Earning Trust and Explaining Complexities As You Communicate Climate Science: The CAUSE Model

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Your Communication Challenges

- Wanting ALL the facts before we communicate about sea level rise

- Increasing talk in Hampton Roads region about sea level rise by listening, a lot, locally.

- Providing computerized tools for residents to learn their flood and inundation risk.

- Encouraging the Commonwealth to provide guidance on sea level rise planning.

- "Showing people a future" – to avoid fatalism when they realize some areas will be under water.

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Your Challenges, 2

- Discussing how local government will pay for adaptation needed

- Understanding when billboards and PSAs **do** equal effective SLR communication and when they do **not**

- Developing and making accessible visuals of flood, inundation risk to help decision makers

- Helping people personalize flood, inundation risk: "5 to 10 feet above what? My driveway?"

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What We Will Cover

Who – Why – How

- *Who are your audiences*?

- *Why* communicating sea level rise (SLR) is tough

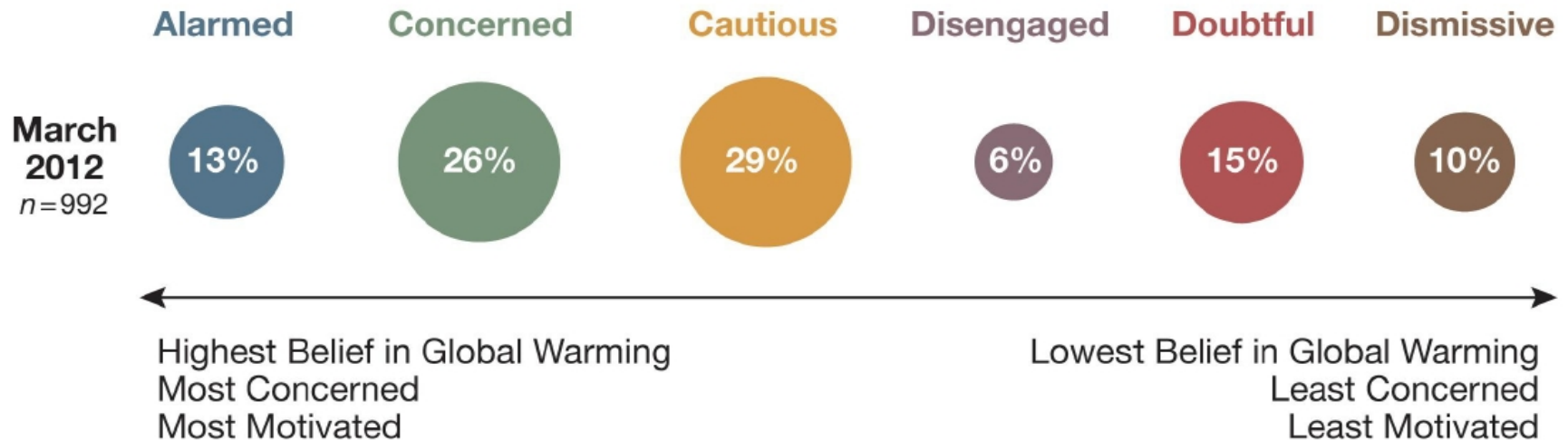- *How* to use the *CAUSE MODEL* to communicate

WHO ARE YOUR AUDIENCES?

Americans Differ in Beliefs, Concerns about Global Warming

- They fall into six distinct groups.

- Each group has a set of beliefs, values, opinions and actions.

- Understanding the differences is vital to effective engagement.

- When we know what our audiences think & how they feel, we can speak to their concerns more

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Global Warming's "Six Americas"

Figure 1: Proportion of the U.S. Adult Population in the Six Americas, March 2012

Alarmed	Concerned	Cautious	Disengaged	Doubtful	Dismissive
13%	26%	29%	6%	15%	10%

March 2012
n=992

Highest Belief in Global Warming
Most Concerned
Most Motivated

Lowest Belief in Global Warming
Least Concerned
Least Motivated

Proportion represented by area

Source: Yale / George Mason University

Provide People with Answers to Their Questions

Message content should be determined by the needs and interests of your audience,
not by what you are most eager to say

