Write your name here

Surname	Other names

Pearson Edexcel Level 3 GCE

Centre Number | Candidate Number

Geography

Advanced Subsidiary
Paper 1: Dynamic Landscapes

Tuesday 15 May 2018 – Afternoon
Time: 1 hour 45 minutes

Paper Reference
8GE0/01

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 **all** questions 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.*
- Calculators may be used.
- 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.*

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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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** tectonic hazard that can cause coastal flooding.

(1)

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(b) Study Figure 1 in the Resource Booklet.

(i) Compare the economic damage caused by tectonic hazards before and after 2006.

(2)

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(ii) Suggest **one** reason for the differences shown.

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(c) Explain **two** characteristics of volcanic hotspots.

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(d) Explain why volcanic eruptions vary in their magnitude.

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(e) Assess the effectiveness of prediction and forecasting in the management of tectonic hazards.

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(Total for Question 1 = 28 marks)

TOTAL FOR SECTION A = 28 MARKS

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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).

Indicate which section you are answering by marking a cross in the box ☒. If you change your mind, put a line through the box ☒ and then indicate your new section with a cross ☒.

If you answer Section B put a cross in the box ☐ .

You must use the Resource Booklet provided.

2 (a) State **one** process of mass movement that occurs in glaciated landscapes.

(1)

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(b) Study Figure 2 in the Resource Booklet, which shows past and predicted changes in the global permafrost area.

(i) Calculate the percentage loss of permafrost area between 1900 and 2100.

Show your working.

(2)

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(ii) Suggest **one** way in which these changes may affect periglacial landscapes.

(3)

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(c) Explain **two** reasons for the location of present day periglacial landscapes.

(4)

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(d) Explain the natural causes of long-term climate change.

(6)

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(e) Assess the threats to the economic and environmental value of glacial landscapes.

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(Total for Question 2 = 28 marks)

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

A group of students collected data about footpath erosion near Easedale Tarn, a fragile, glaciated landscape in the Lake District.

They measured vegetation cover across a transect on:

1. a managed footpath

2. an unmanaged footpath.

They presented their findings as two kite diagrams.

(i) Identify **two** impacts of footpath management.

(2)

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(ii) Suggest **one** reason why footpath management is necessary in this fragile glaciated landscape.

(2)

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(iii) Identify **one** qualitative method the students might use to compare these two transects.

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(iv) The students also collected data at ten sites along the **unmanaged** footpath, measuring width at 250-metre intervals away from the car park up a slope.

They used this data to test the relationship between the width of the footpath and distance from the car park.

Explain how the use of a statistical method would help their investigation about footpath erosion.

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(b) You have carried out **primary fieldwork** to investigate glacial landscapes and change.

Assess the accuracy and reliability of the **primary data** that you collected as part of your geographical investigation.

(9)

Geographical enquiry question:

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(Total for Question 3 = 18 marks)

Use your knowledge and understanding from across your 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 importance of tectonic processes and weather conditions in creating distinctive glacial landscapes in New Zealand.

(16)

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(Total for Question 4 = 16 marks)

TOTAL FOR SECTION B = 62 MARKS

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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).

If you answer Section C put a cross in the box ☒ .

You must use the Resource Booklet provided.

5 (a) State **one** process of mass movement that occurs in coastal landscapes.

(1)

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(b) Study Figure 5 in the Resource Booklet, which shows global sea level changes before and after 1950.

(i) Calculate the percentage sea level change between 1950 and 2010.

Show your working.

(2)

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(ii) Suggest **one** way in which these changes may affect coastal landscapes.

(3)

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(c) Explain **two** physical reasons why some locations are at risk from coastal flooding.

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(d) Explain how vegetation helps stabilise sandy coastlines.

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(e) Assess the social and economic risks of rapid coastal retreat.

(12)

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(Total for Question 5 = 28 marks)

6 (a) Study Figure 6 in the Resource Booklet.

A group of students collected data about footpath erosion at Studland Bay, a sand dune coastline in Southern England.

They measured vegetation cover across a transect on:

1. a managed footpath

2. an unmanaged footpath.

They presented their findings as two kite diagrams.

(i) Identify **two** impacts of footpath management.

(2)

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(ii) Suggest **one** reason why footpath management is necessary in sandy coastal landscapes.

(2)

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(iii) Identify **one** qualitative method the students might use to compare these two transects.

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(iv) The students also collected data at ten sites along the **unmanaged** footpath, measuring width at 30-metre intervals away from the car park, northwards.

They used this data to test the relationship between the width of the footpath and distance from the car park.

Explain how the use of a statistical method would help their investigation about footpath erosion.

(4)

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(b) You have carried out **primary fieldwork** to investigate coastal landscapes and change.

