AMS Fabric differences in relation to ramp within Ordovician rocks, Barrandian, Czech Republic

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The focus of this paper is the study of the anisotropy of magnetic susceptibility (AMS) in relation to a ramp fault. Field data and specimens were processed for AMS measuring and were archived. The principal directions of magnetic susceptibilities were measured by kappabridge. Magnetic fabrics in the majority of the Ordovician sediments are controlled mainly by paramagnetic minerals (Černý, 2010).

Ordovician sedimentary rocks are situated in central Bohemia specifically in the Prague Synform. The synform is situated between the cities of Prague and Pilsen. In-between was a locality with outcrop of an important ramp fault which is situated in the Zahořany Formation. The hanging-wall block as well as footwall were sampled in order to analyze the relationship of the principal directions of AMS to bedding and the ramp fault. The collected and evaluated samples from the hanging wall show a maximal susceptibility direction parallel to the dip of the bedding plane (Fig. 1). Results from the hanging wall were obtained from the samples which were collected in an extensional zone and maximum susceptibility direction may be interpreted as the direction of tectonic transport, e.g. in NW–SE direction, while data from the foot wall show a maximal susceptibility direction parallel to bedding strike (Fig. 1). Results from the foot wall were obtained from the samples which were collected in a compressional zone and therefore maximum susceptibility direction is perpendicular to the tectonic direction transport. As this ramp fault is situated in the Zahořany Fm., the main detachment must be situated in some lower formation. Melichar (2003) previously described a potential detachment horizon in the Ordovician rocks as either the Bohdalec or the Králův Dvůr formations but not any other detachment under the Zahořany Fm. In terms of clay particles amount, the best horizon for detachment is the Šárka Formation. If we consider amount of aleuritic particles in clay rocks, the best candidates are Libeň or Dobrotivá Formation and in case of disintegration the layer with best potential is the Letná Formation. This means that there were four possible candidates for a detachment horizon. Further studies will be focused on finding of main detachment bellow Zahořany Formation especially.

References

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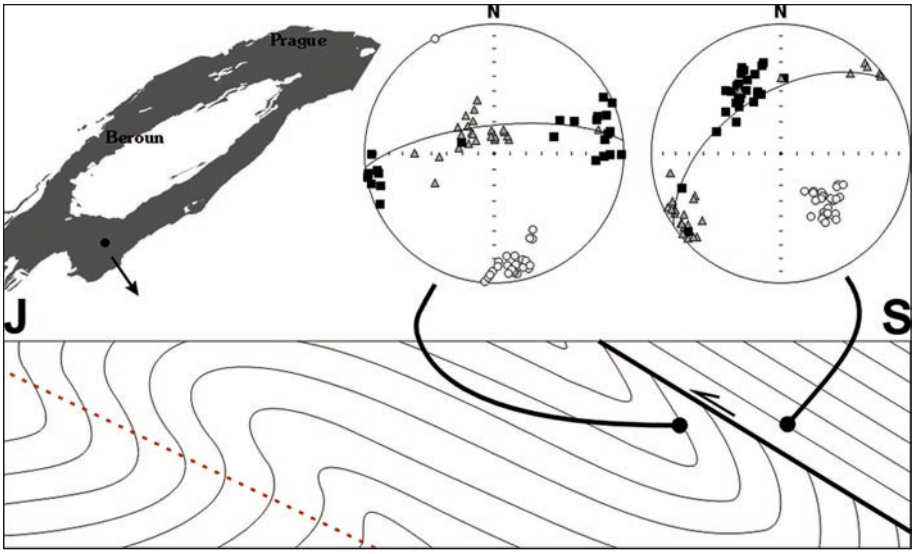

Fig. 1. AMS fabrics in the hanging and foot walls of the ramp fault, 1 km to NW from Skřípel village, for explanation see text.