

Corporate Profile



MEISEI core technologies making history in the fields of meteorological observation and

1938

Establishment

Incorporated with capital of 300,000 ven in Shimomaruko. Kamata-ku, Tokvo

1939

MEISEI developed

its first radiosonde.

Radiosondes were delivered to the Central Meteorological Observatory.

MEISEI developed "CMO-S48B code sending type radiosonde," adopting the then innovative digital method. This product was delivered to the Central Meteorological Observatory and contributed to the establishment of reputation as "MEISEI renowned

1948



1952

Japan's first electric instrument launched by a rocket.

FM-FM telemeter transmission system for the "Baby-T Rocket" in 1955. The successful launch made us the Japan's 1st manufacturer of electric instruments to be installed in rockets.

MEISEI developed and delivered an



MEISEI's instruments were

Research Exploration.

employed by the Winter Party

of the 11th Japanese Antarctic

MEISEI's instruments played an important

role in the observation of Aurora Polaris

by rocket or balloon in the Antarctica from

officially completed, and MEISEI involved

1969 until 1985 (for 16 consecutive

in all Aurora Polaris' observations

years), when the rocket experiments

A weather robot was delivered

MEISEI received MEISEI's radio technology realized the first order of 1.000 radiosondes. unmanned observation of Three types of radiosonde were manufactured to measure cloud, wind and temperature & humidity possible to observe precipitation in nountainous areas as well.

to the Central Meteorological Observatory.

precipitation, which would replace the conventional manned observation in meteorological stations, and made it

Developed a rocketsonde.

sustainable future with our original technologies.

MEISEI developed a rocketsonde that observed the mesosphere thermosphere (altitude of 60 km above ground level). These rocketsondes were launched from the meteorological rocket observation center in Ayasato, Sanriku-cho (present Ofunato-shi), Iwate Prefecture, A total of 1.119 sondes had been launched by March 2001, when the rocket observations were

space development



Very Long Baseline Interferometry (VLBI)

1982

"AMeDAS" is a meteorological instrument that

became popular among Japanese people with

its simple and easy-to-understand name. This

ned observation system was deployed

Meteorological Data Acquisition

System) was delivered to JMA.

at 1,300 locations throughout Japan to

observe precipitation, wind direction, wind

velocity, temperature and solar radiation.

AMeDAS (Automated

MEISEI contributed to the development of "VLBI", which observes radio sources of stars with a radio telescope for ultrawide measurement. It is now possible to detect tectonic plate motions in the order of 10cm/year with the VLBI technology, which is greatly contributing to the prediction of earthquake occurrence, etc.

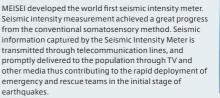
1983

NASA's Space Shuttle launched with MEISEI's products.

MFISFI delivered six mounted devices for Japan's first artificial aurora experiment (SEPAC) using a space shuttle.*SEPAC (Space Experiments with Particle Accelerators) is a joint US-Japan investigation

1991

Seismic intensity meter was delivered to JMA.





(Airport Meteorological Observing System)

AMOSs are installed at airports throughout Japan to observe weather conditions at the airports and transmit the data to the Civil Aviation Bureau and airlines. Serving an important role in the safe operation of aircraft.



Tsunami earthquake observation instruments were delivered to IMA

In light of the lessons learnt from the disastrous experiences in the instruments were deployed at 182 locations throughout Japan in order These instruments allow around-the-clock observation of earthquakes

Nihonkai-Chubu Earthquake and Southwest-off Hokkaido Earthquake (Okujiri Earthquake), MEISEI's tsunami earthquake observation to detect earthquakes which may cause Tsunami as early as possible. throughout Japan and issue tidal wave information within approximately three minutes of the occurrence of an earthquake

MEISEI Core Technologies

Our "Technology to measure" and "Technology to communicate" have

been effectively applied in various environments and fields.

