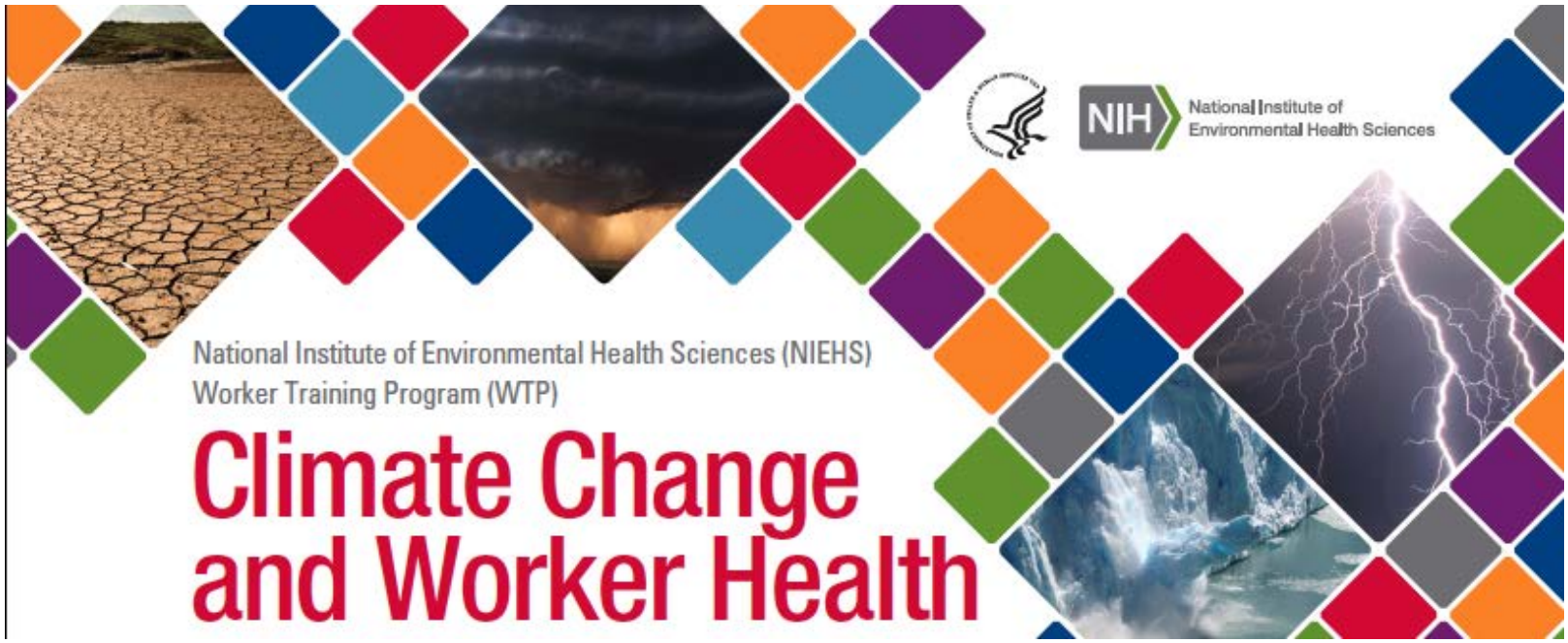
Wrap Up, What We've Learned, and Possible Paths Forward



Bruce Lippy, Ph.D., CIH, CSP
Director of Safety Research, CPWR

CPWR
THE CENTER FOR CONSTRUCTION RESEARCH AND TRAINING

What are my qualifications to speak on climate change?

Gondolier
1

Me
5.37

Climate scientist
10

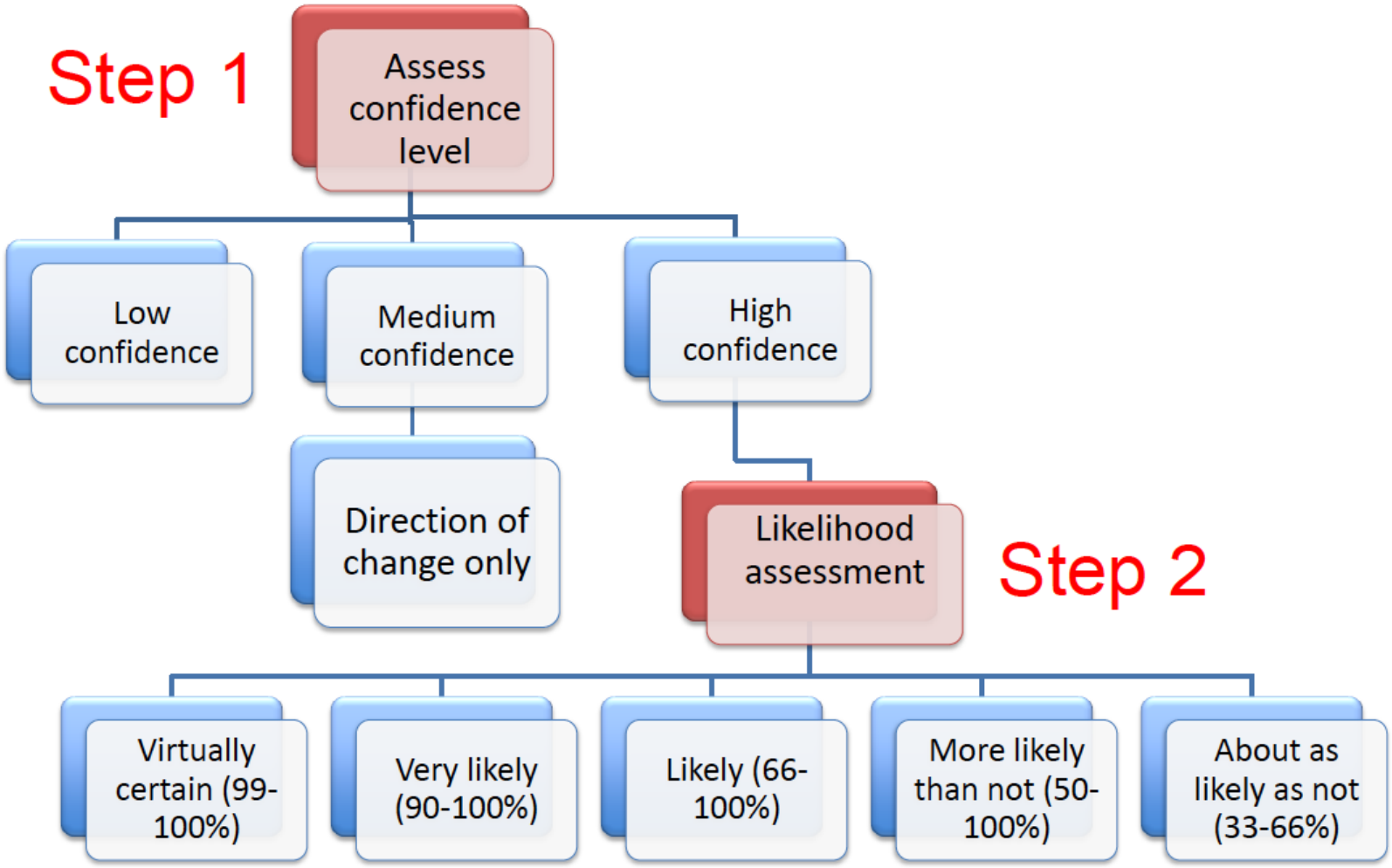
“Climate User”

Introductory Comments by a Climate User

2007 IPCC report was *unequivocal* about warming of the climate and the cause. We should be, too.

"Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations."

