Polar Glacial Fluctuation Is an important Factor of Global Climate Change

Cuixiang Zhong
Department of Physics, Jiangxi Normal University, Nanchang 330022, China

Abstract: Global climate change has attracted more and more attention from all over the world, and how to cope with global climate change has aroused wide debate and research. Although many people believe that global warming is caused by releasing too much greenhouse gas, there are still controversies in the scientific community. Thus, the author has analyzed various factors affecting global climate change to find that polar glacial fluctuation affects the activities of polar vortices and that the activities of the Moon and polar vortices directly cause global climate change, therefore can conclude that the change of polar glaciers is the main factor affecting the global climate change and put forward corresponding countermeasures to prevent global climate change.

Key words: Polar vortex, Moon, global climate change, cause, countermeasure.

1. Introduction

The global climate has changed significantly in the past century. As a result, ice sheets and glaciers are melting and shrinking, precipitation is increasing, sea levels are rising, atmosphere and ocean are acting abnormally, and species are being endangered. Global climate change has also caused frequent natural disasters and abnormal weathers in many countries around the world, which has a significant impact on human beings and ecosystems [1]. For example, in recent years, the United States has been attacked by super strong hurricanes, particularly violent mountain fires and extremely cold weather; forest and grassland fires also occur frequently in Russia; many adjacent areas have also been influenced by different degrees. Global climate change and its serious effects have aroused world-wide attention, and how to deal with climate change has been widely debated and studied.

According to the existing research results, the factors that can affect climate change mainly include the variations in Earth’s orbit, solar output, volcanism, magnetic field strength, ocean variability and human activities. At present people tend to believe the emission of greenhouse gases is the primary factor in global warming [2]. But many scientists are skeptical about this viewpoint, they have refuted this view with plenty of evidence, and they believe natural driving is the main factor for global climate change, but they have not found such a convincing natural driving yet. Hence, the author has reexamined all the elements that constitute the earth system, and found that polar glacial variation affects the activities of polar vortices and that the activities of the Moon and polar vortices directly cause global climate change, therefore has put forward corresponding countermeasures to prevent abnormal climate change.

2. Real Cause of Global Climate Change

In recent years, parts of North America have been hit by unprecedented extreme cold weather. Temperatures in the Midwestern United States even dropped below -50 degrees Fahrenheit (about -45.6 °C). Experts attributed the extreme cold weather to “the southward shift of the polar vortex”. Hence, it is suggested that the shift of the polar vortex is an important factor causing climate change. But what are the causes and laws of polar vortex’s activities? What
is the real relationship between polar vortex activities and global climate change? Why has the striking of polar vortex intensified in recent years? These problems still perplexed the scientific community. Fortunately, the author has recently studied the formation and activity mechanism of polar vortex, which can be used to solve these problems.

2.1 Formation of Polar Vortex and Its Current Driving Warm Core Structure

It is well known that Earth has a dense atmosphere. Due to the effect of centrifugal force, the rotation of Earth around its axis has caused it to bulge around the Equator, making the Earth become an oblate spheroid with the radius of the two poles of the Earth being less than the radius of the equator and other places, while the gravitational force is inversely proportional to the square of the distance. When the Earth rotates quickly, the rotation will produce strong centrifugal force, making the clouds over the equator and low latitudes tend to move away from their orbits to the North Pole or South Pole. Because the gravitational attraction of the polar position is greater than that of other locations, when clouds move above the polar regions, they are easily attracted by the gravitational pull of the polar regions, after inhaling cold air, they condense into thick clouds and sink gradually. Many polar-plunging clouds form a strong circulation around the pole as the Earth rotates, that is polar vortex, as is shown in Fig. 1.

The Earth has two groups of vortices, located at the North Pole and South Pole respectively, which can span troposphere and stratosphere. This kind of vortex structures exists throughout the four seasons, reaching maximum strength in winter. When the Arctic is in summer and its vortex structure becomes weaker than in winter, the Antarctic is in winter and its vortex becomes stronger than in summer, and vice versa.

