

# TOWARDS A GEOSCIENTIFIC INFORMATION SYSTEM FOR ARCHIVING COLLIERY DATA

Roland DREESEN<sup>1</sup>

1. VITO, Raw materials Centre of Expertise, Boeretang 200, B-2400 Mol

In 1996 the «Information Centre on Underground Energy Resources» was founded within the former Energy Department of VITO. Soon after, this Centre became integrated within the newly created Raw Materials Centre of Expertise. The Information Centre was originally launched on the base of a specific need of the Flemish Government: to preserve the invaluable geological information related to the former underground coal mining activities. Indeed, due to the decline of the coal industry and the subsequent closure of the mines, data such as reserves and resource estimates and associated mining maps, were at risk of careless handling and disappearance. The preservation of this geological information is vital to the improvement of the efficiency and cost-effectiveness of all further economic and ecological activities related to coal-bearing formations. Flanders' deep subsurface still has very important mineable coal reserves, which are estimated at at least 5 billions of tons. Examples of alternative valorisation of coal-bearing strata and subsurface structures include: underground gasification of coal, extraction of methane gas from unmined coal seams (coalbed methane), storage of greenhouse gases (CO<sub>2</sub>) in unmineable coal seams (so-called geological sequestration) and the reuse of abandoned underground infrastructures for the storage of waste products. The first objective of the Information Centre was the rescue of the coal mining geological data: in 1997 all of the original coal mining and geological archives were transferred from the former collieries to VITO and stored into a safe and appropriate location. The physical preservation of the coal mining archives is now guaranteed. Next, important and relevant data such as mining maps and borehole descriptions had to be archived and inventoried first before their processing into new and user's friendly information systems. The development and implementation of the latter geo-information systems is still in progress, but some applications are already operational. «GEKKO» (GEologie Kernboringen Kempische Ondergrond) is a new user's friendly database / information retrieval system for the storage and management of all geological information on coal-bearing rocks derived from detailed hand-written descriptions of borehole cores. «RAM « (Raadplegingssysteem voor Mijnkaarten) is a new GIS (Geographical Information System) application for the visualisation of the geographical spread of the inventoried mining maps (over 5000 specimens) and for the analysis of related tabular data. The latter include: the location of the maps in the collec-

tion, geographical co-ordinates, strati-graphical coal seam characteristics, colliery name, map and sheet number, year of exploitation, etc.). Moreover, the GEKKO-database can also be applied to descriptions of borehole cores from neighbouring countries as well, where Westphalian coal-bearing strata have been investigated. Prior to the development of the database, an inventory and subsequent selection has been made of all relevant geological parameters (including abbreviations and symbols) used for the description of the cores (hand-written descriptions in the so-called «carnets de débitage» or «doorkloppingsverslagen»). The local or private terminology (e.g. descriptions of lithologies, sedimentary structures, ichnofossils, etc.) in use at the Campine collieries, had to be «translated» first and grouped into a standard geological glossary.

The RAM-information system can be extended depending on future applications. Indeed, digitised geographical information can be added, such as: information on faults, data on the thickness and composition of individual coal seams, chemical analytical data, location of galleries and stonedrifts, location of boreholes and that of mined panels).

## AN ACTIVE CALCAREOUS TUSA IN THE MOMBEEK VALLEY, ZAMMELEN NATURE RESERVE (HASPENGOUW, SOUTH LIMBURG)

Roland DREESEN<sup>1</sup> & An JANSSEN<sup>2</sup>

1. VITO, Raw materials Centre of Expertise, Boeretang 200, B-2400 Mol

2. K.U.Leuven, Afdeling Fysico-chemische Geologie, Celestijnenlaan 200C, B-3001 Heverlee

Although post-glacial (Holocene) calcareous tufas are well known, especially from the Condruz and Gaume regions in Belgium, active calcareous tufas are less frequent and even exceptional in Flanders. A calcareous tufa actually forms in the Mombeek valley, Zammelen nature reserve, South of Hasselt (South Limburg). This carbonate deposit results from the precipitation of calcite out of seepages along the 60-m contour line at the foot of the steep eastern flank of the asymmetrical Mombeek valley. The seepages generated a local swamp at the border of which thin calcareous crusts develop. The presence of the carbonate-precipitating seepage's is possibly related to the occurrence of a fault affecting the calcareous Heers (Late Palaeocene Gelinden marls) and Maastricht Formations (Late Cretaceous calcarenites). Both formations occur at shallow depths below a thin colluvium cover in the Mombeek valley.

Optical and scanning electron microscopic analysis point to a rather passive encrustation of mosses, higher plant fragments and mollusc shells, as well as to an