

ANNUAL PROGRESS REPORT
OF ACTIVITIES OF THE INSTITUTE OF GEODESY AND GEODETIC ASTRONOMY
OF THE WARSAW UNIVERSITY OF TECHNOLOGY
FOR THE PERIOD
FROM 1.04.2005 TO 31.03 2006

PROJECT:
„CERGOP-2, A MULTIPURPOSE AND INTERDISCIPLINARY SENSOR ARRAY
FOR ENVIRONMENTAL RESEARCH IN CENTRAL EUROPE”

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The following works and studies were performed by the Institute of Geodesy and Geodetic Astronomy of the Warsaw University of Technology in the period from 1.04.2005 to 31.03 2006:

1. CEGRN 2005 GPS Campaign.

CEGRN 2005 GPS Campaign was organised from 20 June to 25 June 2005. The following Polish stations participated in the campaign:

- Józefoslaw, JOZE
- Borowiec BOR1
- Lamkówko (Olsztyn), LAMA
- Grybów, GRYB
- Wrocław, WROC
- Sniezka, SNIE
- Nowy Sącz, NOSA

The stations Jozefoslaw, Borowiec, Lamkowko, Wrocław and Nowy Sącz are permanent stations, Grybow and Sniezka – epoch CERGOP stations. The Institute has coordinated the Polish part of the CEGRN 2005 campaign. All observation data were transmitted to the CERGOP Data Centre in Graz, Austria.

2. Warsaw CERGOP Processing Centre

Warsaw CERGOP Processing Centre (IGGA WUT) processed the GPS observations of two CERGOP-2 campaigns 2003 and 2005 from all CEGRN (Central Europe GPS Reference Network) stations. The results were sent to the CERGOP Data Centre in Graz, Austria.

3. Activities of the working group of the CERGOP-2 workpackage WP.10 “Geodynamics of Central Europe”.

Working group is chaired by J. Sledzinski (Poland) and P. Vyskočil (Czech Republic). Two working conferences of the chairmen of the WP.10 were held in Prague in 2005:

- 2 – 5 March 2005,
- 20 October 2005.

The following items were discussed:

- Analyses of the results of geodynamic investigations performed by all seven subgroups and preparation of the subsequent version of the Pilot Report on current status of geotectonic and geodynamic studies in Central Europe;
- Review of selected papers on velocity vectors and displacement of CERGOP points presented at the international conferences and symposia that were proposed to be inserted to the Web pages of the CEGRN Consortium; five papers were selected:
- Plan and procedure of editing the monographs prepared by subgroups WP 10i.

The “Pilot Report” is intended to be one of the basic documents of the WP.10 for realisation of the Project CERGOP-2/Environment and a background for any further geodynamic interpretations. The Report will contain the description of monitoring of recent crustal movements in the European region covered by the CEGRN stations with highlighting the geologic, geophysical and geodetic aspects of studies carried out by European scientific institutions. The report will include the information coming from different sources and in particular from studies performed by the CERGOP-2 workpackage sub-groups 10.1 - 10.7 that currently arrange, plan and organise programmes of their activities in particular regions. Since all chairmen of workpackages are obliged to report their activities at the EGU-CEI symposia in April every year it is expected that the final version will be prepared after the EGU-CEI Vienna Symposium G6, 2-7 April 2006.

The following structure of the report is maintained:

Chapter 1.

General introduction to the geology, structural evolution, geophysical test fields and geokinematics of the area covered by the studies of the Project CERGOP-2/Environment.

Chapter 2.

Regional studies of particular regions of Central and Southern Europe.

2.1 Crustal movements in the Eastern Alps and Northern Mediterranean (WP.10.1)

2.2 Three dimensional plate kinematics in Romania. (WP.10.2)

2.3 Integration of present geodynamic investigations in the Pannonian Basin (WP.10.3).

2.4. International geodynamic test area Plitvice Lakes. (WP.10.4)

2.5. Geodynamics of the Tatra Mountains. (WP.10.5).

2.6. Geodynamics of the Northern Carpathians. (WP.10.6).

2.7. Geodynamics of the Balkan Peninsula. (WP.10.7).

2.8. Results of geodynamic investigations from other Central European regions.

Investigations in the Region of Sudetes.

