



Sherri Goodman

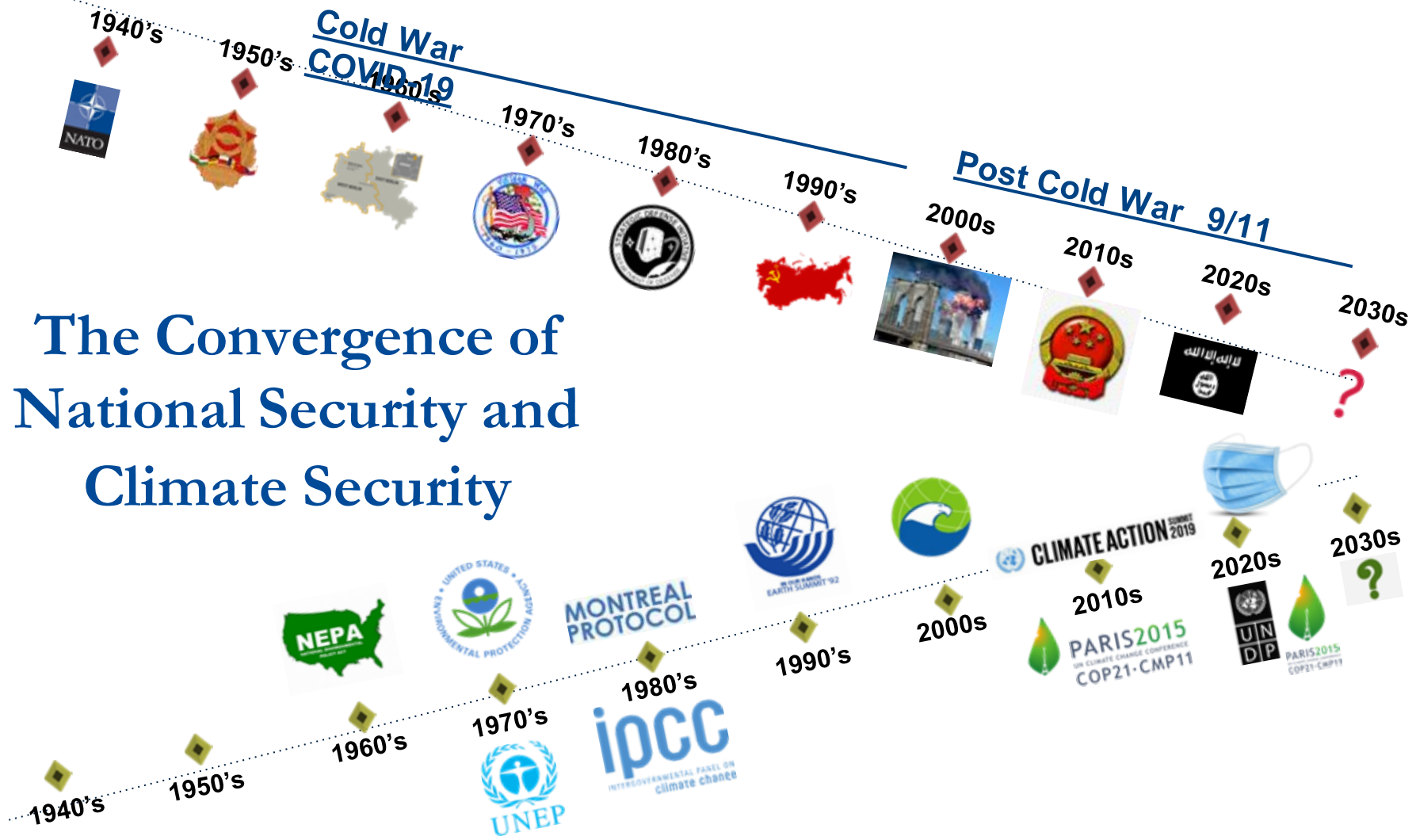
CLIMATE CHANGE AND NATIONAL SECURITY

BATTELLE CONFERENCE
INNOVATIONS IN CLIMATE RESILIENCE
MARCH 2022

THE CENTER FOR
CLIMATE AND
SECURITY

 | Wilson
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The Convergence of National Security and Climate Security



Session Overview



Threat Multiplier



Adapting Our Defense



Leading by Example

Climate and National Security

CNA

National Security and the Threat of Climate Change (2007)



- Projected climate change poses a **serious threat** to America's national security
- Climate change acts as a **threat multiplier** for instability in some of the most volatile regions of the world
- Projected climate change will add to **tensions** even in stable regions of the world
- **Climate change, national security, and energy dependence** are a related set of global challenges

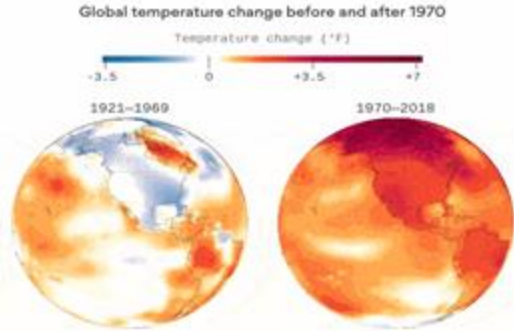


National Security
and the
Accelerating Risks
of Climate Change

CNA Military Advisory Board
May 2014

Threat Multipliers

Heat



Drought



Fires



Sea Level Rise



Flooding



Storms



Tipping Points in the 2021 IPCC Report



Permafrost melt triggering methane release



Polar ice sheet melt creating greater dark, heat-absorbitive ocean spaces



Amazon rainforest transitioning to savannah ecosystem with lower carbon storage

IPCC Report 2022: Red Alert

Climate hazards worsened in past decade



Ecological threats, displacements, water and food insecurity, health risks

Dangers will multiply with warming



Irreversible damage when 1.5°C is surpassed, with ecological and economic effects

Insufficient adaptation efforts



Fragmented, incremental, and sometimes counterproductive. Stronger resilience is needed

Coping will get harder



Due to tipping points, social inequalities and global setbacks (e.g. political impacts of the Ukraine war)

Bigger challenges to developing countries



Fewer resources and increased vulnerabilities:

U.S. NATIONAL INTELLIGENCE ESTIMATE ON CLIMATE CHANGE 2021

Climate-Exacerbated Geopolitical Flashpoints



Strategic competition in
the Arctic



Cross-border tension
over water



Climate-related
migrations



Ungoverned
geoengineering

Climate Effects on Country-Level Instability



Strain on energy and food
systems



Health consequences



Internal insecurity and
conflict

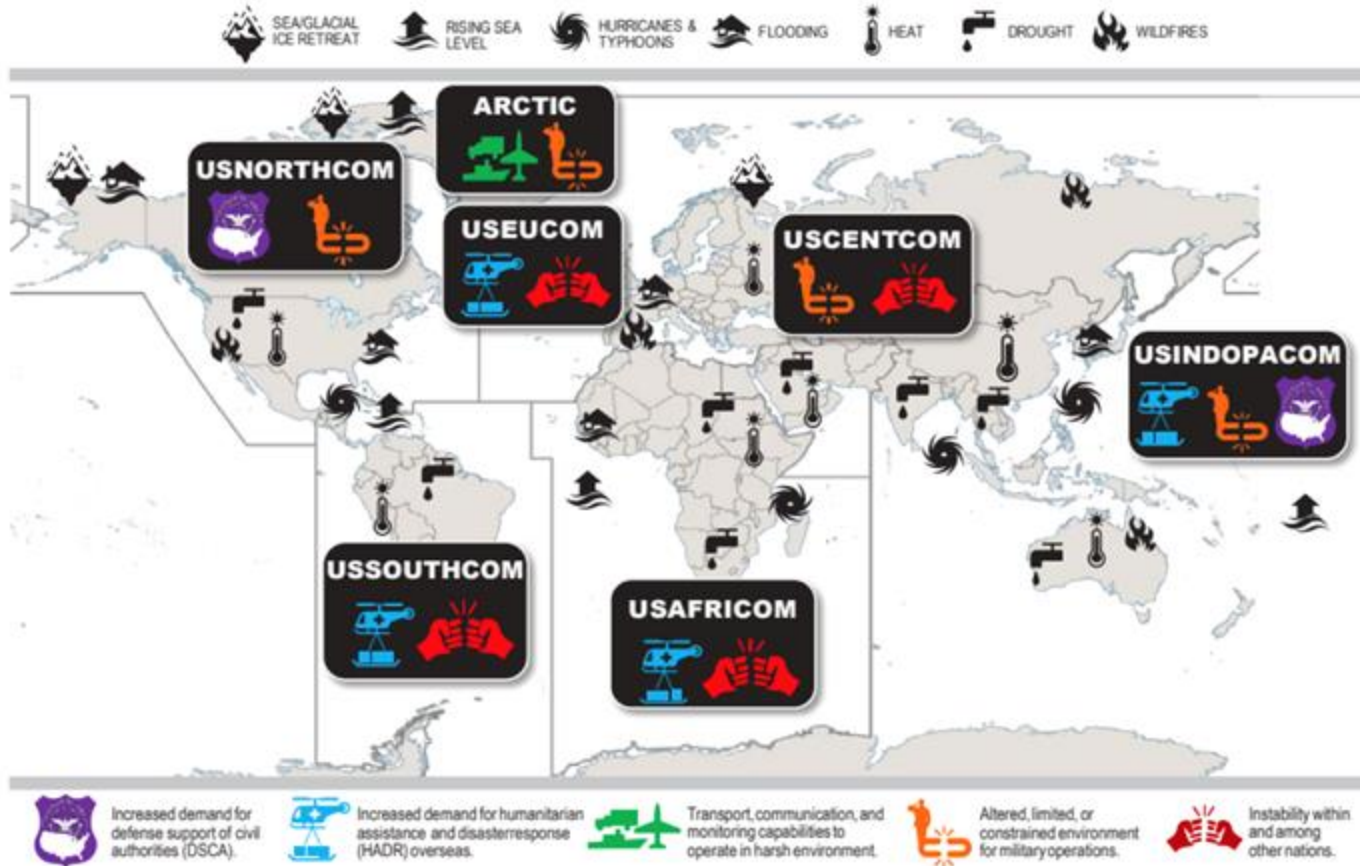


Demand for humanitarian
aid



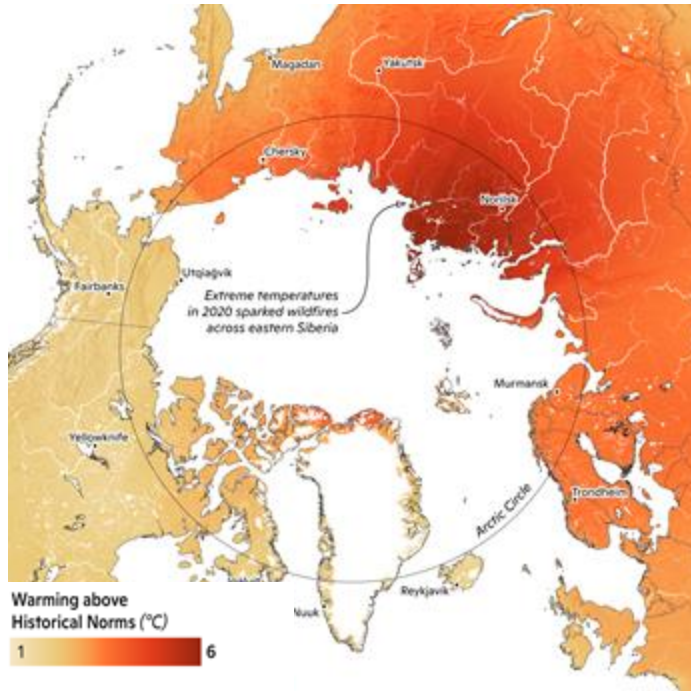
Strain on military readiness

DoD Climate Risk Analysis 2021

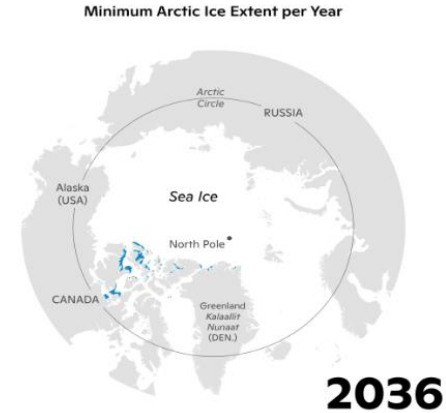


Climate Change in the Arctic

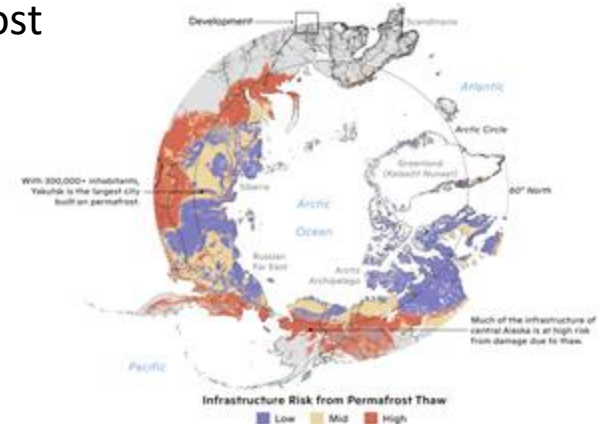
Temperature Extremes



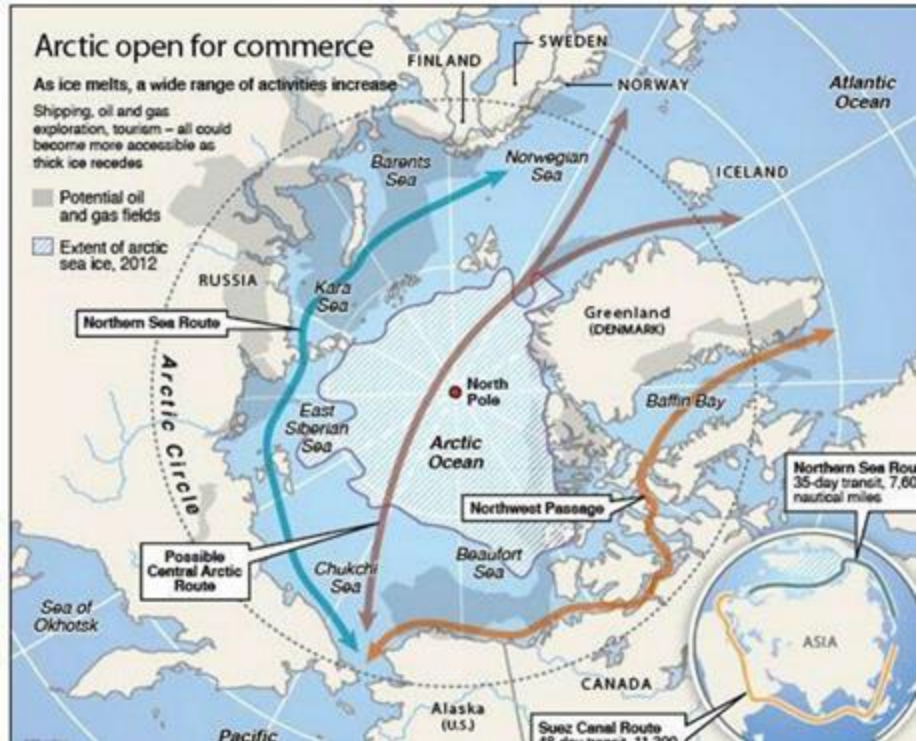
Ice Melt



Permafrost Melt



The Arctic: A New Contested Region



China's Polar Silk Road

Reviving the Silk Road

Announced by Chinese President Xi Jinping in 2013, the Silk Road initiative, also known as China's Belt and Road initiative, aims to invest in infrastructure projects including railways and power grids in central, west and southern Asia, as well as Africa and Europe.



Source: Mercator Institute for China Studies.
C. Irwin, 24/03/2017

REUTERS



Increasing bio and nuclear risks in the climate era

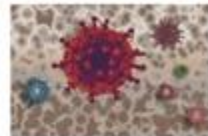


Aleutian
Islands: Viruses
and toxins
from algae

Nunavut:
Viruses spread
by more
mosquitoes



Melting
permafrost:
mercury,
bacteria,
ancient DNA



2016
Anthrax
outbreak



Novaya
Zemlya:
nuclear
dump



Ukraine Crisis: Climate & Ecological Security Issues

Need to Accelerate the Clean Energy Transition



The geopolitical benefits of decarbonization: neutralizing fossil fuels as a Russian weapon

Ukraine's Ecological Security



Occupied nuclear power plants, urban attacks releasing harmful pollutants...