Assess the accuracy and reliability of the **primary data** that you collected as part of your geographical investigation.

(9)

Geographical enquiry question:

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(Total for Question 6 = 18 marks)

Use your knowledge and understanding from across your 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 importance of tectonic and marine processes in creating distinctive coastal landscapes in New Zealand.

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(Total for Question 7 = 16 marks)

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

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Pearson Edexcel Level 3 GCE

Geography

Advanced Subsidiary
Paper 1: Dynamic Landscapes

Tuesday 15 May 2018 – Afternoon
Resource Booklet

Paper Reference
8GE0/01

Do not return this Resource Booklet with the question paper.

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SECTION A

The following resource relates to Question 1.

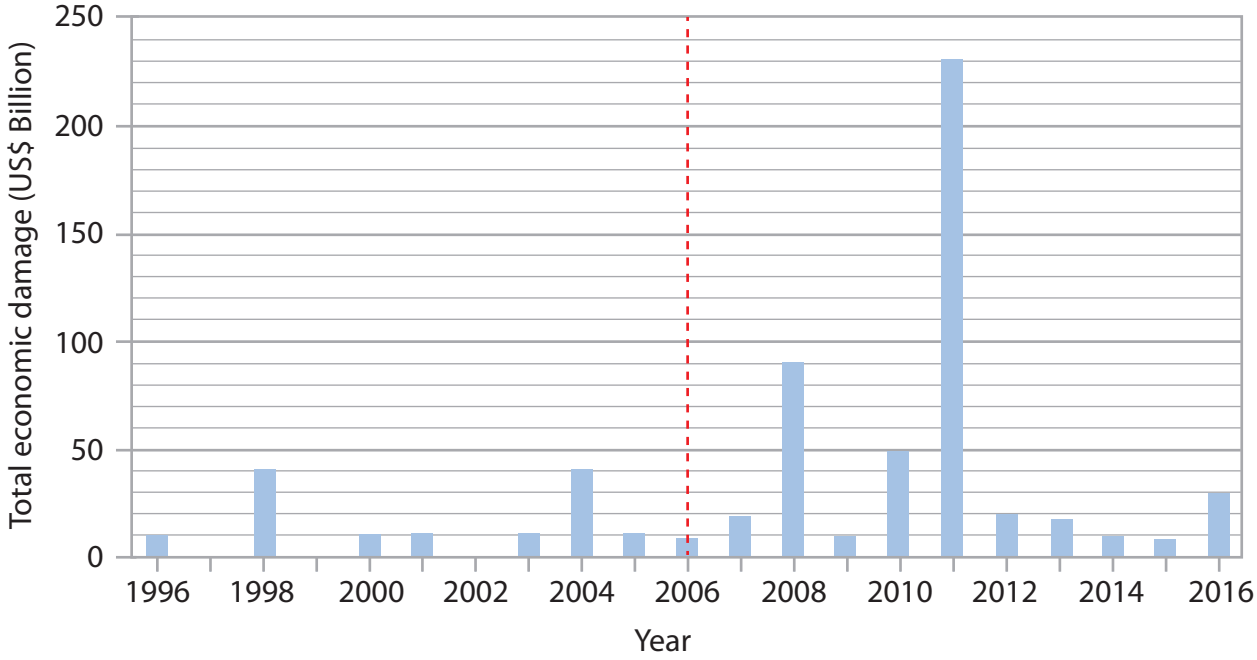

Figure 1

Total reported economic damage caused by tectonic hazards between 1996 and 2016

SECTION B

The following resources relate to Questions 2-4.

