

<https://winsar.unavco.org/>

2019-2020 Executive Committee:

Kristy Tiampo (UC Boulder) — Chair

Estelle Chaussard (Univ Oregon) — Co-Chair

David Bekaert (JPL) — Secretary

William Barnhart (Univ Iowa)

Eric Hetland (Univ Michigan)

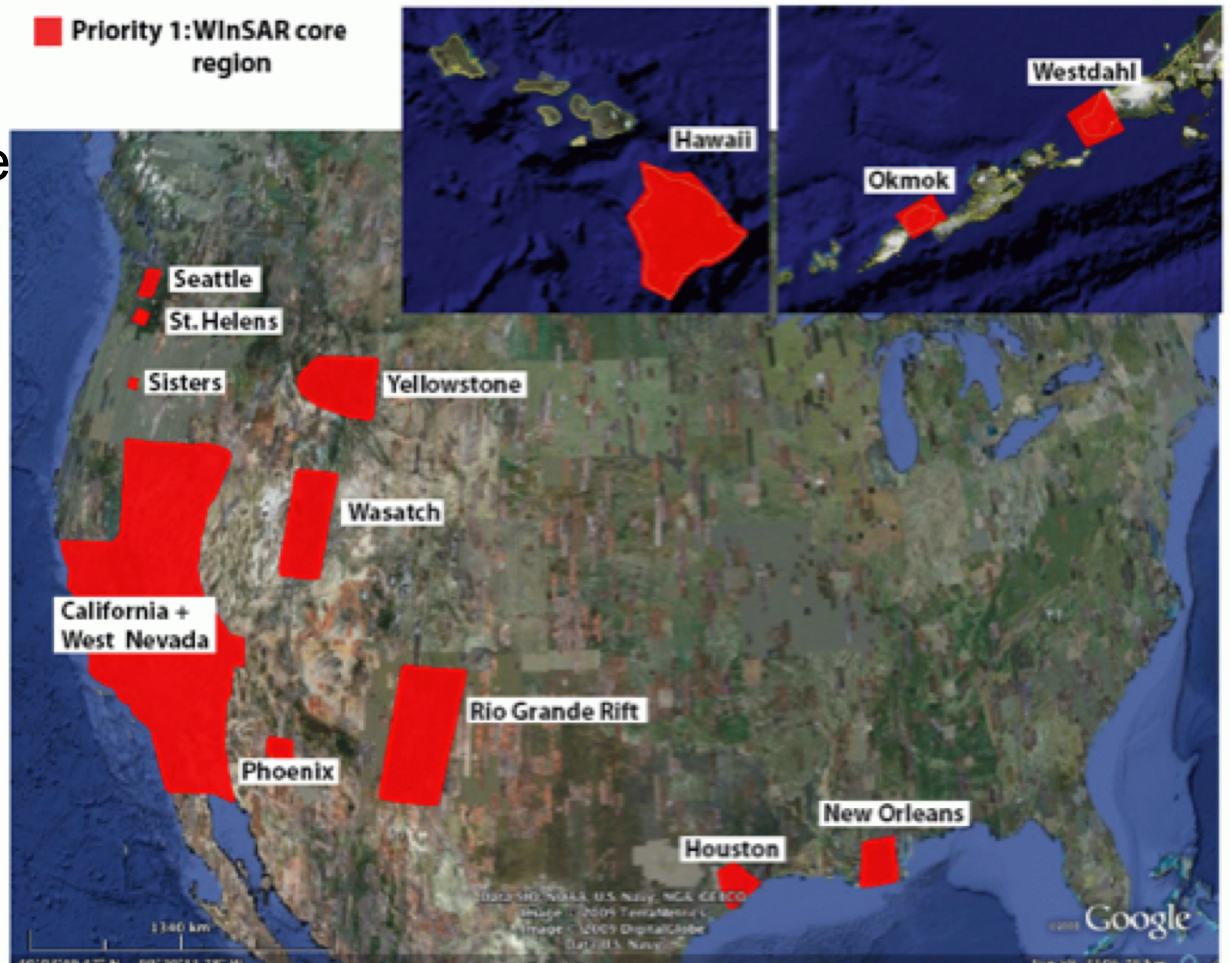
Gareth Funning (UC Riverside) — Ex-officio

WInSAR funded by:



- A consortium of 299 Universities/Research Institutions
- Executive Committee (elected, 2-year terms)
- Operational support provided by UNAVCO in Boulder, Colorado
- The WInSAR Charter defines three classes of WInSAR member institutions based on geographic regions:
 - Full Member, U.S. institutions: Participate in WInSAR governance, access to the ISCE software and all data in the WInSAR ESA and EarthScope data collections, and may submit requests for tasking and data to be added to WInSAR collections.
 - Adjunct I Member (Canada and Mexico): Same as above, but cannot request tasking or ordering of additional SAR data.
 - Adjunct II Member (all other institutions): Only have access to the ISCE software and ESA data in the WInSAR and EarthScope data collections.

- Promote the use and development of InSAR technology for scientific investigations.
- Promote free and open access to SAR data as allowed by data providers.
- Acquire, archive and catalog SAR data in U.S. active areas (rapid download times).
- Provide value-added InSAR products and software
- Promote programs and missions to meet these objectives
- Mandate for sharing data among co-investigators comes from research funding agencies (NSF and NASA)
- WinSAR is successful when it is not needed anymore!



