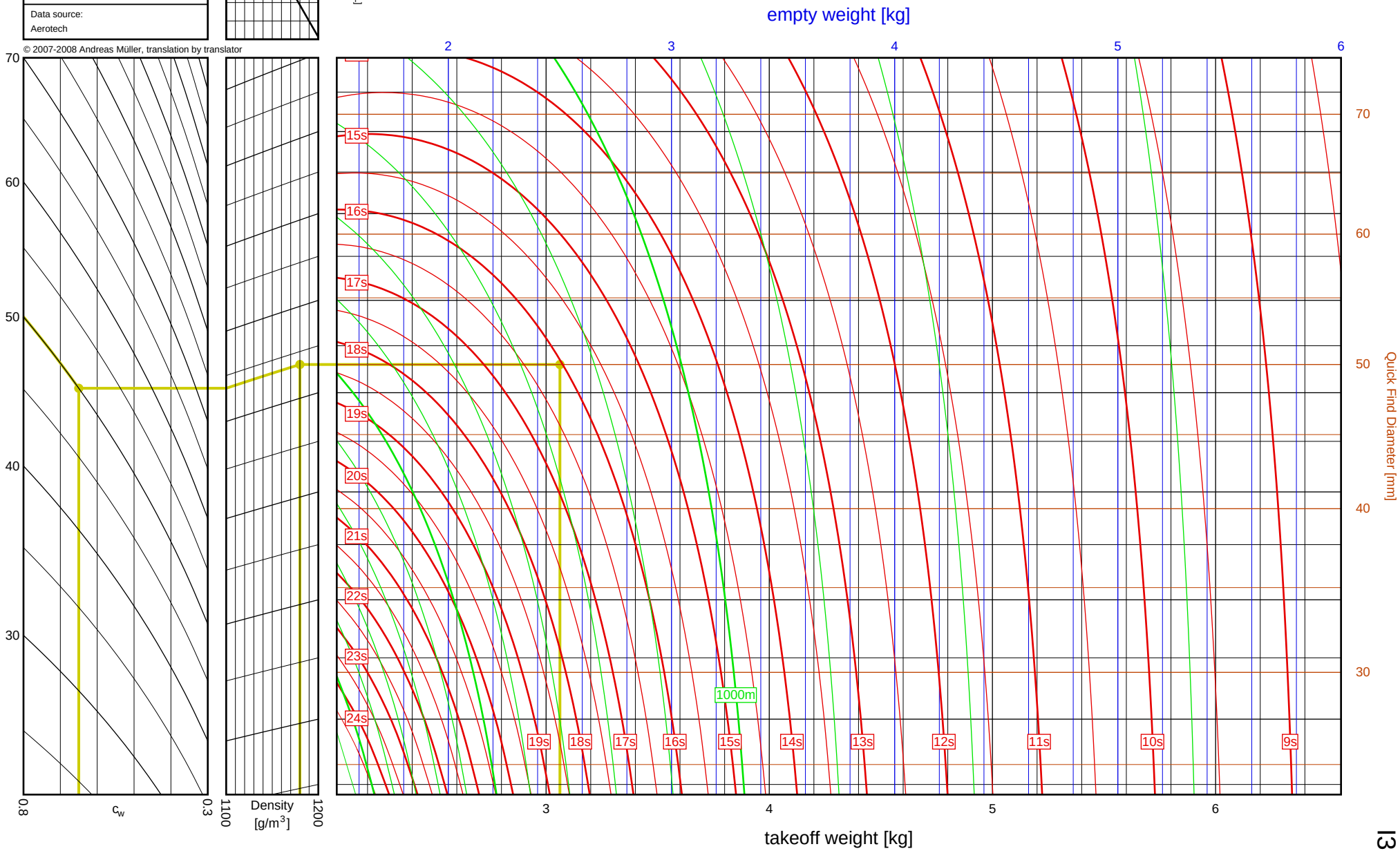
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.062kg
Results: time to apogee: 16.0s, expected altitude: 1291m



I-16

I366R

I366R

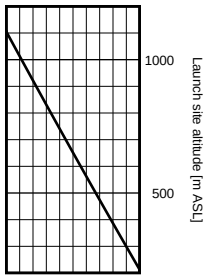
Aerotech

I364FJ

I_{tot}	=	551.2 Ns
F_{avg}	=	324.2 N
t_{burn}	=	1.70 s
d	=	38 mm

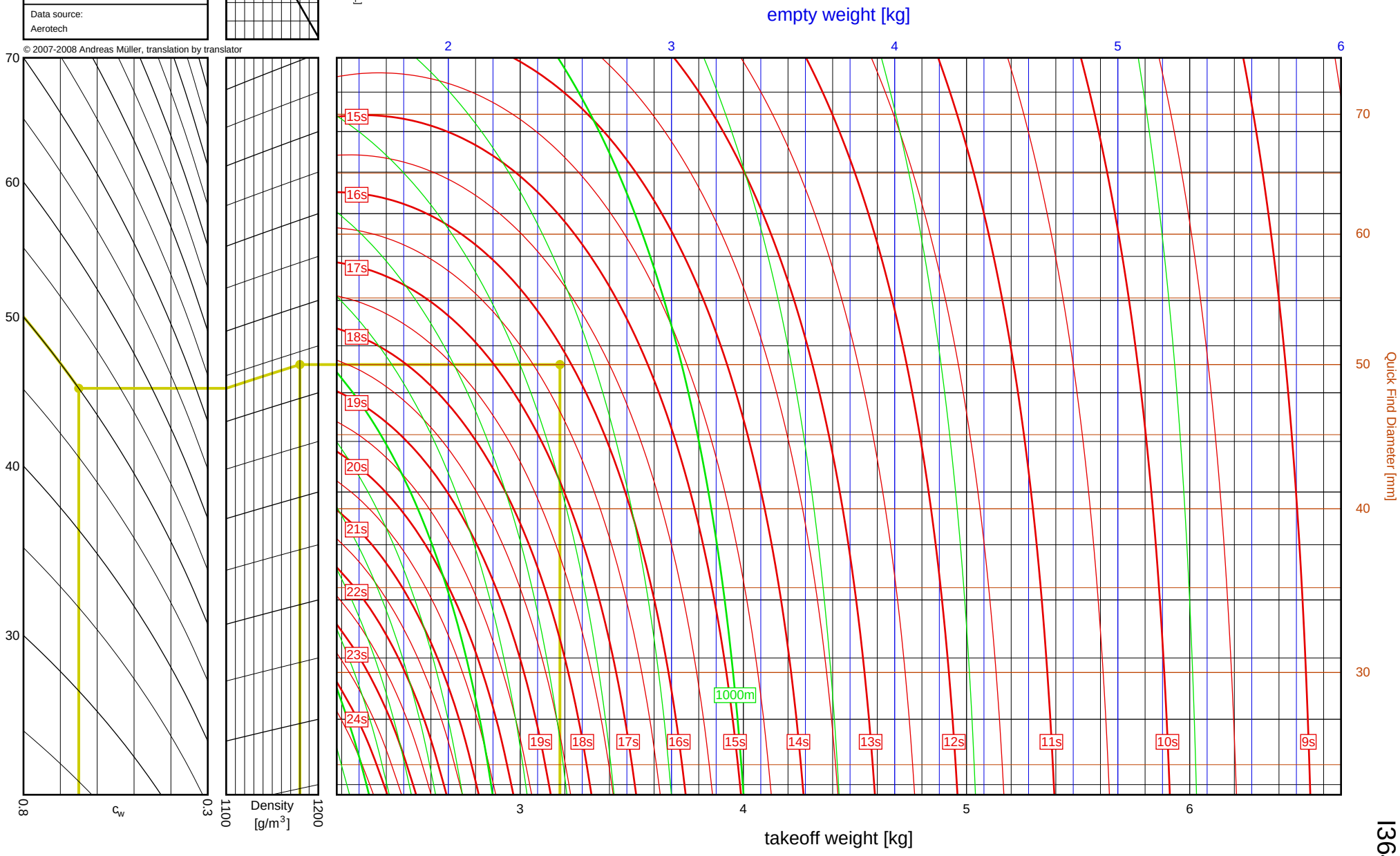
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.178kg
Results: time to apogee: 16.2s, expected altitude: 1289m



S-17

I364FJ

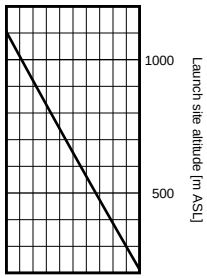
I364FJ

Aerotech I65W

I_{tot}	=	630.5 Ns
F_{avg}	=	76.3 N
t_{burn}	=	8.26 s
d	=	54 mm

Data source: Aerotech

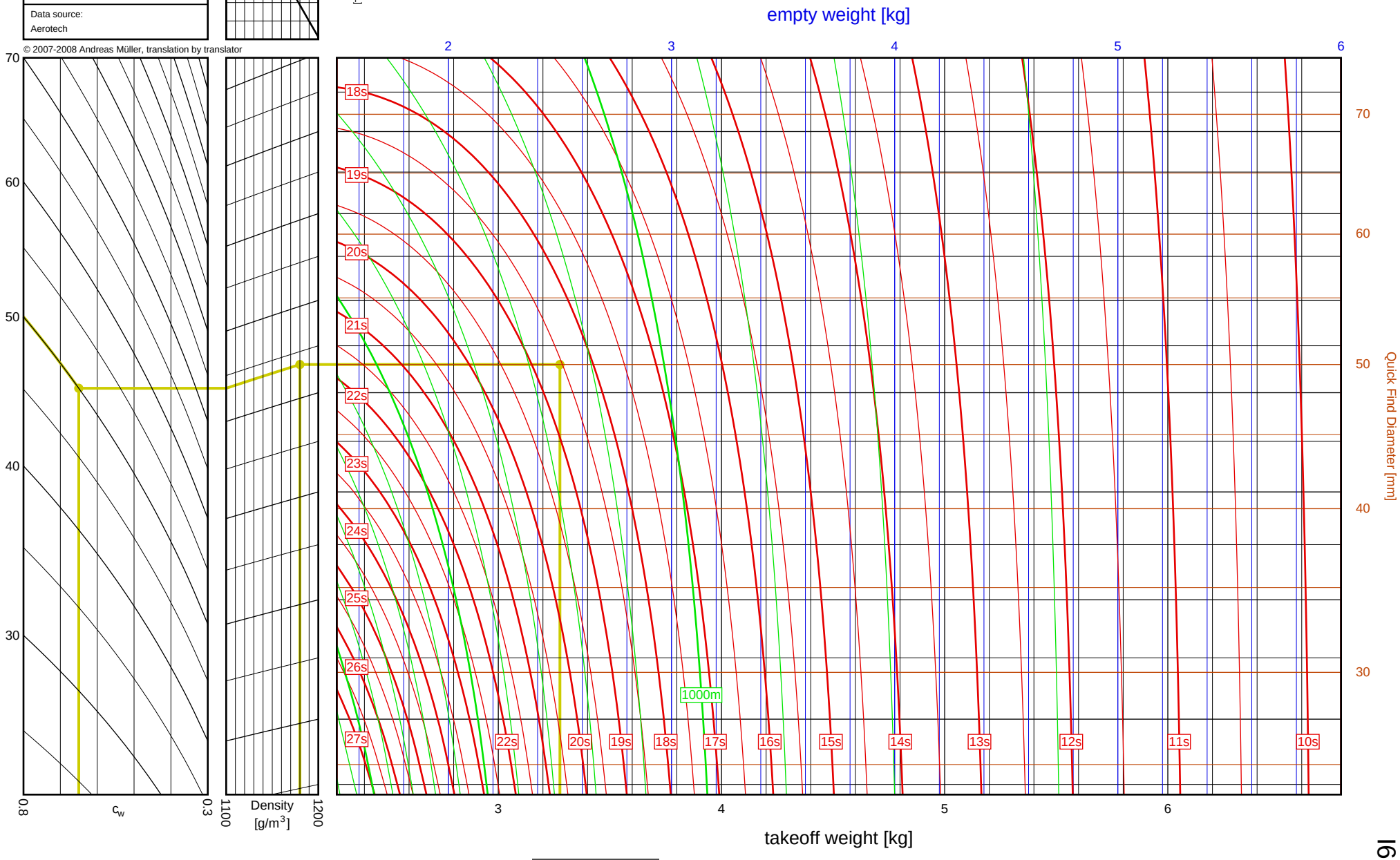
© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.276kg

Results: time to apogee: 18.5s, expected altitude: 1297m



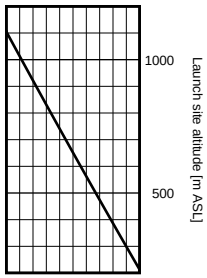
Aerotech

I600R

I_{tot}	=	640.1 Ns
F_{avg}	=	542.5 N
t_{burn}	=	1.18 s
d	=	38 mm

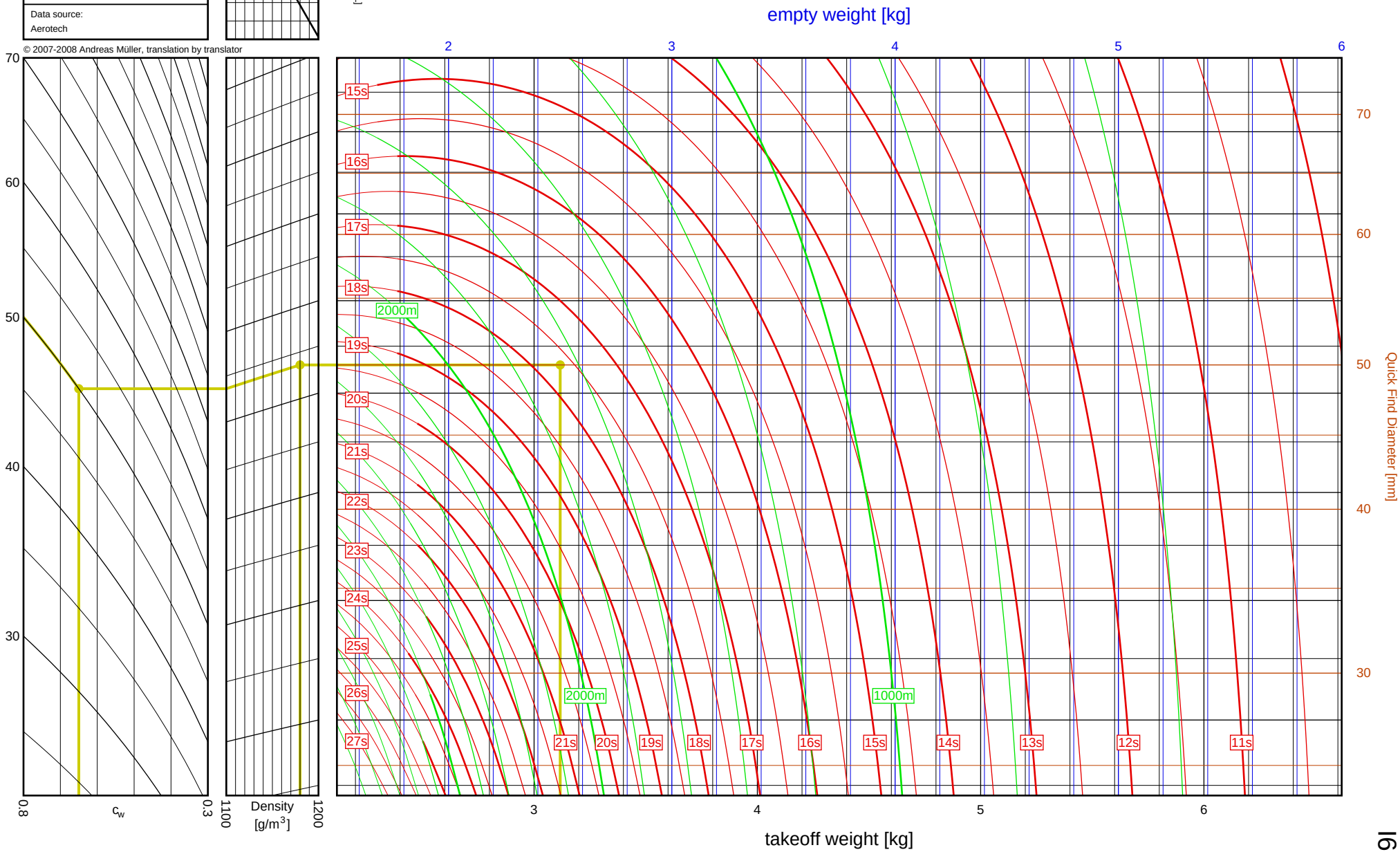
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.117kg
Results: time to apogee: 17.7s, expected altitude: 1654m



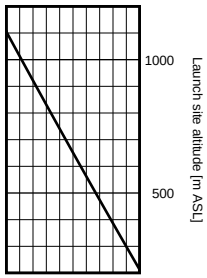
Aerotech

J350W.5

I_{tot}	=	649.6 Ns
F_{avg}	=	433.0 N
t_{burn}	=	1.50 s
d	=	38 mm

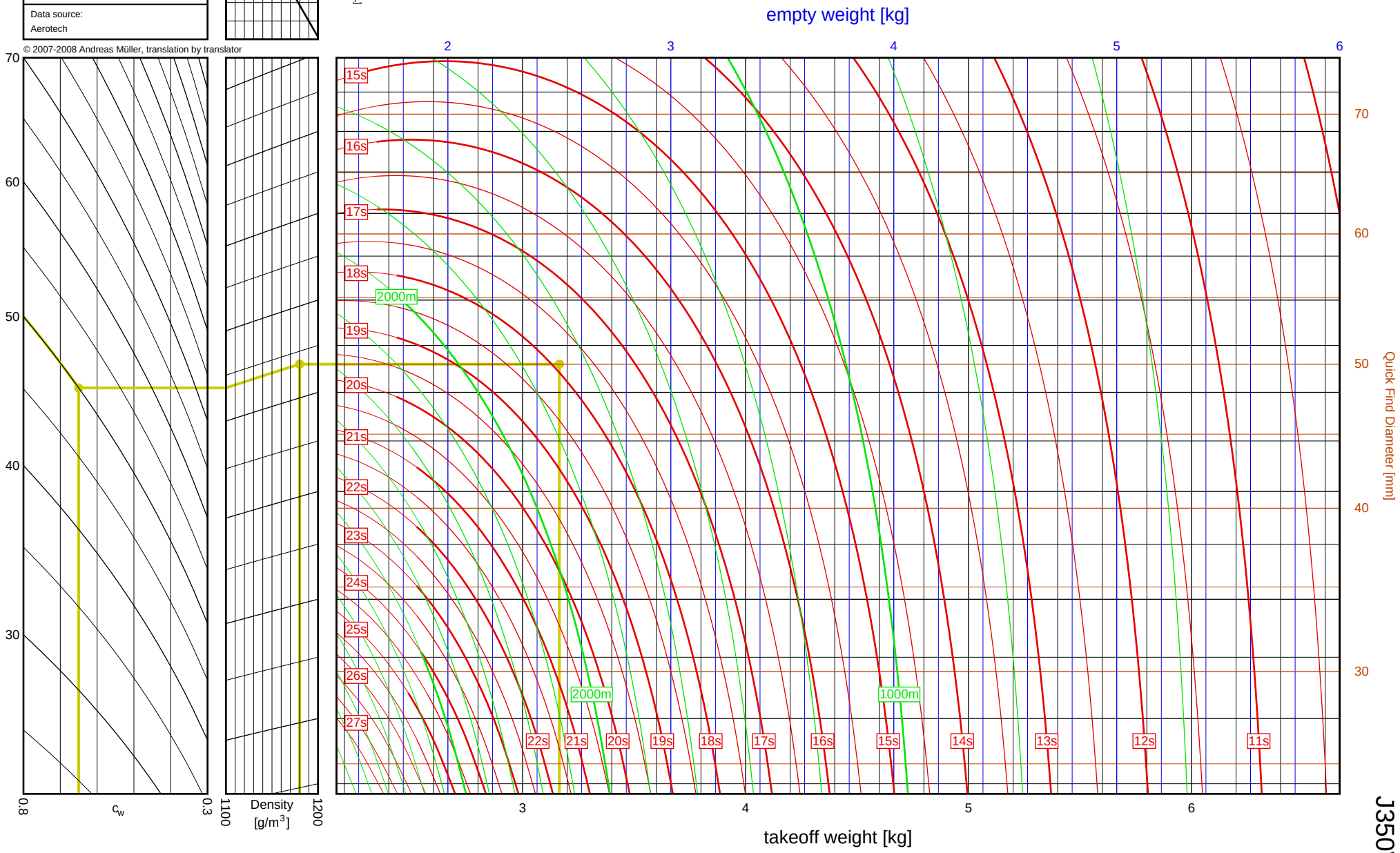
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.165kg
Results: time to apogee: 17.9s, expected altitude: 1684m



J350W.5

2", I-J

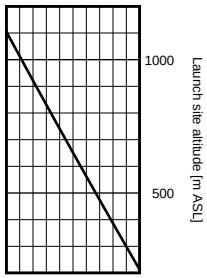
J350W.5

Aerotech J420R

I_{tot}	=	651.0 Ns
F_{avg}	=	404.3 N
t_{burn}	=	1.61 s
d	=	38 mm

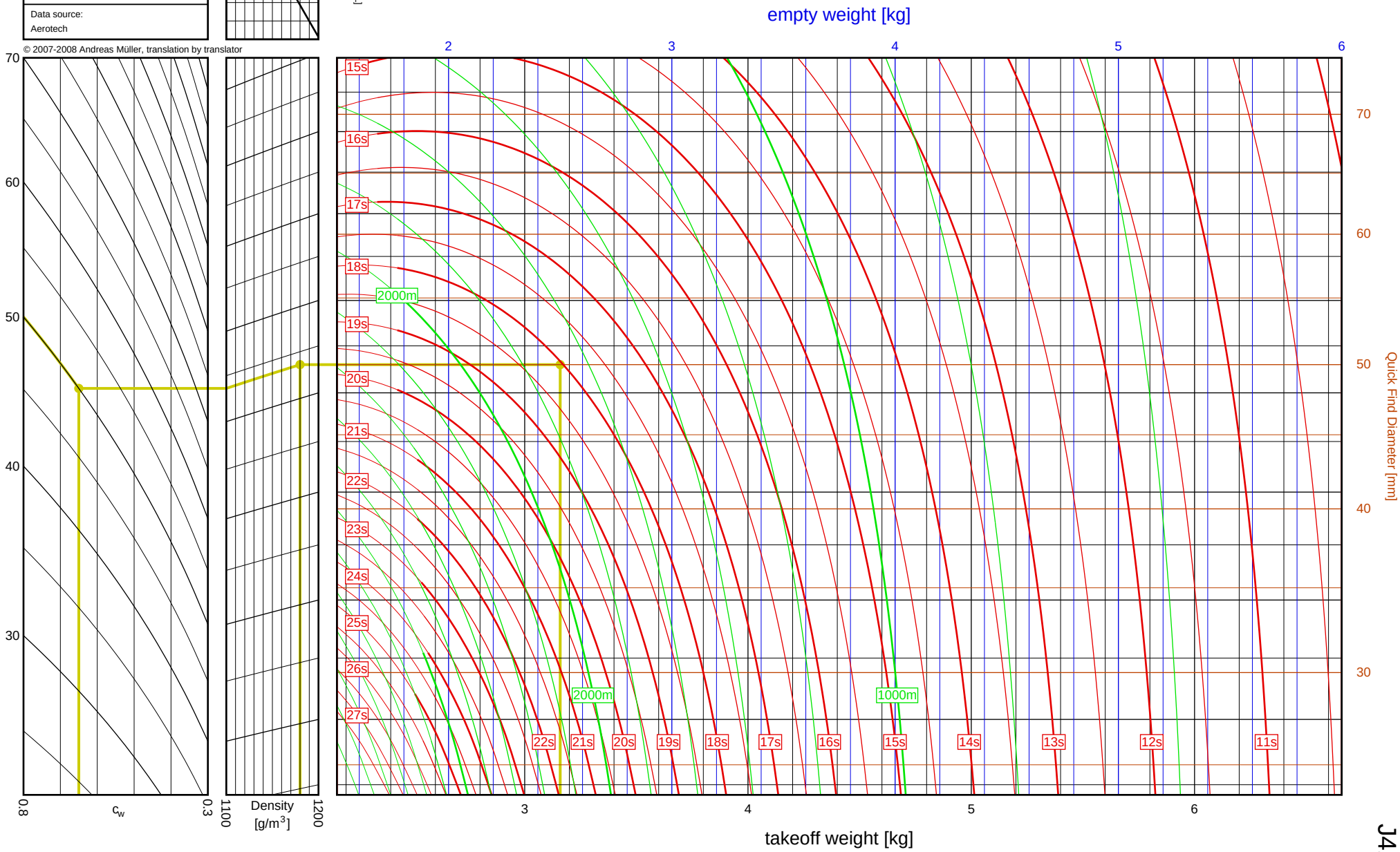
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.159kg
Results: time to apogee: 18.0s, expected altitude: 1685m



J420R

2", I-J

J420R

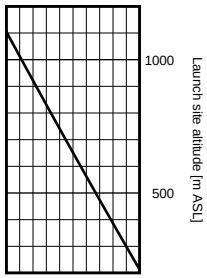
Aerotech

J350W

I_{tot}	=	665.0 Ns
F_{avg}	=	350.0 N
t_{burn}	=	1.90 s
d	=	38 mm

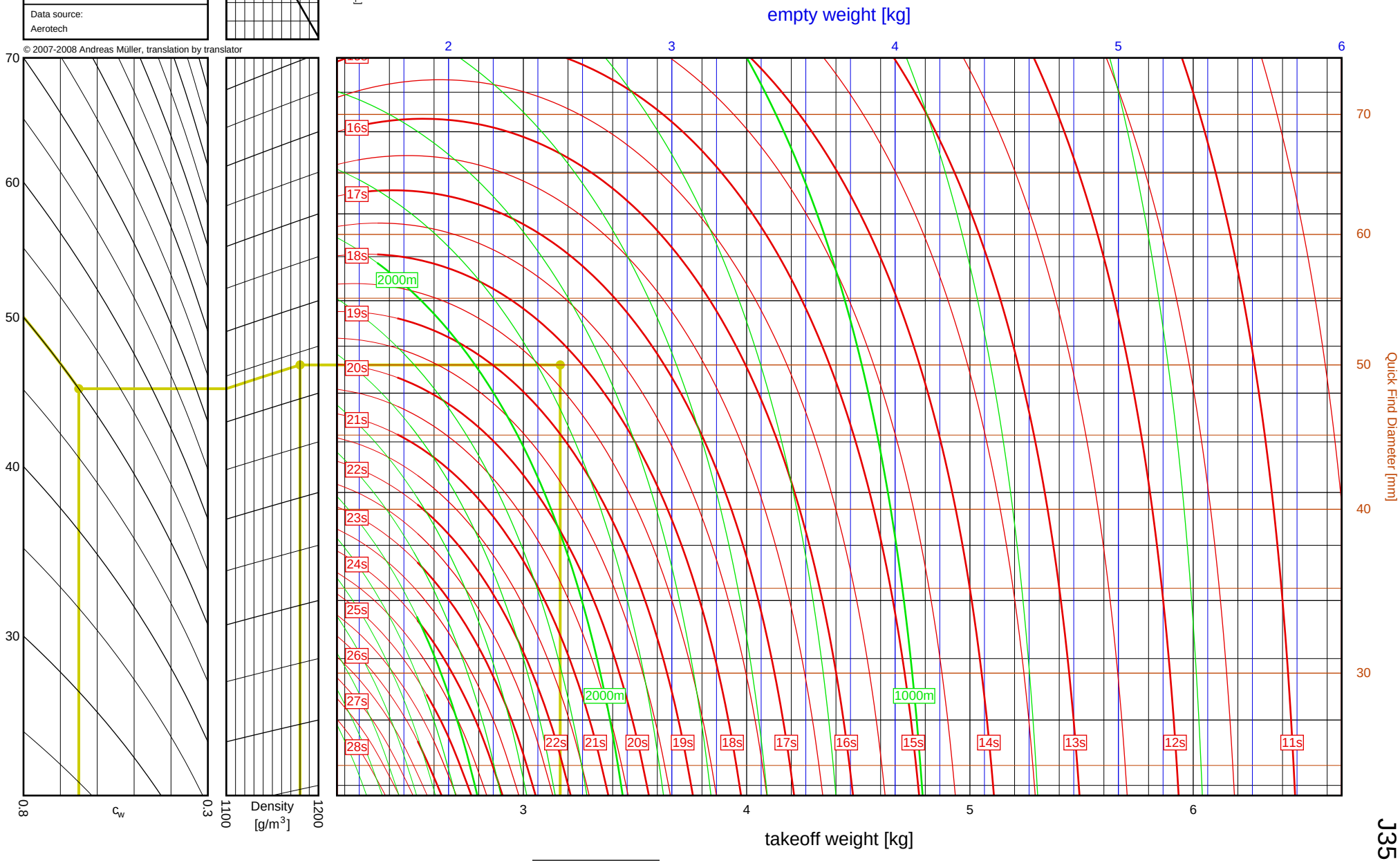
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 50mm, drag = 0.65, density = 1180 g/m^3, weight = 3.165kg
Results: time to apogee: 18.3s, expected altitude: 1729m



J350W

2", I-J

J350W

Aerotech I357T

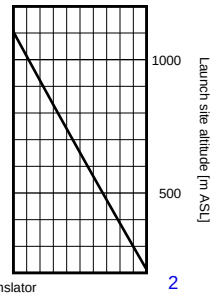
I_{tot}	=	317.7 Ns
F_{avg}	=	288.8 N
t_{burn}	=	1.10 s
d	=	38 mm

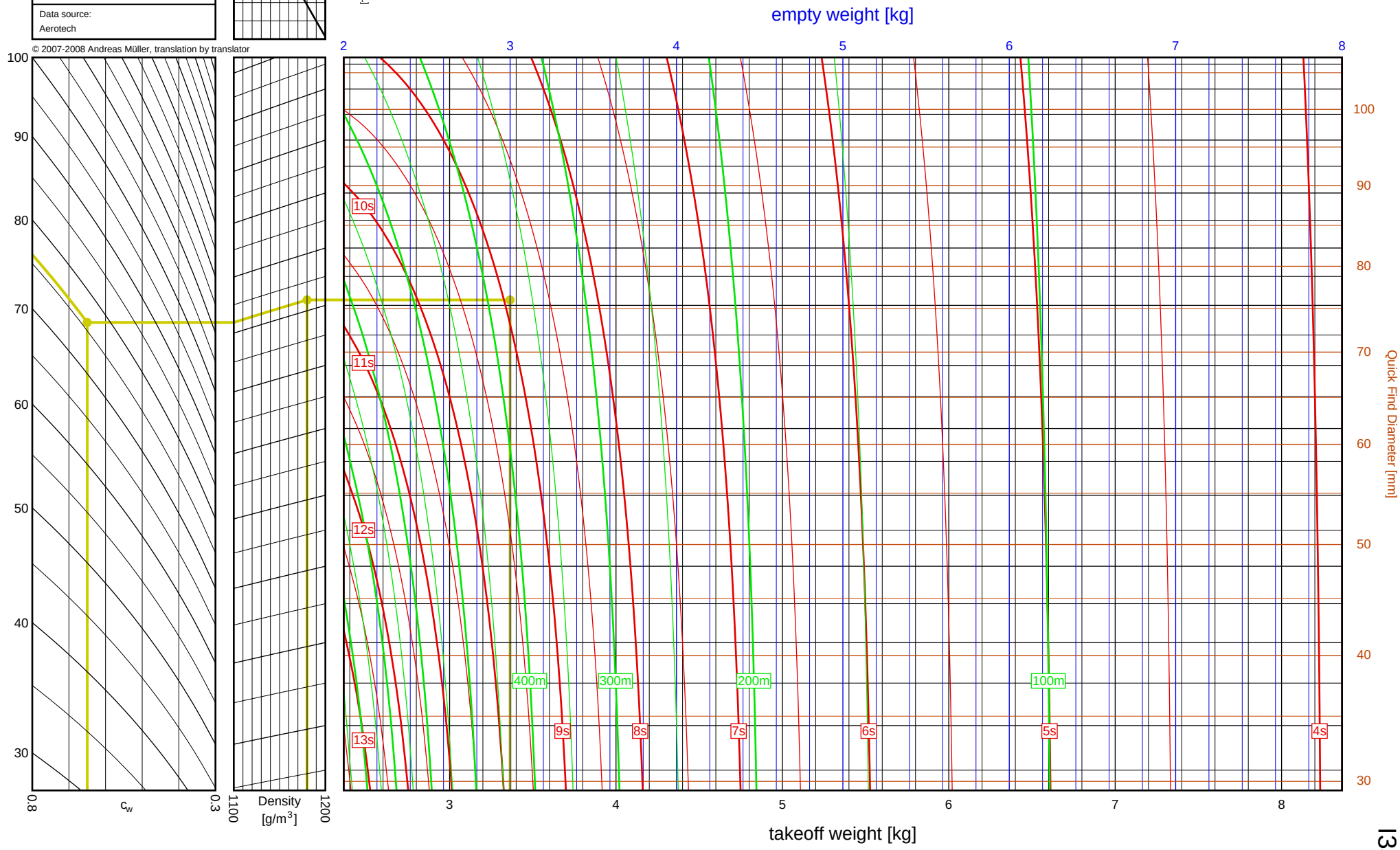
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.363kg
Results: time to apogee: 8.9s, expected altitude: 374m



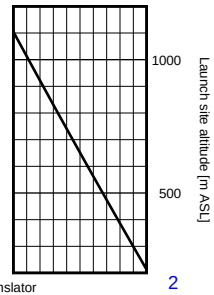


Aerotech I218R

I_{tot}	=	317.9 Ns
F_{avg}	=	211.9 N
t_{burn}	=	1.50 s
d	=	38 mm

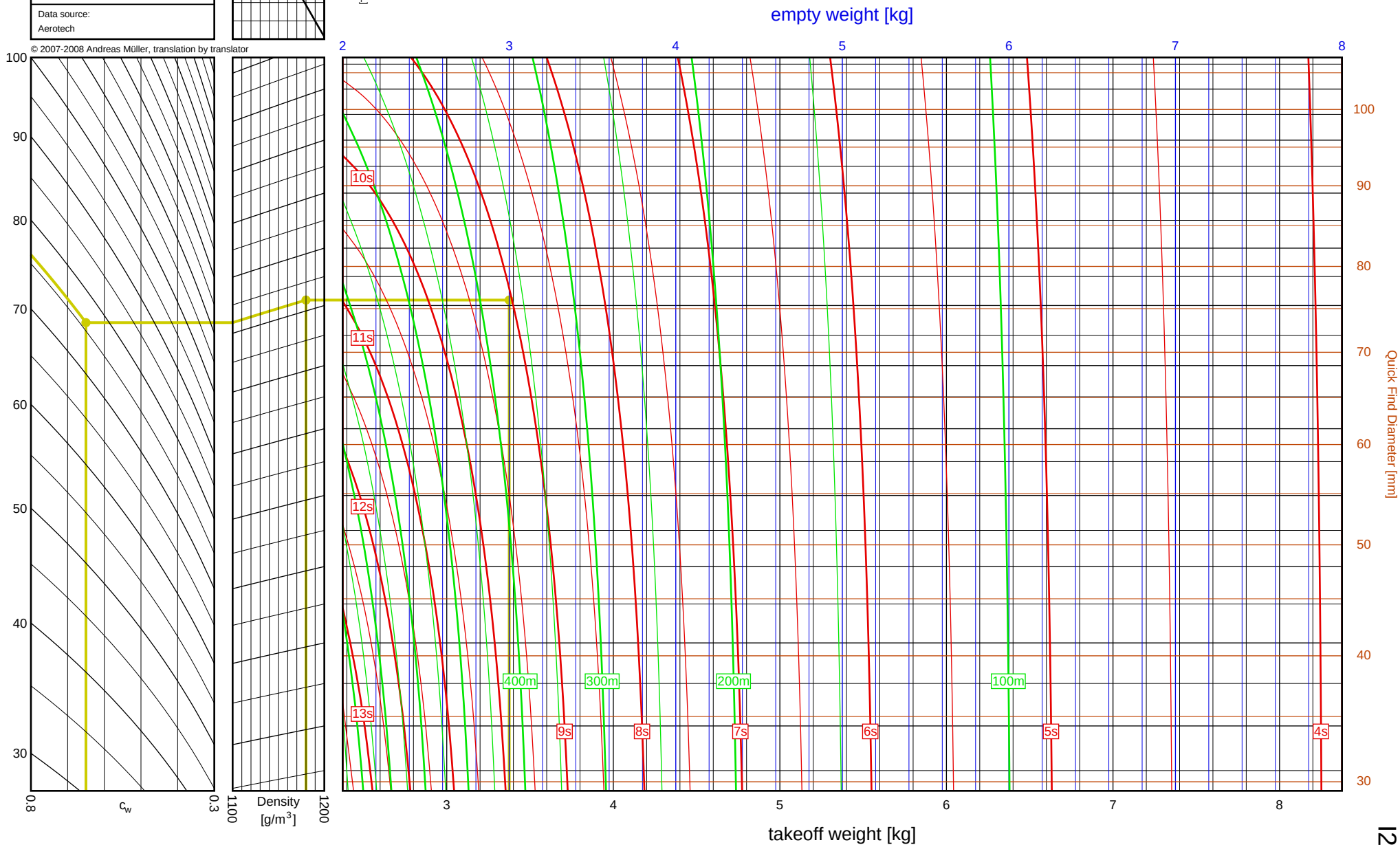
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.375kg
Results: time to apogee: 9.0s, expected altitude: 365m

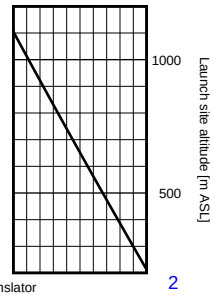


Aerotech
I161W

I_{tot}	=	333.5 Ns
F_{avg}	=	145.0 N
t_{burn}	=	2.30 s
d	=	38 mm

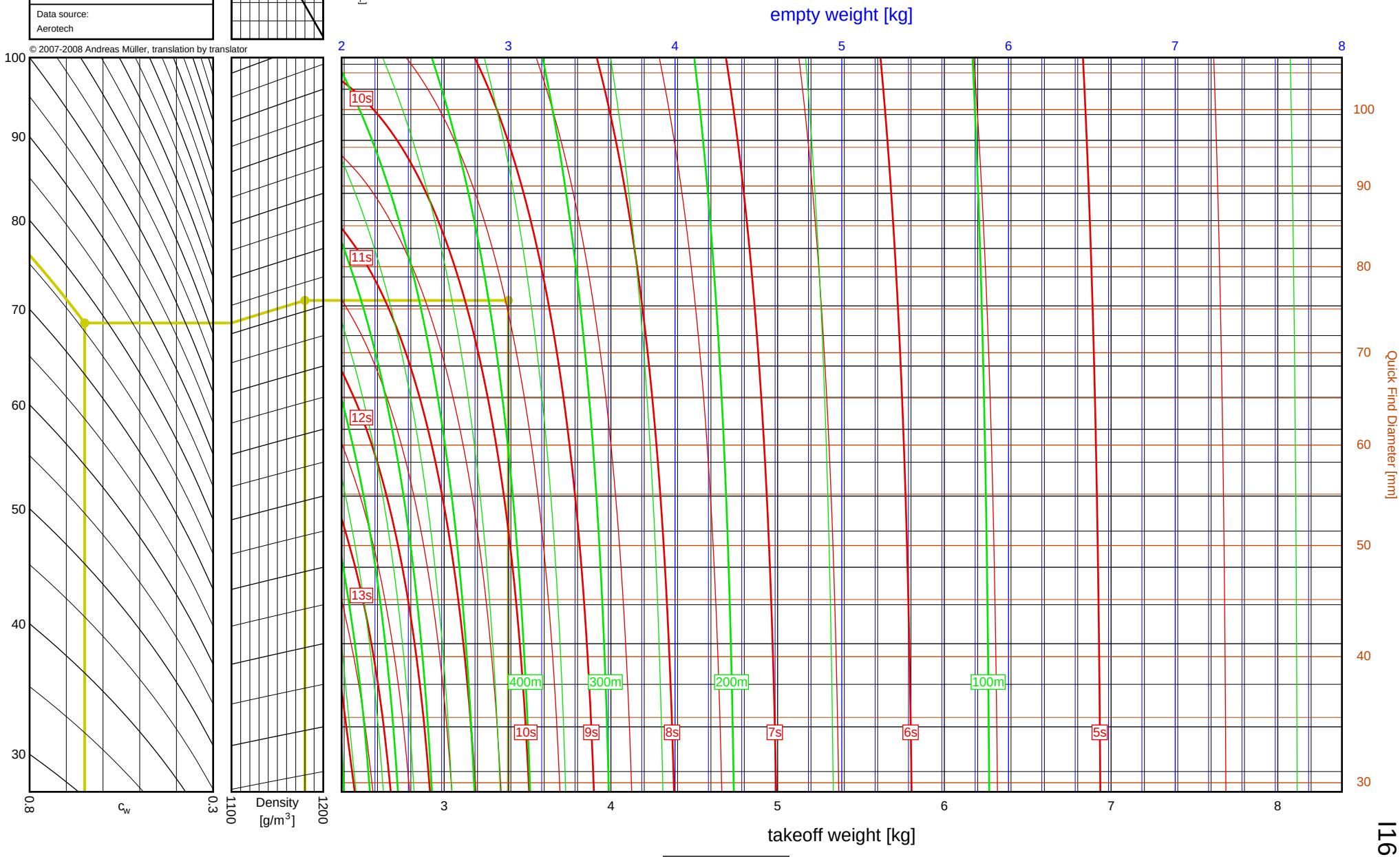
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.385kg
Results: time to apogee: 9.5s, expected altitude: 376m

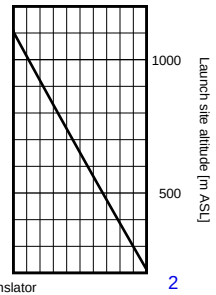


Aerotech I245G

I_{tot}	=	350.5 Ns
F_{avg}	=	239.5 N
t_{burn}	=	1.46 s
d	=	38 mm

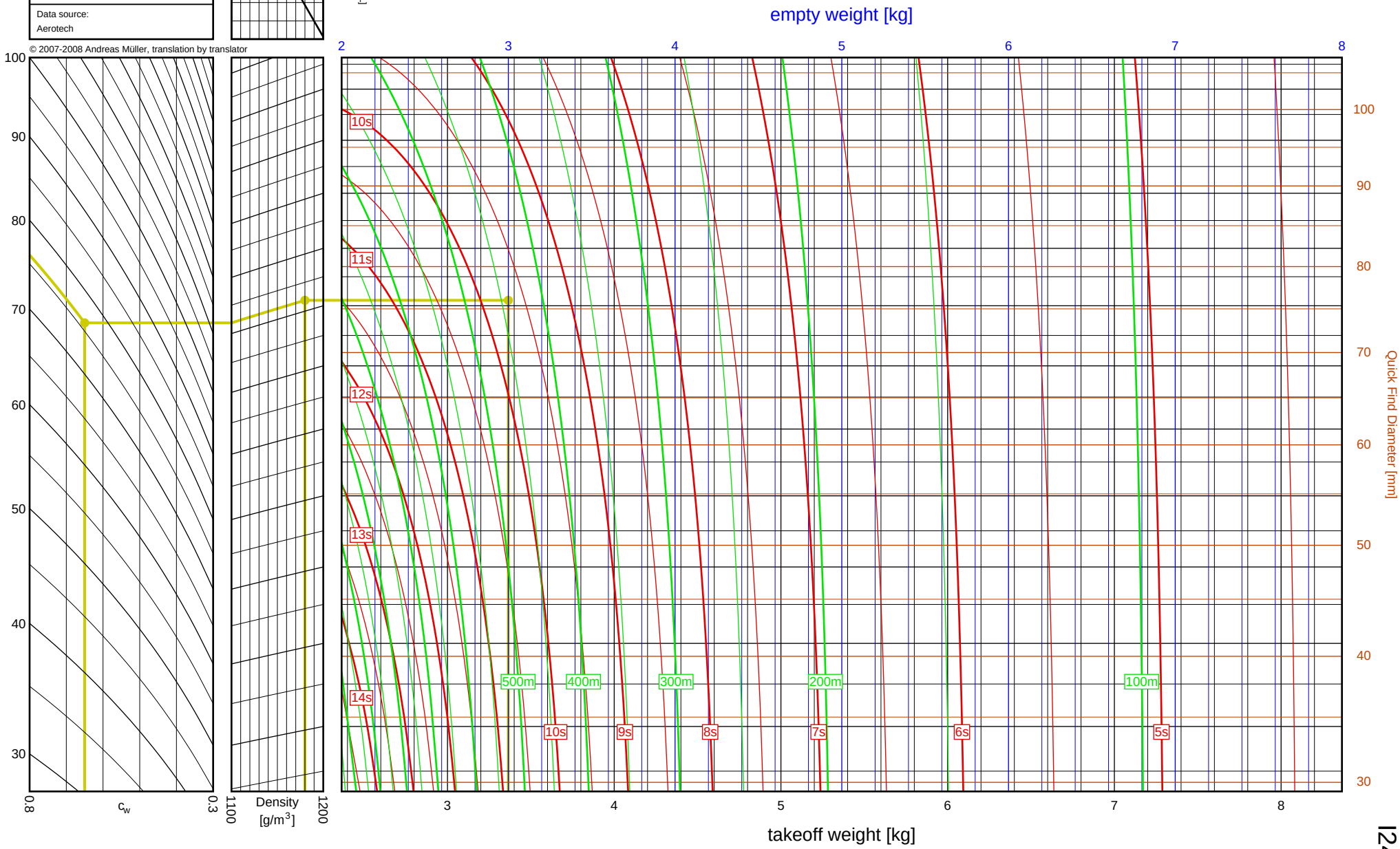
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.365kg
Results: time to apogee: 9.7s, expected altitude: 441m



I245G

3", I-J

I245G

Aerotech
I117FJ

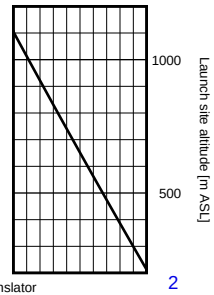
I_{tot}	=	365.5 Ns
F_{avg}	=	130.3 N
t_{burn}	=	2.81 s
d	=	54 mm

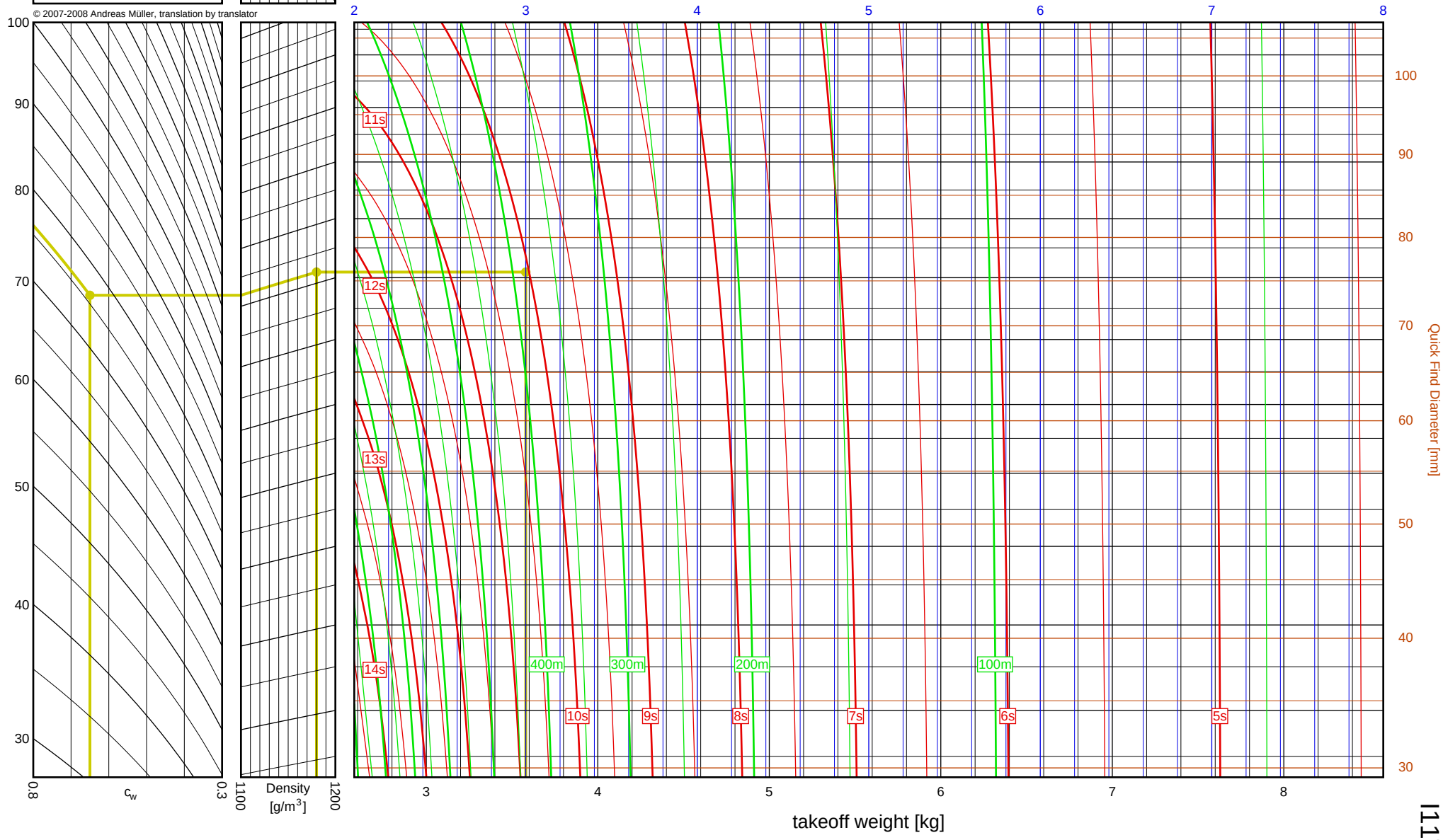
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.580kg
Results: time to apogee: 10.0s, expected altitude: 384m





I117FJ

3", I-J

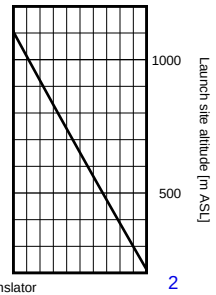
I117FJ

Aerotech I225FJ

I_{tot}	=	371.3 Ns
F_{avg}	=	206.3 N
t_{burn}	=	1.80 s
d	=	38 mm

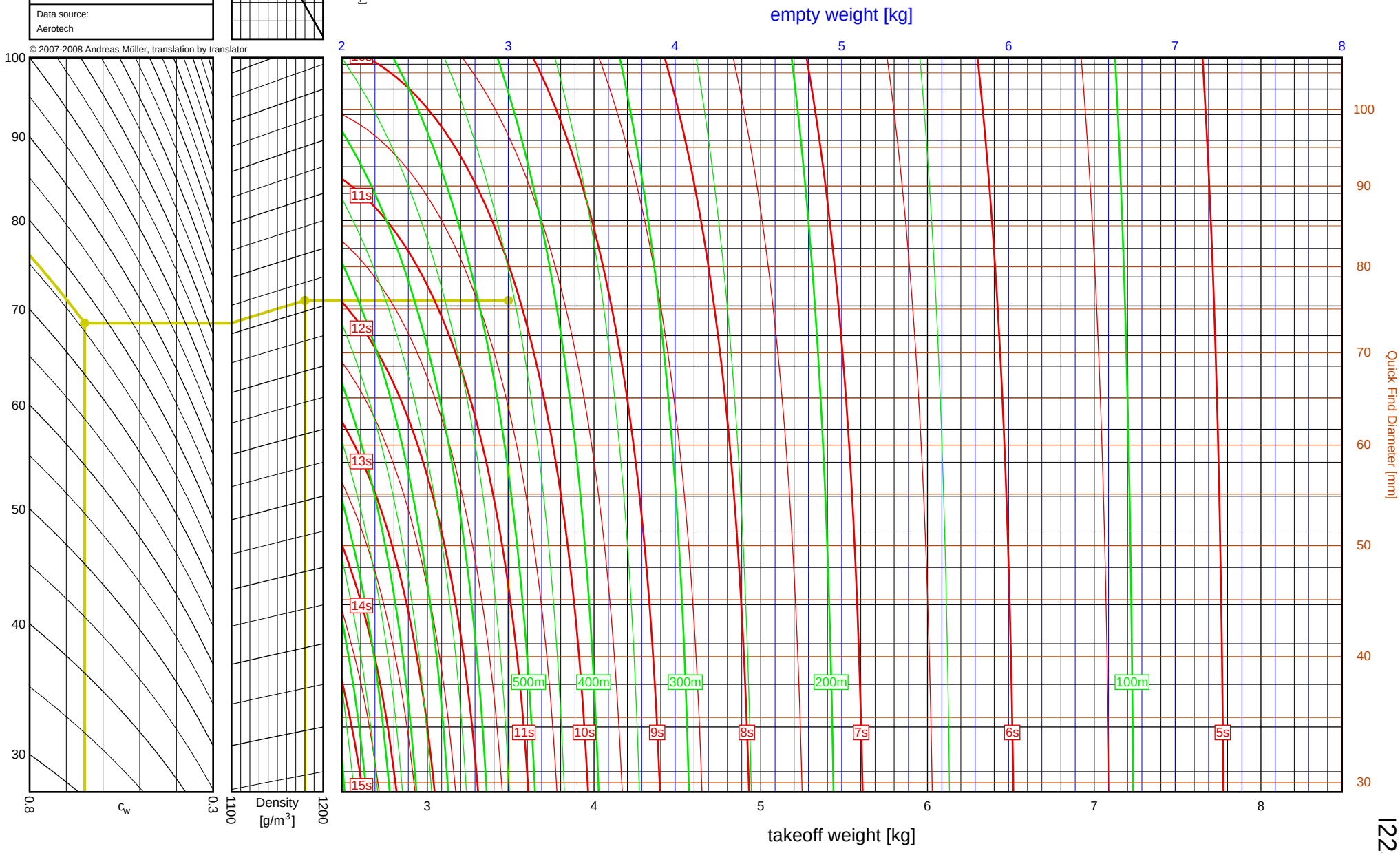
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.486kg
Results: time to apogee: 10.1s, expected altitude: 458m



Aerotech I154J

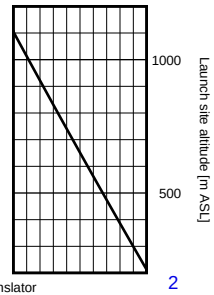
I_{tot}	=	375.4 Ns
F_{avg}	=	104.3 N
t_{burn}	=	3.60 s
d	=	38 mm

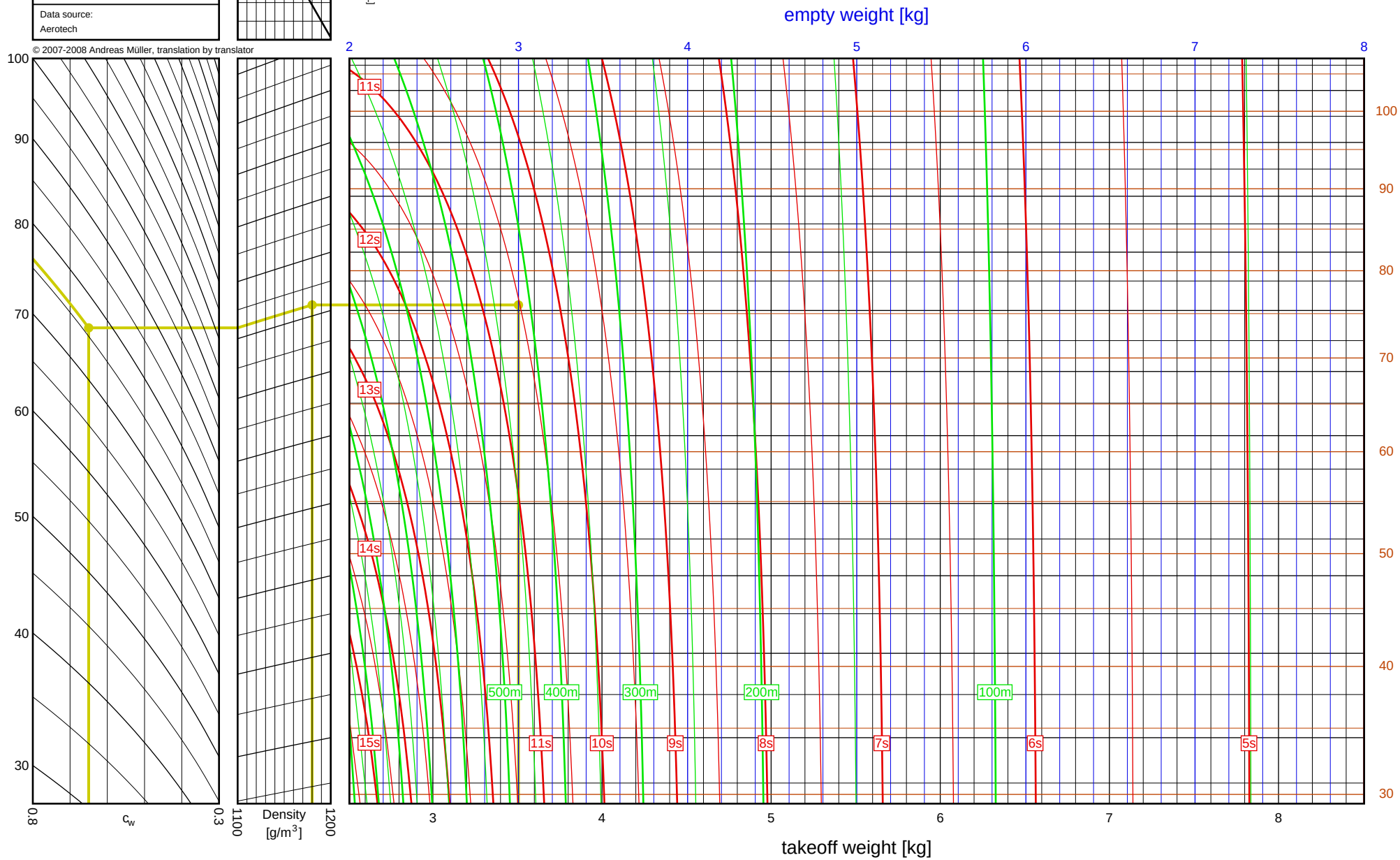
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.506kg
Results: time to apogee: 10.5s, expected altitude: 416m





Aerotech I215R

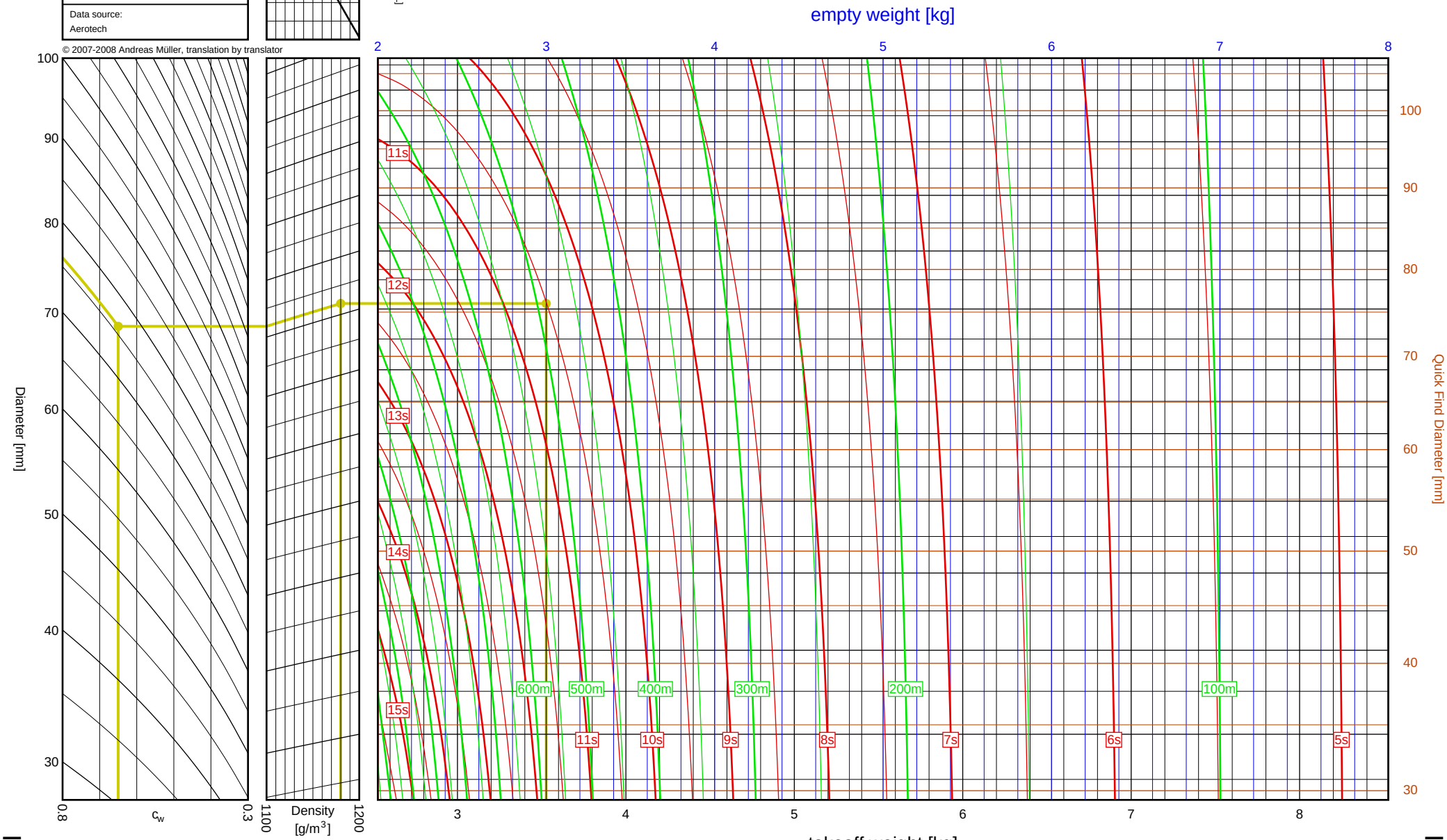
I_{tot}	=	396.9 Ns
F_{avg}	=	213.5 N
t_{burn}	=	1.86 s
d	=	54 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.527kg
Results: time to apogee: 10.5s, expected altitude: 488m

