

9-2. Research Centers

Center for International Collaborative Research (CICR)



Research topics and keywords

- Internationally coordinated programs
- Ground-based observation networks and satellite projects
- Hosting international workshops
- International exchange of foreign and Japanese researchers and students
- Capacity building in developing countries through training courses and schools
- Observatories

Introduction to CICR

The Center for International Collaborative Research (CICR) was established in October 2015 to promote international collaborative studies for understanding physical mechanisms of the phenomena occurring in the space–Sun–Earth environmental system and their interactions with each other. The CICR provides leadership to encourage and promote internationally coordinated programs, such as those carried out by the Scientific Committee On Solar–Terrestrial Physics (SCOSTEP) and Future Earth, ground-based observation networks, international satellite projects, hosting of international workshops and conferences, international exchange of foreign and Japanese researchers and students, and capacity building in developing countries through training courses and schools. The CICR has taken over from the Geospace Research Center of the former Solar–Terrestrial Environment Laboratory, Nagoya University.

Cycle 24 of the 11-year solar cycle had the smallest maximum of the past 100 years, and world scientists in have a strong interest in this anomaly and its consequences for Earth’s environment. Thus, SCOSTEP under the International Council for Science (ICSU) commenced a 5-year international program entitled “Variability of the Sun and Its Terrestrial Impact (VarSITI)” in 2014. One of the co-chairs of the VarSITI program is part of the CICR, and is responsible for taking a lead in this program. The CICR publishes a VarSITI Newsletter every three months, operates a VarSITI mailing list that currently contains more than 800 VarSITI members from more than 60 countries, and coordinates international symposiums related to VarSITI. The CICR also contributes to other international programs related to the space–Sun–Earth environment, such as Future Earth and Integrated Land Ecosystem-atmosphere Processes Study (iLEAPS). In relation to these international programs, the CICR also takes part in/operates ground-based observation projects, i.e., the EISCAT radar project, OMTIs, the ISEE magnetometer network, the SuperDARN radar network including the Hokkaido HF radars, the ISEE VLF/ELF network, and the ArCS operation office.

The CICR is operating the new international collaborative research programs from fiscal year 2016. The CICR also holds four domestic observatories at Moshiri, Rikubetsu, Fuji, and Kagoshima, which make observations of the solar wind, the geomagnetic field, and the upper atmosphere. Some of these observations have been conducted for more than 30 years.



Observation sites and foreign collaborative institutions of ISEE.

Main Achievements in FY2017

In FY 2017, the CICR conducted the following international collaborative research programs: 1) Joint Research Program (International, 27 projects), 2) ISEE International Joint Research Program to invite 15 foreign researchers, and 3) two ISEE/CICR International Workshops, as well as inviting 12 foreign designated professors and associate professors. Two newly designated professors were hired through a 5-year cross appointment with US universities and institutions. The ISEE/CICR International Workshop aimed to facilitate comprehensive discussions on a focused topic with 10–15 attendees over one week, and summarize the results into international journal papers and/or books. Eleven CICR colloquium were held with foreign senior scientists from nine countries including the US, UK, Germany and Russia.

For the SCOSTEP/VarSITI program, we published four VarSITI newsletters in FY 2017, in May, July, October and January. We also organized the 2nd VarSITI General Symposium in Irkutsk, Russia, in June 2017. We continue to operate the VarSITI mailing list which contains ~1000 scientists from ~70 countries, and support selection of eleven international symposiums, five database constructions, and one campaign observation by VarSITI. In relation to the VarSITI project, we organized two international schools on the equatorial and low-latitude ionosphere, in Nigeria in September 2017 and in Indonesia in March 2018. One young scientist from India was invited to ISEE under the SCOSTEP Visiting Scholar (SVS) program for collaborative research on middle latitude thermosphere dynamics.

Under the ICCON Project, 29 scientists from the US, UK, China, Korea, Russia, Germany and Japan joined the operation of the Nobeyama Radioheliograph. The data are openly available at NAOJ and CIDAS/ISEE. The EISCAT Radar Project joined the operation of the EISCAT radar and the planning of the new EISCAT-3D radar. The PWING projects continued running in FY 2017 in relation to the OMTIs, ISEE magnetometer and ELF/VLF network projects. STARREPS/JST-JICA finished deploying nine lidars in South America to monitor volcanic ash in the atmosphere and released atmospheric risk data including UV emission intensity.

The four domestic observatories continued to operate in FY 2017. Moshiri Observatory continued to run electromagnetic instruments, i.e., an auroral photometer, magnetometers, and VLF receivers. Rikubetsu Observatory



Kagoshima Observatory and active Sakurajima volcano.



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operates several spectrometers for comprehensive measurements of ozone and other minor constituents in the atmosphere, all-sky imagers and photometers for aurora and airglow, and SuperDARN Hokkaido radars for ionospheric disturbances as well as a new ELF atmospheric receiver. Multi-station interplanetary scintillation (IPS) observations using the Fuji, Kiso, and Toyokawa antennas were constructed in FY 2017. The Kiso Observatory was opened to the public on August 5–6, 2017. Kagoshima Observatory and Sata Station operated instruments for electromagnetic wave detection, and an all-sky camera and a photometer for airglow.