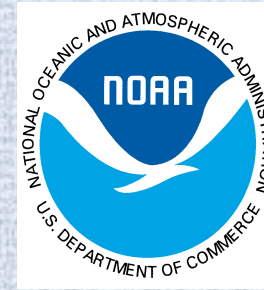


SSWIM

S O C I A L S C I E N C E
woven into
Meteorology



@ The
National
Weather
Center

Sponsored by the University
of Oklahoma & NOAA

Weaving Social Science into Meteorology

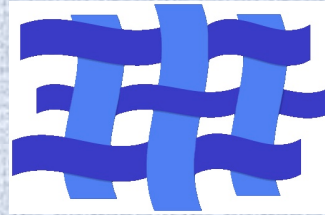
Progress 2008 - 2010



Dr. Eve Gruntfest
Dr. Heather Lazrus

Weaving Social Science into Weather and Climate Research and Practice

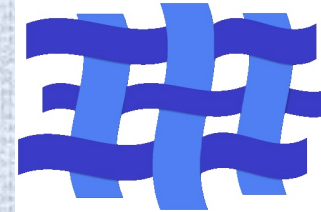
Outline



- Getting to **SSWIM**
- **SSWIM** research
- **SSWIM** operations
- **SSWIM** capacity building
- **SSWIM** next steps



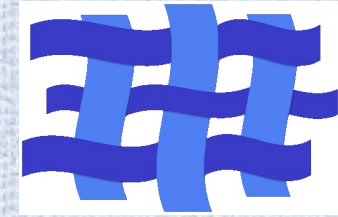
Getting to SSWIM (Social Science Woven into Meteorology)



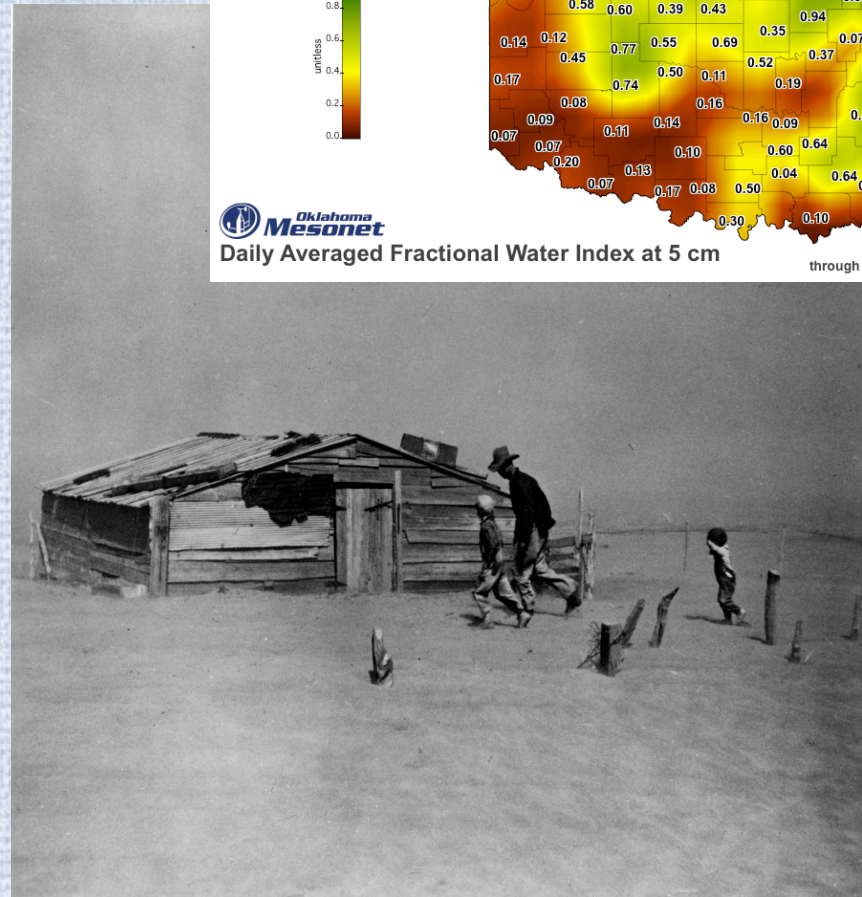
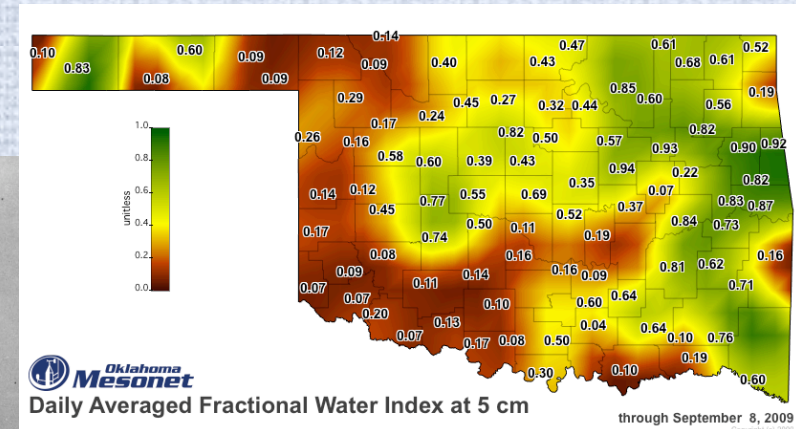
- **March 2003** Proposal to USWRP for Societal Impacts Program – begun at NCAR
- **2005-2006** Gruntfest & Demuth begin **WAS*IS**
- **March 2006** Norman **WAS*IS**
- **August 2006** New National Weather Center opens
- **November 2007** NOAA & OU visionaries collectively fund **SSWIM** initiative proposed by Gruntfest for 3 years at National Weather Center
- **May 2008** **SSWIM** launches
- **February 2009** Lazrus signs as post-doc
- **T o d a y : September 2010** **SSWIM** briefs OAR



