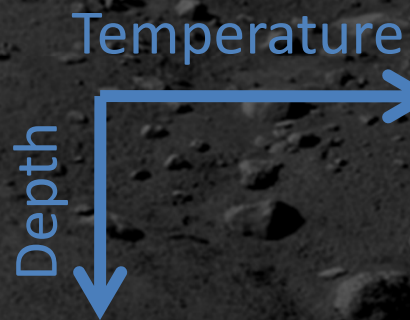


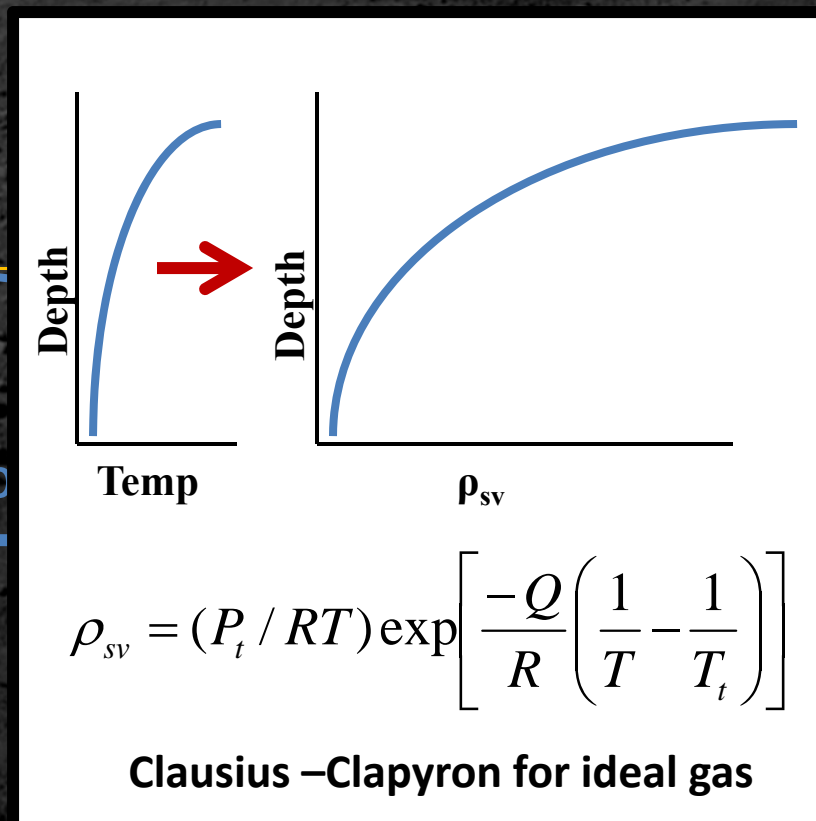
Simple Rules of Ice migration/retention:

Matt Siegler (JPL)



Simple Rules of Ice migration/retention:

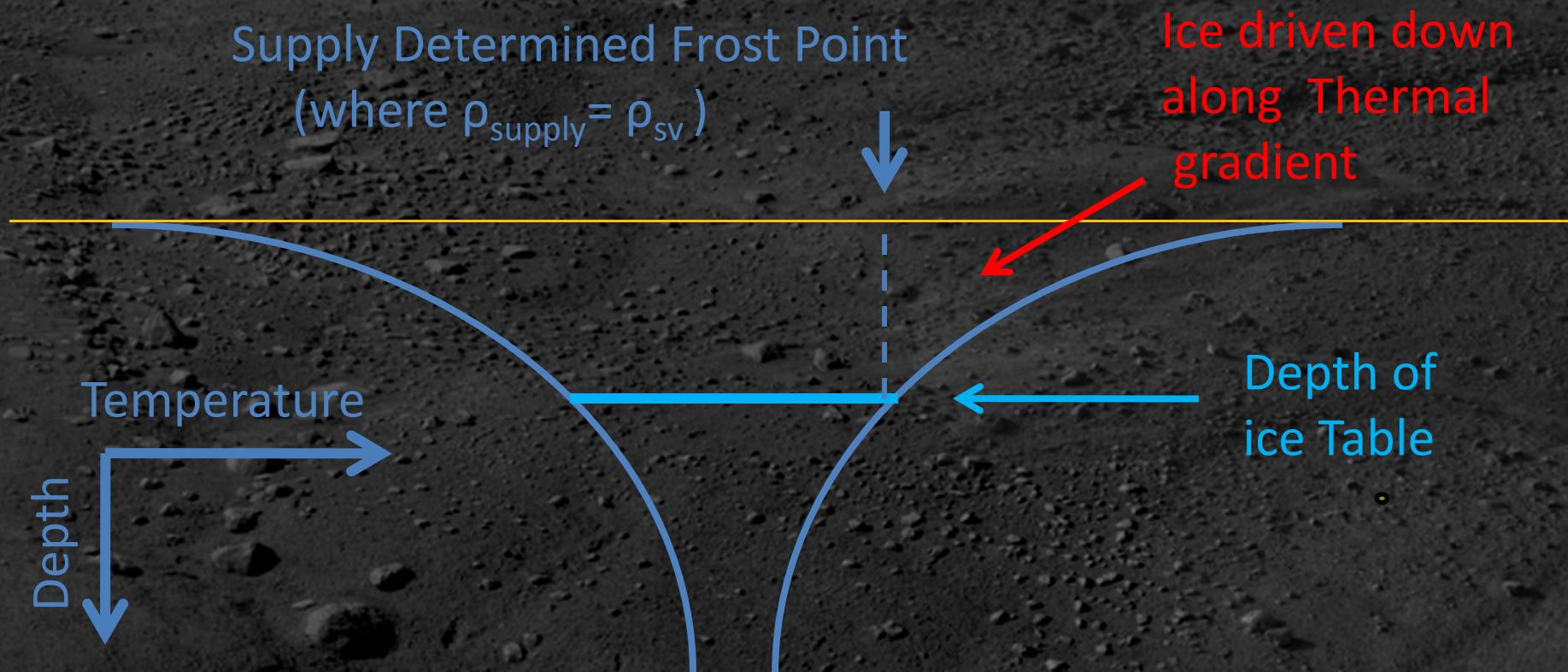
- 1) Ice will migrate along thermal gradient when mobile



Ice driven down
along Thermal
gradient

Simple Rules of Ice migration/retention:

- 1) Ice will migrate along thermal gradient when mobile
- 2) Ice will deposit where the soil is below the frost point



- If it is too warm, ice will not be stable in the subsurface
- Also, effective surface supply may decrease with increasing temperature and sublimation

