

# Atmospheric rivers could end Calif.'s drought

By Tony Barboza, Los Angeles Times

California's drought crept in slowly, but it could end with a torrent of winter storms that stream across the Pacific, dumping much of the year's rain and snow in a few fast-moving and potentially catastrophic downpours.

Powerful storms known as atmospheric rivers, ribbons of water vapor that extend for thousands of miles, pulling moisture from the tropics and delivering it to the West Coast, have broken 40 percent of California droughts since 1950, recent research shows.

"These atmospheric rivers – their absence or their presence – really determine whether California is in drought or not and whether floods are going to occur," said F. Martin Ralph, a research meteorologist who directs the Center for Western Weather and Water Extremes at the Scripps Institution of Oceanography at UC San Diego.

The storms, which flow like massive rivers in the sky, can carry 15 times as much water as the Mississippi and deliver up to half of the state's annual precipitation between December and February, scientists say. Though atmospheric rivers are unlikely to end California's drought this year, if they bring enough rain to erase the state's huge precipitation deficit, they could wreak havoc by unleashing floods and landslides.

Scientists using a new type of satellite data discovered atmospheric rivers in the 1990s, and studies since then have revealed the phenomenon's strong influence on California's water supply and extreme weather.

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