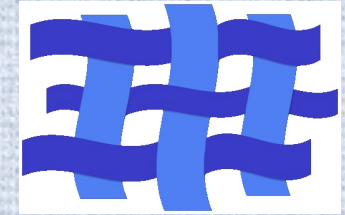
SSWIM considers complex problems of weather, climate & society



- Improving forecasts & warnings
- Reducing social vulnerability to natural hazards
- Understanding community & cultural adaptations to weather extremes climate variations & climate change



Dr. Eve Gruntfest SSWIM director



- Applied geographer – **Professor at University of Colorado at Colorado Springs 1980-2007**
- > 30 Year career as **socio/hydro/meteor – ologist**
- Research: Flash floods & short-fuse warning systems

WAS*IS[®] CULTURE CHANGE

weather & society * integrated studies

www.sip.ucar.edu/wasis/  

Sponsored by the NCAR Societal Impacts Program

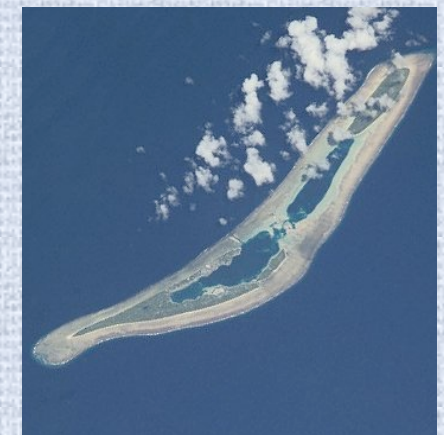
Changing from what **WAS** to what **IS**
the future of integrated weather studies



Dr. Heather Lazrus SSWIM Deputy director Post-doctoral research associate

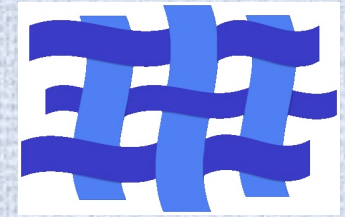


- **Dissertation** - Perceptions of climate change & governance of vulnerability in Tuvalu, South Pacific
 - Local observations of environmental change
 - Cultural & historically contingent responses to climate change
- **Research** with NOAA Fisheries
 - Impact of policy & environmental changes in Alaska & Pacific Northwest fisheries
- **Post-doctoral research**
 - Atmospheric hazards, vulnerability, warning systems
 - Pacific Islands, New Zealand, Oklahoma, Alaska



