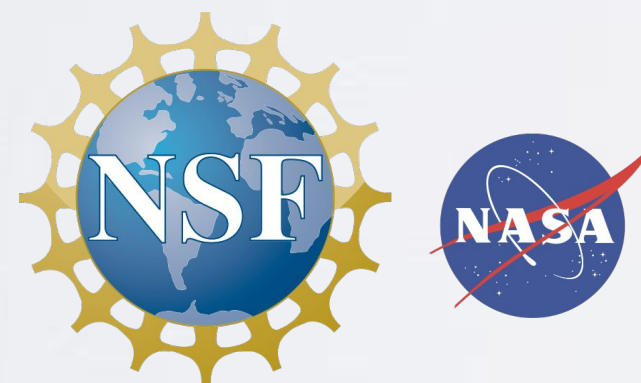




UNAVCO InSAR Short Course: SAR Data Access



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InSAR Theory & Processing with ISCE, GAnT, and StaMPS
August 1 - August 5, 2016

SAR Data Access

OUTLINE

- Overview of SAR archives: UNAVCO, ASF, GSNL
- Search and download SAR data with SSARA

SAR Data Access

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 Access

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

SAR Data Access

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-ss0-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

SAR Data Access

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>

Seamless SAR Archive - SSARA

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"
```

OpenTopography DEM Service Download



```
ASF-SA-IW,Sentinel-1A,10728,2016-04-08 09:13:55,2016-04-08
```

```
09:14:30,156,105,105,IW,IW,ASCENDING,R,VV,https://datapool.asf.alaska.edu/SLC/SA/S1A_IW_SLC__1SSV_20160408T091355_20160408T091430_010728_01001F_83EB.zip
```

```
ASF-SA-IW,Sentinel-1A,10903,2016-04-20 09:13:55,2016-04-20
```

```
09:14:23,156,105,105,IW,IW,ASCENDING,R,VV,https://datapool.asf.alaska.edu/SLC/SA/S1A_IW_SLC__1SSV_20160420T091355_20160420T091423_010903_010569_F9CE.zip
```

```
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
```

```
Downloading data now, 2 at a time.
```

```
ASF Download: S1A_IW_SLC__1SSV_20160408T091355_20160408T091430_010728_01001F_83EB.zip
```

```
ASF Download: S1A_IW_SLC__1SSV_20160420T091355_20160420T091423_010903_010569_F9CE.zip
```

```
S1A_IW_SLC__1SSV_20160420T091355_20160420T091423_010903_010569_F9CE.zip download time: 94.33 secs (24.48 MB/sec)
```

```
S1A_IW_SLC__1SSV_20160408T091355_20160408T091430_010728_01001F_83EB.zip download time: 154.47 secs (19.02 MB/sec)
```