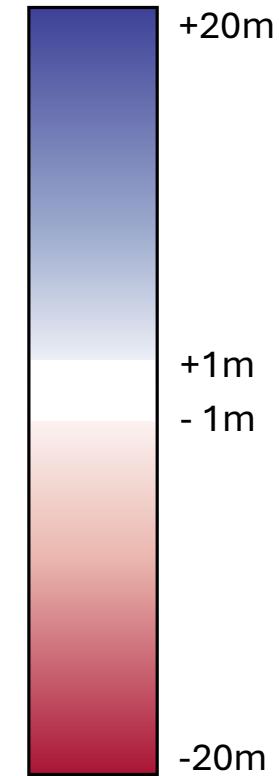
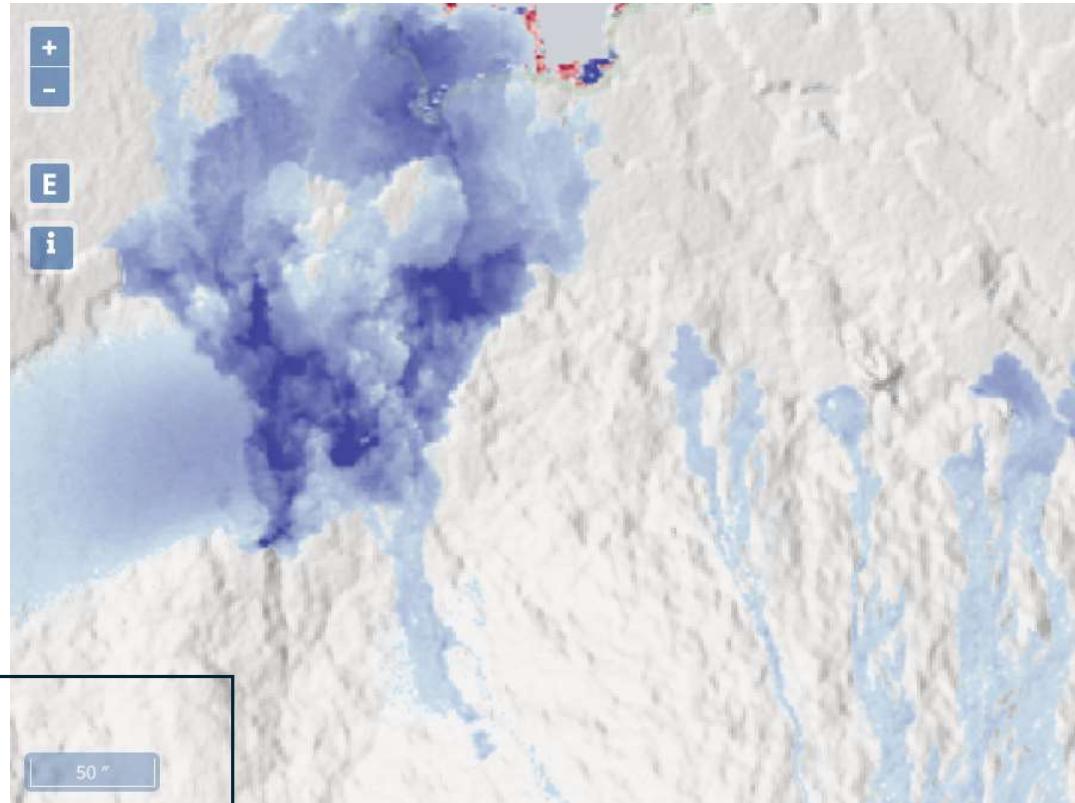


# TanDEM-X DCM

Notes on volcanic eruptions visible within this dataset, listed in  
alphabetical order

Rebecca Edwards, Juliet Biggs



All DCM images here are taken from the online web viewer (<https://geoservice.dlr.de/web/maps/tdm:dcm30>) which provides an approximate scale bar. Since this doesn't change size, and only incrementally changes number (100'', 50'', 20'' etc), the scale bar is not included in the following images. Instead, the number of arcseconds on the scalebar is noted on each slide.

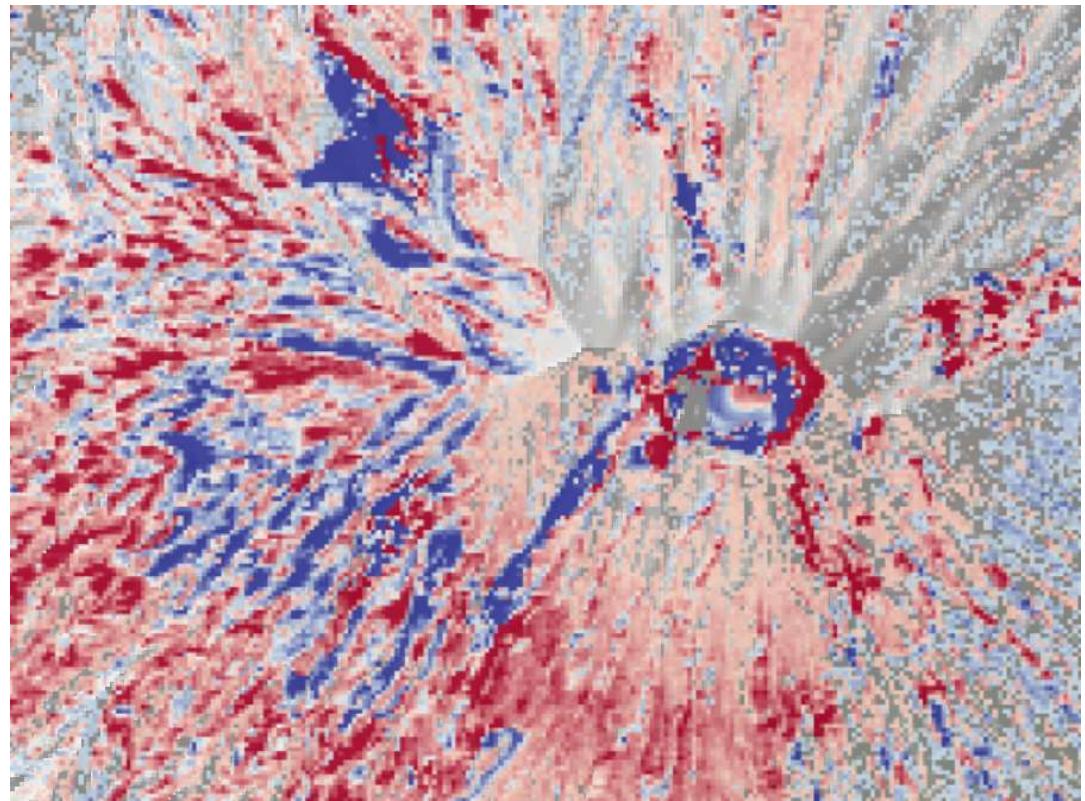
Unless otherwise noted, the DCM image will always be the last change at each location.

First and last changes are given in the format YYYY-MM. Where the eruption is covered by a mosaic of different dates for the first or last change, all relevant dates are listed. The first date listed covers the location of the majority of the topographic change resulting from the eruption.

Volcanoes are ordered alphabetically according to Smithsonian naming conventions (e.g. Fournaise, Piton de la)

## Agung

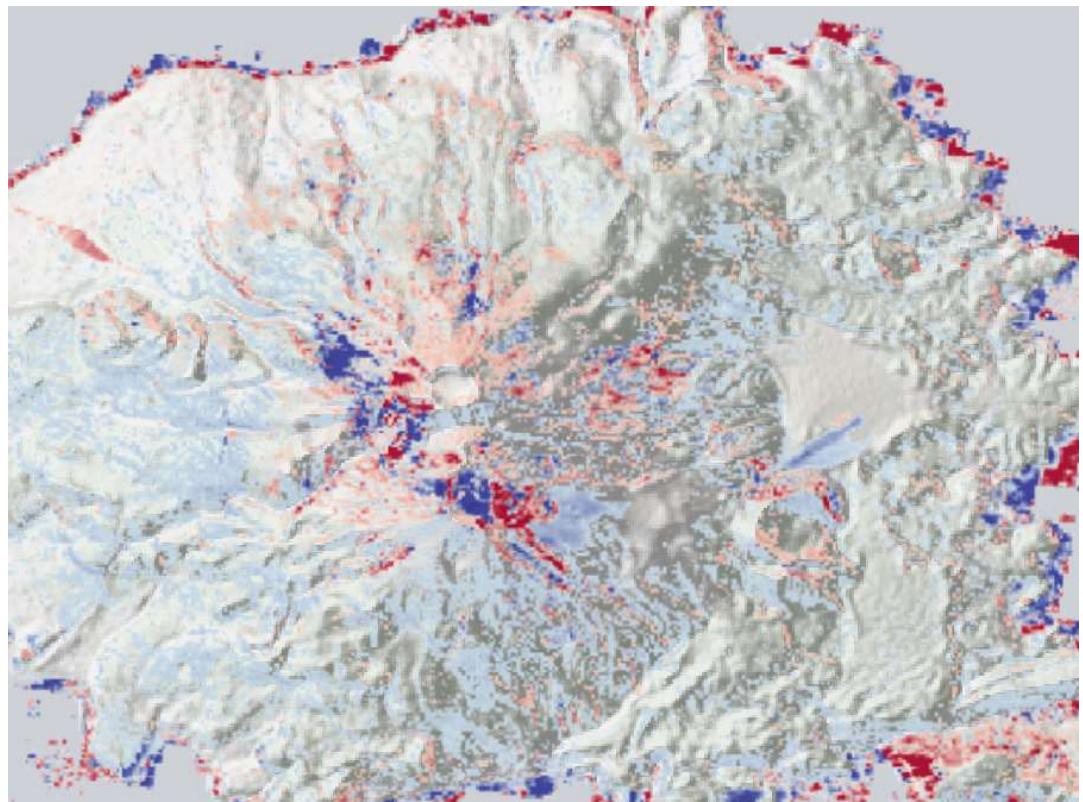
- Indonesia
- Eruption 2017-2019
- Hard to distinguish signal from noise
- First change 2018-03
- Last change 2019-04
- 50"



Volcano number	Longitude	Latitude	Quality index
264020	115.508	-8.343	4

## Aira

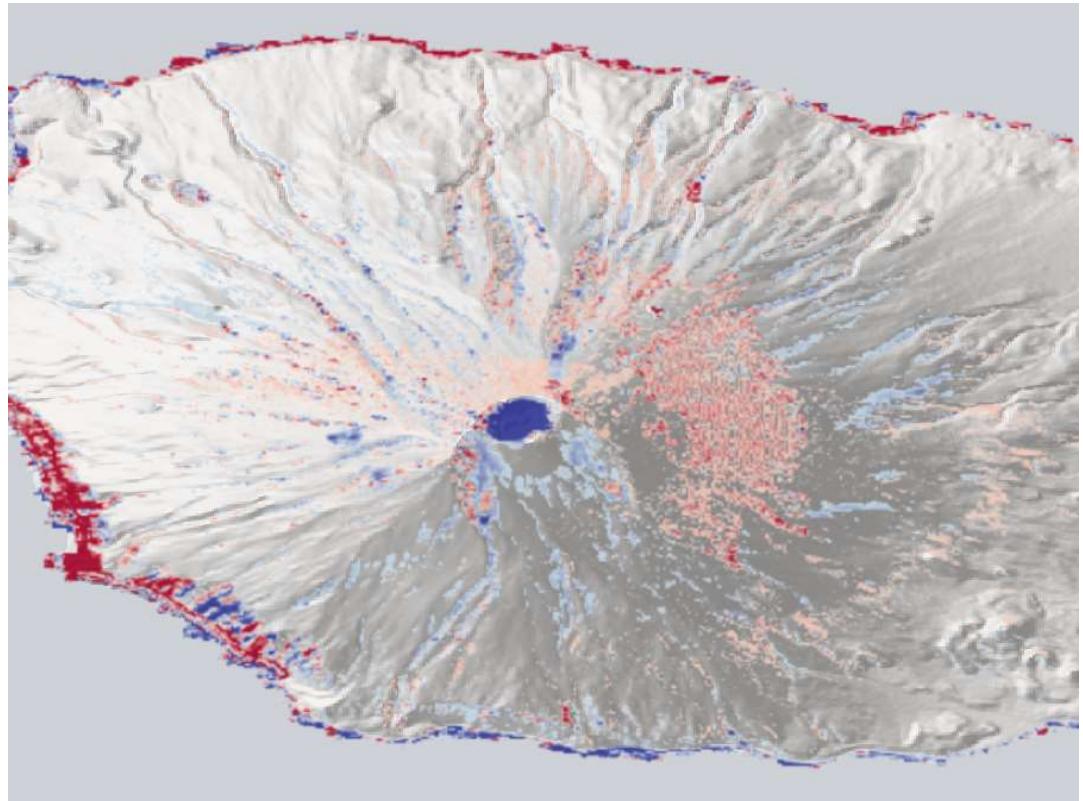
- Japan
- Noisy, can't make out much
- First change 2018-08
- Last change 2020-01
- 50"



Volcano number	Longitude	Latitude	Quality index
282080	130.6589	31.5772	2

## Alaid

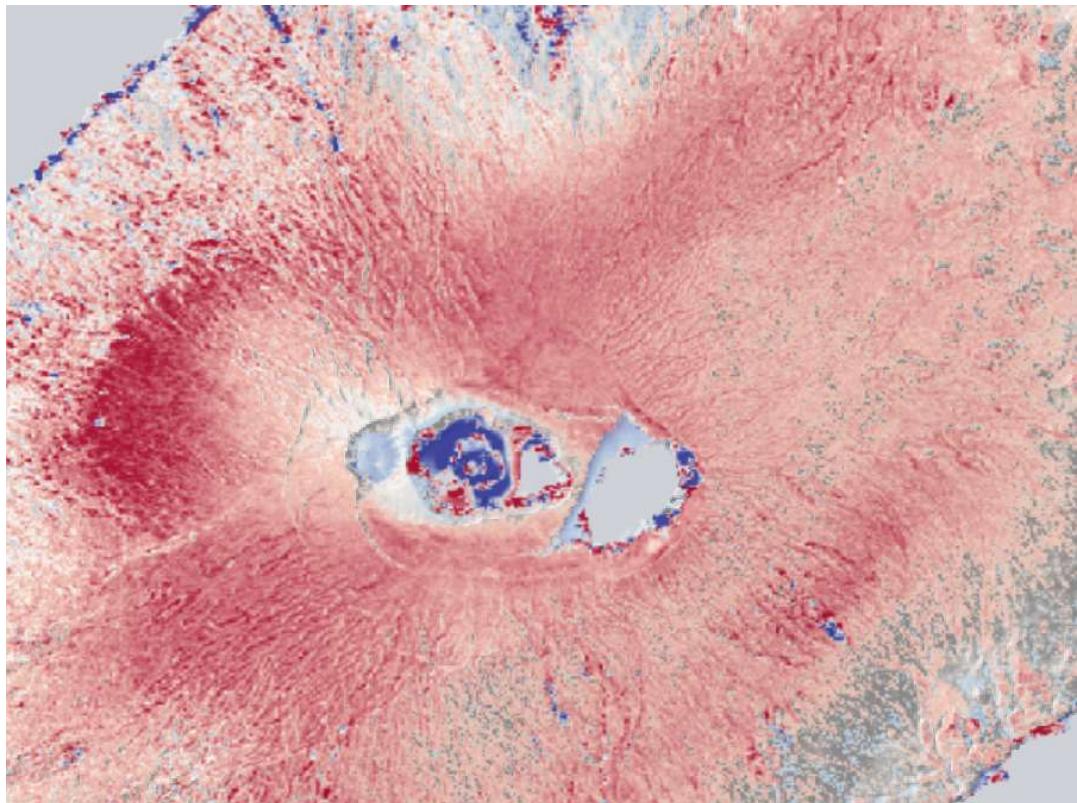
- Kuril islands, Kamchatka
- Eruptions in 2012, 2015-2016, 2018, 2022
- Thermal anomalies in 2015 and 2016
- Lava flow down SW flank
- Lava flows within crater
- First change 2018-06/2018-07
- Last change 2019-07
- 2'



Volcano number	Longitude	Latitude	Quality index
290390	155.565	50.861	2

## Ambae

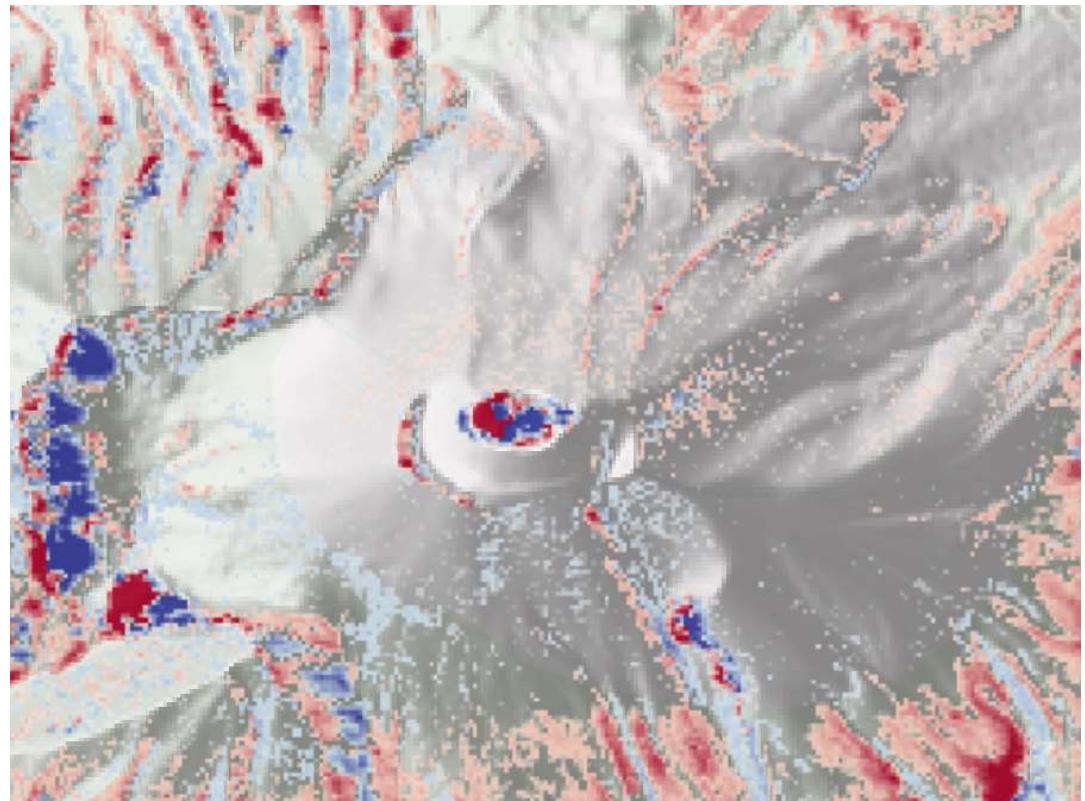
- Vanuatu
- Uncertain eruption
- Might be lava flows/lava domes within the crater, could just be crater lakes that aren't masked out
- First change 2018-02/2018-01
- Last change 2019-07/2019-01
- 100"



Volcano number	Longitude	Latitude	Quality index
257030	167.835	-15.389	3

## Asamayama

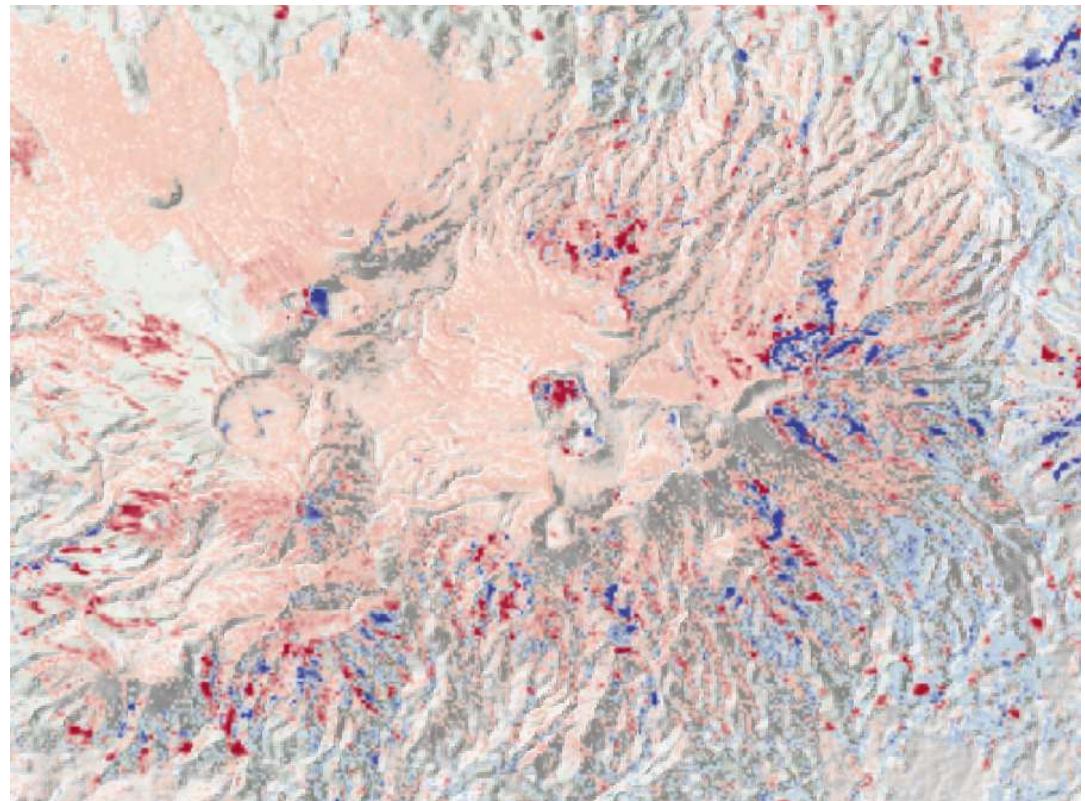
- Japan
- Eruption August 2019
- Surrounded by noise from vegetation
- Crater could be signal, could just be noise
- First change 2018-09
- Last change 2020-02
- 50"



Volcano number	Longitude	Latitude	Quality index
283110	138.523	36.406	2

## Asosan

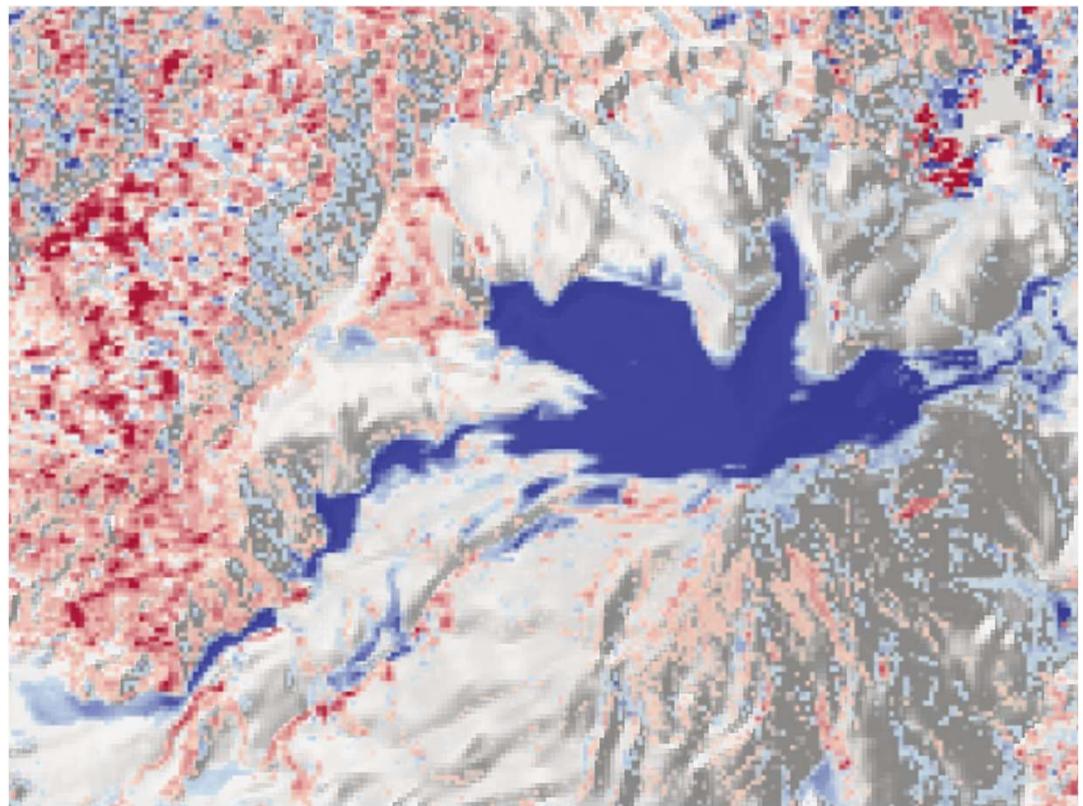
- Japan
- Has a large caldera
- Also eruptions in 2011, 2014, and 2014-2016
- Negative change within crater probably linked to explosive eruptions
- Rest seems to be noise
- First change 2018-09
- Last change 2020-01
- 50"



Volcano number	Longitude	Latitude	Quality index
282110	131.085	32.8849	3

## Bagana

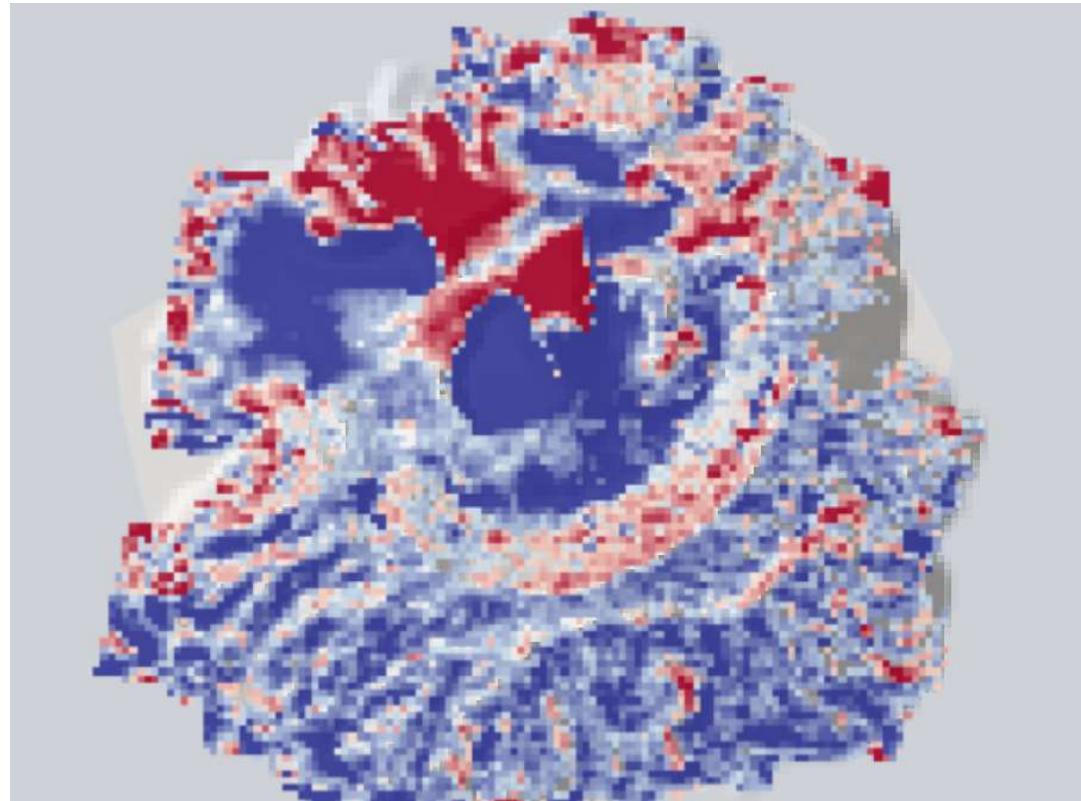
- Indonesia
- Lava flows
- First change 2018-01
- Last change 2019-01
- 50"



Volcano number	Longitude	Latitude	Quality index
255020	155.196	-6.137	2

## Barren Island

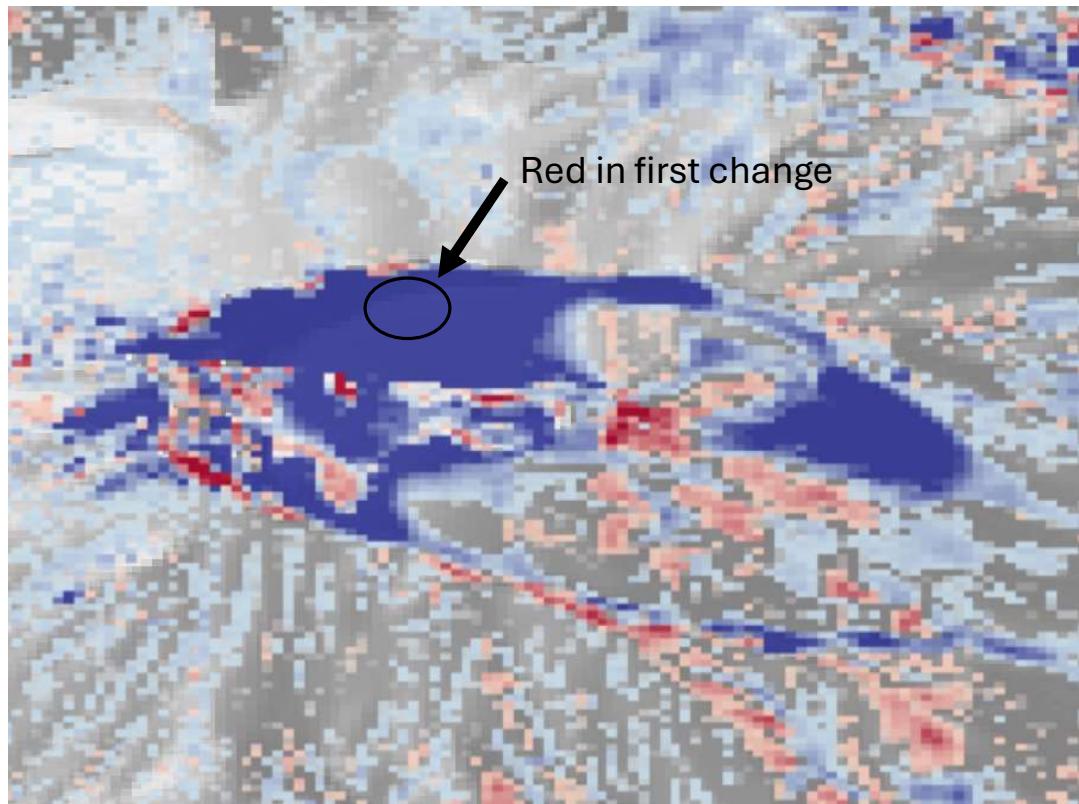
- Small island south of Myanmar
- Steep slopes, very noisy – though consistent between first and last change
- First change 2018-05
- Last change 2019-09
- 20"



Volcano number	Longitude	Latitude	Quality index
260010	93.858	12.278	4

## Bezymianny

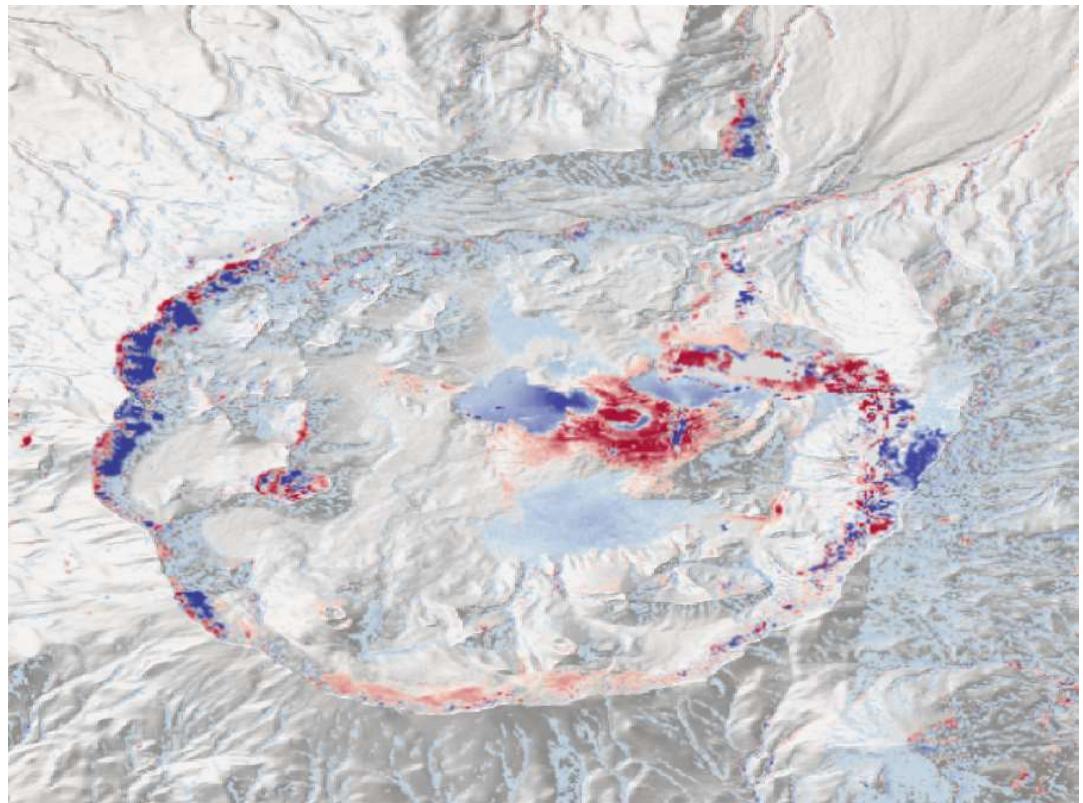
- Kamchatka, Russia
- Eruptions 2010-2011, 2012-2013, 2014 (unconfirmed), 2016-2021, 2022-present
- Lava flows
- Area to west shows much more variation in first change, but is completely covered by lava by last change
- First change 2018-08
- Last change 2019-11
- 20"



Volcano number	Longitude	Latitude	Quality index
300250	160.595	55.972	snow

## Bogoslof

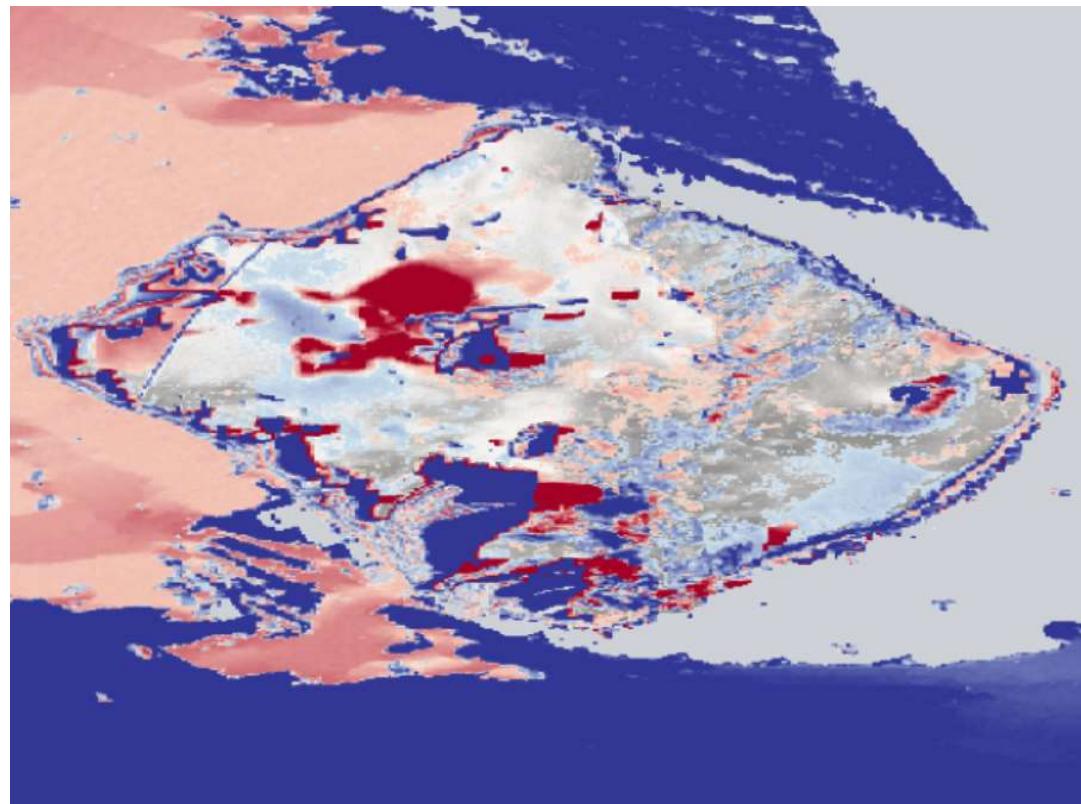
- Aleutian islands, Alaska
- Small amount of activity and lava extrusion within crater
- First and last change look the same
- First change 2018-02
- Last change 2019-02
- 2'



Volcano number	Longitude	Latitude	Quality index
311300	-168.03	53.93	2

## Bristol Island

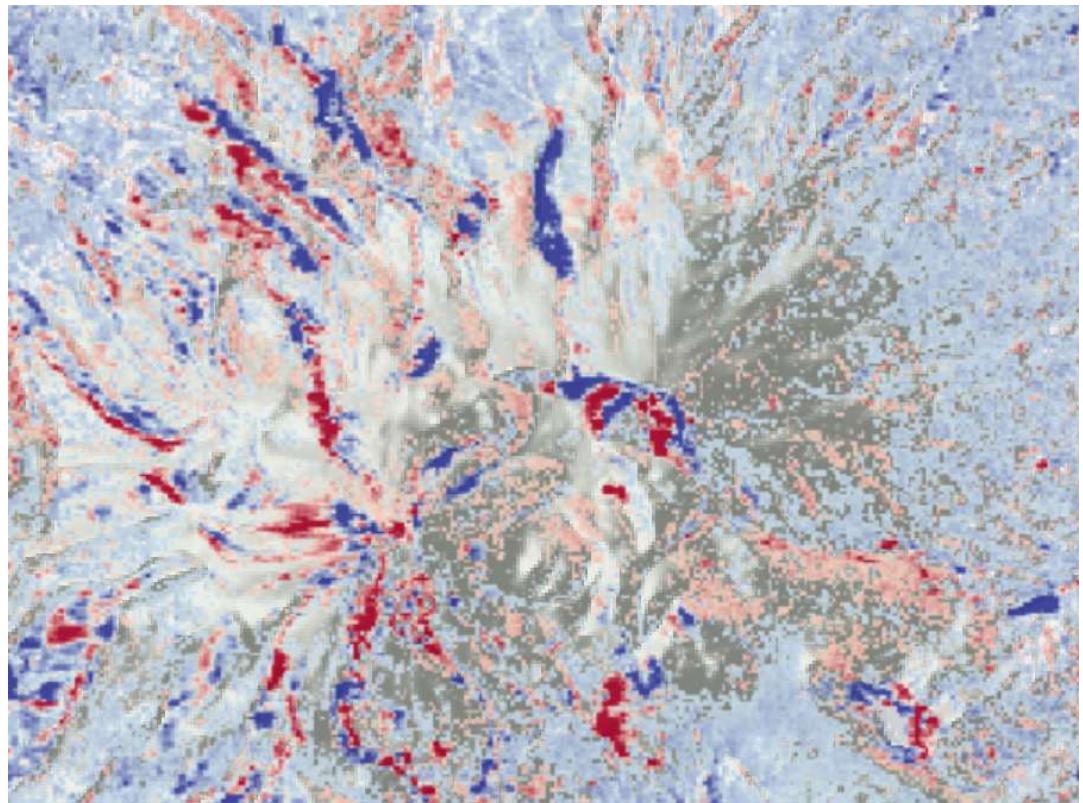
- South Sandwich Islands
- Complete mess
- 2'



