Supplementary Material:

A simple Algorithm for Deriving an NDVI-Based Index Compatible Between GEO and LEO Sensors: Capabilities and Limitations in Japan

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Table S1. Latitude (°N) and longitude (°E) for areas demarcated with parallelograms on each date in the Hokkaido region.

Date	Upper Left		Upper Right		Lower Right		Lower Left	
	Lat	Lon	Lat	Lon	Lat	Lon	Lat	Lon
16 July 2015	43.2	141.1	43.45	141.4	43	141.6	42.75	141.3
8 May 2016	43.4	141.3	43.4	141.9	42.5	141.9	42.5	141.3
12 August 2016	43.2	141.5	43.2	141.9	42.75	141.9	42.75	141.5
2 May 2017	43.3	141.2	43.4	141.5	42.6	141.8	42.5	141.5
18 May 2017	43.5	141.3	43.6	141.5	42.6	141.8	42.5	141.6
12 Jun 2017	43.1	141	44.4	141.6	44.1	142.2	42.8	141.6
14 July 2017	43.5	141.3	43.5	141.9	42.4	141.9	42.4	141.3
21 May 2018	43.4	141.1	43.5	141.5	42.6	141.8	42.5	141.4
6 Jun 2018	43.6	141.2	43.6	141.5	42.7	141.8	42.7	141.5
24 July 2018	43.65	141	43.5	141.4	42.75	141.7	42.9	141.3

Table S2. Latitude (°N) and longitude (°E) for areas demarcated with parallelograms on each date in the Tohoku region.

Date	Upper Left		Upper Right		Lower Right		Lower Left	
	Lat	Lon	Lat	Lon	Lat	Lon	Lat	Lon
27 October 2015	38	139.5	38	141	37	141	37	139.5
5 November 2015	39.5	140.2	39.8	142	37.3	142.8	37	141
15 May 2016	38.8	140.3	39.1	141.2	38.2	141.5	37.9	140.6
22 May 2016	39.6	141.1	38.65	141.4	37	140.8	37.95	140.5
7 November 2016	39.5	140.2	39.6	140.9	38.1	141.3	38	140.6
18 May 2017	39.4	140.9	39.5	141.4	38.8	141.7	38.7	141.2
10 November 2017	38.7	140.4	39	141.4	37.8	141.8	37.5	140.8
3 December 2017	37.9	140.4	38.8	141.4	38.3	141.5	37.4	140.5
20 January 2018	37.3	140.2	37.6	141.1	37.3	141.1	37	140.2
19 April 2018	38.1	140.6	39.7	141.3	38.6	141.6	37	140.9
26 April 2018	38.1	140.6	39.2	141.2	38.1	141.5	37	140.9
4 November 2018	37.6	139.3	38.25	141	38	141.1	37.35	139.4

Table S3. Latitude (°N) and longitude (°E) for areas demarcated with parallelograms on each date in the Tokai region.

Date	Upper Left		Upper Right		Lower Right		Lower Left	
	Lat	Lon	Lat	Lon	Lat	Lon	Lat	Lon
19 December 2015	35.7	137.1	35.7	137.6	34.6	137.6	34.6	137.1
17 March 2016	35.6	136.7	35.8	137.3	34.6	137.7	34.4	137.1
4 May 2016	35	136.8	35.5	138.6	34.7	138.8	34.2	137
7 July 2016	34.8	137.6	35.2	138.6	34.7	138.8	34.3	137.8
31 August 2016	35	136.8	35	137.6	34.6	137.6	34.6	136.8
12 November 2016	36	136.6	36.1	137.3	34.6	137.8	34.5	137.1
30 December 2016	35.5	137.3	35.5	138	34.6	138	34.6	137.3
31 January 2017	35.3	136.8	35.5	137.4	34.6	137.7	34.4	137.1
11 March 2017	35.6	137.2	35.6	137.5	34.6	137.5	34.6	137.2
28 April 2017	34.9	136.8	34.9	137.8	34.6	137.8	34.6	136.8
26 February 2018	35.55	136.6	35.75	137.4	34.6	137.7	34.4	136.9
14 March 2018	35.3	136.5	35.7	137.6	34.6	137.9	34.2	136.8
30 March 2018	35.3	135.7	35.7	137.2	34.5	137.5	34.1	136
8 October 2018	35.3	136.1	35.6	136.7	34.5	137.4	34.2	136.8

Table S4. Latitude (°N) and longitude (°E) for areas demarcated with parallelograms on each date in the Shikoku region.

