McIDAS-V Support for JPSS
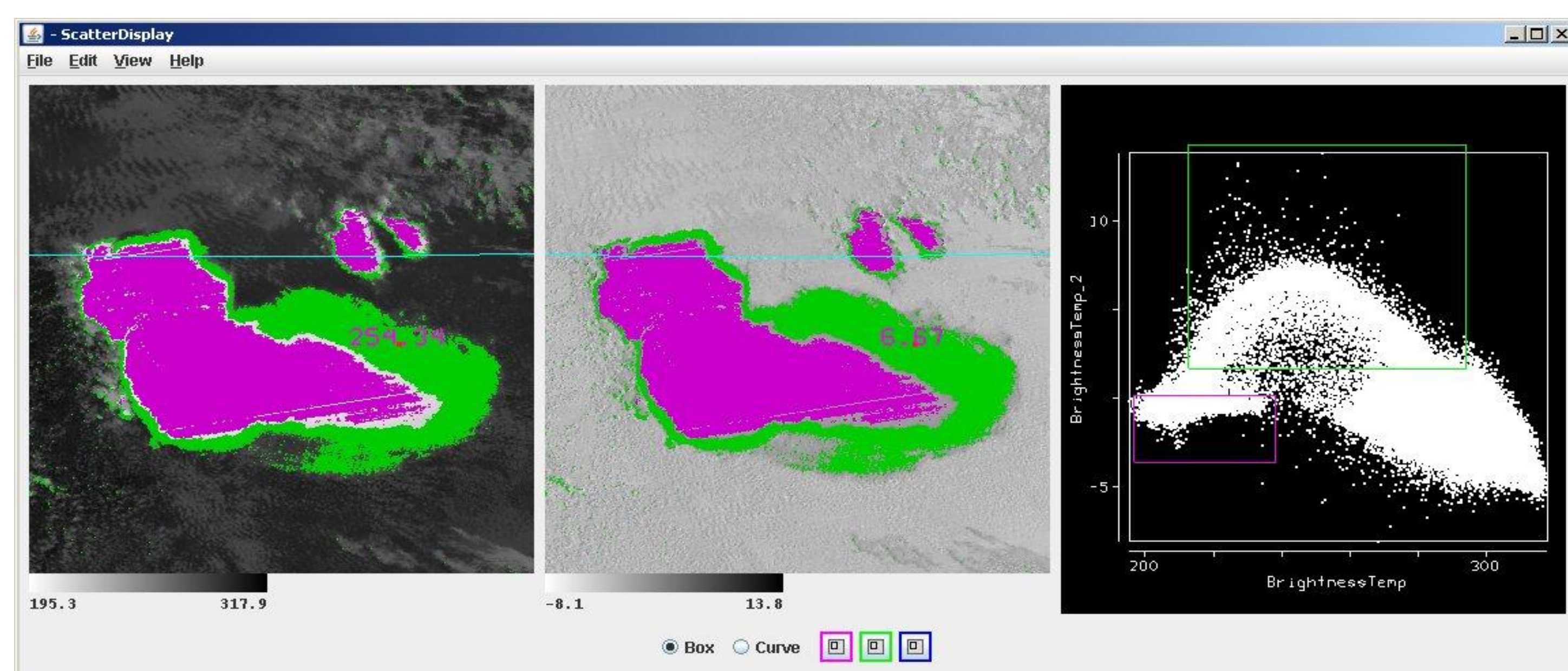## Advanced Visualization for