

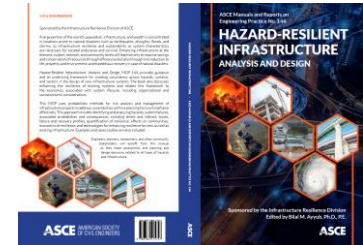
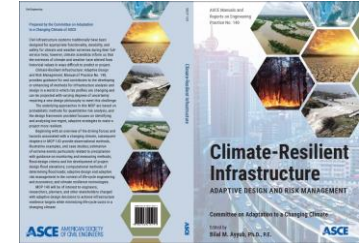
2023 Fall Conference

Dan Walker, Ph.D., A.M. ASCE
EA Engineering, Science, and Technology, Inc. and
University of Maryland, College Park

Understanding Trends in the Emerging Climate Service Sector

Dan Walker*, Ph.D., A.M. ASCE
University of Maryland, College Park, USA
and
EA Engineering, Science, and Technology, Inc. (PBC)

October 19, 2023



Recently Released

The views I'm presenting are mine, and not necessarily those of EA, U. of Maryland, ASCE, or NOAA and are intended to be thought provoking

What's Hot?

- ☐ Environmental, social, and corporate governance (ESG)
- ☐ Diversity, Equity, and Inclusion
- ☐ Social Science
- ☐ Addressing Nonstationarity In Engineering Design
- ☐ Natural and Nature-based Solutions for Climate Resilience
- ☐ Codes and Standards

State Farm Halts Home-Insurance Sales in California

Insurers have faced higher costs and wildfire risks

Capital Weather Gang

Southwest drought is the most extreme in 1,200 years, study finds

The past 22 years rank as the driest period since at least 800 A.D.

Weather

Climate

Extreme Weather

Capital Weather Gang

Environment

Climate Lab



Historic downpour in Fort Lauderdale dropped 88 billion gallons of rain

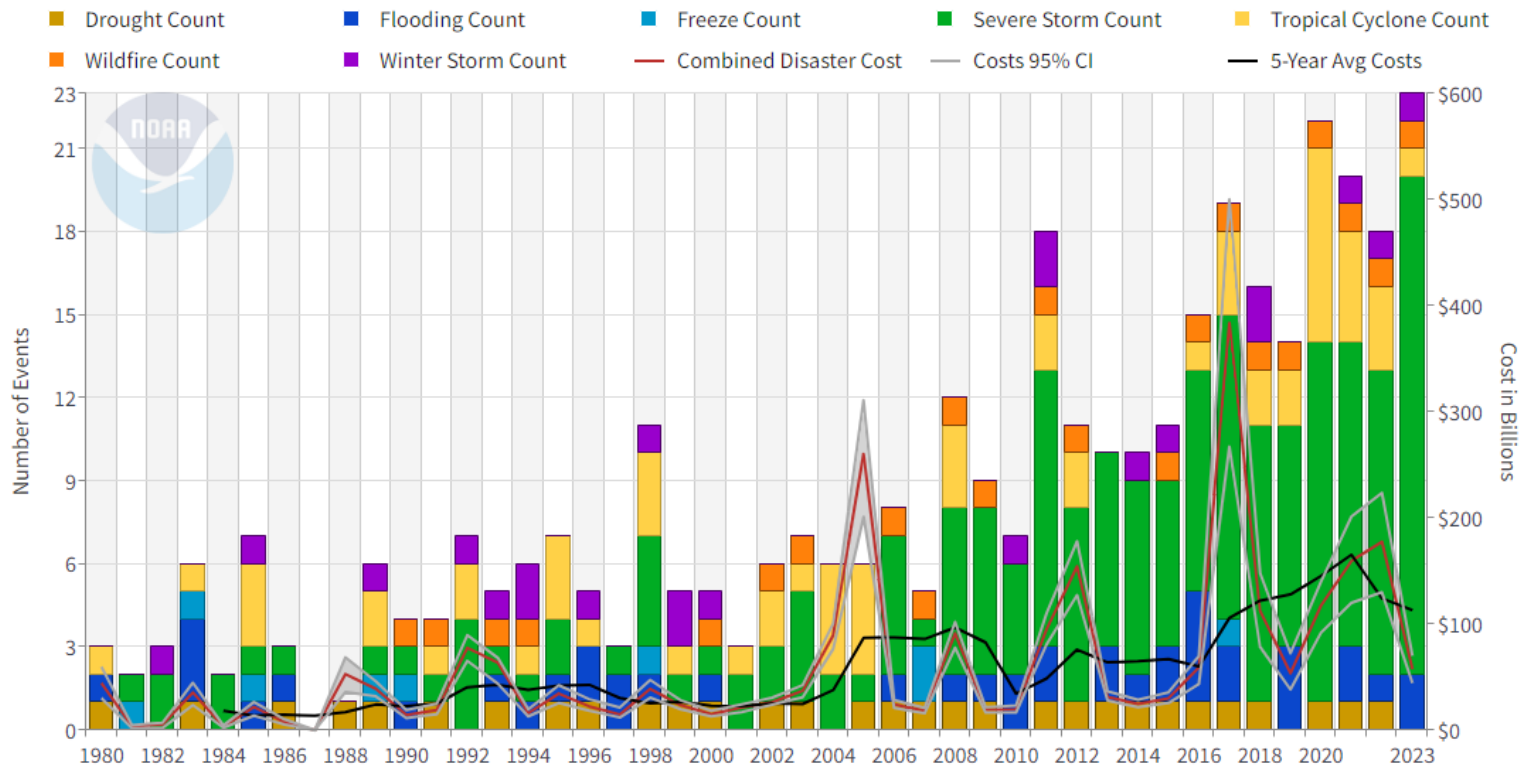
The water would have covered the entire state of Florida in 0.07 inches of water

