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Welcome

August 2009

Dear Madam, dear Sir,

As Head of the Office of the International *EUPOS* Steering Committee I am pleased to present you the first *EUPOS* Newsletter.

The *EUPOS* cooperation is an international expert group of public institutions coming from the field of geodesy, geodetic survey and aero space. Partners from 17 CEE countries have come together with the aim to establish and provide in their countries compatible spatial reference infrastructures by using the Global Navigation Satellite Systems (GNSS) GPS, GLONASS and in the future GALILEO and COMPASS by building up Differential GNSS *EUPOS* reference station systems and services. The *EUPOS* services allow a high accuracy and reliability for positioning and navigation and provide a wide range of geoinformation applications on this basis.

The common work is carried out by the International *EUPOS* Steering Committee (ISC), which meets twice a year, and the National or Regional Service Centres (NSC).

At present the *EUPOS* member countries are Bosnia and Herzegovina, the Republic of Bulgaria, the Czech Republic, the Republic of Estonia, the Republic of Hungary, the Republic of Kazakhstan, the Republic of Latvia, the Republic of Lithuania, the Former Yugoslav Republic of Macedonia, the Republic of Moldova, the Republic of Poland, Romania, the Russian Federation, Serbia, the Slovak Republic, the Ukraine and the German state Berlin. The Republic of Slovenia has observer status.

The *EUPOS* ISC works together since 2002 and has made a big progress until now. Therefore the *EUPOS* ISC has decided to inform interested persons about the *EUPOS* activities on national and international levels at least twice a year by a newsletter. This first newsletter intends to give a brief overview about the *EUPOS* Station Data Base, the technical standards and guidelines as well as up-to-date information of some of the *EUPOS* countries. For more information please have a look into the *EUPOS* webpage www.eupos.org.

Gerd Rosenthal

Technical papers of EUPOS available for download

EUPOS provides DGNSS correction data for real-time positioning and navigation as well as GNSS observation data for post processed positioning. EUPOS is able to support precise positioning and navigation with high accuracy (metre, sub-metre, centimetre in real-time and centimetre and sub-centimetre in post processing) with guaranteed availability and quality. EUPOS uses only, as far as possible, international accepted procedures and standards. EUPOS is independent from private company solutions.

The EUPOS ISC has agreed about Technical EUPOS Standards and several guidelines. The following papers can be downloaded from the EUPOS webpage <http://www.eupos.org>:

- Technical Standards
- Guideline for Cross-Border Data Exchange
- Guideline for EUPOS Reference Frame Fixing
- Guideline for Single Site Design

EUPOS Station DataBase (ESDB)

For own purpose the EUPOS community has established a EUPOS Station Data Base, operated by the Hungarian colleagues. The basic idea behind ESDB was to facilitate information exchange between neighbouring EUPOS countries. But the database can also be used by clients for getting an overview about the available reference stations. Until now the database is not filled completely, but the map, which can be downloaded, shows impressively the success of the EUPOS idea.

<http://www.eupos.hu/EUPOS-ESDB.php>

Republic of Kazakhstan becomes EUPOS member

At the 15th conference, that was held in Tallinn/Estonia from 28 to 29 April 2009, the EUPOS ISC agreed unanimously that the Republic of Kazakhstan, represented by the Joint Stock Company „National Company Kazakhstan Gharysh Sapary“, becomes a member of the EUPOS.

The JSC is one of the companies of the National Space Agency of Kazakhstan. One of the company's projects is the creation of ground-based infrastructure of DGNSS in Kazakhstan. It is planned to build up about 500 DGNSS reference stations to cover the whole territory.

Bulgarian BULiPOS operational

Since 1 May 2009 the Bulgarian network BULiPOS is full operational, providing correction data in four services. BULiPOS consists at the moment of 12 stations. They are networked and cover 80 % of the Bulgarian territory. All antennas are absolutely calibrated. Services provide real time correction data in RTCM 2.x and 3.x via NTRIP caster and GPRS. All EUPOS standards are fulfilled. Main users are at the moment flying companies. Next steps will be to include stations from Romania and Serbia to improve the networking functionality, then the whole Bulgarian territory will be covered. The network will be densified in the future. (<http://www.bulipos.eu/>)

Number of CZEPOS users in Czech Republic increasing

The 27 CZEPOS stations of the Czech Republic are in operation providing real-time and post processing data. Accuracy tests of 8 cadastre offices in 25 areas with 150 points were really successful. The results are available on the Internet. About 650 users are registered. (<http://czepos.cuzk.cz/>)

