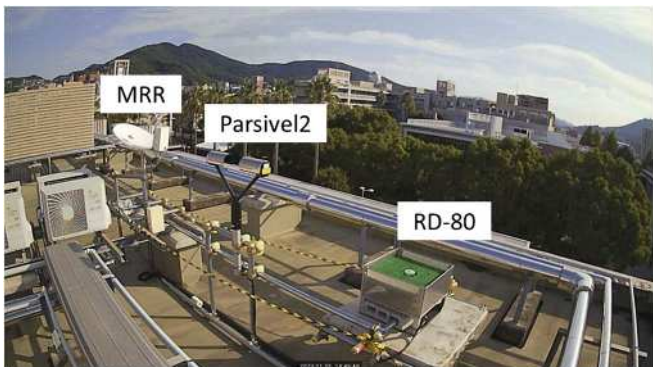
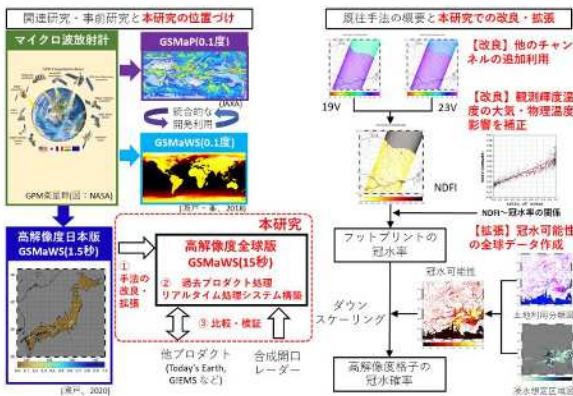


Name	SETO Shinta	Job Title	Professor	Area of Expertise	Radio Hydrology
1. Main Research Topics ① Satellite remote sensing of precipitation We are involved in developing technology to observe global precipitation using precipitation radars and microwave radiometers board on satellites. The Japan Aerospace Exploration Agency (JAXA), in collaboration with the National Aeronautics and Space Administration (NASA), began operating the world's first spaceborne precipitation radar (PR) in 1997 (operations ended in 2015). As its successor, the Dual-frequency Precipitation Radar (DPR) has been in operation since 2014 and continues to operate today. Additionally, development has started on the spaceborne precipitation radar equipped with Doppler functionality (KuDPR). By combining the three-dimensional precipitation information obtained from the PR and DPR with high-frequency observations from multiple microwave radiometers such as AMSR2 and GMI, we have developed the Global Satellite Mapping of Precipitation (GSMaP). This system estimates global precipitation (excluding the polar regions above 60 degrees latitude) at a resolution of 0.1 degrees latitude/longitude (about 10 km) every hour. GSMaP is widely used in fields such as water resources and water-related disaster management, especially in Asian countries and other regions where ground-based precipitation observation methods are insufficient. For about 20 years, Seto has been conducting joint research with JAXA, working to improve precipitation observation by means of precipitation radar and GSMaP. Since 2022, a compact precipitation radar (MRR) for verification purposes, as well as rain drop size distribution observation instruments (RD-80, Parsivel2), have been installed at Building 1, Faculty of Engineering, Nagasaki University. Based on these experiences, I hope to further research and apply satellite precipitation observation to water resources and disaster management in various regions around the world.					
					
② Rapid detection method of flood inundation area In various regions, floods caused by heavy rain have occurred, such as the July 2020 heavy rain (Kumagawa River) and the July 2018 heavy rain in western Japan (Hijikawa River, Takahashi River). Quickly estimating inundated areas is important for rescue operations and recovery support. However, since current estimations rely on aerial photographs and on-site observations, there are still challenges in terms of speed. It has been known that observations from satellite microwave radiometers can provide indicators that correlate well with the water surface area rate on the ground, but because their resolution is rather coarse—several kilometers or more—they have not yet been practically applied for these purposes. Seto is developing a method to quickly and at high resolution estimate inundated areas by first determining the flood susceptibility of each location using land use data and the results of pre-conducted flood simulations, and then combining that with observations from microwave radiometers.					
					
2. Keywords remote sensing、radar、microwave radiometer、precipitation、flood inundation					
3. Remarks and Websites researchmap: https://researchmap.jp/shintaseto Laboratory: https://www.cee.nagasaki-u.ac.jp/~kankyo/					