THE 1:25000 GEOANTHROPIC MAP OF CATALONIA: A PICTURE OF NATURAL AND MAN-MADE CONSTRAINTS TO LAND PLANNING.

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INTRODUCTION

The GeoAnthropic map of Catalonia is a new geothematic map series at 1:25000 scale performed by the Geological Institute of Catalonia (IGC). This new series is a complement of the 1:25000 scale geological map, providing data of the current geomorphic processes and the man-made activities that transform the territory. Data portrayed in this map series will be useful for land planning and hazard assessment. GeoAnthropic is an acronym meaning active geomorphic processes and anthropic activity.

The project commenced in the year 2007 and is planned to be finished by the year 2023. The whole land of Catalonia will be covered by this series, totalizing an area of 32144 km^2 to be mapped in 16 years (Fig. 1).

Figure 1 – Map of Catalonia showing the progress of the GeoAntrhopic map (coloured areas).The grid is the 1:25000 topographic sheet distribution. Solid lines are the county borders.

The GeoAnthropic map series will be published according to the 1:25000 topographic grid of Catalonia (304 sheets). A database related to this map series is currently under construction.

At present, three preliminary sheets are completed, and works in 13 sheets are in progress.

MAP CONTENTS

The 1:25000 GeoAntropic map of Catalonia and its related database has to fulfill the following items:

- Active geomorphic processes inventory.
- Geotechnical and geochemical properties of problematic soils.
- Active geomorphic processes map.
- Anthropic artifacts map
- Regolith and residuals soils map.

AIMS OF THE GEOANTHROPIC MAP

The GeoAnthropic map is though to be a complement of the general geological map and provide data for hazard assessment.

The main goals of this geothematic map are to map the active geomorphic processes occurring in the territory (landslides, badlands areas, etc), and depict the man-made or anthropic works (infillings, road cuttings, etc) that have reshaped the landscape (Fig. 2 and 3).

Reclassify the bedrock geology is also an important task to do in this map series. The lithological units portrayed in the general geological map will be grouped according their geotechnical properties. The reason to do that is to know the areas made up of problematic soils such as shrinking and swelling clays, dispersible soils and collapsible soils.

Regolith and residual soils mapping is a further goal to achieve in this series. Weathering fronts are not generally depicted in geological maps. Mapping weathered rock types is important because the mechanical and chemical properties of weathered rocks are totally different from the properties of the parent rock from which they form.

