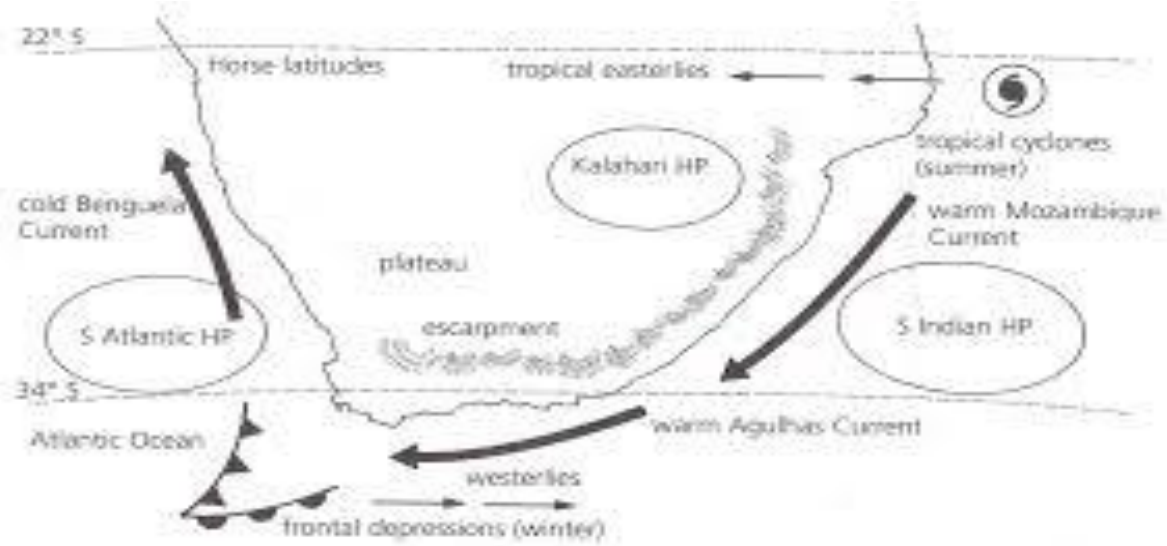


SUBTROPICAL ANTICYCLONES AND ASSOCIATED WEATHER CONDITIONS



Figure 1.3.2A: Cross-section of South Africa from west to east showing the relief of the country



1. LOCATION, GENERAL CHARACTERISTICS AND INFLUENCE OF HIGH PRESSURE CELLS

What is it? Where is it? What does it look like? What is the impact?

What are anticyclones?

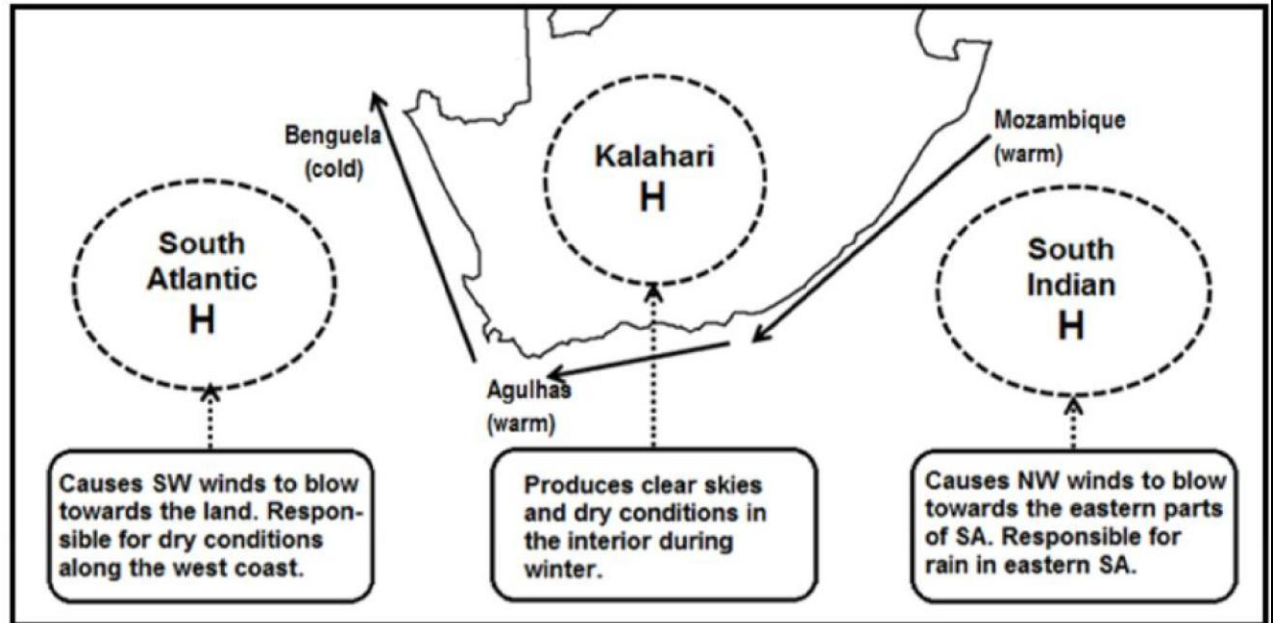
Areas of subsiding air.
Anti-clockwise in the Southern Hemisphere