Volcano number	Longitude	Latitude	Quality index
390080	-26.533	-59.017	4

## Bulusan

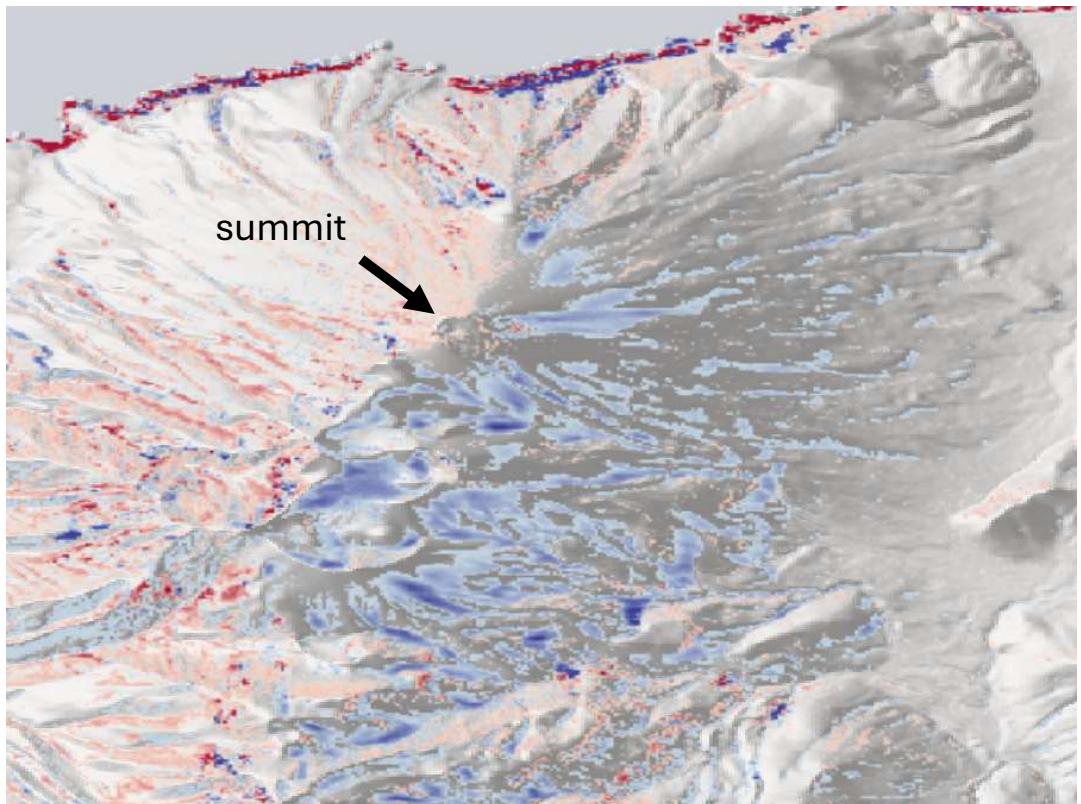
- Large amounts of noise
- Philippines
- Eruptions 2010-2011, 2015, 2016 x2, 2017, 2022
- First change 2018-06
- Last change 2019-07
- 50"



Volcano number	Longitude	Latitude	Quality index
273010	124.056	12.769	3

## Chikurachki

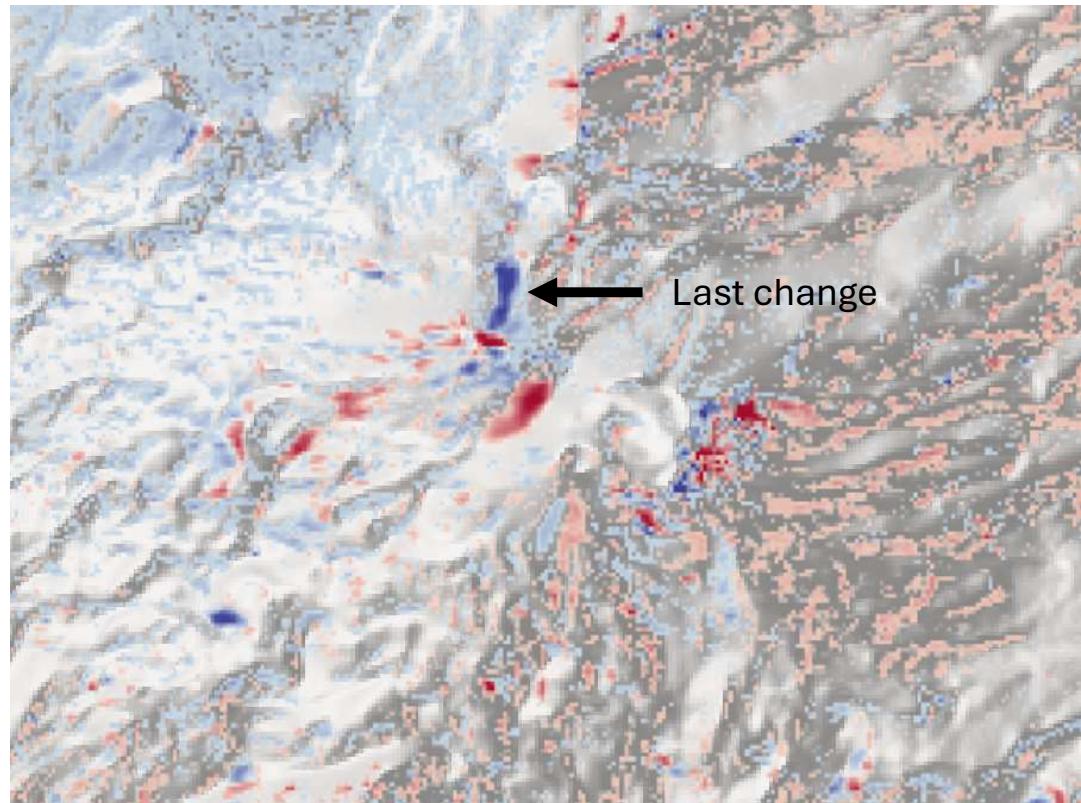
- Kuril islands, in line with Kamchatka
- Ash plume at summit
- No lava flows mentioned by GVP
- Blue areas probably from snow?
- First change 2018-07
- Last change 2019-07/2020-02
- 100"



Volcano number	Longitude	Latitude	Quality index
290360	155.461	50.324	snow

## Chillan, Nevados de

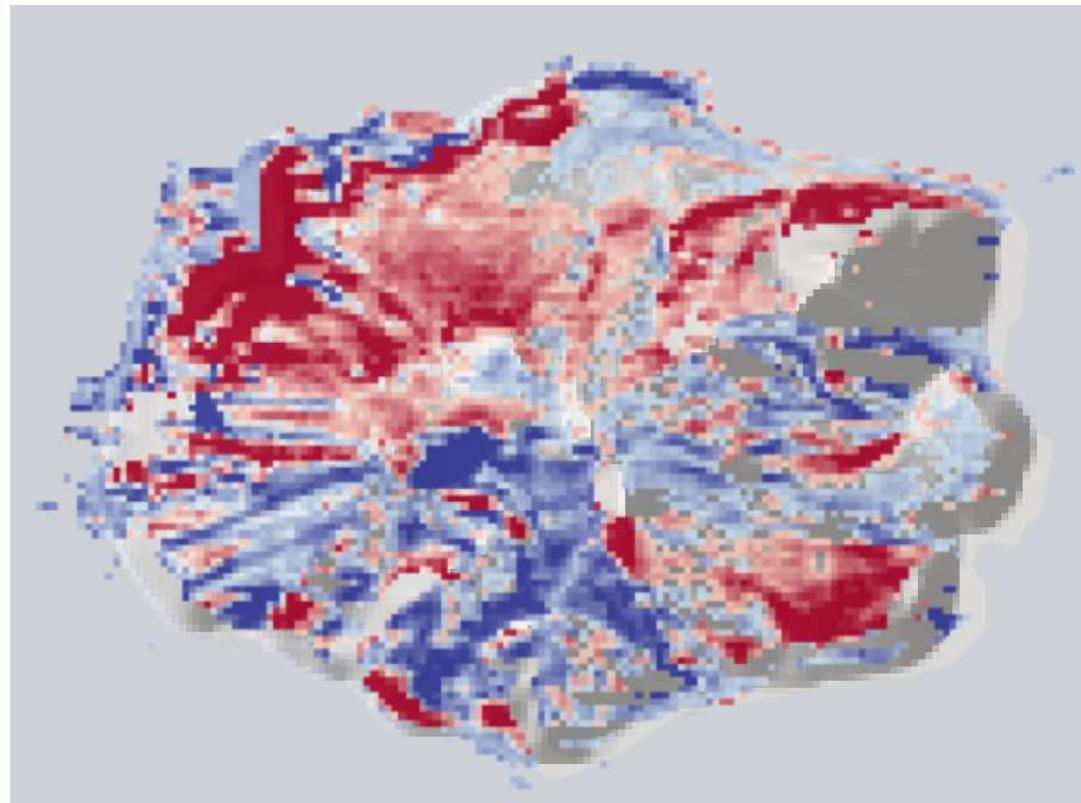
- Southern Andes
- Nothing really visible before first change, changes are probably mostly due to vegetation
- Blue lobe appears between first and last change
- First change 2018-08
- Last change 2019-11
- 50"



Volcano number	Longitude	Latitude	Quality index
357070	-71.378	-36.868	2

## Chirinkotan

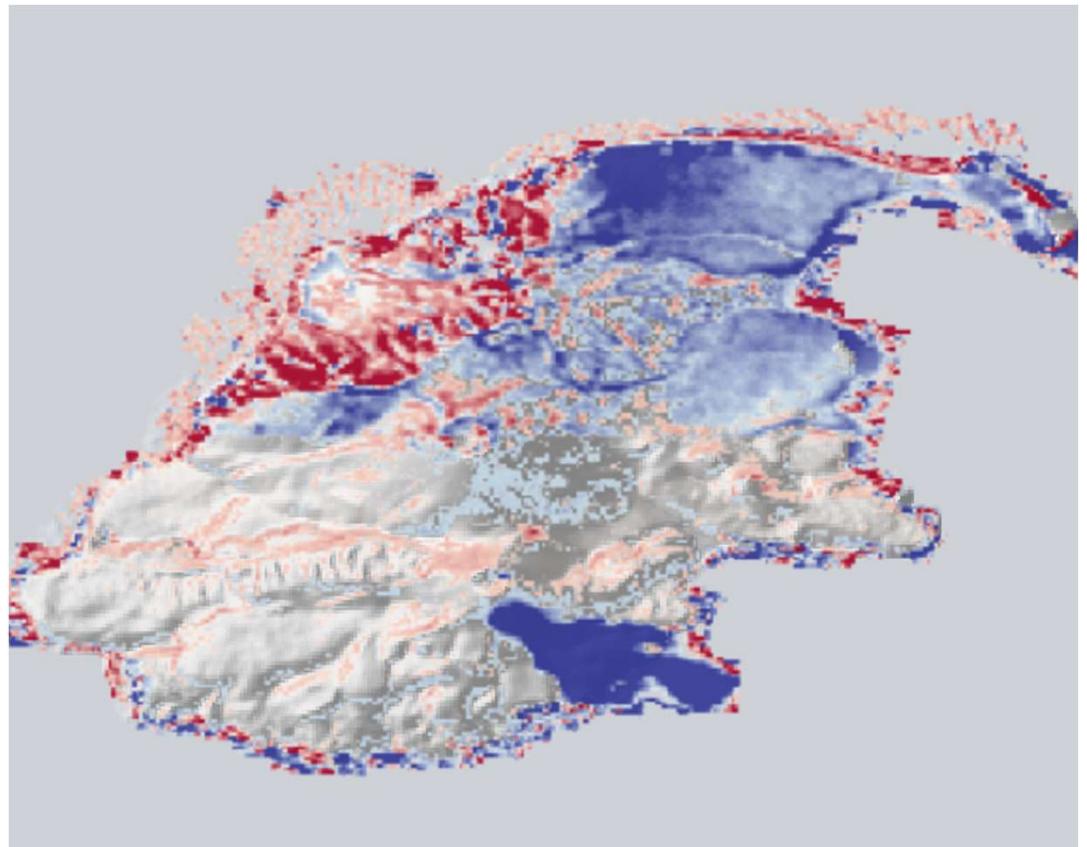
- Kuril islands, in line with Kamchatka
- Eruptions 2013-2014, 2014-2015, 2016-2017, 2021, 2022
- High levels of noise
- First/last change 2019-06
- 20"



Volcano number	Longitude	Latitude	Quality index
290260	153.48	48.98	4

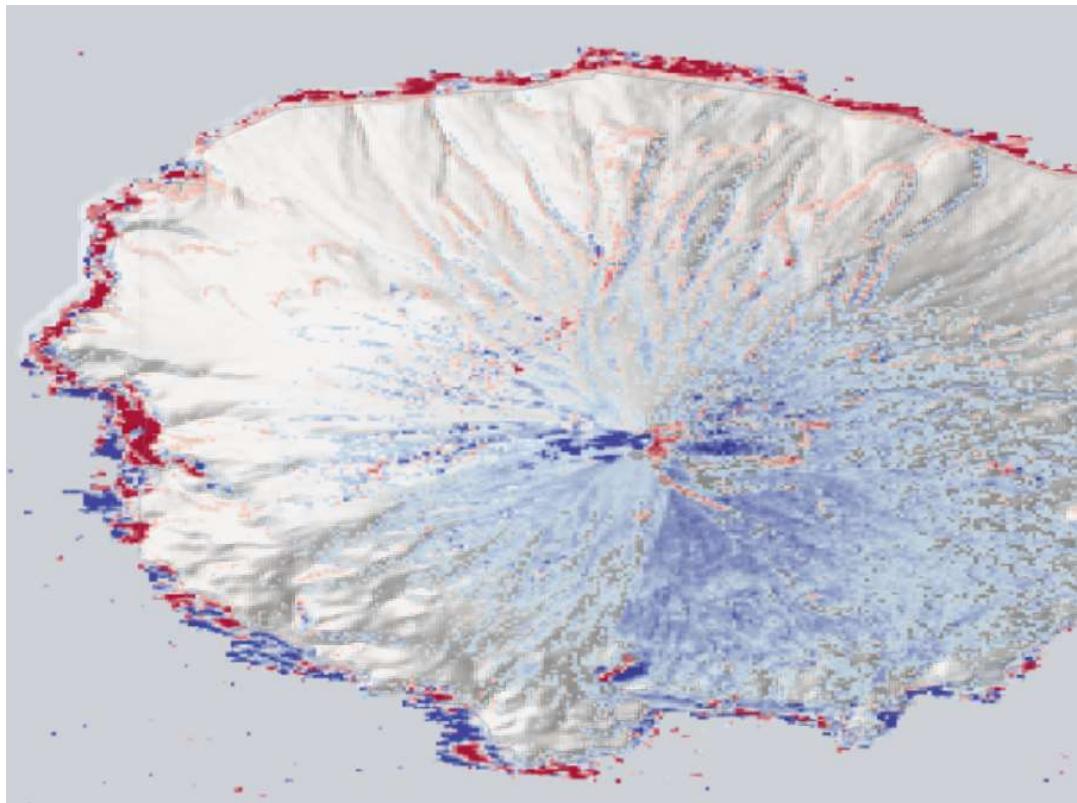
# Chirpoi

- Kuril Islands, Russia
- Eruptions 2012-2016
- First change 2018-08
- Last change 2019-11
- 50"



## Cleveland

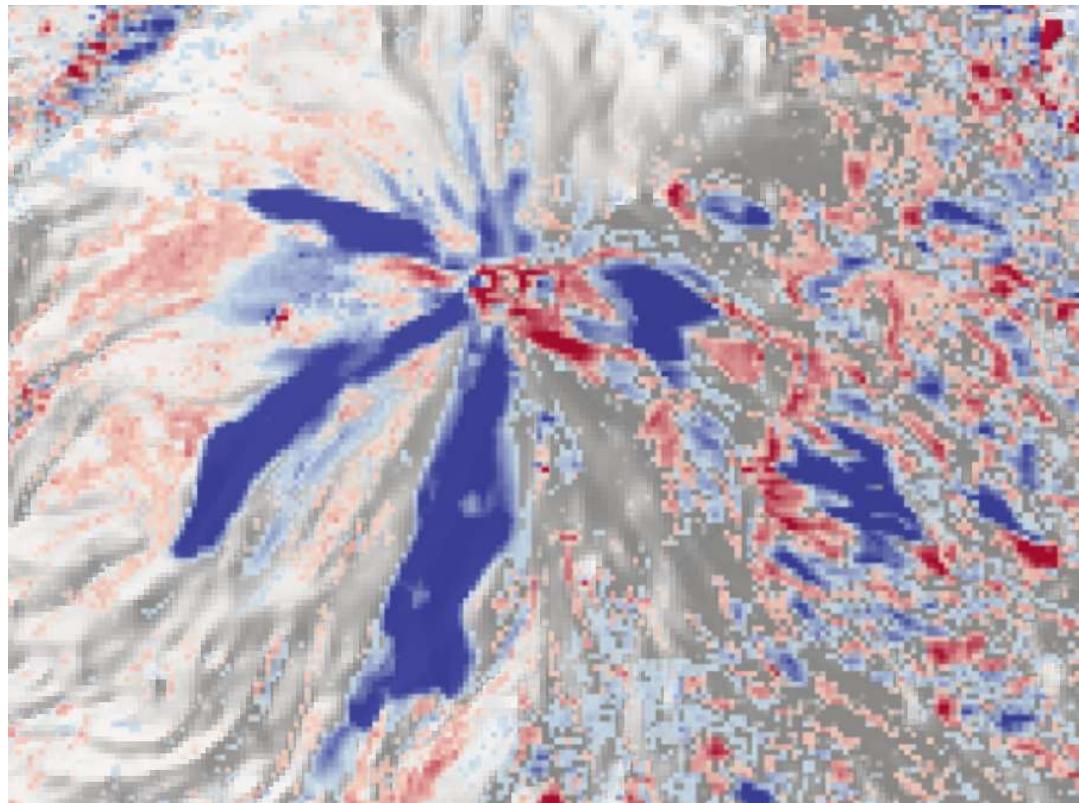
- Aleutian islands,  
Alaska
- First change 2018-04
- Last change 2019-03
- 50"



Volcano number	Longitude	Latitude	Quality index
311240	-169.944	52.825	2

## Colima

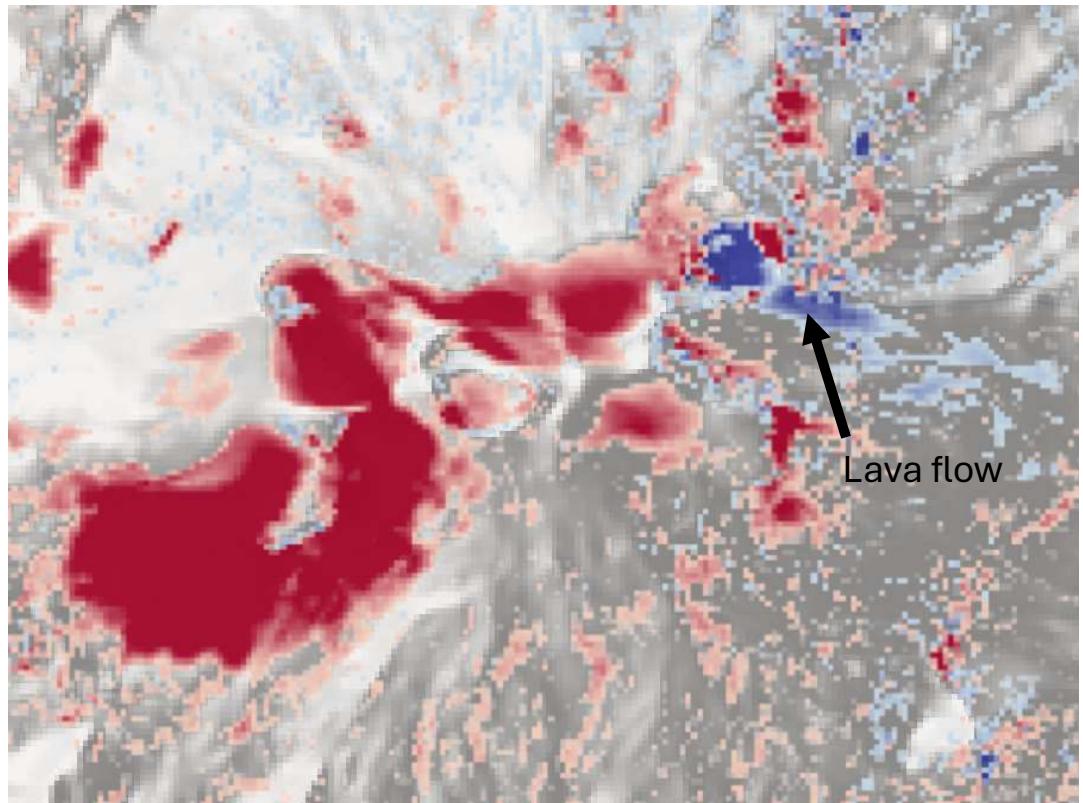
- Mexico
- Eruptions 1997-2011, 2013-2017, 2019
- First change shows some blue flow sections coloured in red, possibly some weird noise?
- Lava flows and PDCs
- First change 2018-01
- Last change 2020-04
- 50"



Volcano number	Longitude	Latitude	Quality index
341040	-103.62	19.514	2

## Copahue

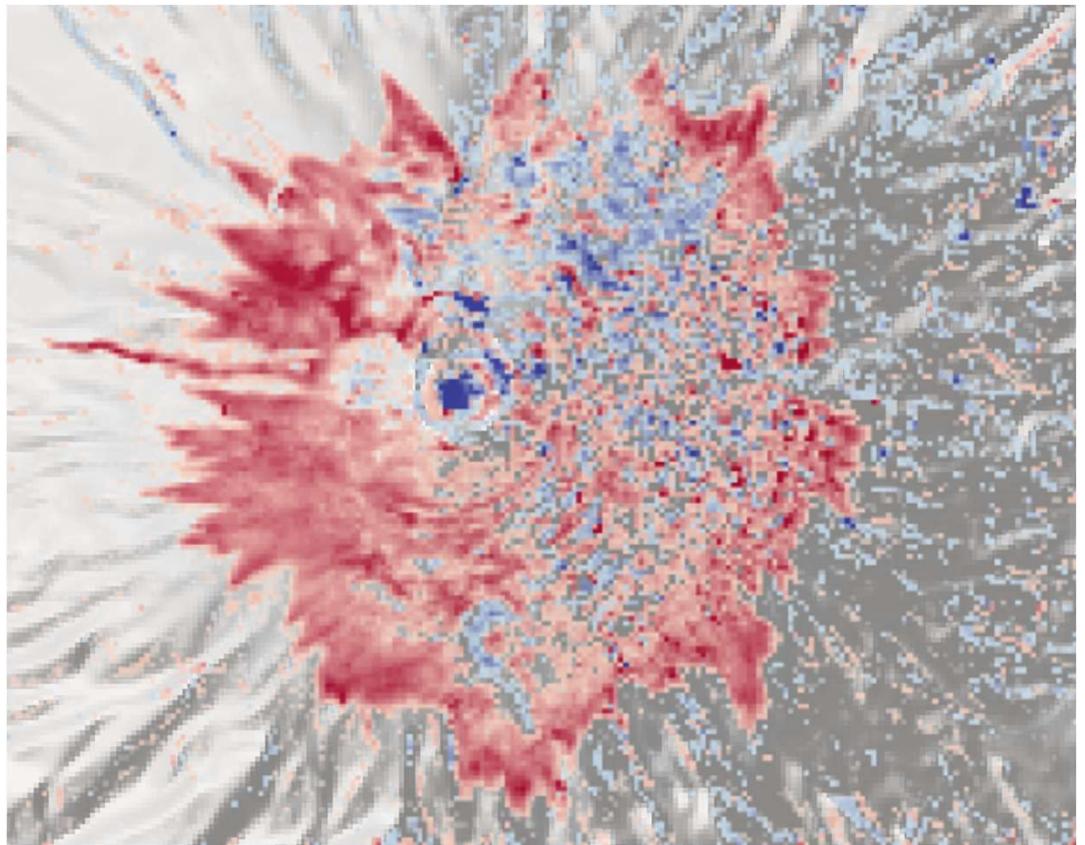
- Chile-Argentina
- Eruptions in 2012, 2012-2013, 2014, 2015-2017, 2017-2018, 2019
- Lava flows to the east
- Could show melting of glaciers/ice cap due to subglacial eruptions
- First change 2018-05
- Last change 2019-05/2019-11
- 20"



Volcano number	Longitude	Latitude	Quality index
357090	-71.183	-37.856	snow

## Cotopaxi

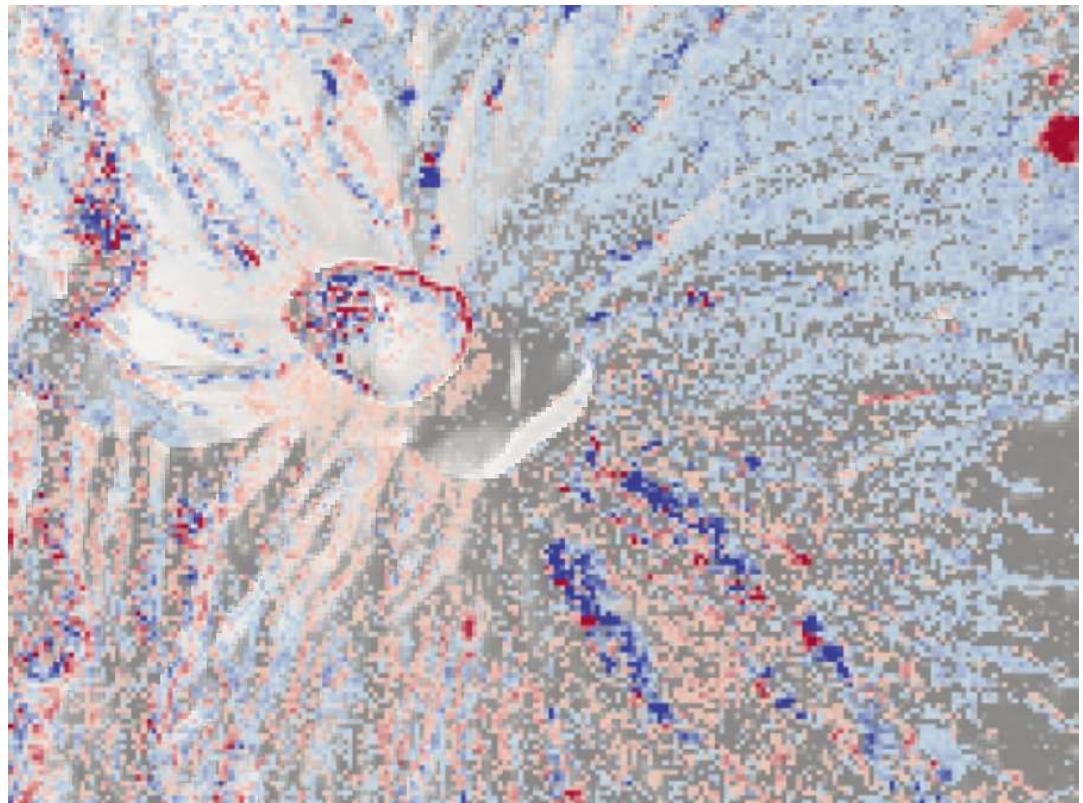
- Ecuador
- Eruptions 2015-2016, 2022-2023
- First change 2019-04
- Last change 2019-07
- 50"



Volcano number	Longitude	Latitude	Quality index
352050	-78.436	-0.667	snow

## Dempo

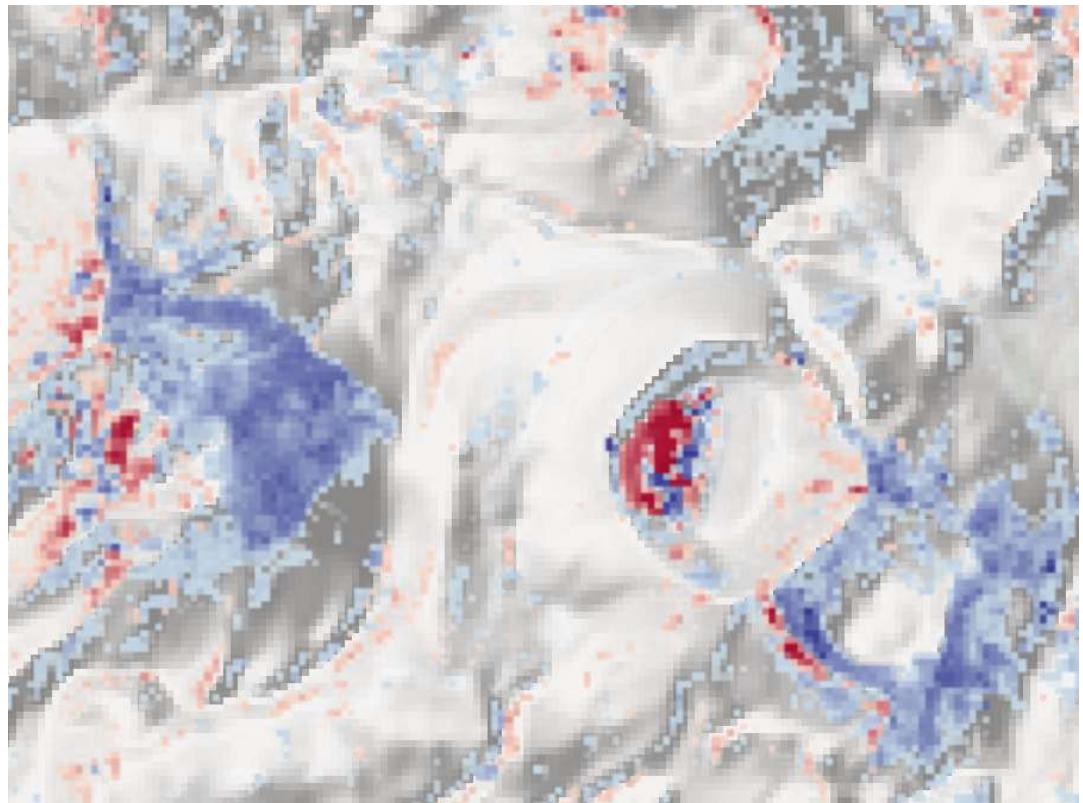
- Indonesia
- Eruptions 2009, 2017, 2022 onwards
- Just noise
- First change 2018-06
- Last change 2019-06
- 50"



Volcano number	Longitude	Latitude	Quality index
261230	103.121	-4.016	2

## Dieng Volcanic Complex

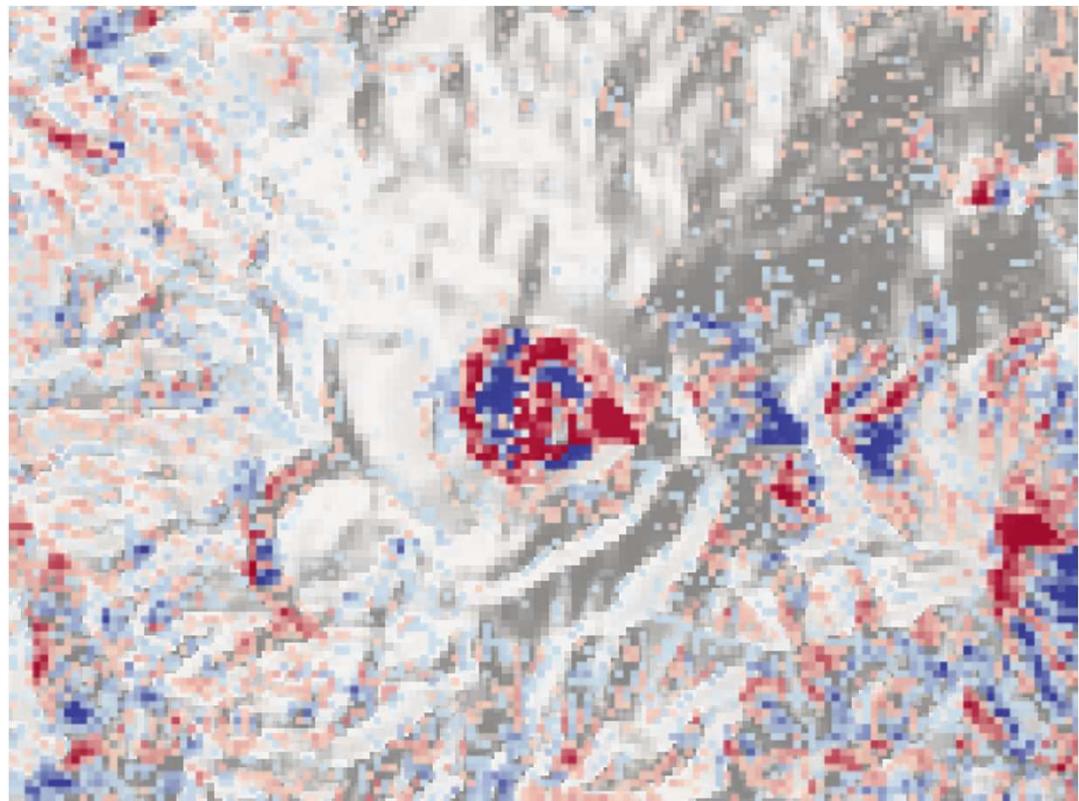
- Java, Indonesia
- Lava flows
- First change 2018-01
- Last change 2019-02
- 20"



Volcano number	Longitude	Latitude	Quality index
263200	109.879	-7.2	2

## Dukono

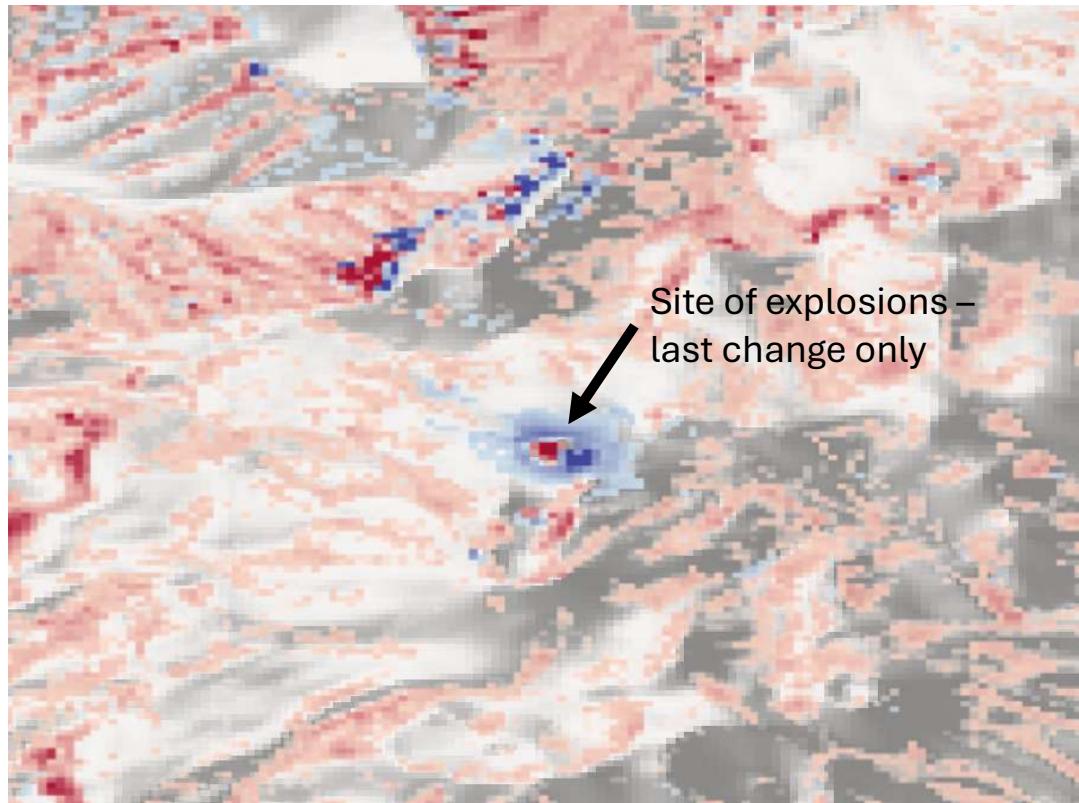
- Indonesia
- Changes within crater, but nothing that can be linked to any particular activity
- First change 2018-09
- Last change 2020-01
- 20"



Volcano number	Longitude	Latitude	Quality index
268010	127.8783	1.6992	3

## Ebeko

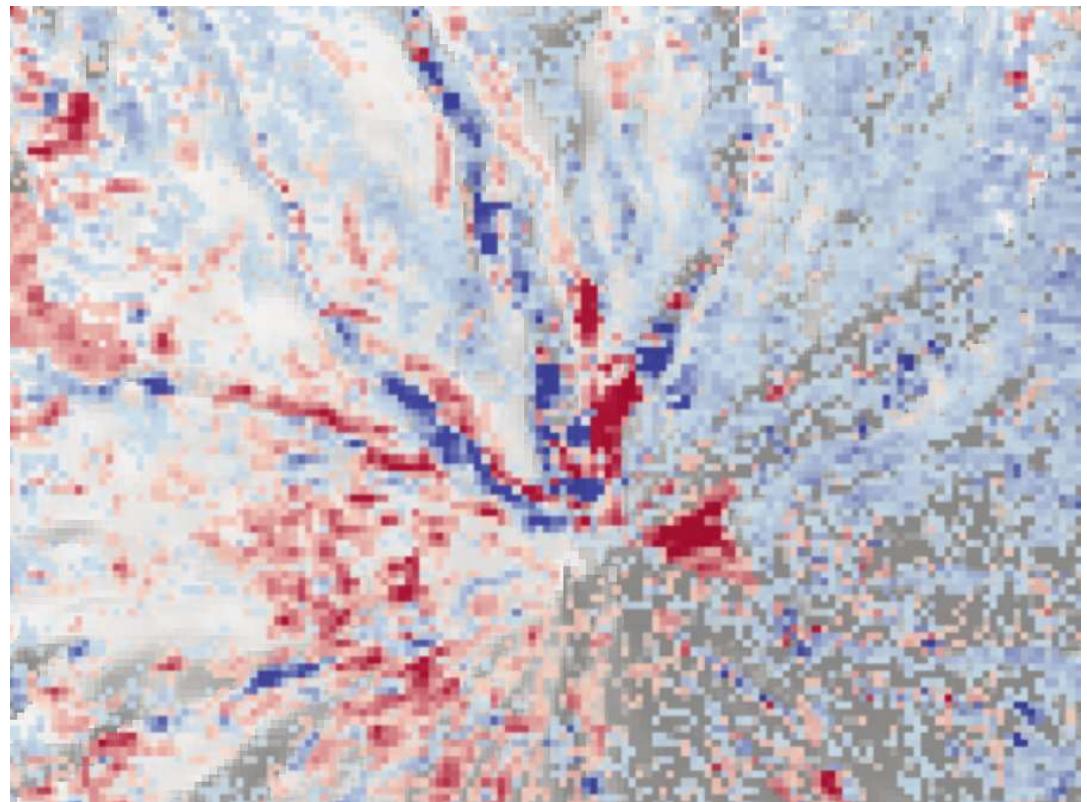
- Kuril islands, in line with Kamchatka
- Eruption 2016-2021
- Ash plumes
- Explosive eruptions caused material to be removed, with heavier clasts deposited nearby
- First change 2018-08
- Last change 2019-11
- 20"



Volcano number	Longitude	Latitude	Quality index
290380	156.014	50.686	2

## Ebulobo

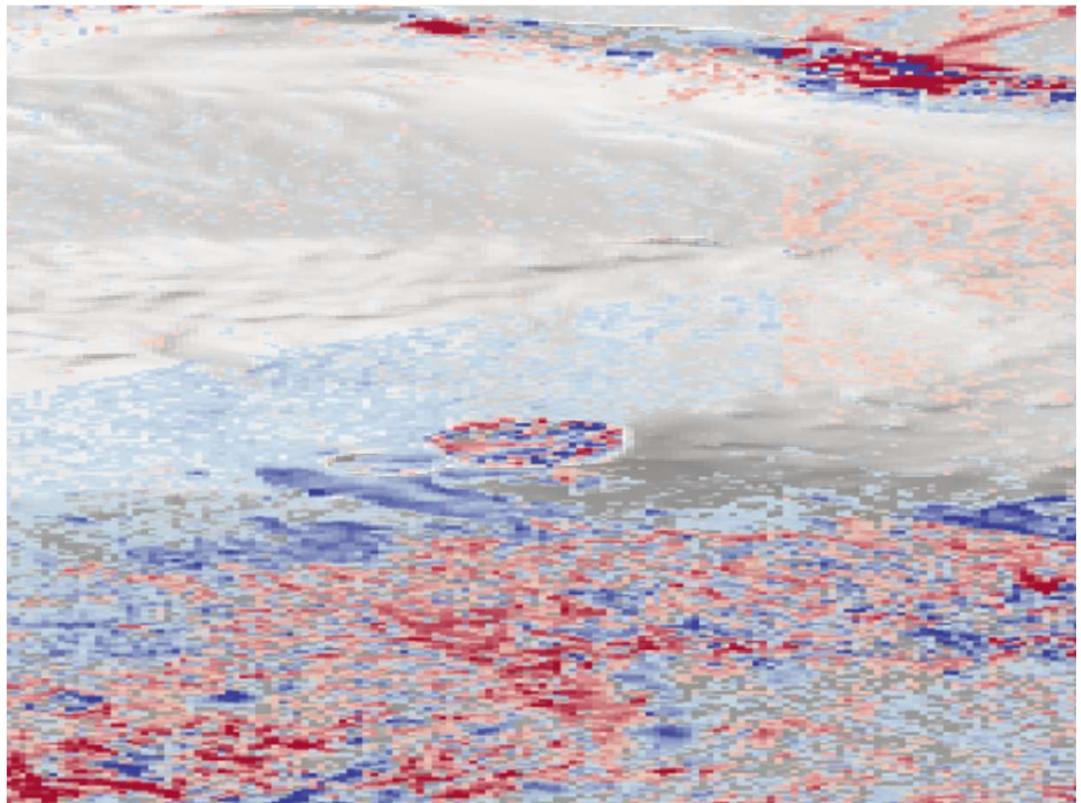
- Indonesia
- Quite noisy, but might show lava flows along valleys
- Could just be layover/shadow
- First change 2018-06
- Last change 2019-01
- 20"



