Spatiotemporal patterns of fire in the Netherlands

Fire currently is not a major ecosystem process or hazardous concern in the temperate climate of the Netherlands. Humans have a large control on fire occurrence in these regions, indirectly by creating fragmented landscapes that limit fire spread, and directly by igniting and extinguishing fires. Climate is also important since it may induce the susceptibility of fuels to ignite and burn, and influences lightning ignitions. With a changing climate, fire may become more prevalent in these regions. It is therefore important to understand current spatiotemporal patterns of fire. The Suomi National Polar-Orbiting Partnership (Suomi NPP) spacecraft with the Visible Infrared Imaging Radiometer Suite (VIIRS) has been detecting fires around the globe with the help of a developed fire detection algorithm (Schroeder *et al.*, 2014). This thesis will investigate this dataset in combination with land cover, climate and infrastructure datasets to reconstruct the regional effect of the fires in the Netherlands.

Introduction

In the last decade, the temperature has been increasing around the globe and simulations have shown that this trend is not going to stop (Jacob *et al.*, 2014). Some climate classifications models have shown that some climate zones are moving and changing. How quick and these changes depend on how fast the yearly mean temperature is increasing (Beck *et al.*, 2018). These changes cause that in some areas the burning seasons is going to be longer and there is a chance that the amount of fires are going to increase (Flannigan *et al.*, 2009).

Visible Infrared Imaging Radiometer Suite (VIIRS) and the Moderate Resolution Imaging Spectroradiometer (MODIS) have both datasets that identify fires on a global scale. For the MODIS instrument, Giglio, Schroeder, & Justice (2016) have created the current datasets and improved the algorithm for the current fire datasets of the MODIS. Schroeder, Oliva, Giglio, & Csiszar (2014) have developed the currently used algorithm on the VIIRS satellite to detect active fires. These datasets are going to give information about how these fires are distributed. **MEER INFORMATIE OVER THE RESOLUTIE EN WAAROM VOOR DEZE SATELLIETEN GEKOZEN ZIJN**

These datasets are going to use in the Netherlands. It has fragmented landscape (**BRON ZOEKEN**), which cause that fire spread is limited in these areas. However, the increasing temperatures can lead to that the climate is going to change in these areas. This causes that fire are going to be more prevalent in these areas. The analysis over the last decade can provide good information about where these fires starts, how these fires spread and how these fires influences It surroundings (**BRONNEN ZOEKEN DIE DIT AL EERDER HEEFT GEDAAN**). This research Is meant to show spatial temporal patters of fires near (**IDENTIFICATIE VAN HET GEBIED**).

The paper is first going to summarize the datasets and the provide how these datasets are used in the analysis. The results sections is going to give a interpretation of the datasets and the validation of these data's. At least, there is going to be a discussion if these results give valid information about the temporal spatial patterns in the Netherlands (**MOET UITGEBREIDER EN SPECIFIEKER**)

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