



# Pléiades Glacier Observatory : DEM

**Date :** 2023-03-20  
**Site :** SanLorenzo\_SAN

## DEM information

Coordinate system	UTM 18 south - EPSG 32718
Correlation algorithm	Block Matching (BM)
DEM resolution	2 m and 20 m
Reference for height	Ellipsoidal Height (WGS84)
Shift vector to Copernicus GLO-30 (m)	dx=-5.74; dy=+8.23; dz=+4.21
Base-to-Height ratio (B/H)	0.41

## Source images

PHR	DS_PHR1A_202303201443156_FR1_PX_W073S48_1010_01948
PHR	DS_PHR1A_202303201442368_FR1_PX_W073S48_1010_01876

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## Archive structure

- 2023-03-20\_1443138\_SanLorenzo\_SAN
  - BM
    - 2023-03-20\_1443138\_SanLorenzo\_SAN\_1A\_DEM\_BM\_2m.tif
    - 2023-03-20\_1443138\_SanLorenzo\_SAN\_1A\_DEM\_BM\_20m.tif
    - README\_BM\_DEM.pdf
    - PREVIEW\_2023-03-20\_1443138\_SanLorenzo\_SAN\_DEM\_BM\_20m.png
    - Coreg\_2023-03-20\_1443138\_SanLorenzo\_SAN\_1A\_DEM\_BM\_20m\_vs\_Cop30.png
  - SGM
    - 2023-03-20\_1443138\_SanLorenzo\_SAN\_footprint.shp
    - 2023-03-20\_1443138\_SanLorenzo\_SAN\_footprint.dbf
    - 2023-03-20\_1443138\_SanLorenzo\_SAN\_footprint.prj
    - 2023-03-20\_1443138\_SanLorenzo\_SAN\_footprint.shx

## 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.