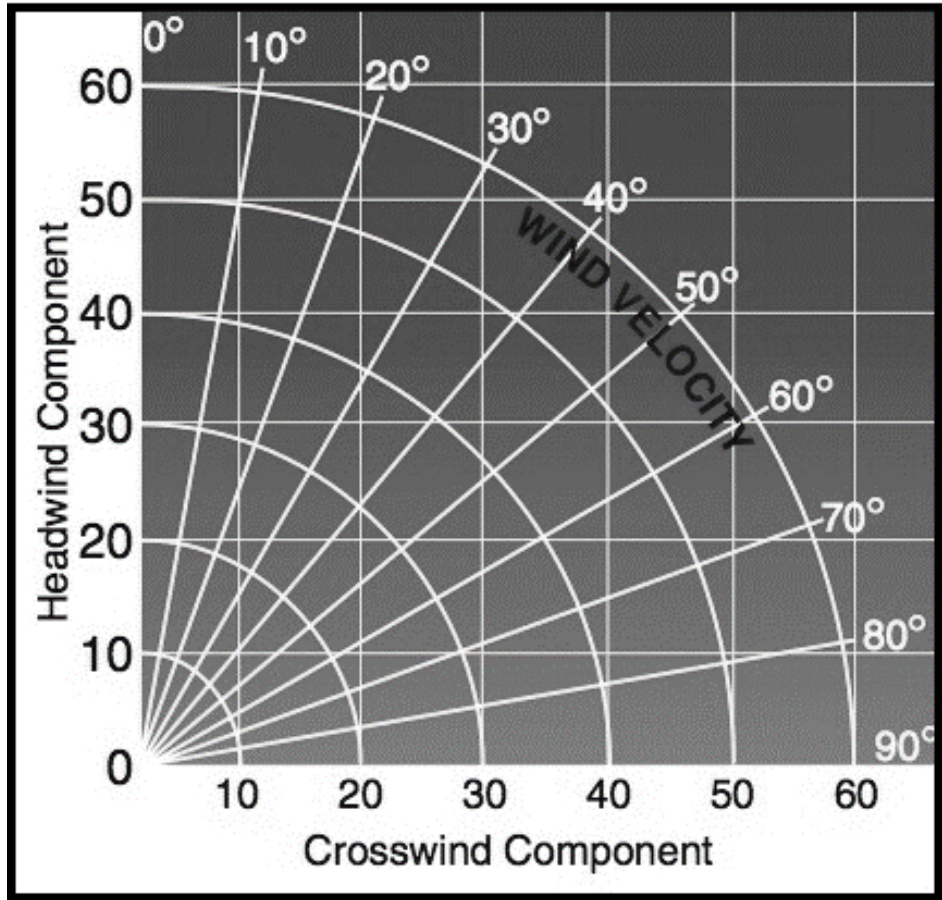
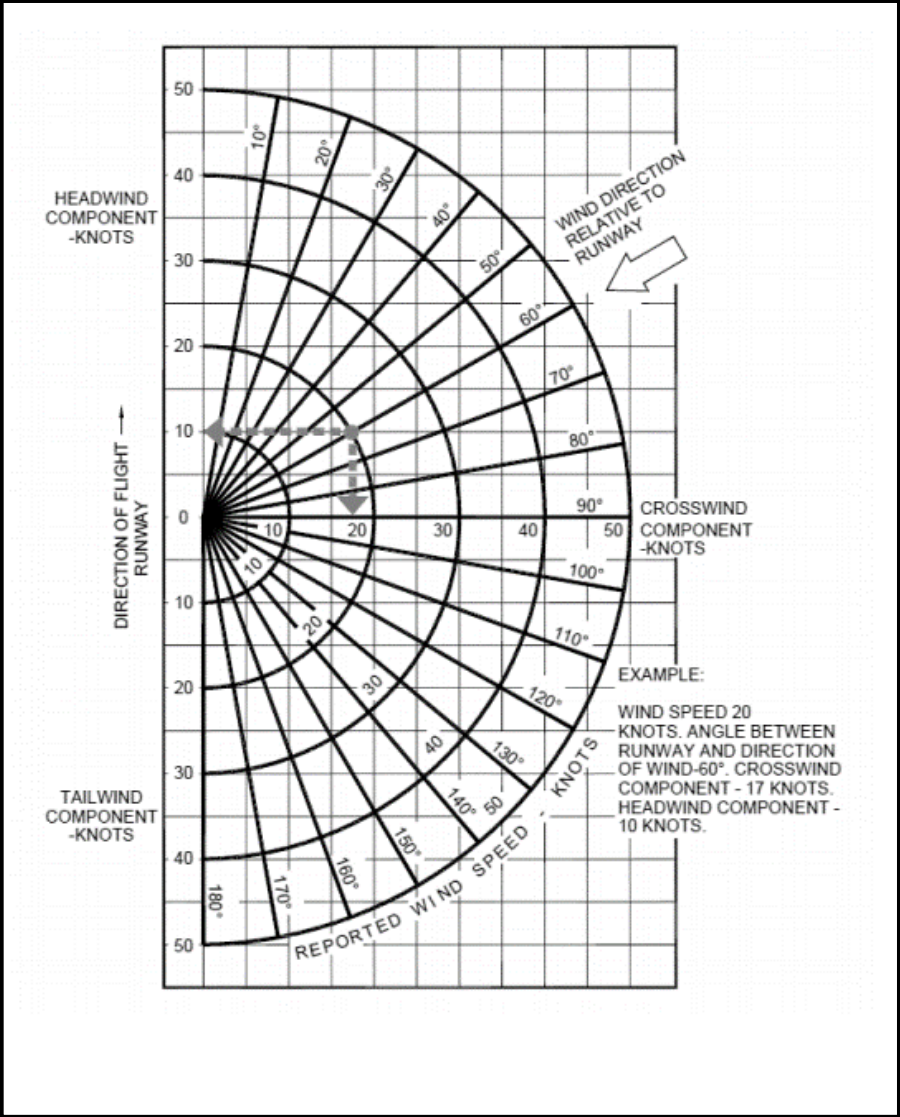


