

POSEIDÓN

Rates of change in the annual maximum daily rainfall quantiles to be expected, nationally, in a situation of climate change. Database containing the expected rates of change in maximum daily rainfall for return periods of 2, 5, 10, 50, 100, 500 and 1,000 years.



Contact information

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Technological Offers type

[Technological solutions](#)

Research and innovation areas

- [Climate, Energy and Mobility](#)

ODS



Where?

Hydroinformatics and Water Management

Keywords: | [Climate](#) | [rainfall](#)

Brief description of the solution and the added value it delivers

The database includes the expected rates of change, as a consequence of climate change, in maximum daily rainfall for return periods of 2, 5, 10, 50, 100, 500 and 1,000 years in mainland Spain, Portugal and the Balearic Islands.

The law of rainfall frequency expected in the future, as a consequence of climate change, is obtained immediately based on the current law of rainfall frequency and calculated from information recorded by rain gauges.

The database can be used to determine the future behaviour, in a situation of climate change, of rainfall and freshets (river flooding), as well as to assess the future safety of hydraulic infrastructure.

Description of the technological basis

The solution consists of a database that supplies the expected future changes in rainfall quantiles in mainland Spain, Portugal and the Balearic Islands.

The database provides quantitative values for changes associated with daily rainfall quantiles for defined return periods, making it possible to determine the law of rainfall frequency to be expected in the future as a consequence of climate change based on the current law of rainfall frequency, as calculated from information recorded by rain gauges.

The database is innovative in that it provides quantitative values for the maximum daily rainfall quantiles.

'The database makes it possible to determine the law of rainfall frequency to be expected in the future from the current law of rainfall frequency'

Business needs / application

- In the environmental sector there is currently a need to know how climate change influences flooding, in order to incorporate that information into flood risk management plans, following the Floods Directive.
- Similarly, in relation to urban drainage, there is a need to understand the behaviour of extreme rainfall in the future, as a consequence of climate change.
- It is also necessary to understand future rainfall behaviour to estimate the changes it will cause in freshet hydrographs and thus assess the influence of climate change on the safety of hydraulic infrastructure.

'Article 4(2)(d) of the Floods Directive states that the potential adverse consequences of future floods must be assessed taking into account the influence on them of climate change'

Competitive advantages

- The advantage of the database is that there is currently a short-range need to know how climate change will affect flooding in the future, as it is currently an unsolved problem.
- The database presents results of the effect of climate change on the behaviour of extreme rainfall which are easy to apply from a practical point of view. Currently, there is no other source that supplies that information.

References

The database has been created as part of the project CGL2014-52570-R 'Impact of climate change on the law of bivariate frequency of freshets', funded by Spain's Ministry of Economic Affairs, Industry and Competitiveness.

Industrial protection

Registered database: M-001724/2018.

Stage of development

- Concept
- Research
- Lab prototype
- Industrial prototype
- **Production**

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