



Floods in the Mekong Delta: a future perspective

N.V. Dung (1,2), H. Apel (1), and T.D. Thang (2)

(1) Helmholtz Centre Potsdam - GFZ German Research Centre for Geosciences, Section 5.4 Hydrology, Potsdam, Germany
(dung@gfz-potsdam.de), (2) Southern Institute for Water Resources Research SIWRR, Ho Chi Minh City, Vietnam

The Mekong Delta in Vietnam is one of the largest estuaries on Earth and is annually flooded to a large extend. These floods are the basis for the highly productive agricultural sector in the Delta providing both nutrients and irrigation water for the large scale paddy rice farming, but also for a productive aquaculture and environmental stability. Being an annual event people in the delta arranged their livelihoods to the repeated flood conditions. However, extreme events pose a large threat to both people and environment. Considering the extremely low topography of the Delta and the expected sea level rise caused by climate change, these events are expected to occur more frequently. In order to give a quantitative assessment of future flooding conditions, a 1D hydraulic model of the whole Mekong Delta has been developed within the WISDOM project (www.wisdom.caf.dlr.de), including the important buffer system of the Tonle Sap lake system in Cambodia. Within the model a new concept for the representation of the floodplains in a 1D model has been developed. The model was calibrated on the extraordinary flood in 2000 and validated on the flood in 2001. For an assessment of the future conditions, scenarios of sea level rise as estimated by the IPCC were used as raised downstream boundary conditions and simulations for average as well as extreme flood discharges were simulated. The obtained results show a significant increase in flooded area and depths and can be used as the basis for future flood mitigation planning.