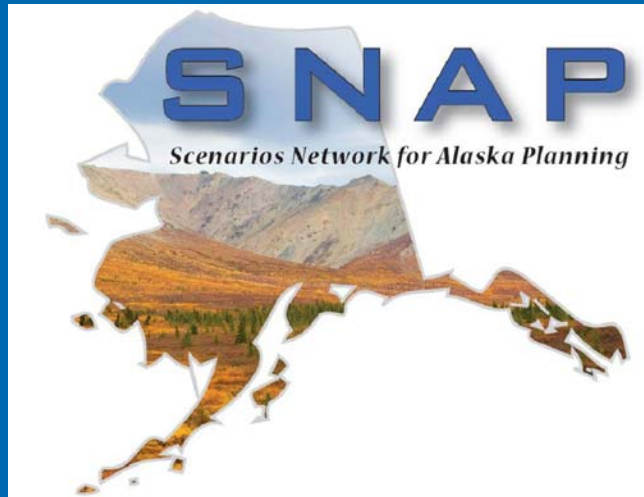
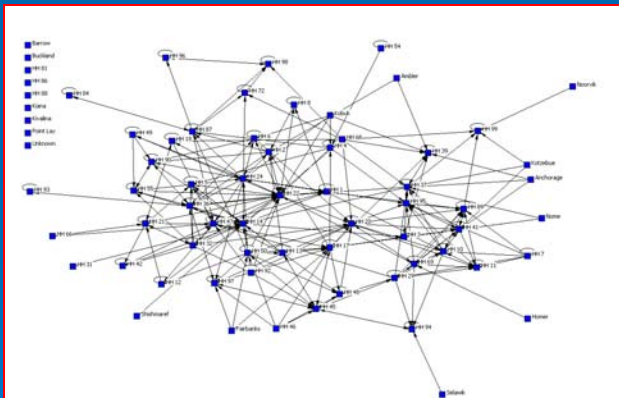


Three project



*IPY: Impacts of
High-Latitude
Climate
Change on
Ecosystem
Services and
Society*



**The Study of Sharing
Networks to Assess the
Vulnerability of Coastal
Communities to Oil and Gas
Development in Arctic Alaska**

What is SNAP?

SNAP is a collaborative network of the University of Alaska, state, federal, and local agencies, NGOs, and industry partners.

Its mission is to provide timely access to scenarios of future conditions in Alaska for more effective planning by decision-makers, communities, and industry.

A decorative graphic consisting of several sets of concentric circles in a lighter blue shade, scattered across the bottom half of the slide.

Primary Products

1. *Projections of future conditions that are linked to present and past conditions*
2. Objective interpretations of scenarios
3. Detailed explanations of the rules and models

Projections based on IPCC models

(John Walsh et al.)

- Compared output from 15 models with historical climate data for Alaska
- ***Selected the 5 models that performed best for Alaska***
- Primary focus on an intermediate (A1B) scenario
 - Other scenarios available

