1. Study the diagram below showing the global pattern of air pressure and surface winds.

Key
→ Rising air
→ Sinking air
→ Surface wind
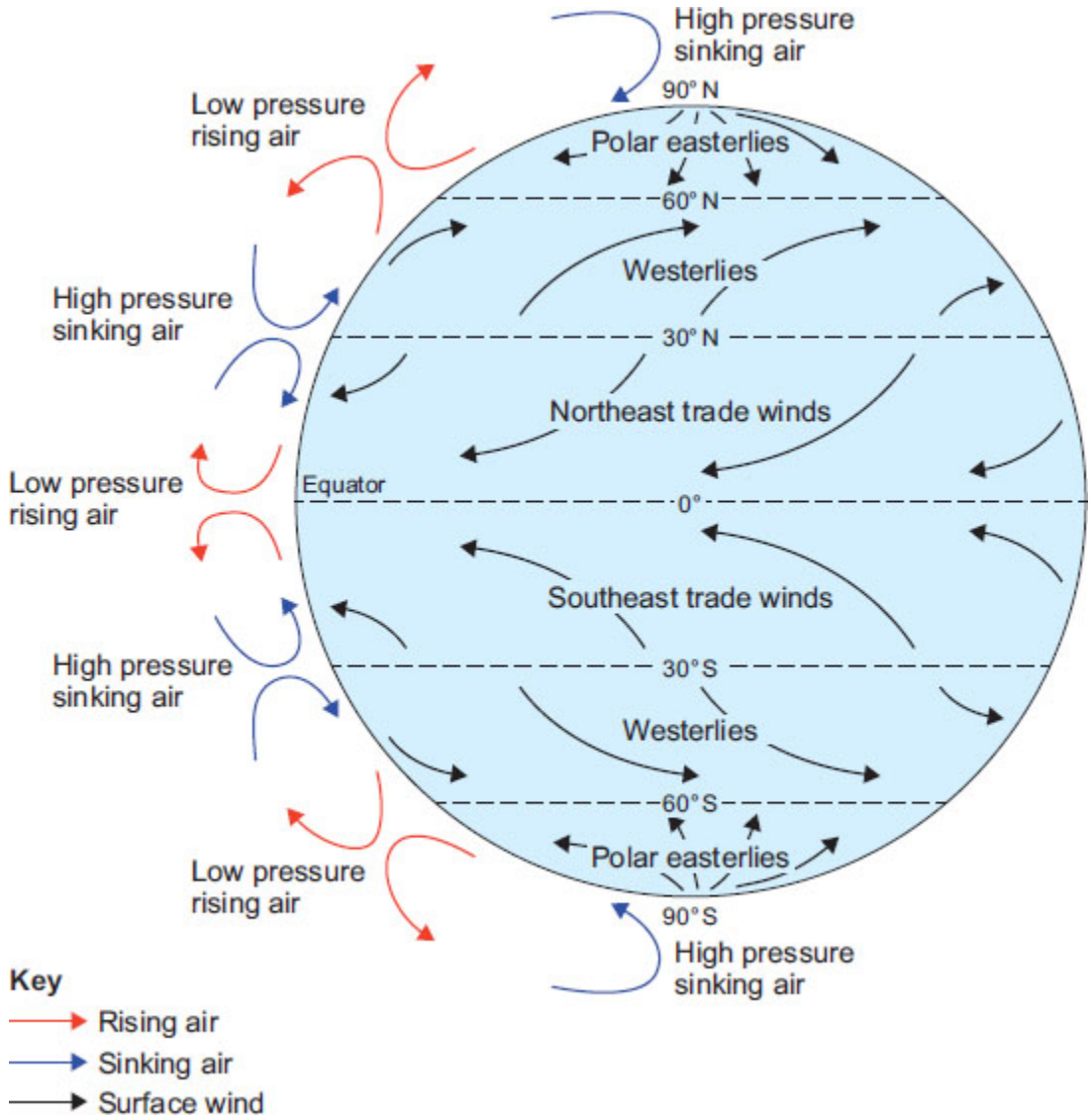
(a) Using the diagram above, which **one** of the following statements is true?

Shade **one** circle only.

A Air sinks at the Equator.   ○

B The southeast trade winds blow from the Equator to 30⁰ N and S.   ○

C High pressure occurs where the air is sinking.   ○

D Polar easterlies blow from 60⁰ N and S towards the poles.   ○

(1)

(b) Using the diagram above, describe the link between air pressure and surface winds.

(2)

(c)   Suggest why areas close to the Equator usually have high rainfall.

Use the diagram above and your own understanding.

(2)

(Total 5 marks)

2.

The challenge of natural hazards

Which **one** of the following statements about tropical storms is true?
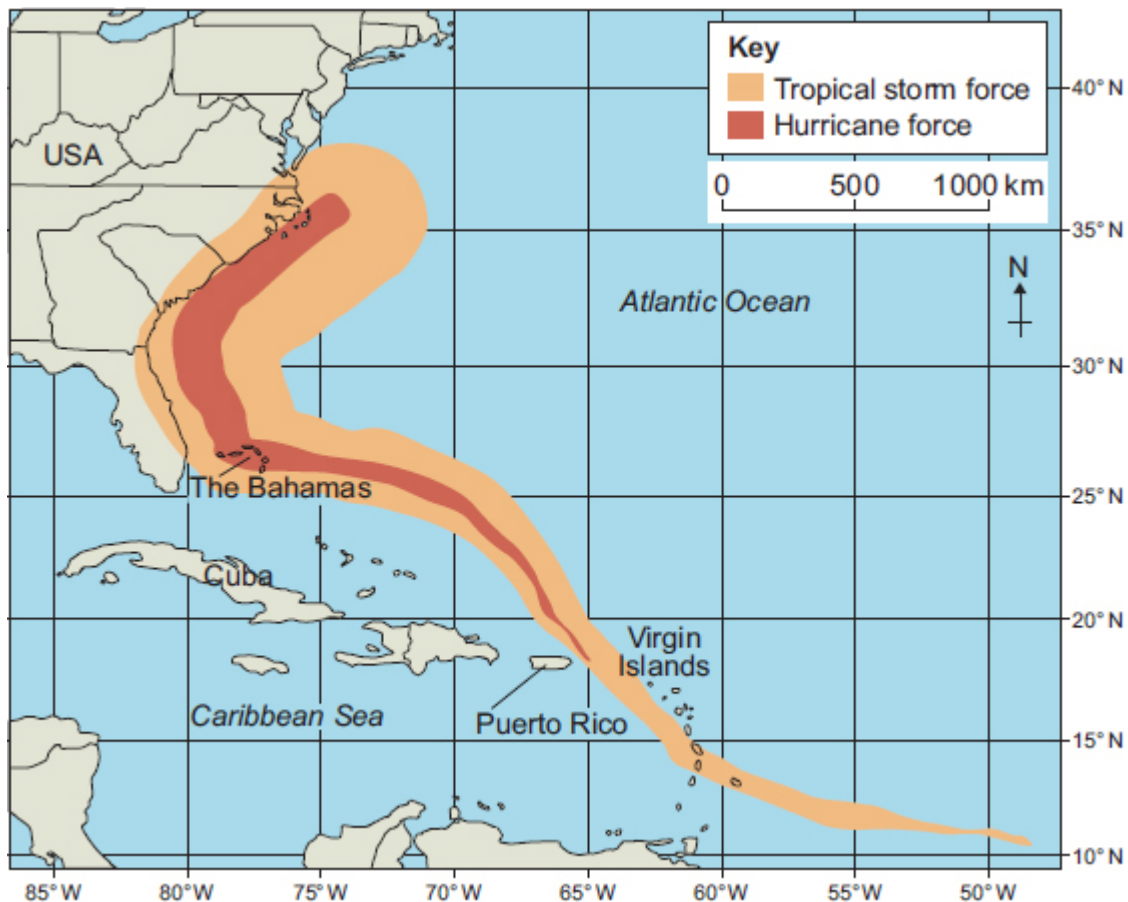
Shade **one** circle only.

A   Tropical storms gain energy as they reach land. ⬭

B   Tropical storms develop along the Equator. ⬭

C   Tropical storms occur in areas of high pressure. ⬭

D   Tropical storms form above oceans where temperatures are over 27 ⁰C. ⬭

(Total 1 mark)

3.

Study **Figure 1**, a map showing the track of Hurricane Dorian in August and September 2019.

Figure 1

Using **Figure 1**, which **one** of the following statements is true?

Shade **one** circle only.

A   Hurricane Dorian started south of the Equator.   ⬭

B   Hurricane Dorian passed to the west of Cuba.   ⬭

C   Hurricane Dorian passed close to the east coast of the USA.   ⬭

D   Hurricane Dorian reached 40° north.   ⬭
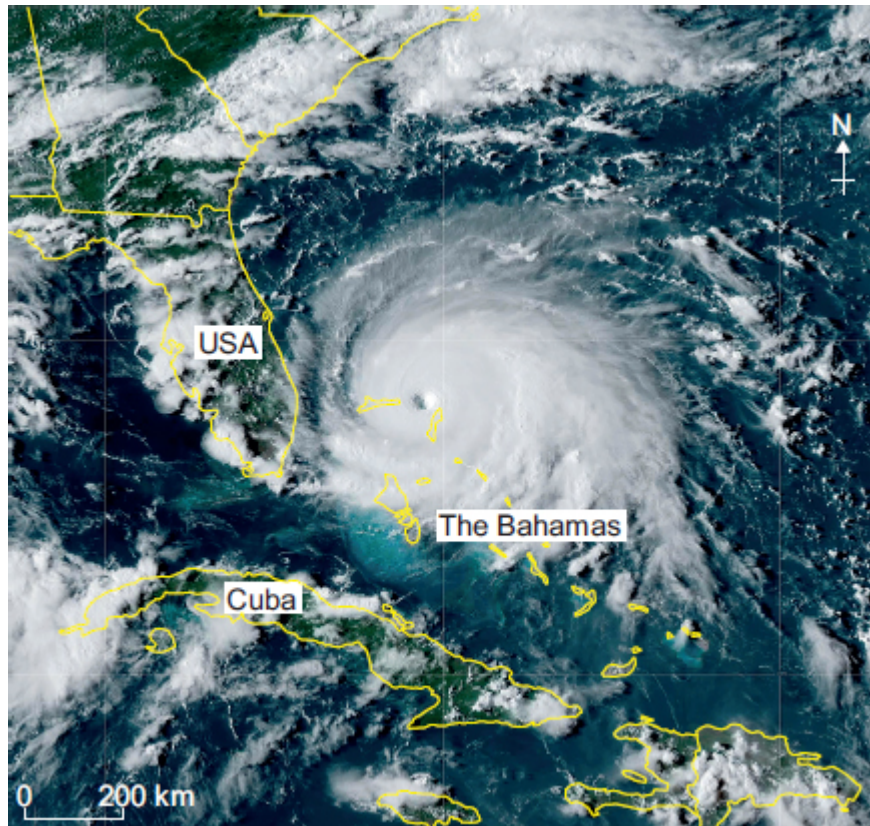
(Total 1 mark)