Climate change

A lot of Arctic infrastructure is threatened by rising temperatures

Natural Disaster Events in the US

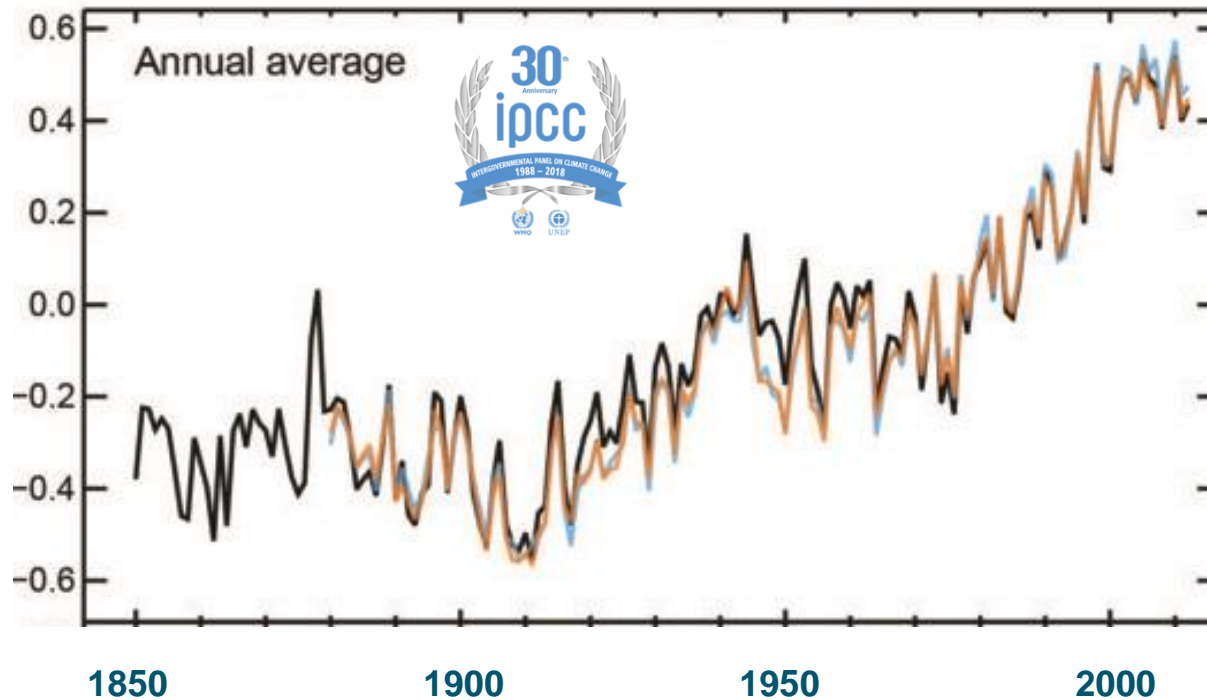
United States Billion-Dollar Disaster Events 1980-2023 (CPI-Adjusted)



