NARCCAP

2011 USERS' MEETING

April 7-8, 2011

NCAR, Center Green Laboratory 1

JOSEPH BARSUGLI

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University of Colorado

I am a research scientist at the Cooperative Institute for Research in Environmental Sciences at the University of Colorado at Boulder. I am also affiliated with the Western Water Assessment, a NOAA-funded "boundary organization" that works with stakeholders Colorado, Utah and Wyoming to improve the use of climate information in water, land, and ecosystem management. After working with NARCCAP output for a couple of years, it has become clear to me that higher resolution simulations are not necessarily easier to interpret for stakeholders. One encouraging trend I am seeing is the increasing willingness on for some stakeholders to accept a "process-based" approach, and the increasing ability of our models to provide that on a regional scale.

Research Interests: Incorporating information from NARCCAP simulations into impacts and management models.

MARCUS BORENGASSER

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Environmental Quality Management/FL Tech

Ph.D., Geology, University of Nevada

M.S., Applied Math, FL Tech

M.S., Computer Science, FL Tech

We are working on a Phase II STTR to develop an analytical method to evaluate and track the impact of climate change on pollutants generated by USA DoD operations. The resulting analytical tool will help decision makers determine the effects of potential climate change on the fate and transport of toxic compounds in the environment.

Research interests: Evaluate the impact of climate change on pollutants generated by USA DoD operations.

WEI CHU

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University of California, Irvine

Biographical sketch: Currently Postdoctoral Scholar at the Center for Hydrometeorology and Remote Sensing (CHRS) in UC Irvine. He received B.S. from Nanjing University in Geology, M.S. from Stanford University in Geological and Environment Sciences, and Ph.D. from University of California at Irvine in Civil Engineering.

Research Interests: Detection of patterns and trends of meteorological fields by mining observational data, which include land-based and remotely sensed. Modeling uncertainties of climate model projection by evaluating model simulations against observations. Development of models and techniques for water planning and management. Study of Pacific Atmospheric Rivers and the connection with extreme flooding on the US west coast using satellite remote sensing data. Scientific computation with emphasis on theory and algorithms for optimization of high-dimensional and complex problems.

YONAS B. DIBIKE

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Environment Canada

Yonas B. Dibike (PhD, PEng) has received his MSc degree in Hydraulic Engineering and his PhD in Hydro informatics from the Technical University of Delft, in the Netherlands. Between 2002 and 2004 he pursued postdoctoral research at McMaster University, in Canada investigating the hydrological impacts of climate change in the Saguenay watershed in Quebec. Between 2005 and 2007, he was NSERC industrial research fellow at Ouranos Consortium on Regional Climatology and Adaptation to Climate Change, in Montreal, Québec. His main research at Ouranos was on development and analysis of climate change scenarios for Québec and Northern Canada using statistical downscaling methods. Since May 2007, he joined Environment Canada as a physical scientist, at the National Water Research Institute's Water & Climate Impact Research Centre located at the University of Victoria, British Colombia. His current areas of research are, among other things, hydro-climate analysis including statistical downscaling of global climate model outputs, impacts of climate variability and change on hydrology and water resources and simulation of lake-ice and lake-water temperature regimes in a changing climate. Yonas is also a Professional Engineer and Adjunct Assistant Professor at the University of Victoria. He has co-authored and published more than 20 papers in international refereed journals and also presented his research works in a number of international conferences.

Research Interests: Hydro-Climate Analysis and Climate Change Impact Studies

NARCCAP

BILL FORSEE

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Desert Research Institute

Bill Forsee received his interdisciplinary M. S. from the Rosenstiel School of Marine and Atmospheric Science at the University of Miami, Florida. His M. S. thesis involved the use of a stochastic weather generator and resampling methodology to create daily weather series consistent with El-Niño Southern Oscillation seasonal forecasts of precipitation. He is currently employed as a Technician in the Division of Hydrologic Sciences at the Desert Research Institute in Las Vegas, Nevada. He has worked on projects regarding impacts of climate change upon extreme precipitation events and stormwater infrastructure. He has a wide range of research interests including climate change and variability, ecosystem science, hydrology, geography, and marine science.

