

## VIII Public Access to Facilities

### 1. Mitaka Campus

[Open year-round]

Dates: April to March, 10:00–17:00

Every day except for New Year season (December 28–January 4)

Visitors: 18,552

Open facilities: 65-cm Telescope Dome (Observatory History Museum), 20-cm Telescope Dome, Solar Tower Telescope, Exhibit Room, Housing of Repsold Transit Instrument (Transit Instrument Museum), Astronomical Instruments Museum, Gautier Meridian Circle, Old Library

[Regular Star Gazing Party]

Dates: Friday before second Saturday; fourth Saturday

Visitors: 4,740 (22 events)

Open facility: 50-cm public telescope

[Special Open-House Event] Mitaka Open House Day

Dates: October 18 (Fri), 2013, 14:00–19:00

October 19 (Sat), 2013, 10:00–19:00

Topic: The Origin of Galaxies and Planets Explored by ALMA

Visitors: 4,176

This event is jointly sponsored by NAOJ, the University of Tokyo School of Science Institute of Astronomy, and the SOKENDAI Department of Astronomical Science. It has been held for 2 days each year, starting from 2010. The perennially popular lectures related to this year's theme were hosted by the Institute of Astronomy ("Exploring the Mysteries of Black Holes from the South American Atacama Desert" Kotaro Kohno, Professor, the University of Tokyo) and by NAOJ ("Solving the Mysteries of Galaxy Evolution with ALMA" Iono Daisuke, Associate Professor, NAOJ; "Approaching the Site of Star Formation with ALMA" Nagayoshi Ohashi, Professor, NAOJ.)

Neither day had favorable weather, but the plans of each project were realized. Attendance was comparable to the previous year. In addition to the opening of facilities normally closed to the public, interactive displays and mini-lectures, there were also games and quizzes popular with children to engage a wide range of ages.

\* Custom group tours (Dantai Kengaku), 4D2U Theater showings, and Guided Tours were also offered. Refer to the Public Relations Center report for details.

### 2. Mizusawa Campus

[Open year-round]

Dates: April to March (except for New Year season), 9:00–17:00 daily

Visitors: 14,593

Open facilities: Kimura Hisashi Memorial Museum, VERA 20m antenna, 10m VLBI antenna

[Special Open Day] Held as part of Iwate Galaxy Festival 2013 (Hours: 10:00–21:00)

An open house event was held on campus with cooperation from the Oshu Space and Astronomy Museum (Yugakukan), which opened in the city of Oshu in April 2008.

Date: August 24 (Sat), 2013, 10:00–16:00

Visitors: 3,016 (total for Galaxy Festival, of which 942 participated in Open House)

As last year, the event was co-hosted with Ihatov Space Action Center and the city of Oshu. The event opened with a performance by a marching band from a local elementary school, and featured workshop corners run by local university and high school students, along with other forms of community involvement.

Attractions included discussions of the research results obtained from the VERA and RISE projects, a tour of the 20m parabolic antenna, a commemorative photo booth, plastic bottle rockets, a quiz game, and guided tours of the Kimura Hisashi Memorial Museum.

To the delight of visitors, the Memorial Museum's exhibitions included a special exhibition of hand-written letters and similar memorabilia of the museum's First Director Kimura Hisashi, for the 70th anniversary of his death in 2013.

The main attraction this time was the super-computer "Aterui". This tour was so popular that all vacancies were filled, with many interested visitors unable to participate due to the strong demand.

A live internet connection was also established to Nobeyama, where an event was held in conjunction with a special open house. A lecture was delivered by Saeko Hayashi and Seiichi Tazawa of Hilo campus, who connected live from Hawaii to talk about the research results obtained with the Subaru Telescope. Evening events for the Iwate Galaxy Festival 2013 included a lecture given by Associate Professor Makoto Yoshikawa of JAXA on "Asteroid Mission: New Challenges for Hayabusa 2". Attractions in the Astronomy Museum included experiments titled "Science's Mystery", demonstrations by a scientist and a workshop by internship students. The festival was brought to its successful conclusion with a stargazing session.

