Regional changes in extreme climatic events with doubled CO_2

Jason L. Bell, Lisa C. Sloan, Mark A. Snyder
Department of Earth Sciences, University of California, Santa Cruz

Abstract.

We use a regional climate model to expand on modeling experiments of future climate change to address issues of (1) the timing and length of the growing season and (2) the frequency and intensity of extreme temperatures and precipitation. This study focuses on California as a climatically complex region that is vulnerable to changes in water supply and delivery. We find significant increases in daily minimum and maximum temperatures with a doubling of atmospheric carbon dioxide concentration. With increases in daily temperatures we also find increases in prolonged heat waves and length of the growing season. In the northern regions of the state there is an increase in extremely heavy rainfall events while the rest of the state has decreased total rain and decreased extreme rainfall events.