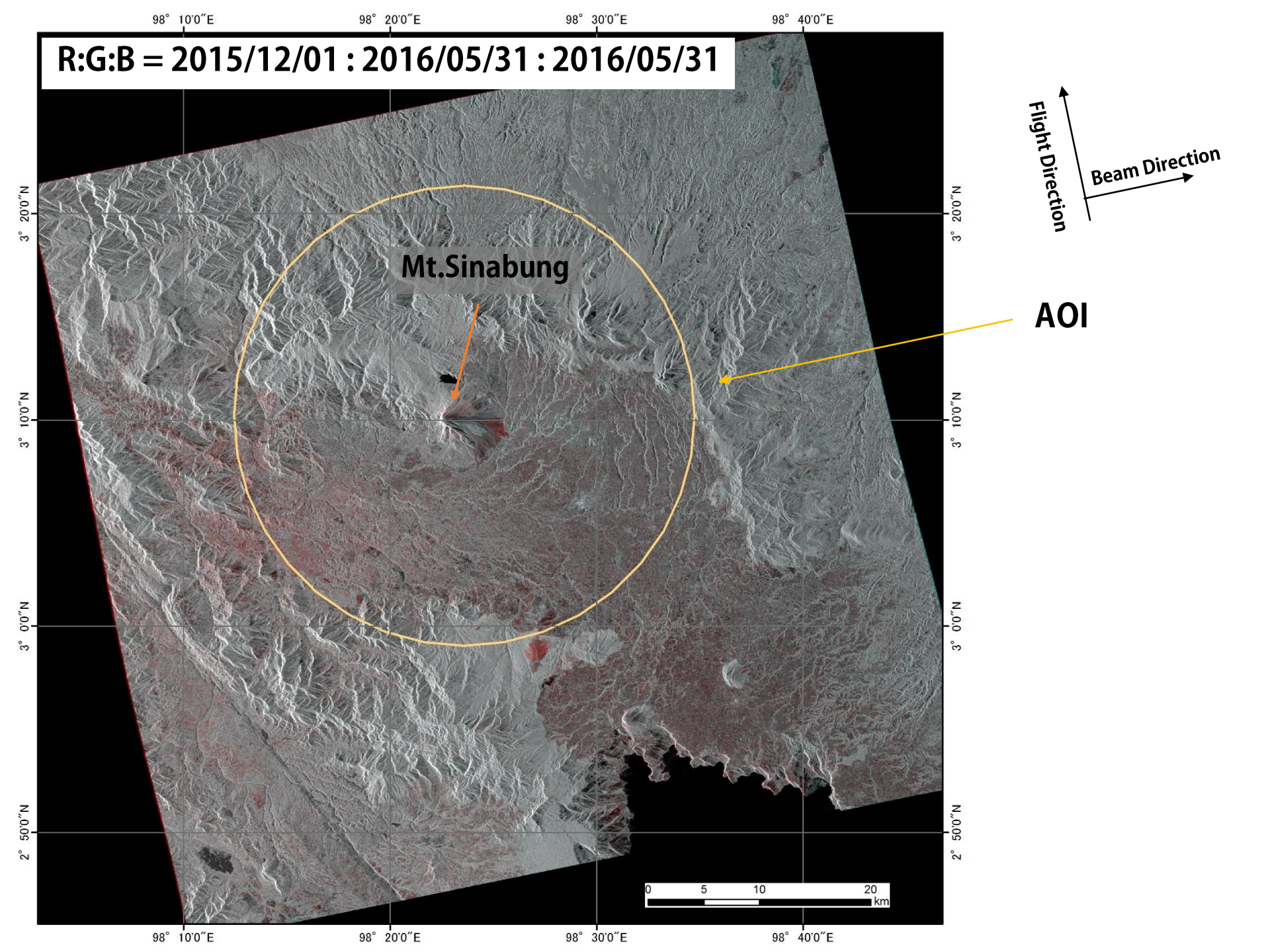
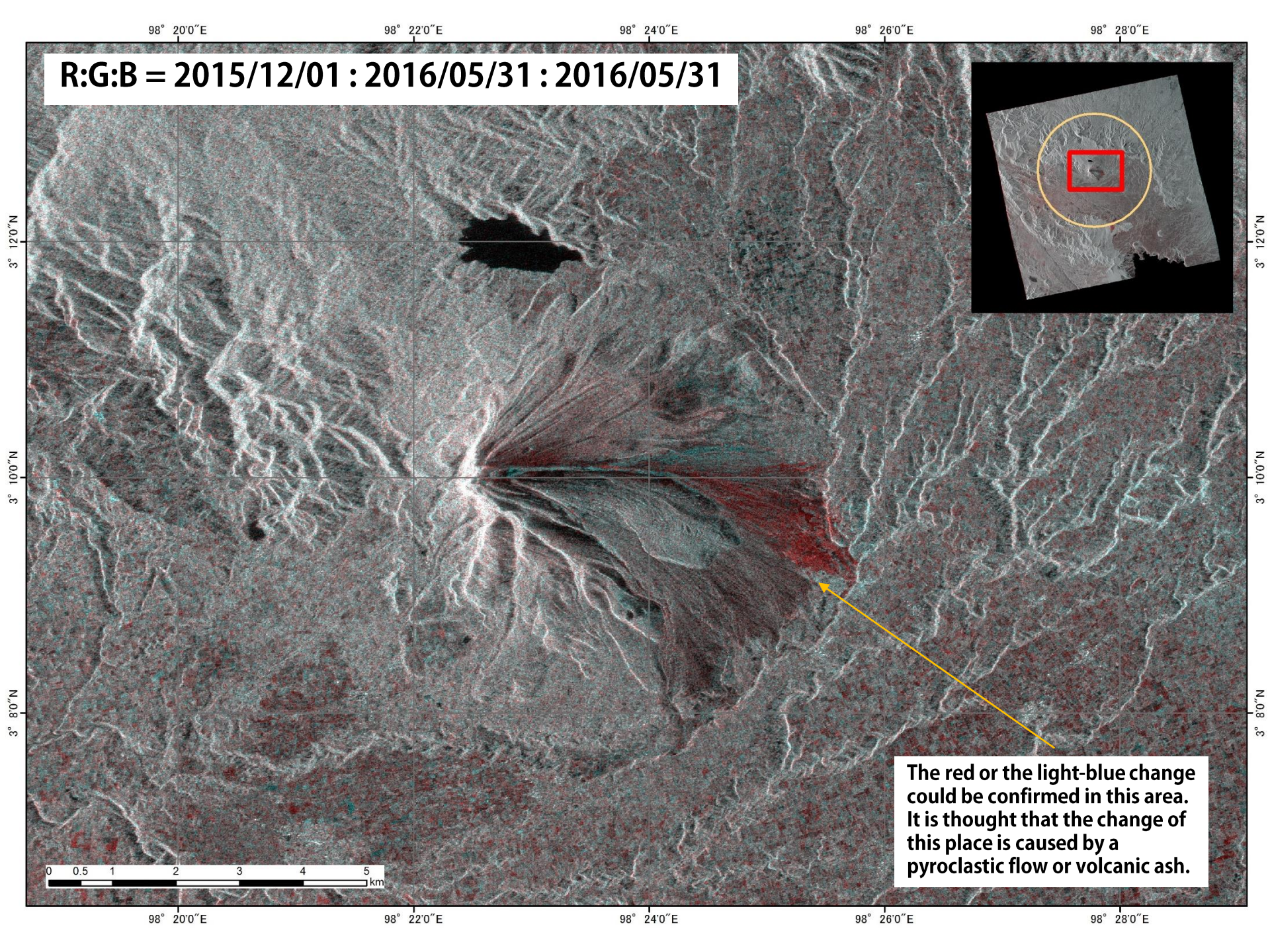
Initial Analysis results of Mt. Sinabung eruption using ALOS-2/PALSAR-2

