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Impacts of Cropland Changes on Water Balance, Sediment and Nutrient Transport in Eden River, UK

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Abstracts:
Water is the key to food and human life. Farming is the main part of economic and society in Eden, with approximately 2000 farms which covers 95% of under crops. However, with the growth of farming practice and global climate changes, Eden has presented great challenges and bringing uncertainty in the water quality caused by the agricultural diffuse pollution. This expected to reduce negative impacts of the water diffuse pollution from agriculture in Eden. Therefore, there is a high need to ensure effective water resource management to enhance water quality, to address the flow pathways and sediment transport in different farming practice and cropland changes. Hence we need to understand nutrient and the hydrological flow pathways from soil to Hillslope to channel.
The aim of this research is to evaluate the impacts of different cropland changes on water balance, sediment and nutrient transport. By using the hydrological models Soil and Water Assessment Tool (SWAT) and the Catchment Runoff Attenuation Flux Tool (CRAFT), it can show the sediment and nutrient export from the load for each flow pathways (overland flow, soil water flow and ground water flow). We will show results from a small research catchment (10km2) area to the whole of Eden (800km2) at a daily time step.