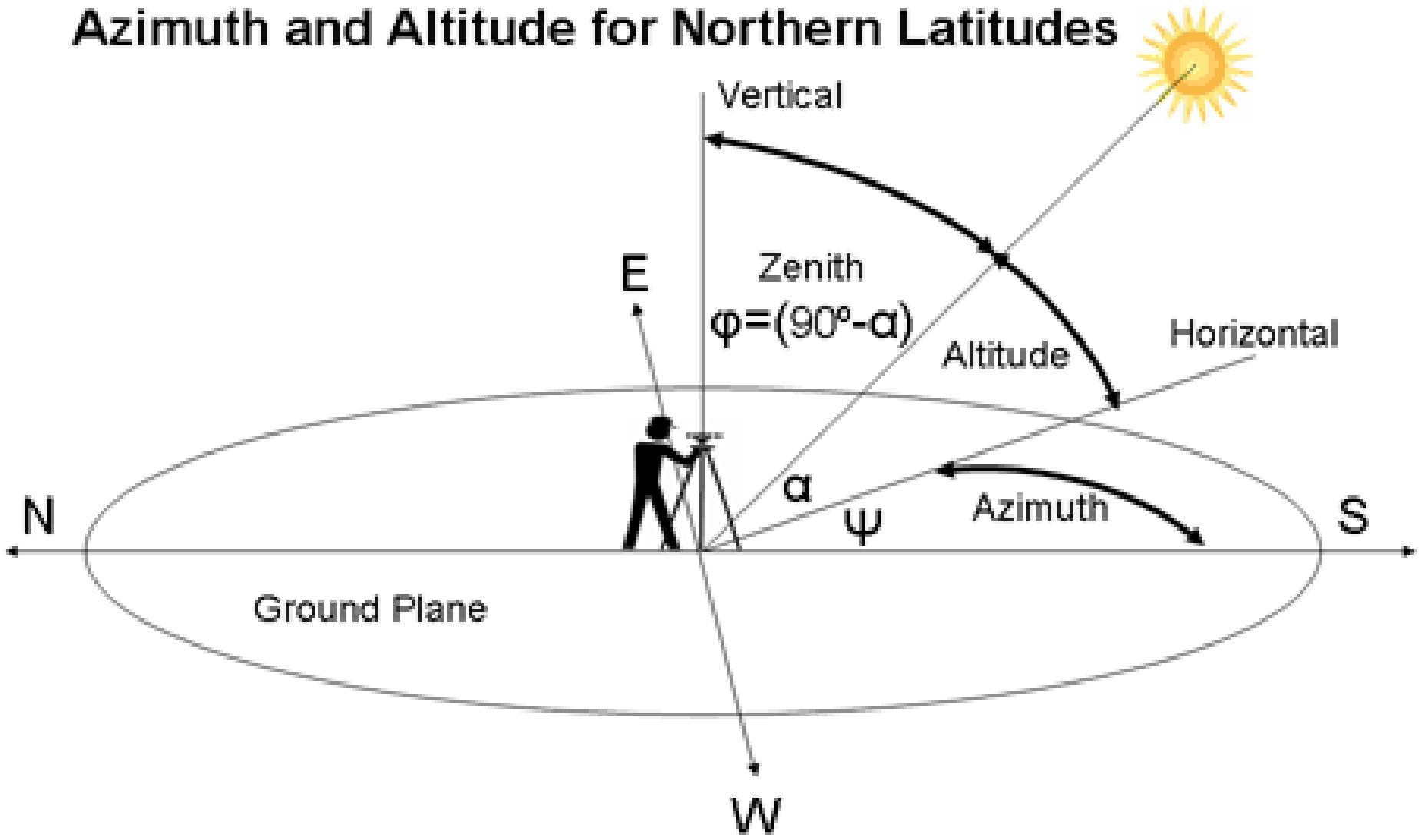
Visual representations of Sun Angles in the Tropical and Temperate Climates

