PREPARED

Application of practical experience gained from two recent large earthquakes in the South Iceland seismic zone in the context of earthquake prediction research to develop technology for improving preparedness and mitigating risk

Contract no. EVG1-CT-2002-00073

Second Periodic report

SECTION 1:

Management and resource usage summary
Months 19 - 24: August 1, 2004 – January 31, 2005

Participants information

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1.1 Objectives of the reporting period and summary

The central objective of the project is to apply large amount of geophysical and geological observations related to the two large earthquakes in the year 2000 in the South Iceland seismic zone to develop technology for improving earthquake preparedness and mitigating risk.

The start date of the project was February 1, 2003. The general objectives of the project are described in the 12 months Management and resource usage summary. A two days workshop, i.e. the PREPARED mid-term meeting was organized in Reykjavík, January 30-31, 2004, to sum up and discuss the first 12 months of the project, and pave the road for the last part of the project.

The next 12 months of the project were a direct continuation of the previous work and based on the discussions at the mid-term meeting, to fulfill the general objectives of the project. Months 13-18 of the project were described in a Management and resource usage summary six months ago. Months 19-24 are described here. The PREPARED project was originally planned as a 24 months project, however 6 months extension of the project was accepted as well as a revised Description of Work (DOW). So now the project is a 30 months project being finished on July 31, 2005.

1.2 Scientific/Technical progress made in different WP´s according to the planned time schedule

Work on the project has been carried out during the last 6 months in accordance with plans, especially with the revised DOW. For scientific reasons and new discoveries, some further evaluations of basic data proved to be necessary during an earlier part of the project. This did cost some minor delays in some WP´s. Also there were some delays caused by practical reasons. This was described in the 12 and 18 months Management and resource usage summaries. Five of the WP´s (WP2, 3, 4, 5 and 6) are, however, based on merging together results from all the other WP´s. These five WP´s are of basic significance for the outcome of the central objective of the project, i.e. to create technology directly applicable for mitigating risk. These WP´s have started more slowly than anticipated because they are based on other WP´s which are not yet at the stage that the results can be applied in the fusion work. For this reason following application for a six months extension to the PREPARED-project was sent to the programme officer:

“The PREPARED-project is based on applying results and experiences of former EC earthquake prediction research projects, and of the large earthquakes in the South Iceland lowland in year 2000, to produce practical methods and software tools for warnings, long- and short-term assessments, aiming at mitigating risks from large earthquakes.

The various parts of the project are carried out by cooperation of 16 institutions in 25 workpackages. It is hoped that the final results will be technology and tools for improving preparedness and for mitigating risks. The fusion of the results of 24 individual WP´s will be carried out in five WP´s where all the partners participate. The final directly applicable tools are produced in these 5 WP´s based on cooperation of the front line scientists/institutions that are responsible for the results of the other WP´s. Any delays in providing results from the individual WP´s will delay the project as a whole.

Significant new findings during the course of this project revealed that some reevaluations and reconsiderations had to be done.

Most significantly, as detailed in Section 1 of the First Periodic report, it became evident in the first part of the project that the potential significance of information carried by microearthquakes was larger than anticipated, which requested reevaluations of the microearthquake dataset up to a very high level. This reevaluation was made available by the coordinator IMOR in month 8 of the project. Although some WP´s made preliminary use of the huge and high level seismic dataset from the start of the project, reevaluation to this higher level showed to be of basic significance for the majority of the WP´s. The WP´s 2.1, 2.2, 2.4, 3.1 and 4.1 had for this reason full start later than planned.

GFZ Potsdam, responsible for WP6.1, considers it most significant to wait for reevaluation of historical data of WP5.4 before finalizing significant parts of its modelling work. However, the results of WP5.4 are not expected until in month 24, as planned.

UNIVTS-DST, responsible for WP4.2, Inversion of strong motion data, has run into unforeseen problems in constraining final slip/moment distribution on the fault planes of the large earthquakes, indicating that a more complicated model has to be searched for.

