









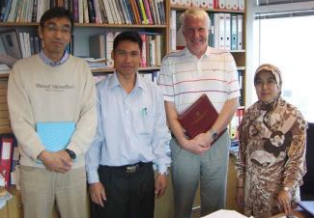






History of Iceland-Syowa Conjugate observation

| Year | Month | Participant | Special Note | NIPR staff | Other staff | Student | Total |
|------|-------|---|---|------------|-------------|---------|-------|
| 1977 | 07-09 | Natsuo Sato, Yutaka Katsuta | Campaign observation for the IMS international collaboration with French group at temporal hut in Husafell area with auroral TV camera, VLF receiver, induction magnetometer for conjugate observation with GEOS satellite | 2 | 0 | 0 | 2 |
| 1978 | 08-09 | Hiroshi Fukunishi, Ryoichi Fujii | Campaign observation for the IMS international collaboration (continued) | 2 | 0 | 0 | 2 |
| | | | | | | | |
| 1983 | 07-09 | Susumu Kokubun (Tokyo Univ.), H. Fukunishi, N. Sato | <ol style="list-style-type: none"> 1. Site survey at Husafell (HUS), Tjornes (TJO), Isafjordur (ISAF) area. 2. Start continuous observation at HUS with fluxgate magnetometer, induction magnetometer, VLF receiver. 3. Observation with all-sky camera at HUS | 2 | 1 | 0 | 3 |
| | | | | | | | |
| 1984 | 08-09 | S. Kokubun, N. Sato, R. Fujii, Takashi Araki (Hirosaki Univ.) | <ol style="list-style-type: none"> 1. Start observation at HUS with auroral TV camera, all-sky camera, fixed direction photometer, riometer. 2. Start observation at TJO with fluxgate magnetometer, induction magnetometer, VLF receiver, riometer, fixed direction photometer. 3. Start observation at ISAF with fluxgate magnetometer, induction magnetometer, VLF receiver, riometer | 2 | 2 | 0 | 4 |
| 1984 | 10 | Sumio Satsukawa, Hironari Shibano | | 2 | 0 | 0 | 2 |
| | | | | | | | |
| 1985 | 08-09 | N. Sato, R. Fujii, T. Araki | <ol style="list-style-type: none"> 1. Simultaneous observations at HUS, TJO, ISAF 2. International collaboration with Norway and Denmark for AZCO balloon experiment launched at Andoya, Norway | 2 | 1 | 0 | 3 |
| | 12 | N. Sato | Auroral observation in winter time at HUS | 1 | 0 | 0 | 1 |
| 1986 | 06-08 | N. Sato, R. Fujii | | 2 | 0 | 0 | 2 |
| | 09 | Takeo Hirasawa, Takayuki Ono | | 2 | 0 | 0 | 2 |

