

TanDEM-X DEM 2020: Product release and quality assessments

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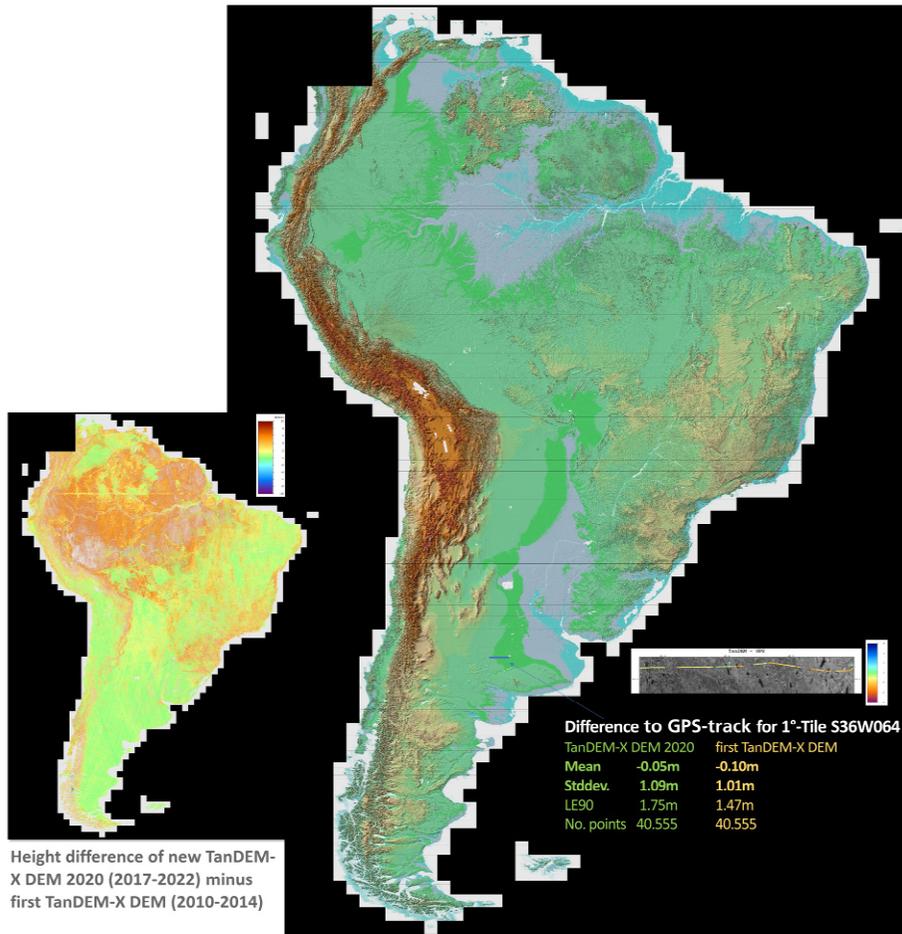
Production of 2nd global DEM (TanDEM-X DEM 2020) after TanDEM-X DEM

Strengths

- Independent DEM covering the period from 2017 to 2022
- Very good relative and absolute height accuracy, especially over flat terrain
- Less prone to phase unwrapping errors due to support of edited DEM compared to first TanDEM-X DEM

Weaknesses

- Mountains: Only one orbit geometry (ASC or DESC) leads to more noisy/uncomplete areas compared to TanDEM-X DEM
- Some errors in the reference DEM will lead to artefacts in the new DEM (similar to TanDEM-X DEM)
- Others (e.g. absolute height of islands, forests, ...)

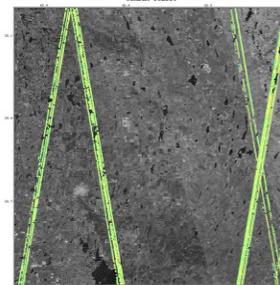


Height difference of new TanDEM-X DEM 2020 (2017-2022) minus first TanDEM-X DEM (2010-2014)

TanDEM-X DEM 2020 (2017-2022) of South America

	TanDEM-X DEM (2010-2014)	TanDEM-X DEM 2020 (2017-2021)
Temporal time span	(2010-2014)	(2017 to 2022)
Resolution	0.4 arc-second/10-12m	0.4 arc-second/10-12m
Orbit direction	Ascending (Northern Hem.) Descending (Southern Hemisphere)	Ascending (Northern Hem.) Descending (Southern Hemisphere)
Coverages	2-4+	1-2

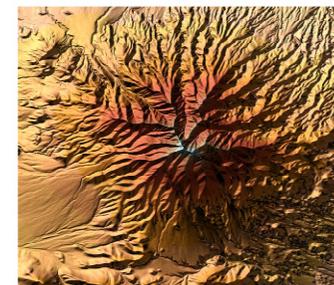
Absolute height accuracy



ICESat tracks with height differences to TanDEM-X DEM 2020, colored between +/- 5m over the amplitude (S36W064)

	TanDEM-X DEM 2020	first TanDEM-X DEM
Mean	-0.08m	-0.09m
Stddev.	0.69m	0.69m
LE90	0.51m	0.47m
No. points	13.706	13.161

Zoom in TanDEM-X DEM 2020



Vulcano Cerro Nevado, 3762m a.s.l., Argentina

References

Rizzoli P. et al.: Generation and Performance Assessment of the Global TanDEM-X Digital Elevation Model. ISPRS Journal of Photogrammetry and Remote Sensing, 132, pp. 119-139, Oct. 2017.

Wessel B. et al.: The new TanDEM-X DEM 2020: Generation and Specifications. In: Proc. of EUSAR2022

Conclusion

- All land masses processed to DEM tiles except Greenland and Antarctica
- **available at [geoservice.dlr.de](https://www.dlr.de/geoservice) soon!**
- Accessible for science only (via science proposal)