



Biogeochemical exchanges and carbon signatures In highly vulnerable ecosystems at the land-ocean interface

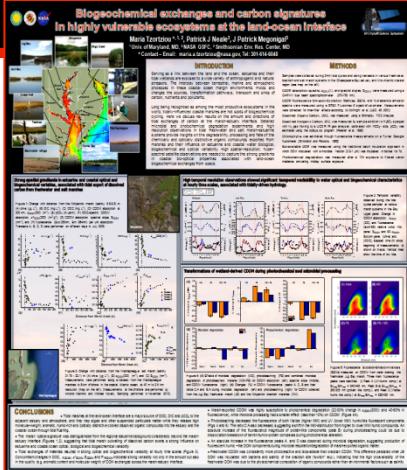
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Maria Tzortziou, Patrick J Neale, J Patrick Megonigal



Wetlands and tidal marshes: valuable natural resources, “hot-spots” of biogeochemical exchanges, vulnerable to environmental change

- ❖ Tidal freshwater and brackish marshes are a major source of DOC, DIC and pCO₂ to the adjacent estuary and atmosphere, they trap algae and other suspended particulate matter, while they release optically and chemically distinctive (high molecular-weight, aromatic, humic-rich, strongly photo-reactive) colored dissolved organic compounds into the estuary and the coastal ocean through tidal flushing.
- ❖ Strongest spatial gradients within 400 m from the marsh.
- ❖ Marsh ‘optical signature’ distinguishable from estuarine background over a distance of > 1km into the river.
- ❖ SR results suggest that photodegradation is the dominant transformation process of the labile marsh-DOM components over short time-scales, while microbial degradation seems to be more important for mineralization and at larger and longer scales.



HypIRI characteristics:

- Hyper-spectral observations
- Spectral range extending to the UV (380-400 nm)
- High spatial resolution (60 m) in estuarine-coastal waters