Supply Determined Frost Point

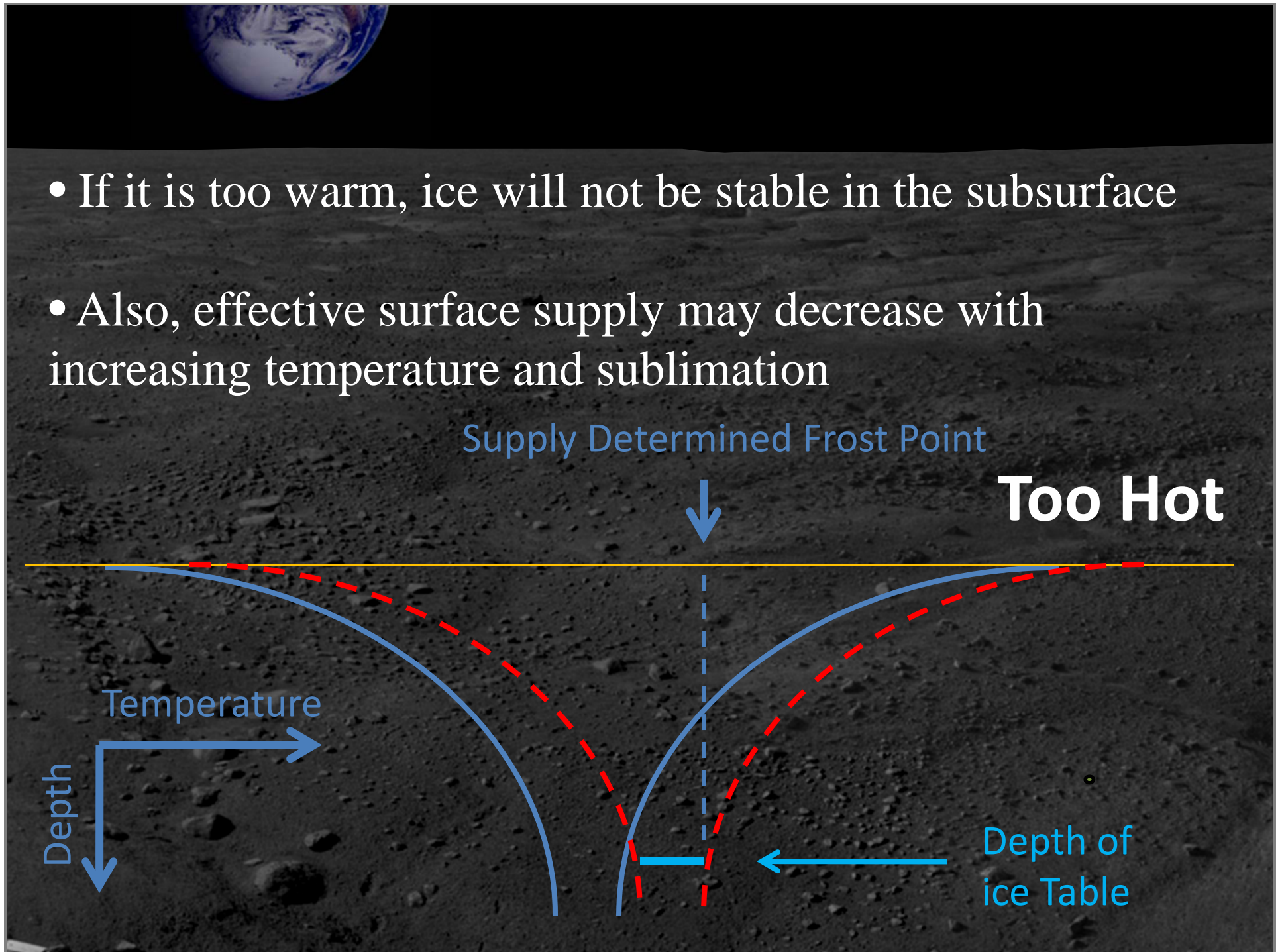


Too Hot

Temperature

Depth

Depth of
ice Table

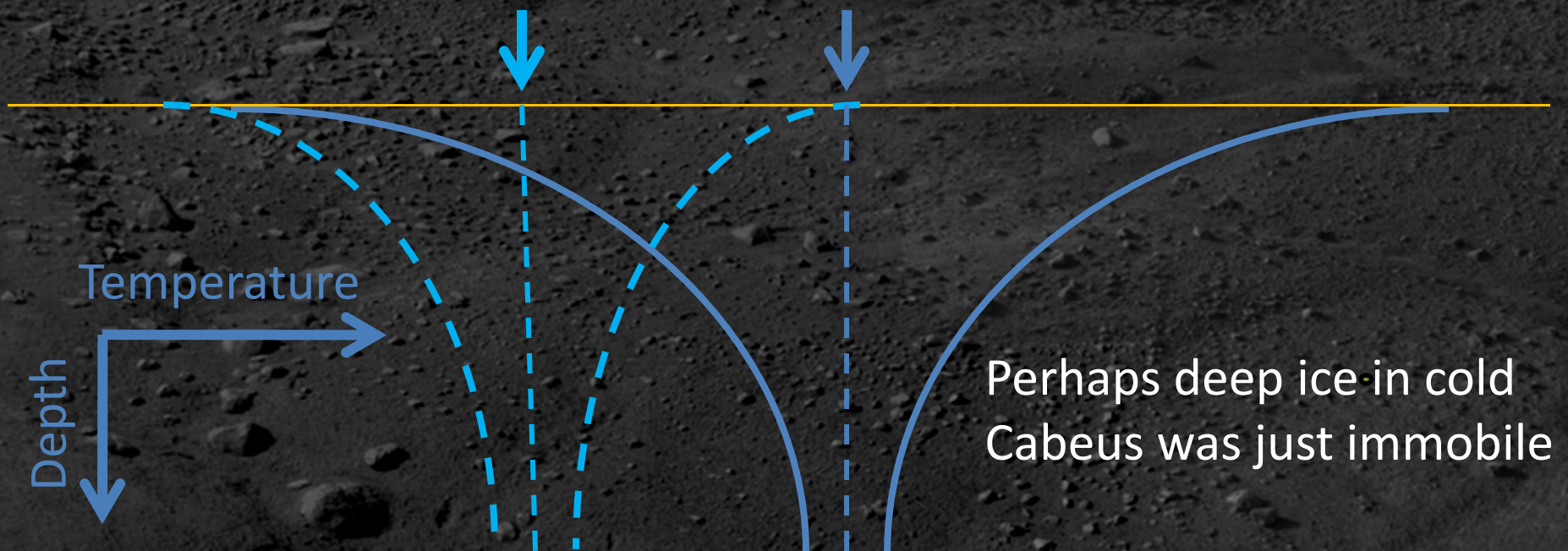