4.   Outline **one** way that planning can reduce the impact of tropical storms.

(Total 2 marks)

5.   Study **Figure 1**, a satellite image showing Hurricane Dorian over The Bahamas on 1 September 2019.
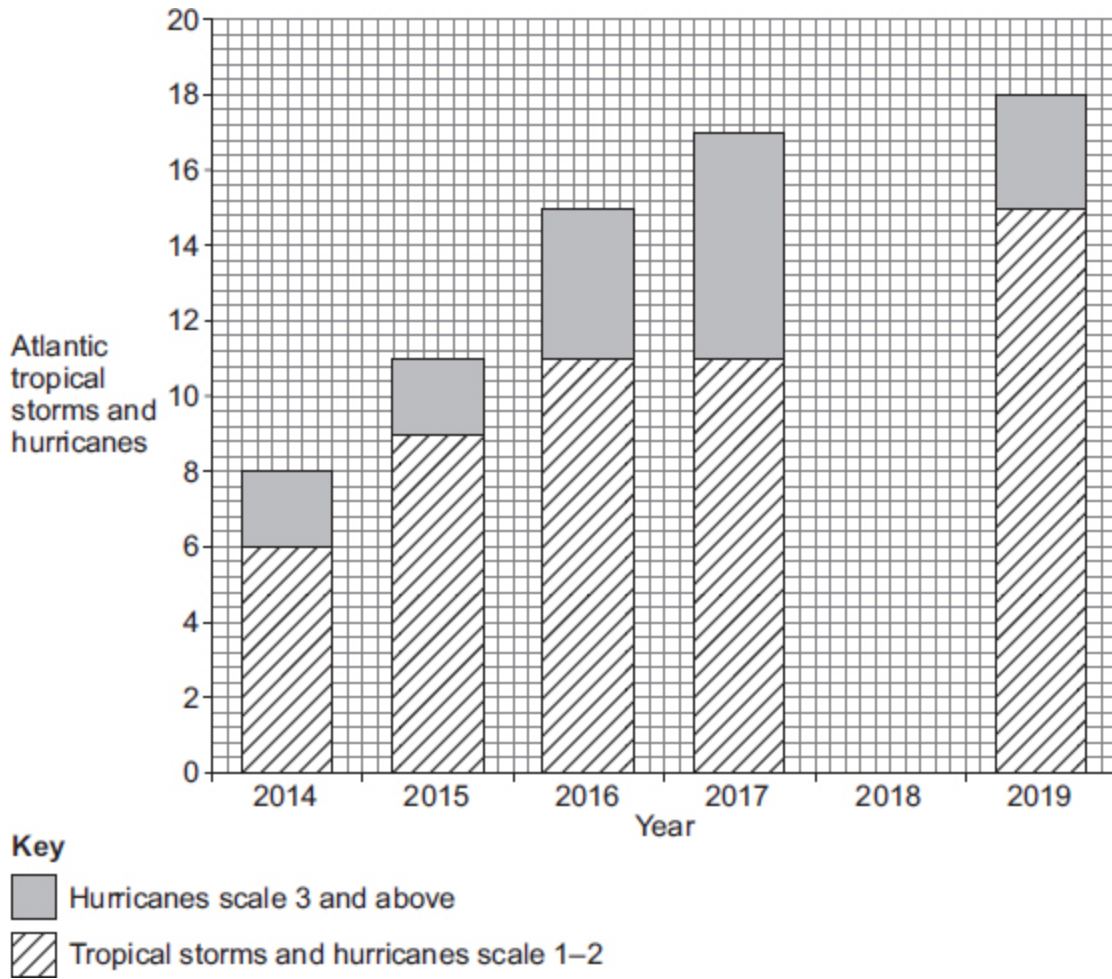
Figure 1

Using **Figure 1**, identify **two** features of Hurricane Dorian.

(Total 2 marks)

6. Study **Figure 1**, a divided bar graph showing the total number of Atlantic tropical storms and hurricanes between 2014–2019.

Figure 1

Key

▦ Hurricanes scale 3 and above

▨ Tropical storms and hurricanes scale 1–2

(a) Use the data from the following table to complete **Figure 1**.

Year	Number of tropical storms and hurricanes scale 1–2	Number of hurricanes scale 3 and above
2018	13	2

(2)

(b) Suggest **one** reason for the increase in the total number of tropical storms and hurricanes shown in **Figure 1**.
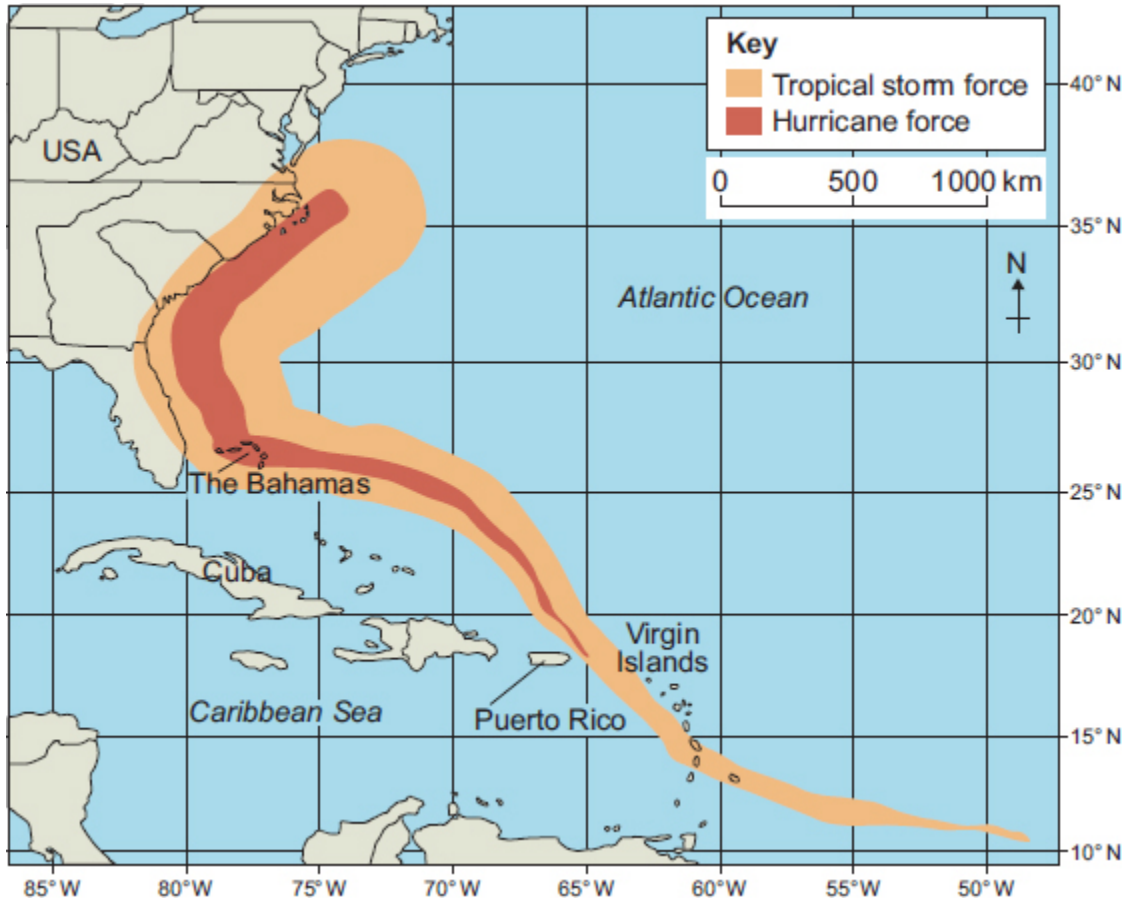
(1)
(Total 3 marks)

7. Give **two** conditions necessary for the formation of tropical storms (hurricanes).

(Total 2 marks)

