Programme

Monday 14 May 2018

08:30 Registration of the participants

10:00 Opening of ESLAB 52
Welcome by A. Parmar, Head of Science Support Office

Keynote Lectures
Chair: D. Titov

10:15 History of Planetary Aeronomy (keynote)
Nagy A
University of Michigan, USA

10:45 Thermospheres of Terrestrial Planets including Coupling with the Lower Atmosphere (keynote)
Bougher S
University of Michigan, USA

11:15 Coffee break

11:45 Magnetospheres of Planets in the Inner Solar System.
Sixty Years of the Space Age - Lessons Learned (keynote)
Zelenyi L
Space Research Institute Russian Academy of Science, Russia

12:15 Living with the Sun (keynote)
Luhmann J
University of California, Berkeley, USA

12:45 *Lunch*

Upper Atmospheres
Chair: S. Stone and F. Gonzalez-Galindo

14:00 Mars Dayglow, Nightglow and Aurora observed by MAVEN's Imaging UltraViolet Spectrograph
Crismani M
LASP, University of Colorado, USA

14:20 Variability of UV dayglow in the Martian thermosphere from measurements by SPICAM/Mars Express and global simulations
Gonzalez-Galindo F
Instituto de Astrofísica de Andalucía-CSIC, Spain

14:40 Metastable oxygen O(1S) Martian airglow: observations and model
Gérard J-C
LPAP, Université de Liège, Belgium,

15:00 Complex Molecules in Titan's Upper Atmosphere (invited)
Lavvas P
GSMA/CNRS, France

15:20 Coffee break

15:50 Parameterizing Gravity Waves and Understanding their Impacts on Venus' Upper Atmosphere
Brecht A
NASA Ames Research Center, USA

16:10 MAVEN/IUVS Observations of Martian Mesospheric Clouds in 2017:
A Persistent Longitudinal Asymmetry at Southern Mid-Latitudes

Stevens M
Naval Research Laboratory, USA

16:30 September 10-11, 2017 Solar Flare Event: Rapid Enhancement of the Martian Neutral Exosphere from the X-class flare as observed by MAVEN
Elrod M
NASA Goddard Space Flight Center, USA

16:50 Protonated Ions and the Seasonal Variation of Hydrogen Observed by the MAVEN Neutral Gas and Ion Mass Spectrometer
Stone S
Lunar and Planetary Laboratory, University of Arizona, USA

17:30 Icebreaking reception (Wintergarden at ESTEC restaurant)

19:00 End of day 1

Tuesday 15 May 2018

Ionospheres
Chair: R. Lillis, B. Sanchez-Cano and M. Crismani

09:30 Ionospheres of the Terrestrial Planets (keynote)
Cravens T
University of Kansas, (USA)

10:00 Hybrid plasma modelling of the planetary atmospheres and ionospheres (invited)
Modolo R
LATMOS/IPSL, UVSQ Université Paris-Saclay, UPMC Sorbonne Université, CNRS, France

10:20 Radio Sounding of the Mars Ionosphere over a full Solar Cycle by the Mars Express RadioScience Experiment (MaRS)
Pätzold M
Rheinisches Institut für Umweltforschung, Cologne, Germany

10:40 Spatial, seasonal and solar cycle variations of the total electron content (TEC): Is the TEC a good tracer for atmospheric cycles?
Sanchez-Cano B
University of Leicester, Leicester, UK [2]ESA/ESTEC, The Netherlands

11:00 Coffee break

11:30 Variability of the Martian upper ionosphere and factors controlling this variability.
Dubinin E
Max Planck Institute for Solar System Research, Germany

11:50 Variability of the Venusian and Martian nightside ionosphere after solar storms
Gray C
Apache Point Observatory, USA

12:10 Characterization of Mars' Persistent Meteoric Ion Layer
Crismani M
LASP, University of Colorado, USA

12:30 Comparison of Terrestrial and Martian TEC at Dawn and Dusk during Solstices
Burrell A
University Of Texas At Dallas, USA

12:50 Lunch

14:00 Observations and Modeling of Low-Altitude Ionospheric Responses to 2017 Sept Solar Flare at Mars
Xu S
University of California, Berkeley, USA

14:20 MAVEN observations of solar wind driven magnetosonic waves heating the Martian dayside Ionosphere
Fowler C
LASP, University of Colorado, USA

14:40 Control of the Nightside Structure of the Venusian Ionosphere
Brecht S
Bay Area Research Corp., USA

15:00 Small scale excess electron densities in the lower ionosphere of Mars: Interpretation of Mars Express radio science observations in combination with MAVEN measurements
Peter K
Rheinisches Institut für Umweltforschung, Cologne,Germany

