

i. Invited Talks

Listing is for 2010 to 2015, Current GSD Staff Only

Steve Albers, Invited Seminar Talk, "Weather and All-Sky Imagery - A Comparison of Observed and Local Analysis and Prediction System (LAPS) Simulated Clouds", CIRA, August 27, 2015

Steve Albers, Invited Seminar Talk, "The LAPS Cloud Analysis: Validation with All-sky imagery and development of a variational cloud assimilation", University of North Dakota, October 9, 2014

Curtis Alexander, Webinar/Talk, "Progress and Plans for the Operational High-Resolution Rapid Refresh (HRRR) Model", Mountain Meteorology, Amer. Meteor. Soc., November 19, 2014.

Curtis Alexander, Invited Talk, "Next-Generation Weather Prediction: The revolution in storm forecasting using the High-Resolution Rapid Refresh (HRRR) numerical weather prediction model", NOAA Science Days, June 23, 2014.

Curtis Alexander, Invited Webinar/Talk, "The High-Resolution Rapid Refresh (HRRR): Accessibility of next generation convective-scale forecast guidance from research to operations", American Meteorological Society Board for Operational Government Meteorologists (BOGM), May 7, 2013.

Curtis Alexander, Invited Webinar/Talk, "The High Resolution Rapid Refresh (HRRR): An hourly updating convection permitting forecast system nested in an hourly cycled mesoscale model with multi-scale data assimilation", American Meteorological Society Board for Operational Government Meteorologists (BOGM), June 26, 2012.

Stan Benjamin, Invited Talk, "Advanced global modeling in GSD with FIM and NIM models towards NOAA Next Generation Global Prediction System", Penn State University, State College, PA, October 2015.

Stan Benjamin, Invited Panel Presentation, "Enhancing the model improvement and evaluation process", NWS Science and Operations Officer-Development and Operations Hydrologist (SOO-DOH) Workshop, Boulder, CO, September 15, 2015.

Stan Benjamin, Invited Presentation, "US short-range NWP and assimilation of satellite and radar observations", EUMETSAT Meteorological Satellite Conference, Toulouse, France, September 21, 2015.

Stan Benjamin, Invited Seminar Talk, "Coupled-Model/Assimilation Development at Regional and Global Scales at ESRL", Great Lakes Environmental Research Laboratory, Ann Arbor, MI, May 2015.

Stan Benjamin, Invited Seminar Talks, "FIM global model applications for weather and seasonal forecasting" and "Development of the HRRR/RAP model/assimilation system", Central Weather Bureau, Taipei, Taiwan, February 2015.

Stan Benjamin, Tutorial, "Impact of observation types in the Rapid Refresh", Joint Center for Satellite Data Assimilation Tutorial Workshop, Ft. Collins, CO, August 2015.

Stan Benjamin, Invited Seminar Talk, "ESRL modeling: Global (FIM) and regional (HRRR/RAP models)", Geophysical Fluid Dynamics Laboratory, Princeton, NJ, January 2014.

Stan Benjamin, Invited Talk, "Observation impact experiments including aircraft data with the Rapid Refresh and RUC models", NOAA Aircraft Data Workshop at ARINC, Inc., Annapolis, MD, April 2014.

Stan Benjamin, Invited Talk, "Use of satellite data to improve energy forecast guidance from RAP/HRRR in the US", IGARSS (GNSS Satellite Conference), Quebec City, Canada, June 2014.

Stan Benjamin, Invited Talk, "How Do Weather Models Work?", American Wind Energy Association (AWEA) conference, Las Vegas, NV, December 2013.

Stan Benjamin, Invited Seminar Talk, "The HRRR/RAP models", UK Met Office, Reading, UK, April 2013.

Stan Benjamin, Invited Talk, "Science review on ESRL earth system modeling", CIRES Fellows Meeting, University of Colorado, Boulder, CO, April 2012.

Stan Benjamin, Invited Talk, "FIM model", Joint seminar with Fanglin Yang, NWS/NCEP/EMC, College Park, MD, April 2012.

Stan Benjamin, Invited Talk, "Regional observation impact experiments", 5th WMO Workshop on the Impact of Various Observing Systems on NWP, Sedona, AZ, May 2012.

Stan Benjamin, Invited Seminar Talks, "HRRR/RAP and GSD global modeling", Great Lakes Environmental Research Laboratory, Ann Arbor, MI, October 2011.

