



# Pléiades Glacier Observatory : DEM

Date : 2022-11-07  
Site : Antisana\_TRP

## DEM information

Coordinate system	UTM 17 south - EPSG 32717
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=-0.23; dy=-0.42; dz=+14.53
Base-to-Height ratio (B/H)	0.25

## Source images

PHR	DS_PHR1A_202211071542394_FR1_PX_W079S01_1113_01644
PHR	DS_PHR1A_202211071542164_FR1_PX_W079S01_1113_01660

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## Archive structure

- └ 2022-11-07\_1542534\_Antisana\_TRP
  - └ BM
  - └ 2022-11-07\_1542534\_Antisana\_TRP\_footprint.shp
  - └ 2022-11-07\_1542534\_Antisana\_TRP\_footprint.dbf
  - └ 2022-11-07\_1542534\_Antisana\_TRP\_footprint.prj
  - └ 2022-11-07\_1542534\_Antisana\_TRP\_footprint.shx
  - └ SGM
    - └ 2022-11-07\_1542534\_Antisana\_TRP\_1A\_DEM\_SGM\_2m.tif
    - └ 2022-11-07\_1542534\_Antisana\_TRP\_1A\_DEM\_SGM\_20m.tif
    - └ README\_SGM\_DEM.pdf
    - └ PREVIEW\_2022-11-07\_1542534\_Antisana\_TRP\_DEM\_SGM\_20m.png
    - └ Coreg\_2022-11-07\_1542534\_Antisana\_TRP\_1A\_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.