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Mediterranean Sea



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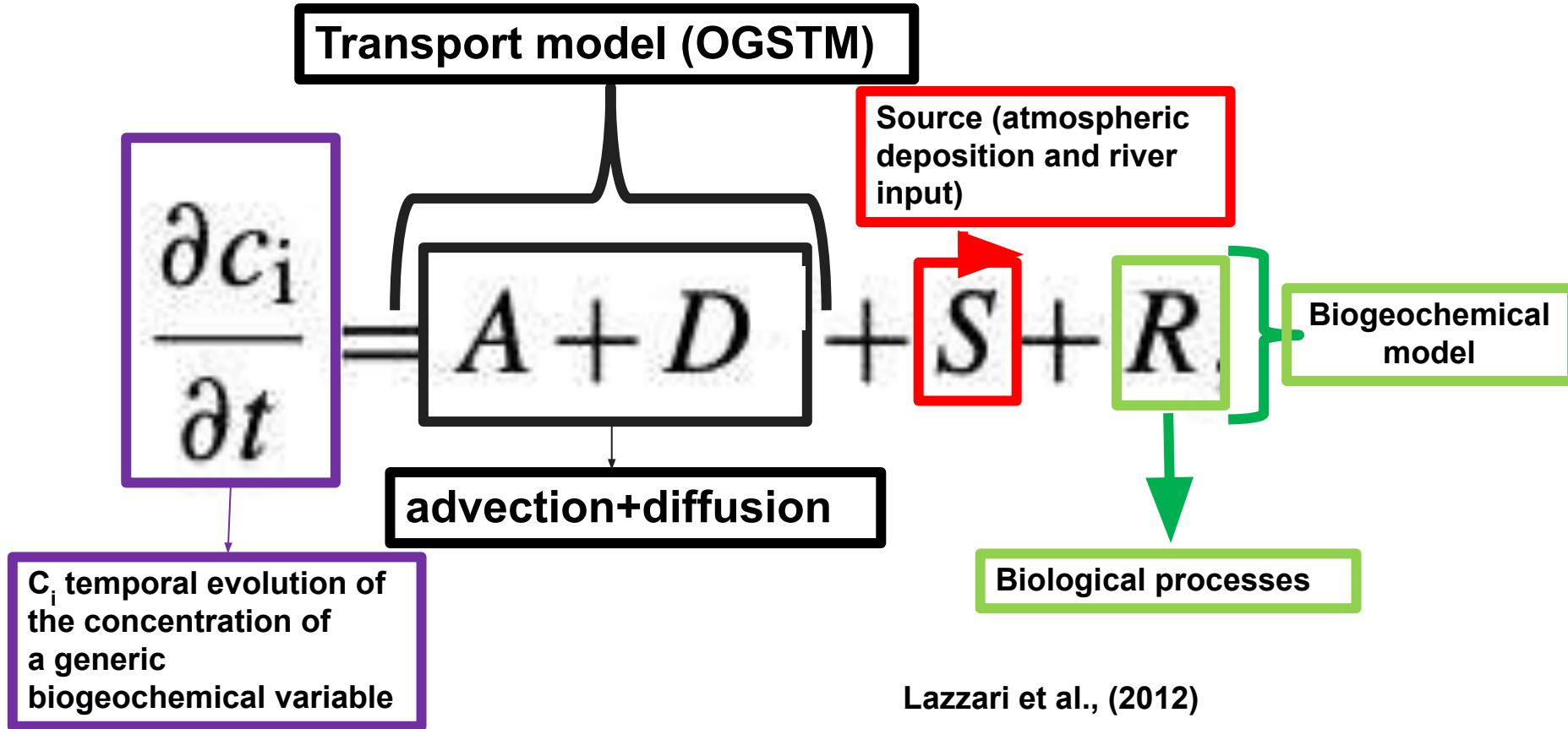
- **“Miniature Ocean” or “Natural Lab”**
- **One of the most oligotrophic basin in the world**
- **Hot-spot for climate change as well as for the biodiversity**
- **Hot spot for commercial fisheries**

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Coupled transport-biogeochemical model for the Mediterranean Sea widely used to produce:

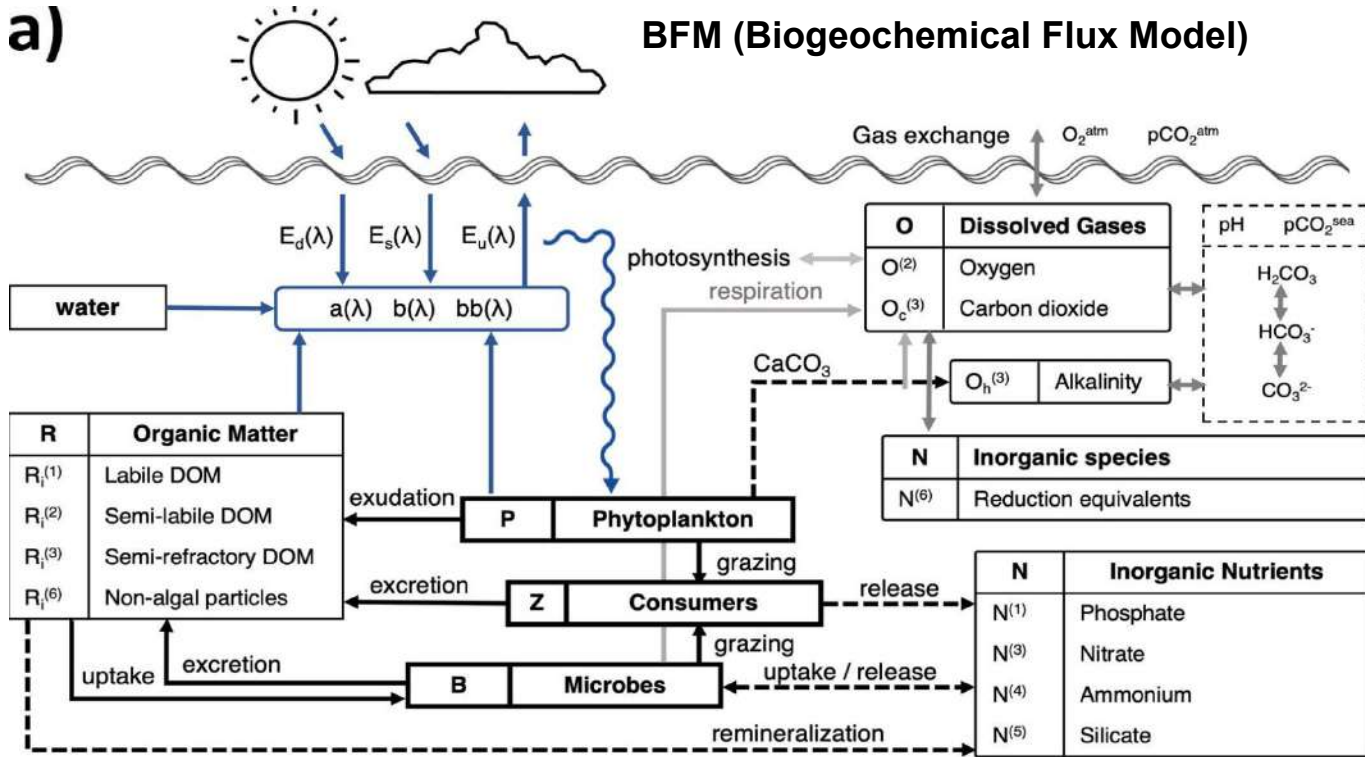
- Hindcast of the Mediterranean Biogeochemistry (Lazzari et al., 2012; 2016)**
- Open Access products for the Copernicus Marine Service (Biogeochemical forecasts and reanalysis; Cossarini et al., 2021)**
- Open Access Climate and Biogeochemical projections under emission scenarios A2 and RCP4.5/8.5 (Solidoro et al., 2022; Reale et al., 2022)**

