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A multi-scale study of airborne gamma ray measurements using bi dimensional empirical mode decomposition-a case study from Algeria

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The airborne Gamma Ray surveys aims at depicting radio element anomalies and understanding mineralizing system of the investigated area. This study presents a new approach to exploit the spectrometric data. It is based on the decomposition of the data into several sub-maps, components called intrinsic mode functions (IMFs) using the bi dimensional empirical mode decomposition method (2D EMD). Each component presents details at a specified scale. The EMD is a versatile technique that is appropriate to handle non-linear and non-stationary data. It allows performing a time-frequency analysis without the need of specifying a decomposition basis. Obtained results, from Algerian airborne gamma ray measurements, reveal this technique might be a powerful tool for highlighting and detecting the anomalies at different scales.
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