



# Pléiades Glacier Observatory : DEM

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

## DEM information

<b>Coordinate system</b>	UTM 59 south - EPSG 32759
<b>Correlation algorithm</b>	Block Matching (BM)
<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=+7.39; dy=+9.22; dz=+19.04
<b>Base-to-Height ratio (B/H)</b>	0.39

## Source images

<b>PHR</b>	DS_PHR1A_202202202229294_FR1_PX_E170S44_0919_00612
<b>PHR</b>	DS_PHR1A_202202202228528_FR1_PX_E170S44_0919_00594

## Copyright

Pléiades © CNES Year\_of\_acquisition, Distribution Airbus D&S

## Archive structure

```

├─ 2022-02-20_2229275_GardenEden_NZL
│   └─ BM
│       ├── 2022-02-20_2229275_GardenEden_NZL_1A_DEM_BM_2m.tif
│       ├── 2022-02-20_2229275_GardenEden_NZL_1A_DEM_BM_20m.tif
│       ├── README_BM_DEM.pdf
│       ├── PREVIEW_2022-02-20_2229275_GardenEden_NZL_1A_DEM_BM_20m.png
│       └─ Coreg_2022-02-20_2229275_GardenEden_NZL_1A_DEM_BM_20m_vs_Cop30.png
├─ SGM
│   ├── 2022-02-20_2229275_GardenEden_NZL_footprint.shp
│   ├── 2022-02-20_2229275_GardenEden_NZL_footprint.dbf
│   ├── 2022-02-20_2229275_GardenEden_NZL_footprint.prj
│   └─ 2022-02-20_2229275_GardenEden_NZL_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].

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).

When an image is shown in a presentation, website or an article, the copyright should be (Pléiades © CNES Year\_of\_acquisition, Distribution Airbus D&S).

We remind to cope with the licence rules regarding (no) data sharing and no commercial use.

## 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.