

Meteorological Society of New Zealand
&
New Zealand Geophysical Society Inc.



Joint Conference 1999

NATURAL HAZARDS AND CLIMATE CHANGE

8:30 Wednesday 1 September – 15:00 Friday 3 September 1999
MacLaurin Complex, Victoria University of Wellington

Programme

Wednesday September 1

8:30 Registration MacLaurin Complex

9:20 Welcome MacLaurin Lecture Theatre 2

Session 1: Atmospheric Circulation MacLaurin Lecture Theatre 2
Chair: Bob McDavitt

9:30 Kidson, J., Mullan, B., Interannual Variability in Tropical Convection and its
Renwick, J., Revell, M., Influence on Atmospheric Circulation
& Bhaskaran, B.

9:45 Bhaskaran, B. & Response of Southern Pacific Seasonal Mean
Mullan, B. Circulation to ENSO

10:00 Ajtic, J., Connor, B., Back-Trajectory Mapping of Potential Vorticity
& Lawrence, B.

10:15 Grant, J. Measuring Mesospheric Ionisation

10:30-11:00 Morning Tea MacLaurin Complex

Session 2: Gravity Waves & Climate, and Temperature Trends MacLaurin Lecture Theatre 2
Chair: Don Grainger

11:00 Lawrence, B. Downward Control and the Role of Gravity Waves in
Middle Atmosphere Climate

11:15 Osprey, S. Examining the Atmospheric Response to a Perturbed
Gravity-Wave Source

11:30 Chattopadhyay, M. Gravity Wave Parameterization in the General

Circulation Models

- 11:45** Dean, S. Radiosonde Analysis for The Study of Gravity Wave Sources
- 12:00** Zheng, X. & Basher, R. Structural Time Series Models and Trend Detection in Global and Regional Temperature Series
- 12:15** Withers, C., Espie, K., Krouse, D., & Pearson, C. Modelling Temperature Trends in New Zealand

12:30-13:30

Lunch

MacLaurin Complex

Session 3: Wind, and Poster Introduction

MacLaurin Lecture Theatre 2

Chair: Cliff Revell

- 13:30** Brenstrum, E. Rivers of Wind and Puddles of Calm: Wind Patterns East of the North Island
- 13:45** Matheson, L. Case Study Investigation of Mesoscale Storm Force Winds over the Tararua Ranges
- 14:00** Reid, S. Local extreme winds - How Forecastable are they?
- 14:15** McGowan, H. & Sturman, A. Foehn Wind Onset in an Alpine Valley
- 14:30** Marsh, S. Meteors as an Upper Atmosphere Wind Probe
- 14:45** Poster Introductions

15:00-15:30

Afternoon Tea

MacLaurin Complex

Session 4: Weather Forecasting and Radar Meteorology

Chair: Erick Brenstrum

MacLaurin Lecture Theatre 2

- 15:30** Renwick, J. & Thompson, C. Southern Hemisphere Forecast Skill: A Comparison of Global Models
- 15:45** Gray, W. & Thompson, C. Issues Surrounding Nowcasting
- 16:00** Mann, M., Seed, A., & Austin, G. X-Band Radar Observations of Volcanic Eruptions: Mt Ruapehu, 1996
- 16:15** Nicol, J. High Resolution Radar Measurements in Mahurangi Catchment
- 16:30** Carey-Smith, T. The Canterbury VHF Radar Wind-Profiler
- 16:45** Galligan, D. Using the Canterbury Meteor Radar to Measure Atmospheric Parameters

Thursday September 2

Plenary Sessions: Natural Hazards and Climate Change

9:55 Introduction MacLaurin Lecture Theatre 3

Plenary Session 1: Key Note Papers Chair: Brett Mullan & Martha Savage	MacLaurin Lecture Theatre 3
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- 10:00** Hurst, T. Volcanic Hazards: How changes below can lead to danger from above
- 10:20** Uddstrom, M.,
Renwick, J. & Mullan, B. Science Requirements for Weather and Climate Hazard Prediction
- 10:40** Turner, G. The application of rock magnetic measurements to problems of palaeoclimate and palaeoenvironment change."
- 11:00** Manning, M. R. The IPCC Process and the Third Assessment Report: Is it Science? and Who Needs it Anyway?
- 11:20** Austin, G., Purdy, J.
and Smith, K. Nowcasting in Strongly Orographic Conditions
- 11:40** Stirling, M. Seismic Hazard in New Zealand

12:00-13:00 Lunch MacLaurin Complex

Plenary Session 2: Chair: Donna Eberhart-Phillips	MacLaurin Lecture Theatre 3
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- 13:00** Christopherson, A.
and Smith, E. Modelling Aftershock Sequences
- 13:15** Stock, C. A Seismological Model for Earthquake Occurrence in New Zealand
- 13:30** Evison, F. and Rhoades, D. Synoptic Earthquake Forecasting and the Meteorological Analogy
- 13:45** Ibbitt, R.,
Henderson, R.
Copeland, J. & Wratt, D. Flood Forecasting using Meso-Scale Rainfall Forecasts
- 14:00** Laing, A. K. Satellite Observations of Extreme Wave Conditions around New Zealand
- 14:15** Bromley, T.
Clarkson, R.,
Turner, R. & Wratt, D. Emergency Response Capabilities: Disease, Insect and Virus Transport, Hazardous Releases and Volcanic Ash Plumes