Tools Section

Headwind/Tailwind/Crosswind Component Calculator



Headwind/Tailwind/Crosswind Component Calculator



Density Altitude Calculator

Aviation Weather Services, Advisory Circular 00-45G, Change 1 (July 2010)

13 APPENDIX D: DENSITY ALTITUDE CALCULATION

To determine density altitude:

1. Set the aircraft's altimeter to 29.92 inches of Mercury. The altimeter will indicate pressure altitude.
2. Read the outside air temperature.
3. Mark the intersection of pressure altitude (horizontal) and temperature (vertical) lines on the chart.
4. Read the density altitude from the diagonal lines.

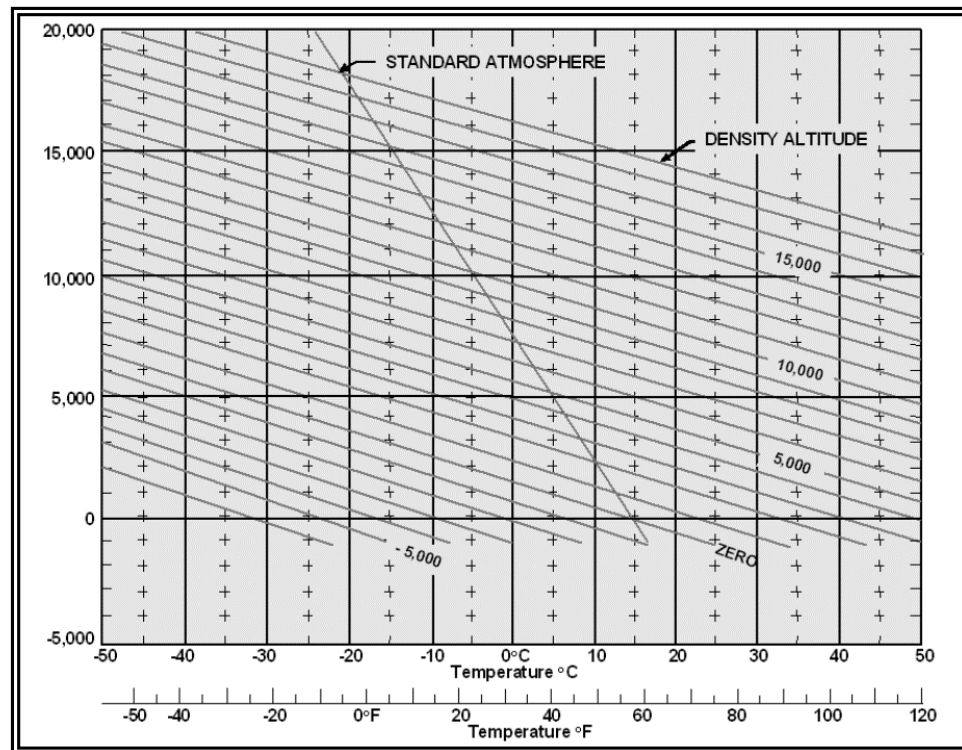


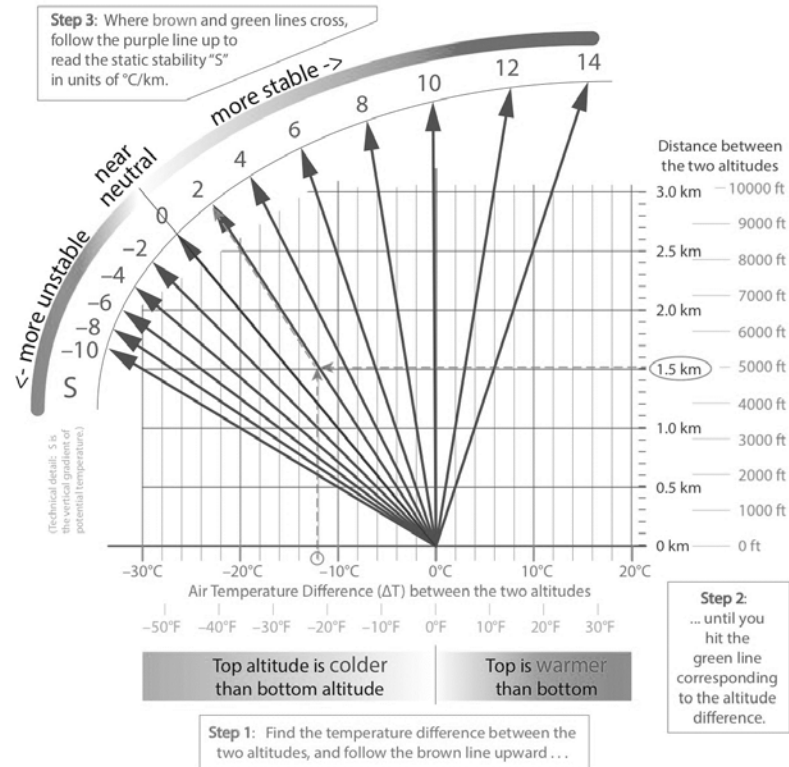
