



# Pléiades Glacier Observatory : DEM

**Date :** 2023-08-21  
**Site :** Mittivakkat\_GRL

## DEM information

Coordinate system	UTM 24 north - EPSG 32624
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=+1.06; dy=-2.09; dz=+2.17
Base-to-Height ratio (B/H)	0.41

## Source images

PHR	DS_PHR1A_202308211427146_FR1_PX_W038N65_0419_01765
PHR	DS_PHR1A_202308211426363_FR1_PX_W038N65_0419_01708

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## Archive structure

- └ 2023-08-21\_1427133\_Mittivakkat\_GRL
  - └ BM
    - └ 2023-08-21\_1427133\_Mittivakkat\_GRL\_1A\_DEM\_BM\_2m.tif
    - └ 2023-08-21\_1427133\_Mittivakkat\_GRL\_1A\_DEM\_BM\_20m.tif
    - └ README\_BM\_DEM.pdf
    - └ PREVIEW\_2023-08-21\_1427133\_Mittivakkat\_GRL\_DEM\_BM\_20m.png
    - └ Coreg\_2023-08-21\_1427133\_Mittivakkat\_GRL\_1A\_DEM\_BM\_20m\_vs\_Cop30.png
  - └ SGM
    - └ 2023-08-21\_1427133\_Mittivakkat\_GRL\_footprint.shp
    - └ 2023-08-21\_1427133\_Mittivakkat\_GRL\_footprint.dbf
    - └ 2023-08-21\_1427133\_Mittivakkat\_GRL\_footprint.prj
    - └ 2023-08-21\_1427133\_Mittivakkat\_GRL\_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.