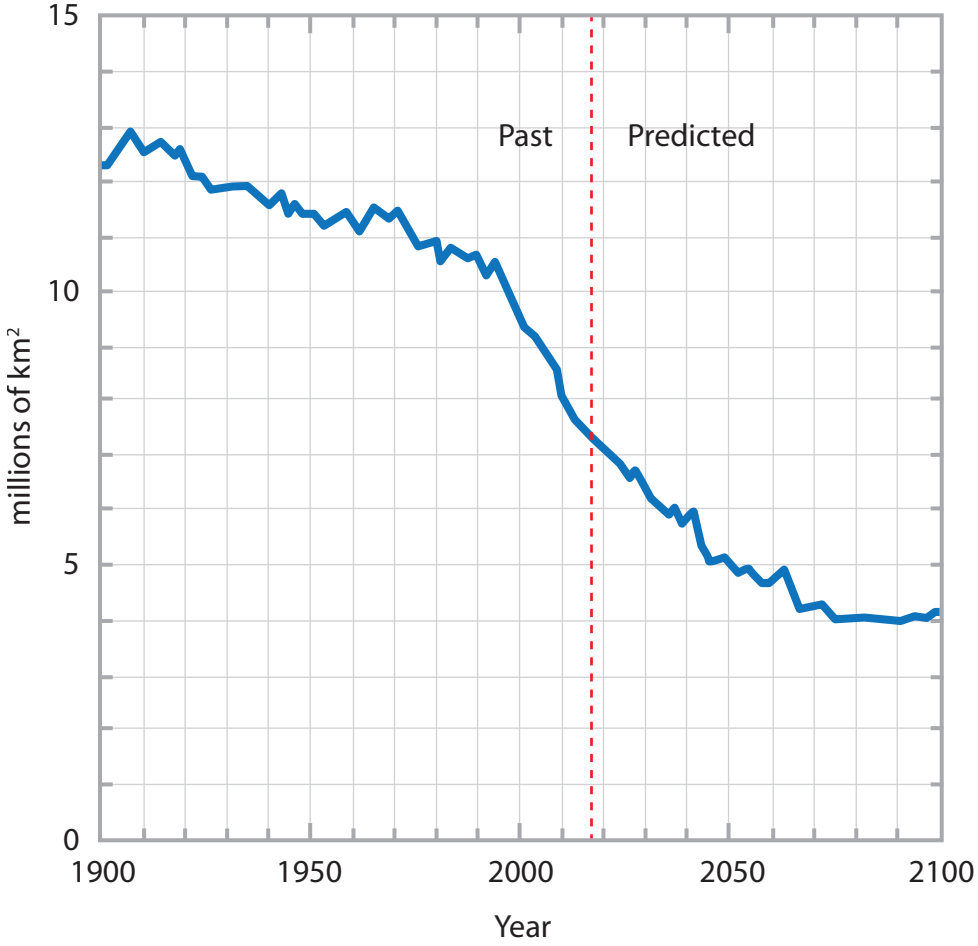

Figure 2

Past and predicted changes in the global permafrost area

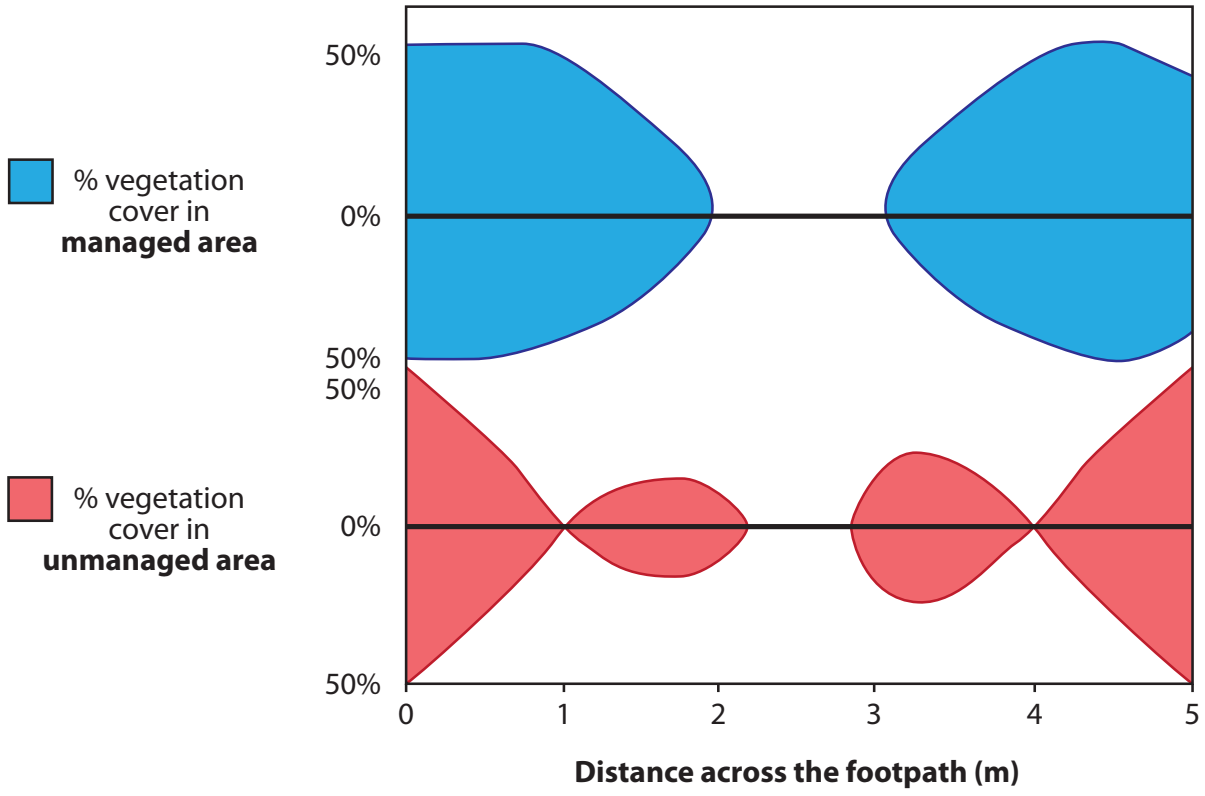

Figure 3

Kite diagrams showing footpath erosion in two areas near Easedale Tarn, Lake District

The following resources relate to Question 4.

