

Geography

General Instructions

- Reading time – 5 minutes
- Working time – 3 hours
- Write using black pen
- NESA approved calculators may be used
- A Stimulus Booklet is provided with this paper

Total marks: 100

Section I – 20 marks (pages 2–8)

- Attempt Questions 1–20
- Allow about 35 minutes for this section

Section II – 40 marks (pages 9–20)

- Attempt Questions 21–24
- Allow about 1 hour and 10 minutes for this section

Section III – 40 marks (page 21)

- Attempt TWO questions from Questions 25–27
- Allow about 1 hour and 15 minutes for this section

Section I

20 marks

Attempt Questions 1–20

Allow about 35 minutes for this section

Refer to the Stimulus Booklet

Use the multiple-choice answer sheet for Questions 1–20.

Refer to Source A on page 1 of the Stimulus Booklet to answer Questions 1 and 2.

- 1** Which season in Iceland has the highest level of precipitation?
- A. Spring
 - B. Summer
 - C. Autumn
 - D. Winter
- 2** In which month is the average precipitation above 10 mm and the average minimum temperature above 0°C?
- A. February
 - B. April
 - C. September
 - D. November

Refer to Source B on page 1 of the Stimulus Booklet to answer Question 3.

- 3** What is the approximate latitude and longitude of Reykjavik?

	<i>Latitude</i>	<i>Longitude</i>
A.	64°N	18°W
B.	64°N	22°W
C.	66°N	18°W
D.	66°N	22°W

Refer to Source C on page 1 of the Stimulus Booklet to answer Question 4.

4 What is the direction and speed of wind at Akureyri?

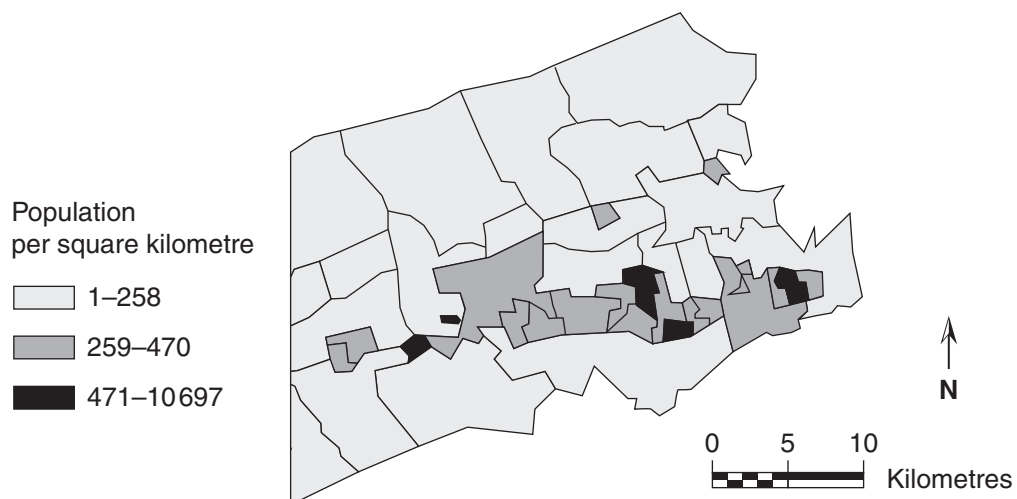
	<i>Direction</i>	<i>Speed</i>
A.	SSE	13–17 km/h
B.	SSE	18–22 km/h
C.	NNW	13–17 km/h
D.	NNW	18–22 km/h

5 An informal economy develops in response to the challenge of employment in a mega city in the developing world.

What type of response is this?

- A. Protest
- B. Corruption
- C. NGO support
- D. Self-help project

6 This map shows population density in a community.

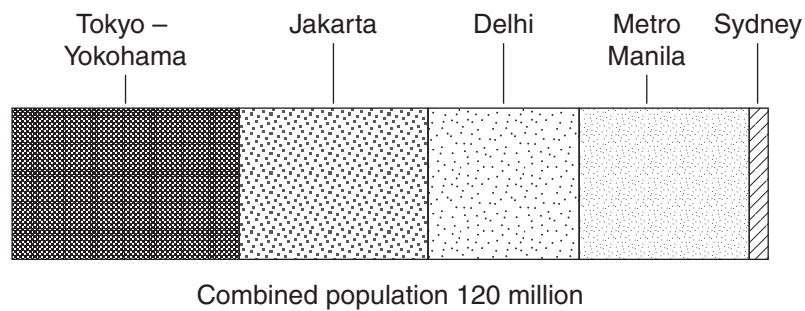


What type of map is this?

