ScanSAR multi-temporal Analysis

A typical analysis proceeds as follows. This assumes that a number of ScanSAR files have already been pre-processed and multi-channel filtered. We used 12. We designate the known extent of forest in 2007 over the footprint as PF07 – the appropriate forest mask relating to the earlier FBD image needs to be used in its place.

Load co-registered .mcf (multi-channel filtered) files, see for an example

```
read_S2mcf.m
```

run `sdmap.m` to get standard deviation "s" normalised over the forest regions

```
[s0, s, normfac] = sdmap(a, 2, PF07);
```

Or use

```
[s, mu, normfac] = sdmu_map(a, 2, PF07);
```

Which also generates the mean image as mu.

Use `showthresh.m` to get a map over 2007 forest e.g.

```
showthresh( s, PF07);
```

to get a map just over the FBD footprint, here given as P443_F7170_X

```
showthresh(s, P443_F7170_X) ;
```

or limiting to forest as well

```
showthresh(s, P443_F7170_X.*PF07) ;
```

If the forested region for the latest image, UF, is known and the deforested regions, DF, can be estimated, `pdf_roc.m` will give a ROC curve to evaluate the efficiency of the detection procedure:

```
Res =  Pdf_roc(s, DF, UF, 1000);
```

The routine asks for a header name e.g. "S1-SD"and will output the array "res" as a textfile "S1-SD-roc.txt" containing the coordinate, Pfa and Pd values as columns which can be exported to Excel.