2013 Workshop: A Tribute to Colin Hines

Long title
50 years of Gravity Wave Research - a Tribute to Colin Hines
Conveners
Dave Fritts
Description

This workshop is in honor of Colin Hines and his broad contributions to our understanding of atmospheric gravity waves. Colin will participate in the workshop via video teleconference and provide a perspective on the early decades of gravity wave research, of which he was the driving force. This will be followed by a series of short invited and contributed talks highlighting various hot topics of current research interest.

Those wishing to contribute are encouraged to contact Dave about proposed topics.

Agenda

50 Years of Gravity Wave Research – A Tribute to Colin Hines

1) “Starting Steps On My Path to Internal Atmospheric Gravity Waves” (pdf), Colin Hines

2) "Multi-Scale Gravity Wave and Instability Dynamics in the Atmosphere” (pdf), Dave Fritts and Ling Wang

3) “Observations of Gravity-Wave Momentum Fluxes and Intermittency over Antarctica from Long-Duration Balloon Flights in the Stratosphere” (pdf), Albert Hertzog, R. Plougonven, V. Jewtoukoff, and R. A. Vincent

4) “Characteristics of Self Acceleration driven Gravity Wave Instability" (pdf), Brian Laughman, Dave Fritts, Tom Lund

5) “Horizontal and Vertical Wave Parameters of Thermospheric Gravity Waves, and Relationship to Neutral Winds” (pdf), S. L. Vadas, M. J. Nicolls, M. P. Sulzer, and N. Aponte

6) “Gravity Wave Seeding of Equatorial Spread F” (pdf), J. D. Huba, J. Krall, T-W Wu, D. Fritts, D. L. Hysell

7) “A New Imaging Capability for Mesospheric Gravity Wave Research” (pdf), Mike Taylor, Dominique Pautet, Dave Fritts, and G Stober

Justification

Gravity waves are key contributors to MLT dynamics at all scales of motion. They are the major dynamical drivers of the mean circulation and thermal structure throughout the MLT via vertical fluxes of energy and momentum, they interact with and modulate tides and planetary waves, and they largely account for turbulent mixing and diffusion at smaller scales. Gravity waves also have influences extending far into the thermosphere. Gravity studies over more than 50 years have achieved major successes, but there remain major unknowns that impair our full appreciation of their diverse roles and especially the parameterization of their various effects in global weather and climate prediction models. This workshop will review the history of gravity wave research and highlight current areas of research.

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