- A. Cadastral
- B. Choropleth
- C. Flow
- D. Topographic

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- 7 This diagram shows the relative populations of selected cities in 2015.



- What was the approximate population of Jakarta in 2015?
- A. 24 million
 - B. 30 million
 - C. 36 million
 - D. 42 million
- 8 A woodland area has been affected by extensive agriculture. In the last 60 years, 37 native species have become extinct.
- Which of the following management strategies could be used to minimise further loss of species?
- A. Reduction in land clearing
 - B. Increased usage of fertilisers
 - C. Monitoring of water quality
 - D. Introduction of exotic species
- 9 A government has recently imposed an import quota on all agricultural products to address declining domestic employment in the primary sector.
- Which combination of factors is most likely to have been responsible for the introduction of the quota?
- A. Political and ecological
 - B. Political and biophysical
 - C. Economic and sociocultural
 - D. Economic and environmental

Refer to Source *D* on page 2 of the Stimulus Booklet to answer Questions 10 to 13.

10 What is the scale of this map?

- A. 1:4 000
- B. 1:40 000
- C. 1:400 000
- D. 1:4 000 000

11 Which of the following could NOT be seen when looking from Eyjafjallajökull (GR 923364)?

- A. Kaldaklofsfjöll (GR 945395)
- B. Laufafell (GR 939399)
- C. Mælifellssandur (GR 950385)
- D. Öldufell (GR 965379)

12 What is the local relief between point **L** (AR 9140) and point **M** (AR 9340)?

- A. 491 m
- B. 500 m
- C. 991 m
- D. 1491 m

13 There is a proposal to construct a ski field with a steep slope and a south-easterly aspect.

Which of the following locations would be most suitable?

- A. AR 9140
- B. AR 9435
- C. AR 9635
- D. AR 9735

Refer to Sources *E* and *F* on page 3 of the Stimulus Booklet to answer Question 14.

14 What is the approximate distance, in kilometres, between the points **X** and **Y** in Source *F*?

- A. 2.5
- B. 4.5
- C. 8.5
- D. 10.5

Refer to Source *G* on page 4 of the Stimulus Booklet to answer Question 15.

15 Which country provided 8% of Iceland's imports?

- A. Canada
- B. China
- C. Norway
- D. USA

16 Which combination of tools can be used to investigate the rate of erosion in an area over time?

- A. Clinometer and barometer
- B. Climatic data and compasses
- C. Anemometer and water quality testing data
- D. Geographical Information Systems and aerial photographs

- 17 A student is planning to investigate the social impact of a housing development. A variety of sources is to be used.

Which of the following is a set of primary and secondary data that would be the most suitable for this investigation?

	<i>Primary data</i>	<i>Secondary data</i>
A.	Photographs showing graffiti in the area	Newspaper editorials on the lack of services
B.	Video footage of recreational facilities produced by a media outlet	Rubbish report by the local council
C.	ABS graphical information on housing	Interviews with local residents
D.	Survey results of household income	Water pollution measurements

Refer to Source *B* on page 1 and Source *H* on page 4 of the Stimulus Booklet to answer Question 18.

- 18 The photograph was taken with the photographer facing south.

At approximately what time of day was this photograph taken?

