



A plan for 1985 Flatey Basin seismic survey

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A PLAN FOR 1985 FLATEY BASIN SEISMIC SURVEY

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A plan for a seismic reflection survey off the north coast of Iceland is presented here. This proposed survey has been a subject of negotiations between Orkustofnun (National Energy Authority) and Geco (Geophysical Company of Norway). These matters were discussed by members of Orkustofnun and John M. Christensen of Geco at their meeting in Reykjavík March 27 1985, and an informal agreement was reached. The Geco offer was confirmed by a telex dated 10.05.85, and provisional acceptance was telexed from Orkustofnun 13.06.85 and by personal contact through the telephone. A draft of a formal contract was received by Orkustofnun 8.07.85, accompanied by a letter from Gunnar Ekman (4.7.85 EK/laa), but a final version has not yet been signed. There is an understanding that the contract will be similar to the Geco/Oljedirectorate contract for the 1985 Jan Mayen Ridge survey.

In connection with a seismic survey on the Jan Mayen Ridge, a Geco survey vessel will visit the town of Akureyri in Eyjafjörður on the north coast of Iceland, during middle of August this summer. At that time a seismic survey will be conducted off shore, in an area here referred to as the Flatey Basin. The survey will consist of some 230 km of seismic lines, and will be carried out either on the inward or the outward leg, depending on conditions. Costs of significant delays cannot be accepted, so the execution of the survey depends on favorable weather conditions.

Planned survey lines

The sedimentary basin under investigation is elongated in a NW-SE direction, thought to be some 20 km wide and 70 km long. This basin lies up to the coast, from outside the mouth of Eyjafjörður into the bay of Skjálfandi. A suspected graben structure at its north-western end will also be investigated.

The plan is shown on the chart in fig 1. For reference, a photocopy of a sea-chart (same scale) of the area from Sjósmælingar Íslands is shown in fig 2 (Icelandic Hydrographic Service, map no. 51, publ. 1981, Mercator projection, scale 1:300000 at 65N, depth in meters).

ORKUSTOFNUN

68.60°

JHD-SK-6700.KG
85.07. 0859. SyJ

FLATEY BASIN SURVEY Proposed seismic lines

○ Sonobuoy locations
0 10 20 km



Grimsey

30'

20'

10'