Projections Downscaled to 2km

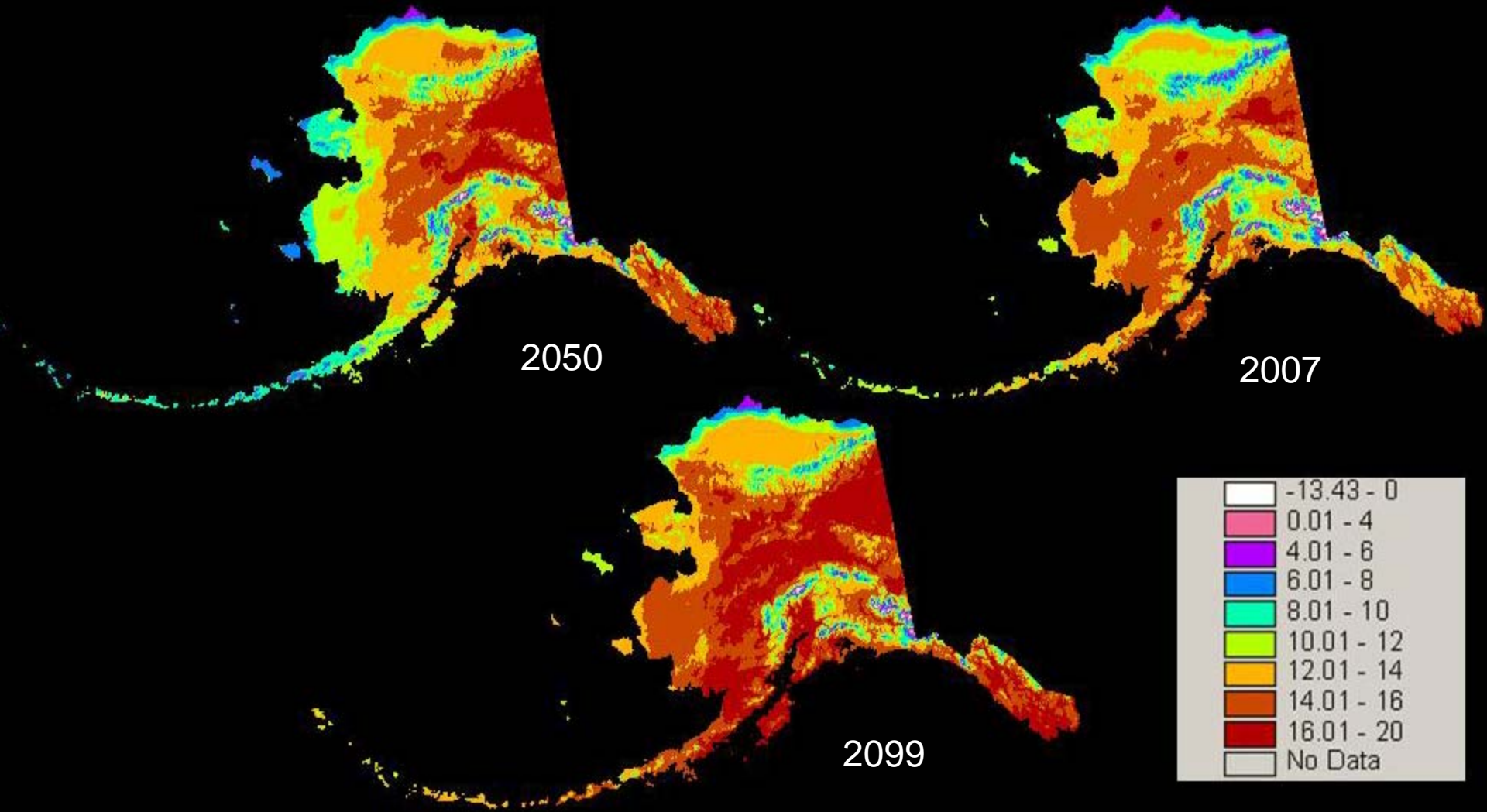
(John Walsh et al.)

- Historical climate data estimates at 2km resolution available from PRISM model



- ***Created projections to 2100 for all of AK at 2km resolution, and associated maps***
- ***Also pinpointed grid cells representing 353 communities***

Average July Temperatures 2007, 2050, and 2099 *ECHAM5*



Collaborations Underway

(Communities, agencies, NGOs)

- Fairbanks North Star Borough
- Fish and Wildlife Service & North Slope Borough
- National Marine Fisheries Service & City of Sitka
 - The Nature Conservancy
 - Fish and Wildlife Service
- USDA Forest Service, Pacific Northwest Research Station
 - The Wilderness Society
 - The National Parks Service

Potential North Slope GIS Tool?

- Landscape-level approach to locating infrastructure in relation to wildlife and subsistence use
 - GIS-based predictive infrastructure model that would incorporate biological and geophysical data
- Perform basic economic analyses
- Modify predicted infrastructure scenarios based on environmental and cultural constraints