For over 80 years since our foundation, MEISEI has been playing a leading role in meteorological and seismic observations in Japan with our advanced & unique technologies and creativities. Utilizing our core technologies, i.e., "Technology to measure" and "Technology to communicate," we have been creating innovative products and systems for disaster prevention and environmental measurement, contributing to global environmental protection and the mitigation of damage from natural disasters. In the field of space, MEISEI has been participating in national projects for space development to expand the possibility of the further advanced utilization of space. As one of the world's leading manufacturers of comprehensive environmental observation systems, MEISEI will continuously contribute to realizing a safe and secure society and driving scientific and technological development to achieve a sustainable future, while delivering value through various applications.



Meteorolog Disaster Prevention Report nication **Display** "Communication Technologies" as more useful information by collect, process and transmit Process Combine Information Extract information Visualize information Space Related Analyze information Provide information Collection

MEISEI will continue taking on new challenges toward the future

Automated Radiosonde System (ARS)

By automating a series of processes including pre-launch inspection, gas filling into balloons, and other preparatory operations, flying, receiving radio waves, and processing of observed data, ARS achieves

Technical contribution to Selenological and **Engineering Explorer** "KĀGUYA'

Of the 15 observation missions of KAGUYA, MEISEI took charge of 8 mission. In 2008, a Hi-Vision camera of MEISEL successfully shot Full Earth from the Moon



MAXI-SEDA-AP

In the Japan Experiment Module "KIBO" of the International Space Station (ISS). the Space Environment Data Acquisition (SEDA) system and the Monitor of All-sky X-ray Image (MAXI) were installed and their operation started.



MEISEI supports recovery efforts



In response to the failure of the control tower Emergency Control Tower (EVA-05B) was delivered to the Civil Aviation Bureau of the Ministry of Land, Infrastructure, Transport and Tourism. And it was transported as a temporary substitute from Haneda Airport to Senda Airport, subsequently contributed to quick recovery of airport control functions



MEISEI's Near-Infrared Spectromete (NIRS3), Deployable Camera (DCAM3) (digital system), and space QCM*1 were equipped on the asteroid probe Hayabusa 2, which returned to Earth in 2020

MEISEI's

2014

POTEKA® information delivery service launched

The Japan Meteorological Agency approved POTEKA® launched its information delivery service. A range of benefits from the service are anticipated, such as countermeasures to regional climatic disasters.

The iMS-100 GRUAN Data Product has been certified by GRUAN *2.

The certification for GPS Radiosonde iMS-100 and its data processing (GRUAN Data Product) was issued in GRUAN annual meeting ICM-14.

facilitates the construction of highly accurate and sophisticated meteorological observatio networks for monitoring climate change.

2016 2022

2006



Courtesy of JMA

Warning by JMA

2007

OCAST® Series

Responding to

Earthquake Early

QCAST® Series is a system dedicated to receive Earthquake Early Warning by JMA corresponding to guidelines. By linking with QCAST® Series,

the window time until the tremor hit will be announced through public addressing system which allow people to prepare for evacuation

2008



MEISEI released the IL display and

announcement system (I-ALERT). This device clearly indicates information on disaster prevention by mapping out the J-ALERT data received.

2010

"Havabusa

returned.



2009

After about 7 years, traveling a total of about 6 billion kilometers. Havabusa safely returned to the Earth in June. MEISEI's X-ray fluorescence spe (XRS) installed in Hayabusa collected composition data on the main surface elements on the asteroid Itokawa and transmitted the data to Earth

2012 CubeSat "WE WISH"



2011

"WE WISH", MEISEI's first ever CubeSat, was released into space rom the international space station on October 4. It subsequently orbited the Earth successfully and was in operation for longer than had been originally planned - a total of 158 days.

Release of the world's smallest and lightest iMS-100

Compared to conventional radiosonde devices, this global strategic product is a huge improvement in terms of miniaturization, lightness, safety, running cost and environmental load. A new type of sensor gives dramatically improved accuracy of observation.

