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Estimating biological parameters of a size-dependent NPZD ecosystem model

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A new 1-dimensional ecosystem model, developed within the MERSEA project is calibrated with and validated against time series data collected at 6 different locations of the World Ocean. The new model describes the dynamics of phytoplankton (implicitly presented by a spectrum of different sizes), zooplankton, nutrients and detritus under different environmental conditions. The model's quality of simulation (performance) strongly depends on the model biological parameter specification. Here we apply the Sequential Importance Resampling filter for the calibration (parameterestimation) problem. Several nonparametrical statistics criteria are presented and used for estimating "goodness" of the model to data fit.