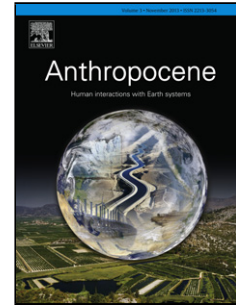


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HYDROLOGIC IMPACTS OF CHANGING LAND USE AND CLIMATE IN THE VENETO LOWLANDS OF ITALY

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ABSTRACT

The Po valley in northern Italy is one of Europe's largest and most anthropogenically-modified lowland areas, where intensifying climate and land transformation are increasingly causing water management problems. In this study, the Wageningen Lowland Runoff Simulator (WALRUS) is calibrated, validated, and applied to a reclaimed basin in the Veneto region (Italy) in order to assess the hydrologic impacts of land use and climate change scenarios. First-time model calibration for Mediterranean lowlands resulted in reasonable performance during the training year (NSE 0.77), but lower validation performance (NSE 0.53), while potential for improved calibration was limited by data availability. Scenario analysis covers the historical and future changes in land cover and climate throughout a century (1951-2060), based on aerial imagery analysis, hydrologic measurements, COSMO-CLM regional climate projections and demographics. WALRUS simulations illustrate how land use transformation (i.e. expanded built-up

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