BLACK SEA

INSTITUTE: Institute of Marine Sciences – Middle East Technical University
MODEL NAME: POM - BimsECO
AREA OF APPLICATION: Black Sea
MODEL DOMAIN: Black Sea
STATE VARIABLES: (by trophic level and currency):

Model is nitrogen based – currency is mmol N/m^3 because nitrogen is the limiting nutrient in the Black Sea.

Trophic level - 0
N - nitrate (mmol N/m^3)
A – ammonium (mmol N/m^3)
DON- Dissolved inorganic nitrogen (mmol N/m^3)
D - Labile pelagic detritus (mmol N/m^3)

Trophic level - 1
P_s - small phytoplankton (<10 µm), (mmol N/m^3)
P_l - large phytoplankton (> 10µm), (mmol N/m^3)
Or, alternatively,
P1: Diatom, P2: Dinoflagellates, P3: Small phytoplankton, P4: Coccolithophore (Emiliania huxleyi)

Trophic level - 2
Z_s - microzooplankton
Z_l - mesozooplankton
Z_n - opportunistic heterotrophic dinoflagellate *Noctiluca scintillans*
Z_a - gelatinous carnivore *Aurelia aurita*
Z_m- gelatinous carnivore *Mnemiopsis leidyi*

OBJECTIVES: To generate new information on organism and ecosystem responses to changes in climate, changes in the eutrophic state of the system and to different combinations of these two anthroprogenic pressures on the Black Sea ecosystem.

VALIDATION:
Below, Taylor diagram illustrating model performance in relation to sea surface temperature (SST), sea surface salinity (SSS) and mixed-layer depth (MLD). For the SST validations, model results are compared to AVHRR SST data. For the SSS and MLD validations, model results are compared to CTD data, utilising the entire contents of the Black Sea data base available over the study period. Blue symbols represent a model run conducted for the period 1971-1993, including assimilation of CTD data. Red symbols represent a model run conducted for the period 1992-2001 including assimilation of altimetry data.

Taylor Diagram