Stan Benjamin, Invited Talk, "HRRR/RAP and FIM global modeling", Weather Channel Steamboat Weather Summit, Steamboat Springs, CO, January 2011.

Stan Benjamin, Invited Seminar Talk, "Development of RAP and HRRR and US-Hungary collaboration", Dezxo Devenyi Memorial Conference, Hungarian Meteorological Service, June 2010.

Ligia Bernardet, Invited Talk, "The Numerical Weather Prediction Information Technology Environment (NITE)", European Centre for Medium-Range Weather Prediction (ECMWF), Reading, UK, December 9, 2014.

Ligia Bernardet, Invited Talk, "The Numerical Weather Prediction Information Technology Environment (NITE)", UK Meteorological Office (UK Met Office), Exeter, UK, December 9, 2014.

Ligia Bernardet, Invited Talk, “The role of testbeds in NOAA for transitioning NWP research to operations”, European Centre for Medium-Range Weather Prediction (ECMWF), Reading, UK, November 18, 2013.

Ligia Bernardet, Tutorials, “Hurricane Weather Research and Forecasting (HWRf) Model”. Boulder Colorado, 2010 and 2011; College Park, Maryland, 2014; and Taiwan, 2014.

Christopher Clack, Invited Talk, “The National Energy with Weather System (NEWS) Simulator”, National Wind Technology Center, National Renewable Energy Laboratory, Golden, Colorado, 2015.

Christopher Clack, Invited Talk, “Wind Energy Extraction Optimization and Effects”, Wind Energy Symposium, Harvard University, Cambridge, MA, 2015.

Christopher Clack, Invited Talk, “Can the World’s CO₂ be Stopped Short of a Doubling?”, International Conference on Energy and Meteorology, Boulder, Colorado, 2015.

Christopher Clack, Invited Talk, “Cost-competitive reduction of carbon emissions of up to 80% from the US electric sector by 2030”, Department of Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA, 2015.

Christopher Clack, Invited Talk, “Advances in Optimizing Weather Driven Electric Power Systems”, American Geological Union, Renewable Energy Conference, San Francisco, CA, 2014.

Christopher Clack, Invited Talk, “Modeling Solar Irradiance and Wind Speeds to Create an Accurate Resource Assessment for Renewable Energy”, AMS Annual Meeting, Atlanta, GA, 2014.

Christopher Clack, Invited Talk, “A U.S. National Weather Driven Electric System”, Colorado State University, Department of Crops and Soils, 2014.

Christopher Clack, Invited Talks, “Weather Dictated Electricity Generation”, Tyndall Centre for Climate Change Research at University of East Anglia, 2014; Centre for Energy, Environment and Sustainability at University of Sheffield, 2014; Department of Energy and Climate Change, London, 2014; Energy Institute at University College London, 2014; Grantham Institute at Imperial College London, 2014; , Global sustainability Institute at Anglia Ruskin University, 2014; NOAA Sustainable Energy and Atmospheric Sciences Seminar, 2014; DOE National Renewable Energy Laboratory (SEAC), National Energy Simulator, 2013 and 2014; National Renewable Energy Laboratory (Wind Group), National Energy Simulator, 2013. Christopher Clack, Webinar Speaker, “Linear Programming for National Energy Systems”, Stanford University, Stanford, CA, 2013.

Christopher Clack, Invited Talk, “Optimizing a National Energy System”, AMS Washington Forum, Washington, D.C., 2013.

Christopher Clack, Invited Talk, “Does the continental United States have the weather to support large-scale wind and solar deployment?” AMS Annual Meeting, San Diego, CA, 2013.

Christopher Clack, Invited Talk, "How does geographic scale alter the utilization of wind and solar power in the USA?" AGU Meeting, San Francisco, CA, 2012.

Christopher Clack, Invited Talk, "Weather Determined Characteristics of Wind and Solar Energy Generation Systems", North American Wind Energy Academy (NAWEA) meeting, University of Massachusetts, Amherst, MA 2012.

Christopher Clack, Invited Talk, "Weather Determined Characteristics of Wind and Solar Energy Generation Systems", AMS Meeting, New Orleans, LA, 2012.

Christopher Clack, Invited Talk, "Weather Scaling of Wind and Solar Generations Systems", Boulder Weather Day, Boulder, Colorado, 2012.

