

Symposium on Planetary Science 2012

PROGRAM

- Date :** April 3-5, 2012
- Location:** 4th floor, Aoba Memorial Hall, Tohoku University
(Poster: 4th floor, Aoba Memorial Hall)
- Cosponsor:** Planetary Plasma & Atmospheric Research Center (PPARC), Graduate School of
Science, Tohoku University
Tohoku University Global COE Program
"Global Education and Research Center for Earth and Planetary Dynamics"

Information on oral presentation:

30min: 25min talk + 5min discussion / 20min: 15min talk + 5min discussion

Tuesday, April 3

13:00—13:10 **Welcome:**
S. Okano (Tohoku Univ.)

International Session for 13:10-16:25

Chair: M. Fujimoto(ISAS/JAXA)

- 13:10—13:30 **Auroral Signatures of Transient Reconnection at Saturn and Associated Magnetopause Conditions**
S.V. Badman, A. Masters(ISAS/JAXA), N. Sergis(Academy of Athens, Greece), and M.K. Dougherty(Imperial College London)
- 13:30—13:50 **Simultaneous infrared and ultraviolet observations of Saturn's aurora**
H. Melin, T. S. Stallard, J. O'Donoghue (Univ. Leicester), S. Miller (Univ. College London), S. V. Badman (ISAS/JAXA), W. R. Pryor (Central Arizona College), R.H. Brown (Univ. Arizona), and K. H. Baines(JPL)
- 13:50—14:10 **Magnetic reconnection at Saturn's magnetopause: Response of boundary layers**
A. Masters, H. Hasegawa, S. V. Badman, and M. Fujimoto (ISAS/JAXA)
- 14:10—14:30 **Multi-event analysis on Jovian magnetotail reconnection**
S. Kasahara(ISAS/JAXA), E. Kronberg(Max Planck Institute), T. Kimura, C. Tao, S. Badman(ISAS/JAXA), A. Retino(Laboratoire de Physique des Plasmas), and N. Krupp(Max Planck Institute)
- 14:30—14:45 **Break**
- 14:45—15:05 **The Io Plasma Torus During the Cassini Flyby of Jupiter**
A.J. Steffl, A.B. Shinn(SwRI), P.A. Delamere and F. Bagenal(LASP, Univ. Colorado)
- 15:05—15:25 **Overview of Jupiter's decametric and hectometric radio emissions**
M. Imai(Kyoto Univ.) and K. Imai(Kochi Nat'l College Tech.)

- 15:25—15:45 **Effect of the solar UV/EUV heating on the intensity and spatial distribution of Jupiter's synchrotron radiation**
H. Kita, H. Misawa, F. Tsuchiya(Tohoku Univ.), C. Tao(ISAS/JAXA) and A. Morioka(Tohoku Univ.)
- 15:45—16:05 **Visual difference in the Jovian vertical cloud structure between a bright zone and a dark belt inferred from the Cassini ISS**
T. M. Sato(Tohoku Univ.), T. Satoh(ISAS/JAXA) and Y. Kasaba(Tohoku Univ.)
- 16:05—16:25 **MHD simulation of Kronian magnetosphere with high resolution solar wind data by Cassini**
K. Fukazawa(Kyushu Univ.; JST, CREST), R. J. Walker(IGPP/UCLA), and S. Eriksson(LASP, Univ. Colorado)

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16:25—16:40 **Break**

Chair: T. Obara (Tohoku Univ.)