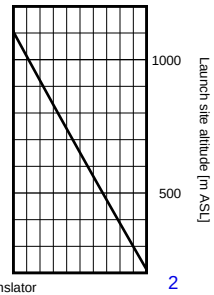


Aerotech I599N

I_{tot}	=	404.7 Ns
F_{avg}	=	649.6 N
t_{burn}	=	0.62 s
d	=	54 mm

Data source:
Aerotech

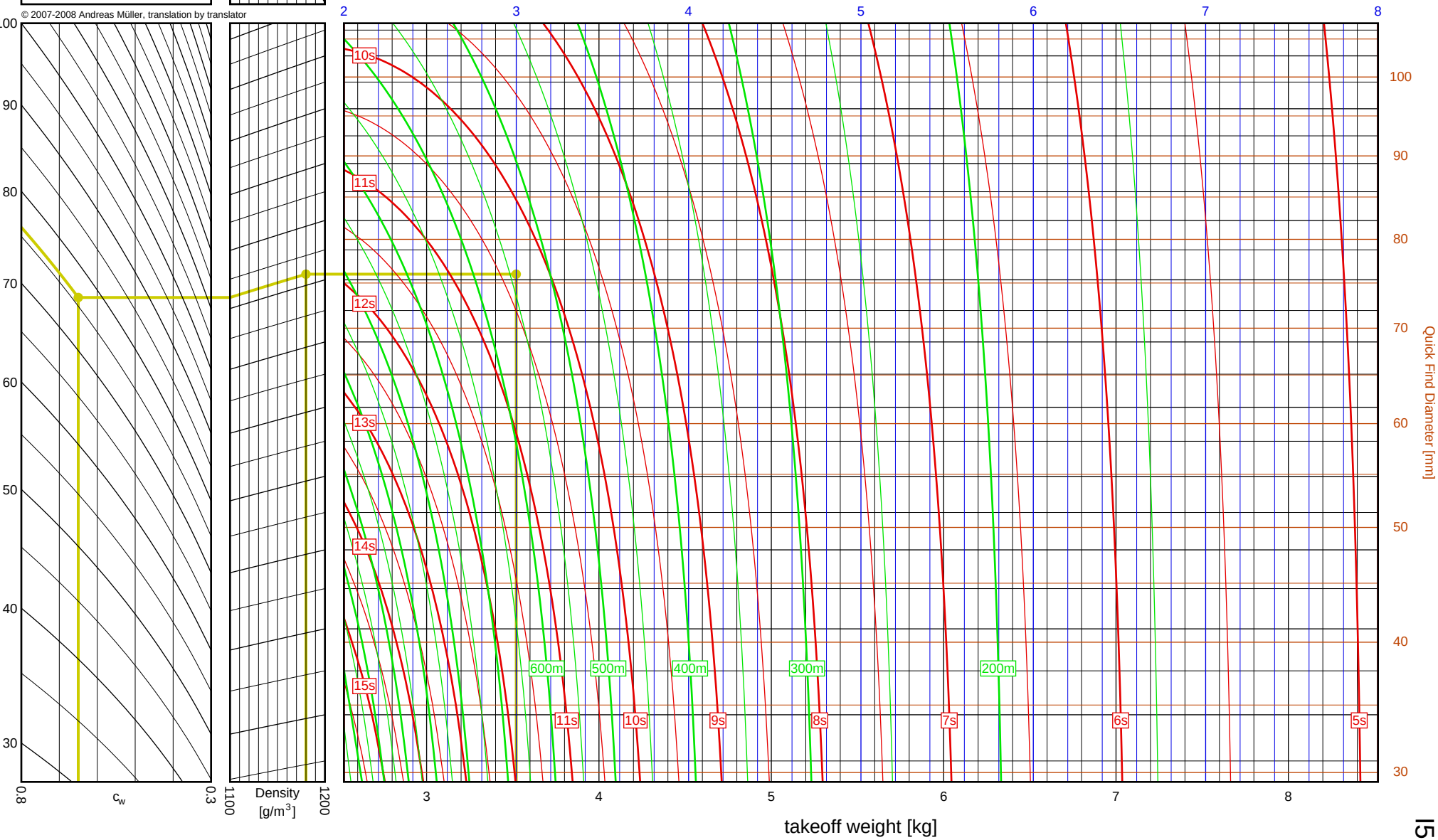
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.520kg
Results: time to apogee: 10.3s, expected altitude: 542m

empty weight [kg]



I599N

3", I-J

I599N

Aerotech I115W

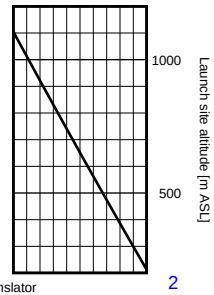
I_{tot}	=	408.8 Ns
F_{avg}	=	116.3 N
t_{burn}	=	3.51 s
d	=	54 mm

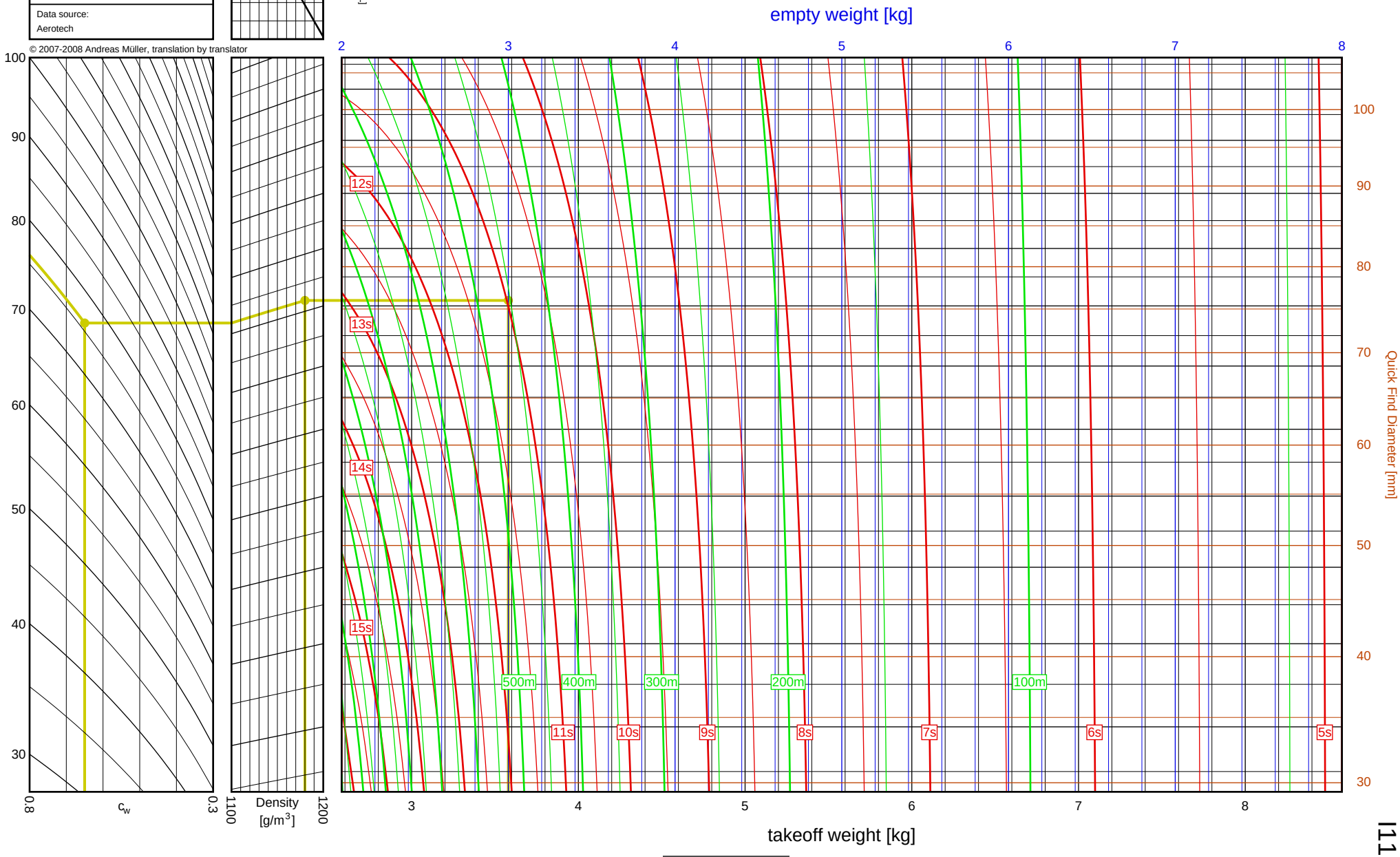
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.580kg
Results: time to apogee: 11.0s, expected altitude: 453m





Aerotech I300T

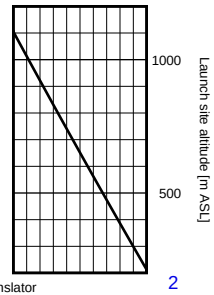
I_{tot}	=	413.1 Ns
F_{avg}	=	258.2 N
t_{burn}	=	1.60 s
d	=	38 mm

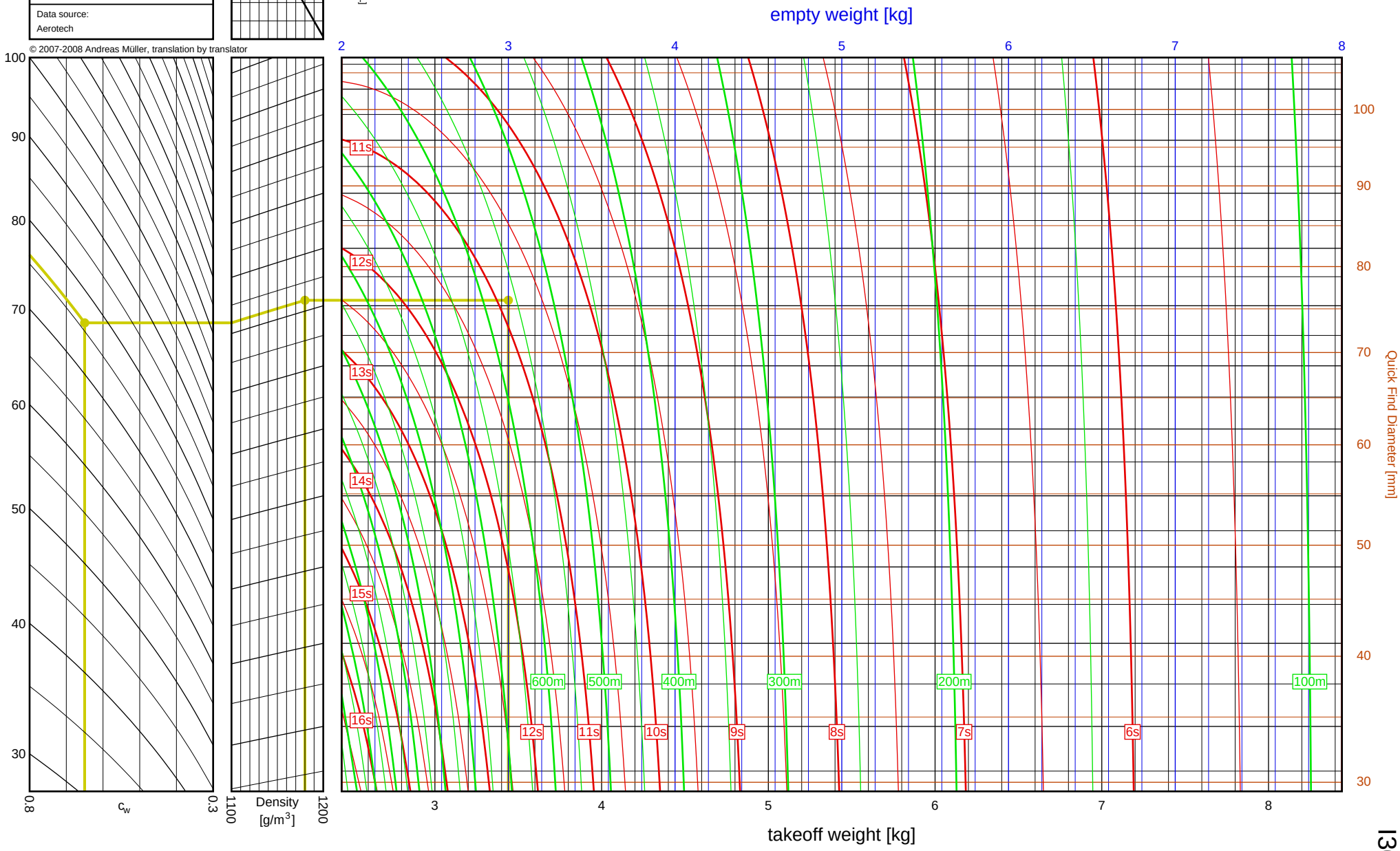
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.441kg
Results: time to apogee: 10.9s, expected altitude: 562m





I300T

I300T

3", I-J

Aerotech I229T

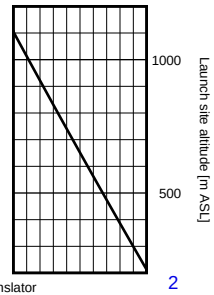
I_{tot}	=	413.7 Ns
F_{avg}	=	239.1 N
t_{burn}	=	1.73 s
d	=	54 mm

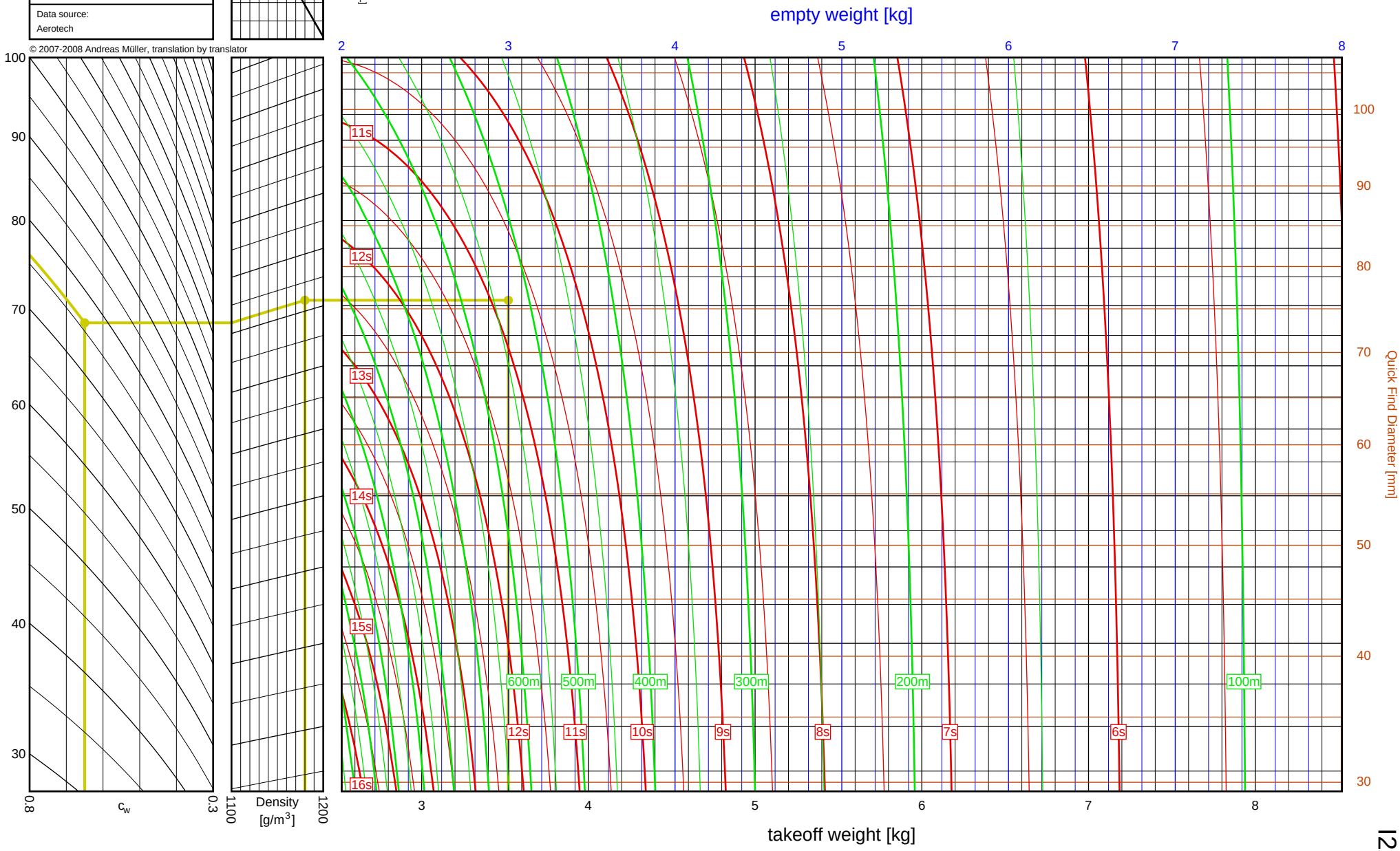
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.520kg
Results: time to apogee: 10.8s, expected altitude: 529m





Aerotech I285R

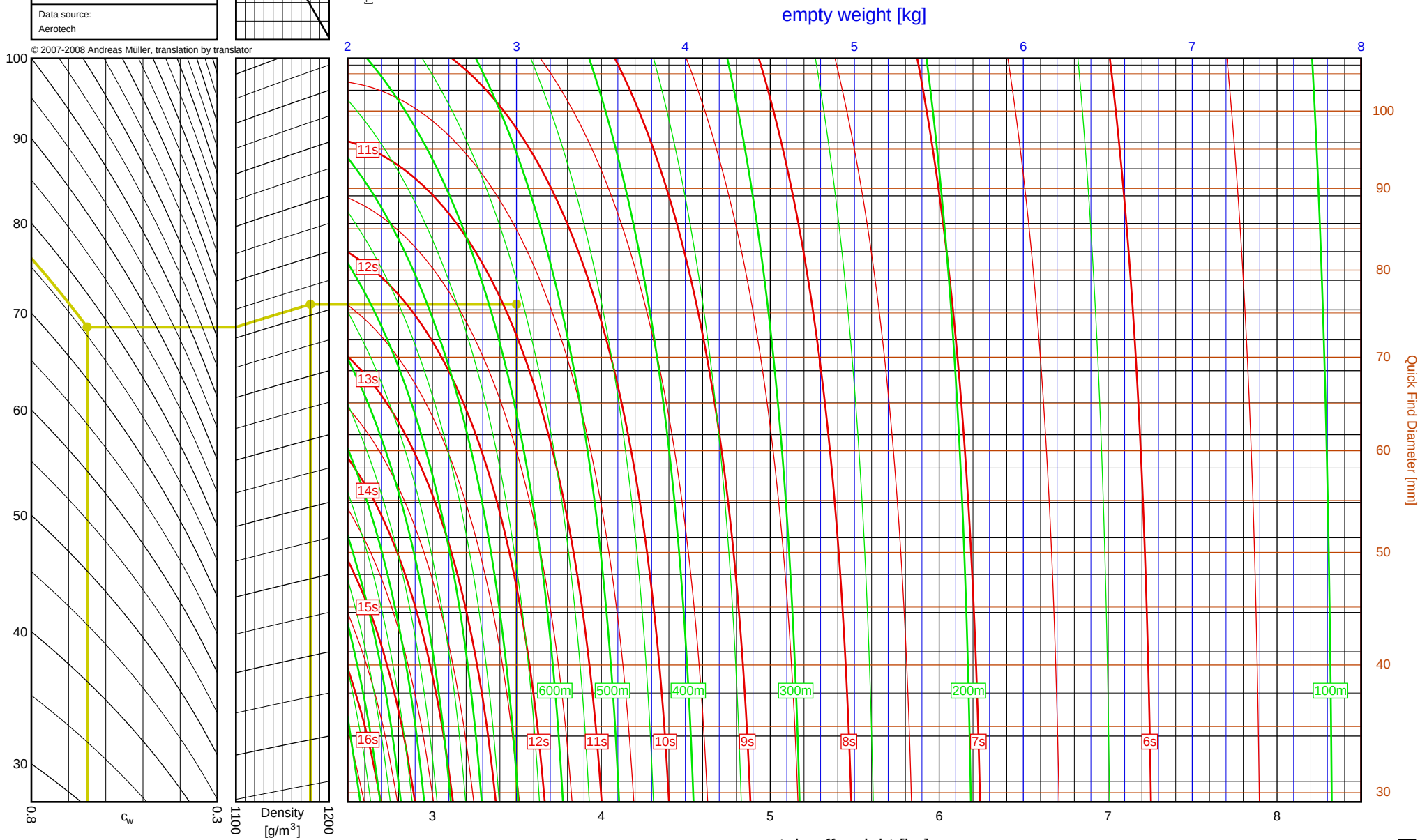
I_{tot}	=	415.0 Ns
F_{avg}	=	276.6 N
t_{burn}	=	1.50 s
d	=	38 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.498kg
Results: time to apogee: 10.9s, expected altitude: 560m

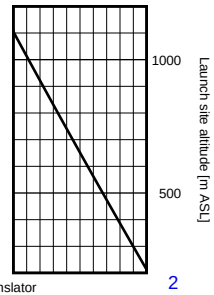


Aerotech I211W

I_{tot}	=	421.2 Ns
F_{avg}	=	191.4 N
t_{burn}	=	2.20 s
d	=	38 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.476kg
Results: time to apogee: 11.1s, expected altitude: 563m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

11s 12s 13s 14s 15s 16s

600m 500m 400m 300m 200m 100m

12s 11s 10s 9s 8s 7s 6s

6-14

I211W

I211W

3", I-J

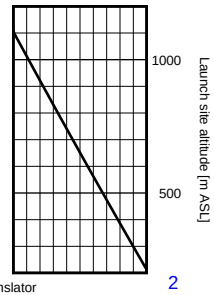
6

Aerotech I1299N

I_{tot}	=	424.4 Ns
F_{avg}	=	1248.4 N
t_{burn}	=	0.34 s
d	=	38 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.422kg
Results: time to apogee: 10.8s, expected altitude: 614m

empty weight [kg]

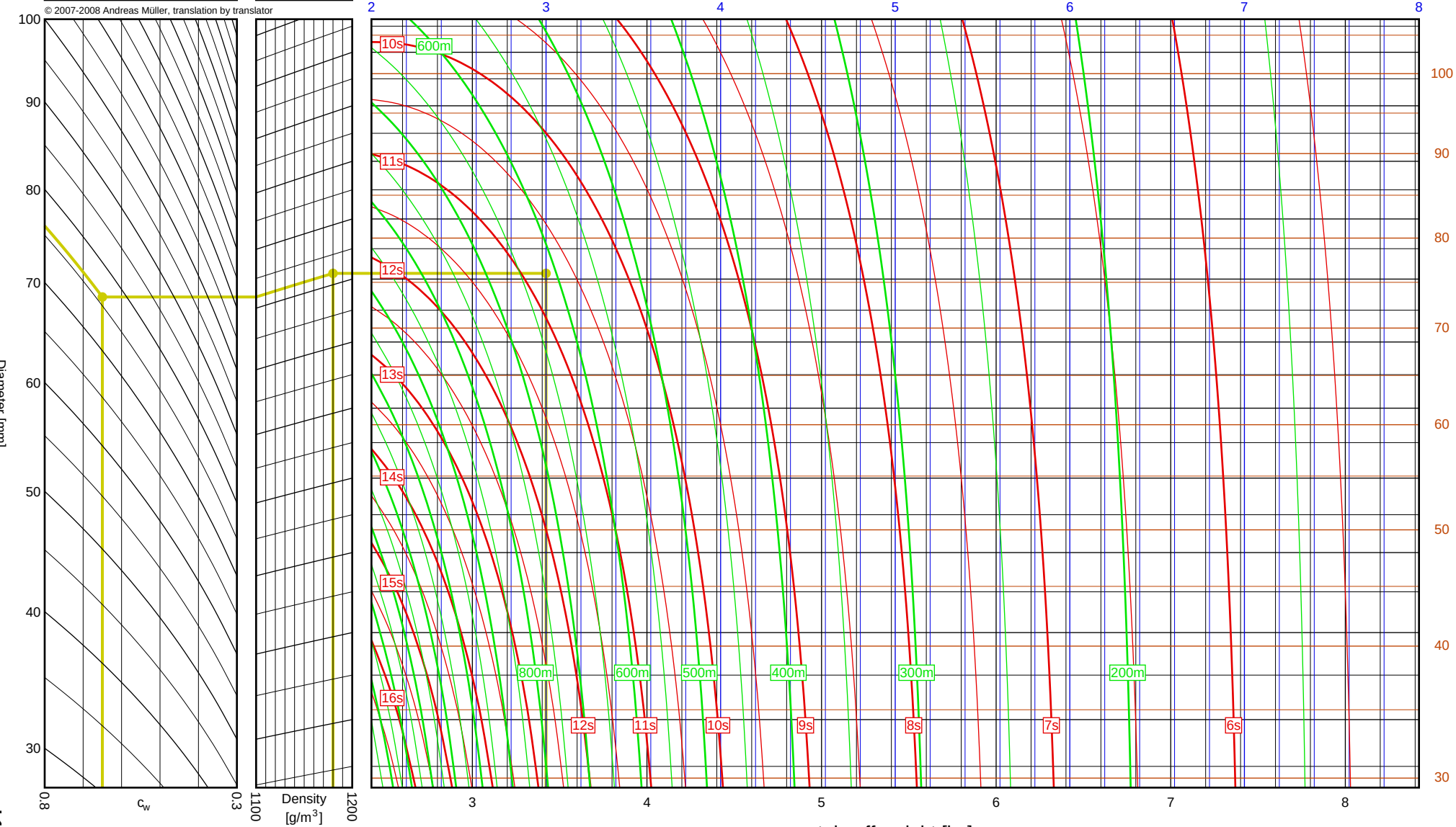
takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]



I1299N

I1299N

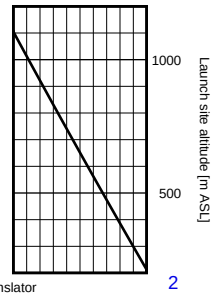
3", I-J

Aerotech I195J

I_{tot}	=	443.0 Ns
F_{avg}	=	156.5 N
t_{burn}	=	2.83 s
d	=	38 mm

Data source:
Aerotech

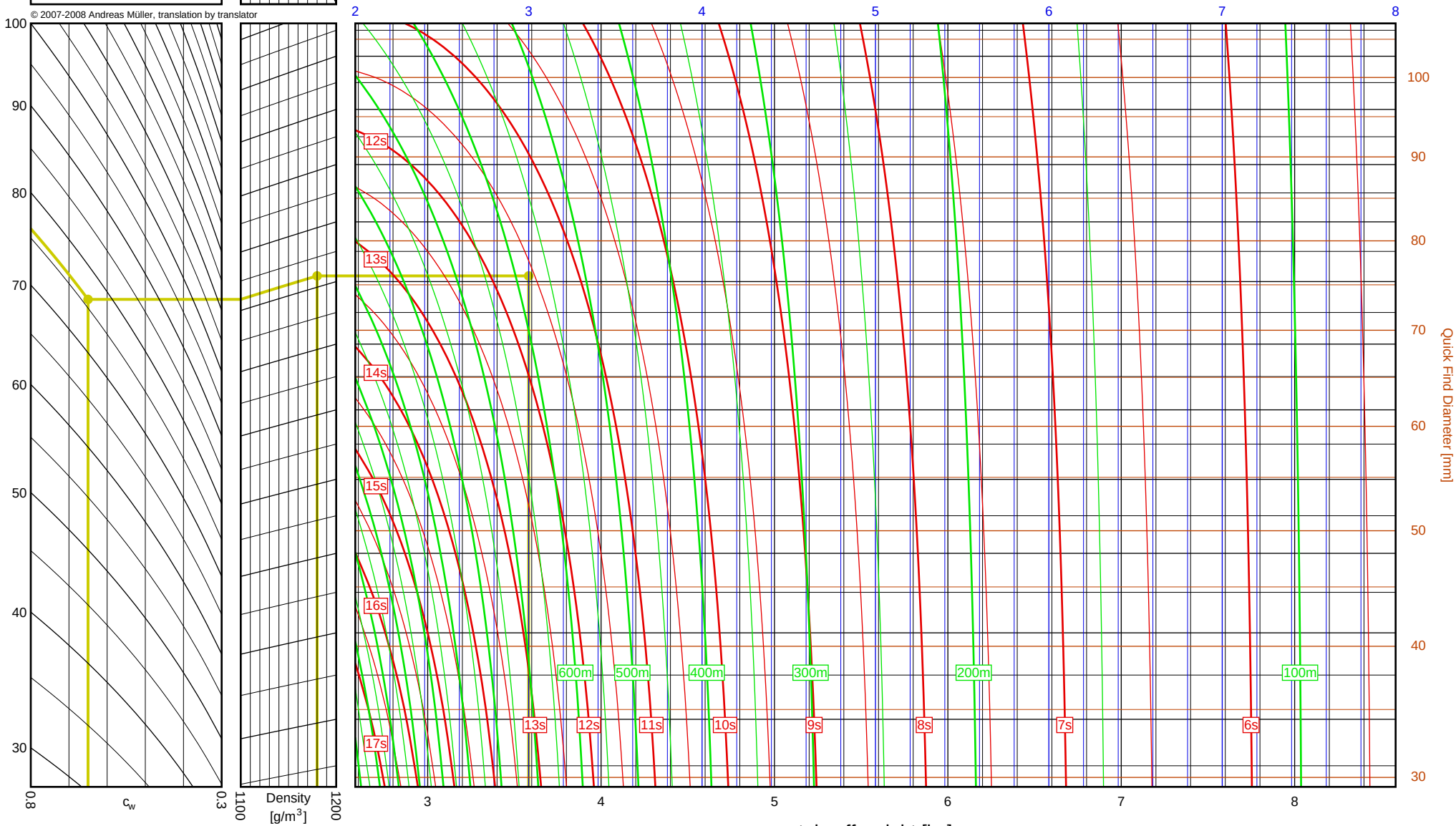
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.582kg
Results: time to apogee: 11.6s, expected altitude: 580m

empty weight [kg]



I195J

I195J

Aerotech I305FJ

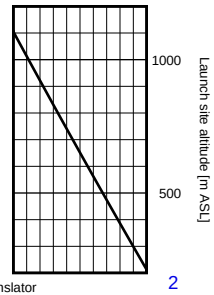
I_{tot}	=	443.9 Ns
F_{avg}	=	277.4 N
t_{burn}	=	1.60 s
d	=	38 mm

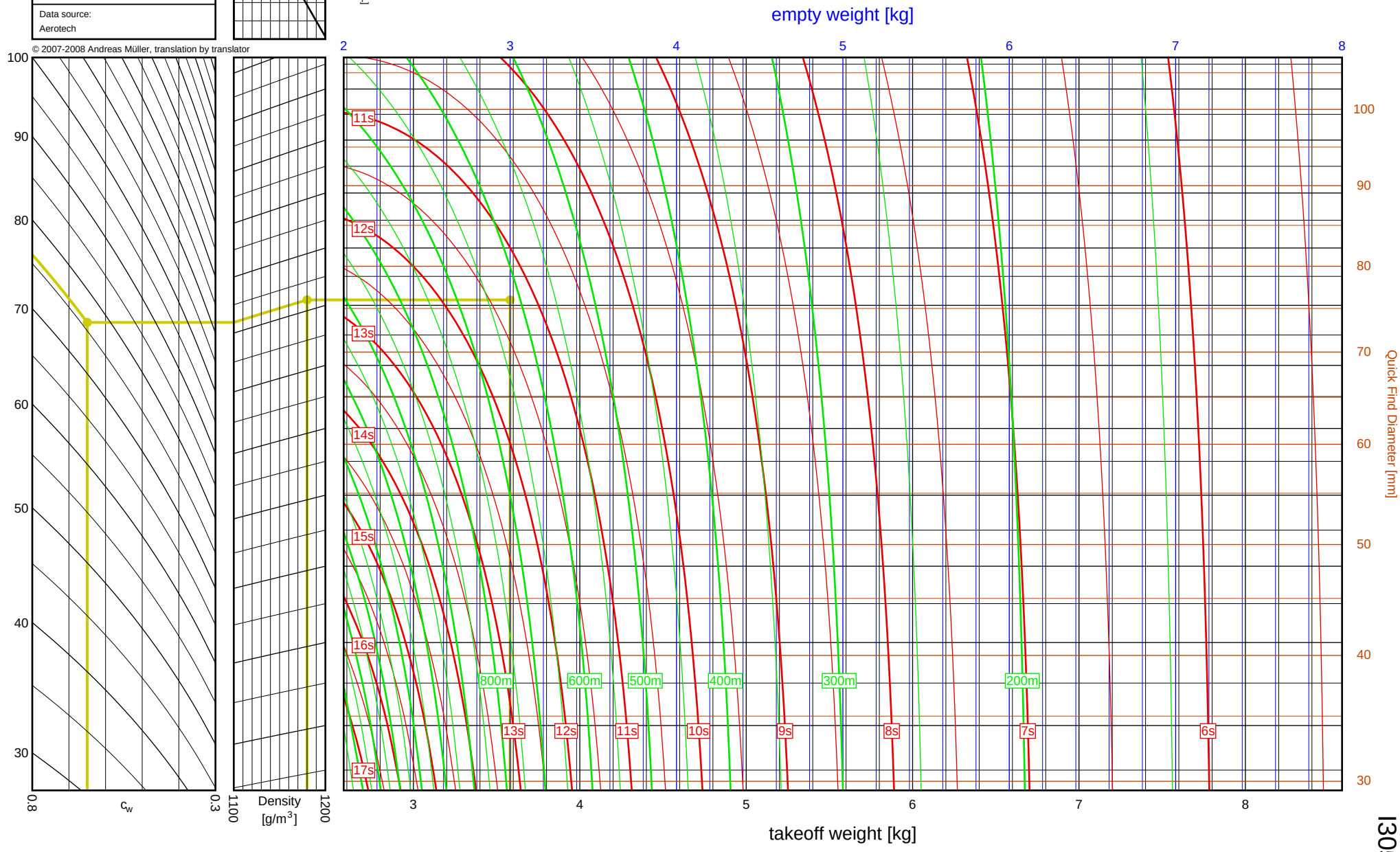
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.581kg
Results: time to apogee: 11.3s, expected altitude: 615m





I305FJ

3", I-J

I305FJ

Aerotech I435T

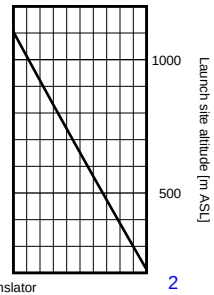
I_{tot}	=	517.4 Ns
F_{avg}	=	369.6 N
t_{burn}	=	1.40 s
d	=	38 mm

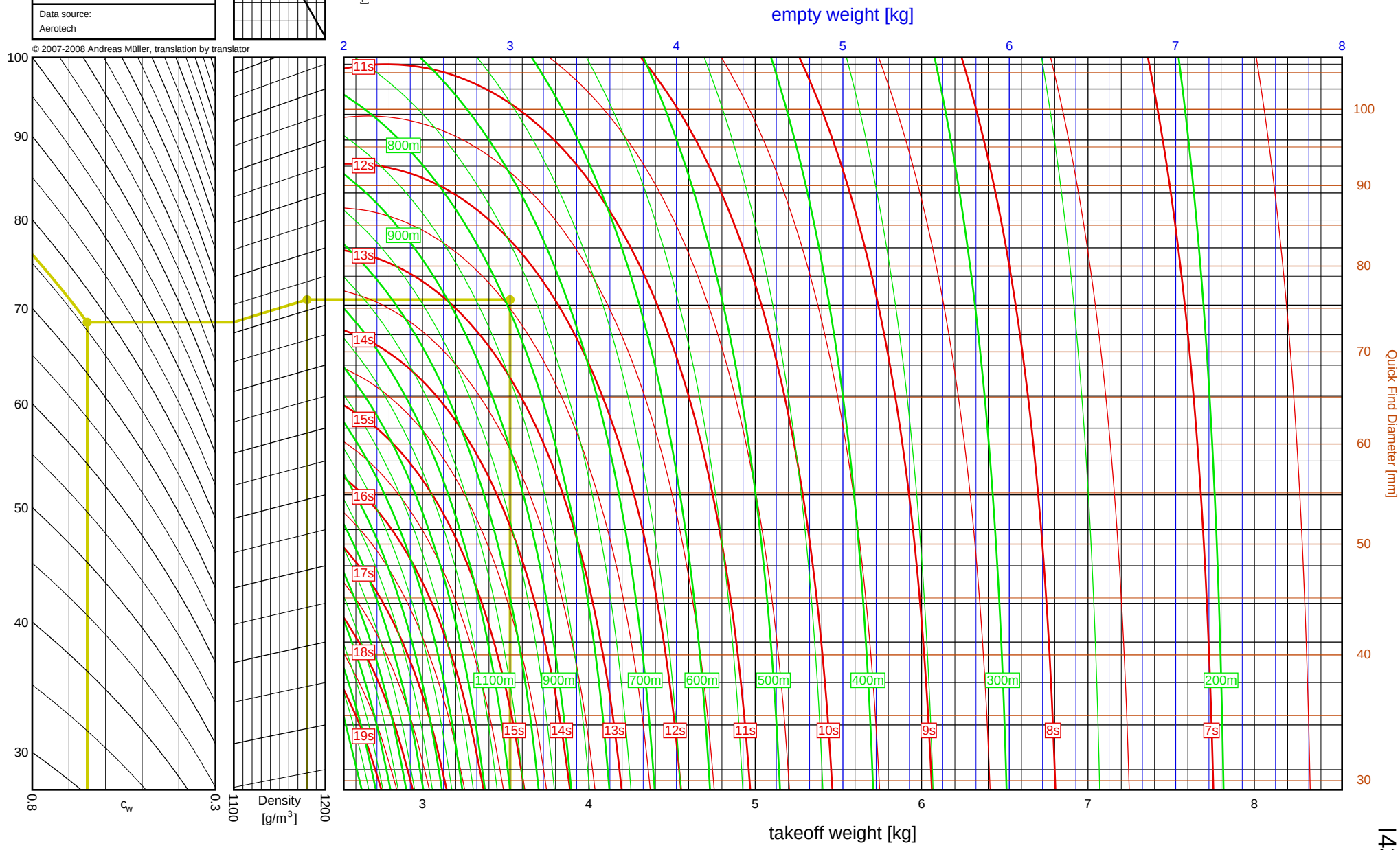
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.527kg
Results: time to apogee: 12.4s, expected altitude: 792m





Aerotech I284W

I_{tot}	=	529.8 Ns
F_{avg}	=	294.4 N
t_{burn}	=	1.80 s
d	=	38 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.568kg
Results: time to apogee: 12.7s, expected altitude: 806m

Launch site altitude [m ASL]: 1000, 500

empty weight [kg]: 2, 3, 4, 5, 6, 7, 8

Diameter [mm]: 100, 90, 80, 70, 60, 50, 40, 30

Quick Find Diameter [mm]: 100, 90, 80, 70, 60, 50, 40, 30

c_w: 0.8, 0.3

Density [g/m^3]: 1100, 1200

takeoff weight [kg]: 3, 4, 5, 6, 7, 8

12s 800m
13s 900m
14s
15s
16s
17s
18s
19s

1100m 900m 700m 600m 500m 400m 300m 200m

15s 14s 13s 12s 11s 10s 9s 8s 7s

I-19

I284W

3", I-J

6

I284W

Aerotech I366R

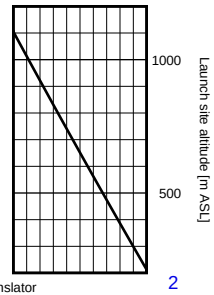
I_{tot}	=	537.1 Ns
F_{avg}	=	358.0 N
t_{burn}	=	1.50 s
d	=	38 mm

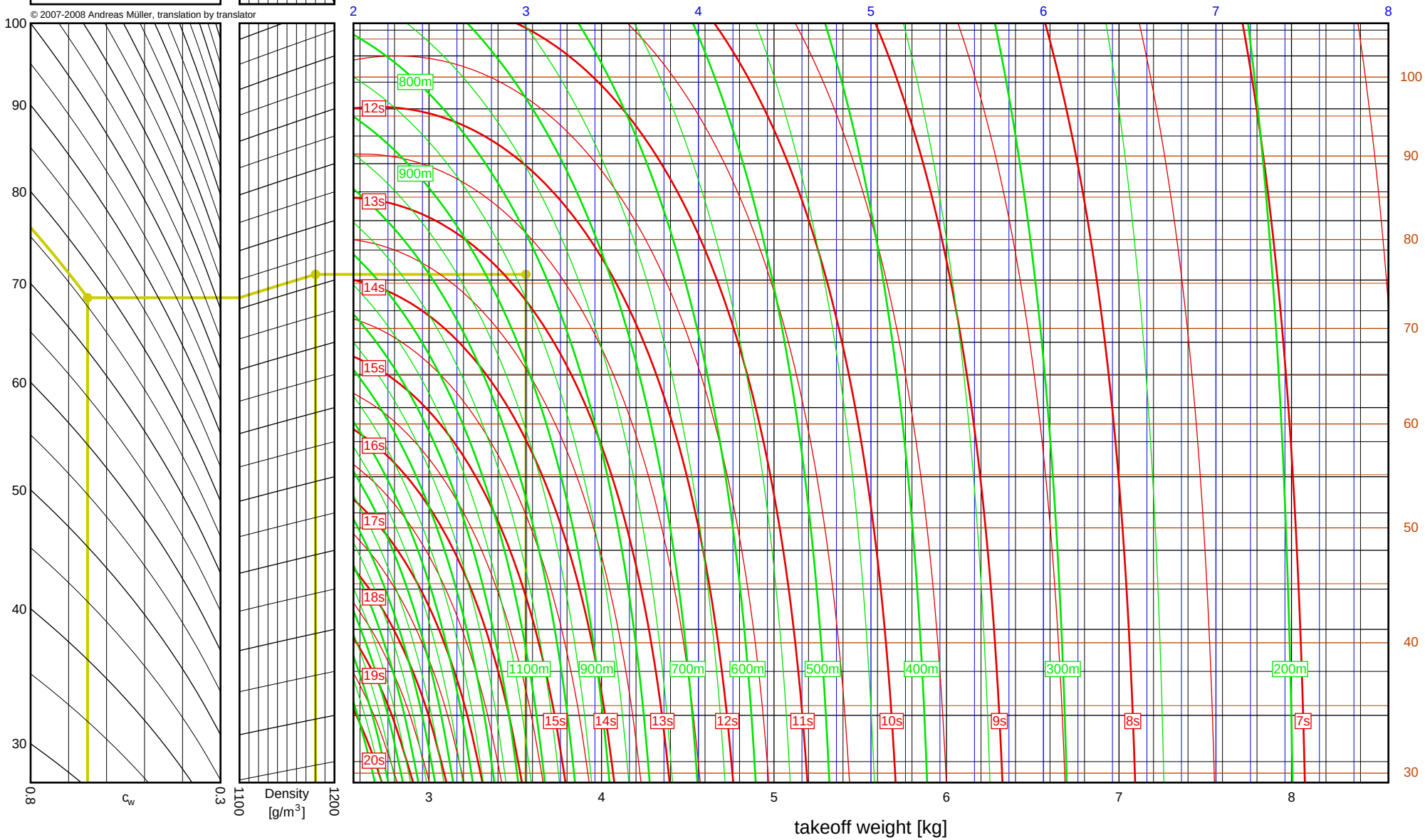
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.562kg
Results: time to apogee: 12.8s, expected altitude: 831m





I366R

3", I-J

I366R

Aerotech I364FJ

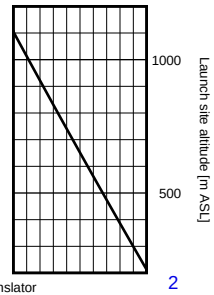
I_{tot}	=	551.2 Ns
F_{avg}	=	324.2 N
t_{burn}	=	1.70 s
d	=	38 mm

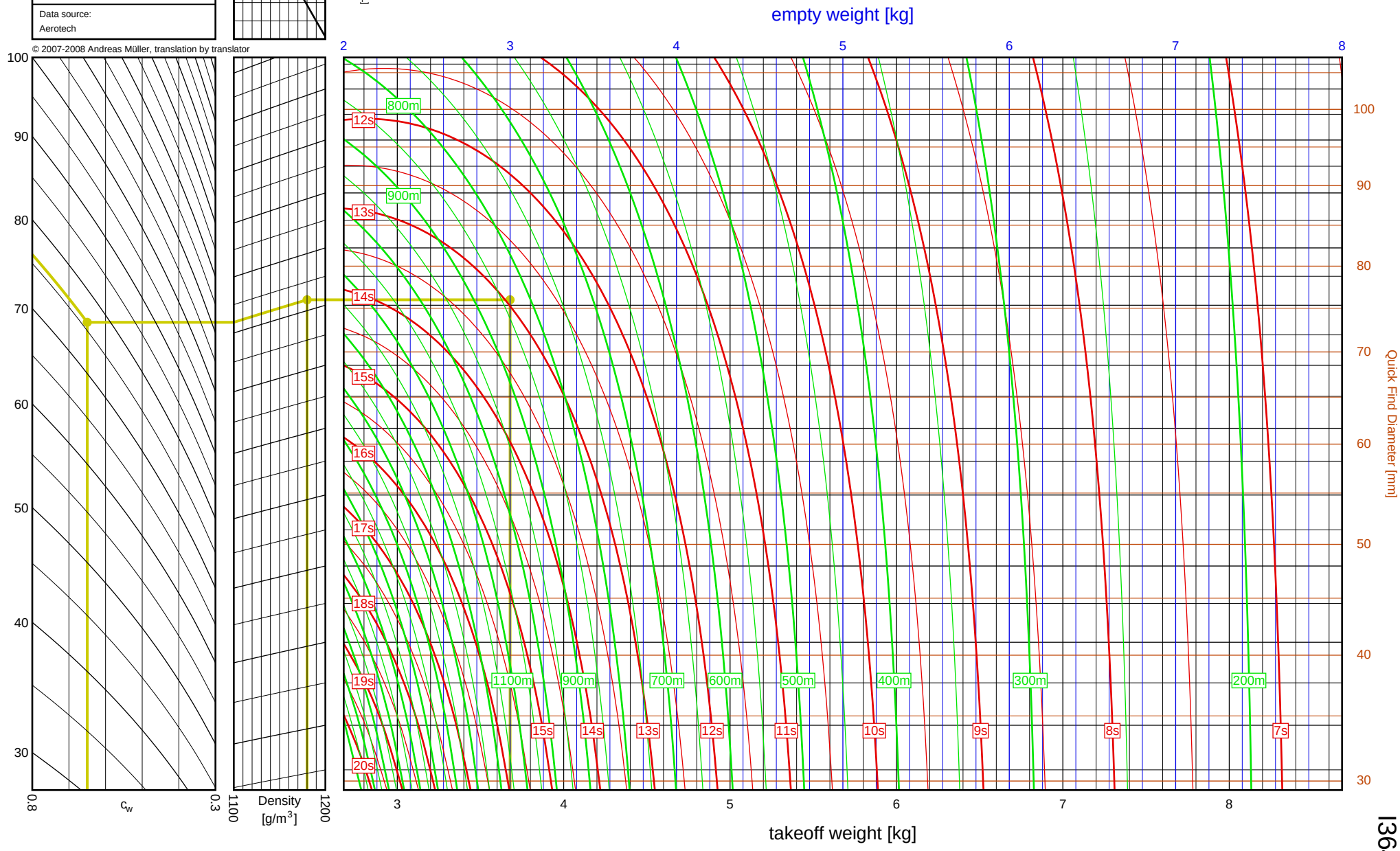
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.678kg
Results: time to apogee: 13.0s, expected altitude: 836m





I364FJ

I364FJ

Aerotech I600R

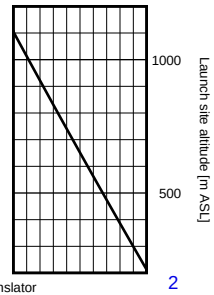
I_{tot}	=	640.1 Ns
F_{avg}	=	542.5 N
t_{burn}	=	1.18 s
d	=	38 mm

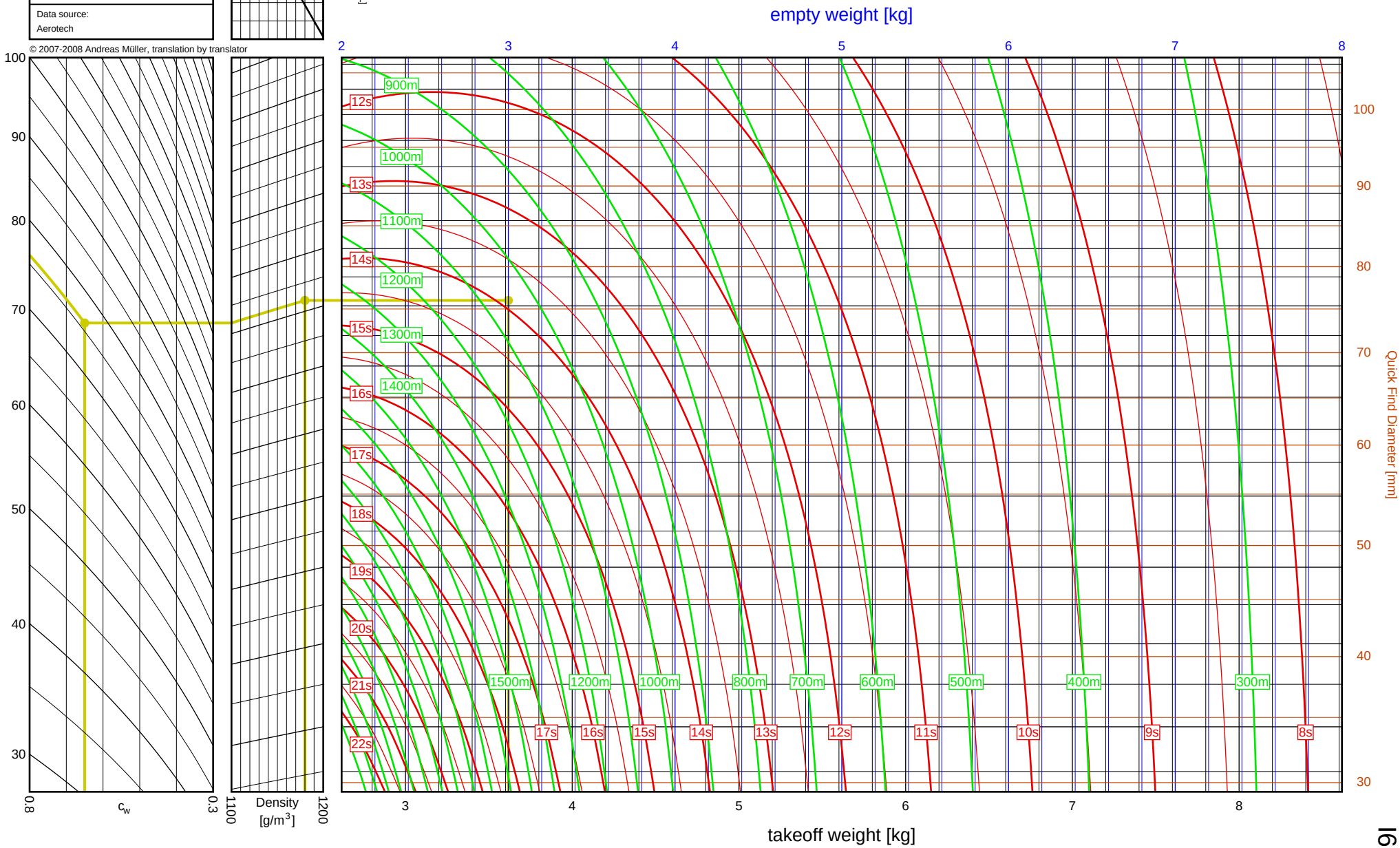
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.617kg
Results: time to apogee: 13.9s, expected altitude: 1050m





I600R

3", I-J

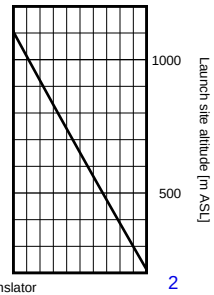
I600R

Aerotech J350W.5

I_{tot}	=	649.6 Ns
F_{avg}	=	433.0 N
t_{burn}	=	1.50 s
d	=	38 mm

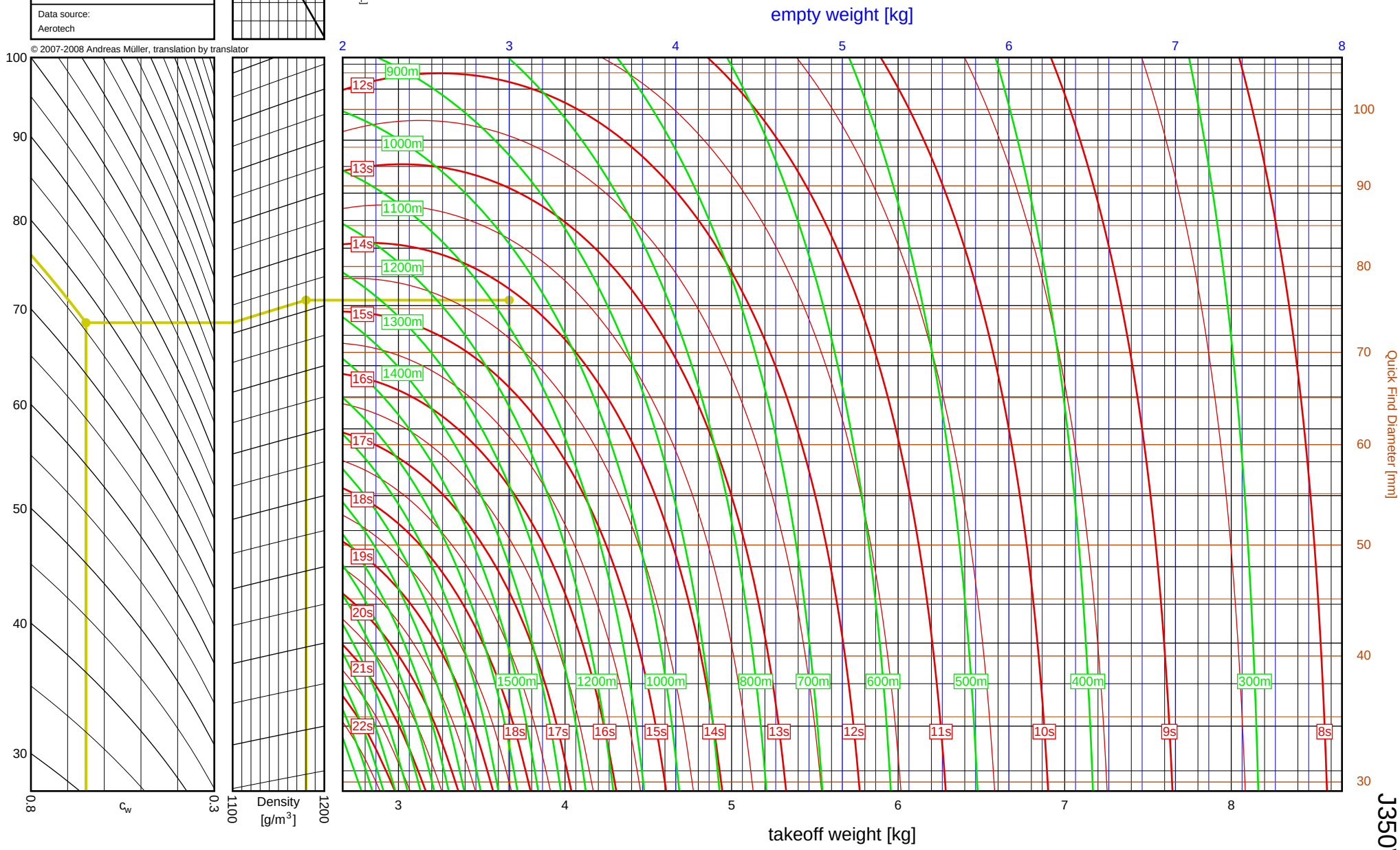
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.665kg
Results: time to apogee: 14.1s, expected altitude: 1068m



J350W.5

3", I-J

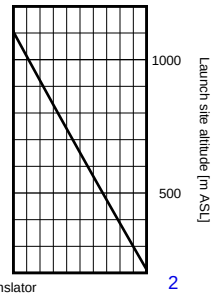
J350W.5

Aerotech J420R

I_{tot}	=	651.0 Ns
F_{avg}	=	404.3 N
t_{burn}	=	1.61 s
d	=	38 mm

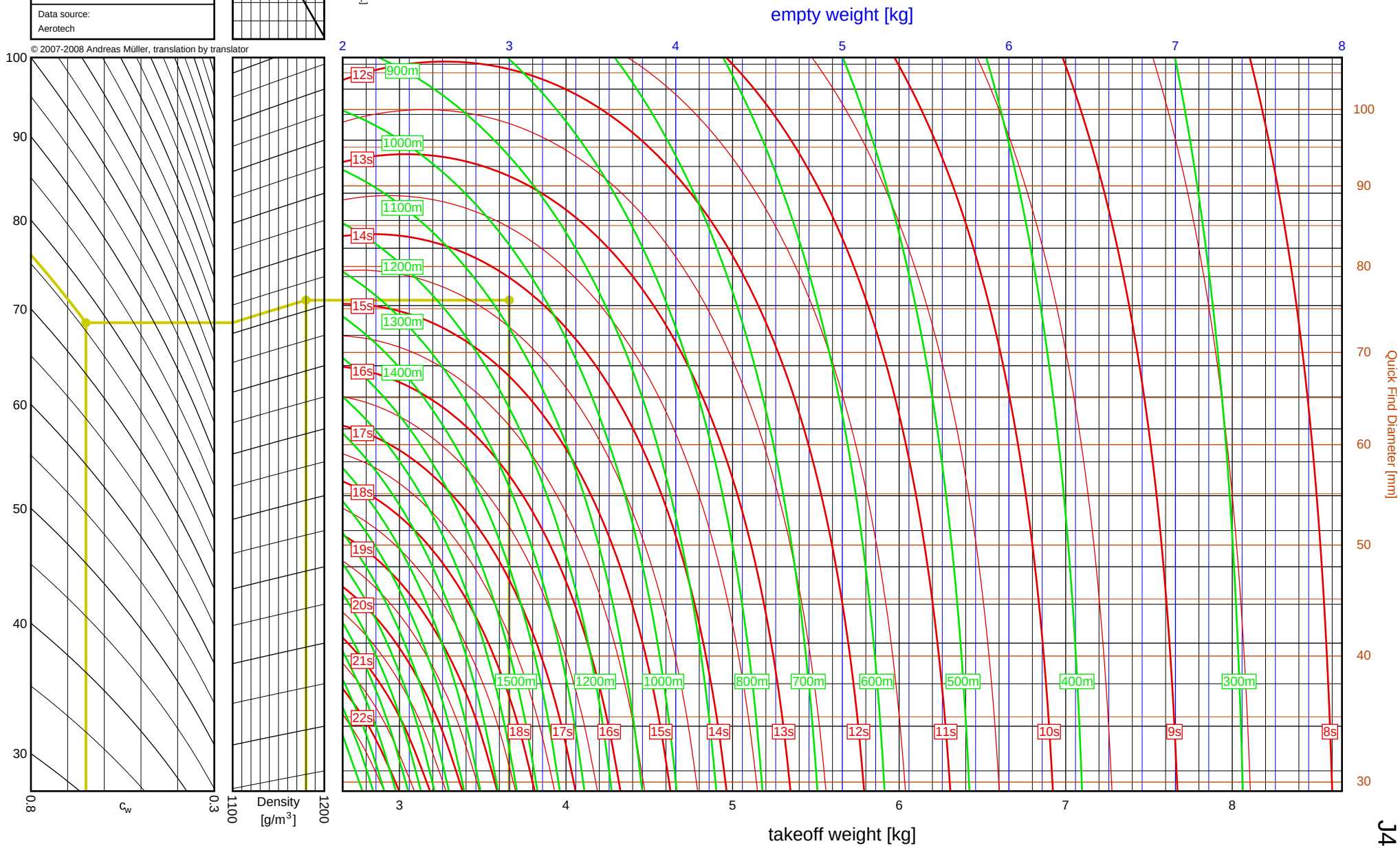
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.659kg
Results: time to apogee: 14.2s, expected altitude: 1067m



J420R

3", I-J

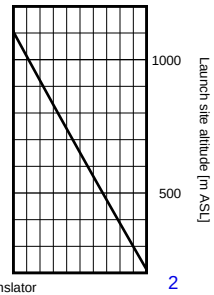
J420R

Aerotech J350W

I_{tot}	=	665.0 Ns
F_{avg}	=	350.0 N
t_{burn}	=	1.90 s
d	=	38 mm

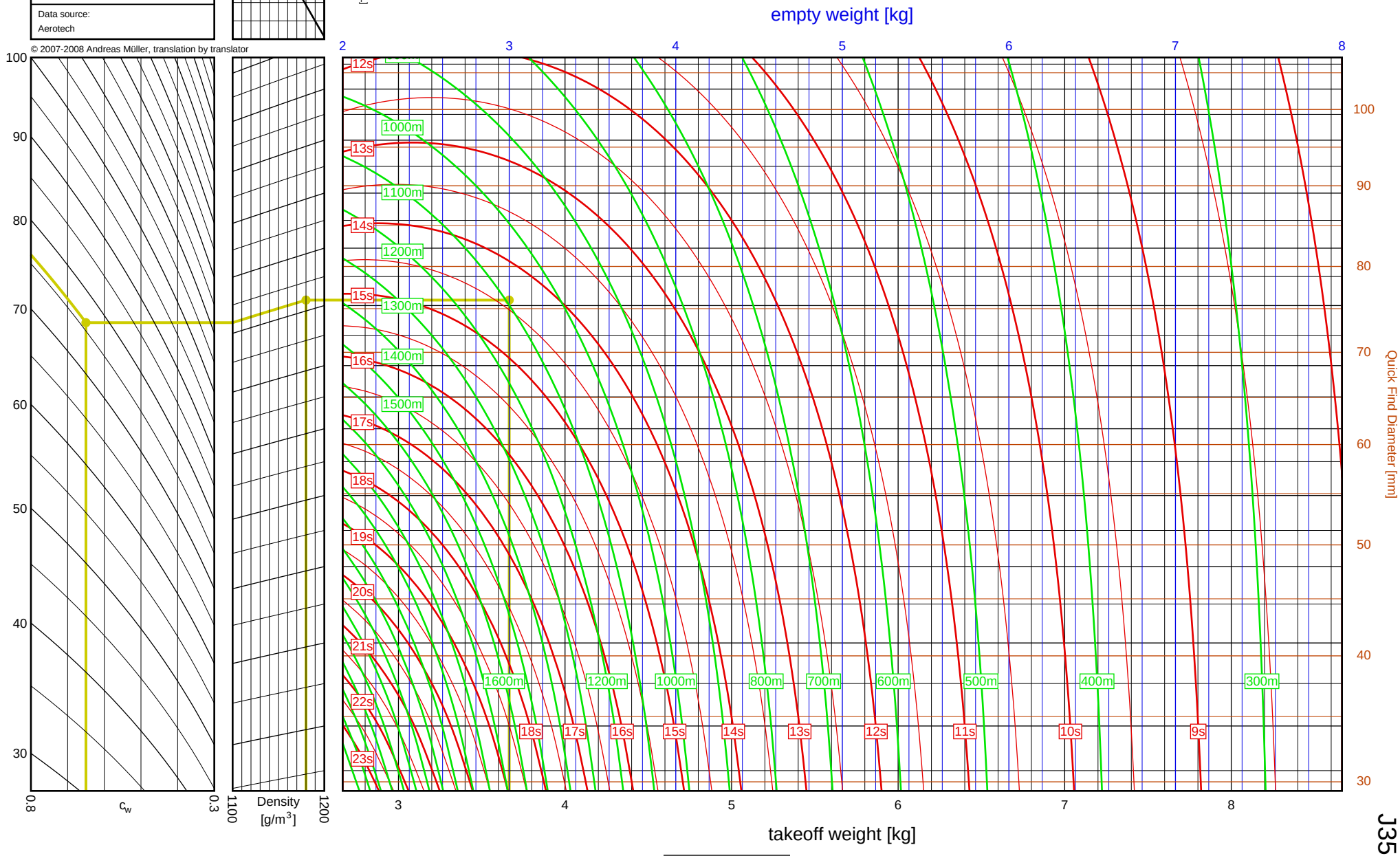
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.665kg
Results: time to apogee: 14.4s, expected altitude: 1094m



