

INTERNATIONAL GEOSCIENCE PROGRAMME (IGCP)



Annual Report* of IGCP Project No. 510

IGCP project short title: **A-type Granites and Related Rocks through Time**

Duration: **2005-2009**

Project leader(s):

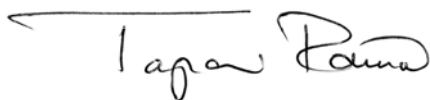
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Date of submission of report: 15 December 2008

Signature of project leader:



O. Tapani Rämö [on behalf of Roberto Dall'Agnol, Carol D. Frost, and Laurence J. Robb]

1. Website address related to the project

<http://www.igcp-510.org>

2. Summary of major past achievements of the project

During the first three years (2005-2007), the project arranged three Annual Meetings with technical scientific sessions (Moscow, Idaho, USA; Belém, Brazil; Stellenbosch, South Africa) and six field conferences (Yellowstone-Snake River Plain; southern and central Finland; Pitinga, Amazonas State, Brazil; Carajás, Pará State, Brazil; Bushveld Igneous Province, South Africa; southern Nevada and southeastern California, USA). The proceedings of the first Annual Meeting (Moscow, Idaho, 2005) were published as a special issue of *Lithos* (vol. 97, 1-2, 2007). An active international consortium of researchers from 42 countries working in the field of A-type granites and related rocks has been established, involvement of mining companies in the project has been enhanced, and scientific breakthroughs regarding the petrogenesis of A-type associations and their typology have been realized. The project is in full speed now, pursuing its goals on a global scale.

3. Achievements of the project this year only

3.1. List of countries involved in the project (*countries active this year)

Argentina*, Australia, Austria, Belgium*, Brazil*, Cameroon*, Canada*, Colombia*, Czech Republic*, Egypt, Estonia*, Finland*, France*, Germany, India*, Iran*, Ireland*, Israel*, Italy*, Japan, Namibia, Netherlands, Norway*, People's Republic of China*, Poland*, Portugal, Republic of Korea, Romania*, Russia*, Slovakia*, South Africa*, Spain*, Sweden*, Switzerland*, Taiwan, Turkey*, Ukraine, United Kingdom*, United States of America*, Uruguay, Venezuela, Yugoslavia.

3.2. General scientific achievements and social benefits

In to its fourth year now, the project is well underway pursuing the main goals (petrogenesis and metallogenic significance of A-type granites, granite typology and lithospheric evolution). The highlights of the year 2008 are:

- Typology of A-type granites has been refined and thoroughly discussed in view of the entire granite spectrum. Phanerozoic (the Permo-Carboniferous intrusions of the Oslo rift and the Permo-Triassic plutons of Corsica) were in focus on the 2008 field conferences.
- Scientists from the Far East, Russia and further countries in Latin America and Africa have been recruited to the project and they have actively participated in the activities of IGCP-510 and contributed to the proceedings volumes realized/in preparation thus far.
- Young researchers (at the doctoral and post-doctoral level) have been intimately involved in the project. Half of the funds allocated to the project have been used to support young researchers to participate in the 2008 meetings of the project.
- 12 original papers based on presentations given at the second Annual Meeting (August 2006; Belém, Brazil) have been finalized and will be printed as a special issue of the

Canadian Mineralogist in mid-2009 (R. Dall'Agnol and O.T. Rämö, Guest Editors). Papers from the 6th Hutton Symposium (third Annual Meeting of the project) will be published in a special issue of the *Transactions of the Royal Society of Edinburgh: Earth Sciences* (C.D. Frost, one Guest Editor) in 2009. Papers from the May 2008 Ron Emslie symposium (the fourth technical meeting of the project) are solicited for a special issue of the *Canadian Mineralogist* (M.A. Hamilton, J.S. Scoates, and O.T. Rämö, Guest Editors).

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

May 26-28, 2008: The fourth technical meeting of IGCP-510, arranged in conjunction with the GAC-MAC-SEG-SGA Joint Annual Meeting in Quebec, Canada. The symposium was convened by M. Hamilton (Univ. of Toronto), J. Scoates (Univ. of British Columbia), and O.T. Rämö (Univ. of Helsinki) in honor of the late R.F. Emslie. It gathered together ~40 individuals from 9 countries (*Belgium, Brazil, Canada, Columbia, Finland, Poland, South Africa, Sweden, and the United States*). 31 presentations were given.

August 1-5, 2008: The seventh scientific field trip of IGCP-510. The trip was arranged by T. Andersen (University of Oslo) and it focused on the classic alkaline Paleozoic anorogenic rocks of the Oslo rift. The trip was also a joint venture with the Eurogranites. Targets covered both saturated and undersaturated plutonic and volcanic rocks of the rift and their tectonic evolution and associated mineralization. The trip was attended by 27 individuals from 8 countries (*Brazil, Estonia, Finland, France, Norway, Russia, Switzerland, and the United States*)

August 7-8, 2008: The fourth Annual (fifth technical) Meeting of IGCP-510, arranged in conjunction with the 33rd IGC, and jointly with the IUGC Subcommittee of Systematics of Igneous Rocks (SSIR). The session was convened by B. Bonin (Univ. de Paris-Sud), O.T. Rämö (Univ. of Helsinki), and Tom Andersen (Univ. of Oslo), and it gathered together ~40 individuals from 9 countries (*Brazil, Canada, Finland, France, Iran, Israel, Norway, Russia, and the United States*). 14 presentations were given.

