INTERNATIONAL SPACE SCIENCE INSTITUTE

Physical Links Between Weather and Climate in Space and the Lower Atmosphere

ISSI, Bern

January 22–26, 2024

Monday, 22 January 2024		
13:00	**Registration ISSI, Hallerstrasse 6, 1st floor**	
Time	**Opening, Introduction, Perspectives from 2022 Forum**	**Chair: M. Rast**
14:00-14:30	**Introduction to ISSI – Objectives of the Workshop**	Director, Conveners
14:30-15:00	Keynote: Long- and Short-Term Changes in Geospace Driven From Below and Need for Continued Observations	M. Mlynczak
15:00-15:30	Outcome of the ISSI Forum on Space and Atmosphere Weather Linkages 2022	M. Blanc
15:30-16:00	***Coffee Break***	
	Introductory/overview talks from different areas	**Chair: M. Rast**
16:00-16:30	The Role of the Polar Vortex in Sun-Earth Coupling	L. Harvey
16:30-17:00	The Lower Thermosphere-Ionosphere: A Transition Layer between Space and the Lower Atmosphere. Open Science Questions and Status of Understanding	T. Sarris
17:00-17:30	Local Mapping of Polar Ionospheric Electrodynamics: Using Different Datasets to Study Magnetosphere– Ionosphere–Thermosphere Coupling	K. M. Laundal
17:30-18:00	**Discussion**	**Chair: Convenors**
18:00	***Welcome Reception - Hallerstrasse 6, 1st floor***	

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Tuesday, 23 January 2024		
Time	**Atmospheric dynamics across altitudes**	**Chair: F. Enengl**
09:00-09:30	The Roles of Tides and Planetary Waves in Linking Terrestrial and Space Weather	R. Liebermann
09:30-10:00	Influence of the Boreal (Arctic) wintertime Polar Vortex on the variability of the Mesosphere, Thermosphere and Ionosphere	T. A. Siddiqui
10:00-10:30	The Forcing from Below and the Longitudinal Dependence of its Space Weather Impacts	E. Yizengaw
10:30-11:00	***Coffee Break***	
Time	**Atmospheric dynamics across altitudes (cont.)**	**Chair: N. Partamies**
11:00-11:30	Effects of Small-Scale Waves in the Upper Atmosphere and Observing capabilities	A. Liu
11:30-12:00	Atmospheric Gravity Waves and Atmosphere–Ionosphere–Magnetosphere Coupling	A. Kozlovsky
12:00-12:30	Observation of the Upper Mesosphere / Lower Thermosphere with Hydroxyl Airglow Spectrometers and Cameras and Results Concerning Atmospheric Dynamics	S. Wüst
12:30-14:00	***Lunch***	
Time	**Current and future observations: from space**	**Chair: V. Haberle**
14:00-14:30	ESA's Swarm Mission Status and Perspectives	A. Strømme
14:30-15:00	NASA's Geospace Dynamics Constellation and DYNAMIC Missions: Tracking Energy and Momentum Transfer Throughout the Middle and Upper Atmosphere on a Global Basis	D. Rowland
15:00-15:30	The Changing-Atmosphere Infrared Tomography (CAIRT) Earth Explorer candidate mission	B. Funke
15:30-16:00	***Coffee Break***	
Time	**Current and future observations: ground-based**	**Chair: R. Imam**
16:00-16:30	Upper-Atmosphere–Ionosphere Observations: The Role of Geophysical Observatories and EISCAT	T. Ulich
16:30-17:00	Ground Based Observational capabilities for the Upper and Middle Atmosphere	L. Baddeley
17:00-18:00	**Discussion**	**Chair: Convenors**

