

Estimation of the rice-planting field in Bangladesh by satellite remote sensing

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The increase of rice production has been saved many people in the world. Bangladesh has also continued to increase. The amount of rice production in Bangladesh is 5 times as much as that of one in Japan. Recently the problem arises that rice price has been instable due to a large increase of rice production. Maintaining a high rice price can be also a political issue, because rice agriculture is one of the most important industry in Bangladesh. Although Food and Agriculture Organization of United Nations (FAO) have researched the amount of rice production in Bangladesh so far, these data are unreliable, because unofficial figures have been supplied by governments through publications in foreign countries and FAO questionnaires.

Satellite remote sensing is effective to research the area of rice field. We can research it regularly and continuously with low cost. Especially, the microwave remote sensing has a large merit to be observable in spite of the weather. However, since the microwave image data is expensive, research institutions have been limited to observe continuously in developing countries. This study aims to establish the way to research the rice field using satellite images for free. At first, we are calculated the seasonal change of NDVI values in the area of the (BRRRI Bangladesh Rice Research Institute), which idea is based that the harvest season of rice in Bangladesh can be reflected to the NDVI values. As a result, the NDVI values significantly dropped by 0.2-0.25 from November to December, which corresponds to the dry season, although the number of samples was small due to a lot of clouds. Since double cropping is common in Bangladesh, we have captured the one of the two. Based on the results of the test area, we deduced the area of the rice-planting field of Bangladesh. It should be noted that we exclude that of potatoes, sugar cane, and forest area.

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