Images assembled and created by

Neil Bertrando

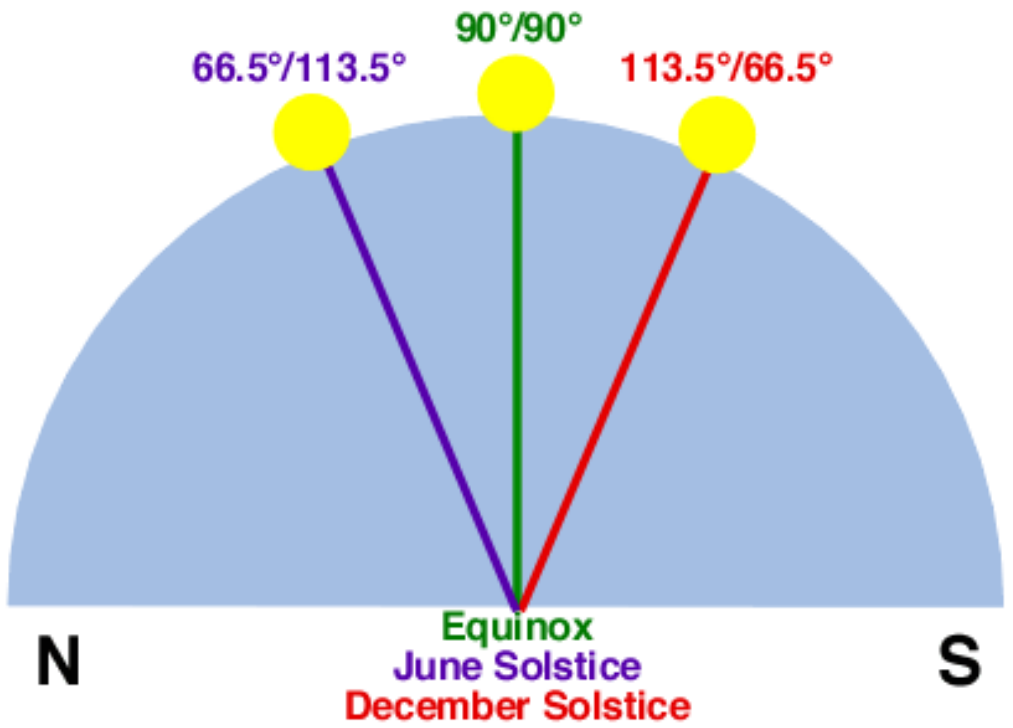
RT Permaculture

Sun Angle Terminology



Source: http://www.mpoweruk.com/solar_power.htm

Tropical Sun Elevations 0°

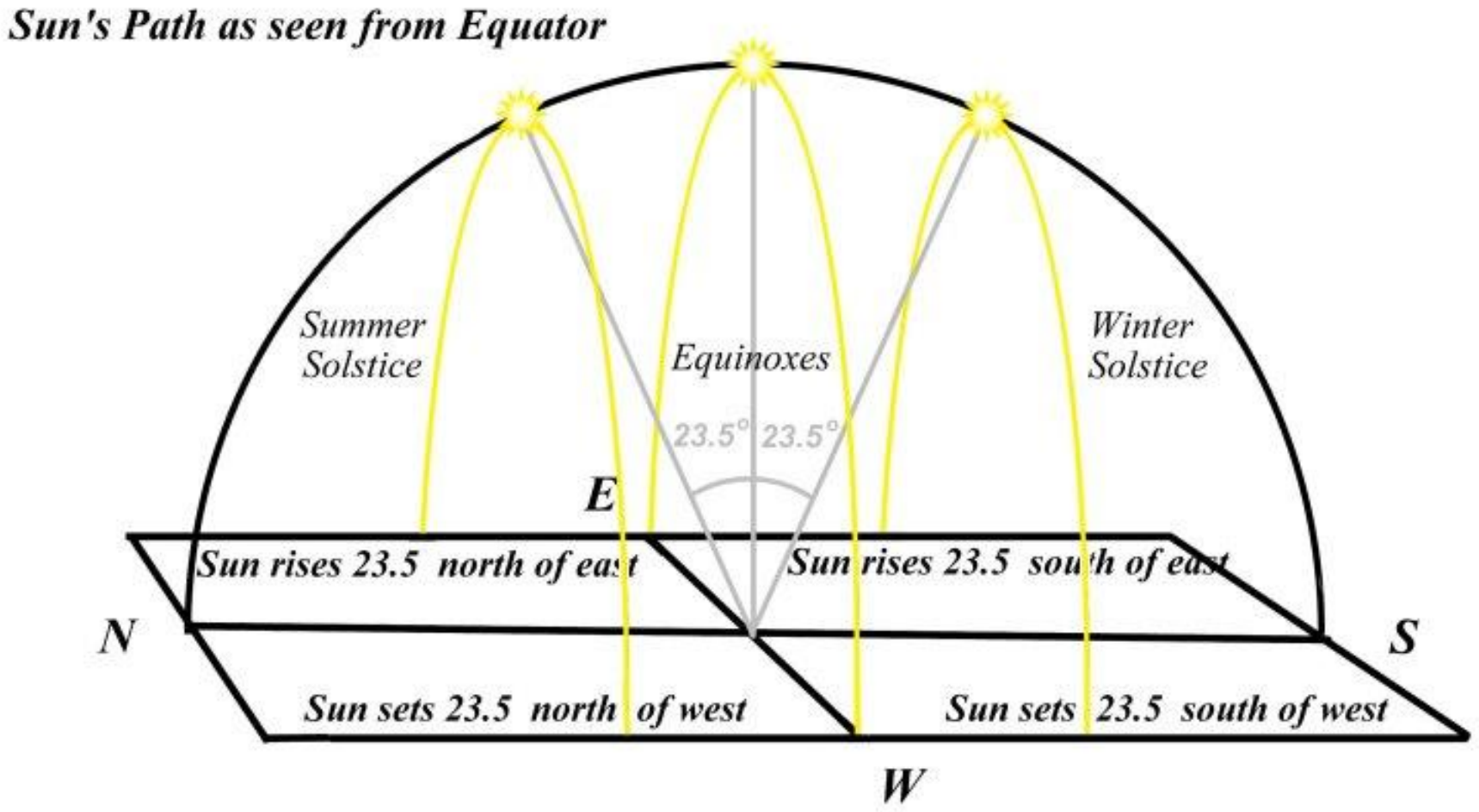


Note: first measurement represents the angle from the northern side of the horizon, while the second measurement is from true south.

Equatorial Sun Elevations

Source: http://www.physicalgeography.net/fundamentals/6h.html

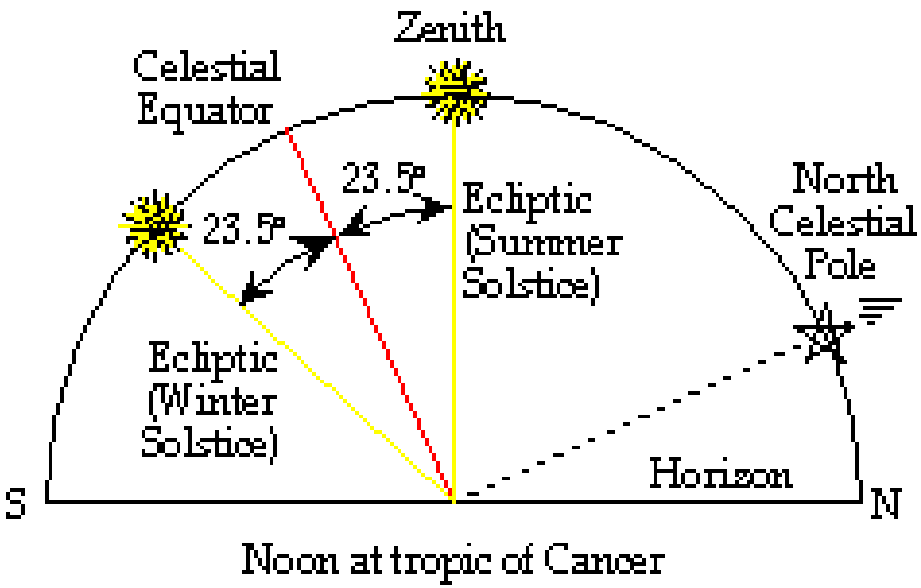
Tropical Sun Angles 0°



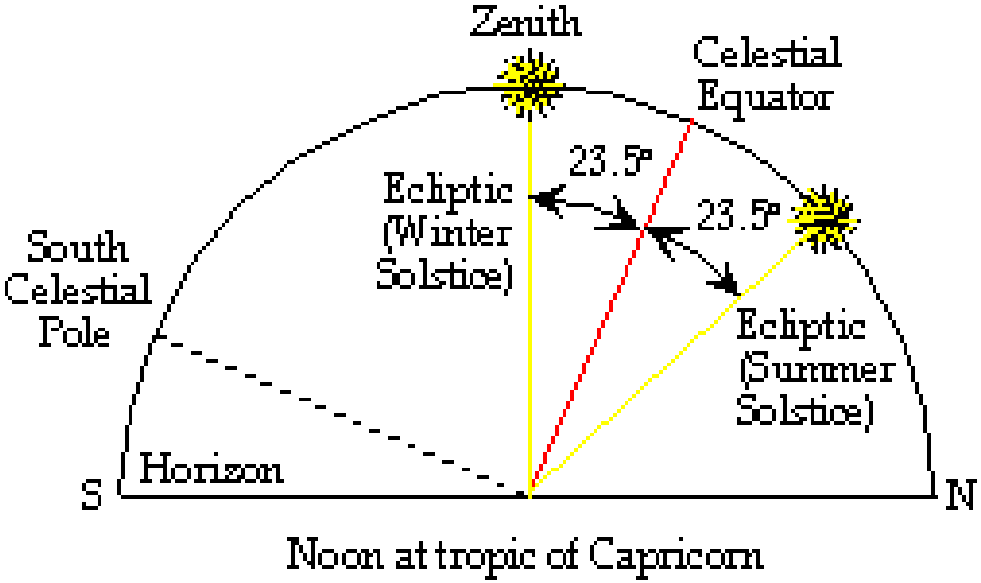
Source:
http://prancer.physics.louisville.edu/classes/107/topics/seasons/sunpath_equator_alt_sm.jpg