8. Study **Figure 1**, a map showing the track of Hurricane Dorian in August and September 2019.
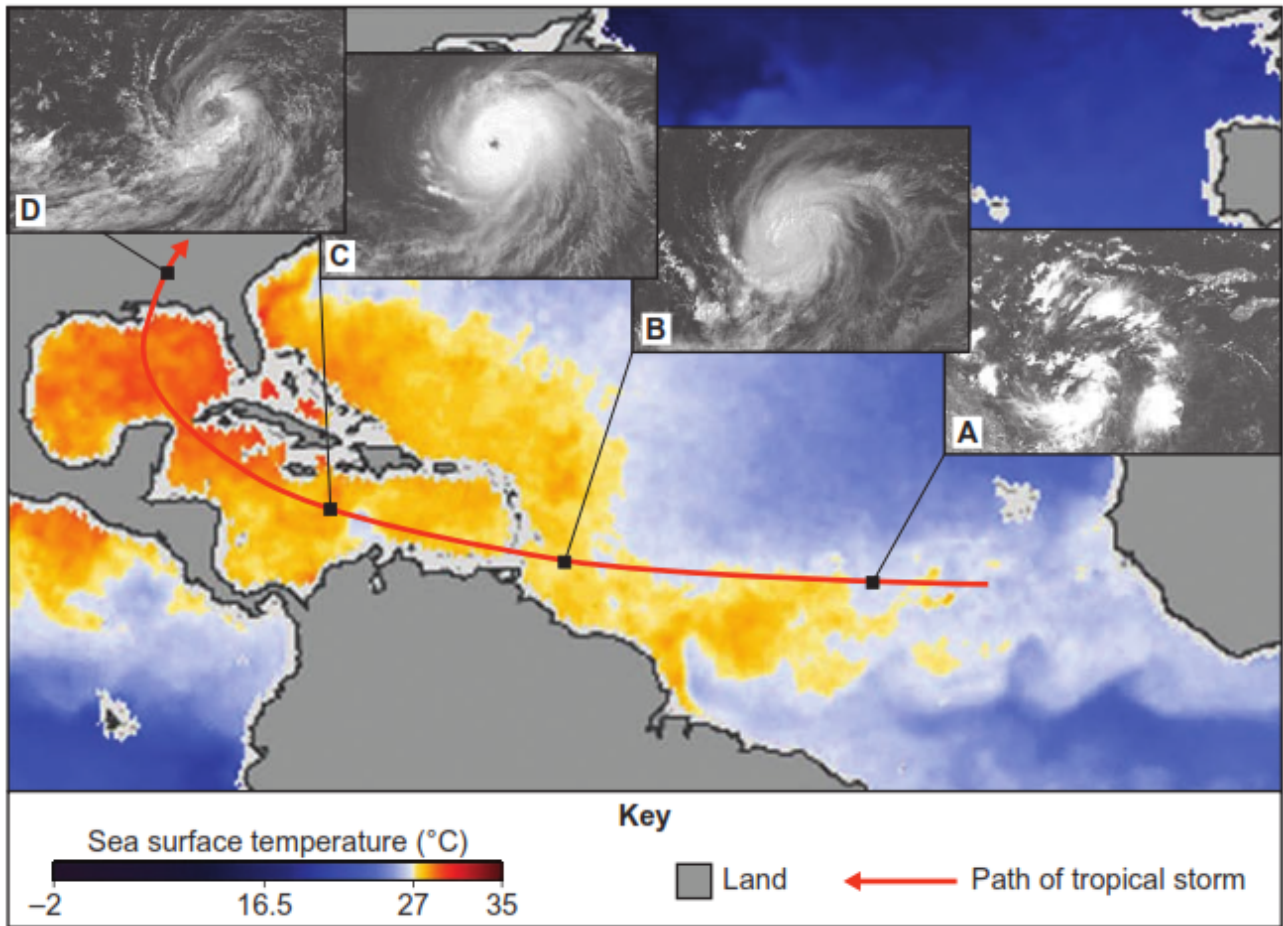
Figure 1

Using **Figure 1**, measure the distance travelled by Hurricane Dorian at hurricane force.

(Total 2 marks)

9. Study the figure below which shows the path of a tropical storm.

With the help of the figure, describe the stages of the life cycle of a tropical storm.

(Total 3 marks)

10. Study the following methods of preparing for a tropical storm.

> * Listen to the radio
> * Protect your home
> * Have a family action plan
> * Get an emergency kit

Suggest how **one** of these methods helps people to prepare for a tropical storm.

(Total 2 marks)

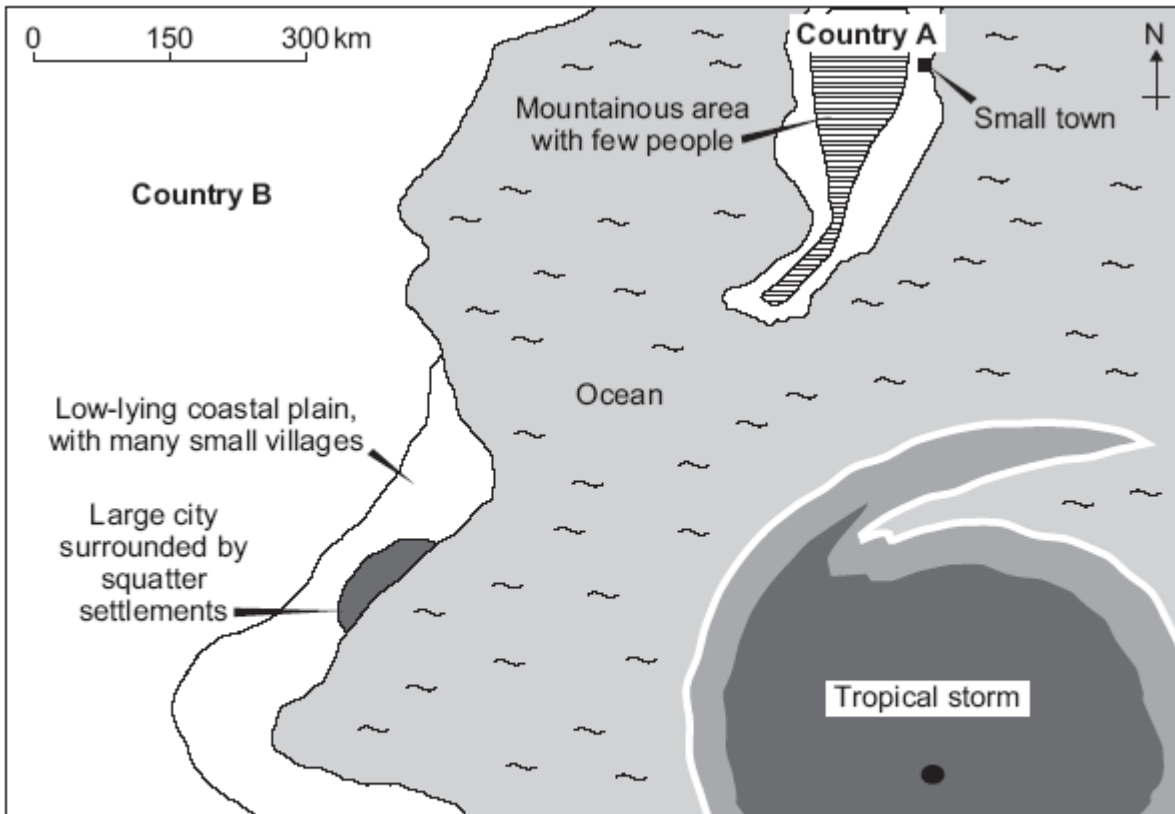**11.** Study the following figure, some methods of preparing for a tropical storm.

> * Listen to the radio
> * Protect your home
> * Have a family action plan
> * Get an emergency kit

Suggest how **two** of these methods help people prepare for a tropical storm.

(Total 2 marks)

12. The figure below shows parts of two countries (**A** and **B**).

Country A – Factfile	
GNI (US $ per person)	37 670
Internet users (per 100 people)	92
TV sets (per 100 people)	98

Country B – Factfile	
GNI (US $ per person)	540
Internet users (per 100 people)	10
TV sets (per 100 people)	21

The tropical storm will probably cause more damage in **Country B**.

Explain why, giving **two** reasons.

Use the information in the figure above.

(Total 4 marks)

13. Give **one** condition that is needed for a tropical storm to form.
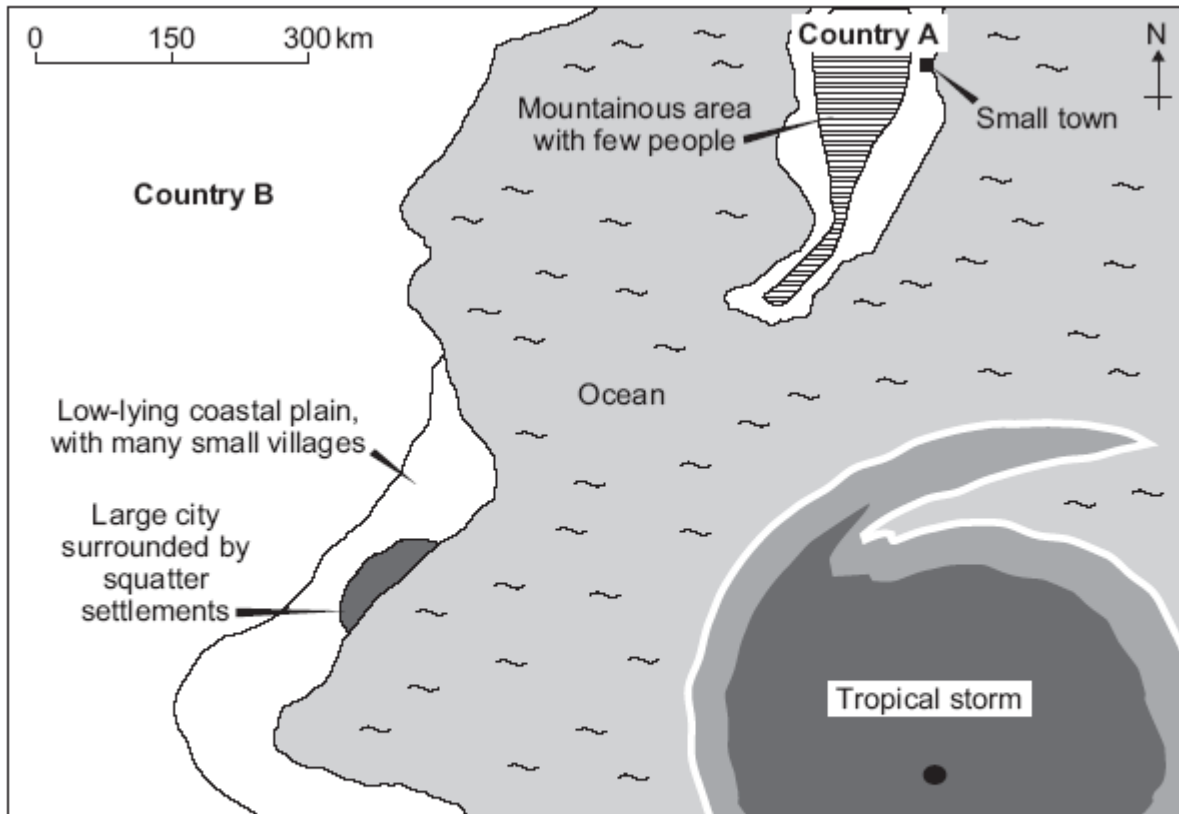
(Total 1 mark)

