



REPORT

FOR 2012

— THE BRAZILIAN NATIONAL COMMITTEE —

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PROJECTS WITH BRAZILIAN LEADERSHIP OR PARTICIPATION

Brazil participates on 06 IGCP Projects with Brazilian co-leadership (510 [OET], 582, 598, 599, 604, and 619).

Brazil seems to be involved with Projects 540, 580, 585, 587, 597, 616, and 618, but effective Brazilian participation could not be confirmed.

Projects with Brazilian Co-Leadership

No. 510 – **A-TYPE GRANITES AND RELATED ROCKS THROUGH TIME** (2009, 2010 extended)

Project co-leader: Roberto Dall'Agnol - Inst. de Geociências, Federal University of Pará - UFPA, Brazil (robdal@ufpa.br; Tel. (55 91) 3201-7477)

Project's Web Site: <http://www.igcp-510.org>

Summary of Activities: As mentioned in our report of 2011, the IGCP project 510 was concluded during 2010 and the only activity planned for 2012 was the final editing and publication of a special issue at LITHOS, assembling papers presented during the last meeting of the project, at Helsinki, on August, 2010. That special issue was published and it assembled nine papers (see details below). The managing guest editors were Roberto Dall'Agnol, Carol D. Frost, and O. Tapani Rämö.

Papers Published: The special issue mentioned above, DALL'AGNOL, R., FROST, C.D., RÄMÖ, O.T. 2012. A-type granites and related rocks through time. Lithos Special Issue, 151: 1-134.

Three papers published in the special issue have the participation of Brazilian geologists:

DALL'AGNOL, R., FROST, C.D., RÄMÖ, O.T., 2012. IGCP Project 510 "A-type Granites and Related Rocks through Time": Project vita, results, and contribution to granite research. Lithos, 151: 1-16. doi.org/10.1016/j.lithos.2012.08.003

FEIO, G.R.L., DALL'AGNOL, R., DANTAS, E.L., MACAMBIRA, M.J.B., GOMES, A.K.B., SARDINHA, A.S., OLIVEIRA, D.C., SANTOS, R.S., SANTOS, P.A. 2012. Geochemistry, geochronology, and origin of the Neoproterozoic Planalto Granite suite, Carajás, Amazonian craton: A-type or hydrated charnockitic granites? Lithos, 151: 57-73. doi:10.1016/j.lithos.2012.02.020

HEINONEN, A., FRAGA, L.M., RÄMÖ, T., DALL'AGNOL, R., MÄNTTÄRI, I., ANDERSEN, T. 2012. Petrogenesis of the igneous Mucajaí AMG complex, northern Amazonian craton - geochemical, U-Pb geochronological, and Nd-Hf-O isotopic constraints. Lithos, 151: 17-34. doi:10.1016/j.lithos.2011.07.016

No. 582 – **TROPICAL RIVERS: HYDRO-PHYSICAL PROCESSES, IMPACTS, HAZARDS AND MANAGEMENT** (2013)

Project co-leader: José C. Stevaux - University of Guarulhos - UNG - Brazil (jcstevaux@uem.br; jstevaux@prof.ung.br; Tel. 55 11 2464 1664, 55 44 3261 4327)

Project's Web Site: The Project's web site, <http://www.igcp582.uem.br/>, is linked to the State University of Maringá (UEM).

Summary of Activities: Brazilian Project participants joined the Project's meeting held at Iquitos, Peru. Dr. Stevaux (Universidade Estadual de Maringá-UNESP, Brazil) presented one of the keynotes, and Dr. Filizola (Universidade Federal do Amazonas, Brazil) presented lectures on the hydro-geomorphology of the Amazon basin during a one-day training course.

Publications: During this year a new special issue, entitled "The Quaternary of tropical and subtropical rivers" and edited by SINHA, R., LATRUBESSE, E. and NANSON, G. (Guest Editors), has been published in *Palaeogeography, Palaeoclimatology Palaeoecology*.

No. 598 – **ENVIRONMENTAL CHANGE AND SUSTAINABILITY IN KARST SYSTEMS** (2011-2014)

Project co-leader: Augusto Auler - CARSTE Consultores Associados - R. Brasópolis 139, Belo Horizonte, MG, 30150-170 - Brazil (auler@gmail.com; Tel. 55 31 2552-9976, 55 31 2552-9974)

Meetings: Workshop Speleometrics Methods, Definitions and Limits. May 23-24, 2012 - Workshop for about 80 participants, including members of academia, consultants, public and private sectors. The workshop dealt with practical dimensional aspects in karst areas.

International Course Introduction to Cave Biology. November 7-9, 2012 - Organized by Dra. Ana Sofia Reboleira, from the University of Aveiro, Portugal. The course dealt with the basic aspects of biospeleology and included a field trip. There were about 50 attendants, mostly academics, students and consultants.

