

## 【Appendix F】

### 2020 FY List of Facilities, Observation Equipment, and Laboratory Equipment

Please refer to Joint usage URL (<http://www.eri.u-tokyo.ac.jp/en/joint-usage-top/>)

On publishing papers based on the results of the researches performed by using facilities in the Earthquake Research Institute joint usage program, **please acknowledge the program in the paper**. Also, please provide a copy of the paper or report to Earthquake Research Institute, joint usage section.

Examples of the appropriate format for the indication in the acknowledgments are given below.

This study was supported by ERI JURP 20XX-X-XX.

(facilities)

Joint Usage Code and Name of facility/equipment	Information of facility	Contact person (○Responsible person)	Conditions of Use and Remarks	Application periods
<b>2020-F1-01</b> Tsukuba Seismological Observatory Aburatsubo Geophysical Observatory Nokogiriyama Geophysical Observatory Wakayama Seismological Observatory Hiroshima Seismological Observatory Yahiko Geophysical Observatory Dodaira Seismological Observatory Shin-etsu Seismological Observatory Fujigawa Geophysical Observatory Muroto Geophysical Observatory Observatories and facilities	Nokogiriyama : <a href="http://eoc.eri.u-tokyo.ac.jp/GOP/ngy.html">http://eoc.eri.u-tokyo.ac.jp/GOP/ngy.html</a> (In Japanese only)  Wakayama : <a href="http://www.eri.u-tokyo.ac.jp/WSO/index.html">http://www.eri.u-tokyo.ac.jp/WSO/index.html</a> (In Japanese only)  Fujigawa : <a href="http://www.eri.u-tokyo.ac.jp/fujigawa/indexJ.html">http://www.eri.u-tokyo.ac.jp/fujigawa/indexJ.html</a> (In Japanese only)  Muroto : <a href="http://eoc.eri.u-tokyo.ac.jp/GOP/Mrt/indexM.html">http://eoc.eri.u-tokyo.ac.jp/GOP/Mrt/indexM.html</a> (In Japanese only)	○Head of Center for Geophysical Observation and Instrumentation		—
<b>2020-F1-02</b> Yatsugatake Geo-electromagnetic Observatory		○Tsutomu Ogawa	Must contact with the responsible person prior to the application.	Any time, as needed.
<b>2020-F1-03</b> Asama Volcano Observatory Komoro observatory of Seismology and Volcanology Izu-Oshima Volcano Observatory Kirishima Volcano Observatory		○Head of Center for Geophysical Observation and Instrumentation		—

## (observation equipment)

Joint Usage Code and Name of facility/equipment	Information of Equipment	Contact person (○Responsible person)	Conditions of Use and Remarks	Application periods
<b>2020-F2-01</b> Data receiver system by satellite communication for a nation-wide seismic telemetry network.	<a href="http://eoc.eri.u-tokyo.ac.jp/eisei_system/riyou/data_jushin_riyou.htm">http://eoc.eri.u-tokyo.ac.jp/eisei_system/riyou/data_jushin_riyou.htm</a> (In Japanese only)	○Kazushige Obara	Must contact with the responsible person prior to the application. It is a rule that the users install it and maintain it by themselves. Another application about data use is needed.	Any time, as needed.
<b>2020-F2-02</b> Temporal seismic data acquisition systems (incl. data transfer units, seismometers and recording units)	<a href="http://eoc.eri.u-tokyo.ac.jp/eisei_system/riyou/vsat_riyou.htm">http://eoc.eri.u-tokyo.ac.jp/eisei_system/riyou/vsat_riyou.htm</a> (In Japanese only)  <a href="http://eoc.eri.u-tokyo.ac.jp/eisei_system/riyou/chijo_souti.htm">http://eoc.eri.u-tokyo.ac.jp/eisei_system/riyou/chijo_souti.htm</a> (In Japanese only)	○Kazushige Obara	Must contact with the responsible person prior to the application. Not always available for period of specific research projects.	Any time, as needed.
<b>2020-F2-04</b> Broadband-MT instruments	Metronix 1) Main unit: ADU07e 22 sets ADU08e 2 sets 2) Induction coils MFS06: 24 coils MFS07: 4 coils MFS06e: 16 coils MFS07e: 30 coils  Phoenix 1) induction coils MTC50 3 coils  Basically, 5 component data (2-component E-field and 3-component H-field) can be measured. Sample frequency is 2 <sup>n</sup> Hz up to 524 kHz.  In addition, we have some other items necessary to the MT survey, such as, various batteries and electrodes.	○Makoto Uyeshima	Must contact with the responsible person prior to the application.  Please recognize that we cannot let you use the instruments if we have some field campaigns.	Any time, as needed.
<b>2020-F2-05</b> Network-MT voltage difference measurement system	SES93: 8 channel 20 bit voltage difference acquisition systems developed by ADOSYSTEMS. We have about 20 instruments. Sampling interval is 0.1, 1 or 10 s.  SESNET93: Data transfer units.	○Makoto Uyeshima	Must contact with the responsible person prior to the application.  Please recognize that we cannot let you use the instruments if we have some field campaigns.	Any time, as needed.

