Write your name here

Surname	Other names

Pearson Edexcel Level 3 GCE

Centre Number	Candidate Number

Geography

Advanced
Paper 1

Monday 4 June 2018 – Morning
Time: 2 hours 15 minutes

Paper Reference
9GE0/01

You must have:
Resource Booklet (enclosed)
Ruler, 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.
- Answer **all** questions in Section **A** and Section **C**.
- Answer **either** Question 2 **or** Question 3 in Section **B**.
- 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 105.
- 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 5 2 3 7 2 A 0 1 2 4

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SECTION A: TECTONIC PROCESSES AND HAZARDS

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

You must use the Resource Booklet provided.

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

This data in Figure 1b was collected to investigate whether there was a significant difference in earthquake depth at the two plate boundaries shown in Figure 1a.

	Number of earthquakes recorded in 2016	Mean focal depth of earthquakes (in kilometres)
Plate boundary A	186	34.8
Plate boundary B	145	12.7

Figure 1b

Frequency and focal depth of earthquakes in New Zealand, 2016

(i) Calculate the average monthly frequency of earthquakes at the two plate boundaries.

You must show your working.

(2)

.....

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(ii) A Student's t-test was used to determine whether there was a statistical difference in the mean focal depth of the earthquakes at the two plate boundaries.

Two hypotheses were tested:

Null Hypothesis: There is **no** statistically significant difference between the mean focal depth of earthquakes at the two plate boundaries.
Alternative Hypothesis: There **is** a statistically significant difference between the mean focal depth of earthquakes at the two plate boundaries.

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{\frac{{S_1}^2}{N_1} + \frac{{S_2}^2}{N_2}}}$$

Using the partially completed Student's t-test below, calculate the value of t.

(1)

$$\mathbf{t = \frac{22.1}{4.43}}$$

t= .....

(iii) Study Figure 1c below.

Confidence level	0.10 (90% significance)	0.05 (95% significance)	0.01 (99% significance)
Critical value of Student's t-test	1.6	2.0	2.6

Figure 1c

Critical values for this Student's t-test

Using the Student's t-test value calculated in (a) (ii), state whether there is a significant difference between the mean focal depth of the earthquakes.

(1)

.....

(b) Assess the reasons why some communities are more vulnerable than others to tectonic hazards.

(12)

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(Total for Question 1 = 16 marks)

TOTAL FOR SECTION A = 16 MARKS

SECTION B: LANDSCAPE SYSTEMS, PROCESSES AND CHANGE

Answer ONE question in this section – EITHER Question 2 OR Question 3.

Glaciated Landscapes and Change

Indicate which question 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 question with a cross ☒.

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

You must use the Resource Booklet provided.

2 Study Figure 2a in the Resource Booklet.

(a) Explain how changes in the position of the snout of the Mer de Glace may provide **evidence** for changing climate.

(6)

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

Explain the processes that affect the mass balance of temperate glaciers.

(6)

(c) Explain the role of glacial meltwater in creating distinctive landforms.

(8)

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(d) Evaluate the view that tourism poses the greatest threat to both active and relict glaciated landscapes.

(20)

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(Total for Question 2 = 40 marks)

Do not answer Question 3 if you have answered Question 2.

Coastal Landscapes and Change

Indicate which question 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 question with a cross ☒.

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

You must use the Resource Booklet provided.

3 Study Figure 3a in the Resource Booklet.

(a) Explain how variations in the rate of coastal recession in North Norfolk may provide **evidence** for the different approaches to coastal management.

(6)

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

Explain the physical processes that affect the rate of coastal recession.

(6)

(c) Explain the role of sediment transport in creating distinctive landforms.

(8)

(d) Evaluate the view that hard engineering approaches to coastal management produce more winners than losers.

(20)

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(Total for Question 3 = 40 marks)

TOTAL FOR SECTION B = 40 MARKS

SECTION C: PHYSICAL SYSTEMS AND SUSTAINABILITY

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

You must use the Resource Booklet provided.

4 (a) Study Figure 4a in the Resource Booklet.

Explain the relationship between precipitation and soil moisture.

(3)

(b) Explain why land use changes can increase flood risk.

(6)

(c) Explain why the price of water varies globally.

(8)

(d) Study Figure 4b in the Resource Booklet.

Assess the role of oceans in regulating the carbon cycle.

(12)

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(e) Evaluate the view that mitigation strategies are more important than adaptation strategies in addressing the risks posed by the degradation of the carbon cycle.