J350W

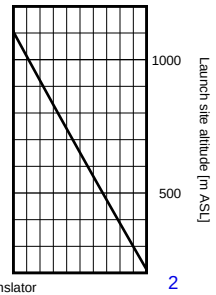
J350W

Aerotech J90W

I_{tot}	=	681.3 Ns
F_{avg}	=	90.8 N
t_{burn}	=	7.50 s
d	=	54 mm

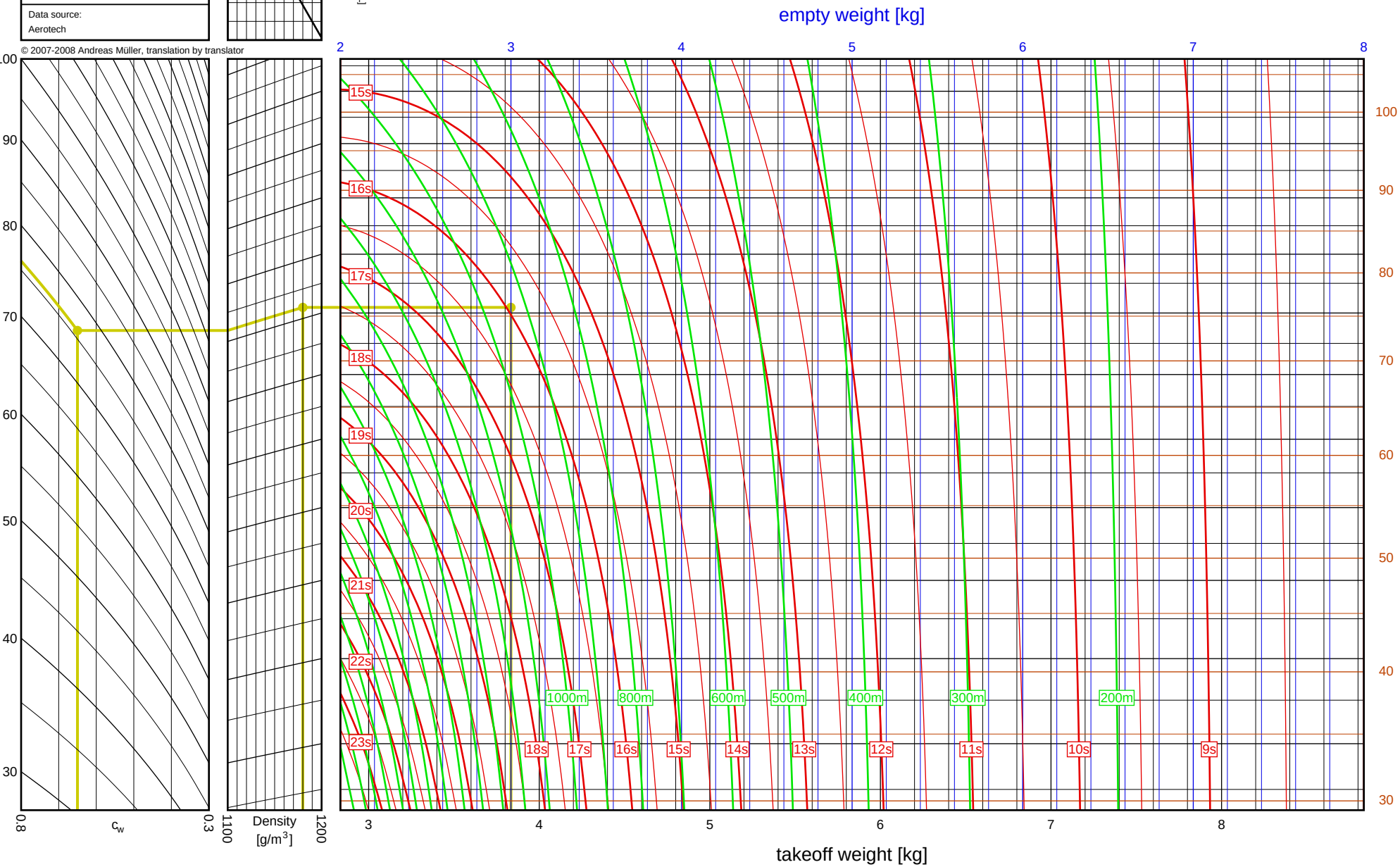
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.834kg
Results: time to apogee: 15.9s, expected altitude: 934m



J90W

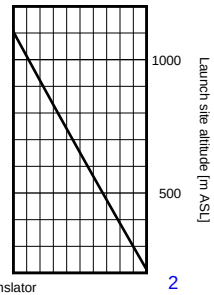
J90W

Aerotech J250FJ

I_{tot}	=	707.2 Ns
F_{avg}	=	252.9 N
t_{burn}	=	2.80 s
d	=	54 mm

Data source: Aerotech

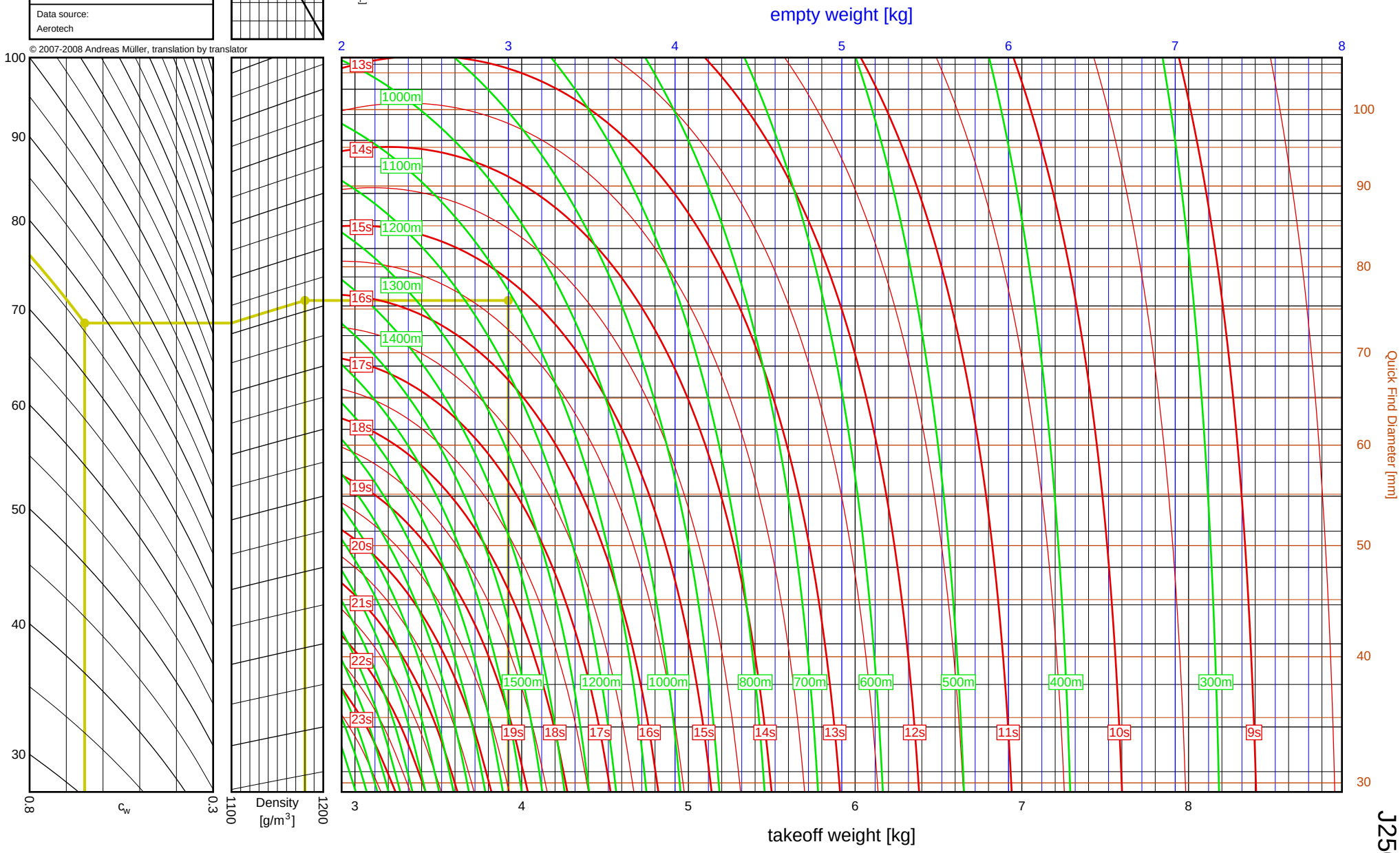
© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.920kg

Results: time to apogee: 15.2s, expected altitude: 1112m



J250FJ

Aerotech

J500G

I_{tot}	=	722.7 Ns
F_{avg}	=	498.4 N
t_{burn}	=	1.45 s
d	=	38 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.654kg
Results: time to apogee: 14.9s, expected altitude: 1221m

Launch site altitude [m ASL]: 1000, 500

empty weight [kg]: 2, 3, 4, 5, 6, 7, 8

Diameter [mm]: 100, 90, 80, 70, 60, 50, 40, 30

Quick Find Diameter [mm]: 100, 90, 80, 70, 60, 50, 40, 30

c_w: 0.8, 0.3

Density [g/m^3]: 1100, 1200

takeoff weight [kg]: 3, 4, 5, 6, 7, 8

1000m, 13s, 14s, 15s, 16s, 17s, 18s, 19s, 20s, 21s, 22s, 23s, 24s

1000m, 19s, 18s, 17s, 16s, 15s, 14s, 13s, 12s, 11s, 10s, 9s

J500G

3", I-J

J500G

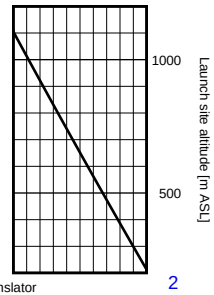
Aerotech

J315R

I_{tot}	=	757.1 Ns
F_{avg}	=	291.2 N
t_{burn}	=	2.60 s
d	=	54 mm

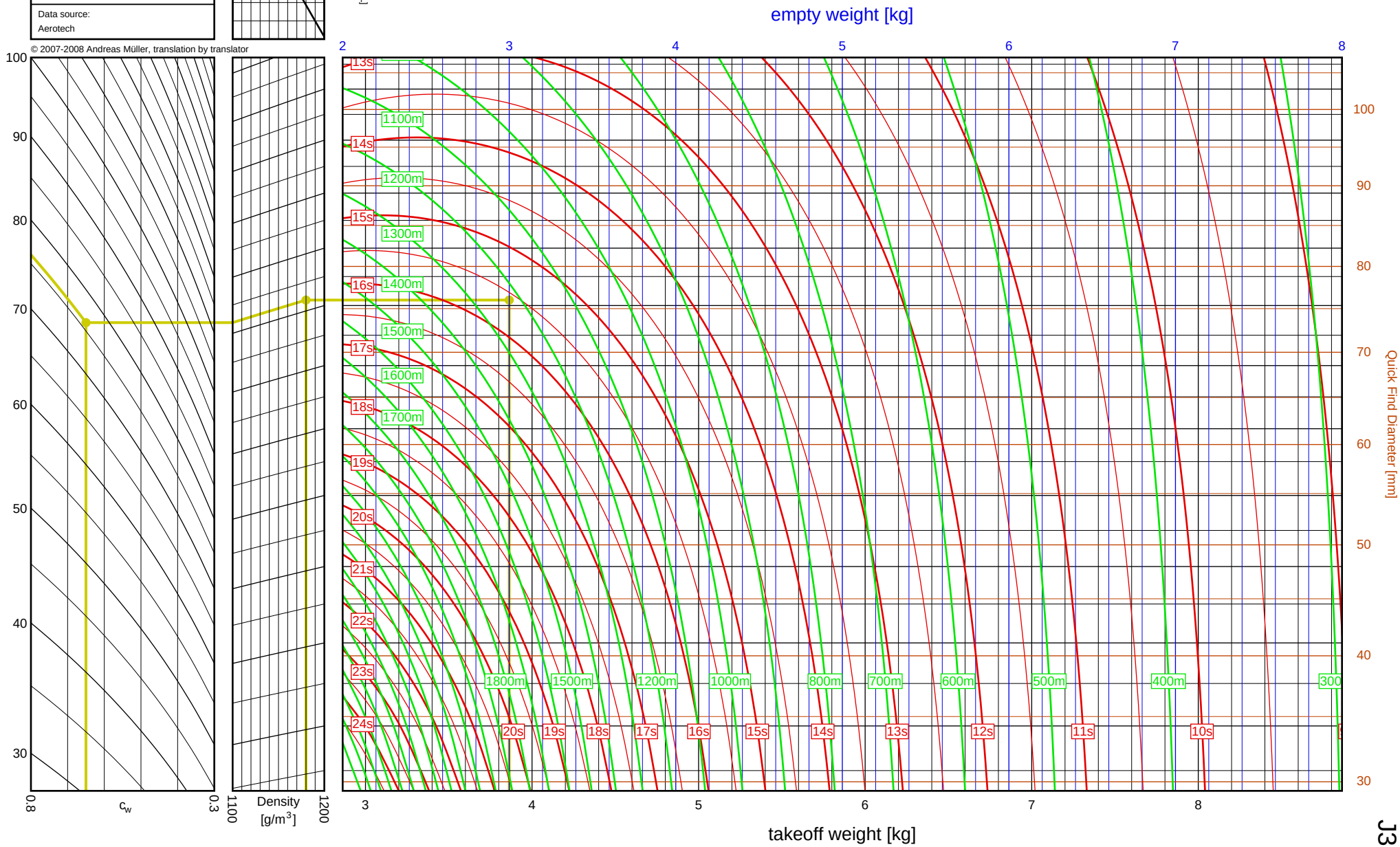
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.863kg
Results: time to apogee: 15.6s, expected altitude: 1224m



J315R

3", I-J

J315R

Aerotech J460T

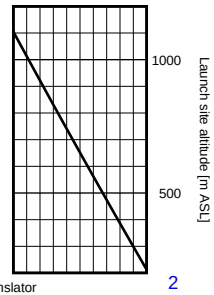
I_{tot}	=	783.5 Ns
F_{avg}	=	412.4 N
t_{burn}	=	1.90 s
d	=	54 mm

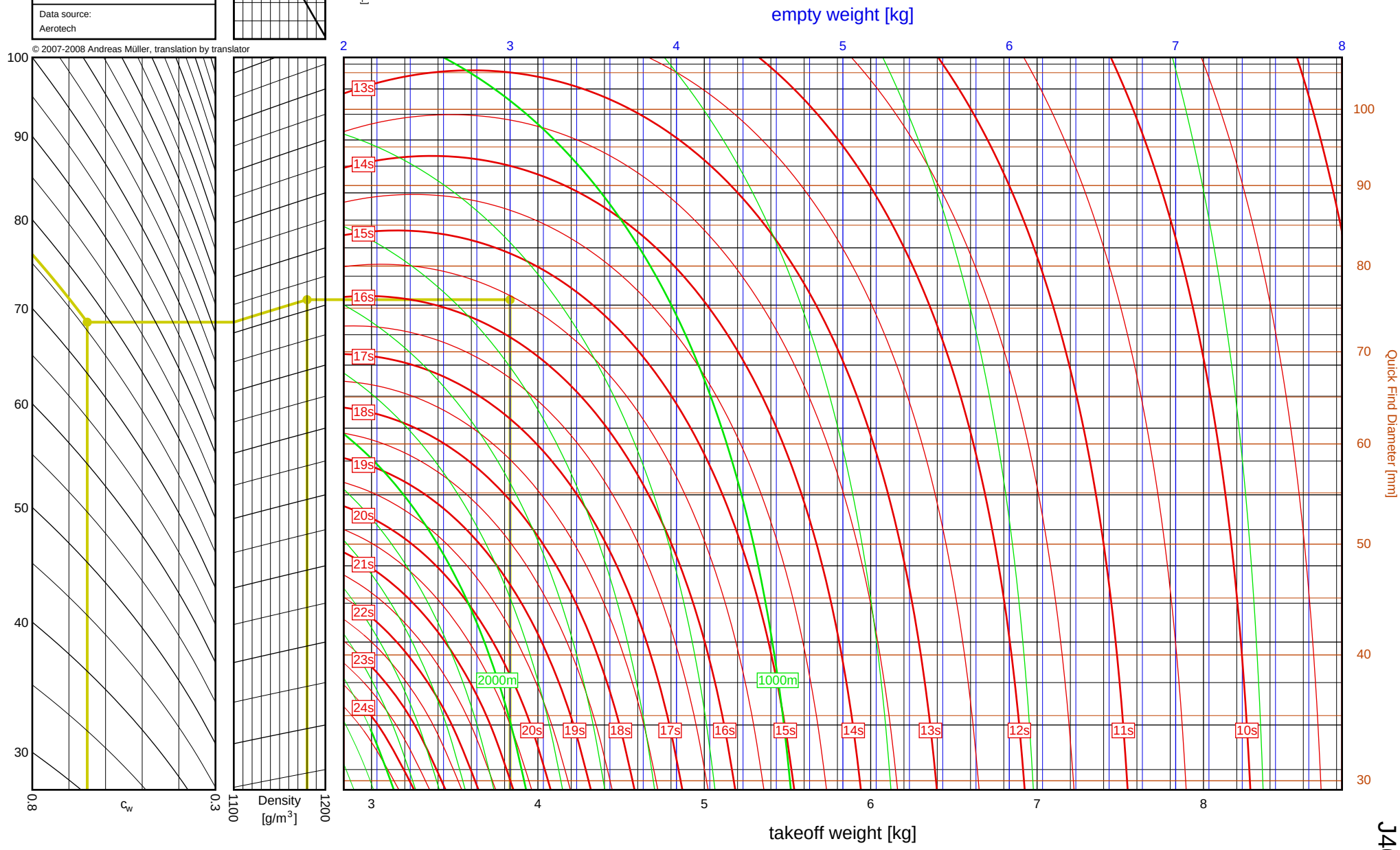
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.833kg
Results: time to apogee: 15.6s, expected altitude: 1290m





J460T

3", I-J

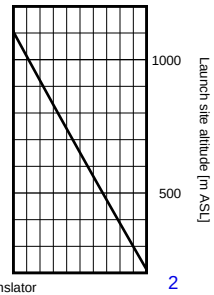
J460T

Aerotech J575FJ

I_{tot}	=	800.6 Ns
F_{avg}	=	597.4 N
t_{burn}	=	1.34 s
d	=	38 mm

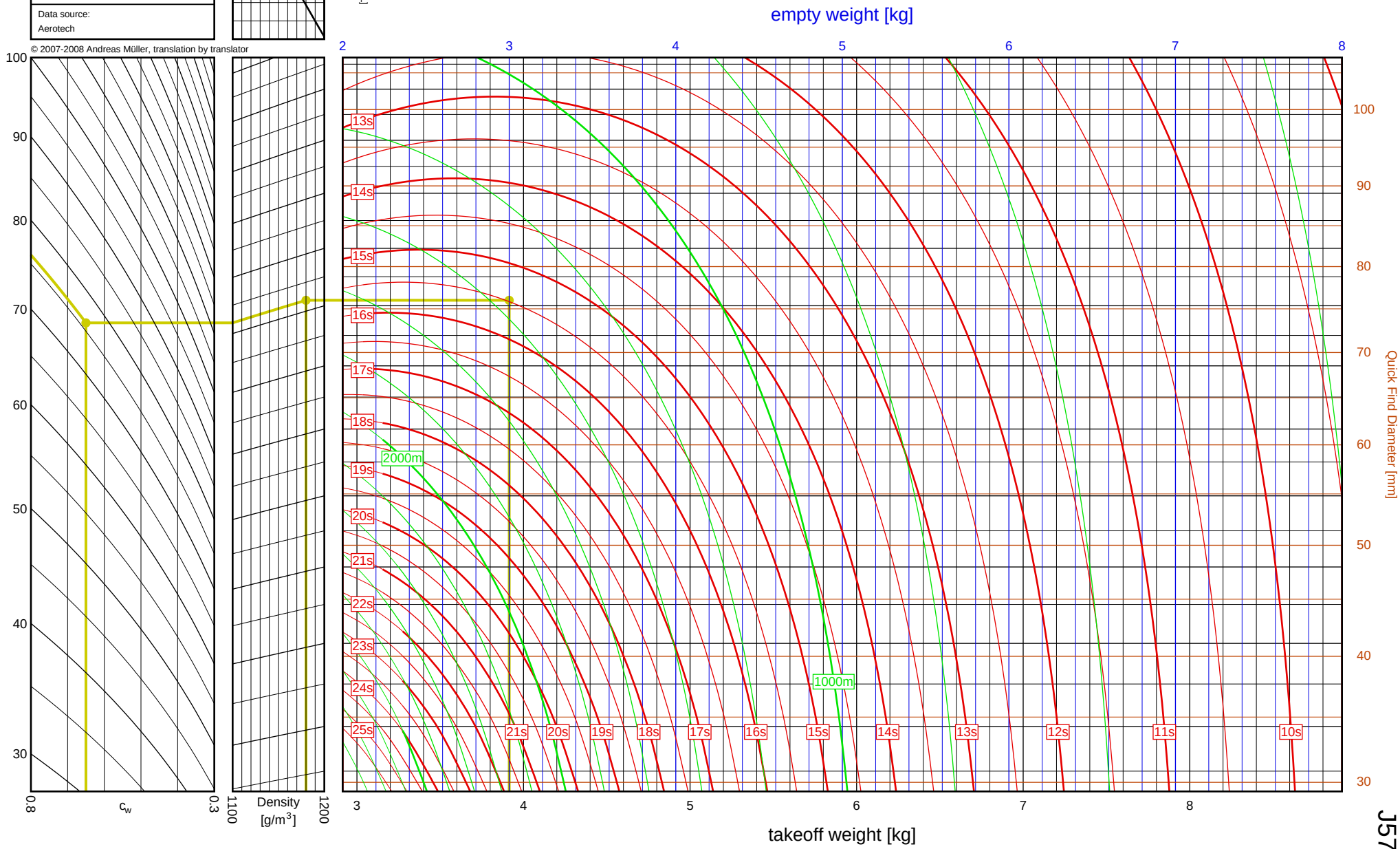
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.914kg
Results: time to apogee: 15.5s, expected altitude: 1366m



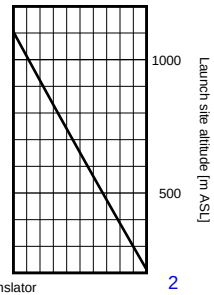
Aerotech

J275W

I_{tot}	=	818.7 Ns
F_{avg}	=	255.8 N
t_{burn}	=	3.20 s
d	=	54 mm

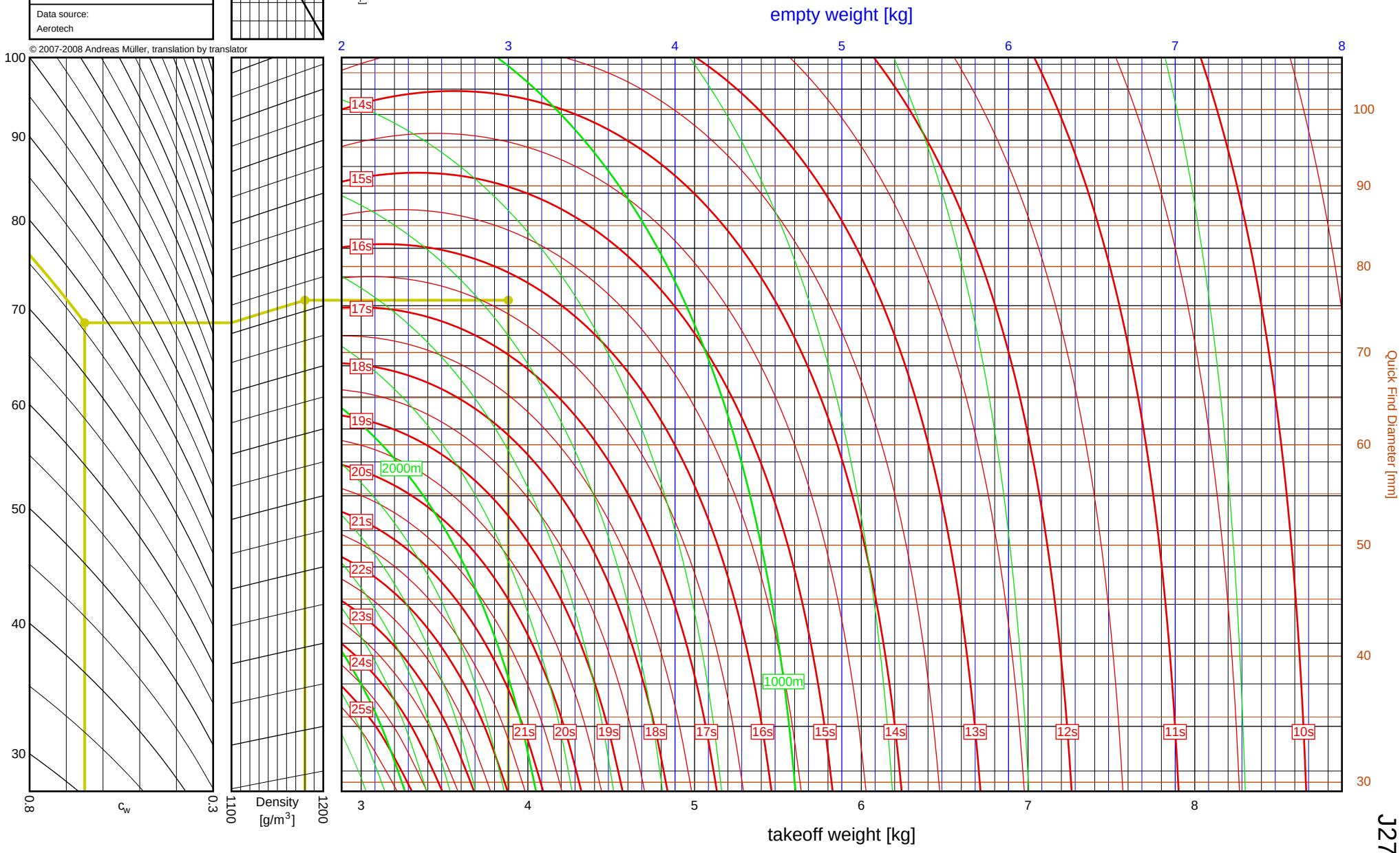
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.883kg
Results: time to apogee: 16.3s, expected altitude: 1342m



J275W

3", I-J

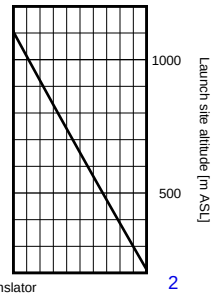
J275W

Aerotech J145H

I_{tot}	=	821.6 Ns
F_{avg}	=	141.7 N
t_{burn}	=	5.80 s
d	=	54 mm

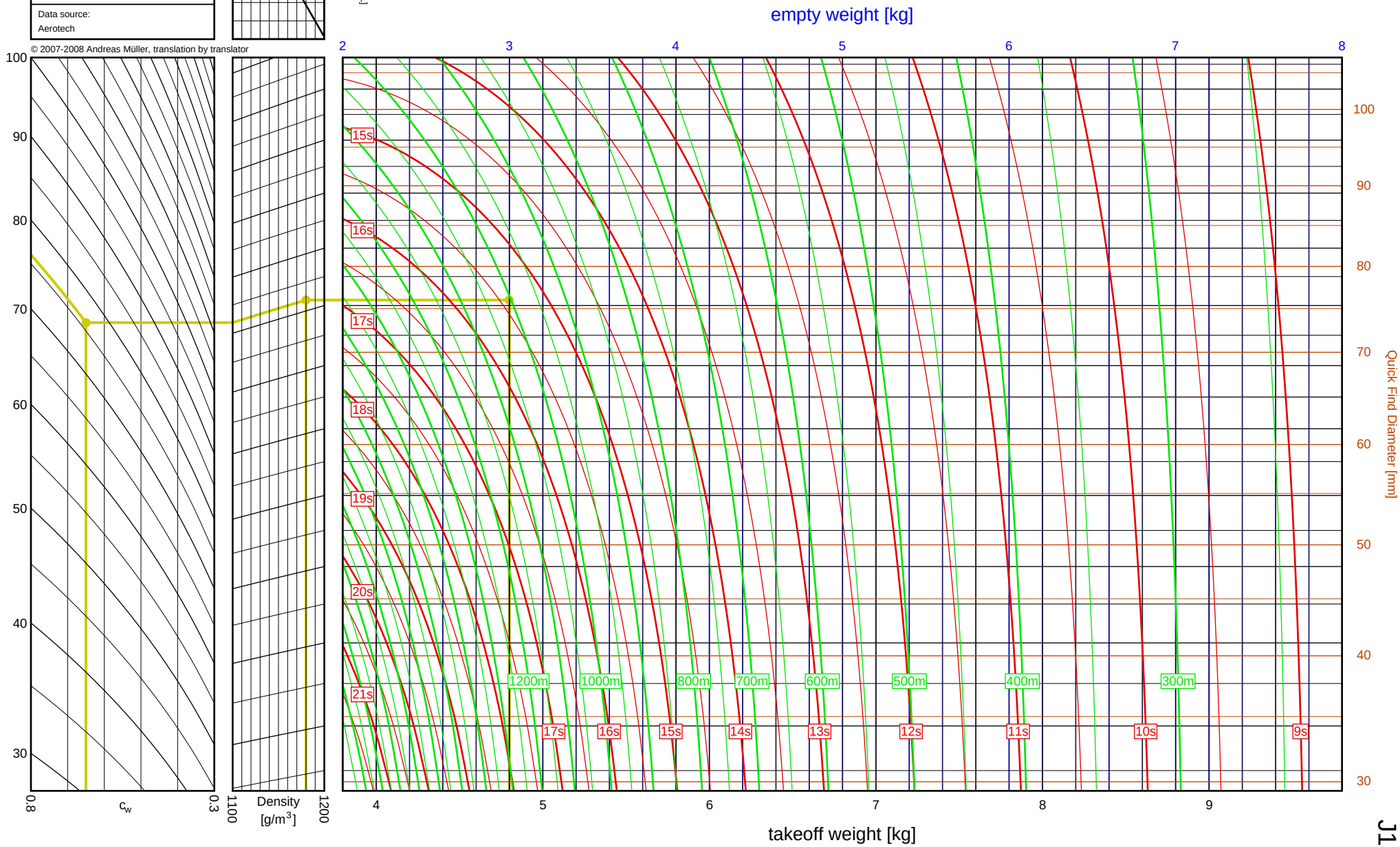
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 4.797kg
Results: time to apogee: 15.4s, expected altitude: 1004m

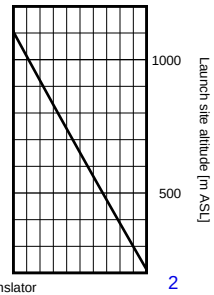


Aerotech J180T

I_{tot}	=	825.8 Ns
F_{avg}	=	183.5 N
t_{burn}	=	4.50 s
d	=	54 mm

Data source:
Aerotech

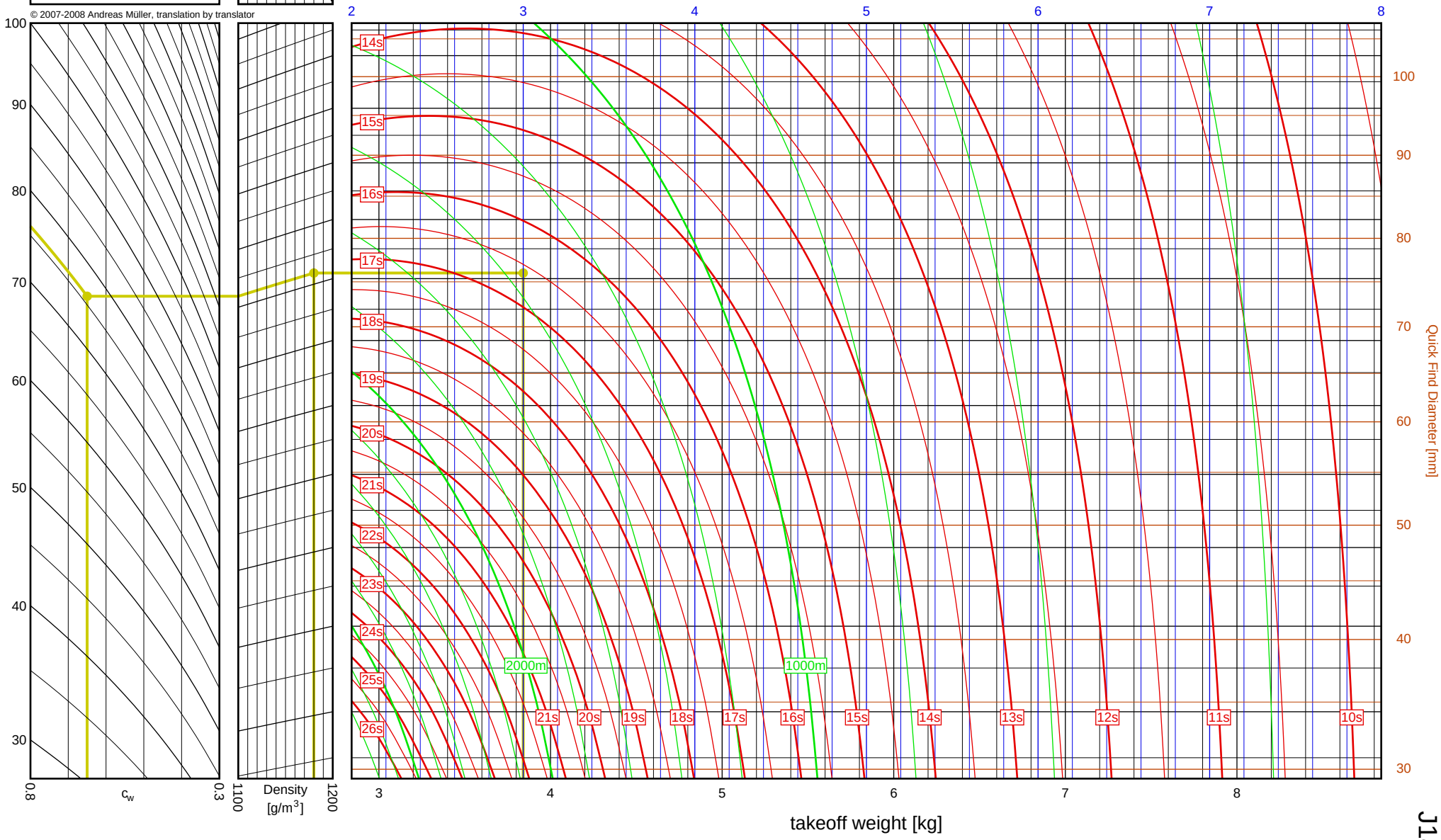
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.841kg
Results: time to apogee: 16.6s, expected altitude: 1361m

empty weight [kg]

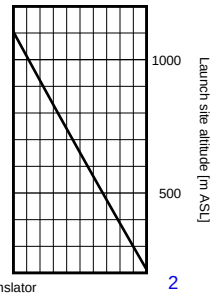


Aerotech J210H

I_{tot}	=	853.8 Ns
F_{avg}	=	213.5 N
t_{burn}	=	4.00 s
d	=	54 mm

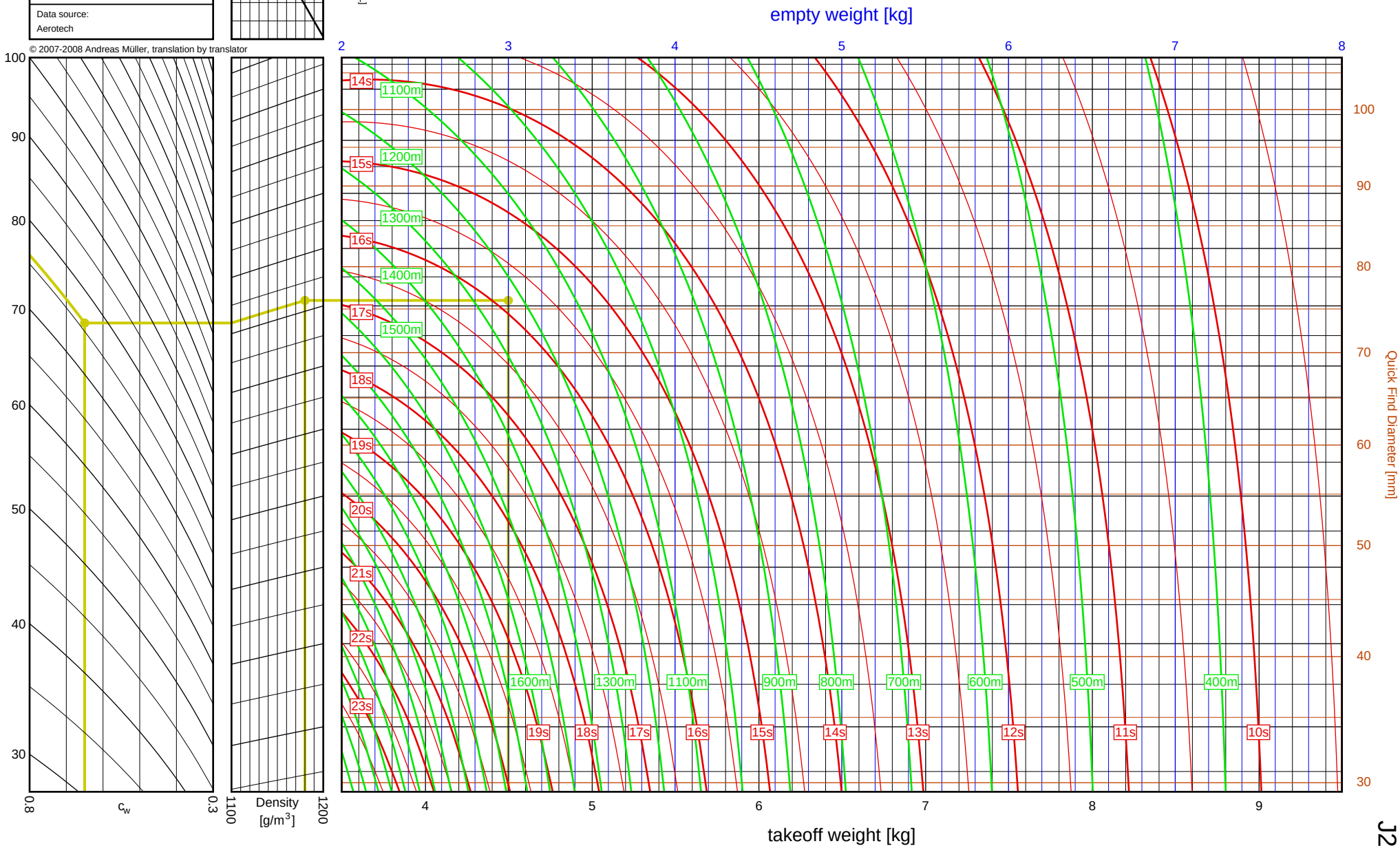
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 4.497kg
Results: time to apogee: 15.9s, expected altitude: 1230m



Aerotech J825R

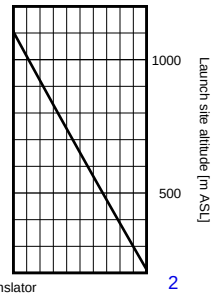
I_{tot}	=	928.0 Ns
F_{avg}	=	786.4 N
t_{burn}	=	1.18 s
d	=	38 mm

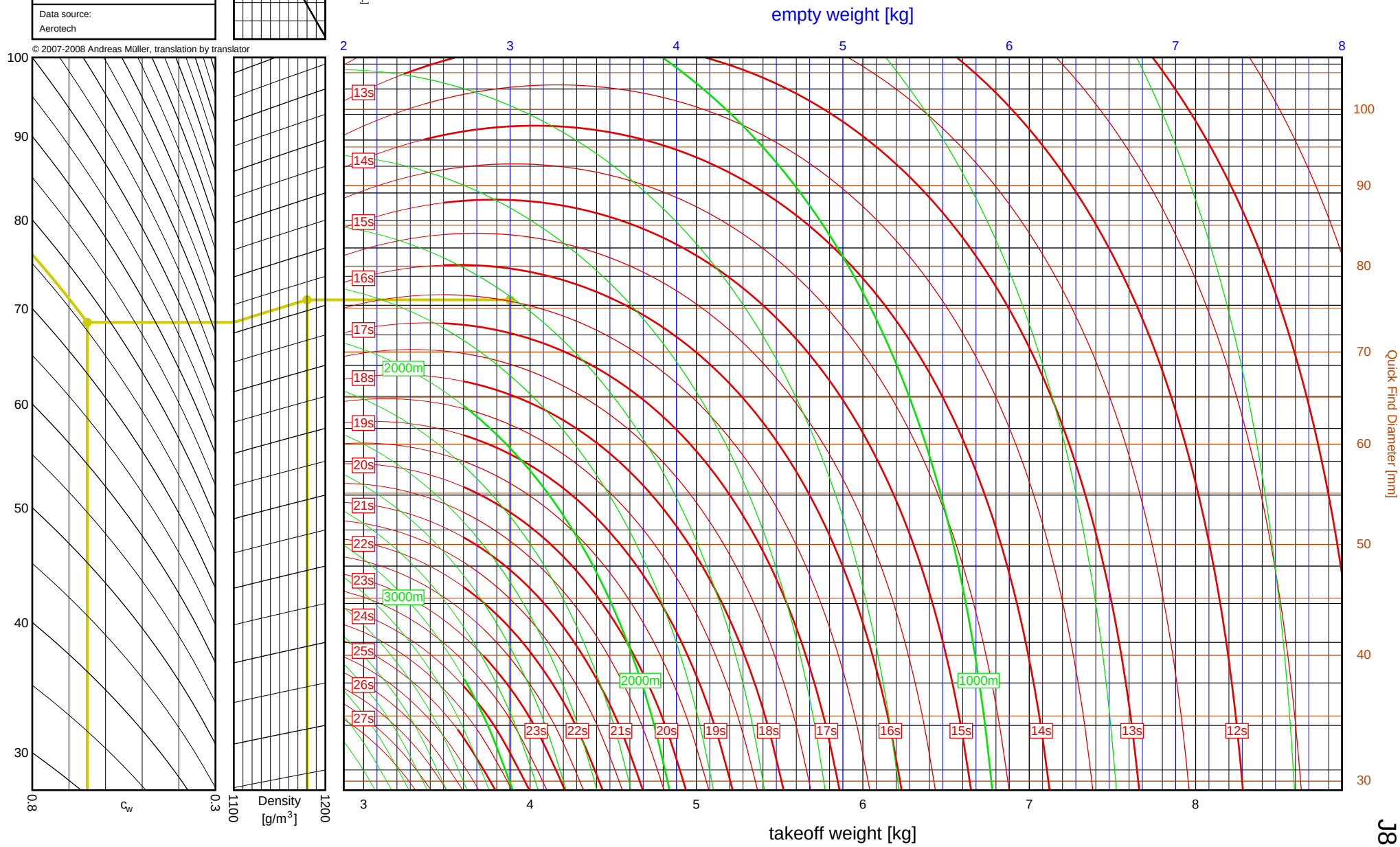
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 3.880kg
Results: time to apogee: 16.5s, expected altitude: 1609m





J825R

3", I-J

J825R

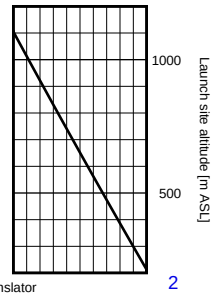
Aerotech

J135W

I_{tot}	=	989.2 Ns
F_{avg}	=	141.3 N
t_{burn}	=	7.00 s
d	=	54 mm

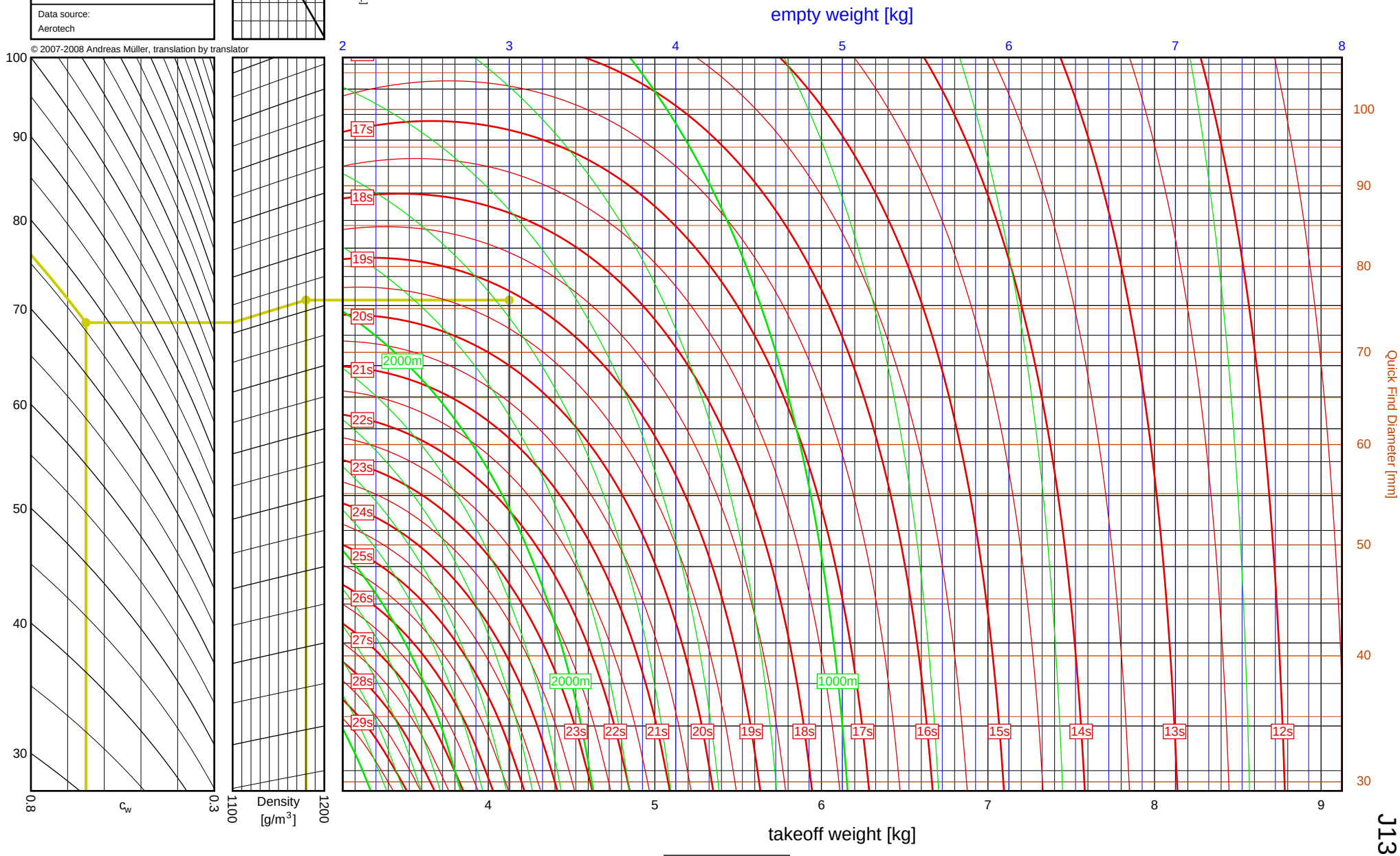
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 4.126kg
Results: time to apogee: 19.1s, expected altitude: 1567m



J135W

3", I-J

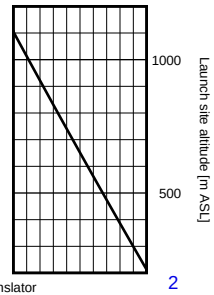
J135W

Aerotech J1999N

I_{tot}	=	1250.3 Ns
F_{avg}	=	1866.2 N
t_{burn}	=	0.67 s
d	=	54 mm

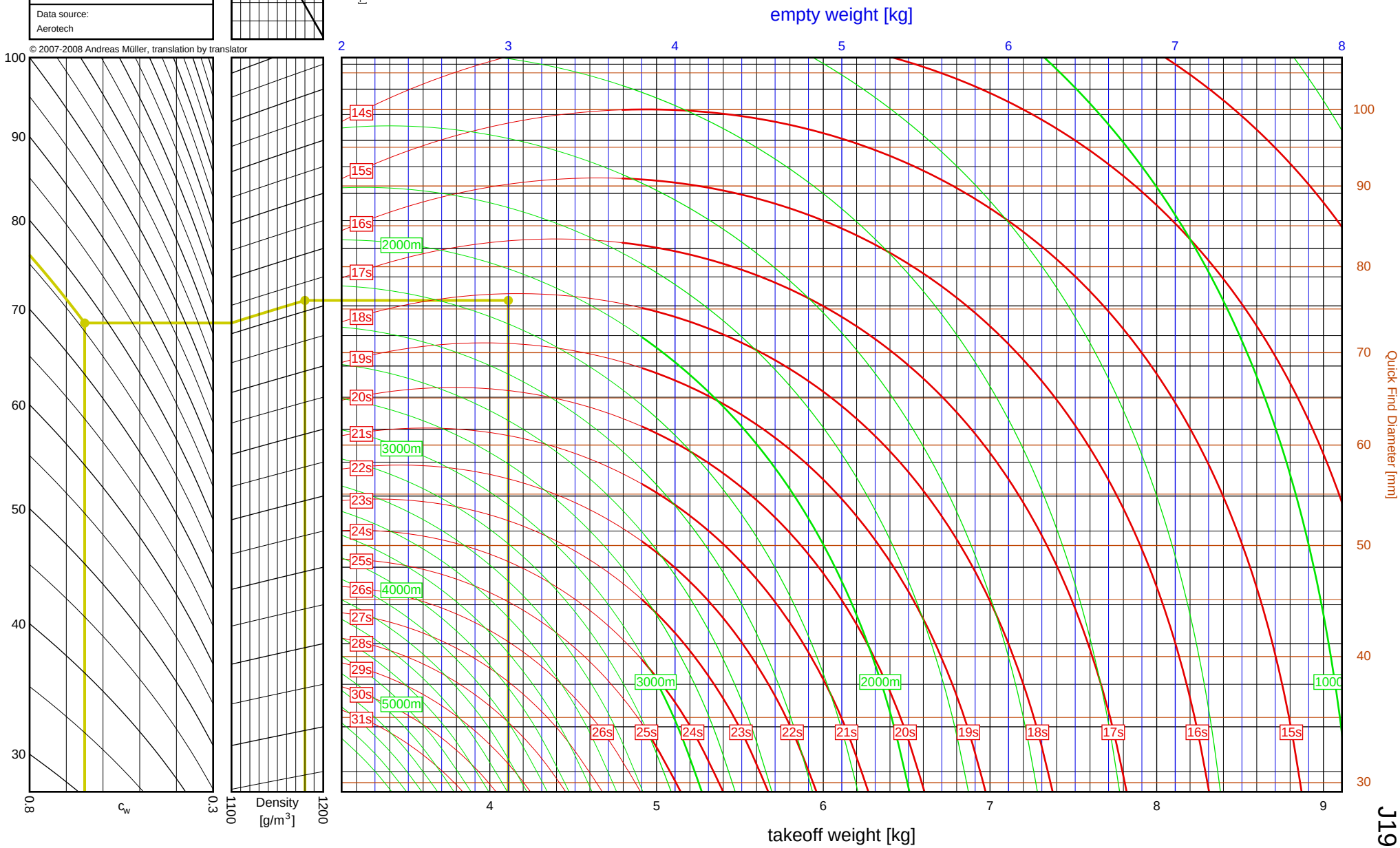
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 76mm, drag = 0.65, density = 1180 g/m^3, weight = 4.111kg
Results: time to apogee: 18.1s, expected altitude: 2114m



J1999N

3", I-J

J1999N

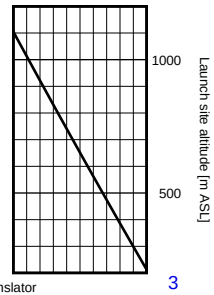
Aerotech

J350W.5

I_{tot}	=	649.6 Ns
F_{avg}	=	433.0 N
t_{burn}	=	1.50 s
d	=	38 mm

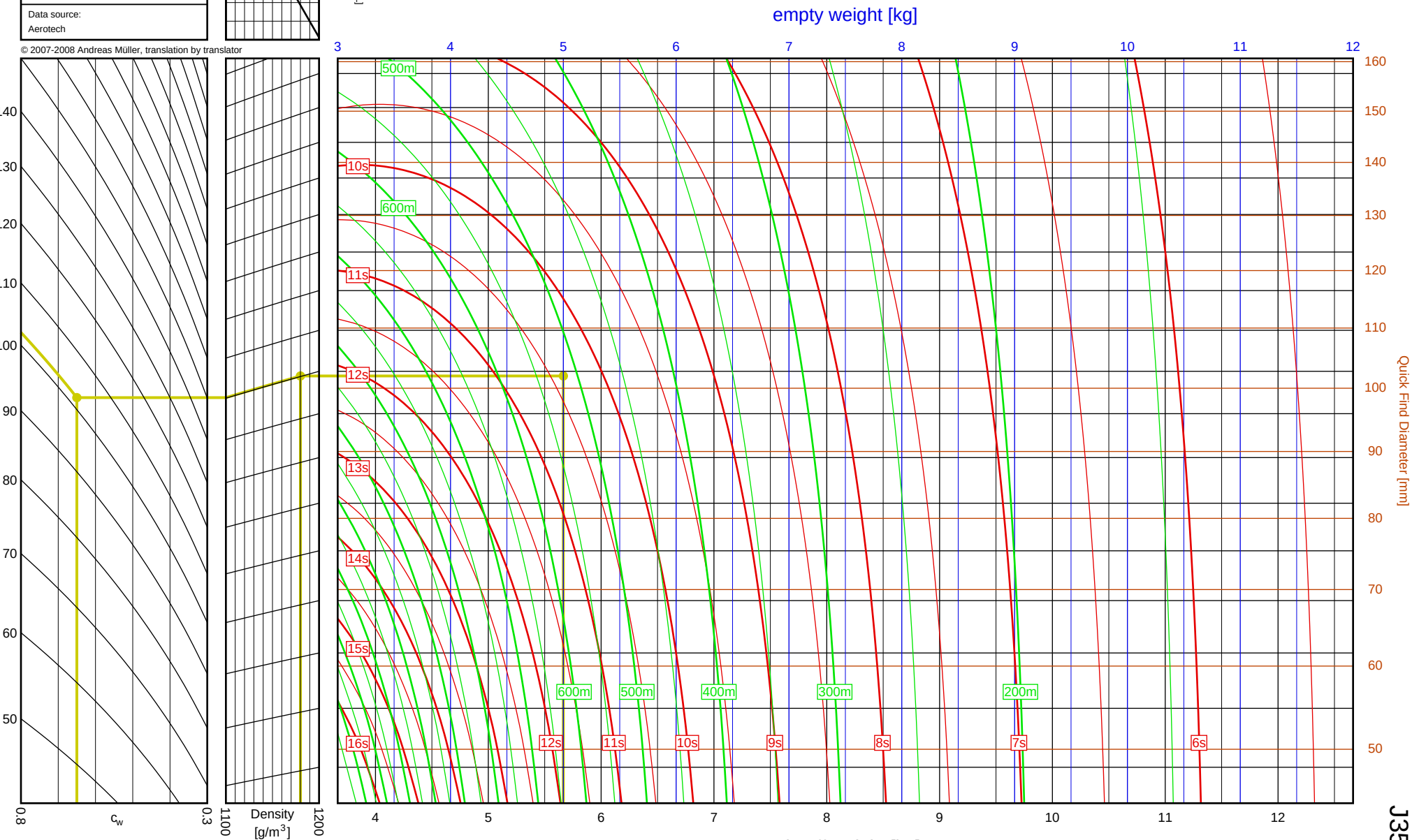
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.665kg
Results: time to apogee: 10.4s, expected altitude: 517m



4", J-K

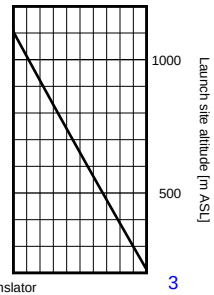
Aerotech

J420R

I_{tot}	=	651.0 Ns
F_{avg}	=	404.3 N
t_{burn}	=	1.61 s
d	=	38 mm

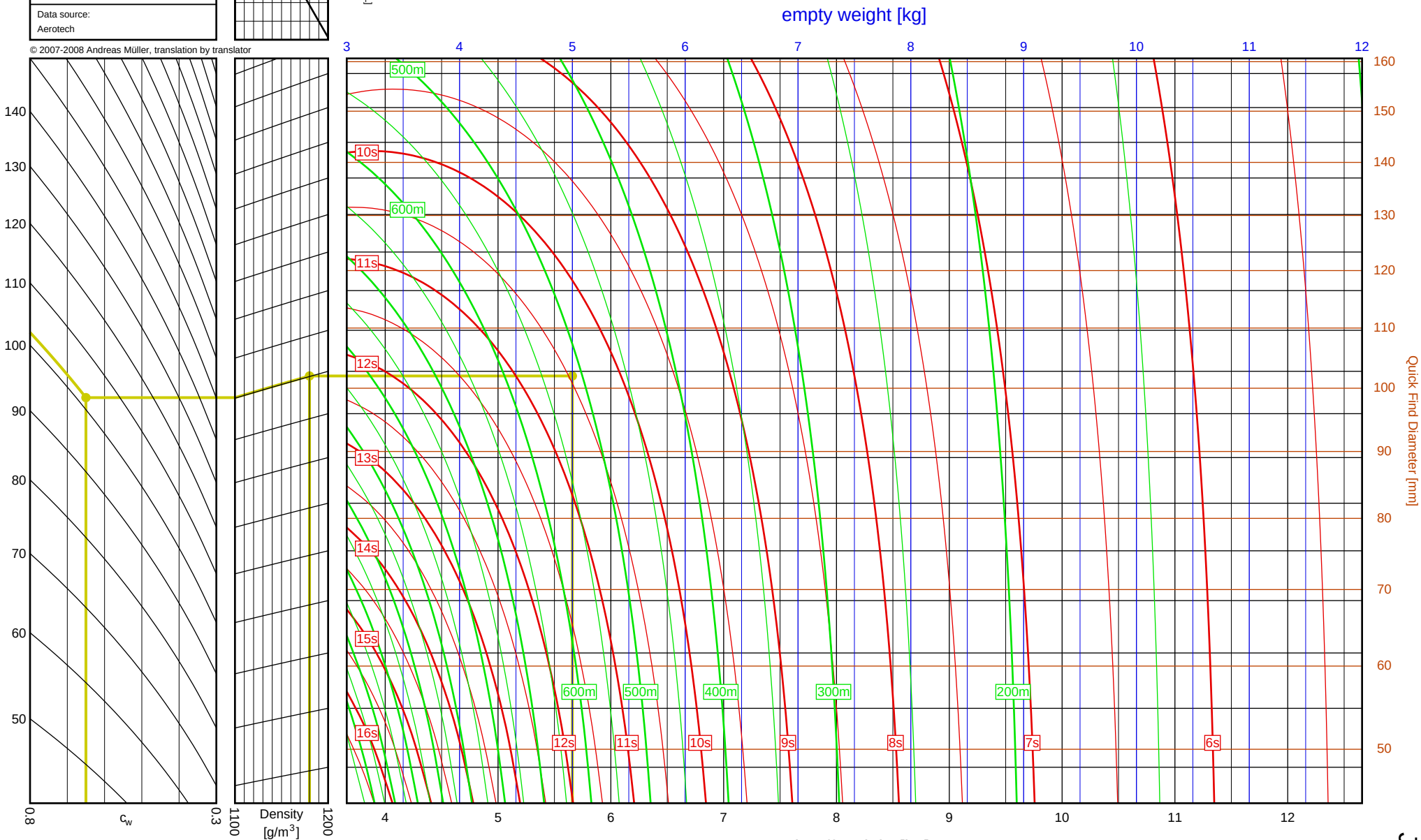
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.659kg
Results: time to apogee: 10.5s, expected altitude: 512m



J420R

4", J-K

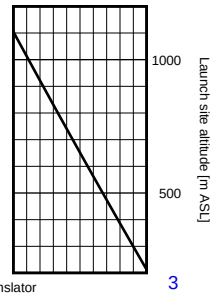
J420R

Aerotech J350W

I_{tot}	=	665.0 Ns
F_{avg}	=	350.0 N
t_{burn}	=	1.90 s
d	=	38 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.665kg
Results: time to apogee: 10.6s, expected altitude: 528m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

