

Santa Fe Watershed Climate Change Workshop

Santa Fe Community Convention Center, March 6, 2012

Agenda		
Time	Activity	Location
8:00-8:30	Sign-in	Sweeny F
8:30-8:45	Introduction Mayor Pro-Tem Wurzbarger, Councilor Bushee, City of Santa Fe Dagmar Llewellyn, Bureau of Reclamation Commissioner Vigil, Santa Fe County	Sweeny F
8:45-10:30	Setting the Stage David Gutzler , UNM climate change expert – <i>Summary of climate change projections for the Santa Fe Watershed and the Southwest</i> Park Williams , Los Alamos National Lab ecologist – <i>Southwestern forest response to drought</i> Bill DuBuys , author and conservationist – <i>Historical/sociology impacts of climate change</i>	Sweeny F
10:30-10:45	Break	Sweeny F
10:45 – 11:30	What can we do with this information? Karen MacClune, Institute for Social and Environmental Transition	Sweeny F
11:30-12:30	Parallel Breakout Session 1	
	Water	Milagro
	Ecology	Peralta
12:30-1:15	Working Lunch	Sweeny F
1:15-1:45	Parallel Breakout Session 1 continued	Return to group
1:45-3:15	Parallel Breakout Session 2	
	Land Use/Quality of Life	Milagro
	Agriculture and Food Security	Peralta
3:15-3:30	Break	Sweeny F
3:30-5:00	Break out session results and Next Steps	Sweeny F

David Gutzler Ph.D., University of New Mexico: Dr. Gutzler’s interests include interactions between the atmosphere and land surface processes, especially energy and moisture fluxes. He hopes to contribute to the interesting research being done putting surface systems together with atmospheric systems. Dr. Gutzler has taught: Meteorology (a non-mathematical intro to weather science); Climatology (an upper-division undergrad survey of climate processes); Global Climate Change (upper level science & policy mix), and Physical Climatology (grad-level climatology course).

William deBuys, Author and Conservationist: Mr. deBuys has authored seven books his most recent being “*A Great Aridness: Climate Change and the Future of the American West*” (released by Oxford University Press,

Nov. 2011). He was a 2008-2009 Guggenheim Fellow. As a conservationist, he has helped protect more than 150,000 acres in New Mexico, Arizona, and North Carolina. From 2001 to 2005, he served as founding chairman of the Valles Caldera Trust, which administers the 89,000 acre Valles Caldera Preserve. He lives and writes on a small farm in northern New Mexico.

Park Williams, postdoctoral researcher at Los Alamos National Laboratory: Dr. Williams' research focuses on how global climate variability influences drought in places where water is a limiting resource for life such as forests in the Southwestern United States. Using tree-ring records, he has determined how Southwestern forests have responded to drought, wildfires and bark beetles for the past 1000 years and has forecast how Southwestern forests should respond to climate change in the next several decades. He received a Ph.D. from the University of California, Santa Barbara in the Geography Department in 2009.

Karen MacClune, ISET has been engaging for over 5 years with cities around how to utilize climate change information in city planning processes to build resilience to potential climate impacts. ISET has been supporting communities to understand potential, local climate hazards and how their nature might evolve under climate change, to develop vulnerability and risk assessments to explore the potential direct and indirect impacts of those climate hazards, and to develop resilience plans which identify and prioritize mitigation, adaptation, and resilience building activities to be taken within the context of daily policy and operating concerns. As part of this work, ISET has created and continues to refine a resilience building curriculum to systematically walk communities through the steps involved in developing resilience plans.

Dr. MacClune also has extensive experience with New Mexico water issues, having worked for SS Papadopoulos & Associates, Inc. for 8 years, with particular focus on work for the Interstate Stream Commission on surface water, groundwater, and water operations issues. PhD Geophysics, 2001, University of Colorado, Boulder, CO

Artwork: 1st through 6th grade students in Santa Fe

Since 2003, The City of Santa Fe Water Conservation Office has hosted an annual poster contest. All public, private and charter elementary schools in Santa Fe are invited to participate. Participants range from 1st grade to 6th grade. Over 350 classrooms were invited to design a poster with a water conservation message. A first, second, and third place winner will be selected from each grade, for a total of 18 winners.

The artwork represented here is a sample of the posters both winning and non-winning that were received in 2011 and 2010. The posters represent children's interpretation of the future of water.