SSWIM www.sswim.org

Social Science Woven into Meteorology



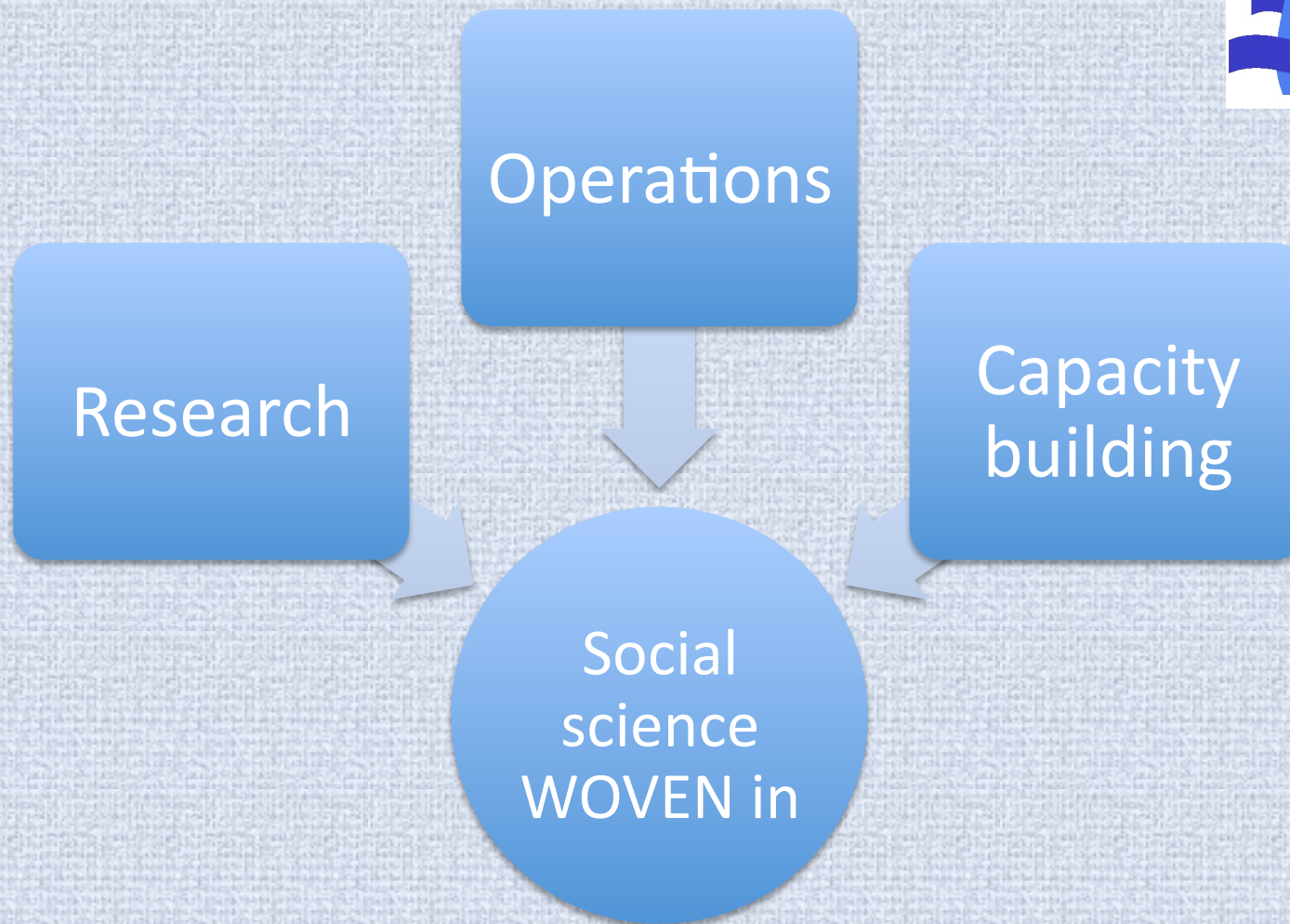
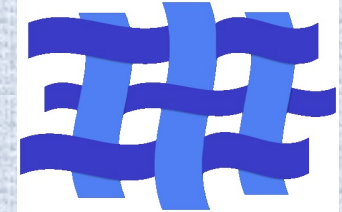
Vision

SSWIM envisions *collaborative research & partnerships* between the social sciences & meteorology, climatology, & hydrology to enhance societal relevance of research & practice & reduce risks from atmospheric & other hazards

Mission

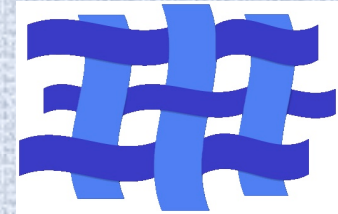
SSWIM *creatively & sustainably weaves social science concepts & methodologies* into the fabric of weather & climate research & practice through academic & professional activities locally, nationally & globally

SSWIM is dedicated to weaving social science into meteorology in three ways



Weaving Social Science into Weather and Climate Research and Practice

SSWIM writes & collaborates on proposals

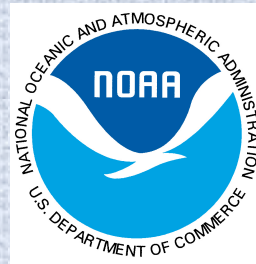


- Original funding *~\$500,000

- $\frac{1}{2}$



- $\frac{1}{2}$



- New funding awarded as of 10/10: \$185,000
- PI & Co PI with numerous OU, NWC, national & international partners