The IPCC process is rigorous



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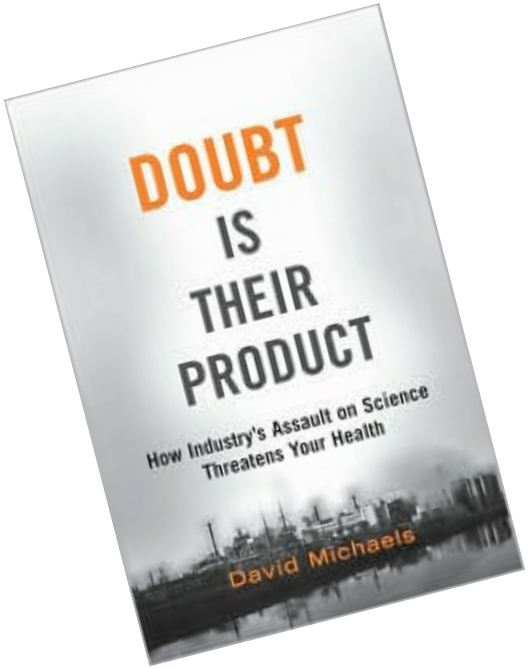
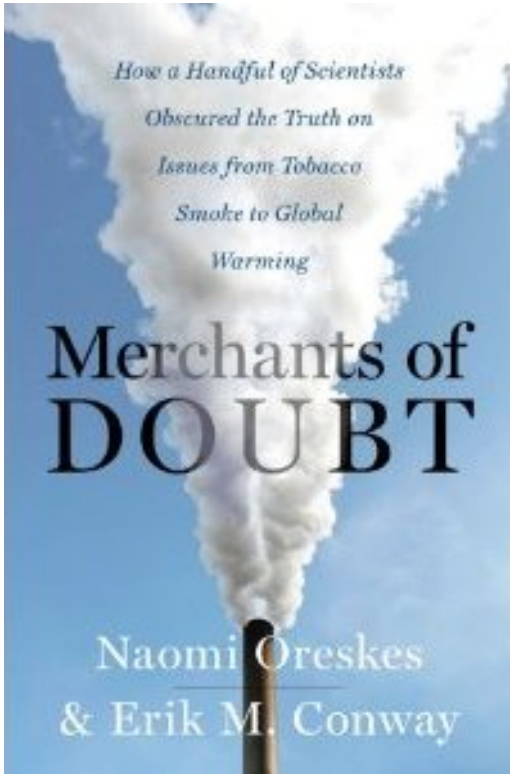
97-98% of climate researchers agree with the IPCC conclusions on climate change

- 1,372 climate researchers most actively publishing in the field
- “The relative climate expertise and scientific prominence of the researchers unconvinced of ACC are substantially below that of the convinced researchers.”

Anderegg et al. 2010, Proceedings of the National Academy of Sciences

There is active obfuscation around this issue





Oreskes and Conway identify some of the same scientists who cast doubt on dangers from smoking, the effects of acid rain and the existence of the ozone hole.

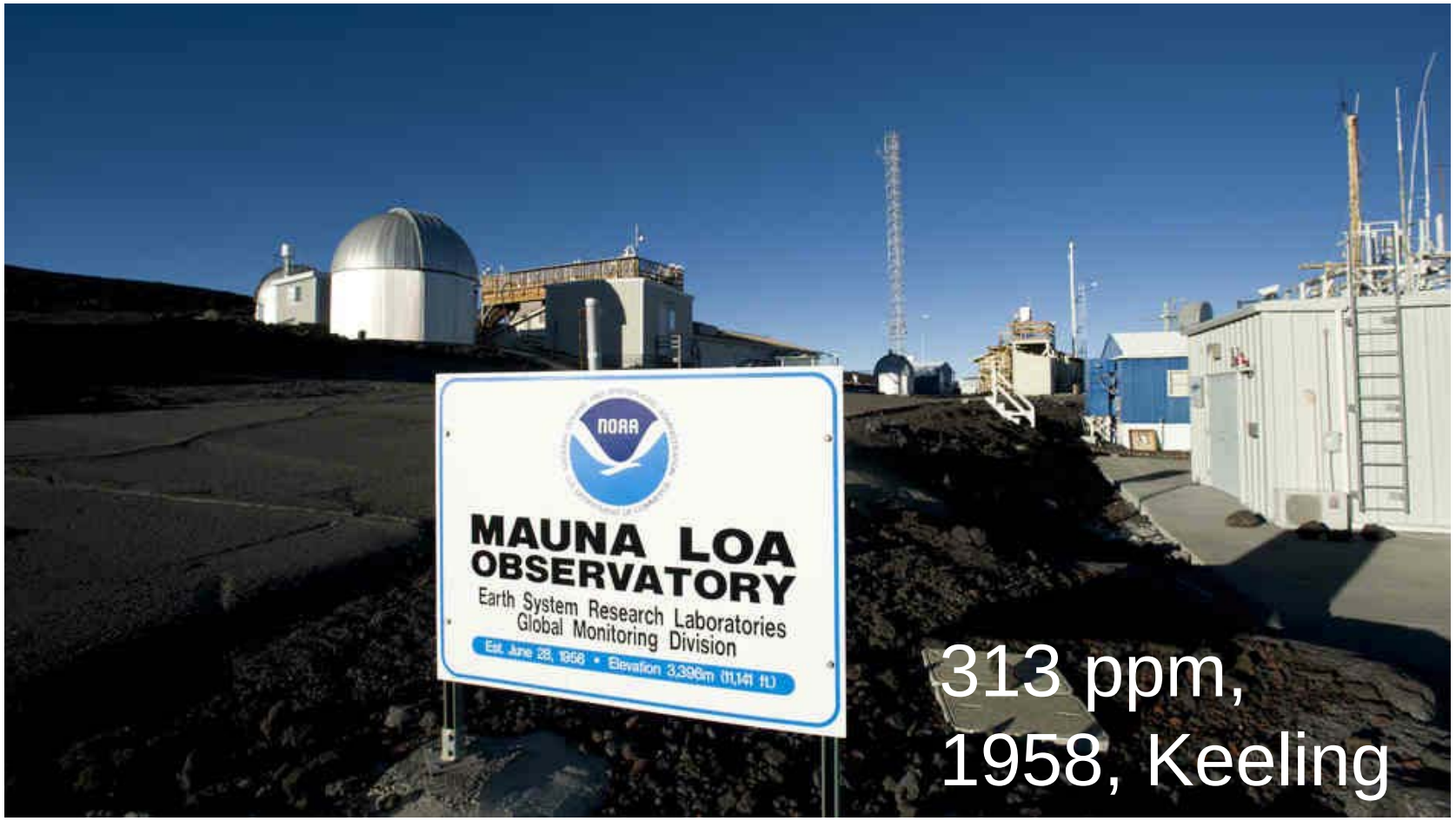
Agreement with this false statement varied with news outlet watched

