

## **A SPACE-TIME CONSISTENT NATIONAL AIRBORNE GEOMAGNETIC MAP OF ROMANIA**

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The paper deals with the problem of the reconstruction of the airborne geomagnetic map of Romania. Despite 40 years since the completion of the regional airborne survey of the national territory, the total intensity scalar airborne geomagnetic map of Romania was still affected by serious space and time inconsistencies and, consequently, has never been published. The available image was actually a puzzle of small area geomagnetic maps only, each one related to the flight panels achieved at various geomagnetic epochs and different altitudes that have been never accurately merged. Besides, the reference field used for computing the geomagnetic anomaly was represented by a local model which did not take into account either the epoch of the geomagnetic survey, or the flight altitude.

To remove secular variation (SV) distortions, a national geomagnetic reference network (NGRN) was designed and achieved in a short enough period of time in order to not be affected by SV effect. The NGRN set of consistent geomagnetic data represented the datum to which previously gathered observations were referred. In a first step, data provided by the NGRN were continued at the altitude of the flight panels, and compared with old data. Based on the deviations thus revealed, some corrective functions were inferred and applied to the raw material bringing all observations to the NGRN epoch. IGRF model was used to compute the geomagnetic anomaly at the flight level.

During the second step, space-consistency was provided to data by upward continuation of geomagnetic anomalies at 3000 m and 5000 m altitudes.

Based on thus obtained consistent data set, some geomagnetic models for the Romanian territory (such as the total intensity, IGRF derived geomagnetic anomaly, and various filtered images) are presented.

Composite geomagnetic map, space-time consistency

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