

# Fujitsu's approaches to Climate Change Adaptation and Disaster Risk Reduction

Hideyuki Kanemitsu

Vice President

Corporate Environmental Strategy Unit

FUJITSU LIMITED

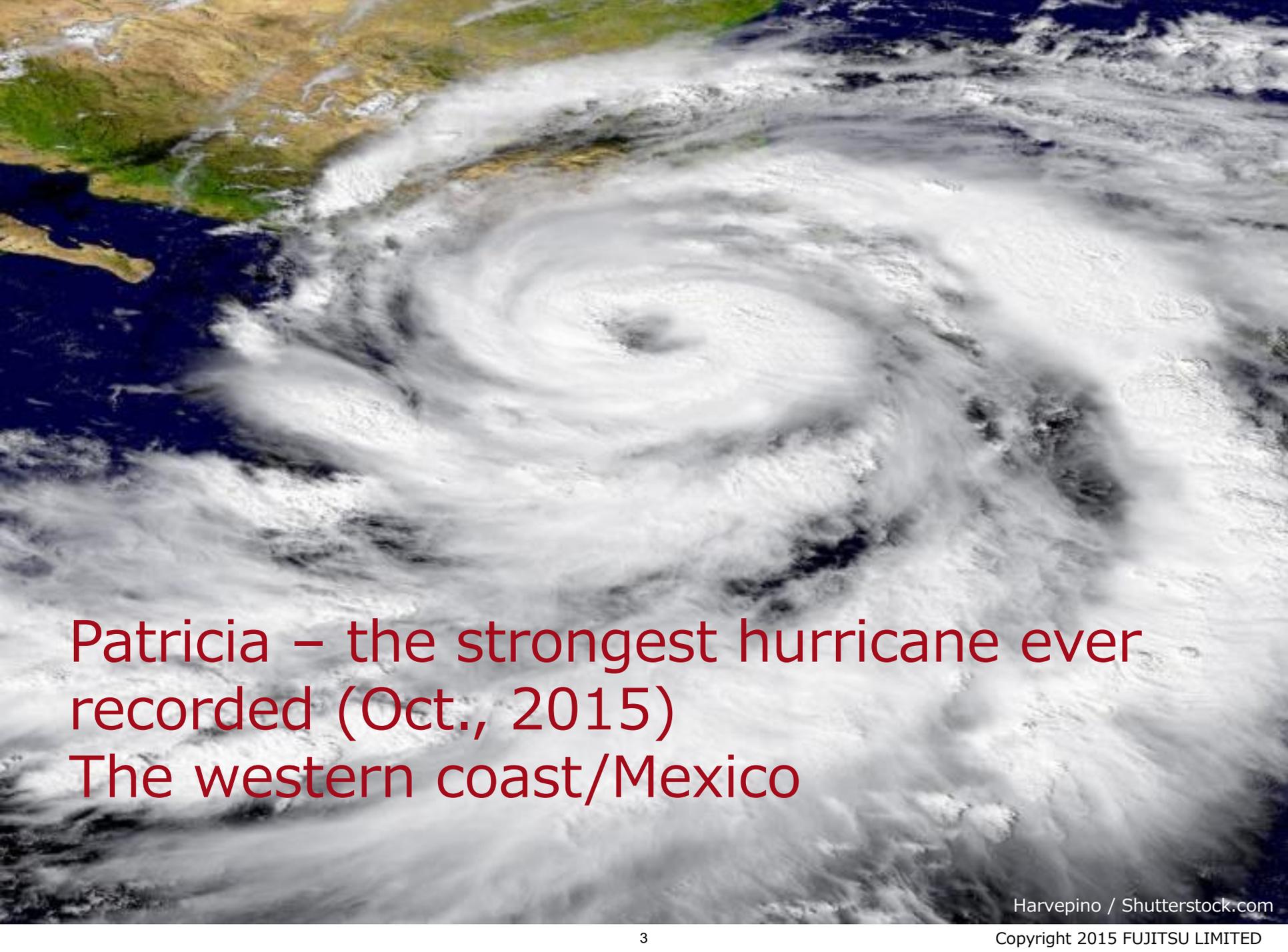
# Beautiful paradise, Bahamas



# Devastating Climate- related Disasters worldwide



出典: 8. 20 豪雨災害における避難対策検討部会

A satellite image of Hurricane Patricia, showing a well-defined eye and a dense, swirling cloud structure over the western coast of Mexico. The landmass is visible in the upper left, and the ocean is dark blue. The hurricane's eye is a dark spot in the center of the white cloud spiral.

