

READMEnotes.txt

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1) Choice of 'wpudmax' parameter

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In soil.f subroutine soilctrl, runoff is calculated and raing (rainfall reaching ground) gets apportioned before infiltration is calculated. This causes a problem in which raing gets alternately assigned either mostly to puddle or mostly to runoff. This oscillating puddle depth causes the infiltration and soil moisture in the top layer to go up and down each iteration. A shallow puddle exacerbates the fluctuation. You are encouraged to adjust wpudmax - the current 4.5mm is less than what a silt-loam soil can infiltrate in 1 hour. Zobek and Onstad measured random roughness for a "smooth" soil surface = 6mm. A very rough surface (chisel-plowed soil) is 25mm. Your puddle depth should be larger than the definition for a "heavy" rain for your soil type. A deeper puddle will help reduce the fluctuations in infiltration and surface soil moisture by allowing a reserve of water to exist on the surface from one time step to the next.

A heavy rain event is greater than or equal to  
0.6 mm/hr for a clay soil  
7 mm/hr for a silt loam soil  
210 mm/hr for a sand soil

You can calculate the definition of "heavy" rain for other soil types by converting zdpud to units of kg/m<sup>2</sup> (equivalent to mm of water).

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2) Choice of 'nsoilay' parameter

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In this version, IBIS is set up to run with a 4m soil depth. Although, we find that this gives reasonable results in our global simulation, please change this to suit your specific region. This version is set up to have only 6 layers of soil: of depths (variable hsoi), 0.10m,0.15m,0.25m,0.50m,1.0m,2.0m from top to bottom. However, you can easily choose different depths by modifying 'nsoilay' and/or 'hsoi'.