**Iriki: VERA Iriki Station**

[Open year-round]

Dates: April to March (except for New Year season)

Visitors: 1,689

[Special Open House]

Date: August 11 (Sat), 2013 10:00–21:00

Visitors: Approximately 1,500

The special open house event was repeated this year in conjunction with Yaeyama Kogen Star Festival 2013 hosted by the executive committee primarily formed by members of Satsuma-Sendai city hall and Kagoshima University. The antenna had been repaired and re-coated for the first time in a decade, with work finishing the day before the special open house. Many visitors were welcomed by the brand new pure white antenna. Regular annual antenna tours, demonstrations of observational equipment, mini-lecture events, and stargazing sessions were held in the VERA 20m radio telescope and 1m optical/infrared telescope facilities, proving to be a hit with visitors all day long. A lecture was given by Kokubo of CfCA about the Moon. Also popular were the physics experiments attended by a total of 200 students, offering a chance to experience the joy of scientific experimentation.

**Ogasawara: VERA Ogasawara Station**

[Open year-round]

Dates: April to March (except for New Year season)

Visitors: 6,371

[Special Open House]

Date: November 11 (Sat), 2013, 10:00–17:00

Visitors: 188

A special open house event was again held this year under the name “Star Island 2013.” Once again a free shuttle bus was available and the event proved popular with community members, with similar attendance to previous years. Attractions included discussions of the research results obtained by the VERA and RISE projects, hands-on sessions in operating the 20m radio telescope, mystery experiment corners and quiz games, as well as a four-dimensional digital planetarium show featuring 4D2U technology that was a central attraction to audience members. NAOJ also cooperated in a stargazing session on November 7th hosted by the local astronomy club, held in favorable weather conditions, with many students attending as part of school trips. The event was an unprecedented success, attended by approximately 200 visitors. Lectures were also given by Oshigami of the RISE Projects and Utsumaki of JAXA Space Center at the Ogasawara Visitor Center on November 8th.

**Ishigakijima: VERA Ishigakijima Station**

[Open year-round]

Dates: April to March (except for New Year season); premises are open to the public 24 hours/day, and observation rooms are also open during the hours of 10:00–16:30.

Visitors: 15,213

[Special Open House]

Date: August 11 (Sat), 2013, 10:00–17:00

Visitors: 246

Held in conjunction with the Star Festival of the Southern Island .

As in previous years, attractions included antenna tours, Purikura (photo booth stickers), merchandise, commemorative lectures, and exhibits.

**Ishigakijima: Ishigakijima Astronomical Observatory**

[Open year-round]

Dates: April to March

Open Hours: Wednesdays through Sundays (except for New Year season), 10:00–17:00

Stargazing sessions: Evenings on Saturdays, Sundays, Holidays, and Star Festival weekdays (19:00–22:00), three 30-minute sessions per evening (four in August)

Visitors: 12,915

Open facilities: Murikabushi 105-cm optical/infrared telescope, interior of observation dome (including exhibits of astronomical images)

[2012 South Island Star Festival]

Dates: August 3 (Sat) to August 18 (Sun), 2013

Visitors: 10,546

This year, the VERA station of Ishigakijima was finally completed, just in time for the 12th anniversary of the Star Festival of the Southern Island.

There were approximately 8,500 visitors attending the dimmed-light stargazing event under a stunning night sky of unprecedented clarity.

Ishigakijima Astronomical observatory has been able to fulfill its main objective as a pivotal research facility, while making important steps towards a successful interchange with the local community and drawing in a large number of visitors interested in its activity. Such attention is expected to continue growing during next year’s season. This interaction is important for the institution, and we expect this bond to continue to strengthen and prove beneficial for all.