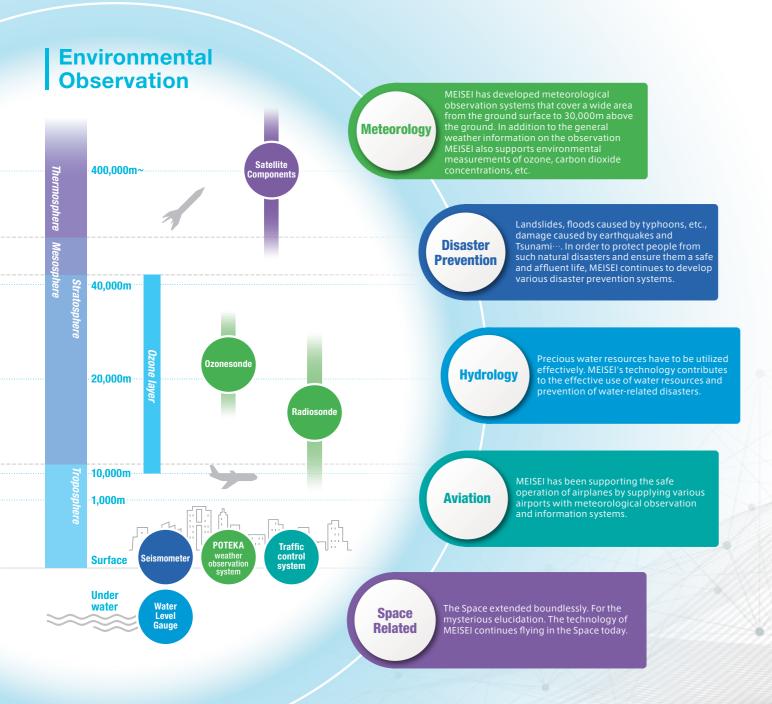
2015

Launch of Epsilon 2 and Geospace exploration satellite "ARASE"

The Epsilon rocket is fitted with a MEISEI's power sequence distribution box, hot gas valve motor controller rocket-mounted camera, and picture compressor equipment. ARASE is fitted with a small-size star scanner and 7 devices for observing electrons, ions and wave fluctuation, to solve the mysteries of the radiation belt which envelops the Earth

%1 QCM: Quartz Crystal Microbalance

MEISEI has an active role in environmental observation and disaster prevention & mitigation as global environmental product & system manufacture.



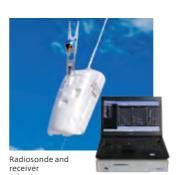


MEISEI meteorology products & systems to cover surface to Upper-air observation. They play important roles in various fields; Meteorology, weather observation, environmental observation, etc. like AWS(AMeDAS in





AMeDAS (Automated



Radiosonde

Radiosonde is equipment for direct observation of upper air with its sensors of atmospheric pressure, temperature, humidity, etc. hung from a balloon flying in the upper air. Data observed by radiosonde is transmitted to the ground with a radio. MEISEI has developed and manufactured various radiosondes since the foundation year of 1938.

Automated Radiosonde

Canister type ARS allows to

Radiosonde & balloon to be

loaded. It can release operators

from mid-night-early morning

sounding, dangerous H2 gas

system (ARS)

adjust the number of

inflating works, etc.



"AMeDAS" observation station Courtesy of JMA

Meteorological Data Acquisition) AMeDAS is an unmanned weather observation system that automatically transmits the observation data via telephone lines. Debuted in 1974, AMeDAS observes precipitation, wind directions, wind velocity, temperature, sunshine duration, and snow depth at approx. 1,300 locations throughout Japan. The data transmitted by AMeDAS is widely used to prevent and alleviate disasters.

Advanced observation system POTEKA®



POTEKA® is a compact weather sensor system. POTEKA is a community based observation system that aims to provide information on countermeasures appropriate for the weather conditions on the spot with real-time analysis and information distribution by collecting pinpoint weather information in a small area.



