Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel International GCSE (9–1)

Friday 17 May 2024

Afternoon (Time: 1 hour 10 minutes)

Paper reference **4GE1/01**

Geography

PAPER 1: Physical geography

You must have:
Resource Booklet (enclosed), calculator

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- In Section A, answer **two** questions from Questions 1, 2 and 3.
- In Section B, answer **one** question from Questions 4, 5 and 6.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- Calculators may be used.
- **Where asked you must show all your working out with your answer clearly identified at the end of your solution.**

Information

- The total mark for this paper is 70.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

Turn over

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P 7 5 7 4 9 A 0 1 3 2

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SECTION A

Answer TWO questions from this section.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

If you answer Question 1, put a cross in the box ☐ .

1 River environments

(a) Identify the best definition of the term evaporation.

(1)

☐ **A** any form of water that falls from the sky

☐ **B** the emission of water vapour from leaves

☐ **C** water changing from a gas to a liquid

☐ **D** water changing from a liquid to a gas

(b) (i) Identify the best definition of a river source.

(1)

☐ **A** a smaller river that joins a larger river

☐ **B** where the river meets the sea

☐ **C** where the river starts

☐ **D** where two rivers meet

(ii) State **one** human cause of river flooding.

(1)

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(iii) Explain the process of saltation.

(2)

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(c) Study Figure 1a in the Resource Booklet.

Suggest **two** pieces of evidence from the map that this is an upland area.

(4)

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(d) Study Figure 1b in the Resource Booklet.

Identify the feature of the storm hydrograph labelled **X**.

(1)

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(e) Explain **two** different causes of river water pollution.

(4)

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(f) Explain **one** way dams can affect river regimes.

(3)

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(g) Study Figure 1c in the Resource Booklet.

Analyse the possible reasons for water shortages.

You **must** refer to the resource in your answer.

(8)

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(Total for Question 1 = 25 marks)

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If you answer Question 2, put a cross in the box ☒ .

2 Coastal environments

(a) Identify **one** abiotic characteristic of a coastal ecosystem.

(1)

☒ **A** coral

☒ **B** fungi

☒ **C** phytoplankton

☒ **D** temperature

(b) (i) Identify the best definition of backwash.

(1)

☒ **A** distance between two wave crests

☒ **B** friction between wind and water surface

☒ **C** movement of water down the beach

☒ **D** movement of water up the beach

(ii) State **one** characteristic of a constructive wave.

(1)

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(iii) Explain **one** type of coastal mass movement.

(2)

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(c) Study Figure 2a in the Resource Booklet.

Suggest **two** reasons hard engineering is suitable for this stretch of coastline.

(4)

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(d) Explain why **one** conflict might occur between different users of coastlines.

(3)

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(e) Study Figure 2b in the Resource Booklet.

Identify the landform labelled **X**.

(1)

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(f) Explain **two** physical factors that affect coastal deposition.

(4)

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(g) Study Figure 2c in the Resource Booklet.

Analyse the possible reasons why the populations of some countries are more at risk from coastal flooding than others.

You **must** refer to the resource in your answer.

(8)

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(Total for Question 2 = 25 marks)

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If you answer Question 3, put a cross in the box ☒ .

3 Hazardous environments

(a) Identify the plate boundary where volcanoes **do not** form.

(1)

☒ **A** conservative (transform)

☒ **B** constructive (divergent)

☒ **C** destructive (convergent)

☒ **D** hotspot

(b) (i) Identify the correct way to measure tropical cyclone intensity.

(1)

☒ **A** Mercalli scale

☒ **B** Moment magnitude scale

☒ **C** Richter scale

☒ **D** Saffir-Simpson scale

(ii) State **one** characteristic of a tropical cyclone.

(1)

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(iii) Explain **one** reason tropical cyclones lose their energy when they reach land.

(2)

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(c) Explain **two** reasons preparation for earthquakes may be more effective in some countries than others.

(4)

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(d) Explain **one** physical factor that can make people more vulnerable to natural hazards.

(3)

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(e) Study Figure 3a in the Resource Booklet.

Identify the volcanic hazard labelled **X**.

(1)

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(f) Study Figure 3b in the Resource Booklet.

Suggest **two** reasons for the distribution of volcanoes.

(4)

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(g) Study Figure 3c in the Resource Booklet.

Analyse the impacts of the volcanic eruption on the environment.

You **must** refer to the resource in your answer.

(8)

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(Total for Question 3 = 25 marks)

TOTAL FOR SECTION A = 50 MARKS

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SECTION B

Geographical enquiry

Answer ONE question from this section.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

If you answer Question 4, put a cross in the box ☐ .

4 Investigating river environments

A group of students has undertaken an enquiry that investigated changes within a river channel along its course.

(a) (i) Identify **one** piece of equipment used to measure gradient.

(1)

☐ **A** calliper

☐ **B** clinometer

☐ **C** compass

☐ **D** quadrat

(ii) State **one** risk the students should have prepared for when carrying out their river fieldwork.

(1)

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(b) Study Figure 4a in the Resource Booklet. It shows some data about the average channel depth at the 10 sites where data was collected.

Calculate the range in river depth.

You **must** show all your working in the space below.

(2)

..... cm

(c) (i) Study Figure 4b in the Resource Booklet.

Plot the data for sites 1 and 3, from Figure 4b (shown in the Resource Booklet), on Figure 4c (below).

