Seasonal and Inter-annual Variation of the TWS seen from Satellite and Land Surface Model

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We compared the variations of terrestrial water storage (TWS) simulated by land surface model SiBUC with observed by GRACE satellite. The inter-annual variations observed by GRACE sometimes reflect serious problems. For example, a decreasing trend seen in a large granary may mean such area is non-sustainable groundwater use area. If such trend is seen in a glacial area, it can mean glacier melting. In this study, we used that trend to improve a global water cycle model in-land to evaluate groundwater resources sustainability. In the simulation with SiBUC, the amount of groundwater recharge is experimentally assumed to be the difference between water that moves from second soil layer (q23) to third soil layer and base flow (q3). To define the appropriate amount of groundwater recharge, we compared the variations of TWS observed by GRACE satellite. Now we are conducting a field observation in Thailand, and its result will be used to identify the accurate amount of groundwater recharge.

Keywords: land surface model, TWS, groundwater