Date	Upper Left		Upper Right		Lower Right		Lower Left	
	Lat	Lon	Lat	Lon	Lat	Lon	Lat	Lon
28 September 2015	34.4	133.8	34.6	134.5	33.6	134.9	33.4	134.2
14 October 2015	34	132.7	34.5	134.6	34	134.7	33.5	132.8
21 October 2015	34.1	132.7	34.1	133.4	32.9	133.4	32.9	132.7
1 December 2015	33.6	133	33.6	134	33	134	33	133
8 Decmber 2015	33.3	132.7	33.7	133.5	33.2	133.5	32.8	132.7
10 February 2016	34.1	132.4	34.1	133.4	32.7	133.4	32.7	132.4
22 March 2016	34	132.5	34.6	134.5	33.6	134.8	33	132.8
19 December 2016	34.1	132.6	34.6	134.8	33.5	135.1	33	132.9
21 February 2017	33.5	132.8	33.7	134	33.2	134.1	33	132.9
19 May 2017	34.1	132.2	34.1	133.1	32.7	133.1	32.7	132.2
4 Jun 2017	34.1	132.4	34.1	132.8	33.2	132.8	33.2	132.4
24 February 2018	33.6	133.7	34	134.7	33.6	134.9	33.2	133.9
13 April 2018	34.2	132.9	34.6	134.5	33.3	134.9	32.9	133.3
29 April 2018	34.3	133.3	34.6	134.5	33.3	134.9	33	133.7
13 October 2018	33.6	133	33.7	133.5	33.1	133.6	33	133.1
29 October 2018	33.15	132.2	33.4	132.4	32.85	133.1	32.6	132.9

Table S5. Latitude (°N) and longitude (°E) for areas demarcated with parallelograms on each date in the Kyushu region.

Date	Upper Left		Upper Right		Lower Right		Lower Left	
	Lat	Lon	Lat	Lon	Lat	Lon	Lat	Lon
31 July 2015	33.3	130.3	33.45	130.5	32.15	130.6	31.95	130.4
3 October 2015	33.2	130.1	33.5	130.5	32.3	130.8	32	130.4
19 October 2015	33.65	129.8	33.8	130.4	32.15	130.7	32	130.1
4 November 2015	33.5	129.5	33.7	130.4	33	130.6	32.8	129.7
16 January 2016	33.3	130.2	33.6	131.3	32.7	131.5	32.4	130.4
23 May 2016	33.5	130	33.9	131.5	32.6	131.9	32.2	130.4
30 May 2016	33.3	129.4	33.8	130.4	32.7	130.7	32.2	129.7
19 February 2017	33.5	129.7	33.9	131.5	32.8	132	32.4	130.2
2 Jun 2017	33.3	129.4	33.8	130.4	32.4	130.7	31.9	129.7
18 Jun 2017	33.25	130.2	33.4	130.5	32.7	130.7	32.55	130.4
27 December 2017	33.6	129.9	33.8	130.4	32.2	130.8	32	130.3
27 April 2018	33.05	130.1	33.35	130.4	33.1	130.9	32.8	130.6

