

Report to Canadian IGCP Committee
IGCP Project 467
Triassic time and trans-Panthalassan correlation

Goals

The goals of this new project, initiated during 2002, are to establish and stabilize a Triassic time scale with global applicability, and to demonstrate its utility by establishing correlations across the vast expanse of the Triassic Panthalassan Ocean. Besides the writer and original proponent, co-leaders Leopold Krystyn from Vienna, Austria; Tong Jinnan from Wuhan, China; and Spencer Lucas from Albuquerque, USA, will provide broad geographic representation in both marine and non-marine realms.

Canadian activities

The project complements activities of the IUGS Subcommittee on Triassic Stratigraphy (STS) and concurrent meetings of the two groups are planned in order to optimize the efforts to attain globally applicable GSSPs, only one of which is currently defined. *Michael Orchard*, as both current Chair of the STS and leader of the project, has presided over these meetings.

Michael Orchard's main focus during the year has been reconstructing Triassic multielement conodont apparatuses. This work is fundamental to the optimal use of conodonts in biochronology and his findings, planned for *Paleontology*, will set the stage for future taxonomic studies.

At the field workshop in Veszprum, Hungary during October (see below), it was informally agreed to draw the base of the Anisian (Middle Triassic) at bed 7 of the Desli Caira section in Romania, coinciding with the appearance of a defining conodont, *Chiosella timorensis*, a significant change in the ammonoid fauna, and the peak of a negative C isotope anomaly. Recent results from this interval in the Nanpanjiang Basin in South China support the synchronicity of these events and also provide a radiometric age for the boundary. *Orchard* is studying the conodont faunas from Romania in collaboration with *Eugen Gradinaru* (Bucharest) and *Alda Nicora* (Milan), and those from China in collaboration with *Dan Lehrmann* (Oshkosh).

Zhao Laishi, a Chinese graduate researcher from Wuhan, China will spend 3 months in Vancouver under the supervision of *Orchard* to undertake a study of conodonts from a new GSSP candidate section for the base of the Olenekian at Chaohu, China.

Mike Orchard, *Chris McRoberts* and *Viorel Atudorei* continued their collaboration during an October, 2002 multidisciplinary field workshop on key Triassic sections in Nevada, Utah and Idaho. In conjunction with *Marco Balini* (Milan), a basal Carnian section at New Pass was studied and intensively sampled. New data should help resolve issues arising from studies at the correlative sections at Stuoures, Italy; Spiti, India; and in British Columbia. *Michael Orchard*, *Tim Tozer*, and *J-P Zonneveld* have a paper in press reviewing the Ladinian-Carnian boundary data in Canada (see below).

Work on the classic Williston Lake Triassic sections is progressing with *Orchard*, *McRoberts*, *Atudorei*, and *Zonneveld* are all working actively contributing to a field guide for the GAC-MAC conference in Vancouver, May 2003. Amongst others, the team are involved in a study of a base Norian GSSP candidate section at Black Bear Ridge, a key site to be visited during a post meeting field trip of the GAC-MAC meeting (see below).

Marji Johns continued her work on Triassic ichthyoliths. She has prepared several reports on the subject of ichthyolith assemblages and T-R cycles in northeast BC.

Meetings

The inaugural meeting of the project was held at the 8th Conodont Symposium in Toulouse, France during late June, 2002. *Michael Orchard* addressed a contingent of Triassic conodont researchers and stressed the importance of stabilizing the Triassic time scale through the development of a multielement conodont taxonomy.

A 4 day meeting was held 5th - 8th September in conjunction with the Subcommittee on Triassic Stratigraphy in Veszprum, Hungary with emphasis on Middle Triassic boundaries and correlations. The meeting was attended by 41 persons from 18 countries, and the proceedings and field guide were published as an 86 page volume produced by Hungarian colleagues.

During early October, a group of 8 geologists from Canada, the USA, and Italy met for a field workshop in Nevada, Utah, and Idaho where key sections of Lower and Middle Triassic strata were sampled for both paleontological and geochemical data.

Future meetings

During late May, 2003, a special session on "Extinction events, faunal turnovers, and natural boundaries within and around the Late Triassic." will be held at the Annual Meeting of the Geological Association of Canada in Vancouver, Canada . This session is co-sponsored by the Subcommittee on Triassic Stratigraphy (STS) and by both IGCP Project 458 (T-J boundary events) and Project 467 (Triassic time and correlation). This will; be followed by a 4 day field trip to Williston Lake.

Triassic geochronology and cyclostratigraphy - a field symposium will be held in St. Christina, Val Gardena, Dolomites, Italy, Sept. 11 - 15, 2003 in conjunction with the Seceda Working Group and the International Commission on Triassic Stratigraphy (STS). This will be an open symposium on geochronology, stratigraphy and sedimentology of the Triassic. Special emphasis will be given to age dating, depositional rhythms and the question of orbital cycles of the Triassic. The symposium is also the concluding meeting of the Seceda Working Group, an informal assembly of earth scientists from 15 institutions in five countries that studied the Seceda boring, a research bore hole in mid-Triassic basin sediments contributed to the Earth Science Community by the Province of Bolzano/Bozen, Italy.

Publications

M.J. Orchard, E.T. Tozer, and J.P. Zonneveld. 2003

Some preliminary observations on the association of ammonoids and conodonts about the Ladinian -Carnian boundary in North America. *Albertiana*, 27.

Piros, O. (ed) 2002.

STS/IGCP 467 Field meeting, Veszprum, Hungary. Abstract and field guide. 86 pp.