Research Interests: Climate change and variability, ecosystem science, hydrology, geography, and marine science.

FRANCIS GACHARI

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Jomo Kenyatta University of Agriculture and Technology

Francis is currently working on a PhD in Atmospheric Physics at Jomo Kenyatta University of Agriculture and Technology. His work is mainly motivated by the observation that gains so far achieved through research in support of crop and animal production have been severely reduced by the change in climate patterns thereby placing climate science higher up in the order of prerequisites for agricultural production. He has a Masters in Atmospheric Physics from the same university.

Research interests: Inter-comparison between the attributes to the variability of the North American climate and that of the eastern Africa.

YANHONG GAO

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University of Washington

I am a visiting scientist of Dennis P. Lettenmaier group in the department of Civil and Environmental Engineering, University of Washington. I am working on a mega drought project. We use Regional Climate Model (RCM) simulations from the North American Regional Climate Change Assessment Program (NARCCAP) to evaluate implications of climate change for the discharge of the Colorado River in the mid-21st century. We compare historical RCM simulations and simulations from their host global General Circulation Models (GCMs) to 1/8-degree gridded observations of precipitation, surface air temperature and runoff (generated by the Variable Infiltration Capacity (VIC) land surface model forced with gridded observations) for the historical period 1970-1999.

Research Interests: I am interested in the climate change impacts over mountainous region from the Regional Climate models

ERIC GILLELAND

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National Center for Atmospheric Research

I am a Project Scientist in the Joint Numerical Testbed (JNT) of NCAR's Research Applications Laboratory (RAL). My main research interests are spatial forecast verification methods and statistical extreme value analysis. In terms of NARCCAP, my interest is in analyzing severe weather indicators from the climate models. In particular, concurrently high values of CAPE and shear.

Research Interests: Spatial and Extreme Value Statistics

ADAM GREELEY

apg2123@columbia.edu

Columbia University Center for Climate Systems Research

Adam Greeley is an analyst and programmer at the Columbia University Center for Climate Systems Research. He uses global and regional climate model output to study climate variability and climate change at the regional scale and to create scenarios for impact assessment models for agriculture, infrastructure, health, and water resource applications. He also works with weather generators to study impact model sensitivities to climate changes and daily to interannual variations in precipitation and temperature. Adam is a member of the Climate Scenarios Team for the Agricultural Model Intercomparison and Improvement Project (AgMIP), a transdisciplinary effort to understand climate impacts on agricultural systems and economies around the world. Additionally, he is involved with research on climate variability, climate change and impact assessment as part of the Consortium for Climate Risk in the Urban Northeast (part of the NOAA RISA program) based at Columbia University.

Adam is a graduate of Columbia University's Climate and Society Master's Program and hold a B.S. in atmospheric and oceanic sciences from Stony Brook University.

Research Interests: Decadal climate variability, climate predictability at the interseasonal to interdecadal time scales, and the societal impacts of climate change.

CHUCK HAKKARINEN

chakkarinen@comcast.net

Retired from EPRI

I worked for 29 years as a research manager for the Electric Power Research Institute, prior to retiring in 2003. While at EPRI, I managed all research projects related to the geosciences and modeling of climate change -- global and regional -- including the Project to Intercompare Regional Climate Simulations (PIRCS) -- a predecessor to NARCCAP. I am currently interested in discussing how the regional climate modeling community will adapt to the 20-fold increase in computing power that will become available to the modeling community in 2012.

Research Interests: Further dynamical and statistical downscaling, and in the use of web-based applications to display the spatial and temporal patterns of regional climate model outputs and their comparison to observational data.

