REDD+ for the Guiana Shield

Technical and Regional Platform for the
Development of REDD+ in the Guiana Shield

Common Radar Processing with NEST

Objective : This tutorial is designed to explain how to process most Radar data with NEST.. In this session we will focus using NEST on Intensity data. But NEST is able to process most common RADAR data, polarimetric or not.

1) Create Nest Project

It's important to create NEST project in order to better manage the input and output data.

Click here to see the video
NestCreateProject.mp4 or YouTube

2) Import

You need now to import your radar data

Click here to see the video
NestImportRaster.mp4 or YouTube

3) Multilook

Usually, standard basic radar product are in SLC (Single Look Complex) which don't have square pixel (on the ground) and a lot of speckle.
To obtain a square pixel and also reduce the speckle we can make multilook in order to average some pixel.

Click here to see the video
NestMultilooking.mp4 or YouTube

4) Make Subset

If your study area don't need to process all the data or if you would like to make test in smallest area you can make a subset.

Click here to see the video
NestSubset.mp4 or YouTube

5) Calculate Speckle statistic

In order to apply the Step 6 (Speckle Filtering), we need to estimate the ENL (Equivalent Number of Look) in an homogeneous area.

Click here to see the video
NestRoiStatistic.mp4 or YouTube

6) Speckle filtering

In order to reduce the speckle we can use speckle filtering tools, here Lee filtering.

Click here to see the video
NestSpeckleLee.mp4 or YouTube

7) Orthorectification

In standard mapping project we need to correct relief effect distortion and to georeference the data. This is called orthorectification.

Click here to see the video
NestOrthorectification.mp4 or YouTube

8) Derived Indices processing

In order to enhance the information contained in the data we can produce some derived indices. The simple indices proposed in the video are useful to better display radar and and consequently better analyze the land cover.
Based on the new derived indices we can make color composition in order to see the potential of the data.

Click here to see the video
NestBandMath.mp4 or YouTube

9) Export results

At last, in order to used the processed data in any other common software such as Qgis or Orfeo Toolbox for example, we need to export the NEST data in more common format such as Geotiff or Envi.

Click here to see the video
NestExportRaster.mp4 or YouTube