

3rd European MagNetE Workshop

Bucharest, 14-16 May 2007

Summary and Conclusions

The 3rd European Repeat Station (MagNetE) Workshop was hosted by the Romanian Academy Institute of Geodynamics in Bucharest on 14-16 May, 2007. 40 participants from 18 countries attended the workshop. All material from the workshop will be collected and distributed to all participants on CD-ROM by Crisan Demetrescu.

The workshop consisted of 3 oral sessions and a poster session, a visit to Surlari geomagnetic observatory and three discussion sessions.

The presentations in the oral and poster sessions dealt mainly with scientific applications of repeat station data, geomagnetic ground data quality and data availability. Another important part of the presentations was to provide an overview of repeat station activities during the past 2 years throughout Europe. Measurements have been carried out in many countries in 2005 and/or 2006.

Minutes of the Discussions

Part 1: May 15, 17:00 to 18:30

Part 2: May 16, 9:00 to 10:30

Part 3: May 16, 11:00 to 13:00

Tasks assigned to individuals are marked by the label 'ACTION ITEM' in the following.

1. Repeat Station instrumentation, measurements, data processing

The suggestion to have a kind of "instrument pools" is brought up. It is decided to investigate needs and available instruments, by compiling two lists. One list will contain the instruments available at different institutes and during which times they could be made available for surveys in other countries. The other list will specify which instruments are needed at what times.

ACTION ITEM: Isabel Socias will request the information by e-mail and compile the lists.

A question is raised about the status of Greek repeat station activities and even about the status of the Greek observatory PEG. There was no response to several attempts to get into contact with the Greek colleagues.

ACTION ITEM: M. Mandaia will try to get information in an upcoming visit to Greece.

The next topic is a demonstration of the RS-Enter Software by G. Duma for conversion of RS data into WDC format. The software is appreciated as a useful tool to format the data for data exchange and submission to the WDC Edinburgh at wdcgeomag@bgs.ac.uk. G. Duma provides copies of the software on self-installing CD at the workshop.

Important points about the software mentioned in the discussion are

- The number of measurements in each point has to be indicated in the description in order to evaluate the scatter.
 - In the current version 6 of the software there is a problem that duplicate data occur in the output files if data are entered on different days. A simple solution until the problem is fixed in a new program version is to delete the “all-stations” file from the earlier work, because these data will be included from the individual station WDC files which are created by the software.
 - There is need for an option to have 2 or 3 reduction observatories in the respective field instead of just one. A suggestion is to have simply 2OBS and 3OBS instead of exact identifiers in this case. The topic will be discussed further by G. Duma and S. Macmillan and the best solution implemented in the next version of the program.
 - A conversion software from RS-Enter5 to RS-Enter6 exists. If data have already been formatted with version 5 please contact G. Duma.
 - The sign of D should not have a default value, to minimize the danger of sign errors in this component.
 - If measurements have been carried out at one station on more than 2 days, the 1st and the last day should be reported in the program. This is regarded as sufficient, because this is just information that might help to roughly judge the quality of the data, but not true data or metadata. This decision be included in the documentation.
- ACTION ITEM: G. Duma will improve the program and provide version 7 in the near future. It will be distributed by e-mail, and perhaps can be included in the workshop CD.

2. Availability of RS Data

The WDC Edinburgh maintains a data base of global repeat station data. In general, the MagNetE data should be available from this database.

ACTION ITEM (every country): check whether data are in WDC Edinburgh (<http://www.geomag.bgs.ac.uk/gifs/surveydata.html>), report missing data to Tom Shanahan & Susan Macmillan at wdcgeomag@bgs.ac.uk

Repeat station measurements are planned this year in (alphabetical order)

| | |
|---------|-------------|
| Austria | 13 stations |
| Croatia | 12 stations |
| Estonia | 4 stations |
| Finland | 8 stations |
| France | 33 stations |
| Poland | 19 stations |
| Romania | 22 stations |
| Spain | 20 stations |
| UK | 14 stations |

The recommendation from the previous workshops was to take measurements every second, even year, i.e. 2008. However, due to traditions, funding issues etc. it seems to be difficult to achieve common European surveys. The topic of how dense and how often surveys should be carried out is taken up again in a later part of the discussions.

A question arises about old repeat station data, and whether data that only exists in printed form should be digitized. It seems very useful to digitize old data and include them in the

WDC database so that they are not lost to future generations. Every institute is encouraged to digitize such data.