15:20 Coffee break

Aeronomy and Plasma Environment of Exoplanets
Chair: D. Titov

15:50 Are "Habitable" Exoplanets Really Habitable? -- A perspective from atmospheric loss (invited)
Dong C
Princeton University, USA

16:10 Using Hybrid Simulations to Understand How Ion Loss Varies with Planetary Radius
Egan H
University of Colorado, USA

16:30 Poster Session 1

19:00 End of day 2

Wednesday 16 May 2018

Magnetospheres and Space Weather
Chair: S. Fatemi, S. Shuvalov, J. Halekas, and O. Witasse

09:30 Comparison of induced magnetospheres (invited)
Ma Y
EPSS, UCLA, USA

09:50 Earth's magnetosphere and its interaction with the solar wind (invited)
Milan S
University of Leicester, UK

10:10 The Complex Martian Magnetosphere: Recent Insights Based on MAVEN Magnetometer Observations
Espley J
Nasa Goddard Space Flight Center, USA

10:30 Momentum Transfer and Boundary Layer Structure at Mars
Halekas J
University of Iowa, USA

10:50 Coffee break

11:20 Magnetic topology during quiet and extreme conditions at Mars
Curry S
UC Berkeley, SSL, USA

11:40 Impact ionization of neutrals by foreshock electrons at Mars
Mazelle C
RAP / CNRS - University of Toulouse - UPS - CNES, France

12:00 The Structure and Properties of Martian Magnetosphere at ~ 70° Solar-Zenith Angle in MSE Coordinates as Observed on MAVEN Spacecraft
Vaisberg O
Space Research Institute, Russia

12:20 Study of ICME effects at Mars: energy deposition and feedback from enhanced thermosphere
Regoli L
University of Michigan, USA

12:40 Lunch

14:00 Magnetospheres of the Giant Planets (invited)
Masters A
Imperial College London, United Kingdom

14:20 The Strange Menagerie at the Magnetopause: High-Resolution Magnetospheric Multiscale Data Reveals Diverse Phenomena near the Boundary with the Magnetosheath
Russell C
Earth Planetary and Space Sciences, University of California, USA

14:40 Comparative planetary foreshocks: Results from recent studies
Meziane K
University of New Brunswick, Canada

15:00 Mass loading influence on the structure of Martian bow shock
Shuvalov S
Space Research Institute of the Russian Academy Of Sciences (IKI), Russia

15:20 Coffee break

15:50 A Generalized Magnetospheric Disturbance Index: Initial Application at Unmagnetized Bodies
Gruesbeck J
University of Maryland, USA

Solar wind interaction with atmosphereless bodies
Chair: O. Witasse

16:10 The solar wind interaction with the Moon (invited)
Fatemi S
Swedish Institute of Space Physics, Sweden

16:30 The Solar Wind Interaction with Ceres (invited)
Villarreal M
University of California, USA

16:50 The Solar Wind Interaction with Vesta and Ceres: Implications for their Magnetic Moments
Russell C
Earth, Planetary and Space Sciences, University of California, USA

17:10 To What Extent Does Solar Wind Forcing Affect the Occurrences of Energetic Electron Events in the Hermean Magnetosphere?
Lentz C
University of Colorado, USA

18:00 Dinner

Thursday 17 May 2018

Atmospheric Escape

Chair: M. Holmström, F. Leblanc, Ph. Escoubet, and M. Chaffin

09:30 Ion and neutral gas escape from the terrestrial planets (invited)
Barabash S
Swedish Institute of Space Physics, Sweden

09:50 Atmospheric Escape from Mars (invited)
Brain D
University of Colorado, USA

10:10 Signatures of sputtering at Mars: a first evidence?
Leblanc F
LATMOS/IPSL, UPMC Univ. Paris 06 Sorbonne Universités, UVSQ, CNRS, France

10:30 Cold Ion Escape from Mars - Observations by Mars Express and MAVEN
Fraenz M
MPI for Solar System Research, Germany

10:50 The Origin and Evolution of Nitrogen in Outer Planet Atmospheres through Comparative Planetology
Mandt K
Johns Hopkins University Applied Physics Laboratory, USA

11:10 Coffee break

11:40 Cold Ion Outflow and Magnetic Topology in Mars' Magnetotail
Mitchell D
University of California, Berkeley, USA

12:00 Estimating the Escape of Hydrogen and Deuterium from the Atmosphere of Mars
Clarke J
Boston University, USA

12:20 Seasonal Variability of Mars H Escape in the MAVEN IUVS dataset
Chaffin M
LASP, University of Colorado, USA

12:40 Solar cycle dependence on the H+/O+ flux ratio in Venus' magnetotail
Persson M
Swedish Institute of Space Physics, Sweden

