



Pléiades Glacier Observatory : DEM

Date : 2019-02-20
Site : Livingstone_ANT

DEM information

Coordinate system	UTM 20 south - EPSG 32720
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_PHR1A_201902201311519_FR1_PX_W061S63_0312_00995
PHR DS_PHR1A_201902201312269_FR1_PX_W061S63_0312_00940

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Archive structure

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├─ 2019-02-20_1312272_Livingstone_ANT
│   ├── BM
│   ├── 2019-02-20_1312272_Livingstone_ANT_footprint.shp
│   ├── 2019-02-20_1312272_Livingstone_ANT_footprint.dbf
│   ├── 2019-02-20_1312272_Livingstone_ANT_footprint.prj
│   ├── 2019-02-20_1312272_Livingstone_ANT_footprint.shx
│   └─ SGM
│       ├── 2019-02-20_1312272_Livingstone_ANT_DEM_SGM_2m.tif
│       ├── 2019-02-20_1312272_Livingstone_ANT_DEM_SGM_20m.tif
│       ├── README_SGM_DEM.pdf
│       ├── PREVIEW_2019-02-20_1312272_Livingstone_ANT_DEM_SGM_20m.png
│       └─ COREGISTRATION_RESULT_2019-02-20_1312272_Livingstone_ANT_DEM_SGM_20m.png

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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).

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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.