- 16:40—17:10 **Comparative planetary magnetosphere: Structure and dynamics**
T. Ogino (Nagoya Univ.), and K. Fukazawa(Kyushu Univ.)
- 17:10—17:30 **Long-term variability of Na density in Mercury's atmosphere**
H. Dairoku, A. Fusegawa, S. Kameda(Rikkyo Univ.), M. Kagitani and S. Okano(Tohoku Univ.)
- 17:30—18:00 **MELOS1 Mars Exploration Plan**
T. Satoh, T. Kubota, T. Imamura, K. Fujita(ISAS/JAXA), H. Miyamoto(Univ. Tokyo), T. Okada(ISAS/JAXA), Y. Ishihara(Nat'l Astron. Obs.), A. Yamagishi(Tokyo Univ. Pharmacy and Life Sci.), G. Komatsu(The G. d'Annunzio University), N. Ogawa(ISAS/JAXA), and MELOS Working Group
- 18:00—18:30 **What has been planetary science for me? - from diameter of 4cm to 180cm**
S. Okano (Tohoku Univ.)
- 19:00—20:30 **Banquet** (3rd floor, Aoba Memorial Hall)

Wednesday, April 4

Chair : N. Terada (Tohoku Univ.) and T. Imamura(ISAS/JAXA)

- 9:00—9:20 **Concept of Mars meteorological orbiter in MELOS**
T. Imamura(ISAS/JAXA)
- 9:20—9:40 **Overview of the Mars Orbiter Project for the Atmospheric Escape Study**
A. Matsuoka, T. Abe(ISAS/JAXA), K. Seki(Nagoya Univ.), N. Terada(Tohoku Univ.), Y. Futaana(IRF), M. Hirahara(Nagoya Univ.), K. Ishisaka(Toyama Pref. Univ.), A. Kumamoto(Tohoku Univ.), J. Kurihara(Hokkaido Univ.), H. Nakagawa, T. Sakanoi(Tohoku Univ.), M. Taguchi(Rikkyo Univ.), S. Yagitani(Kanazaa Univ.), A. Yamazaki, and S. Yokota(ISAS/JAXA)

9:40—10:00 **Science objectives of the 2-orbiter mission to Mars: Role of atmospheric escape in evolution of Martian environment**
K. Seki(Nagoya Univ.), N. Terada(Tohoku Univ.), A. Matsuoka, T. Abe, A. Yamazaki, S. Yokota, H. Hayakawa(ISAS/JAXA), and Martian Atmospheric Escape Mission Working Group

10:00—10:20 **Martian Atmospheric Escape Mission: Particle Instruments**
S. Yokota(ISAS/JAXA) and Martian Atmospheric Escape Mission WG

10:20—10:40 **Optical observation for the Mars atmospheric escape**
A. Yamazaki(ISAS/JAXA), M. Taguchi(RikkyoUniv.), H. Nakagawa, T. Sakanoi(Tohoku Univ.) et al.

10:40—11:00 **Electromagnetic Fields and Plasma Wave Observations around the Mars and Sounding of the Martian Ionosphere for Studies of Martian Atmospheric Escape**
A. Kumamoto(Tohoku Univ.), K. Ishisaka(Toyama Pref. Univ.), Y. Kasaba(Tohoku Univ.), H. Kojima(Kyoto Univ.), S. Yagitani, Y. Kasahara, T. Imachi(Kanazawa Univ.), A. Matsuoka(ISAS/JAXA), and T. Ono(Tohoku Univ.)

11:00—11:15 **Break**

11:15—11:35 **High Energy Electron Depression Event Observed by MGS in the Martian Polar Regions**
T. Hara, K. Seki(Nagoya Univ.) and D.A. Brain(LASP, Univ. Colorado)

11:35—11:55 **Possibility of O⁺ acceleration by local convection electric field: Venus Express observations**
K. Masunaga(Tohoku Univ.), Y. Futaana, M. Yamauchi, S. Barabash(IRF), T. L. Zhang(Austrian Academy Sci.), A. Fedorov(Centre d'Etude Spatiale des Rayonnements), N. Terada, and S. Okano(Tohoku Univ.)

11:55—12:15 **Simulation of the water cycle on Mars: Effects of the supersaturation**
T. Kuroda(Tohoku Univ.)

