

The 2nd Antarctic Meteorological Observation, Modeling, and Forecasting Workshop

Consiglio Nazionale delle Ricerche
(National Research Council)
Roma, Italia
26–28 Giugno/June 2007

Tuesday/Martedì, 26 June/Giugno 2007

Welcome/Benvenuto

9:00 Dr. Jordan G. Powers, National Center for Atmospheric Research
Dr. Andrea Pellegrini, Programma Nazionale di Ricerche in Antartide
President, Consiglio Nazionale delle Ricerche
Prof. Dario Esposito, City Councilor for Environment and Agriculture of Rome

Session 1: Overview of Long-Term Projects

Session Chair: Steven R. Colwell, British Antarctic Survey

9:15–10:15 am

9:15 *An Introduction to Raytheon Polar*
Michael Carmody
Raytheon Polar Services Company

9:30 *Status Report from the Antarctic Meteorological Research Center*
Matthew A. Lazzara, Shelley L. Knuth, Jonas Asuma, and Charles R. Stearns
Antarctic Meteorological Research Center, University of Wisconsin—Madison

9:45 *Current Status of the Italian Meteo-Climatological Observatory*
Lorenzo De Silvestri¹, Stefano Dolci², Umberto Gentili¹, P. Grigioni¹, and
Andrea Pellegrini²
¹Ente per le Nuove Tecnologie, l'Energia e l'Ambiente (ENEA)
²Programma Nazionale di Ricerche in Antartide (PNRA) SCrl

10:00 *The Meteorological Observatory of Neumayer*
Gert König-Langlo
Alfred Wegener Institute for Polar and Marine Research

10:15–10:45 am **Break**

Session 2: Overview of Antarctic Field Projects

Session Chair: Jonathan E. Thom, University of Wisconsin—Madison

10:45 a.m.–12:00 pm

10:45 *The University of Wisconsin Arctic High Spectral Resolution Lidar: Opportunities and Past Results*

Gijs de Boer and Edwin W. Eloranta
University of Wisconsin—Madison

11:00 *The International Project Concordiasi*

Vincent Guidard¹, F. Rabier¹, V.-H. Peuch¹, Christophe Genthon², F. Vial², A. Hertzog²,
P. Cocquerez², David Parsons³, Dale M. Barker³, Jordan G. Powers³, and
Terrence F. Hock³

¹Météo-France/Centre National de Recherches Météorologiques (CNRM)

²Centre National de la Recherche Scientifique (CNRS)

³National Center for Atmospheric Research (NCAR)

11:15 *Environmental and Atmospheric Data Distribution at Concordia/Dome C*

Lucia Agnoletto¹, Andrea Pellegrini², and Maurizio Busetto¹

¹Programma Nazionale di Ricerche in Antartide (PNRA)

²PNRA SCrl

11:30 *Atmospheric Boundary Layer Observations at Dome C, Antarctica*

Stefania Argentini¹, Ilaria Pietroni¹, Giangiuseppe Mastrantonio¹, Angelo Viola¹, and
Igor Petenko^{1,2}

¹Istituto di Scienze dell'Atmosfera e del Clima (ISAC)—CNR
(Consiglio Nazionale delle Ricerche)

²Oboukhov Institute of Atmospheric Physics/RAS

11:45 *Antarctic Peninsula Automatic Weather Station Servicing by BAS for Summer 2006/2007
and an Update on the READER Project*

Steven R. Colwell and Catherine M. Moore
British Antarctic Survey

12:00–1:30 pm **Lunch**

Session 3: Collection and Utilization of Antarctic Data

Session Chair: Shelley L. Knuth, University of Wisconsin—Madison

1:30–3:00 pm

1:30 *Discussion on the Antarctic Internet Data Distribution (Antarctic-IDD) System*

Matthew A. Lazzara¹, Kevin W. Manning², Robert Vehorn³, Timothy Reitano³, Steve
Richards³, Robert Mullenax⁴, Mark W. Seefeldt⁵, and Daniel F. Steinhoff⁶

¹Antarctic Meteorological Research Center, University of Wisconsin— Madison

²National Center for Atmospheric Research (NCAR)

³Space and Naval Warfare Systems Center (SPAWAR), Charleston

⁴Columbia Scientific Balloon Facility

⁵University of Colorado/CIRES

⁶Byrd Polar Research Center, The Ohio State University

1:45 *METdata: An Integrated Data Acquisition System for Operational Meteorological Data*

