Annual Report* of IGCP Project No 587

*NOTE: MAXIMUM LENGTH OF THE TEXT REPORT IS 5 (FIVE) PAGES. SINGLE SPACE, 12 POINT FONT. REPORTS EXCEEDING THIS LENGTH WILL BE RETURNED TO THE AUTHOR(S) WITH THE REQUEST OF REDUCING THE TEXT TO THE ABOVE STANDARD.

The scientific information in this report will further be used for publication on the IGCP website under the new electronic version of 'Geological Correlation' (please feel free to attach any additional information you may consider relevant to the assessment of your project).

IGCP project short title: Identity, Facies and Time – The Ediacaran (Vendian) Puzzle

Duration: 2010-2014

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Date of submission of report: 24 December 2011

Signature of project leader(s): Patricia V. Rich
Guidelines for Annual Report

1. **Website address:** www.geosci.monash.edu.au/precsite

2. **Summary of major past achievements of the project:** See website, which details each year of project plus the precursor to this project, IGCP493.

3. **Achievements of the project this year only**

3.1. **Countries involved this year include:** Australia, Russia, Canada, Namibia, Germany, China, Taiwan, USA, India, Singapore, Argentina, Saudi Arabia, United Arab Emirates (Sharjah), Timor-Leste, Brasil, South Africa, United Kingdom

3.2. **General scientific achievements and social benefits**

   Continued detailed documentation of a rich fauna of late Neoproterozoic rangeomorphs in southern Namibia and completion of two lengthy scientific papers to be submitted by the end of 2011 on this spectacular new material. Publication of new material from the White Sea region of northern Russia, including the naming of the oldest ascidian, from the late Neoproterozoic – to be published in January 2012 in the Paleontological Zhurnal in both English and Russian. Completion of a long term project (9 years) – the biography of Academician Boris Sergeieich Sokolov, principal scientist who founded work on the Vendian fauna in Russia and was a key player in the founding of the scientific city of Akademgorodok. Successful conferences in Novosibirsk (at Akademgorodok), Leicester (UK), and field conferences in East Sayan Mountains (Siberia), Rajasthan (western India), Saudi Arabia and Namibia, for which conference proceedings were published, highlighting many new discoveries from each of these areas.

3.3. **List of meetings with approximate attendance and number of countries**

   a. **Conference on Neoproterozoic Sedimentary Basins and Field Excursion to the East Sayan Mountains in cooperation with IGCP 512.** 50+ attendees. Countries represented: Russia, Australia, China, Brasil, Canada, USA, Germany. 30 July-14 August 2011.

   b. **6th Science Centre World Congress, Cape Town, South Africa, 300+ attendees, with main representation of African Countries.** IGCP587 was represented by Australians. Only a few extra-African countries were present from the US and Europe. (2-5 September 2011)

   c. **Nama Group Field Conference, southern Namibia, 16 attendees along with some locals. Countries represented: Namibia, Australia, Taiwan, Russia, Canada, Malaysia. 4-12 September 2011.**

   d. **Several smaller field conferences were held in Saudi Arabia (in cooperation with the Saudi Geological Survey), Rajasthan (western India), Charnwood Forest (Leicester)**

3.4. **Educational, training or capacity building activities**

   IGCP587 continued to travel the *Wildlife of Gondwana* Exhibition to Singapore and Darwin, Australia and near the end of 2011 emplaced it in regional Australia – Apollo Bay. The exhibition on the geology of Timor-Leste (*O Mundo Perdido Timor-Leste*), with a
component on the late Neoproterozoic continued to thrive in the capital Dili and two more regional exhibitions were placed permanently in Aileu and Baucau. All of these exhibitions are accompanied by education modules that are suited to the country and culture where the exhibitions are on show. Four more translations (German, Tamil, Baikeno [a mother tongue in Timor] and Russian) were published of the geology of Timor-Leste [O Mundo Perdido Timor-Leste], written by the President of the country and nobel prize recipient Dr Jose Ramos Horta and Patricia Vickers-Rich. The book is now in 15 languages and counting.

Release of a documentary initiated by members of IGCP493/587 with Sir David Attenborough as narrator and central figure and produced by Atlantic Productions and the BBC. This documentary scored 3 Emmy awards in September (see www.geosci.monash.edu.au/precsite for details).