SNAP and Alaska Communities

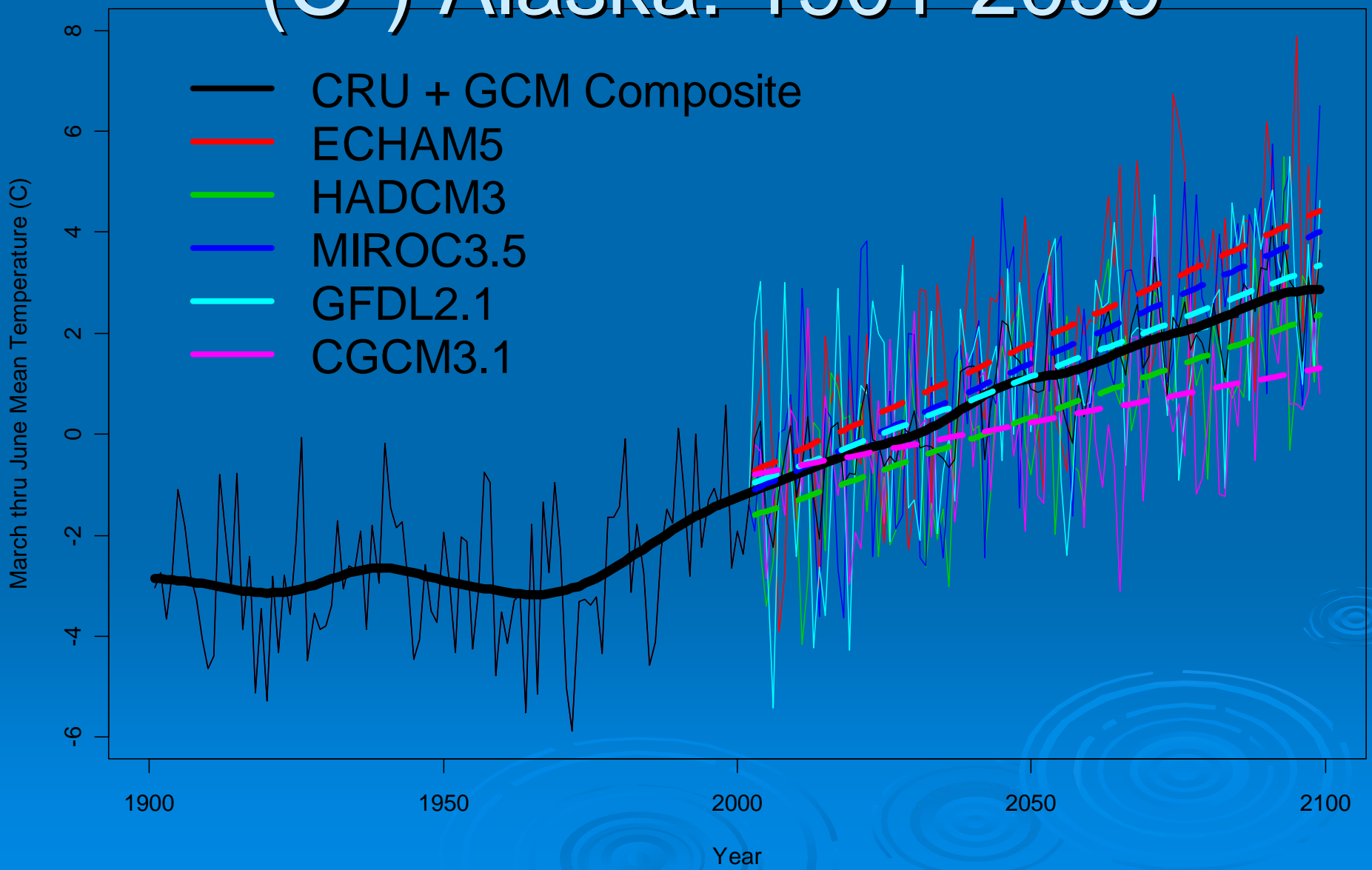
- ***Potential for a wide range of collaborative projects***
- Each project based on community needs and jointly selected goals
- Potential for collaborative funding
- All project results are openly shared

IPY Project: Implications of climate change for subsistence

- NSF project that uses and contributes to SNAP scenario development
- Collaboration with North Slope Borough Dept. of Wildlife
- Agreement with Kaktovik; meeting tomorrow with Wainwright
- Similar program in Interior Alaska with CATG

