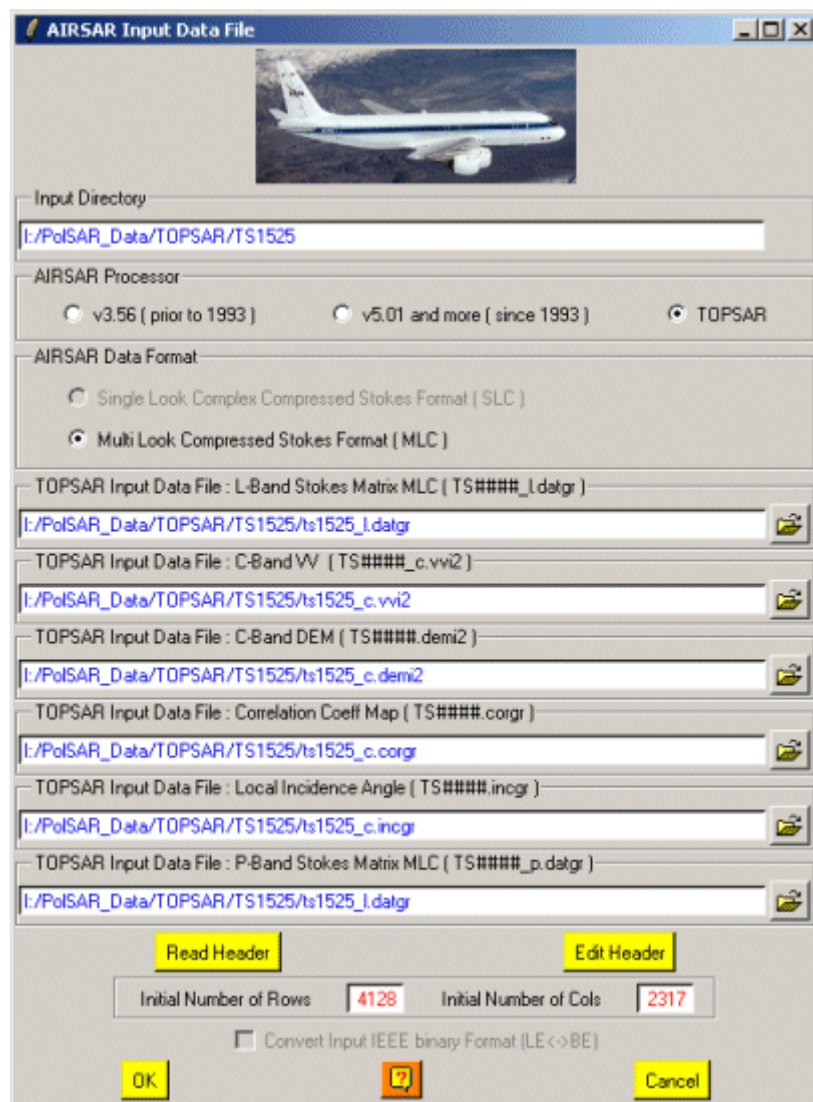


TOPSAR Input Data File



The screenshot shows the 'AIRSAR Input Data File' dialog box. It features a header image of an aircraft. Below the header, there are several input fields and radio buttons for configuring the data processing. The 'Input Directory' field is set to 'I:/PolsAR_Data/TOPSAR/TS1525'. The 'AIRSAR Processor' section has three radio buttons: 'v3.56 (prior to 1993)', 'v5.01 and more (since 1993)', and 'TOPSAR', with 'TOPSAR' selected. The 'AIRSAR Data Format' section has two radio buttons: 'Single Look Complex Compressed Stokes Format (SLC)' and 'Multi Look Compressed Stokes Format (MLC)', with 'MLC' selected. Below these are seven input fields for specific data files, each with a browse button (folder icon):
 - TOPSAR Input Data File : L-Band Stokes Matrix MLC (TS####_l.datgr)
 - TOPSAR Input Data File : C-Band VV (TS####_c.vvi2)
 - TOPSAR Input Data File : C-Band DEM (TS####_c.dem2)
 - TOPSAR Input Data File : Correlation Coeff Map (TS####_c.cogr)
 - TOPSAR Input Data File : Local Incidence Angle (TS####_incgr)
 - TOPSAR Input Data File : P-Band Stokes Matrix MLC (TS####_p.datgr)
 At the bottom, there are 'Read Header' and 'Edit Header' buttons. Below these are two text boxes: 'Initial Number of Rows' with the value '4128' and 'Initial Number of Cols' with the value '2317'. There is also a checkbox labeled 'Convert Input IEEE binary Format (LE <-> BE)' which is currently unchecked. At the very bottom are 'OK', a help icon (question mark in a square), and 'Cancel' buttons.

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	<p>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:</p> <ul style="list-style-type: none">• TS####_l.datgr L-band polarimetry compressed Stokes matrix data• TS####_c.vvi2 C-band VV polarization• TS####.demi2 C-band DEM• TS####.corg 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:

$hs = (\text{elevation increment}) * DN + (\text{elevation offset})$

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

$\sigma_{naught} = (DN^{**2}) / (\text{General Scale Factor})$

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.
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