

“Survey of a Marine Biogeochemical Model Hierarchy: Global Dissolved Organic Carbon”

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**Friday,
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12.10-1.00 PM (MST)

Zoom Link

<https://zoom.us/j/93622297036>

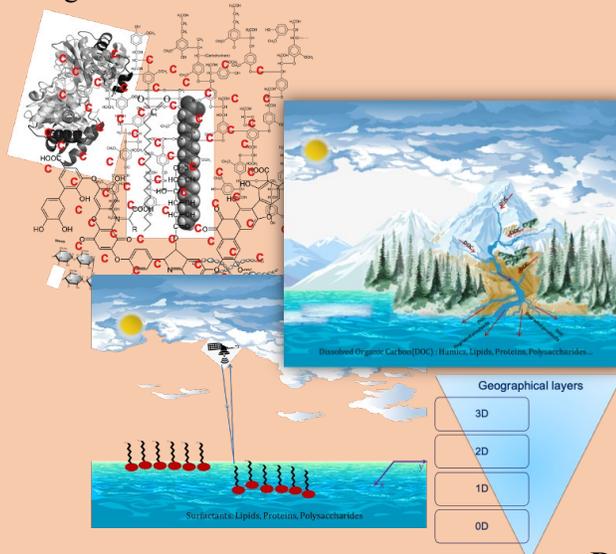
Meeting ID: 936 2229 7036

Note: Presentation will be projected on Lopez 106 screen, interested faculty members and students are welcome to convene in Lopez 106.

Abstract: We have sampled a selection of layered-reduced environmental chemistry models extending across the planetary geophysical spatial dimensions. All pertain to the details of dissolved organic carbon reactivity and they extend across the full web of the contemporary aquatic carbon cycle. We identify and clarify major processes and their biophysical impacts, over a range of marine to terrestrial environments. In this seminar we will brief the audience on two of our most recent research scenarios as follows:

We developed universal sea-air interfacial surfactant schemes to investigate the role of organics oriented along the global ocean microlayer, after they are sourced by the phytoplanktonic food web. The resulting influence on regional surface tension of the planetary exterior suggests connections between bio-macromolecular distributions and a lowering of microwave scale ripple heights. Implications are discussed for the altimetric sigma bloom phenomenon. There are also Gaian level consequences since local ecology becomes involved in wind-to-current system momentum transfer.

Lagrangian computations were conducted in order to track the chemical evolution of riverine organics transferring along the course of a generic Arctic river. High hydrological throughput was assumed and we evaluated fluvial interactions given idealized but detailed kinetic interactions. The potential for biophysical influence was assessed penetrating all northern high latitude coastal zones, out to the level of peripheral seas. Significant parameters in this instance: the aqueous functional group interchange rates, dilution, tributary mixing, terrestrial sub-ecology upstream and coastal light attenuation. Taken together the river organic systems constitute a strong mode of biochemical communication from soil to ocean.



Department of Chemistry
Graduate Seminar
Host: Rubasinghe Lab