- If it is too cold, or temperature amplitudes are low, ice will be immobile

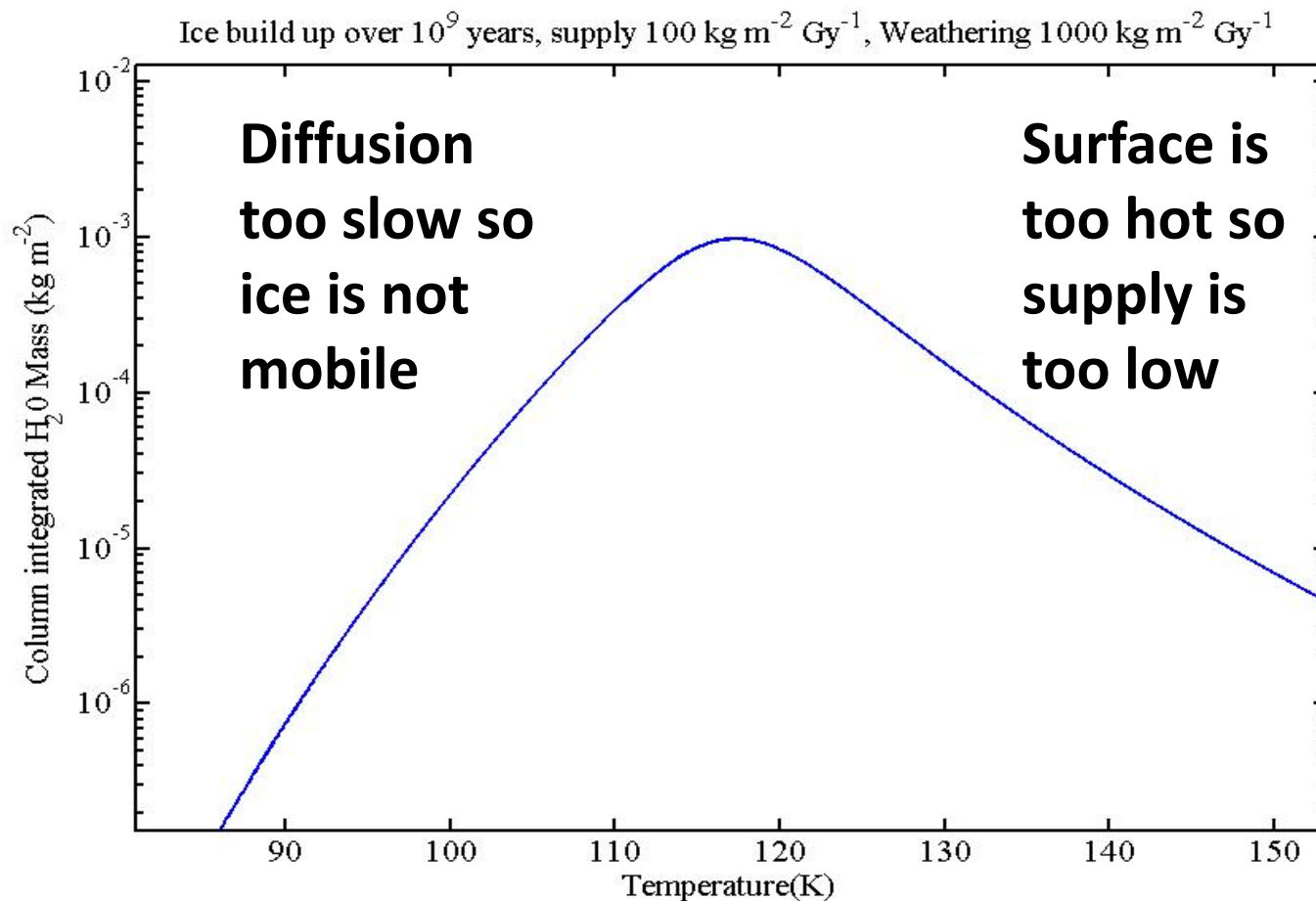
Mean 80K,
Small gradient
(Ice Immobile)

Mean 120K,
Large gradient
(Ice Mobile)