(20)

(Total for Question 4 = 49 marks)

TOTAL FOR SECTION C = 49 MARKS
TOTAL FOR PAPER = 105 MARKS

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Do not return this Resource Booklet with the question paper.

Turn over ▶

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SECTION A

The following resource relates to Question 1.

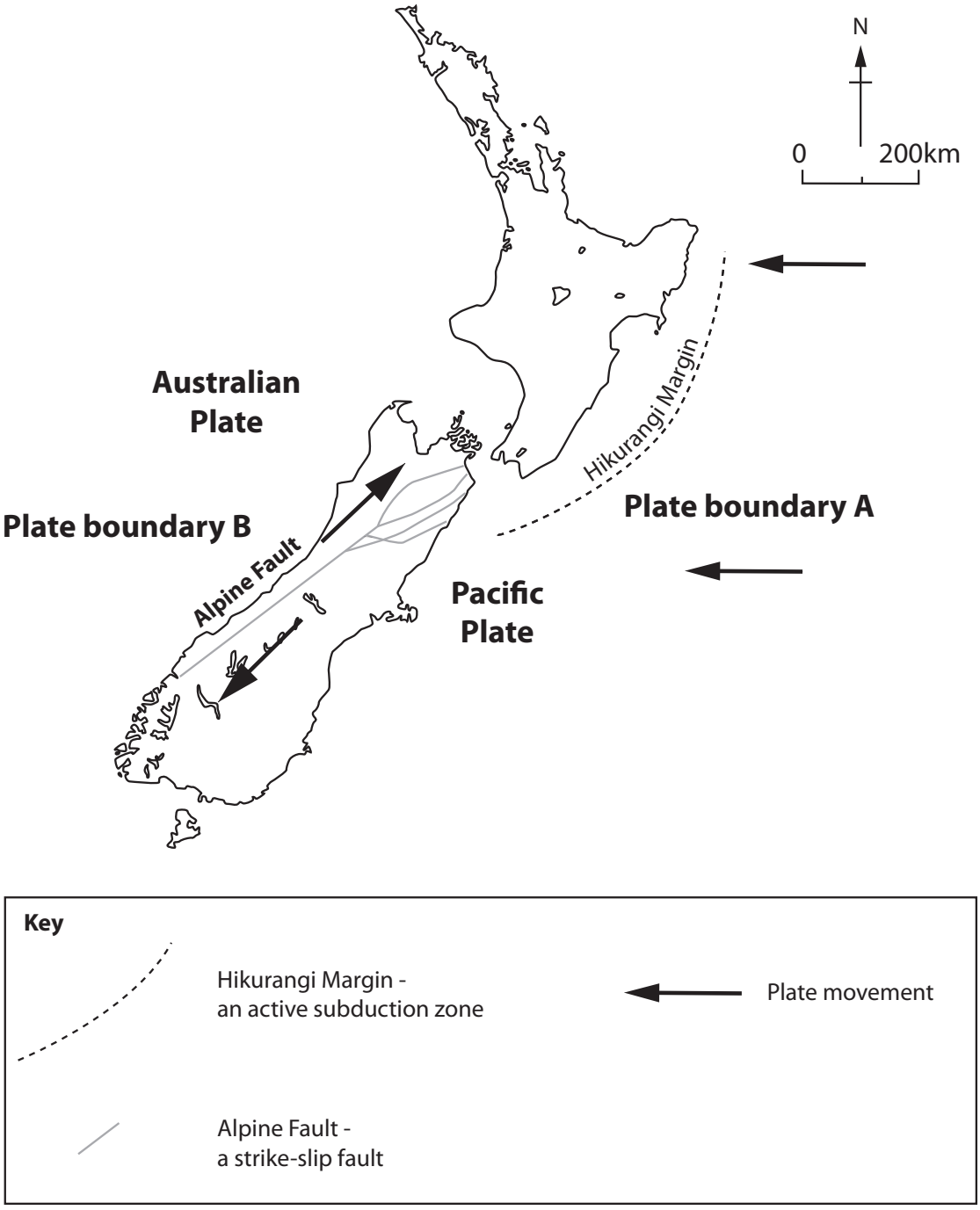
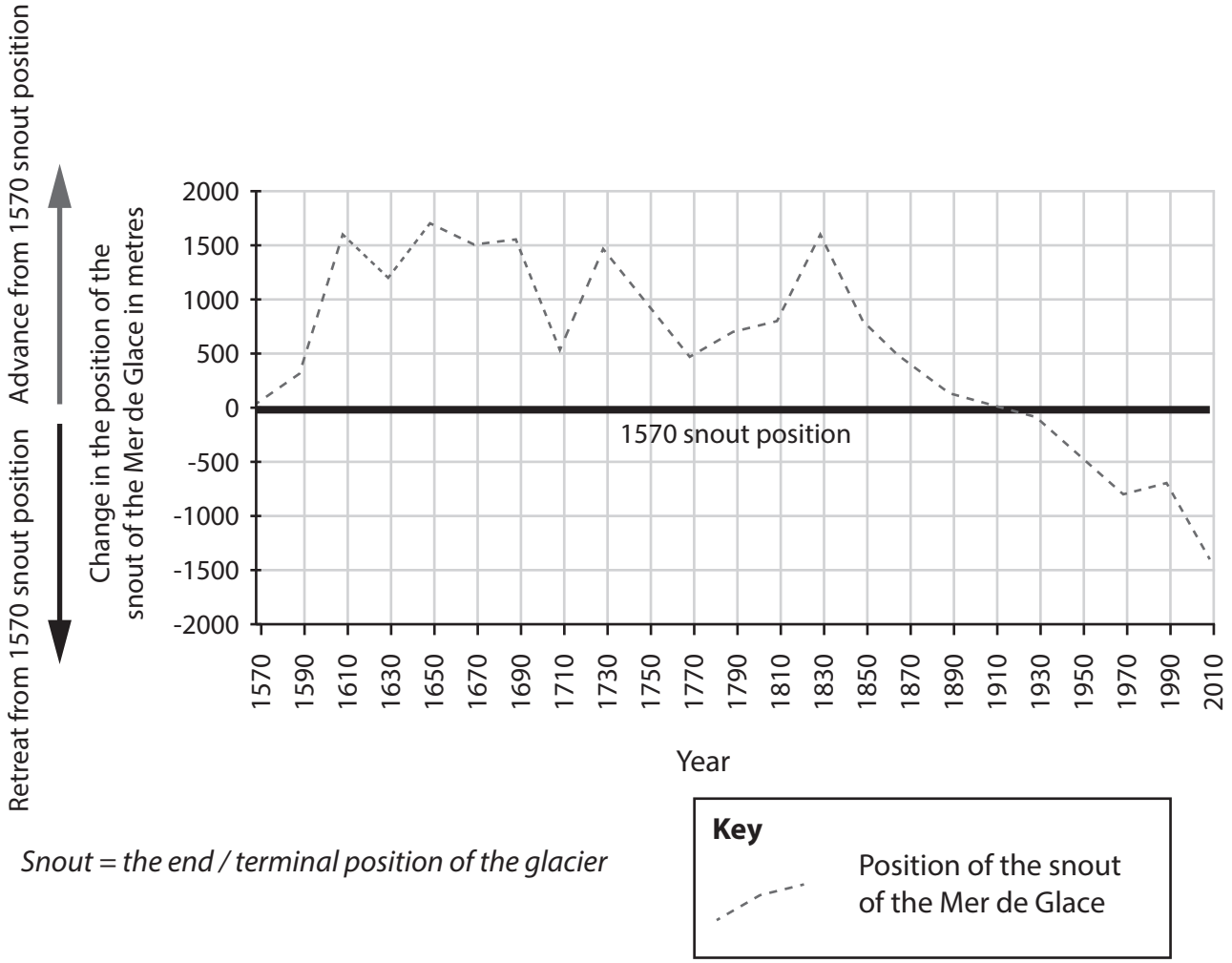


