Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel Level 3 GCE

Tuesday 16 May 2023

Afternoon (Time: 1 hour 45 minutes)

Paper reference **8GE0/01**

Geography

Advanced Subsidiary

PAPER 1: Dynamic Landscapes

You must have:
Resource Booklet (enclosed)
Calculator, ruler

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.
- Answer Question 1 in Section A **and EITHER** Section B **OR** Section C.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- Any **calculations** must show **all** stages of **working out** and a **clear answer**.

Information

- The total mark for this paper is 90.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Calculators may be used.

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 0 9 3 1 R A 0 1 3 2

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Answer Section A and EITHER Section B OR Section C.

SECTION A

Tectonic Processes and Hazards

Answer ALL questions. Write your answers in the spaces provided.

You must use the Resource Booklet provided.

1 (a) State **one** hazard caused by an earthquake.

(1)

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

(i) Compare the data about earthquakes before and after 2005.

(2)

(ii) Suggest **one** reason why this data might concern the governments of Iraq and Iran.

(3)

(c) Tectonic mega-disasters can have regional or even global impacts.

Explain **two** impacts of a tectonic mega-disaster.

(4)

1 .....

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2 .....

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(d) Explain the global distribution of volcanic eruptions.

(6)

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

Assess the effectiveness of strategies used to modify the impact of these earthquakes.

(12)

(Total for Question 1 = 28 marks)

TOTAL FOR SECTION A = 28 MARKS

SECTION B

Glaciated Landscapes and Change

Do not answer Section B (Glaciated Landscapes and Change) if you have answered SECTION C (Coastal Landscapes and Change).

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 Section B, put a cross in the box ☒ .

You must use the Resource Booklet provided.

2 (a) Study Figures 2a and 2b in the Resource Booklet.

The Snowdon Mountain Railway is a major tourist attraction in Snowdonia, a National Park in Wales. Snowdonia is a relict glaciated landscape.

(i) There are different approaches to managing glaciated landscapes.

Identify which approach is the **most** likely to have been taken here.

(1)

☒ **A** Multiple economic uses

☒ **B** Total exploitation

☒ **C** Total protection

☒ **D** Global legislative framework

(ii) The line AB is the distance between the start and the end of the Snowdon Mountain Railway.

Calculate the length of line AB in Figure 2a.

Show your working.

Give your answer, in kilometres, to 1 decimal place.

(2)

.....km

(iii) Suggest **one** reason why this landscape might have value.

(3)

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(b) Explain **two** natural causes of climate change.

(4)

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(c) Explain how glacial deposition landforms can help reconstruct former ice extent and movement.

(6)

(d) Assess the contribution of glacial meltwater in the formation of glaciated landscapes.

(12)

(Total for Question 2 = 28 marks)

3 (a) Study Figure 3 below.

A group of students were preparing to collect fieldwork data about glacial landform orientation in the Scottish Highlands.

As part of their preparations they consulted previous studies about the orientations of corries.

They showed their findings on a rose diagram, shown below.

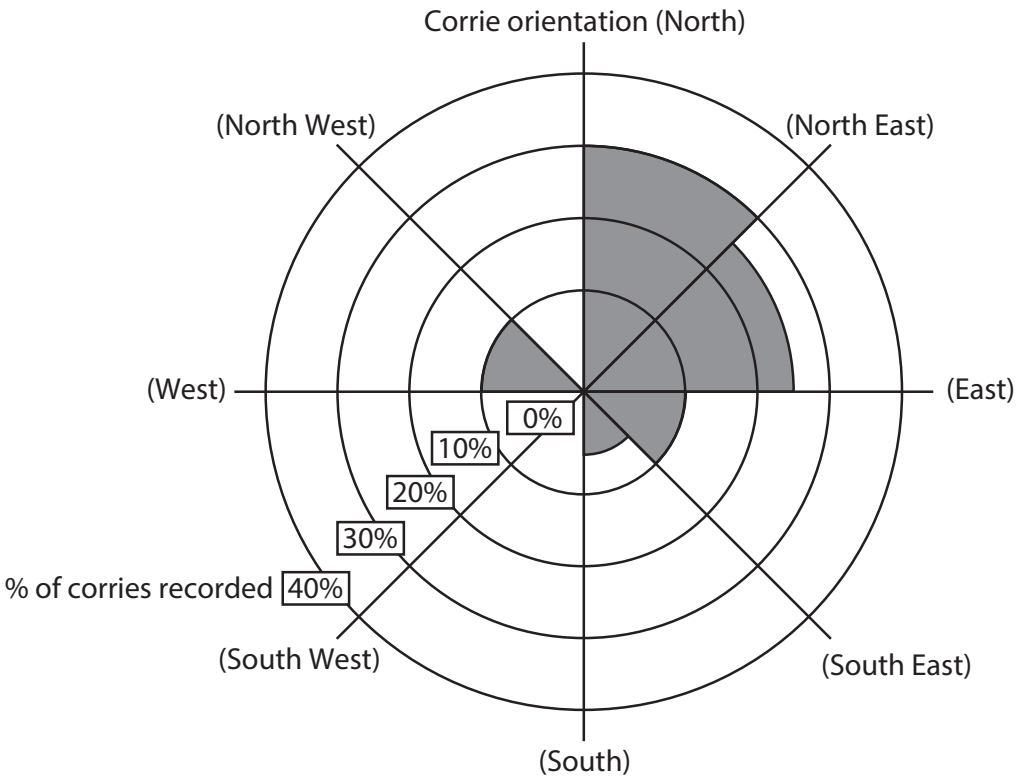

Figure 3

Corrie orientation in part of Scottish Highlands

(i) Complete the rose diagram above to show the % of corries orientated NW-N using data in the table below.

Corrie orientation	% of corries
NW-N	20%

(1)

(ii) Identify the category that is the dominant orientation of corries.

(1)

- ☒ **A** N-NE
- ☒ **B** E-SE
- ☒ **C** SW-W
- ☒ **D** W-NW

(iii) Identify the most suitable statistical technique to test if there is a significant difference between the observed and expected number of corries that are orientated in a particular direction.

(1)

- ☒ **A** Chi-squared
- ☒ **B** Lorenz curve
- ☒ **C** Spearman's rank
- ☒ **D** T-test

(iv) Suggest a suitable hypothesis or key question that the students could investigate.

(2)

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The students then planned to collect primary fieldwork about landform orientation in the surrounding area.

(v) Explain **two** primary fieldwork methods that could be used to extend this investigation.