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Introduction

Thank you for registering for our interactive climate change workshop! We look forward to spending a dynamic and inspiring day with you. In order to make the best use of your time on March 6th, we have prepared this handout with relevant information and process guidelines. Please take a moment to review the information herein.

The goals of this workshop:

- To gather your input on the range of climate-change impacts that will be problematic for you and for the systems you are concerned about,
- To work together to understand the risks of those impacts being realized,
- To begin prioritizing how those risks should be responded to, and
- To brainstorm initial adaptation actions that can be taken at the city and county-level to build resilience to those impacts.

At this workshop, we will not debate the causes of climate change, whether climate change is happening, or whether we can alter the predicted climate change. We believe that, for the purposes of anticipating and planning for the future, the best use of our time is to utilize the strongest and most consistent information we have available, which indicates that climate change is a real and pressing issue. Our experience attests that focussing on building resilience to climate change can simultaneously increase our quality of life, improve livelihoods, and strengthen ecosystems.

Climate Change in New Mexico

Communities in the semi-arid and desert regions of the U.S. Southwest have grappled with issues of water stress and periods of drought for many centuries. The Ancestral Puebloans abandoned their settlements in the Four Corners region by the late 1100s in part because of elevated temperatures and scant rainfall associated with a mega drought (Kohler et al. 2008; Woodhouse et al. 2010). Competing, diversifying, and growing demands from agriculture and municipal and industrial uses, along with a growing recognition of the water needs of our ecosystems is currently stressing water resources in a region where evapotranspiration can exceed precipitation and prolonged droughts are common. The projected impacts of climate change further emphasizes the need for careful deliberation of our future in this region.

Current climate change projections for our region indicate:

- higher temperatures; especially in summer, leading to greater evapotranspiration
- more frequent heat waves and extremely hot days (above 99°F)
- greater variability and unpredictability in precipitation in all seasons; some areas of NM might see decreased precipitation – in other areas it is not so clear
- likely changes in precipitation extremes; potential for both more droughts and flooding
- decreasing snowpack, and earlier snowmelt runoff
- greater unpredictability in summer monsoon precipitation

Changes in temperature and precipitation regimes associated with climate change, coupled with population growth and land use change, will exacerbate water scarcity and could significantly alter regional hydrology.

Institute for Social and Environmental Transition

International partnership for implementation, education and research on society, natural resources & the environment

The Workshop

Building effective resilience in the face of climate change will force us to creatively coordinate between sectors, which requires effective collaboration and communication. The workshop is designed to foster creative engagement, collaborative relationship building, and attentive listening. We request that you come prepared to engage in activities throughout the day, and share your knowledge, concerns and ideas. At the workshop, we request that you thoughtfully and respectfully listen to the ideas and concerns of others, and we encourage you to seek out and work with people you don't yet know. The workshop is designed for a full day of participation; if you cannot attend the entire day, please consider sharing your spot with a colleague or friend, or relinquishing your spot for someone who can participate for the full day.

Definitions for the Workshop

Systems – include both infrastructure (e.g. food supply, water supply, transportation, energy, shelter, communication, health, education, finance) and ecosystems (e.g. agricultural land, parks, wetlands, rivers, range land, forests) that provide services or functions for humanity.

Vulnerability – the underlying fragility or weakness in a system that leaves it open to harm or damage; for example, a drinking water system serviced only by surface water supplied from one small river is highly vulnerable to drought.

Resilience – the capacity of a system to absorb disturbances, and still have the same basic structure and ways of functioning OR to elegantly anticipate and move to a new way of functioning. A resilient system is flexible and modular (e.g. a forest can be made more resilient through thinning and/or prescribed burns which reduce the stressors that could cause it to fail during a wildfire). In people, resilience is the ability to cope with stress and adversity.

Adaptation – taking action to minimize the impact of, take advantage of, or cope with changes that are occurring or are expected to occur.

Thresholds – key levels at which, if the levels are exceeded, the system is unable provide its services. For example, a sewer system designed to handle up to three inches of rain in three hours will be overwhelmed by a rainstorm of four inches in three hours, and result in flooding.

Recommended Resources:

To find out more about potential climate change in the Southwest:

SouthWest Climate change network: www.southwestclimatechange.org

Western Water Assessment: wwa.colorado.edu

Climate Assessment for the Southwest: www.climas.arizona.edu

Dr. David Gutzler, UNM: <http://epswww.unm.edu/facstaff/gutzler/>

William DeBuys, A Great Aridness, Climate Change and the Future of the American Southwest. Oxford University Press, 2011.