Patricia – the strongest hurricane ever recorded (Oct., 2015)  
The western coast/Mexico



Flooding submerged large parts of  
the historic city  
(Oct., 2015)  
Ayuttaya/Thailand



# Forest Fire - Valley And Butte Wildfires Among Most Damaging In California History (Sep.,2015)

# Disaster Data & Statistics

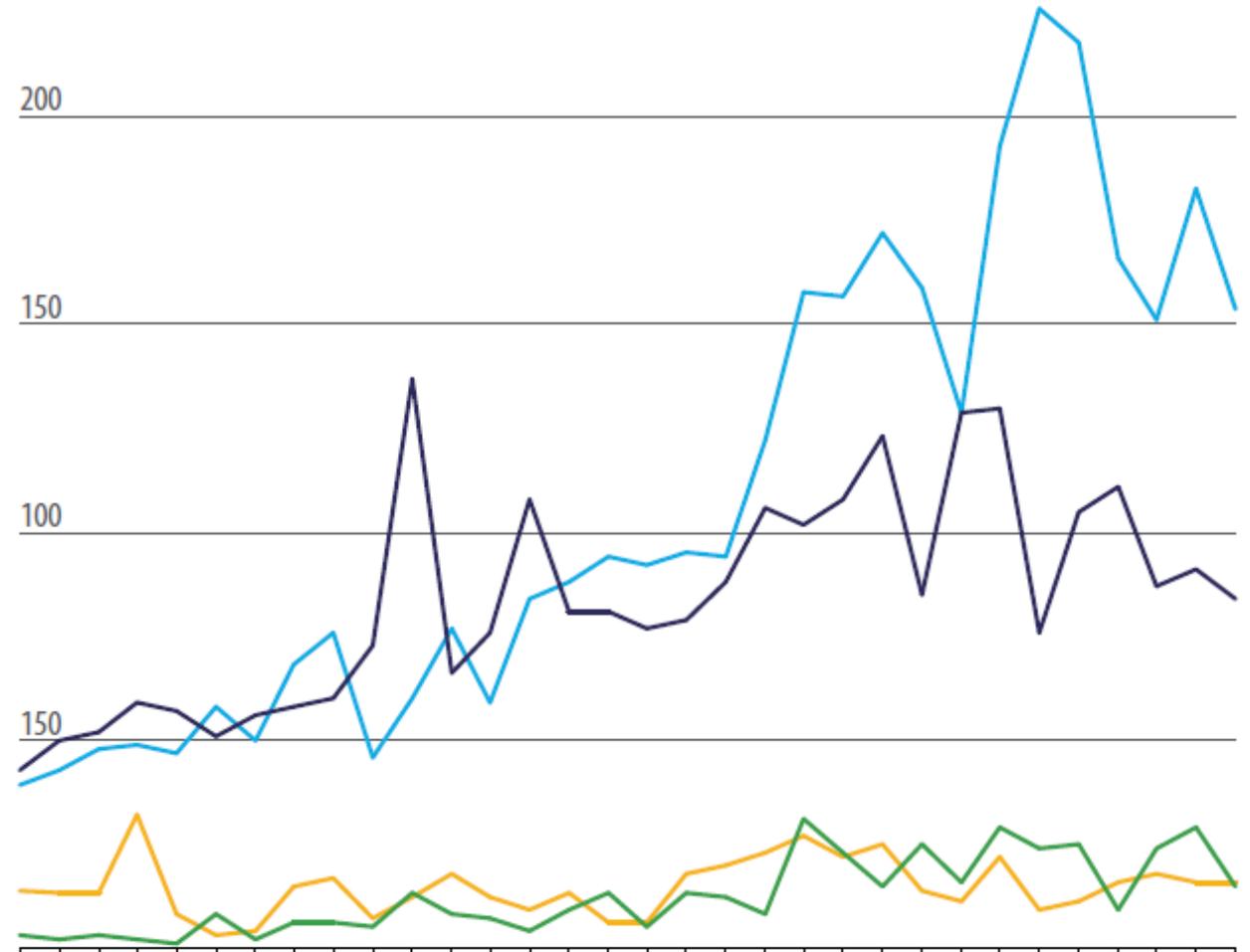
## Number of Climate-related Disasters Around the World (1980-2011)

