

Good term paper on weather project

[Health & Medicine](#), [Stress](#)



Storm heading towards Alaska is “ Sandy” of 2012, bringing cold to Canada. The headline that flashed on November 7, 2014 in Global News portrays a worrisome image of entire Canada. During, the period of October 1, 2014 to November 15, 2014 Canada encountered drastic weather changes resulting from an amalgamation of number of weather phenomena. Playing the role of protagonist, Nuri and Gonazalo were the primary cause of a number of weather changes in Canada. Interestingly, Nuri having its origin from North Pacific Ocean struck the American continent from eastern end. Even, more interesting fact being that both of them were cyclones. It actually illustrates the enormous impact a cyclone can have on the weather of particular location. Now, an important question that emerges in the mind is, how two cyclones, Nuri and Gonazalo travelling from two different direction and even moving towards completely opposite direction and even moving towards opposite direction, together cause a devastating effect on an area? The answer to this question can be well analysed by covering various dimensions associated with cyclone.

Fig1: Map showing Canada Bermuda and North Pacific Ocean(Image from [www. worldatlas. com](http://www.worldatlas.com))

Cyclones generally are centre of low pressure surrounded by closed isobars having increasing pressure outwards and closed air circulation from outside towards central low pressure in such a way that air blows inwards in Northern Hemisphere and clockwise in the Southern Hemisphere. The definition needs to be elaborated for clearer understanding. Cyclones actually are formed at an area of low pressure, which are usually surrounded by high pressure zones. The air from high pressure zone to low pressure

zone, due to certain mechanical and non-mechanical factors like rotation of Earth bends rightwards in the Northern Hemisphere and leftwards in the Southern Hemisphere. This bending of air results in circular motion which later turns into a cyclone. The cyclones are also known as atmospheric disturbances and when the velocity of wind increase to such an extent that they attain a great force, a cyclone is formed, known as cyclonic storms. Moreover, on the basis of intensity the type of cyclones are divided in two principal branches which are further divided into four subtypes. The first type of cyclone is a weak cyclone which can either be tropical disturbances and tropical depression whereas the second type of cyclone is strong and furious cyclones. These strong and furious cyclones are further classified as hurricanes or typhoons and tornadoes. Nuri being a typhoon and Gonazalo being a hurricane each of which in turn is a part of strong cyclone, now justifies the devastating nature they possess. Further, the cyclone can also be divided into tropical and extra tropical. Extra tropical possesses the quality of originating over land or sea whereas tropical can only have its origin over sea and often dissipated on reaching to the land. Extra tropical although covers and affects a larger area yet is characterised to be less destructive. Such a nature depicted by extra tropical cyclones is due to the wind velocity under their influence. They are not strong enough to cause a accelerate wind to huge velocities thus, causing less destruction. Tropical on the other hand although affects a smaller area as compared to still possesses a strength influential enough to accelerate the wind to great velocities. Therefore is a cause of huge destruction. Another interesting difference in such cyclones is the direction in which they travel. An extra

tropical cyclones travels from west to east and a tropical cyclones travels from east to west. Observing this direction phenomenon one can judge the nature of Nuri and Gonzalo.

Nuri, however, referred to as a super typhoon became one of the most powerful tropical cyclones of 2014. It emerged from the open water in Western Pacific Ocean which lay east of Philippines and south of Japan. Japan Typhoon Centre appended the term Super Typhoon with it. Super typhoon designation is used for the tropical cyclones in Western North Pacific Ocean where the wind associated attained at least 150mph.

Moreover, typhoon made its way across the North Pacific Ocean on October 30, 2014. It further proceeded towards Alaska striking its coast on November 7, 2014. Although, the symptoms arrived much earlier, according to a forecast report in the Weather Network Atlantic Canada started experiencing windy and rainy weather from September 22, 2014 onwards. The forecast further predicted wind and heavy rainfall and snowfall warnings in Nova Scotia and Newfoundland. The forecast's predicted condition was later justified when a number of toppled trees left thousands of people without electricity in Nova Scotia. The winds reached up to 90kmph giving an indication of upcoming disaster. Most windy areas included Beaver Islands, Halifax, and Lunenburg where wind velocity reached up to 96kmph.

On the other hand, Halifax, lately in September it was recorded more than 80mm rainfall along with the other areas receiving moderate to high rainfall. The wind velocity and rainfall was further forecasted to increase. Later as Nuri typhoon approached closer, the Global News forecasted Nuri driven waves of up to 15 metres height, probable to strike the island. It was

specified that once the storm makes its way to Alaska, it will mix with cold air and get stream, compelling frigid Arctic air to move towards south. This was an indication of extremely chilling days in Canada, particularly for Prairies. In Edmonton particularly, the temperature was expected to reach a maximum of 3 degree Celsius at day-time and -11 degree Celsius to the lowest. Normal temperature was expected to be 1 degree Celsius. Similar prediction in Saskatoon revealed a temperature as less as -10 degree Celsius. The result was soon seen as people of Prairies and Northern Ontario experiencing an early taste of winters. The temperature later recorded on November 10, 2014 was as low as -13 degree Celsius in Calgary and Edmonton. The normal temperature was however, 0 degree Celsius. In Ontario, although the Great Lakes provided the moderation to an extent preventing cold air to reach to South Ontario but, the North-western Ontario was not able to take such advantage and came under the influence of heavy snowfall allowing the temperature to drop enormously. The influence of the typhoon is not only confined to these areas with central plains too being hit by first snow storm.

However, the drastically enormous changes observed in the month of October and November was not the result of typhoon Nuri alone. Hurricane Gonzalo also had an equally important role in worsening the scenario. Hurricane Gonzalo being a powerful Atlantic hurricane had its devastating reign covering, ranging from Great Britain to Canadian parts. On October 12, 2014 Gonzalo passed across the Leeward Island which further strengthened it. It was categorised under the category 4 hurricanes which interestingly became the first of this kind since 2011 which encountered Ophelia. Gonzalo

peaked with winds moving at the velocity of 145mph. Although the cyclone weakened once it passed Bermuda, it still possessed enough strength while sticking Canada to bring about a huge change allowing the temperature to drop by great extent. While heading towards the Canada it gave a huge cause, to be concern about. Powerful winds along with a lot of rainfall presented a view not so pleasing. However, the forecast suggested area that will probably see the greatest impact to be Newfoundland as high winds were anticipated there. Further the forecast predicted heavy rainfall with the storm in Nova Scotia. The speed of the winds was predicted about 185 km/h and further strengthening was expected.

Later, Nova Scotia began to feel the effects of Hurricane Gonzalo next morning as rain began justifying the forecasts. The storm was predicted to continue to move northeast before reaching Newfoundland. Gonzalo however made a dangerous entry in Newfoundland bringing windswept rain ranging from Cape Race to Saint Johns, and farther west across the island. Although the stronger winds remained confined to offshore, locations along the coast and inland continued to receive high velocity winds overnight. Wind gusts at Saint John's airport were reported at 46 miles per hour. These strong winds accompanied with heavy rainfall at places compelled the temperature to drop by a great extent. The forecast reports although helped to take precautionary measures against the damage estimated by Gonzalo, the hurricane still was successful in making great impacts in the weather conditions of the Canadian landmass.

Being strong and furious cyclones Gonazalo and Nuri were good enough to

judge the changes a cyclone can cause in the weather condition of particular area.

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