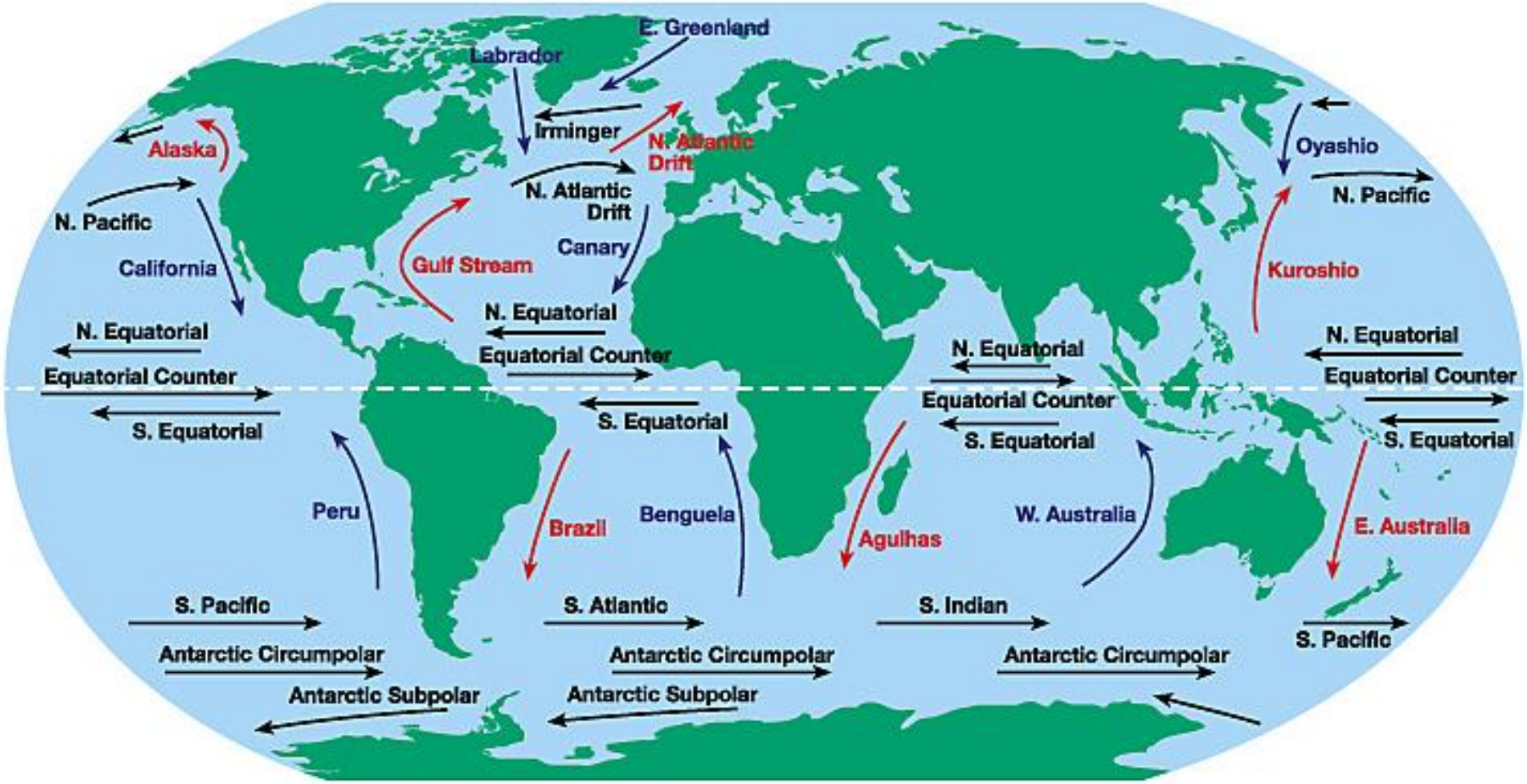
Handout 3 (green) Oceanography

Chapter 21 Section 1 (Ocean Currents)

and

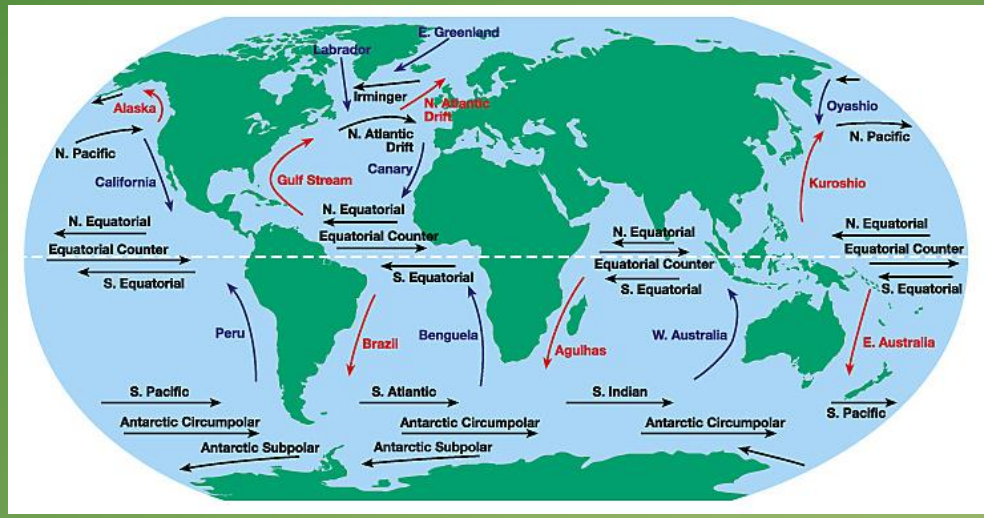
Chapter 21 Section 2 (Ocean Waves)

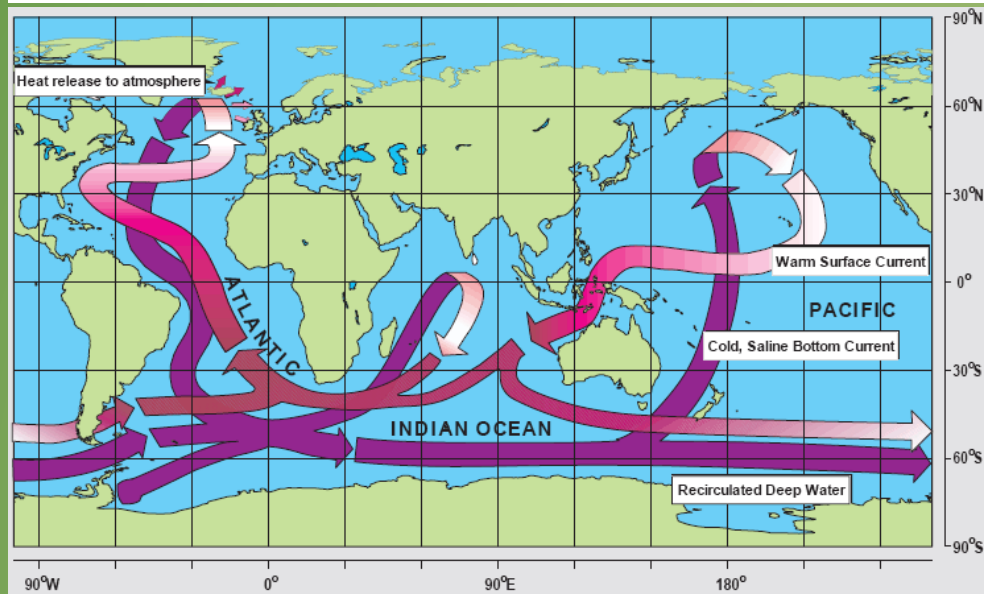
1. A horizontal movement of water in a well-defined pattern is called a current .



2. What are the two major categories of ocean currents?

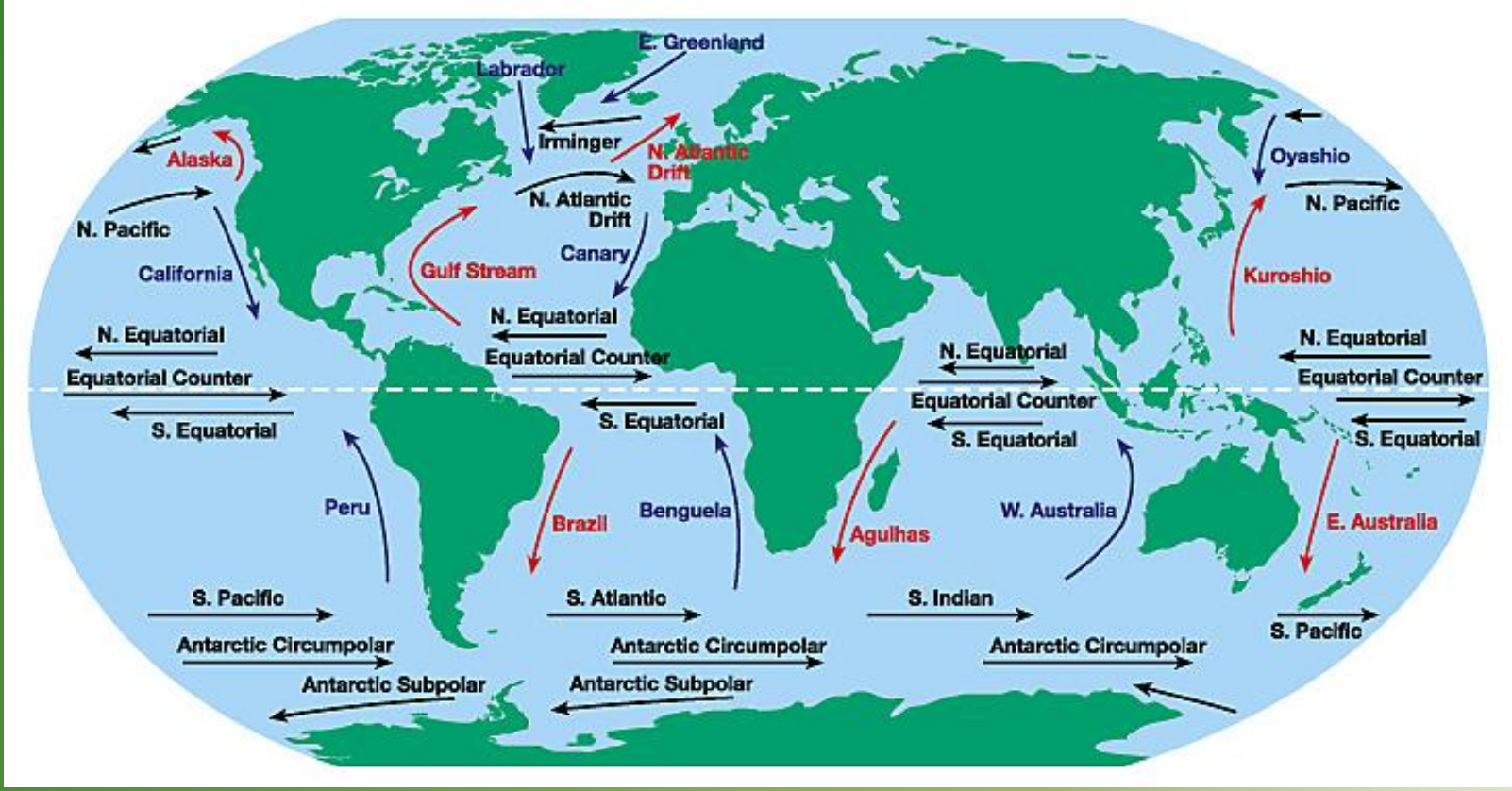
- Surface currents
- Deep currents





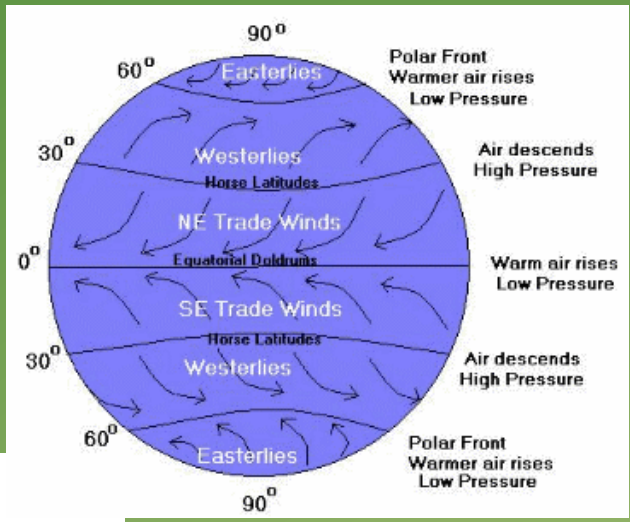
3. Currents that are driven by winds and move horizontally on or near the ocean's surface are called

