

Symposium on Planetary Sciences 2019 (SPS2019) Program

Date: February 18 – 21, 2019

Location: Aoba Science Hall in Science Complex C bldg. 2F, Tohoku University (except for Feb. 20 PM)
Room No. 203 in Science Complex A bldg. 2F, Tohoku University (Feb. 20 PM)
(Poster sessions: Multi-purpose room, Science Complex C bldg. 2F)

Sponsors: Planetary and Space Physics group, Tohoku University
JSPS Grant-in-Aid for Scientific Research on Innovative Areas "Aqua planetology"
JSPS Grant-in-Aid for Scientific Research on Innovative Areas "Star Planet Formation - A03"
JSPS - F.R.S.-FNRS joint program
"Exploring the Atmosphere of Mars with Remote Observations and Numerical Studies: A Belgium-Japan partnership"
Institute for Space-Earth Environmental Research, Nagoya University
"The 20th Symposium on Planetary Science"
"Study on planetary magnetosphere derived from Mercury"
Center for Planetary Science, Kobe University
The International Joint Graduate Program in Earth and Environmental Sciences(GP-EES), Tohoku University
Tohoku University Aerospace Research Committee

Information on oral presentation:

40min: 30min talk + 10min discussion

30min: 25min talk + 5min discussion

20min: 15min talk + 5min discussion

Information on poster presentation (Display period: 11 A.M. on Feb.18 - 4 P.M. on Feb. 21) :

Board size: L180cm(available size L150cm) x W90cm

Feb., 18 AM

9:30-12:35 Gas and Ice Giant Systems (Chair: F. Tsuchiya and T. Kimura (Tohoku Univ.))

09:30-09:35		Opening address	Y. Kasaba (Tohoku Univ.)
09:35-09:55	Invited	Interior evolution of Galilean satellites	S. Kamata(1) (1)Creative Res. Inst., Hokkaido Univ.
09:55-10:15	Invited	A New Scenario for the Origin of the Galilean Satellites	Y. Shibaïke(1), C. W. Ormel(2), S. Ida(1), S. Okuzumi(1) and T. Sasaki(3) (1)Tokyo Inst. Tech., (2)Univ. Amsterdam, (3)Kyoto Univ.
10:15-10:35	Invited	Gas accretion in the final stage of gas giant formation	T. Tanigawa(1) (1)Nat'l Inst. Tech., Ichinoseki Col.
10:35-10:55	Invited	On the gas flow into the vicinity of gas giants and the temperature structure of circumplanetary disks	Y. I. Fujii(1), O. Gressel (2), K. Tomida(3), and U. Ziegler(2) (1)Nagoya Univ., (2)Leibniz Inst. Astrophys., Potsdam, (3)Osaka Univ.

10:55-11:15 break

11:15-11:35	Invited	Theoretical modeling of shock-heated gas around accreting gas giants: comparing with observed hydrogen lines	Y. Aoyama(1), M. Ikoma(1), and T. Tanigawa(2) (1)Univ. Tokyo, (2)Nat'l Inst. Tech. Ichinoseki Col.
11:35-11:55	Invited	Origin of Jupiter's Trojan asteroids: What to explore by OKEANOS	Y. Kebukawa(1) (1)Yokohama Nat'l Univ.
11:55-12:35	Keynote	What makes the chemical dichotomy between Jupiter's and Saturn's satellites	Y. Sekine(1), S. Tan(1,2), Y. Aoyama(2), M. Ikoma(2) (1)ELSI, Tokyo Inst. Tech., (2)EPS, Univ. Tokyo

12:35-14:15 Lunch

Feb., 18 PM

14:15-16:55 Gas and Ice Giant Systems (Chair: Y. Sekine (Tokyo Inst. Tech.) and H. Kita (ISAS/JAXA))

	Keynote	Exploring Jupiter's magnetosphere: Juno to JUICE ==> CANCELLED	B. Cecconi(1) (1)LESIA, Obs. de Paris, Meudon
14:15-14:35	Invited	Plume on Europa: Galileo measurements and MHD simulations	X. Jia(1), M. Kivelson(1,2), K. Khurana(2), and W. Kurth(3) (1)Univ. Michigan, (2)UCLA, (3)Univ. Iowa
14:35-14:55		The electrical charging state of the Enceladus Plume	M. W. Morooka(1), J.-E. Wahlund(1), W. S. Kurth(2), A. M. Persoon(2), B. Farrell(3), A. Coates(4), R. Haythornthwaite(4) [tentative] (1)Swedish Inst. Space Phys., (2)Univ. Iowa, (3)NASA/GSFC, (4)MSSL
14:55-15:15		Environment of Jupiter's middle magnetosphere surrounding the icy moons	T. Kimura(1) (1)Frontier Res. Inst. Interdiscipl. Sci., Tohoku Univ.