	Never	Rarely	About once a week	About 2-3 times a week	Almost every day
Fox News	30	37	45	36	60
CNN	51	40	39	25	25
MSNBC	49	34	35	35	20
Network TV news broadcasts	59	37	41	36	35
Public broadcasting (NPR or PBS)	49	41	36	21	13
Newspapers and news magazines (in print or online)	48	43	41	24	40

"Most scientists think climate change is not occurring or views are divided evenly."

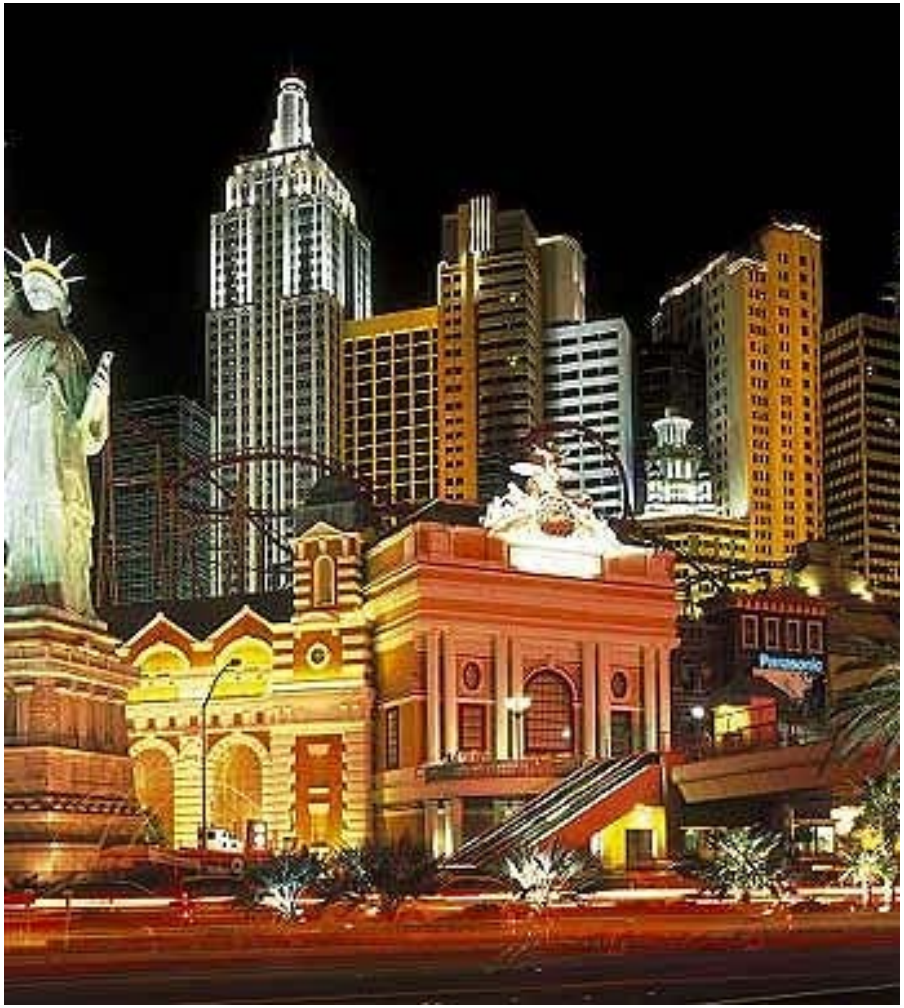
WorldPublicOpinion.org and Knowledge Networks, 12-10-2010

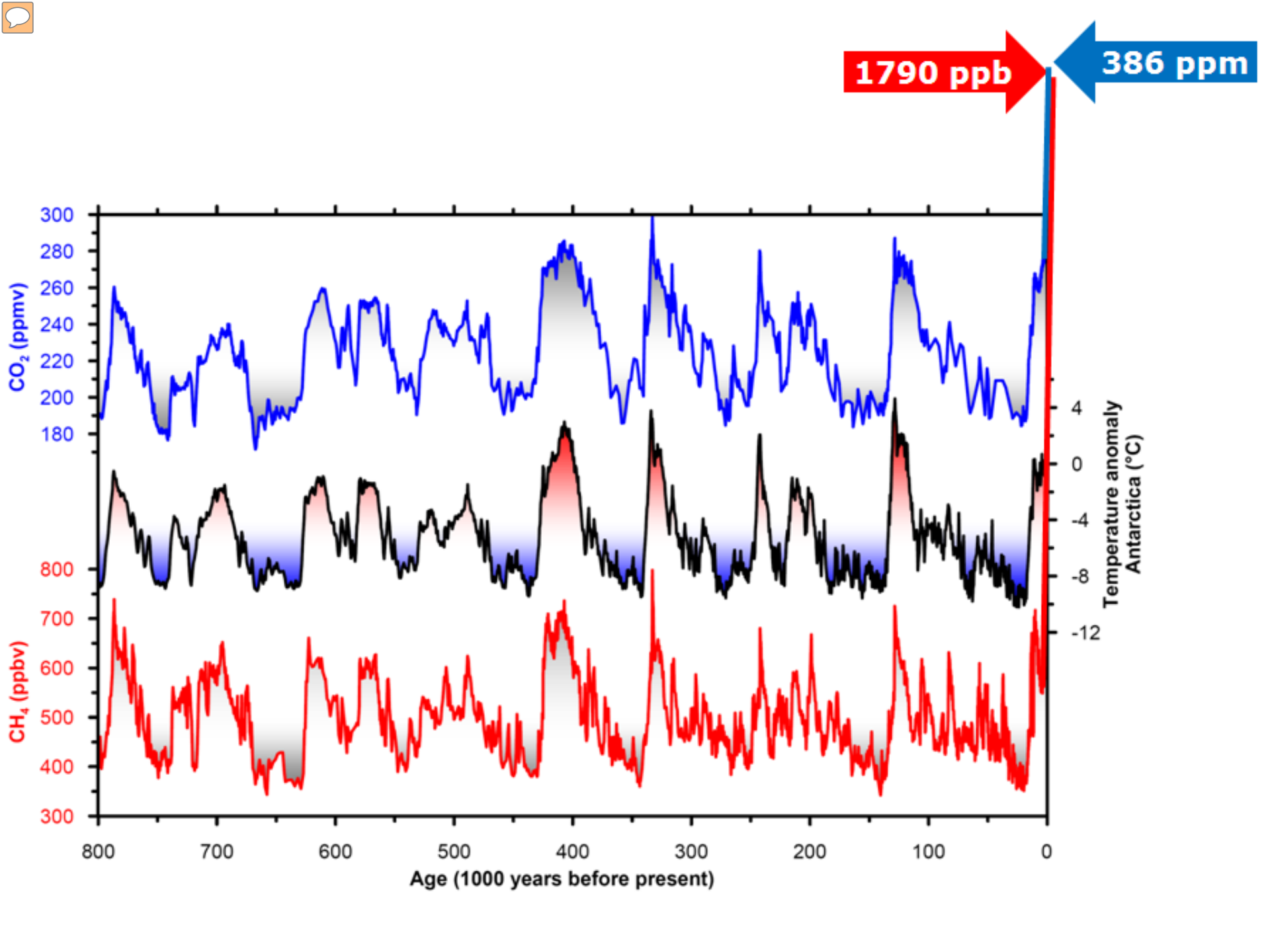
CO_2 levels just exceeded 400 ppm, the highest level in estimated 3 million years