13:00 Lunch

14:00 Escape and precipitation rates at Venus
Kollmann P
JHU / Applied Physics Laboratory, USA

14:20 Atmospheric Escape on Earth (invited)
Strangeway R

14:40 Ion Outflow from the Terrestrial Atmosphere: Sources, Mechanisms, Transport and Consequences (invited)
S. Haaland
Max-Planck-Institute, Germany

15:00 Simultaneous detection of terrestrial ionospheric molecular ions in the Earth's inner magnetosphere and at the Moon
Dandouras I
IRAP, Université de Toulouse, CNRS, UPS, CNES, France

15:20 Coffee break

15:50 Atmospheric loss from Earth's plasma mantle and its dependence on solar wind conditions
Schillings A
Swedish Institute of Space Physics (IRF), Sweden

Evolution and Climates
Chair: M. Chaffin

16:10 Mars Atmospheric Loss at the Present and Integrated Loss Through Time as Observed by MaVEN (invited)
Jakosky B
University of Colorado, USA

16:30 The Role of Magnetic Fields in Terrestrial Planets Evolution (invited)
Lillis R
Space Sciences Laboratory, University of California Berkeley, USA

16:50 Constraining the early evolution of terrestrial planets via noble gas isotope and K/U ratios (invited)
Scherf M
Austrian Academy of Sciences, Austria

17:10 Evolution of the Martian Climate (invited)
Forget F
CNRS, France

17:30 Poster Session II

20:00 End of day 4

Friday 18 May 2018

Missions and Data Archives
Chair: E. Sefton-Nash

09:30 Cluster observations of Earth atmospheric escape (invited)
Escoubet C
Esa/Estec, Netherlands

09:50 Geospace research contributions from ESA's Swarm constellation (invited)
Floberghagen R
European Space Agency, Italy

10:10 Status of the MAVEN Mission at Mars
Jakosky B
University of Colorado, United States

10:30 Mars Express science highlights and future plans
Titov D
ESA-ESTEC, Netherlands

10:50 Getting ready for BepiColombo: a modeling approach to infer the solar wind plasma parameters upstream of Mercury from magnetic field observations
Fatemi S
Swedish Institute of Space Physics, Sweden

11:10 Coffee break

11:40 Discussion. Where do we go from here?

13:00 End of 52nd ESLAB Symposium

Posters

Upper Atmospheres

1 Comparison between IUVS-MAVEN limb dayglow observations and modeling
Gkouvelis L
University Of Liege, Belgium

2 Combining Observations and Modeling to Promote upper Atmospheres Research and Exploitation
Rosenblatt P
ACRI-ST, France

3 Capabilities of the Exomars Trace Gas Orbiter to study the Mars' upper atmosphere
Lopez-valverde M
Instituto de Astrofísica de Andalucía / CSIC, Spain

4 The LMD-Mars Global Climate Model and the Mars Climate Database: applications for the study of the upper atmosphere
Gonzalez-Galindo F
Instituto de Astrofísica de Andalucía-CSIC, Spain

5 Synthetic Retrievals of H2O and CO2 in the Mars Upper Atmosphere Using Solar Occultation Spectra for the NOMAD and ACS Instruments of the ExoMars TGO Mission
Hill B
Instituto De Astrofisica De Andalucia, Spain

6 Comparison of the thermal structure derived using SOIR on board Venus Express with a 1-D non-LTE radiative transfer model
Mahieux A
The University Of Texas At Austin, USA

7 Comparisons Between MAVEN/NGIMS Thermospheric Neutral Wind Observations and M-GITM Model Simulations
Roeten K
Climate and Space Sciences and Engineering Department, University Of Michigan, USA

8 Proton Aurora on Mars
Ritter B
Université de Liège, Liège, Belgium,

Ionospheres

9 The Ionospheric composition of Mars and its dependence on magnetic configuration
Fraenz M
Max Planck Institute For Solar System Research, Germany

10 Wave Structures in the Ionosphere and Upper Atmosphere of Mars as seen by the Mars Express Radio Science Experiment (MaRS)
Tellmann S
Rheinisches Institut für Umweltforschung (RIU), Germany

11 Conductivity Structures in The Martian Ionosphere
AlShehhi A
Mohammed Bin Rashid Space Center, United Arab Emirates

12 Energization of electrons trapped in the crustal magnetic field of Mars
Akbari H
Laboratory For Atmospheric And Space Physics, University Of Colorado At Boulder, USA

13 Horizontal Magnetic Fields and Currents in the Ionosphere of Mars and Their Dependence on the Interplanetary Magnetic Field
Fillingim M
Space Sciences Laboratory, University Of California, Berkeley, USA

