



# Pléiades Glacier Observatory : DEM

**Date :** 2021-09-04  
**Site :** WarsawIcefield\_ANT

## DEM information

<b>Coordinate system</b>	UTM 21 south - EPSG 32721
<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=-13.63; dy=+0.51; dz=+3.42
<b>Base-to-Height ratio (B/H)</b>	0.29

## Source images

**PHR** DS\_PHR1A\_202109041331504\_FR1\_PX\_W059S63\_0520\_01189  
**PHR** DS\_PHR1A\_202109041331213\_FR1\_PX\_W059S63\_0520\_01194

## Copyright

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## Archive structure

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├─ 2021-09-04_1331583_WarsawIcefield_ANT
│   └─ BM
│       └─ 2021-09-04_1331583_WarsawIcefield_ANT_footprint.shp
│           └─ 2021-09-04_1331583_WarsawIcefield_ANT_footprint.dbf
│               └─ 2021-09-04_1331583_WarsawIcefield_ANT_footprint.prj
│                   └─ 2021-09-04_1331583_WarsawIcefield_ANT_footprint.shx
│                       └─ SGM
│                           └─ 2021-09-04_1331583_WarsawIcefield_ANT_DEM_SGM_2m.tif
│                               └─ 2021-09-04_1331583_WarsawIcefield_ANT_DEM_SGM_20m.tif
│                                   └─ README_SGM_DEM.pdf
│                                       └─ PREVIEW_2021-09-04_1331583_WarsawIcefield_ANT_DEM_SGM_20m.png
│                                           └─ COREGISTRATION_RESULT_2021-09-04_1331583_WarsawIcefield_ANT_DEM_SGM_20m.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].

Acknowledgement statement: The Pléiades images/DEMs used in this study was provided by the Pléiades Glacier Observatory initiative of the French Space Agency (CNES) and Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS).

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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.