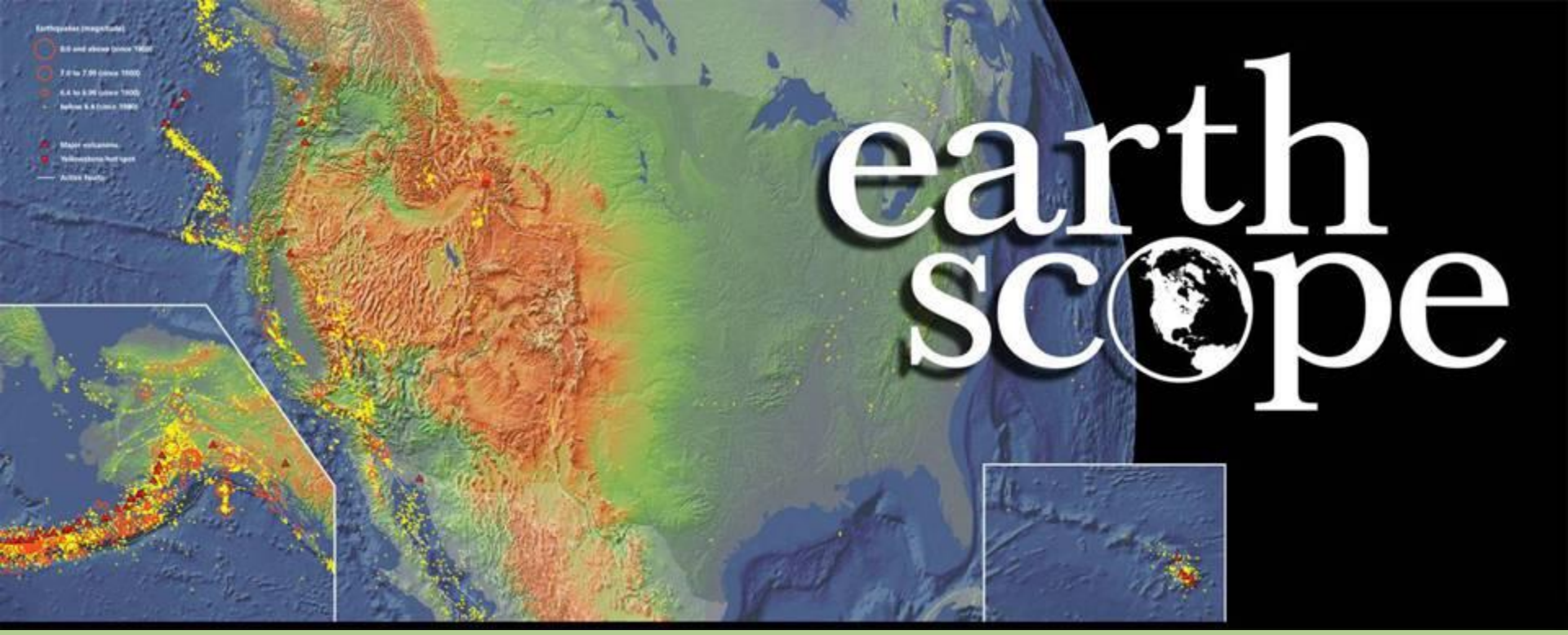


The Plate Boundary Observatory: GPS Operational & Data Status

Greg Anderson
PBO Data Products Manager
anderson@unavco.org

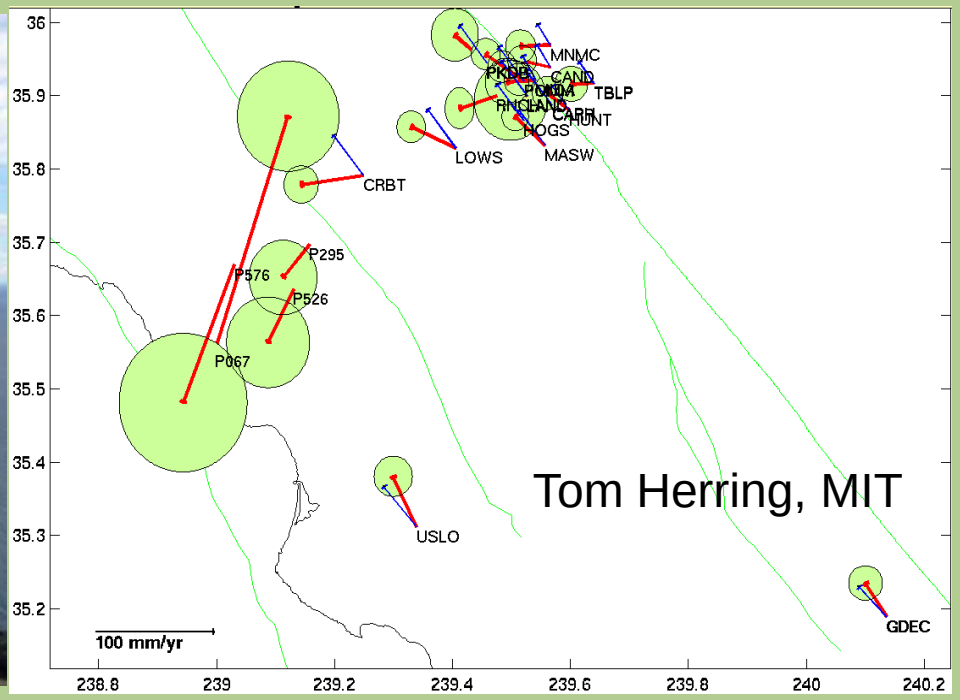
CORS Users Forum, 21 Sep 2004

National Science Foundation

UNAVCO, Inc

Topics

- What is the Plate Boundary Observatory?
- Network Operations/Construction Status
- Data Management Status



