Why is Land Surface Temperature important?
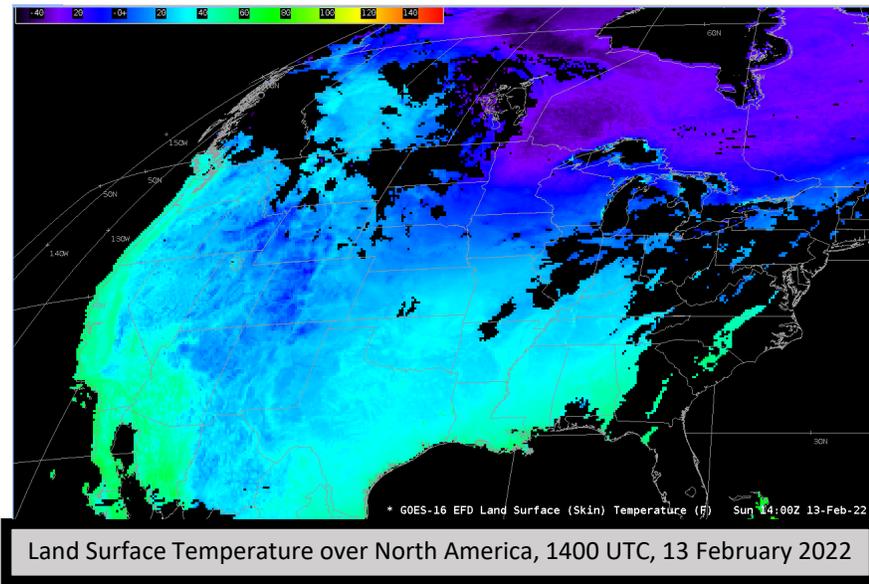
The GOES-R Land Surface Temperature field depicts the skin temperature as detected in clear skies by satellite. It provides information in regions without thermometers, and can provide useful information about thermal stresses, especially during extreme heat or extreme cold.

It has agricultural uses as well as it can highlight regions where sub-freezing temperatures are occurring.

Land Surface Temperature over North America, 1400 UTC, 13 February 2022

ABI Band	Wavelength (μm)	Band Product Used
14	11.2	Brightness Temperature
15	12.3	Brightness Temperature

Also uses: Clear Sky Mask, Snow/Ice Mask, Total Precipitable Water, Land Surface Emissivity

Useful Links
Advanced Theoretical Basis Document: (**Link**)

Animation of Latest Values from NOAA/STAR (Link)

Product Validation (Link)

Operational Information

Land Surface Temperature: This product provides information on the Earth's skin temperatures.   This is different from shelter temperatures (for example: ASOS thermometers) that are at 1.5 m.

Resolution: Full pixel-sized resolution: 2-km resolution at nadir.

GOES RGBs with Derived Product Readouts: Land Surface Temperature readouts are paired with two RGBs in AWIPS: CIRA GeoColor and Day Land Cloud RGB

Limitations

This is an hourly product: Land Surface Temperature is computed hourly. This matches the hourly observations at ASOS stations. Rapidly-evolving surface temperature changes (for example: Santa Ana winds) will be under-sampled.

Clear-Sky only Product: The product is computed only in regions where clouds are not present.

February 2022