12:15—13:30 **Lunch**

Chair : N. Terada (Tohoku Univ.) and T. Imamura(ISAS/JAXA)

13:30—13:50 **Current status of Venus orbiter Akatsuki**
M. Nakamura(ISAS/JAXA)

13:50—14:10 **Does D/H ratio in Venus atmosphere increase with height?**
N. Iwagami, H. Matsui(Tokyo Univ.) and G.L. Hashimoto(Okayama Univ.)

14:10—14:30 **The atmospheric structure in the cloud-top altitude region of Venus**
M. Taguchi(Rikkyo Univ.), T. Fukuhara(Hokkaido Univ.), M. Futaguchi(Rikkyo Univ.), T. Imamura, M. Nakamura, M. Ueno, M. Suzuki(JAXA), N. Iwagami(Tokyo Univ.), M. Sato(Hokkaido Univ.), K. Mitsuyama(Albax co. ltd.. Japan), and G. L. Hashimoto(Okayama Univ.)

14:30—14:50 **Wave signature found at 60 km in the Venus atmosphere**
M. Hosouchi, T. Kouyama, N. Iwagami(Univ. Tokyo), S. Ohtsuki(ISAS/JAXA) and M. Takagi(Univ. Tokyo)

14:50—15:05 **Break**

Chair : M. Kagitani (Tohoku Univ.)

- 15:05—15:25 **Current status of the EXCEED mission**
I. Yoshikawa (Univ. Tokyo) and EXCEED development team
- 15:25—15:45 **The EUV observation for the Jovian inner magnetosphere from the EXCEED**
K. Yoshioka, G. Murakami, A. Yamazaki, K. Uemizu (JAXA), I. Yoshikawa, H. Ishii,
K. Uji (Univ. Tokyo), F. Tsuchiya, and M. Kagitani (Tohoku Univ.)
- 15:45—16:05 **Development of the extreme ultraviolet detector for the EXCEED**
G. Murakami, K. Yoshioka, A. Uemizu (JAXA), I. Yoshikawa, H. Ishii,
K. Uji (Univ. Tokyo), F. Tsuchiya, M. Kagitani (Tohoku Univ.)
- 16:05—16:25 **Plan for the observation of escaping planetary atmospheres by Sprint-A/EXCEED**
N. Terada, F. Tsuchiya, M. Kagitani, Y. Kasaba (Tohoku Univ.), K. Yoshioka (JAXA),
I. Yoshikawa, K. Sakai, T. Homma (Univ. Tokyo), A. Yamazaki, G. Murakami,
K. Uemizu, T. Kimura, and M. Ueno (JAXA)
- 16:25—16:45 **Trial of infrared high-spectral resolution spectroscopy for Mars and Planets:
Current studies in Tohoku Univ.**
Y. Kasaba, H. Nakagawa, S. Aoki, I. Murata, S. Okano(Tohoku Univ.) , Y Kasai, and
H. Sagawa(NiCT)
- 16:45—17:05 **Project for Iitate 60-cm telescope movement to the Haleakala, Hawaii**
T. Sakanoi, S. Okano, M. Kagitani(Tohoku Univ.)
- 17:15—18:45 **Poster Session: core time** (4th floor, Aoba Memorial Hall)
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Thursday, April 5

Chair : S. Kameda(Rikkyo Univ.)

- 9:00—9:20 **Sodium on Mercury, asteroid and comet**
S. Kameda, H. Dairoku, A. Fusegawa(Rikkyo Univ.), M. Kagitani,
S. Okano(Tohoku Univ.), and Hayabusa2 ONC Science team
- 9:20—9:40 **Doppler-shift effect of whistler-mode waves detected by Kaguya near the Moon**
Y. Tsugawa, N. Terada, Y. Katoh and T. Ono(Tohoku Univ.)
- 9:40—10:00 **Solar wind control of the lunar external magnetic enhancement**
M.N.Nishino , M. Fujimoto (JAXA), H. Tsunakawa, M. Matsushima (TITECH),
H. Shibuya (Kumamoto Univ.), H. Shimizu (ERI, Univ. Tokyo), F. Takahashi (TITECH),
Y. Saito (JAXA)
- 10:00—10:20 **Non-gyrotropic Electron Velocity Distribution Functions near the Moon**
Y. Harada, S. Machida(Kyoto Univ.), Y. Saito, S. Yokota, K. Asamura,
M. N. Nishino(ISAS/JAXA), H. Tsunakawa(TITECH), H. Shibuya(Kumamoto Univ.),
F. Takahashi, M. Matsushima(TITECH), and H. Shimizu(Univ. Tokyo)
- 10:20—10:35 **Break**