14. Suggest **one** reason why the number of tropical storms may change in the future.

(Total 2 marks)

15. The figure below shows parts of two countries (**A** and **B**).

Country A – Factfile	
GNI (US $ per person)	37 670
Internet users (per 100 people)	92
TV sets (per 100 people)	98

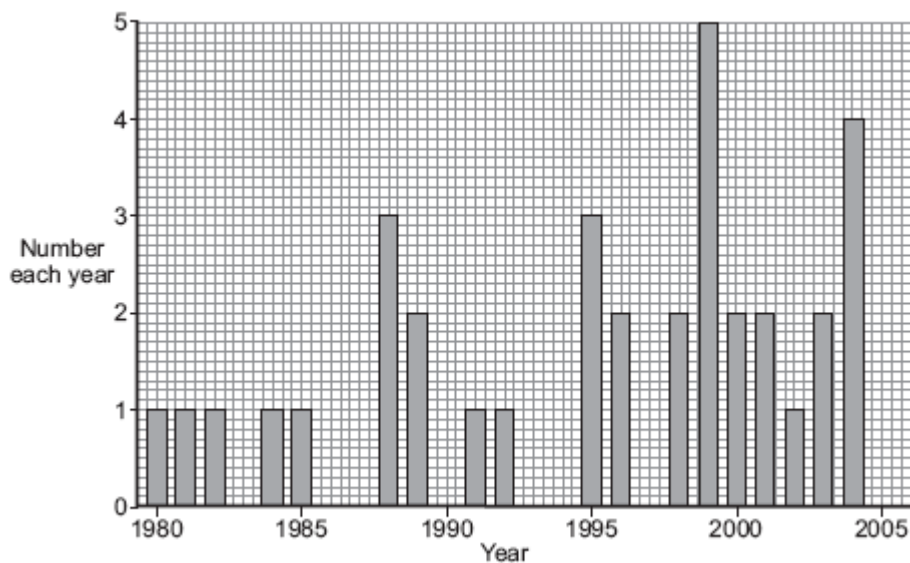| Country B – Factfile	
GNI (US $ per person)	540
Internet users (per 100 people)	10
TV sets (per 100 people)	21

The tropical storm will probably cause more damage in Country B.

Suggest three reasons why. Use the information in the figure above.

(Total 3 marks)

16. The figure below shows the number of powerful tropical storms in the Atlantic Ocean each year.

(i)   Complete the figure above.

Use the information below.

Powerful tropical storms in 2005 = 5

(1)

(ii)   Describe the changes to the numbers of powerful tropical storms between 1980 and 2005 as shown in the figure above.

(4)
(Total 5 marks)

17. Describe the characteristics of extreme weather.

(Total 3 marks)

18. **Figure 1** shows the total number of tropical storm days between 1980 and 2010.
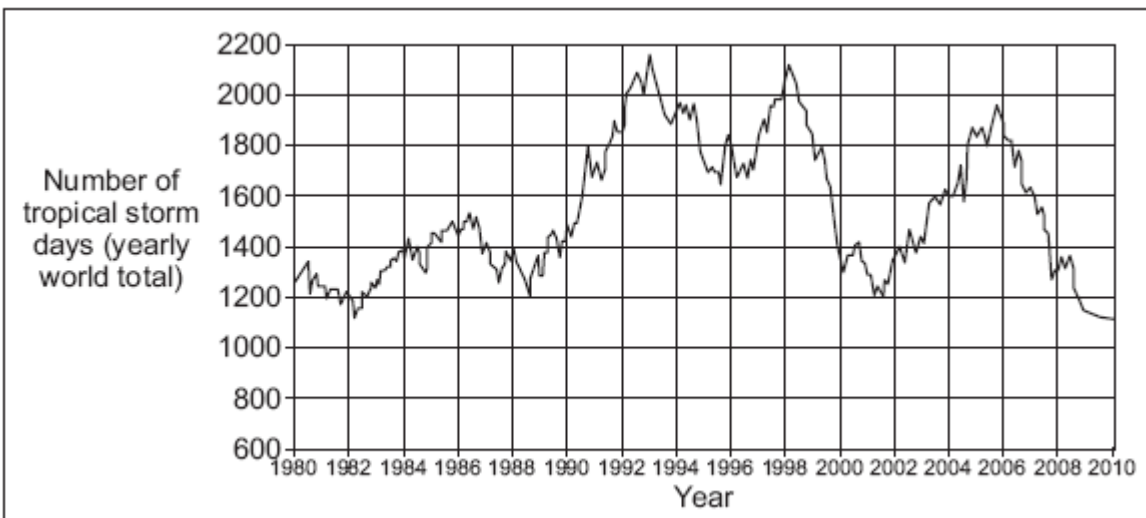
Figure 1

Figure 2 gives information about tropical storms.

Figure 2
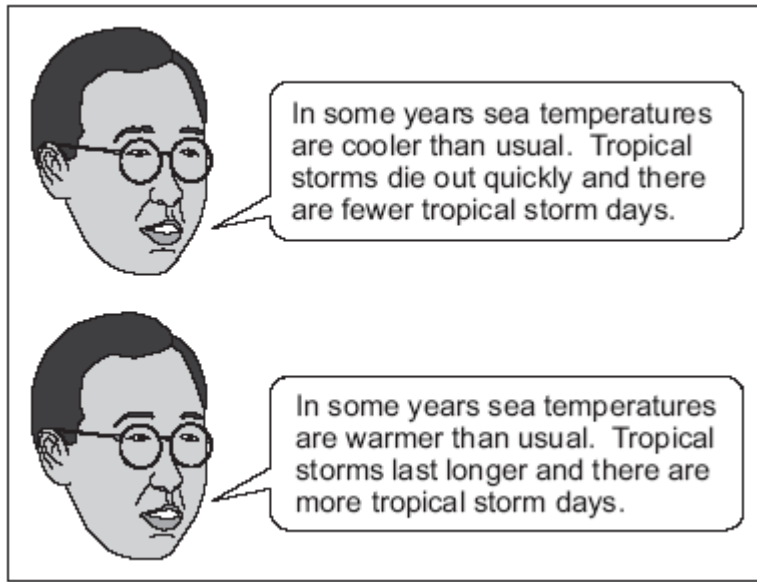
What evidence is there on **Figure 1** and **Figure 2** to suggest that changes in sea temperatures occurred between 1980 and 2010?

(Total 4 marks)

19. The figure below shows the total number of tropical storm days between 1980 and 2010.
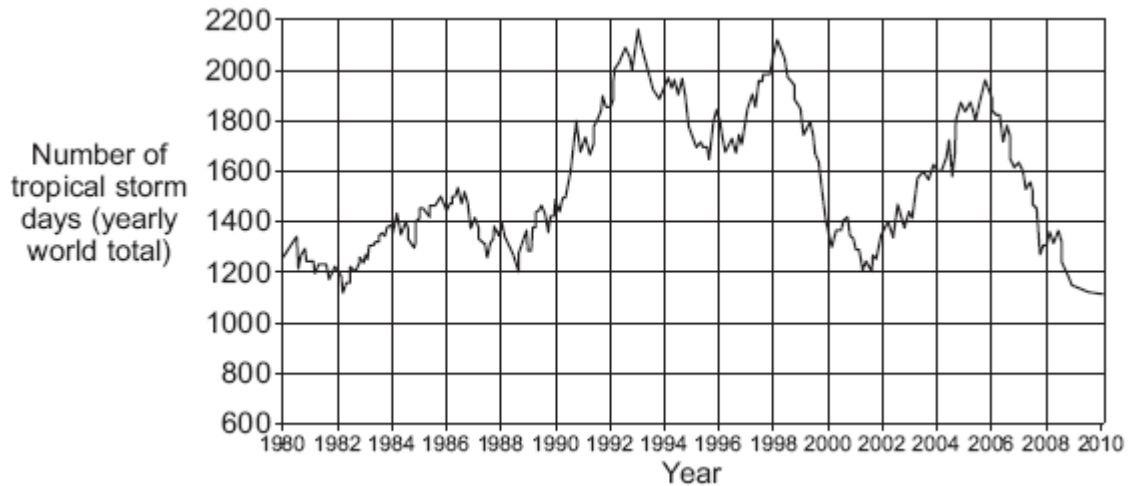
(i)   Which year had the highest total number of tropical storm days?

(1)

(ii)   Describe the pattern of tropical storm days between 1980 and 2010 shown in the figure above.

(2)

(iii)   The figure below gives information about tropical storms.

In some years sea temperatures are cooler than usual. Tropical storms die out quickly and there are fewer tropical storm days.
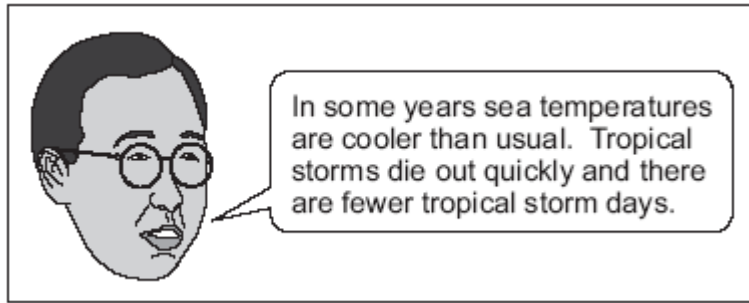
In which year could sea temperatures have been cooler than usual?

Use the figure above.

Circle the correct answer.

