



## **Software Engineering Designs for Super-Modeling Different Versions of CESM Models using DART**

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The super-modeling approach connects different models together at run time in order to provide run time feedbacks between the models and thus synchronize the models. This method reduces model bias further than after-the-fact averaging of model outputs.

We explore different designs to connect different configurations and versions of an IPCC class climate model - the Community Earth System Model (CESM). We build on the Data Assimilation Research Test-bed (DART) software to provide data assimilation from truth as well as to provide a software framework to link different model configurations together. We show a system building on DART that uses a Python script to do simple nudging between three versions of the atmosphere model in CESM (the Community Atmosphere Model (CAM) versions three, four and five).