JPL

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SUBJECT: EMIT Level 1 Geo V1.6.19 Delivery Memo

1. Introduction

This is the delivery of version 1.6.19 of the EMIT Level 1 Geo software to SDS. The previous delivery was version 1.6.15.

2. Capabilities and Features

The major capabilities and improvements delivered in this build included:

1. Fix a small number of failures Winston ran into while processing data.

3. Libraries and Executables Created in this Build

The top level executables is l1b_geo_pge. In addition, there is a utility program installed: l1b_project.

Software is installed in

```
/store/emit/ops/repos/emit_l1b_geo_installs/1.6.19
```

Support configuration files are installed in

```
/store/emit/ops/repos/emit_l1b_osp_installs/1.6.19
```

4. Testing

Unit tests are run as part of the build procedures.

In addition, there is test data for a Level 1 end to end test, starting with Level 0 and proceeding through all of the Level 1 processing. There is a script that runs these tests:

```
 cd <working directory>
/store/shared/emit-test-data/1.6.19/end_to_end.sh
```

Note that you may get error message such as:

```
rm: cannot remove ‘./orbit_8000’: No such file or directory
```

You can ignore these, the script cleans up any output that already exists, and it is harmless if it doesn't find these directories.

5. Change Requests and Problem Reports

The following CRs and PRs are closed in this build:

Issue Number	***Short Description***
166	Geolocation error - RuntimeError: Opening GDAL file /tmp/cf92-73cb-dfcf-0bcd_2 to get band type failed

6. Liens and Waivers

6.1 None

7. Build/Run Requirements

7.1 The emit software depends on AFIDS, GeoCal, and a Python 3 setup. These have been created as a conda environment

```
/store/shared/nostripe/conda-shared-envs/afids-20240415
```

7.2 Although you can set the conda environment, this is automatically done by the l1b_geo_pge script. You do not need to set the conda environment before running the PGE.

7.3 Software run depends on datasets:

```
/store/shared/nostripe/conda-shared-envs/afids-
20240415/data/vdev/EGM96_20_x100.HLF
/store/shared/dem/srtm_v3_dem_L2
/store/shared/spice_data
/store/shared/landsat
/store/emit/ops/repos/emit_l1b_osp_installs/1.6.19
```

7.4 Test data for test run is found at

```
/store/shared/emit-test-data
```

8. Build Instructions

8.1 It is not necessary to build the software. It has been built and is available at `/store/emit/ops/repos/emit_l1b_geo_installs/1.6.19`.

8.2 If you did need to build, there are two steps – creating the conda environment and building the emit software.

8.3 The AFIDS/GeoCal software is available at git@github.jpl.nasa.gov:Cartography/afids-conda-package.git, with the tag geocal-20240415.

8.4 If you don't already have it set up, then initialize the system anaconda

```
source /store/shared/anaconda3/etc/profile.d/conda.sh
```

8.5 Check out the afids conda repository. Note that you need to have git lfs activated to download the larger file size used in the conda repository:

```
git lfs install
cd <work dir>
git clone git@github.jpl.nasa.gov:Cartography/afids-conda-package.git
cd afids-conda-package
git checkout geocal-20240415
make emit-env
```

8.6 The emit level 1 software is available at git@github.com:emit-sds/emit-sds-l1b-geo.git with the tag v1.6.19-rc1[1].

8.7 The emit software is built with the normal configure/make cycle, after setting up the environment:

```
cd <work dir>
git clone git@github.com:emit-sds/emit-sds-l1b-geo.git
cd emit-sds-l1b-geo
git checkout v1.6.19-rc1
conda activate /store/shared/nostripe/conda-shared-envs/afids-20240415
./configure --prefix=/store/emit/ops/repos/emit_l1b_geo_installs/1.6.19
make -j 20 all && make install && make -j 20 check
```

9. Miscellaneous Instructions or Information

None

1 Note, over the years I've developed the convention of delivering an initial version with a -rc1 tag, so that if there are any issues in the delivery we can update to a rc2 etc. Once the delivery has been completed, we can create a final tag without the "rc" extension to mark the final version that was used in the delivery.