CESM Societal Dimensions Working Group

Feb 27-28, 2012
NCAR

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SDWG Winter Meeting, 27-28 February 2012
NCAR Mesa Lab Main Seminar Room, Boulder, Colorado

Contact: Barbara Ballard
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Monday AM		
10:00	SDWG Co-chairs premeeting @ Brian's Office	

Monday PM	Goal: Define path forward and specific projects Review proposed CSL experiments	Bill Gutowski

Download discussion papers from: www.cesm.ucar.edu/working_groups/Societal

Introduction and overview

1:30-2:00	CESM and its working group structure.	Marika Holland, CESM Chief Scientist
2:00-2:15	The Societal Dimensions Working Group.	Lawrence Buja NCAR/RAL

State of the science

2:15-2:45	Water and interactions with ESMs	Dave Behar. SF Public Utilities Commission
2:45-3:15	Types of linkages between IAMs and ESMs	D. van Vuuren invited
3:15-3:45	Break	

Breakout groups

3:45-4:00	Water: Data needs for the water utility sector IAM/Land: possible land-climate research activities	Laurna Kaatz, Denver Water IAM: Brian Oneill
4:00-5:15	General discussion	SDWG CoChairs

Plenary

5:15-5:45	Reports to plenary	SDWG CoChairs
5:45-7:00	Light Reception in Damon Room	

Tuesday AM		Brian Oneill
Breakout groups		SDWG CoChairs
8:45-9:00	Water: Future directions/CSL priorities	Water: C. Anderson
	IAM/Land: Future directions/CSL priorities	IAM: TBD
9:00-10:00	General discussion in Breakouts	
10:00-10:30	Break	
Plenary		
10:30-11:15	Reports to plenary by Lead + Rap	
11:15-12:00	Next steps (future meetings, steps to Breck, funding possibilities, relationship to other relevant community projects)	SDWG CoChairs
12:00-1:30	CoChairs + Volunteers prepare "Overview of SDWG" to be presented at 1:30	
1:30-1:50	Overview of SDWG	
1:50-2:10	Current/planned activities in LMWG	
2:10-2:30	Current/planned activities in BGCWG	
2:30-2:50	Current/planned activities in Chem-Clim WG	
2:50-3:10	Break	
3:15-4:45	General discussion - Gutowski Notetaking	
4:45-5:00	Wrapup: summary of discussion and path fwd	

SDWG Background

- Growing interest within CCSM/CESM to better connect the modeling activity to climate-related societal issues
  - Initial meeting at the 2010 CCSM Workshop
  - May 2011 scoping workshop
  - White paper produced,
  - Working Group approved by CCSM SSC, July 2011
- Co-chairs: Lawrence Buja (NCAR), Bill Collins (LBNL), Bill Gutowski (ISU), Brian O'Neill (NCAR)
- First working group meeting now: Feb. 27-28 2012
- Next meeting at Breckenridge: June 2012

