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GRAVISAT IS A SPACE SYSTEM FOR MONITORING THE GRAVITATIONAL FIELD AND
PREDICTING SEISMIC ACTIVITY.**Abstract**

At present, dozens of missions to measure the parameters of the Earth's gravitational field have already been successfully implemented, of which the GOCE and GRACE missions are the most successful. However, these are single missions designed to refine the model of the Earth's gravitational field. The resulting model has a number of disadvantages, the main of which is the fact that the model is static, created on the basis of long-term measurements. At the same time, it is known that the gravitational field is constantly changing with an amplitude of about 200 Gal. Obviously, in order to create a correct dynamic model of the gravitational field, it is necessary to ensure the simultaneous measurement of the parameters of the gravitational field evenly around the entire Earth with simultaneous transmission of the obtained data to a ground data receiving point. Such a task can be solved by a low-orbit constellation of spacecraft equipped with an inter-satellite communication system. The authors have developed and patented in Ukraine the key elements of the space system "GRAVISAT": - Satellite radio navigation system, which consists of space and ground segments, which simultaneously measure the parameters of the Earth's gravitational field; - autonomous gravitational gradiometer, which can simultaneously measure the absolute value of the acceleration of free fall, its relative change and the gradient along three axes. The principle of its operation is based on the use of the relativistic "redshift" effect, which is why we called the device relativistic. Since the operation of the device does not require the use of external information and orbit correction, it is autonomous. At present, by order of the State Space Agency of Ukraine, the first sample of a relativistic gravimeter was created in 2017 and is successfully operated. Its unique characteristics allow it to be used not only in near and far space, but also on Earth on any mobile base; - Specialized spacecraft "Gravisat" with a gravitational orientation system; - an autonomous navigation device based on a three-axis relativistic gravimeter and a three-axis laser gyroscope, which was called the gravigator; - Earthquake precursors were identified, which appear a day before an earthquake in the form of anomalous changes in the absolute value of the acceleration of gravity with an amplitude of 100 - 150 Gal. Thus, on the basis of the above proven technical solutions, it is possible to create an innovative space system "Gravisat".