

Symposium on Planetary Science 2015

PROGRAM

- Date:** February 16-18, 2015
- Location:** Aoba Science Hall, Science Complex C bldg. 2F, Tohoku University
(Poster session: Exhibition space, Science Complex C bldg. 2F)
- Cosponsor:** Planetary and Space Physics Group, Graduate School of Science, Tohoku University
Solar Terrestrial Environment Laboratory, Nagoya University
#The STE Lab. joint research program holds this symposium (convener: T. Obara).

Information on oral presentation:

25min: 20min talk + 5min discussion / 20min: 15min talk + 5min discussion

Monday, Feb. 16

- 13:00—13:05 **Welcome:**
T. Obara (Tohoku Univ.)

Chair : F. Tsuchiya (Tohoku Univ.)

- 13:05—13:30 **Summary of 1-year observation by Hisaki (Invited)**
I. Yoshikawa (Univ. Tokyo) and Exceed team
- 13:30—13:55 **Inward electron transport in Jovian inner magnetosphere observed by EXCEED on Hisaki (Invited)**
K. Yoshioka, G. Murakami, T. Kimura, A. Yamazaki (ISAS/JAXA), F. Tsuchiya, M. Kagitani, T. Sakanoi, Y. Kasaba (Tohoku Univ.), I. Yoshikawa (Univ. Tokyo) and M. Fujimoto (ISAS/JAXA)
- 13:55—14:20 **Solar wind influence in Jupiter's inner magnetosphere observed by HISAKI/EXCEED (Invited)**
G. Murakami, K. Yoshioka, T. Kimura, A. Yamazaki (ISAS/JAXA), F. Tsuchiya, M. Kagitani (Tohoku Univ.), C. Tao (IRAP/CNRS), I. Yoshikawa (Univ. Tokyo) and M. Fujimoto (ISAS/JAXA, Tokyo Inst. Tech.)
- 14:20—14:45 **Jupiter's auroral dynamics uncovered by multi-wavelength plasma remote sensing with space telescopes (Invited)**
T. Kimura (ISAS/JAXA), S. V. Badman (Lancaster Univ.), C. Tao (IRAP/CNRS), K. Yoshioka, G. Murakami, A. Yamazaki (ISAS/JAXA), F. Tsuchiya (Tohoku Univ.), B. Bonfond (Univ. Liege), A. Steffl (SwRI) and R. Kraft (HSCA), G. Branduardi-Raymont (UC London), R. Elsner (MSFC), Y. Ezoe (Tokyo Metropol. Univ.), Hisaki science team, HSTCycle 20 GO 13035 team, CXO Cycle 15 GO 15100276 team
- 14:45—15:10 **The upper atmosphere of Venus observed by Hisaki/EXCEED (Invited)**
K. Masunaga, K. Seki (Nagoya Univ.), N. Terada, F. Tsuchiya (Tohoku Univ.), T. Kimura, K. Yoshioka, G. Murakami, A. Yamazaki (ISAS/JAXA), M. Kagitani (Tohoku Univ.), C. Tao, A. Fedorov (IRAP/CNRS), Y. Futaana (IRF), D. Shiota (Nagoya Univ.), F. Leblanc, J.-Y. Chaufray (LATMOS), I. Yoshikawa (Univ. Tokyo)

15:10—15:25 **Break**

Chair : K. Yoshioka (ISAS/JAXA)

- 15:25—15:50 **Daily variation of Enceladus neutral oxygen torus observed by Hisaki (Invited)**
H. Tadokoro (Tokyo Univ. Tech.), F. Tsuchiya (Tohoku Univ.), T. Kimura (ISAS/JAXA),
C. Tao (IRAP/CNRS), A. Yamazaki, G. Murakami, K. Yoshioka (ISAS/JAXA) and
I. Yoshikawa (Univ. Tokyo)
- 15:50—16:15 **Numerical Simulation of Jovian and Kronian Magnetospheric Configuration
(Invited)**
K. Fukazawa (Kyoto Univ.)
- 16:15—16:40 **Modeling of Jupiter's stratosphere: new radiation code and impacts on the dynamics
(Invited)**
T. Kuroda (Tohoku Univ.), A.S. Medvedev, J. Sethunadh and P. Hartogh (MPS)
- 16:40—17:00 **Time variation of optical thickness of haze over the South Equatorial Belt
in 2009-14 apparition of Jupiter**
T. Asada (Kyushu Intern'l Univ.)
- 17:00—17:20 **Characteristics of the Kelvin-Helmholtz instability at the Martian ionopause**
K. Seki (Nagoya Univ.), Y. Matsumoto (Chiba Univ.), N. Terada (Tohoku Univ.) and
T. Hara (UC Berkeley)
- 17:20—17:40 **Recent Results of Sub-millimeter Spectroscopic Observation Campaign toward
Planetary Atmospheres**
T. Iino (Tokyo Univ. Agr. Tech.), T. Hidemori (Nagoya Univ.), T. Tsukagoshi
(Ibaraki Univ.), H. Ohyama, T. Nakajima, A. Mizuno, Y. Hirahara, C. Kato and
S. Nakamoto (Nagoya Univ.)
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Tuesday, Feb. 17