Also some delays occurred in the work of two partners because of operational reasons. Partner 5, UIB (University of Bergen) in the original contract, was replaced by the University of Göttingen by a contract amendment, delaying work in WP5.5. This delays D87 which is carried out in close cooperation with UPMC and DF.UNIBO and thus interacting with WP6.2 and WP5.6. Interaction with UPMC on D89 is also more demanding than expected.

Also, as reported in the First Periodic Report, a very significant post doctoral student, could not be hired until 6 months later than planned by partner 8, DF.UNIBO, delaying the start of some work items in WP6.2.

All partners have tried as far as possible to work faster in cases where delays have been in starting projects or in cases where new understanding demanded new approaches. This project as a whole is revealing and in many aspects provides a new and innovative understanding of crustal processes and earthquake release. A significant part here is the role of fluids in the crust in stress build-up and earthquake nucleation. New approaches involving more complicated models than conventionally applied have been necessary. This has involved more work, but it is also paving the road for new and innovative results.

All the five fusion WP´s, i.e. WP2, WP3, WP4, WP5 and WP6 will be delayed because of sometimes minor but cumulative delays in several packages that are needed for merging the results towards final outcome of this project, i.e. methods that can be applied directly in work for mitigating earthquake risk.

On reasons detailed above the Icelandic Meteorological Office hereby applies for a six months extension to the PREPARED-project, i.e. to July 31, 2005, which it considers necessary to achieve a good result for this project. Revision of DOW as far as concerns planned outcome of the work and deliveries is enclosed.

September 16, 2004

Magnús Jónsson
Authorized Administrative Official

Ragnar Stefánsson
Project Scientific Leader

This extension was granted. It must be noticed that even if many partners have finished the deliveries which they were responsible for (their WP´s) much work is left for them, especially as all of the must participate in the WP´s 2,3,4,5,6 which are lead by the coordinator, and partly in finishing publications etc.

Table 1 shows a comparison between planned (in accordance with the revised DOW) and executed efforts by workpackages. Table 2 and Table 3 show comparison between planned and used manpower.

In the following the progress of the various WP´s is summarized shortly.

1.2.1 WP1 – Coordination. Scientific coordination and management is in the hands of IMOR and has been performed as planned in the DOW.

1.2.2 WP2 – Analysis of multiparameter geophysical data approaching the June 2000 earthquakes, assessing state of stress. The work which is led by IMOR is ongoing. IMOR has carried out general analysis work on the 10 years of microearthquake data preceding the 2000 earthquakes. Among results of this work is participation in and the submission of a paper by Max Wyss and Ragnar Stefánsson to BSSA, and presentations of results at scientific meetings during the period. This WP is one of the WP´s for fusion of the results from other WP´s, carried out by 7 partners. Discussion have been ongoing between them, but results of the many basic WP´s are not ripe enough to be a basis for a common special public report (D9) planned for month 22 and it will be delayed month 27 and D11 will consequently be delayed to month 28. The final delivery of WP2 will be presented in month 30.

1.2.2.1 WP2.1 – Pattern search in multi-parameter seismic data. There are no deviations from the workplan, and all milestones have been achieved.

1.2.2.2 WP2.2 – Possible precursory seismic quiescence and b-value changes. Milestones have been achieved as planned and reported in a submitted paper. Some work will be carried out during this last period especially on basis of peer-reviewing of this paper.

1.2.2.3 WP2.3 - Long-term deformation in the SISZ inferred by joint intepretation of GPS, InSAR and borehole strain data. All planned milestones have been achieved and planned deliverables to a significant extent. Some work remains on basis of integrating results with several other partners of the project. Reanalysis of the GPS data is being done in collaboration with CNRS-UMR 5562. Additions to D22 are planned well before the end of the project.

1.2.2.4 WP2.4 – Space and time variations in crustal stress using microearthquake source information. So far all deliverables have been delivered in planned time. The final delivery (D27) will be ready in month 27 as planned.

