



Variation characteristics of Nagqu soil moisture at different time scales based on network observation

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Based on the soil observatory under the support of the Third Tibetan Plateau project in China Meteorological Administration started from 2014, the seasonal and diurnal variations of soil moisture at different depths of 2~30cm at twenty-eight stations in Nagqu are analyzed. The results show that in winter and spring, the soil moisture decreases from 20cm to the shallow depths, while in summer and autumn, the soil moisture decreases with the increase of depth. Two peaks of soil moisture appear in early-to-mid-July and early September until early October following a decay period. Freezing-thawing process occurs in a certain range of soil temperature accompanies with changes of soil moisture. At the same time, soil moisture plays an important role on soil temperature by evaporation and freezing with the downward transmission of the solar radiation. The dispersions among different observational stations of summer and autumn are lagers than that in spring and winter. The diurnal variation in spring above 10cm is obvious, and the minimum and maximus of soil moisture appear at 8:00 to 10:00 and 19:00 to 20:00 respectively. The diurnal variation of the soil moisture is mild in summer and considerable on surface in autumn. The linear results show that soil moisture and temperature is positive correlated in January, April and October, but negative correlated in July. Discretions among the sites suggest that only few observatories cannot reflect the comprehensive status of land surface in the Tibetan Plateau. The current study provides a basis for satellite parameters validation and numerical model parameterizations in Tibetan Plateau.