16 Years of Land surface emissivity from AMSR-E and AMSR2 observations

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MODIS V5 vs. V6 LST Product





A 3K difference in LST could lead to about 1% error in LSE estimates.



(Prakash et al., 2018)

Effective Temperature vs. Infrared-based LST



$$T_{s(t)}^{C} = T_{s(t)} \pm \frac{\overline{Tb_{day(t)}} - \overline{Tb_{night(t)}}}{2}$$

where, $\overline{Tb_{day(t)}}$ and $\overline{Tb_{night(t)}}$ are the mean composite Tbs for all the day and night overpasses for a specific month, $T_{s(t)}^{c}$ is the corrected effective temperature consistent with PMW data, and $T_{s(t)}$ is the mean daily skin temperature.

AMSR-E vs. AMSR2



$$\varepsilon_{(p,v)} = \frac{Tb_{(p,v)} - T\uparrow -T\downarrow e^{-\tau(0,H)/\mu}}{e^{-\tau(0,H)/\mu}(T_s - T\downarrow)}$$

(AMSR-E & AMSR2) vs. (TELSEM2)



(Prakash et al., 2018)

Emissivity Frequency Dependence



Detecting Freeze/Thaw Using Emissivity