Powered by ZingChart

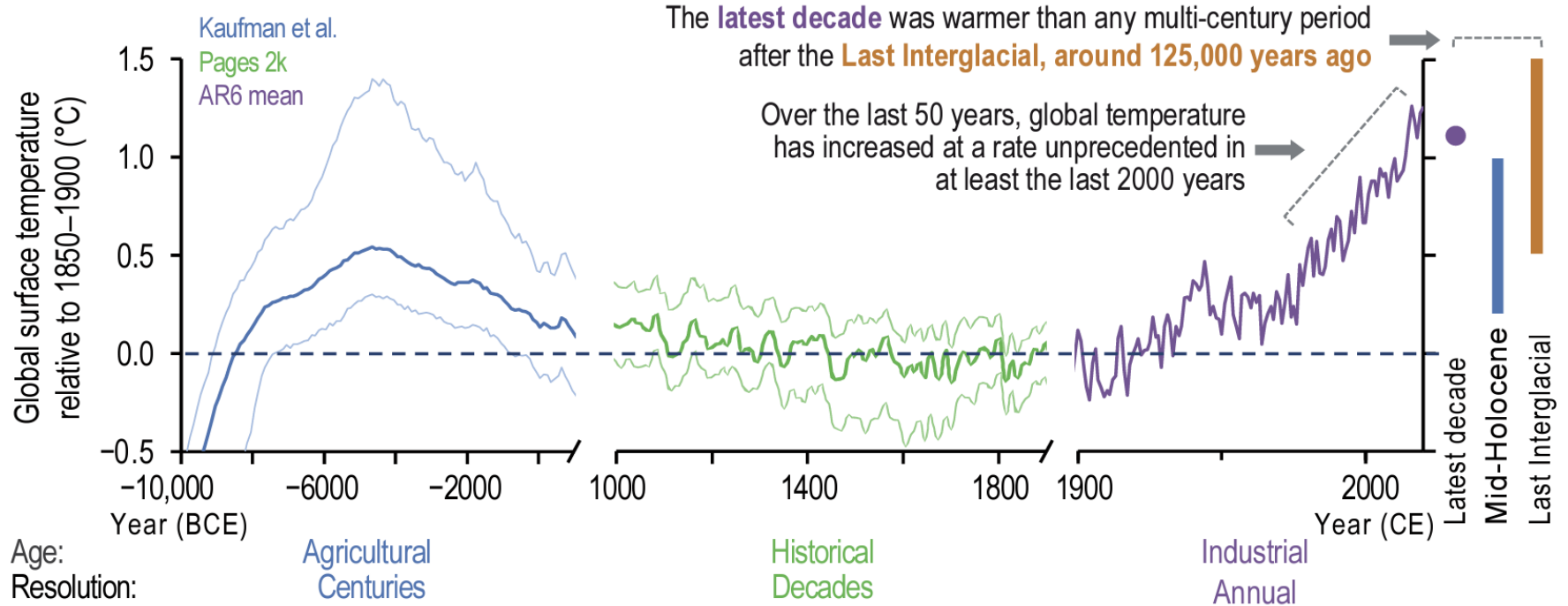
Classic View of Climate Change

Observed globally averaged combined land and ocean surface temperature anomaly 1850–2012