- A. 9 am
- B. 11 am
- C. 3 pm
- D. 6 pm

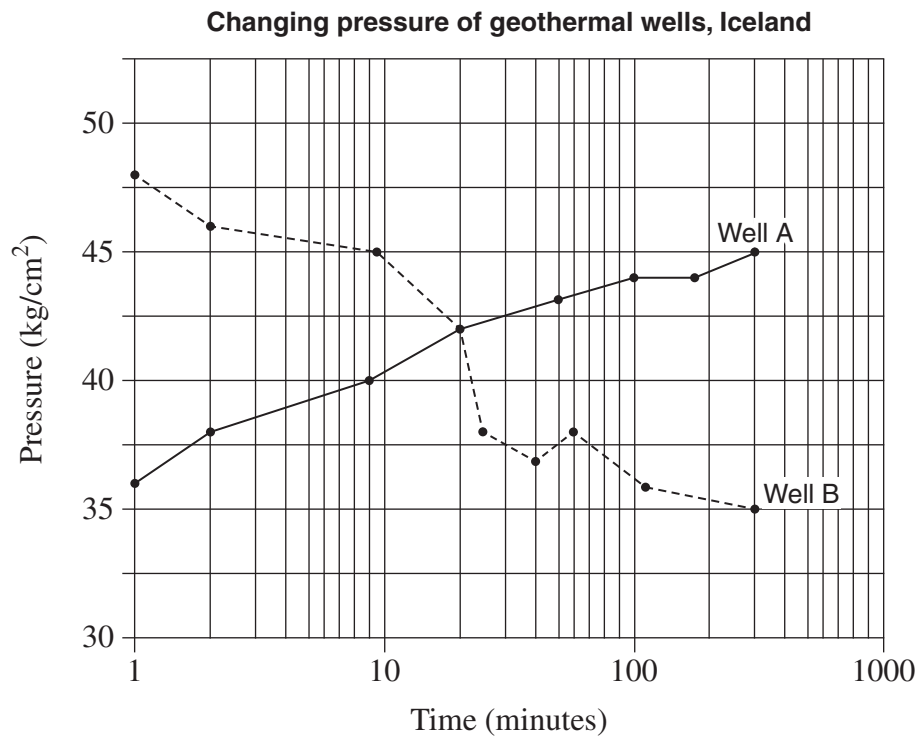
Refer to the following information and Source *D* on page 2 of the Stimulus Booklet to answer Question 19.

65% of Iceland's renewable energy comes from geothermal power. Geothermal power can be generated from hot springs and geysers or accessed by drilling wells.

- 19 Which area would be most suitable for exploration for sources of geothermal power?

- A. AR 9235
- B. AR 9340
- C. AR 9534
- D. AR 9540

- 20 This semi-logarithmic graph shows the changing pressure of two geothermal wells over time.



Based on this graph, for how many minutes was the pressure in Well A greater than the pressure in Well B?

- A. 91
- B. 109
- C. 280
- D. 300

2017

HIGHER SCHOOL CERTIFICATE
EXAMINATION

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Centre Number

Geography

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Student Number

Section II Answer Booklet

40 marks

Attempt Questions 21–24

Allow about 1 hour and 10 minutes for this section

Instructions

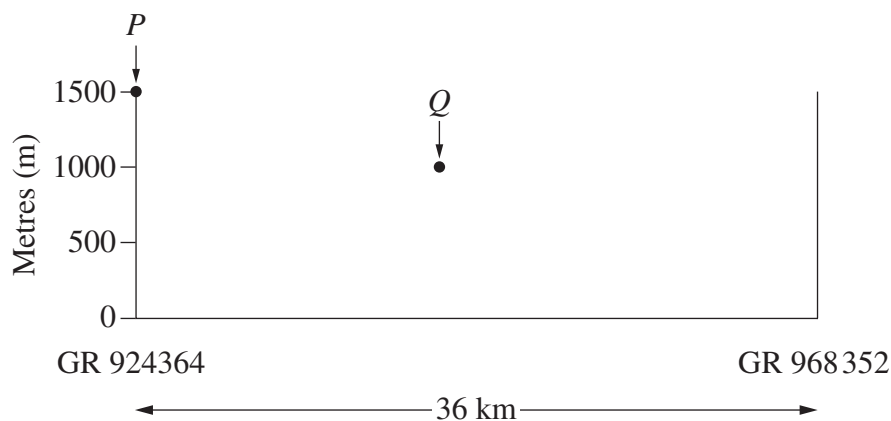
- Write your Centre Number and Student Number at the top of this page.
- Use the Stimulus Booklet and your knowledge of geography to answer Questions 21–24 in the spaces provided. These spaces provide guidance for the expected length of response.
- Show all relevant working in questions involving calculations.
- Extra writing space is provided at the back of this booklet.
If you use this space, clearly indicate which question you are answering.