**3455**  
FLOODS

**2689**  
STORMS

**470**  
DROUGHTS

**395**  
EXTREME TEMPS



Year	FLOOD	STORM	DROUGHT	EXTREME TEMPERATURE
1980	39	43	14	3
1981	43	50	13	2
1982	48	52	13	3
1983	49	59	32	2
1984	47	57	8	1
1985	58	51	3	8
1986	50	56	4	2
1987	68	58	15	6
1988	76	60	17	6
1989	46	73	7	5
1990	60	137	12	13
1991	77	66	18	8
1992	59	76	12	7
1993	84	108	9	4
1994	88	81	13	9
1995	94	81	6	13
1996	92	77	6	5
1997	95	79	18	13
1998	94	88	20	12
1999	122	106	23	8
2000	158	102	27	31
2001	157	108	22	23
2002	172	123	25	15
2003	159	85	14	25
2004	129	129	11	16
2005	193	130	22	29
2006	226	76	9	24
2007	218	105	11	25
2008	166	111	16	9
2009	151	87	18	24
2010	183	91	16	29
2011	154	84	16	15

**UNISDR**  
The United Nations Office for Disaster Risk Reduction  
<http://www.unisdr.org>  
Created on 13 June 2012  
DATA SOURCES  
EM-DAT - <http://www.emdat.be/> - The OFDI/CRED International Disaster Database; Data version: 13 June 2012 - v12.07  
Humanitarian Symbol Set (2008)  
<http://www.un.org/isp/guide/inf.php>

# Weather-related financial loss worldwide **FUJITSU**

■ 1980 – 2014 Percentage distribution



19,200 Loss events



■ 46%  
■ 41%  
■ 13%

Overall losses\*\* US\$ 3,300bn



■ 51%  
■ 32%  
■ 17%

\*\*Losses in 2014 values, adjusted to inflation based on country CPI

■ **Meteorological events**  
(Tropical storm, extratropical storm, convective storm, local storm)

■ **Hydrological events**  
(Flood, mass movement)

■ **Climatological events**  
(Extreme temperature, drought, forest fire)



# Fujitsu's Sustainability Solutions



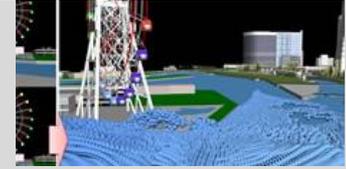
# Our approaches to Adaptation

Disaster

Weather prediction simulation



Natural disaster simulation

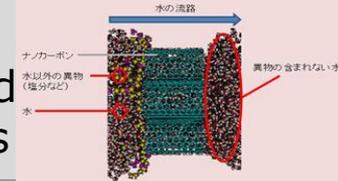


Water resource

Water Trading Management System



Material design of Water filtration and circulation systems

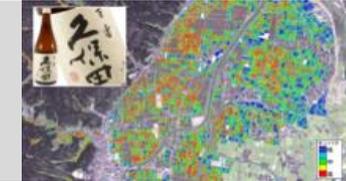


Food and Agriculture

Food and Agriculture Cloud Services (Akisai)



Agricultural land satellite analysis service

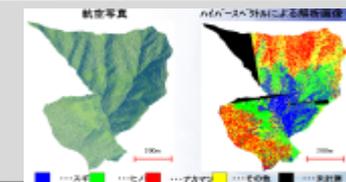


Natural ecosystem

Biodiversity Cloud Service



Hyperspectral Vegetation maps



Livelihood

Location data service (SPATIOWL)



