

## **Solar System and Planetary Studies (SSPS) Committee Report to the Board, Nov 2005**

The report, submitted by Peter Brown, is comprised of the minutes of the last SSPS meeting. This shows the comprehensive activities/initiatives happening under the auspices of this committee.

Minutes – June 5, 2005 0900

Present:

P. Brown U. Western Ontario (Chair), JJ Kavelaars (HIA), G. Srinivasan (U Toronto)

B. Gladman (UBC) (Committee Members)

P. King (U. western Ontario)

(Advisor to the committee)

Absent

N. Murray (CITA)

Agenda

A. Minutes of previous meeting (at Whistler 2004)

B. Current Membership of SSPS committee

-Membership changes for 2005-06

C. Last year's activities

-Whistler Planetary Science Summer School

-Peter Wall Institute Workshop

D. National Planetary Science structures

- Relations to MIAC/CSA/JCSA

- NSERC

- LRP Midterm review

E. Plans for activities/meetings in 2006

-CASCA sessions in 2006?

F. Planetary Science in Canada – where do we go from here?

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A Minutes reviewed and accepted from 2004 (Sriniversan and Kavelaars)

-Brief review of SSPS history

**B. Membership for 2005-06**

Summary

6/2002 - 7/2006 : P. Brown, [Chair ending 7/2006]

7/2004 - 7/2007 : J. Kavelaars

6/2004 - 7/2007 : G. Srinivasan

7/2005 – 7/2008 : J. Hahn

7/2005 – 7/2008; A. Hildebrand

Motion: Nominate and elected to SSPS Advisory board

King, U. of Western Ontario as a new advisory member of the SSPS committee. Vote: Unanimous acceptance.

- Chair replacement for Brown discussed for next year; topic to be revisited before next meeting (at which Brown will be chair)

-Motion – that Joe Hahn (St. Mary's) to be approached to serve on committee. Joe has accepted and will replace Norm Murray

-Motion – Alan Hildebrand (University of Calgary) to be asked to join as a committee. Alan has accepted this offer and will join the committee as a replacement for Gladman beginning in 7/2005.

Advisory committee Membership– Additional members to be approached; Pawel Artymowicz(U of T), Mark Jellnick (UBC), Dave Balam(U Victoria), Gord Southam(U Western Ontario).

The current advisory committee membership as of 07/2005 is:

Committee Advisors :

