

# **Rice Crop Monitoring Using Microwave and Optical Remotely Sensed Image Data**

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Hiroshima Institute of Technology (HIT) is operating the direct down-links of microwave and optical satellite data in Japan. This study focuses on the validation for rice crop monitoring using microwave and optical remotely sensed image data acquired by satellites referring to ground truth data such as height of crop, ratio of crop vegetation cover and leaf area index in the test sites of Japan. ENVISAT-1/ASAR data has a capability to capture regularly and to monitor during the rice growing cycle by alternating cross polarization mode images. However, ASAR data is influenced by several parameters such as landcover structure, direction and alignment of rice crop fields in the test sites. In this study, the validation was carried out combined with microwave and optical satellite image data and ground truth data regarding rice crop fields to investigate the above parameters. Multi-temporal, multi-direction (descending and ascending) and multi-angle ASAR alternating cross polarization mode images were used to investigate rice crop growing cycle. LANDSAT data were used to detect landcover structure, direction and alignment of rice crop fields corresponding to the backscatter of ASAR. As the result of this study, it was indicated that rice crop growth can be precisely monitored using multiple remotely sensed data and ground truth data considering with spatial, spectral, temporal and radiometric resolutions.