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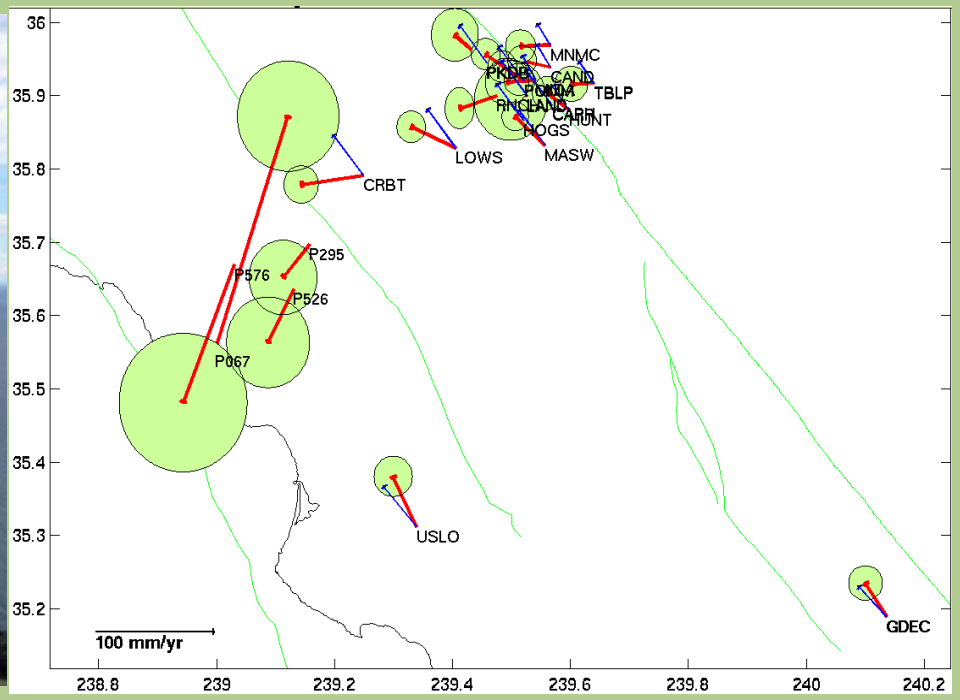


What is PBO?

- Geodetic component of NSF-funded EarthScope project

- Install & run large geodetic network to study:
  - Earthquake processes & seismic hazards
  - Magmatic processes & volcanic hazards
  - Active deformation & tectonics
  - Continental geodynamics

