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## The new WMM2020 and IGRF-13 models, and a retrospective analysis of IGRF secular variation

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2020 marks the start of a new 5-year cycle and updated releases of the World Magnetic Model (WMM) and International Geomagnetic Reference Field (IGRF). These models provide a reference for the up-to-date internal geomagnetic field in 2020, and a prediction of its secular variation for the next 5 years, to 2025. While similar in some aspects, the two models have different specifications and many different users across diverse fields. They provide references to be used primarily for navigation (WMM) and geomagnetic coordinate systems (IGRF).

BGS produces the WMM in collaboration with the US' NOAA/NCEI, while the IGRF is produced by an IAGA Div. V-MOD task force, this time consisting of fifteen teams across nine nations, including BGS. Here we present a summary of the production of the updated WMM2020 and IGRF-13, and BGS efforts to enable access to these models.

We also present a retrospective analysis of the predictive components of the candidate models for previous IGRF epoch's secular variation. Recent epochs have seen notable geomagnetic jerks and the acceleration of the North magnetic dip pole, features not well represented by the constant SV format of models such as the IGRF. We assess the range of candidate models submitted for previous IGRF epochs, assess the accuracy of physically derived predictions versus mathematical extrapolations, and discuss the implications given the range of candidate models submitted for IGRF-13 secular variation over the next five years.