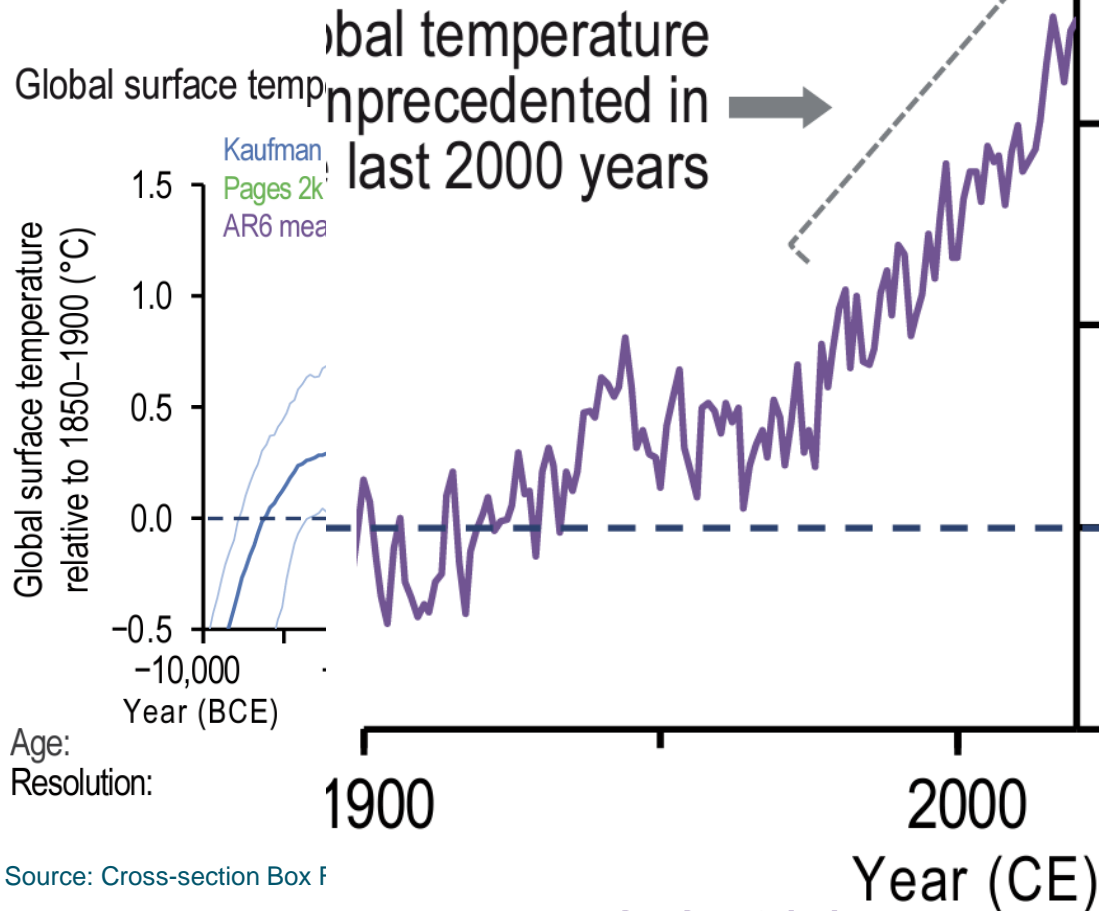
Changes in surface temperature

Global surface temperatures are more likely than not unprecedented in the past 125,000 years