Volcano number	Longitude	Latitude	Quality index
264100	121.191	-8.817	3

## Erebus

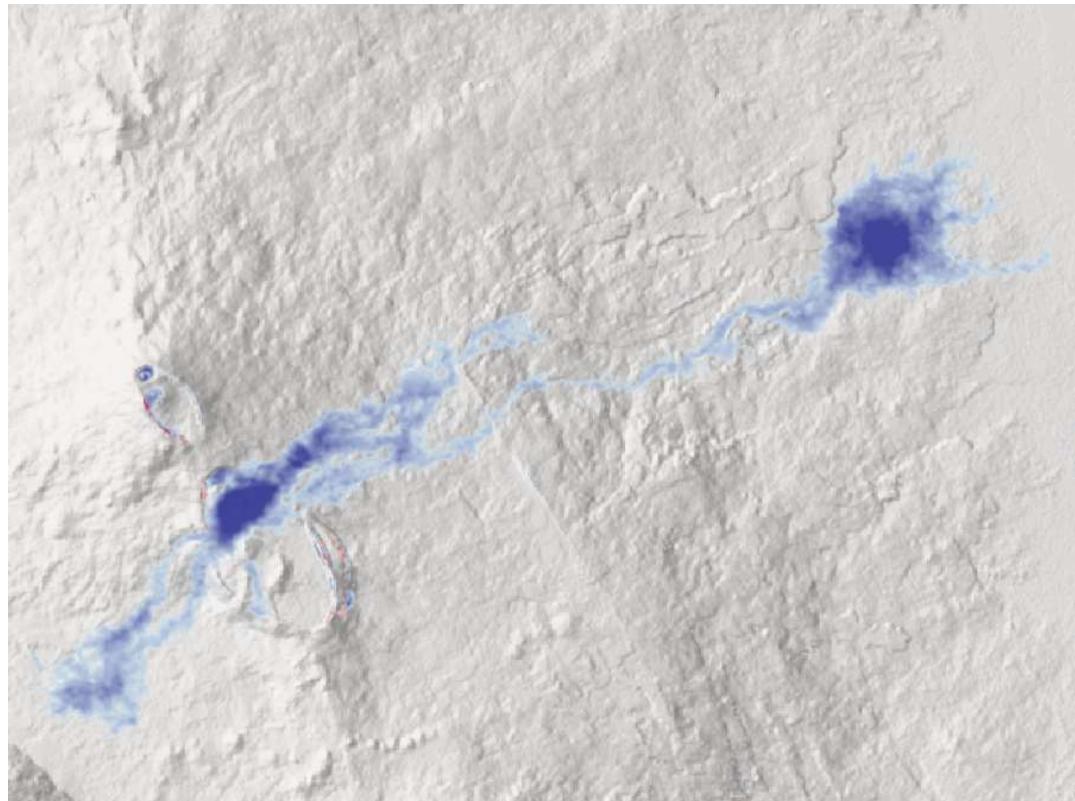
- Antarctica
- First change 2017-05
- Last change 2017-06/2017-07/2017-08
- 50"



Volcano number	Longitude	Latitude	Quality index
390020	167.17	-77.53	snow

# Erta Ale

- Ethiopia
- Eruption 1967 – 2024 (continuing)
- First/last change 2018-10/2018-11
- 2'
- Relevant GVP bulletins:



[07/2009 \(BGVN 34:07\)](#) Changes at NW and S pit craters between 2002 and 2009

[01/2010 \(BGVN 35:01\)](#) February 2010 visit reveals little change in South pit crater's lava lake since 2002

[06/2011 \(BGVN 36:06\)](#) Observers watch dynamic lava lake during November 2010

[07/2017 \(BGVN 42:07\)](#) Persistent lava lake; crater rim overflows; new fissure eruption begins in January 2017

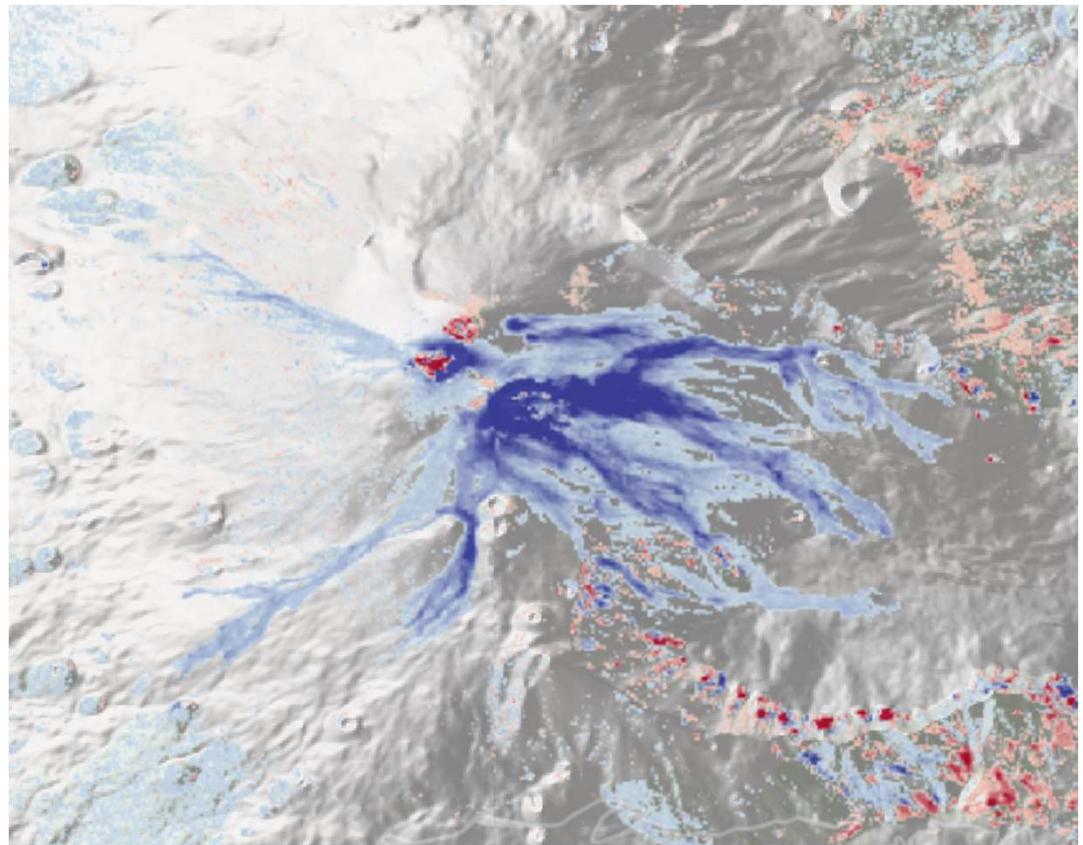
[04/2018 \(BGVN 43:04\)](#) New eruptive event forms lava lake and multiple large flow fields 3 km S of South Pit Crater, January 2017-March 2018

[04/2019 \(BGVN 44:04\)](#) Continued summit activity and lava flow to the E during April 2018-March 2019

Volcano number	Longitude	Latitude	Quality index
221080	40.666	13.601	1

# Etna

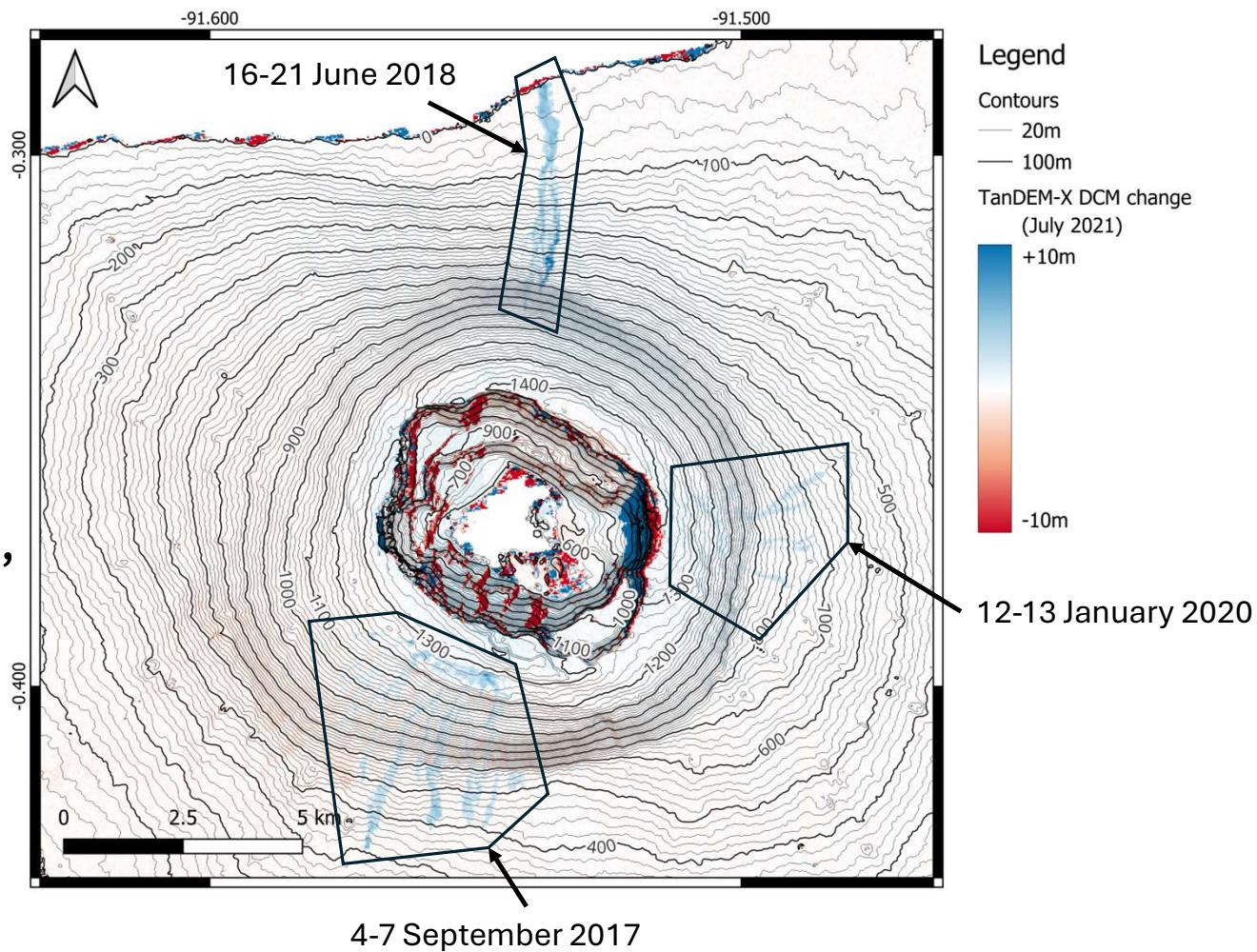
- Italy
- Erupted 2010-2013, 2013-2022, 2022-2025
- Lava flows
- Negative changes within crater
- First change 2019-06/2019-05
- Last change 2019-06
- 50"



Volcano number	Longitude	Latitude	Quality index
211060	14.999	37.748	1

## Fernandina

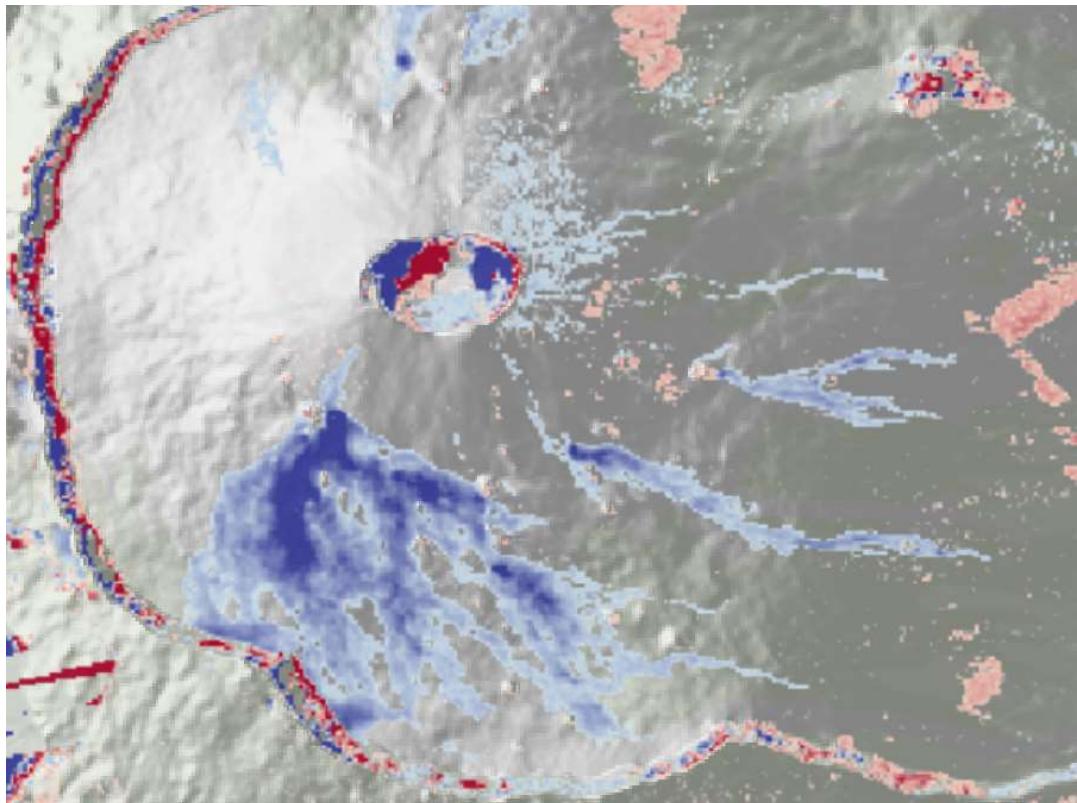
- Galápagos - small islands west of Ecuador
- Eruptions 2017, 2018, 2020
- Thermal anomalies detected
- First change 2018-11
- Last change 2021-07



Volcano number	Longitude	Latitude	Quality index
353010	-91.55	-0.37	1

## Fournaise, Piton de la

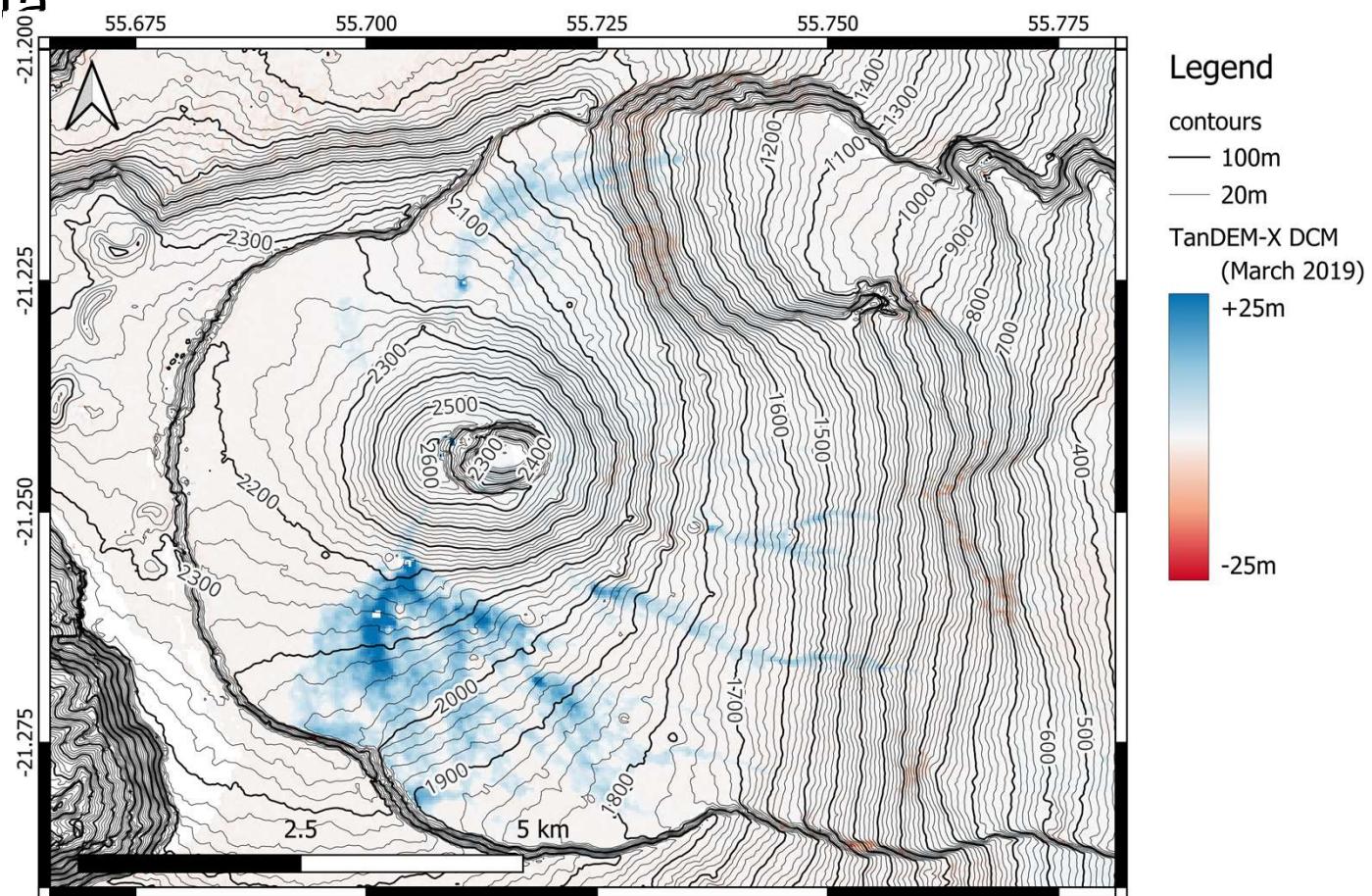
- Réunion, island east of Madagascar
- Clear lava flows
- Eruptions in 2010, 2014, 2015 (x2), 2016 (x2), 2017 (x2), 2018, Feb-March 2019, and more afterwards
- Newer lava flows overlap onto older field of lava flows
- First/last change 2019-03
- 50"



Volcano number	Longitude	Latitude	Quality index
233020	55.708	-21.244	1

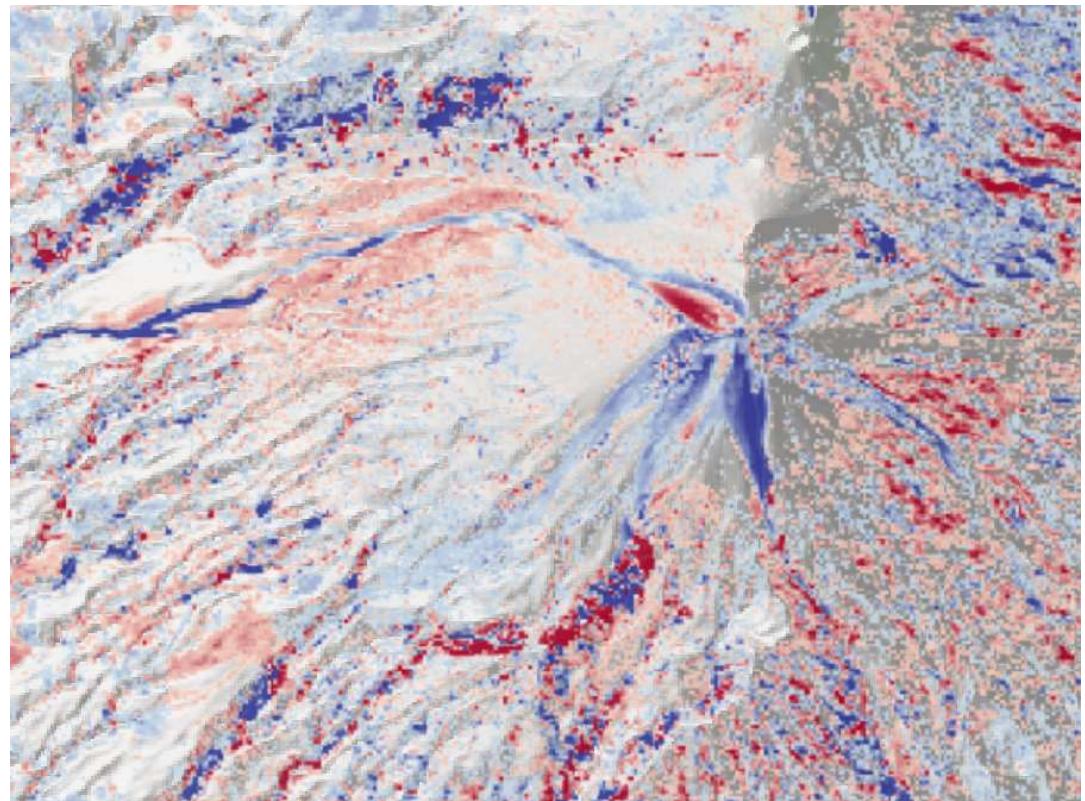
## Fournaise, Piton de la Fournaise

- Multiple lava flows within time covered by DCM
- Especially lots of overlapping flows in the south
- Can't distinguish between these using the TanDEM-X DCM, so can only measure total volume



## Fuego

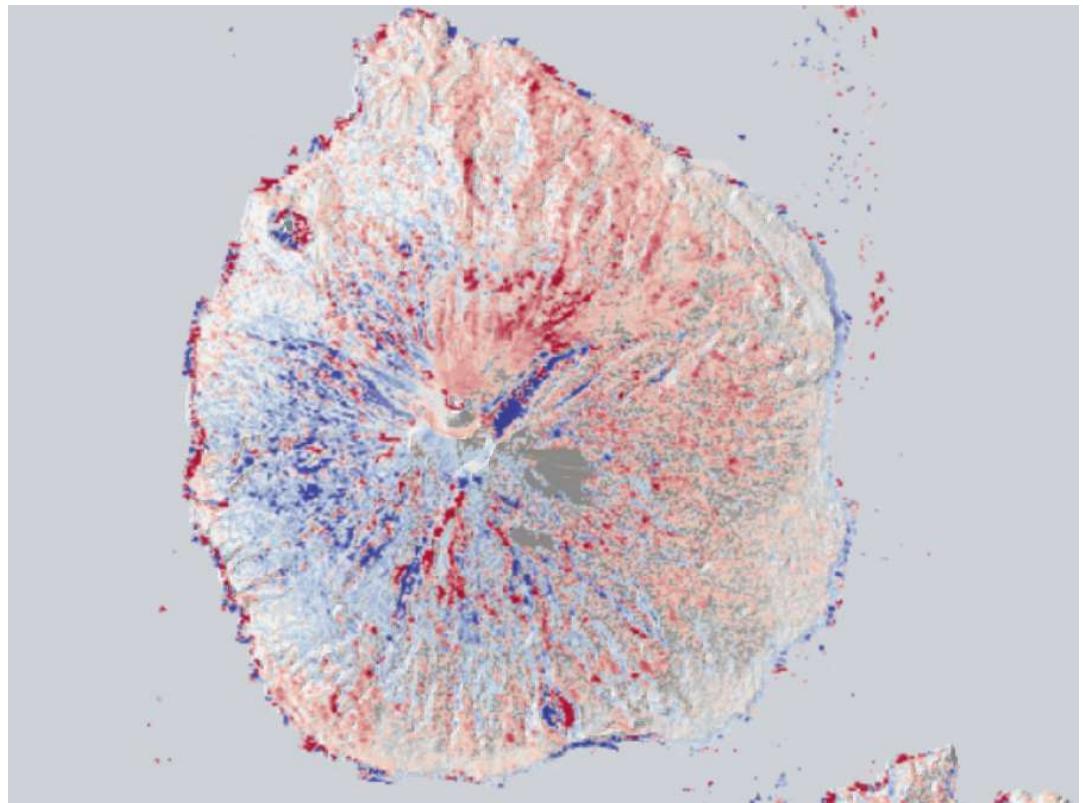
- Guatemala
- Eruption 2002 – 2024 (continuing)
- Not included in excel sheet
- PDCs, lahars, lava flows
- Last change noisier
- First change 2018-01
- Last change 2019-11
- 50"



Volcano number	Longitude	Latitude	Quality index
342090	-90.88	14.473	2

## Gamalama

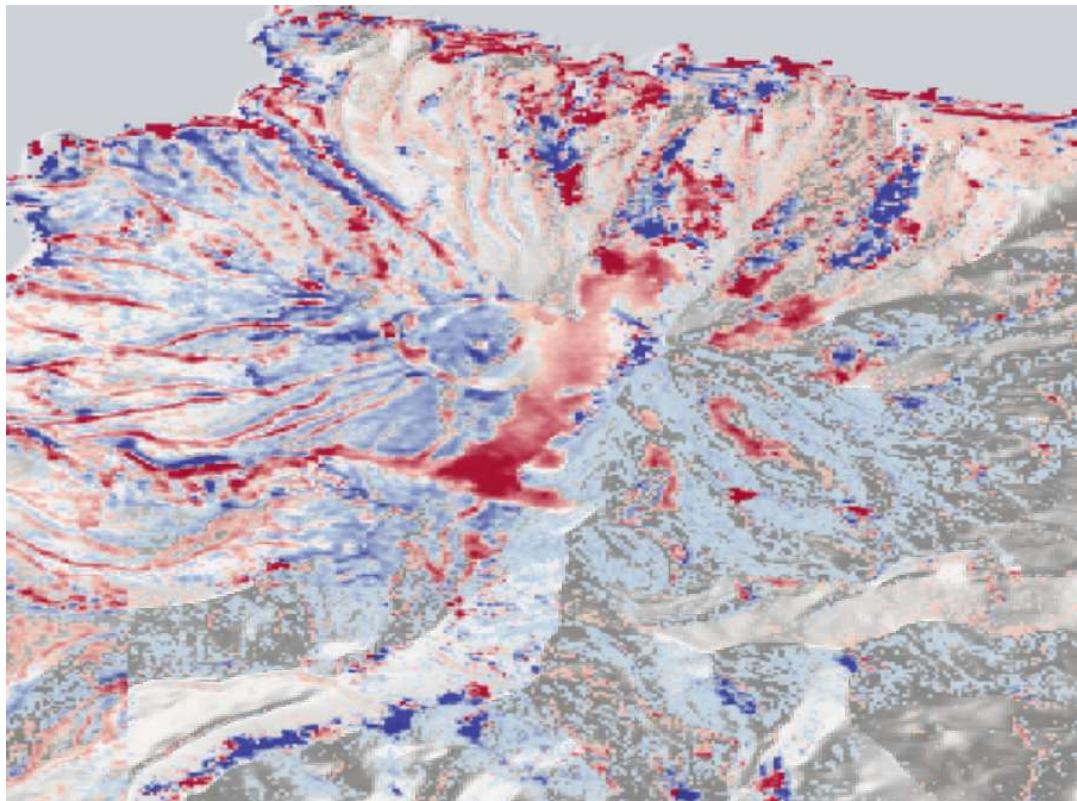
- Indonesia
- First and last change appear the same
- First change 2018-09
- Last change 2019-12/2020-01
- 2'



Volcano number	Longitude	Latitude	Quality index
268060	127.3322	0.81	3

## Great Sitkin

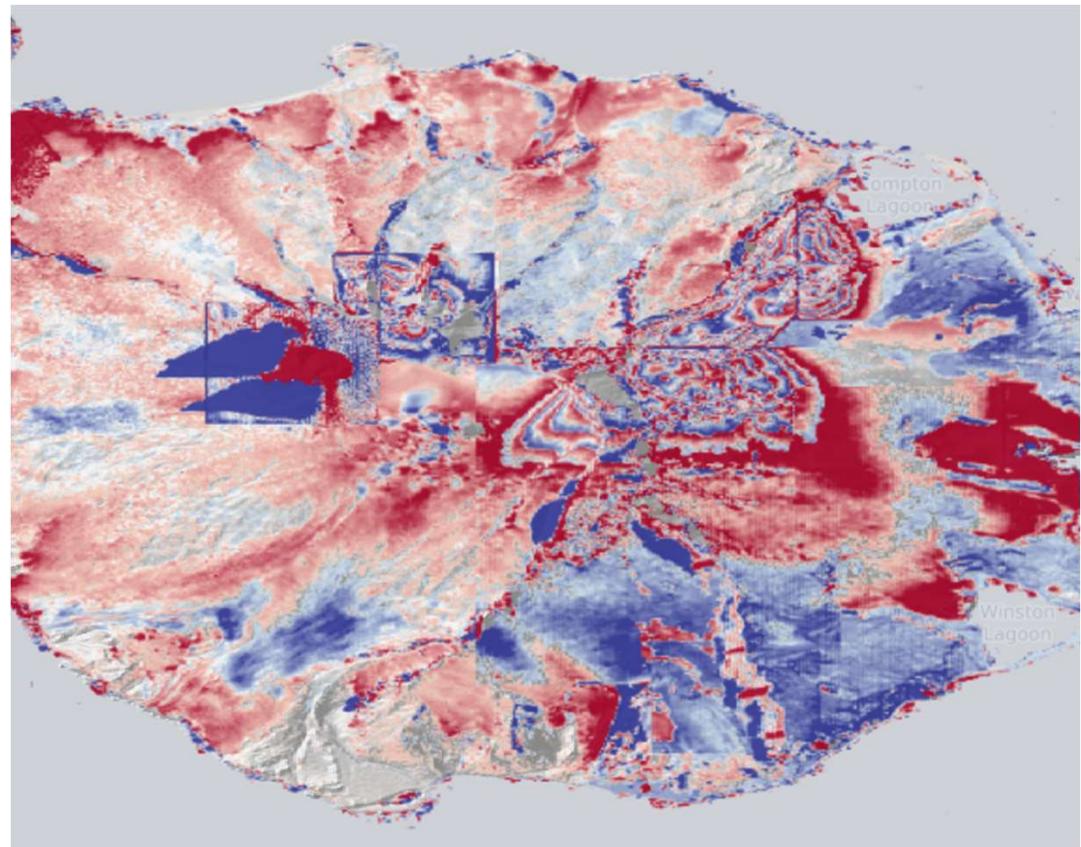
- Aleutian Islands, Alaska
- Probably mostly noise
- Eruptions 2018, 2019, 2021-2024
- Mostly explosions and ash
- First change 2018-01
- Last change 2019-01
- 50"



Volcano number	Longitude	Latitude	Quality index
311120	-176.13	52.076	snow

# Heard

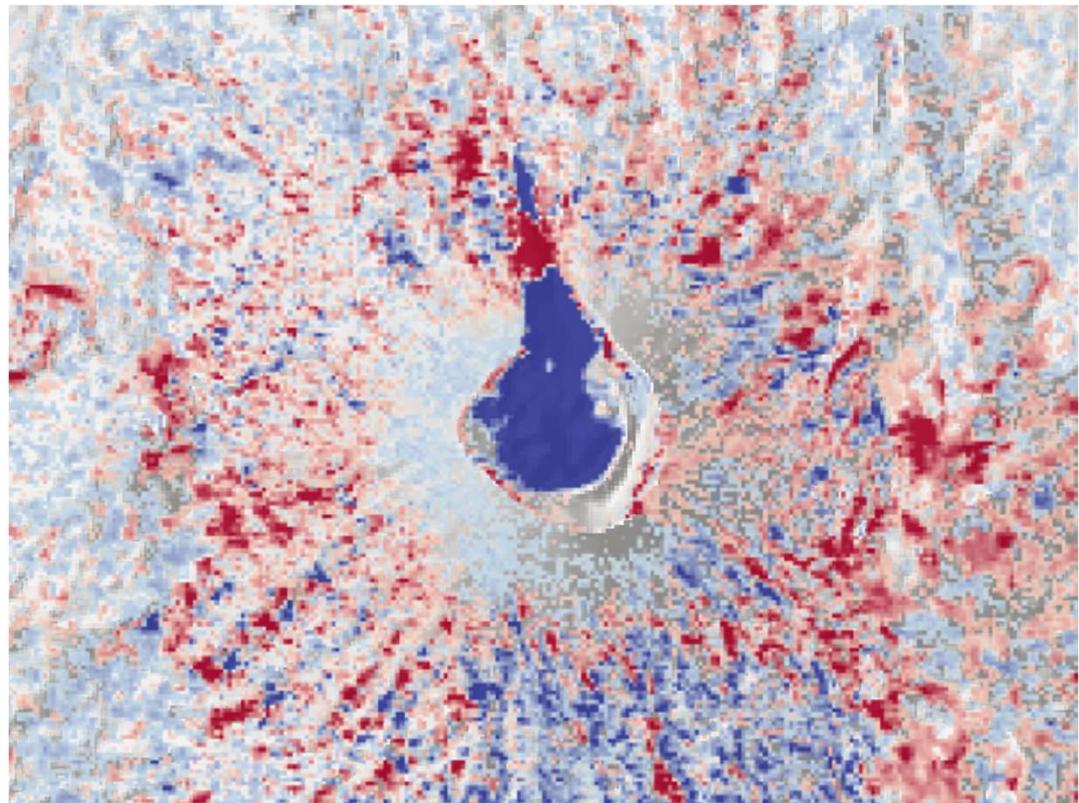
- Indian Ocean, Australia
- Kerguelen Hotspot Volcano Group
- Eruption 2012-2025
- Snow
- Processing issues leading to squares
- Fringes similar to Zhupanovsky and Saunders
- Large sections of HAI are missing
- First change 2018-12
- Last change 2018-12/2019-02
- 2'



Volcano number	Longitude	Latitude	Quality index
234010	73.513	-53.106	snow

## Ibu

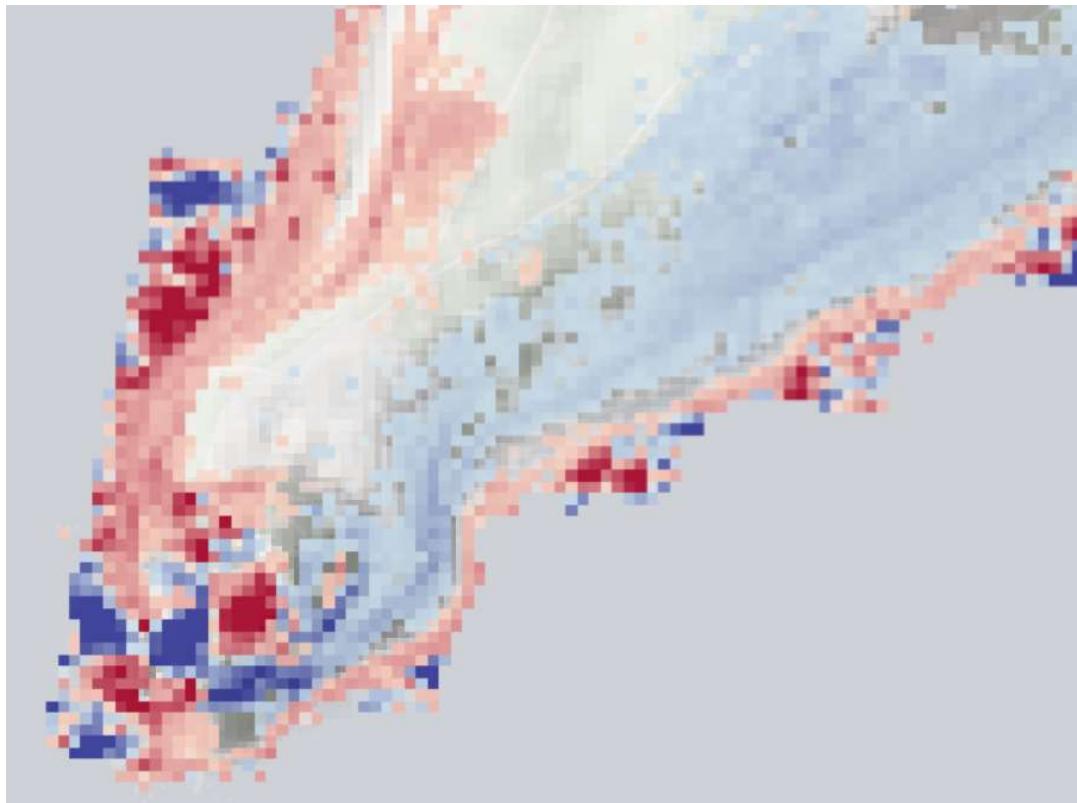
- Indonesia
- First change 2018-09
- Last change 2020-01
- Lava dome, lava flows
- 50"



Volcano number	Longitude	Latitude	Quality index
268030	127.63	1.488	3

## Ioto

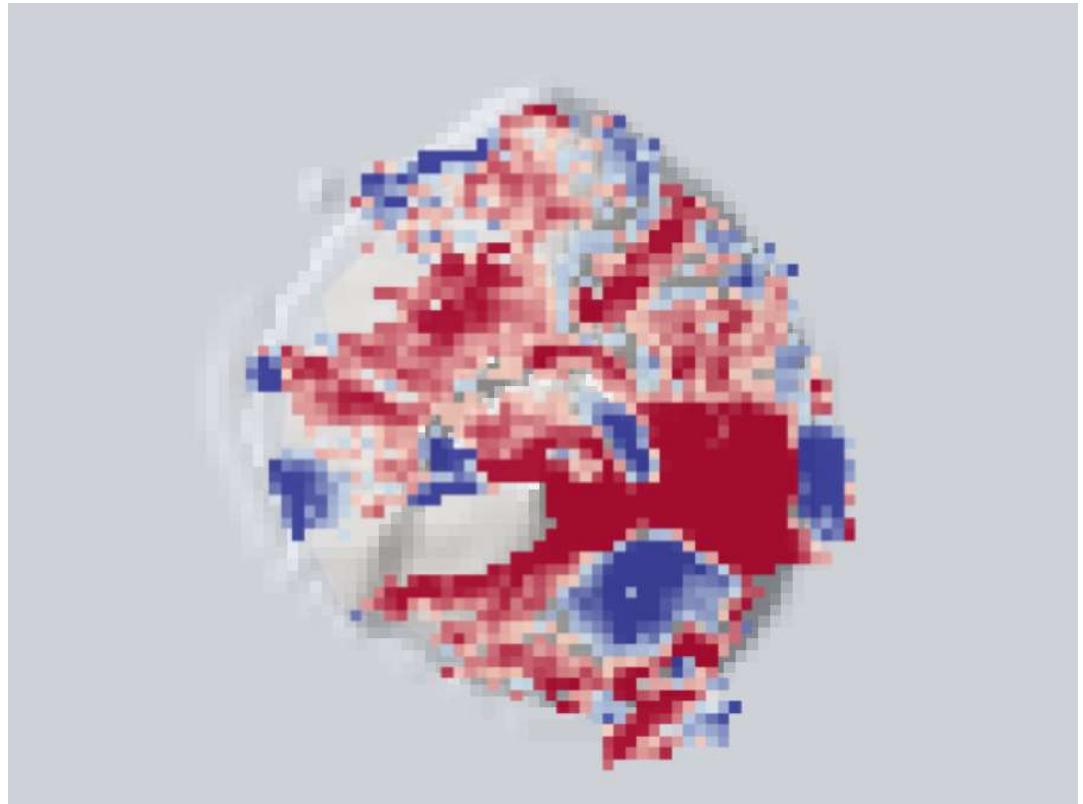
- Japan
- 3-5 eruptions from 2010 to 2015
- Eruption 2016, unconfirmed eruption 2018 (offshore?)
- First/last change 2019-06
- 20"



Volcano number	Longitude	Latitude	Quality index
284120	141.289	24.751	3

## Kadovar

- 2 km-wide island in Papua New Guinea
- Eruption Jan 2018 – May 2023
- Loss of vegetation, unstable slopes
- First change 2018-04
- Last change 2019-04
- 10"