1.2.2.5 WP2.5 – Using shear-wave splitting above small earthquakes to monitor stress in SISZ. Work is continuing according to plans and all deliveries on time. The two last deliveries are expected to be finished in month 27 as planned.

1.2.3 WP3 – Short-term changes/precursors. This is a fusion WP led by IMOR with participation of UU and SIUI. In this package results of WP2.1, 2.2, 2.3, 2.5, 4.1, 5.5 and 6.2 will be merged together to develop multidisciplinary short-term warning algorithm. IMOR has carried out analysis work with the seismic data during this period as reported at a meeting.

All deliverables are on time. The final deliverables of this package are expected to be on time, D39 in month 28, D40 and 41 in month 30.

1.2.3.1 WP3.1 – Foreshocks and development of new warning algorithms. Work is ongoing here lead by UU and with participation especially of IMOR. Deliverables D42 and D43 have all been partly finished as preliminary reports and for testings in the warning procedures in Iceland. D44 has been submitted but major revisions are needed. Refinements are being worked out and are expected in a few months. The planned final deliveries, D45 and D46, are expected to be on schedule, i.e. in month 27.

1.2.3.2 WP 3.2 – Radon anomalies/Development of warning algorithms. The WP is mostly on schedule. D49 has already been submitted to GRL. The final delivery (D50) is slightly behind schedule.

1.2.4 WP4 – A model for the release of the two June 2000 earthquakes based on all available observations. This WP is lead by IMOR with participation of 3 other partners, NVI, SIUI and UNIVTS-DST, based on results of WP´s 4.1, 4.2, 4.3, 4.4, 5.5, 6.1 and 6.2. Deliveries so far are on schedule. It is expected that the last deliveries will be on time: D53 will be finished in month 27, D54 will be delivered in month 29 and D55 in month 30.

1.2.4.1 WP4.1 – Source mechanism and fault dimensions of the June 17 and June 21 earthquakes determined from the inversion of teleseismic body waves and from mapping of aftershocks. Precise relocations of aftershocks of the 2000 earthquakes, which is basic for mapping of the faults and fault processes during the earthquakes, is finished. Further interpretations are progressing well. The deliveries D56 and D57 are expected in month 27 and 30 respectively, in accordance with DOW.

1.2.4.2 WP4.2 – Analysis, inversion and estimation of strong ground motion data from extended earthquake fault models of the two June 2000 Icelandic events. Deliveries D58-64 are already delivered, except D61 and D64 which are delayed because of problems encountered and are now expected to be delivered before month 27.

1.2.4.3 WP4.3 – Surface fractures in the source region of the June 2000 events. There are no deviations from the workplan and all planned deliverables have been accomplished.

1.2.4.4 WP4.4 – Deformation model for the June 2000 earthquakes from joint intepretation of GPS, InSAR and borehole strain data. There are no deviations from the work plan and deliverables D71 and D72 are on time. D73 is also expected to be finished on time according to DOW.

1.2.5 WP5 - New hazard assessment/New methods for improving assessment of probable earthquake effects. This WP is lead by IMOR with participation of NVI, UPMC, UNIVTS-DST, UI, UGOE and also based on WP´s 5.1-5.6, WP4.2 and WP´s 6.1 and 6.2. Work is ongoing. All deliveries are on time. D76-78 are planned for months 27, 28 and 30 respectively are on schedule.

1.2.5.1 WP5.1 – Mapping of subsurface faults in southwestern Iceland with the microearthquakes induced by the June 17 and the June 21 earthquakes. Catalogue of relocated events (D79) has been published. D80 scheduled for month 24 will be finished in month 26. D81 is expected to be on schedule in month 28.

1.2.5.2 WP 5.2 – Mapping and interpretation of earthquake rupture in the Reykjanes peninsula and other surface effects there and in the SISZ. This WP is on schedule and the only delivery planned (D82) has been completed in accordance with DOW.

1.2.5.3 WP5.3 – Study of the strong ground motion, acceleration and intensities of the two large earthquakes. No significant deviation from workplan. All deliveries have been completed.