(4)

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2 .....

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(b) You have carried out an investigation into glaciated landscapes and change.

Assess the value of secondary data at different stages of your geographical investigation.

(9)

Geographical enquiry question

(Total for Question 3 = 18 marks)

Use your knowledge and understanding from across the course of study, along with the information in Figure 4, to answer this question.

4 Study Figures 4a, 4b, 4c and 4d in the Resource Booklet.

Evaluate the extent to which the distinctive landscape in the St Elias-Wrangell mountain range is caused by tectonic activity.

(16)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 4 = 16 marks)

TOTAL FOR SECTION B = 62 MARKS

SECTION C

Coastal Landscapes and Change

Do not answer Section C (Coastal Landscapes and Change) if you have answered SECTION B (Glaciated Landscapes and Change).

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 Section C put a cross in the box ☒ .

You must use the Resource Booklet provided.

5 (a) Study Figures 5a and 5b in the Resource Booklet.

Portstewart Strand is a major coastal attraction in Northern Ireland. It is managed by the National Trust.

The line AB is the distance from the start to the end of Portstewart Strand.

(i) There are different approaches to managing coastal landscapes.

Identify which approach is the **most** likely to be suitable for Portstewart Strand.

(1)

☒ **A** Offshore breakwater

☒ **B** Dune stabilisation

☒ **C** Revetments

☒ **D** Sea wall

(ii) Calculate the length of line AB in Figure 5a.

Show your working.

Give your answer, in kilometres, to 1 decimal place.

(2)

.....km

(iii) Suggest **one** reason why this landscape has amenity value.

(3)

(b) Explain **two** ways that geological structure influences coastal landforms.

(4)

1

2

(c) Explain how transport and deposition processes produce distinctive coastal landforms.

(6)

(d) Assess the contribution of eustatic sea level change to the rate of coastal recession.

(12)

(Total for Question 5 = 28 marks)

6 (a) Study Figure 6 below.

A group of students were preparing to collect fieldwork data about the movement of coastal sediment in Cornwall, SW England.

As part of their preparations they consulted a website that showed data about the typical wind direction at their fieldwork location for one month.

This data was presented on a rose diagram, shown below.

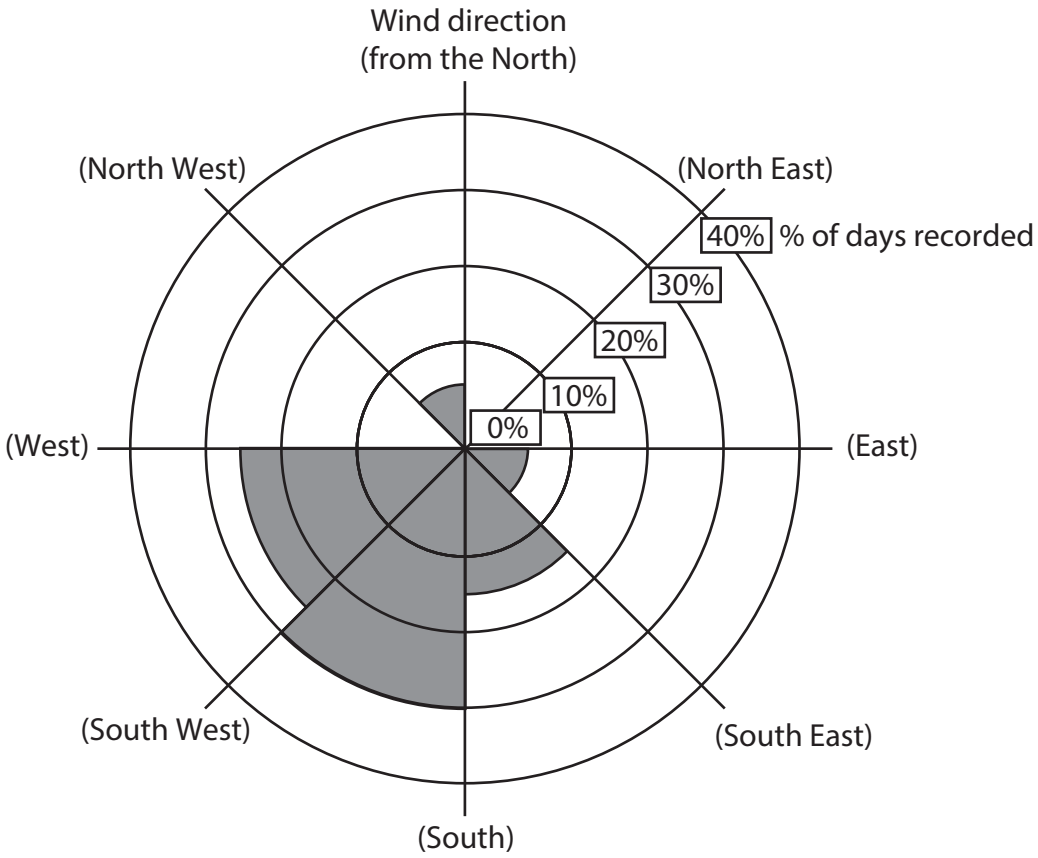

Figure 6

Wind directions in one month in Cornwall

(i) Complete the rose diagram above to show the % of days that the wind came from W-NW using data in the table below.

Wind direction	% of days recorded
W-NW	20%

(1)

(ii) Identify the category that is the dominant wind direction.

(1)

- ☒ **A** S-SW
- ☒ **B** E-SE
- ☒ **C** W-NW
- ☒ **D** NW-N

(iii) Identify the most suitable statistical technique to test if there is a significant difference between the observed and expected number of days that wind came from a particular direction.

(1)

- ☒ **A** Chi-squared
- ☒ **B** Lorenz curve
- ☒ **C** Spearman's rank
- ☒ **D** T-test

(iv) Suggest a suitable hypothesis or key question that the students could investigate.

(2)

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.....

The students then planned to collect primary fieldwork about coastal sediment in the surrounding area.

(v) Explain **two** primary fieldwork methods that could be used to extend this investigation.

(4)

1 .....

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(b) You have carried out an investigation into coastal landscapes and change.

Assess the value of secondary data at different stages of your geographical investigation.

(9)

Geographical enquiry question

(Total for Question 6 = 18 marks)

Use your knowledge and understanding from across the course of study, along with the information in Figure 7, to answer this question.