3. The first MagNetE Publication

In the discussion about publication of results since the first MagNetE workshop there is a general agreement that so far we do not have enough scientific results. It seems impossible to publish the improvements to the measurements or the data in a peer-reviewed scientific journal. The suggestions about publications are:

- There will be a workshop CD similarly to the one from the 2nd workshop with all the presented material.
ACTION ITEM: Crisan Demetrescu will prepare and distribute the CD-ROM.
- A short report about the MagNetE activities could be written for Eos, or, preferably for a European equivalent.
ACTION ITEM: Mioara Manda will find out about a suitable journal and prepare a draft report.
- The MagNetE Websites should be updated and the URLs distributed again
ACTION ITEM: Monika Korte and Crisan Demetrescu will update the websites about the MagNetE workshops and activities
- It might be possible to publish a report, e.g. in the GFZ series of Scientific Technical Reports, which are also permanently available as pdf files from the GFZ library. Overall author could be “The MagNetE group”, with short articles with details about the activities by author groups from the individual countries.
ACTION ITEM: Monika Korte will inquire about the possibility to publish such a report in the GFZ publication series.

4. Aspects of commercial use of RS data

Gerald Duma presents some thoughts on the commercial value of repeat station data and a suggestion on how to calculate a charge for repeat station data and products. A brief discussion follows about who might be commercial users and that there might be differences between the countries about what is commercial use and what is national or public interest for which publicly funded data and research results have to be provided free of charge. Answering the question about whether some statistic exists about who uses the repeat station data available from the WDC, Susan Macmillan reports that there are about 250 requests per year on the global dataset.

5. Application and scientific aims of RS measurements

Scientific aims on using repeat station data for Europe-wide studies of lithospheric influence on secular variation seem to lie in the future, with longer time series of high quality repeat station data. A valuable use of repeat station data is the information they provide for lithospheric anomaly models with the R-SCHA method. However, Erwan Thébault reports that the data reduced to annual means probably do not suit his needs for the modelling. A reduction to quiet night time levels only instead of annual means might be preferable.

ACTION ITEM: Erwan Thébault will specify his requirements on the repeat station data for the lithospheric field modeling.

ACTION ITEM: Susan Macmillan will provide the description of the method used in the UK to reduce the data to quiet night times close to the time of observation for others to use and test it

ACTION ITEM: The above requirements and description should be sent to Monika Korte, who will distribute the information.

ACTION ITEM: Monika Korte offers to try to compare and evaluate the methods of reduction to annual mean and quiet night times

6. Support among MagNetE countries

INSTRUMENTATION- This point was already discussed. Isabel Socias is in charge of compiling a table of the countries that need instrumentation and of the others that can temporally lend some, specifying also the instruments and the periods of availability.

FUNDING OF FIELD SURVEYS -The next point was the way of obtaining money for the field surveys. European Projects are more scientific and seems not very adequate for us. Bilateral cooperation is working well already between some countries (France-Italy, France-Germany,...). There are some other projects specifically for travelling.

ACTION ITEM: A working group with Pavel Hejda and Gerald Duma will look for projects that could suit this work. Mioara Manda will find out the web page of the projects for travelling.

ACTION ITEM (each country): In order to put some pressure on the administrations in countries that have difficulties getting money for surveys, it was decided that all of us will write down a letter recommending authorities the need and interest of repeat station surveys. A definitive letter will be written after. A list of the institutions to which the letter will be send is needed.

It was also discussed the importance of taking advantage of the SWARM satellite, it would be interesting to define an European net linked with it, this sub-net should be of high precision, variometric and observed every year or at least every two.

COUNTRIES NOT IN MagNetE

A list is compiled about the European countries that either don't do repeat station surveys or are not in MagNetE project.

ACTION ITEMS to contact these countries:

Bosnia – The colleagues from Macedonia

Greece – Mioara Manda

Portugal- Isabel Socias

Switzerland – Gerald Duma

Belgium -

Already Finland is doing Estonia and helping Latvia, Poland is doing Lithuania, Austria is doing Slovenia and Italy does Albania.

It is decided that it would be good to have a list of the e-mails, not only of MagNetE members but of the other countries, too.

7. Repeat station surveys in Europe: How dense, how often

The common feeling was that it was going to be difficult that countries change their repeat station networks and the way of observing them (mostly the interval of occupation).

ACTION ITEM: Mioara Manda and Erwan Thébault will select a subnet (synthetic net) that could be observed more often and linked to Swarm.

8. *Next workshop*

Finland offers to organise the next workshop in two years once they have the permission of their institutions. It would be June/July 2009 near Helsinki.

9. New MagNetE committee

Again, a new MagNetE coordination committee was chosen. It will consist of (in alphabetical order):

Gerald Duma

Monika Korte

Susan Macmillan

Isabel Socias