1.2.5.4 WP5.4 – Reevaluation of historical earthquakes in light of the new observations. Progress is in accordance with DOW. The only delivery (D86) expected in month 26.

1.2.5.5 WP5.5 - Hydrogeological changes associated with the June 2000 earthquakes. After some deviations in workplan at an earlier stage, as well documented in the 18 month report, the progress is in accordance with DOW, D87 is already delivered and D88 is expected in month 28.

1.2.5.6 WP5.6 – Paleo-stress fields and mechanism of faulting. Scientific progress is according to the planned time schedule. D89 is already delivered and D90 is expected to be in accordance with DOW, i.e. in month 28.

1.2.6 WP6 – Modelling and parameterizing the SW Iceland earthquake release and deformation processes. IMOR leads this WP, with participation of SIUI, DF.UNIBO, GFZ and CNRS-UMR 5562. The WP takes to the modelling earthquake release in the SISZ as a whole as well as in its continuation in the Reykjanes peninsula. It is a fusion package based on progress and results of WP´s 6.1 and 6.2 and on results of various other WP´s parameterizing or modelling on basis of various observations. The final deliveries of this package are expected: D93 in month 27 and D94 and D95 in month 30, all in accordance with DOW.

1.2.6.1 W 6.1 – Earthquake probability changes due to stress transfer. This work has been in good progress. Thus the first delivery if this package, i.e. D96 was in some sense released several months ago, however new information from other packages request reevaluations for a better model. Work has already started on the second delivery, D97, which is expected to be finished in month 28 in accordance with DOW, together with a resubmitting of D96.

1.2.6.2 WP 6.2 - Model stress in the solid matrix and pressures in fluids permeating the crust. Progress is in accordance with plans. Deliverables D98-D100 are already completed and D101 is expected in month 26 in accordance with DOW.

1.3 Milestones and deliverables obtained

List of deliverables expected during the first 24 months and how they have been fulfilled:

D1	Kick-off meeting for the project, minutes	M01 Re RE	**Finalized M01 Re RE**
D2	Project website, internal, external	M03 Re PU	**Finalized M01 Re PU**
D3	Brief progress report	M06 Re RE	**Finalized M06 Re RE**
D4	First annual scientific report and cost statements	M12 Re PU	**Finalized M12 Re PU**
D4A	Brief progress report	M18 Re RE	**Finalized M18 Re RE**
D5	Second annual scientific report and cost statements	M24 Re RE	**Finalized M24 Re RE**
D7	Sessions at regular project meetings	M01 Re RE	**Finalized M01 Re PU**
D8	Sessions at regular project meetings	M10 Re RE	**Finalized M12 Re PU**
D9	A special report describing various patterns observed by the different methods	M22 Re PU	**Partly finalized M24 by this report Re RE**
D11	Procedures for describing the state of stress or Coulomb stress conditions in the SISZ	M24 Re PU	**Delayed to M28**
D13	Application of PCA to SIL-data, emphasizing computational statistics	M10 Re PU	**Finalized M12 Re RE**
D14	Application of PCA to SIL-data, emphasizing computational statistics	M12 Re PU	**Finalized M12 Re RE**
D15	Application of PCA to SIL data, emphasizing seismology	M22 Re PU	**Finalized M22 Re PU**
D16	Application of PCA to SIL data, emphasizing seismology	M24 Re PU	**Finalized M24 Re PU**
D17	Release of software package for PCA analysis of seismicity	M24 O PU	**Delayed to M26**
D18	Changes of seismicity rate	M12 Re PU	**Finalized M12 Re PU**
D19	Differences in b-values as a function of space (and possibly time), and the relationship of both of these parameters to the June 2000 main shocks	M24 Re PU	**Finalized M20 Re PU**
D20	Three-dimensional displacement field in a time-period prior to the June 2000 earthquakes	M12 Re PU	**Finalized M12 Re PU**
D21	Strain-field in the pre-seismic period	M12 Re PU	**Finalized M12 Re PU**
D22	Strain-field in the pre-seismic period, evaluation of earthquake precursors	M18 Re PU	**Finalized M18 Re PU**
D23	Estimates of the stress tensor in the SISZ during 1991 through 2001	M12 Re PU	**Finalized M12 Re RE**
D24	SAG analysis in the SISZ during 1991 through 2001	M12 Re PU	**Finalized M12 Re RE**
D25	Estimates of the stress regimes in the SISZ during the last 2-3 million years	M12 Re PU	**Finalized M12 Re RE**
D26	Results from statistical analysis of source parameters of the earthquakes in the SISZ during 1991 through 2001	M12 Re PU	**Finalized M12 Re RE**
D28	Plots of stress variations before earthquakes and volcanic eruptions	M12/24 Re PU	**Delivered to end user M08, M10, M11 Re PU**
D29	Stress-forecasts of impending large earthquakes issued to IMOR	Re CO	**Delivered to IMOR, Re CO**
D30	Report on stress changes estimates by SWS since 1996	M12 Re PU	**Finalized M12 Re RE**
D31	Reports in collaboration with other partners of imaging stress variations	M12/24 Re PU	**Finalized M12 Re RE**
D32	Reports on progress of ANN measurements of shear-wave splitting	M12 Re PU	**Finalized M12 Re RE**
D33	Reports on experience of selecting training sets for ANN	M12 Re PU	**Finalized M12 Re RE**
D36	Sessions at project meetings	M01 Re RE	**Finalized M01 Re PU**
D37	Sessions at project meetings	M10 Re RE	**Finalized M12 Re PU**
D42	Detailed documentation of the foreshock activity prior to the six largest earthquakes in Iceland during the last 10 years	M15 Re PU	**Partly finalized M18 Re RE**
D43	New short-term warning algorithms will be introduced in the Early warning and information system for testing, during the project time	M15 O PU	**Partly finalized Re RE. Final delivery delayed to M26.**

