PolSARpro v6.0 (Bio) SOFTWARE

POLSARPRO V. 6.0 (Bio)

The Polarimetric SAR Data Processing and Educational Tool - Biomass Edition
HISTORY

- 2003
- 2004
- 2005
- 2007
- 2009
- 2013 (5.0)

PolSARpro v6 – General Presentation

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The initiative development of PolSARpro Software is a direct result of recommendations made during the POLinSAR 2003 Workshop held at ESA-ESRIN in January 2003.
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15 YEARS OF DEVELOPMENT

2003

2004

2005

2007

2009

2013 (5.0) to 2018 (5.2)

European Space Agency
BIOMASS mission: 7th ESA Earth Explorer (2021)

Biomass will provide global maps of the amount of carbon stored in the world's forests and how this changes over time. Further our knowledge of the role forests play in the carbon cycle.

P-Band Pol-TomoSAR spaceborne mission
Toolbox specifically designed to handle: Pol-SAR, Pol-InSAR, Pol-TomoSAR and Pol-TimeSAR data.

Educational Software offering a tool for self-education in the field of Polarimetric SAR data processing and analysis.

Developed to be accessible to: a wide range of users from novices to experts in the field of Pol-SAR, Pol-InSAR, Pol-TomoSAR, Pol-TimeSAR...
More than **1600** different Pol-SAR, Pol-InSAR, Pol-TomSAR and Pol-TimeSAR functionalities.

Each element of the Software *(a function)* can be **extracted** and **incorporated** individually into users’ own processing software.

PolSARpro v5.1 Software is made available following the: **Open Source Software Development (OSSD)** approach, and follows the: **GNU General Public License v2** – June 1991.
PolSARpro v6.0 (Bio) SOFTWARE

since 2003

• +3000 registered users
• +70 foreign countries

International Collaborative Project
(4 Agencies, 15 Research Centres, 14 Universities)
Last contributors

Tsinghua University, China

University of Mining and Technology, China

National Space Science Center, CAS, China

Fudan University, China

Studies in Resources Engineering Indian Institute of Technology

Universidade Federal de Alagoas, Brazil

University of Science and Technology, Poland

University of Tehran, School of Surveying and Geospatial Engineering, Iran

Khajeh Nasir Toosi University of Technology, Iran
ENTRY SCREEN

MAIN WINDOW

PolSARpro v6.0 (Bio) SOFTWARE

The Polarimetric SAR Data Processing and Educational Tool v6.0 (Biomass Edition)
PolSARpro v6.0 (Bio) SOFTWARE

ENTRY SCREEN

MAIN WINDOW

- S1 toolbox (split, deburst, merge ...)
- Geocoding toolbox
- Terrain correction
- Interferometric toolbox (co-registration, flat Earth estimation ...)

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PolSARpro-SIM++

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Main Window

Rapid, coherent pol-InSAR simulator of Forests
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**ENTRY SCREEN**

**Pocket Polarimetric Calculator +**

**MAIN WINDOW**
PolSARpro v6.0 (Bio) SOFTWARE

ENTRY SCREEN

MAIN WINDOW

PolSARpro-Bio web site
- On-line tutorials
- On-line self training packages
  - Video / Quizz
  - Blog / Forum

New lecture course
New topics
Re-design of the Do It Yourself
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ENTRY SCREEN

MAIN WINDOW

PolSARpro - Bio SOFTWARE

http://earth.esa.int/polsarpro
PolSARpro v5.1 Software offers the possibility to handle and convert polarimetric data from a range of well established CURRENT polarimetric airborne platforms.
PolSARpro v5.2 SOFTWARE

PolSARpro v5.1 Software offers the possibility to handle and convert polarimetric data from a range of well established PAST polarimetric spaceborne platforms.
PolSARpro v5.2 Software offers the possibility to handle and convert polarimetric data from a range of well established CURRENT polarimetric spaceborne platforms.
PolSARpro v5.1 Software offers the possibility to handle and convert polarimetric data from a range of well established CURRENT polarimetric spaceborne platforms.
PolSARpro - Bio will offer the possibility to handle and convert polarimetric data of FUTURE polarimetric spaceborne platforms.
PolSARpro - Bio will offer the possibility to handle and convert polarimetric data of FUTURE polarimetric spaceborne platforms.
External Softwares
POLARIMETRIC DATA SETS

Pre-Processing
Data Extract

Geo-Coding
Terrain Correct - UTM Proj.

Post - Processing

Only valid for:
[C2] matrix: Dual-Pol
[T3] matrix: Quad-Pol

KML File generation
New functionalities

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Dual – PolSAR (Spp, C2)
Quad – PolSAR (S2, C3, C4, T3, T4)

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Polarimetry + Interferometry

Pol-InSAR

In-SAR Functionalities
- Matrix Elements - Master
- Matrix Elements - Slave
- Matrix Elements - Cross
- Correlation Coefficients
- Pol-InSAR Speckle Filter
- Pol-InSAR Segmentation
- Pol-InSAR Functionalities - 1
- Pol-InSAR Functionalities - 2
- Polarimetric Data Analysis

Coarse Co-Registration
- Flat Earth Estimation
- Flat Earth Removal

Box Car Filter
- Gaussian Filter
- Lee Refined Filter

PolSAR Segmentation
- Wishart Supervised Classification
- Wishart Unsupervised Classification

Interferogram
- Coherence Estimation
- Coherence Analysis

Complex Plane
- Coherence Region - Optimum Triplet

Forest Height Inversion Procedures
- Vegetation Height Estimation
- Polarization Coherence Tomography (PCT)

Data Histograms
- Data Profiles
- Histogram Based Statistics
- Texture Analysis
- Edge Detector
- Change Detector
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Pol-TomoSAR processor
Learning / Training Next P.I Generations
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- PolSARap Tutorial (C. Lopez - E. Pottier)
- PolSARap Showcases
- Lectures Notes

- Recent Advances (W.M. Boemer)
- Basic Concepts (W.M. Boemer)
- Advanced Concepts (E. Pottier, J.S. Lee, L. Ferro-Famil)
- Polariometric SAR Interferometry (S.R. Cloude, K. Papathanassiou)
- Surface Parameter Retrieval (I. Hajnsek, K. Papathanassiou)

- Single vs multi polarization interferometry
- Pol-InSAR (Training Course)
- Polarization Coherence Tomography (Training Course)

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ESA PolSARpro v6.0 (Biomass Edition) Software

Version 6.0.1 released (2019/04/01)

The ESA PolSARpro v6.0 (Biomass Edition) Software is the new version of the ESA PolSARpro Toolbox (The Polarimetric SAR data Processing and Educational Toolbox) which has been developed since 2003 under different ESA-ESRIN contracts.

Download Windows 64 bits Version (Read-me first)

Download Linux Version (Read-me first)

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Credits

For any help / request / comment, please contact: polsarpro.team@yahoo.com

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