

Deployment of the Polar Atmospheric Emitted Radiance Interferometer (P-AERI) in Eureka, Canada for SEARCH

Investigators:

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Overview:

The Polar Atmospheric Emitted Radiance Interferometer (P-AERI) is an important instrument for Arctic research and for monitoring downwelling spectral infrared radiance from 3 to 20 microns. AERI spectra provide information on key Arctic parameters such as cloud microphysical properties (optical depth, particle size, cloud phase in a wide variety of cloudy conditions), fractional cloud cover, and infrared cloud radiative forcing. The AERI is particularly well suited for many of these observations because it provides both high accuracy and precision and can operate in the polar darkness when solar transmission instruments are not useful.

The University of Idaho's P-AERI instrument was deployed in Eureka, Canada in March 2006. It has been operating nearly continuously since that time, measuring downwelling spectral infrared radiance. At the UI, these spectra are being put through control procedures to ensure their quality. The spectra are also being processed using a principal-component-analysis (PCA) noise filter. The spectra will ultimately be used to derive properties of clouds in the Arctic, in conjunction with other instruments deployed at Eureka [Arctic High Spectral Resolution Lidar (AHSRL) – SSEC, U. Wisconsin; Millimeter Cloud Radar – NOAA, Microwave Radiometer – NOAA].