Chair : H. Nakagawa (Tohoku Univ.)

- 9:00—9:25 **Atmospheric dynamics and material transport in the Martian lower atmosphere:
towards the connection to upper atmosphere (Invited)**
T. Kuroda (Tohoku Univ.)
- 9:25—9:50 **Dynamical Coupling Between the Lower and Upper Atmosphere of Mars (Invited)**
A.S. Medvedev (MPS), E. Yigit (George Mason Univ.), T. Kuroda (Tohoku Univ.) and
P. Hartogh (MPS)
- 9:50—10:10 **Spectral observation of mesospheric CO₂ ice clouds in the Martian mid-low latitude
using PFS onboard Mars Express**
Y. Sato, Y. Kasaba (Tohoku Univ.), M. Giuranna (IAPS/INAF), S. Aoki (Tohoku Univ.,
IAPS/INAF), H. Nakagawa and T. Kuroda (Tohoku Univ.)
- 10:10—10:30 **Commitment to European Mars Missions ~ via Infrared Spectroscopic sciences ~**
Y. Kasaba (Tohoku Univ.), S. Aoki (IAPS/INAF), H. Nakagawa (Tohoku Univ.),
M. Giuranna (IAPS/INAF) and O. Korablev (IKI)

10:30—10:50 **Examination of Mission Strategy and Spacecraft System to Study Martian Atmospheric Escape**
A. Matsuoka (ISAS/JAXA), K. Seki (Nagoya Univ.), N. Terada (Tohoku Univ.), S. Yokota, A. Yamazaki, T. Abe, Y. Kawakatsu (ISAS/JAXA), Y. Futaana (IRF), M. Hirahara (Nagoya Univ.), T. Imamura (ISAS/JAXA), K. Ishisaka (Toyama Pref. Univ.), A. Kumamoto (Tohoku Univ.), J. Kurihara (Hokkaido Univ.), H. Nakagawa (Tohoku Univ.), S. Ogura (Rikkyo Univ.), T. Sakanoi (Tohoku Univ.), M. Taguchi (Rikkyo Univ.) and Martian Atmospheric Escape Study Working Group

10:50—11:05 **Break**

Chair : H. Ando (ISAS/JAXA)

11:05—11:25 **Development of a planetary magnetosphere-ionosphere model and its coupling with atmosphere models**

N. Terada (Tohoku Univ.)

11:25—11:45 **A high-resolution global Vlasov simulation of a small dielectric body with a weak intrinsic magnetic field on the K computer**

T. Umeda (Nagoya Univ.) and K. Fukazawa (Kyoto Univ.)

11:45—12:10 **Science of Venus environment in 21st century (Invited)**

T. Imamura (ISAS/JAXA)

12:10—12:30 **Study of atmosphere change and proposed global water system on Venus and Mars.**

Y. Miura (Yamaguchi Univ.)

12:30—13:30 **Lunch**

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13:30—14:30 **Poster Session: core time**

@Multi-purpose room, Science Complex C, Tohoku University

Posters can be displayed from Feb. 16 to 17.

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Chair : M. N. Nishino (Nagoya Univ.)

