Observatório Nacional

RSIS
Rede Sismográfica do Sul e Sudeste do Brasil

RSIS Network (ON)

Observatório Nacional, Rio de Janeiro, Brasil

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Bogotá, Colombia

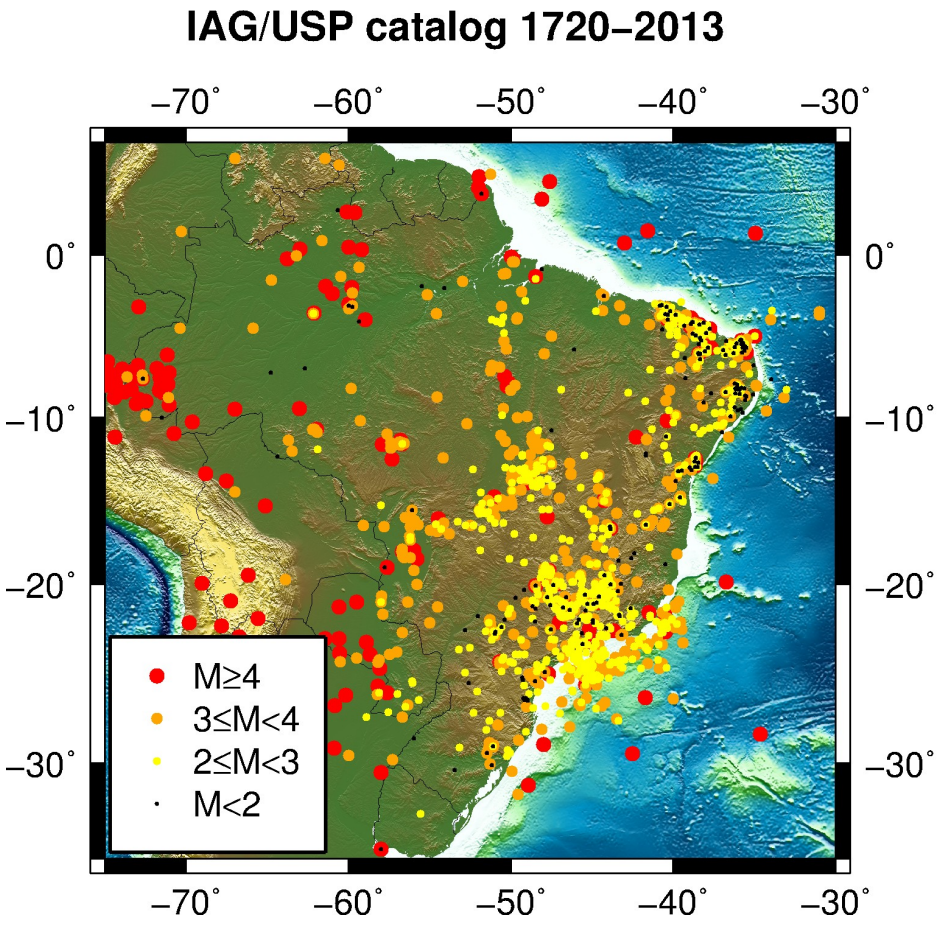
PETROBRAS

Ministério da Ciência, Tecnologia e Inovação

GOVERNO FEDERAL BRASIL PAÍS RICO É PAÍS SEM POBREZA

