

## Two total-field magnetic maps from the Iceland area

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The majority of the available magnetic field data over the land area of Iceland were acquired by Thorbjörn Sigurgeirsson in 1968-80. His flight altitude was generally 900-1200 m (up to 2100 m over some mountainous and glacial areas), and the line separation was 3 km. These data were published in 1970-84 as manually drafted profiles on nine 1:250,000 scale maps. They are still in print. In 1972-73, L. Kristjánsson obtained shipboard data off south and west Iceland at 10 km intervals.

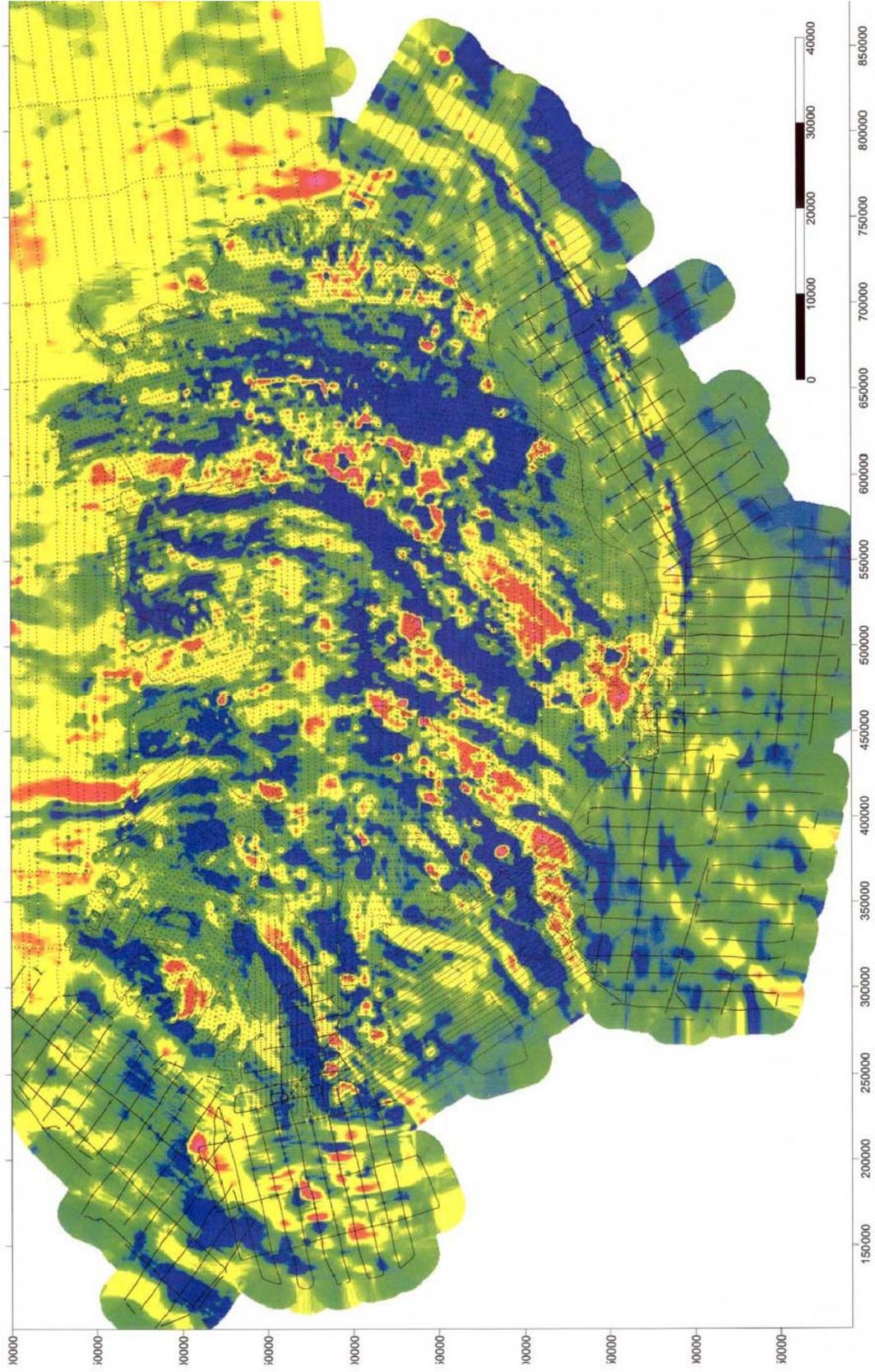
In order to fill two large gaps in the existing data in N-Iceland and in the Faxafloi bay west of SW-Iceland, a number of survey lines were flown there at 900 m altitude in 1985-86 by L. Kristjánsson and M. Sverrisson. The line spacing in Faxafloi which was somewhat variable due to disturbances in Loran-C positions, averaged 4 km.

