



CANDAC

Canadian Network for the Detection of Atmospheric Change

Photo Credit:

Pierre Fogal, 2008

Contact for Information:

Prof. James Drummond:

jim AT atmsp.physics.utoronto.ca

Link for High-Resolution Photo:

http://www.candac.ca/candac/Links/Media/Images/PF-2008-aligning_spectrometer.jpg

Caption:

Instruments travel to PEARL for satellite validation campaigns such as that held in support of Canada's Atmospheric Chemistry Experiment (ACE) every polar sunrise from 2004 to this one in 2008, and beyond. Here the ground-based version of the ACE MAESTRO instrument is installed on a sun tracker under the supervision of Environment Canada's Tom McElroy, MAESTRO PI with the able assistance of Clive Midwinter and Mareile Wolff, both from the University of Toronto.

Summary:

The Polar Environment Atmospheric Research Laboratory (PEARL) is a unique national and international resource. It is located on Ellesmere Island at Eureka, Nunavut (80N, 86W). The cornerstone of PEARL is the Ridge Laboratory. This iconic red building was built in 1992-93 by Environment Canada and operated as the Arctic Stratospheric Ozone observatory (AStro) until 2002 when it was mothballed due to lack of funding. It was revitalized in its present form when a collaboration between university researchers and government departments, the Canadian Network for the Detection of Atmospheric Change (CANDAC), undertook its operation in 2005. The Ridge Lab is situated about 15km from the Eureka weather station by road. Since the laboratory is at 610m above sea level, an additional site - the Zero altitude PEARL Auxiliary Laboratory (ØPAL) - was established at the edge of the Environment Canada weather station at approximately sea level. In addition, the Surface Atmospheric Flux and Irradiance Remote Extension (SAFIRE) site, was established for instruments that require minimal impact from surrounding surface features both natural and man-made. SAFIRE is located near the Eureka runway approximately 3km from the weather station proper.

PEARL contains instrumentation distributed between these three sites that measure the atmosphere from the ground to about 100km. These measurements provide scientists with information on everything from the temperature, to composition and aerosol distributions, to radiation balance and energy transport. It is one of the most broadly instrumented atmospheric research sites located anywhere on the globe, and a significant contribution to the understanding of the Arctic atmosphere in particular.

Funding Partners:

CANDAC/PEARL is funded by the Atlantic Innovation Fund/Nova Scotia Research Innovation Trust, Canadian Foundation for Climate and Atmospheric Science, Canadian Foundation for Innovation, Canadian Space Agency, Environment Canada, Government of Canada International Polar Year funding, Natural Sciences and Engineering Research Council, Ontario Innovation Trust, Polar Continental Shelf Program and the Ontario Research Fund.