

How Do Ocean Currents Affect Weather Actually?

I want to begin this article citing two statistics regarding ocean. Of the overall Earth's surface, over 70% is covered by oceans. And around 97% of the Earth's total water reserve is stored in the oceans.

So, it is very natural that such an enormous part of the Earth's surface must have influence on its weather pattern. But the question is how do the ocean currents affect weather?

In this article, I'll try to demonstrate how the currents of the great oceans affect the weather pattern around us. Don't worry; it won't be like the weather news. I'll try to explain everything in simplest possible terms.

Oceans Act as Heat Retaining Body

All the oceans of the world play a crucial role in keeping the planet warm. The land surfaces and the atmosphere around us absorb some portion of the sunlight. But the oceans absorb the lion's share of the radiation.

The oceans act as huge heat retaining body in the tropical region of the Earth. The atmosphere also has a role to play in this process. Without the atmosphere, the heat absorbed by the oceans would radiate into the space after sunset very quickly.

You should also know that the job of the oceans doesn't stop at just absorbing the sun's radiation. It also distributes the absorbed heat around the planet.

We all know that the oceans' water is constantly being evaporated due to sunlight. The evaporated water is warm and consequently the humidity and temperature of the surrounding areas are increased.

On the other hand, the evaporated water cools down in the sky and forms clouds. These clouds are drifted around the globe by winds and storms. As a result, rainfall occurs in different parts of the world.

Impact of Ocean Currents on Weather

The ocean currents affect the weather pattern to a great extent. The large currents of the oceans act more like a belt that transports cold and heat across the globe. And this is probably one of the most significant factors that affect weather pattern.

As a conveyer belt, the ocean currents transport precipitation and warm water to polar region from equatorial region. Similarly, it transports cold water from the polar region to the equatorial region.

In this way, the ocean currents play a significant role in distributing solar radiation across the globe. So, it is easily understandable that without the ocean currents, different regions of the world would experience severe weather conditions.

There are also other several weather conditions that are greatly influenced by ocean currents.

Rainfall

Rainfall is one of the most important and common weather conditions. You probably know how rainfall occurs. So, let me explain how ocean currents influence rainfall.

You probably know that the tropical region experiences a lot of rainfall. This is because this region absorbs more sunlight than other regions. This heat absorption causes large amount of evaporation, resulting in plenty of rainfall.

I've already mentioned that oceans form around 97% of the Earth's water bodies. As a result, almost all the rainfall is caused by the evaporation from the oceans.

And, the evaporation and rainfall is more like a continuous loop. The oceans' water gets evaporated due to sunlight and again comes back to the oceans in the form of rainfall or through rivers.

Temperature

If you've ever visited an ocean, you might have noticed that the temperature in the areas near the ocean is comparatively high in colder months. And it is totally the opposite in the warmer months.

Do you know why? Because, the water of the ocean cools or warms very slowly in comparison to the areas far away from the ocean. Thanks to the enormous size of the oceans.

In addition, the ocean currents have additional effects on weather as well. These currents transport calm air from equatorial region to far north.

Fog & Precipitation

Do you know how fog is formed? When the temperature of the surrounding area cools down and differs by less than 2.5 degrees, fog is formed.

The boundary lines of varied air temperatures over the oceans' surface have a great influence on the formation of fog and cloud. The zones of high and low temperatures clash with each other as a result of ocean currents.

As a result of this process, when the difference of dew point and the air temperature of the surrounding area comes down to less than 2.5 degrees, fog starts to form.

And, the great ocean currents that rotate like loops play a great role in adding moisture to the atmosphere. Let's look at the southwestern region of Africa.

The Benguela Current cools down the southwesterly wind that flows onshore in this region. This results in consistent fog in the area and adds a great amount of moisture to the environment.

On the other hand, the warm temperature transported by the ocean currents forms precipitation, resulting in atmospheric instability like storm.

Conclusion

Finally, it's time to wrap things up!

In a nutshell, due to the impact of the ocean currents, the temperature and wind get involved in an interactive system. Different weather conditions are outcomes of this complex system.

Simply put, different temperature zones over the surface of the oceans affect the atmosphere. And the ocean currents transport this complex interactive system along with it.

This is how the great ocean currents affect the weather and people experience different weather conditions at different places at the same time of the year.

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Directions: Answer the following questions on a piece of notebook paper. You do not have to write the questions, but please number the questions. Answer the questions completely.

1. What is the ocean's job?
2. What kind of impact do ocean currents have on weather?
3. What other weather conditions are influenced by ocean currents?
4. Why does it rain more in tropical regions?
5. Why is the temperature in the areas near the ocean higher in colder months and totally the opposite in the warmer months?
6. How is fog formed?