SSWIM Proposal Activity (1)

NOAA	Warn on Forecast Project	\$50,000 Funded (renewable?)
NOAA Global Systems Division	What Makes Them Tick: Ethnography Project	\$100,000 Funded
	Evaluation of the Personal Weather Advisor	\$20,000 Funded
	Workshop & Collaboration in Integrated Hazard Information Services	\$50,000 Funded
NOAA Central Regional Team	Advanced Weather & Society Integrated Studies Workshop: Beyond Storm-based Warnings to Study Communication of Probabilistic Hazardous Weather Information	\$15,000 Funded
Southern Climate Impacts Program	Drought-Ready Communities Collaboration	\$5,000 Funded

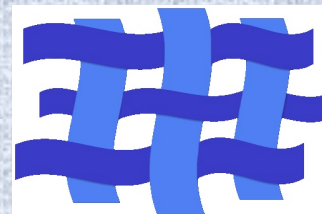
Weaving Social Science into Weather and Climate Research and Practice

SSWIM Proposal Activity (2)

New Zealand Collaboration with Geological & Nuclear Sciences (GNS)	Social science contributions to effective warning dissemination & public response	\$5,000 Funded
NOAA	Phased Array Radar Innovative Sensing Experiment (PARISE)	In-Kind Funded
National Science Foundation	Water, Sustainability & Climate: Integrated Social & Natural Systems Approach for Sustainability	\$5,000,000 Denied – being resubmitted
NOAA Climate Program Office	Water Decisions for Sustainability	\$300,000 In Review
National Science Foundation, Science Technology Center	The National Center for Flood Research & Education: Living with Floods	SSWIM co PI : \$400,000 Denied
National Science Foundation	Does WRF Downscaling Improve the GEFS Ensemble?	PI \$400,000 submitted in review

SSWIM Proposal Activity (3)

NOAA	Changing the Culture: Integrating Best Tsunami Practices & Tools from the Physical & Social Sciences by Weaving Prediction, Forecasting, Warnings & Preparedness to Stimulate Timely Behavioral Responses	\$400,000 2/09 Denied
	Tsunami Hazard Mitigation: Program Evaluation & Social Science to Reduce Vulnerability	\$425,000 2/10 Denied
NOAA National Weather Service	Call to Action: Understanding the Continuum from Warning to Action for Weather and Water Hazards	PI \$125,000 no project funded
NSF Quick Response	Tornado Stories in the Breadbasket Revisited: Perception, Vulnerability & Action	\$3,000 4/10 Denied

