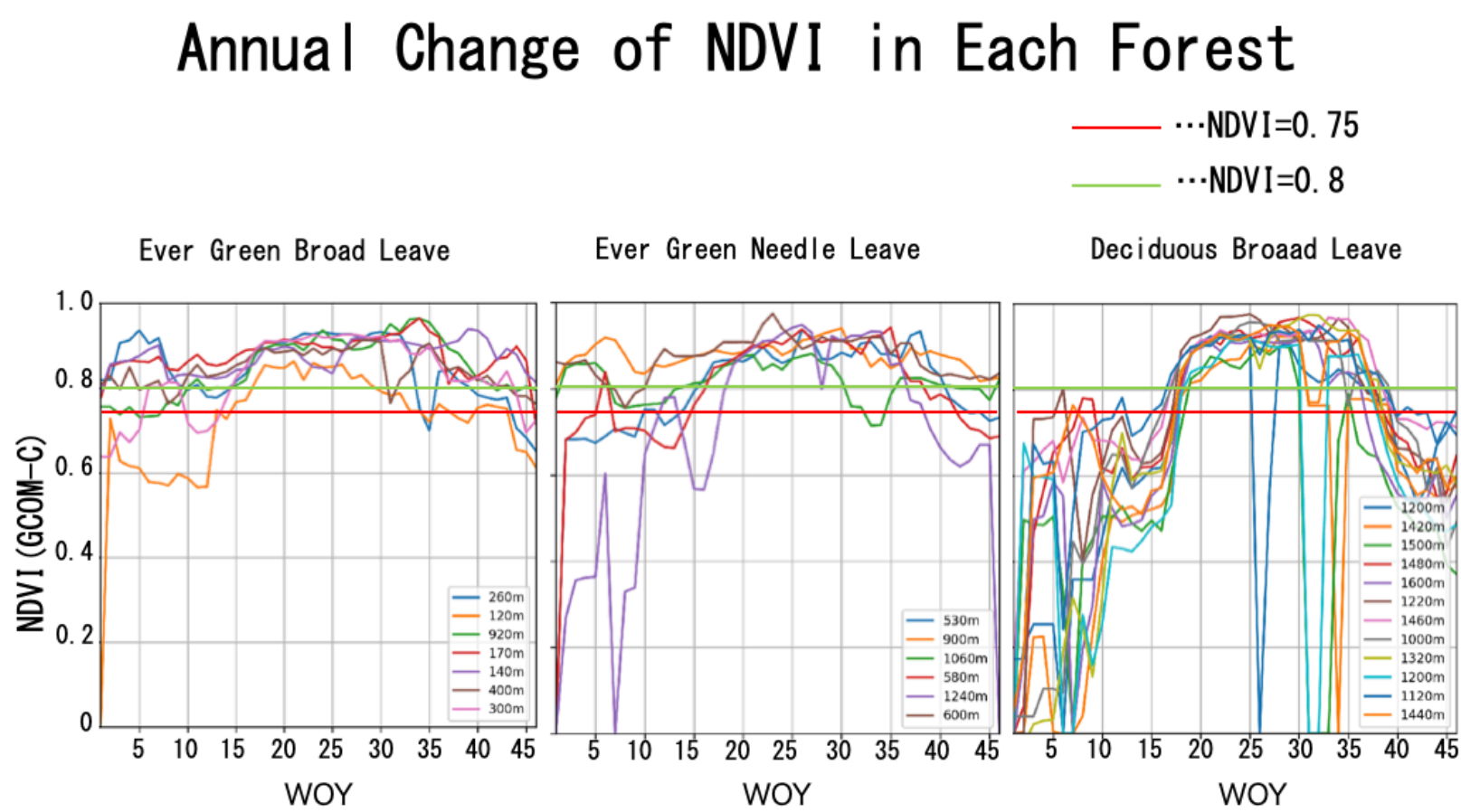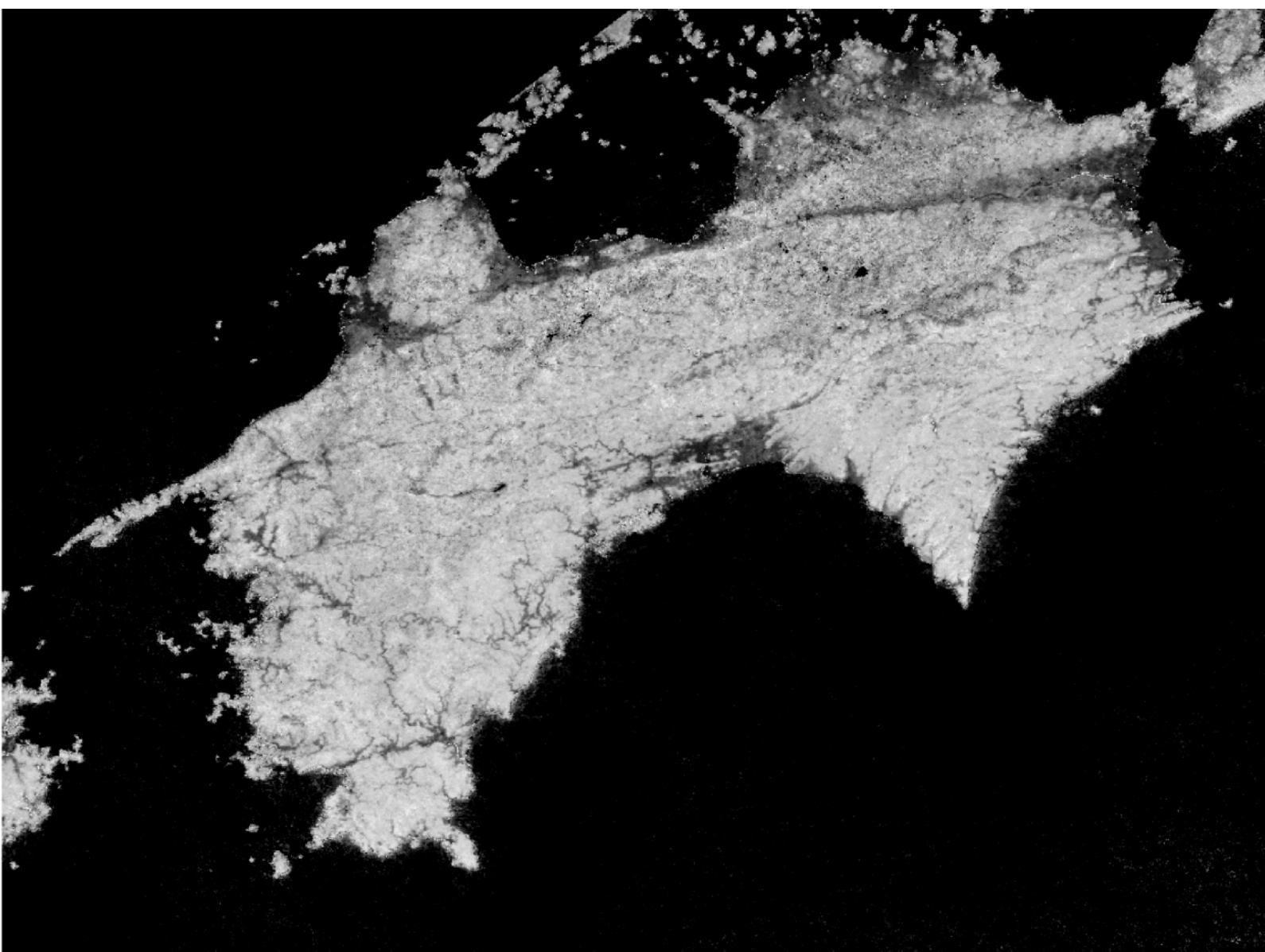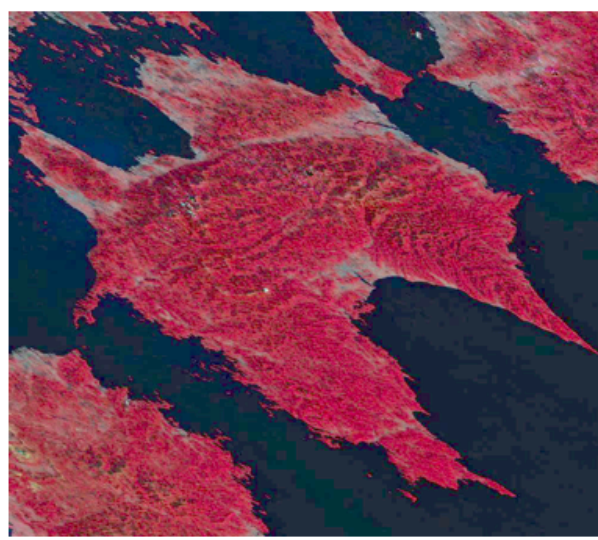# Mapping Tender Green and Autumn Color using GCOM-C Statistic Data

