

Managing Financial Risk: Policies to Address Climate Change

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Conservancy 
Protecting nature. Preserving life.™

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- The Nature Conservancy works in more than 30 countries, including all 50 United States.
- The Conservancy has nearly one million members.
- To date, we have conserved over 125 million acres of land and 5,000 miles of rivers worldwide.

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Presentation Outline

1. Weather ≠ Climate
2. Weather Variability Economics
3. Climate Change in Alaska
4. Alaska Climate Change Economics
5. Uncertainty, Financial Risk, Costs of Inaction
6. General Policy Developments
7. USCAP: Mandatory, Market-based GHG Emissions Reductions
8. Conclusion

Differences Between Climate & Weather

- *Weather* refers to the state of the atmosphere with respect to wind, temperature, cloudiness, moisture, pressure, etc. at a given point in time.

- *Climate* in a narrow sense is usually defined as the “average weather” over some time period. The classical period is 30 years, as defined by the World Meteorological Organization.

Why is it Important to Acknowledge the Difference?

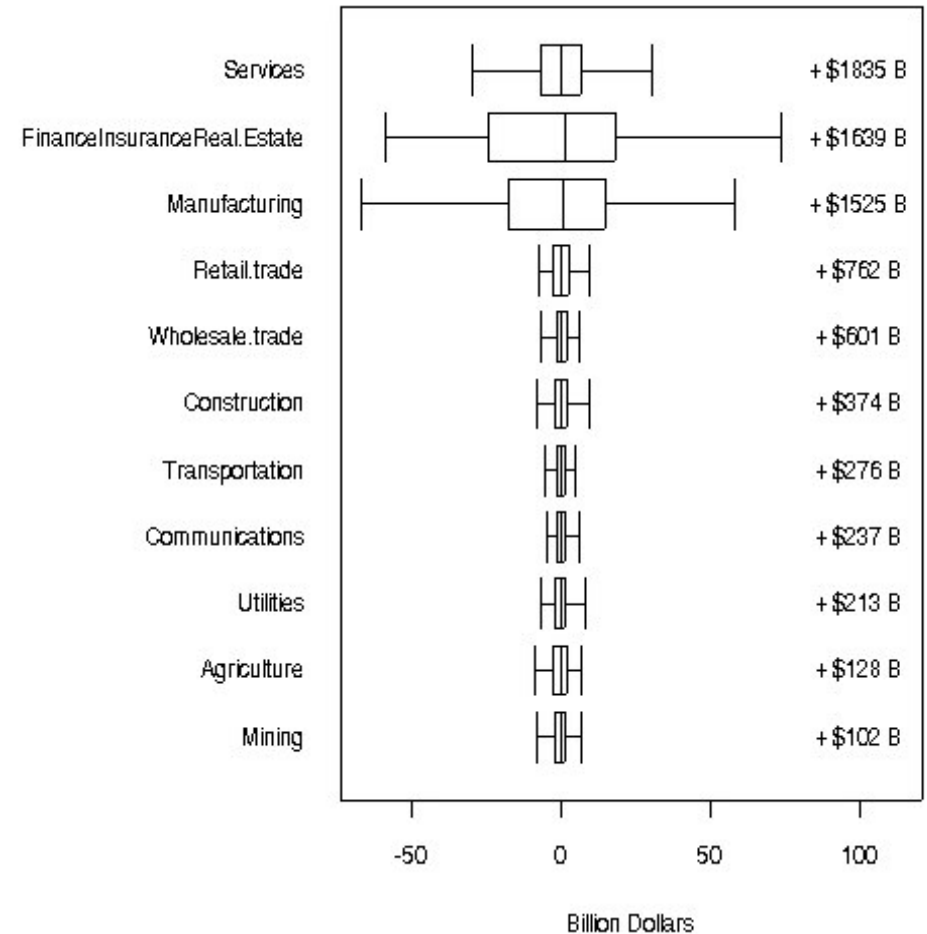
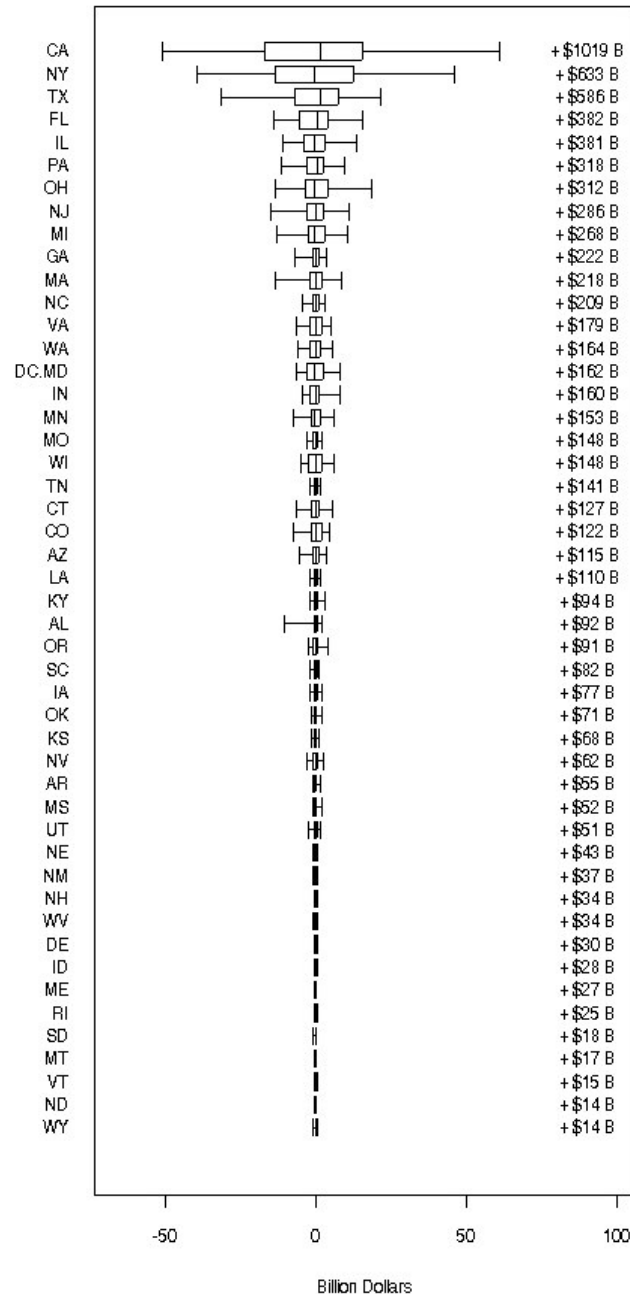
United States *Weather* Economics