Sun Elevations at Tropic of Cancer and Capricorn

Note: the N-S axis is reversed from other diagrams



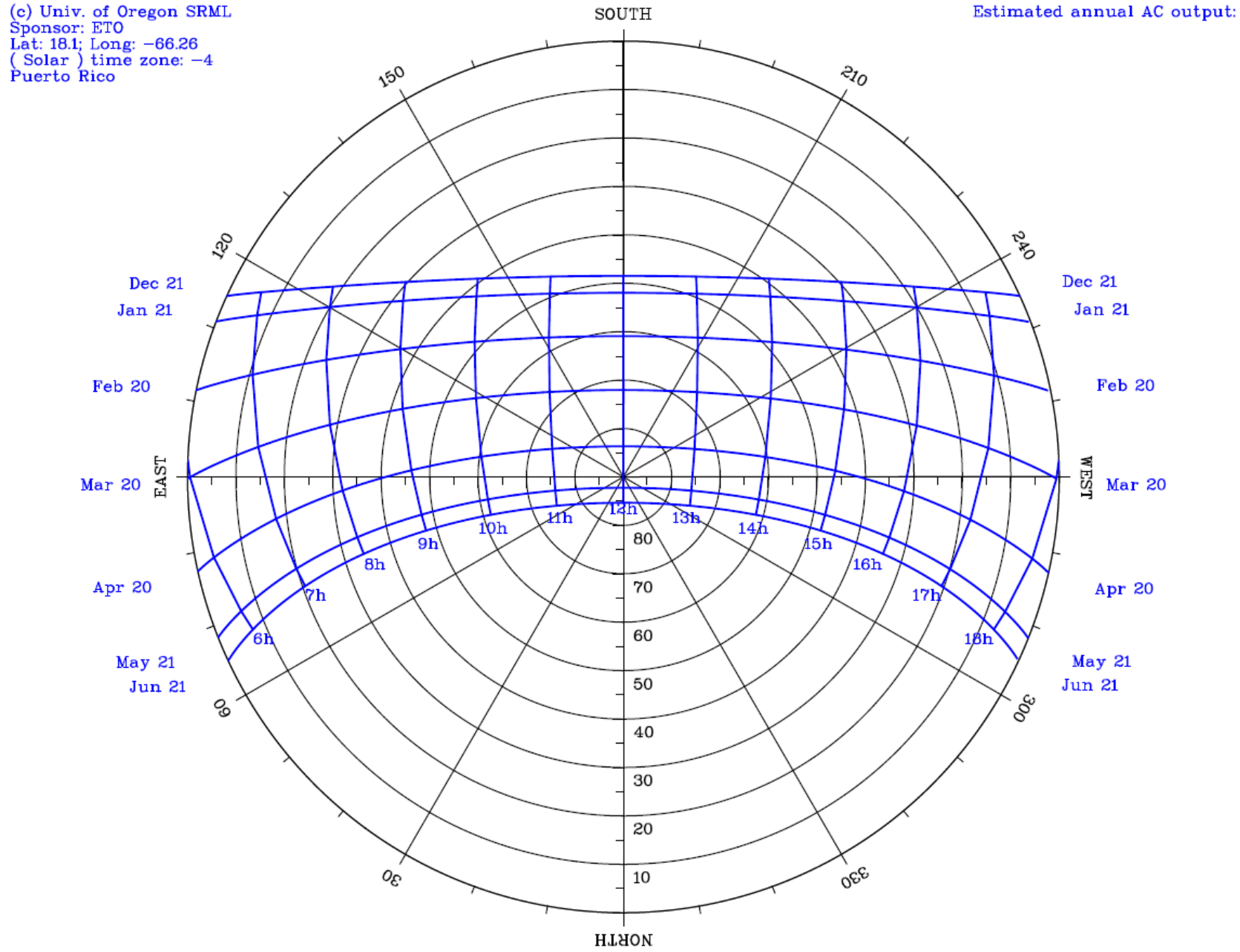
Noon at tropic of Cancer



Noon at tropic of Capricorn

Source: http://www.opencourse.info/astronomy/introduction/02.motion_stars_sun/

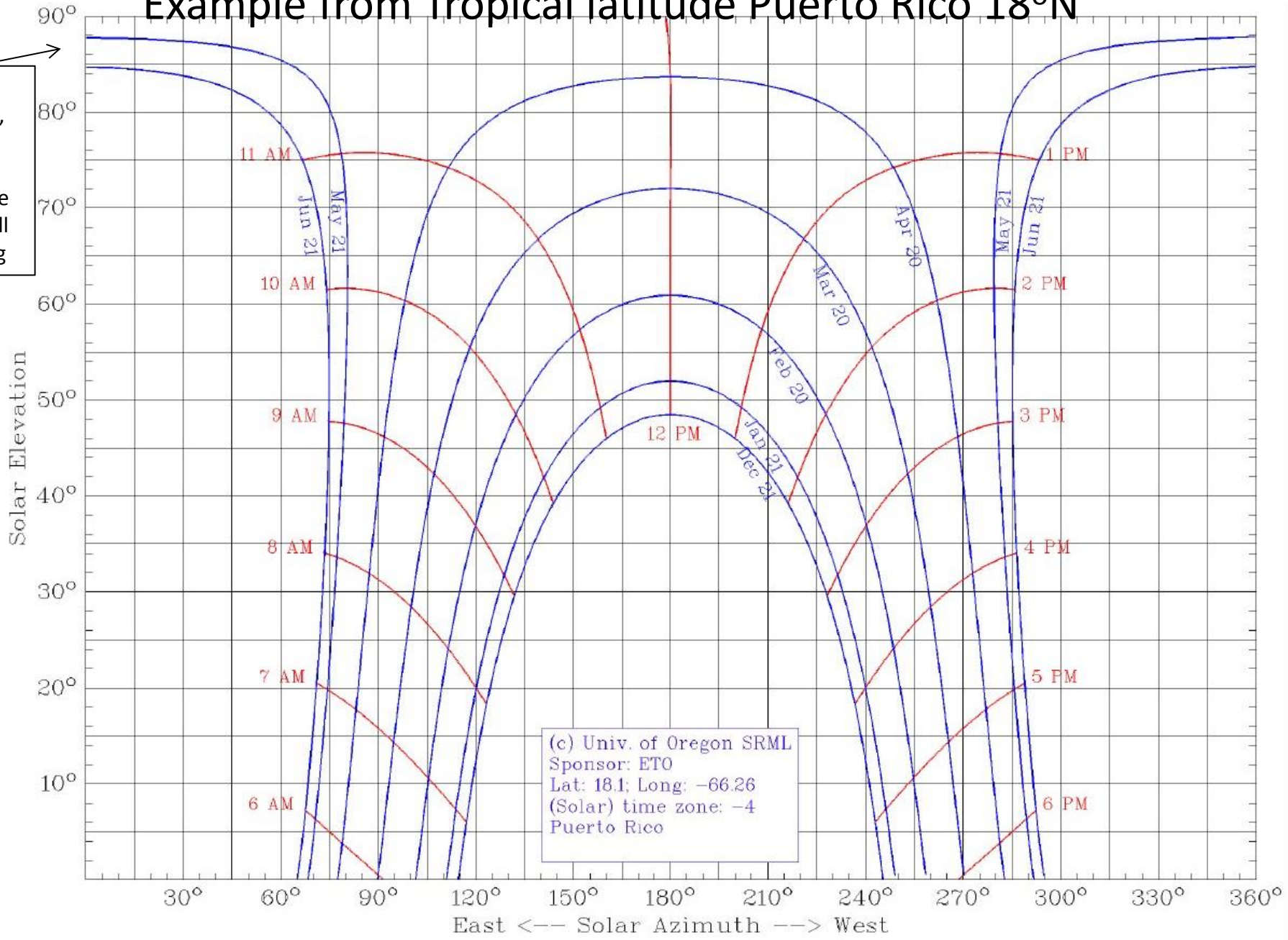
Example from Tropical latitude Puerto Rico 18°N



