

## **XXXVII Meeting of the EUREF Technical Working Group in Brussels, 14.-15. March 2005**

### **Next events:**

- EUREF TWG meeting Vienna, Tuesday May 31, 2005 (whole day)
- EUREF 2005 Symposium: Vienna, Wednesday June 1, - Saturday, June 4, 2005
- EUREF TWG Fall Meeting: Monday, November 7 - Tuesday, November 8 (noon - noon), place not yet fixed

### **Meeting place:**

Royal Observatory of Belgium, Meridian Meeting Room

### **Time schedule:**

14.3.2005, begin:13.00; end: 18.00

15.3.2005, begin:09.00; end: 12.15

## **Agenda**

1. Minutes of the 36th TWG Meeting in Prague
2. ETRS89 questionnaire
3. Certification: legal aspects
4. Legal entity for EUREF
5. ISO Registration Authority
6. EUREF, GGOS and ongoing international activities (GEO/GEOSS, GMES, INSPIRE)
7. Galileo proposals - GGSP
8. GeoNet Proposal
9. Special Project Troposphere Parameter Estimation, Status Report
10. EUREF-IP Pilot Project
11. Status of the EUMETNET Project E-GVAP (European GPS Water Vapour)
12. EUREF contribution to ITRF2004 densification
13. EPN CB report
14. EPN Analysis Progress
15. Maintenance of EUREF non-permanent stations
16. Computing ETRS89 coordinates of non EPN Permanent Sites
17. Joint adjustment of Nordic levelling networks: Status report
18. UELN Status
19. Current works of the ExG G of EuroGeographics
20. Next EUREF Symposium in Vienna
21. Varia
  - a) IGS GNSS WG-Meeting, March 17, ESOC
  - b) EG Interproject meeting, Paris, Feb. 2005
  - c) CGSIC-IISC Meeting, Prague, 14 - 15 March 2005
  - d) EUPOS SC Meeting, Prague, 11-12 April, 2005
  - e) Next TWG meetings

## Participants

ZUHEIR ALTAMIMI, Paris (Chairman)

CLAUDE BOUCHER, Paris (14.3.)

ELMAR BROCKMANN, Berne

CARINE BRUYNINX, Brussels

ALESSANDRO CAPORALI, Padova

WERNER GURTNER, Berne

HEINZ HABRICH, Frankfurt (perm. guest)

HELMUT HORNIK, Munich (Subcomm. Secretary)

JOHANNES IHDE, Frankfurt

AMBRUS KENYERES, Budapest

JAAKKO MÄKINEN, Helsinki

HANS VAN DER MAREL, Delft

AXEL NOTHNAGEL, Bonn (guest)

PETER PESEC, Graz (guest)

HERMANN SEEGER, Bad Neuenahr-Ahrweiler (perm. guest)

JAROSLAV SIMEK, Prague

WOLFGANG SÖHNE, Frankfurt (guest)

GÜNTER STANGL, Graz (perm. guest)

JOAO AGRIA TORRES, Lisbon (Subcomm. President)

apologized: GEORG WEBER, Frankfurt

## Minutes

Remark: The presented papers and view graphs can be received, as far as available, on request from the EUREF secretary. Furthermore, some texts are published on the EUREF homepage ([http://www.euref-iag.net/TWG/EUREF%20TWG%20minutes/Agenda\\_2005\\_Brussels/TWG\\_Brussels2005.html](http://www.euref-iag.net/TWG/EUREF%20TWG%20minutes/Agenda_2005_Brussels/TWG_Brussels2005.html)).

The chairman of the EUREF Technical Working Group, Z. ALTAMIMI opens the XXXVII<sup>th</sup> Meeting of the EUREF TWG. Z. ALTAMIMI welcomes the participants and guests. He heartily thanks the hosts for the invitation to Brussels, especially C. BRUYNINX and D. MASSMAKER, Royal Observatory of Belgium, Brussels. On behalf of the hosts, C. BRUYNINX welcomes the EUREF TWG expressing his wishes for a successful meeting.

The agenda was distributed among the TWG members by mail and is adopted by the plenary.