1993   **1998**   **2001**

(1)
(Total 4 marks)

20.   What is the difference between weather and climate?

(Total 2 marks)

21.   Study **Figures 1a** and **1b** below.
Figure 1a is a satellite image of the British Isles taken on 2 December 2010.
Figure 1b is a newspaper extract.

Figure 1a

Figure 1b

The Weather Outlook

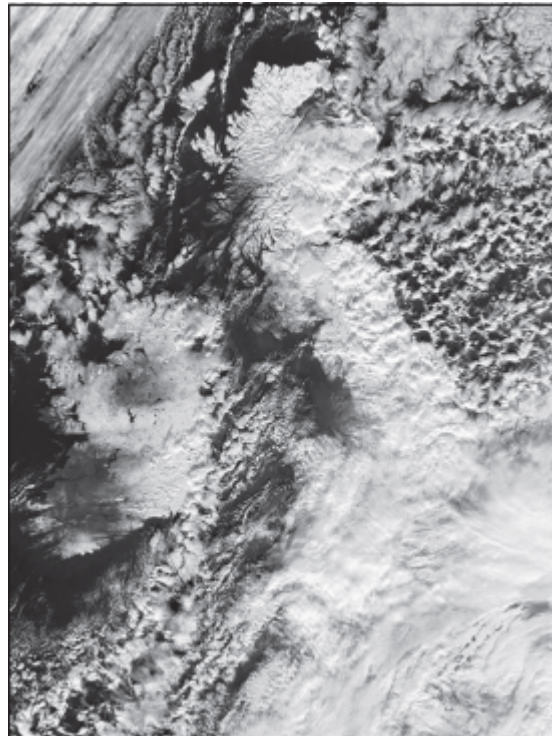At Altnaharra in the Highlands of Scotland the temperature fell to –21.2 °C, the coldest on record for 2 December.

Gatwick Airport remained closed for a second day and was not expected to open before this morning. A spokesman said that 45 cm of snow over the past two days was too much for a team of 100 people and 45 vehicles trying to clear the single runway.

- **Tomorrow**: Slightly warmer across UK, reaching 5 °C in the South West, 2 °C in London, 0 °C in Scotland.
- **Sunday**: Remaining slightly milder. Dry, sunny and pleasant over almost the entire country.
- **Monday**: Much colder over the whole country. Threat of thick fog and icy conditions.
- **Tuesday**: Little change.

(a) Describe the extent of snow cover shown in **Figure 1a**.

(2)

(b) Use **Figure 1b** to complete the Fact File below about the snowy weather in December 2010.

Fact File

Coldest temperature _____ °C

Snowfall at Gatwick Airport _____ cm

Summary of weather outlook _____

_____

(3)
(Total 5 marks)

22. Describe the conditions that lead to the formation of tropical revolving storms.

(Total 3 marks)

23. Give **one** reason why tropical storms have a seasonal pattern.

(Total 1 mark)

24. Study the satellite image below showing Cyclone Idai approaching Mozambique, Africa in March 2019.
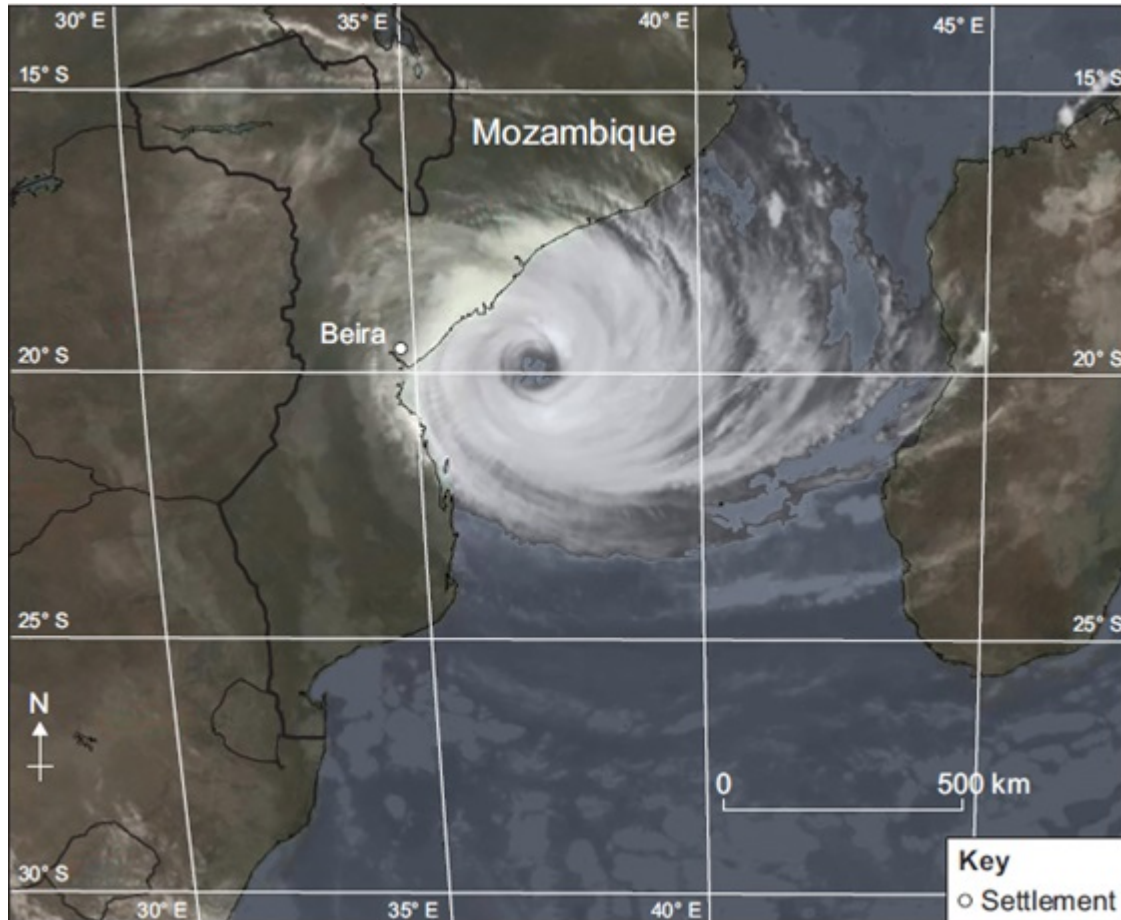
Describe the structure of Cyclone Idai shown above.

(Total 2 marks)

25. Give **two** reasons why tropical storms eventually lose their energy.

(Total 2 marks)

26. Study the photograph showing the effects of Hurricane Matthew in south western Haiti.

Using the photograph, state **two** primary effects of Hurricane Matthew.

(Total 2 marks)

27. Give **one** condition that is needed for a tropical storm to form.

(Total 1 marks)

28. **The challenge of natural hazards**

State what is meant by extreme weather.

(Total 1 mark)

29. Study the image below, a satellite image of Hurricane Matthew shortly before it crossed Haiti in October 2016.
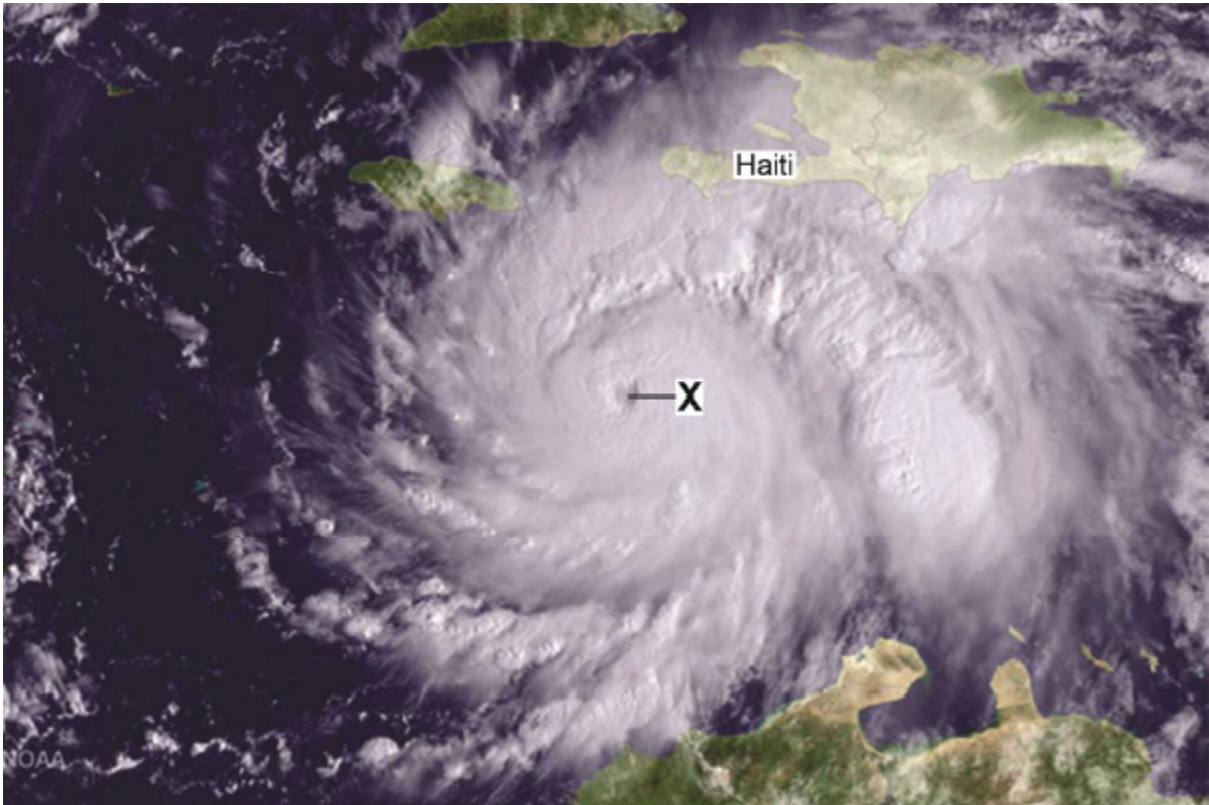
Using the satellite image and your own understanding, complete the following sentences.