Source: http://solardat.uoregon.edu/PolarSunChartProgram.php

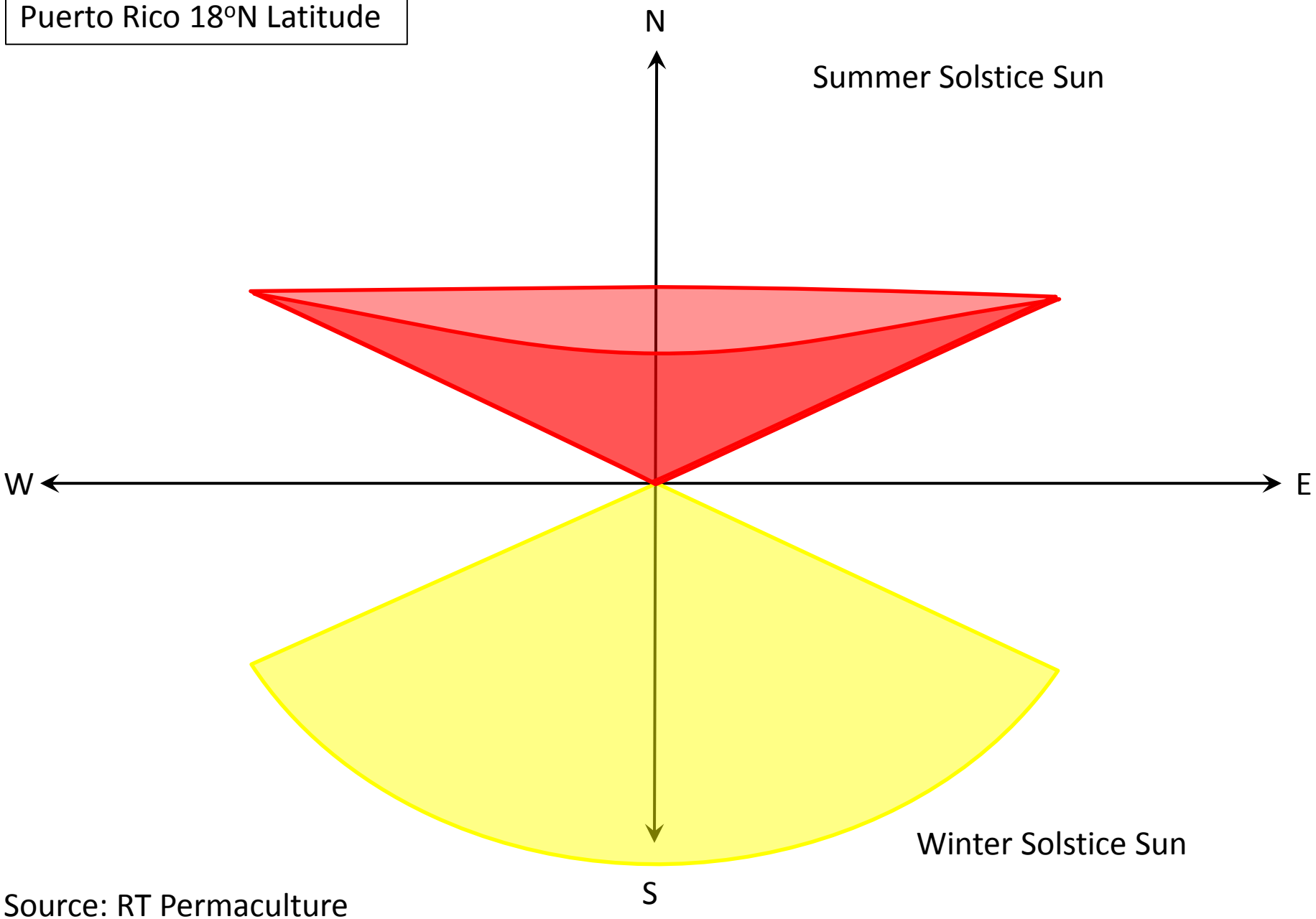
Example from Tropical latitude Puerto Rico 18ºN