Please turn over

Question 21 (6 marks)

Refer to Source *D* on page 2 of the Stimulus Booklet to answer Question 21.

- (a) On the following diagram, construct a cross-section from Point *P* GR 924364 to Hafursey spot height (GR 968352) and label ONE human feature. 2



- (b) Calculate the average gradient between *P* and *Q* on the cross-section in part (a). 2

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- (c) Calculate the vertical exaggeration of the cross-section in part (a). 2

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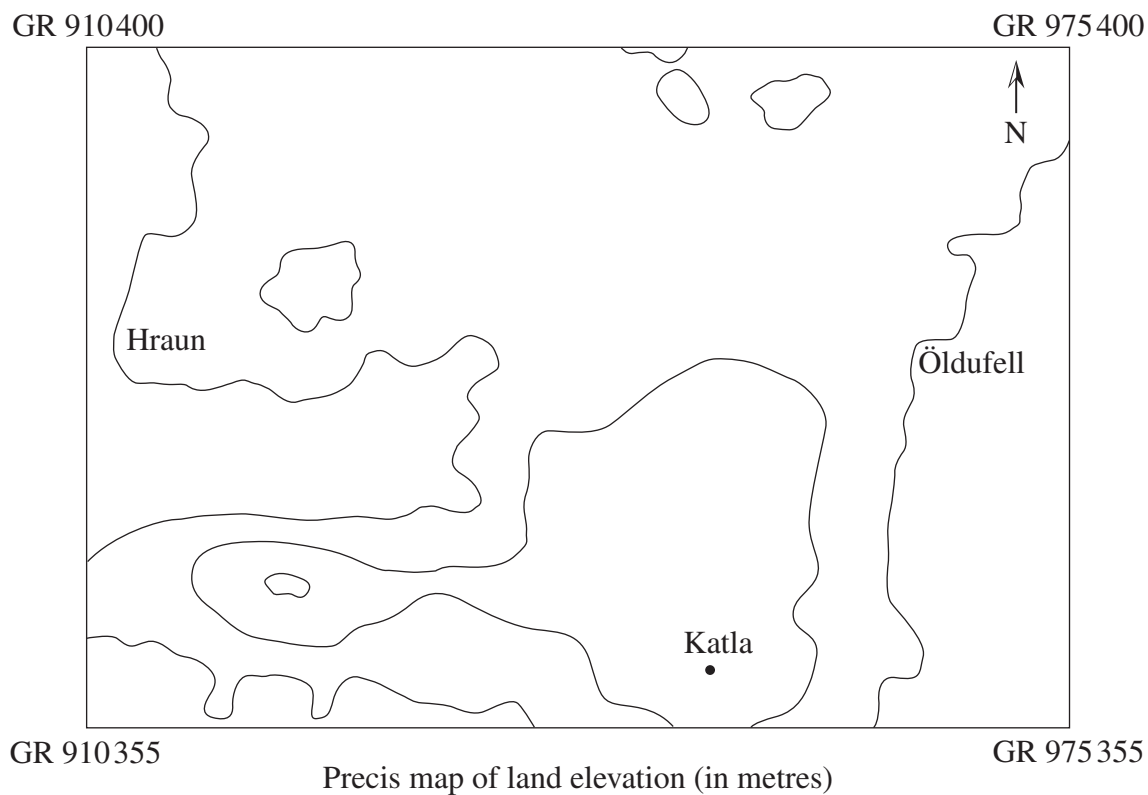
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Do NOT write in this area.

Question 22 (11 marks)

- (a) Using Source *D* on page 2 of the Stimulus Booklet, complete the following precis map to show changes in height over the area.

2



KEY (metres)

	< 500
	500–1000
	1000–1500
	> 1500

Question 22 continues on page 12

Question 22 (continued)

Answer part (b) with reference to Source *L* on page 4 of the Stimulus Booklet.

