W04-2: Land cover classification

Once training sites are available, we can start with classifying the Landsat scene. In this worksheet, we will use Random Forest as a classifier.

Things you need for this worksheet

- R — the interpreter can be installed on any operation system. For Linux, you should use the r-cran packages supplied for your Linux distribution. If you use Ubuntu, this is one of many starting points. If you use Windows, you could install R from the official CRAN web page.

- R Studio — we recommend to use R Studio for (interactive) programming with R. You can download R Studio from the official web page.

- W03-1: Read remote sensing data
- W04-1: Training sites

Learning log assignments

😕 Load the cropped Landsat bands 1-7 and the training site shapefile into R. Make sure that both datasets are in the same projection.

😕 Extract the information of the landsat bands for the location of the training sites. Return the results as a data.frame

😕 Add a new column to the data.frame which contains the land cover information from the training site shapefile

😕 Split your dataset into training and testing data (e.g. 30% Testing, 70% Training).

😕 Use the training dataset to train a random forest model that is able to predict the land cover class from the spectral Landsat bands.

😕 Explore which bands were important in the model

😕 Use the model to predict on the entire Landsat scene. Plot your results with spplot.

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