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Vladimír Shánělec

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English translation by Lucie Čápová

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PREFACE

The present Annual Report provides a summary of the statutory tasks and ancillary activities undertaken by the state organisation Czech Geological Survey - Geofond (Geofond) during the year 2006. A brief financial statement for the year is also presented. A more detailed description of all these activities, especially the economic results, can be found in the "Report on the activities and financial affairs of Geofond during 2006". This has been compiled following the new format required by Ordinance No. 232/2005 Coll. of the Ministry of Finance that defines the content of an annual report, and is also published on the Geofond's website: www.geofond.cz.

As in previous years, Geofond carried out statutory tasks in compliance with its Charter of Foundation and the laws of the Czech Republic, specifically, Act No. 62/1988 Coll. On Geological Works (Geological Law), Act No. 44/ 1988 Coll. on Protection and Utilization of Mineral Resources (Mining Law), all subsequent amendments to these laws, and the Agreement Ref. No. M/140/ 1997 between the Minister of the Environment and the Minister of Industry and Trade on the activities of Geofond. Statutory duties involving maintenance, regular up-dates and use of files and databases containing the results of geological investigations and geological documentation have continued. Special attention has been given to improving the quality, comprehensiveness and accessibility of these databases.

In addition, Geofond undertook numerous geological projects financed from the budget of the Geological Department of the Ministry of the Environment. At the beginning of 2006 the projects "Underground Mine Workings II" and "Mine Waste Dumps II" were completed, including the final report. The project "Digitisation of Microfilm Reports into the Digital Archive" was also completed later that year. The following projects were continued from previous years: "Completion of the Bibliographic SubSystem 2003–2006", "Administrative Database of SurIS/Expansion and Updating of the Economic Branch of SurIS", "Evaluation of Unexploited State Owned Mineral Deposits", "Geographical Location and Interpretation of Historical Mining Maps" and "Information Transfer from Surface Geophysical Surveys into the Geofond Information System". However, the first three of them were completed in 2006. In addition, the following multi-annual projects were started this year: "Underground Mine Workings III", "Post Exploitation Dumping Sites", "Economic Database of SurIS II", "Completion of Digitisation of Microfilm Reports into the Digital Archive", "Optimisation of Processing Systems of Primary Documentation". The implementation phase began for the following project: "Updating of the GDO and Adding Hydrogeological Data from Old Reports". Besides these, the following one-year projects "Yearbook Mineral Commodity Summaries of the Czech Republic" and "Implementation of New Technologies into Geofond IS" were completed.

Co-operation was also started on the two-year international project "e-Water – Multilingual Cross-border Access into Ground Water Databases", which is co-financed by the European Comission (EC) and the Ministry of the Environment under the terms of e-ContentPlus programme.

Geofond also took a significant part in collaborative projects financed by the Ministry of the Environment and managed by other organisations. Co-operation continued on the projects “Digitisation of Geophysical Logs by Aquatest Inc.”, “Digitisation of Geophysical Logs by První Příbramská Ltd.”, “Digitisation of Geophysical logs by DIAMO s.p., GEAM Dolní Rožínka branch” and “Digitisation of Geophysical Logs by Geofyzika GP Ltd., Ostrava” and the “Web Portal of the Czech Geological Service” (ČGS). These projects were completed in 2006. Co-operation will continue during 2007 with the Czech Geological Survey on the projects “3D Modelling of the Sokolov and Cheb Basins Basement Relief” and “Revision of Mine Working Impacts”.

In 2006 an important document was published by the Ministry of the Environment. It was Provision No. 8/06 Ref. No. 4256/M/06, issued on 7 August 2006 with reference to an amendment of the Charter of Foundation of the state organisation Czech Geological Survey - Geofond. This document defined the function of the state geological service within the territory of the Czech Republic as its main purpose. This function is based on authorisation given by the Ministry of the Environment by course of § 17 Law No. 62/1988 Coll., on Geological Works, and all subsequent amendments to the law. It also extended the subject of its activity.

RNDr. Vladimír Shánělec, CSc.

1. ACTIVITIES DESIGNATED BY THE MINISTRY OF THE ENVIRONMENT

1. Acting in the capacity of a branch of the State Geological Service, Geofond routinely fulfils tasks requested by state authorities.

These individual tasks were not specified at the beginning of the year and therefore were not formally listed among the main projects for the year 2006. The main ad hoc tasks in 2006 were:

- Compilation of drafts of the State Statistical Statements Hor (Ministry of Industry and Trade - MPO) 1-01 and Geo (Ministry of the Environment - MZP) V3-01 for the year 2007, and their discussion. The wording of these Statements has been approved by ordinance No.476/2006 Coll. of the Czech Statistical Bureau, which defines the Programme of statistical investigations for 2007.
- Providing information on the reclamation of land to the Ministry of Agriculture (including the Research Institute of Agricultural Economy).
- Providing information on reclamation for the Final Statistical Report of the Institute of Ecology of the Countryside.

2. Compilation and publication of the up-dated versions as of 1 January 2006 of "State Owned Mineral Deposits of the Czech Republic" and "Review of the Mineral Deposits in the Czech Republic", in accordance with §29 Par. 4 of the Act No. 44/1988 Coll., On Protection and Utilization of Mineral Resources (Mining Law), and §10 of the Act No. 89/1995 Coll., On the State Statistical Service, and all subsequent amendments to these laws.

On 31 May 2006, three parts of the report "State Owned Mineral Deposits of the Czech Republic" were published (I. Metallic Ores, Trace Elements, II. Fossil Fuels, III. Industrial Minerals), as was the „Review of the Mineral Deposits in the Czech Republic", containing non-reserved construction materials (i.e., those outside state control), using data from the State Statistical Statements Geo (Ministry of the Environment) V3-01. Both publications were distributed to 44 bodies of the state administration of the Czech Republic selected by the Geological Department of the Ministry of the Environment.

3. Compilation and distribution of the yearbook "Mineral Commodity Summaries of the Czech Republic" - as of 1 January 2006.

A total of 550 copies of the Czech version of this yearbook, which is presently the only generally accessible source of information on the mineral resource potential of the Czech Republic, was compiled in an edition of 302 pages by the deadline of 31 August 2006. An English edition of 800 copies with the same content was published with 319 pages. Both Czech and English editions in CD format were published in December 2006.

4. **Preparation of the report "Trends in State Owned Mineral Deposits of the Czech Republic".**

This is a confidential paper of which 30 copies were compiled with 294 pages for the following State Administrative bodies: the Ministry of Industry and Trade, the Ministry of the Environment and the State Mining Authority. This was produced in the same format as in previous years. It is also used by Geofond internally for preparation of documents concerning State raw materials policy.

5. **Compilation of "Reserves of Minerals within Designated Mining Leases and other Exploited Mineral Deposits", prepared at the request of the Ministry of Industry and Trade and in accordance with §10 of the Act No.89/1995 Coll., On the State Statistical Service, and all subsequent amendments to this Law.**

The data were collected using the statistical statement form Hor(MPO)--1-01. A compilation of reserves of minerals was published on 31 May 2006; 80 copies were printed and mailed to those institutions selected by the Ministry of Industry and Trade.

6. **Undertaking registration of geological works in accordance with §7 Act No.62/1988 Coll. (On Geological Works), and all subsequent amendments to that Law, and the regulation of the Ministry of the Environment 282/2001 Coll. (governing registration of geological works) (figures 1, 2, 3).**

7. **Providing protection and registration of registered mineral deposits in accordance with §8 Law No.44/1988 Coll., On Protection and Utilization of Mineral Resources (Mining Law), and all subsequent amendments to that Law, and §15 to 19 of the Law.**

According to §8 of the Mining Law, Geofond is responsible for the protection and registration of 363 state-owned mineral deposits. For 329 of these mineral deposits, a total of 345 protected areas have been designated. Of the remaining 34 state-owned mineral deposits, applications for the designation of 5 protected areas were lodged in 2006. In 16 other cases the proceedings have either been suspended indefinitely, or their status as protected areas has not yet been certified. In addition, 9 proposals were made for modifications and cancellation of existing protected areas in connection with changes in the status of state-owned mineral deposits. Representatives of Geofond took part in negotiations and on-site investigations related to the definition of these protected areas of mineral deposits. A total of 110 designated protected areas have so far been cancelled on the recommendation of Geofond. Of these, 7 were cancelled in 2006.

8. **Maintaining the database of Impacts of Mine Workings in accordance with §35 Law No.44/1988 Coll. On Protection and Utilization of Mineral Resources (Mining Law), all subsequent amendments to the Law, and regulation No.363/1992 Coll. of the Ministry of the Environment (registration of impacts of mine workings, maintaining the database, taking part in on-site investigations at the request of the Ministry of the Environment).**

In accordance with the laws listed above, Geofond undertakes registration of impacts of mine workings. Data is stored in the Database of Impacts of Mine Workings which, since 2002, has been accessible at a basic level on both the Geofond intranet, and on the Internet. A total of 133 reports on dangerous surface effects arising as a result of impacts of mine workings were registered in 2006. As of 31 December 2006, 1,830 such reports relating to 1,709 impacts of mine workings had been registered. In addition, 9 reports of multiple events from previous years relating to 2,862, sites without more detailed specifications, have been registered. Information about the numbers of individual reports, numbers of reported mine workings and their categories are revised every year. Therefore the summary statements may not match the information given in previous years. In addition, 28 reported areas were visited in 2006. A detailed list of impacts of mine workings, updated as of 31 December 2006, was produced by Geofond for the Geological Department of the Ministry of the Environment. This serves as information in support of the Annual Report of the Ministry of the Environment. In 2006, 20 information requests (local authorities – 3, regional authorities – 2, educational institutions – 1, ČGS –1, private organisations and individuals – 13) were met from the database. Within these, information on 5,957 objects was provided **(figure 4)**.

9. Providing information at the request of public or private bodies in accordance with Law No. 123/1998 Coll., On the Right to Information about the Environment.

In 2006, 7 requests from public and private bodies for provision of information in accordance with the above Law were processed, though the applicants did not refer to their rights under this Law. These enquiries were mostly related to problems arising from impacts of mine workings and their restoration, and were provided with the agreement of the Ministry of the Environment and the Ministry of Industry and Trade.

10. Preparation of expert opinions concerning protection of mineral deposits, potential dangers from abandoned mine lands and landslide movements at the request of regional councils, organisations and other relevant parties, in accordance with §13 Law No. 62/1988 Coll. on geological works, and all subsequent amendments thereto, including compilation of literature summaries when requested.

In 2006, there were 1,309 requests for expert opinions. Of these, 3 were for the purposes of regional planning (Břeclavsko, Liberecko and Hradec Králové region); 490 were for local planning in towns and villages; 73 expert opinions were prepared for Land offices to enable complex modifications of land use; 5 were for logistic centres (Drahovice, Poříčany, Nepřevázka, Hrušky, Havraň); 3 for developing zones (Havraň, Hrušky, Moravská Nová Ves); 4 for bases (Dolní Řasnice, Horní Slivno, Janov u Hřenska, Oparno-Chotiměř) and 731 various tasks associated with house building, (reconstruction of power lines, gas pipes, service laterals and waste water cleaning systems, wind power plants e.g. Dolní Brána,

Klínovec, reconstruction of roads and modernisation of railways, including Rokycany – Plzeň, Stříbro – Planá u Mariánských Lázní, Zbiroh – Rokycany, Lanžhot – Kúty) **(figure 5)**.

11. Compilation and update of metadata for the meta-information system of the Ministry of the Environment (MIS) in accordance with Commission No. 22/2000 of the Minister of the Environment.

In 2006, the Department of Informatics of the Ministry of the Environment ensured by contract a new meta-information system MICKA to be created. This system has been based on the principles of the ISO 19115 standard. It also uses the ISO 19110 standard (feature catalogue – catalogue of geo-elements) to describe attributes. MICKA also includes an INSPIRE profile, so that it is internationally fully compatible. Installation of the MICKA system was done in Geofond in January 2007. At the same time it was populated with data from the MIS. The implementation was managed under the terms of the project "Portal of the State Geological Service". Further revision and data update will be done in 2007. The User Manual, published by CENIA in March 2007, is now available. The Geofond implementation of the meta-information system MICKA is managed and updated by Geofond, and is accessible for upload by CENIA.

12. Management of projects financed from the state budget by the Ministry of the Environment (Fund for Geological Works, Fund for Studies):

- ***Completion of the Bibliographic Information Subsystem during 2003–2006***

  The project continued by final works during 2006.

— ***Středisko dokumentace ložisek zlata v Jílovém:*** (Centre for Documentation of Gold Deposits, Jílové): The subsequent bibliographic processing of the archive of maps of gold deposits was continued. 250 map sheets were processed in 2006. Processing will be finished under the terms of the planned project "Geographical Location and Interpretation of Historical Mining Maps – Continuation".

— ***Báňské stavby Most:*** (Mine Construction Co., Most): Processing of the extensive archives of boreholes was finished. A further 22 reports, consisting of coherent collections of borehole records from particular localities and, as far as possible, from the same approximate time (from 3 to 20 single boreholes), were incorporated in the Geofond archives in 2006.

— ***Ústav nerostných surovin:*** (The Institute of Raw Materials, Kutná Hora): The rest of the acquired reports were compared with the existing Geofond reports, and those that had not yet been registered were incorporated into the archive. 300 reports from this resource were incorporated into the Geofond archive in 2006.

— ***Severokámen Liberec:*** The company archive (total of 248 reports) which had already been acquired was processed. A total of 27 reports that had hitherto been missing were incorporated into the archive.

The project was completed including a final report, which was approved at the 1106th meeting of the Committee for Projects and Final Reports on 27 October 2006, in accordance with the contract.

- ***Administrative Database of SurIS/Expansion and Updating of the Economic Branch of SurIS***

The project was run during 2003–2006. This work entailed a daily survey of world prices and the compilation of a price register (with sub-registers for crude oil, gas, ore metals, rare metals, strategic (minor) metals and selected industrial minerals). Included are a commentary on the major fluctuations in prices of particular monitored commodities and an annual survey of prices of minerals processed and produced in the Czech Republic. The annual report "Trends in State Owned Mineral Deposits in the Czech Republic" was also compiled. In 2006, the project was completed including the final report, which was approved at the 1101st meeting of the Committee for Projects and Final Reports on 14 April 2006, in accordance with the contract. Work on this issue will continue under the terms of a new project: "Economic Database of SurIS II".

- ***Evaluation of Unexploited State Owned Mineral Deposits 2003–2006***

The Ministry of the Environment approved this project for a period from 2003 to 2006. It was linked to the project "Re-evaluation of Mineral Deposits in the Czech Republic" (1993–2001). The aim was to re-evaluate unused state-controlled mineral deposits which, for various reasons, were not covered by the previous project. Re-evaluations of particular mineral deposits were made by independent geological companies contracted by Geofond. Re-evaluation of individual mineral deposits made by subcontractors was finished in 2005. In 2006 the project was completed, including the final report, which was approved at the 1106th meeting of the Committee for Projects and Final Reports on 27 October 2006, in accordance with the contract. This project included an evaluation of 74 unused mineral deposits and 1 potential source during 2003–2006.

- ***Underground Mine Workings II***

The project was completed including the final report, which was approved at the 1101st meeting of the Committee for Projects and Final Reports on 14 April 2006, in accordance with the contract. In consideration of the progress made so far, it was recommended by the Ministry of the Environment to continue with the development and population of the database, including all related activities, under the terms of a new project: "Underground Mine Workings III".

- ***Underground Mine Workings III***

The project "Underground Mine Workings III" was prepared and approved in 2006. It is aimed for the time period since 1 April 2006 until 31 December 2008. The database was being populated during 2006 under the terms of this project. By 31 December 2006 the database contained a total of 14,764 objects and 9,292 photographs.

- ***Mine Waste Dumps II***

At the beginning of the year the project was completed including the final report, which was approved at the 1101st meeting of the Committee for Projects and Final Reports on 14 April 2006. In consideration of the progress made so far, it was recommended by the Ministry of the Environment to continue with the development and population of the database, including all related activities under the terms of a new project: "Post Exploitation Dumping Sites".

- ***Post Exploitation Dumping Sites***

In 2006 this project, which is linked to the project "Mine Waste Dumps II", was prepared. The extended and modified structure of the database results from the existing Mine Waste Dumps database, but it also enables the monitoring of other types of objects. The work was carried out by subcontractors. It involved the digitisation of individual objects in the form of polygons together with the addition of new attributes. A new updated manual was also compiled for completing data sheets. This manual reflects the stated changes and is available for contractors from the relevant regions to use. On 31 December 2006 the database contained 2,377 entries and 5,354 photographs.

- ***Geographical Location and Interpretation of Historical Mining Maps***

Scanning of selected map files, provided by the Czech Geological Survey, continued in 2006. 4,137 maps were scanned this year. Maps are spatially located by subcontractors. 2,573 maps were processed in 2006.

- ***Administrative Database of SurIS II***

This project has been approved by the Ministry of the Environment for years 2006–2007. It is linked with the two projects "Specialised Databases for the Raw Materials Data" (UDSURIS) from time period 1998–2001 and "Administrative Database of SurIS/Expansion and Updating of the Economic Branch" (EKORSURIS) from years 2003–2005. It includes, just as in previous projects, systematic monitoring of economic information on raw materials and raw material commodities (monitoring of both domestic and foreign prices of raw materials, information on foreign trade etc.). The study "Trends in State Owned Mineral Deposits of the Czech Republic" was also published as part of this project. It covers the decade before the year of publishing. This project is different from the previous ones as it does not involve publishing and distribution of the yearbook "Mineral Commodity Summaries of the Czech Republic". A new independent project "Yearbook Mineral Commodities of the Czech Republic for year 2006" was started in order to uprate the content and extent of the yearbook in both the Czech and English versions, printing in colour (first achieved in 2005) and extending its distribution.

- ***Yearbook Mineral Commodity Summaries of the Czech Republic***

The project for the creation and publishing of this Yearbook is associated with an information background project for another yearbook "Economic Database of SurIS II". These projects are complementary with one another. In 2006 the project secured continuation of the publication and distribution (which started in 1992) of the Yearbook. During its development, the team

of authors was extended. An additional team of several domestic and foreign reviewers was also established. Both incidental and fundamental changes in the Yearbook were agreed between the two parties. Chapters were reordered, so that their position better fitted the needs of most users of the Yearbook. (The general chapters, which mostly concern economic matters, are now prioritised over the raw-material chapters; raw-material chapters have been arranged according to their National economic importance as follows: energy fuels, industrial minerals and rocks, construction materials, and ores. Thus the previous succession, ores, industrial minerals and rocks, construction materials, has been replaced. Decorative rock has been transferred from industrial minerals and rocks to construction materials.) The yearbook has been published in Czech (550 copies) and English (800 copies). Versions are also on CD in PDF format. A database of domestic and foreign recipients of the Yearbook was created. It includes more than 390 foreign recipients – mostly individuals and special interest institutions drawn from more than 90 countries, which include both European as well as countries that have a significant mining interest. In addition there are more than 180 domestic individual recipients, each representing an organisation in their own right.

- ***Updating the GDO, and Adding Hydrogeological Data from Old Reports***

In 2006 the Ministry of the Environment approved the post-planning implementation phase of the project, which is linked to its preparatory phase from 2005. In 2006, 300 hydrogeological objects were added and updated into the HYD subsystem. Workflow has been in accordance with the approved project.

- ***Completion of Digitisation of Microfilm Reports into the Digital Archive***

This project is directly linked to the project "Digitisation of Microfilm Reports into the Digital Archive" that ran in years 2005–2006. Its aim is to complete the technical digitisation of microfilms (which started under the terms of the previous project), to collate and process digital reports, and to integrate them with the information system of Geofond in years 2006–2007. In 2006, microfilms with a total of 445 reports (195,430 pages) were digitised and 235 more reports (148,687 pages) were incorporated into the information system.

- ***Information Transfer from Surface Geophysical Surveys into the Geofond Information System***

The main aim of this project, planned for years 2006–2008, has been to save the wide range of surface geophysical measurements made by exploration and mining organisations within the Czech Republic. One of the most important of these companies is DIAMO s.p. (formerly The Czechoslovakian Uranium Industry). This geophysical data will be stored as classified digital data in the Central Relational Database of Geofond. This will permit the data to be integrated with other geological, hydrogeological, geophysical and geochemical data so that correlation with the results of other geological investigations and full interpretation will be possible. In 2006 the work was focused especially on the following five activities:

integrating the data structures; determining a means of both saving and displaying geophysical data in the future; the transfer of the data into an adequate format and the creation of a data store. The regular grid of 500x500m was chosen for data representation. Data were subsequently incorporated from two sources, firstly that which was assembled in past years within the project "Compilation and Use of State-funded Geophysical Data" (format ESRI Shape), and secondly data assembled in 2006 from within the first stage of the project "The exploration of the Czech Republic by the surface geophysical methods in digital form", managed by DIAMO s.p. (Microsoft Access format).

- ***Implementation of New Technologies into Geofond IS***

In 2005 the new technologies SDO (Oracle) and ArcSDE (ESRI) in combination with various GIS tools (Geomedia 5, ArcGIS 9, ArcIMS 9) were successfully tested on the databases of Impacts of Mine Workings and SurIS. The main aim of the project in 2006 was to implement these technologies on the entire data in the CRD of Geofond, and incorporate them completely in operational technological procedures. At the same time testing of a new product – Oracle Application Server (Oracle) – continued. This product is suitable for development of new service applications working on the basis of new technologies. This project also included the management and maintenance of existing application systems. Modifications of some applications were also made according to the demands of users. A new application was also created for the presentation of GDO (boreholes etc.), with use of on-line access into the database. The last listed application replaced the original application, which generated envelope curves of objects made during the same survey. These were generated several times a year, so the finished product was off-line. The necessary support of the software products (ESRI, Geosoft) and the helpline for users in Geofond was provided from the project budget.

- ***Optimisation of Processing Systems of Primary Documentation***

New activities were recognised as being required following work on the two projects "Beginning the Creation of the Digital Archive of Reports for Incorporation in the Information System of Geofond" and "Digitisation of Microfilm Reports into the Digital Archive". These projects, current in the years 2004–2006, raised the need to add new tasks connected with the digitisation (scanning) of reports and their introduction into the procedures of accepting, processing, storing (permanent) and making accessible the results of geological works and documentation given to Geofond. In 2006 an analysis of the present system of work was carried out. On the basis of this analysis an organisational and logical design for a new system will be proposed. During 2007 and 2008 an application infrastructure will be created and tested. Essential changes will be proposed to both the system of registering of newly acquired reports and the organisational structure of Geofond. Relevant workplaces will be equipped with the necessary technologies connected with these activities. Scanning work done by external temporary staff will also be financed partially from the project budget.

