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12.740 Paleoceanography
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Model color coding:

The model is best viewed on a color monitor. Color coding helps you identify the uses of cells: **Things you can change are marked in boldface dark blue.** These include water fluxes between boxes (subject to the conditions that water fluxes must be balanced and certain "forbidden" outcomes are avoided - you will be warned when these aconditions are violated), phosphorus concentrations in the boxes, the Redfield Ratios, and the gas exchange piston velocity.

The model is arranged by modules in a vertical sense, so that any changes in a module affect modules below but not those above. (The exception to this rule is the oxygen model at the bottom, which only depends on the phosphorus and salinity modules.)

Water fluxes are given in Sverdrups (10^6 m³/sec). Concentrations are in $\mu\text{mol/kg}$ (except for ¹⁴C and salinity).

Important model outputs are shown in magenta.

Other color codes indicate different types of fluxes: e.g., water fluxes are shown in cyan (light blue) and particle fluxes are shown in green.

Each time you make a set of changes, you must run the CO₂ macro (CO₂ goal seek) to solve the CO₂-system equations (CO₂, C13, C14). All other calculations occur immediately.

Your goal here is to explore the sensitivity of the model to small changes in conditions such as surface phosphorus and water fluxes, and to report your findings in the context of the ocean carbon system. I am only expecting a couple of pages for this report.