14:30—14:55 **Seasonal variability of Mercury's sodium (Invited)**

S. Kameda, Y. Yasuda (Rikkyo Univ.) and M. Kagitani (Tohoku Univ.)

14:55—15:20 **Global structure of Mercury's magnetosphere and sodium ion distribution (Invited)**

M. Yagi (Tohoku Univ.), K. Seki (Nagoya Univ.), Y. Matsumoto (Chiba Univ.),

D. C. Delcourt and F. Leblanc (CNRS)

15:20—15:45 **Low frequency electromagnetic waves observed by Kaguya and ARTEMIS around the Moon (Invited)**

Y. Tsugawa, Y. Katoh and N. Terada (Tohoku Univ.)

15:45—16:05 **Electrons on closed field lines of lunar crustal fields in the solar wind wake**

M.N. Nishino (Nagoya Univ.), Y. Saito (ISAS/JAXA), H. Tsunakawa (Tokyo Inst. Tech.),

F. Takahashi (Kyushu Univ.), M. Fujimoto (ISAS/JAXA), Y. Harada (UC Berkeley),

S. Yokota (ISAS/JAXA), M. Matsushima (Tokyo Inst. Tech.),

H. Shibuya (Kumamoto Univ.) and H. Shimizu (Univ. Tokyo)

16:05—16:20 **Break**

Chair : T. Sakanoi (Tohoku Univ.)

- 16:20—16:45 **Research on planets and small solar system bodies at MPS (Invited)**
P. Hartogh (MPS)
- 16:45—17:10 **Research with modeling of planetary atmosphere at MPS since 2004 (Invited)**
T. Kuroda (Tohoku Univ.), A.S. Medvedev and P. Hartogh (MPS)
- 17:10—17:30 **First light of Tohoku 60-cm Telescope at Haleakala Observatory in Hawaii**
M. Kagitani (Tohoku Univ.)
- 17:30—17:50 **Scientific capabilities and measurement sensitivities of the IR heterodyne spectroscopy**
H. Nakagawa (Tohoku Univ.), H. Sagawa (Kyoto Sangyo Univ.), S. Aoki (INAF),
K. Takami, Y. Kasaba and I. Murata (Tohoku Univ.)
- 17:50—18:15 **JUICE and the investigation of the Jupiter system in the far-infrared (Invited)**
P. Hartogh (MPS)

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18:30—20:00 **Banquet**
@Restaurant ESPACE OUVERT, Science Complex C bldg. 2F, Tohoku University

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Wednesday, Feb. 18

Chair : K. Masunaga (Nagoya Univ.)

- 9:00—9:20 **Venus Orbit Insertion 2 of Akatsuki in 2015**
M. Nakamura, T. Imamura and N. Ishii (ISAS/JAXA)
- 9:20—9:40 **Interannual Variability of Venus Albedo as Inferred from LASCO C3 Data**
T. Satoh (ISAS/JAXA, SOKENDAI), S. Ohtsuki (Senshu Univ.),
T. Enomoto (SOKENDAI) and T.M. Sato (ISAS/JAXA)
- 9:40—10:00 **Analysis of the polar oval of Venus using VMC images**
K. Muto (Univ. Tokyo) and T. Imamura (ISAS/JAXA)
- 10:00—10:20 **Venusian CO distribution from 4.7 um airglow**
N. Iwagami, M. Hosouchi, S. Kano (Univ. Tokyo) and G.L. Hashimoto (Okayama Univ.)
- 10:20—10:40 **Atmospheric structure in the Venusian polar region; first report on reproduction by General Circulation Model**
H. Ando (ISAS/JAXA), N. Sugimoto (Keio Univ.) M. Takagi (Kyoto Sangyo Univ.),
H. Kashimura (JAMSTEC), T. Imamura (ISAS/JAXA) and
Y. Matsuda (Tokyo Gakugei Univ.)

10:40—10:55 **Break**

Chair : H. Misawa (Tohoku Univ.)

- 10:55—11:20 **Exploration of Jovian System by JUICE (Invited)**
S. Sasaki (Osaka Univ.), Y. Saito (ISAS/JAXA) and JUICE Japan
- 11:20—11:40 **Solar System Sciences using DESTINY: Demonstration and Experiment of Space Technology for Interplanetary Voyage**

T. Iwata, Y. Kawakatsu, G. Murakami (ISAS/JAXA), Y. Ezoe (Tokyo Metropol. Univ.),
S. Kameda (Rikkyo Univ.), K. Keika (Nagoya Univ.), T. Arai (Chiba Inst. Tech.),
S. Matsuura, T. Imamura (ISAS/JAXA) and K. Ogohara (Univ. Shiga Pref.)

