Arctic Aquatic C Cycle:
River (Dis)tribution Chemistry

Kuskokwim

Jayasinghe and Elliott (NMT, LANL) with
Wiegand, Adams (UTenn, TAMU)
Kumar, Piliouras, Clement-Kinney, Gibson, others (Labs)

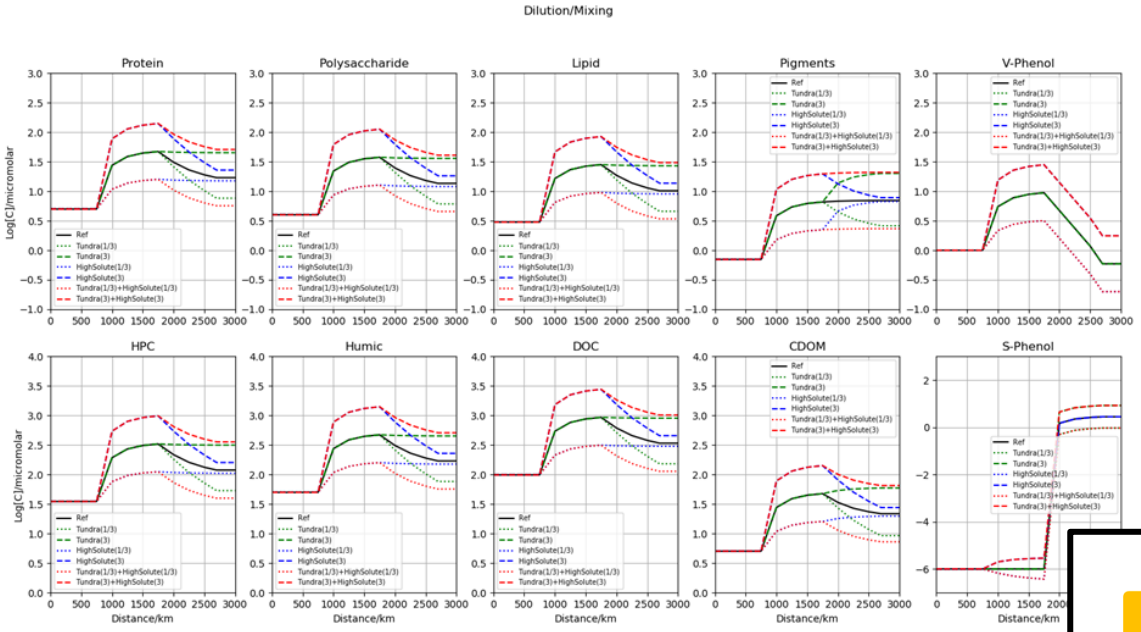
Organic Structures Beyond DOC

Phenol v. Acid v. Amphiphile…
Transform soil to sea
Microbes, Photolysis, Ionic strength
Increase channel nodes

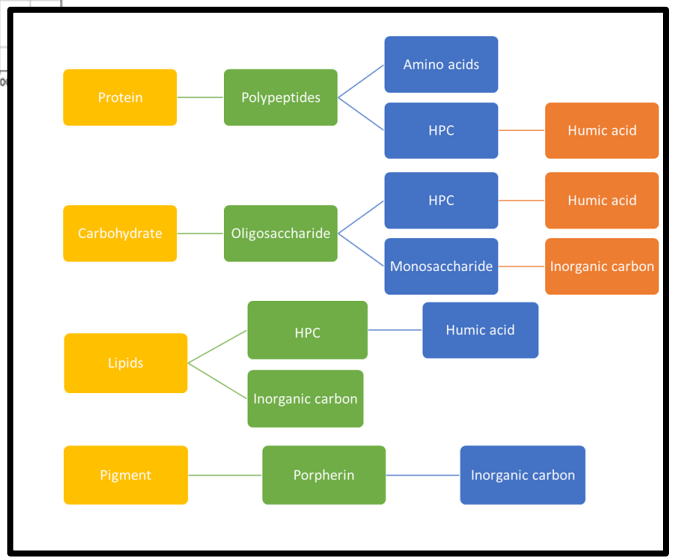
Mixing, slow processing, biophysics coast