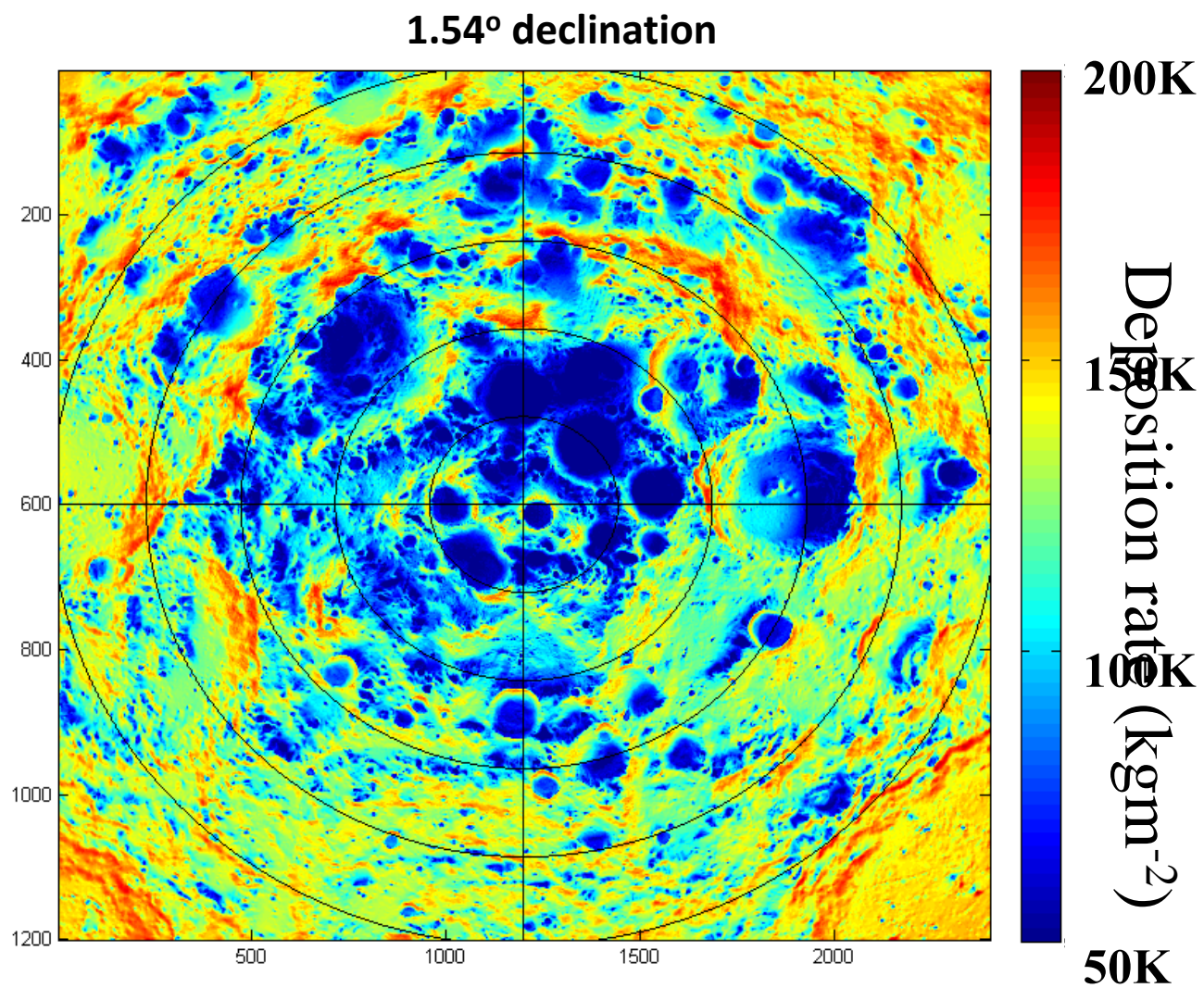
Too Cold

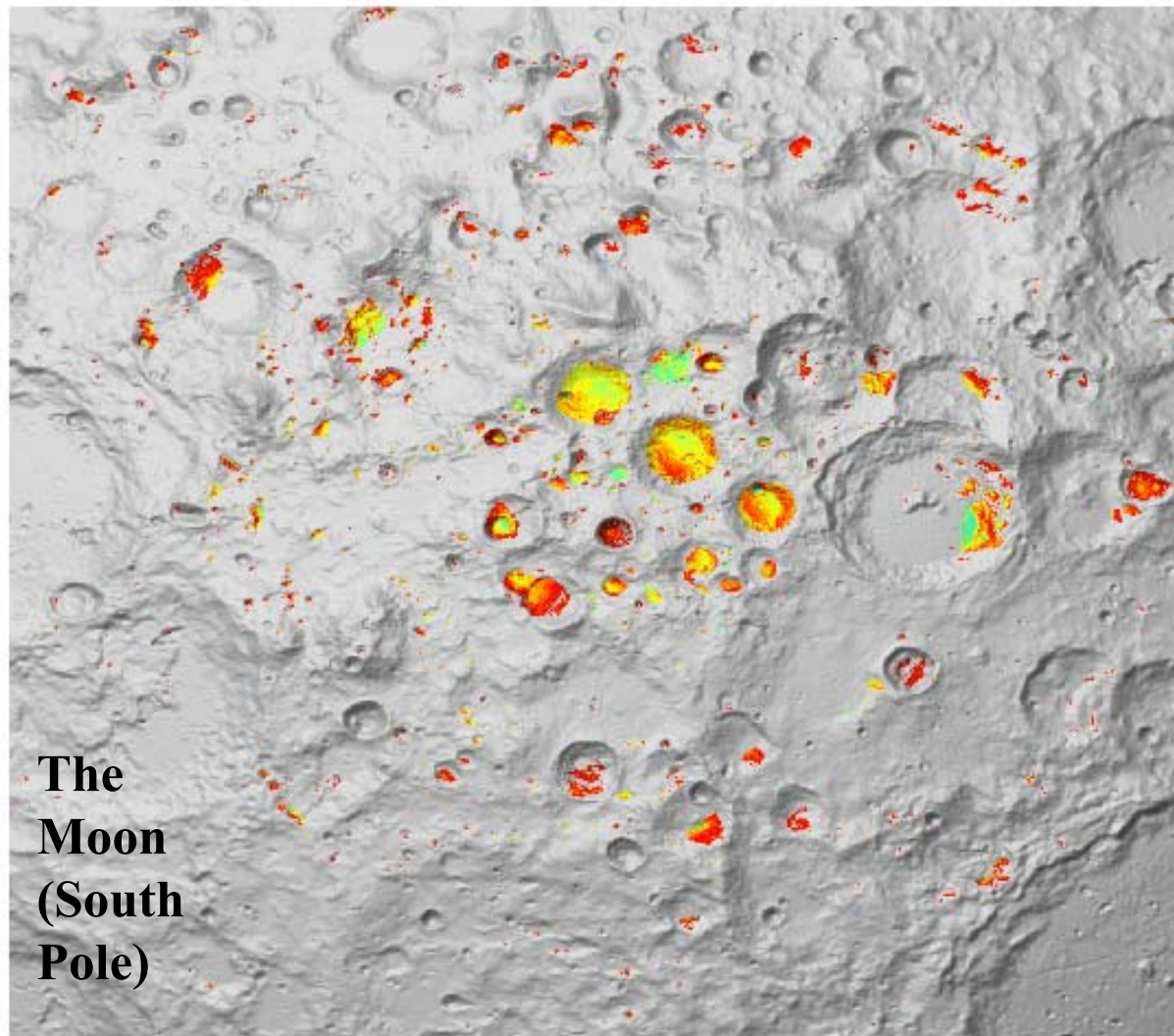


This results in a peak temperature for ice collection