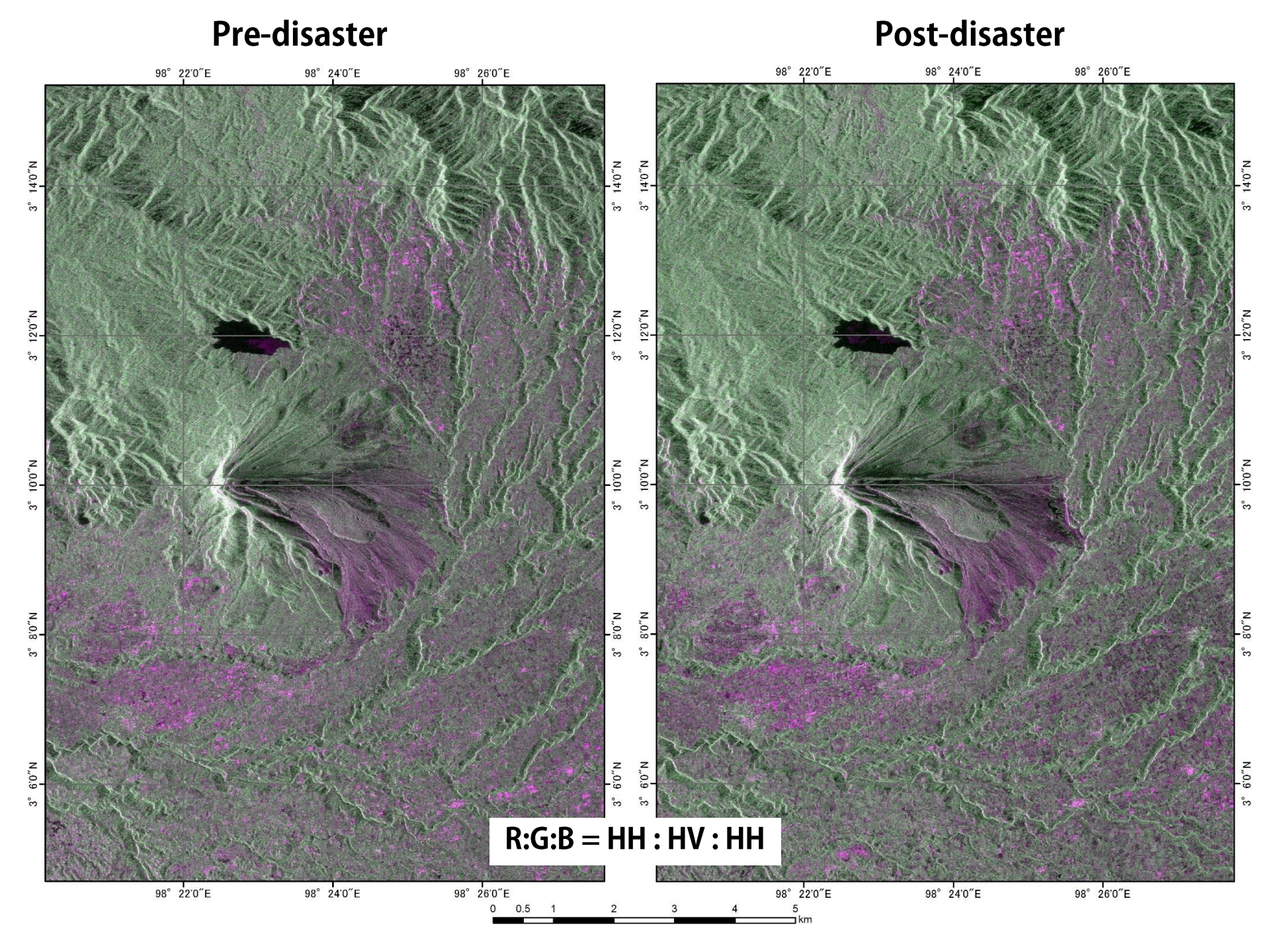
Japan Aerospace Exploration Agency (JAXA)
Remote Sensing Technology Center of Japan (RESTEC)