DORIT HAMMERLING

doritmh@umich.edu

University of Michigan

I am PhD candidate at the University of Michigan in Environmental Engineering. I hold Master degrees in Engineering and Statistics. My thesis research revolves around a NASA project to derive global atmospheric CO_2 concentrations from satellite observations. Before returning to the University to obtain my PhD, I worked in industry on high level control systems.

My research interests are spatial and spatio-temporal statistical methods for geophysical and climate data sets and models.
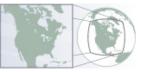
ERIK D. KABELA

kabela@email.sc.edu

University of South Carolina

I am a Senior Meteorologist with the Atmospheric Technologies Group within the Savannah River National Laboratory, a Department of Energy national laboratory, for the last four years. I have a bachelor's degree in Meteorology from Valparaiso University and a master's degree in Agricultural Meteorology from Iowa State University. I am also currently a PhD candidate in the Department of Geography at the University of South Carolina studying climate change impacts for the Southeast United States.

My current research focuses on the use of downscaled climate model data for assessment of model skill in the observational period as well as future projections of temperature and precipitation change for the Southeast U.S. My primary focus centers on the use of NARCCAP model data to perform model validation and provide assessment of future climate change in the region.

Research Interests: NARCCAP model validation for the Southeast United States during the observational period and projections of future temperature and precipitation change.

SHO KAWAZOE

shomtm62@iastate.edu

Iowa State University

I am currently a 2nd year graduate student in the Department of Geological and Atmospheric Sciences at Iowa State University. I graduated with a Bachelors degree from Iowa State University in Meteorology and Environmental Studies.

My current research incorporates NARCCAP Regional Climate Models, associated Global Climate Models, North American Regional Reanalysis (NARR), and University of Washington gridded observational data to identify environments that are favorable for the development of extreme precipitation events. Part of this project is to assess how well these models collectively reproduce extreme daily precipitation, and part of this project is to provide a baseline understanding of how these events will be ultimately affected by enhanced greenhouse warming. Analysis currently focused on the Upper Mississippi River Basin, with other regions pending. This work is partly an outgrowth of my undergraduate senior thesis, which laid the foundation for the Gutowski et al. (2010) publication on monthly extremes. ---

Research Interests: Study of Extreme Precipitation events in the Upper Mississippi River Basin

KENNETH KUNKEL

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NOAA Cooperative Institute for Climate and Satellites

I am Lead Scientist for Assessments with the NOAA Cooperative Institute for Climate and Satellites and Research Professor with the Department of Marine, Earth and Atmospheric Sciences, North Carolina State University. My research has focused on regional climate variability, extremes, change, and modeling. I have led several projects on the development and quality control of U.S. surface climate data sets used for evaluation of long-term historical trends in extreme climate events, including extreme precipitation, heat and cold waves, and snowfall.

My research interest is focused on regional climate variability, extremes, change, and modeling.

GUILONG LI

Guilong.Li@ec.gc.ca

Environment Canada

I am climatologist in Environment Canada. My research interests are climate change impact and adaptation at regional scale and focus on temperature and precipitation changes, extreme values, and their impacts in Canada, such as heat wave, heavy rainfall etc. NARCCAP data provide very high resolution outputs for our study. A current project I'm working on is trying to analyze high resolution temperature and precipitation change and uncertainties in North America. Different statistical methods will be used to construct probabilistic projections of high resolution monthly temperature and precipitation over North America.

Research Interests: My current research interest is to estimate high resolution monthly temperature and precipitation change and uncertainty over North America by using statistical downscaling method.

LU LIU

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University of Oklahoma

• University of Oklahoma, Norman, OK

BS, Environmental Science, May 2010

GPA: 3.59

(Transferred from Beijing Normal University, China)

• University of Oklahoma, Norman, OK

MS, Environmental Science, Water Resources Track, May 2012

Research Interests: Water resources, environmental impacts, climate change, and severe climate events.

