

FIELD COURSE ON THE RARE-ELEMENT PEGMATITES OF MADAGASCAR

First Announcement. Approximate Dates: June 9 – June 24, 2001

Organized by the Museum of Natural History of Milan (Italy), the University of New Orleans, Department of Geology and Geophysics, New Orleans, Louisiana (U.S.A.), the Direction of the Geological Survey, Ministry of Energy and Mines, Antananarivo (Madagascar), and the Pyramide Company, Antananarivo (Madagascar).

This field course will be an excursion to the rare-element granitic pegmatites in the highlands of Madagascar in the Antsirabé – Betafo, Ambatofinandrahana and Betroka areas. The trip will include several days of presentations concerning the general geology of the areas to be visited and the specific geology, petrology, mineralogy and genetic interpretations of the pegmatites that will be examined. Some of the most famous pegmatite districts for the production of gemstones and rare minerals will be visited. At the end of the excursion, we will visit the new world-famous gemstone deposit of Ilakaka, and we will also be able to view the total eclipse of the sun on June 21.

The field course will be limited to 40 participants, and pre-registration and a deposit are essential to plan the trip.

Note that this field excursion will involve long drives into remote areas, on roads of variable, but generally poor conditions. Camping will be required at some locations. Amenities such as showers and toilets will not always be available. Malaria is endemic in Madagascar. The excursions, therefore, will be both physically and mentally demanding, and applicants must assure the organizers that they are in sufficiently good health to withstand these conditions. The organizers cannot be held responsible for unforeseen events. Here is the provisional program:

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| Day 1 | Opening ceremony and scientific presentations in Antananarivo. |
| Day 2 | Visit to the Sahatany valley, in the Antsirabé area where we will see highly evolved, contaminated LCT-type miarolitic pegmatites, with rhodizite, behierite, hambergite, pollucite, Hf-rich zircon, etc. |
| Day 3-4 | Visit to the Antsongombato Gem Mine, in the Betafo area, which has produced the spectacular gemmy rhodizite–londonite crystals, liddicoatite, pollucite, Nb-dominant behierite, <i>etc.</i> Impressive outcrops of basement with leucocratic plutons, pegmatites, and recent volcanoes. |

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| Day 5 | Scientific presentations in Ambositra |
| Day 6 | Visit to the pegmatites of the Ambalamahatsara area with its zoned field of LCT pegmatites, association of amazonite and red tourmaline, and examples of line rock. |
| Day 7 | Drive to Ihosy, with examples of Pan-African plutons and tectonic structures. |
| Day 8-9 | Visit to the deposits of yellow K-feldspar in the Betroka region, where miarolitic NYF pegmatites with complex mineralogy interact with carbonate rocks. |
| Day 10-11 | Visits to the Ilakaka gem deposit and the Isalo National Park. New large deposit of gemstones of paleo-placer origin, including sapphire, spinel, alexandrite, zircon, garnet and pegmatite-forming minerals. Isalo is famous for its wildlife and flora. |
| Day 12 | Drive to Fianarantsoa. |
| Day 13 | Return to Antananarivo and closing ceremony. |

The total cost of the Madagascar part of the excursion is expected to be US\$1100. This fee covers the cost of all meals, lodging and transportation, as well as the guidebook. A \$100 deposit is required to secure a reservation.

Participants are responsible for travel costs to and from Antananarivo, Madagascar. Once the group is confirmed, we will investigate the cost of group airfare from U.S.A., but for planning purposes, the roundtrip airfare from New York will be approximately \$2000. The cost of the roundtrip airfare from Europe (Paris, Munich, Rome) will be approximately \$1000. Flights to Madagascar from Johannesburg are currently about \$450.

How to pre-register: get the form from Prof. Wm. B. "Skip" Simmons, Department of Geology and Geophysics, University of New Orleans, New Orleans, Louisiana 70148, U.S.A. [E-mail: wsimmons@uno.edu, FAX: (504) 280-7396, Phone: (504) 280-6791]. Send it in by June 30, 2000, with a deposit of US\$100.