Why join WInSAR?

Membership in a self-governing community:

- elect (& and run for) the Executive Committee (Full & Adj. I members)

- annual WInSAR lunch at AGU

- input into use of resources for data purchase and access

How to join: <https://winsar.unavco.org/membership/>

Why join WInSAR?

Access to software

Once a license agreement is signed, WInSAR members can download the ISCE software for InSAR data processing that includes the mdx visualization software: <http://winsar.unavco.org/isce.html>

How to join: <https://winsar.unavco.org/membership/>

The InSAR Scientific Computing Environment (ISCE) software is now available on GitHub: [isce-framework/isce2](https://github.com/isce-framework/isce2)
 Documents and tutorials for isce2 can be found [here](#)

WInSAR Licensed Releases

The InSAR Scientific Computing Environment (ISCE) software is available to all WInSAR Institutional Members (Full, Adjunct I, and Adjunct II). The ISCE column on the list of [current WInSAR institutions](#) signifies whether an agreement has been received. The Institutional Representative will need to sign and return the ISCE licence agreement on the ISCE Software Page and approve ISCE access for users registered at their institution.

WInSAR will be distributing the InSAR SCE (InSAR Scientific Computing Environment) software for SAR processing from this page. In order to download the software, institutional representatives of WInSAR Member institutions must sign and return this [license agreement](#). Please print out and sign the cover sheet, and then either scan and email to winsar@unavco.org or fax to 303-381-7501. Once the agreement is received, users from your institution will have access to the software with their normal WInSAR archive credentials.

Date	Version	Comments
2018 Jul 16	isce-2.2.0.tar.bz2	RELEASE NOTES
2017 Aug 3	isce-2.1.0.tar.bz2	RELEASE NOTES
		This release, isce-2.0.0, is the first Python3 version of ISCE. Users should switch to the version. We plan to release a final Python2 version soon that will include much, but not all, of the functionality of this version, but future

isce-framework / isce2-docs

Code Issues 0 Pull requests 0 Projects 0 Security

Branch: master isce2-docs / Notebooks / TimeSeries /

Eric Gurrola Adding tutorials, manual, and notebooks to docs

..		
.ipynb_checkpoints	Adding tutorials, manual, and notebook	
notebook_images	Adding tutorials, manual, and notebook	
.DS_Store	Adding tutorials, manual, and notebooks to docs	4 months ago
01_PreplgramStack.ipynb	Adding tutorials, manual, and notebooks to docs	4 months ago
02_SBASInvert.ipynb	Adding tutorials, manual, and notebooks to docs	4 months ago
03_TimefnInvert.ipynb	Adding tutorials, manual, and notebooks to docs	4 months ago
Intro_to_GIAnt.ipynb	Adding tutorials, manual, and notebooks to docs	4 months ago
Step0_prepGIAnt.ipynb	Adding tutorials, manual, and notebooks to docs	4 months ago
TimefnInvert.py	Adding tutorials, manual, and notebooks to docs	4 months ago
plotts_notebook.ipynb	Adding tutorials, manual, and notebooks to docs	4 months ago

README.md

ISCE2

PASSED

This is the Interferometric synthetic aperture radar Scientific Computing Environment (ISCE). Its initial development was funded by NASA's Earth Science Technology Office (ESTO) under the Advanced Information Systems Technology (AIST) 2008 and is currently being funded under the NASA-ISRO SAR (NISAR) project.

THIS IS RESEARCH CODE PROVIDED TO YOU "AS IS" WITH NO WARRANTIES OF CORRECTNESS. USE AT YOUR OWN RISK.

This software is open source under the terms of the the Apache License. Its export classification is 'EAR99 NLR', which entails some restrictions and responsibilities. Please read the accompanying LICENSE.txt and LICENSE-2.0 files.

Why join WInSAR?

