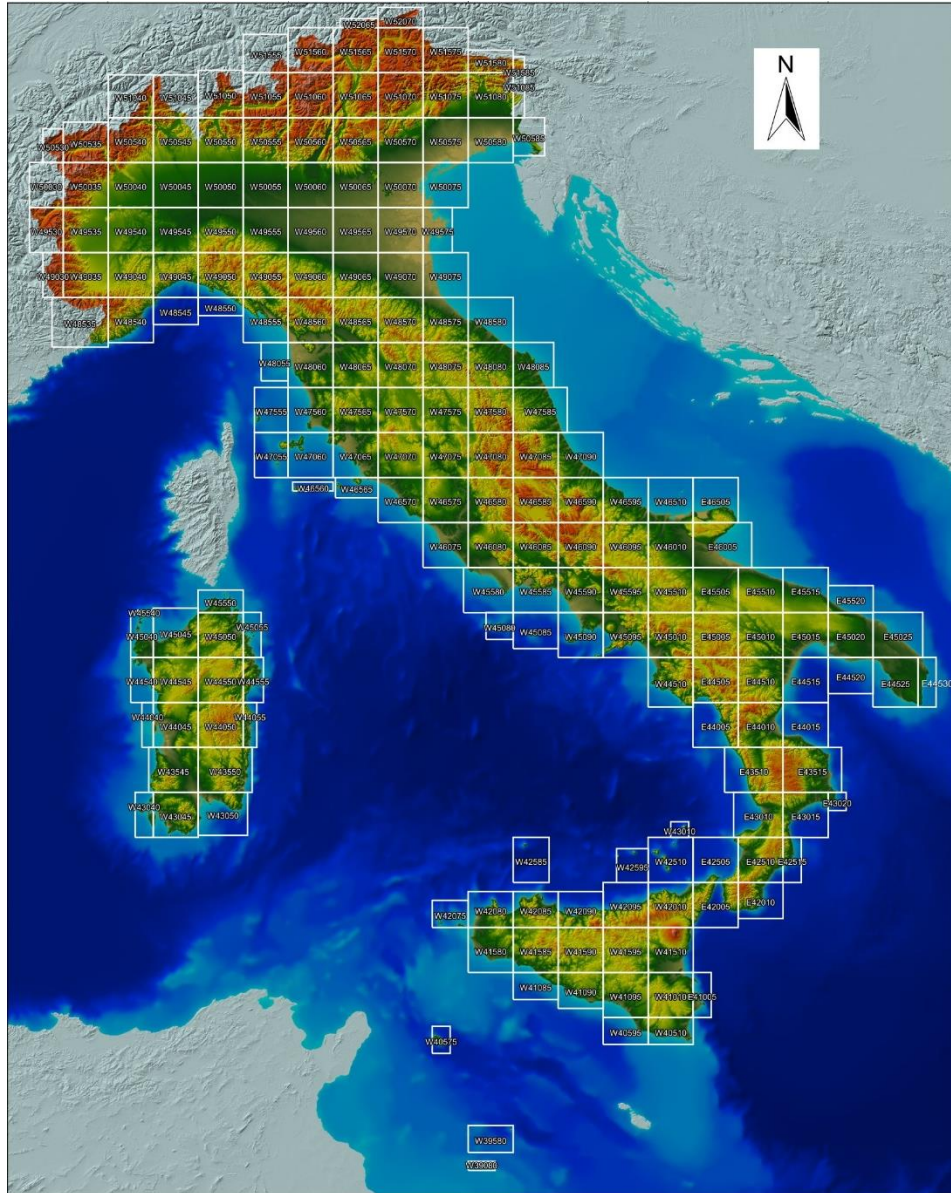




ISTITUTO NAZIONALE
DI GEOFISICA E VULCANOLOGIA

TINITALY 1.1 - ACCOMPANYING NOTES



Tarquini S., Isola I., Favalli M., Battistini A., Dotta G. (2023). TINITALY, a digital elevation model of Italy with a 10 meters cell size (Version 1.1). Istituto Nazionale di Geofisica e Vulcanologia (INGV). <https://doi.org/10.13127/tinality/1.1>



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Summary of main changes

In January 2023, a new version of the TINITALY DEM is released, named TINITALY 1.1. The new release:

- provides an improved DEM in which several inaccuracies have been fixed. The corrected tiles are highlighted in red color in Figure 1 and the changes with respect to the version 1.0 are detailed in the following table;

TINITALY 1.0	TINITALY 1.1
NoData values were set to zero both on the sea and inland outside the Italian boundary. This can be a problem near the coastline or elsewhere, where the actual DEM value can be zero.	The tiles containing the coastline and the tiles containing the border with European countries are updated. The NoData value for the sea and the European territory outside Italy is now set to -9999 instead of zero (NoData value change).
A few tiles, mainly at the border with European countries, weren't cut properly and showed spurious elevation values outside the Italian border line and coastline.	These tiles are updated and properly cut along the Italian border line and the coastline (DEM values change).
The tiles w39080 (Lampedusa island), w39580 (Linosa island), w40575 (Pantelleria island), w42585 (Ustica island) and w40510 (the extreme southeastern point of the Sicily island) were incomplete and/or shifted.	The same 5 tiles have been derived again from vector data (e.g. contour lines, elevation point, coastline) by using the same ArcView procedures used years ago to create the whole TINITALY dataset (Tarquini et al., 2007) (DEM values change).

- incorporates a suite of DEM-derived products: (i) shaded relief map; (ii) slope map using 2.5σ clipping as technique for image enhancement; (iii) Sky view Factor (SVF) map using 2.5σ clipping as technique for image enhancement; (iv) SVF map using equal area equalization as technique for image enhancement; (v) openness down map using equal area equalization as technique for image enhancement; and (vi) Hue-Saturation-Value (HSV) composition image with slope (2.5σ clipping) as saturation and SVF (2.5σ clipping) as value, according to RRIM (Red Relief Image Maps) style maps;
- supplies the products not only by means of WMS (Web Map Service) and WCS (Web Coverage Service) web services but also through WMTS (Web Map Tile Service) service. It serves digital maps of spatially referenced data using tile images with predefined content, extent, and resolution. To speed up the performance of the service, some zoom levels have been prepared in advance, while others are generated on the fly through a caching method. The tiles are available in the coordinate systems (i) EPSG 4326 (WGS84); (ii) EPSG 32632 (WGS 84/UTM zone 32N); and (iii) EPSG 32633 (WGS 84/UTM zone 33N).

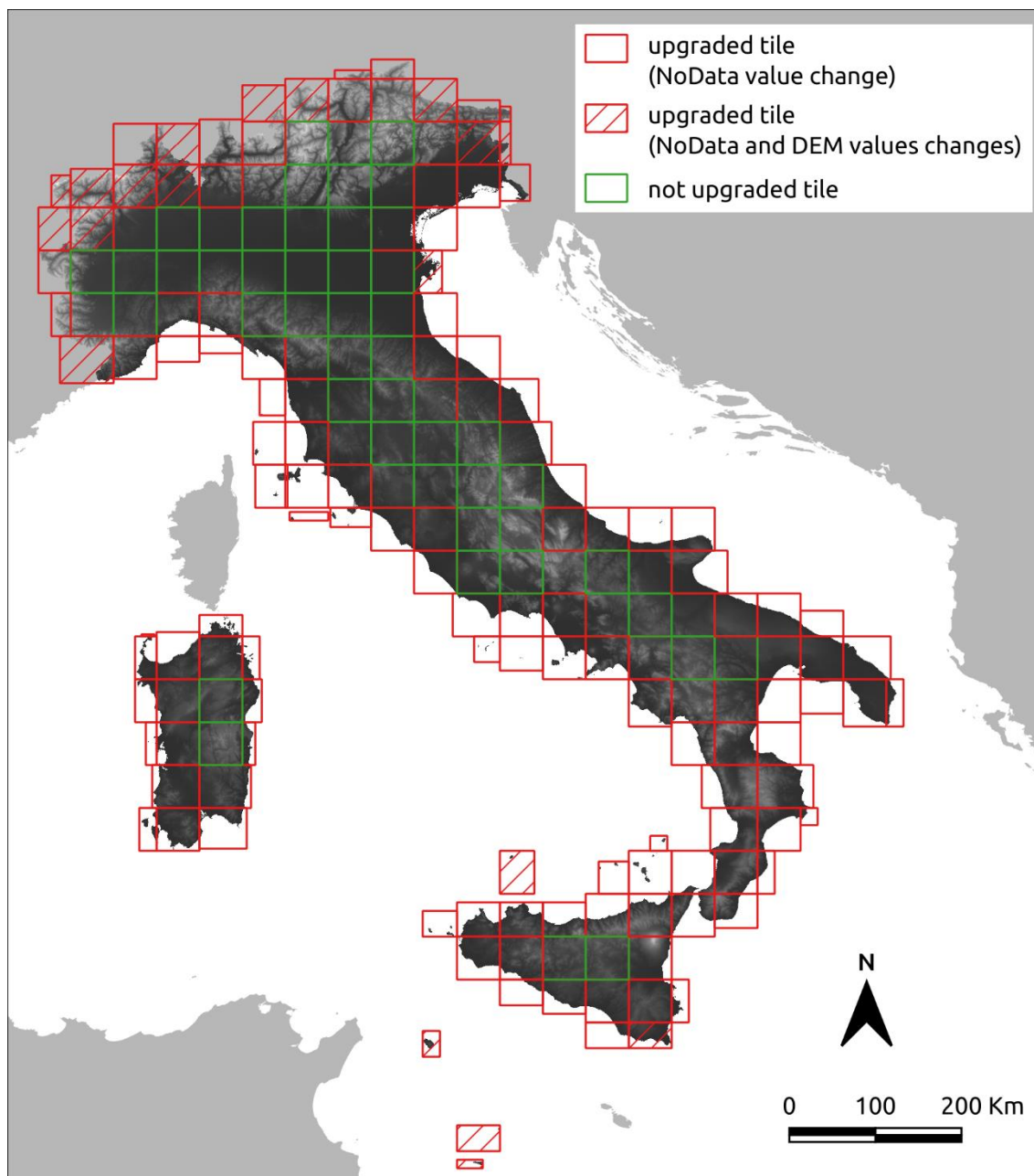


Figure 1 - DEM image showing the tiles of the dataset. The tiles upgraded in the new version (TINITALY 1.1) are in red, while the ones unchanged with respect to the old version (TINITALY 1.0) are in green.

Disclaimer

TINITALY supplies a 10 m-resolution DEM and a suite of DEM-derived products in grid format covering the whole Italian territory. The INGV and the TINITALY authors make every possible effort to supply the best available information, but no warranty, expressed or implied, is provided as to the accuracy and reliability of the data supplied in TINITALY.

Users are cautioned to carefully consider the nature of the provided data before using it for decisions that concern personal or public safety or in relation with business involving substantial financial or operational consequences. Conclusions drawn from this Database, or actions undertaken on the basis of its contents, are the sole responsibility of the user.