

# The Importance & Challenges of Communicating Climate Change Science

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NCAR

# Outline

- Why Climate Communication is Important
- Barriers to Climate Communication
- Breaking Through the Barriers in Communication
- Summary





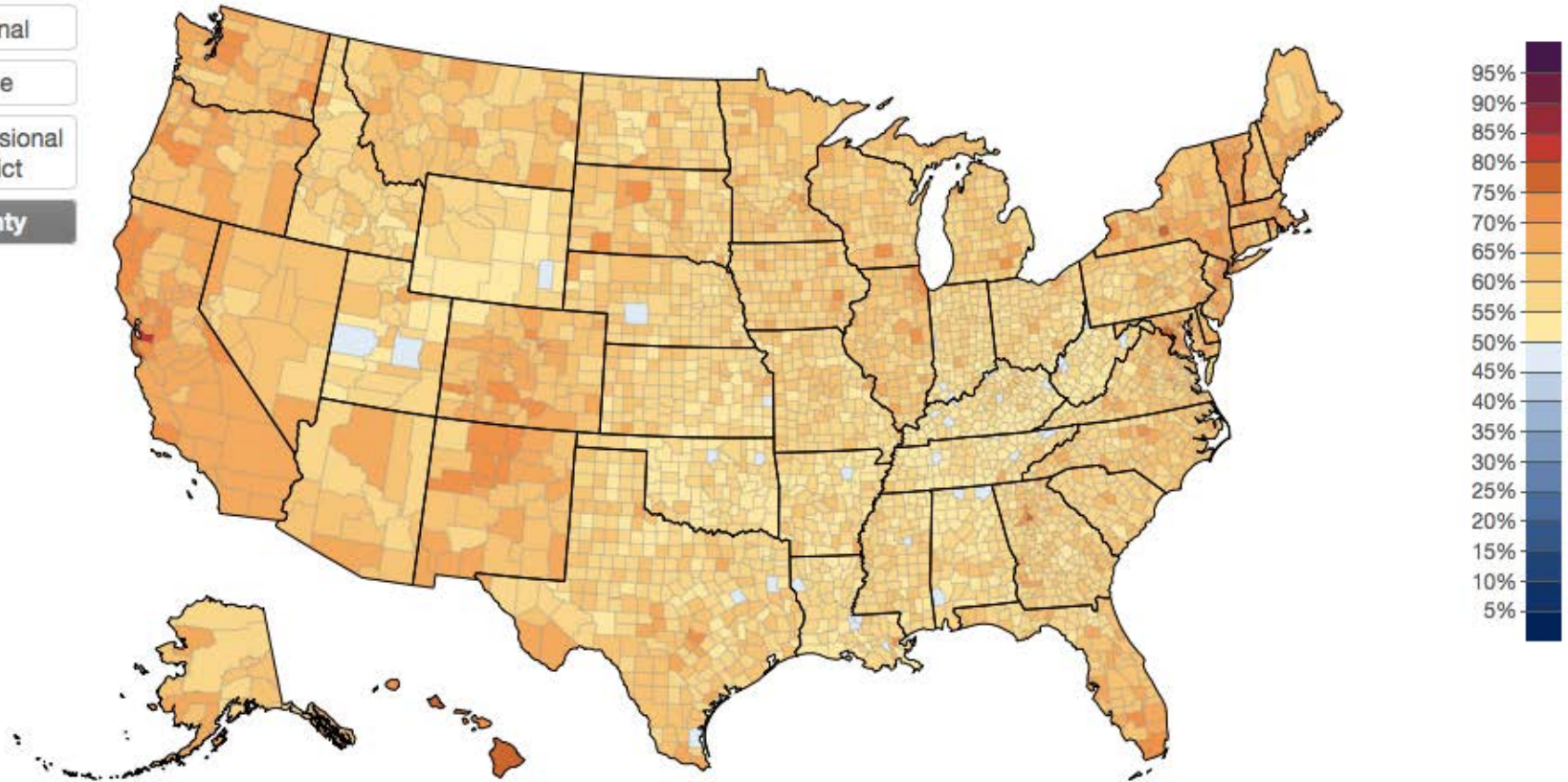
# Why Climate Communication is Important

# What's the Problem?

Estimated % of adults who think global warming is happening, 2014

Display model output:

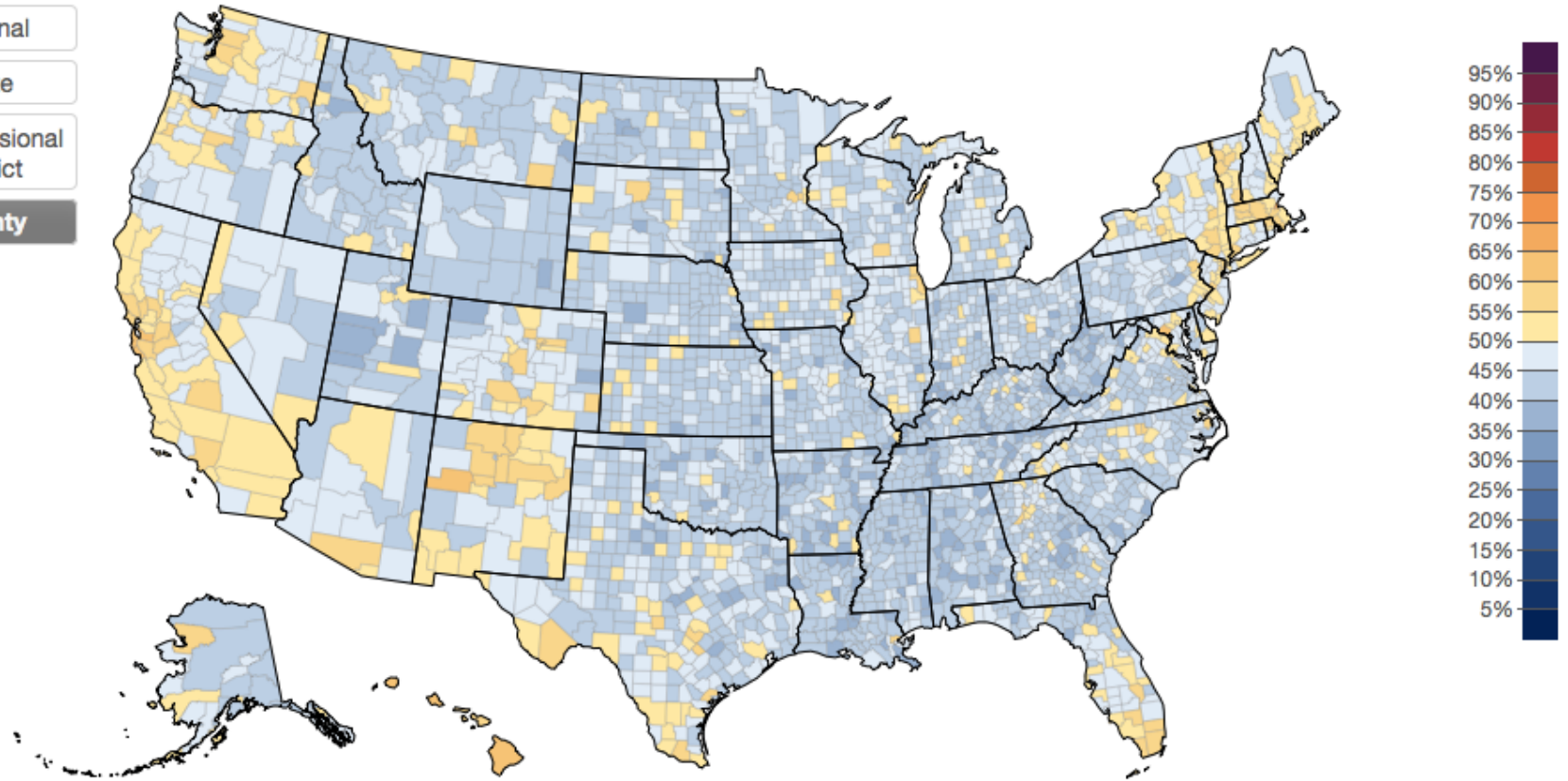
- National
- State
- Congressional District
- County**