(2)

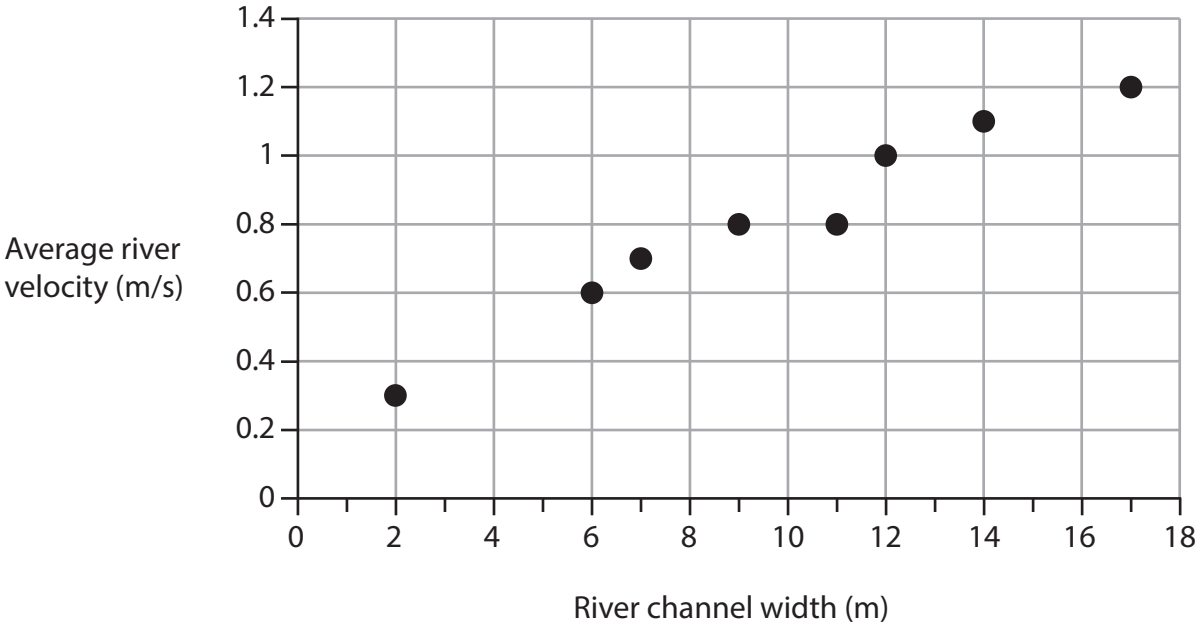

Figure 4c

Relationship between river width and average velocity

(ii) Draw a line of best fit on Figure 4c.

(1)

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(iii) Suggest **one** reason for the relationship shown on Figure 4c.

(2)

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(d) Explain **one other** primary data collection method students might have found useful in their river enquiry.

(3)

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(e) You have studied river processes as part of your own geographical enquiry.

Evaluate the accuracy and reliability of your data collection techniques.

(8)

Geographical enquiry title

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(Total for Question 4 = 20 marks)

If you answer Question 5, put a cross in the box ☐ .

5 Investigating coastal environments

A group of students has undertaken an enquiry that investigated beach characteristics along a stretch of coastline.

(a) (i) Identify **one** piece of equipment used to measure gradient.

(1)

☒ **A** calliper

☒ **B** clinometer

☒ **C** compass

☒ **D** quadrat

(ii) State **one** risk the students should have prepared for when carrying out their coastal fieldwork.

(1)

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.....

(b) Study Figure 5a in the Resource Booklet. It shows some data about the pebble length for 10 pebbles measured at site 2.

Calculate the range in sediment size at site 2.

You **must** show all your working in the space below.

(2)

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(c) (i) Study Figure 5b in the Resource Booklet.

Plot the data for sites 1 and 3, from Figure 5b (shown in the Resource Booklet), on Figure 5c (below).

(2)

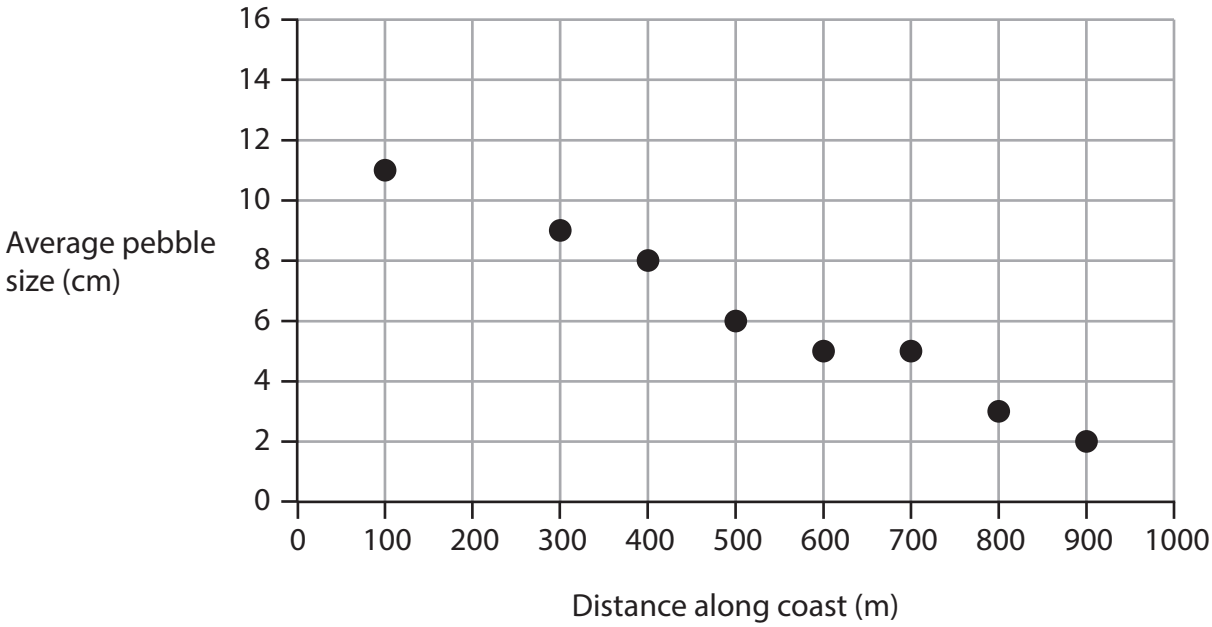

Figure 5c

Relationship between distance along the coast and average pebble size

(ii) Draw a line of best fit on Figure 5c.