Feb., 18 PM

15:15-15:35 break

15:35-15:55		Impact of Io's volcanic activity to environment and dynamics in the Jovian magnetosphere : from HISAKI results	F. Tsuchiya(1) , K. Yoshioka(2), T. Kimura(1), G. Murakami(3), A. Yamazaki(3), M. Kagitani(1), C. Tao(4), H. Kita(3), R. Koga(1), F. Suzuki(2), R. Hikida(2), Y. Kasaba(1), H. Misawa(1), T. Sakanoi(1), and I. Yoshikawa(2) (1)Tohoku Univ., (2)Univ. Tokyo, (3)ISAS/JAXA, (4)NICT
15:55-16:15		Hisaki observations of oxygen atoms escaped from Io's atmosphere	R. Koga(1), F. Tsuchiya(1), M. Kagitani(1), T. Sakanoi(1), T. Kimura(1), I. Yoshikawa(2), K. Yoshioka(2), G. Murakami(3), A. Yamazaki(3), H. Todd Smith(4) (1)Tohoku Univ., (2)Univ. Tokyo, (3)ISAS/JAXA, (4)Johns Hopkins Univ.
16:15-16:35		Passive subsurface radar for exploration of the subsurface structures of Jupiter's icy moons by JUICE/RPWI	A. Kumamoto(1), Y. Kasaba(1), F. Tsuchiya(1), H. Misawa(1), T. Kimura(1), W. Puccio(2), J.-E. Wahlund(2), J. Bergman(2), B. Cecconi(3), and W. Kofman(4) (1)Tohoku Univ., (2)Swedish Inst. Space Phys. (3)Obs. de Paris, (4)CNRS IPAG
16:35-16:55	Invited	Science Objectives of Ice Giant - KBO Exploration	K. M. Sayanagi(1), A. A. Simon(2), M.D. Hofstadter(3), S. Alan Stern(4) (1)Hampton Univ., (2)NASA GSFC, (3)JPL/Caltech, (4)SwRI

16:55-17:05 break

17:05-18:35 Poster Session #1 (core-time for odd-numbered posters)

19:00-21:00 Banquet@ Restaurant AOSIS

Feb. 19 AM

9:00-12:00 Mercury and Small Bodies (Chair: G. Murakami (ISAS/JAXA) and M. Nishino (Nagoya Univ.))

9:00-9:40	Keynote	Mercury's surface-exosphere-magnetosphere interaction	F. Leblanc(1) (1)LATMOS/CNRS, Sorbonne Univ.
9:40-10:00		Open questions awaiting the BepiColombo mission	G. Murakami(1), M. Fujimoto(1), and BepiColombo Science Working Team (1)ISAS/JAXA
10:00-10:20	Invited	Early inner Solar System inferred from unique surface chemistry of Mercury	S. Kamata(1) and K. Kuramoto(2) (1)Creative Res. Inst., Hokkaido Univ. (2)Dept. CosmoSci. Hokkaido Univ.

10:20-10:40 break

10:40-11:00	Invited	Plasma circulation and precipitation at Mercury	D. C. Delcourt(1) (1)LPC2E, CNRS-Orleans Univ.
11:00-11:20	Invited	First In-situ Observations of Exospheric Response to CME Impact at Mercury	J. M. Raines(1), K. L. Wallace(1), M. Sarantos(2), J. M. Jasinski(3), P. J. Tracy(1), R. M. Dewey(1), M. J. Weberg(4) and J. A. Slavin(1) (1)Dept. Climate Space Sci. Eng., Univ. Michigan, (2)Heliophys. Sci. Div., GSFC, (3)Interstellar Heliospheric Phys., JPL, (4)Solar Heliospheric Phys. Branch, NRL
11:20-11:40	Invited	Space weathering of airless bodies due to solar wind interaction	Y. Nakauchi(1) (1)JAXA
11:40-12:00	Invited	Possibility of presence of whistler mode chorus at Mercury	S. Kurita(1) and G. Murakami(2) (1)ISEE, Nagoya Univ., (2)ISAS/JAXA

12:00-13:00 Lunch

Feb. 19 PM

13:00-14:00 Mercury and Small Bodies (Chair: H. Usui (Kobe Univ.) and S. Kamata (Hokkaido Univ.))

13:00-13:20	Invited	HERA and Heavy Metal – Science at asteroids	J.-E. Wahlund(1), T. Kohout(2), D. Andrews(1), Y. Futaana(3), N. Ivchenko(4), L. Roth(4), A. Master(5), A. Herique(6), P. Tortora(7), J. Trigo-Rodriguez(8), A. Matsuoka(9), S. Kasahara(10), H. Kojima(11), Y. Kasaba(12), N. Thomas(13), M. C. De Sanctis(14), M. Shepard(15), S. Simon(16) (1)Swedish Inst. Space Phys., Uppsala, (2)FMI, Helsinki, (3)IRF, Kiruna, (4)KTH, Stockholm, (5)Imperial Col., London, (6)IPAG/PLANETO, Grenoble, (7)Univ. Bologna, (8)CsiC-IEEC, Barcelona, (9)ISAS, Tokyo, (10)Univ. Tokyo, (11)Kyoto Univ., (12)Tohoku Univ., (13)Univ. Bern, (14)INAF-IAPS, Roma, (15)Bloomsburg Univ., (16)GIT, Atlanta
13:20-13:40		Martian Moons eXploration: elucidating the formation of habitable planets in the early solar system	K. Kuramoto(1,2), Y. Kawakatsu(2), M. Fujimoto(2), J. P. Bibring(3), D. Lawrence(4), H. Genda(5), N. Hirata(6), T. Imamura(7), S. Kameda(8), K. Matsumoto(9), H. Miyamoto(7), T. Morota(10), H. Nagaoka(2), H. Nakagawa(11), T. Nakamura(11), K. Ogawa(12), H. Otake(2), M. Ozaki(2), S. Sasaki(13), H. Senshu(14), S. Tachibana(7,2), N. Terada(11), T. Usui(2), K. Wada(14), S.-I. Watanabe(10), MMX study team (1)Hokkaido Univ., (2)JAXA, (3)IAS, (4)APL, (5)Tokyo Inst. Tech., (6)Aizu Univ., (7)Univ. Tokyo, (8)Rikkyo Univ., (9)NAOJ, (10)Nagoya Univ., (11)Tohoku Univ., (12)Kobe Univ., (13)Osaka Univ., (14)Chiba Inst. Tech.
13:40-14:00		Implantation of Martian Materials in the Inner Solar System by a Mega Impact on Mars	R. Hyodo(1) and H. Genda(1) (1)ELSI, Tokyo Inst. Tech.

