Assessing Climate Change Hazards

at

Alaska Division of Geological and Geophysical Surveys (DGGS)

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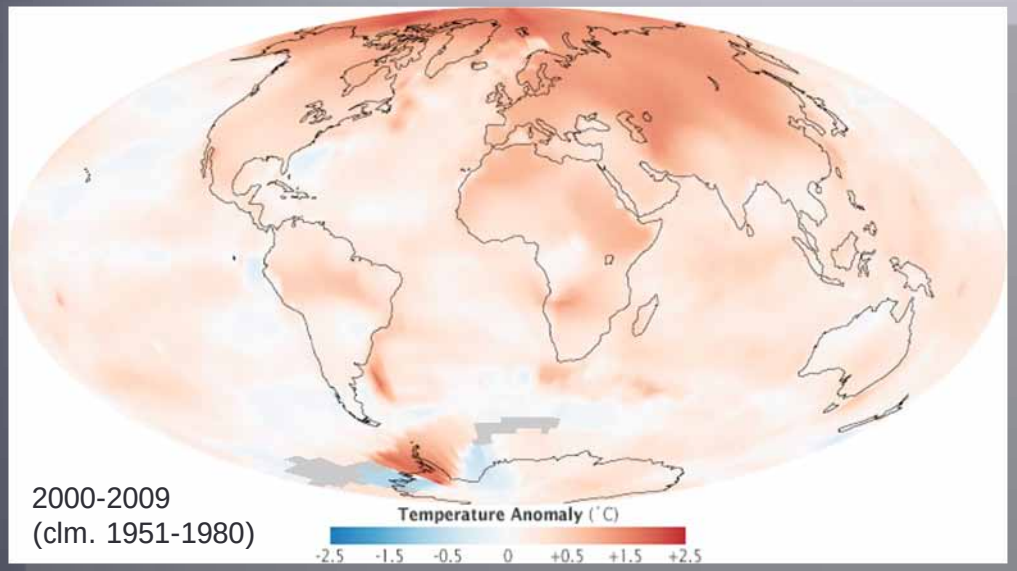
