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Advanced database of the measurements of geomagnetic field components by the nonmagnetic schooner "Zarya" in oceans.

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Built in 1952, the nonmagnetic schooner "Zarya" was the first ever to carry out the continuous survey of geomagnetic field components (vertical component Z, horizontal component H, declination D, module T)in the oceans. Before, only point measurements were made by the r/v "Galilee" and the r/v "Carnegie". The unique data obtained by "Zarya" are kept in SPbF IZMIRAN, so that only the tables of single values were sent to World Data Centre. By now the Group of marine geomagnetic research of SPbF IZMIRAN has completed the work of digitising the ocean magnetic data obtained by "Zarya". The results of this work became the basis for the creation of the new "Zarya" database. In addition to tables of the magnetic information together with geographic co-ordinates and time of observation, the database will include the information about equipment and navigation systems used as well as a precision and data corrections made.

On the basis of this database, the comparison of the spatial distribution of the geomagnetic field components observed by "Zarya" and calculated by IGRF coefficients was carried out. Significant differences between the values observed and calculated were obtained for the individual segments, especially for 1957-1964 period. There are surveys made in different epochs in the Atlantic. That allowed to estimate the secular variation on the basis of the intersection points of "Zarya" profiles. The anomaly of the secular variation was found close to Montevideo. This anomaly is not described by IGRF models of 1955-1965 epochs. Moreover, the systematic differences were found in the spatial distribution of the secular variation of the geomagnetic field components in the northern Atlantic.

In spite of the high level of a positioning error, the "Zarya" data are the unique source

of the information about the geomagnetic field components in the oceans. So they can be used for the correction of the existing field models. The repeated measurements of the geomagnetic field component en "Zarya" routes might form the really notion of the secular variation of the Earth’s magnetic field. The database will not only enable to save the unique results of the magnetic survey by "Zarya", but to make these data accessible for wide use.

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