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CEDAR: Mesospheric Investigation of Gravity Wave and Mountain Wave Activities and Impacts in the Lee Side of the Southern Andes

Pierre-Dominique Pautet

Utah State University, dominiquepautet@gmail.com

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Data Management Plan

This program involves new high-quality measurements obtained using an infrared AMTM instrument which will operate alongside the DLR Rayleigh lidar at Rio Grande, Argentina. These datasets will be augmented by SAAMER radar measurements of the background wind field and BU all-sky images of several mesospheric airglow emissions.

Specific details for the AMTM instrumentation

The AMTM uses a large throughput telecentric imaging system developed at USU coupled to a compact commercially available, air cooled, InGaAs system. For this program, both imagers will sequentially measure the P1(2) and P1(4) lines in the OH Meinel (3,1) emission band (at ~1.55 μm) and a background, to determine intensity and rotational temperature measurements at the OH emission layer at ~87 km altitude. The AMTM will operate continuously during the night (for solar depression angles $>8^\circ$) even in the presence of moon light.

How much AMTM data will be produced?

The AMTM image data has a 320 x 256 pixel format and will produce one image every several (~10) sec. The estimated total image data storage will be ~150 Gbytes/year.

AMTM data format

Each image will be saved as a TIFF file with a specific header including associated meta-data: UT time, date, emission wavelength, site coordinates, and emission altitude (assumed). This information is sufficient for processing the data to produce maps of emission brightness and OH temperature. Both data sets will also be processed to create intensity and temperature summary Keograms as illustrated in Figure 6 in this proposal. Other data products will be made available upon request to colleagues and researchers outside of this program, following the well-developed CEDAR "Rules of the road" including offer of co-authorship to scientists who have provided data.

AMTM data archiving and usage

Keogram summaries of the AMTM image data (enabling quick look access and selection) together with derived intensity and temperature data products will be made available at: <http://ail.usu.edu/Data/>. Other final products (zenith temperature profiles, nightly temperature averages...) will be uploaded onto the CEDAR Madrigal data base for public access.

Other data, sharing policies and data access

In addition to the AMTM measurements, other supporting datasets are also available for collaborative research. These instruments are operated by colleagues in other organizations: the DLR Institute in Oberpfaffenhofen, Germany (Director M. Rapp), Boston University (all-sky imager data archives: <http://sirius.bu.edu/data/>) and GATS Inc. As such, all users of any collaborative data are encouraged to contact the instruments PI, where appropriate, to ensure that they obtain the most suitable data product for their purposes and in order to receive the appropriate acknowledgment of NSF (and other institutional) support for inclusion in any publication employing these data.