Since the clouds involved in polar vortex are numerous and revolve downward rapidly in a spiral manner, a series of parallel thick spiral cloud bands can be formed, which facilitate not only the downward flow of heavier negatively charged water droplets but also the transfer of charge, as is shown in Figs. 1 and 2. Hence, this kind of cloud band is a good circuit with excellent electrical conductivity. Since the clouds involved in polar vortex are numerous and revolve rapidly, it is easy to have violent frictions and collisions among clouds, making the vortexes filled with positive ions and negative ions. Water droplets in the cloud must first absorb negative ions in the atmosphere, causing the droplets to be negatively charged, and the larger cloud droplet falls toward the lower part of the cloud or even the lower portion of the vortex along a spiral cloud band, while the lighter positive ions are gradually brought up by the updraft to the upper part of the cloud or even the upper portion of the vortex along the spiral cloud band, forming a current from the lower portion of the vortex to the upper portion of the vortex along the spiral cloud band, as is shown in Fig. 2. In addition, since

Fig. 1  Earth’s polar vortex.

Fig. 2  Earth’s polar spiral currents.
the clouds along the spiral cloud band are numerous and revolve rapidly, it is easy to have violent frictions and collisions among clouds, producing frequent electrical discharge or thunderstorms. Each electrical discharge or thunderstorm acts as an electrostatic motor, which can send currents to the upper portion of the vortex and the lower portion of the vortex, forming a series of electrical circuits along the spiral cloud bands. Because of the frequent flow of currents in these cloud band circuits, huge amounts of heat are generated, therefore the warm-core structure of the vortex is formed. Consequently, the air of the warm-core expands and rises; when the warm vapor rises to the condensation section of the eye-wall, it condenses into droplets, enhancing the conductivity of spiral cloud bands and increasing the intensity of current, therefore the rising speed of air in the warm-core is further accelerated and the condensation of rising water vapor becomes more and more intense. When water vapor condenses into droplets, its volume decreases by more than 1,000 times, therefore a low-pressure center is formed, and the cooler air around it flows rapidly to it, forming a violent atmospheric vortex [3].

2.2 The Activities of the Moon and Polar Vortices Directly Cause Global Climate Change

Polar vortices are persistent, large-scale cyclones that originate in the Earth’s polar regions, and are generally located in the middle and upper troposphere and the stratosphere. Usually they move around the North (or South) Pole, and can not easily go out of the polar basin, as is shown in Figs. 3 and 4.

Polar vortex usually strengthens in winter and decreases in summer. When the polar vortex is not destructed by the outside world, it can control the cold air of the polar circle well, as is shown in Fig. 5a. But when the polar vortex breaks apart due to external destruction, cold air can be brought to the middle and low latitudes, as is shown in Fig. 5b.

Since the Antarctic ice sheet is thick, the temperature is very low, and the Antarctic vortex is surrounded by highlands, less disturbed by external wind, Antarctic polar vortex is more pronounced and last longer than Arctic polar vortexes. But, due to the opening of the Arctic Channel and the exploration of oil and gas, Arctic sea ice has dwindled rapidly, Arctic ice cover and permanent permafrost have fallen obviously, the edge of polar basin has subsided gradually, and the sea-level and atmospheric equipotential surface in Arctic area have significantly decreased, causing the Arctic vortex to become thin and weak, unable to produce a strong wind, finally leading to global warming. If the Arctic ice cap can be kept from melting, the Arctic glaciers can be kept from dwindling, and the Arctic permafrost can be kept from dwindling, then arctic vortexes can be strengthened to produce strong wind, leading to global cooling. Hence, the activity
of polar vortex is an important factor affecting global climate change, and the poles are the air conditioners of the whole planet.

Just as the Moon can cause ocean tides, the Moon has also a gravitational effect on the polar vortices. When the Moon approaches a polar vortex, the Moon can tilt or break the polar vortex, pour out some cold air and inner cyclogenesis [4]. With the rotation of the Earth and the revolution of the Moon, the cold air from the polar vortex pours down around the planet, as is shown in Fig. 5b. Some of these cold air and cyclogenesis fall in the polar basin, while some of these cold air and cyclogenesis, accompanied by the stratospheric flow, pour in the direction of the Moon’s gravity. Hence, these cold air and cyclogenesis can flow with a speed greater than 50 m/s, which can reach the latitude of the Moon in a few days. Where the cold air goes, the wind blows widely, floating clouds turn into rain, temperature drops sharply, even causing seasonal changes. Specially, some drifting cyclogenesis can absorb the warm and moist airflow evaporated from deep valleys to intensify into a strong atmospheric vortex, which then falls into a nearby forest to become a fire tornado, setting off a big wildfire to destroy a large area of forest or grassland while some cyclogenesis, when encountering the high temperature airflow from the ocean surface, immediately intensify into typhoons or hurricanes.

