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Structural boundaries delimitation from geomagnetic data using the horizontal gradient and the continuous wavelet transform.

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In this paper we have analyzed the aeromagnetic data using the 2D horizontal gradient technique combined with the 2D continuous wavelet transform (CWT). The objective is to delineate structural boundaries using the spatial distribution of maxima of modulus of the CWT of the horizontal gradient (HG). Application on synthetic model shows the robustness of this technique. The proposed idea has been applied at geomagnetic data of In Ouzzal area; it is located in the western of Hoggar (Algeria).
Obtained results are compared with geological map and horizontal gradient solutions. It shows that with this approach we are able to resolve the problem of noise effect on the horizontal gradient solutions. Our method shows a good precision where geological contacts are known.
Keywords: Aeromagnetic data, horizontal gradient, boundaries, CWT, maxima.