



A new estimation of water and nutrients (N & P) discharge to the Mediterranean Sea from the LPJmL model: modelling the dynamics of the land-sea nutrient transfer

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Model presentation

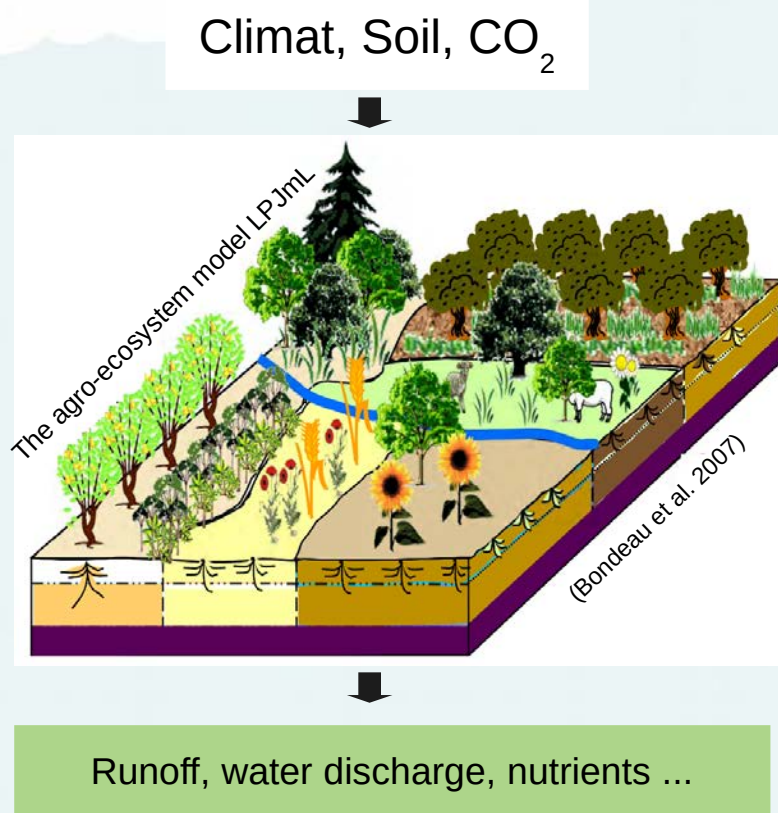
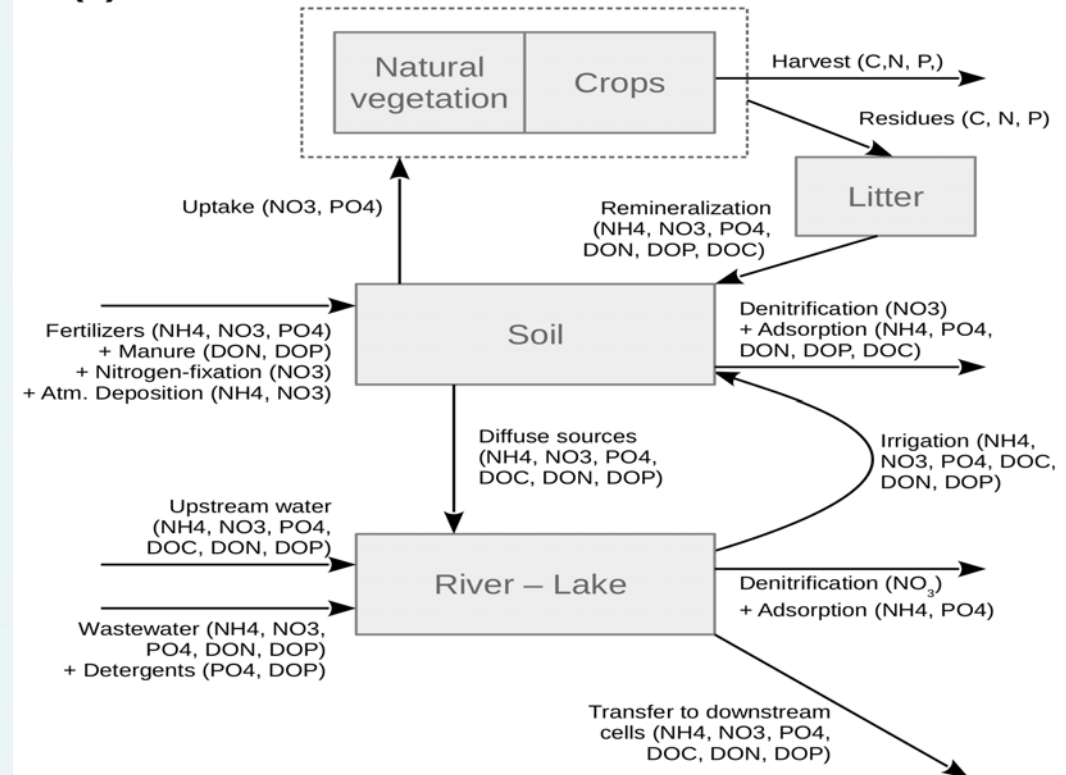


Figure 1. Transfer of nutrients in a grid cell of LPJmL.