Access to data at UNAVCO
facility.unavco.org/data/sar

Data available *(based on membership level):*

ERS-1/2

ENVISAT

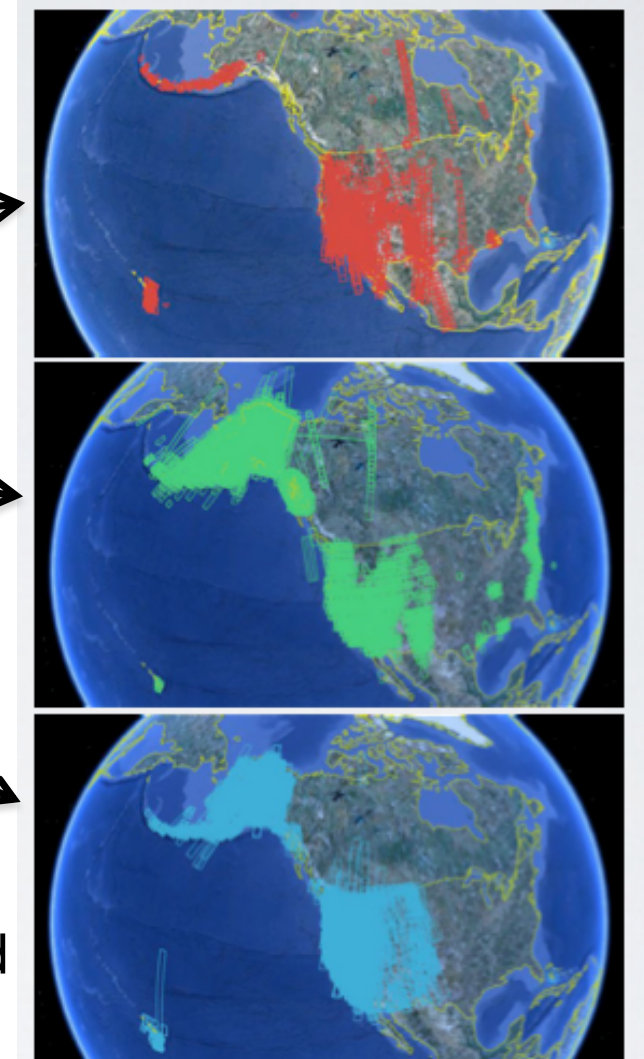
RADARSAT-1

TerraSAR-X

data coverage is limited to North America
all data are “raw” Level 0 (SLC for TSX)
can request ESA data covering N.Am. not at UNAVCO

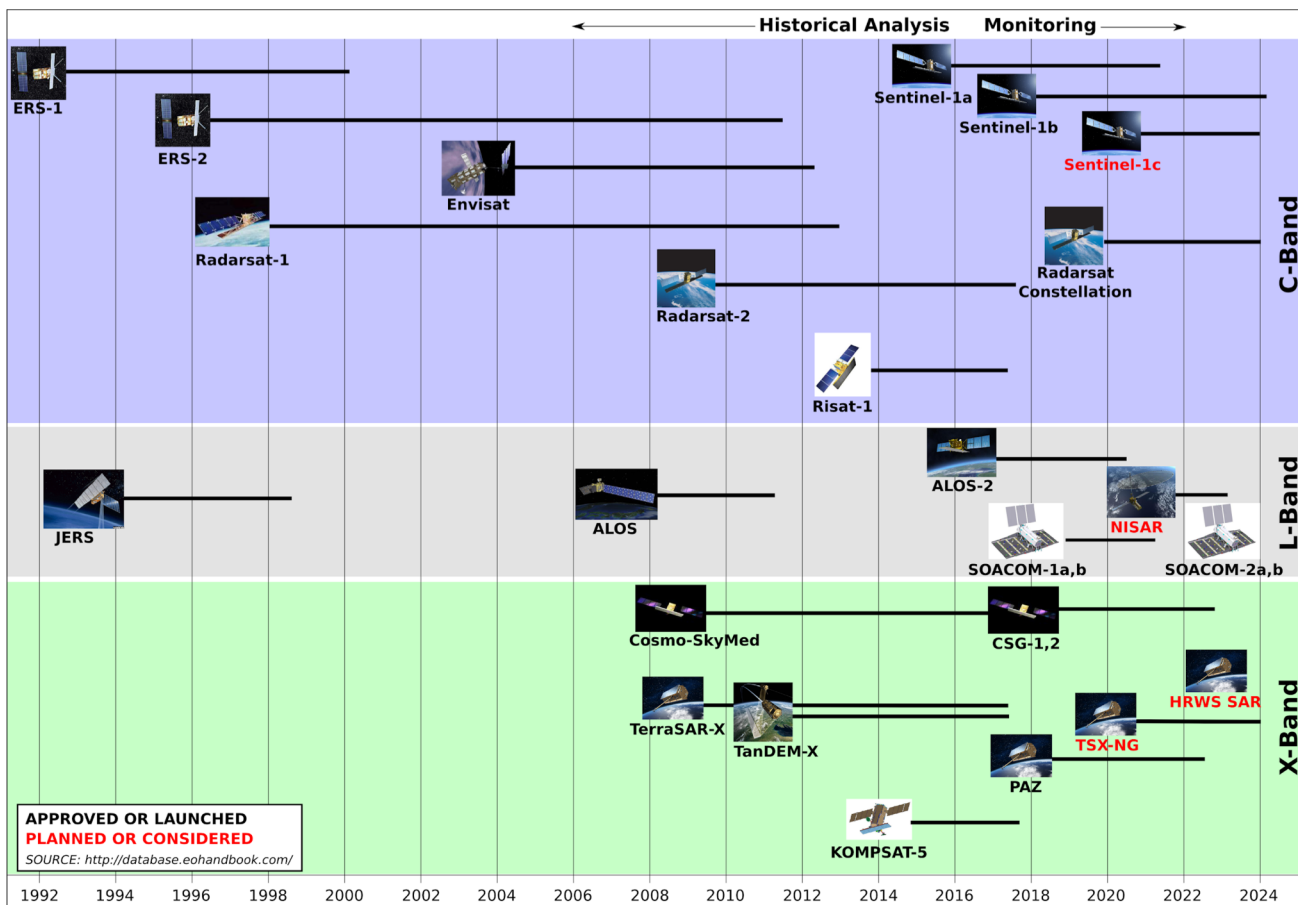
Access to data at ASF

WInSAR members have access to the ALOS
datapool (including all the data from the Americas and
some data outside) once they sign a data agreement
(i.e., no need to write an ASF UPASS proposal)



SAR Data Archives and Access

(slide from Scott Baker, UNAVCO)