Figure 1a

Tectonic setting of New Zealand

SECTION B

The following resources relate to Question 2.



Snout = the end / terminal position of the glacier

Figure 2a

Changes in the position of the Mer de Glace, France, 1570 - 2010

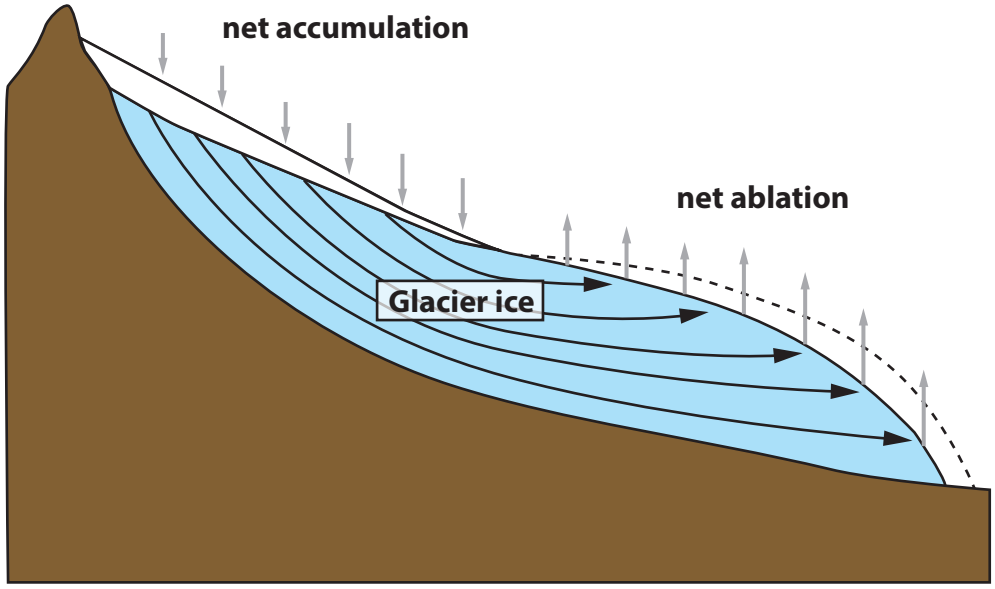


Figure 2b

Cross section showing the mass balance of a temperate glacier

The following resources relate to Question 3.