"If you could ask an expert on global warming one question, which question would you ask?"
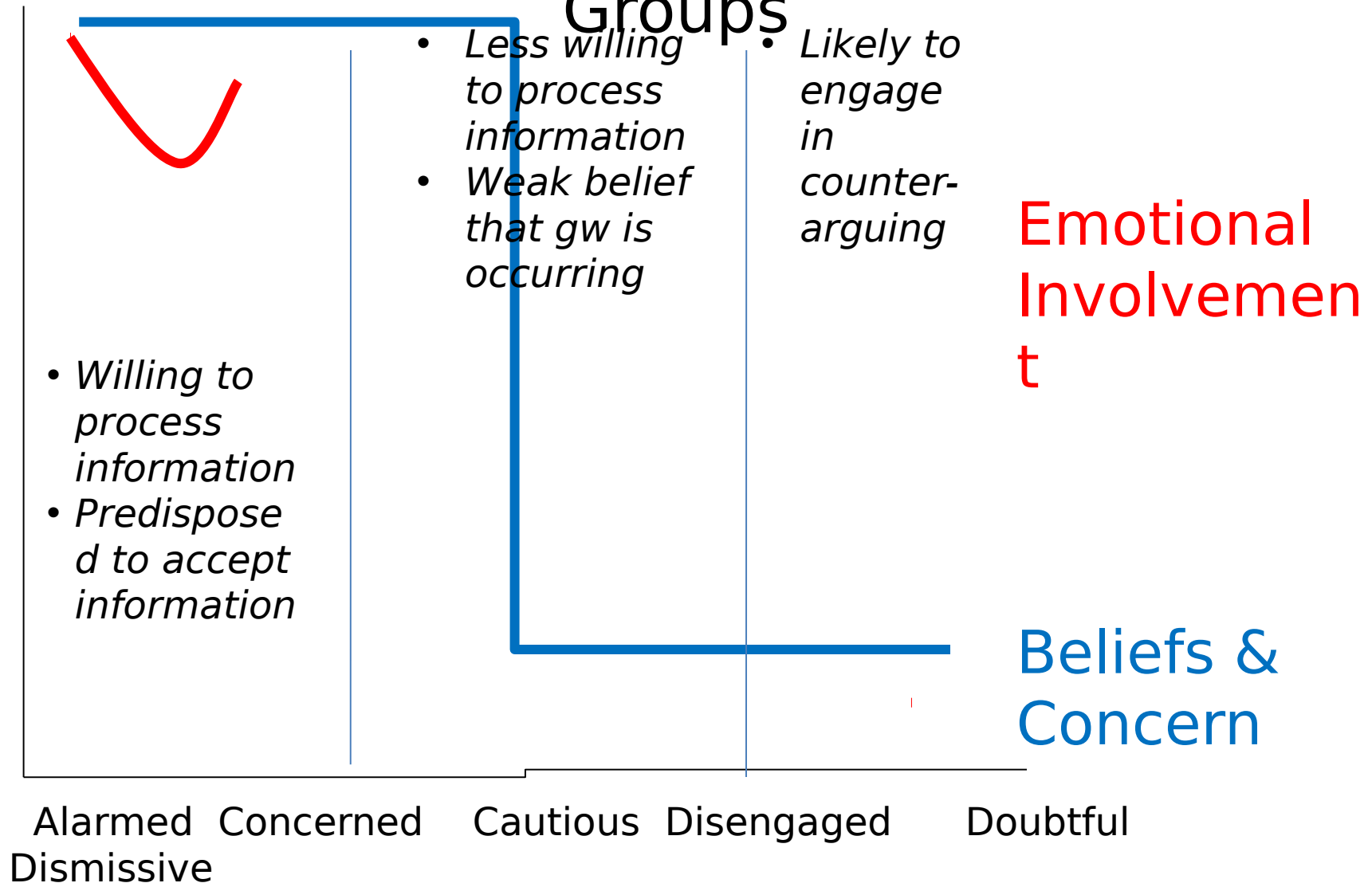
What can the US do to reduce global warming?

What harm will global warming cause?

How do you know that global warming is occurring?

Primary Differences between the Six Groups

- *Willing to process information*
- *Predispose d to accept information*

- *Less willing to process information*
- *Weak belief that gw is occurring*

- *Likely to engage in counter-arguing*

Emotional Involvemen t

Beliefs & Concern

Alarmed Concerned Cautious Disengaged Doubtful Dismissive

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Your Distinctive Audiences

- Private sector professionals affected by SLR (e.g., Realtors, architects, bankers, engineers; see Borberg et al.)
- Eastern shore versus southern Virginia
- Audiences affected by fire ant infestations
- Audiences affected by inundation
- Rural audiences ("*That's where we used to have a house. Now it floods*.")

Skip Stiles, Wetlands Watch

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Your Distinctive Audiences, 2

- Transient populations, e.g., military, (also student, tourist, temporary workers)

  Sample challenge:

  "Ninety nine percent of the time your street is dry, but it is still flood-prone because it is near X inlet, river, coast...."

  Robb Braidwood, EM, Chesapeake

WHY COMMUNICATING SLR IS TOUGH

Communicating about ANY Physical Hazard: Tension-Filled

- People perceive danger through the lenses of their own experiences and values.
- Classic example: bicycle and automobile accidents kill vastly more people than do the operations of nuclear power plants.
- Many are more concerned about nuclear power plants than they are about traffic accidents.
- "Experts" and "lay" audiences view danger differently.

--Fischhoff, Slovic, & Lichtenstein, 1981

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Education is *Part* of the Solution

- About 20% of the public can read and understand the science section of *The New York Times* (Miller).

- About half understand probability (Miller).

- Many have not read or written the technical reports you generate.

