INTERNATIONAL GEOSCIENCE PROGRAMME (IGCP)

Annual Report of IGCP Project No. 509

IGCP project short title: PALAEOPROTEROZOIC SUPERCONTINENTS AND GLOBAL EVOLUTION

Duration: Active, 2005-2009

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1. Website address: **http://groups.google.com.au/group/IGCP-509?lnk=oa&hl=en**

2. Summary of major overall achievements of Project 509:

1) IGCP 509 has attracted considerable interest and support from the wider geological community with >300 participants registered from 33 countries. A discussion group has been set up for the communication of IGCP 509 business

2) A template Palaeoproterozoic database has been constructed, and is currently undergoing testing. Regional data coordinators have been identified to populate the database.

3) The first IGCP 509 scientific meeting and planning session was held in the Supercontinents and Earth Evolution Symposium, Sept 2005, Perth, Australia. The meeting attracted 150 delegates, of which 75 were IGCP 509 participants. A well-attended planning session was held that addressed future scientific meetings, field workshops, database issues and regional coordinators. See attachment.

3. Achievements of the project this year

*3.1. List of countries involved in the project (please *indicate the countries active this year and make the distinction between:*

Congo, Republic of the Congo
Democratic Republic of Congo
Republic of Korea
Democratic People's Republic of Korea)

IGCP 509 currently corresponds to 300 participants from 33 countries

1) Algeria
2) Argentina
3) Australia*
4) Belgium
5) Botswana
6) Brazil*
7) Burkina Faso
8) Cameroon
9) Canada*
10) China*
11) Democratic Republic of Congo
12) Denmark
13) Finland*
14) France*
15) Germany*
16) India*
17) Ireland*
18) Japan*
19) Madagascar*
20) Mongolia
21) Namibia

22) Netherlands
23) Nigeria*
24) Norway*
25) Romania
26) Russia*
27) South Africa*
28) Sweden*
29) Tanzania*
30) United Kingdom*
31) USA*
32) Zambia
33) Zimbabwe

3.2. General scientific achievements (including societal benefits)
(Meetings are not considered as scientific achievements, they should be listed under heading 3.3.)

IGCP 509 has only been running for 6 months and therefore outputs are limited. The scientific achievements for this year include an abstract volume from the Inaugural IGCP 509 conference held In Perth, September, 2005 - Supercontinents and Earth Evolution 2005, Geological Society of Australia Abstract Volume 81, 117pp. ISBD 1863081208.

The discussion group - IGCP-509@googlegroups.com - has recently been set up as a forum for discussion and information distribution on all matters relating to the goals of IGCP 509. It is hoped that this will become the focus of data transfer amongst participants.

Professor Bruce Eglington of the University of Saskatchewan in Canada, has developed a database for IGCP 509, which is currently being tested. This database will provide a global cross-calibration of tectonic events throughout the Palaeoproterozoic.

3.3. List of meetings with approximate attendance and number of countries
1) Inaugural meeting IGCP 509 was at the Supercontinents and Earth Evolution Symposium at Perth, Australia, Sept 2005. The conference attracted over 150 delegates of which ~75 were IGCP 509 participants. Delegates represented at total of 16 countries (USA, Canada, Australia, Brazil, South Africa, Sweden, China, India, Russia, Finland, Japan, Germany, UK, Spain, Botswana, Ireland).

3.4. Educational, training or capacity building activities
Student participation at the inaugural meeting was encouraged and resulted in a high attendance of postgraduate students, particularly from developing countries. IGCP 509 financially supported the attendance of a number of student delegates (Mr. Rajesh Mukherjee, India, Mr. Michiel de Kock, South Africa, Ms. Johanna Salminen, Ms. Anna Petterson, Sweden). This represented an important educational opportunity for these students to participate in an international conference.

The conference provided all participants with the opportunity to discuss their own research, meet with other researchers with whom they may collaborate in the future and learn about ongoing multi-disciplinary research in Palaeoproterozoic

supercontinent reconstructions through time. It was particularly useful to meet scientists from developing nations who usually would not be able to attend other international meetings.

3.5. Participation of scientists from developing countries

3.6. List of most important publications (including maps)
Distinguish between peer review literature and other (no abstracts).

Peer Reviewed literature
This being our first year, there are no peer-reviewed articles published specifically as contributions to the project.

3.7. Activities involving other IGCP projects or the IUGS

We have established links with other IGCP projects including:

440 453

IGCP 440 (***Rodinia Assembly and Breakup***) led by project member Z-X Li;

IGCP 453 (***Uniformitarianism revisited: a comparison between modern and ancient orogens***), led by project member B. Murphy

IGCP 497 (***The Rheic Ocean: its origin, evolution and correlatives***) led by project member Ulf Linnemann.

IGCP 512 (***Neoproterozoic Ice Ages***)

4. Activities planned

4.1. General goals

We envision several facets of a final product result, in addition to incremental field guide publications and various special volumes of international journals. These include:

(1) A global tectono-stratigraphic computer-GIS database of the Palaeoproterozoic Era, with cross links to existing geochronological, stable-isotopic, and palaeomagnetic databases for the same period of time.

(2) A global tectono-stratigraphic correlation chart illustrating major events in Palaeoproterozoic Earth history, as related to the preserved geological record.

(3) A set of global palaeogeographic maps through the Palaeoproterozoic interval, including a "best guess" for the configuration of Nuna supercontinent. As of the project's closing in 2009, there may be several viable Nuna reconstructions, all depicted in a series of maps. The maps will include major sedimentary basins, orogenic belts, large igneous provinces, impact craters, and economic deposits.

IGCP 509 will bring together researchers from many disciplines, creating multidisciplinary links that will help unravel some fundamental issues of **theoretical** Earth science (whose needs are discussed below). In addition, some developing analytical procedures to obtain subtle clues from rocks' histories, will help drive **technology** to advance beyond the present limits of laboratory studies. Finally, the project's reconstructions of cratons in specified juxtapositions will generate new exploration models for Palaeoproterozoic ore deposits, with associated **benefits to society** at both local and global scales.

4.2. Specific meetings and field trips for 2006

At the first meeting of IGCP 509 it was agreed to support two classes of IGCP 509-related meetings. These are to be 'designated workshops' and 'IGCP 509 supported meeting'.

Designated workshop 2006

IGCP 509 South American Meeting 2006
Palaeoproterozoic collisions amalgamating Sao Francisco craton. Sept 2006, in conjunction with to XLIII Brazilian Geological Congress
Focus on understanding the Palaeoproterozoic history of South America, collecting and collating data from the region and discussing ideas as to the Palaeoproterozoic history of the continent.

Supported meetings 2006

International Basement Tectonics Association meeting , Irkutsk, Russia
Palaeoproterozoic supracrustals. deformed in ~2.2-1.9 Ga orogen. July 2006 – link with the International Basement Tectonics Association meeting in Irkutsk.

Pulse of the Earth" NUNA conference
2.45 Ga Matachewan igneous event and Kapuskasing Zone., Sudbury, Canada

4.3. Other Activities

5. Project funding requested

US $5000 is requested to subsidise subscription fees of students and geologists from developing countries to our three meetings in 2006.

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

N/A

7. Financial statement

See attached