These months, the sun shines from the North all day long



Source: http://solardat.uoregon.edu/SunChartProgram.php

Sun Sector Compass
Puerto Rico 18°N Latitude



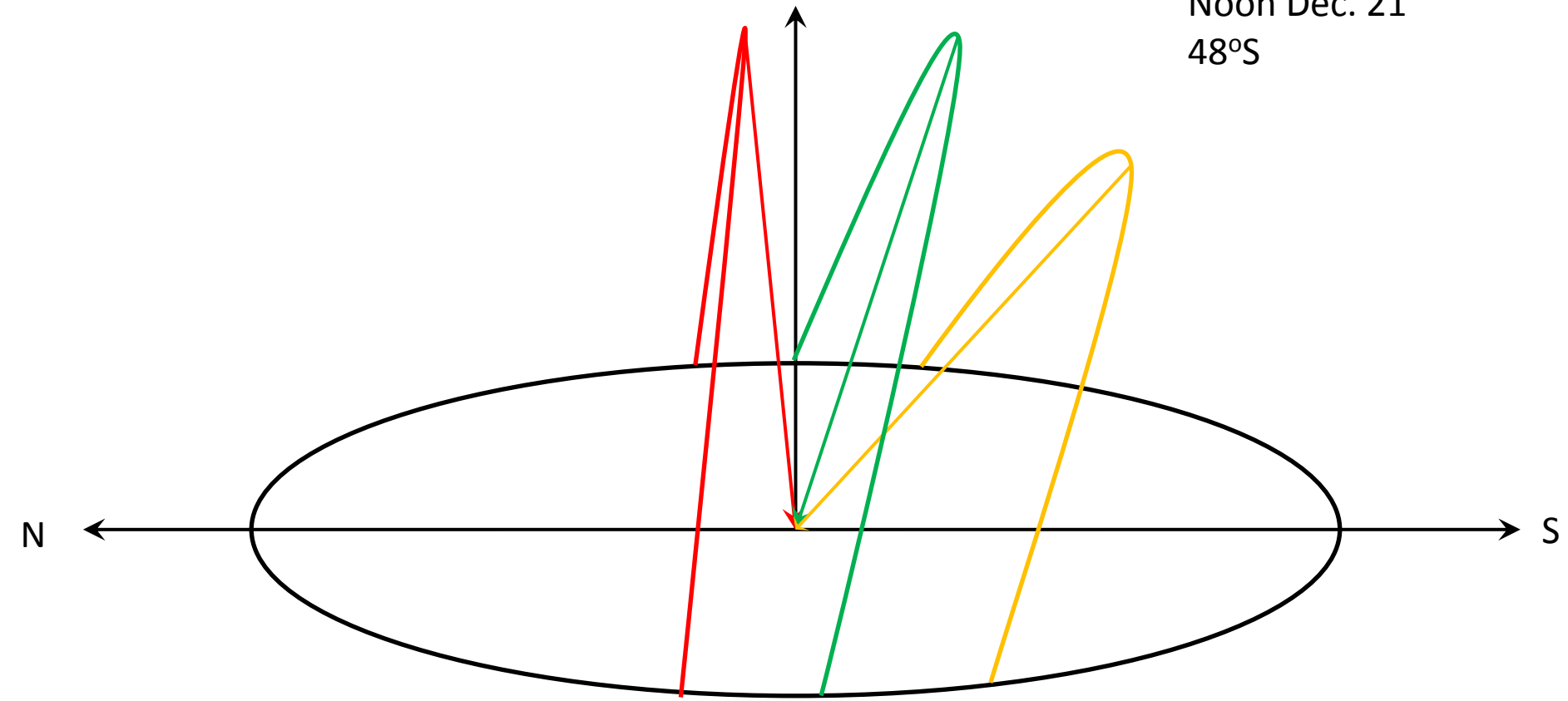
Source: RT Permaculture

Sun Sector Elevations
Puerto Rico 18°N Latitude

Summer Solstice Sun
Noon June 21
86°N

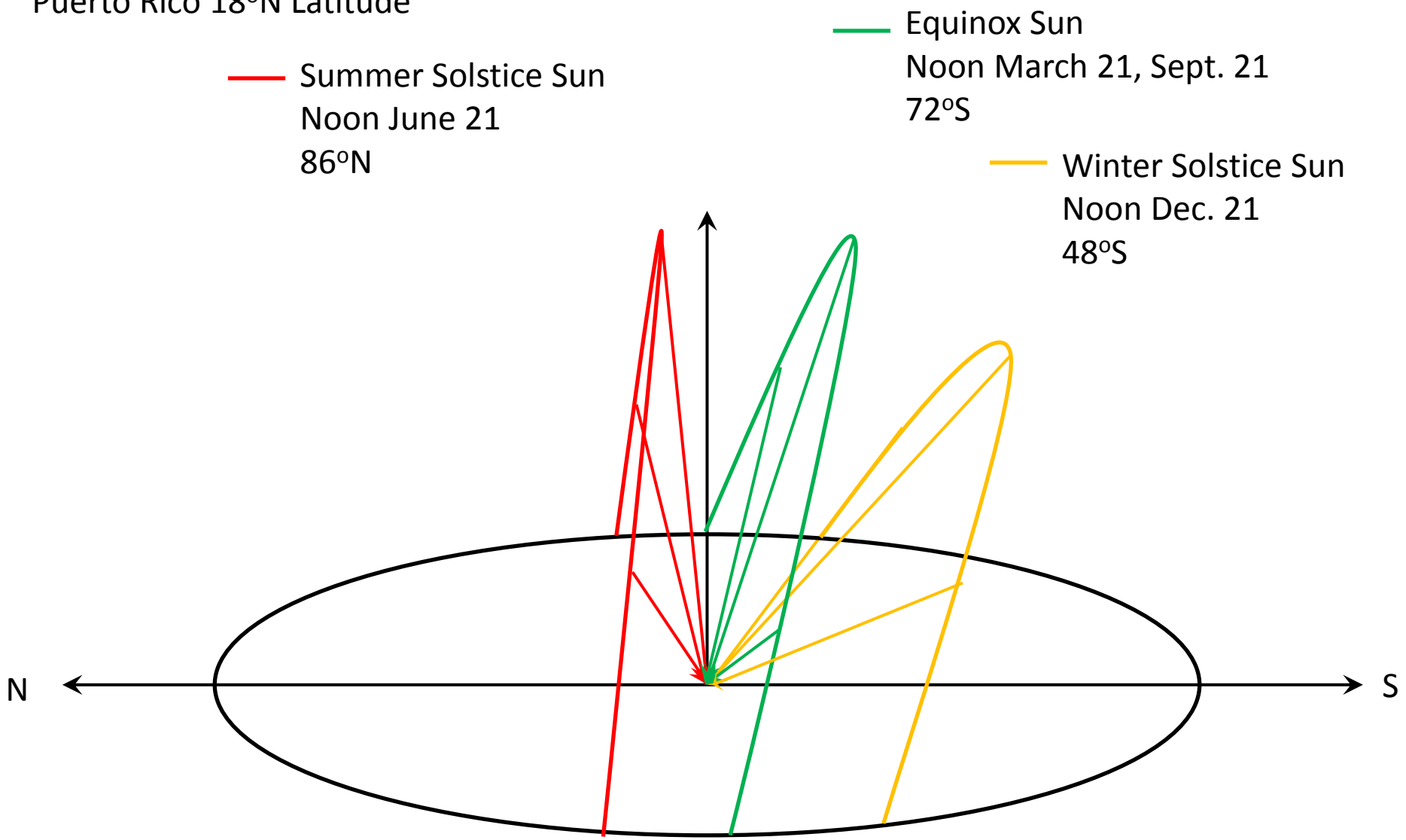
Equinox Sun
Noon March 21, Sept. 21
72°S