Joint Usage Code and Name of facility/equipment	Information of Equipment	Contact person (○Responsible person)	Conditions of Use and Remarks	Application periods
<b>2020-F2-06</b> ※ <u>Marine heat flow measurement system</u>	The system consists of a data logger, probes, temperature sensors, weight, and an acoustic pinger. Heat flow is measured by penetrating a probe equipped with multiple temperature sensors into seafloor sediment. An instrument for thermal conductivity measurement on sediment samples (Quick Thermal Conductivity Meter, Kyoto Electronics Manufacturing Co., Ltd.) is also available.	○Makoto Yamano	Users must have an experience in marine heat flow measurement, unless they conduct cooperative research with the Earthquake Research Institute.	Any time, as needed.
<b>2020-F2-07</b> Portable broadband seismic observation system(1)	Broadband seismometers: CMG3T,STS2 Recorders: REFTEK130 40 sets	○Kawakatsu Hitoshi	Data have to become open in public at the data center of OHRC, ERI after 2-3 years of moratorium period. For the system availability, consult with the contact person.	Any time, as needed.
<b>2020-F2-08</b> ※ <u>Portable broadband seismic observation system (2)</u>	Broadband seismometers (Nanometrics Inc., Canada) Trillium 120PA Number of equipment: 14	○Jun Oikawa	Must contact with the responsible person prior to the application.	Any time, as needed.
<b>2020-F2-09</b> ※ <u>Absolute gravimeter</u>	FG5 gravimeter with 1-2 microgal accuracy manufactured by microg-Lacoste corp., U.S.A.	○Yuichi Imanishi	Must contact with the responsible person prior to the application.	Any time, as needed.
<b>2020-F2-10</b> ※ <u>Lacoste &amp; Romberg Land gravimeter</u>	Spring gravimeter with 10 microgal accuracy manufactured by microg-Lacoste corp., U.S.A.	○Yuichi Imanishi	Operational instruction should be understood.	Any time, as needed.
<b>2020-F2-11</b> ※ <u>Potable strong motion observation system</u>	Potable strong motion observation system(Revision of SMAR-6A3P) 16 equipment with amplifier(16 JEP-6A3P sensors with 1V/G) (Akashi Corporation) 5 equipment without amplifier (5 JEP-6A3P sensors with 10V/G) (Akashi Corporation) 10 logger LS-7000XT(Hakusan Corporation) 10 logger LS-7000 (Hakusan Corporation) ※A single set consists of an equipment and a logger. ※20 sets are available. ※Amplifier gain is a multiplication of 1, 20, 50, 100 and 0.1, 1, 10, 100.	○Kazuki Koketsu	Must contact with the responsible person prior to the application.	Any time, as needed.