# Estimated % of adults who think global warming is mostly caused by human activities, 2014

Display model output: Global warming is caused mostly by human activities

- National
- State
- Congressional District
- County**



979

536

Tweet

Like

United States

50%

Human activities

48%

35%

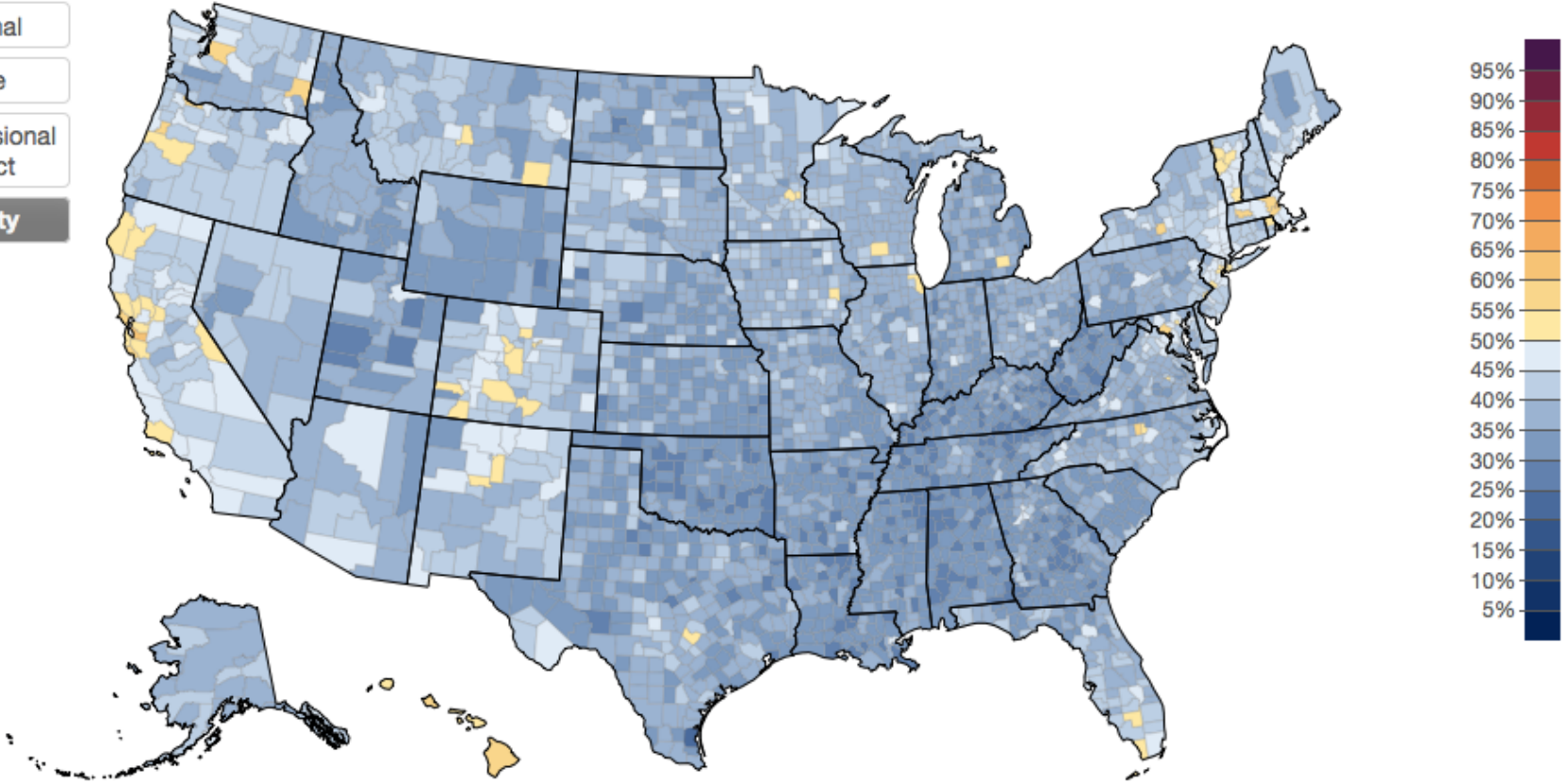
Natural changes

Yale Project on Climate Change Communication

# Public Perception of Scientific Consensus on Global Warming

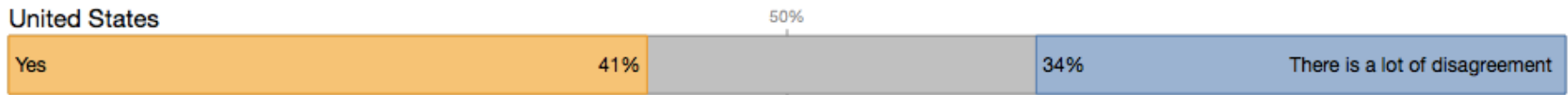
Display model output: Most scientists think global warming is happening