D44	An article describing the foreshock character, the statistical significance and relation to the various source information	M15 Re PU	**Finalized M21 Re PU**
D47	Time series of radon at all radon stations in South Iceland since 1977	M12 Re PU	**Finalized M11 Re PU**
D48	Presentation of the radon results at international meetings	M12 Re PU	**Finalized M12 Re PU**
D49	Paper in a refereed journal on the radon anomalies identified	M20 Re PU	**Finalized M18 Re PU**
D50	Warning algorithm presented at a meeting	M24 Re PU	**Delayed to M26**
D51	Sessions at regular project meetings	M01 Re RE	**Finalized M01 Re PU**
D52	Sessions at regular project meetings	M10 Re RE	**Finalized M12 Re PU**
D58	Preliminary slip model of rupture on the fault of the first earthquake	M08 Re PU	**Finalized M08 Re RE**
D59	Best slip model of rupture on the fault of the first earthquake	M20 Re PU	**Finalized M18 Re PU**
D60	Inversion for slip related to the second earthquake	M24 Re PU	**Finalized M24 Re RE**
D61	Estimated acceleration field in selected localities for first event	M14 Re PU	**Partly finalized M12 Re RE**
D62	Preliminary slip model of rupture on the fault of the second event	M18 Re PU	**Finalized M12 Re RE**
D63	Best slip model of rupture on the fault of the second earthquake	M20 Re PU	**Finalized M24 Re RE**
D65	Map of surface fractures in the eastern source area	M06 Re PU	**Finalized M06 Re RE Finalized M12 PU**
D66	Map of faulting during the June 2000 events	M06 Re PU	**Finalized M10 Re PU**
D67	Input into the gereral modelling of the June 2000 events	M06 Re PU	**Finalized M06 Re PU**
D68	Map of fractures in the western source area	M12 Re PU	**Finalized M12 Re PU**
D69	Presentations of results at international meetings	M12 Re PU	**Finalized M10 Re PU**
D70	Paper on surface fracturing during June 2000 events	M20 Re PU	**Finalized M20 Re PU**
D71	Three-dimensional co-seismic displacement field for June 17 and June 21, 2000 earthquakes	M06 Re PU	**Finalized M06 Re PU**
D72	Deformation model for the earthquakes	M18 Re RE	**Finalized M18 Re PU**
D74	Sessions during project meetings	M01 Re RE	**Finalized M01 Re PU**
D75	Sessions during project meetings	M10 Re PU	**Finalized M12 Re PU**
D79	Catalog of relocated earthquakes	M20 Re PU	**Finalized M21 Re PU**
D80	A map of subsurface faults and slip directions on them	M24 Re PU	**Delayed to M26**
D82	Hazard map of Reykjanes peninsula and accompanying report	M20 Re PU	**Finalized M22 Re PU**
D83	Attenuation of strong ground motion of the large earthquakes	M12 Re PU	**Finalized M12 Re PU**
D84	Near source effects, duration of ground shaking and soil amplifications	M18 Re PU	**Finalized M18 Re PU**
D85	A comprehensive reporting describing strong motion data, the theoretical modelling, attenuation of strong ground motion and near source effects	M20 Re PU	**Finalized M22 Re PU**
D87	Results from ongoing analytical and numerical modelling	M12 Re RE	**Finalized M12 Re PU**
D89	Reports on the geometrical characters of faulting and stress regimes issued from inversion of fault slip data and focal mechanisms	M26 Da+RE PU	**Finalized M24 Da+RE**
D91	Sessions at project meetings	M01 Re RE	**Finalized M01 Re PU**
D92	Sessions at project meetings	M10 Re PU	**Finalized M12 Re PU**
D96	Inelastic model for the earthquake series (M>=6) in the SISZ since 1706	M12 Re PU	**Partly finalized M12 Re RE**
D98	Original mathematical solutions for crack models in trans-tensional environment	M06 Re PU	**Finalized M06 Re PU**
D99	Crack models in viscoelastic media	M18 Re PU	**Finalized M18 Re PU**
D100	Crack model in poroelastic (12m) media	M12 Re PU	**Finalized M12 Re RE**