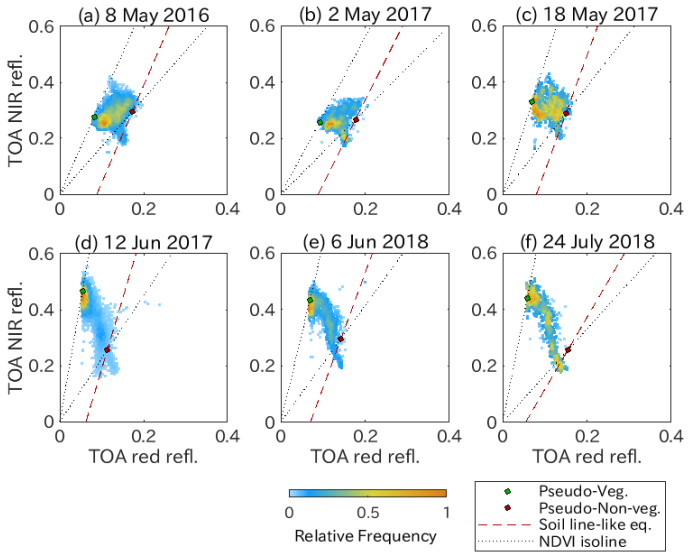

Figure S1. AHI density scatter plot of the red and NIR reflectances for Hokkaido region, excluding water bodies except for 16 July 2015, 12 August 2016, 14 July 2017, and 21 May 2018.

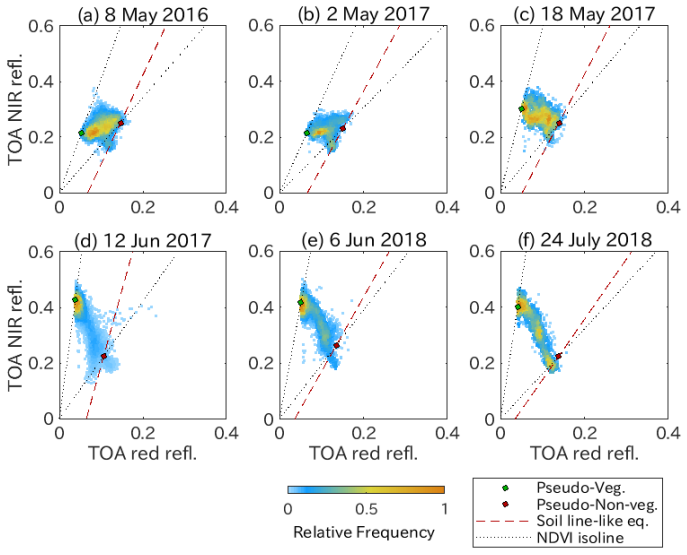

Figure S2. MODIS density scatter plot of the red and NIR reflectances for Hokkaido region, excluding water bodies except for 16 July 2015, 12 August 2016, 14 July 2017, and 21 May 2018.

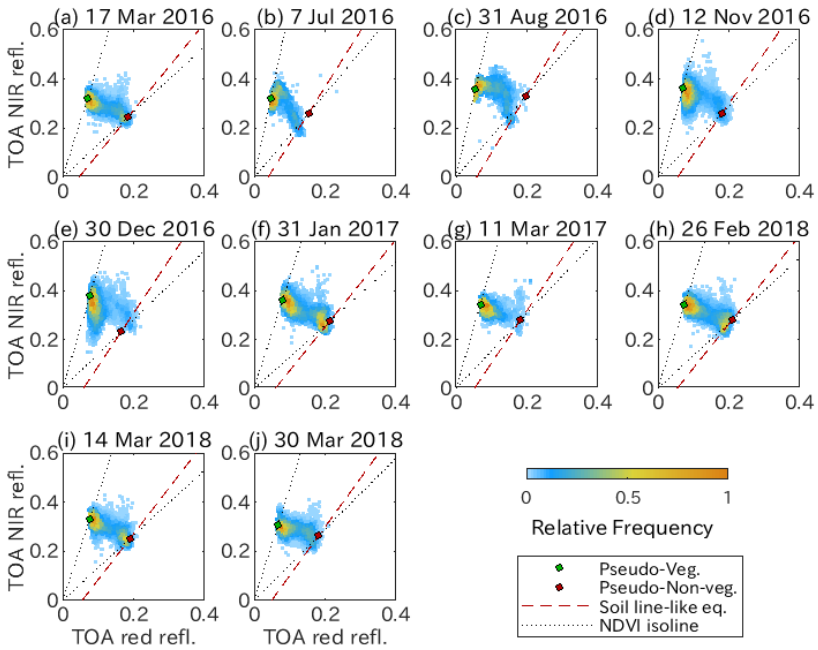

Figure S3. AHI density scatter plot of the red and NIR reflectances for Tokai region, excluding water bodies except for 19 December 2015, 4 May 2016, 28 April 2017, and 8 October 2018.