But Respecting Community Values is Also Essential

"We often can't just 'educate' our way out of science-society tension. The problem is not just lack of understanding. People do understand much of what we're saying or want to do. They don't like it. The conflict with their core values trumps their view of societal benefits."
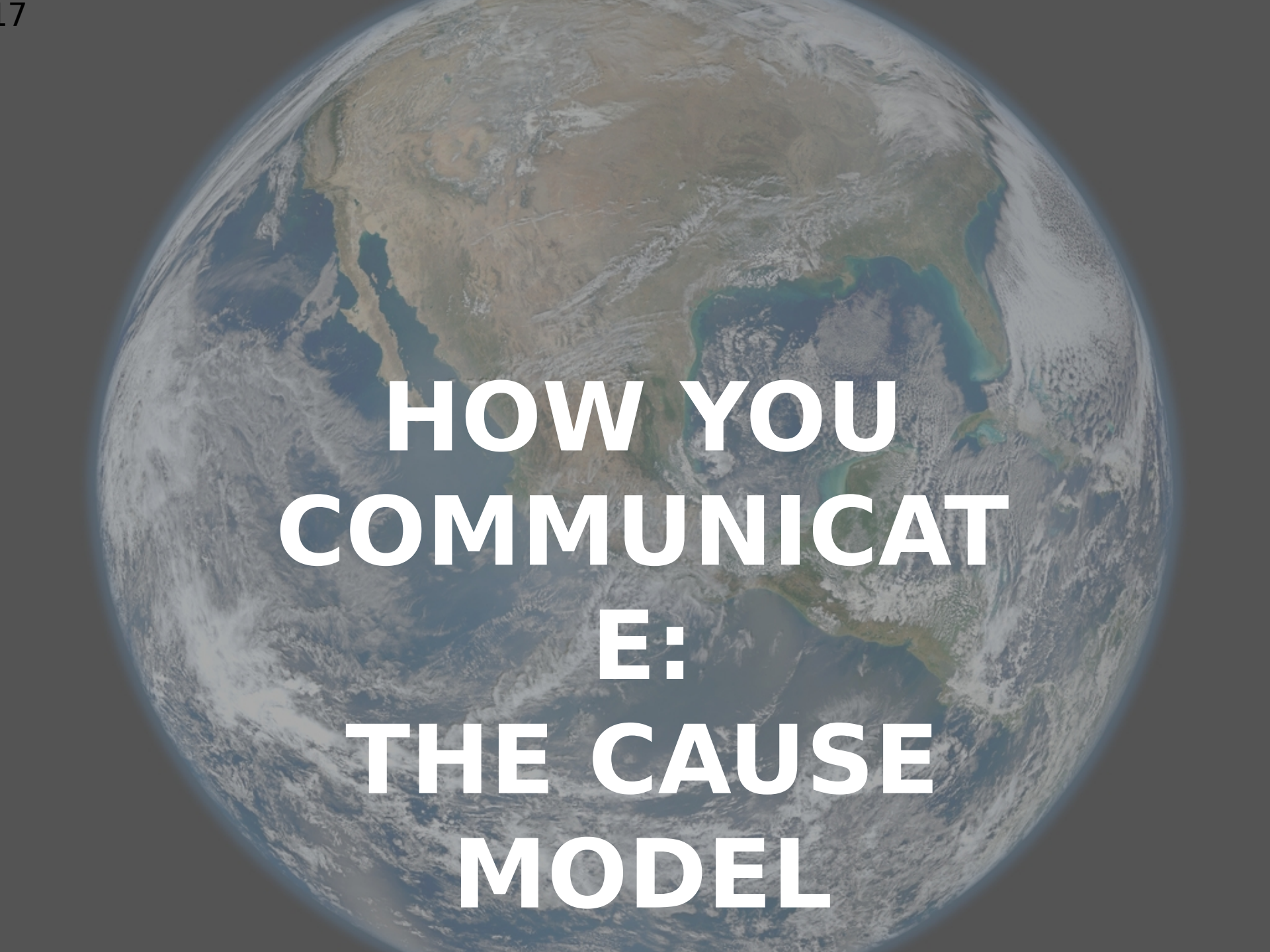
— Alan Leshner

American Association for the Advancement of Science, CEO, National Academy of Science, 2013

Why Hazard Communication is Especially Difficult *for Government*

- On the one hand, society itself is principally an exercise in protection or risk management (Douglas).
  - Protection against starvation
  - Protection against dangerous animals
  - Development of agriculture in Babylon = risk management

- On the other, people do not appreciate UNSOLICITED advice on running their lives, managing their property.
  - Requested advice IS welcomed (MacGeorge).
  - What are the implications? How do you communicate SLR?

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HOW YOU COMMUNICATE:
THE CAUSE MODEL

"CAUSE" Model for Risk Communication: Identifies Tensions, Goals, Options

- Lack of <u>C</u>onfidence (in communicators)
- Lack of <u>A</u>wareness (of danger)
- Lack of <u>U</u>nderstanding (of danger)
- Lack of <u>S</u>atisfaction (with solutions)
- Lack of <u>E</u>nactment (of solutions)
    - Address these tensions in order. *Typically don't start with the U.*

--Rowan, 1991, 2003, 2009

The C in CAUSE

- C in CAUSE = confidence in communica*tors*
- WHO is communicating about rising sea levels and dwindling wetlands in my community?
- What encourages talk and question asking when someone's motives are unknown?
  - Monitor-ability
  - Likeability.

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Earn Confidence, 1: Listen, Respect, Create Conditions that Lead to Questions

- Listen to learn your audiences' views, concerns.
- Locate audience values you respect.
- How? **Skip Stiles of Wetlands Watch says :**
  - "If you start with greenhouse gases, your SLR message gets fuzzed."
  - Instead, conduct "listening sessions."
  - Create conditions where audience asks you SLR questions.
  - Consider having skilled meeting facilitators.
    - Karen Akerlof can describe her work with facilitators.

