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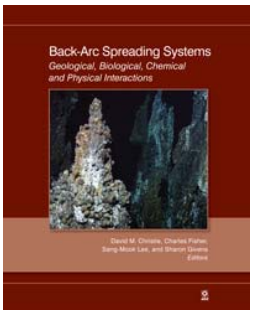
Back_Arc Spreading Systems – *Geological, Biological, Chemical, and Physical Interactions*, edited by David M. Christie, Charles R. Fisher, Sang-Mook Lee & Sharon Givens, 2006. Geophysical Monograph Series 166. American Geophysical Union, 2000 Florida Avenue, N.W., Washington, DC 20009, USA. Hardbound, 312 pages. Price USD 80.00 (AGU Members 56.00). ISBN 978-0-87590-431-3.



Back-arc spreading systems are a typical attribute of the back-arc basins forming adjacent to convergent plate boundaries. Although they are similar to mid-ocean spreading systems, they are overall shorter-lived and more diverse. Back-arc magmatic systems are more chemically and physically different and variable than the mid-ocean magmatic systems, which provides a greater variety of substrates for the back-arc active hydrothermal systems. Consequently, the back-arc lavas, hydrothermal fluids, mineral deposits, and biological communities (often endemic) are much more variable than their mid-ocean ridge counterparts. Since they are closely associated with island arcs, back-arc basins have substantial economic and political importance to the nations that include back-arc regions within their Exclusive Economic Zones. However, many features of the back-arc spreading systems still remain imperfectly understood.

Since the first attempts to summarize the knowledge of back-arc basins in the books "*Island Arcs, Deep Sea Trenches and Back-Arc Basins*" (edited by M. Talwani & W.C. Pitman) and "*Backarc Basins: Tectonics and Magmatism*" (edited by B. Taylor), a tremendous amount of new data has been collected. It was therefore time to synthesize the recent state of knowledge of back-arc spreading systems. The American Geophysical Union has done us all a great service by publishing another excellent book from the Geophysical Monograph (GM) Series, which follows "*Seafloor Hydrothermal Systems: Physical, Chemical, Biological, and Geological Interactions*" (GM 91, edited by S.E. Humphris, R.A. Zierenberg, L.S. Mullineaux, and R.E. Thomson), "*The Subseafloor Biosphere at Mid-Ocean Ridges*" (GM 144, edited by W.S.D. Wilcock, E.F. DeLong, D.S. Kelley, J.A. Baross and S.C. Cary) and "*Mid-Ocean Ridges: Hydrothermal Interactions Between the Lithosphere and Oceans*" (GM 148, edited by C.R. German, J. Lin and L.M. Parson). It completes the global picture of interactions between lithosphere, biosphere and oceans at the divergent plate boundaries. This book portrays the geological, biological, chemical and physical processes that take place along back-arc basin spreading centers. It is a synthesis of the prestigious Ridge 2000 – InterRidge Theoretical Institute held in South Korea (2004).

"*Back-Arc Spreading Systems*" gathers together ten synthesis papers and three case studies of individual back-arc basins. First, five synthesis papers address mantle structure and dynamics: GPS studies of convergent margins, 3-D mantle flow patterns, types of mantle material contributing to back-arc magma sources, and model of melting beneath the back-arc. The wide range of hydrothermal-vent chemistry and the fundamental role of volatiles in metal transport and ore deposition at back-arc spreading centres are comprehensively reviewed (contributions 6-7). The diversity of hydrothermal-vent biota and ecosystems at these geologically diverse spreading centres are systematically discussed (contributions 8-10). The case studies focus on and summarize current knowledge of the east Scotia Sea, the Bismarck Sea, and the West Philippine Basin.

The book is aimed at M.Sc. and Ph.D. students, post-doctoral and experienced researchers in the fields of marine geology, marine geochemistry, biological oceanography, volcanology, and petrology. If I was a Ph.D. student starting my research on active plate boundaries, this book would be on my shopping list. It is books like this that catch the interest of M.S. students and persuade them to continue in academic career. Overall, I found the "*Back-Arc Spreading Systems*" an excellent book, and I highly recommend it.

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