# Research Method

*Research Area*

The study area is defined by the national administrative borders of the Netherlands (https://www.pdok.nl/geo-services/-/article/administratieve-eenheden-inspire-geharmoniseerd-, last accessed: 04-05-2020). The Netherlands has very fragmented and diverse landscapes, which is caused by the urbanisation in the 20th century and the remodelling of waterworks to protect cities and villages against the great waterbodies (De Mulder, 2019).The current climate, following the Köppen-Geiger classification map of Beck *et al.* (2018) is a temperate climate without a dry season, but with a warm summer. These characteristics and landcover have a great influence on how fires spread. **NOG UITLEGGEN WAAROM NEDERLAND EEN GOED GEBIED IS OM TE ONDERZOEKEN** **OOK EEN MAPJE MAKEN MET DE PLAATSING VAN NEDERLAND MET DE KOPPEN GEIGER PLAATJE**

*VIIRS dataset*

The VIIRS instrument is on the Suomi National Polar-orbiting Partnership (S-NPP) and crosses the equator ascending around 13:30 (Greenwich time) and descends around (01:30). An algorithm has been developed by Schroeder et al.(2014) to identify active fires on the earth surface at a resolution of 375 meter and increased the detection of fires by day and night. This dataset is as ASCII text file and is taken from the VNP14ML monthly dataset (<ftp://fuoco.geog.umd.edu/VIIRS/VNP14ML>, last accessed on May 2020). **NOG UITBREIDEN**

*Modis dataset*

Production of the Collection 6 MODIS fire products has been set live since 2016 and has been developed to filter out the small forest clearings and reduce the global commission error (Giglio, Schroeder and Justice, 2016). There are several studies that has validated these datasets **SEARCH STUDIES THAT.** A data product from this algorithm is MYD14. This data product contains information about the location of fire, if it is day or night and information about the temperature of needed bands. It is also saved as an ASCII text file (Giglio et al., 2018). The data is taken from the MCD14ML monthly dataset (ftp://fuoco.geog.umd.edu/modis/C6/mcd14ml/, last accessed on May 2020).

*Corine Land Cover*

The dataset that is used to extract the landcover is the Corine Land Cover (CLC) Dataset from 2012 and 2018. The CLC 2018 dataset has been developed between 2017 to 2018 and the CLC 2012 dataset between 2011-2012. The datasets have both an equal or greater 85% thematic accuracy with a minimum mapping unit of 100 meter (Büttner *et al.*, 2017). It is taken from <https://land.copernicus.eu/pan-european/corine-land-cover/clc2018?tab=download> (last accessed on May 2020).

*Overview of the methods*

Two different methods, which are visualized in flowcharts (see figure **X and X)** have been developed for this research. The first method is for acquiring the data from the VNL14ML, MCD14ML, CLC rasters and administrative borders of the Netherlands. For each method, there will be given an overview what the reasoning is behind the different choices are **DIT MISSCHIEN IN THE LEIDING VAN DIT HOOFDSTUK ZETTEN**.

*Acquiring the data for the Research*

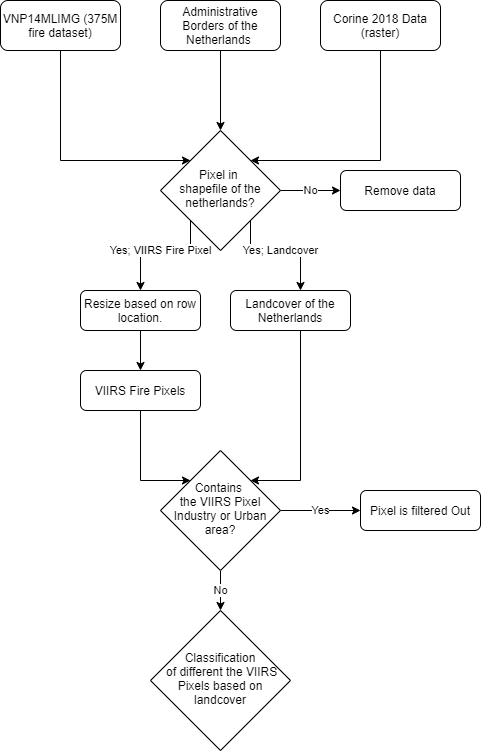
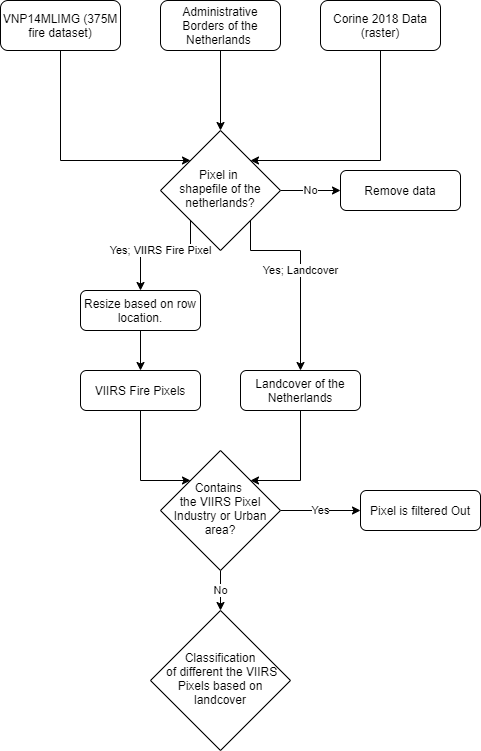


Figure 1 Flowchart on how the data from the data sources are used and are selected. The outcome if this flowchart are a shapefile and a rasterfile containing information about the land cover and the size of the fires.

The general overview of the method for acquiring the data can be seen in figure 1. The pixels that are not in the administrative borders of the Netherlands are filtered out. The results of the filtration are shown in figure 2.

This will be more convenient for the analysis of the data and the flexibility of the data. For the landcover datasets means that the datasets are cropped to the range of the administrative borders of the Netherlands and for the burned dataset means that the points which are in range of the borders are filtered out of the dataset.

For identifying the burned area , the polygon intersection used in the research of Fornacca, Ren and Xiao (2017) is used, because the flexibility of this method cause that the area size and individual fires of VIIRS and MODIS are easier to compare. Another advantage is the extraction of the land cover data from the CLC dataset because the polygons can be used for masking area without a crop. This extraction will make the analysis of the landcover easier. Each point is therefor buffered, for the MODIS datapoints is this buffer 500 meter and VIIRS is 187.5. Then it is enveloped, causing that the buffer is going to a square to represent the

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