Masataka TAKAGI, Kochi University of Technology
Msayuki Matsuoka, Mie University
Rie Honda, Kochi University
Atsuko Nonomura, Kagawa University
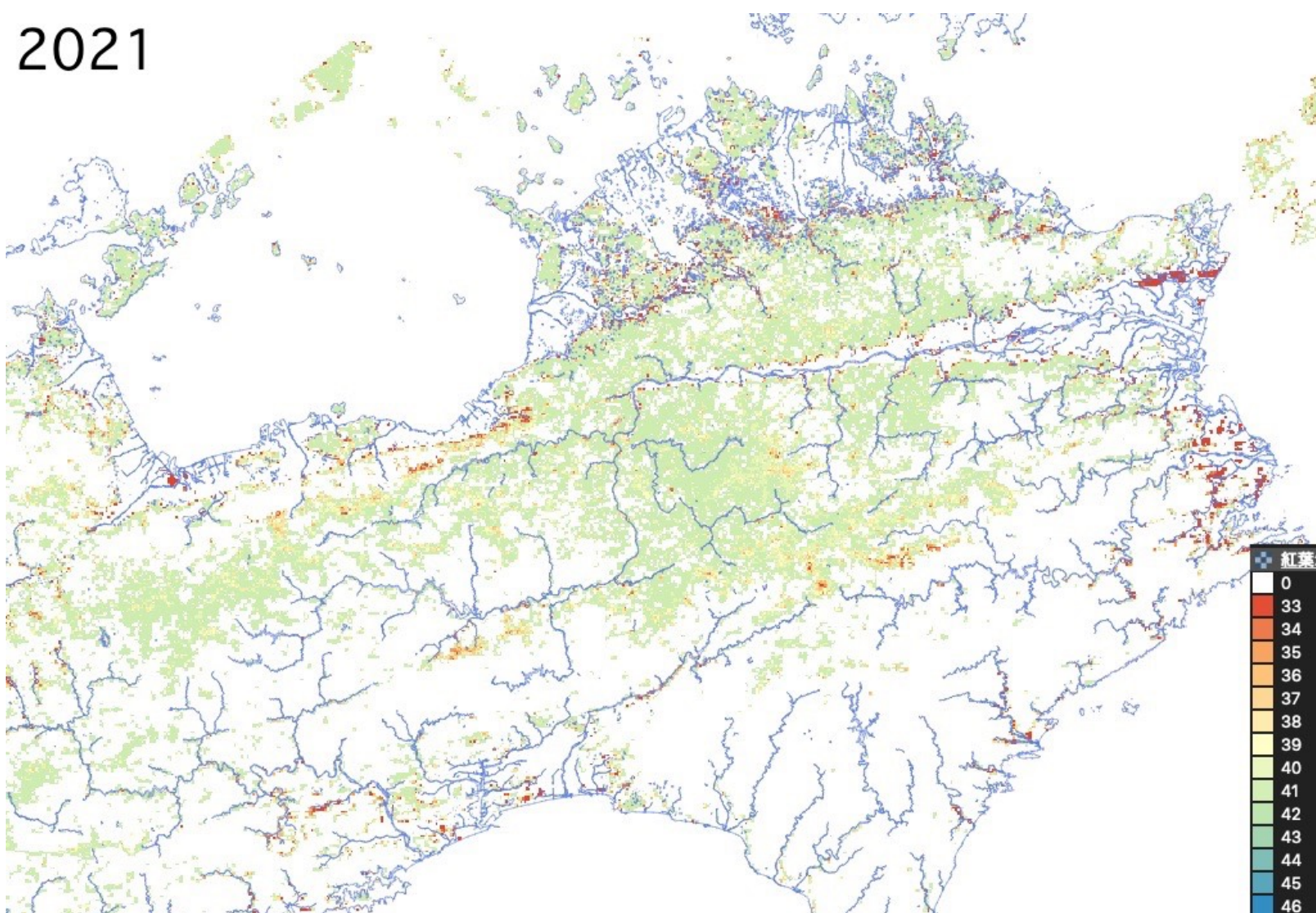