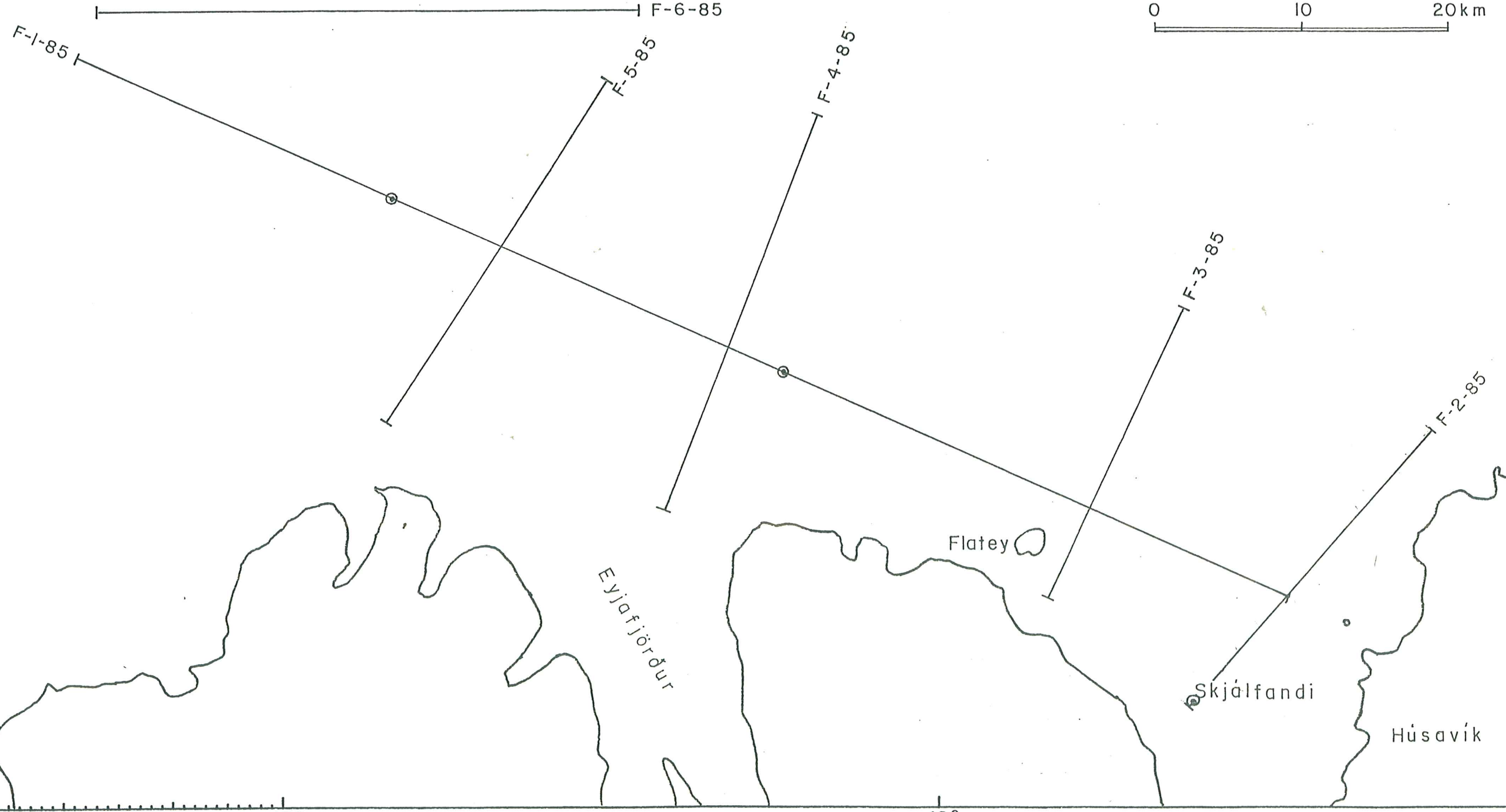
68.00°

-19.50°

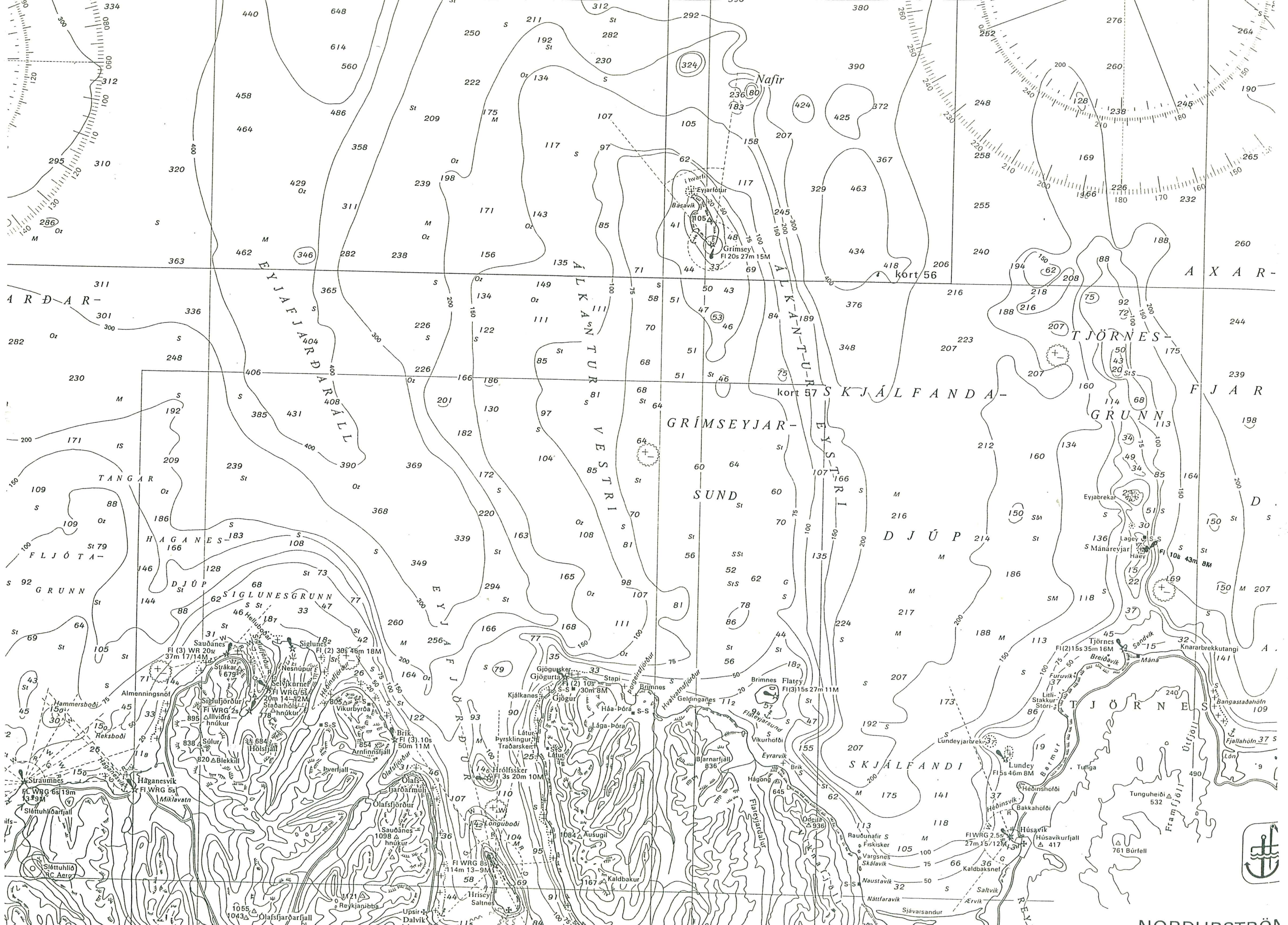
-19°

-18°

-17.1°



9005-T11-9



The six seismic lines are arranged such that one is along the length of the basin, four are perpendicular to the trend, and one is across the northwestern extension, the deep Eyjarfjarðaráll. Water depths vary from 50 to 600 m. The thickness of sediments could vary between zero and 3-4 seconds measured in "two-way travel time". The bottom is possibly hard in places, consisting of glacial moraine deposits. Table 1 lists details of the seismic lines. The lines could e.g. be shot in the following order and direction: line 4 to south, line 5 to north, line 6 to west, line 1 to east, line 2 to north, and finally line 3 to south.

Table 1. Seismic reflection lines planned for Flatey Basin 1985 survey. Line numbers, coordinates of line ends, and approx. length of lines.

line no.	length (km)	latitude		longitude	
		deg	min	deg	min
F-1-85	91	66	27.7	19	18.5
F-2-85	25	66	3.9	17	37.4
F-3-85	22	66	7.7	17	49.5
F-4-85	29	66	11.0	18	24.8
F-5-85	28	66	14.3	18	50.1
F-6-85	37	66	29.3	19	16.6

Survey parameters

As the project is done in connection with the Jan Mayen Ridge project, the basic seismic equipment will be the same. For the adjustable recording parameters, we expect that 8 s registration and 2 ms sampling interval will be used, but assume that these parameters can be varied to 6 s and 4 ms if desired. Gravity and magnetics will be recorded. Other parameters will be the same as for the J.M.R. project, unless a different configuration is recommended to fit the conditions.