From the first day to the sixth day of the lunar calendar, when the Moon moves north from new moon to the first quarter, as is shown in Fig. 6, it can attract and even break Arctic vortices, and pour out some cold air and inner cyclogenesis. For example, from September 12 to 13, 2018, “Florence”, a hurricane that battered the east coast of the United States, is the result of the Moon attracting the Arctic vortices. Since September 12-13, 2018 which coincides with the second to third day of August in the lunar calendar, Arctic vortices were flourishing, the Moon moving northward can attract and break the Arctic vortex near Baffin Island to pour out some cold air and inner cyclogenesis. Some of these cyclogenesis, accompanied by the stratospheric flow, soon are able to reach over the southeastern waters of USA, when they encounter high-temperature currents on the sea surface, they immediately intensify into super-strong hurricanes. For another example, the Camp Fire in California on November 8, 2018 was also a disaster caused by the Moon attracting vortices near Baffin Island. Since November 8, 2018 which
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coincides with the first day of October in the lunar calendar, Arctic vortices were flourishing, and the Moon’s attraction to the vortices near Baffin Island poured out some cold air and inner cyclogenesis, which then moved all the way southward. But, due to the low temperature in winter, there is a lack of water vapor along the way, when the vortex moves to the Central Valley of California, USA, it immediately absorbed a large amount of water vapor evaporated from the valley and was reinforced into a fire tornado, falling into a forest to set off Camp Fire, which is the most destructive wildfire in California history to date.

From the 7th day to the 8th day of the lunar calendar, when the Moon is over the North Pole, as is shown in Fig. 6, it can pull the Arctic vortices up, making them absorb a lot of cold air and recover their strength, as is shown in Fig. 5a. At this time, the pouring of polar vortex’s cold air is weakened, and the wind and rain in middle and low latitude vanish temporarily.

From the 9th to the 14th day of the lunar calendar, when the Moon moves southward from the first quarter to full moon, as is shown in Fig. 6, it can also attract and even break Arctic vortices, and pour out some cold air and inner cyclogenesis, as is shown in Fig. 5b. For example, every year from April to August, some vortices from northeastern Siberia move southward with the pull of the Moon. But the temperatures in North Asia began to rise in this season, some great lakes like Lake Baikal are beginning to evaporate a lot of water vapor. When a vortex drifts above such a great lake, it immediately absorbs the evaporated clouds to intensify into a strong atmospheric vortex, which easily falls into a nearby forest or grassland to become a fire tornado, setting off a big wildfire to destroy a large area of forest or grassland. Typical instances include the forest fires in southern Russia in July-August 2010 and the grassland fire on the Sino-Russian border in mid-April.
2019. For another example, a super typhoon Faxai, which was upgraded as a strong typhoon by the Central Meteorological Station, China on September 7, 2019 and landed in Chiba City, Chiba County, Japan on September 9, 2019, is also the result of the Moon attracting the Arctic vortices. Since September 7-9, 2019 which coincides with the ninth to eleventh day of the eighth month in the lunar calendar, the Moon was closer to the Arctic vortex over northeastern Siberia, therefore it had a great attraction to the Arctic vortex. When the Moon moved southward, it could break the Arctic vortex to pour out a lot of cold air and great inner cyclogenesis. When a cyclogenesis drifted to the northwest of the Pacific Ocean under the gravity of the Moon, it intensified into a super-strong typhoon.

Every time around the 15th day of the lunar calendar, when the Moon reaches the equatorial plane of the Earth, it is far from both poles, it has less attraction to polar vortices, and the polar vortices pour out less cold air, therefore at the middle and low latitude, the wind is calm, the clouds are light, the sky is clear and the Moon is full, as is shown in Fig. 6.

From the 17th to the 22nd day of the lunar calendar, when the moon moves southward from Full Moon to Third Quarter, as is shown in Fig. 6, as the distance between the Moon and the Antarctic vortex gets closer and closer, the Moon’s attraction to the Antarctic vortex is also increasing, more and more cold air is poured out of the Antarctic vortex, and the cyclogenesis poured out gets bigger and bigger. For example, the tropical cyclone Catarina formed on March 12, 2004 near southeastern Brazil was the result of the Moon attracting Antarctic vortex. Since March 12, 2004 which coincides with the 22nd day of the second month in the lunar calendar, the Moon was closer to the Antarctic vortex, therefore it had a great attraction to the Antarctic vortex, the cyclogenesis poured out is very big, and eventually develops into a storm above hurricane level [5].