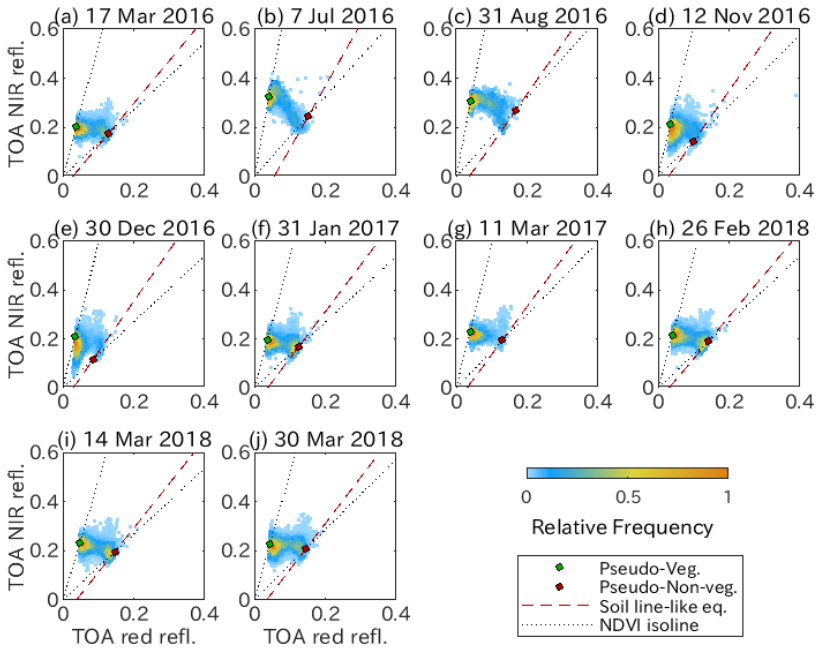

Figure S4. MODIS density scatter plot of the red and NIR reflectances for Tokai region, excluding water bodies except for 19 December 2015, 4 May 2016, 28 April 2017, and 8 October 2018.

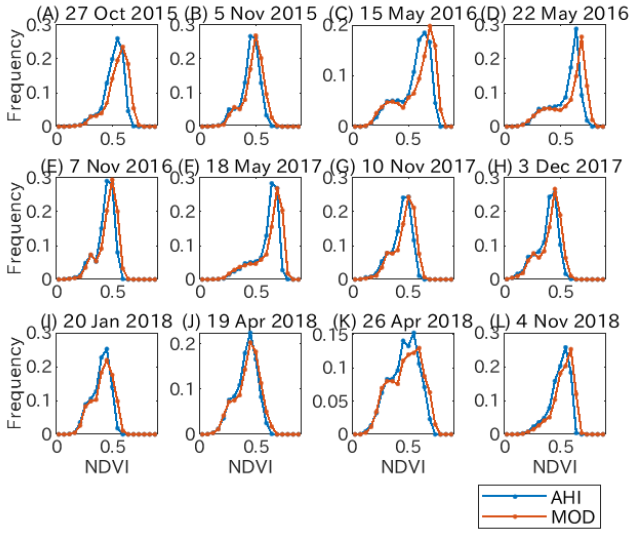

Figure S5. Relative frequency distribution of the NDVI for Tohoku region.