Source: Cross-section Box Fig. 1a of the IPCC AR6 Technical Summary (2021)

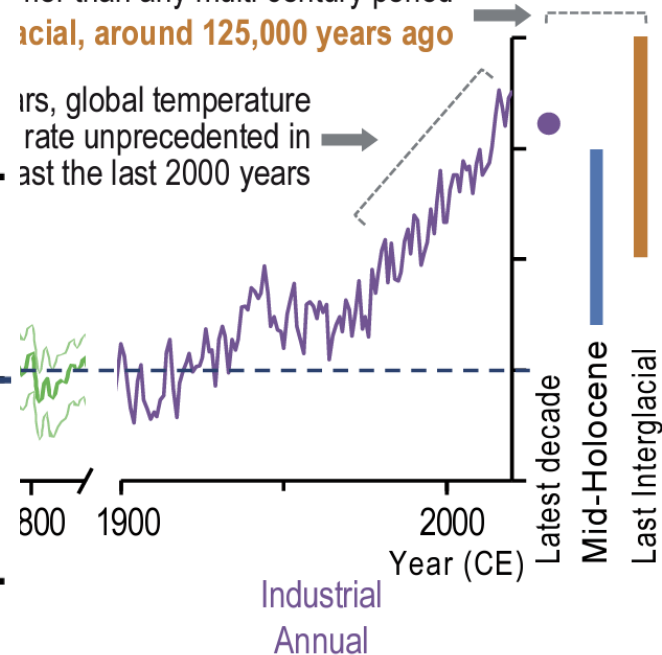
around 125,000 years ago



ature

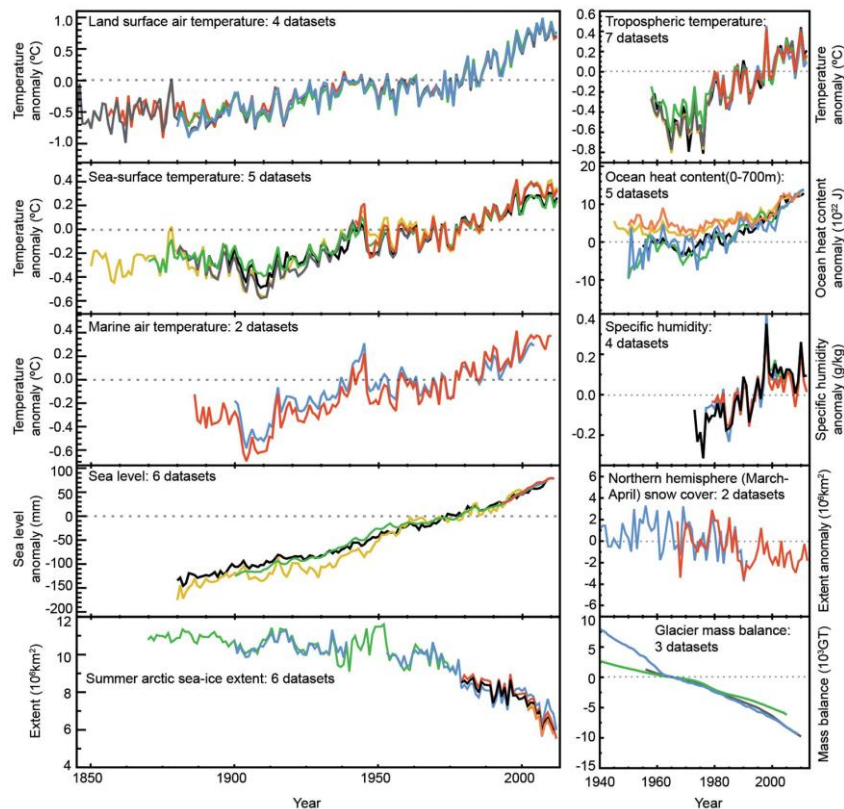
he past 125,000 years
mer than any multi-century period
acial, around 125,000 years ago