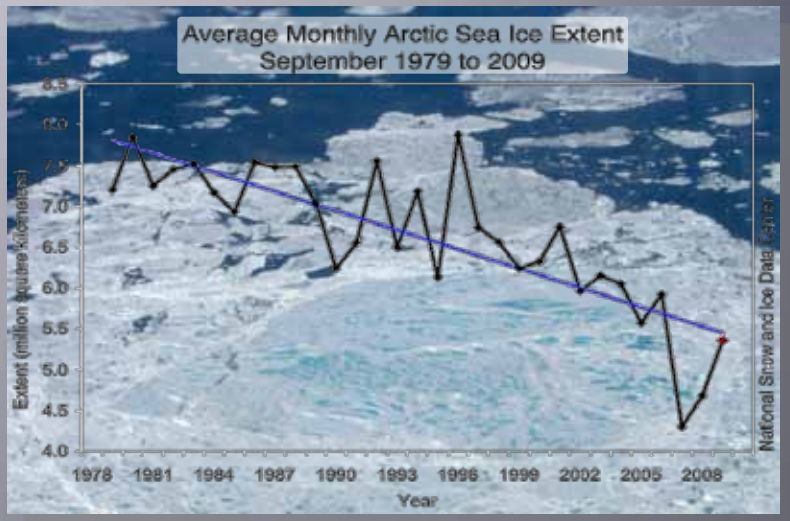
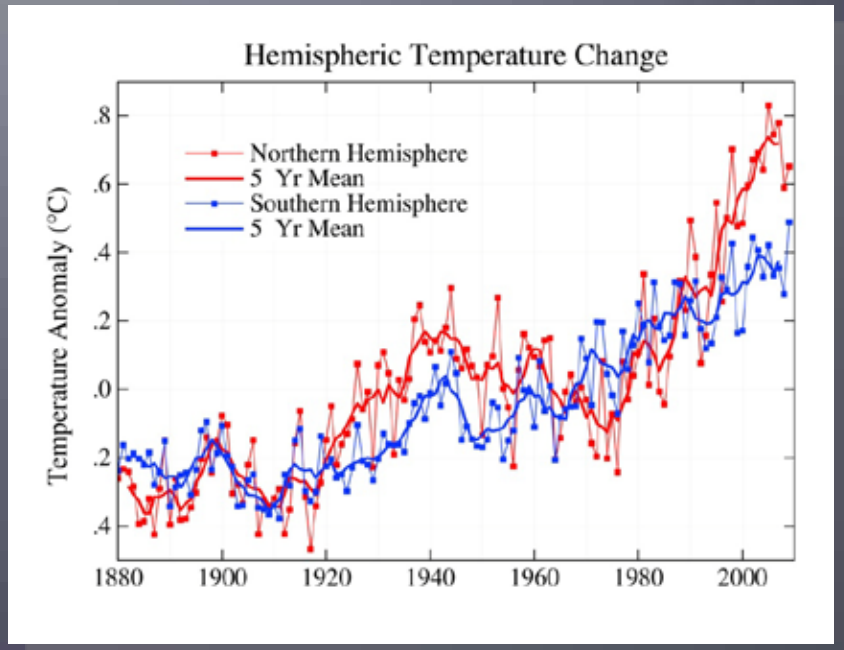
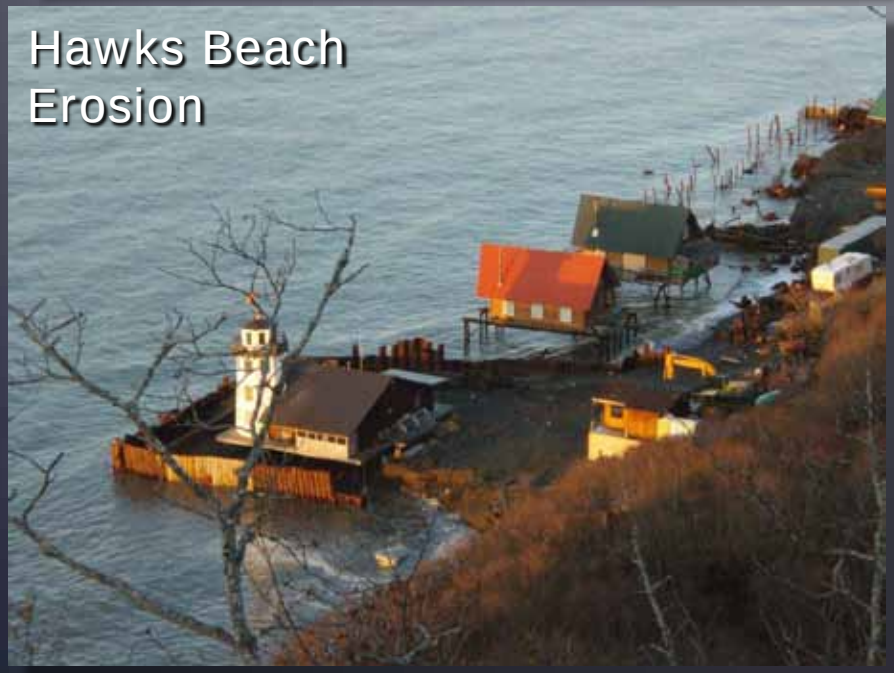
Evidence of a Changing Climate







