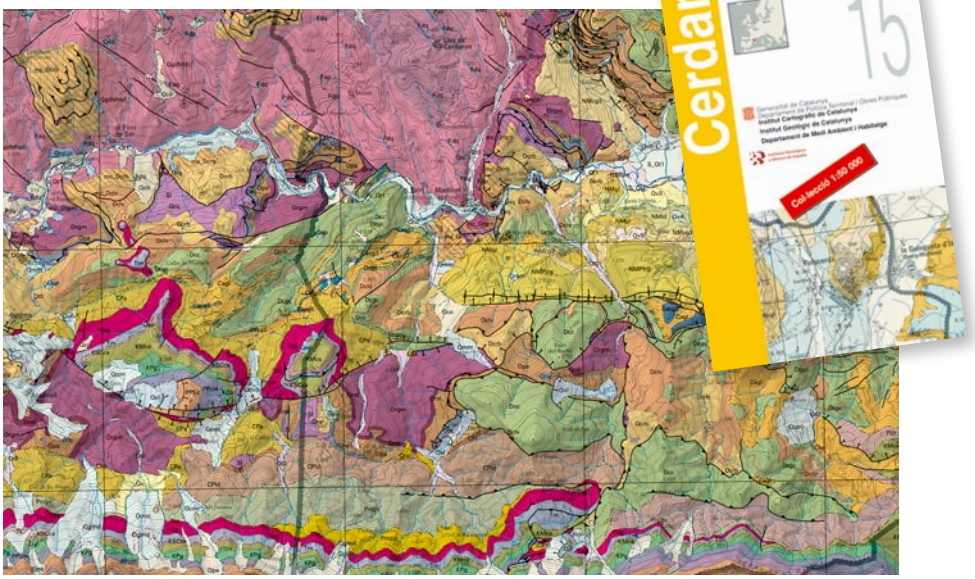
ICC
Institut Cartogràfic de Catalunya

Generalitat de Catalunya
Departament de Política Territorial i Obres Públiques

Newsletter 32

Completion of the Geological map of Catalonia 1:50 000



The *Mapa geològic comarcal de Catalunya 1:50 000* series has been jointly produced by what is now the Institut Geològic de Catalunya (IGC, formerly a Service attached to the ICC), the Departament de Medi Ambient i Habitatge (Environment and Housing - DMAH) and the Instituto Geológico y Minero de España (Spanish Geological and Mining Institute - IGME).

THIS SERIES HAS BEEN PRODUCED BETWEEN 1997 AND 2007

This is a thematic series comprising 41 sheets (1 sheet for each *comarca* – administrative division of Catalonia), which has been obtained from the geological database of Catalonia 1:50 000 (BDGC50M), produced by the IGC in collaboration with the IGME and the DMAH.

The BDGC50M has been compiled from cartographic analysis and from the extraction and systematization of the geological data contained on all the sheets and in the reports of the *Mapa Geológico de España 1:50 000 Serie MAGNA* (IGME) that cover the territory of Catalonia.

From the outset, the tasks of geological synthesis were carried out in the laboratory to provide the geological elements between adjacent sheets with cartographic continuity, and the result was projected onto the topographic database 1:50 000 of the ICC. This work was supported by the interpretation of digital terrain models and stereopairs of conventional aerial photographs of varying dates and scales.

Subsequently, the entire set of information was converted into digital formats, generating the geological databases which, in the appropriate environments, linked the information and made it easier to manage. The result was the harmonization and preservation of the geological information available, with respect to the detail of the geological cartography and the terminological aspects of lithologies and ages, the unification of design styles and the updating of the planimetric and toponymic elements of the aforementioned topographic database.

The production of the BDGC50M generated a graphic part formed by the continuous digital geological map in vector format, in addition to a series of images corresponding to the remainder of the graphic information contained on the sheets published (geological columns and sections), and an alphanumeric part in the form of attribute tables, linked to the graphic part.

The map is the printed representation of the BDGC50M (symbolized version) and it is published in sections by *comarques* like the topographic series *Mapa comarcal de Catalunya 1:50 000*. The geographic area represented on each sheet is such that an overall view of the outcropping materials and their geological structures may be provided.