### 1. Minutes of the 36th TWG Meeting in Prague

The minutes of the XXXVI<sup>th</sup> TWG Meeting Bratislava, November 8-9, 2004, are accepted after some small corrections. The text can be found in the EUREF homepage ([http://www.euref-iag.net/TWG/EUREF%20TWG%20minutes/Agenda\\_2004\\_Prague/TWG\\_Prague2004.html](http://www.euref-iag.net/TWG/EUREF%20TWG%20minutes/Agenda_2004_Prague/TWG_Prague2004.html)). The chairman states that some action items could not be fulfilled, however, these tasks should be kept on the agenda for further meetings.

### 2. ETRS89 questionnaire

J. IHDE remembers that on the last EUREF symposium it was agreed to send out a questionnaire for the adoption of ETRS89 in the respective countries. A questionnaire concerning this topic as well as the use of EUREF products was sent out in mid of February 2005 to altogether 44 countries. Up to now 19 countries responded, it can be hoped that some others will follow.

The majority of the countries have or will adopt ETRS89 as their definite reference system. Some, however, probably

will adapt some changes. In this context J. TORRES mentions the situation in Portugal where he gave a detailed presentation on occasion of a National Conference for Geodesy and Cartography in order to explain and clear the situation.

As result of the yielded answers it has to be stated that all questions have to be prepared and explained as detailed as possible and the background be referred clearly. Further clear guidelines suitable also for less experienced users have to be formulated and put into the web.

J. IHDE will report on this topic again at the next meeting. Moreover C. BOUCHER and Z. ALTAMIMI are asked to prepare a paper on the different ways of the access to ETRS89 and how to realize the system.

### 3. Certification: legal aspects

Z. ALTAMIMI remembers the discussion at the TWG meeting in Bratislava ([http://www.euref-iag.net/TWG/EUREF%20TWG%20minutes/Agenda\\_2004\\_Bratislava/TWG\\_Bratislava.html](http://www.euref-iag.net/TWG/EUREF%20TWG%20minutes/Agenda_2004_Bratislava/TWG_Bratislava.html), item 8). EGNOS covers a by much larger area than EUREF does, so the requests to EUREF for a certification exceed its concern. However, this question caused an intensive discussion within the TWG on the problem of a certification of products and methods in general. J. TORRES contacted for that also some other institutions and colleagues, especially A. KÖSTERS. In all it has to be stated that EUREF as a scientific group within the IAG represents an institution without any legal aspects and powers. EUREF can naturally formulate recommendations and can validate data or methods referring its formulated scientific tasks, however, there exists no defined responsibility in the legal sense. As example the EPN is mentioned. This project comprises a number of participating groups following defined rules and requirements, however, all work is done on a voluntary basis. The validation of GPS campaigns carried out by member countries follows similar rules. The same aspects refer the GGOS as a central project of the IAG. For the case of EGNOS H.-P. PLAG was invited to continue the discussion on this basis.

As a consequence of this discussion it is concluded to review/complete/update all existing guidelines for EUREF. C. BOUCHER, C. BRUYNINX, W. GURTNER, J. IHDE, J. MÄKINEN, H. V. D. MAREL and J. TORRES (chair) are asked to take over this task and report about the results as soon as possible. All other TWG members are invited to contribute. A EUREF mail will be sent out to inform users on this update. This procedure is to be repeated from time to time and the geodetic community to be informed.

#### 4. Legal entity for EUREF

In context with topic 3 and continuing the discussions at previous TWG meetings, J. IHDE gives a detailed report on this topic. As motivation for/against a legal entity for EUREF several items are to be mentioned

- NMAs or similar institutions could ask EUREF for certifications or validations of data
- in the EUREF group basically a considerable amount of expertise is available, however, any statement should be formulated carefully with respect to any responsibility or claim of recourse
- as EUREF is no national institution, it cannot be compared e.g. with the NGS or NMAs which have defined duties on their level
- EUREF is strongly related to the IAG and EuroGeographics which have certain official tasks
- GALILEO automatically involves some degree of safety
- at present no European group exists to take over the duties of an official expert group in Geodesy.

As possible solutions to install a legal entity for EUREF there are mentioned

- connection to existing legal bodies (e.g. EUROSTAT, Galileo Supervisory Authority, EuroGeographics)
- foundation of a new legal European body on national or European law (e.g. such as a company like EuroGeographics or an association like EuroSDI)
- one legal member body of EUREF by order of the other involved institutions and/or with subcontracts between involved institutions.