Where are the anticyclones located? What are their names?

- In the Sub-tropical high pressure belt.
- Names:
 - South Atlantic HP
 - South Indian HP
 - Kalahari HP

How do anticyclones influence the weather and climate of South Africa?

See diagram



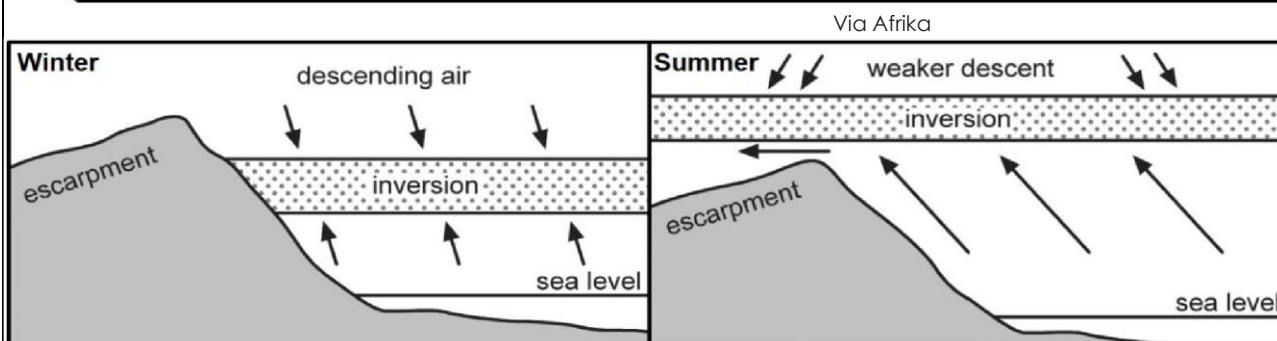
Make sure that you know the names of all three high pressures as well as where they are located. You must mention the word SOUTH when referring to the high pressures over the oceans. You must have a good understanding of how the anticyclones influence the weather and climate of South Africa. This can also be tested on synoptic weather maps.



2. LINE THUNDERSTORMS

What is it? Where is it? How are they formed? What is the impact?

How are line thunderstorms formed?	See explanation on map of South Africa	Revise your Grade 11 work regarding high pressures and the subtropical high pressure belt. Also see page 1, how anti-cyclones and warm and cold sea currents influence the weather of South Africa. Then follow the points 1-9 to understand how line thunderstorms are formed.
What is a moisture front?	A zone between two air masses with different moisture content. Dry air and Moist air. See diagram	
What are the impacts of line thunderstorms ?	• Heavy rain and strong winds can damage crops • Fertile soil eroded • Loss of income • Dams filled with water	
Why do line thunderstorms occur during the summer?	During summer the inversion layer is positioned above the escarpment. Moist air from the Indian Ocean is able to flow in to the interior, causing rainfall See diagram showing the difference in height of the inversion layer during summer and winter.	



3. SOUTH AFRICAN BERG WIND

What is it? Where is it? How is it formed? What is the impact? How can it be managed?

What is the South African bergwind?

Warm, dry winds blowing from the interior to the coast during winter

How does the South African bergwind occur?

