

## Accepted Manuscript

Quantifying arc migration and the role of forearc subduction erosion in the central Aleutians

Brian R. Jicha, Suzanne Mahlburg Kay



PII: S0377-0273(18)30079-9  
DOI: [doi:10.1016/j.jvolgeores.2018.06.016](https://doi.org/10.1016/j.jvolgeores.2018.06.016)  
Reference: VOLGEO 6410

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

Received date: 21 February 2018  
Revised date: 14 June 2018  
Accepted date: 20 June 2018

Please cite this article as: Brian R. Jicha, Suzanne Mahlburg Kay , Quantifying arc migration and the role of forearc subduction erosion in the central Aleutians. *Volgeo* (2018), doi:[10.1016/j.jvolgeores.2018.06.016](https://doi.org/10.1016/j.jvolgeores.2018.06.016)

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.

## Quantifying arc migration and the role of forearc subduction erosion in the central Aleutians

Brian R. Jicha<sup>1\*</sup>, Suzanne Mahlburg Kay<sup>2</sup>

<sup>1</sup> *Department of Geoscience, University of Wisconsin-Madison, Madison, Wisconsin, 53706, USA*

<sup>2</sup> *Department of Earth & Atmospheric Sciences, Cornell University, Ithaca, New York, 14853, USA*

\*Email: brian.jicha@wisc.edu

### ABSTRACT

The active Aleutian arc is currently classified as an accreting margin as most of the arc has a well-developed frontal accretionary prism that formed in the Plio-Pleistocene. We focus on the central Aleutian island arc where the arc massif was built to near its current size by the Late Eocene and has since seen limited growth and endured episodic erosion prior to the development of the accretionary prism. As a result, the volcanic front has migrated northwards tens of kilometers since inception. Along with previous mapping, dating and geochemical data, sixteen new <sup>40</sup>Ar/<sup>39</sup>Ar dates and new geochemical data for volcanic rocks on several central Aleutian Islands supplement recent geochronologic data from six other islands in this region and facilitate an attempt to understand how and where Aleutian arc volcanism has migrated with time. Long-term average arc migration rates range from 0.6 to 5 km/Myr in three distinct locations. The arc migration rate increases to the west and is greatest over the last five million years as the arc migrated from a 7-5 Ma volcanic front to its current location. Arc migration and erosion during this most recent period may have been expedited by either the subduction of the Kula Ridge, which ceased spreading in the early Eocene, or clockwise rotation of the Pacific plate in the late

Download English Version:

<https://daneshyari.com/en/article/8911234>

Download Persian Version:

<https://daneshyari.com/article/8911234>

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