SuperDARN Workshop 2026 Program

(June 7-12, 2026, Sakata-Hirata Hall, Nagoya University
Higashiyama Campus, Nagoya, Japan)

June 7 (Sunday)

Registration and icebreaker at chez Jiroud (1800 – 2000)

June 8 (Monday)

Greetings / Introduction of ISEE, Nagoya University (0900-0920)

1. Radar status reports, hardware developments, data handling

Chair: Nozomu Nishitani

0920 Review of the status of SuperDARN in 2026
G Chisham

0950 SuperDARN Data Analysis Working Group Report
Kevin T. Sterne, SuperDARN Data Analysis Working Group

1000 SuperDARN DDWG summary report
Fuli Ma

1010 Scheduling Working Group Report
Evan Thomas

1020 (break)

Chair: Jiaojiao Zhang

1045 Iceland SuperDARN Radar (ICW/ICE) Update
Simon G. Shepherd, Evan G. Thomas, William A. Bristow, David Flores

1105 Current status and future directions of the Wallops radar
Alex T. Chartier

1125 High Spatiotemporal Resolution Detection Using CN-DARN Radars Based on Dual-Frequency Modes and First Results

Xiang Deng, Ai Lan Lan

1145 Recent developments of the SuperDARN Hokkaido East radar: implementation of the beam forming capability in the receiver system
Nozomu Nishitani, Yoshiyuki Hamaguchi, Tomoaki Hori, Atsuki Shinbori

1205 (lunch)

Chair: Akira Sessai Yukimatu

1330 SuperDARN and ICEBEAR Calibration Techniques
Glenn Hussey, Brian Pitzel, Remington Rohel, Pasha Ponomarenko, Saif Marei, Draven Galeschuk, Devin Huyghebaert

1350 The SuperDARN Meteor Wind Product: A 31-year archive with modeled altitude contributions and validation
Alex T. Chartier

1410 Validating phase code modulation for sub-45 km range separation modes on the USRP-based SuperDARN system
Allison Pitzl, Kevin T. Sterne, Evan G. Thomas, J. Michael Ruohoniemi

2. Analysis techniques

Chair: Pasha Ponomarenko

1430 Post-processing tool to reprocess antennas IQ data with any averaging duration
Jordan Cho, Remington Rohel, Pasha Ponomarenko, Daniel Billet

1450 New SuperDARN data products of ionospheric vorticity and merge velocity vectors from mid-latitudes to the pole
Gareth Chisham, William A. Bristow, Glenn Hussey, J. Michael Ruohoniemi, Simon G. Shepherd

1510 Data assimilation into an emulator of a magnetosphere-ionosphere model for obtaining polar ionospheric potential map (invited)
Shin'ya Nakano, Ryuho Kataoka, Shigeru Fujita, Nilam Bhosale, Aoi Nakamizo, Akira Sessai Yukimatu

1530 (break)

3. Convection / substorms part I

Chair: William A. Bristow and Mariko Teramoto

1555 Unprecedented 2-D SuperDARN flows: unexpected fundamental elements of polar cap (invited)
Larry Lyons, Yukitoshi Nishimura, Katherine Davidson, Daniel Billet, Sneha Yadav, Pasha Ponomarenko, Remington Rohel, Nozomu Nishitani, Eric Donovan, Vassilis Angelopoulos

1615 Evolution of Reversed Convection Vortices Observed by SuperDARN during a Geomagnetic Storm
Jiaojiao Zhang, Xiyu Liu, Yiqun Yu

1635 Mid-latitude SuperDARN systematically underestimates the storm-time ionospheric electric field
Maria-Theresia Walach

1655 A Superposed Epoch of SuperDARN Plasma Convection, THEMIS-All-Sky Auroral Brightness, and Their Covariance During Substorms
Matthew Flynn Wilcox

1715 Slow recovery of the plasmasphere during the May and October 2024 super geomagnetic storm
Atsuki Shinbori, Naritoshi Kitamura, Kazuhiro Yamamoto, Atsushi Kumamoto, Fuminori Tsuchiya, Shoya Matsuda, Yoshiya Kasahara, Mariko Teramoto, Ayako Matsuoka, Takuya Sori, Yuichi Otsuka, Michi Nishioka, Septi Perwitasari, Yoshizumi Miyoshi, Iku Shinohara