11:40—12:00

GEO-X : GEOSpace X-ray Imager

Y. Ezoe (Tokyo Metropol. Univ.), Y. Miyoshi (Nagoya Univ.),
S. Kasahara (ISAS/JAXA) and the GEO-X team

12:00—12:25

UV space telescope for exoplanetary system (invited)

S. Kameda (Rikkyo Univ.), G. Murakami (ISAS/JAXA), N. Narita (NAOJ) and
M. Ikoma (Univ. Tokyo)

12:25—12:30

Final Words

T. Obara (Tohoku Univ.)

Posters

Information on poster presentation:

Session core time: 13:30-14:30 on Feb. 17

Location: @Exhibition space, Science Complex C bldg. 2F, Tohoku University

Board size: 90cm (width) X 150cm (height)

Posters can be displayed from Feb. 16 to 17.

1. The terrestrial exosphere observed by space satellites

M. Kuwabara (Univ. Tokyo), K. Yoshioka, G. Murakami (ISAS/JAXA),
F. Tsuchiya (Tohoku Univ.), T. Kimura (ISAS/JAXA), S. Kameda, M. Sato (Rikkyo Univ.) and
I. Yoshikawa (Univ. Tokyo)

2. Extreme Ultraviolet Spectroscopy of Venusian Atmosphere Observed by EXCEED

Y. Nara, I. Yoshikawa (Univ. Tokyo), K. Yoshioka, G. Murakami, T. Kimura,
A. Yamazaki (ISAS/JAXA), F. Tsuchiya (Tohoku Univ.), T. Hamaguchi, K. Fujiwara and
M. Kuwabara (Univ. Tokyo)

3. Electron heating associated with Io-plasma torus interaction

F. Tsuchiya (Tohoku Univ.), K. Yoshioka, T. Kimura, G. Murakami (ISAS/JAXA),
M. Kagitani (Tohoku Univ.), A. Yamazaki (ISAS/JAXA), Y. Kasaba, T. Sakanoi (Tohoku Univ.),
I. Yoshikawa (Univ. Tokyo) and H. Nozawa (Kagoshima Nat'l Col. Tech.)

4. The Io Plasma Torus Observed by EXCEED/Hisaki - Comparison with the Observations by Cassini

R. Hikida, I. Yoshikawa (Univ. Tokyo), K. Yoshioka, G. Murakami, T. Kimura,
A. Yamazaki (ISAS/JAXA), F. Tsuchiya (Tohoku Univ.), T. Hamaguchi, K. Fujiwara and
M. Kuwabara (Univ. Tokyo)

5. Suzaku observations of Jupiter coordinated with Hisaki

M. Numazawa, Y. Ezoe (Tokyo Metropol. Univ.) , K. Ishikawa (RIKEN) ,
T. Ohashi (Tokyo Metropol. Univ.) , Y. Miyoshi (Nagoya Univ.), T. Kimura (ISAS/JAXA) ,
Suzaku Cycle 8 Jupiter team and Hisaki science team

6. Comparison study of EUV brightness obtained by Hisaki and Jovian decametric radiation obtained by ground-based observations

