HC.M.R.

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

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GEOTRACES

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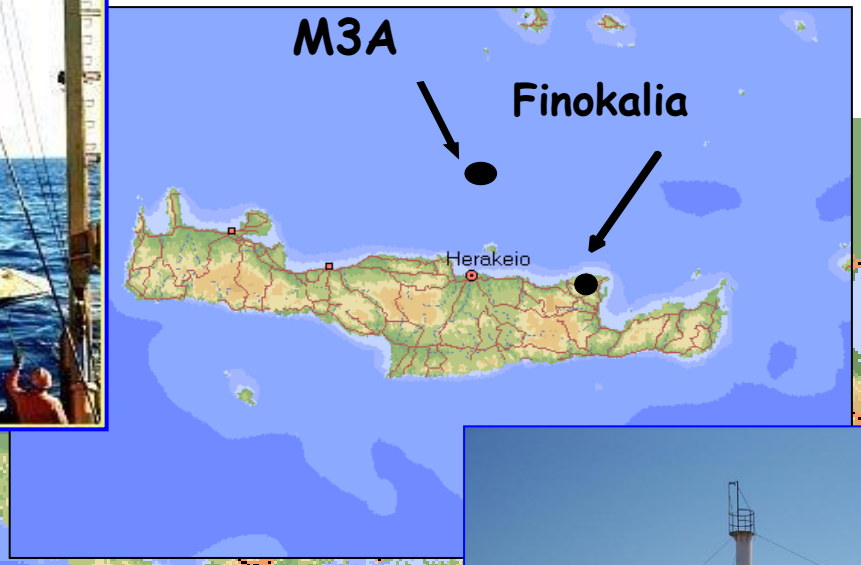
OBJECTIVE

