1. Introduction

The sensitivity of the mid-21st century cold season hydroclimate in California to global warming: An RCM projection based on NCC CCSM3 projection with the SRES-A1B emission scenarios.

2. Experimental Design

The model simulations of the changes in annual mean surface air temperature (left) and precipitation (right) for Southern/Gloabal (left) and southwest US (middle) surface temperature for Jan-Mar, Oct-Mar periods in the CCSM simulation.

3. Results

The projected precipitation changes also vary by regional geography and season. In the early part of the cold season, positive precipitation changes in Northern California are indicated by negative precipitation changes in Southern California. The precipitation changes simulated by the regional climate model are partially augmented by local-scale feedbacks.

Table 1: The climate change signals defined as the differences in the model climatology between the mid-21st century (2035-2054) and the late 20th century (1961-1980) emission scenario assumes balanced energy exchanges. The mean warming for all of California is 2.3°C for the entire cold season, with 1.0°C in winter and 0.7°C in fall.

Figure 1.1 Schematic representation of the coupled regional Earth System model configuration, including advanced modeling components for the Atmosphere (WRF), Land Surface (SSiB), Chemical Transport and Air Quality (CMAQ) and the Ocean (ROMS).

Figure 3.3 The projected change in snow-water equivalence (SWE) in the present-day and mid-21st century periods in the CCSM simulation.