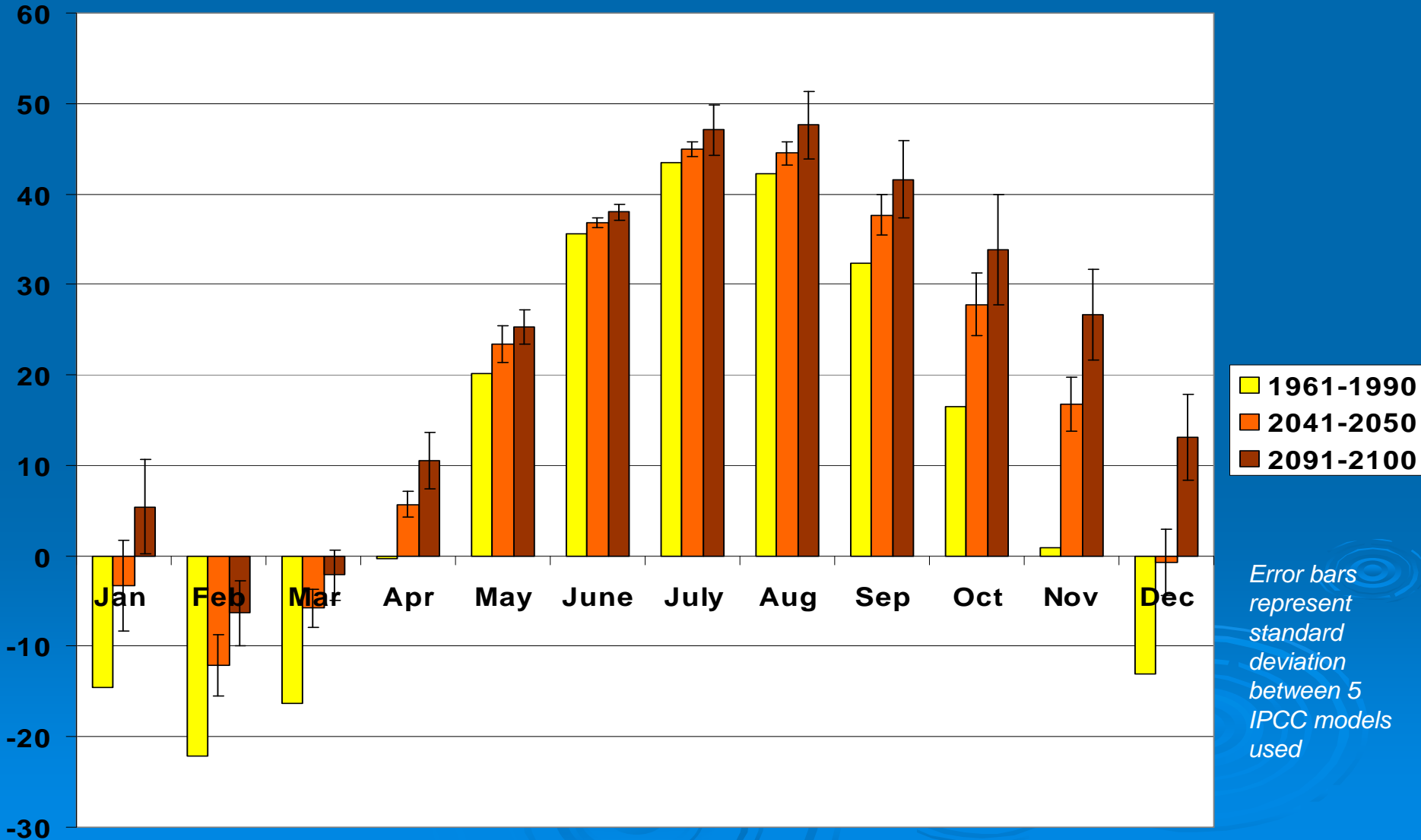


March-June Average Temperature (C°) Alaska: 1901-2099