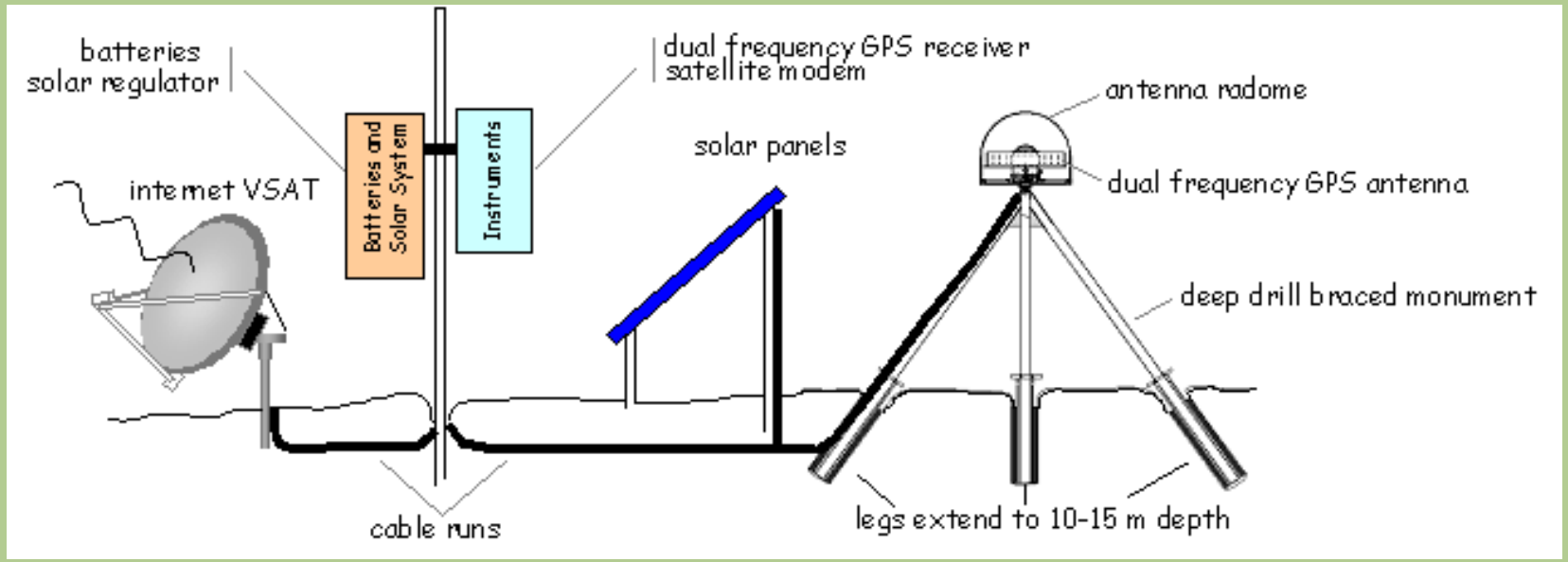
PBO Network Design

- 875 new CGPS stations
- 225 existing CGPS stations
- 100 SGPS receivers
- 143 BSM stations
- 5 LSM stations

- Year 1 goals:
  - 50 installed CGPS stations
  - 1 installed BSM station

GPS Instrumentation

- Trimble NetRS receivers and choke-ring antennas
- SCIGN-type deep- and shallow-drilled monuments
- Solar/wind DC power, AC where possible
- IP-based data comms over CDMA, VSAT, Internet radio, etc.



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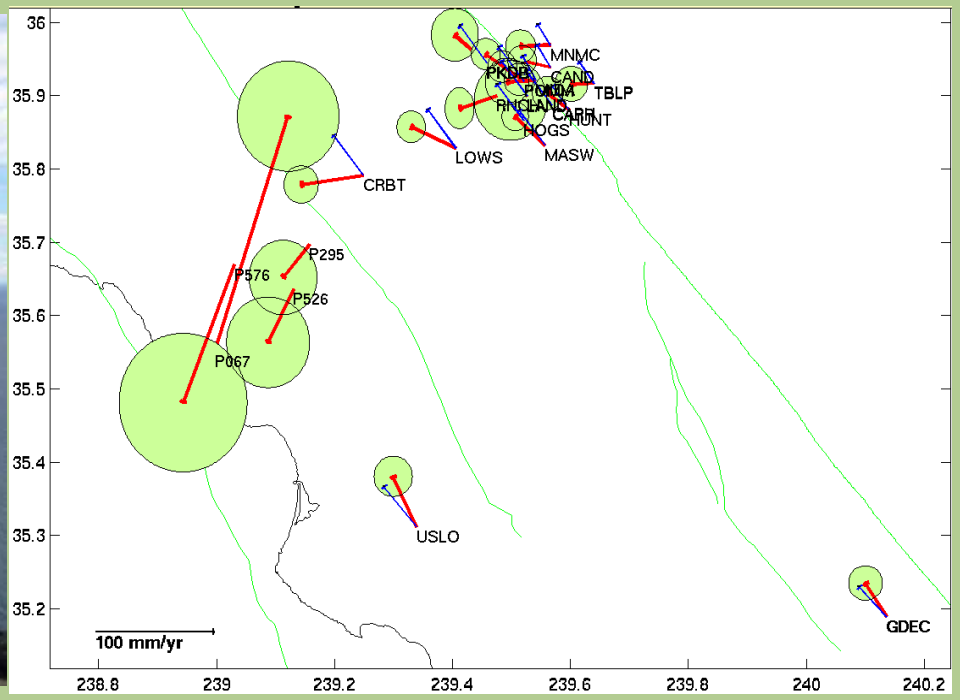
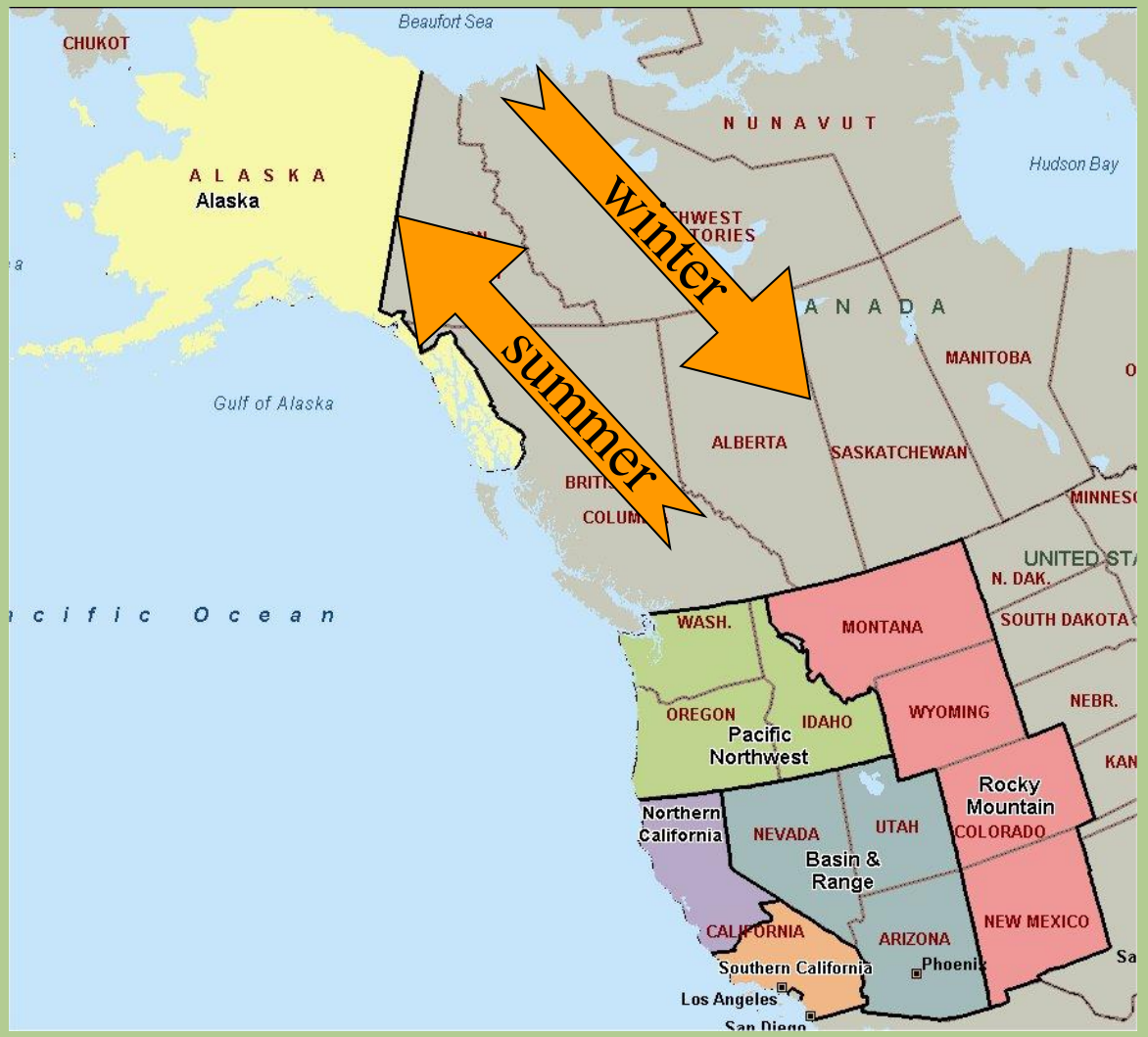