Smart Grid

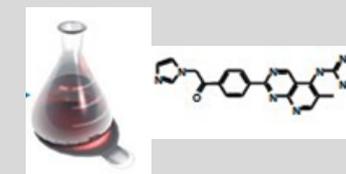


Health

Regional medical network (Human Bridge)



Drug discovery simulation

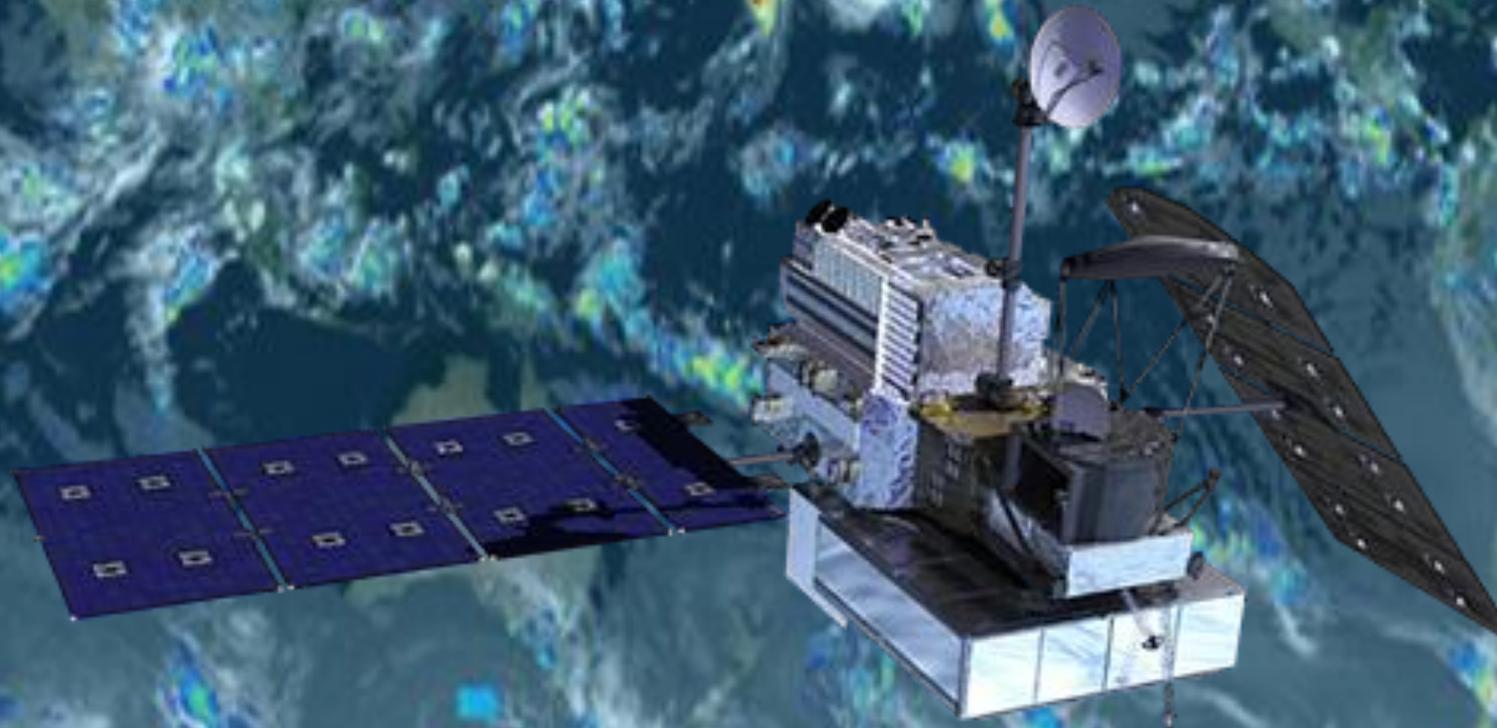


# High-Performance Computer Technology

K computer takes first place  
in Graph 500 supercomputer ranking  
(June 2015)

