Ocean-atmosphere fresh water flux in global hydrologic balance

W. Timothy Liu and Xiaosu Xie
Jet Propulsion Laboratory, California Institute of Technology

Global ocean-atmosphere fresh water exchanges are estimated from spacebased sensors in two ways. One is from the divergence of depth-integrated horizontal moisture transport and the other is from precipitation and evaporation estimated separately. The horizontal water vapor transport is estimated from scatterometer surface wind vector, cloud drift wind, and integrated water vapor through a statistical model, and has been validated extensively. Evaporation is estimated from the radiances of microwave radiometer. Precipitation is estimated by merging various products. Comparison of the results of these two, particularly in mid and high latitude oceans will be presented. Global hydrologic balance (closure of the water conservation equation), using additional measurements of mass change and river discharge offers further scrutiny and support of the air-sea exchange estimations.