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CONTROL AND REDUCTION OF THE TERRIFYING STORMS STRENGTH IN THE UNITED STATES

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ABSTRACT

Objective: Strategies for coping with and controlling the strength of storms in the United States. **Methodology:** Implementation of the "Local Precipitation Increasing Project" all around the central deserts in the United States (USA) by surrounding them with water vapor generators. In future, this project will enhance humidity percentage thereby modifying the air and increasing percentages of rainfall. Moreover, the green movement project will be implemented to preserve the gained humidity at ground level in order to keep the temperature of the environment balanced. This project will be continued to better persist and become more effective so that a "green movement" is formed for the future development of the "Local Precipitation Increasing Project." **Results:** The increased relative humidity in the air in regions where the project is executed will modify it, increase rainfall percentage, cope with "the global warming phenomenon," restore and bring back the previous situation in the North Pole and, finally, reduce the strength and wind speeds of the storms in the USA (which is one of the goals for implementing this project in the USA).

KEYWORDS: "Local Precipitation Increasing Project), "a Plan to Increase the Amount of Rainfalls," the Global Warming Phenomenon, Thermal Barrier, Moisture Preservation at Ground Level, Green Movement Formation.

1. INTRODUCTION

Severe storms inflict great damage in the USA every year. This article addresses storm control and reduction of storm damage.

2. Statement of the problem

Why do severe storms occur and become more intensive every year in the USA but no horrific storms happen in Canada? Can these natural phenomena be controlled and their intensity reduced? Is the global warming process certain to continue?.

3. The need for conducting this study

Storms become stronger every year and inflict heavy financial and human damage. The need for controlling storms and reducing their strength and severity was the reason for carrying out this research.

4. Research objectives

This study aims to reduce the number and severity of storms in the USA and cope with the global warming phenomenon.

5. Research outcomes

1. Global warming and its consequences are unquestionable events.
2. The effects of the project are used to cope with the global warming phenomenon.
3. Higher relative humidity in air results in modifying it.
4. Rainfall percentages increase.
5. The required conditions are prepared for executing the green movement project to preserve moisture at ground level.

6. Research innovation

Implementation of the "Local Precipitation Increasing Project."

7. Literature review

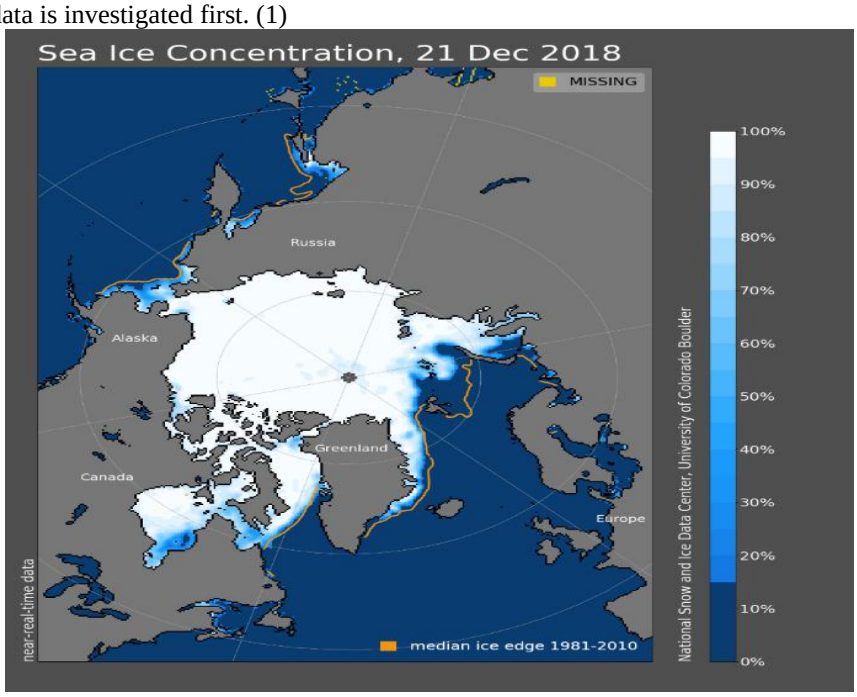
As a general principle, crises can be controlled first through preventing their spread followed by resolving them. In this case also, the "Local Precipitation Increasing Project" is implemented all around the central deserts of United States to manage the crisis and resolve the problem.