Courtesy of JMA

Disaster

Prevention

MEISEI provides disaster prevention systems that combine the know-how and reliable measurement technology, data processing and communication systems that we have developed as a pioneer in weather observation.







Seismic Intensity Meter Passed the inspection by JMA and Supporting Nowcast **Earthquake Information**

MEISEI's seismic intensity meter measures the P wave that arrives immediately after an earthquake occurs and calculates the magnitude and epicenter of the earthquake. By informing the arrival time "before the tremor hits people", this meter contributes to mitigation of damage.



QCAST® Series Responding to Earthquake Early Warning by JMA

QCAST® Series is a system that receives "Earthquake Early Warning" distributed by JMA and then transmits the warning information to people before a strong tremor reaches them and automatically controls plant equipments by transmitting control



External System Control Seismometer

In order to reduce earthquake damage, this system control device measures earthquakes in the vicinity with the aim of providing rapid control. Calibration is carried out by the built-in accelerometer, meaning that each individual unit can perform a range of tasks from seismic observation to control signal output



Rain-gauge station



Responding to Earthquake Early Warning by JMA

It is a system for quickly informing local residents of emergency landslide information on the disaster prevention website etc. by transmitting information on the weather conditions of mountainous areas and analyzing the transferred data with the centralized monitoring system installed in the disaster prevention administrative organs

Hydrology

MEISEI hydrology products & systems to make effective utilization of precious water resources and also contribute to disaster prevention. The hydrology products & systems covers the whole area from the upper reaches of rivers flowing through mountainous areas to the lower reaches of rivers.









MEISEI is the first Japanese manufacturer of space observation units to be used by the ISS. Since then, MEISEI has developed many products including observation equipment and supported Space development projects at home and abroad.







Shimagawa dam at Gunma Pref.

Dam / River **Management System**

MEISEI's dam and river management systems allow total system establishment and operation based on the processing technologies used for meteorological observation, water level observation, etc. and in combination of various systems.

Monitoring Control System

automatic control system of lockage,

sluice-gate and floodgate, etc. in

prevention when Tsunami or high

and data processing technologies

incorporated in the J-ALERT/ Seismic

meter/Earthquake Early Warning, etc.,

tidal water. Utilizing our measurement

order for the coastline disaster

gates can be closed quickly.

accumulated-technology, which is essential

Sluice Gate Remote

It is a remote monitoring and



Crystal Quartz Hydraulic Sensor

the product of years of MEISEI research into crystal application technology. This crystal hydraulic sensor is one of the most precise water level gauges on the market Improved lightening resistant solar powered electricity supply, coupled with simple installation, enable a wide range of applications.

3L water level gauge

MEISEI 3L water level gauge is specialized for observation during

floods. In addition, significant cost

reduction and size reduction are

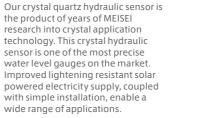
achieved. 3L means the following

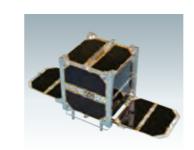
and realizes it.

· Low cost

· Lona life

·Localize





Cubesat "WE WISH"

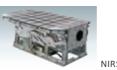
In October 2012, MEISEI's first cubesat "WE WISH" was released into Space by the robot arm operated by astronaut Hoshide in ISS and completed its mission after circulating the earth for 158 days.



©JAXA

Equipment Installed in Epsilon Rocket

The new Epsilon Rocket (Launch Vehicle), developed by JAXA with systems developed and manufactured by IHI Aerospace Co., Ltd., is fitted with a number of components manufactured by MEISEL: a rocket-mounted camera. picture compressor equipment (PCE) an attitude control Hot Gas Valve (HGV) motor controller, and a power sequence distribution box (PSDB)



Onboard Equipment for the Asteroid Probe "Hayabusa 2"

The Near-Infrared Spectrometer (NIRS3) onboard Hayabusa 2 has detected hydrated minerals on the asteroid Ryugu. MEISEI's scientific observation Deployable Camera (DCAM3) filmed the collision experiment in high resolution. The "Hayabusa 2" mission contributed to research on the origins of the solar system and of life.





