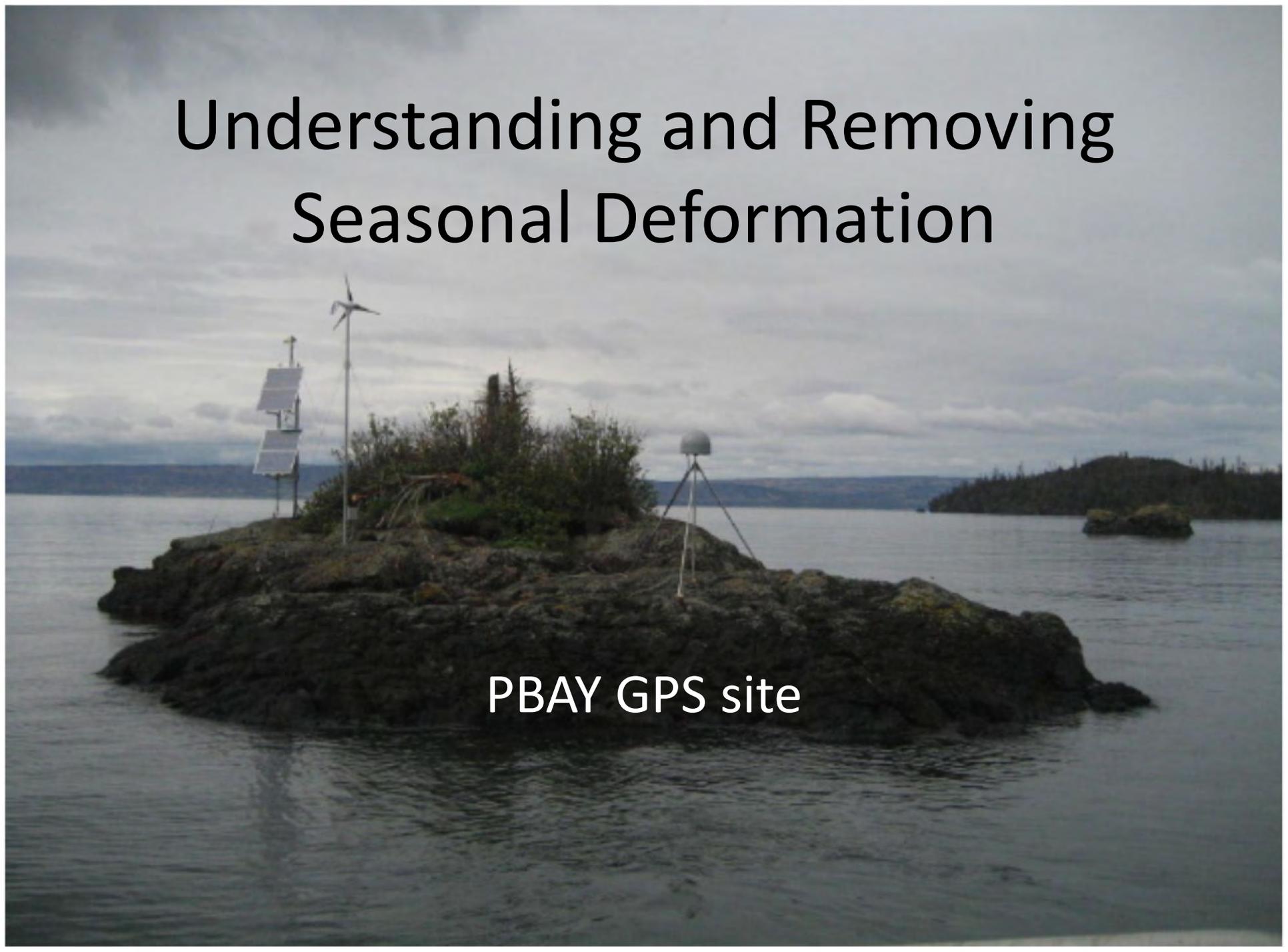


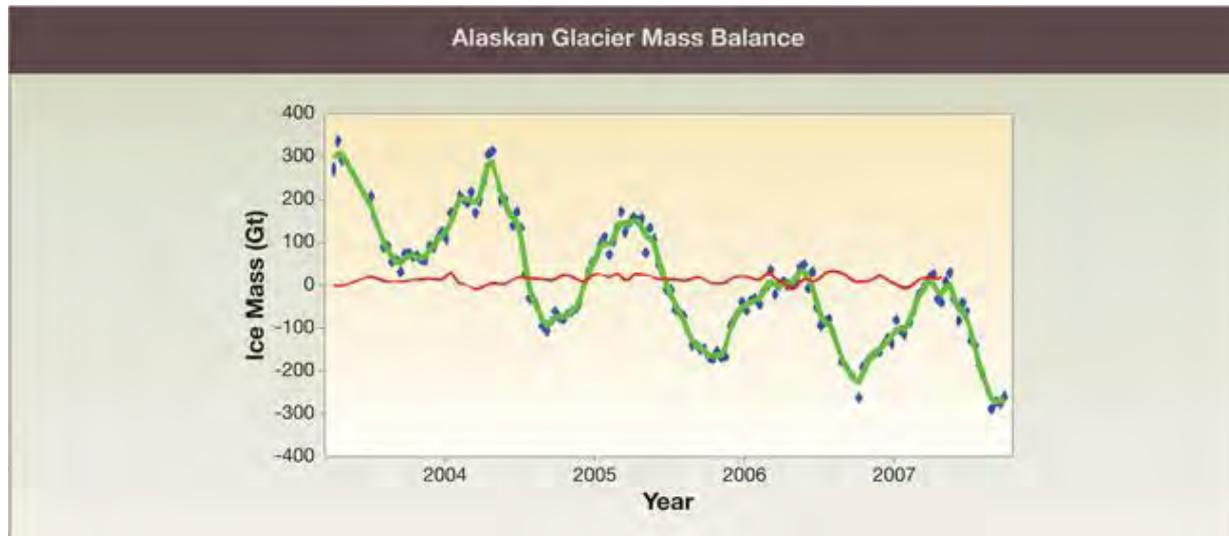
# Understanding and Removing Seasonal Deformation

PBAY GPS site

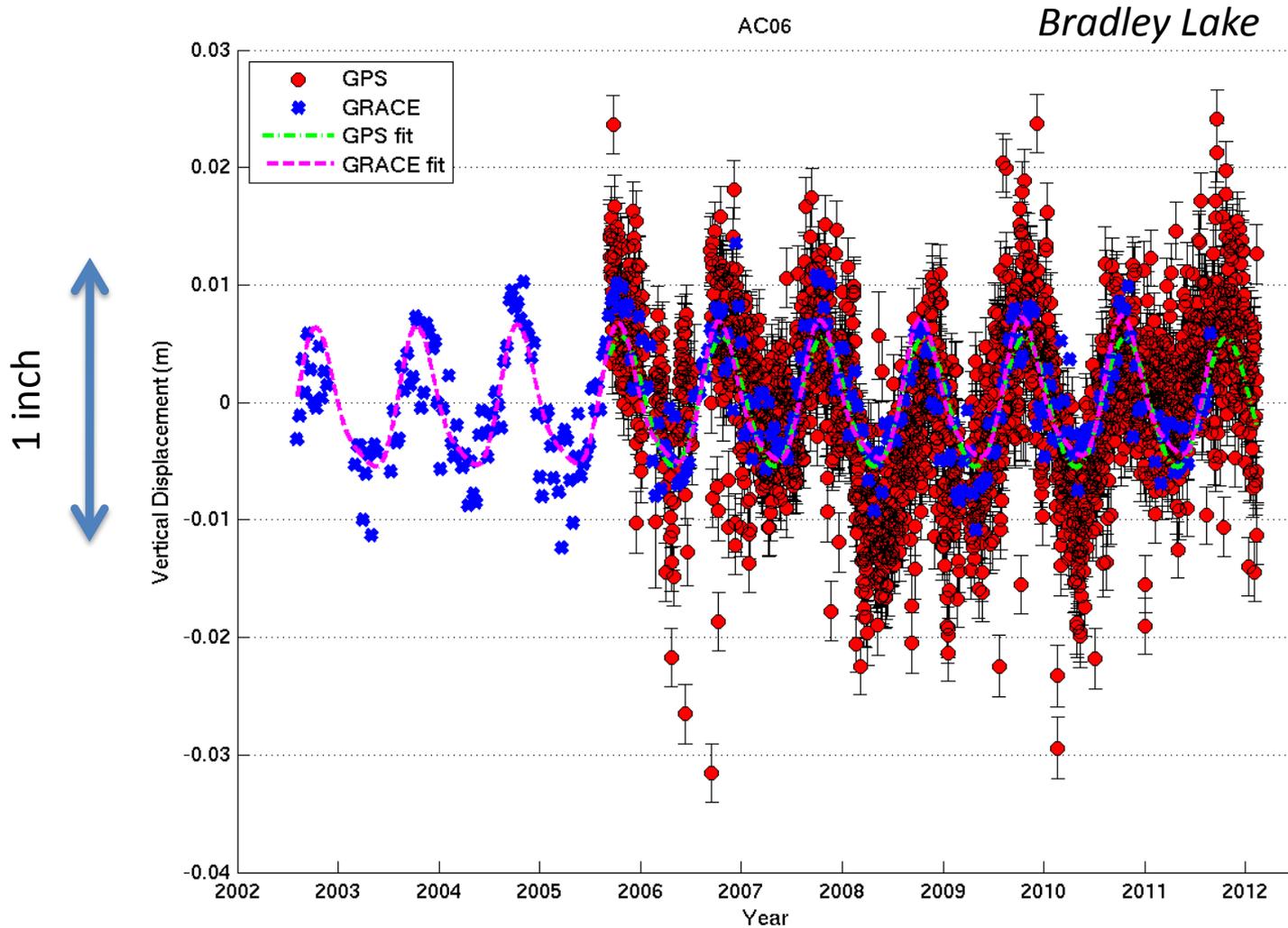
A photograph of a rocky island in a lake. On the island, there is scientific equipment: a GPS receiver on a tripod in the foreground, solar panels on a pole to the left, and a weather vane on a tall pole in the background. The sky is overcast and grey. The water is dark and calm. In the distance, there are forested hills and another island.

