

Accepted Manuscript

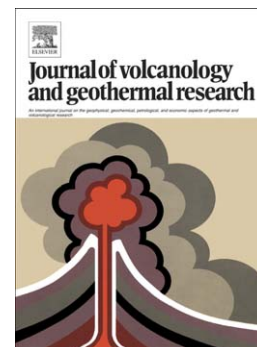
Unraveling the diversity in arc volcanic eruption styles: Examples from the Aleutian volcanic arc, Alaska

Jessica F. Larsen

PII: S0377-0273(16)30352-3
DOI: doi: [10.1016/j.jvolgeores.2016.09.008](https://doi.org/10.1016/j.jvolgeores.2016.09.008)
Reference: VOLGEO 5923

To appear in: *Journal of Volcanology and Geothermal Research*

Received date: 2 February 2016
Revised date: 24 August 2016
Accepted date: 19 September 2016



Please cite this article as: Larsen, Jessica F., Unraveling the diversity in arc volcanic eruption styles: Examples from the Aleutian volcanic arc, Alaska, *Journal of Volcanology and Geothermal Research* (2016), doi: [10.1016/j.jvolgeores.2016.09.008](https://doi.org/10.1016/j.jvolgeores.2016.09.008)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Unraveling the diversity in arc volcanic eruption styles: Examples from the Aleutian volcanic arc, Alaska

“It is important to note that not all magmas are created equal: Differences in composition of the melt affect its viscosity, which can vary from 1 Pa s (carbonatites) to ... (10²) Pa s (basalts) to > ... (10⁹) Pa s (rhyolites). Crystals, present in most magmas, also influence magma rheology. Furthermore, the tectonic setting where magmas are generated influences magma composition, volatile content, the rate at which magma is supplied to the magma chamber, and the overpressure needed for eruption. Hence, the great diversity in eruption style cannot be explained solely by fluid mechanics.” H. Gonnermann and M. Manga, 2007

Abstract

The magmatic systems feeding arc volcanoes are complex, leading to a rich diversity in eruptive products and eruption styles. This review focuses on examples from the Aleutian subduction zone, encompassed within the state of Alaska, USA because it exhibits a rich diversity in arc structure and tectonics, sediment and volatile influx feeding primary magma generation, crustal magma differentiation processes, with the resulting outcome the production of a complete range in eruption styles from its diverse volcanic centers. Recent and ongoing investigations along the arc reveal controls on magma production that result in diversity of eruptive products, from crystal-rich intermediate andesites to phenocryst-poor, melt-rich silicic and mafic magmas and a spectrum in between. Thus, deep to shallow crustal “processing” of arc magmas likely greatly influences the physical and chemical character of the magmas as they accumulate in the shallow crust, the flow physics of the magmas as they rise in the conduit, and eruption style through differences in

Download English Version:

<https://daneshyari.com/en/article/5783802>

Download Persian Version:

<https://daneshyari.com/article/5783802>

[Daneshyari.com](https://daneshyari.com)