- 14:30** Grainger, R.G. Using HIRDLS to Monitor Volcanic Ash
- 14:45** Keys, H. Climate Change and Natural Hazards on Ruapehu Volcano

15:00-15:30 Afternoon Tea MacLaurin Complex

Plenary Session 3: MacLaurin Lecture Theatre 3
Chair: Jim Renwick

- 15:30** Denys, P., Beavan, J., Pearson, C., & McSaveney, M. Sea Level Change based on New Zealand's Long Term Tide Gauges
- 15:45** Pearson, C., Daw, G., Salinger J., & Wratt D. NIWA's National Climate Centre and Risk Management
- 16:00** Fowler, A. Potential for ENSO Reconstruction from Kauri Tree-Rings
- 16:15** McKenzie, R., Connor B., & Bodeker G. Summertime UV Increases in Response to Ozone Depletion
- 16:30** Harte, D. & Vere-Jones, D. Geographical Display and probabilistic interpretation of earthquake precursory information
- 16:45** Stern, T., Kleffmann, S., Bannister, S., Okaya, D., Davey, F., & Caldwell, G. Geophysical signatures of high fluid pressures within the Alpine Fault zone: implications for fault zone strength and a countervailing view on the likelihood of Ms \geq 8.0 earthquakes on the Alpine Fault.
- 17:00** Matheson, D., Beavan, J., & Cheer, D. Evolution of strain across the Tararua Mountains, 1875-1999
- 17:15** Darby, D., Beavan, J., Arnadottir, T.&Pollitz, F. Evidence for subduction locking beneath the North Island, New Zealand, from GPS measurements

17:30 METEOROLOGICAL SOCIETY OF NZ Annual General Meeting MacLaurin Lecture Theatre 2

19:00 Symposium Dinner--Victoria University Staff Club
for 19:30 Wine, juice and water will be provided during dinner, pre dinner drinks will be available for purchase.

Friday September 3

Session 5: Atmospheric Chemistry – Gases & Aerosols

Chair: Martin Manning

MacLaurin Lecture Theatre 2

- 9:00** Dirks, K., Johns, M., Hay, J., & Sturman, A. An Empirical Approach to Modelling Carbon Monoxide Concentrations Near Roads
- 9:15** Brailsford, G., Lassey, K., Gimson, N., Wratt, D. & Bromley, A. Regional Concentration Patterns of Agricultural Methane: Comparing Measurements with Mesoscale Modelling
- 9:30** Reisinger, A. & Jones, N. Determination of greenhouse gas fluxes using open-path FTIR spectroscopy
- 9:45** Raff, D. Measurement of stratospheric trace gases with MIPAS-B -a contribution to the arctic ozone research
- 10:00** Wheaton, S. Creating a History of Stratospheric Aerosol Loading
- 10:15** Thomas, G. The Development of an Optical Particle Counter for Stratospheric Aerosol Measurement

10:30-11:00

Morning Tea

MacLaurin Complex

Session 6: Water in the Atmosphere

Chair: Michael Uddstrom

MacLaurin Lecture Theatre 2

- 11:00** Falvey, M. & Beavan, J. GPS Precipitable Water Measurements during the TARPEX Experiment
- 11:15** Woods, R., Tarboton, D., Shankar, U., Henderson, R., Ibbitt, R. & Copeland, J. How Can We Initialise Soil Moisture Conditions in Mesoscale Atmospheric Models?
- 11:30** Bormann, N., Marks, C., McGregor, J., & Renwick, J. Towards assimilating GMS-5 moisture information into a mesoscale model configured for New Zealand
- 11:45** Smith, K., Menabde, M., & Austin, G. Spatial Interpolation of Highly Variable Rainfall Fields
- 12:00** Purdy, J. & Austin, G. Rainfall Mechanisms on the West Coast during "Nor-Westers"
- 12:15** Henson, W., Austin, G., Grey, R., & George, K. The New Auckland Uni. Disdrometer
- 12:30** Sansom, J. & Thompson, C. The Variation of Rainfall Rate over the Southern North Island
- 12:45** Oliphant, A. Spatial and temporal controls on the surface energy budget in an alpine catchment, Southern Alps, New Zealand

13:00-14:00

Lunch

MacLaurin Complex

Session 7: Climate Change

Chair: David Wratt

MacLaurin Lecture Theatre 2

- 14:00** Mullan, B., Wratt, D., & Renwick, J. Transient Model Scenarios of Future Climate Changes for New Zealand
- 14:15** Woods, R., Duncan, M., O'Brien, R., McKerchar, A. & Mullan, B. Modelling the Impacts of Climate Change on Water Resources
- 14:30** Caine, J. & Harvey, M. The Use of Sulfur Isotopes to Assess the Climatic Importance of Atmospheric Sulfur Species
- 14:45** Award for Best Student Paper
- 15:00** Closure

Posters

Posters will be on display at the MacLaurin Lecture Theatre Complex

- MET1** Henson, W. & Austin, G. Rain Event Classification from Raindrop Size Distribution Parameters
- MET2** Kjellberg, S. A Particle Splitting Strategy for Lagrangian Stochastic Modelling Applied to Dispersion from an Elevated Smoke Stack
- MET3** Larsen, H. Cloud Variability in the New Zealand Region
- MET4** McGowan, H., Sturman, A. & Zawar-Reza, P. Windfield characteristics of an alpine lake basin, Lake Tekapo, New Zealand
- MET5** Moss, R. Measurement of Carbon Monoxide Concentration and Isotopes in Clean Air Samples