



Contribution ID: 112

Type: **Demonstration**

## **Impact of the synthetic seismogram archive for the CMT determination**

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The aim of this demo is to show the performance increase provided by an indexed synthetic seismograms archive. It is also an opportunity to identify partners wishing to distribute and consolidate this archive.

### **Detailed analysis**

The method used for CMT determination allows to keep intermediate results that can be used for results refinement but that also can be used for other earthquakes at the same location. This saves up to 80% CPU time (avg 600CPU hours) at the cost of less than 10GB per earthquake.

The use of a database interfaced with grid jobs (by use of the GRelC software) is the most accurate way to ensure that once recorded these synthetic seismograms will be used again if needed. The archive itself relies on grid storage facilities to allow full availability and consistent network usage.

### **Conclusions and Future Work**

The Grid already changed the utility of the application, allowing it to run effectively in a routine usage despite its heavy computation needs. The synthetic seismogram indexed archive not only improves the performance, but also the robustness and the flexibility of the application, and optimises its use of the Grid.

### **Impact**

The primary impact of the service is the tremendous decrease of time needed to complete a CMT determination once the synthetic seismograms are recorded. The added value of the database and the consolidated archive is to systematically reuse them. As these CMT are then useful for further studies, providing them to the community as early as possible is the main objective. As a side product, the database also provides statistics about the usage of the seismometer network by the application.

### **Keywords**

database earthquake seismogram archive

### **URL for further information**

<http://www.geoscope.fr>

### **Justification for delivering demo and/or technical requirements (for demos)**

the demo gives the opportunity to show the significant impact provided by the database and archive running in the same time as the full computation as well as other tools (VTK correlation display)

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**Session Classification:** Demo Session 1, Welcome Drink

**Track Classification:** Experiences from application porting and deployment