### 3. Nobeyama Campus

#### [Regular Open]

Open Time: 8:30–17:00 (every day except around New Year Days (Dec. 29 to Jan. 3), especially, open until 18:00 during the summer (Jul. 20 to Aug. 31))

Visitors: 55,808

Open facilities: 45-m Radio Telescope, Nobeyama Millimeter Array, Nobeyama Radioheliograph, etc. (just viewing)

#### [Open House Day]

Date: August 24 (Sat), 2013, 9:30–16:00

Visitors: 2,735

The Nobeyama branch was crowded with 2,735 visitors on the 2013 Open House Day. The theme of the Day was “Link up with the Cosmos, the Sun, and the Life”. We had two lectures on the theme, which attract large audiences every year. One was “Variations of the Solar Activity found out by Radio Observations —Current Solar Status seen in Long Term Observations” by Prof. Shibasaki, Kiyoto (NAOJ). The other was “Biotic Species in the Universe —Searching for Origins of Life” by Dr. Ohishi, Masatoshi (NAOJ). We had some established events such as demonstrations of 45-m Radio Telescope observations, touch the main reflector panel, radio detector handicrafts, short lectures, a stamp rally, and so on. In addition, new exhibitions by NRO alumni and other project staff members took place. Nobeyama was very lively on that day.

### 4. Okayama Campus

#### Okayama Astrophysical Observatory

##### [Open year-round]

Dates: 9:00–16:30 daily

Visitors: 12,935

Open facilities: Window view of 188-cm reflecting telescope

##### [Special Open House]

Date: August 31 (Sat), 2013, 9:30–16:30

Visitors: 515

The special open house event for FY 2013 was co-hosted with the Okayama Astronomical Museum on August 31 (Sat).

The nearly one-hour special lecture given by NAOJ director general Masahiko Hayashi on “How the Universe got to be recognized” in the dome of the 188-cm reflecting telescope was a huge success, with nearly 100 audience members in attendance. The lecture was broadcast over the Internet with assistance from the Public Relations Center. In addition, three short lectures were given by professor Tetsuya Nagata of Kyoto University on “3.8m telescope unlock the mystery of black holes” gathering a total attendance of 100. The always-popular tours of the main mirror of the 188-cm reflecting telescope were conducted in the morning and afternoon with maximum capacities of 120 participants. Planetarium showings, astronomy-related crafts, and constellation/astronomy bingo were held at the Okayama Astronomical Museum. Because it was raining, there were some events which were canceled. But, we think many visitors enjoyed themselves.

The special open house event was co-hosted with the Asakuchi City Board of Education, with support from the Yakage Town Board of Education. In particular, the Observatory would like to thank the members of the Asakuchi City Board of Education for their considerable assistance in arranging complimentary shuttle bus service between the Observatory and Kamogata Station on the JR San’yo Main Line.

##### [Special Stargazing Party]

Date: October 12 (Sat), 2013, 17:00–21:45

Visitors: 108

122 applications for 360 applicants were received. The first quarter moon and the M15 globular cluster were viewed.

Special stargazing parties co-hosted with the Okayama Astronomical Museum were held twice over the course of the year, in spring and fall. Maximum participation for each special session was 100. As applications exceeded capacity for both sessions in previous years, participants were selected by lottery, with 120 winners being selected to allow for cancellations.

Main events included tours of the Okayama Astronomical Museum, planetarium shows, astronomical observation using the 188-cm reflecting telescope, and descriptions of the night sky.

## 5. Subaru Telescope

### [Summit Facility]

Dates open for public tour: 95 (these dates are listed in the public tour program page at the Subaru Telescope's web site, the tour was suspended in August and September due to the mirror coating and other telescope work)

Public tour visitors: 521

Special tour visitors: 138 visits, 776 visitors

As some special tours were conducted during public tour programs, the total number of actual visitors was 1,269.

### [Base Facility]

Special tour visitors: 50 visits, 526 visitors

### [Outreach activities]

#### 1. Gave a lecture at the Subaru Telescope's base facility in Hilo

2013

April 25: Two astronomers gave Japanese lectures at the Subaru Telescope's base facility in Hilo for the conference participants of "ASIAGRAPH 2013" held at University of Hawai'i at Hilo.