| | | | | | | | |
|--|-------|---|--|---|---|---|---|
| 1987 | 03 | T. Ono | | 1 | 0 | 0 | 1 |
| | 08-09 | T. Ono, Masaki Ejiri, Hisao Yamagishi, Yutaka Tonegawa (Tokai Univ.) | | 3 | 1 | 0 | 4 |
| 1988 | 08-09 | N. Sato | Site survey at Aedey (AED) for the new site moving from ISAF (Event) good conjugacy isolated arc & bad conjugacy breakup aurora event on Sep. 12, 1988 | 1 | 0 | 0 | 1 |
| 1989 | 08-09 | N. Sato, Shin Shimakura (Chiba Univ.), Y. Tonegawa | 1. Move instruments from ISAF to AED. 2. VLF direction detection preparatory measurement at HUS | 1 | 2 | 0 | 3 |
|  | | | | | | | |
| 1990 | 07 | H. Yamagishi, Masanori Nishino (Nogoya Univ.) | Install Imaging Riometer (IRIO) at TJO | 1 | 1 | 0 | 2 |
| 1990 | 08-09 | N. Sato, S. Shimakura, Y. Tonegawa | 1. Start multi-point observation of induction magnetometer at Holmer, Hof, and Efri 2. <u>VLF direction detection measurement</u> | 1 | 2 | 0 | 3 |
| 1991 | 08-09 | N. Sato, S. Shimakura, Y. Tonegawa | 1. Simultaneous observation with EXOS-D satellite. 2. Multi-point observation of induction magnetometer at Holmer, Hof, and Efri 3. VLF direction detection measurement 4. Beam pattern calibration of IRIO by airplane in September at TJO | 1 | 2 | 0 | 3 |
| | 11-12 | Takehiko Aso (Kyoto Univ.), M. Ejiri, T. Ono, Hiroshi Miyaoka | Aurora stereo observation between HUS and Efri-Brunna with auroral TV camera and scanning photometer | 3 | 1 | 0 | 4 |
| 1992 | 08-09 | T. Ono, Kazuo Makita (Takushoku Univ.), Manabu Kunitake (NICT), Kenichi Kato (Tokai Univ.) | 1. Simultaneous observation with EXOS-D satellite 2. GPS/NNSS satellite receiving TEC observation at HUS | 1 | 2 | 1 | 4 |
| 1993 | 08-09 | T. Ono, S. Shimakura, Akira Kadokura, Kazuhiro Ootaka (NICT) | 1. Simultaneous observation with EXOS-D satellite 2. VLF direction detection measurement between HUS and TJO 3. GPS/NNSS satellite receiving TEC observation at HUS 4. Test observation of new cooled CCD digital all-sky camera at HUS | 2 | 2 | 0 | 4 |
| 1994 | 08-09 | N. Sato, Masayuki Kikuchi, Sadao Takeuchi, Kumiko Hashimoto (Kyushu Univ.) | 1. 10th year anniversary party of conjugate observation in Iceland 2. Install new fluxgate magnetometer of Shimadzu Co. at HUS 3. Test observation of new auroral TV camera at HUS | 3 | 0 | 1 | 4 |
|  | | | | | | | |
| 1995 | 08-09 | N. Sato, Shoichi Okano, Masaki Okada, Akira Kurumada | Observation of detailed structure of aurora with auroral TV telescope at HUS | 3 | 0 | 1 | 4 |
| 1996 | 08-09 | N. Sato, K. Makita, Takashi Kikuchi (NICT), M. Okada, Yuiti Fujita | Observation of detailed structure of aurora with auroral TV telescope at HUS | 2 | 2 | 1 | 5 |
| 1997 | 03 | N. Sato, M. Okada, Y. Fujita, Shigeo Kuriki | LF-MF range wave observation | 2 | 1 | 1 | 4 |
| | 08-09 | N. Sato | | 1 | 0 | 0 | 1 |
| 1998 | 03 | M. Okada, Yasukazu Suzuki, Fumimaru Nakagawa (Tohoku Univ.), N. Sato, M. Kikuchi, Keiko Hasegawa | | 5 | 0 | 1 | 6 |
| | 08 | N. Sato, H. Yamagishi, M. Kikuchi, K. Kato, Yasuo Kato (Nagoya Univ.) | Install IRIO at HUS | 3 | 1 | 1 | 5 |
| 1999 | 02-03 | N. Sato, H. Yamagishi, M. Kikuchi, Hirokazu Takizawa (Tohoku Univ.) | | 3 | 0 | 1 | 4 |
| | 05-06 | N. Sato, H. Yamagishi, Tadahiko Ogawa (Nagoya Univ.), Nozomu Nishitani (Nagoya Univ.), Masakazu Watanabe, Matsuoka (Tohoku Univ.) | SuperDARN workshop at Iceland Univ. Visit Husafell after the workshop | 3 | 2 | 1 | 6 |
| | 09 | N. Sato, M. Kikuchi, Y. Suzuki, H. Takizawa, Yozo Murata | (Event) Simultaneous observation of Omega band with SuperDARN radar | 3 | 0 | 2 | 5 |
| 2000 | 09 | N. Sato, Y. Murata, H. Doi (Tokai Univ.) | | 1 | 0 | 2 | 3 |
| 2001 | 09 | N. Sato, Y. Murata, Yuichi Shinkai, H. Doi | Auroral TV camera observation at HUS, TJO, Raufarhofn, Grimsstadir | 1 | 0 | 3 | 4 |
| | 12 | N. Sato, H. Yamagishi, Y. Fujita | Simultaneous auroral observation with Iceland SuperDARN radar at TJO | 2 | 0 | 1 | 3 |
| 2002 | 09 | N. Sato, H. Miyaoka, Y. Shinkai, Kei Nakano (Shizuoka Univ.) | Auroral TV camera observation at HUS, TJO, Grimsstadir | 2 | 0 | 2 | 4 |

