

# **Atmospheric and marine controls on the Non-Redfield N/P ratio in the Cretan Sea (a modeling study)**

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**GEOTRACES**

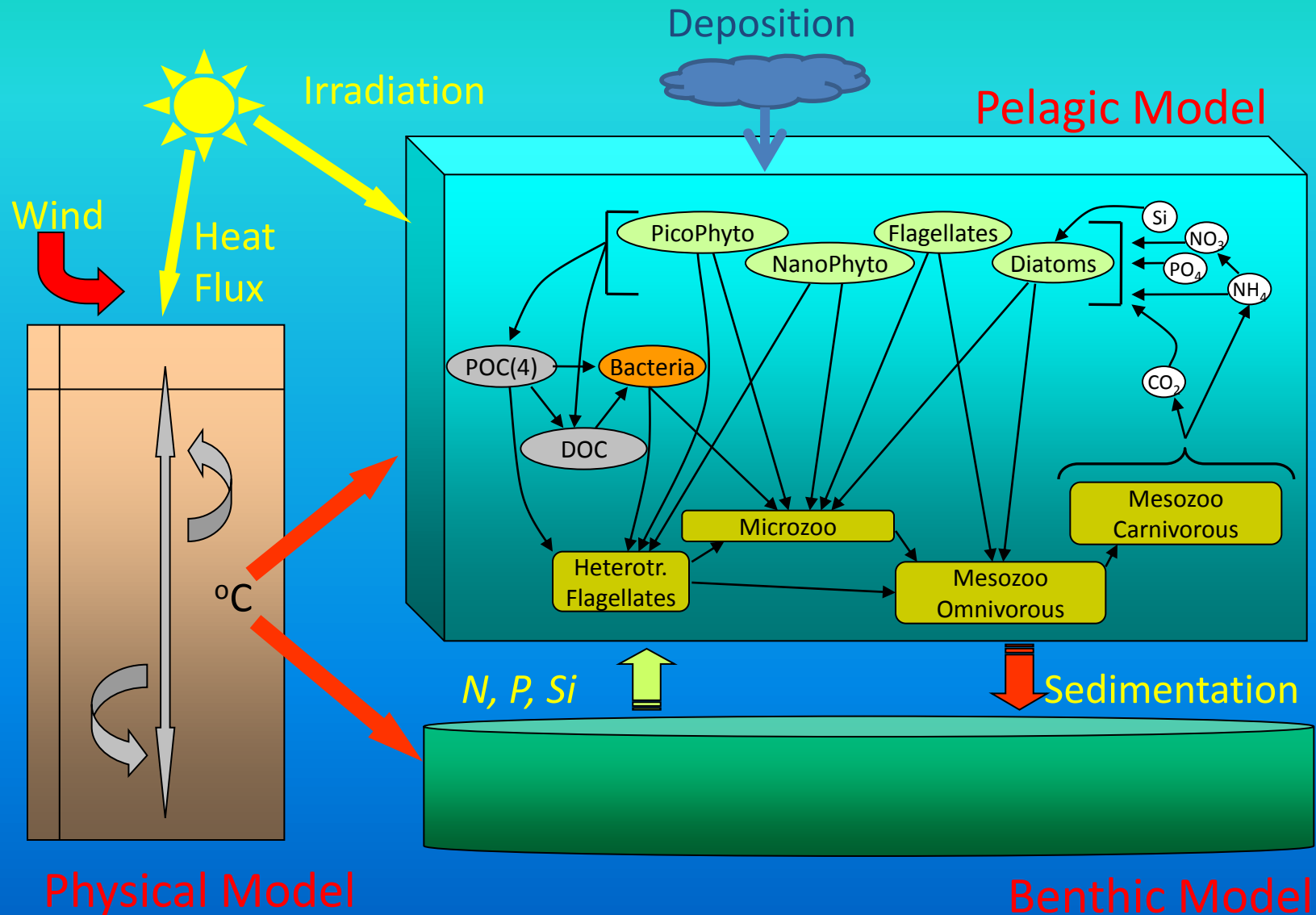
Mediterranean Planning Workshop  
4-6 October 2010, NICE

