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Analysis of potential flood damage on crops at global scale

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Most of the food production connected to crops is located in fluvial corridors because of their suitable morphology and fertile soils. The knowledge and large scale quantification of the agricultural resources at flood risk has a crucial importance for improving urban and regional planning. Recent advances in satellite derived products related to land use, digital terrain and hydrologic variables can give a strong support on extensive analyses on cropland areas in floodplains and their interactions with natural ecosystems and human activities. In this work, we present a global assessment of cropland at flood risk in terms of extension, productivity and the related calories adopting the Global Cropland Area Database (GCAD), the Global Floodplain Dataset (GFPLAIN250m), the Global flood hazard maps (GFHM) in conjunction with continental remotely-sensed data representing free flowing (versus artificially regulated) rivers and urban density maps. Spatially distributed and aggregated results of the research allow to identify the most critical areas in terms of food security and floods, thus allowing to support intervention strategies for food security management at large scale and for different socio-economic contexts.