As part of our role in a project to cast most of the E-surface at Mistaken Point for posterity, Queen's University was able to obtain a 4 square meter cast that is astonishingly realistic in relief and colour. We mounted it on a wall in the museum with appropriate low-inclination lighting. We used this acquisition as leverage to obtain funding for a precise 3-dimensional reconstruction of one square meter (after retrodeformation) of the Mistaken Point sea floor. This reconstruction is set moments before the arrival of the volcanic ash that ultimately smothered and preserved the community in its original life position. Every one of the fossils is individually constructed to precisely match a fossil impression on the cast, and is mounted in the same position as it appears in the cast. Fossil reconstructions are based on the latest published reconstructions in papers by the Queen's University group and Peter Trusler. In contrast with previous Ediacaran dioramas that used bright colours to illustrate the fossils, the three-dimensional fossil replicas of Mistaken Point fossils are a ghostly white colour to reflect the deep-water environment in which they lived. Attractive and informative poster boards describing this diorama have also been set up.

Media Outreach, one example.
As part of his activities in association with the NASA Astrobiology Program, Guy Narbonne was interviewed for a National Public Radio (NPR) documentary on how the fossil discoveries at Mistaken Point are invigorating the economy of southern Newfoundland. “Fossils Help Revive Hard-Hit Newfoundland Fishing Area" was aired in the NPR series “For What It’s Worth” on October 4, 2011 (see <http://www.npr.org/2011/10/04/141044355/fossils-help-rev-hard-hit-newfoundland-fishing-area> for a podcast). This interview was also released as a podcast in the Encyclopedia of Life Series “One Species at a Time” (October 19, 2011)3.5. Participation of scientists from developing countries, and in particular young and women scientists

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Our main interaction with scientists in developing countries was in Namibia, South Africa and Timor-Leste. Here we involved both young educators as well as young scientists in our educational activities for the most part.

3.6. List of most important publications (including maps)

**Selected Papers from IGCP587 (2011)**

Anderson, E., Schiffbauer, D. And Xiao, S., 2011. Taphonomic study of Ediacaran organic-walled fossils confirms the importance of clay minerals and pyrite in Burgess Shale-type
preservation. Geology, 39: 643-646.


3.7. Activities involving other IGCP projects, UNESCO, IUGS or others:

See above and attached reports on cooperative project with IGCP512 held at Akademgorodok and the East Sayan Mountains of Russia.

4. Activities planned

4.1. Continue to encourage the interaction of international and interdisciplinary scientists in the countries represented on our list of members. Several new members have been added this year, in particular from Australia, the UK, Timor-Leste and India. 2012 will, in particular, be a year of concentration on publication on several significant new discoveries in both Canada and Namibia. Finalizing the revision of The Rise of Animals, will also be a target, which will take up a significant amount of time and funding is in hand to make sure that this progresses. Field work is planned for Saudi Arabia, China, NW Canada, Newfoundland, the White Sea of Russia, the Urals, the Ukraine, Siberia and perhaps Iran.

4.2. Meetings next year will be closely related to the IGC in Brisbane and will visit sites in Australia, in particular the Flinders Ranges. Another important field trip will take place in Newfoundland. See attached Canadian Report for major conference and field excursion (The Mistaken Point Biota of Avalon: Ediacaran glaciations, oxidation, and the origin of animals led by Guy Narbonne and Richard Thomas planned for May-June 2012.

5. Project funding requested: $10,000

6. Request for extension, on-extended-term-status, or intention to propose successor project

NA

7. Financial statement ($ USD only): See attached

Funding of $7500 was provided for this project by IGCP. A significant further amount was raised for activities in India, Namibia, South Africa, Saudi Arabia, Russia, Timor-Leste. A National Geographic Grant for $20,000 provided support for the Namibian work. Private donations of a further $32,000 assisted in the work in India, Namibia, the UK, South Africa, Russia. The Australian IGCP Committee further contributed to this project more than $10,000, much of this targeting graduate students or early career researchers.

8. Attach any information you may consider relevant: Reports on field conferences, conferences and some field work carried out under the umbrella of this project attached.