An Approach to Coupled Climate-Hydrologic Interactions that Preserves Disciplinary Communities, Infrastructure, and Information Delivery Systems

Overview

- The traditional approach is to link hydrologic and climate modeling systems in a way that preserves the hydrology and climate modeling systems as separate components. The two models are connected by using a common interface that allows data transfer between the two models.

- The goal of the approach is to enable the development of coupled hydrologic and climate models that can be used to study the interactions between the two systems.

Motivation

- The motivation for the approach is to leverage the strengths of hydrologic and climate modeling systems to study the interactions between the two systems.

- The approach is designed to be flexible and scalable, allowing for the use of different hydrologic and climate models.

Software Architecture

- The software architecture is designed to be modular and flexible, allowing for the use of different hydrologic and climate models.

- The architecture supports the use of multiple models and the exchange of data between the models.

- The software architecture is designed to be easy to use and maintain.

Hardware Architecture

- The hardware architecture is designed to support the software architecture and to provide the necessary computing resources for the models.

- The hardware architecture is designed to be scalable and to support the use of different models.

Components

- The components of the architecture include:
  - CESM/CAM
  - SWAT
  - OpenMI
  - ESMF

Frameworks

- The frameworks of the architecture include:
  - OpenMI
  - ESMF

Reference