

# Paleozoic amalgamation of Central Europe – interactive modelling with GPlates software

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The Paleozoic history of Europe is still ambiguous for scientists. Despite of advanced progress in the geological, geochemical and geophysical research, a lot of discrepancies are present. The number of terranes, both of Gondwana and Baltica origin, which participated in amalgamation of Europe, is still unclear, similarly as their boundaries and evolution. In our model we reconstructed the trajectories of terranes for Paleozoic times. A special consideration was given to the region of Central Europe. As an input, we used the datasets developed by Golonka (e.g. Golonka, 2007, 2009), as well as the result of recent regional research (e.g. Pharaoh, 1999; Banka et al., 2002; Winchester, 2002; Occlon, 2006) to determine the origin, boundaries and the age of accretion of each terrane. Our model is emplaced on the background of global plate tectonic model, which is based on previous work of Golonka (e.g. Golonka, 2007, 2009). The GIS software (ArcGIS, QGIS) was used to create new polygons, which represent second-order tectonic features of Europe. We divided Armorican Terrane Assemblage into following units: Moldanubian, Saxothuringicum, Teplá-Barrandien, Drosedorf and Góry Sowie. The more eastern part of the Central Europe is represented by the Brunovistulicum Terrane and Małopolska Block (with Holy Cross Block included) and the southernmost region is covered by two large polygons: first represents proto-Alps and Italian terranes and second the Aegean and Pannonian zone of Europe. Also the Moesia and the Rhodopes Units were incorporated into our model (Fig. 1). The borders of terranes were generally based on Terrane

Map of Europe (Occlon, 2006) and maps published by Pharaoh (Pharaoh, 1999; Banka et al., 2002). Into the model of the tectonic evolution of Europe we used GPlates software developed by the EarthByte Group in Sydney, which gives an opportunity to work interactively with different data sets (e.g. geophysical, geological, raster data, vector graphics and many others). As a result we produced an animation of the plate tectonic setting for Paleozoic. To validate the obtained model, a basic test of the velocity distribution was conducted. The presented model is not complete, and will be a subject of further revision and refinements.

## References

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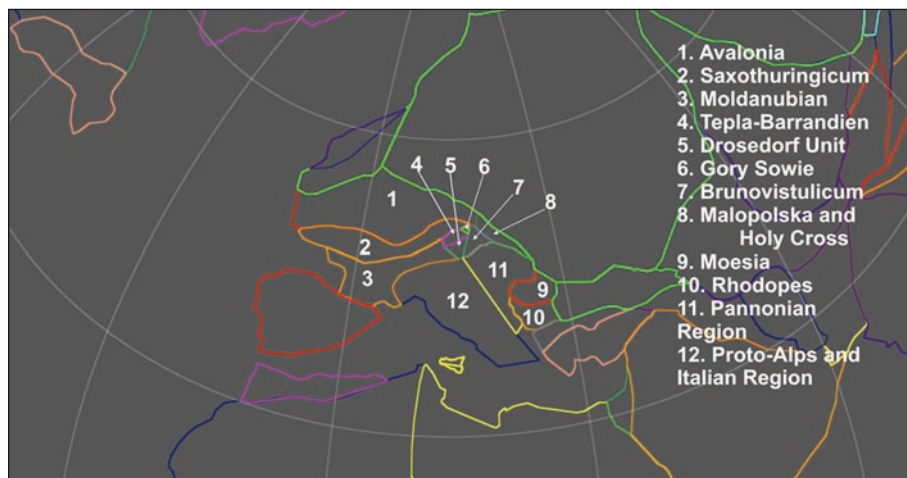


Fig. 1. Model of Paleozoic amalgamation of the Central Europe.