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<b>2020-F2-12</b> Volcanic gas observation system		○Jun Oikawa	Must contact with the responsible person prior to the application.	Any time, as needed.
<b>2020-F2-13</b> Ultra-long period MT instruments	LEMI-417 fluxgate MT observation instruments. We have 6 instruments. 4 component E-fields and 3-component H-fields can be measured with 1s sampling.	○Makoto Uyeshima, Hisayoshi Shimizu	Must contact with the responsible person prior to the application.  Please recognize that we cannot let you use the instruments if we have some field campaigns.	Any time, as needed.
<b>2020-F2-14</b> High accuracy gyro-compass system	A SOKIA's GP1X manual gyro-compass system. Measurement accuracy is 20 angle-seconds.	○Makoto Uyeshima, Hisayoshi Shimizu	Must contact with the responsible person prior to the application.	Any time, as needed.
<b>2020-F2-15※</b> <u>3D deep-sea current profiler system</u>	NORTEK Aquadopp - 6000m 1 system ( <a href="http://www.nortek-as.com/en/products/CurrentMeter/Aquadopp6k">http://www.nortek-as.com/en/products/CurrentMeter/Aquadopp6k</a> ) A current profiling system by combination of the Doppler current profiler (Aquadopp) and the Ti sphere transponder system of a self pop-up recovery, which enables 10 s interval observation of more than one-year-long by the external power supply. Use of the current profiler only is also available.	○Hajime Shiobara	Must contact with the responsible person prior to the application.	Any time, as needed.
<b>2020-F2-16</b> High accuracy broad-band voltage difference measurement instruments	NT System Design's Elog1k. We can measure 2-component voltage differences at 1024Hz or 32 Hz with 24 bit accuracy. Very low power consumption(1.8W).	○Makoto Uyeshima	Must contact with the responsible person prior to the application.	Any time, as needed.
<b>2020-M-01</b> Specific equipment • Seismometers(1Hz, Lennarz electronic GmbH)	LE-3Dlite MkII 20 sets LE-3Dlite MkIII 59sets	○Kazushige Obara, Eiji Kurashimo	Normal usage period (less than 2 months)  Application required for longer usage in June.	Any time, as needed.
<b>2020-M-02</b> Specific equipment • Low electric power data recording units	HKS-9700a-0505 30 sets LS-8800 49 sets	○Kazushige Obara, Eiji Kurashimo	Normal usage period (less than 2 months)  Application required for longer usage in June.	Any time, as needed.
<b>2020-M-03</b> Specific equipment • Broad-band seismometers	Trillium-120PA 6 sets	○Kazushige Obara, Eiji Kurashimo	Normal usage period (less than 2 months)  Application required for longer usage in June.	Any time, as needed.

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<b>2020-M-04</b> Specific equipment ・ Nanometrics data recording units	Centaur digital recorder 6 sets	○Kazushige Obara, Eiji Kurashimo	Normal usage period (less than 2 months)  Application required for longer usage in June.	Any time, as needed.
<b>2020-M-05</b> Specific equipment ・ Broad-band seismometers	TS17840/Trillium-120PA 16 sets	○Kazushige Obara, Eiji Kurashimo	Normal usage period (less than 2 months)  Application required for longer usage in June.	Any time, as needed.
<b>2020-M-06</b> Specific equipment ・ Seismic/volcanic observation units	LF-1100R/LF-2100R 9 sets	○Kazushige Obara, Eiji Kurashimo	Normal usage period (less than 2 months)  Application required for longer usage in June.	Any time, as needed.

