Energy and water processes in irrigated lands at lower reach of Yellow River

Yanjun Shen[1]; Shin Miyazaki[2]; Shinjiro Kanae[3]; Taikan Oki[4]; Dawen Yang[5]

[1] IIS, Univ. Tokyo; [2] IIS, Univ Tokyo; [3] RIHN; [4] IIS, The Univ., of Tokyo; [5] none

Energy and water flux and the related hydrological processes have attracted lots of concerns since 1990s due to its linkage between land, ecosystem, and atmosphere. Lots of experimental research has been conducted through the world. And, advances in understanding the energy and water transferring through soil-plant-atmosphere system has been largely improved at different scales.

However, even people can understand well the physical processes now, the chemical aspect, e.g. nitrogen cycle, and the impacts of human activities on the hydrological cycle are still unclear.

Yellow river basin has thousands years of exploitation history, so, it is one of the basins affected or controlled by human being. The hydrological processes in Yellow river basin have obvious human finger print. Therefore, the hydrological processes in yellow river basin could be the best place to study land-water-human interactions.

From March of 2005, we launched a comprehensive observation on the hydrological processes of irrigated lands in Yellow river basin. In this study, we will present the energy, water fluxes, soil moisture, and groundwater responses to irrigation over irrigated lands, and finally, analyze the characteristics of energy and water balances.