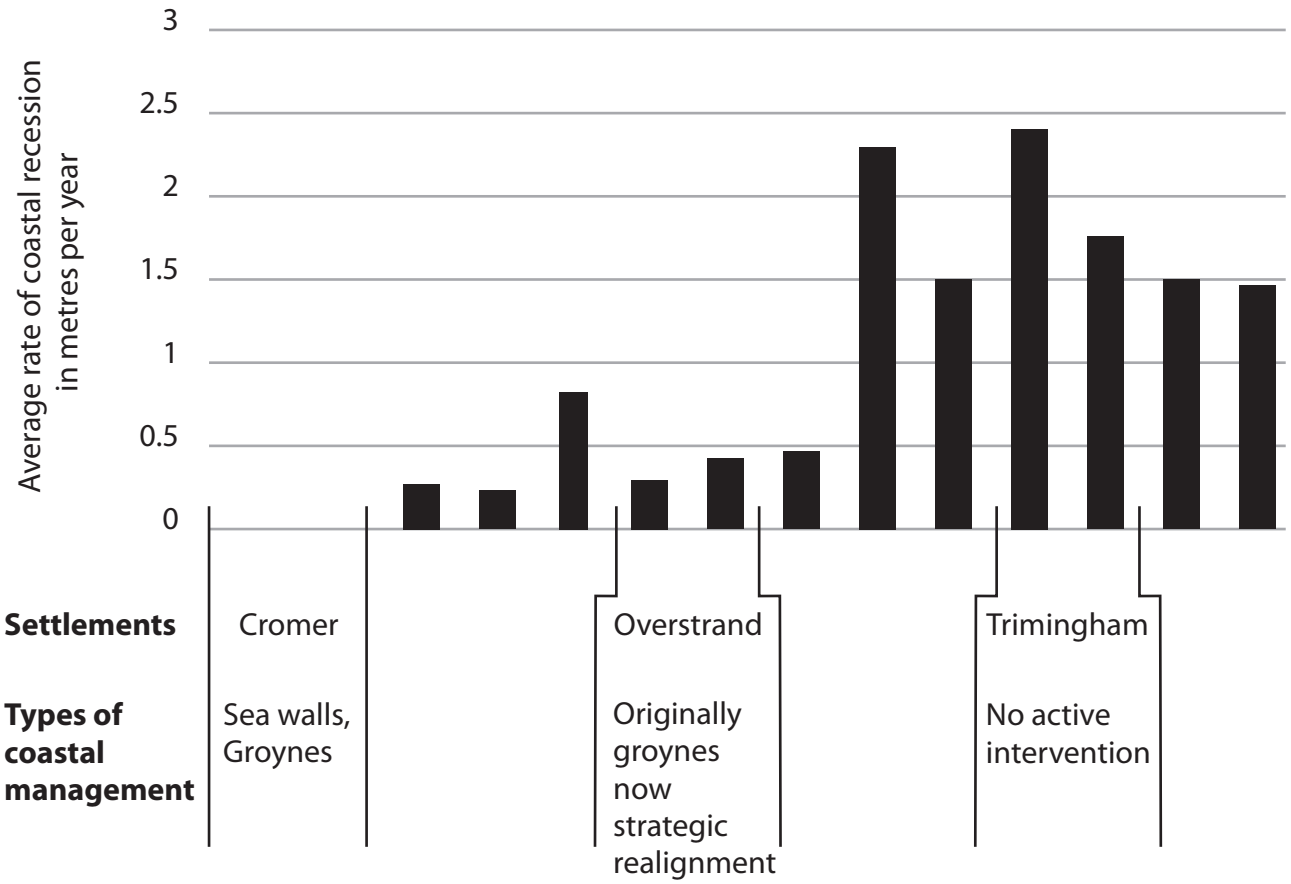


Figure 3a

Historic rates of coastal recession in North Norfolk

Figure 3b

A photograph showing coastal recession, West Ireland

SECTION C

The following resources relate to Question 4.