irs, global temperature
rate unprecedented in
ast the last 2000 years



Source: Cross-section Box f

The Various Faces of Climate Change

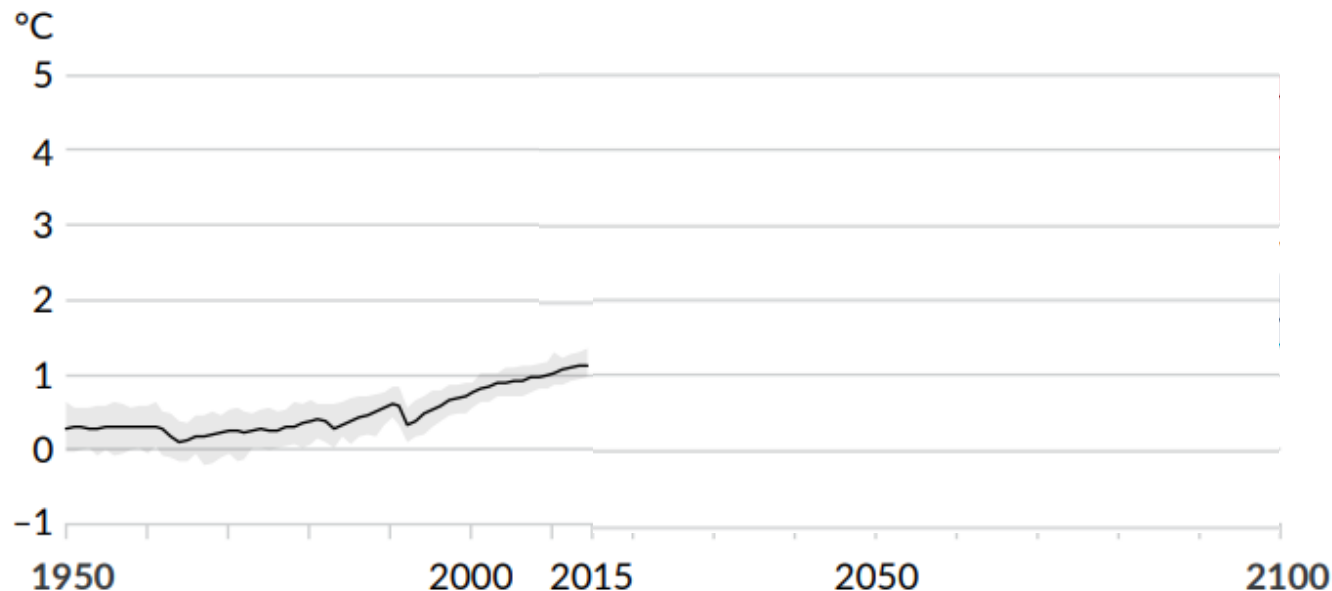


- Multiple independent indicators of a changing climate
- Data represent anomalies of the mean
- Together, they provide evidence that the world has warmed since the late 19th Century.

Mean anomalies of various climate indicators. Source: FAQ 2.1, Fig. 2 of the IPCC WG1 AR5.

