2. Too much heartwood biomass

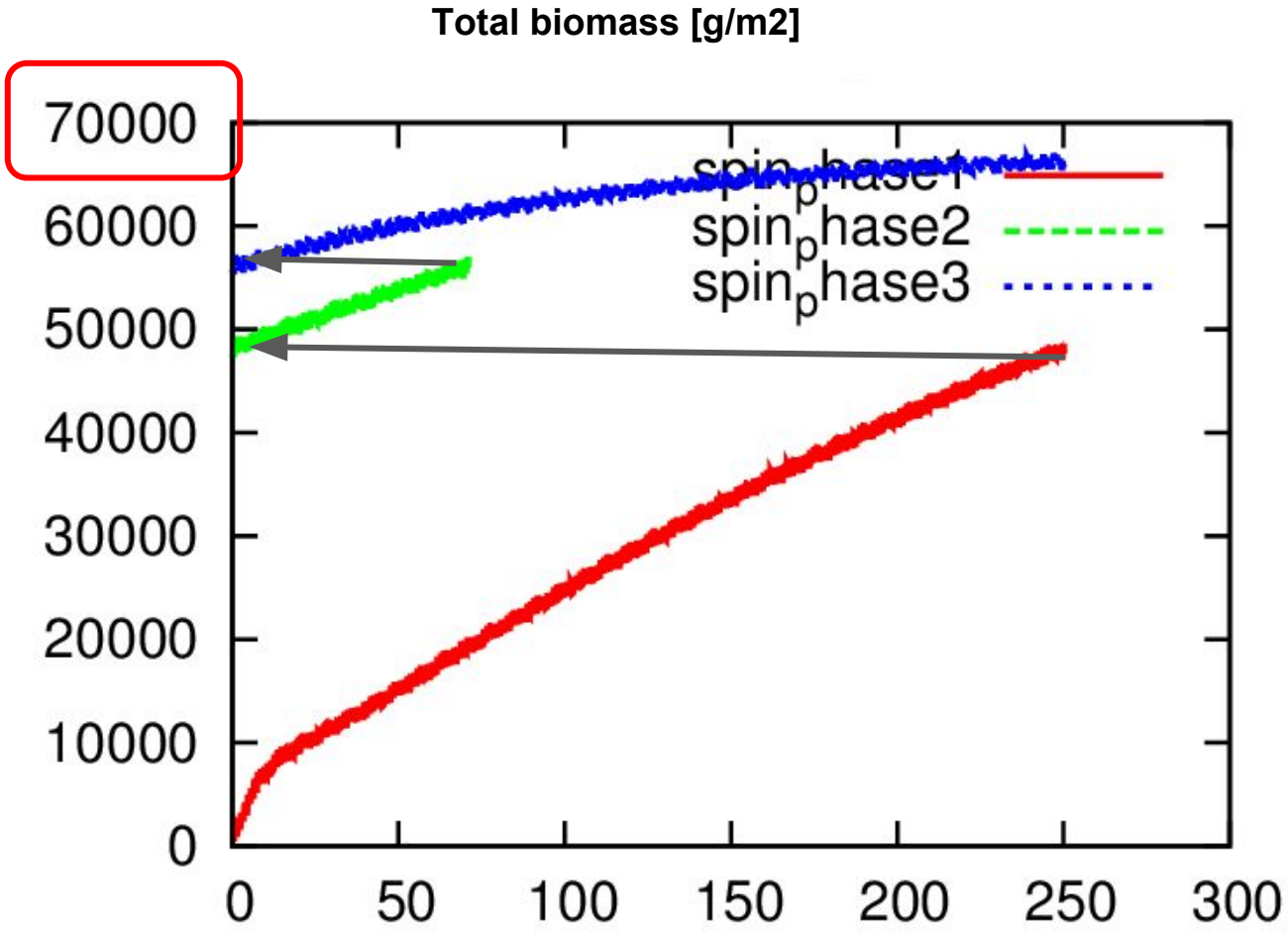

Total biomass [g/m2]
70000
60000
50000
40000
30000
20000
10000
0
0
50
100
150
200
250
300
spinphase1
spinphase2
spinphase3