10s 11s 12s 13s 14s 15s 16s

600m 800m 600m 500m 400m 300m 200m

13s 12s 11s 10s 9s 8s 7s 6s

4", J-K

7

7-3

J350W

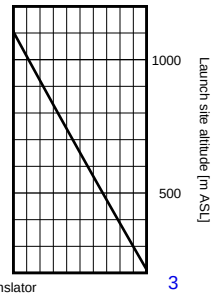
J350W

Aerotech J250FJ

I_{tot}	=	707.2 Ns
F_{avg}	=	252.9 N
t_{burn}	=	2.80 s
d	=	54 mm

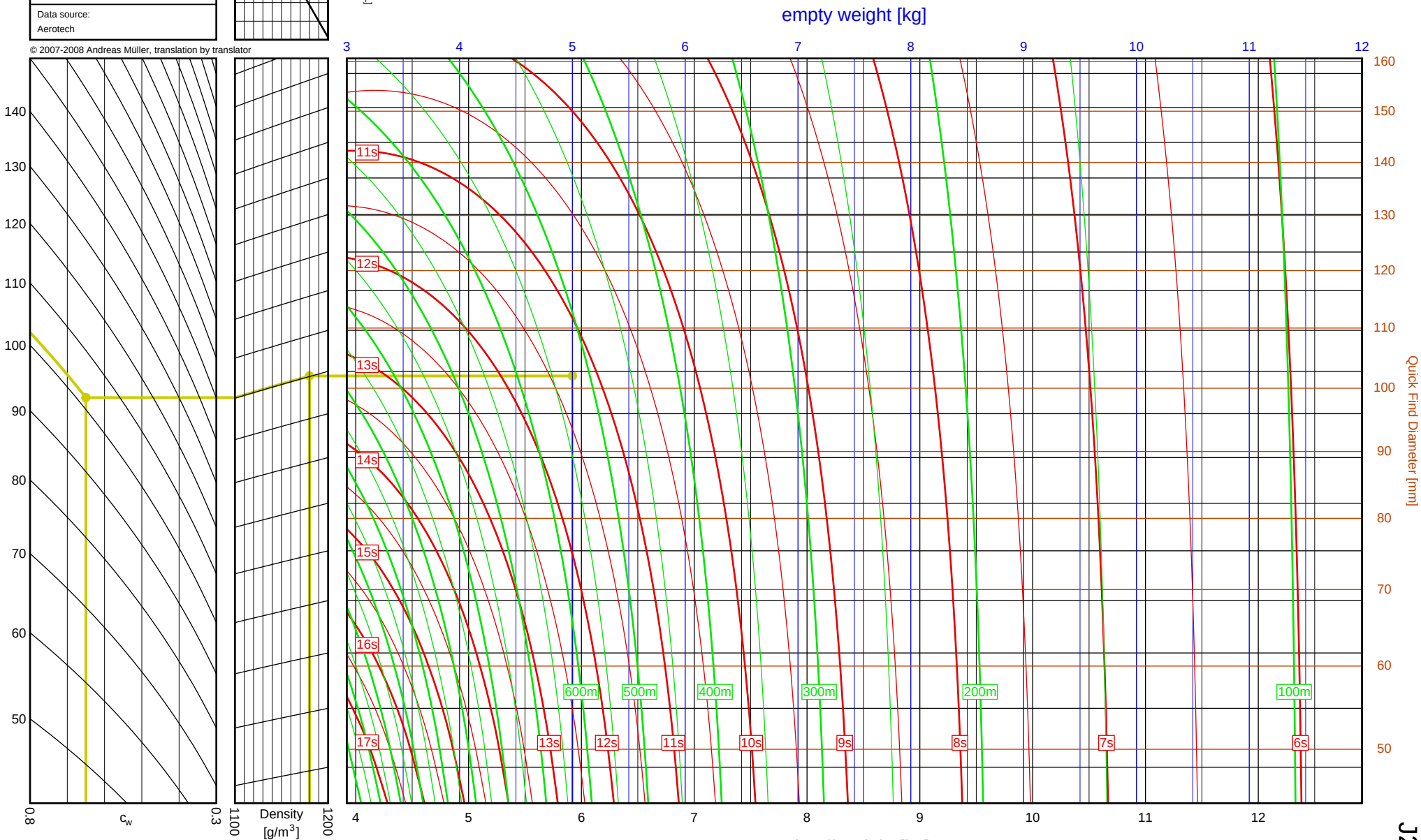
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.920kg
Results: time to apogee: 11.3s, expected altitude: 523m



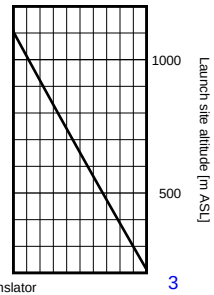
4", J-K

Aerotech J500G

I_{tot}	=	722.7 Ns
F_{avg}	=	498.4 N
t_{burn}	=	1.45 s
d	=	38 mm

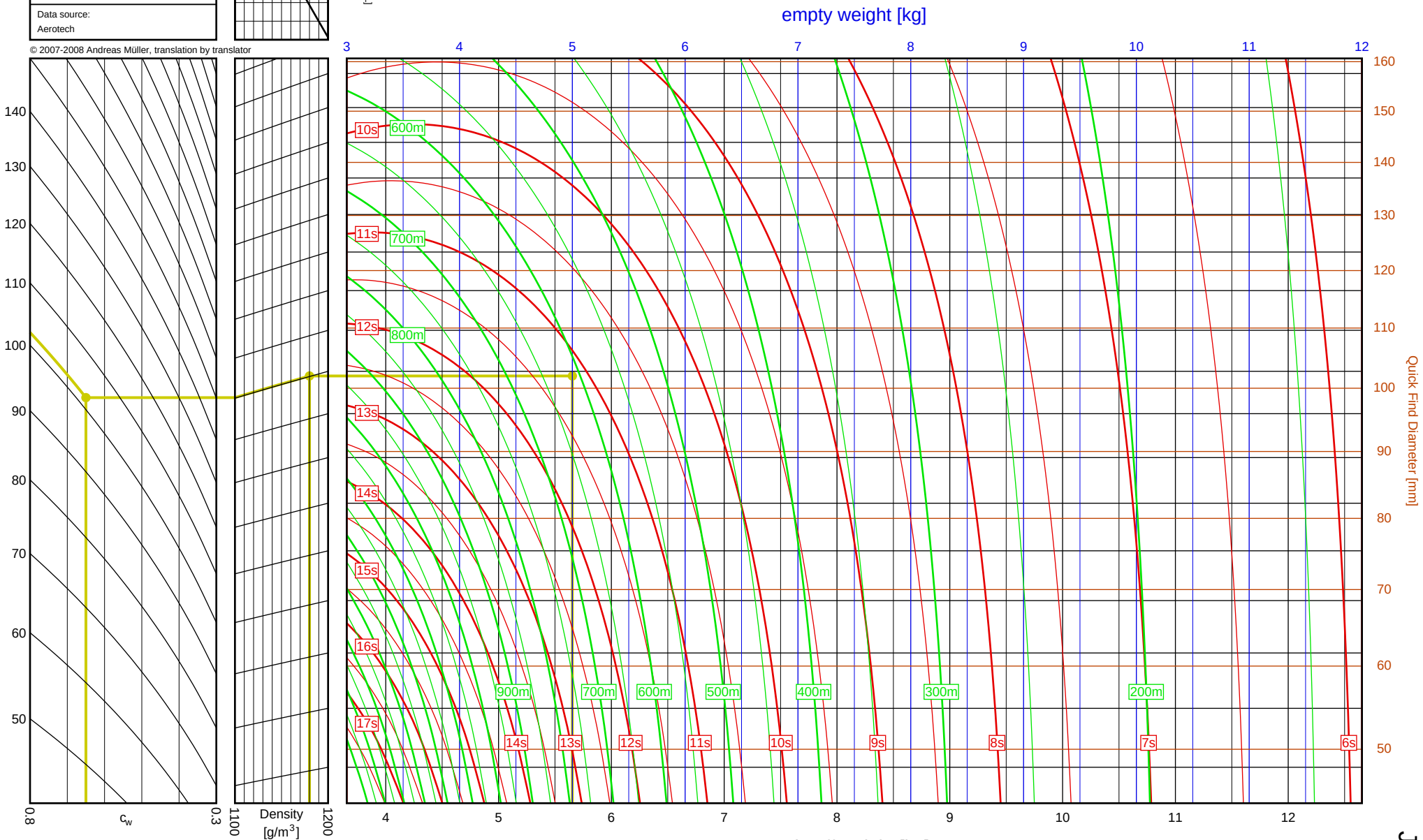
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.654kg
Results: time to apogee: 11.2s, expected altitude: 610m



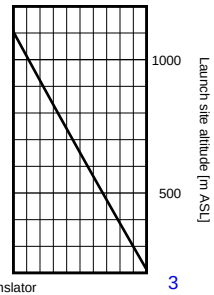
Aerotech

J315R

I_{tot}	=	757.1 Ns
F_{avg}	=	291.2 N
t_{burn}	=	2.60 s
d	=	54 mm

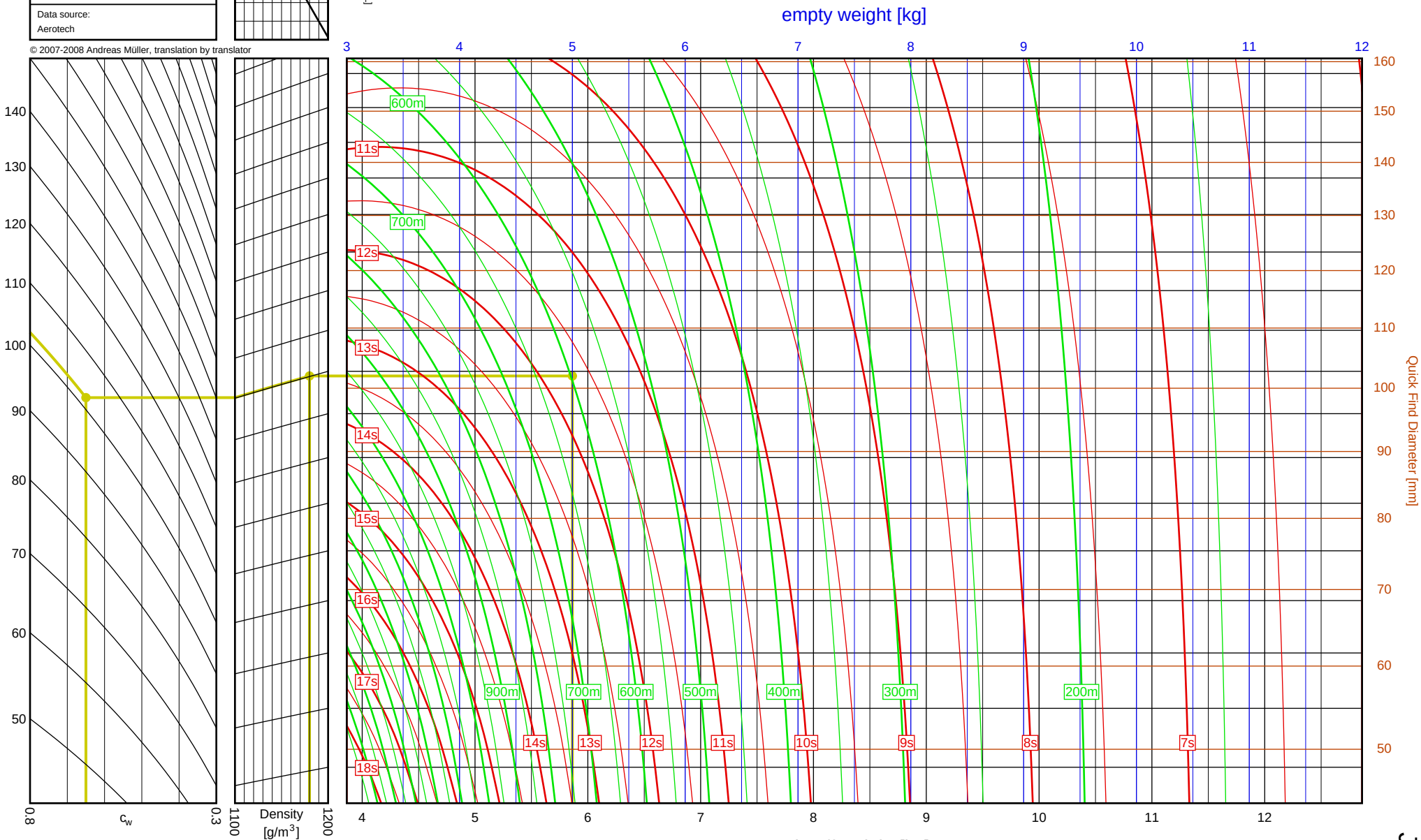
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.863kg
Results: time to apogee: 11.7s, expected altitude: 598m



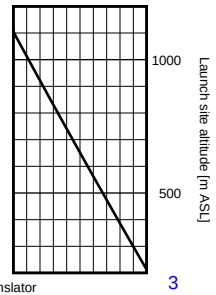
Aerotech

J460T

I_{tot}	=	783.5 Ns
F_{avg}	=	412.4 N
t_{burn}	=	1.90 s
d	=	54 mm

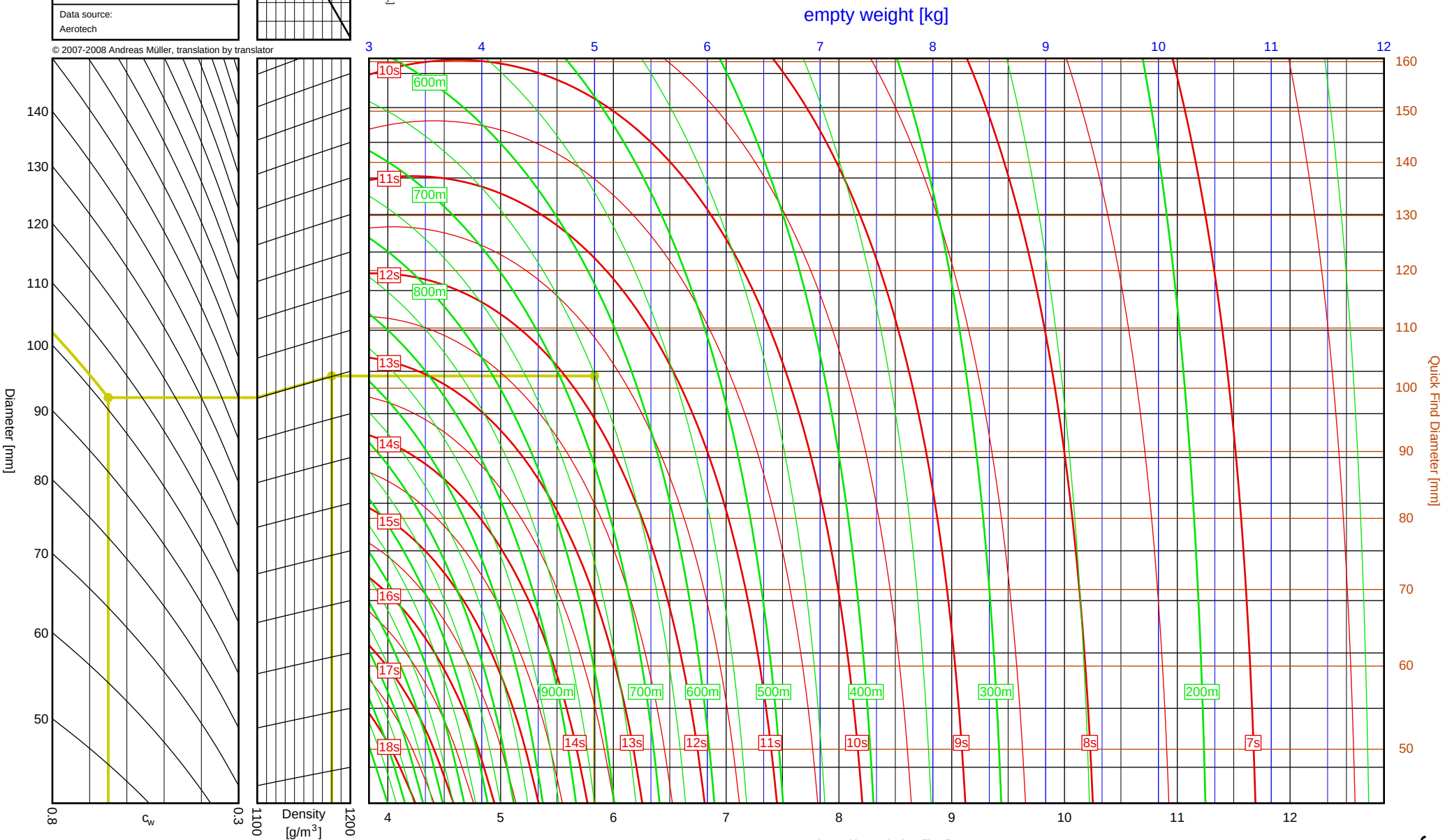
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.833kg
Results: time to apogee: 11.7s, expected altitude: 651m



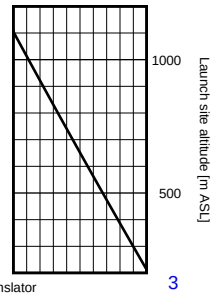
4", J-K

Aerotech J575FJ

I_{tot}	=	800.6 Ns
F_{avg}	=	597.4 N
t_{burn}	=	1.34 s
d	=	38 mm

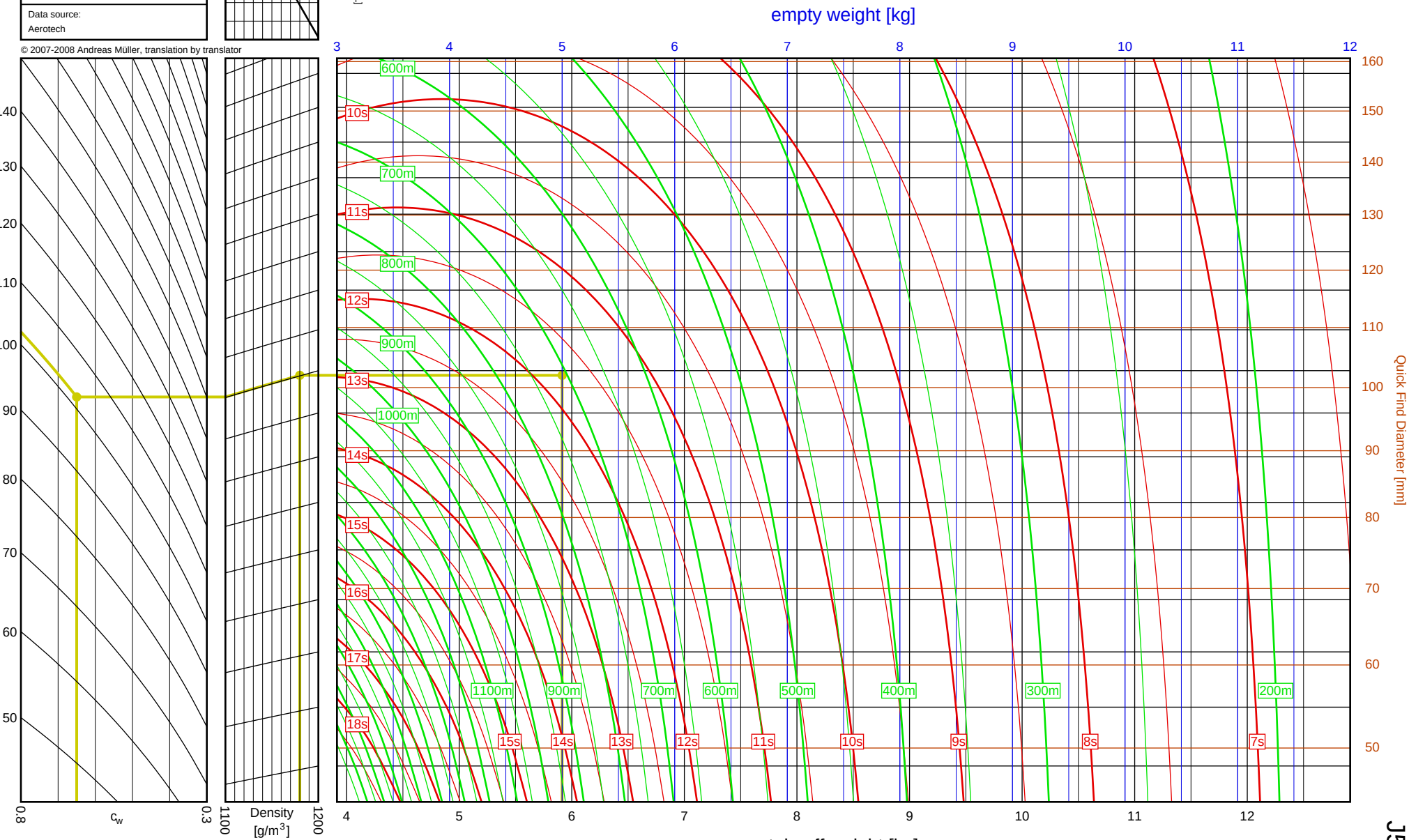
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.914kg
Results: time to apogee: 11.8s, expected altitude: 707m



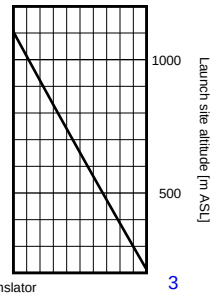
4", J-K

Aerotech J275W

I_{tot}	=	818.7 Ns
F_{avg}	=	255.8 N
t_{burn}	=	3.20 s
d	=	54 mm

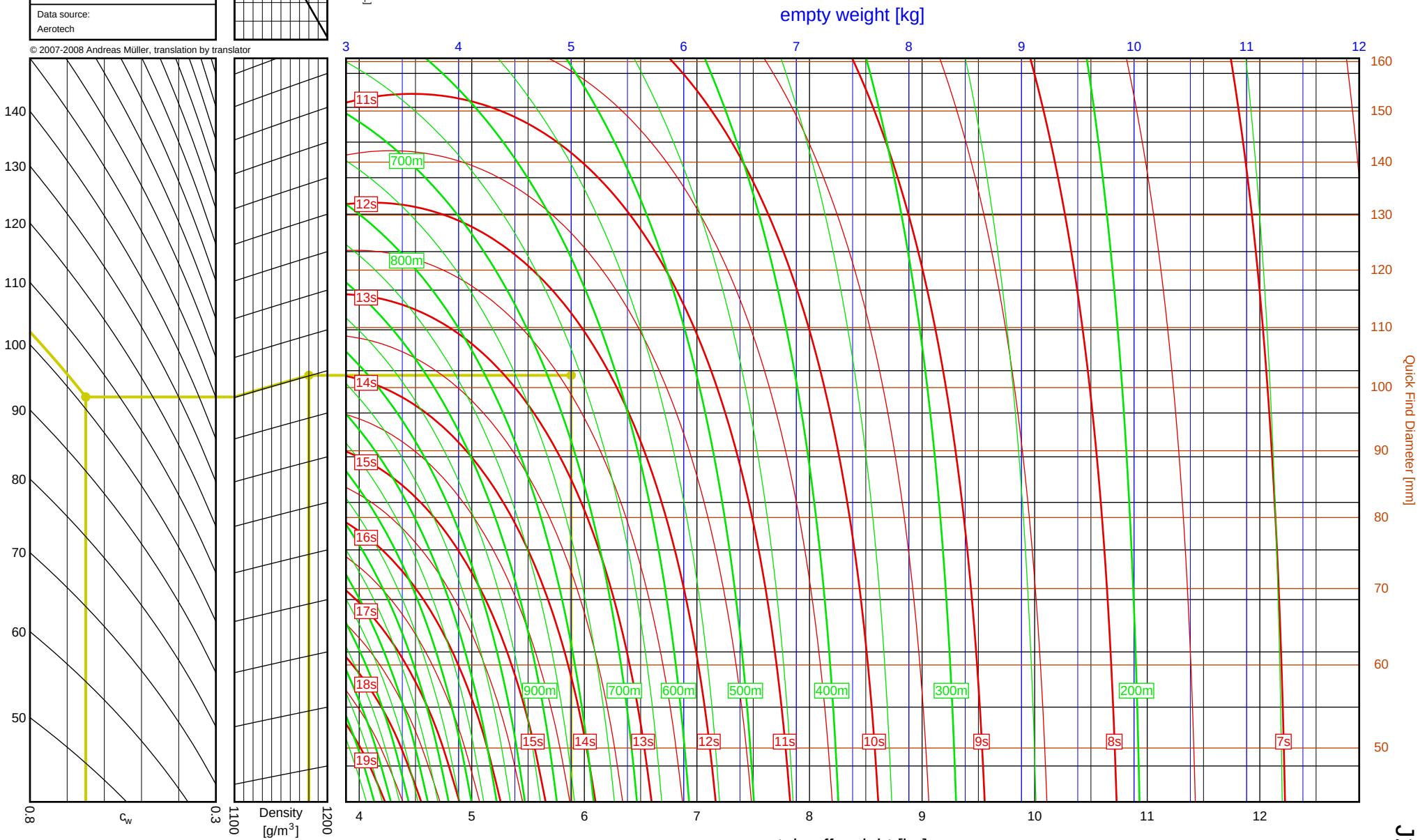
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.883kg
Results: time to apogee: 12.4s, expected altitude: 665m

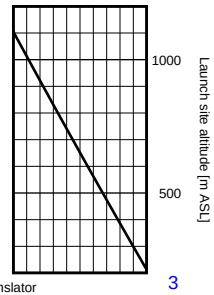


Aerotech J145H

I_{tot}	=	821.6 Ns
F_{avg}	=	141.7 N
t_{burn}	=	5.80 s
d	=	54 mm

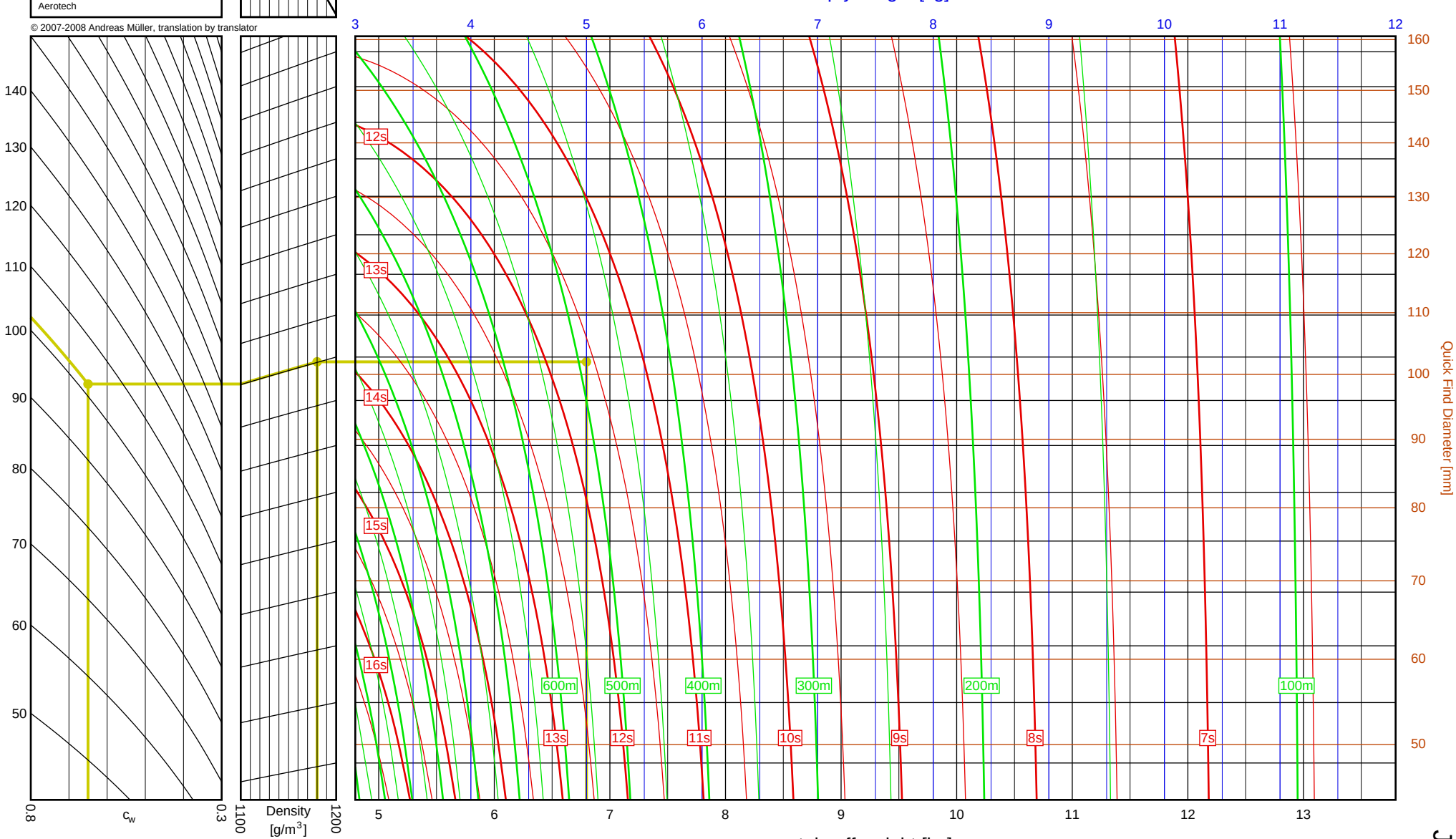
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.797kg
Results: time to apogee: 11.6s, expected altitude: 491m



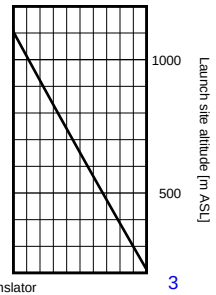
Aerotech

J180T

I_{tot}	=	825.8 Ns
F_{avg}	=	183.5 N
t_{burn}	=	4.50 s
d	=	54 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.841kg
Results: time to apogee: 12.6s, expected altitude: 669m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

700m 12s 800m 13s 14s 15s 16s 17s 18s 19s 900m 700m 600m 500m 400m 300m 200m 15s 14s 13s 12s 11s 10s 9s 8s 7s

4", J-K

7-11

J180T

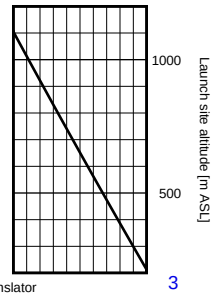
J180T

Aerotech J1299N

I_{tot}	=	850.2 Ns
F_{avg}	=	1254.0 N
t_{burn}	=	0.68 s
d	=	54 mm

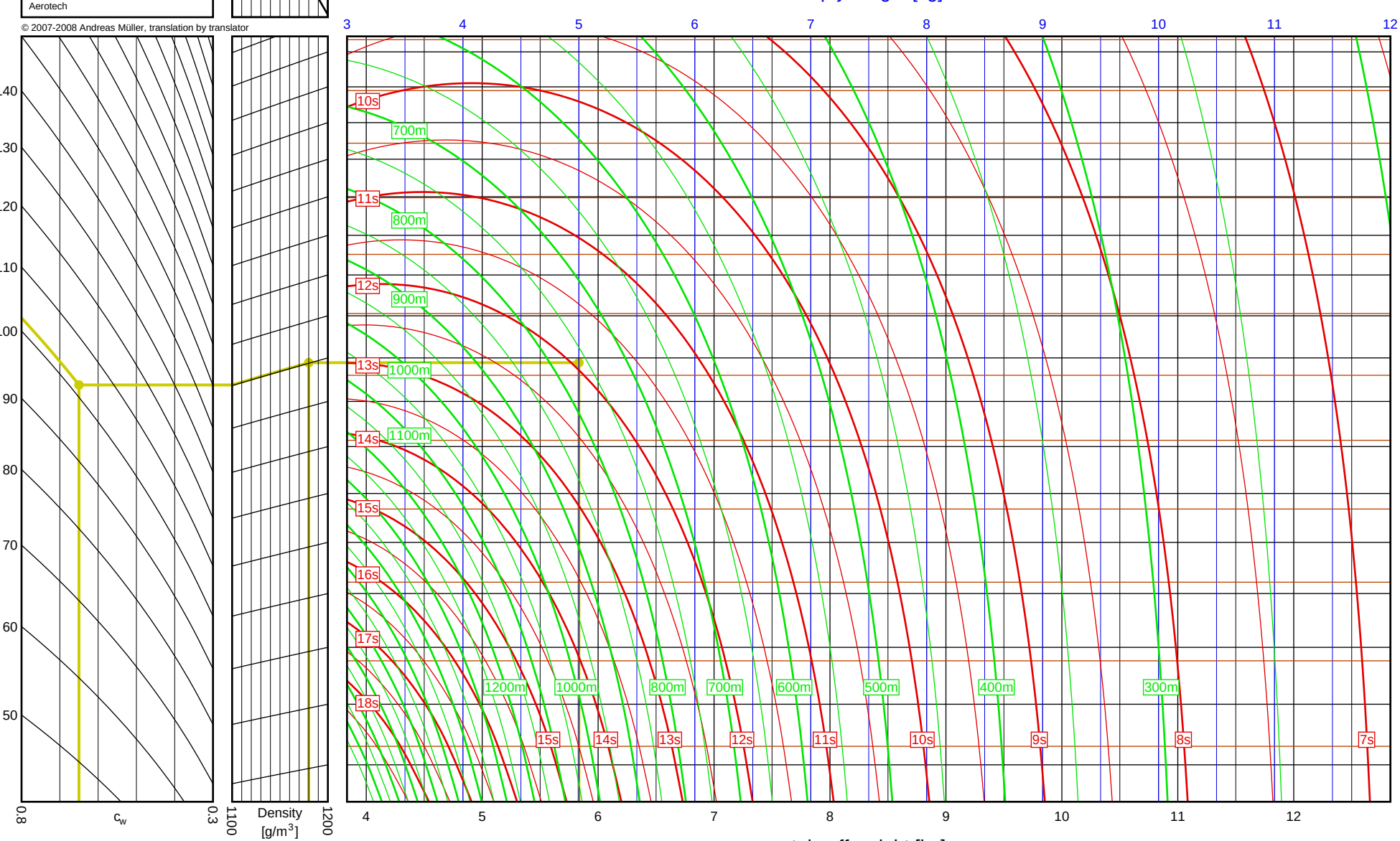
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.834kg
Results: time to apogee: 11.9s, expected altitude: 762m



J1299N

J1299N

Aerotech J210H

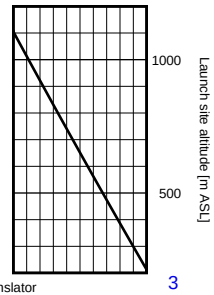
I_{tot}	=	853.8 Ns
F_{avg}	=	213.5 N
t_{burn}	=	4.00 s
d	=	54 mm

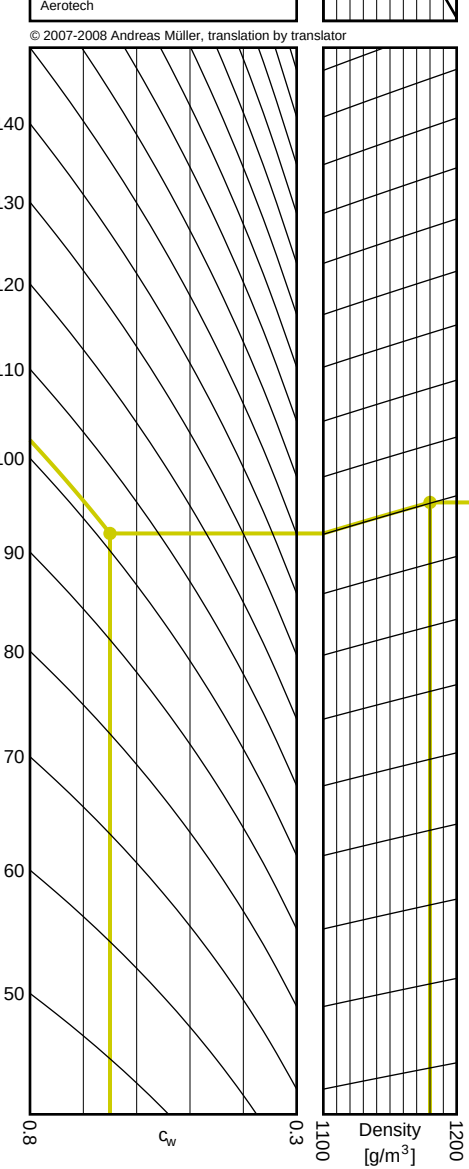
Data source:
Aerotech

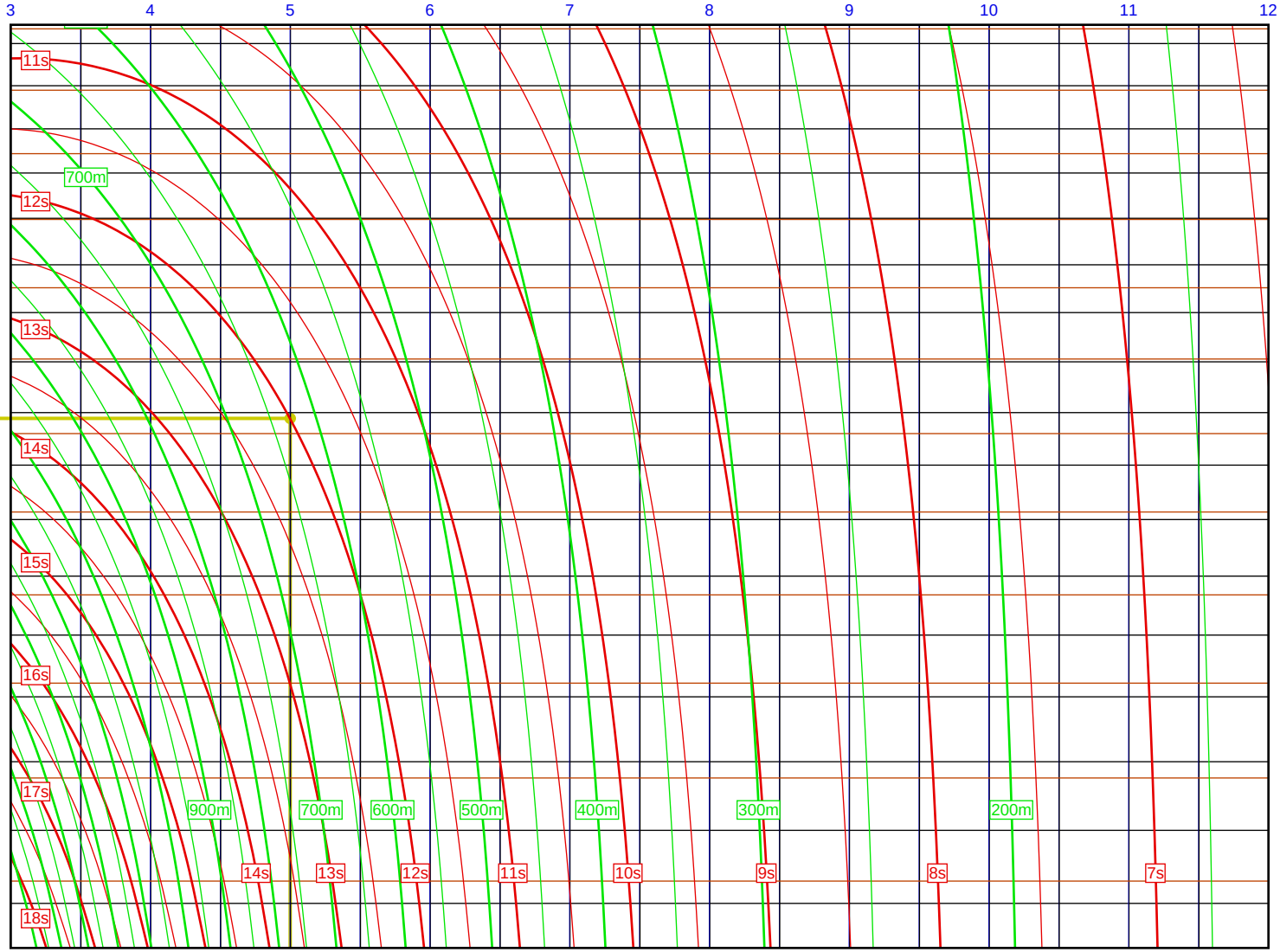
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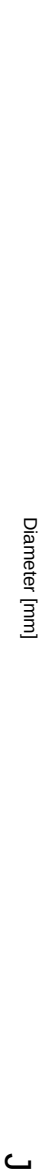
1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.497kg
Results: time to apogee: 12.0s, expected altitude: 628m











7-13

J210H

4", J-K

7

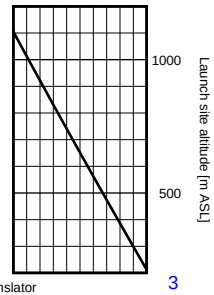
J210H

Aerotech J825R

I_{tot}	=	928.0 Ns
F_{avg}	=	786.4 N
t_{burn}	=	1.18 s
d	=	38 mm

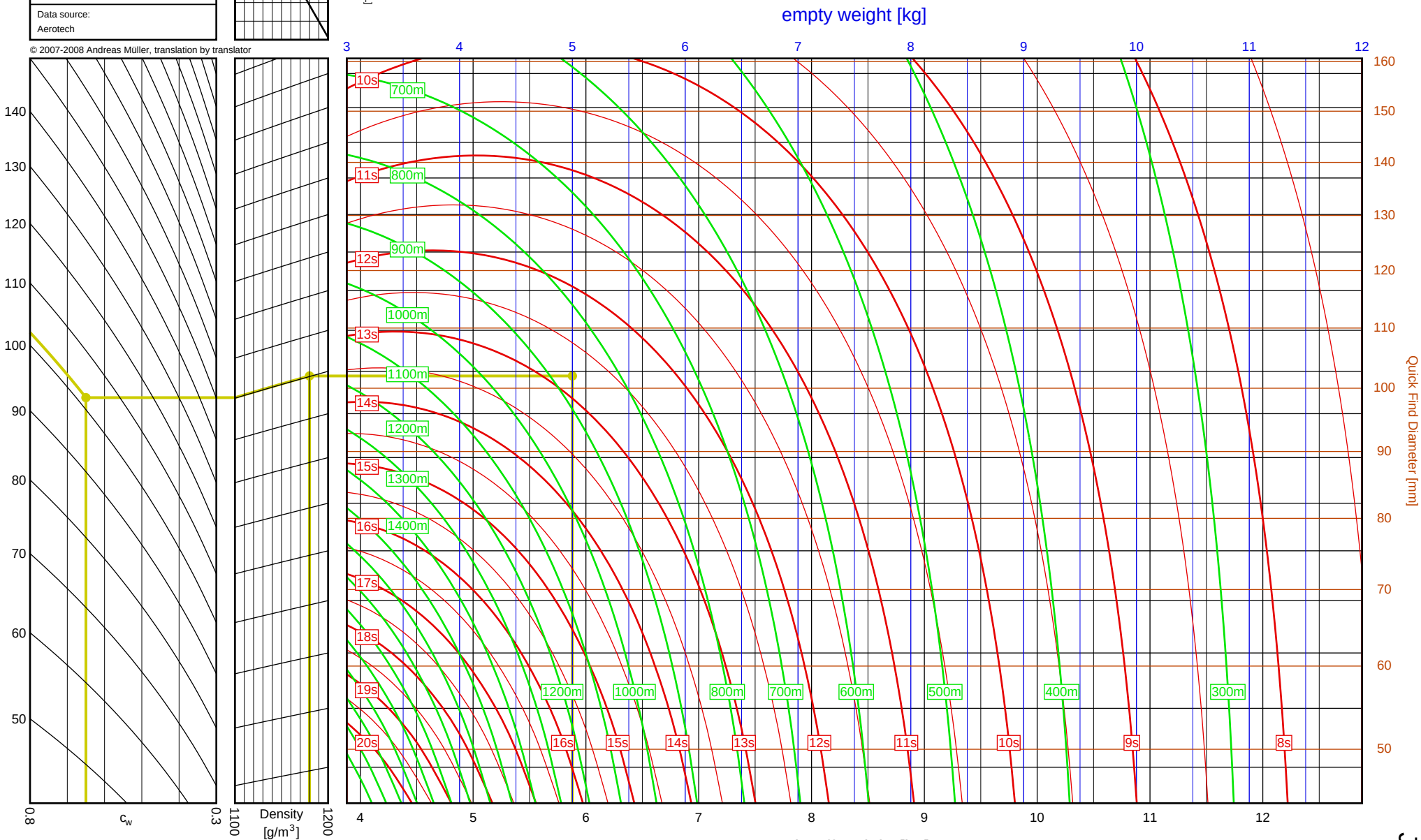
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.880kg
Results: time to apogee: 12.8s, expected altitude: 868m



J825R

4", J-K

J825R

Aerotech J135W

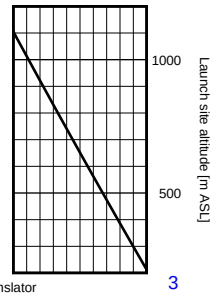
I_{tot}	=	989.2 Ns
F_{avg}	=	141.3 N
t_{burn}	=	7.00 s
d	=	54 mm

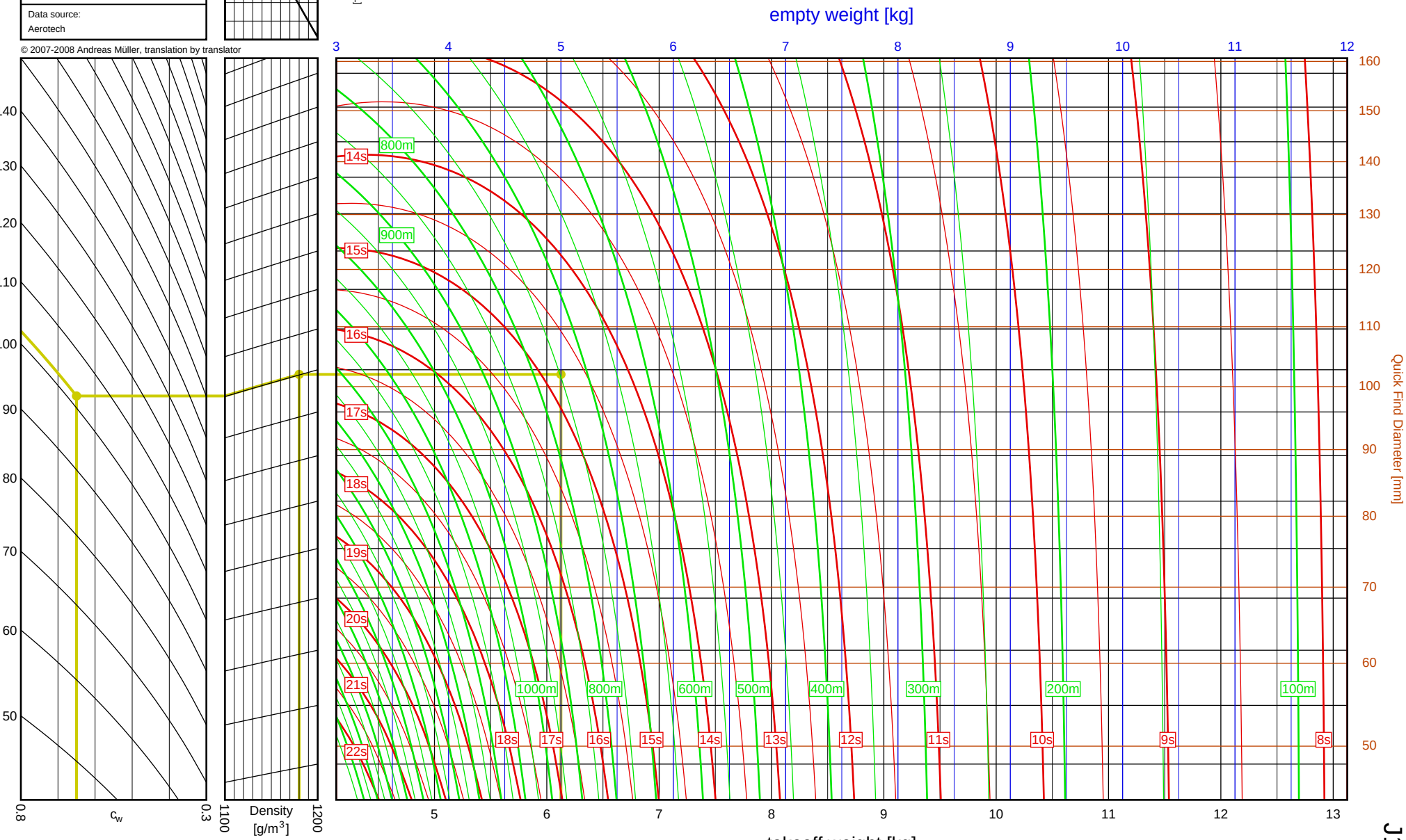
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.126kg
Results: time to apogee: 14.8s, expected altitude: 748m





7-15

J135W

4", J-K

7

J135W

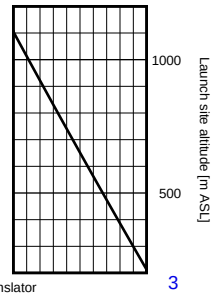
Aerotech

J570W

I_{tot}	=	1033.8 Ns
F_{avg}	=	503.8 N
t_{burn}	=	2.05 s
d	=	38 mm

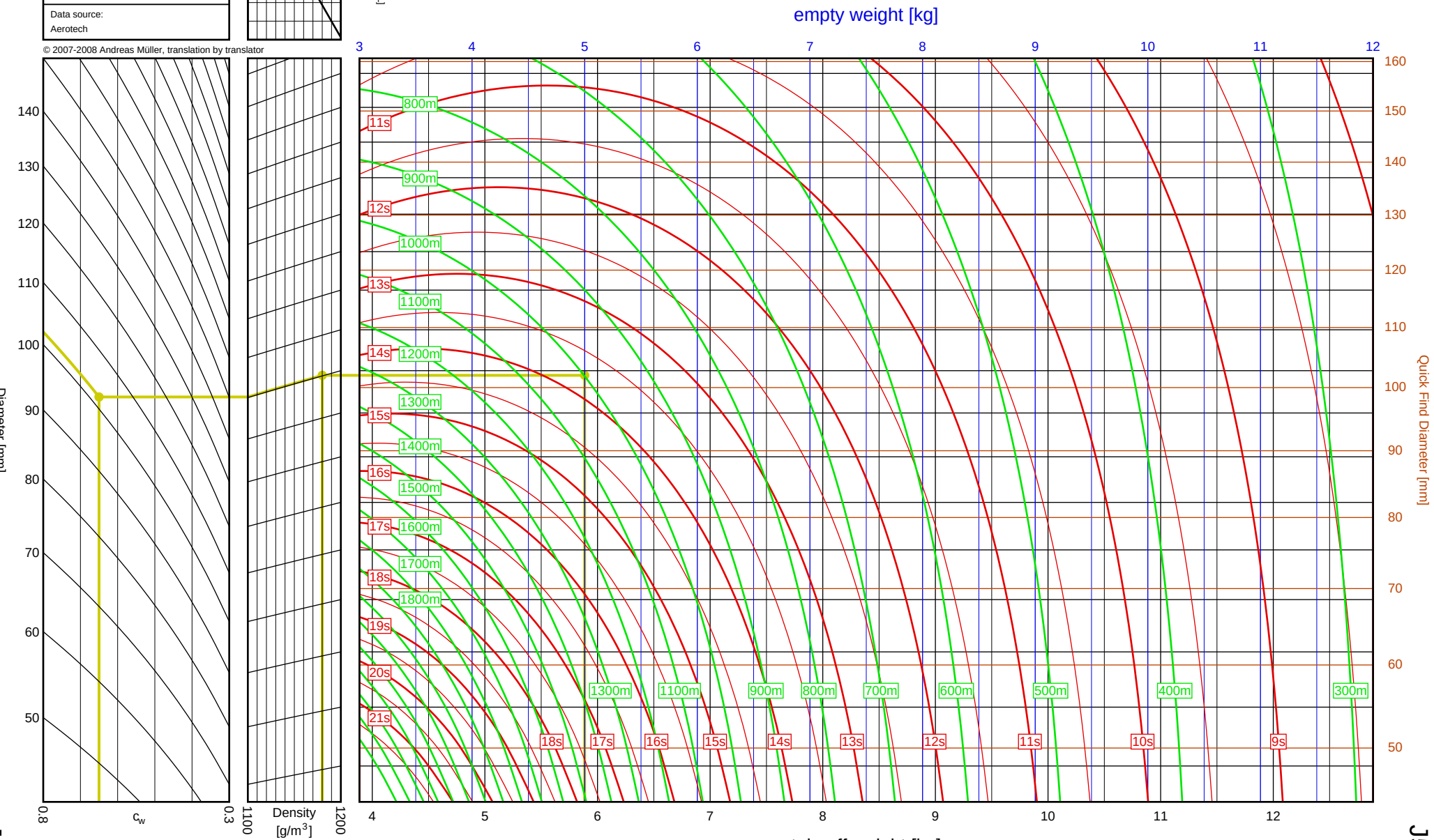
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.886kg
Results: time to apogee: 13.8s, expected altitude: 999m



J570W

4", J-K

J570W

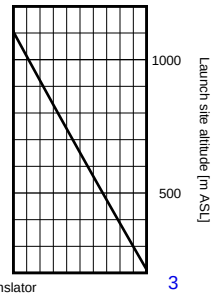
Aerotech

J401FJ

I_{tot}	=	1107.6 Ns
F_{avg}	=	398.0 N
t_{burn}	=	2.78 s
d	=	54 mm

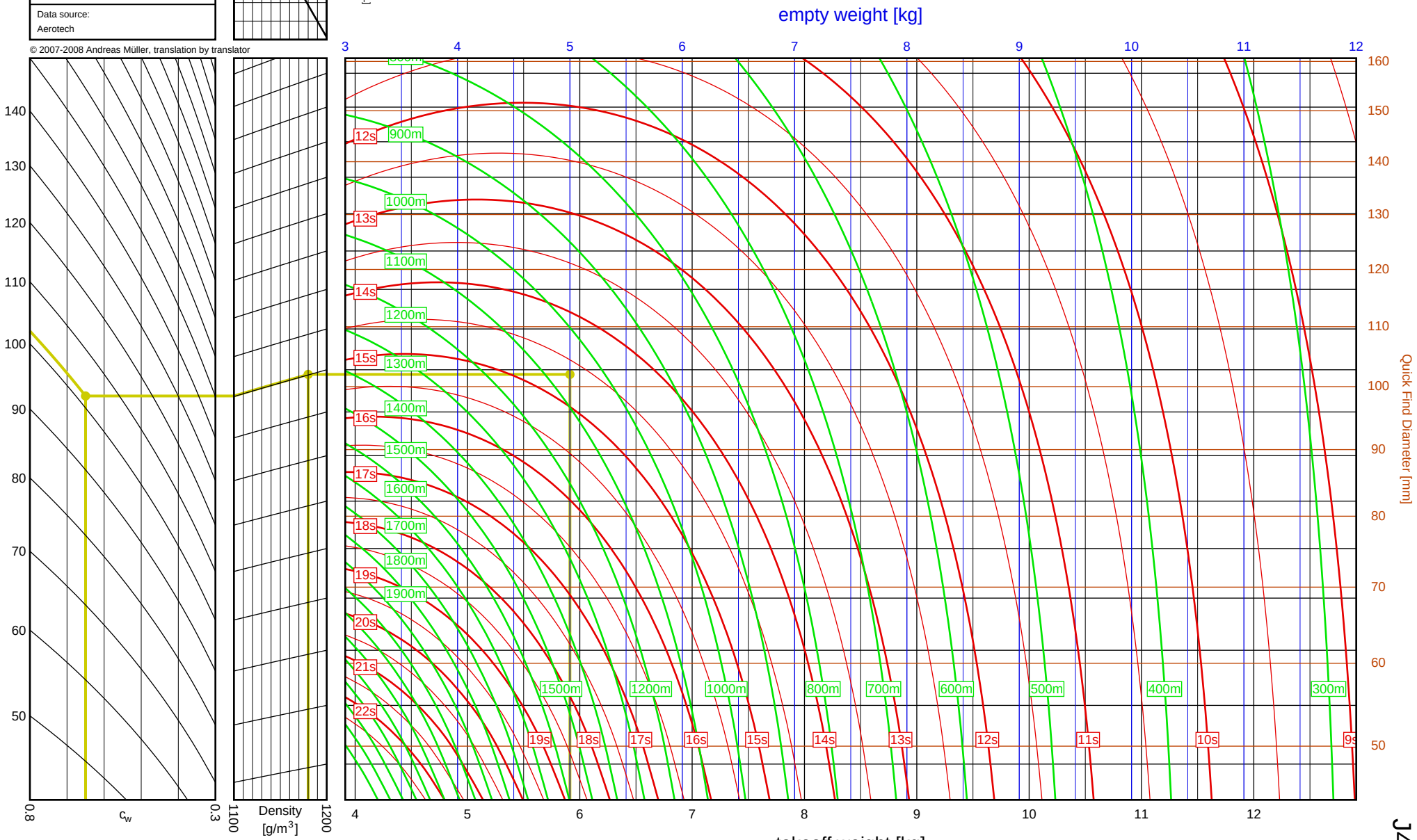
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 5.912kg
Results: time to apogee: 14.7s, expected altitude: 1059m



J401FJ

4", J-K

J401FJ

Aerotech J540R

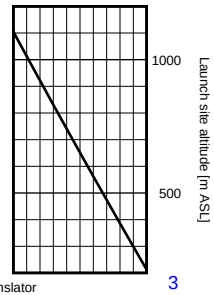
I_{tot}	=	1149.7 Ns
F_{avg}	=	511.0 N
t_{burn}	=	2.25 s
d	=	54 mm

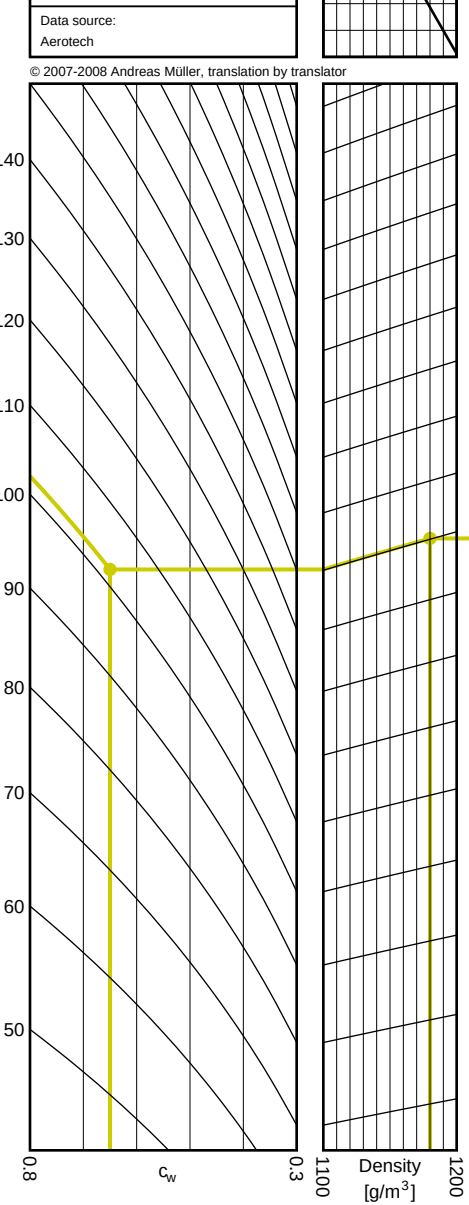
Data source:
Aerotech

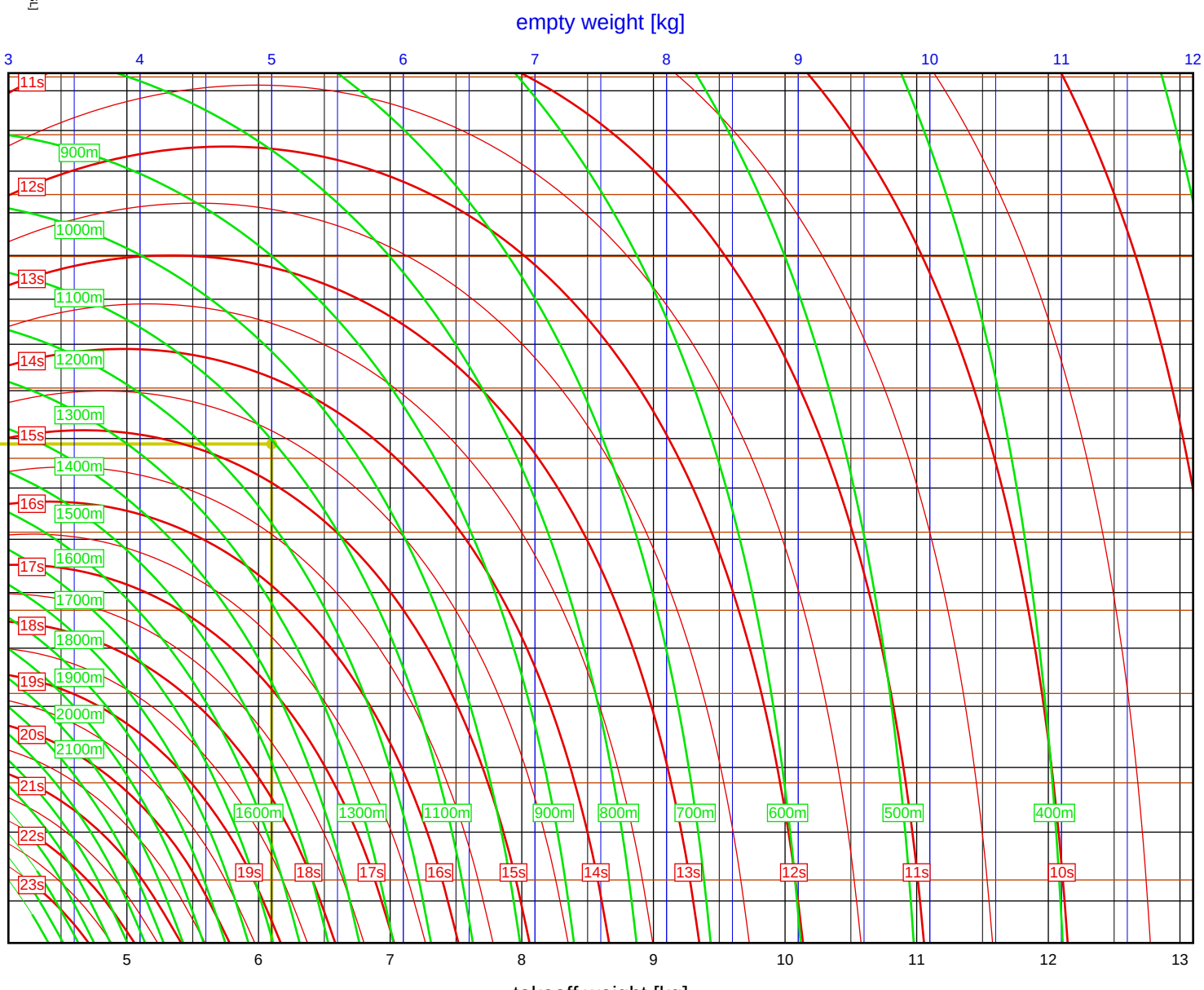
© 2007-2008 Andreas Müller, translation by translator

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.100kg
Results: time to apogee: 14.6s, expected altitude: 1105m