14:00-14:20 Break

14:20-17:20 Regular / Young Researchers #1 (Chair: M. Takagi (Kyoto Sangyo Univ.) and H. Nakagawa (Tohoku Univ.))

14:20-14:40	Invited	Transport and energization of planetary ions in the magnetospheric flanks of Mercury	S. Aizawa(1), D. Delcourt(2), and N. Terada(1) (1)Tohoku Univ., (2)LPC2E-CNRS
14:40-15:00	Invited	Runaway climate cooling of ocean planet in the habitable zone	A. Nakayama(1), T. Kodama(2, 3), M. Ikoma(1) and Y. Abe(1) (1)Dept. Earth Planet. Sci., Univ. Tokyo, (2)Atmos. Ocean Res. Inst., Univ. Tokyo, (3)Lab. Astrophys. Bordeaux, Univ. Bordeaux
15:00-15:20	Invited	Analyses on dust lifting processes simulated by a high-resolution LES for the Martian atmospheric boundary layer	K. Murahashi(1), K. Suto(2), S. Nishizawa(3), M. Ishiwatari(4), M. Odaka(4), K. Nakajima(5), S. Takehiro(6), K. Sugiyama(7), H. Ogihara(2), Y. O. Takahashi(8), Y.-Y. Hayashi(8) (1)Grad. School Sci., Hokkaido Univ., (2)Japan Meteorological Agency, (3)RIKEN/R-CCS, (4)Fac. Sci., Hokkaido Univ., (5)Fac. Sci., Kyushu Univ., (6)Res. Inst. Math. Sci., Kyoto Univ., (7)Nat'l Inst. Tech., Matsue Col., (8)Grad. School Sci., Kobe Univ.
15:20-15:40	Invited	Atmospheric chemistry simulations for TGO-NOMAD with the GEM-Mars GCM	L. Neary(1), F. Daerden(1), S. Viscardy(1), A.-C. Vandaele(1) and the NOMAD team (1)Royal Belgian Inst. Space Aeronomy

15:40-16:00 Break

16:00-16:20	Invited	Multiple Scattering OMEGA/MEx Limb Spectral Inversion	A. Mahieux(1,2,3), S. Aoki(2,3), M. Toyooka(4), H. Iwabuchi(4), H. Nakagawa(4), G. Bellucci(5), Y. Kasaba(4) (1)Belgian Inst. Space Aeron., Belgium, (2)Fonds Nat'l Rech. Sci., Belgium, (3)Univ. Texas at Austin, Texas, (4)Tohoku Univ., (5)Inst. Nazionale Astrofis., Italy
16:20-16:40	Invited	Effects of an intrinsic magnetic field on atmospheric escape from Mars	S. Sakai(1), K. Seki(1), N. Terada(2), H. Shinagawa(3), T. Tanaka(3,4) and Y. Ebihara(5) (1)Grad. School Sci., Univ. Tokyo, (2)Grad. School Sci., Tohoku Univ., (3)Nat'l Inst. Inform. Comm. Tech., (4)ICSWSE, Kyushu Univ., (5)RISH, Kyoto Univ.
16:40-17:00		Reliable short-term spatial patterns in Venus UV albedo at 283nm and their periods	P. Kopparla(1), T. Imamura(1), Y. J. Lee(1), A. Yamazaki(2) (1)GSFS, Univ. Tokyo, (2)ISAS/JAXA
17:00-17:20		Restoration of Akatsuki/IR2 Venus night-side images and physical properties of clouds	T. Satoh(1,2), T. M. Sato(3), C. W. Vun(2) (1)ISAS/JAXA, (2)SOKENDAI, (3)Hokkaido Inform. Univ.
17:20-17:40		Convection and waves in planetary and stellar atmospheres	T. Imamura(1) (1)Grad. School Frontier Sci., Univ. Tokyo

Feb. 19 PM

17:40-17:50 Break

17:50~ **Future Plans (Chair: M. Nakamura (ISAS/JAXA) and N. Terada (Tohoku Univ.))**

splinter		Planning for U.S. Planetary Science Decadal Survey	K. M. Sayanagi(1) (1)Hampton Univ.
splinter		PhoENiX (Physics of Energetic and Non-thermal Plasmas in the X-region)	N. Narukage(1), M. Oka(2), Y. Fukazawa(3), T. Sakao(4), S. Watanabe(4), K. Matsuzaki(4), S.-N. Ishikawa(5), K. Hagino(6), S. Takasao(5), M. Shimojo(1), H. Tanabe(7), T. Takashima(4), I. Shinohara(4), T. Takahashi(8), M. Ueno(9), and PhoENiX WG (1)Nat'l Astron. Obs. Japan, (2)UC, Berkeley, (3)Hiroshima Univ., (4)ISAS/JAXA, (5)Nagoya Univ., (6)Tokyo Univ. Sci., (7)Univ. Tokyo, (8)Kavli IPMU, (9)Kobe Univ.

