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长白山火山最新监测信息

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摘要:

长白山火山最新监测结果显示,自2010年5月份开始,聚龙温泉2个泉点水温同步上升了3°C;2010年长白山北坡垂直位移量打破了火山锥体每年升高4mm左右的规律:与2009年相比,火山锥体的位移在垂向上发生逆转,海拔最高的水准点在1年内突降12.72mm. 本文对上述2个最新的火山监测信息进行了报道,并对造成这种变化的可能原因进行了讨论. 火山活动进入活跃时段的标志是大量火山地震、震群的发生,以及幔源岩浆气体He含量的大幅度上升. 然而,现阶段长白山火山区并未出现这2种现象. 因此,本文讨论的2个异常还不足以作为长白山火山已经进入新的活跃时段的证据,准确的预测应该密切关注火山地震和幔源气体含量的变化. 最后通过N₂-He-CO₂三角图解初步研究了天池火山气体来源,结果显示:2002~2005年火山出现“初始扰动”,深部气体He含量升高,三角图解中气体向He角运移;2005年后火山转入平静状态,气体组份又开始向N₂角运移. He浓度的变化特征反应了岩浆房内岩浆成分的变化过程.

英文摘要:

Temperatures of two hot springs around the Changbaishan volcano (NE China) have simultaneously increased about 3°C since May 2010 based on the newest monitoring results of the Changbaishan Volcano Observatory. Moreover, the altitude of northern slope of the Changbaishan volcano cone decrease about 12.72mm in 2010 whereas it increases around 4mm/a before 2009. This study preliminarily discusses the possible reasons for occurrence of above observations and precludes a link to the active phase of the Changbaishan volcano in the near future. Because the active period of the volcano is characterized by large amounts of volcanic earthquakes swarms and sharp increase in mantle-derived He contents, more precise prediction should be made on the base of detail monitoring work on volcanic earthquakes and volcanic gases in future. Using N₂-He-CO₂ ternary diagram, we recognize that the concentration of He increased aggressively from 2002 to 2005, and the gases in the ternary diagram immigrated to the He apex during the primitive perturbation episode. Changbaishan volcano has entered into a quiescent episode since 2005 and the emitted gases began to immigrate to the N₂ apex. The variation of He concentration in the emitted gases reflects the characteristics of gas composition evolution in magma chamber.

关键词: [火山](#) [火山气体](#) [水准](#) [监测](#) [长白山](#)

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