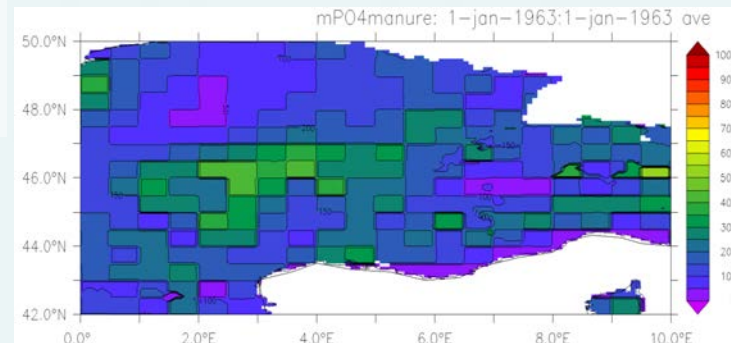
Inputs and boundary conditions : Rhône (1961-2009)



Fertilizer (N & P)

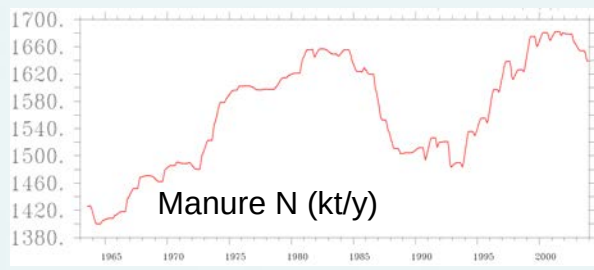
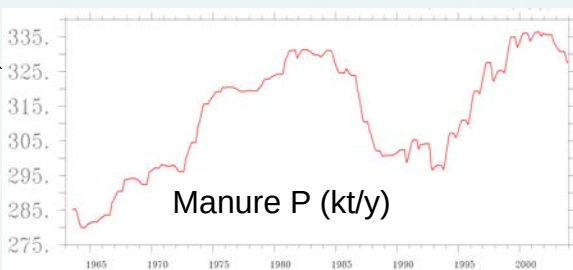
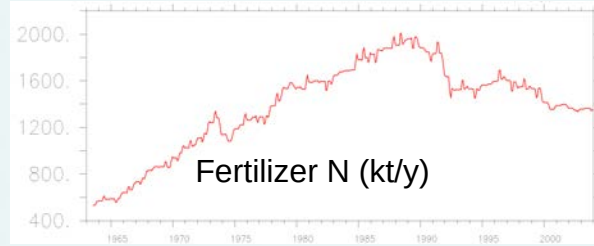
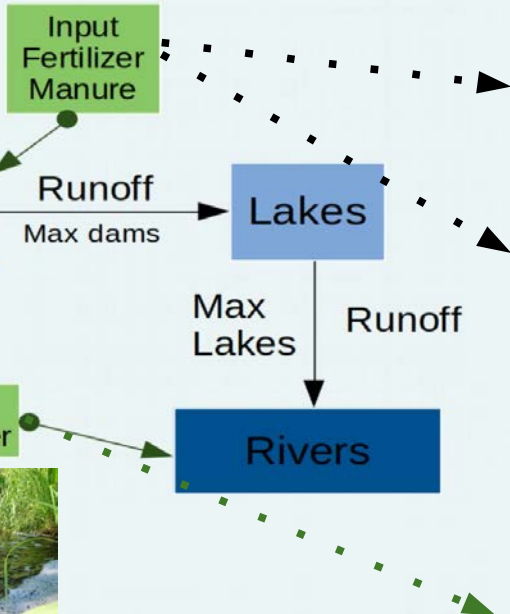


Manure (N & P)

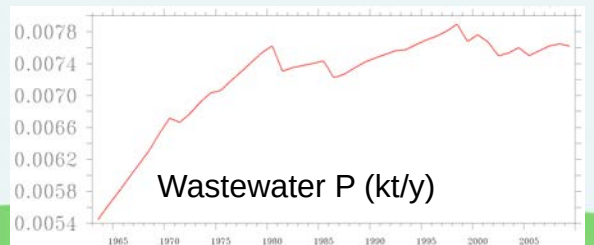
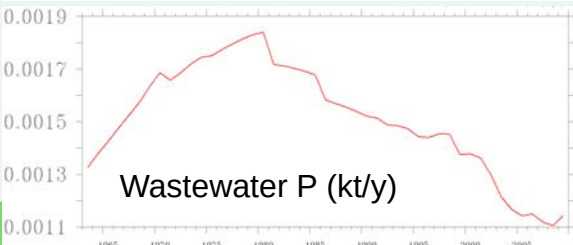


