



Too Hot to Handle:

Climate Change, Geopolitics, and U.S. National Security in 2025

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Capstone Team

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Global Climate Change

National Intelligence Council's Task:

- Identify most likely manifestations of global climate change in 2025
- Assess how politically salient climate change will be in 2025
- Offer policy options for U.S. foreign policy to consider in response to climate change
- Define level of commitment U.S. government should devote to climate change

Assumptions

- No major breakthroughs in alternative fuel technology
- Clean technology will be in demand
- Other geopolitical factors constant
- Layne's two major themes statement

Global Climate Change

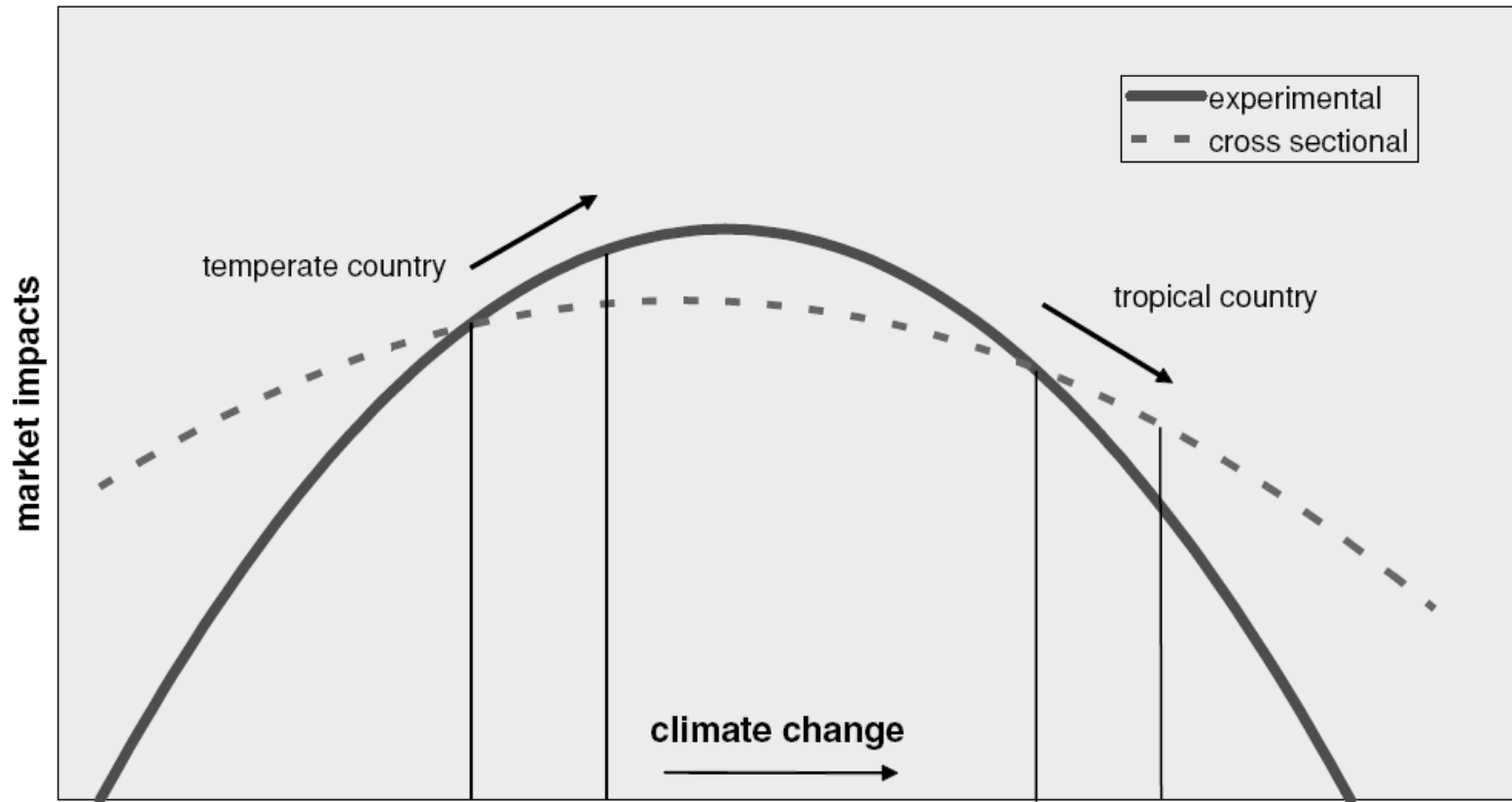
- Focus on *U.S. National Security Implications*
- Climate Change Security Implications =
 - + Current U.S. national security issues
 - + Trends of current U.S. national security issues
 - + Likely manifestations of climate change
- While climate change will not create direct effects on U.S. national security by 2025, we examine scenarios that the world will likely trend toward by 2025.

