Discussion

*Limitations of the dataset*

The various limitations of the data are partly influencing the results. Oliva and Schroeder (2015) demonstrated that the identification of fires in grassland and heath have a higher commission error in comparison with other land cover types. Most of the identified fire pixels are heath, which could lead of some false positives and none observed fire pixels.

Some wildfires are also not identified, because of the frequency which the satellite a location observes on a day. The VIIRS instrument has a 12 hour gap between each observation on a specific location (Schroeder and Giglio, 2018), which could miss fires, which were only active in the 12 hour gap. The data is slightly incomplete.

Another limitation of the data is that the location of the fire cannot precisely be determined. VIIRS observes small fires up to the size of 25% of a LANDSAT-8 pixel (with 30 meter) (Schroeder *et al.*, 2014; Oliva and Schroeder, 2015), but the exact size and location of the wildfire cannot be deducted with only data of the VIIRS pixel. The exact fire type of some fire pixels is not clear and gets the type combined nature. This does not show any information about the effected land cover and only classifies that the origin of the effected landcover is nature.

At least, the monthly temporal resolution of the research and the quantification in terms of fire pixels instead of fires give no information about the fires. With the

*Location of the fires*

Nonetheless, the figures are showing various details the location, effected landcover, seasonal influences and the cause of these fire pixels. As seen in figure **X**, the **PERCENTAGE** of the pixels are in designated natural areas. The spatial policy of the European Union and Dutch government has influenced the fires in these regimes. The Natura 2000 are protected, as stated in the method, by the two directives. The spatial policy changes in these areas are rather difficult because (Hatcher *et al.*, 1983) these spatial changes and policies in these areas need to be approved by the European Union (EEA, 2015). The regional natural areas are governed by the provinces, but are still in development and researched in how this decentralized spatial policy has its effect on the natural spatial policy (Folkert and Boonstra, 2017). It could be related that there are more fires in the Natura 2000 areas than the Dutch natural parks.

The fire pixels are located near human infrastructure. As Pechony and Shindell (2010) and Ganteaume *et al.*(2013) have correlated that the higher population density effects the occurrences of wildfires and observed that the fire ignition and fire suppression increased with a higher population density. (Elewa, 2008) In the Mediterranean, a higher infrastructure density has been related to a higher frequency of wild fires (Oliveira *et al.*, 2012). These observations are applied to the Netherlands, because it has one of the highest population densities in Europe and 95% of the fires are in a radius of less than **X** kilometre. Therefore, human activity is a contributing factor to the frequency of fires

*Effected land cover by the fires*

The industrialization has changed the ignition pattern of wildfires around the world (Bowman *et al.*, 2011).

*Abiotic effects on the fire pixels*

Dryness, precipitation, and evaporation are increasing the risk of natural fires. Lower soil moisture is potentially caused by the evaporation and plant transpiration and the high-pressure zones around Western Europe. The loss in evaporation is not made up with the precipitation and run-off from river systems and leads to lower soil moisture in the eastern Netherlands (van der Linden, Haarsma and van der Schrier, 2019), which increase the risks of natural fires in spring.