4", J-K

J540R

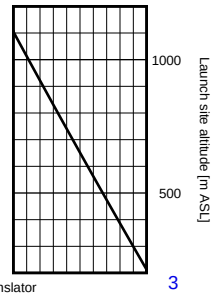
J540R

Aerotech J260HW

I_{tot}	=	1170.2 Ns
F_{avg}	=	260.0 N
t_{burn}	=	4.50 s
d	=	54 mm

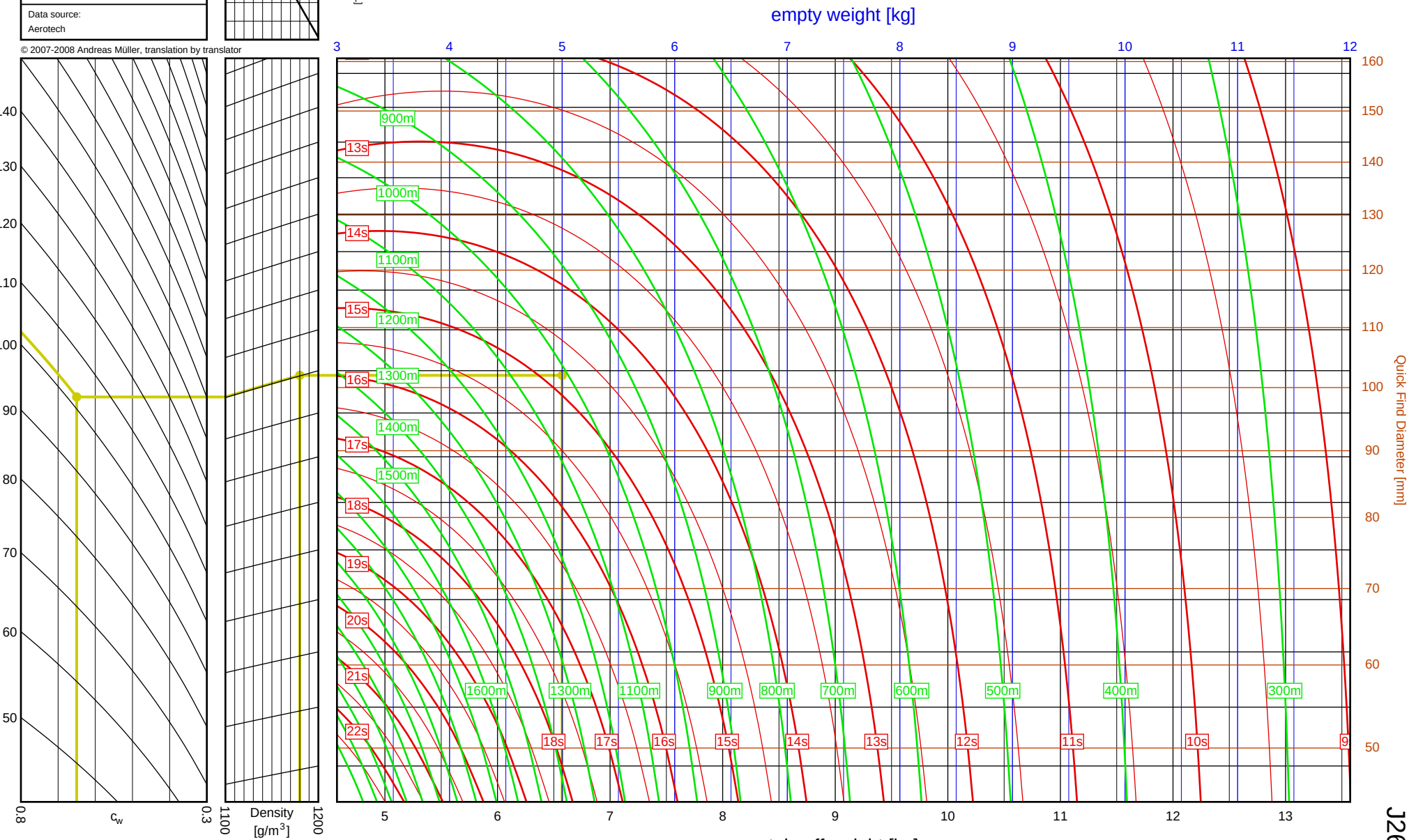
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.574kg
Results: time to apogee: 14.8s, expected altitude: 1011m

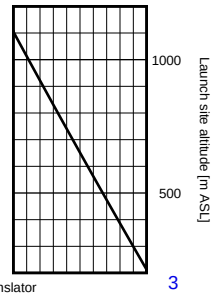


Aerotech J415W

I_{tot}	=	1173.7 Ns
F_{avg}	=	335.4 N
t_{burn}	=	3.50 s
d	=	54 mm

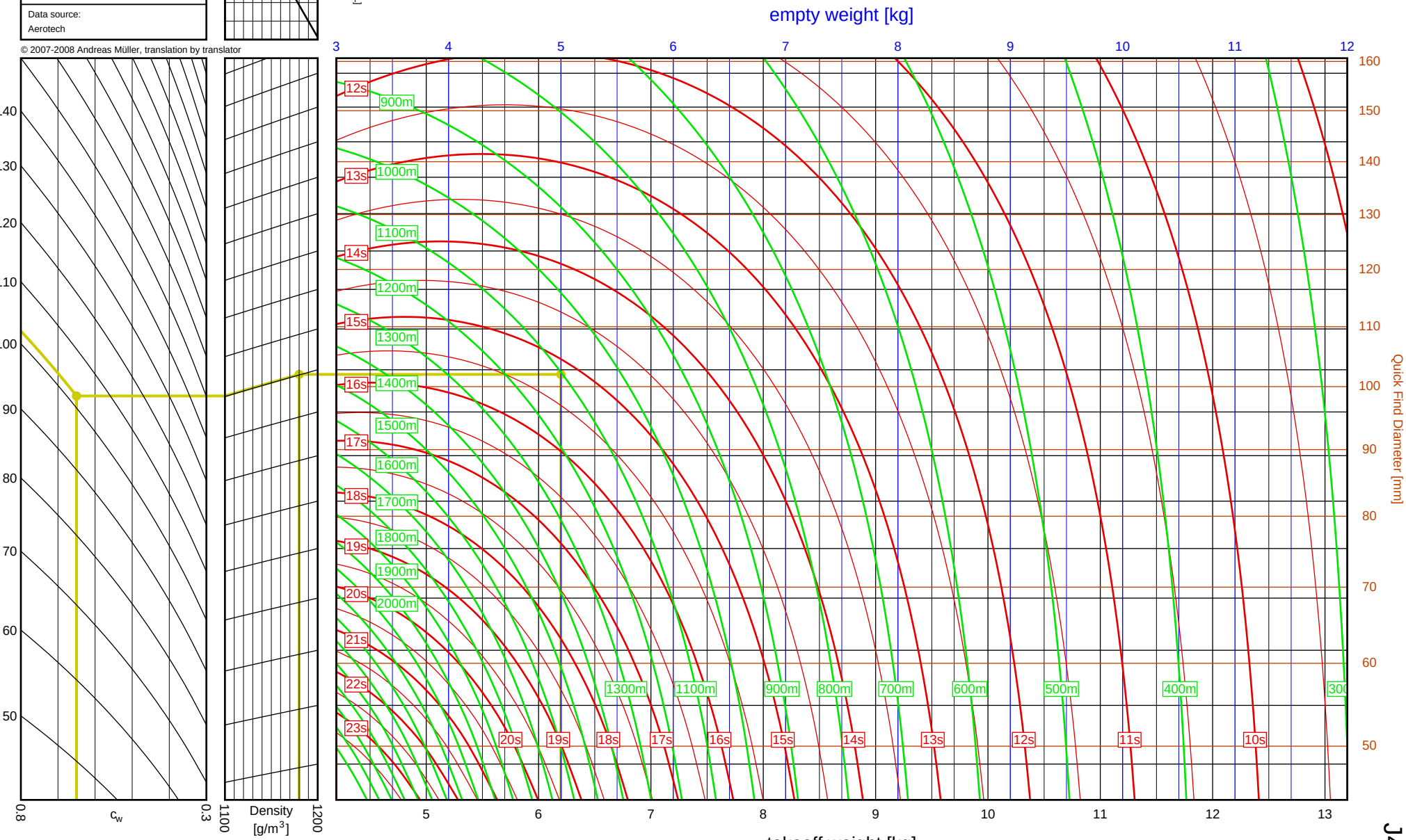
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.199kg
Results: time to apogee: 15.2s, expected altitude: 1103m



J415W

4", J-K

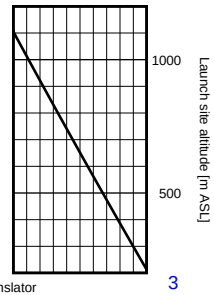
J415W

Aerotech J800T

I_{tot}	=	1202.0 Ns
F_{avg}	=	751.3 N
t_{burn}	=	1.60 s
d	=	54 mm

Data source: Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.134kg

Results: time to apogee: 14.6s, expected altitude: 1168m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

4", J-K

7-21

J800T

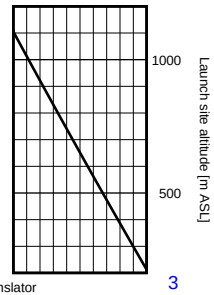
J800T

Aerotech J1999N

I_{tot}	=	1250.3 Ns
F_{avg}	=	1866.2 N
t_{burn}	=	0.67 s
d	=	54 mm

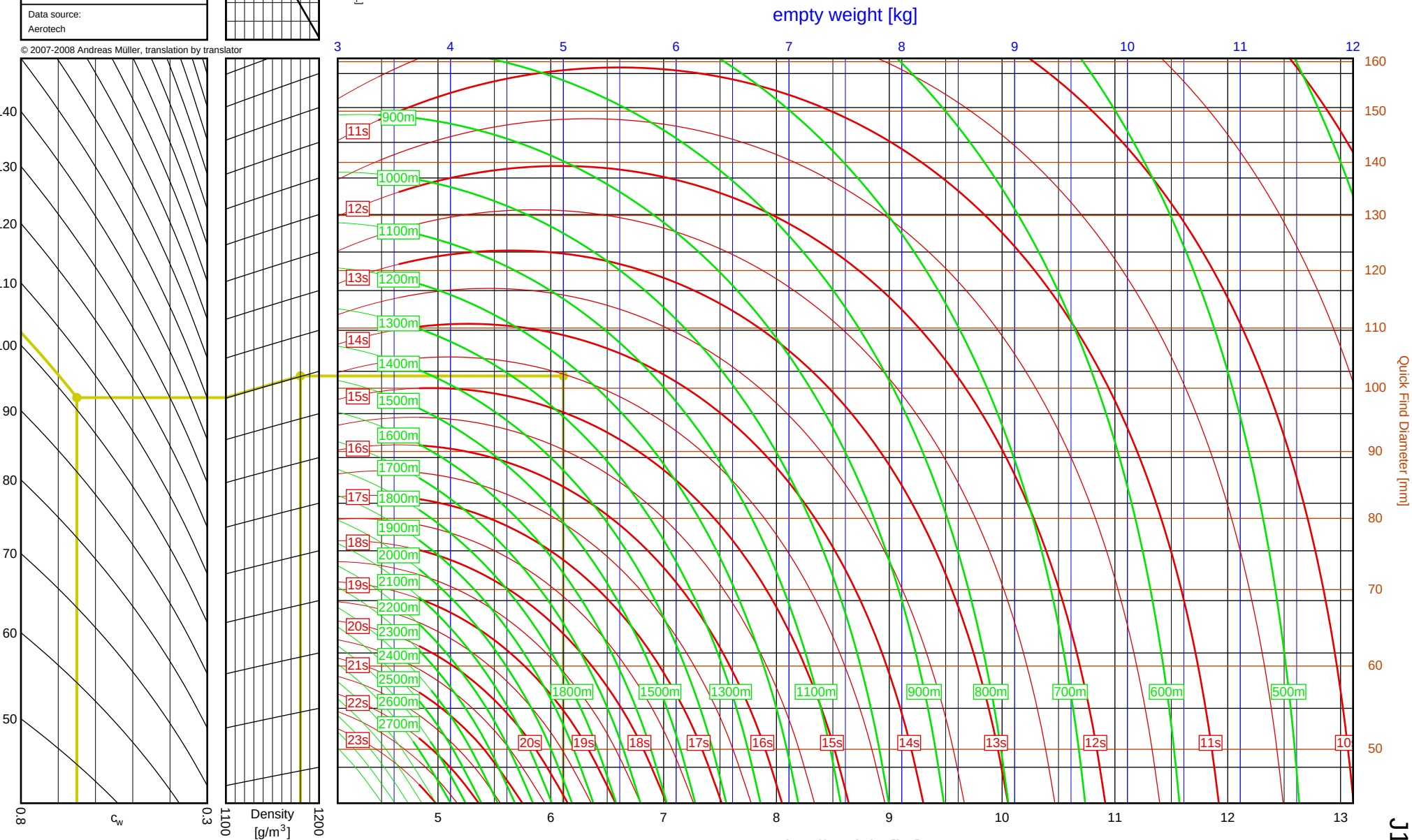
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.111kg
Results: time to apogee: 14.5s, expected altitude: 1229m



4", J-K

J1999N

J1999N

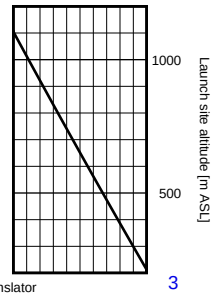
Aerotech

J390HW-TURBO

I_{tot}	=	1279.1 Ns
F_{avg}	=	365.5 N
t_{burn}	=	3.50 s
d	=	54 mm

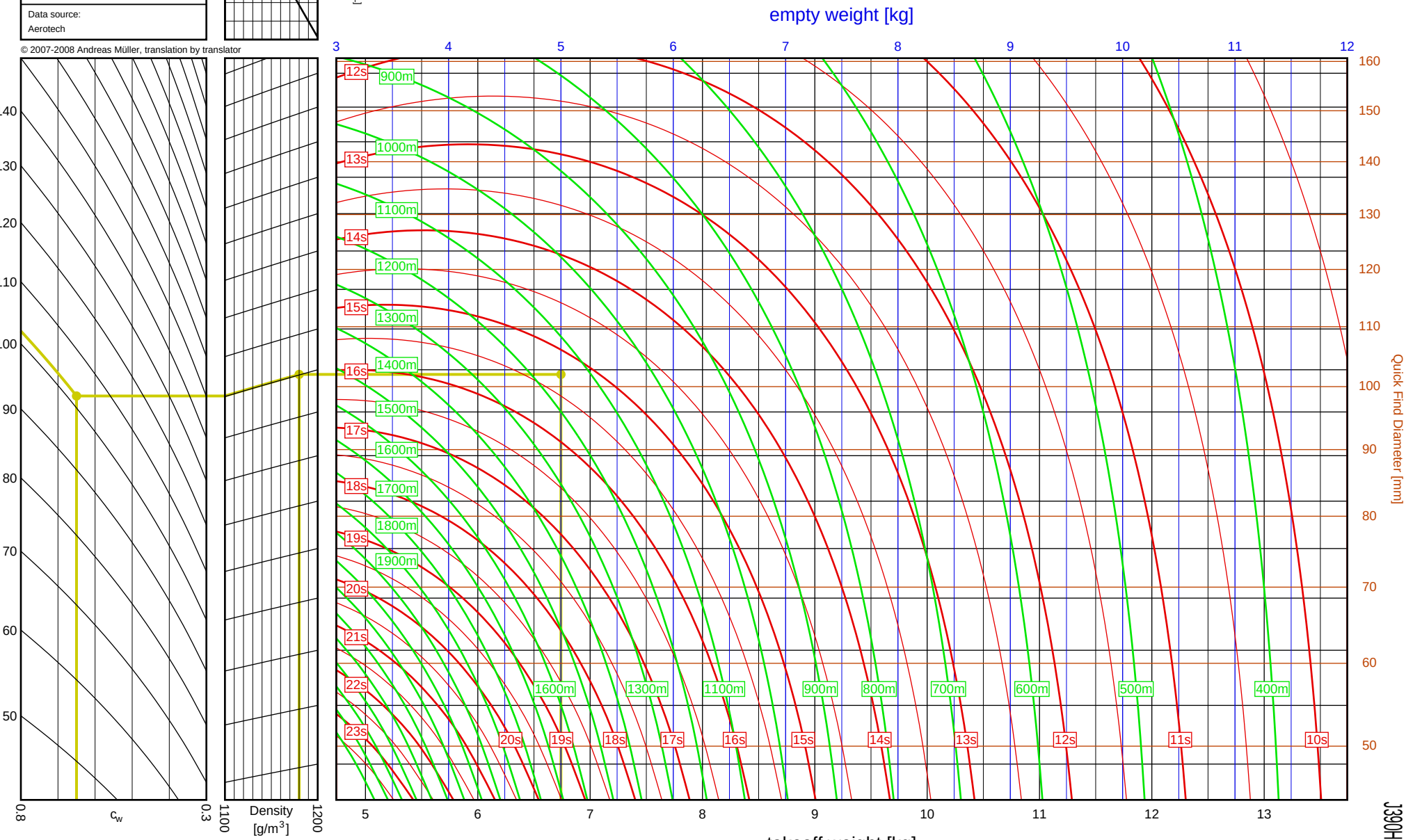
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.740kg
Results: time to apogee: 15.3s, expected altitude: 1150m



4", J-K

7-23

J390HW-TURBO

J390HW-TURBO

Aerotech K1499N

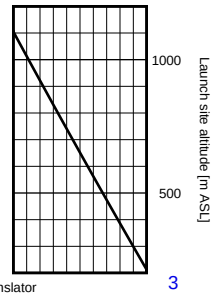
I_{tot}	=	1320.4 Ns
F_{avg}	=	1500.5 N
t_{burn}	=	0.88 s
d	=	75 mm

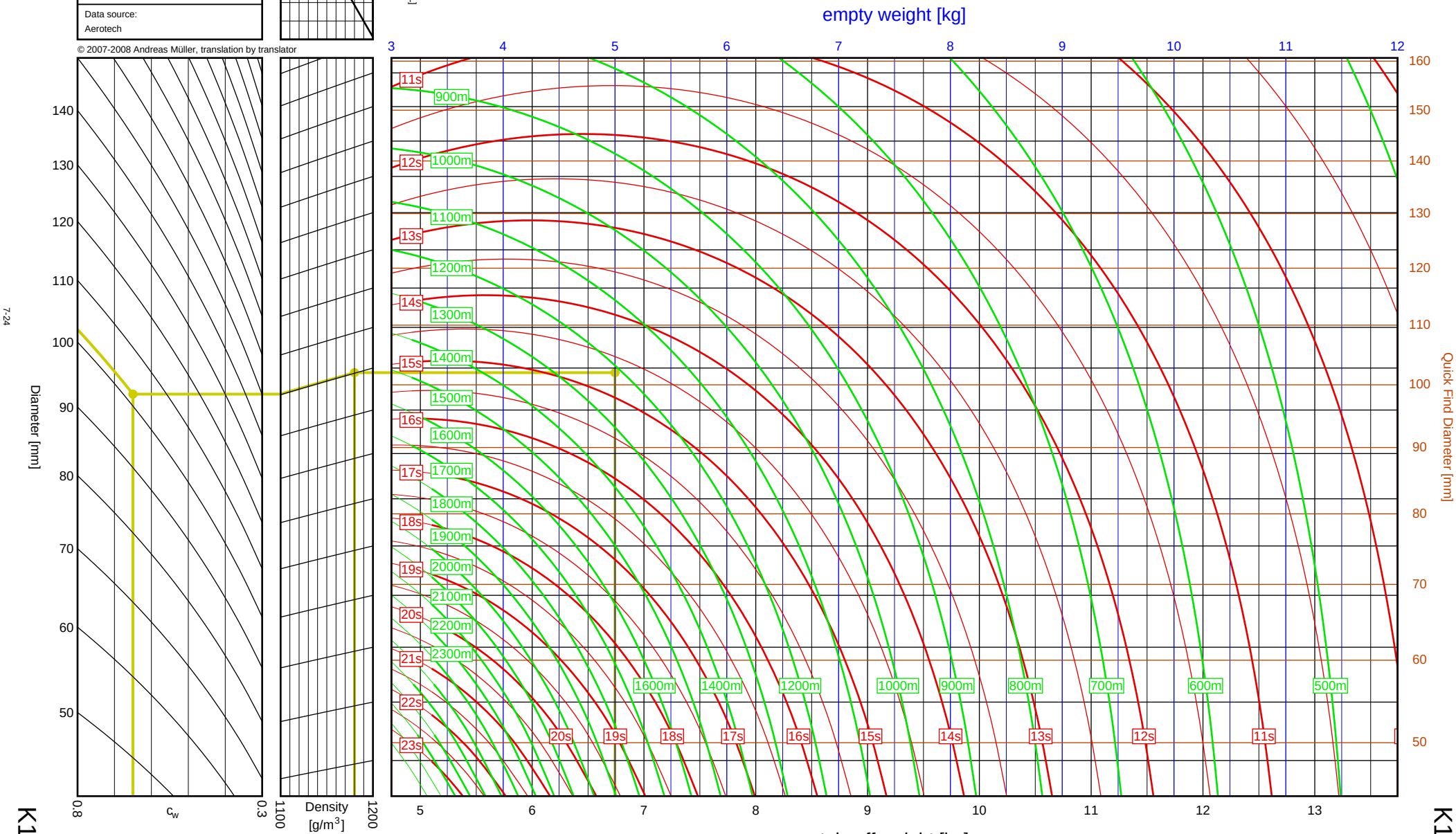
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.741kg
Results: time to apogee: 14.7s, expected altitude: 1212m





4", J-K

K1499N

K1499N

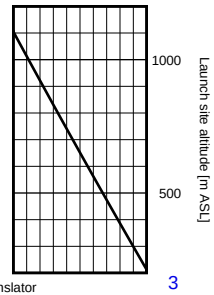
Aerotech

K185W

I_{tot}	=	1378.6 Ns
F_{avg}	=	178.7 N
t_{burn}	=	7.71 s
d	=	54 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.434kg

Results: time to apogee: 17.5s, expected altitude: 1293m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

15s 16s 17s 18s 19s 20s 21s 22s 23s 24s 25s 26s

2000m 1000m

11s 12s 13s 14s 15s 16s 17s 18s 19s 20s 21s 22s

4", J-K

7-25

K185W

K185W

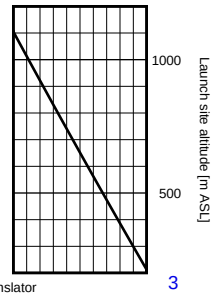
Aerotech

K513FJ

I_{tot}	=	1474.9 Ns
F_{avg}	=	541.0 N
t_{burn}	=	2.73 s
d	=	54 mm

Data source:
Aerotech

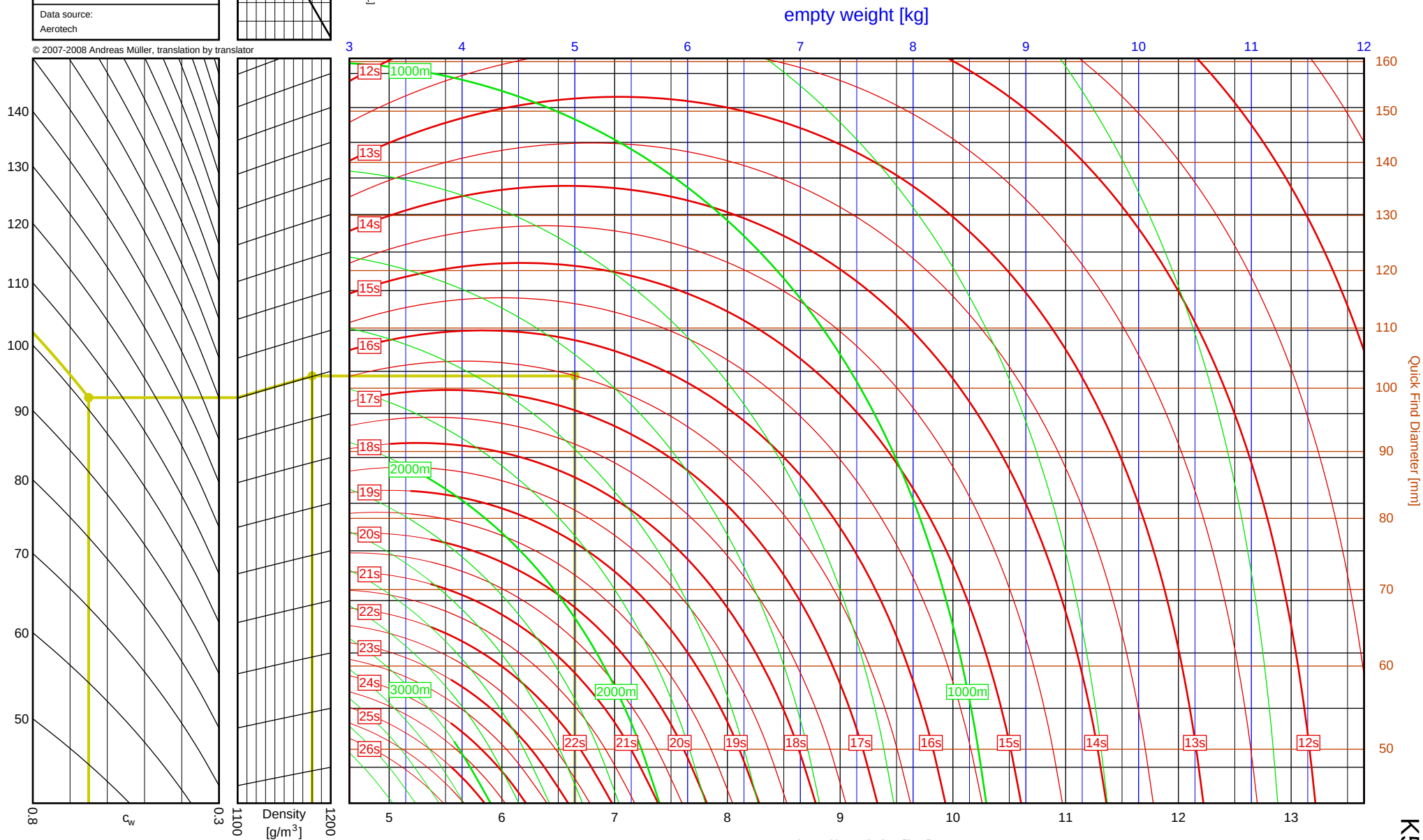
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.647kg

Results: time to apogee: 16.5s, expected altitude: 1444m



4", J-K

K513FJ

K513FJ

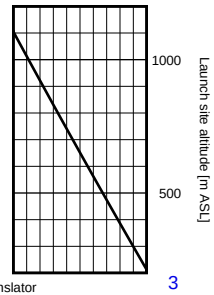
Aerotech

K695R

I_{tot}	=	1496.5 Ns
F_{avg}	=	665.1 N
t_{burn}	=	2.25 s
d	=	54 mm

Data source:
Aerotech

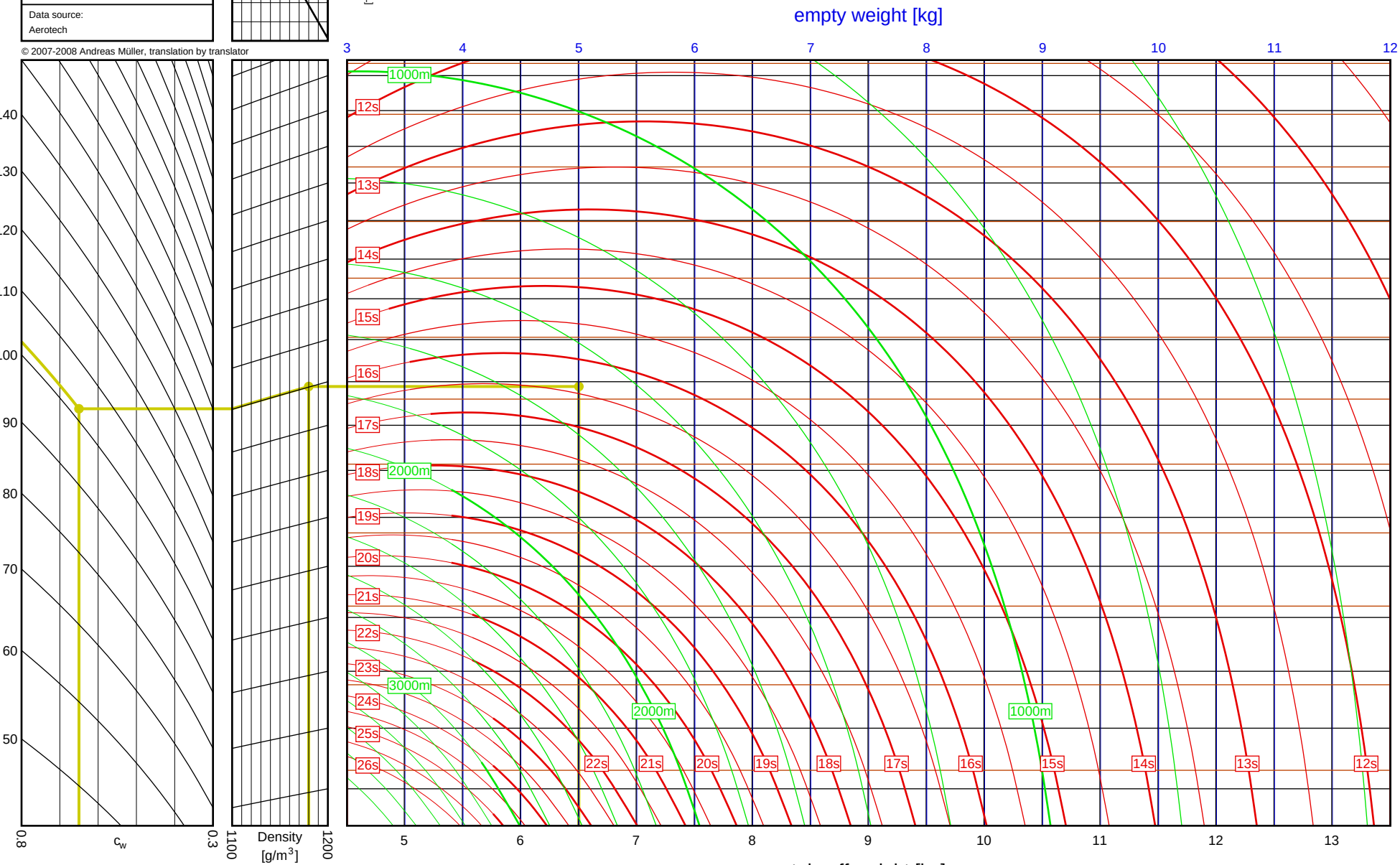
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.506kg

Results: time to apogee: 16.4s, expected altitude: 1493m



K695R

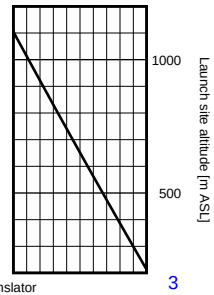
K695R

Aerotech K1100T

I_{tot}	=	1537.5 Ns
F_{avg}	=	960.9 N
t_{burn}	=	1.60 s
d	=	54 mm

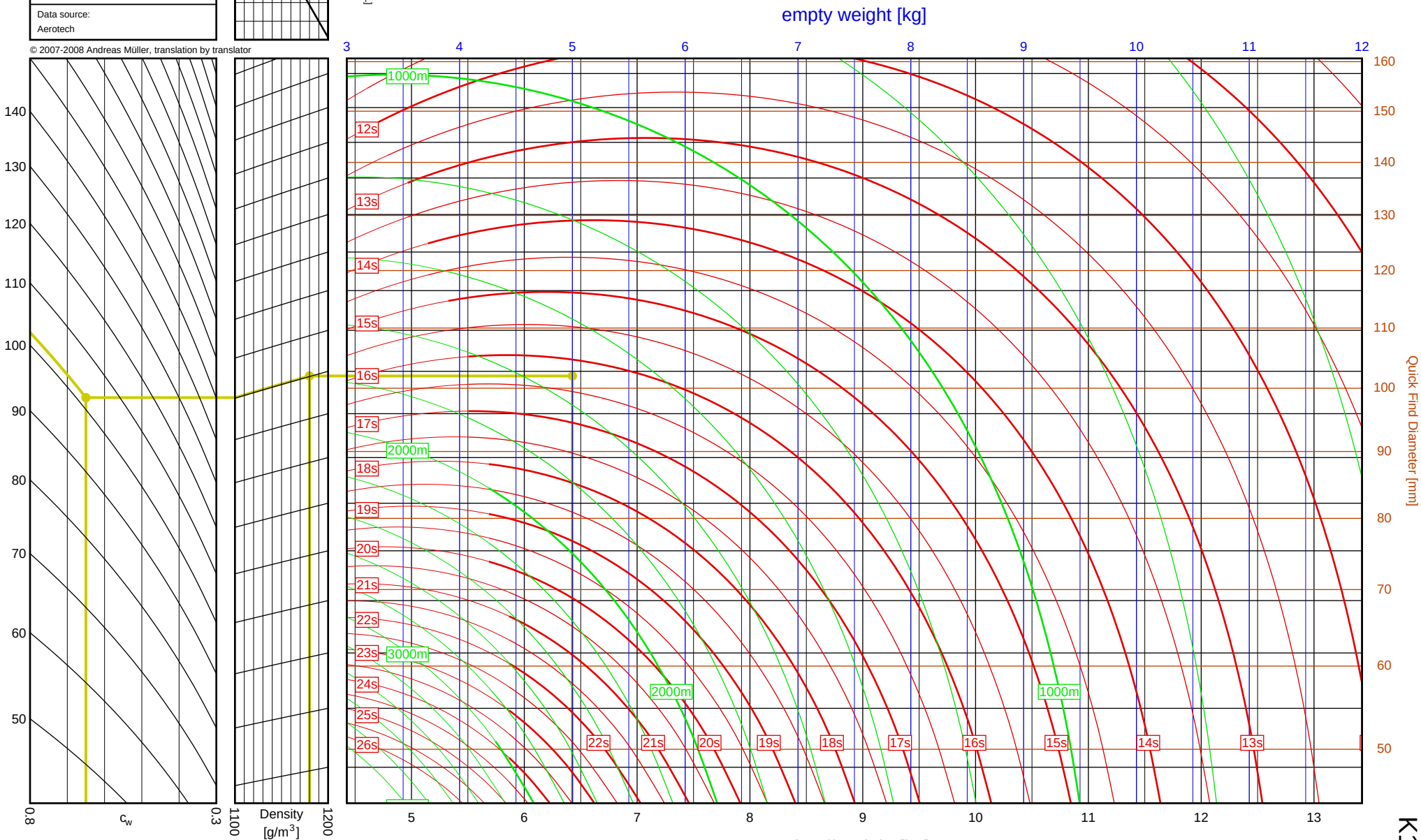
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.426kg
Results: time to apogee: 16.3s, expected altitude: 1531m

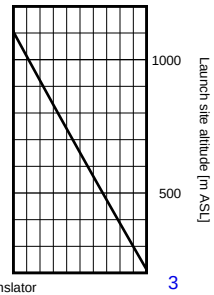


Aerotech K550W

I_{tot}	=	1563.1 Ns
F_{avg}	=	446.6 N
t_{burn}	=	3.50 s
d	=	54 mm

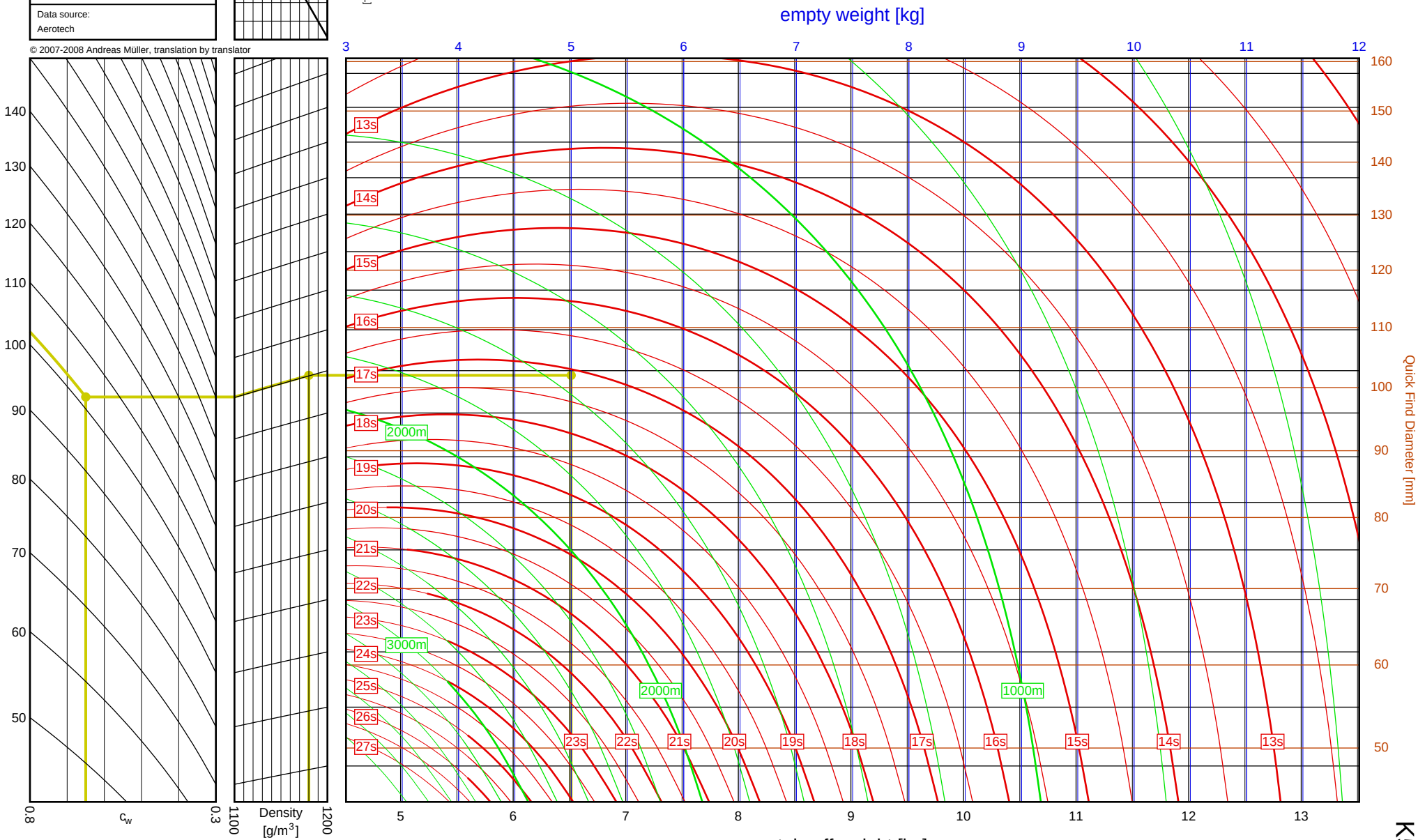
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.515kg
Results: time to apogee: 17.1s, expected altitude: 1557m



4", J-K

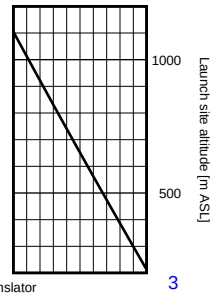
K550W
K550W

Aerotech K485HW

I_{tot}	=	1682.2 Ns
F_{avg}	=	431.5 N
t_{burn}	=	3.90 s
d	=	54 mm

Data source: Aerotech

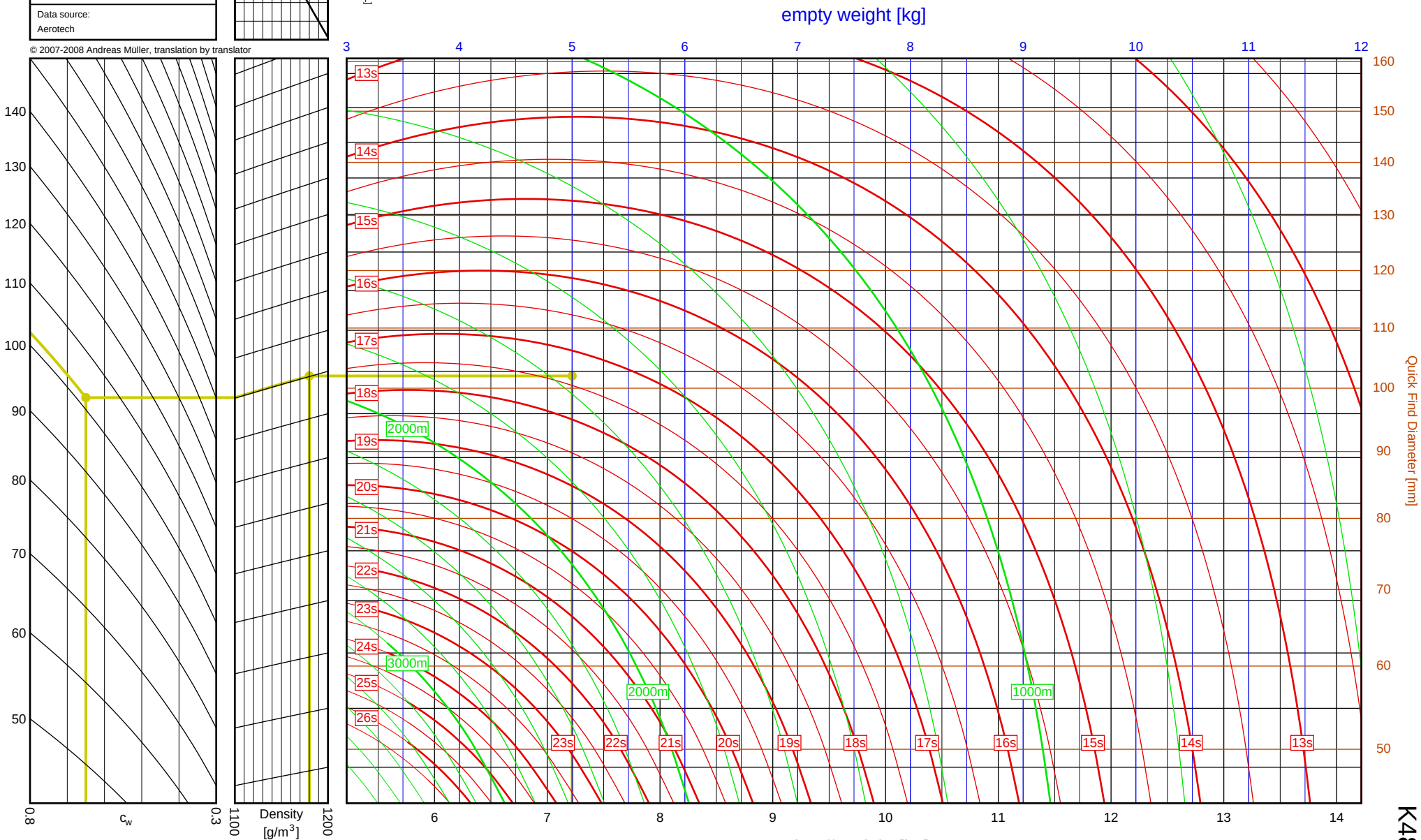
© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 7.220kg

Results: time to apogee: 17.4s, expected altitude: 1562m



K485HW

K485HW

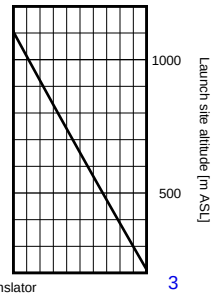
4", J-K

Aerotech K805G

I_{tot}	=	1730.0 Ns
F_{avg}	=	720.8 N
t_{burn}	=	2.40 s
d	=	54 mm

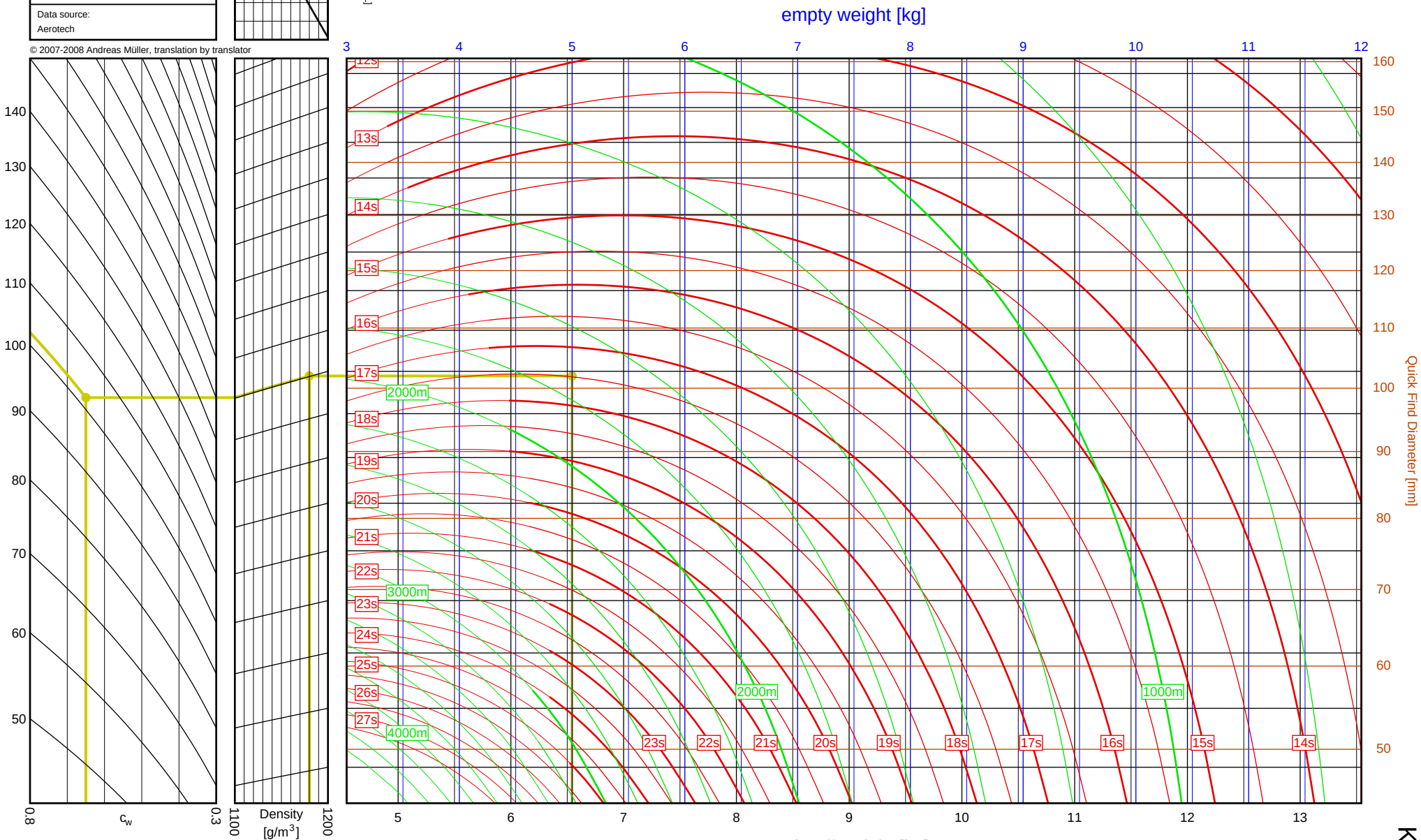
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 102mm, drag = 0.65, density = 1180 g/m^3, weight = 6.543kg
Results: time to apogee: 17.5s, expected altitude: 1733m



7-31

K805G

4", J-K

7

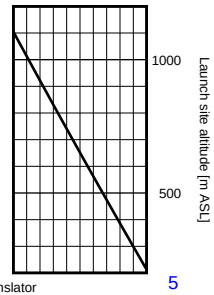
K805G

Aerotech K1499N

I_{tot}	=	1320.4 Ns
F_{avg}	=	1500.5 N
t_{burn}	=	0.88 s
d	=	75 mm

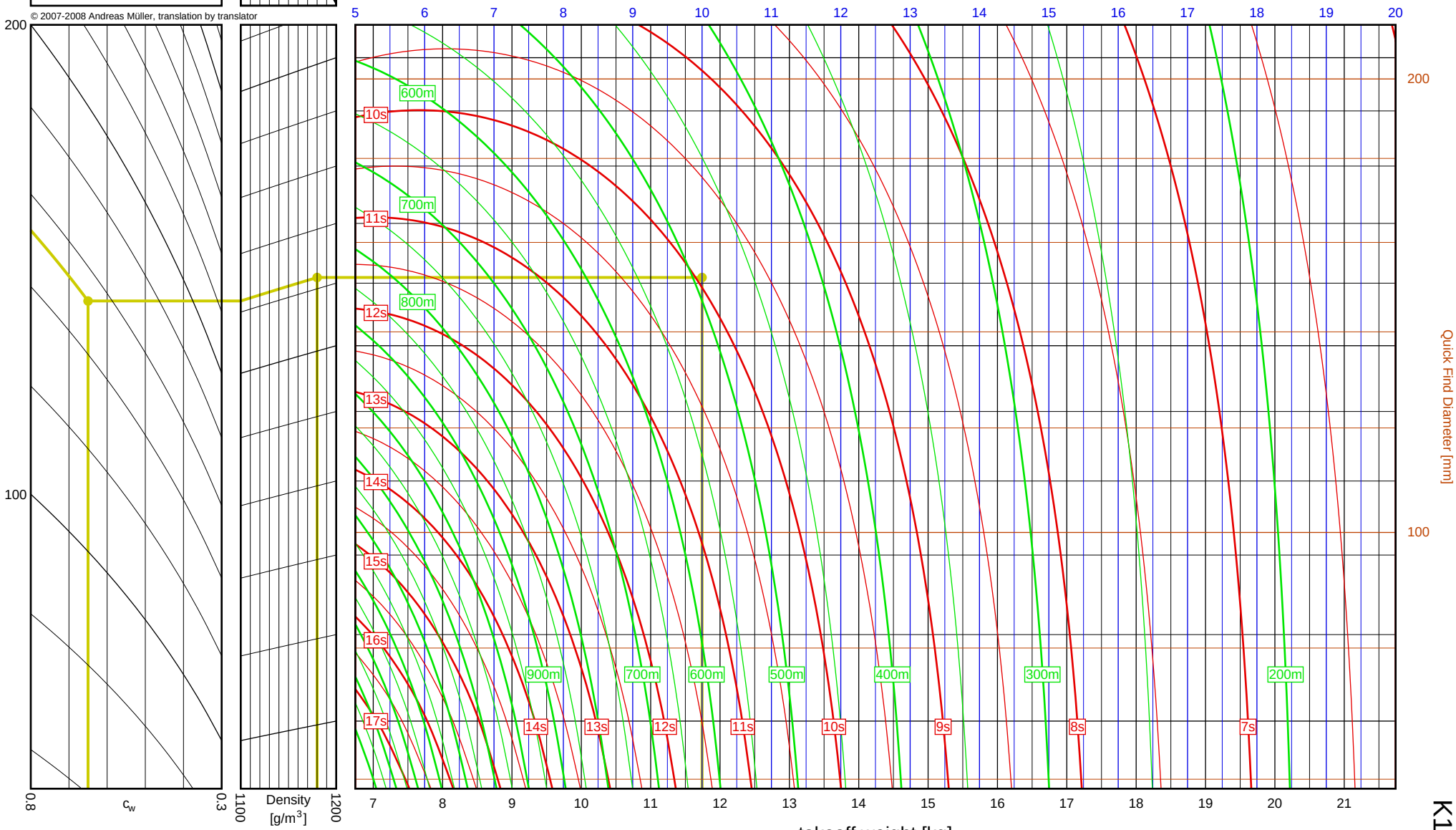
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 11.741kg
Results: time to apogee: 10.0s, expected altitude: 492m

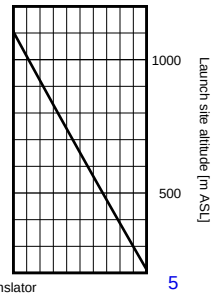


Aerotech
K513FJ

I_{tot}	=	1474.9 Ns
F_{avg}	=	541.0 N
t_{burn}	=	2.73 s
d	=	54 mm

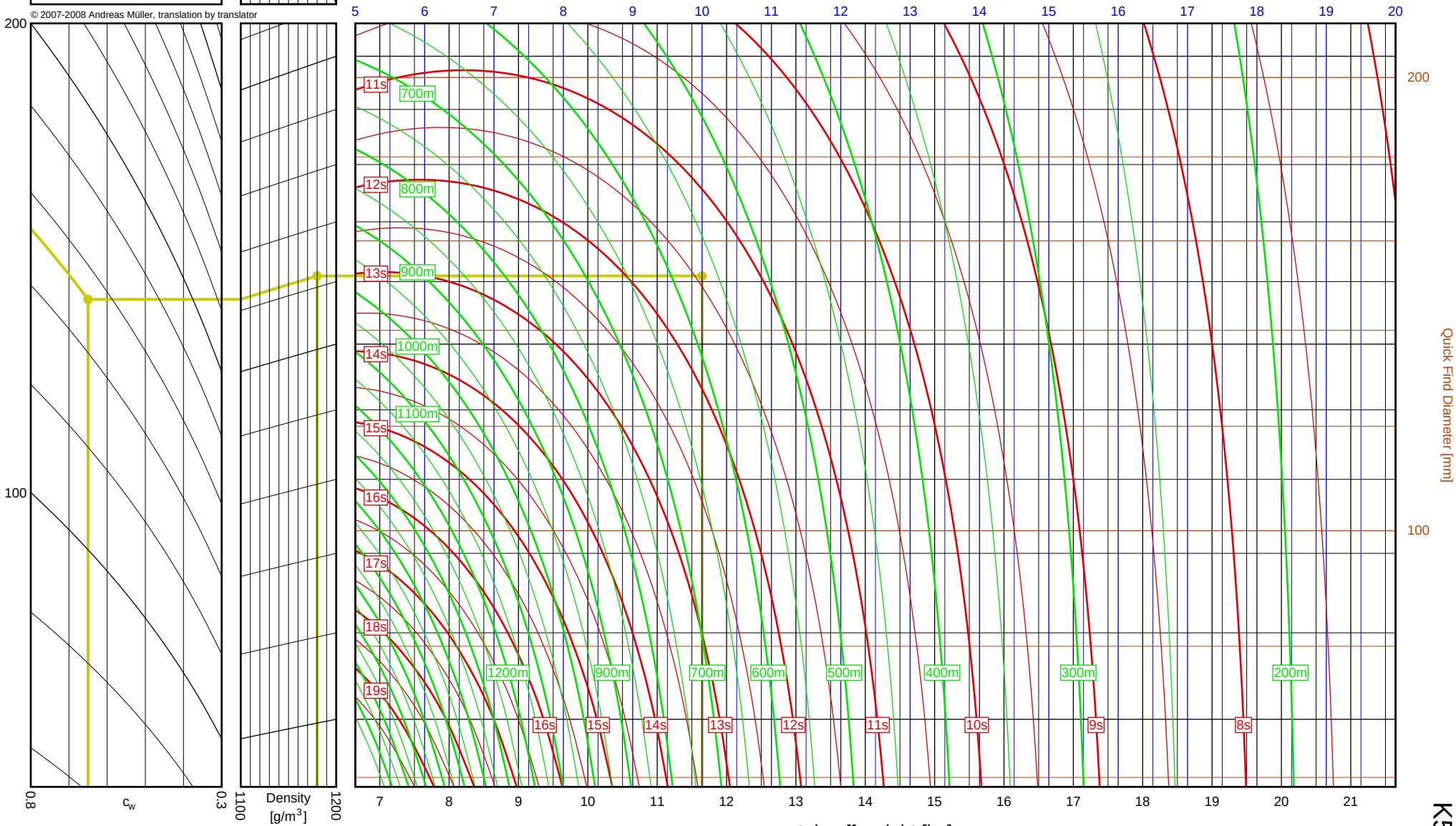
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 11.647kg
Results: time to apogee: 11.4s, expected altitude: 567m



K513FJ

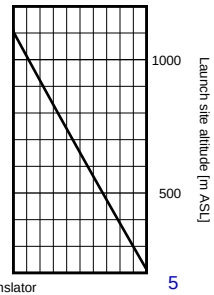
K513FJ

Aerotech K695R

I_{tot}	=	1496.5 Ns
F_{avg}	=	665.1 N
t_{burn}	=	2.25 s
d	=	54 mm

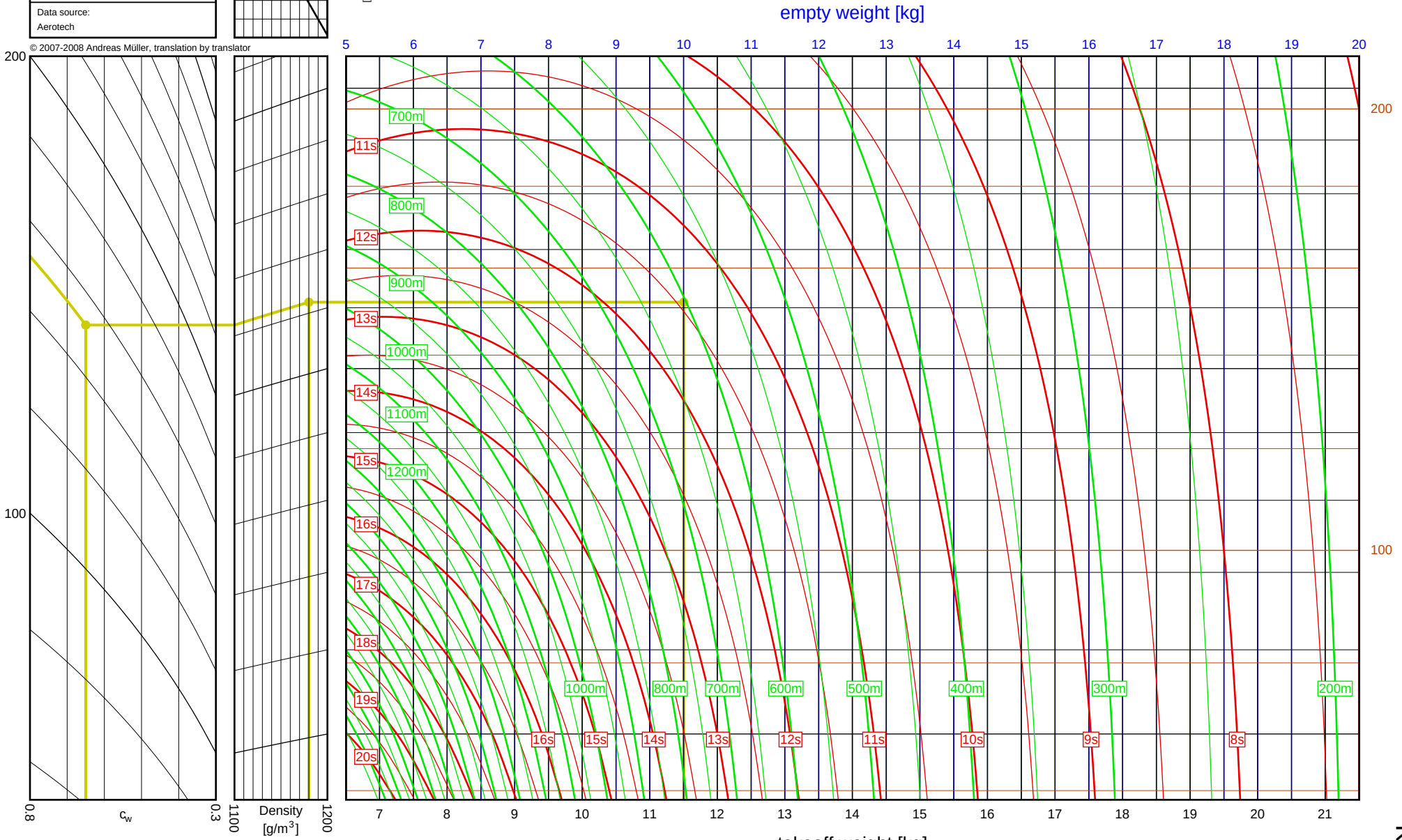
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 11.506kg
Results: time to apogee: 11.4s, expected altitude: 603m

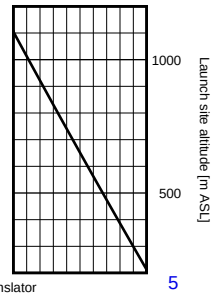


Aerotech K1100T

I_{tot}	=	1537.5 Ns
F_{avg}	=	960.9 N
t_{burn}	=	1.60 s
d	=	54 mm

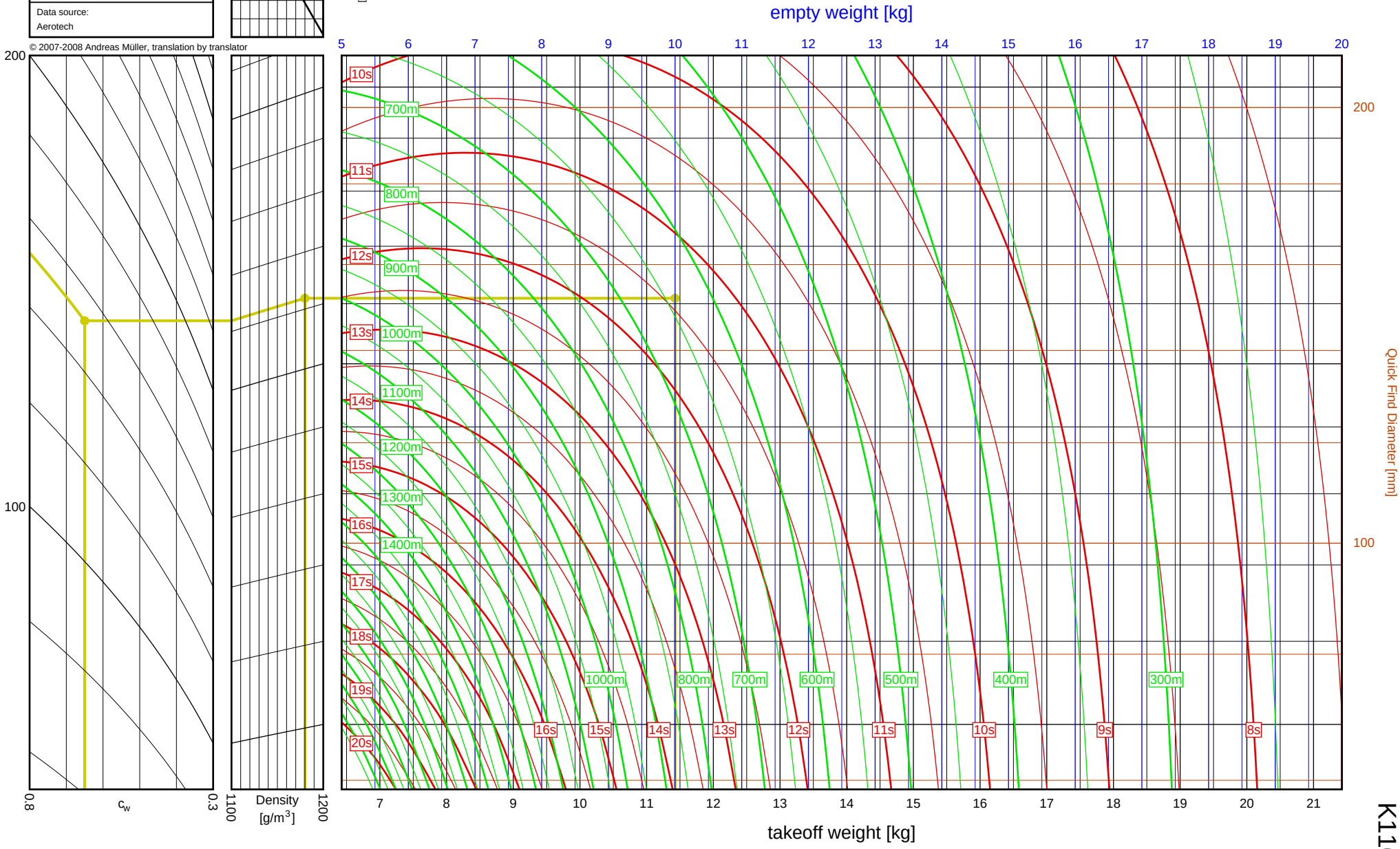
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 11.426kg
Results: time to apogee: 11.4s, expected altitude: 640m