- (b) Gullfoss was declared a nature reserve in 1979. Recently, plans have been discussed to harness the area for electricity production, placing the ecosystem at risk.

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Explain why it is important to continue to protect and manage Gullfoss nature reserve.

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Question 22 continues on page 13

Do NOT write in this area.

Question 22 (continued)

- (c) Describe how the nature of and rate of change in ONE ecosystem at risk affect its functioning.

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Ecosystem at risk:

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End of Question 22

Question 23 (12 marks)

- (a) Using an example, outline what *exurbanisation* means.

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Answer part (b) with reference to the photographs in Sources *H*, *I*, *J* and *K* on page 4 of the Stimulus Booklet.

- (b) How is culture of place expressed in Reykjavik?

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Question 23 continues on page 15

Question 23 (continued)

- (c) Contrast mega cities in the developing world with world cities in terms of their nature and spatial distribution. Include examples in your answer.

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End of Question 23

Question 24 (11 marks)

Answer parts (a), (b) and (c) with reference to an economic enterprise you have studied.

Economic enterprise:

- (a) Describe the nature of this economic enterprise. 2

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- (b) Outline ONE internal linkage associated with this economic enterprise. 2

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- (c) Outline ONE external linkage associated with this economic enterprise. 2

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Question 24 continues on page 17

Question 24 (continued)

Answer part (d) with reference to an economic activity that you have studied.

Economic activity:

(d) Describe how sociocultural factors have affected this economic activity.

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End of Question 24

Section II extra writing space

If you use this space, clearly indicate which question you are answering.

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Section II extra writing space

If you use this space, clearly indicate which question you are answering.

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Geography

Section III

40 marks

Attempt TWO questions from Questions 25–27

Allow about 1 hour and 15 minutes for this section

Answer both questions in the Section III Writing Booklet. Extra writing booklets are available.

Your answers will be assessed on how well you:

- demonstrate geographical knowledge and understanding relevant to the question
 - communicate ideas and information using geographical terms and concepts appropriately
 - refer to case studies, illustrative examples and the Stimulus Booklet where appropriate
 - present a sustained, logical and cohesive response
-

Question 25 (20 marks)

Explain how an economic activity you have studied has responded to the challenges of ecological sustainability.

Question 26 (20 marks)

Account for changes in both social structure and patterns of advantage and disadvantage in a large city from the developed world.

Question 27 (20 marks)

Explain how ONE ecosystem at risk has demonstrated both vulnerability and resilience in response to natural stress and human induced modifications.