- ERS-1: 1991-2000 (35-day, limited 3-day phase)
- ERS-2: 1995-2011 (35-day, limited 3-day phase)
- ENVISAT: 2002-2010 (35-day), 2010-2012 (30-day)
- RADARSAT-1: 1996-2008 (24-day)
- RADARSAT-2: 2007-PRESENT (24-day)
- SENTINEL-1A: 2014-PRESENT (12-day)
- SENTINEL-1B: 2016-PRESENT (12-day)
- Constellation repeat (6-day)
- JERS: 1992-1998 (44-day)
- ALOS: 2006-2011 (46-day)
- ALOS-2: 2014-PRESENT (14-day)
- COSMO-SkyMed-1 2007-PRESENT (16-day)
- COSMO-SkyMed-2 ; 2007-PRESENT (16-day)
- COSMO-SkyMed-3 ; 2008-PRESENT (16-day)
- COSMO-SkyMed-4 ; 2010-PRESENT (16-day)
- Constellation repeat (1-,4-,8-day)
- TerraSAR-X 1 ; 2007-PRESENT (11-day)
- TanDEM-X 1 ; 2010-PRESENT (11-day)
- PAZ: 2018-PRESENT (11-day)
- Constellation repeat (4-,7-day)

<http://database.eohandbook.com/database/missionindex.aspx>

SAR Data Archives and Access

(slide from Scott Baker, UNAVCO)

UNAVCO/WInSAR:

<http://www.unavco.org/data/imaging/sar-data/sar-data.html>

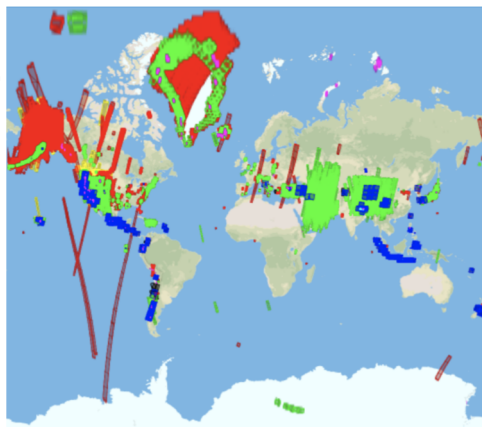
Data available in the archive

ERS-1/2

ENVISAT

RADARSAT-1

TerraSAR-X and ALOS-2



Data coverage is limited to North America

All data are “raw” Level 0 (SLC for TSX, ALOS-2)

and are organized into “collections”

ESA data from North America can be requested through UNAVCO

Supersites:

supersites.earthobservations.org/

<http://eo-virtual-archive4.esa.int>

<https://supersites.eoc.dlr.de/>

Data available in the archive

ERS-1/2 (ESA VA4)

ENVISAT (ESA VA4)

RADARSAT-1 (limited)

RADARSAT-2 (limited) *at UNAVCO*

ALOS PALSAR (limited)

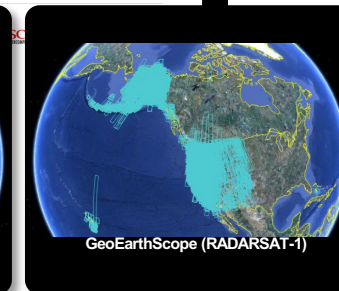
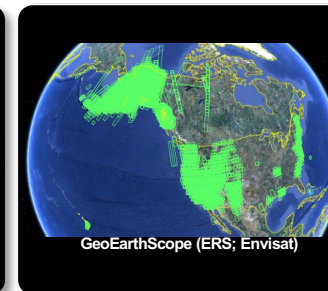
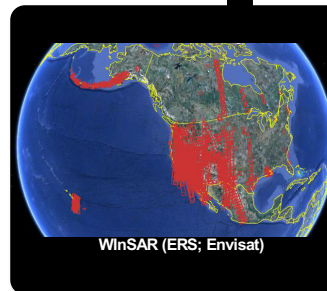
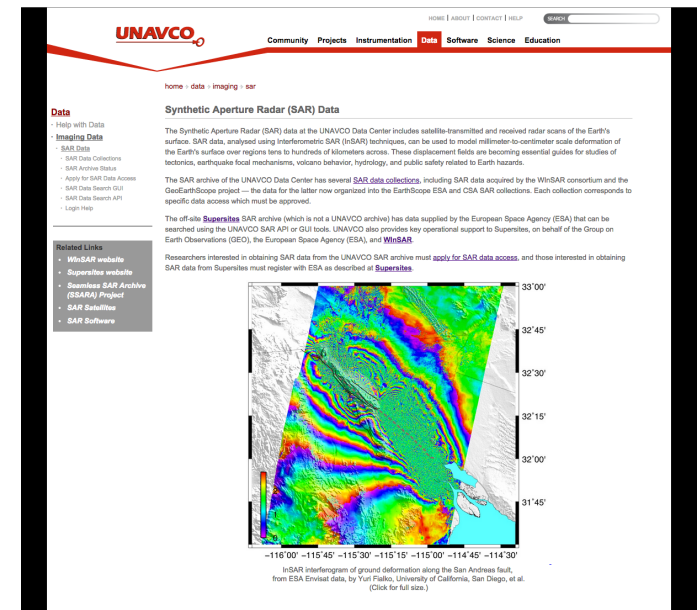
TerraSAR-X (at DLR)

COSMO-SkyMed (limited) *at UNAVCO*

SAR Data Archives and Access

(slide from Scott Baker, UNAVCO)