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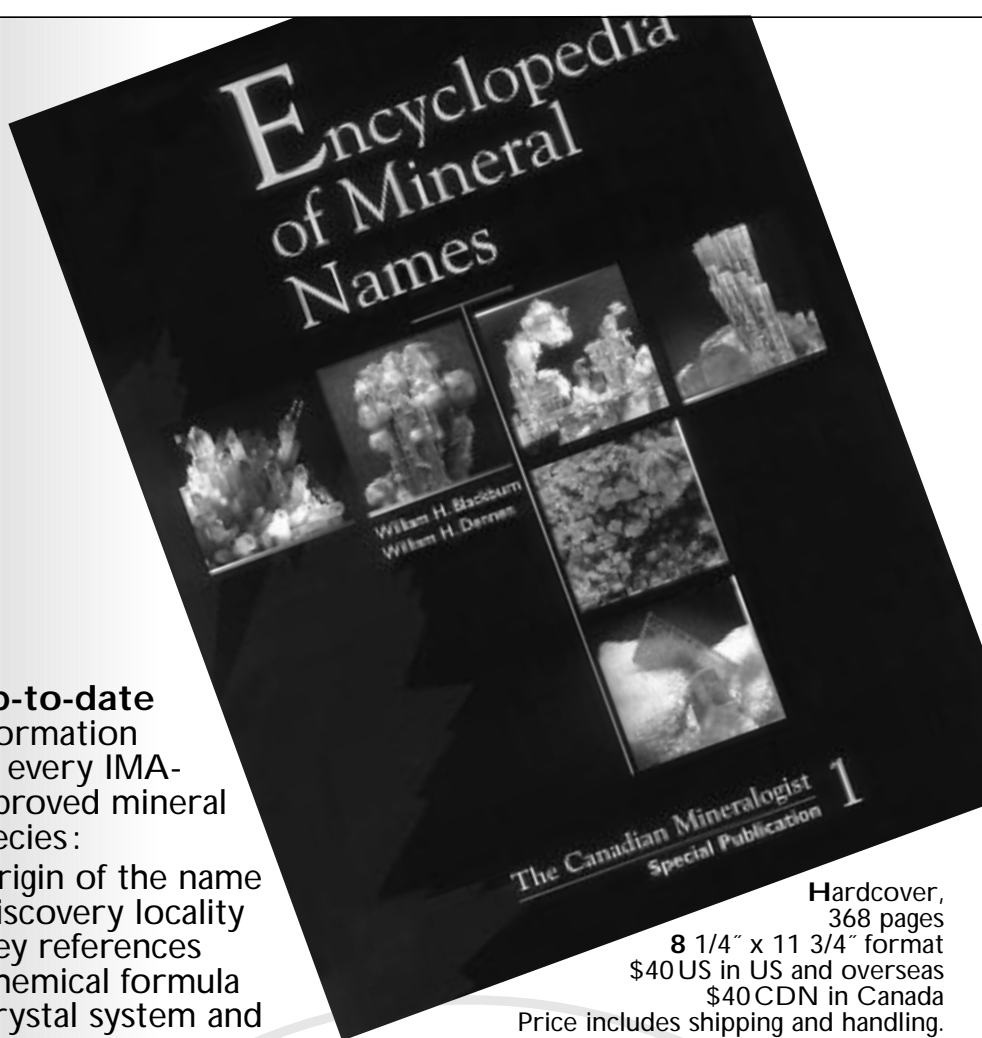
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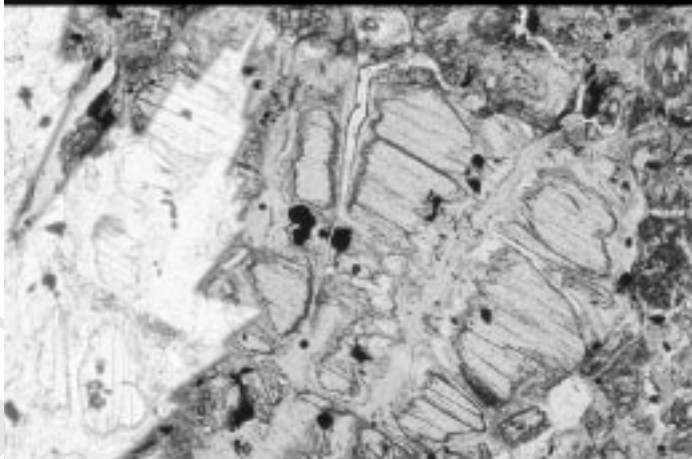
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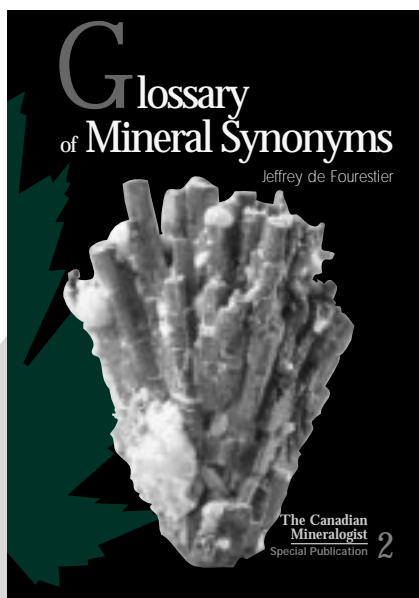
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Fred Longstaffe, Department of Geological Sciences, University of Western Ontario

Gerry Ross, GSC, Calgary

Ian Hutcheon, Department of Geological Sciences, University of Calgary

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Most of the material presented will be at a level of understanding for most upper undergraduate and graduate students although recent results and ideas presented throughout the presentations will appeal to both pure and applied researchers working in sedimentary basins.

Presentations will consist of 1-2 lectures from each speaker (an introductory lecture and one related to current results and ideas) so that the short course will last for 1.5 days, prior to the regular meeting.



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Outline

- Tectonics and basins: types of basins, tectonic settings, mechanisms of basin evolution and origin of fill, relation between size and tectonics, relation between economic potential and tectonics
- Actualistic and non-actualistic effects and tectonics—comparison of tectonic styles of Cenozoic, Mesozoic, and Phanerozoic basins
- Sedimentation and basin fill—sedimentology and stratigraphy—energy and source terrain evaluation, sequence stratigraphy principles

- Modern-ancient differences and similarities in sedimentation and style of fill
- Paragenesis of minerals in basins—field relations, petrographic techniques
- Fluid inclusions in detrital and authigenic minerals—quartz, the early fluids, salinities and temperatures, estimates of pressures
- Timing of fluid events—principles of radiometric dating, what does an "age" really signify, radiometric dating of clay minerals (mainly illite), other useful minerals including

uraninite, salts, phosphates, sulfides, paleomagnetism as a fluid tracing tool, fission track and other techniques

- Stable isotopes as tracers of fluids
- Mineral reactions and equilibria—determining the chemical and physical properties of fluids in basins
- Tracing relatively recent basin histories—noble gas geochemistry, heat flow in basins, what do fluids present in basins reflect (i.e. climate, heat, petroleum and ore deposits)?

- Paleo- and Meso-proterozoic basins
- Neoproterozoic basins
- Western Canadian basin
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