July 29: Subaru Telescope staff gave a Japanese lecture at the Subaru Telescope's base facility in Hilo for the Musashidai Senior High School students from Fukuoka.

August 5: Subaru Telescope staff gave a Japanese lecture at the Subaru Telescope's base facility in Hilo for Miyako Town delegates from Fukuoka.

September 12: Subaru Telescope staff gave a Japanese lecture at the Subaru Telescope's base facility in Hilo for students of Tokai University.

October 1: Subaru Telescope staff gave a Japanese lecture at the Subaru Telescope's base facility in Hilo for students of Namiki Secondary School from Ibaraki.

October 26: Subaru Telescope staff gave a Japanese/English mixed lecture at the Subaru Telescope's base facility in Hilo for students of the Hawaii Japanese School (Rainbow Gakuen) from Honolulu.

November 12: Subaru Telescope staff gave a Japanese lecture at the Subaru Telescope's base facility in Hilo for students of Kunori Gakuen High School from Yamagata.

November 18–21: Staff of Subaru Telescope and NAOJ conducted two observation programs together - one for SOKENDAI graduate students course work and the other for undergraduate students chosen from universities in Japan for their experience.

December 2&4: Subaru Telescope staff gave Japanese

lectures at the Subaru Telescope's base facility in Hilo for students of Senri High School from Osaka.

December 13: Subaru Telescope staff gave a Japanese lecture at the Subaru Telescope's base facility in Hilo for students of Masuda Senior High School from Shimane.

2014

January 6: Subaru Telescope staff gave a Japanese lecture at the Subaru Telescope's base facility in Hilo for students of Wakimachi High School from Tokushima.

January 9: Subaru Telescope staff gave a Japanese lecture at the Subaru Telescope's base facility in Hilo for students of Seisho High School from Nara.

January 28: Subaru Telescope staff gave a Japanese lecture at the Subaru Telescope's base facility in Hilo for students of Sanbonmatsu High School from Kagawa.

February 24: Subaru Telescope staff gave a Japanese lecture at the Subaru Telescope's base facility in Hilo for students of Tokyo Institute of Technology.

February 26: Subaru Telescope staff gave a Japanese lecture at the Subaru Telescope's base facility in Hilo for high school students from Okinawa.

March 4: Subaru Telescope staff gave a Japanese lecture at the Subaru Telescope's base facility in Hilo for students of Iiyama Kita High School from Nagano.

March 17: Subaru Telescope staff gave a Japanese lecture at the Subaru Telescope's base facility in Hilo for students of Ena High School from Gifu.

#### 2. Remote presentation

2013

April 28: Subaru Telescope staff gave a Japanese presentation via remote conferencing system from the Subaru Telescope's base facility in Hilo to the National Museum of Emerging Science and Innovation in Tokyo.

May 10: Subaru Telescope staff gave a Japanese presentation via remote conferencing system from the Subaru Telescope's base facility in Hilo to the Science Museum in Tokyo. [Kagakujyutsukan]

June 17: Subaru Telescope staff gave a Japanese presentation via remote conferencing system from the Subaru Telescope's base facility in Hilo to Koyodai Elementary School in Miyagi. (as part of supporting the recovery effort from March 11, 2011 disaster)

July 19: Subaru Telescope staff gave a Japanese presentation via remote conferencing system from the Subaru Telescope's base facility in Hilo to Tokyo Future University in Tokyo.

July 19: Subaru Telescope staff gave a Japanese presentation via remote conferencing system from the Subaru Telescope's base facility in Hilo to the Science Museum in Tokyo. [Kagakugijutsukan]

July 22: Subaru Telescope staff gave a Japanese presentation via remote conferencing system from the Subaru Telescope's base facility in Hilo to Wakayama Shin-ai Junior and Senior High School.

August 9: Subaru Telescope staff gave a Japanese presentation via remote conferencing system from the Subaru Telescope's base facility in Hilo to Galaxcity (Adachi Children Future Creation Hall) in Tokyo.

