

(2) Development of technology to support risk management for water-related disasters occurring more frequently and severely in Japan and overseas

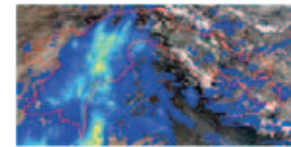
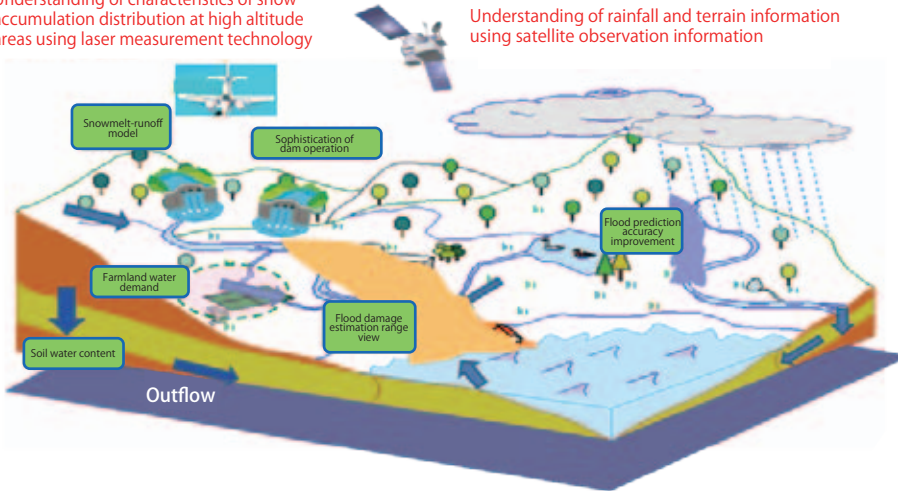
Research Summary

Research period: FY 2016 - 2021
Program leader: Director of Water-related Hazard Research Group

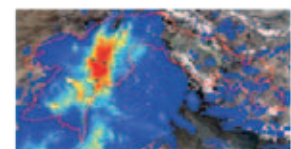
Various simulation images using satellite information

Understanding of characteristics of snow accumulation distribution at high altitude areas using laser measurement technology

Understanding of rainfall and terrain information using satellite observation information

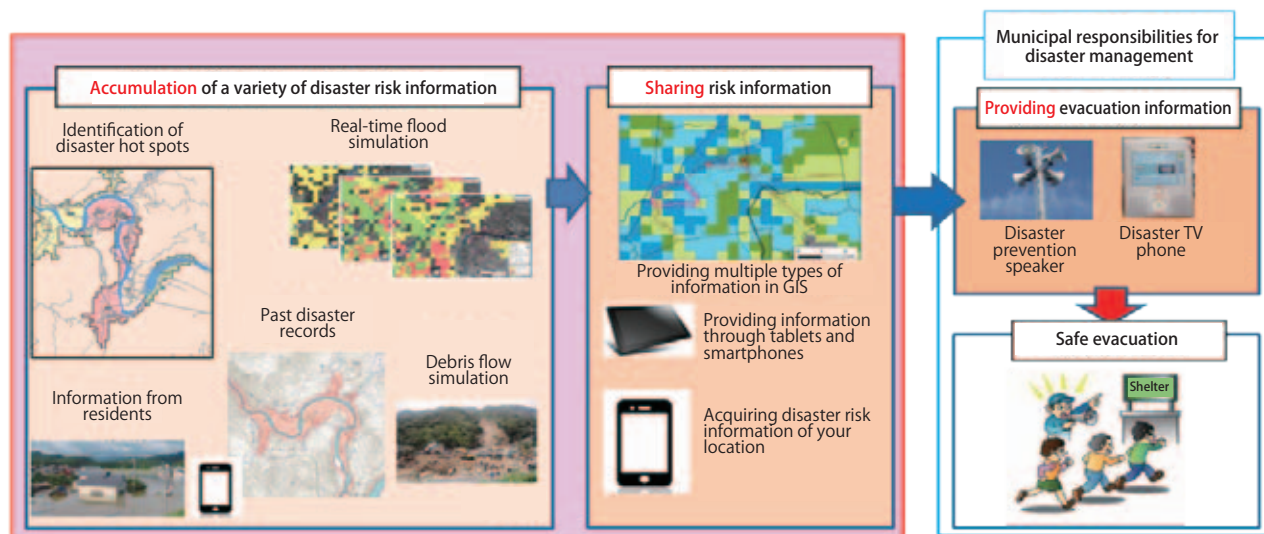


Original satellite rainfall image



Satellite rainfall image after accuracy improvement
An example of accuracy improvement on satellite rainfall information used for flood forecasting

Outline of the current disaster information system



In recent years, rainfall events have become more localized, intensive, and extreme; for example, more events with an hourly rainfall of over 50 mm have been observed throughout Japan. In the future, due to the impact of global warming, more regions of the country will suffer from extreme rainfall that may be even more intensified and frequent. In constant, snowy cold regions are projected to have a shorter snowfall period and, as a result, less snowpack.

In this research project, we aim to develop technologies to characterize water-related disasters in terms of meteorology, hydrology and resulting damage. We will also develop technologies for various organizations to cope better with disasters using technologies for collecting and providing information. The following are the main research goals:

- (1) Development of technologies and models for improving accuracy of flood forecasting and long-term water balance analysis

- (2) Development of technologies for analyzing water disaster hazards in various natural and local conditions, methods for water-related disaster risk assessment using highly accurate, advanced estimation approaches, and indicators for evaluating the effectiveness of disaster prevention measures
- (3) Development of methods for producing, utilizing and communicating useful information on disaster prevention and disaster status to assist efforts in disaster prevention and mitigation

These technologies and methods will be used to establish systems to estimate damage and risk using real-time observation information. Such systems will make reliable disaster information readily available for municipal disaster management personnel, who will thus be able to make well-informed decisions for effectively fighting floods and leading safe evacuation in time of disaster.