

## Stitching different NASA UAVSAR SLC segments

Software used:

- ISCE stack processor (stripmapStack)
- Linux C-Shell

Preparing files and executing this code:

Assume stitching segment 1 and 2 of SanAnd\_23019 track

1. Go to [UAVSAR Data Search](#) and copy all *wget* lines to a shell

```
> mkdir data/  
> cd data/  
> (create the shell)
```

2. Download all the data and remove possible duplicate annotation files

```
> csh shell-you-made-to-download-data.csh  
> rm *.ann.l
```

3. Put *UAVSAR\_coregStack\_StitchSegment.csh* and *MakeShelveData.py* in data/

4. Prepare the input files for *UAVSAR\_coregStack\_StitchSegment.csh*

```
> ls *.slc > filelst
```

5. Execute *UAVSAR\_coregStack\_StitchSegment.csh*

```
> csh UAVSAR_coregStack_StitchSegment.csh filelst 12 SanAnd_23019_01.dop
```

After this is completed, you should see a folder named SLC/ parallel with data/

Step-by-step breakdown of the concatenation workflow:

> *UAVSAR\_coregStack\_StitchSegments.csh*

1. Stitch SLCs to one consecutive SLC

Simply use *'cat'* to concatenate SLCs

2. Modify slc.vrt and slc.xml files

This is crucial because *run\_08\_igram* reads the slc.xml to properly do the interferometry and phase unwrapping.

The template xml and vrt files will be downloaded from GitHub repository:

[https://raw.githubusercontent.com/LiChiehLin/Stitch\\_UAVSAR\\_SLC/main/templates/templateVRT.vrt](https://raw.githubusercontent.com/LiChiehLin/Stitch_UAVSAR_SLC/main/templates/templateVRT.vrt)

[https://raw.githubusercontent.com/LiChiehLin/Stitch\\_UAVSAR\\_SLC/main/templates/templateXML.xml](https://raw.githubusercontent.com/LiChiehLin/Stitch_UAVSAR_SLC/main/templates/templateXML.xml)

3. Make new annotation files for stitched SLC

It records the new SLC *length, width, cross track offset from peg (C0), starting azimuth and approximate corners*. Note that, there are more attributes that should have been changed, but further processes don't actually depend on those parameters.

(Call external Python script *MakeShelveData.py*)

4. Call Python script (*MakeShelveData.py*) to make the shelve data

This script is scraped from *unpackFrame\_UAVSAR.py* and *UAVSAR\_Stack.py*

This step is crucial as *run\_01\_reference* reads the shelve data to create geometry files and water masks of the corresponding stitched sizes.

5. Move SLC, vrt, xml and ann files to the corresponding directories