Winter Solstice Sun
Noon Dec. 21
48°S



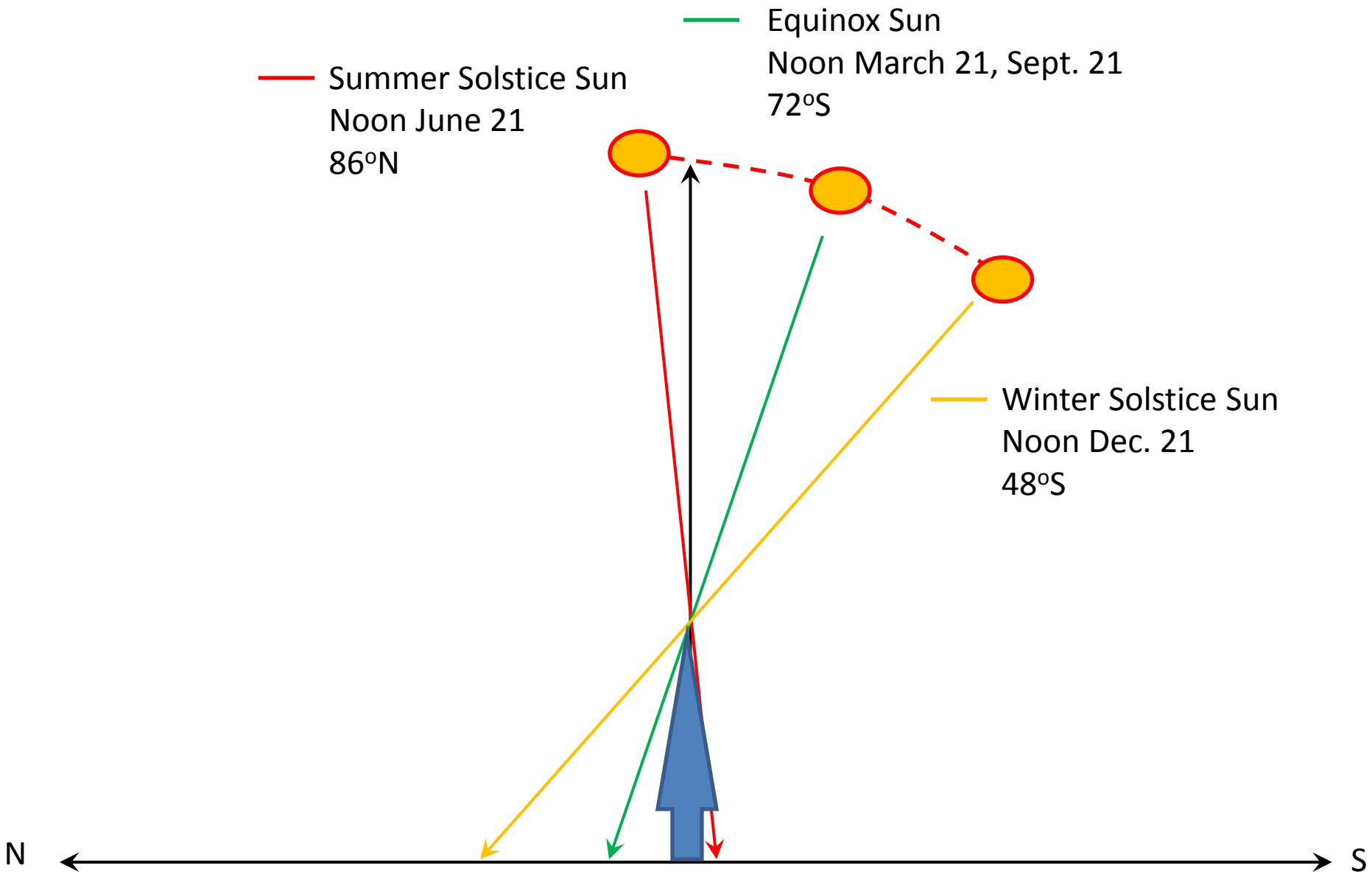
Source: RT Permaculture

Sun Sector Elevations
Puerto Rico 18°N Latitude



Source: RT Permaculture

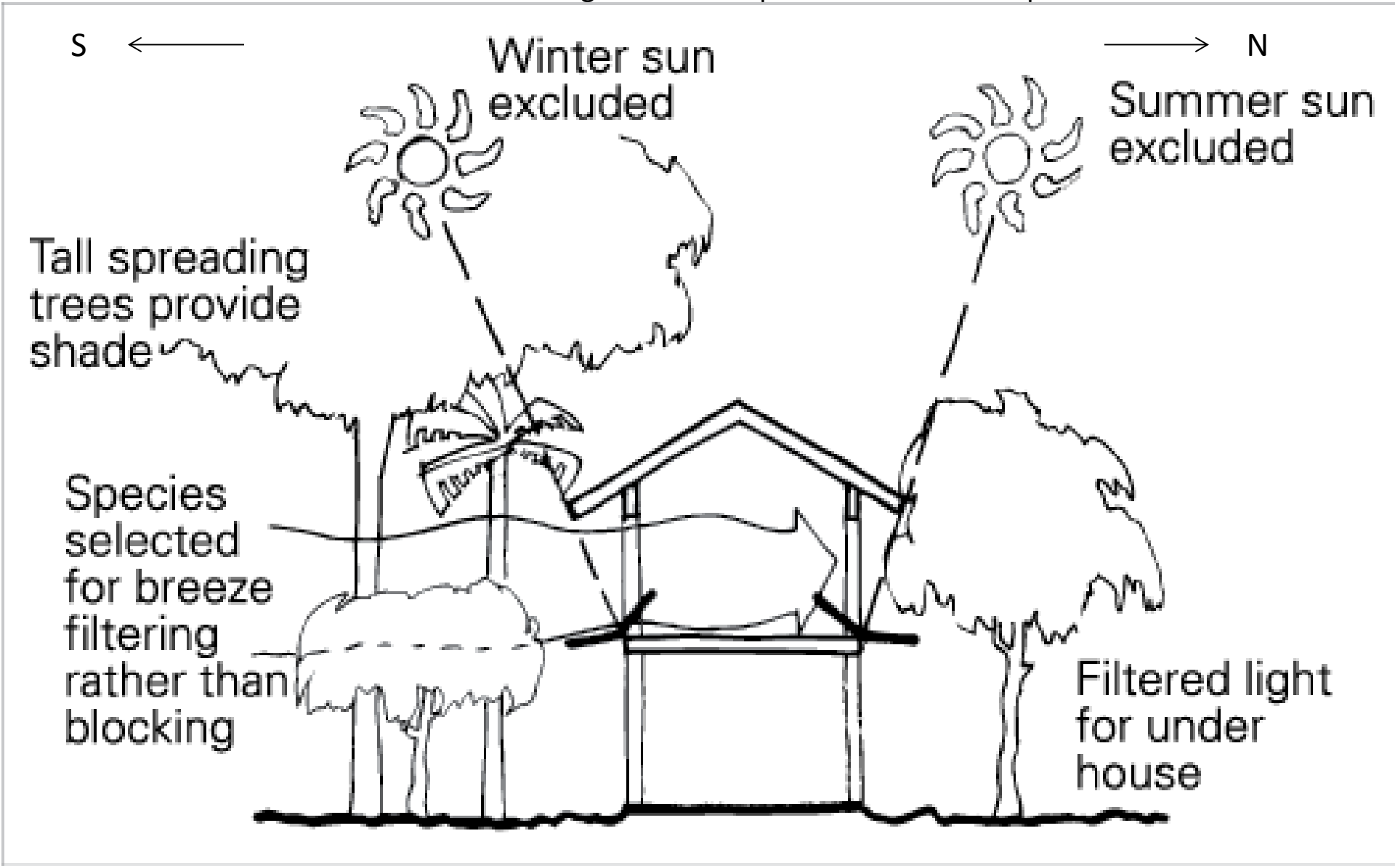
Sun Sector Elevations and Shadows
Puerto Rico 18°N Latitude