Feb. 20 AM

9:00-11:00 **Comparative Planetology (Chair: T. Kimura (Tohoku Univ.) and H. Kurokawa (Tokyo Inst. Tech.))**

9:00-9:20	Invited	Comparative planetary magnetospheres: Planetary and exoplanetary auroral processes	J. D. Nichols(1) (1)Univ. Leicester
9:20-9:40	Invited	An Idealized Study on Planetary-Parameter Dependence of Atmospheric General Circulation	H. Kashimura(1) (1)Cent. Planet. Sci./Dept. Planetology, Kobe Univ.
9:40-10:00	Invited	Comparative oceanic circulation of super-Earths, Earth, and ice-covered moons	J. C. Goodman(1) (1)Wheaton Col., Norton MA USA
10:00-10:20	Invited	Comparative magmatism-mantle convection systems: Implication for outgassing history	M. Ogawa(1) (1)Dept. Earth Sci. Astron., Univ. Tokyo
10:20-10:40	Invited	Comparative Climatology of Terrestrial Planets around Different Stars	R.M. Ramirez(1) (1)ELSI, Tokyo Inst. Tech.
10:40-11:00	Invited	Comparative stellar and planetary winds	T. K. Suzuki(1), Y. Tanaka(2) (1)Univ. Tokyo, (2)Tokyo Inst. Tech.

11:00-11:10 Break

11:10-12:40 **Poster Session #2 (core-time for even-numbered posters)**

12:40-13:40 Lunch

Feb. 20 PM ***Location: Room No. 203 in Science Complex A bldg. 2F**

13:40-17:20 **Exoplanets (Chair: M. Ikoma (Univ. Tokyo) and Y. Ito (Hokkaido Univ. / Univ. Tokyo))**

13:40-14:20	Keynote	Theoretical studies of exoplanetary atmospheres: Current understanding and future perspective	M. Ikoma(1) (1)Dept. Earth Planet. Sci., Univ. Tokyo
14:20-14:40	Invited	Characterizing the Present and Evolution of Planetary Atmospheres from Exoplanet Observations	P. E. Cubillos(1), L. Fossati(1), H. Lammer(1) (1)Space Res. Inst., Austrian Academy of Sci.
14:40-15:00	Invited	TESS and MuSCATs observations of exoplanets	A. Fukui(1) (1)Grad. School Sci., Univ. Tokyo
15:00-15:20	Invited	Formation of Exoplanetary Atmospheres	Y. Hori(1,2) (1)Astrobiology Cent. (2) Nat'l Astron. Obs. Japan

15:20-15:40 break

15:40-16:00		MHD and DSMC modeling of extended exoplanetary atmospheres: Implication for atmospheric evolution	N. Terada(1) and K. Terada(1) (1)Grad. School Sci., Tohoku Univ.
16:00-16:20	Invited	Do Habitable Worlds Require Magnetic Fields?	D. Brain(1,2), K. Seki(2), H. Egan(1), R. Jarvinen(3), Y. Ma(4), M. Holmstrom(5), R. Ramstad(1), T. Weber(1), R. Jolitz(1) (1)LASP, Univ. Colorado Boulder, (2)Depr. Earth Planet. Sci., Univ. Tokyo, (3)Finnish Meteorological Inst., (4)Dept. Earth, Planet. Space Sci., UCLA, (5)IRF - Kiruna
16:20-16:40		Hydrodynamic escape of mineral atmospheres from hot rocky exoplanets	Y. Ito(1,2) and M. Ikoma(2) (1)Hokkaido Univ., (2)Univ. Tokyo
16:40-17:00	Invited	High Dispersion Spectroscopy for Exoplanet Characterization	H. Kawahara(1) (1)Univ. Tokyo
17:00-17:20		Additional UV instruments for exoplanetary science for WSO-UV and ARIEL	S. Kameda(1), G. Murakami(2), T. Kodama(3), Y. Kawashima(4), M. Ikoma(3), K. Enya(2), N. Narita(3), N. Terada(5), H. Fujiwara(6) (1)Rikkyo Univ., (2)JAXA, (3)Univ. Tokyo, (4)SRON, (5)Tohoku Univ., (6) Seikei Univ.

17:20-17:40 break

Feb. 20 PM ※Location: Room No. 203 in Science Complex A bldg. 2F

17:40-18:40 Regular / Young Researchers #2 (Chair: S. Sakai (Univ. Tokyo) and T. Sakanoi (Tohoku Univ.))