Remote Sensing Data
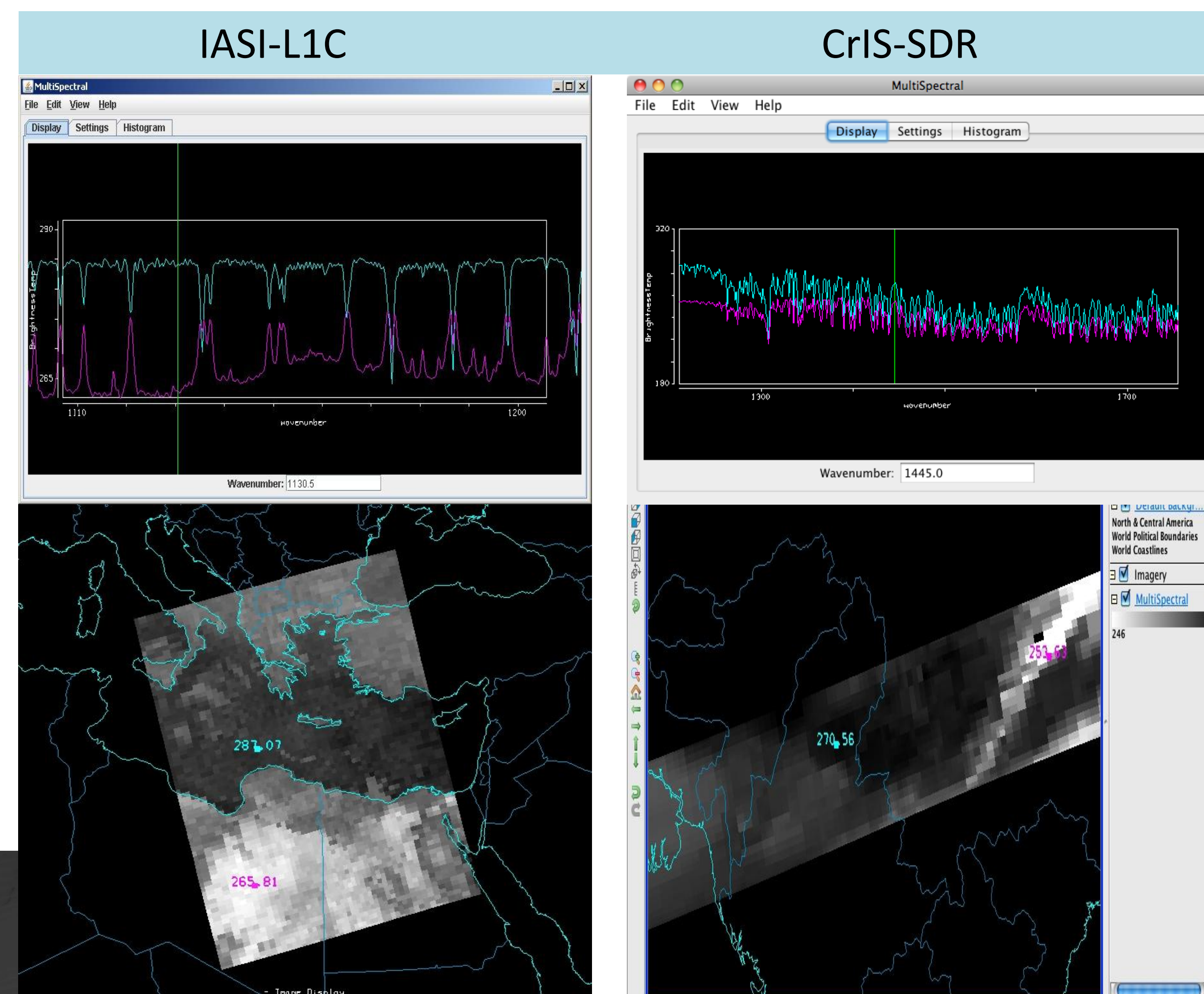
Tom Rink Tom Achtor (UW-SSEC).

