*Supplement of*

# Annual oil palm plantation maps in Malaysia and Indonesia from 2001 to 2016

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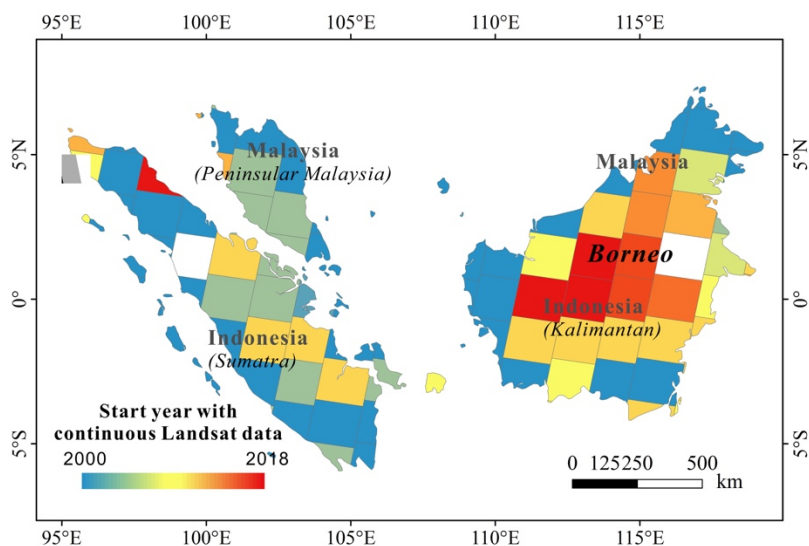


**Figure S1: The Landsat data availability over 2000 to 2018. To fully cover the study area, 104 Landsat footprints are required. However, only 47.12% (49) of the total Landsat footprints meet the continuous data requirement for annual oil palm mapping (at least 1 scene available per year, cloud cover <30%), as indicated by blue color in this figure. 6.73% (7) of the Landsat Path/Rows even failed the continuous data requirement after 2015 (see the red color) (i.e., path/row: 117/59).**