Control CDOM, solids, surfactants
Strong variable marine influences

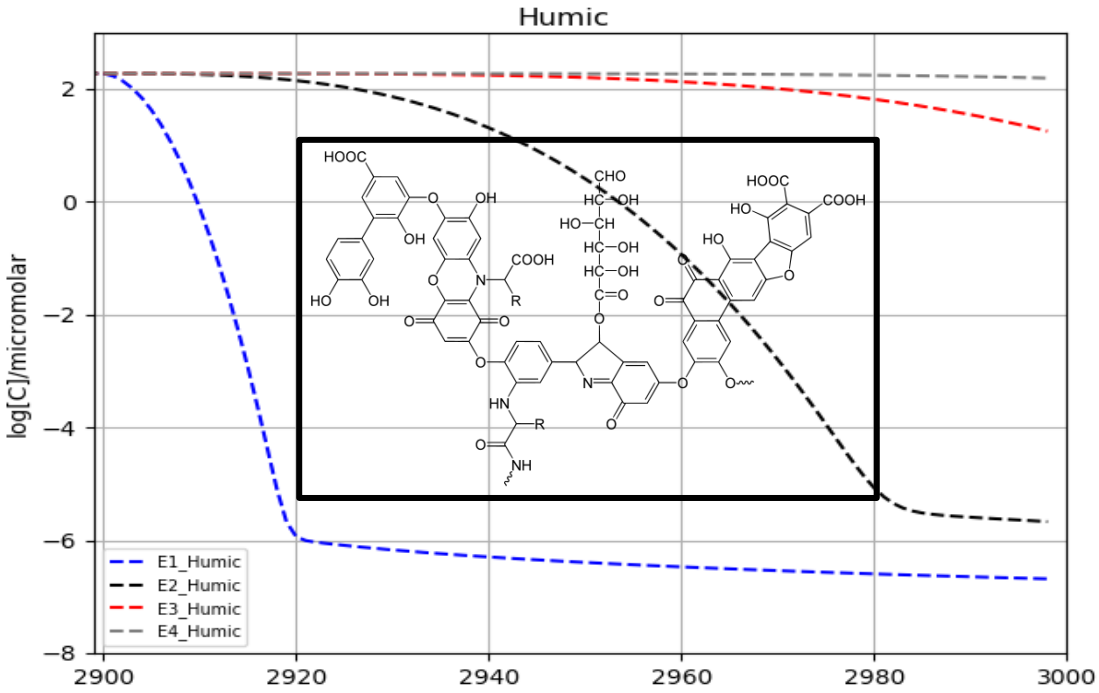
River Organic Reactions: DOE Unique



Sensitivity to Soil Sourcing



Estuaries, Deltas, Solids, Ionic Strength



Humics plus I, pH agglomerate solids

Arctic River Chemistry: Our Vision

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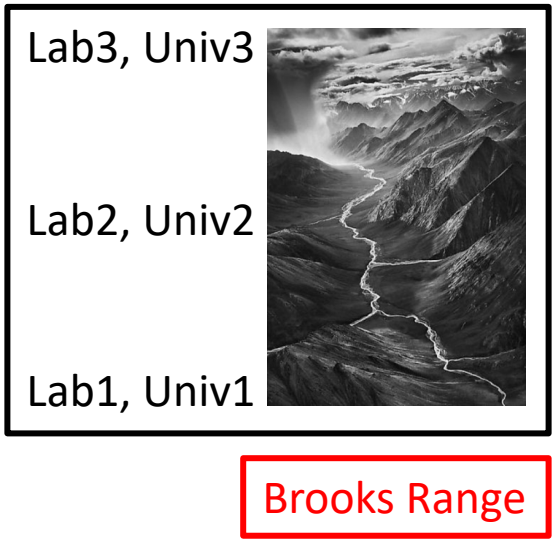

Warming Will Alter Organic Fluxes

Alpine, woodland, peat, bog, tundra
Active layer & permafrost evolve
Establish mechanisms

Strong Open Water Effects

Light appropriation, heat redistribution
Slicking… all at scale peripheral seas