Climat

Soil
Leaching of nutrients



Wastewater (N & P)



Evaluation of simulated water discharge

The model succeeds in simulating the temporal variations of water discharge for the main rivers of the Mediterranean Sea (Rhône, Ebro and Po) :

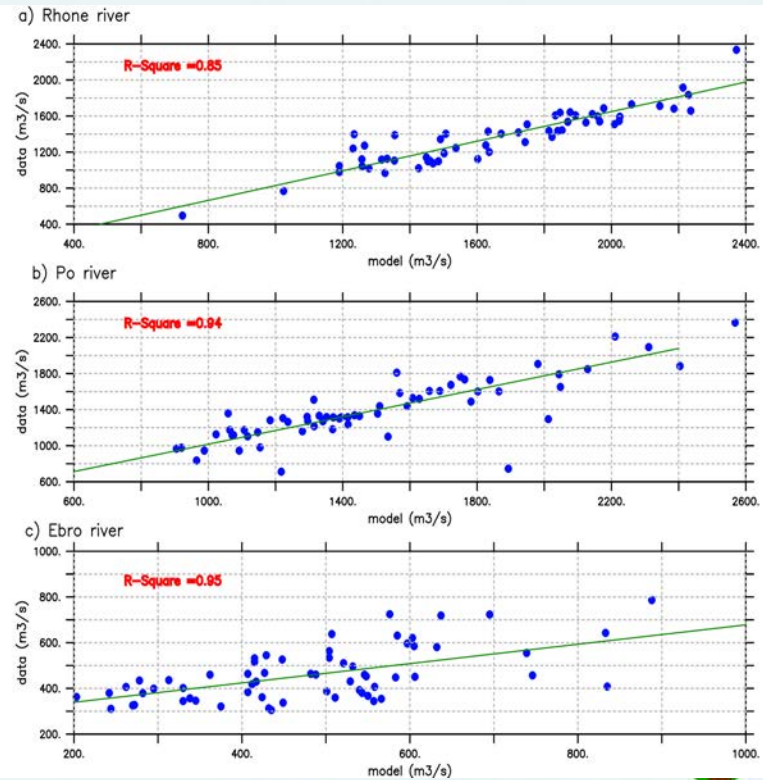
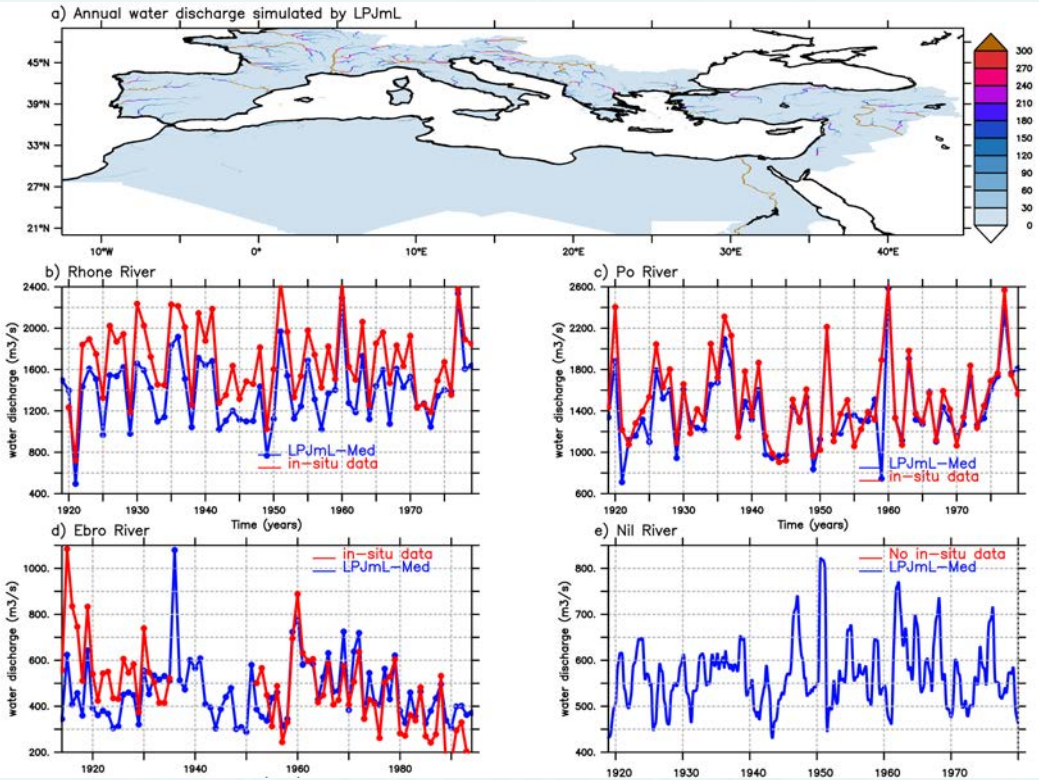