CO_2 Levels have been measured from ice cores going back 800,000 years

If you were going to fake data, where would you do it?



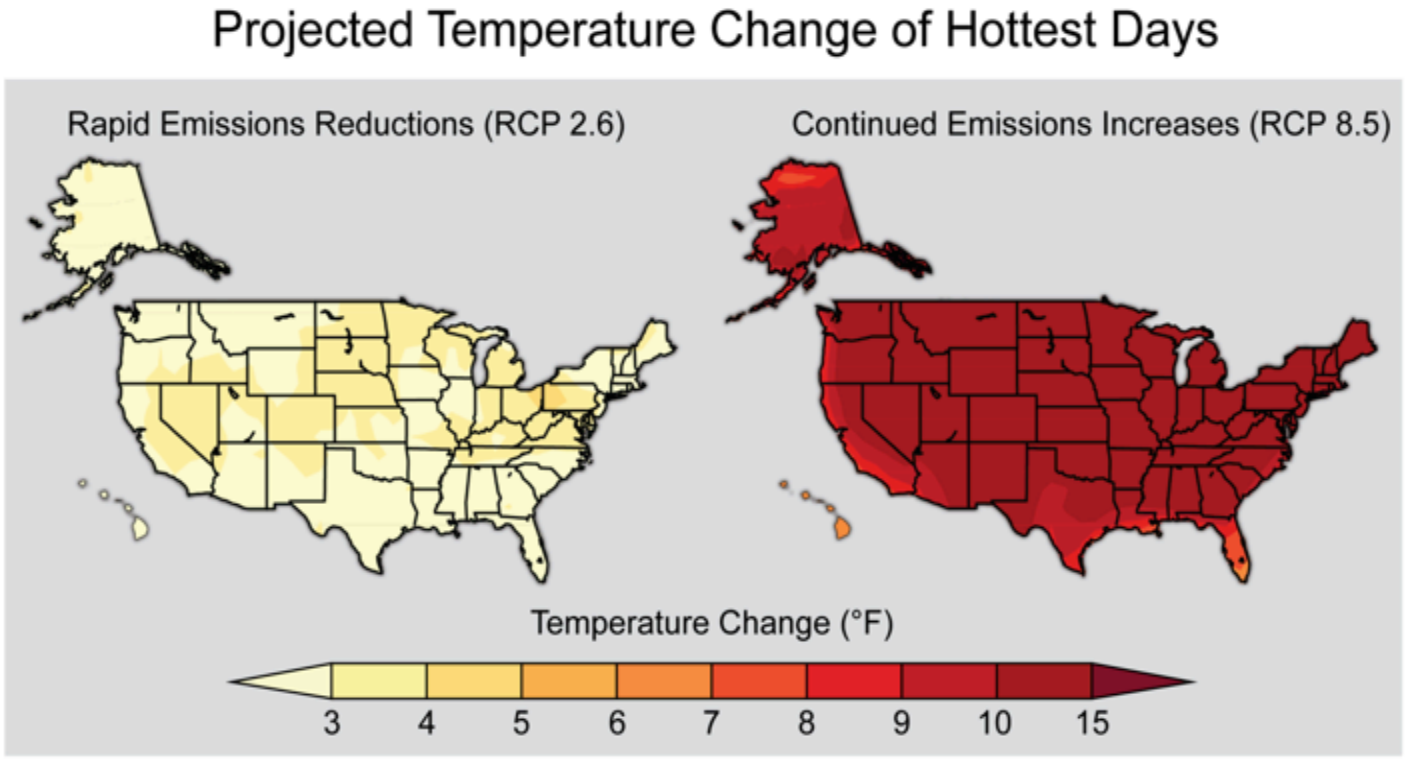

1790 ppb
386 ppm
CO_2 (ppmv)
300
280
260
240
220
200
180
800
700
600
500
400
300
CH_4 (ppbv)
4
0
-4
-8
-12
Temperature anomaly
Antarctica (°C)
800
700
600
500
400
300
200
100
0
Age (1000 years before present)

What We've Learned

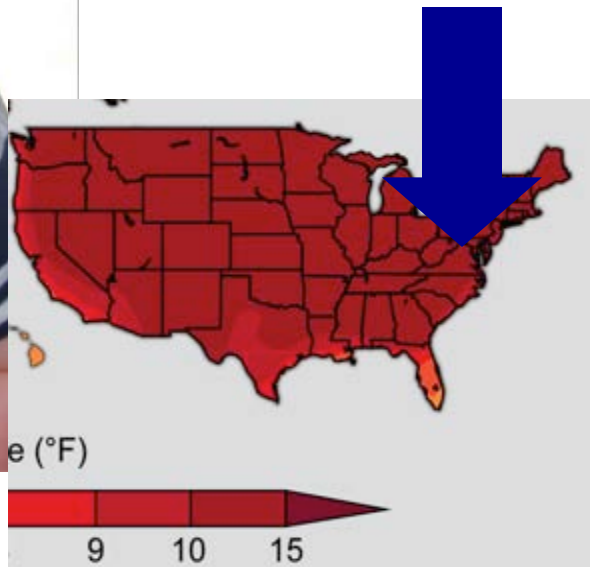
David Foster, DOE, recommended:

- Each workplace should do a climate risk assessment
- Climate adaptation plans
- Training for extreme weather
  - E.g., power outages after Sandy
- Since 1980, trillion dollars spent on disaster response, costliest in the last decade
- NREL is working on more efficient technologies

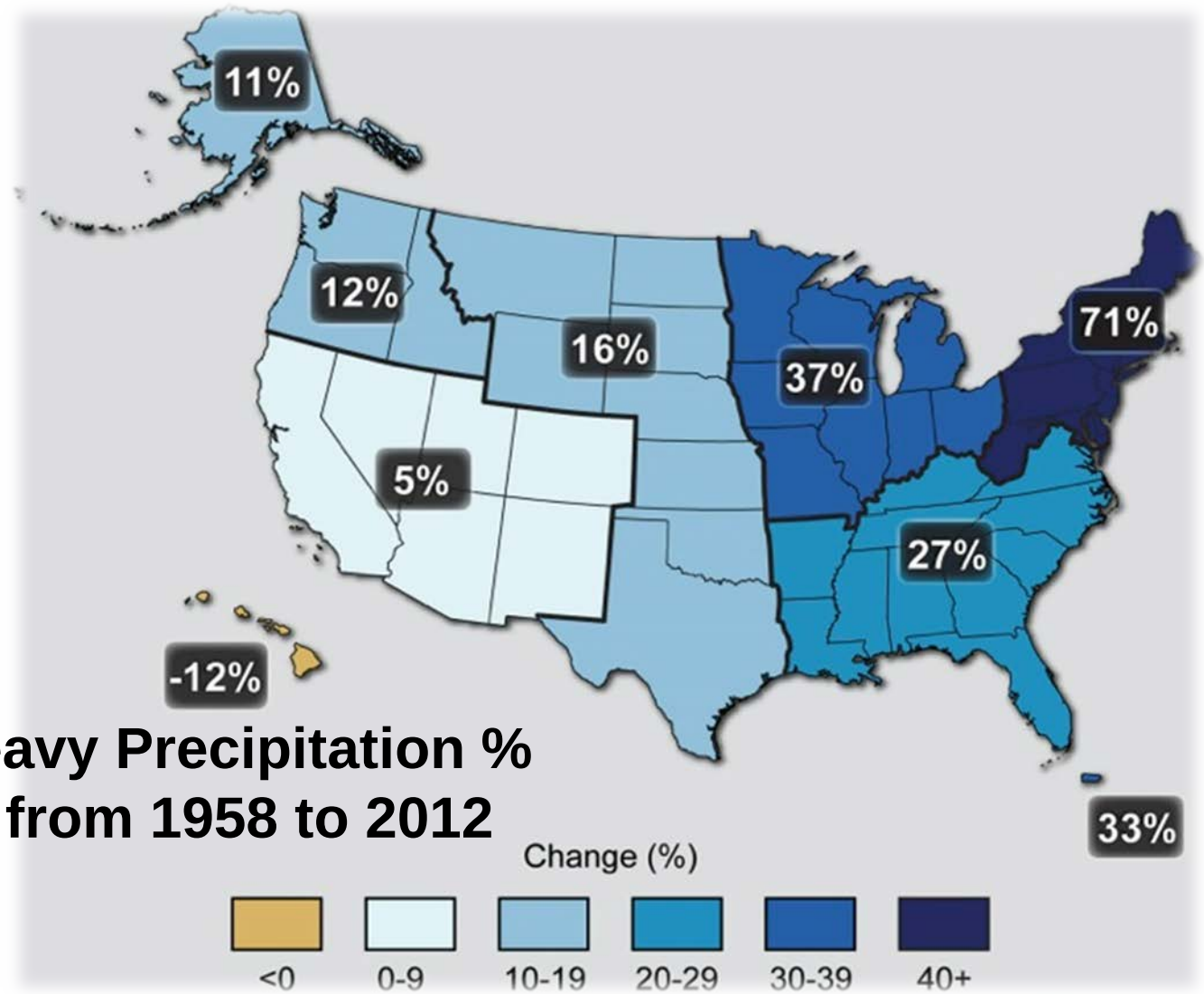
Dr. John Balbus presented striking data on temperature changes coming if nothing is done



Tommy Lippy wearing the “Boh,” a sacred tradition for Baltimore youths



Dr. Balbus also made the point changes are happening now



Very Heavy Precipitation % change from 1958 to 2012

Dr. Balbus quoted the National Climate Assessment key messages:

1. Expect wide-ranging health impacts
2. The most vulnerable are at most risk
3. Prevention provides protection

Dr. Balbus closed with these 3 points:

1. Climate change is impacting the health of workers and the general public now
2. Workers are more highly exposed to climate-related hazards
3. Occupational health community engagement needed for improving both climate resilience and climate mitigation

Max Kiefer shared that NIOSH has created a CC Emphasis Area with separate funding and a Work Group

Paul Schulte's 2009 paper was the framework for Clearinghouse paper

The NIOSH CCOSH Working Group will:

1. Make recommendations for worker safety and health improvements
2. Develop and disseminate communication products
3. Participate on interagency initiatives to ensure occupational safety and health is included as a core component of public health

Key elements of NIOSH's Research Agenda

- Determine the links between climate change and occupational hazards
- Identify the number of workers and subpopulations affected by climate change
- Identify and evaluate control methods and adaptive responses to lessen the impact of climate change on worker safety and health
- Develop and assess risk communication
- Develop leading indicators of climate-potentiated health effects and recommend surveillance ideas

Max pointed out that climate change will result in increased numbers and intensity of wildland fires

US wildfire season lasts 2 months longer than 40 years ago (Audubon)

Max also pointed out that mitigation efforts shouldn't expose workers to old hazards

- Fall protection
- Crane safety
- LOTO
- Confined spaces

Climate change will expand vector-borne disease ranges and periods of activity, exposing wider range of disciplines

Dr. Cora Roelofs observed that occupational H&S has been largely ignored in CC discussions

