Burned Area Mapping using
Support Vector Machine and
Combined Segmentation Random Forest classifiers
Data flow diagram

Data pre-preprocessing

TRAINING BURNED/NO-BURNED
class_b_nb.shp

WELD INPUT IMAGES
Band1_TOA_REF.TIF
Band2_TOA_REF.TIF
Band3_TOA_REF.TIF
Band4_TOA_REF.TIF
Band5_TOA_REF.TIF
Band61_TOA_REF.TIF
Band62_TOA_REF.TIF
Band7_TOA_REF.TIF
Day_Of_Year.TIF
DT_Cloud_State.TIF
NDVI_TOA.TIF
Num_Of_Obs.TIF
Saturation_Flag.TIF

Create stak image
pkcrop

Create Mask
pkcrop
pkgetmask

Rasterize Training
gdal_rasterize

class_b_nb.tif

Bands_merge.tif

mask1-0.tif

Support Vector Machine Classification

Extract band values
pkextract

Segment the image
oft-cluster.bash

Segmentation

class_b_nb_4svm.shp

12classes1perc.tif
(segments)

Classification using SVM
pkclassify_svm

Allocate unique ID to
each segment
oft-clump

classification_svm.tif

Calculate
summary statistic
of the bands values
oft-stat

clumpIDsegments.tif
(segments ID)

Calculate
summary statistics
of the training values
oft-stat

clumpID_bandAVG_bandSTD.txt

stat_clumpID_class_b_nb.txt

Select ID and mean values
AWK
sort

Select pure segments
that occure only within traning area
AWK
sort

clumpID_bandAVG_s.txt

Pure segments
and mean of the bands values
join

pure_clumpID_s.txt

Random Forest Classification

pure_clumpID_bandAVG_s.txt

Train and prediction by
Random Forest
R (libary randomForest)
randomForest
predict

predict_class.txt

Create a reclass fiile
awk
paste

clumpID_class.txt

Reclassify the segment image
oft-reclass

classification_rf.tif

Legend

Raster input data (.tif)

Training input Data
Burnt/No-burnt (.shp)

Raster data (.tif)

Vector Data (.shp)

Text Data (.txt)

BASH commands
PKTOOLS
OFT-Toolkit

R Envrroment