EarthScope Plate Boundary Observatory Status Update

Greg Anderson
PBO Data Products Manager

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Topics

• What is the Plate Boundary Observatory?
• Network operations/construction status
• Data management
• Web tools
• Real-time progress/plans

Tom Herring, MIT
What is PBO?

- Geodetic component of EarthScope, installed and operated by UNAVCO and funded by the National Science Foundation.

- Install & run large network to study:
  - Earthquake processes & seismic hazards
  - Magmatic processes & volcanic hazards
  - Active deformation & tectonics
  - Continental geodynamics
852 new stations  209 existing stations
100 survey-mode receivers
PBO GPS: Halfway Done
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GPS Operational %

- Nucleus GPS Stations
- PBO GPS Stations

Graph showing operational percentages for Nucleus and PBO GPS stations from Aug-04 to Aug-06.
Raw GPS Data Volume

Gigabytes

Jan-04 Jul-04 Jan-05 Jul-05 Jan-06 Jul-06

PBO

Total

Nucleus
PBO GPS Data Products

Level 0 (at least daily)
- 15-sec raw, routine download
- 5-sps raw, triggered download
- Survey-mode raw files

Level 1 (automated QC @ PBO HQ)
- 15-sec, 5-sps, survey-mode RINEX

Level 2 (1-, 15-day and 1-yr latencies)
- Individual AC position solution
- Individual AC processing input and output files
- Combined position & velocity solutions & time series (ACC)
- Combined baseline time series (ACC)
- Coseismic offsets (ACC)

Archived at UNAVCO Facility, IRIS DMC
Which stations are built/planned?

http://pboweb.unavco.org/status_map
Which stations are operating?

http://pbowmsdev.int.unavco.org/shared/scripts/mapping/soh_map.shtml
Tell me more about station X

http://pboweb.unavco.org/stations/P067
How do I get data?

pboweb.unavco.org/gps_data

pboweb.unavco.org/stations/gps

pboweb.unavco.org/stations/XXXX
Special Data Request Tool

http://pboweb.unavco.org/data_request
Generally, PBO can provide access to RTK feeds for landowner request during permitting process.
RTK Stations (Planned/Active)
IP-based real-time via Ntrip

Prototype testing with interested groups
Contact me at anderson@unavco.org or 303-381-7555
Summary

• PBO is geodetic component of EarthScope project

• Network Operations Status
  – Half of 852 new CGPS have been installed
  – Typically, 90+% operational

• Data Management Status
  – 96% of stations have returned data
  – ~150 GB raw data (Jan 2004-present) available
  – Special data requests: http://pboweb.unavco.org/data_request

• Real-Time Data Progress & Plans
  – RTK feeds now available to landowners, 40 active/planned
  – Prototype Ntrip IP-based real-time system available for testers
For more information...

http://pboweb.unavco.org

www.earthscope.org