anp Agência Nacional do Petróleo, Gás Natural e Biocombustíveis

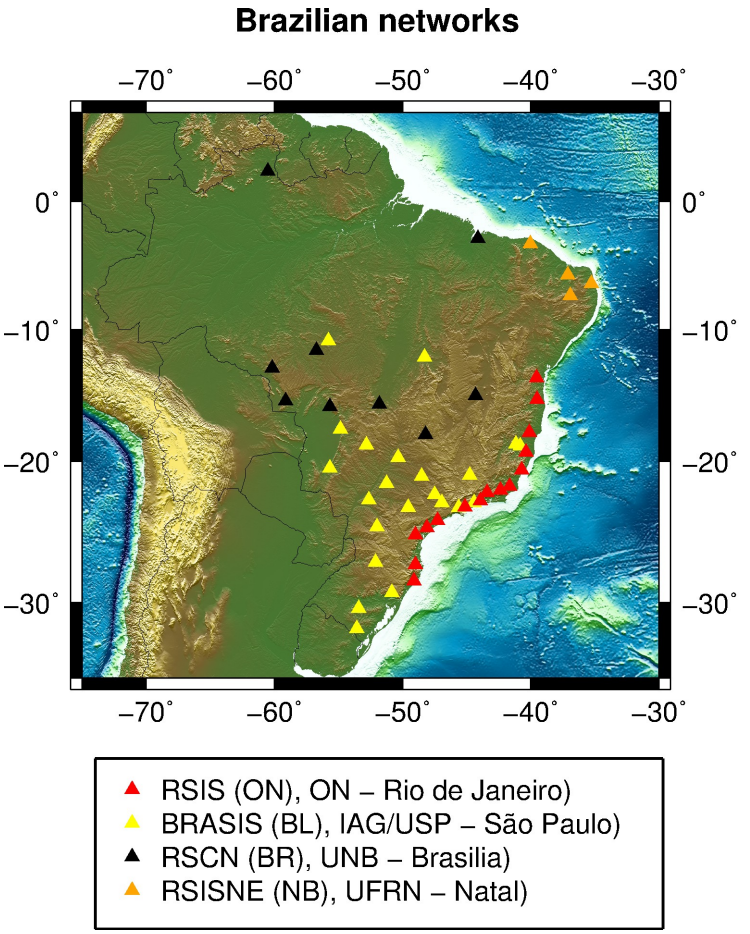
Brazilian seismicity



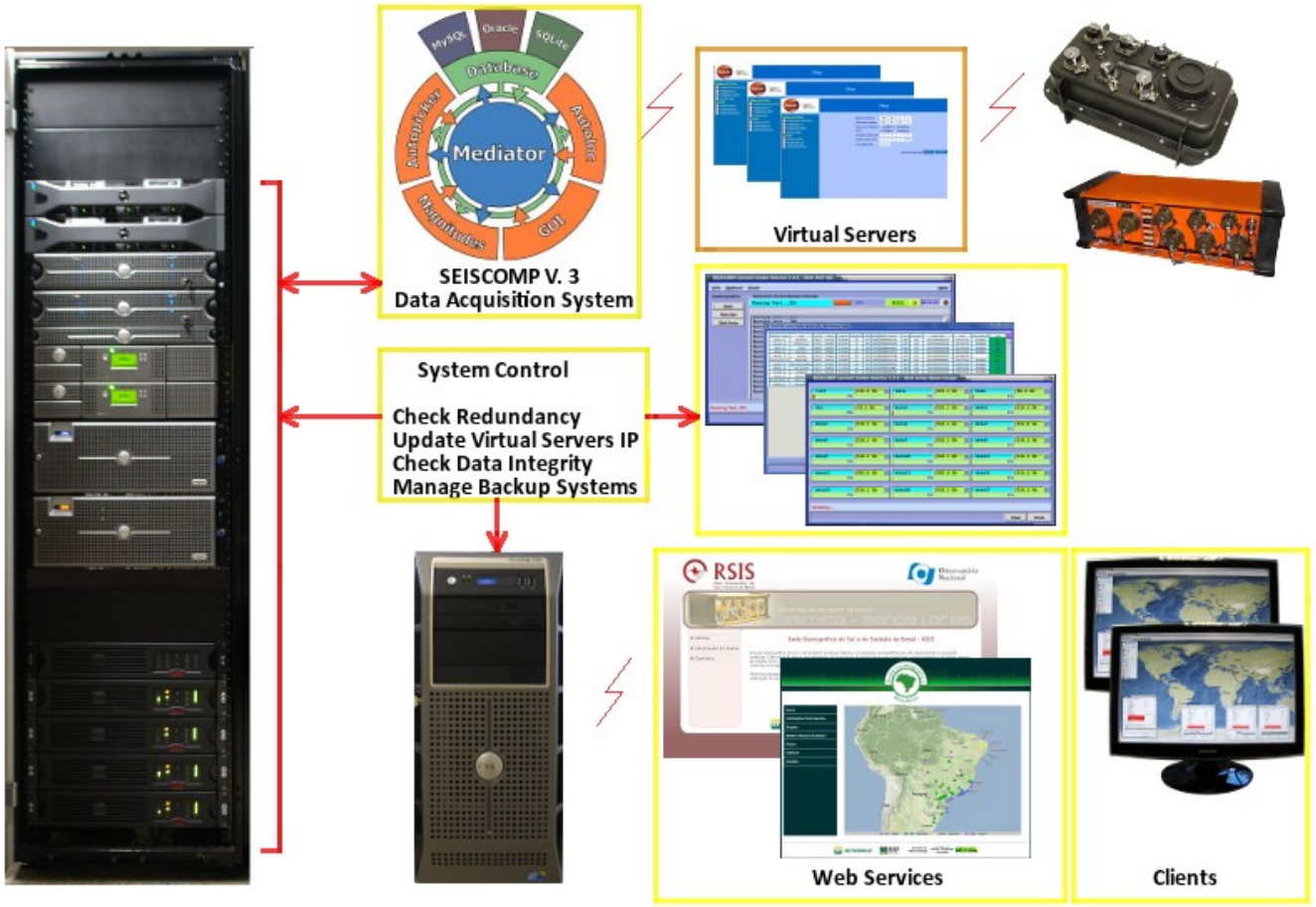
- Stable continental region
- Moderate seismicity
- Origin of this seismicity?
  - Weakness zones
    - Old tectonic structures
    - Suture zones...
  - Zones of stress concentration
    - lateral density variation
    - sedimentary load...

