

Ice and frost wedges are a geomorphological phenomenon which is directly related to periglacial environment and permafrost (Murton, 2007). The presence of permafrost in the territory of the Czech Republic in the Pleistocene period is directly proven by polygonal nets of ice and frost wedge pseudomorphs, which are clearly visible in some remote sensing images. Among others, they can also be used as indicators of paleoenvironmental conditions for the period in which their recent forms originated and developed and for the period of their secondary infilling (Sekyra, 1958).

The present thesis focuses on the spatial distribution and morphology of polygonal nets of ice and frost wedge pseudomorphs which were created in the territory of the Czech Republic at the end of Pleistocene and the beginning of Holocene. The analysis of the spatial distribution of polygonal nets was carried out with freely available remote sensing images provided by the GoogleEarth Pro application (Google Inc., 2011). The number of locations with a potential presence of pseudomorphs was 629. Out of these, 49 were subjected to a morphometric analysis of polygonal nets and their corresponding landscape.

Statistical data analysis showed that the described polygonal nets of ice and frost wedge pseudomorphs in the territory of the Czech Republic are usually found within unconsolidated sand and gravel sediments of river terraces from the Pliocene and Pleistocene periods. In terms of landscape morphometry, they are usually found at altitudes below 450 m a.s.l. and in concave parts of slopes with a 5° angle. Based on the number of identified polygonal nets, two main areas of their concentration can be established: the Bohemian Cretaceous Basin and Moravian basins.

The variable size (diameter from 1.8 to 31.7 metres), shape of the polygons and number of pages (mostly pentagonal and hexagonal polygons with random elongation orientation) are closely intertwined with the different environmental conditions present in the territory of the Czech Republic in the Pleistocene period. The development of polygonal nets in the territory of the Czech Republic was mainly influenced by the morphometric and geological conditions of the area in which they can be found, the prevailing wind direction and their topographical location within the Czech Republic and Europe.