Global Climate Change

Climate Change Scientific Experts Say:

- Intergovernmental Panel on Climate Change (IPCC)
Fourth Assessment Reports (AR4), 2007
 - *Very high confidence* of anthropogenic causes
 - Unequivocal increase in global average air & ocean temperatures (1-1.5°C by 2025)
 - Rising global mean sea level
 - Widespread changes in regional precipitation, ocean salinity, wind patterns, droughts, heat waves, and intensity of tropical cyclones

Global Climate Change

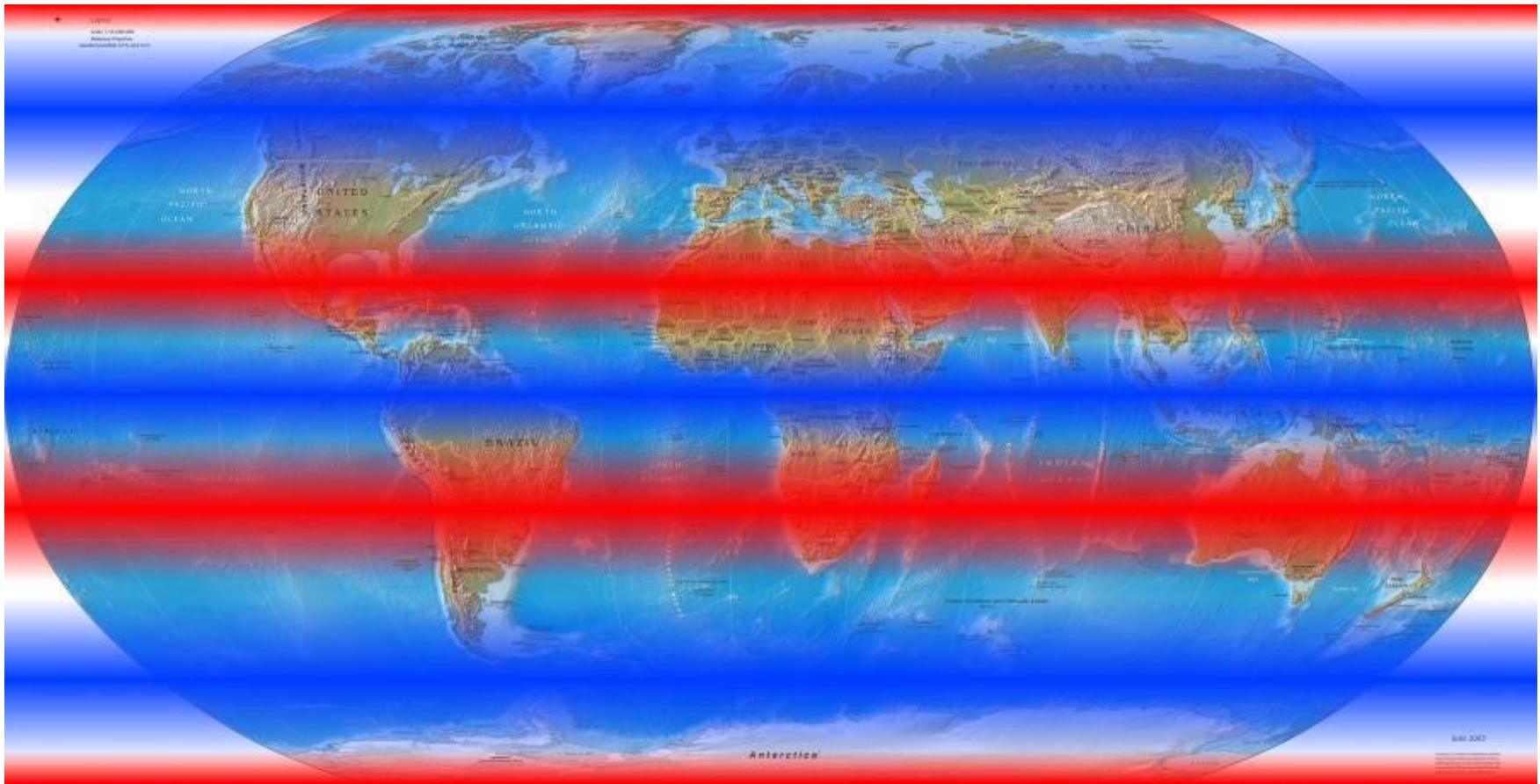


- Mendelsohn's Model of Global Climate Change Market Effects

- Easily extended to geopolitics

Source: *The distributional impact of climate change on rich and poor countries*

Global Climate Change

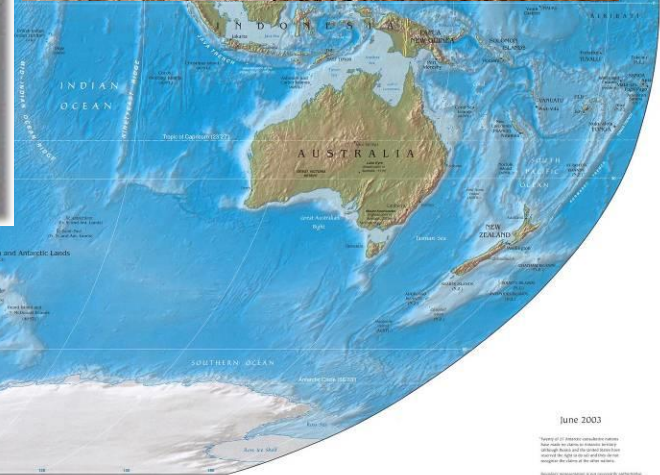
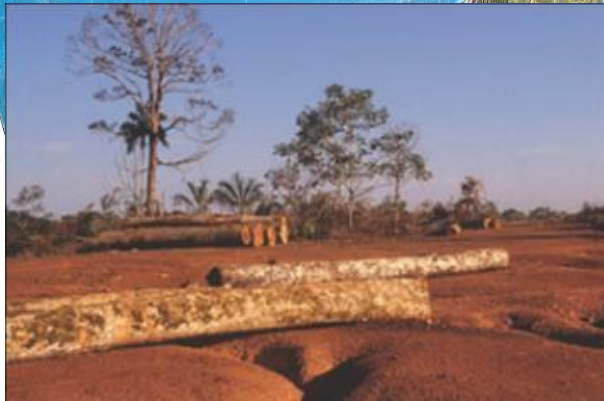
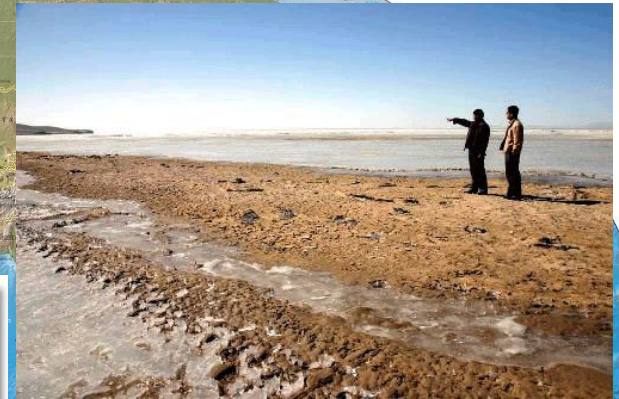
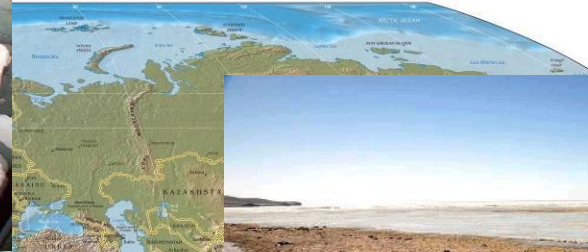


- Red Bands → Hotter, drier/wetter
- Blue bands → Warmer, wetter

Security Implications of Global Climate Change

Physical Ma

AUSTRALIA
Bermuda
Sixty / AZORES
★



June 2003

http://www.lib.utexas.edu/maps/world_maps/world_rel_803005.AI_2003.jpg

The Top 18 U.S. National Security Implications of Climate Change

Top 18 Impacts

1. U.S. Energy Infrastructure Vulnerability
2. U.S.-E.U. Emission Policy Clashes
3. Increased Immigration into Europe
4. Russian Resurgence
5. Russian, Indian, and Chinese Cooperation
6. Russian Leverage Over European Energy Supply
7. Immigration from Latin America
8. Decline of the Middle East
9. African Failures and Displaced Populations
10. Pollution and China
11. Disputes Over Reserves
12. China's Regional Influence
13. Great Power Competition in Asia
14. Kashmir
15. Asian Failed States
16. Increased Proliferation
17. Environmental Technology