Papers Published: Brazilian project participants took part on three papers related to the project:

- Hubbe, A. ; Auler, A. S. A large Cervidae Holocene accumulation in Eastern Brazil. An extreme example of taphonomical control in a cave environment. *INT J SPELEOL*, v. 41, p. 299-307, 2012.
- Strikis, N. M. ; Cruz Jr., F. W. ; Cheng, H. ; Karmann, I. ; Edwards, R. L. ; Vuille, M. ; Wang, X. ; Paula, M. S. ; Novello, V. F. ; Auler, A. S.: Abrupt variation in South America monsoon rainfall during the Holocene based on a speleothem record from central eastern Brazil. *Geology (Boulder, Colo.)*, v. 39, p. 1075-1078, 2011.
- Auler, A. S.: Quartzite Caves of South America. In: William B. White; David C. Culver. (Org.). *Encyclopedia of Caves*. Chennai: Academic Press, 2012, v. , p. 635-639.

No. 599 – **THE CHANGING EARLY EARTH: CORRELATING AND MODELING SECULAR TRANSITIONS IN THE CRUST FORMATION AND LIFE ENVIRONMENTS** (2011-2014)

Project continental leader for South America: Roberto Dall'Agnol - Inst. de Geociências, Federal University of Pará - UFPa, Brazil (robdal@ufpa.br; Tel. (55 91) 3201-7477)

Project's Web Site: <https://sites.google.com/a/helsinki.fi/early-earth-tectonics/>

Summary of Activities: The Brazilian WG attended 1 Project related meetings, and published a number of papers.

The edition of the special issue on Precambrian Research that assembled some of the papers presented during the Pre-project IGCP meeting held in India last year, on February 2-11, 2011 has been concluded and is now in press. The managing guest editors are Prof. Mudlapa Jayananda, Bor-ming Jahn and associates. The Brazilian WG contributed with 1 paper (see below).

Meetings Attended: The IGCP-SIDA 599 project had an active participation in the 34th INTERNATIONAL GEOLOGICAL CONGRESS, held in Brisbane, Australia, August 5-10, 2012. The paper of Feio et al., accepted for publication in *Precambrian Research*, was presented during the event by the first author.

Dr. Feio, working at present at the Faculty of Geology of the Marabá campus of the Federal University of Pará, Brazil, participated also in the official meeting of the IGCP-SIDA-599 project held during the event and in several informal meetings of the scientist involved in the project.

Papers Published:

FEIO, G.R.L., DALL'AGNOL, R. 2012. Geochemistry and petrogenesis of the granites from the Canaã dos Carajás area, Carajás province, Brazil: implications for the origin of Archean granites. *Lithos*, 154: 33-52. doi.org/10.1016/j.lithos.2012.06.022

FEIO, G.R.L., DALL'AGNOL, R., DANTAS, E.L., MACAMBIRA, M.J.B., GOMES, A.K.B., SARDINHA, A.S., OLIVEIRA, D.C., SANTOS, R.S., SANTOS, P.A. 2012. Geochemistry, geochronology, and origin of the Neoproterozoic Planalto Granite suite, Carajás, Amazonian craton: A-type or hydrated charnockitic granites? *Lithos*, 151: 57-73. doi:10.1016/j.lithos.2012.02.020

Papers accepted for publication:

ALMEIDA, J.A.C., DALL'AGNOL, R., LEITE, A.A.S. Geochemistry and zircon geochronology of the Archean granite suites of the Rio Maria Granite-Greenstone terrane, Carajás Province, Brazil. *Journal of South American Earth Sciences*. Available in electronic media in November, 2012.

FEIO, G.R.L., DALL'AGNOL, R., DANTAS, E.L., MACAMBIRA, M.J.B., SANTOS, J.O.S., ALTHOFF, F.J., SOARES, J.E.B. 2012. Archean granitoid magmatism in the Canaã dos Carajás area: implications for crustal evolution of the Carajás province, Amazonian craton, Brazil. *Precambrian Research*. In press. Available in electronic media in August, 2012. (Abstract presented in a poster session during the 34 IGC.)

No. 604 – **GROUNDWATER AND WETLANDS IN IBERO-AMERICA** (2011-2015)

Project co-leader: Gerson Cardoso - Federal University of Rio de Janeiro - UFRJ - Brazil (gerson@acd.ufrj.br; Tel. (55 21) 2598-9464, (55 21) 2590-8091)

Summary of Activities: See below.

Brazilian WG: The following Brazilian scientists are committed to the project: Gerson Cardoso da Silva Junior, D.Sc. (UFRJ) (national leader), Aderson Marques, M.Sc. (DRM-RJ), Kátia Leite

Mansur D.Sc. (UFRJ), Claudio Limeira Mello, Ph.D. (IGEO/UFRJ), and Maria da Gloria Alves D.Sc. (UENF)

Meetings attended: Two meetings have been attended.