Chapter 3

General interpretation of the results. Suggestions for further studies.

Moreover five sub-groups have declared to prepare monographs on geotectonics of their regions.

4. Activities of the working group of the CERGOP-2 workpackage WP.10.5 “Geodynamics of Tatra Mts.”

The workpackage WP10.5 is chaired by K. Czarnecki (Poland) and M. Mojžeš (Slovakia). The observation campaigns in the Tatra Mts. are organised every year with the cooperation of Polish and Slovak surveying groups. The performed up to now satellite and gravimetric observation were processed and interpreted. Results are given in three publications by Polish and Slovak authors published in **REPORTS ON GEODESY, No.4 (71) IGGA WUT, 2004: *Geodynamics of the Tatra Mts – Report of WP.10.5, Evaluation of six years GPS epoch campaign measurements in the Tatra Mts., and Testing of gravimetric quasigeoid by astronomical measurements.*** In 2005 the teams from the Institute performed satellite GPS and gravimetric measurements in the Polish part of Tatra Mountains”. As one of the achievements of this workpackage the map of the quasigeoid of the Tatra Mts area can be mentioned.

5. Establishment of a new permanent satellite GPS station.

The reference station receiver Ashtech MicroZ was established at the station in Nowy Sacz, South Poland. The test observations were performed and the station is now operating permanently. It took part in the CEGRN’2005 observation campaign. The location of the station was chosen in a branch office of Geodesy and Cartography in Nowy Sacz. The everyday observation data are processed by the Polish ASG (Aktywna Siec Geodezyjna - Active Geodetic Network) Processing Centre in Katowice) and can be used for processing of the whole CEGRN network.

6. Publication of papers on CERGOP-2

In 2005 two volumes of **REPORTS ON GEODESY** that contain papers on CERGOP-2 were published:

REPORTS ON GEODESY, No. 2 (73), 2005 “Proceedings of the EGU Symposium G9 “Geodetic and geodynamic programmes of the CEI”, Vienna, Austria, 25-30 April 2005 (278 pages).

REPORTS ON GEODESY, No. 4 (75), 2005 “Proceedings of the CERGOP-2/Environment Semi-annual Conference”, Sarajevo, Bosnia and Herzegovina, 11-12 November 2005 (229 pages).

7. Dissemination of results, reporting

CERGOP Project was reported in 2005 at many international conferences and symposia, e.g. IAG (International Association of Geodesy) interunion scientific conference in Cairns, Australia (August 2005) and CGSIC (Civil GPS Service Interface Committee) in Long Beach/Los Angeles, CA, USA (September 2005). Some selected papers and reports about CERGOP are listed below:

J. Sledzinski. Geodetic and Geodynamic Programmes realised by the Section C „Geodesy” of the WG „Science and Technology” of the Central European initiative. Paper presented to the Joint Assembly of the IAG, IAPSO and IABO, Cairns, Australia, 22-26 August 2005.

J. Sledzinski. GPS new from Poland and CEI. Report presented to the Meeting of the Civil GPS Service Interface Committee (CGSIC), Long Beach, CA, USA, 12-13 September 2005.

- J. Sledzinski. Geodetic and geodynamic programmes realised by the CEI Working Group “Science and Technology” Section C “Geodesy”, Wydawnictwo Wyższej Szkoły Gospodarki Narodowej w Kutnie, Kutno, 2005.**
- J. Sledzinski. Application of satellite navigation systems in geodetic and geodynamic programmes of the CEI (Central European Initiative). Paper presented at the EUREF Symposium, Bratislava, Slovakia, 2-4 June 2004. Proceedings of this Symposium, BKG, 2005.**