- The UNAVCO archive has over 120 TB of L0/Raw and SLC data
- Data are organized into collections that allow access control based on user authorization
- ERS-1/2, ENVISAT, Radarsat-1 (Limited to North America). These are the EarthScope and WInSAR data collections
- Organization and distribution of TerraSAR-X and ALOS-2 for WInSAR PIs. Each proposal has its own collection with limited user access
- Some Geohazards Supersites data (CSK, RSAT-2 for Hawaii, Sinabung, and Ecuador) organized into collections as well



SAR Data Archives and Access

(slide from Scott Baker, UNAVCO)

Alaska Satellite Facility (ASF):

<https://www.asf.alaska.edu/>

<https://urs.earthdata.nasa.gov/> (user registration)

Data available in the archive

AIRSAR, UAVSAR, AirMOSS

Seasat

ERS-1/2

JERS-1

RADARSAT-1

ALOS PALSAR

Sentinel-1 (all data from SciHub)

Data coverage extends outside North America

Data available in “raw” (Level 0), SLC, and as detected image products

SciHub

<https://scihub.copernicus.eu/>

All Sentinel data will be distributed through the SciHub.
All the Sentinel-1A/B data are available as RAW, SLC, and GRD products.

ESA On-the-fly Service

https://earth.esa.int/web/guest/data-access/data-product-news/asset_publisher/db3/content/new-service-open-to-asar-data-users-esa-s-anvisat-asar-image-mode-archive-released-for-on-the-fly-data-download?sessionId=6466FCFC7BDC180BF38774CC0901D458Ivm17redirect=https%3A%2F%2Fearth.esa.int%2Fweb%2Fguest%2Fdata-access%2Fdata-product-news%3BsessionId%3D6466FCFC7BDC180BF38774CC0901D458Ivm1%3Fp_p_id%3D101_INSTANCE_Ldb3%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn_1%26p_p_col_pos%3D1%26p_p_col_count%3D2%26_101_INSTANCE_Ldb3_keywords%3D%26_101_INSTANCE_Ldb3_advancedSearch%3Dfalse%26_101_INSTANCE_Ldb3_delta%3D100%26_101_INSTANCE_Ldb3_andOperator%3Dand

ESA provides SLC data free of charge through the EOLI-SA interface <https://earth.esa.int/web/guest/eoli>

SAR Data Archives and Access

(slide from Scott Baker, UNAVCO)

How to access data

UNAVCO/WInSAR

All data access requires submission of data use agreement(s)

ESA data (All WInSAR users): Accept the terms and conditions in the WInSAR portal profile settings (<https://winsar.unavco.org/portal/account/settings/>)

Radarsat-1 data (Full or Adjunct I Institutional Member of WInSAR): Sign and submit CSA License agreement

TerraSAR-X and ALOS-2 data: Need to be an approved Co-I on the proposal, contact the PI of the DLR or JAXA proposal

ASF

Much of the SAR data in the ASF SDC archive is limited in distribution to the U.S. scientific research community and U.S. Government Agencies

Need a NASA Earthdata login: <https://urs.earthdata.nasa.gov/>

AIRSAR, UAVSAR, others (Anyone): Register for a user account at ASF

ERS-1/2, JERS-1, RADARSAT-1 (residents of the United States): Submit a proposal - <https://www.asf.alaska.edu/get-data/submit-a-proposal/>

ALOS: Now open to all users for non-commercial use, just need to accept the license agreement within Vertex or URSA

Supersites

All data access to Virtual Archive 4 data requires an EO Single Sign On username/password <https://eo-sso-idp.eo.esa.int/idp/AuthnEngine>

DLR Supersites archive requires a self registration: <https://supersites.eoc.dlr.de/>

Collections at UNAVCO require users to register for an account and contact the PI on the proposal to be added at a Co-Investigator

SciHub (Sentinel data) Create an account and agree to the license to get access: <https://scihub.copernicus.eu/>

ESA OTF Install the EOLI-SA software and search using the On-the-fly collection to select and download scenes: <https://earth.esa.int/web/quest/eoli>

SAR Data Archives and Access

(slide from Scott Baker, UNAVCO)

SUMMARY

UNAVCO:

ERS-1/2, RADARSAT-1, ENVISAT (Limited to North America), TSX and ALOS-2 from PI proposals
Some Supersites data (CSK, RSAT-2)

ASF:

AIRSAR, UAVSAR, AirMOSS, Seasat, ERS-1/2, JERS, RADARSAT-1, ALOS PALSAR, Sentinel-1
Mostly North and South America but also a lot from other parts of the globe
Mirror of the Sentinel-1 Archive

Supersites:

ERS-1/2 and ENVISAT - Various coverage areas all around the globe
RSAT-1/2, ALOS-1, TerraSAR-X, COSMO-SkyMed - Limited to Supersites and Natural Laboratories

SciHub: All Sentinel data

ESA OTF: Envisat and ERS SLCs

interferogram archives

WInSAR InSAR (Community contributed InSAR products)

<https://winsar.unavco.org/insar/>

ASF-GRFN Vertex (Getting Ready for NISAR)

<https://www.asf.alaska.edu/news-notes/2017-summer/getting-ready-for-nisar-grfn/>