KELLY MAHONEY

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UCAR/NOAA/USBR

Kelly Mahoney is currently a postdoctoral research fellow with UCAR's Postdocs Applying Climate Expertise (PACE) program. Kelly's PACE research focuses on warm season extreme precipitation events in the Front Range of the Rocky Mountains, and seeks to better understand how these types of events may change in future climate scenarios. She is using NARCCAP data as initial conditions to high-resolution (1-km) model runs of extreme precipitation events. Results are intended to benefit water managers and related stakeholders by clarifying how maximum precipitation thresholds and other extreme event criteria may evolve in the face of a changing climate in the western U.S.

Kelly graduated in 2009 from North Carolina State University where she earned a B.S., M.S. and PhD in Atmospheric Science. While at N.C. State, she worked on a number of collaborative research projects with the National Weather Service, focusing on topics such as quantitative precipitation forecasting and numerical forecast model representation of severe thunderstorms. Her dissertation work focused on model representation of convective momentum transport, with a larger goal of improving forecasts of organized, warm-season convective systems and the prediction of damaging surface winds.

Research Interests: Kelly is interested in extreme precipitation, high-resolution dynamical downscaling, and applications-oriented approaches to better understanding the potential for changing extremes in future climates.

MARTIN JOSE MONTERO-MARTINEZ

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Mexican Institute of Water Technology

Profession: Climatologist.

Date and Place of Birth: January 30, 1968. Mexico City, Mexico.

Working at IMTA since: February 2000.

Education:

BS in Physics (1989), Autonomous University of Puebla (Mexico)

MS in Geophysics (1993), National Autonomous University of Mexico

PhD in Atmospheric Sciences (1999), University of Arizona (USA)

Postdoc (1999-2000, 1 Yr), University of Dalhousie (Canada)

Detailed Tasks Assigned:

• To perform research in the fields of global and regional climate change, atmospheric numerical modeling, remote sensing applied to fire detection, aerosols (biomass burning), and adaptation measurements to climate change.

Participation in Research Projects:

• Participation in eight projects as PI and collaborating in another eight with other national and international institutions.

Thesis:

• Superadvisor in 5 B.S. theses, 2 M.S. theses and 1 Ph.D. thesis.

Production:

• 5 peer-reviewed papers.

• 4 book chapters

• 9 in-extenso papers on international conferences

• 13 in-extenso papers on national conferences

• 3 research visits to IRI-USA (2008); MRI-Japan (2009) and U. Sydney-Australia (2010).

Researcher for the Mexican Institute of Water Technology since 2000.

Research Interests: GCM validation, statistical and dynamical downscaling, aerosol-climate interactions.

PHIL MOREFIELD

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U.S. EPA Global Change Research Program

I've been a geographer at the National Center for Environmental Assessment for nearly three years. I've worked on a wide range of impact and vulnerability assessments ranging from biofuels to land use and climate change. A major recent focus has been the development of GIS tools that permit the simple and efficient aggregation of climate model output.

Research Interests: Developing tools and workflows to enable the processing and analysis of large archives of climate model output in ArcGIS.

LINDA MORTSCH

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Environment Canada & University of Waterloo

Linda Mortsch is a senior researcher with the Adaptation and Impacts Research Section of Environment Canada and an adjunct in the Faculty of Environment at the University of Waterloo. She has over 20 years experience in undertaking climate vulnerability, impact and adaptation assessments. Linda was the Convening Lead Author for the North America Chapter in the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report published in 2007. Her research interests include climate vulnerability, impact and adaptation studies on water resources, wetlands and communities as well as the development of climate change scenarios for these assessments.

Research Interests: The development and use of climate change scenarios for water resources assessments.

TREVOR MURDOCK

tmurdock@uvic.ca

Pacific Climate Impacts Consortium

I am a climate scientist at the Pacific Climate Impacts Consortium in Victoria, BC who works with regional stakeholders. My interests are in providing climate change projections and impacts projections that can be of use for decision-making. My particular interests at the moment are downscaling and indices of extremes, particularly in the Canadian Columbia Basin.