7 Study Figures 7a, 7b, 7c and 7d in the Resource Booklet.

Evaluate the extent to which the distinctive coastal landscape of Costa Rica is caused by tectonic activity.

(16)

(Total for Question 7 = 16 marks)

TOTAL FOR SECTION C = 62 MARKS
TOTAL FOR PAPER = 90 MARKS

Pearson Edexcel Level 3 GCE

Tuesday 16 May 2023

Afternoon (Time: 1 hour 45 minutes)

Paper reference **8GE0/01**

Geography

Advanced Subsidiary

PAPER 1: Dynamic Landscapes

Resource Booklet

Do not return this Booklet with the question paper.

Turn over ▶

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SECTION A

The following resources relate to Question 1.

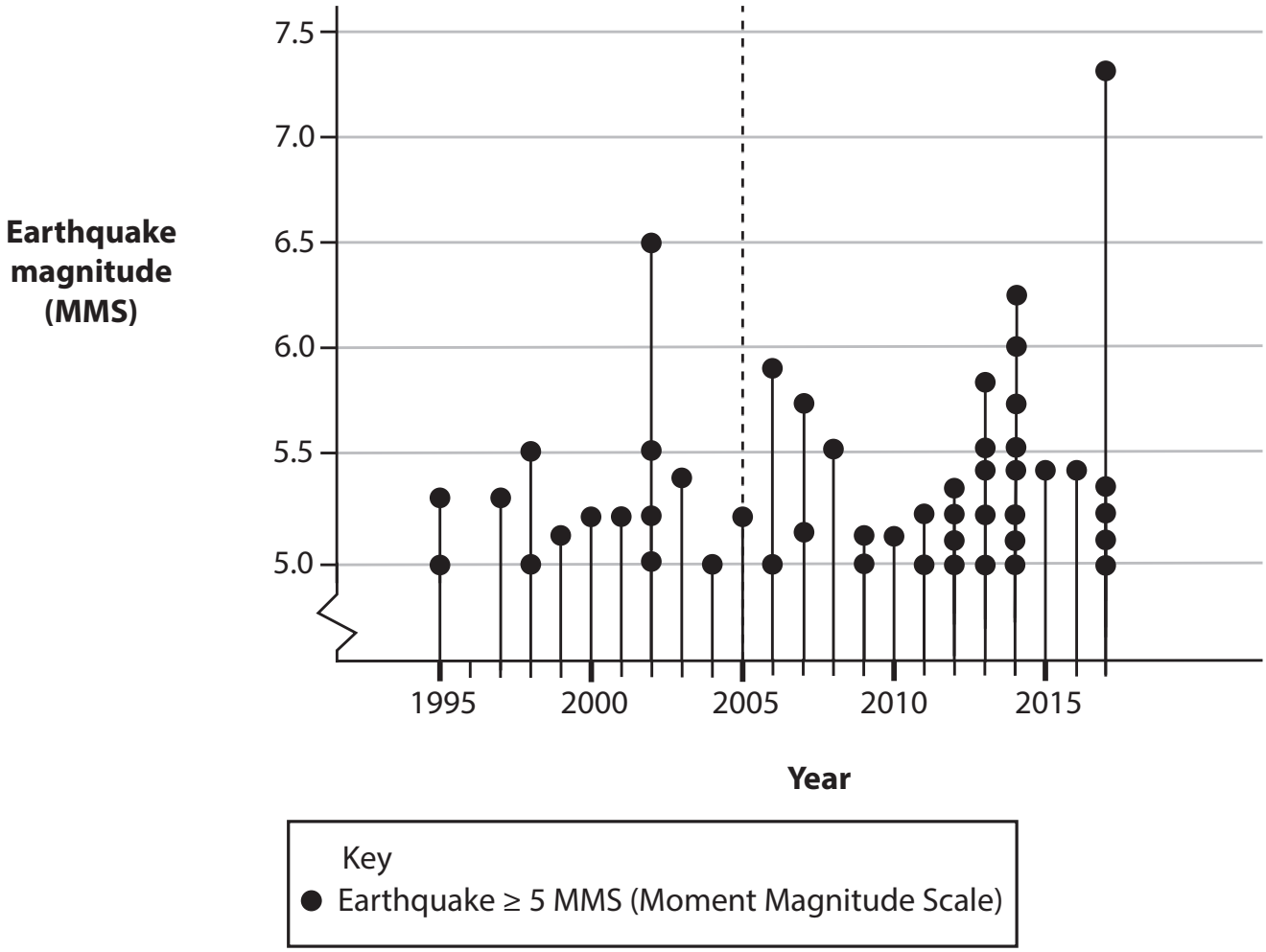


Figure 1a

Significant earthquakes (magnitude 5 and above) in Iran and Iraq, 1995–2017

Ridgecrest is a settlement of 28,000 in a rural part of California, USA. The nearby military base is a major employer and the nearest major city (Los Angeles) is 250km away.

In July 2019 the region experienced a series of earthquakes, the most powerful in 20 years.

- July 4th – Magnitude 6.4
- July 5th – Magnitude 7.1 (main earthquake)
- July 5th – Magnitude 5.4 (strongest aftershock)

The community has struggled to recover from these earthquakes.