As advantage of a legal entity, the official competence of EUREF for the certification of geodetic methodologies, products (coordinates, ...) and tools (softwares, ...) is mentioned.

W. GURTNER doubts the urgent need for a legal entity. In the case of emergency a relevant existing body could be asked to act for EUREF anyway. The adoption of ETRS89 by many countries shows rather good that EUREF as a purely scientific organization is on the right way even without legal entity but convincing its partners by steady careful work and high quality products. It might be sufficient if EUREF permanently presents its products to the public and proves the consequent update of its guidelines as far as useful. By this way the group could act independently without any forced actions requested by other groups and concentrate on its tasks given by the IAG.

Summarizing the discussion it is concluded to study the basic legal aspects for certification and legal entities further on but without any time pressure. Institutions or people with adequate experiences should be contacted whether and how it would be possible/useful for EUREF to get engaged in this matter.

Concerning the validation of the EGNOS campaign (cf. topic 3), Z. ALTAMIMI will invite the ESA via H.-P. PLAG for discussing the question of the at the next TWG/EUREF meeting. Z. ALTAMIMI will inform the TWG on the progress and a possible special session for this topic.

#### 5. ISO Registration Authority

J. IHDE explains this system of the International Organization for Standardization (ISO). As example he mentions the ISO/TC 211 – Call for candidates for registration authority (RA) of the ISO/TS 19127 – Geographic Information / Geodetic Codes and Parameters from 2004-12-08. In all these procedures only such institutions can participate which are based on a legal entity and are national ISO members (e.g. DIN for Germany) or have an ISO liaison (e.g. IAG). On Feb. 8 the DIN nominated the BKG for two registries, i.e. CRS-EU and ITRS/ITRF. The CRS-EU is at present a catalogue and information system. The IERS is preparing a data base for IERS products such as ITRS/ITRF.

In the discussion it is emphasized that the truth of the contents of internet pages normally cannot be guaranteed. This basically concerns also EUREF although naturally all efforts are undertaken to put only reliable data into the web. If there exists a registry, the producer of the internet web page is responsible for the contents and has to take care for all safety aspects..

The item will be put on the agenda for the next meeting again.

#### 6. EUREF, GGOS and ongoing international activities (GEO/GEOSS, GMES, INSPIRE)

C. BOUCHER reports on the progress of the GGOS (Global Geodetic Observing Systems – initially IGGOS) which was approved at the IUGG General Assembly 2003 in Sapporo and represents at the time the main activity of the IAG. A first workshop took place on Potsdam on March 1-2, 2005. GGOS is designed as a long term project with large ambitions. The vision of GGOS are

- GGOS integrates different techniques, different models and different approaches in order to achieve a better consistency, long-term reliability and understanding of geodetic, geodynamic and global change processes,
- GGOS provides the scientific and infrastructure basis for all global change research in Earth sciences,
- In the frame of GGOS, the Earth system is viewed as a whole by including the solid Earth as well as the fluid components, the static and time-varying gravity field in its products,
- GGOS is geodesy's contribution (products and discoveries) to Earth sciences and the bridge to the other

disciplines; it asserts the position of geodesy in geosciences,

- GGOS integrates the work of IAG and emphasizes the complementarity of the broad spectrum of geodetic research and application fields.

As basic subjects of the GGOS mission the following items are to be mentioned:

- to collect, archive and ensure the accessibility of geodetic observations and models,
- to ensure the robustness of the three fundamental fields of geodesy (geometry and kinematics, Earth orientation and rotation, gravity field and its variability),
- to identify a consistent set of geodetic products and to establish the requirements concerning the products' accuracy, time resolution, and consistency,
- to identify IAG service gaps and develop strategies to close them,
- to stimulate close cooperation between existing and new IAG services,
- to promote and improve the visibility of the scientific research in geodesy,
- to achieve maximum benefit for the scientific community and society in general.

The Group of Earth Observations (GEO) should operate as an intergovernmental group, it was established at the Summit on Earth Observation in Washington DC in July 2003. Detailed information can be found in <http://earthobservations.org/>. GEO includes numerous nations (currently 55), the EC and several international organizations (currently 40), including IAG. GGOS can be also considered to serve as operational interface between IAG and GEO.

