

CLEAN WATER & CLIMATE ADAPTATION SUMMIT 2010



Minnesota Landscape
ARBORETUM

Presented by the Minnesota Landscape Arboretum

IN COLLABORATION WITH

*Minnehaha Creek Watershed District and the
Minnesota Climate Change Adaptation Working Group*

PUBLIC POLICY

UNIVERSITY OF MINNESOTA



THURSDAY & FRIDAY, SEPTEMBER 16 & 17

AT THE MINNESOTA LANDSCAPE ARBORETUM'S MACMILLAN AUDITORIUM



CLEAN WATER & CLIMATE ADAPTATION SUMMIT 2010

Agenda for Thursday, September 16

Green Infrastructure for Clean Water: Techniques for Urban Development and Redevelopment

TIME	SESSION TITLE	SPEAKERS/PRESENTERS	LOCATION
8:30	Registration		Reedy Gallery
9:00	Welcome and Introductions	DR. ED SCHNEIDER, Arboretum Director TIM KENNY, Director of Education, Arboretum JULIE WESTERLUND, Education & Communications Mgr., Minnehaha Creek Watershed District	MacMillan Auditorium
9:15	Opening Remarks	JONATHAN YUHAS, KARE-11 TV	
9:45	Keynote presentation I: <i>Stormwater Management: Back to the Future</i>	ANDREW J. (ANDY) REESE, PE, LEED-AP, Vice President, AMEC Earth & Environmental Division	
10:45	Morning break		
11:00	Keynote Presentation II: <i>Water-Centric Design: Restoring Nature's Balance</i>	JIM PATCHETT, ASLA, LEED, AP, Conservation Research Institute/Conservation Design Forum, Elmhurst, IL	MacMillan Auditorium
12:00	Lunch	Tours of Powerhouse Plants exhibits and watershed parking lot model	
1:00	CONCURRENT SESSIONS I Policy/Planning: <i>"The Economic Argument for Green Infrastructure"</i> <ul style="list-style-type: none"> Maplewood Mall stormwater retrofits – the business perspective Greening the Grounds @ MurphyWarehouse Managing a Cost-efficient Water Quality Unit: Prior Lake Reflection on presentations and national perspective 	Moderator: ANNE GELBMANN, MN-PCA PRESENTERS: LAURIE VANDALEN, Maplewood Mall RICHARD MURPHY, Murphy Warehouse Co. ROSS BINTNER, City of Prior Lake ANDY REESE	MacMillan 1
	CONCURRENT SESSIONS II LID Technical : <i>"LID and GI in the R.O.W. – or, Green Infrastructure for Streets and Transit Corridors"</i> <ul style="list-style-type: none"> Living Streets: Community Improvement and Environmental Benefits in North St. Paul Stillwater Reduces Water Under the Bridge Stormwater Management and Infiltration Along the Central Corridor LRT Project Reflection on presentations, national perspective 	Moderator: JAY RIGGS, Washington Conservation District Presenters: CLIFF AICHINGER, City of North St. Paul Planning Commission FRED ROZUMALSKI, Barr Engineering TORY KRAFTSON, City of Stillwater MIKE HERMAN, Kimley-Horn Associates JIM PATCHETT	MacMillan 2
3:00	Afternoon Break		
3:30	Clean Water Funding Update	JOHN JASCHKE, MN Board of Water and Soil Resources	MacMillan Auditorium
3:50	<i>Climate Adaptation: The Role of Green Infrastructure in the Face of an Uncertain Climate</i>	JIM PATCHETT	
4:20	Closing Remarks	JULIE WESTERLUND, Minnehaha Creek Watershed District CAMILLA CORRELL, Climate Change Adaptation Working Group	