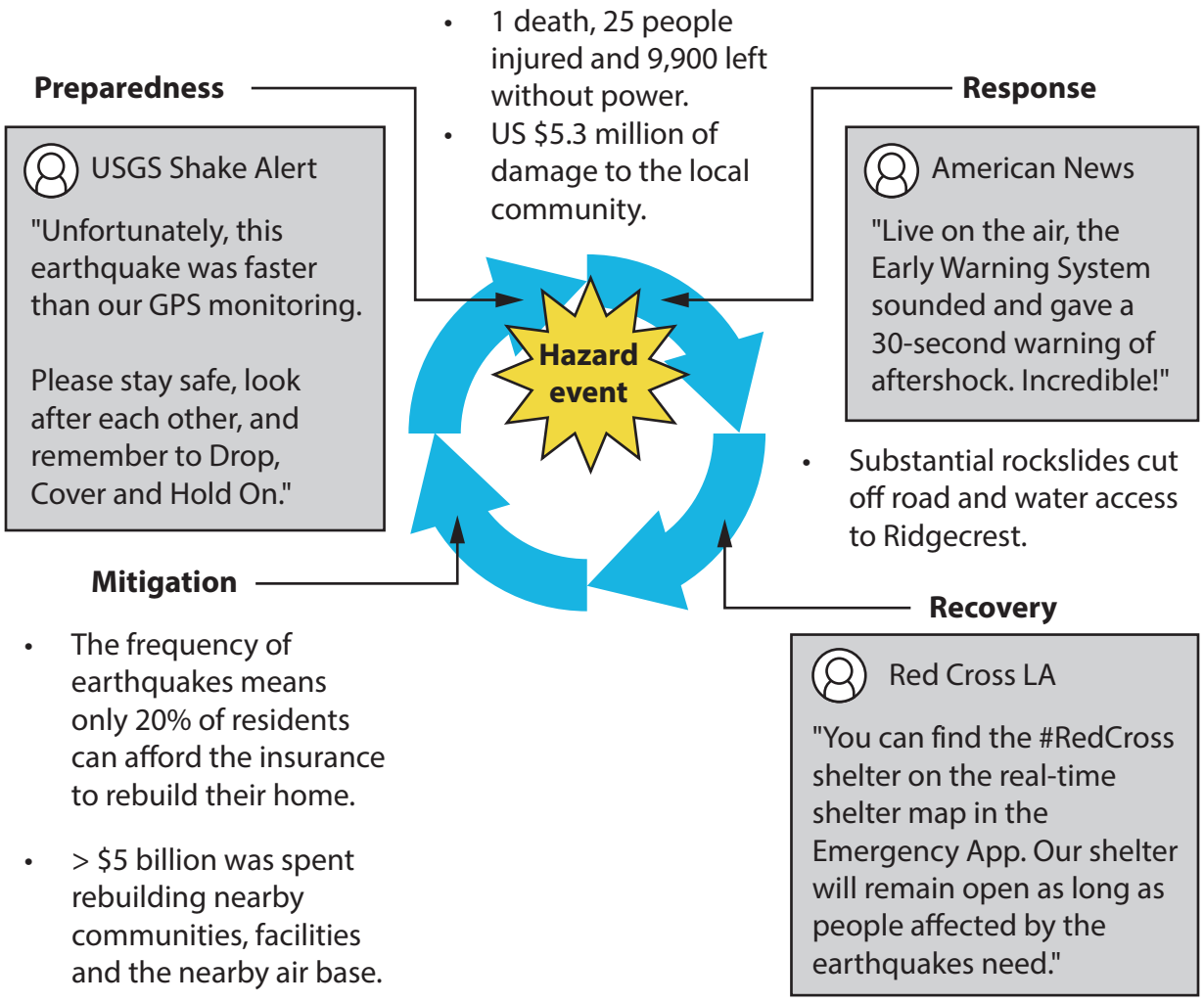


Figure 1b

Information about the Ridgecrest earthquakes, 2019, including selected social media coverage

SECTION B

The following resources relate to Question 2.