Chair : T. Obara (Tohoku Univ.)

- 10:35—10:55 **Suzaku observations of diffuse soft X-ray emission from terrestrial exosphere during strong geomagnetic storms**
K. Ishikawa, Y.Ezoe(Tokyo Metropol. Univ.), Y.Miyoshi(Nagoya Univ.),
N. Terada(Tohoku Univ.), K. Mitsuda(ISAS/JAXA), and
T. Ohashi(Tokyo Metropol. Univ.)
- 10:55—11:15 **Airless Moon and air-rich Earth-type planets caused by impact variety on soft and hard target rocks: Atmosphere formed by surface condition**
Y. Miura(Yamaguchi Univ.)
- 11:15—11:45 **On the origin of water in the solar system**
S. Sasaki(Nat'l Astron. Obs., Japan)
- 11:45—11:55 **Final Words**
T. Obara (Tohoku Univ.)

Posters

Information on poster presentation:

Session core time: 17:15-18:45 on Wednesday, April 4 (@4th floor, Aoba Memorial Hall)

Board size:112cm (width) X 168cm(height)

#Posters can be displayed during the symposium.

- 1. Seasonal variations of Saturn's auroral acceleration region deduced from spectra of auroral radio emissions**
T. Kimura(ISAS/JAXA), L. Lamy(Paris Obs.), C. Tao, S. V. Badman(ISAS/JAXA), B. Cecconi, P. Zarka(Paris Obs.), A. Morioka(Tohoku Univ.), Y. Miyoshi(Nagoya Univ.), Y. Kasaba, D. Maruno(Tohoku Univ.) and M. Fujimoto(ISAS/JAXA)
- 2. Test-particle simulation of electron scattering in Saturn's inner magnetosphere due to neutral H₂O originating from Enceladus**
H. Taodokoro, and Y. Katoh(Tohoku Univ.)
- 3. Characteristics of the transient evolution of the auroral acceleration region at Saturn derived from radio spectra**
D. Maruno, Y. Kasaba(Tohoku Univ.), T. Kimura(ISAS/JAXA), A. Morioka(Tohoku Univ.), and B. Cecconi(LESIA, Obs. de Paris)
- 4. Modeling of Jupiter and Saturn auroral infrared emission**
C. Tao, S. V. Badman, and M. Fujimoto (ISAS/JAXA)
- 5. Observational studies of atmospheric evolution induced by cometary impact on Neptune and Jupiter**
T. Iino, A. Mizuno, T. Kuwahara(Nagoya Univ.)
- 6. Comparative study of terrestrial and Jovian whistler-mode chorus emissions**
Y. Katoh(Tohoku Univ.)
- 7. Investigation on rapid variations of Jupiter's inner magnetosphere**
H. Misawa(Tohoku Univ.)
- 8. Relationship between the occurrence frequency of Jovian substorm-like event and plasma density in the magnetosphere**
T. Mizuguchi, H. Misawa, F. Tsuchiya, T. Obara(Tohoku Univ.), S. Kasahara(ISAS/JAXA)
- 9. Jovian Magnetospheric Response to Solar Wind Dynamic Pressure**
H. Kitagawa, S. Kasahara, C. Tao, T. Kimura, and M. Fujimoto (JAXA)
- 10. Long-term observation data of Io's volcanism and its atmospheric escape**
M. Yoneda, M. Kagitani(Tohoku Univ.), T. Miyata(Univ. Tokyo), and S. Okano(Tohoku Univ.)
- 11. Search for CH₄ on Mars with SUBARU/IRCS and MEX/PFS limb data: Preliminary results from the observations on January 2012 and validation of the radiative transfer modeling for PFS limb observations**
S. Aoki, H. Nakagawa(Tohoku Univ.), H. Sagawa(NiCT), A. Geminale, M. Giuranna, V. Formisano(IAPS, INAF, Italy), J. Mendrok(Luleå Univ. Tech.), G. Sindoni(IAPS, INAF, Italy), Y. Kasai(NiCT), and Y. Kasaba(Tohoku Univ.)
- 12. A calculation of heating rate due to dissociative recombination in the Martian thermosphere**
K. Terada(Tohoku Univ.)
- 13. A model to study the Venus cloud structure based on several Venus observations, wherein SOIR occultation on Venus Express**
S. Takagi(Univ. Tokyo), A. Mahieux, S. Robert, V. Wilquet, R. Drummond, A.C. Vandaele(Belgian Inst. Space Aeron.), N. Iwagami (Univ. Tokyo), J.L. Bertaux (LATMOS; ISPL, France), and The SPICAV/SOIR team

