This repository contains the **first development** of our **idealized river chemistry model**, structured with **two nodes** representing upstream and downstream river segments.

### **Model (First Developed):**

**River\_3000km\_ChemicalReactivity(slow:fast)\_InitialDOC(lower:upper)** In this version, we explore how changes in:

* **Chemical reactivity** (ranging from slow to fast), and
* **Initial DOC concentration** (from lower to upper values)

affect the downstream evolution of dissolved organic carbon (DOC). These simulations help identify the most relevant combinations for representing Arctic river systems.  
 📄 Please refer to our published study for more details:  
 [Atmosphere, 2020 – https://doi.org/10.3390/atmos11101090](https://doi.org/10.3390/atmos11101090)

### **Model Extension:**

**River\_3000km\_Slow\_Low\_Sediments(Coastal\_Region)** This version builds upon the two-node structure by incorporating:

* A new **sediment-associated chemical reactivity term**, and
* The **macromolecular behavior of DOC**, particularly relevant in coastal environments.

This extension enhances the model's ability to simulate DOC transformations influenced by sediment interactions in Arctic river-coastal systems.