# A new Method for Optimal Selection of the Bandwidth parameter in the Gravity Modeling using the Radial Basis Functions

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Gravity observations are invaluable observations for modeling of the physical structure of the Earth's interior and its temporal variations. The new gravity field dedicated missions, CHAMP, GRACE and in near future GOCE provide very high quality gravity observations with global coverage. The spaceborne gravity measurements from the missions can be used for modeling the static and dynamic gravity field both in the global and local sense.

The radial basis functions (RBFs) and particularly the spherical splines are the most well-known bases for the regional gravity field modeling. However, performance of these methods highly depends on the optimal selection of the RBFs' parameters. Different empirical methods have been introduced for selection of the parameters. In this study, we propose a new method for determination of the optimal bandwidth parameter. The parameter is selected based on the data distribution. The method is validated by implementation on the simulated and real gravity data.