



# Pléiades Glacier Observatory : DEM

**Date :** 2022-02-20  
**Site :** GardenEden\_NZL

## DEM information

Coordinate system	UTM 59 south - EPSG 32759
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=+7.68; dy=+7.80; dz=+17.67
Base-to-Height ratio (B/H)	0.39

## Source images

PHR DS\_PHR1A\_202202202228423\_FR1\_PX\_E170S44\_1120\_00904  
PHR DS\_PHR1A\_202202202229193\_FR1\_PX\_E170S44\_1120\_00936

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## Archive structure

```
└─ 2022-02-20_2229170_GardenEden_NZL
   └─ BM
   └─ 2022-02-20_2229170_GardenEden_NZL_footprint.shp
   └─ 2022-02-20_2229170_GardenEden_NZL_footprint.dbf
   └─ 2022-02-20_2229170_GardenEden_NZL_footprint.prj
   └─ 2022-02-20_2229170_GardenEden_NZL_footprint.shx
   └─ SGM
      └─ 2022-02-20_2229170_GardenEden_NZL_1A_DEM_SGM_2m.tif
      └─ 2022-02-20_2229170_GardenEden_NZL_1A_DEM_SGM_20m.tif
      └─ README_SGM_DEM.pdf
      └─ PREVIEW_2022-02-20_2229170_GardenEden_NZL_1A_DEM_SGM_20m.png
      └─ Coreg_2022-02-20_2229170_GardenEden_NZL_1A_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.