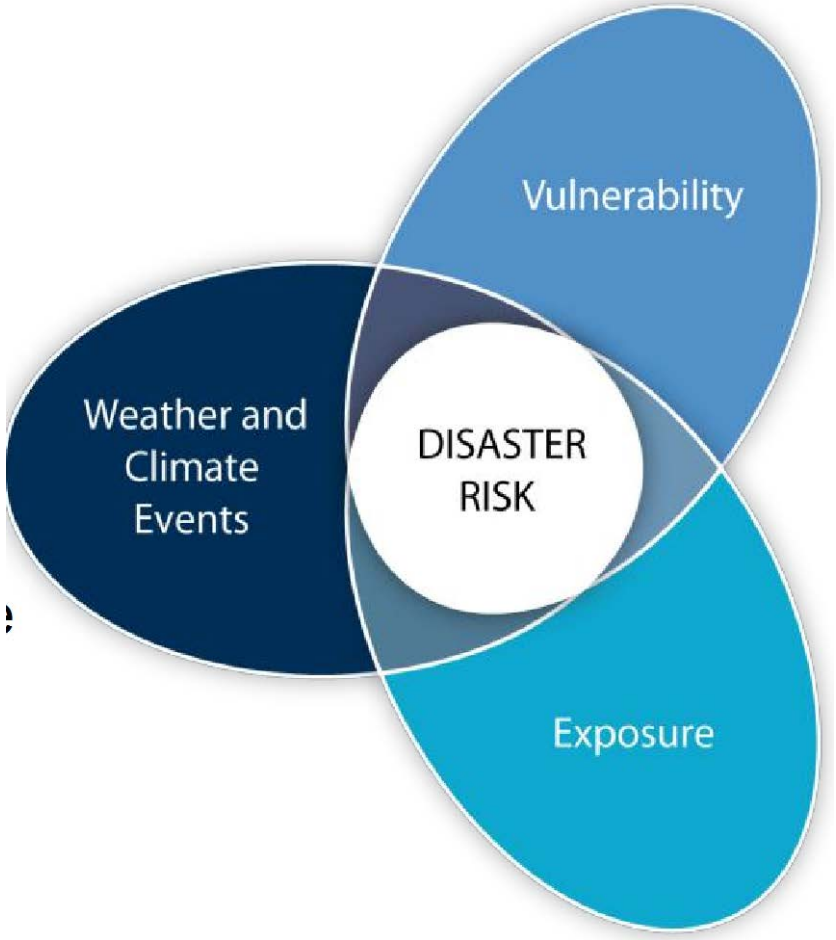
Coined “Climate Canaries”

The most vulnerable workers will be the most impacted

- Immigrants and others with less power will feel the brunt
- Workers need special attention because their exposures are compelled by their jobs
- Policies to protect workers are weak especially for the most vulnerable

Photo courtesy Wikimedia and Charles O'Rear

Cora asked about resilience: "What helps workers weather the storm and bounce back?"



IPCC Model

“You are the planning and response vanguard for climate change.”

Dr. Roelofs’ challenge to the WTP awardee community

Joy Lee and Kevin Yeskey presented the *Climate Change Vulnerability Assessment Report*

- Assessed how CC affects the Worker Training Program, its awardees, and its targeted worker population.
- The goal is to help WTP and its grantee community better plan for the health impacts and programmatic changes from climate change

The report explores:

- What happens in the transition from high carbon energy sources and industries to a low carbon “greener” economy
- What training gaps exist in covering
  - Extreme ambient temperatures
  - Air pollution exacerbations
  - Ozone depletion
  - Extreme weather events
  - Vector-borne disease

The report contains 3 valuable appendices

1. Climate vulnerability matrix
2. Available WTP Training Courses/Resources
3. Available External Training Course/Resources

Breakout groups reports

Dr. Ebony Turner and Kathy Ahlmark facilitated the mental health resilience breakout

- Discussed the NIEHS efforts to develop worker and supervisor curricula
- Discussed what resilience means for infrastructure, organizations and people
- Discussed resilience for workers, responders, community
- Discussed goal of developing checklists or tools

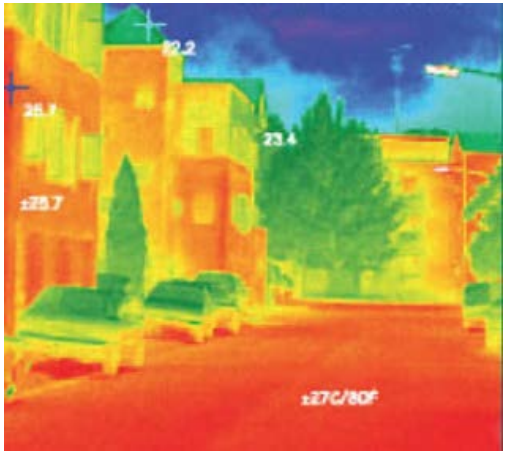
Kenny Oldfield and Jim Remington facilitated the Disaster Preparedness breakout

- Asked whether there should be a module that specifically focuses on climate change or individual slides for customizing to populations
- Recommended making materials available that explained the connection between CC and disasters
- Recommended robust case study approach
- Asked whether we want two approaches
  - Climate change materials for activists
  - Hazard-based materials for the rest

Sharon Beard facilitated half of breakout on heat stress

- She reviewed various management models and noted the CDC study on importance of acclimatization
- Canadian heat stress program was recommended by Doug Feil
- Piece work quotas were noted as barriers to implementing a program
- Union rules sometimes get in the way of shifting work hours
- PPE was noted as problematic in heat

Heat has already become a major public health concern, particularly in cities



Likely increase heat wave frequency and **very likely** increase in warm days and nights across Europe

