



# Pléiades Glacier Observatory : DEM

**Date :** 2021-01-18  
**Site :** Astrolabe\_ANT

## DEM information

|  |                               |
|--|-------------------------------|
| <b>Coordinate system</b>                     | UTM 54 south - EPSG 32754     |
| <b>Correlation algorithm</b>                 | Semi Global Matching (SGM)    |
| <b>DEM resolution</b>                        | 2 m and 20 m                  |
| <b>Reference for height</b>                  | Ellipsoidal Height (WGS84)    |
| <b>Shift vector to Copernicus GLO-30 (m)</b> | dx=-2.59; dy=+20.35; dz=-8.19 |
| <b>Base-to-Height ratio (B/H)</b>            | 0.28                          |

## Source images

**PHR** DS\_PHR1A\_202101182336296\_FR1\_PX\_E140S67\_0105\_01101  
**PHR** DS\_PHR1A\_202101182336596\_FR1\_PX\_E140S67\_0105\_01085

## Copyright

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## Archive structure

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├─ 2021-01-18_2337066_Astrolabe_ANT
│   └─ BM
│       └─ 2021-01-18_2337066_Astrolabe_ANT_footprint.shp
│           └─ 2021-01-18_2337066_Astrolabe_ANT_footprint.dbf
│               └─ 2021-01-18_2337066_Astrolabe_ANT_footprint.prj
│                   └─ 2021-01-18_2337066_Astrolabe_ANT_footprint.shx
│                       └─ SGM
│                           └─ 2021-01-18_2337066_Astrolabe_ANT_DEM_SGM_2m.tif
│                               └─ 2021-01-18_2337066_Astrolabe_ANT_DEM_SGM_20m.tif
│                                   └─ README_SGM_DEM.pdf
│                                       └─ PREVIEW_2021-01-18_2337066_Astrolabe_ANT_DEM_SGM_20m.png
│                                           └─ COREGISTRATION_RESULT_2021-01-18_2337066_Astrolabe_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].

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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.