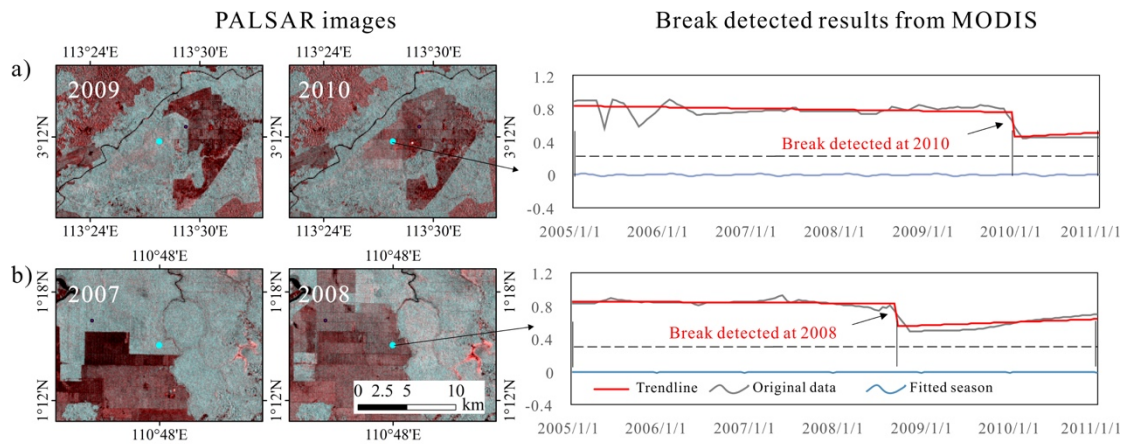
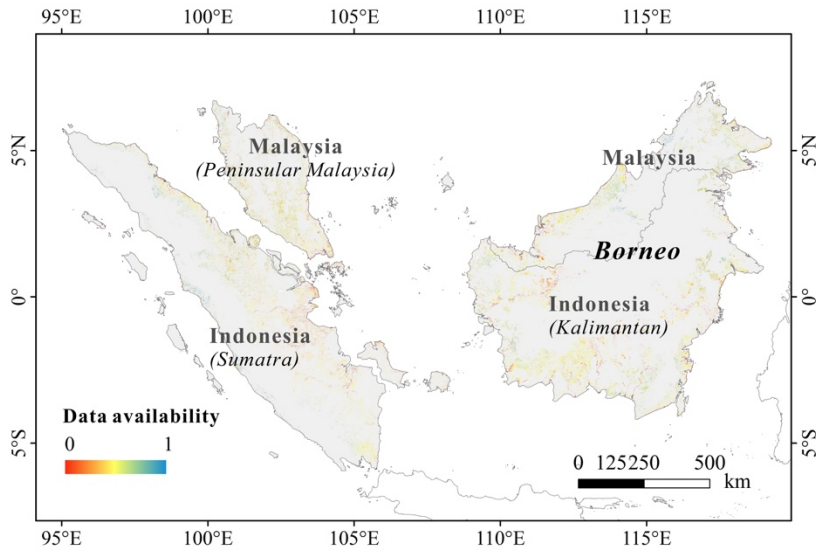
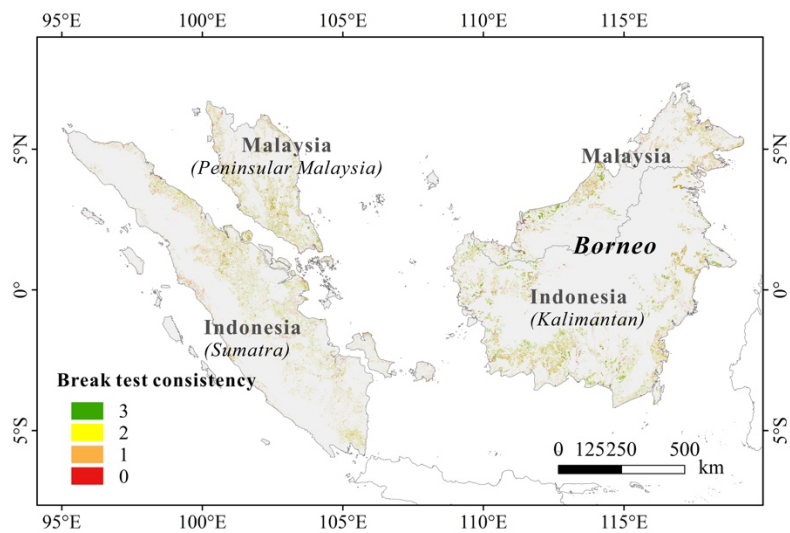



**Figure S2: Two examples of the oil palm plantation change in PALSAR data and MODIS time series. The left graphs display the PALSAR-1 images before and after oil palm change (RGB HH, HV, HV). In the right line figures, the original NDVI time series, fitted trend and seasonal components are shown. The detected break time in MODIS NDVI time-series is consistent with the time lapse of PALSAR data.**

25 **Figure S3: Data availability of the MODIS NDVI dataset from 2010 to 2015. The higher refers to the better data availability (more data acquired during the 6 years) while the lower represents the poor data availability (data scarcity because of the cloud and data quality).**

30  **Figure S4: The quality of the oil palm dataset from 2011 to 2014. The numbers in the legend show how many breakpoint test methods detect the same change year during the whole period, e.g. 3 means that all the three breakpoint test methods detect the same change time during the period while the 0 means no break time detected in the whole period.**

35    **Table S1: Oil palm increasing trends in different statistical datasets and our mapping results.**

| | Period | FAO | USDA | National statistics (MPOB/BPS-Statistic) | Mapping results upper limit | lower limit |
|---|---|---|---|---|---|---|
| Malaysia | 2001-2016 | 0.108 | 0.123 | / | 0.203 | 0.265 |
| | 2011-2015 | -0.067 | 0.137 | 0.160 | 0.164 | 0.147 |
| Indonesia | 2001-2016 | 0.460 | 0.520 | / | 0.573 | 0.674 |
| | 2011-2015 | 0.642 | 0.536 | 0.497 | 0.534 | 0.610 |
| All | 2001-2016 | 0.561 | 0.630 | / | 0.757 | 0.939 |
| | 2011-2015 | 0.575 | 0.673 | 0.654 | 0.681 | 0.774 |