- 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*****.**


M3A
Finokalia
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N
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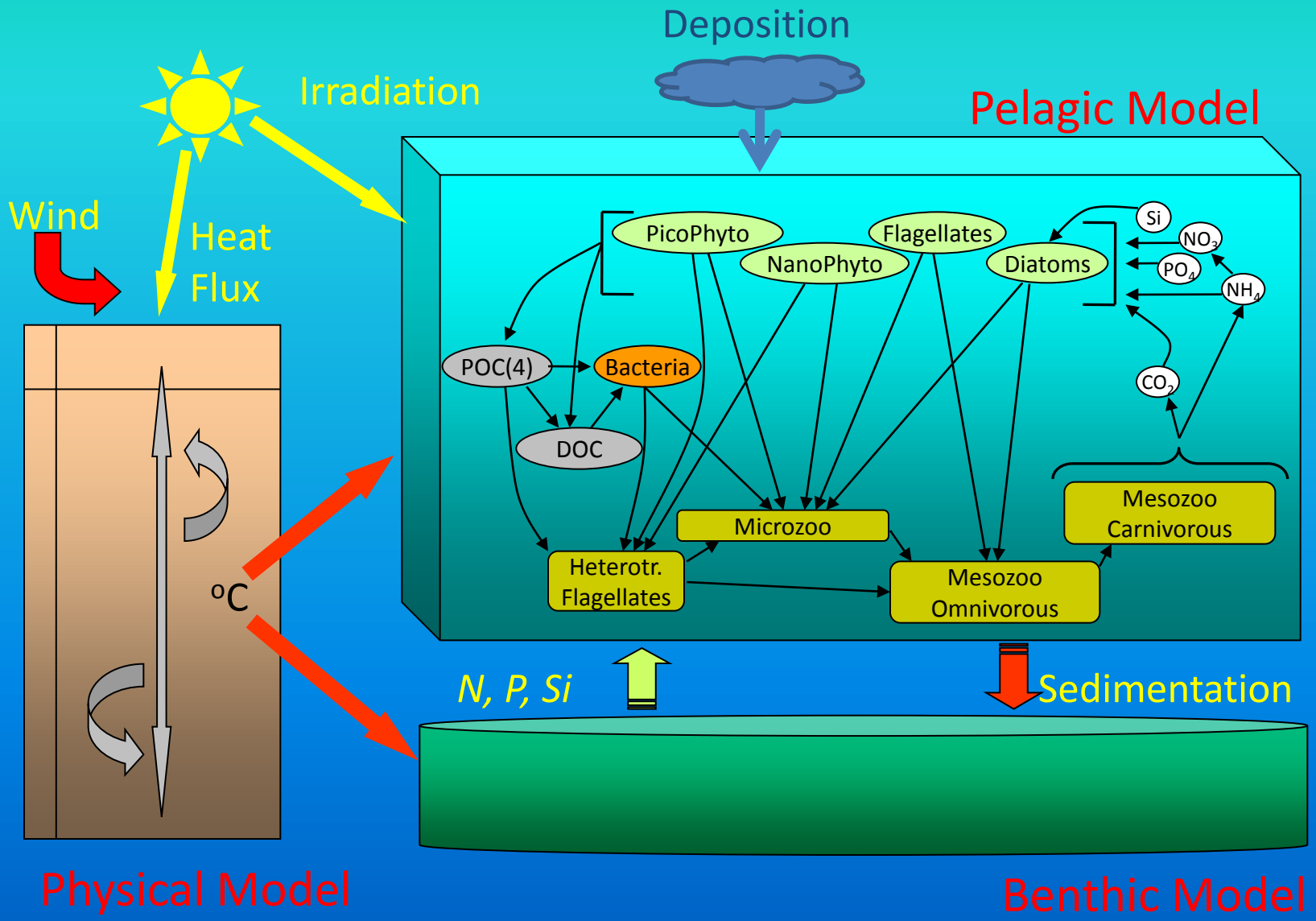
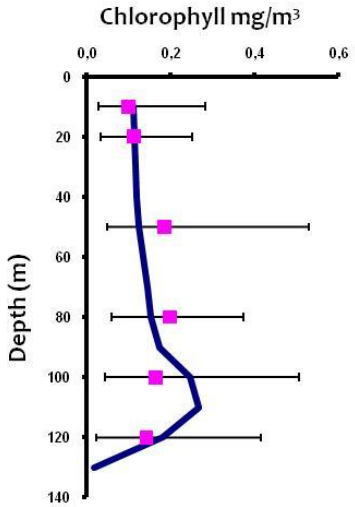
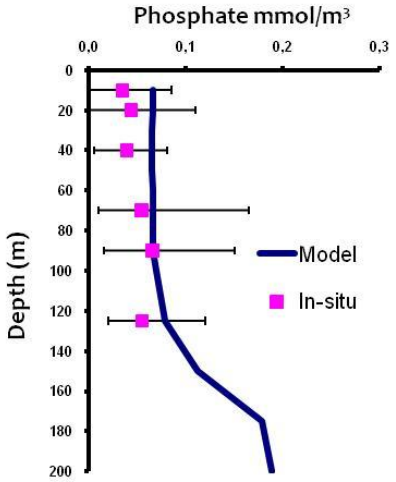
Operational, Dynamic, Fully Coupled, Modeling System (POSEIDON – www.poseidon.hcmr.gr)

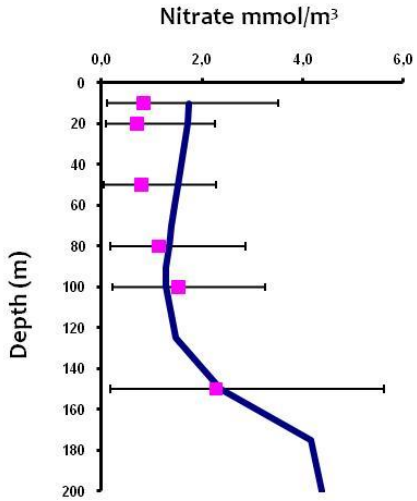


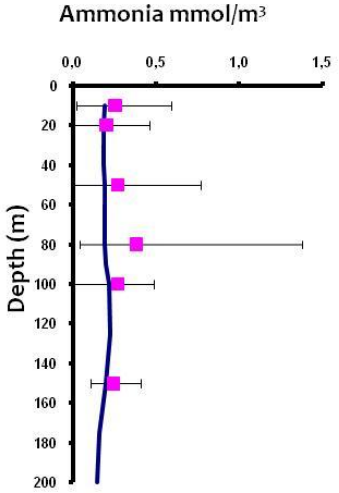
☑ Validation of the model clearly exhibits the importance of the mechanisms incorporated into the model.