Global Food Security



Disruption of food supply, with global food system resilience already undermined by droughts and desertification

Russia's Climate Security Vulnerabilities



Burning tundra and permafrost melt threatening Russia's human and economic security

Session Overview



Threat Multiplier



Adapting Our Defense



Leading by Example

DoD Climate Adaptation Plan 2021



Climate-Informed Decision Making



Train and Equip a Climate Ready Workforce



Resilience of Built and Natural Infrastructure



Supply Chain Resilience and Innovation



Enhance Adaptation and Resilience through Collaboration

Source: Paul Cramer, Readiness Subcommittee of the U.S. House Armed Services Committee hearing on the installations and environment portfolios of the Department of Defense (DoD)

Climate threats to installations and infrastructure

Sea level rise



Loss of access to training areas



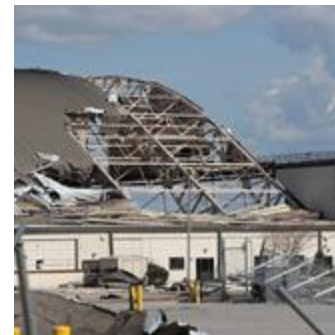
Coastal erosion



Flash floods



Severe weather



The sinking Norfolk (VA) military complex



RADM Ann Philipps (ret.)



Sea levels have risen 18 inches, will rise
24 inches by 2050

More Black Flag Days In the Climate Era



Without any reductions in global CO₂ levels by 2050, the average installation will experience 33 additional days with a heat index above 100 degrees Fahrenheit.

US Forces Increasingly Responding to Domestic Natural Disasters



Michael Appleton/NY Daily News Archive/Getty Images



Source: Sean Kilpatrick/Canadian Press



Source: AP Photo/Josh Edelson

Session Overview



Threat Multiplier

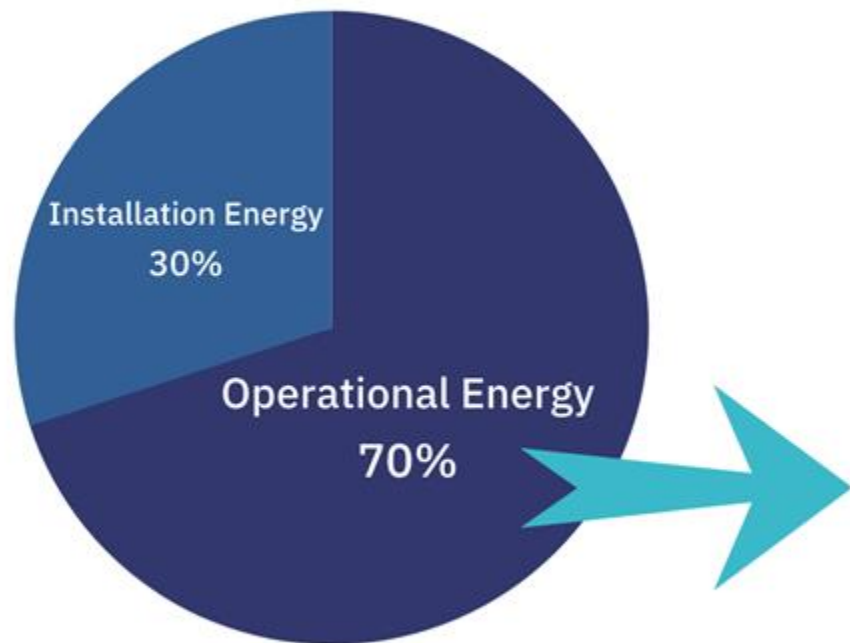


Adapting Our Defense



Leading by Example

DoD Energy Use



Army
10%



Air Force
53%



Navy & Marine Corps
37%



Benefits of transitioning



Transitioning to net-zero



Vehicle electrification
& charging stations



Microgrids



Renewables & small modular
reactors



Geothermal



- 100% electric fleet by 2035
- 470 charging stations in 2022
- Install a microgrid on every installation by 2035
- Renewable energy sustaining critical missions on all installations by 2040

U.S. Army Climate Strategy

February, 2022



LOE1: Installations Resilience and Sustainability

- Resilient energy and water supply
- Carbon-pollution-free electricity
- Efficient structures
- Non-tactical fleet electrification
- Land management
- Enhanced planning



LOE2: Acquisition and Logistics

- Advanced technology
- Future contingency basing
- Clean procurements
- Resilient supply chains



LOE3: Training

"Preparing a climate-ready force with the appropriate knowledge, skills, concepts, and plans necessary to operate in a climate-altered world."



ACS Goals:

- Achieve 50% reduction in Army net GHG pollution by 2030, compared to 2005 levels

- Proactively consider the security implications of climate change in strategy, planning, acquisition, supply chain, and programming documents and processes

- Attain net-zero Army GHG emissions by 2050

CONCLUSION

Environmental Security:
Defending our Future



THANK YOU FOR LISTENING!
CONTACT: SHERRI.GOODMAN@WILSONCENTER.ORG

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