SHE SPACE INTERNATIONAL

In memory of Devorah Blumberg

South Korea TEAM: Daeun Kim, Taegyeong Kim, Yelan lee, Nakyeoung kim, jiin Lee, Gaeun Jo, Yuhyun Oh, Sieon Kim

Hyoam High school

Team leader : Sangun Lee / kepler84@naver.com

Introduction

From March 24 to March 29, 2023, we experienced that the cherry blossom season at school came five days earlier than last year. This means that spring comes earlier than the past. Then we started wondering whether the flowering season was different from the past. Hence, we use NDVI to investigate how the flowering season changes and its relationship with climate change!

Study Area

To see how spring is changing, we calculate the NDVI that changes over time, We decided to check the following NDVI.

We analyzed the change trend of NDVI by analyzing a total of six periods from 2005, 2010, 2015, 2020, and 2023 in Gyeongsangnam-do and hanbando where we currently live in.

Methods

*Satellite used : Modis-Terra, Sentinel-2

*Progress :

1. Select the region and time to calculate the NDVI
2. Observe the changing temperature of the times
3. Analyze the correlation between climate change and NDVI

*Using Temperature sum : Sum of the average daily temperature for the start of flowering

Results

The most obvious change in satellite data we investigated was between 2015 and 2020.

Comparing the same day every year, the NDVI index seen on the satellite darkens as vegetation grows faster.

As a result of comparing the sum of temperatures of cherry blossoms between 2015 and 2020, there was a difference of 43.7 degrees on March 25th and 29.6 degrees on April 5.

In 2020, it's already filled the sum of temperature needed for cherry blossoms's flowering on the 87th with Julian dating, and on the 56th with Julian dating, it's already filled the sum of temperature needed for forsythia's flowering. On the other hand, in 2015, the sum of temperature is far less than in 2020.

<2015>

<2020>

Conclusions

According to satellite data, changes in vegetation index were most pronounced from 2015 to 2020, which was related to changes in temperature. In other words, global warming speeds up the beginning of spring.