FATHOM GLOBAL FLOOD HAZARD MAPS

Dataset details

The **FATHOM** flood-hazard model (previously known as SSBN), is a global gridded dataset of flood hazard produced at the global scale. It provides flood water extent and depth for a range of pluvial and fluvial hazard scenarios, expressed as "return period", which indicates the probability of occurrence (i.e. once in 5, 10, 20, 50, 75, 100, 200, 250, 500, 750 and 1000 years). The Data are at 3 arc second (approximately 90m) resolution and have a global coverage between 56°S and 60°N.

Each country set includes three subsets:

- Fluvial Undefended (**FU**): fluvial flood hazard data, without defence estimation
- Fluvial Defended (**FD**): fluvial flood hazard data, with defence estimation
- Pluvial (**P**): flash-flood or pluvial flood hazard data

The "Defended" version of the fluvial hazard maps accounts for the effect of flood defense measures in lowering the hazard intensity; please note this is based on a statistical estimate of flood protection standards (FloPros) and does not account for the presence of physical structures (e.g. dikes, barriers). The "Undefended" version is recommended for general risk assessment purpose.

The datasets are supplied as raster GeoTIFF files using WGS84 projection (EPSG:4326). Large territories may be broken down into multiple tiles; these are ordered 1, 2, 3, etc. Each file shows the simulated return period maximum water depths in metres. Permanent water pixels, derived from Landsat imagery, have a value of 999. No-data pixels have a value of -9999.

For a more detailed introduction to the data and methods used to construct the model, as well as an evaluation of its expected performance, please see the peer-reviewed papers available at the following link: https://www.fathom.global/academic-papers

Data Limitations

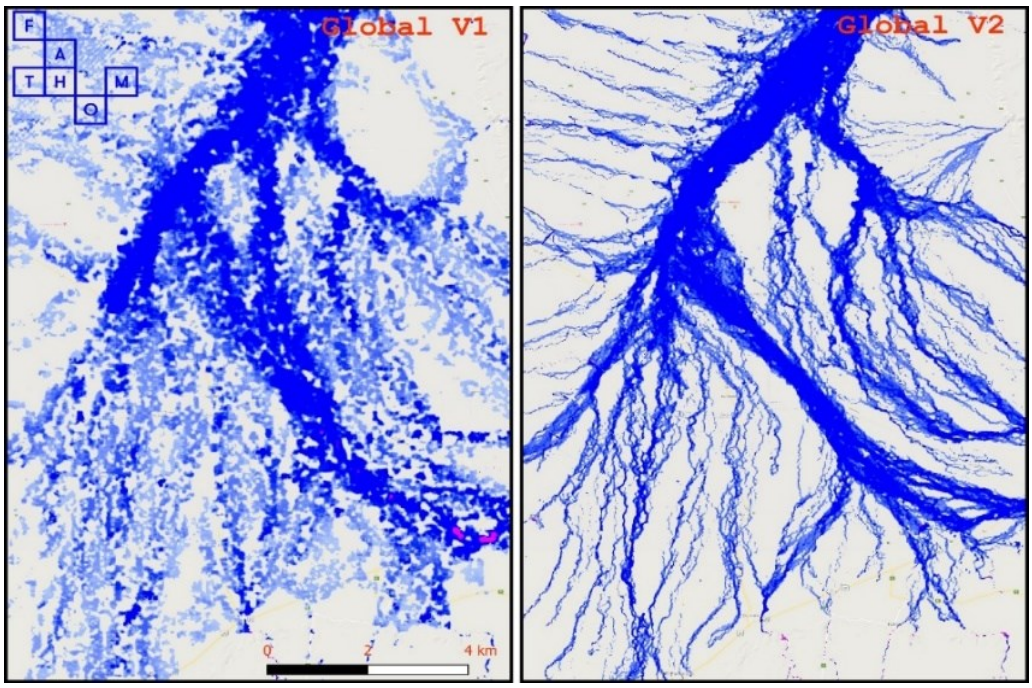
The Data contains sources of uncertainty that can make it unsuitable for certain purposes. As with all environmental models, the accuracy of the Data may vary and cannot be guaranteed. Please read the full clause of caution that accompanies the Data before use.

All environmental models are limited by the availability and quality of their input data and the degree to which their internal mathematical structures can represent real-world processes. In this model, the **fluvial data has greater certainty than the pluvial data**, because pluvial flooding can be more easily influenced by certain local-scale local features (such as storm drains or local variations in soil conditions) that this model cannot represent. **The fluvial data is known to have more skill on large rivers than it is on small rivers**, and therefore accuracy is likely to be greater on large floodplains than in headwater areas. Because of these limitations, it is not recommended to use this dataset as the sole source of flood hazard information for site-specific analysis. This is a global dataset meant for assessment at country-scale; while the data can provide a useful overview of the likely hazard in a particular region, more detailed local data should be sought out before detailed planning or operational decisions are made. Caution should be used for the interpretation of

the hazard maps at local scale. **The data is not suitable for engineering-level analysis** (such as construction of bridges or flood defences). Such projects will require the development of a local engineering-grade model by an appropriate consultant or firm. A useful overview of the limitations of global flood models can be found at the following link: http://dx.doi.org/10.1038/nclimate2742

Model details

The last release (v2) under the name "Fathom" is produced using two-dimensional hydrodynamic model LISFLOOD-FP based on the land morphology provided by MERIT-DEM, an enhanced version of the NASA SRTM DEM, and rivers channels hydrography by MERIT-HYDRO. The hazard simulations are performed explicitly at 90 meters resolution (30m for the US).



Comparing v1 and v2 maps: fluvial hazard (Argentina)

Terms of use

All use of the Data is subject to the full Terms of Reference associated with the original supply of the Data. The General World Bank Data Policy for Confidential Data applies to the use of the Data.

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For more information please check the FATHOM website (https://www.fathom.global*) or contact info@fathom.global.*

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