Marty Ralph

Research Meteorologist, Director of the Center for Western Weather and Water Extremes (CW3E) at UC San Diego

La Jolla, CA, US

F. Martin Ralph is a research meteorologist focused on understanding the processes that create extremes in precipitation.

Biography

Ralph is a research meteorologist focused on understanding the physical processes that create extremes in precipitation ranging from flood to drought, and on advancing associated observations, predictions, climate projections and decision support tools. He is considered a leading authority on atmospheric rivers, the organized bands of water vapor in the atmosphere prevalent in the western United States that frequently deliver much of the West?s precipitation. Understanding atmospheric rivers is vital to the economic future of California, a state prone to drought that is also one of the most agriculturally productive regions in the world. From 2001 to 2013 he was chief of the Water Cycle Branch at NOAA's Earth System Research Laboratory in Colorado where he led the development of the Hydrometeorology Testbed. He also managed NOAA?s Science, Technology and Infusion Program, chaired NOAA?s US Weather Research Program Executive Committee, and led the creation of NOAA?s Unmanned Aircraft Systems Program. In 2013, he moved to Scripps Institution of Oceanography at UC San Diego where he founded and directs the Center for Western Weather and Water Extremes (CW3E). A major goal through his career has been to better understand, monitor, and predict key elements of the global water cycle including water vapor transport, precipitation and runoff. Scientific understanding of atmospheric rivers, which are critical to both the global water cycle and to the distribution of precipitation and flooding in key parts of the world, is a major thrust. Using these results to evaluate and improve short-term precipitation forecasting and to provide reliable regional climate projections of flooding and water supplies in several areas of the world, are desired outcomes. The application of these findings to key users of weather and climate information on extreme events in the Western U.S. is being developed through new observing strategies, modeling and the creation of decision support tools tailored to user needs. Ralph has helped lead the establishment of testbeds as a method to accelerate the development and infusion of new science and technology into weather and climate forecasting operations. He has developed new projects, experiments and teams on several subjects, most having to do with observations, physical understanding, precipitation extremes, predictions and decision support tools.

Areas of Expertise

Atmospheric Rivers, Observations, Atmospheric Chemistry, Precipitation, Hydrometeorology, Water Resources

Affiliations

Fellow of Cooperative Institute for Research on Environmental Sciences/Univ. of Colorado, Member, NESDIS/GOES-R Science and Development Executive Board

Education

University of California at Los Angeles
Ph.D. Atmospheric Sciences

University of California at Los Angeles
M.S. Atmospheric Sciences

University of Arizona, Tucson, Arizona
B.S. Meteorology

Accomplishments

Climate Science Service Award
California Dept. of Water Resources

Department of Commerce Bronze Medal
Awarded for flood mitigation efforts for Howard Hansen Dam
