

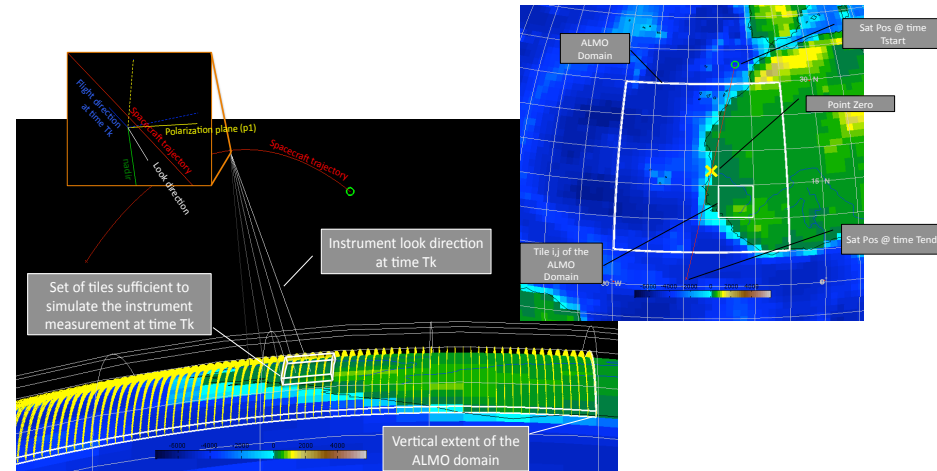
# Instrument Simulator Suite for Atmospheric Remote Sensing (ISSARS)

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## Objective

Develop ISSARS as a service-based tool suite providing simulated measurements for a wide range of instruments aimed at remote sensing of the atmosphere, on missions such as ACE, GPM, A-Train, Nexrad in Space, and others, based on input from atmospheric models. It will enable:

- Immediate and accurate verification of the achievability of desired scientific requirements.
- Efficient implementation of multi-instrument, multi-platform Observing System Simulation Experiments (OSSEs).
- Rapid integration of new models.
- Efficient and accurate performance assessment and trade studies of on-board or ground processing methods based on available resources and constraints



ISSARS parameterized instrument characterization and observation capability

## Accomplishments

- Developed an integrated suite of electromagnetic scattering, absorption, and propagation models for radars, radiometers, and LIDAR using a modular approach flowing geophysical parameters into electromagnetic models and instrument simulators.
- Incorporated multiple databases for scattering, emission, and radiative transfer.
- Demonstrated simulation of instrument performance to support deployment on the ACE and GPM missions.
- Developed a web interface to the integrated suite of models that provides a high degree of extensibility and customization options including orbit specification, sensible defaults and real-time job monitoring and control.
- Demonstrated both single server and automated secure remote processing of compute-intensive jobs on the Pleiades high-end system at NASA/ARC.

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TRL<sub>in</sub> = 3

TRL<sub>out</sub> = 5