the interplay between tectonics and sedimentation in the Cheb Basin area between the Late Oligocene and Late Pliocene times.

The sedimentary fill of the Cheb Basin was affected by two main depositional episodes during this time interval. The first significant episode (c. 26–21.2 Ma) coincides with the deposition of Late Oligocene–Early Miocene clastics in the whole extensional system of the Ohře Rift. During this period, the evolution of the whole Ohře Graben was driven by approximately N–S, or NNE–SSW extension, which caused development of a system of c. E–W-striking normal faults, arranged in an en-echelon pattern throughout the whole graben. This pattern, typical of oblique rifting (e.g., McClay and White 1995) led to formation of a number of E–W-elongated depocentres within the whole Ohře Graben, as well as within the Cheb Basin proper. However, the most prominent structural feature of the Cheb Basin area at that time was a palaeohigh caused by a NW-trending, transfer/accommodation zone (the Dřenice Ridge), separating several minor depocentres. The NNW-striking Eastern Border Fault Zone (EBFZ), northern limb of the Mariánské Lázně Fault Zone, was inactive at that time. The interpreted palaeostress direction is in partial agreement with Adamovič and Coubal (1999) who inferred a N–S extension for the northern part of the Ohře Graben. Similar palaeostress orientation was interpreted by Peterek et al. (1997) from the area of the Franconian Fault Zone.

Preservation of the Early–Middle Miocene Cypris Formation, deposited between c. 21 and 16.8 Ma after a basinwide flooding event (possibly an increase in subsidence rate), is strongly affected by Late Miocene/Early Pliocene uplift and erosion, between c. 16 and 5 Ma. Isopachs of the Cypris Fm. do not reflect the actual geometry of the depocentres at time of deposition. Instead, preservation of most of the thickness of the Cypris Fm. is due to post-Cypris faulting, showing the same style as the Pliocene syn-depositional deformation, and probably immediately preceding the onset of the Pliocene deposition.

The second major depositional episode, of Late Pliocene age, occurred under a very different kinematic regime than the Oligo–Miocene phase of rift basin evolution. During the deposition of the Vildštejn Fm. (c. 4.5–1.5 Ma), the Cheb Basin adopted its present-day structural characteristics, as a NNW-elongated depression, characterized by a pronounced depocentre along the Eastern Border Fault Zone. We interpret the present-day structure of the Cheb Basin and the Cheb–Domažlice Graben as a consequence of sinistral displacement on the Mariánské Lázně Fault Zone (MLFZ). Reactivation of this strike-slip fault zone led to the formation of a terminal horsetail splay of oblique-extensional faults at the northern termination of the MLFZ, which contained the present-day Cheb Basin. The Cheb–Domažlice Graben formed during the same time along the MLFZ, as indicated by a number of left-stepping oversteps, as well as by a major left-stepping bend west of Mariánské Lázně, interpreted as a hard link of a former overstep of the MLFZ. A number of NW-striking faults, which show a degree of curvature towards the W, are interpreted as synthetic shears to the MLFZ. We interpret the palaeostress field that controlled the Late Pliocene strike-slip regime as dominated by NE- to NNE-oriented extension.

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Gravity Maps of the NW Bohemia

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The area of NW Bohemia is almost completely covered by gravity survey 1:25,000 – with areal density of 4 gravity stations per sq km. This fact allows to construct relatively datailed gravity images in order to reveal information about geological structure of the study area..

Absolute gravity system S-Gr-95, altitude system Balt and geodetic system WGS84 were used when calculating Bouguer gravity anomalies. Subsequently, the presented gravity images were generated from 250 m regular digital grid. Gridding of randomly distributed gravity stations, as well as the final map layout of the images, were made by Geosoft software package using map projection UTM (System S-42).

The relief of gravity anomaly field reflects density distribution within the upper part of the Earth's crust up to 10 or even 15 km. Density contrasts, connected with the changes in rock composition, are reflected by distinct gravity anomalies. Negative anomalies are caused by granitic massifs and/or by sedimentary fill of basins. Positive gravity anomalies are generally linked with crystalline complexes lacking granitic bodies and migmatitization, but most of all they indicate the existence of basic massifs and separate basic and ultrabasic bodies of amphibolites, peridotites, skarns etc. Combining gravity images and geological maps, the anomalies in gravity field can help us to extrapolate the extent and subsurface continuation of thee main geological units in the study area.

The presented gravity maps were constructed for the Czech Geological Survey in the period of 1997–1998, when solving research project related to the evolution of the Earth's crust in West Bohemia during the Proterozoic and Paleozoic (Šrámek et al. 1999).

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