1735 Preliminary results of the Spring 2026 SuperDARN-Arase conjunction campaign
Tomoaki Hori, K. Hosokawa, P. Ponomarenko, N. Nishitani, A. Shinbori, Y. Miyoshi, M. Teramoto, Y. Obana, A. S. Yukimatu

1755 (Session close)

Group meetings at Research Institutes Building I (1930-2130)

June 9 (Tuesday)

4. Convection / substorms part II

Chair: Maria-Theresia Walach and Masakazu Watanabe

0900 A Statistical Study of Polar Cap Patch Occurrence and IMF Dependence

Using GNSS TEC Maps
Qingyu Zhang, Yuzhang Ma, Beichen Zhang, Qinghe Zhang, Zanyang Xing, Huixin Liu, Kjellmar Oksavik, Xiangcai Chen, Zejun Hu, Yong Wang, Jianping Wang

0920 Forecasting Polar Ionospheric Electrostatic Potentials Patterns Using Score-Based Diffusion Models and Solar Wind Drivers
Igino Coco, Francesco Pio Ramunno, Simone Mestici, Maria-Theresia Walach, André Csillaghy, Stefano Massetti

0940 A Statistical Picture of Dusk-Dawn Asymmetries in the Nightside Ionosphere
Jewel Abbey D. Relampagos, Adrian Grocott, Steve Milan

1000 Accounting for a Variable Flow Reversal Boundary Location in SuperDARN Convection Modelling
Adrian Grocott

1020 Updating ionospheric conductivity in an AI-based emulator through SuperDARN and SuperMAG data assimilation
Nilam Yashwant Bhosale, Ryuho Kataoka, Shinya Nakano, Shigeru Fujita, Akira Sessai Yukimatu, Aoi Nakamizo

1040 (break)

Chair: Atsuki Shinbori

1105 Mesoscale, short-lived Joule heating events are widespread in the polar ionosphere, and further statistics on their spatiotemporal characteristics.
Daniel Billett, Remington Rohel, Ian Mann, Glenn Hussey, Carley Martin

1125 Multi-Point Observations of Quarter-Wave Field Line Resonances Across the Magnetosphere–Ionosphere System with SuperDARN, Ground Magnetometers, Arase
Yuki Obana, Nozomu Nishitani, Keisuke Hosokawa, Tomoaki Hori, Mariko Teramoto, Atsuki Shinbori, Pavlo V. Ponomarenko, Akira S. Yukimatu, Colin L. Waters, Murray D. Sciffer, Glenn Hussey, Akimasa Yoshikawa, Yoshizumi Miyoshi, Ayako Matsuoka, Atsushi Kumamoto, Fuminori Tsuchiya, Shoya Matsuda, Yoshiya Kasahara, Iku Shinohara, Ian R. Mann, David K. Milling

1145 Stormtime electric fields at middle and low latitudes as observed by HF Doppler sounders and magnetometers during the super storm on May 10-11, 2024
Takashi Kikuchi, Kumiko Hashimoto, Keisuke Hosokawa, Tomizawa Ichiro, Ryuho Kataoka, Jaroslav Chum, Yusuke Ebihara, Yukitoshi Nishimura

1205 (lunch)

5. Subauroral / mid-latitude region processes

Chair: Alex T. Chartier and Joseph B.H. Baker

1330 Ionospheric convection during a low-latitude aurora event on Jan 1, 2025
Keisuke Hosokawa, Nozomu Nishitani, Tomoaki Hori, Atsuki Shinbori, Yuki Obana, Mariko Teramoto, Akira Sessai Yukimatu, Yoshizumi Miyoshi

1350 Distinguishing Global and Local Drivers of Low-Latitude Aurorae in November 2025
Tomotaka M. Tanaka, Nozomu Nishitani, Kiyoka Murase

