



Geology and Habitability of Terrestrial Planets, 5 – 9 September 2005

MONDAY, 5 SEPTEMBER

09:00 – 09:20 Welcome remarks: R-M. Bonnet and K. Fishbaugh

09:20 – 09:50 Introductory Overview Talk: Frances Westall

Session 1: Definition of Habitability: Fundamental Requirements for Life

Chairs/Discussion Moderators: Gordon Southam and Dave McKay

09:50 – 10:50 What is Life? And Basic Requirements for Life (Lynn Rothschild)

Limits of Life (Lynn Rothschild)

10:50 – 11:00 Coffee break

11:00 – 12:30 Moderated Discussion amongst participants
(Also create list of key questions and needed observations)

12:30 – 14:00 Lunch break

Session 2: Link Between Crustal Processes and Habitability

Chairs and Discussion Moderator: Iain Gilmor and Beda Hofmann

14:00 – 14:40 Formation of Habitable Environments (Euan Nisbet)

14:40 – 15:20 Habitability and Surface Geology (Ralf Jaumann)

15:20 – 16:00 Search for Life in Rocks and Influence of Rocks on Life (Karim Benzerara)

16:00 – 16:10 Coffee break

16:10 – 16:50 Crustal Geothermal Processes on Mars (Joern Helbert)

16:50 – 18:20 Moderated Discussion amongst participants
(Also create list of key questions and needed observations)

18:20 – 19:00 Welcome reception at ISSI



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TUESDAY, 6 SEPTEMBER

Session 3: Habitability During Heavy Bombardment

Chairs and Discussion Moderators: Euan Nisbet and Kevin Zahnle

- 09:00 – 09:40 Formation and early evolution of planetary crusts (Alex Halliday)
- 09:40 – 10:20 Habitability During the Heavy Bombardment (Nick Arndt)
- 10:20 – 10:30 Coffee break
- 10:30 – 11:10 Asteroid and Comet Impacts and Habitability (Charles Cockell)
- 11:10 – 11:50 The Search for Early Earth Analogs (Franck Selsis)
- 11:50 – 13:20 **Working Lunch** catered at ISSI: We will break into groups to discuss book chapters.
- 13:20 – 14:50 Moderated Discussion amongst participants
(Also create list of key questions and needed observations)

Session 4: Link Between Volatiles/Atmospheres and Habitability

Chairs/ Discussion Moderators: Jean-Loup Bertaux and Eric Gaidos

- 14:50 – 15:30 Biogeochemical C Cycles and the Exchange of Volatiles Between the Atmosphere, Crust, and Interior (Dave DesMarais)
- 15:30 – 16:10 Hydrologic History of Mars (Mike Carr)
- 16:10 – 16:20 Coffee break
- 16:20 – 17:00 Co-evolution of Planetary Atmospheres and Life (Eric Gaidos)



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WEDNESDAY, 7 SEPTEMBER

Session 4, Cont.

09:00 – 09:40 Evolution of the Atmospheres and Climates of Venus and Mars
(Francois Forget)

09:40 – 10:20 General Discussion

10:20 – 10:30 Coffee break

Session 5: Internal Planetary Evolution and Habitability

Chairs/ Discussion Moderators: Sasha Basilevsky and Todd Stevens

10:30 – 11:10 Regimes of Mantle Convection and Thermal Evolution of Terrestrial Planets
(Stephane Labrosse)

11:10 – 11:50 Evolution of Dynamos & Feedback Between Internal Planetary Evolution &
Life (Tilman Spohn)

12:00 – ? **Excursion to Grindelwald and Workshop Dinner**

THURSDAY, 8 SEPTEMBER

Session 4, Cont.

9:00 – 10:30 Moderated Discussion amongst participants (Also create list of key questions and needed observations)

10:30 – 10:40 Coffee break

Session 5, Cont.

10:40 – 11:20 Volcanism, Degassing & Chemical Evolution of Terrestrial Planets (Doris Breuer)

11:20 – 12:00 Borders of Life: Lessons from Microbiology of Deep-Sea Hydrothermal Vents (Daniel Prieur)

12:00 – 13:30 Moderated Discussion amongst participants (Also create list of key questions and needed observations)

13:30 – 14:30 Lunch break

Session 6: Planetary/Sun Interactions

Chairs/ Discussion Moderators: Veronique Dehant and Oleg Korablev

14:30 – 15:10 Planetary Magnetic Fields and Solar Forcing: Critical Aspects for the Evolution of Earth-Like Planets (Richard Lundin)

15:10 – 15:50 Protection of the Atmosphere and Protection from Radiation (Helmut Lammer)

15:50 – 16:00 Coffee break

16:00 – 16:40 Effect of orbital dynamics on habitability (Jacques Laskar)

16:40 – 18:10 Moderated Discussion amongst participants (Also create list of key questions and needed observations)

Friday 9 September

Session 7: Habitability in our Solar System Beyond Mars

Chairs/ Discussion Moderators: Geoffrey Collins and Gerda Horneck

- 09:00 – 09:40 Habitability of Subsurface Oceans on Icy Planets (Christophe Sotin)
09:40 – 10:20 Habitability of Venus Through its Geologic History (Sasha Basilevsky)
10:20 – 10:30 Coffee break
10:30 – 11:10 Titan: Habitability and General Astrobiological Aspects (Francois Raulin)
11:10 – 12:40 Moderated Discussion amongst participants
(Also create list of key questions and needed observations)

12:40 – 14:00 **Working Lunch** catered at ISSI: We will break into groups to discuss book chapters.

Session 8: Summary

- 14:00 – 15:10 Session chairs give summaries of main results and unresolved questions from their sessions
15:10 – 15:25 Summary and Needed Observations (Planetary Science): Philippe Lognonne
15:25 – 15:40 Summary and Needed Observations (Astrobiology): Francois Raulin
15:50 – 16:00 Coffee break
16:00 – 16:45 Workshop wrap-up discussion (Moderated by: Kathryn Fishbaugh)
16:45 – 17:15 Discussion of book chapters (authorship, organization, etc.)
17:15 – 17:30 Wrap-up summary talk (Frances Westall)
17:30 – 17:45 Closing remarks (Roger-Maurice Bonnet)