

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).

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## 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 AUELF-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 Condruz (A.

OZER *et al.*, 1988; S. LUCA *et al.*, 1988) which allowed us, in several cases, to give a precise definition of the line of some faults, to prolong others and to propose new ones.

Use of the LANDSAT TM satellite data has permitted a new approach to north-east Zaire's geology and has afforded a better understanding of the Rift tectonic (M. MBULUYO *et al.*, 1993) as well as the Auel depression in Belgium (L. WILLEMS *et al.*, 1993). In this last case, the satellite imagery associated with a DTM has permitted us to underline morphological elements until then hardly noticeable.

Subsequently, the ERS1 satellite-furnished SAR images have permitted us to extend the application field to areas with permanent cloud cover as in Ecuador where the locating of active faults in the Andes has been made possible (Y. CORNET and P. OZER, 1995; A. OZER *et al.*, 1995; P. OZER *et al.*, 1994 a & b).

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## 23. PREHISTORY

As in the past, Belgian geographers have shown a rather limited interest in prehistory and archaeology. Only few researchers were active in this field during the last decade. Their primary concern was the stratigraphic position of several prehistoric cultures and the reconstruction of palaeoenvironments. Exceptionally, they were also involved in prehistoric research itself.

Works on the geomorphology of Middle Palaeolithic open air sites at Aalter (HEYSE, 1994), the stratigraphy and the palaeoenvironment of a Middle Pleistocene cave site at Sprimont (CORDY *et al.*, 1992, 1993) and an open air site at Biache-Saint-Vaast in France (TUFFREAU and SOMME 1988) have been published. Two other Middle Palaeolithic sites, at Vollezele-Congoberg in a gully fill (VYNCKIER *et al.* 1985, 1986 and 1988) and at Kesselt in a loess profile have been excavated (VERMEERSCH 1992).

No Early Upper Palaeolithic sites have been discovered so no research may be reported. Some Magdalenian sites from caves have been excavated. Their stratigraphy gave possibilities for quaternary studies of their deposits (TOUSSAINT *et al.*, 1963), whereas other Magdalenian sites were buried in the top of loess deposits, but unfortunately they have been found in the present soil horizons (VERMEERSCH, 1992; VERMEERSCH *et al.*, 1983, 1985, 1987, 1988). During this decade there has been a serious advance in <sup>14</sup>C-dating and TL-dating (VERMEERSCH, 1991) of the Belgian Magdalenian from caves and open air sites, most of which can be correlated with the Bölling interstadial.

Progress in dating the Epipalaeolithic, and especially the Tjongerian, is still very restricted. Although some sites, such as Le Trou Jadot (TOUSSAINT