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## 火山活动的周期性及其在若干气候要素中的反映

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The periodicity of volcano activity and its reflection in some climate factors

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摘要

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**摘要** 根据六百多年全球VEI 5级以上火山活动资料分析和谱分析以及与北半球地面气温、西太平洋高压SLP、北大西洋高压SLP和北大西洋西风漂流区SSTA对比分析得知:(1)全球强火山活动存在显著的88年左右和100年左右世纪尺度周期循环,二者对于VEI(*em*)原序列方差贡献率达到21.64%。还存在33年左右年代际尺度周期循环以及与太阳活动相联系的准11年周期;(2)夏季七月西太平洋副热带高压SLP存在与火山活动基本一致的准33年周期波动,分析认为这可能是对于火山活动准33年周期的响应;(3)在北大西洋,火山活动激发了夏季北大西洋副高88年周期波动、冬季1月北大西洋西风漂流区SSTA 100年周期振荡和夏季7月SSTA 88年周期振荡;(4)分析认为北半球地面温度88年周期波动可能是对火山活动88年周期的响应。

**关键词:** 火山活动 周期性 气候 地面气温 副热带高压 SST

**Abstract:** Based on the data analysis and spectra analysis of 600 years global VEI5 volcano activity and the comparison of the northern hemispheric ground temperature, the western pacific high pressure SLP, the northern Atlantic high pressure SLP and the northern Atlantic west wind drift SSTA, it is showed that: (1) the global strong volcano activities have an obvious cycle about 88-year and 100-year on century scale, a cycle about 33-year on decade scale and an 11-year cycle associated with solar activity; (2) the summer July west Pacific sub-tropic high pressure SLP has a 33-year period fluctuation accordant to the volcanic activity, it is considered to be the reflection of 33-year volcanic activity; (3) in the northern Atlantic, the volcanic activities inspire summer northern Atlantic sub-tropic high pressure 88-year cycle fluctuation, winter January northern Atlantic west wind drift SSTA 100-year fluctuation and summer July SSTA 88-year fluctuation; (4) analysis shows that the northern hemispheric ground temperature is the reflection of the 88-year cycle of volcanic activity.

**Keywords:** Volcanic activity Periodicity Climate Ground temperature Sub-tropic high pressure SST

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