Lidia Cucurull, Invited Talk, "Global Navigation Satellite System Radio Occultation: Impact Assessment on Global Weather Forecasting", AMS Summer Community Meeting, Boulder, CO, August 2013.

Lidia Cucurull, Invited Talk, "Use of GNSS Radio Occultation data at NOAA", Coordination Group for Meteorological Satellites (CGMS)--Joint Occultations for Probing Atmosphere and Climate (OPAC) and International Radio Occultation Working Group (IROWG), near Graz, Austria, September 2013.

Lidia Cucurull, Invited Talk, "Complementarity of RO and radiance observations in NWP", Joint EUMETSAT-AMS Meteorological Satellite Conference, Vienna, Austria, September 2013.

Lidia Cucurull, Invited Talk, "Use of GPS Radio Occultation Observations to Improve Numerical Weather Prediction Forecast Skill at NOAA", U.S. National Committee of the Union of Radio Scientists International, National Radio Science Meeting, Boulder, CO, January 2014.

Lidia Cucurull, Invited Talk, "GNSS Radio Occultation: From research to long-term sustained operational capabilities with COSMIC-2", AMS Annual Meeting - COSMIC, Atlanta, Georgia, February 2014.

Lidia Cucurull, Tutorial, "GPS Radio Occultation data assimilation", 2105 GSI/EnKF Community Tutorial, Developmental Testbed Center, NCAR, Boulder, Colorado, August 2015.

Lidia Cucurull, Tutorial, "GPS Radio Occultation", JCSDA Summer Colloquium on Satellite Data Assimilation, Fort Collins, CO, July 2015.

Brian Etherton, Invited Talk, "Impact-based Verification", AMS Summer Meeting, Raleigh, North Carolina, August 2015.

Mark Govett, Invited Talk, "Using Fine-Grain Architectures for Weather and Climate Models", 2nd Infrastructure for Earth System Modeling (IS-ENES) Workshop on "HPC for Climate Models", Toulouse, France, February 2013.

Mark Govett, Invited Talk, "Parallelization of the NIM Dynamical Core for GPUs", 1st Infrastructure for Earth System Modeling (IS-ENES) Workshop on Dynamical Cores for Climate Models, Lecce, Italy, December 2011.

Mark Govett, Invited Talk, "Successes and Challenges using GPUs for Weather and Climate Models", NVIDIA GPU Technology Conference, San Jose, CA, March 2011.

Mark Govett, Invited Talk, "Using Graphical Processing Units (GPUs) for Next Generation Weather and Climate Prediction Models", Computing in Atmospheric Sciences Workshop, Annecy, France, September 2009.

Tracy Hansen, Invited Talk, "Python: The Key to Graphical Forecast Editor's Success", American Meteorology Society Conference, New Orleans, LA, January 2012.

Tracy Hansen, Plenary Talk, "Hazard Services", Central Region MIC/HIC meeting, Kansas City, MO, May 2014.

Tracy Hansen, Invited Talk, "Hazard Services: The Backbone of a Weather-Ready Nation", NOAA Science Days, Silver Spring MD, June 2014.

Tracy Hansen, Invited Session Moderator, "Hazard Services", National Hydrologic Program Managers Meeting, Tuscaloosa, AL, May 2015.

Tom Henderson, Invited Talk, "System Software for Atmospheric Models", The Third Global Regional Integrated Model system (GRIMs) Workshop and Tutorial, Seoguipo KAL hotel, Jeju Island, Korea, March 6-8, 2013.

Tom Henderson, Invited Talk, "Software Design for NIM-GRIMs", The Third Global Regional Integrated Model system (GRIMs) Workshop and Tutorial, Seoguipo KAL Hotel, Jeju Island, Korea, March 6-8, 2013.

Jin Lee, Invited Talk, "The three-dimensional finite-volume non-hydrostatic icosahedral model (NIM)", The 2014 KIAPS Int'l Symposium on Global NWP System Modeling, Seoul, Korea, Oct 27-29, 2014.

Jin Lee, Invited Talk, "Recent non-hydrostatic global modeling research and development", Shanghai Typhoon Institute, CMA, Shanghai, China, Oct 29, 2013.