17:40-18:00		Generation mechanisms of Martian diffuse aurora and possible visualization of the space environment around Mars	K. Seki(1), T. Hara(2), R. J. Lillis(2), D. A. Brain(3), N. Terada(4), D. E. Larson(2), D. L. Mitchell(2), J. R. Espley(5), J. G. Luhmann(2), N. M. Schneider(3), S. K. Jain(3), and B. M. Jakosky(3) (1)Grad. School Sci., Univ. Tokyo, (2)SSL, Univ. California, Berkeley, (3)LASP, Univ. Colorado, Boulder, (4)Grad. School Sci., Tohoku Univ., (5)NASA GSFC
18:00-18:20		Study of Heavy Ion Outflows from Mars through the Induced Magnetotail Based on MAVEN Observations	S. Inui(1), K. Seki(1), S. Sakai(1), D. A. Brain(2), T. Hara(3), J. P. McFadden(3), J. S. Halekas(4), D. L. Mitchell(3), G. A. DiBraccio(5), and B. M. Jakosky(2) (1)Dept. Earth Planet. Sci., Grad. School Sci., Univ. Tokyo, (2)Lab. Atmos. Space Phys., Univ. Colorado Boulder, (3)Space Sci. Lab., Univ. California, Berkeley, (4)Dept. Phys. Astron., Univ. Iowa, (5)NASA GSFC
18:20-18:40		Effects of an Intrinsic Magnetic Field on Ion Loss from Ancient Mars	R. Sakata(1), K. Seki(1), S. Sakai(1), N. Terada(2), H. Shinagawa(3), T. Tanaka(3,4) (1)Grad. School Sci., Univ. Tokyo, (2)Grad. School Sci., Tohoku Univ., (3)Nat'l Inst. Inform. Comm. Tech., (4)Internat'l Cent. Space Weather Sci. Edu., Kyushu Univ.

Feb. 21 AM

9:00-10:00 Regular / Young Researchers #3 (in Japanese) (Chair: Y. Katoh and A. Kumamoto (Tohoku Univ.))

9:00-9:20		Suzaku Observations of Jupiter's X-rays around Solar Maximum	M. Numazawa(1), Y. Ezo(1), K. Ishikawa(2), T. Ohashi(1), Y. Miyoshi(3), T. Kimura(4), and Y. Uchiyama(5) (1)Dept. Phys. Tokyo Metropol. Univ., (2)ISAS, JAXA, (3)ISEE, Nagoya Univ., (4)Dept. Geophys., Tohoku Univ., (5)Dept. Phys., Rikkyo Univ.
9:20-9:40		Periodicity analysis of thermal infrared radiation from Venus	N. Kajiwara(1), T. Imamura(1), M. Taguchi(2), T. Fukuhara(2), T. Koyama(3) (1)Grad. School Frontier Sci., Univ. Tokyo, (2)Rikkyo Univ., (3)Nat'l Instit. Advanced Industrial Sci. Tech.
9:40-10:00		主成分分析を用いた金星の雲の形態的特徴抽出	M. Narita(1), T. Imamura(1), Y. Nara(1), Y. J. Lee(2), S. Watanabe(3), A. Yamazaki(2), T. Satoh(3), M. Taguchi(4), T. Fukuhara(4), M. Yamada(5) (1)Univ. Tokyo, (2)JAXA/ISAS, (3)Hokkaido Inform. Univ., (4)Rikkyo Univ., (5)Chiba Inst. Tech.

10:00-10:20 break

10:20-12:40 Aquaplanetology (in Japanese) (Chair: T. Usui (ISAS/JAXA) and S. Aoki (Royal Belgian Inst. Space Aeron.))

10:20-10:30		The aim of this session	Y. Sekine (ELSI, Tokyo Inst. Tech.)
10:30-11:00	Keynote	Asteroid (162173) Ryugu by Hayabusa2	S. Sasaki(1), S. Sugita(2), S. Watanabe(3), N. Namiki(4), and Hayabusa2 Team(5) (1)Osaka Univ., (2)Univ. Tokyo, (3)Nagoya Univ., (4)Nat'l Astron. Obs. Japan, (5)ISAS/JAXA
11:00-11:20	Invited	Thermal Evolution of Planetesimals and Its Effect on Their Interior	S. Wakita(1) (1)ELSI, Tokyo Inst. Tech.
11:20-11:40	Invited	Thermodynamic Analysis of Water-Rock Reactions in C-Type Asteroid	T. Shibuya(1), Y. Sekine(2), S. Kikuchi(1), K. Fukushi(3), T. Nakamura(4), and S. Watanabe(5) (1)Dept. Subsurface Geobiolog. Analysis Res., JAMSTEC, (2)ELSI, Tokyo Inst. Tech., (3)Inst. Nature Environ. Tech., Kanazawa Univ., (4)Grad. School Sci., Tohoku Univ., (5)Dept. Earth Planet. Sci., Nagoya Univ.
11:40-12:00	Invited	円盤の化学進化：初期物質との比較	H. Nomura(1) (1)Tokyo Inst. Tech.
12:00-12:20	Invited	Water budget on early terrestrial planets	K. Hamano(1) (1)ELSI, Tokyo Inst. Tech.
12:20-12:40	Invited	Sugar formation in our solar system	Y. Furukawa(1) (1)Dept. Earth Sci., Tohoku Univ.

