

**Antarctic Clouds and Climate:
A Study with Two Generations of NASA Earth Science Enterprise Data**

Co-PI with Dan Lubin, UCSD/Scripps

The University of Idaho's contribution to the proposed work consists mainly of analyzing high-resolution infrared spectra from the Infrared Interferometer Spectrometer (IRIS), the Interferometric Monitor for Greenhouse Gases (IMG), and the Atmospheric Infrared Sounder (AIRS), obtained over Antarctica, to produce several data products. These data products will include spectral infrared emissivity, cloud particle phase, cloud optical depth, and cloud particle effective radii. The specific tasks that the University of Idaho will perform are:

- 1) Restore and calibration IMG spectra over Antarctica and southern oceans.
- 2) Obtain AIRS spectra over Antarctica and southern oceans.
- 3) Identify clear-sky scenes in IMG and AIRS for use in quality control procedure.
- 4) Derive spectral infrared emissivity from clear-sky scenes of IMG and AIRS, and possibly IRIS.
- 5) Develop methods for retrieving cloud properties from IRIS, IMG, and AIRS spectra.
- 6) Determine regional and seasonal variability using IRIS, IMG, and AIRS retrievals.