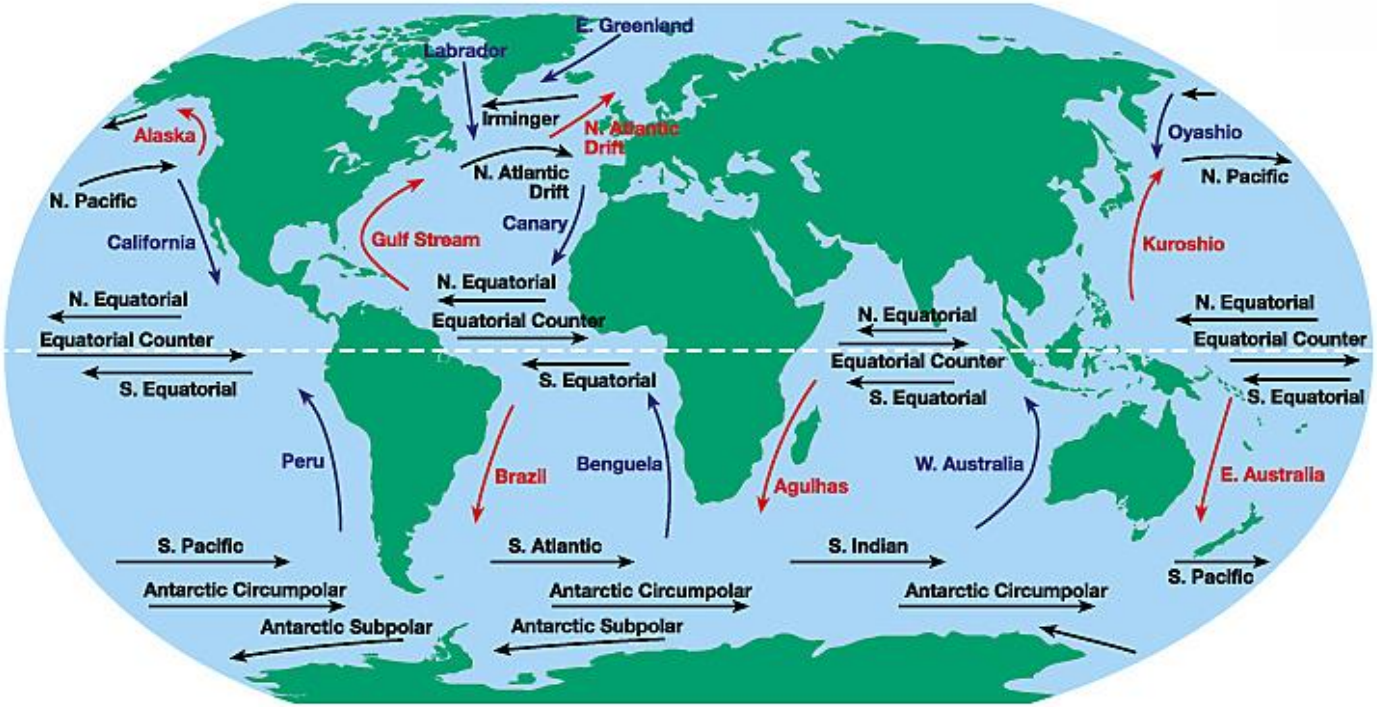
- c. surface currents.



4. All surface currents are affected by

- c. winds.

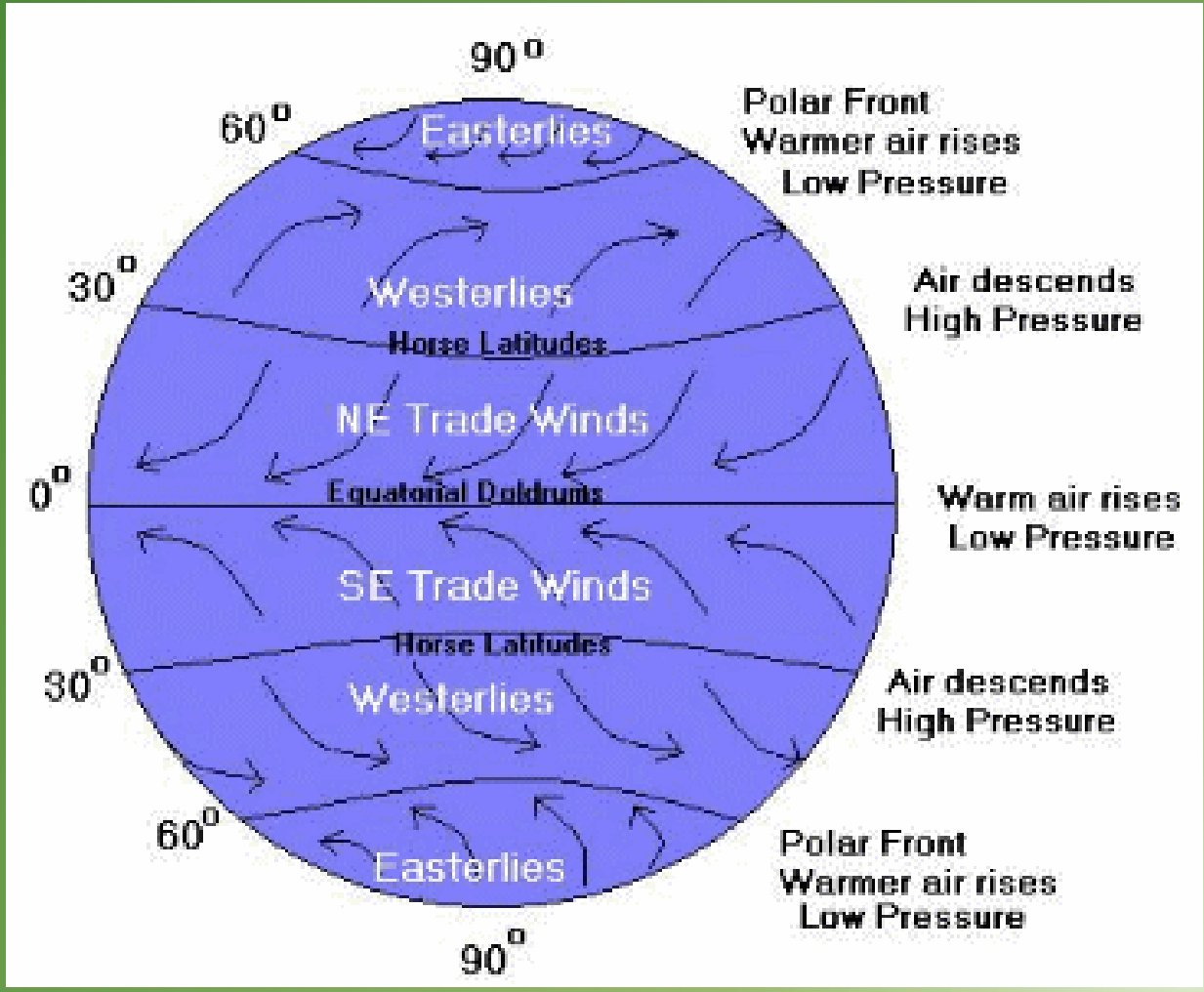




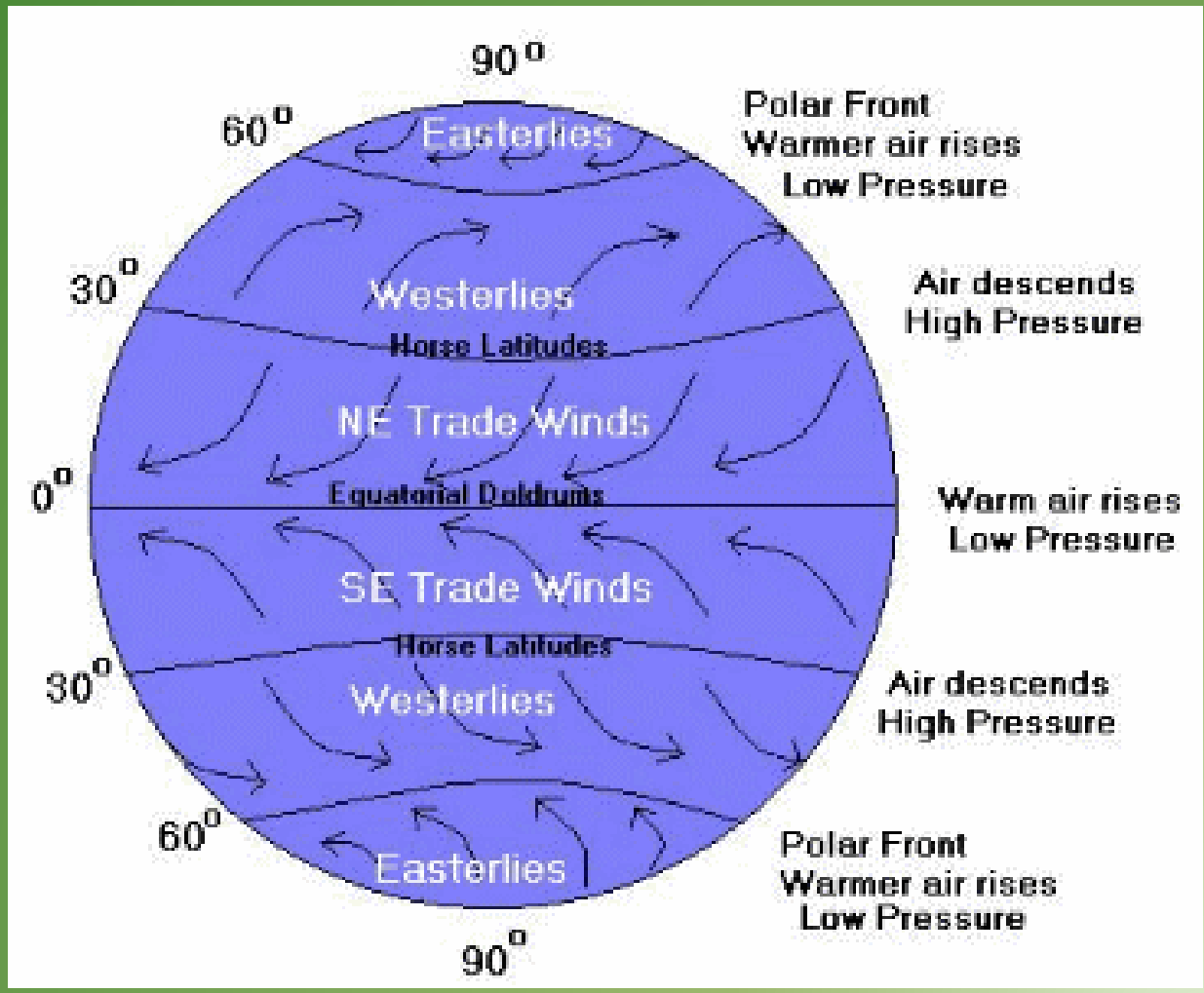
5. How does wind make water on the ocean's surface move?

- Wind has kinetic energy. The wind passes this energy to the ocean as the air moves across the ocean surface.

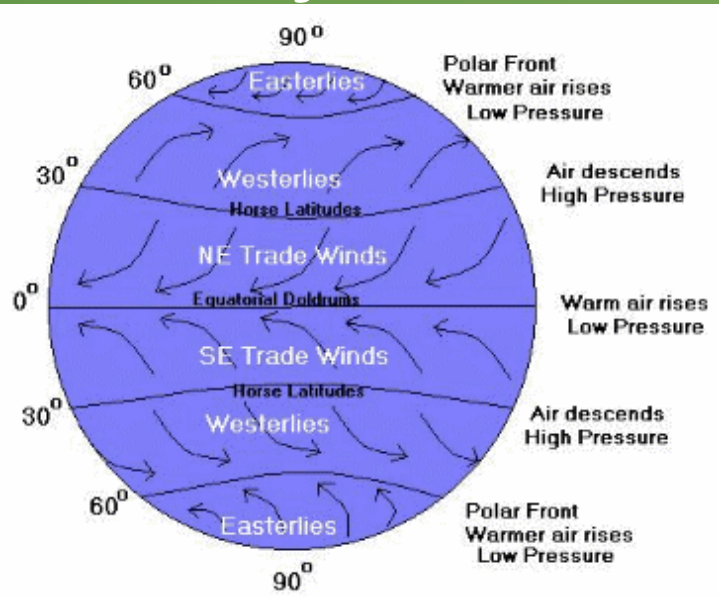
6. Wind belts located just north and south of the equator are called _____Trade winds_____.