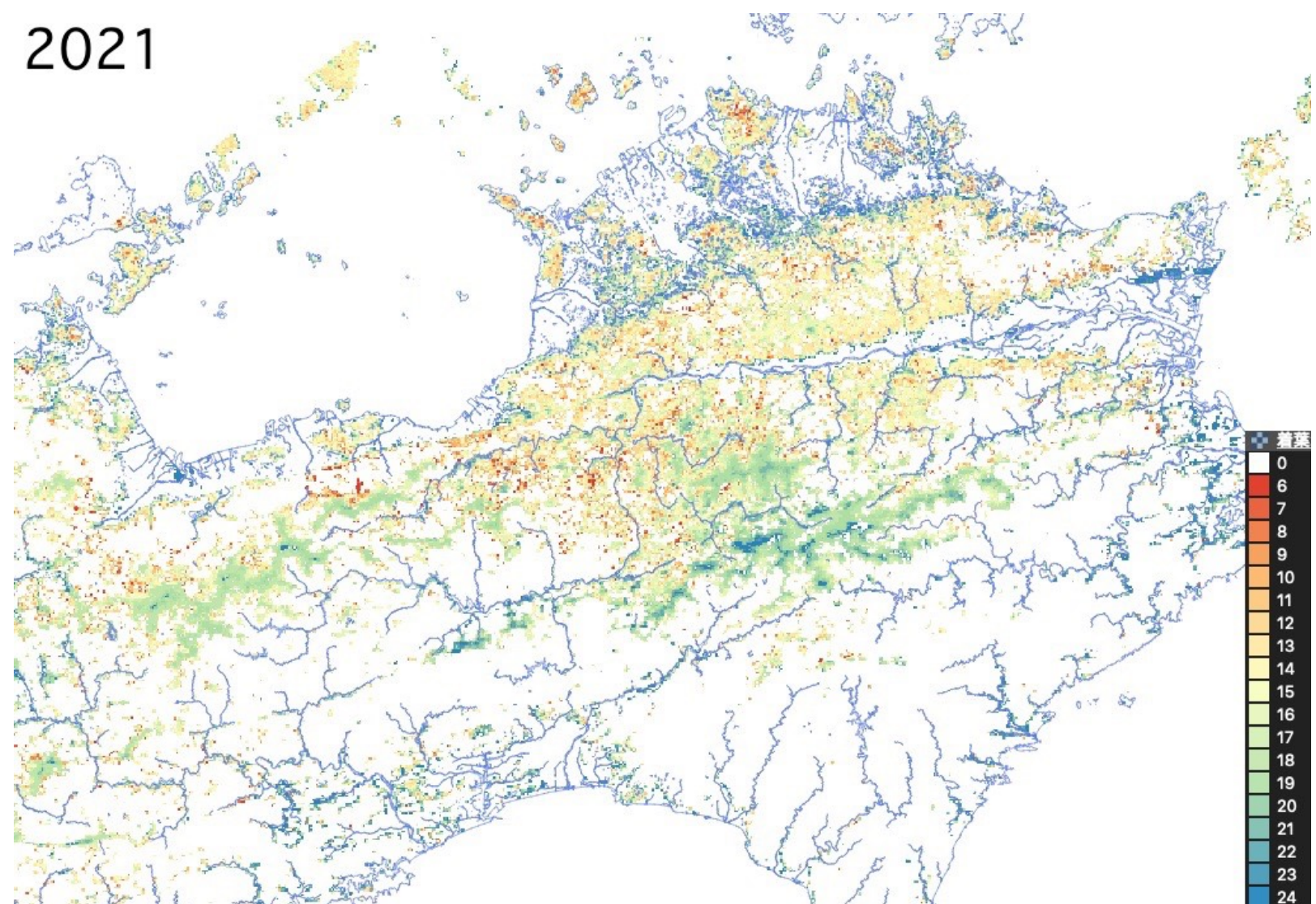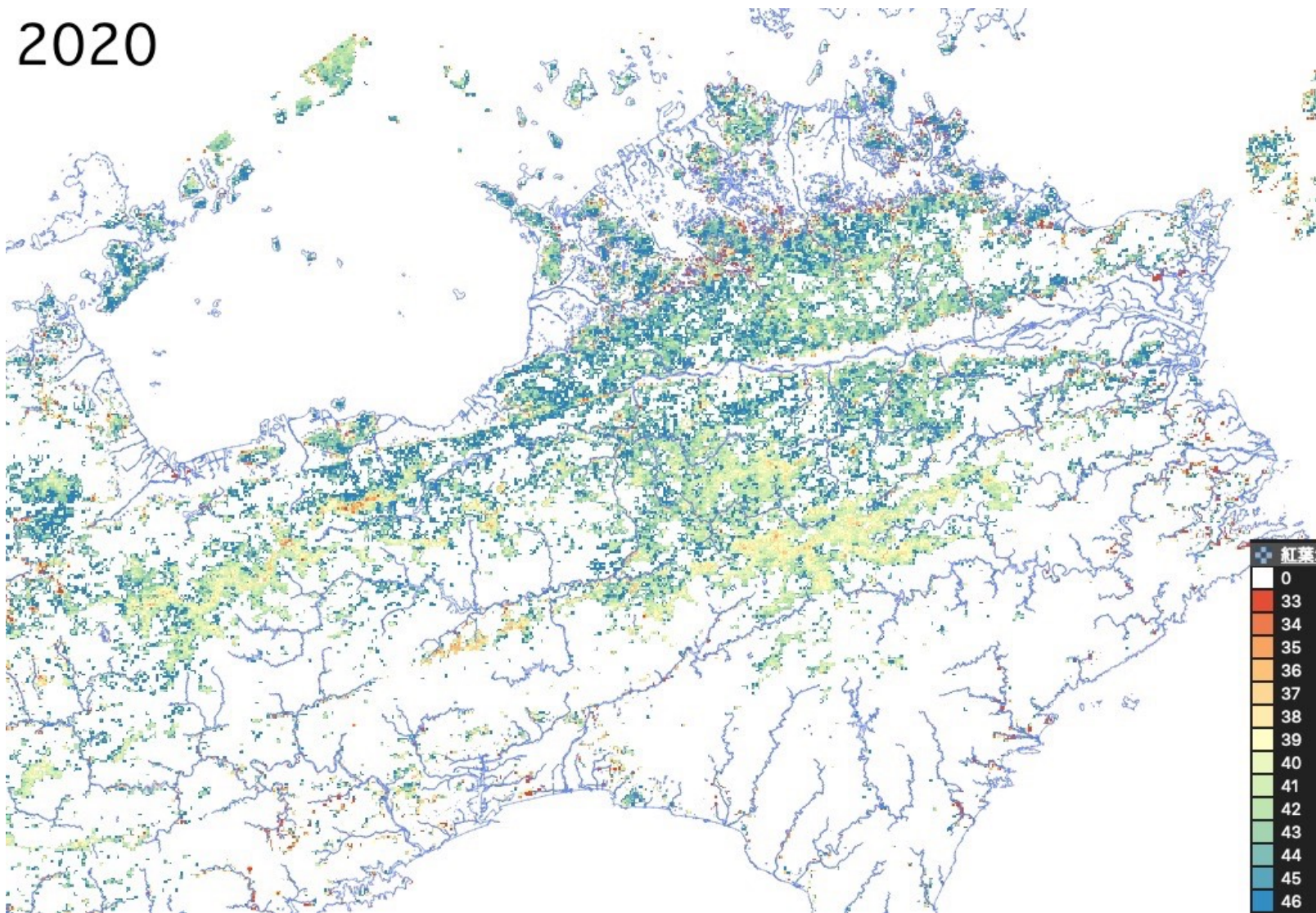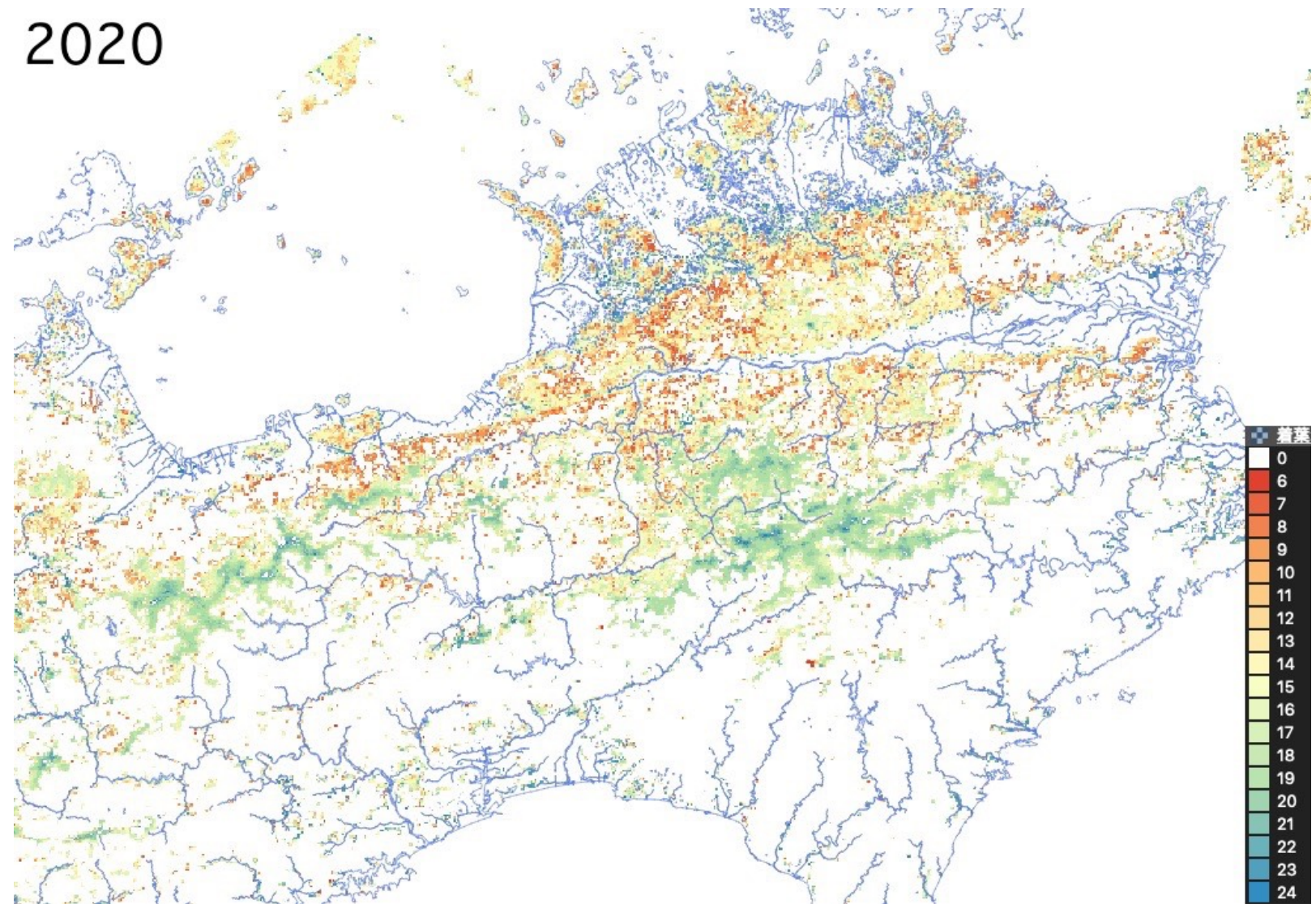