Figure D-1. Density Altitude Computation Chart

Static Stability Tool

Static Stability Tool

To estimate "S" from temperature observations at two different altitudes.

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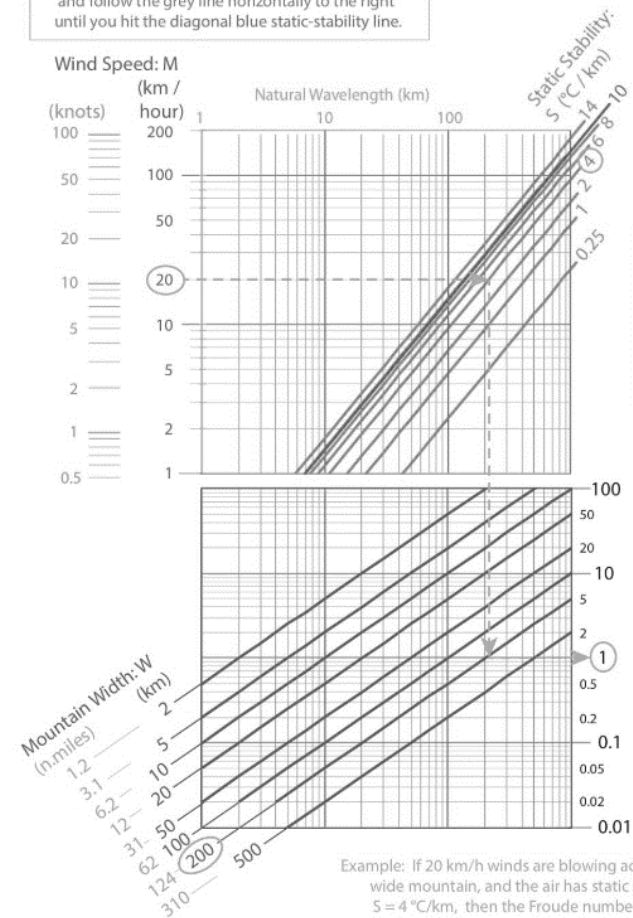


Froude Number Tool

Froude Number Tool

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Step 1: Start with the wind speed M at mountain top, and follow the grey line horizontally to the right until you hit the diagonal blue static-stability line.



Technical detail: Static Stability is the vertical gradient of potential temperature. Which can be found using the Static Stability Tool.