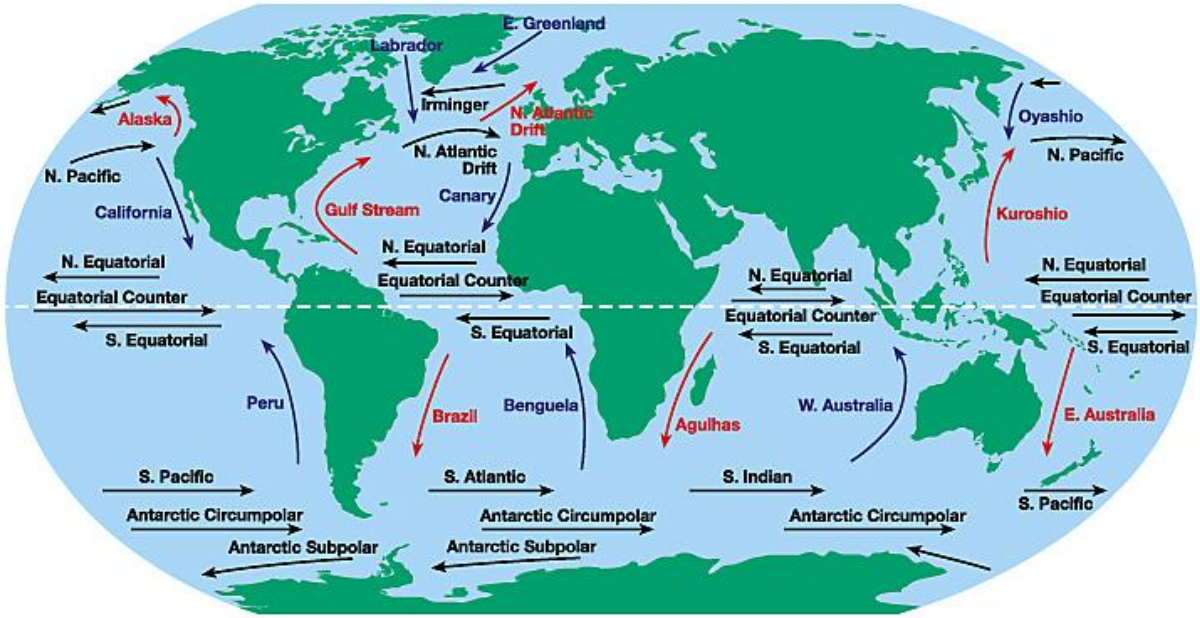


7. In the Northern Hemisphere, trade winds blow from the northeast.

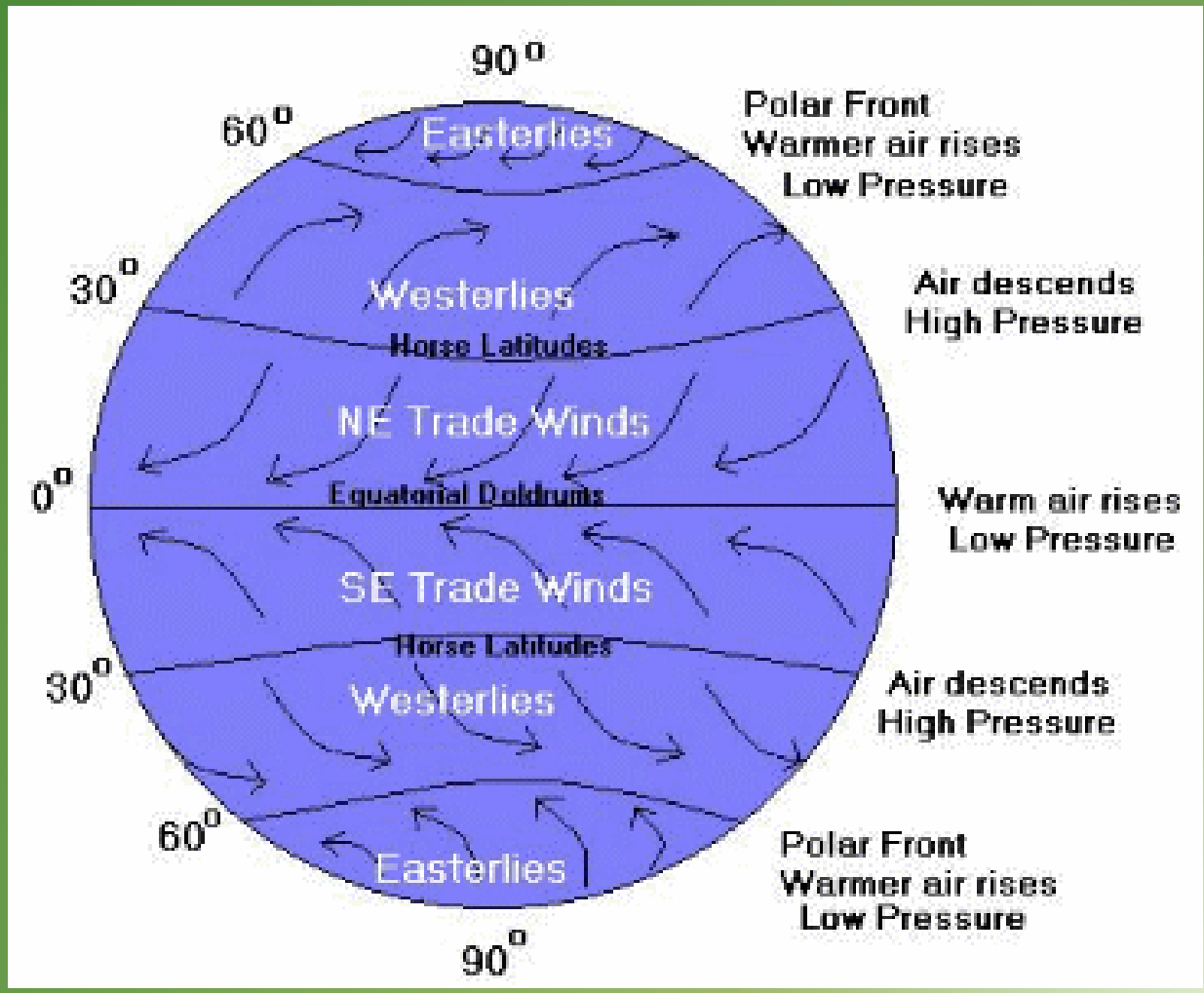


8. In both hemispheres, trade winds push currents _westward_ across the tropical latitudes of all three major oceans.



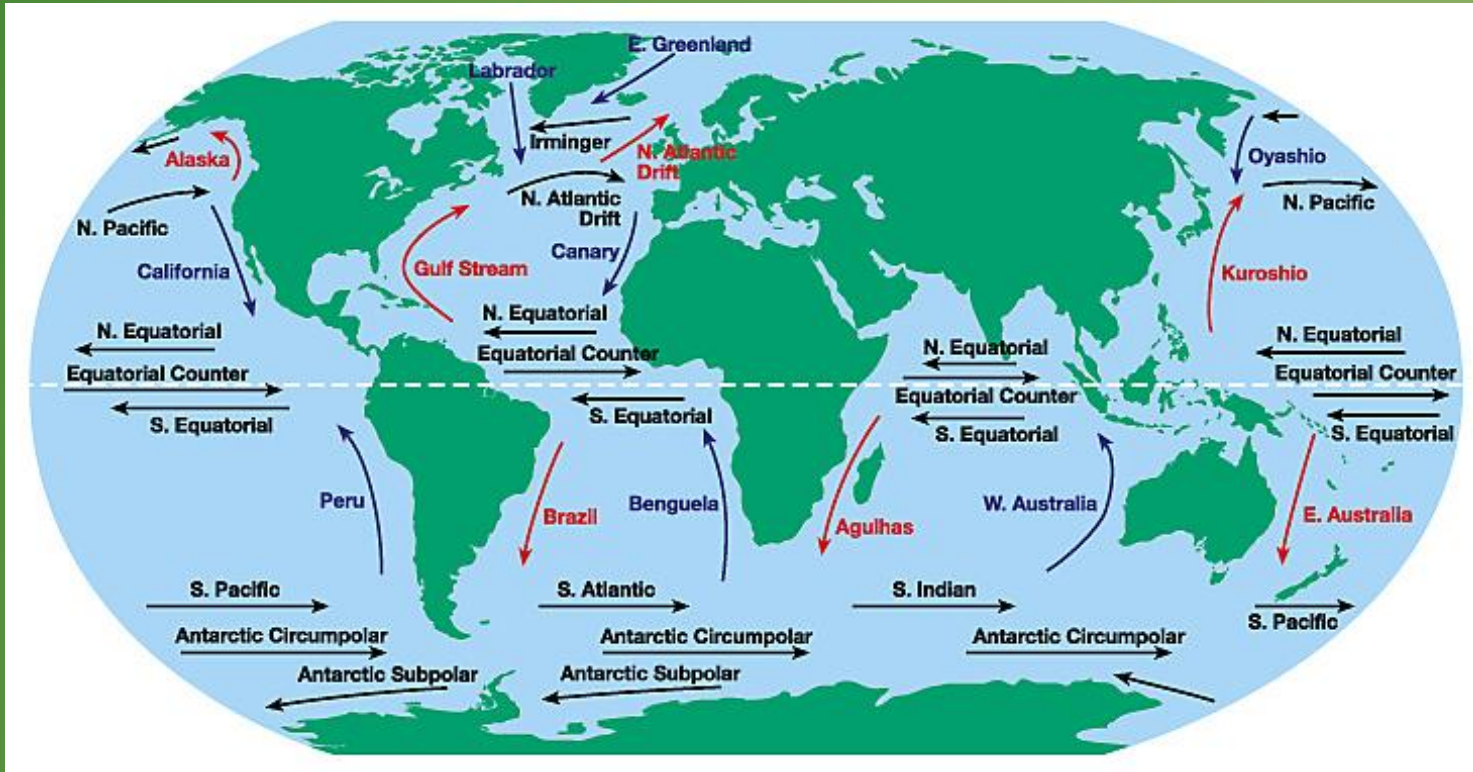


9. In the Northern Hemisphere, Westerlies blow from the _southwest_ .

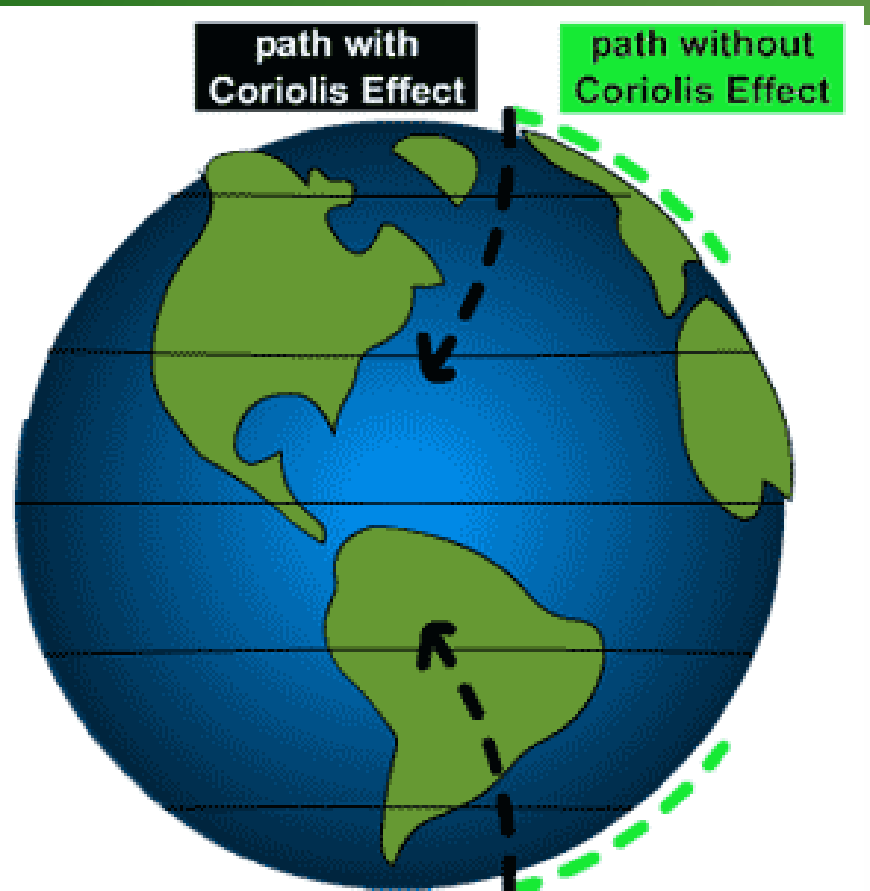


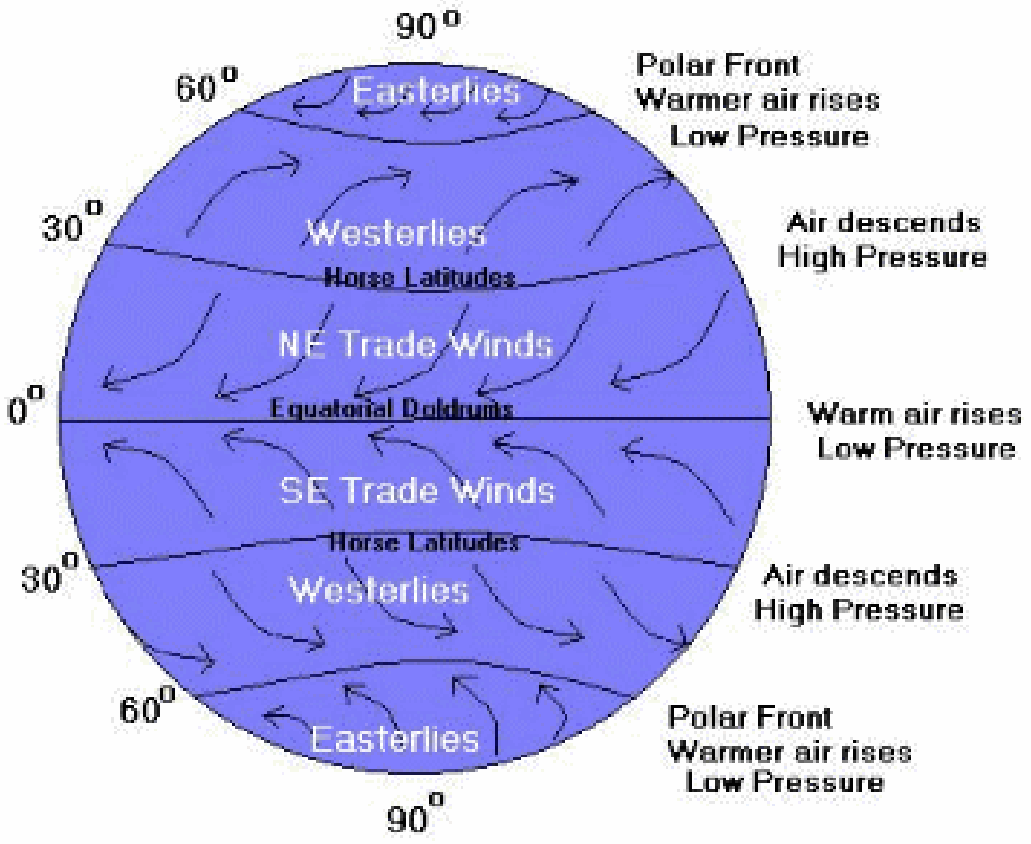
10. Why does a surface current get deflected and divided when it flows against a continent?