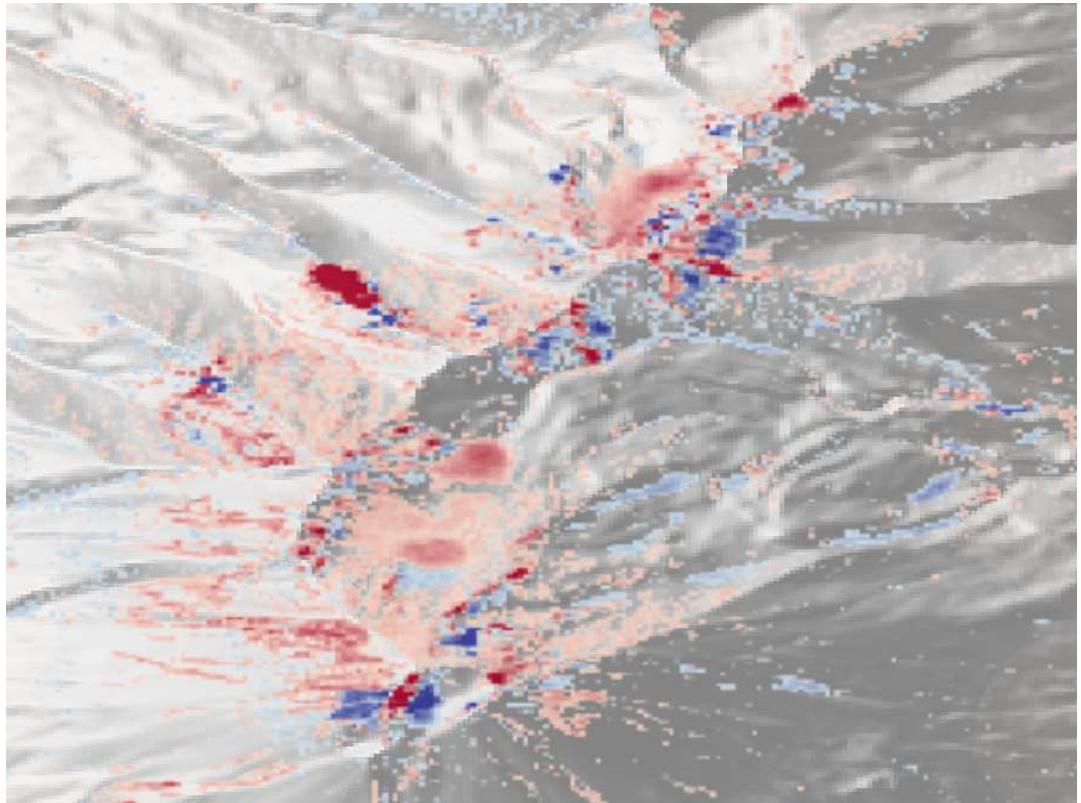


Volcano number	Longitude	Latitude	Quality index
251002	144.588	-3.608	4

← Image from GPV bulletin

## Kambalny

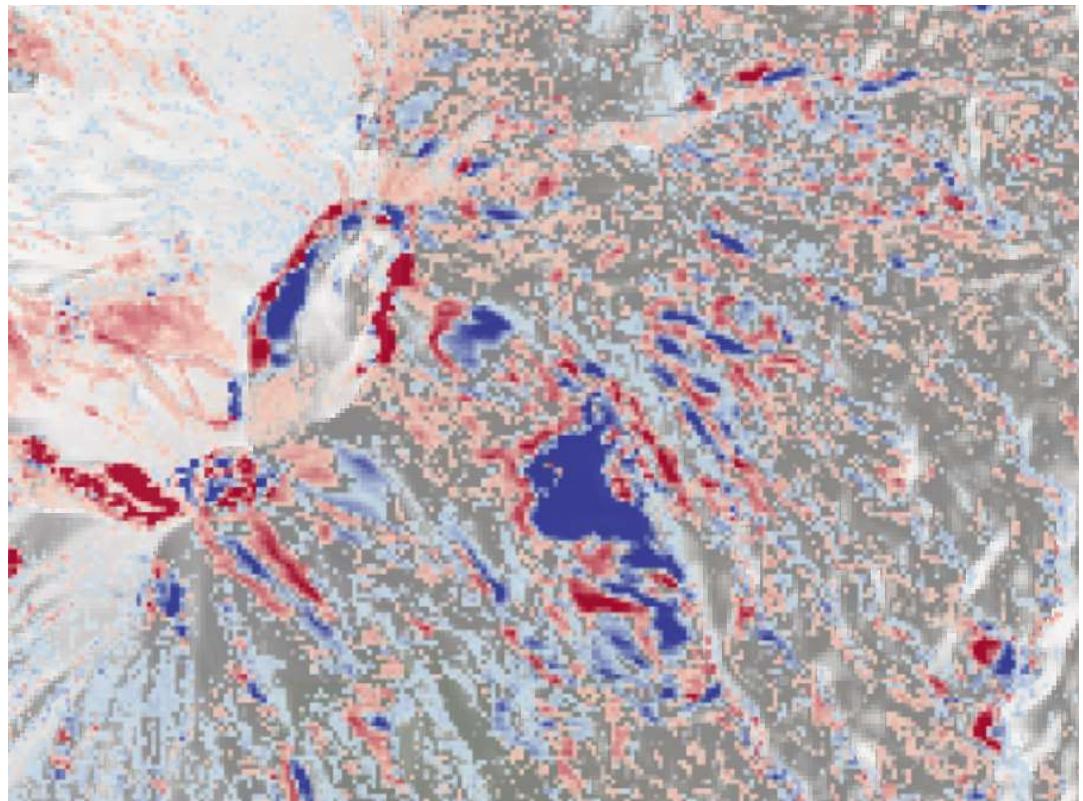
- Kamchatka, Russia
- Pretty noisy
- First change 2018-09
- Last change 2019-11
- 50"



Volcano number	Longitude	Latitude	Quality index
300010	156.875	51.306	2

## Kanlaon

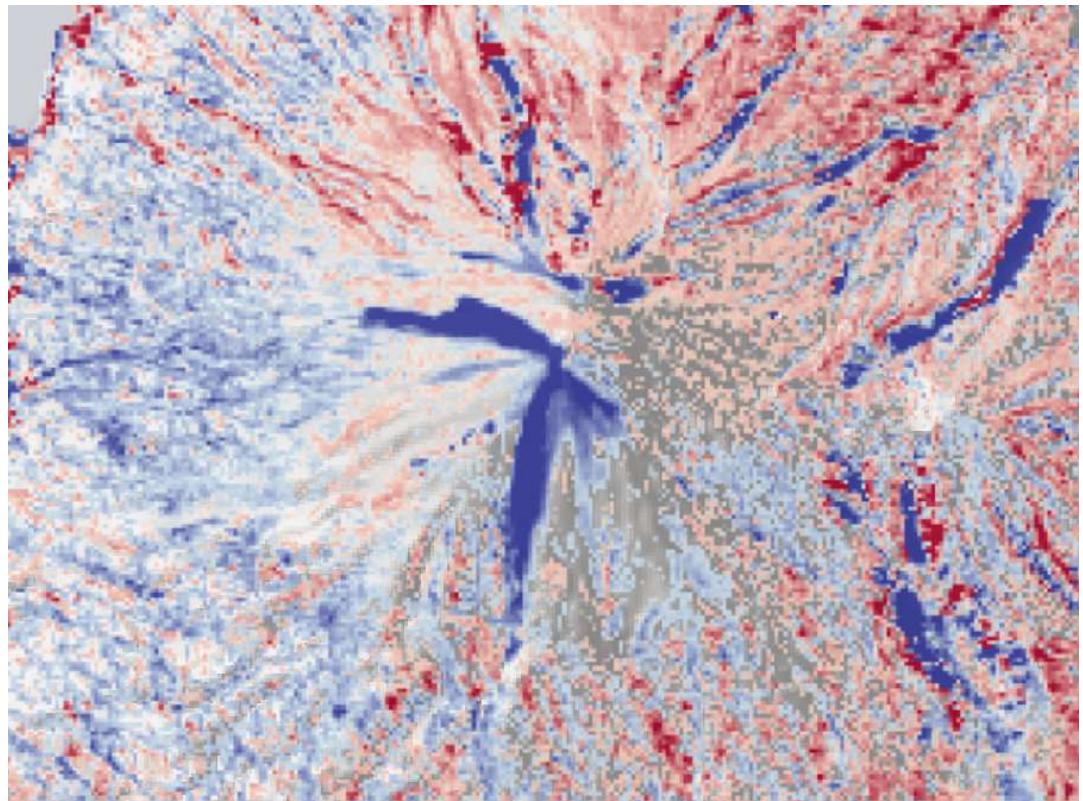
- Philippines
- Erupted 2015-2016,  
2017, 2024
- Ash plumes and  
explosions
- First change 2018-10
- Last change 2020-02
- 50"



Volcano number	Longitude	Latitude	Quality index
272020	123.132	10.412	3

## Karangetang

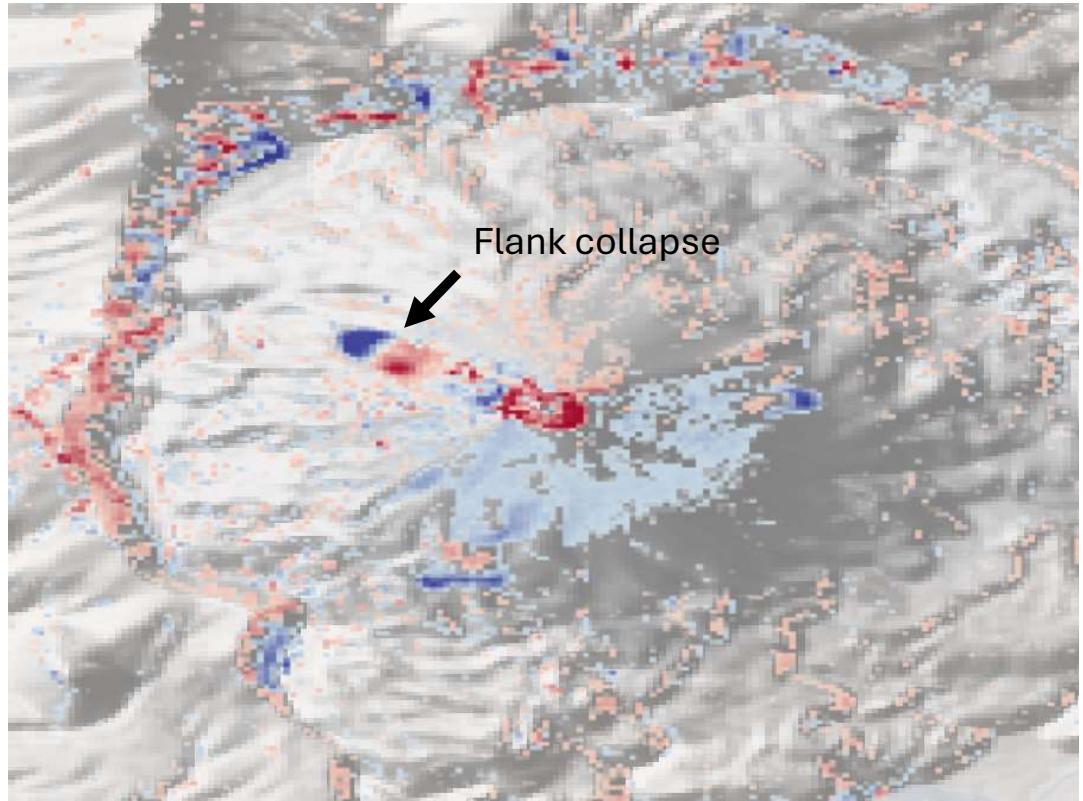
- Indonesia
- Lava flows
- Eruptions in 2010, 2011, 2012-2013, 2014, 2014-2016, 2017 (unconfirmed), 2018 (x2), 2018-2021
- First change 2018-08
- Last change 2019-12/2021-01/2021-07
- 50"



Volcano number	Longitude	Latitude	Quality index
267020	125.407	2.781	3

# Karymsky

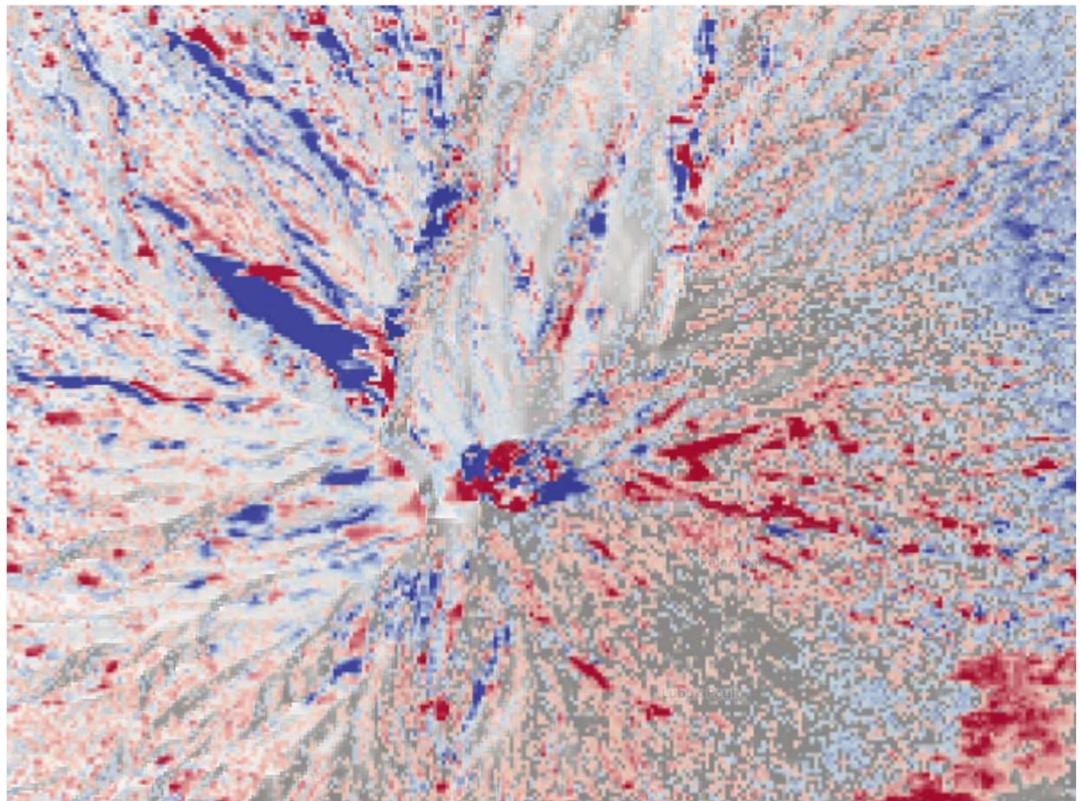
- Kamchatka, Russia
- Eruptions 2001-2016, 2016, 2017-2018, 2018, 2019, 2020-2022, 2024
- Flank collapse on western flank
- Crater collapse?
- First and last change look the same
- First change 2018-08
- Last change 2019-10
- 50"



Volcano number	Longitude	Latitude	Quality index
300130	159.443	54.049	1

## Kerinci

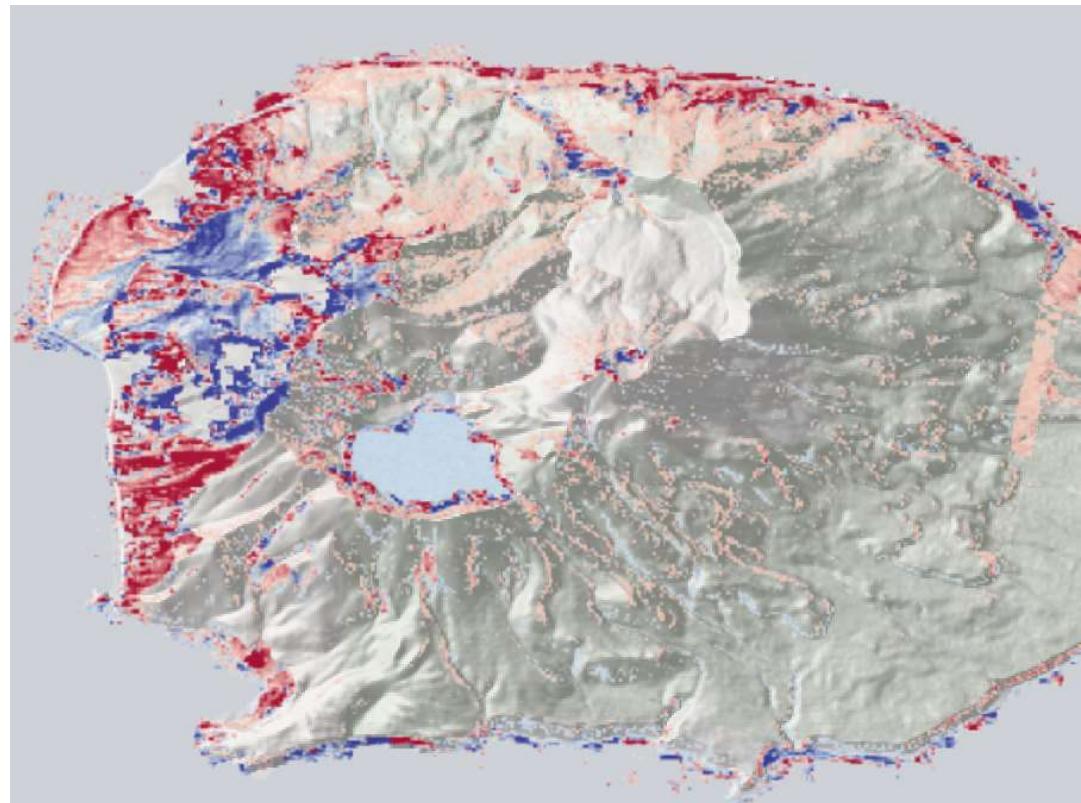
- Sumatra, Indonesia
- Vegetation and steep slopes so high noise
- First change 2018-03
- Last change 2019-03
- 50"



Volcano number	Longitude	Latitude	Quality index
261170	101.264	-1.697	3

## Ketoi

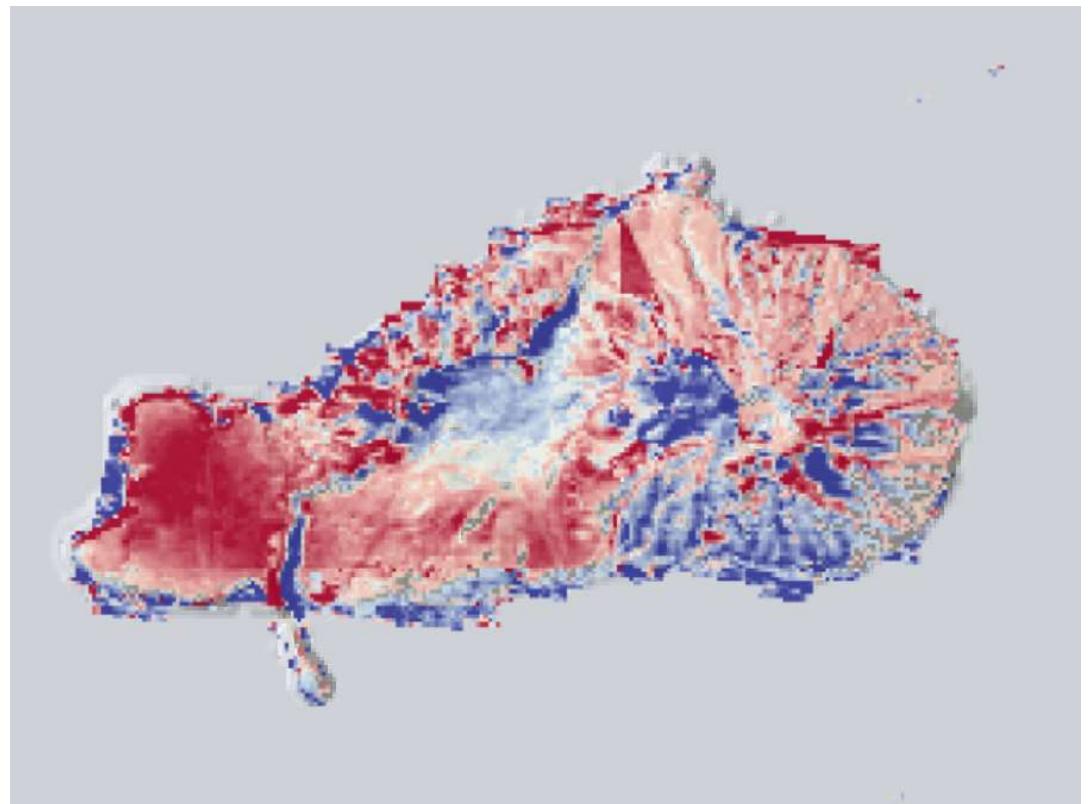
- Kuril islands, Kamchatka
- Unconfirmed eruptions in 2013 and 2018
- Plume of unconfirmed composition reported from satellite images in 2018
- First change 2018-12/2019-05
- Last change 2021-08
- 50"



Volcano number	Longitude	Latitude	Quality index
290200	152.475	47.35	2

## Kikai

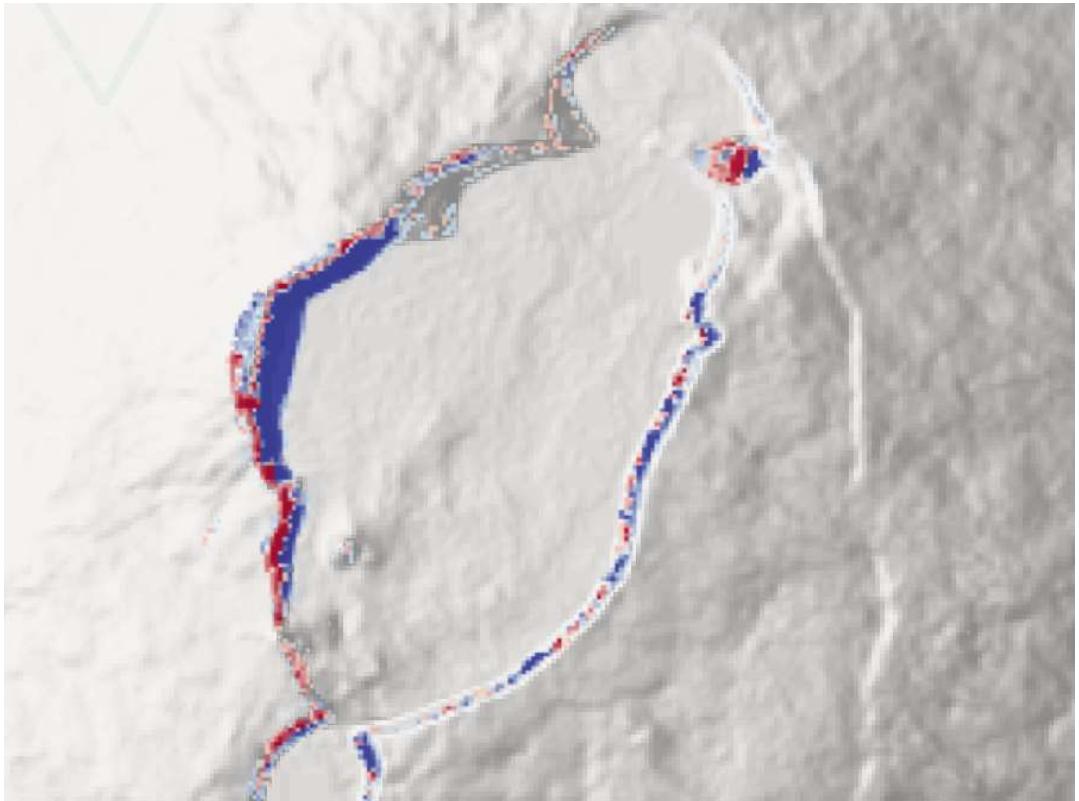
- Small island off Japan
- Very noisy
- Eruptions 2013,  
November 2019, 2020  
x2, 2023 (unconfirmed),  
2024
- First change 2018-08
- Last change 2019-12
- 50"



Volcano number	Longitude	Latitude	Quality index
282060	130.305	30.793	4

## Kilauea

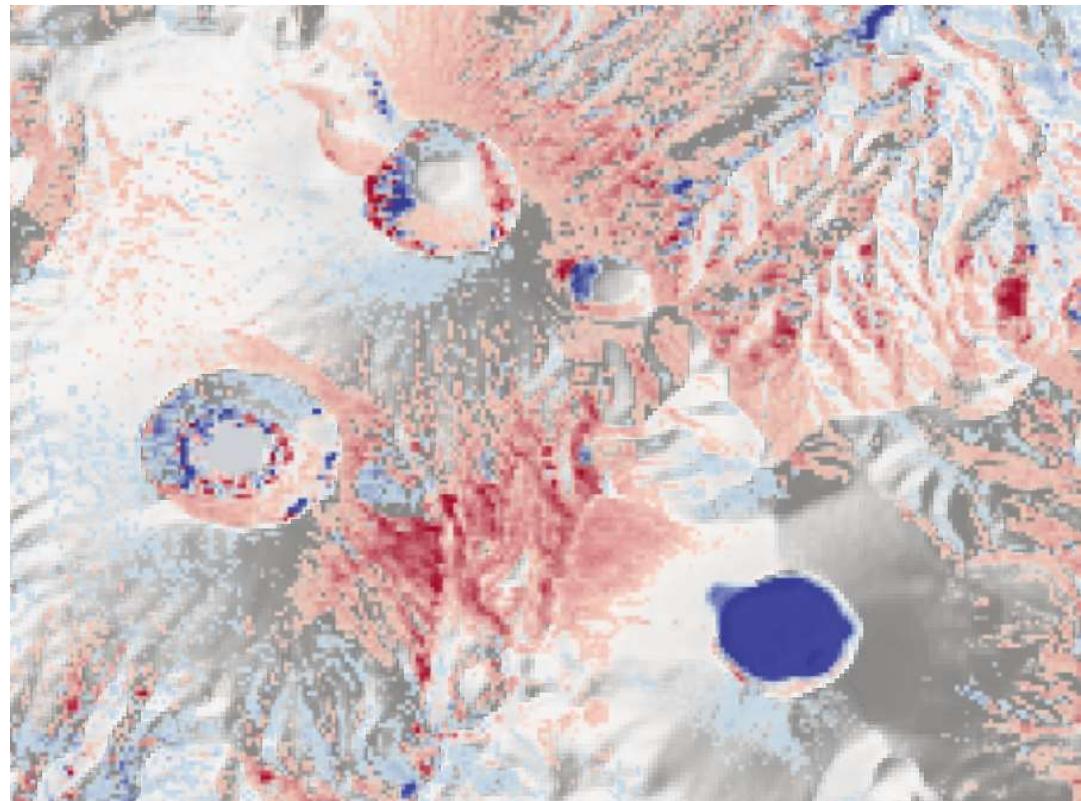
- Hawaii
- Eruptions 1983-2018, 2020-2021, 2021-2023, 2024 x2
- First/last change 2018-03
- 50"
- Signal along western side of crater is likely lava flows from before March 2018
- But wouldn't be able to give a start date for this



Volcano number	Longitude	Latitude	Quality index
332010	-155.287	19.421	1

# Kirishimayama

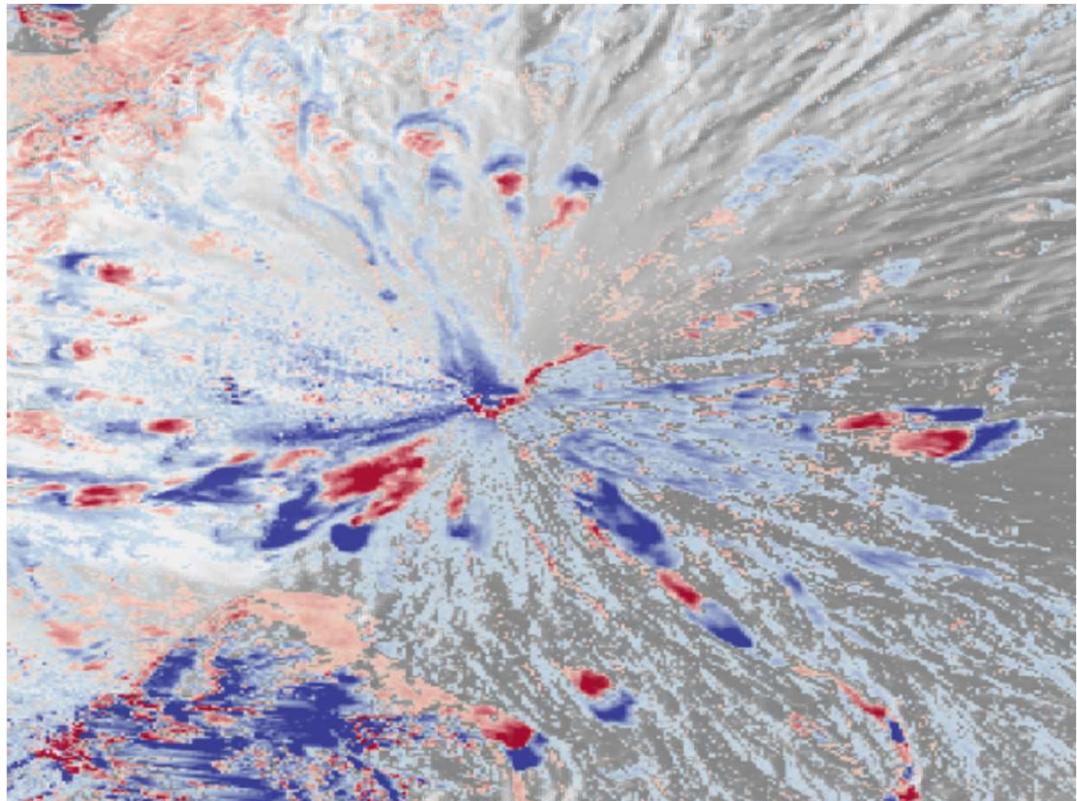
- Southern Japan
- Coordinates point to northern-most peak
- Eruptions 2010, 2011, 2017, 2018
- Possible flank collapse or small lava flow within northern crater
- Lava dome in south-eastern crater
- Lava dome in 2011, ~600m diameter
- No mention of lava domes in 2017 or 2018
- First change 2018-09
- Last change 2020-01
- 50"



Volcano number	Longitude	Latitude	Quality index
282090	130.862	31.934	1

## Klyuchevskoy

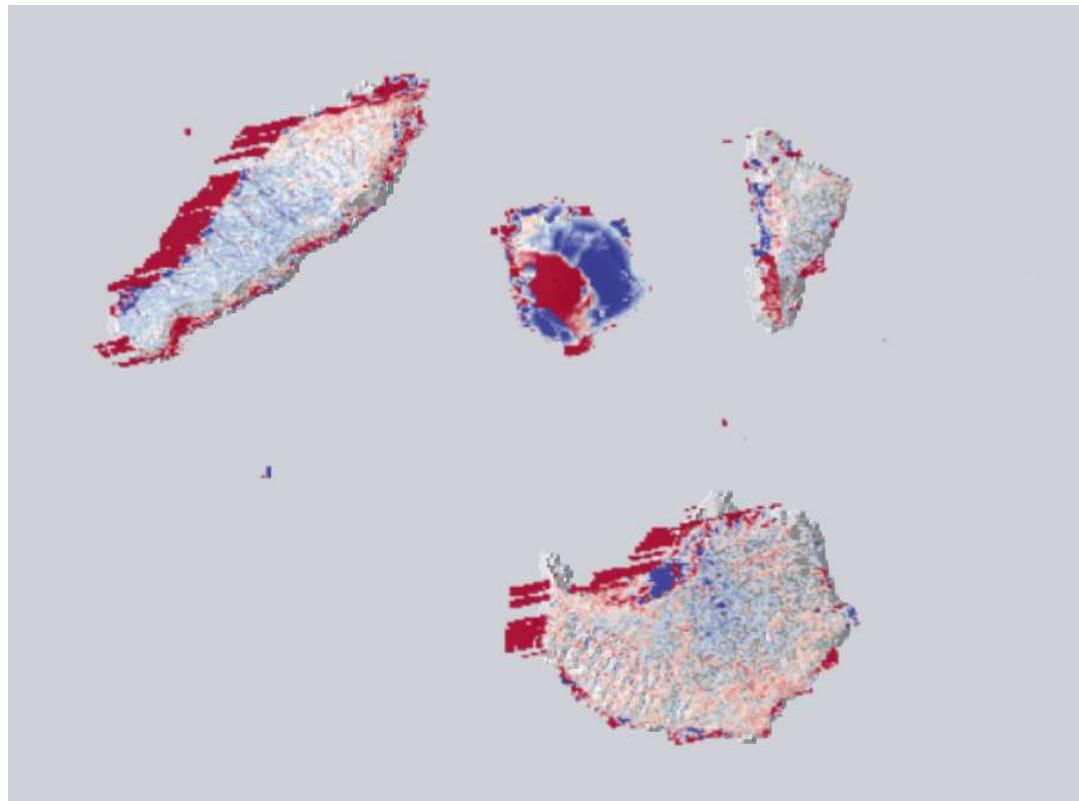
- Kamchatka, Russia
- Snow cover, though possibly not year-round
- Lava flows
- 100"



Volcano number	Longitude	Latitude	Quality index
300260	160.642	56.056	2

## Krakatau

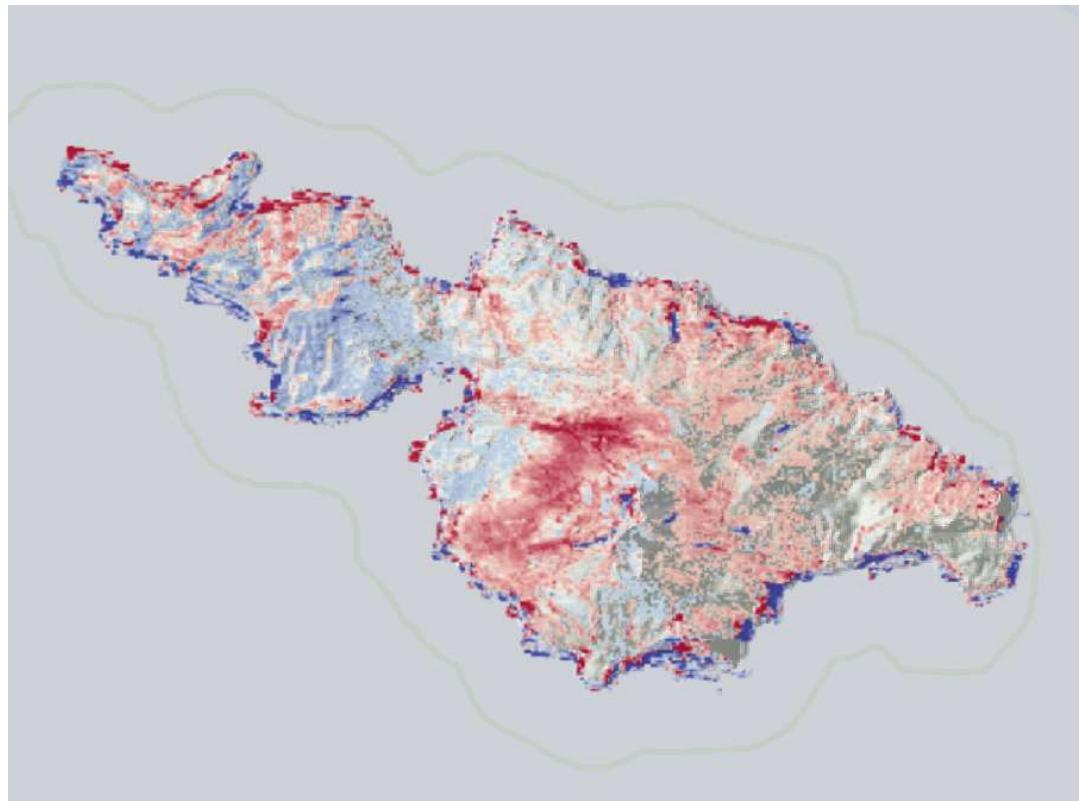
- Indonesia, between Java and Sumatra
- Large section of flank collapse
- First change 2018-06
- Last change 2021-08
- 100"



Volcano number	Longitude	Latitude	Quality index
262000	105.4233	-6.1009	3

## Kuchinoerabujima

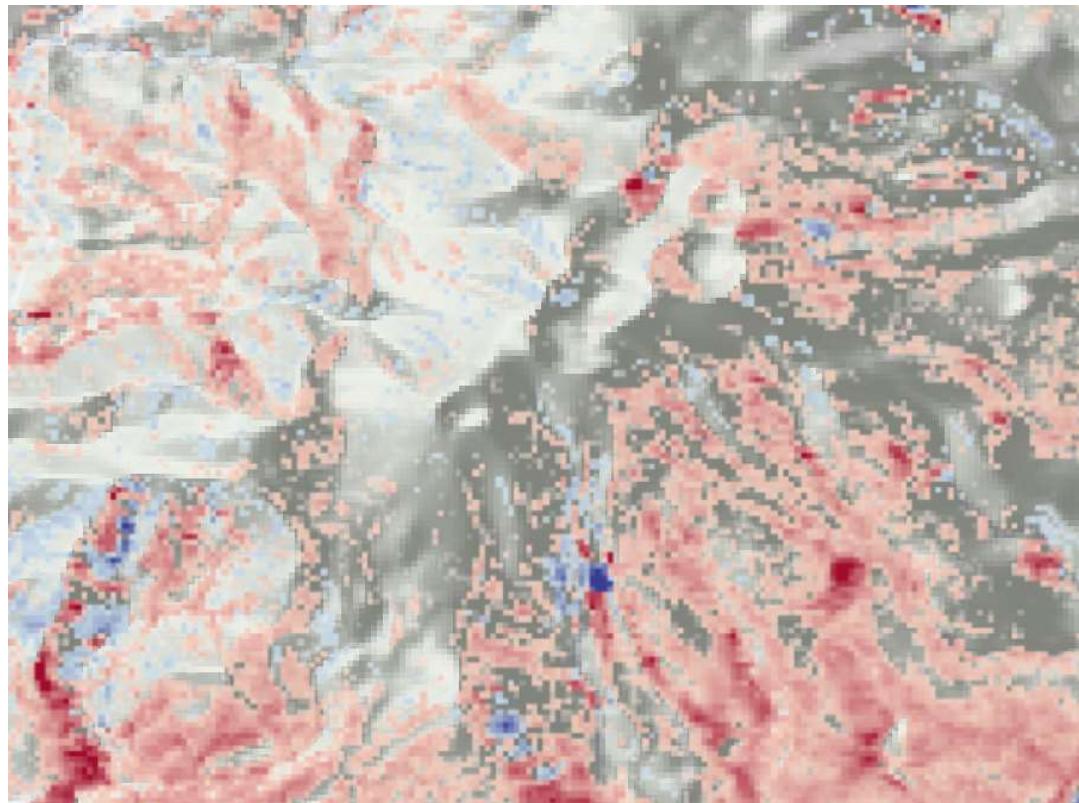
- Japan
- Pretty noisy
- Eruptions 2014, 2015, 2018-2019, 2020 x2
- First change 2018-08
- Last change 2019-12
- 100"



Volcano number	Longitude	Latitude	Quality index
282050	130.217	30.443	3

## Kusatsu-Shiranesan

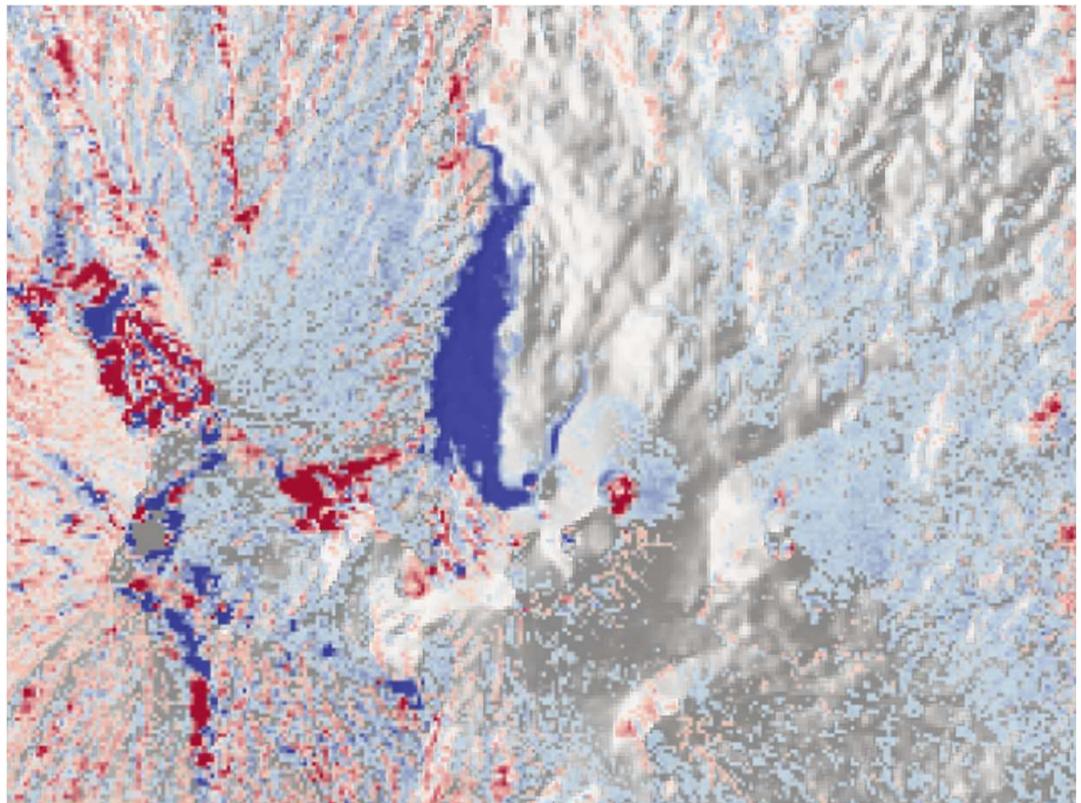
- Japan
- Eruption 23 Jan 2018
- First change 2018-09
- Last change 2020-02
- 20"