Wireless LAN Demonstration (WLD)

On a mission for acquiring automatic docking technology, the cameras onboard the International Space Station (ISS)'s transfer vehicle "KOUNOTORI" (HTV) filmed the ISS so astronauts there could monitor the spacecrafts, transmitting real-time images to the ISS using wireless LAN (WLAN) for the first time in the world.



Shirohata Sluice Gate in Chiba Pref

MEISEI aviation products to support safety sky traffic with the communication control equipment under

for safe airplane flight.





©JAXA/NASA

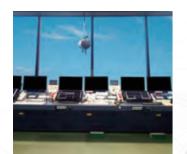
JEM Internal Ball Camera (Int-Ball)

The first camera drone that can record video while moving in space MEISEI Electric Co., Ltd. cooperated with IAXA (Japan Aerospace Exploration Agency) in the field of Body design, Electric design, Assembly, Verification test.

Services to develop a variety of observation instruments, and to provide the testing



DUIC hole mission assy @PM surface mission assy



Console for air-traffic control

Air Traffic Control System

MEISEI supplies telecommunication control equipment that plays a core role in the air traffic control system. By controlling radio communication between airplane nilots and air-traffic controllers MEISEI's equipment contributes to safety of the sky.





Compact Tower

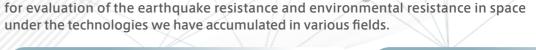
CVA (Compact VFR system for ATC) performs as back up control tower in emergency cases; CVA can quickly recover communication capabilities damaged by natural disaster like Tsunami, flood, unexpected situation like power failure, fire, terrorism, etc.



Space Technology Diversion or Ground Equipment

X-ray Camera A small, light, portable camera able to visualize cesium derived radiation in a short amount of time. We are looking forward to seeing it utilized in future decontamination work.

Diffusive Characteristic



Entrusted Test



Small Space Chamber

The small space chamber simulates the conditions (high vacuum, cold, darkness) to which devices installed in satellites will be exposed, in order to evaluate, amongst others, their environmental tolerance, thermal design and performance on the



SAC-20 transportable VCCS

SAC-20 is carriable VCCS. It can be used for air traffic communication equipment during a disaster or an emergency, etc.

Airport Meteorological **Data Indication System**

This device can receive, display, store, and print the real-time data and the weather reports provided by Japan Meteorological Agency via weather information receiving equipment. The printing function is optional. It can be connected to general-purpose products, which enables users effectively to utilize their existing products

■ Company History

With a consistent system covering from research and development to design & production, and maintenance, MEISEI provides a one-stop solution for customer needs.

In order to constantly pursue new possibilities and deliver excellent products that exactly meet customer needs, MEISEI established an integrated system covering from research and development to design & production, construction, and maintenance. In June 2012, MEISEI has started anew as a member of the IHI Group. In combination of the original manufacturing capabilities accumulated by MEISEI and wide business opportunities of the IHI Group, MEISEI will continue to create world-leading products and services.



To respond quickly and accurately to demands, we adhere to a flexible and efficient research and development operations.

With its wide range of fundamental technologies and products, MEISEI utilizes a cross-expertise project team structure. Through its flexible and efficient R&D operations, and interaction with customers, MEISEI develops the products aligned with market demands.

We have excellent operational systems for design, production, installation work, and maintenance to provide superior quality products and services.

MEISEI's highly trusted design and manufacturing technologies, which have cultivated for its spaceborne and weather-related equipment, have been applied to a wide range of purposes. We aim to manufacture products whose creativity and ingenuity satisfy our customers at all stages, ranging from design to manufacturing, installation and maintenance.