Source: RT Permaculture

Tropical Shading for Houses

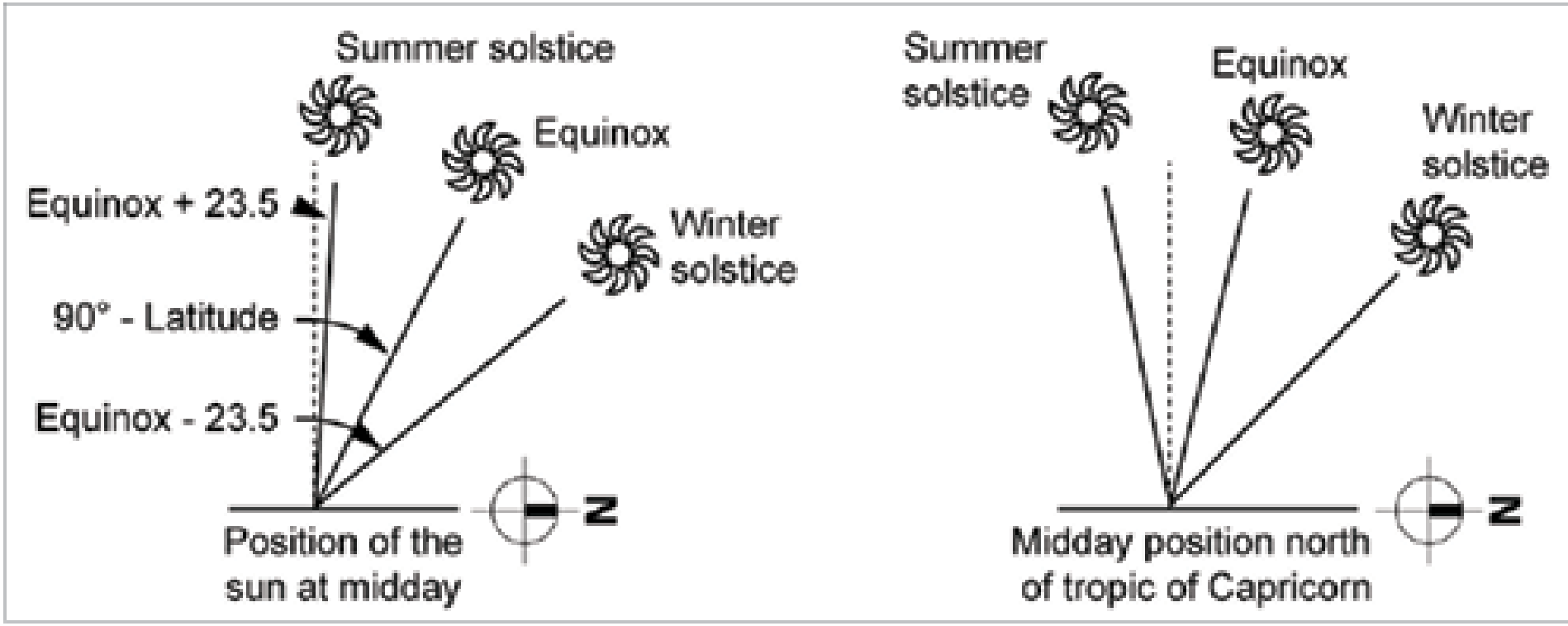
Note: The N-S axis is switched for this diagram which represents the N hemisphere in this orientation



Source: http://www.yourhome.gov.au/passive-design/orientation

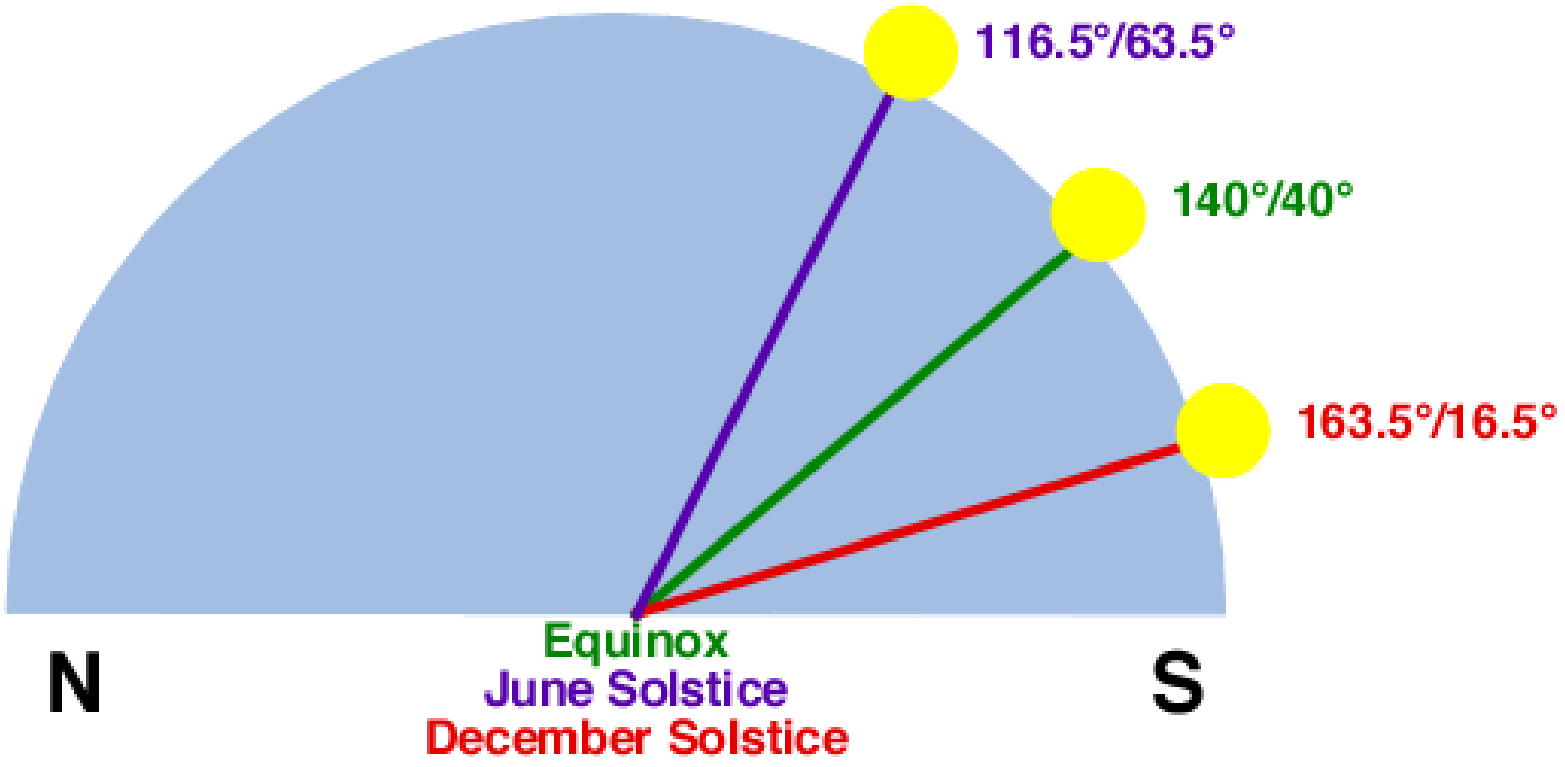
Temperate vs Tropical Sun Elevations S Hemisphere