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|--|-------|--|---|---|---|---|---|
| 2003 | 03-04 | N. Sato, Y. Shinkai, H. Deguchi | Auroral conjugate observation at HUS, TJO, and Syowa, Dome Fuji | 1 | 0 | 2 | 3 |
| | 09 | N. Sato, H. Deguchi, E. Inui (Yamagata Univ.) | Install Be-7 air sampler of Yamagata Univ. at HUS (Event) Excellent conjugacy event on Sep. 26, 2003 (Event) Peculiar conjugate magnetic variation during total solar eclipse on Nov. 23, 2003. | 1 | 1 | 1 | 3 |
| 2004 | 09 | N. Sato, Makoto Taguchi, A. Kadokura, T. Ono, Yasuaki Hiyama (Tohoku Univ.), E. Inui | 1. Install Solar Radio wave Spectrometer at HUS 2. Observation with Multi-color fixed direction photometer at TJO 3. 20th year anniversary party of conjugate observation at Reykholt | 3 | 2 | 1 | 6 |
|   | | | | | | | |
| 2005 | 08-09 | A. Kadokura, Takuhiro Asozu (Tohoku Univ.), Y. Hiyama, Yuka Sato (Tohoku Univ.), M. Taguchi, T. Ono, S. Okano | Install CAI (Conjugate Aurora Imager) at HUS Install ARS (Aurora Radio Spectrometer) at HUS | 2 | 2 | 3 | 7 |
|    | | | | | | | |
| 2006 | 09 | A. Kadokura, T. Asozu, Y. Sato, M. Taguchi, T. Ono | Conjugate auroral observation with CAI, ATV, Watec | 2 | 1 | 2 | 5 |
| | 11 | N. Sato, Keisuke Hosokawa (Univ. Electro-Commun.) | TJO-SuperDARN simultaneous observation of Pulsating aurora | 1 | 1 | 0 | 2 |
| 2007 | 03 | A. Kadokura, Y. Sato, M. Taguchi, Y. Murata, Taiki Yamano (Univ. Electro-Commun.) | TJO-SuperDARN simultaneous observation of Pulsating aurora | 2 | 1 | 2 | 5 |
| | 09 | A. Kadokura, K. Hosokawa, Y. Sato | TJO-SuperDARN simultaneous observation of Pulsating aurora | 1 | 1 | 1 | 3 |
| 2008 | 08 | N. Sato, H. Ymagishi, Y. Sato, Koji Sakamoto | Stop & close observation at AED | 3 | 0 | 1 | 4 |
| | 08-09 | A. Kadokura, Takamitsu Mochizuki (Tohoku Univ.), K. Hosokawa, Tetsuo Motoba, Rie Sugita (Univ. Electro-Commun.), Mardina Abdullah, Wayan Suparta (UKM, Malaysia) | 1. TJO-SuperDARN simultaneous observation of Pulsating aurora 2. Install 8ch Scanning Photometer, Watec all-sky TV-camera, and GPS receiver of UKM at HUS. | 2 | 3 | 2 | 7 |
|      | | | | | | | |
|     | | | | | | | |
| 2009 | 09 | T. Motoba, K. Hosokawa, T. Mochizuki, N. Sato | 1. TJO-SuperDARN simultaneous observation of Pulsating aurora 2. Install Watec all-sky TV camera at TJO 3. Set container observation hut at HUS | 2 | 1 | 1 | 4 |
|    | | | | | | | |

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|--|-------|--|---|---|---|---|---|
| 2010 | 08-09 | H. Yamagishi, Y. Tanaka, Y. Sato, A. Kadokura, T. Motoba, M. Taguchi, K. Shigenobu | 1. TJO-SuperDARN simultaneous observation of Pulsating aurora 2. Stop observation of IRIO at TJO 3. Install new Be-7 air sampler, and re-install SPM at HUS | 5 | 1 | 1 | 7 |
|  | | | | | | | |
| 2011 | 02 | A. Kadokura | Maintenance of optical instruments at HUS and TJO | 1 | 0 | 0 | 1 |
| | 08-09 | A. Kadokura, Y. Sato, M. Taguchi, K. Shigenobu, T. Motoba, K. Hosokawa | TJO-SuperDARN simultaneous observation of Pulsating aurora (Event) Conjugate observation of onset beads on Sep. 30, 2011 | 2 | 3 | 1 | 6 |
| 2012 | 07 | A. Kadokura | Bring back optical units of SPM at HUS for sensitivity calibration | 1 | 0 | 0 | 1 |
| | 09 | A. Kadokura, Y. Tanaka, Y. Sato, Tomonori Koshida, K. Shigenobu | 1. Move instruments to observation hut at HUS 2. Move induction magnetometer to other place in TJO | 4 | 0 | 1 | 5 |
|  | | | | | | | |
| 2013 | 02-03 | A. Kadokura | 1. Maintenance of optical instruments at HUS and TJO (2. Auroral observation at Skibotn, Norway with Y. Ogawa and Y. Tanaka after Iceland operation) | 1 | 0 | 0 | 1 |
| | 07 | A. Kadokura, Hidehiko Suzuki (Rikkyo Univ.) | Test install of color digital camera system for PMC observation at HUS | 1 | 1 | 0 | 2 |
| | 09 | A. Kadokura, N. Sato, Y. Sato, M. Taguchi | 1. Special lecture of Prof. Sato at Univ. Iceland 2. 30th year anniversary party in Reykjavik 3. Move CAI from HUS to TJO | 3 | 1 | 0 | 4 |
|  | | | | | | | |
| 2014 | 09 | A. Kadokura, M. Taguchi | 1. Start observation of CAI at TJO 2. Set local NTP server at TJO | 1 | 1 | 0 | 2 |
| 2015 | 09 | A. Kadokura, Y. Sato, Mitsunori Ozaki (Kanazawa Univ.), M. Taguchi, Yuki Takahashi (Rikkyo Univ.) | 1. Site survey of new VLF receiver at HUS 2. Re-install CAI at TJO 3. Dinner invitation at Japanese embassy in Reykjavik | 2 | 2 | 1 | 5 |
|  | | | | | | | |
| 2016 | 08-09 | A. Kadokura, Y. Tanaka, M. Ozaki, Takumi Dejima (Kanazawa Univ.), M. Taguchi, Y. Takahashi, Akihito Herbert Uchida | 1. Install new VLF receiver, and new 20Hz/24bit data logger at HUS 2. Change CAI to PAS at TJO 3. Install HAI at TJO 4. VLF noise survey at TJO | 2 | 2 | 3 | 7 |