PBO Regions

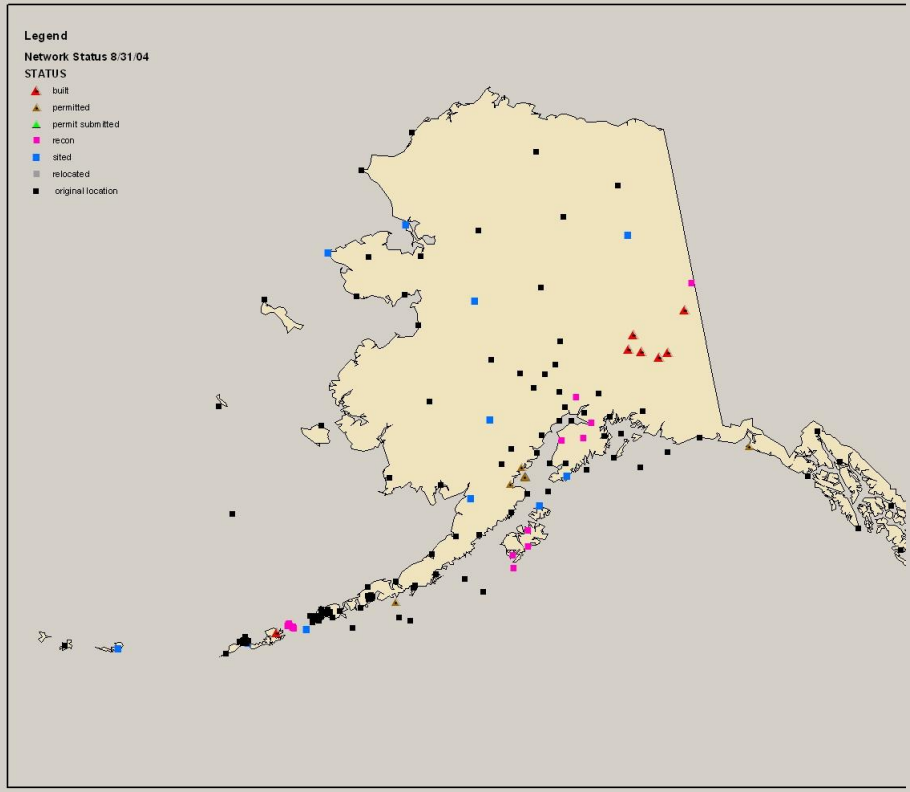
- Project broken down into 6 regional offices.
  - Rocky Mountain
  - Basin & Range
  - Pacific Northwest
  - Northern California
  - Southern California
  - Alaska
- Use UNAVCO Facility engineers, when available.
- Installations occur simultaneously in all regions

