ASK

ASKJA / BARDARDALUR, ICELAND

Submitted By

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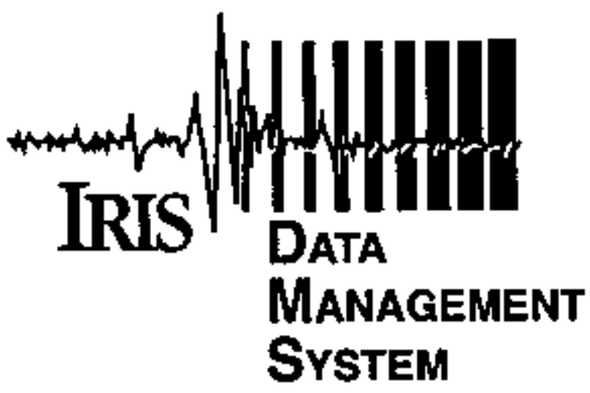
PASSCAL Data Report 97-003



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Description
Thirty-eight instruments were used to shoot two perpendicular refraction profiles across the Krafla central volcano. The North/South profile is 20 km long while the East/West profile is 55 km long. Average station spacing was 500 m in the caldera and 1-4 km elswhere. A total of three shots were used in the NS profile and 6 shots were used in the EW profile.

Status - Ready for Shipment
Format - **AH**
Preferred Media - Exabyte Tape
Date Submitted to DMC - August 28, 1995

Make request

XE-96 AND Assembled Set 97-003 (*see below)
Status: Mixed

Map stations

Askja/Bardardalur, Iceland 96 (ASK)

PIs:
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Start Date: 15 Mar 96

Date of Demobilization: 15 May 96

Number of Stations: 30

Network code: XE-96

Locations: Northern Volcanic Zone, Iceland

15W to 18W
65N to 66N

Objective: Study along-strike segmentation of the Northern Neovolcanic Zone NVZ, the mid-Atlantic plate boundary in northern Iceland, using seismic imaging techniques. Sources included both chemcial explosions and regional muicroearthquakes.

Two linear earrays were operated, a 25 station array in Bardardalur on the western margin of the NVZ, and a 6 element array on the road to Askja.

Preliminary results:
1. The shallow 8 km compressional velocity structure beneath the western rift margin at Bardardalur was imaages using P waves from explosions. Two dome structures, interpreted as fossil roots of central volcanos were detetected.

2. Compressional to shear wave apparent velocity ratios for both P and PmP phases are about 1.76 along the western rift margin, arguing against any crustal melt there.

3. Clear PmP and SmS moho reflection were observed from microearthquakes in central and northern earthquake. Traveltimes from these phases constrain crustal on the western margain of the NVZ to be 25-31 km thickening to the south.

4. Pn mantle-refracted wave, with an apparent velocity of 8.0 km/s, are observed for paths that cross central Iceland. The compressional-to-shear wave velocity ratio is 1.85. These data argue for a layer of cooler mantle separating the crust from the mantle melt zone.

5. A major fast velocity anomaly is identified in the mid crust beneath the NVZ at a depth of abpout 10 km. This is interpreted as due to cumulates from magma chambers along the NVZ. It is concentated at Krafla, suggesting that this has been the dominant volcanic center along the northern NVZ for millions of years.

Recording parameters: continuous recording of 3 channels at 50 samples per second

Amount of data: 3000 Mb

Problems: Sun computer would not boot upon arrival, because it was configured for network-boot
scsi problem on computer, wouldnt see all disks / tape drives simultaneously
one EHT dead on arrival
several disk failures in the 72A-07s
solar panel connectors failed on several units

Publication submissions: Along-strike seismic structure of the Northern Volcaniz Zone, Iceland
W. Menke., M. West, B. Brandsdottir, D. Sparks
to be submitted to Geophys. J. Int. 1997

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***This experiment produced 2 different data products:**

Product A (XE-96) - File format: **SEED** (restricted access)
Product B (97-003) - File format: **AH** (available)

Station Information

XK-95 (Icemelt)
Status: No Data at DMC

XE-96
ASKJA / BARDARDALUR 1996 SEISMIC EXPERIMENT (ICELAND)

April-May 1996

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NOTES:

0. A web document html/index.html describes the dataset and some preminary results.

1. Data are provided for 3 arrays:

A array, on the road to Askja (six REFTEK 72A07G / L22D)

B array, in Bardardalur; (stations b2-b23: REFTEK 72A07G/ L22D, station b1: REFTEK / STS2, station b25 72A07G / CMG40T)

S array, Iceland Meterological Office SIL array.

Station locations are in the files A.tsv, B.tsv and S.tsv.

2. The data are in event gathers, with each event having a classification by geographical area and date/time. The directories askj, axar, grim, heng, kolb, kraf, myrd, nort, skag, skja, and vatn refer to geograhical regions in Iceland. Teleseisms are in directory tele, and unknown events are in directory unkn. The classification is only approximate. Each region directory has event subdirectories named by date/time (e.g. 1110434). Each event subdirectory contains files:

A.1, A.2, A.3 ... Z, N, and E component gathers for the "A" array
B.1, B.2, B.3 ... Z, N. and E component gathers for the "B" array
S.1, S.2, S.2 ... Z, N, and E component gathers for the "S" array
rsx.ctl, preliminary event hypocentral information in rsx format.

All data are in LDEO AH format.

3. The file aut.mag contains SIL hypocentral locations.

4. The directory bband contains long timeseries for a few teleseisms recorded at station b25.

5. The directory logfiles contains REFTEK log files.

6. The directory scripts contains some scripts used to process the data.