

In **Germany**, in the western Eifel, the identification of aeolian sediments accumulated in the bottom of extinct craters contributed to the revision of the age of certain volcanoes in the direction of ageing them beyond the last period of periglacial loess deposits (JUVIGNE *et al.*, 1988). In loess sections from the Vorspessart, the most distal tephra from volcanoes of the eastern Eifel were described; they date back to the Middle Pleistocene (JUVIGNE *et al.*, 1994)

In **Central Europe** we have laid the foundations of the lobe of a tephra of the early to middle Pleistocene (Bag Tephra) which is one of the most extensive known in Europe (JUVIGNE *et al.*, 1991).

In **Colombia**, the determination of mafic phenocrysts from about 150 layers of tephra in the Ruiz-Tolima massif has contributed to the establishment of correlations which have led to the identification of 57 district volcanic fall-outs during the Late Glacial and the Holocene (THOURET *et al.*, 1992).

E. JUVIGNE

21. GEOMORPHOLOGICAL MAPPING AND SURVEY

The 1990s sees the publication of an excellent and comprehensive book on the geomorphology of the Ardenne and including the Palaeozoic region of South-Belgium, extending into France, comprising the Oesling in Luxembourg, and a part of the Eifel in Germany. The book is entitled "L'Ardenne-Essai de Géographie physique - Hommage au Professeur A. Pissart" (éd. DEMOULIN, 1995) and has been written by most of the geomorphologists attached to the University of Liège. Every subject is approached: structural geomorphology, neotectonics, periglacial, tertiary weathering, hydrographic network, terraces, karst, hydrology,...

In addition, work on the geomorphological cartography of Belgium continues to be coordinated by the National Centre of Geomorphological Research (Nationaal Centrum voor Geomorfologisch Onderzoek - Centre National de Recherches Géomorphologiques). This study is mostly realised by the universities of Gent and Liège.

Most of the contributions to geomorphological cartography are regrouped in the NCGR reports (1983-1995). Two new maps dedicated to littoral areas have been published by the University of Gent at the 1:50.000 scale: Maps of Oostende (DE MOOR *et al.*, 1993) and Lokeren (DE MOOR en HEYSE, 1993). Their authors have also published many papers concerning mapping of the maritime plain and of the "Flemish valley" (DE MOOR, 1989; HEYSE, 1985 a et b, 1986 et 1987; HEYSE en DE MOOR, 1986).

Research on the morphology of alluvial plain of Flanders has also been pursued (VAN MAERCKE-GOTTIGNY, 1990).

Concerning the Walloon part of Belgium, GIROLIMETTO drew up the geomorphological map of Spa at a 1:50.000 scale and edited a very detailed guide-book (1990).

In West Wallonia, FOURNEAU (1985, 1987 a, b et c, 1995) continued his research into geomorphological cartography, completing a remarkable synthesis (1993).

Finally, in the context of the Atlas of Wallonia, we have to note the first relief map of Wallonia. Edited at the 1:300.000 scale, it is the base for many studies in regional survey (OZER, 1982).

A. OZER

22. GEOMORPHOLOGY AND REMOTE SENSING

The contribution of aerial photos to Earth Sciences does not have to be demonstrated anymore. However, the whole richness in information of those documents has not been discovered yet. As a matter of fact, when aerial photos correspond to particular climatic conditions as, for example, after a long period of drought, the geological structure can appear clearly. In this manner, in the Namurois, dome structures have been highlighted thanks to the vegetative stress which underlined the alternation of shale and sandstone (A. OZER & C. JACQUES, 1985).

In order to facilitate research on different aerial photos covering the Walloon Region territory, an inventory has been realised (A. OZER & B. DETRY, 1986). It constitutes an essential tool for temporal geomorphological research as well as for territorial planning.

At the instigation of the "Réseau de Télédétection" of the AUPELF-UREF the Laboratory of Geomorphology of the University of Liège turned towards satellite remote sensing. During its creation in Sherbrooke, A. OZER (1989) has underlined the contribution and the importance of satellite data in geological, geomorphological and hydrological research.

The Laboratory of Geomorphology of the University of Liège then turned towards the study of desertification in the sahelian area of Niger, first by photogeomorphology (KARIMOUNE *et al.*, 1990) and then by a SPOT image analysis (KARIMOUNE *et al.*, 1993 a & b). By digitization, 1958 and 1974 aerial photos have been compared with a 1987 SPOT image and this has made possible a diachronic study. Using this technique, the parallelism between vegetal cover reduction and the deflation zones increase has been proved.

Previously, the treatment of SPOT images by different filters permitted the highlighting of some lineament structures in the eastern Condroz (A.