



# Pléiades Glacier Observatory : DEM

**Date :** 2021-10-14  
**Site :** Ortles\_CEU

## DEM information

|  |                              |
|--|------------------------------|
| <b>Coordinate system</b>                     | UTM 32 north - EPSG 32632    |
| <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=+3.12; dz=+3.34 |
| <b>Base-to-Height ratio (B/H)</b>            | 0.46                         |

## Source images

|            |  |
|------------|--|
| <b>PHR</b> | DS_PHR1B_202110141025357_FR1_PX_E010N46_0814_00588 |
| <b>PHR</b> | DS_PHR1B_202110141026181_FR1_PX_E010N46_0814_00565 |

## Copyright

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## Archive structure

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└─ 2021-10-14_1026103_Ortles_CEU
   └─ BM
   └─ 2021-10-14_1026103_Ortles_CEU_footprint.shp
   └─ 2021-10-14_1026103_Ortles_CEU_footprint.dbf
   └─ 2021-10-14_1026103_Ortles_CEU_footprint.prj
   └─ 2021-10-14_1026103_Ortles_CEU_footprint.shx
   └─ SGM
      └─ 2021-10-14_1026103_Ortles_CEU_1B_DEM_SGM_2m.tif
      └─ 2021-10-14_1026103_Ortles_CEU_1B_DEM_SGM_20m.tif
      └─ README_SGM_DEM.pdf
      └─ PREVIEW_2021-10-14_1026103_Ortles_CEU_1B_DEM_SGM_20m.png
      └─ Coreg_2021-10-14_1026103_Ortles_CEU_1B_DEM_SGM_20m_vs_Cop30.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].

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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.