13. Collaboration on projects financed from the state budget by the Ministry of the Environment (Fund for Geological Works, Fund for Studies), and managed by other organisations:

- ***3D Modelling of the Sokolov and Cheb Basins Basement Relief***

The aim of this project is the creation of an interactive 3D model of the surface relief of the crystalline basement beneath the Tertiary sediments and volcanics in the Sokolov and Cheb basins. This will be based on geological borehole data held by Geofond. In 2006 the project was focused on rectifying deficiencies and errors of data selected from the borehole database (GDO) of Geofond in 2005. Tens of geological profiles were corrected, so that the quality of the present data has improved. Samples of re-interpreted profiles were tested for future incorporation. In addition the code tables of the ČGS and Geofond were compared and then merged. The procedure for the creation of a data model was proposed. Differences between codes used by each of the two institutions are eliminated under the terms of a different project.

- ***Digitisation of Geophysical Logs by Aquatest***
- ***Digitisation of Geophysical Logs by První Příbramská Ltd***
- ***Digitisation of Geophysical Logs by DIAMO s.p. – Moravia (DIAMO s.p., GEAM Dolní Rožínka branch***
- ***Digitisation of Geophysical Logs by Geofyzika GP Ltd., Ostrava***

The first three projects for processing borehole geophysical measurements were approved in June 2003, when contracts between the project leaders and the Ministry of the Environment were signed for the years 2003–2006. The fourth project was approved in June 2004, when the contract between the project leader and the Ministry of the Environment for years 2004–2006 was signed. The participation of Geofond was based on a dedicated supplement to the Geofond budget. As in the previous year, information was provided to enable the identification of particular boreholes for which geophysical logs have been digitally processed as well as for the selection of boreholes giving representative coverage of borehole geophysical data over the territory of the Czech Republic. Checks were carried out to avoid the duplication of data processed by different participants. In cases where multiple logs of the same borehole were found, Geofond took the decision on which data to use. The resulting files of digitised geophysical measurements submitted by project participants were reviewed and have subsequently been put into the Central Relational Database of Geofond. The work was co-ordinated in accordance with the projects and their amendments. During 2006, data from a total of 322 boreholes were processed as a result of these four projects. Aquatest Inc. processed a total of 140 boreholes, 1.Příbramská Ltd. processed 35 boreholes, DIAMO s.p. processed 83 boreholes and Geofyzika GP Ltd. processed 64 boreholes. Input data were revised, duplicate measurements from any boreholes were reconciled and other works connected with this were completed (e.g. modifications of applications, revisions and incorporation of archived materials).

In addition, work on the down-hole geophysical log archive in Kovanice continued under the terms of these projects. The files were processed into the bibliographic subsystem ASGI and additional information on the measurements was attached. So far, 1,849 reports have been processed and information on 3,774 boreholes has been amended. As a new part of the hydrogeological database, technical data of well construction (casing, filters packers etc.) were incorporated to 1,181 hydrogeological objects. In 2006 additional data on 4,513 boreholes were processed. These included information about geophysical measurements that had not been digitised, technical information etc.

- ***Web portal of the State Geological Service***

The aim of this project was the construction of the web portal of the state geological service. The portal forms the basis for the future of the more comprehensive portal giving entry to the geology of the Czech Republic. At first, it enables virtual integration of the data and information resources held separately by the ČGS and Geofond. Later data from other geological institutions in the Czech Republic (Academy of Science, universities, museums etc.) may be added. The portal is a logical component of the environmental information portal under the Ministry of the Environment, based on the Portal of ČGS. A new meta-information system was developed within the Portal according to internationally approved standards of the INSPIRE directive. It is also in compliance with the meta-information system on the environment (part of the CENIA activity), which particularly contains information about content, origin, geographical location, data provision conditions, and possible external database access. The central point of access to the data sources is the GeoINFO section, which involves the virtual linking of map services (www services) of existing map servers from both institutions. The level and extent of data integration (including corrections and updates) will continue to be improved for a long time, depending on the benefits of so doing. The integrated digital archive of geological documentation provides for the user on-line access to digital maps and documents stored in both institutions. The possibility of linking the documentation based on the location (i.e. all related documents referring to a defined area, map sheets, administrative or geological units etc.) is used. A part of this project is focussed on the popularisation and support of education in the geosciences. This is based on the existing website www.geology.cz, which has been rebuilt and extended to become more directed at the popularisation of data as a means of increasing their use in schools at various academic levels. The project was completed in December 2006.

- ***Revision of Mine Working Impacts***

In 2006 Geofond made some necessary changes to the database of Impacts of Mine Workings. The structure was enlarged as the new required fields were added and new entry forms and printing forms were prepared. On the basis of the results of revisions made in 2005, the coordinates of some mine workings had to be corrected and the numbers of mine

workings that refer to data sheets were specified. Information concerning specific localities was given to the staff of the ČGS responsible for this project.

14. Participation in the project "eWater – Multilingual Cross-border Access into Ground Water Databases" (as a part of the EC eContentPlus programme)

The project was arranged on the basis of the success of the project eEarth, which ran during the years 2004–2005 within the eContent programme. It was submitted in November 2005 to the eContentPlus programme (European Comission, Information Society, Directorate-General, Luxembourg), where it was successfully evaluated in March 2006 following which the eWater Consortium was invited to a negotiation meeting in Luxembourg on 24 April 2006. Dr. Čápová was a member of the negotiating team on behalf of the Consortium. The project was officially started on 1 September 2006 and its duration is planned until 31 August 2008. The contract was signed by all parties on 18 October 2006. Members of the consortium are drawn from the following European geological surveys: geological survey of Netherlands (TNO), French Geological Survey (BRGM), Geological Survey of Denmark and Greenland (GEUS), Hungarian Geological Institute (MAFI), Czech Geological Survey - Geofond, Slovak Geological Survey (SGÚDŠ), Emilia-Romagna Regional Geological Survey (SGSS) as a part of Italian Geological Survey, Austrian Geological Survey (GBA), Lithuanian Geological Survey (LGT), Slovenian Geological Survey (GeoZS), Spanish Geological Survey (IGME), Swedish Geological Survey (SGU). The following private software companies are also involved: Information Technologies (IT) from Lithuania, Geodan Mobile Solutions (Geodan) from Netherlands and Geographic Information Management (G.I.M.) from Belgium. In accordance with the rules of the eContentPlus programme, the costs of the project are financed partly (50%) from the resources of EU and partly (50%) from the resources of the participating organisations. To obtain financial support for the project, Geofond signed a contract with the Ministry of the Environment in June 2006.

The main aim of the project is to improve the international availability, and accessibility of data with particular reference to location, quality and other properties of underground waters. Hydrogeological data are the most requested geodata after information on the lithological description of the subsurface (access to lithological data from boreholes was the subject of the eEarth project). The project will contribute to implementation of European Water Framework Directive (WFD), Water Information System for Europe (WISE) and is in accordance with the principles of the European ISPIRE directive, which aims to improve unified access to geo-environmental data for public.

The project consists of twelve main workpackages (WP 1 – 12) that will be undertaken within three project stages: Inventory and Definition Stage, Implementation and Testing Stage and Presentation of the Results. WP 1 – Management and coordination of the project (leader TNO (NL)), WP 2 – Requirements for Data delivery at EU level and national users' level (leader BRGM (F)) – which includes an inventory of aspects, concerning use of state data sources in public services in all participating countries; WP 3

– Organisation of ground water data management at the national levels (leader MAFI (HU)) – which includes a comparison of organisational aspects concerning hydrogeological data at the national level, their acquisition, collection, management and use; WP 4 – Best practices in the national hydrogeological data management and distribution (leader GIM (B)) – which includes a summary of technical devices and applications that are used for management and use of hydrogeological data sources in each country; WP 5 – Delivery format for hydrogeological measurements (leader TNO-NITG (NL)) – which includes an inventory of existing formats and standards concerning hydrogeological data in each country with the aim of creating a common format, and WP 6 – Interoperability of digital maps (leader IGME (ES)) – which includes definitions of nationally used projections, legends, nomenclature, definitions, standards and a proposal for their harmonisation for a common publication. These first six workpackages were undertaken in the first stage. Employees of Geofond participated in all stated parts of the project. None of the WPs was completed in 2006. Each stage of the project will be completed with partial reports for each WP (Deliverables), for each stage and finally a final report, which will conclude whole the work and its results. Copies of these reports will be given to the Ministry of the Environment.

2. INFORMATION SYSTEMS

• *PRESERVATION OF, AND MAINTAINING ACCESS TO, THE RESULTS OF GEOLOGICAL WORKS* •

This task is undertaken in accordance with § 12 of Law No. 62/1988 Coll., on Geological Works, and all subsequent amendments. In 2006, 3,152 reports and manuscripts were handed over to Geofond. Of these, 2,785 were new documents submitted by persons or by organisations in accordance with the above law. There were 150 items fewer than in 2005. Of these, 2,714 were reports of category "P", 52 of category "FZ", and 19 of category "ZC" (foreign travel reports). The remaining 367 reports were taken from the project: "Completion of the Bibliographic SubSystem" **(figures 6, 7, 8, 9**).

By the end of 2006, 3,099 reports had been received and processed for inclusion in the Geofond archive. The 456 new reports received at the end of 2006 will be processed during the first months of 2007. In 2006, the total number of reports put into the Geofond archive was 770 lower than in 2005.

In 2006, 455 visitors used the study room service, making a total of 2,936 separate visits. In total, 16,963 reports and 1,634 maps were consulted. Compared to 2005, the number of individual visits was 209 higher, the number of loans of maps decreased by 239 and the number of reports lent increased by 1,550. The long term trend towards a decrease in the number of maps loaned and, on the contrary, a slight increase in the number of reports being loaned is believed to be due to the increasing ease of access to basic information via the internet **(figures 10, 11, 12)**.

Summary of activities of the Material Documentation Unit

In 2006 the core from 1 borehole drilled by Sokolovská uhelná Inc. in the area of Hořany village, and the core from 1 borehole of Mostecká Uhelná Inc. in the area of Královské Poříčí were acquired for permanent storage. The core from one borehole of those formerly acquired from the Zlaté Hory area was incorporated. Samples from the archive of Dr. Jindřich Vodička taken from 24 more boreholes in the area of the Czech Cretaceous Basin were processed for permanent storage.

During the year, core from 55 boreholes acquired in recent years was stored. Under the terms of transfer of core specimens from the original field boxes to unified storage in boxes of the CH-I type, cores from 30 boreholes were transferred. Duplicates of stored borehole cores were also removed. A total of 6 new borehole cores were merged with those which were already stored in documentation boxes. Consequently, on 31 December 2006, the number of objects in storage was 1,547 (mainly drill cores). Of these, 1,472 have been permanently stored in 8,719 CH-I boxes, while the remaining cores are still in their original boxes. Of the total number of boxes containing heavy mineral samples acquired from the archive of Geomin-družstvo Jihlava, 150 boxes were placed in permanent storage. Work continues on the remaining boxes.

In 2006, archived core material was used by 2 researchers (Dr. Mlčoch from the Czech Geological Survey for the project "3D Modelling of the Sokolov and Cheb Basins Basement Relief" and Dr. Procházka from the Faculty of Science, Charles University – documentation from areas of Mírovka, Světlá nad Sázavou and Melechov) who studied material from 33 boreholes and took 45 samples from 5 places **(figures 13, 14, 15)**.

The Centre for Documentation of Gold Deposits at the Regional Museum in Jílové u Prahy gathers geological documents and original sample material from exploration and mining works at gold deposits in the Czech Republic. The collection includes samples of minerals, ores and host rocks with alteration types, selected segments of drill core (halved cores), thin sections of rocks and veins, and polished sections of gangue and ore minerals. The collection also includes original geological reports and geological maps, and especially old maps of gold-bearing districts. The material has been classified according to locality and comprises 5,500 samples of minerals, ores and rocks, 2,000 thin sections and 400 polished sections.

In addition to work undertaken on the project "Completion of the Bibliographic SubSystem", a selection of material used for expert work concerning investigation of Mo-pegmatites near Skalsko (doc. Novák –Masaryk University Brno, RNDr. Litochleb – NM Prague), and soil metalometry from the area of Mokrsko-Čelina (RNDr. Drahota – the Faculty of Science, Charles University, Prague). Moreover, documentation for compilation of a report on mining beneath the town district of Jílové-Radlík – gas pipe-laying project (official referee V. Vodička for the municipal office of Jílové) was prepared. Documents were also provided for detailed processing of Jílové district under the terms of Geofond's project "Underground Mine Workings III" (RNDr. Morysek).

• *CREATION, UPDATING AND USE OF DATABASES IN THE INFORMATION SYSTEM* •

Systematic filing and updating of data concerning geological conditions and ground water resources in the territory of the Czech Republic is carried out under the terms of § 17 of Law No. 62/1988 Coll., on Geological Works, and all subsequent amendments.

► The Bibliographic Subsystem ◄

An ASGI bibliographic database is used as a digital card index for searches for reports and other geological information. It is a part of the system used routinely for storing and ensuring access to the results of geological work and documentation.

In 2006, 3,427 bibliographic records were added. Of these, 3,116 new records originated from newly acquired reports (3,050 coded as "P", 49 coded as "FZ" including re-evaluations, 17 coded as "ZC") and 77 from reports already archived (reports coded as P 4, V 31, ZC 42). In addition, a file including 234 listings taken from the GDO was entered into the database under the terms of merging these databases. The file contains, besides 5 items coded as "KT" and one coded "P", 228 items of different codes to which no report can be found in the archive. Only single boreholes in digital form, carrying these codes, were given to Geofond.

As of 31 December 2006, the ASGI database contained, in all, 203,402 records (113,044 coded as "GF P" (reports), 3,587 coded as "GF FZ" (fund of mineral deposits), 10,442 coded as "GF ZC" (foreign travel), 72,742 coded as "GF V" (boreholes), 7,598 coded as "GF MS" (shallow pits), 354 coded as "GF KT" (down-hole geophysical logs), 1,319 coded as "CGU" (reports from the Czech Geological Survey archive), 1,709 coded as "ITG" (reports from the Intergeo archive), 1,162 coded as "DIAMO" (reports from archives of the uranium exploration organisations), 377 coded as "RDP" (reports from archives of Rudné doly Příbram), 900 coded as "MND" (reports from the archive of Moravské naftové doly), 1,674 coded as "SG" (reports from the archives of Stavební geologie), 134 coded as "JIL" (reports from archives of Středisko dokumentace ložisek zlata v Jílovém, 202 coded as "UNIG" (reports from archives of Unigeo Ostrava), 99 coded as "UVR" (reports from archives of Ústav pro výzkum rud) and 228 various listings added under the terms of uniting the GDO base with the ASGI base. The number of items entered into the database is 12,169 less than the total sum of listed entries. This is because duplicate listings (P+V, P+FZ) and multiple listings (V) have been made in certain cases **(figure 16).**

In 2006, a total of 6 searches containing 2,156 records were made for external users and 8 searches containing 15,700 records were made for internal users.

► The Digital Archive ◄

The digital archive of reports has been operating since 2004, as Geofond was granted financial support for the purchase of scanners and a file server for storage of obtained data at the end of 2003. In consequence, a two-

-year project “Beginning the Creation of the Digital Archive of Reports for Incorporation in the Information System of Geofond” was started. Within this project a new scanning workplace was created by means of organisation, technology and programmes. A new database model of the bibliographic subsystem was also made, its function was adjusted and a new application for data conversion of the new model was created. This is also used for its update, management and maintenance, and for the presentation of input data. In addition, a pilot project for a scanning unit was started that year, and in 2005 its use became routine. The project „Digitisation of Microfilm Reports into the Digital Archive“ was started, aiming to process black-and-white microfilms, based on the results of an archive‘s content revision in 2005. These microfilms were obtained from the acquired archive of former GMS Inc. and contained mainly reports on mineral deposits. Consequentially, the digitisation of reports from microfilm was more efficient because the material was of higher quality and more comprehensive than the same archive reports in paper form. Scanning of available microfilms is going to be completed in 2007 under the terms of the project “Digitisation of Microfilm Reports into the Digital Archive“, which started in 2006.

After the project “Beginning the Creation of the Digital Archive of Reports for Incorporation in the Information System of Geofond” had been completed in 2005, scanning of reports nevertheless continued in 2006 in the department of data digitisation with the support of external temporary staff. These were financed from the projects stated above and partly from the project “Optimisation of Processing Systems of Primary Documentation”. Reports from the 1950s were scanned as a first priority, since they are becoming illegible due to reproduction techniques used at those times. These are a continuous series of reports which increment from P010000. In 2006 the series of reports beginning at P013000 was started. In addition, newer reports bound with plastic-circle spines that are easy to dismantle and rebind (those beginning from P080000, together with the series commencing P090000 were started in 2006) or new reports not yet bound, were scanned in order to use the available equipment (a multi-feed scanner) more efficiently. Selected reports as requested by external and internal users were also scanned. These included the first tens of reports coded as “FZ”.

As of 31 December 2006, the digital archive contained a total of 577,249 pages from 7,877 reports. This is less then 6% of the total estimated number of pages and a little bit more than 6% of the total estimated number of reports stored in the archive. Reports scanned from microfilms are also included in this number.

year	reports	pages total	of these	book scanner	map scanner	scanner of A3 format	multi-feed scanner of A4 format	microfilms
2004	1439	77118		62253	7553	1425	5887	
2005	3629	231188		91042	16200	1116	120892	1938
2006	2809	268943		72212	25298	1385	102091	67957
Total	**7877**	**577249**		**225507**	**49051**	**3926**	**228870**	**69895**

At the beginning of 2006, a test operation of the presentation application of the Digital Archive on the intranet began. A decision on whether to make this product accessible to the public, and whether to charge for it will be made according to the test results. Further development of the digital archive is dependent on the financial support from the Ministry of the Environment.

► Factual Subsystem ◄

Point Data database

Entry of new borehole data was made both by permanent staff at Geofond and by external contractors. In total, 5,664 boreholes were coded in 2006, including 352 boreholes in 37 reports from archives acquired from other organisations. After data validation was completed, 4,956 boreholes, compiled from 2,027 reports, were added to the Central Information System. By 31 December 2006, a total of 647,206 boreholes were in the database, including 8,672 boreholes without geological log descriptions in the archives of Geofond. This is 17,052 less than were originally entered; some were removed because of duplication and others because the quality of the geological logs was not acceptable.

The significant decrease in the numbers of new borehole records stored after 1990 was because the borehole archive was nearly complete by this stage. A further decrease is evident in the number of reports acquired by Geofond since 1998, this being due to the reduction in the number of geological investigations since this time **(figures 17, 18)**.

There was an increased interest in the borehole database during 2006 as compared to the previous year. Requests for information increased from 284 in 2005 to 374 in 2006 (1 request from the Ministry of Industry and Trade, 1 from local authority, 5 from the Czech Geological Survey, 1 from the Academy of Science, 14 for diploma works and other educational purposes, and 352 from private organisations and individuals). That is 90 more requests than in the previous year. Nearly 85% of the total number of boreholes (65,862) and profiles (531,536) is made of data given to the Czech Geological Survey under the terms of the project "3D Modelling of the Sokolov and Cheb Basement Relief" **(figures 19, 20)**.

Hydrogeological Data

In 2006, a total of 3,256 objects (boreholes, wells and springs) were entered into this database (916 objects were from archived reports and 2,340 from new reports), and 5 duplicates were removed. By the 31 December 2006, the database contained 70,701 objects.

A specialized database of potential geothermal energy sources also forms part of this database (1,094 objects). It contains 753 records of thermal waters, for which the measured temperatures were higher than 20°C, and 341 production boreholes for extraction of crude oil and gas. The specialised database of objects relating to human impact on groundwater now contains 9,793 test wells, 1,231 remedial wells and 5,044 monitoring wells.

In 2006, 38 maps at a scale of 1 : 25.000 showing the locations of hydrogeological objects were loaned to 148 customers. A total of 273 graphical outputs were provided from the database. Hydrogeological data on 45,672 objects were provided to 100 users in the agreed form and content. Of these, 24 requests were from the Czech Geological Survey, 9 for educational purposes, 7 from local authorities and 60 from private organisations and individuals.

Since 2004 the classical card index has served only for internal purposes of Geofond; users can only obtain outputs from the database and maps **(figures 21, 22, 23)**.

Geophysical Logs

The creation of this database was started in 1999 under the terms of the project: "Comprehensive Information System of Geofond of the Czech Republic". During the period 1999–2002, the first borehole geophysical and inclinometric measurements were processed. The boreholes were selected from original reports on structural, hydrogeological and exploration drilling for black coal made by the former Geophysical Logging Centre Tuchlovice. These were acquired by Geofond from the GMS archive. Geophysical logs made by the former Liberec Uranium Exploration, Hamr Uranium Mines, and other organisations working in the Czech Cretaceous Basin were also checked and digitised. The data were processed under contract by Aquatest and DIAMO s.p. Files of old data, processed in 1995 by GMS, Aquatest and Geotrend, by order of the Ministry of Economy, were also incorporated. Subsequently, measurements from boreholes in the Vídeňská basin and the Carpathian foredeep were acquired from Moravské naftové doly Inc. Hodonín.

In 2003, three 4-year projects were started with the main aim of processing borehole geophysical logs from other sources and putting them into the Central Relational Database. These were data from measurements made by the former uranium exploration branch UP-IV Nové Město na Moravě (Moravian area – Rožínka), compiled by Diamo s.p., and from the former Liberec UP (Uranium Exploration), Branch VIII Příbram (Crystalline Terrain of South-West Bohemia), processed by 1.Příbramská Ltd. In addition, other boreholes from archives of the former GMS made for hydrogeological purposes and investigation of non-metallic resources were processed by Aquatest Inc. In 2004, a project that was proposed in co--operation with Geofyzika GP Ltd. was started. This project was focused on digitising and incorporating data from boreholes drilled in North Moravia, financed in the past from the state budget. All the above projects were completed in 2006. By 31 December 2006, after corrections and deletions of duplicates, the database contained logs of geophysical data from 4,453 boreholes and inclinometric measurements from 2,715 boreholes. In 2006, 10 individual geophysical logs from 10 boreholes were provided on the request of one organisation.

Geological Specimens

In 2006, the integration of the database of geological specimens within the subsystem of point data (formerly referred as geologically documented objects) continued, with 6 new boreholes being incorporated. As of 31

December 2006, the total number of boreholes for which samples of core are stored and the records integrated into the subsystem was increased up to 1,451. The information on the existence of the core samples for specific boreholes is part of the basic information about objects available through the web application for borehole investigations.

Regional Hydrogeological Investigations

In recent years, regional hydrogeological investigations have been minimal, so that only archived reports have been put into the database. By the 31 December 2006, the database contained 670 objects (polygons), of which 441 were from regional hydrogeological investigations, 164 from the Fund of Reserves and 65 diploma works. New calculations of usable reserves of drinking water were made. The results for 15 areas were in the category "A", 62 in category "B", 82 in category C1 and 85 in category C2.

In 2006, data on 4 objects were provided in response to one customer request. Additionally, data on 162 objects were provided to the Jihomoravský and Moravskoslezský regions, under the terms of providing basic information.

Radiometric Anomalies

This database contains information on radiometric anomalies measured during exploration for uranium by the former ČSUP (Czechoslovak Uranium Explorations). Data from Cretaceous sediments and boreholes in mineral deposits were not included. In 2006, the database was not updated. By 31 December 2006, the database contained 16,203 objects. Data on 3 objects were provided within one request, in the category of organisations and individuals, data on 8 objects were provided as materials for academic research work, and data on 77 objects were provided to the Jihomoravský region under the terms of providing basic information.