# Approach

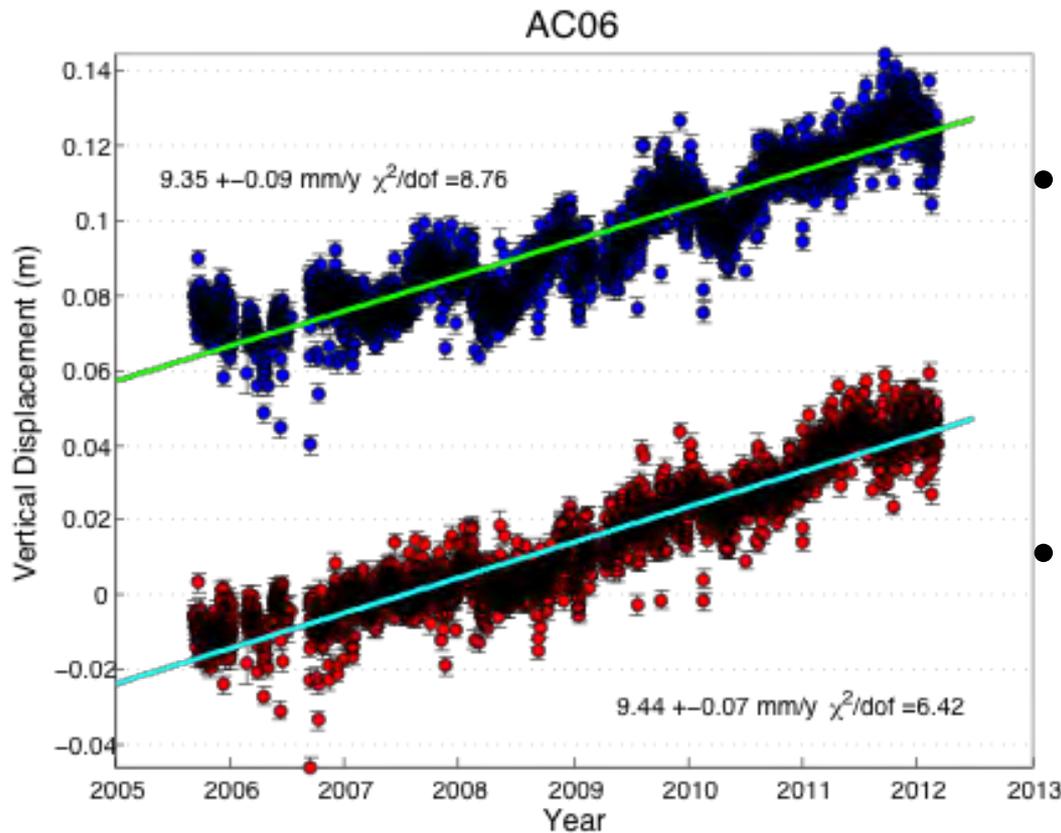
- Model seasonal motions using seasonal mass variations estimated using NASA's GRACE satellite mission.
  - GRACE measures changes in Earth's gravity field, mostly from transport of water



# Compare De-trended Time Series



# Results



- Works very well for the sites at high elevations.
- GRACE over-predicts seasonal displacements at sea level sites (Homer)
- Probably this is caused by spatial smoothing limitations of GRACE.

# GPS Sites

ID	Site Name	Data at ...
HDPW	Homer Dept. of Public Works	UAF, UNAVCO
MCES	McNeil Canyon Elementary School	UAF, UNAVCO
PBAY	Peterson Bay	UAF, UNAVCO
SPIT	Homer Spit	UAF, UNAVCO
VOZN	Voznesenka (end of East End Rd.)	UAF, UNAVCO
AC06	Bradley Lake	UNAVCO
AC03	Anchor Point	UNAVCO
SELD	Seldovia	UNAVCO
AC35	Petrof Lake (Pacific coast)	UNAVCO
AC18	Ushagat (Barren Islands)	UNAVCO

UAF: <ftp://gps.alaska.edu/pub/gpsdata/permanent/YYYY/ddd/>

UNAVCO: <ftp://data-out.unavco.org/pub/rinex/obs/YYYY/ddd/>

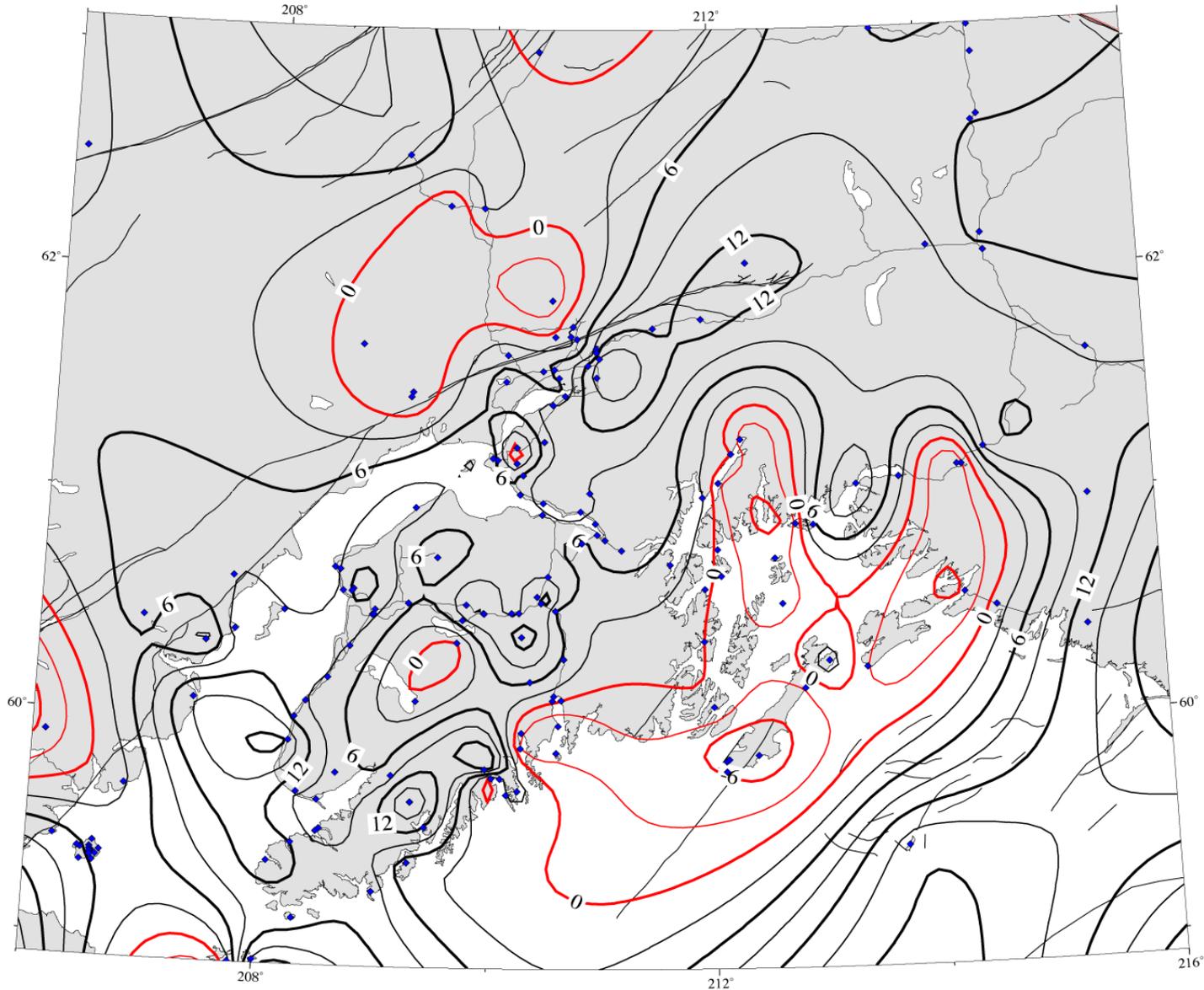
UNAVCO: <http://facility.unavco.org/data/dai2/app/dai2.html>

# Question Time

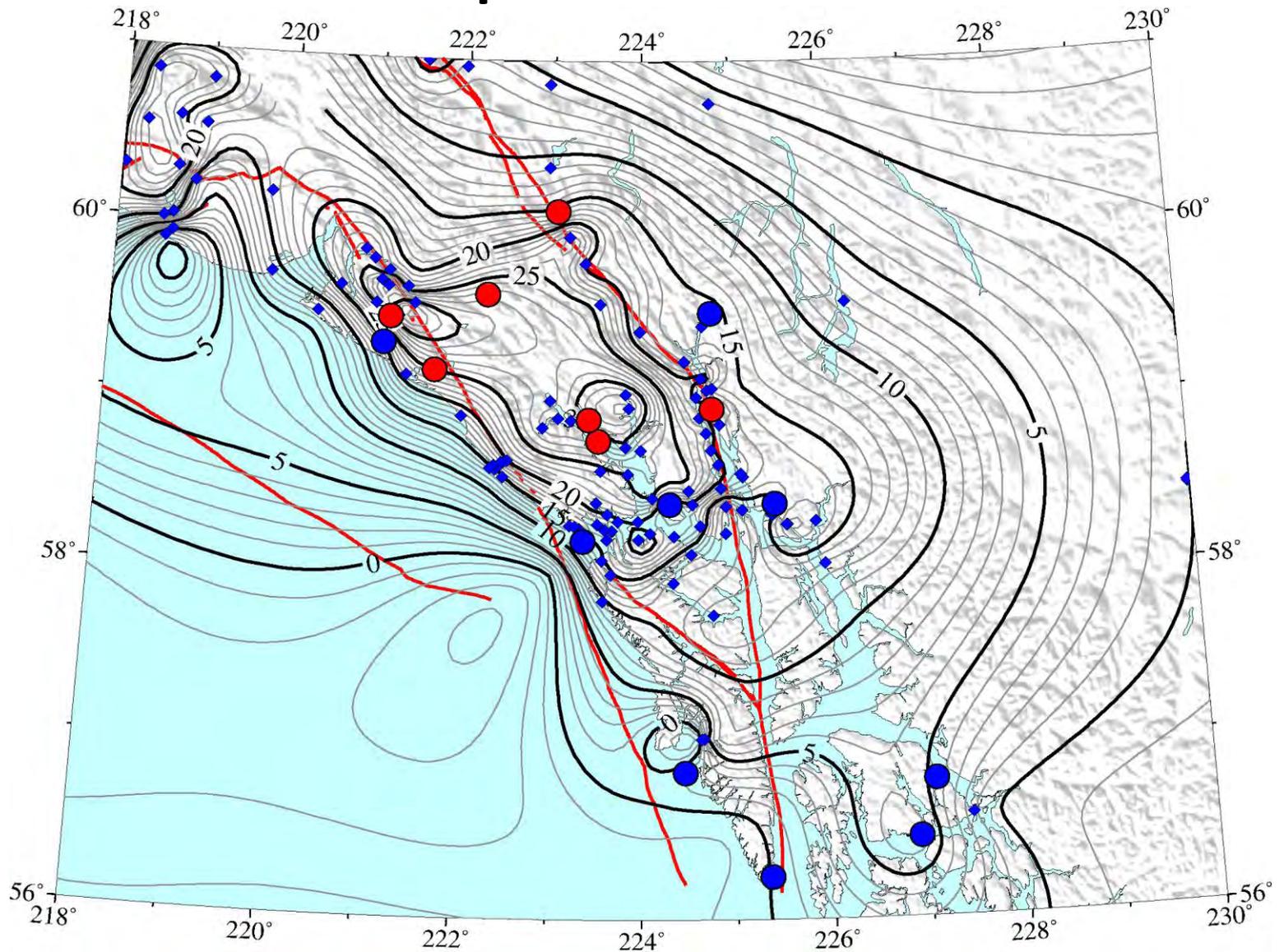
- What forms of data presentation are easily understood and useful to you?
  - Table with numerical values
  - Map with arrows showing rates of motion
  - Contour map of uplift rates
  - Time series showing height as it varies with time
    - Corrected data only
    - Raw + corrected data



# Contour Map of Uplift Rates



# Uplift Rates



# Raw or Corrected Time Series