(1)

(iii) Suggest **one** reason for the relationship shown on Figure 5c.

(2)

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(d) Explain **one other** primary data collection method students might have found useful in their coastal enquiry.

(3)

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(e) You have studied a coastal environment as part of your own geographical enquiry.

Evaluate the accuracy and reliability of your data collection methods.

(8)

Geographical enquiry title

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(Total for Question 5 = 20 marks)

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If you answer Question 6, put a cross in the box ☒ .

6 Investigating hazardous environments

A group of students has undertaken an enquiry that investigated changes in the weather as part of their studies into hazardous environments.

(a) (i) Identify **one** piece of equipment used to measure air pressure.

(1)

☒ **A** barometer

☒ **B** clinometer

☒ **C** compass

☒ **D** thermometer

(ii) State **one** risk the students should have prepared for when carrying out their hazardous environment fieldwork.

(1)

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(b) Study Figure 6a in the Resource Booklet. It shows some data about the average temperature at the 10 sites where data was collected.

Calculate the range in temperature.

You **must** show all your working in the space below.

(2)

..... °C

(c) (i) Study Figure 6b in the Resource Booklet.

Plot the data for sites 1 and 3, from Figure 6b (shown in the Resource Booklet), on Figure 6c (below).

(2)

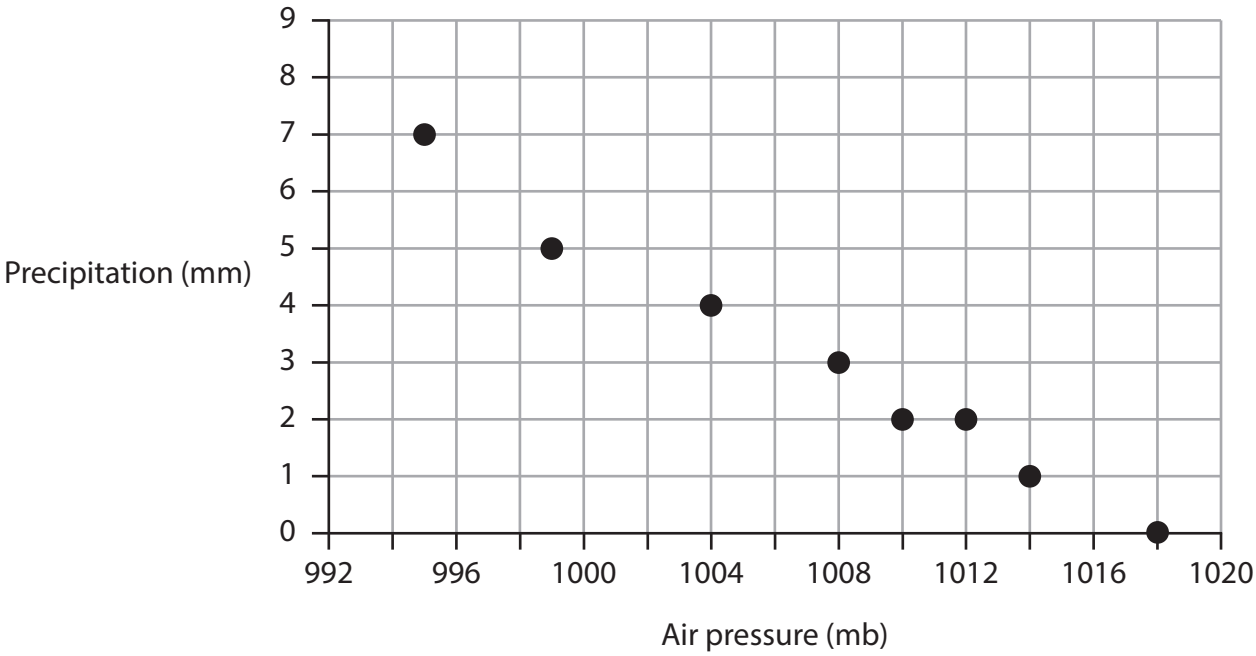

Figure 6c

Relationship between air pressure and precipitation

(ii) Draw a line of best fit on Figure 6c.

(1)

(iii) Suggest **one** reason for the relationship shown on Figure 6c.

(2)

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(d) Explain **one other** primary data collection method students might have found useful in their weather enquiry.

(3)

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(e) You have studied a hazardous environment as part of your own geographical enquiry.

Evaluate the accuracy and reliability of your data collection methods.

(8)

Geographical enquiry title

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(Total for Question 6 = 20 marks)

TOTAL FOR SECTION B = 20 MARKS
TOTAL FOR PAPER = 70 MARKS

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Pearson Edexcel International GCSE (9–1)

Friday 17 May 2024

Afternoon (Time: 1 hour 10 minutes)

Paper reference **4GE1/01**

Geography

PAPER 1: Physical geography

Resource Booklet

Do not return this Booklet with the question paper.