Research Interests: Regional climate change projections, downscaling, adaptation planning, applications, and decision-making.

MOHAMMAD REZA NAJAFI

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Portland State University

I am a PhD candidate working in the Remote Sensing and Water Resources Laboratory at Portland State University. Starting the PhD program in April 2009, I performed researches on the downscaling of large scale General Circulation Models (GCMs), and the uncertainties in hydrologic impact studies due to the climate change. My special interests are in the field of hydrologic climate change impact studies, application of remotely sensed data in environmental prediction, with the main goal of quantifying and reducing the associated uncertainties.

Research Interests: Climate change impact on hydrologic extremes such as floods in the Pacific Northwest.
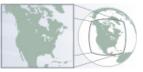
GEORGE PAUL

gpaul@ksu.edu

Kansas State University

George Paul is from New Delhi, India. He joined Kansas State University in 2009 fall to pursue his PhD in Remote Sensing Energy Balance Algorithms, at the department of Agronomy. He completed his bachelor's degree in Agricultural Engineering from Allahabad Agricultural University, India in 2002 and Master's degree in Civil Engineering (Specialization Hydrology) from National Institute of Technology, India in 2004. He received Netherlands Fellowship Program Scholarship to undergone specialized training in Remote Sensing applications in Water Resources at ITC, The Netherlands. Prior to joining K-state he has four years of teaching and research experience at Indian Institute of Technology, New Delhi India. His research focuses on the impacts of climate change and variability on crop production and water resources; testing various crop decision and water management practices as a step towards developing adaptation strategies for coping with climate change. The knowledge generated through his research would help scientists, producers and policy makers to formulate programs to sustain rural communities by improving agricultural productivity and profitability. Another research area, which he cherishes to work, is the Remote sensing based surface energy balance algorithms providing accurate estimates of spatial-temporal Evapotranspiration (ET). Uses of these spatial ET estimates are innumerable including hydrological modeling, irrigation scheduling, drought and flood monitoring and global climate change studies. George is continually publishing and presenting his results to the scientific community.

Research Interests: Impact Assessment, Vulnerability & Adaptation of Climate Change and variability on Water Resources and Agriculture

NARCCAP

SARA C. PRYOR

spryor@indiana.edu

Indiana University

Sara C. Pryor is Provost Professor of Atmospheric Science at Indiana University, and also holds visiting positions at the University of Aarhus and Risoe National Renewable Energy Laboratory in Denmark. She has published over 90 articles in internationally renowned journals, and is currently Editor of the Journal of Geophysical Research- Atmospheres. Sara's research encompasses both dynamical and empirical downscaling approaches, with the latter focused on probabilistic approaches. She is contributing author to the forthcoming IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation, and is currently engaged by the International Atomic Energy Authority for her research on links between climate change, extreme events and critical energy infrastructure. In 2009 a volume she edited on climate variability and change was published entitled; Understanding climate change: Climate variability, predictability and change in the Midwestern USA.

Research Interests: Dynamical and statistical downscaling, primarily with a focus on extreme events.

BUDONG QIAN

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Eastern Cereal and Oilseed research Centre, Research Branch, Agriculture and Agri-Food Canada

Budong Qian is an agro climatologist at Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada. He obtained his doctoral degree in Physics (meteorology) from the University of Lisbon (Portugal) in 2000. Budong is interested in studies on climate variability, climate change and their impacts on agriculture and other aspects of human society. He currently works on developing future climate scenarios as input to crop models for evaluating climate change impacts on annual crop production in Canada. He also uses crop models to assess potential adaptation strategies in crop management to future climate change.

Research Interests: I am interested in applying climate change scenarios simulated by regional climate models to crop models for evaluating climate change impacts and adaptation strategies.