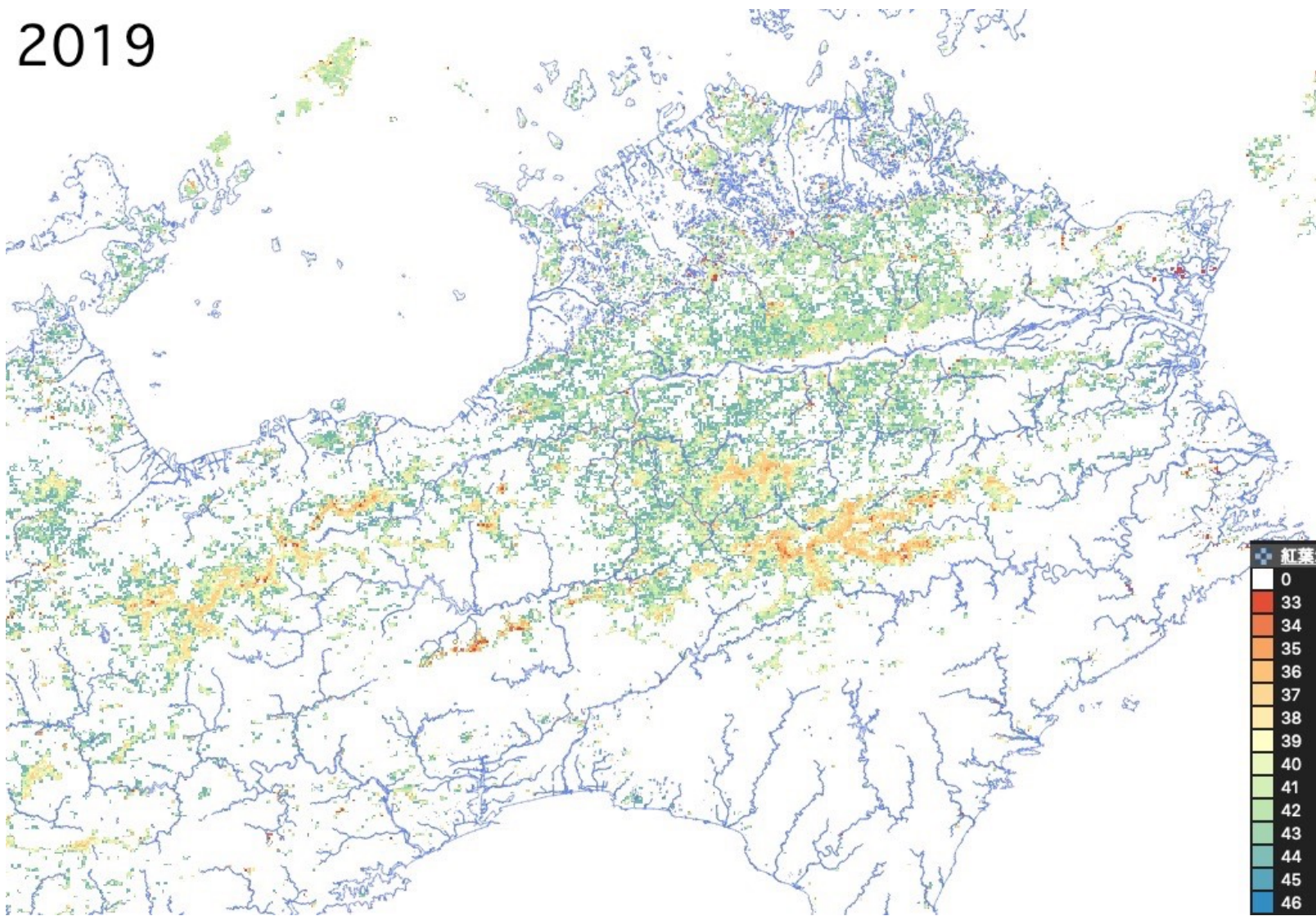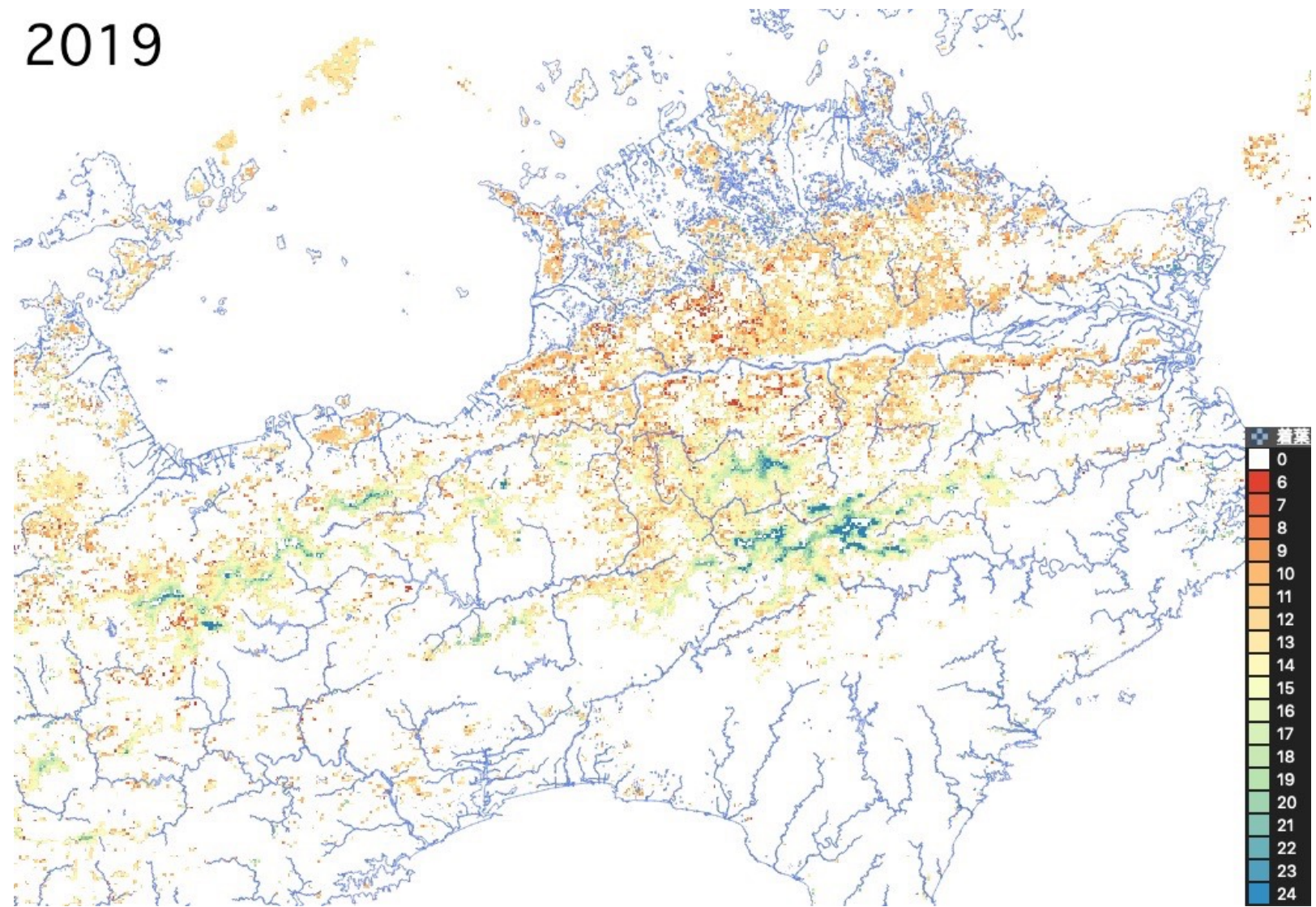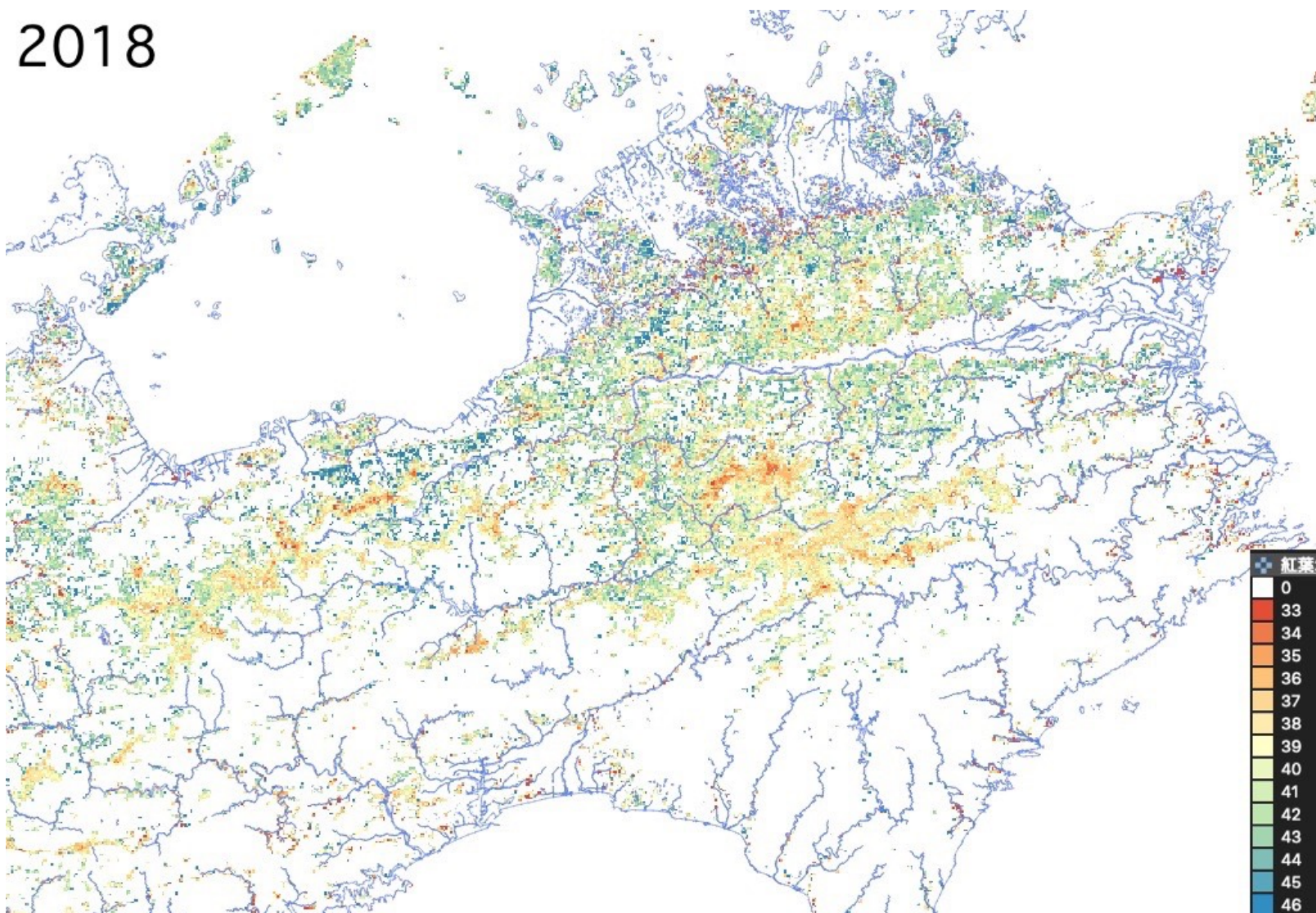