K1100T

6", K-L

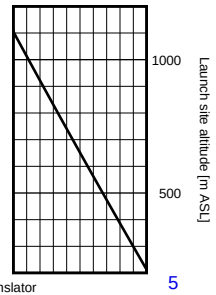
K1100T

Aerotech K550W

I_{tot}	=	1563.1 Ns
F_{avg}	=	446.6 N
t_{burn}	=	3.50 s
d	=	54 mm

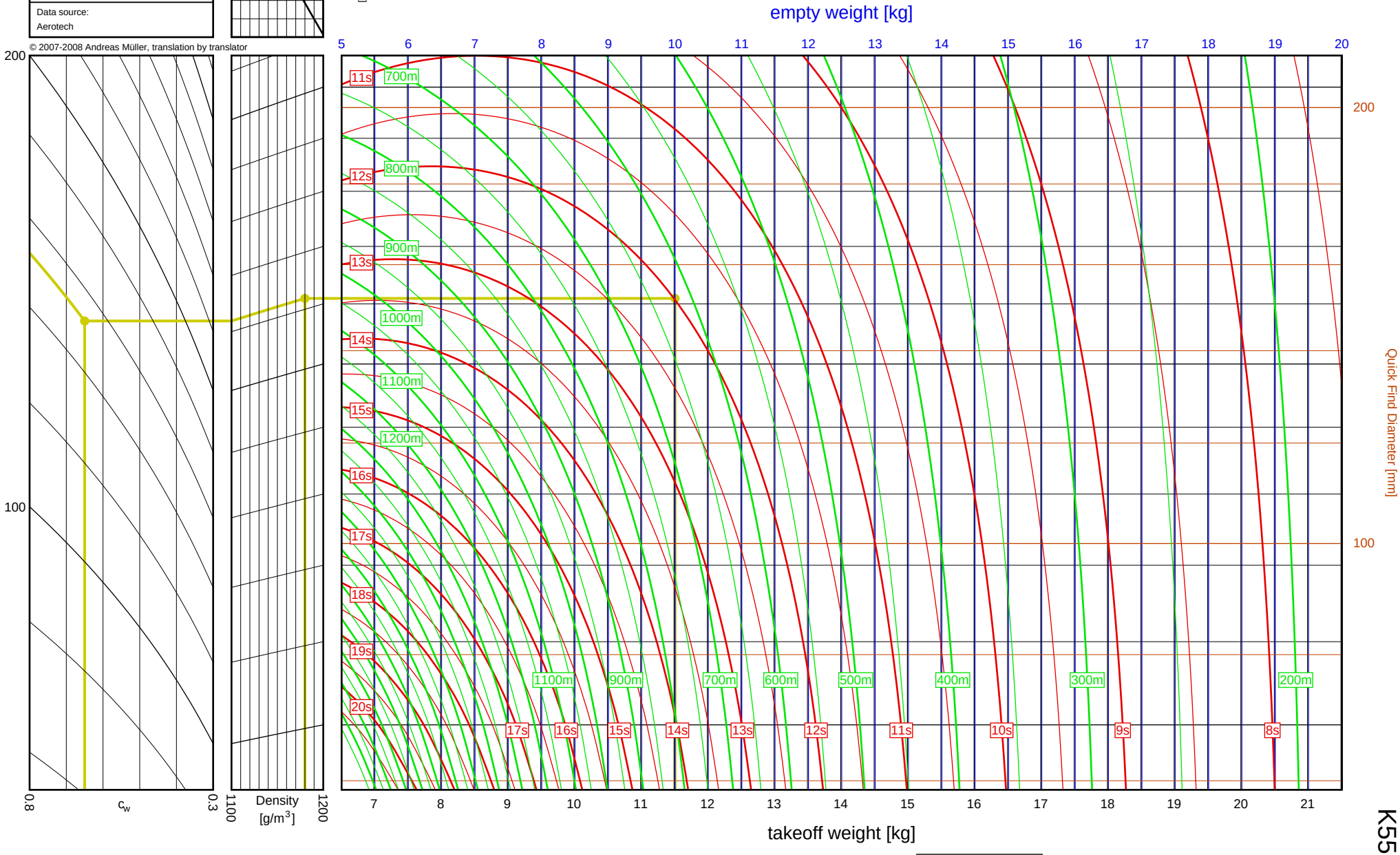
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 11.515kg
Results: time to apogee: 12.0s, expected altitude: 620m



K550W

6", K-L

K550W

Aerotech K485HW

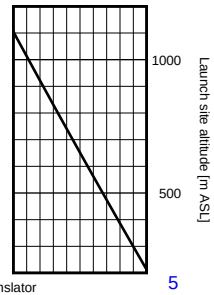
I_{tot}	=	1682.2 Ns
F_{avg}	=	431.5 N
t_{burn}	=	3.90 s
d	=	54 mm

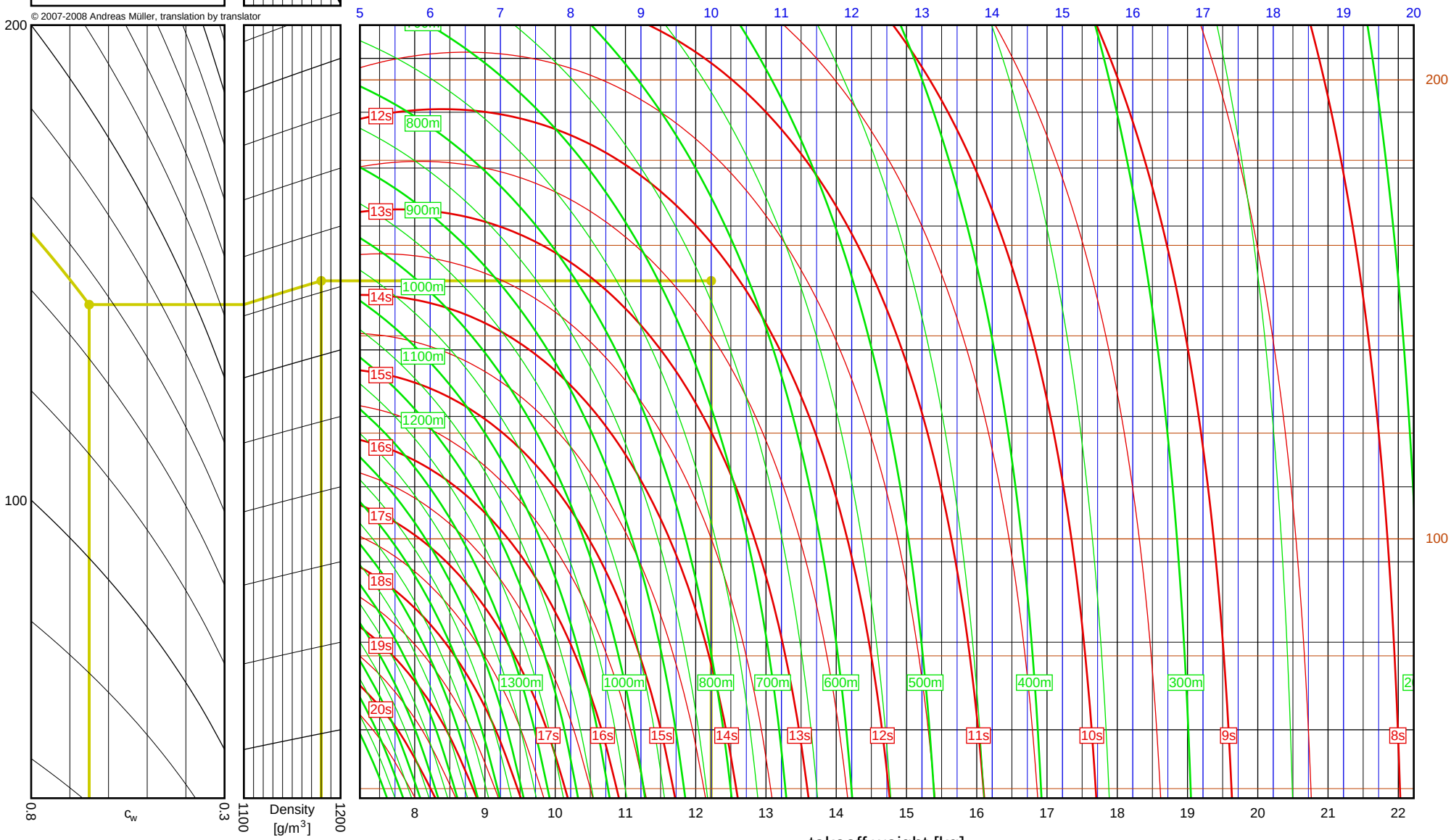
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.220kg
Results: time to apogee: 12.2s, expected altitude: 640m





K485HW

6", K-L

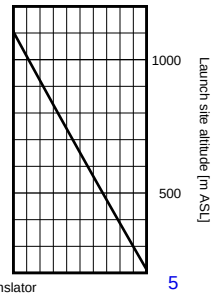
K485HW

Aerotech K805G

I_{tot}	=	1730.0 Ns
F_{avg}	=	720.8 N
t_{burn}	=	2.40 s
d	=	54 mm

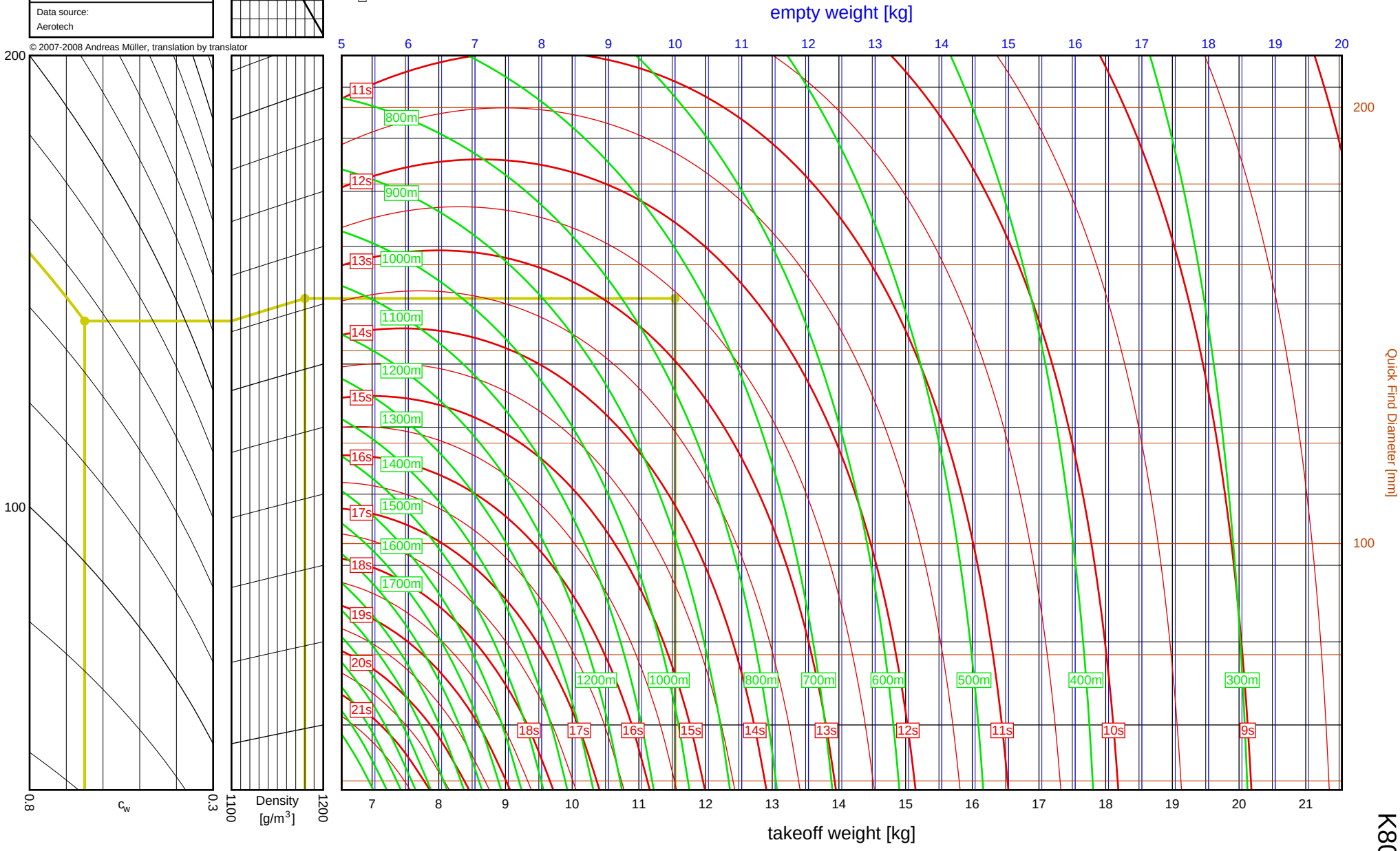
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 11.543kg
Results: time to apogee: 12.6s, expected altitude: 735m



K805G

6", K-L

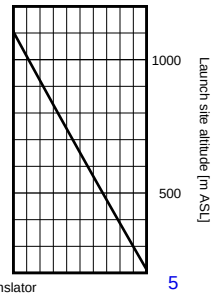
K805G

Aerotech K1275R

I_{tot}	=	2132.3 Ns
F_{avg}	=	1066.2 N
t_{burn}	=	2.00 s
d	=	54 mm

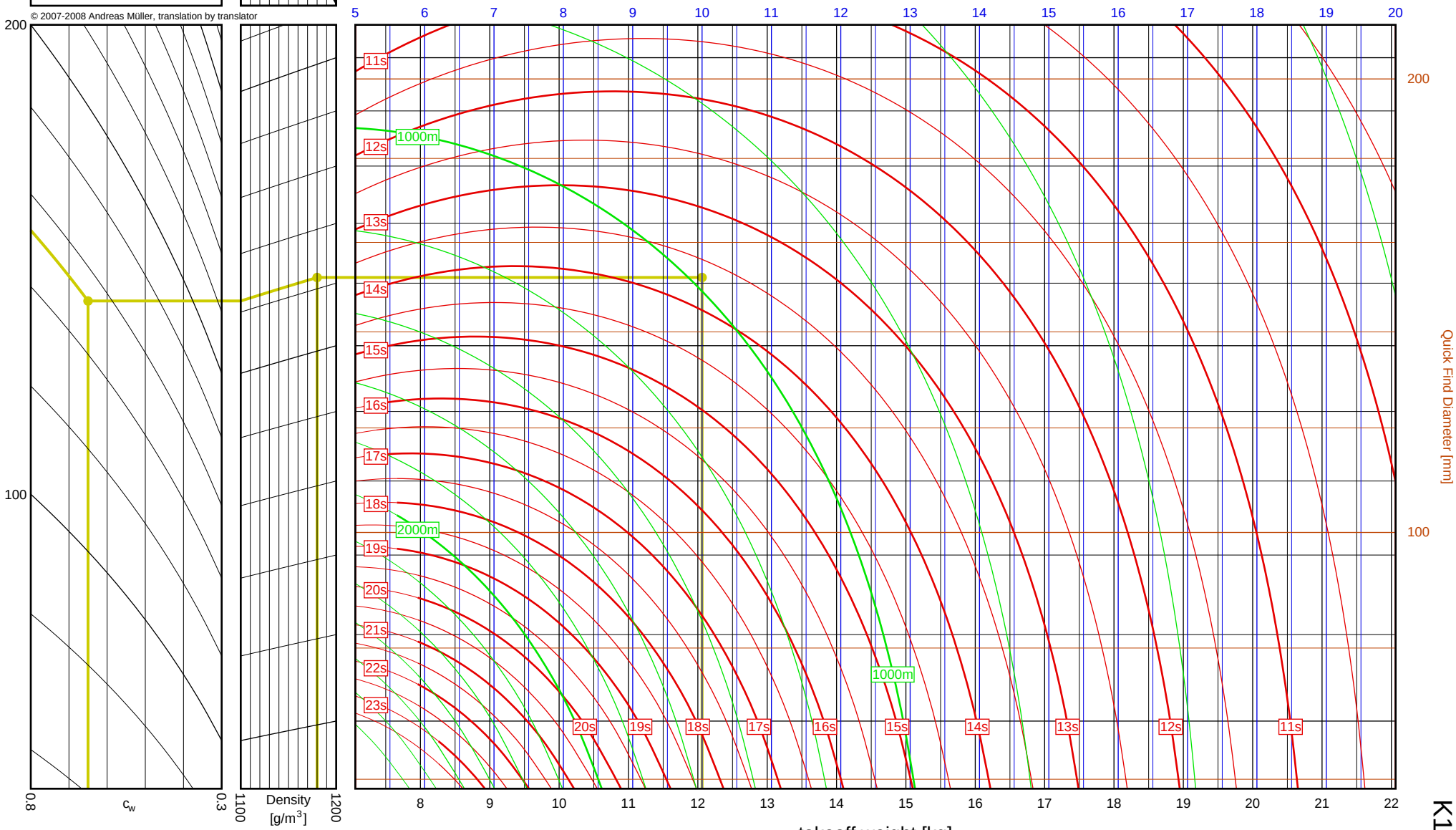
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.061kg
Results: time to apogee: 13.7s, expected altitude: 985m



6", K-L

K1275R

K1275R

Aerotech K270W

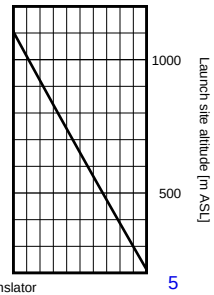
I_{tot}	=	2154.9 Ns
F_{avg}	=	247.9 N
t_{burn}	=	8.69 s
d	=	54 mm

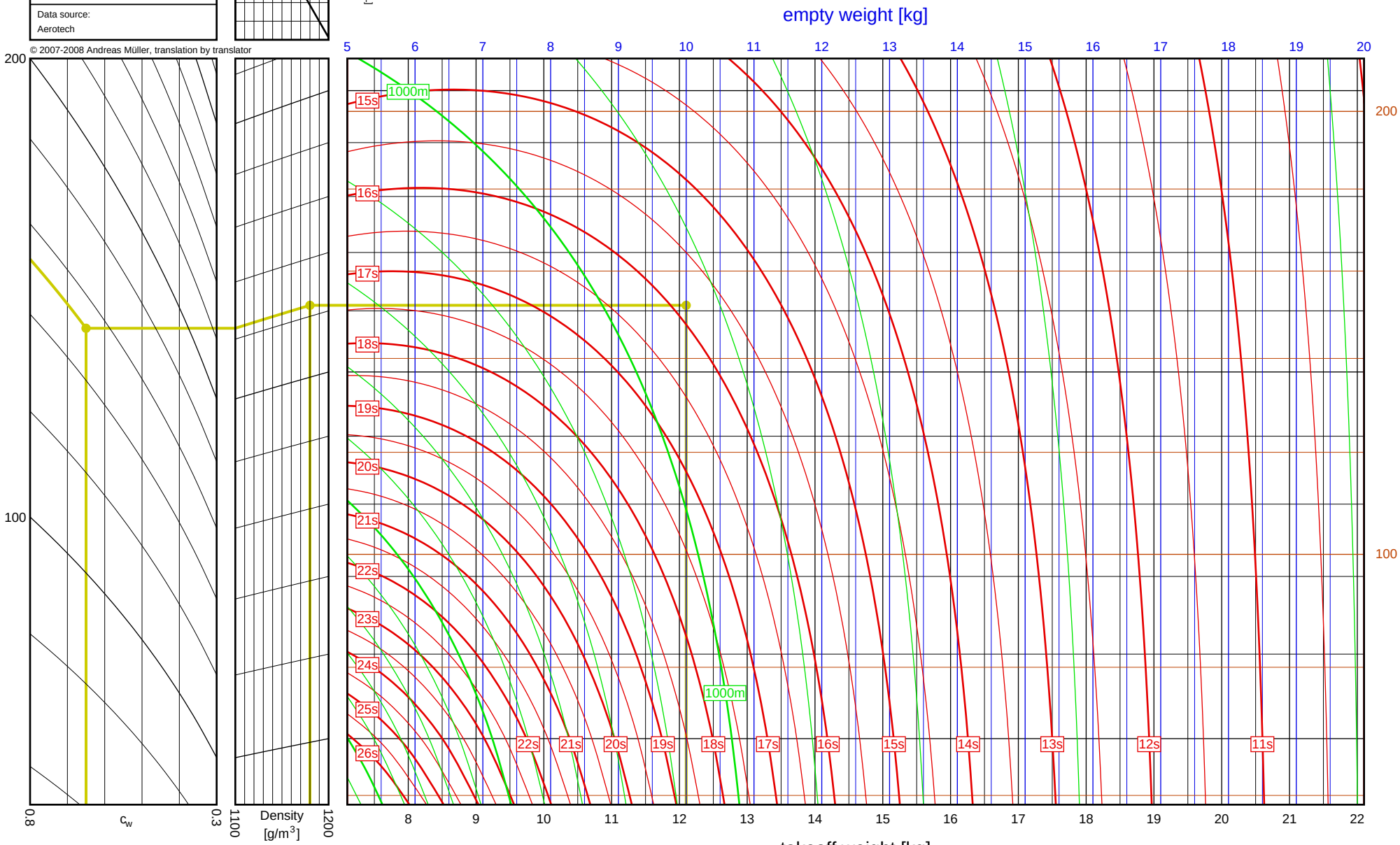
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.100kg
Results: time to apogee: 15.9s, expected altitude: 855m





6", K-L

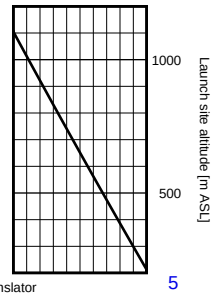
K270W
K270W

Aerotech K828FJ

I_{tot}	=	2157.2 Ns
F_{avg}	=	862.9 N
t_{burn}	=	2.50 s
d	=	54 mm

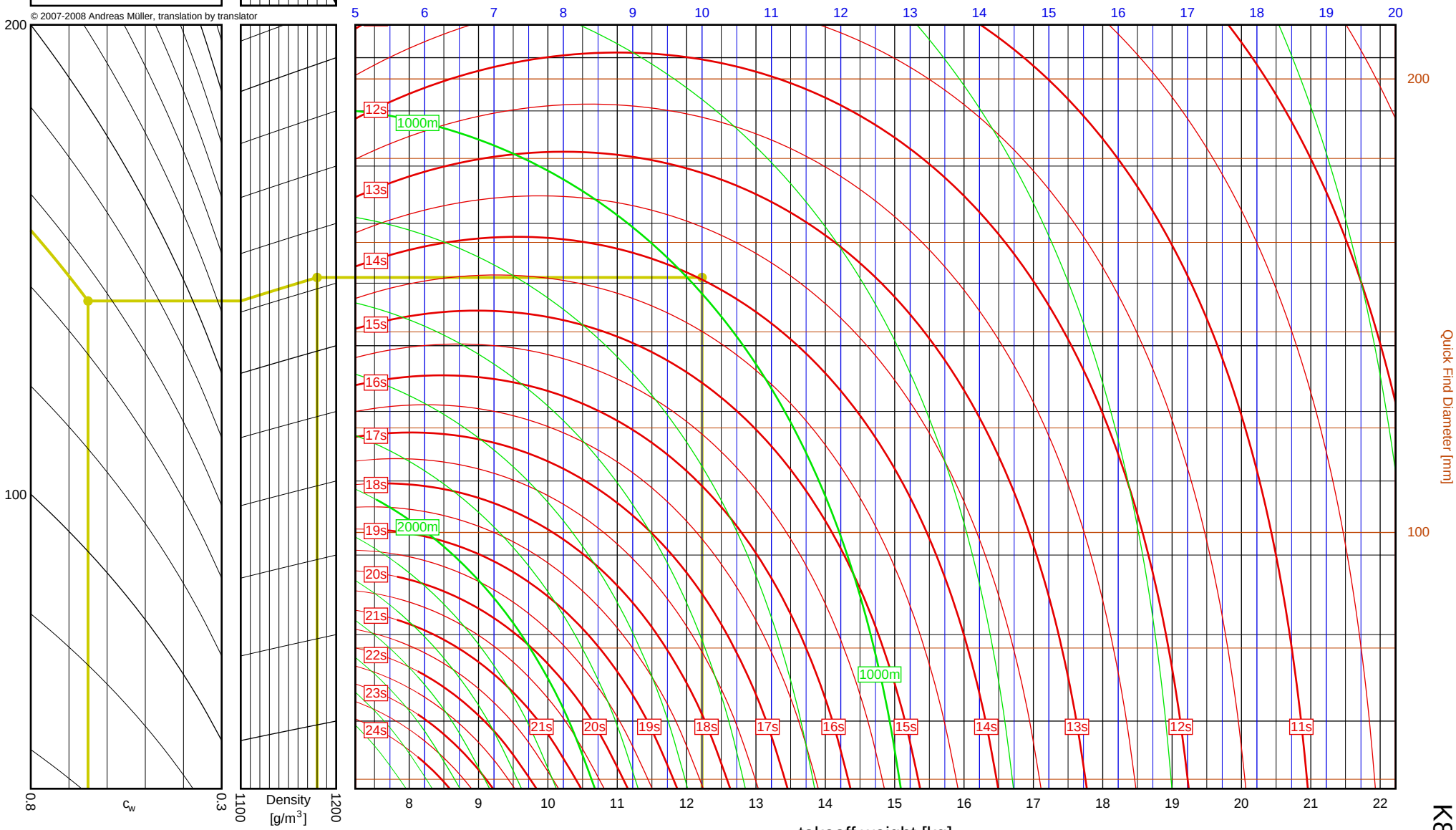
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.223kg
Results: time to apogee: 14.0s, expected altitude: 983m

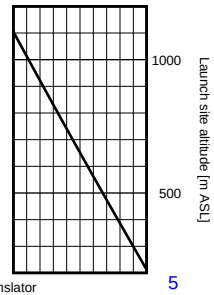


Aerotech K700W

I_{tot}	=	2283.7 Ns
F_{avg}	=	635.6 N
t_{burn}	=	3.59 s
d	=	54 mm

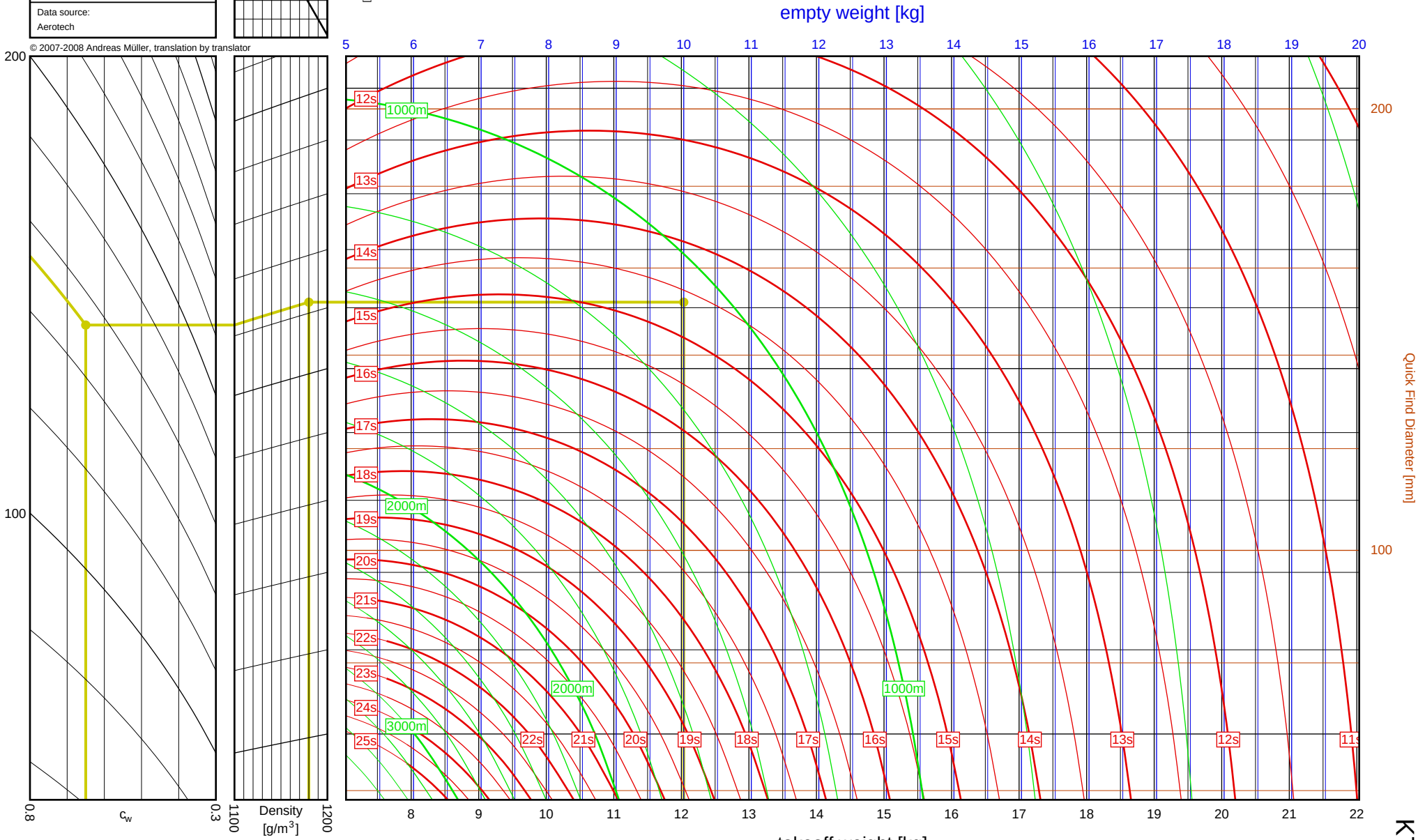
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.035kg
Results: time to apogee: 14.6s, expected altitude: 1060m



8-11

K700W

K700W

6", K-L

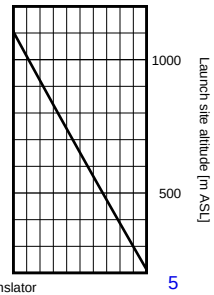
Aerotech

K680R

I_{tot}	=	2358.3 Ns
F_{avg}	=	675.7 N
t_{burn}	=	3.49 s
d	=	98 mm

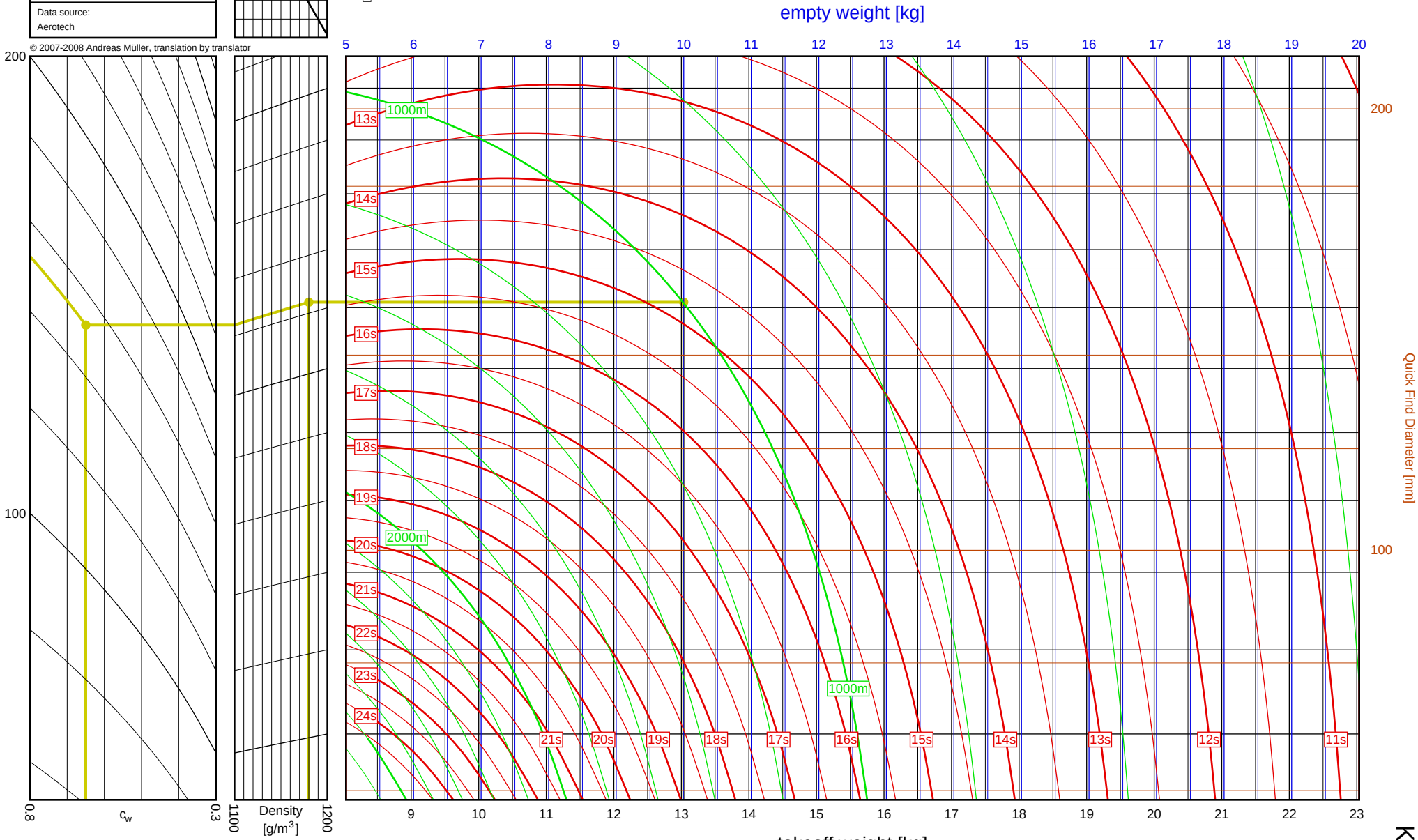
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 13.035kg
Results: time to apogee: 14.8s, expected altitude: 999m



8-12

K680R

K680R

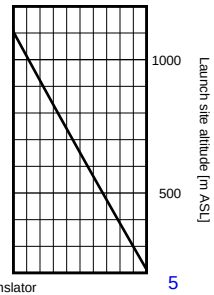
6", K-L

Aerotech K780R

I_{tot}	=	2361.1 Ns
F_{avg}	=	770.8 N
t_{burn}	=	3.06 s
d	=	75 mm

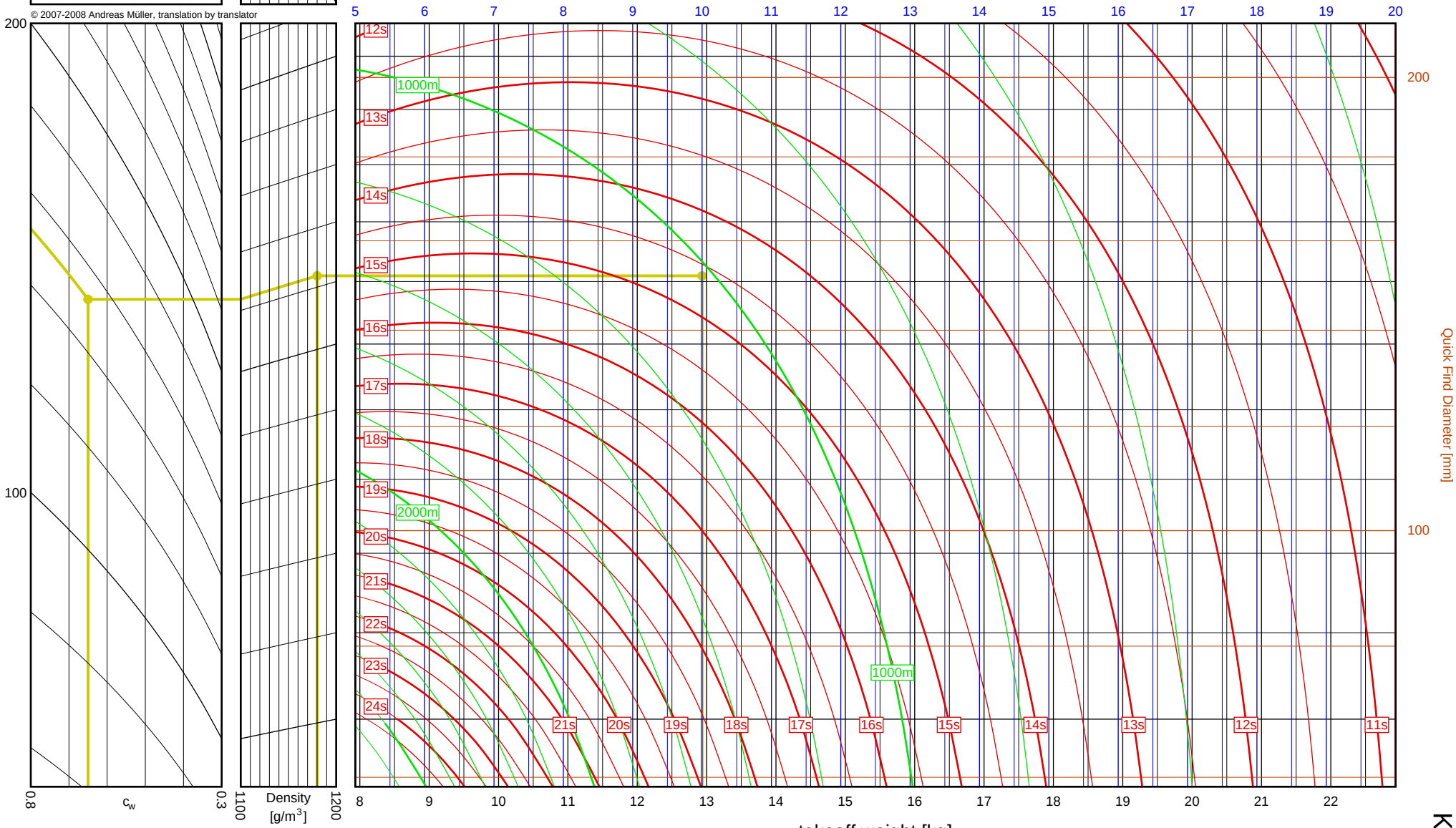
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.934kg
Results: time to apogee: 14.6s, expected altitude: 1016m



K780R

6", K-L

K780R

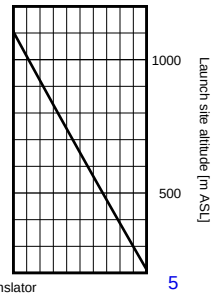
Aerotech

K650T

I_{tot}	=	2387.8 Ns
F_{avg}	=	581.3 N
t_{burn}	=	4.11 s
d	=	98 mm

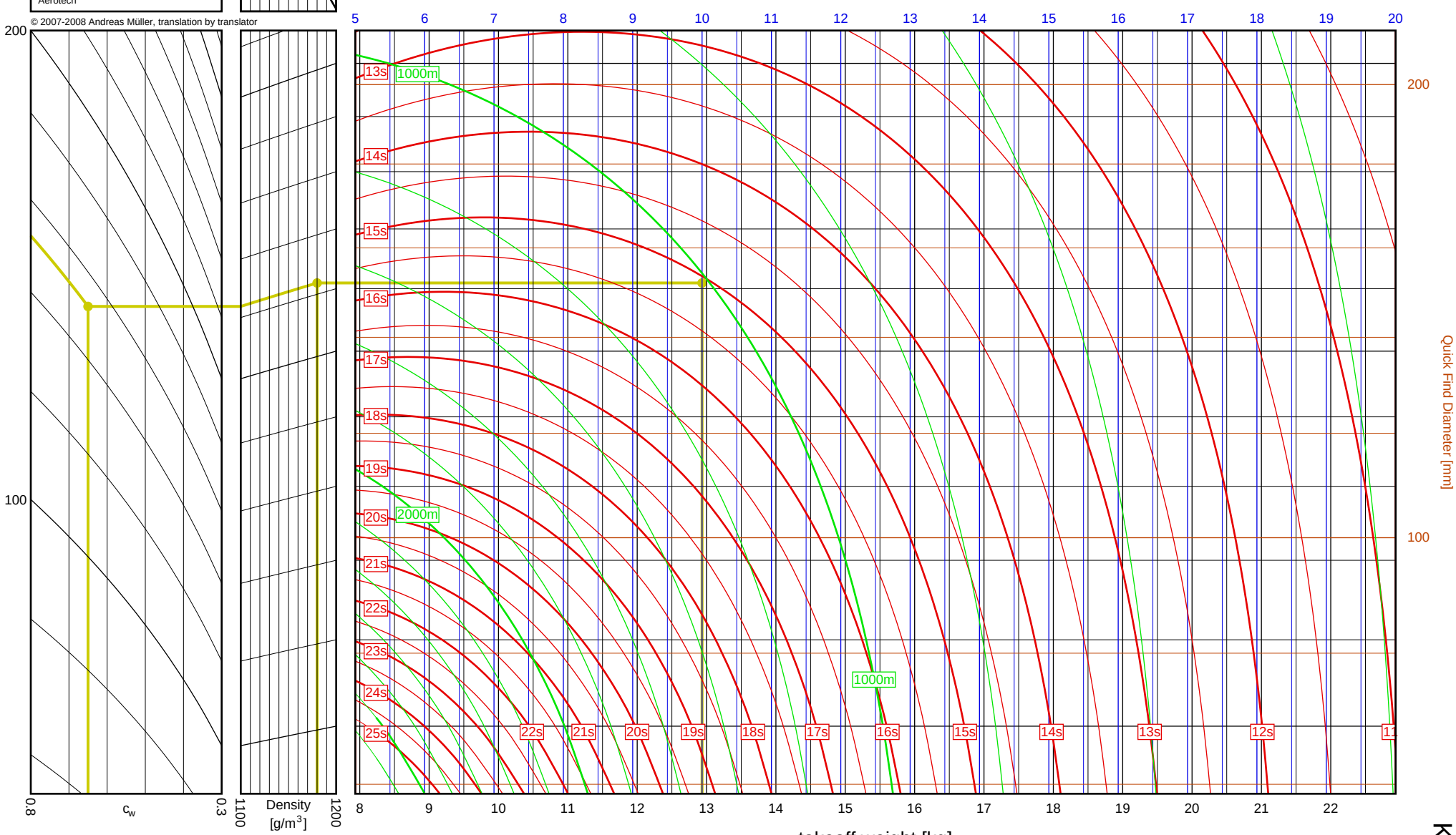
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.935kg
Results: time to apogee: 15.1s, expected altitude: 1011m



K650T

6", K-L

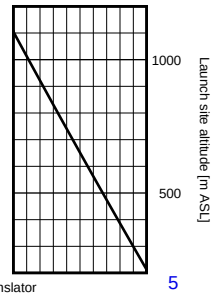
K650T

Aerotech K560W

I_{tot}	=	2467.2 Ns
F_{avg}	=	496.9 N
t_{burn}	=	4.96 s
d	=	75 mm

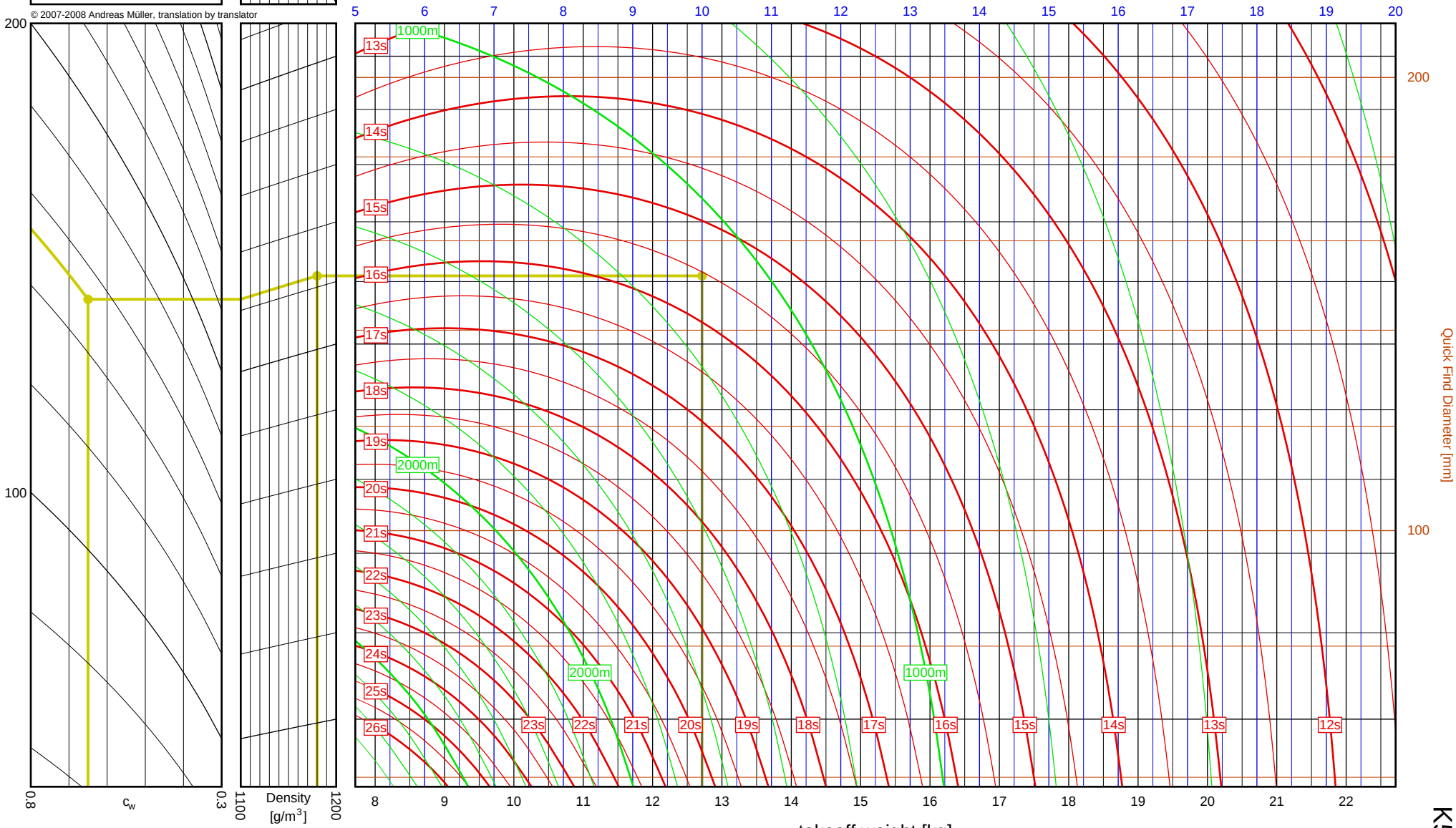
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.714kg
Results: time to apogee: 15.5s, expected altitude: 1090m



Aerotech K1050W

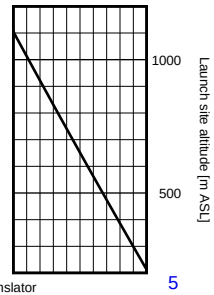
I_{tot}	=	2507.9 Ns
F_{avg}	=	983.9 N
t_{burn}	=	2.55 s
d	=	54 mm

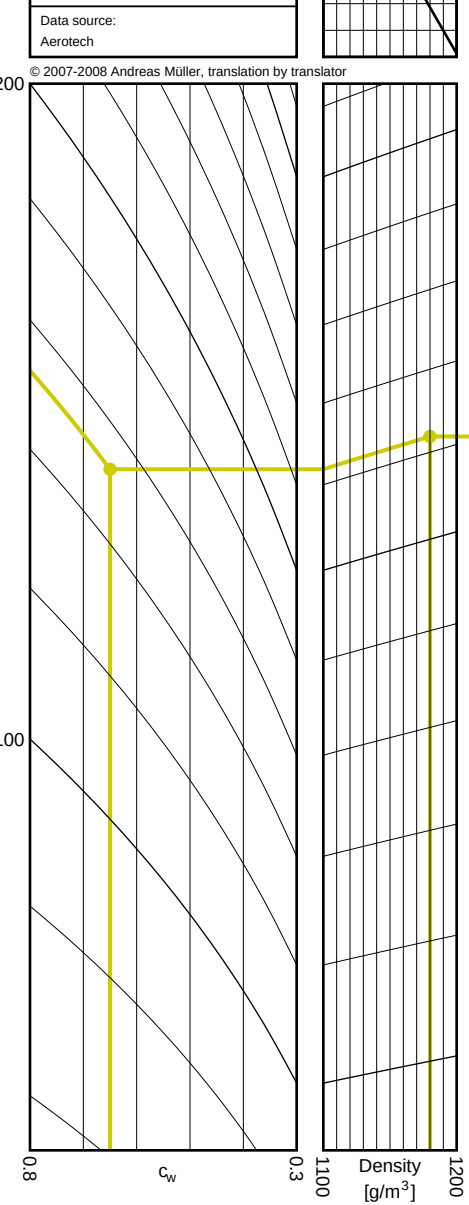
Data source:
Aerotech

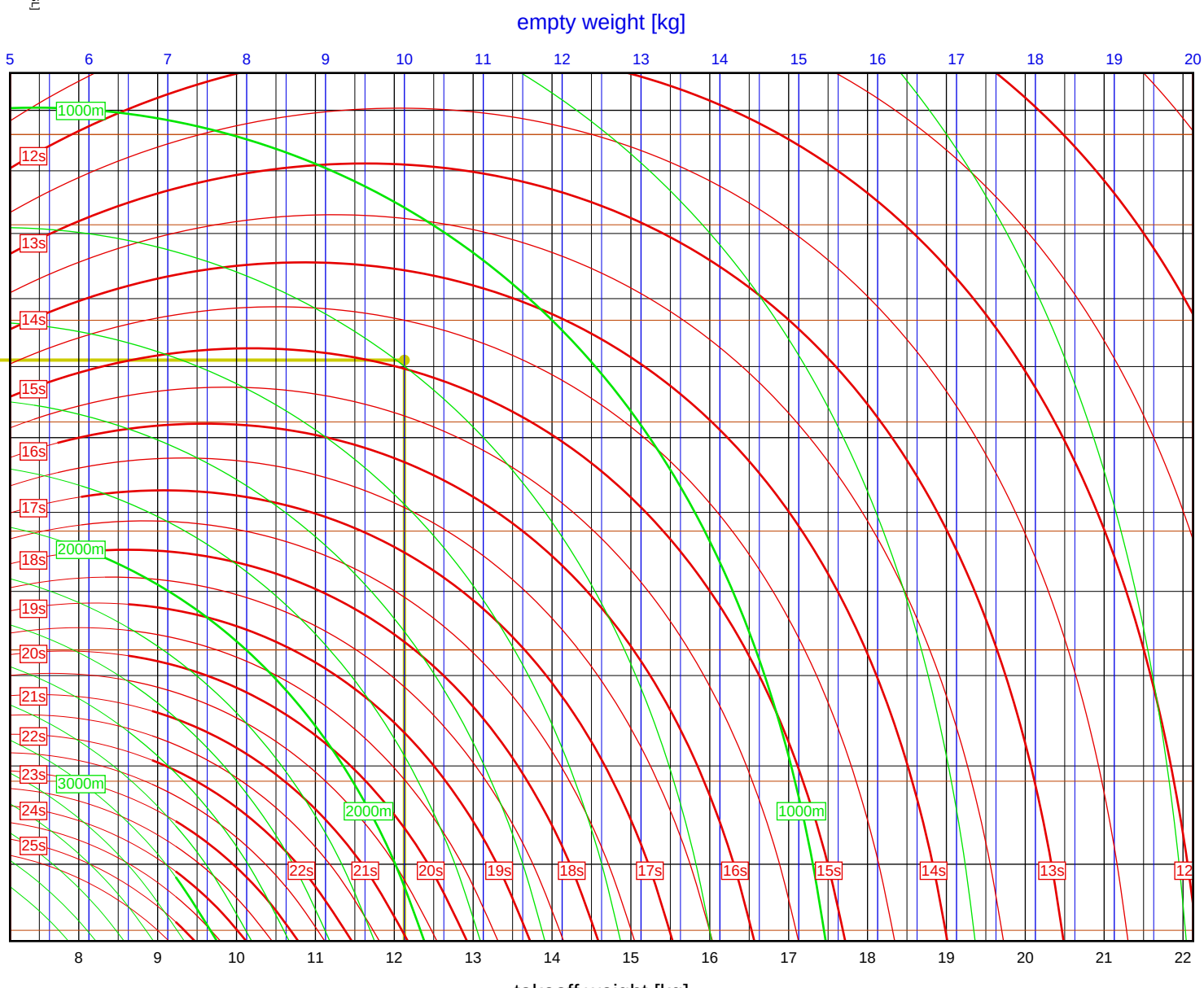
© 2007-2008 Andreas Müller, translation by translator

1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.128kg
Results: time to apogee: 14.9s, expected altitude: 1192m







Diameter [mm]
200
100
Quick Find Diameter [mm]
200
100

K1050W
K1050W

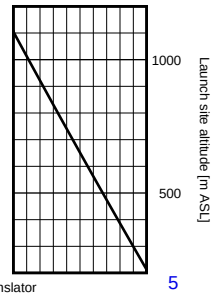
6", K-L

Aerotech K458W

I_{tot}	=	2518.2 Ns
F_{avg}	=	393.5 N
t_{burn}	=	6.40 s
d	=	98 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 13.106kg
Results: time to apogee: 16.3s, expected altitude: 1019m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

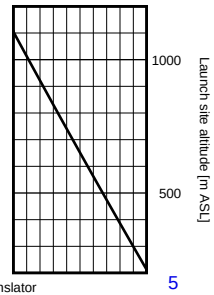
Density [g/m^3]

Aerotech K1999N

I_{tot}	=	2520.4 Ns
F_{avg}	=	1800.3 N
t_{burn}	=	1.40 s
d	=	98 mm

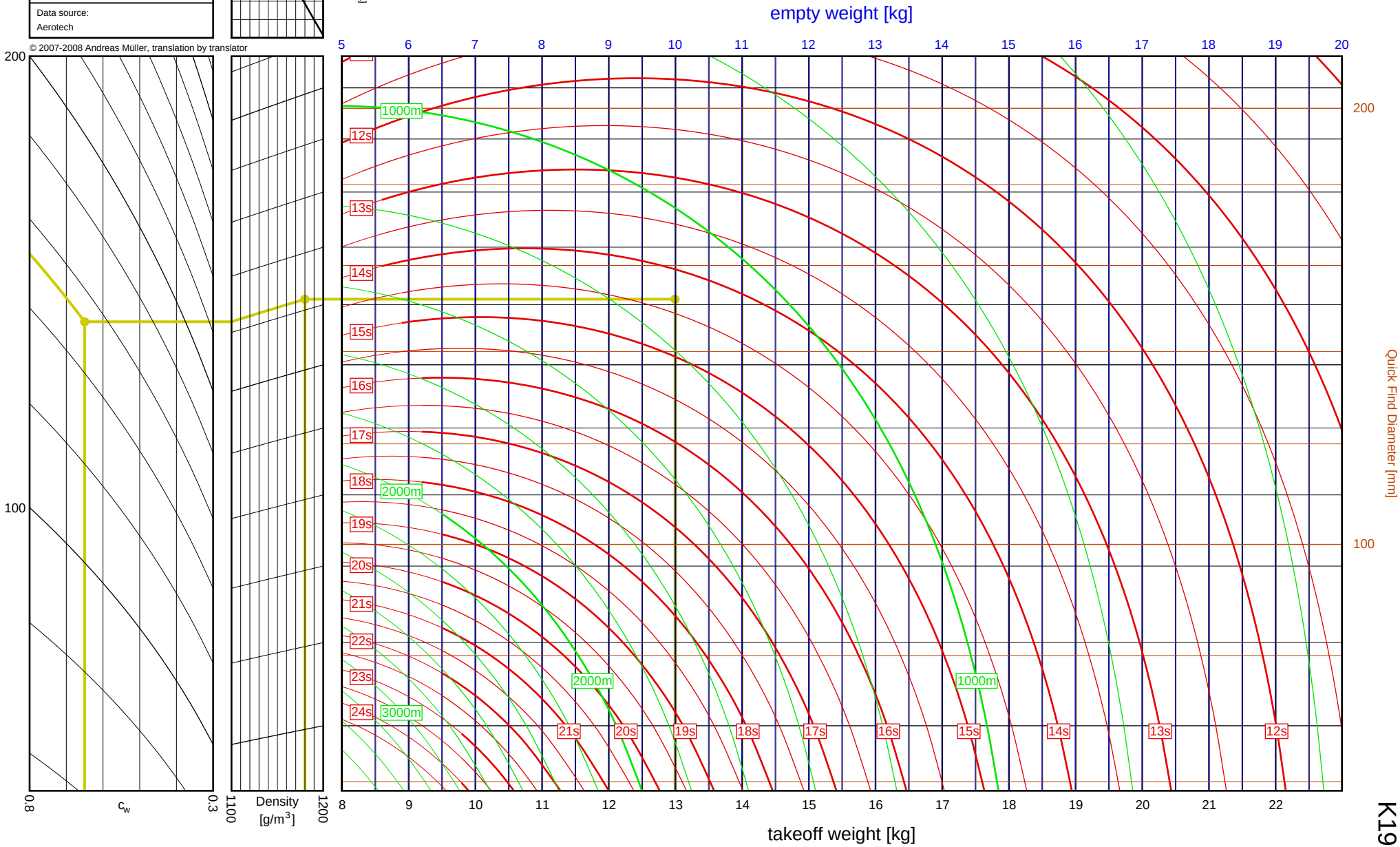
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.989kg
Results: time to apogee: 14.3s, expected altitude: 1126m

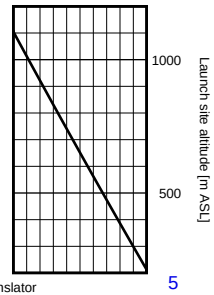


Aerotech K250W

I_{tot}	=	2553.0 Ns
F_{avg}	=	249.9 N
t_{burn}	=	10.22 s
d	=	54 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 12.211kg
Results: time to apogee: 17.8s, expected altitude: 1112m

empty weight [kg]

5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

200
100

Diameter [mm]

Quick Find Diameter [mm]

200
100

16s 17s 18s 19s 20s 21s 22s 23s 24s 25s 26s 27s 28s 29s

2000m 2000m 1000m

25s 24s 23s 22s 21s 20s 19s 18s 17s 16s 15s 14s 13s

0.8 c_w 0.3

1100 Density [g/m^3] 1200

8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

takeoff weight [kg]

K250W

6", K-L

K250W

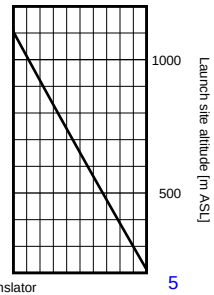
Aerotech

L339N

I_{tot}	=	2800.5 Ns
F_{avg}	=	332.4 N
t_{burn}	=	8.43 s
d	=	98 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 13.149kg
Results: time to apogee: 18.3s, expected altitude: 1136m

empty weight [kg]

5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

200
100

Diameter [mm]

0.8 c_w 0.3

1100 Density [g/m^3] 1200

17s 18s 19s 20s 21s 22s 23s 24s 25s 26s 27s 28s 29s
2000m
2000m
1000m
25s 24s 23s 22s 21s 20s 19s 18s 17s 16s 15s 14s 13s

9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

takeoff weight [kg]

200
100

Quick Find Diameter [mm]

6", K-L

8-20

L339N

L339N

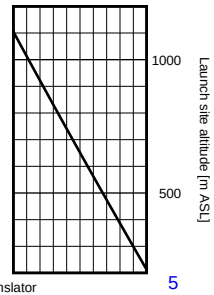
Aerotech

L1170FJ

I_{tot}	=	4222.6 Ns
F_{avg}	=	1136.9 N
t_{burn}	=	3.71 s
d	=	75 mm

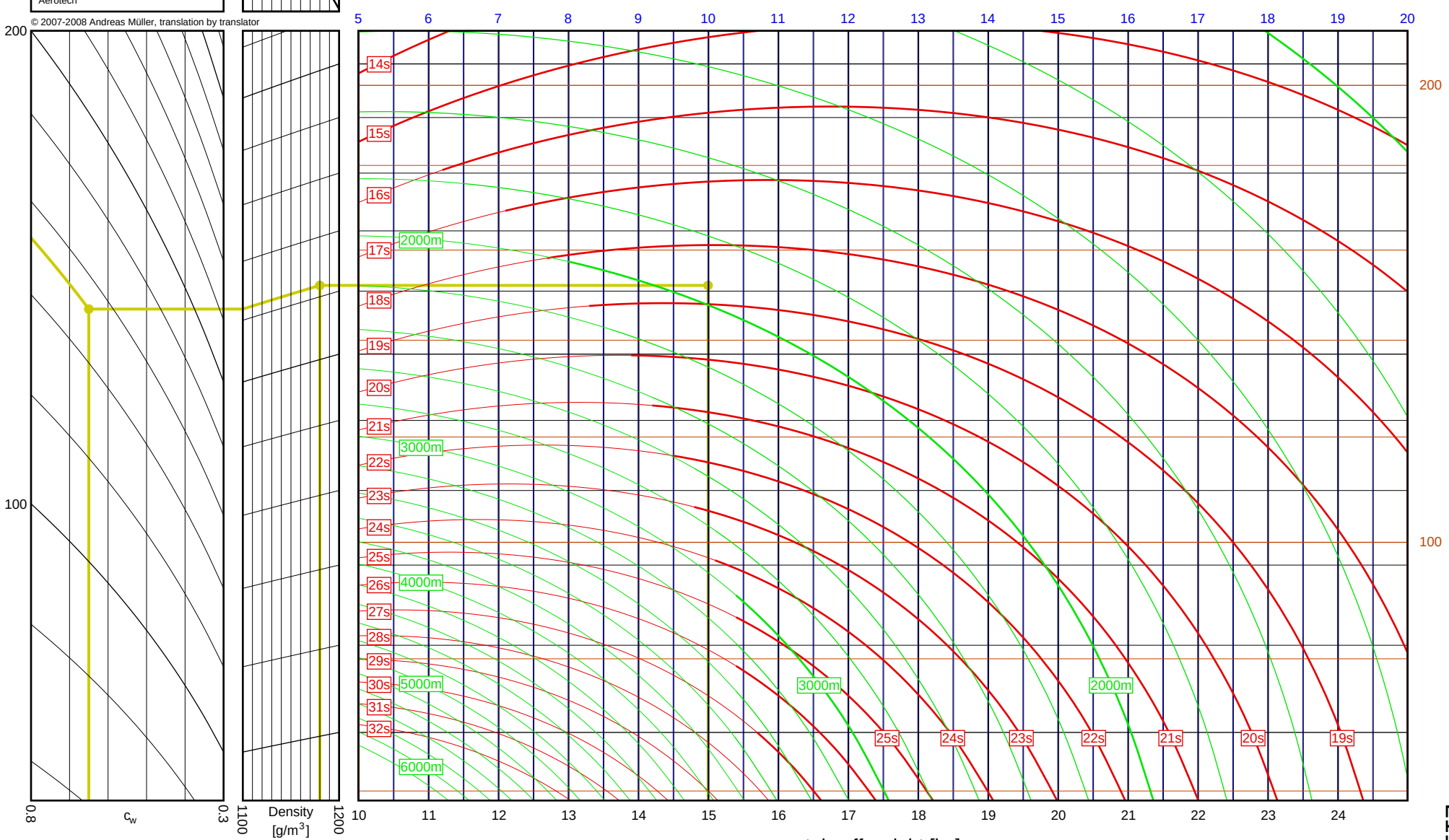
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 152mm, drag = 0.65, density = 1180 g/m^3, weight = 14.990kg
Results: time to apogee: 18.7s, expected altitude: 1942m