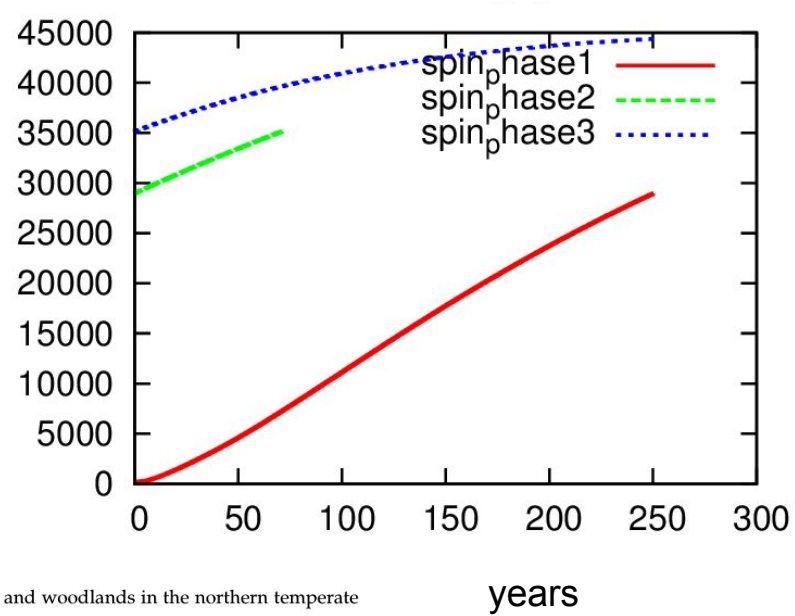
Table 3 Areas, total carbon stocks, and average carbon stocks in the biomass of forests and woodlands in the northern temperate and boreal zones in 1990 (from Goodale *et al.*, 2002)

Region	Forest area (10^6 ha)	Other woodland area (10^6 ha)	Forest living biomass (Pg C)	Woodland living biomass (Pg C)	Average forest biomass (Mg C ha^{-1})	Average woodland biomass (Mg C ha^{-1})
Canada	316	88	12.9	1.6	40.8	18.2
United States	212	86	13.3	3.3	62.7	38.4
Europe	149	46	7.7	0.2	51.7	4.3
Russia	821	66	33.7	0.6	41.0	9.1
China	119	39	4.6	0.6	38.6	5.0
Other*	92	16	4.7	na	51.1	na
Total	1711	339	77	...	45.0	...

Region	1980	1990	2000
(B) Average biomass of natural forests (MgC ha^{-1})‡			
Asia	127	104	70
Africa†	62	58	67
Latin America†	81	100	118
Area-weighted mean for all tropics†	82	86	94

Houghton et al. 2005

Problem: Aboveground heartwood accumulates very slowly to very high values



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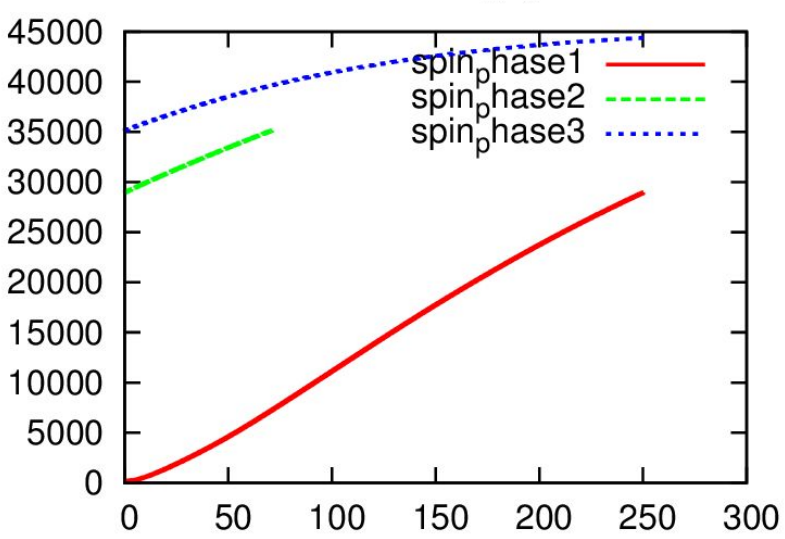
Russia	821	66	33.7	0.6	41.0	9.1
China	119	39	4.6	0.6	38.6	15.0
Other*	92	16	4.7	na	51.1	na
Total	1711	339	77	...	45.0	...