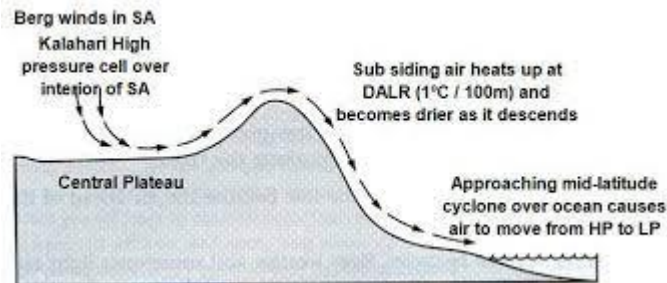
See diagrams. Also take note of the crosssection.

Why is it a warm and dry wind?

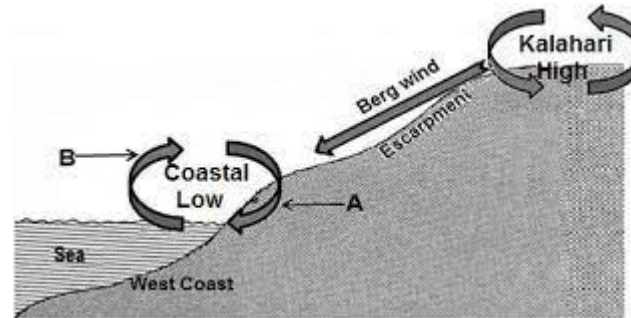
Blows from land to sea.

What are the impacts of the South African bergwind?

- Mostly veldfires
- Respiratory problems
- Animals burned to death
- Ecosystem destroyed
- Erosion
- Pasture destroyed
- Food insecurity
- Loss of life, injuries
- Loss of property



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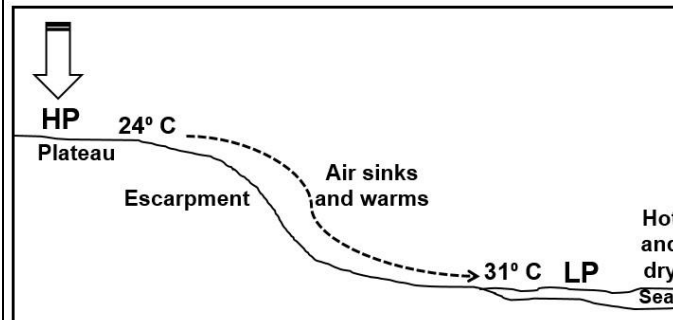
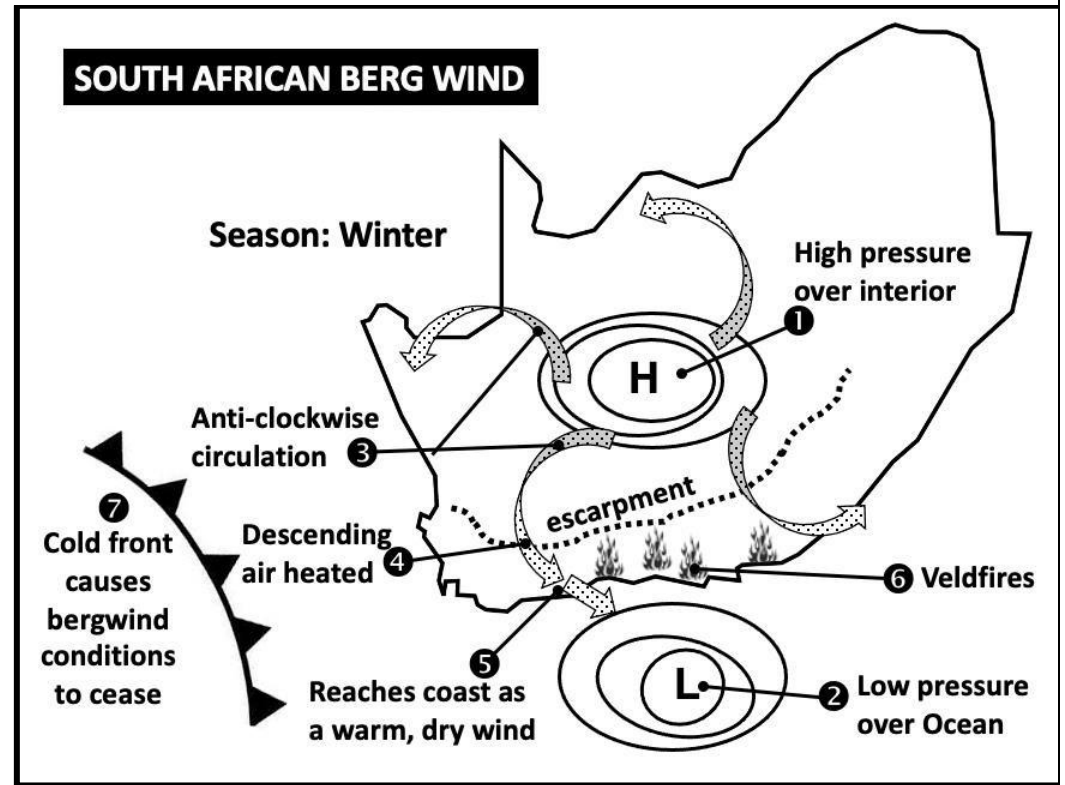


