



Pléiades Glacier Observatory : DEM

Date : 2023-11-12
Site : Makalu_ASE

DEM information

Coordinate system	UTM 45 north - EPSG 32645
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=-14.28; dy=-8.25; dz=-22.42
Base-to-Height ratio (B/H)	0.50

Source images

PHR DS_PHR1A_202311120457068_FR1_PX_E087N27_0221_01678
PHR DS_PHR1A_202311120456211_FR1_PX_E087N27_0221_01645

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Archive structure

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├─ 2023-11-12_0456581_Makalu_ASE
│   └─ BM
│       ├── 2023-11-12_0456581_Makalu_ASE_footprint.shp
│       ├── 2023-11-12_0456581_Makalu_ASE_footprint.dbf
│       ├── 2023-11-12_0456581_Makalu_ASE_footprint.prj
│       └─ 2023-11-12_0456581_Makalu_ASE_footprint.shx
│   └─ SGM
│       ├── 2023-11-12_0456581_Makalu_ASE_1A_DEM_SGM_2m.tif
│       ├── 2023-11-12_0456581_Makalu_ASE_1A_DEM_SGM_20m.tif
│       ├── README_SGM_DEM.pdf
│       ├── PREVIEW_2023-11-12_0456581_Makalu_ASE_DEM_SGM_20m.png
│       └─ Coreg_2023-11-12_0456581_Makalu_ASE_1A_DEM_SGM_20m_vs_Cop30.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].

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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.