Volcano number	Longitude	Latitude	Quality index
283120	138.528	36.618	snow

## Langila

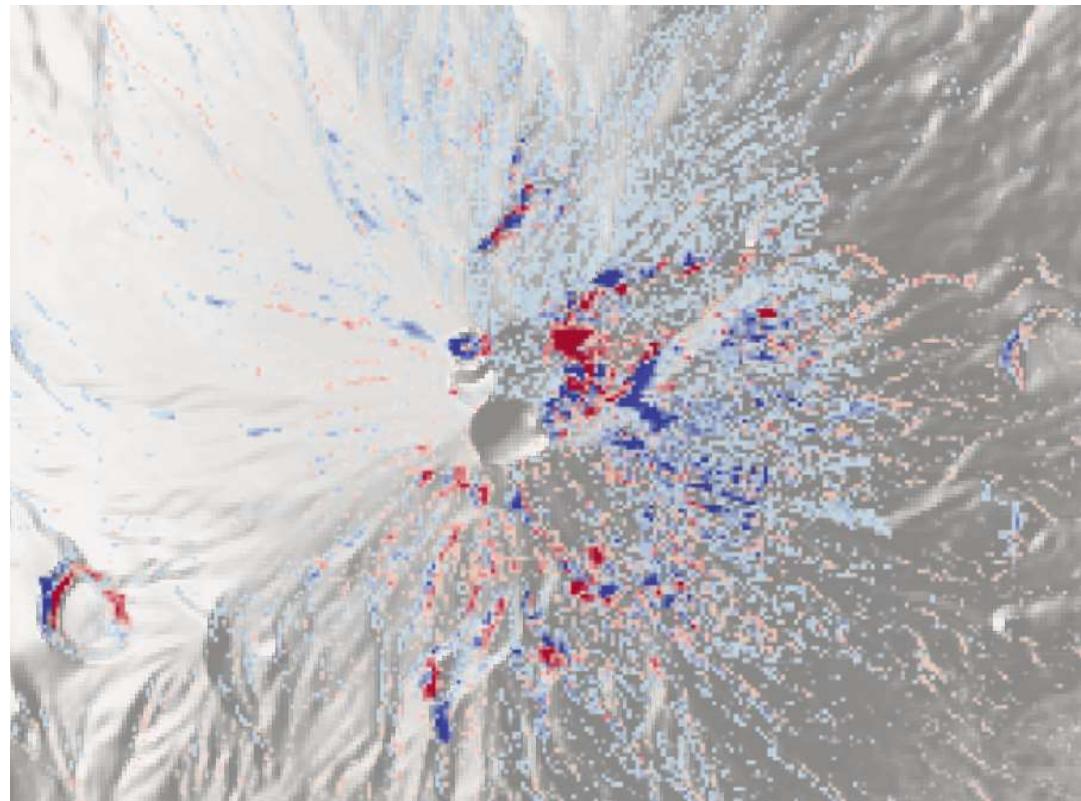
- Unconfirmed eruptions 2011, 2012, 2013
- Confirmed eruptions 2009-2010, 2012, 2015-2025
- Papua New Guinea
- First change 2018-01
- Last change 2019-07
- Lava flow?
- 50"



Volcano number	Longitude	Latitude	Quality index
252010	148.42	-5.525	2

## Lengai, Ol Doinyo

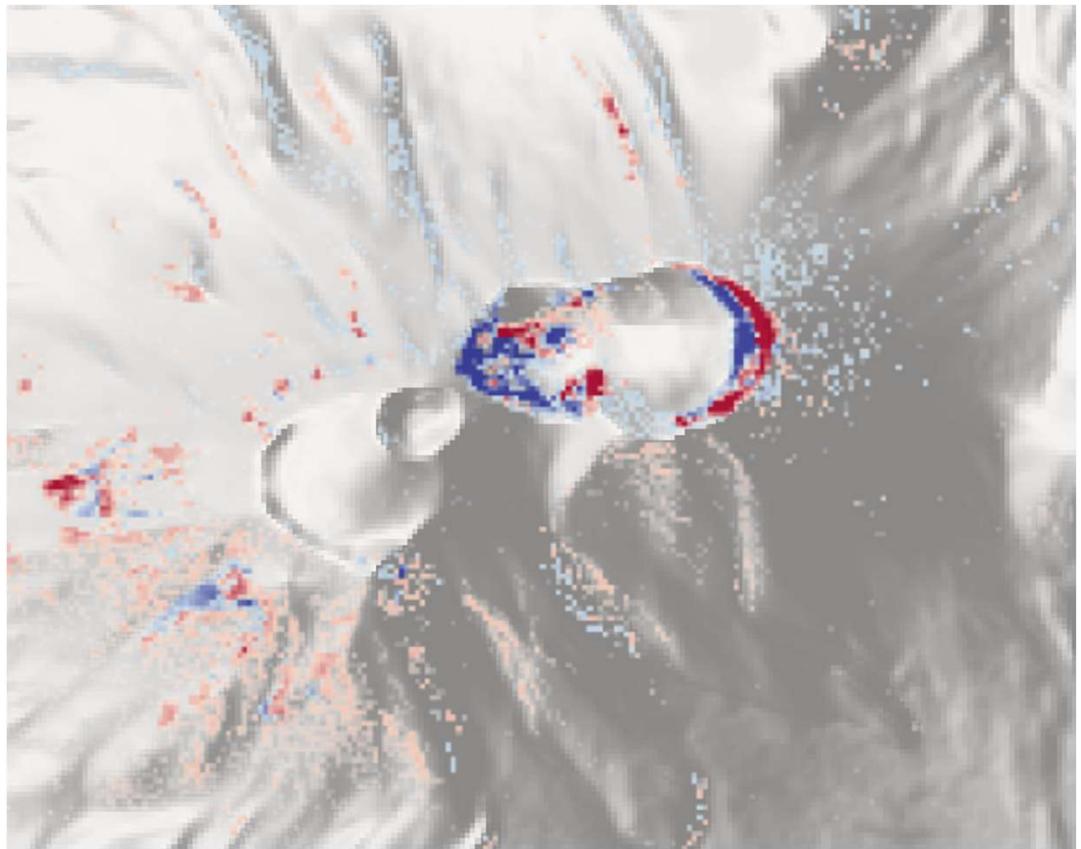
- Tanzania
- Produces very low viscosity flows, could be too thin to show up
- First change 2017-10
- Last change 2018-12
- 50"



Volcano number	Longitude	Latitude	Quality index
222120	35.914	-2.764	2

# Láscar

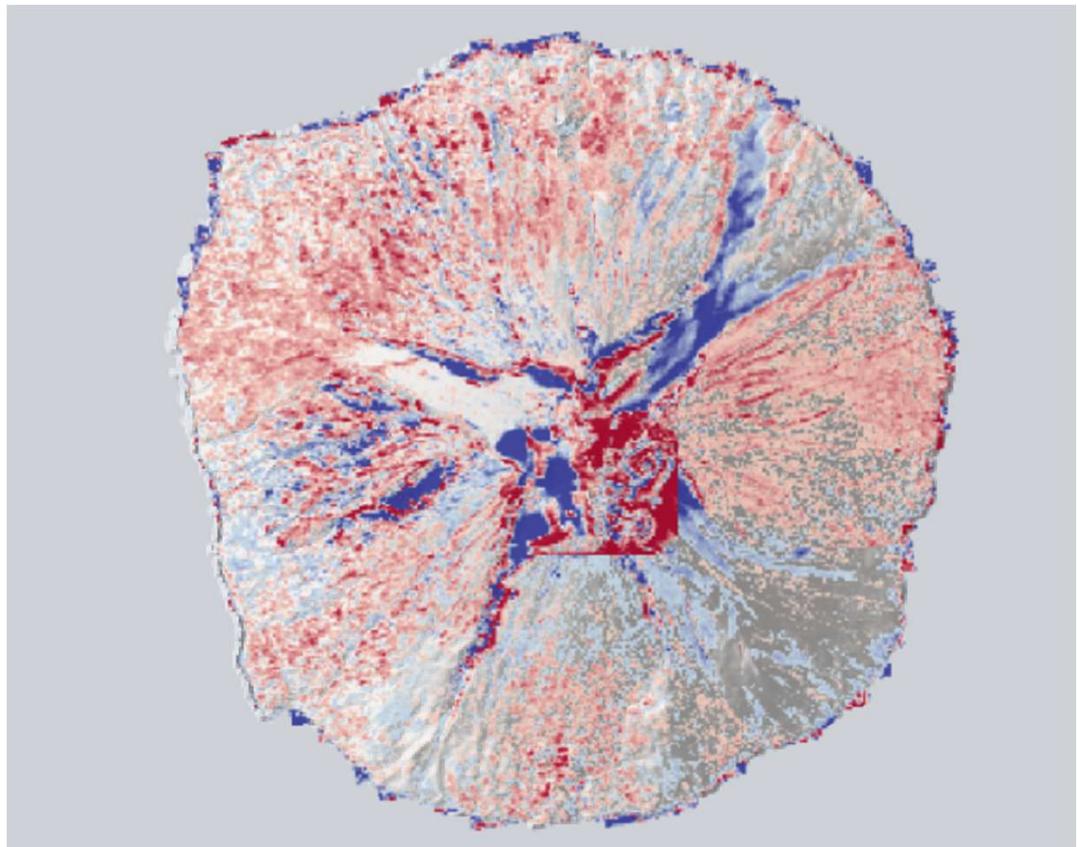
- Chile
- Eruptions 2013, 2015-2017, 2022-2023
- First change 2019-06
- Last change 2019-06/2021-07
- 50"



Volcano number	Longitude	Latitude	Quality index
355100	-67.73	-23.37	2

## Manam

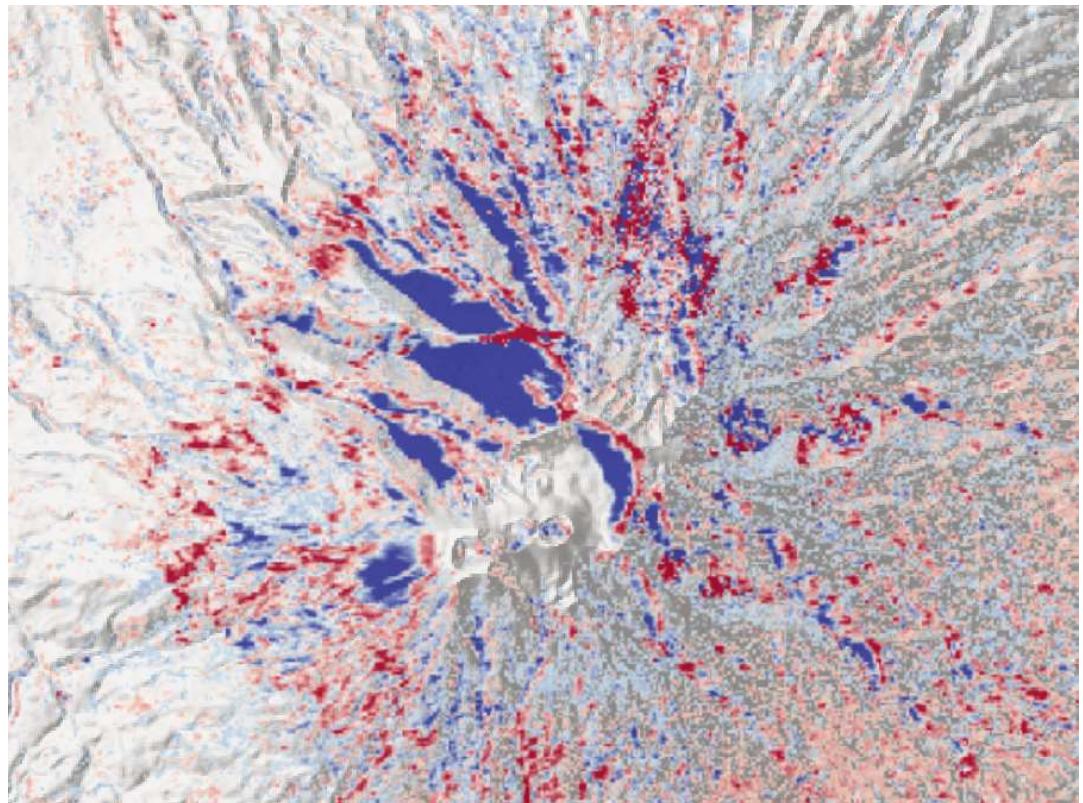
- Papua New Guinea
- Eruptions 2010-2013, 2014-2018 (unconfirmed), 2018-2025
- PDC (or other flow) on NE flank
- PDC on SE flank from 2011 covered by noise near crater
- First change 2018-03
- Last change 2019-02
- 100"



Volcano number	Longitude	Latitude	Quality index
251020	145.037	-4.08	3

## Marapi

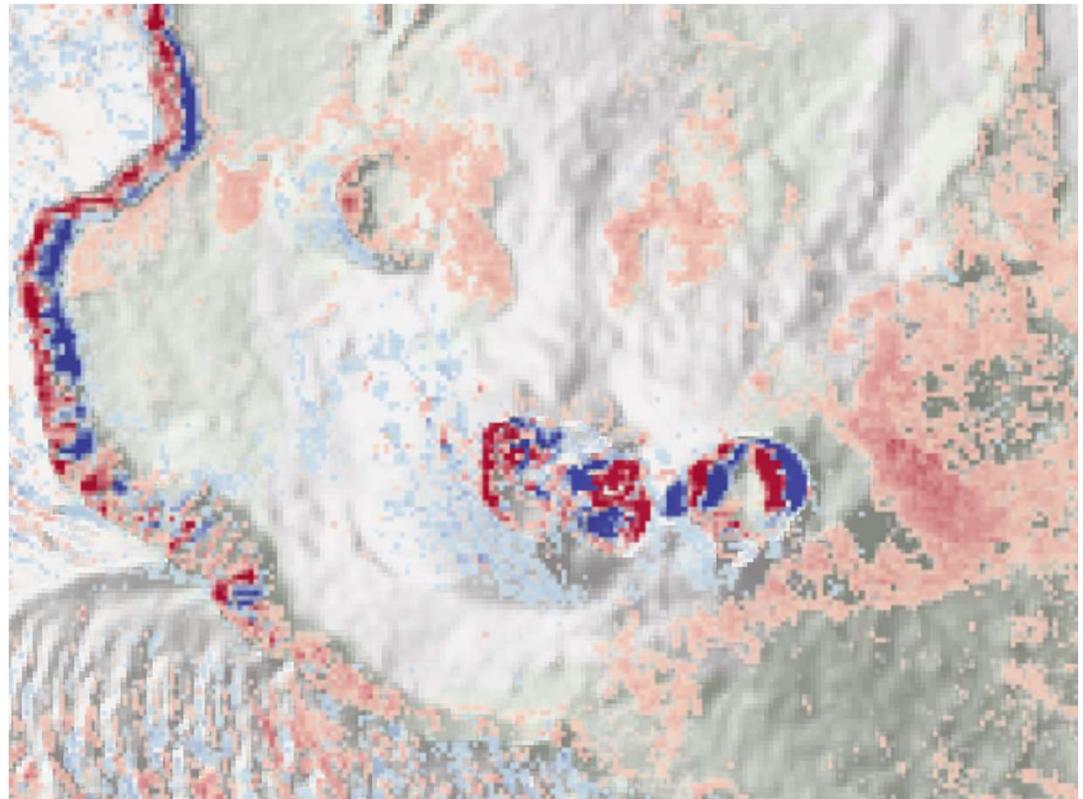
- Not the same as Merapi
- Java, Indonesia
- Lava flows
- First change 2017-11
- Last change 2019-04
- 50"



Volcano number	Longitude	Latitude	Quality index
261140	100.474	-0.38	4

## Masaya

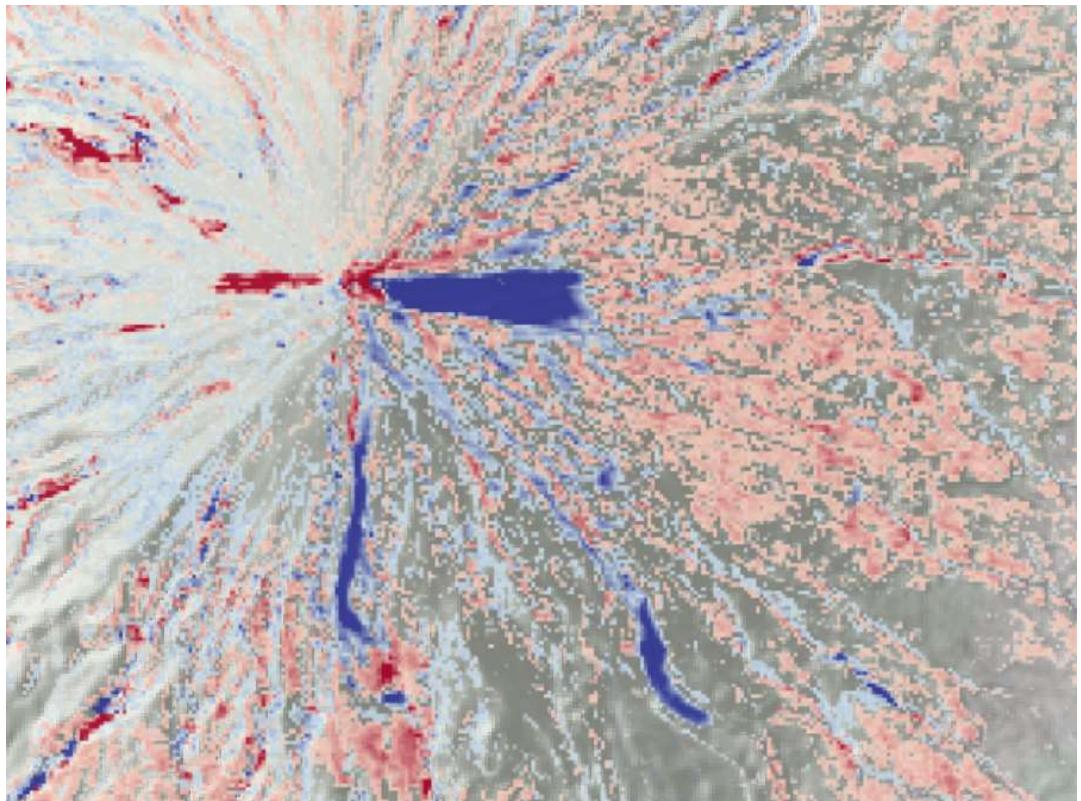
- Eruptions 2008, 2012, 2013 (unconfirmed), 2015-2025
- Nicaragua
- First change 2018-01/2018-04
- Last change 2020-01
- 50"



Volcano number	Longitude	Latitude	Quality index
344100	-86.1688	11.9844	2

## Mayon

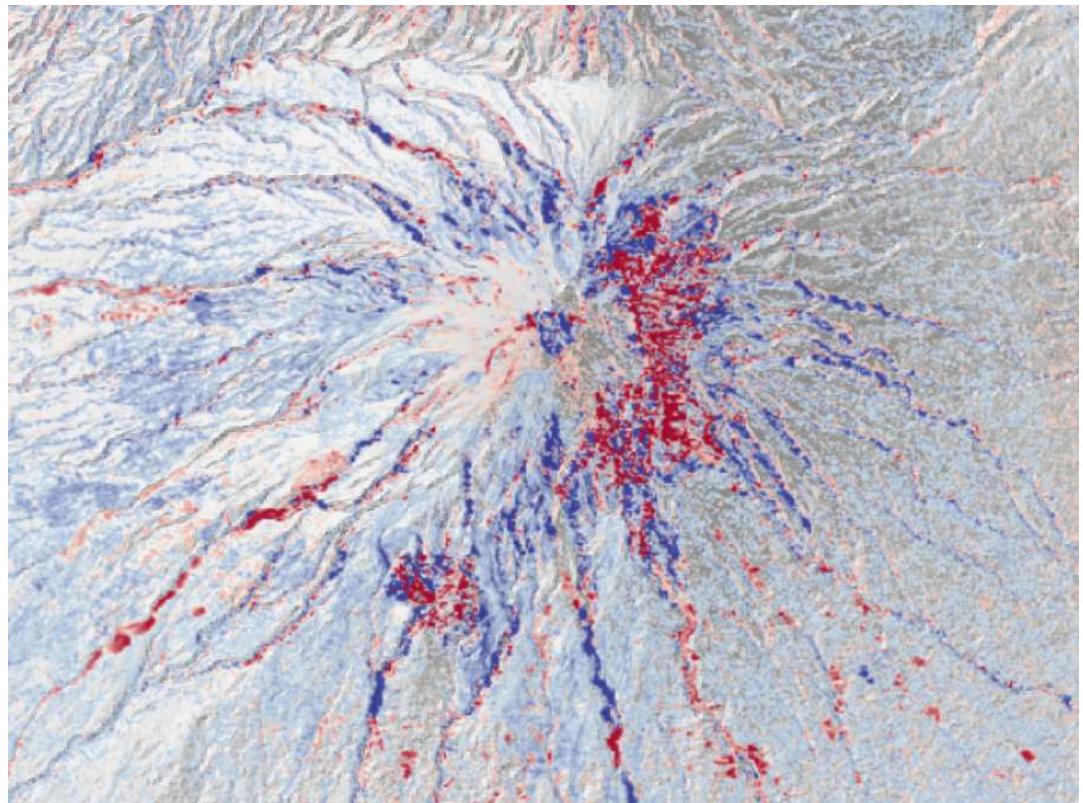
- Philippines
- Eruptions 2013, 2014, 2018-2019, 2022, 2023-2024, 2024
- PDC down west flank in Jan 2018
- Lava flows and PDCs on south flank
- First and last change look the same
- First change 2018-10
- Last change 2020-02



Volcano number	Longitude	Latitude	Quality index
273030	123.685	13.257	3

## Merapi

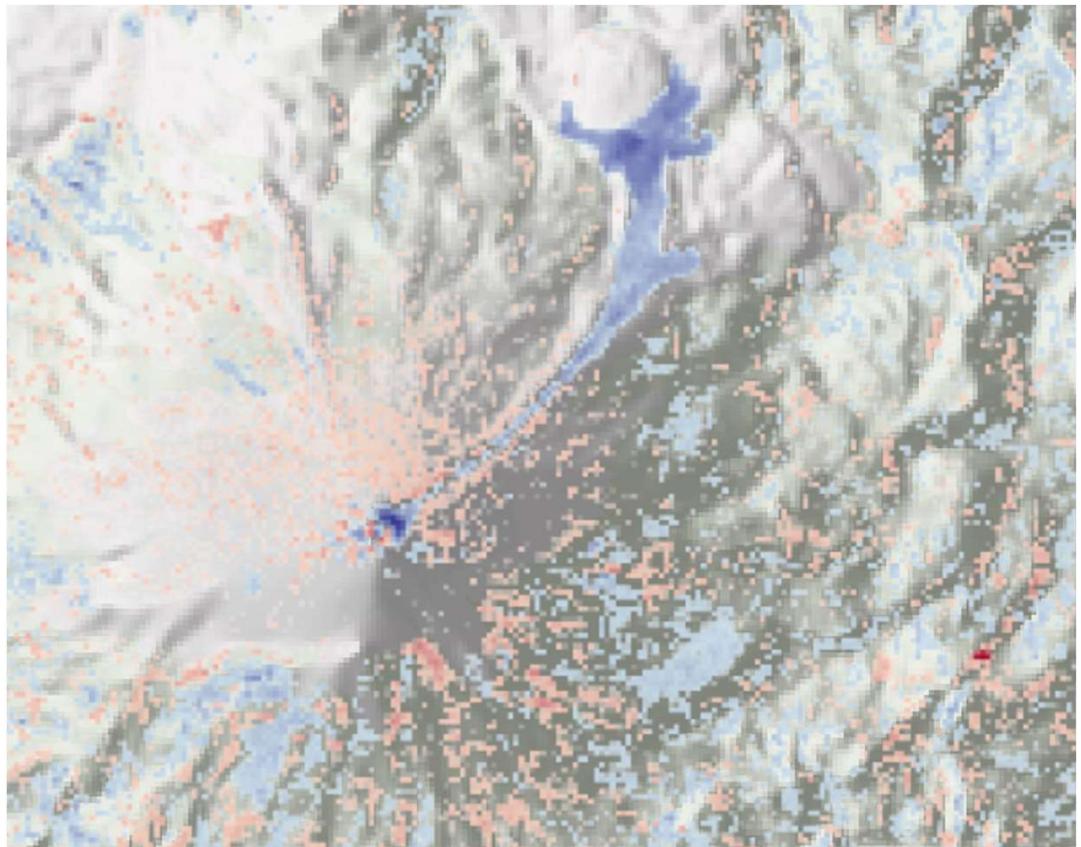
- Java, Indonesia
- Eruptions 2010, 2011, 2013, 2014, 2018-2020, 2020-2024
- First change 2018-05/2019-06
- Last change 2019-11/2019-06
- 2'



Volcano number	Longitude	Latitude	Quality index
263250	110.446	-7.54	3

## Momotombo

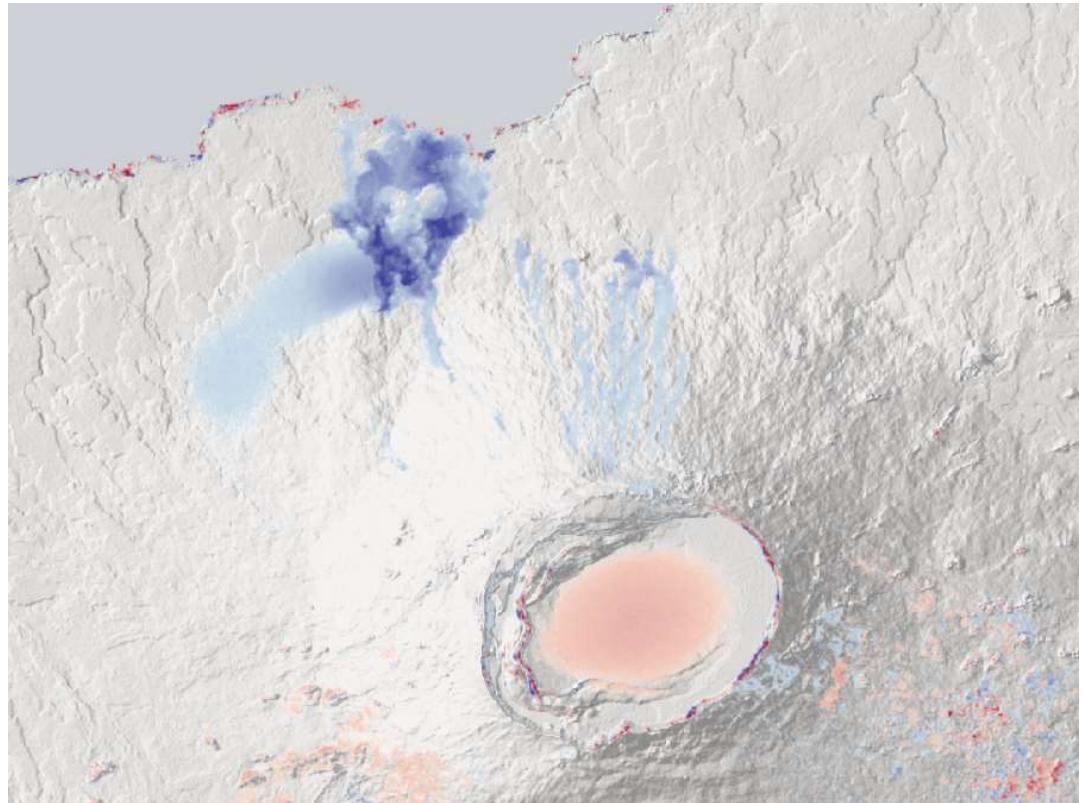
- Nicaragua
- Lava flow
- First change 2017-12
- Last change 2019-12
- 50"



Volcano number	Longitude	Latitude	Quality index
344090	-86.539	12.423	2

## Negra, Sierra

- Galápagos Islands west of Ecuador
- Eruption 2018
- Five fissures opened, lava travelled up to 7km from vents and reached the sea
- Subsidence within crater
- Lava flows to the north
- First/last change 2019-10



Volcano number	Longitude	Latitude	Quality index
353050	-91.17	-0.83	1

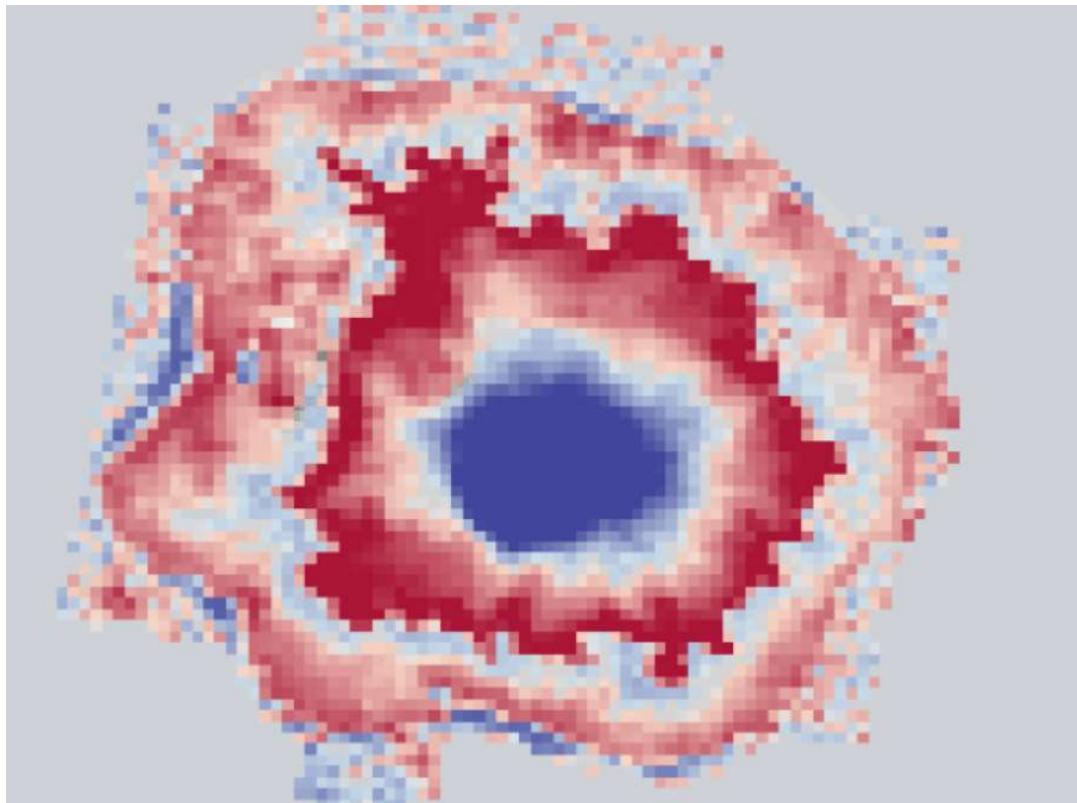
# Map of the Galápagos Islands

- From the GVP page for Sierra Negra



## Nishinoshima

- Japan
- Eruptions in 2013-2015, 2017, 2018, 2019-2020, 2021, 2022
- Island grew from 0.29 km<sup>2</sup> in Nov 2013 to 2.63 km<sup>2</sup> in Nov 2015 (GVP bulletin)
- Red is likely due to erosion of unconsolidated material, blue shows creation (or enlargement) of cone
- Emplacement of new lava in centre
- First/last change 2018-05
- 20"



Volcano number	Longitude	Latitude	Quality index
284096	140.874	27.247	2

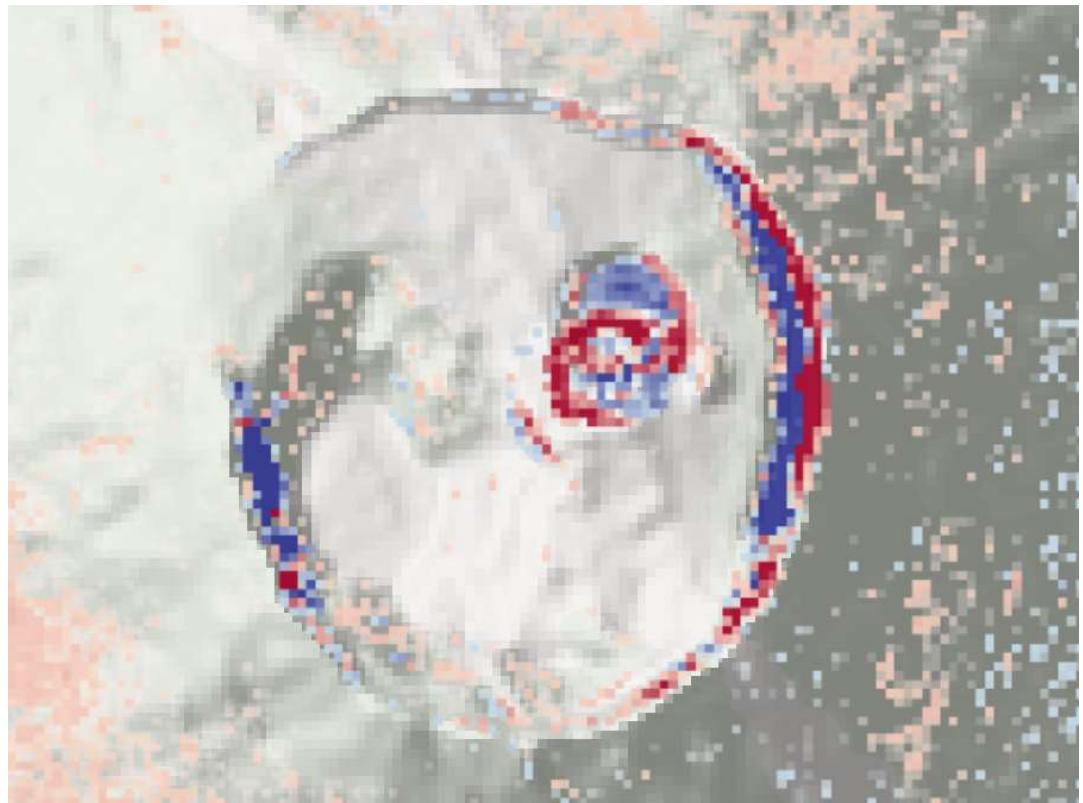
## Nishinoshima

- “New lava flows (outlined in white) reach the ocean on the W and SW coast of Nishinoshima on 27 April 2017. Ash emissions rose from the summit crater, and steam plumes emerged from the numerous places where the lava entered the sea. Courtesy of Japan Coast Guard (Status of volcanic activity at Nishinoshima, 28 April 2017).”
- From the GVP bulletin reports



## Nyamulagira

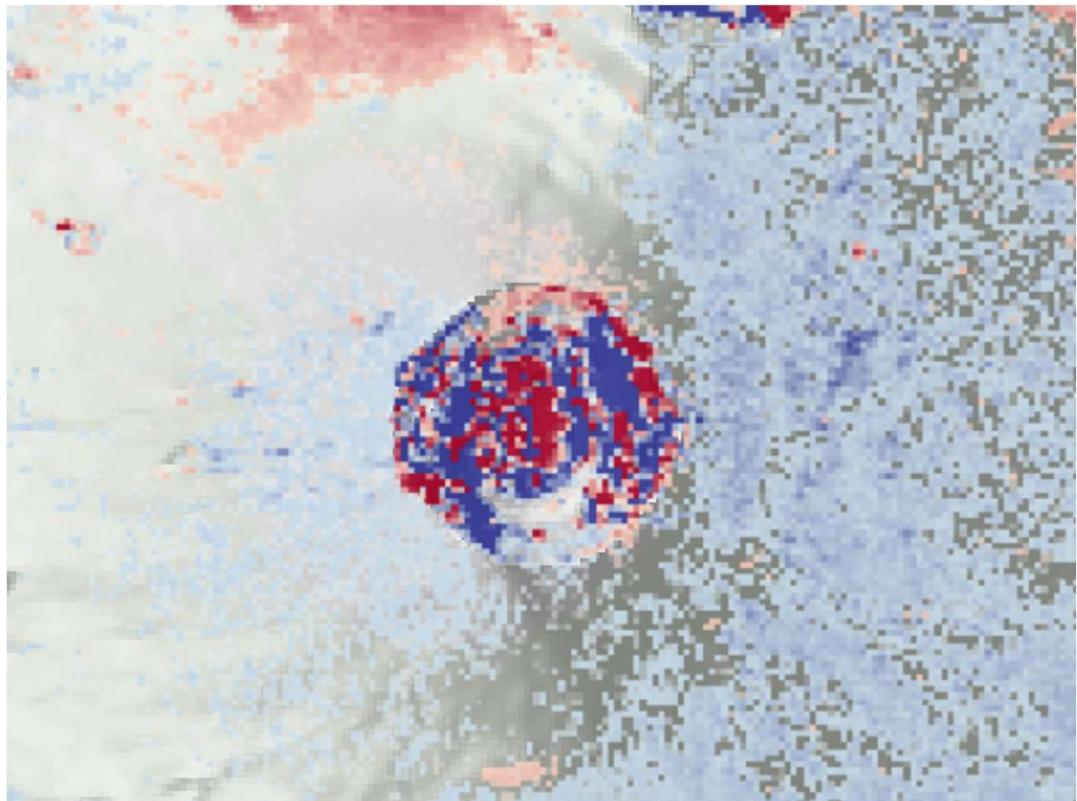
- D.R. Congo
- Eruptions 2010, 2011-2012, 2014, 2016-2017, 2018
- Activity within NE section of crater, changes shape between first and last change
- Overlapping lava domes
- First change 2017-11
- Last change 2019-08/2019-10
- 20"



Volcano number	Longitude	Latitude	Quality index
223020	29.2	-1.408	2

## Nyiragongo

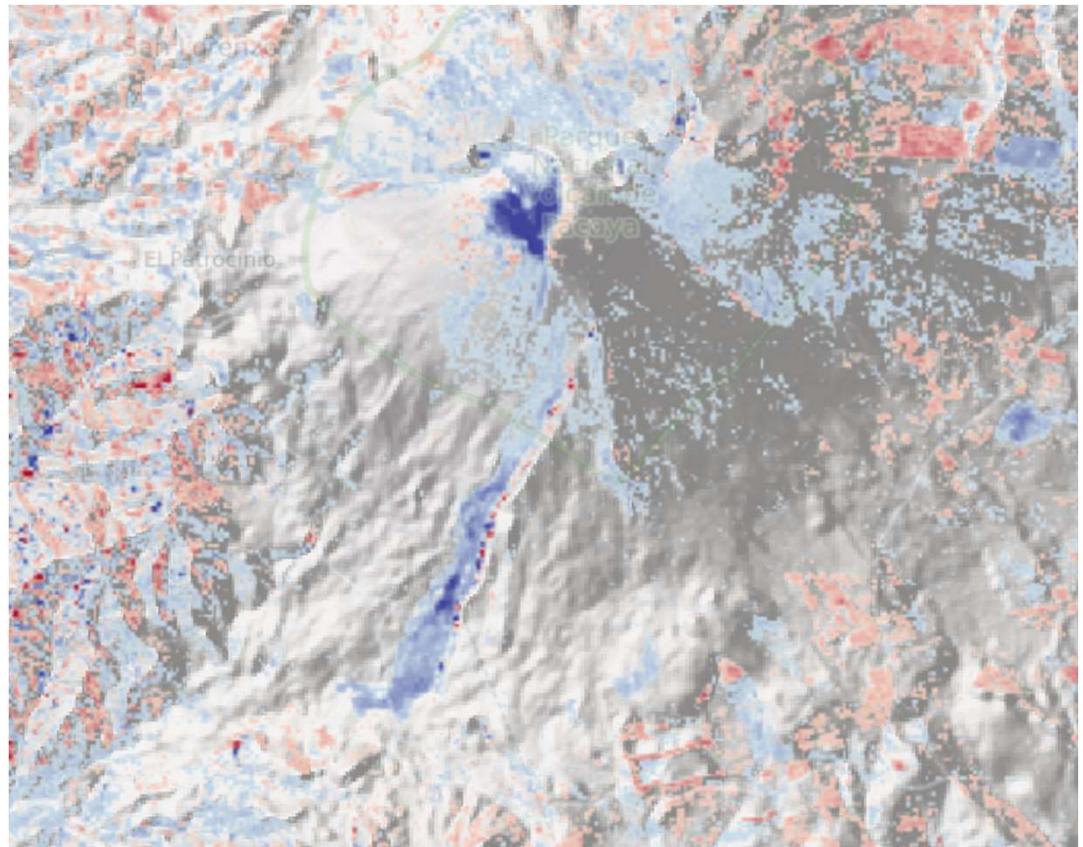
- DR Congo
- Lots of noise within crater
- First change 2017-11
- Last change 2019-08
- 20"



