MINUTES of the SESAME Task C Meeting

Bratislava, February 20-21 2003

In the following, we give the minutes of the task C (WP08/09/10) discussions during the meeting in Bratislava, February 20-21, 2003. The meeting was mainly focused on informing the partners about what was done and on defining the near future tasks in noise computation for canonical models and real sites. These minutes end with the suggestion for rescheduled deadlines for giving the deliverables

I   Partners attending the meeting

Pierre-Yves Bard	LGIT – Grenoble
Sylvette Bonnefoy	LGIT – Grenoble
Cécile Cornou	ETH – Zürich
Donat Fäh	ETH – Zürich
Lucia Fojtíková	GPI SAS – Bratislava
Peter Franek	GPI SAS – Bratislava
Martin Gális	GPI SAS – Bratislava
Jozef Kristek	GPI SAS – Bratislava
Miriam Kristeková	GPI SAS – Bratislava
Peter Moczo	GPI SAS – Bratislava

II   Scientific matters

II.1   Summary of what was done

The concise review on all papers find on seismic noise was done by Sylvette Bonnefoy-Claudet. The text, now in French, will be translated into English.

Array measurements were done by several other participants in the project. Data from array measurements are available upon request from Sylvette Bonnefoy-Claudet.

Pierre-Yves Bard made brief information about single-station measurements. He informed that they are delayed and moreover different groups got different results.

Peter Moczo made a brief general introduction on NOISE package development. The incorporation of the realistic attenuation is done in a new way. The new definition of anelastic functions leads to better sensitivity of the finite-difference computing on the position of material discontinuity in the computational grid and to more stable numerical results. The necessity of using distant sources of seismic noise in some canonical models and models of real sites leads to work on incorporation of the so-called 'excitation box' into finite-difference code. The work on it is in the debugging state now and the prospective is that the code could be available at the end of May.

Jozef Kristek briefly informed about possible reasons of instabilities in the numerical modelling of seismic noise. One of the most probable cause is the large number of single-point single-direction forces used as sources of seismic noise. He also told about problems at corners of the computational grid. There were likely due to Day's coarse sampling of the anelastic functions and relaxation frequencies. This is solved by introducing of the new definition of anelastic functions as it was mentioned in the talk by Peter Moczo.

Miriam Kristeková and Donat Fäh briefly informed about development and testing of time-frequency method for H/V computation using wavelets.

II.2   Discussion

Donat Fäh and Cecile Cornou are performing comparisons of the package NOISE, Hisada's code and mode-summation method. They observed for the same ELASTIC model and the same receiver
  - qualitative difference between seismograms computed using diffuse and localized sources by NOISE ,

- qualitative difference between seismograms computed by NOISE and computed by Hisada's code using diffuse sources.

Donat Fäh sees the disagreement between FD and Hisada above 3Hz in synthetic seismograms computed for canonical model M2. This has to be explained.

Cecile Cornou reported the disagreement between results for different grid spacing h=8m and h=4m for 100 source at one time.

The discussion about using distant sources of seismic noise in the simulation of real sites leads to the following results:
- To save time and memory it is possible to use 2D P-SV input for 3D excitation box.
- Below the real structures use the same crustal model – starting with the velocity equal to highest velocity in real-site structure.
- In canonical models M6, M10a and in real site models Colfiorito, Grenoble, Basel, Volvi use vertical wall of the line sources, one 'point' source = vertical force.
- For local sources do not consider crustal structure.

II.3   Activities after the meeting

1D Canonical Models: Cecile Cornou and Sylvette Bonefoy-Claudet will perform the seismic noise simulations in 1D canonical models using Hisada's code.

Real sites: Cecile Cornou and Jozef Kristek will perform the seismic noise simulations in *3D model of Grenoble* valley with only local sources using NOISE.
Martin Galis and Peter Franek will work on preparation of the *Basel model* and perform tests of *Colfiorito model*.
For *Volvi* structure it is necessary to wait for finishing of the work of Greek colleagues.

Around March 10 : Cecile Cornou will go to Bratislava to initiate FD simulations for 3D canonical models and real-site models.

II.4   Agenda

Reports and deliverables
The 2nd-year report will contain the 2nd version of the NOISE package; this should be accompanied by the reference to four methodological papers directly linked to the NOISE development.

Deliverables in time:
- D13 – interpretation – will be temporarily replaced by Sylvette's literature   survey

Delayed deadlines for deliverables : **+ 6 months**
- D11 – real sites
- D12 – parametric studies for canonical models
- D17 – comparison of real and synthetic records for real sites

Prolongation of SESAME: **+ 3 months**
= final report deadline the end of September 2004

Future meetings
Next SESAME Task C Meeting will be in Grenoble, May 26, 2003

During the Smolenice Workshop there will be also a Task C meeting : Sunday Sept 21 in Smolenice or Thursday Sep 25 in Bratislava