1410 Low latitude auroras and ionospheric convection during a moderate geomagnetic storm event (March 2025)
Ryuki Yoda, Nozomu Nishitani, Tomoaki Hori, Atsuki Shinbori, Kazuo Shiokawa, Keisuke Hosokawa, Yuki Obana, Mariko Teramoto

1430 Auroral activity observed from unusual latitudes in China and its underlying significance
Jiaojiao Zhang, Xiang Deng, Jiyao Xu, Hui Li, Hang Li, Wei Wang, Jianyun Liang, Simon G. Shepherd, Evan G. Thomas, Ailan Lan, Jingye Yan, Zheng Wang, Qing-He Zhang, Ziqian Liu, Xinyue Wang, Fuqing Huang, Xianguo Zhang, Weiguo Zong, Chi Wang

1450 (break)

6. Special paper-I

Chair: Joseph B.H. Baker

1515 40 Years with HF Radar for Ionospheric Research: Experiences, Highlights, Fun Facts (invited)
John Michael Ruohoniemi

7. Neutral processes

Chair: Yuichi Otsuka and Jianjun Liu

1545 Occurrence Characteristics of Noctilucent Clouds from Japan: Mechanism of the Morning-Evening Asymmetry (invited)

Akiho Endo, Yoshihiro Tomikawa, Peter Dalin, Takuo Tsuda, Yuriko Nakamura, Masahiro Omote, Nozomu Nishitani, Kazuyo Sakanoi, Kaori Sakaguchi, Satoshi Ishii, Katsushi Iwamoto, Hidehiko Suzuki

1605 OMTI-SuperDARN collaborative studies for the dynamics of the middle and subauroral latitude ionosphere

Kazuo Shiokawa, Nozomu Nishitani, Yuichi Otsuka, PWING Team, PBASE Team

1625 Electromagnetic conjugacy of TIDs after the 2022 HTHH volcanic eruption as seen in GNSS-TEC and SuperDARN Hokkaido pair of radars observations

Atsuki Shinbori, Yuichi Otsuka, Takuya Sori, Michi Nishioka, Septi Perwitasari, Takuo Tsuda, Nozomu Nishitani

1645 Energy conversion in the upper thermosphere based on 9-year measurements from FPI and Dynasonde in Tromsø, Norway

Shin-Ichiro Oyama, Heikki Vanhamäki, Lei Cai, Keisuke Hosokawa, Kazuo Shiokawa

1705 Investigating the Source and Characteristics of Winter Daytime MSTIDs Using the Chinese Dual Auroral Radar Network (CN-DARN)

Hang Li, Jiaojiao Zhang, Wei Wang, Yuting Wang, Yaxuan Li, Xiang Deng, Ailan Lan, Shengyang Gu, Yusong Qin, Jingye Yan, Chi Wang

1725 (session close)

Group meetings at Research Institutes Building I (1930-2130)

June 10 (Wednesday)

8. Convection / substorms part III

Chair: Glenn Hussey

0900 Wave structures in ionospheric flow and their magnetospheric counterpart: Fall 2023 SuperDARN-Arase conjunction campaign

Tomoaki Hori, K. Hosokawa, N. Nishitani, A. Shinbori, Y. Miyoshi, M. Teramoto, Y. Obana, A. S. Yukimatu, K. Keika, S. Kasahara, S. Yokota, Y. Kasaba, A. Kumamoto, F. Tsuchiya, S. Matsuda, Y. Kasahara, A. Matsuoka, Y. Kazama, S.-Y. Wang, S. W. Y. Tam

0920 Reliability of Matching AMPERE Field-Aligned Current Boundaries With SuperDARN Lower Latitude Ionospheric Convection Boundaries During Geomagnetic Storm
Maria-Theresia Walach, Alexandra Fogg, John Coxon, Adrian Grocott, Steve Milan, Harneet Sangha, Kathryn McWilliams, Sarah Vines, Mark Lester, Brian Anderson

0940 Assimilative Mapping of SuperDARN and Complementary Observations for High-Latitude Ionospheric Electrodynamics
Tomoko Matsuo, Nicholas Bartel, John Michael Ruohoniemi, Bharat Kunduri, Shibaji Chakraborty