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Earn Confidence, 2: Listening Sessions

- **Wetlands Watch** worked with ODU to develop social marketing approach for listening sessions.
- **Stiles**: "*I take pictures where I will be speaking to get people talking. 'Oh, that is where Dad had his house. Now it floods*.'"
- You show people the evidence, local photos.
  - Fire ant infestations in Southern Virginia—evidence.
  - Photos encourage talk and then questions arise.
  - Have questions that encourage discussion of shared values.

Publics have a right to know their options for managing hazards.

- Communicate where *you're* effective. *Photo*: VA Beach listening session.

- City of Virginia Beach invited public input in developing comprehensive plan.

- Also consider:

  Coastal planning districts

- "Sunday" pieces with reporters.

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Photo credits: Tanya Denckla Cobb and Skip Stiles

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Earn Confidence, 4:
Respond to Skeptics Respectfully

David Herring, NOAA science communicator:

Don't panic. Defuse anger by asking them questions about themselves.

- If they persist, say you'll gladly address all concerns but, to be fair, you want to allow time for all.

- Invite them to write down their questions so you can follow up.

- Remember the other 75 percent of the audience is listening, watching you respond.

- See Herring's slides and presentation in the references.

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The A in CAUSE

- A = awareness or "detectability" of the hazard
- Obstacles to detection
  - *lack of training*
  - *psychological inertia (prefer to focus on our chosen agenda, not the emergency or others' priorities)*
  - *Wrong channel (print, social media, word of mouth)*
  - *Inconsistency:* flooding on a blue-sky day
  - *Lack of emotional relevance*
    - We address risks we *feel* (Weber).
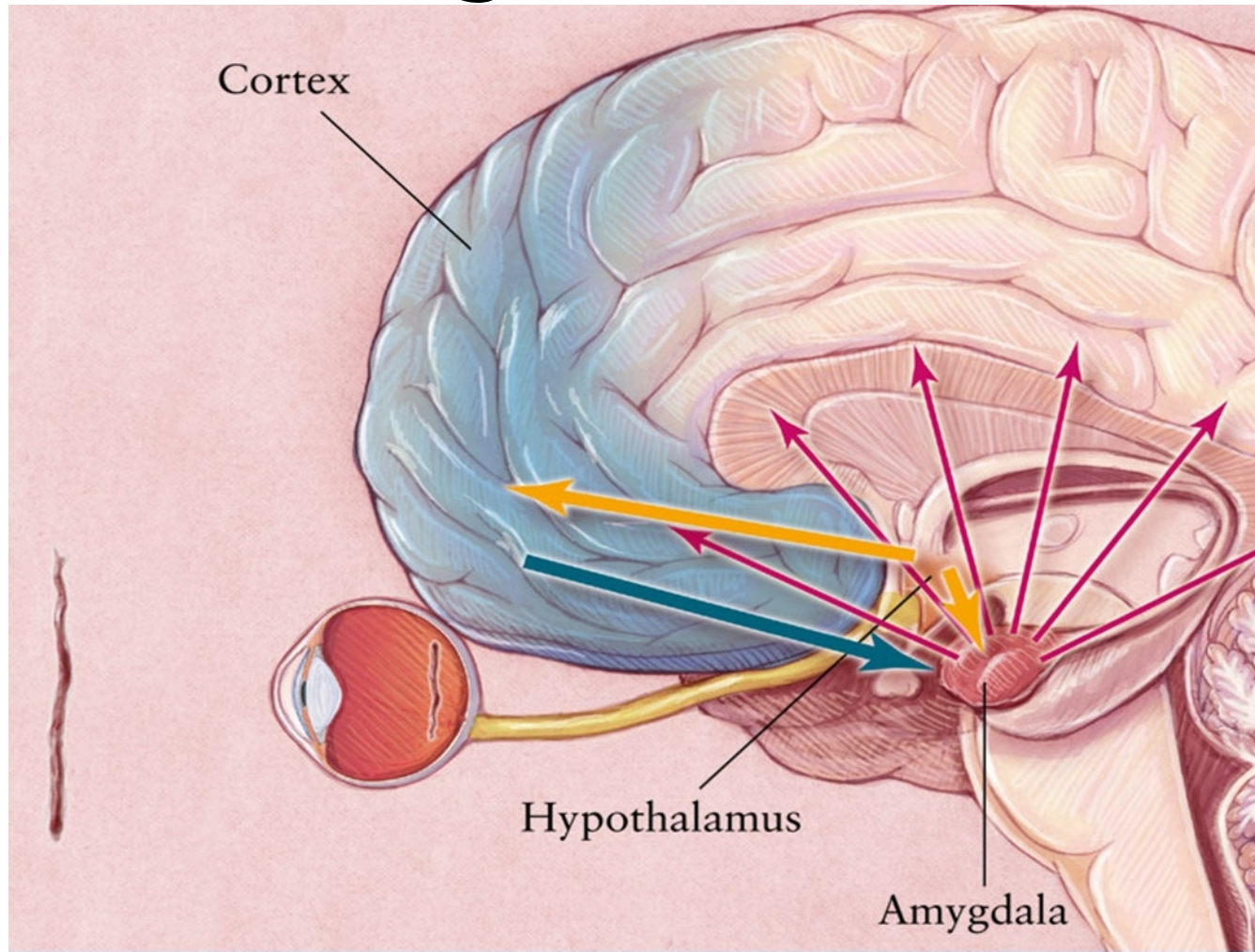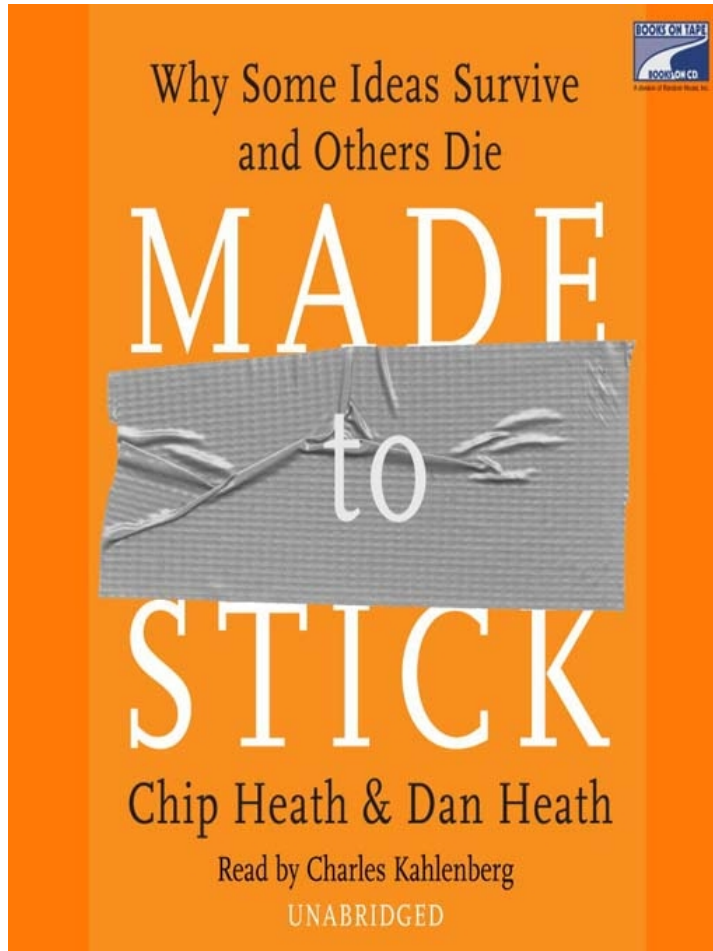- Consider our response to *immediate, "feel-able"* risk:

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Immediate Risk

Processing Immediate Risk

Cortex

Hypothalamus

Amygdala

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Create Awareness of SLR, 1:
Make it Concrete

Create Awareness with

- **S**imple
- **U**nexpected
- **C**oncrete
- **C**redible
- **E**motional
- **S**tories

Make slow-onset risk as concrete, precise, and emotional as possible.

Stories <u>people tell you</u> may be especially effective.

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- Create awareness of the need for storm surge information, not just wind information when storms are predicted.
  - *"Category I storm may have Category 3 storm surge."* **--Robb Braidwood, EM, Chesapeake**

- Develop interactive tools for detecting flood, inundation risk. For for all residents?

- *"Naval station has a noise map and noise levels are required to be disclosed to home buyers. Why would flood risk not be under similar requirements?"*
  --Whitney McNamara, Planning, Environmental Sustainability, City of Virginia Beach
  City of Virginia Beach

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Create Awareness, 3:
Promote Visualization
with Human-Scaled Metrics

- "Try measuring storm surge where people live." (Braidwood)
  - Question: Should we measure storm surge on driveways or roads outside homes to make the height of the surge emotionally vivid?
- We should test the effectiveness of messages of this sort, especially in areas where transient populations live.

- *When* should you use public service announcements, text alerts, and billboards?
  - To *remind* people be alert to storm surge warnings – **yes**.
  - To *teach* what storm surge means – **no**.
  - To *remind* people to get flood-risk information before buying property – **yes**.
  - To *teach or explain* why there is flood and inundation risk in certain areas—**no**.

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Awareness versus Understanding

- Awareness differs from understanding
- Awareness = detect, recognize, recall, but **_not_** mastery
- Understanding comes closer to mastery, or the ability to use knowledge to solve novel problems
- Obstacles
  - Have participants chosen to learn?
  - Challenging words
  - Information hard to picture
  - Information hard to believe

The U in CAUSE:
Select Contexts Where Education is <u>Sought</u>:
Some Blogs, Museums, Field Trips, In-Depth News

- Jim Gandy
- WLTX
- Columbia, SC

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Deepen Understanding, 1:

- **Substitute accessible terms, or words with appropriate associations, for scientific ones**:
    - Instead of anthropogenic, try *human-caused*
    - "Contributes" sounds minor, instead say "*Most of the change comes from human causes*"
    - Instead of "debate," try the "*urgent challenge of climate disruption*"
    - Instead of "uncertainty," try *range*.