Problem: too much wood

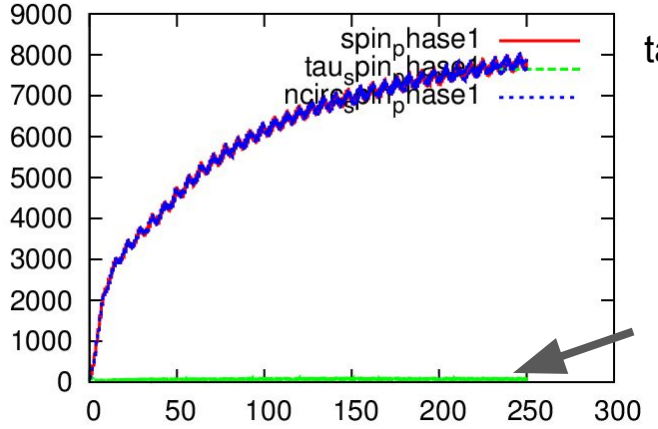
Why?

- Simulation setup: use of only one size class
- conceptual problem: no physical limit to tree height implemented? Maybe not, self-thinning should prevent super large trees.
- Bug?
- Wrong parameter? Tau_sap used is very high compared to default value (11680 vs 730 days).(test ongoing)

Aboveground heartwood [g/m2]



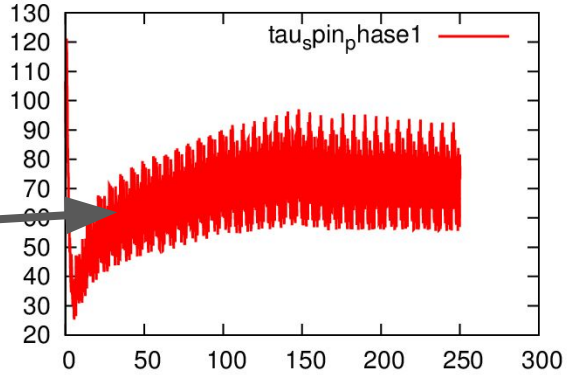
Aboveground sapwood [g/m2]



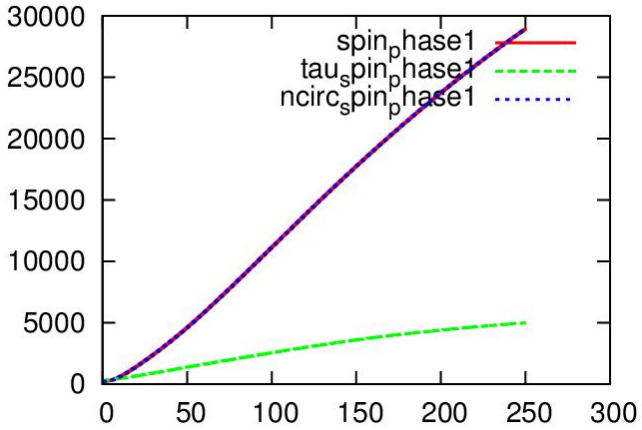
tau_sap (can)

tau_sap (trunk)