IT IS PLANNED TO CROWN THE SERIES WITH THE PUBLICATION OF THE GEOLOGICAL ATLAS OF CATALONIA 1:50 000 IN 2009

The publication of geological cartography by the ICC began with the *Mapa geològic de Catalunya 1:250 000* (1st edition, 1989; 2nd edition, 2002). Since then, the objective has been to produce a geological map that covers the whole of Catalonia at a larger scale: the *Mapa geològic comarcal de Catalunya 1:50 000* meets this objective. ■

Commencement of the 2nd edition of the Topographic Map of Catalonia 1:10 000

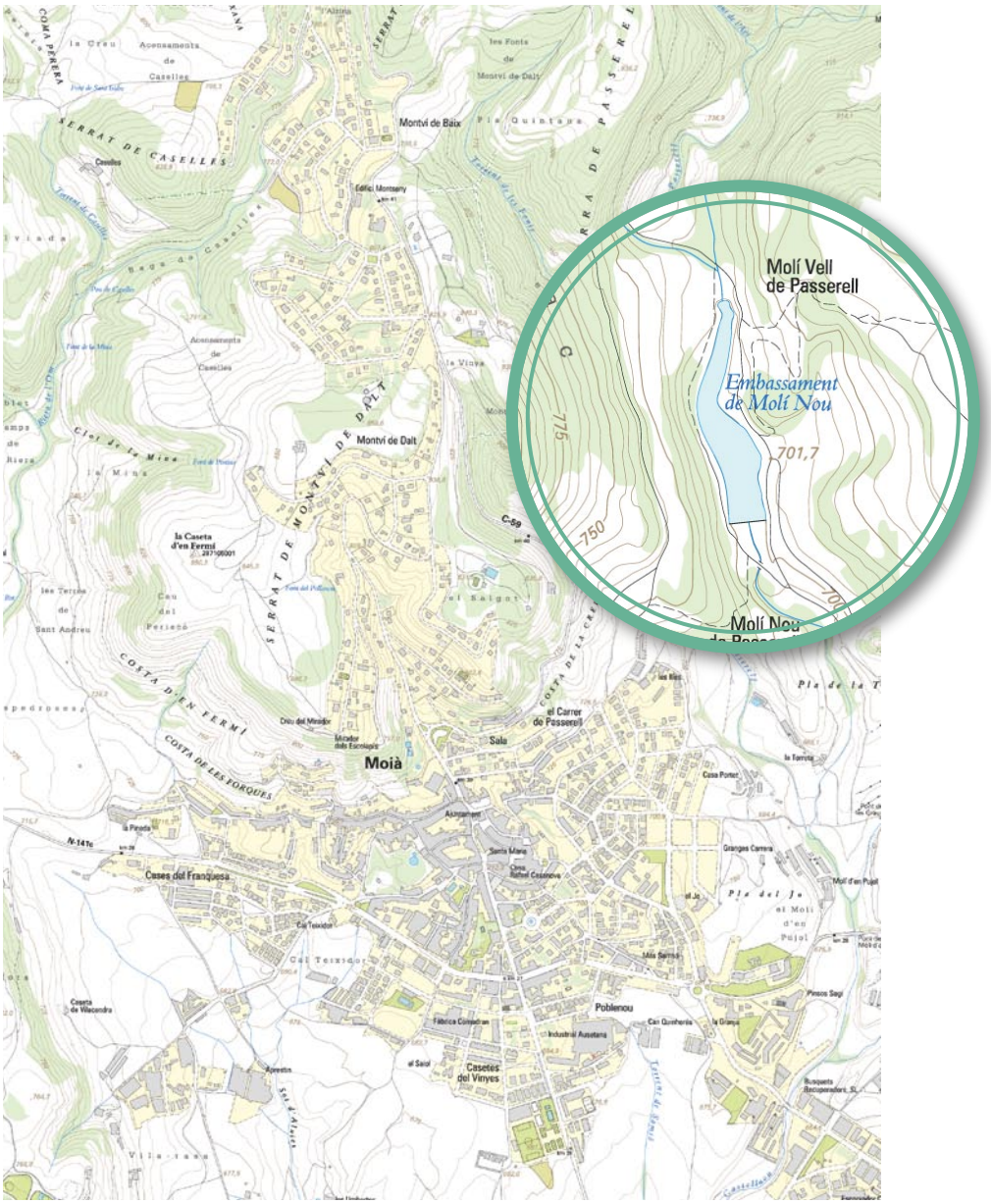
In 2007 work was begun on the 2nd edition of the *Mapa topogràfic de Catalunya 1:10 000* series (MTC-10M). The first edition was completed between 1999 and 2006.