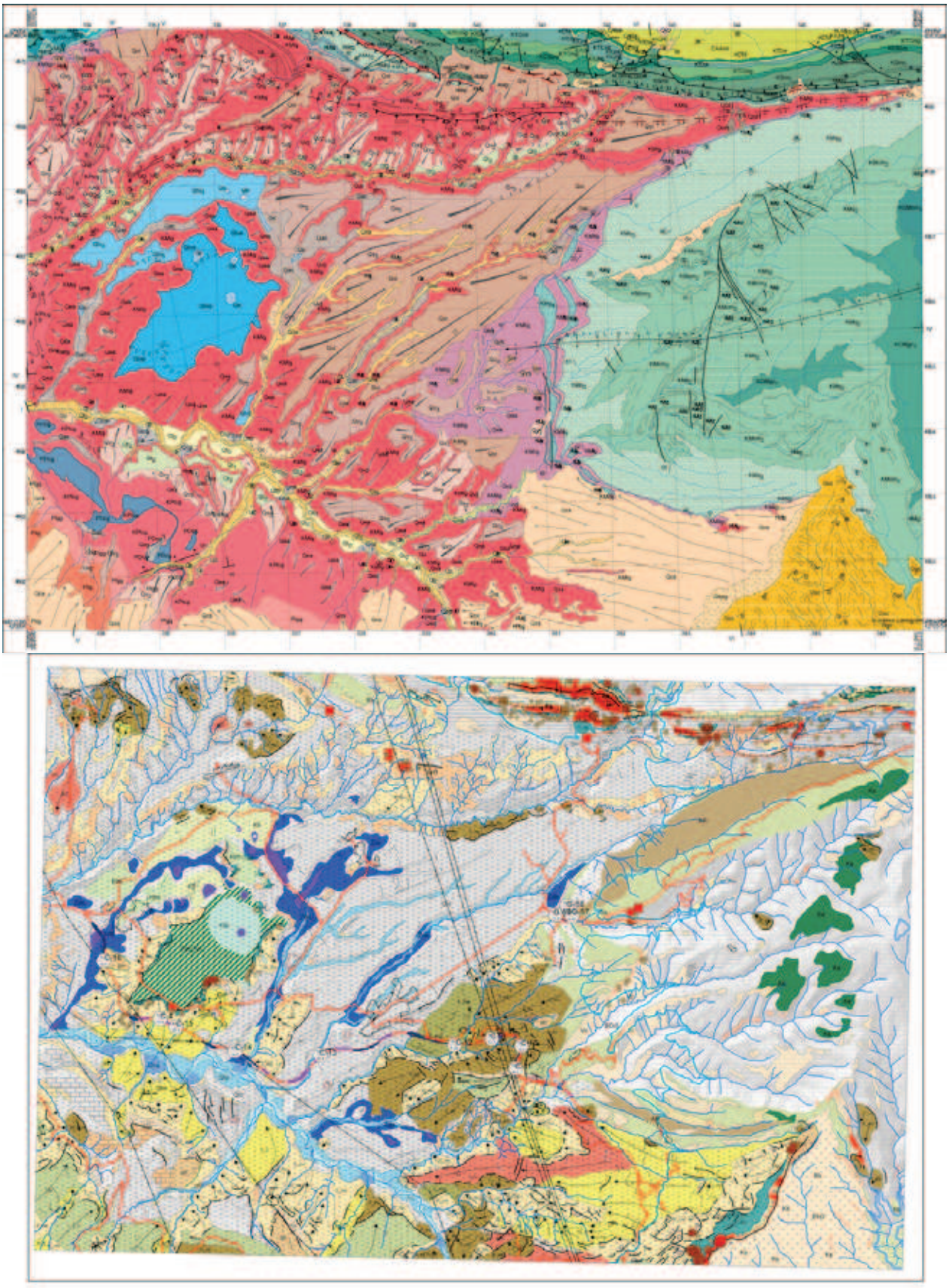

Figure 2 – The upper map is the regular geological map at 1:25000 scale of Isona (sheet 66-23). The lower map is the GeoAntropic map of the same area. Both maps are complementary. The geological map depicts the bedrock geology that makes up the territory. The GeoAnthropic map, instead, portrays the active geomorphic processes occurring in the territory and the man-made artifacts that have reshaped the natural landscape.

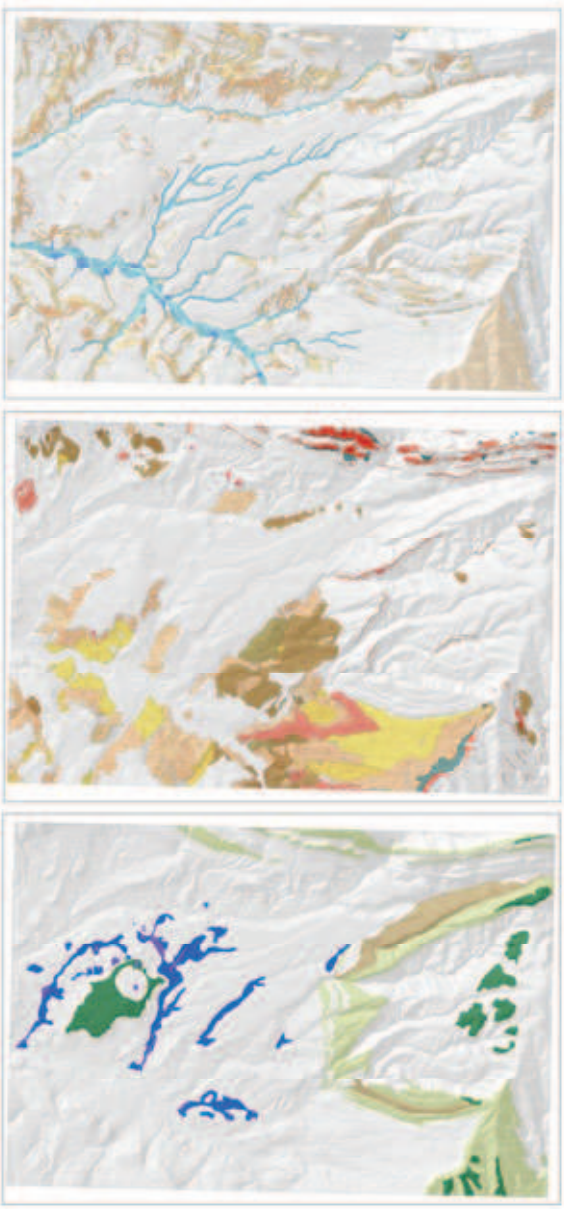

Figure 3 – Active geomorphic processes occurring in one of the preliminary completed sheets (sheet 66-23, Isona). The upper map shows the areas affected by fluvial processes and erosion. The map of the middle portrays active landslides. The lower map depicts current karstic phenomena.

BENEFITS TO SOCIETY

Mapping and realizing the inventory of the active geomorphic processes of the whole territory is essential for land planning and hazard assessment.

Recognizing and mapping man-made artifacts, such as infillings, road cuttings and embankments it is also of crucial value, because they may trigger or reactivate dormant landslides, or cause erosion or unexpected floods.

Identifying areas where problematic soils occur (expansive, dispersive or collapsible soils) is also critical for hazard assessment. Shrinking and swelling clays, dispersive and collapsible soils can cause damage to homes.

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