- The Southern Alps run south-west to north-east along New Zealand's South Island; a landscape created by tectonic, weather and glacial processes.
- The mountains are formed along the Alpine Fault, a largely conservative plate boundary with the plates moving at least 30mm/year. The plates also move towards each other, with uplift of about 7mm/year, and occasionally, much larger uplift.
- The prevailing north-westerly winds (Roaring Forties) deliver extreme weather to the Southern Alps, including very high precipitation (snow/rain) of up to 10,000mm/year.
- There are over 3,000 glaciers in the Southern Alps, most of which move rapidly down the very steep slopes to the ocean.

Figure 4a

Information about the Southern Alps, New Zealand

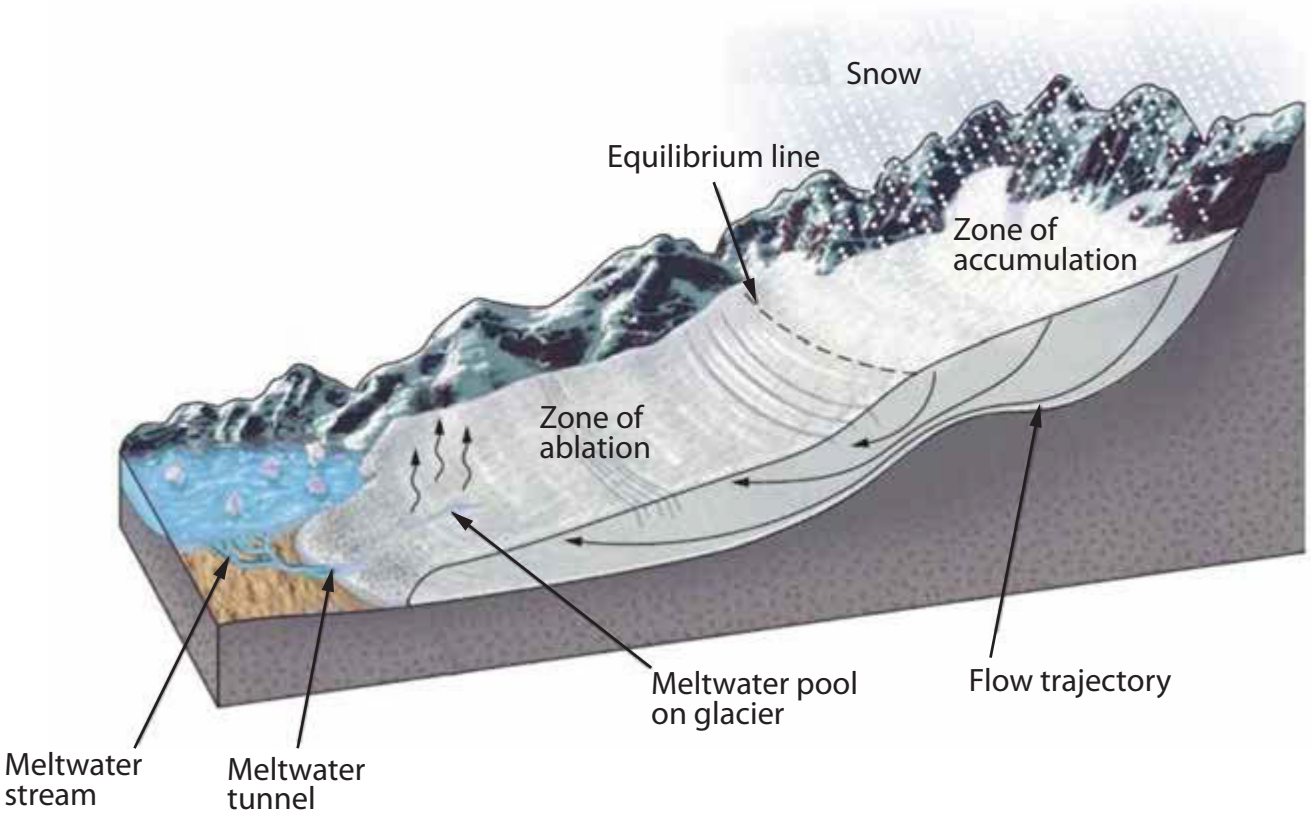