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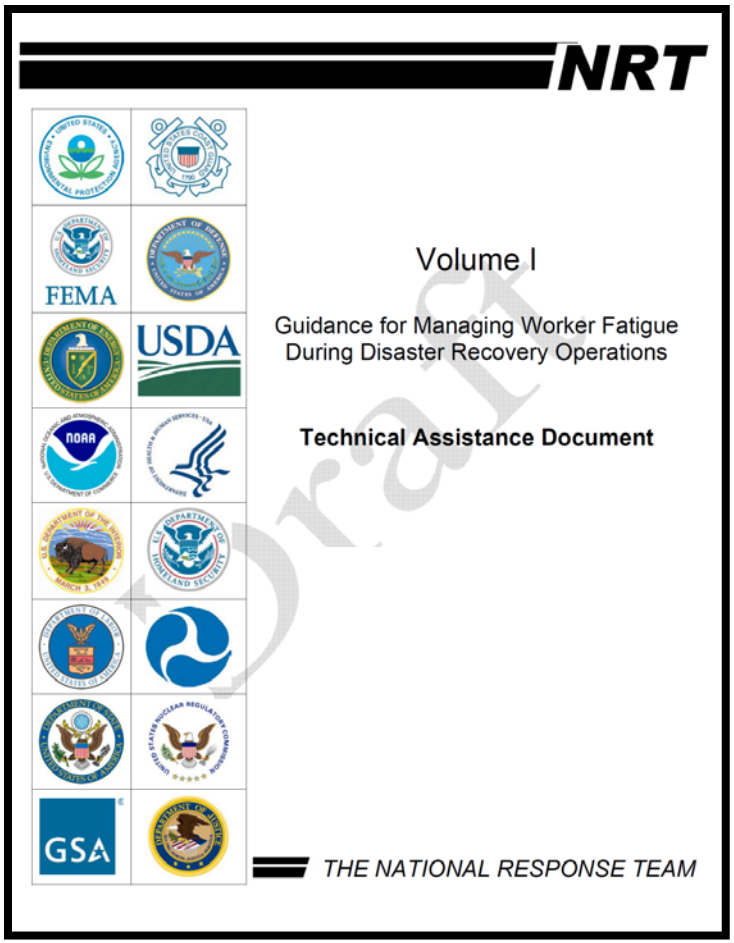
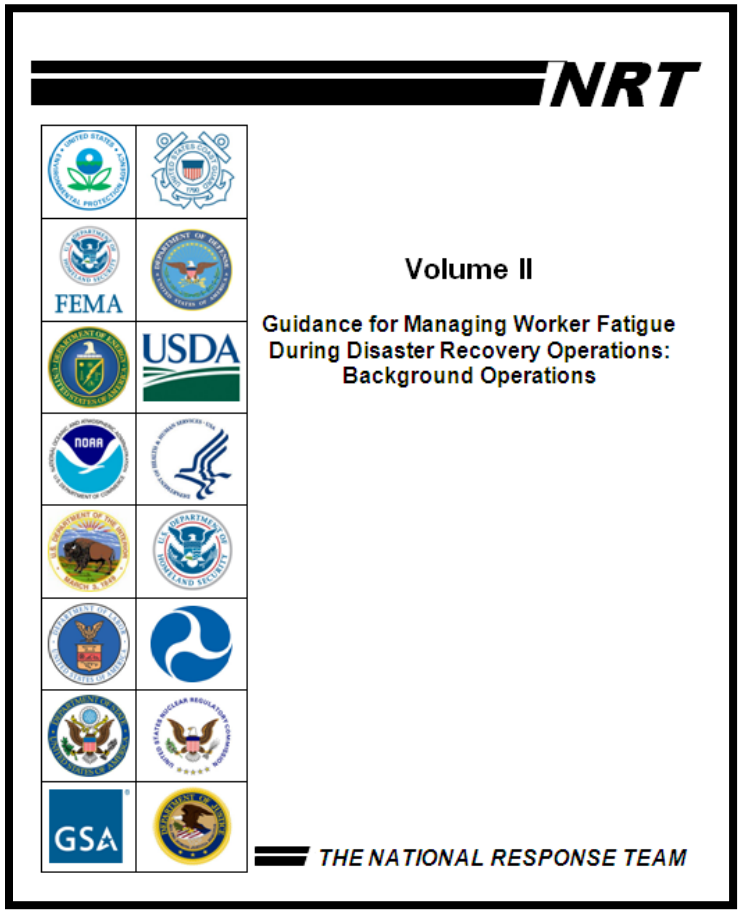
Australia has added a new color to get above 122 degrees F

Bruce Lippy facilitated the discussion on fatigue around the 2009 National Response Team documents

Technical Assistance Document



Background



Fatigue management during disasters will become more critical

17 hr awake = BAC 0.05%

24 hr awake = BAC 0.10%

(Dawson & Reid, 1997; Williamson & Feyer, 2000; Arendt et al. 2005)

Fatigue management programs

- Henry noted the railroads have some of the most strict requirements, but training could be better
- Chee mentioned sleep apnea testing required by DOT for drivers under certain conditions
- Barb recommended folding this training into the Disaster Site Worker course
- Given the lack of regulation, Chip suggested considering how to improve safety climate and culture
- Most members of group felt it was better to not call the training climate change

Existing Tools and Resources to Help Protect Workers from the Impacts of Climate Change

Climate Change Kit,

Carol Rice, Midwest Consortium

Clearinghouse Findings,

Deborah Weinstock

Midwest consortium resources

- Exercises to build capacity
- What is happening in my zipcode?
- Using toxic release inventory
- Evaluation of community preparedness
- “Build a Climate Kit” demo in rural areas

Climate Justice Panel

Moderated by Donald Elisburg

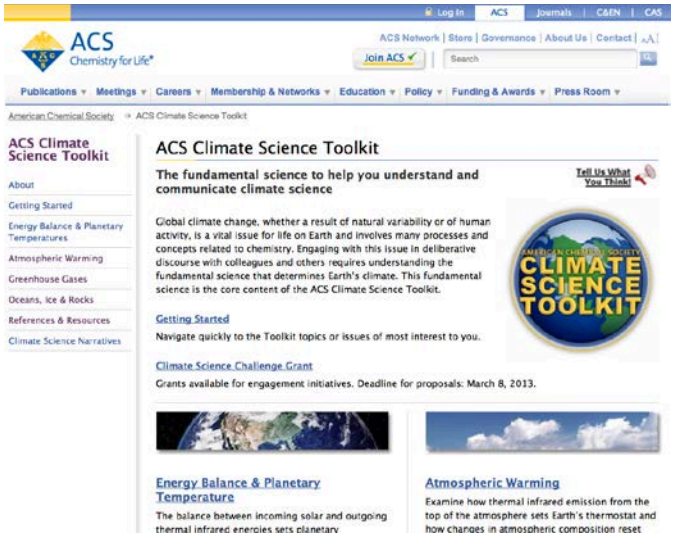
1970 to 2008, 95% of deaths from natural disasters occurred in developing countries

Source: IPCC Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX)

Paths Forward

The discussions generated great recommendations!

- Read and use CH resources like the Pocket Guides and training programs
- Connect to other organizations, particularly the NIOSH CCOSH
- Share resources among awardees
- Take advantage of materials developed by other organizations like ACS Climate Science Toolkit



Creative ideas came out on integrating this training into:

- **Disaster Site Worker**
- **Environmental literacy training**
- **HAZWOPER refresher**