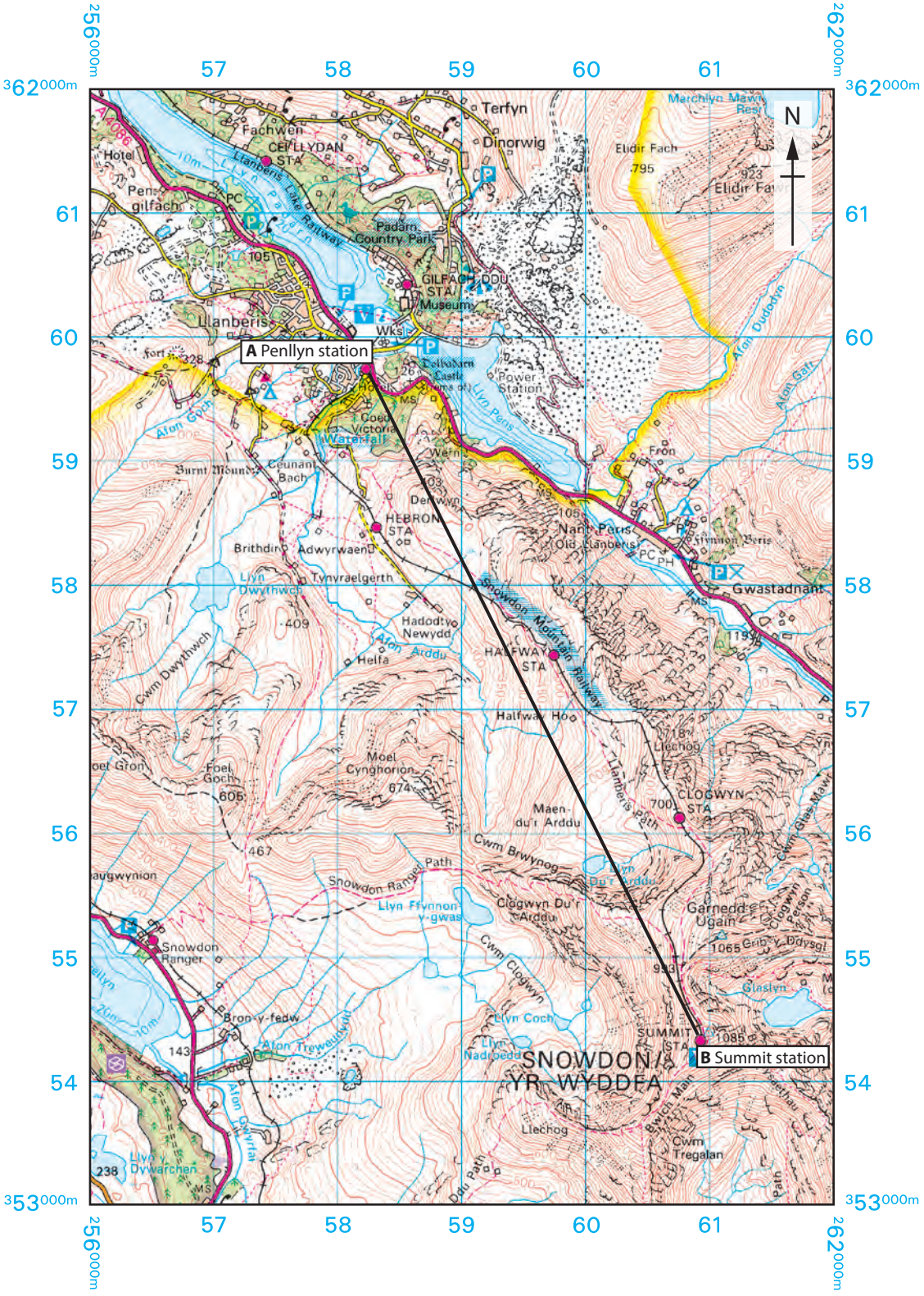


Figure 2a

OS map of the area around Yr Wyddfa (Snowdon), North Wales

Key for figure 2a

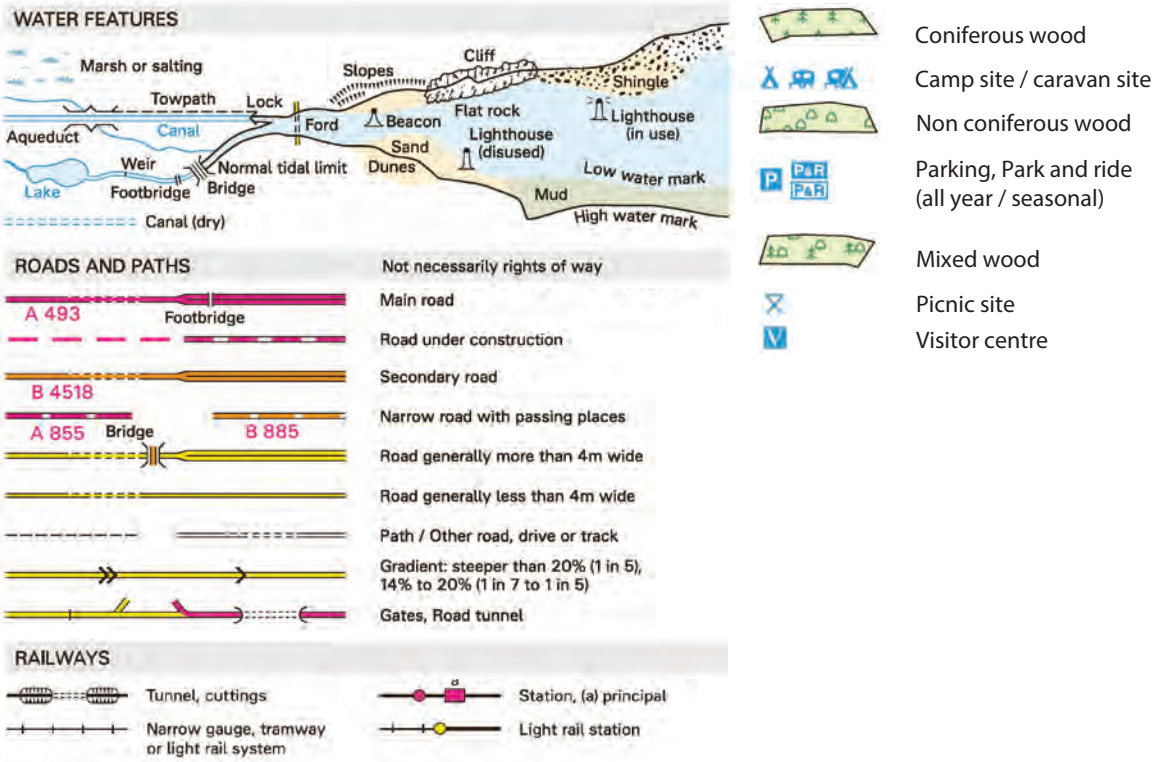


Figure 2b

Snowdon Mountain Railway

The following resources relate to Question 4.

- The St Elias-Wrangell mountain range is part of a tectonically active region in Canada and Alaska. Many of the mountains are above 5,000m.
- The North American plate converges with the Pacific Plate in the Gulf of Alaska creating a subduction zone. The mountains are growing at a rate of 45-50mm/yr, one of the fastest in the world.
- The high altitude environment and ocean proximity are ideal for high rates of glacial accumulation. Temperate glaciers move quickly, removing large amounts of rock. However, some glaciers are retreating due to global warming.
- Small-scale seismic activity is frequent, causing uplift, faults, tsunami, landslides and avalanches. Mt Wrangell is the one active volcano, last erupting in 1902.