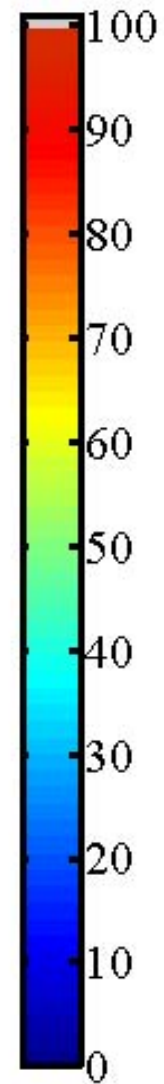


Schorghofer and Taylor, 2007



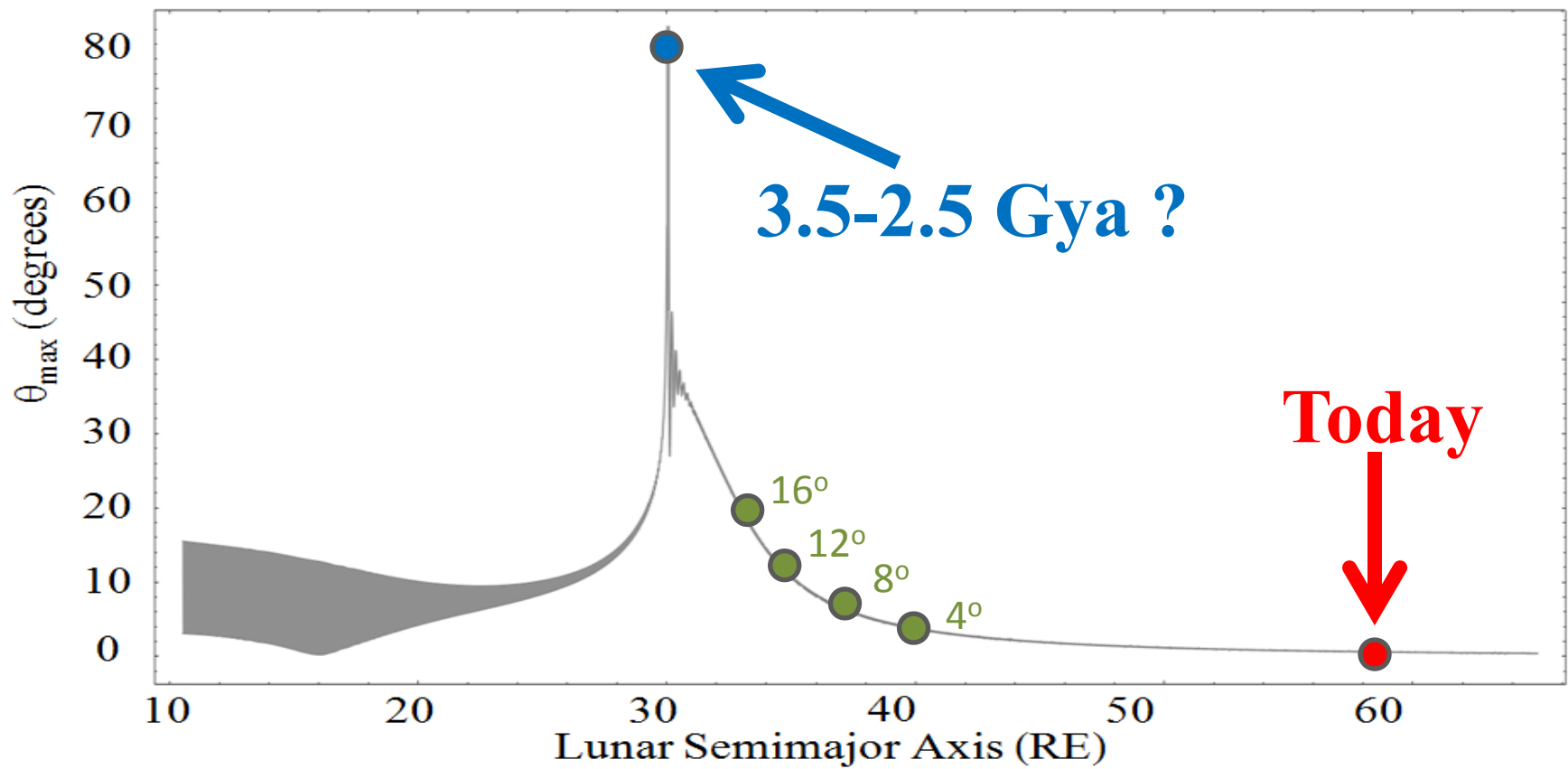


**The
Moon
(South
Pole)**