1000 New insights into subauroral polarization stream (SAPS) using multi-frequency SuperDARN HF radar observations
Evan G. Thomas, Simon G. Shepherd, Bharat S. R. Kunduri, J. Michael Ruohoniemi, Joseph B. H. Baker

1020 (break)

9. SuperDARN / satellites / rockets / other radars collaboration part I

Chair: Yuki Obana

1045 Arase–SuperDARN Collaborative Studies of Inner Magnetospheric Dynamics (invited)
Yoshizumi Miyoshi, Iku Shinohara, Takeshi Takashima, Kazushi Asamura, Kazuo Shiokawa, Tomoaki Hori, Atsuki Shinbori, Keisuke Hosokawa

1105 The GEOspace X-ray imager mission (GEO-X) (invited)
Yuichiro Ezoe

1125 LAMP and future sounding rocket experiment for investigation of energetic particle precipitation with pulsating aurora activities (invited)
Kazushi Asamura, Yoshizumi Miyoshi, Keisuke Hosokawa, Takeshi Sakanoi, Takefumi Mitani, Taku Namekawa, Masahito Nose, Mariko Teramoto, Yasunobu Ogawa

1145 Collaboration between EISCAT_3D and SuperDARN (invited)
Yasunobu Ogawa, Advanced Radar Research promotion Center (ARRC) members

1205 (session close)

PM Schedule

Group photo
Lunchbox inside the bus
Tour to Gujo-Hachiman Castle and Traditional Town
Return to Mariott Associa Pergola (near Nagoya Station) for dinner

June 11 (Thursday)

10. SuperDARN / satellites / rockets / other radars collaboration part II

Chair: Tomoaki Hori

0900 Collaboration between SMILE mission and SuperDARN
Jiaojiao Zhang

0920 Recent advances in modeling the X-ray images expected by SMILE (invited)
Tianran Sun, Hyunju Connor, Andrey Samsonov, Steve Sembay, Chi Wang, Philippe Escoubet, Colin Forsyth

0940 Progress of the Ultraviolet Imager onboard SMILE (invited)
Fei He, Yongmei Wang

1000 (break)

11. Related programs

Chair: Akira Sessai Yukimatu

1025 Investigation of the IRI's auroral oval boundary model during the Mother's Day storm on 10-13 May 2024
Alicreance Hiyadutuje, Dieter Bilitza, Temitope Ojebisi, Malkia Kelelue, Solomon Degefa, Kibrop Webber

1045 Enhancing FAIRness of Data in SuperDARN: NSSDC's Efforts in Data Management and Services
Xin Xu, Fuli MA, Xiaoyan Hu, Qi Xu, Ziming Zou

1105 Seeing Magnetic Fields as Geometry: A Three-Direction Field-Aligned Frame Approach for the Multi-Point Observation Era (invited)

Akimasa Yoshikawa

12. Ionospheric irregularities

Chair: Adrian Grocott

1125 GPS phase and amplitude scintillation at high latitudes during the extreme geomagnetic storm of May 2024
Paul Prikryl, Anthony C. M. McCaffrey, James M. Weygand, Reza Ghoddousi-Fard, Daniel Billet, Emma Spanswick, Joshua Houghton

1145 Exploring Machine Learning Approaches for the Classification of PMSE, F-region and TID Echoes in SuperDARN Observations
Jia Zhong, Li Fu Ma, Yan Xiao Hu, Ming Zi Zou

1205 (Session close)

13. Special paper-II

Chair: Pasha Ponomarenko

1330 Are E-region echoes a nuisance in SuperDARN experimentation? (invited)
Alexandre V. Koustov

14. HF wave propagation part I

Chair: Evan G. Thomas

1400 On multi-band echoes in SuperDARN range-time maps
Pasha Ponomarenko, Glenn Hussey, Thayananthan Thayaparan, Nozomu Nishitani

