

Accepted Manuscript

Evolution of the Sea of Japan back-arc and some unsolved issues

Anne Van Horne, Hiroshi Sato, Tatsuya Ishiyama

PII: S0040-1951(16)30354-7
DOI: doi: [10.1016/j.tecto.2016.08.020](https://doi.org/10.1016/j.tecto.2016.08.020)
Reference: TECTO 127228

To appear in: *Tectonophysics*

Received date: 4 April 2016
Revised date: 6 August 2016
Accepted date: 25 August 2016



Please cite this article as: Van Horne, Anne, Sato, Hiroshi, Ishiyama, Tatsuya, Evolution of the Sea of Japan back-arc and some unsolved issues, *Tectonophysics* (2016), doi: [10.1016/j.tecto.2016.08.020](https://doi.org/10.1016/j.tecto.2016.08.020)

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.

Evolution of the Sea of Japan back-arc and some unsolved issues

Anne Van Horne^{a,b}, Hiroshi Sato^a, Tatsuya Ishiyama^a

^a*Earthquake Research Institute, The University of Tokyo, 1-1-1 Yayoi, Bunkyo-ku, Tokyo 113-0032, Japan*

^b*Department of Geology and Geophysics, University of Wyoming, Laramie, Wyoming 82071 USA*

Abstract

The Sea of Japan back-arc system provides an exceptional opportunity to study a virtually intact continent-ocean back-arc system in which recent tectonic inversion has exposed entire sequences of back-arc structure on land. Moreover, Japan's dense seismic/geodetic-monitoring networks, deployed country-wide, as well as moveable pools of ocean bottom seismometers, provide a rich data set through which to investigate deep back-arc structure. Earlier investigations have produced an initial understanding of back-arc opening: timing, structural evolution, temporal/spatial patterns of magmatic activity. Many questions remain, among them, the mechanism of back-arc opening (pull-apart or trench-rollback), the dynamics of interacting plates (location of the Philippine Sea plate with time), the origin of the anomalously thick Japan Sea ocean crust, and possible influences of far-field forces (India-Asia collision). Given existing high-resolution geophysical data sets and extensive on-land exposures of back-arc sequences and structures, the Sea of Japan back-arc is a promising context in which to address both local and more universal questions of how back-arc systems evolve. Here we review the tectonic setting and geological evolution of the Sea of Japan, based on our own and others' work, and briefly discuss outstanding questions that invite further investigation.

Keywords

Sea of Japan, back-arc evolution, back-arc structure, Neogene, Izu-Bonin arc collision, Shikoku Basin

1. Introduction

The 10th Workshop of the International Lithosphere Program (ILP) Task Force on Sedimentary Basins, '*Lithosphere dynamics of sedimentary basins in subduction systems and related analogues*,' highlighted the extent to which sedimentary basins can be a reliable proxy for linking mantle and surface processes in subduction systems when examined in an integrated way. Back-arc basins such as the Alboran, Ebro, and Pannonian Mediterranean basins, the South China Sea, and the Sea of Japan (Japan Sea) emerged as areas of considerable interest (Figure 1). The Japan Sea back-arc

Download English Version:

<https://daneshyari.com/en/article/5781581>

Download Persian Version:

<https://daneshyari.com/article/5781581>

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