Figure 4b

A simplified cross-section from Mt. Tasman to the coast

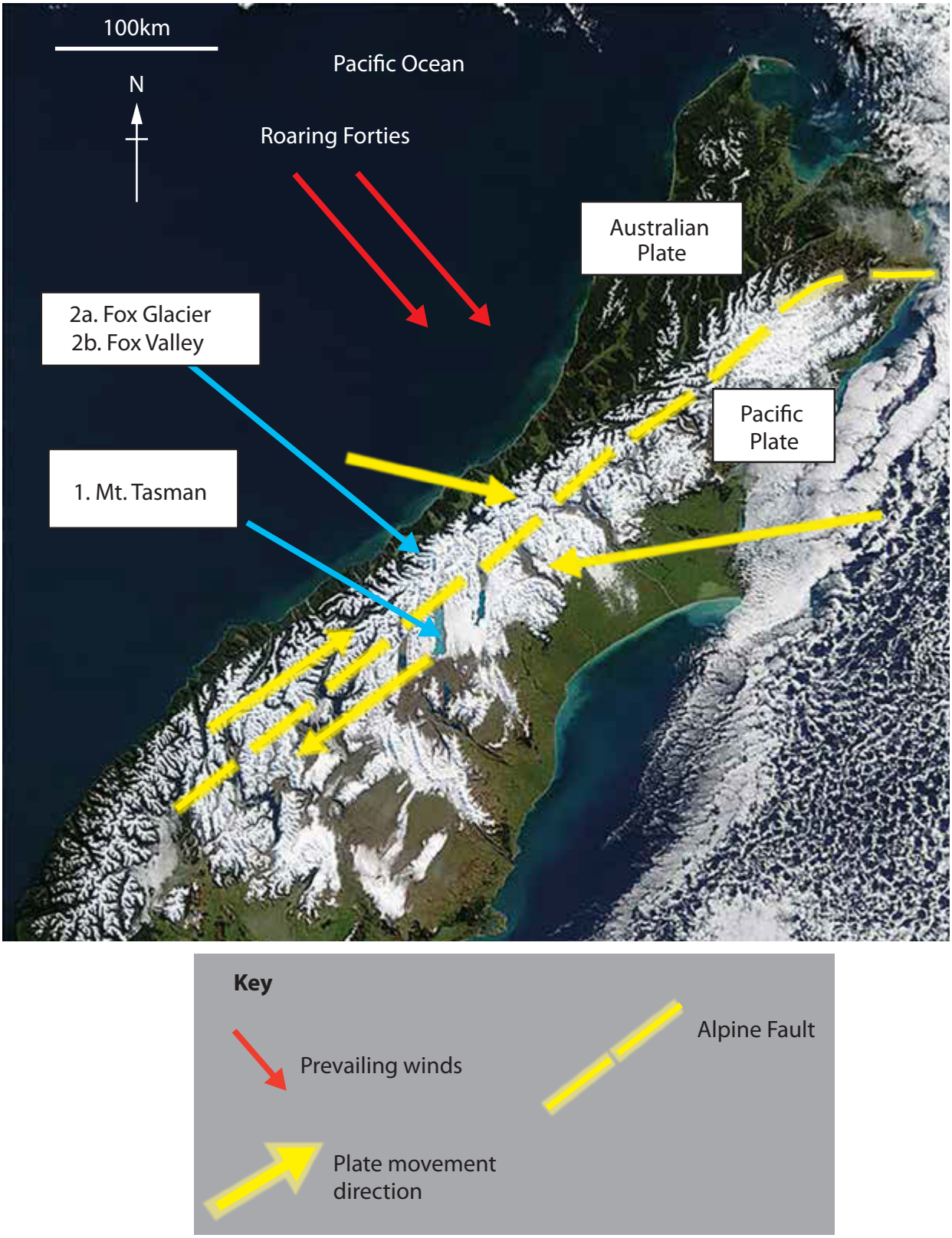

Figure 4c

Satellite image of the Southern Alps in winter

1. Mt. Tasman: pyramidal peak

- Grows in height by 5–10mm/ year due to tectonic uplifting.
- Surrounded by cirques, many of which feed valley glaciers.

2a. Fox Glacier

- Ice flows downhill up to 7 metres a day.
- Causes rapid glacial erosional processes creating new valley landforms.

2b. Lower Fox Valley glacial trough

- Subaerial processes (e.g. freeze-thaw) result in freshly weathered rock surfaces and mass movement.
- Many complex depositional landforms found on the valley floor.

Figure 4d

Distinctive landscapes in the Southern Alps

SECTION C

The following resources relate to Questions 5–7.

