WEDNESDAY 4 AUGUST 2004 PM

Global Geodynamics Project Workshop

Convener: D. Crossley

PRESIDING

D. Crossley, *Department of Earth and Atmospheric Sciences, Saint Louis University, USA*
J. Hinderer, *Institut de Physique du Globe de Strasbourg, France*

Time	Subject	Speaker
13:30-13:35	Welcome and Introduction	D. Crossley, J. Hinderer
13:35-14:10	Review of all installations We will ask a representative of each SG installation to give a status report on the operation of the station and data acquisition. Groups will be asked to confirm certain parameters or update them as required.	SG representatives.
14:10-14:30	Agreements now in place. *Open Discussion*. As a result of the GGP Meeting in Sapporo, the operation of GGP has changed slightly in that the delay times for sending data has been substantially reduced. Also, the meaning of the various codes used to signify the gravity data will be clarified.	All members
14:30-14:45	Comparison of observations with dual sensor superconducting gravimeters *Oral presentation*.	C. Kroner, O. Dierks, J. Neumeyer, H. Wilmes, P. Wolf
14:45-15:00	What are precision, accuracy and noise levels? *Open Discussion* How to quote these terms within the time and frequency domains for SGs and AGs.	All members
15:00-15:30	**COFFEE BREAK AND POSTER VIEWING**	
15:30-15:45	Contribution of SGs to normal mode seismology *Oral presentation*	J. Hinderer
15:45-16:00	GGP data for seismology *Open Discussion.* Progress has been made in getting high rate SG data into the hands of the seismologists at IRIS in the SEED format. This data will contribute primarily to determining the periods and Qs of the long period normal modes (periods > 100 s).	All members
16:00-16:15	GGP as a repository for AG data *Open Discussion*. We agreed to get AG data recorded at our various SG stations into the GGP database.	All members
16:15-16:30	GGP-ISDDC at the GFZ Potsdam – System reinstallation and integration into the GFZ ISDC Services *Oral presentation*.	B. Ritschel, S. Freiberg, H. Palm, M. Hendrickx
16:30-16:50	New ideas for GGP Phase 2 *Open Discussion*. In Sapporo we discussed new goals for GGP and lobbied strongly for more vigorous recording of environmental variables such as soil moisture and groundwater levels.	All members
16:50-16:55	Next GGP Workshop. Possible venues will be presented.	All members
16:55-17:00	Other Business	All members
17:00	**END OF SESSION**	

Comparison of observations with dual sensor superconducting gravimeters

C. Kroner (1), O. Dierks (2), J. Neumeyer (2), H. Wilmes (3), P. Wolf(3)
(1) Institute for Geosciences, Friedrich-Schiller-University, Jena, Germany
(2) GeoForschungsZentrum Potsdam, Germany
(3) Bundesamt f. Kartographie und Geodaesie, Frankfurt a. M., Germany

Among the 20 superconducting gravimeters presently installed worldwide four instruments exist that are equipped with a dual sensor system. The two sensor units have a vertical distance of about 20 cm. Three of these instruments are installed in Germany (Bad Homburg, Moxa, Wettzell) and one in South Africa (Sutherland). Comparisons of the upper and lower data sets yield information about instrumental effects and sensitivity as well as about the efficiency of reductions of environmental effects applied to the data sets. The latter is an important constraint when looking for small geodynamic signals such as the Slichter and core modes or aperiodic variations. Esp. the proximity of the German instruments within a few hundred kilometers is of advantage for the study of instrumental effects as the instruments are in the same climatic zone.

From analyses of the two data sets of each instrument a small but significant different response of the two sensors on barometric pressure variations emerges. Likewise the records of lower and upper sensor are slightly different with regard to their noise levels. In contrast to past research it cannot be said that generally one sensor is noisier than the other. This can change between the instruments and the frequency range under consideration. An explanation for this cannot be given yet. The tidal analyses yield an agreement of the tidal parameters between the two sensor records generally well within their standard deviations determined from least squares adjustment.

The comparison of the gravity residuals of upper and lower sensor with each other as well as with their sum and difference in the time and frequency domain sheds light on the quality of the reduction of environmental influences such as variations in barometric pressure, soil moisture and groundwater table. This study clearly shows that despite reductions there obviously still exist identical signals in the gravity residuals of the two sensors, probably generated by the environment. This means that either the reductions applied are not sufficient or that there are additional disturbing effects in the data which also need to be taken care of. From this study it becomes also clear that it is not possible to get entirely rid of the tidal signals in the data sets. This is due to the fact that despite reductions the data sets contain additional signals at tidal frequencies which affect the result of the tidal analysis.

Contribution of SGs to Normal Mode Seismology

Jacques Hinderer
Institut de Physique du Globe de Strasbourg, France

The potential of SGs to contribute useful data to seismology has been discussed by a number of authors within GGP (eg. Banka, Crossley, van Camp, Rosat, Hinderer). Following the analysis of the possibilities by Widmer-Schnidrig in 2003, the seismological community is now keen to acquire SG data for the purposes of adding to the observations of long period normal modes (frequencies below 1 mHz or periods > 15 min). The study of Roult et al. on the Q's of long period modes (this symposium) and the work of Rosat et al. on the detection of 2S1, as well as other possibilities, will be reviewed.

GGP-ISDC at the GFZ Potsdam - System Reinstallation and Integration into the GFZ ISDC Services

B. Ritschel (1), S. Freiberg (1), H. Palm (1), M. Hendrickx (2)
(1) GFZ Potsdam, Germany
(2) ROB Brussels, Belgium

After five years of a successful operation period of the GGP-ISDC at the ROB in Brussels the system had to be reinstalled at the GFZ Potsdam. Contrary to first plans, only to copy the complete system (hardware and software) the GGP-ISDC is now operating on a SUN workstation (Solaris 8.0).

The Data Center of the GFZ Potsdam is hosting other scientific IT infrastructure like CHAMP-ISDC and GRACE-ISDC. These ISDC are based on a special but general scientific product definition. Most different kinds of products processed by various groups of miscellaneous projects can be managed using standardized metadata files.

The acceptance of the extended DIF metadata standard for the GGP data would immediately allow the use of the complete GFZ ISDC functions. Connected to this advantage, ongoing GESIS portal developments, like integration of different projects on a data and science level as well as personalized web pages and further services would be also available to the GGP community. In addition, the GGP-ISDC would be benefit from the general ISDC security and backup mechanism.