Detection of multi-decadal variability of snow water equivalent by using regional climate simulation over Anatolian Peninsula

Baris Onol[†];
[†] Istanbul Technical Univesity, Turkey
Leading author: onolba@itu.edu.tr

Topography of Anatolian Peninsula has highly complex structure and the seas that are Black Sea to the north, the Mediterranean Sea to the south and the Aegean Sea to the west, which are important for the hydrological cycle bound the region. The most of the water supply of this region has been dominated by snowmelt process. Because of this reason, determination of the snow amount over the highlands is quite significant. Since the observational deficiency is main the problem over the mountainous regions, the simulation of the regional climate model (ICTP-RegCM3) which is coupled with the Biosphere-Atmosphere Transfer Scheme (BATS) has been used to define modulation of the snow cover. The multi-decadal (1961-2008) RCM simulation, which has 10-km horizontal resolution, has been analyzed for snow water equivalent (SWE) in this study. In the last two decades, decreasing trend in the simulated SWE has been detected from seasonal and monthly means over the most of the mountainous regions. Average SWE in winter season is decreasing in between 5% to 25%. Especially the altitudes between 1000 m to 1500 m, simulated snowmelt process in April and May has been accelerated over the upper basin of Euphrates and Tigris. Primarily results indicate that this consequence is also emerged in the simulated daily analysis and will be investigated in the observation-based analysis. These changes in SWE directly affect snowmelt-dominated river basins over the interested region.