<https://vertex.daac.asf.alaska.edu/>

COMET-LiCS (Looking inside the Continents from Space) InSAR Portal

<http://comet.nerc.ac.uk/COMET-LiCS-portal/>

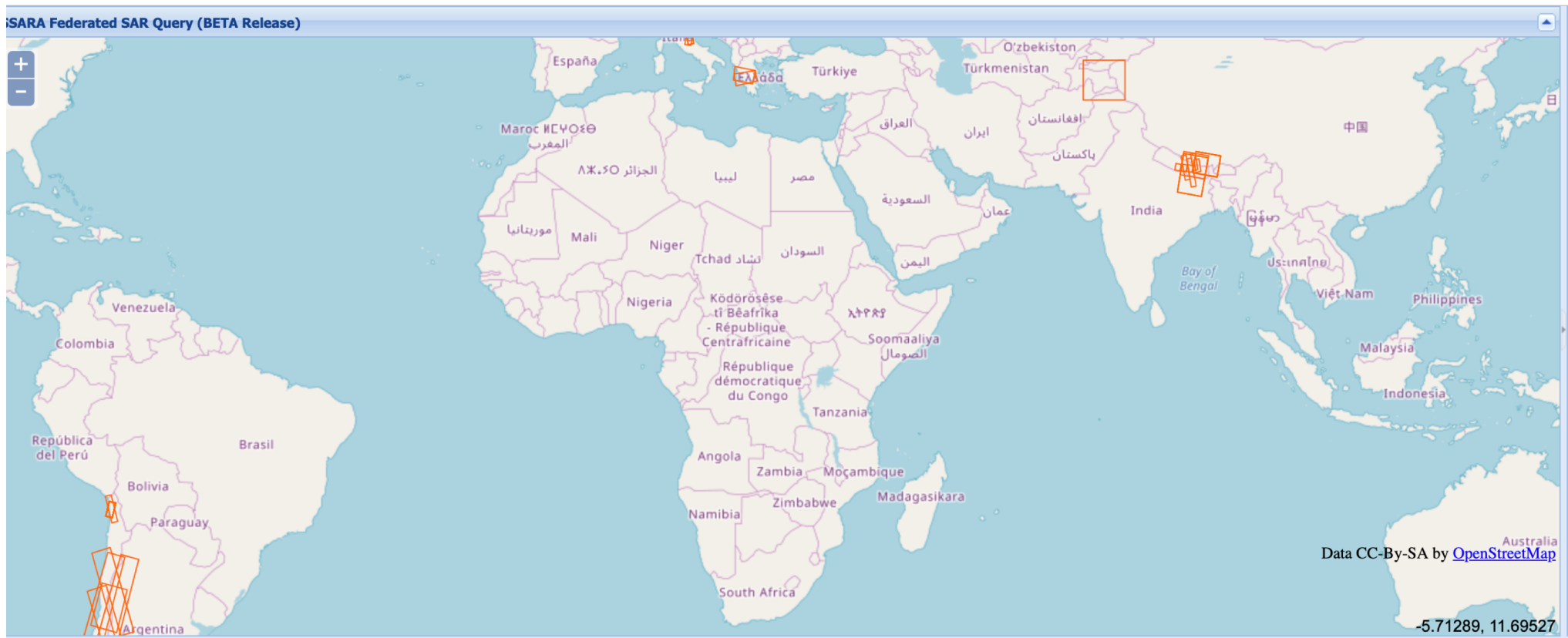
http://gws-access.ceda.ac.uk/public/nceo_geohazards/LiCSAR_products/

Seamless SAR Archive (SSARA)

link available from <https://winsar.unavco.org/insar/>

user contributed interferograms

95 scenes (12 Jun 2019)



Flight Direction	Look Direction	Polarization	Processing Level	Stack Size	Data File
A	R	None	INTERFEROGRAM	NaN	DOWNLOAD
A	R	None	INTERFEROGRAM	NaN	DOWNLOAD
A	R	None	INTERFEROGRAM	NaN	DOWNLOAD
a	R	None	INTERFEROGRAM	NaN	DOWNLOAD
a	R	None	INTERFEROGRAM	NaN	DOWNLOAD
A	R	None	INTERFEROGRAM	NaN	DOWNLOAD
091006_0828_00785.h5		None	INTERFEROGRAM	NaN	DOWNLOAD

[home](#) → [data](#) → [sar](#) → alos fb08 270 1180 20070701 20091006 0828 00785.h5

Error: File Not Found

Sorry, the web page you are looking for was not found.

COMET-LiCS (Univ. of Leeds)

<https://comet.nerc.ac.uk/COMET-LiCS-portal/>

automatic processing of Sentinel-1 data (~2 weeks from acquisition)

