Applications for Near-Real Time Satellite Cloud and Radiation Products

Science Systems and Applications Inc, Hampton, VA
S. Benjamin NOAA ESRL, Boulder, CO
T. A. Jones NESL/CIMMS, Norman, OK
R. Reichle, M. Rienecker, A. da Silva, P. Norris NASA/GSFC, Greenbelt, MD

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.

On smartphones: https://cloudgate2.larc.nasa.gov

Products
All products are available at pixel level; some are also averaged to particular grids. Averaging is Realistic.

- **Standard, Single-Layer VISST/SIB**
  - 0.65, 1.6 µm Reflectances
  - Mask, Phase
  - 12 or 13.3 µm Temp
  - Cloud Effective Particle Size
  - Liquid-Ice Water Path
- **Broadband OLR**
- **Clear-sky Skin Temperature**
- **Icing Potentials**
- **Effective Temperature**
- **Optical Depth**
- **Thickness**
- **Effective Particle Size**
- **Top/Bottom Pressure**
- **Over/Under cloud**

Availibility
- On the web: http://cloudgate2.larc.nasa.gov
- On smartphones: http://cloudgate2.larc.nasa.gov

Nowcasting for Aviation Safety & Management

Airframe Icing Potential

- Cloud properties, temperature, phase, effective droplet size, optical depth, & LWP define icing probability & intensity for clouds not covered by cirrus. Results compare well with reports (Plase). Areas of unknown have cirrus clouds. Use of multilayered cloud stats can reduce unknown data.

Assimilation & Forecasting

- **NWP Deep Convection**
- **LaRC Clear-sky Skin Temperature (K)**
- **Airframe Icing Potential**
- **Convective & Lightning Initiation**
- **Overshooting Tops**

References