14 Empirical Model of Electron Impact Ionization on Mars' Nightside
Lillis R
Space Sciences Laboratory, University Of California Berkeley, USA

15 Seasonal Changes in the Polar Ionosphere and Thermosphere on Mars
Pilinski M
Laboratory for Atmospheric and Space Physics, USA

Magnetospheres and Space Weather

16 Magnetic structure and propagation of a solar flux rope from the Sun to Saturn
Palmerio E
University Of Helsinki, Finland

17 A statistical study of thermal, dynamic, and magnetic pressures on the dayside of the induced magnetosphere of Mars as observed by MAVEN
Holmberg M
IRAP, University of Toulouse, CNRS, UPS, CNES, France

18 Modeling of energetic ions observations by MAVEN in the crustal field regions
Kotova A
IRAP, Université de Toulouse, CNRS, UPS, CNES, France

19 Effects of the Crustal Magnetic Fields and Changes in the IMF Orientation on the Magnetosphere of Mars
Romanelli N
Laboratoire Atmosphères, Milieux et Observations Spatiales (LATMOS), IPSL, CNRS, UVSQ, UPMC, France

20 Extracting hidden knowledge from data archives using machine learning and open data approaches for space weather effects autonomous investigation
Boumghar R
Esoc, Darmstadt, Germany

21 The Dependences of the Structure and Properties of Martian Dayside Magnetosphere on Solar Zenith Angle and IMF Clock Angle as observed on MAVEN
Ermakov V
Space Research Institute of the Russian Academy of Sciences, Russia

22 A multiscale structure of the cross-tail CSs and its relation to the ion composition according to MAVEN observations in the Martian magnetotail
Grigorenko E
Space Research Institute, Russia

23 The solar wind interaction with Mars: current systems and electromagnetic fields in the Martian ionosphere
Ledvina S
University Of California, USA

24 Effect of solar wind source variation events on planetary plasma environments
Opitz A
Wigner RCP, Budapest, Hungary,

25 Investigating space weather events at Mars with Mars Express housekeeping data
Witasse O

European Space Agency, The Netherlands

Solar Wind Interaction with Atmosphereless Bodies

26 MESSENGER X-ray observations of electron precipitation events on the dayside surface of Mercury
Lindsay S
University Of Leicester, UK

27 Sodium pick-up ion observations in the solar wind upstream of Mercury
Jasinski J
University of Michigan, USA

28 Solar wind-magnetosphere interaction at Mercury during passage of coronal mass ejections
Jarvinen R
Aalto University, School of Electrical Engineering, Department of Electronics and Nanoengineering, Finland

Atmospheric Escape, Evolution, and Climates

29 Atmospheric escape at early Mars and constraints on the evolution of the Martian atmosphere
Scherf M
Space Research Institute, Austrian Academy Of Sciences, Austria

30 Dependence of O+ escape rates from Venus on the solar wind and the solar activity
Persson M
Swedish Institute of Space Physics, Sweden

31 2-Dimensional Model of the Martian Exosphere Applied to HST Observations
Bhattacharyya D
CSP, Boston University, USA

32 Modeling deuterium from surface to space to understand Mars atmospheric evolution
Cangi E
Laboratory For Atmospheric And Space Physics, USA

33 Modeling of Ion and Photochemical Losses to Space over the Martian History
Dong C
Princeton University, USA

34 A parametric study of Enceladus plumes based on DSMC calculations for retrieving the outgassing parameters as measured by Cassini instruments
Mahieux A
The University Of Texas At Austin, USA

35 The terrestrial paleo-magnetosphere during the late Hadean and Archean: Implications on the evolution of the terrestrial atmosphere
Scherf M
Space research Institute, Austrian Academy Of Sciences, Austria

36 O+ escape at Earth during the magnetic storm on September 4th - 10th, 2017
Schillings A
Swedish Institute of Space Physics (IRF), Sweden

Missions and Data Archives

37 A concept for permanent stations on Phobos and Deimos: Study of the Mars space environment
Sefton-nash E
European Space Agency (ESTEC), Netherlands

38 The Mars Express/ASPERA-3 and Venus Express/ASPERA-4 Solar Wind Databases
Holmstrom M
Swedish Institute of Space Physics, Sweden

39 ESCAPE (European SpaceCraft for the study of Atmospheric Particle Escape): a planetary mission to Earth, proposed to ESA in response to the M5-call
Dandouras I
IRAP, France

40 Solar SENTINEL: a satellite constellation mission concept for early forecasting of Coronal Mass Ejections
Rodrigues J
University Of Cambridge, UK [2]University of Bristol, UK