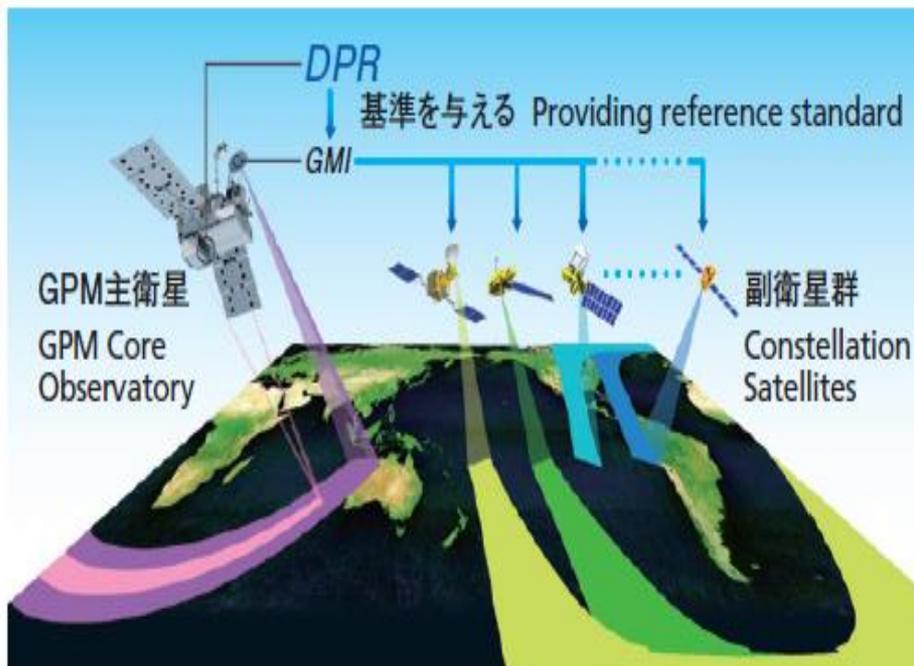
# Global scale satellite project

- Global Precipitation Measurement (GPM)
- Japan's Dual-frequency Precipitation Radar (DPR)

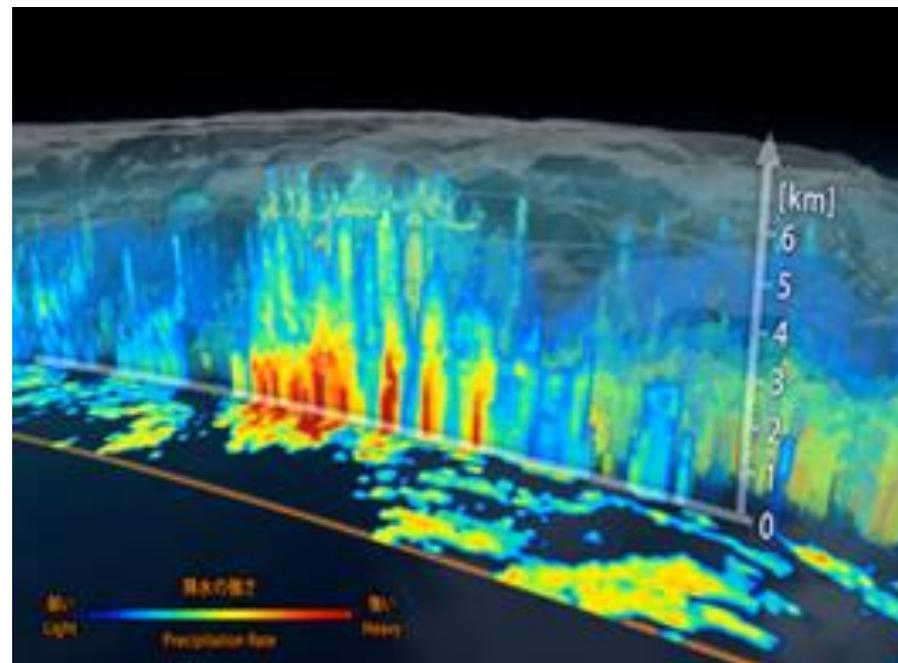


NASA/JAXA

## ■ GPM/DPR Mission Operations System



The observation accuracy of the constellation satellites is calibrated and improved by the reference standard provided by the GPM core satellite.