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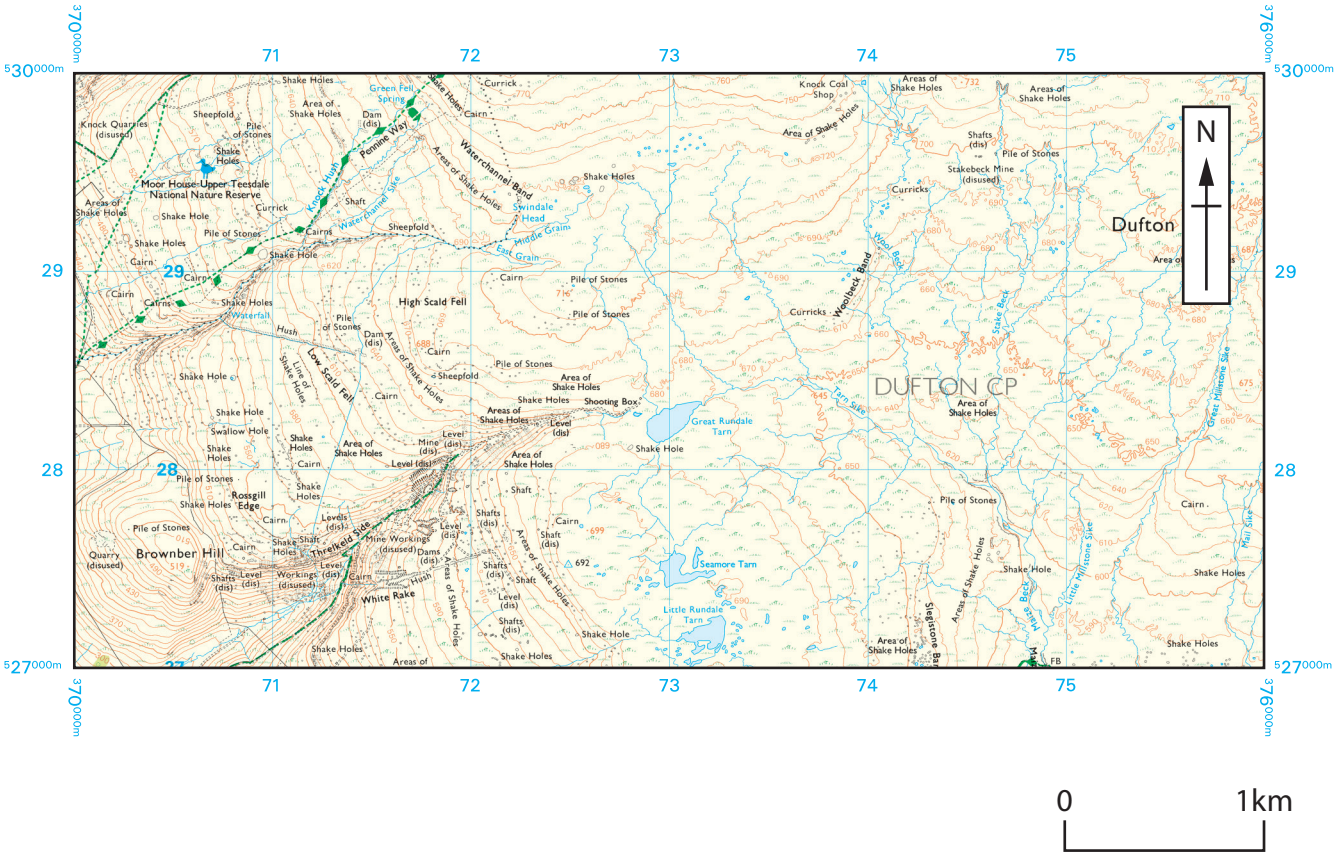
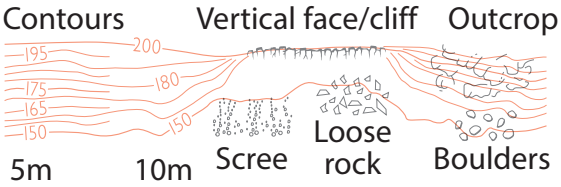


