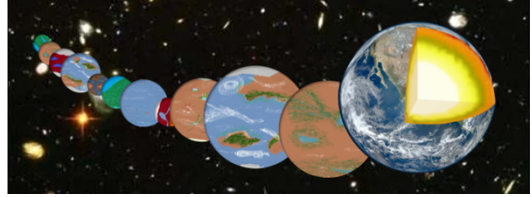


Workshop on “The Geoscience of Exoplanets: Going beyond habitability”

Monday, April 08, 2024



Time	Topic	Chair/ Speaker
8:00	Registration open @ ISSI, Hallerstrasse 6, 1st floor	
09:00	Welcome	Director, Conveners
09:30	Introduction and Overview	Conveners
10:30	<i>Coffee Break</i>	
	<i>Interior Structure Modeling</i>	<i>Chair: L. Noack</i>
11:00	Models of planetary interior structure	Caroline Dorn, U Zürich
11:30	Rapid characterization of exoplanet interiors with machine learning	Philipp Baumeister, FU Berlin
12:00	<i>Lunch</i>	
13:00	Investigating deep planetary interiors with experiments and models: the link between chemistry, structure and thermal evolution	Francesca Miozzi, Carnegie Inst. Wash.
13:30	The roles of rheology in the generation of (plate) tectonics	Maëlis Arnoud, Univ. Lyon
14:00	Discussion	
15:00	<i>Coffee Break</i>	
	<i>Geodynamics and Evolution- Tectonics and Habitability/Life</i>	<i>Chair: J. Duarte</i>
15:30	The importance of continents, oceans and plate tectonics for finding extraterrestrial advanced life	Taras Gerya, ETH Zürich
16:00	Planetary tectonics and habitability: What can we learn from Earth?	Peter Cawood, Monash Univ. Melbourne
16:30	Thermal evolution of rocky planets with an emphasis on magnetism	Doris Breuer, DLR Berlin
17:00	Modes of planetary interior convection and their surface expressions	Diogo L. Lourenco, ETH Zürich
17:30	<i>Ice Breaker Reception</i>	

Tuesday, April 09, 2024

9:00	Building digital planetary sisters	Nicolas Coltice, ENS Paris
09:30	Tidal dissipation and evolution	Emeline Bolmont, Obs. Geneva
10:00	Discussion	
10:30 Coffee Break		
Topic Atmosphere/Hydrosphere		Chair A.Gimenez
11:00	Water in terrestrial planets: where and when did water come to them	Shun Karato, Yale Univ.
11:30	Internal fractionation of atmospheric volatiles on molten exoplanets	Tim Lichtenberg, Univ. Groningen
12:00 Lunch		
13:00	Interior/atmosphere - Outgassing and secondary atmospheres (chemical composition)	Caroline Brachmann, DLR & FU Berlin
13:30	The water storage capacities of rocky planet mantles and their surfaces	Claire Marie Guimond, Oxford Univ.
14:00	Early magma oceans and their relations to stellar insolation	Keiko Hamano, ELSI Tokyo
14:30	Setting the oxidation state and volatile endowments during planetary accretions	Fabrice Gaillard, ISTO Orleans
15:00 Coffee Break		
15:30	What can we constrain about rocky exoplanet evolution from atmosphere observations?	Brad Foley, PSU
16:00	Observing the atmospheres of rocky exoplanets: pros and cons of transmission and emission spectroscopy and photometry	Hannah Diamond-Lowe, DTU Lyngby
16:30	Discussion	
17:00	Rocky Exoplanet Tectonism and Volcanism	Paul Byrne, Washington Univ., St Louis