1.4 Deviations from the work plan or/and time schedule and their impact to the project

For scientific and operational reasons it was considered necessary to apply for a six months extension for finalizing the project as a whole. The reasons for this are detailed in Chapter 1.2. A great majority of scheduled deliverables have so far been delivered on time as seen in Chapter 1.3. However, there have been some delays in key areas which will delay the work in WP´s 2, 3, 4, 5, 6 where all the multidisciplinary results are merged together in tool directly applicable in earthquake watching and in efforts for mitigating earthquake risk. It is necessary to have some time for the consortium to evaluate the multidisciplinary results into well based warning tools.

1.5 Communication between partners

The second year of PREPARED was kicked off by the PREPARED mid-term meeting in Reykjavík, January 30-31, 2004, and by smaller meetings between partners before and after the main meeting. All the WP´s of the project are carried out through a cooperation of two or more partners. Communication between them is of course intensive through e-mail and on basis of information on the PREPARED website. Among special meetings between partners those can be mentioned: Ragnar Stefánsson visited scientists in Uppsala, Sweden, from February 26 to March 3, 2004, for discussing and collaborating on WP2 and WP3. During the EGU General Assembly in Nice, France, April 25-30, 2004, a meeting was arranged between participants attending the conference.

1.6 Difficulties encountered at management and coordination level and proposed/applied solutions

As was detailed in the 12 months Management and resource usage summary some problems arose related to the transfer of Águst Guðmundsson from his professorship at UIB to become a professor at the UGOE early in the first year of PREPARED. Ágúst leads WP5.5. Because of uncertainty of funding until decisions were taken in solving this ambiguity the most costly parts of this WP were delayed, waiting for a solution. The result was that UGOE is a formal partner in the project from February 1, 2004. Nothing is paid by the commission for the work of Gudmundsson or UGOE which was carried our before this date. This is one of the reasons for the application for a 6 months extension of the PREPARED project.