A. Kumamoto, H. Misawa and F. Tsuchiya (Tohoku Univ.)

7. Variation characteristics of Jupiter's hectometric radiation during the Jupiter observation campaign in Jan., 2014

H. Misawa, F. Tsuchiya (Tohoku Univ.), T. Kimura (ISAS/JAXA) and
A. Kumamoto (Tohoku Univ.)

8. Vertical and horizontal structures of Jovian IR aurora emission intensity by SUBARU / IRCS observation

S. Fujisawa, Y. Kasaba (Tohoku Univ.), C. Tao (IRAP/CNRS), T. Sakanoi, H. Kita and
M. Kagitani (Tohoku Univ.)

- 9. Analysis of the emission frequency of Jovian S-burst for verification of Jovian ionospheric Alfvén resonator**
Y. Sasaki, A. Kumamoto, Y. Katoh and H. Misawa (Tohoku Univ.)
- 10. The Structure of Io Torus Inferred from ECH Wave Spectra Observed by Galileo**
S. Kurita (Nagoya Univ.) and H. Misawa (Tohoku Univ.)
- 11. Study of the plasma density distribution and ion acceleration mechanism in Ganymede's polar magnetosphere based on Galileo spacecraft observations**
S. Watanabe, Y. Katoh, A. Kumamoto (Tohoku Univ.), W. S. Kurth, G. Hospodarsky and D. Gurnett (Univ. Iowa)
- 12. Electron elastic collision by H₂O originating from Enceladus: Test-particle simulation**
H. Tadokoro (Tokyo Univ. Tech.) and Y. Katoh (Tohoku Univ.)
- 13. Development of a full-particle Martian upper thermosphere-exosphere model using the DSMC method**
K. Terada and N. Terada (Tohoku Univ.)
- 14. Statistical study of characteristics of boundary layer between the magnetosheath and Martian ionosphere**
K. Matsunaga, K. Seki (Nagoya Univ.), T. Hara (UC Berkeley), D. A. Brain (Univ. Colorado), L. Rickard, Y. Futaana and S. Barabash (IRF)
- 15. Migrating tides in the Martian lower atmosphere deduced from MEX/PFS temperature data**
T.M. Sato (ISAS/JAXA) and Y. Kasaba (Tohoku Univ.)
- 16. Research of local time dependence of dust optical depth in the Martian atmosphere by the Planetary Fourier Spectrometer onboard Mars Express**
T. Osono, Y. Kasaba (Tohoku Univ.), S. Aoki (INAF), H. Nakagawa, Y. Sato, T. Kuroda (Tohoku Univ.) and M. Giuranna (INAF)
- 17. Implementation of the Sulfuric Acid Clouds into a Venus GCM and Study of their Distributions**
K. Itoh, T. Kuroda, Y. Kasaba, N. Terada (Tohoku Univ.), K. Ikeda (NIES) and M. Takahashi (Univ. Tokyo)
- 18. Venus Atmospheric waves at 60km by 1.7 μ m ground observation**
M. Hosouchi (Univ. Tokyo), T. Kouyama (AIST), N. Iwagami, S. Kano (Univ. Tokyo), S. Ohtsuki (Senshu Univ.) and M. Takagi (Kyoto Sangyo Univ.)
- 19. 5.0 μ m Spectro-imaging of the Venus Dayside**
S. Kano, N. Iwagami and F. Suzuki (Univ. Tokyo)
- 20. Interpretation of Brightness Contrast of Venus in 5 μ m**
F. Suzuki, N. Iwagami, S. Kano and M. Hosouchi (Univ. Tokyo)
- 21. An MHD simulation of resistive magnetic Reconnection in the Venusian ionosphere**
H. Sakamoto and N. Terada (Tohoku Univ.)

- 22. The possibility of OH/H₂O production by solar wind protons on the lunar and asteroidal surfaces**
Y. Nakauchi (Sokendai), M. Abe (ISAS/JAXA), A. Tsuchiyama (Kyoto Univ.), K. Kitazato (Univ. Aizu), T. Matsumoto (Kyoto Univ.), K. Suzuki (Wakasa Wan Energy Res. Cent.)
- 23. Characteristics of whistler-mode chorus emissions in planetary magnetospheres inferred from recent simulation studies**
Y. Katoh (Tohoku Univ.) and K. Fukazawa (Kyoto Univ.)
- 24. Optical and infrared measurements of planetary atmospheres with the T60 telescope and the future PLANETS mission at Haleakala, Hawaii**
T. Sakanoi, M. Kagitani, Y. Kasaba, T. Obara (Tohoku Univ.), S. Okano and J. Kuhn (Univ. Hawaii)
- 25. JUICE-JAPAN WG JUPiter ICy moon Explorer mission – Radio & Plasma Wave Investigation (RPWI): Contribution plan from Japan**
Y. Kasaba, H. Misawa, F. Tsuchiya (Tohoku Univ.), Y. Kasahara, T. Imachi (Kanazawa Univ.), T. Kimura (ISAS/JAXA), Y. Katoh, A. Kumamoto (Tohoku Univ.), H. Kojima (Kyoto Univ.), S. Yagitani (Kanazawa Univ.), K. Ishisaka (Toyama Pref. Univ.), Y. Miyoshi (Nagoya Univ.) and RPWI Japan
- 26. Diamond growth produced by separated carbon and shock-wave related processes**
Y. Miura (Yamaguchi Univ.)
- 27. Carbon-bearing grains formed globally by shock-wave explosions**
Y. Miura (Yamaguchi Univ.)