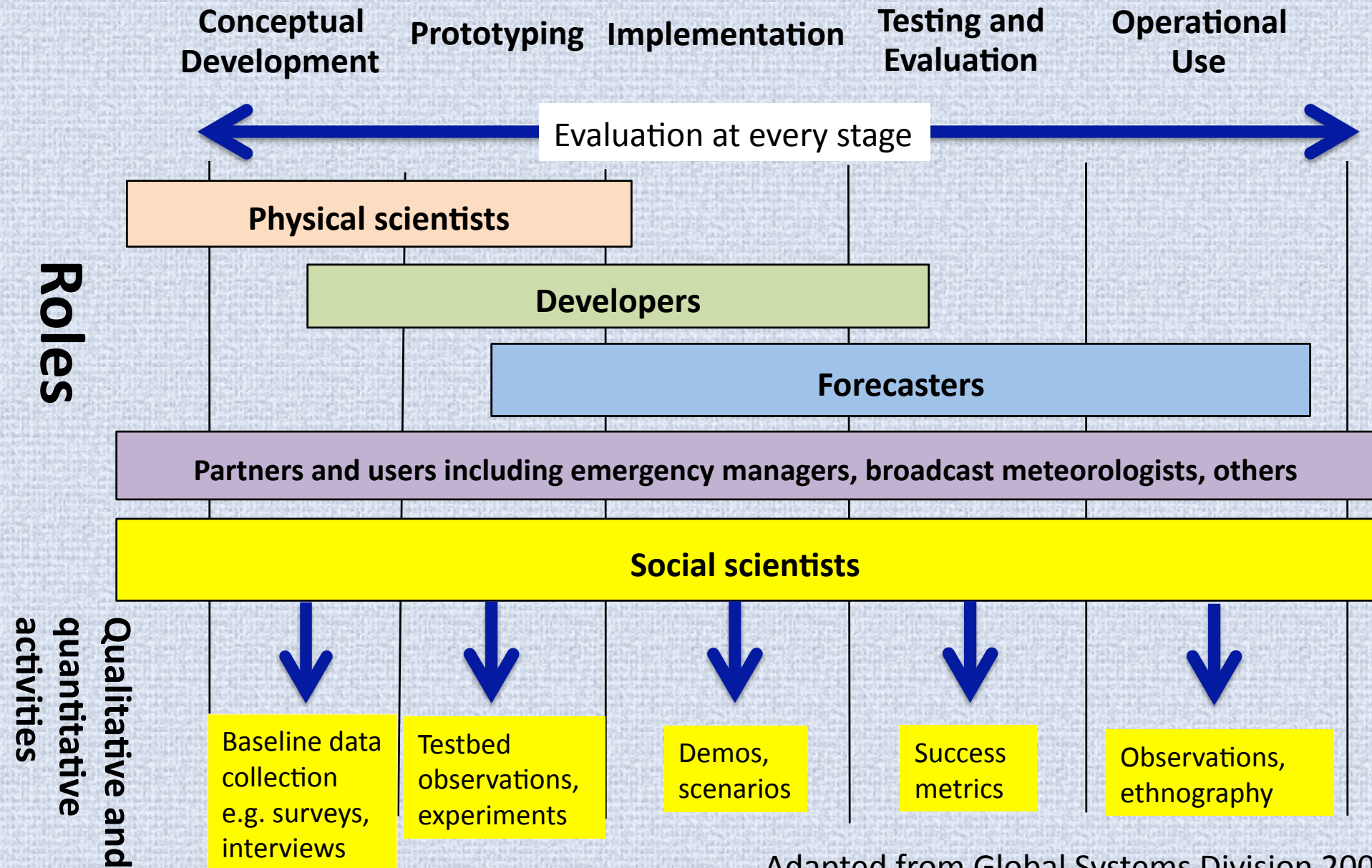


Integrated Hazard Information Services (IHIS)

SSWIM is involved in developing IHIS to integrate partner & user needs

1. Interviews (September - October 2009)
2. Workshop Boulder, CO (October 2009)
3. Ethnographic field research: In-depth interviews & field research with emergency managers & broadcasters (2010-11)