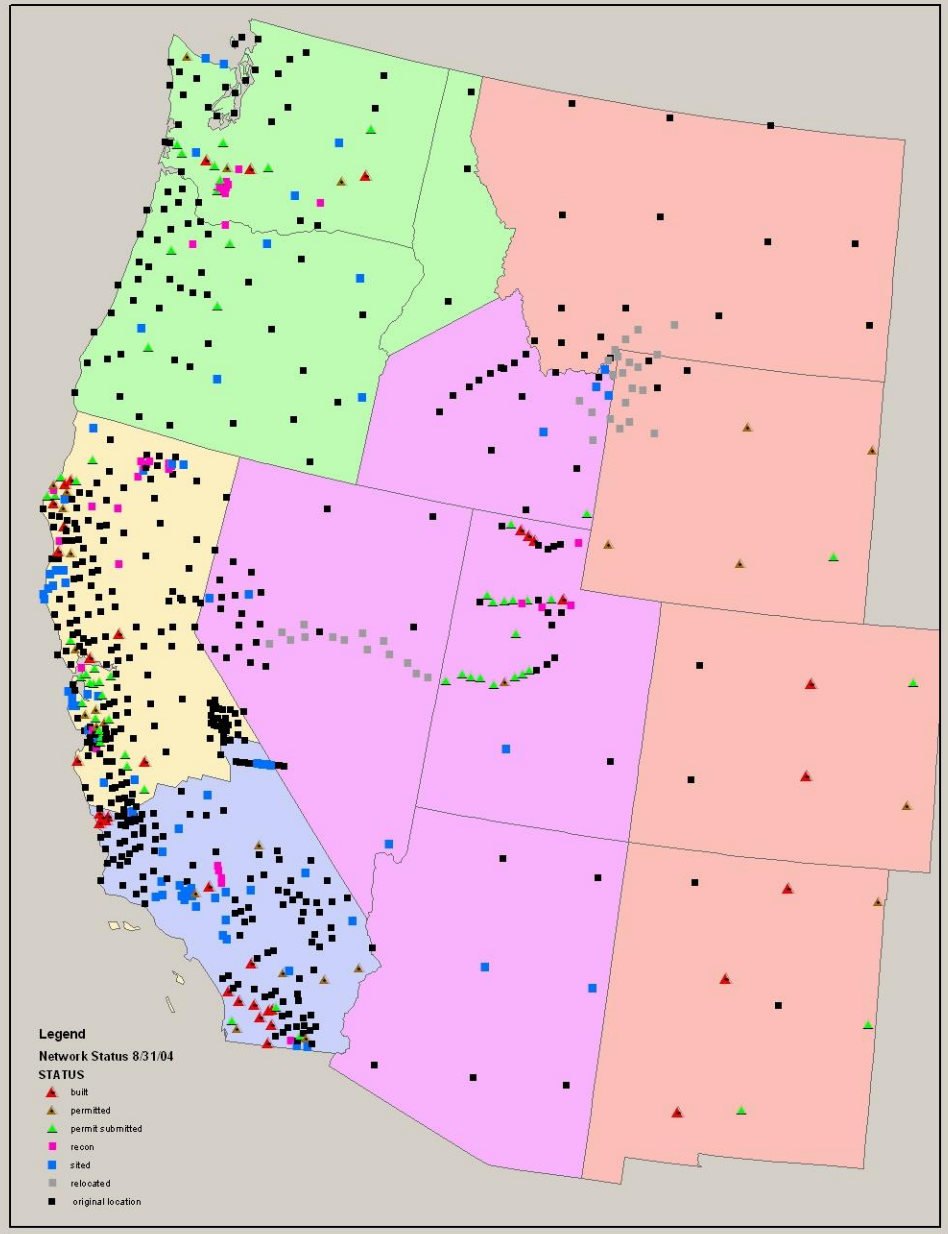


Network Progress: 21 Sep 2004

Preliminary station locations identified	342
Final station locations identified	203
Permits submitted	154
Permits accepted	80
Monuments installed	48
Data available	29
Routine archiving	22