6", K-L

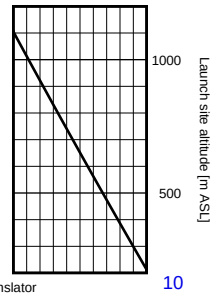
L1170FJ
L1170FJ

Aerotech L1150R

I_{tot}	=	3488.6 Ns
F_{avg}	=	1102.2 N
t_{burn}	=	3.17 s
d	=	75 mm

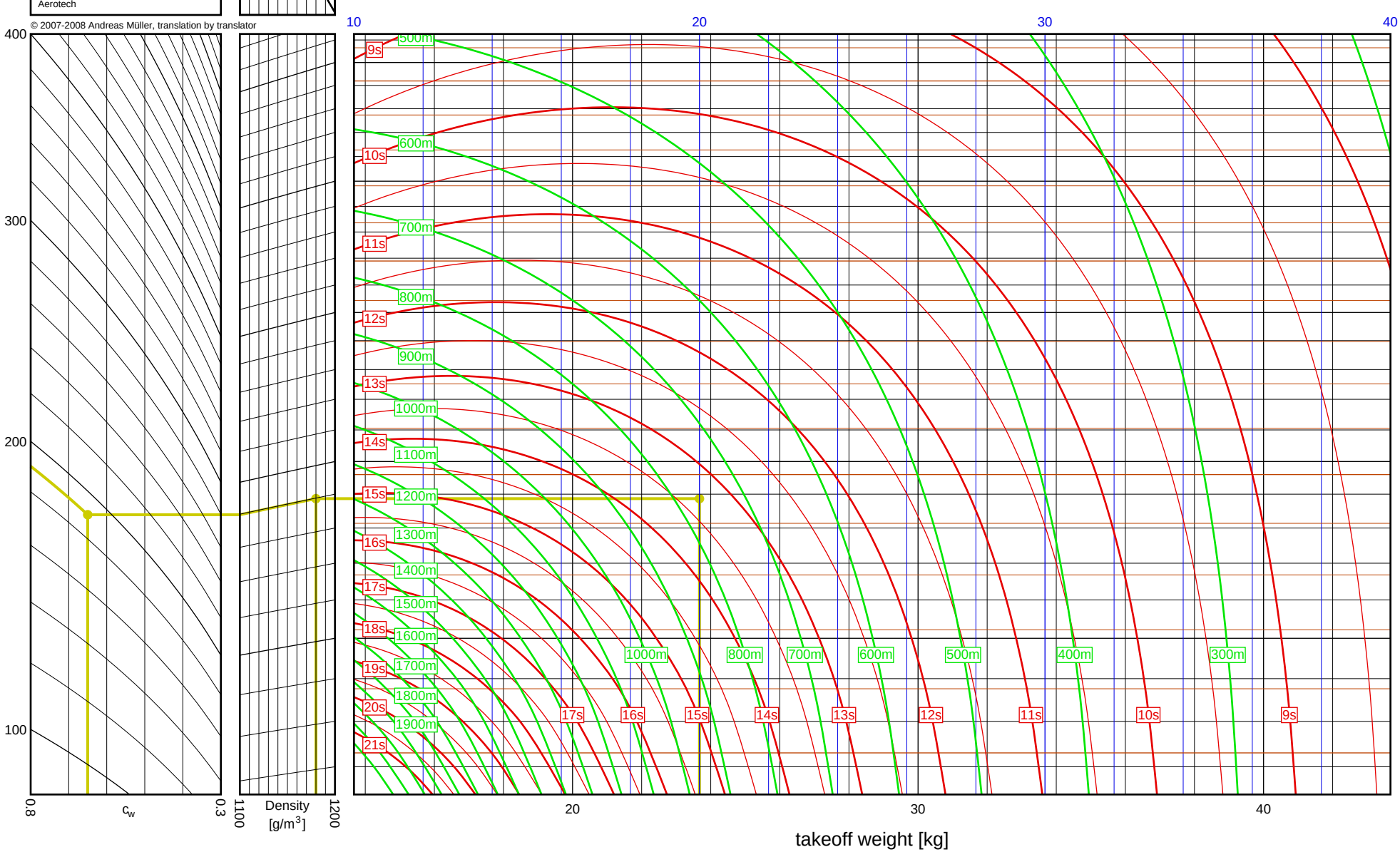
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 23.674kg
Results: time to apogee: 13.3s, expected altitude: 763m



L1150R

7.5"

L1150R

Aerotech L850W

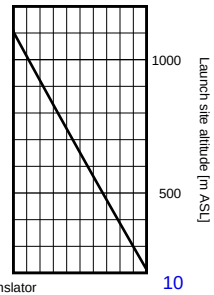
I_{tot}	=	3695.0 Ns
F_{avg}	=	786.7 N
t_{burn}	=	4.70 s
d	=	75 mm

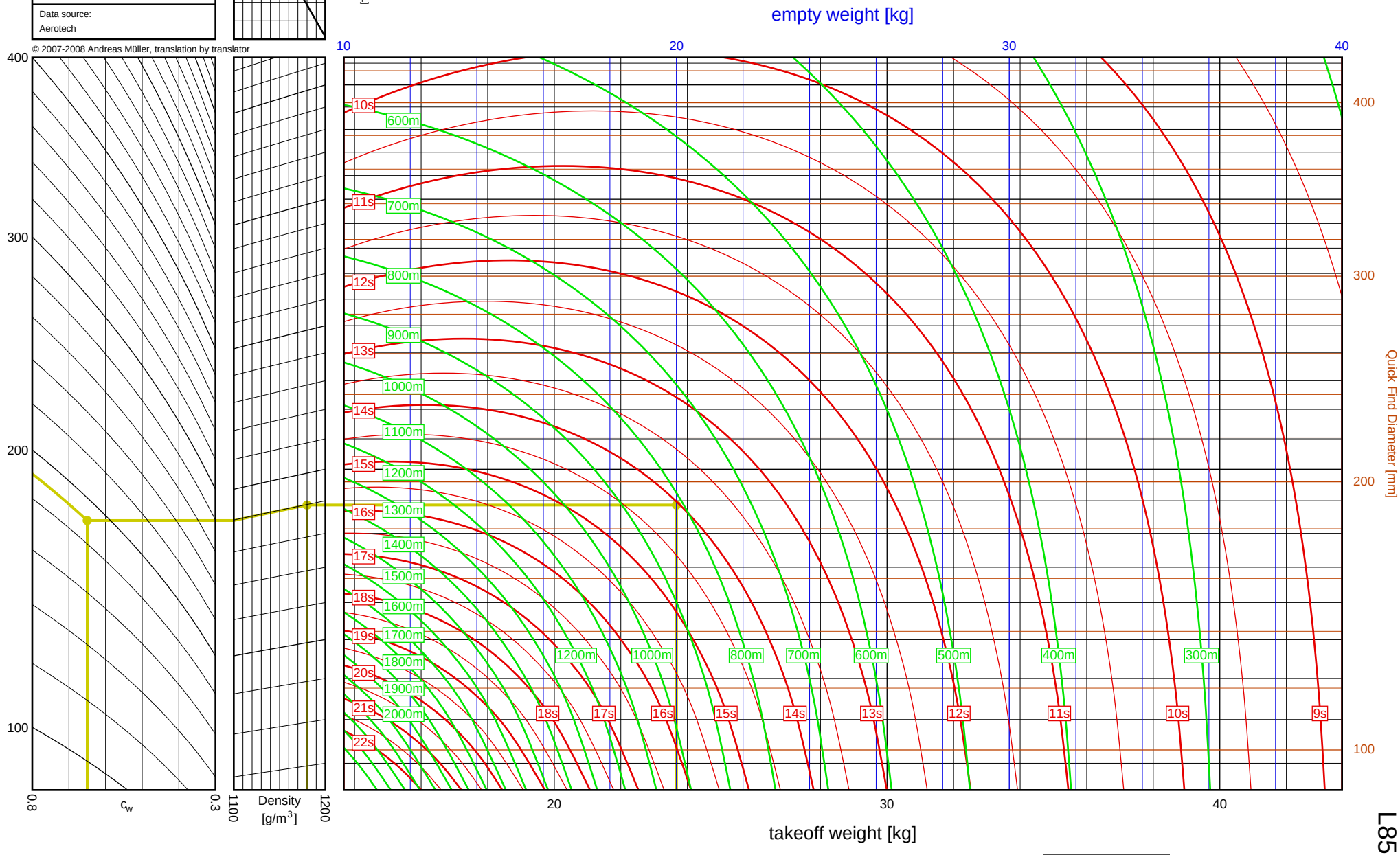
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 23.673kg
Results: time to apogee: 14.0s, expected altitude: 812m





L850W

7.5"

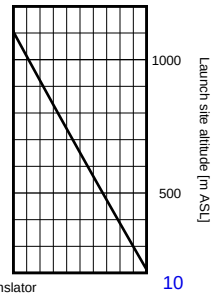
L850W

Aerotech L1390G

I_{tot}	=	3946.5 Ns
F_{avg}	=	1355.7 N
t_{burn}	=	2.91 s
d	=	75 mm

Data source:
Aerotech

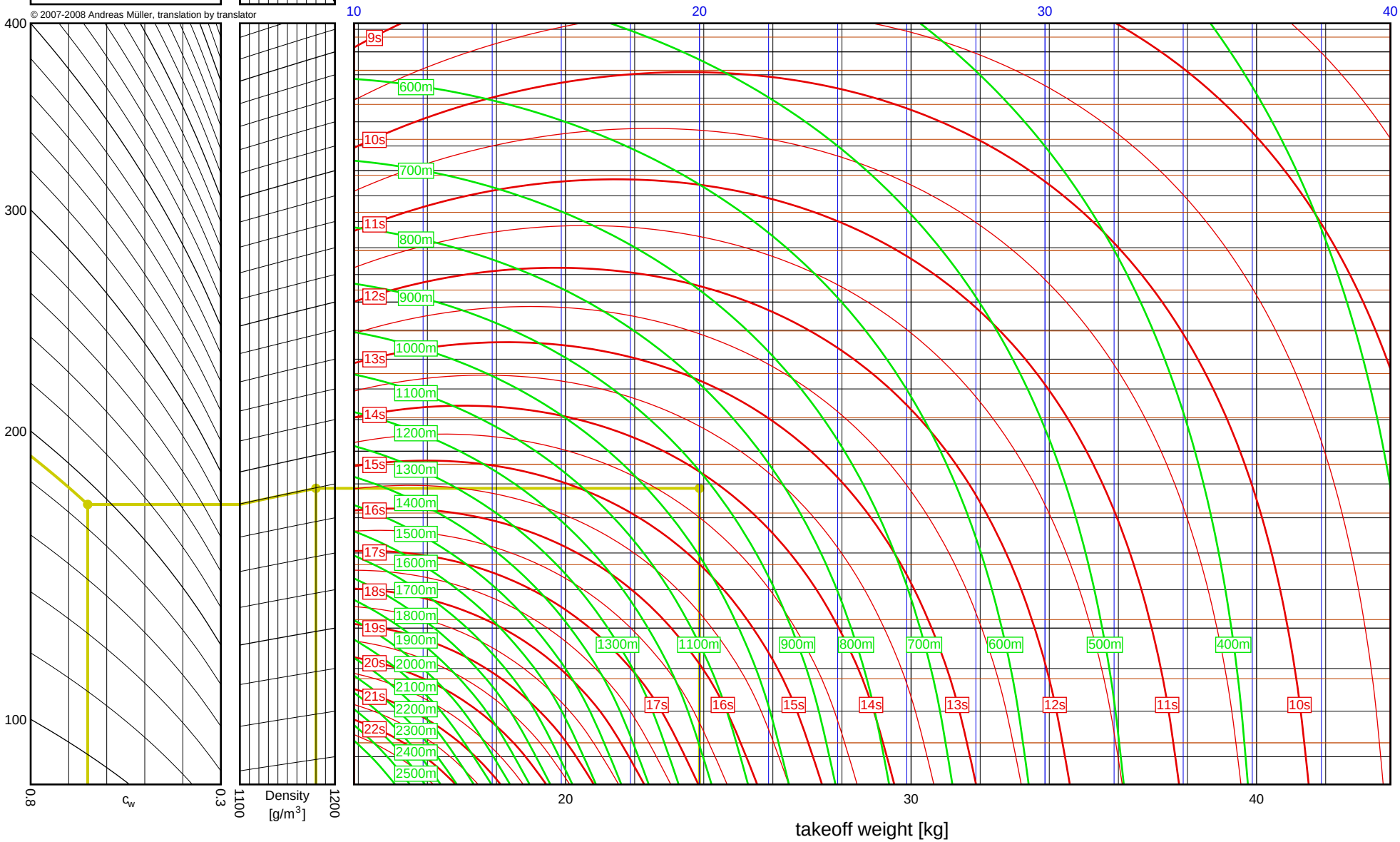
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 23.876kg
Results: time to apogee: 14.2s, expected altitude: 921m

empty weight [kg]



L1390G

7.5"

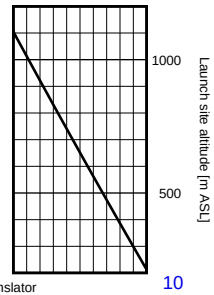
L1390G

Aerotech L1300R

I_{tot}	=	4556.4 Ns
F_{avg}	=	1301.8 N
t_{burn}	=	3.50 s
d	=	98 mm

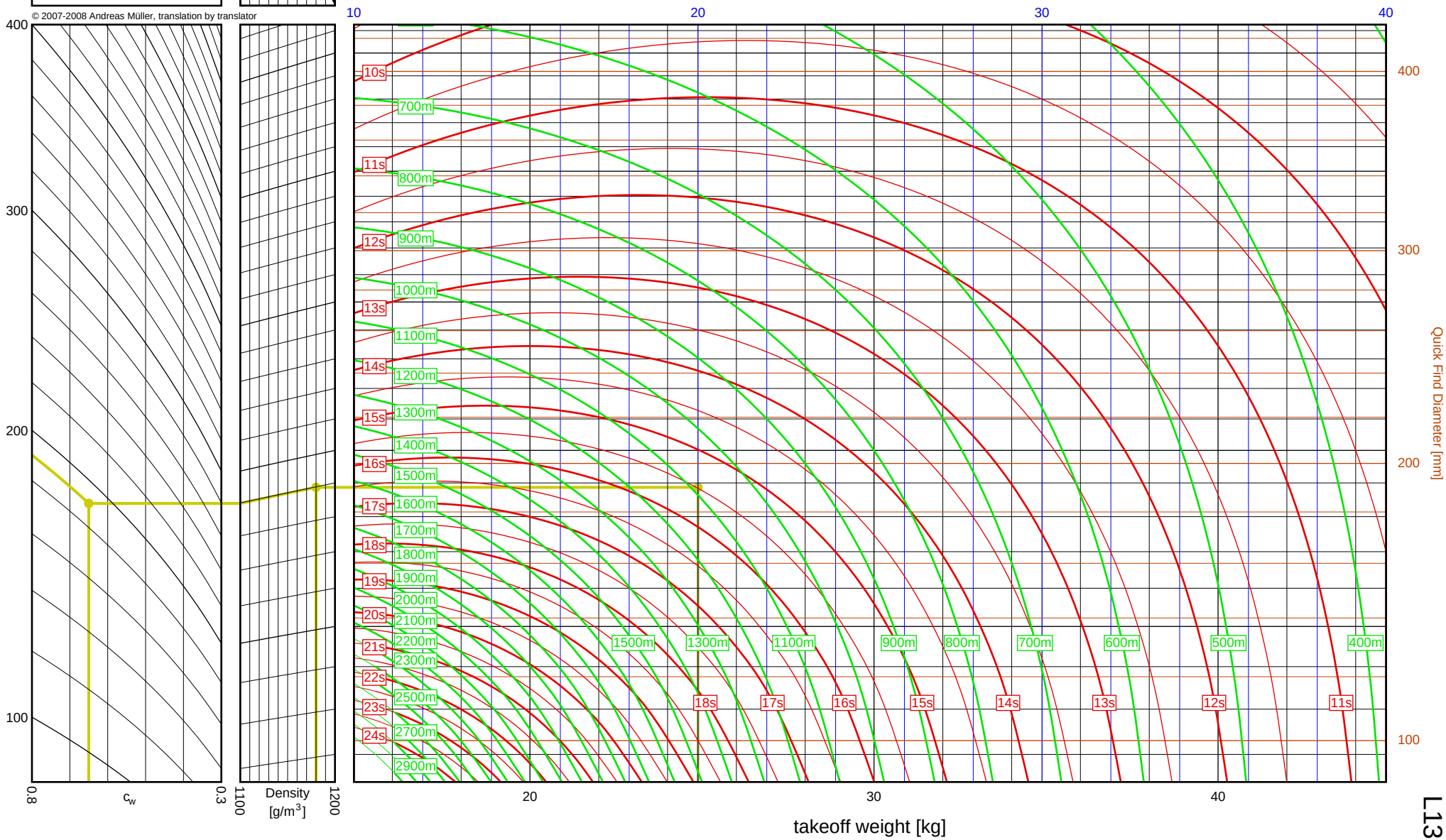
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.884kg
Results: time to apogee: 15.5s, expected altitude: 1089m



L1300R

7.5"

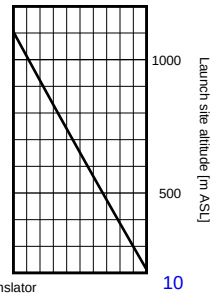
L1300R

Aerotech L1420R

I_{tot}	=	4616.3 Ns
F_{avg}	=	1424.8 N
t_{burn}	=	3.24 s
d	=	75 mm

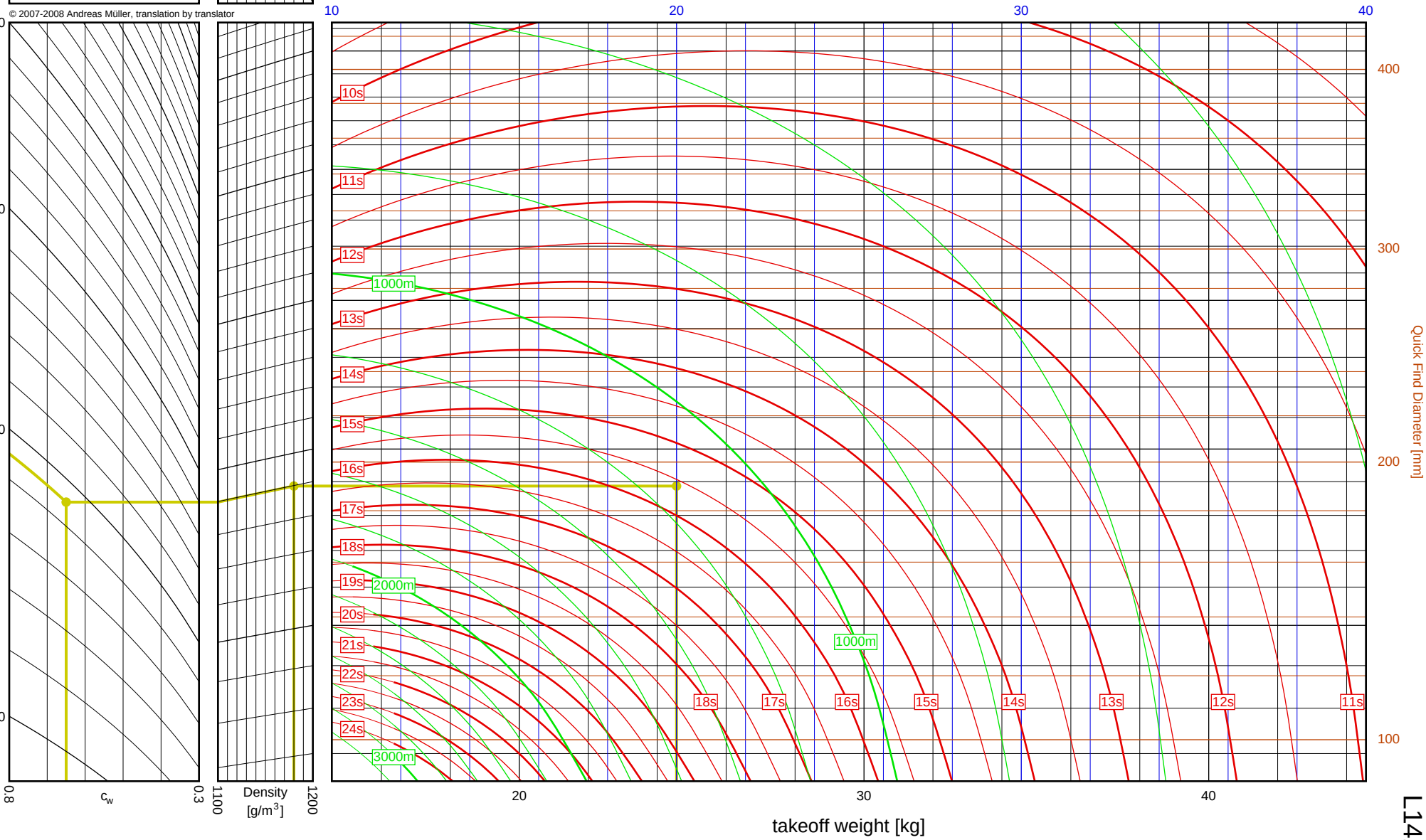
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.562kg
Results: time to apogee: 15.6s, expected altitude: 1137m



Aerotech L1120W

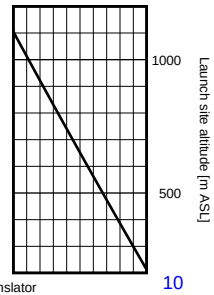
I_{tot}	=	4922.2 Ns
F_{avg}	=	982.7 N
t_{burn}	=	5.01 s
d	=	75 mm

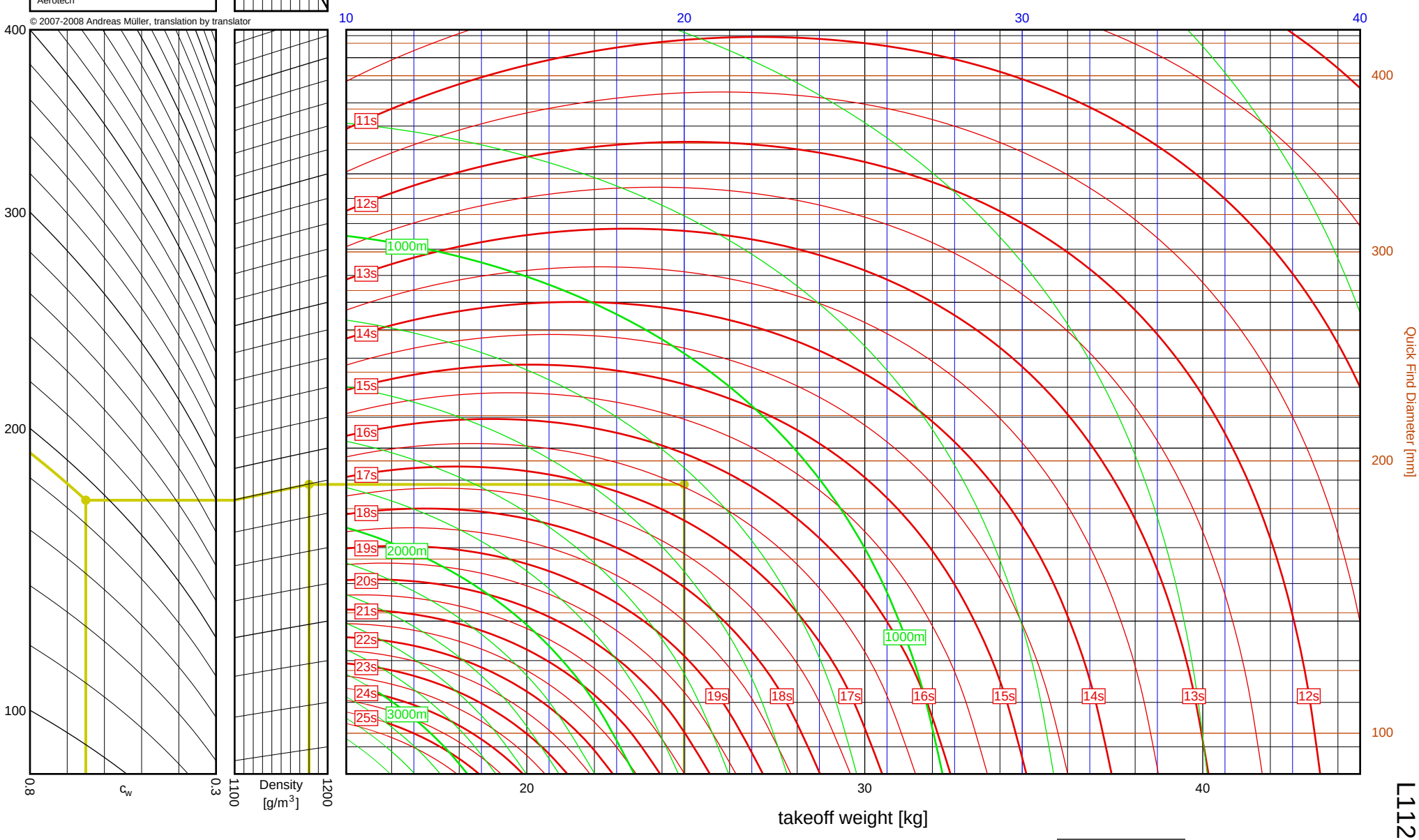
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.658kg
Results: time to apogee: 16.5s, expected altitude: 1232m





L1120W

7.5"

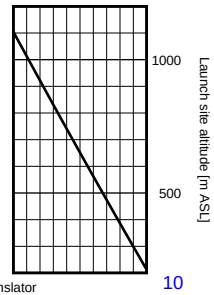
L1120W

Aerotech L1500T

I_{tot}	=	5056.1 Ns
F_{avg}	=	1325.0 N
t_{burn}	=	3.82 s
d	=	98 mm

Data source:
Aerotech

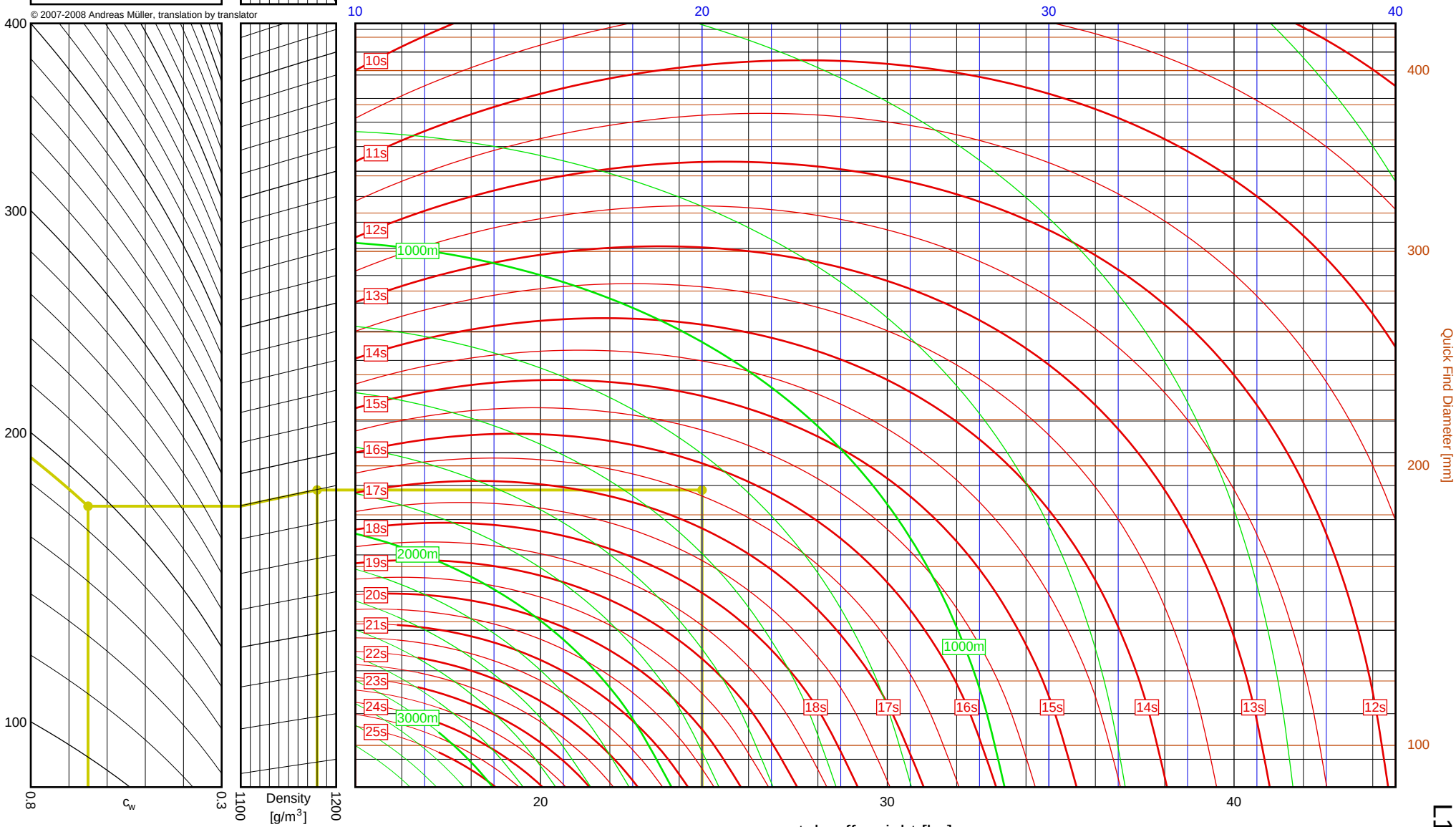
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.659kg
Results: time to apogee: 16.4s, expected altitude: 1271m

empty weight [kg]



L1500T

7.5"

L1500T

Aerotech L952W

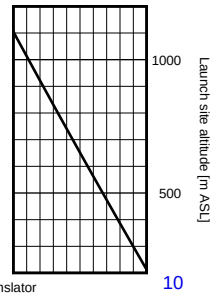
I_{tot}	=	5097.8 Ns
F_{avg}	=	760.9 N
t_{burn}	=	6.70 s
d	=	98 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 25.026kg
Results: time to apogee: 17.5s, expected altitude: 1198m



empty weight [kg]

10 20 30 40

400 300 200 100

Diameter [mm]

Quick Find Diameter [mm]

12s 13s 14s 15s 16s 17s 18s 19s 20s 21s 22s 23s 24s 25s 26s

1000m 2000m 3000m

21s 20s 19s 18s 17s 16s 15s 14s 13s 12s

0.8 c_w 0.3

1100 Density [g/m^3] 1200

20 30 40

takeoff weight [kg]

L952W

7.5"

9

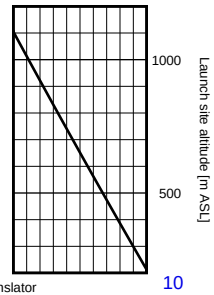
L952W

Aerotech L2200G

I_{tot}	=	5104.1 Ns
F_{avg}	=	2126.7 N
t_{burn}	=	2.40 s
d	=	75 mm

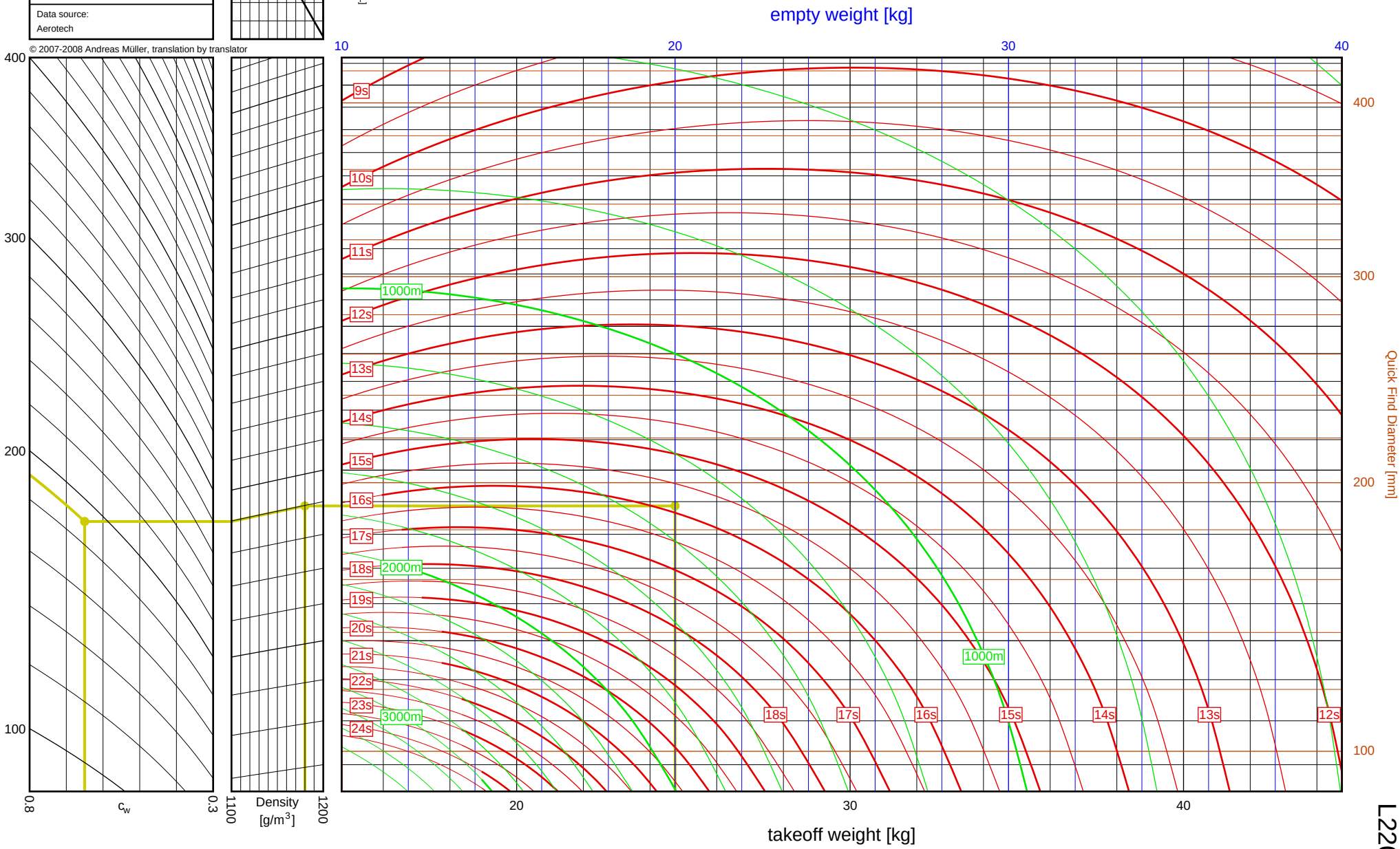
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.751kg
Results: time to apogee: 15.9s, expected altitude: 1318m

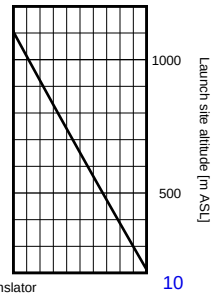


Aerotech M1500G

I_{tot}	=	5217.2 Ns
F_{avg}	=	1449.2 N
t_{burn}	=	3.60 s
d	=	75 mm

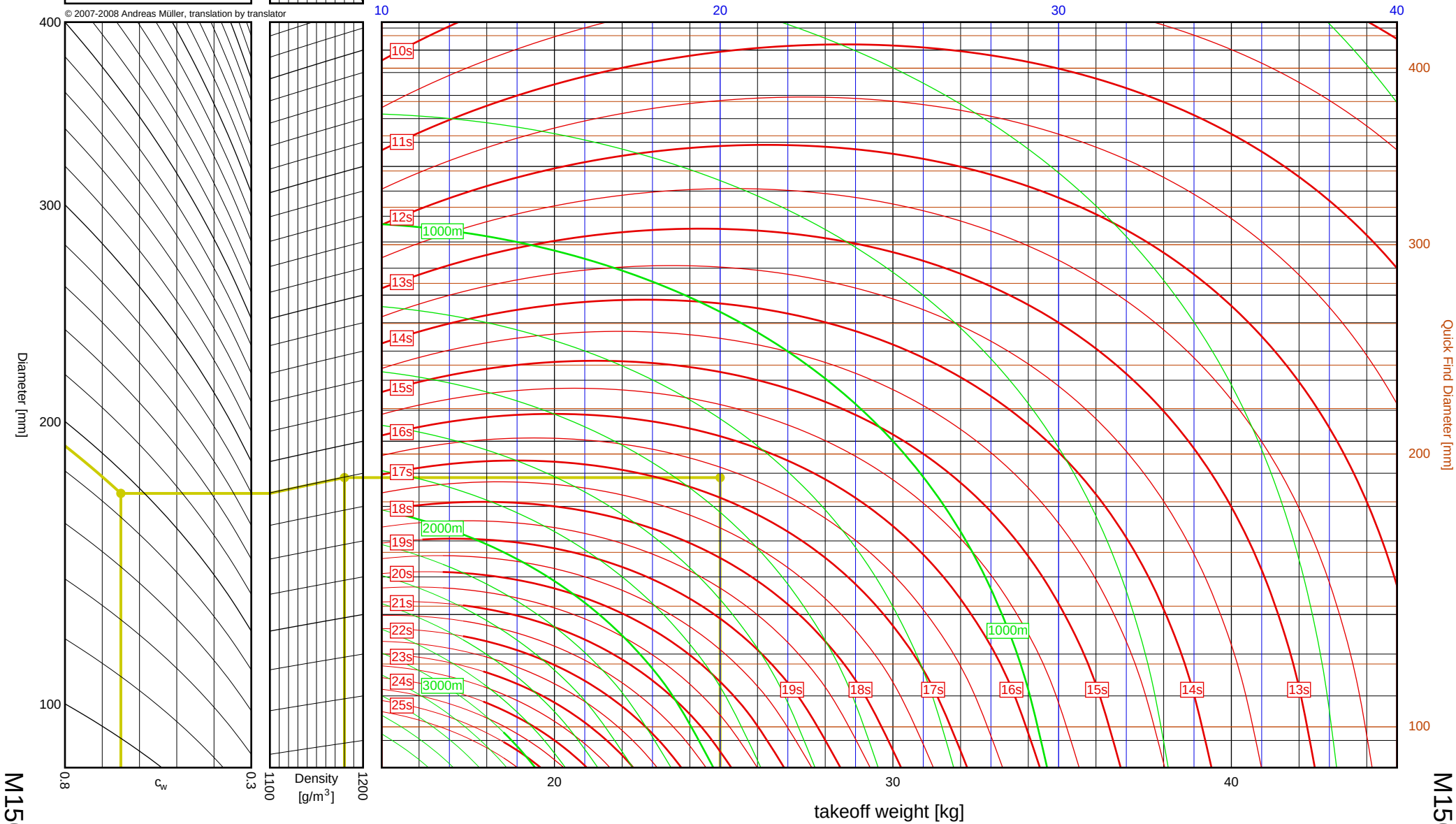
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.896kg
Results: time to apogee: 16.7s, expected altitude: 1324m



9-10

M1500G

7.5"

9

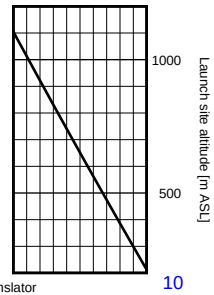
M1500G

Aerotech M2030G

I_{tot}	=	5356.9 Ns
F_{avg}	=	2002.6 N
t_{burn}	=	2.67 s
d	=	75 mm

Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.906kg
Results: time to apogee: 16.5s, expected altitude: 1390m

empty weight [kg]

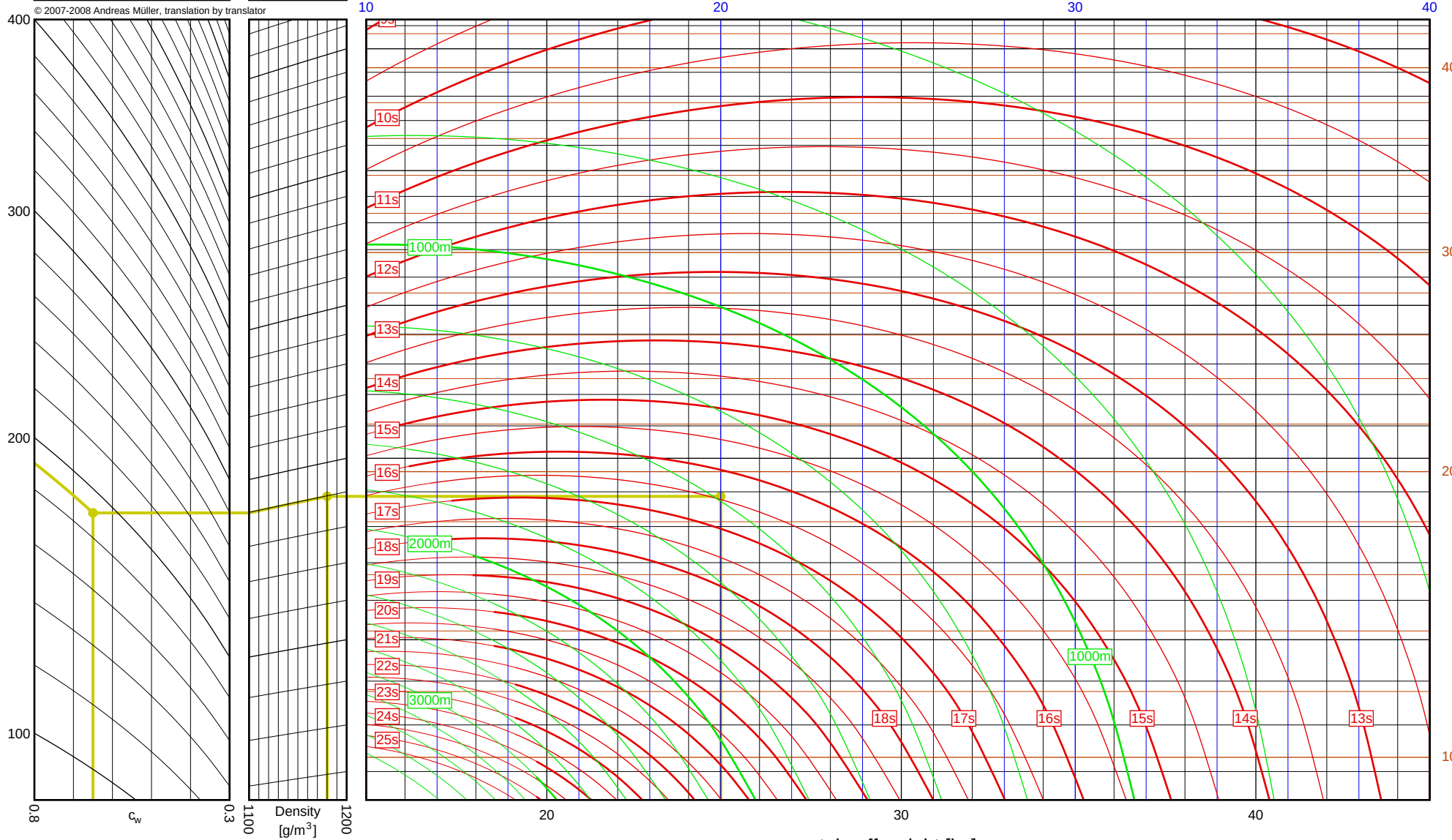
takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]



M2030G

M2030G

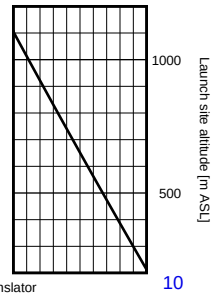
7.5"

Aerotech M1297W

I_{tot}	=	5439.0 Ns
F_{avg}	=	1304.3 N
t_{burn}	=	4.17 s
d	=	75 mm

Data source:
Aerotech

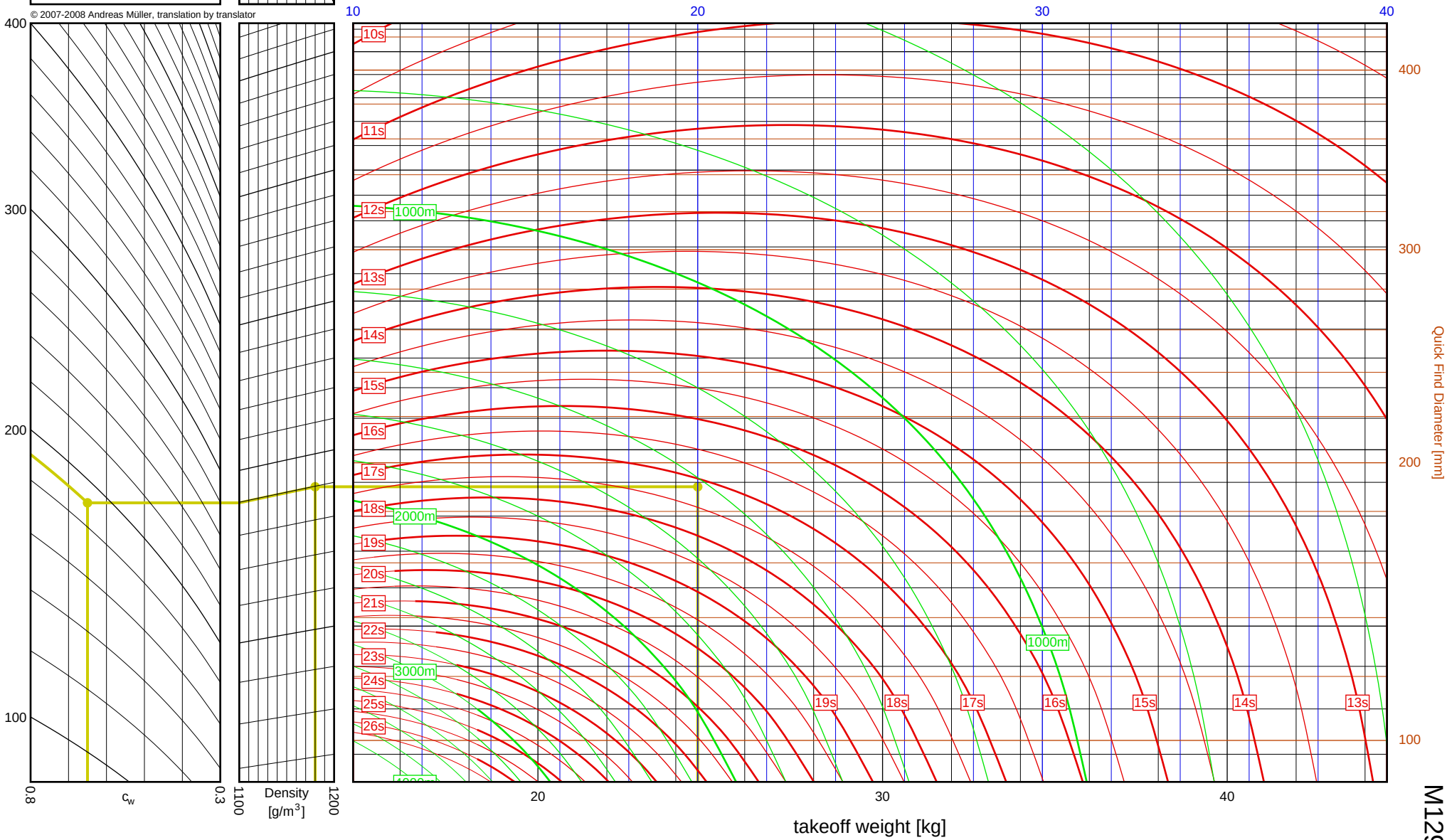
© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 24.637kg
Results: time to apogee: 17.1s, expected altitude: 1423m

empty weight [kg]



M1297W

M1297W

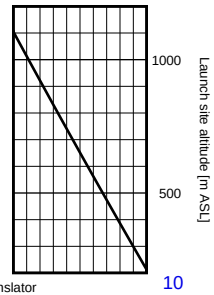
7.5"

Aerotech M1550R

I_{tot}	=	5529.1 Ns
F_{avg}	=	1531.6 N
t_{burn}	=	3.61 s
d	=	75 mm

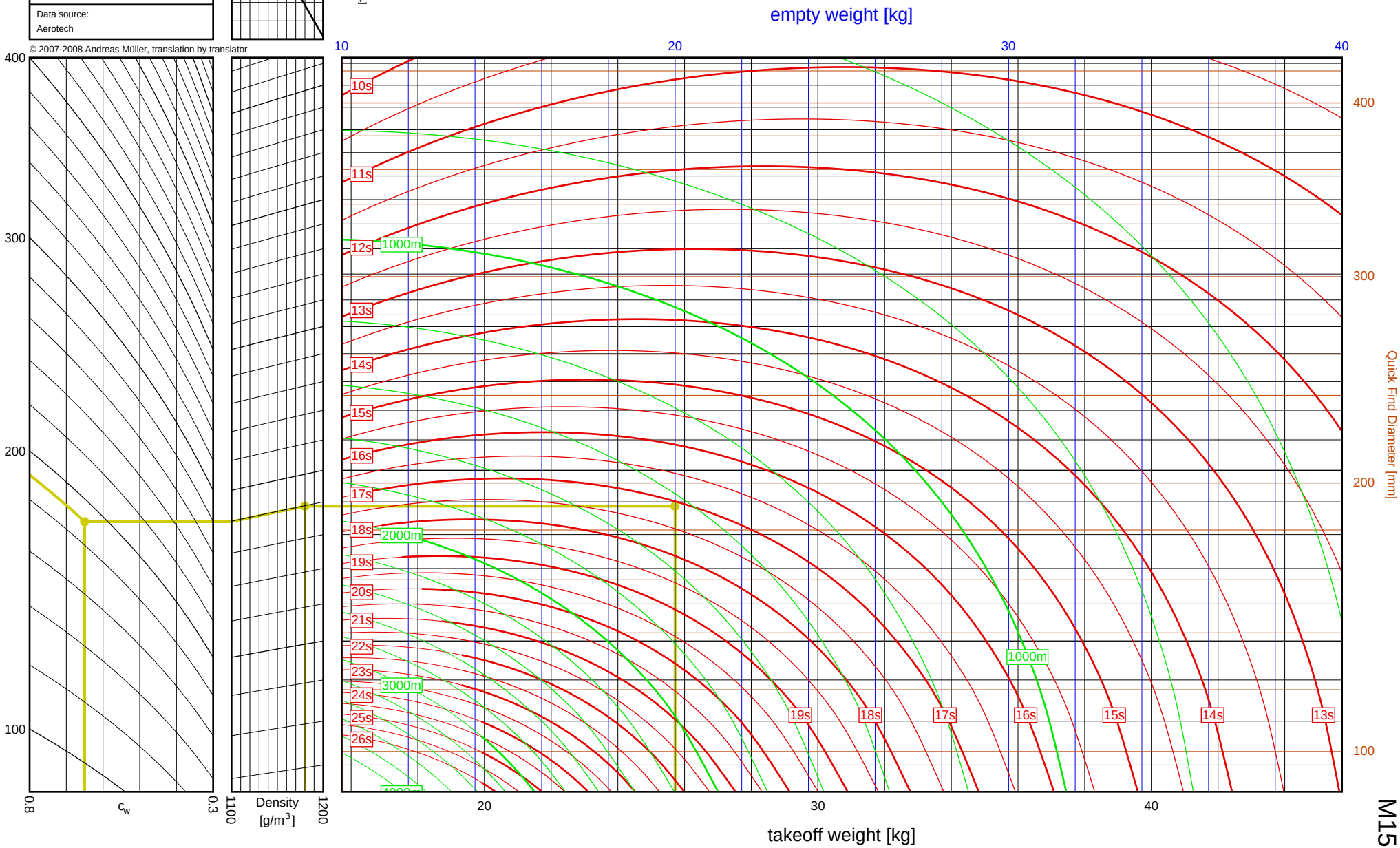
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 25.715kg
Results: time to apogee: 17.1s, expected altitude: 1432m



9-13

M1550R

M1550R

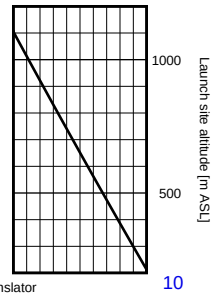
7.5"

Aerotech M650W

I_{tot}	=	6006.0 Ns
F_{avg}	=	522.3 N
t_{burn}	=	11.50 s
d	=	75 mm

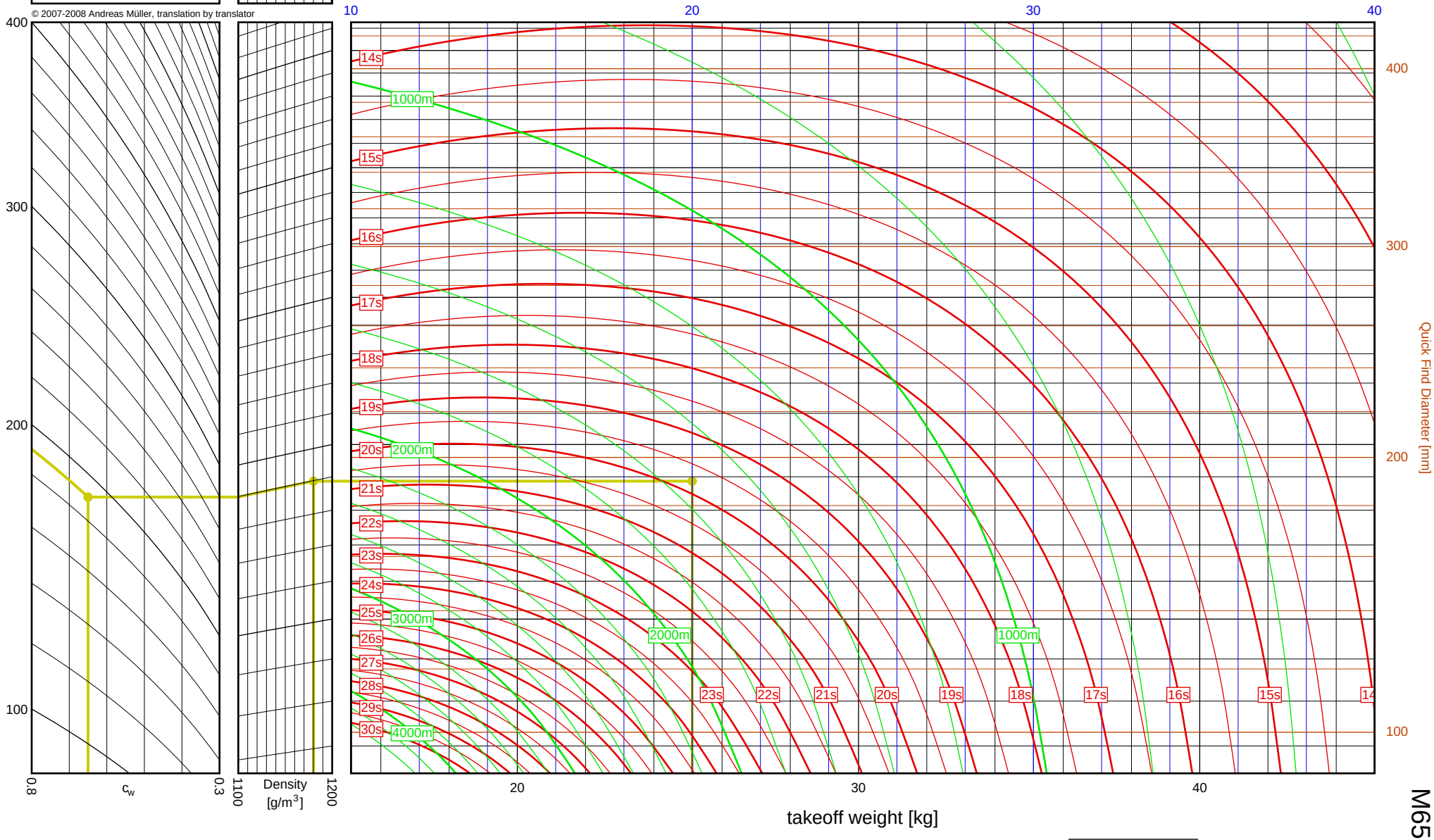
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 25.125kg
Results: time to apogee: 19.8s, expected altitude: 1533m



M650W

7.5"

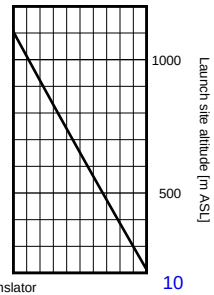
M650W

Aerotech M845HW

I_{tot}	=	6601.6 Ns
F_{avg}	=	880.2 N
t_{burn}	=	7.50 s
d	=	98 mm

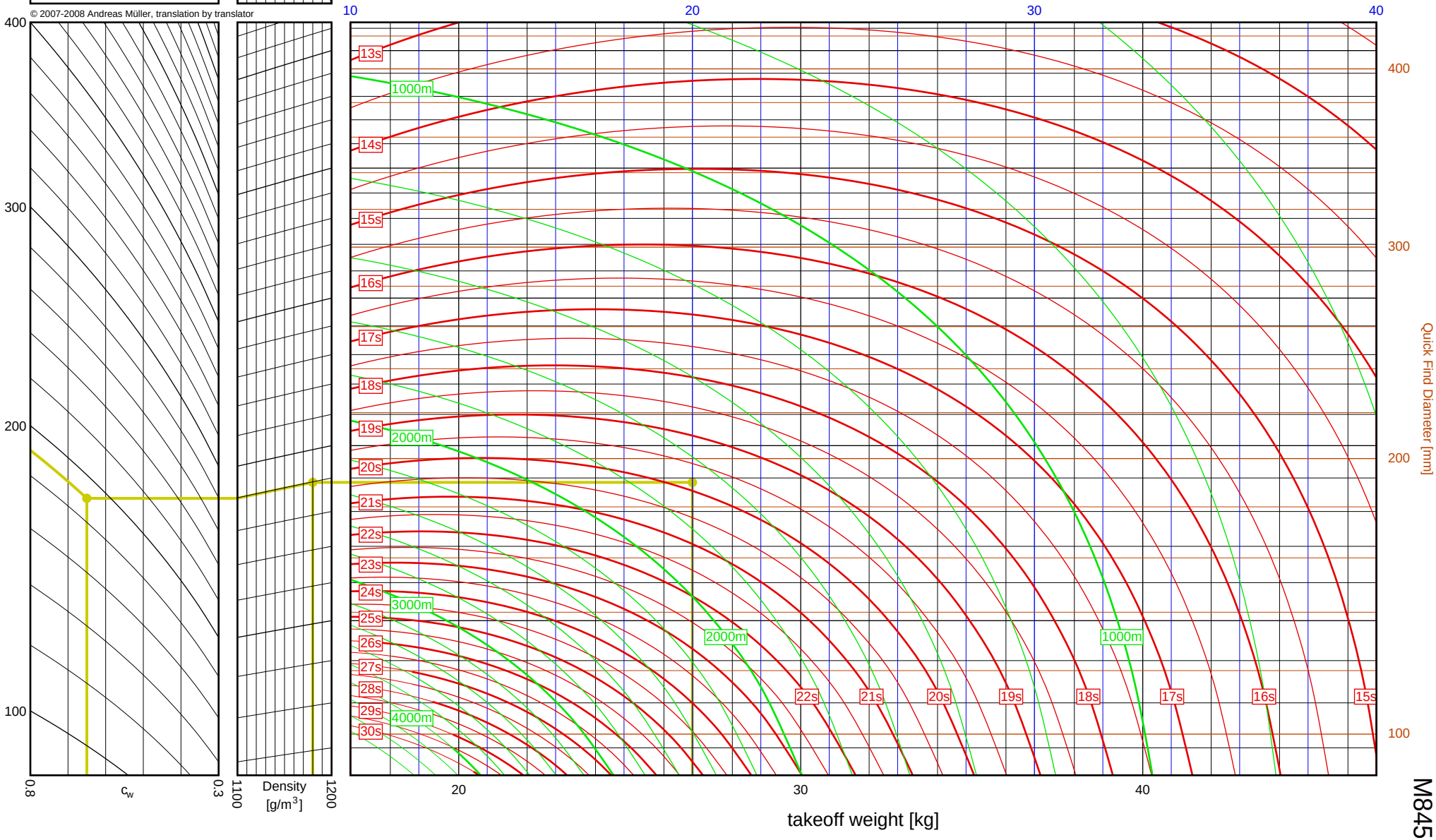
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 26.833kg
Results: time to apogee: 19.9s, expected altitude: 1670m