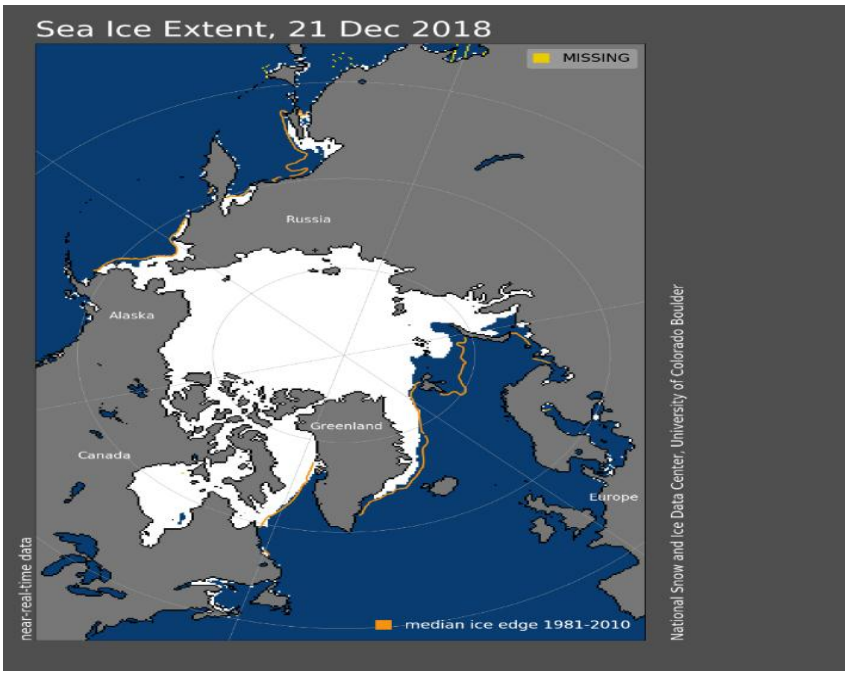
Since it is not possible now to implement the main "Plan to Increase the Amount of Rainfalls".[4,5] because of the long distance around the central deserts of United States, the next best thing is to execute the "Local Precipitation Increasing Project" extensively and in many locations around the hot deserts and in other regions of the USA suffering from drought and high temperatures in order to increase relative humidity in air. This will increase the rate of rainfalls and prevent dramatic changes in temperature.

8. Research method

This research draws on information from various studies and on my own scientific findings.

