

Atmospheric rivers linked to severe precipitation in Western Europe

July 30 2013

Atmospheric rivers, narrow bands of enhanced water vapor transport in the atmosphere, have been associated with extreme rainfall and flooding in some areas, especially western North America. Lavers and Villarini now show that atmospheric rivers are also responsible for a significant number of days of high precipitation in Western Europe.

The authors investigated the link between atmospheric rivers and annual maxima daily precipitation across Europe over the period from 1979 to 2011. First they applied an algorithm to identify atmospheric rivers in water vapor transport data and detected a total of 432 atmospheric rivers over the study period. Then they looked at the dates of the annual maxima precipitation events and connected an atmospheric river with a maximum precipitation event if the precipitation occurred on the same day or the day after an atmospheric river occurred.

They find that the effects of atmospheric rivers are felt as far inland as Germany and Poland, with the strongest links between high precipitation events and atmospheric rivers in [mountainous areas](#). In some regions, most of the largest annual maxima precipitation events were linked to atmospheric rivers. For instance, in some parts of Scotland, southwest England, northern France, and Norway, 8 of the 10 top annual maxima precipitation events were associated with atmospheric rivers. The results show that atmospheric [rivers](#) are important in explaining the extreme precipitation distribution in Western Europe.

More information: The nexus between atmospheric rivers and

extreme precipitation across Europe, *Geophysical Research Letters*, [doi: 10.1002/grl.50636](https://doi.org/10.1002/grl.50636), 2013
<http://onlinelibrary.wiley.com/doi/10.1002/grl.50636/abstract>

Provided by American Geophysical Union

Citation: Atmospheric rivers linked to severe precipitation in Western Europe (2013, July 30)
retrieved 18 April 2024 from
<https://phys.org/news/2013-07-atmospheric-rivers-linked-severe-precipitation.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.