- 14. Venusian cloud structure in the northern high-latitude region estimated from VEX/VIRTIS-H data**
M. Kuroda, Y. Kasaba, I. Murata, H. Nakagawa(Tohoku Univ.), and
P. Drossart(LESIA, Obs. de Paris)
- 15. X-ray observation from Venus upper atmosphere by HINODE**
M. Kanao, A. Yamazaki, T. Kouyama, and M. Nakamura(ISAS/JAXA)
- 16. Mission Data Processor for the Sprint-A/EXCEED mission**
F. Tsuchiya, Y. Kasaba(Tohoku Univ.), A. Yamazaki, K. Uemizu(JAXA),
M. Kagitani(Tohoku Univ.), I. Yoshikawa(Univ. Tokyo), EXCEED mission team
- 17. Effect of the molecular contamination on the EXCEED optics**
K. Uji, I. Yoshikawa(Univ. Tokyo), K. Yoshioka, G. Murakami(ISAS/JAXA),
H. Ishii(Univ. Tokyo)
- 18. Development of small-sized radio sensor for future Jovian mission**
Y. Kasaba, H. Misawa, F. Tsuchiya(Tohoku Univ.), Y. Miyoshi(Nagoya Univ.),
T. Kimura(ISAS/JAXA), H. Kojima(Kyoto Univ.), K. Ishisaka(Toyama Pref. Univ.),
and T. Takashima(ISAS/JAXA)
- 19. The current situation of 1-5um infrared observational equipment intended to be attached to 1.8m Telescope of Tohoku Univ.:InSb array sensor drive system**
E.Noguchi, T.Kitami, T.Sakanoi, Y.Kasaba, T.Uno and T.Ichikawa(Tohoku Univ.)
- 20. Development of near infrared imager and spectrometer for planetary atmospheric measurements**
T. Sakanoi, T. Uno, T. Kitami, E. Noguchi, Y. Kasaba, S. Okano(Tohoku Univ.)
- 21. Mission outline of DESTINY: Demonstration and Experiment of Space Technology for INterplanetary voYage**
T. Iwata, Y. Kawakatsu (ISAS/JAXA) and DESTINY Working Group
- 22. A balloon borne telescope for planetary observations**
M. Yamamoto, M. Taguchi(Rikkyo Univ.), K. Yoshida, Y. Sakamoto, T. Nakano, R. Fujimura,
S. Battazzo(Tohoku Univ.), T. Shoji(JAXA), and Y. Takahashi(Hokkaido Univ.)
- 23. Mercury's sodium tail distribution and the source processes of the exosphere**
A.Fusegawa, H.Dairoku, S.Kameda(Rikkyo Univ.), M.Kagitani and
S.Okano(Tohoku Univ.)