Key

Contour lines shown at 10m intervals



Footpath

52 · Ground survey height

National Trail

Recreational route

Water; mud

Marsh, reeds or saltings

Bracken, heath or rough grassland

Figure 1a

OS map of an upland river landscape

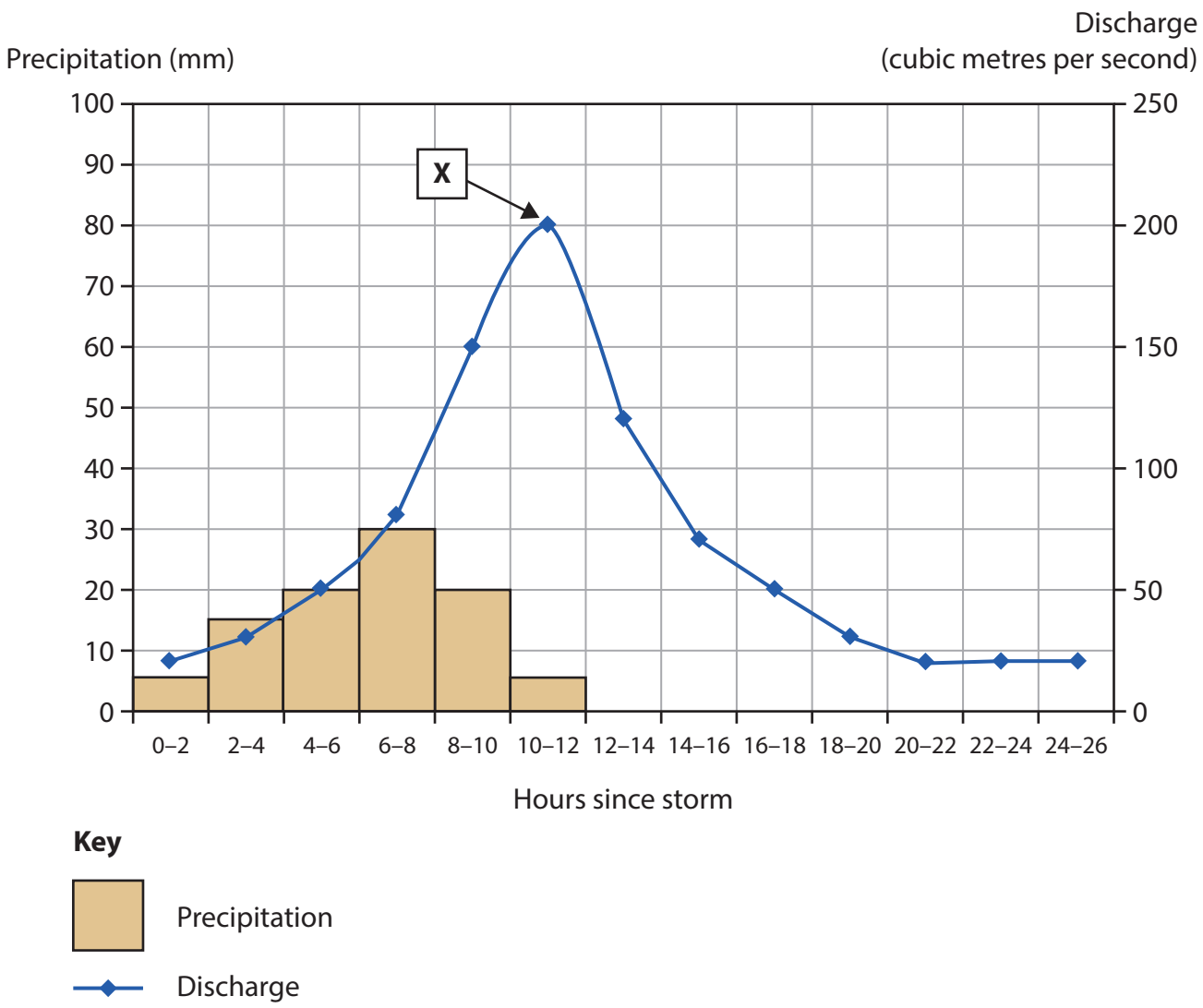
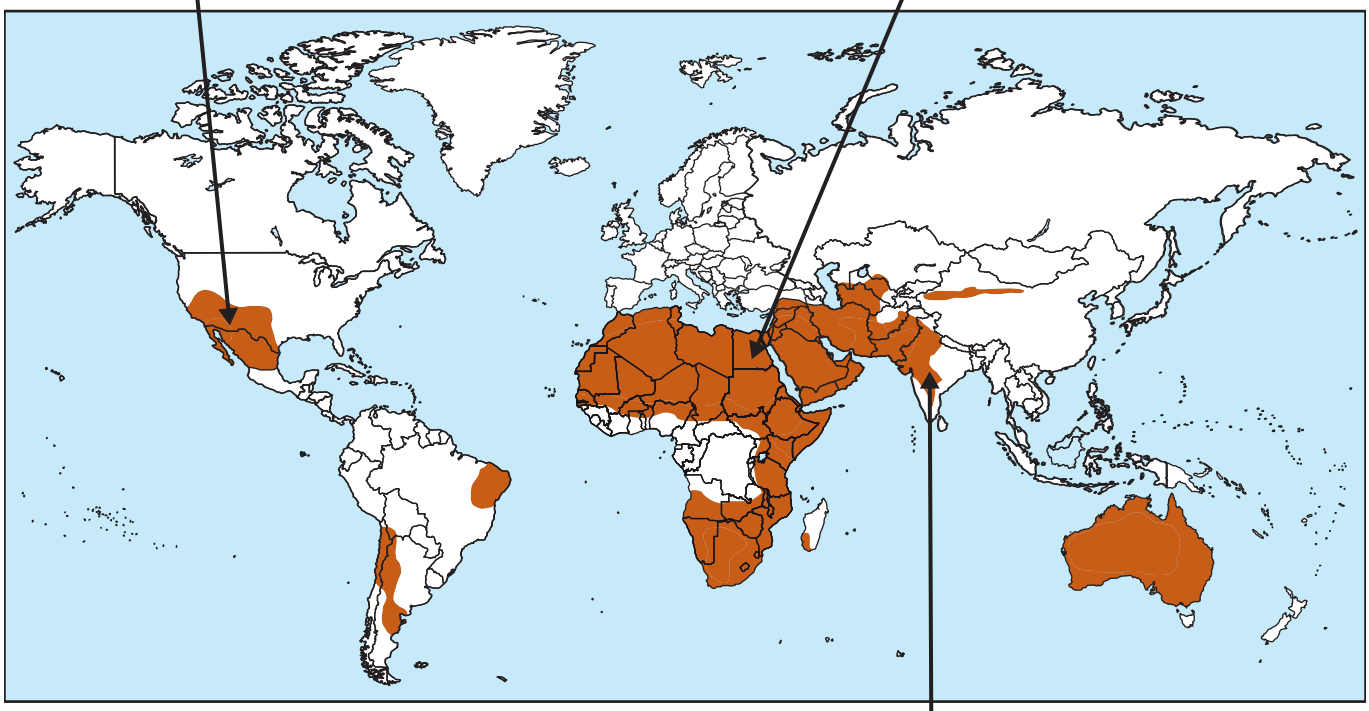


Figure 1b

Storm hydrograph

Southwestern USA
Population density: 154 people/km^2
Average annual precipitation: 454 mm
Average hours of sunshine per year: 4,000

Egypt
Population density: 111 people/km^2
Average annual precipitation: 22 mm
Average hours of sunshine per year: 4,400



Key

Areas of high water shortage

India
Population density: 464 people/km^2
Average annual precipitation: 1,236 mm
Average hours of sunshine per year: 3,000

Figure 1c

Areas of water shortage and selected data

Key

	Camp site or Caravan site	Sch	School
P P&R P&R	Parking / Park and ride, all year / seasonal	+	Place of worship
		Current or former place of worship	
			– with tower
	Recreational route		– with spire, minaret or dome
	Water; mud		Beacon