Lucia Agnoletto¹, Lorenzo DeSilvestri², and Andrea Pellegrini¹

¹Programma Nazionale di Ricerche in Antartide (PNRA) SCrl

²Ente per le Nuove Tecnologie, l'Energia e l'Ambiente (ENEA)

2:15 *Arguments for Improvements in the Surface Observing Network over the Interior of Antarctica*

William D. Neff

National Oceanic and Atmospheric Administration

2:00 *Review of 2006–07 AWS Field Season and the Future*

George A. Weidner, Jonathan E. Thom, Matthew A. Lazzara

Antarctic Meteorological Research Center, University of Wisconsin— Madison

2:30 *Discussion on Needs for Upcoming AWS Field Season*

Matthew A. Lazzara

Antarctic Meteorological Research Center, University of Wisconsin— Madison

3:00–3:30 pm Break

Session 4: Snow Measurement Processes

Session Chair: Christophe Genthon, Centre National de la Recherche Scientifique

3:30–5:00 pm

3:30 *Estimation of Snow Accumulation in Antarctica Using Automated Acoustic Depth Gauge Measurements*

Shelley L. Knuth, Gregory J. Tripoli, Jonathan E. Thom, George A. Weidner, and Charles R. Stearns

University of Wisconsin— Madison

3:45 *Drifting Snow Measurements on the McMurdo Ice Shelf*

Katherine C. Leonard¹, Douglas R. MacAyeal², Jonathan E. Thom³, and L. Bruno Tremblay⁴

¹Lamont-Doherty Earth Observatory

²University of Chicago

³University of Wisconsin— Madison

⁴McGill University

4:00 *Strong Wind and Heavy Precipitation Events on the Antarctic Plateau: Observations from Kohlen Station, Dronning Maud Land*

Gerit Birnbaum¹, Ralf Brauner², Johannes Freitag¹, Gert König-Langlo¹, and Carleen Tijm-Reijmer³

¹Alfred Wegener Institute for Polar and Marine Research

²Deutscher Wetterdienst

³Institute for Marine and Atmospheric Research, Utrecht University

4:15 *Coastal Blue-ice Meteorological Observation and Mass Balance Modelling*

Christophe Genthon, Patrick Wagon, Delphine Six, and P. Anderson

Centre National de la Recherche Scientifique (CNRS)

4:30 *General Discussion*

5:00 pm Adjourn for Day

Wednesday/Mercoledì, 27 June/Giugno 2007

Session 5: Science Using Ground-Based and Satellite Measurements

Session Chair: Matthew A. Lazzara, University of Wisconsin— Madison

9:00–10:15 am

9:00 *Temperature Behavior During Winter in Antarctica*

Igor Petenko^{1,2}, Stefania Argentini¹, Ilaria Pietroni¹, and Angelo Viola¹

¹Istituto di Scienze dell'Atmosfera e del Clima (ISAC)— CNR

²Oboukhov Institute of Atmospheric Physics/RAS

9:15 *Moisture Transport to Syowa Station and Dome Fuji Station, Antarctica*

Kazue Suzuki, Takashi Yamanouchi, Naohiko Hirasawa, and Hideaki Motoyama

National Institute of Polar Research, Japan

9:30 *MEDAntS: A Long-term Data Set for the Annual Onset of Snowmelt on Antarctic Sea Ice*

Guenther Heinemann, S. Willmes, J. Bareiss, and C. Haas

University of Trier

9:45 *Antarctic Icebergs Status Report— 2006–2007*

Shelley L. Knuth¹, Douglas R. MacAyeal², Jonathan E. Thom¹, and Linda M. Keller¹

¹Antarctic Meteorological Research Center, University of Wisconsin— Madison

²University of Chicago

10:00 *Using the Surface Energy Balance at the South Pole to Understand the Antarctic Stable Boundary Layer*

Michael S. Town¹, Von P. Walden², and Stephen G. Warren¹

¹University of Washington

²University of Idaho

10:15–10:45 am Break

Session 6: Developments in Antarctic NWP

Session Chair: Andrea Pellegrini, PNRA

10:45 a.m.–12:00 p.m.