Status Maps: 1 Sep 2004





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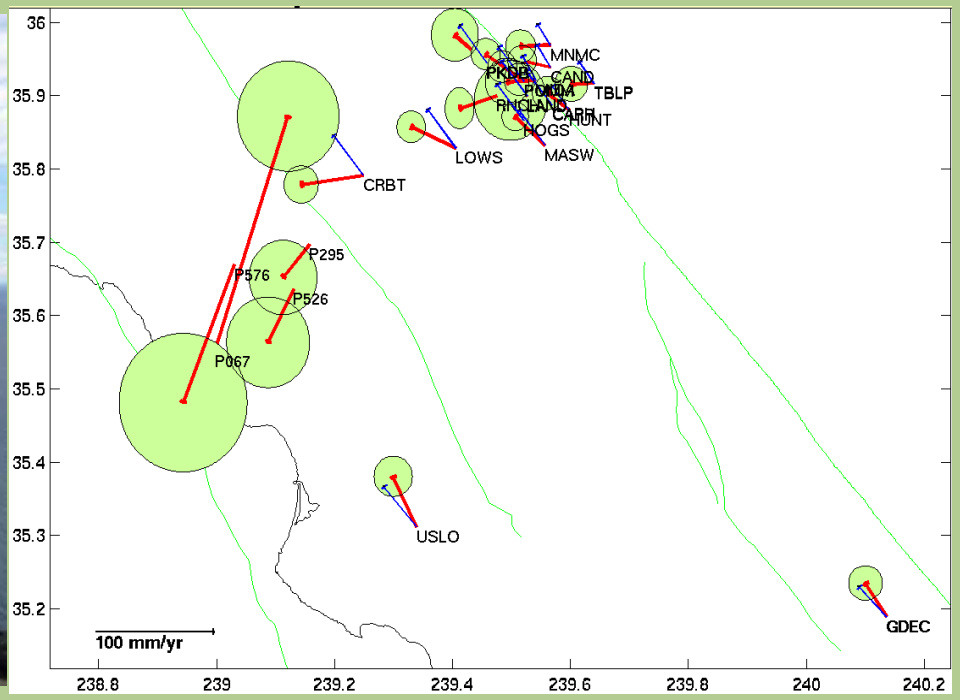


Data Management Overview

- Data Status
  - 29 of 46 stations have returned data
  - 22 stations archived routinely
  - Others lack comms or have comms problems
  - Data for Jan-Sep available via GPS archives
- Data Analysis
  - 2 Analysis Centers & 1 GPS AC Coordinator
  - Data products: position & velocity solutions, time series, etc.
  - Archived at GPS Archives
  - All products available from Archives & EarthScope Data Access System
- Data Management
  - Data Management web site: http://pbo.unavco.org/data
  - GPS ACs/ACC RFPs in final review

PBO GPS Data Products

Less

Processed

More

Level 0: Raw data & Metadata

- 15-sec, 24-hour BINEX files, at least daily download
- 5-sps BINEX, triggered download
- 1-sps real-time BINEX & RTCM, where possible

Level 1: Processed data

- GPS position solution
- Processing input & output files
- Created by 2 ACs, TBD