Communication came up often as an area that was critical

And an area where this community has particular expertise

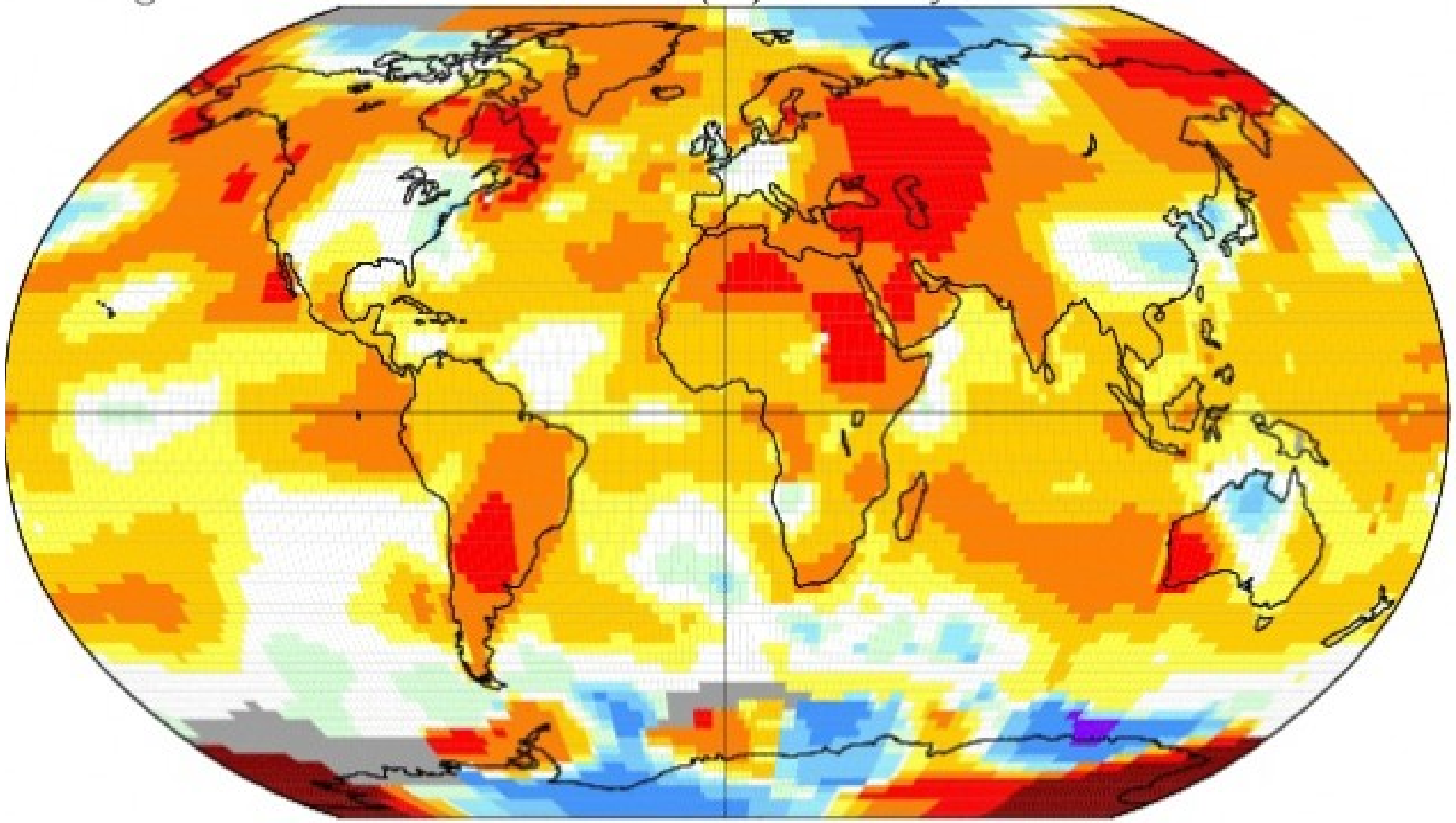
We can help others understand the effect of ACC with analogies

Barry Bonds before and after steroids

We need to differentiate between weather and climate

The weather in Baltimore was unseasonably pleasant in August.

August was globally the hottest since records were kept beginning in 1880 (NASA)



Wrapping up on a high note

“The stone age didn’t end because we ran out of rocks.”

Dr. Stephen Chu, Secretary of Energy

We can personally reduce our carbon footprint

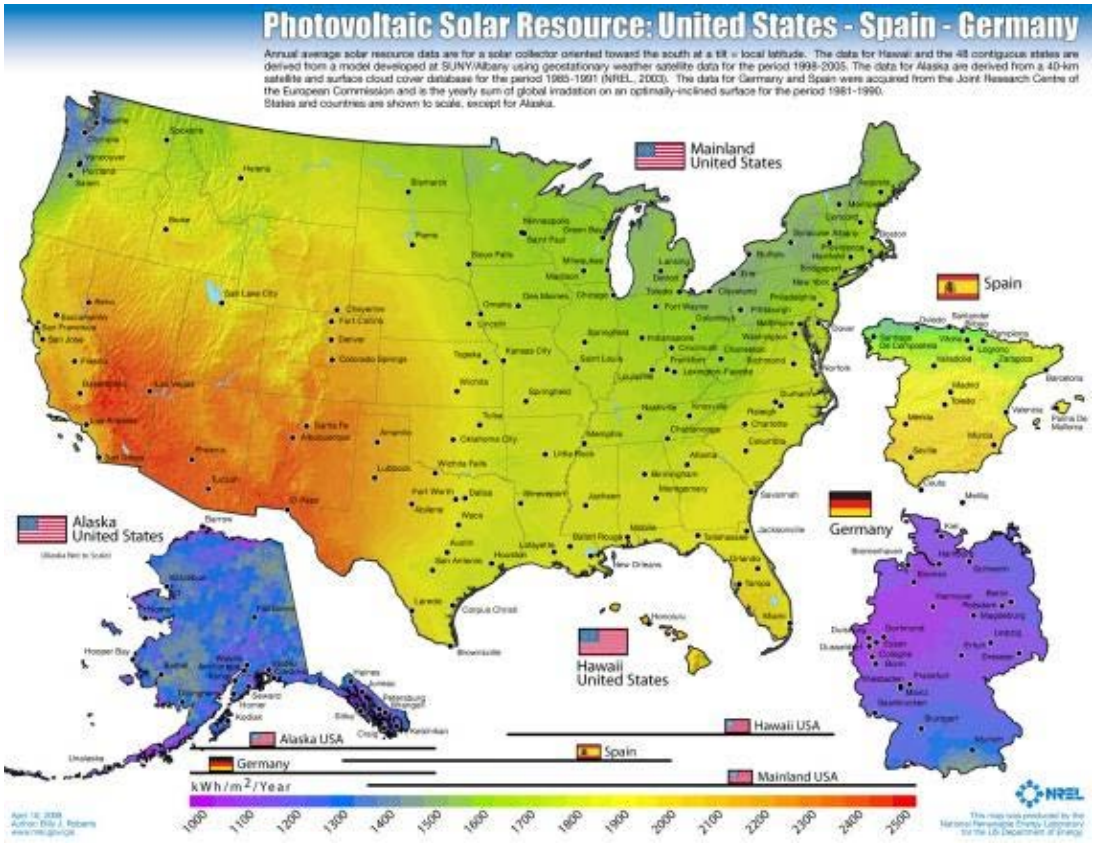
New Toyota SUV Holds Eight Passengers And Their SUVs,
The Onion, May 9, 2001

We can move to sustainable sources of energy

Photo courtesy: Audubon Society, Tristan Spinski/Grain

Baltimore, like many cities, has been preparing

Renewable energy sources are growing significantly



Germany gets 3-10% of its electricity from solar (Washington Post, 2-8-13)


The Rhone Glacier is covered during the summer months, a common practice in icy regions
Photo courtesy:
Audubon Society,
Olivier Maire/EPA/Corbis