

MEUSE-RHINE EUREGION GEOLOGISTS MEETING IN LIEGE, MAY 24th, 1985

Chaired by F. DIMANCHE, Président de la Société géologique de Belgique

Organized by M. STREEL, Paleontology, University of Liège and M.J.M. BLESS, Natuurhistorisch Museum Maastricht

in cooperation with the "Société géologique de Belgique", Liège and Geofiles, Tervuren

LITHOGEOCHEMICAL INVESTIGATIONS IN THE OMOLON REGION (NE-USSR)

R. SWENNEN^{1,2}, M.J.M. BLESS³,
J. BOUCKAERT⁴, R. CONIL⁵, M. STREEL⁶,
N.V. SIMAKOV⁷ & W. VIAENE¹

- 1 Fysico-chemische Geologie, Celestijnenlaan 200 C, B-3030 Heverlee, Belgium.
- 2 Aspirant-NFWO
- 3 Natuurhistorisch Museum Maastricht, Bosquetplein, 6-7, NL 6211 K J Maastricht, the Netherlands.
- 4 Geologische Dienst van België, Jennerstraat, 13, B-1040 Brussel, Belgium.
- 5 Laboratoire de Paléontologie, place Louis Pasteur, 3, B-1348 Louvain-la-Neuve, Belgium.
- 6 Université de Liège, Paléobotanique et Paléopalynologie, place du Vingt-Août, 7, B-4000 Liège, Belgium.
7. SVKN II, Ul. Portovaja 16, 695005 Pagadan, USSR.

A detailed sedimentpetrographic research of the Upper Famennian and Tournaisian carbonate deposits of the Omolon region (NE-USSR) enabled us to refine the palinspastic evolution model as proposed by Simakov *et al.*, 1983. Concomitant with this research a lithogeochemical study was carried out involving over 180 representative samples. The following elements were analyzed: Mg, Sr, Na, Zn, Pb, Fe, Mn, K and IR (insoluble residu). Different types of anomalies were found:

- a) anomalies with a local character. These anomalies, which occur in the Perevalny valley (Oder and Nizhnenaled section) seem to be linked to faults. They are characterized only by anomalous Pb-concentrations; the other variables display normal values.
- b) anomalies which are related to hypersaline facies intervals. The host strata mainly consist of algal micrites and zebra-limestones. Furthermore semi-continuous layers of silicified anhydrite nodules occur. These anomalies are characterized by very high Sr concentrations. Furthermore high Zn, Na and Pb values occur.
- c) an important strata-bound anomaly is present near the Famennian-Tournaisian boundary. It was recognized in three sub-regions namely in Elergethkyn-, Perevalny- and Pushok area. In these sub-regions shallow marine carbonates are the host rocks. In the deep marine Uijagan strata this anomaly was not recognized. The anomaly is characterized by high to very high Zn and Mn values. Locally also high Pb concentrations occur. In detail however minor lithogeochemical discrepancies are present.

The recognition of such lithogeochemical anomalies is important. The first anomalies may indicate the neighbourhood of fault-related Pb mineralizations. The second anomalies may be a helpful tool in the characterization of hypersaline sequences. Furthermore, base metal anomalies within such sequences could give rise to proto-ore type deposits. The third anomaly may indicate the presence of a strata-bound Pb-Zn mineralization in the Omolon area. Concerning this anomaly the question still remains if this strata-bound type of anomaly may indicate a kind of event, since similar lithogeochemical features were found elsewhere at the same stratigraphical position.