Note: the N-S axis is reversed from other diagrams



Source: http://www.yourhome.gov.au/passive-design/shading

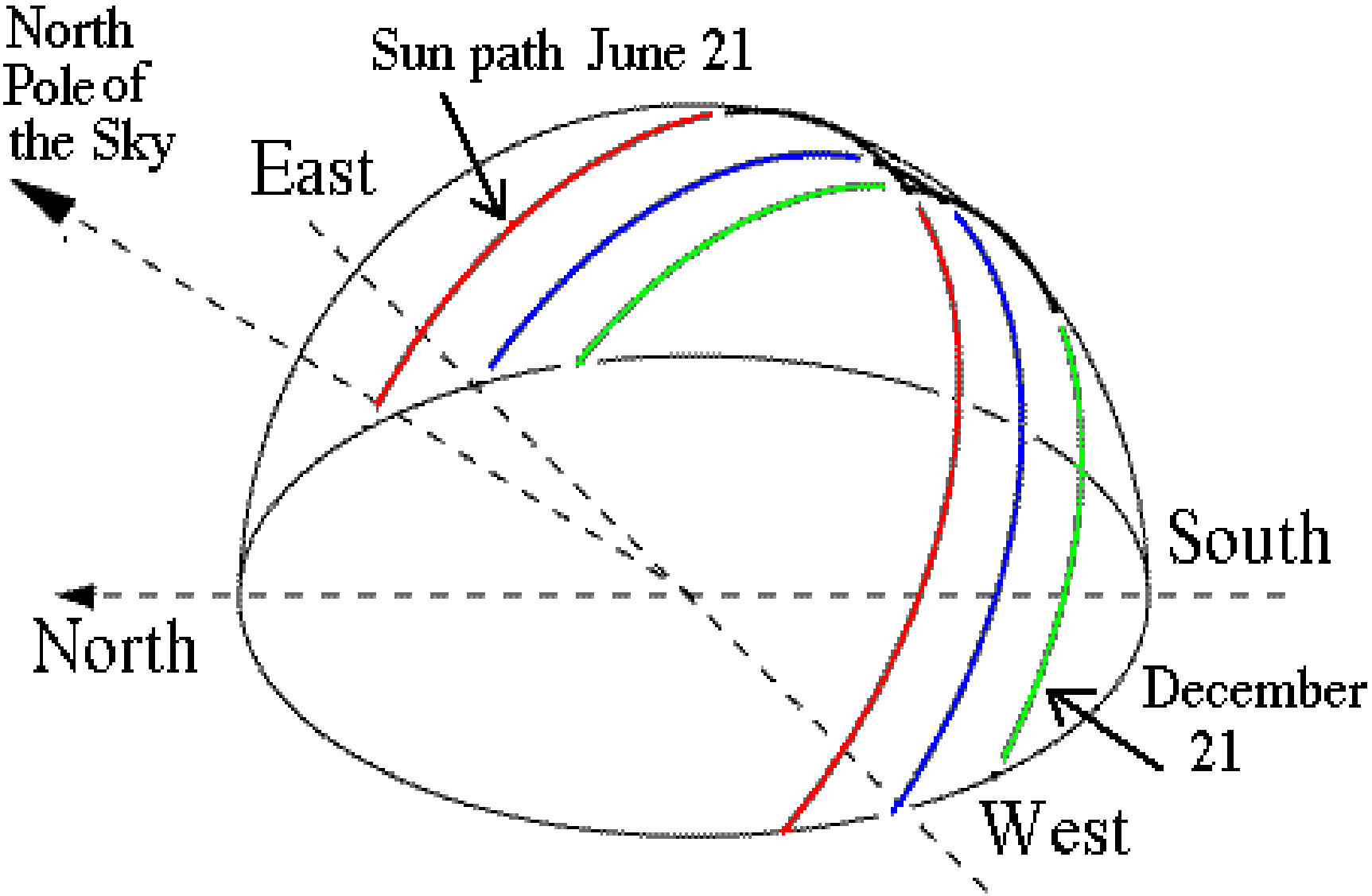
Temperate Sun Angles 50°N



Note: first measurement represents the angle from the northern side of the horizon, while the second measurement is from true south.

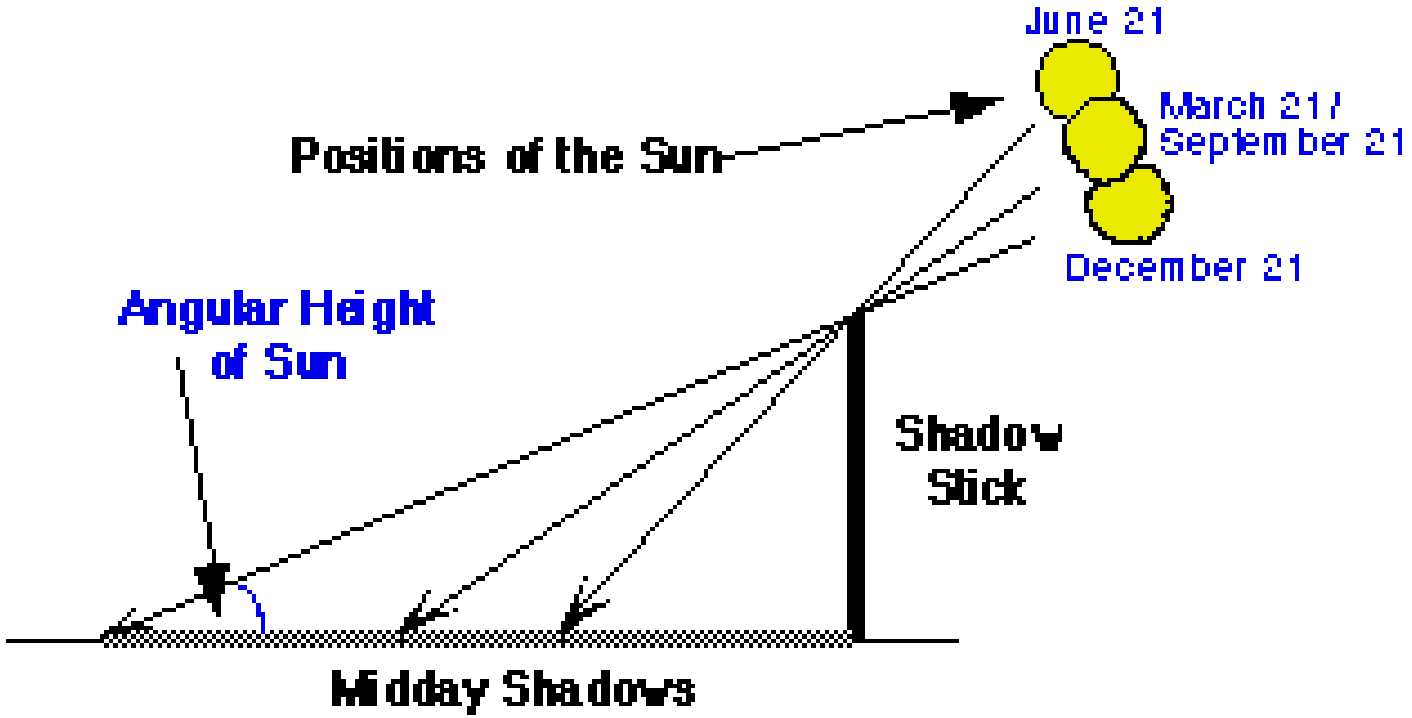
Source: http://www.physicalgeography.net/fundamentals/6h.html

Temperate Sun Angles



Source: http://www.phy6.org/stargaze/Sunangle.htm

Temperate Shadows



Source: http://hea-www.harvard.edu/ECT/the_book/Chap2/Chapter2.html