18. Erosion of Sandy Coasts

Top 18 Impacts – U.S. & Europe

U.S. Energy Infrastructure Vulnerability

Predicted increase in hurricane intensity could cripple U.S. energy infrastructure along the Gulf of Mexico coast.

Increased Immigration into Europe

Deteriorating climatic conditions in the Middle East and Africa could accelerate immigration into Europe.

Top 18 Impacts – L.A. and M.E.N.A.

Immigration from Latin America

Deteriorating living conditions in Mexico and Central America could greatly increase immigration into the U.S.

Decline of the Middle East

Drifting away from oil-based economies and accessing new reserves could threaten political salience of the Middle East.

Top 18 Impacts – China & Russia

Disputes Over Reserves

Quest for clean energy resources will awaken old rivalries in the South and East China Seas.

China's Regional Influence

Climate change could increase value of and opportunity for soft power in the region.

Russian, Indian, and Chinese Cooperation

Developing economic power alliance against pressure for CO₂ reduction could be a harbinger of further cooperation.

Top 18 Impacts – Non-Chinese Asia

Great Power Competition in Central Asia

Underdeveloped energy reserves could become a flashpoint for conflict.

Kashmir

Fights over water rights and arable land could aggravate regional tensions.

Asian Failed States

Resource wars, migration, and reduction in agricultural productivity will increasingly lead to geopolitical failure.

Top 18 Impacts – Global

Environmental Technology

Pressure to conform to emissions restrictions could create a divide between the haves and the have-nots.

Erosion of Sandy Coasts

Rising sea level could accelerate erosion along coasts and deltas affecting the conduits of trade and urban areas.