(laboratory equipment)

Joint Usage Code and Name of facility/equipment	Information of Equipment	Contact person (○Responsible person)	Conditions of Use and Remarks	Application periods
<b>2020-F3-01</b> Controlled Seismic source	Minivibrator T-15000 (IVI, Inc.)	○Hiroshi Sato, Tatsuya Ishiyama	Users are required to have precise and detailed knowledges on how to use the controlled Seismic source.	Any time, as needed.
<b>2020-F3-02</b> Computer system of Earthquake and Volcano Information Center	<a href="http://www.eic.eri.u-tokyo.ac.jp/computer/manual/eic2015/index.php?English">http://www.eic.eri.u-tokyo.ac.jp/computer/manual/eic2015/index.php?English</a>	○Head of Earthquake and Volcano Information Center	Limited to academic use and along with the purpose of ERI, according to the rule. Apply directly to ERI, if joint usage fund is not needed.	Any time, as needed.
<b>2020-F3-03</b> Rock Fracture Apparatus with Data Acquisition System	<a href="http://www.eri.u-tokyo.ac.jp/gijyutsubu/jikken/">http://www.eri.u-tokyo.ac.jp/gijyutsubu/jikken/</a> (In Japanese only)	○Shingo Yoshida, Masao Nakatani	Must contact with the responsible person prior to the application.	Any time, as needed.
<b>2020-F3-05</b> XRF spectrometer	RIGAKU Wavelength dispersive-X-ray fluorescence spectrometer ZSX Primus II <a href="http://www.rigaku.com/en/products/xrf/primus2">http://www.rigaku.com/en/products/xrf/primus2</a>	○Atsushi Yasuda	All users were requested to receive instruction beforehand upon contact to responsible persons. Consumables were users' pocket.	—
<b>2020-F3-06</b> ※ <u>Vibration testing system</u>	EMIC Corp. Vibration testing system F-1400BD/LAS15 Horizontal or vertical shaking table(1-axis)	○Akito Araya	Must contact with the responsible person prior to the application. Operate the equipment by yourself in principle.	Any time, as needed.
<b>2020-F3-07</b> ※ <u>Laser source equipment</u>	NEOARK Corp. Frequency stabilized He-Ne laser Emission wavelength 633nm (red light)	○Akito Araya	Must contact with the responsible person prior to the application.	Any time, as needed.

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<b>2020-F3-08</b> National Seismogram Data System		○Head of Earthquake and Volcano Information Center	System to use national seismogram data, jointly operated with Japanese universities. Consult with corresponding faculty.	Any time, as needed.
<b>2020-F3-09</b> Karl Fischer moisture titrator (Coulometric titration)	Kyoto Electronics Manufacturing Co., Ltd. Karl Fischer moisture titrator (Coulometric titration) < MKC-610 > <a href="http://www.kyoto-kem.com/en/product-category/karl/">http://www.kyoto-kem.com/en/product-category/karl/</a>  Evaporator for measurement of water in rocks < ADP-512 > <a href="http://www.kyoto-kem.com/en/product-category/option-karl/">http://www.kyoto-kem.com/en/product-category/option-karl/</a>	○Kenji Mibe	All users must be trained before operating the machine. It is requested that all applicants discuss their projects with contact person before submitting the proposal. The chemicals for measurements have to be purchased by users.	Any time, as needed.
<b>2020-F3-10</b> Laser diffraction particle-size analyzer(wet dispersion condition)	Sympatec HELOS/KF-RODOS-QUIXEL System	○Fukashi Maeno	All users are required to receive instruction from contact persons and to adjust schedule.	Any time, as needed.
<b>2020-F3-11</b> ※ <u>Equipment set for thermometer calibration</u>	Fluke 1586A, 9142, 7103 etc. Thermostatic bath(-30 degC to 150 degC), thermistor scanner, and so on	○Masao Nakatani	Must contact with the responsible person prior to the application. Operate the equipment by yourself in principle.	Any time, as needed
<b>2020-F3-12</b> Large Continuous Seismic Data Analyzing System	It is the seismic waveform analysis system which stores nationwide seismic data. Users develop and execute their own codes for analyzing the data. The minimum tools are available.	○Shigeki Nakagawa	Must contact with the responsible person prior to the application. Also, all users were requested to finish the application for the Computer system of Earthquake and Volcano Information Center (2020-F3-02). Data should be used under the treatment of earthquake data of Japanese universities.	Any time, as needed

※Detailed information posted at Earthquake Research Institute, joint usage page.