GMES (Global Monitoring for Environmental Security) represents a joint EC-ESA initiative on global monitoring and security with links to GEOSS especially including the European partners in GGOS (EPIGGOS) and GAGOS).

INSPIRE (Infrastructure for Spatial Information in Europe) is created as a tool for European spatial information infrastructure from a wide range of sources and serving users on all levels. The homepage <http://inspire.jrc.it/home.html> preserves detailed information.

C. BOUCHER invites the EUREF Sub-Commission to participate in these initiatives, especially in GGOS. Z. ALTAMIMI is asked to send out an e-mail to all TWG members explaining the possibilities and the need for contributing to GGOS and ask for cooperation.

## 7. Galileo proposals – GGSP

Z. ALTAMIMI informs shortly on this item. The next meeting will take place in Brussels in the end of March 2005.

## 8. GeoNet Proposal

A. NOTHNAGEL, University of Bonn, presents a detailed report on the GeoNet. The project is supported by the EU Framework Programme 6 (FP6) and is limited to coor-

dination tasks only. The idea of GeoNet is to install a European Network of Terrestrial Reference Points for Geodesy and Radio Astronomy with the following items:

- integration of astronomical radio telescopes in a geodetic network,
- equip radio telescopes with permanent GPS receivers,
- integrate GPS observations in routine GPS processing,
- provide atmosphere and ionosphere parameters to astronomers,
- local tie and stability surveying,
- provide coordinates of radio telescopes to EUREF and radio astronomers.

The GeoNet consortium consists currently of

- A. NOTHNAGEL (coordinator)
- Z. ALTAMIMI (ETRF)
- C. BRUYNINX (European GPS)
- R. HAAS (geodetic VLBI)
- F. MANTOVANI (astronomical VLBI)
- H. SCHUH (atmosphere/ionosphere)
- L. VITTUARI (local surveying)

As next step a FP7 is formulated to integrate an infrastructure initiative including all geodetic positioning techniques (VLBI, GPS, SLR, DORIS, Galileo). A. NOTHNAGEL emphasizes in this context that in all already existing structures should be linked and synergies be used.

H. SEEGER adds that at the Geodetic Institute of the University of Bonn much research in high accurate engineering geodesy is done and which can also contribute to local stability investigations and eccentricity determination for VLBI telescopes and thus could help to improve the consistency of observation records.

A. NOTHNAGEL will be invited to report again to the TWG if interesting information concerning the GeoNet Proposal is available.

## 9. Special Project Troposphere Parameter Estimation, Status Report

W. SÖHNE reports on the progress of the EPN Special Project. The activities at present comprise the continuous combination of the 16 LACs solutions, the delivering EPN rapid solution to IGS, comparisons with IGS combined solution as well as the IVS troposphere combined solution and some other special investigations. By a series of viewgraphs he shows examples for the weekly mean biases of EPN/IGS ZTD combination for different sites as well as the results yielded by the participating computing centers. In the near future special investigations will be continued such as influences from changing to Bernese V5.0 or ZTD parameters from GPS/GLONASS solution.

## 10. EUREF-IP Pilot Project, Status Report

G. WEBER has sent by e-mail a report to this topic. The current status of the EUREF-IP Pilot Project can be described by the following items:

- EUREF-IP established a specific IP address for its Ntrip Broadcaster service at [www.euref-ip.net](http://www.euref-ip.net).
- An additional Ntrip Broadcaster has been installed by EUREF-IP at [www.rtcn-ntrip.org](http://www.rtcn-ntrip.org). Its only purpose is to provide access/links to any other known Ntrip Broadcaster installation world-wide.
- The total number of known Ntrip Broadcasters is app. 25. South Africa and the US NGS are following with setting up their own Ntrip Broadcaster. The total number of reference stations available via Ntrip technology amounts to ca. 650.
- The EUREF-IP real-time GNSS network accessible via [www.euref-ip.net](http://www.euref-ip.net) further develops towards global coverage. The next contributions are expected.
- Topcon currently includes an Ntrip Client in its GPS receiver firmware (GPS plus GLONASS).
- DLR Germany developed a multi-stream Ntrip Client and RTCM Decoder under GNU General Public License for Linux systems. This will become an important tool for those interested in real-time global estimation of ionosphere, orbits, clocks, satellite health monitoring, or regional troposphere estimation.
- Two abstracts were submitted to ION 2005 as EUREF-IP contributions.
- The current EUREF-IP efforts focus on developing a real-time Ntrip Monitoring/Notification system to reach and maintain a professional level of service availability / further development of Ntrip towards full HTTP compatibility and introduce UPD as an additional option for IP multicast via e.g. Digital Radio Mondial (DRM) / encouraging more EPN station operators to participate in EUREF-IP with real-time raw or RTK data (in addition to differential corrections).
- Further EUREF-IP plans are to extend EUREF's Terms of Reference to integrate real-time EPN stations / transfer the EUREF-IP Pilot Project into a EUREF Service.
- The EUREF-IP workshop planned for March this year had to be postponed to September/October due to lack of resources.
- A – so far personal – wish would be that CODE might contribute to EUREF-IP and IGS with real-time satellite clock information.

### 11. Status of the EUMETNET Project E-GVAP (European GPS Water Vapour Project)

H. V. D. MAREL informs on the status of the GVAP as an initiative of the European Meteorological Services Network (EUMETNET) as a tool for improving the short range weather forecasting. The GVAP continues the investigations started by the COST716 action started in March 2001 and finished in March 2004 (further details see <http://www.knmi.nl/samenw/cost716/>). EUREF contributed to the action via the EPN.

The tasks of the new initiative GVAP mainly consist

- of arranging and coordinating the collection and distribution of European near real time ground based GPS water vapour measurements to EUMETNET members for operational meteorology,
- to work out a gradual increase of quality, amount, and geographical coverage of GPS water vapour data
- and further to assist meteorological services in utilising GPS water vapour data.

As reasons for this work from the meteorological point of view are to be mentioned that

- the current water vapour measurements are very coarse in time and space (mainly from radiosondes),
- water vapour is crucial in forecasting precipitation and important to atmospheric dynamics,
- water vapour plays a key role in the transfer of energy to and in the atmosphere,
- water vapour is the most important and most variable greenhouse gas.

All the work should be based on interdisciplinary cooperation and international level and as a long term action covering large areas by high quality data. Up to now the E-GVAP as European part of the GVAP is accepted by the EUMETNET council for Belgium, Denmark, Finland, Iceland, Ireland, Netherlands, Norway, Spain, Sweden, Switzerland, UK. Other countries will probably join, too. The start of E-GVAP is planned for April 1, 2005. The funding for the next four years is assumed with about 500.000 EURO.

E. BROCKMANN adds that the E-GVAP project represents a highly interesting project connecting meteorology and geodesy in NRT with clear duties and responsibilities, so a successful work can be expected.

H. V. D. MAREL will report at next meeting on the progress of this project.

### 12. EUREF contribution to ITRF2004 densification

Z. ALTAMIMI informs that a relevant call for participation has been issued by IAG Sub-Commission 1.3 to the regional sub-commissions. The input for the ITRF in general consists mainly by LLR, SLR, VLBI, GPS and DORIS data from some global data centers, nevertheless also EUREF can contribute very well for the densification part of the ITRF2004.

Z. ALTAMIMI and H. HABRICH are asked to coordinate the EUREF contribution of the ITRF2004.

### 13. EPN CB report

The traditional EPN CB report is given by C. BRUYNINX. Since the last TWG meeting in Prague, Nov. 2004 two new stations could be involved into the EPN, i.e. TARS/Italy and COBA/Spain. 16 others are proposed to take up their work within the EPN. At the Prague Meeting the edition of new EPN guidelines was discussed and proposed. So a new version was distributed for review by the TWG on 30 Nov. 2004 and then officially announced through EUREF mail on 14 Dec. 2004 (reminder 18 Feb. 2005). Meanwhile about 60% of the contributing stations have already adapted their data flow to the new guidelines. C. BRUYNINX explains

in detail the EPN data flow scheme especially considering the case of a failure in the BKG as a main data centre.