CLEAN WATER & CLIMATE ADAPTATION SUMMIT 2010

Agenda for Friday, September 17

Adapting for an Uncertain Climate: Preparing for the Next 100 Years

TIME	SESSION TITLE	SPEAKERS/PRESENTERS	LOCATION
8:00	Welcome	TIM KENNY, Arboretum Director of Education	MacMillan Auditorium
8:15	Opening Remarks	DR. MARK SEELEY, UMN, MPR, CCAWG	
8:30	Keynote Presentation 1: <i>Strengths and Weaknesses of Different Climate Change Models</i>	DR. BENJAMIN D. SANTER, Research Scientist, Program for Climate Model Diagnostics and Intercomparison, Lawrence Livermore Nat'l Lab	
9:00	Keynote Presentation 2: <i>Climate Services for Society: Challenges and Opportunities</i>	DR. EILEEN SHEA, Supervisory Physical Scientist, Climate Services Division, NOAA	
9:30	Moderated Q & A	Moderator: DR. MARK SEELEY	
10:00	Morning break		
10:30	Keynote Presentation 3: <i>How Chicago Is Adapting to Climate Change</i>	PETER MULVANEY, Assistant Commissioner, Department of Water Management, City of Chicago	MacMillan Auditorium
11:00	Keynote Presentation 4: <i>Climate Change in Minnesota: Current Trends and Model Projections</i>	DR. MARK SEELEY DR. JIM ZANDLO, Minnesota State Climatologist	
11:30	Moderated Q & A	PETER MULVANEY, MARK SEELEY, JIM ZANDLO	
12:00	Lunch		
1:00 to 2:15	BREAK-OUT SESSION 1	DR. BEN SANTER DR. JIM ZANDLO DR. KATHY KLINK, UMN-Geography DR. PETER SNYDER, UMN-Soil, Water, and Climate	MacMillan Auditorium 1
	1.) <i>Modeling: Realistic Expectations, Downscaling Process</i>		
	2.) <i>Public Engagement: Sustainable Behavior</i>	DR. CHRISTIE MANNING, Macalester College	Azalea Classroom
	3.) <i>Climate Services: Information & Partnerships</i>	DR. EILEEN SHEA, NOAA	Auditorium 2
	4.) <i>From the Cornbelt to the North Woods: Understanding the Response of Minnesota Watersheds to Climate Change</i>	DR. CHRIS LENHART, Bioproducts & Biosystems Engineering Department, UMN	Teaching Classroom
	5.) <i>Agricultural Adaptation to Climate Change in Minnesota</i>	DR. JOHN BAKER, USDA-ARS Soil & Water Management; Soil, Water & Climate Dept., UMN	Snyder Bldg. Classroom 2
2:15	Afternoon Break		
2:45 to 4:00	BREAK-OUT SESSION 2	CRAIG EDWARDS, National Weather Service PAUL HUTTNER, MPR	MacMillan Auditorium 1
	1.) <i>Preparing for Extreme Events</i>		
	2.) <i>Climate Change in the Forest and Lake Country of Northern Minnesota</i>	DR. LEE FRELICH, Director, UMN Center for Hardwood Ecology	MacMillan Auditorium 2
	3.) <i>Challenges of Change for Aquatic Resource Management</i>	DR. DON PEREIRA, MN-DNR	Snyder Bldg. Classroom 2
	4.) <i>Assessing Vulnerability</i>	DR. ANN PIERCE, MN-DNR	Teaching Classroom
	5.) <i>Climate Gets Personal: Human Health</i>	KRISTIN RAAB, MN Dept. of Health	Azalea Classroom

CLEAN WATER & CLIMATE ADAPTATION SUMMIT 2010

PRESENTER BIOGRAPHIES

Clifton J. Aichinger

BS in Recreation Resource Management, University of Minnesota College of Forestry

Cliff is the Administrator for Ramsey-Washington Metro Watershed District. He worked for city, county and state agencies prior to his serving for the last 21 years as District Administrator for the Ramsey-Washington Metro Watershed District. Cliff has been responsible for administering the District budget, programs and 15 staff. District program activities include: water quality and flood control capital improvements, wetlands management, construction permit program, natural resources management, TMDL planning and implementation, watershed education, water quality monitoring, and watershed research. Cliff earned a B.S. in Recreation Resource Management at the University of Minnesota's College of Forestry.

John Baker

John Baker is the Research Leader for the USDA-ARS Soil & Water Management Unit in St. Paul, MN, and an Adjunct Professor in the Department of Soil, Water & Climate at the University of Minnesota. Originally from Ohio, he received a BS in Agronomy from the Ohio State University and MS and Ph.D. degrees from Texas A&M University, where he focused on soil physics and micrometeorology. In recent years his research has concentrated on agricultural impacts on water quality, the exchange of greenhouse gases, and the cycling of carbon in agricultural systems.

Ross T. Bintner P.E.

Ross Bintner is the Water Resources Engineer for the City of Prior Lake. With 10 years' experience in municipal Civil Engineering, the last 4.5 years at the City of Prior Lake, Ross has managed all aspects of the City Water Quality Utility.

