



## **A continuous model of Mercury's internal magnetic field and its variation**

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This work is dedicated to refine and improve our understanding of Mercury's internal magnetic field. We derive a spherical harmonic model using magnetic field measurements made by the MESSENGER mission. After the removal of a steady internal and varying external fields, the remaining residuals are used to derive a time varying model of Mercury's internal magnetic field over the entire observation period (2011-2015). This continuous field model is temporally parameterised by cubic B-splines, for which an optimal knot spacing of the spline functions is found to be approximately 2 Hermean years. First results of our study suggest that Mercury's internal magnetic field shows a feeble variation. The cause of the variation remains under investigation. If confirmed implications from these results for the dynamo process in Mercury's core will require further studies. The refined internal field model also allows us to examine possible magnetic signatures of Mercury's crust, which may be related to large impact structures on the surface.