Figure 4a

Information about the St Elias-Wrangell mountain range, Alaska, USA

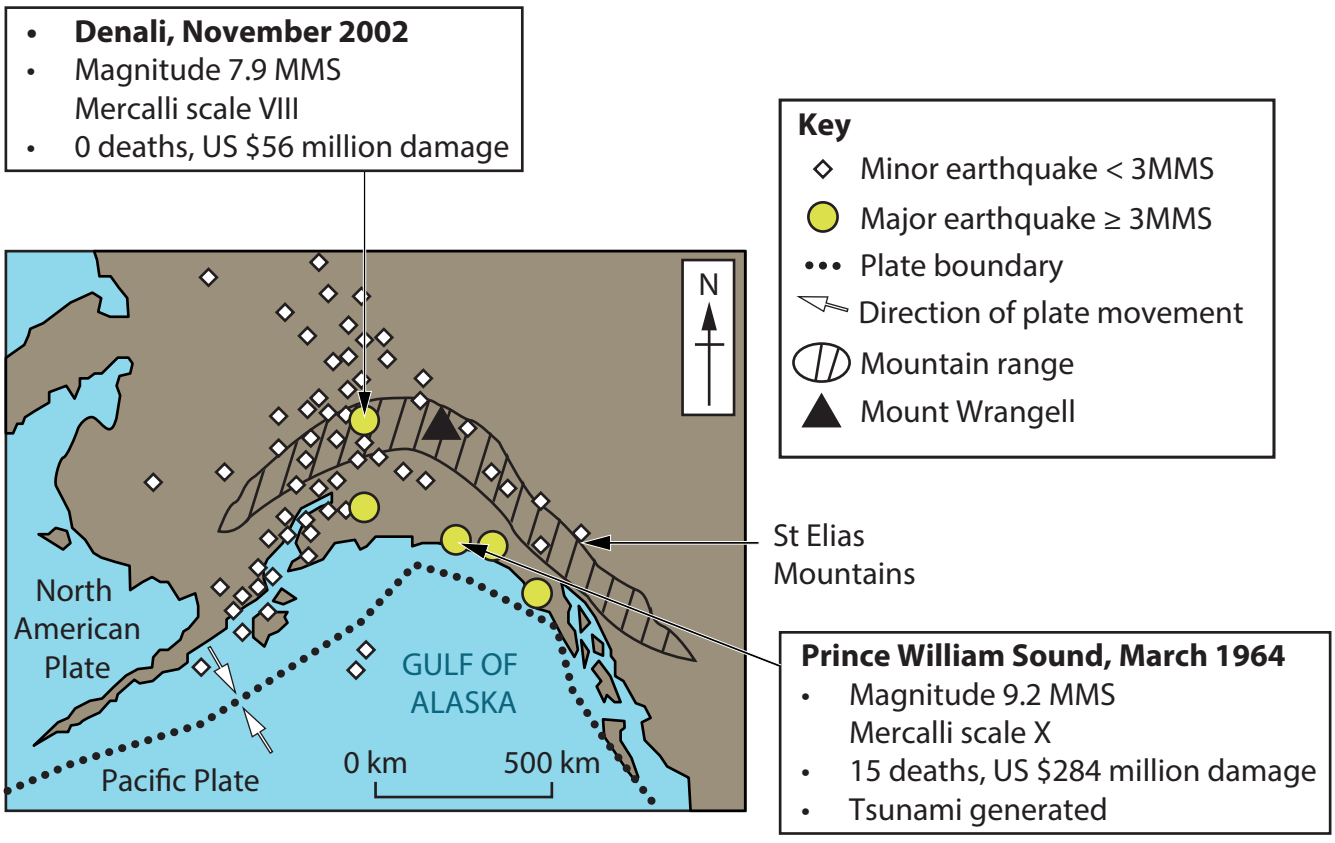


Figure 4b

Tectonic activity in the St Elias-Wrangell mountain range

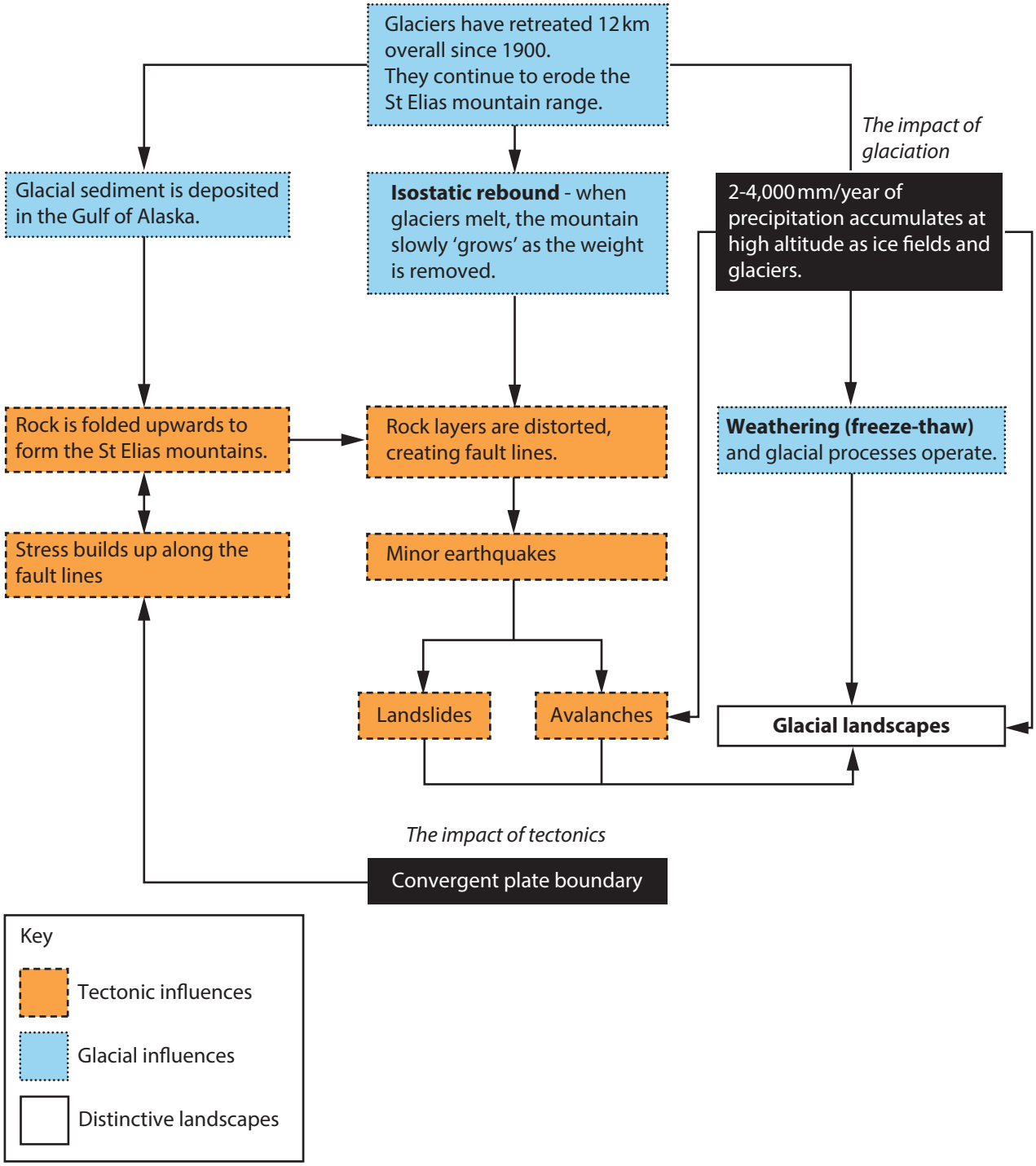
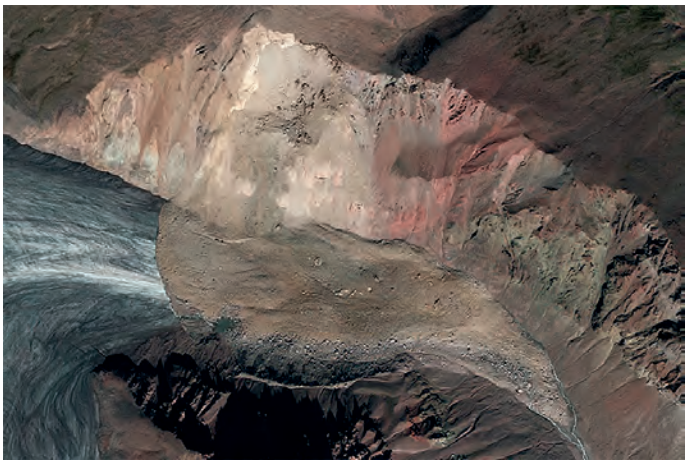


Figure 4c

Flow chart showing the interaction of tectonic and glacial processes in the St Elias-Wrangell mountain range

- There is volcanic activity in the mountain range.
- Geothermal heat surges can help melt glacial ice causing the glaciers to flow faster.