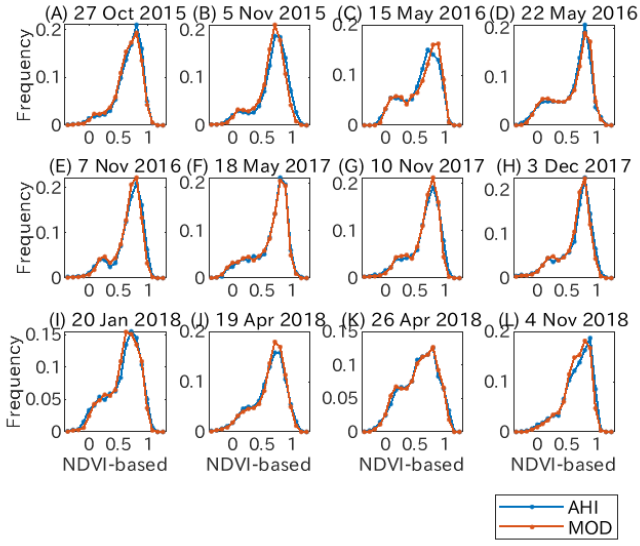

Figure S6. Relative frequency distribution of the NDVI-based index for Tohoku region.

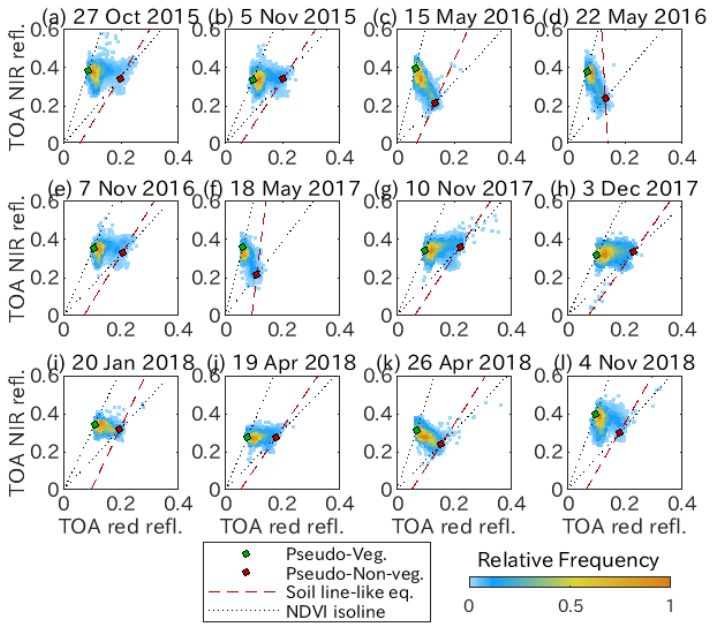

Figure S7. AHI density scatter plot of the red and NIR reflectances for Tohoku region, excluding water bodies.

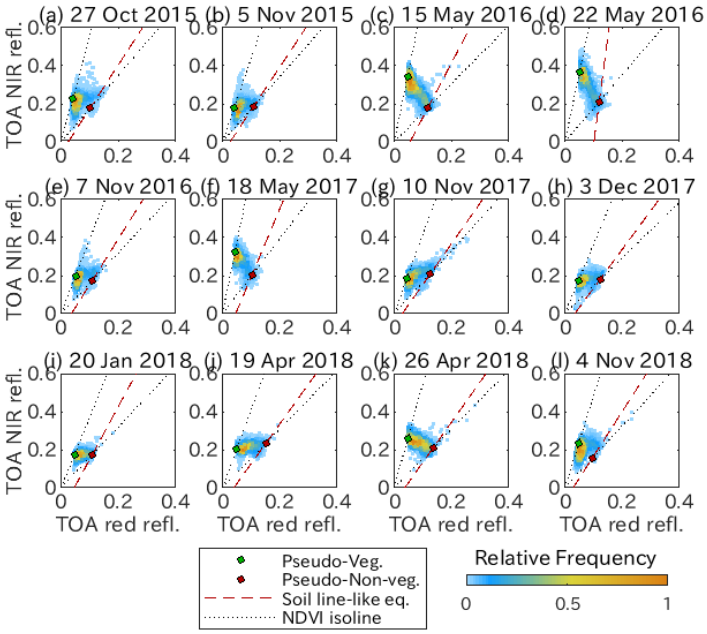

Figure S8. MODIS density scatter plot of the red and NIR reflectances for Tohoku region, excluding water bodies.