Project: “Sensitivity of U.S. Economic Sectors to Weather Variability”

Researchers: P. Larsen, M. Lawson, J. Lazo and D. Waldman

- Applied economics research conducted at National Center for Atmospheric Research (NCAR) and U. of Colorado over the past 3+ years.
- This project provides early analytical framework for evaluating financial risk to U.S. economy from weather variability.
- Efficiently-designed weather derivatives markets and thoughtful planning by companies can hedge away some degree of financial risk from weather.

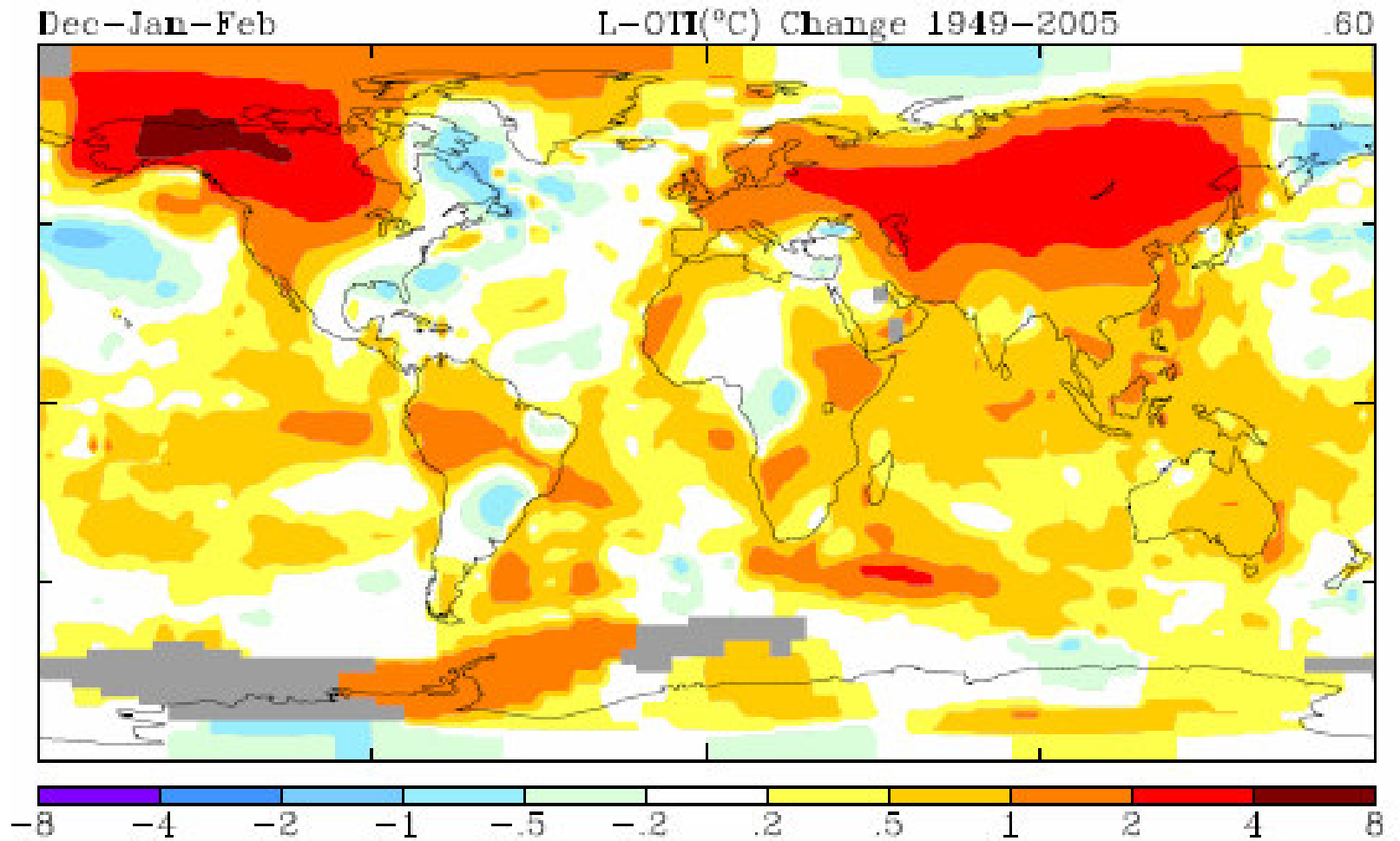
United States *Weather* Economics



The Nature Conservancy and Climate Change

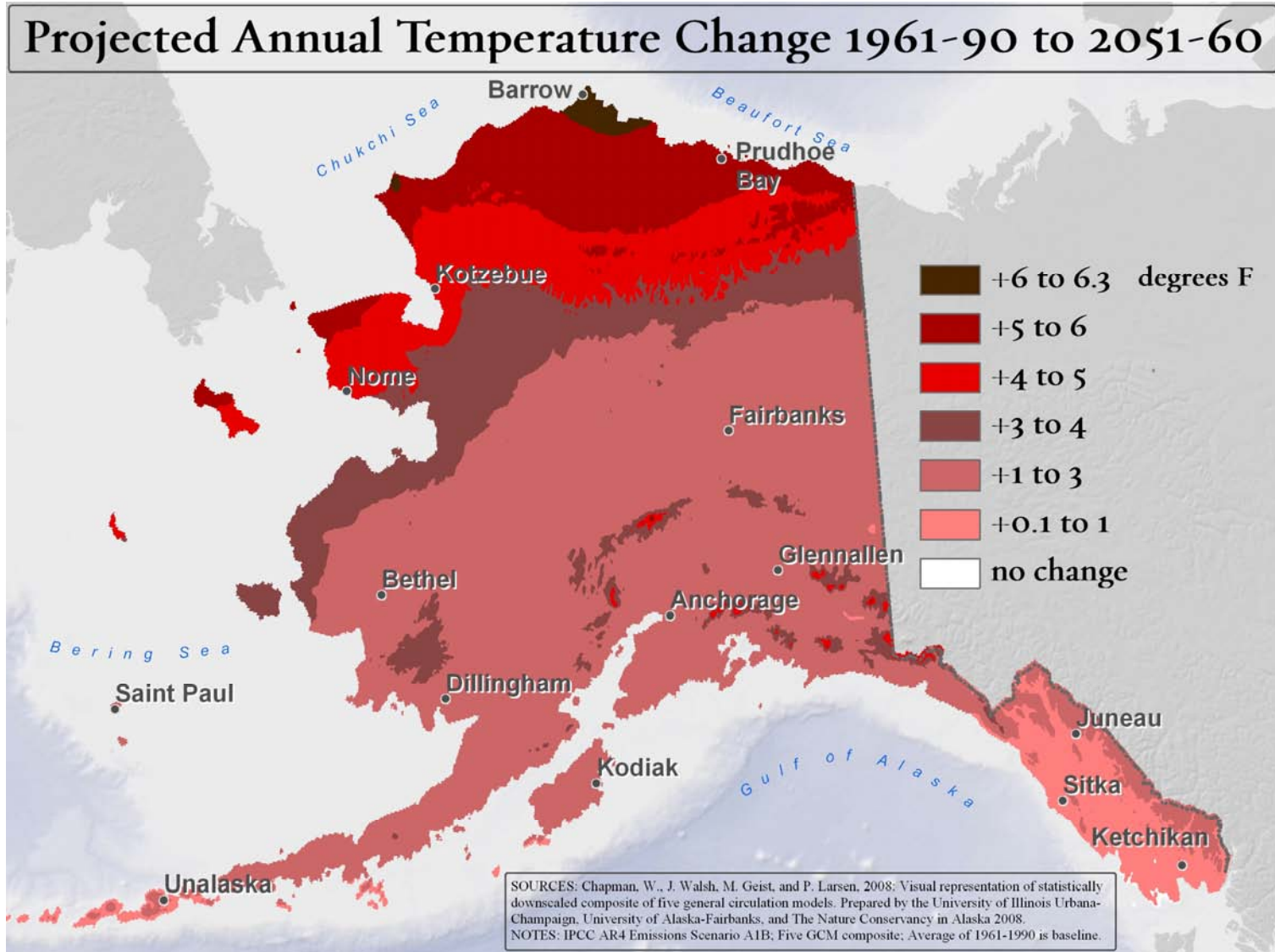
*“Climate change poses the **single greatest threat** to our conservation work, as the lands and waters we are working to protect may no longer have the necessary climate or conditions to sustain native plants and animals.”*

Alaska's Changing Climate



Source: NASA, GISS (2007)

Alaska's Projected Climate



Climate Change Effects on Alaska

- Expanded marine shipping
- Declining food security
- Human health concerns
- Effects on wildlife migratory patterns
- Increased access to offshore resources
- Changes in marine fisheries
- Decline in freshwater fisheries such as arctic char and salmon
- Enhanced agriculture growing seasons
- Increased forest fire and insect infestation activity
- Disrupted land transportation from thawing permafrost and melting ice roads
- Difficulty maintaining subsistence hunting cultures
- **Increased damage to community infrastructure from coastal erosion and thawing permafrost**