LEI QIAO

leiqiao1981@gmail.com

Saint Louis University

I am a Ph.D. candidate in the Earth and Atmospheric sciences department of Saint Louis University. The hydrological variability due to climate change and land cover/use changes is my main researching activities. Also I am interested in hydrologic model auto-calibration by using multi-source observations such as Remote sensing imagery, GRACE(Gravity Recovery and Climate Experiment), and in-situ measurements.

Research Interests: Climate change induced hydrological variations in the lower Missouri River Basin.

IMTIAZ RANGWALA

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NOAA, UCAR, USBR

Currently a postdoctoral fellow at NOAA ESRL, Boulder. My research interests include understanding climate change at high altitude regions (Colorado Rocky Mountains, Tibetan Plateau) by analyzing observed and modeled climate data. I am also involved in investigating influence of using different techniques for the downscaling of climate projections from GCMs on modeling hydrological impacts and decision making.

Research interests: Understanding climate change in the high mountain region.

DARRIN SHARP

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Oregon State University/Oregon Climate Change Research Institute

Darrin has a BS and MS in Computer Science from the University of Illinois, and an MS in Ecology from Colorado State University. He has experience working in both the high-tech and environmental consulting industries. His interests include the development of information systems used for ecological and environmental research, and the downscaling of global climate model results to the regional level.

Research interests include the development of information systems used for ecological and environmental research.

WILLIS SHEM

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ORAU/ORNL

I received my PhD. (Earth and Atmospheric Sciences) from the Georgia Institute of Technology (Georgia-Tech) in August 2006. My doctoral thesis was entitled 'Biosphere-Atmosphere Interaction over the Congo Basin and its Influence on the Regional Hydrological Cycle'

My first appointment after graduation was a post-doctoral position at the University of Georgia in Athens (UGA) in the department of Geography (Aug 2006-2008 July). From August 2008 t0 May 2009, I held a temporary faculty position of 'Lecturer in Meteorology' at the University of Tennessee in Martin.

I am currently a post-doctoral research associate working for Oak Ridge Associated Universities (ORAU) at the Oak Ridge National Laboratory (ORNL) in Tennessee.

Research Interests: Dynamic downscaling of GCM climate products for region-specific applications e.g. impacts and vulnerability studies.

CHRISTOPHER UEJIO

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National Center for Atmospheric Research

Chris is a Center for Disease Control and Prevention and National Center for Atmospheric Research postdoctoral researcher. His work builds the evidence base to anticipate how global environmental changes may influence public health. Many important global health problems are sensitive to environmental processes. For example, seven of the top ten global health problems (measured by death, illness, and disability) are related to the environment. Domestically, the recent Environmental Protection Agency endangerment ruling stated that greenhouse gases are a threat to public health and should be regulated. Chris's research portfolio examines a broad range of health outcomes including the safety of drinking water, extreme heat events, mosquito transmitted diseases like dengue and West Nile Virus.

Research Interests: How does weather and climate variability currently influence public health and how may climate change alter these relationships?

MICHAEL WEHNER

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Lawrence Berkeley National Laboratory

My principal research interest is the analysis of extreme weather events in a changing climate. Using generalized extreme value theory; I have compared rare temperature and precipitation events between models and observations and have made projections of long term future changes to this class of extreme event. I have also projected future changes to tropical cyclones and droughts. I aim to help the IPCC AR5 better explain the distinction between "extreme" and rare events. My interest in NARCCAP is to characterize the models' ability to reproduce observed extreme precipitation events.

Research Interests: Projections of changes in extreme and rare precipitation.

SHUANG-YE WU

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University of Dayton

Dr. Wu got her Ph.D in Geography from University of Cambridge. She is now working as an assistant professor in Geology department at University of Dayton, Ohio. Her research interests focus on assessing potential impacts of climate change on hydrological cycles, particularly extreme precipitation events and flooding.

Research Interests: Potential impacts of climate change on extreme precipitation and flooding.