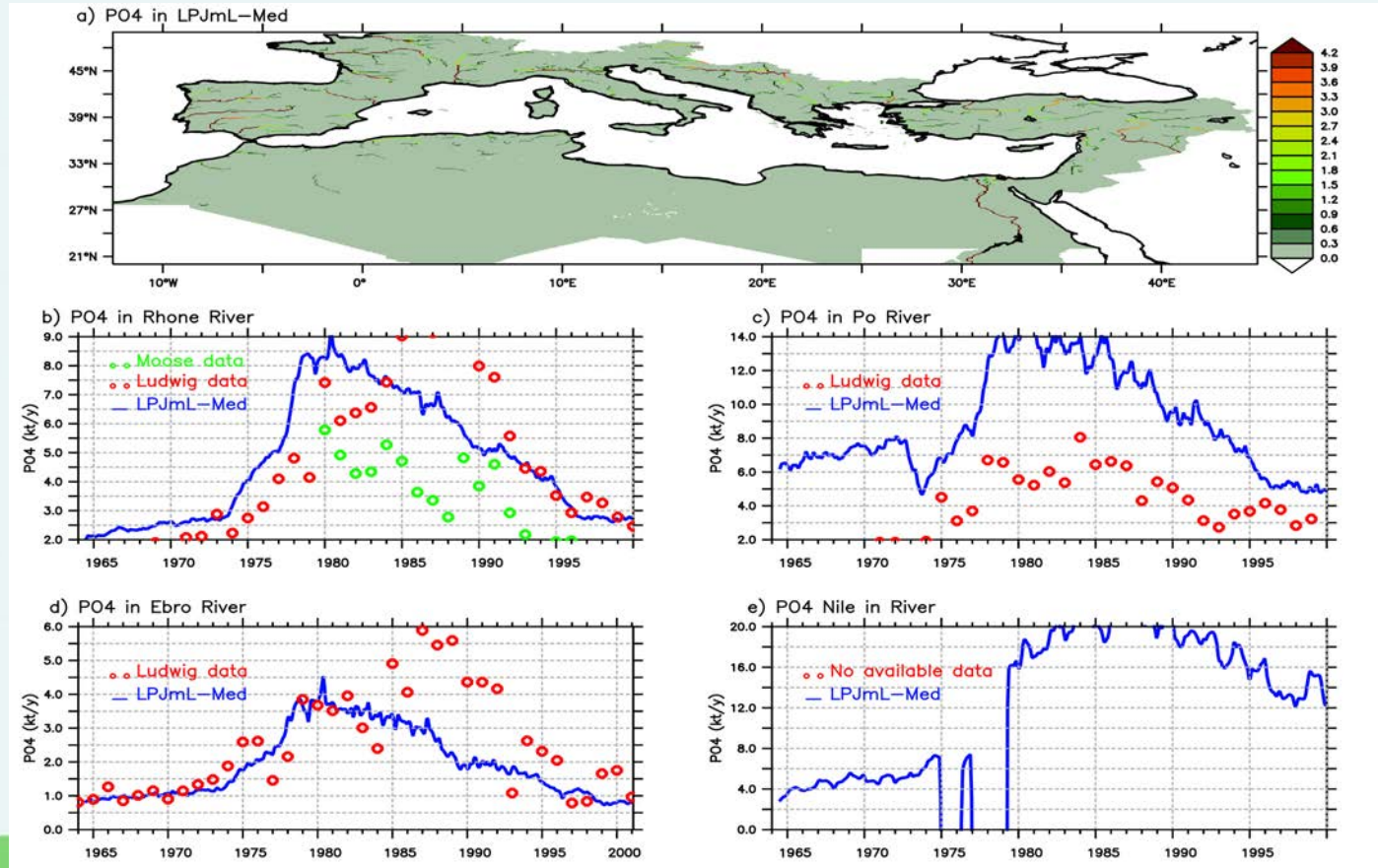
Figure : LPJmL output for water discharge in m3/s

LPJmL
Data from Vörösmarty et al. 2003

Evaluation of the simulated nutrients (PO_4) for the mains rivers

First basin-wide LPJmL simulation at $1/12^\circ$ shows a quite good agreement between the simulated nutrients concentration (NO_3 and PO_4) and available in-situ data.

Ayache et al., sub to GMD



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