Craig Edwards

Meteorologist Craig Edwards has a wealth of forecasting experience in the most active weather region of the country. Mr. Edwards labored for the Federal Government the National Oceanic and Atmospheric Administration for more than 34 years, serving as the Chief Meteorologist in the Twin Cities from 1991 to 2006. During his tenure as chief meteorologist, he orchestrated the modernization and restructuring of government weather services and technology in Minnesota and western Wisconsin.

He received the Department of Commerce Bronze medal for superb warning team performance during the March 28, 1998 tornado outbreak in southern Minnesota. Since his retirement from federal service in 2006 Mr. Edwards has published his memoir in a book called *Nature's Messenger*, he serves as backup meteorologist for Minnesota Public Radio, and as game day meteorologist for Minnesota Twins home games at Target Field. He is a member of the American Meteorological Society, the National Weather Association, and the Knights of Columbus, and a well-known public speaker around the state of Minnesota.

Lee E. Frelich

Lee Frelich is Director of the University of Minnesota Center for Hardwood Ecology. He teaches courses in Forest Fire Ecology and Landscape Ecology on the St. Paul Campus. Frelich has published numerous papers on forest ecology and has been listed among the top 1% of all scientists in the world in the Science Citation Index, Ecology and Environment Category. He has appeared in the news media 200 times including *The New York Times*, *Newsweek*, *National Geographic*, and many TV and radio stations. Current research interests include fire and wind in boreal forests, long-term dynamics of old-growth hemlock and maple forests, invasive earthworms in forests, and global warming. Lee earned his Ph.D. in Forest Ecology at the University of Wisconsin-Madison.

Michael Hermann, P.E.

Mike Hermann currently manages civil engineering for the Central Corridor LRT project between Minneapolis and St Paul. The 11-mile long project includes complete reconstruction of the roadway and all utilities on six miles of University Avenue in St Paul. Prior to this work, Mike was the chief engineer on the Northstar Commuter Rail project which recently opened between Big Lake, MN and downtown Minneapolis and includes the new downtown intermodal station integrated into the Twin's new home at Target Field. In his over 25 years of experience he has worked on transit projects across the U.S. including the Hiawatha LRT line; two lines of Portland LRT, four lines in Charlotte including BRT, LRT and Commuter Rail; and Bus Rapid Transit lines in Cleveland, San Diego and the Twin Cities.

In addition to transit, Mike has managed several large stormwater management facility projects including design and construction of the \$35 Million stormwater management facilities for the Minneapolis-St Paul International Airport. This system includes 3 large water quality ponds with associated dams, two 12-foot diameter tunnels under a State Highway, over 17,000 LF of 12x12 box culvert, and an energy dissipation system designed to handle almost 4,000 cfs of stormwater from over 2,200 acres of the MSP airport. The fast-tracked project required preparation of a Federal Environmental Assessment and permits from 35 Federal, State and Local agencies, yet was completed ahead of schedule and under budget.

Paul Huttner

Paul Huttner is the first Chief Meteorologist with Minnesota Public Radio. He heads up weather coverage and delivers daily weather perspective and commentary on KNOW 91.1FM and on Minnesota Public Radio's 38 station network. Paul served two stints as a meteorologist with WCCO-TV in Minneapolis (1988-1994 and 2006-2007). Paul also served as Chief Meteorologist at KGUN9 in Tucson from 1997 through 2005, and was the first meteorologist for the WGN Morning News program from 1994-1996.

Paul's first living memory is of the 1965 Twin Cities tornado outbreak. Professionally he has covered and broadcast live during the Halloween Mega Storm in 1991, the Chicago Heat Wave in 1995, and countless severe weather outbreaks including the August 19th 2009 Twin Cities torna-

does. Paul was born and raised in Minnesota and is a member of the American Meteorological Society (AMS) and has earned the AMS Television Seal of Approval and the AMS Certified Broadcast Meteorologist (CBM) designation.

Torry Kraftson

Torry obtained a Bachelor of Science degree from the University of Utah in Civil Engineering in 1996, with an emphasis in Water Resources. During two summer internships with the City of Hastings, he developed an interest in Municipal Engineering. After college, he worked for 4 years at a large consulting firm in Salt Lake City. He spent 2 years in the water resources department and then worked 2 years in the field as a survey crew chief.

Torry and his family relocated to Minnesota in 2001. He obtained his professional engineer's license several months later. Torry worked for two small consulting firms from January of 2001 through December of 2006. During this period he worked on a wide variety of projects for public and private sector clients, including surveys, platting, easements, grading, utilities, streets, drainage, trails, and commercial sites.