- National
- State
- Congressional District
- County**

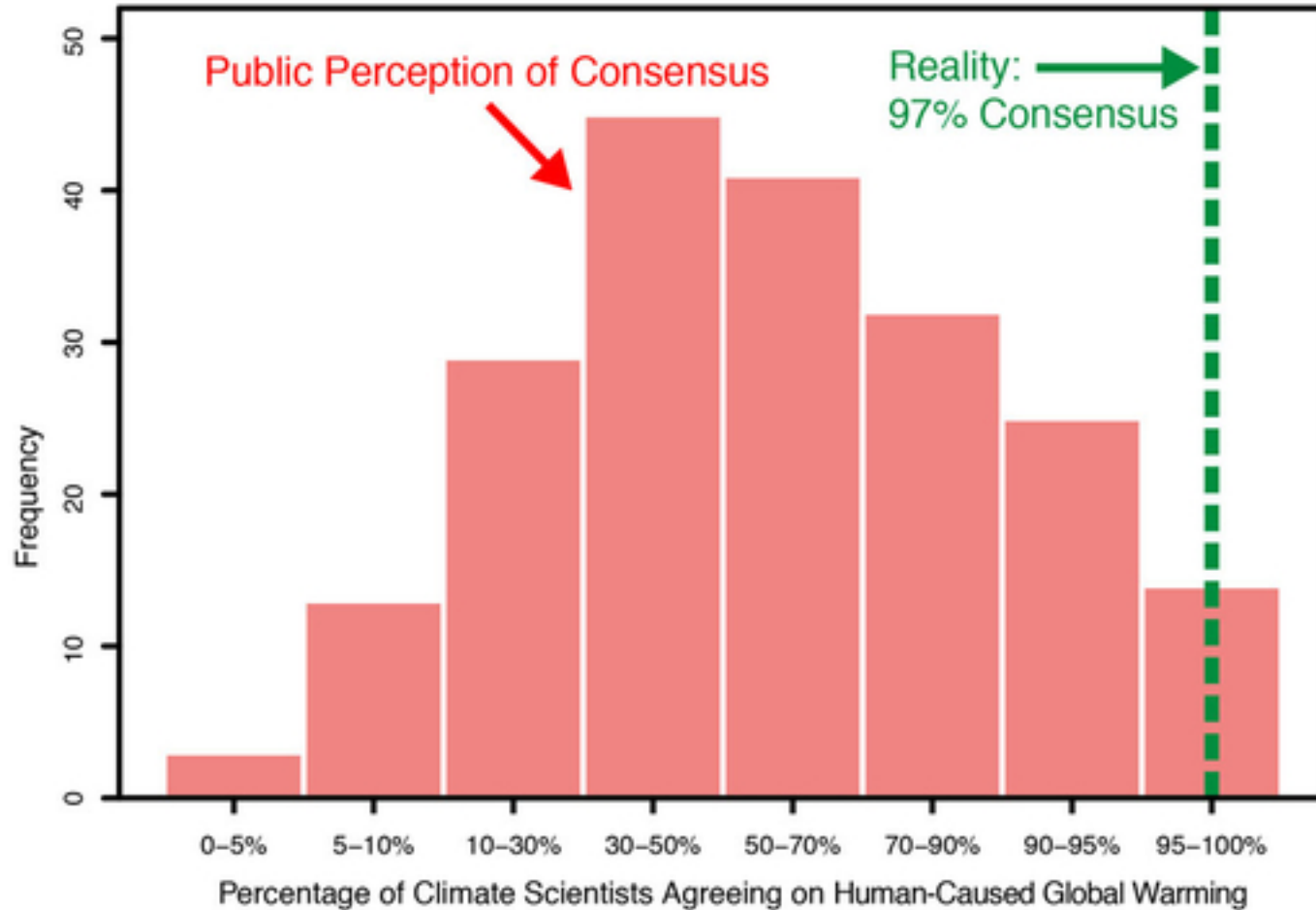


979 536  
 Tweet Like

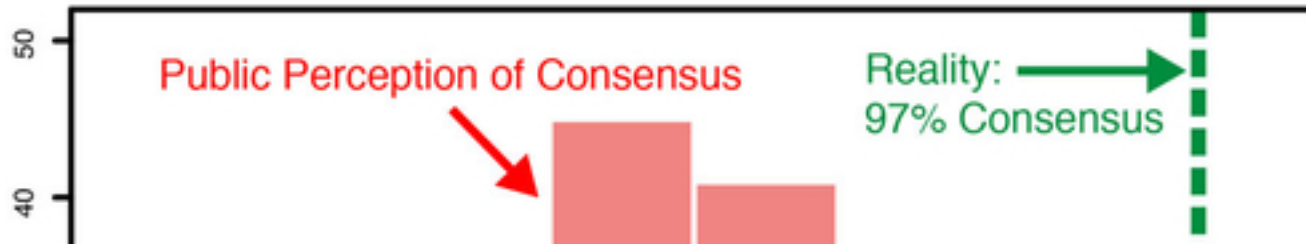
United States



# Perception versus Fact



# Perception versus Fact



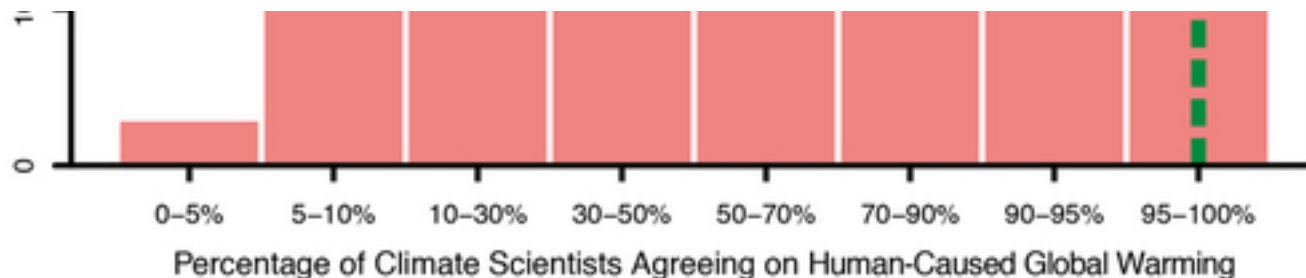
11h ago  
07:10

## Nobel Prize winner: We must communicate risks of climate change

Molina also called on fellow scientists to speak out:

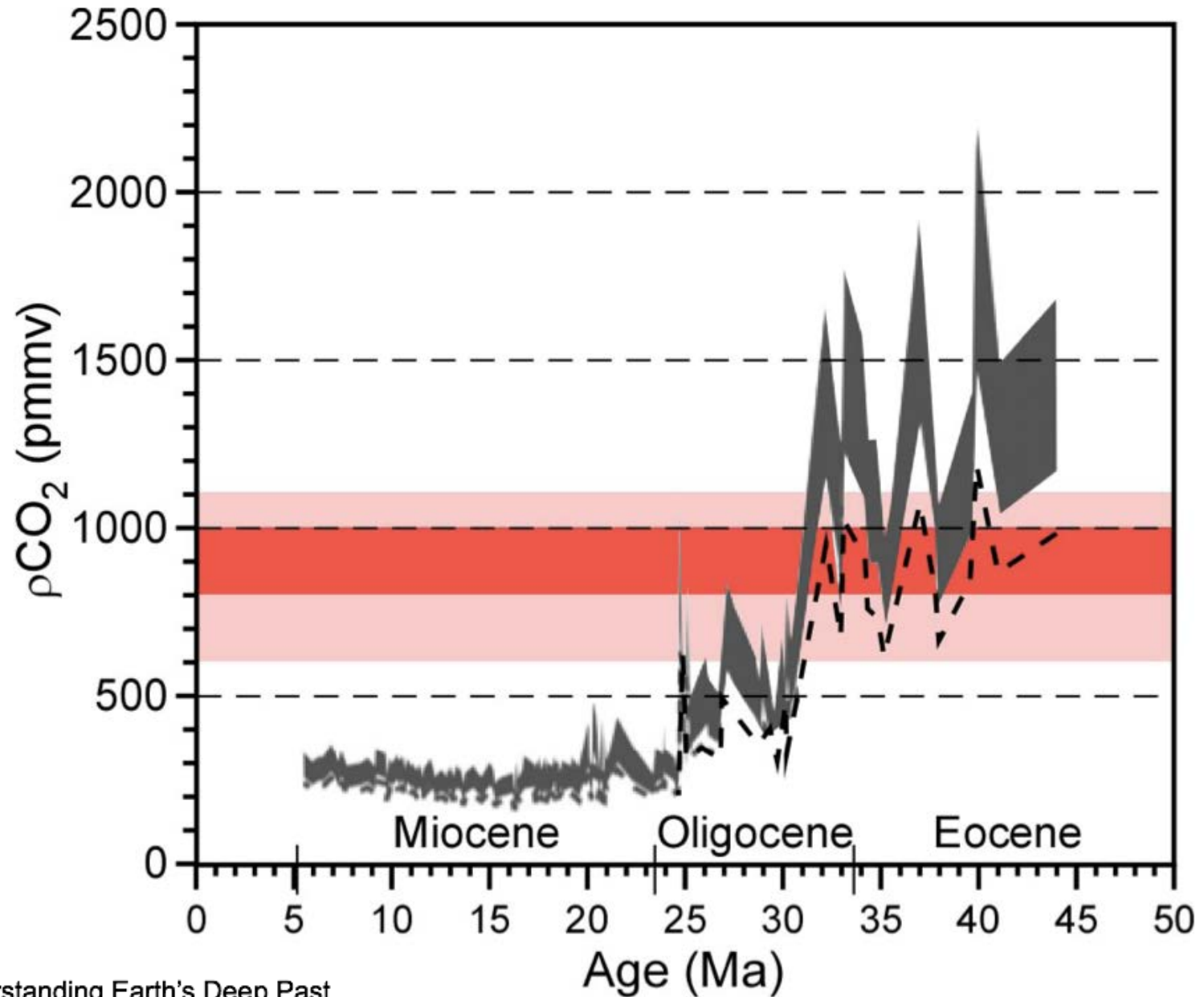
“We in science are doing a lousy job in communicating the extent of the risks we are facing.”