Radiometrically Anomalous Areas

Maps of radiometrically anomalous areas show the effects of radiation over designated regions. The surveyed areas are classified into three categories with respect to radiation. These are, respectively, areas with ecologically high, middle and low radiation effects. In 2006, the database was not updated. By 31 December 2006 the database contained 3,420 objects. Data on 5 objects were provided within one request in the category of organisations and individuals, data on 4 objects were provided as materials for academic research work and data on 42 objects were provided to the Moravskoslezský region under the terms of providing basic information.

Radiometric Exploration database

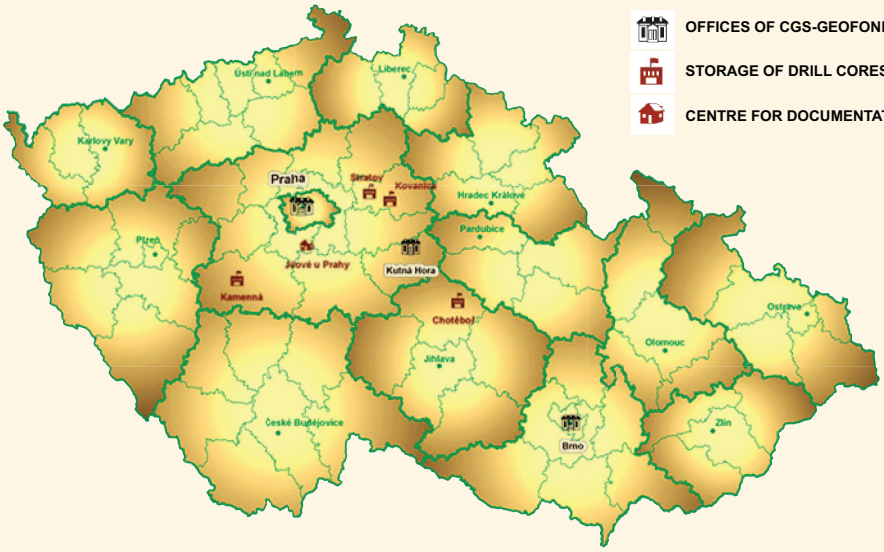
This database contains information on radiometric mapping and shows the boundaries of areas where surveys for radioactive materials have been carried out using various methods. The database was revised in 2004. The areas depicted on the internet application of Geofond as polygons were compared with the original maps at 1 : 100,000 scale (otherwise at 1 : 50,000 and 1 : 200,000 scales) during this revision. The database was not updated in 2006, the number of objects remaining constant at 466. There were no requests for information from this database during 2006.

CZECH GEOLOGICAL SURVEY-GEOFOND

Office of CGS-Geofond in Brno

CGS-Geofond headquarters in Prague

Office of CGS-Geofond in Kutná Hora

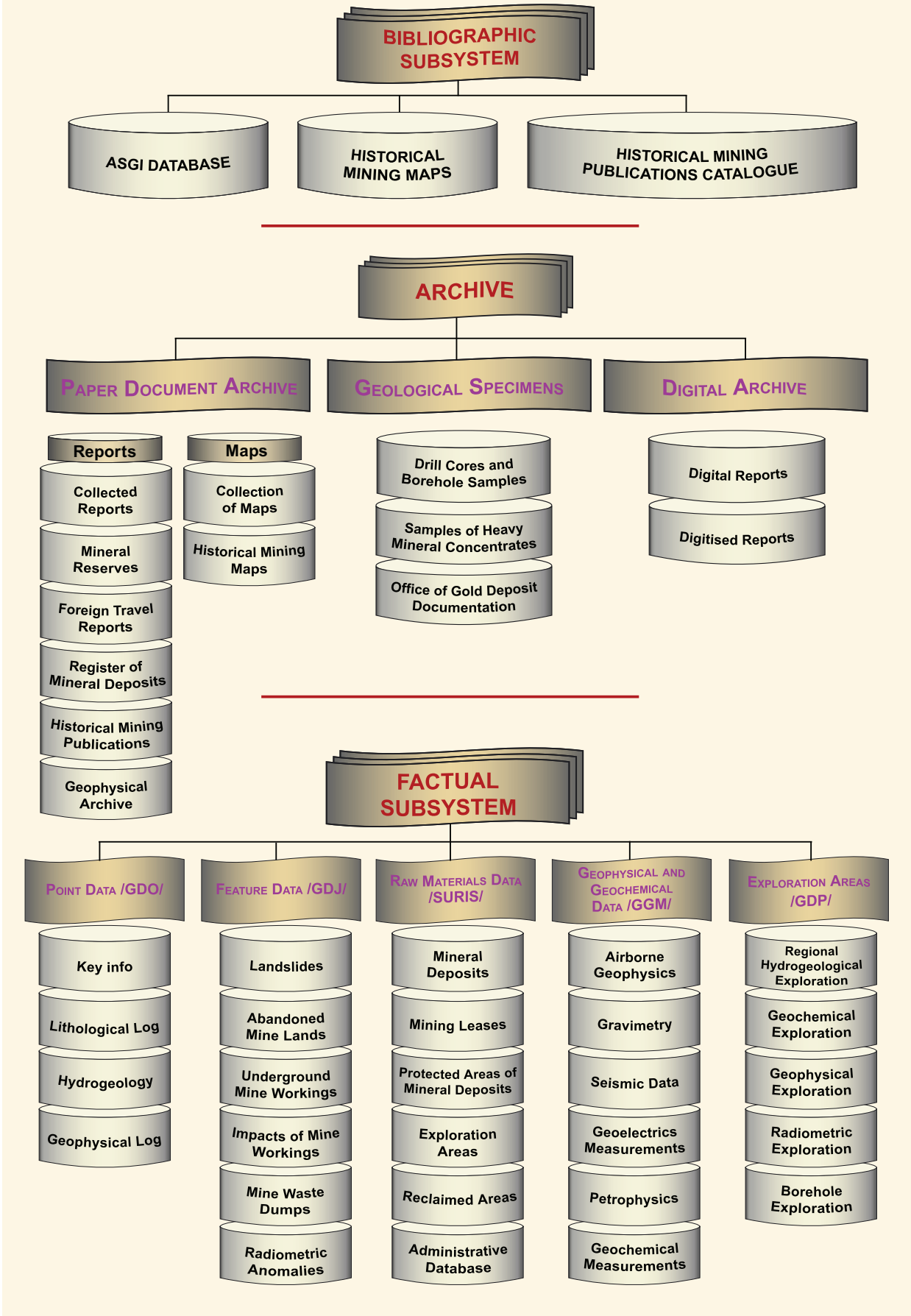


Storage of drill cores and samples in Stratov

Storage of drill cores and samples in Chotěboř

The Regional Museum and the Centre for Documentation of Gold Deposits in Jílové u Prahy

THE CENTRAL INFORMATION SYSTEM OF GEOFOND



MAPS WITH SPECIAL GEOLOGICAL FEATURES

Publishing Schedule 2007

- Controlled Mineral Deposits
- Landslides
- Abandoned Mine Lands

available on CD-ROM
on a scale of 1 : 50,000

EXAMPLE OUTPUTS FROM THE *eEarth* WEB APPLICATION

Landslides database

Regular updates continued during 2006, and data from 43 expert reports were processed. Priority was given to processing reports made by the Czech Geological Survey and the Academy of Science of the Czech Republic on mapping of landslides and slope deformation in areas most affected by these phenomena. The main attention is focused on the Moravian regions and on areas of Mladá Boleslav and Litoměřice in Bohemia. There were 82 new objects entered into the database, while information on 188 objects was amended. In all, by the 31 December 2006, the database contained 7,744 objects. In 2006, 18 expert opinions on specific localities or areas were given by the Risk Assessment Unit in Kutná Hora. A total of 44 requests for information were processed. The outputs contained basic information on 21,074 objects. (1 request from the Ministry of Industry and Trade, 1 from the Ministry of Defence, 2 from the Academy of Science, 2 for educational purposes, 4 from the regional councils, 4 from local councils and 30 from individuals and private organisations).

Abandoned Mine Lands database

In 2006, a major update of the database has continued at the Kutná Hora Office. Changes to the boundaries of areas above abandoned mine workings were made with reference to the Underground Mine Workings database using Geomedia (Intergraph) software. Particular attention was given to the processing of information from the Jihomoravský, Olomoucký and Středočeský regions. The database was continuously updated and 122 new objects from 173 expert reports and assessments were added, 8 objects were deleted and 247 polygons were updated. As of 31 December 2006, the database contained 5,479 objects. In 2006, a total of 154 expert opinions giving details on the situation in former mining areas at particular localities, or over wider areas, were compiled by the Risk Assessment Unit in Kutná Hora. A total of 37 requests were dealt with in which information on 7,361 objects was processed (the Ministry of Industry and Trade – 1, ČGS - 1, universities – 1, regional councils – 4, local authorities – 3, private companies and individuals – 27).

Underground Mine Workings database

The project “Underground Mine Workings II” including a final report was completed at the beginning of 2006. It is now followed by the project “Underground Mine Workings III”. During 2006, 281 objects were collected. Of these, 177 were added to the database after being checked and the number of photo-documentation increased by 1,038 pictures. This involved updating and completing data sheets, including photodocumentation, from the area of Kutná Hora, Jílové, Malá Morávka and Stříbro. During this work, 8 duplications were found and removed from the database. As of 31 December 2006, this database contained 14,764 objects and 9,292 photographs. Information from this database is mainly used during the inspection of mine workings in accordance with §35 of the Mining Law, for the purpose of local planning, and for improving the knowledge of areas above abandoned mine workings.

Mine Waste Dumps

The project "Mine Waste Dumps II" including a final report was completed at the beginning of 2006. It is now followed by the project "Post Exploitation Dumping Sites". The structure of the database was significantly extended and modified in 2006, so that it is now possible to reference other types of objects. In 2006, 526 records from the area of Plzeň were added to the database and 142 records were updated according to materials supplied by DIAMO s.p. As of 31 December 2006, this database contained 2,377 records and 5,354 photographs. Information from this database was only accessible in the form of basic information through the Internet in 2006. Interest in these data is expected to increase when more objects are incorporated and the area covered by this survey is enlarged.

Reclamation Areas Database

Data on areas affected by the exploitation of mineral resources form part of the State Statistical Statement "Hor(MPO)1-01", technical information on mining operations. The data concerns mining claims and registered non-exclusive mineral deposits. Since 1999, the data are regularly monitored and updated every year. As the information in this database is confidential, only summaries are given as outputs. Complete data are circulated to organisations selected by the Ministry of Industry and Trade.

In 2006, data relating to 853 mining claims and 223 registered non-exclusive mineral deposits were listed and used by the following organisations:

- Ministry of Agriculture: comprehensive outputs from "Hor (MPO)1--01" covering the whole Czech Republic - information in the following categories: areas affected by the exploitation of mineral resources, and areas where reclamation is in progress or already completed.
- CENIA: outputs from "Hor (MPO)1-01" for the annual report of the Ministry of the Environment, in the following categories: areas affected by the exploitation of mineral resources, and areas where reclamation is in progress or already completed both within and without the mining claims. Summary information on the total area of the Czech Republic affected, together with sub-totals for each of the Czech Regions, was provided.

Historical Mining Maps Database

A collection of more than 9,000 mining maps is stored at the Kutná Hora Branch of Geofond. These form parts of separate special collections. Since 1990, references to these maps have been entered into the database.

In 2006, progressive updating of this database continued with the correction of existing information and the addition of new records. A total of 1,592 records were updated in the database and 11 new maps were added. By 31 December 2006 the database contained records of 9,601 mining maps. In 2006, searches on particular mining maps requested by 11 users were undertaken at the Kutná Hora Branch. In total, 119 archive maps were used.

Historical Mining Publications Catalogue

In the Kutná Hora Branch there is also a specialist library with publications and other historical documents related to geological sciences, mining and history. Since 1992, the information on this resource has been entered in the database. By 31 December 2006 the database contained records of 7,042 publications. In 2006, the database was used only internally to assist in the updating of information on areas above abandoned mine workings. Searches of publications for visitors to the branch were also undertaken.

Raw Materials Data (SurIS)

All available data on the raw materials potential of the Czech Republic is gathered and comprehensively presented in this information system. All sub-databases were continuously updated during 2006.

By 31 December 2006, the system contained:

- **Mineral Deposits:** *9,538 objects,* of which:
  - 1,529 are State Owned Calculated Deposits (subregister B)
  - 1,605 are Other Mineral Deposits (subregister D, N)(Subregister N – deposits of state owned and other minerals, which are not in the Register of Reserves, but which have calculated reserves within any category. These are mostly smaller deposits of other minerals, for which reserve calculations were not approved, so they are not included in subregister D). There are also former state owned deposits, which were excluded from the Register of Reserves, as well as reserves of state owned minerals, which, for a particular reason (mostly non-approval of reserve calculations), were not included in the Register of Reserves. These "deposits" are usually not viable under present economic conditions but, because they have historically calculated reserves that have not yet been extracted, they were not included in subregisters V, Z or U.
  - 209 are Registered potential resources (subregisters P, R)
  - 1,020 are Other potential resources (subregister Q)
  - 1,397 are Economically Weak Deposits these are not approved as mineral deposits (subregister V).
  - 3,778 are Abandoned Deposits (subregister Z,U).

  In 2006, 72 new records were entered and 2,562 were updated.
- **Protected Mineral Deposits:** In total this register contains 1,353 objects of which 25 were added and 74 updated in 2006.
- **Mining Leases:** In total this contains 1,299 objects of which 6 were added and 241 updated in 2006.
- **Mining Leases Pending:** In total this contains 741 objects of which 9 were added and 18 updated in 2006.
- **Exploration Areas:** In total this contains details of 580 sites of which 6 were added and 16 updated in 2006.

- **Graphical Data (GO):** This register is common for all SurIS sub--registers. In total it contains 15,966 objects. In 2006, 199 new graphical objects were added and 1,079 updated.
- **Economic branch (ER):** This contains data on prices of the main mineral commodities in the domestic and world markets, and on the value and volume of foreign trade in raw materials.
- **Administrative Database**
  - ***Licensed Companies:*** This database contains information on 2,980 organisations undertaking geological work, exploration for mineral resources and mining (including those no longer in existence). In 2006, 42 new companies were added and data on 720 companies were revised using public sources of information and statistical statements. Names and registration numbers, together with other general information on existing organisations are listed in accordance with the Trade and Business Register.
  - ***Register of Decisions Governing Approval and Depreciation of Reserves:*** In 2006, existing files concerning approvals of reserves made by the Committee for Classification of Reserves (KKZ) were updated, the entering of approvals by the Ministry of Economy and Trade for the depreciation of reserves continued, and a total of 80 new reports approved by the Committee for Projects and Final Reports (KPZ) were entered. By 31 December 2006 this database contained information on 4,148 approved or depreciated reserves.

In 2006, a total of 42 requests were dealt with and information on 36,817 mineral deposits, 6,223 mining claims, 5,911 protected areas of mineral deposits and 3,730 exploration areas was supplied (the Ministry of the Environment – 3, the Ministry of Economy and Trade – 1, Ministry of Agriculture - 1, ČGS - 1, universities – 1, regional councils – 4, municipalities – 2, private companies and individuals - 29).

Geophysical and Geochemical Data

Most parts of this subsystem were created externally as specialised databases. Data were compiled or maintained under the terms of particular projects, financed and contracted by the Ministry of the Environment. In 1997, Geofond was appointed by the Geological Department of the Ministry of the Environment to supervise the compilation of specialised databases. Subsequently, parts of these have been incorporated into the information system of Geofond.

The creation of a geophysical database from measurements and surveys carried out by Geofyzika n.p. was started in 1972. This was financed from the state budget. After Geofyzika Inc. Brno, was abolished on 31 August 2003 as successor to the former state organisation, some of the key personnel were re-employed by Geofond in the Geophysical Data Unit, and all geophysical data were integrated into the information system of Geofond. Based on a new Contract between the Ministry of the Environment and Geofond, the work of populating the database continued at Geofond, completing the original programme, up to 2005. This involved

work on the registers of geophysical exploration, airborne geophysics, gravimetry, petrophysics, geoelectric measurements and the register of seismic data, including management and maintenance of geophysical data.

In 2006 no other project for continuing the population of these databases was approved. Work on the subsystem was then financed from the budget of Geofond and involved mainly update of data sets from given sources (Miligal Ltd. provided the results of measurements that were financed by the Ministry of the Environment etc.). The register of geophysical investigations was being revised and corrected within the context of the project "Information Transfer from Surface Geophysical Surveys into the Geofond Information System", together with the preparation of the archive in Brno for digitisation.

In 2006, 15 requests were processed (2 from the ČGS, 2 for educational purposes, 3 from the Academy of Science of the Czech Republic, 8 from individuals and private organisations). These requests were mainly for seismic data, but also included gravimetric, magnetometric, spectrometric and radiometric data of about 6,778 MB in volume. The greatest volume of (seismic) data was provided in two stages to Moravské naftové doly under the terms of the contract on reprocessing and making archive data accessible, as signed on 5 October 2006. The first and second tranches were of Vizovické vrchy data, of volumes 1,383 and 4,545 MB respectively.

The geochemical database was created under the terms of the project "Unified Geochemical Database" by the Geomin Co-op. Jihlava from 1996 to 2004. Initially, the project was based on the contract between Geomin and the Ministry of Economy, and since 1997 on the contract between Geomin and the Ministry of the Environment. Data were subsequently passed to Geofond. After necessary corrections and final approval of the project by the Ministry of the Environment in 2005, data were imported to the geochemical subsystem as a part of the information system of Geofond. By December 2005 this subsystem contained the results of geochemical analyses of 1,072,362 samples.

Under the terms of the project "The Development and Maintenance of the Information System of Geofond 2004", a database for geochemical exploration was generated by MGE Ltd. as a subcontractor. The database is designed as a part of the subsystem of Exploration Areas, which is provided as a basic level of information enabling navigation to larger collections of data in the geochemical subsystem. Work on the database did not continue in 2006 and neither was the database used.

Summary of outputs from all databases in financial terms

	Number of requests	Calculated Price	Invoiced
Ministry of the Environment	4	299 360,---	0,---
Czech Geological Survey [1)]	38	3 094 019,---	277 203,---
Ministry of Industry and Trade	2	84 859,---	84.000,---
Other ministries[2)]	4	161 530,---	0,---
Districts (court)	1	100,---	0,---
Academy of Science	8	7 773,---	7 773,---
Regional councils [3)]	4	903 230,---	37 000,---
Towns and cities [3)]	34	18 227,---	11 307,---
Universities [4)]	36	254 062,---	13 718,---
Other users [5)]	600	2 172 647,---	1 318 840,---
TOTAL	**731**	**6 995 807,---**	**1 749 841,---**

Note: 'Calculated price' means the Total costs according to price list. The price is calculated in accordance with the Geofond Price list for work and services.

1) Geofond is expected to co-operate with the Czech Geological Survey in work on relevant projects. In many cases the invoiced price is therefore lower then the price designated in the price list. In 2006, the difference between the calculated price and invoiced price increased rapidly. It was mainly due to cooperation on the project "3D Modelling of the Sokolov and Cheb Basins Basement Relief" (2,483,138 CZK), providing data for the creation of geological maps 1 : 25,000 (272,419 CZK) and the Atlas of the Landscape (46,520 CZK).
2) Under the terms of the contract between the Ministry of the Environment and Lesy ČR s.p. (84,000 CZK) on the exchange of data and between the Ministry of the Environment and the Ministry of Defence (77,150 CZK).
3) For these councils, a fixed charge is levied for providing thematic coverage of basic information or, on request, some more detailed data (hydrogeological information).
4) Outputs from databases were given free of charge for educational purposes and for diploma work.
5) The difference of about 854,000 CZK between the total costs according to the price list and the amount invoiced for services is due to some services not being chargeable, or a discount was offered (Moravské naftové doly a.s. - under the terms of an agreement on the exchange of data and work by some firms for the Ministry of the Environment - Geomin, Geotest) or in cases where the result of searches for the required data was negative.

Compared to 2005, the number of requests (134 more) and level of payment for outputs (502,715 CZK more) showed a marked increase. The greatest increase in demand came from those in the category of other users (122 requests and 575,652 CZK more). The volume of work done for ČGS increased rapidly (2,501,226 CZK more while the invoiced price decreased by 66,346 CZK). This category of users together with regional councils, other users, universities and ministries causes the increase in the difference between the price of work provided and invoicing. This difference in 2006 was in total 5,245,966 CZK (in comparison with 2005, when it was 1,309,084 CZK).

• *COMPILATION OF SPECIALIZED MAPS* •

Maps with Special Geological Features

One of the most important functions of Geofond is the regular publication of maps depicting areas with special geological features, such as protection of mineral deposits, landslide hazards and areas above abandoned mine workings, which could affect regional and local planning and environmental protection. These maps, at a scale of 1 : 50,000, are published in revised editions every 1–3 years and are produced in accordance with §17 of Law No. 62/1988 Coll., and all subsequent amendments. According to this law, the organisations responsible for the State Geological Service are obliged to collect and make available data on geological conditions, on protection and use of raw material resources, on ground water resources, and on potential geological hazards within the territory of the Czech Republic. These maps are designated as a primary source of information to support state authorities responsible for regional and local planning and decision making process in the preparation of technical documents concerning land use. These maps are passed to the Department of Geology and the Regional Departments of the Ministry of the Environment, Regional Councils and, through them, to District Administrations and Building Offices. To enable distribution, the Regional Councils are also given digital copies of the printed maps on CDs. Maps of mineral deposit protection are also passed to the Ministry of Industry and Trade and to the Regional Mining Offices.

In 2006, **Maps of Mineral Deposit Protection** for the Vysočina, Jihomoravský, Olomoucký, Zlínský and Moravskoslezský Regions were published after the results of the projects "Re-evaluation of State Owned Mineral Deposits in the Czech Republic", and "Evaluation of Unexploited State Owned Mineral Deposits" were taken into account. Information taken from reports made by other organisations was also added. A new edition of **Maps of Abandoned Mine Lands** was made for the Jihomoravský and Olomoucký Regions and a new edition of **Maps of Landslides** were made for the Jihočeský, Plzeňský and Karlovarský Regions.

Additional large-scale maps and digital maps

Since 1999, maps of borehole exploration, maps of mineral deposit protection, maps of landslide areas and abandoned mine workings, maps of other mineral deposits (which were not included in the previously completed sets), maps of exploration areas, impacts of mine workings and underground mine workings have been gradually made accessible at www.geofond.cz, using the Geomedia Web Map technology. All the maps are supplemented with basic information for individual objects. At the end of 2004 and the beginning of 2005, a new version of these applications, using more modern ArcIMS – ESRI technology, replaced the old applications and was introduced on the website. New applications for access to geophysical and geochemical explorations and maps of mine waste dumps were added.