#### 14. EPN Analysis Progress

H. HABRICH as EPN Analysis Coordinator informs on the EPN Analysis Progress. As items concerning the EPN Sub-Network Analysis H. HABRICH mentions

- switch from Bernese GPS Software version 4.2 to 5.0 within year 2005,
- required steps to ensure continuity and consistency will be worked out,
- test-solutions from UPA, ROB and BKG are already available. COD runs version 5.0 since some time. WUT announced version 5.0 solutions.

New items for the Sub-Network Combination are

- since the beginning of 2005 ADDNEQ2 of Version 5.0 has been used for the sub-network combination,
- „minimum constraint conditions“ are applied to reference stations. The datum in general remains unchanged,
- a-priori constraint matrix will be regularized before writing SINEX format,
- no significant changes of the station coordinates, beside the reference stations,
- station coordinates are introduced as observations and not the original number of satellite observations any more.

A series of view graphs is presented showing the residuals of the application of Bernese software version 4.2 wrt. 5.0. The differences mainly result from the method of atmosphere processing, the values amount some mm in the horizontal and up to 1 cm for the height component. H. HABRICH is asked to report at the next meeting on his further findings especially considering the influences of the mentioned software change on the consistency of the EPN.

#### 15. Maintenance of EUREF non-permanent stations

J. TORRES reports: This item was originally initiated by a letter from Ireland with the request for pro procedures for the maintenance of EUREF stations established in campaigns. On occasion of the EUREF 2003 Symposium in Toledo a circular was sent out to the NMAs asking to include in their national reports to the symposium relevant information. As far as available this information is documented in the proceedings. J. TORRES presents an interesting summary on his findings by a check of all EUREF campaigns ever done and which were approved as class B. In general it can be stated that

- the countries gave a good description of the network's status and the connection with EUREF,
- the old stations are being replaced by permanent stations and presented to the TWG as a new campaign,
- not all the countries included EUREF89 or EUVN stations, or don't refer it,
- the degree of coherence with the data base is not 100%,

- the data base should be more accurate, and it is desirable that the website contains more graphical information (v.g., the EPN site).

In the recent time several users claimed that the data base was not accessible. H. v. D. MAREL explains that currently the data records are transferred to an other server. As soon as this is done, H. v. D. MAREL and H. HORNIK will inform the EUREF community on this item.

In order to improve the data base the TWG asks H. v. D. MAREL to take up efforts for an update and, as far as necessary, reorganisation of the data sets. To enable a more attractive use and ensure the contents better understandable also for less experienced users, additional maps and other graphical information should be included. Moreover H. v. D. MAREL should request the responsible colleagues to deliver missing data.

#### 16. Computing ETRS89 coordinates of non EPN Permanent Sites

Continuing the discussions at previous meetings, A. CAPORALI gives a report to this topic by a review of the product specifications and certification procedures developed by A. KÖSTERS and J. TORRES. A. CAPORALI explains the need for the a certification of non EPN stations by a case study for a regional network in Northern Italy and Austria comprising a set of 40 sites, the majority of them are not part of EUREF. It has to be emphasized that besides the computing of the stations coordinates in a system consistent with the EPN also a careful periodic verification of the data is necessary.

C. BRUYNINX proposes to introduce a quality classification similar to EUREF stations, but with a clear different numbering (e.g. 1, 2, 3) in order not to avoid any mixing with the existing EUREF campaign classification.

#### 17. Joint adjustment of Nordic leveling networks: Status report

J. MÄKINEN informs on the progress since his report given at the last TWG Meeting. For the modelling of the post-glacial rebound (PGR) models worked out by different authors (EKMAN, MILNE, VESTÖL etc.) are applied and tested. For closing the gap in the Baltic Ring due to missing data in the Russian territory non-orthodox methods are tested to close the gap via the Gulf of Finland. Nevertheless, also efforts are still undertaken to receive the existing terrestrial data from the Russian authorities. J. MÄKINEN explains to be optimistic that the relevant data will be provided in the near future and a consistent solution can be submitted to the UELN data base.

#### 18. UELN Status

In connection with the previous topic J. IHDE reports on the development of the UELN. In 2004 new data of Denmark and the Netherlands were made available. However, some problems such as the connection of the Danish data with those of Sweden or the missing relation of the Dutch observations to the defined reference point UELN 000A2530

have still to be solved. As conclusion for a practical progress for UELN J. IHDE mentions the need for a consistent set of new levelling data of the Nordic Countries as well as the necessity for a new definition of the UELN datum due to the substitution of the UELN reference point.