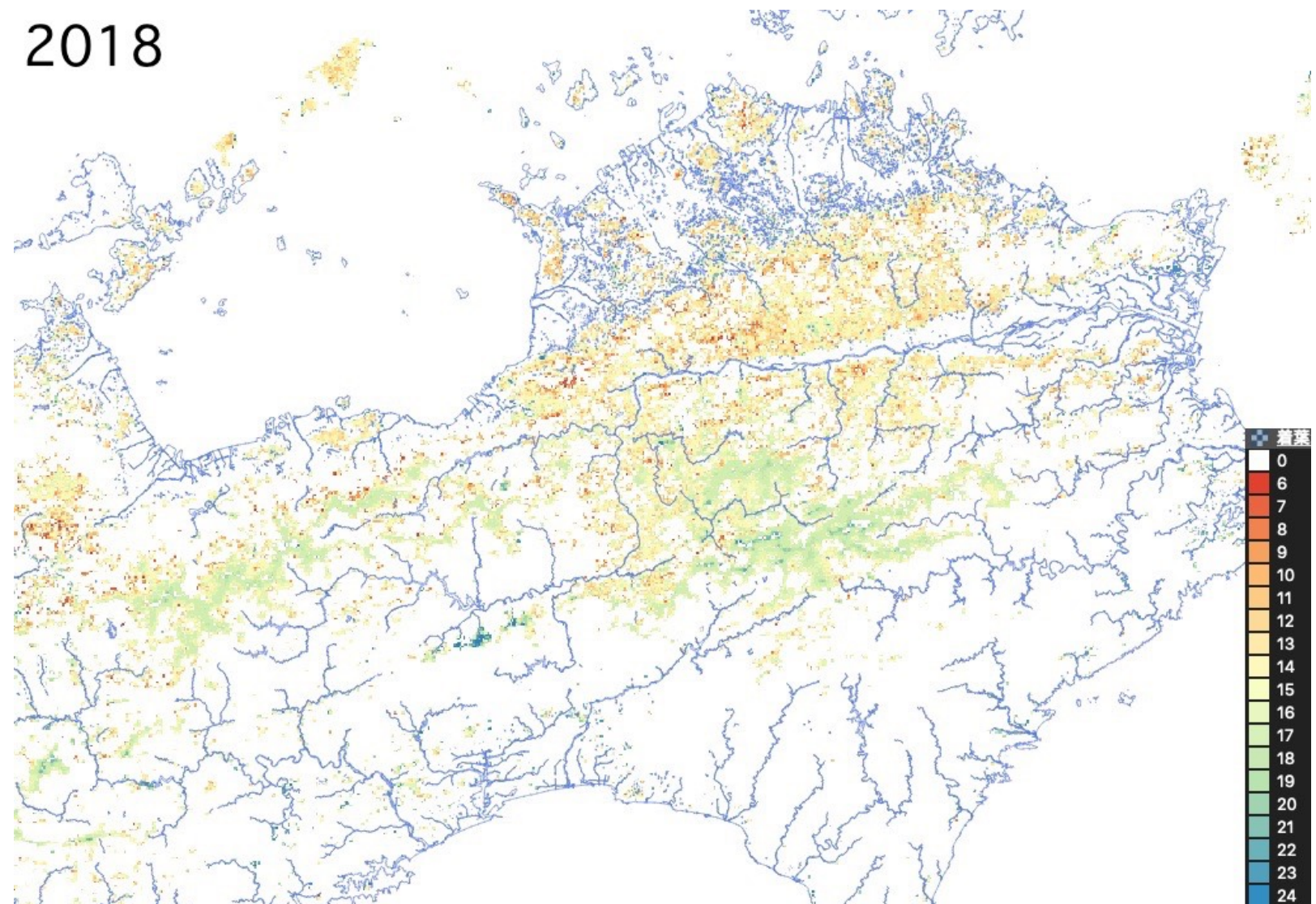Shin Akatsuka, Kochi University of Technology

