2015 Workshop: Coupling Processes over the Andes

Long title
Collaborative Studies of Coupling Processes over the Andes
Conveners
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Steve Smith
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Description

The Andes is the longest and second highest continental mountain range in the world. Strongly influenced by this large orographic feature, the dynamic and coupling processes from the troposphere to the thermosphere have many special or unique features. This workshop welcomes presentations on observational, modeling and theoretical studies that address these processes, which include, but not limited to, small-scale wave dynamics, mountain waves, instabilities, planetary waves and tides, seasonal and diurnal variations and ionospheric coupling. The goal is to promote collaborations among researchers for further understanding of the coupling process in this unique region.

Currently there are many passive and active optical and radar instruments along the Andes. Another goal of this workshop is to promote coordinated observations and specialized campaigns in the Andes to address specific scientific problems.

Agenda

1. Gary Swenson (10 min): ALO Overview
2. Alan Liu (10 min): High Altitude Na observed at ALO
3. Mike Taylor (10 min): Mountain wave case study, July 9, 2012
4. Jim Hecht (10 min): Movies of MW breakdown into turbulence
5. Steve Smith (10 min): Mesospheric Mountain Waves At El Leoncito
6. Fabio Vargas (10 min): Uncertainties on gravity wave parameters estimated from airglow images

7. Jie Yue (10 min): Suomi NPP VIIRS/DNB satellite observations of airglow gravity waves over South America
8. Carlos Martinis (10 min): Low latitude 630.0 nm bright bands related to FeO?
9. Chris Heale (10 min): Numerical simulation of a GW reflection and transmission event over ALO
10. Yucheng Zhao (10 min): 90-day oscillation observed at Andes
11. Jim Hecht (5 min): 2-day waves observed over ALO
12. Discussion (15 min): Mountain Wave Campaign

Justification

The Andes Mountains is a unique orographic feature that generates large atmospheric disturbances in the large latitudinal range. This workshop will directly addresses CEDAR Strategic Thrust #1 — Encourage and Undertake a Systems Perspective of Geospace, and Thrust #2 — Explore Exchange Processes at Boundaries and Transitions. The proposed discussions on coordinated observations and campaigns address Thrust #4 — Develop Observational and Instrumentation Strategies for Geospace System Studies.

Instruments currently operating along the Andes will provide data to address the scientific problems. Further addition or enhancement of existing instruments will allow specialized campaigns to enable more comprehensive studies in this region.

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