- The continents act as barriers to surface currents

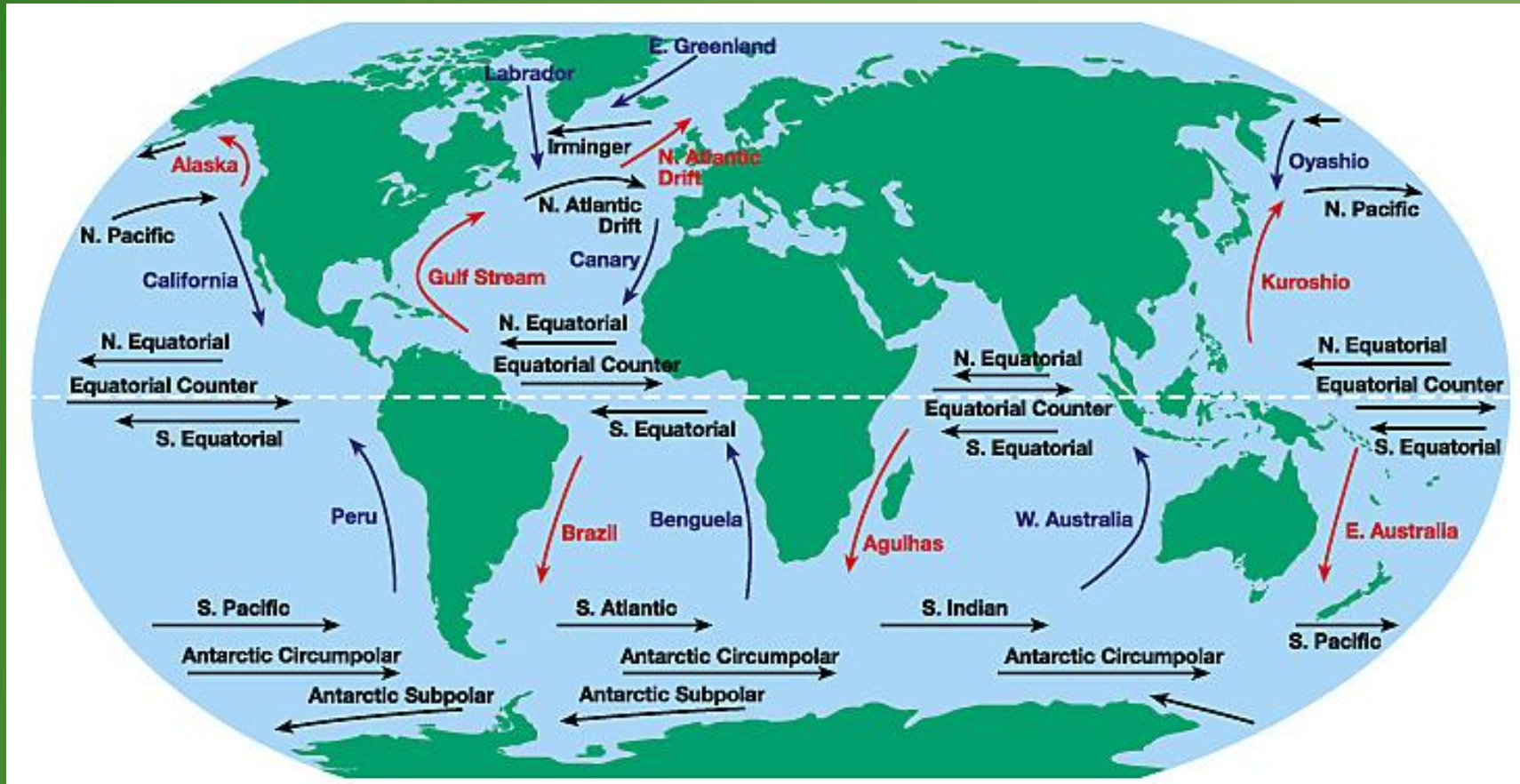


11. The curving of the path of oceans and winds due to Earth's rotation is called the Coriolis Effect.

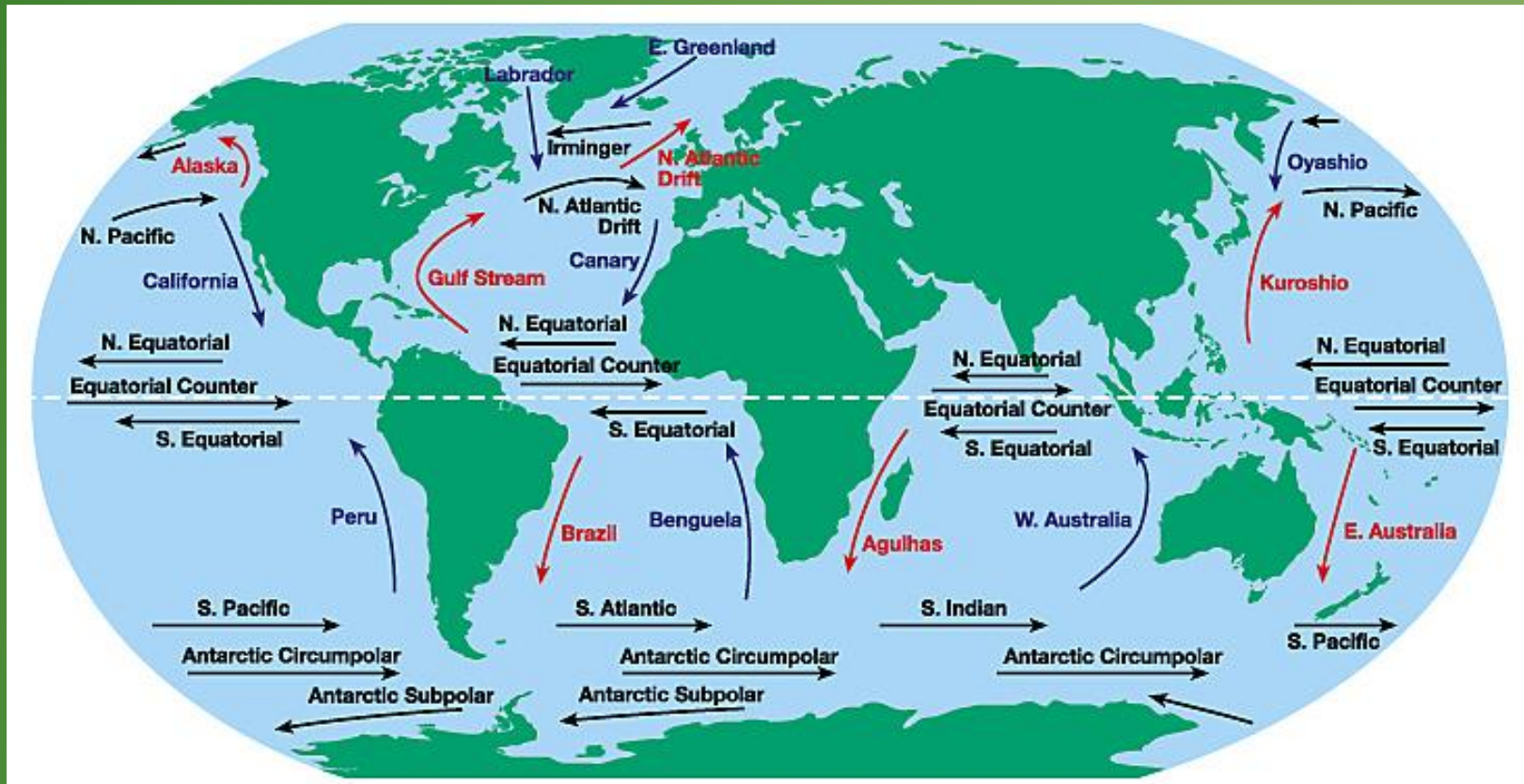




12. A current that is uninterrupted by any continents and crosses all three major oceans is the Antarctic Circumpolar Current.

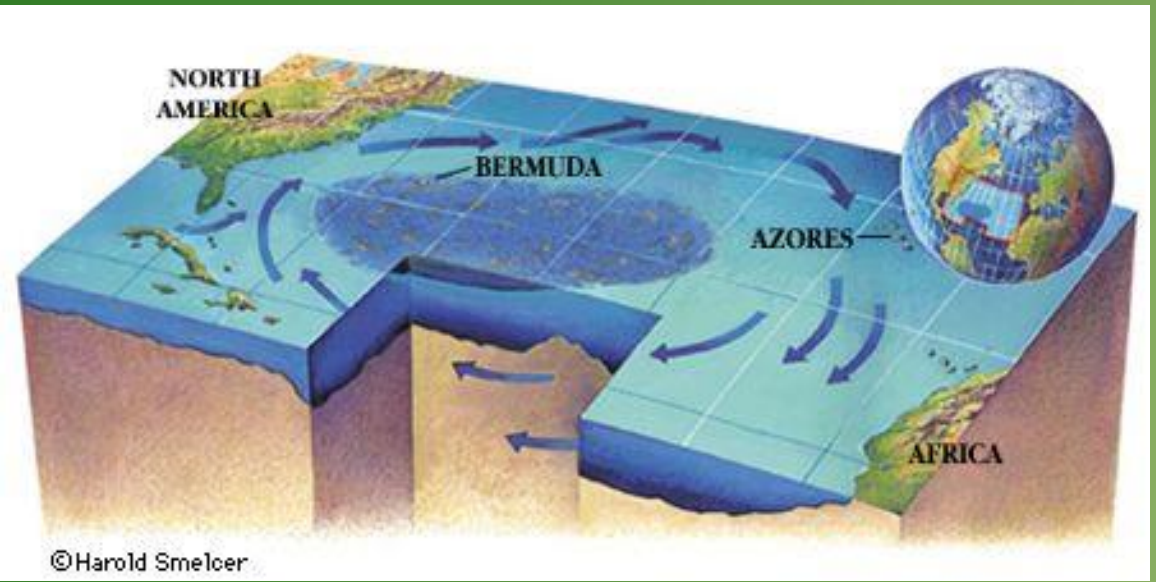


13. The Gulf Stream, the North Atlantic Current, the Canary Current, and the North Equatorial Current form the North Atlantic Gyre.

