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Recent meetings

Precambrian Events in the Gondwana Fragments: IGCP 236 meeting and field excursions, Nairobi, 18–28 February 1989

This, the first IGCP meeting to be held in Kenya, was organized by the Geological Society of Kenya and attended by over 70 scientists from 18 countries. The aim of the meeting was to compare the geology of East Africa with that of India, Sri Lanka, Australia, and East Antarctica. Previous IGCP 236 meetings have been held in Albany, Western Australia (November 1985) and Kandy, Sri Lanka (August 1987).

A four-day pre-conference excursion examined the geology and tectonics of Precambrian and Cenozoic rocks of central and western Kenya. Of particular interest were the relationships between the Archaean granite-greenstone terrain (the Nyanzian Shield) and the Pan-African (late Proterozoic–Cambrian) Mozambique mobile belt. The contact is marked by mylonite zones and thrust zones, and the Mozambique belt contains ophiolite sutures. Such dismembered ophiolites are apparently absent from the Sri Lankan, Western Australian and East Antarctic Gondwana fragments. A post-conference excursion examined high-grade metamorphics of the Mozambique belt, as well as younger sedimentary and volcanic rocks, in south-eastern Kenya.

During the conference proper, papers covering the geology of all the major Gondwana fragments were presented. The origin and development of Pan-African mobile belts as exposed in East Africa were discussed in detail. A paper by S.A. Wilde and D.M.K. Murphy described the occurrence of a small, isolated Pan-African terrain in the extreme south-west of Western Australia — the Leeuwin Block. D.J. Ellis and M.A.H. Maboko argued that A-type subduction (driven by lithosphere delamination resulting from gravitational instability) as a cause of intracratonic orogeny is unlikely, and that even ensialic mobile belts must ultimately be formed as a result of plate tectonic movements. A major problem highlighted at the conference was that, although distinct temporal events are recognized in the Gondwana fragments, the geological expression of these events varies. In particular, the Pan-African mobile belts are both spatially and geologically well-defined. Nevertheless, there is evidence, in the form of granite and pegmatite emplacement and resetting of K-Ar and Rb-Sr isotopic systems, for a widespread thermal event in large areas of Gondwana (e.g. Sri Lanka and East Antarctica) remote from these mobile belts. Another important feature was that Gondwana breakup appears to have taken place along the mobile belts or within high-grade Archaean cratons, rather than within Archaean granite-greenstone terrains. Presumably, long-term crustal weaknesses in the Proterozoic and Pan-African mobile belts acted as loci for the later break up of the supercontinent. Clearly, comparisons with once-contiguous areas can be of immense value in elucidating the geological evolution of Antarctica, the geology of most of which is inaccessible due to ice cover.

Conference abstracts and excursion guides can be obtained by writing to the Department of Geology, University of Nairobi, PO Box 30197, Nairobi, Kenya.

D.J. Ellis

Magnetosphere, Ionosphere and Solar Terrestrial (MIST) meeting, London, March 1989

For twenty years, the MIST community in the UK has successfully held a two- or three-day spring meeting at a University, and a one-day autumn meeting in London, each year. Organized jointly by the Royal Astronomical Society and the Institute of Physics, these relatively informal and lively meetings provide an excellent opportunity for the exchange of recent research results.

The 1989 spring MIST meeting, held at Royal Holloway and Bedford New College at Egham in Surrey, focussed on high latitude and polar cap physics even more than usual. Whilst there were many papers on results obtained by the tristatic European Incoherent Scatter (EISCAT) radar in northern Scandinavia, there was also a good number of Antarctic data and their interpretation. These ranged from the discussion of ionospheric F-region storm phenomena, in which ring current precipitation was claimed to be a major energy source, to the ionospheric signatures of flux transfer events (FTEs) on the magnetopause. In the first year of operation of the Polar Anglo-American Conjugate Experiment (PACE) radar at Halley, Antarctica, with simultaneous studies from the geomagnetically conjugate region from Goose Bay, Labrador, Canada, it has been shown that a dusk cell convection pattern is established in ten minutes, following a change of the interplanetary magnetic field from northward to southward.

An excellent review of the Interplanetary Scintillations (IPS) technique in radar astronomy showed that interplanetary shock fronts are caused by high-speed solar wind streams emanating from 'coronal holes', low density regions of the Sun's corona which emit X-rays only dimly. If such a shock front strikes the Earth's magnetosphere, it initiates a sudden commencement magnetic storm.

The complex electric field associated with an auroral

substorm has been deduced from observations made at Faraday of whistler mode signals from two radio transmitters in the conjugate region which are used for communicating with submarines. Horizontal electron density gradients in the ionosphere lead to the capture of upgoing radio waves in ducts. Theoretical studies of whistler mode propagation and the generation of auroral radiation featured in several papers. The first results of an extension to Antarctica of the Omega Phase and Amplitude Logger network (OPAL net) showed a dramatic event observed at Halley on 30 December 1988.

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