Figure 2a

OS map extract showing a coastal landscape

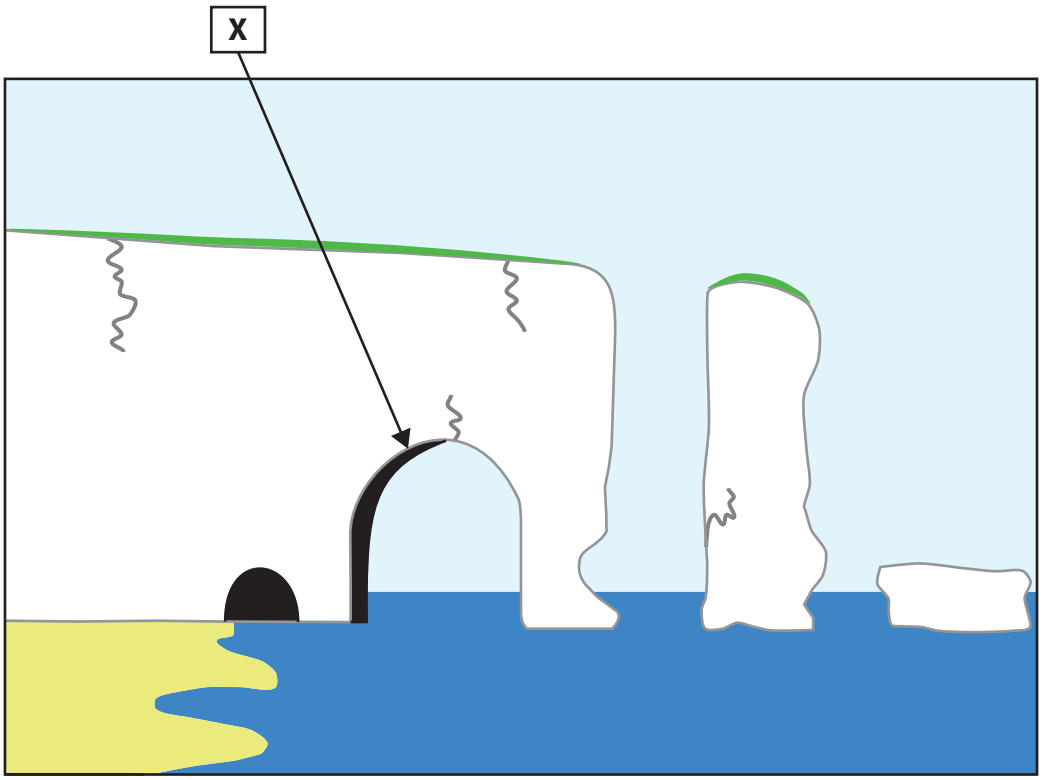
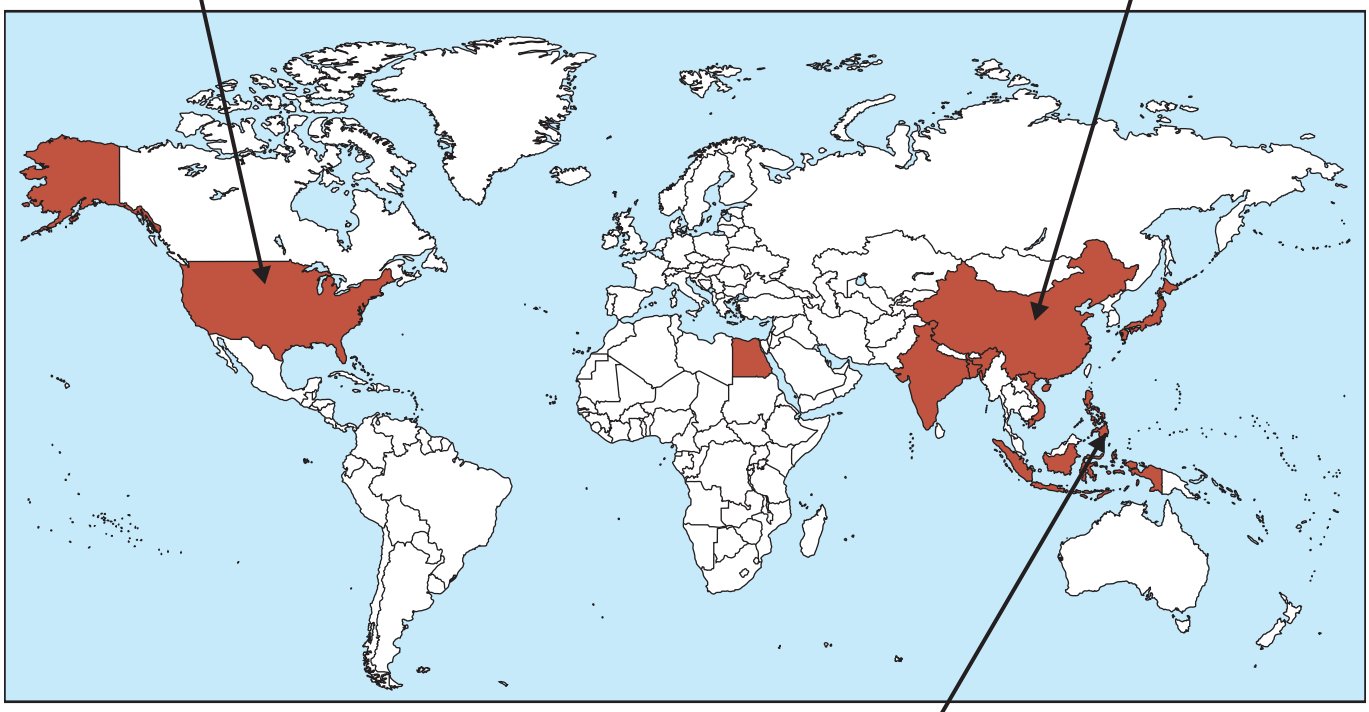