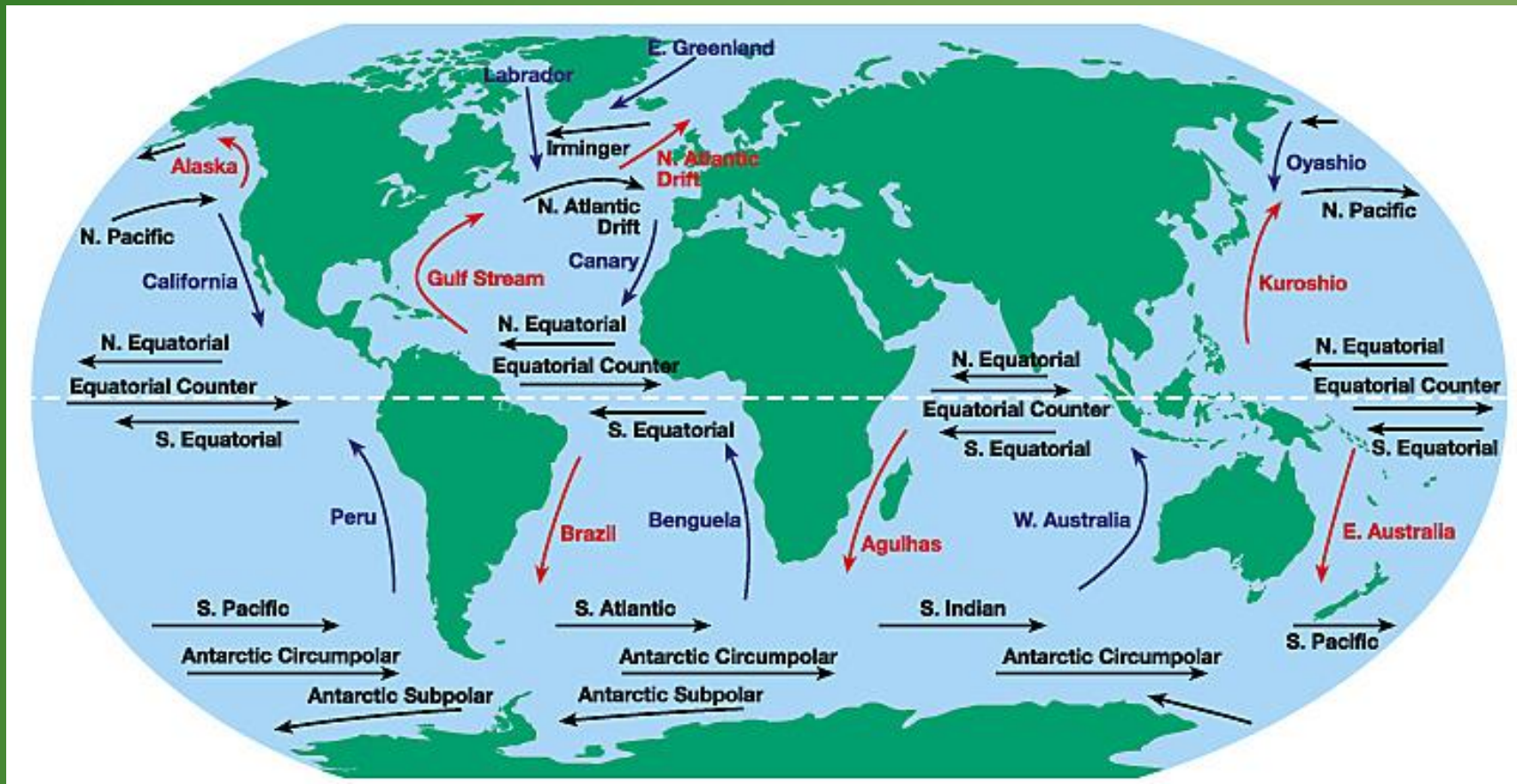


14. Name two things you would find floating on the surface of the Sargasso Sea. Orange peels and plastic cups.

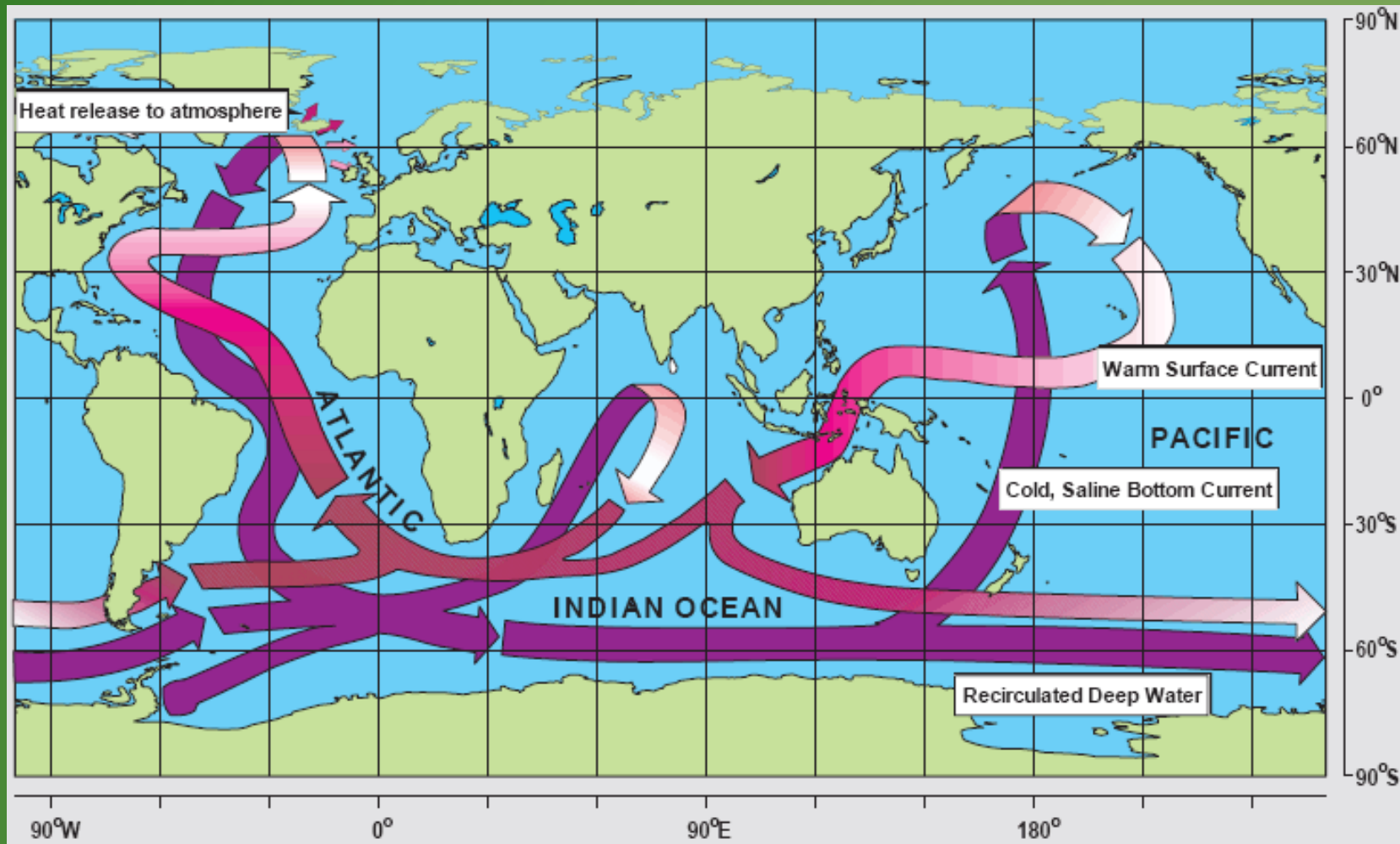
- Also, brown seaweed



15. The pattern of currents in the North Pacific is similar to that in the North Atlantic .

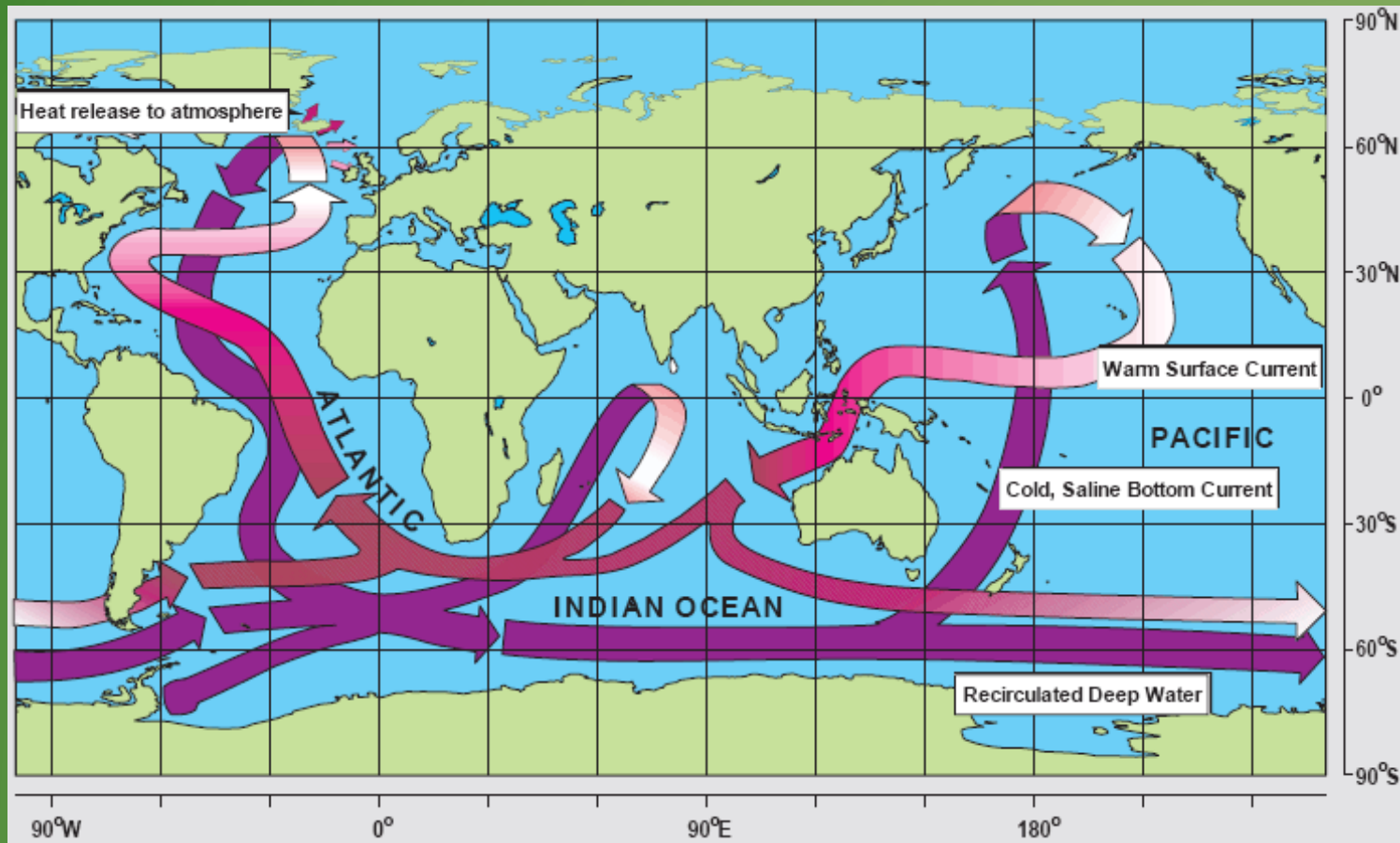


16. A stream like movement of ocean water far below the surface is called a <u>deep current</u> .

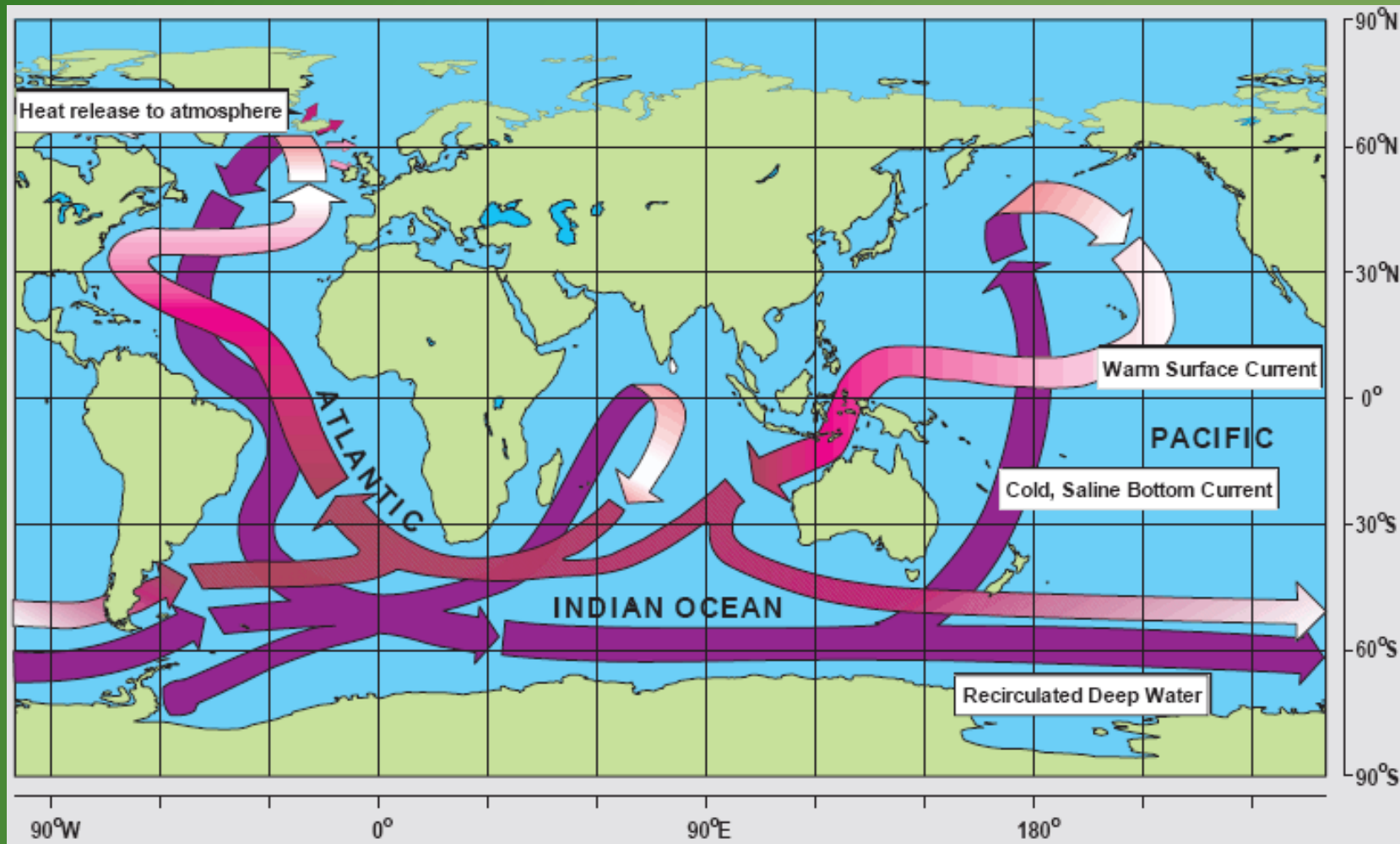


17. What causes deep currents to form?

- When cold, dense water of the polar regions sinks and flows beneath warmer ocean water.