Research-to-Operations

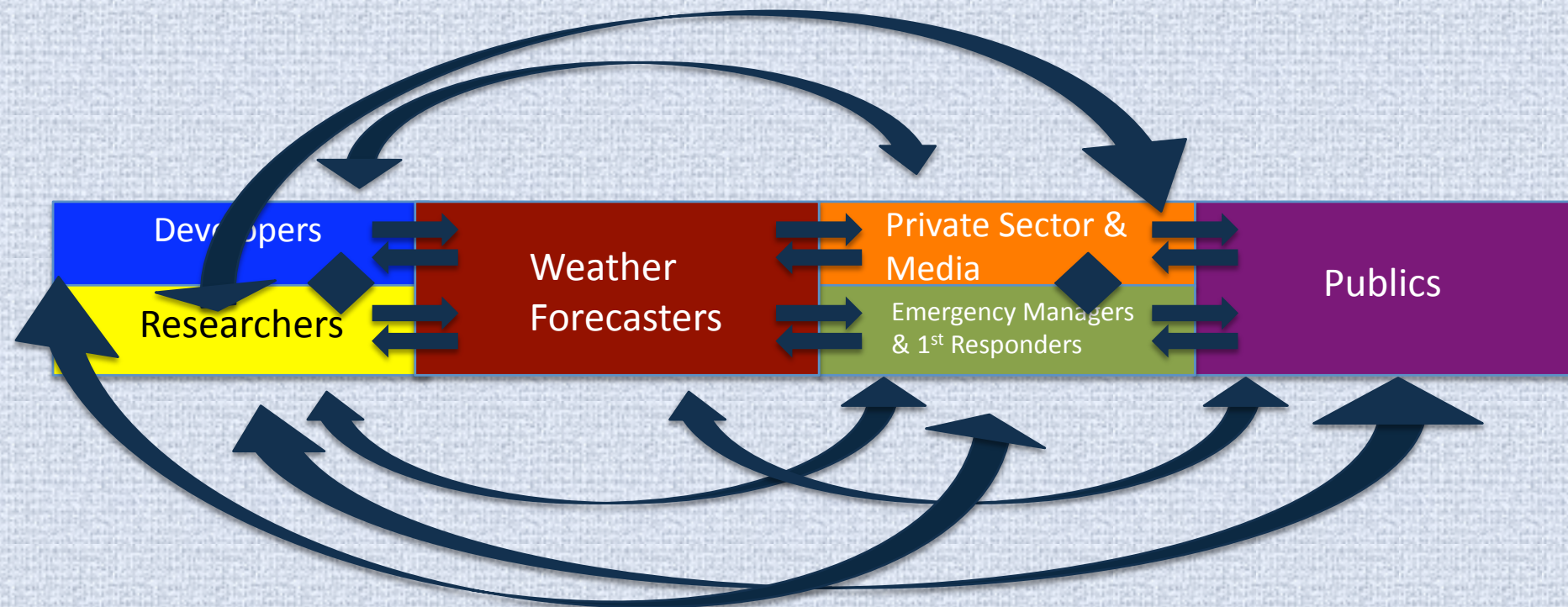


Adapted from Global Systems Division 2009

Weaving Social Science into Weather and Climate Research and Practice

SSWIM builds partnerships – Integral part of the IHIS Team

Developing graphics for changing Research-to-Operations dynamic to be more inclusive



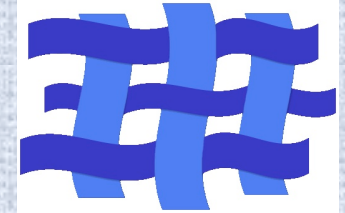
Changing the paradigm of hazardous weather warnings

Temporal, spatial, & probabilistic information in weather forecasting & warning processes & decision-making

Weaving Social Science into Weather and Climate Research and Practice

SSWIM research

Phased Array Radar Innovative Sensing Experiment (PARISE)

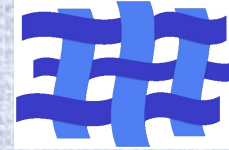


The PARISE project examines the influence of high temporal resolution radar data on forecaster's decision making process & warning lead times



Weaving Social Science into Weather and Climate Research and Practice

SSWIM select publications



Gruntfest (coauthor) 2010 Decision Making by Austin, Texas, Residents in Hypothetical Tornado Scenarios Weather Climate & Society 2 3 247–252

Gruntfest (coauthor) 2010 Emergency Manager Decision-Making & Tornado Warning Communication Meteorological Applications 17 163–172

Lazrus 2010 Learning From Earthquakes Samoa Earthquake & Tsunami 9/29/09 Earthquake Engineering Research Institute Newsletter

Lazrus 2010 The Cycle of Climate Change, Water, & Development in Daily Life in Tuvalu in UNESCO-International Hydrological Program Water & Cultural Diversity book project

Lazrus 2009 Mount Redoubt Volcanic Eruptions March – April National Weather Service team
www.weather.gov/os/assessments/index.shtml

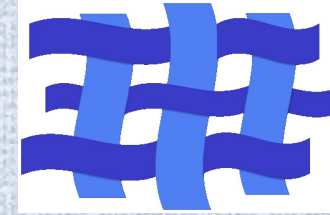
Lazrus 2009 Perspectives on Vulnerability to Climate Change & Migration in Tuvalu Source (Studies of the University: Research, Counsel, Education). Bonn, Germany: UNU Institute for Environment & Human Security (UNU-EHS) No 12/2009.

Lazrus 2009 Sea Change: Anthropology & Climate Change in Tuvalu, South Pacific in S. Crate & M. Nuttall Anthropology & Climate Change: From Encounters to Actions Walnut Creek, CA: Left Coast Press

Gruntfest 2009 Editorial Journal of Flood Risk Management 2 2 83-84

Gruntfest (coauthor) 2008 Human vulnerability to flash floods: Addressing physical exposure & behavioural questions Flood Risk Management: Research & Practice edited by P. Samuels et al Routledge 1005-1112

SSWIM select manuscripts in
preparation & review



Gruntfest Text book manuscript to be published by Wiley
Weaving Social Science into Weather Research & Practice (in preparation)

Lazrus (co-authored) ***Whose Voice: Questioning Climate Refugee Narratives Global Environmental Change*** (in review)

Lazrus, Gruntfest (co-authored) ***Social Science in Weather & Climate Research & Practice*** (in preparation)

Lazrus ***Vulnerable Islands, Resilient Nation*** (in preparation)

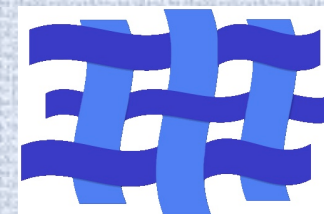
Lazrus ***Local knowledge & adaptation to climate impacts in Tuvalu*** (in preparation)

SSWIM operations: Dozens of invited presentations inside & outside Norman *from OU Classrooms to New Zealand*

