
J.S. Marsh
South African National Correspondent, IAVCEI
Department of Geology
Rhodes University
Grahamstown 6140
South Africa

South Africa has no formal organizational or research structures dedicated to the principle aims of International Association of Volcanology and Chemistry of Earth’s Interior (IAVCEI) and over the period of the review there were no national research programmes which advance the main thrusts of IAVCEI. The association has a system of personal membership and the number of IAVCEI members in South Africa has not generally exceeded half a dozen over the period under review, although the potential membership is much greater as there are many scientists carrying out research on volcanic and intrusive rocks as well as mantle materials. These researchers are largely based at universities, the Council for Geoscience, as well as some mining and exploration companies, particularly those with interests in mineralization associated with the Bushveld Complex as well as diamondiferous kimberlite. Over the period of review the research of small informal groups and individuals has produced a substantial number of papers in igneous rocks and mantle materials. These outputs can be conveniently grouped as follows.

Archaean Greenstones and Granitoids and Proterozoic Igneous suites.

There is a steady output of research in these areas particularly in Archaean suites with interest in both the ultramafic-mafic komatiitic rocks as well as granitoids. Of note is the description of a new class of komatiite characterized by high silica and ultra depletion in incompatible elements.

Bushveld Complex

The Bushveld Complex one of the world’s largest layered igneous complexes is host to giant ore deposits of Cr, PGE, and V. This mineralization ensures a steady output of research directed towards unravelling the emplacement and evolution of the complex and associated intrusive and volcanic rocks. Much of the research is effort emanates from the Department of Geosciences at the University of Witwatersrand where a specialised Bushveld Complex Research Group is directed by Prof Grant Cawthorn.

Mesozoic Flood Volcanism

Southern Africa is host to two large Mesozoic flood volcanic provinces - the early Jurassic Karoo Province and the early Cretaceous Etendeka Province along the Atlantic seaboard of South Africa and Namibia. Both of these feature in the research outputs. There has been a renewed interest in detailed dating in the Karoo, largely by foreign-based scientists with South African collaboration. Mineralization in Karoo intrusions has also received attention. In the Etendeka comprehensive petrogenetic models arising from decades of research have also been published.
Kimberlite and Mantle Materials

Southern Africa with its abundant diamondiferous kimberlite bodies has long been a focus of research into the nature of kimberlite as well as mantle materials contained within kimberlite. South African based scientists continue to feature prominently in kimberlite and mantle research. In recent years the Kaapvaal Craton Project as well as the 8th International Kimberlite Conference which was held in Canada in 2003 provided the impetus for publication, during the period under review, of special issues of the South African Journal of Geology (Kaapvaal Craton Project) and Lithos (Kimberlite Conference). The two special volumes of Lithos were named the Hawthorne and Clement volumes in honour of two South African geoscientists who made significant contributions to kimberlite volcanology and petrology. There is currently a renewed interest in kimberlite volcanology and emplacement as well as the chemical characterization of kimberlite liquid. With regard to the latter, significant contributions have been made by A.P. Le Roex and co-workers at the University of Cape Town. However, kimberlite remains the richest source of samples from the otherwise inaccessible interior of Earth and publications on these still dominate the research outputs.

The principle behind the compilation of publications list below is that the research output should be authored or co-authored by South African-based geoscientists at the time of publication. Some of this research has been done outside national boundaries. Likewise there is a considerable amount of published research on South African rocks from foreign research groups without South African involvement. Such outputs have not been included. Also not included are conference presentations and abstract volumes. The publications cover the period 2003-2006 and this has raised another problem in that on-line publication may precede paper publication by several months. A decision was made to use the paper publication date as a basis for compiling the list. In addition I have attempted to include only those publications which address the direct interests of IAVCEI. As these are broad, a decision regarding relevance is sometimes difficult to make. Nevertheless the papers listed below, the majority in top quality international journals, attest to a significant contribution by South African scientists to IAVCEI.

ARCHEAN MAGMATISM


Clemens J.D., Yearron L.M., and G. Stevens G. (2006). Barberton (South Africa) TTG magmas: Geochemical and experimental constraints on source-rock petrology, pressure of


**PROTEROZOIC SUITES**


**BUSHVELD COMPLEX**


MESOZOIC MAGMATISM


**KIMBERLITE AND MANTLE MATERIALS**


**MISCELLANEOUS**