Step 2: Next, follow the green line straight down into the bottom graph, until you hit the purple diagonal line for the width of the mountain.

Step 3: Finally, follow the grey line horizontally to the right to read the Froude Number.

Froude Number Fr

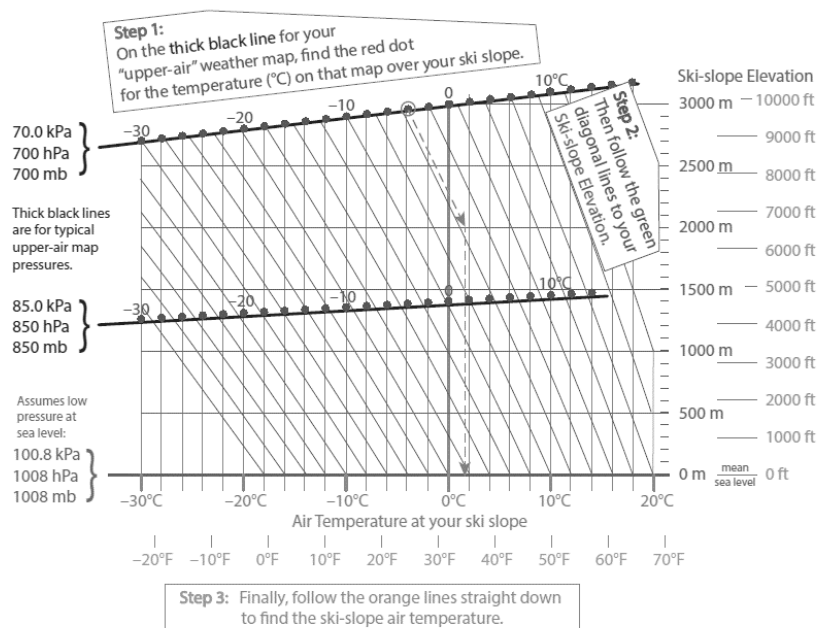
Moist air graphical tool

Moist-air Tool -v2 to estimate ski-slope air temperature from upper-air weather maps

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Thanks to Marjolien Ribberink for updated calculations.

Use this diagram when
the upper-air relative humidity
(RH) is GREATER than 80%
or if in clouds.

(Use other tool for dry air.)



Example: -4°C on the 70.0 kPa chart gives +1.5°C air temperature at your 2000 m ski slope.

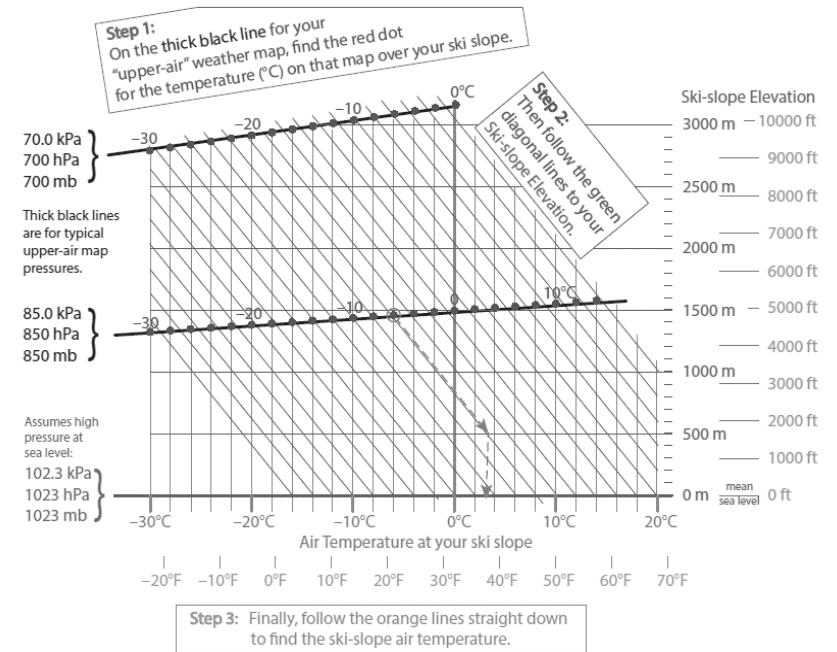
Dry air graphical tool

Dry-air Tool -v2 to estimate ski-slope air temperature from upper-air weather maps

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Thanks to Marjolien Ribberink for updated calculations.

Use this diagram when
the upper-air relative humidity
(RH) is LESS than 80%.

(Use other tool for moist air.)



Example: -6°C on the 85.0 kPa chart gives +3°C air temperature at your 500 m ski slope.