We offer extensive coverage across Japan, based on Tokyo Branch and West Japan Branch, and respond flexibly to customer needs.

With the branches as our sales and service bases, and in cooperation with our head office which is our manufacturing hub, we strive to meet our customers' expectations.



We guarantee one-stop services from product planning to research, development, manufacturing, installation, and maintenance.



MEISEI has certified for the International Organization for Standardization (ISO).

MEISEI has acquired the certification of the International Organization for Standardization (ISO) for ISO 9001 "Quality Management System" and ISO 14001 "Environmental Management System."

1938	•	Incorporated with capital of 300,000 yen in Shimomaruko, Kamata-ku, Tokyo	1995	
1939	•	Started manufacturing and sales of radiosonde.	1996	•
1945		Lost the plant due to the fire caused by the air raid of World War II. Relocated the head office and plant to Isesaki, Gunma.	2000	
1946	•	Relocated the head office to Omori, Ota-ku,Tokyo.	2000	i i
1948	•	Receiver Code sending type radiosondes delivered to the Central Meteorological Observatory	2001	
1952	•	Automatic weather station delivered to the Central Meteorological Observatory		
1953	•	Designated common battery switchboard manufacturer by Nippon Telegraph and Telephone Public Corporation (present NTT)		
1955	•	Rocket telemeters delivered to the Institute of Industrial Science, University of Tokyo	2003	
1956		Achieved the best results at the Radiosonde International Comparison Test in Bayern, Switzerland	2004	
1957	ė	Relocate the head office to Ginza, Tokyo.	2007	
1962	ė	Stocks listed in the second section of the Tokyo Stock Exchange	2007	
1964	•	Moriya Plant completed		
1965	•	Key telephone systems delivered to Nippon Telegraph and Telephone Public Corporation	2009	
1966	•	Satellite tracking instrument delivered to the Department of Aeronautics and Astronautics, University of Tokyo	2010	
		RC type PABX delivered to Nippon Telegraph and Telephone Public Corporation	2012	
1967	•	Relocate the head office to Koishikawa, Bunkyo-ku, Tokyo.		
1968	•	Isesaki Plant completed at Isesaki City, Gunma Prefecture		
1969	•	Participated the 11th Antarctic exploration team.		
	Ì	Receiving system for Echosonde for the vessel delivered to Japan Meteorological Agency		
1970		Antenna/directional coupler mounted on Japan's first satellite "Ohsumi"	2013	
1973		Telemetry systems for disaster prevention of coastal areas delivered to Japan Meteorological Agency		
1974	•	Polar satellite data receiving units delivered to Japan Meteorological Agency		
		AMeDAS (Automated Meteorological Data Acquisition System) delivered to Japan Meteorological Agency	2014	
		Push button telephone delivered to Nippon Telegraph and Telephone Public Corporation		
1976	i	Wired robot meteorological observation systems delivered to Japan Meteorological Agency	2015	
1978	•	Oceanographic meteorological automatic observation units delivered to Chiba Prefecture	2016	
1981		Seismic telemetry delivered to JICA (Japan International Cooperation Agency)	2019	
1982	ė	VLBI delivered to Geospatial Information Authority of Japan		
1983	•	EP-IO electronic switching systems delivered to Nippon Telegraph and Telephone Public Corporation.		
1985	•	The Business Phone E Super Series (EK) was delivered to NTT (the former Nippon Telegraph and Telephone Corporation)	2020	
1986	•	Seismic telemetry installed on Izu Oshima Island		
1987	i	Airport Weather Observation system delivered to Turkish Republic.	2021	
1988	•	Seismic observation units delivered to Haneda Airport (Tokyo International Airport)	2022	
1990	•	Water supply monitoring system delivered to the Naha City Water works, Okinawa Prefecture	2023	
1991	•	Seismic intensity meters delivered to Japan Meteorological Agency and NHK, AMeDAS expanded to be installed throughout Japan		
1992	•	Participated in ISY (International Space Year).		
1994		Tidal wave and seismic observation units delivered to Japan Meteorological Agency.	•	J