Local Impacts of a Changing Climate



Climate Change Hazards Program

Key Elements

- Hazards Mapping and Assessment
- Information Management and Dissemination
- Public Awareness
- Monitoring
- Forecasting

Flooding in Nenana

Expected Products for Selected Communities/Areas (Short Term)

- Database and maps of existing geological hazards
- Assessment maps of geological hazards
- Assessment maps of hazard susceptibility
- Assessment maps of hazard incidence
- Climate change hazards web portal and archive

Climate Change Hazards Program

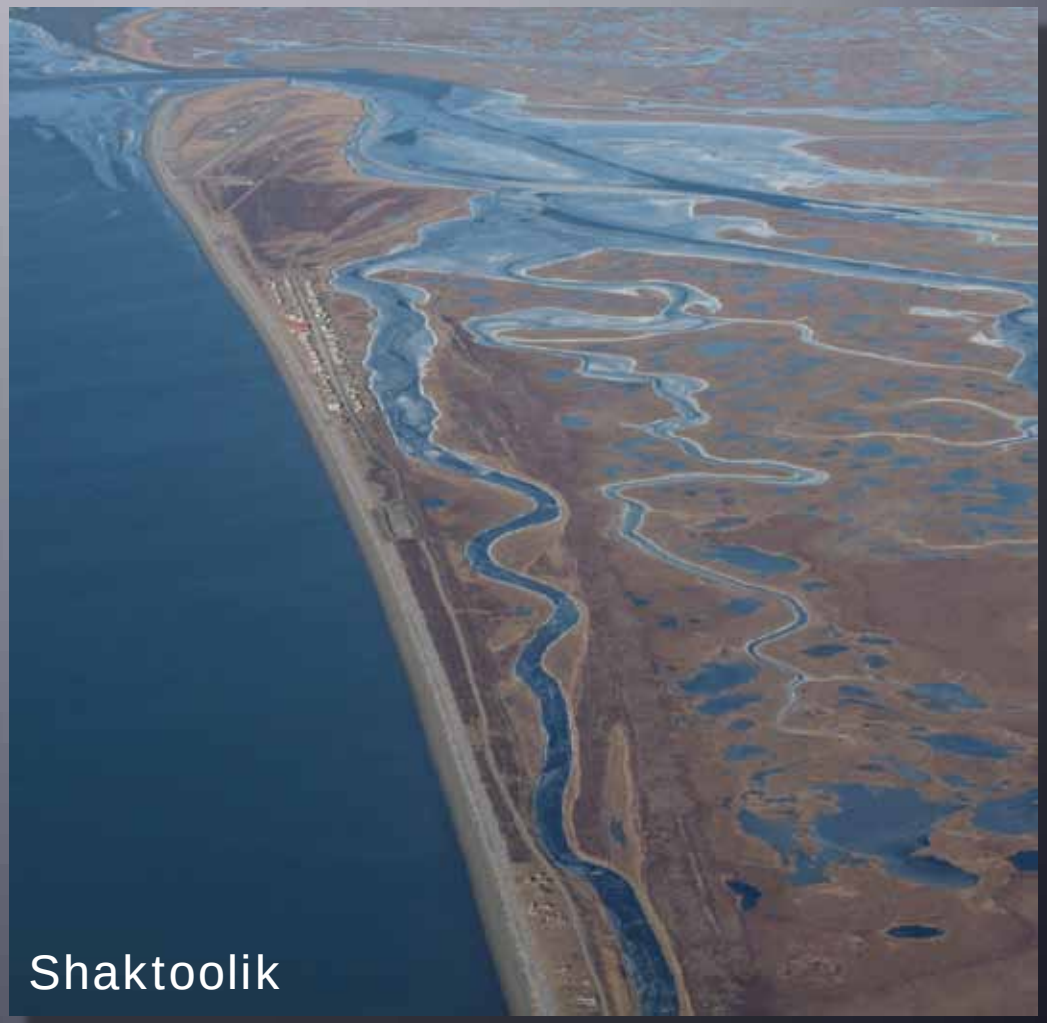