Jin Lee, Invited Talk, "ESRL global model R&D: Non-hydrostatic icosahedral model (NIM)", Atmosphere and Ocean Research Institute, The University of Tokyo, workshop held in LBNL, California, USA, Mar 20-22, 2013.

Jin Lee, Invited Talk, "Global finite-volume non-hydrostatic modeling", Advanced Dynamical Core Modeling for Atmospheric and Oceanic Circulations, International Centre for Theoretical Sciences, India, Feb 19-23, 2013.

Jin Lee, Invited Talk, "The three-dimensional finite-volume non-hydrostatic icosahedral model", Frontiers in Computational Physics 2012, NCAR, Boulder, CO., USA, Dec 17, 2012.

Jin Lee, Invited Talk, "A non-hydrostatic three dimensional finite volume icosahedral model", Isaac Newton Institute for Mathematical Sciences, University of Cambridge, United kingdom, Dec 5, 2012.

Jin Lee, Invited Lecture, "Non-hydrostatic icosahedral model (NIM)", Dynamical Core Model Intercomparison Project (DCMIP), Boulder, CO., USA, Aug 7, 2012.

Jin Lee, Invited Talk, "ESRL global model research and development: A non-hydrostatic icosahedral model (NIM)", Int'l Symposium on the 20th Anniversary of Operational NWP, KMA, Seoul, Korea, Dec 6-7, 2011.

Jin Lee, Invited Lecture, "Geodesic finite-volume numerics", Yonsei University, Seoul, Korea, Dec 5, 2011.

Jin Lee, Invited Lectures, "Geodesic numerics I & II", Summer School in Atmospheric Modeling (SSAM), Boulder, CO., USA, Jul. 19-22, 2010.

Thomas LeFebvre, Invited Talk, "Grid Update Tool", NWS Western Region SOO/DOH Workshop, Boulder, CO, September 24, 2014.

Melinda Marquis, Invited Talk, "Wind Forecast Improvement Project Overview," Utility Wind Integration Group Forecasting Workshop, Tucson, AZ, February, 2014.

Melinda Marquis, Invited Talk, "Climate Change and Renewable Energy," Colorado Renewable Energy Collaboratory Annual Symposium, Ft. Collins, CO, August, 2012.

Melinda Marquis, Invited Talk, "NOAA's Roles in Energy," Utility Wind Integration Group Forecasting Workshop, Tucson, AZ, February, 2012.

Melinda Marquis, Invited Talk, "Wind Forecast Improvement Project," AGU Fall Meeting, San Francisco, December, 2010.

Melinda Marquis, Invited Talk, "Wind Forecast Improvement Project," Utility Wind Integration Group, Quebec, October, 2010.

Hiliary Peddicord, Invited Talk, "NOAA's SOS Explorer and Data Visualization Resources", Climate Science Workshop, NOAA Climate Stewards Education Project, UCAR, Boulder, Colorado, June 2015

Tanya Peevey, Invited Talk, "A case study analysis of the double tropopause and the tropopause inversion layer related to the warm conveyor belt and other midlatitude systems", Swiss Federal Institute of Technology (ETH), Institute for Atmospheric and Climate Science, Zurich, Switzerland, March 2014

Tanya Peevey, Invited Talk, "The relationship between the double tropopause (DT) and the tropopause inversion layer (TIL) in mid-latitudes", Johannes Gutenberg University of Mainz, Institute for Atmospheric Physics, Mainz, German, December 2013

Tanya Peevey, Invited Talk, "Examination of Double Tropopause Characteristics using HIRDLS Observations and Reanalysis Data: Seasonality, Interannual Variability and Duration", Forschungszentrum Julich GmbH, Institute for Energy and Climate Research (IEK-7), Julich, German, April 2011.

Greg Pratt, Invited Poster Presentation, "MADIS a Conduit to Operations", NWS Science and Operations Officer-Development and Operations Hydrologist (SOO-DOH) Workshop, Boulder, CO, September 15, 2015.

Greg Pratt, Invited Presentation, "MADIS the Conduit to Operations, what is it?" 40th Annual meeting of the American Association of State Climatologist, Cape May, NJ, June 23, 2015.

Woody Roberts, Invited Written Presentation, "AWIPS – A Research-to-Operations and Operations-to-Research Success Story", NOAA R2X Summit, Silver Spring, MD, February 4, 2015.