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|------|----|--|---|---|---|---|---|
| 2017 | 03 | A. Kadokura, Kazuo Shiokawa (Nagoya Univ.), M. Ozaki | 1. Install OMTI and PWING-64Hz recording system at HUS 2. First campaign simultaneous observation with Arase (Event) Simultaneous observation with Arase on March 21, 2017 | 1 | 2 | 0 | 3 |
| | 09 | A. Kadokura, M. Ozaki, Yasuhiro Minamoto, Y. Takahashi | 1. Install atmospheric electric field detector at HUS 2. Install new 20Hz/24bit data logger for monitoring data at TJO 3. VLF noise survey at CIAO in Karholl | 1 | 2 | 1 | 4 |



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|------|-------|--|--|---|---|---|---|
| 2018 | 02 | | Power down due to severe rain & flood water into container room at HUS on Feb. 23 | | | | |
| | 07 | A. Kadokura, Y. Tanaka | 1. Bring back optical units of SPM at HUS for sensitivity calibration 2. Maintenance work for IRIO, RIO, others | 2 | 0 | 0 | 2 |
| | 08-09 | A. Kadokura, M. Ozaki, Toki Genda (Kanazawa Univ.), M. Taguchi | Install new induction magnetometer of PWING at HUS | 1 | 2 | 1 | 4 |
| | 10 | Mikiya Sato, Tomoko Sato, Chie Tsuchiya (NAOJ) | Meteo shower observation (Camelopardalis & Giacobini meteor shower) at HUS by NAOJ group | 0 | 3 | 0 | 3 |



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|------|-------|--|--|---|---|---|---|
| 2019 | 09-10 | A. Kadokura, H. A. Uchida, Kiyoka Murase | High-speed aurora observation with sCMOS camera at TJO | 1 | 0 | 2 | 3 |
| 2020 | | | No field operation in Iceland under COVID-19 Living house of HUS was burned down due to fire on Oct. 18 | 0 | 0 | 0 | 0 |
| 2021 | | | No field operation in Iceland under COVID-19 | 0 | 0 | 0 | 0 |

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|------|----|---|---|---|---|---|---|
| 2023 | 03 | A. Kadokura, Masayoshi Kozai | 1. Maintenance work for HAI, Watec at TJO 2. Maintenance work for Be-7, Watec, AEF, VLF, PWING-ULF logger, etc. at HUS | 1 | 1 | 0 | 2 |
| | 09 | A. Kadokura, M. Taguchi, Satoshi Ishii (Rikkyo Univ.) | 1. Stop observation of PAS at TJO 2. Stop observation of SPM, ATV at HUS 3. Re-install Be-7 air sampler at HUS | 1 | 2 | 0 | 3 |



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|------|----|----------------------------------|--|---|---|---|---|
| 2024 | 09 | A. Kadokura, Y. Tanaka, M. Ozaki | 1. Maintenance work for HAI at TJO 2. Discussion at CIAO 3. Maintenance work for RIO, Watec, VLF, ULF at HUS | 2 | 1 | 0 | 3 |
|------|----|----------------------------------|--|---|---|---|---|



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|------|----|---|---|-----|-----|-----|-----|
| 2025 | 10 | A. Kadokura, Y. Tanaka, Yuto Ito (Nagoya Univ.) | 1. Maintenance work at TJO: stop riometer observation 2. Maintenance work at HUS: bring back OMTI camera for repair, install WMI (632 nm) (Watec monochromatic Imager) 3. Discussion with Dr. Kristján Ó. Klausenat at Askja, University of Iceland | 2 | 0 | 1 | 3 |
| | | | Total | 121 | 60 | 47 | 228 |
| | | | Average | 1.9 | 0.9 | 0.7 | 3.5 |