Recent network development in Brazil

- Project founded by Petrobras (2010-2014)
- Federative national network
  - ON, Rio de Janeiro
  - IAG/USP, São Paulo
  - UNB, Brasilia
  - UFRN, Natal
- Broadband stations
- Real-time transmission
- Monitor seismicity and crustal studies

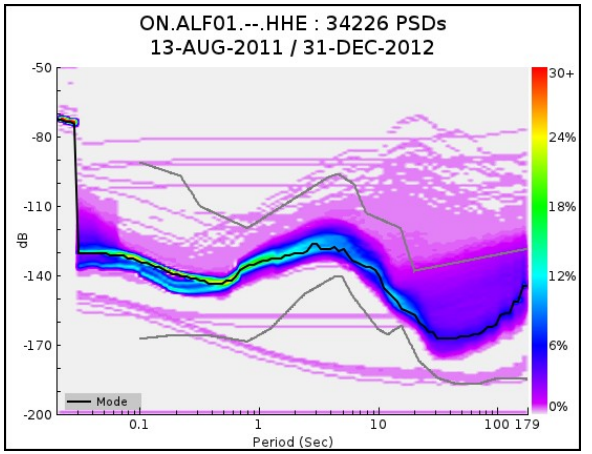


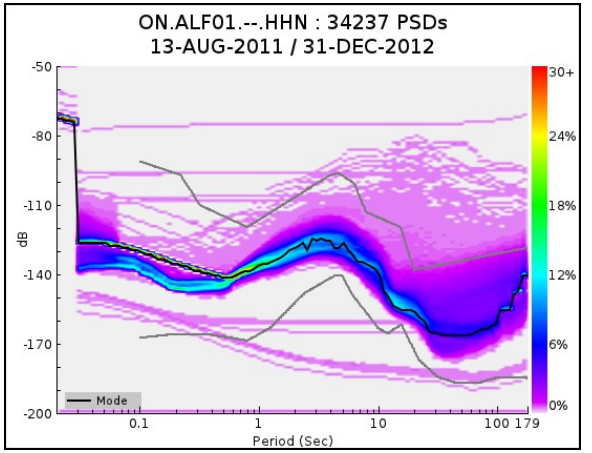
RSIS network scheme

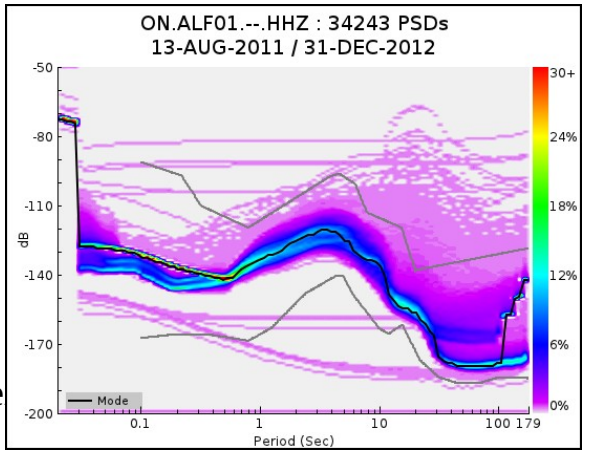


RSIS caracteristics

- Broadband sensors STS2
- Quanterra Q330SR dataloggers
- Data transmission through cellular connection
- Real-time processing using Seiscomp3 (together with the data from the associated Brazilian networks)







Data quality

- Manual collect of data every ~ 6 months
- Dataless built using PDCC
- Noise level McNamara & Bulland (2004) method
- Magnitude computation
  - Plugin Seiscomp to compute mR (Brazilian M scale)
  - Mw from analysis of Fourier spectra

On going projects using the data

- PSHA analysis
  - Earthquake catalogue
  - Magnitudes
  - Completness periods
- Crustal structure
  - Receiver function analysis
  - Noise cross-correlation