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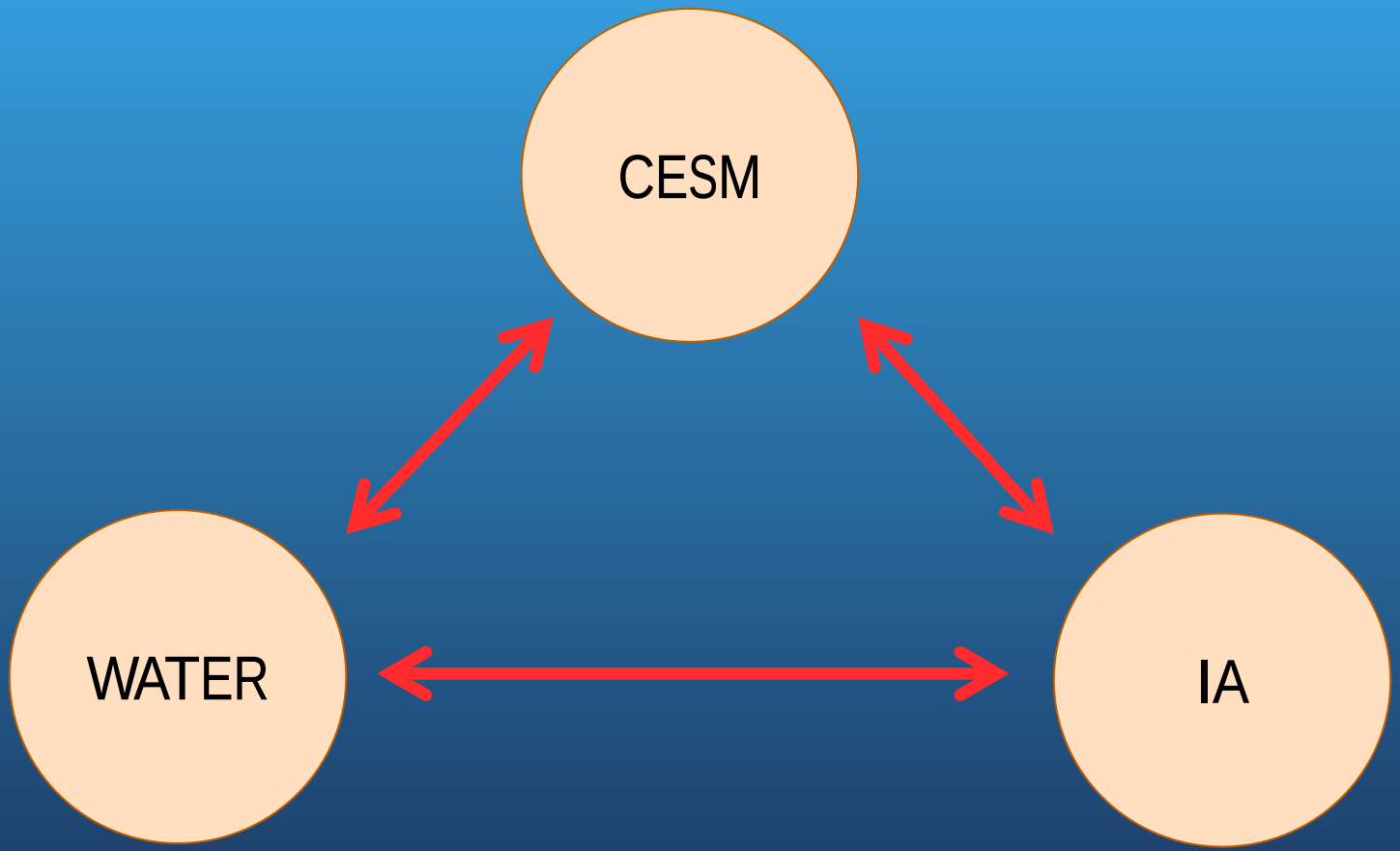
CESM and Societal Dimensions

Develop collaborations between the CESM community & those working on issues relating societal dimensions and climate change



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IAM Recommendations

- Provide a **forum** to exchange ideas on how to interface IAMs & ESMs
- Pursue a **pilot project** on Land Use linkages between IAMs and CESM
- Consider the intersection of Land Use & Water issues
- Consider additional project on climate change and air quality

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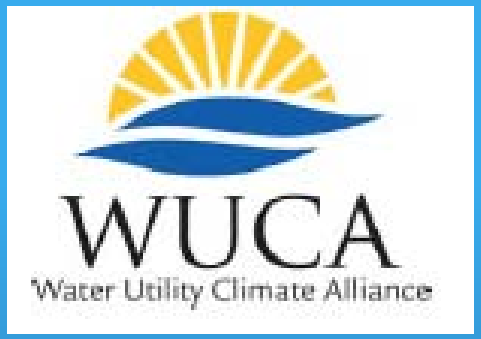
Water Recommendations

- Provide a forum to exchange ideas on how to interface Water & Earth System Models
- Focus on
  - scale issues in using CESM simulations
  - use of multi-model simulations
  - Improving simulation of precipitation
- Pursue a pilot project with Water Utility Climate Alliance on national-level water management