10:45 *Advances in Numerical Weather Prediction and Weather Forecasting Systems in Support of the Australian Antarctic Program*

Neil D. Adams¹ and Jordan G. Powers²

¹Australian Bureau of Meteorology

²National Center for Atmospheric Research

11:00 *AMPS Update— June 2007*

Kevin W. Manning, Michael G. Duda, and Jordan G. Powers

National Center for Atmospheric Research

11:15 *Application of WRF's Variational Data Assimilation System (WRF-Var) in AMPS*

Dale M. Barker, Hui Shao, Syed Rizvi, Qingnong Xiao, and Jordan G. Powers

National Center for Atmospheric Research

11:30 *Applying Model Output Statistics to AMPS*

Michael G. Duda

National Center for Atmospheric Research

11:45 *Development and Testing of Polar WRF*

David H. Bromwich and Keith M. Hines

Byrd Polar Research Center, The Ohio State University

12:00–1:30 pm Lunch

Session 7: Antarctic Weather Forecasting and Model Applications

Session Chair: Neil D. Adams, Australian Bureau of Meteorology

1:30–3:00 pm

1:30 *Challenging Forecasts for a Challenging Environment: An Educational Module for Antarctic Weather and Forecasting*

Jordan G. Powers¹, Vickie Johnson², and Dolores Kiessling²

¹National Center for Atmospheric Research

²Cooperative Program for Operational Meteorology, Education and Training, University

Corporation for Atmospheric Research

- 1:45 *Requirements for Weather Forecasting at Dronning Maud Land*
Hans-Joachim Möller
Deutscher Wetterdienst
- 2:00 *Current Status of Meteorological Observations Related to Air Operations at Mario Zucchelli Station and Concordia Station*
Giuseppe DeRossi¹, Lorenzo DeSilvestri², Stefan Dolci¹, and Andrea Pellegrini¹
¹Programma Nazionale di Ricerche in Antartide (PNRA) SCrl
²Ente per le Nuove Tecnologie, l'Energia e l'Ambiente (ENEA)— CLIM
- 2:15 *The Aircrew Perspective of Antarctic Weather*
Tony Evans
SAFAIR
- 2:30 *Use of Synoptic Weather Pattern Identification in Operational Weather Forecasting in the Antarctic*
John J. Cassano
University of Colorado/CIRES
- 2:45 *An Evaluation of the Low-Level Wind Field Across the Ross Ice Shelf*
Mark W. Seefeldt and John J. Cassano
University of Colorado/CIRES

3:00–3:30 pm Break

**Session 7: Antarctic Weather Forecasting and Model Applications
(continued)**

3:30 *General Discussion on Forecasting and Applications*

Session 8: Poster Session

3:45–4:30 pm

Status of the Australian Automatic Weather Station (AWS) Network in Support of Flying Operations
Neil D. Adams
Australian Bureau of Meteorology

Experimental Antarctic Ensemble System
Neil D. Adams
Australian Bureau of Meteorology

Weather on the Taylor Glacier, Antarctica

Andrew Bliss and Kurt Cuffey
University of California at Berkeley

Experiments and Solutions in the Installation of AWS on Snow and Ice

Lorenzo De Silvestri
Ente per le Nuove Tecnologie, l'Energia e l'Ambiente (ENEA)

Astronomical Site Testing at Dome C Using Meteorological and Atmospheric Data

Daniela Galilei, Luca Valenziano, and Co-Authors
Istituto Nazionale di Astrofisica/Istituto di Astrofisica Spaziale e Fisica
Cosmica— Bologna (INAF/IASF— BO)

Surface Mass Balance of the Antarctic Ice Sheet with the RCM MAR

Hubert Gallée
Centre National de la Recherche Scientifique (CNRS)

Small-Scale Winds, Polynyas, and Ocean Properties in the Ross Sea

Mahmoud Kamel, Y. Sinan Husrevoglu, Michael S. Dinniman, and John M. Klinck
Old Dominion University

*Wintertime Katabatic Event and Polynya at Terra Nova Bay: A Study by Eta Model Simulations
and AMSR-E Images*

Sandra Morelli¹, Giada Casini¹, and Flavio Parmiggiani²
¹University of Modena and Reggio Emilia
²Istituto di Scienze dell'Atmosfera e del Clima (ISAC)— CNR

*The Italian Remote Sensing Data Archive: A Prototype Architecture, from DBRMS to WEB
Distribution*