Workpackage number and name	Month
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
WP 1 Coordination.	
WP 2 Analysis of trends in geophysical data approaching June 2000 earthquakes.	
WP 2.1 Pattern search in multiparameter seismic data, PCA.	
WP 2.2 Analysis of seismic catalogue, homogeneity, quiescence, b-values.	
WP 2.3 Long-term deformation based mainly on GPS, InSAR and strain.	
WP 2.4 Stress changes based on microearthquake sources and from geology.	
WP 2.5 Shear-wave splitting above small earthquakes to monitor stress changes.	
WP 3 Short-term changes before large earthquakes, short-term warning algorithms.	
WP 3.1 Foreshocks. Detailed study and development of new warning algorithms.	
WP 3.2 Radon anomalies. Detailed study and development of warning algorithms.	
WP 4 Detailed model of the two large earthquakes. A group work.	
WP 4.1 Focal mechanism, based on teleseismic and microearthquake information.	
WP 4.2 Inversion of near field strong motion data. Slip distribution.	
WP 4.3 Interpretation of surface fractures related to the two large earthquakes.	
WP 4.4 Deformation associated with the two large earthquakes, GPS, InSAR, strain.	
WP 5 New methods for improving assessment earthquake effects. A group work.	
WP 5.1 Detailed mapping of distant faults by microearthquakes.	
WP 5.2 Detailed geological mapping of surface effects in a large area.	
WP 5.3 Study of the strong motion records, intensities, from the large earthquakes.	
WP 5.4 Reevaluations of historical earthquakes in light of the new observations.	
WP 5.5 Hydrological changes in a large area related to the earthquakes.	
WP 5.6 Analysis of paleo-stress fields and mechanism.	
WP 6 Integration of the modelling work. A new general model.	
WP 6.1 Model stress changes in Iceland based on historical activity.	
WP 6.2 Model stress in the solid matrix and pressures in fluids permeating the crust.	

Table 1. Timetable for the first 24 months of the project. For each WP the red boxes show planned efforts and the yellow ones executed effort

Workpackage number	IMOR		UU		UEDIN		NVI		SIUI		UPMC		DF. UNIBO		GFZ POTSDAM		CNRS-UMR 5562		UNIVTS-DST		CAU		WAPMERR		UI		UGOE	
		%		%		%		%		%		%		%		%		%		%		%		%		%		%
WP1	11	105																										
WP2	2,5	280	0,5	40	1	40	1	20													1	40	1	40				
WP2.1																					9,5	100						
WP2.2																							9	100				
WP2.3							21	100									4	100										
WP2.4			21	100							0,5	80																
WP2.5	1,5	0			15	100																						
WP3	2,5	45	0,5	40					1	20																		
WP3.1	1	0	12,5	105																								
WP3.2									10	130																		
WP4	2,5	25					0,5	40	1	20									0,5	40								
WP4.1	13	85	0,5	20																								
WP4.2	1	0																	15	110					2,5	60		
WP4.3							1	300	13	70																		
WP4.4	1	15					11	110	0,5	20							1	100										
WP5	2,5	10					0,5	20			1	50							0,5	40					0,5	20	1	20
WP5.1	11,5	150																										
WP5.2	0,5	10					11	90																				
WP5.3	1	0																							16	95		
WP5.4	8,5	120																							1	0		
WP5.5											0,5	60	2	50													17	95
WP5.6											7,5	105	1	500														
WP6	2	10							1,5	20			4	100	1	200	1	50										
WP6.1													2	100	15,5	105	4	65										
WP6.2													29	115			1	0										
Total	62	95	35	95	16	95	46	100	27	85	9,5	95	38	120	16,5	115	11	70	16	105	10,5	95	10	95	20	85	18	90

Table 1. Planned and used manpower: The yellow columns show planned manpower for months 1-30 (both permanent and temporary) for each partner in individual WPs in man-months. The green columns show the used manpower in each case for months 1-24 as percentage of the planned one.