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

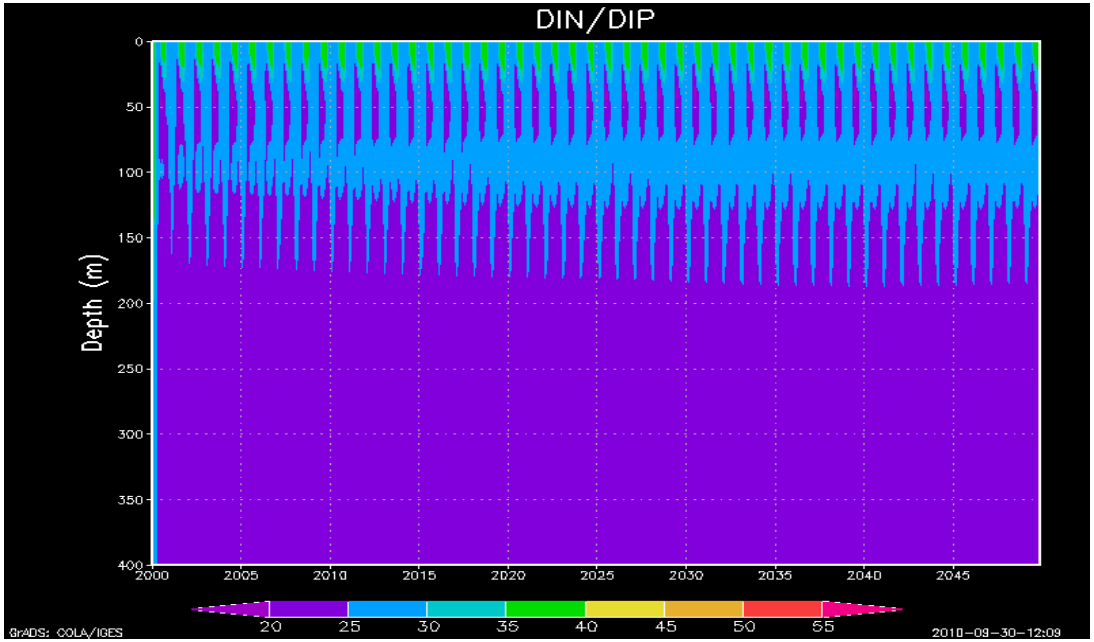




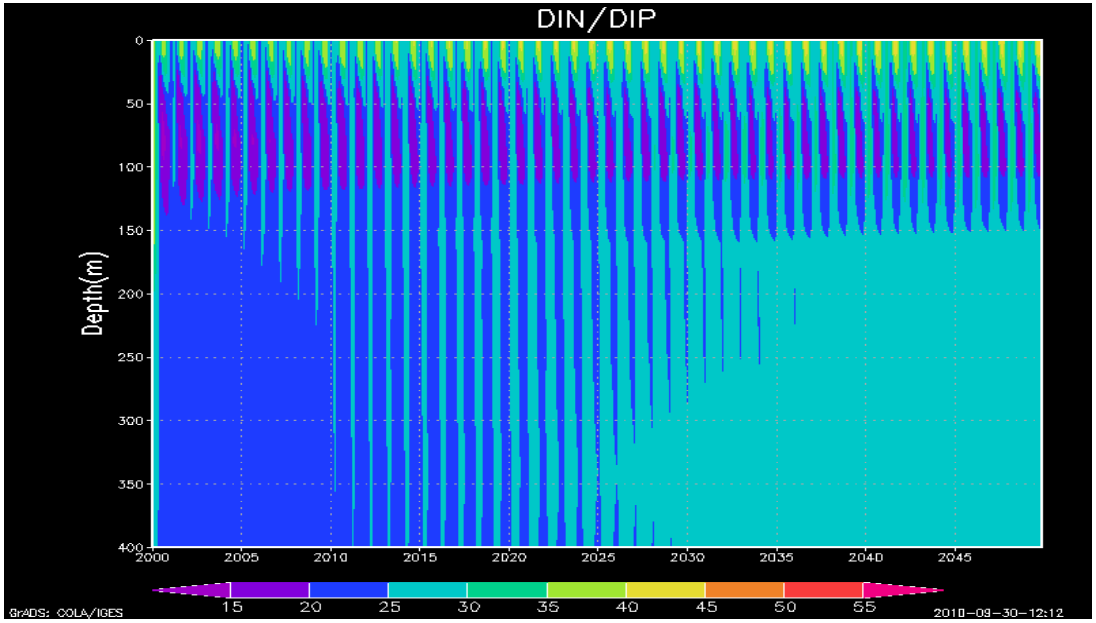




☑ DIN/DIP ratio illustrates the stability of the simulations - values are similar to measured concentrations.



☑ 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