Alessandro Piscini¹ and Luca Simonetti²
¹Istituto Nazionale di Geofisica e Vulcanologia (INGV)
²Ente per le Nuove Tecnologie, l'Energia e l'Ambiente (ENEA)— TER

*Weather Forecast Activity at MZS, Terra Nova Bay: Automated Antarctic ECMWF Data
Processing and Distribution Management*

Alessandro Piscini¹ and Massimo Bider²
¹Istituto Nazionale di Geofisica e Vulcanologia (INGV)
²Agenzia Regionale Prevenzione e Ambiente dell'Emilia Romagna— Servizio Idro Meteo
(ARPA— SIM)

Preliminary Upper-Air Verification of Polar WRF in AMPS

Daniel F. Steinhoff and David H. Bromwich
Byrd Polar Research Center, The Ohio State University

Evaluation of Williams Field Terminal Aerodrome Forecasts (TAFS) during the 2006-07 Field

Season

Daniel F. Steinhoff and David H. Bromwich
Byrd Polar Research Center, The Ohio State University

4:30 pm Adjourn for Day

Thursday/Giovedì, 28 June/Giugno 2007

Session 9: Models and Tools in Antarctic Research

Session Chair: David H. Bromwich, The Ohio State University

9:00–10:15 pm

9:00 *Nonlinear (Paleo)climatology: Studying Polar Climate with Self-Organizing Maps*

David B. Reusch and Richard B. Alley

The Pennsylvania State University

9:15 *On Combining AMSU and Polar MM5 Outputs to Detect Precipitating*

Clouds over Antarctica

Stefano Dietrich, Francesca DiPaola, and Elena Santorelli

Istituto di Scienze dell' Atmosfera e del Clima (ISAC)— CNR

9:30 *The Precipitation Regime of Dronning Maud Land, Antarctica, Derived from AMPS
(Antarctic Mesoscale Prediction System) Archive Data*

Elisabeth Schlosser¹, Jordan G. Powers², Michael G. Duda², and Kevin W. Manning²

¹University of Innsbruck

²National Center for Atmospheric Research

9:45 *The Impact of the Adelie Land Katabatic Wind Regime on Coastal Cyclogenesis*

Daniel F. Steinhoff, David H. Bromwich, and Ryan L. Fogt

Byrd Polar Research Center, The Ohio State University

10:00 *Do Topographically-induced Vortices in the Lee of Ross Island Contribute to Mesoscale
Cyclogenesis?*

Andrew J. Monaghan and David H. Bromwich

Byrd Polar Research Center, The Ohio State University

10:15–10:45 am Break

Session 10: Antarctic Modeling and Model Evaluation

Session Chair: John J. Cassano, University of Colorado

10:45–12:00 pm

- 10:45 *Comparison of the MAR Model to AWS Observations*
Giulia Clai¹ and Andrea Pellegrini²
¹Ente per le Nuove Tecnologie, l'Energia e l'Ambiente (ENEA)
²Programma Nazionale di Ricerche in Antartide
- 11:00 *Validation of the Regional Climate Model at Dome C*
Hubert Gallée
Centre National de la Recherche Scientifique (CNRS)
- 11:15 *Atmospheric Moisture and Cloud Cover Characteristics Forecast by AMPS*
Ryan L. Fogt and David H. Bromwich
Byrd Polar Research Center, The Ohio State University
- 11:30 *The Impact of Snow Microphysics on the Simulation of the ABL and Snowdrift Over Polar Ice Sheets*
Guenther Heinemann¹ and Heike Hobbiehaas²
¹University of Trier
²Universität Bonn
- 11:45 *The Importance of High Spatial Resolution for Models of Antarctic Coastal Circulation*
John M. Klinck and Michael S. Dinniman
Old Dominion University

12:00–1:30 pm Lunch

Session 11: Community Discussion and Feedback

Session Chairs: Jordan G. Powers and Kevin W. Manning, National Center for Atmospheric Research

1:30–3:15 pm

Open Discussion: NWP Support for Antarctic Science and Operations

- International issues and needs in NWP and forecasting support
- International collaborations in Antarctic NWP, forecasting, and research

Open Discussion: Topics from Workshop Group

AMPS User Feedback

- Product needs and suggestions
- Output and product dissemination

Closing Remarks

3:15 pm

Workshop Adjourns