
Oral sessions | Farming System | O22: Crop Production System

[O22] Crop Production System

Chair: Koki Homma (Tohoku University, Japan)

Chair: Roel Suralta (Philippine Rice Research Institute, Philippines)

Thu. Sep 9, 2021 2:30 PM - 4:30 PM Room 2 (Oral) (Farming System)

3:10 PM - 3:25 PM

[O22-03]Quantitative Analysis on Rice Production Changes for Sixteen Years in Pursat Province, Cambodia

*Nominated for Presentation Awards

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Satellite-based data have become widely used in agricultural studies in recent years. The advantages are to provide spatially and temporally wide information. However, inaccuracy and fluctuation in the data often restrict quantification of the information. In this research, we statistically analyzed satellite-based data and quantitatively estimated rice production changes for sixteen years. We analyzed leaf area index (LAI) products from moderate resolution imaging spectroradiometer (MODIS), which is an 8-day-interval data with 500-meter pixel size. Our target area, Pursat province, is in the west of Cambodia and one of main rice producing area. We selected about twenty sites from mountainside to Tonle Sap Lake and extracted LAI data for sixteen years from 2003 to 2018. The series of LAI for each site was clustered, averaged and moving-averaged in order to quantify changes of the pattern during the period. The analysis revealed some characteristic changes in the patterns at several sites. For example, LAI increased in the dry season; the peak of LAI increased in the rain season; the time of peak became earlier; and LAI suddenly decreased. These may correspond to the cultivation changes: dry season cultivation started; chemical fertilizer used; earlier maturity cultivar was planted; and land deforested. The analysis also suggested that various and drastic changes occurred in recent years. Quantification of satellite-based data with statistical analysis would support spatial distribution of rice production changes obtained by point-based interviews and field investigations.