**R Programs for Classification**

Libraries to be installed:

* Install the all the packages in the file name: *bh\_loadLib.R*

Datas:

* For the classification experiments:

To understand the usage of the codes, initially perform experiments with “train\_all\_6” dataset. This is the training samples of the RCD dataset mentioned in the “article 1”

Format of the data is in ‘.csv’ format

* Sample data set for Attribute profile generation:

You can use any dataset with ‘.tif’ format. The AP tool comes with the dataset “10m.tif”, you can use this to generate the attribute profiles, and visualize the profiles. You could use any external tools such as Envi, QGIS, etc to visualize the attribute profiles.

For the classification experiment, we will use the “ISPRS” data which is the urban cover dataset.

Programs:

MainFile\_System.R - is the main file to run for the classification experiments, it includes all the classifiers, hyper-parameter tuning and accuracy assessment methods.

-Decision Tree classifier

-Random Forest

-SVM

-PerTurbo

-RFF-SVM (Large scale SVM)

bh\_confusionmat.R - file for the calculation of classification accuracy and producer and user accuracy. It also includes the calculation of confidence interval

To use the ISPRS dataset, try “ISPRS\_classifiction.R”, RGDAL package is used to read the tif images.

* The output images can be saved either using raster package in “tif” format or in “.hdr” envi format