
A three-year program of regional airborne geophysics brings new multi-purpose data for scientific and applied geoscience in the western Massif central

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Résumé

On behalf of the French ministry of environment (MTECT), starting 2022, BRGM conducts a three-year program of airborne geophysical surveys, which will end covering the entire western half of the basement of Massif central. Three geophysical methods are surveyed: magnetometry and radiometry on the entire area, and time domain electromagnetics (EM) on approximately 20% focussed areas. Because the flights are performed at low altitude, 80 m above the ground to achieve high resolution, surveys are conducted either by helicopter or planes depending on the topography and instruments involved. Flight line spacing varies between 400 and 500 m with perpendicular tie lines every 4 to 5 km. Surveys are conducted yearly, during the driest months of the year, and pre-processed by the survey contractors. BRGM supervises and performs the quality control of all phases of the survey, from the acquisition in the field to the data delivery. Yearly, datasets are released and made available to the public by the MTECT. BRGM further processes the datasets to achieve optimal datasets, devoid of anthropic artefacts, as much as possible. The same way as geological maps or the BSS national drill hole database, these data are intended to become a basic source of knowledge, used in all sorts of scientific and/or applied geoscientific studies. For instance, their first use, requested by the MTECT, is their exploitation for mineral potential evaluation and these data will also contribute to several scientific objectives within the national research program "PEPR Sous-sol bien commun", for deep geothermal and mineral purposes. Together with the survey characteristics, some of the first results achieved using these new datasets will be shown, under the form of interpretative maps and cross-sections, as well as 3D integrated geophysical-geological models.

Mots-Clés: airborne geophysics, Massif Central, aeromagnetism, electromagnetism, radiometry

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