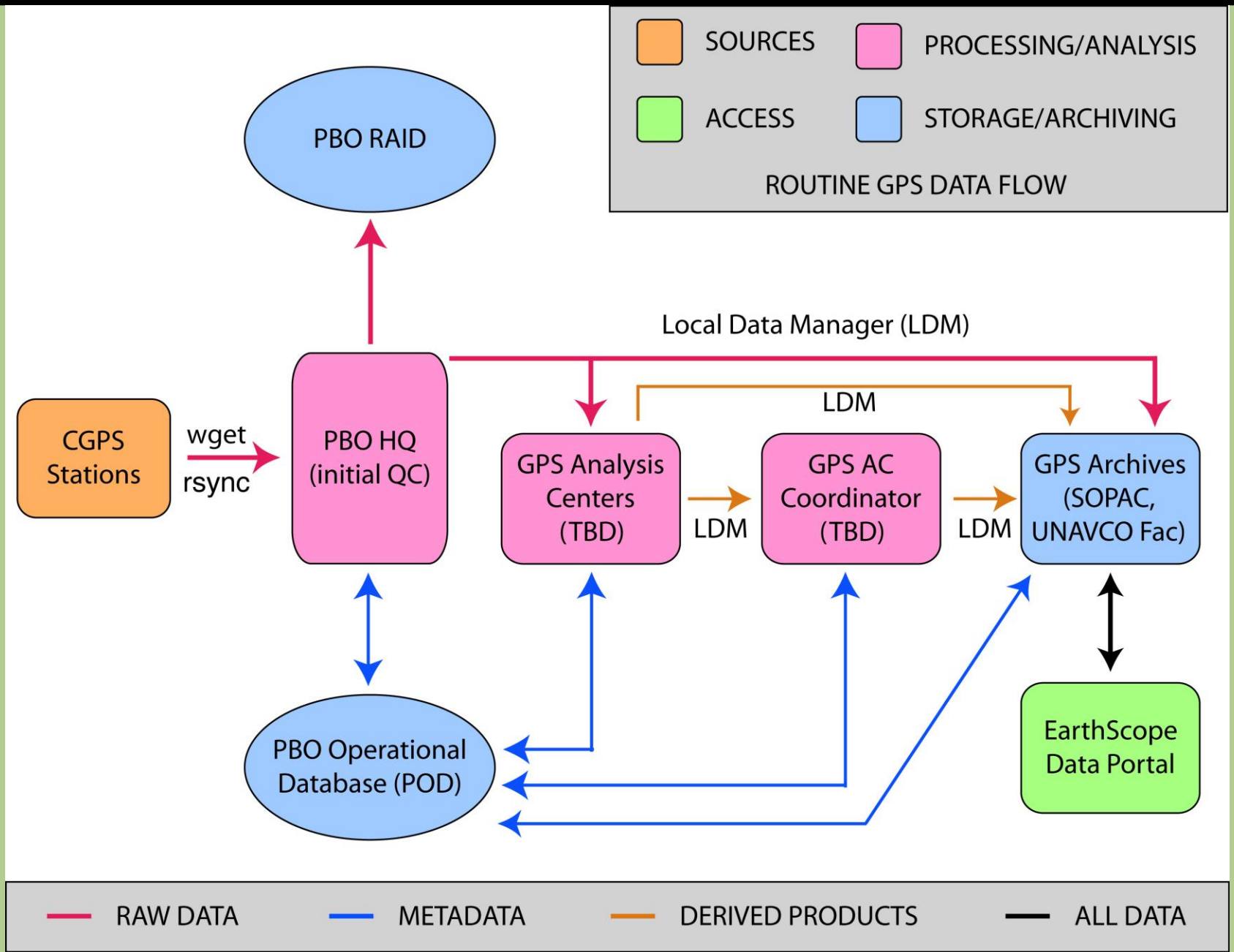
Level 2: Derived quantities

- Combined position & velocity solutions
- Position & baseline time series
- Coseismic offsets
- Created by ACC, TBD

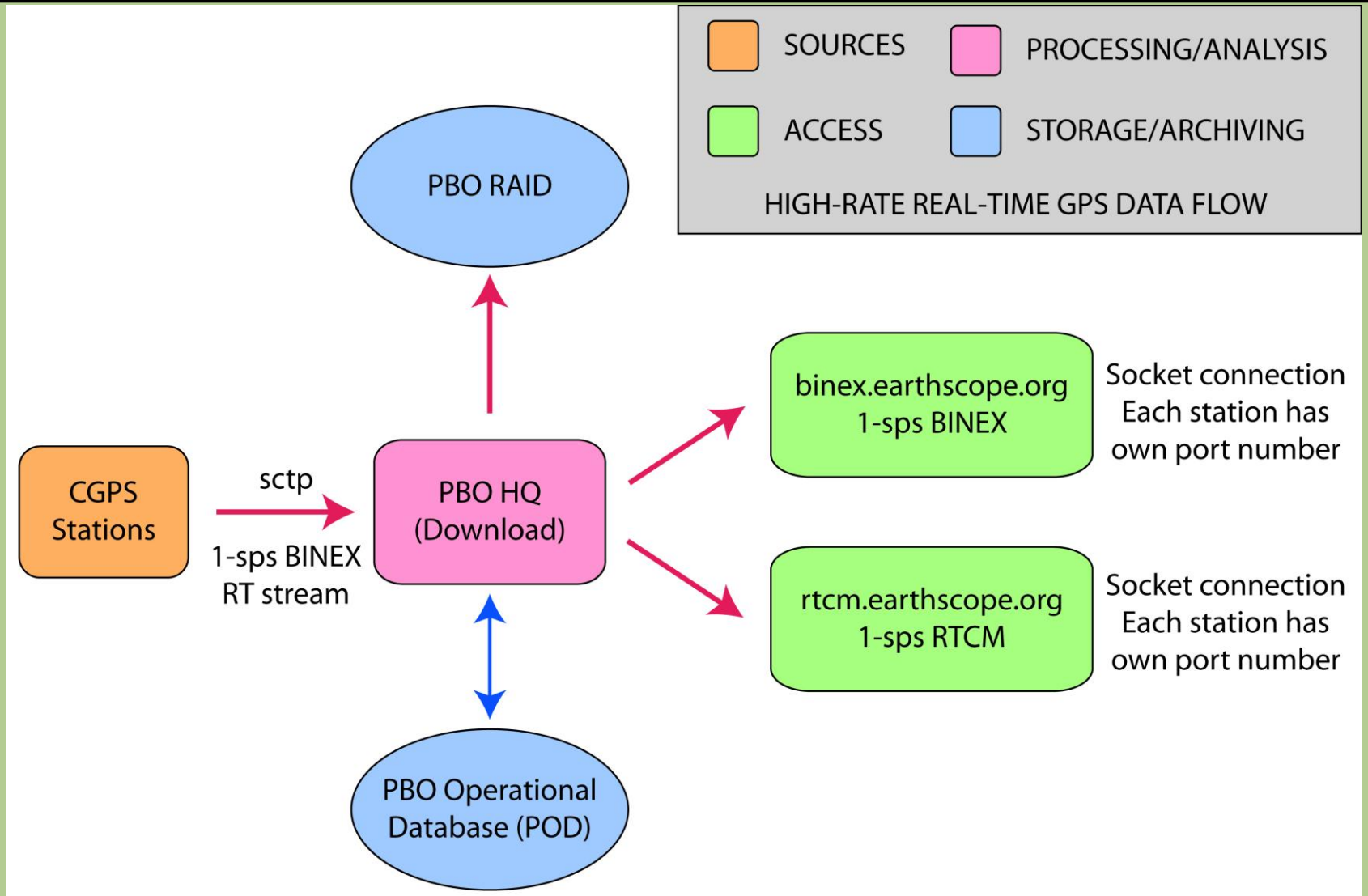
Level 1 & 2: 3-day, 15-day, 6-month latencies