Utilized Data

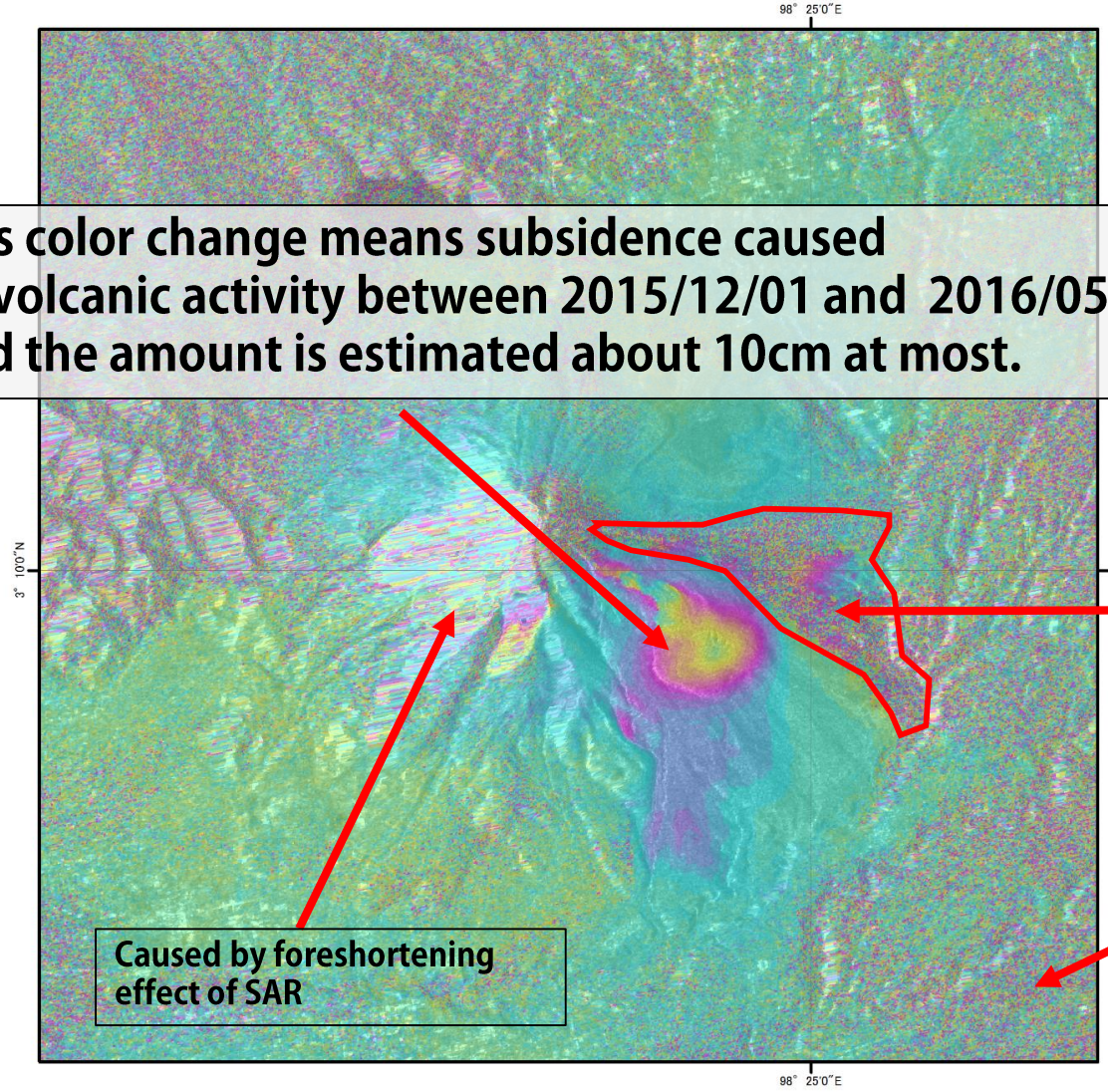
	Obs.Date	Mode	Satellite/Sensor	Pol.	Flight Direction	Off-nadir angle	Beam Direction
Pre-disaster	2015/12/1	FBD	ALOS-2/ PALSAR-2	HH+ HV	Ascending	28.2°	Right
Post-disaster	2016/5/31	FBD	ALOS-2/ PALSAR-2	HH+ HV	Ascending	28.2°	Right


R:G:B = 2015/12/01 : 2016/05/31 : 2016/05/31
Mt.Sinabung
AOI
Flight Direction
Beam Direction
98° 10'0"E
98° 20'0"E
98° 30'0"E
98° 40'0"E
3° 20'0"N
3° 10'0"N
3° 0'0"N
2° 50'0"N
0 5 10 20
km


R:G:B = 2015/12/01 : 2016/05/31 : 2016/05/31
98° 20'0"E
98° 22'0"E
98° 24'0"E
98° 26'0"E
98° 28'0"E
3° 12'0"N
3° 10'0"N
3° 8'0"N
0 0.5 1 2 3 4 5 km
The red or the light-blue change could be confirmed in this area. It is thought that the change of this place is caused by a pyroclastic flow or volcanic ash.


Pre-disaster
Post-disaster
98° 22'0"E
98° 24'0"E
98° 26'0"E
3° 14'0"N
3° 12'0"N
3° 10'0"N
3° 8'0"N
3° 6'0"N
R:G:B = HH : HV : HH
0 0.5 1 2 3 4 5
km

Result of Differential Interferometry



This color change means subsidence caused by volcanic activity between 2015/12/01 and 2016/05/31. And the amount is estimated about 10cm at most.

Low coherence area might be caused by pyroclastic flow or volcanic ash

Caused by foreshortening effect of SAR

Low coherence area by seasonal effect

Flight Direction

Beam Direction

0 0.5 1 2 3 4 km

0 LOS +11.8cm

Reference DEM: SRTM1

This result is initial analysis, so there is possibility of InSAR error like atmospheric effects, dem error or etc... in this result

Result

- ALOS-2/PALSAR-2 observed Mt. Sinabung
- Using L1.5 (power) image could detect and estimate the affected area by volcanic activity like pyroclastic flow and volcanic ash.
- Interferometry result can detect the affected area only but could detect the subsidence associated volcanic activity.