Woody Roberts, Invited Talk, "Application of RUA/RTMA to AWIPS and the Forecaster Decision Support Environment (FDSE)", NOAA Rapidly Updated Analysis Workshop, Boulder, CO, June 4th, 2015.

John P. Schneider & Jebb Stewart, Invited Talk, "Global Visualization Concepts: Science On a Sphere and NOAA Earth Information System", Deep Carbon Observatory Workshop, Smithsonian Institution, Washington, D.C. May 2015.

Timothy Schneider, Invited Talk, "Next Generation Global Prediction System", NOAA Science Days, Washington, D.C. and Silver Spring, MD, October 27-29, 2015.

Jeff S. Smith, Invited Talk, "Weather Ensembles, Big Data, and Analytics", The Interactive Business Analytics Conference (University of Colorado Leeds School of Business), Boulder, Colorado, October 4, 2013.

Jeff S. Smith, Invited Talk, "TerraViz", Unite 2013 (Game Developers Conference), Vancouver, Canada, August 31, 2013.

Jeff S. Smith, Invited Talk, "Moving Weather Model Ensembles To A Geospatial Database For The Aviation Weather Center", UCAR Software Engineering Assembly talk, Boulder, Colorado, April 2, 2013.

Jeff S. Smith, Invited Talk, "Introduction to the NOAA Earth Information System (NEIS)", Gulf of Maine Research Institute Workshop on Data Visualization to Support Ecosystem Based Management, Portland, Maine, February 5-6, 2013

Jeff S. Smith, Invited Talk, "The Quest For The Perfect UI Technology", UCAR Software Engineering Assembly, Boulder, Colorado, February 23, 2012.

Jeff S. Smith, Tutorials, "WRF Domain Wizard and WRF Portal", National Center for Atmospheric Research (NCAR), Boulder, Colorado, January 2010, July 2010, January 2011, July 2011, January 2012, July 2012, January 2013 and July 2013.

Jebb Q. Stewart, Invited Talk, "Exploring interoperability: The advancements and challenges of improving data discovery, access, and visualization of scientific data through the NOAA Earth Information System (NEIS)". Search and Discovery of Scientific Data (IN031), San Francisco, CA, American Geophysical Union, Dec. 9 - 13 2013.

Jebb Q. Stewart, Invited Talk, "Real-time Data Interaction and Visualization using the NOAA Earth Information System (NEIS)", Meteorology Technology World Expo, Brussels, Belgium, October 22nd, 2014.

Zoltan Toth, Invited Presentation, "Earthcube user case on weather-climate interface", EarthCube Science Committee Scope and Vision Workshop, Berkeley, CA, April 25-26, 2015.

Zoltan Toth, Invited Presentation, "The role of NOAA satellites in national and international high impact weather projects", NOAA Satellite Science Week, Boulder, CO, February 23-27, 2015.

Zoltan Toth, Invited Talk, "Challenges in ensemble forecasting", AMS Annual Meeting, Phoenix, AZ, January 5-8, 2015.

Zoltan Toth, Invited Talk, "THORPEX: Taking stock and looking ahead", THORPEX International Core Steering Committee, meeting, Geneva, Switzerland, November 17-18, 2014.

Zoltan Toth, Invited Talk, "Multiscale data assimilation: the Local Analysis and Prediction System", Prediction of Weather and Climate Systems Seamlessly (PROWESS) Workshop, NCMRWF, Noida, India, February 17-19, 2014.

Zoltan Toth, Invited Talk, "THORPEX: Accomplishments and work ahead", 5th THORPEX Asia Science Workshop, Jeju, South Korea, November 4-6, 2013.

Zoltan Toth, Invited Talk, "A quantitative analysis of shadowing chaotic systems", Methods in Chaos Detection and Predictability: Theory and Applications Workshop, Dresden, Germany, June 17-21, 2013.

Zoltan Toth, Invited Talk, "Application of Lyapunov vectors in complex nonlinear systems", Workshop on Exploring Complex Dynamics in High-Dimensional Chaotic Systems: From Weather Forecasting to Oceanic Flows, Max Planck Institute, Dresden, Germany, January 25-29, 2010.