Used Data

- Level2 Statistics 8-Days
- Tile: No. v05h29
- Period: 2018 - 2021
- Used Band for Normalizing Spectral Data by Band Sum
  - VN2, VN3, VN7, VN8, VN10, VN11
- Target Area: Shikoku, Japan

Annual Change of NDVI in Each Forest

- NDVI=0.75
- NDVI=0.8

Ever Green Broad Leave | Ever Green Needle Leave | Deciduous Broad Leave

Decision of Tender Green and Autumn Color

| 1 | NDVI≧0.75 : Leaves Existing |
| 0 | NDVI<0.75 : No Leaves |

Tender Green

Month	January				February				March				April				May				June			
WOY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Judge.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1

Month	July				August				Sep.				Oct.				Nov.				Dec.			
WOY	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
Judge.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	0

Autumn Color

Tender Green Map

2018

2019

2020

2021

Autumn Color Map

2018

2019

2020

2021

Validation using UAV and Sentinel2

Correlation between UAV image and Sentinel 2

2020-10

	GSD	Swath
UAV	0.2m	300m
Sentinel 2	10m	290km
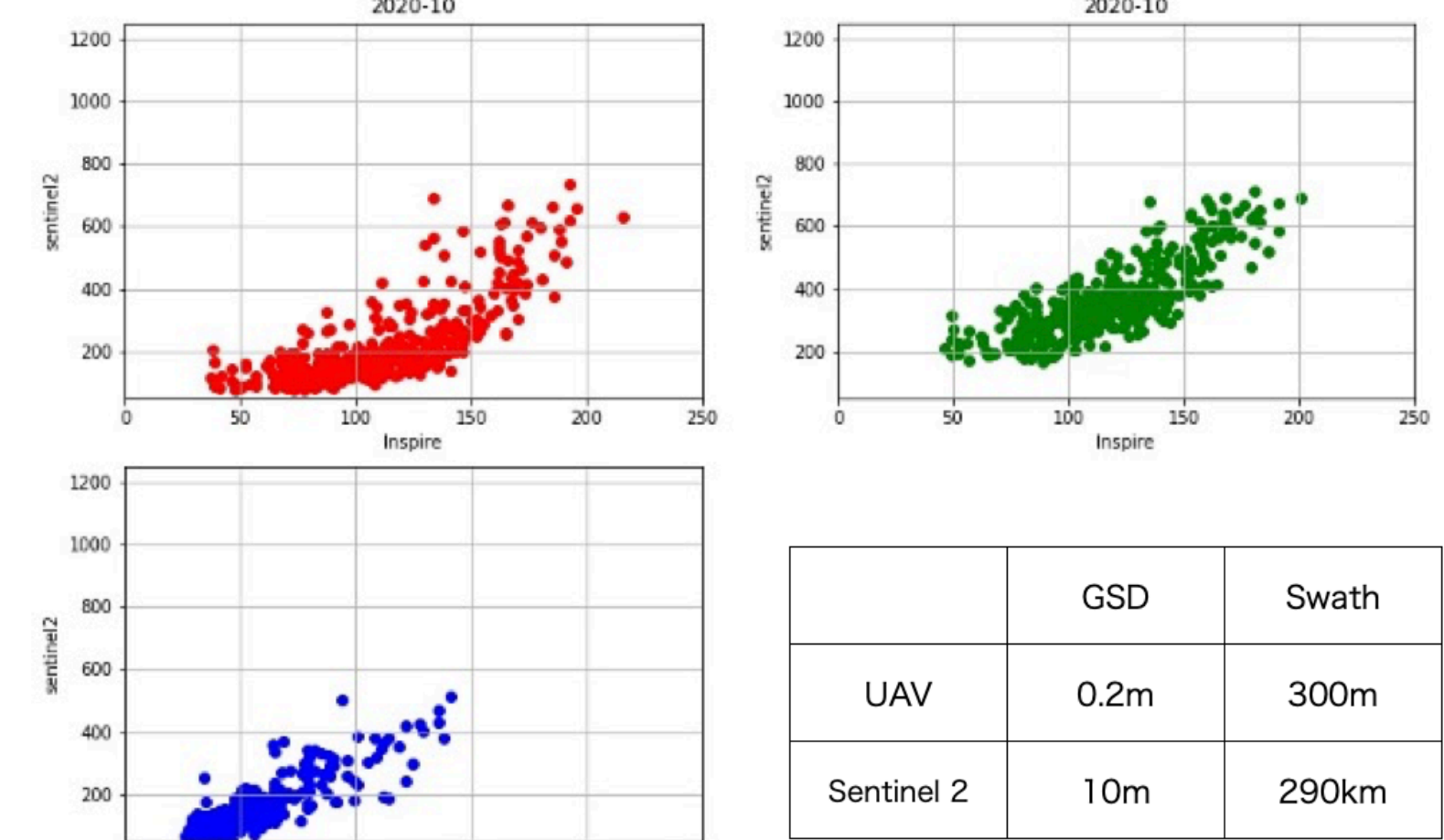
Validation using Sentinel2 and GCOM-C
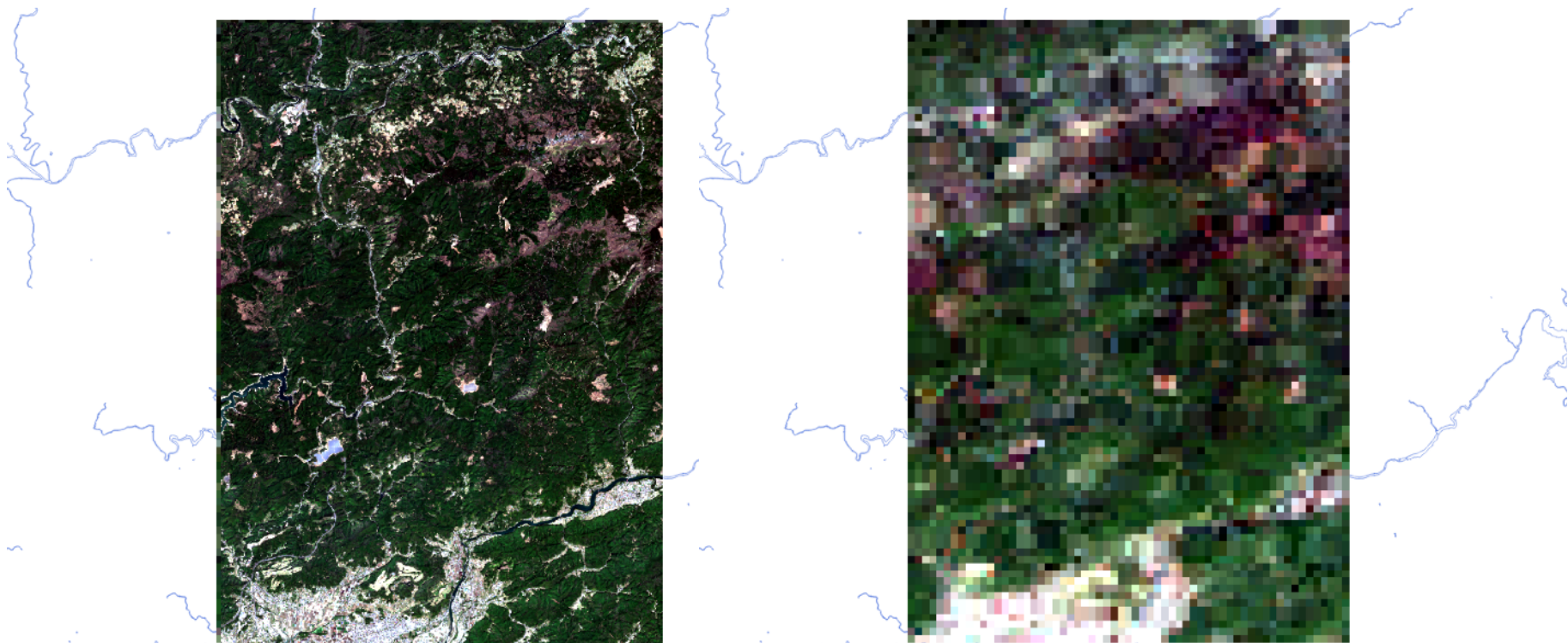
Correlation between Sentinel 2 and GCOM-C