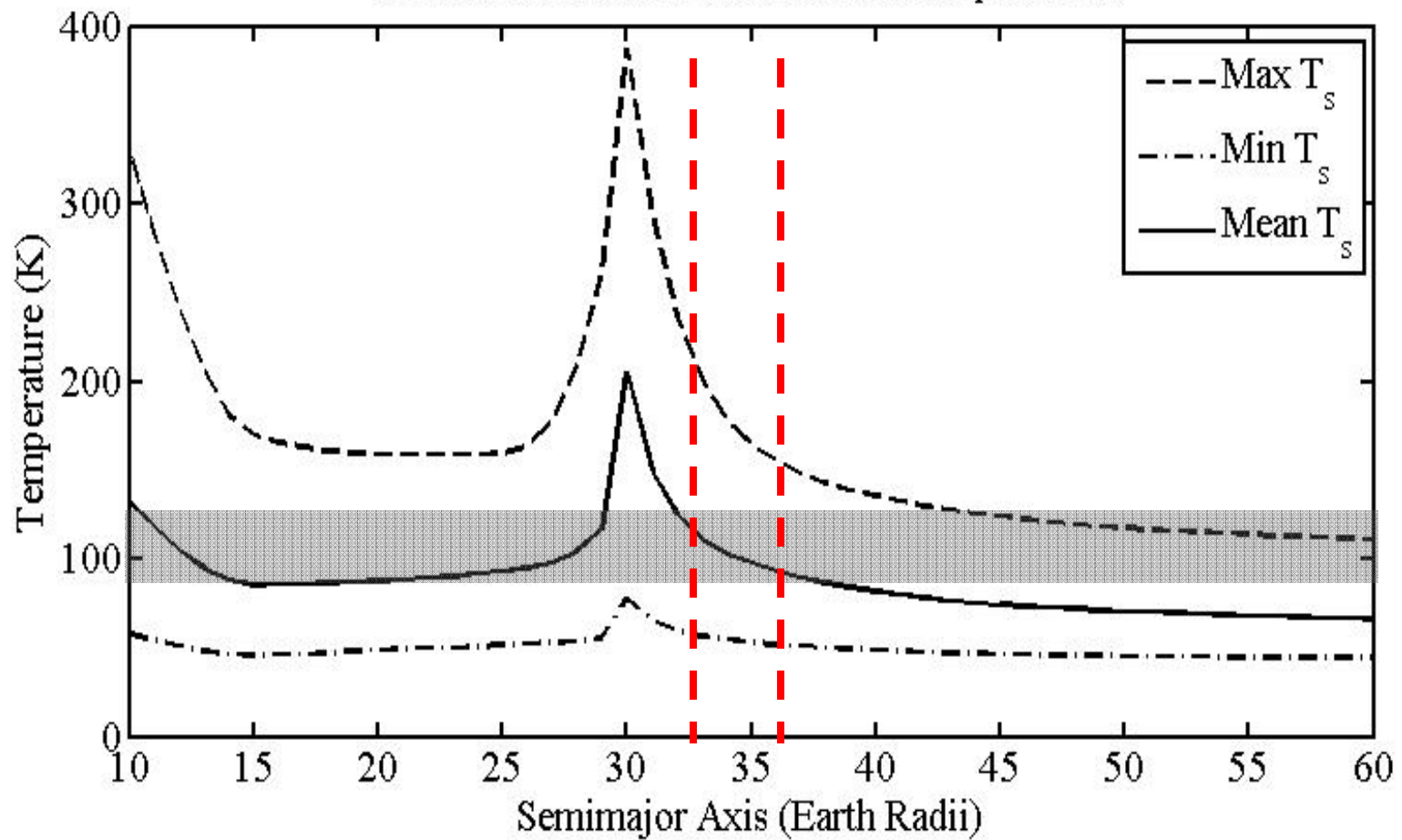


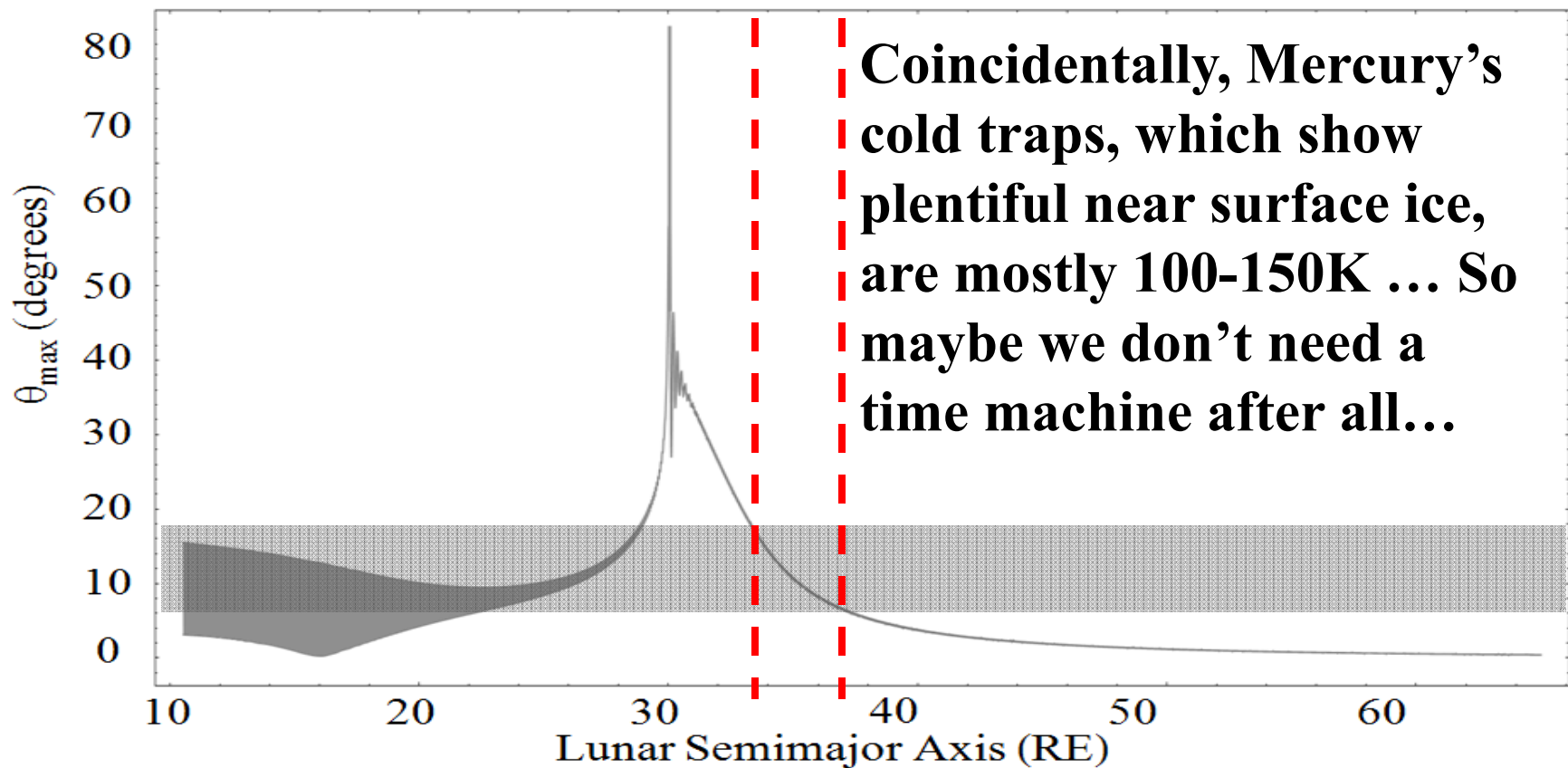
Maximum temperature

after Elphic *et al.* , 2010

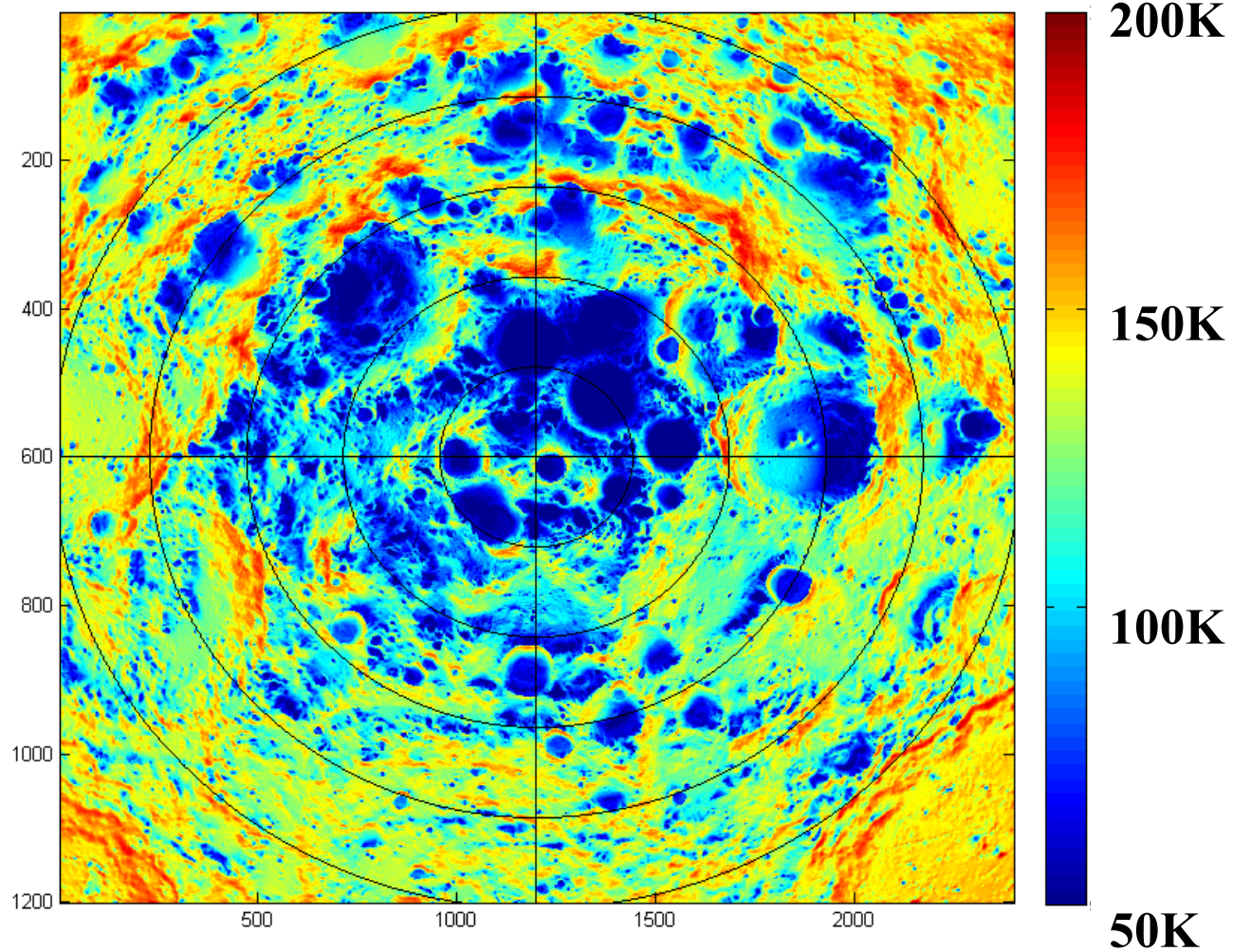