If required, basic information can be provided in the form of vector maps and data files in GIS formats suitable for use in local information systems. These can be updated yearly on request.

3. OTHER ACTIVITIES

Purchase of geological magazines and other necessary periodicals

In 2006, the total number of geological magazines and other necessary periodicals purchased was 27, the same as in the previous year.

Publications

Based on the Plan of Publication, Geofond produced the following publications in 2006:

- Annual Report of the Czech Geological Survey - Geofond 2005 (200 copies of Czech and 200 copies of English version)
- The Geofond website of was completely redesigned and has been continuously updated during 2006 in both Czech and English versions.

Geofilm and Video Library

Geofond is responsible for one of the video-rental facilities of the Ministry of the Environment. The video library contains 428 videos, mainly ecologically oriented. Geology is less well represented. In addition, 33 videos belonging to the ENvideo Foundation and 16 video transcriptions of geological films from the former Czech Geological Bureau are available. There are 37 videos on DVD, of which 5 are geological. After the archive of documentary films on geological topics was given to the National Film Archive in 2005, only 31 titles on celluloid film are left in Geofond. In 2006, no further videos were acquired; a total of 6 videos were rented to 1 user.

4. INTERNATIONAL ACTIVITIES

In the field of mineral resources, international collaboration existed through the exchange of the English version of “Mineral Commodity Summaries of the Czech Republic” for reports published by other geological surveys, and by the provision of information on the balance and changes of raw material resources in the Czech Republic to international journals and to other institutions. Regular systematic exchange of information and consultations continued with the U.S. Geological Survey, Mineral Resources Section.

In the field of information technologies, international activities took the form of collaboration on the project “eWater – Multilingual Cross--border Access into Ground Water Databases”. This involved an increase in foreign travel and attendance at working meetings. Meetings were also organized by Geofond in Prague and Kutná Hora. The activities of GIC

(Geoscience Information Consortium) continued. Dr. Čápová has been a member of its Steering Committee (the elected council for co-ordination of the consortium) since 2003.

- From 23 April to 25 April 2006, a representative from Geofond took part in the meeting on contract negotiation for the eWater project, which was approved in Luxembourg under the terms of the eContentPlus programme. Project proposals were presented for evaluation and ambiguous items stated in the Evaluation Report (which was compiled by the judging committee) were discussed at the meeting. The travel expenses were financed from Geofond's budget.
- From 22 May to 27 May 2006, the representative from Geofond took part in the GIC 21 seminar, i.e. a meeting of IT managers from geological surveys worldwide, in Warsaw, Poland. The representative gave a presentation on the eEarth project at the meeting. The travel expenses were financed from budget.
- From 12 to 17 June 2006, a representative from Geofond took part in an international conference "5th ECOGEO – Earth and Water" in Barcelona, Spain. Issues such as geology and hydrogeology, mapping and information systems were discussed at this conference. The representative presented a poster showing the hydrogeological subsystem of Geofond. The travel expenses were financed from Geofond's budget.
- From 23 to 25 June 2006, a representative from Geofond took part in the Xth international conference "HYDROGEOCHEMIA 06" in Sosnowiec, Poland. The representative presented a poster showing the hydrogeological subsystem of Geofond. The travel expenses were financed from Geofond's budget.
- From 17 to 20 September 2006, a representative from Geofond took part in the kick-off meeting of the eWater project in Luxembourg (the project was approved under the terms of the eContentPlus programme). Activity within each workpackage was planned, and submission deadlines agreed. The division, distribution and schedule of work were discussed, together with various problems, including the dependencies between individual WPs. The means of communication in the Project were also considered. Travel expenses were financed from eWater budget.
- From 22 to 30 September 2006, a representative from Geofond took part in the second international conference "AMIREG 2006" in Chania, Crete. The main topics were aspects of mineral resources and their use in conditions of sustainable development. The representative presented the yearbook "Mineral Commodity Summaries of the Czech Republic", established new contacts and took part in a terrain excursion focused on mineral resources and geohazards in west Crete. The travel expenses were financed from Geofond's budget.
- From 30 October to 3 November 2006, a representative from Geofond took part in a working meeting with mineral resource geologists at the Ruhr-Universität, Bochum, Germany. There he presented the yearbook "Mineral Commodity Summaries of the Czech Republic". The journey

included excursions to landscapes around Bochum (reclaimed mine waste dumps and pits) and visits to museums focused on mining. The travel expenses were financed from Geofond's budget.

- From 14 to 18 November 2006 a representative from Geofond took part in the international conference "16th Conference on Mineral Economy: Present and Future" in Zakopane, Poland. There she presented her paper "Mining and utilisation of glass and foundry sands on territory of the Czech Republic". Then she took part in an excursion entitled "Along the paths of historical ore mining around Tatra region". The travel expenses were financed from Geofond's budget.
- From 21 to 22 November 2006, a representative from Geofond took part in a meeting with representatives of the Geological Survey of Finland (Geologian tutkimuskeskus – GTK) in Espoo. The aim of the meeting was to hold discussions between the directors of the Czech Geological Survey, Geofond and the director of the geological department of the Ministry of the Environment as well as representatives of the Geological Survey of Finland. The discussions concerned research, mapping, reporting, the archive and publication activities of the geological surveys; a comparison of the Czech and Finish model of the state geological service activity, as well as matters pertaining to a new law on public research institutions. The following topics were compared and discussed: systems of management, the demand for and compilation of environmental studies, alternative ways of making data accessible for other geological surveys, common bilateral projects and experiences with participation in EU projects. The visit was undertaken on the basis of an invitation from Prof.Elias Ekdahl, the director of GTK. The travel expenses were financed from Geofond's budget.
- From 20 to 22 November 2006, a representative of Geofond took part in the international workshop "Multi-Country Workshop on EU Legislation and Best Practises in Geology for Sustainable Use of Natural Resources" in Budapest, Hungary. The chief topics were sustainable use of natural resources and the legislative framework of the EU as well as the national legislation of member countries. The travel expenses were financed from Geofond's budget.
- From 27 November to 1 December 2006, three representatives of Geofond took part in the second meeting of the consortium of the eWater project in Utrecht, Netherlands. The main aim of the meeting was to coordinate work on WP 2-6. In addition, deadlines and approximate content of reports and the division and schedule of work were considered. Discussions took place on various problems, in particular the dependencies between individual WPs and the sharing of partial results. Travel expenses were financed from the eWater budget.
- From 2 to 15 December 2006, a representative of Geofond together with the director of the geological department of the Ministry of the Environment took part in a seminar in Jamaica. The visit was on the basis of an invitation from the minister of agriculture and territory, Victor J. N. Cummings, and Clinton G. Thompson, the head of the section of mining and geology at the Ministry of Mining and Energy. This department has responsibilities for data searching, registration,

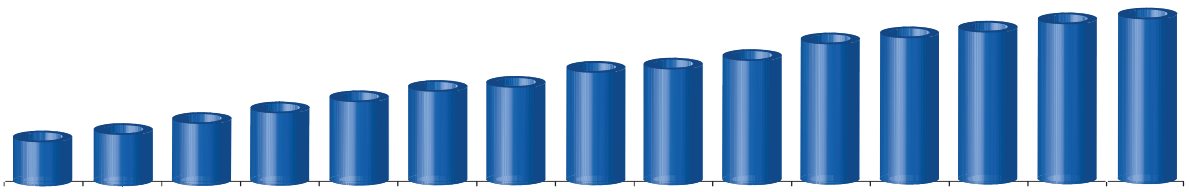
the protection and use of mineral resources, as well as other tasks within its remit. In conclusion, it has the same responsibilities as the Czech Ministry of the Environment, Ministry of Industry and Trade and the State Mining Authority. The main aim of the visit was to introduce the activity of the state geological service and mineral resources in the Czech Republic to the Jamaican hosts. The visit also included a terrain excursion focused on geology and mineral resources of Jamaica. Travel expenses were financed from the budget of Geofond.

5. ECONOMIC STATEMENT FOR 2006

The budget for non-capital expenses was set at 29,485,000 CZK in January 2006; during the year it was subsequently increased to 41,159,000 CZK by additional dedicated supplements to the Geofond budget of which 41,344,207 CZK, i.e. 100.45 % of the total, was actually used. This overspending was due to the negotiated procedure for financing the international project e-Water, for which Geofond received non-budget financial support from the EC (European Commission) through the co--ordinator TNO-Built Environment and Geosciences (NL). This financial support was consigned into a reserve fund. In 2006, 210,000 CZK were used from this fund. Discounting these resources the total spent of regular non-capital expenses was 41,134,207 CZK, i.e. 99.94 %.

Most of this was spent on salaries. The financial allocation for salaries (17,963,000 CZK) was overspent by 1.17 %. Overspending by 209,900 CZK for other personnel costs was due to the use of non-budget resources. This was spent under the terms of the grant from the EC (210,000 CZK) for co--operation in the project eWater. Relative to the year 2005, there was an increase in salaries of about 446,000 CZK and the sum paid back to the state by the employer as mandatory social and health insurance increased from 6,083,000 CZK to 6,246,000 CZK. From 2005 to 2006, the average monthly salary increased from 18,736 CZK to 19,079 CZK, being an increase of 1.83 %. During 2006, 96.7 % of the set limit of 80 full-time employees were used (the equivalent of 77.4 full-time employees). The average salary band number for all Geofond employees in 2006 was 9.75, compared to 9.70 in 2005.

Average salaries in CZK (1992–2006)



1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
5120	6004	7273	8490	9778	10964	11424	13142	13517	14519	16424	17107	17797	18736	19079

The highest expenditure (11,434,000 CZK) was for services purchased from other institutions. This was 2,312,000 CZK more than the amount spent in 2005. Of this, a total of 5,916,000 CZK was paid for the completion of projects financed from the funds of the Department of Geology of the Ministry of the Environment. That is, in total, 2,021,000 CZK less than in 2005.

There was an increase in costs for services of **post offices** to 142,000 CZK in 2006 as compared to 74,000 CZK in 2005, in **rental expenses**, including rent of machines, that were 1,353,000 CZK in 2006 as compared to 1,085,000 CZK in 2005 (rental costs of non-residential premises increased from 986,000 CZK in 2005 to 1,026,000 CZK in 2006), in **meal subsidies** that increased from 464,000 CZK to 512,000 CZK due to a lower number of bank holidays when employees are not entitled to get financial support, and also in the expenditure for **sundry services** from 1,452,000 CZK in 2005 to 1,547,000 CZK in 2006.

Water, energy and fuel costs increased slightly again to 952,000 CZK in 2006 from 890,000 CZK in 2005. This reflects the increase in their costs and a long heating period 2005/2006. The major increase in costs were for heating (from 189,000 CZK up to 287,000 CZK), gas (from 26,000 CZK up to 36,000 CZK) and for **gasoline** (from 134,000 CZK to 158,000 CZK) – here the influence of the increasing number of kilometres driven can be seen. On the other hand, expenses for water (from 82,000 CZK to 66,000 CZK) and electricity (from 459,000 CZK to 405,000 CZK) both decreased. There was however an increase in charges for **maintenance and repair** (from 538,000 CZK to 629,000 CZK), **books and manuals** (from 194,000 CZK up to 413,000 CZK – books and mainly foreign printed matter) and for **office stationery** (from 694,000 CZK to 943,000 CZK).

There was also a slight increase in charges for conference attendances (from 45,000 CZK to 51,000 CZK).

Expenses for **minor equipment** were nearly the same as last year (1,457,000 CZK in 2006, compared to 1,459,000 CZK in 2005).

There was a decrease in **travel expenses** (from 568,000 CZK in 2005 to 490,000 CZK in 2006 – this is the same level as in 2004) for both foreign (decrease by 57,300 CZK) and domestic (decrease by 20,500 CZK) journeys, expenses for **education** (from 130,000 CZK to 41,000 CZK), **production work** (from 216,000 CZK to 156,000 CZK, which is on the level of year 2004), and for **software equipment** (from 249,000 CZK to 110,000 CZK).

Expenses for **external reprographic services** (from 1,198,000 CZK to 1,039,000 CZK), **telecommunication** services (from 774,000 CZK to 728,000 CZK) and for **hospitality** (from 38,000 CZK to 33,000 CZK) decreased slightly.

Applications for **capital expenditure** submitted during the year were approved in 2006. Geofond was given a capital grant of 1,903,000 CZK. Of this, 1,901,297 CZK was spent, and the remaining 1,702 CZK was returned to the state budget. The following actions were taken:

215011L031 – Back-up server – as a temporary replacement for the bulk data store – from the financial support of 622,000 CZK was used 621,796 CZK.

21501L0011 – Traffic technology- improvement of transport for Geofond – purchase of SUBARU FORESTER 2,0 Active WP 116 kW (158 k), 5MT – from the granted 706,000 CZK, 705,965 CZK was used.

21501L0014 – Maintenance and repair of the building in Kutná Hora – general repairs and reconstruction of the building - first stage, i.e. planning and investigation – from a grant of 370,000 CZK, 368,900 CZK was used.

21501L0015 – Construction work „Modification of junction exchange station" – the aim being to uprate the junction exchange station in Kostelní 26, which was in disrepair – from a grant of 205,000 CZK, 204,636 CZK was used.

The target of 1,700,000 CZK set for **income** earned through Geofond activities in 2006 was exceeded. The total income reached 3,826,055 CZK, which was 2,126,055 CZK more than in 2005. This notable increase in income was caused partly by the grant of 210,000 CZK from the European Commission. A sum of 111,583 CZK was acquired as an insurance compensation for an accident that happened to the company-owned vehicle. The size of the incomes was also influenced by the payment of invoices that were made out in 2005 and paid at the beginning of 2006 (202,060 CZK) for factual information for the Czech Geological Survey. Eventually, the final income exceeded expectations by 94.26 %, which was 1,602,412 CZK. Such an overrun is exceptional, and was caused by temporary increases in services for factual information, reprographic activity (increase by 99,000 CZK) and most recently income obtained from use of eEarth (76,500 CZK). The increase of income for factual information was due to a contract on processing data from Hor for the Ministry of Industry and Trade (600,000 CZK), selections of seismic profiles for Moravské naftové doly Inc. (626,000 CZK) and data for DIAMO (200,000 CZK). In 2007, income receipts can be expected to return to normal.

The budget deficit is determined by the difference between income and expenditure. After calculation of the final budget provision, the budget deficit was expected to be in the order of 41,362,000 CZK. Thanks to increases in earned income of 1,952,000 CZK and savings on some capital investment and non-capital costs (by 26,000 CZK) the deficit decreased to 39,420,000 CZK, which was 1,942,000 CZK (4,70 %) lower than anticipated. The transfer of non-budget finance (210,000 CZK from the reserved fund) is not considered.

6. ORGANISATIONAL STRUCTURE OF GEOFOND

Since 1 January 2006, the organisational structure has been as described below. Planned numbers of staff are given in brackets; middle and high-level managers are denoted as +1, while heads of lower units are included in the staff number.

100 DIRECTORATE (20+1) RNDr. Jaromír Starý

110 Secretariat and Offices reporting directly to the Director (3)

Co-ordinates the agenda for which the Director is ultimately responsible. This unit includes the Secretariat, Personnel Department, Accounts Department, Office of Foreign Affairs, Legal Department and Fire Prevention Office. Part of the agenda is determined by legislation. Some services are carried out under contract. This unit is also responsible for the editorial policy of Geofond.

120 IT Department (16+1)

121 Computer Administration Unit (3)

Responsible for the maintenance of the local computer network (Intranet) of Geofond and its connection with the Internet, looking after computer operating systems and hardware, keeping an inventory of computers and software, co-ordinating requests for new computer equipment, periodically making back-up copies of databases and operating systems which are archived, ensuring data is protected from unauthorised users and ensuring compatibility of the information system of Geofond with higher-level information systems (SIS, Intranet of the Ministry of the Environment, Internet).

122 Computer Systems and Applications Unit (5)

Ensures development, maintenance and updating of the methodology for the information system of Geofond (indexes, coding manuals, operation manuals). Implements new systems; maintains and develops software tools for management, maintenance and use of databases, including the developments of software applications; maintains programming and user's documentation; organises training of employees; implements new technologies (WWW, GIS) and uses these technologies to enable user-friendly access to databases; supervises building and development of the Information System of Geofond, including the design of the integrated model of the geo-information system; supervises compilation of external specialised databases and information subsystems, ensuring integration of these subsystems into the Central Information System; provides information on specific use of the Geofond Information System; provides non-standard outputs from databases; co-ordinates research, grants or other projects in the field of development

and use of modern technologies and data processing in geology; management of electronic document registry (storage, registration and discarding of redundant electronic documents).

123 Data Processing Unit (4)

Responsible for acquisition and pre-processing of data, including digitisation; provides standard outputs from databases; collaborates in maintenance and updating of individual databases of the Information System.

124 Geophysical Data Unit (4)

Responsible for compilation and use of geophysical data, as established with finance from the state budget. Tasks involve the creation, maintenance, management and updating of the geophysical and geochemical databases, maintenance of an archive of geophysical reports and measurements, and provision of the most common outputs from the databases.

200 FINANCIAL DIVISION (12+1) Ing. Libor Mareš

In charge of all activities necessary for the financial and logistical operation of the organisation. The Deputy Director for Finance manages the budget, supervises fire protection, presides over the investment panel, and oversees building activities and purchase of machinery and equipment.

210 Accounts Department (4+1)

Responsible for the operation of the comprehensive payroll and invoicing systems, registering orders and contracts, controlling the cash-flow during fulfilment of contracts, preparing statistical statements, running an accounting information system to enable control of the budget, and for implementation of software for accounting and associated operations, carrying out money transfers, ensuring cash payments, calculating travel expenses and management of the account document registry (storage, registration and discarding of redundant account documents) and the management of the organisation registry.

220 Operations Department (6+1)

Administers assets, takes inventories of property and equipment, prepares contracts on property leases, manages the use of telephones, radio, television, water, electrical energy, and the payment of municipal fees; oversees utility payments and prevents budget deficits, supplies materials, ensures maintenance of buildings, office equipment, technical equipment, disposes of obsolete equipment, organises audits of selected technical appliances and repairs, and supervises company cars, night guards, switchboard and fire alarms; civil defence and occupational health; discarding of redundant documents identified for removal.

300 GEOLOGICAL DIVISION (45+1) RNDr. Vít Štrupl

Responsible for all activities of the expert departments, collaboration with the Department of Geology and Regional Departments of the Ministry of the Environment in the field of geological and ecological information as it relates to aspects of territorial planning and state administration. Undertakes compilations of manuscripts on past geological projects, and reports on special geological phenomena, on protection, contamination and damage of bedrock and on conflicts of interest between mineral exploitation and environmental protection.

310 Geological Documentation Department (12+1)

311 Document Processing Unit (4)

Responsible for activities connected with bibliographic processing of written and graphic documents containing the description and results of geological work designated for permanent storage. Carries out annotation of unpublished reports and enters data into the ASGI bibliographic database, provides standardised outputs from it and registers new geological works.

312 Document Acquisition Unit (3)

Responsible for all activities involving acquisition, inventory, control and bibliographic processing of written and graphic documents containing the description and results of geological work designated for permanent storage; input to decision--making process on discarding redundant documents; selection, sorting, processing, safe storage, registry and making material documentation accessible; maintenance of the database of material documentation; management of deposit archives and stores of material documentation; activities connected with acquisition geological documentation from external archives; management film and video rentals.

313 Archive Services Unit (5)

Responsible for all activities involving the archive, in-house loans for study purposes and in-house reprographic services. Registers reports acquired for the archive, checks on completeness of accepted manuscripts, records loans, tracks manuscripts between departments during processing, and prepares forms for invoices.

320 Geological Exploration Department (13+1)

321 Borehole Exploration Unit (4)

Builds, maintains and updates data on boreholes and other point data (GDO and GEO); is responsible for documentation and annotation of objects from both new and archived sources and checks them before they are input into the central relation database; completion and revision of code list for annotations of all important geological information and update of already input objects; responsibility for the content of the Radiometric

Exploration, Radiometric Anomalies and Radiometrically Anomalous Areas databases and also providing outputs (including graphic outputs) from these databases.

322 Hydrogeological Exploration Unit (3)

Builds, maintains and updates the database of hydrogeological objects HYD (information on chemical analyses of underground waters, hydrodynamic tests, regime monitoring of water level, temperature, yield and free CO2); gathers information on water pollution (indication, remediation and monitoring wells), geothermal energy; provides digital outputs (MDB) for state administration bodies, local authorities, organisations and individuals.

323 Hydrogeological Records Unit (3)

Builds, maintains and updates the database of regional hydrogeological investigations and is responsible for processing and interpreting data for the HYD database of hydrogeological objects; gathering information on objects in protected areas of natural healing springs, protected areas of spas and mineral waters; providing graphic outputs (HTM) for state administration bodies, local authorities, organisations and individuals; responsible for registering requests for units 322 and 323.

324 Site Location Department (3)

Enters new objects in the Central Relational Database using geodetic data, revises and corrects identification information of existing objects in the CRD and searches duplicates of input objects, enters hydrogeological objects onto a topographic map 1 : 25,000 for hydrogeological department.

330 Mineral Resources Department (17+1)

Administers deposits of industrial minerals in compliance with the Geological and Mining Law (in collaboration with the Ministry of the Environment and Ministry of Industry and Trade). Supports the protection and use of mineral resources by providing information and data for the state policy on raw materials and geological exploration, runs SurIS (Information System on Mineral Resources), provides outputs from SurIS and literature searches, including sources of primary documentation; administers impacts of mine workings in compliance with the Mining Law; is authorised by the Ministry of the Environment to manage databases of underground mine workings and waste dumps and to process the state statistical statement Geo(MŽP)V3-01 and is authorised by the Ministry of Industry and Trade to process the state statistical statement Hor(MPO)1-01. It maintains databases that are used for compilation of outputs and for evaluation for local planning authorities according to §13 of the Geological Law; processes specialised requests from the state administration bodies and from the state geological service, including providing information according to Law No. 123/1998 Coll.

331 Mineral Resources Records Unit (4)

Registers deposits forming state reserves and ensures protection of these deposits. Maintains archives of rulings of the former Commission for Rating of Reserves, rulings on reserves by the Ministry of the Environment, rulings on cancellation of reserves by the Ministry of Industry and Trade, certificates of mineral deposits and approved potential resources, decisions on protected areas of mineral deposits, further documents on state owned deposits in compliance with the Mining Law, State Statistical Statements Geo (Ministry of the Environment) V3--01, and other documents, drafts on establishment and changes in the protected areas of mineral deposits in cases registered and managed by Geofond. Maintains the database of mineral deposits protection, mining leases, miningleases pending, exploration licenses, licenses to carry out geological work, and a register of geological and mining licensed companies. Prepares basic documents on the depreciations of reserves for the relevant Commission of the Ministry of Industry and Trade. Collaborates with the State Mining Bureau, provides information related to administrative documents, participates in state-financed projects aimed at changing quantitative and qualitative parameters of reserves resulting from economic trends. Updates information systems on past mineral exploration projects in the Czech Republic, maintains the Database of raw materials and all its sections: state owned deposits with calculated reserves (subregister B), other mineral deposits (subregisters D and N), registered potential resources (subregisters P and R), other potential resources, and economically weak deposits (mineral occurrences and areas with industrial minerals in sub-economic amounts) (subregister V). Calculates reserves of state owned deposits, registers reserves of other deposits, compiles maps of mineral deposit protection for individual regions in compliance with the Geological Law. Provides outputs, including graphics, on the raw material basis of the Czech Republic to bodies of the central state administration, the state geological service and businesses. Uses GIS at a specialized workplace, prepares compilations of data from unpublished reports. Participates in state-financed projects aimed at enlarging the information base on mineral deposits, maintains archives of registration sheets of mineral deposits. Updates lists of numeric codes for mineral deposits in the territory of the Czech Republic.