Betsy Weatherhead, Invited Talk, 2014-11-22: Changes in the Atmosphere: Ozone Depletion and Successes. Birla Museum, Hyderabad, India

Betsy Weatherhead, Invited Panelist, 2014-11-18: US India Technical Summit. US Department of State, Delhi, India

Betsy Weatherhead, Invited Talk, 2014-11-24: The Role of Atmospheric Sciences in Renewable Energy. Khan Saab, Hyderabad, India

Betsy Weatherhead, Invited Talk, 2014-11-25: Telangana State Planning - the role of weather forecasts, Hyderabad

Betsy Weatherhead, Invited Talk, 2014-11-20: Detecting Trends in Environmental Data. Presidency University, Kolkata, India.

Betsy Weatherhead, Invited Talk, 2014-11-21: Indigenous Knowledge: Alternative Ways of Knowing. Bisva-Bharti University - Tagore Museum, Shantiketan, India

Betsy Weatherhead, 2014-6-1: Weather Forecast Improvement. NOAA's Science Advisory Board, Washington, District of Columbia

Betsy Weatherhead, E. C.: Detection of Environmental Trends: What can we control? AGU Fall Meeting, San Francisco

Betsy Weatherhead, 2014-5-15: 'American Meteorological Society's Forecast Improvement Group'. GSD Technical Seminar, Boulder, CO

Betsy Weatherhead, 2014-12-9: 'Forecasts Evaluation: Statistical Techniques for Decision Support'. FIQAS, Boulder, CO

Betsy Weatherhead, Invited Talk, 2015-9-16: Forecasts Evaluation: Statistical Techniques for Decision Support, NCEP, College Park, MD.

Betsy Weatherhead, Invited Talk, 2014-11-19: 'Techniques for Identifying Small Advances in Forecasting'. National Centre for Medium Range Weather Forecasting, Delhi, India

Betsy Weatherhead, EGU, 2014-5-2: Improvements in approaches to forecasting and evaluation techniques, Vienna, Austria

Betsy Weatherhead, Invited Talk, American Association for the Advancement of Science Annual Meeting, 1/2012 Indigenous Knowledge

Betsy Weatherhead, Invited Talk, Denver Museum of Nature and Science, 7/2013, Climate Change Science

Betsy Weatherhead, Invited Talk, 11/24/2012, International Youth Leadership, Azerbaijan, Update on Climate Change Science and New Challenges.

Betsy Weatherhead, Invited Talk, London, 2011, House of Lords, Environmental Resources Dinner.

Betsy Weatherhead, Invited Talk, Germany, 2011, Max Planck Institute, Use of Unmanned Aircraft in Support of Environmental Science.

Betsy Weatherhead, Wyoming, 5/2011, Women in Science.

Betsy Weatherhead, 9/15/2015, Washington, DC, US Global Change Research Program, Climate Observing System Simulation Experiments.

Betsy Weatherhead, Invited Talk, 9/30/2015, Boulder, CO National Ecological Observing Network, Evaluating Ecological Change Over Time: Analytical Approaches.

Betsy Weatherhead, 2011-3-28: Advances in techniques to understand linkages between ice quality and seal populations: Arctic Science Summit Week, Seoul, and Republic of Korea

Betsy Weatherhead, 2011-1-25: Solar Energy Forecasting. American Meteorological Society Annual Meeting, Seattle, USA

Betsy Weatherhead, 2011-12-5: Analysis of detailed, sub-cloud field images of Arctic sea ice. AGU Annual Meeting: In Situ and Field-Based Measurements of the Cryosphere I, San Francisco, CA, USA

Betsy Weatherhead, Invited Talk, 2011-11-27: Automation Assistance in Gathering and Analyzing Images of Arctic Ice and Seals. 10th Biennial Conference on the Biology of Marine Mammals, Tampa, FL

Betsy Weatherhead, Convener, 2012-1-22: Town Hall Meeting: Building a Stronger Weather and Climate Enterprise. American Meteorological Society Annual Meeting, New Orleans, LA, USA

Betsy Weatherhead, Invited Talk, 2012-2-16: Indigenous Insights on Climate Change. Annual Meeting of the American Association for the Advancement of Science, Vancouver, Canada

Betsy Weatherhead, 2012-9-1: Designing Monitoring Systems to Detect Changes in Water Vapor. WMO: Global Climate Observing System Reference Upper Air Network, Lindenberg, Germany

Betsy Weatherhead, 2012-1-22: Meeting the Demands for Specialized Weather and Climate Information in a New Business Environment. American Meteorological Society Annual Meeting, New Orleans, LA, USA

