

Development of machine learning and remote sensing-based water management platform for sustainable agriculture in Asian deltas



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To support sustainable agricultural production in Asian countries

The river deltas in Asian countries located in a monsoon region are major rice-producing areas. However, they are vulnerable to recently increasing floods and saltwater intrusions into farmlands due to climate change.

Irrigation facilities are managed by local unions according to the regulations. However, taking appropriate measures against changing estuarine water levels, caused by abnormal weather due to climate change, is difficult.

To minimize crop damage due to such risks in water environments, a platform will be developed to support immediate decision-making for water facility operation in changing situations.

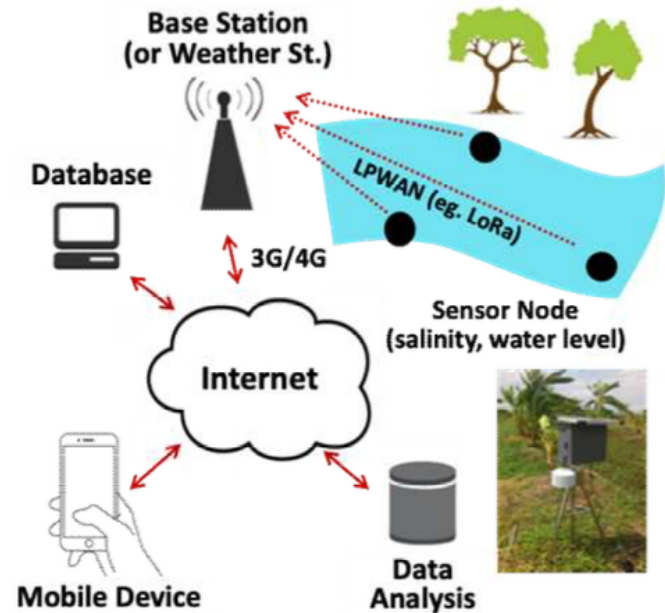
Contribution to Asian countries by utilizing the results obtained in Niigata

The research team of Associate Professor Yoshikawa, Kobe University, and KINDAI University has investigated methods for predicting flooding time and developed quasi-real-time technologies for examining flooded areas and crop growth by remote sensing in the Niigata Plain.

In the future, a joint study will be conducted with Vietnamese and Indonesian researchers with the support of the e-ASIA Joint Research Program to develop and provide a platform to address local issues.

The research results should realize sustainable agricultural production and improve farmers' economic bases and livelihoods.

“Integrated water management platform” developed by utilizing machine learning and remote sensing



Remote sensing technology is employed to monitor the conditions of water, farmlands, and crops and visualize short-term predictions on the information terminal screen through high-speed calculations in cooperation with numerical calculation and machine learning models (see the above figure). On the information terminal screen, information for the quasi-real-time prediction of flooded areas and crop growth is displayed on the map (see the figure below).

