



Pléiades Glacier Observatory : DEM

Date : 2021-10-14
Site : Ortles_CEU

DEM information

| | |
|--|------------------------------|
| Coordinate system | UTM 32 north - EPSG 32632 |
| 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=-2.44; dy=+2.96; dz=+3.29 |
| Base-to-Height ratio (B/H) | 0.46 |

Source images

| | |
|------------|--|
| PHR | DS_PHR1B_202110141025357_FR1_PX_E010N46_0814_00588 |
| PHR | DS_PHR1B_202110141026181_FR1_PX_E010N46_0814_00565 |

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Archive structure

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├─ 2021-10-14_1026103_Ortles_CEU
│   └─ BM
│       ├── 2021-10-14_1026103_Ortles_CEU_1B_DEM_BM_2m.tif
│       ├── 2021-10-14_1026103_Ortles_CEU_1B_DEM_BM_20m.tif
│       ├── README_BM_DEM.pdf
│       ├── PREVIEW_2021-10-14_1026103_Ortles_CEU_1B_DEM_BM_20m.png
│       └── Coreg_2021-10-14_1026103_Ortles_CEU_1B_DEM_BM_20m_vs_Cop30.png
│   └─ SGM
│       ├── 2021-10-14_1026103_Ortles_CEU_footprint.shp
│       ├── 2021-10-14_1026103_Ortles_CEU_footprint.dbf
│       ├── 2021-10-14_1026103_Ortles_CEU_footprint.prj
│       └── 2021-10-14_1026103_Ortles_CEU_footprint.shx

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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.