Top 18 Impacts

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16. **Increased Proliferation**
17. Environmental Technology
18. Erosion of Sandy Coasts

Emission Policy Clashes

- Europe has taken a proactive approach to climate change
- Germany has made combating climate change the number one issue for its EU presidency
- The EU plans to reduce emissions by 20% and triple the amount of renewable energy used in the EU-27 by 2020
- European public opinion is more concerned by the affects of Global Climate Change than in America

Russian Leverage Over European Energy Supply

- Russia has the world's largest natural gas reserves and is the world's second largest exporter of crude petroleum
- Russia supplies a quarter of Europe's oil and natural gas consumption
- Europe's primary source of energy, the North Sea is past peak production and going into decline which means that Europe will become increasingly reliant on Russian Energy
- Russia has used energy blackmail as a foreign policy tool against Ukraine, Belarus, and Georgia

Security Implications of Global Climate Change

Russian Leverage Over European Energy Supply



Russian Resurgence

Warming temperatures shift
permafrost and thaw ice and
snow accumulation.



Geopolitical Effects:

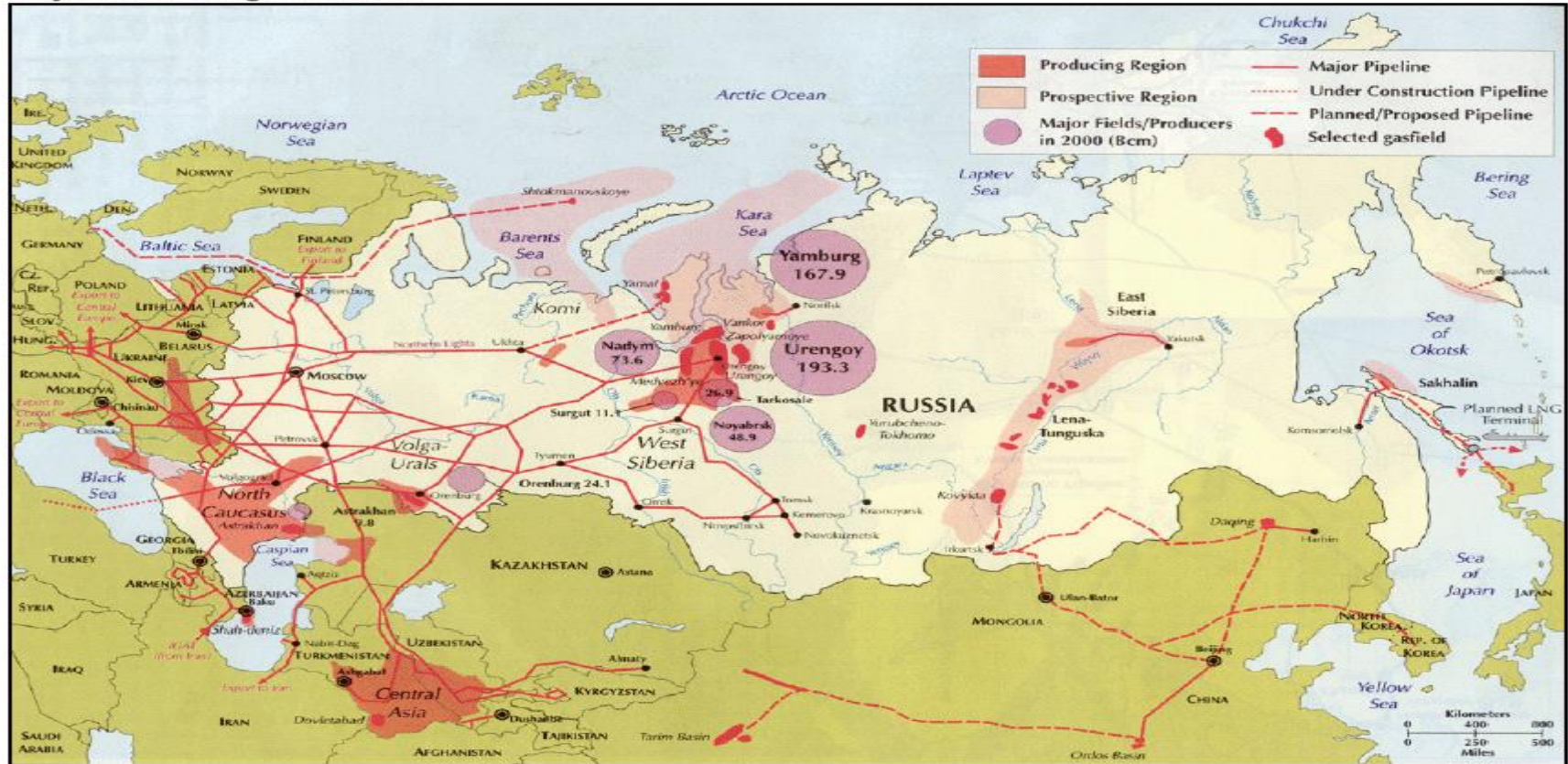
- More acreage suitable for mass agriculture
- Arctic Sea open to shipping and off-shore drilling
- Easier and cheaper access to oil and natural gas reserves