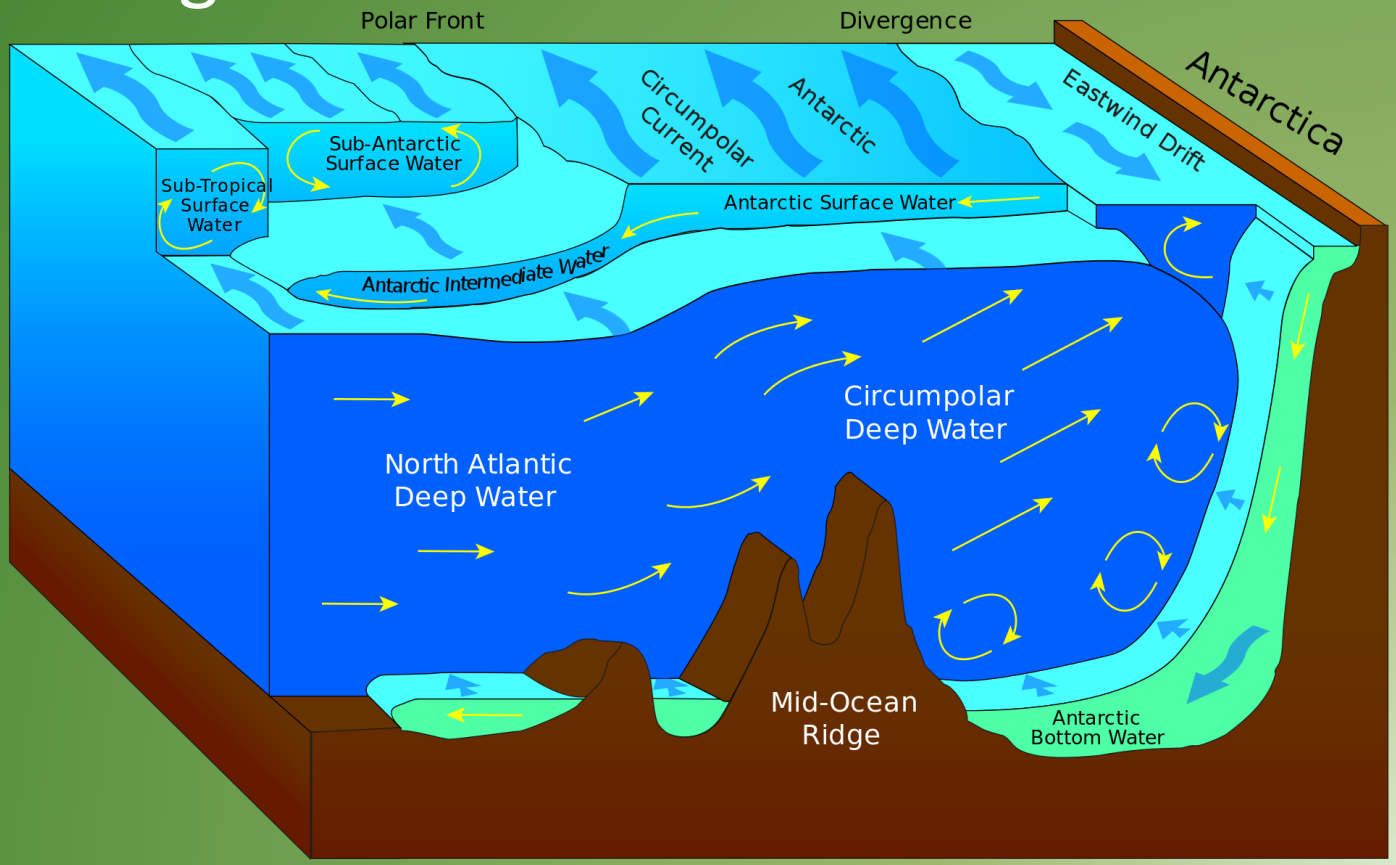


18. Two factors that determine the density of water are temperature and salinity .

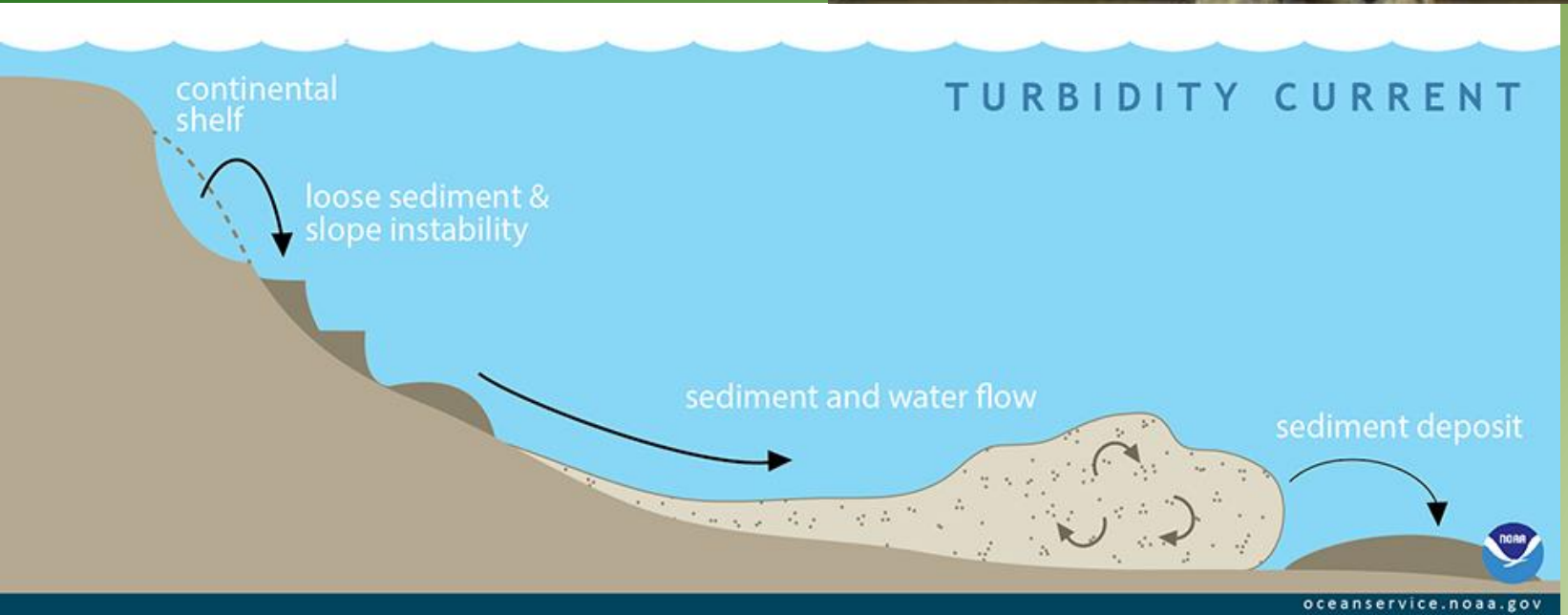


19. Where is the world's densest and coldest ocean water?

- Off the coast of Antarctica
- It sinks forming the Antarctic Bottom Water

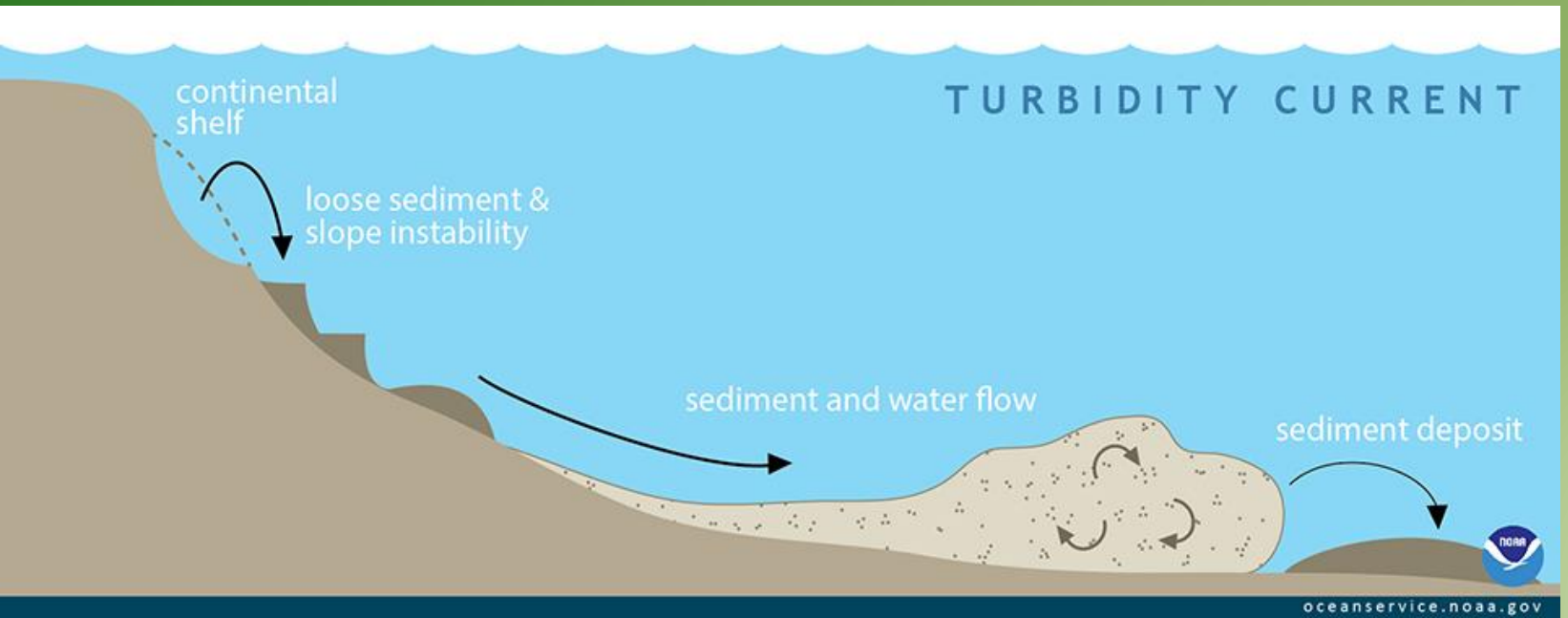


20. A strong current caused by an underwater landslide is called a turbidity current



21. Why does a turbidity current move beneath the clear water that surrounds it?

- The sediment causes the water to become cloudy, or turbid, and denser than the surrounding water.



Handout 4-3.3 (green)

Chapter 21 Section 2 (Ocean Waves)

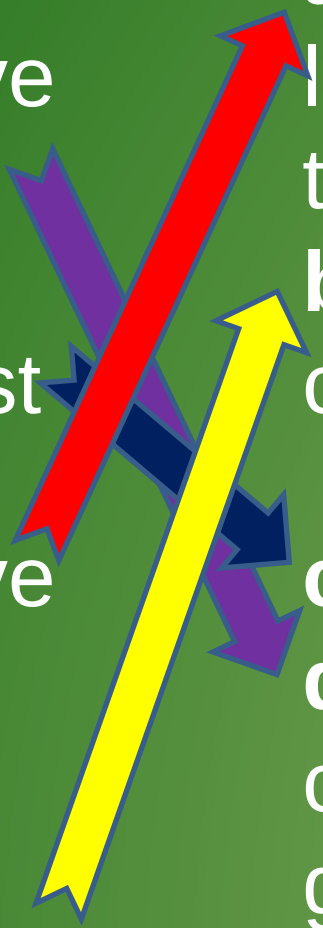
Matching 1-4

1. wave period

2. crest

3. wave

4. trough

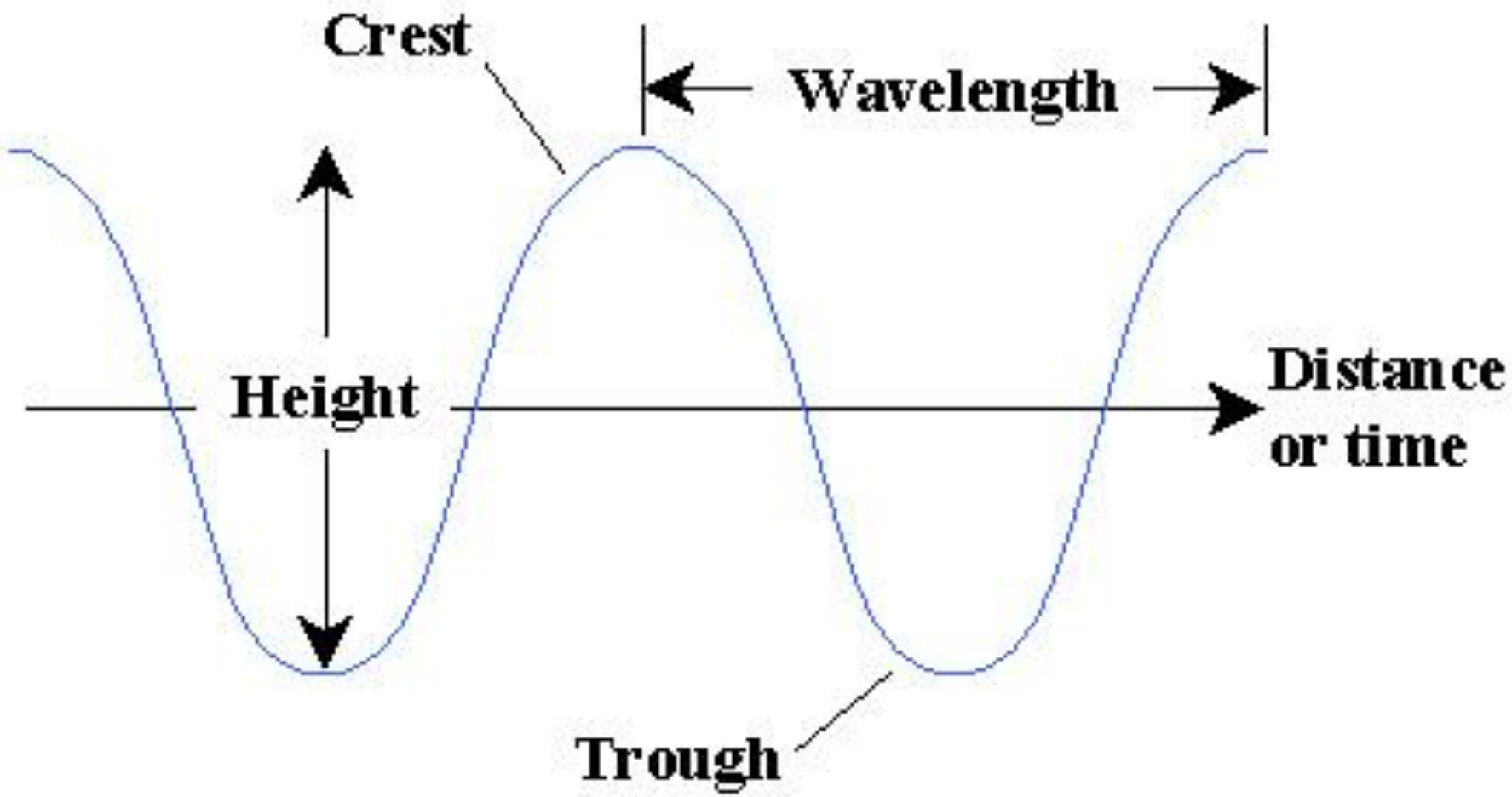


a. a periodic disturbance in a solid, liquid, or gas as energy is transmitted through it