THIS TOPOGRAPHIC MAP COMPRISES 1 121 SHEETS (APPROX. 3 200 HA PER SHEET)

This topographic series is obtained by applying automatic and manual generalization processes to the *Base topogràfica de Catalunya 1:5 000* (topographic database of Catalonia 1:5 000 - BT-5M), including the toponymy. In paper format, the map is distributed on standard section sheets or in map on demand form, whereby the client selects an A1 or A2 size area. It is printed by means of inkjet plotters. The symbolized digital data (PDF vector, or GeoTiff or MrSID raster) are also distributed on standard section sheets or in map on demand form, whereby the client selects an A1 or A2 size area; metadata are included, but the cover sheet is not included.

The 2nd edition of the series corresponds to version 1.1. In this version, the data are obtained by generalizing again the updated original database (BT-5M), instead of updating the data of version 1.0. With the tools that are currently available, this method reduces the cost of production and a more homogeneous product can be obtained.

Compared with version 1.0, this version features changes in some generalization criteria and in the symbolization. With respect to generalization, classes are grouped into more generic concepts and spot heights are generalized, taking account of new criteria applied automatically, such as the use of significant orographic toponyms in the selection of spot heights. Changes in the symbolization include improvements in the halo of the labels of contour lines and spot heights in the representation of contour lines; modification of the color of the contour



THE TOPOGRAPHIC SERIES CAN BE DOWNLOADED FROM THE INTERNET BY MEANS OF THE RASTER IMAGE SERVER VIEWER (VISSIR) IN MrSID FORMAT

lines, spot heights, buildings, some elements of the guide map and some classes of toponym; a change in the typography of the toponyms; a new spot height symbol; and the use of patterns in the representation of flooding river bed, beaches, marsh areas and rocky areas.

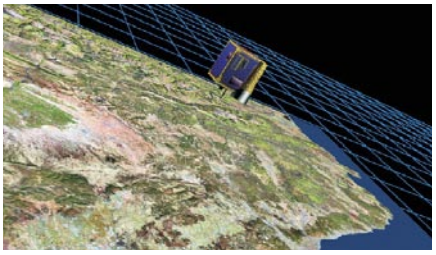
The applications supporting production have also been modified and implemented in order to adapt these to the new specifications. These applications include processes of generalization, edition, generation of cover sheets and positioning of toponymy, quality control, polygon generation, printing, distribution and data management. ■

Catalan Earth Observation Program

The development of a *Programa Català d'Observació de la Terra* (PCOT) is a strategic decision to respond to the needs of Catalan society regarding knowledge, monitoring and management of the Catalan territory. PCOT will generate new Catalonia-based initiatives in fields such as economics, research and territorial knowledge.

For the ICC, it has been a priority over the last two years to identify the direct and immediate applicability of operating small Earth observation satellites and turning these to commercial advantage, and therefore the Institute has carried out the following phases to determine the strategic viability of these satellites.

Stage 1. The main objective of this project, in a first phase, has been to evaluate the current contribution and maturity of small Earth observation satellite platforms as generators of data, products and services that are useful and of high quality. In view of the known potential of these satellites, an analysis has been carried out with various technological and developmental possibilities of small satellites at a global level, in order to determine the prospects of finding a technologically and operationally viable platform that will meet the needs of Catalonia for the capture of geoinformation by satellite. In a second phase, mission analysis and design activities have been carried out, which have considered all that is required in order to guarantee the quality and utility of the Earth observation data for Catalonia. Among other tasks, this has involved the analysis of orbital and instrumental characteristics, and measuring the Earth segment. Having defined these characteristics, a model has been designed which has enabled to evaluate,



analyze and formulate, on the one hand, the outlay that would be incurred by the management of a small satellite, and on the other hand, the management of the economic, industrial and social returns that this would bring Catalonia.

Stage 2. This project has been undertaken together with the remote sensing group of the Department of Signal Theory and Communications of the Universitat Politècnica de Catalunya. The objective has been to develop a model to evaluate the possibilities and principal difficulties to be resolved in the development of an active radar sensor for observation of the Earth that can be carried by a small satellite. The results of this project allow to define the possible technological platforms, with reference to aspects such as the power, resolution of ambiguities and dimensions of the radar antenna. This study represents a necessary point of departure for the evaluation, with these platforms, of both the potential applications and the usefulness of an active radar system on a small satellite. ■

GIS4EU project

2007 saw the begining of the research project "GIS4EU: Provision of interoperable datasets to open GIS to the EU communities". This project is cofinanced by the European Union with the aim to organize a system for sharing European spatial information without the need to having a central database. GI must be accessible, useful and exploitable by all the users of the European Union (EU).

