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High Resolution River Routing in the CCSM2 Climate System Model

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The delivery of freshwater to the ocean from continental runoff is a critical factor in the global climate system. The current version of the NCAR climate model CCSM2 (Community Climate System Model, version 2) uses river routing at half degree resolution. While this is acceptable in the current model, high power computer architectures now available such as the IBM Power 4 and Cray X1 are allowing development of higher resolution climate component models and parameterizations. Subgrid orography parameterizations will allow for the production of more accurate runoff within a grid cell. Higher resolution routing is necessary to take advantage of this improvement. Other new parameterizations are adding chemical species to the terrestrial biosphere that will need to be transported via rivers to the oceans. A five-minute resolution river routing scheme has been developed in support of these improvements. We present the results of this new river routing scheme.

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