Comparison of Different ET0 Formula in Tibetan Pasturing Area

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Abstract

It is difficult to calculate ET0 by FA056 PM by the shortage of meteorological data in Tibetan pasturing area. A simple?accurate and less of meteorological data formula is very important to calculate water demand of crop in Tibet. In this paper?FAO17 Penman formula?Priestley-Taylor formula?Hargreaves-Samani formula, Irmark-Allen(I-A) fitting formula were used to calculate the ET0 in three typical meteorological stations?Dangxiong county?Gaize county?Naqu county? in Tibetan pasturing area from 1983-2012. At the same time, taking FAO56 PM formula as the standard method. The results show that? (1) The calculation results of FAO17 PM?PT formula?HS formula, I-A fitting formula are higher than the value calculated by FAO56 PM formula because of the intense radiation, great difference in temperature and strong wind on highaltitudelocalities; (2) The calculation results by I-A fitting formula was the most closest to FAO56 PM formula and the error was relatively small(relative error?20%?coefficient of determination?0.94); (3) Because of less of meteorological data and relative accuracy, I-A fitting formula can be considered to instead of the FAO56 PM formula to calculate the ET0 in Tibetan pasturing area where the meteorological data is lack.

Keywords: Tibetan pasturing area, high altitude region, reference crop evapotranspiration, suitable ET0 formula