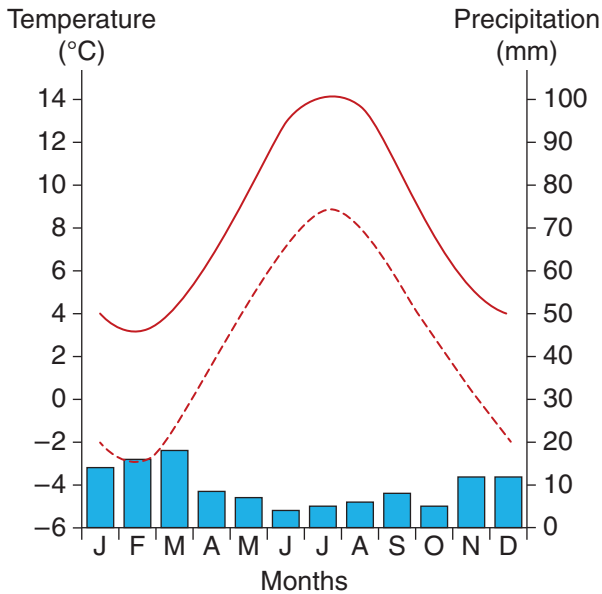
End of paper

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Geography Stimulus Booklet

Source A – Climate graph for Iceland



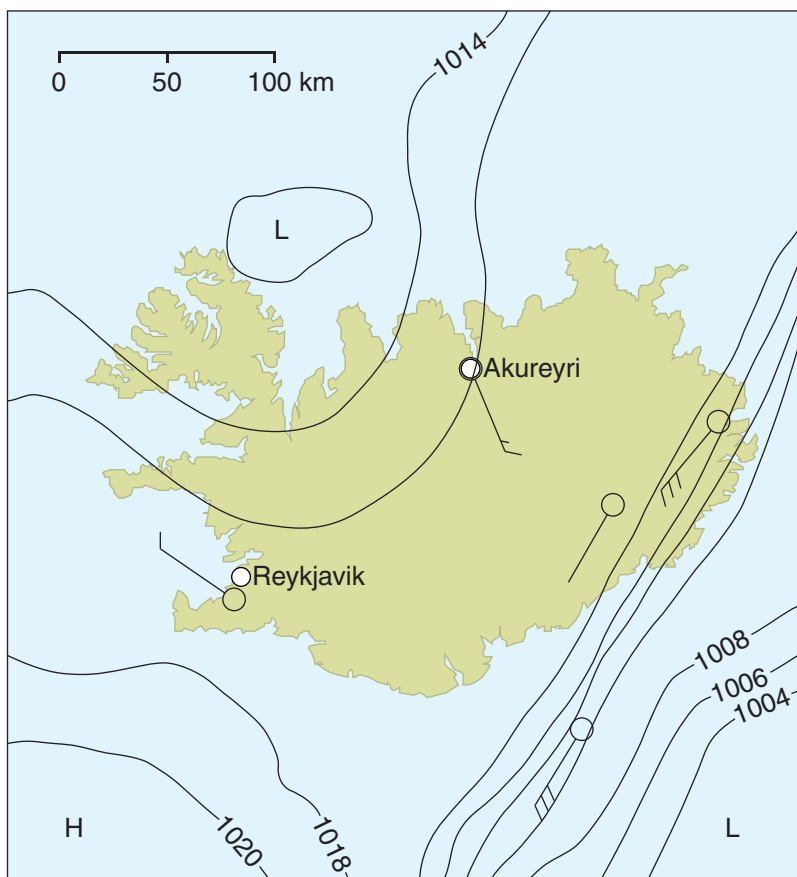
KEY

- Average precipitation (mm)
- Average maximum temperature (°C)
- Average minimum temperature (°C)