Wainwright Projections

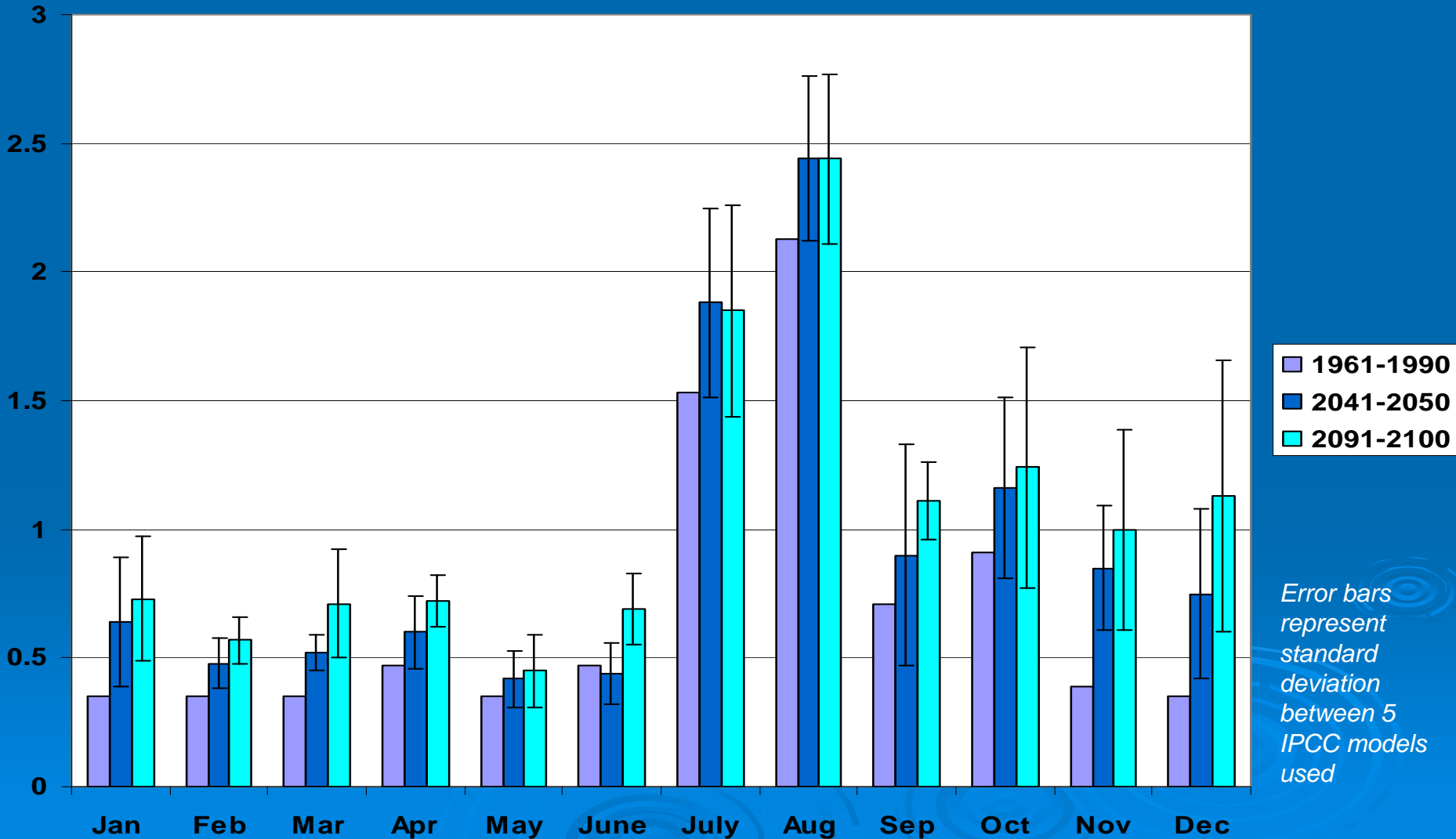
Temperature (°F)