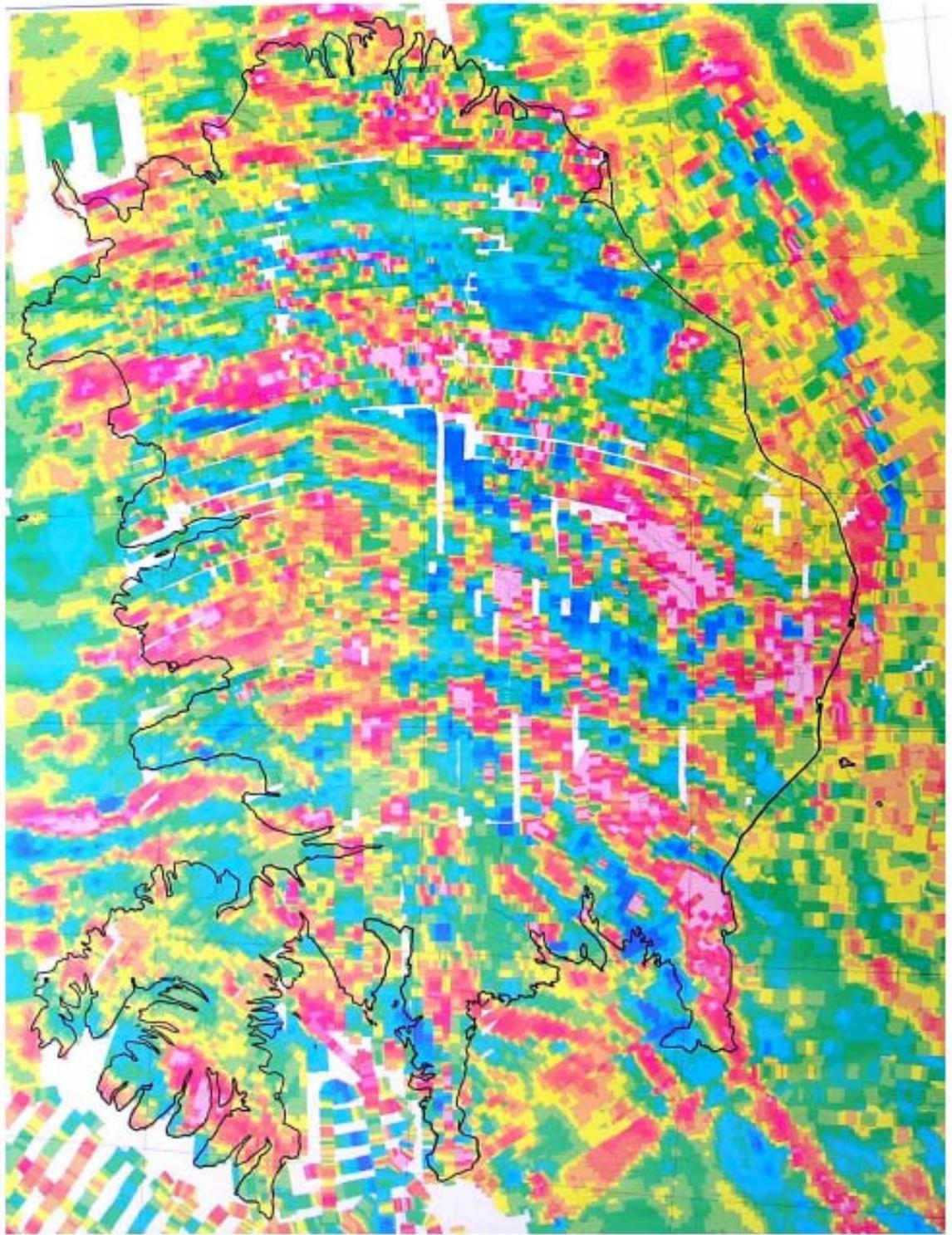
After digitization in 1986-87 of that part of Sigurgeirsson's maps which was only available in analog format, G. Jonsson and L. Kristjánsson published in 1989 a map in scale 1:1,000,000 using all the data set. This map which is still available in print along with a report on the surveys, is reproduced here as a digital photograph.

G. Jonsson and L. Kristjánsson subsequently added flight lines at 6 km spacing over the shelf south and southeast of Iceland in 1990-92. The altitude was 900 m in the south and 300 m off SE-Iceland. Flights over the Breidafjörður bay off central W-Iceland were also carried out (to replace the 1972 marine survey), as well as several lines west of Faxafloi bay and the Snaefellsnes peninsula. G. Jonsson has integrated these data sets with various older results from international data banks; a preliminary reproduction of his map is enclosed.

These maps, while somewhat qualitative, are more detailed (less filtered) than those which form a part of the large compilations over the North Atlantic and Arctic Ocean areas by W.R. Roest et al. (Geological Survey of Canada Open File Reports 3280 and 3281, 1996). Yellow and red indicate positive anomalies, green and blue negative ones. Their total range is around +/- 1000 nT.

For geological interpretation of various features seen in these maps, the reader is referred to papers by L. Kristjánsson and G. Jonsson in the bibliography accessible at the website [www.raunvis.hi.is/~leo](http://www.raunvis.hi.is/~leo).





Larger-scale color maps of three selected areas are shown below. The top one is from the Faxafloi bay and the Reykjanes – Langjökull volcanic zone in SW-Iceland which is the active onshore continuation of the Reykjanes Ridge (a part of the Mid-Atlantic Ridge). The main positive anomaly, which is most pronounced over fissure swarms, is presumably caused by intrusions of Brunhes chron age at depth. It is flanked by negative anomalies coinciding with exposures of Matuyama age rocks.

The center map shows the Northwestern peninsula, or Vestfirðir. Its exposed formations are mostly subhorizontal lava sequences whose age covers the interval from about 15 M.y. on the west coast (the oldest exposed rocks in Iceland) to about 8 M.y.

The bottom map shows the northeastern corner of Iceland, with a Brunhes age magnetic anomaly lying just east of the Myvatn lake.