    Source: Hassol, *Eos*, 2008

Deepen Understanding, 2:

- Explain ideas often misunderstood
  - **Terms not well understood**

  flooding vs. inundation

  what counts as a wetland

  land subsidence

  - **Complexities hard to envision**

  How it is that my usually dry driveway could flood

  Why and where land subsidence occurs

  - **Ideas hard-to-understand because counter-intuitive**

    That a "normal" gas like CO_2 could be harmful at certain levels.

  That humans could affect entities as vast as oceans.

  Sources: Hassol, 2008; Rowan, 1999, 2003a,b, 2009

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Deepen Understanding, 3: Explain Key Terms

- Say what a word does NOT mean

  – Climate does *not* equal weather.

  – Humanly caused climate change is *not* the same as natural climate variability.

  – Wetlands are *not* just any wet land.

- Say what it DOES mean.

  - Climate refers to the weather of a region averaged over some period of time.

  - Wetlands have distinct vegetation that filters impurities

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Deepen Understanding, 4:
Explain Key Terms (cont'd)

- Give a *RANGE* of examples, not just one.

  – Some say climate is the difference between Boston and the Bahamas or the difference between Alaska and Alabama.

  – Wetlands are found in inland and coastal areas.

- Discuss a *false example*, and explain why it is false.

  Some wonder if land simply moistened by rainfall could count as wetland. That cannot be because the distinct forms of vegetation that allow wetlands to filter impurities, just as kidneys filter impurities for animals, would not exist on such land.

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Deepen Understanding, 5:
Use Visuals to Build 'Mental Models'

opulations, such as the military, may need co

e, your street is dry but it is still flood prone because

Glacier National Park, MT

1913
W. C. Alden photo
Courtesy of GNP Archives

2005
Blase Reardon photo
USGS

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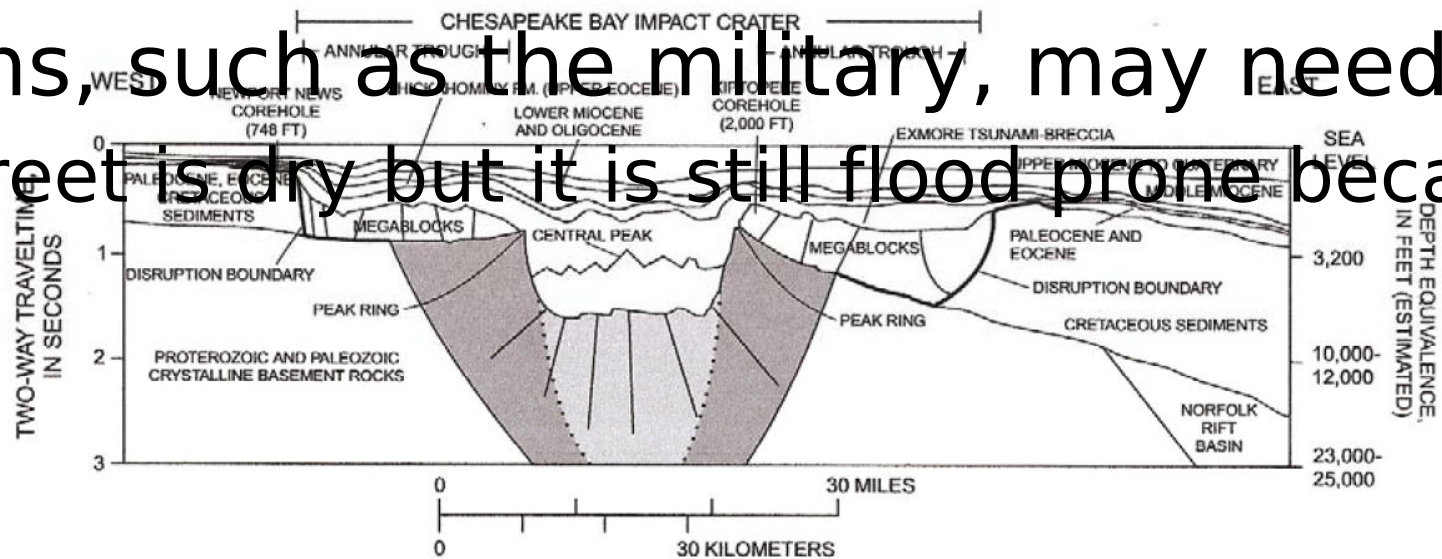# Deepen Understanding, 6:
Near-Generalist Graphic Impact Crater

pulations, such as the military, may need con
your street is dry but it is still flood prone because

Deepen Understanding, 7
Specialists' Graphic of Impact Crater

pulations, such as the military, may need con
your street is dry but it is still flood prone because

Deepen Understanding, 8: Use Model-Evoking Language

- Linger over the graphics to assist audiences in building their "mental models" (Morgan, Mayer).
- Find analogies and other "*model building language*" to answer likely questions:
  - Likely question: How do they know the crater is there?
  - *Possible answer*:
  - Geologists take core samples.
  - Core samples are like the layers in a "layer cake":
  - Layers have distinct features.

