The eclogites form small lensoid bodies within the Niemcza-Kamieniec-Zabkowicki-schist zone (NKZ, Fig. 1). They contain the primary mineral assemblage of garnet-omphacite-rutile. Retrogression to amphibolite-facies assemblage containing blue-green hornblende-plagioclase-(clinozoisite) is frequent. The country rocks include metapelites (which are now garnet-kyanite-mica schist) and meta-acidites: plagioclase-quartz gneisses with pseudomorphos of plagioclase + haematite after Na-pyroxene.

Preliminary data show the peak conditions for eclogite stage T = 600° - 650 °C and P in excess of 15 kbar. Geochemical analyses indicate that a protolith of the eclogite has probably P-MORB characteristics. There are some textural evidence for a possible gabbroic protolith rock. The eclogites and the country rocks which had been developed during HP deformation within the Saxothuringian Zone, were later reworked by thrusting connected with the stacking over the Moravo-Silesicum.

RESULTS OF THE MAGNETOTELLURIC AND AUDIOMAGNETOTELLURIC MEASUREMENTS ALONG THE MESSERN ARC

ADAM, A.[1], GUTDEUTSCH, R.[2] & ARIC, K.[2]

[1] Geodetical and Geophysical Research, Institute of the Hungarian Academy of Sciences, Sopron, Hungary
[2] Institut für Meteorologie und Geophysik, Universität Wien, Österreich

At the endpoints of the seismic profile "Messern-Rothweinsdorf" deep magnetotelluric (MT) soundings and along the profile audiomagnetotelluric (AMT) soundings have been carried out at 12 sites. Their first goal has been to study the distribution of the electric resistivity of the different rocks and secondly to search for correlation between the resistivity and seismic reflectivity values. The combined AMT and MT measurements (with periods from 3000 s to 1/2300 s) show in Messern a definite resistivity decrease (inversion) to 2 - 25 Ωm at a depth of 1300 m. This inversion may hint a lower boundary horizon of the Bittescher Gneis (400 - 3000 Ωm) outcropping here. The very low resistivity values (inversion) are certainly caused by pyrite or graphite bearing phyllitic micaschists covering the Bittescher Gneis. These results are consistent with the seismic ones. The thickness of the well conducting zone has been estimated to some kms. Below, a resistive layer appears in the vertical resistivity section of Messern and it ends in a definite resistivity inversion with some Ωm at the depth of 130 km. In this depth range the top of the low resistivity asthenosphere is suspected.

At the western end of the profile (in Rothweinsdorf) the resistivity distribution is different. The conducting layer appears at the shallower depth of 300 - 400 m. The resistive half space with some thousands Ωm begins from 2 - 2.5 km. The

deeper part of the vertical section is strongly shielded here by the near-surface conductive formations. As only two deep MT soundings have been carried out in this very heterogeneous region, the results should be considered preliminary.

According to the AMT soundings (between 4.1 and 2300 Hz 12 frequencies) in about the middle of the seismic profile a very conducting formation (0.1 - 3.6 Ωm) crops out along a shear zone and sinks to about 500 m at the western end of the profile where the resistive granulite (300 - 3000 Ωm) lies on the surface. According to the geologic mapping the so-called "Bunte-Serie" contains graphitic lenses (in some cases with pyrite) with extremely low resistivity values.

The resistivity values with their wide variety along the seismic profile from East to West may be connected - with some caution - to different rocks, such as granulite, rocks of the "Bunte-Serie", Bittescher Gneis and phyllitic mica schist.

ISOTOPIC "GOLDEN SPIKES" IN STRUCTURAL SUCCESSONS IN THE BOHEMIAN MASSIF, CZECH REPUBLIC

AFTALION, M.[1], BOWES, D.R.[2] & KOŠLER, J.[3]

[1] Scottish Universities Research and Reactor, East Kilbride, Scotland
[2] Department of Geology and Applied Geology, University of Glasgow, Scotland
[3] Department of Geochemistry and Mineralogy, Charles University, Prague, Czech Republic

Determination of reference points in the multi-episodic history of the Bohemian Massif is dependent on (1) establishing which isotopic data can be integrated, without ambiguity, into structural successions that constrain the relative times of crystallization of igneous bodies and development of metamorphic mineral growths and (2) using the local structural successions as bases for correlation within and discrimination between tectonic domains. In this way the equivalents of "golden spikes" used in the stratigraphy of sedimentary domains can be put into the deformational - metamorphic - igneous - sequences. However as at least two, and usually more, phases of metamorphism are present in these sequences, interpretation of Rb-Sr as well as K-Ar isotopic data presents problems and, except for the products of late events where metamorphic overprinting is not a factor, unambiguous interpretation is the exception. It is U-Pb data, particularly for zircon and monazite, that has proved to be the most useful but not only is it limited in amount, it also requires integration with the relevant structural succession(s). In practise this has meant that establishing "golden spikes" has followed where collecting for age dating has been governed by geological - structural constraints.

The upper intercept 496 ± 1 Ma U-Pb zircon age for a gabbro pegmatite in the Mariánské Lázně complex in western Bohemia (BOWES & AFTALION, 1991) is integrated into the deformational sequence for the Mariánské Lázně tectonic