Volcano number	Longitude	Latitude	Quality index
223030	29.25	-1.52	4

# Pacaya

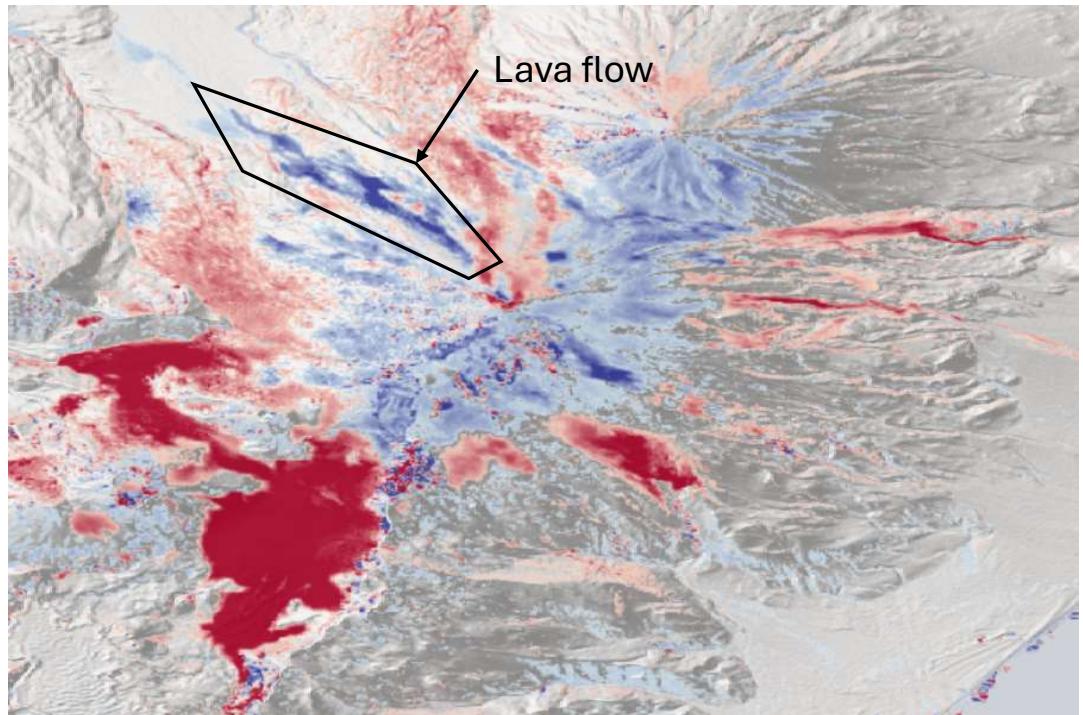
- Guatemala
- Eruptions 2006-2010, 2013-2014, 2014-2015, 2015-2021
- First change 2018-01
- Last change 2020-01/2019-12
- 50"



Volcano number	Longitude	Latitude	Quality index
342110	-90.601	14.382	2

## Pavlof

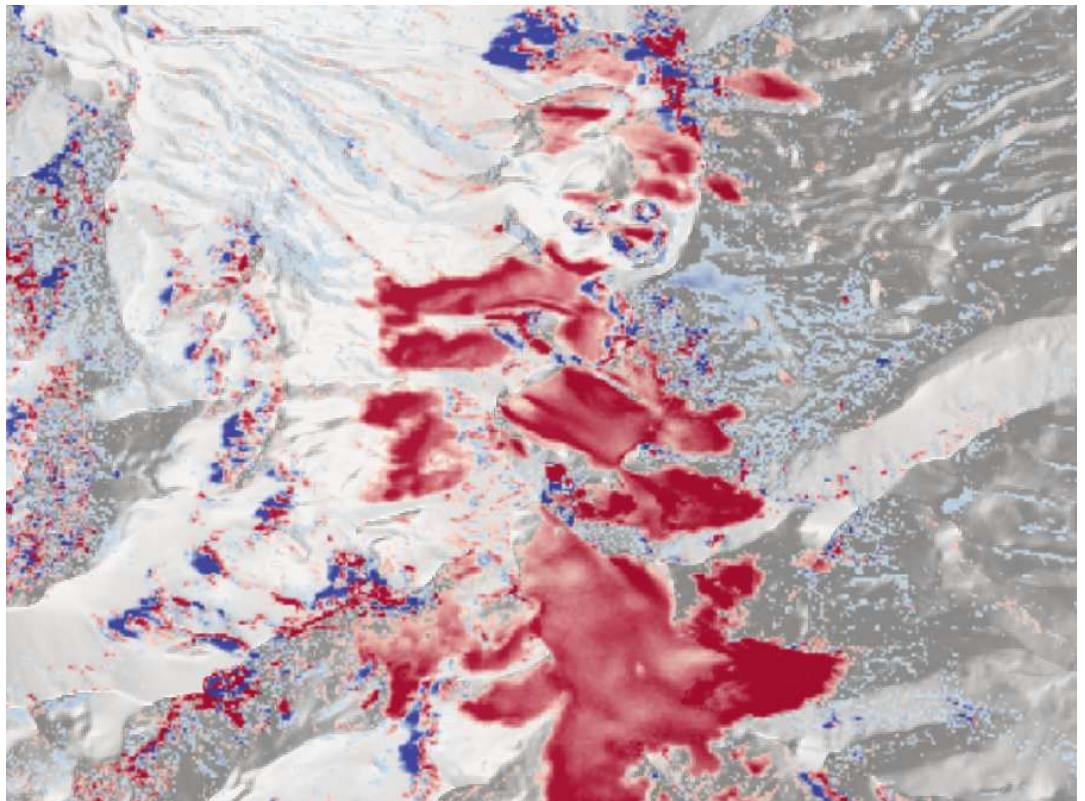
- Aleutian islands, Alaska
- Melting of snow
- Lava flow on north flank from 2013
- First change 2018-01
- Last change 2021-08



Volcano number	Longitude	Latitude	Quality index
312030	-161.894	55.417	snow

## Planchón-Peteroa

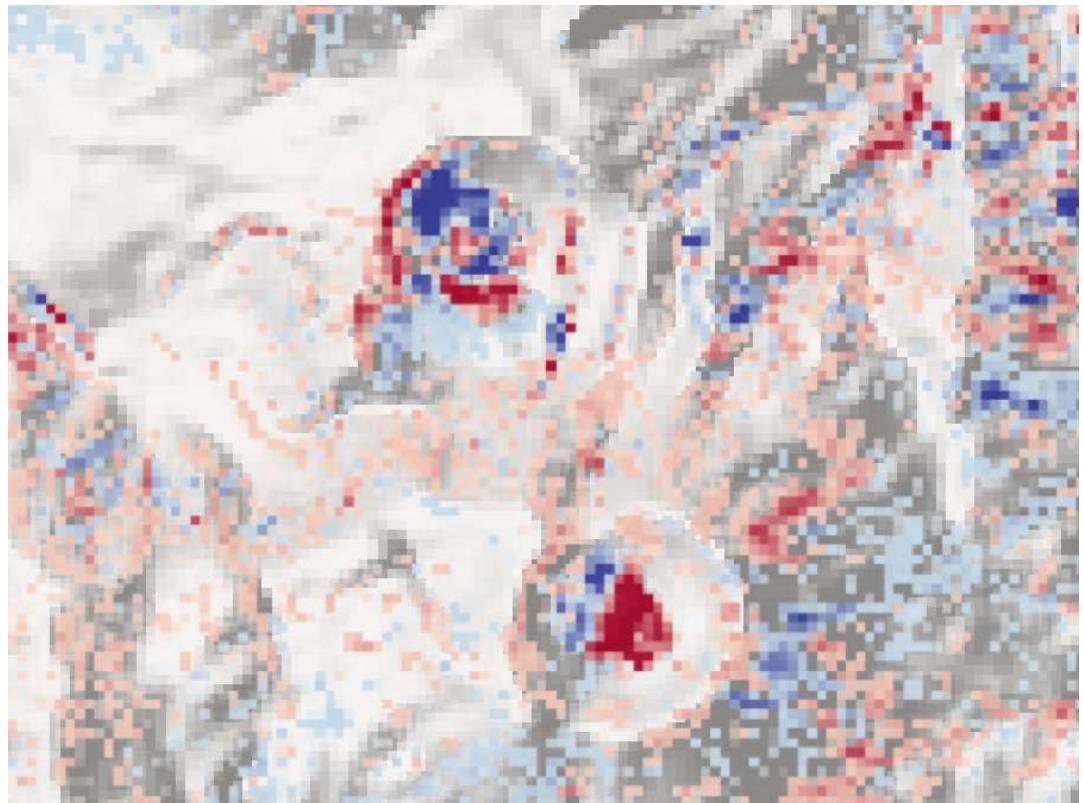
- Chile
- Ice capped – red likely represents changes in ice cover
- Eruptions 2010, 2011, 2018-2019
- GVP observations mostly ash plumes
- 50"



Volcano number	Longitude	Latitude	Quality index
357040	-70.568	-35.223	snow

## Poas

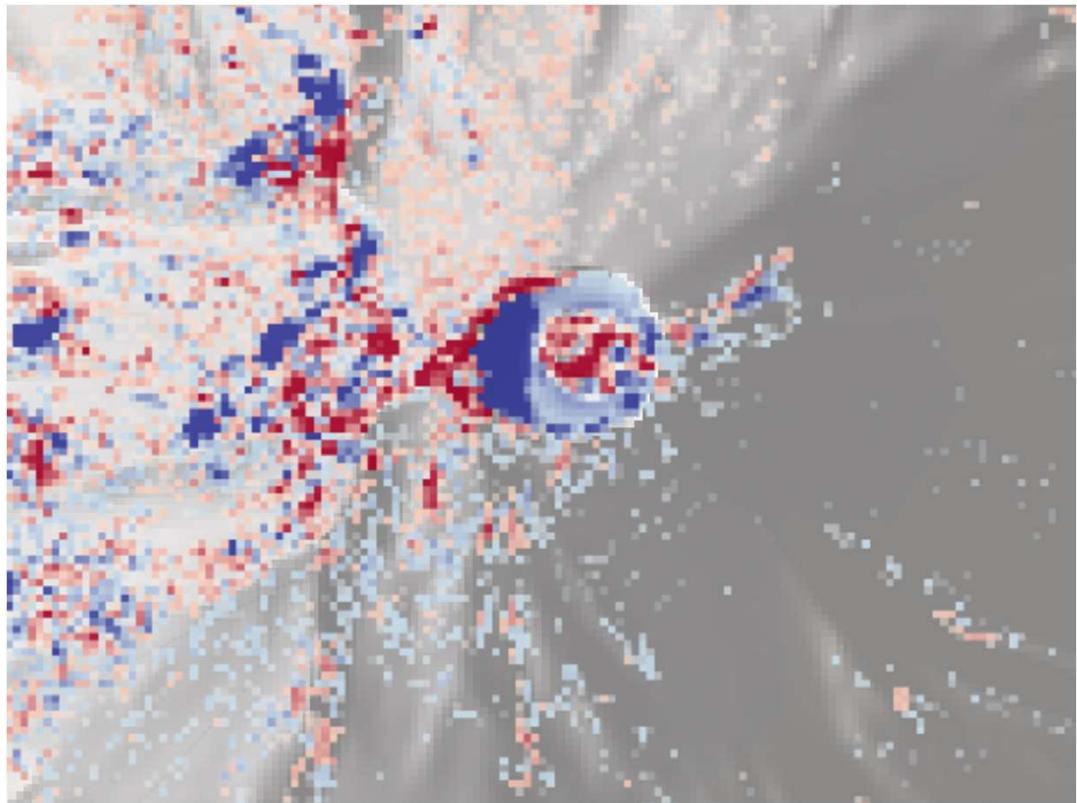
- Costa Rica
- Eruptions 2009-2014, 2016, 2017, 2019, 2022, 2023, 2023-2024
- 2016 explosions and phreatic activity
- Incandescence visible on lava dome in 2011
- Fair amount of noise around volcano, extrusion seems to be contained to the crater
- First change 2018-02
- Last change 2020-01
- 20"



Volcano number	Longitude	Latitude	Quality index
345040	-84.233	10.2	2

## Popocatépetl

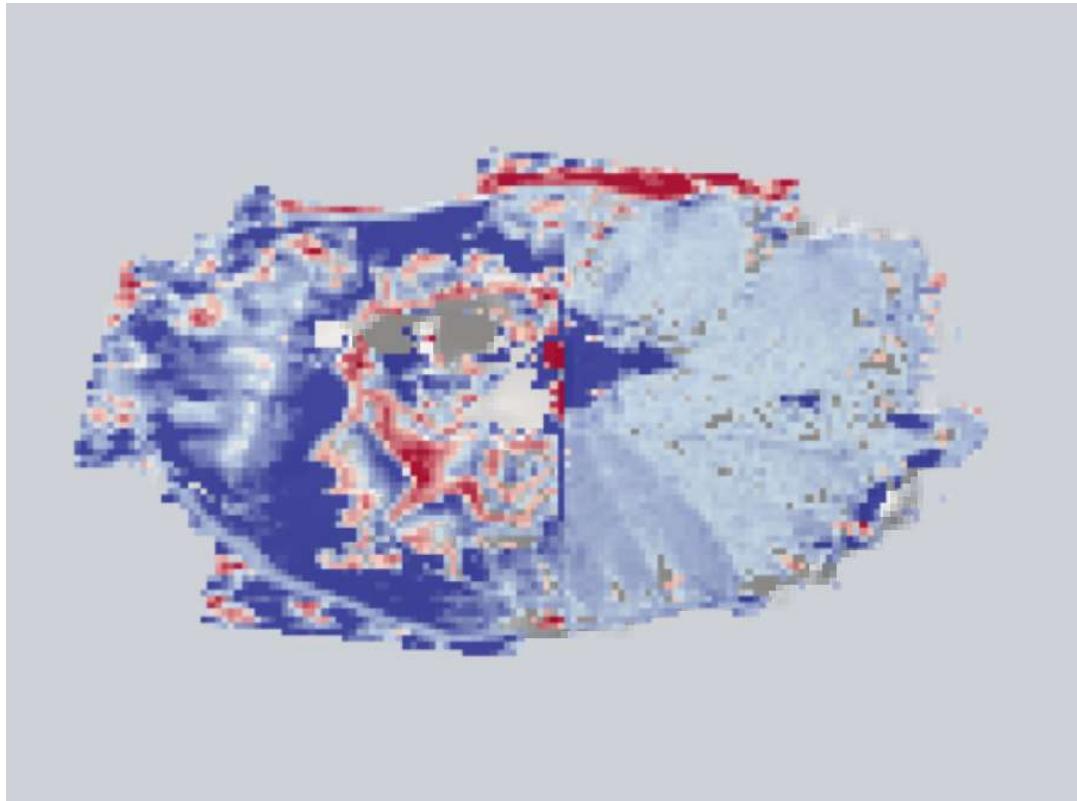
- Mexico
- Possibly some activity within crater, maybe lava flows or ash deposits
- First change 2018-08
- Last change 2019-11
- 20"



Volcano number	Longitude	Latitude	Quality index
341090	-98.622	19.023	2

## Raikoke

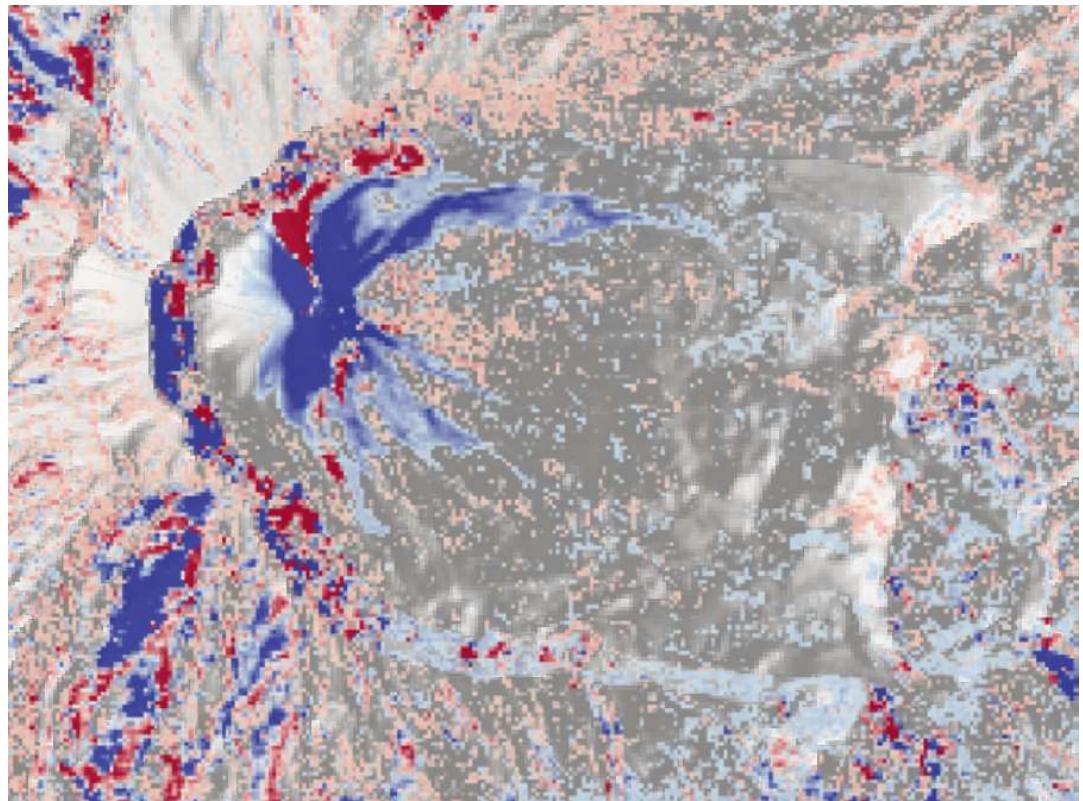
- Kuril islands, near Kamchatka
- Very noisy
- First/last change 2019-06
- 20"



Volcano number	Longitude	Latitude	Quality index
290250	153.25	48.292	4

## Reventador

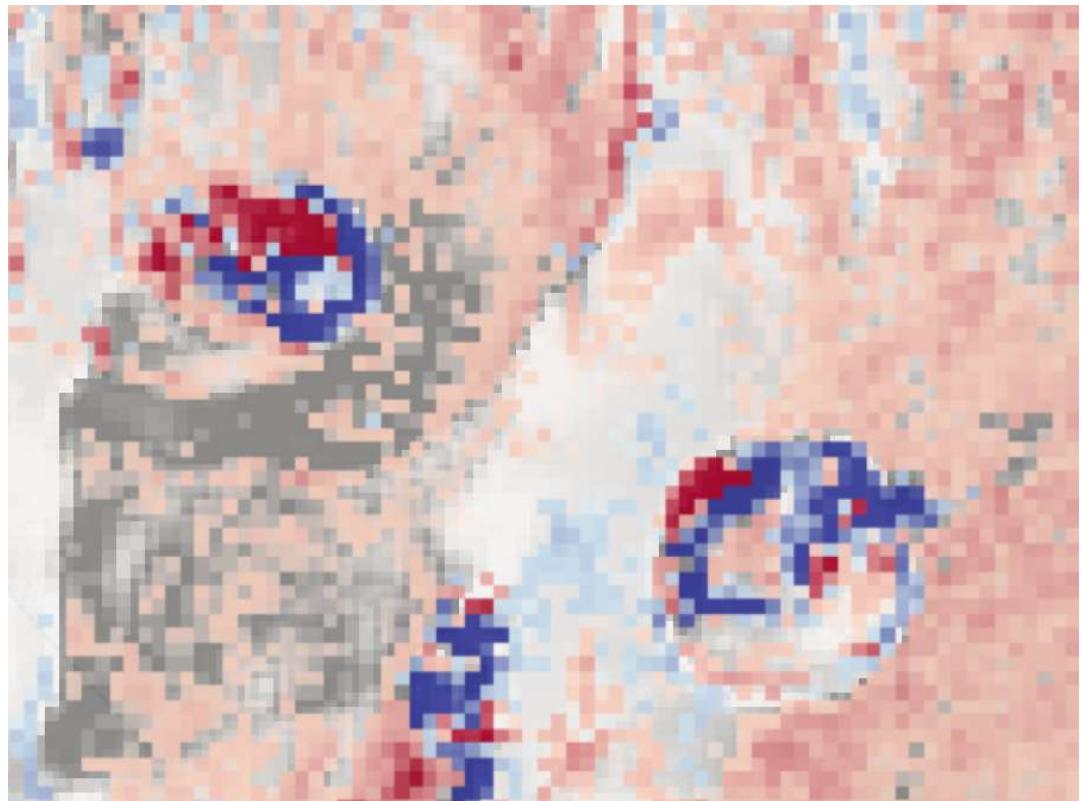
- Ecuador
- Eruption lasting from 2008 to 2024
- First change 2018-01 (pictured here)
- Last change 2019-12 (a lot messier)
- 50"



Volcano number	Longitude	Latitude	Quality index
352010	-77.656	-0.077	3

## Rincon de la Vieja

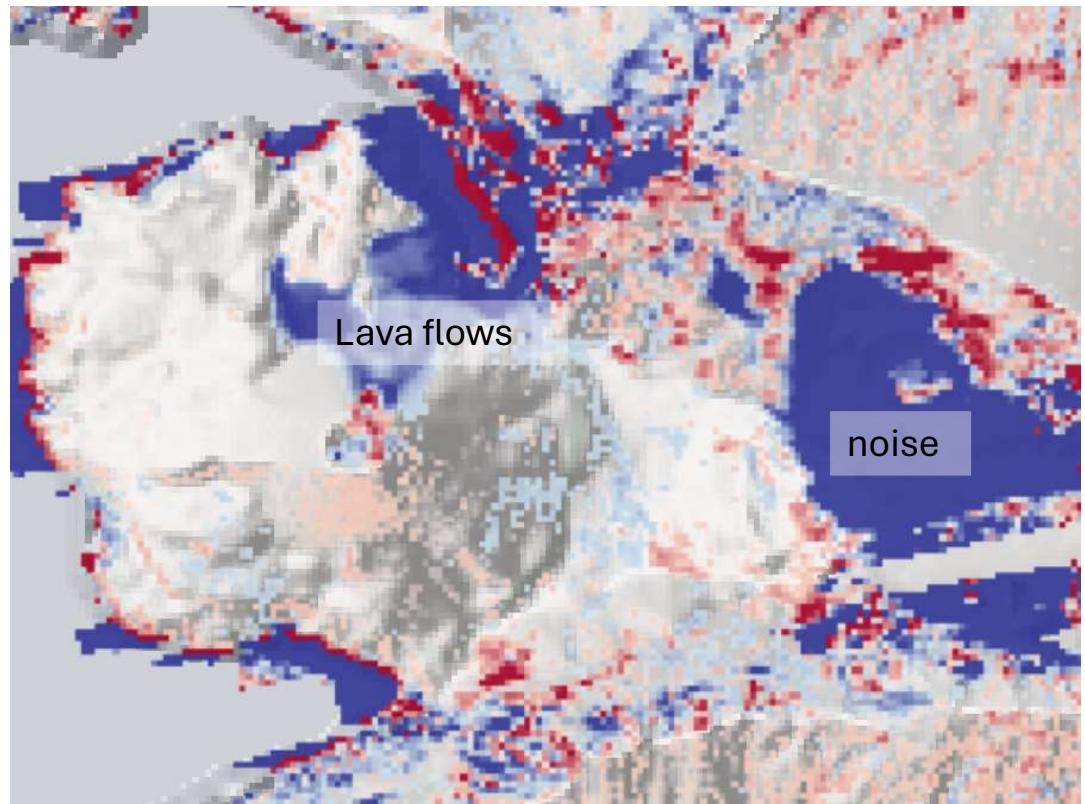
- Costa Rica
- Noisy, could do with higher resolution
- Shows activity within craters
- First/last change 2019-10
- 10"



Volcano number	Longitude	Latitude	Quality index
345020	-85.324	10.83	3

## Rinjani

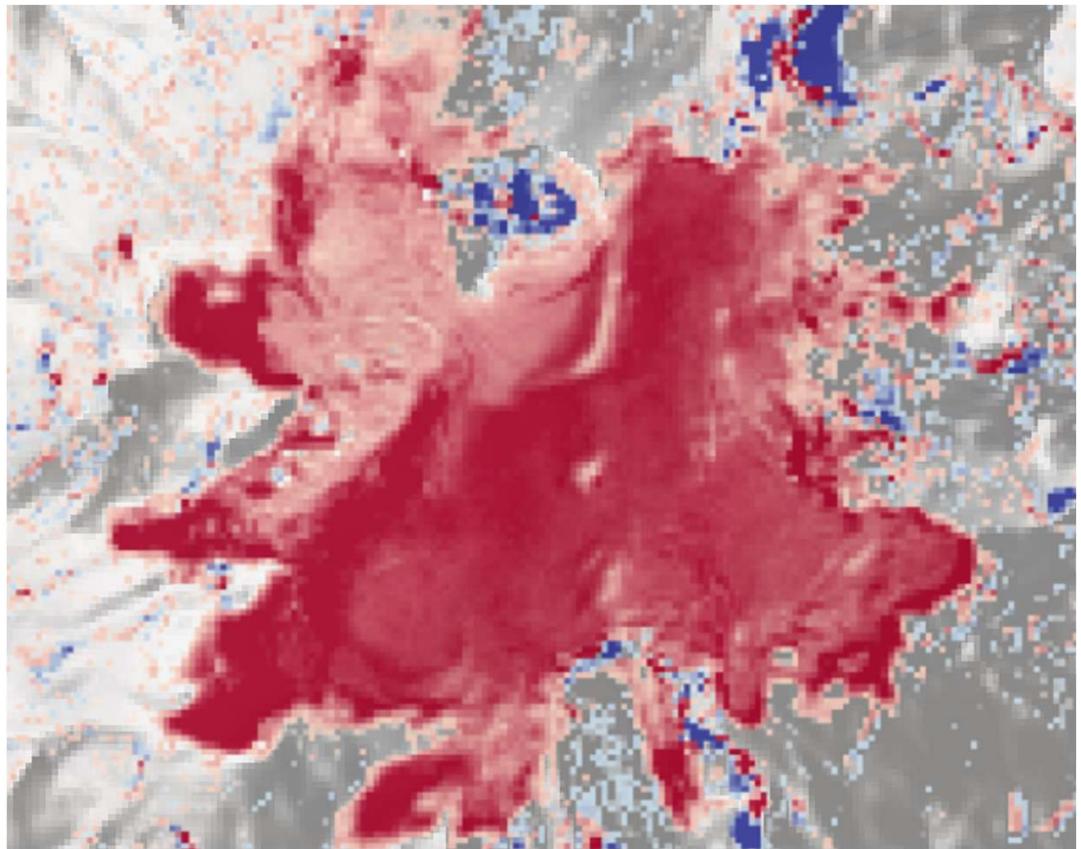
- Indonesia
- Ash plume
- First change 2018-01
- Last change 2019-01/2019-08
- 20"



Volcano number	Longitude	Latitude	Quality index
264030	116.47	-8.42	3

## Ruiz, Nevado del

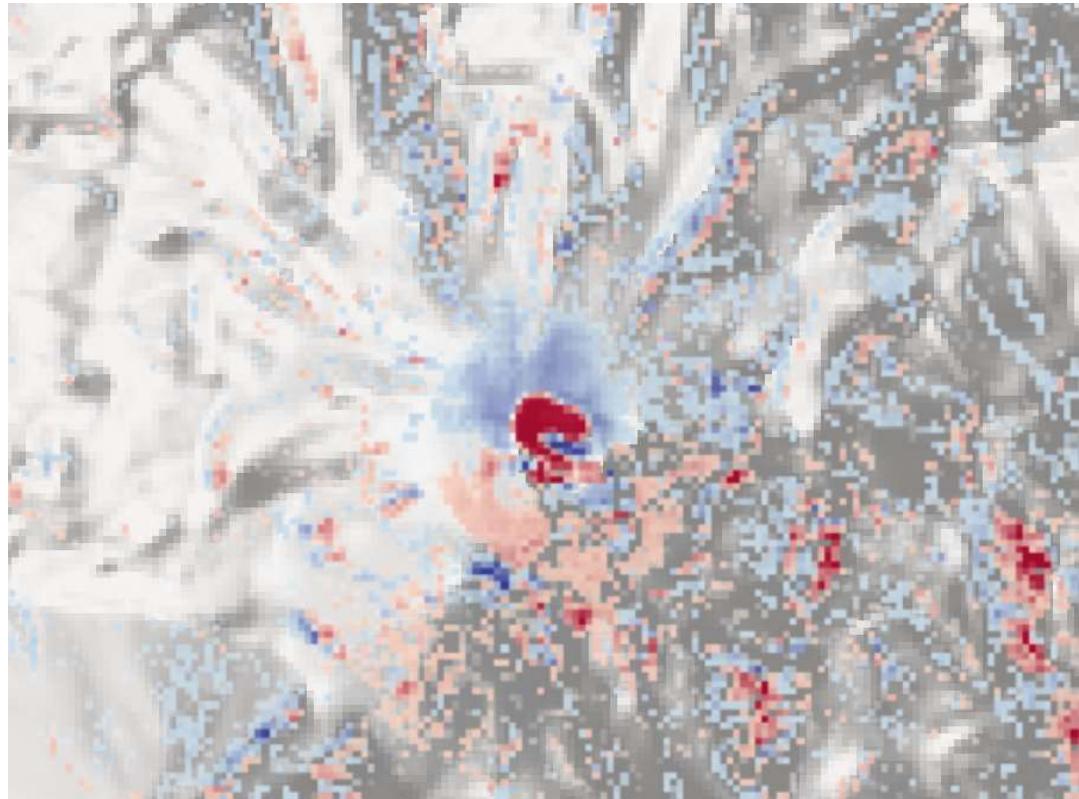
- Colombia
- Snow
- Signals within crater – lava dome
- First change 2019-10
- Last change 2020-04
- 20"



Volcano number	Longitude	Latitude	Quality index
351020	-75.324	4.892	snow

## Sabancaya

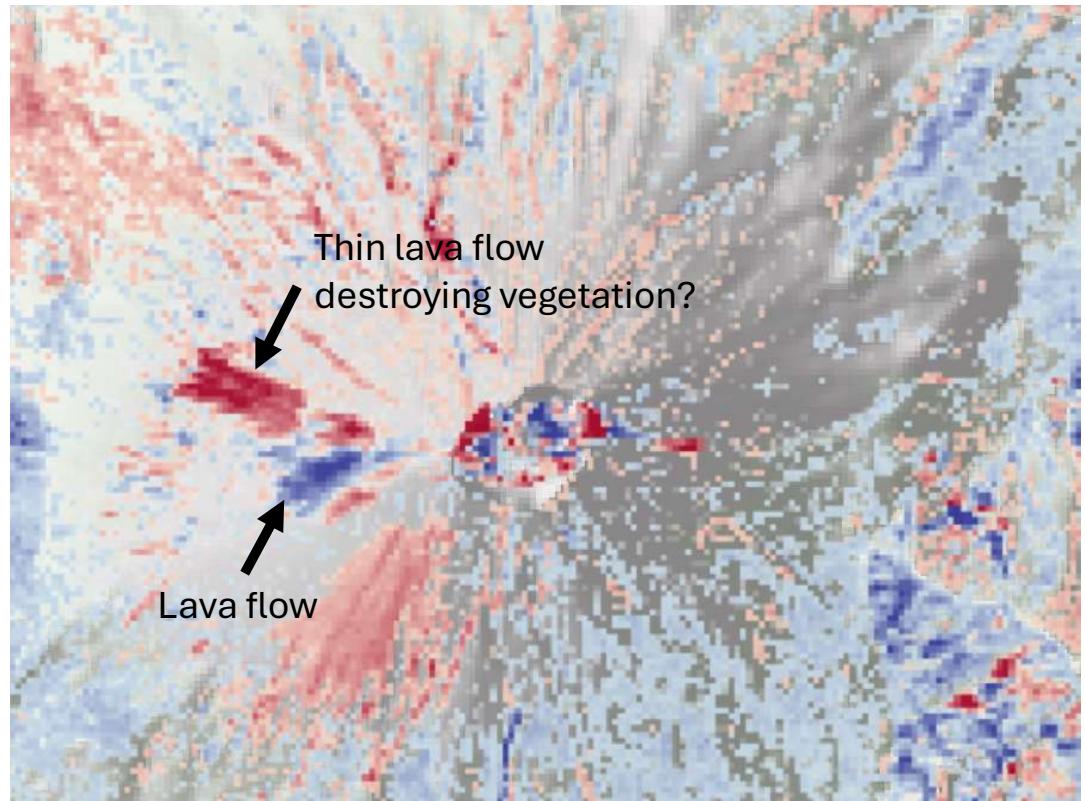
- Peru
- Eruptions 2014 (unconfirmed), 2015, 2016-present
- Explosions and ash plumes
- Creation/deepening of crater due to explosions
- First/last change 2019-06
- 20"



Volcano number	Longitude	Latitude	Quality index
354006	-71.857	-15.787	2

# San Cristobal

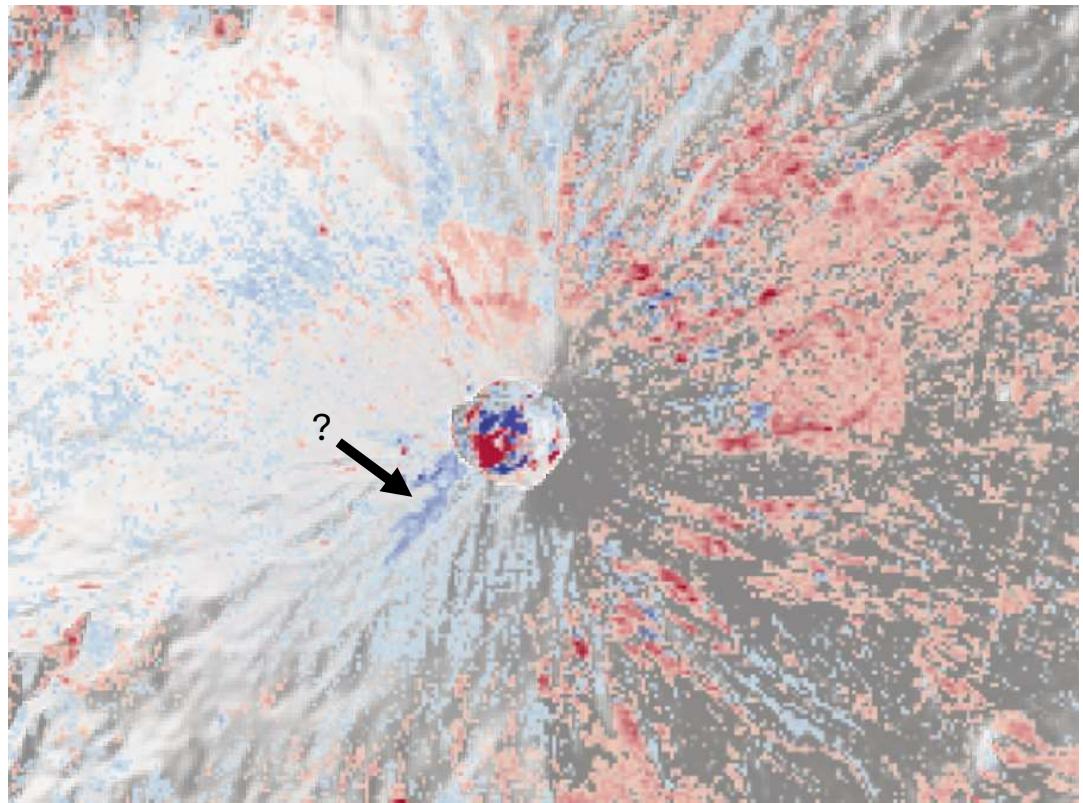
- Nicaragua
- 8 eruptions 2010-2015
- Eruptions 2016, 2017 x2, 2018, 2019, 2020-2022, 2024
- Probably lava flows on west flank
- Maybe lava extruded within crater
- First and last change look the same
- First change 2017-12
- Last change 2019-11
- 20"



Volcano number	Longitude	Latitude	Quality index
344020	-87.004	12.702	2

## San Miguel

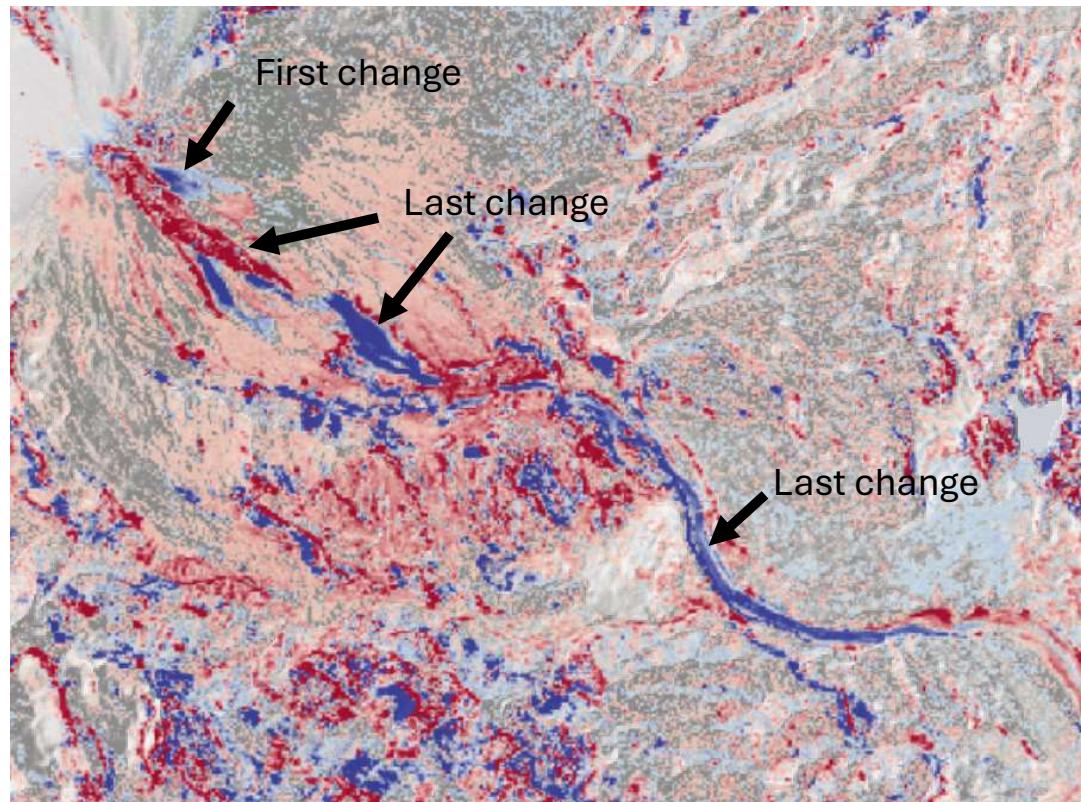
- El Salvador
- Lava dome?
- Considerable change within crater between first and last change, rest of image is fairly consistent
- Possible thin lava flow from SW of crater
- First change 2018-02/2018-01
- Last change 2019-12
- 50"



