USER MANUAL ENHANCED TIMESAT ENVELOP FILTER

PURPOSE

Reduce noise in time series data such as NDVI using a modified adaptive Savitzky-Golay filter, and forcing an upper envelope. It is a modification of the filter in TIMESAT 2.3.
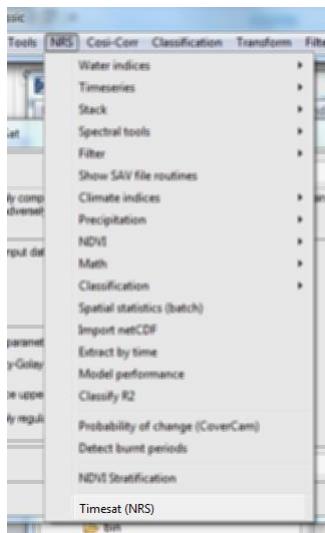
INSTALLATION

Install the .sav files in the SAVE_ADD folder (see also ENVI .sav files: Installation and configuration.

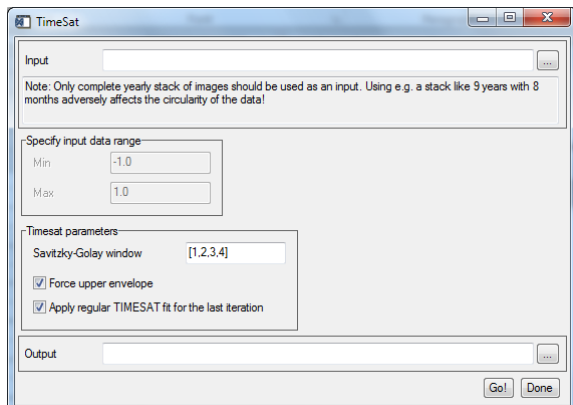|	
NRS_UTILS.SAV	Library with utility routines
TIMESAT_GUI.SAV	The actual software

USAGE

TIMESAT_GUI	Start the user interface of the timesat filter.

To start the envelop filter click the menu *NRS | Timesat (NRS)*

The following dialog pops up:

Input	The time series to filter
Specify input data range	The filter uses byte values internally. When floating point values are

	supplied, optionally the software will transform into the full byte range. After the filter the values are then scaled back to the original range.
Min	Optional range adjustment, minimum value in input to consider
Max	Optional range adjustment, maximum value in input to consider
Savitzky-Golay window	The filter iterates using different filter window sizes; this aids in filtering without losing too much detail. Usually the window sizes are in increasing order. Default is [1,2,3,4]. Note that the filter size indicates the number of samples at either side of the sample to consider, so the actual filter width is 2 x <window size> + 1 (it includes the value under investigation as well).
Force upper envelope	If enabled the filter will use the original value in favor of the fitted value if the fitted value is lower than the original value.
Apply regular TIMESAT fit for the last iteration	If enabled the filter will force the upper envelope for all filter window sizes except for the last. If disabled the envelope will also be forced to the upper envelope for the last windows size
Output	The output of the filter

The output format is plain ENVI format (BIL organization).

REFERENCES:

Beltran Abounza, J.M. (2009) Method development to prepare from hyper - temporal images remote sensing RS - based change maps. Enschede, ITC, 2009. 53 p. (full text)

Original TIMESAT software: http://www.nateko.lu.se/timesat/timesat.asp