332 Raw Materials Policy Unit (3)

Provides information sources for creation of databases on resources, production and trade of mineral commodities and for analyses of these entities; management of lists of world trade conjuncture development and management of databases of prices of mineral commodities. The items above are i.e. used for projects concerning raw materials policy in collaboration

with the Raw Materials Policy Unit of the Ministry of Industry and Trade. It compiles and publishes statistic summaries and studies concerning raw materials and their economics for Czech and foreign subjects. It publishes the study “Trends in State Owned Mineral Deposits of the Czech Republic” for state administration bodies annually. It also publishes the yearbook ”Mineral Commodity Summaries of the Czech Republic”, which is meant for the wider public and is available in English as well. This yearbook is often used during projects of international cooperation. Main work of this unit is highly focused on compilation of this yearbook and involves collecting data sources, evaluation of mineral resources etc.

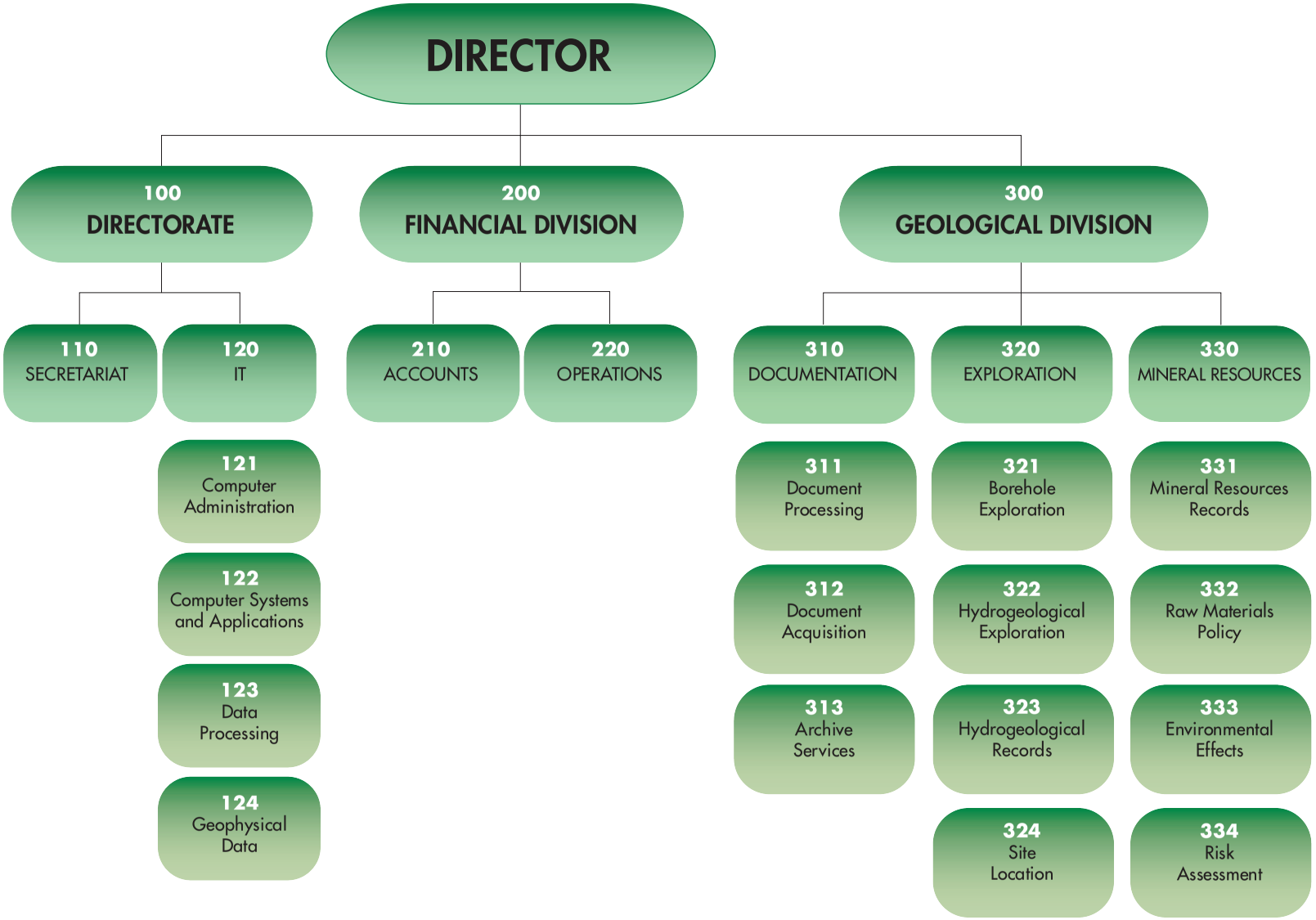
333 Environmental Effects Unit (5)

Carries out comprehensive processing of the Statistical Statement Hor (MPO)1-01, passes on data to all relevant Registers (Institutions, Reclamation, Deposits, Mining Leases). Produces customised outputs from these Registers for ministries and the Czech Mining Bureau. Publishes the annual „Summary of reserves of other minerals in active mines“. Maintains and updates the databases Mine Waste Dumps and Underground Mine Workings and Impacts of Mine Workings, provides basic documents to the Ministry of the Environment for categorisation and securing of mines, deals with requests made by the state administration and other institutions, provides evaluations for reclamations, capital constructions, land-use planning regarding special geological features in selected areas.

334 Risk Assessment Unit (5)

Builds the database of landslides and other dangerous slope movements, database of abandoned mine lands, database of historical mining maps and database Historical Mining Publication Cataloguew. Periodically issues reports for land--use planners in compliance with Section 13 of the Geological Law. Offers evaluations of geological hazards, runs specialized library and archives of historical publications on mining and ore processing.

• *Organisational structure of the Czech Geological Survey-Geofond (1 January 2006)* •



Appendix

Figures

FIGURE 1 – ***Filing and registration of geological works***

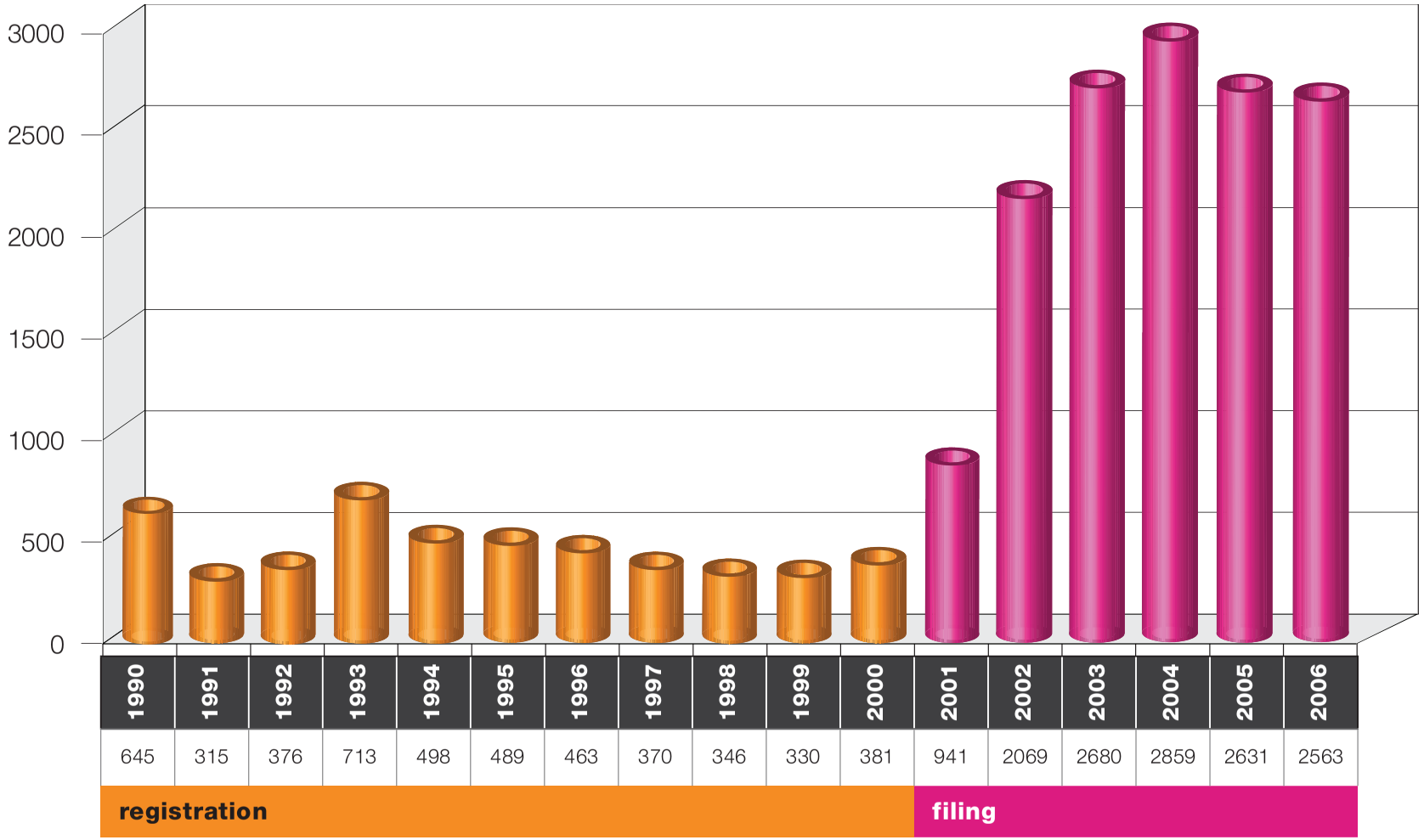
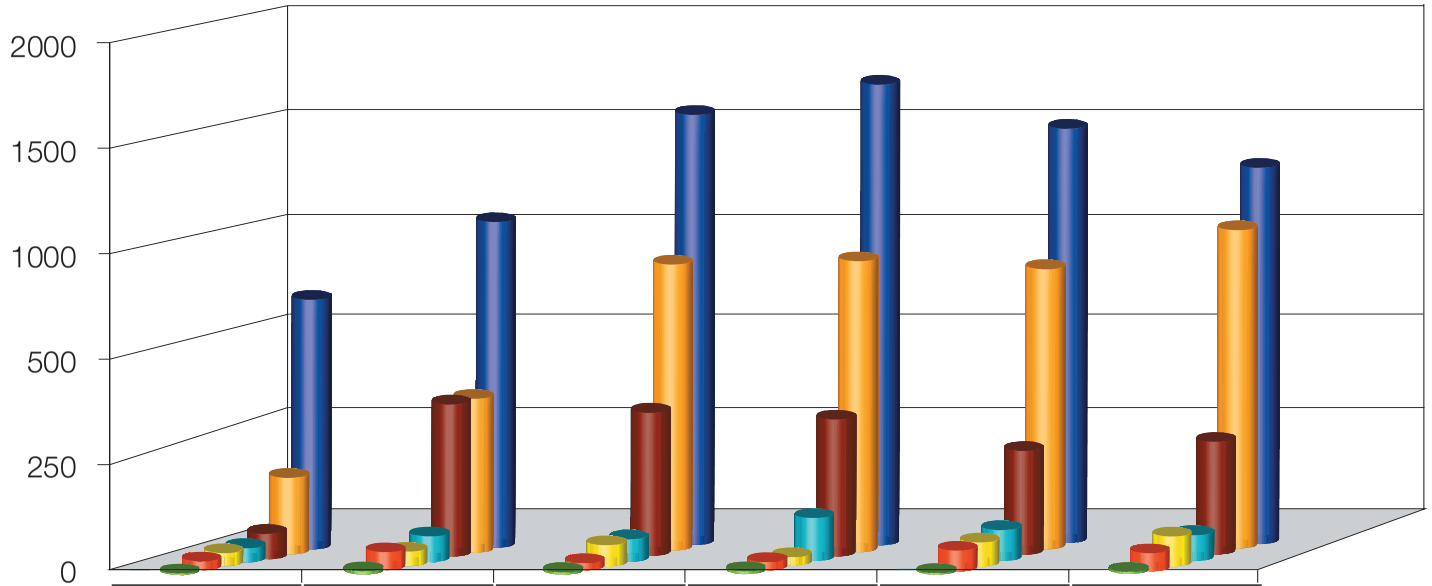


*FIGURE 2 – **Filing of geological works (2001–2006)***

	2001	2002	2003	2004	2005	2006
number of organizations	107	150	168	190	197	214
number of registration forms	941	2069	2680	2859	2631	2563

FIGURE 2

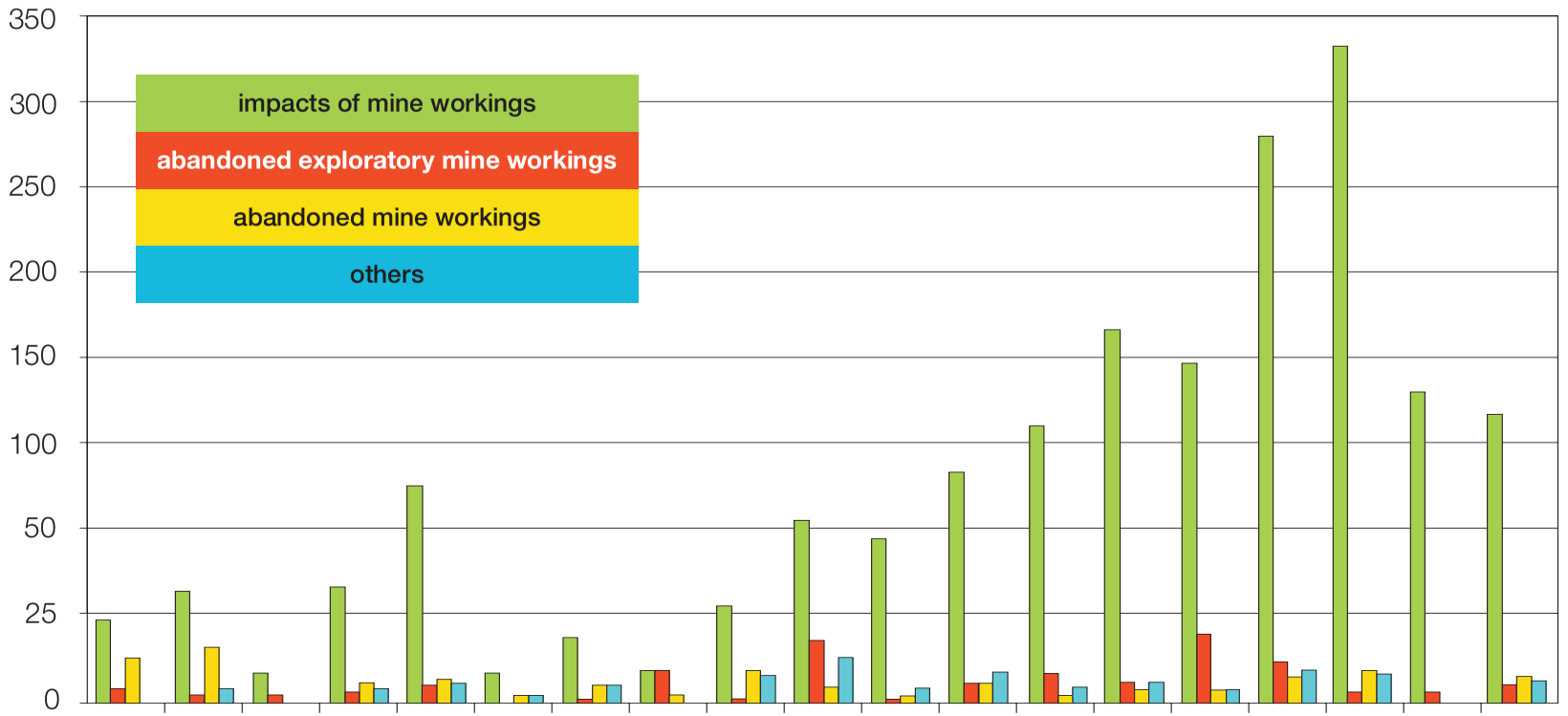
FIGURE 3 – Filing of geological works according to their purpose 2001–2006



	2001	2002	2003	2004	2005	2006
research	3	10	4	5	2	3
mineral deposits	24	21	29	30	50	41
exceptional impact	25	14	50	35	64	74
environment	23	54	52	110	74	71
pollution	64	314	258	246	205	225
engineering geology	163	316	803	825	803	974
hydrogeology	639	1087	1516	1651	1460	1239

*) the total number of registered works may be larger than the number of registration forms because some of them include two types of work

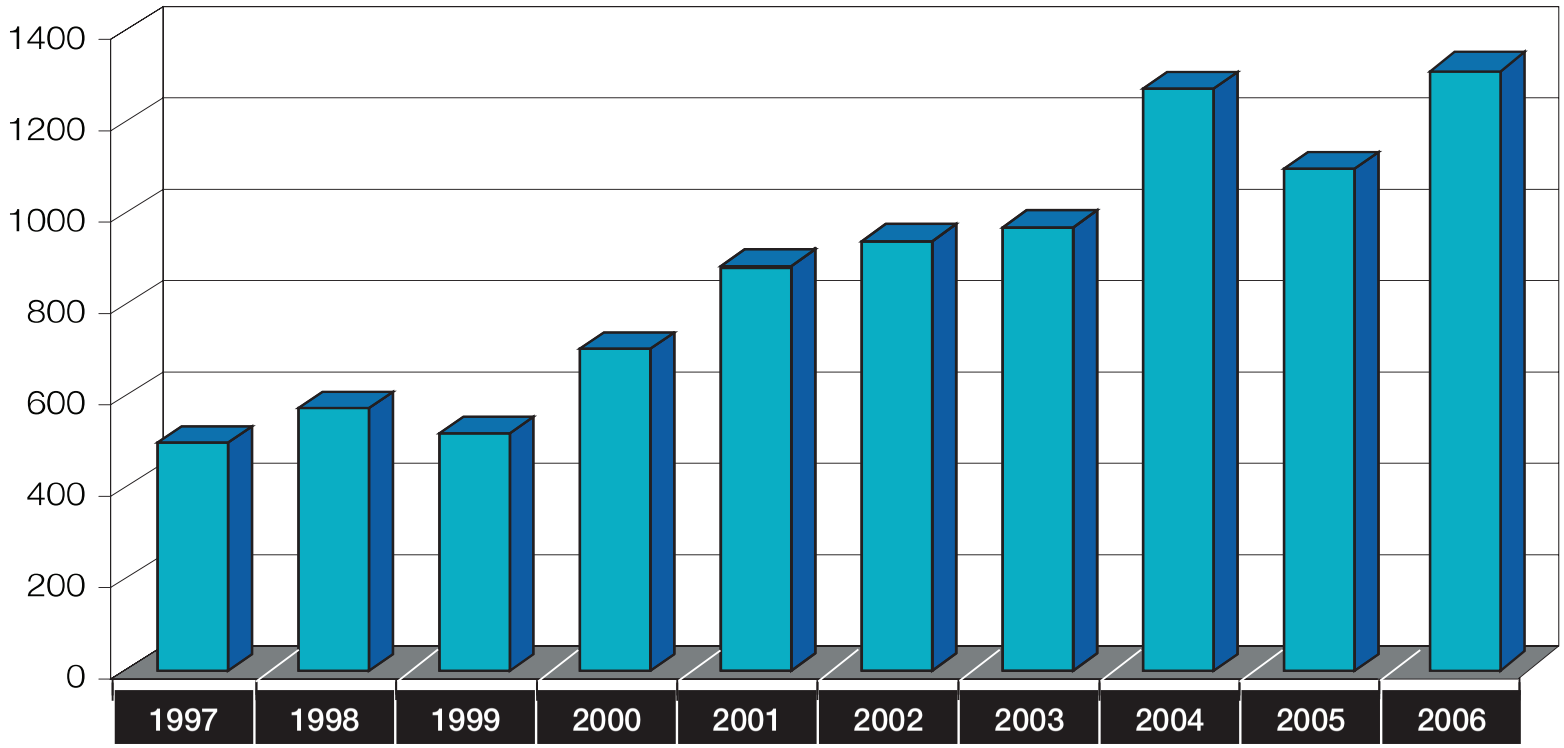
FIGURE 4 – *Additions to the Impacts of Mine Workings Database 1988–2006*



	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
impacts of mine workings	23	31	8	32	71	8	17	10	28	53	45	86	114	167	148	277	338	132	121
abandoned exploratory mine workings	4	2	2	3	5	0	1	9	1	17	1	6	8	6	19	11	3	3	5
abandoned mine workings	9	15	0	6	7	2	5	2	10	4	2	6	2	4	4	7	9	0	7
others	0	4	0	4	6	2	5	0	7	12	4	8	4	6	5	9	8	0	5