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Wednesday, 24 January 2024		
Time	**Atmosphere–ionosphere modelling**	**Chair: M. Blanc**
09:00-09:30	Effect of Lower Atmospheric Waves on the Thermosphere–Ionosphere System	A. Maute
09:30-10:00	It's YES for NO, O/N2 and e: Gravity wave effects on middle and upper atmosphere transport	H.-L. Liu
10:00-10:30	How can the effects of the middle atmosphere be taken into account to model the ionosphere accurately?	A. Marchaudon
10:30-11:00	***Coffee Break***	
Time	**Atmosphere–ionosphere modelling (cont.)**	**Chair: M. Blanc**
11:00-11:30	Prospects and Challenges of Modelling the Whole Atmosphere with the Icosahedral Nonhydrostatic (ICON) Model	C. Stephan
11:30-12:00	Science Drivers for Ground to Space (G2S) Modeling and Reanalysis: A Heliophysics Perspective	J. McCormack
12:00-12:30	**Discussion**	**Chair: Convenors**
12:30-14:00	***Lunch***	
Time	**Multidisciplinary and international collaborations**	**Chair: A. Strømme**
14:00-14:30	ESA Heliophysics Working Group – Building Bridges	M. Taylor
14:30-15:00	Opportunities of Interdisciplinary Collaborative Activities in Polar Atmosphere Research	L. Alfonsi
15:00-15:30	Citizen Science: an Opportunity to Supplement Scientific Observations of the Upper Atmosphere	M. Grandin
15:30-16:00	***Coffee Break***	
Time	**Multidisciplinary and international collaborations (cont.)**	**Chair: A. Strømme**
16:00-16:30	Enabling System Science: Collaborations, Competitions, and Open Data	J. S. Leisner
16:30-17:00	SuperDARN and the Atmosphere: I Have a Lot of Questions.	K. McWilliams
17:00-18:00	**Discussion**	**Chair: Convenors**
19:00	***Workshop Dinner at the Restaurant tbd., Bern***	

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Thursday, 25 January 2024		
Time	**Magnetosphere–ionosphere coupling**	**Chair: M. Grandin**
09:00-09:30	Relationship Between the Ionospheric Potential and the Ground-Level Electric Field in the Polar Cap (Vostok Station, Antarctica)	R. Lukianova
09:30-10:00	Magnetosphere–Ionosphere Drivers and Responses to Large Subauroral Electric Fields	B. Gallardo-Lacourt
10:00-10:30	ISTPNext and Heliophysics Great Observatories – A Strategy for a Vibrant Field	L. Kepko
10:30-11:00	***Coffee Break and Meeting Photo***	
11:00-12:30	**Discussion**	**Chair: Convenors**
12:30-14:00	***Lunch***	
Time	**Solar forcing of the atmosphere**	**Chair: C. Stolle**
14:00-14:30	Eruptions on the Sun and their Consequences	L. Kleint
14:30-15:00	Impact of Energetic Electron Precipitation – Revisiting the Hypothesis of the Chemical Dynamical Coupling	H. Nesse
15:00-15:30	Assessing Ozone Variations in Response to Energetic Particle Precipitation: from Stratosphere to UMLT	J. Jia
15:30-16:00	***Coffee Break***	
Time	**Solar forcing of the atmosphere (cont.)**	**Chair: C. Stolle**
16:00-16:30	Space Weather Effects on Cloud Processes via the Global Electric Circuit	K. Nicoll
16:30-17:00	When and where can energetic electron precipitation contribute to atmospheric dynamics?	L. Blum
17:00-17:30	Influence of solar energetic particles on stratospheric polar vortex and mesospheric ozone	H. Li
17:30-18:00	**Discussion**	**Chair: Convenors**

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Friday, 26 January 2024		
Time	**Long-term trends in the upper atmosphere**	**Chair: M. Rast**
09:00-09:30	Ionosphere long-term trend patterns over Japan and Antarctic during 1948-2022	H. Liu
09:30-10:00	Observations of Long-Term Change in the Thermosphere, Challenges and Opportunities	E. Doornbos
10:00-11:30	**Breakout session of individual paper contributions** ***(with coffee, biscuits, fruit available on a continuous basis)***	**Chairs: respective to working group**
11:30-12:30	**Summary, outlook and ways forward/next steps**	**Chair: Convenors**
12:30-14:00	***Lunch and departures***	
End of Workshop		