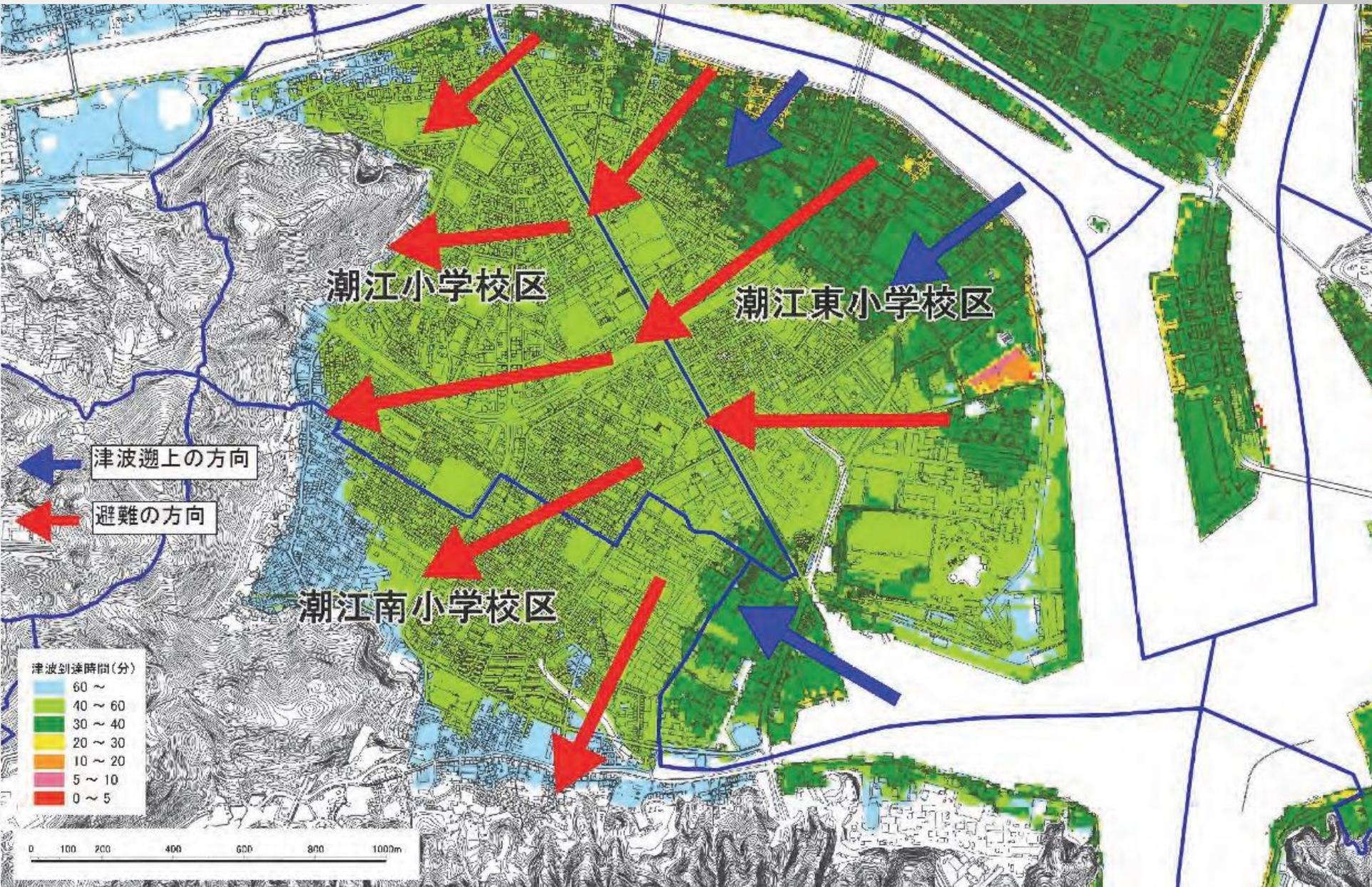


3D of precipitation by DPR on board the GPM Core Observatory. The image shows the distribution of heavy rainfall caused by an extratropical cyclone that had developed.