Source B – Location map of Iceland



Source C – Synoptic chart, Iceland

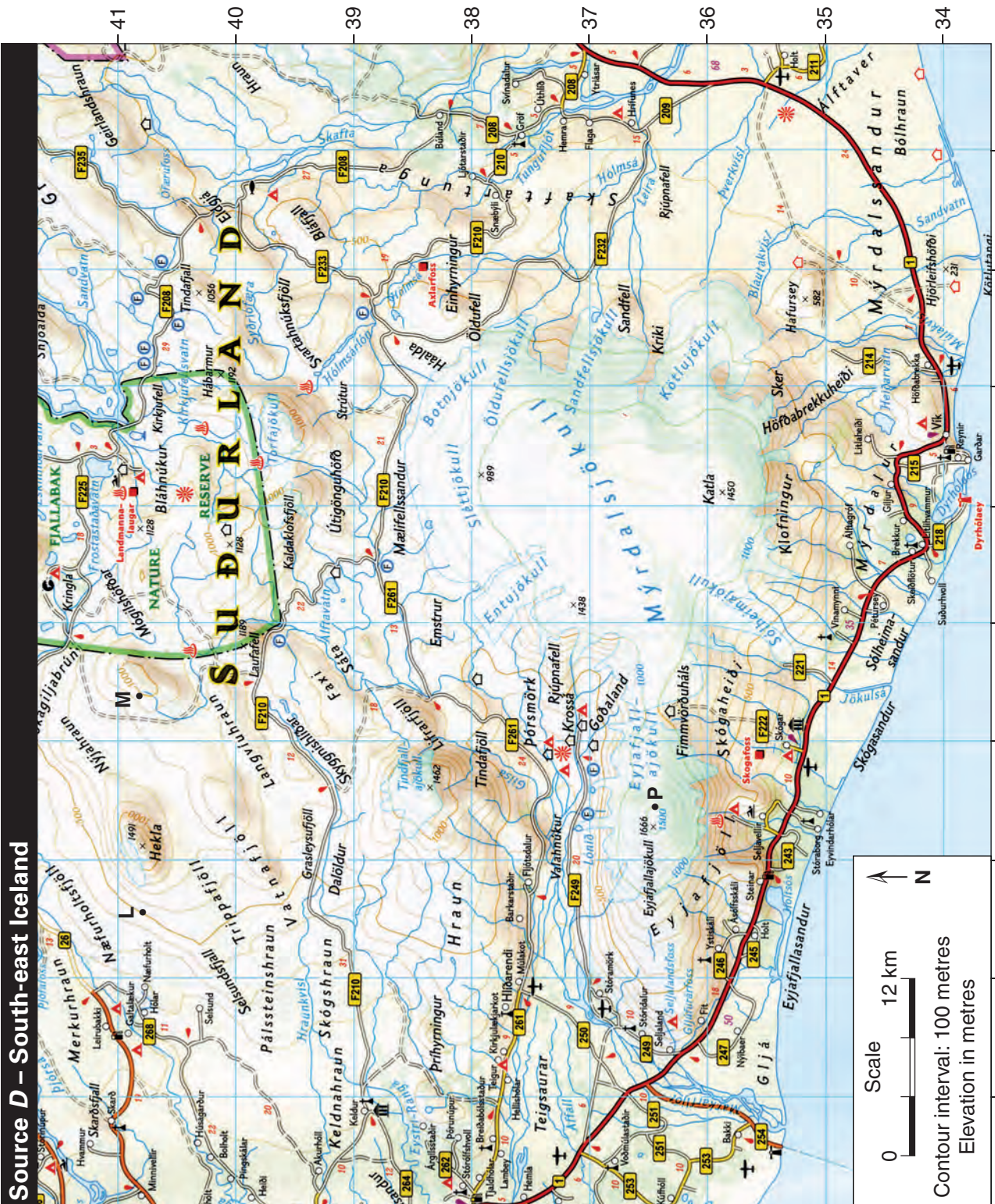


Speed (km/h)	Symbol
1–2	
3–7	
8–12	
13–17	
18–22	
23–27	
28–32	

KEY

- 1010 Isobar with value (hPa)
- L Low pressure
- H High pressure

Source D – South-east Iceland

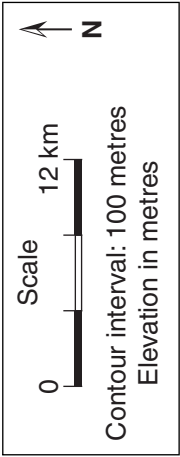


Legend for Sources D and E

- Major road surfaced/unsurfaced.....
- Secondary road (surfaced).....
- Secondary road (unsurfaced).....
- Track.....
- Path.....
- Distance in kilometres.....
- Railroad.....
- National park.....
- Nature reserve.....
- Populated area.....
- Spot height.....
- Lighthouse / Camping site.....
- Point of interest / Mine.....
- Viewpoint.....
- Hot spring / Geyser.....
- Natural ford / Waterfall.....
- Hut.....
- Museum (of interest).....
- International airport / Airport.....
- Airfield / Fuel.....