Permafrost Extent



Russian Resurgence

Major Russian gas basins



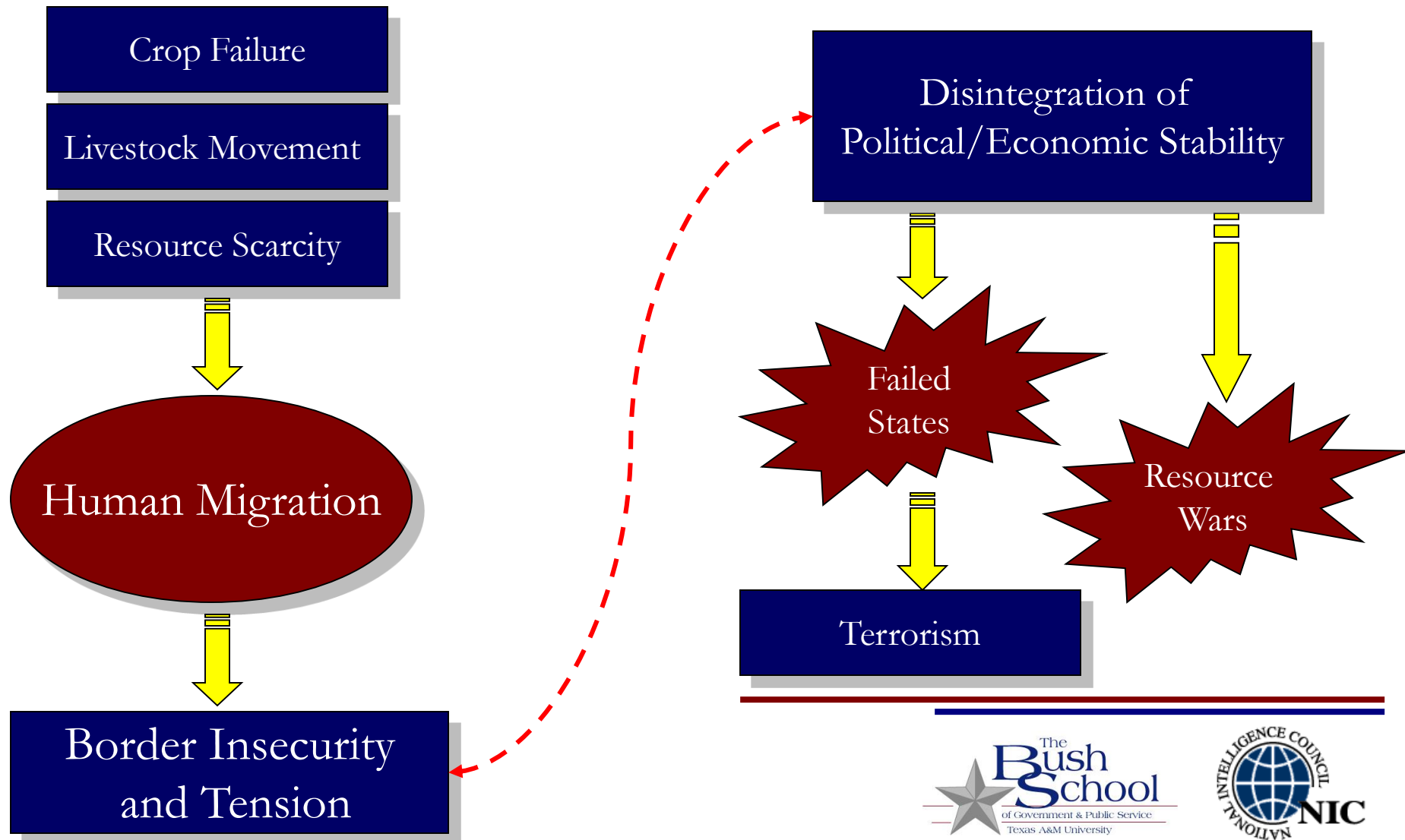
Source: IEA

Russian Resurgence

Potential National Security Implications:

- Energy and economic revitalization could help Russian regain status as regional/global superpower.
- How does a potential resurgence affect Russian policies towards the Baltics, Caucasus, and Eastern Europe?
- Future of NATO enlargement and presence
- Ukraine as key indicator and potential flashpoint
- Issues of Arctic Sea drilling and sea lane control