10's of thousand interferograms



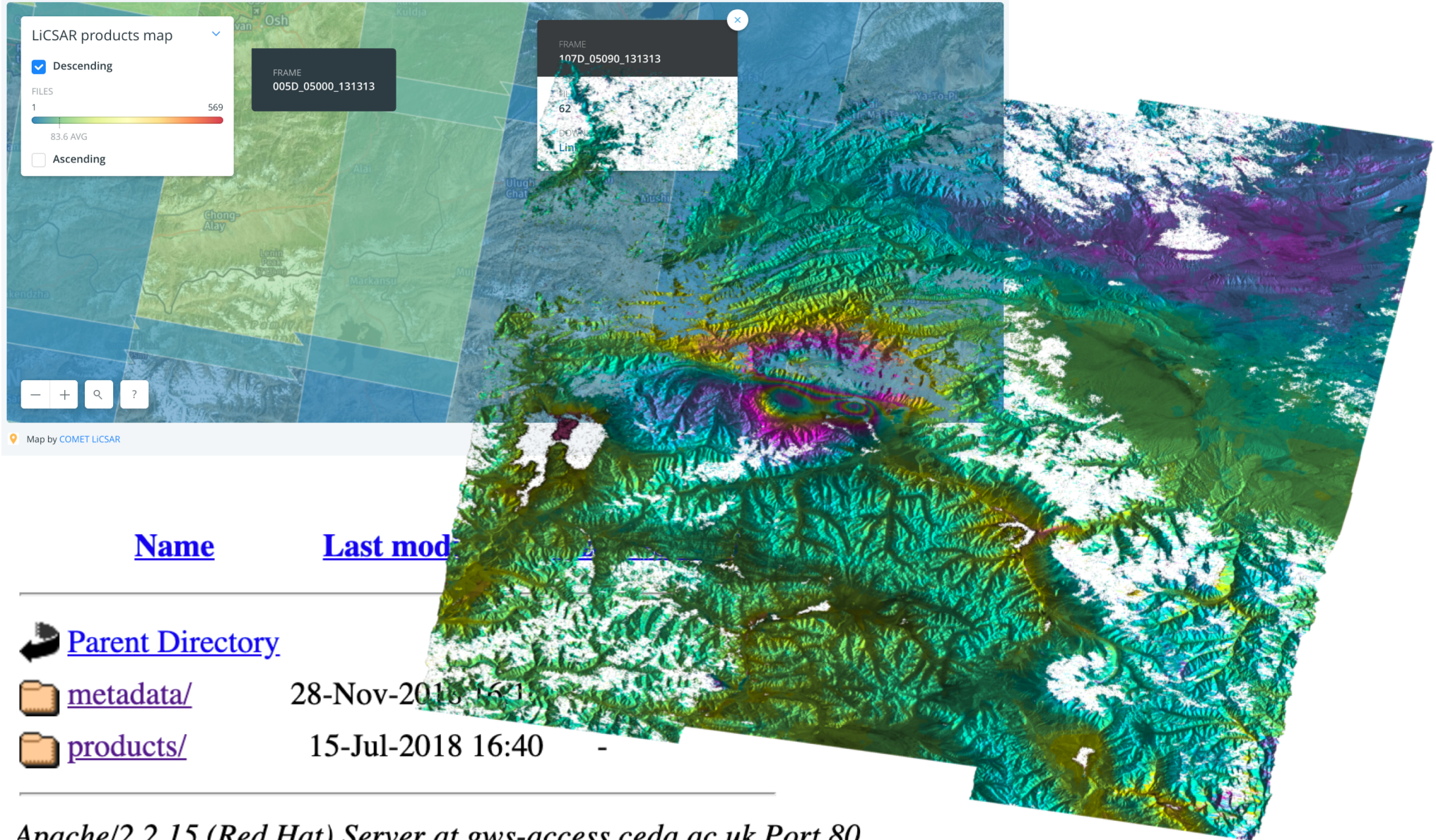
COMET-LiCS Sentinel-1 InSAR portal



NERC
SCIENCE OF THE ENVIRONMENT



COMET-LiCS (Univ. of Leeds)



Apache/2.2.15 (Red Hat) Server at gws-access.ceda.ac.uk Port 80

ASF — Getting Ready for NISAR

<https://vertex.daac.asf.alaska.edu/>

some Sentinel-1 interferograms

lots of AIRSAR (1988–2004) & UAVSAR (2007–present) scenes

ASF ALASKA SATELLITE FACILITY

Vertex is the [Alaska Satellite Facility's](#) data portal for remotely sensed imagery of the Earth.

Vertex Interactive Tours ▾ Help ▾ ASF Home ↗ Earthdata Login Download Queue 0 Contact

Geospatial Granule Missions

Search Mission Lists
Select Dataset and begin typing to narrow Mission list

UAVSAR AIRSAR Beta Products

Search

Browse Mission Lists

UAVSAR AIRSAR Beta Products

- S1 I-grams (BETA) - Central CA
- S1 I-grams (BETA) - Kilauea Volcano, HI
- S1 I-grams (BETA) - Mexico City, Mexico
- S1 I-grams (BETA) - Northern CA
- S1 I-grams (BETA) - Other
- S1 I-grams (BETA) - Southern CA

Clear Search Area

Granule Information

Dataset: Sentinel-1 Interferogram (BETA)
Granule: S1-GUNW-D-R-087-tops-20190518_20190506-161624-20645N_18637N-PP-8194

Granule Details

- Acquisition Date: 2019-05-18
- Beam mode: IW
- Path: 87
- Frame: N/A
- Ascending/Descending: Descending
- Polarization: VV
- Absolute Orbit: 27284
- Frequency: C-Band

Accessing this data requires you to log in. Some datasets also require a proposal, or agreement with a EULA which is presented after log in