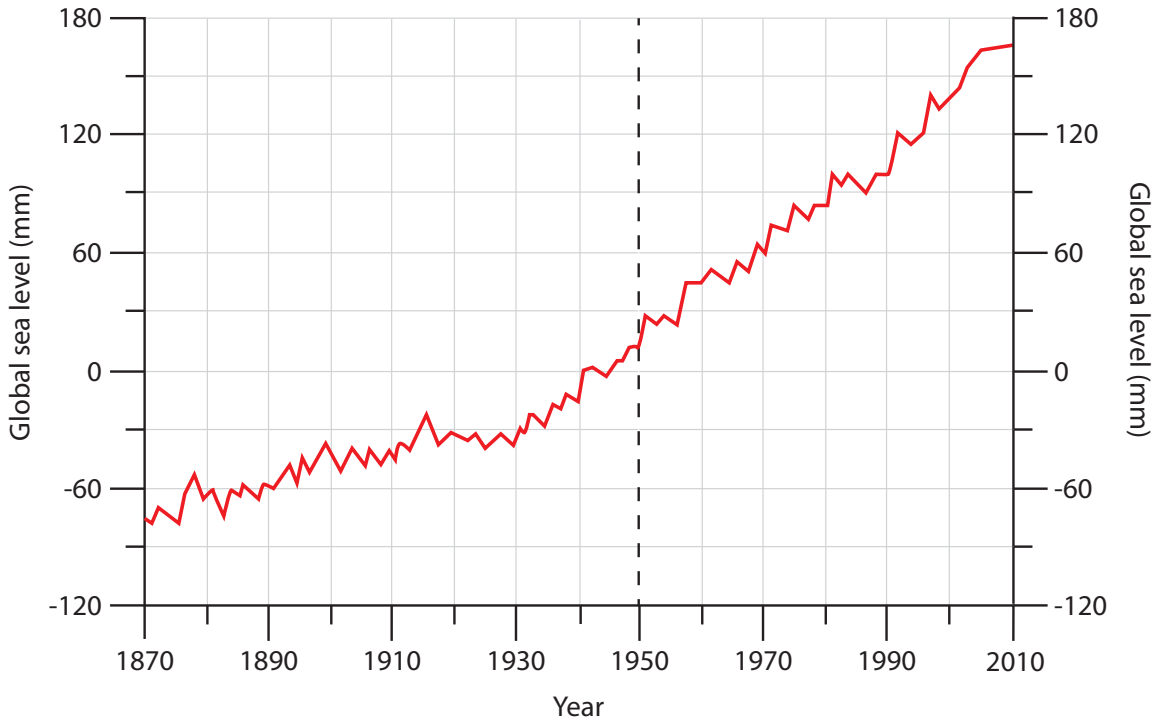

Figure 5

Global sea level changes before and after 1950

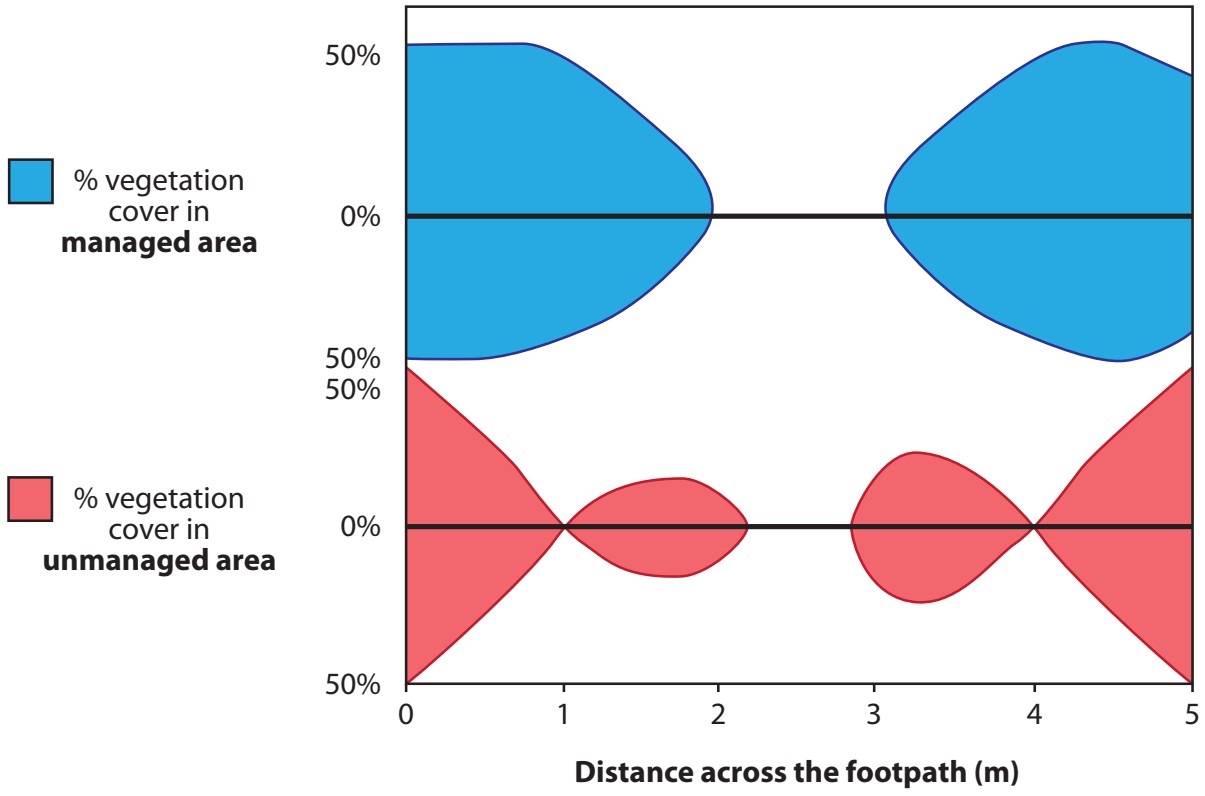

Figure 6

Kite diagrams showing footpath erosion in two areas of sand dunes at Studland Bay, Dorset

The following resources relate to Question 7.

- The Southern Alps run south-west to north-east along New Zealand's South Island; a landscape created by tectonic, weather and marine processes.
- The mountains are formed along the Alpine Fault, a largely conservative plate boundary with the plates moving at least 30mm/year. The plates also move towards each other, with uplift of about 7mm/year, and occasionally, much larger uplift.
- The Cook Strait was partly formed by eustatic sea level rise; the natural gap between the two coastlines funnels powerful winds and tides through the strait.
- On some sections of the coast, long-term but also sudden tectonic events create raised beaches and steeper slopes that are vulnerable to mass movement. In other areas, coastal erosion is exposing older rock.

