PISCES model

PISCES mod

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PISCES (acronym for "**P**elagic **I**teraction **S**cheme for **C**arbon and **E**cosystem **S**tudies") is an ecosystem and carbon-cycle model developed first by Olivier AUMONT at the Laboratoire d'Océanographie DYnamique et de Climatologie (LODYC). It is now developed and used in several other labs (see users section). In its current state, this model is mostly a Fasham-like model, with fixed O2/C/N/P ratios. It includes only one global set of parameters and is intended to be able to be used both for global, regional and local studies.

Prognostic variables are the three dimensional tracer concentrations. They are distributed on a three-dimensional Arakawa-C-type grid using prescribed z- or s-levels. The model is based on 24 prognostic variables which describe the carbon, nitrogen, silicon, and iron cycles. PISCES does not include up-to-now any superficial sediment model (even if it is planned for pretty soon). Furthermore, the model is not modular: All variables are always activated. The user cannot decide what cycles he wants to describe, how many phytoplankton or zooplankton size-classes he wants to model ...

PISCES is currently interfaced with the OPA model, an Ocean General Circulation Model also developed at LODYC. The coupling and dependancy of the biogeochemical model to the OGCM is tight, which means that the code design has been up-to-now constrained to be compatible with the dynamical model. However, beta-version of PISCES coupled to the regional ocean model ROMS

PISCES can be run on many different computers, including shared and distributed memory multi-processor computers (Cray C98, T3D, T3E, Origin 2000, NEC SX4 and SX5,