An ecohydrological land reanalysis by integrating simulation and satellite observations

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Monitoring terrestrial water, energy, and ecosystem is crucially important to understand global environmental changes. Land reanalysis, in which a land surface model (LSM) is driven by bias-corrected atmospheric forcing based on an atmospheric reanalysis dataset, has greatly contributed to generating the long-term and spatiotemporally homogeneous dataset of terrestrial environmental condition. Here we propose a new land reanalysis called ECoHydrological Land reAnalysis (ECHLA). Compared with the other existing land reanalyses, the characteristics of ECHLA are: (1) ECHLA can simulate not only water and energy, but also vegetation dynamics; (2) ECHLA is generated by sequential data assimilation of satellite microwave observation, which is sensitive to soil moisture and vegetation water content, into a LSM; (3) ECHLA can quantify the uncertainty in its simulated variables by an ensemble method. In this presentation, we will show the concept of ECHLA and the preliminary results of the validation of the ECHLA’s prototype and its application to drought quantification.

Sawada, Y. (2018), Quantifying drought propagation from soil moisture to vegetation dynamics using a newly developed ecohydrological land reanalysis, ***Remote Sensing**, 10,* 1197

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