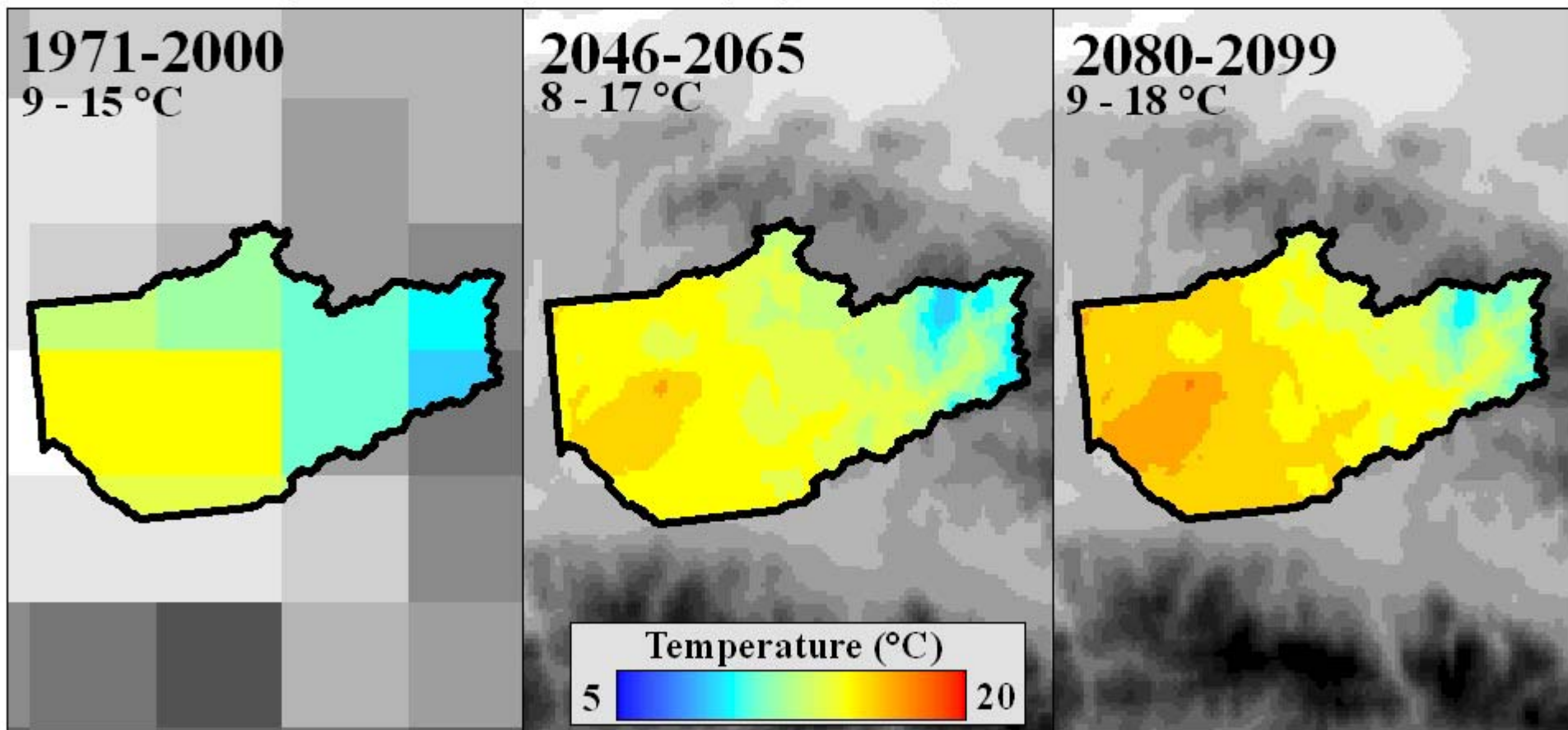
Error bars represent standard deviation between 5 IPCC models used

Wainwright Projections

Precipitation (inches)



Mean Monthly June Temperature (°C) Averaged over the Years Shown.



Research goals

- Learn what subsistence resources are of greatest concern to communities
- Make projections of likely future changes in habitat and accessibility to communities
- Provide maps of likely future conditions to communities (traditional use areas)
- Explore with communities consequences of shifting subsistence opportunities
 - Sources of resilience and vulnerabilities

Potential community consequences

- Changes in amount and type of subsistence resources harvested
- Changes in sharing of resources among households
- Changing ties to the land and in balance between subsistence and wage income
- Policy options that communities might choose to consider (related to climate change or development)

- Integrate findings from SNAP/IPY project with Study of Subsistence Sharing
 - Involve community in participatory process for exchange of knowledge and learning
 - Compare communities as added value research activity
- 