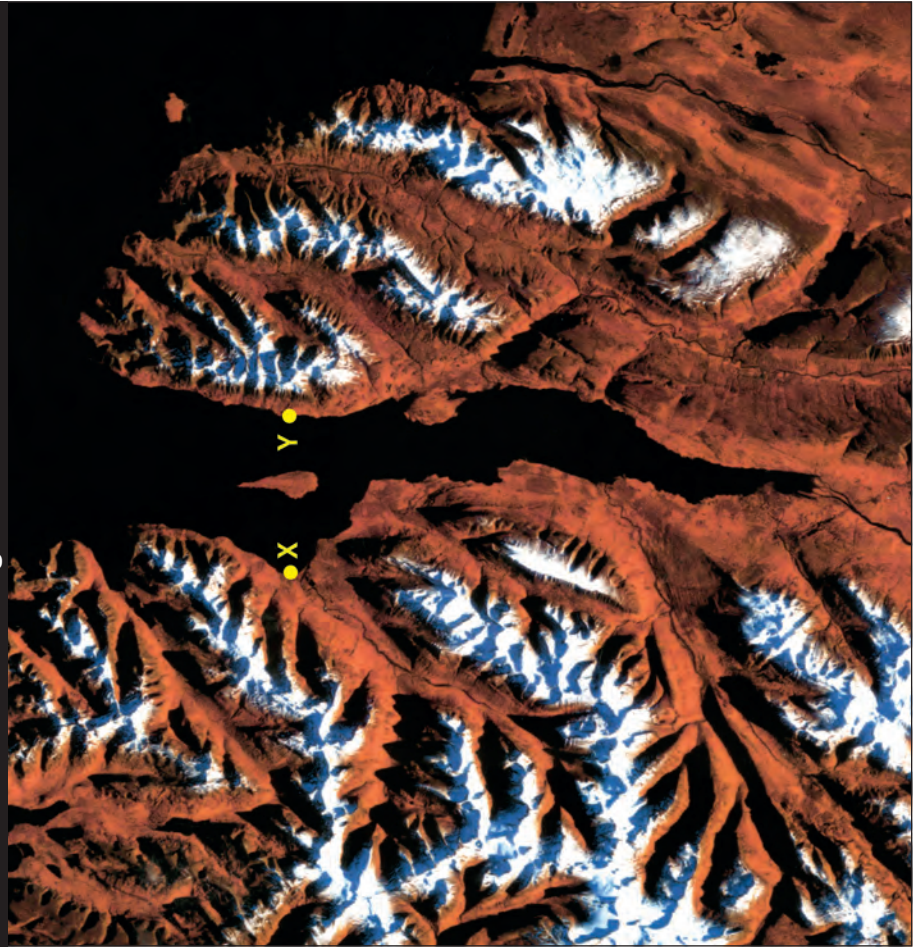
Source: National Geographic Maps

Source E – North-east Iceland topographic map extract



Source: National Geographic Maps

Source F – Satellite image North-east Iceland

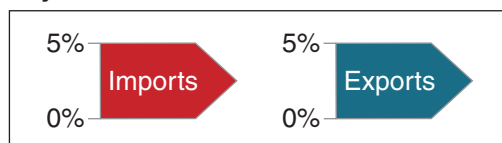


Imagery courtesy of the U.S. Geological Survey

Source G – Percentage of Iceland's imports and exports – selected countries



Key



Source L – Gullfoss is like no other

No waterfall in Europe can match Gullfoss. In wildness and fury it outdoes the Niagara Falls of the United States.

Gullfoss is a unique natural phenomenon. Its conservation and thereby its existence in its present form has a unique history.

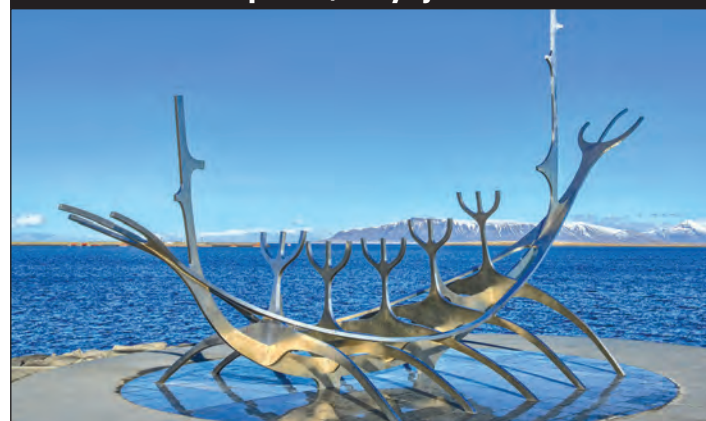
The area's ecosystem is protected and its vegetation remains untouched. Attempts are being made to minimise effects of human intervention, by keeping man-made structures to a minimum and not disturbing the land and geological formations.



Source H – Downtown, Reykjavik



Source I – Sculpture, Reykjavik



Vaclav Schindler/Alamy Stock Photo

Source J – Streetscape, Reykjavik



© Ed Graham Photography

Source K – Housing, Reykjavik



Graham Prentice/Alamy Stock Photo