The image shows that the pattern of winds moving around the hurricane centre was anticlockwise because

At X, the eye of the hurricane, the weather conditions were likely to be

(Total 2 marks)

30. Give **one** reason why the wind speed of a tropical storm (hurricane) may change as it reaches land.

(Total 1 mark)

31. Study the map showing the track of Hurricane Irma in September 2017.
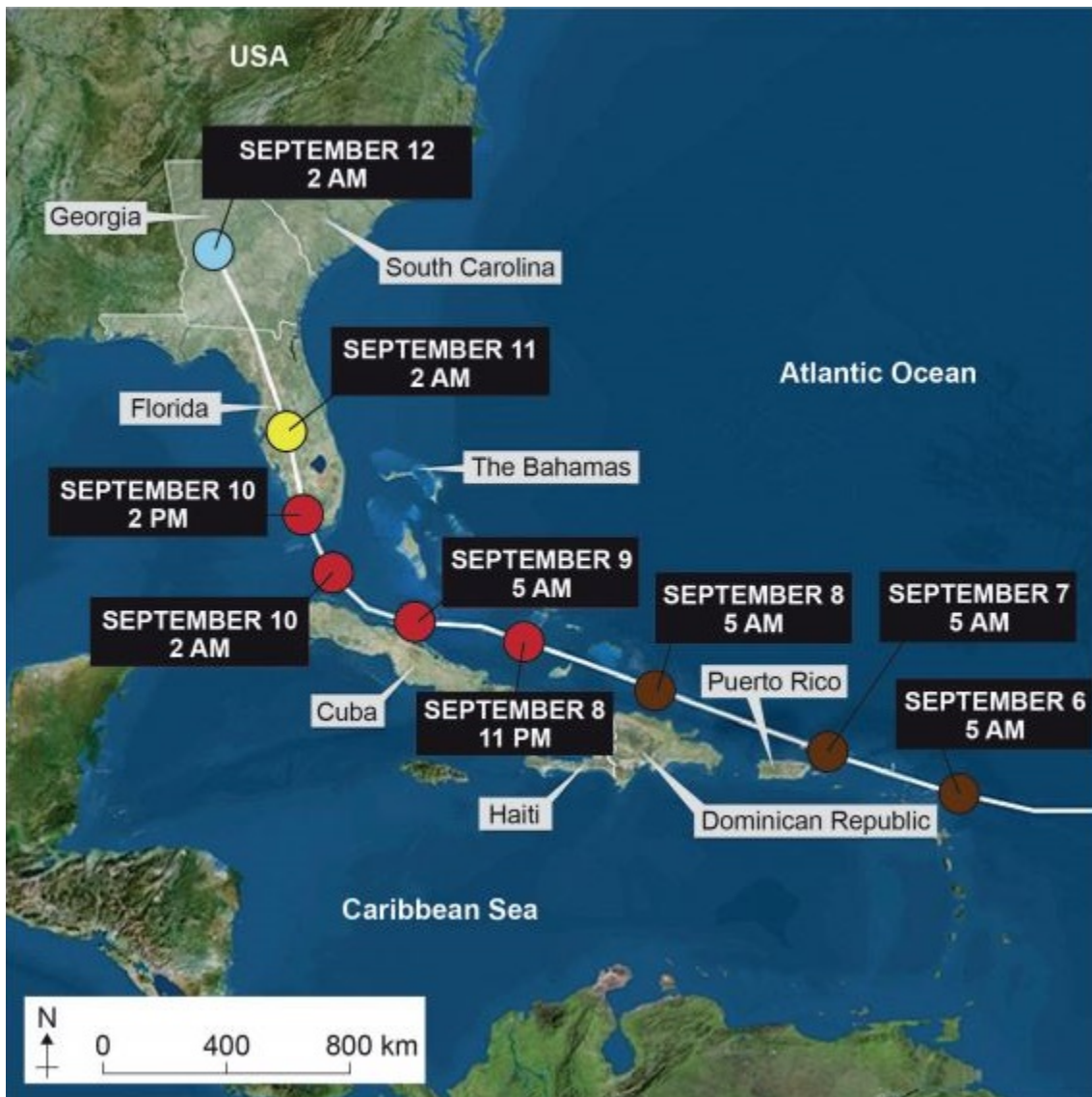
Saffir-Simpson Hurricane Wind Scale

Category	Wind speed (km/hour)	
1	119–153	🔵
2	154–177	🟡
3	178–208	🟠
4	209–251	🔴
5	252 or higher	🟤

(a) Using the map above, describe the track of Hurricane Irma between 6 September 2017 and 12 September 2017.

(2)

(b)   Using the map above, what happened to the wind speed of Hurricane Irma between 8 and 12 September 2017?

(1)
(Total 3 marks)

32. Suggest **one** way the distribution of tropical storms could change if global ocean temperatures continue to rise.

(Total 1 mark)

33. Study the table below listing some of the most severe tropical storms over the past 50 years.

Tropical storm	Number of deaths	Max wind speed (km per hour)
1970 Bhola cyclone, Bangladesh	350 000	205
1975 Typhoon Nina, China	230 000	250
2008 Cyclone Nargis, Myanmar	138 000	215
1998 Hurricane Mitch, Caribbean	19 300	295
2013 Typhoon Haiyan, Philippines	7 300	310
1980 Hurricane Allen, Caribbean, Mexico and USA	260	305
2017 Hurricane Irma, Caribbean and USA	134	298

'As maximum wind speeds increase, so does the number of deaths linked to tropical storms.'
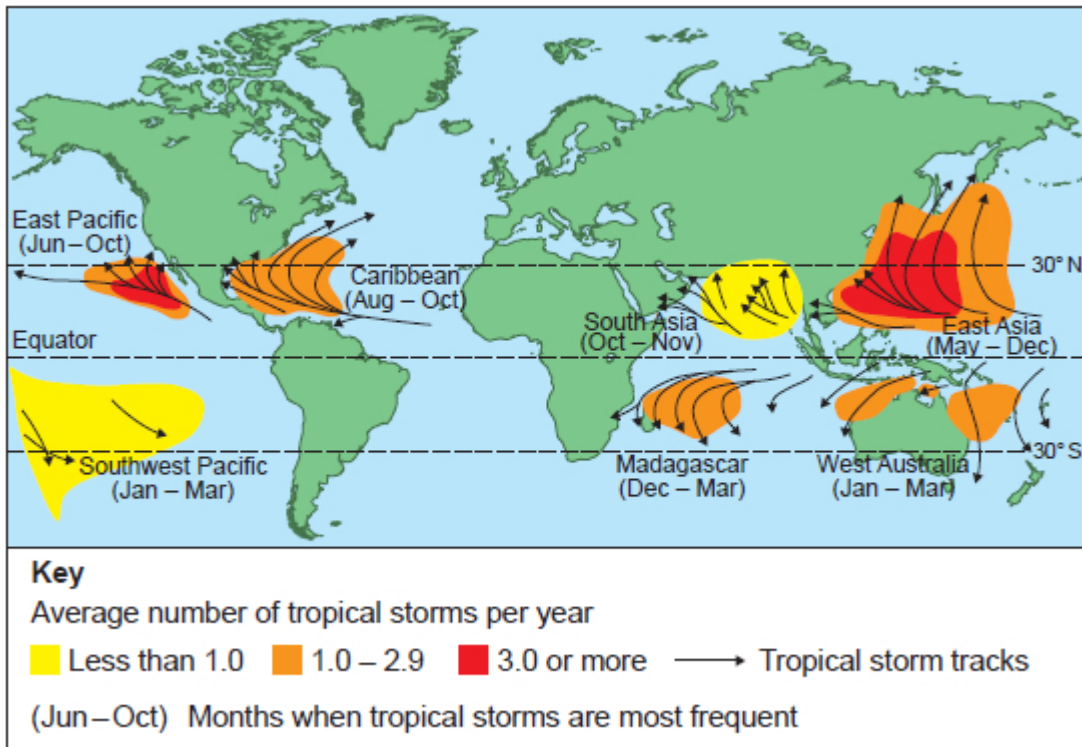
Do you agree?

Use evidence from the table to support your answer.

(Total 2 marks)

34. Study the map below showing the distribution and frequency of tropical storms.

Using the map, complete the following paragraph.

Most tropical storms happen between latitudes 5 degrees and 30 degrees north and

south of the _____ .

On average, three or more tropical storms per year take place in the East Pacific

and _____ . In the Caribbean the main months for

tropical storms are between _____ .

(Total 3 marks)

35. Study the map below showing the distribution and frequency of tropical storms.

Give **two** reasons why tropical storms form in the areas shown on the map.

(Total 2 marks)

36. Which **one** of the following statements does **not** describe an extreme weather event in the UK?

Shade **one** circle only.

