The Sahara Desert is Changing

The Sahara desert may be the 3rd largest desert sitting right next to Antarctica and the Arctic circle, however, it is lauded as the world's largest hot desert that spans up to 9.4 million square kilometers wide. There is no doubt now why it has been included as one of the settings for works of art such as in Paulo Coelho's The Alchemist and Antoine de Saint-Exupery's The Little Prince because of its fascinating beauty and land area that seems to be a masterpiece in itself. With all these laid out, you would think that you've discovered everything that there is to know about the Sahara desert but with the current news, you're about to be proven wrong.

Just a few days shy of welcoming 2018, the news broke out on how there was suddenly snowfall in the town of Ain Sefre, which sits at the edge of the Sahara desert. News like this is quite rare and unlikely as the area is the hottest, driest area on earth and there isn't enough water to produce snow. Despite all this, the Sahara is known to fade away from its desert heat during the day as it transitions to nighttime wherein the temperature in the area can drop to freezing cold. This rare phenomenon was also observed through NASA's satellite images in 2016 wherein the snowcaps were visible from the outer space, and the last time this happened was 40 years ago.

In a new study, the green vegetation in Sudan and Chad has been turned into a dry land that may soon be incapable of producing new crops and plants. However, this dilemma isn't just about the widening of the Sahara desert, but it also concerns the timing where it occurred during the

African summer. Though it rains more during this season, the precipitation has ended which has definitely contributed to the expansion of the boundaries of the Sahara desert which puts pressure on the neighboring Sahel communities such as on Diakhao that mainly rely on rainfall during the wet season. This news will definitely affect the lives of many African people who mainly rely on the agriculture for their livelihood and economy since drylands can produce low-quality crops and may not produce anything at all.

Since 1920, the Sahara Desert has expanded up to 10% according to the study published on March 29, 2018, by the *University of Maryland* scientists. The authors observed that during the time period from 1920-2013, there was a 16% increase in the Sahara desert's average seasonal area. This study also suggests that this slow expansion of the Sahara desert is mainly a human-caused climate change along with natural climate cycles that align with the Atlantic Multidecadal Oscillation (AMO). With this expansion, this means the border of Sahel retreats as the Sahara expands its border towards the south. This also affects the Sahel's grassland ecosystem and community livelihood. Unfortunately for Lake Chad, the body of water is drying out due to the reduced rainfall in the region.

In order to narrow down the effects of these human-caused changes in the climate, the research authors used a statistical method in order to single out the effects of AMO on the variability of rainfall during the period from the year 1920 up to 2013. What they found out is that these climate cycles resulted as 2/3 of the reason for the Sahara desert's expansion towards the south, whereas the other 1/3 remain due to the natural climate change and seasonal trends. The research authors are hopeful that with the study, they’ll able to determine what the crucial steps are that anyone concerned can take in order to remedy this dilemma. It is also very important to take note of that this kind of problem is not an isolated case solely in Africa, but it affects the whole world as well.