1420 Statistical Analysis of Geomagnetic Responses to EUV Radiation During Solar Flares at Kakioka
Ryosuke Okubo, Kyoko Watanabe, Satoshi Masuda, Akimasa Ieda, Hidekatsu Jin, Chihiro Tao, Shinnnosuke Kitajima

1440 Derivation of Ionospheric Parameter Contributing to HF Blackouts
Kyoko Watanabe, Shinnosuke Kitajima, Hidekatsu Jin, Chihiro Tao, Satoshi Masuda,

Michi Nishioka

1500 Auroral Ionosphere Responses to Solar Wind Perturbations: A Case Study Utilizing the Polar Regions Monitoring Subsystem of the Chinese Meridian Project

Jianjun Liu, Xiangcai Chen

1520 (break)

1520-1700 poster session

P1 British Antarctic Survey Space Weather Observatory

Jo Cole

P2 The British Antarctic Survey's Falkland Island Radar

Nick Harker

P3 SENSU Syowa SuperDARN future plan towards Phase XI JARE project (2028-2034) and IPY-5

Akira Sessai Yukimatu, Nozomu Nishitani, Keisuke Hosokawa, Tomoaki Hori, Masakazu Watanabe, Hideaki Kawano, Yusuke Ebihara, Yoshimasa Tanaka, Ryuho Kataoka

P4 Future Plan for Space and Upper Atmospheric Research in JARE Phase XI

Yoshimasa Tanaka, Ryuho Kataoka, Takeshi Sakanoi, Akira Mizuno, Chihiro Kato, Akira Sessai Yukimatu, Yasunobu Ogawa, Tanakanori Nishiyama, Mizuki Fukizawa, Kiyoka Murase, Yusuke Ebihara, Yuki Hayashi, Masayoshi Kozai, Tomotaka Tanaka, Yukino Sato

P5 Development of imaging receiver system at the SuperDARN HOP east radar

Yoshiyuki Hamaguchi, Nozomu Nishitani

P6 Developing Automated SuperDARN Main-Array Calibration Using Mutual Coupling Measurements

Jordan Wiker, Alex T. Chartier

P7 MAHSSIV: a new project to globally estimate small scale plasma variability through the SuperDARN spectral width parameter

Emma E. Woodfield, Jade A. Reidy, Gareth Chisham, Daniel Whiter, Arianna Albayati

P8 The effect of virtual height models on SuperDARN data products and convection maps

Wout De Jonghe, Ben Reid, David Themens, Oliver Allanson

P9 Characteristics of the Harang Discontinuity and Its Relationship with Subauroral Polarization Streams

Bianlong Zhao, Jiaojiao Zhang, Qinghe Zhang, Zanyang Xing, Yong Wang, Yuzhang Ma

P10 Westward ion flows in the dusk-side subauroral ionosphere: Role of wave-particle interactions

Shreedevi Porunakatu Radhakrishna, Yoshizumi Miyoshi, Yiqun Yu, Vania Jordanova

P11 High-Latitude Sudden Impulse Signatures of Negative Solar Wind Pressure Pulses: Observation and Global Modeling

Geetashree Kakoti, Kazuo Shiokawa, Dong Lin, Shreedevi P.R., Nozomu Nishitani

P12 Direct Comparison of MAGE-REMIX Simulated Ionospheric Potential with SuperDARN Line-of-Sight Observations

Tristen Wanner, Joseph B.H. Baker, Slava Merkin, Bharat Kunduri, J. Michael Ruohoniemi

P13 An Examination of Ionospheric Flow Dynamics During a SAR Arc - STEVE - SAR Arc Sequence Event

Veronica Romanek, Bharat Kunduri, Joseph B.H. Baker, J. Michael Ruohoniemi, Megan Gillies, Simon Shepherd, Evan Thomas

P14 How accurate are SuperDARN convection maps?