From the 22nd to the 23rd day of the lunar calendar, when the Moon is over the South Pole, as is shown in Fig. 6, it can pull the Antarctic vortex up, making it absorb a lot of cold air and recover its strength. At this time, the pouring of Antarctic vortex’s cold air is weakened, and the wind and rain in middle and low latitude vanish temporarily.

From the 24th day to the 30th day of the lunar calendar, when the Moon moves northward from the Third Quarter to New, as is shown in Fig. 6, it can also attract and even break Antarctic vortex, and pour out some cold air and inner cyclogenesis, making the temperature in the middle and low latitudes of the southern hemisphere and the northern hemisphere drop or even enter extreme cold weather. The poured cyclogenesis may be intensified into a strong tropical cyclone. For example, the strong tropical cyclone Marcus formed on March 14, 2018 near Australia was the result of the Moon attracting Antarctic vortex. Since March 14, 2018 which coincides with the 27th day of the second month in the lunar calendar, the Moon was closer to the Antarctic vortex, therefore it had a great attraction to the Antarctic vortex, the cyclogenesis poured out is very big. When such a cyclogenesis drifted over the tropical ocean near Australia, it can intensify into a strong tropical cyclone. In addition, when a cyclogenesis drifts over the mainland with the wind and meets the thick clouds formed by the blocking of mountains, it may absorb the clouds to intensify into a strong cyclone, which falls easily into a nearby forest to become a fire tornado, setting off a big bushfire destroying a large area of forest. For example, on September 6, 2019, which coincides with the 27th day of the eighth month in the lunar calendar, the first bushfire took place in the northern part of New South Wales, Australia, which has lasted several months. Because before the fire, people did not see the light caused by people or lightning, this kind of mountain fire is probably caused by the tropical cyclone with dark outside and fire inside. Because tropical cyclones
occur frequently in Australia, there are fires almost every year in Australia.

3. Strategies to Prevent Abnormal Global Climate Change

From the above analysis of the cause of abnormal global climate change, we can see that the poles are the air conditioners of the whole planet, the activities of the Moon and polar vortices are the direct cause of global climate change and human activity in the poles is the real reason for the abnormal activities of polar vortices. Therefore, to prevent abnormal global climate change, we must control human behavior.

(1) In order to prevent global warming, the following measures need to be taken: the embankments along the Arctic Channel should be strengthened to prevent glacier loss; the exploration and mining holes should be solid with stone, silt or vegetation to stabilize the ice base, in order to prevent the fall of the Arctic ice cap and permafrost; people’s blind activities such as blind exploitation of oil and gas as well as unnecessary tourism in the polar regions should be reduced to prevent the fall of the polar ice cap and permafrost and prevent the subsidence of the edge of the polar basin. Only in this way can the polar vortices gradually return to their original state or be strengthened, thus the winds generated by polar vortices are strong, making the global temperature drop and solving the problem of global warming.

In order to prevent the recurrence of abnormal weather or big wildfire in North America and Northeast Asia, some human activities such as blind exploitation of oil and gas as well as unnecessary tourism in the polar regions should be reduced to prevent the fall of the Arctic ice cap and permafrost, so as to avoid too much cold air or too many cyclogenises from the Arctic vortices attracted by the Moon from slipping out of the polar basin.

In order to prevent the recurrence of abnormal weather or big bushfire in Australia, some human activities such as blind exploitation of oil and gas as well as unnecessary tourism in the Antarctic regions should be reduced to prevent the fall of the Antarctic ice cap and permafrost, so as to avoid too much cold air flow or too many cyclogenises from the Antarctic vortices attracted by the Moon from slipping out of the polar basin.

4. Conclusions

Global climate warming and frequent occurrence of extreme weather make people feel more and more anxious. In order to effectively cope with global climate change, we should first find out the real cause for it, then decide the corresponding effective strategy. However, the scientific community has different opinions on the causes of global climate change. Hence, the author has researched deeply into various factors that could affect climate change, and found that polar glacier fluctuation is the main cause of global climate change, therefore has put forward corresponding reasonable countermeasures to prevent abnormal climate change.

References