Through the INSPIRE initiative, the EU wants to resolve the national security and legal restrictions of the data. For this reason INSPIRE will establish a general framework for all the member states for setting up the European spatial infrastructure.

THE OBJECTIVE IS TO DEVELOP A COMMON BACKUP DATA AND INSTRUMENTS MODEL, BASED ON INSPIRE, WHICH WILL COVER THE WHOLE OF EUROPE

The involvement of the European states is needed in order to define, apply and validate the European standards. The most relevant aspects are the policies concerned with reuse, saving time and saving money.

The participation of the ICC falls within the process of transposition of the European directive INSPIRE as a regional data supplier, or as a collaborator in the design of a common data model and in the establishment of the mechanisms for the transformation of our data that will facilitate joint exploitation with the data of other European organizations.

21 European entities (universities, government centers and private companies) of 10 European contries form a part of the GIS4EU project, is necessary to stand out, besides the ICC, the Consorzio per il Coordinamento delle Ricerche sul Sistema Lagunare di Venezia (Italy, coordinator), University of Nottingham (United Kingdom), Intergraph Polska Sp. zo.o. (Poland), Geographical Information Systems International Group (Italy), Instituto Geográfico Portugués and Institute for Geoinformatics of the University of Muenster (Germany). ■

Brief notes

WORKSHOP: DIGITAL APPROACHES TO CARTOGRAPHIC HERITAGE

On 26 and 27 June 2008, the 3rd international workshop on digital technologies applied to cartographic heritage will be held at the headquarters of the ICC. This event is jointly organized by the ICC and the Commission on Digital Technologies in Cartographic Heritage of the International Cartographic Association (ICA).

A total of 27 lectures will be given, over the course of 7 sessions.

For further information, please visit: www.icc.cat

SYMPOSIUM ON SMALL EARTH OBSERVATION SATELLITES AND THEIR OPERATION

This Symposium was held on Friday, 18 April 2008, at the headquarters of the ICC within the framework of the PCOT.

The objective was to exchange knowledge and debate about the needs and possibilities of the observation of our planet, with presentations from DEIMOS and VERHAERT.

The guest presentations were made by Pedro Duque, a member of DEIMOS Imaging, and Davy Vrancken, of Verhaert Space.

This newsletter is a free publication available in Catalan, Spanish and English.

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Presentation of the project to create the Information system for industrial estates in Catalonia

On 18 February 2008, the future Information system for industrial estates in Catalonia was presented at the ICC. The agenda of this event was as follows:

- Presentation of the work completed to date on the Geospatial database of industrial estates in Catalonia (BDGPolInd). In this first phase, the technical specifications of the BDGPolInd have been drawn up, in which it is established that the database must contain the delimitation of the estates, as well as the indications associated with these, and work has been undertaken to identify, delimit, digitize and georeference the industrial estates of Catalonia at 1:5 000 scale.
- Presentation of the project to create the Information system for industrial estates in Catalonia applied to a pilot municipality.
- Declaration of intent made by the Government Departments of Innovation, Universities and Enterprises; Town and Country Planning and Public Works, and Governance and Public Administration, the ICC, Barcelona Regional Council and Pacte Industrial de la Regió Metropolitana de Barcelona to sign a second agreement, in order to develop, maintain and update the BDGPolInd and thereby obtain a standardized, official, continuous and dynamic information system for industrial estates for the whole of Catalonia.

This information system will include the basic cartography and the principal thematic indicators of the industrial estates in Catalonia provided by the government departments involved and the organizations collaborating in the project.

THE AIM OF THIS INFORMATION SYSTEM IS TO ESTABLISH A DIRECTORY OF INDUSTRIAL ESTATES THAT COVERS THE WHOLE OF CATALONIA

At present, the ICC has drawn up the delimitation at 1:5 000 scale of the industrial estates in Catalonia that cover an area of more than 0.5 ha, and this is now being validated by the local councils. Moreover, there are plans to develop both the technology and the methodology for obtaining this information system, so that it will contain data relating to activities, occupation, accessibility, mobility, equipment, services, telecommunications, supplies, waste, materials and many other sector-related data.

Besides involving the municipalities and the *comarques* in its deployment, this initiative will offer a supralocal perspective of industrial estates that is necessary in order to ensure the greater coherence of public policies relating to land and industrial development, as well as the availability of electronic network services. This information system will also help to co-ordinate relations between the government and various organizations when analyses and studies are made of industrial estates. ■