



On the origin of continental precipitation

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About 9 out of 10 liters of water evaporated from the oceans every year precipitates back onto oceans. However, the remaining 10% that get transported to continents play an irreplaceable role feeding the land branch of the hydrological cycle. Here we use an objective 3 [U+2010] D Lagrangian model (FLEXPART) to detect major oceanic moisture source areas and the associated continental regions significantly influenced by each moisture source. Our results reveal a highly asymmetrical supply of oceanic moisture to the continents, with the Northern Atlantic subtropical ocean source impacting the continents considerably more than the large Southern Indian and North Pacific sources. Also, the small Mediterranean Sea and Red Sea basins are important moisture sources for relatively large land areas. The Indian subcontinent receives moisture from six different major oceanic source regions. Future changes in meteorological conditions over the oceanic moisture source regions may have an impact on water availability for many river basins.