

RELEASE OF THE ENVISAT ASAR WIDE SWATH MODE SINGLE LOOK COMPLEX PRODUCTS

To date, the only operational Level-1B data product offered by ESA from the ASAR Wide-Swath Mode (WSM) has been the multi-look detected product (ASA_WSM_1P), intended to support applications that exploit intensity data.

In order to support the development of new applications with the ASAR ScanSAR data, a new WSM product providing phase information has been developed and implemented in the ESA ASAR processor, the Wide-Swath Single-Look complex product (ASA_WSS_1P). It is expected that this new product will be mainly used for INSAR applications based either on wide-swath/wide-swath pairs or wide-swath/image mode pairs, applications of ocean current mapping, large-area ocean wave retrievals, and atmospheric water vapour characterisation.

It shall be mentioned that the standard ESA WSS product is based on the prototype WSS processor developed by Polimi/Poliba, which has also been used to generate prototype products for testing the potential and preparing the exploitation of the new WSS product.

The new ESA ASA_WSS_1P product is now available as standard ENVISAT ASAR product and it can be ordered using EOLI-SA. Please contact eoHELP@esa.int for further details.

The ASA_WSS_1P product format is slightly different from other ASAR products since:

- there are 5 different MDSs, one per sub-swath
- a "Doppler Grid" ADS has been included to support ocean current mapping applications
- there are 5 records in the MPP ADS, one per sub-swath
- there are 5 records in the SQ ADS, one per sub-swath

Other key characteristics of the ASA_WSS_1P product are summarised below:

- processing is fully phase preserving
- data in the MDSs is sampled in a common grid both in range and in azimuth
- standard product is 60 sec long with 80 m az. pixel spacing
- auxiliary timeline information has been added in the Main Processing Parameters ADS
- elevation antenna pattern correction is applied by default (although the product is a single-look complex)

A detailed description of the WSS product format can be found in the "ENVISAT-1 Product Format Specifications. Volume 4: ASAR Products Specifications" (PO-RS-MDA-2009, Is.4, Rev.A, 11/05/2004, http://earth.esa.int/pub/ESA_DOC/ENVISAT/ASAR/ASAR_productspecs_issue4A.pdf).

Some additional information regarding the ASA_WSS_1P characteristics and applications can be found in [the paper presenting the new products at the ENVISAT Symposium 2004](#). Details regarding the use of Wide Swath Single-Look complex products for interferometric applications can be found in the [presentation from Poliba/Polimi at the ENVISAT Symposium 2004](#).

Wide Swath Single Look complex products were used for the interferometric analysis over BAM after the earthquake in December 2003. Interferometric results using WSM data and comparison with the standard results using only Image Mode data can be found [here](#).

In addition, some results on the use of ScanSAR interferometry for atmospheric parameter estimation are available [here](#).