12:40-13:40 Lunch

Feb. 21 PM

13:40-17:45 Aquaplanetology (in Japanese) (Chair: H. Nakagawa (Tohoku Univ.) and R. Noguchi (ISAS/JAXA))

13:40-14:20	Keynote	Climate and Aqueous Environment of Early Mars Inferred from Authigenic Minerals	K. Fukushi(1) (1)Inst. Nature Environ. Tech., Kanazawa Univ.
14:20-14:40	Invited	The Climate and Redox State of Early Mars: Insights from Volatile Isotopic Compositions	H. Kurokawa(1) (1)ELSI, Tokyo Inst. Tech.
14:40-15:00		Escape and evolution of the Martian atmosphere: Influence of carbon escape	N. Terada(1), R. Yagi(1), K. Toriumi(1), Y. Nakamura(1), S. Koyama(1), and K. Terada(1) (1)Grad. School Sci., Tohoku Univ.
15:00-15:20		Groundwater hydrology and water-rock reactions around Gale Crater on early Mars.	N. Noda(1,2), Y. Sekine(1), S. Tan(1,2), T. Shibuya(3), H. Genda(1) (1)ELSI, Tokyo Inst. Tech., (2)Dept. Earth Planet. Sci., Univ. Tokyo, (3)Dept. Subsurface Geobiolog. Analysis Res., JAMSTEC
15:20-15:40		Water cycle on Mars revealed by space-born and ground-based observations	H. Nakagawa(1), S. Aoki(1,2), N. Terada(1), Y. Kasaba(1), N. Yoshida(1), K. Takami(1), M. Toyooka(1), A. Miyamoto(1), MMX-MacOmega team (1)Tohoku Univ., (2)IABS, Belgium

15:40-16:00 Break

16:00-16:20	Invited	X線分光による化学種解析に基づく火星の表層環境に関する研究	高橋嘉夫(1)、菅大暉(1)、秦海波(1)、鈴木慧花(1)、 山口亮(2)、臼井寛裕(3) (1)Grad. School Sci., Univ. Tokyo, (2)Nat'l Inst. Polar Res., (3)JAXA
16:20-16:40		GCM Simulations of the Water Environment on Mars: Present and Past	T. Kuroda(1,2), A. Kamada(1), K. Toriumi(1), Y. Kasaba(1), N. Terada(1) and H. Nakagawa(1) (1)Dept. Geophys., Tohoku Univ., (2)NICT
16:40-17:00	Invited	Subsurface structure of Coprates Chasma, Mars	R. Noguchi(1), K. Ishiyama(1), A. Kumamoto(2), C. Uemura(3), A. Oura(2) and T. Usui(1) (1)ISAS/JAXA, (2)Grad. School Sci., Tohoku Univ., (3)Dept. Space Science, Sokendai
17:00-17:20	Invited	First results from TGO/NOMAD	S. Aoki(1), A.C. Vandaele(1), I. Thomas(1), M. Patel(2), G. Bellucci(3), J.J. Lopez-Moreno(4) and the NOMAD team (1)Royal Belgian Inst.Space Aeron. Belgium, (2)Open Univ., UK, (3)Istituto di Astrofisica e Planetologia, Italy, (4)Instituto de Astrofisica de Andalucia, Spain.
17:20-17:40		Exploring the Atmosphere of Mars with Remote Observations and Numerical Studies: Belgium-Japan partnership 2017-2019, and the Next	Y. Kasaba(1), H. Nakagawa(1), H. Sagawa(2), T. Kuroda(1,3), T. Imamura(4), Y. Kasai(3), A. Yamazaki(5), T.M. Sato(6), H. Maezawa(7), M. Taguchi(8), H. Kashimura(9), I. Murata(1), N. Terada(1), T. Sakanoi(1), A.C. Vandaele(10), S. Aoki(10), S. Robert(10), V. Wilquet(10), A. Mahieux(10), S. Bauduin(10), F. Daerden(10), L. Neary(10), S. Viscardy(10), P.F. Coheur(11) (1)Tohoku Univ., (2)Kyoto Sangyo Univ., (3)NICT, (4)Univ. Tokyo, (5)JAXA, (6)Hokkaido Info. Univ., (7)Osaka Pref. Univ., (8)Rikkyo Univ., (9) Kobe Univ., (10)IASB, (11)ULB
17:40-17:45		Final words	Y. Kasaba (Tohoku Univ.)

Posters (Core-time: Odd-numbered posters in 17:05-18:35 on Feb. 18, Even-numbered posters in 11:10-12:40 on Feb. 20)

