



CLIMATE DETECTIVES 2020 – 2021



THE INFLUENCE OF TREE COVER ON THE GLOBAL CO2

The Land of Treehouses and Explosive Trees
GRG Billrothstraße 73

RESEARCH QUESTION

To what extent do forests influence the CO2 concentration in the atmosphere? How did the CO2 concentration in Austrian airspace develop in recent years? How did the forest cover in Austria

SUMMARY OF PROJECT

“Explosive Trees” is a team consisting of students between 13 and 15 years old. We decided to participate in the ESA Climate Detectives project due to our interest in climate change and motivation to make a difference. We have noticed a severe decrease in global forest population over the past few years and the increase in deforestation, which led us to choose this topic as our main focus.

Through intensive research and investigation, we have gathered useful information concerning the importance of trees in the battle against climate change. As a way of converting these results into real world use, our team came up with the idea of a smartphone app that specializes in tracking and reducing the users carbon footprint.

MAIN RESULTS

Our research shows, that the Austrian tree population does not have a direct impact on the CO2 concentration around the world. Since 1961, it has increased by over 3,000 square kilometers, due to the importance of forestry for the Austrian economy. In stark contrast, regions such as Siberia and the Amazon rainforest, that are being used as cultivable land, have had a decrease of roughly 110,000 square kilometers between early 2019 and mid-2020 and 600,000 square kilometers between 1990 and 2010 respectively. Although one might think Austria isn't as affected, since air is evenly distributed throughout the planet, the impact is almost non-distinguishable between our country and said regions. Because of that, our daily choices – whether in Austria or Brazil - influence the CO2 concentration all over the world. That is why we need to direct our focus more towards other sectors, such as transportation, clothing and nutrition among others, which can be directly influenced by an individual in Austria.