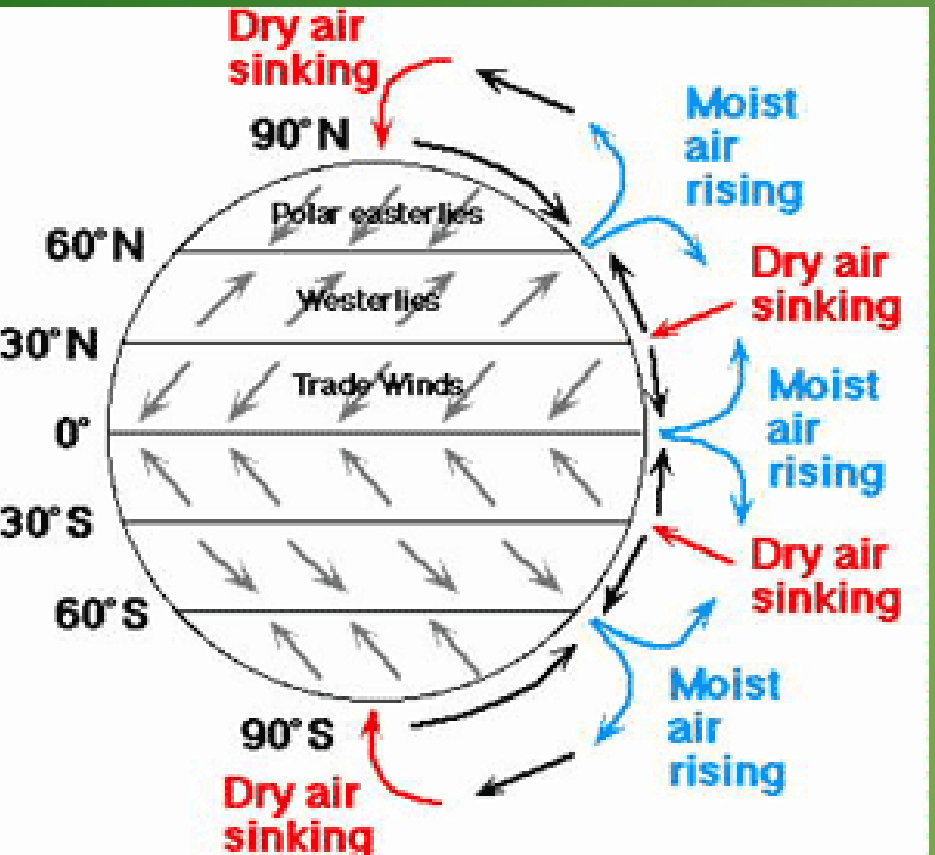
b. the lowest point between two crests of a wave

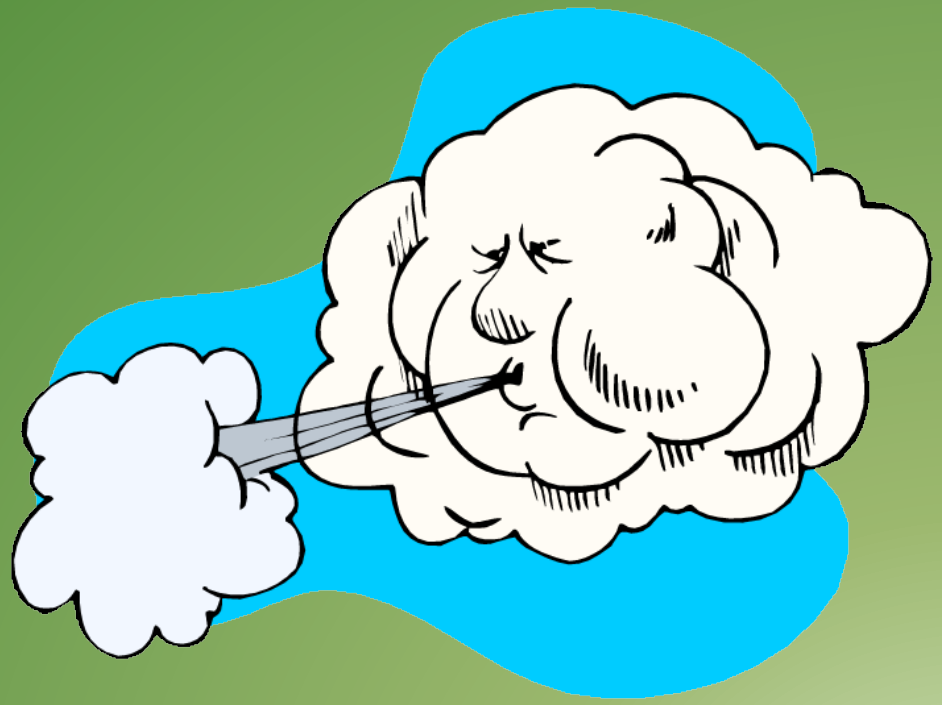
c. the highest point of a wave

d. the time required for two consecutive wave crests to pass a given point


Crest
Wavelength
Height
Distance
or time
Trough

5. Moving air caused by the uneven heating of Earth's atmosphere is called wind .





6. What causes small waves or ripples to form on the ocean?

- Friction between the moving air and water

7. What causes a wave to become larger?

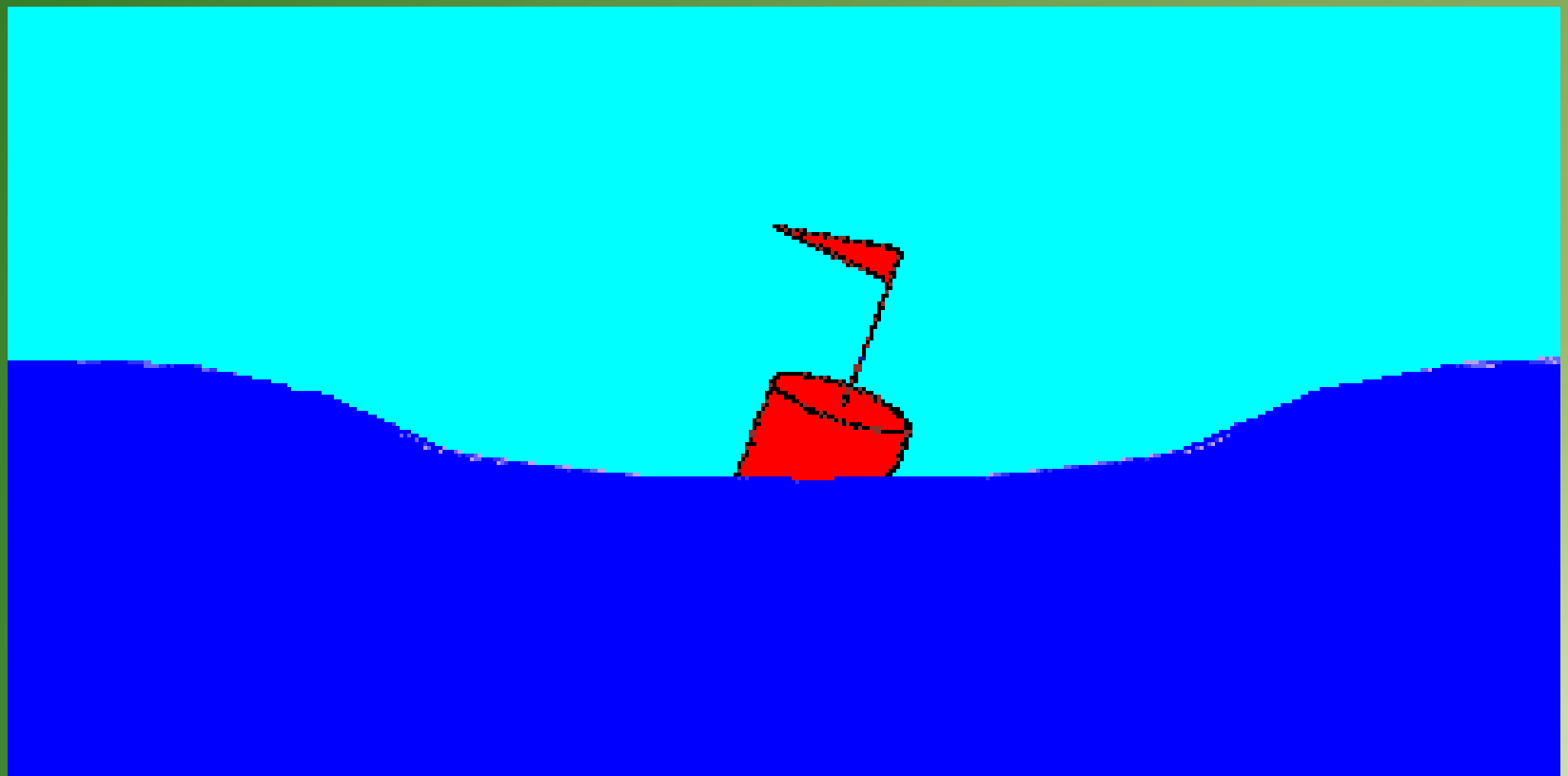
- The longer that the wind blows in one direction the larger the wave becomes.

8. Explain why larger waves tend to grow larger and smaller waves die out.

- large waves have more surface area and receive more energy from the wind.

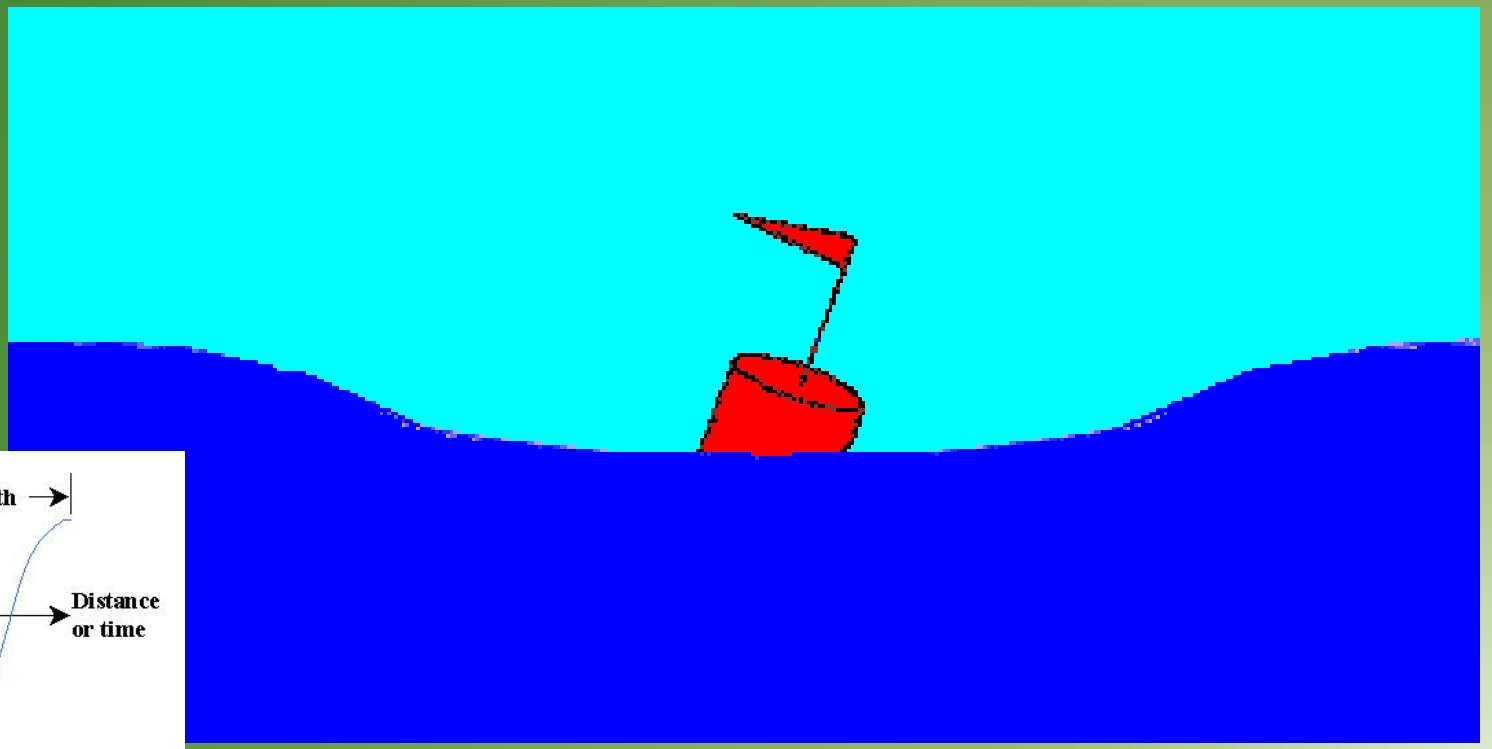
9. Where does a water particle in a wave end up at the end of the wave period?

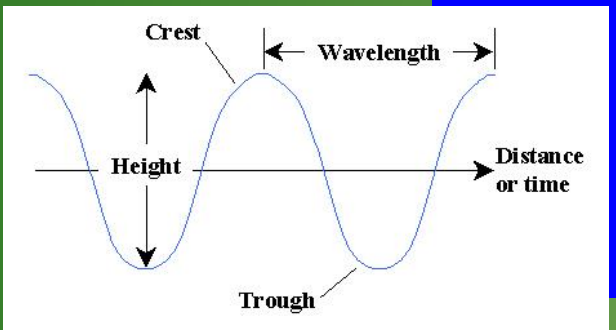
- It returns to where it started.



10. What is the diameter of the circle traced by a water particle on the ocean surface as a wave passes a given point?

- The diameter is the height of the wave.





11. What three factors determine the size of a wave?

- Speed of the wind
- The length of time the wind blows
- Fetch

12. The distance that the wind blows across open water to generate waves is called _fetch_.

13. What kind of wind produces very large waves?

- Strong, steady winds blowing across a long fetch.