Shackleton Crater Model Surface Temperatures

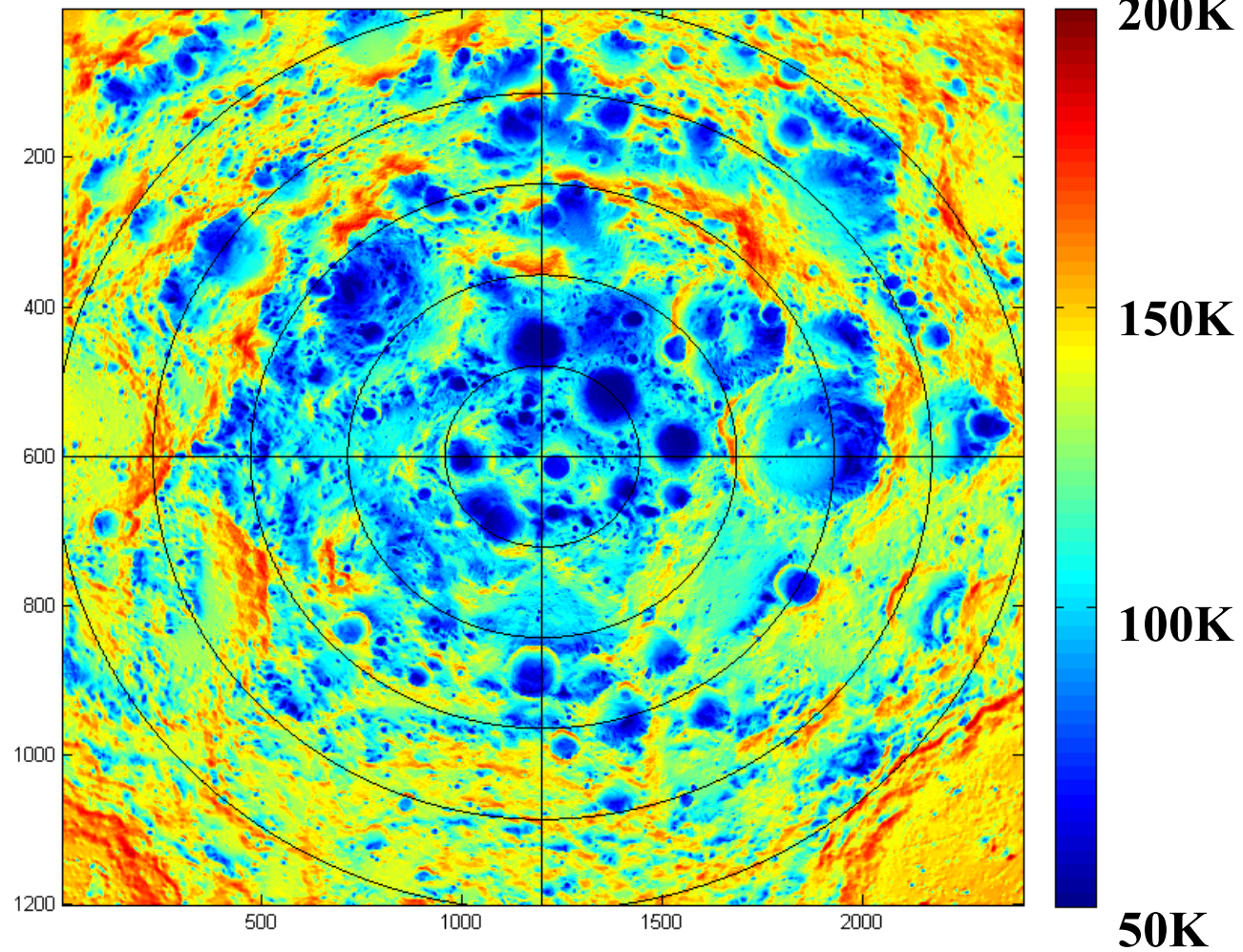




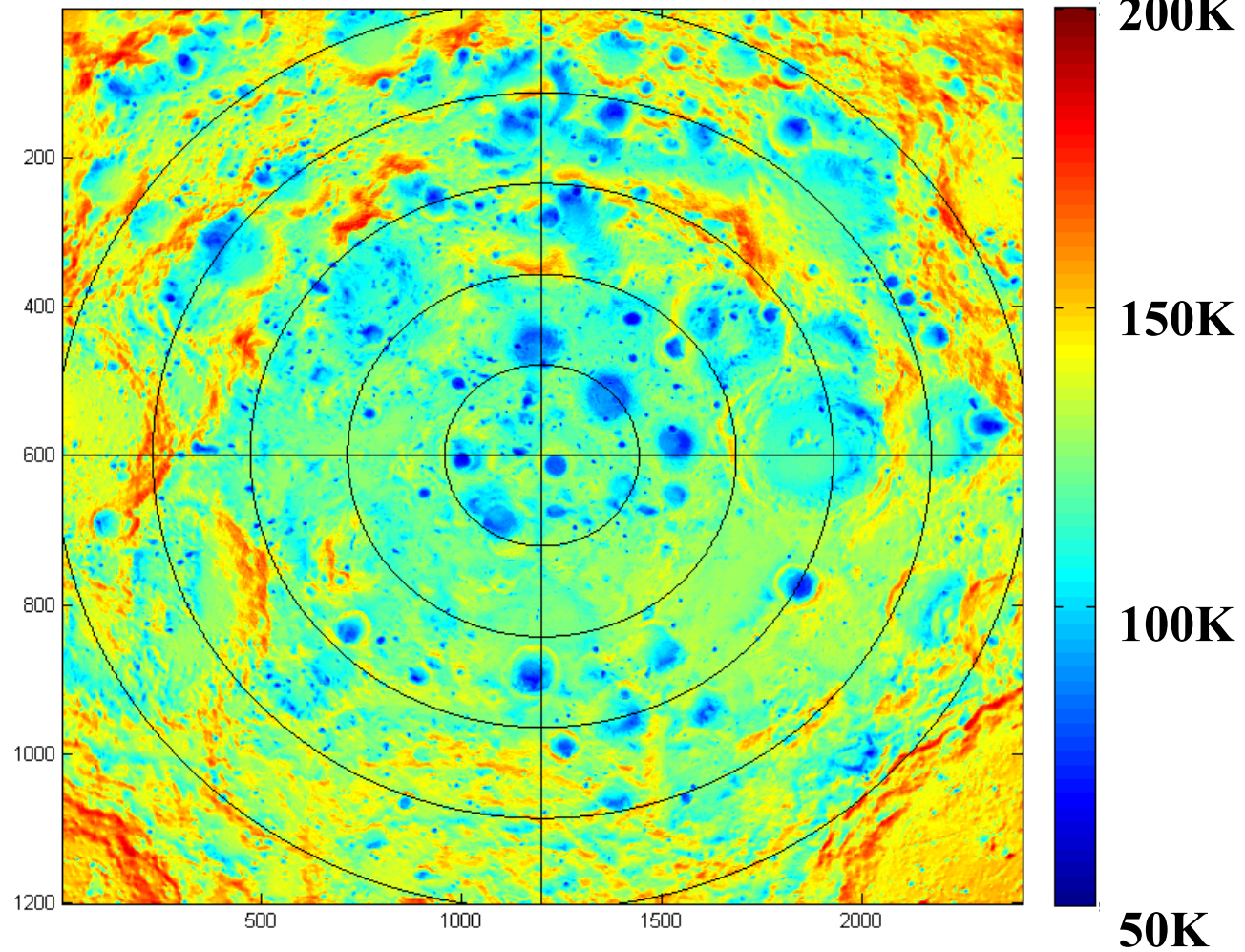
1.54° declination