Volcano number	Longitude	Latitude	Quality index
343100	-88.269	13.434	2

## Sangay

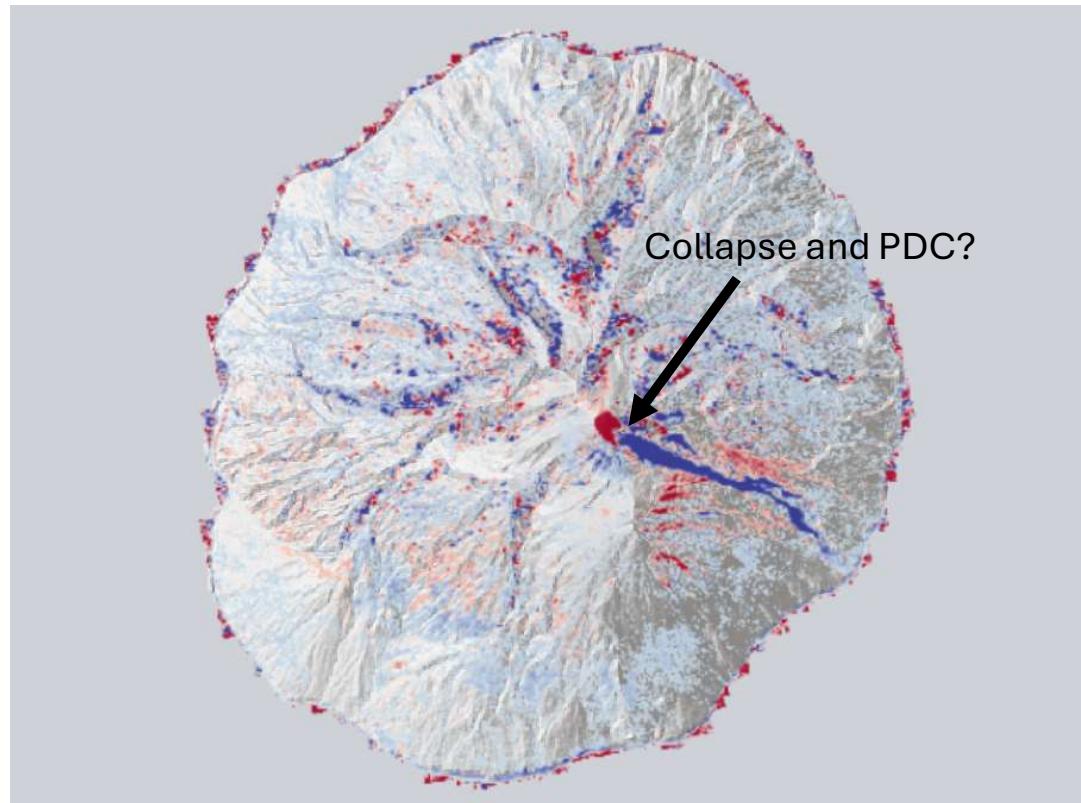
- Ecuador
- Eruptions 2011-2012, 2013, 2015, 2016, 2017, 2018 x2, 2019-2024
- Small lava flow visible near summit in first change
- Large flank collapse and PDC flowing along valley in last change
- Both are fairly noisy
- First change 2019-04
- Last change 2020-06/2019-07
- 50"



Volcano number	Longitude	Latitude	Quality index
352090	-78.341	-2.005	3

## Sangeang Api

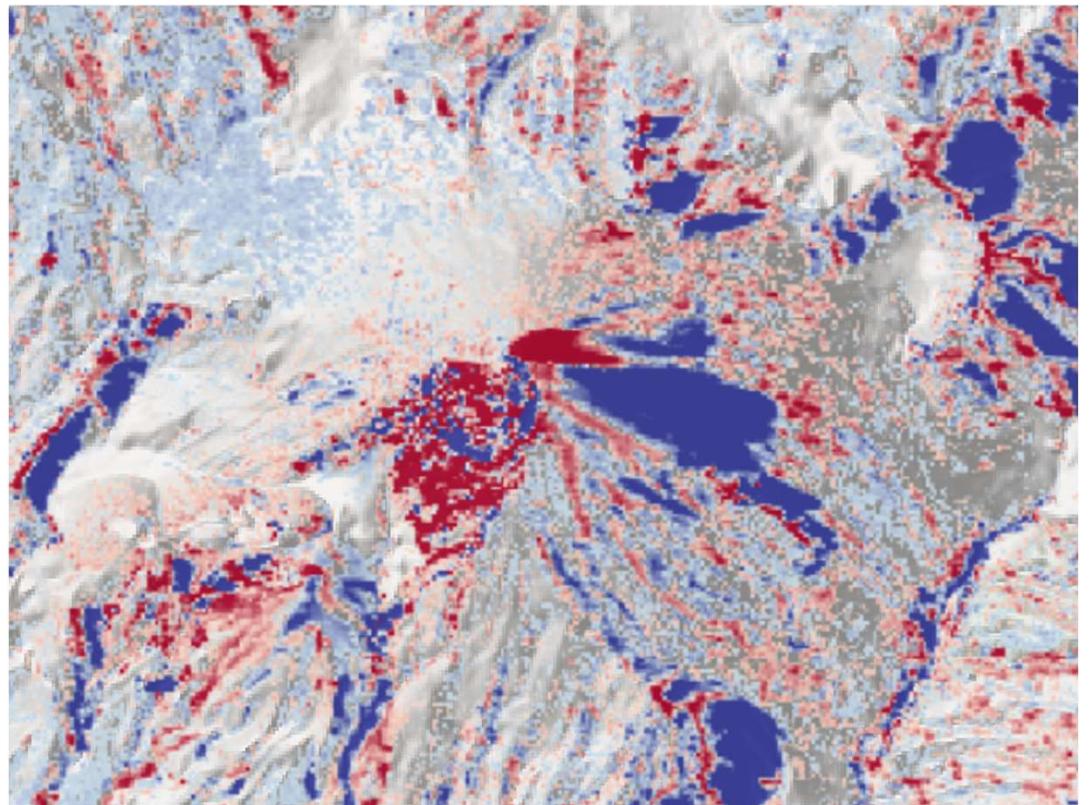
- Indonesia
- Eruptions 2014-2015, 2017-2020, 2022
- First change 2018-01
- Last change 2019-06/2019-01
- 2'



Volcano number	Longitude	Latitude	Quality index
264050	119.07	-8.2	2

## Santa Maria

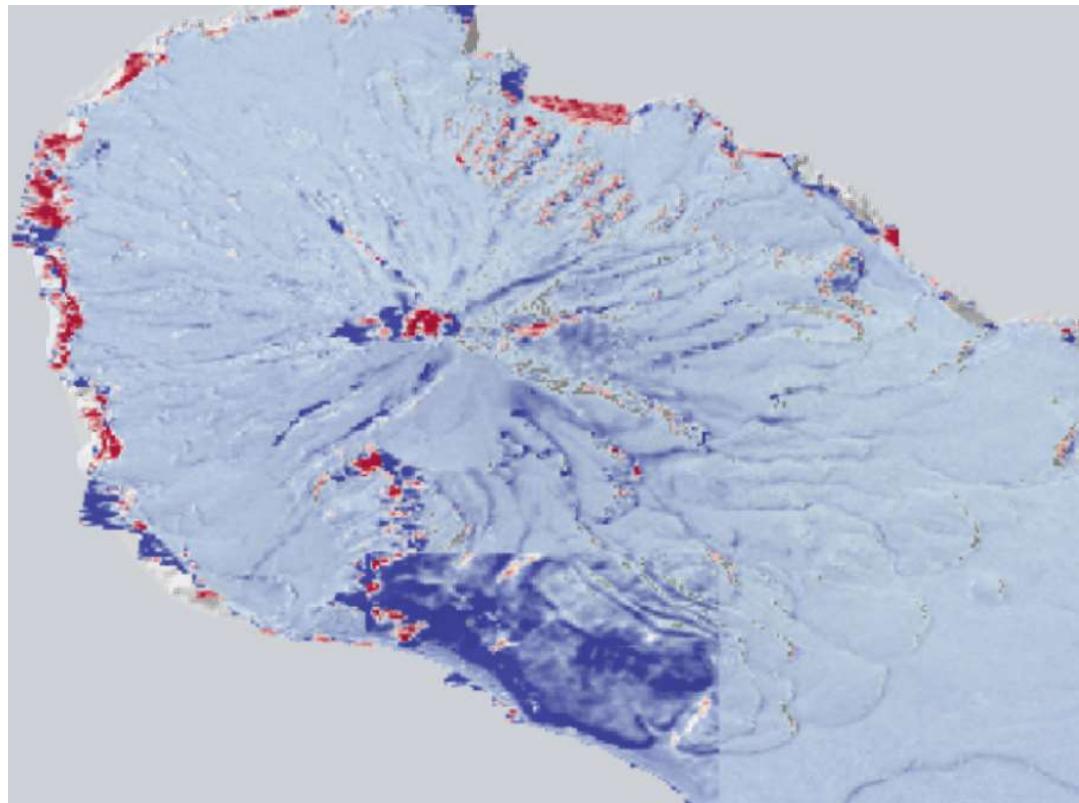
- Guatemala
- 50"



Volcano number	Longitude	Latitude	Quality index
342030	-91.552	14.757	4

## Sarychev Peak

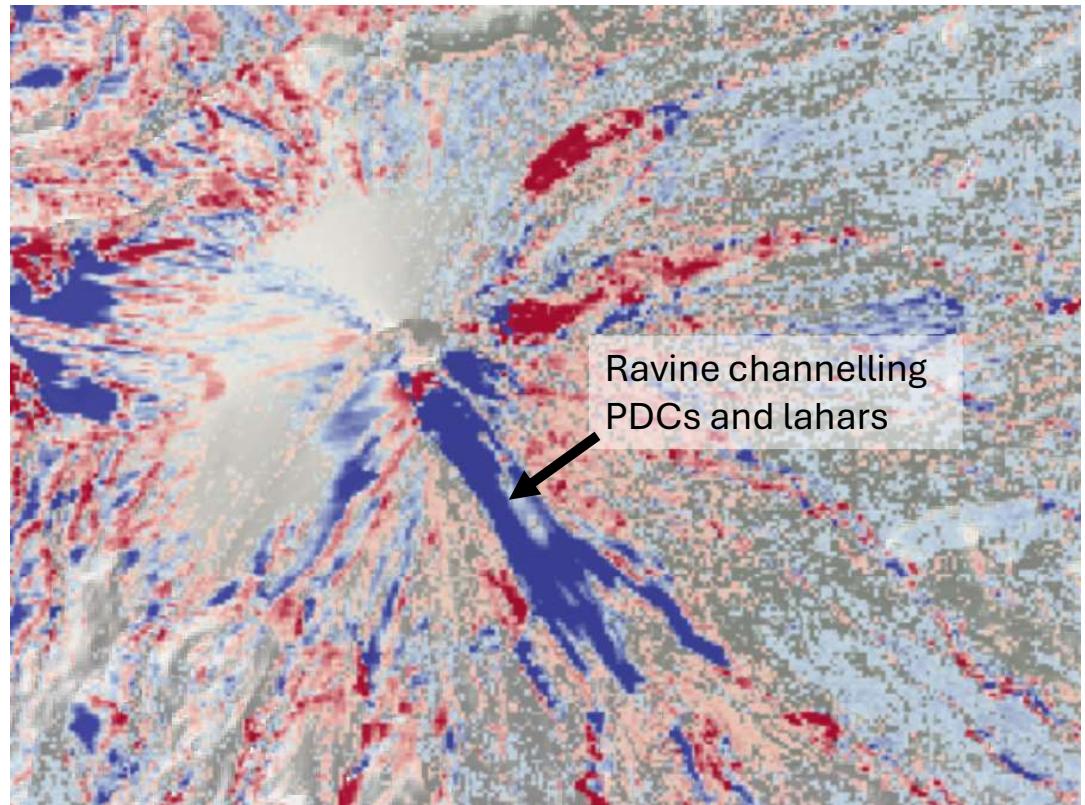
- Kuril islands, Russia
- Noise likely resulting from snow/ice
- First/last change 2019-06
- 50"



Volcano number	Longitude	Latitude	Quality index
290240	153.2	48.092	snow

## Semeru

- Indonesia
- Eruptions 2010, 2011-2012, 2013, 2014-2017, 2017-2024
- Large amounts of noise
- PDC to south-east
- First change 2018-04
- Last change 2019-05
- 50"



Volcano number	Longitude	Latitude	Quality index
263300	112.922	-8.108	3

# Semeru



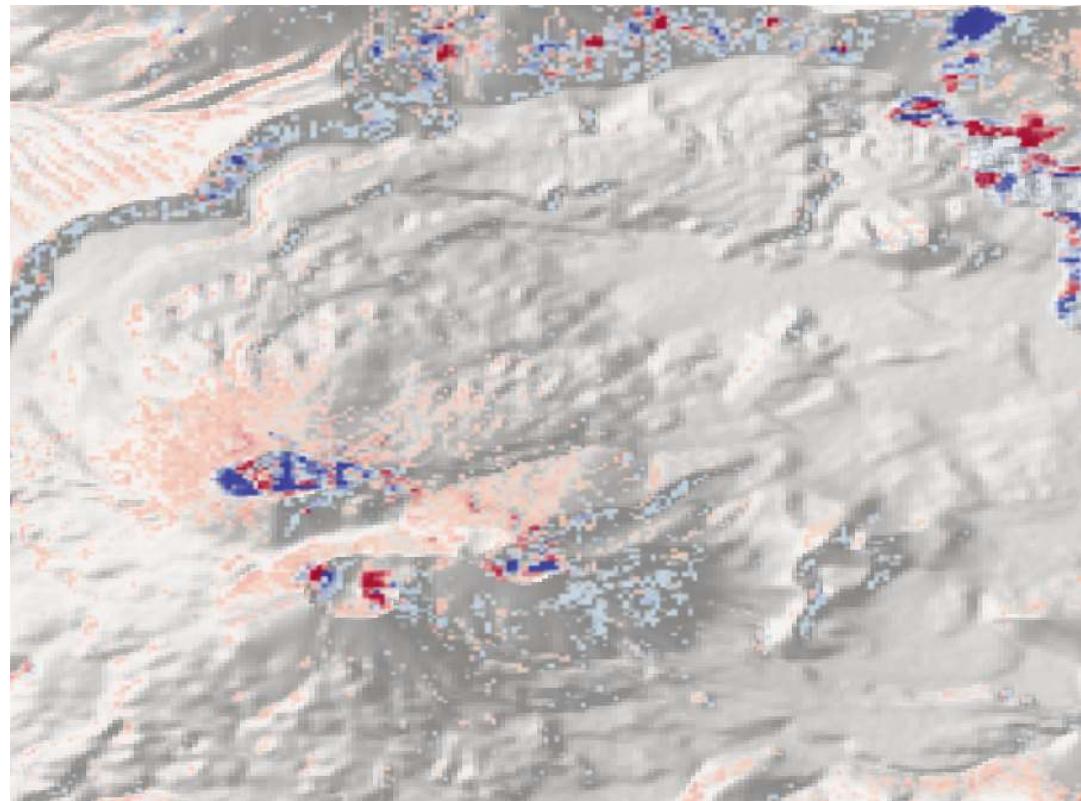
12 May 2012 – lava dome at summit crater, slow moving lava travelling down ravine on SE flank (GVP bulletin report)



13 Feb 2016 – pyroclastic flow (GVP bulletin report)

## Semisopochnoi

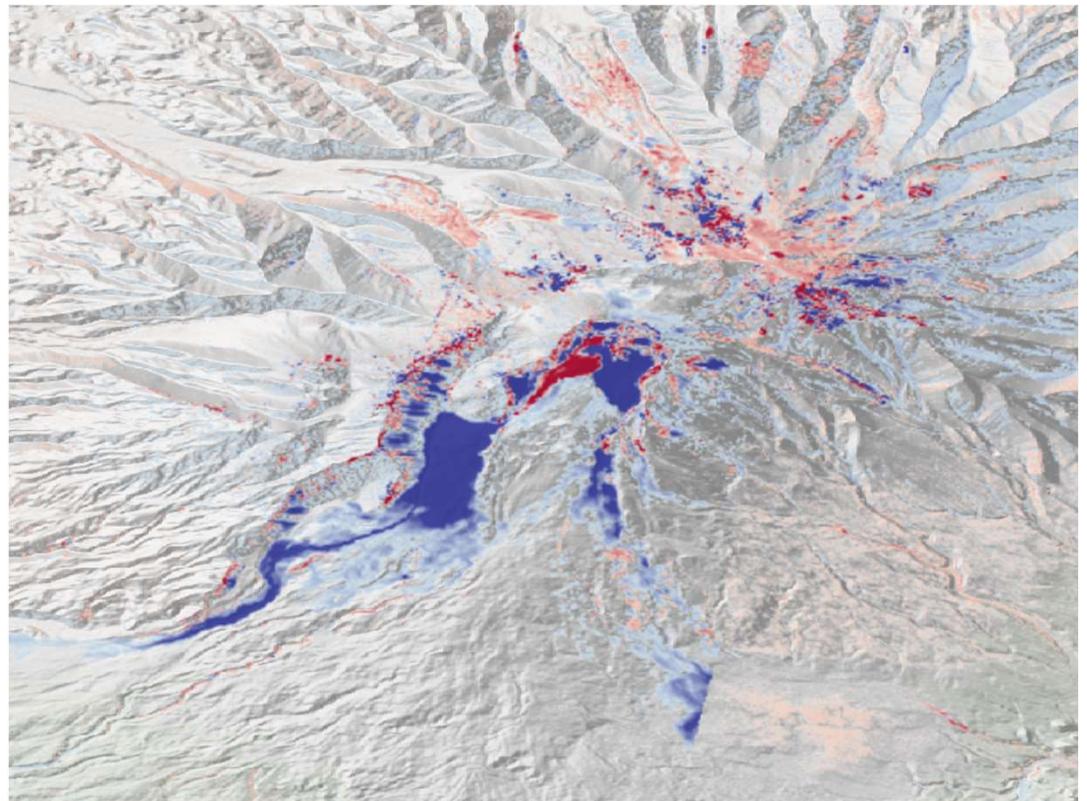
- Aleutian islands, Alaska
- Eruption September 2018 – not included
- Possibly flank collapse within crater, hard to say for sure
- Maybe lava flows to the north, again hard to say
- First/last change 2017-11
- 50"



Volcano number	Longitude	Latitude	Quality index
311060	179.58	51.93	2

## Sheveluch

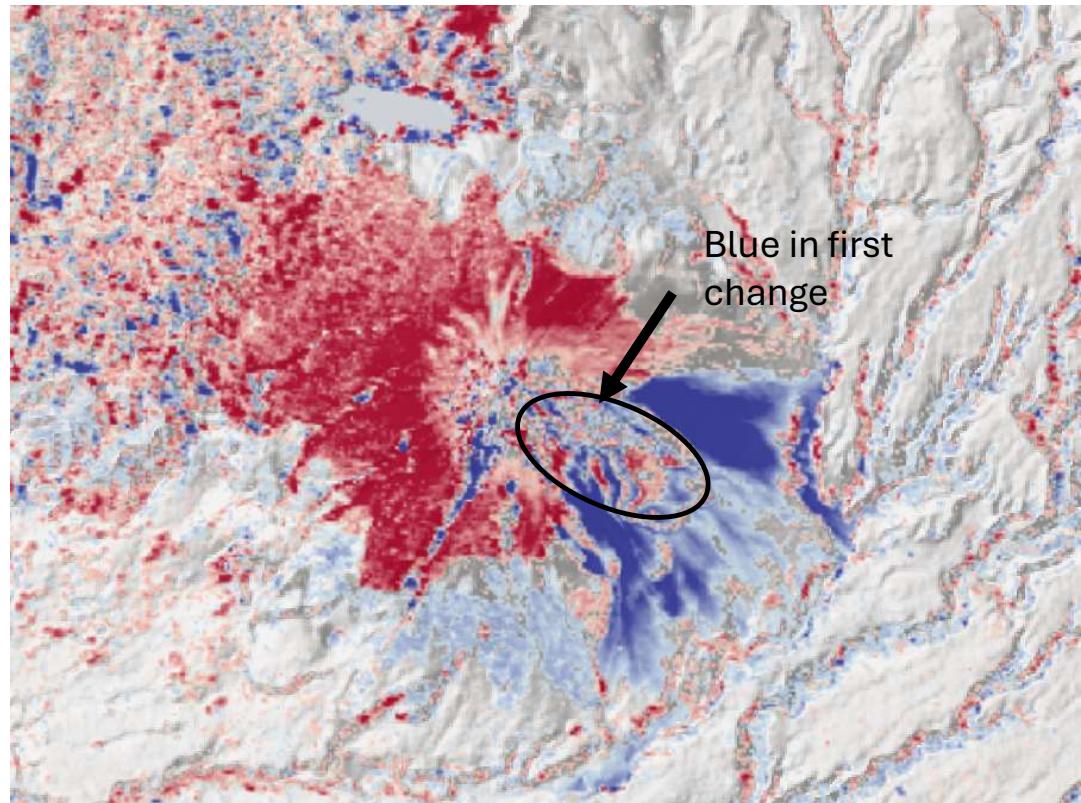
- Kamchatka, Russia
- First change 2018-06/2018-09
- Last change 2019-05/2019-11
- South-eastern flow cut off by break in last DCM dates
- 2'



Volcano number	Longitude	Latitude	Quality index
300270	161.36	56.653	3

## Sinabung

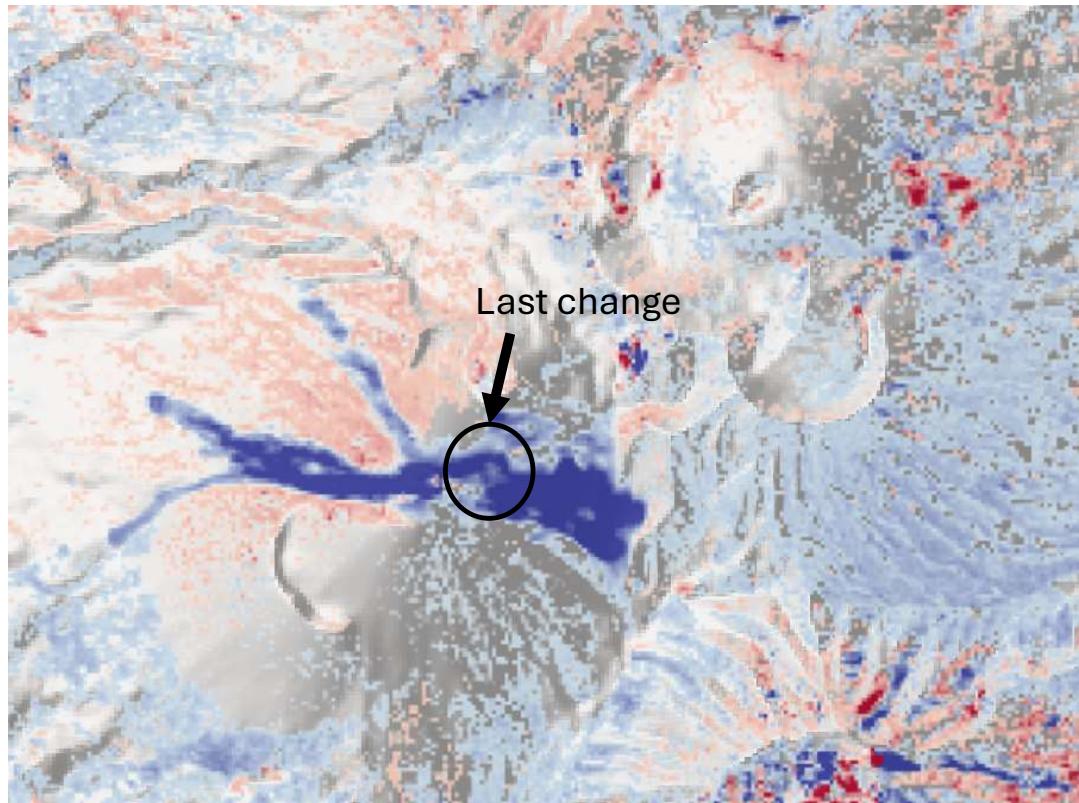
- Sumatra, Indonesia
- Eruptions 2010, 2013-2018, 2019, 2020-2021
- Avalanches and pyroclastic flows down SE flank in 2013-2014
- Lots of ash clouds
- Blue flow down SE flank in first change, not in last change, could indicate emplacement of unstable material that later collapsed?
- First change 2018-05
- Last change 2019-06/2019-01
- 50"



Volcano number	Longitude	Latitude	Quality index
261080	98.392	3.17	3

## Soputan

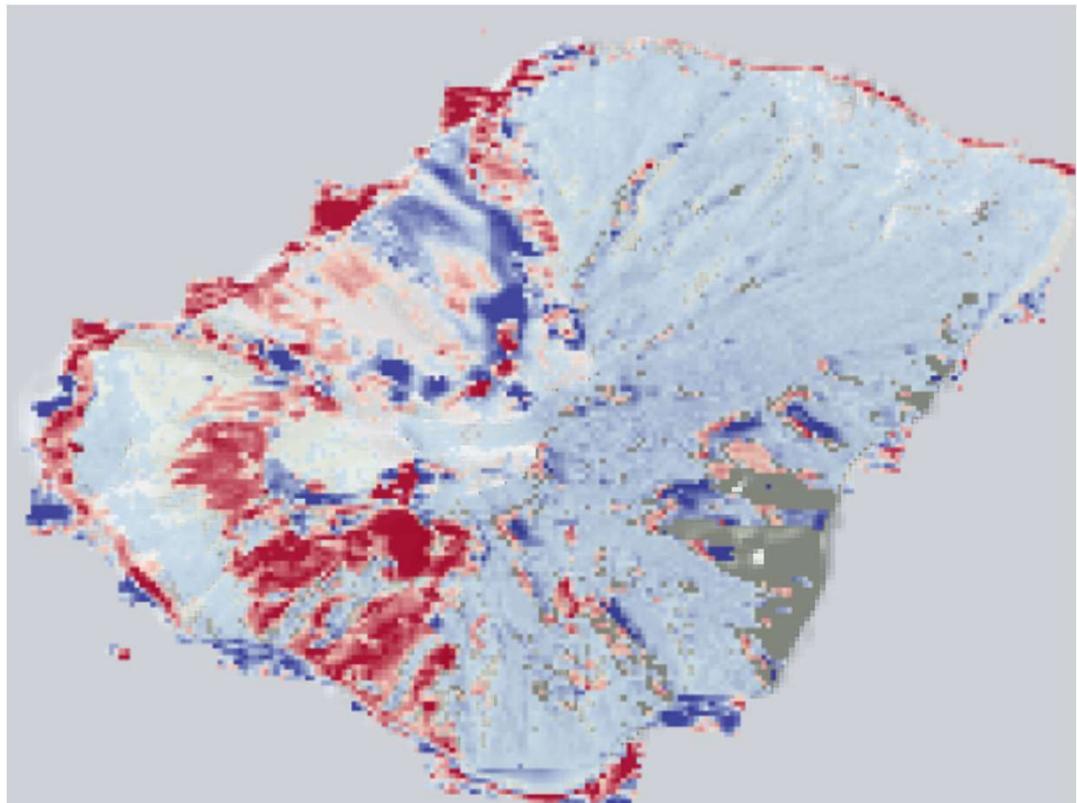
- Indonesia
- Lava flows
- Eruptions in 2011, 2012, 2015, 2016, Oct-Dec 2018, 2020
- 2018 eruption was mostly explosive
- Lava flows, PDCs, ash clouds reported in 2016
- First change 2018-07
- Last change 2019-11
- 50"



Volcano number	Longitude	Latitude	Quality index
266030	124.737	1.112	2

## Stromboli

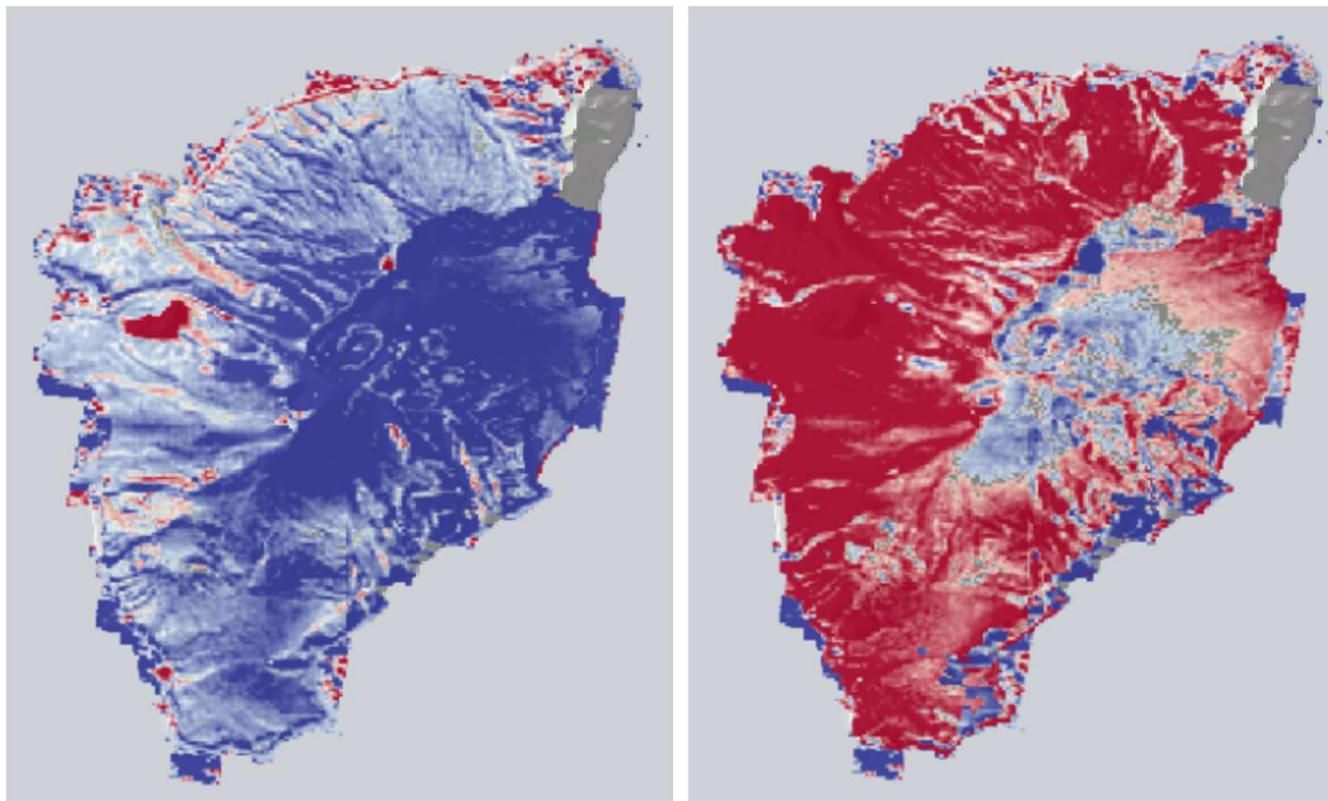
- Italy
- Pretty noisy, hard to tell if blue represents real changes or not
- First change 2019-05
- Last change 2019-06
- 50"



Volcano number	Longitude	Latitude	Quality index
211040	15.213	38.789	3

## Suwanosejima

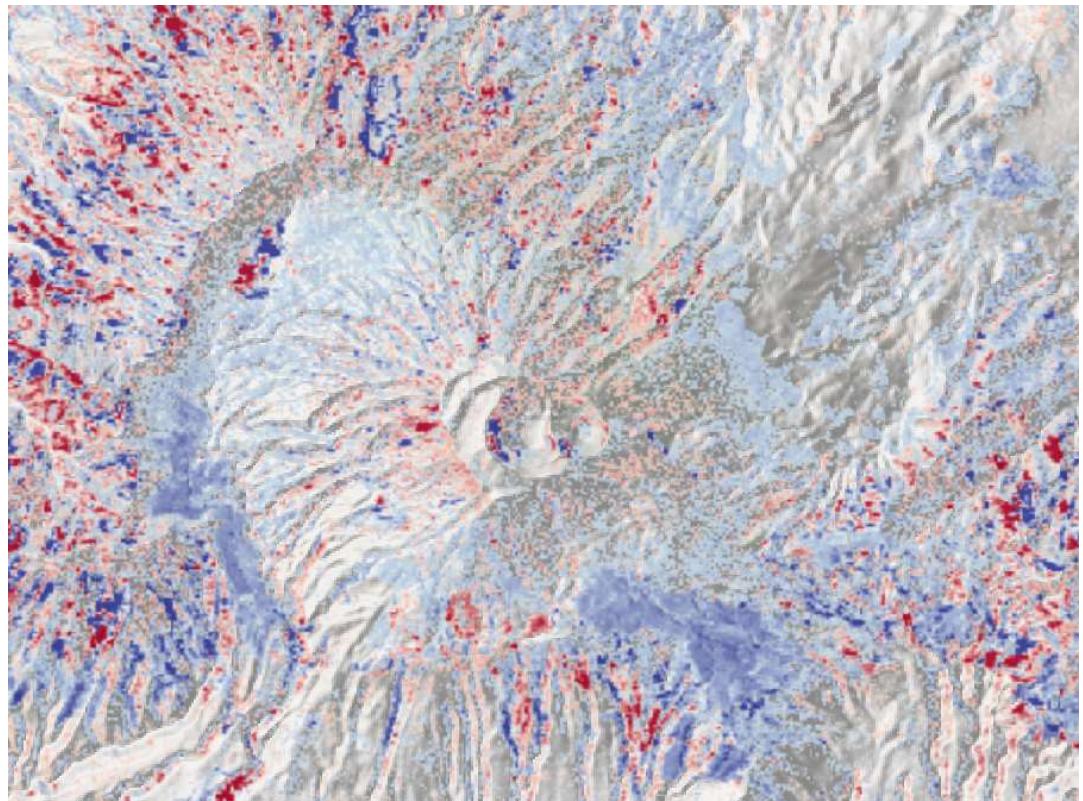
- Japan
- Probably high noise levels/poorly processed, could instead be erosion of ash deposits
- First change (left) 2018-08
- Last change (right) 2021-08
- 50"



Volcano number	Longitude	Latitude	Quality index
282030	129.714	29.638	4

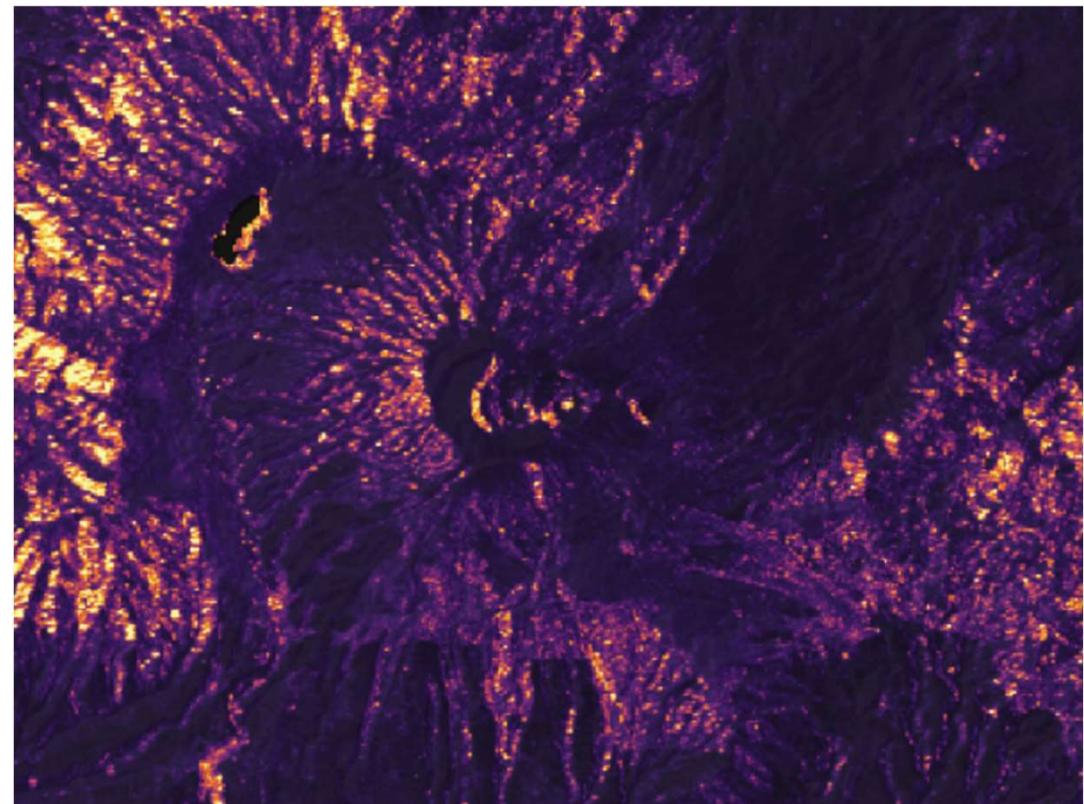
## Tangkuban Parahu

- Java, Indonesia
- Eruptions 2013 x2, 2019
- Basically just vegetative noise
- First change 2019-11/2020-06
- Last change 2021-08
- 50"



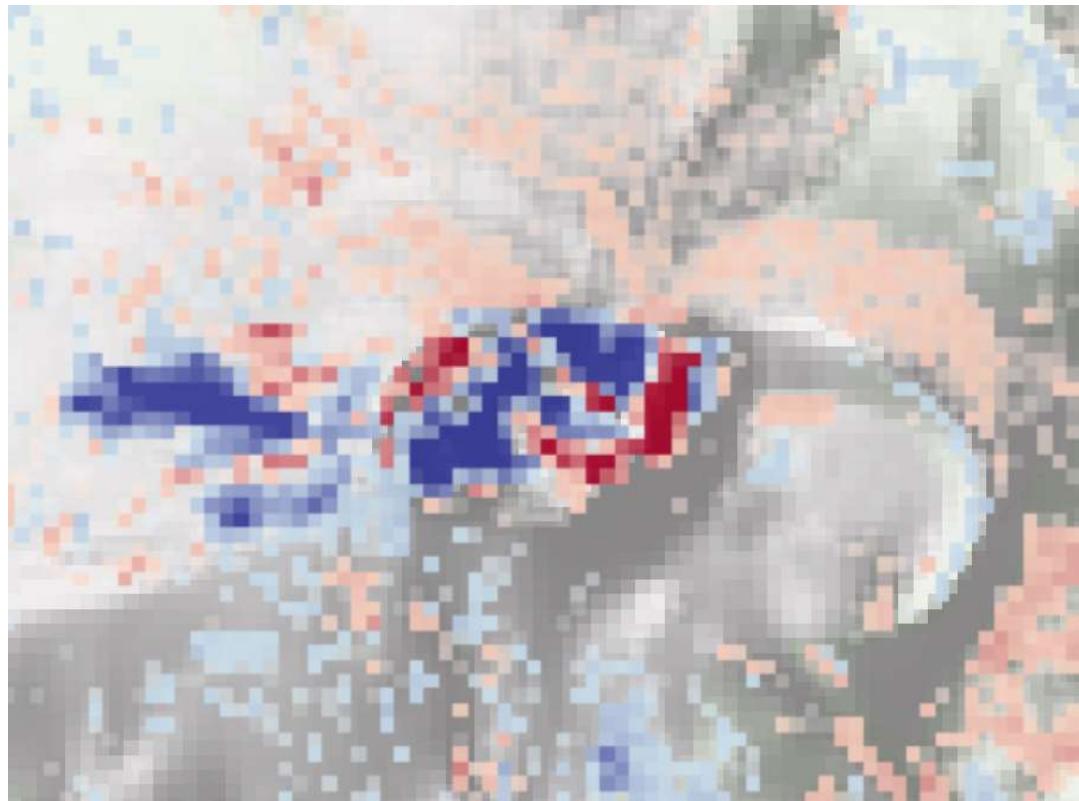
Volcano number	Longitude	Latitude	Quality index
263090	107.6	-6.77	2

## Tangkuban Parahu HAI



## Telica

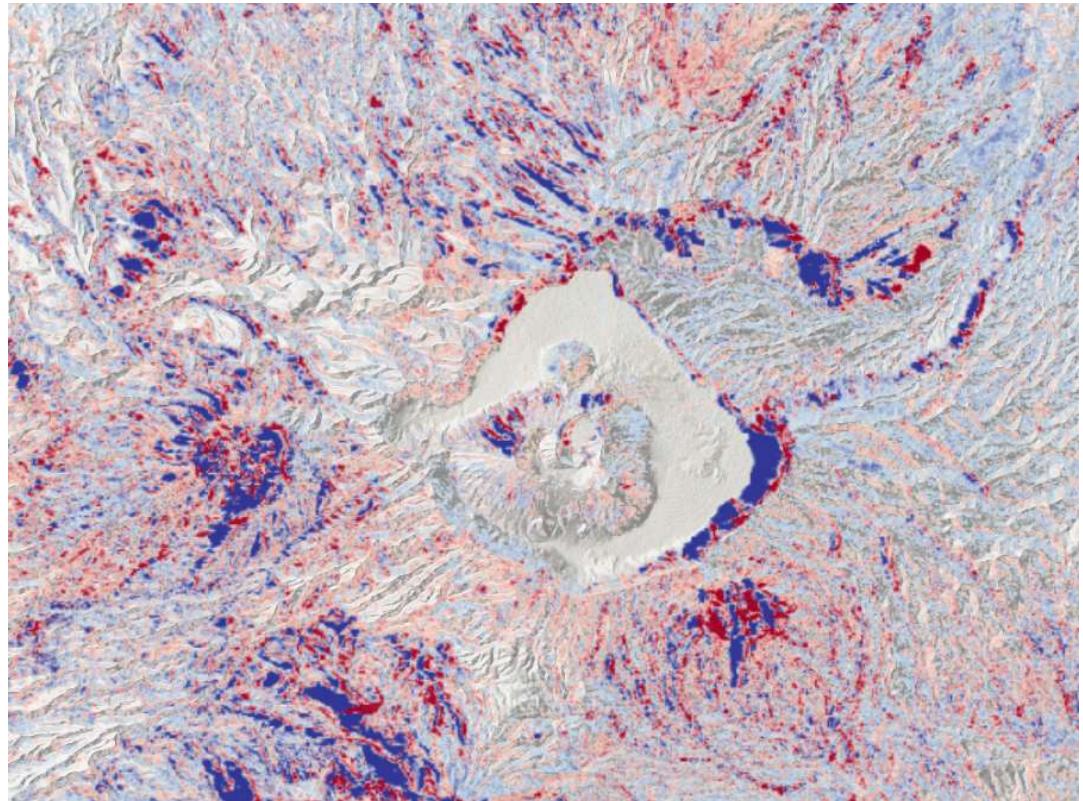
- Nicaragua
- Eruptions 2011, 2013, 2015, 2018, 2020, 2021
- GVP records ash eruptions and some incandescence, doesn't mention any recorded lava flows
- First change 2017-12
- Last change 2019-11
- 10"



