This repository contains the model development of our **idealized river chemistry model**, now extended to include **multiple nodes (9 total)** representing upstream to downstream river segments.

In this version (**Multi\_Node\_Model\_Permafrost\_Test**), we explore the **sensitivity of downstream DOC evolution to changes in initial DOC concentrations**. Specifically, we apply:

* **Slow chemical reactivity**, and
* **Modified initial DOC concentrations** to perform a **sensitivity test** on the effect of DOC inputs.

These parameters are informed by findings from our initial two-node model:  
 **River\_3000km\_ChemicalReactivity(slow)\_InitialDOC(lower)**.

By extending the model spatially while maintaining these validated chemical conditions, this version investigates how permafrost-influenced DOC compositions evolve along the river continuum. These simulations help identify key mechanisms driving dissolved organic carbon (DOC) dynamics in Arctic river systems.

📄 For detailed methodology and scientific background, refer to our publication:  
 [Atmosphere, 2020 – https://doi.org/10.3390/atmos11101090](https://doi.org/10.3390/atmos11101090)