The first international radiolarian conference to be held in the Southern Hemisphere attracted record numbers of radiolarian researchers to Wellington, New Zealand, from March 19 to 24, 2006. The conference was held in conjunction with a meeting of IGCP Project 467, *Triassic time and trans-Panthalassan correlations*. The 120 participants came from 19 countries, with 35 participants from Japan alone and 32 students. Particularly pleasing was the large number of participants from eastern Europe, include eight from Russia. The 72 oral presentations included 17 plenary talks, nine of these open to public, which addressed the key themes of the conference: Triassic catastrophes and their consequences, biological indicators of oceanographic change, micropaleontological methodologies for the 21st century and radiolarian solutions to tectonic problems.

A highlight for radiolarian researchers was the presence of two visionaries in radiolarian research: William R. Riedel, who revolutionised Cretaceous-Cenozoic radiolarian biostratigraphy through studies of cores collected in the course of the Deep Sea Drilling Project, and Emile A. Pessagno, who revolutionised Mesozoic radiolarian biostratigraphy through perfection of the hydrofluoric acid rock-leaching method to retrieve radiolarians from indurated rocks and use of the scanning electron microscope for refined taxonomic discrimination.

In addition to the oral papers, 32 posters were presented. Student prizes were awarded for the best oral and poster presentations. Tomoko Yuasa of Tokyo Gakugei University won the best oral paper award for “Phaeodarians found a home? Molecular phylogenetic study of Phaeodarea”. Two posters tied for best poster and so the award was shared between Susumi
Conference symposia

The conference comprised three symposia: Triassic stratigraphy, Nigrini and Biosilica. In the Triassic Symposium Dr Mike Orchard, Convenor of IGCP 467 and Chair of the Subcommission on Triassic Stratigraphy drew attention to the deadline that IUG have set for determining appropriate GSSPs for all stage boundaries. This impacts on the Triassic Period in particular because as yet only two stage boundaries have been fixed: the base Induan (Permian-Triassic boundary) and the base Ladinian. Formal proposals for several others are almost ready for voting by members of the subcommission, but others are far from being resolved. In a plenary session, Dr Ian Metcalfe reviewed the available evidence for discriminating between competing causes of the Permian-Triassic boundary crisis and in so doing explained the basis for the currently accepted age for the base of the Triassic (252.6 Ma). His thesis was supported by Dr Heinz Kozur, advocating very persuasively for a direct link with LIP volcanism and eruption of the Siberian Traps. Dr Martial Caridroit (and Patrick de Wever subsequently in the Biosilica symposium) provided a philosophical consideration of the fossil record and the much-vaunted magnitude of the extinction event at the end of the Permian. Their view was that the extinction rate may have been vastly over exaggerated.

New Zealand contributors Hamish Campbell, Ian Raine, Jack Grant-Mackie and Bruce Waterhouse drew attention to the status of New Zealand Triassic studies and especially the woeful lack of current research on aspects of paleontology and chronostratigraphy. Yet it was widely recognised during the conference that little-deformed and metamorphised tuff-rich fossiliferous New Zealand Murihiku Supergroup sequences (Murihiku terrane) offer tremendous potential for establishing age control for much of Triassic time. Clearly this is a project waiting to happen. Many Triassic workers, and radiolarian workers alike, were attracted to the conference because of the opportunity to visit the Permian-Triassic boundary section at Arrow Rocks in Whangaroa Bay, Northland. Those who made it on Trip 1 were not disappointed! This is undoubtedly the most significant deep marine Permian-Triassic record for the Panthalassa Ocean in the Southern Hemisphere. A GNS Monograph presenting all available data will be published within the next three months.

The Nigrini Symposium on biological indicators of oceanographic change honoured our colleague Cathy Nigrini, who passed away in January 2005, and acknowledged her major contributions to Cenozoic radiolarian taxonomy, biostratigraphy and paleoceanography. The symposium began with plenaries by local researchers Helen Neil, Scott Nodder and Chris Hollis, who outlined the oceanographic regime around New Zealand and showed how studies of plankton (including radiolarians) in sediment traps, surface sediments and sediment cores were contributing understanding the influence climate change has on ocean productivity offshore eastern New Zealand. The following papers spanned the full breadth of current radiolarian research from studies of living radiolaria to detailed core- and outcrop-based studies of faunal changes during episodes of significant climatic or environmental change. Atsushi Matsuoka spanned this range in a single talk, demonstrating how his laboratory studies of living radiolarian feeding strategies help to explain survivorship patterns across mass extinction horizons. The symposium finished with three public plenary talks: a
retrospective on deep sea drilling from William Riedel, an introduction into the new phase of ocean drilling within the framework of the Integrated Ocean Drilling Program from Kozo Takahashi, and an overview of the contribution that radiolarian research has made to understanding the evolution of the Cenozoic ocean from David Lazarus.