- **Interactive 4-D Visualization.**

- **Abstract Data Model – integrates a wide array of geophysical data.**

- **Cross-platform, object-oriented framework – extendable.**

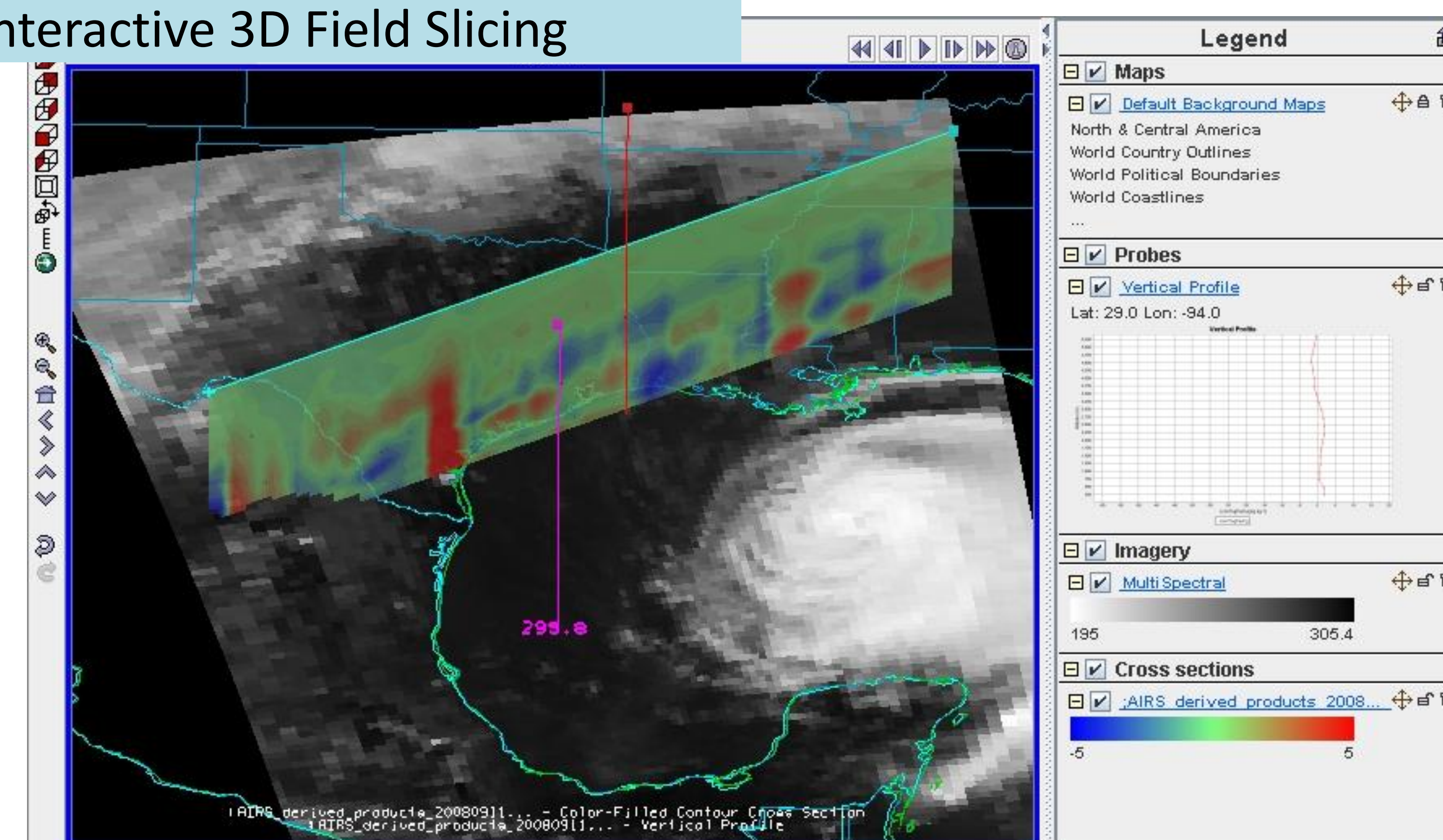- **Python based User defined computation.**