Alaska *Climate Change* Economics

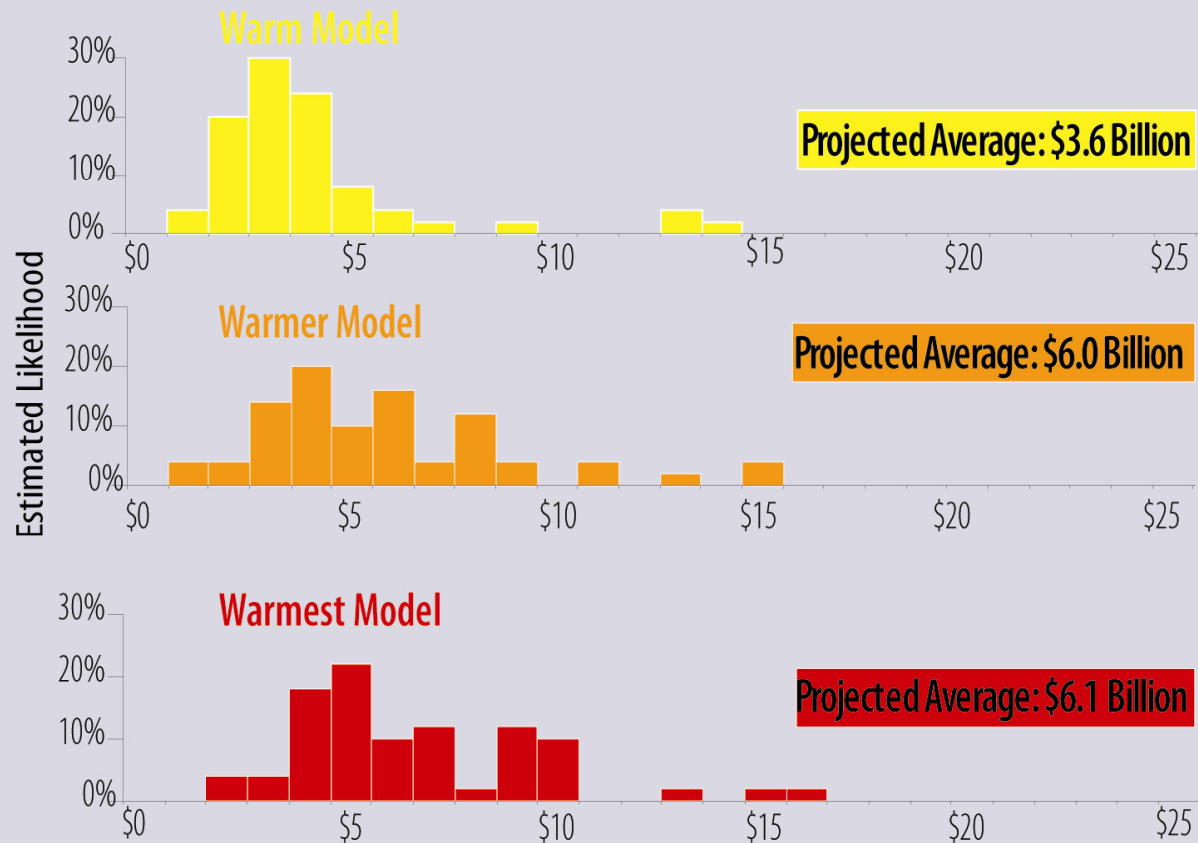
Project: “Estimating Future Costs of Alaska Public Infrastructure at Risk from Climate Change”

Researchers: P. Larsen, S. Goldsmith, O. Smith, M. Wilson, K. Strzepek, P. Chinowsky, and B. Saylor

- Research conducted at ISER-UAA/Colorado over the past two years.
- First climate change economics model for Alaska; future model refinements are needed.
- Concluded that projected climate change could increase public infrastructure costs by 10-20% above “normal” wear and tear.
- Adapting structures strategically now will save significant \$\$\$ in the near future.

