



The Portuguese Scholar Seismic Network



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The network project



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Supported by the *Ciência Viva* program created by the Science and Technology Office in order to promote and develop the teaching of experimental sciences.



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Scientific and technical support by the *Instituto Geológico e Mineiro*, IGM, a Geophysical Institute located in Lisbon, the proponent institution of the project since its beginning in 1996.

- Based on Lehman's seismometer and PSN – a project dedicated to amateur recording activities all over the world.
- 6 recording stations over the country working since 1998. The data recorded in each school is analysed and is available on the project's homepage <http://geomist.igm.pt/resine/>.

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Aims

- ① Develop the experimental study of the Earth Sciences, focusing the propagation and recording of seismic events.
- ② Promote an interdisciplinary approach to the Earth Sciences making use of knowledge on Physics, Geophysics, Geology, Geography, Computers ...
- ③ Promote the exchange of information between schools using the Internet.

The RESINE seismometers

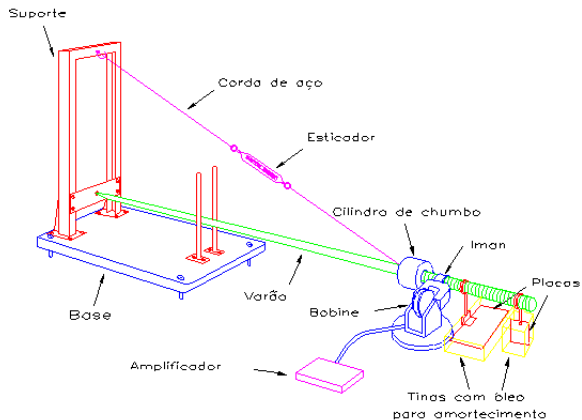


Diagram of the seismometer

The RESINE seismometers

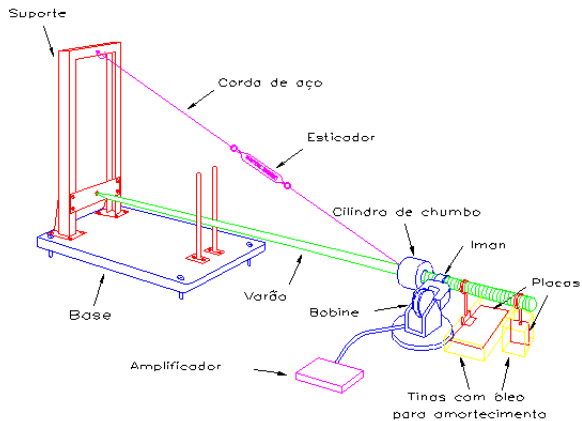
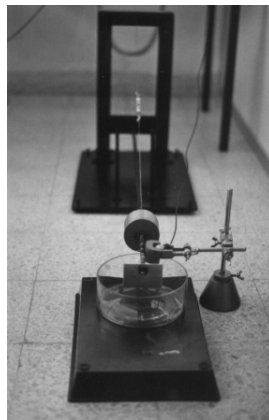