# OBJECTIVE

- The impact of the atmospheric deposition of nutrients on the marine ecosystem and their role on the underlying biogeochemical and physical processes is investigated.
- *For this purpose **atmospheric deposition measurements of nitrogen and phosphorous over the area have been coupled with sea water observations in a modelling system.***

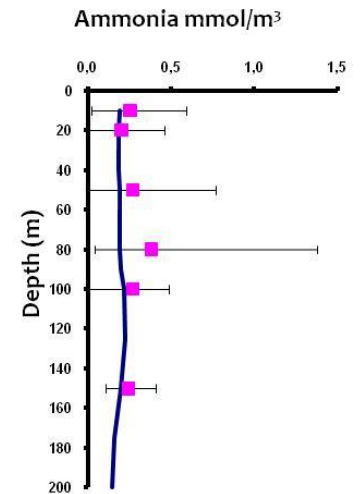
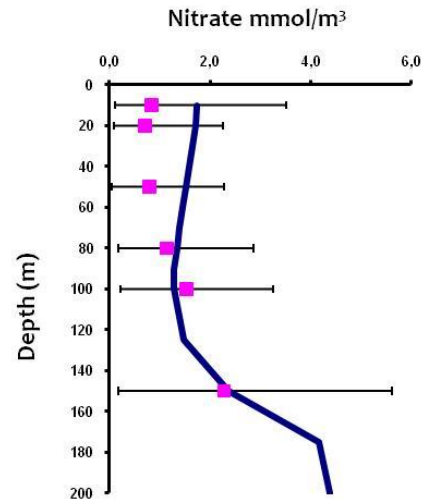
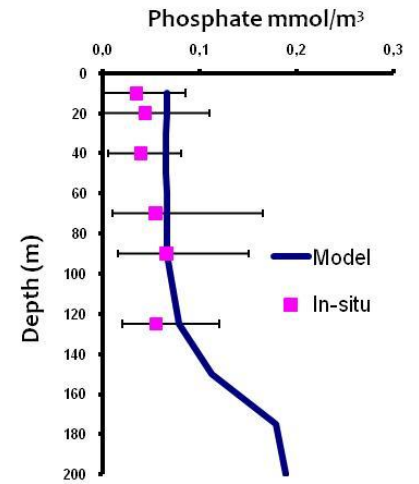
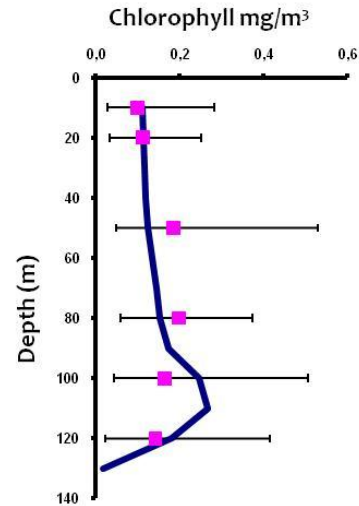