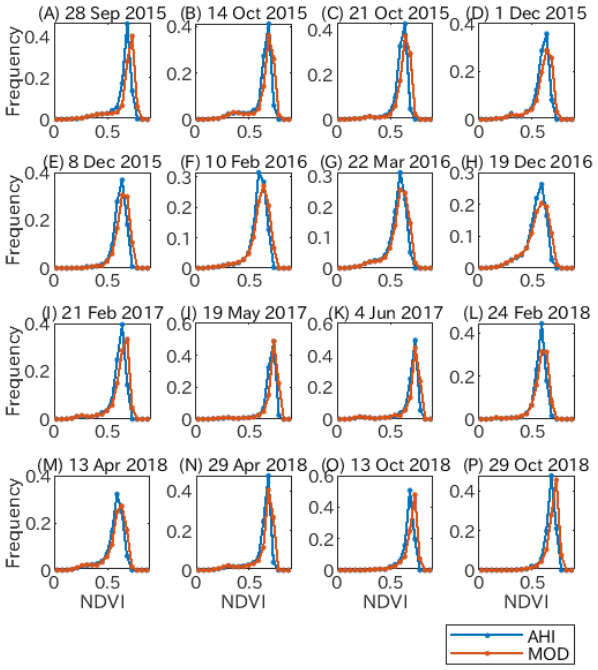

Figure S9. Relative frequency distribution of the NDVI for Shikoku region.

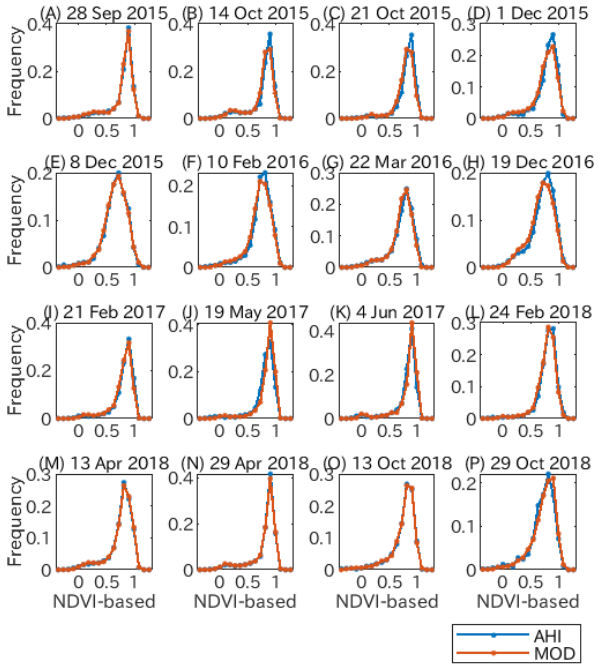

Figure S10. Relative frequency distribution of the NDVI-based index for Shikoku region.

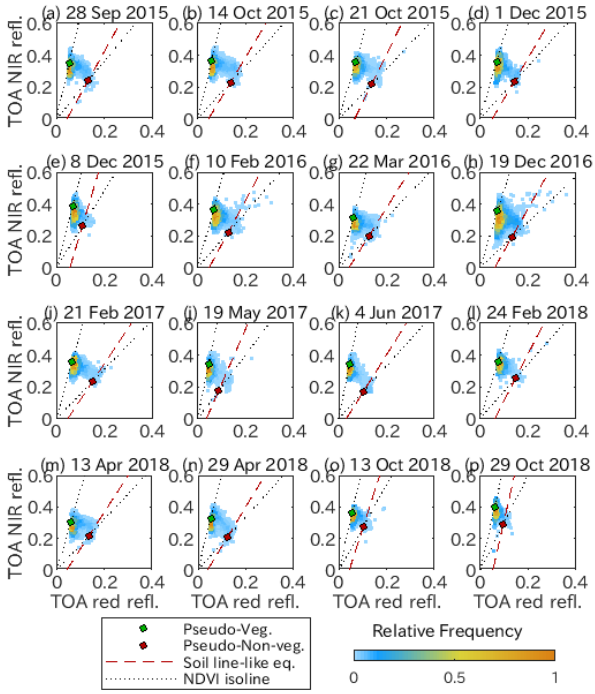

Figure S11. AHI density scatter plot of the red and NIR reflectances for Shikoku region, excluding water bodies.

