

The Polar Environment Atmospheric Research Laboratory at Eureka (80N, 86W): Current Status and Future Plans

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The Polar Environment Atmospheric Research Laboratory (PEARL) is a polar research facility located at Eureka, Ellesmere Island, Nunavut, Canada. Funding from the Canadian National Science and Engineering Research Council and the Canadian Space Agency is providing support for this laboratory through 2018. Instruments at this site provide atmospheric observations from the ground to the thermosphere and include spectrometers, interferometers, radars, lidars, imagers and radiometers.

Currently, four themes are used to organize the science for this observatory. The theme, "Composition Measurements" is led by Kim Strong (University of Toronto) and involves the observation of greenhouse gases related to the carbon cycle, ozone and related species, biomass burning and continental influence of the Arctic and cloud, aerosols and precipitation. The theme, "Polar Night" is led by Robert Sica and organizes winter atmospheric observations to investigate the wintertime atmospheric environment and the polar vortex. The third theme, theme leader Kaley Walker, coordinates satellite validation efforts related to the Polar observations made at PEARL. The fourth theme, Dynamics of the Neutral Thermosphere, involves observations in the mesopause region and thermosphere with the goal of investigating upward coupling processes. It is led by William Ward.

This presentation provides details of the capabilities of this observatory and future plans. International collaborations are welcome.