The **Biosilica Symposium** includes oral papers on a wide range of themes, including biodiversity, taxonomic databases, phylogenetics and evolution, tectonics, petroleum exploration and biostratigraphy. Plenary talks by Patrick De Wever and James Crampton emphasised the serious problem of sampling bias in traditional paleo-diversity studies. However, they also pointed to solutions that will give new rigour to fossil-based studies of biodiversity and stratigraphy. That part of the solution comes as international database initiatives that will help paleontologists speak the same taxonomic language was highlighted in a series of talks on database projects: Paleobiology Database (David Lazarus), WoRaDD (Demetrio Boltovskoy), RadWorld (Jean-Pierre Caulet), Radiolarian Information System (Yuri Agarkov). This theme was continued in a databases workshop where participants recognised the urgent need to coordinate these initiatives to avoid duplication and establish systems that can eventually be integrated. Another initiative to be applauded is the Joint Haeckel and Ehrenberg Project, a Japanese-led project to re-examine and redescribe type material held in collections in London, Berlin and Jena. As explained by Noritoshi Suzuki, this work has the potential to resolve a problem that has thwarted radiolarian research for generations: the lack of well-defined or definitive holotypes for many common radiolarian species and genera. In the public plenary talks for the Biosilica Symposium Sergey Zyabrev, Jonathan Aitchison and Emile Pessagno gave a stimulating series of talks on the theme “radiolarian solutions to tectonic problems” with spectacularly illustrated examples from the Russian Far East, Tibet and Mexico.

**Conference excursions**
The conference included six field trips that covered almost every corner of New Zealand: from the Permian-Triassic boundary of Northland to the radiolarian-rich Cretaceous-Tertiary and Paleocene-Eocene boundary sections of Marlborough, and the New Zealand Triassic stage stratotypes of Southland. Combining geology with other aspects of New Zealand natural history and culture proved to be very popular with participants – most of whom were making their first visit to New Zealand. The main pre-conference excursion in Northland was led by Bernhard Spörli, Chris Hollis, Atsushi Takemura and Yoshiaki Aita. It focussed on the Permian-Triassic boundary sequence within Waipapa terrane and radiolarian-rich Paleogene limestone within the Northland Allochthon but included an introduction to New Zealand’s giant araucarian, the kauri tree, and the industries that exploited the kauri forests.
Field trip participants view the Permian-Triassic boundary succession at Arrow Rocks, Oruatemunu Island, Northland. Photo C. Hollis, GNS

Follow-on pre-conference trips delivered participants to the conference venue in Wellington by two routes. One excursion led by Chris Hollis and Murray Baker visited the geothermal fields and calc-alkaline volcanoes of the central North Island. The other excursion, led by Jack Grant-Mackie, Hamish Campbell and Rie Hori, visited key Triassic–Early Jurassic sections in Murihiku terrane on the North Island’s west coast. A mid-conference excursion, led by Hamish Campbell, Bernhard Spörli and John Simes, to examine Triassic rocks of Torlesse composite terrane exposed on Wellington’s south coast was a terrific introduction to local wet-weather field conditions. The terrible weather did not phase the 77 participants. One hardy soul even went for an intentional swim.

The post-conference excursion to Southland, led by Hamish Campbell, escaped the wet weather and participants enjoyed five sunshine-packed days viewing the key stratotype sections for six of the eight local Triassic stages. Participants on the other post-conference excursion to Marlborough and North Canterbury, led by Chris Hollis, Percy Strong and John Bradshaw, were less fortunate with the weather but had the compensation of spectacular geology, fine food and comfortable accommodation. The excursion visited four K/T boundary sections in Marlborough: Woodside Creek, Mead Stream, Chancet Rocks and Flaxbourne River. As well as being one of the first three sections shown to contain an iridium anomaly in the K/T boundary clay, the Woodside Creek section has a rich radiolarian record that shows almost 100% survival across the K/T boundary as well as progressive first appearances of important Cenozoic taxa – these events forming the basis of an early Paleocene radiolarian zonation.
The conference was hosted by InterRad, the International Association of Radiolarian Paleontologists, IGCP 467, the Subcommission on Triassic Stratigraphy and GNS Science. It was sponsored by the Royal Society of New Zealand and the New Zealand Government through the International Conference Fund, NIWA, Te Papa Tongarewa Museum of New Zealand, Wellington City Council, Zeiss Australasia, Webster Drilling and Clevedon Coast Oysters. The conference abstract volume can be downloaded from the GNS website: www.gns.cri.nz/interrad.

The next InterRad conference will be held in Nanjing in September 2009. The next sponsored meeting of STS/IGCP 467 will be held in Svalbard, Norway during August 2006, with a final meeting scheduled for Albuquerque, New Mexico in May 2007.

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