



# Pléiades Glacier Observatory : DEM

**Date :** 2023-01-18  
**Site :** SantaMarta\_TRP

## DEM information

Coordinate system	UTM 18 north - EPSG 32618
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=-1.64; dy=-2.41; dz=-9.09
Base-to-Height ratio (B/H)	0.42

## Source images

**PHR** DS\_PHR1B\_202301181535037\_FR1\_PX\_W074N10\_0420\_01692  
**PHR** DS\_PHR1B\_202301181534254\_FR1\_PX\_W074N10\_0420\_01733

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## Archive structure

- └ 2023-01-18\_1535024\_SantaMarta\_TRP
  - └ BM
  - └ 2023-01-18\_1535024\_SantaMarta\_TRP\_footprint.shp
  - └ 2023-01-18\_1535024\_SantaMarta\_TRP\_footprint.dbf
  - └ 2023-01-18\_1535024\_SantaMarta\_TRP\_footprint.prj
  - └ 2023-01-18\_1535024\_SantaMarta\_TRP\_footprint.shx
  - └ SGM
    - └ 2023-01-18\_1535024\_SantaMarta\_TRP\_1B\_DEM\_SGM\_2m.tif
    - └ 2023-01-18\_1535024\_SantaMarta\_TRP\_1B\_DEM\_SGM\_20m.tif
    - └ README\_SGM\_DEM.pdf
    - └ PREVIEW\_2023-01-18\_1535024\_SantaMarta\_TRP\_DEM\_SGM\_20m.png
    - └ Coreg\_2023-01-18\_1535024\_SantaMarta\_TRP\_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.