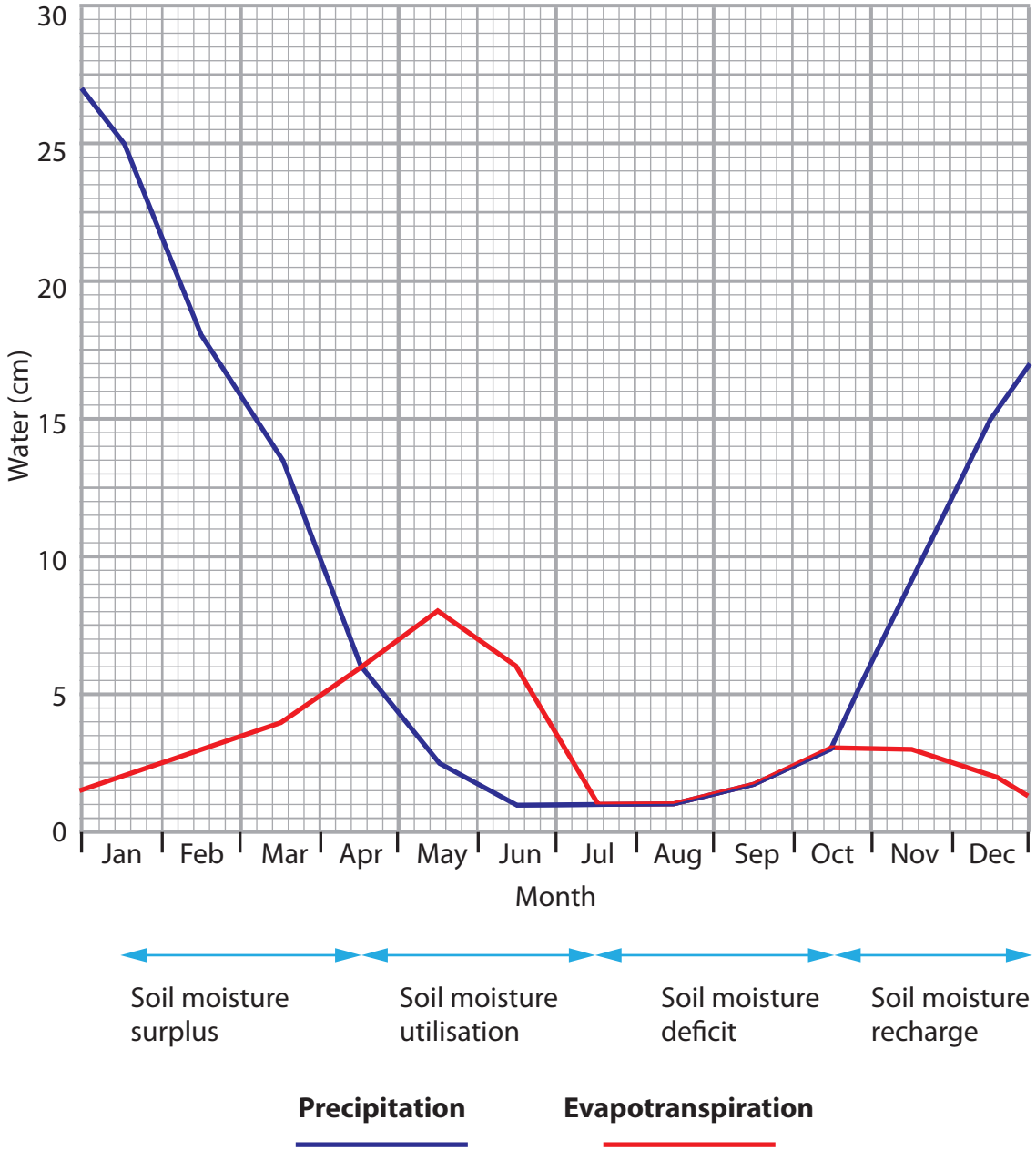


Figure 4a

Water budget of Cloverdale, California in 2016

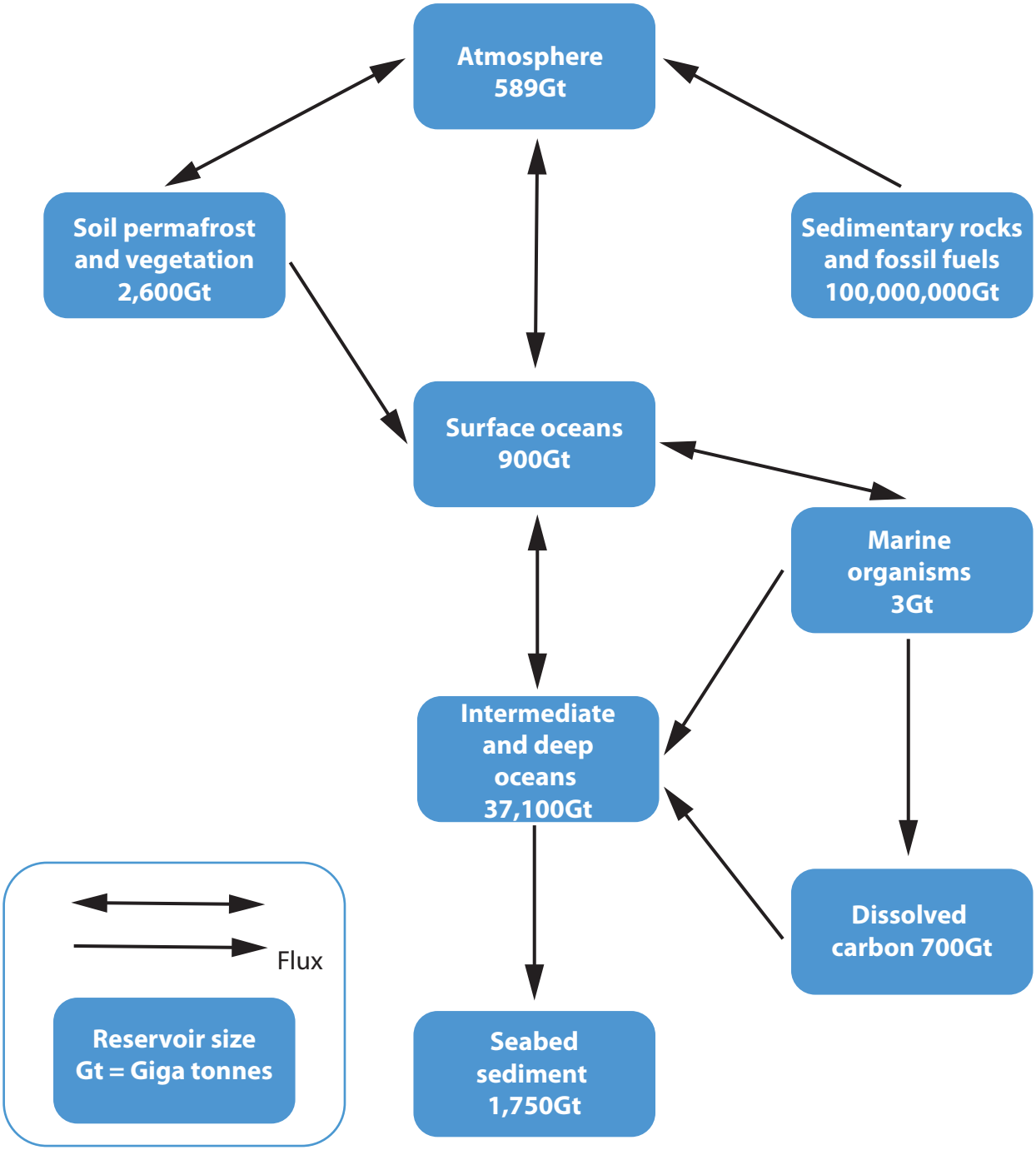


Figure 4b

The global carbon cycle

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

Figure 3b – © Paul Heinrich/Alamy Stock Photo