Y. Amelin (Geol. Survey Canada, cosmochronology)

P. Artymowicz (University of Toronto at Scarborough, origins and dynamics)

D. Balam (University of Victoria, small solar system bodies)

E. Cloutis (U Winnipeg, planetary spectroscopy)

M. Connors (Athabasca, Space Physics)

J. Drummond (U Toronto, Atmospheric physics)

M. Duncan (Queen's University, solar system dynamics)

J. Hahn (U. St. Mary's, solar system formation)

A. Hildebrand (U Calgary, impact studies)

M. Jellinek (University of British Columbia, planetary interiors)

J. Kavelaars (HIA, Solar System observational studies)

P. King (University of Western Ontario, Mars/meteorites)

R. Pudritz (McMaster, protoplanetary disk physics)

P. Jedicke (Royal Astronomical Society of Canada)

J. Matthews (UBC, Extrasolar planet searches)

P. Wiegert (Queen's, solar system dynamics)

K. Kyser (Queen's, isotopic chemistry)

G. Southam (University of Western Ontario, astrobiology)

G. Shepard (York, planetary atmospheres)

D. Weis (UBC, isotopic cosmochemistry)

Y. Wu (CITA, planetary astrophysics)

A. Yau (U Calgary, space physics)

## C. RECENT/PAST YEARS ACTIVITIES IN CANADA RELATED TO PLANETARY SCIENCE

1. Peter Wall meeting –
  - An interdisciplinary exploratory workshop for Planetary science attended by a total of 20 planetary scientists both from UBC (half) and half external (US and other Canadian institutions) from June 1-3, 2005.
  - The workshop (agenda attached) covered scientific, historical, and policy aspects of planetary science.
2. CASCA Meeting 2005 (Montreal)
  - Planetary context at the recent CASCA meeting – there was one session which had some specific planetary science content (Planetary Astronomy)
  - several talks given in this session good representation from extrasolar / disks/ Kuiper- Belt.
  - Issues of parallel sessions of joint interest (hence difficult to have attendance of large Planetary contingent).
  - Plaskett medal went to planetary student (Renee Doyon).
3. Whistler Workshop

The Whistler workshop for Planetary Science was held June 5-11 in Whistler British Columbia. 34 participants from from 2nd-year undergraduate students to senior graduate students and professionals received intense formal instruction in planetary science from 5 lecturers. The school was financed by the Canadian Space Agency and the University of British Columbia. Conference information can found at <http://www.astro.ubc.ca/wwps05>. The topics of cosmochemistry (Srinivasan), planetary atmospheres (Drummond), planetary geology (Lee), small bodies (Brown), and planet formation and evolution (Gladman) were covered. The organizers were very impressed with the drive and enthusiasm of the students.

4. Meteoroids 2004:
    - Held from Aug 16-20, 2004 at University of Western Ontario (<http://aquarid.physics.uwo.ca/meteoroids2004/>)
    - 110 attendees
    - Proceedings to appear in fall, 2005
    - Sponsored by CSA, UWO and NASA
- The following scientific areas were covered in this meeting:

- ⊕ Dynamics, sources, and spatial distribution of meteoroids including sporadic, shower, and interstellar meteoroids
- ⊕ Physics and chemistry of meteoroids and their interaction processes in the atmosphere including ablation studies and radar head echo and trail effects
- ⊕ Fireball and bolide phenomenology from modeling and observational studies and connection with meteorites

- ⌚ Mineralogy, chemistry and physical properties of extraterrestrial materials (meteorites, micrometeorites, IDPs)
- ⌚ Influence of meteoric constituents on atmospheres
- ⌚ Hypervelocity impacts on spacecraft
- ⌚ Space debris and meteoroid models and flux - defining the natural particulate environment in space.
- ⌚ Interrelation of meteoroids, meteorites, IDPs, asteroids and comets

#### 5. Infrared spectroscopy in Environmental Geochemistry, and remote sensing

Held from May 9 to May 11, 2004 at University of Western Ontario

- 40 attendees from Europe, USA and Canada.
- 11 invited speakers from the USA and Canada
- Sponsored by UWO and Mineralogical Assoc. Canada
- Resulted in publication of a Short Course Volume (contents in Appendix)
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The primary goal of this short course was to update graduate students, researchers and professional geologists on the current theory and practice in infrared spectroscopy. Infrared spectroscopy is a technique that has been used widely in organic chemistry (relevant to environmental and petroleum geologists); however, there are exciting new developments in inorganic chemistry also (minerals and fluids). The technique can be applied successfully to environmental geochemistry and remote sensing of planetary bodies. A second goal of this short course was to link researchers who are using infrared spectroscopy in different settings: bench top laboratories, field devices, airborne instruments, and satellites. Currently, these researchers tend to publish in different arenas and thus the different techniques (e.g. spectral fitting, quantification, qualitative analysis etc.) used by different researchers have not been widely shared. A third goal of this short course is to expose participants to hands-on infrared spectroscopy. We ran "labs" to illustrate some of the concepts taught in the lecture part of the course.

