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# Global marine magnetic data set and improvement of its accuracy

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I have been making efforts to expand our digital global marine data set to contribute to the World Digital Magnetic Anomaly Map (WDMAM) project. After creating a data set using digital GEODAS marine track line data stored at the U.S. National Geophysical Data Center together with some European colleagues (Quesnel et al., 2009), we collected new marine magnetic data for areas around Antarctica from the first ADMAP compilation, north Atlantic area compiled by Collette et al. (1984) and various oceanic areas from surveys by the IFREMER, the BGR, the British National Oceanography Centre, Spain, the JAMSTEC, etc. I have also digitized analog GEODAS data for about 30 cruises, and added them to our data set. The compiled data set now consists of about 37 million records from some 3000 cruises. Magnetic anomalies were recalculated using a comprehensive main and external field model CM4 (Sabaka et al., 2004), and were cleaned by careful check and removal of spurious data.

The RMS crossover difference (COD) of the whole data set is 82 nT, significantly greater than a typical observation error. If the accuracy of the reference main and external field model improves, the accuracy of the anomalies also increases. The CM4 model was obtained using satellite and observatory data, which have large gaps in oceanic areas. I investigated possibilities of the improvement of the model in oceanic areas, and tried to calculate corrections of secular variation of the main field model in oceanic areas using COD data of our marine data set. More details on the results are shown.