Program Development will include:

•Developing partnerships with communities, government entities at federal, state, and local levels, academia, and the private sector to help prioritize areas and develop cooperative programs where appropriate

Climate Change Hazards Program

- Function jointly with DGGS's Geo-hazard Evaluation and Geologic Mapping for Coastal Communities

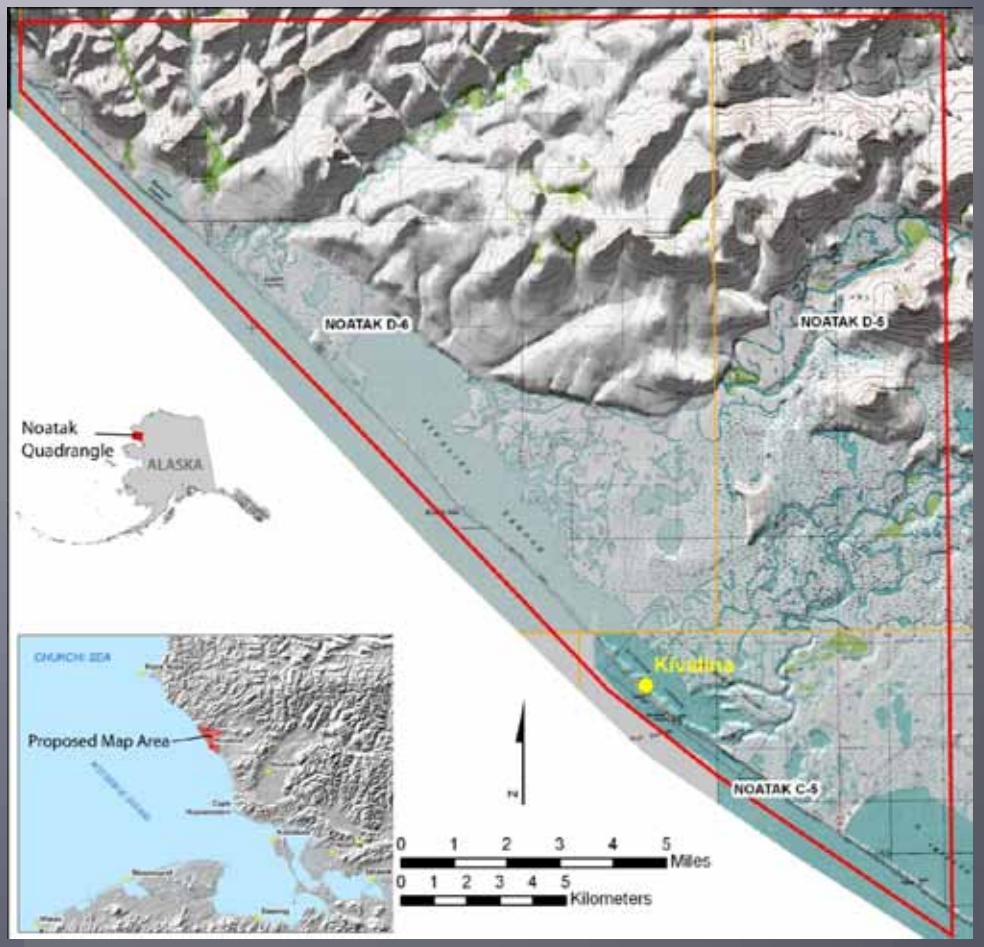
- The multi-year hazards assessment project will target highest priority communities:
  - Kivalina
  - Koyukuk
  - Unalakleet
  - Shaktoolik
  - Shishmaref
  - Newtok