# Anti-disaster Simulation Technology



# Hazard Map created by local government FUJITSU





# Mobile Telecom. Technology



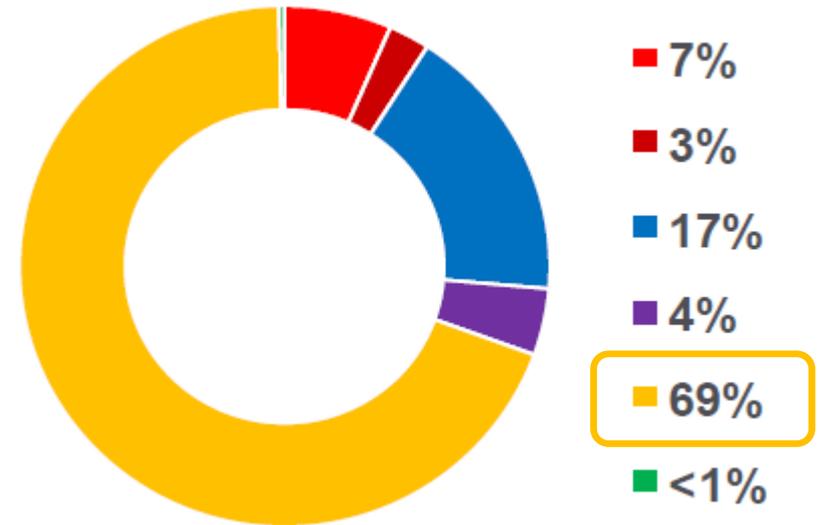
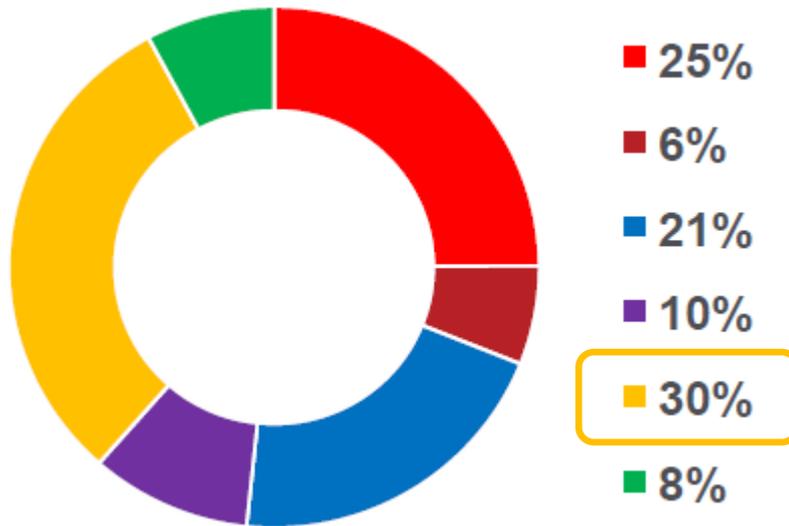
# Weather-related fatalities worldwide

■ 1980 – 2014 Percentage distribution



19,200 Loss events

850,000 Fatalities\*



\*Number of fatalities without famine.

■ North America, incl. Central America and Caribbean

■ South America

■ Europe

■ Africa

■ Asia

■ Australia/Oceania

# Disaster Prevention System based on smartphones **FUJITSU**



# Shaping Tomorrow with You



Pressmaster / Shutterstock.com

The realization of a prosperous society  
in which people can live with peace of mind

The Power of ICT  
for sustainability and beyond...



FUJITSU

shaping tomorrow with you