McIDAS-V is a Java-based, open-source, freely available software package for analysis and visualization of geophysical data. Its advanced capabilities provide very interactive 4-D displays, including multi/hyper-spectral analysis and visualization, linked to an abstract mathematical data model with built-in metadata for units, coordinate system transforms and sampling topology. A Jython interface provides user defined analysis and computation in terms of the internal data model. These powerful capabilities to integrate data, analysis and visualization have been applied to MODIS, AVHRR, AIRS and IASI and are currently being extended to the JPSS suite of instruments. The object oriented framework design allows for specialized extensions for novel displays and new sources of data. Proxy data for VIIRS, CrIS and ATMS, obtained from the NOAA Gravite Server, have been utilized in McIDAS-V via custom data adapters.
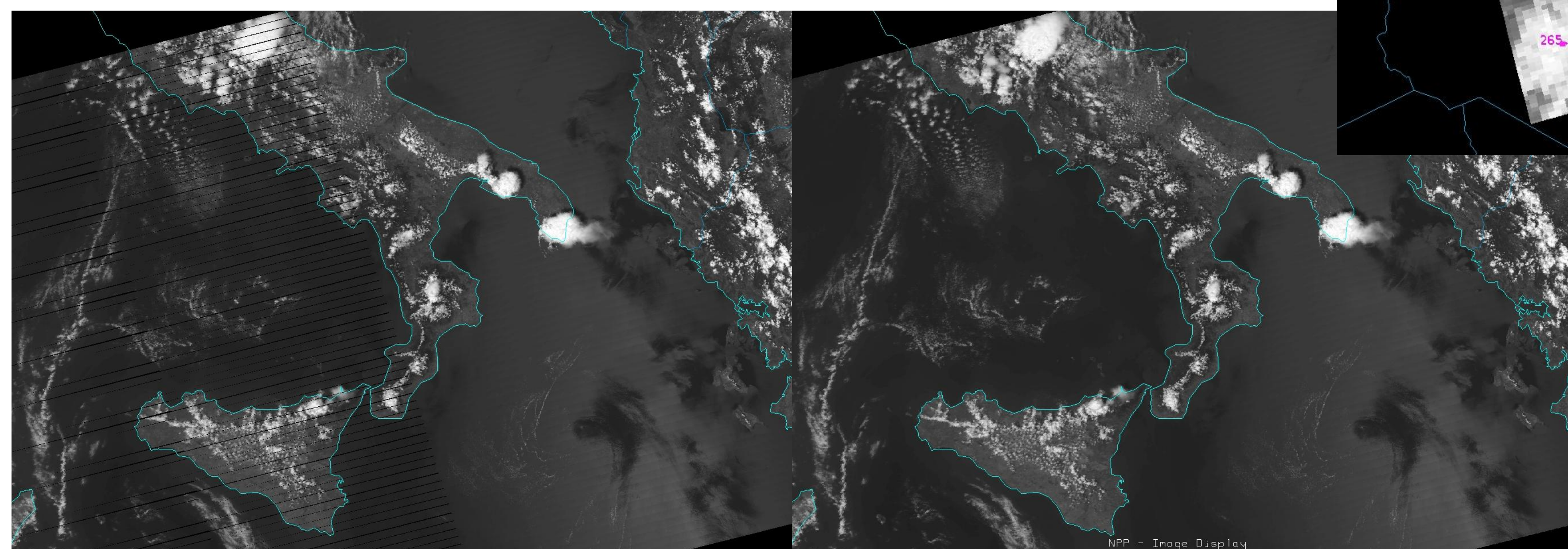

