Applications for Near-Real Time Satellite Cloud and Radiation Products

Introduction
With increases in computer capabilities & satellite imager data availability, near-real time (NRT) products generated from satellite data are becoming more common & finding more applications. At NASA LaRC, we have been providing satellite-based cloud and radiation parameters in NRT for over a decade. As these analytical datasets become more widely known, researchers have been using them to improve their nowcasts and forecasts of weather and other atmospheric phenomena. The products, their availability and some of their current applications are summarized in this poster.

Products
All products are available at pixel level some are also averaged to particular grids. Averaging is possible. (See website for details).

Standard, Single-Layer VSS5/SIBT
- 0.65, 1.6 pm Reflectances
- 3.7, 4.7, 8.7 pm Temp
- 12.3, 13.5 pm Temp
- Optical Depth, IIR emissivity
- Broadband Albedo
- Cloud effective particle size
- Liquid ice Water Path
- Clear-sky Skin Temperature
- Effective Temp, height, pressure
- Icing Potential
- Top / Bottom Height
- NDA, VDA, I Cin
- Overshooting tops

Multi-Layer CO2 channel only (GOES-12 & later)
- Multi-layer ID (single or 2-layer)
- Broadband OLR
- Effective temperature
- Optical depth
- Thickness ice or liquid water path
- Liquid/Ice Water Path
- Effective Temp, height, pressure
- Optical Depth, IR emissivity
- Cloud effective particle size
- Convective & Lightning initiation
- Airframe Icing Potential

Potential applications
- Surface radiation budget, solar energy
- Aerosols
- Icing Potential
- Broadband Albedo
- 13.3 m Temp
- Effective particle size
- Cloud water path
- Convective & Lightning initiation
- Airframe Icing Potential

Assimilation & Forecasting
- NWP Deep Convection
- Convective & Lightning initiation
- Airframe Icing Potential

On smartphones: http://cloudsgate2.larc.nasa.gov

Availability
On the web: http://cloudsgate2.larc.nasa.gov

Other applications
- Ground research support
- Stewardship is supported (see website below)
- Surface radiation budget, solar energy
- Convective & Lightning initiation
- Airframe Icing Potential
- Icing Probability

On the web: http://cloudsgate2.larc.nasa.gov

References