Climate Change Hazards Program

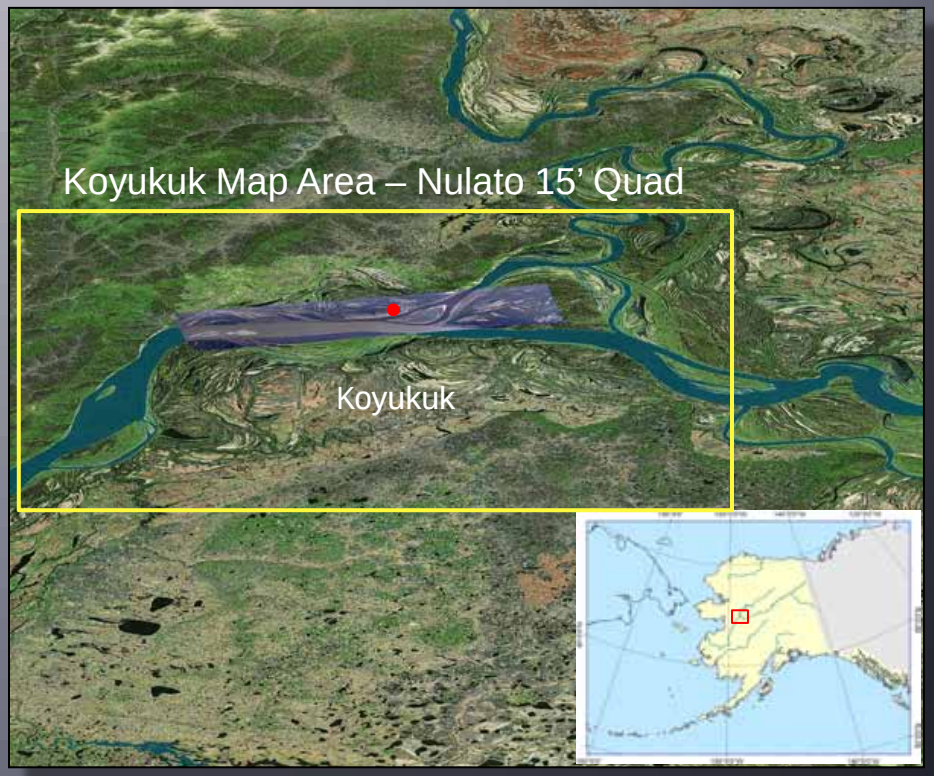
Climate Change Hazards Program

Kivalina



Climate Change Hazards Program

Koyukuk



Climate Change Hazards Program

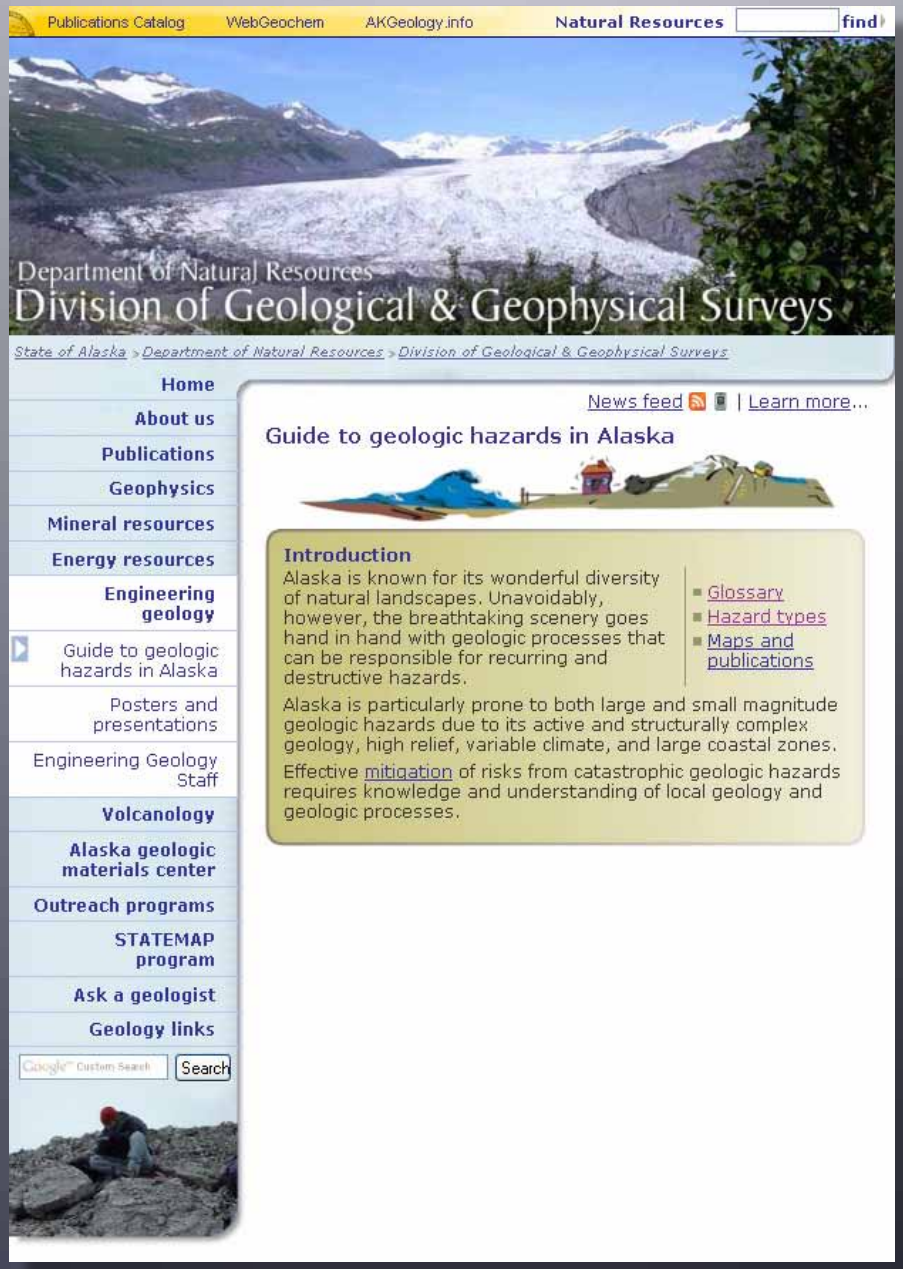
ØPromote public awareness and understanding of climate change associated hazards

ØProvide valuable information about the extent and degree of threat, possible changes, where potential hazards exist, and where hazard potential is least

ØProvide critical information to be used in the decision making process for communities at risk

Kaktovik Coastal Erosion - M. Osborne and K. Dunton

Climate Change Hazards Program



Hazards Program Summer 2010

Kivalina and Koyukuk Objectives

ØMap the surficial geology in sufficient detail to develop comprehensive lithologic unit descriptions and a geomorphic framework that can be used to understand the active earth processes affecting the village of Kivalina and the surrounding area

ØMap the bedrock geology at a reconnaissance level sufficient to evaluate the lithologies for general engineering characteristics

ØDevelop information matrices and derive maps that describe the general engineering properties of bedrock and unconsolidated geologic units in the map area

ØIdentify and map potential geologic hazards, including areas of flooding, erosion, thawing permafrost and slope instability