

ScanEx ENVISAT ASAR Processor® (SESARP) application has been developed for creation (synthesis) of radar images from signal data, acquired by SAR sensor – Advanced Synthetic Aperture Radar (ASAR), mounted onboard European ENVISAT-1 radar satellite (ESA).

ScanEx ENVISAT ASAR Processor enables to get a complete set of ASAR Level 1B output products (synthesized image) from ASAR Level 0 Product format files (radar hologram) for the following imaging modes: Image Mode, Alternative Polarization Mode, Wide Swath Mode.

ScanEx ENVISAT ASAR Processor fully complies with international image synthesis quality standards, applied processing algorithms and output formats structure.

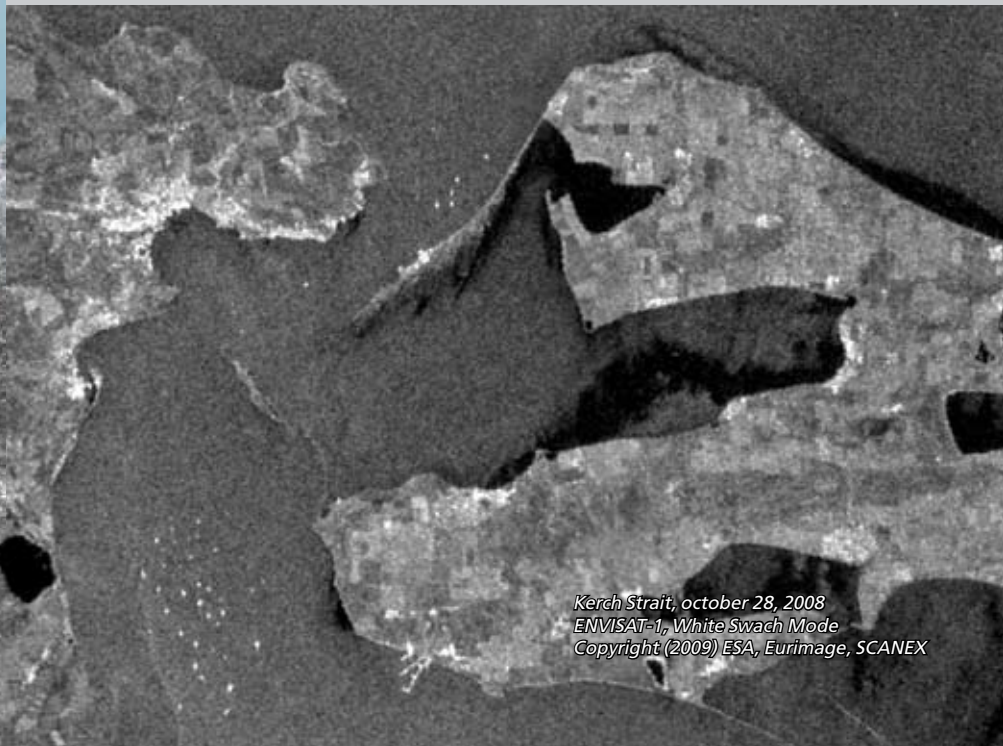
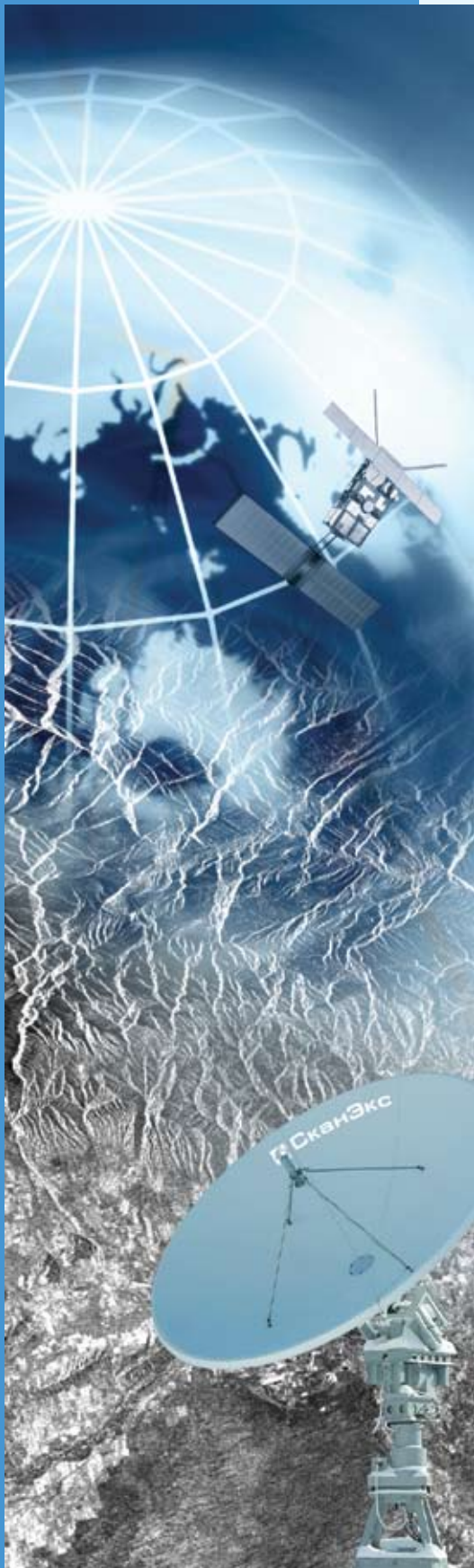
INPUT DATA:

Radar holograms (signal data), in ASAR Level-0 Product format

OUTPUT DATA:

All types of output ENVISAT Level-1 products can be created via synthesis for Image Mode, Alternative Polarization Mode, Wide Swath Mode imagery:

- IMS – Image Mode Single-Look Complex
- IMP – Image Mode Precision
- IMM – Image Mode Medium
- IMB – Image Mode Brows
- IMG – Image Mode High-resolution Ellipsoid Geocoded
- APS – Alternating Polarization Precision Single-Look Complex.
- APP – Alternating Polarization Precision Image
- APM – Alternating Polarization Mode Medium resolution
- APB – Alternating Polarization Mode Brows
- APG – Alternating Polarization Mode High-resolution Ellipsoid Geocoded
- WSM – Wide Swath Medium Resolution,
- WSB – Wide Swath Mode Brows



USER INTERFACE

- User-friendly GUI.
- Integrated and effective control of the data processing at all stages.
- Disc-to-disc data processing.
- Batch processing option.
- Improved productivity due to the hardware efficient use.
- Intuitive software tools for interactive parameters editing in both standard dialogs
- Processing history record

PROCESSING ALGORITHMS

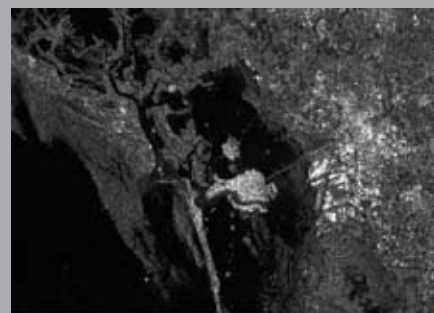
- Processing of data, acquired in Image Mode, in Alternative Polarization Mode and in Wide Swath Mode.
- Generating integer and complex output products.
- Generation of all types of output products for the supported modes:
 - Single Look Complex (SLC) – complex radar images, represented in antenna coordinate system “time – slant range
 - Precision, Medium Resolution, Brows – georeferenced radar images in coordinate system “time – ground range” with different resolution values and incoherent accumulation rates;
 - Ellipsoid Geocoded – geolocated radar images, represented in UTM coordinate system.
- Selection of random fragment for synthesis indicating a UTC time window.
- Efficient processing stages: raw data correction, range compression with previous range migration correction, azimuth compression with optional multi-look processing
- High-accuracy algorithm of radar hologram focusing in frequency domain.
- Doppler frequencies field values calculation settings.
- Sophisticated algorithms for the Doppler centroid estimation to handle subtle problems causing imagery “scalloping” and “banding”;
- Radar images combined synthesis for further interferometric processing.
- Radiometric correction of output images for antenna gain, along track gain variations, azimuth length and range reference.
- Output scaling using look-up tables (LUT).

Minimal system requirement

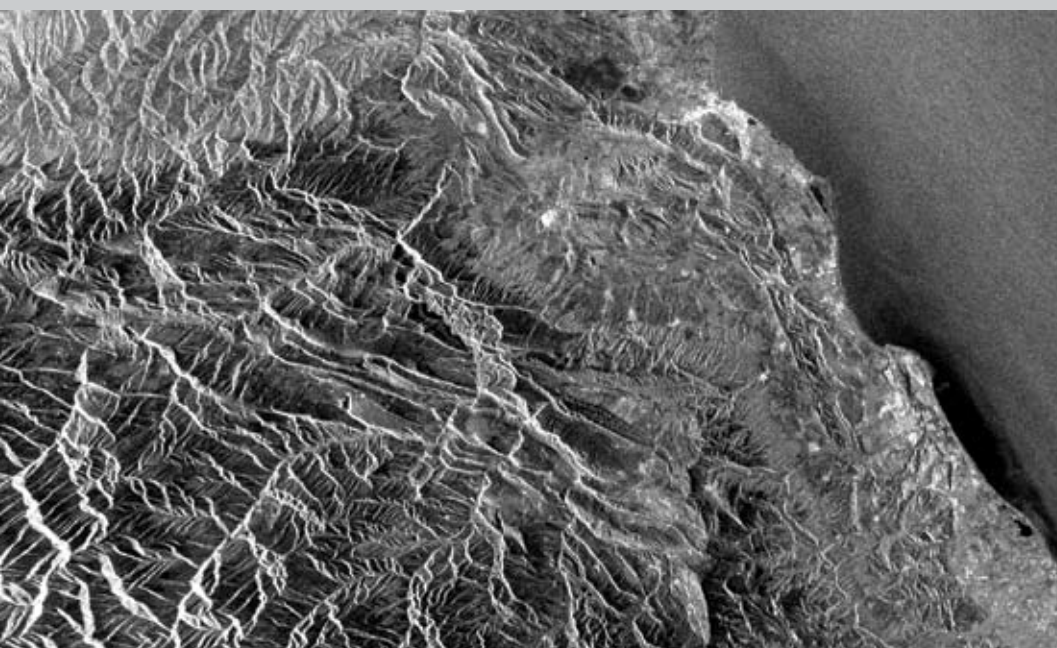
- Intel Pentium IV or compatible
- MS Windows XP/Vista or Linux
- RAM 1 Gb
- HDD 80 Gb for data



User-friendly GUI to set up processing parameters



Venice, April 11, 2007
ENVISAT-1, Image Mode
Copyright (2009) ESA, Eurimage, SCANEX



Makhachkala, Caspian Sea,
December 13, 2007.
ENVISAT-1, Wide Swath Mode
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