**Objective**

- Aim at the diverse need from earth system model development, to provide a all-in-one platform to support the research in global climate change

**Abstract**

**HW/SW Details**

- Satisfy Custom Need
- Diminish Tool Switching Overhead
- Provide Lift-Cycle Support for ESM R&D

**Design Architecture**

- Remote Code Organize and Manage
- Reusable Code Block Encapsulation
- Heterogeneous HPC Resource Description
- Kernel Components
- Parallel Library Support
- Platform Portable and Extensible Support
- Plug-in based Extension Approach
- Remote Compile, Debug and launch

**ESM HPC Software System Overview**

- Massive Heterogeneous Data Extraction and Management
- Massive Data Visualization and Diagnosis
- MPMD Program Debug and Analysis
- Integrated Developing Platform

**Model Code Auto-Generation**

- Using EMF and GEF to define a model for ESM components
- Provide a Fortran syntax tree node generation API
- Support to persist syntax tree into Fortran source files