1. The available data is investigated first. (1)

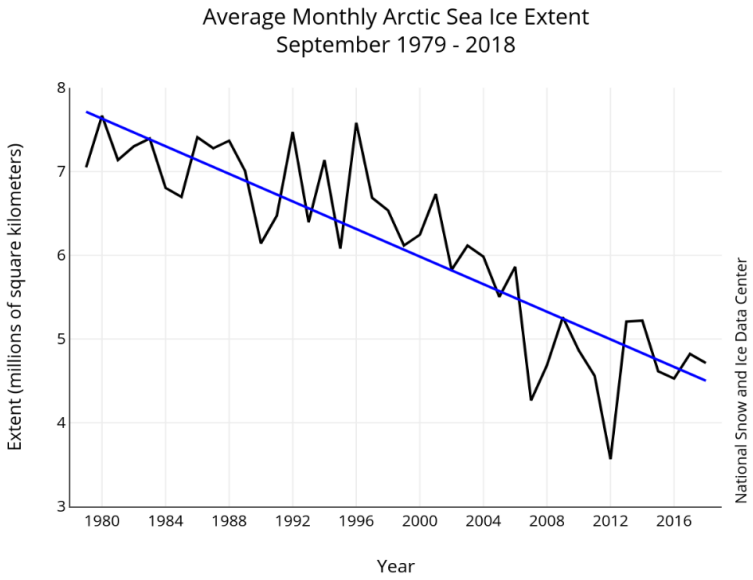


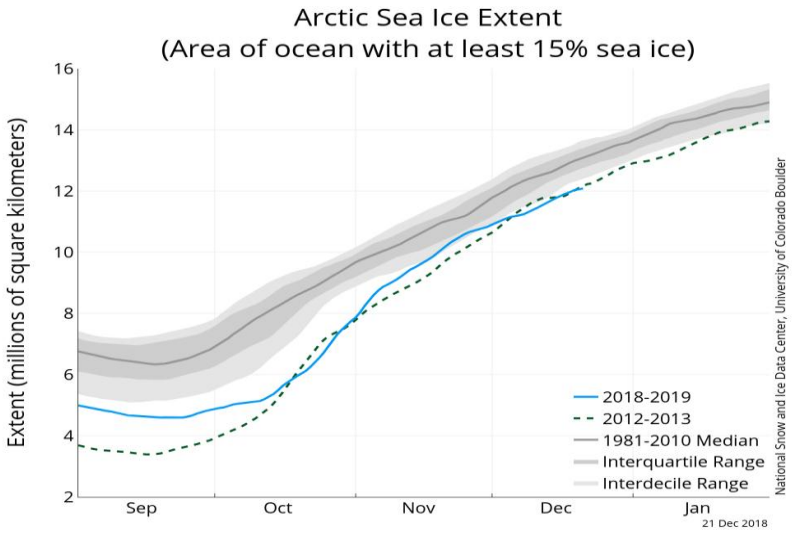


9. Control and reduction of the horrifying storms strength in the USA

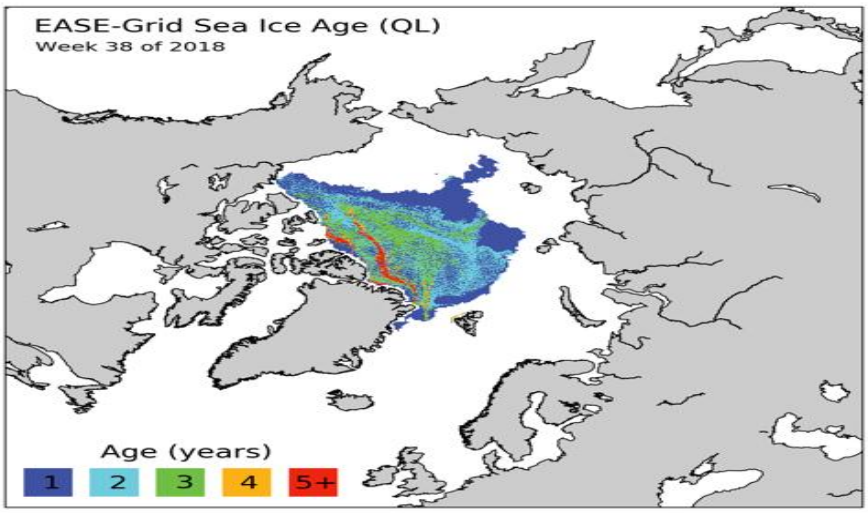
Topic: Why do severe storms occur and become more intense every year in the USA but no horrific storms happen in Canada? Can these natural phenomena be controlled and their intensity reduced? Are we sure about global warming?.

The North Pole is used as an example to prove the process of global warming and the polar ice melting.





Ice Age Distribution During Week 38 in 2018

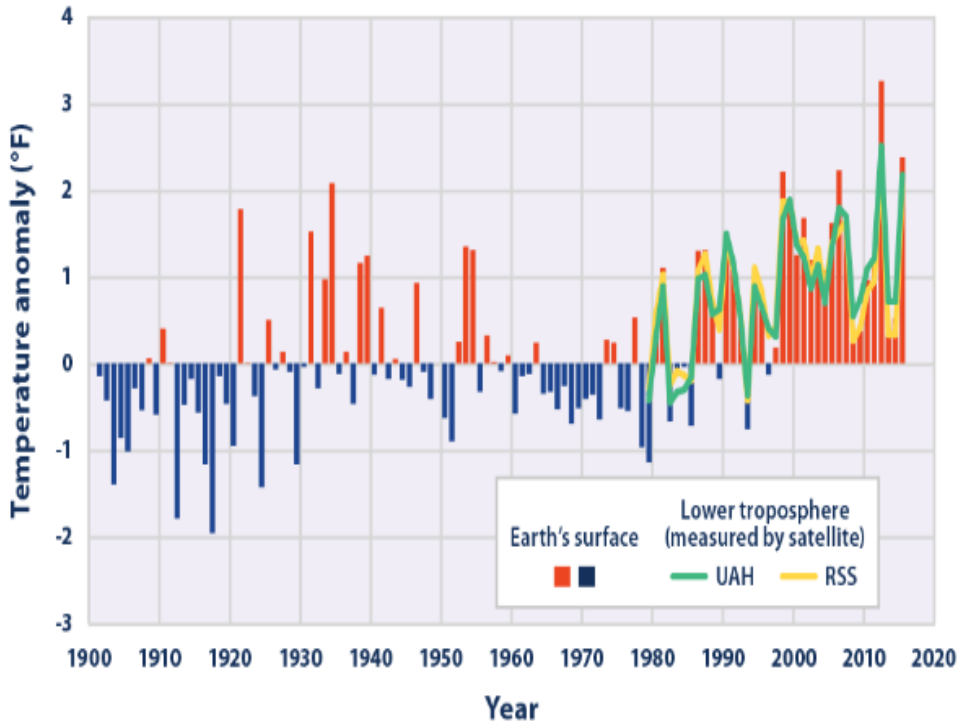


Examination of the data below reveals that the North Pole icecap is melting and its area is shrinking. The importance of this event for the present research is that, in addition to the reduction in the area and thickness of this icecap, vast amounts of cooling energy have been released into the environment as a result of ice melting.

The increasing trend of temperatures in the USA is studied. (2)

This indicator describes trends in average surface temperature for the United States and the world.

