

Precipitation in Southwestern Iceland

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ABSTRACT

This paper describes precipitation in southwestern Iceland, which in this case includes the Reykjanes peninsula, a mountain range lying from the peninsula to the northeast in direction of Langjökull and the extensive lowlands to the east of the mountains.

Precipitation measurements are briefly discussed. Monthly and annual precipitation 1931-1960 is described. Number of days with precipitation in Iceland, both annual averages 1971-1980 and the distribution for defined weather types are shown, with emphasis on the southwestern part. Finally the distribution of precipitation in southwestern Iceland is shown for weather types in which considerable precipitation may be expected.

INTRODUCTION

Precipitation in southwestern Iceland shows considerable variations within the region and depends to a great extent on topography and local conditions.

Southwestern Iceland is in fact the only part of the country, where the net of precipitation measuring stations is dense enough to give a rather reliable picture of the distribution, except for the mountains.

In this investigation southwestern Iceland extends in the first place over the Reykjanes peninsula and a mountain range lying from the peninsula towards northeast in direction of Langjökull. There is a depression in these mountains in the Lake Þingvallavatn area, but Þingvallavatn is Iceland's largest lake, 84 km², about 100 m above sea level. The height of

the mountains is in most places below 1000 m, generally in the range 500-800 m above sea level. Secondly the region covers the extensive lowland to the east of the mountains where the height increases gradually towards the interior.

PRECIPITATION MEASUREMENTS

Fig. 1 shows 46 locations in southwestern Iceland where regular precipitation measurements have been performed for a usable period of time, and in addition 8 places (unshadowed signs), where the duration of measurements for six of them was only a year, and two of them were only in operation during summers. At 40 stations measurements lasted a decade or more, and at more than half of them 15-20 years or more.

At synoptic weather stations (only 8 in the region) the precipitation is measured at 09 h and 18h GMT, but at other stations only at 09h GMT.

In two mountainous areas within the region, one around Lake Hvalvatn and the other in the Bláfjöll area, measurements made with totalizers or collecting rain gauges (opening 3.5-5 m above ground and measurements once a month or even only once a year) were of some help.

Rain gauges, which in Iceland have openings about 1.5 m above the ground give too low precipitation values, especially where wind velocities are high and where considerable precipitation falls as snow. No systematic investigations have been made in Iceland to quantify this point, but preliminary figures indicate that measured values for rain may