Graduate Research Assistant position

Starting date
Fall 2023

Duration
3 years

The ANtarctic Gravity Wave Instrument Network (ANGWIN)
The Antarctic Gravity Wave Imaging Network (ANGWIN) is a cooperative effort of six international Antarctic programs to collect continent-wide gravity wave (GW) data. The network capitalizes on existing optical and radar measurement capabilities around the Antarctic continent and at the South Pole. Utah State University operates several infrared (IR) all-sky mesospheric OH (hydroxyl) imagers, and Advanced Mesospheric Temperature Mapper (AMTM) instruments in Antarctica, to develop unprecedented resources for studying GW properties on a continental scale. ANGWIN represents a novel opportunity for the international Antarctic research community to work together producing "high impact" science well above what can be achieved individually. The main research goals for this project are:

- Further investigate the characteristics, sources and regional variability of GWs and quantify their impacts (fluxes) over Antarctica,
- Investigate the occurrence, global structure and variability of prominent mesospheric planetary waves (PWs) and their effects on GWs over Antarctica,
- Continue and enhance our international ANGWIN collaboration by involving other institutions and measurement capabilities to advance Antarctic mesospheric research.

The graduate candidate will be closely involved with ANGWIN instrumentation, data processing and analysis. The student will participate in the following activities:

- Image processing using techniques such as machine learning or spectral analysis (M-transform),
- Investigation of GW characteristics and effects on the upper atmosphere,
- Maintenance of instrumentation in Antarctica (South Pole and McMurdo stations),
- Attend biennial international ANGWIN workshops,
- Possibility of student exchange with other ANGWIN international institutions.

Qualifications

- Good background knowledge in atmospheric physics, physics, or related fields,
- Basic knowledge in signal/image processing,
- Familiarity with programming (e.g., C++, IDL, Python…),
- High self-organization,
- Good written and spoken English (TOEFL internet-based (iBT) exam score of 79 or paper-based exam score of 550).

Candidates must be accepted in the USU graduate program.

Application to USU School of Graduate Studies: https://gradschool.usu.edu/admissions/

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