Figure 1. Temperatures in the Contiguous 48 States, 1901–2015

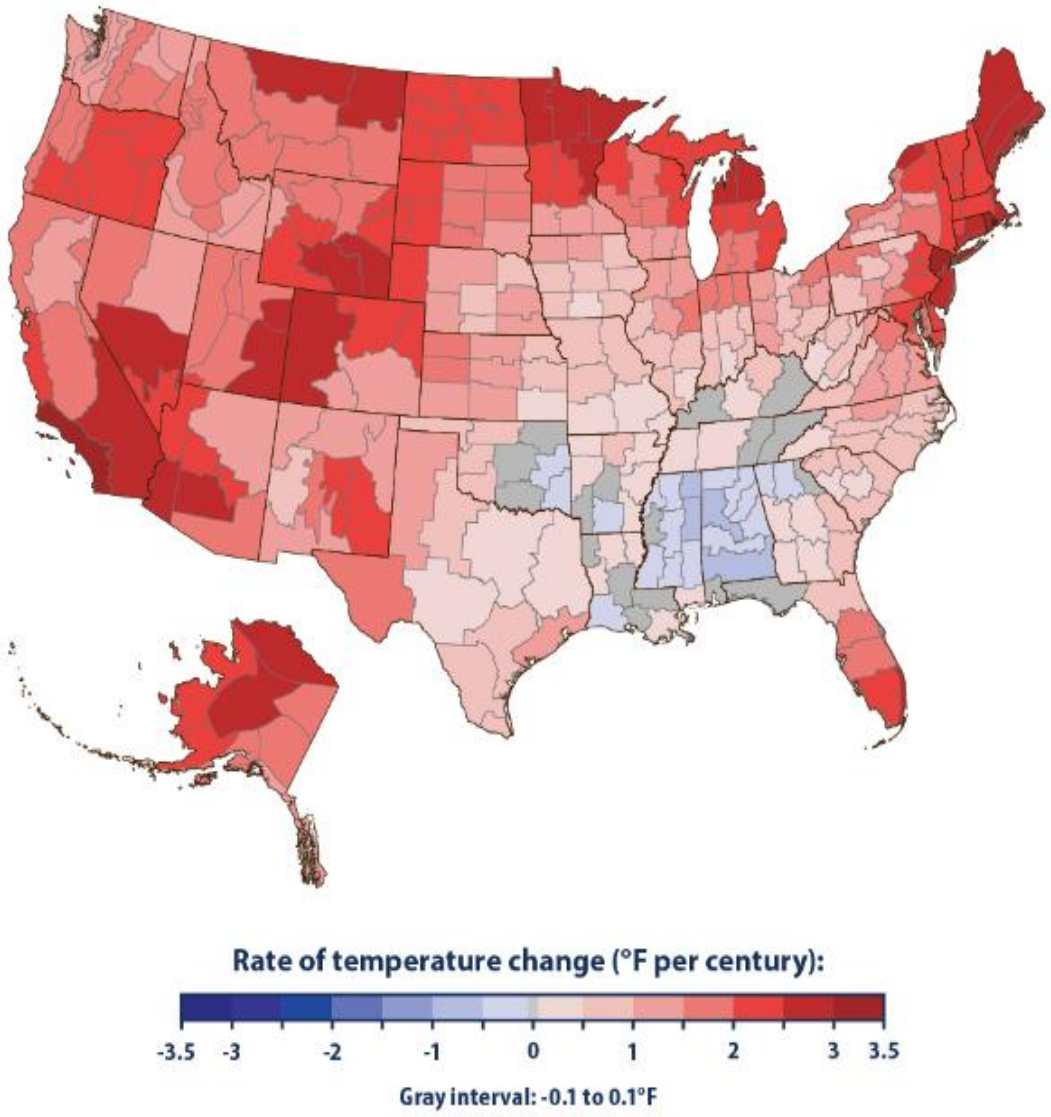


This figure shows how annual average temperatures in the contiguous 48 states have changed since 1901. Surface data come from land-based weather stations. Satellite measurements cover the lower troposphere, which is the lowest level of the Earth's atmosphere. "UAH" and "RSS" represent two different methods of analyzing the original satellite measurements. This graph uses the 1901–2000 average as a baseline for depicting change. Choosing a different baseline period would not change the shape of the data over time.

Data source: NOAA, 2016[1]