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- People have "lay theories" about familiar aspects of life: weather, disease, etc.
- Research on lay theories in physics education
- Possible examples of erroneous lay theories:
  – Since carbon dioxide is natural, it must be good.
  – The ocean is too vast for humans to alter.
  – Since I am allowed to build here, someone has carefully determined that it is wise to do so.

- State the lay theory and acknowledge its apparent reasonableness
  - Some have not personally experienced flood damage so it may seem there is no danger.
- Create dissatisfaction with the lay theory
  - We are learning more about the impact crater and other geologic forces causing the Hampton Roads coast to sink. Take a look at this graphic of the crater. See how close it is to you.
- Explain the orthodox science
  - The impact crater is just one reason why sea level rise is a concern in this area. By taking core samples, scientists learn about land in this area. That work is showing there are several reasons why

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The S in CAUSE

- S (satisfaction with solutions):
  - Communication with communities about sea-level rise is principally a *values discussion, not a science lesson or a scientific debate* (Herring).
  - Therefore, we should support communities in coming to consensus about their priorities (McComas).
  - Obstacles:
    - Peers' beliefs
    - Perceived consistency of plan with my values, views

Gain Satisfaction

- Research says people are satisfied when
  - They believe the hazard is SEVERE
  - They believe the hazard affects THEM (local)
  - They believe they CAN OVERCOME the hazard
  - They believe the recommended action will work.

--Witte

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Gain Satisfaction, 2:

- Focus on solutions feasible in your community.
  - Ban development along coasts?
  - Entice development away from coasts?
  - Plant more trees along coasts?
  - See Akerlof's www.FutureCoast.info for materials to guide citizens in considering sea-level rise management options.
    - The "Issue Book" on this site is a useful tool.

Gain Satisfaction, 3:
Build New Social Norms

- *Emphasize prevalence*: "Many are doing the right thing."

- *Show approval*: "Trusted sources believe it's the right thing to do."

- Messages that say many take the wrong steps extinguish the behaviors you want to increase.

- One person's actions may influence 1,000 others (Fowler, 2009)

Gain Satisfaction, 4:
Suggest that environmentally friendly beliefs and behaviors are prevalent and trendy.
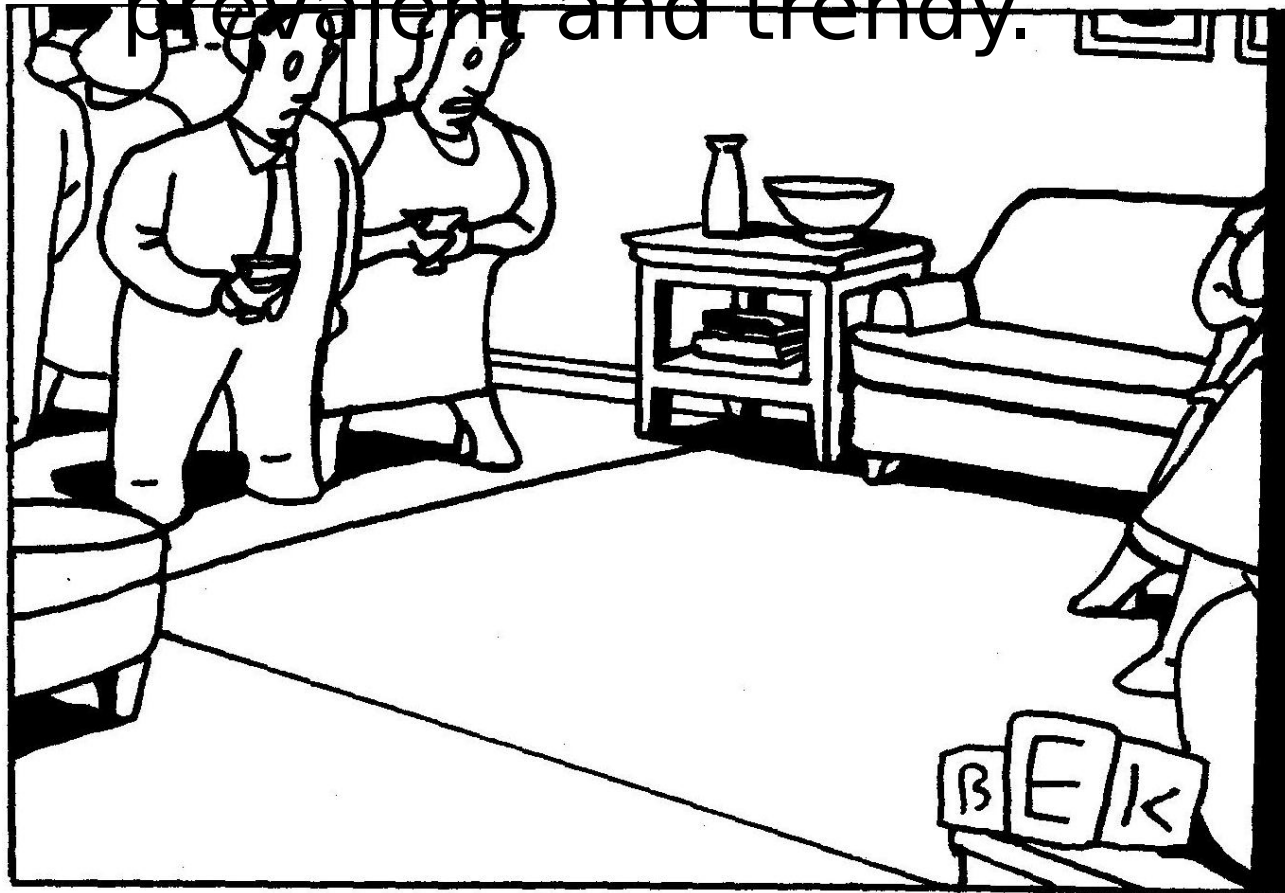
"Oh God, here they come—act green."