A	A snow blizzard in the Midlands	⬭
B	A heatwave in the Lake District	⬭
C	A tornado in the Isle of Wight	⬭
D	A wet winter in western Scotland	⬭

(Total 1 mark)

37. Study the map below showing a weather forecast for the UK on 1 March 2018.
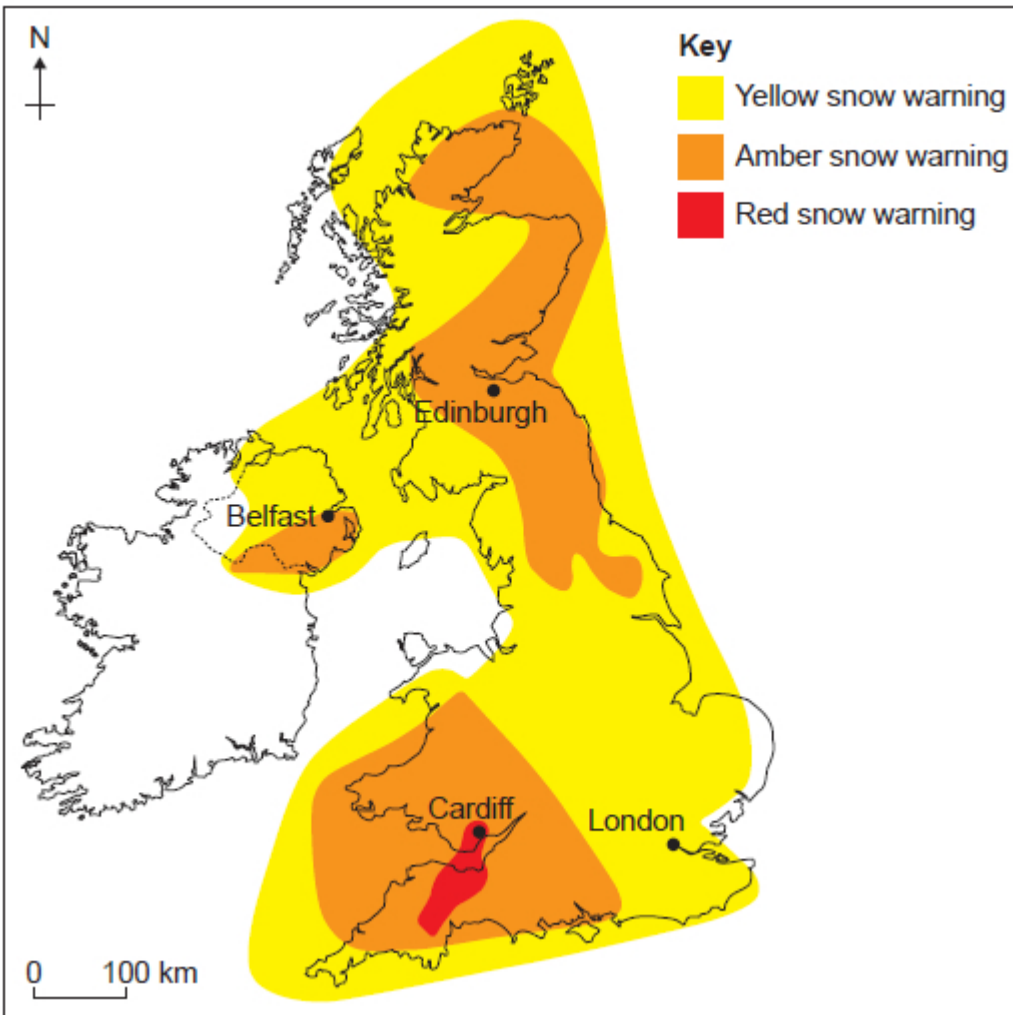
Using the map, which **one** of the following statements is true?

Shade **one** circle only.

A   The London area has an amber snow warning.   ⭕

B   The whole of the UK has a snow warning.   ⭕

C   Cardiff has a red snow warning.   ⭕

D   Edinburgh is not forecast to have snow.   ⭕

(Total 1 mark)

Mark schemes

1.   (a)   **C.** High pressure occurs where the air is sinking.

No credit if two or more answers are circled.

AO4 – 1 mark

(b)   e.g. Winds blow from high pressure areas to low pressure areas (1). e.g. The trade winds blow from 30 degrees N and S towards the Equator (d) (1). Winds converge in areas of low pressure (1) e.g. the Polar easterlies meet the westerlies at 60 degrees S (d) (1).
Sinking air causes high pressure (1) which leads to winds moving away/diverging (d) (1).

AO4 – 2 marks

(c)   Air is heated by the sun / air rises rapidly along the Equator (1). The air cools and condensation occurs (d) (1). This leads to heavy showers and frequent (convectional) thunderstorms. (d) (1)

AO3 – 2 marks

[5]

2.   D.Tropical storms form above oceans where temperatures are over 27°C.

No credit if two or more answers are circled.

AO1 – 1 mark

[1]

3.   **C**: Hurricane Dorian passed close to the east coast of the USA

No credit if two or more answers are shaded.

AO4 – 1 mark

[1]

4.   Hurricane Preparedness Week/evacuation plans etc (1) encourage people to plan what they need to do in order to minimise loss of life and injury (d)(1).
Preparing disaster supply kits (1) means people have what they need in the event of a tropical storm (d)(1).
Evacuation centres/evacuation plan (1) so people know a safe place to go in the event of a hurricane (to minimise loss of life and injury (d)(1).
Storing loose objects/storm shutters/hurricane straps (1) to prevent damage and injury from flying objects (d)(1).
Remove trees or cut loose branches from trees close to buildings (1) to prevent damage and injury from flying objects in the event of a tropical storm (d)(1).
Restrict building in hurricane risk areas (1) to limit the number of people and buildings at immediate risk from storm surges and flooding (d)(1).
Coastal flood defences such as levees and flood walls (1) can reduce the impact of storm surges (d)(1).

Only ONE developed strategy to be credited. First mark for strategy, second mark for developed point.

AO1 – 2 marks

[2]

5. Largely circular shape of hurricane (1)
Bands of (swirling) cloud (1)
Anti-clockwise rotation of the storm/clouds (1)
A central (circular) eye of the storm (1) where there is no cloud (1)
Note the requirement for two separate features.

[2]

6. (a)

Key

☐ Hurricanes scale 3 and above

▨ Tropical storms and hurricanes scale 1−2
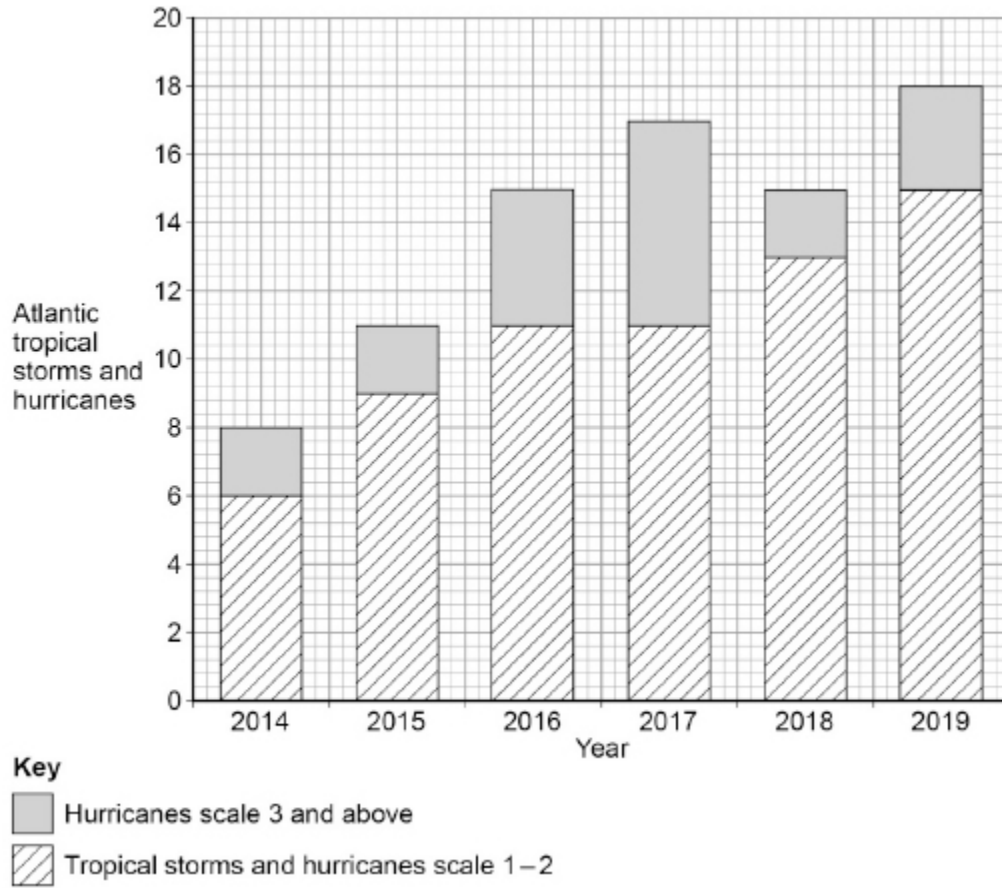
Accurate plotting of total number of 15 hurricanes (1)
Correct proportion (13:2) and differentiation (of shading) obvious (1)

(b)   Rising sea temperatures (1)

Climate change (1)

Longer storm season (1)

More places above 27 °C (1)

No credit for simply stating that there is an increasing number of hurricanes

[3]

7. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

Any 2 valid points or 1 developed point and 1 basic point e.g. position between 5 and 15 degrees N and S of Equator (1); warm tropical seas (1) with temperatures of at least 26/27 degrees (1); high rates of evaporation (1); very low pressure (1).

[2]

8. Any value between 2800–3200 km (2 marks).

2600–2799 km or 3201–3400 km (1 mark).

AO4 – 2 marks

[2]

9. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

3x1

(A) Clusters of thunderstorms drift over warm ocean waters (1) (B).

With sea surface temperatures over 27°C, warm air rises and starts to spin (1). (C) As the tropical storm moves over the ocean, it picks up more warm air, wind speeds increase and it grows in size (1) (D). As the tropical storm moves over land, it loses its source of energy and weakens (1).

The emphasis is on the physical process, rather than features of the storm itself.

1 mark from (A), 1 mark from (B)/(C), 1 mark from (D)

[3]

10. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

2 x 1 or 1+1

Listen to the radio: up to date information on course/strength of tropical storm + effect, information on evacuation notices + effect, information on safe evacuation routes + effect etc.

Protect your home: turn off gas/electricity + effect, fasten roof straps + effect, put shutters/board up windows + effect, secure large/heavy items of furniture + effect, windproof tiles + effect, water resistant windows + effect, strengthened building structures + effect, ground floor walls of buildings are designed to wash out + effect etc.

Have a family action plan: discuss escape routes from home + effect, agree on a meeting/contact place/person if separated + effect, decide what to do with pets + effect, agree on a 'safe' area in the home + effect etc.

Get an emergency kit: put together and store items which would help during a tropical storm e.g. torch, batteries, wind-up radio, bottled water, first-aid kit etc + effect.