Web update: August 2016

Figure 3. Rate of Temperature Change in the United States, 1901–2015



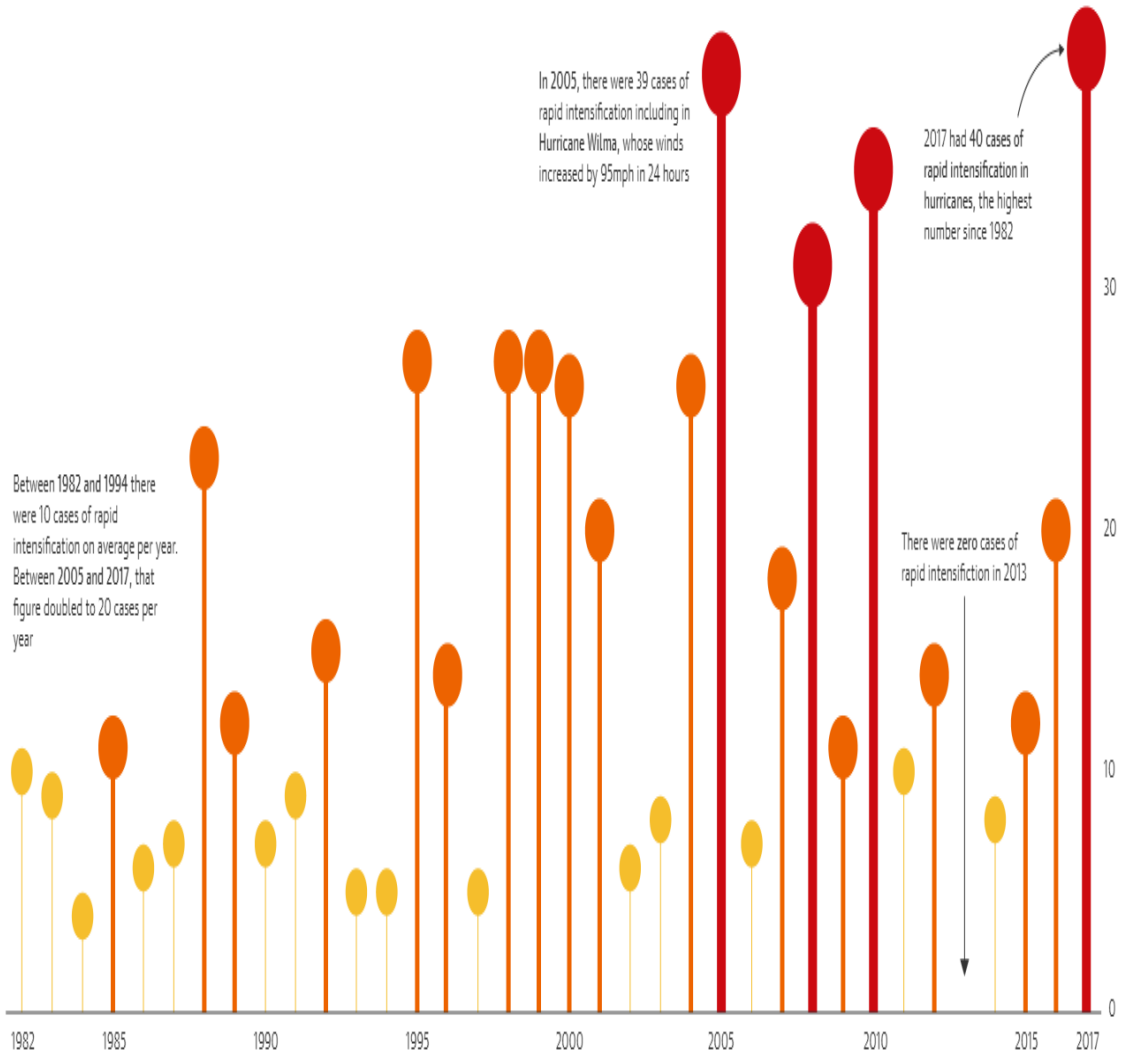
This figure shows how annual average air temperatures have changed in different parts of the United States since the early 20th century (since 1901 for the contiguous 48 states and 1925 for Alaska). The data are shown for climate divisions, as defined by the National Oceanic and Atmospheric Administration.

Data source: NOAA, 2016[3]
Web update: August 2016

Investigation of the available data indicates an ascending trend in temperatures in the USA and worldwide.

2. The rising trend in storm intensity happening in the USA is studied. (3) (It is important to note that these data were collected before the official and reliable announcement of the recent storm in the USA.)

