

## 几种常用净辐射计算方法在黄淮海平原应用的评价

### Evaluation of application of several net radiation calculation methods in Huanghuaihai Plain

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中文摘要:

Penman修正式和FAO Penman-Monteith公式是利用气象资料计算参考作物蒸散量方法中应用最广泛的。这些公式中净辐射是根据温度、日照时数、湿度以及一些当地的参数来计算的。用实测数据评价净辐射计算方法的研究还很少。该文作者利用中国科学院禹城综合试验站实测数据对两个公式中净辐射计算方法在黄淮海平原的应用进行了评价。在Penman修正式中, 别尔良德法、彭曼法、布朗特法和邓根云法是常用的净长波辐射计算方法。结果表明: 在Penman修正式净辐射公式中, 采用别尔良德净长波计算方法误差最小, 而且与FAO Penman-Monteith公式中净辐射计算精度一致, 但都存在相对误差在11~1月份比其他月份偏大的现象。进一步建立了适合本地区的用总辐射推算净辐射的经验公式。

英文摘要:

Penman and Penman-Monteith formulas are among the most widely used approaches to calculating reference crop evapotranspiration using the meteorological data. The net radiation used in those formulas is estimated with the temperature, sunshine hours, humidity, and some location-parameters. However, validation and evaluation of the calculation of the net radiation are seldom conducted when those formulas are applied. This paper dealt with the evaluation using the measured net radiation data measured by Yucheng Comprehensive Experimental Station located in Huanghuaihai Plain. The approaches of БерляндМ.Е., Penman, Brunt, and Deng Genyun were used to calculate the long wave radiation term of the net radiation in Penman formula. It was found that the estimated net radiation agreed best with the measured ones when the БерляндМ.Е. approach was adopted. Meanwhile, the calculated solar radiation was very close to that calculated by FAO Penman-Monteith. The relative errors of the calculated and measured solar radiations were higher in November, December and January than those in other periods. The authors also proposed an empirical formula for estimating the net solar radiation simply on the basis of the global solar radiation in this region.

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