Water Utility Climate Alliance



Central Arizona Project
Denver Water
Metropolitan Water District of Southern California
New York City Department of Environmental Protection
Portland Water Bureau
San Diego County Water Authority
San Francisco Public Utilities Commission
Seattle Public Utilities
Southern Nevada Water Authority
Tampa Bay Water

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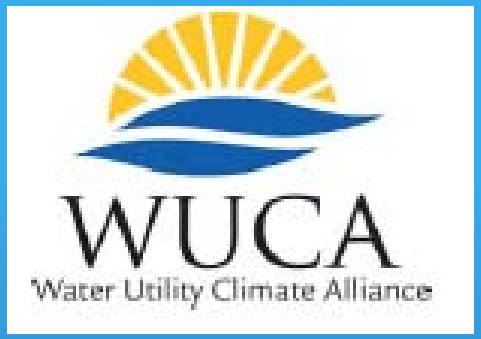
Water Utility Climate Alliance



Providing leadership and collaboration on climate change issues affecting drinking water utilities by improving research, developing adaptation strategies and creating mitigation approaches to reduce greenhouse gas emissions.

- Improve and expand climate change research so water managers can consider the potential implications climatic changes may have on water resource planning;
- Promote and collaborate in the development of adaptation strategies and tools to reduce the impacts of rising temperature and changes in precipitation patterns on our infrastructure and water supplies; and
- Identify and minimize greenhouse gas emissions resulting from the operations of WUCA member agencies.

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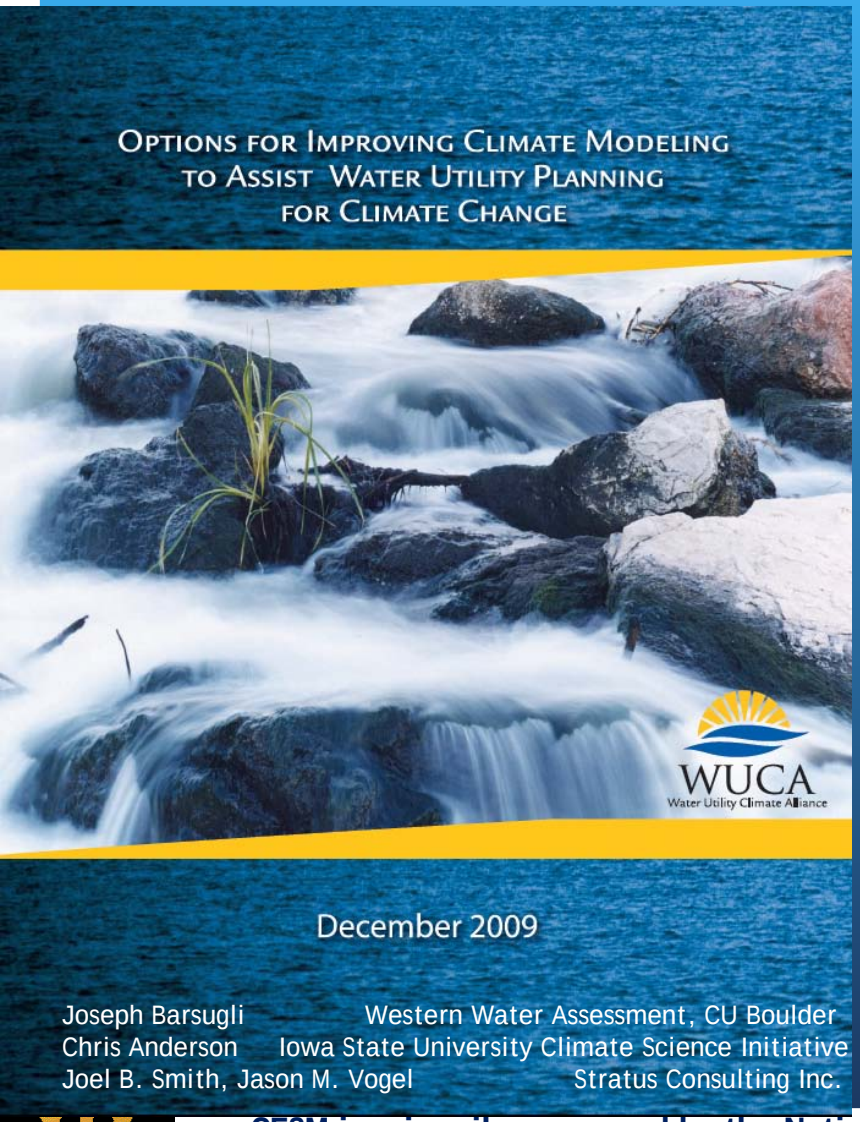
Water Utility Climate Alliance



