

Drought discussion group Jan 13, 2012

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Research Needs:

1. More N speciation: ammonium, nitrate, etc. This would allow better simulation of leaching and variable species preferences among the N species.
2. Add CO₂ fertilization effects. Unclear whether this need be restricted to soil discussions.
3. Improve C&N leaching – however, improvements somewhat dependent upon a good hydrology extension.
4. Soil disturbance – somehow mixing surface layers dependent upon the intensity of soil disturbance.
5. Radical idea from Arjan: De-couple living and dead (soil) models allowing us to test different soil models. This is certainly possible with a good programmer and a tight interface between living and dead.

Future Research Opportunities

1. What are the effects of N deposition on total ecosystem C and N cycling?
2. The use of N fertilization to generate Carbon offsets. Note: Only valid in non-harvested systems.
3. What is the effect of soil CN leaking into freshwater systems? This research is dependent on a Hydrology extension.
4. How does disturbance and succession affect greenhouse gas emissions? We could begin allocated respired/volatilized C/N into greenhouse gases (e.g., methane, NO), and therefore calculate CO₂ equivalents.