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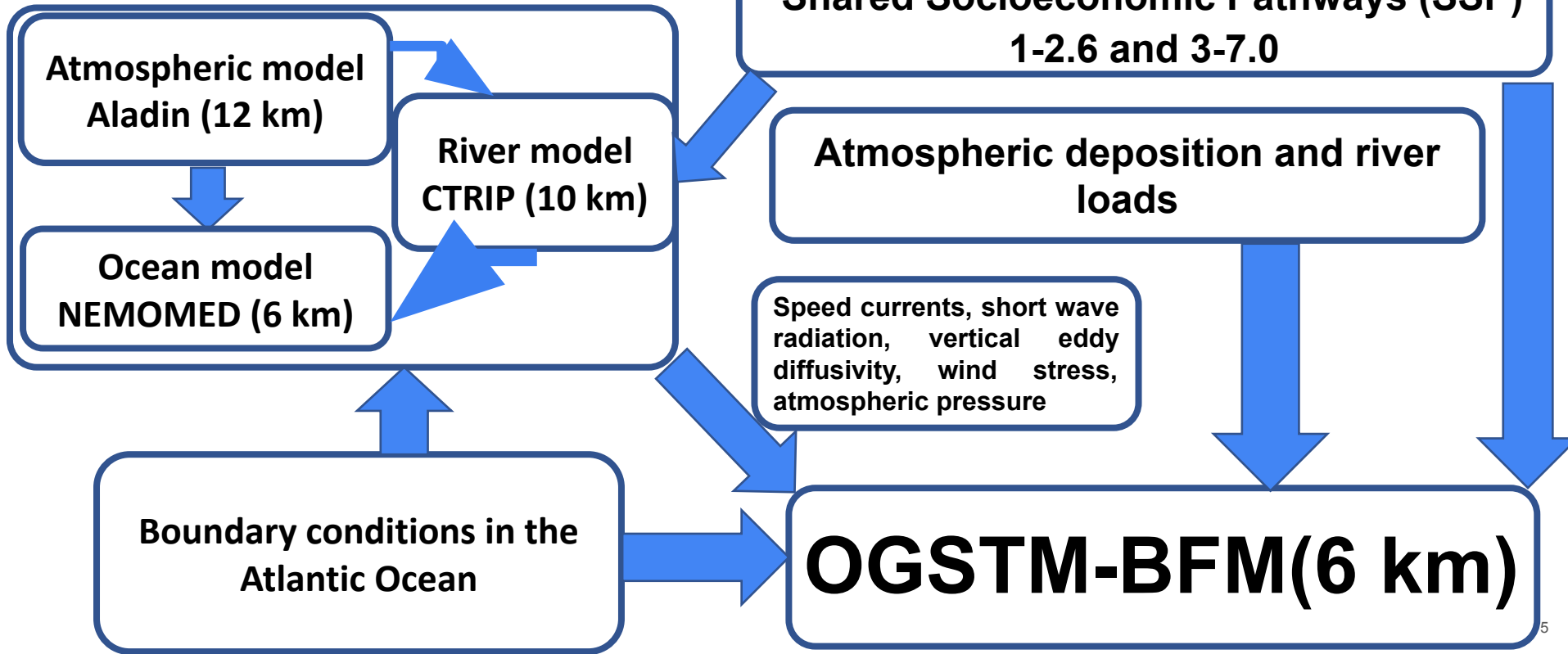
a) BFM (Biogeochemical Flux Model)



- Interaction between light and marine environment
- Carbon, Dissolved Oxygen, Silica and Nutrients cycle
- Dynamics of phytoplankton, zooplankton and bacteria
- Primary production and respiration processes

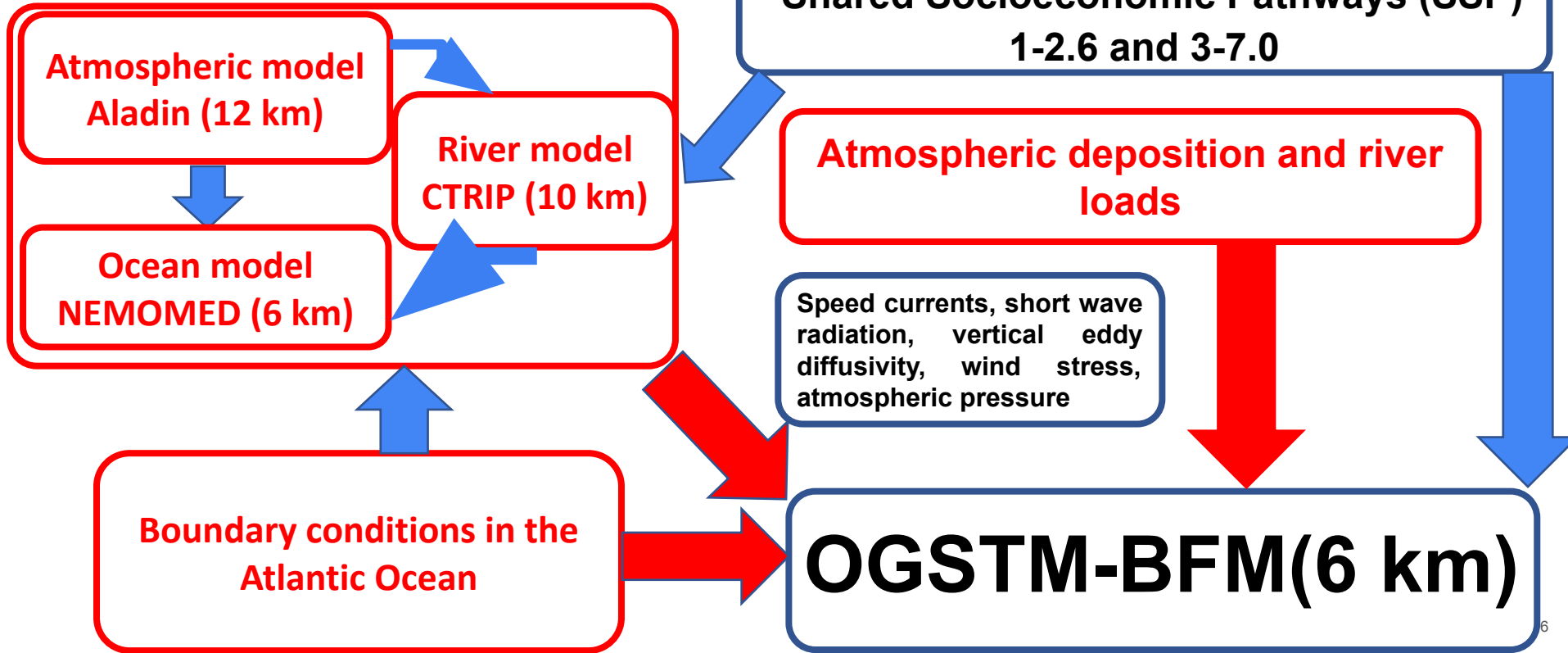
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Pre-computed Physical Forcing



