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.1
   ```

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. 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***)

3. Call Python script **(*MakeShelveData.py*)** to make the shelve data, xml and vrt files

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 make geometry files and water masks of the corresponding stitched sizes.

run_08_igram reads the slc.xml and slc.vrt files to properly produce interferograms and unwrap phase.

(Especially **LineOffset** in VRT file is extremely important for producing interferograms. It is produced when calling ***MakeShelveData.py***)

4. Move annotation files to the corresponding directories