Acquired ISO9001 certification

IMA-95 type automatic weather station delivered to Japan Meteorological Agency Seismic intensity meters capable of measuring seismic intensity of up to 7 grade on Japanese Shindo scale delivered to Japan Meteorological Agency AMOS delivered to Japan Meteorological Agency Received ISO14001 certification Mission demonstration test satellite MDS-1 'Sakinake' was successfully launched carrying MEISEI's space environment observation unit μ-LabSat No.1 was successfully launched carrying MEISEI's wireless transmission unit (satellite bus system) Seismic observation instruments with Nowcast function delivered to Japan Meteorological Agency Released Earthquake information disaster prevention system ARS (Auto Radiosonde System) delivered to Japan Meteorological Lunar explorer "KAGUYA" was successfully launched JMA Emergency earthquake bulletin receiving unit QCAST series "Space Environment Data Acquisition equipment – Attached Payload" and "Monitor of All-sky X-ray Image" were installed onboard the International Space Station (ISS) Hayabusa returned: X-ray Spectrometer onboard played important role successfully 424 DCP of Geostationary Meteorological Satellite delivered to JMA for reconstruction from Great East Japan Earthquake Technology alliance with the South West Research Institute (SwRI) Business alliance with IHI Corporation, and became a member of the IHI Group Cubesat "WE WISH" released successfully into space from the ISS Cubesat "WE WISH" entered atmosphere completing its mission successfully and satisfactory. Epsilon-1launched successfully. Hot Gas Valve Motor Controller was onboard the Epsillon-1. Headquarter was moved to Isesaki-shi, Gunma Prefecture. Relocation of Tokyo branch offices to Toyosu IHI Building, Toyosu, World smallest and lightest radiosonde "iMS-100" released for the Deployable Camera and Near Infrared Spectrometer installed aboard the Asteroid Explorer "Hayabusa 2" Started POTEKA weather information service. Equipped "Arase" Geospace Probe with 7 instruments of observation system Radiosonde (RS-11G) was certified by GRUAN (an international organization that promotes the establishment of Upper-air observation networks for climate change monitoring) Near-Infrared Spectrometer (NIRS3) onboard "Hayabusa 2" discovers hydrated minerals in Ryugu; Deployable Camera (DCAM3) successfully films the collision experiment The world's first successful WLAN transmission between two spacecraft (Wireless LAN Demonstration: WLD): MEISEI's contribution to the development. IHI Corporation became wholly-owning parent Company Radiosonde (iMS-100) was certified by GRUAN (an international organization that promotes the establishment of Upper-air observation networks for climate change monitoring). Merged our Hydrology business into IHI Construction Service Co., Ltd. Reorganized branch offices and service bases into two locations: Tokyo and Osaka



What MEISEI should work on to achieve a sustainable future.

MEISEI's corporate philosophy is "We continuously contribute to the development of a safe and secure society by creating innovative products and services utilizing our unique sensing and communication technologies." Because this philosophy is well aligned with the SDGs, we believe that we can contribute significantly to achieving these global goals through our operations. As natural disasters and the severity of the damages they cause have been on the increase in recent years, our weather observation systems such as radiosonde POTEKA® and disaster prevention systems such as the seismic intensity meter, QCAST® can help prevent and mitigate damages from natural disasters. In the area of space defense, our satellite-mounted instruments are being utilized for studies on global-scale phenomena using earth observation satellites as well as to identify damages from natural disasters and enable quick responses. MEISEI can make a variety of contributions to the achievement of a sustainable future.





The Sustainable Development Goals are a universal call to action to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere. The 17 Goals were adopted by all UN Member States in 2015, as partof the 2030 Agenda for Sustainable Development which set out a 15-year plan to achieve the Goals.

MEISEI ELECTRIC CO., LTD. www.meisei.co.jp/english/