# Operational, Dynamic, Fully Coupled, Modeling System (POSEIDON – [www.poseidon.hcmr.gr](http://www.poseidon.hcmr.gr))

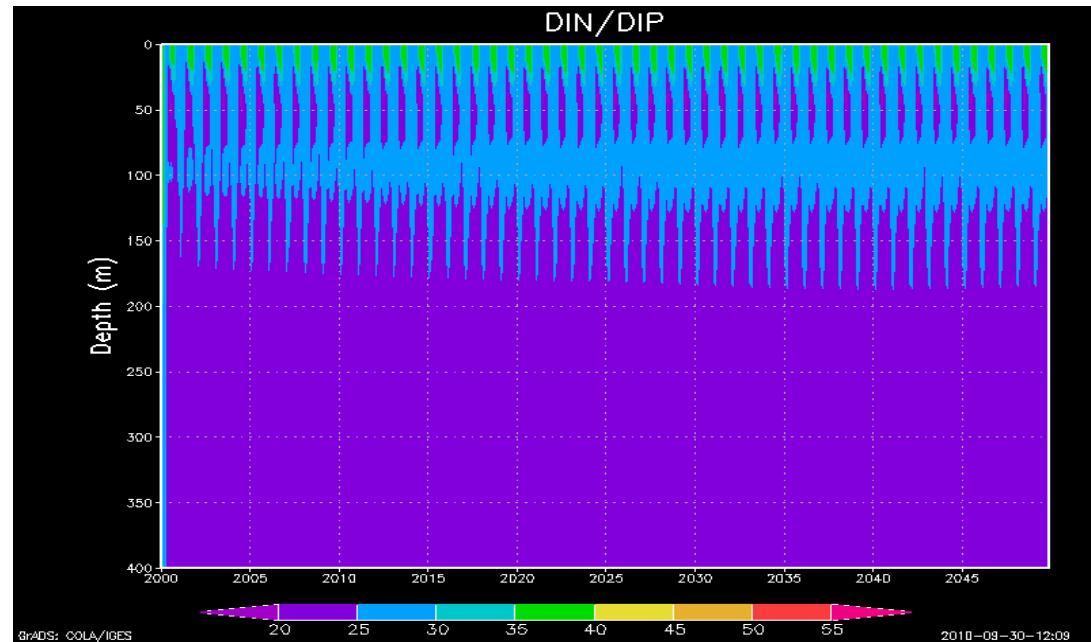


☑ Validation of the model clearly exhibits the importance of the mechanisms incorporated into the model.

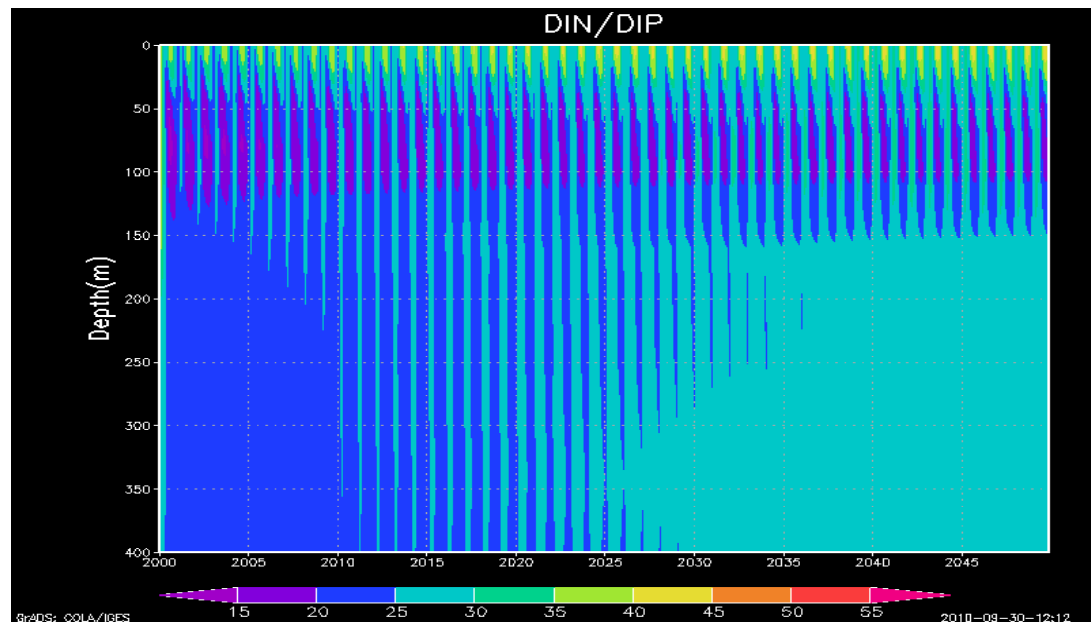
☑ Model results are very close to in-situ measurements.



☑ DIN/DIP ratio illustrates the stability of the simulations - values are similar to measured concentrations.



☑ In the absence of the mechanisms the model shows a dramatic increase in the N/P ratio over a short time period.



# In progress

- Sensitivity runs to mechanisms and atmospheric inputs
- Move to the operational fully coupled 3D marine ecosystem model for the Eastern Mediterranean basin - POSEIDON system (E2E model - top predators & carbonate system)
- Coupling with a 3D atmospheric deposition model
- Scenarios on climate change
- Projections in the past