P1	Circulation of plasma in the Jupiter's inner magnetosphere revealed from time variation in radial profile of plasma temperature and density obtained by Hisaki/EXCEED observation	R. Hikida(1), K. Yoshioka(2), F. Tsuchiya(3), M. Kagitani(3), G. Murakami(4), T. Kimura(5), A. Yamazaki(4) and I. Yoshikawa(2) (1)Grad. School Sci., Univ. Tokyo, (2)Grad. School Frontier Sci., Univ. Tokyo, (3)Grad. School Sci., Tohoku Univ., (4)ISAS/JAXA, (5)Frontier Res. Inst. Interdiscipl. Sci., Tohoku Univ.
P2	Structure of Io plasma torus observed from Haleakala T60	M. Kagitani(1) (1)PPARC, Tohoku Univ.
P3	The influence of Io's 2015 volcanic activity on Jupiter's magnetospheric dynamics	K. Yoshioka(1), F. Tsuchiya(2), M. Kagitani(2), T. Kimura(2), G. Murakami(3), D. Fukuyama(3), A. Yamazaki(3), I. Yoshikawa(1), M. Fujimoto(3) (1)Univ. Tokyo, (2)Tohoku Univ., (3)ISAS/JAXA
P4	Axisymmetric conductivities of Jupiter's middle- and low-latitude ionosphere	Y. Nakamura(1), K. Terada(1), C. Tao(2) N. Terada(1), Y. Kasaba(1), H. Kita(5), A. Nakamizo(2), A. Yoshikawa(3), S. Ohtani(4), F. Tsuchiya(1), M. Kagitani(1), T. Sakanoi(1), G. Murakami(5), K. Yoshioka(6), T. Kimura(1), A. Yamazaki(5), and I. Yoshikawa(6) (1)Tohoku Univ., (2)NICT, (3)Kyushu Univ., (4)APL, Johns Hopkins Univ., (5)ISAS, (6)Univ. Tokyo
P5	Stratospheric wind system of Jupiter: analysis of ALMA archive data	H. Kita(1), H. Sagawa(2), T. Iino(3), C. Tao(4), T. Kuroda(4), F. Tsuchiya(5), H. Misawa(5), Y. Kasaba(5), M. Fujimoto(1) (1)ISAS/JAXA, (2)Kyoto Sangyo Univ., (3)Tokyo Univ. Agriculture Tech., (4)NICT, (5)PPARC, Tohoku Univ.
P6	Expected Source Region of Jupiter's Hectometric Radiation Relating to Magnetotail Reconnection	H. Misawa(1), F. Tsuchiya(1) and T. Mizuguchi(1,2) (1)Tohoku Univ., (2)COMAS Co. Ltd.
P7	Influence of 500-50keV electron elastic collision with H ₂ O originated from Enceladus: test particle simulation	H. Tadokoro(1), and Y. Katoh(2) (1)Musashino Univ., (2)Tohoku Univ.
P8	High Frequency receiver of Radio and Plasma Waves Investigation onboard the JUICE spacecraft	F. Tsuchiya(1), Y. Kasaba(1), C. Baptiste(2), H. Kita(3), T. Kimura(1), A. Kumamoto(1), H. Misawa(1), Y. Katoh(1), Y. Kasahara(4), T. Imachi(4), H. Kojima(5), S. Yagitani(4), M. Ozaki(4), K. Ishisaka(6), Y. Miyoshi(7), J. Bergman(8), W. Puccio(8), D. Pelikan(8), R. Gill(8), and J. E. Wahlund(8) (1)Tohoku Univ., (2)Obs. de Paris, (3)ISAS/JAXA, (4)Kanazawa Univ., (5)Kyoto Univ., (6)Toyama Pref Univ., (7)Nagoya Univ., (8)IRF Uppsala
P9	Development of ion sources for neutral particle mass spectrometry in solar system exploration	Y. Okitsu(1), S. Kasahara(1), S. Sugita(1), Y. Saito(2), M. Hirahara(3), S. Yokota(4) (1)Univ. Tokyo, (2)ISAS/JAXA, (3)Nagoya Univ., (4)Osaka Univ.
P10	Planetary atmospheric monitoring with the Tohoku University Haleakala telescopes: current status and future plan	T. Sakanoi(1), M. Kagitani(1), H. Nakagawa(1), Y. Hirahara(2), M. Akiyama(1), T. Mlyata(3), Y. Kasaba(1), S. Okano(1) (1)Grad. School Sci., Tohoku Univ., (2)Nagoya Univ., (3)Univ. Tokyo
P11	Japan's participation in ESA's Fast mission	S. Kasahara(1), R. Funase(1), S. Kameda(2), M. Ozaki(3), Y. Saito(4), K. Wada(5), and I. Yoshikawa(1) (1)Univ. Tokyo, (2)Rikkyo Univ., (3)Kanazawa Univ., (4)ISAS/JAXA, (5)Chiba Inst. Tech.
P12	Cross-reference simulations by scalable communication library for the study of wave-particle interactions in planetary magnetospheres	Y. Katoh(1), K. Fukazawa(2), and T. Nanri(3) (1)Tohoku Univ., (2)Kyoto Univ., (3)Kyushu Univ.
P13	Influences of inner core radius on thermal convection in a rotating spherical shell near the critical Rayleigh number	Y. Nishida(1), Y. Katoh(1), H. Matsui(2), M. Matsushima(3), and A. Kumamoto(1) (1)Tohoku Univ., (2)Univ. California Davis, (3)Tokyo Inst. Tech.
P14	Cloud tracking in Venu using Rotation Invariant Phase Only Correlation	K. Muto(1), T. Imamura(1), J. Peralta(2), S. Watanabe(3), A. Yamazaki(2) (1)Grad. School Frontier Sci., Univ. Tokyo, (2)ISAS/JAXA, (3)Cosmosci., Hokkaido Univ.
P15	Mean meridional circulation in the Venus upper atmosphere	M. Takagi(1), N. Sugimoto(2), H. Kashimura(3), H. Ando(1), and Y. Matsuda(4) (1)Kyoto Sangyo Univ., (2)Keio Univ., (3)Kobe Univ./CPS, (4)Tokyo Gakugei Univ.