Alaska Climate Change Economics

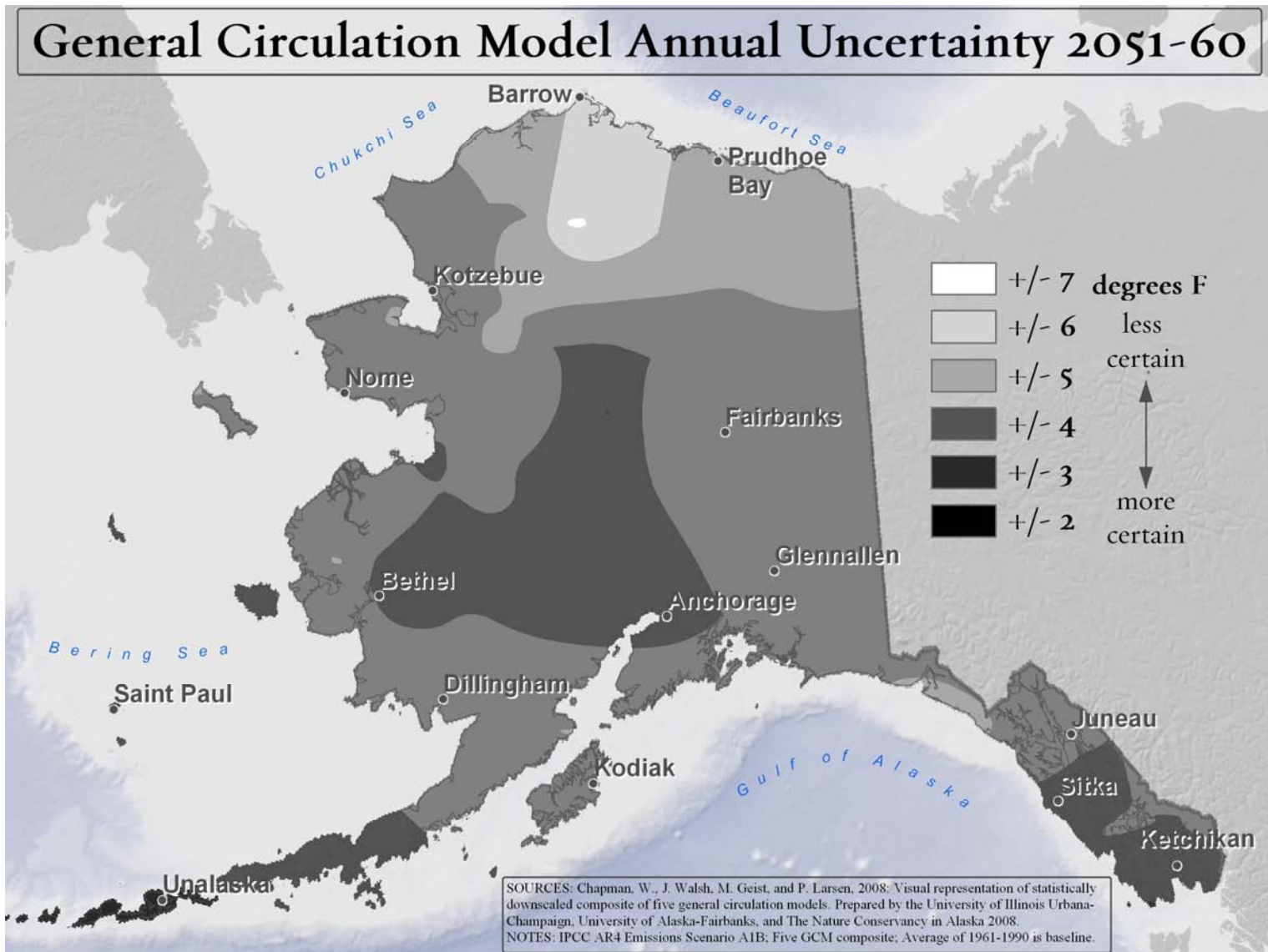
Range of Additional Public Infrastructure Costs, 2006-2030, Adaptation Case
(In Billions of Dollars, Net Present Value)



Source: Larsen et al (in review, 2008)