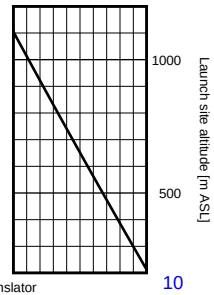
M845HW

Aerotech M1315W

I_{tot}	=	6645.3 Ns
F_{avg}	=	1117.1 N
t_{burn}	=	5.95 s
d	=	75 mm

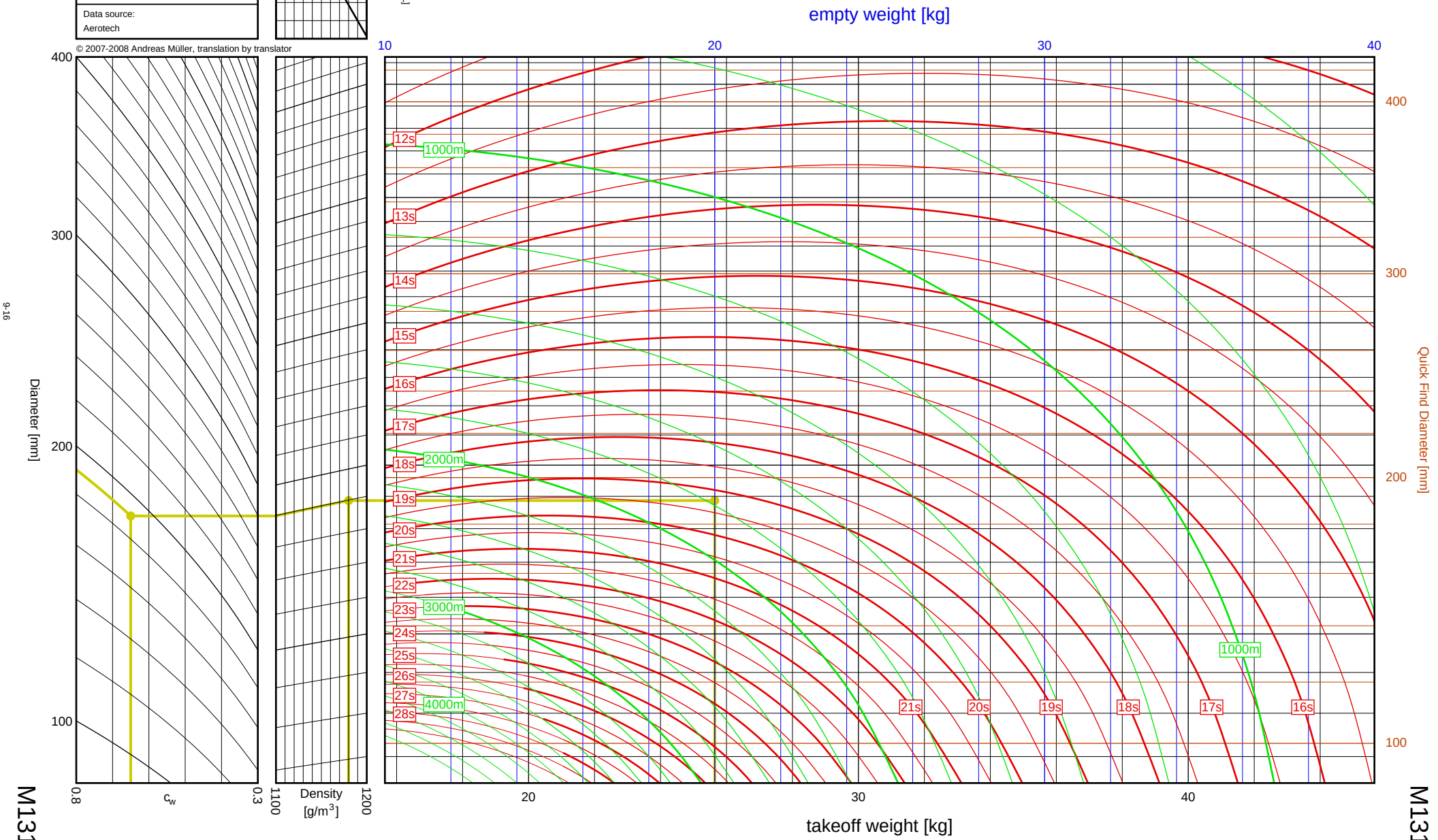
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 25.645kg
Results: time to apogee: 19.2s, expected altitude: 1784m



9-16

M1315W

7.5"

9

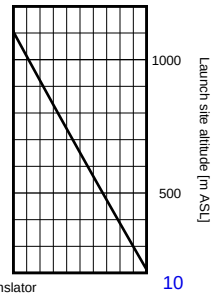
M1315W

Aerotech M1600R

I_{tot}	=	6993.2 Ns
F_{avg}	=	1554.0 N
t_{burn}	=	4.50 s
d	=	98 mm

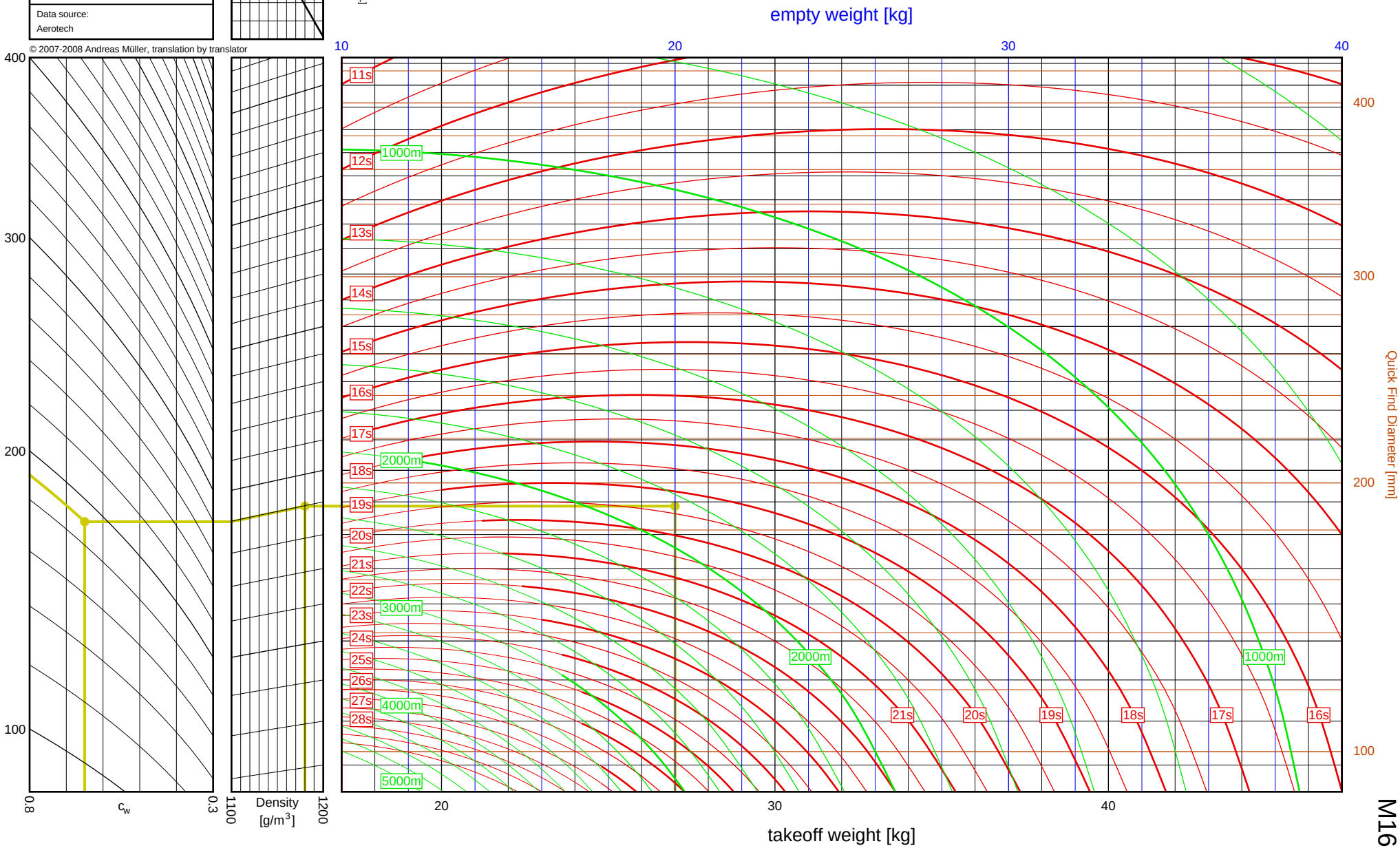
Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 27.004kg
Results: time to apogee: 19.3s, expected altitude: 1844m



9-17

M1600R

M1600R

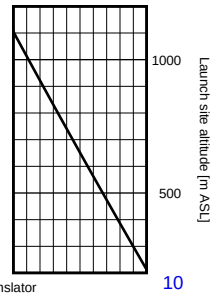
7.5"

Aerotech M3500R

I_{tot}	=	7312.0 Ns
F_{avg}	=	3111.6 N
t_{burn}	=	2.35 s
d	=	75 mm

Data source:
Aerotech

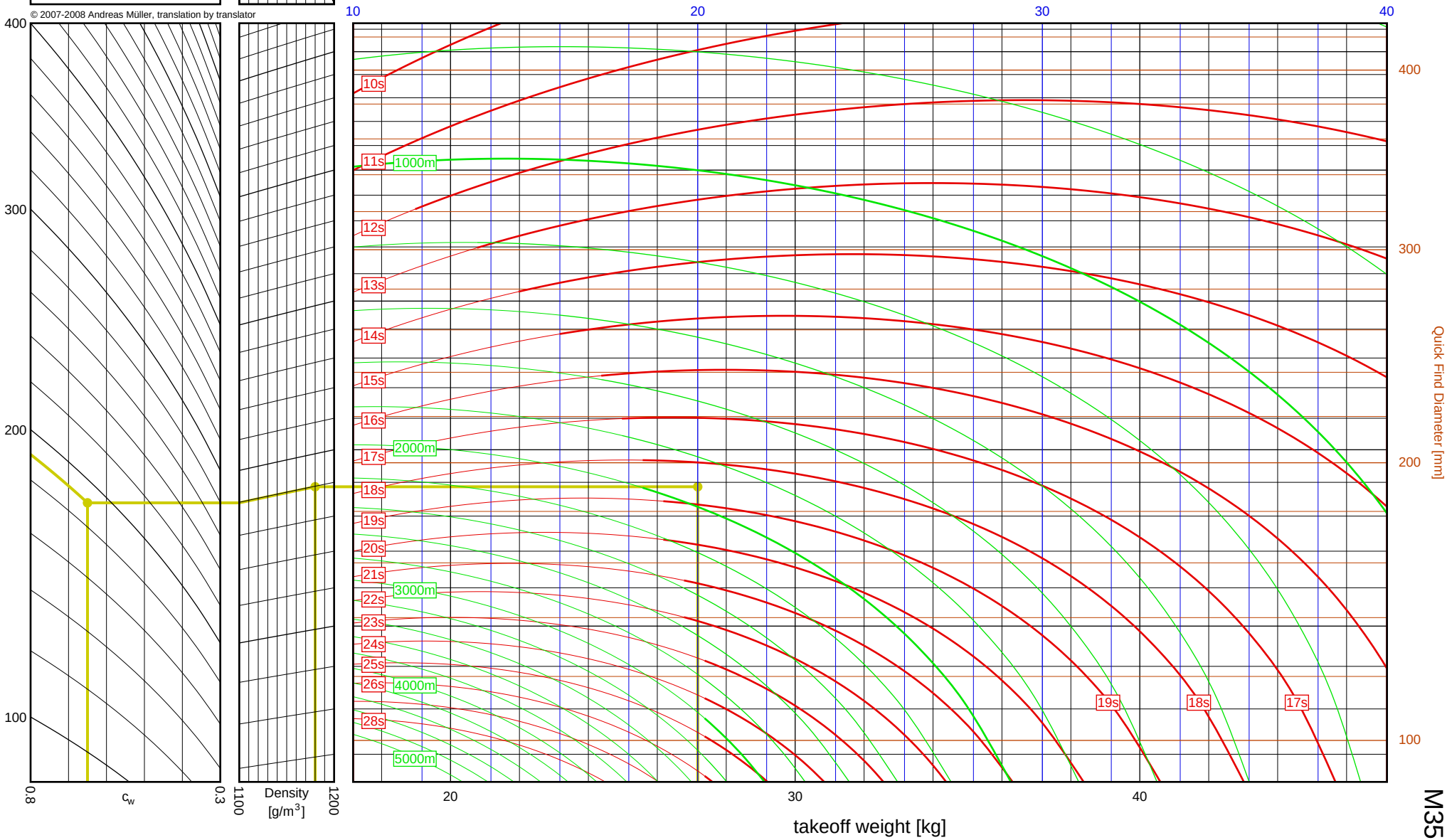
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 27.173kg
Results: time to apogee: 18.6s, expected altitude: 1919m

empty weight [kg]



M3500R

7.5"

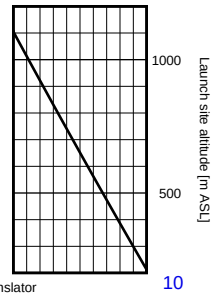
M3500R

Aerotech M1850W

I_{tot}	=	7365.9 Ns
F_{avg}	=	1133.2 N
t_{burn}	=	6.50 s
d	=	75 mm

Data source:
Aerotech

© 2007-2008 Andreas Müller, translation by translator



1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 26.871kg
Results: time to apogee: 19.9s, expected altitude: 1978m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

M1850W

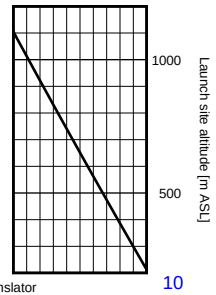
Aerotech

M1419W

I_{tot}	=	7582.7 Ns
F_{avg}	=	1083.2 N
t_{burn}	=	7.00 s
d	=	98 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 26.931kg
Results: time to apogee: 21.0s, expected altitude: 2012m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

M1419W

M1419W

7.5"

Aerotech M750W

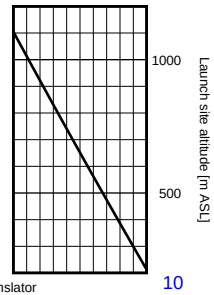
I_{tot}	=	9255.9 Ns
F_{avg}	=	578.5 N
t_{burn}	=	16.00 s
d	=	98 mm

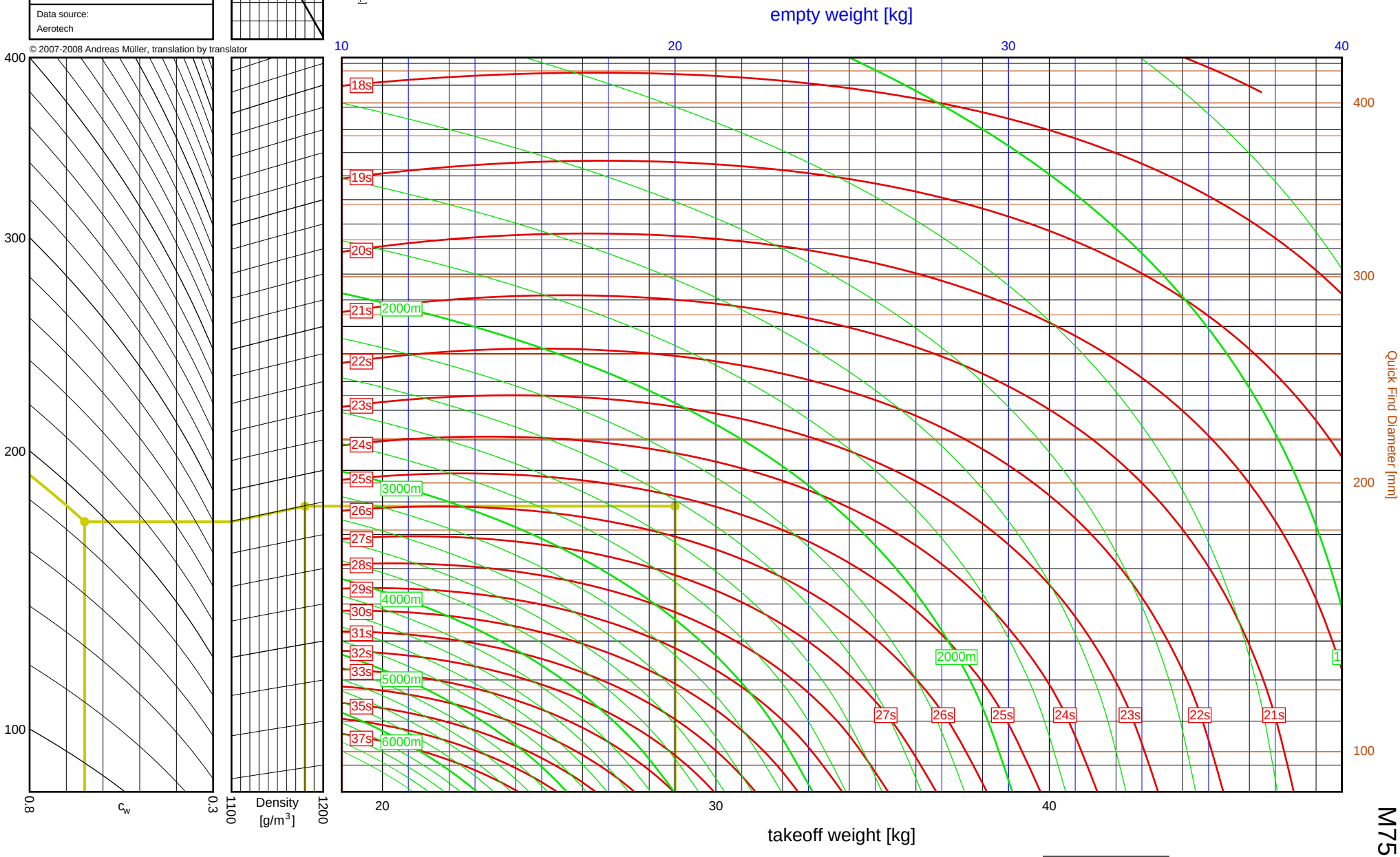
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 28.776kg
Results: time to apogee: 25.3s, expected altitude: 2429m





M750W

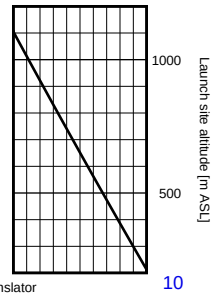
M750W

Aerotech N1000W

I_{tot}	=	14138.4 Ns
F_{avg}	=	876.2 N
t_{burn}	=	16.14 s
d	=	98 mm

Data source:
Aerotech

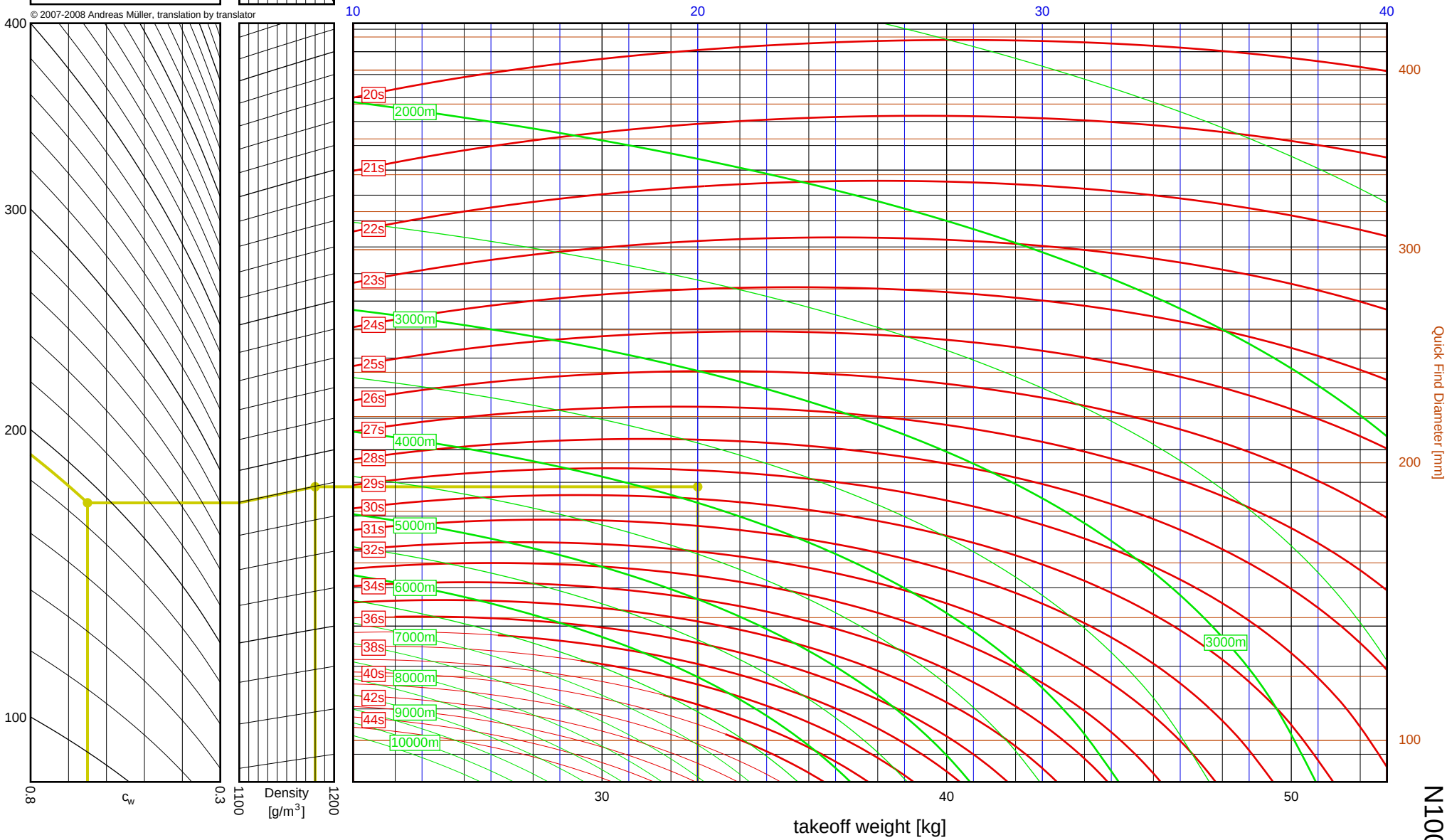
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 190mm, drag = 0.65, density = 1180 g/m^3, weight = 32.777kg
Results: time to apogee: 29.6s, expected altitude: 3861m

empty weight [kg]



N1000W

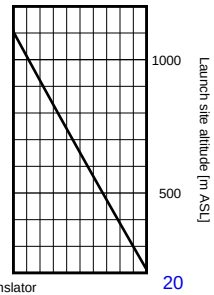
7.5"

Aerotech M1600R

I_{tot}	=	6993.2 Ns
F_{avg}	=	1554.0 N
t_{burn}	=	4.50 s
d	=	98 mm

Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 47.004kg
Results: time to apogee: 12.1s, expected altitude: 577m

empty weight [kg]

takeoff weight [kg]

Diameter [mm]

Quick Find Diameter [mm]

c_w

Density [g/m^3]

M1600R

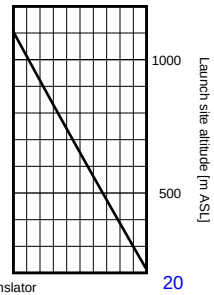
M1600R

Aerotech M2400T

I_{tot}	=	7619.8 Ns
F_{avg}	=	2177.1 N
t_{burn}	=	3.50 s
d	=	98 mm

Data source: Aerotech

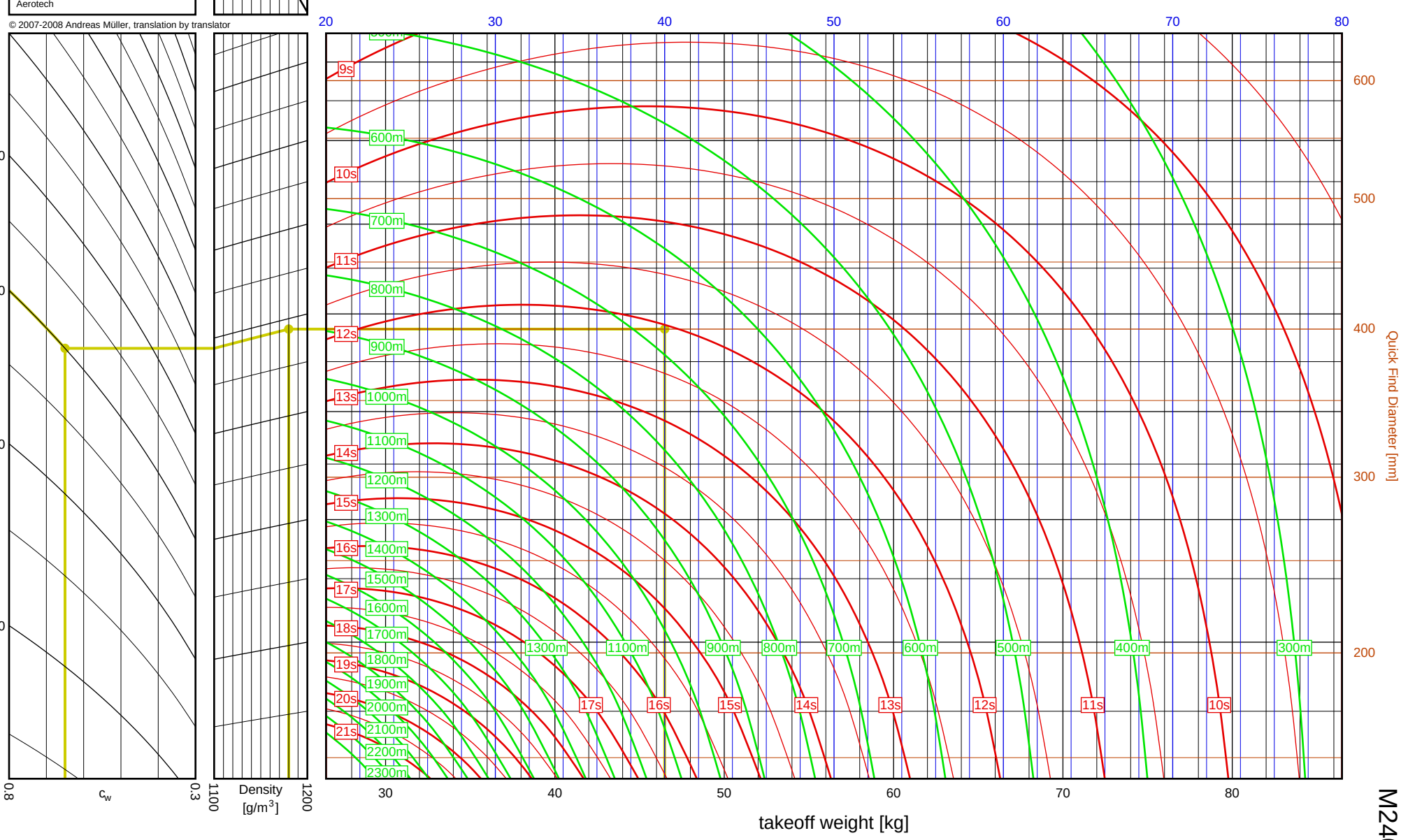
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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 46.483kg

Results: time to apogee: 12.0s, expected altitude: 675m



M2400T

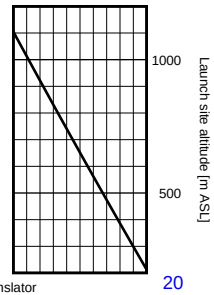
M2400T

Aerotech M2100G

I_{tot}	=	7655.8 Ns
F_{avg}	=	2162.1 N
t_{burn}	=	3.54 s
d	=	98 mm

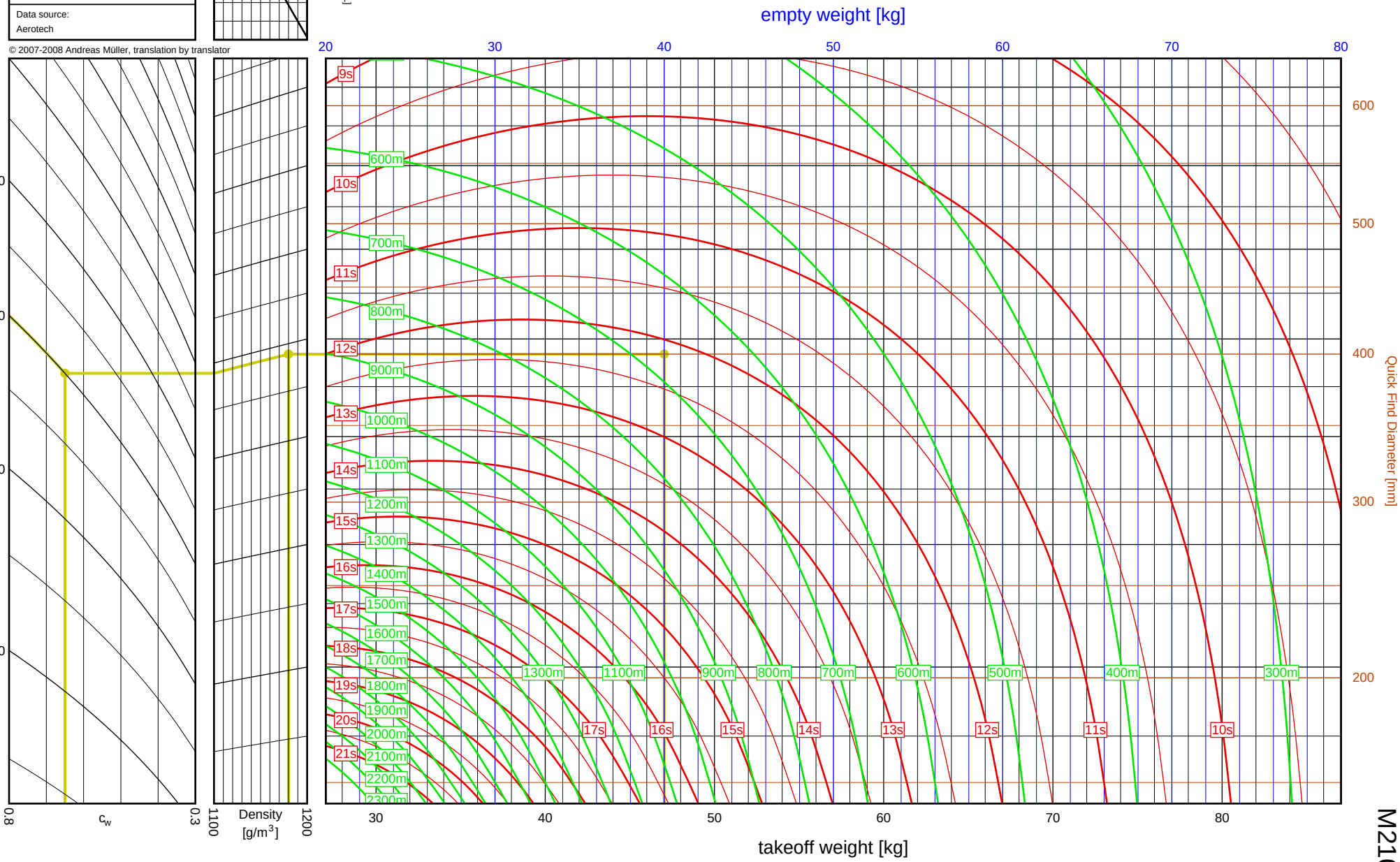
Data source:
Aerotech

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1. From rocket diameter scale move down along slanted line to vertical line matching drag coefficient.
2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 47.030kg
Results: time to apogee: 12.1s, expected altitude: 673m



M2100G

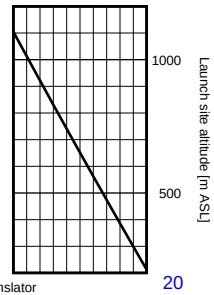
M2100G

Aerotech M1800FJ

I_{tot}	=	8212.7 Ns
F_{avg}	=	1658.5 N
t_{burn}	=	4.95 s
d	=	98 mm

Data source: Aerotech

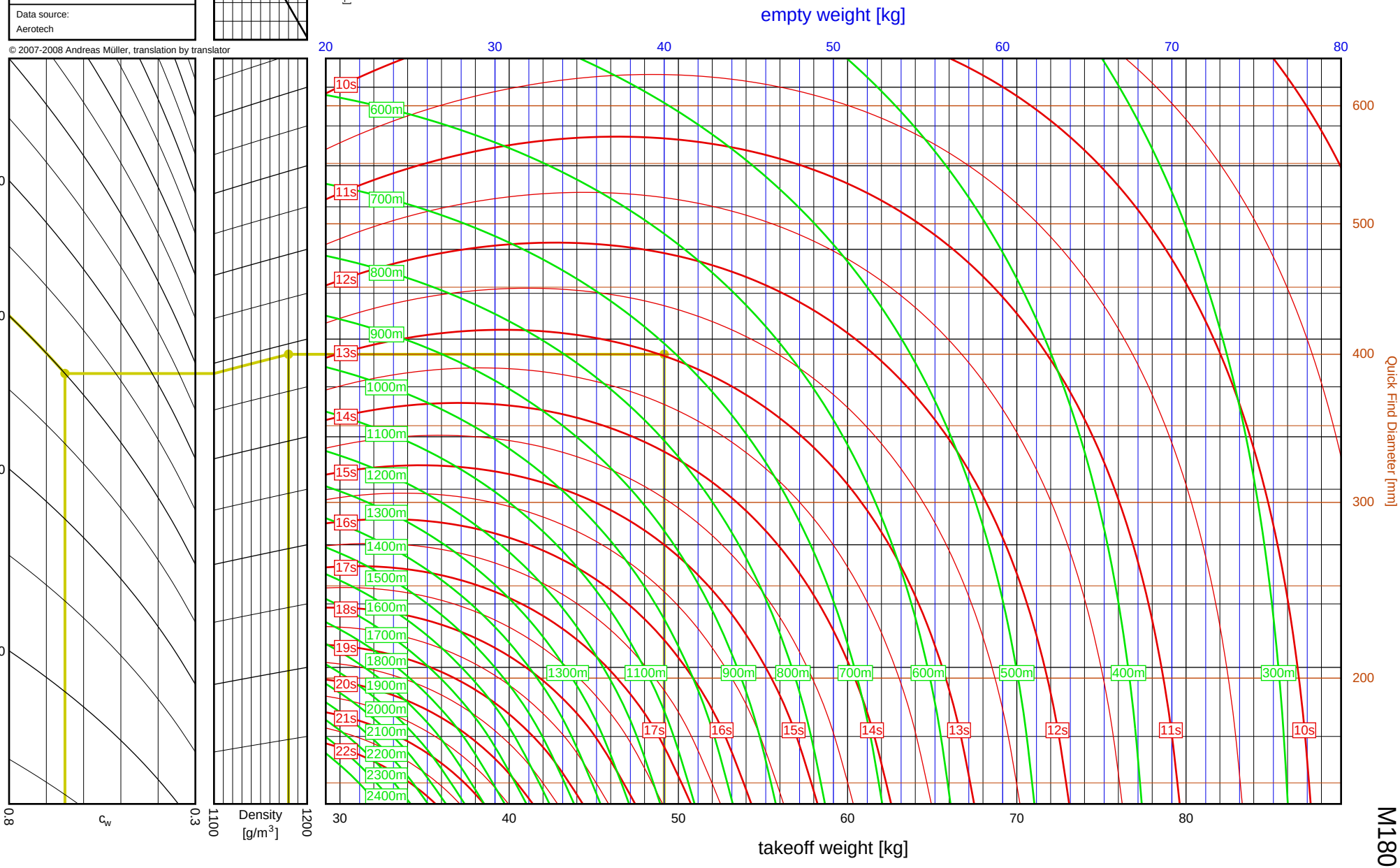
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2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 49.162kg

Results: time to apogee: 13.0s, expected altitude: 711m



10-4

M1800FJ

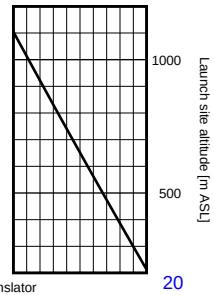
M1800FJ

Aerotech M2000R

I_{tot}	=	9181.0 Ns
F_{avg}	=	1953.4 N
t_{burn}	=	4.70 s
d	=	98 mm

Data source:
Aerotech

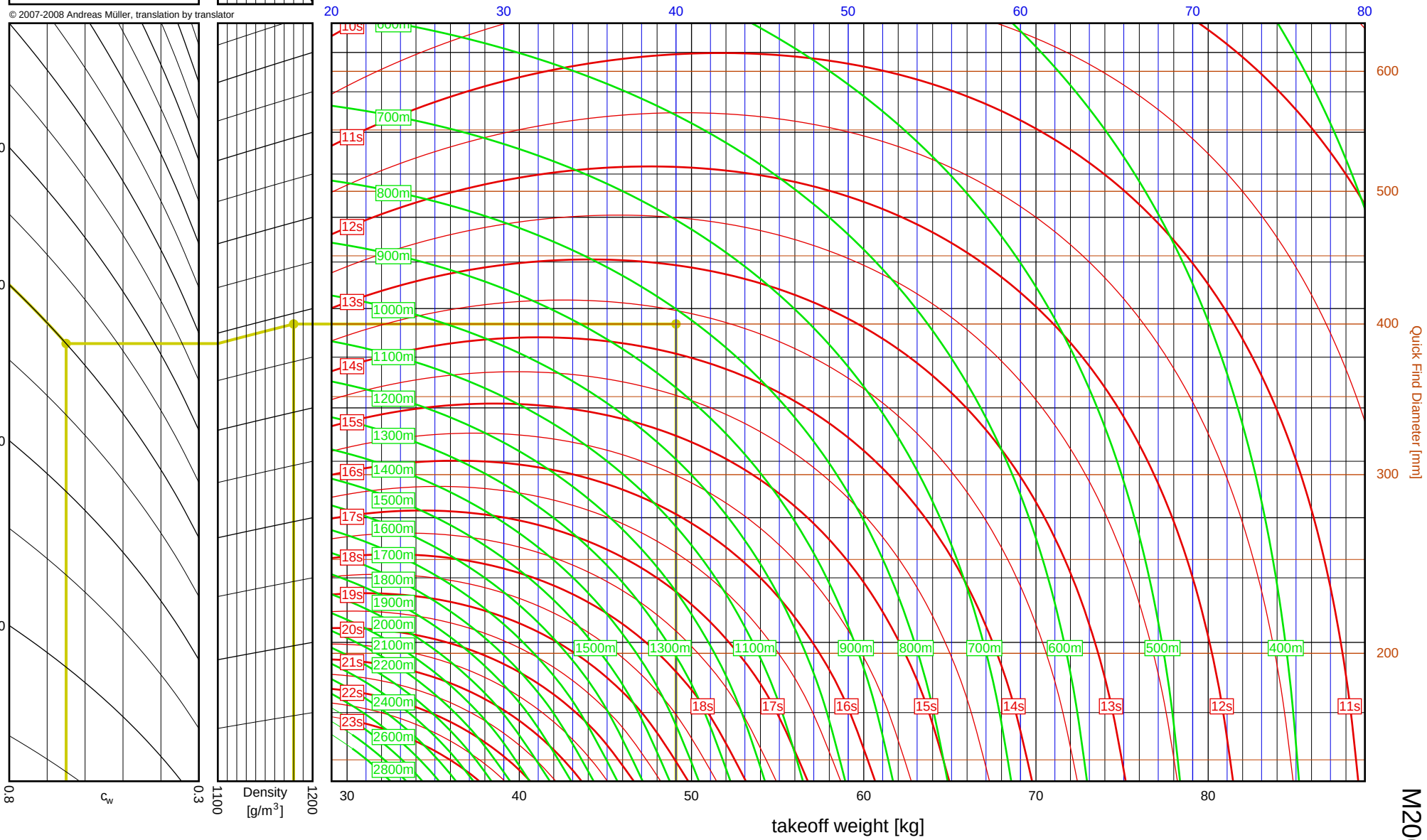
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2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 49.099kg
Results: time to apogee: 13.7s, expected altitude: 819m

empty weight [kg]



10-5

M2000R

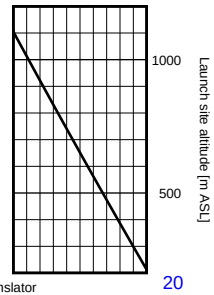
M2000R

Aerotech M2500T

I_{tot}	=	9573.0 Ns
F_{avg}	=	2245.1 N
t_{burn}	=	4.26 s
d	=	98 mm

Data source:
Aerotech

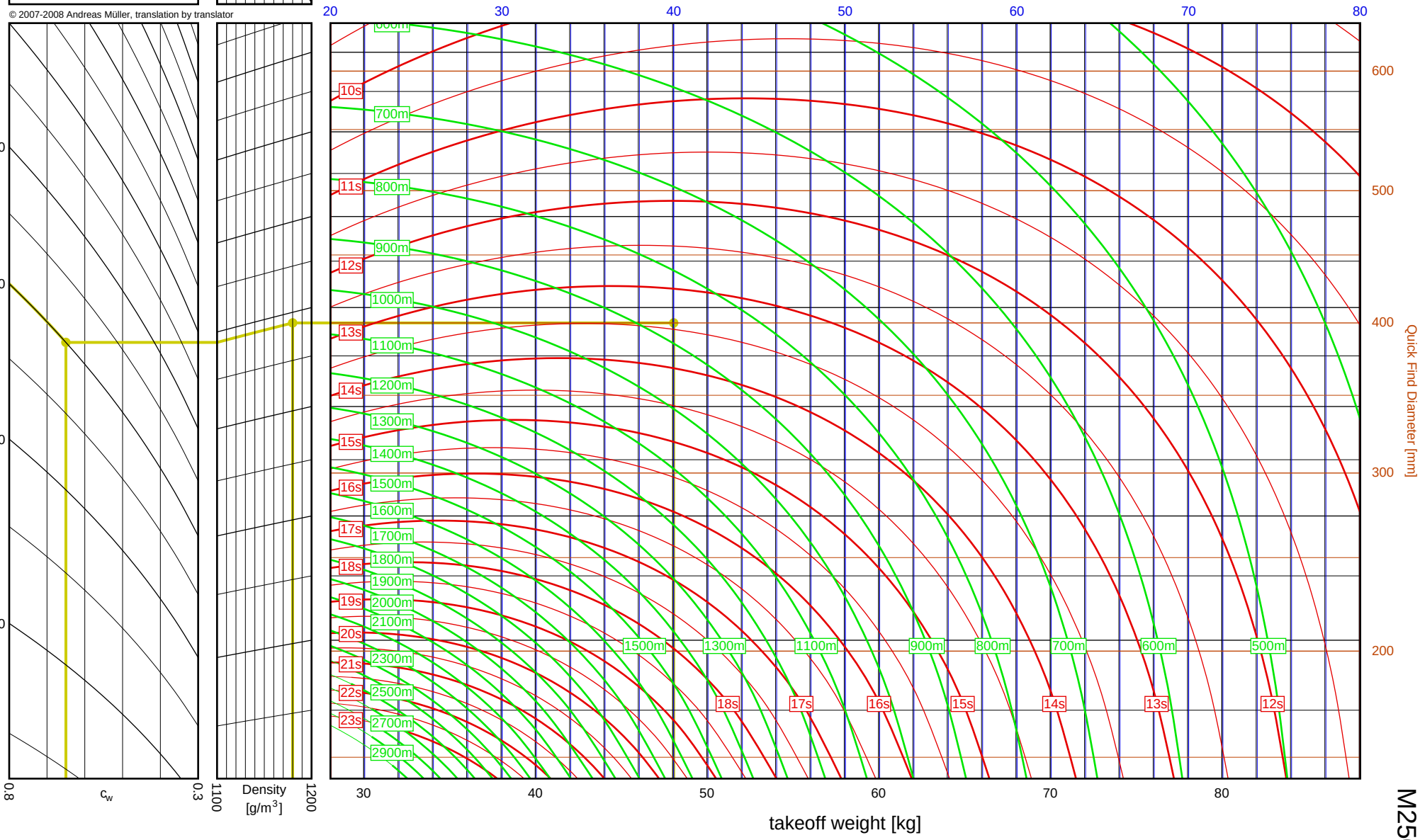
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2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 48.064kg
Results: time to apogee: 13.4s, expected altitude: 871m

empty weight [kg]



10-6

M2500T

M2500T

Aerotech M1939W

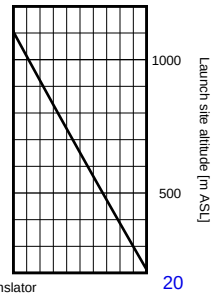
I_{tot}	=	10339.7 Ns
F_{avg}	=	1477.1 N
t_{burn}	=	7.00 s
d	=	98 mm

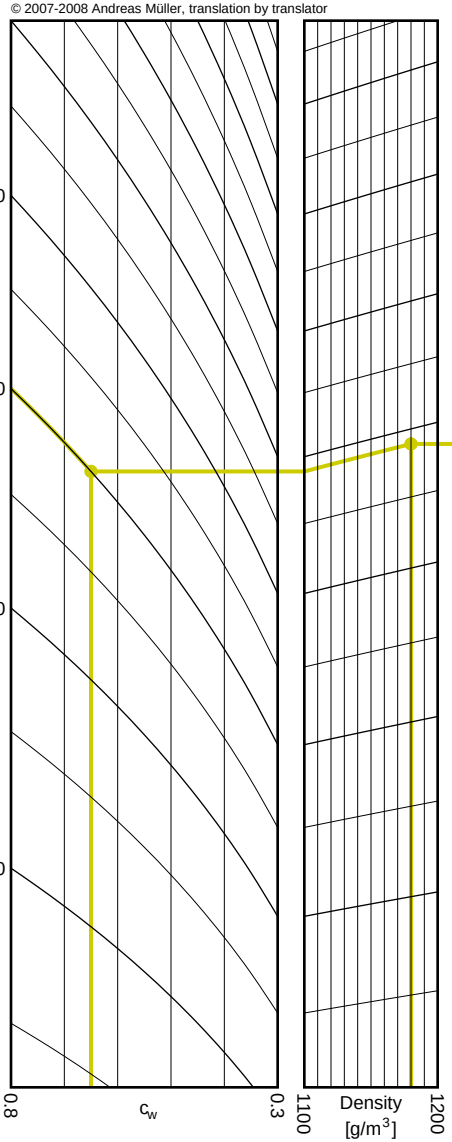
Data source:
Aerotech

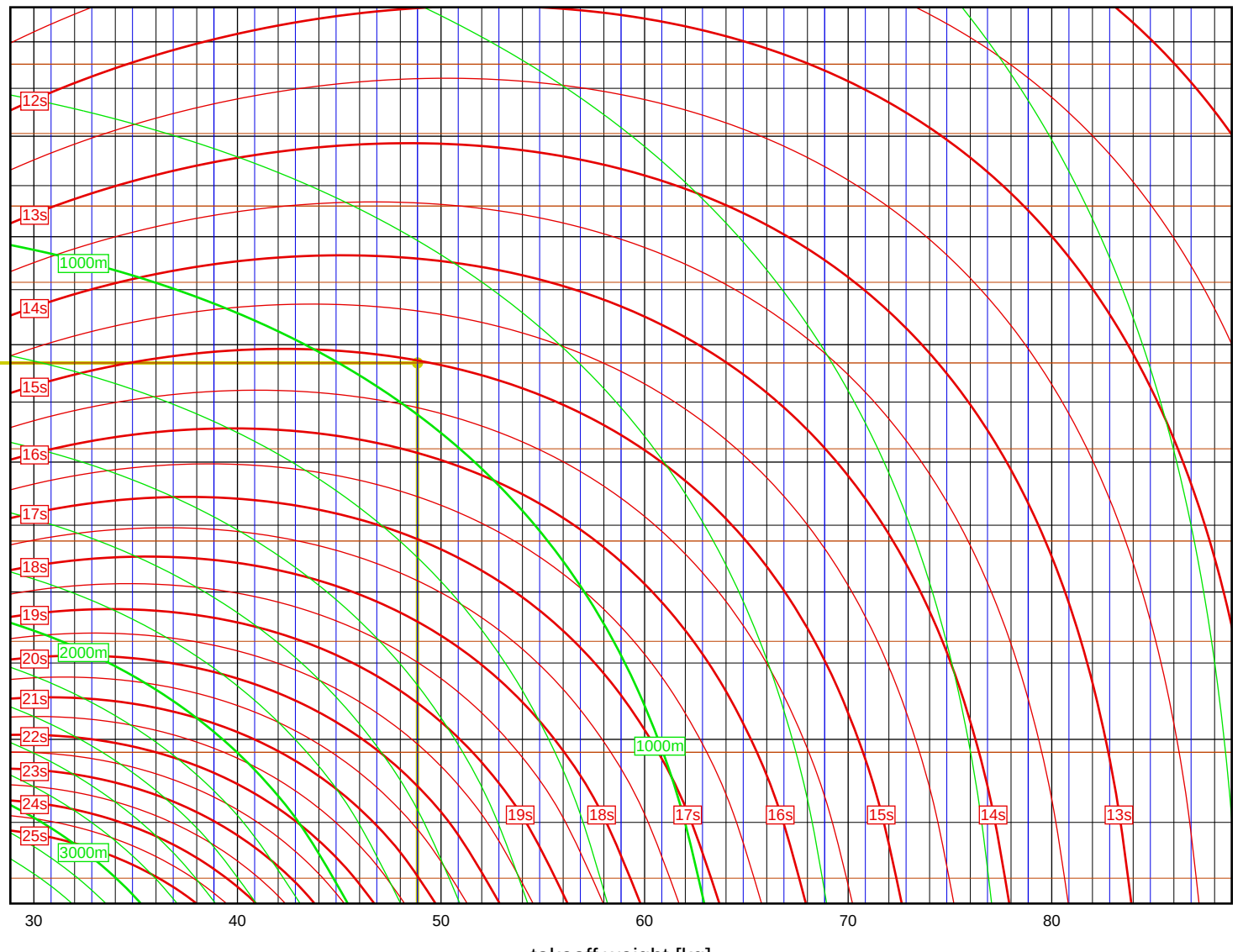
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3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 48.845kg
Results: time to apogee: 15.0s, expected altitude: 936m







M1939W

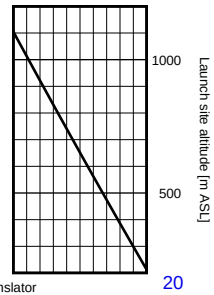
M1939W

Aerotech
N2000W

I_{tot}	=	13263.4 Ns
F_{avg}	=	1727.2 N
t_{burn}	=	7.68 s
d	=	98 mm

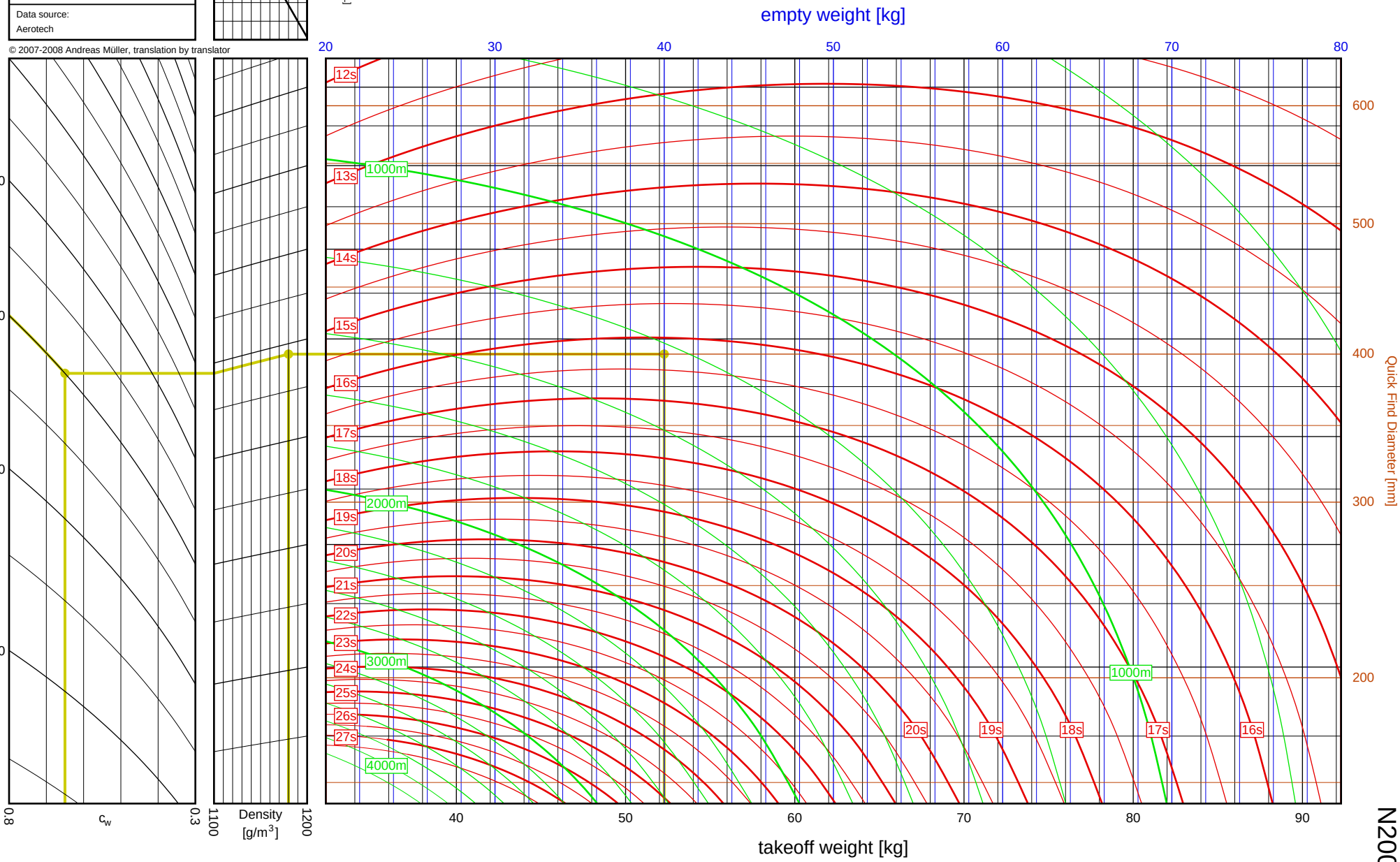
Data source:
Aerotech

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2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 52.283kg
Results: time to apogee: 16.3s, expected altitude: 1224m



N2000W

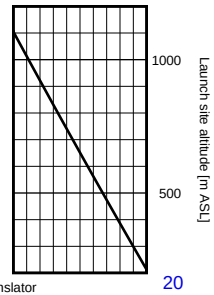
N2000W

Aerotech N4800T

I_{tot}	=	19273.9 Ns
F_{avg}	=	3702.2 N
t_{burn}	=	5.21 s
d	=	98 mm

Data source:
Aerotech

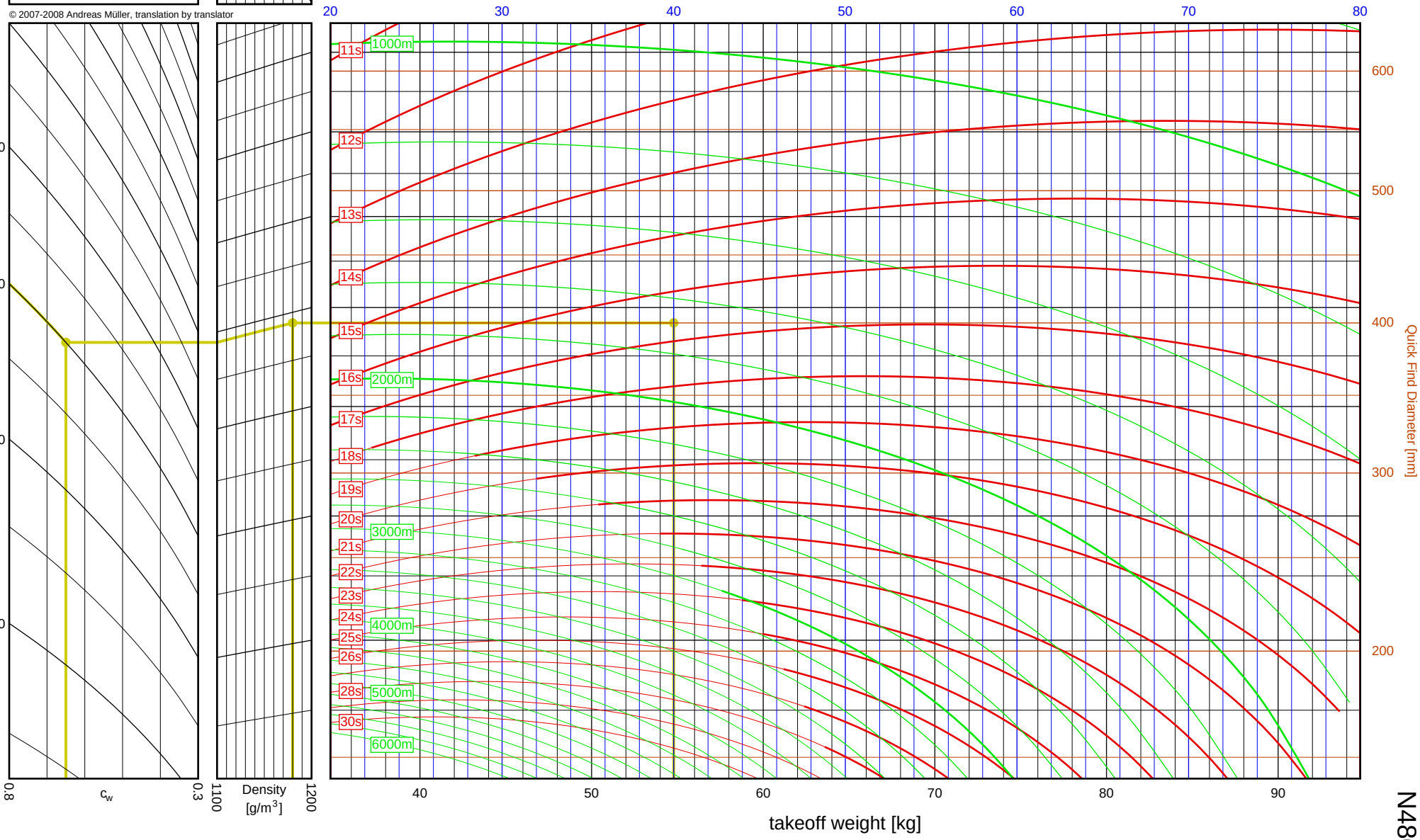
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2. Move along horizontal to left border of density scale
3. Move up slanted line to vertical line matching density at launch site
4. From intersection point move horizontally to vertical line matching rocket mass
5. Read off expected time to apogee from red curves, altitude from green curves

Sample: diameter = 400mm, drag = 0.65, density = 1180 g/m^3, weight = 54.784kg
Results: time to apogee: 16.6s, expected altitude: 1686m

empty weight [kg]



N4800T

N4800T

D13W 2-4
D15T 2-6
D21T 2-5
D24T 2-1
D7-RC 2-2
D9W 2-3
E11J 2-7
E12J-RC 2-8
E15W 2-13
E16W 2-10
E18W 2-14
E23T 2-9
E28T 2-12
E30T 2-11
F12J 2-15
F20W 3-10
F21W 3-7
F22J 3-12
F23FJ 3-6
F24W 3-2
F25W 3-14
F26FJ 3-11
F27R 3-3
F35W 3-9
F37W 3-5
F39T 3-4
F40W 3-17
F42T 3-8
F50T 3-13
F52T 3-15
F62T 3-1
G104T 3-16
G142 3-19
G339N 3-31
G33J 3-22
G35EJ 3-24
G38FJ 3-20
G40W 3-23
G53FJ 3-21
G54W 3-18
G61W 3-30
G64W 3-33
G67R 3-28
G69N 3-35
G71R 3-27
G75J 3-36
G76G 3-32
G77R 3-25
G78G 3-29
G79W 3-26
G80T 3-34
H112J 4-15
H123W 4-8
H128W 4-2
H148R 4-10
H165R 4-3
H180W 4-7
H210R 4-9
H220T 4-11
H238T 4-1
H242T 4-13
H250G 4-14
H268R 4-16
H55W 4-4
H669N 4-12
H73J 4-5
H97J 4-6
H999N 4-19
I115W 6-10
I117FJ 6-5
I1299N 5-11, 6-15
I154J 4-24, 5-7, 6-7
I161W 4-21, 5-4, 6-3
I195J 5-12, 6-16
I200W 4-20, 5-3
I211W 5-10, 6-14
I215R 6-8
I218R 4-18, 5-2, 6-2
I225FJ 4-23, 5-6, 6-6
I229T 6-12
I245G 4-22, 5-5, 6-4
I284W 5-15, 6-19
I285R 5-9, 6-13
I300T 5-8, 6-11
I305FJ 5-13, 6-17
I357T 4-17, 5-1, 6-1
I364FJ 5-17, 6-21
I366R 5-16, 6-20
I435T 5-14, 6-18
I599N 6-9
I600R 5-19, 6-22
I65W 5-18
J1299N 7-12
J135W 6-37, 7-15
J145H 6-33, 7-10
J180T 6-34, 7-11
J1999N 6-38, 7-22
J210H 6-35, 7-13
J250FJ 6-27, 7-4
J260HW 7-19
J275W 6-32, 7-9
J315R 6-29, 7-6
J350W 5-22, 6-25, 7-3
J350W.5 5-20, 6-23, 7-1
J390HW-TURBO 7-23
J401FJ 7-17
J415W 7-20
J420R 5-21, 6-24, 7-2
J460T 6-30, 7-7
J500G 6-28, 7-5
J540R 7-18
J570W 7-16
J575FJ 6-31, 7-8
J800T 7-21
J825R 6-36, 7-14
J90W 6-26
K1050W 8-16
K1100T 7-28, 8-4
K1275R 8-8
K1499N 7-24, 8-1
K185W 7-25
K1999N 8-18
K250W 8-19
K270W 8-9
K458W 8-17
K485HW 7-30, 8-6
K513FJ 7-26, 8-2
K550W 7-29, 8-5
K560W 8-15
K650T 8-14
K680R 8-12
K695R 7-27, 8-3
K700W 8-11
K780R 8-13
K805G 7-31, 8-7
K828FJ 8-10
L1120W 9-6
L1150R 9-1
L1170FJ 8-21
L1300R 9-4
L1390G 9-3
L1420R 9-5
L1500T 9-7
L2200G 9-9
L339N 8-20
L850W 9-2
L952W 9-8
M1297W 9-12
M1315W 9-16
M1419W 9-20
M1500G 9-10
M1550R 9-13
M1600R 10-1, 9-17
M1800FJ 10-4
M1850W 9-19
M1939W 10-7
M2000R 10-5
M2030G 9-11
M2100G 10-3
M2400T 10-2
M2500T 10-6
M3500R 9-18
M650W 9-14
M750W 9-21
M845HW 9-15
N1000W 9-22
N2000W 10-8
N4800T 10-9