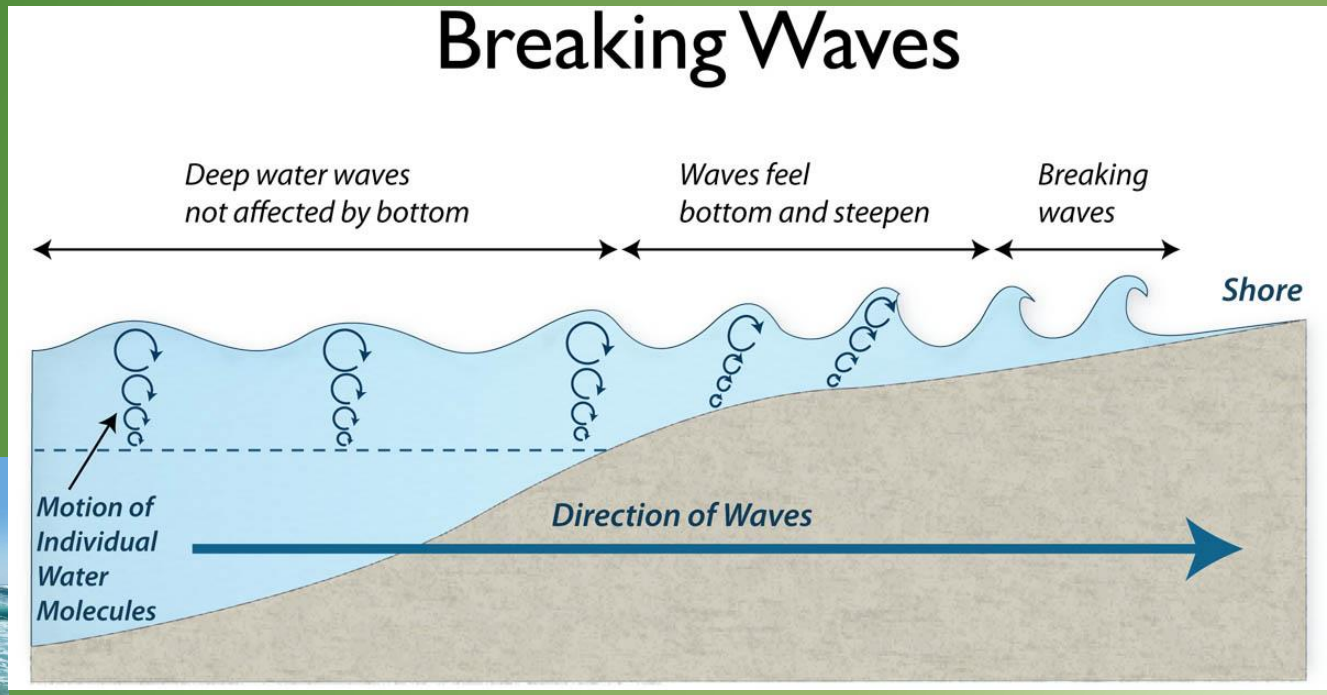
14. What kind of wind produces choppy water with waves of various heights and lengths?

- Strong, gusty winds.

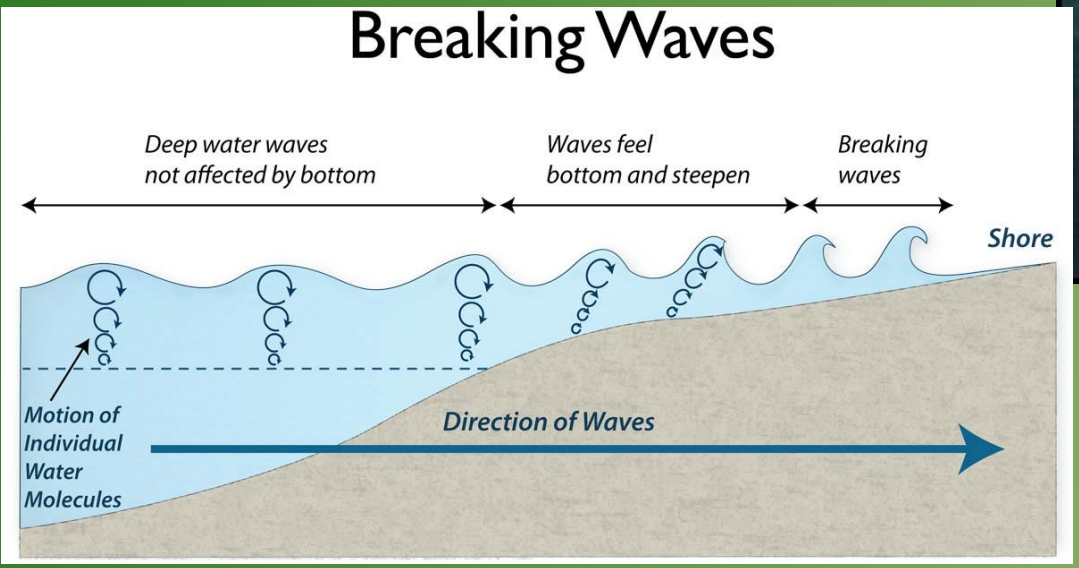
15. A foamy mass of water that washes onto the coastline is called a(n) _breaker_.

16. What effect do breakers have on ocean sediments?

- Breakers scrape sediments off the ocean floor and move the sediments along the coastline.

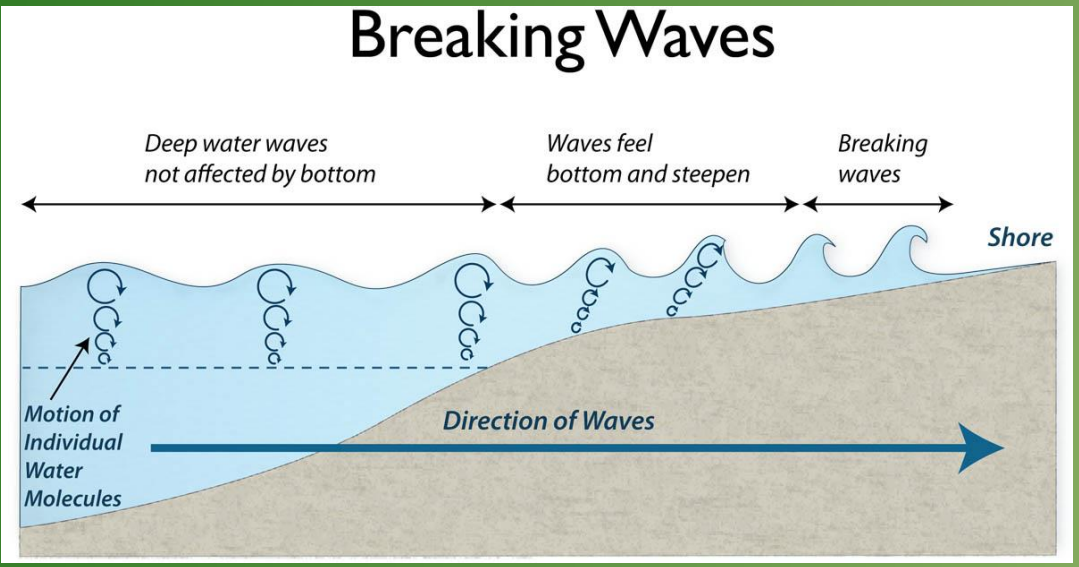


17. The process by which ocean waves bend toward the coastline as they come near shallow water is called _refraction_.



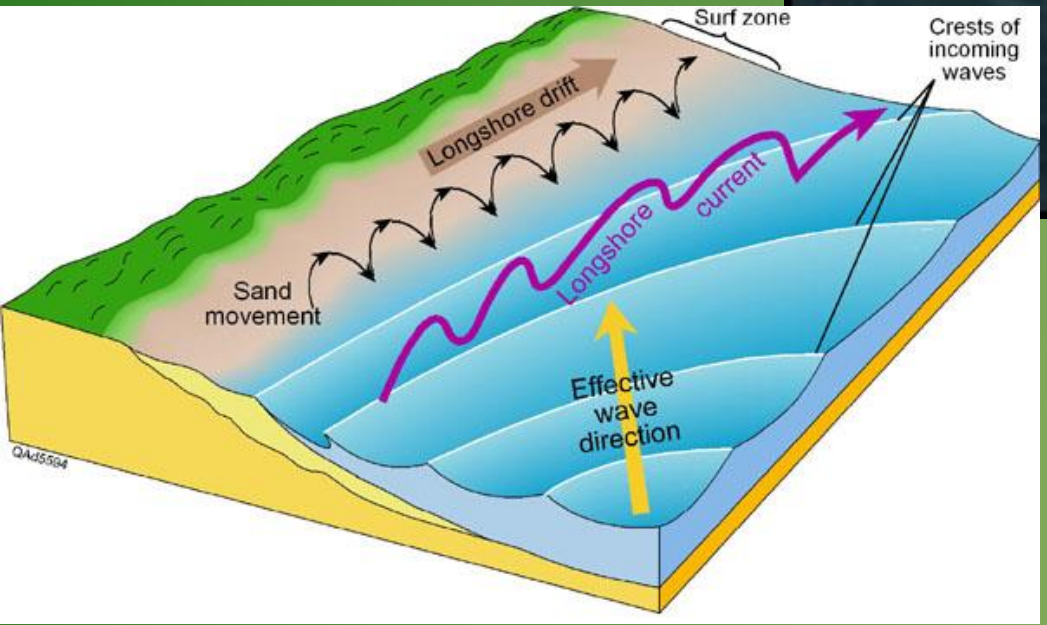
18. What causes wave refraction?

- The shallower part of the wave slows, and the deeper part of the wave maintains its speed. The wave gradually bends.



19. A current that forms when waves approach the beach at an angle is called a(n) _longshore current_.

20. Longshore currents flow parallel to the shore.

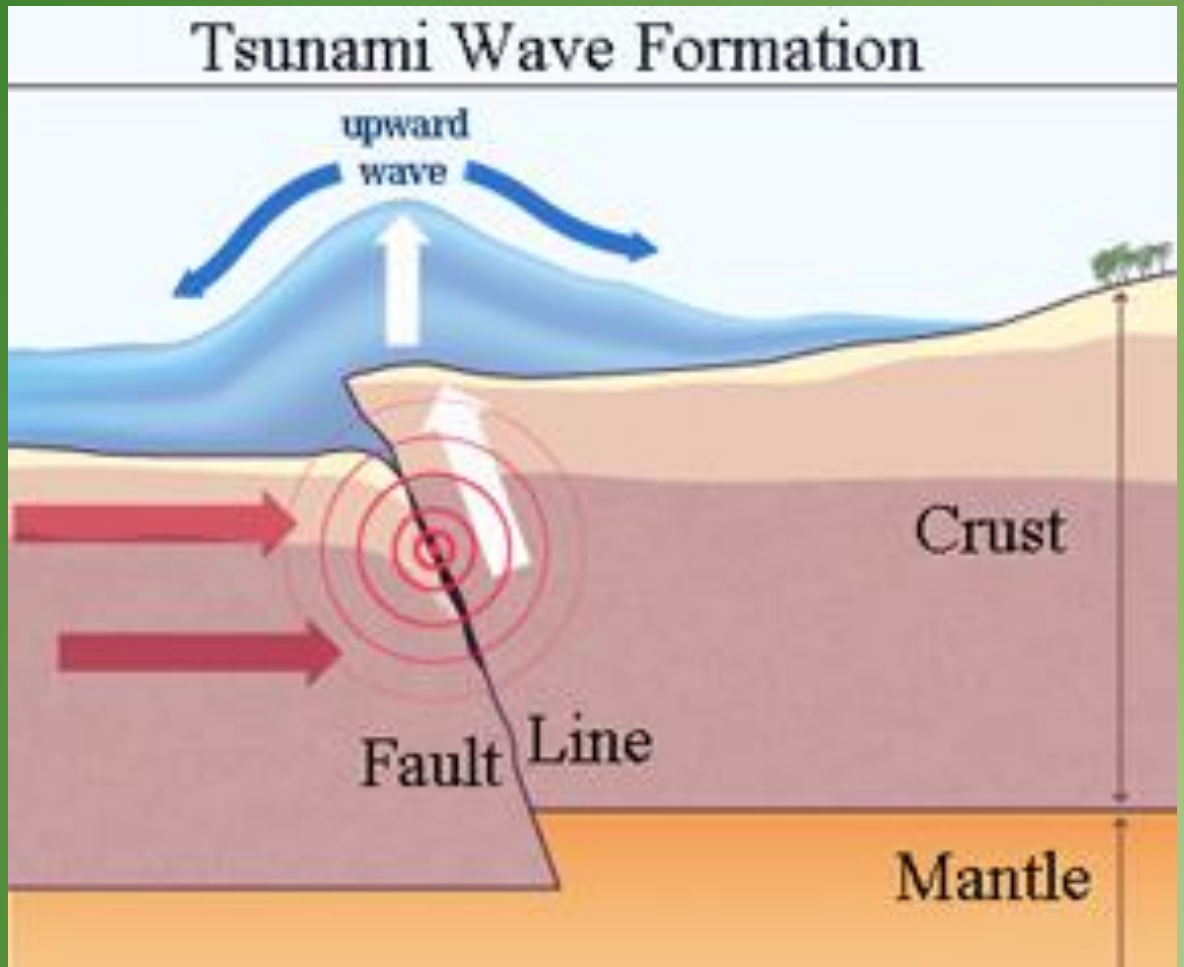


21. Explain how a sandbar forms

- Sand will be deposited as the energy of the waves decreases.

22. Why is it incorrect to call a tsunami a tidal wave?

- b. because a tsunami is not caused by tides



The End