

Top Message	Interview to Head of Corporate Environmental Strategy Unit	Special Feature: The Power of ICT	Fujitsu Group Environmental Action Plan Stage VII	Chapter I Contribution to Society	Chapter II Reducing Our Environmental Burden	Environmental Management	Data Overview
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CASE 1 Climate and Water

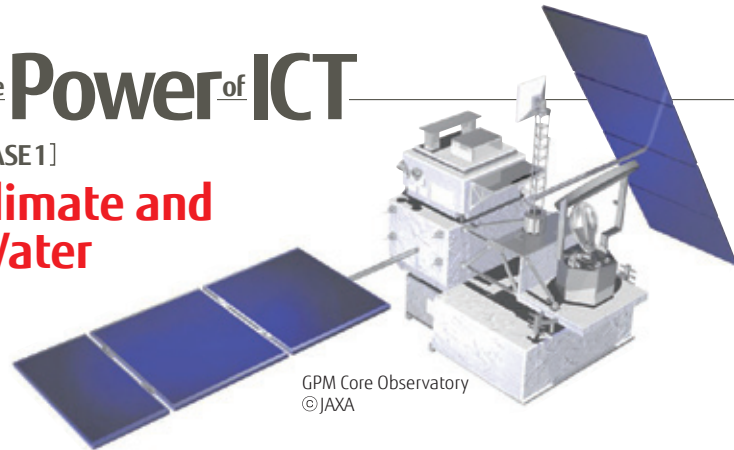
CASE 2 Agriculture

CASE 3 Energy

The Power of ICT

[CASE 1]

Climate and Water



Monitoring Rain and Snow across the Globe to Make Effective Use of Limited Water Resources

— Developing an Operations System to Process Earth Observation Data in the Global Precipitation Measurement (GPM) Mission led by JAXA and NASA

Challenge

Preparation for Droughts and Floods

Of the 1.4 billion square kilometers of water on our planet, groundwater and other fresh water usable in our lives accounts for a mere 0.8%. With demand for water expanding under the growth of economies and populations, effective use of the vital resource of fresh water requires that we monitor precipitation conditions over a broad range, and collect and manage data accurately. Currently, however, monitoring data from locations beyond the reach of monitoring networks, such as oceans, remote areas, and developing countries, is insufficient.

At the same time, disasters and economic losses due to extreme precipitation have been increasing worldwide in recent years. To lessen the damage from such disasters, real-time monitoring of precipitation and sharing of data are essential.

Solutions

Monitoring of Rain and Snow in Real Time

Satellites are the most effective means of monitoring precipitation over a broad area. However, such monitoring has so far been infrequent, and covering the entire globe required several days. To enable high-frequency, high-precision monitoring of precipitation on a global scale, the Global Precipitation Measurement (GPM) mission, an international joint program led by JAXA and NASA, is now underway.

The key to detailed and accurate monitoring of rain and snow in this mission is the Dual-frequency Precipitation Radar (DPR) installed in the GPM Core Observatory. Fujitsu is in charge of the GPM/DPR Mission Operations System that will handle DPR data processing. This system processes and edits the radio waves that reach the satellite after being reflected from rain droplets and snowflakes, combines this with monitoring data from multiple other satellites, creates a precipitation map of the entire globe every hour, and provides the information to NASA and the Japan Meteorological Agency. This sort of data processing is unprecedented anywhere in the world.

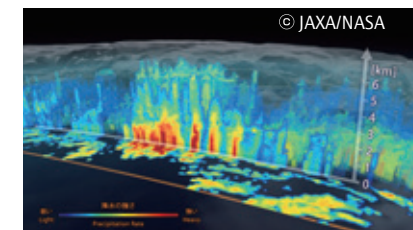
The GPM Core Observatory was launched in February 2014, and is currently undergoing initial verification of the DPR.

Benefits

Making Effective Use of Monitoring Data in Various Fields

Monitoring by multiple satellites enables the creation of global-scale, 24-hour, 365-day precipitation maps in close to real time. By assessing what degree of precipitation is occurring at any spot on earth, the system is expected to aid the management of water resources, and also to benefit agriculture, logistics, and other industries by improving the precision of weather forecasts. It is also thought that the ongoing accumulation of precipitation data will aid verification and improvement of our understanding of climate change and abnormal weather mechanisms.

Through the provision of ICT, Fujitsu will support adaptation to a changing global environment and will contribute to people's safe and secure lifestyles.



3D distribution image of precipitation observed by GPM's Dual-frequency Precipitation Radar