Climate Hyperspectral InfraRed Product (CHIRP) Combining AIRS, CrIS, and IASI

AIRS Science Team Meeting

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A Climate Hyperspectral InfraRed Product (CHIRP)

Motivation

- Provide climate-level radiance time series spanning AIRS + CrIS, IASI
- User friendly by using a single spectral instrument line shape (ILS)
- A high-stability 25+ year long record of climate forcings and response
- Allows Level 2 retrievals to use a common Forward Model (RTA) and channel selection

Implementation

- Convert AIRS (and IASI) to a slightly modified CrIS ILS
- Use satellite overlaps to adjust AIRS radiometry to SNPP CrIS (0.2-0.3K)
- Three Levels of CHIRP Products:
  - CHIRP L1c (all scenes converted for Level 2 retrievals)
  - CHIRP L1 Gridded: 16 day, ~1 deg gridded radiance averages
    - Likely most used product for climate research
  - CHIRP L3 (geophysical) Anomalies
    - T(z), H_2O (z), T_{surf}, etc retrievals derived from CHIRP L1 Gridded
    - Quick to produce for frequent reprocessing
    - Will use very minimal a-priori information