GLOBAL DATASETS OF GEOPHYSICAL FIELDS
AS AN INSTRUMENT FOR IMPACT STRUCTURES DISCOVERY

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Introduction:

There are several global databases about the gravitational field of the Earth and its magnetic fields. These databases are increasing every year, keeping the relevance of analyzing quantity, quality, spatial resolution of modern global geophysical processes. There are several global databases of gravitational and magnetic fields, which can be used for studying impact craters and geological structures. The first of the most detailed models of global gravity is EIGEN-6C4, which has a spatial resolution of 2 arc min and sea level for marine model data. During this work, we developed several maps, constructed from one or two source databases. We used the magnetic anomaly database WDMAM (World Digital Magnetic Anomaly Map) and the gravitational field databases EMAG2 version 3 and EGM2008, which are the best spatial resolution and greater coverage - the spatial resolution of these data is 0.05 arc degrees. The SRTM alternative has even better spatial resolution and greater coverage - the spatial resolution of these data is 0.05 arc degrees.

Materials and methods

We used the following three databases of gravitational and magnetic fields of the Earth. The first one of the most detailed models of global gravity is EIGEN-6C4, which has a spatial resolution of 2 arc min and sea level for marine model data. The second one is EMAG2 version 3, which has a spatial resolution of 2 arc min. The third one is EGM2008, also generalized and combined with ocean bathymetry data. We can use data from the SRTM project, implemented in 2000 and covering the territory from 56° S to 60° N, and the EGM2008 model, which is available as 2 arc min grid. We have constructed a new database of gravitational anomalies for a range of the planet's surface using data from the SRTM project and the EGM2008 model. The resulting database has a spatial resolution of 0.05 arc degrees and contains more than 500 thousand data points.

Results and discussion

We have presented several test models of the Earth's gravitational field, including a new database of global gravity. The test models have been constructed from one or two source databases. The test models are characterized by the presence of a significant number of data points, which are suitable for the analysis of impact structures and geological structures. The test models are characterized by a high degree of accuracy and the presence of a significant number of data points, which are suitable for the analysis of impact structures and geological structures. The test models are characterized by a high degree of accuracy and the presence of a significant number of data points, which are suitable for the analysis of impact structures and geological structures. The test models are characterized by a high degree of accuracy and the presence of a significant number of data points, which are suitable for the analysis of impact structures and geological structures.