Archived at PBO GPS Archives

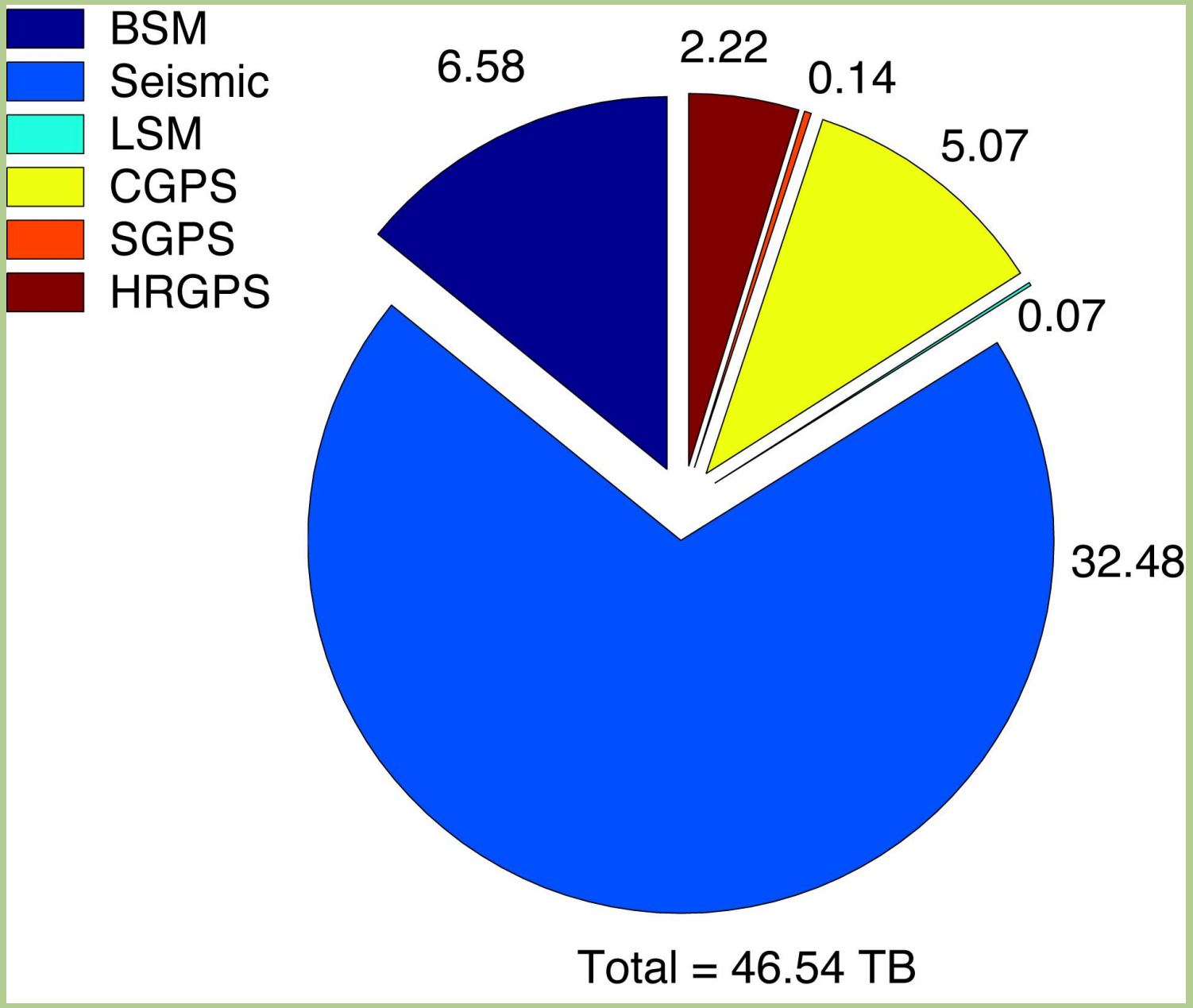
GPS Data Flow



High-rate RT GPS Data Flow



PBO Network Total Data



Summary

- PBO is geodetic component of EarthScope project
- Network Operations Status
  - 875 new CGPS stations over next 5 years
  - 48 new stations are installed
- Data Management Status
  - Data Management web site: http://pbo.unavco.org/data
  - 29 of 48 stations have returned data, 29 routinely
  - Data for Jan-Sep available via GPS archives
- Data Analysis
  - RFPs for Analysis Centers & AC Coordinator in final review
  - Data products: position and velocity solutions, time series, etc.
  - All products available from Archives and EarthScope Data Access System

For more information…

http://pbo.unavco.org

www.earthscope.org