

基于立体气候观测的粤北山区热量资源特征

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Characteristics of heat resource in mountainous region of northern Guangdong, South China based on three-dimensional climate observation.

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摘要

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摘要

利用粤北山区南岭南北坡面11个自动气象站2009—2011年逐日气温观测资料,统计包括平均气温 $\geq 10\text{ }^{\circ}\text{C}$ 初日、平均气温 $\geq 15\text{ }^{\circ}\text{C}$ 终日、 $10\sim 15\text{ }^{\circ}\text{C}$ 持续日数、平均气温 $\geq 10\text{ }^{\circ}\text{C}$ 活动积温、最低气温 $\leq 5\text{ }^{\circ}\text{C}$ 日数、逐月平均气温等热量因子,并建立了各热量因子与海拔的线性回归模型.结果表明:研究期间,南岭山区热量因子与海拔呈极显著相关,相同海拔南北坡面的热量资源有着明显差异;随海拔升高,界限温度初日推迟终日提前、界限温度持续日数缩短、活动积温降低、积温日数减少、年平均气温下降;南坡的各热量因子垂直变率均大于北坡.本研究结果可用于拟合无测站地区垂直方向上的热量资源分布,并为农业气候精细区划提供依据.

关键词: [热量资源](#) [垂直递减率](#) [立体气候](#) [山区](#) [南岭](#)

Abstract:

Based on the 2009-2011 daily air temperature observation data from 11 automatic weather stations in the mountainous region of northern Guangdong, this paper calculated the heat factors in the region, including the beginning date of $10\text{ }^{\circ}\text{C}$, the ending date of $15\text{ }^{\circ}\text{C}$, the duration days of $10\sim 15\text{ }^{\circ}\text{C}$, the accumulated temperature above $10\text{ }^{\circ}\text{C}$, the days of minimum temperature below $5\text{ }^{\circ}\text{C}$, and the mean monthly temperature, with the linear regression model of the heat factors and latitude established. In 2009-2011, the heat factors in the region had significant correlations with latitude, and the heat resource at the same latitudes differed apparently between south and north slopes. With the increase of latitude, the beginning date of $10\text{ }^{\circ}\text{C}$ delayed, the ending date of $10\text{ }^{\circ}\text{C}$ advanced, and the duration days of $10\sim 15\text{ }^{\circ}\text{C}$, the accumulated temperature above $10\text{ }^{\circ}\text{C}$, the days of temperature above $10\text{ }^{\circ}\text{C}$, and the mean annual air temperature decreased. The vertical variation rates of the heat factors were larger on south slope than on north slope. The results of this study could be used for fitting the vertical distribution of heat resource in the areas with no weather station, and provide basis for the fine regionalization of agricultural climate.

Key words: [heat resource](#) [vertical decreasing rate](#) [three-dimensional climate](#) [mountainous region](#) [Nanling Mountains](#).

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