September 26: Subaru Telescope staff gave presentation via remote conferencing system from the Subaru Telescope's base facility in Hilo to Sendai Shirayuri Gakuen.

October 28: Subaru Telescope staff gave two Japanese presentations via remote conferencing system from the Subaru Telescope's base facility in Hilo to Masuda Senior High School in Shimane.

November 1: Subaru Telescope staff gave a Japanese presentation via remote conferencing system from the Subaru Telescope's base facility in Hilo to Nayoro City Observatory.

November 19: Subaru Telescope staff gave Japanese presentations via remote conferencing system from the Subaru Telescope on Mauna Kea to Kavli IPMU for Ichita Yamamoto, Minister of State for Special Missions.

December 5: Subaru Telescope staff gave a Japanese presentation via remote conferencing system from the Subaru Telescope's base facility in Hilo to Okinawa Shogaku Junior and Senior High School in Okinawa.

December 6: Subaru Telescope staff gave a Japanese presentation via remote conferencing system from the Subaru Telescope's base facility in Hilo to Arakawa 3rd Intermediate School in Tokyo.

2014

January 15: Subaru Telescope staff gave a Japanese presentation via remote conferencing system from the Subaru Telescope's base facility in Hilo to Aizu Wakamatsu 3rd Junior High School in Fukushima. (as part of supporting the recovery effort from March 11, 2011 disaster)

### 3. Lectures, demonstrations, workshops etc. in the vicinity

2013

April 22: Subaru Telescope staff gave astronomy demonstration in English at an Earth Day event in Waimea.

May 5: A total of 25 Subaru Telescope staff members provided a big booth of information and demonstrations about the Subaru Telescope and new discoveries from it at the AstroDay event in Hilo and interacted with hundreds of families in the local community.

July 2: Subaru Telescope staff gave a lecture in English at a summer school program at Kamehameha School.

July 26: Subaru Telescope staff provided astronomy workshop and assisted stargazing during the Pacific Astronomy and Engineering Summit (including high school students from the Island of Hawaii, Canada, Japan, China, and India.)

August 4: Subaru Telescope staff gave Japanese a presentation at Kilauea Military Camp for Japanese intermediate school students from the Tsunami/Nuclear power plant disaster afflicted area.

August 10: Subaru Telescope staff gave a presentation in English for local high school students about meteors (shooting stars) and recent topics of Solar System research, at Mauna Kea State Park.

October 18: Two astronomers of Subaru Telescope gave presentation in English at Maunakea Sky lecture series at 'Imiloa Astronomy Center.

2014

February 27: Subaru Telescope staff made demonstrations and provided information in English at the Job Expo in Hilo targeting to the high school students.

March 6–14: For the Journey through the Universe program, 21 staff members of the Subaru Telescope went to 69 classes in local public schools (from Preschool to 12th grade) and delivered presentations, hands-on experiences, and other demonstrations in English.

March 7: 5 staff members of the Subaru Telescope made presentations in English at the Master Educator Workshop.

March 9: Subaru Telescope staff had a booth of information and astronomy demonstrations at an open house event at 'Imiloa Astronomy Center.

#### **4. Lectures in Japan**

2013

March 14: Subaru Telescope staff gave a lecture and telescope workshop at Mitaka 1st Elementary School in Tokyo.

March 19: Subaru Telescope staff gave a presentation at the Rotary Club of Tokyo Azabu meeting in Tokyo.

March 22: Subaru Telescope staff gave a presentation at the Museum of Emerging Science in Tokyo.

March 24: Subaru Telescope staff gave a lecture at the University of the Ryukyus in Okinawa.

March 27: Subaru Telescope staff gave a lecture at the Okinawa Institute of Science and Technology Graduate University.(OIST)

March 29: Subaru Telescope staff gave a lecture at Naha Makishi Ekimae Hoshizora Kominkan in Okinawa.

March 30: Subaru Telescope staff gave a lecture at Ishigaki City Library in Okinawa.

#### **5. Others**

2013

June 26: Director Arimoto of the Subaru Telescope was interviewed in a radio broadcast program in Honolulu.