- A Project meeting held on June 20, 2012, during the “22nd Salt Water Intrusion Meeting” at Búzios, Brazil, from June 17 to 22, 2012, and organized by G. Cardoso. The objective of the meeting was to prepare the 2nd Project Meeting.
- 2nd Project 604 Meeting, held on August 21, 2012, at Cartagena, Colômbia, during the “XI Congreso Latinoamericano de Hidrogeología (ALHSUD)”. Dr. Emilia Bocanegra (Argentina), Dr. Gerson Cardoso da Silva (Brazil), Dr. Teresita Betancur (Colômbia), and Dr. Marisol Manzano (Spain) attended the meeting, as well as 7 invited project participants from Argentina, Chile, Dominican Republic and Ecuador.

The objectives of the two meetings was to encourage the Project participants to discuss the progress and future development of the Project. The outline of the meetings may be summarized as follows:

- evaluation of the case studies carried out during the first year of the Project;
- diffusion of information among academic and professional fields in ibero-america;
- methodological discussion about synthesis and generalization of the inventoried case studies;
- discussing the Project's website <http://www.mdp.edu.ar/hidrogeologia/IGCP604>.

Papers Published: Below are listed the most important project related papers published

BOCANEGRA, E., MANZANO, M., BETANCUR, T., CUSTODIO, E., SILVA JR., G. 2012. Caracterización preliminar de las aguas Interacciones Subterráneas-humedales-SER HUMANO en Iberoamérica. [Caracterização preliminar das águas subterrâneas-pântanos-ser humano na Ibero-América]. Proc. XI Congreso Latinoamericano de Hidrogeología. Cartagena de Indias. Colômbia. CD, 5 páginas.

ALVES, M.G.; CHRISPIM, Z.M.P.; SILVA JR, G.C. 2012. Groundwater Salinity Risk Analysis in Northern Rio de Janeiro State. In: SWIM 2012 Salt Water Intrusion Meeting, 2012, Buzios. SWIM 2012 Salt Water Intrusion Meeting. Rio de Janeiro: Meta, 2012. v. 1. p. 152-155.

Educational, training or capacity building activities: There are 1 MSc and 3 undergraduate students engaged in the Project, respectively helping in the formulation of conceptual models of the interaction of lacustrine and coastal aquifers in the Maricá - RJ region, as well as researching for bibliographic data of humid Brazilian areas, particularly in the Rio de Janeiro state.

No. 619 – **CONTOURITES: PROCESSES & PRODUCTS (2012-2016)**

Project co-leader: Adriano Viana - Centro de Pesquisas da Petrobras, CENPES - Rio de Janeiro RJ - Brazil ((aviana@petrobras.com.br, (55 21) 2162-6464)

Summary of Activities: The following activities have been developed by the Brazilian WG during the year:

1. Start of numerical modeling of contour currents structure modification responding to different sea floor physiography changes, collaboration project between Petrobras, UFRJ – Universidade Federal do Rio de Janeiro, and PUC-RS – Pontifical Catholic University of Rio Grande do Sul.
2. Review of a couple of cores from industrial boreholes of South-Eastern Brazilian margin aiming to identify sedimentary structures typical of bottom currents action

Meetings attended: A Brazilian delegation of three researchers participated on the Symposium “CONTOURITE DEPOSITIONAL SYSTEMS: THEIR OCEANOGRAPHIC, PALAEO-OCEANOGRAPHIC AND SEDIMENTARY IMPLICATIONS AND INFLUENCE OVER SLOPE STABILITY AND RESOURCE EXPLOITATION” hold at the VIII Spanish Geological Congress with the presentation of two oral communications

ACTIVITIES OF THE NATIONAL COMMITTEE

Among other administratives activities, the Brazilian National Committee endorsed the Project Proposal “CONTOURITES: GEOLOGICAL RECORD OF OCEAN-DRIVEN PALEOCLIMATE, ACCOMPLICE OF SUBMARINE

LANDSLIDES AND RESERVOIR OF MARINE GEO-RESOURCES”, to be submitted for approval at the next meeting of the IGCP Scientific Board. The proposal has been signed by Prof. Dr. DORRIK A. V. STOW [Project Leader, Scotland], Prof. Dr. DAVID VAN ROOIJ [Project Secretary, Belgium], as well as by Prof. Dr. FRANCISCO-JAVIER HERNÁNDEZ-MOLINA [Co-proponent, Spain], Dr. MICHELE REBESCO [Co-proponent, Italy], Dr. PERE PUIG [Co-proponent, Spain], Dr. ANTJE VOELKER [Co-proponent, Portugal], and Dr. ADRIANO VIANA [Co-proponent, Brazil].