Rodl-Kaplice fault system – northern part - Rudolfov fault

Structure ID: RUD
Fault Section IDs: RUD_01 to RUD_02
Related terms: rudolfovský zlom (in Czech)
Editor: Ivan Prachař

General description

Rudolfov fault is one of the very significant "N-S" faults, which belongs to the fault system of the Kourim-Blanice-Rodl-Kaplice Large-scale Fault System. This ca. 250 km long, approximately NNE-SSW (and partly NNE-SSW) trending large-scale fault system extends from the Kouřim Furrow in the North, following the Blanice Furrow, crossing the basins of Třeboň and České Budějovice via Kaplice (CZ) and the valley of the Große Rodl to Gramastetten (A) and the basin of Eferding, where it is partly covered by Miocene sediments, but continues into the basin subsurface (see http://resource.geolba.ac.at/structure/182).

The course of the Rudolfov fault is characterized by the fact that it forms the eastern edge of the Budějovická Basin (see the Raster geological map 1 : 50 000, Czech Geological Survey - sheet 32-22 České Budějovice). In geological maps this fault is plotted along the surface boundary of the basin. According to the assumption of Prachař (2012) this applies only partially, at the southern part of the fault between the villages of Roudné and Plav. In the north, the fault is not curved, as shown by geological maps, but runs straight in the direction of NNE-SW, inside the basin.

According to interpretation of PRACHAŘ (2012), the crossing of Blanice faults system and fault zone of the Hluboká fault is separated into many blocks and tectonic slices with various level of the sedimentary formation basements. This complicated structure is a result of inverse movements on both faults system, some of them have character of the ramps - up thrusts with steep dip of the thrust plane.

When these tectonic blocks are mapped, it is very useful to monitor the positions of the Permo-Carboniferous blocks. Geological maps show the stepped displacement of blocks and slices of Permo-carboniferous towards the east when i tis observed from north to south. In the area of Červený vrch it is possible to observe the surface occurrence of Permo-carboniferous, which is limited by fsection DRA_01P in the east. As the occurrence of Permo-carboniferous located under Cretaceous sediments was proven in the vicinity of the village of Nové Vráto (see drill NVr-1 /MALECHA, 1994/ and shaft »Jáma II«, which mined anthracite /see Geofond register of mines), it is possible, by analogy to northern block, to limit this block by faults in both west and east. We assume that this role has fsection RUD_2 in the east. The western limit of this block must be given some fsection of the Drahotěšice fault (DRA_01). Furthermore, we assume that the edge of Cretaceous sedimentation has a transgressive character, and thus that fsection RUD_02P does not represent a fault.

Further to the south, between the villages of Roudné and Plav, the trace of the Rudolfov fault coincides with the edge of the basin.

Fault structure and dip

The angle of dip of the fault plane is assumed to be very steep with direction generally to the west. More detailed data aren't available.

Cross structures and Segmentation

Apart from the transverse faults, which segment the eastern edge of the Budějovice Basin, the Rudolfov fault runs intact along the eastern edge of the basin from Vráto in the north to Straňany in the south. Segmentation of the fault, as shown by geological maps, was not confirmed, for example, by the work of PRACHAŘ (2012).

Scarp morphology

The eastern edge of the České Budějovice Basin is very distinctive in terms of morphology (See Figure 1).

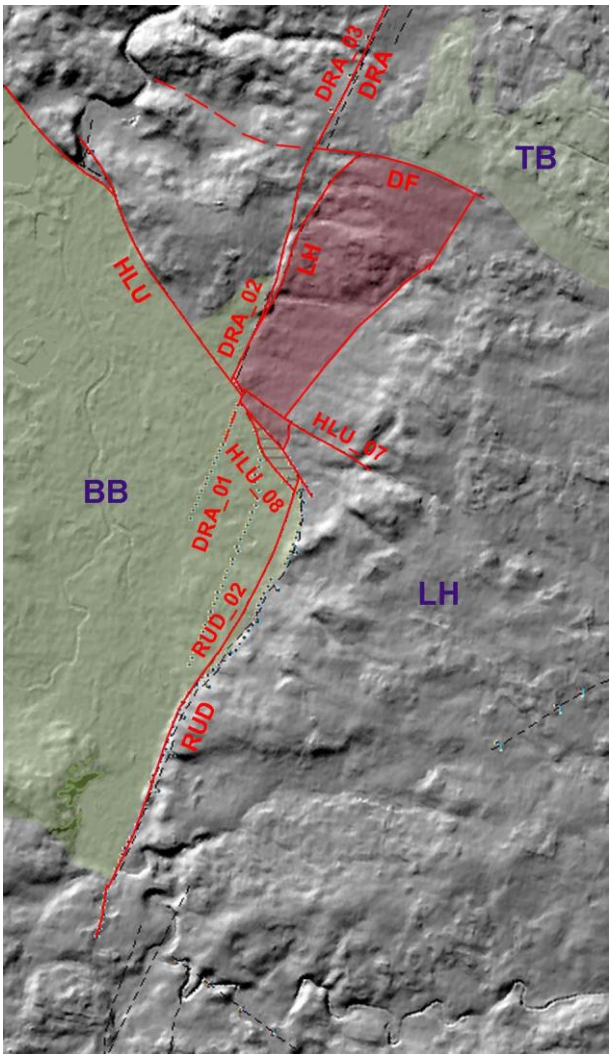

Figure 1: Significant morphological slope on the eastern edge of the České Budějovice Basin with marked major faults and their Fsections: HLU – Hluboká fault; DRA – Drahotěšice fault; RUD – Rudolfov fault; LH – Lhotice fault; DF - Dobřejovice fault. Geological units: TB – Třeboň Basin, BB - Budějovice Basin; LH – Lišov horst. Green colour – Cretaceous basins; Red-brown – Permo-carboniferous; Green with red-brown lines – Permo-carboniferous covered by Cretaceous.

Seismicity

No earthquake epicenters were recorded in the fault zone.

Pre-Miocene evolution

A long-lasting and multiphase deformation history can be assumed at the Rudolfov fault, among other during the Permian and Cretaceous Era. See description of the Rodl fault.

Fault activity in late Cenozoic

Miocene or post-Miocene activity of this fault has not been proven.

Related local evidence

They are not yet processed.

References

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