FIGURE 4

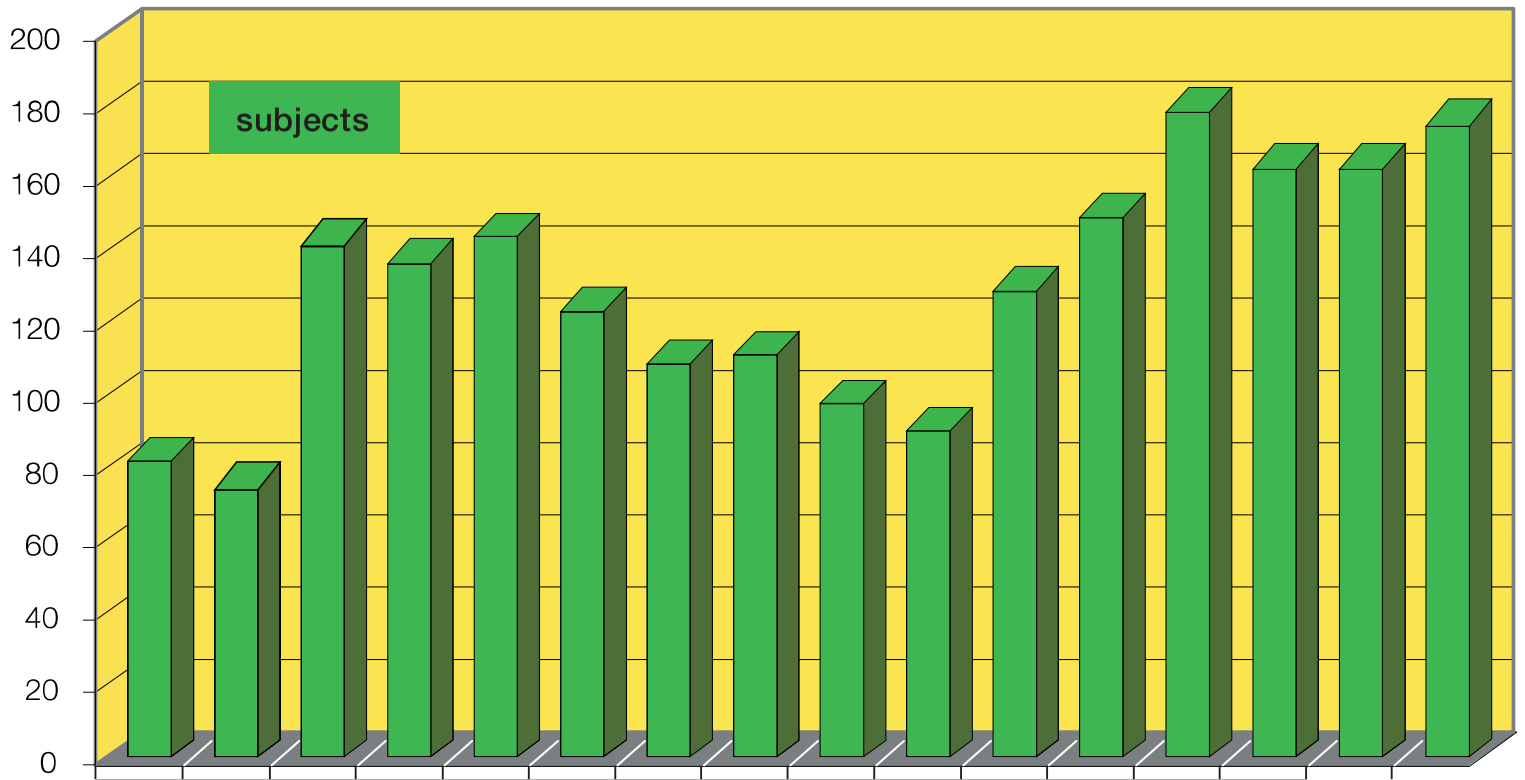
FIGURE 5 – ***Number of expert opinions prepared in accord with § 13 Law No. 62/1988 Coll.***



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
number	499	575	520	705	841	882	918	1261	1099	1309

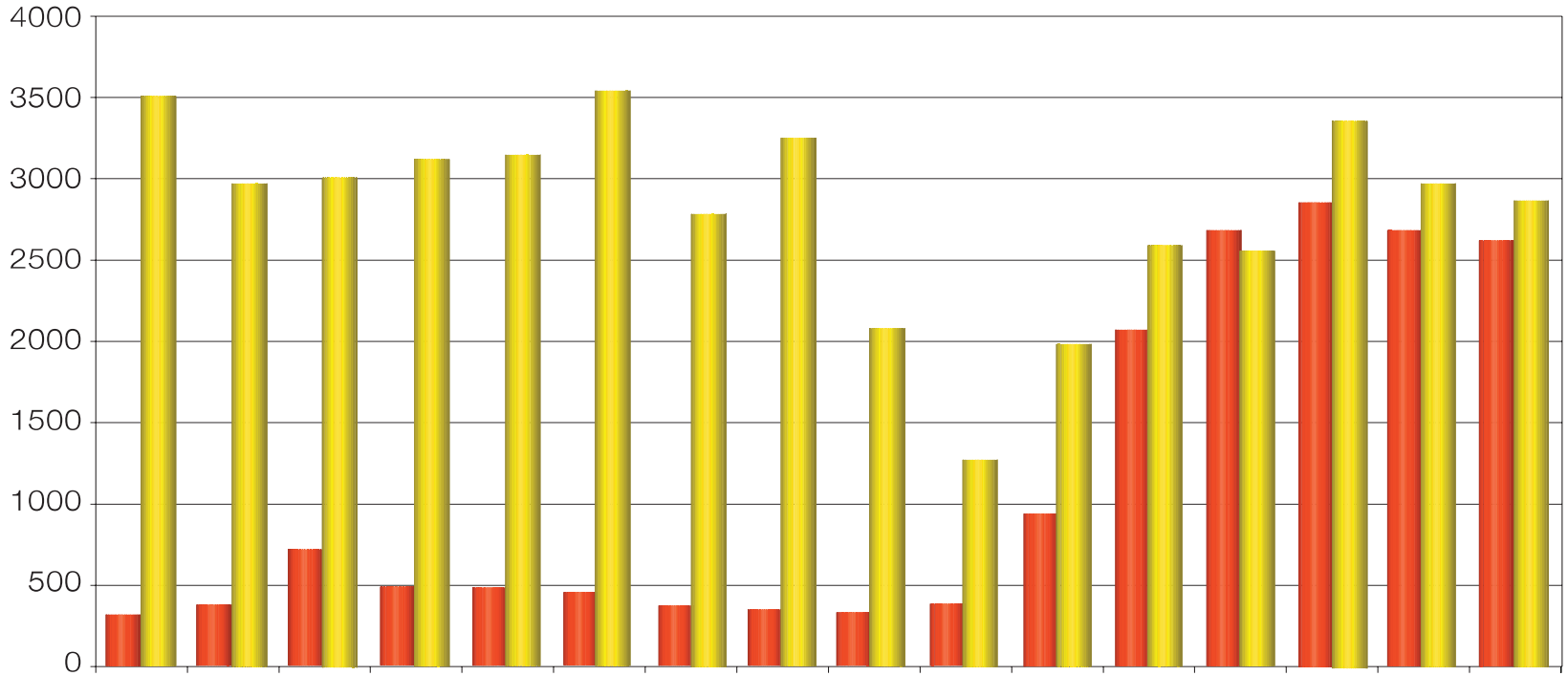
FIGURE 5

FIGURE 6 – ***Number of organizations and persons handing over the results of geological works***



1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
83	77	141	138	142	123	110	114	100	90	131	149	181	165	165	178

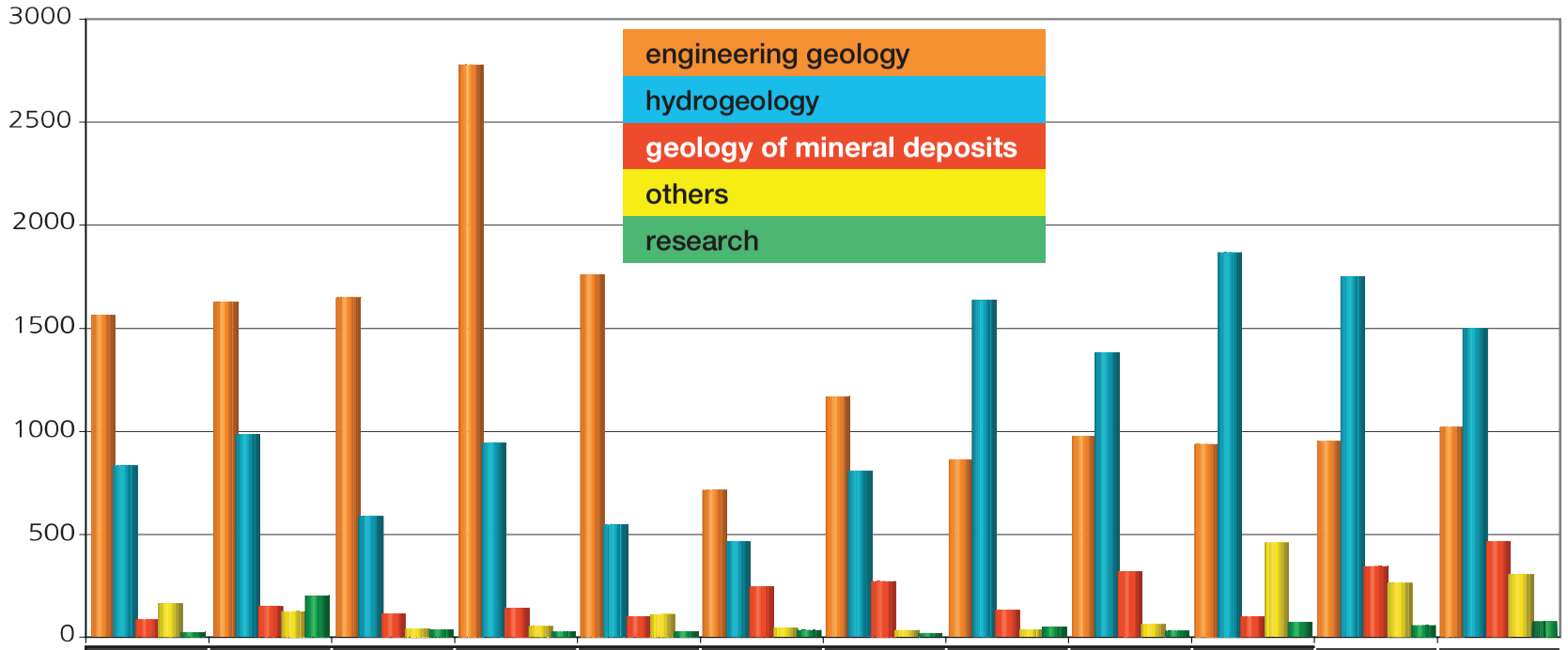
***FIGURE 7* – Comparison of number of filing (before 2000 registration) with increment of new reports**



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
filing	315	376	713	498	489	463	370	346	330	381	941	2069	2680	2859	2631	2563
increments	3508	2971	3003	3122	3143	3536	2786	3249	2077	1273	1981	2588	2553	3364	2935	2785

FIGURE 7

FIGURE 8 – ***Increments in number of reports and files in selected categories***



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
engineering geology	1561	1624	1646	2778	1760	713	1166	826	976	938	949	1002
hydrogeology	830	982	586	943	546	463	803	1635	1378	1866	1748	1423
geology of mineral deposits	**87**	**151**	**114**	**143**	**102**	**244**	**271**	**131**	**318**	**98**	**344**	**444**
others	164	125	43	55	112	44	33	37	62	457	263	283
research	25	202	38	27	28	33	17	49	28	72	56	63

FIGURE 9 – ***Numbers of archived reports and files (1980–2006)***

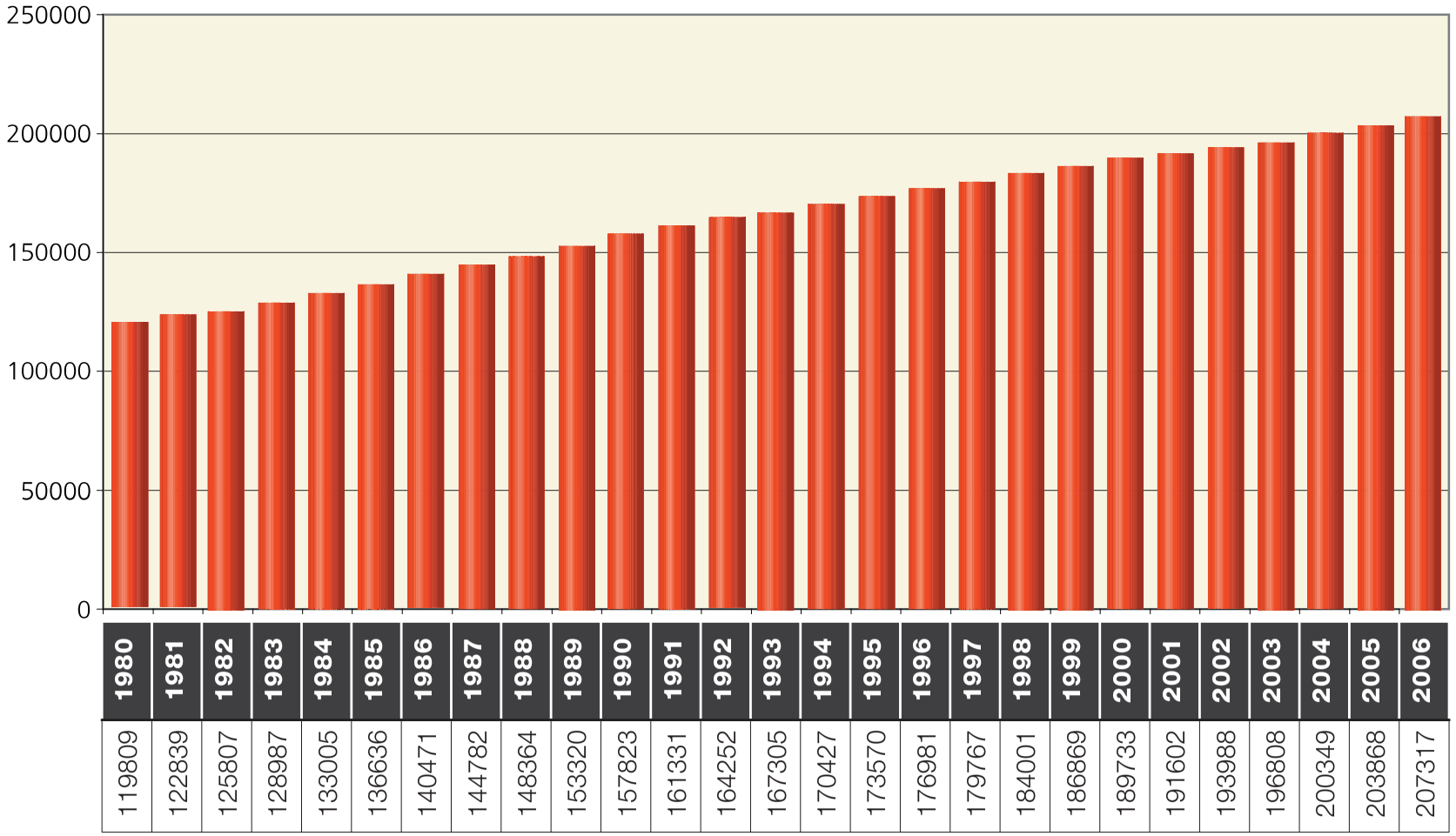


FIGURE 9

FIGURE 10 – *Number of loaned reports*

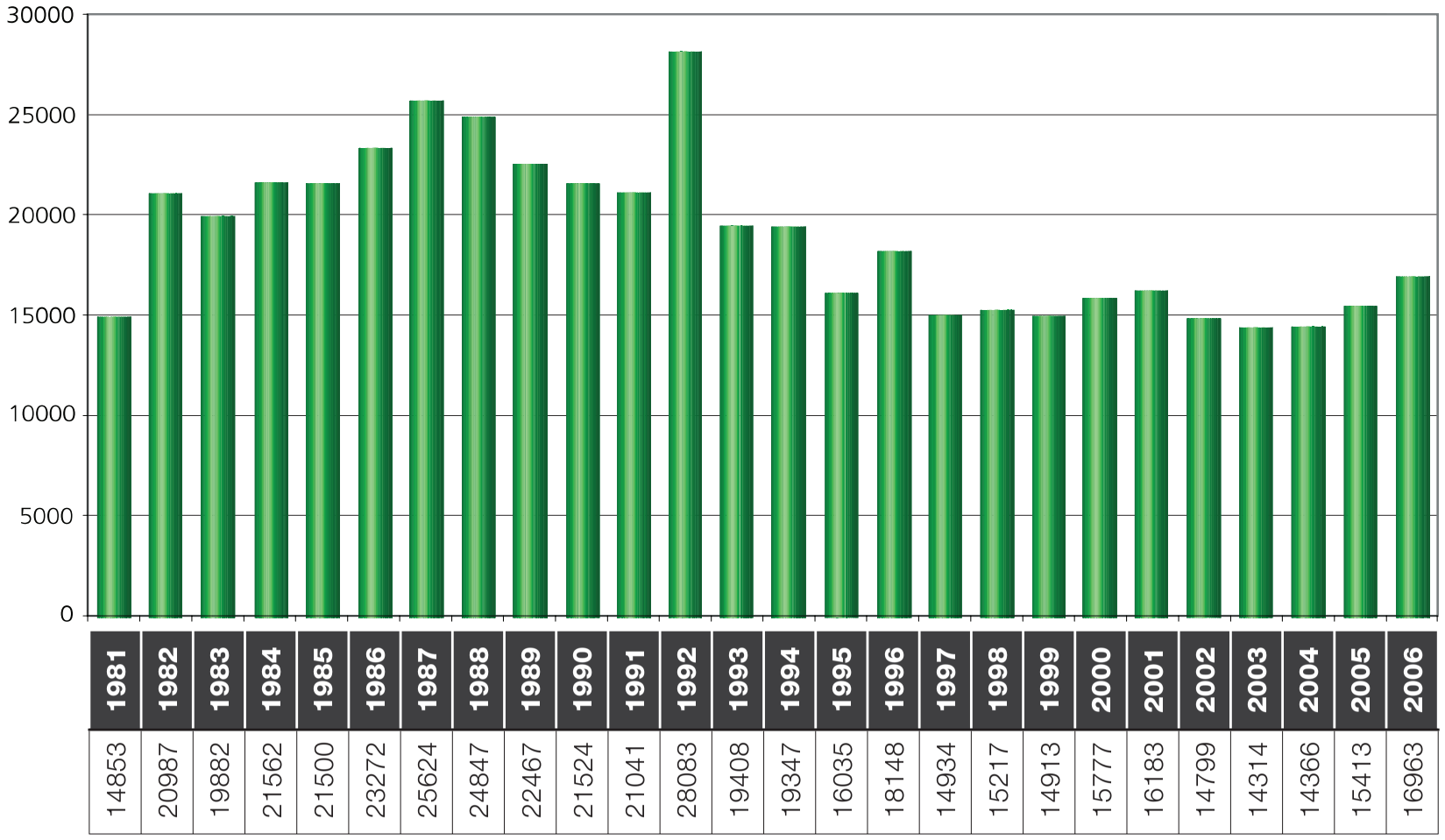
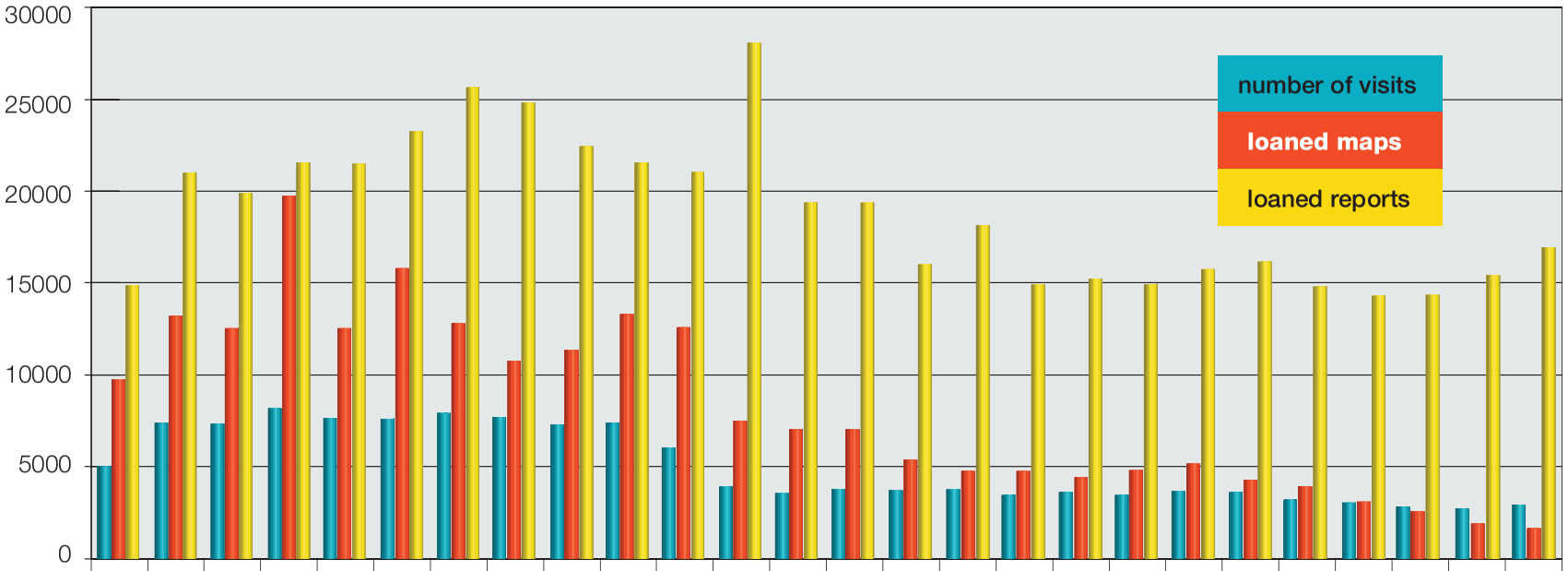


FIGURE 10

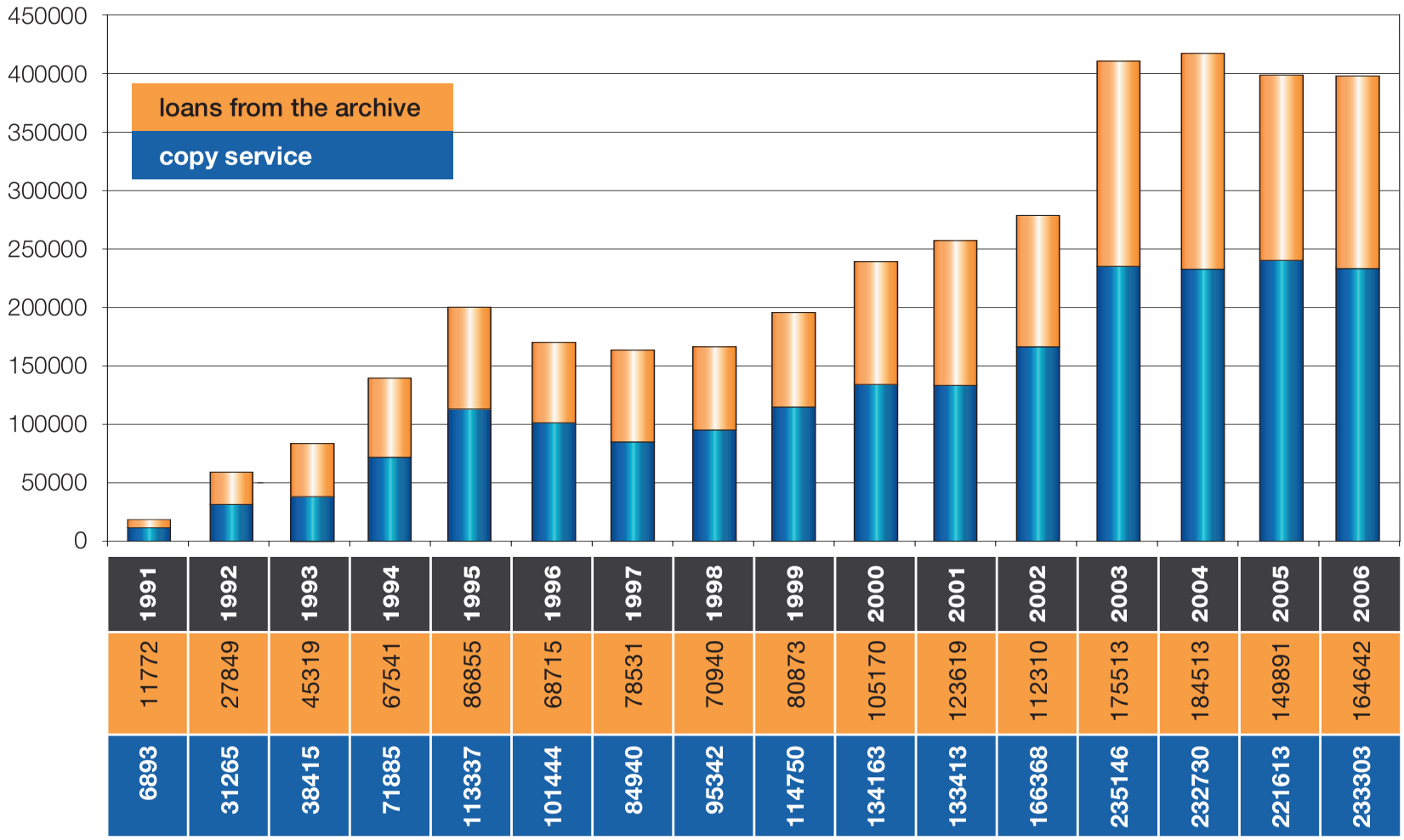
FIGURE 11 – *Activity of the loan service (1981–2006)*