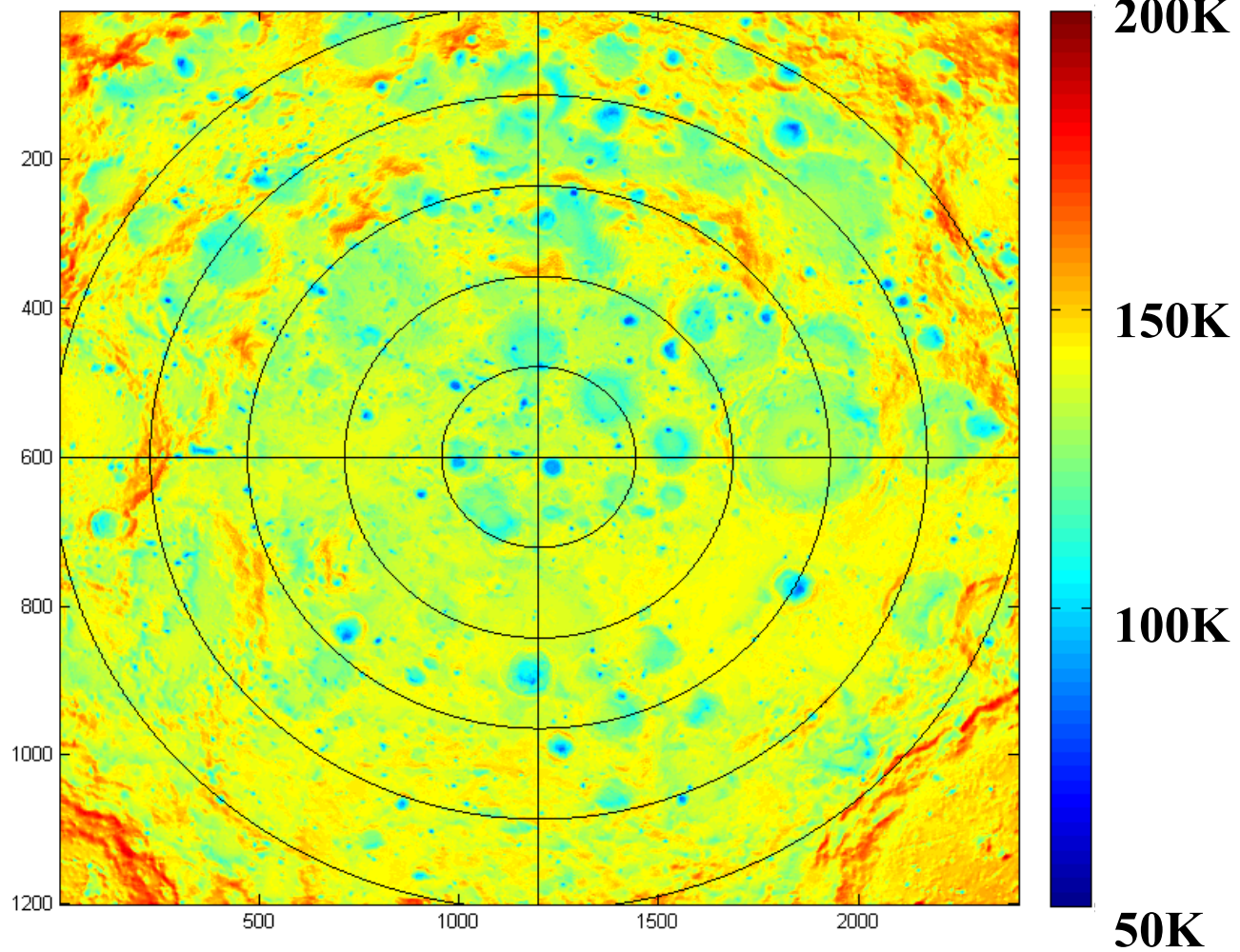
4° declination

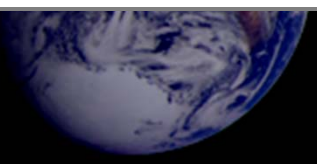


8° declination



12° declination





16° declination

