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**Theme**

Sub- Theme 3: Operating Observing Systems and Networks

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**Poster title (brief)**

atmospheric Research at the Polar Environment Atmospheric Research Laboratory (PEARL)

**Abstract - text box**

The Polar Environment Atmospheric Research Laboratory (PEARL) at Eureka, Nunavut is located about halfway up Ellesmere Island, right on the 80N North latitude line and 1,100km from the pole. It is located about as far North as it is possible to go and still have (with difficulty) a continuous internet connection which facilitates both experimentation and remote instrument operation. PEARL operates as an all-year atmospheric observatory and hosts upwards of 25 research instruments with considerable capacity for remote operations as well as on-site activities.

The large number of contemporaneous measurements at PEARL offers some unique opportunities to spot linkages between atmospheric phenomena which might be missed by a smaller, more focussed effort. The cross-support provided by the various teams and the on-site resources and technical support enhances the success of the overall enterprise, and also provides a very effective learning environment for students and other young researchers for what might otherwise be a very challenging location for measurements.

Current PEARL activities are centred around the areas of air quality, ozone studies and climate change with three themes of “composition measurements”, “satellite validation” and the “polar night”. Although primarily directed at atmospheric research, other studies at the site have reached down into the ice and the permafrost or out into space with the testing of a polar astronomical telescope.

PEARL is currently supported by Natural Sciences and Engineering Research Council, Environment and Climate Change Canada, and the Canadian Space Agency. It is operated by a team of researchers from Canadian universities and government departments.