Modis B29-B31 < 0, except in the presence of thin ice clouds which have strong absorption at 11µm. In this case, scatter points near the B29-B31 max are selected with the corresponding image pixels colored green.
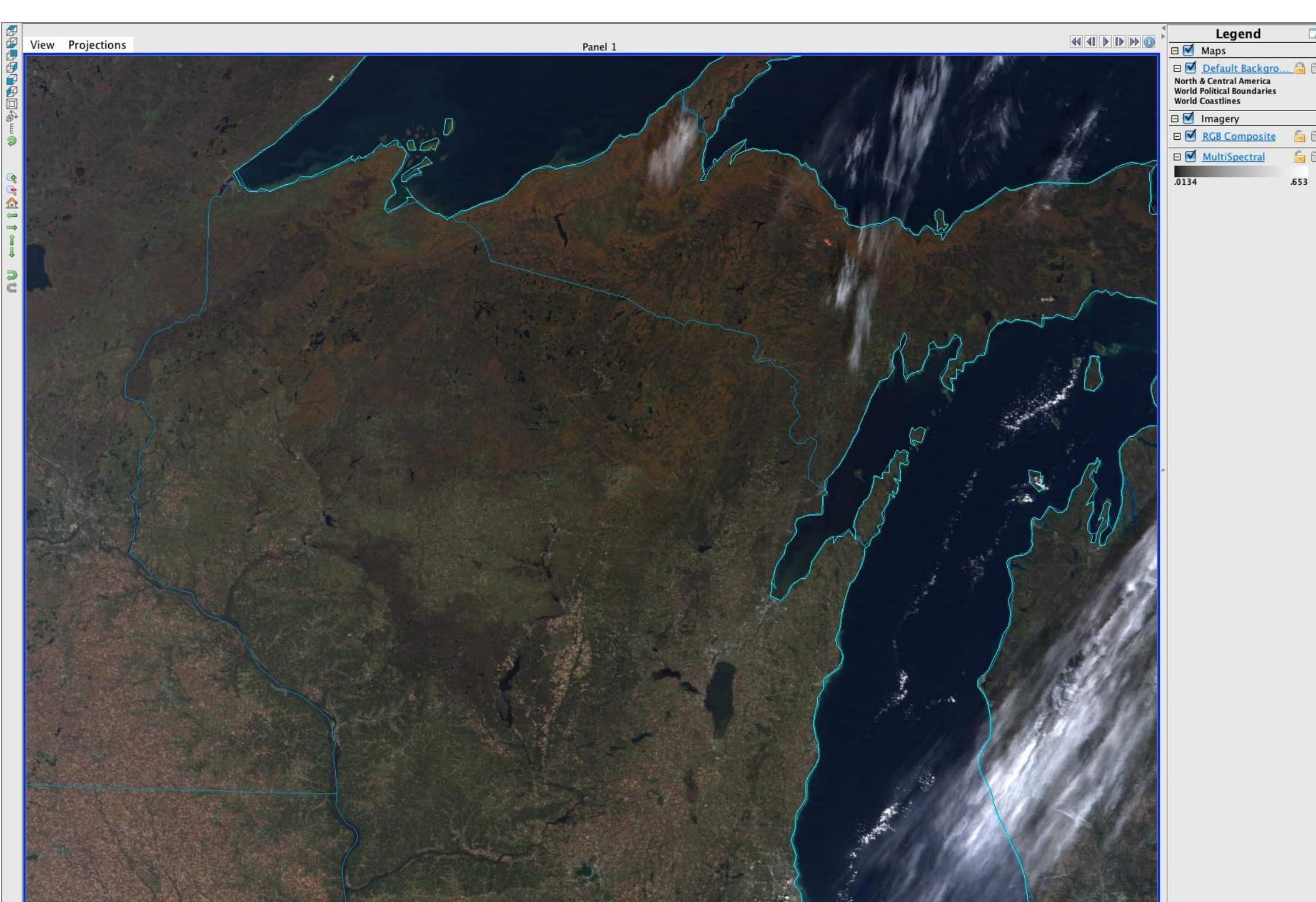
IASI-L1C

