

PUSHKOV INSTITUTE OF TERRESTRIAL MAGNETISM, IONOSPHERE AND RADIO
WAVE PROPAGATION (IZMIRAN)

Resubmitted Candidate Models for DGRF 2005

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For DGRF 2005 $n=m=13$.

Data

CHAMP vector data of sampling rate 1 second for obtaining DGRF 2005 where used. Time period of the used data is Jan 2004 to Dec 2005.

The data selection and rejection – none

Weights, allocated to the data – none

Modelling method

Our technique of the creation of the DGRF 2005 model is similar to a technique of calculation of the IGRF2010 model. The DGRF 2005 model of the main geomagnetic field has been constructed using the data of the high-precision measurements of the CHAMP satellite from January 2004 to December 2005.

The daily average spherical harmonious models calculated for the four-day interval, are used as source data to which the method of natural orthogonal components (NOCs) can be applied.

It has been indicated that the obtained NOC series rapidly converges. The secular variation, secular acceleration and *Dst* variation are distinguished as individual NOC components. These three terms can be omitted for the only main field model. This makes it possible to construct the main field model. Thus mean values of coefficients give the main field model for middle of this interval.

Taking into account that the NOC expansion of the daily models allows to exclude from them the parts connected with secular variation, secular acceleration, *Dst* and seasonal variations. That is why we have no need in any special selection of initial data, any kinds of weighting, use scalar data in the high latitude regions and so on.