[2]

11. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

2x1

Listen to the radio: up-to-date information on course/strength of tropical storm, information on evacuation notices, information on safe evacuation routes etc.

Protect your home: turn off gas/electricity, fasten roof straps, put shutters/board up windows, secure large/heavy items of furniture, windproof tiles, water resistant windows, strengthened building structures, ground floor walls of buildings are designed to wash out etc.

Have a family action plan: discuss escape routes from home, agree on a meeting/contact place/person if separated, decide what to do with pets, agree on a 'safe' area in the home etc.

Get an emergency kit: put together and store items which would help during a tropical storm e.g. torch, batteries, wind-up radio, bottled water, first-aid kit etc.

[2]

12. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

2 × 1 + 1
Poorer country/lower GNI (or vice versa) (1), therefore less money for
mitigation programmes (1). Poor communications/fewer people with
Internet access/TV (1), therefore unable to be warned (1). Flat coastal
plain therefore flooding (1) from storm surges (1). Poorly built shacks in
shanty towns/houses in villages are easily damaged (1), as they
cannot withstand the strong winds (1).
Accept B denser population/larger population (1)

[4]

13. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

1 × 1
Sea temperatures over 25°C – 27°C
Accept high sea temperatures/very warm
Accept intense low pressure or low wind shear

[1]

14. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

1 + 1
could be developed by relating climate change to global warming),
changing sea temperatures (1). El Niño type events (1).

[2]

15. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

3 × 1
Poorer country/lower GNI, or less money for mitigation programmes,
poor communications/fewer people with Internet access/TV – unable
to be warned, flooding on coastal plain, poorly built shacks in shanty
towns, houses in villages easily damaged, receives full force of winds,
unlike A.
Accept less internet users/TVs unqualified – once only

[3]

16. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

(i)   1 × 1
Correct bar at 5

1

(ii)   4 × 1
Any change to the overall trend eg increases (1) + use
of data (1) and then changes within individual time periods,
e.g. fluctuates (1) + use of data (1) e.g. 'in 1980 1 storm, by
1998 3 storms, by 2005 5 storms, they are increasing' (= 3 marks) +
reference to fluctuations (= 4 marks)
(reject 'the number of tropical storms is increasing <u>each</u> year')

4

[5]

17. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

Extreme weather is that which is not the norm / exceptional / breaks (Met Office) records. It
occurs relatively rarely and may last for longer than expected.
Examples include drought, heat waves, heavy rain and deep snow and thick fog.
1 mark for example. 3 × 1

AO1 – 3

[3]

18. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

• Identifies a cycle/fluctuations (1), indicates increasing/decreasing
sea temperatures (1)

• Identifies a peak (dates/number of storm days) (1), link to heating or
El Nino (1)

• Identifies a trough (dates/number of storm days) (1), link to cooling
or La Nina (1).

Higher/lower sea temperatures = more/fewer tropical storm days = 1
mark only.

[4]

19. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

(i)   1 × 1 1993

1

(ii)   2 × 1 reference to fluctuating/ high-low-high/cyclical/use
of figures/dates.

2

(iii)   1 × 1 2001

1

[4]

20. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

Weather is the day-to-day variation of features such as rainfall, temperature, wind, whilst climate represents the average weather conditions – over a period of time, average of at least 30 years.

AO1 – 2

[2]

21. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

(a)   1 mark for recognising that the vast majority of the British Isles is covered in snow + 1
if qualified. 1 mark for identifying areas not covered – such as some western coastal
areas, parts of the Republic of Ireland.
2 × 1

AO2 – 1
AO3 – 1
2

(b)   3 × 1

> **Fact File**
>
> **Coldest temperature:** –21.2°C
>
> **Snowfall at Gatwick Airport:** 45cm
>
> **Summary of weather outlook.** Any valid summary – staying very cold but mainly dry; sunny, but cold, a little snow.

AO2 – 1
AO3 – 2
3

[5]

22. *This mark scheme is from a question paper that assessed a previous specification and has not been edited.*

Click [here] to access a document explaining the differences that might apply to it.

Any valid point such as they form over warm, tropical seas (1) with a temperature of over 26.5 / 27°C (1) in summer when seas are warmest (1) at latitudes more than 5°N and S of the Equator (1) so that the 'spin' can develop (1). In these areas storms are joining together (1) due to the instability of the air (1).

AO1 – 2
AO2 – 1

[3]

23. They occur (in late summer/autumn) when sea temperatures are highest (over 26/27°C)/ water temperatures of at least 26/27°C are needed down to a depth of at least 50 m/they require high sea temperatures (1).
Only occur when atmosphere is unstable (enough for convection and thunderstorms) (1).

Reference to higher temperatures on their own is insufficient-must mention sea or water temperatures.

AO1 – 1 mark

[1]

24. Credit 2 different ideas or one developed statement.

The cyclone has an eye at the centre (1).
The centre/circular eye has no cloud (1).
There is a mass(swirl) of clouds surrounding the eye (1).
The vortex around the eye consists of dense cloud (1).
Clouds have a circular pattern (1).
Clouds appear to be arranged in a clockwise pattern (1).
Clouds become patchy towards the edge of the cyclone (1).
The main parts of the storm are the central eye (1) surrounded by a vortex/eye wall of clouds (d) 1.
The centre or eye is cloudless (1) but dense clouds are arranged in a circular pattern around the eye (d) 1.

No credit for size of storm using the scale.

No credit for explanation of structure or for description of movement.

AO4 – 2 marks

[2]

25. One mark for each reason showing understanding of the frictional effect of moving over the land, e.g. they pass over land which slows their movement due to friction, or of loss of energy due to cooling effect of passing over water (or land) at higher latitudes, e.g. they move into areas of cooler water, where there is less energy.

No credit for vague statements such as 'mountains stop them' or 'they pass over the sea'.

AO2 = 2

[2]

26. Two separate primary effects should be stated, based on evidence in the photograph

E.g. Roofs of many houses blown away / destroyed (1)
Much damage to buildings, with some completely destroyed / liable to collapse (1)
Many people made homeless. (1)
Damage to infrastructure such as pathways / roads. (1)

No credit for longer term or secondary effects, or for effects not observable in the photograph.

AO4 = 2

[2]

27. Only **one** condition is required.

Credit a range of answers, e.g:
- warm sea temperatures/sea temperatures in excess of 27°C (1)
- light winds aloft (1)
- winds near the ocean surface blowing from different directions converging (1)
- low-wind-shear winds that do not vary greatly with height (1)

No credit for high temperatures without qualification.

AO1 = 1

[1]

28. One mark for an appropriate definition.

Weather that is unexpected (1), unusual (1), severe (1), unseasonal (1), significantly different from the normal pattern (1)/not normal to a particular area (1).
Weather (event) that can cause a threat to life (1).
Weather (event) that can cause damage (to property) (1).

No credit for rearranging the wording of the question or for quoting examples of extreme weather.
No credit for "different weather".

AO1 = 1 mark

[1]

29. One mark for each correct word or description

The satellite image shows that the pattern of winds moving around the hurricane centre was anticlockwise because **the clouds show an anticlockwise pattern / the clouds spiral inwards / of the way the clouds are arranged (1)**

At X, the eye of the hurricane, the weather conditions were likely to be **calm / mostly clear skies / very little or no rain / low wind speeds (1)**

Credit other similar statements

AO2 = 1
AO3 = 1

[2]

30. It loses its source of energy i.e. (warm) water / less moisture over land (1)
Slower movement due to winds in contact with land / rough terrain (1)

AO2 = 1 mark

[1]

31. (a) Credit use of direction, starting point, distances, dates and named locations.

E.g. Hurricane had a change of direction (1) of W/WNW initially, then N/NNW (1) /
Its movement was in a W/WNW/NW direction (1)
It passed to the north of Puerto Rico / Dominican Republic / Cuba (1)
It reached landfall over Florida and moved towards Georgia (1)
Max 1 mark for list of countries / places
No credit for changes in intensity.

AO4 = 2 marks

(b) The wind reduced (1)
It fell from a category 5 (1)
It dropped from over 252 km per hour.(1)
The wind speed halved in this time (1)
Wind speed remained very high then reduced (1)

AO4 = 1 mark

[3]

32. They may affect areas further from the Equator (1).
They could affect parts of the sub tropics/the South Atlantic/NE USA (1).
They could have a broader distribution/affect larger parts of the world (1).

Credit alternative idea.
(As the science is uncertain) regions where tropical storms take place are not expected to change much as a result of climate change (1).

AO1 = 1 mark

[1]

33. E.g. There is no (clear) relationship/there is not a direct link (1).
Some of the storms causing most deaths had lower max wind speeds / some storms causing more deaths had very high wind speeds (1) (Avoid double crediting).
Credit qualified use of data from the table e.g. the 3 storms causing the highest number of deaths all had lower wind speeds than the 4 with the least deaths (1)/The Bhola cyclone had the lowest max wind speed yet recorded the greatest number of deaths (1).
Credit data manipulation.

No credit for explanations of the data.
No credit for just disagreeing with the statement.

AO4 = 2 marks

[2]

34. Most tropical storms happen between latitudes 5 degrees and 30 degrees north and south of the **Equator**. On average, three or more tropical storms per year take place in East Pacific and **East Asia**. In the Caribbean the main months for tropical storms are between **August-October**.

AO4 = 3 marks

[3]

35. E.g. High sea temperatures/sea temperatures above 26/27 degrees C (1).
They form over the oceans, where water provides moisture/gives energy (1).
Water vapour is evaporated from the ocean surface, which provides "fuel" for the storm (1).
Because at the Equator there isn't enough spin from the earth's rotation (Coriolis effect) (1).
Heat makes air unstable/makes the air rise rapidly (1).
Low wind shear (1).

2 separate reasons are required.

AO1 = 2 marks

[2]

36. D. A wet winter in western Scotland.

No credit if two or more answers are circled.

AO2 = 1 mark

[1]

37. C. Cardiff has a red snow warning.

No credit if two or more answers are circled.

AO4 = 1 mark

[1]