

Tertiary Silicic Rocks in the Area of the Kækjuskörð Rhyolitic Volcano, Eastern Iceland

LÚÐVÍK E. GÚSTAFSSON

*Commercial College of Iceland
Ofanleiti 1, IS-109, Reykjavík, Iceland*

BERNHARD LAPP

and

LUTZ THOMAS

*Institut für Geologie
Freie Universität Berlin
Altensteinstr. 34, D-1000 Berlin 33, F.R.G.*

MANUEL LAPP

*Institut für Geologie und Dynamik der Lithosphäre
Georg August Universität Göttingen
Goldschmidtstr. 3, D-3400 Göttingen, F.R.G.*

ABSTRACT

In the summer of 1987 geological mapping and structural investigations were carried out in the Loðmundarfjörður area in Eastern Iceland. A small volcano, the Kækjuskörð rhyolitic volcano, was mapped. It is composed mainly of silicic rocks and could have formed as an independent eruption unit, but its origin as a parasitic volcano of larger central volcanoes not far away cannot be excluded. In the area from Borgarfjörður Eystri in the north to Seyðisfjörður in the south there were probably four central volcanoes active in Tertiary times: the Dyrfjöll central volcano, the Breiðavík central volcano, the Herfell central volcano and a fourth central volcano now nearly completely eroded and concealed below sea level, the Seyðisfjörður central volcano.

Rhyolites and dacites of the Kækjuskörð rhyolitic volcano are described and analysed, and geochemical analyses of basaltic rocks of the adjacent lava

pile are also presented along with the CIPW norms of the rocks. The silicic rocks are interpreted, in contrast to former views, as lavas flows. Five different silicic lava flows could be identified.

In the area of the Kækjuskörð volcano at least three different ignimbrite formations occur. Two of them are early products of the Kækjuskörð volcano. The third, a partly welded ignimbrite sheet, was erupted from the Herfell central volcano. Relatively good exposures in the mountains to the north and west of Loðmundarfjörður enabled an isopach map of this ignimbrite sheet to be constructed.

INTRODUCTION

The northernmost part of eastern Iceland around the fjords of Borgarfjörður Eystri and Loðmundarfjörður is one of the geologically least known parts of Iceland, even though it contains the second largest outcrop of silicic rocks in the country and thus