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How can the impact be reduced?



- Awareness of cause by cigarettes
- Fire department and fire fighters on alert
- Fire fighting strategy
- Irrigate crops to prevent burning



To understand you must know how high pressures will be good to revise Geography work regarding characteristics of High pressure

APPLICATION ON SYNOPTIC WEATHER MAPS

1. LINE THUNDERSTORMS AND HIGH PRESSURES



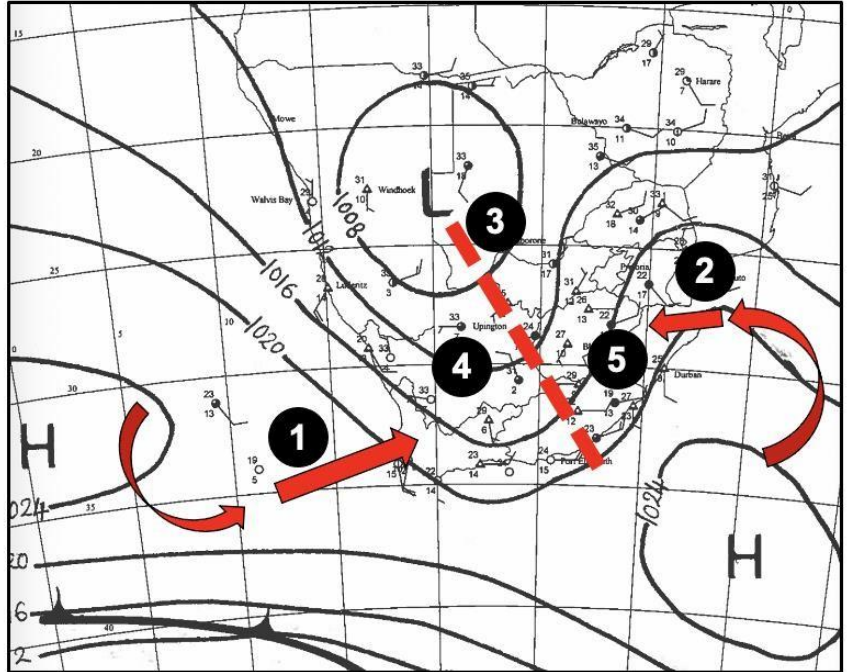
map!

Always be prepared to answer questions regarding line thunderstorms based on a synoptic weather map!

You can identify line thunderstorms on the synoptic weather map by looking for the following:

Season: summer (NB High temperatures)

1. Cold dry air from South Atlantic high
2. Warm moist air from South Indian high
3. They meet at the moisture front, the zone between two airmasses of different moisture content.
4. Dry air causes little cloud cover on western side of moisture front
5. Moist air causes higher cloud cover on eastern side of moisture front. Therefore, more thunder activity there.