P16	Interaction between the thermosphere and the cloud-level atmosphere of Venus inferred by the simultaneous observation of Hisaki and Akatsuki	Y. Nara(1), T. Imamura(1), I. Yoshikawa(1), K. Yoshioka(1), K. Masunaga(2), A. Yamazaki(3), S. Watanabe(4), M. Yamada(5), Y. J. Lee(1), N. Terada(6), K. Seki(7) (1)Dept. Complexity Sci. Eng., Univ. Tokyo, (2)Swedish Inst. Space Phys., (3)ISAS/JAXA, (4)Hokkaido Inform. Univ., (5)Planet. Explor. Res. Center, Chiba Inst. Tech., (6)Planet. Atmos.Phys. Group, Tohoku Univ., (7)Dept. Earth Planet. Sci., Univ. Tokyo.
P17	Venusian cloud physics simulated by a general circulation model	H. Ando(1), M. Takagi(1), N. Sugimoto(2), H. Sagawa(1) and Y. Matsuda(3) (1)Kyoto Sangyo Univ., (2)Keio Univ., (3)Tokyo Gakugei Univ.
P18	Venusian atmospheric general circulation model for the Earth Simulator (AFES-Venus) local ensemble transform Kalman filter (LETKF) data assimilation system (VALEDAS)	N. Sugimoto(1), A. Yamazaki(2), T. Kouyama(3), H. Kashimura(4), T. Enomoto(5), and M. Takagi(6) (1)Keio Univ., (2)JAMSTEC, (3)AIST, (4)Kobe Univ., (5)Kyoto Univ., (6)Kyoto Sangyo Univ.
P19	Stationary wavy features and band structure at Venusian cloud top extracted by averaging multiple LIR images	K. Fukuya(1), T. Imamura (1), M. Taguchi(2), T. Fukuhara(2) and T. Kouyama(3) (1)Univ. Tokyo, (2)Rikkyo Univ., (3)AIST
P20	Temperature and Wind in Venusian mesosphere and lower thermosphere by mid-infrared heterodyne spectrometer in 2018	K. Takami(1), H. Nakagawa(1), H. Sagawa(2), I. Murata(1), Y. Kasaba(1), A. Miyamoto(1) (1)Grad. School Sci., Tohoku Univ., (2)Div. Sci., Kyoto Sangyo Univ.
P21	Wavelet analysis of radio occultation temperatures of Venus atmosphere	R. Mori(1), T. Imamura(1), Javier Peralta(2) (1)Grad. School Frontier Sci., Univ. Tokyo, (2)ISAS/JAXA
P22	Decrease of IMF strength on the lunar dayside and above the polar region observed by Kaguya	M.N. Nishino(1), Y. Saito(2), H. Tshunakawa(3), Y. Kasahara(4), Y. Harada(5), S. Yokota(6), F. Takahashi(7), M. Matsushima(3), H. Shibuya(8), and H. Shimizu(9) (1)ISEE, Nagoya Univ., (2)JAXA/ISAS, (3)Tokyo Inst. Tech., (4) Kanazawa Univ., (5)Kyoto Univ., (6)Osaka Univ., (7)Kyushu Univ., (8)Kumamoto Univ., (9)ERI, Univ. Tokyo
P23	Numerical simulation on plasma dynamics at the dayside magnetopause in a small-scale magnetosphere	S. Oki(1), H. Usui(1), Y. Miyake(1), N. Terada(2), K. Seki(3), W. Miloch(4), M. Yagi(5) and Y. Katoh(2) (1)Grad. School System Inform., Kobe Univ., (2)Grad. School Sci., Tohoku Univ., (3)School Sci., Univ. Tokyo, (4)Dept. Phys., Univ. Oslo, (5)RIKEN Adv. Inst. Comput. Sci.
P24	Retrieval of vertical aerosol and gas profiles considering multiple scattering from Martian limb observations by MRO/CRISM	M. Toyooka(1), A. Mahieux(3,4,5), H. Iwabuchi(2), S. Aoki(3,4,1), H. Nakagawa(1), Y. Kasaba(1) (1)Dept. Geophys., Tohoku Univ., (2)Cent. Atmos. and Oceanic Studies, Tohoku Univ., (3)Planet. Aeron., Belgian Inst. Space Aeron., Belgium, (4)Fonds Nat'l Rech. Sci., Belgium, (5)Univ. Texas at Austin, USA
P25	Seasonal variations of N ₂ /CO ₂ at 140 km altitude derived from MAVEN/IUVS	N. Yoshida(1), H. Nakagawa(1), N. Terada(1), H. Fujiwara(2), and T. Imamura(3) (1)Grad. School Sci., Tohoku Univ., (2)Fac. Sci. Tech., Seikei Univ., (3)Dept. Complex. Sci. Eng., Grad. School Frontier Sci., Univ. Tokyo
P26	Dark inclusion in the NWA 2900 carbonaceous chondrite: large diopside network veins formed by hydrothermal alteration	M. Takahashi(1), T. Nakamura(1), T. Shibuya(2), M. E. Zolensky(3) (1)Div. Earth Planet. Materials Sci., Tohoku Univ., (2)JAMSTEC, (3) NASA Johnson Space Cent.
P27	Experimental and Thermodynamic Study of Chondrite-Water Interaction under Anoxic Condition: Implication for the Early Stages of Aqueous Alteration in Parent Bodies	S. Kikuchi(1) and T. Shibuya(1) (1)JAMSTEC
P28	Reflectance Spectra and Thermal Inertia of the Murchison CM Chondrite with Various Grain Size and Porosity: Implication for Asteroids' Surface Composition and Physical Properties	K. Amano(1), H. Mita(1), S. Kobayashi(1), T. Nakamura(1), Y. Enokido(1), M. Matsuoka(2), N. Sakatani(2), and T. Arai(3) (1)Dept. Earth Planet. Sci., Tohoku Univ., (2)ISAS/JAXA, (3)Div. System Inform. Eng., Ashikaga Univ.
P29	Observation of the O ₂ ⁺ emissions in the Mars ionosphere with a visible spectrograph on Hareakala T60	T. Suzuki(1), M. Kagitani(1), T. Sakanoi(1) (1)Grad. School Sci., Tohoku Univ.