



Pléiades Glacier Observatory : DEM

Date : 2019-02-28
Site : Livingstone_ANT

DEM information

Coordinate system	UTM 21 south - EPSG 32721
Correlation algorithm	Semi Global Matching (SGM)
DEM resolution	2 m and 20 m
Reference for height	Ellipsoidal Height (WGS84)
Shift vector to Copernicus GLO-30 (m)	dx=+0; dy=+0; dz=+0
▲ No coregistration due to lack of stable terrain and/or poor quality of reference DEM	
Base-to-Height ratio (B/H)	0.34

Source images

PHR DS_PHR1B_201902281300459_FR1_PX_W060S63_0209_00780
PHR DS_PHR1B_201902281301217_FR1_PX_W060S63_0209_00824

Copyright

Pléiades © CNES Year_of_acquisition, Distribution Airbus D&S

Archive structure

```

├─ 2019-02-28_1301229_Livingstone_ANT
│   ├── BM
│   ├── 2019-02-28_1301229_Livingstone_ANT_footprint.shp
│   ├── 2019-02-28_1301229_Livingstone_ANT_footprint.dbf
│   ├── 2019-02-28_1301229_Livingstone_ANT_footprint.prj
│   ├── 2019-02-28_1301229_Livingstone_ANT_footprint.shx
│   └── SGM
│       ├── 2019-02-28_1301229_Livingstone_ANT_DEM_SGM_2m.tif
│       ├── 2019-02-28_1301229_Livingstone_ANT_DEM_SGM_20m.tif
│       ├── README_SGM_DEM.pdf
│       ├── PREVIEW_2019-02-28_1301229_Livingstone_ANT_DEM_SGM_20m.png
│       └── COREGISTRATION_RESULT_2019-02-28_1301229_Livingstone_ANT_DEM_SGM_20m.png

```

Description

DEMs and orthoimages were generated from raw Pléiades images using the Ames Stereo Pipeline [Beyer et al., 2018]. The set of processing parameters used for DEM generation are from [Marti et al., TC, 2016] for block matching -BM- and from [Deschamps-Berger et al., 2020] for semi global matching -SGM.

All DEMs and orthoimages are coregistered on the Copernicus GLO-30 DEM using the demcoreg tool [Shean et al., 2021].

Acknowledgement statement: The Pléiades images/DEMs used in this study was provided by the Pléiades Glacier Observatory initiative of the French Space Agency (CNES) and Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS).

When an image is shown in a presentation, website or an article, the copyright should be (Pléiades © CNES Year_of_acquisition, Distribution Airbus D&S).

We remind to cope with the licence rules regarding (no) data sharing and no commercial use.

References

- Beyer et al.: The Ames Stereo Pipeline: NASA's Open Source Software for Deriving and Processing Terrain Data, Earth and Space Science, 5(9), 537–548, doi:10.1029/2018EA000409, 2018.
- Shean et al.: dshean/demcoreg, Zenodo, v1.1.0, <https://doi.org/10.5281/zenodo.5733347>, 2021.
- Deschamps-Berger et al.: Snow depth mapping from stereo satellite imagery in mountainous terrain: evaluation using airborne laser-scanning data, The Cryosphere, 14(9), 2925–2940, <https://doi.org/10.5194/tc-14-2925-2020>, 2020.
- Marti et al.: Mapping snow depth in open alpine terrain from stereo satellite imagery, The Cryosphere, 10(4), 1361–1380, doi:10.5194/tc-10-1361-2016, 2016.