African Failures and Displaced Populations



African Failures and Displaced Populations

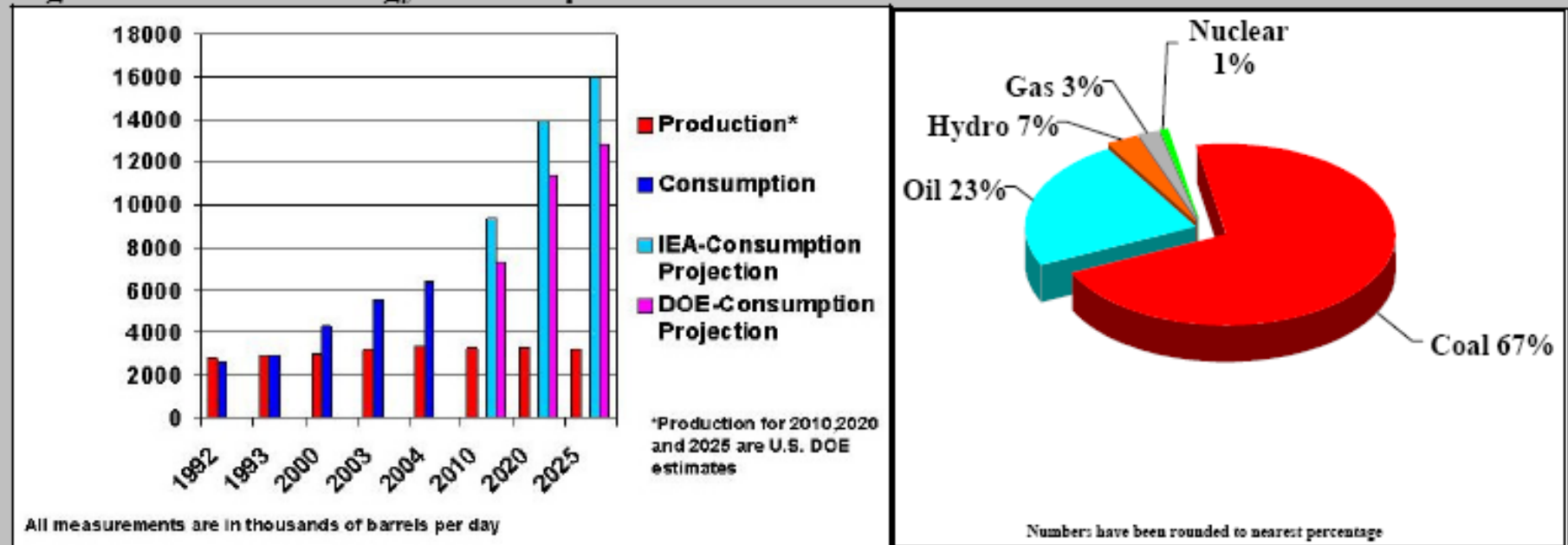
Potential Security Implications:

- Impact of failed states on security strategy
- Political reactions to humanitarian crises
- Intervention?
- Response: Unilateral, multilateral, institutional?
- How: Peacekeeping missions or interagency cooperation?



Pollution and China

Figure 1. China's Energy Consumption.