Introducing SSWIM activities in National Weather Center	Spreading the word about social science & meteorology integration	Integrating SSWIM work into classrooms & disciplinary professional societies	Presentations on SSWIM research
1/11 Seattle, WA	12/10 Fairbanks, AK	11/10 New Orleans, LA	11/10 Honolulu, HI
8/10 – State College, PA	8/10 Cedar Rapids, IA	6/10 Bologna, IT	5/10 Grenoble, FR
1/09 Kansas City, MO	4/10 Vienna, AUS	4/10 Fort Collins, CO	3/10 Merida, Mexico
3/10 Alexandria, VA	1/09 Phoenix, AZ	12/09 Davis, CA	7/10 Boulder, CO
5/10 Wellington, NZ	11/09 Jacksonville, FL	10/09 San Marcos, TX	8/09 Woods Hole, MA
1/10 Atlanta, GA	10/08 Boston, MA	10/08 Billings, MT	10/10 Houston, TX

Weaving Social Science into Weather and Climate Research and Practice

SSWIM serves the climate & meteorology communities (1)



American Meteorological Society

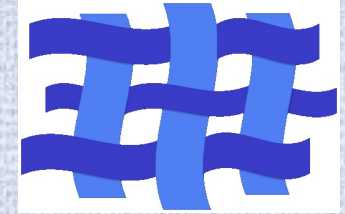
- *Board on Enterprise Communication* Ad hoc committee on Climate Change Improving Communication
- Societal Impacts Board (Chair)
- Commission Steering Committee (CSC) of the Commission on the Weather & Climate Enterprise
- Gruntfest winner of the Kenneth E. Spengler award 2009
- Associate editor *Weather, Climate & Society*

National Weather Association

- Committee on Societal Impacts of Weather & Climate

NOAA Science Advisory Board

SSWIM serves the climate & meteorology communities (2)



Participating in workshops

- Rocky Mountain Workshop Series on Social Science & Global Change 4/10
- NCAR Early Career Scientists Assembly - Jr Faculty Forum on Climate & Water
- Integrated Warning Team meetings Kansas City, MO, Cedar Rapids, IA

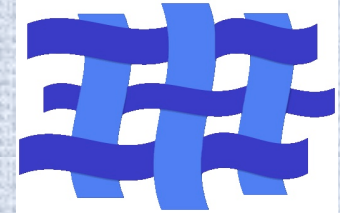
Invited post-disaster assessment team member

- Tsunami team in Samoa Earthquake Engineering Research Institute 10/09
- Mt. Redoubt Volcano National Weather Service 5/09



Weaving Social Science into Weather and Climate Research and Practice

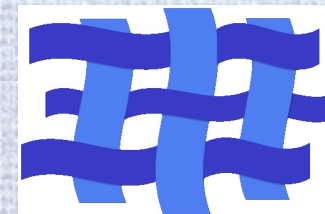
SSWIM recruits & supports OU graduate students



- **Geography**
 - Decision-support contexts of emergency preparedness at universities & school districts
 - Social vulnerability to hurricanes
 - Native perspectives of climate change in OK
- **Communication**
 - Public & office interpretation & communication of hurricane uncertainty
- **Interdisciplinary**
 - Broadcaster perspectives on new forecasting tools & technologies



SSWIM leads workshops



Co-Led Integrated Hazard Information Services Workshop with Hazardous Weather Testbed & Global Systems Division Boulder 10/09

Co-sponsored Consideration of Future Weather Workforce with K-20 Center Norman 12/08

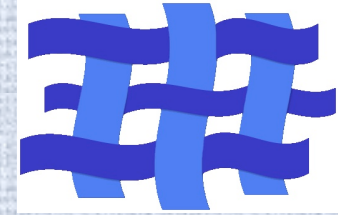
Collaboration with New Zealand Geological & Nuclear Sciences & NZ Met Service Workshop on Short Fuse Weather Warnings 5/10

Co-sponsored NexGen Warning Services Workshop Norman 12/08

Led Advanced WAS * IS with Hazardous Weather Testbed Norman 9/08

Weaving Social Science into Weather and Climate Research and Practice

SSWIM welcomes collaborators & visitors



- SSWIM associate* program from OU

Q. Arana (Communication) D. LaDue (Education)

R. Pepler (Geography/CIMMS)

- SSWIM visiting scientists

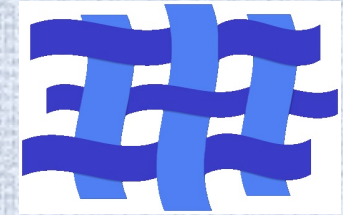
L. Vitols Environment Canada 9/10

I. Ruin & C. Lutoff Grenoble France 9/09

K. Blumenfeld University of Minnesota 8/09



New National Weather Service/SSWIM partnerships being developed



Training with Warning Decision Training Branch

Updating Advanced Warning Operations course lectures on social science & warnings
SSWIM & social science incorporated into all DLOC orientation classes
Plans to weave social science into all courses

