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Regional-residual separation of microgravity data based on data clustering

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we propose a method to apply the polynomial fitting for regional-residual separation of microgravity data based on the characteristics of gravity anomaly without a prior information. Since the microgravity survey is usually carried out in small regions, it is common to approximate regional anomaly by the first-order polynomial plane. However, if the regional anomaly patterns are unsuited to be approximated to a first-order plane, the complete gravity anomaly is divided into small zones enough to approximate first-order plane by means of Parasnis density estimation method. The regional-residual separation is then applied on the splitted zones individually. When the gravity anomalies can be splitted spatially, we showed that the residual anomalies can be more effectively extracted based on the regional geological structures by regional anomaly separation from each of the divided regions, rather than applying the entire data set at one time.

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