**Metadata Input Form** CANDAC/PEARL Dataset - SATI OH and O2 airglow emission rates and temperatures LEVEL2 DATASET

**Identification Information** (basic information about the data set)

* **Title of data** (e.g. climate data in northern Quebec): SATI OH and O2 airglow emission rates and temperatures LEVEL2 DATASET.

* **How should the data be cited** (as unpublished data or a journal reference)? Shepherd, M. (2014). SATI OH and O2 airglow emission rates and temperatures LEVEL2 DATASET. Retrieved from http://candac.ca/candacweb/content/sati-yeu-data

* **Study site:**
PEARL Observatory, Eureka, Nunavut

* **Purpose** (a summary of the intentions with which the data set was developed): These data were collected as part of the ongoing program of the Polar Environment Atmospheric Research Laboratory (PEARL) at Eureka, Nunavut (80N, 86.4W). PEARL is operated by the Canadian Network for the Detection of Atmospheric Change (CANDAC) The mission of PEARL is to characterize the atmosphere in the altitude range of 0-100km and provide data for studies of air quality, ozone and climate change. The Imager data was collected to provide information on variations in airglow associated with dynamical perturbations of the atmosphere, clouds, and aurora.

* **Abstract** (description of methodology and data type, e.g., interviews, physical and chemical variables, imagery, recordings, maps and other spatial data, profile, etc.):

The SATI (Spectral Airglow Temperature Imager) instrument, a passive optical instrument, is a two-channel spatial scanning Fabry-Perot spectrometer with a back illuminated CCD detector providing a spectral information in the radial direction of the image and spatial information in the azimuthal direction. It allows monitoring of the dynamics and temperature of the mesosphere by alternate observations of O2 Atm. (0-1) nightglow emission–layer at 94 km and the OH Meinel (6-2) layer at 87 km. The instrument consists of an optical module, a controller and a data acquisition computer. The temperature retrieval is based on the intensity dependence of the selected vibrational-rotational lines on temperature yielding a temperature uncertainty of 2K. The spatial resolution in the azimuthal direction and an integration time set at 2 min allows detection of gravity waves. The instrument can be accessed remotely by either internet connection or by modem to download data or to change operation modes. The optical module requires installation under a half sphere transparent dome and operates in a temperature range between 10C and 25C. The SATI annular field of view is divided into 12 sectors in horizontal direction and temperature and emission rates are separately calculated for each of the sectors. These horizontal and vertical measurements are used to investigate the atmospheric wave dynamics in the Mesosphere and Lower Thermosphere (MLT) region.

* **Data originators** (e.g. name of data collector(s)):
(Do not enter duplicate originators)
Marianna Shepherd, Data Originator
James Drummond, Principal Investigator

Young-Min Cho, Collaborator

Links to data (if available, otherwise please enter principal researcher?s email address):
http://candac.ca/candacweb/content/sati-yeu-data

* **Status of data**: (Click on grey rectangle to view scroll down menu)
In progress

* **Maintenance and update frequency**: (Click on grey rectangle to view scroll down menu)
As needed

* **Research program**: (Select entry from scroll down menu on website; you may select more than one program.)
CANDAC
IPY-PEARL

**Geographic Coordinates** (in decimal format)

Research Area: Coordinates MUST be between -90 and 90 for latitudes and between -180
and 180 for longitudes. All Canadian longitudinal co-ordinates will be negative and
all latitudinal co-ordinates for the Antarctic will be negative.

* North (latitude N): 80

* South (latitude N): 80

* West (longitude E): -86.4

* East (longitude E): -86.4

Time Period (during which the data was collected)

Select entry from scroll down menu on website

* Start Year: 2013
* End Year: ---
* Start Month: November
* End Month: ---
* Start Day: 01
* End Day: ---

*__Keywords:__ (see keywords library)

(e.g., Alaska, Nunavik, Resolute, Active layer, Caribou, Glaciers, Migration, Stratigraphy, Diet, Salmonella, Habitat vulnerability)

Ellesmere Island (Geographic locations)
Atmosphere (Natural sciences)
Remote sensing data (Natural sciences)
Image analysis (Natural sciences)
Emissions (Natural sciences)
Optical (Natural sciences)

* **Access:** Click on grey rectangle to view scroll down menu
Public