

In mksurfdat.F90 ... generating the landuse.timeseries data....

1. Ensure the sum of all land units other than natveg and crop <100%

Suma= Lake[1]+wet[1]+gla[1]+urb[y]

If suma>100, urb[y] *100/suma, but do not adjust Lake[1], wet[1], gla[1]

2. Ensure the sum of all land units = 100%

Call normalizencheck_landuse (), using Lake[1], wet[1], gla[1], urb[y], natveg[y] , crop[y]

- Replace bare soil first
- Replace the natveg and the crop proportionally

Some grids still have suma > 100, because we cannot adjust Lake[1], wet[1], gla[1]



Therefore, for some grids, the urban might be even larger than natveg + crop. In this case, we can only set urban= 1- (Lake[1]+wet[1]+gla[1]), and natveg=crop=0

Summary: in landuse.timeseries data, the Lake[1]+wet[1]+gla[1]+ urb[y] + crop[y] + natveg[y] = 100



The natveg[y] is not stored in the landuse.timeseries data, but is computed in dynLandunitAreaMod.F90, as the residual after all land units are allocated.

In dynLandunitAreaMod.F90

Landunit_sum= lake[1] + wet[1] + gla[1] + urb [y] + crop[y] + natveg [y]

If Landunit_sum <100, increase natveg [y]

If Landunit_sum >100, decrease the land units in the order of istsoil, istcrop, isturb_md, isturb_hd, isturb_tbd, istwet, istdlak

This module does replace the istsoil first, but we have already reduced the natveg and crop proportionally in step2 of mksurfdat.F90 to make space for urban.