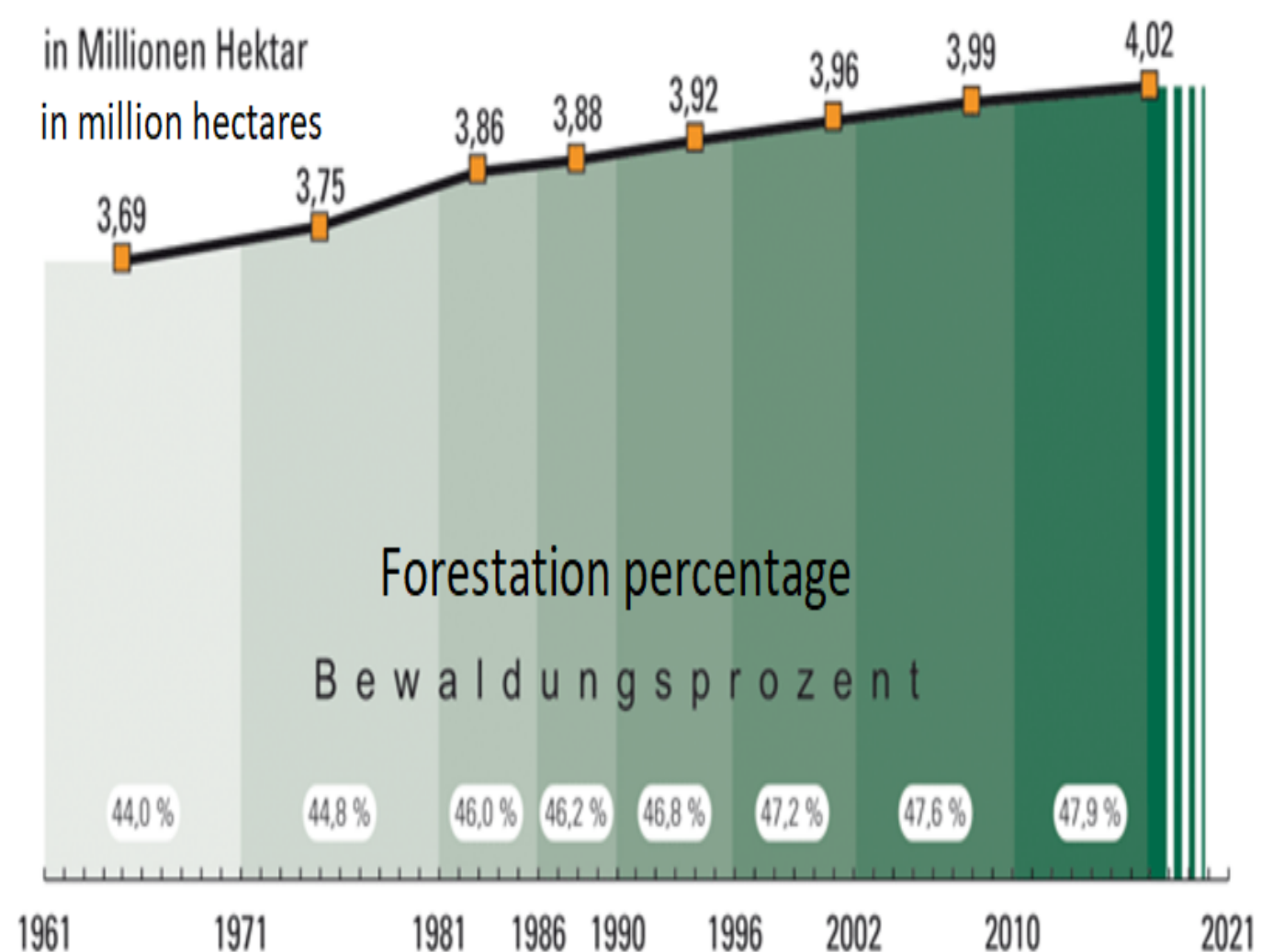


Figure 2: The graph shows forest expansion since 1961 to 2021 both as a percentage of Austria's land area and in hectares. Between 1961 and 2021, there was a forest increase of about 3.9%, which corresponds to 300 thousand hectares. Per year, the Austrian forest

ACTIONS TO HELP LESSEN TO THE PROBLEM

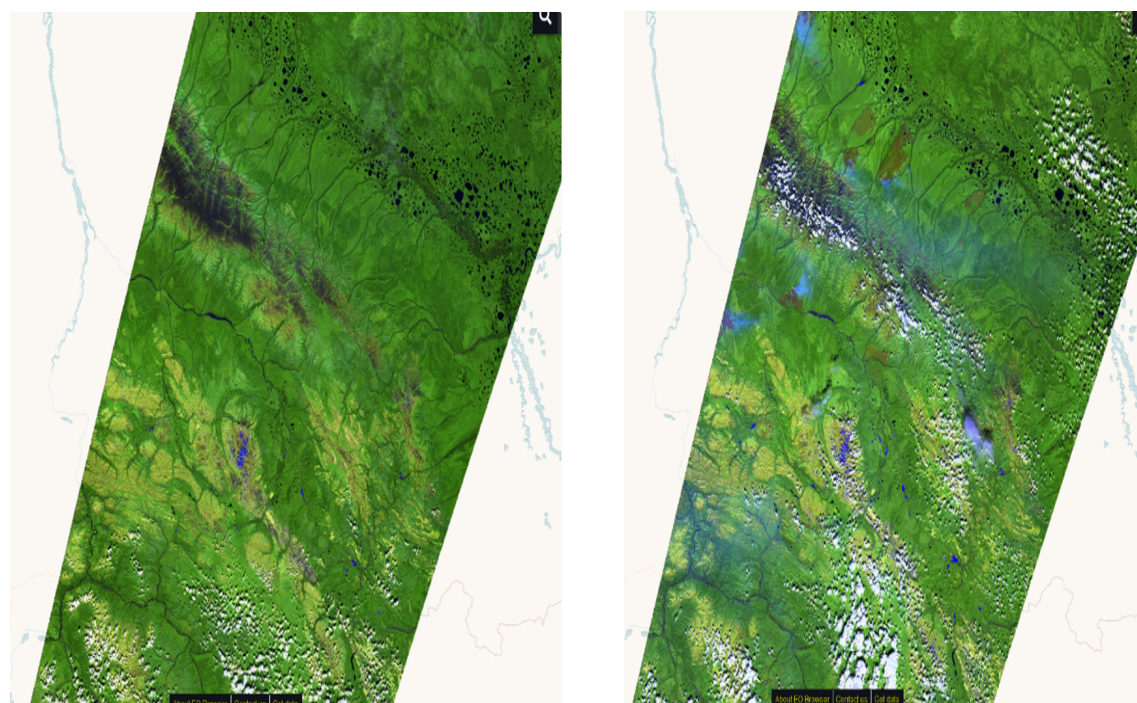


Figure 1: The left image shows an area of the Amazon in 2017, before the forest fires. The right image shows the



Figure 3: By completing an evaluation, the user can find out their emissions and is given a daily CO2 limit, which equals to a 15% reduction in monthly

App: <https://xd.adobe.com/view/1a86ce00-c880-41c5-8025-1707eb7c64f2-4fd5/>

As mentioned above, our team has developed a smartphone app that helps users track & reduce their carbon footprint. (Due to COVID-related complications we were unable to create a finished product suitable for commercial use. Nevertheless, we have created a mockup that works like the normal app, but is currently limited in functionality)

This is how it works:

By completing an evaluation, the user can find out their emissions and is given a daily CO2 limit, which equals to a 15% reduction in monthly emissions. If they manage to sustain this for a whole month, the user can choose to have a tree planted in their name. Furthermore, a decrease in daily CO2 emissions takes place every month to eventually reach the ultimate goal of being climate neutral.

Social Media:

In addition to the app, we also created an Instagram account. This way we can also use the reach of social media to motivate people to protect the environment. Click here to go to our account:

<https://instagram.com/explosivetreesofficial>