Figure 2b

Coastal landforms

USA
Total number of people living in low-lying coastal areas: 34 million
Percentage of total urban population living in low-lying urban areas: 61.4%
Recorded storm surges in 21st century: 21

China
Total number of people living in low-lying coastal areas: 204 million
Percentage of total urban population living in low-lying urban areas: 18.1%
Recorded storm surges in 21st century: 392



Key

Countries with large populations living in low-lying coastal areas

Philippines
Total number of people living in low-lying coastal areas: 23.8 million
Percentage of total urban population living in low-lying urban areas: 11.9%
Recorded storm surges in 21st century: 154

Figure 2c

Countries with a large population living in low-lying coastal areas and selected data

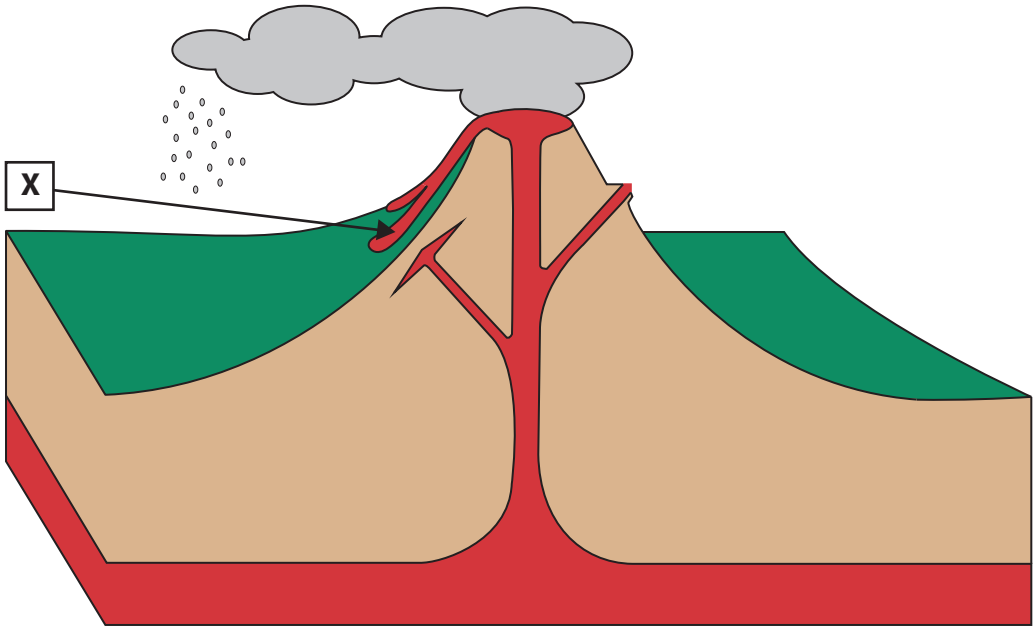
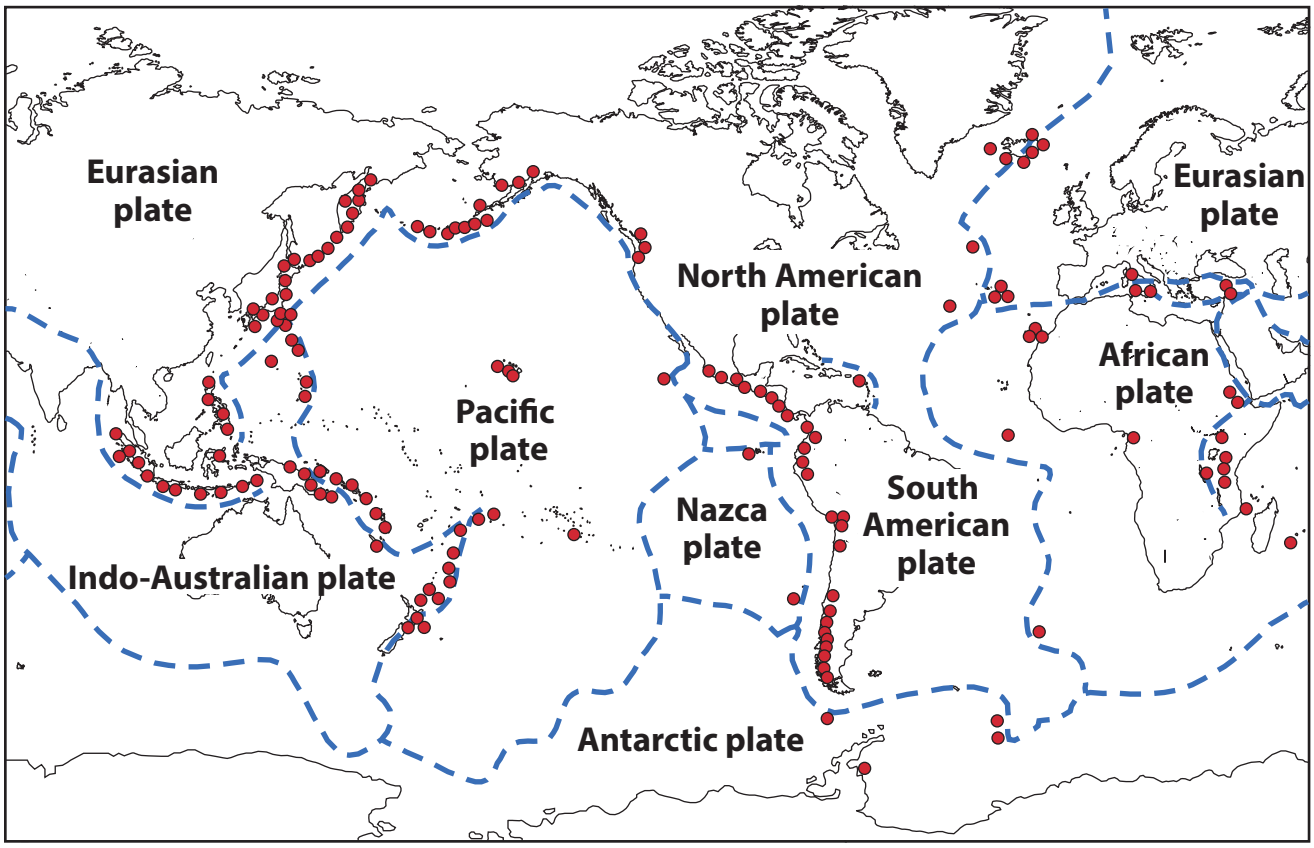


