MULTI-USE MULTI-USER COLLABORATIVE RESOURCES

STATION -> NETWORK -> FEDERATION

Intentions and un-intended consequences

- Station
  - Exchange phases, records
    - WWSSN / ISC model - film-chips, bulletins, catalogs
  - Collaborate on experiments
- Regional/National Networks
  - Exchange event data
  - Real time streaming
  - Archival access through common data center (IRIS)
- Federation
  - "Formal" federations
    - FDSN - IRIS – Full/restricted access
    - NEIC – real time monitoring
  - Contributed data

- Station
  - Individual and institutional interests
  - WWSSN – nuclear monitoring
  - Global seismology and plate tectonics
- Regional/National Networks
  - National e'quake monitoring needs
  - Enhanced research applications
  - Global exchange and standardization
- Federation
  - Global tomographers and USGS
  - Free and open data exchange
  - Enhanced scientific and technical exchanges

BEYOND NETWORKS AND FEDERATIONS

- "Networks without borders"
  - Common interests - research and hazard applications
  - Continental Scale
  - Project and processes beyond national boundaries
  - Mutual support for growth and enhancement
  - Commitment to
    - Common standards
    - Open data exchange
- Opportunity for seismology to lead in open scientific collaborations
  - Seismology as a global and international science

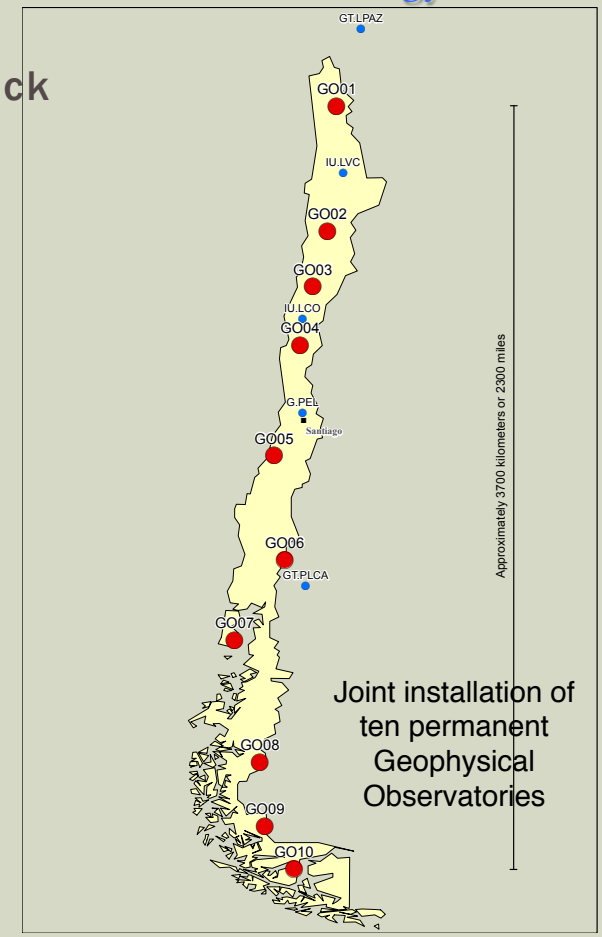
NOMINAL COSTS

- If we assume (from USArray/TA, CEUSN, CNS etc)
  - $50-100K/station — hardware, installation materials
  - $20-50K/station/year — data collection only (not analysis or processing)
    - 50 station network
      - $2.5 – $5.0 M capital investment
      - $1.0 – $2.0M annual operational cost
    - 100 station network
      - $5 – $10M capital investment
      - $2 – $ 5 M annual operational cost

REALITY CHECK

- GRO-Chile Budget
- 10 station backbone network
  - BB seismic, strong motion, infrasound, metpack
- Total budget $1.4M
  - $1M from NSF + $400K cost share from UChile
  - 10 stn network and 3 yrs shared O&M
  - 10 * $50K + 3*10*$30K
  - $500K + $900K
  - $1.4M

IRIS – U Chile Collaboration in Seismology



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Large investments

- well outside the funding level for individual PI projects
- possible in highly competitive realm of “big science”

But - -

- not significant in major national infrastructure development
- not significant in cost of response to major disasters

And

- most appropriate for funding from multi-use, multi-sector support for hazard mitigation/response and research.

Challenges and Opportunities

- Engage and inform policy makers
- Encourage balance between research and mission activities
- Listen to lessons from the past
  - Implement phased development
  - Utilize appropriate and stable technology
  - Prepare, sustain and follow through
- Leverage diversified support
- Set standards and encourage mutual collaboration
  - Encourage open data exchange
- Seek productive collaborations – internal and external
  - Develop collaboration that are bilateral and symmetric
- Evolve the focus from:
  - Hardware –> to quality data –> to knowledge –> to practice