Alexandre V. Koustov, Hayden Fast, Robert G. Gillies

P15 Nightside Severe Plasmaspheric Erosion Associated with SAPS: Evidence from Arase and SuperDARN HOK/HKW Observations

Yuki Obana, Naomi Maruyama, Atsuki Shinbori, Kumiko K. Hashimoto, Nozomu Nishitani, Tomoaki Hori, Akimasa Yoshikawa, Ayako Matsuoka, Yoshiya Kasahara, Yoshizumi Miyoshi, Iku Shinohara

P16 Intense magnetopause erosion at Earth during the May 2024 solar storm

Kazuhiro Yamamoto, Yoshizumi Miyoshi, Naritoshi Kitamura, Rumi Nakamura, Atsuki Shinbori, Ayako Matsuoka, Mariko Teramoto, Shoichiro Yokota, Satoshi Kasahara, Kunihiro Keika, Tomoaki Hori, Kazushi Asamura, Yoichi Kazama, Shiang-Yu Wang, Sunny Wing-Yee Tam, Tzu-Fang Chang, Bo-Jhou Wang, Iku Shinohara

P17 Excitation of storm-time Pc5 ULF waves using the GEMSIS magnetosphere-ionosphere coupled model: Comparison with GOES and ground observations

Tomotsugu Yamakawa, Kanako Seki, Yoshizumi Miyoshi, Kazue Takahashi, Aoi

Nakamizo, Kazuhiro Yamamoto

P18 Magnetic topology of the closed and interplanetary flux interlinkage in the magnetotail for northward IMF: Implications from MHD simulations

Masakazu Watanabe, Takashi Tanaka, Shigeru Fujita, Dongsheng Cai

P19 On the co-existence of dusk scatter echoes and ULF waves

Keisuke Hosokawa, Tomoaki Hori, Yuki Obana, Nozomu Nishitani, Mariko Teramoto, Pasha Ponomarenko, Atsuki Shinbori, Akira Sessai Yukimatu, Yoshizumi Miyoshi

P20 Observations and Mechanism Analysis of Unusual Continental Extended Poleward-Propagating Medium Scale Traveling Ionospheric Disturbances

Wei Wang, Jiaojiao Zhang, Junjie Chen, Fuqing Huang, Tong Dang, Jianyun Liang, Weijun Liu, Guoying Jiang, Hang Li, Yajun Zhu, Xiang Deng, Ailan Lan, Jingye Yan, Shunrong Zhang, Jiyao Xu, Chi Wang

P21 Study of co-seismic ionospheric disturbances following the 2025 July Kamchatka Earthquake

Nozomu Nishitani, Tomoaki Hori, Atsuki Shinbori, Pasha Ponomarenko

P22 Initial analysis result of thermospheric neutral density variations using Starlink Ephemerides

Takuya Sori, Mamoru Yamamoto

P23 Observation of shortwave fadeout events using Chinese Dual Auroral Radar Network (CN-DARN) during the severe solar storm in May 2024

Junjie Tong, Jiaojiao Zhang, Hang Li, Wei Wang, Bianlong Zhao, Wenqian Chen, Xiang Deng, Ailan Lan, Jingye Yan, Chi Wang

P24 The SuperDARN HF Radar Response to Spike Events over Kárhóll, Iceland

Xiangcai Chen

P25 Investigation of Neutral Wind Structure and Sporadic E Layer Formation Based on Meteor Echo Observations

Shinnosuke Okabe, Mariko Teramoto, Nozomu Nishitani

Banquet (1830 – 2030) at Conder House (near Fushimi Station)

June 12 (Friday)

15. HF wave propagation part II

Chair: Simon G. Shepherd

0900 Using oblique, bistatic receptions of SuperDARN signals to measure HF propagation in the auroral and polar cap regions
Riley Troyer, Jeffrey Holmes, Evan Thomas, Simon Shepherd, Eugene Dao, John Carilli, Eric Burnside, Kris Robinson

0920 Monitoring the ionospheric response to the upcoming August 2026 total solar eclipse
Evan G. Thomas, Simon G. Shepherd, Bharat S. R. Kunduri

0940 Sporadic E layer signatures in SuperDARN data
Pasha Ponomarenko, Glenn Hussey, Thayananthan Thayaparan, Nozomu Nishitani

1000 (break)

Chair: Gareth Chisham

Working group reports / PI's report / SuperDARN 2027 / etc. (1025-)

1145 Lunch - adjourn