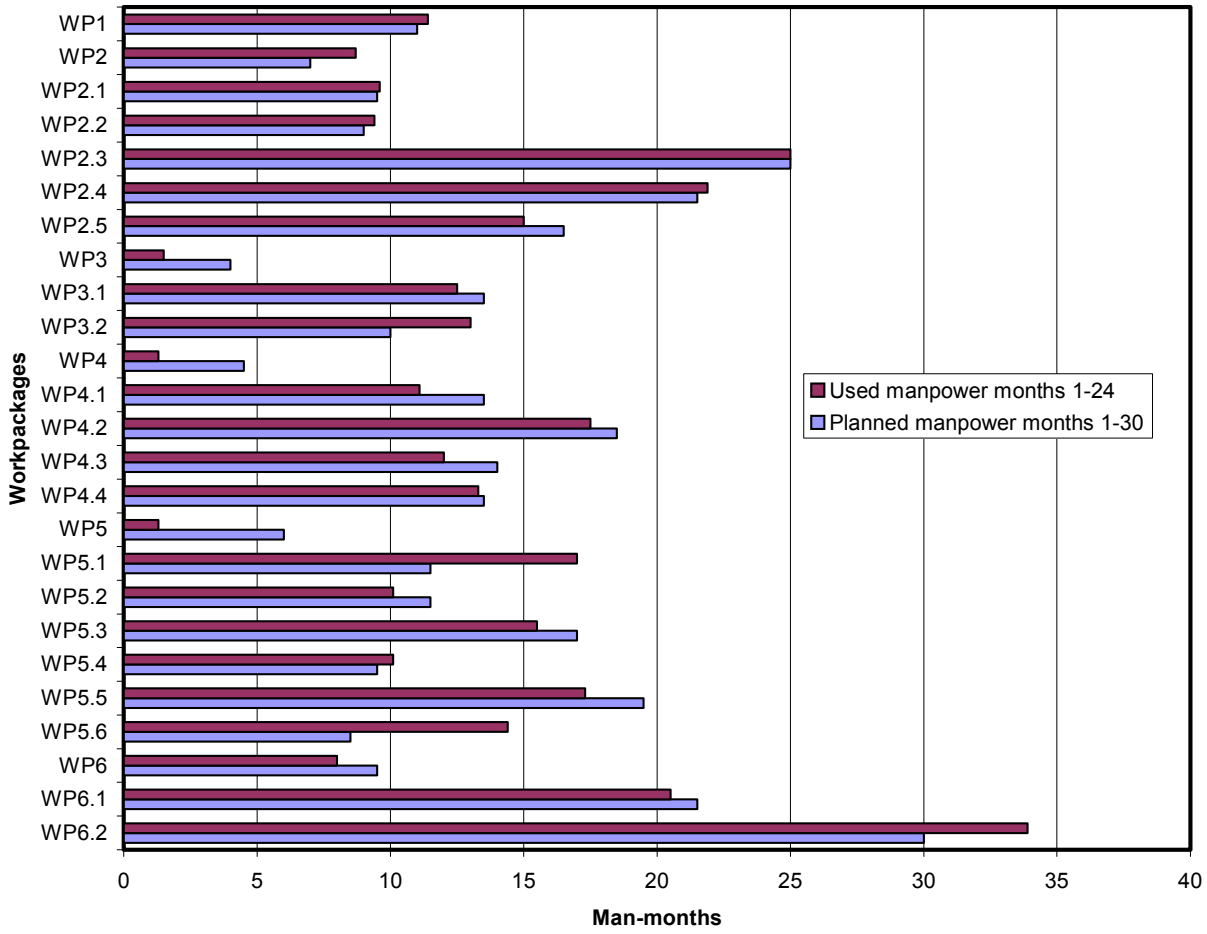

Table 1. Planned and used manpower (both permanent and temporary) in each WP.

Partner no.	Institution	Name of scientific person in charge	Telephone no. 1	Telophone no. 2	Fax no.	E-mail
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