2. SOUTH AFRICAN BERGWIND



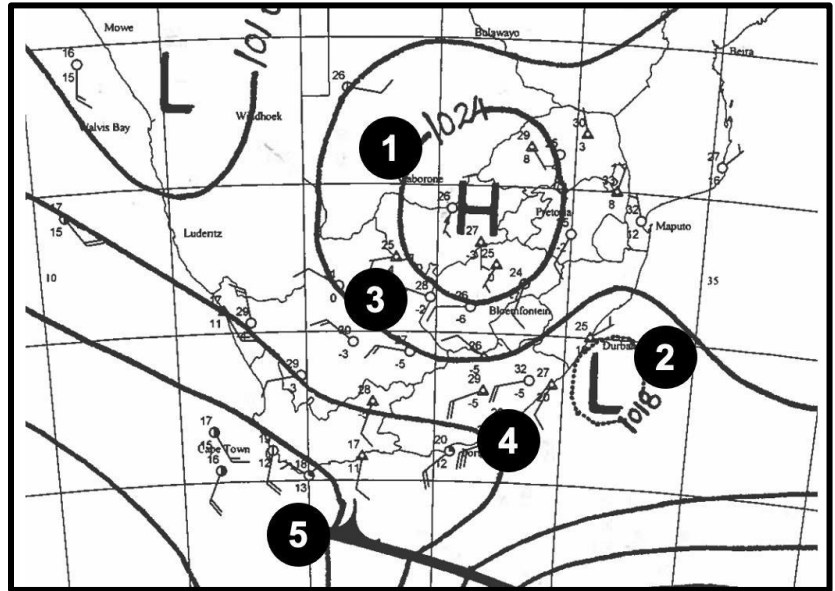
map!

Always be prepared to answer questions regarding the South African bergwind based on a synoptic weather map!

You can identify the South African bergwind on the synoptic weather map by looking for the following:

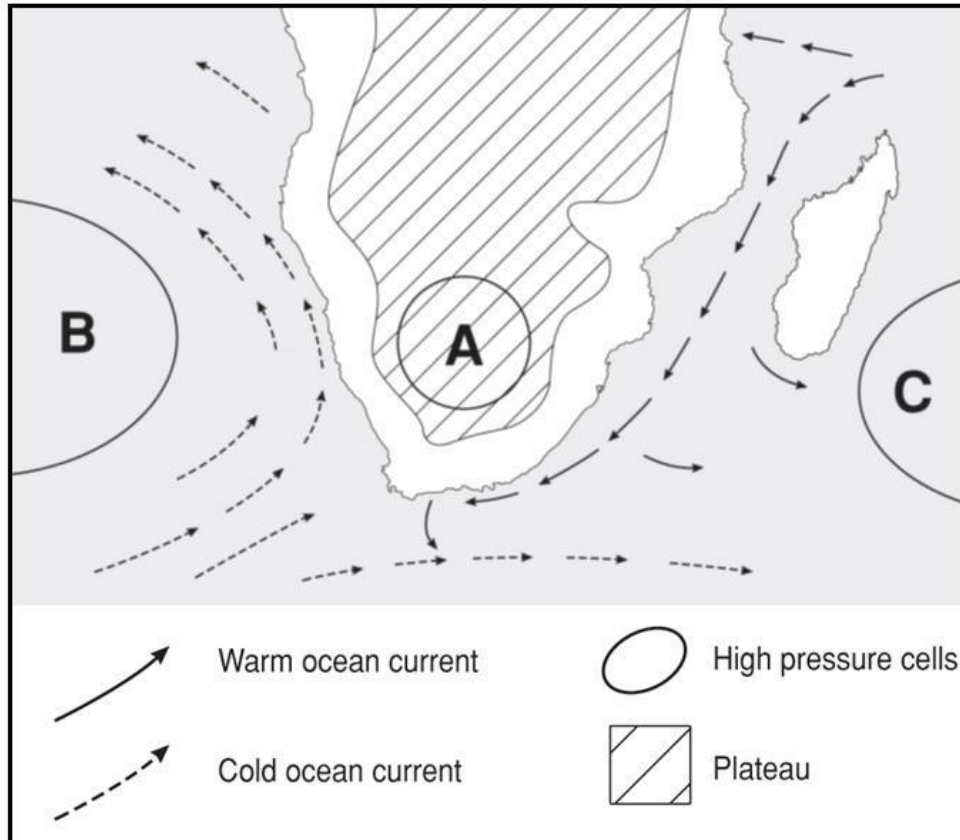
Season: winter (NB Low temperatures)

1. High pressure in the interior
2. Low pressure at the coast
3. Anti-clockwise circulation. Note the wind direction at weather stations.
4. Warm temperatures at coast.
5. Possibility of incoming cold front