- Glaciers erode mountain sides and transport sediment into the Gulf of Alaska.
- Meltwater surges can transport large volumes of water and sediment more quickly.



- Steep mountain sides are vulnerable to mass movement, triggered by tectonic activity.
- Landslides sometimes block glacial meltwater.

Figure 4d

Three landscapes from the St Elias-Wrangell mountain range

SECTION C

The following resources relate to Question 5

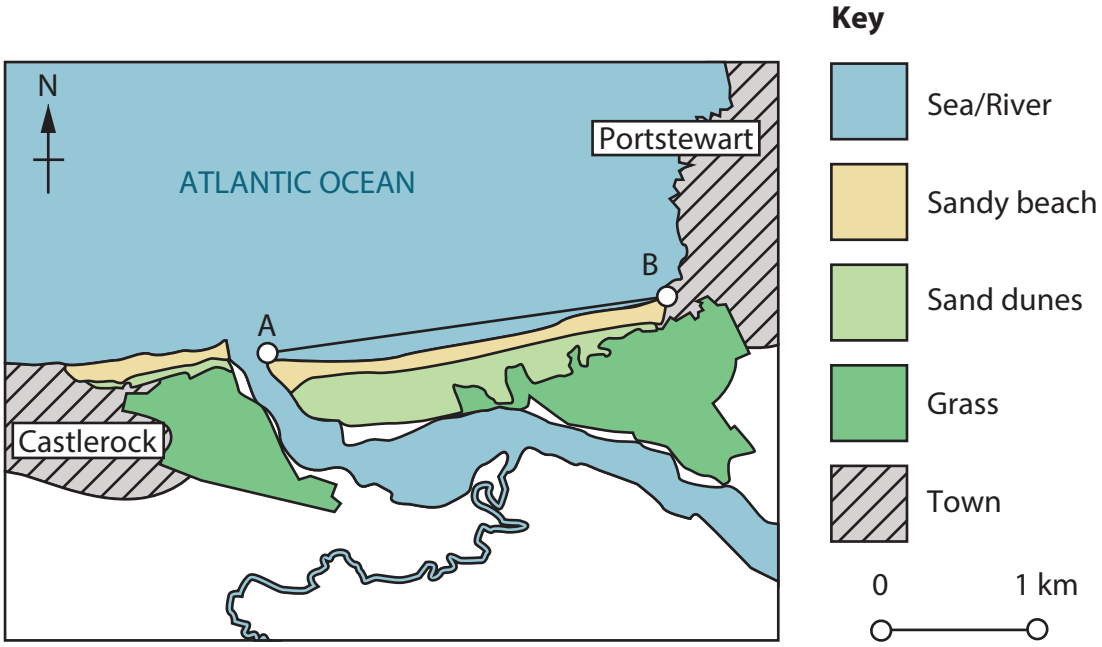


Figure 5a

Land use at Portstewart Strand, County Londonderry, Northern Ireland

Figure 5b

Portstewart Strand, County Londonderry, Northern Ireland

The following resources relate to Question 7.

- Costa Rica is a small tectonically active country in Central America. The country is on the Caribbean Plate – which converges with the Cocos Plate in the Pacific Ocean.
- Despite eustatic sea level rise, isostatic uplift means relative sea level is falling.
- Of the 14 known volcanoes, six have been active since 1950. They are part of the Central Volcanic Range.
- There are two coastlines with very different energy environments. The high energy West (Pacific) Coast is rocky, whilst the low energy East (Caribbean) Coast is a sandy coastal plain.