In January of 2007, Torry accepted his current position as the Assistant City Engineer for the City of Stillwater. His primary job responsibilities are to design and oversee the City's annual reconstruction projects and to implement the City's MS4 Storm Sewer Permit with the Minnesota Pollution Control Agency. He has designed and administered four annual street reconstruction projects to meet new watershed infiltration requirements, three pond excavation projects, two ravine restoration projects, two pervious trails, and several other small drainage projects. Away from work, Torry enjoys spending time outdoors with his family in the Saint Croix River valley.

Chris Lenhart

Chris Lenhart is a research professor in the environmental group within the Bioproducts & Biosystems Engineering Department at the University of Minnesota. His research involves studies linking hydrology, stream geomorphology and ecology. Previously he worked for 10 years in government and consulting, including stints with NOAA and a local watershed district. Chris earned his B.S. at Notre Dame, his M.S. at the University of Wisconsin-Madison, and his Ph.D. in Water Resources Science at the University of Minnesota.

Christie Manning

Christie Manning is a Visiting Assistant Professor of Environmental Studies and Psychology at Macalester College in St. Paul, Minnesota. Dr. Manning's research investigates the cognitive and other psychological factors that influence environmentally-responsible behavior. Her recent studies examine how people's sense of psychological distance from an environmental issue, such as global climate change, impacts their response to that issue. Dr. Manning also consults with environmental non-profits in Minnesota to investigate and reduce the barriers to individual and organizational-level sustainable behavior. Christie earned her B.S. in Engineering at Tufts University and her Ph.D. in Cognitive Psychology at the University of Minnesota.

Peter Mulvaney

Peter Mulvaney is the Assistant Commissioner of the Department of Water Management for the City of Chicago. He has spent most of his career pursuing his passion for the interaction of environmental impact and human health. Starting as field biologist for the Museum of Southwest Biology, he gained insights into “outdoor” science. He then shifted to bench-top research at the National Institutes of Health, where he spent four years researching the onset of tumor cell motility. After earning a master’s degree, he spent seven years as an environmental consultant on major infrastructure projects both in the U.S. and abroad. Next, Peter earned an MBA, then accepted a role with the City of Chicago to instill sustainability concepts and practices into the Department of Water Management, where he has been Assistant Commissioner for the past five years. Peter received an M.S. in Engineering-Environmental Pollution Control from Penn State University and an M.B.A. from Kellogg School of Management at Northwestern University.

Richard T. Murphy Jr., ASLA

Richard T. Murphy Jr. is the President and CEO of Murphy Warehouse Company, a supply chain logistics organization. He is the fourth generation of the Murphy family to run the enterprise since 1904. Richard is a licensed Landscape Architect, president of the American Society of Landscape Architects – MN Chapter (ASLA-MN), and this spring completed his 23rd year teaching in the College of Design at the University of Minnesota. Richard received his B.L.A. and M.B.A. from the University of Minnesota and his M.L.A. from the Harvard Graduate School of Design.

James Patchett, FASLA, LEED-AP

Jim Patchett is founder and President of Conservation Design Forum, Inc. located in Elmhurst, Ill. Jim is widely recognized as one of the nation’s leading pioneers in the design and promotion of sustainable site planning methodologies that integrate innovative water resource management and ecological restoration measures into built environments. Trained both as a landscape architect and hydrologist, Jim has served on a variety of national technical advisory committees including the ASLA Sustainable Sites initiative and is a highly sought-out speaker and educator on the subject. Jim is also co-founder of Conservation Research Institute.

Jim received an undergraduate degree in landscape architecture, and master’s degrees in both landscape architecture and civil engineering (water resources) from Iowa State University, and has completed the necessary course work towards a Ph.D. in landscape architecture from the University of Michigan’s School of Natural Resources.

Don Pereira

Don Pereira has been in the Minnesota Department of Natural Resources research unit since 1983, and has been manager of the research unit since 2007. He also has an adjunct faculty appointment on the fisheries/conservation biology graduate faculty at the University of Minnesota.

Don's research interests are broad, primarily fish population and community dynamics. In addition to the direct effects of fishing, he also studies the biophysical forces that affect wild fish populations (such as climate change and human land-use patterns). Don earned his B.S. in Biological Sciences at the University of Vermont, and received his M.S. and Ph.D. in Fisheries Science from the University of Minnesota.