J. IHDE will report on the further investigations to the next meeting.

### **19. Current works of the ExG G of EuroGeographics**

As usual, the Expert Group Geodesy of EuroGeographics (ExG G) held a meeting straight before the TWG meeting, i.e. in the morning of Monday March 14, 2005. The members of the ExG G are now

- Z. ALTAMINI (EUREF)
- E. BROCKMANN (CRS-EU, Georail (vice-chair))
- H. HABRICH (product catalogue, GCSI)
- J. IHDE (chair, CRS-EU, ISO/TC 211, EVRS)
- A. KENYERES (EVRS proceedings, definitions)
- C. LUZET (EuroGeographics Head Office)
- J. MÄKINEN (gravity, EVRS proceedings, definitions)
- M. MARJANOVIC (public relations)
- J. SIMEK (secretary)
- G. STANGL (EuroBoundaries)
- J. TORRES (validation, certification, ISO 19111)
- G. WEBER (NTRIP, EPN densification)

The NMAs of Greece, Lithuania, Moldova, Slovakia and Turkey have nominated new national representatives.

As main topics reports were given on the

- catalogue of geodetic products (H. HABRICH),
- next steps for standardization and validation of geodetic products (J. TORRES),
- status of the introduction of the ETRS89 in Europe, response on Circular Letter of EUREF and EuroGeographics (J. IHDE),
- status of the UIC / Georail project (E. BROCKMANN),
- preparation for the Session of EuroGeographics for the EUREF Symposium 2005 in Vienna (J. IHDE, all),
- organization of the work in the ExGG (J. IHDE).

The next meeting of the ExG G will take place in Vienna the day before the next TWG Meeting, i.e. May 30, 2005. As done in the last years, EuroGeographics will again give a limited financial support to each one colleague from economical weak countries to enable the participation at the EUREF Symposium.

### **20. Next EUREF Symposium in Vienna**

P. PESEC reports on the preparations for the coming EUREF Symposium in Vienna, June 2005. The homepage will be updated as soon as new information is available. J. TORRES informs on his plans to adapt the structure of the symposia

to new insights and also to invite some colleagues for a presentation of keynotes describing the future work of EUREF.

In order to support the planning, H. HORNIK will send out an e-mail to the EUREF community urging the interested colleagues for immediate registration due to the possible lack of hotel rooms when registering after the end of March. Moreover all participants are to be urged to announce their planned contributions (oral, poster) asap in order to help for setting up the agenda and time schedule. Then J. TORRES and H. HORNIK will set up and publish via internet the draft agenda and time schedule as soon as the relevant data are available.

### **21. Varia**

#### **a) IGS GNSS WG-Meeting, March 17, ESOC**

W. GURTNER gives a summarized report on this meeting.

#### **b) INSPIRE**

J. MÄKINEN explains the call for expression of interest for INSPIRE (Infrastructure for Spatial Information in Europe). The preparatory phase 2005-06 is open now and interested persons/groups are invited to participate. J. MÄKINEN means that EUREF should take part in this initiative with benefit for both sides.

The TWG concludes that EUREF should register itself as an organization interested in SDI and also propose some expert(s) for geodetic referencing. J. A. TORRES will contact INSPIRE and report again to the TWG.

#### **c) EG Interproject meeting, Paris, Feb. 2005**

J. SIMEK informs on this meeting at which in particular European boundaries were handled.

#### **d) CGSIC-IISC Meeting, Prague, 14 - 15 March 2005**

J. SIMEK gives a summarized review on this topic. G. Weber participates at the current meeting to report on the use of the Ntrip technology. J. SIMEK declares that at present only few contacts with EUREF exist, but could be improved for common interests.

#### **e) EUPOS SC Meeting, Prague, 11-12 April, 2005**

Detailed information on EUPOS was given at previous meetings. J. SIMEK informs that an special working group on site quality has been installed.

#### **f) Next TWG meetings**

As already announced, the next TWG meeting will be held the day before the begin of the EUREF Symposium in Vienna, i.e. May 31, 2005.

The TWG fall meeting 2005 is fixed for November 7-8, noon to noon. The place will be discussed later.