2017 was the worst year for rapid intensification

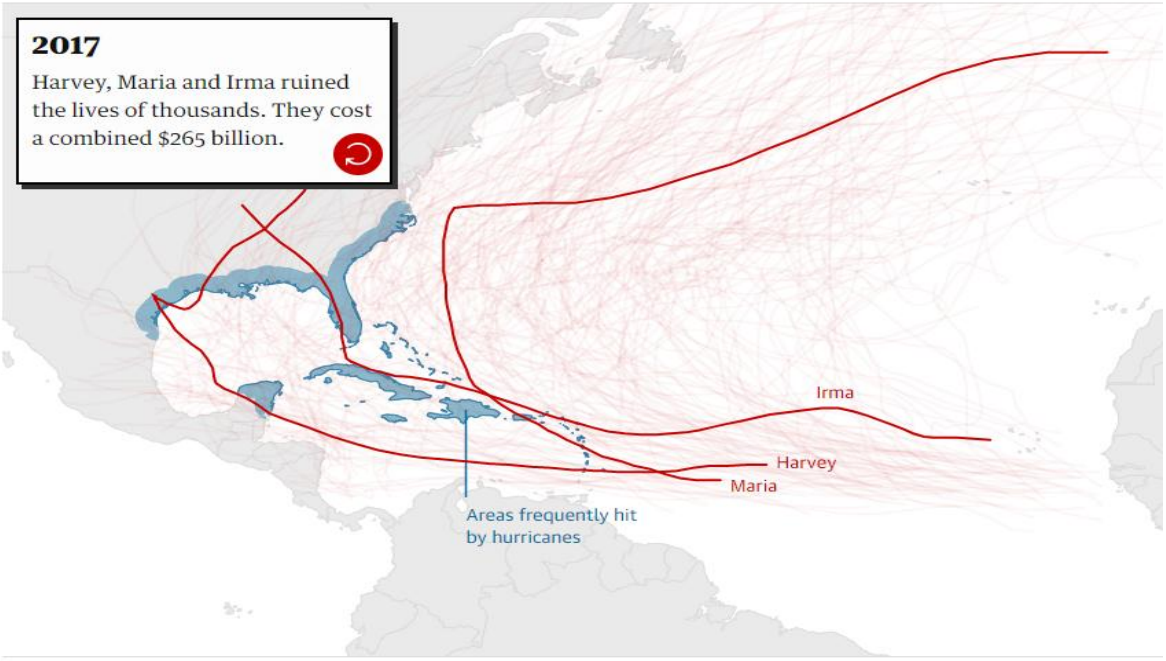


Source: National Hurricane Center

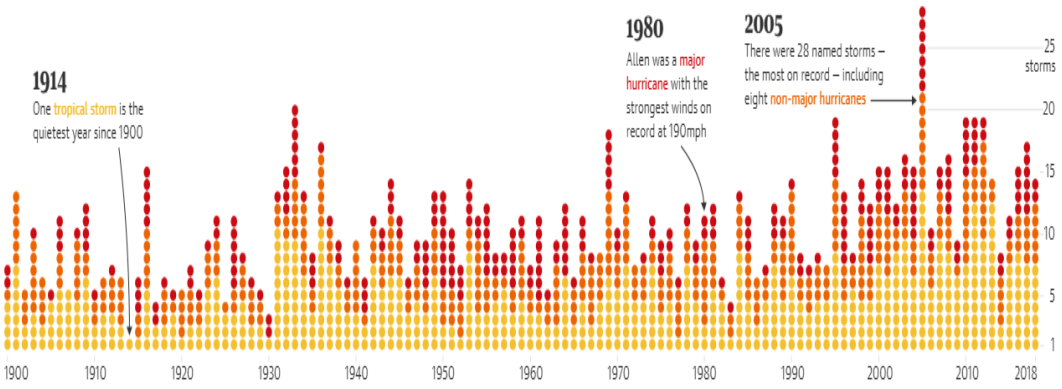
In 2017, there were 40 separate cases of RI - the most in at least 35 years. What's particularly worrying is when a storm transforms from a category 1 hurricane to a Category 5 monster in less than 24 hours. In the case of Hurricane Maria, this left people on the island of Dominica with insufficient time to prepare.

Rapid intensification was part of the reason why Maria cost an estimated $90bn (£70bn). Damage caused is often used to evaluate how bad a hurricane is, but with more people and more infrastructure in vulnerable areas, cost is a flawed measure. Maria is joined by Harvey and Irma inside the five costliest hurricanes to hit the US on record.

As Hurricane Michael approaches the Florida Panhandle after rapidly intensifying to a category 4 storm, coastal areas have been evacuated. The storm is the second to hit the US mainland this year after Hurricane Florence brought catastrophic rainfall and flash floods to the Carolinas. 2018 has now exceeded what was expected to be a year of "below normal" hurricane activity, with long-term trends indicating a worsening of the length and intensity of Atlantic storms.