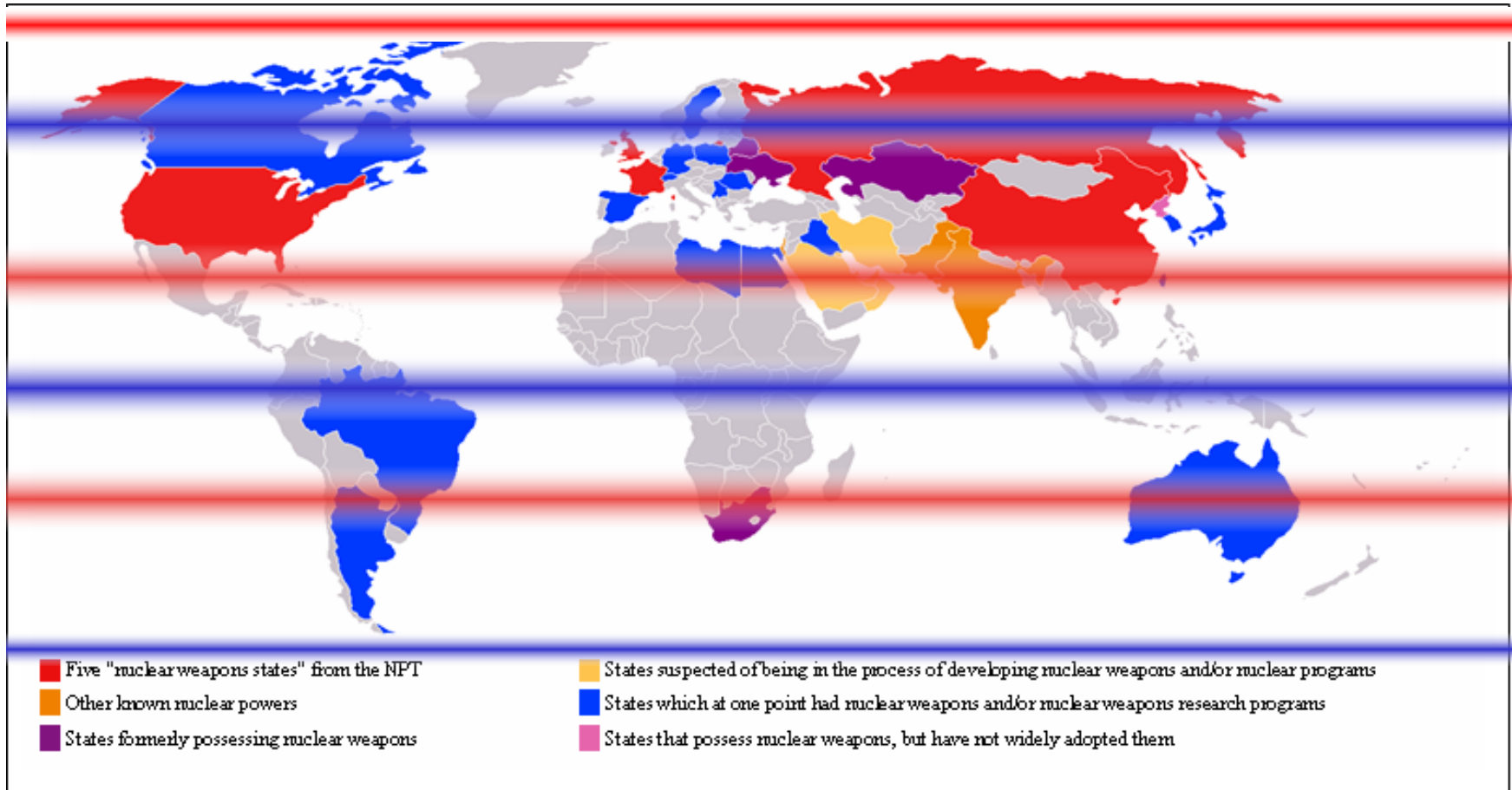


Note: At left, the U.S. Department of Energy estimates China will consume 12.8 million barrels per day of oil by 2025. Some industry projections place this figure between 16-20 million barrels per day. Production figures are estimates. At right, based on 2003 data, China relied on coal for approximately two-thirds of its energy

Pollution and China

- China is set to surpass the US in CO2 emissions by 2015
- Global concern for climate change will conflict with China's desire to grow as a world power
- Will we see the climate change issue used as means to limit economic growth or geopolitical positioning?

Increased Proliferation



Source: http://en.wikipedia.org/wiki/Image:Nuclear_weapon_programs_worldwide_oct2006.png

Increased Proliferation

- Increase in spread of nuclear energy technology
 - Incentives for both the sellers and buyers
- Main Countries of Concern
 - Pakistan, North Korea
 - Russia, Iran
- Climate-“justified” spread of nuclear technology may induce nuclear weapons proliferation

Universal Conclusions

- Prepare for increased immigration and border integrity issues.
- Handle severely worsening humanitarian situations in the developing world.
- Promote cooperation over water disputes sooner rather than later.
- Anticipate competition for clean energy sources and technologies.
- Plan for global climate change permeating all aspects of international political debate.

*Climate change is real and it is here,
and the U.S. must begin addressing
this issue before the world of 2025
becomes too hot to handle.*

Questions

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U.S. Energy Infrastructure Vulnerability

- U.S. Oil Refineries concentrated along Gulf Coast
- Hurricanes Katrina and Rita shut down 35% of American petroleum refinery capacity
- U.S. Strategic Petroleum Reserve also located in Texas and Louisiana close to oil refineries
- However, this is crude oil which cannot alleviate gasoline shortages without functioning petroleum refineries
- IPCC and Stern Report predict increase in hurricane intensity which could produce similar scenarios to September of 2005 crippling U.S. transportation sector.

Increased Immigration into Europe

- Europe is 5% Muslim with 23 million Muslims living in Europe
- The number of Muslim in Europe is projected to double by 2015 because of high immigration from North Africa and the Middle East
- Birth rates for Muslims in Europe are much higher than birth rates for non-Muslims
- Europe non-Muslim population is projected to decline for the near future

Increased Immigration into Europe

- To this point Europe has struggle to integrate its Muslim immigrants – Parisian Riots
- Many Europeans Muslims live in the impoverished suburbs of Europe's big cities like Paris, Berlin, Amsterdam, and Brussels.
- High unemployment and social separation makes this communities prone to Islamic Radicalism
- As climate conditions deteriorate in North Africa and the Middle East, Europe may be overwhelmed by these immigrants

Latin American Leftist Regimes

- Recent rise of unfriendly Latin regimes
- Somewhat alarming to our hemispheric integrity
- Latins are losers, reaction will crush or bolster the Lefties
- New democracies, or failed states?
- Anti-US bloc in our hemisphere?

Climate-Induced Immigration

- Illegal immigration is a hot button issue, most comes from southern border
- Mostly motivated by economic opportunity
- Major loss in arable land could make northward migration a necessity
- People choosing between starvation and migration will overwhelm our current border system, possibly even planned upgrades

Decline of Middle East's Salience

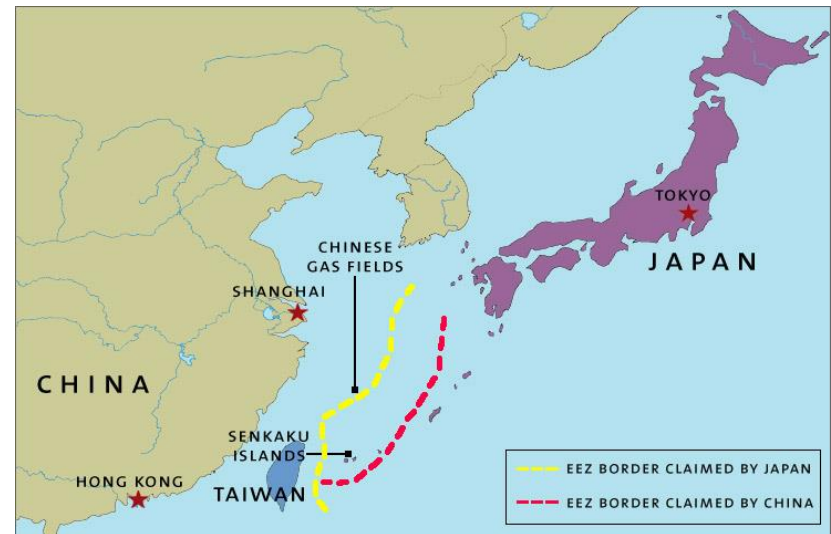
- As the price of oil drops and the U.S. becomes less reliant on fuel sources stemming from oil, the Middle East will lose its geopolitical salience.
- The U.S. should help the Middle East diversify its economy now and rectify outstanding regional crises before it loses the focus of U.S. foreign policy.