2019年4月(VN07:赤) | 2019年4月(VN06:緑) | 2019年4月(VN04:青)

	GSD	Swath
GCOM-C	250m	1150km
Sentinel 2	10m	290km
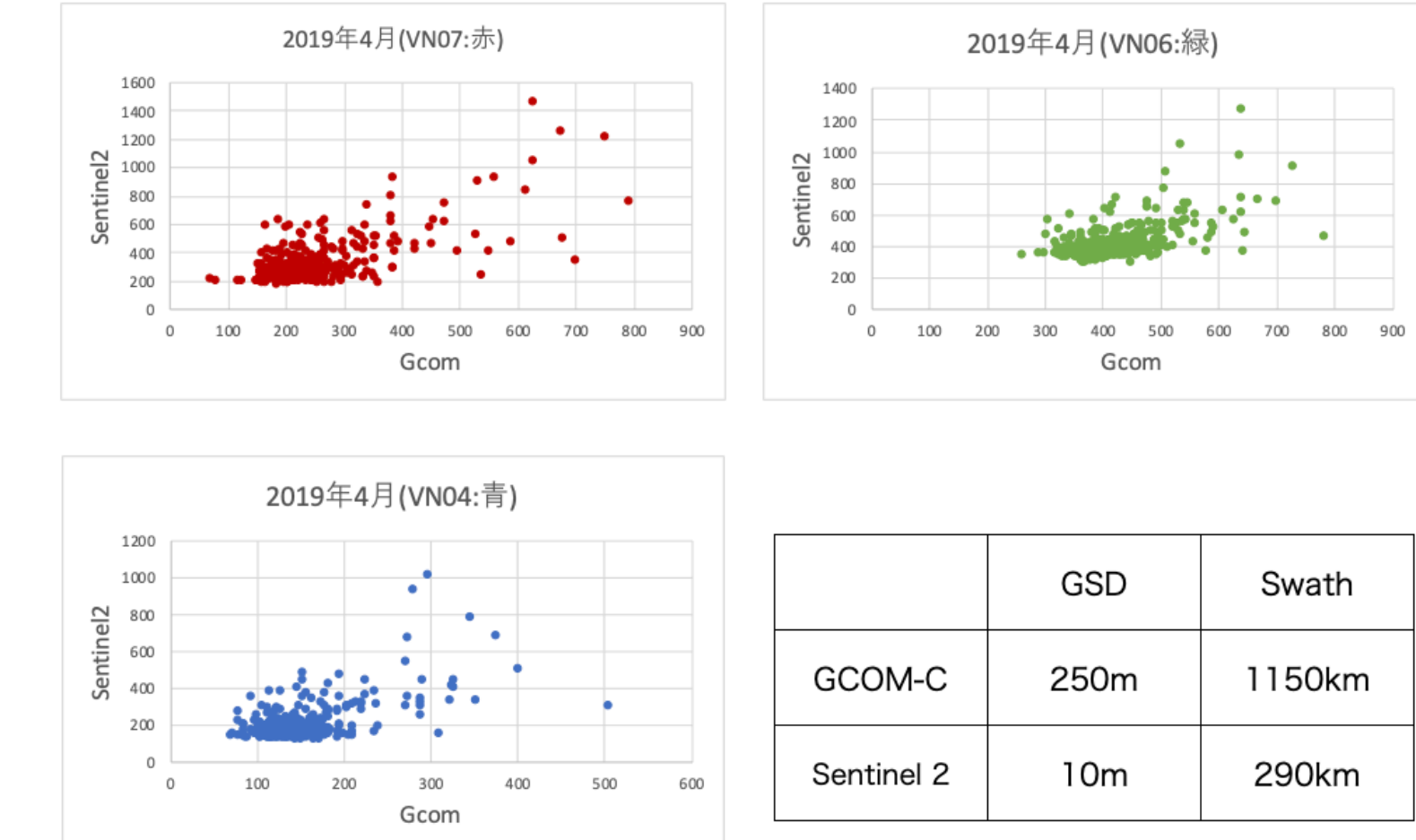
Conclusions

- Tender green and autumn Color were mapped using NDVI, GCOM-C 8Days statistic data.
- 0.75 was threshold value of NDVI for decision.
- The accuracy using monitoring site showed almost one week.
- Another validation method should be suggested.
  - UAV: Image correlation showed high with Sentinel 2. However, scale with GCOM-C is too different.
  - Sentinel 2: Image correlation showed low with GCOM-C. The reason should be clarified for the validation.