Figure 3a

Features of a volcanic eruption



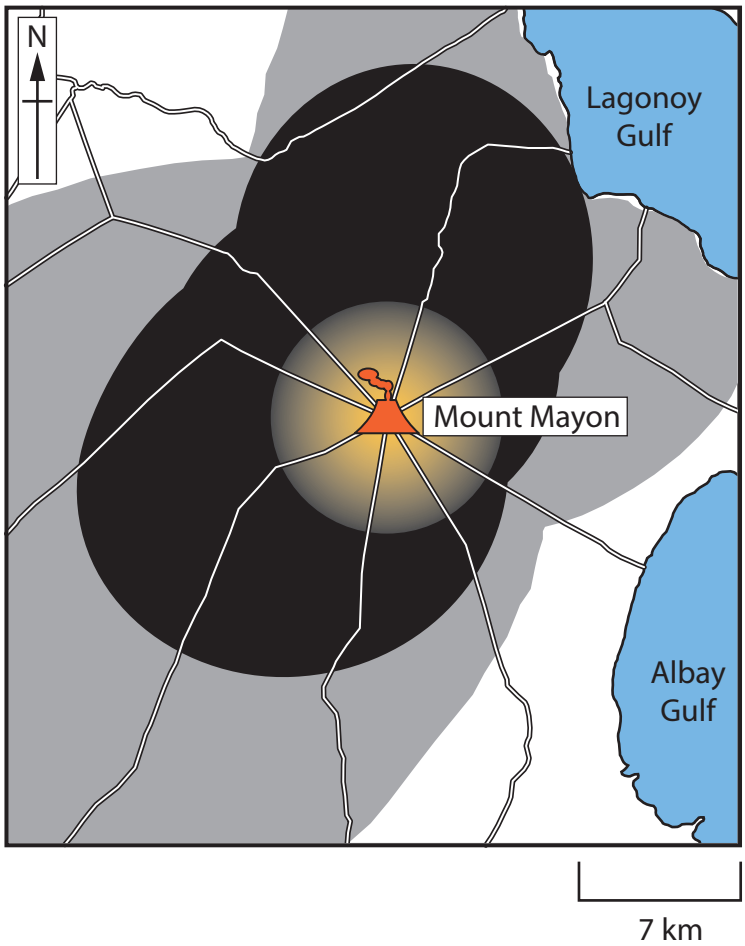
Key

Volcano

Plate boundaries

Figure 3b

Global distribution of volcanoes



Area covered by ash after the Mount Mayon eruption, Philippines, January 2018

Key

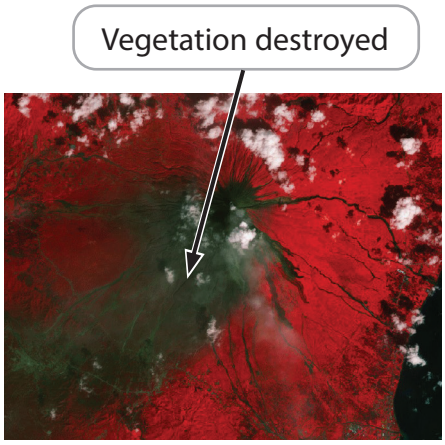
- Highly prone to ash fall
- Moderately prone to ash fall
- Least prone to ash fall

Water pollution at base of Mount Mayon

29 rivers around the volcano were silted with volcanic ash making the water unsafe to drink and irritating animal skin.

Farming at base of Mount Mayon

US$3.3 million of crops were destroyed affecting 9,800 farmers and covering 7,100 hectares.



Vegetation cover after eruption

(Red – vegetation cover / Green destroyed vegetation)

Lava flowed up to 3 km from the crater destroying large areas of vegetation in the National Park which has 239 vegetation species.

Figure 3c

Selected impacts from Mount Mayon eruption, Philippines, January 2018

Site	Average river channel depth (cm)
1	12
2	5
3	14
4	23
5	41
6	36
7	47
8	51
9	50
10	63

Figure 4a

Average river depth data for each site

Site	River width (m)	Average river velocity (m/s)
1	**1**	**0.2**
2	2	0.3
3	**4**	**0.4**
4	6	0.6
5	7	0.7
6	9	0.8
7	11	0.8
8	12	1.0
9	14	1.1
10	17	1.2

Figure 4b

River width and average velocity data for each site

Sample	Pebble length (cm)
1	6
2	11
3	16
4	9
5	15
6	12
7	17
8	4
9	8
10	13

Figure 5a

Pebble sizes for Site 2

Site	Distance along coast (m)	Average pebble length (cm)
1	**0**	**14**
2	100	11
3	**200**	**10**
4	300	9
5	400	8
6	500	6
7	600	5
8	700	5
9	800	3
10	900	2

Figure 5b

Average pebble length along 900 m stretch of coastline

Site	Average temperature (°C)
1	12
2	18
3	22
4	24
5	24
6	23
7	19
8	17
9	14
10	13

Figure 6a

Average temperature for each site

Site	Air pressure (mb)	Precipitation (mm)
1	**994**	**8**
2	995	7
3	**998**	**6**
4	999	5
5	1004	4
6	1008	3
7	1010	2
8	1012	2
9	1014	1
10	1018	0

Figure 6b

Air pressure and precipitation for each site

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