Sonobuoys

We plan to deploy 3 sonobuoys, as shown on the map. Two are on line 1, and one is on line 2.

Administrative matters

The Ministry of Industry will authorize the survey, and this will automatically serve as a permission from Icelandic authorities for the survey vessel to carry out its work.

Full cooperation has been assured from Landhelgisgæslan (Coast Guard). According to their estimates the survey is unlikely to interfere with

fishing activities. At the time of the survey a warning to ships will be broadcast by radio, and if necessary the area can be patrolled by boat or aircraft.

We assume that other matters will be arranged by Geco.

Estimate of costs

The following estimate is based on prices quoted by Geco. All values are in Norwegian kroner.

Unit prices:

1. "Mob./demob."

During visit to Akureyri. If survey is done after J.M.R. survey the price is 300.000.

- "Mob/demob" 100.000

2. Cost per km of seismic line

- Basic price 2.100

- Lengthened registration from 6 to 8 s 60

- Sampling interval of 2 in stead of 4 ms .. 70

- Gravity registration 260

- Magnetics 105

total: 2.595

3. Sonobuoys

- Price of each buoy 8.000

4. Stand-by rate

- Rate for each hour 7.000

Cost for a survey of combined 230 km of lines

On the assumption that no delays will occur:

1. Mob./demob. 100.000

2. Survey (230 km * 2.595, nkr./km) 596.850

3. Use of 3 sonobuoys 24.000

total: nkr. 720.850