UNAVCO InSAR Short Course:
SAR Data Access

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InSAR Theory & Processing with ISCE, GIAnT, and StaMPS
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OUTLINE

• Overview of SAR archives: UNAVCO, ASF, GSNL

• Search and download SAR data with SSARA
SAR Data Access

UNAVCO/WInSAR:

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
Alaska Satellite Facility (ASF):
https://www.asf.alaska.edu/

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
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

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
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
Seamless SAR Archive - SSARA

Searching for data
Web Service Root URL:
http://web-services.unavco.org/brokered/ssara/

Command Line Client and Utilities:
https://github.com/bakerunavco/SSARA
- Automated downloads from UNAVCO, ASF, and ESA Virtual Archive 4 (via secp)
- HDF5 converter for InSAR product archive
- DEM converted for ROI_PAC and ISCE

git clone https://github.com/bakerunavco/SSARA.git

New web GUI for searching
http://web-services.unavco.org/brokered/ssara/gui
Sentinel-1 SLCs for ISCE Hands-On Session

ftp://brick.unavco.org/pub/class/sar/2016/README_ssara

ssara_federated_query.py -p SENTINEL-1A -i 'POINT(130.754 32.791)' -s 2016-04-08 -e 2016-04-21 -r 156 --print --dem
Running SSARA API Query
SSARA API query: 4.203611 seconds
Found 2 scenes
Scenes after filtering for monthMin 1 and monthMax 12: 2
wget -O dem.tif "http://ot-data1.sdsc.edu:9090/otr/getdem?north=34.966800&south=32.140300&east=133.246900&west=129.812600&demtype=SRTMGL1"

ssara_federated_query.py -p SENTINEL-1A -i 'POINT(130.754 32.791)' -s 2016-04-08 -e 2016-04-21 -r 156 --print --download --parallel=2
Running SSARA API Query
SSARA API query: 4.347992 seconds
Found 2 scenes
Scenes after filtering for monthMin 1 and monthMax 12: 2
Download data now, 2 at a time.
SIA_IW_SLC__1SSV_20160408T091355_20160408T091430_010728_01001F_83EB.zip download time: 94.33 secs (24.48 MB/sec)
SIA_IW_SLC__1SSV_20160420T091355_20160420T091423_010903_010569_F9CE.zip download time: 154.47 secs (19.02 MB/sec)