Ann Pierce

Ann Pierce currently oversees the Conservation Management and Rare Resources Unit at MN DNR which includes Natural Heritage and Nongame Research program, State Wildlife Action Plan program, Forest, Prairie, and Wetland Policy working group, and the Scientific and Natural Areas program. Ann has also worked as the Terrestrial Invasive Species Coordinator with the Invasive Species Unit and a regional plant ecologist with the Minnesota Natural Heritage and Nongame Research Program collecting, managing, analyzing, and interpreting information about native plants, plant communities, and non-game animals. Ann earned a B.S. in Genetics and Cell Biology at the University of Minnesota, and M.S. in Forest Ecology at the University of Wisconsin, and her Ph.D. in Conservation Biology, with a focus in Ecosystem Ecology, at the University of Minnesota.

Kristin Raab

Kristin Raab has worked for the Minnesota Department of Health for over five years and currently directs two grants: one on health impact assessments and the other on climate change and its impacts on public health. Her work focuses on changing land-use policies and systems that influence the built environment to encourage sustainability and improve people's health. As an adjunct assistant professor at the University of Minnesota, she co-teaches an undergraduate course on sustainable site design in landscape architecture. Kristin has presented at state and national conferences and has published articles on health-related topics. She helped develop health-related performance measures for the Sustainable Sites Initiative. Kristin earned a B.A. in Political Science and an M.P.H. in Epidemiology and an M.L.A. in Landscape Architecture at the University of Minnesota.

Andrew J. (Andy) Reese, P.E., LEED-AP

Andrew J. Reese, Vice President for AMEC Earth and Environmental, is an experienced consultant, popular speaker, and effective short course leader. Having worked in all 50 states and several countries, Andy is considered a widely experienced and well known municipal stormwater expert. In the last 30 years his clients have included Federal agencies, states, over 100 municipalities and private sector industrial and development interests.

He began in a research role in many aspects of stormwater management and water resource engineering. Over his career he has worked at a high level in the areas of: hydraulic and hydrologic engineering research and criteria development, modeling and master planning of stream and stormwater systems, stable channel design, Green Infrastructure design criteria development,

stormwater LID design, water quality permitting, stormwater funding studies and implementation, software development, teaching numerous short courses and at Vanderbilt University, public speaking, meeting facilitation, management consulting, public awareness and education programs, development of ordinances, legislation and policies, expert and legislative testimony, and management of large and complex municipal stormwater program developments.

His current focus is municipal stormwater management with special emphasis on Green Infrastructure and sustainable design and stormwater financing. He has managed complex Green Infrastructure master plans and designs (e.g. Nashville GI Master Plan for CSO Control Plan Implementation) and has led in over fifty stormwater funding projects including some of the largest and most organizationally complex in the United States (e.g., Northeast Ohio Regional Sewer District).

Mr. Reese has delivered speeches and training at over 200 conferences and meetings, including twenty keynote addresses (e.g. the first annual STORMCON conference). He has consistently attained the highest rating at National League of Cities conferences, EPA webcast, ASCE short courses, and at STORMCON. He has published over forty-five articles and papers nationally and internationally on subjects such as: LID and sustainable development, stormwater utilities, public awareness, stable channel design, sediment loss and transport, urban stormwater management, regulatory compliance, and stormwater quality. He also has co-authored an authoritative and best-selling, 140- page, textbook, *Municipal Storm Water Management*, now in second edition, and was the principal author of the nationally popular *Georgia Stormwater Management Manual* as well as over twenty stormwater and site-design manuals.

Andy received a B.S. in Civil Engineering from Cornell University, an M.S.B.A. from Boston University, and an M.S. in Hydraulic Engineering from Colorado State University. He is married and the father of four children who are all adults (or think they are) and lives south of Nashville, Tennessee.

Fred Rozumalski

Fred Rozumalski holds degrees in Horticulture, Ecology and Landscape Architecture. He is currently employed as a Landscape Ecologist with Barr Engineering Company in Minneapolis, Minn., and has worked on projects involving native plant community restoration, stormwater harvesting, and sustainable landscape design. He strives to create diverse, ecologically sound and attractive landscapes that function to meet people's needs and desires. Rozumalski has co-authored *Lakescaping for Wildlife and Water Quality* with the Minnesota Department of Natural Resources, and is currently adjunct faculty in the department of Landscape Architecture at the University of Minnesota.

Benjamin Santer

Dr. Benjamin Santer is an atmospheric scientist at Lawrence Livermore National Laboratory (LLNL). His research focuses on such topics as climate model evaluation, the use of statistical methods in climate science, and identification of natural and anthropogenic “fingerprints” in observed climate records. Dr. Santer spent much of the last decade addressing the contentious issue of whether model-simulated changes in tropospheric temperature are in accord with satellite-based temperature measurements. His recent work has attempted to identify anthropogenic fingerprints in a number of different climate variables, such as tropopause height, atmospheric water vapor, the temperature of the stratosphere and troposphere, and ocean surface temperatures.

Dr. Santer served as convening lead author of the climate-change detection and attribution chapter of the 1995 IPCC report. More recently, he was the convening lead author of a key chapter of the U.S. Climate Change Science Program’s report on “Temperature Trends in the Lower Atmosphere”. His awards include the Norbert Gerbier-MUMM International Award (1998), a MacArthur Fellowship (1998), the U.S. Department of Energy’s E.O. Lawrence Award (2002), and a Distinguished Scientist Fellowship from the U.S. Dept. of Energy, Office of Biological and Environmental Research (2005).

Mark Seeley

Dr. Mark Seeley is Extension Climatologist and Professor of Meteorology and Climatology in the Department of Soil, Water, and Climate at the University of Minnesota. He joined the U of M faculty in 1978 and since that time he has served as Extension Climatologist and Meteorologist, working closely with the National Weather Service, the Minnesota State Climatology Office, and various state agencies, as well as regional Extension Offices around the state.

He has served as a weekly commentator on Minnesota Public Radio’s “Morning Edition” news program and written the weekly newsletter “Minnesota WeatherTalk” since 1992. Dr. Seeley has edited numerous children’s books on weather and climate, and he is author of *Minnesota Weather Almanac*, published by the Minnesota Historical Society Press and nominated for the Minnesota Book Awards in 2006. He is also co-author of *Voyageur Skies* (with Don Breneman), published by Afton Press in 2010.

His honors and awards include: the only two-time recipient of the Sigma Xi Scientific Communication and Education Award in 2001 and 2008; recipient in 2003 of the Mn/DOT Research Partnership Award, as leader of a project dedicated to the design and deployment of living snow fences; in 2006 he received the Extension Dean and Director’s Award for Distinguished Extension Faculty; in 2007 he received the University of Minnesota Alumni Association Faculty Volunteer Award and the Career Achievement Award from Minneapolis/St Paul Magazine; and in 2009 he received a USDA Extension Award for most effective public program associated with his work as a team member on the Extension Disaster Education Network (EDEN).

Dr. Seeley's great-great-grandfather, Ira Seeley, founded the town of Mazeppa, Minn. (Wabasha County) and was a member of the first Minnesota Territorial Legislature (1854-1858) and State Legislature (1858-1862). Dr. Seeley loves to share stories and lessons from Minnesota's weather history, and discuss the management and preservation of Minnesota's natural resources in the context of a changing climate.

Eileen Shea

Dr. Eileen Shea is Chief, Climate Services Division of the NOAA National Climatic Data Center (NCDC), and since fall of 2005, Director of the NOAA Integrated Data and Environmental Applications Center (NOAA-IDEA). She is responsible for NCDC programs in data access; data integration and visualization; user engagement; education and outreach; and regional, national, and international climate service partnerships. She has written extensively about assessing the consequences of climate variability and change. Her previous academic experiences focused on marine sciences and environmental law.

Dr. Shea is a Fellow of the American Meteorological Society. During her time with NOAA she helped organize the NOAA Climate and Global Change Program and the inter-agency U.S. Global Change Research Program. She served for two years on the Board on Sustainable Development of the U.S. National Research Council and has experience in congressional relations, as well as budget and finance in NOAA. She also has experience with NOAA's Regional Integrated Science and Assessment (RISA) Program focused on societal resilience to environmental change.

Jonathan Yuhás

Born in St. Paul, Minn., Jonathan Yuhás spent his childhood in Chicago, Ill., and Edina, Minn. He studied meteorology and aviation at the University of North Dakota in Grand Forks and has worked as a broadcast meteorologist for 17 years. He has forecast the weather for KAAL in Austin/Rochester, Minn.; KEYC in Mankato, Minn.; KCRA in Sacramento, Cal.; and he has served as weekday morning meteorologist at KARE-TV since 1998.

Jonathan is the founder and president of FlashWarn, a severe-weather consulting company based in Minneapolis. FlashWarn offers severe-weather education and planning services to hotels, resorts, entertainment complexes, schools, emergency-response teams, aviation services, and various local businesses.

Jonathan is a private pilot and he has two children, Max and Maggie, and a cattle dog named Foster.



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