	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
number of visits	5034	7439	7366	8178	7648	7609	7907	7736	7283	7375	6044	3947	3570	3794	3709	3743	3445	3638	3436	3668	3591	3196	3044	2842	2727	2936
loaned maps	9730	1321	1252	1973	1256	1579	1279	1077	1135	1333	1260	7505	7053	7027	5385	4741	4763	4460	4800	5185	4283	3962	3105	2562	1873	1634
loaned reports	14853	20987	19882	21562	21500	23272	25624	24847	22467	21524	21041	28083	19408	19347	16035	18148	14934	15217	14913	15777	16183	14799	14314	14366	15413	16963

Note: In 1992 the procedure for counting loans and visitors was changed

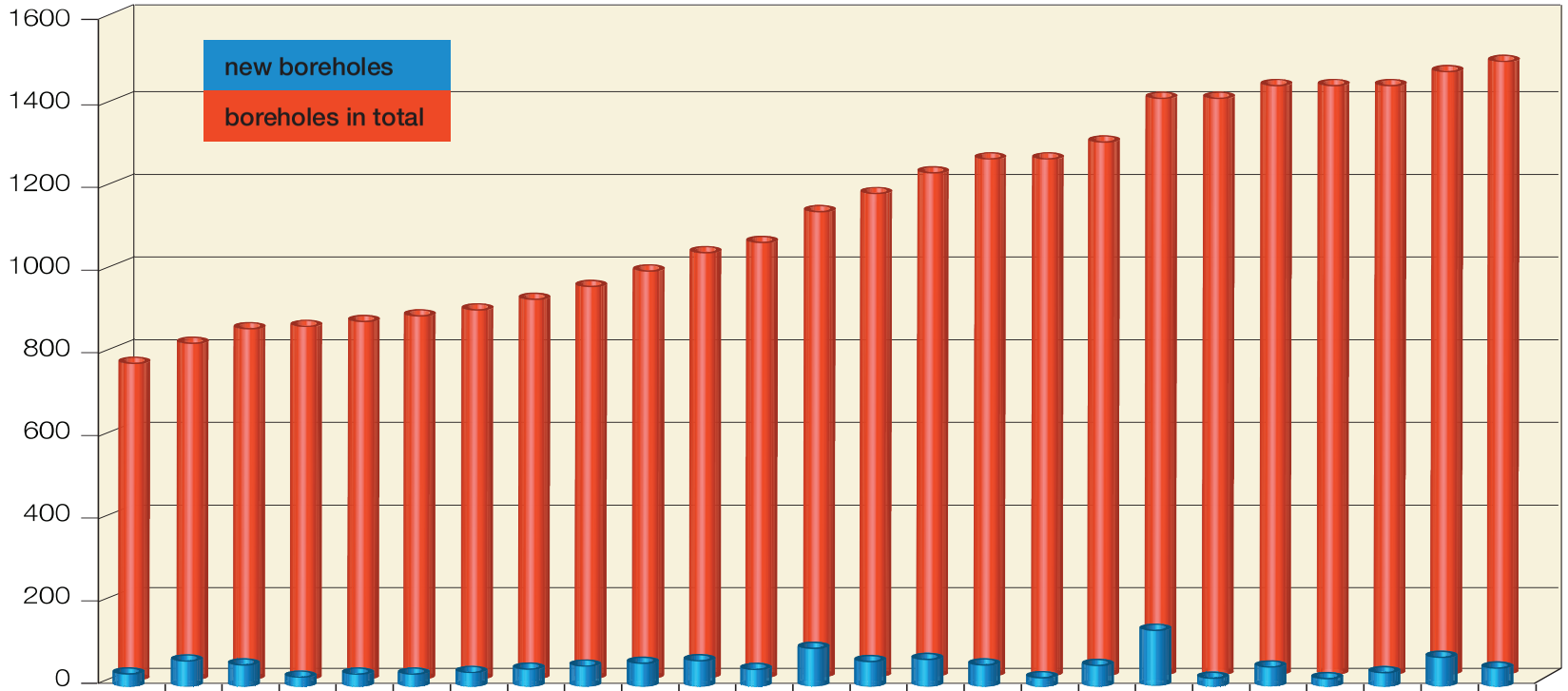
FIGURE 12 – *Development of the paid loan service (in CZK) (introduced since 1991)*



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
loans from the archive	11772	27849	45319	67541	86855	68715	78531	70940	80873	105170	123619	112310	175513	184513	149891	164642
copy service	6893	31265	38415	71885	113337	101444	84940	95342	114750	134163	133413	166368	235146	232730	221613	233303

FIGURE 12

FIGURE 13 – ***Number of boreholes with material documentation acquired by ČGS-Geofond***



	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
new boreholes	12	43	34	5	12	12	16	24	31	38	43	24	74	42	47	34	4	34	116	2	29	1	16	52	27
boreholes in total	793	836	870	875	887	899	915	939	970	1008	1051	1075	1149	1191	1238	1272	1276	1310	1426	1428	1457	1458	1474	1526	1547

FIGURE 13

FIGURE 14 – ***Proposals to discard cores (1982–2006)***

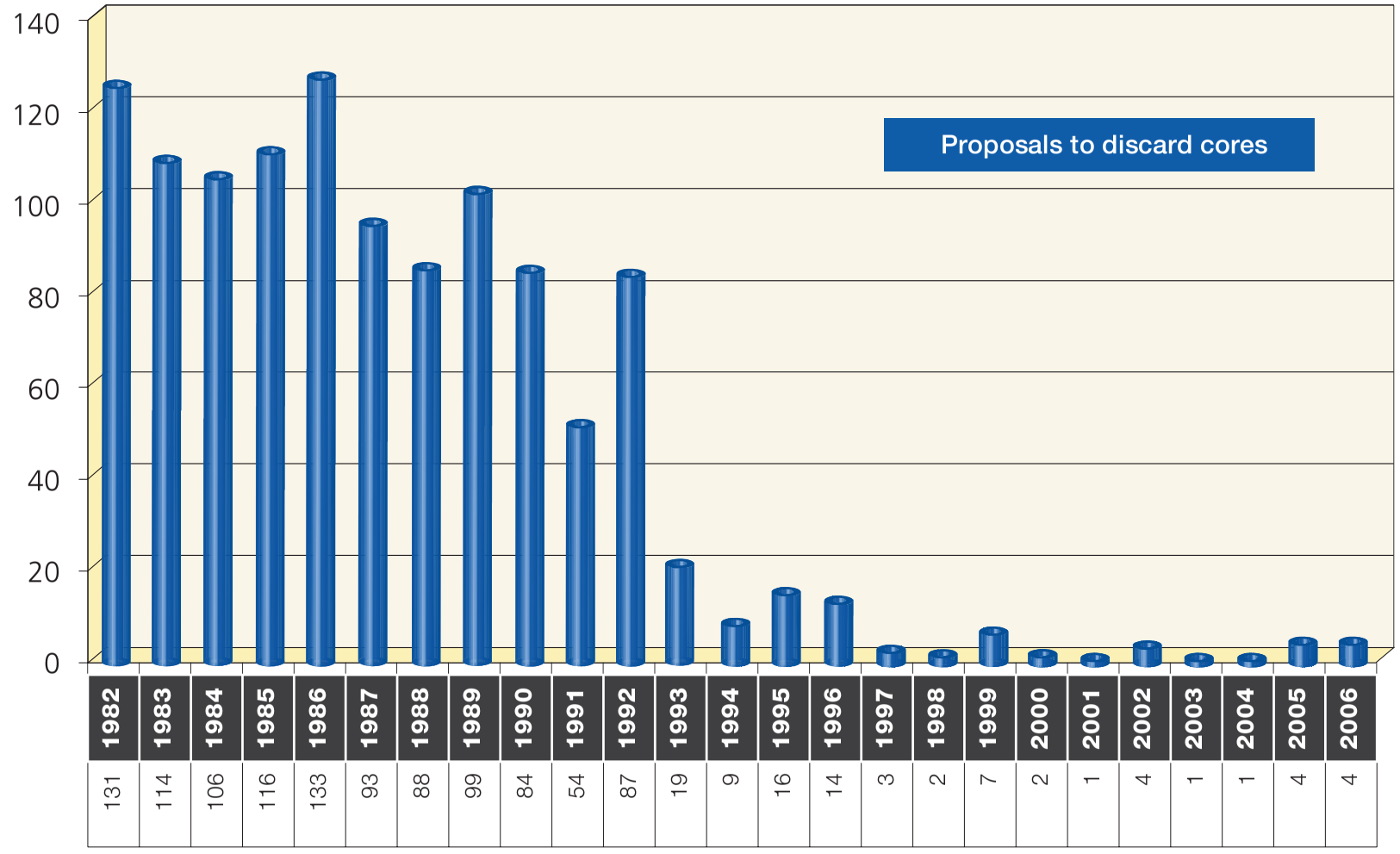
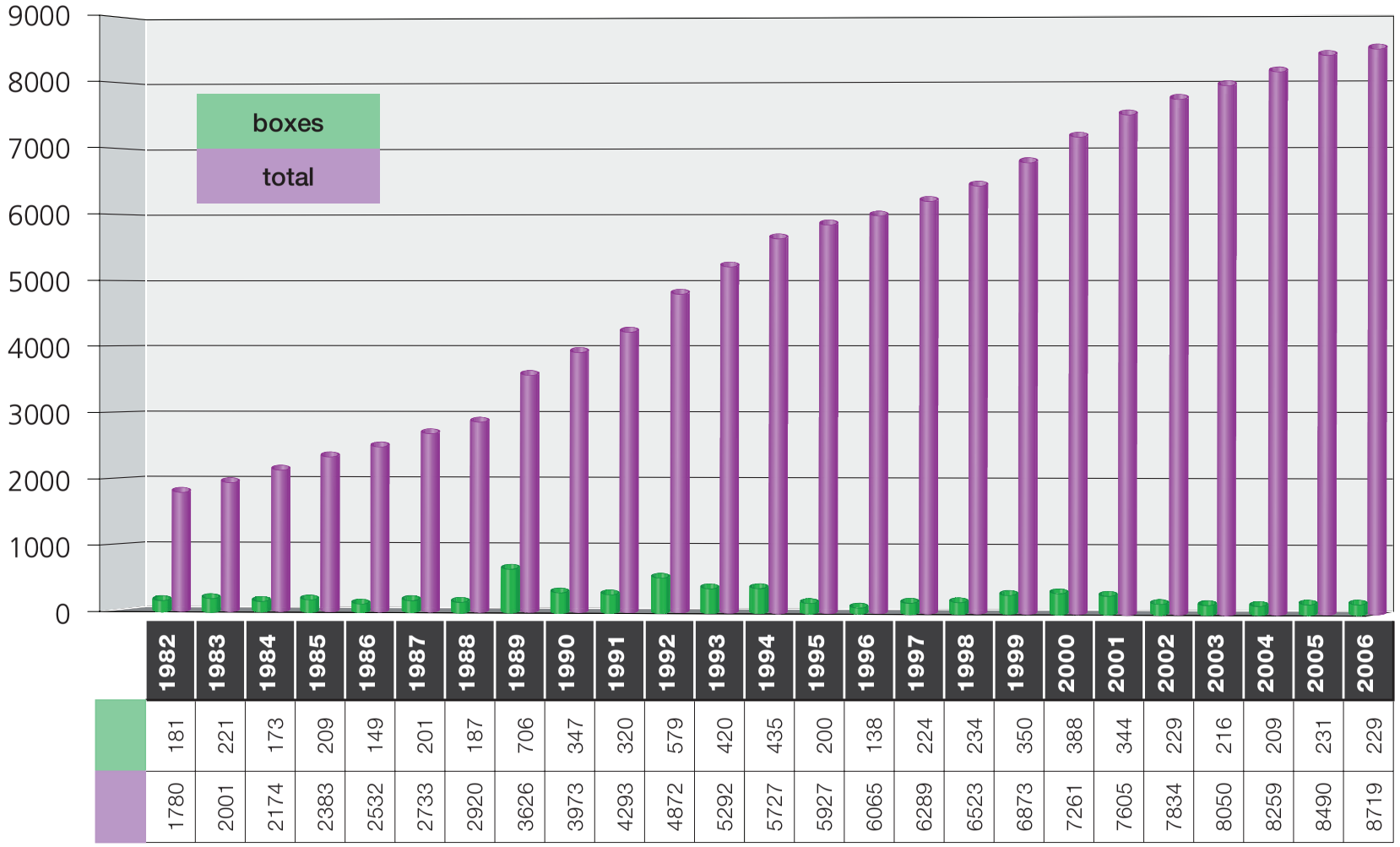


FIGURE 14

FFIGURE 15 – *Number of filled boxes (1982–2006)*



	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
boxes	181	221	173	209	149	201	187	706	347	320	579	420	435	200	138	224	234	350	388	344	229	216	209	231	229
total	1780	2001	2174	2383	2532	2733	2920	3626	3973	4293	4872	5292	5727	5927	6065	6289	6523	6873	7261	7605	7834	8050	8259	8490	8719

FIGURE 15

FIGURE 16 – ***Number of records in ASGI database***

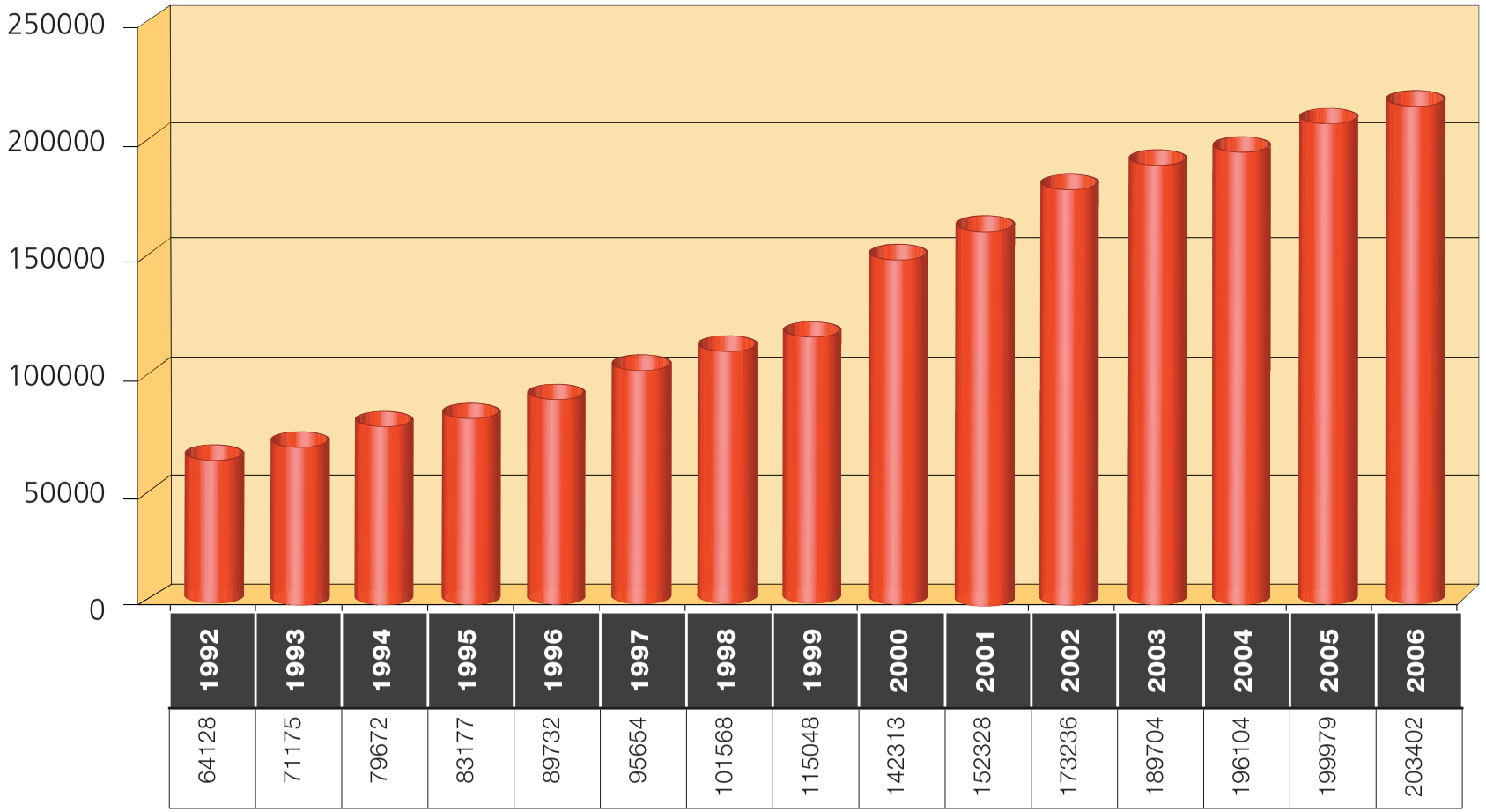
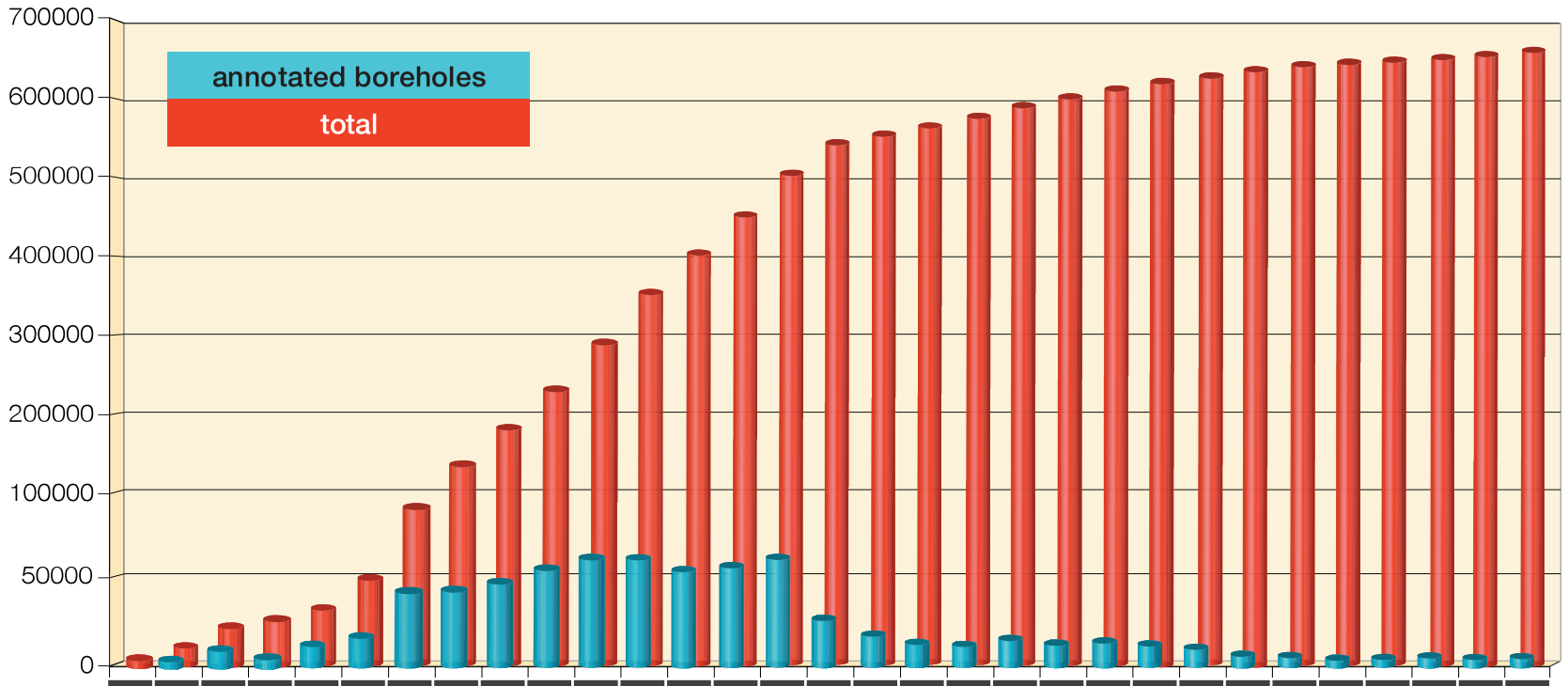