Challenges

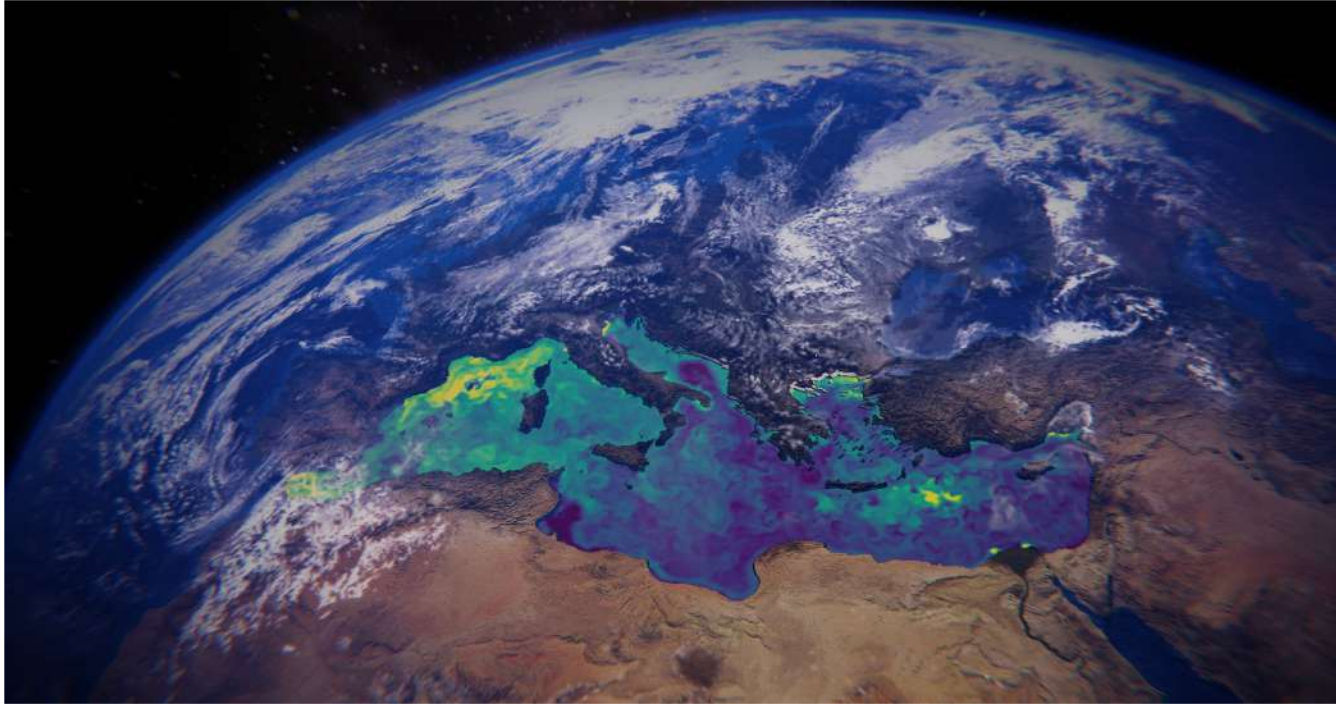
Pre-computed Physical Forcing



Opportunities

- *First high-resolution biogeochemical projections under SSP scenarios and CMIP6 forcings for the Mediterranean Sea*
- *Estimation of uncertainties in the biogeochemistry: exploring the effects of key biogeochemical processes*
- *Dissolved oxygen, pH, phytoplankton biomass, oxygen on the bottom, nitrate and phosphate, TRIX (an indicator for the eutrophication of a basin), plankton phenology*
- *Expected impacts on marine fisheries management, biodiversity monitoring and conservation, marine ecosystem services and blue economy*

Thanks a lot for your attention!!!!



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