The number of storms is increasing

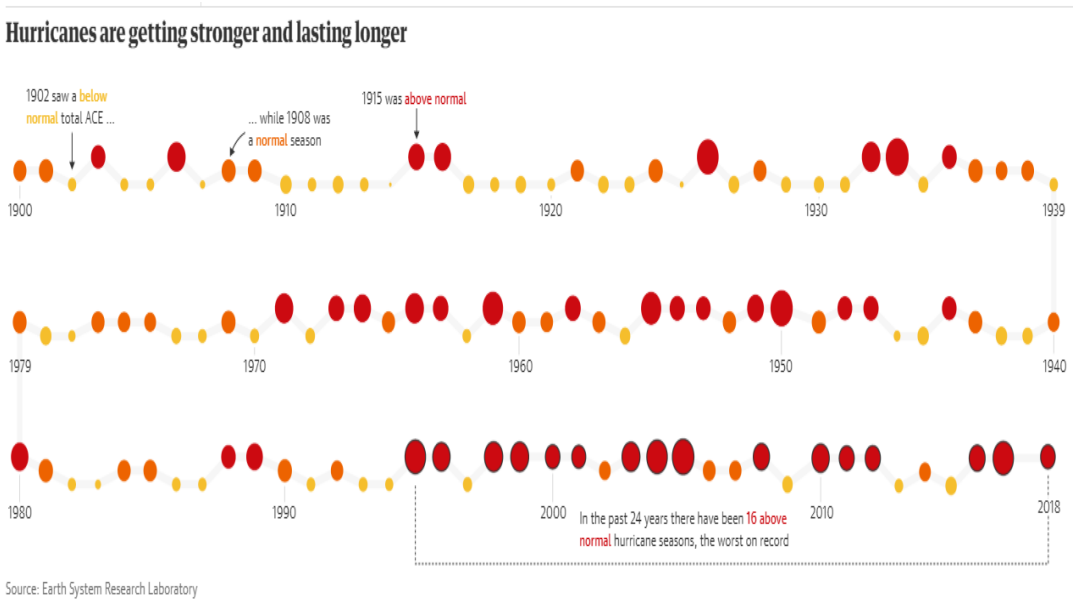


Source: National Hurricane Center

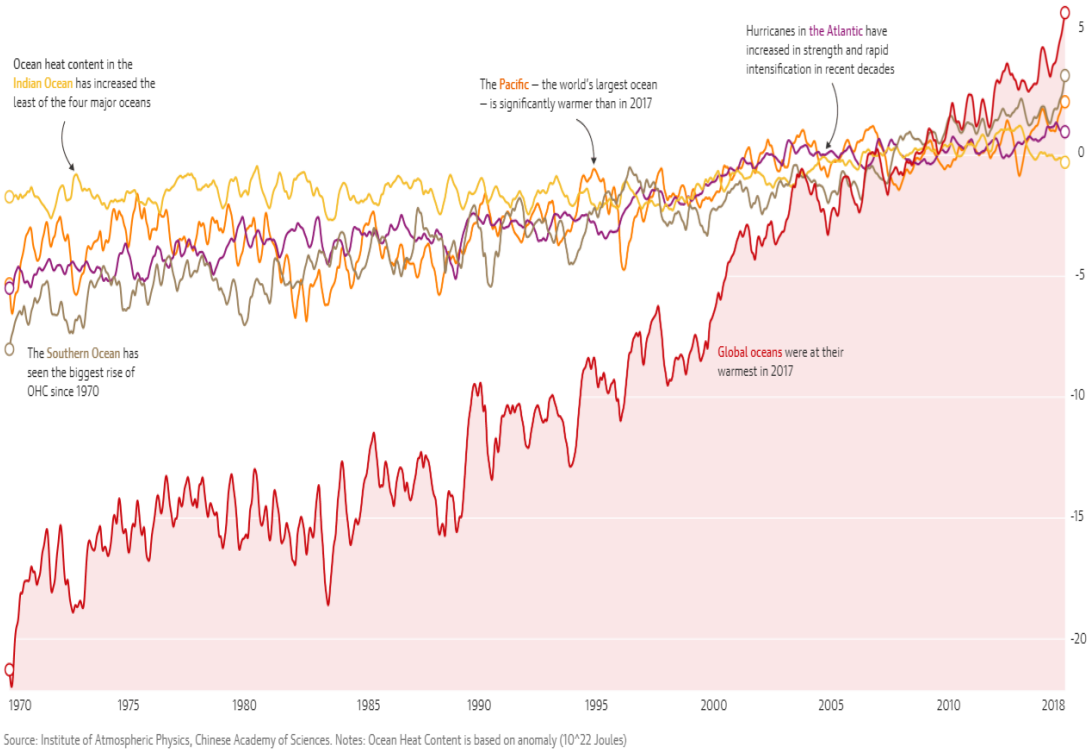
Category 5 hurricanes are the most severe but also the most rare - there have been just three in the past decade.

But these hurricanes aren't the only category of storm that cause significant damage. Hurricane Harvey showed us last year that a category 4 storm can last for several days and dump historic volumes of rain to almost sink an entire city.

To more accurately assess how bad a storm is, meteorologists use the Accumulated Cyclone Energy Index - or ACE - to account for the strength, frequency and duration of storms per year. The Atlantic Ocean is in the midst of its worst stretch on record.



The El Niño effect - which causes tropical storm development in the Atlantic to be suppressed - is a big reason why NOAA reduced the number of hurricanes forecast this year. However, new data suggests that hurricanes could become stronger, slower and wetter in the future.



Warmer waters have made the speed at which hurricanes intensify in strength faster in recent years. Meteorologists use the term "rapid intensification" - or RI - to describe a storm that increases its maximum sustained winds by at least 35mph within a 24-hour period.

Careful examination of the data shows that the number and intensity of storms have increased in recent decades. It must be noted that the USA, in addition to warm and dry weather, has extensive and hot deserts like the one in Nevada.

As a general principle, crises are controlled through preventing their spread followed by resolving them. In this case also, the "Local Precipitation Increasing Project" is implemented all around the central deserts of United States to manage the crisis and resolve the problem.

Since it is not possible now to implement the main "Plan to Increase the Amount of Rainfalls" [4, 5] because of the long distance around the central deserts of United States, the next best thing is to execute the "Local Precipitation Increasing Project"(6) extensively and in many locations around the hot deserts and in other regions of the USA suffering from drought and high temperatures in order to increase relative humidity in air. This will increase the rate of rainfalls and prevent dramatic changes in temperature.

In the "Local Precipitation Increasing Project," water vapor generators produce moisture and water vapor masses in the form of clouds in the environment, preventing the intensity and strength of monsoon winds that can turn into severe storms and preventing displacement of warm and cold air masses with very different mean temperatures that can turn into storms.

It is very important to note that water vapor production by generators in the "Local Precipitation Increasing Project" should be mostly in the concentrated and heavy form to act as a barrier reducing the displacement speed of air masses that prevents intensive air displacement.

It must also be noted that implementation of the "Local Precipitation Increasing Project" is basically a very simple and low-cost process. As was previously mentioned, the moisture present in the environment acts as a thermal barrier,[4,5] and prevents dramatic temperature changes. This prevents intensive displacement of air masses and is effective in modifying and reducing the intensity of these displacements. It was previously mentioned that green measures must be taken (including planting trees and sowing forage crop seeds, and even weed seeds) to preserve this relative humidity at ground surface and moderate the temperature of the environment. Implementation of the "Local Precipitation Increasing Project" seems at first to be of limited effectiveness given the vast expanse of the scorching hot deserts in the USA. However, if this low-cost project is implemented in consecutive years, it will reach the high effectiveness of the "Plan to Increase the Amount of Rainfalls" (the implementation of which is a high-cost process) in controlling severe storms in the USA. Although storms will always be likely to occur regularly in the USA because of its dry weather and its proximity to the North Pole, the "Local Precipitation Increasing Project" will be quite effective in reducing the intensity of storm events, and we will never witness the destructive power of storms). Implementation of this Project will prevent the formation of severe storms caused by the extreme differences in the temperatures of air masses.