DAVOS 2015





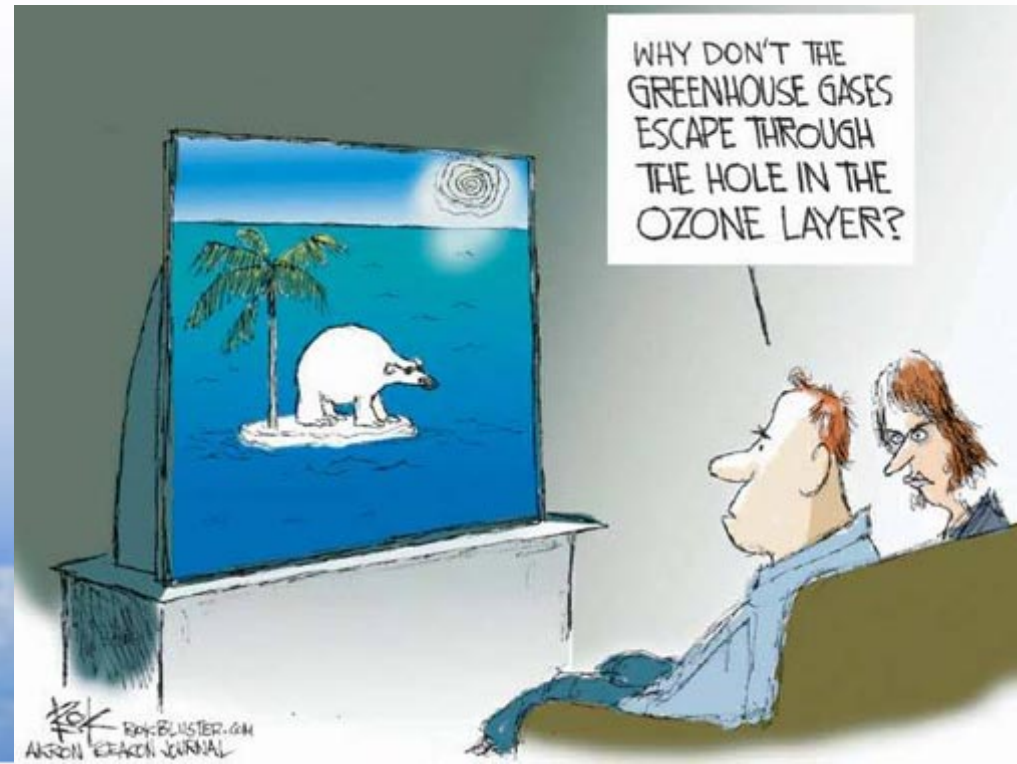
# What the Past Tells Us



# Barriers to Climate Communication



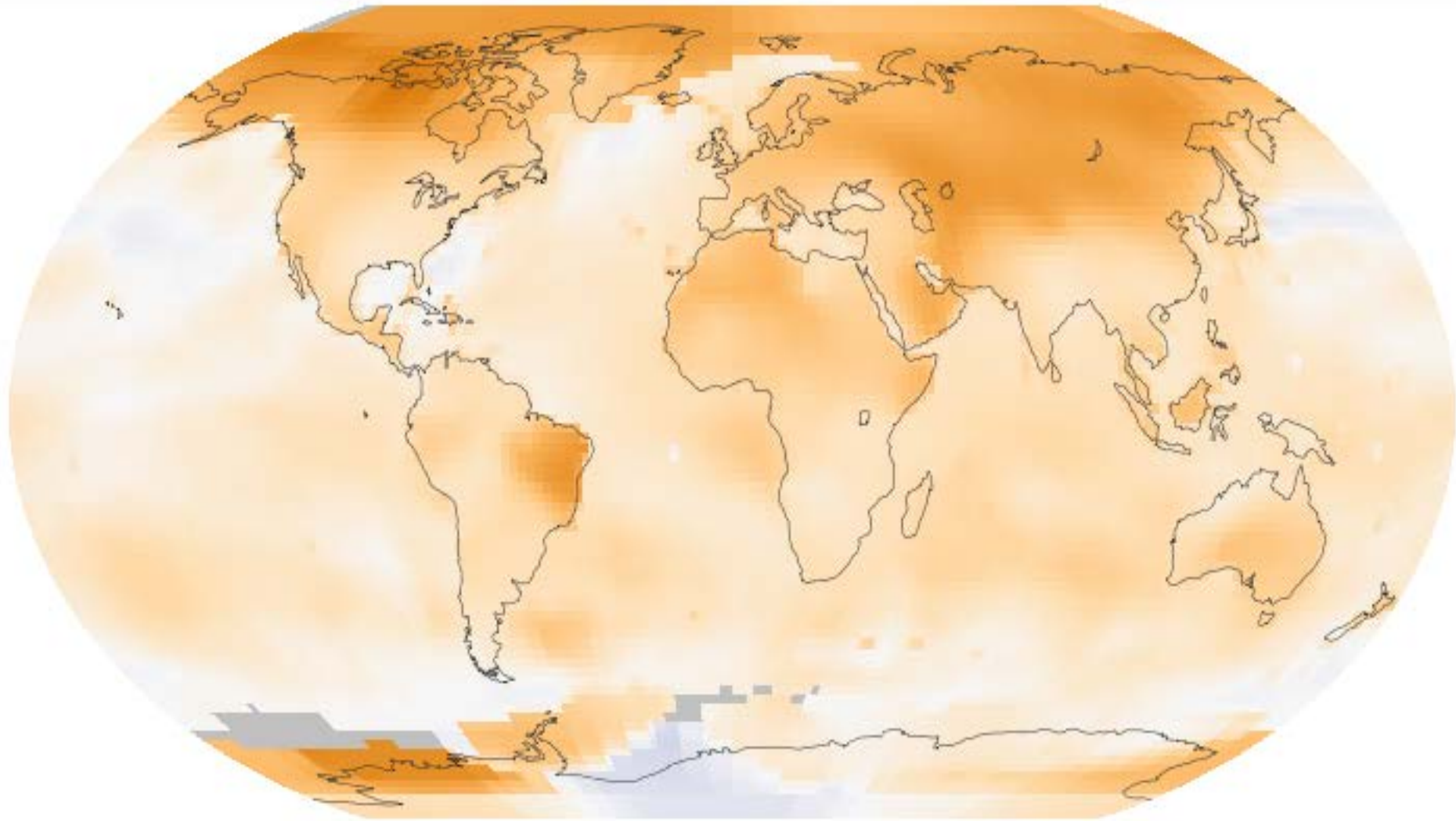
- Basic Understanding of Science
- Social & Cultural Dimensions
- Economic Dimensions
- Psychological Dimensions



