PALSAR-2 L1.1/1.5 CEOS Products Georeferencing using GITASAR

1. **GITASAR software installation**
   1.1 Install all software under "need_install" folder.
   1.2 Add the path of GITASAR to Windows 7/10 "Environment Variables".

2. **PALSAR-2 L1.5 CEOS Processing**
   2.1 Prepare a DEM. DEM must be in ENVI format (i.e. .bin with a header file) and the data type must be float and projection is WGS84.
   2.2 Unzip all PALSAR-2 L1.5 files to a designated folder.
   2.3 Run the palsar2_L1.5.py module, an example of command lines is

```
C:\gitasar\program>python palsar2_L1.5.py C:\data\alos2\carman C:\data\alos2\carman\geo 10 10 C:\data\alos2\carman\dem30
m.bin 0.000277777777796473
0000262733_001001_ALOS2226762620-180804:
       C:\data\alos2\carman\0000262733_001001_ALOS2226762620-180804\IMG-HH-ALOS2226762620-180804-HBQR1.5RUD
       C:\data\alos2\carman\0000262733_001001_ALOS2226762620-180804\IMG-VH-ALOS2226762620-180804-HBQR1.5RUD
       C:\data\alos2\carman\0000262733_001001_ALOS2226762620-180804\IMG-VV-ALOS2226762620-180804-HBQR1.5RUD
time elapsed: 3.52935 minutes
```

Corresponding parameters are

```
#-------------------------------------------------------------------------------------------
#                            Function Parameters
#
#
#inputfolder : folder containing the unzipped ALOS-2 L1.5 CEOS Raw data
#outputfolder: folder where results are archived
#multiL      : looks in Azimuth for multilook process
#multiP      : looks in Range for multilook process
#demfile     : dem file, must be in ENVI format with float datatype in WGS84 projection
#resolution  : resultant resolution (Degrees), e.g 0.000277777777796473 = 30 meters
#
#
#-------------------------------------------------------------------------------------------

def palsar2_L15geo(inputfolder,outputfolder,multiL,multiP,demfile,resolution):
```

3. **PALSAR-2 L1.1 CEOS SLC Processing**
   3.1 Open "gitaUI.exe" in the GITASAR folder.
   3.2 Open "ALOS2" in "SAR Import" .
   3.3 Export the ALOS CEOS L1.1 data.
   3.4 If you want to intensity data, open "Complex to Real" in "SAR Basics".
   3.5 For despeckling, open "Multilook" in "SAR Basics".
   3.6 For geocorrection, open "SAR Geometry" in "SAR Correction". Input the exported metadata (.xml) , DEM (ENVI format), exported SAR data (if the multilook has been performed, input the looks in azimuth and range you used), and a designated resolution (degrees) and output folder.

Please contact me if you have more issues. (Xiaodong Huang, xhuang@appliedgeosolutions.com**), and have Fun!**