

Changes seen in rainfall trends in March, June and October since 1945 in Spain

March 22 2010



Changes can be seen in rainfall trends in March, June and October since 1945 in Spain. Credit: SINC.

An international team led by the University of Zaragoza (UNIZAR) has produced MOPREDAS, the most complete database to date on monthly precipitations in the Iberian Peninsula. This has been used to analyse monthly rainfall trends between 1945 and 2005 in the Spanish part of the Iberian Peninsula.

The aim of this study is "to respond to a request in the ministerial report about the impacts of climate change in Spain, which highlights the lack of detailed studies into rainfall in Spain or a database that covers the entire country", José Carlos González-Hidalgo, lead author of the study and a tenured professor of Physical Geography in the Faculty of Geography at UNIZAR, tells SINC.

The study, which has just been published online in the *International Journal of Climatology*, shows that March, June and October are the months that show significant changes in precipitation trends across large areas of the [Iberian Peninsula](#).

Precipitation has declined in quantity in March and June (above all in the centre, south and west of the country), but over large parts of the country in general, affecting more than 60% of the peninsula in March.

"We can't say categorically that annual precipitation has increased or decreased overall, but there are marked variations in different areas", says the geographer.

For the period between October and March, [rainfall](#) has increased in October while there has been a widespread decrease in March, "which is important information for the management of water resources".

Reconstruction of precipitation series over more than half a century

The scientists reconstructed and analysed 2,670 monthly precipitation series (average density 1/200 km²) over the peninsula between December 1945 and November 2005. To do this, they used the computerised documentary sources held by the Spanish Meteorological Agency (AEMet) in order to create details for different areas, "which had not been done until now", says González-Hidalgo, adding that "we were able to carry out this work because the AEMet archives are the most useful of sources for research".

In addition, the new database also includes information from above the 1000-1500 metre altitude range, "which had barely been analysed up until now", the researcher stresses.

The results of the latest study "give a much more detailed image of precipitation behaviour over the second half of the century in peninsula [Spain](#)", the scientist says.

The case of the Mediterranean coast

In previous studies, the group of scientists had analysed the same issue between 1950 and 2000 along the Mediterranean coast, covering the river basins of the eastern Pyrenees, the Ebro, Júcar, Segura rivers and eastern Andalusia, "an area in which water resources are placed under great consumption pressure and there is great social debate about the best way of managing them", points out González-Hidalgo.

According to these preliminary studies, published in 2009 in the *International Journal of Climatology*, "the only widespread and significant reduction in precipitation along the Mediterranean could be seen in March", concludes the researcher.

More information:

References:

González-Hidalgo JC, Brunetti M; y de Luis M, "A new tool for monthly precipitation analysis in Spain: MOPREDAS database (Monthly precipitation trends December 1945- November 2005)" *International Journal of Climatology*, DOI: 10.1002/joc.2115 online 12 March 2010.

González-Hidalgo JC, López-Bustins JA, Štěpánek P, Martín-Vide J., de Luis M. "Monthly precipitation trends on the Mediterranean fringe of the Iberian Peninsula during the second half of the 20th century (1951-2000)" *International Journal of Climatology*, 29: 1415-1429. DOI: 10.1002/joc.1780. / 2009.

De Luis M, González-Hidalgo JC, Longares LA and Štěpánek P.

"Seasonal Precipitation trends in the Mediterranean Iberian Peninsula in second half of 20th century International" Journal of Climatology 29: 1312-1323. DOI: 10.1002/joc.1778 / 2009.

Provided by FECYT - Spanish Foundation for Science and Technology

Citation: Changes seen in rainfall trends in March, June and October since 1945 in Spain (2010, March 22) retrieved 6 May 2024 from <https://phys.org/news/2010-03-rainfall-trends-june-october-spain.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.