



# Pléiades Glacier Observatory : DEM

**Date :** 2022-04-30  
**Site :** Ushuaia\_SAN

## DEM information

<b>Coordinate system</b>	UTM 19 south - EPSG 32719
<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=-11.33; dy=+9.67; dz=-0.88
<b>Base-to-Height ratio (B/H)</b>	0.34

## Source images

<b>PHR</b>	DS_PHR1A_202204301437194_FR1_PX_W069S55_0807_01178
<b>PHR</b>	DS_PHR1A_202204301436481_FR1_PX_W069S55_0807_01140

## Copyright

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## Archive structure

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└─ 2022-04-30_1437564_Ushuaia_SAN
    └─ BM
    └─ 2022-04-30_1437564_Ushuaia_SAN_footprint.shp
    └─ 2022-04-30_1437564_Ushuaia_SAN_footprint.dbf
    └─ 2022-04-30_1437564_Ushuaia_SAN_footprint.prj
    └─ 2022-04-30_1437564_Ushuaia_SAN_footprint.shx
    └─ SGM
        └─ 2022-04-30_1437564_Ushuaia_SAN_1A_DEM_SGM_2m.tif
        └─ 2022-04-30_1437564_Ushuaia_SAN_1A_DEM_SGM_20m.tif
        └─ README_SGM_DEM.pdf
        └─ PREVIEW_2022-04-30_1437564_Ushuaia_SAN_1A_DEM_SGM_20m.png
        └─ Coreg_2022-04-30_1437564_Ushuaia_SAN_1A_DEM_SGM_20m_vs_Cop30.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.