



## **Karst and regional planning and management in the Walloon Region (Belgium)**

**J.-C. Schyns** (1), C. Ek (2) and A. Ozer (1)

(1) Laboratory of Geomorphology and Remote sensing, Department of Geography, University of Liège, Belgium, (2) Department of Geography, University of Liège, Belgium  
(jcschyns@ulg.ac.be)

In 1997, the concept of physical constraint in regional planning was integrated to the legislation of the Walloon Region (Belgium). Then after, it was decided to study and to map the karst features because the bedrock is made up to 30% by limestone and also because the urban pressure is very important. Today, karst features existing on the whole Walloon Region, except for a part of the forests, have been charted. Where karstic phenomena could be dangerous for human constructions, zones of constraint are defined by the teams of the University of Liège, the Polytechnic Faculty of Mons and the Commission Wallonne d'Etude et de Protection des Sites Souterrains which are in charge of the study.

The cartography of the karst features and constraints related to these phenomena is based on the informations collected in the Atlas of Walloon Karst, on a selective bibliography and on missions on the field. Outcrops of carbonate rocks, faults and supposed or recognized underground streams are also mapped.

According to the nature of the phenomenon (swallowhole, doline, cave, etc.), the topography (dry valley, blind valley, limestone plateau), the importance of the phenomenon (small doline, large swallowhole, etc.) and density of these (isolated cavity or fields of dolines), we define, if necessary, a moderate or strong constraint zone. A moderate constraint zone implies some karstic hazards and requests thus a geophysical study before any permit to be delivered. The strong constraint zone is defined where the karstic activity is important and comparatively dangerous and implies an interdiction to construct. Examples of maps of karstic constraints will be presented.