LEARNER TASK 1

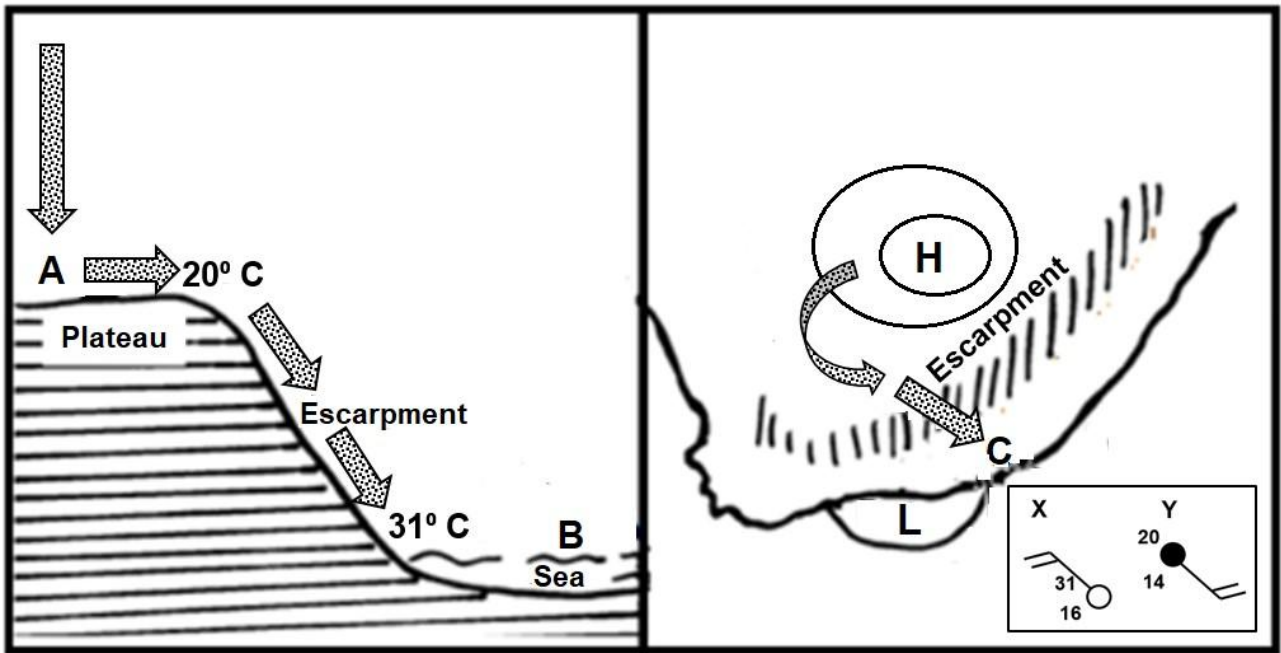
The questions are based on the map below.



1. (Rising / sinking) air is found in a high pressure cell. (1x1) (1)
2. Describe the air movement around a high pressure cell. (1x2) (2)
3. Name the high pressure cells at A, B and C (3x1) (3)
4. Give THREE factors, derived from the map, that influence the climate of South Africa. (3x2) (6)
5. Which high pressure cell A, B or C plays a major role in the formation of the South African bergwind? (1x2) (2)
6. In a paragraph of approximately 8 lines, explain how air movement around high pressure cells B and C cause line thunderstorm to form. (4x2) (8)

LEARNER TASK 2

The questions are based on the cross-section and map of the same South African bergwind.



1. Identify the type of air pressure at A and B. (2x1) (2)
2. During what season do South African bergwinds occur? (1x2) (2)
3. Explain how the South African Bergwinds are formed. (3x2) (6)
4. Why are these winds warm and dry? (1x2) (2)
5. Which of the weather station models, X or Y, best represent the weather conditions at C on the map? (1x2) (2)
6. Give TWO reasons for your answer in question 5, by referring to wind direction and temperature. (2x2) (4)
7. What environmental hazard can the South African berg winds cause? (1x2) (2)
8. What can be done to reduce the impact of the winds shown in the diagram? (3x2) (6)

CONCEPTS/TERMS



- You must know the definitions of the following concepts/terms
- Definitions of terms appear in in exam questions.
- These terms are used when setting questions. You must know them in order to understand the questions
- These terms should form part of your Geography subject language

WORD BOARD

Anticyclones

Moist air

Line thunderstorms

Inversion

Moisture front

Escarpment

Dry air

South African berg wind