Introduced social science at the Hydrologist/Meteorologist in-Charge National Conference

Collaboration with NCAR's Societal Impacts Program (4/10)

Providing social science support & training to the Storm Prediction Center

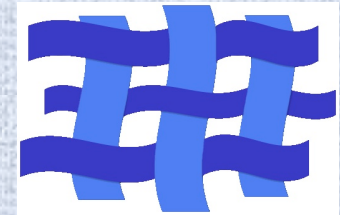
Promoting an understanding of social science potential for the agency
10-11/09
Possibility for grad student

Inform NWS revamp of the national watch, warning, advisory map which currently as 155 colors for different hazards

Observations at the National Severe Weather Workshop 3/10

SSWIM potential future directions

Take advantage of

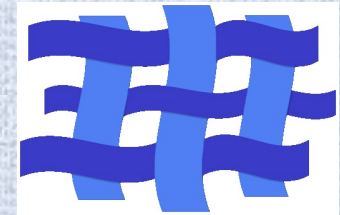


- Unique National Weather Center – OU co-location
 - Multiple departments, Supportive university administrators, Students, State & Federal agencies
- Social science called for in NWS, NOAA strategic plans & NRC report
 - Platform for calls for proposals & funding

We aim to develop & leverage partnerships to accomplish NOAA goals

SSWIM potential future directions

Now in year 3 of 3 year funding



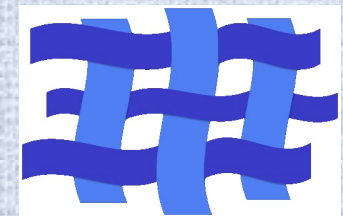
- Social scientist(s) in NSSL (work with meteorologists & hydrologists)
- Faculty members in diverse departments
 - Meeting growing demand from students
- New grad students
 - Working with state, federal research & operations agencies (HWT, OCS, NSSL WOF, Hydrology)
- Program manager
- Visiting scientists/practitioners

Some of SSWIM challenges

- Building a new program takes time

- We are starting from scratch
- No model for our program moving from stove-piped parallel programs to newly woven fabric

- Momentum is building

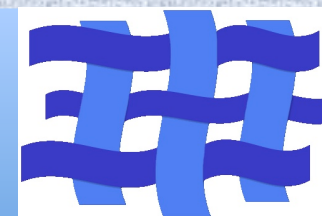


- Demand for our services exceeds our 2.25 FTE capacity

- Could build substantive social science components into Cl-FLOW project (& others)
- Request for focus group facilitation, international invitational travel
- Many students wanting to work with us



We are a **GO TO** group for social science in meteorology inside & outside of National Weather Center

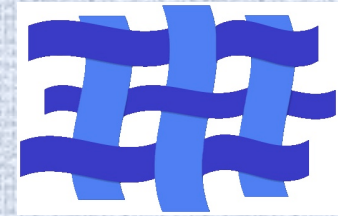


SSWIM has **global** identity as leader in new movement with firm platform with high visibility



We have a **growing** footprint in meteorology, climatology & hydrology

Today's presentation



- **Demonstration that SSWIM program has initiated important collaborations & new research that have value for many within the weather & climate communities**
- **Recognition that we are firmly establishing our presence in NOAA, at OU and at the National Weather Center**
- **Acknowledgement that sustained funding to develop what we've started is warranted**

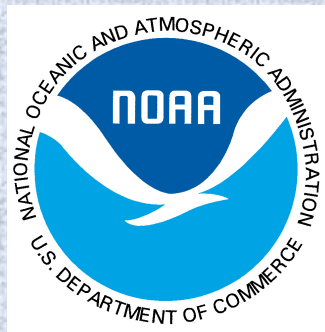
Thanks to SSWIM partners



CENTER *for* **APPLIED SOCIAL RESEARCH**
"Social Science Innovations in the Public Interest."

cimms

- National Oceanic & Atmospheric Administration
- OU Vice President for Research
- NOAA National Severe Storms Laboratory
- Cooperative Institute for Mesoscale Meteorological Studies
- OU College of Atmospheric & Geographic Sciences
- OU Center for Spatial Analysis



Weaving Social Science into Weather and Climate Research and Practice