CrIS-SDR

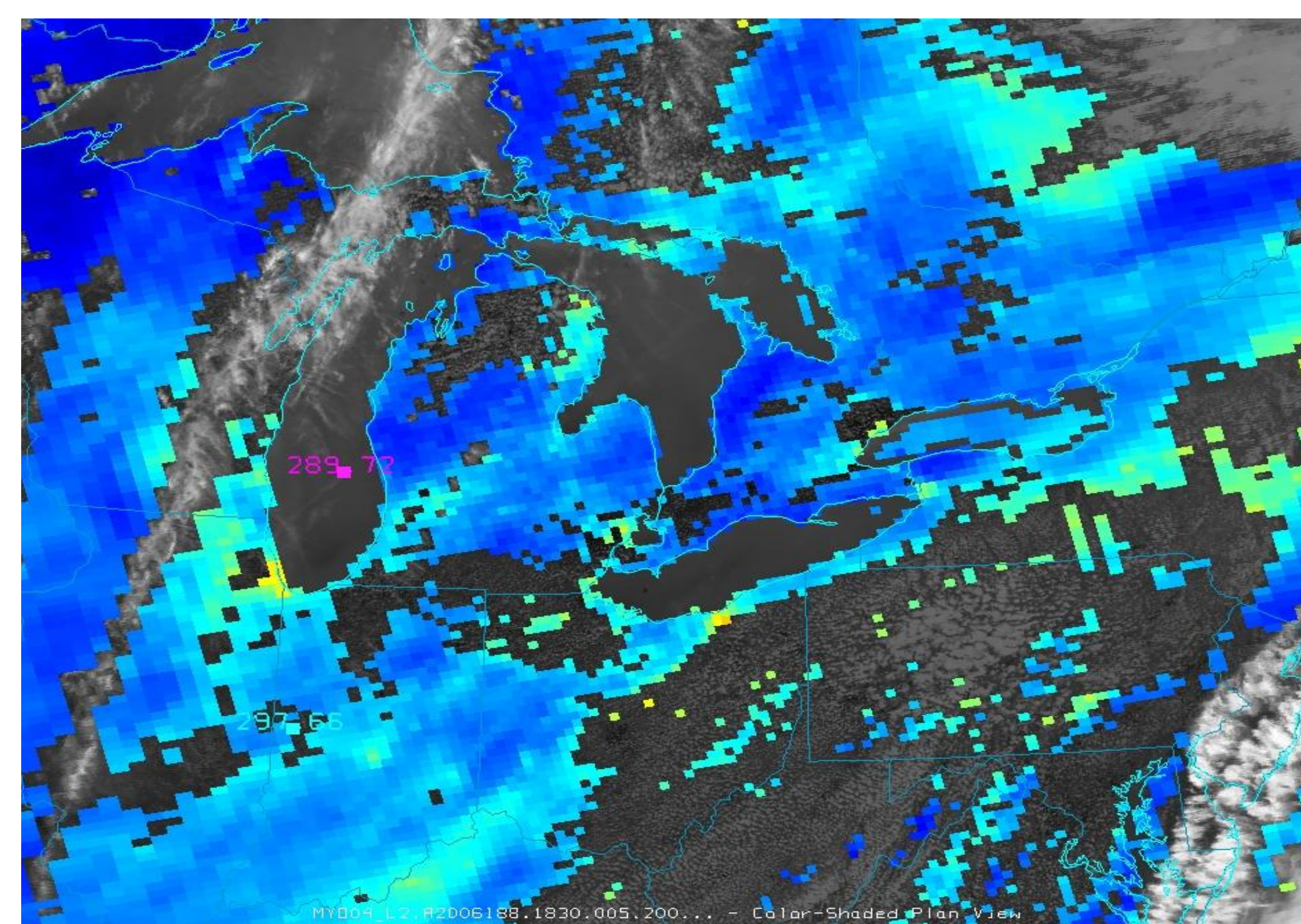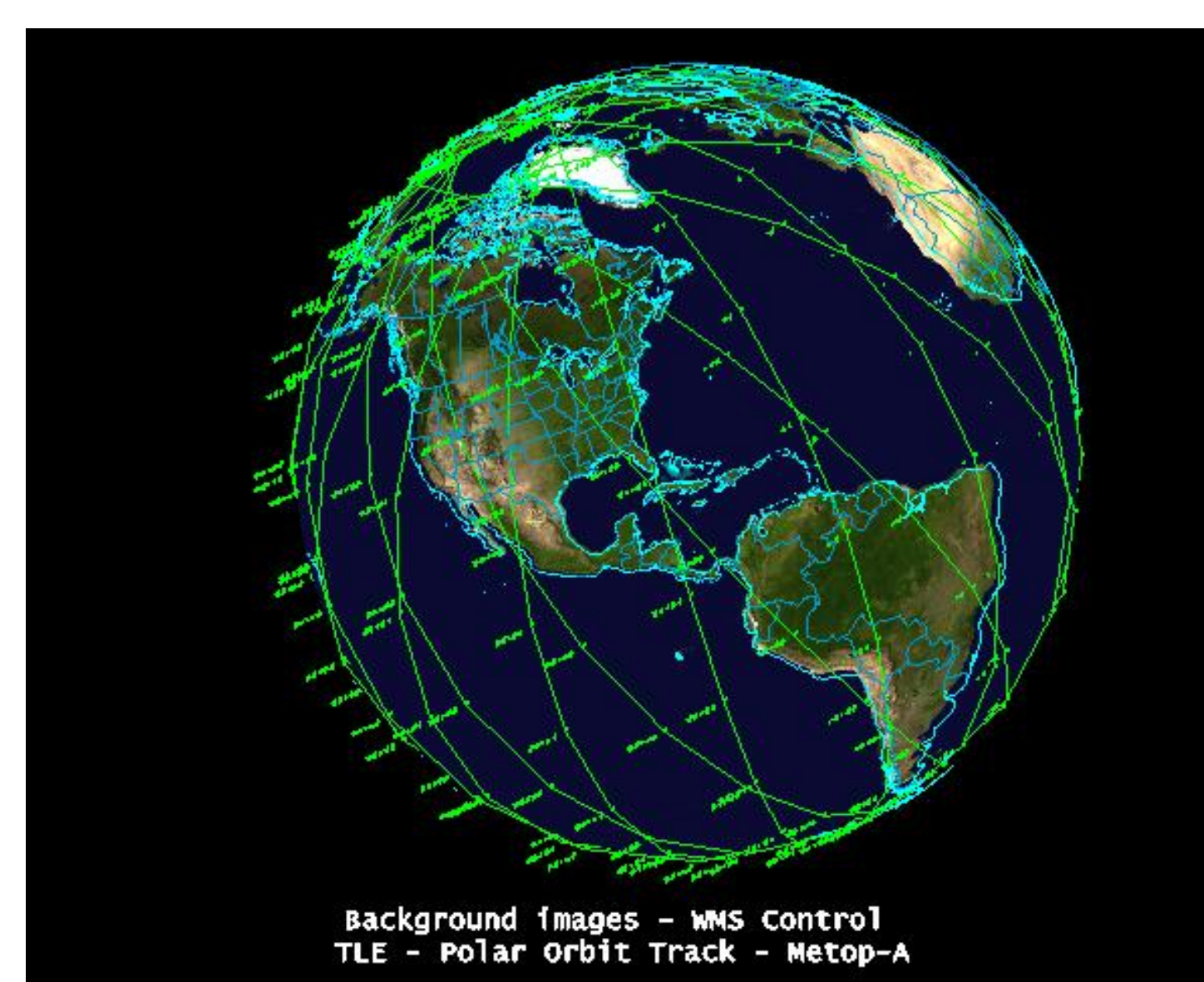

Interactive 3D Field Slicing

AIRS Level 1B window channel image (grey-scale) and moveable 2-D slice of ECMWF-AIRS Single FOV water-vapor retrieval (color-scale). 3-D difference field values are resampled to the 2D manifold cross-section automatically while updating the display as it is dragged in space - demonstrating interactive direct manipulation, data integration and python based data model computation semantics.