September 1-7, 2008: The eight scientific field trip of IGCP-510. Arranged by B. Bonin (Univ. de Paris-Sud), it focused on the volcanic and plutonic A-type suites of Corsica that constitute an outstandingly varied collage of A-type granitoid and related rocks. The trip was a joint venture with the Eurogranites and it was attended by 37 individuals from 16 countries (*Belgium, Canada, Czech Republic, Estonia, Finland, France, Ireland, Italy, Norway, Poland, Romania, Slovakia, Spain, Sweden, the United Kingdom, and the United States*).

3.4. *Educational, training or capacity building activities*

In the four 2008 meetings of the project, doctoral and post-doctoral students from several countries (e.g., *Brazil, Finland, Iran, Norway, Russia, Switzerland*) have been actively involved. We will continue to promote the educational aspect of the project by recruiting further students especially from the less developed countries.

3.5. *Participation of scientists from developing countries, and in particular young and women scientists*

A substantial fraction of the occurrences of A-type granites are located in the less developed countries (*Africa, Asia, Latin America* etc.). The project will continue to actively recruit new delegates from these regions, young and women scientists in particular.

3.6. *List of most important publications (including maps)*

In 2008, 18 peer-reviewed and 3 other scientific publications were released (since the beginning of the project, 54 and 8, respectively). For details, please log on to www.igcp-510.org.

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

The project arranged, together with the IUGS Subcommittee of Systematics of Igneous Rocks (SSIR; B. Bonin, Chairman) a joint SSIR–IGCP-510 symposium “*Granite Classification – a Never-Ending Problem*” at the 33rd IGC on August 7, 2008. The project also joined forces with the Eurogranites network (B. Bonin, coordinator) to arrange the Oslo rift (August 2008) and Corsica (September 2008) field conferences.

4. **Activities planned**

4.1. *General goals*

Future meetings of the project will continue to target on the four main goals (petrogenesis, metallogeny, typology, evolution of the lithosphere) of the project, with special focus on one or two of them at a time, given the lithologic traits that are characteristic to each venue.

4.2. *Tentative list of specific meetings and field trips (please list the participating countries)*

August 15-22, 2009: Field conference to the Paleoproterozoic A-type granites of Finnish Lapland and far northwest Russia and the classic Devonian alkaline complexes of the Kola Peninsula. This will be a joint venture with the Eurogranites network (see <http://www.fmnh.helsinki.fi/english/geology/research/eurogranites/>).

September 1-7, 2009: The fifth Annual Meeting of the project will be arranged on September 3-4 at the Cumhuriyet University, Sivas, Turkey. Two field trips, a pre-conference excursion to renown ruins in central Turkey and the Cappadocian region (Sept 1-2) and a post-conference field trip to the Cretaceous alkaline intrusions, associated Fe and F-Mo-Pb-Zn mineralization, and the central Anatolian ophiolite (Sept 5-7) will also be arranged. The events will be coordinated by Prof. Durmuş Boztuğ (www.cumhuriyet.edu.tr/~dboztug).

2010: Final convention and field trips in Finland, Russia, and Sweden). Participating countries: any number of those listed in section 3.1 plus countries to be enrolled in 2009.

5. **Project funding requested**

To support the maximum number of delegates from the less developed countries in the 2009 meetings in Finland, Russia, and Turkey, we request for maximum project funding for 2009.

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

2009 will be the fifth year of IGCP-510. To carry the project plan to completion, the project leadership is committed to organize a final conference and field trips in Finland (University of Helsinki) and vicinity in 2010. We thus request an on-extended-term-status for 2010.

7. **Financial statement (\$ USD only)**

The IUGS/UNESCO funds allocated to IGCP-510 in 2008 (\$US 4000) were used to support the following individuals to attend the project meetings in Canada, Norway, and France: Prof. Ewa SLABY, Warsaw University, Poland (\$US 600); Dr. Lêda Maria FRAGA, Geological Survey of Brazil (\$US 600); Dr. Janina WISZNIEWSKA, Polish Geological Institute (\$US 600); José de Arimatéia Costa de ALMEIDA, UFPA Ph.D. student, Brazil (\$US 600); Gilmara Regina Lima FEIO, UFPA Ph.D. student, Brazil (\$US 600); Marcelo Augusto de OLIVEIRA, UFPA Ph.D. student, Brazil (\$US 600). The remainder of the funds (\$US 400) was used for administrative expenses.

8. **Attach any information you may consider relevant**

N/A