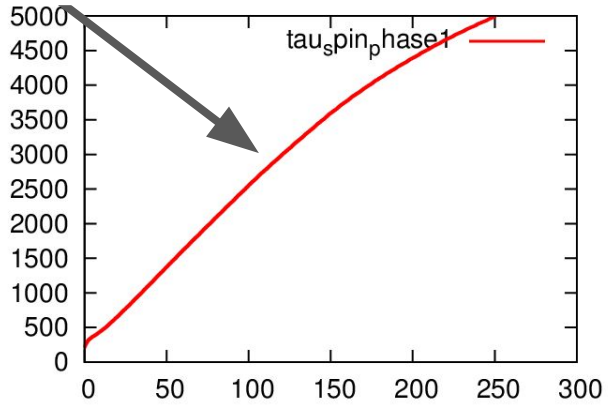
Aboveground sapwood [g/m2]



Aboveground heartwood [g/m2]



Aboveground heartwood [g/m2]



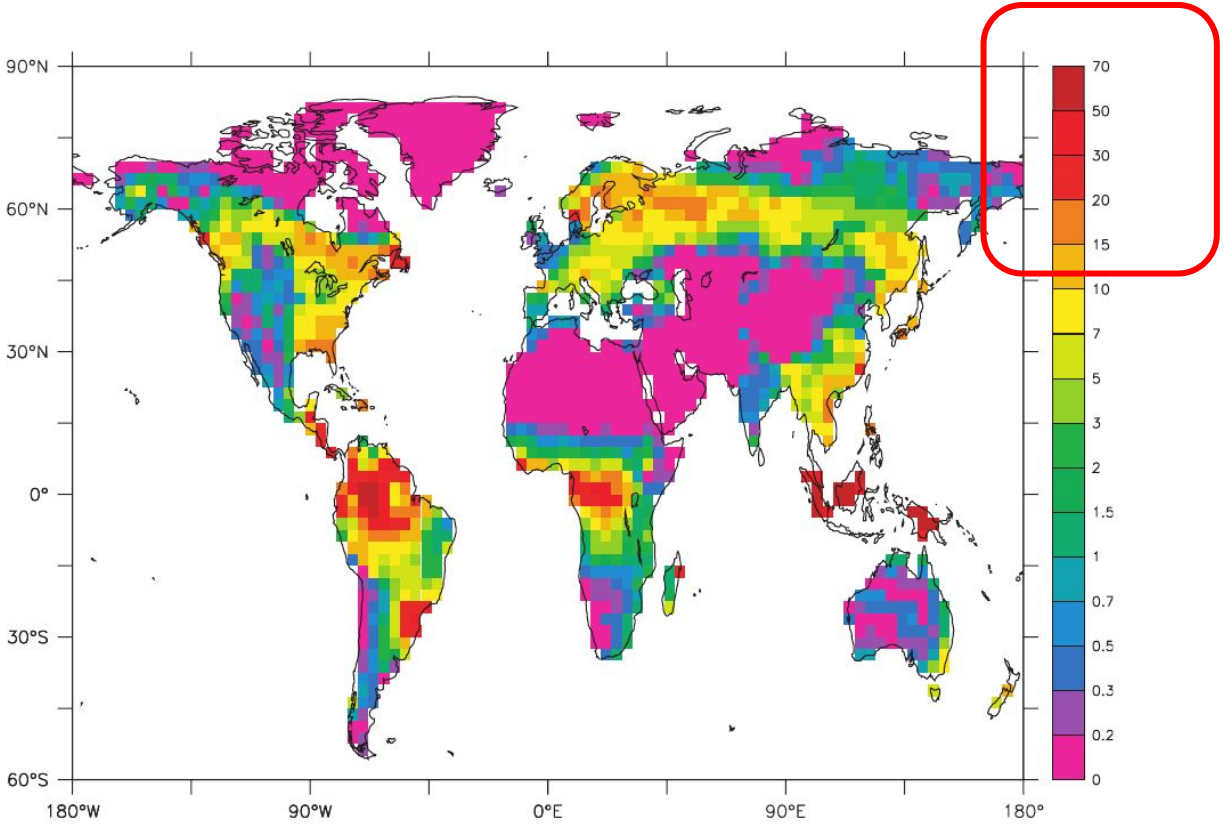


Figure 13. Mean aboveground and belowground biomass of natural vegetation (in kgC/m^2) in STAT.

Krinner et al. 2005