## 【Appendix D】

### 2020 FY List of earthquake and other Earth Science Data and Records

Please also refer the our database page (<http://www.eri.u-tokyo.ac.jp/en/publication/>)

On publishing papers based on the results of the researches performed by using facilities in the Earthquake Research Institute joint usage program, **please acknowledge the program in the paper**. Also, please provide a copy of the paper or report to Earthquake Research Institute, joint usage section.

Examples of the appropriate format for the indication in the acknowledgments are given below.

This study was supported by ERI JURP 20XX-X-XX.

Joint Usage Code and Name of data/ records	Contact person (○Responsible person)	Conditions of Use and Related URL	Application periods
<b>2020-D-01</b> WWSSN Seismogram microfiche	○Head of Committee for old seismograms and mareograms	Advance appointment required. Inquire about paper supplies. <a href="http://wwweic.eri.u-tokyo.ac.jp/wwssn/filmlist.htm">http://wwweic.eri.u-tokyo.ac.jp/wwssn/filmlist.htm</a> ↓	Any time, as needed.
<b>2020-D-02</b> Historical seismograms	○Head of Committee for old seismograms and mareograms	Use microfiche archives. Original records can be used with ERI staff. <a href="http://wwweic.eri.u-tokyo.ac.jp/susu/">http://wwweic.eri.u-tokyo.ac.jp/susu/</a> (In Japanese only)	Any time, as needed.
<b>2020-D-03</b> Seismological Bulletin, Selected newspaper articles, Foreign seismological reports	○Head of Committee for old seismograms and mareograms	Copies can be made in library. Bulletins: <a href="http://wwweic.eri.u-tokyo.ac.jp/record-J/index.htm">http://wwweic.eri.u-tokyo.ac.jp/record-J/index.htm</a> ↓ Foreign seismological reports: <a href="http://wwweic.eri.u-tokyo.ac.jp/record-W/index.html">http://wwweic.eri.u-tokyo.ac.jp/record-W/index.html</a>	Any time, as needed.
<b>2020-D-04</b> Earthquake data of Center for Geophysical Observation and Instrumentation	○Kazushige Obara	Data should be used under the treatment of earthquake data of Japanese universities.	—
<b>2020-D-05</b> Nation-wide earthquake data transfer by satellite communication system and other facilities	○Kazushige Obara	Application required under the treatment on earthquake data transfer by satellite communication system. <a href="http://eoc.eri.u-tokyo.ac.jp/eisei_system/riyou/data_jushin_riyou.htm">http://eoc.eri.u-tokyo.ac.jp/eisei_system/riyou/data_jushin_riyou.htm</a> (In Japanese only)	—
<b>2020-D-06</b> Japan University Network Earthquake Catalog(JUNEC)	○Head of Earthquake and Volcano Information Center	Hypocenter data can be accessed through anonymous ftp. <a href="ftp://ftp.eri.u-tokyo.ac.jp/pub/data/junec/">ftp://ftp.eri.u-tokyo.ac.jp/pub/data/junec/</a> Arrival time data can be provided by CD, according to rule among the universities.	Any time, as needed.
<b>2020-D-07</b> Seismic data of Asama, Izu-Oshima, Kirishima, and Fuji volcanoes	○Head of Volcano Research Center	Must contact with the responsible person prior to the application.	Any time, as needed.
<b>2020-D-08</b> Broadband Seismic Waveform Data(1)	○Head of Ocean Hemisphere Research Center	none. <a href="http://ohpdmc.eri.u-tokyo.ac.jp/dataset/permanent/seismological/index.html">http://ohpdmc.eri.u-tokyo.ac.jp/dataset/permanent/seismological/index.html</a>	Any time, as needed.