# Basic Understanding of Science

## The Difference Between Weather & Climate

1950-2014 Temperature Trend



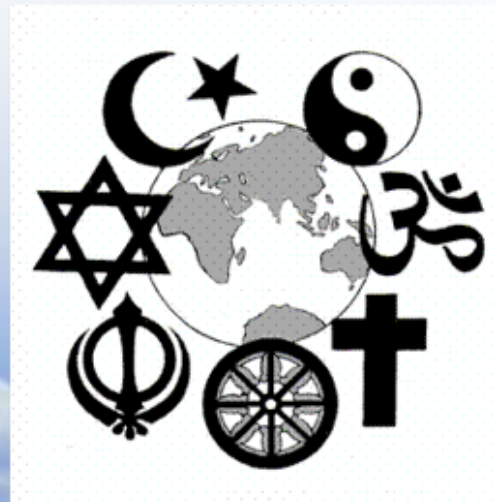
Temperature Trend ( $^{\circ}\text{C}/\text{decade}$ )

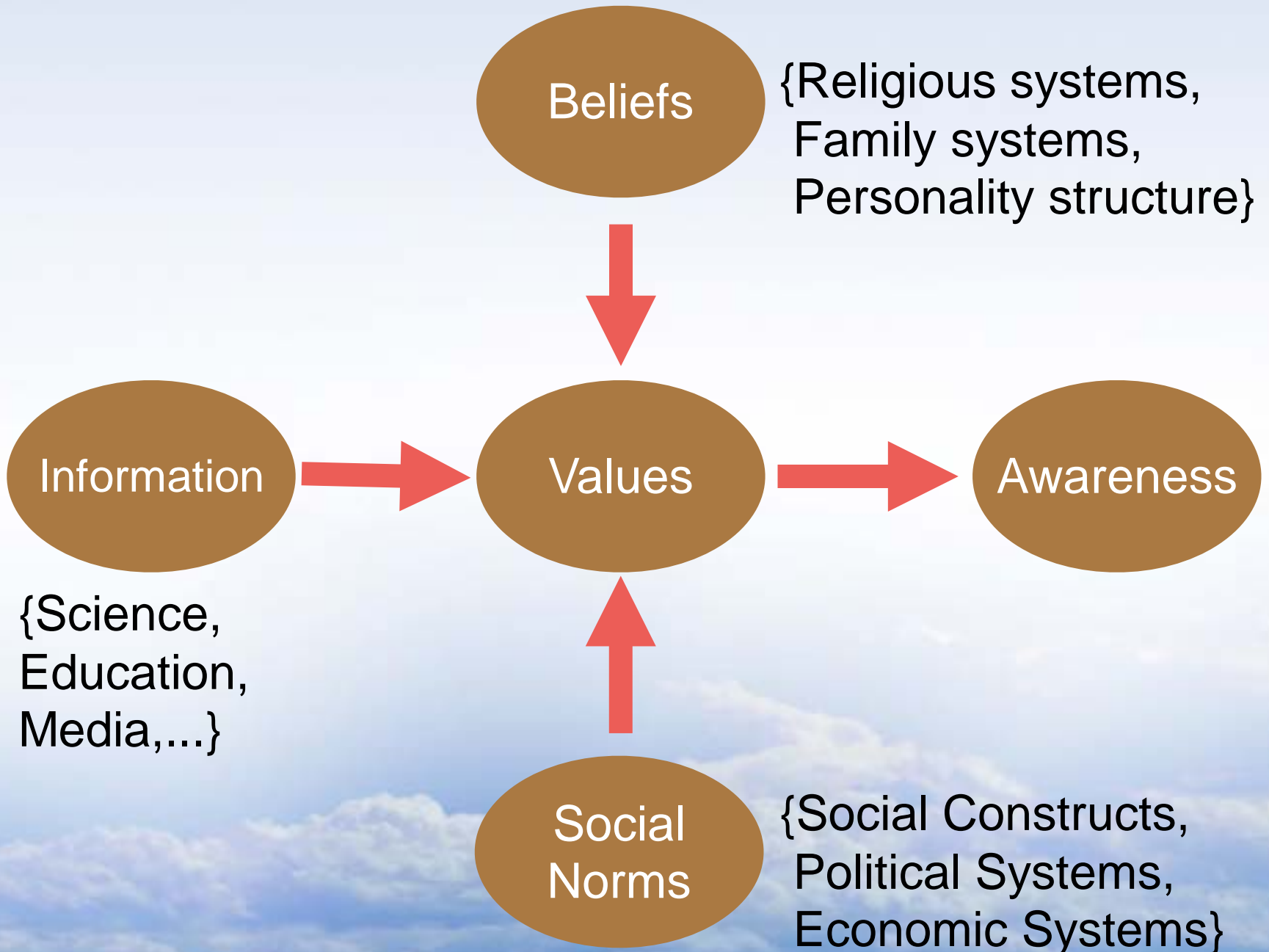


NASA GISS

# Social, Cultural & Economic Factors

- Challenge to Value Systems, e.g. religious beliefs
- Threat to Independent Agency, e.g. freedom
- Threat to Meeting Basic Needs, e.g. economic stability
- Threat to Privates Sectors, e.g. fossil fuel industry