#### 2) Special Session at the Geological Association of Canada - Mineralogical Association of Canada Meeting

Held May 12, 2004 at Brock University

- 14 talks and 1 keynote address.
- Sponsored by the Geological Assoc. Canada and the Mineralogical Assoc. Canada

6. International Lunar Conference (ILC 2005) – to be held September 18-23, 2005 in Toronto

### **D. NATIONAL PLANETARY SCIENCE STRUCTURES - UPDATE**

1. JCSA meeting at CASCA.

- JJ report on JCSA meeting in Montreal future mission possibilities for space astronomy. NEOSat was not discussed and it was noted that this falls across JCSA and SEAC and hence JCSA should have some input.
- People building NEOSat presented MOST – some lines of responsibilities confused. CSA is getting ready for another round of satellite proposals which might be useful for PS
- chair of JCSA requested an SSPS member be put forward as possible JCSA member.

CSA – At several interactions this year (among them the Peter Wall Institute workshop), it has been re-affirmed by CSA that they will not fund planetary science research unless it is intimately tied to mission development. SSPS regrets this state of affairs, which severely limits Canada's ability to compete with the U.S. to attract the best researchers .

## 2. NSERC

- any interest in having a PS separate GSC? GSC 08 (Solid Earth) has had planetary science added this past year
- meetings were held between Earth Scientists with NSERC representatives regarding linkages with planetary science work
- see: Sylvester, P., Hall, J., and Bleeker, W., 2005. Brainstorming about the future of Solid Earth sciences in Canada. Geoscience Canada, vol. 32 (1), p. 3-11.
- [www.esd.mun.ca/~gac/JOURNALS/TOC/GACgcV32No1Web.pdf](http://www.esd.mun.ca/~gac/JOURNALS/TOC/GACgcV32No1Web.pdf)
- potential partnership program – CIAR program better developed for handling immediate community cohesion

3. LRP Midterm Review – needs to be discussed in detail at Toronto PS meeting next Spring

## E. PLANS FOR ACTIVITIES/MEETINGS IN 2006 / FUTURE PS –RELATED MEETINGS IN CANADA

1. DPS in 2009 in Whistler
  - Brett has made successful bid to host DPS in 2009 in Whistler – more details at the next SSPS meeting
2. Srimi has tried to get 2009 Metsoc for Canada, but this ultimately went to Europe
3. A Geological Association of Canada NUNA conference will be held on Planetary Sciences in June 2006 (Sylvester, Bleeker, King, Leshner) in Sudbury. Planning and sponsorship arrangements are ongoing.
4. An Impact Field Studies Group trip to the Sudbury impact crater is tentatively scheduled for 2007. <http://web.eps.utk.edu/ifsg.htm>
5. A dedicated Planetary Science meeting over a weekend in the spring, 2006 organized along the lines of the Kingston dynamical meetings is tentatively scheduled to be held in Toronto.

## F. PLANETARY SCIENCE IN CANADA – WHERE DO WE GO FROM HERE?

- Discussion of CSEW5 workshop and outcome and how this relates to CSA. Mars exploration, small bodies and astrobiology are the main planetary science thrusts of CSA.
- Gladman noted that it has been three years since SSPS formed – the recent Whistler workshop was the major outcome of recent efforts based on advisors polled interest in school vs. meeting format.
- Structure broader than just planetary astronomy needed to develop PS with depth in Canada. Practical division between engineering and science structure hard to overcome due to existing interaction structures through CSA.
- How to get past this difficulty?
  - King – start with basic science concept.
  - Gladman – proposal to look at doing a sequence of annual PS meetings where we attempt to get people together for PS science across broad venue. Discussion on utility of PS community putting satellite proposals forward through JCSA or should new structure be created. Scientific body needed independent of project driven or mission driven.
  - Meeting next year for the community (science driven) – proposal for Toronto meeting for the community (see E.3)
  - King – Alain B. suggested CSEW should be run by the community (i.e. ultimate goal is that a Canadian Planetary Science meeting should run separate from CSA)
  - Srini – host at U of T a PS pure-science meeting next spring/summer
  - Gladman – having a CASCA meeting flavoured with PS specifically next year; would this be desirable in addition to a Toronto specialty meeting?

Meeting adjourned at 1115