Figure 7a

Information about the coastal landscape of New Zealand

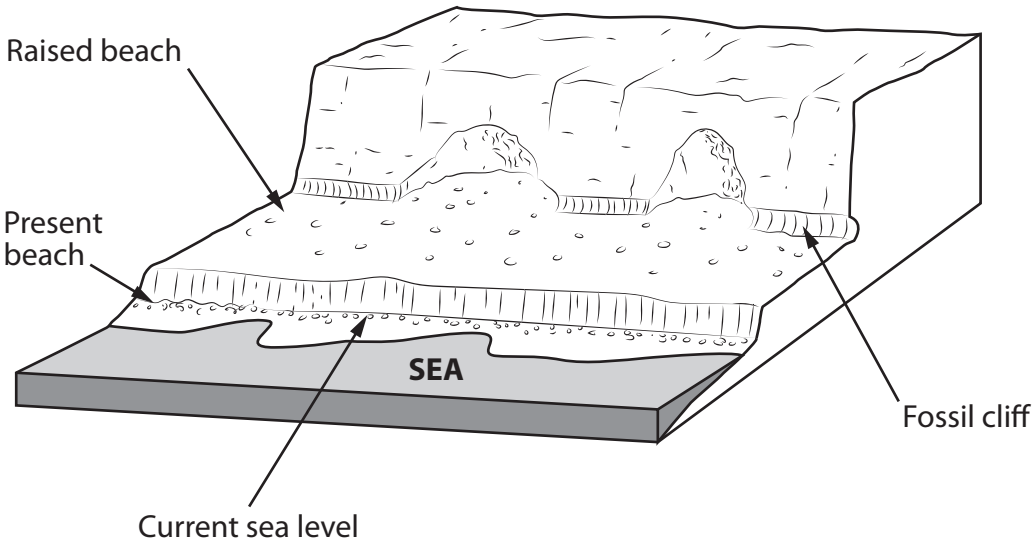

Figure 7b

A simplified cross-section of Turakirae Head

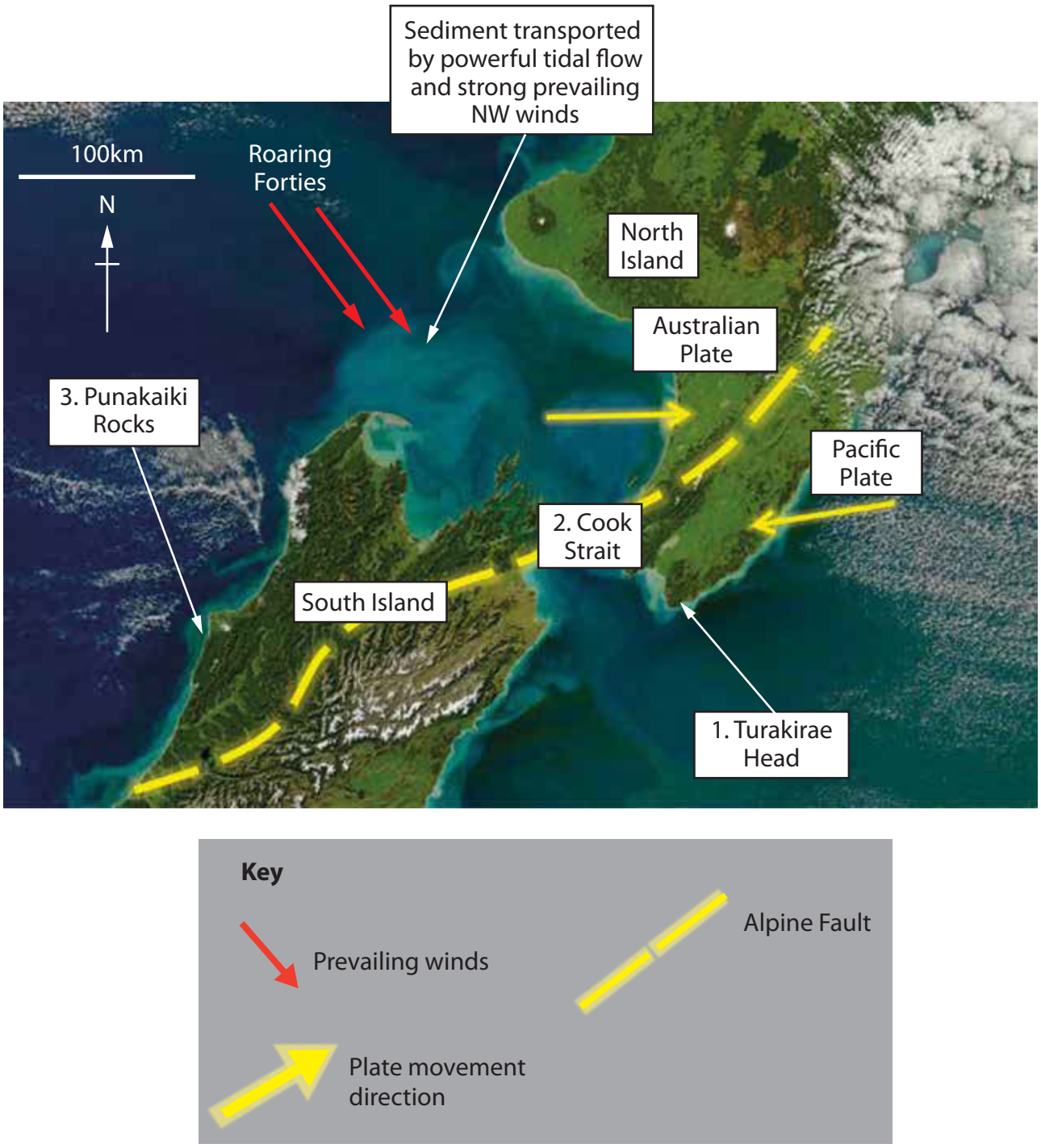

Figure 7c

Satellite image of part of North and South Islands, New Zealand

1. Turakirae Head raised beach and fossil cliff

- Successive earthquakes have caused sudden uplift of the beach level (e.g. 2.5 metres in 1855).
- Mass movement processes have left ridges of large boulders.

2. Cook Strait

- Mainly steep cliffs are battered by the Roaring Forties with a fetch of over 2,000km producing wave heights frequently over 5m and tidal flows approximately every 6-8 hours.
- Erosional processes have eroded cliffs on average 1-2 metres/year.

3. Punakaiki Rocks

- Less jointed limestone forms stacks, raised up by tectonic processes.

Figure 7d

Distinctive landscapes along New Zealand's coastline

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Figure 4a - Source from: http://visibleearth.nasa.gov/view.php?id=67355

Figure 4d - © Fergus Murray
Source from: http://www.fergusmurraysculpture.com/new-zealand/southern-alps-and-glaciers-9-pages/ii-the-geomorphology-of-the-fox-glacier-region/
Source from: https://upload.wikimedia.org/wikipedia/commons/1/1d/Fox_Glacier_NZ_2.jpg

Figure 7b - © Lloyd Homer, GNS Science Ltd.)

Figure 7c - Source from: http://eoimages.gsfc.nasa.gov/images/imagerecords/50000/50555/NewZealand_amo_2011119.jpg

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