Intro to Geospatial Raster Data with R
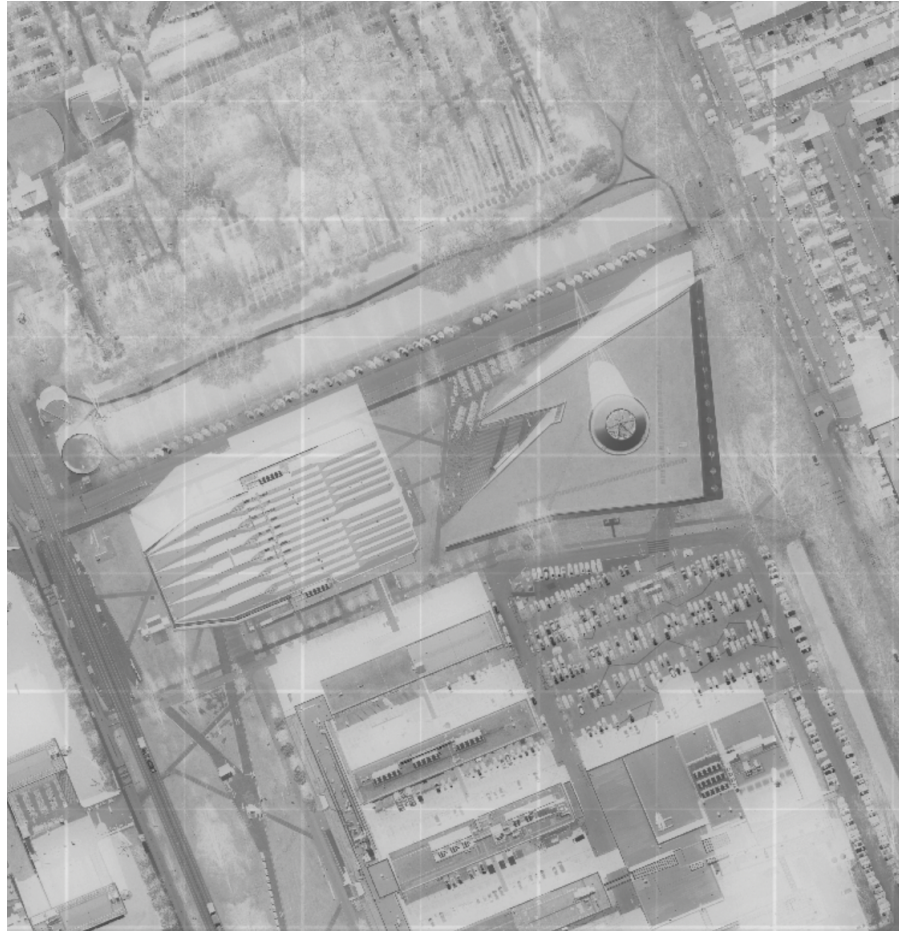
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Outline

1. Intro to raster data

2. Plotting raster data

3. Reprojecting raster data

4. Raster calculations

5. Working with multi-band rasters

Intro to raster data

The `terra` package

A plot showing the green band of an RGB aerial image of the TU Delft library

Challenge 1: 2 mins

Use `describe()` to determine the following about the `tud-dsm-hill.tif` file:

1. Does this file have the same CRS as DSM_TUD?

2. What is resolution of the raster data?

3. How large would a 5x5 pixel area be on the Earth's surface?

4. Is the file a multi- or single-band raster?

02:00

Plotting raster data

Challenge 2: 5 mins

Create a plot of the TU Delft Digital Surface Model (DSM_TUD) that has:

1. Six classified ranges of values (break points) that are evenly divided among the range of pixel values.
2. A plot title.

05:00

Reprojecting raster data

Challenge 3: 2 mins

View the CRS for each of these two datasets. What projection does each use?

02:00

Raster calculations

Challenge 4: 10 mins

It's often a good idea to explore the range of values in a raster dataset just like we might explore a dataset that we collected in the field.

1. What is the min and max value for the Canopy Height Model CHM_TUD that we just created?

2. What is the distribution of all the pixel values in the CHM?

3. Plot the CHM_TUD raster using breaks that make sense for the data. Include an appropriate color palette for the data, plot title and no axes ticks / labels.

10:00

Working with multi-band rasters