Joint Usage Code and Name of data/ records	Contact person (○Responsible person)	Conditions of Use and Related URL	Application periods
<b>2020-D-10</b> New J-array seismogram data	○Head of Earthquake and Volcano Information Center	Can be used through website. <a href="http://jarray.eri.u-tokyo.ac.jp/">http://jarray.eri.u-tokyo.ac.jp/</a> .	Any time, as needed.
<b>2020-D-11</b> Earthquake data in Nikko region, Northern Kanto, Japan, in 1993	○Kazushige Obara	Treatment of data usage by participants of the 1993 Nikko seismic observation.	—
<b>2020-D-12</b> Strong motion observation database (mainly Suruga bay, Izu peninsula, and Ashigara valley)	○Kazuki Koketsu	<a href="http://smsd.eri.u-tokyo.ac.jp/smad/">http://smsd.eri.u-tokyo.ac.jp/smad/</a>	Any time, as needed.
<b>2020-D-13</b> Copies of old historical documents and interpretation	○Kenji Satake	No limitation Copies and interpretation of a part of special database of ERI library. <a href="http://www.eri.u-tokyo.ac.jp/dl/meta_pub/G0000002erilib">http://www.eri.u-tokyo.ac.jp/dl/meta_pub/G0000002erilib</a> (In Japanese only)	Any time, as needed.
<b>2020-D-14</b> Geoelectromagnetic Observation Database	○Makoto Uyeshima	Must contact with the responsible person prior to the application.	Any time, as needed.
<b>2020-D-15</b> Provisional data at Yatsugatake geo-electromagnetic observatory	○Tsutomu Ogawa	Those who wish to use the data should contact the contact person at the ERI for arrangement and submit an application.	Any time, as needed.
<b>2020-D-16</b> Heat flow dataset	○Makoto Yamano	No limitation. Compilation of heat flow data in the northwest Pacific area, covering an area from 0 to 60°N and from 120 to 160°E, which includes the whole Philippine Sea, Japan Sea, and Sea of Okhotsk. It consists of station name, coordinates, altitude (or water depth), number of temperature measurements, maximum measurement depth, temperature gradient, number of thermal conductivity measurements, average thermal conductivity, heat flow, reference and year of publication. The heat flow values measured with submersibles or ROVs and those estimated from depths of gas hydrate BSRs (bottom simulating reflectors) are not included. The values less than or equal to zero are also excluded.	Any time, as needed.
<b>2020-D-17</b> Aerial photographs of Japan	○ERI Library	This collection is for research purposes only: active fault research, seismology, volcanology, tectonics, etc. Please have a request at the service counter of ERI library. <a href="http://www.eri.u-tokyo.ac.jp/tosho/collection-e.html">http://www.eri.u-tokyo.ac.jp/tosho/collection-e.html</a>	Any time, as needed.



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<b>2020-D-18</b> Digital images of tsunami waveforms	○Head of Committee for old seismograms and mareograms	Apply through search system of digital images of tsunami waveforms. <a href="http://www.eri.u-tokyo.ac.jp/tsunamidb/">http://www.eri.u-tokyo.ac.jp/tsunamidb/</a> (In Japanese only) Same condition to joint usage of ERI applies.	Any time, as needed.
<b>2020-D-19</b> Special Project for Earthquake Disaster Mitigation in the Tokyo Metropolitan Area Date (2008-2011)	○Kazushige Obara	Must contact with the responsible person prior to the application. <a href="http://www.eri.u-tokyo.ac.jp/shuto/index.html">http://www.eri.u-tokyo.ac.jp/shuto/index.html</a> (In Japanese only)	Any time, as needed.
<b>2020-D-20</b> Superconducting Gravimeter Data	○Yuichi Imanishi	Must contact with the responsible person prior to the application.	Any time, as needed.
<b>2020-D-21</b> Special Project for Reducing Vulnerability for Urban Mega Earthquake Disasters Date (2012-2016)	○Kazushige Obara	Must contact with the responsible person prior to the application. <a href="http://www.eri.u-tokyo.ac.jp/project/toshi/">http://www.eri.u-tokyo.ac.jp/project/toshi/</a> (In Japanese only)	Any time, as needed.