Figure 7a

Information about the two coastlines of Costa Rica

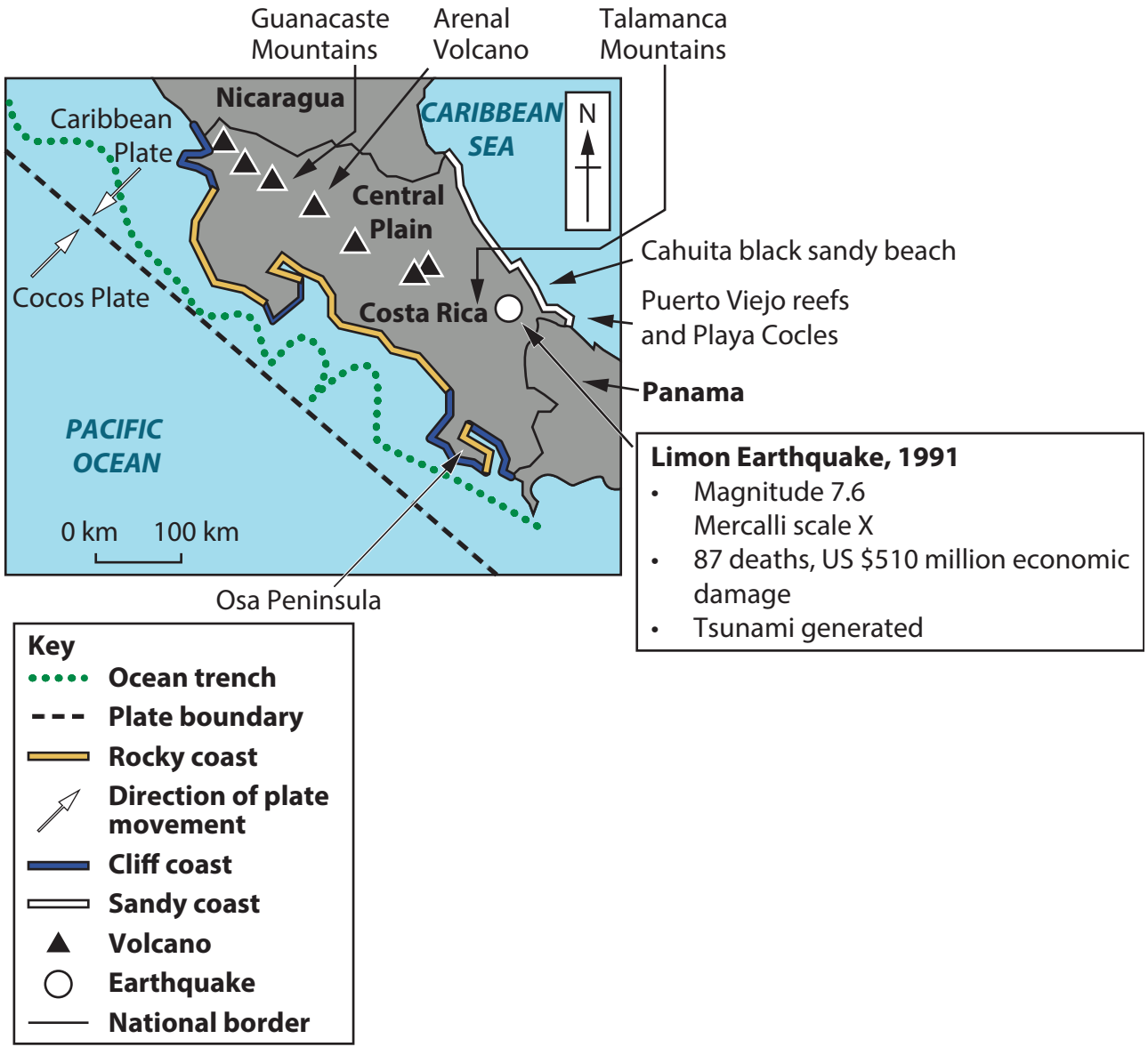


Figure 7b

Tectonic and coastal features of Costa Rica

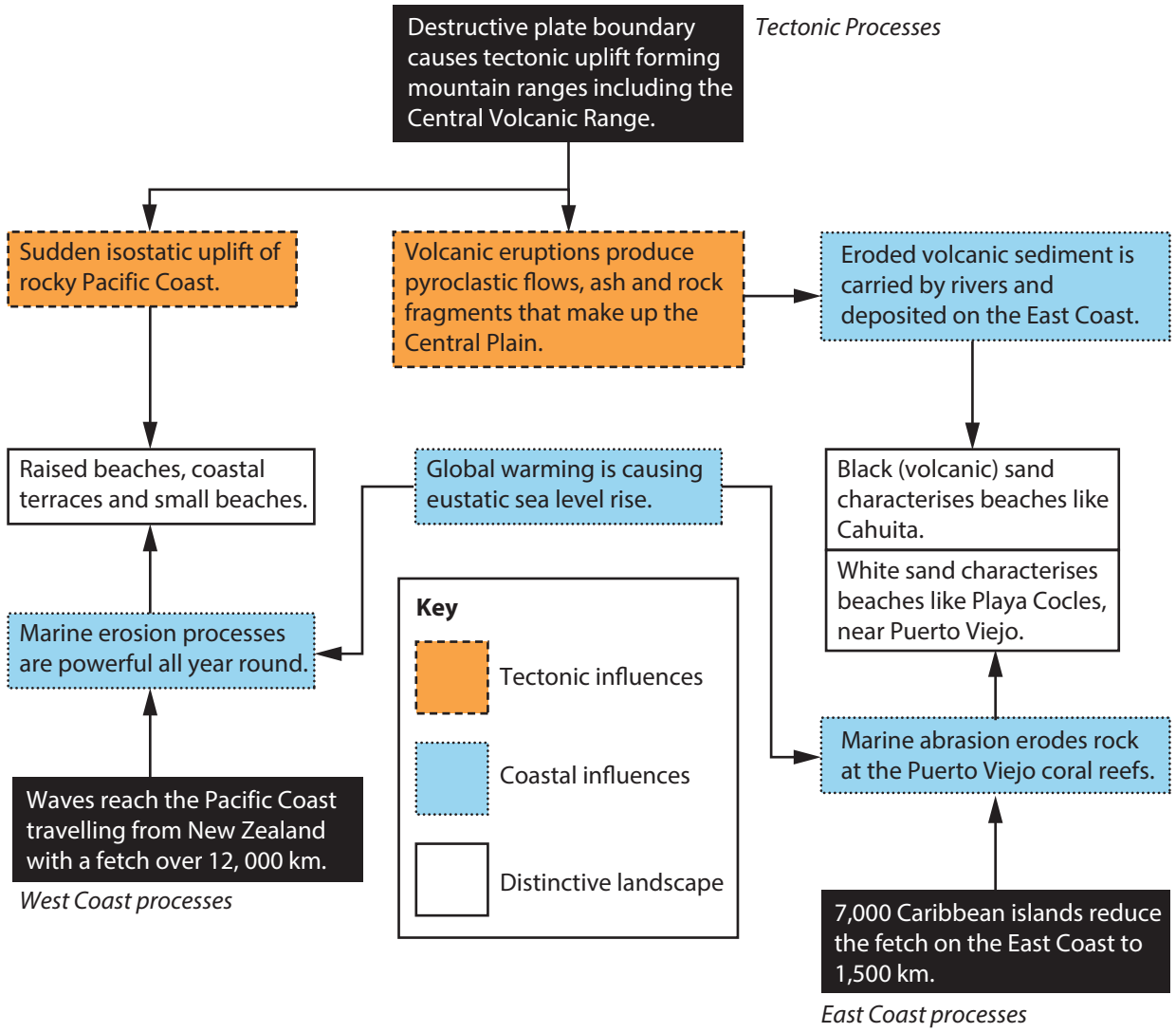


Figure 7c

Flow chart showing the interactions between coastal and tectonic processes in Costa Rica

- **The East (Caribbean) Coast** is generally a lower energy environment, ideal for the formation of marshes, spits and bars.
- However, tectonic uplift raises some coral reefs above sea level.

- **Central Volcanic Range** Arenal is a volcano that produces black basaltic rock, eroded by rivers.
- The sediment contributes to the formation of extensive lowland wetlands and mangrove swamps on the East (Caribbean) coast.

- **The West (Pacific) Coast** is dominated by erosional landforms with a few small beaches.
- This landscape continues to be uplifted by tectonic activity.

Figure 7d

Three landscapes from Costa Rica

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Acknowledgements

Pearson Education Ltd. gratefully acknowledges all following sources used in the preparation of this paper:

Figure 1a adapted from https://www.economist.com/graphic-detail/2017/11/13/a-73-magnitude-earthquake-on-the-iran-iraq-border-leaves-hundreds-dead

Figure 2a Ordnance Survey

Figure 2b © robertharding/Alamy Stock Photo

Figure 4d © Universal Images Group North America LLC/DeAgostini/Alamy Stock Photo
© Natural History Archive/Alamy Stock Photo

Figure 5a https://www.openstreetmap.org/export#map=14/55.1613/-6.7753

Figure 5b © Alain Le Garsmeur Northern Ireland/Alamy Stock Photo

Figure 7d © Peter Schickert/Alamy Stock Photo
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