

## Candidate models of IGRF13-SV from Japanese team

\*清水 久芳<sup>1</sup>、南 拓人<sup>1</sup>、中野 慎也<sup>2</sup>、高橋 太<sup>3</sup>、松島 政貴<sup>4</sup>、藤 浩明<sup>5</sup>

\*Hisayoshi Shimizu<sup>1</sup>, Takuto Minami<sup>1</sup>, Shin ya Nakano<sup>2</sup>, Futoshi Takahashi<sup>3</sup>, Masaki Matsushima<sup>4</sup>, Hiroaki TOH<sup>5</sup>

1. 東京大学地震研究所、2. 統計数理研究所、3. 九州大学理学部地球惑星科学科、4. 東京工業大学理学院地球惑星科学系、5. 京都大学大学院理学研究科附属地磁気世界資料解析センター

1. Earthquake Research Institute, University of Tokyo, 2. Institute of Statistical Mathematics, 3. Department of Earth and Planetary Sciences, Faculty of Science, Kyushu University, 4. Department of Earth and Planetary Sciences, School of Science, Tokyo Institute of Technology, 5. Data Analysis Center for Geomagnetism and Space Magnetism, Kyoto University

International Geomagnetic Reference Field (IGRF) and its secular variation models are open to public every five years. Next IGRF models, the Gauss coefficients to represent the spatial distribution of the field at epoch 2020.0 and its secular variation (first time derivatives) in the period from 2020.0 to 2025.0, will be determined and published around December, 2019, by Working Group of IAGA V-MOD. The IGRF and its secular variation models are determined based on candidate models submitted by research groups for Working Group V-MOD. We plan to submit a candidate secular variation model to contribute for determining IGRF13-SV.

Prediction of the main geomagnetic field is necessary to obtain a candidate model for IGRF and its secular variation. Although purely statistical prediction, which had been a usual procedure in the past, can be a possible method, we employ physics-based modeling for the prediction. Since the parameters used for geodynamo calculations are not "realistic" values for the Earth's core, it is not appropriate to take geodynamo solutions as they are for the predictions. Nevertheless, it is possible to select parameter set and appropriate normalizing time-scales to obtain modeled magnetic field that is similar to the geomagnetic field. In this presentation, we are going to show candidate models of secular variation obtained by geodynamo data assimilation with discussions on the time-scales, the method of assimilation, and data-set employed for the modeling.

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