Middle East Regime Collapse

- Access to new reserves of oil will reduce its price.
- Conversion to natural gas and alternative fuels will further reduce the cost of oil.
- States that rely on oil income for survival and maintaining power will become vulnerable to political upheaval and humanitarian crises.

Disputes Over Reserves

- Nations will look to cleaner fuels in the future, natural gas being one of them
- East China Sea is in dispute, and it has 200 trillion cubic feet of natural gas (and 100 billion barrels of oil)
- Chinese projects to extract gas near a boundary are already causing problems
- Oil has been a factor in past wars. Will natural gas be the cause of a future war



China's Regional Influence

- China will likely be able to manage its climate change problems
- Smaller nations around China, especially in South and Southeast Asia might not
- China could aid smaller nations who cannot adapt to disease, flooding, human migration problems associated with climate change
- China might strategically expand its sphere of influence, replacing the US in Asia

Great Power Competition in Central Asia

- Largest underdeveloped oil and natural gas resources outside of OPEC
- Caspian Sea has 30 billion barrels of oil
- Turkmenistan has world's 4th largest natural gas reserves
- US strategy for developed based on BTC pipeline and parallel natural gas pipeline bringing this energy to the West
- Traditional pipeline infrastructure from Caspian Sea region flows north to Russia
- China recently completed East bound pipeline from Kazakhstan

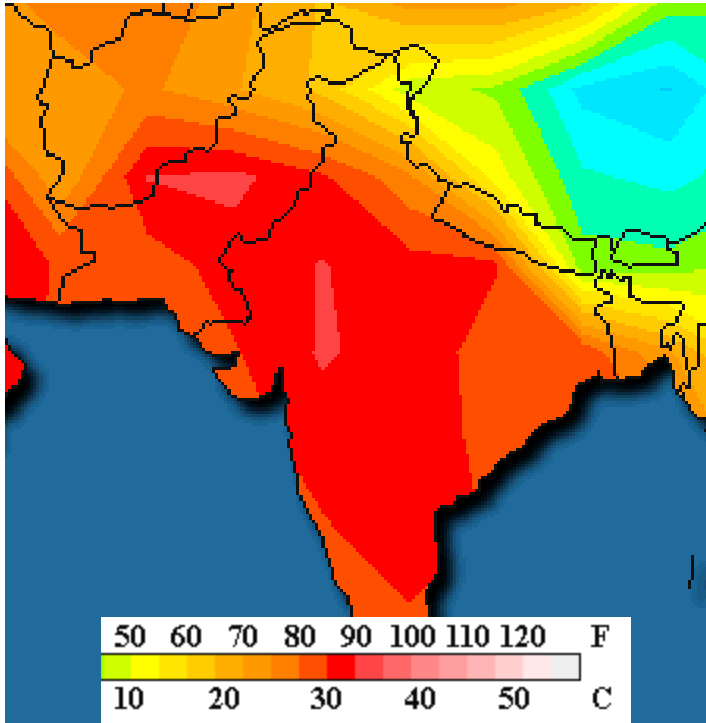
Kashmir

- Current dispute dates back to the end of British rule on the subcontinent
- Today, territorial integrity; tomorrow, survivability
- One of the most fertile regions of the subcontinent, contains significant portions of the Indus River System
- Could be the first nuclear water war

Asian Failed States

- Two more decades of geopolitical backsliding & climate change in 2025
- Main countries in region are failing
 - Pakistan # 9
 - Afghanistan #10
 - Bangladesh #19
- Climate change increase pressure on already failing governments
 - Resource (water) scarcity and conflict
 - mass migration
 - reduced agricultural productivity

Asian Failed States



U.S. Security Implications:

- Loss of Pakistan/Afghanistan as allies
- Reduced prestige/perception of U.S. military
- Opens Pakistani nuclear program to illicit exploitation
- Regional economic drains
- Thwart U.S. counterterrorism efforts
- Increased regional instability

Environmental Technology

- New green technology is emerging
- Polluting nations will be pressured to conform to international emission restrictions
- Will poor nations be prevented from developing because they cannot afford the new technologies?
- We could see a new divide in international relations between the have's and have-nots?

Erosion of Sandy Coasts

- A small increase in sea level will lead to large amounts of erosion along sandy coasts.
- Major river deltas are especially vulnerable.
- U.S. should lead a global effort to stave off the potential effects of erosion.

Global Climate Change

Our first thoughts:

- What is the variation in GCC predictions?
- What will *most likely* happen physically?
- What can be done about it?
- Is mitigation or adaptation the better option?

Security Implications of Global Climate Change



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