README file for "Pan-European data sets of coastal floods probability of occurrence under present and future climate"

Version

1.1, 25.07.2017

Description

GIS-compatible files containing data related to the probability of coastal floods occurring in Europe under present and future climate. Includes gridded (GeoTIFF) datasets of coastal flood extents (in two variants, with or without flood protection) and water depths. Additionally includes extreme water level and storm surge heights estimates in ESRI Shapefile format. Based upon SMHI-RCA4-EC-EARTH regional climate simulation (EURO-CORDEX).

Please see the RAIN project report D2.5 for detailed description (http://rain-project.eu/wp-content/uploads/2016/09/D2.5_REPORT_final.pdf).

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List of files

- 'Coastal_flood_extent_X_Y_Z_no_protection' contains flood extent, presented as a surface with 5 intervals – return periods of 10, 30, 100, 300, 1000 years, with the assumption of no flood defences present. [5 files]
- 'Coastal_flood_extent_X_Y_Z_with_protection' contains flood extent, presented as a surface with 5 intervals – return periods of 10, 30, 100, 300, 1000 years, with the assumption that flood defences are present and has a protection standard as in FLOPROS database by Scussolini et al. (2015). [5 files]
- 'Coastal_flood_depth_X_Y_Z_R' contains water depth in meters for a flood event with a return period of R, 100 m resolution. [25 files]
- 'Coastal_storm_surge_height_X_Y_Z' contains skew surge heights in meters above mean at 10 different return periods (from 2 to 1000 years) at coastal segments of various length. This file is intended for use together with CCM River and Catchment Database, version 2.1 (CCM2). [5 files (*)]
- 'Coastal_water_level_X_Y_Z' contains water levels in meters above mean at 10 different return periods (from 2 to 1000 years) at coastal segments of various length. This file is

intended for use together with CCM River and Catchment Database, version 2.1 (CCM2). [5 files (*)]

- 'Coastal_surge_return_periods_X_Y_Z' contains return periods (in years) of skew surge heights calculated using probability distributions from 1971–2000 for 10 different return periods defined for future climate (from 2 to 1000 years) at coastal segments of various length. This file is intended for use together with CCM River and Catchment Database, version 2.1 (CCM2). [4 files (*)]
- 'Coastal_auxiliary_variables' contains auxiliary data for coastal flood analysis: mean high tide in meters ('MeanTide'), sea level rise by scenario in meters relative to 1971–2000 ('SLR_1' – 2021–2050 RCP 4.5, 'SLR_2' – 2071–2100 RCP 4.5, 'SLR_3' – 2021–2050 RCP 8.5, 'SLR_4' – 2071–2100 RCP 8.5) and glacial isostatic adjustment trend in mm/year (GIA_trend'). [1 file (*)]

X denotes start-year and Y end-year of the scenario.

Z denotes the scenario ("hist" – historical simulation, "RCP4.5", "RCP8.5" – two climate change simulations with different socio-economic assumptions)

(*) denotes files that are intended for use together with CCM River and Catchment Database, version 2.1 (CCM2).

Spatial reference

ETRS89 / ETRS-LAEA projection (EPSG:3035).

Disclaimer

Data available for download as a result of this project were made using large-scale datasets and are intended for providing an European-wide overview of present and future probability of occurrence of extreme weather hazards. Extreme caution should be made when drawing local-scale conclusions from the maps. Therefore, the data are provided for research purposes only. No warranty is given as to their suitability for user applications. No liability is accepted by the authors for any errors or omissions in the data or associated information and/or documentation.

Citation

Paprotny, D., Morales Nápoles, O., Vousdoukas, M. I., Jonkman, S. N., Nikulin, G. (2017) Accuracy of pan-European coastal flood mapping. Journal of Flood Risk Management, submitted.

Paprotny, D., Morales Nápoles, O., Nikulin, G. (2016) Extreme sea levels under present and future climate: a pan-European database. E3S Web of Conferences 7, 02001, doi:10.1051/e3sconf/20160702001.

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