The E in CAUSE

- E stands for *enactment* or moving people from agreement to action.

- Obstacles: new habits take months to build, even when desire to adopt behavior exists.

- A habit to build: accept speaking engagements.
  - Waiting for all facts to communicate about sea level rise seems dangerous.
  - Instead, find ways to have listening sessions as well and accessible explanations.

- Habits for others to build: Make them *simple.*
  - Encourage key stakeholders to seek SLR information.
  - Put SLR reports, information on convenient websites, in grocery stores, and other accessible places.

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Motivating Enactment

- Act by partnering on communication. Tap
  - Universities
  - TV Meteorologists
  - Local professionals.
- Act by supporting journalists you respect.
  - Invite them to coastal planning district meetings.
  - Place information on a website for easy access.
  - Suggest a series on sea level rise.

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Overall,
Create discussion.
Consider. Is it a C-A-U-S or E situation?
"If you could ask an expert on sea level rise one question, which question would you ask?"

What can we do to reduce sea level rise?

What harm will sea level rise cause?

How do you know that sea level rise is occurring?

Summary

- Consider the challenges raised in this presentation.
- Are they the _main_ SLR communication challenges for your region?
- How might you use the CAUSE Model to think about communicating sea level rise?
- How can you benefit from the expertise in this region and in this room for effective sea level rise communication?

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CAUSE Model, Risk Communication, Science Communication

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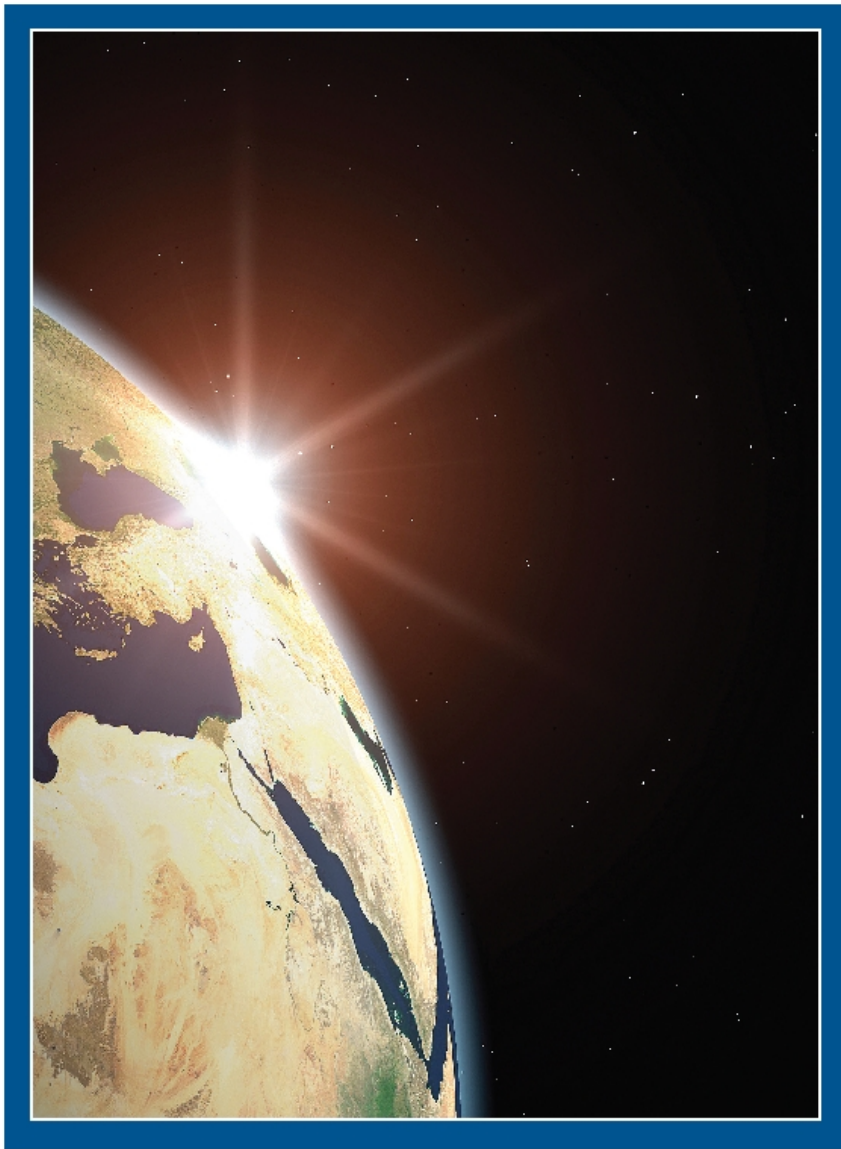
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