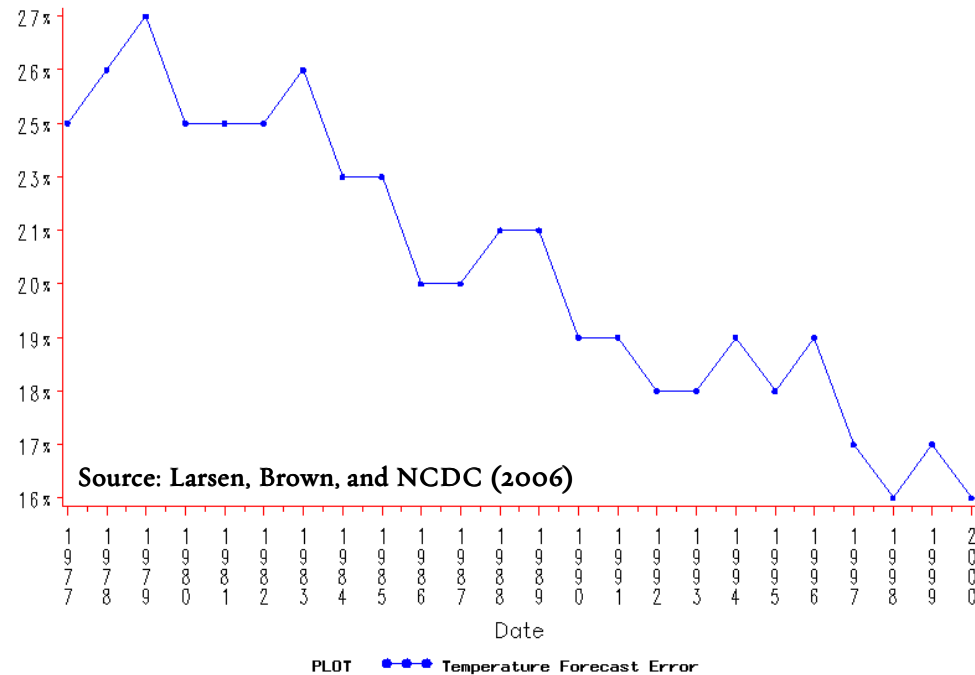
- These estimates assume some level of strategic adaptation.

Model Uncertainty and Magnitude of Projected Warming



Uncertainty ≠ Inaction

Average U.S. Temperature Forecast Errors



- Despite some degree of uncertainty in magnitude, consensus of 20+ climate models project significant warming for Alaska.
- Climate/Weather models' predictive power continues to improve over time.
- At least 11 National Academies of Science, the IPCC, the American Geophysical Union, and many others have concluded that human activities have altered the global climate by releasing GHGs.

Climate-related Policy Developments

- Alaska Activities
 1. Governor's Subcabinet on Climate Change
 2. Alaska Climate Impact Assessment Commission

- Regional Market-based "Cap and Trade" Program
 1. Western Climate Initiative (Alaska is "observer")

- National Market-based "Cap and Trade" Programs
 1. Bingaman-Specter (co-sponsored by Stevens/Murkowski)
 2. Lieberman-Warner (bill that is *moving...*)

Lieberman-Warner bill to U.S. Senate floor by April-May 2008.

Other Relevant Policy Information

Definition of “Cap and Trade”

- Total cap on the amount of greenhouse gases that can be emitted.
- Companies (or other entities) are issued emission permits which represent the right to emit a specific amount of GHGs.
- Companies that need to increase their emissions have to purchase credits from those who pollute less.
- Companies that can reduce emissions most cheaply will do so, achieving GHGs reductions at the lowest possible cost to society.
- Cap and trade system successfully worked for U.S. Acid Rain program.

▪ Cap and trade programs will cost Alaskans (e.g., 5% more for energy in 2012 and about 12% more in 2030).

▪ Cap and trade programs will benefit Alaskans through distribution of national auction revenues (e.g., billions for protecting wildlife, infrastructure, and alternative energy demonstration projects, etc.).

What do these Businesses have in Common?



United States Climate Action Partnership (USCAP)

1. Calling for a mandatory market-based approach to ensure that GHG emissions are reduced from current levels by 60% to 80% by 2050.
2. Establishing a price signal for carbon that may include a combination of approaches such as cap-and-trade, tax reform, and technology incentives, etc.
3. Encouraging actions by other countries, including large emitting economies in the developing world, to implement GHG emission reduction strategies.

Please visit: www.us-cap.org for more information.

Conclusion

- From a business perspective, climate change/weather significantly impacts all sectors of the economy including the infrastructure that we use to deliver goods & services.
- Alaska's climate has warmed and will continue to warm with mostly negative consequences for our people and wildlife.
- Costs of inaction exceed costs from actions to mitigate GHG emissions *and* strategically adapt to change.
- Many big industry leaders, including BP, ConocoPhillips, Shell, and General Electric are calling for a mandatory market-based approach to ensure that GHG emissions are reduced from current levels by 60% to 80% by 2050.



Thank You

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