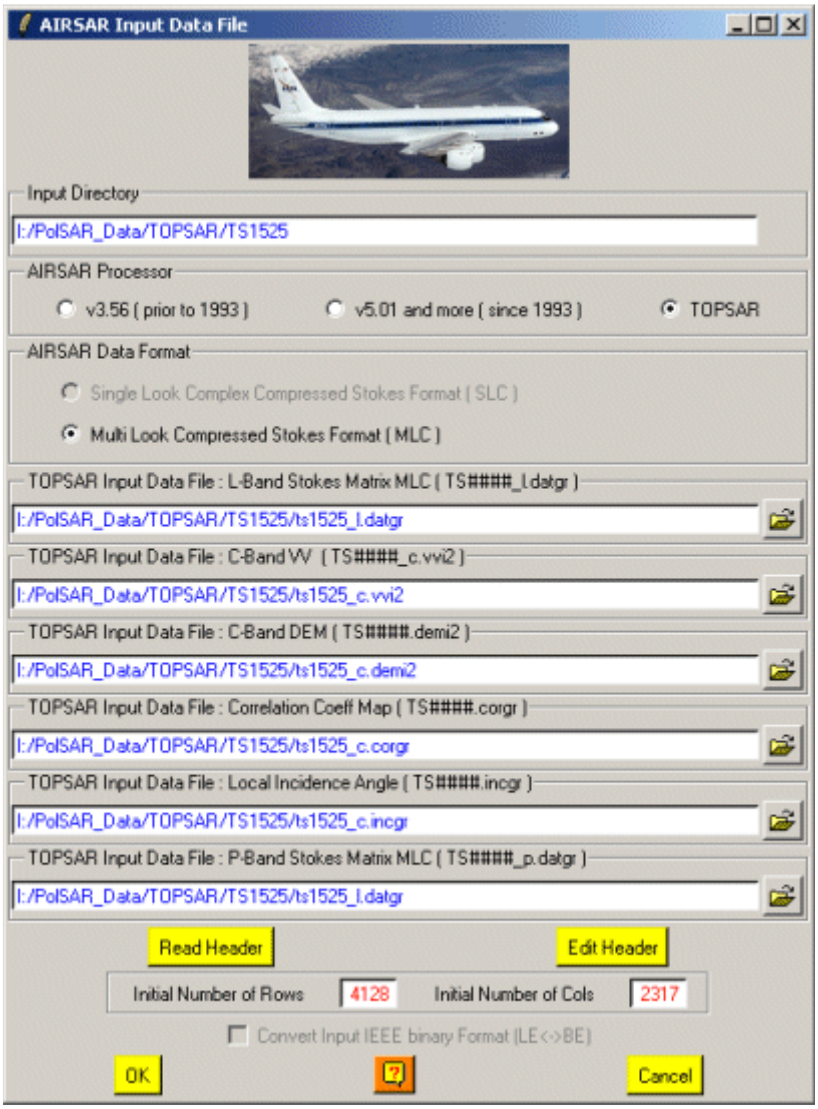
TOPSAR Input Data File



Description:

This program sets and configures the main characteristics of the Input Data Files in order to convert polarimetric data sets encoded using the AIRSAR specific data format to PolSARpro compatible binary data.

TOPSAR Data Modes

There are two TOPSAR modes of operation: XTI1 and XTI2. The XTI1 mode will generate a C-band Digital Elevation Model (DEM) along with L- and P-band polarimetry. The XTI2 mode will generate a C-band and an L-band DEM, along with P-band polarimetry (see exception below for when P-band data will not be present)

Comments:

Parameters written in Red can be modified directly by the user from the keyboard.

Input/Output Arguments:

Input Directory Indicates the location of the considered **Main Directory (MD)** containing the AIRSAR data file to be converted.

Processor Correspond to the AIRSAR Processor version

Data Format Correspond to the input TOPSAR data format and is automatically set to **MLC** that stands for Multi Look Complex (Stokes matrix).

TOPSAR Input Data Files Each TOPSAR scene typically contains four (C-band) or eight (if C-band and L-band) DEM and related data files and 1-2 polarimetric data files which have the following naming conventions:

- TS####_l.datgr L-band polarimetry compressed Stokes matrix data
- TS####_c.vvi2 C-band VV polarization
- TS####.demi2 C-band DEM
- TS####.corgr correlation coefficient map
- TS####.incgr local incidence angle map
- TS####_p.datgr P-band polarimetry compressed Stokes matrix data

The **TS** indicates that the data are TOPSAR data. **TS** is followed by a four-digit output product number that is unique for each scene. All TOPSAR data, including any polarimetric data collected in a TOPSAR mode, will be projected in the ground range (this is indicated by the **gr** in the file extensions shown above).
Note: Due to FCC restrictions, since 1994, P-band data are not included for TOPSAR datasets collected at 40 MHz bandwidth over sites in the United States.

Note:

Reading TOPSAR Data:
Data collected since 1993 are processed using Version 5.1 and Version 6.1. Note that the integer*2 data will need to be converted using the following equations:

to convert demi*2 data to elevations in meters:
hs = (elevation increment) * DN + (elevation offset)
The elevation increment and offset are found in the DEM header record. DN is the integer*2 (signed) number from the .demi2 data file.

to convert vvi*2 data to radar cross sections
sigma naught = (DN**2)/(General Scale Factor)

DN is the integer*2 (signed) number as the amplitude (linear value) from the .vvi2 data file and the General Scale Factor (GSF) is in the second field of the Calibration Header.

Polarimetric data collected in the TOPSAR mode are read the same way as POLSAR data.

Read/Edit Header:

Read Header Input Stokes data files may, or not, contain a header block describing some of the polarimetric data characteristics and particularly the number of rows and columns.

- If the input file contains a header, the **Initial Number of Rows and Columns** will be automatically initialised.
- If the input file does not contain a header, users have to provide the considered image **Initial Number of Rows and Columns.**

Edit Header If the input file contains a header, users have the possibility to edit the different header of the input data file.