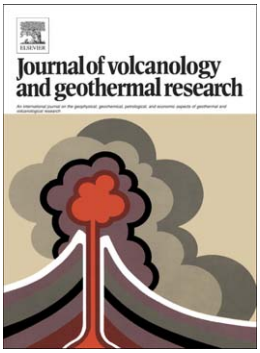

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Examining the Interior of Llaima Volcano with Receiver Functions

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Abstract

Llaima Volcano in Chile is one of the largest and most active volcanoes in the southern Andes, with over 50 eruptions since the 1600s. After years of persistent degassing, Llaima most recently erupted in a series of violent Strombolian eruptions in 2007-2009. This period had few precursory signals, which highlights the need to obtain accurate magma storage information. While petrologic advancements have been made in understanding magma degassing and crystallization trends, a comprehensive seismic study has yet to be completed. Here we present results of a receiver function survey utilizing a dense seismic array surrounding Llaima volcano. Application of H-$\varkappa$ stacking and Common Conversion Point stacking techniques reveal the general structural achitecture and ceiling of a low velocity zone between 8 and 13 km beneath Llaima volcano. We interpret this anomaly as a deep magma accumulation zone.

Keywords: Southern Andes, Crustal structure, Receiver Functions, Volcano Imaging

1 Introduction

Llaima volcano (38°41'30"S, 71°43'43"W) is a double-peaked, glacially topped stratocone in the Southern Andes Volcanic Zone [Naranjo & Moreno, 2005]. In addition to being one of the

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