Diagram of the seismometer



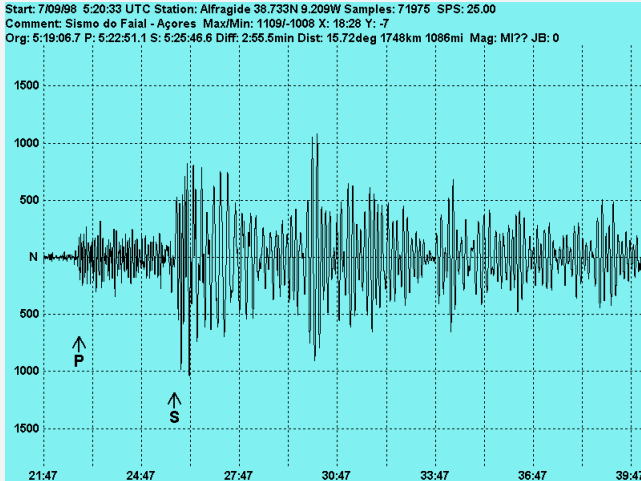
An early photo

Hardware and Software

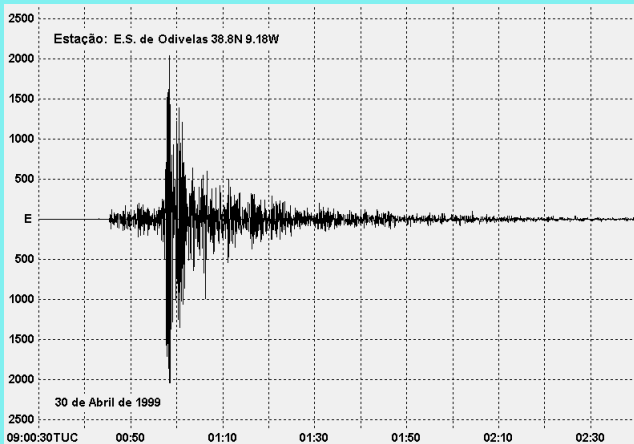
A PC running MS-DOS and connected to the sensor runs the data collection program and stores the data in another computer running Windows.

- Larry Cochrane's 16 bit A/D card is used in the MS-DOS machine
- data collection program – SDR (Seismic Data Recorder)
- displaying data program – WINQUAKE

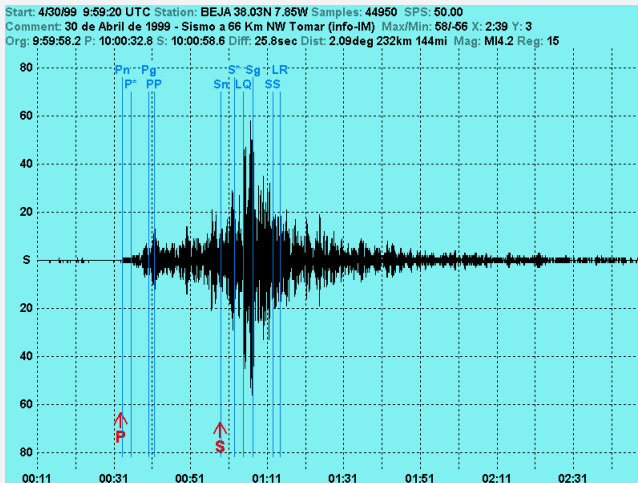
Some recorded events



Station – Alfragide (IGM)



Station – Odivelas (ESO)

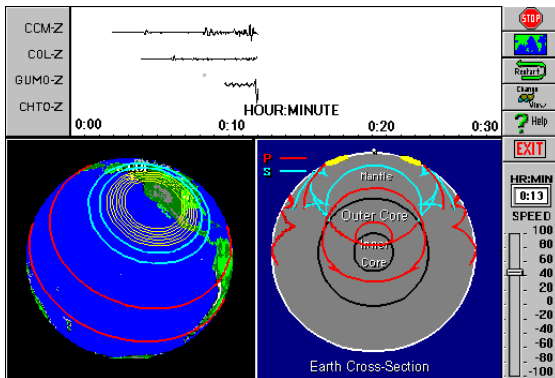


Station – Beja

Resources

Seismic Waves

A program for the visualization of waves propagation.



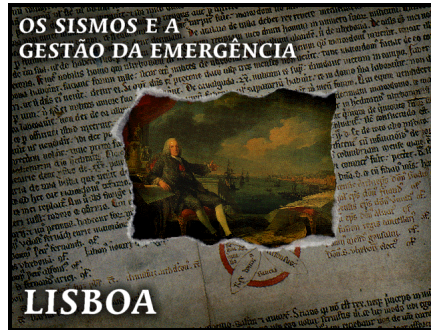
Seismic/Eruption

A program for the visualization of seismicity and volcanic activity in space and time.



Earthquakes and Emergency Management

A CD-ROM about seismicity in Portugal and community's response to earthquakes.



School activities

- The seismic data analysis
- Seismo-surfing the Internet
- Measuring the fundamental parameters of the seismometer – the simple pendulum
- Stick-Slip Movement *
- Shifting Plates and Wandering Poles *
- Quake-Smart Siting *
- Sizing Up Earthquakes *

- Earthquake in a Box *
- Structural Reinforcement: The Better Building *
- The BOSS Model: Building Oscillation Seismic Simulation *

* adapted from the “Seismic Sleuths”, a publication of the Federal Emergency Management Agency (USA) and the American Geophysical Union.

Meetings

Teachers and students involved in the project participated in the following meetings:

- “Forum Ciência Viva” – June/97
- “Forum Ciência Viva II” – June/98
- First RESINE Meeting on IGM – November/98
- Workshop RESINE/ROSEA in Azores – September/99
- Exhibition in an Interactive Science Center during the Week of the Science Culture – November/99