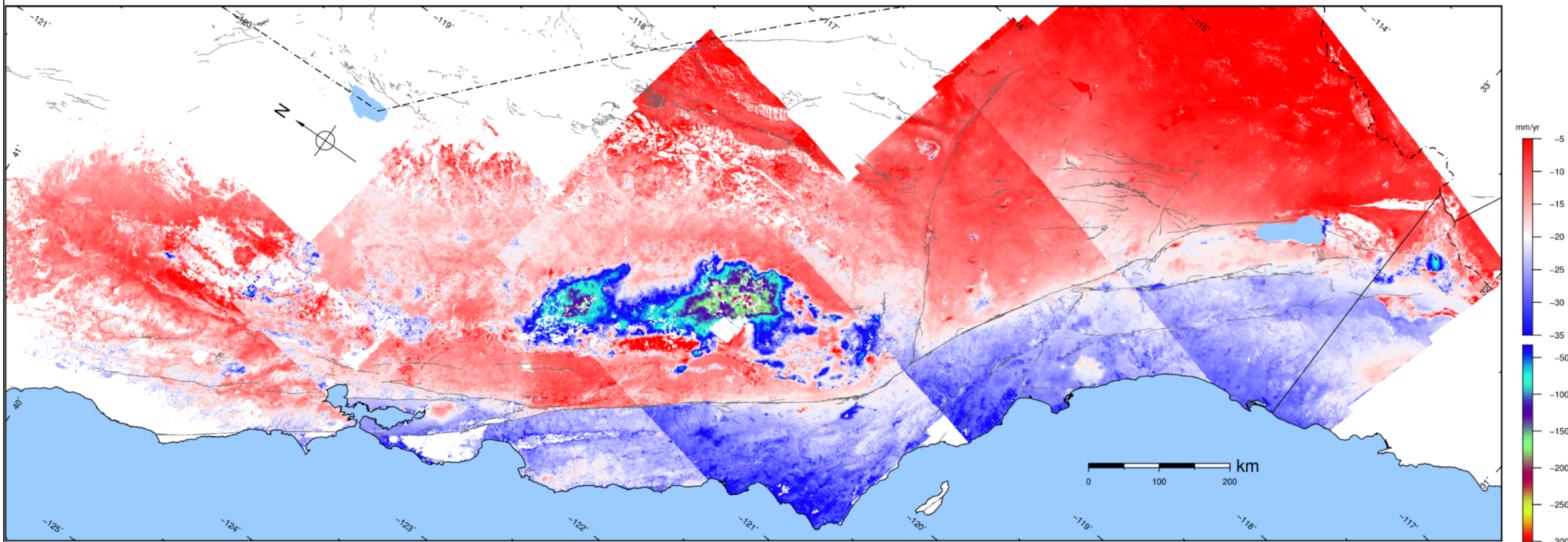
Products	Download
Standard Product, NetCDF (54.21 MB)	<input type="button" value="+ Queue"/> <input type="button" value="Download"/>
Unwrapped Phase, GeoTIFF (0 B)	<input type="button" value="+ Queue"/> <input type="button" value="Download"/>
Coherence, GeoTIFF (0 B)	<input type="button" value="+ Queue"/> <input type="button" value="Download"/>

Full Resolution Browse Image

X. Xu & D. Sandwell (Scripps/UCSD)

Line-of-Sight Deformation Time-series along the San Andreas Fault System
from Sentinel-1 InSAR and GPS

2014.11-2018.12



<https://topex.ucsd.edu/gmtsar/insargen/>

WInSAR in the age of open data dissemination

WinSAR sponsors short courses in InSAR processing for both the GMT5SAR and ISCE software packages, as well as post-processing (e.g., GIAN-T) and overview courses at a variety of scientific conferences (e.g., GSA, UNAVCO annual meeting, 2019 Joint SAGE/GAGE Workshop).

Geodetic Technique Courses

[The Generic Mapping Tools \(GMT\) for Geodesy](#)

Dates: July 22-23, 2019

Times: Course will begin at 9:00 a.m. on July 22 and end at 5:00 p.m. on July 23.

Location: Scripps Institution of Oceanography, La Jolla, CA

Overview: This 2-day course will cover the use of Generic Mapping Tools (GMT) in geodesy using UNIX shell scripting. Lectures and exercises will be given to teach the basic conventions of using GMT, such as plotting grids, images, and vector data (points, lines, polygons). Labs will include both processing and mapping of various data sets relevant to geodesy.

InSAR Courses

[InSAR Processing and Theory with GMTSAR](#)

Dates: July 24-26, 2019

Times: Course will begin at 9:00 a.m. on July 24 and end at 12:00 p.m. on July 26.

Location: Scripps Institution of Oceanography, La Jolla, CA

Overview: This 2.5 day course will cover the theory and application of InSAR processing with GMTSAR. Lectures and exercises will be given to teach the basic theoretical aspects of InSAR. Labs will include software installation, running test data sets for standard interferogram formation as well as more advanced processing for time series with Sentinel-1A TOPS-mode data. Those unfamiliar with the software package GMT are encouraged to also attend the GMT workshop at the same location on July 22 and 23.

[InSAR Theory and Processing](#)

Dates: August 12-16, 2019

Times: Course will begin at 8:00 a.m. on August 12 and end at 12:00 p.m. on August 16

Location: UNAVCO, Boulder, CO

Overview: This 4.5-day course will cover basic & advanced InSAR theories, InSAR processing with JPL/Caltech InSAR Scientific Computing Environment (ISCE), time-series InSAR processing with interferometric products generated by different processing centers.

<https://winsar.unavco.org/>

- get SAR data into as many hands as possible
 - build the SAR community in N. Am.
- train the next generation of SAR users
 - SAR geodesicists
 - SAR data product users
- advocate SAR related science in US
 - provide visible “community” presence
 - support SAR related science at meetings

WInSAR funded by:

