Alaska TA as Part of EarthScope

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National Science Foundation
WHERE DISCOVERIES BEGIN
EarthScope Science Themes

- Making and Breaking the Continent
  - Structure of the continent
  - How continent is deforming
  - How these are related
- Complete* continental coverage to enhance discovery
- All data open to everyone
Making the Continent

- Structure and tectonic evolution
- Lithospheric and mantle properties
- Evidence for past tectonic construction of North America
Mantle Beneath the Continent

200 km Depth

Velocity, %dVp/Vp

MITP_USA_2016MAY
Burdick, et al. 2016, SRL
Breaking the Continent

- Steady and transient deformation
  - Tectonics
  - Earthquakes
  - Volcanism
- Probe mechanical properties of fault zones, crust and mantle
- Active deformation to understand the past
Strain rate and earthquake hazard

- Rate of earthquakes is related to rate of deformation
- Incorporated into earthquake hazard maps for California and soon for Alaska
The three observatories of the EarthScope

*Ambitious, successful!*

Facilities for EarthScope have successfully built a powerful apparatus for doing science and did so on time and on budget.
USArray: Transportable Array
Crustal Thickness

Allam et al. (2017)
Seismology
Alaska Crustal Motions from PBO
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