# Psychological Dimensions

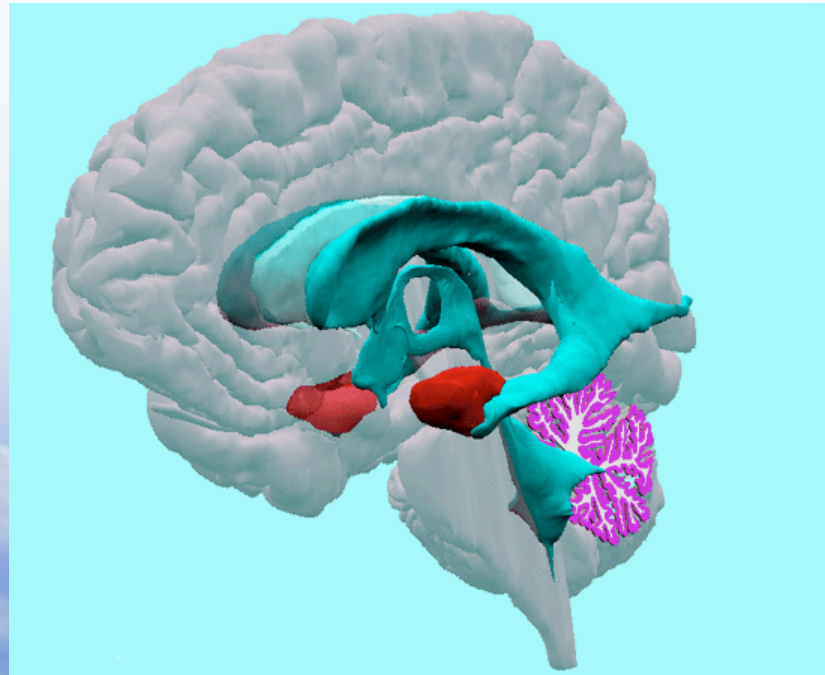
- Affect Response & Regulation
- Self Identity & Consumption
- Relatedness to Non-Human Environment
- Typological Character Structures



# Affect & Decision Making

“affect ... has rarely been recognized as an important component in human judgment and decision making. Perhaps befitting its rationalistic origins, the main focus of descriptive decision research has been cognitive, rather than affective”

Slovic et al. (2002)



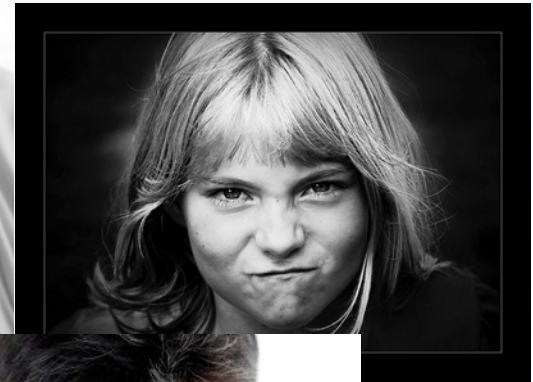


# Affective Reactions to News of Climate Change

Numbness

Defiance

Fear



Helplessness



Guilt

Anger

Powerless

*All are Signatures of Trauma*



# Breaking Through the Barriers in Communication

# A Three Stage Process

## Part I



Science Narrative  
with Affective  
Metaphors &  
Images

## Part II



How Do You Feel?

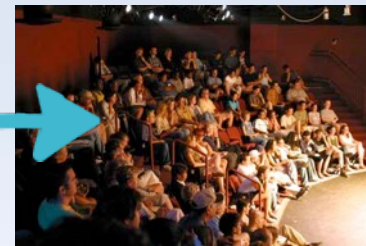
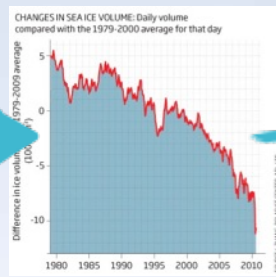
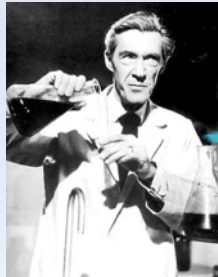
## Part III



Explore  
Solutions

# Connecting People to the Science

- Construct narratives rich in images
- Recognize the importance of felt sense of experience (e.g. ‘the bank account’)
- Make the climate scientists real people
- Use stories relating the history of discovery
- Use Earth’s history as a means to connect to warm worlds
- Convey that models are useful tools



Observations

Theory  
Models

Images  
Metaphors

Narratives

Public  
Awareness

Value  
Systems

Framing



# Summary

- Present the basic facts of Global Warming that are well understood
- Recognize the psychological processes that act to modulate people's reactions to disturbing information
- Seek out images that most effectively convey the issue of global warming, images that are affect laden recognizing that these images are context specific!
- Leave the audience with a feeling of options and opportunities (e.g. "the wedges")