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Magnetic field interpretation of the Adriatic region

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A large scale magnetic anomaly occurs in the Adriatic region, between eastern Italy and the coast of Croatia. It represents the main magnetic contribution to the southern Europe magnetic field up to satellite altitudes. In this study we aim investigating the main magnetic properties of the Adriatic crust adopting different approaches in the analysis of aeromagnetic data and satellite model data. A multiscale analysis of the 1km-resolution aeromagnetic dataset was performed to retrieve the depths of the source associated to the complex structural setting of the upper crust. The estimated depths are used to build a model of the magnetic basement topography. The depth to the bottom magnetic crust is obtained by evaluating the Curie depth from spectral analysis of the aeromagnetic data. We have therefore calculated the magnetic effect of such crustal model by using the Parker's algorithm and found high similarity with the high-altitude Adriatic magnetic anomaly. In addition, we used the Curie-interpreted surface to perform satellite magnetic model data inversion by using the magnetic tesseroid algorithm by Baykiev et al. (2016). As result, we found the magnetic basement uplift as the main cause of the long-wavelength field above Adria.