GCM Options

1. Improve the confidence in the range of GCM climate projections better thru understanding of the sources of uncertainty
2. Improve accessibility of GCM data to downscaling groups.
3. Improve the ability to assign credible probabilities to GCM model scenarios based on advanced comparison of the models to obs.
4. Develop the ability to integrate projections of climate variability & decadal variability with projections of climate change.
5. Improve GCM model simulations to increase accuracy at the scale of the GCM and provide better input to downscaling methods.
6. Improve agreement on the sign of change, rate of change, & reduce the range among GCM projections of *global and* regional climate on the timeframes of interest to water managers.

Regional Options:

1. Improve the ability of scientists to express their level of confidence in regional climate projections.
2. Improve the accessibility of local projections.
3. Improve the capacity for water utilities to select scenarios based upon water utilities' management techniques,
4. Reduce the range of climate projections where possible.
5. Address the climate information needed for water utilities planning

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Goals for this Meeting

- Hold initial Working Group discussions
- Refine the proposed activities for each of the two topical areas of Water and Integrated Assessment
- Review the proposed CSL experiments and linkages to the other CESM working groups
- Discuss the infrastructure required for the success of these projects.
- Aim to initiate first set of projects
- Funding Opportunities: RCN/SRN, EaSM, SEES, CREATIV

The End

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SDWG Development Objectives:

IAM: Linking new CLM Agricultural, Forest Systems & Ecosystem Dynamics and Integrated Assessment Modeling (1A, 1B)

Water: Improving CESM Hydrology by reducing model uncertainty and bias (2A1, 2A2)

Providing relevant Hydroclimate variable for downscaling & decision making (2A4, 2B1)

Experiment	Model Configuration	# runs	# of years	Core hour / year	Total core-hours	Total data volume in TB	Priority
1A Land use and land cover change representation	B_1850_CN (0.9x1.25_gx1v6)	36	100	300	1080000	72	A
1B	ICN (0.47x0.63)	36	100	60	216000	15	A
2A1 Ensembles	B, CESM-CAM5 1°	5	150	910	825000	23	ABC
2A2 Obs/Paleo	B, CESM-CAM5 2°	2	1155	280	646800	43	B
2A3 TropPac							
2A4 Decadal	B, CESM-CAM4 1°	60	10	500	300000	19	C
2B1 Regional	CESM .25°	1	500	56000	840000	46	A
TOTAL					**3908M**	**218**	

SDWG Production Objectives:

IAM: 3A. interpreting IA model land use scenarios in CESM,
3B. assessing the importance of regional climate feedbacks,
3C. assessing the importance of model coupling, and
3D. evaluating possible future activities in the area of air quality.

Water: Simulating the impacts of climate change on important precipitation systems, focusing on short timescales, extremes & means,
4A. American monsoon and
4B. Droughts in the American southwest

Experiment	Model Configuration	# runs	# of years	Core hour / year	Total core-hours	Total data volume in TB	Priority
3A GLM vs. Direct IAM land use	B_1850_CN (0.9x1.25_gx1v6)	20	100	295	590320	39	BC
3B regional land use feedback	B_1850_CN (0.9x1.25_gx1v6)	20	100	295	590320	39	A
3C iESM simulations	B_1850_CAM5 (0.9x1.25_gx1v6)	12	100	910	1092000	32	A
3D air quality-atmospheric chemistry	B_1degree_CAM5 _STRATTROP	4	100	2000	800000	20	BC
4A Monsoon	B, CESM 1°	5	250	910	1137500	33	BC
4B Drought	B, CESM 1°	5	250	910	1137500	33	A
Total					**5.348M**	**196**	

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