VIIRS I-Band 1 re-projected via nearest neighbor re-sampling. Display and computation li done using the Python interface.
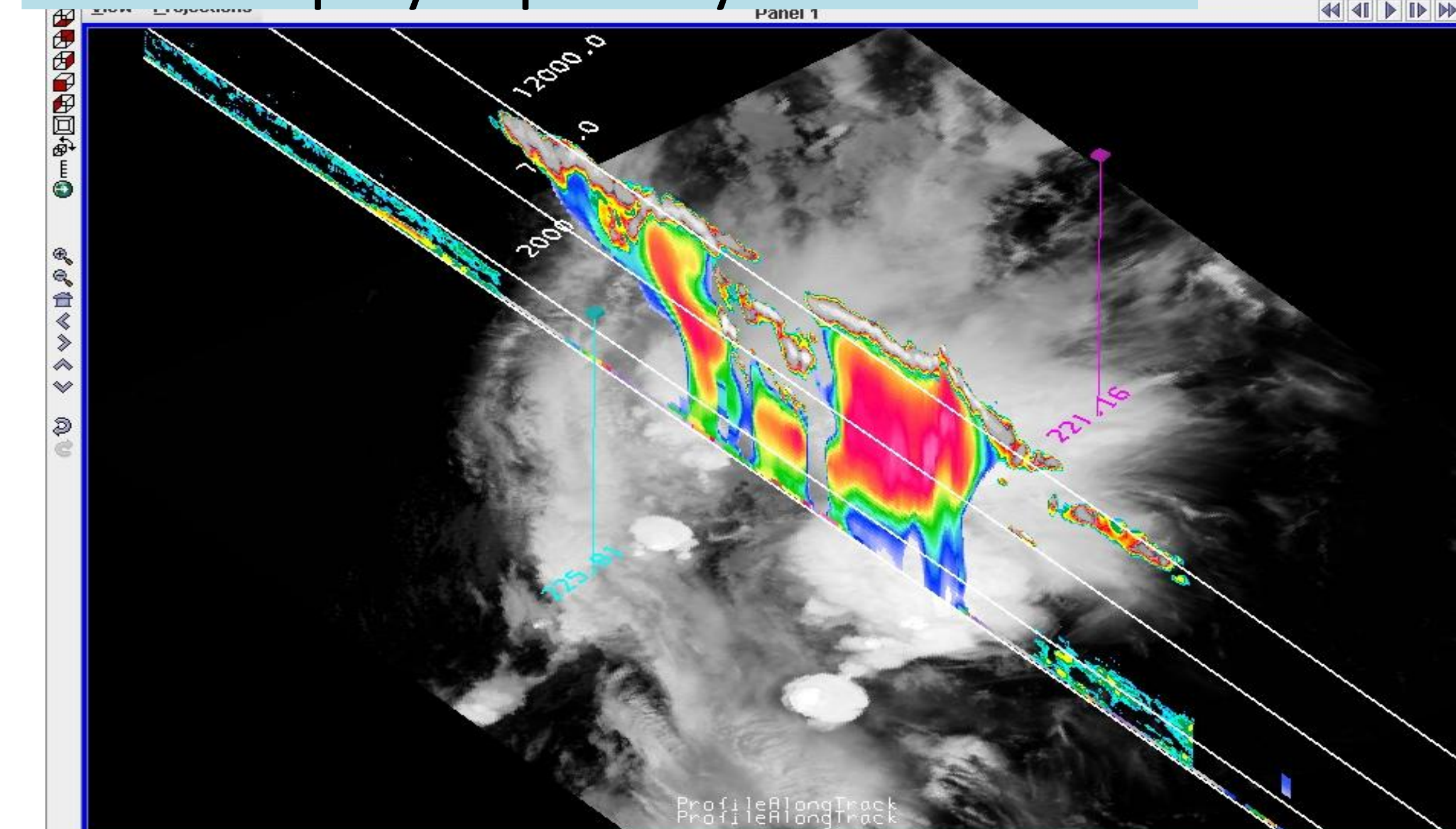

RGB Composite tool applied to MODIS 500m Bands (1,4,3). User can interactively adjust range and gamma correction per channel.

Overlay MODIS B31 (grey-scale) and MOD04 Aerosol optical depth (color-scale) with transparency

Novel display capability

Calipso TAB and CloudSat radar echo (color-scale) with Modis (grey-scale), demonstrating novel use of 3D display and data integration capabilities. The data import adapters and displays are customized extensions to the development framework.