Implications of Nonstationarity

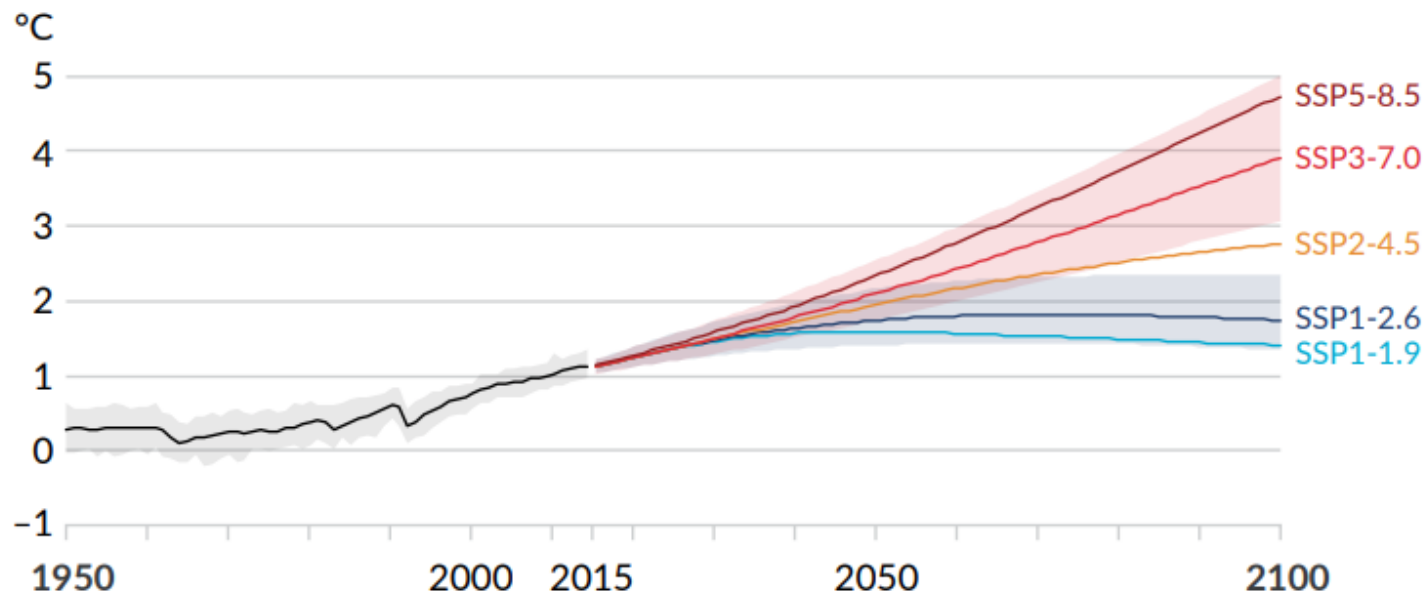
Global Surface Temperature relative to 1850 -1900



Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis, IPCC

Looking Back to Look Forward

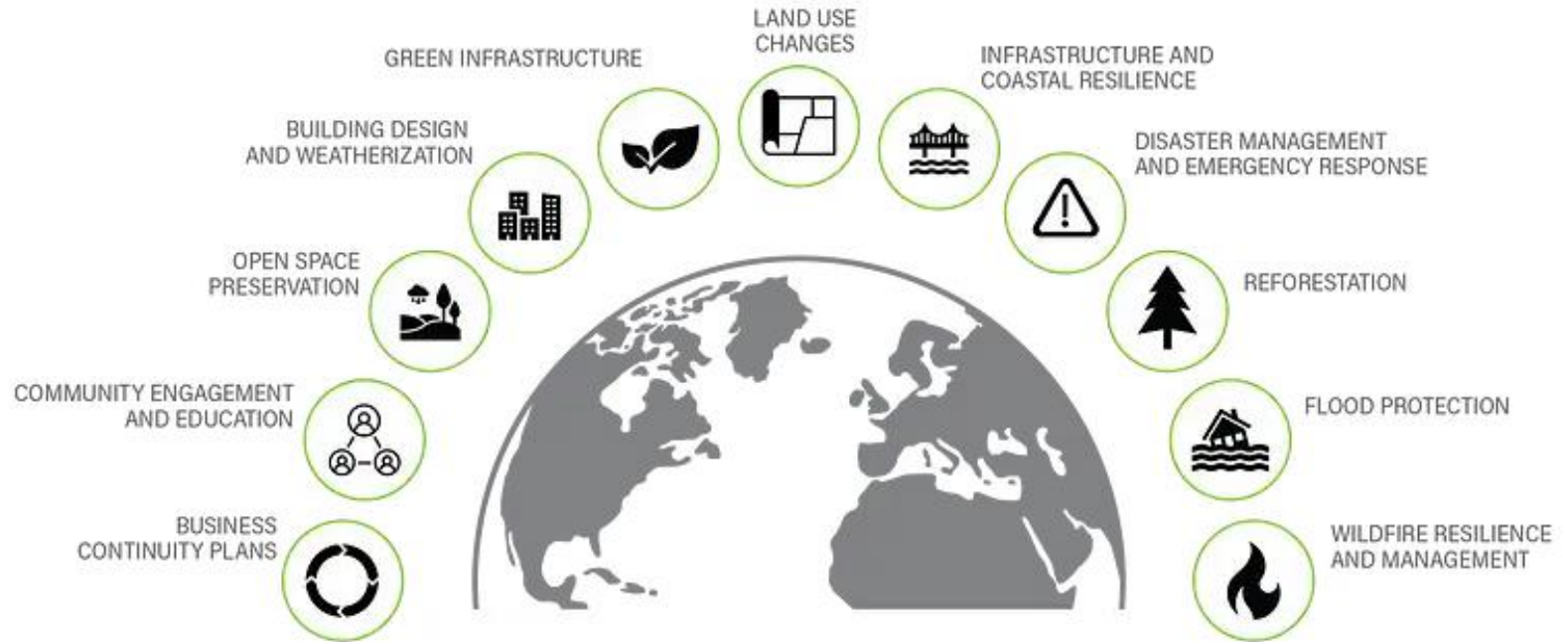
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Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis, IPCC