Wednesday, April 10, 2024

<i>Upper Atmosphere/Magnetosphere - Star/Planet Interaction</i>		<i>Chair: R. Nakamura</i>
09:00	Star planet interaction: Relevance for planetary evolution	Helmut Lammer, IWF Graz
9:30	Estimating atmospheric mass losses from young and mature (exo)planets: implications for their evolution	Daria Kubyshkina, IWF Graz
10:00	Atmospheric ion escape and its role in the evolution of a habitable atmosphere	Iannis Dandouras, IRAP Toulouse
10:30	Coffee Break	
11:00	Effects of stellar XUV radiation and planetary intrinsic magnetic fields on atmospheric escape from terrestrial planets	Kanako Seki, Univ. Tokyo
11:30	Star-planet interactions and their role for habitable-zone planets	Antonino Lanza, INAF, Catania
12:00	Do magnetospheres affect atmosphere evolution and erosion?	Michael Way, NASA GSFC
12:30	Discussion	
13:00	<i>Lunch and free time to visit the attractions of Bern... NB: All ISSI facilities are available for small group discussions</i>	
19:00	<i>Workshop Dinner at the Restaurant Rosengarten, Bern</i>	

Thursday, April 11, 2024

Habitability/Life and Biosignatures

Chair: T.Spohn

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| 09:00 | Cosmic biology | Charles Lineweaver, ANU
Canberra |
| 09:30 | The effects of continental distribution on the climate and habitability of exoplanets | Donald Glaser, ASU Tempe |
| 10:00 | Orbital Controls on the Productivity of Exoplanet Life and Remote Biosignature Detectability | Stephanie Olson, Purdue
University |

10:30 Coffee Break

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| 11:00 | Discussion |
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Future Observations

Chair: B. Demory

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| 11:30 | ESA missions and plans of relevance to the study of rocky (exo)planets | Theresa Lüftinger, ESA-ESTEC |
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12:00 Lunch

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| 13:00 | The path to revealing the elephant: A multi-observatory strategy for overcoming the technical and scientific challenges in characterizing temperate rocky exoplanets. | Avi Mandell, NASA GSFC |
| 13:30 | The Habitable Worlds Observatory and tests for exoplanet geoscience theories | Aki Roberge, NASA GSFC |
| 14:00 | Observability of the surface features of rocky worlds | Renyu Hu, JPL |
| 14:30 | Measuring Love numbers of exoplanets to constrain their interior structure | Szilárd Csizmadia, DLR Berlin |

15:00 Coffee Break

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| 15:30 | Geoscience factors that can regulate biomass on exoplanets, and the implications for habitability. | Manasvi Lingam, FIT
Melbourne, FI |
| 16:00 | Exoplanet albedo variations as a new window into exogeology and exolife | Svetlana Berdyugina, IRSOL
Locarno |
| 16:30 | The Detectability of Venus and Earth-like exoplanet atmospheres | Jacob Lustig-Yaeger, JHU-APL |
| 17:00 | Unveiling the most promising temperate rocky planets with the James Webb Space Telescope | Elsa Ducrot, CEA Paris-Saclay |
| 17:30 | JWST future observations of rocky exoplanets | Pierre-Olivier Lagage, CEA
Paris-Saclay |
| 18:00 | Discussion | |

Friday, April 12, 2024

09:00 Workshop discussion overview
Table of content of the book, Chapters content and author teams... all

11:00 *Coffee Break*

11:30 Contd. all
Wrap-up

Lunchtime, opportunity for further discussion

End of Workshop

Timetable

Time	Monday	Tuesday	Wednesday	Thursday	Friday
From 8:00 9:00 - 9:30	Registration Welcome Introduction Scope of the WS	Geodynamics/ Tectonics	Star/Planet - Upper Atmosphere	Life/ Habitability - Biosignatures	Book/Topical collection organization, TOC, Author teams
9:30 – 10:30	Introduction Overview				
10:30 - 11	Coffee Break				
11 - 12	Interior	Geodynamics/ Tectonics	Star/Planet - Upper Atmosphere	Life/ Habitability - Biosignatures	
12am – 1 pm	Lunch				
1 – 2	Interiors	Atmosphere/ Hydrosphere	Free Afternoon, Splinters	Future Observations	Further Discussion Splinters, Travel
2 - 3					
3 – 3:30	Coffee Break				
3:30 - 5:30	Geodynamics/ Tectonics	Atmosphere/ Hydrosphere	Free Afternoon, Splinters	Future Observations	
5:30 - 7:00	Ice Breaker				
7:00					Dinner