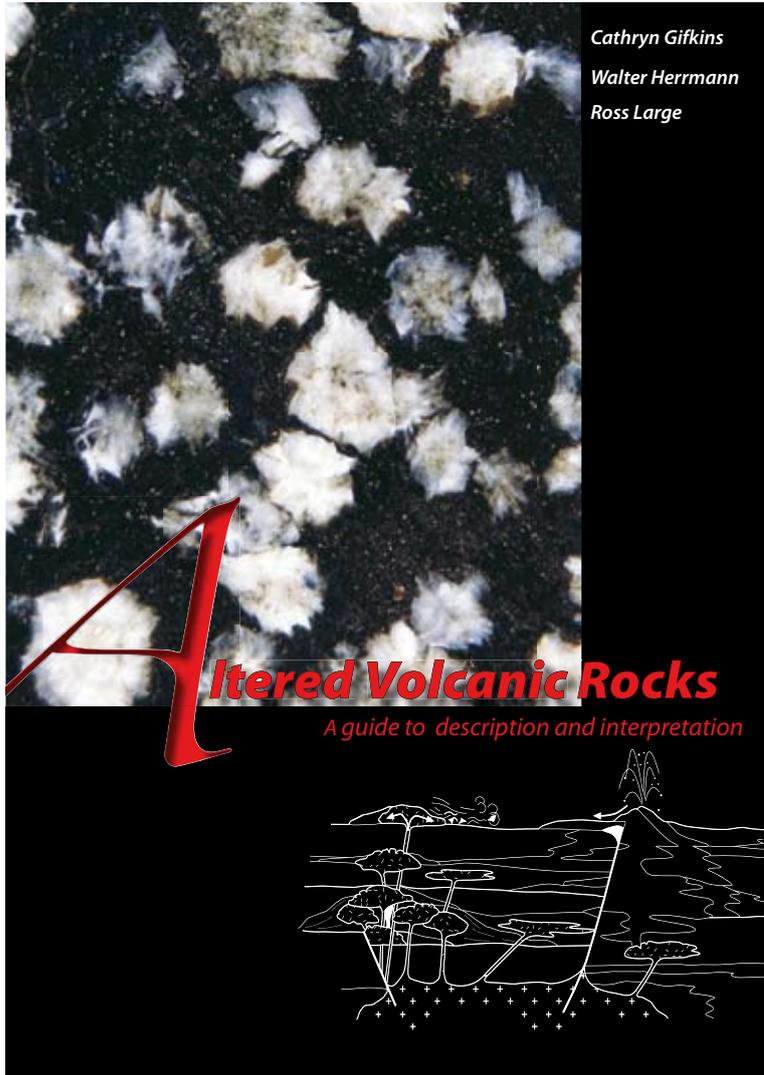


# Altered volcanic rocks:

## a guide to description and interpretation



Dr **Cathryn Gifkins** was a postdoctoral research fellow at the Centre for Ore Deposit Research at the University of Tasmania. She brings to the publication a strong background in detailed volcanic facies analysis, the facies architecture of submarine volcanic successions, regional alteration styles, especially diagenetic alteration and compaction in glassy volcanic rocks, and an understanding of the mineralogical, textural and compositional changes that occur during alteration of a submarine volcanic succession.

**Walter Herrmann** was a researcher in economic geology at the Centre for Ore Deposit Research. Wally's background in mineral exploration in Australian volcanic successions, principally the Mount Read Volcanics and the Mount Windsor Subprovince is a valuable asset to the book. He has a special interest in understanding hydrothermal alteration as a method for discriminating and discovering VHMS and porphyry deposits.

Professor **Ross Large** is Director of the ARC Centre of Excellence in Ore Deposits and has an international reputation for research on the genesis of, and exploration for, ore deposits. Ross has a comprehensive knowledge of VHMS deposits, and has actively promoted and developed the application of geochemical techniques to mineral exploration. This innovative approach has recently produced the Alteration box plot, an alternative way to relate alteration intensity, mineralogy and geochemistry.

*Altered volcanic rocks* is a practical guide for systematically describing and interpreting altered volcanic rocks, and determining their significance in terms of mineral deposit prospectivity. It discusses the processes and products of the common alteration styles in submarine volcanic settings, including diagenetic alteration, burial metamorphism, hydrothermal alteration and mineralisation, and intrusion-related alteration. It takes a multi-disciplinary approach combining alteration mineralogy, textures and intensity with litho-geochemistry to constrain the characteristics of different alteration styles. In addition, it provides a descriptive method for alteration facies nomenclature. It presents examples of the mineralogical, textural and compositional features of alteration facies and zones from ancient submarine volcanic successions in Australia, Canada, Japan and Iberia. To emphasize the ore deposit context, the book includes a major chapter that uses innovative illustrated data sheets to describe the main alteration facies or zones associated with a variety of volcanic-hosted massive sulfide (VHMS) deposits in the famous Cambrian Mount Read Volcanics in Tasmania and Cambro-Ordovician Mount Windsor Subprovince in Queensland. The final chapter describes and presents examples of how altered rocks and their characteristics may be applied to exploration for volcanic-hosted deposits.

The book contains 275 pages: 127 figures and 66 full-page alteration data sheets, which include 274 colour photographs that illustrate the textural and mineralogical characteristics of different alteration intensities, facies and styles. The text is richly referenced throughout to provide basic source materials for students, academics and field geologists who may wish to delve further into the irresistible mysteries of altered rocks.

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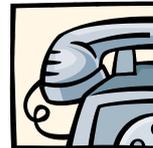
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