Greater Emphasis on Systems

ADAPTATION STRATEGIES



Integrating Natural Systems and Process into Engineering Design



A rendering of a horizontal levee design that achieves storm and flood risk reduction while increasing habitat value.



ASCE

STRATEGIC PLAN

2023-2028

VISION

Engineered and natural systems work in harmony for the benefit of humanity.

MISSION

Lead the civil engineering profession to sustainably advance and protect the health, safety and welfare of all.

COMMITMENT TO OUR MEMBERS

Inspire, connect, and serve our global membership to maximize their professional and personal growth and magnify their lifelong professional impact.

STRATEGIC SHIFTS

SOCIETY

Innovate. Define and drive creative development and renewal of future-ready infrastructure.

Advocate. Promote and facilitate civil engineering leadership in developing equitable solutions to global challenges.

PROFESSION

Inspire. Energize and cultivate a diverse, inclusive, and engaged civil engineering community.

Stimulate. Accelerate development and adoption of emerging technologies, analytics, and systems thinking.

MEMBERSHIP

Magnify. Amplify our collective impact through a vibrant, engaged, and growing membership.

Deliver. Effectively manage our resources to provide exceptional value to members.

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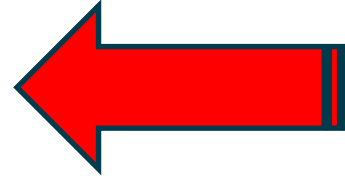
2799 Richmond Highway
Arlington, VA 22202

Important Dates

OCT 19 | [Call for Abstracts Open](#)
2022

- Nature-based Solutions in the Arctic: An ASCE Workshop, Reston, VA October 24, 25, 2023
- ASCE INSPIRE Workshop on Nature-based Solutions (NbS), Arlington, VA, November 17, 2023

Tools



Challenges

Planning, permitting, funding
Codes and standards
Ecosystem Management
Transformative Adaptation

Market forces
Complex governance
Political realities
Entrenched Interests

Looking over the horizon

- ❑ Compound effects of climate change on other environmental concerns
- ❑ Climate risk at contaminated sites
- ❑ Climate impacts on remediation technologies
- ❑ Constraints on industry capacity
- ❑ Federal agency capacity to manage grants and contracts

Questions?