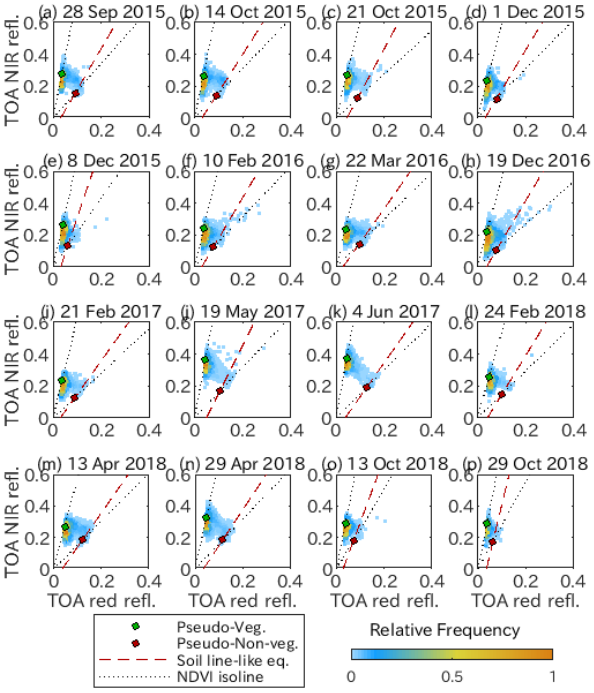

Figure S12. MODIS density scatter plot of the red and NIR reflectances for Shikoku region, excluding water bodies.

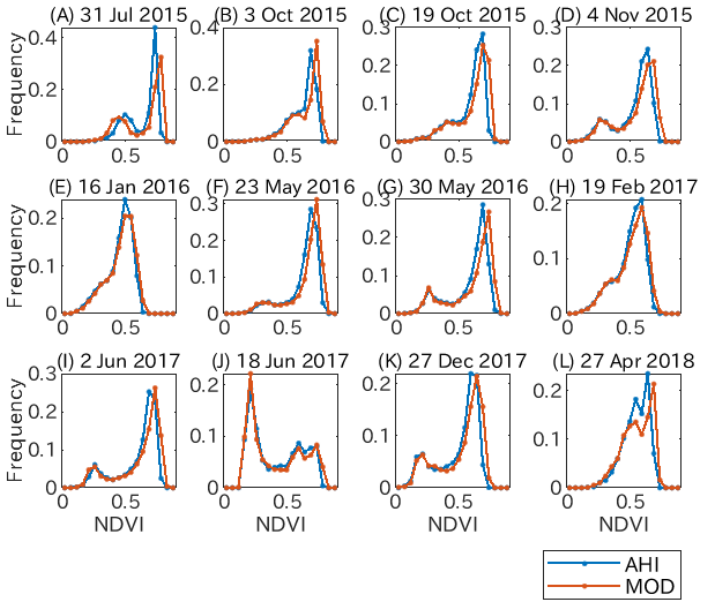

Figure S13. Relative frequency distribution of the NDVI for Kyushu region.

