First, you will need to download and install required components and input for the Community Earth System Model (CESM): See the CESM download section of the Quickstart Guide. Approximately 28 TB of space is required for the minimum components and input. Once CESM is installed, you can build the atmospheric model component within CESM: See the atmosphere model section of the User's Guide. Building the atmosphere model is similar to the d escription for running on the NCAR HPC, but will have paths relevant to your local computer.

These lecture notes and video from the 2017 CESM tutorial have some more information.