FIGURE 16

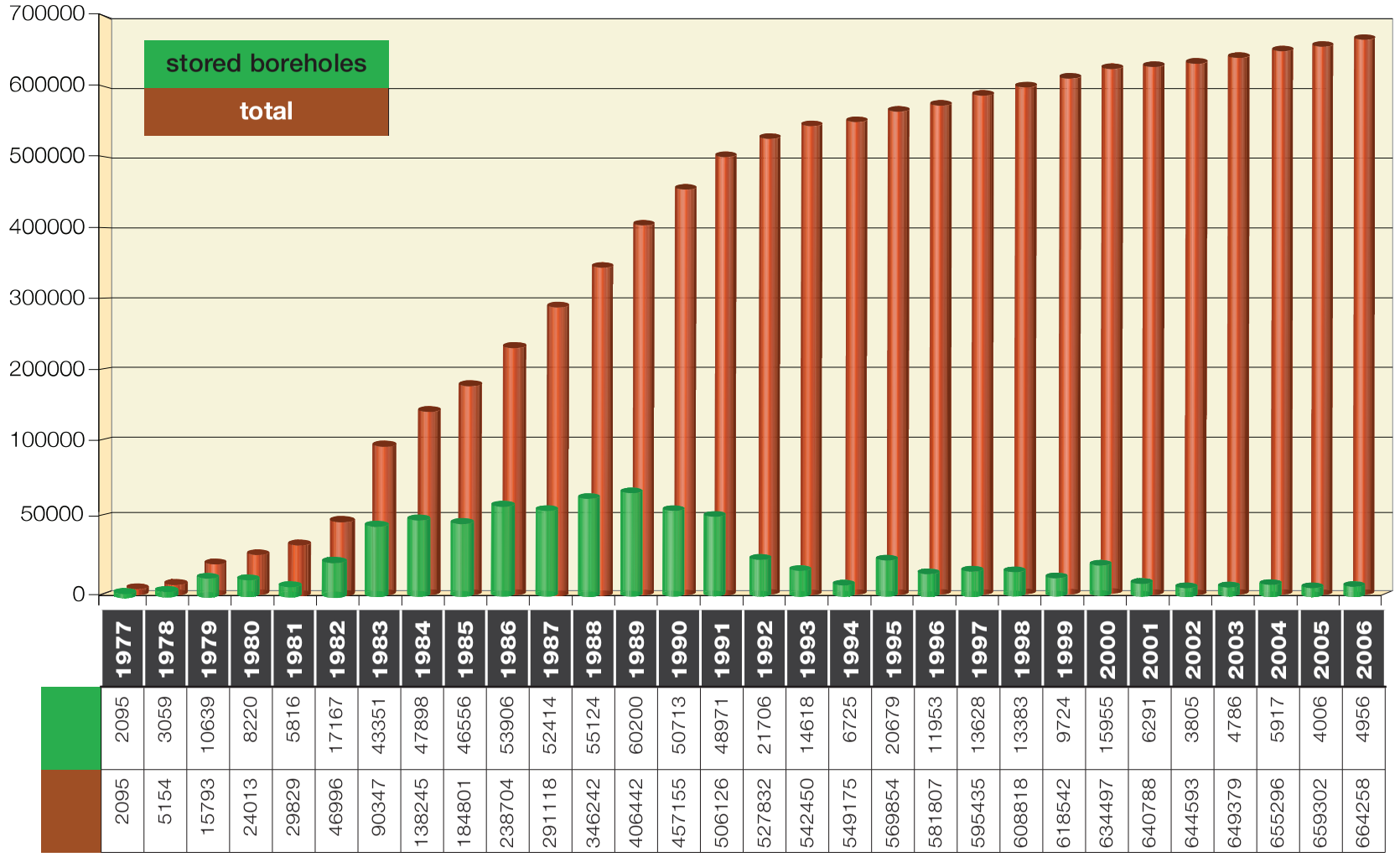
FIGURE 17 – *Number of annotated boreholes (1976–2006)*



	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
annotated boreholes	0	4803	8257	5098	9147	13840	42331	43782	48812	51819	60378	60089	52243	54285	58927	24926	14107	11872	9701	12725	10647	11138	8692	7718	5753	5019	4559	4354	5364	4537	5664
total	4055	8858	17115	22213	31360	45200	87531	131313	180125	231944	292322	352411	404654	458939	517866	542792	556899	568771	578472	591197	601844	612982	621674	629392	635145	640164	644723	649077	654441	658978	664642

FIGURE 17

FIGURE 18 – ***Number of stored boreholes (1977–2006)***



	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
stored boreholes	2095	3059	10639	8220	5816	17167	43351	47898	46556	53906	52414	55124	60200	50713	48971	21706	14618	6725	20679	11953	13628	13383	9724	15955	6291	3805	4786	5917	4006	4956
total	2095	5154	15793	24013	29829	46996	90347	138245	184801	238704	291118	346242	406442	457155	506126	527832	542450	549175	569854	581807	595435	608818	618542	634497	640788	644593	649379	655296	659302	664258

FIGURE 18

FIGURE 19 – ***Number of users of the borehole database (1984–2006)***

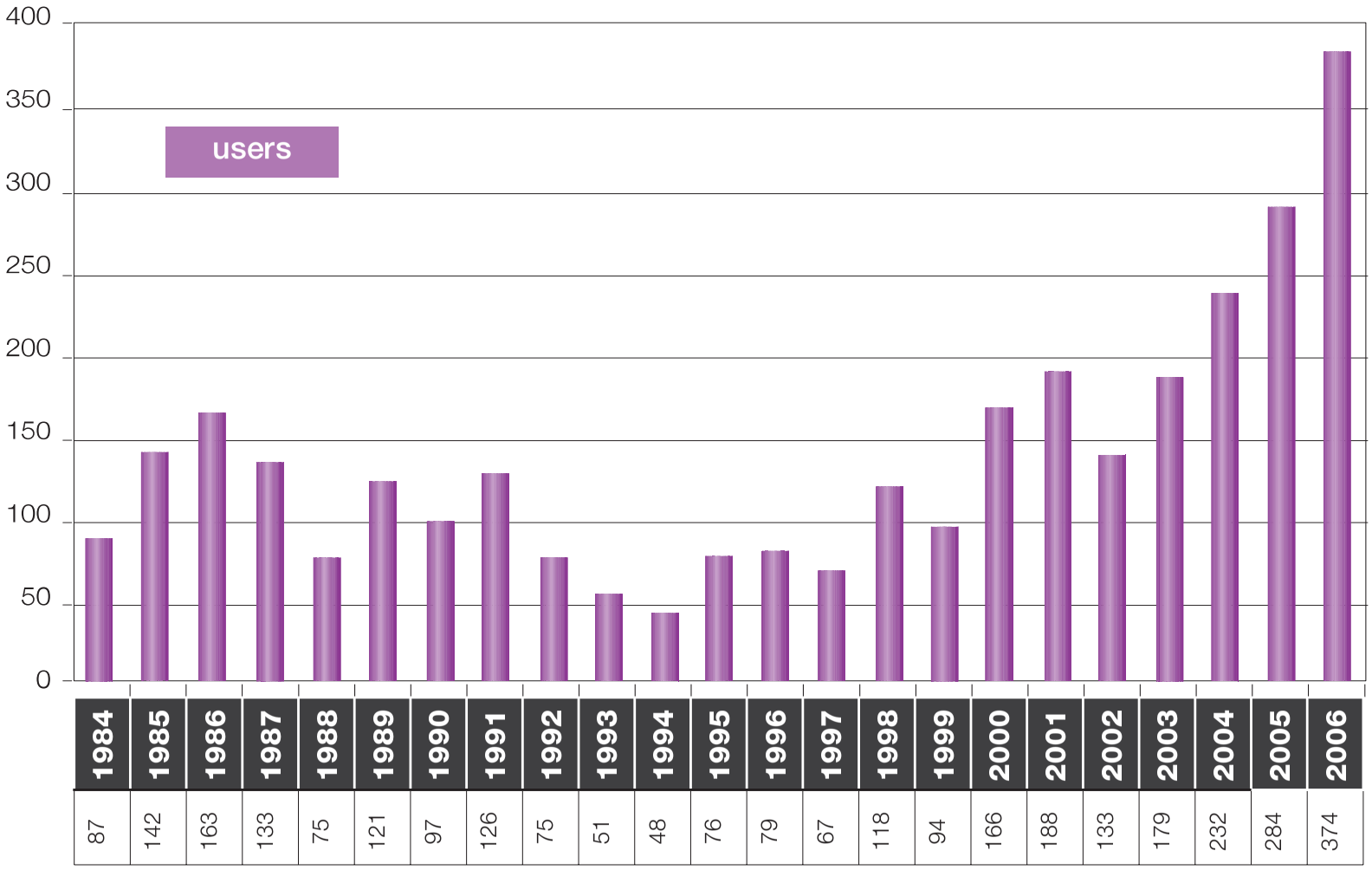


FIGURE 19

FIGURE 20 – ***Number of borehole records provided to users (1984–2006)***

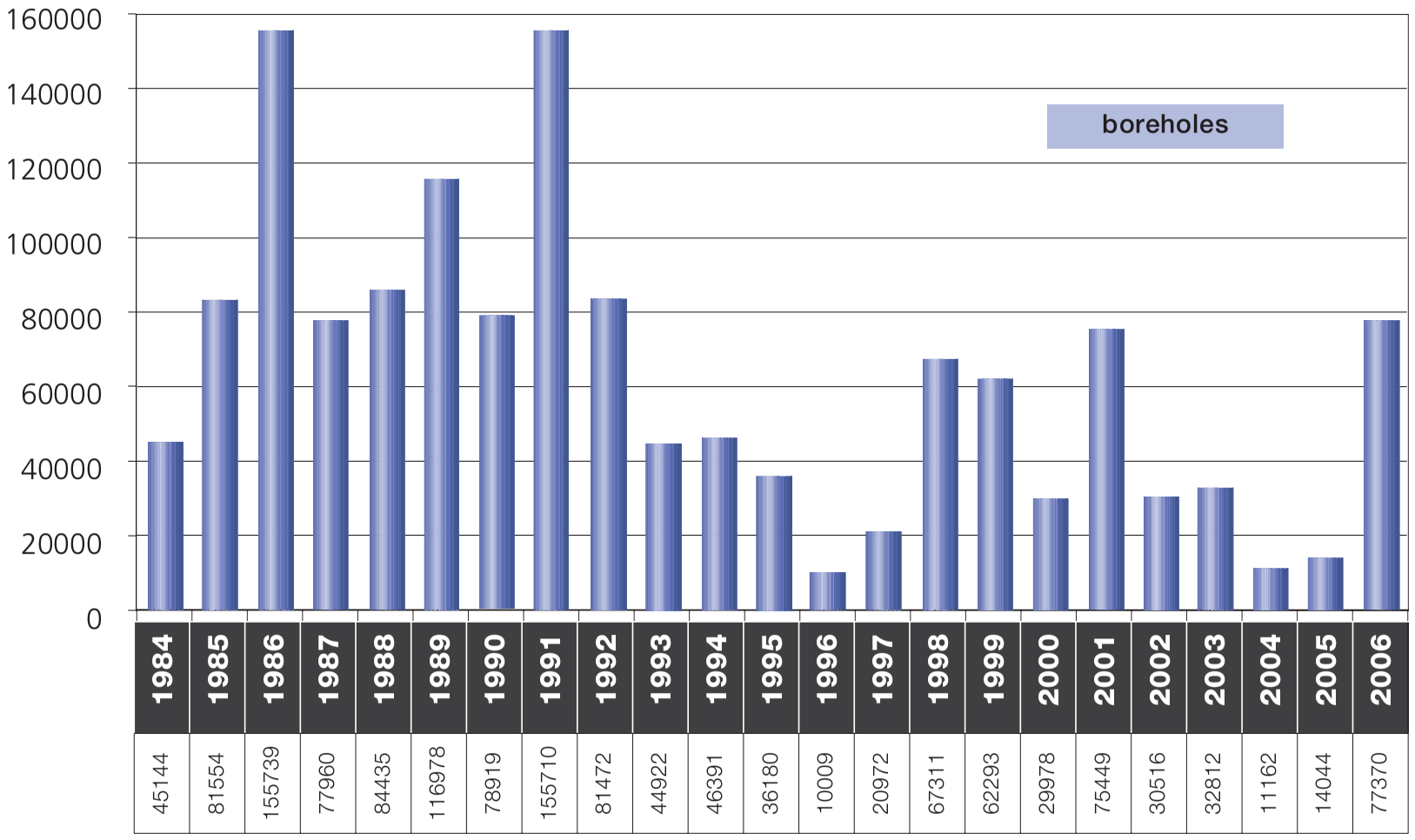
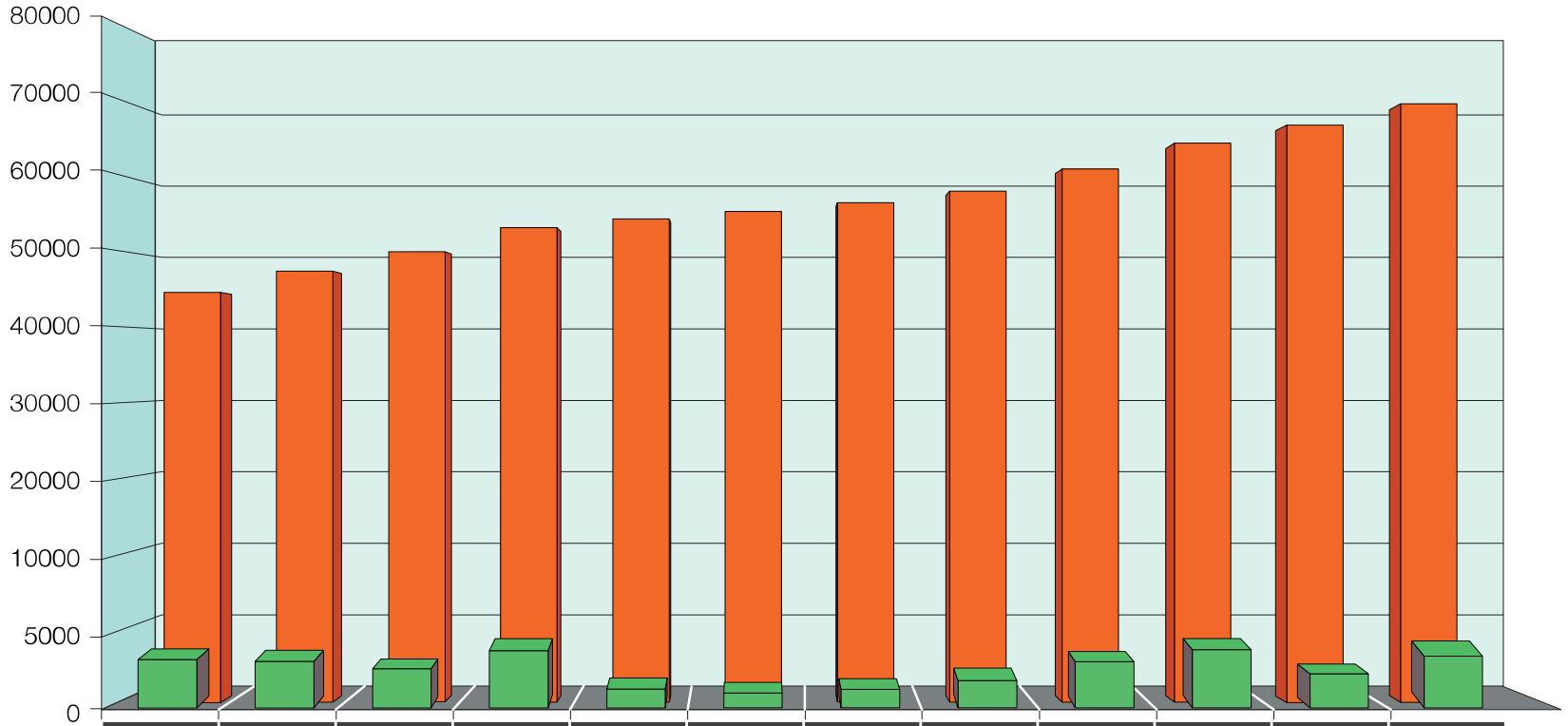


FIGURE 20

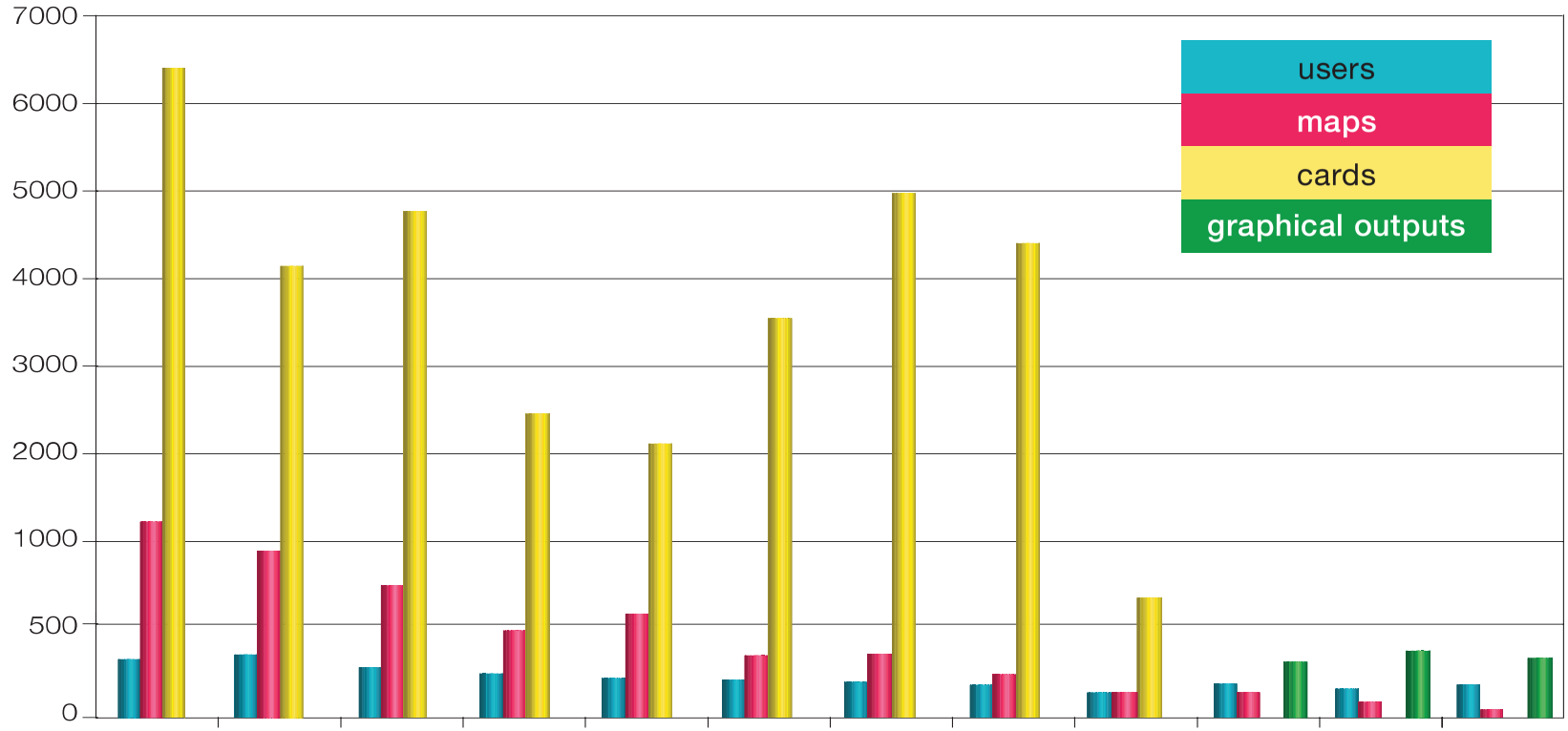
FIGURE 21 – *Entries to the database of hydrogeological objects (1995–2006)*



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
input objects	3074	2912	2691	3221	1235	1059	1228	1558	2982	3498	2460	3256
total	44801	47659	50345	53526	54739	55755	56967	58511	61493	64990	67450	70701

FIGURE 21

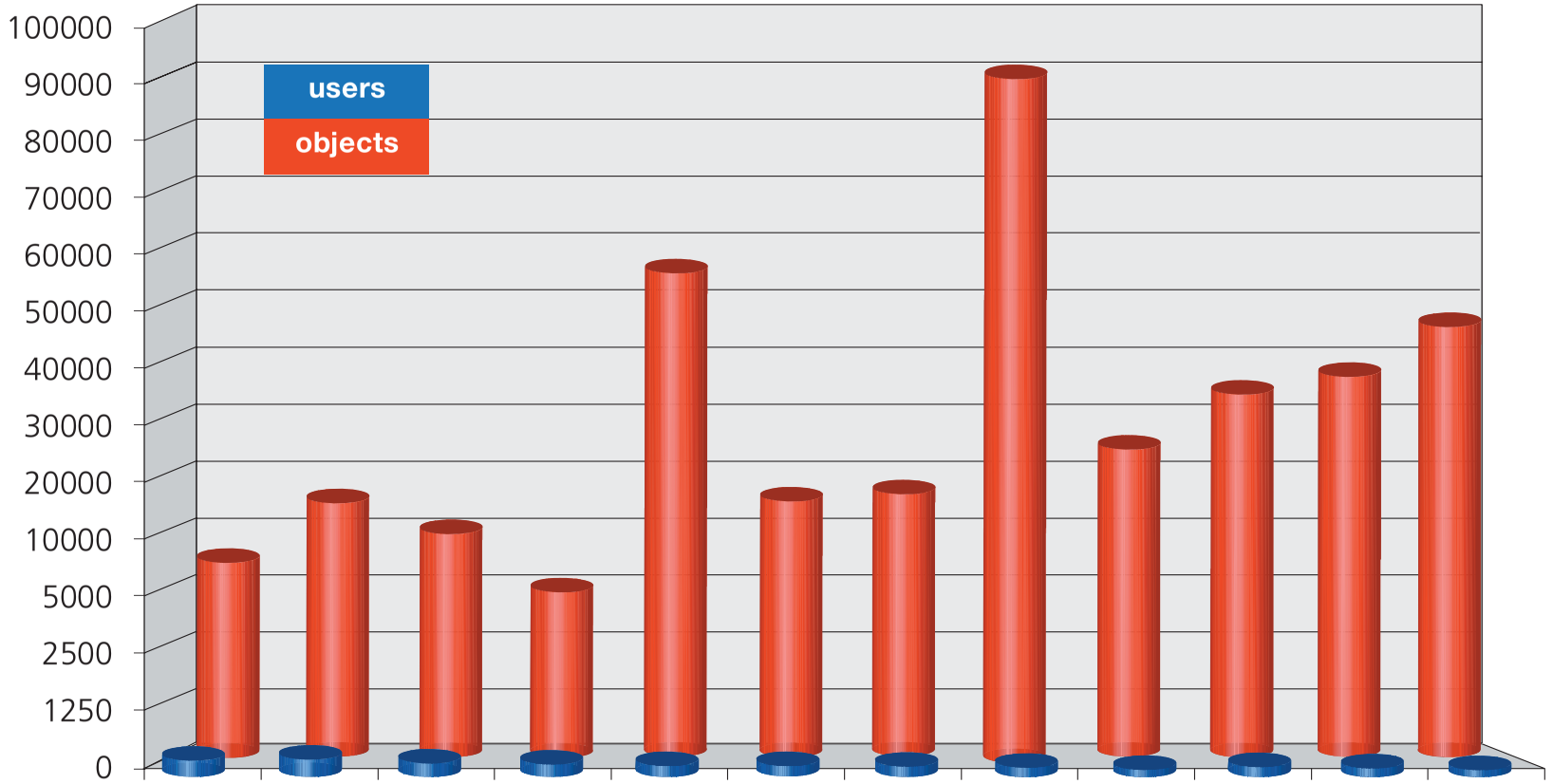
FIGURE 22 – ***Use of the card-index of hydrogeological objects (1995–2006)***



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
	292	316	254	239	208	202	196	166	122	173	140	148
	1224	951	738	474	564	327	363	224	123	123	78	38
	6395	4166	4804	2409	2135	3528	4978	4339	645	302	342	273

FIGURE 22

FIGURE 23 – ***Use of the database of hydrogeological objects (1995–2006)***



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
users	292	316	254	239	208	202	196	166	122	173	140	100
objects	7177	14798	9687	4778	54847	14842	16256	88104	22859	34159	34694	45672

FIGURE 23