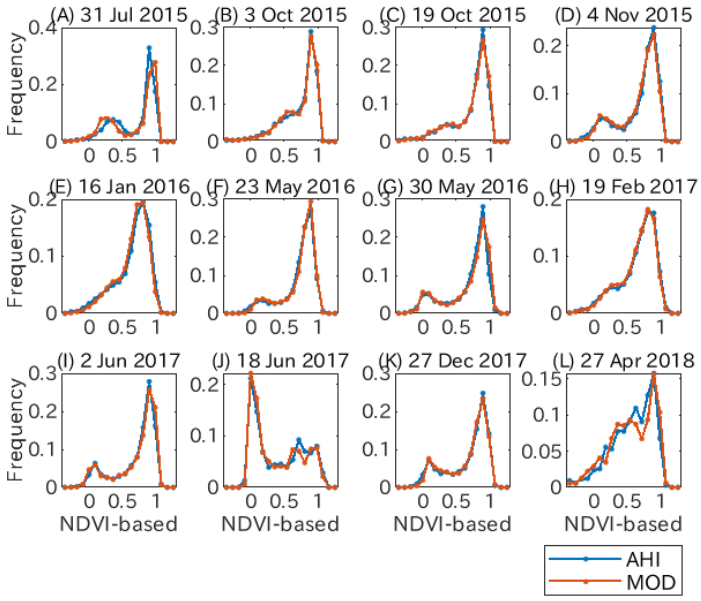

Figure S14. Relative frequency distribution of the NDVI-based index for Kyushu region.

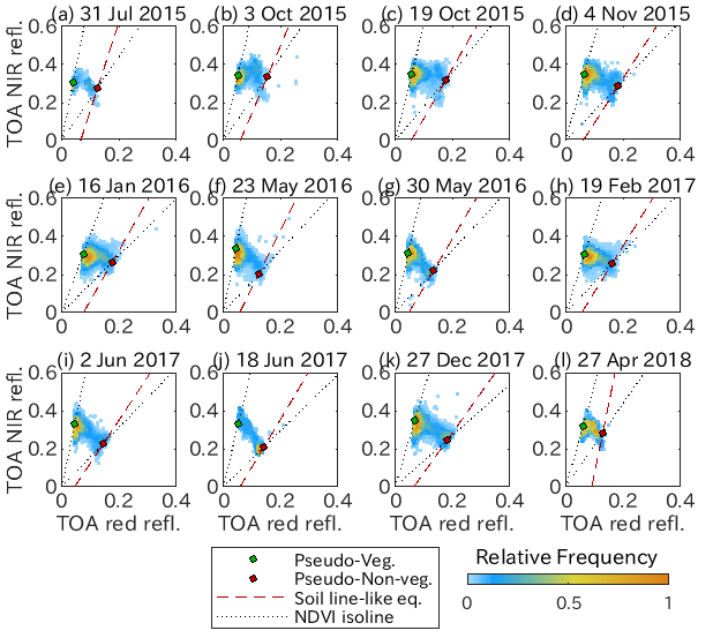

Figure S15. AHI density scatter plot of the red and NIR reflectances for Kyushu region, excluding water bodies.

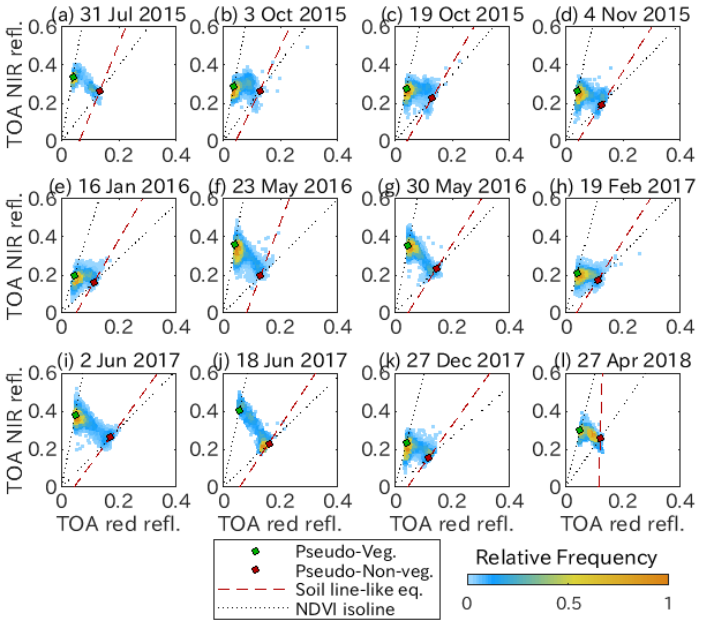

Figure S16. MODIS density scatter plot of the red and NIR reflectances for Kyushu region, excluding water bodies.