

# **“DEM2xyz v.3.0”: documentation file**

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## **2. Citation of “DEM2xyz v.3.0”**

All the published and unpublished items/products/documents of every kind, somehow related to “DEM2xyz v.3.0”, need the following citation: “DEM2xyz v.3.0 (RSE SpA)”.

DEM2xyz should also be cited in all the related publications, reports and dissemination tools and media, by means of the following citation:

“The minor tool “DEM2xyz v.3.0” is realised by RSE SpA thanks to the funding “Fondo di Ricerca per il Sistema Elettrico” within the frame of a Program Agreement between RSE SpA and the Italian Ministry of Economic Development (Ministero dello Sviluppo Economico).”

## **3. Acknowledgments**

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- ✓ under the Contract Agreement between RSE SpA and the Italian Ministry of Economic Development for the of RdS period 2012-2014, in compliance with the Decree of November 9, 2012.
- ✓ under the Contract Agreement between RSE SpA and the Italian Ministry of Economic Development for the RdS period 2015-2017, in compliance with the Decree of 21 April 2016. Reference project: ‘A.5 - Sicurezza e vulnerabilità del sistema elettrico’, Frigerio A. et al., 2015-2018;
- ✓ under the Contract Agreement between RSE S.p.A. and the Ministry of Economic Development - General Directorate for the Electricity Market, Renewable Energy and Energy Efficiency, Nuclear Energy in compliance with the Decree of April 16, 2018; Project: “2.5 Modelli e strumenti di intervento, anche preventivo, per la difesa e il miglioramento della sicurezza e della resilienza delle reti” - Ricerca di Sistema (2.5 Models and action tools for the safety and resilience of the power grids - Research on the Italian Energy System); Project Manager: Francesco Apadula (formerly Antonella Frigerio); Agreement between the Italian Ministry of Economic Development and RSE SpA 2019-2021;
- ✓ by the Research Fund for the Italian Electrical System under the Contract Agreement between RSE S.p.A. and the Ministry of Economic Development - General Directorate for the Electricity Market, Renewable Energy and Energy Efficiency, Nuclear Energy in compliance with the Decree of April 16th, 2018. Project Managers: Stefano Maran, Giovanni Pirovano.

## **4. Description and references**

DEM2xyz v.3.0 (RSE SpA) is written by Andrea Amicarelli

“DEM2xyz v.3.0” is free software released under the GNU General Public License (Free Software Foundation).

The description of the code is available in the documentation file of SPHERA (RSE SpA, [4]).

## **5. Tutorials**

DEM2xyz v.3.0 is validated on 3 tutorials (following sub-sections), each one having possible variants. Some of the tutorials are published on International Journals and were also carried out with previous versions of the code. Other minor test cases only represent very simple configurations.

### **5.1.“edb\_ICOLD”**

This tutorial is completely described in Amicarelli et al. (2017, [1]). The paper version available on ResearchGate might help in case the published version is unavailable.

### **5.2.“db\_Alpe\_Gera”**

This tutorial is completely described in Amicarelli & Agate (2017, [2]). This project report is Open-Access and also includes a synthetic English version.

### **5.3.lon\_lat\_demo**

This is a very simple and very fast tutorial with input data in geographic coordinates.

## **6. References**

1. Amicarelli A., B. Kocak, S. Sibilla, J. Grabe; 2017; A 3D Smoothed Particle Hydrodynamics model for erosional dam-break floods; International Journal of Computational Fluid Dynamics, 31(10):413-434; DOI 10.1080/10618562.2017.1422731
2. Amicarelli A., G. Agate; 2017; Modellazione fluidodinamica SPH per la propagazione di inondazioni in presenza di opere di protezione; RSE SpA, Ricerca di Sistema, Deliverable 17002102.
3. Paraview (Kitware), <https://github.com/Kitware/ParaView>
4. SPHERA (RSE SpA), <https://github.com>