Wind directions must be considered in installing water vapor generators all around the desert margins in Central United States in the "Local Precipitation Increasing Project" so that water vapor masses move towards the hot deserts. The inlet air valves in the terminal pipes (chimneys) blowing water vapor should be adjusted in a way (smaller inlet holes should be made) that the produced water vapor is injected into the environment by the great suction power of the terminal fan in a cold and heavy form. This produced cold and heavy vapor will finally settle on ground surface, especially at night.

Although the "Local Precipitation Increasing Project" is not as efficient as the "Plan to Increase the Amount of Rainfalls," its implementation will be largely effective in modifying the environmental temperature in the project area. Implementation of the "Local Precipitation Increasing Project" in successive years will be more effective and its measurable and enduring effects will be significant. The change from a barren desert climate to one with wild plants (like cacti) will also help in modifying the environmental temperature.

Why do severe storms happen in the USA but not, or not with the same severity, in the neighboring countries, Canada or Mexico?.

At the elevation of 8,000 feet from ground surface, the mean air temperature is normally -20 ˚C. If we closely look at the images and the trend of the ice melting, especially in the North Pole, we will notice a large reduction in the volume and thickness of these ice caps. The quantity of ice melted annually releases a huge amount of cooling energy that is injected into the environment.

Moreover, a careful look at the geographical climate of the USA in the North American continent with its large expanse of scorching hot deserts indicates an increase in the environmental temperature caused by solar radiation. It must also be noted that one of the warmest places on earth, the vast Nevada desert, is located in the Central United States. This means that there is a very large volume of warm air in the central part of this country. Natural displacement of these two air masses, the thermal power of which increases annually, causes terrifying storm events to happen in the USA.

As it is closer to the North Pole, Canada has a much lower mean temperature than the USA. That is why we do not witness storm events in Canada that are as severe as those in the USA. However, such storm events will

occur in Canada in future due to the current trend in global warming.

The solution for preventing such storms is to simultaneously implement the "Local Precipitation Increasing Project" and the green movement project to modify the environmental temperature. Water vapor generators must be installed all around the deserts in the Central USA so that the produced water vapor can continuously influence these deserts by moving towards their centers.

Water vapor is produced in two ways. If the surfaces of the air inlet valves in the terminal blowing chimneys are smaller, the produced water vapor will be distributed into the environment in a colder and denser state. However, if the surface or size of the air inlet valves is large, the produced water vapor will be distributed more rapidly into the environment because it is warmer, lighter and less dense. Considering the different seasons of the year especially in winter when the temperature in the deserts fall sharply at night, water vapor production in the warm form, which is distributed more rapidly, can penetrate more deeply into the desert given the direction from which the winds blow and the movement of the water vapor masses.

In the USA, the "Local Precipitation Increasing Project" should be implemented in regions around and on the margins of the deserts that have larger water resources using a larger number of high-power water vapor generators with more outlets.

Implementation of the "Local Precipitation Increasing Project" increases the moisture in the environment causing modification of the environmental air temperature and increasing rainfall rate. It must be noted that increasing rainfalls through cloud seeding by aircraft cannot by itself have a proper effect and there must be sufficient moisture in the environment and this enhanced moisture in the environment increases rainfall rate.

There is a general similarity between floods and droughts, and we can consider them siblings of different genders belonging to the same family that go to parties not with each other but one after the other.

It is Ture that floods and droughts are apparently two different types of natural phenomena, but they quite similarly influence the environment one after the other. Therefore, we must use the discussed methods [4-6] to control and use them (like storing floodwater in water reservoirs to be utilized later and recharging groundwater resources). Employing the same reasoning, the prevailing conditions in an environment can be used to resolve environmental problems. For example, as lack of sufficient moisture under desert conditions severely reduces their temperature, we can create the possibility of precipitation in the form of snow by implementing the "Local Precipitation Increasing Project."

In general, injection of moisture into the environment modifies the environmental temperature, and the purpose in all projects I presented,[4-6] is to cope with the global warming phenomenon and to repair the ozone layer.

As a general principle, we can say that water vapor must be injected into the environment in the cold and denser (more concentrated) form in the warm seasons (summer) and in the warm and less dense (diluted) form in the cold seasons. Of course, in the warm seasons water vapor injection has no effect on rainfall and is only effective in modifying (cooling) the air and preserving moisture for this project. In the cold seasons of the year in desert regions, it is better to inject water vapor in the warm and light (more diluted) form so that it can penetrate deeper into the deserts, especially considering the directions from which the winds blow.

10. Suggestions

1. The "Local Precipitation Increasing Project" should be implemented because implementation of the "Plan to Increase the Amount of Rainfalls" is a high-cost and difficult process.
2. This Project should be developed and completed each year.
3. The green movement project must be executed to complete the "Local Precipitation Increasing Project."
4. The "Local Precipitation Increasing Project" should be implemented in Canada to prevent the occurrence of severe and similar storm events in this country and also to protect the huge Arctic Fridge.

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