Hungarian GNSSnet.hu well connected

35 reference stations and two monitoring stations are running in Hungary. 29 reference stations and the two monitoring stations are equipped with GPS+GLONASS receivers and antennas. Six stations from the Slovak Republic, two from Austria and one from Slovenia are integrated. 28 reference station antennas were absolutely calibrated in Berlin, Germany. GNSSnet.hu has more than 600 users. (<http://www.gnssnet.hu/>)

Both Latvian services work well

The *EUPOS*-Riga network is working well. The Latvian system LATPOS has 125 real-time and 450 post processing data users. Data stream from Lithuania is connected to LATPOS. In year 2009 three additional base stations are planned. (<http://www.latpos.lgia.gov.lv>; <http://www.rigasgeometrs.lv/>)

Lithuanian webcam installed

All planned 25 LitPOS reference stations are working. The antennas are mainly located on fire stations. The cross border data exchange with Latvia and Poland is going on. LitPOS users can use 3 ASG-*EUPOS* Polish stations and 2 LATPOS Latvian stations also. LitPOS has 439 registered users (April, 2009). All LitPOS services are free of charge for registered users:

Lately webcam view of LitPOS RTKNet solution is added to the LitPOS website. Picture reloaded every 30 seconds. (<http://eupos.vgtu.lt/>)

Polish ASG-EUPOS a big success

Since summer 2008 the ASG-*EUPOS* system is entirely operational and the services were enabled to the wide public. Currently the system consists of three main segments: reference, management and users. In the reference segment it is operated the total amount of 98 GNSS permanent reference stations located all over the territory of Poland and 20 foreign stations that contribute to the ASG-*EUPOS* network on the basis of bilateral agreements within *EUPOS* countries.

At the end of 2008 the user segment of the ASG-*EUPOS* system consisted of 2820 registered users, and the number of users is continuously growing. This proved how demanded the system was in Poland. (<http://www.asg-eupos.gov.pl/>)

Romanian ROMPOS nearly completed

National Agency for Cadastre and Land Registration (NACLR) improved the ROMPOS by new GNSS permanent stations. NACLR has built up at the end of 2008 and beginning of 2009, 10 new GNSS permanent stations with financial support from EU programme PHARE. The total number of stations is now 58. There are included 12 GPS and 46 GNSS (GPS+GLONASS) stations. Six of the GPS stations will be upgraded to GNSS. A number of 31 antennas of the stations are individual absolute calibrated. Until the end of 2009 there are planned to be installed the last 15 stations up to 73 stations.

GNSS data exchange with Hungary and Bulgaria will be established from summer 2009 after installation of new networking hardware and software. There are about 250 registered users of the ROMPOS-RTK services. ROMPOS-RTK services are free of charge. New regulations concerning the use of RTK method for cadastre are available for the ROMPOS users. (<http://www.rompos.ro/>)

New control centre for Serbian AGROS

In the Republic of Serbia 32 AGROS stations with the control centre at the Republic Geodetic Authority, Belgrade, are in use since 16 December 2005, providing the users with RTK service, VRS service, network RTCM3NET, two post-processing services CORS and VRS, as well as the automatic post-processing service developed in cooperation with Swedish colleagues. At the moment, there are 180 users registered. The international data exchange with Hungary and Croatia is striven. (<http://agros.rgz.gov.rs/>)

Slovakian SKPOS clients come from surveying and cadastral branches

The Slovakian SKPOS system (23 reference stations) is full operational and charged from the beginning of April 2009. About 410 users are registered, the number is increasing. Users come from surveying, cadastre and cartography industrial branch. At the moment only eight antennas are absolutely calibrated, but calibration is planned for the other antennas also. The cross-border data exchange has started with Hungary, Austria, Poland and the Czech Republic. (<http://www.skpos.gku.sk/>)

National EUPOS Service Centres

The cooperation website <http://www.eupos.org> provides the contact details for all National Service Centres.

Events

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|------------------------|---|
| 14 – 18 September 2009 | 4 th Meeting of the International Committee on Global Navigation Satellite Systems (ICG-4), Saint Petersburg, Russian Federation |
| 30 November 2009 | 16 th International EUPOS Steering Committee Conference and 8 th Meeting of the EUPOS Working Group on System Quality, Integrity and Interference Monitoring, Berlin, Germany |
| 30 Nov. – 2 Dec. 2009 | International Symposium on Global Navigation Satellite Systems, Space-Based and Ground-Based Augmentation Systems and Applications 2009, Berlin, Germany |
| 3 December 2009 | 4 th Meeting of the EUPOS Working Group on Technical Cooperation with the Industry, Berlin, Germany |

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International EUPOS Steering Committee Conference in Berlin, Germany, September 2008