Volcano number	Longitude	Latitude	Quality index
344040	-86.84	12.606	2

## Tengger Caldera

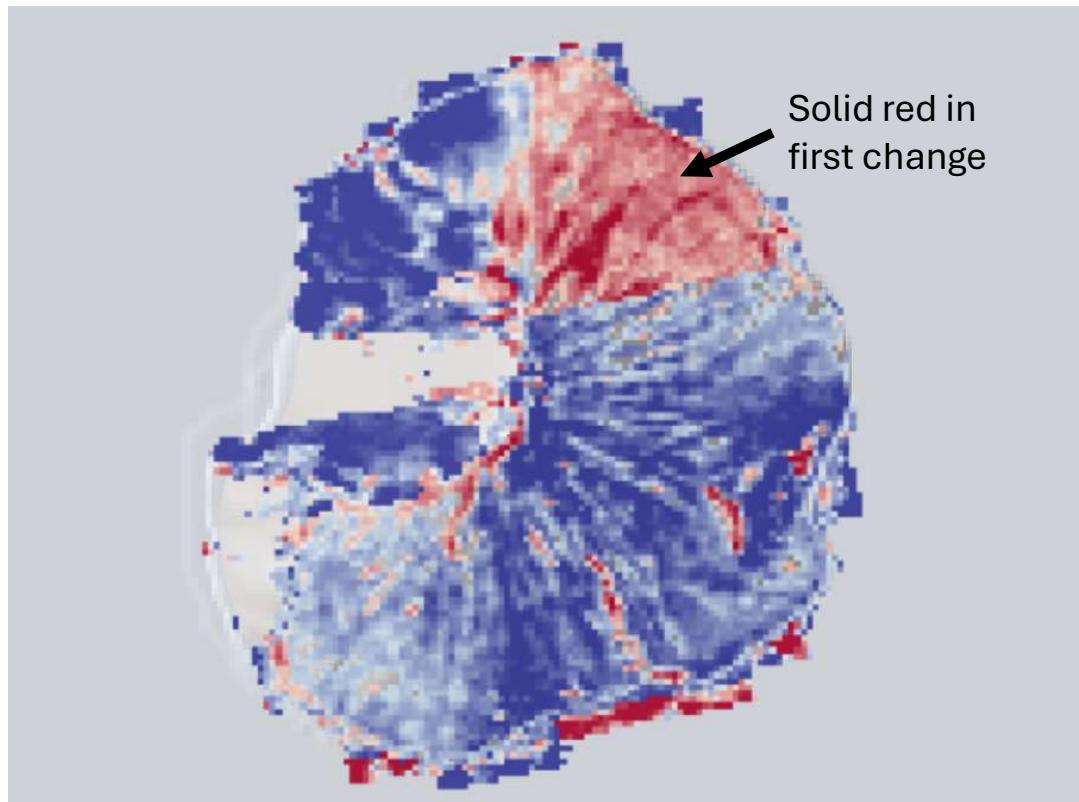
- Java, Indonesia
- Seems to be mostly shadow/layover
- Eruptions 2010-2011, 2015-2016, 2019, 2020, 2021 (unconfirmed), 2023
- First and last change look basically the same
- Most ash plumes
- First change 2018-04
- Last change 2020-02/2019-05
- 2'



Volcano number	Longitude	Latitude	Quality index
263310	112.95	-7.942	3

## Tinakula

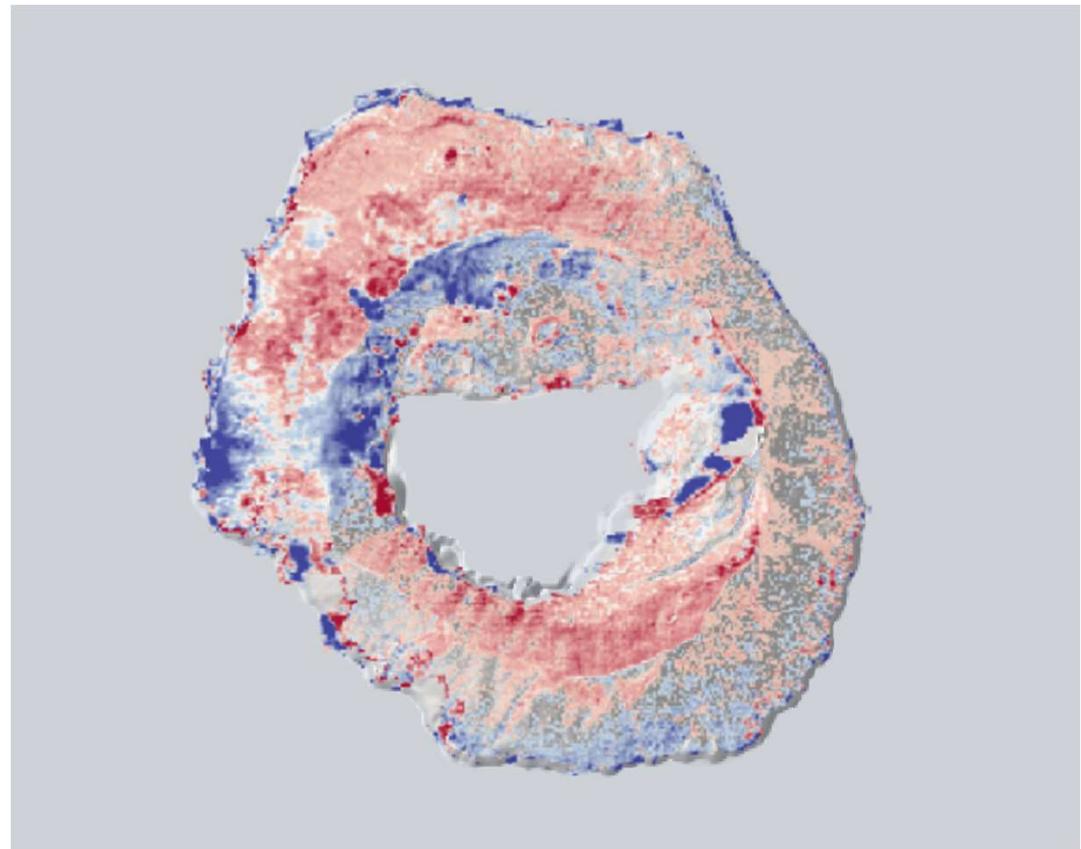
- Solomon islands
- Very noisy
- First change 2018-03/2018-04
- Last change 2019-03
- 20"



Volcano number	Longitude	Latitude	Quality index
256010	165.804	-10.386	4

# Tofua

- Tonga
- Eruptions 2004-2014, 2015-2025
- First change 2019-10/2019-03
- Last change 2019-10
- 100"

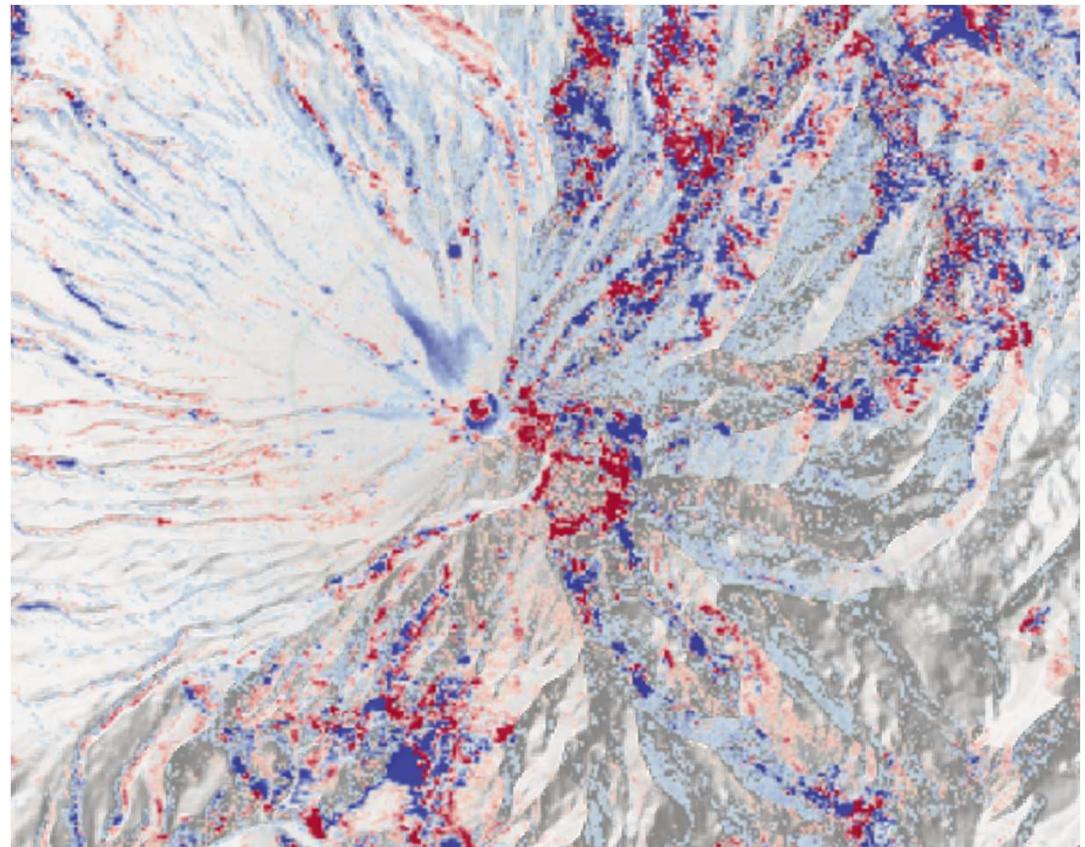


Volcano number	Longitude	Latitude	Quality index
243060	-175.07	-19.75	3

100

# Tungurahua

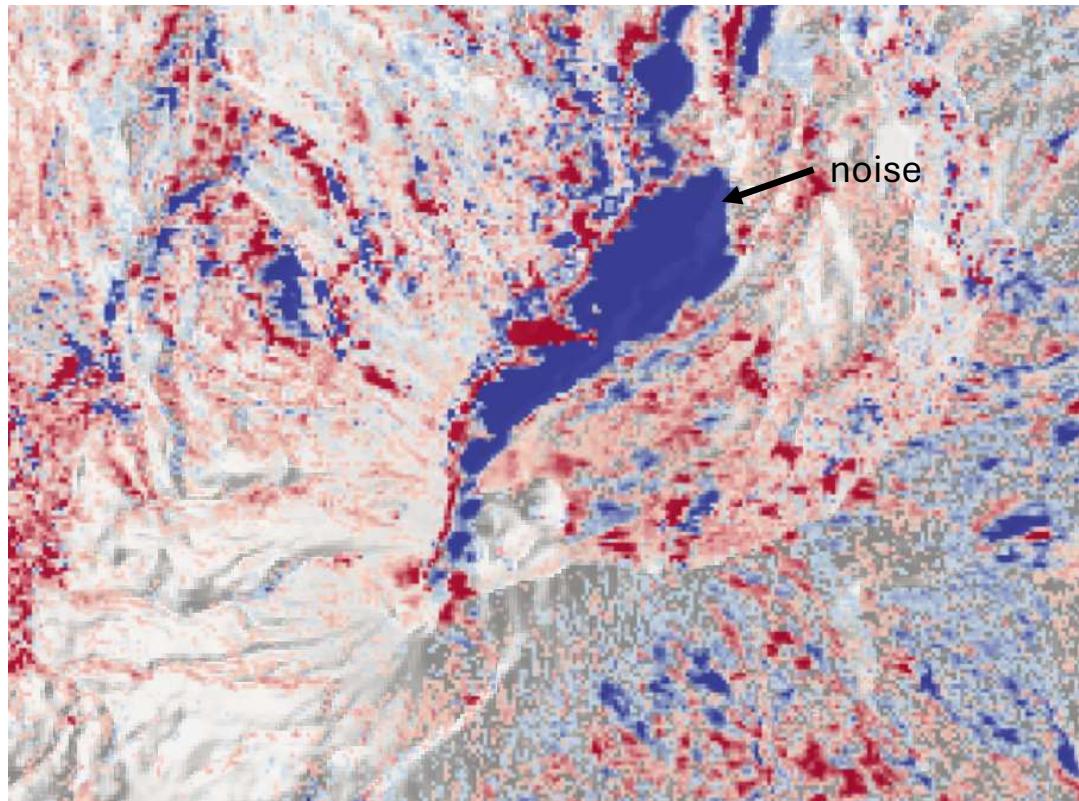
- Ecuador
- Eruptions: 4 in 2010-2012, 2012-2016
- Flow on NW flank
- Explosive signals within crater
- PDCs reported down NW flank
- First change 2019-04
- Last change 2020-06
- 50"



Volcano number	Longitude	Latitude	Quality index
352080	-78.442	-1.467	3

## Turrialba

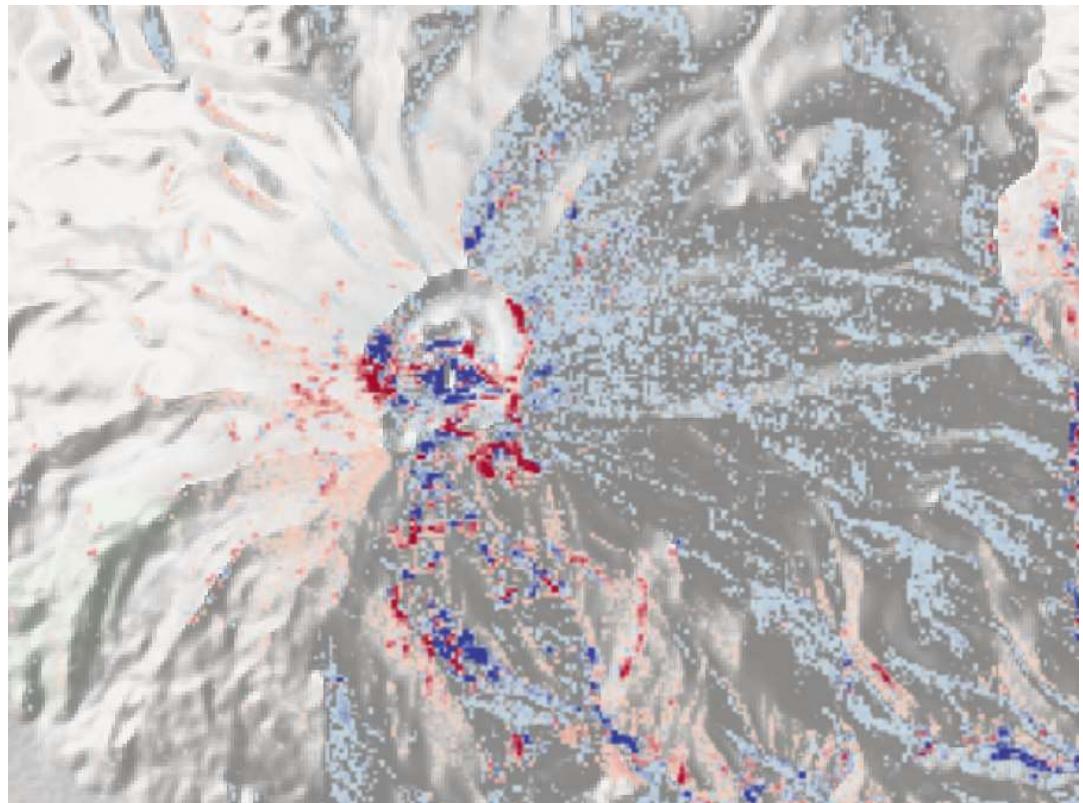
- Costa Rica
- Erupting pretty much constantly since 2010
- Eruption 2015-2019
- GVP mostly reports ash plumes, seismicity, and PDCs
- Large blue area has very high (i.e. bad) HAI
- First change 2020-02/2019-09
- Last change 2020-02
- 50"



Volcano number	Longitude	Latitude	Quality index
345070	-83.767	10.025	3

## Ubinas

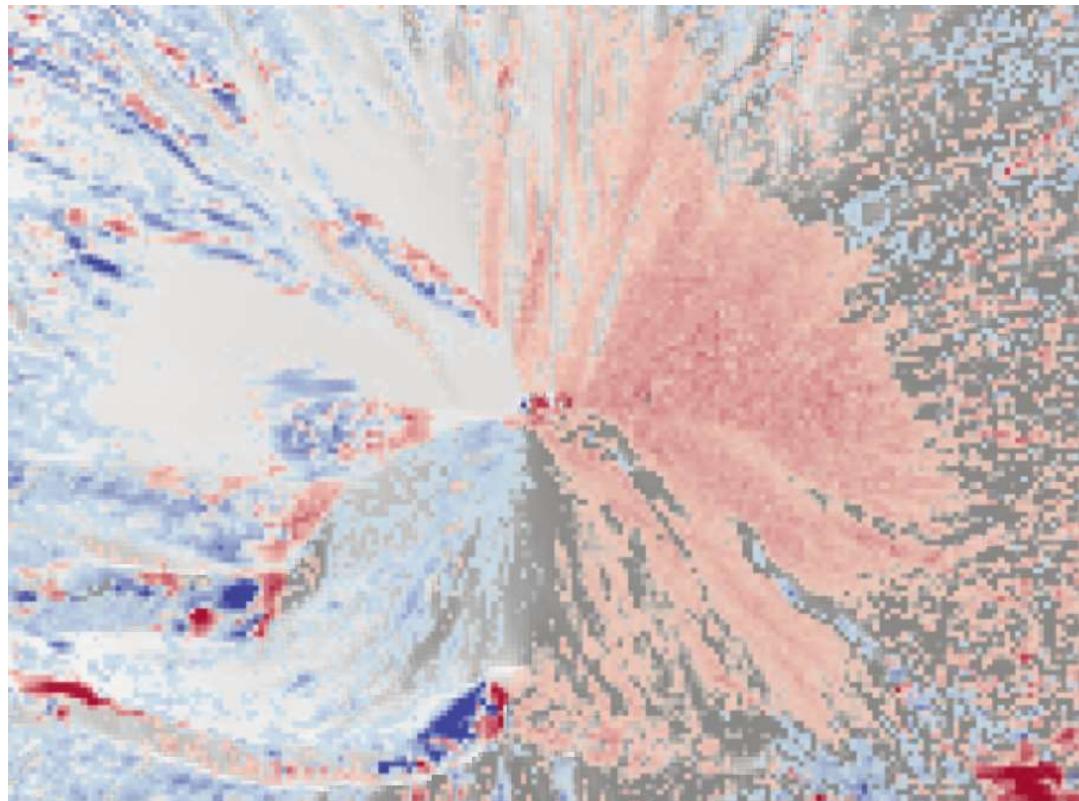
- Peru
- First change 2017-09
- Last change 2018-11
- 50"



Volcano number	Longitude	Latitude	Quality index
354020	-70.8972	-16.345	2

## Ulawun

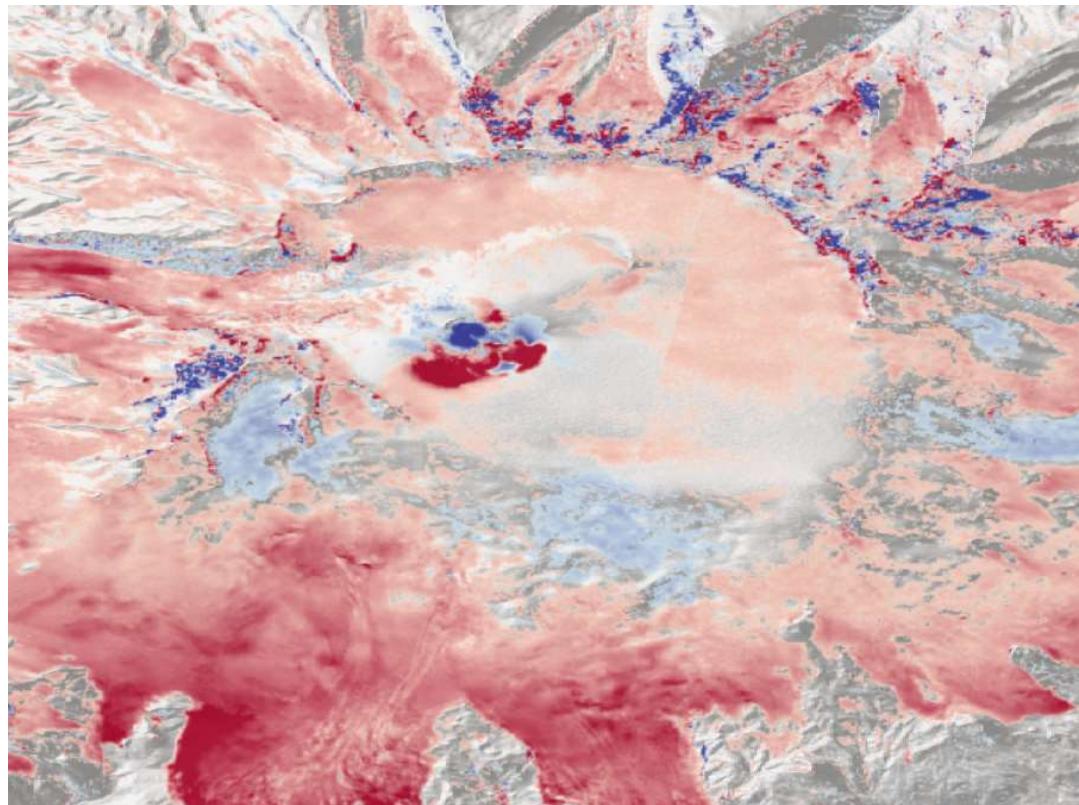
- Papua New Guinea
- Eruptions in 2010-11, 2021 x2, 2013, 2016, 2017, 2018 x2, late 2019, 2021, 2022, 2023 x2
- Red could be changes in vegetation
- Might be thin flows destroying vegetation, appearing as negative change
- First change 2018-03
- Last change 2019-03
- 20"



Volcano number	Longitude	Latitude	Quality index
252120	151.33	-5.05	2

## Veniaminof

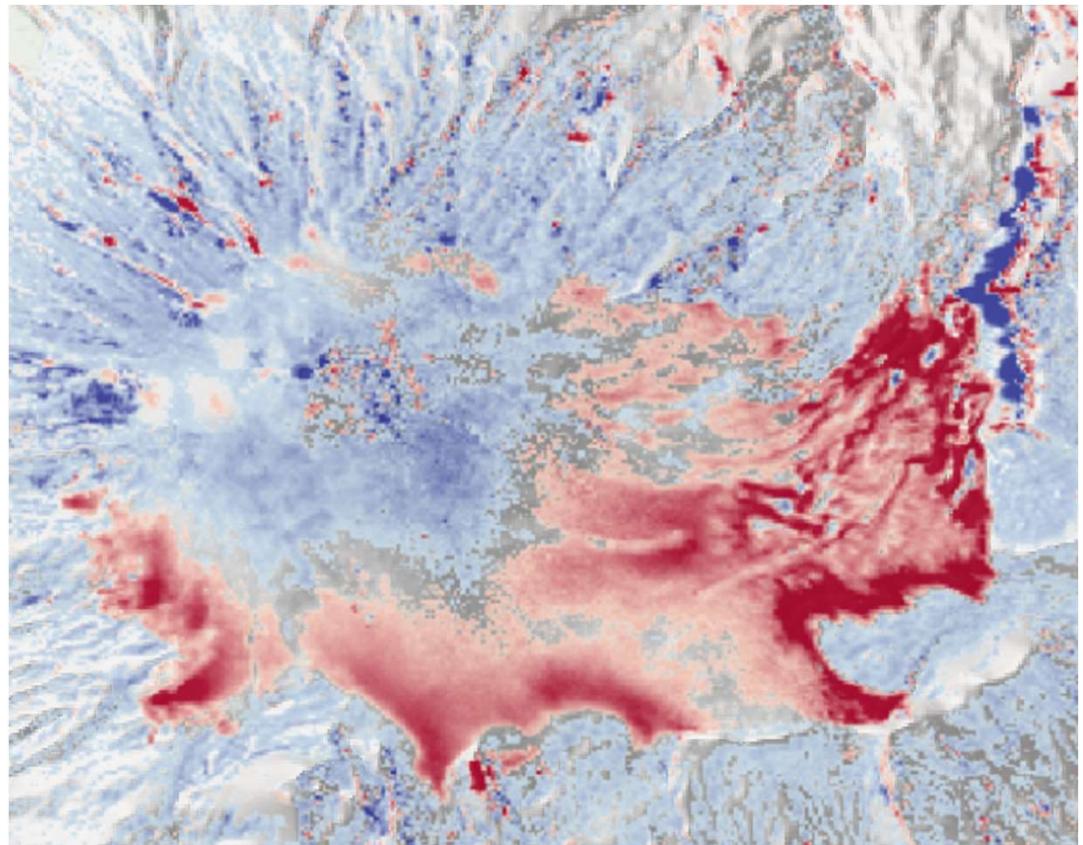
- Alaska
- Subglacial
- Strong reds and blues within the caldera could be due to lava flows, some melting the ice above, others making it all the way through the glacier
- First change 2018-01
- Last change 2019-01
- 2'



Volcano number	Longitude	Latitude	Quality index
312070	-159.38	56.17	snow

## Villarrica

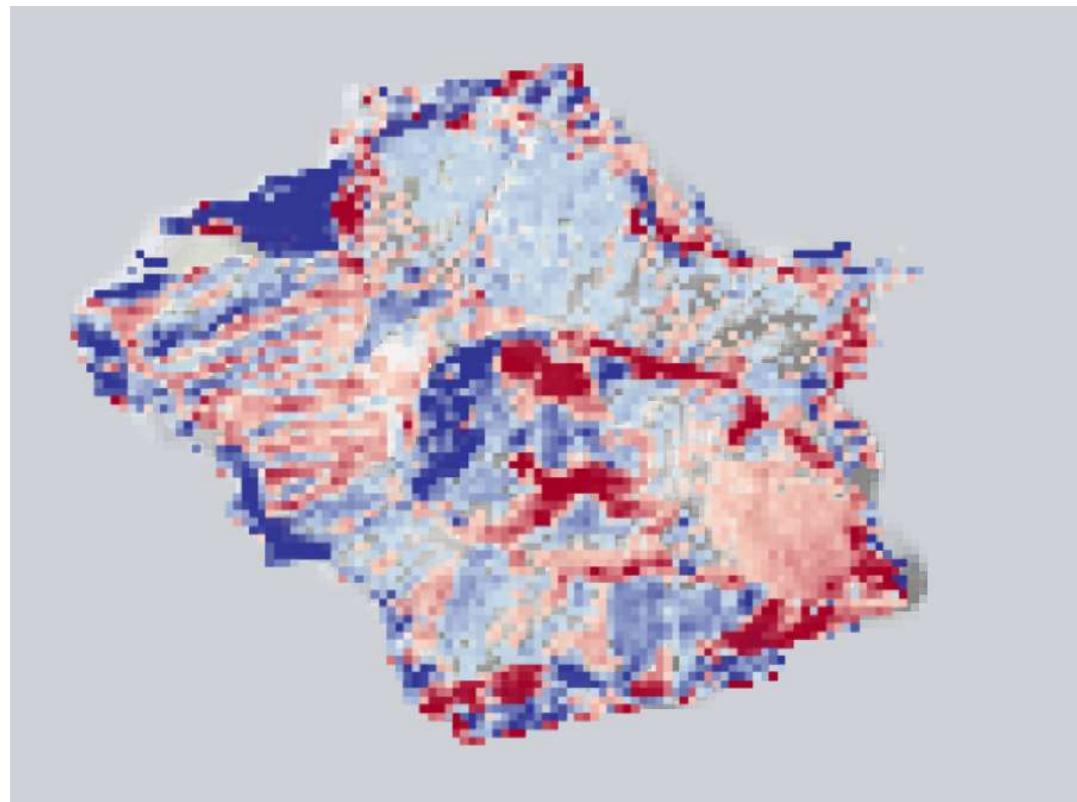
- Chile
- Eruptions 2009-2012, 2012 (unconfirmed), 2013, 2014-2025
- Snow
- First change 2018-08
- Last change 2019-10
- 50"



Volcano number	Longitude	Latitude	Quality index
357120	-71.93	-39.42	snow

## Whakaari/White Island

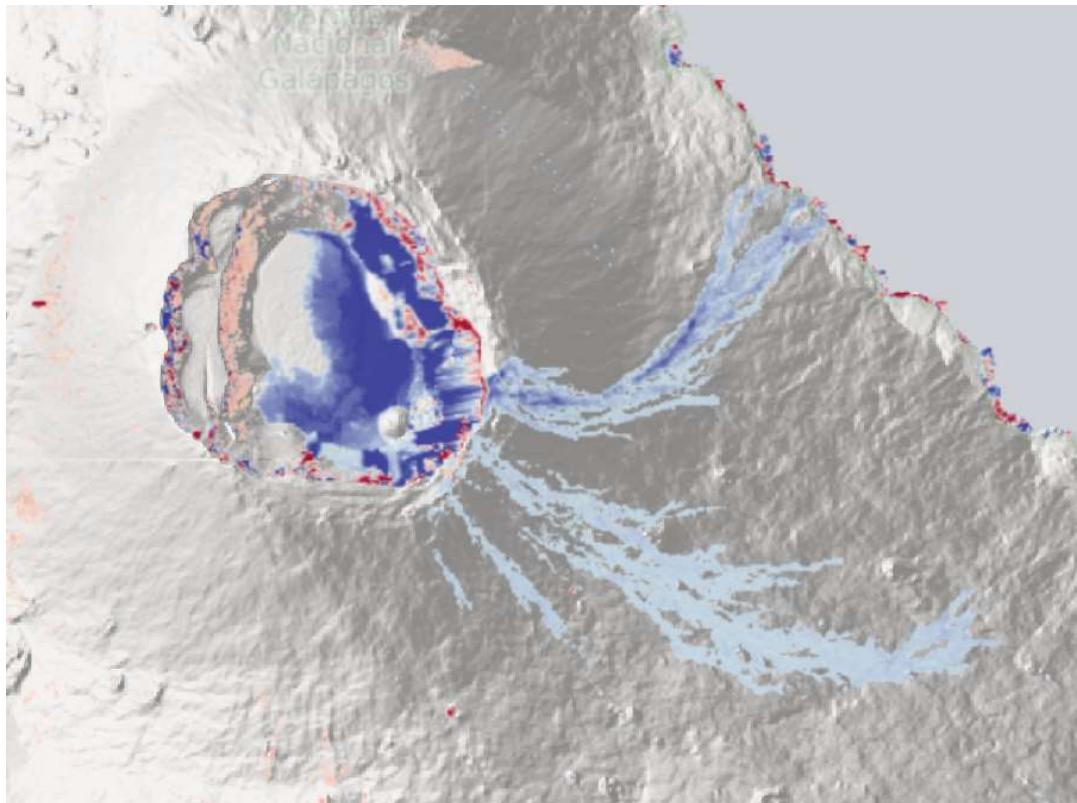
- Island off north coast of New Zealand
- GVP says mostly ash emissions, doesn't mention lava flows in 2016
- Another eruption Dec 2019, may or may not be included
- First change 2018-08
- Last change 2019-12



Volcano number	Longitude	Latitude	Quality index
241040	177.18	-37.52	4

## Wolf

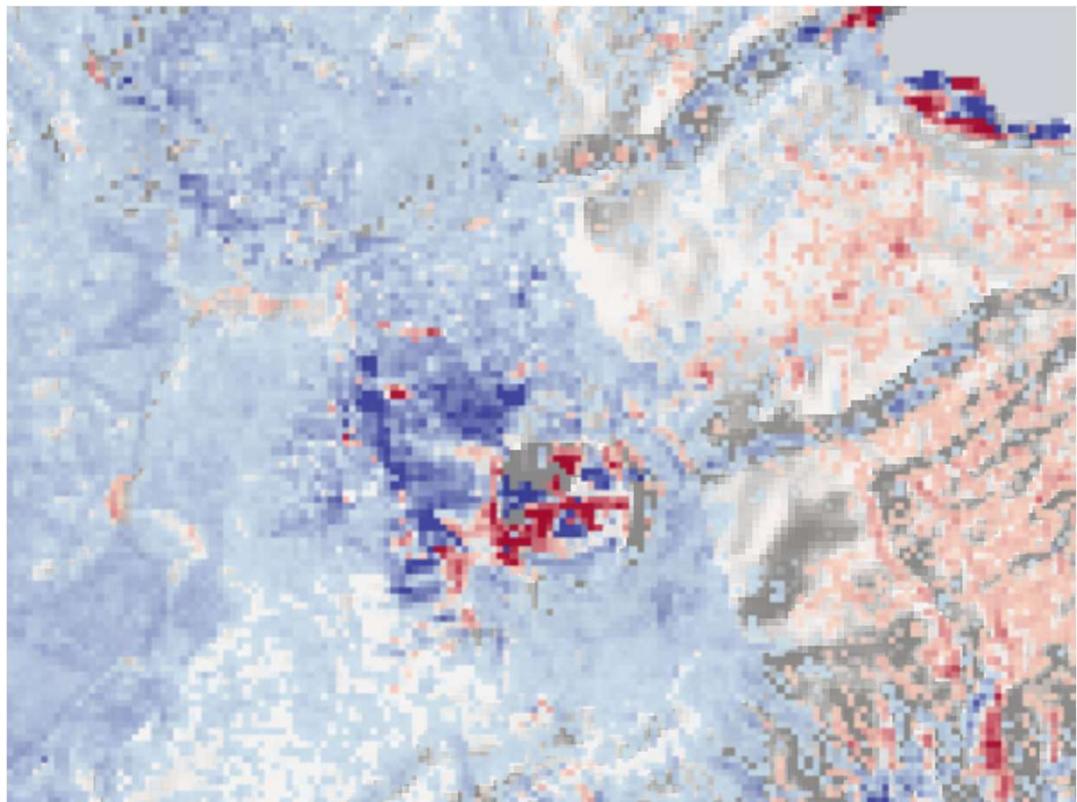
- Galapagos
- 2015 eruption shows up really nicely, just can't guarantee dates
- But in all likelihood it's fine
- Changes on eastern side of crater mostly appear in last change, just noise
- Eruptions 2015, 2022
- First change 2019-06
- Last change 2019-10
- 2'



Volcano number	Longitude	Latitude	Quality index
353020	-91.35	0.02	1

## Yasur

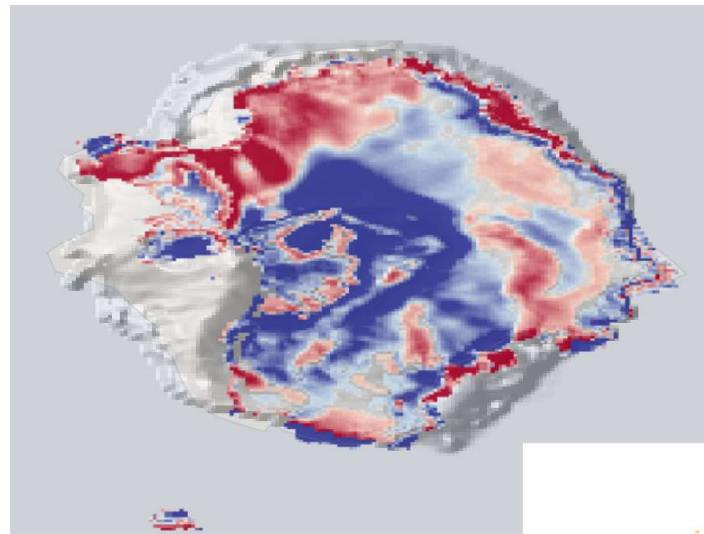
- Vanuatu
- Erupting more or less constantly since 1207 (observations since 1774)
- Positive signals in first change could be from ash deposits
- Blown away by time of second change
- First change 2018-01/2018-04
- Last change 2019-04
- 20"
- First change pictured here



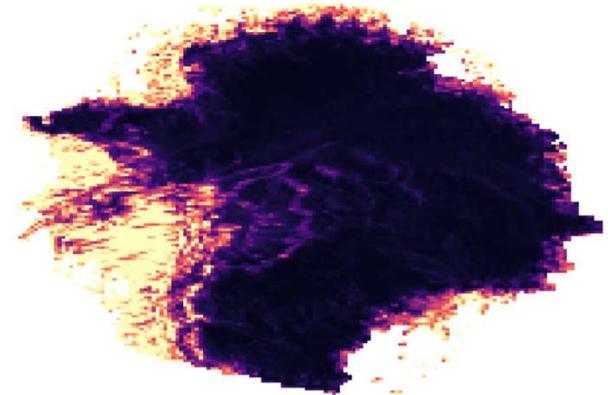
Volcano number	Longitude	Latitude	Quality index
257100	169.447	-19.532	3

## Zavodovski

- South Sandwich Islands – island chain east of gap between Argentina and Antarctica
- Lots of noise
- Probably messy due to glaciation
- First/last change 2019-01
- 50"



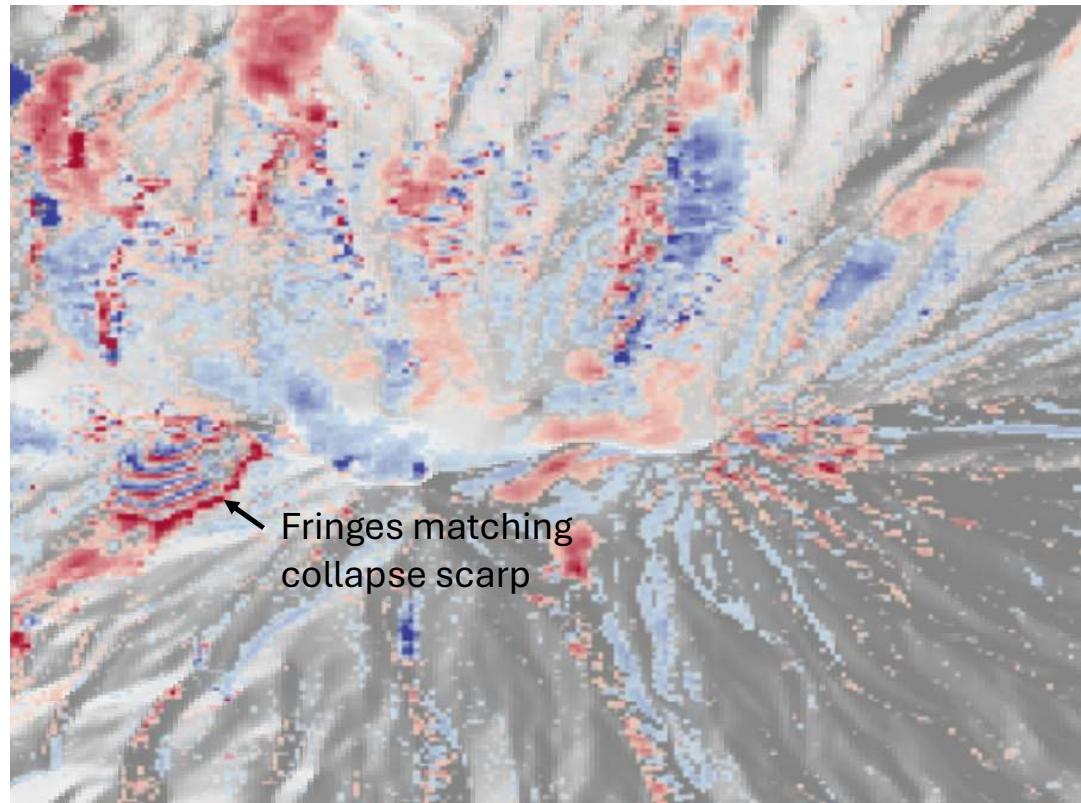
Height Accuracy Indicator (HAI) →  
(yellow = bad)



Volcano number	Longitude	Latitude	Quality index
390130	-27.57	-56.3	snow

## Zhupanovsky

- Kamchatka, Russia
- Nothing really visible
- Ash clouds only
- First change 2018-07
- Last change 2019-10
- 50"



Volcano number	Longitude	Latitude	Quality index
300120	159.15	53.589	2

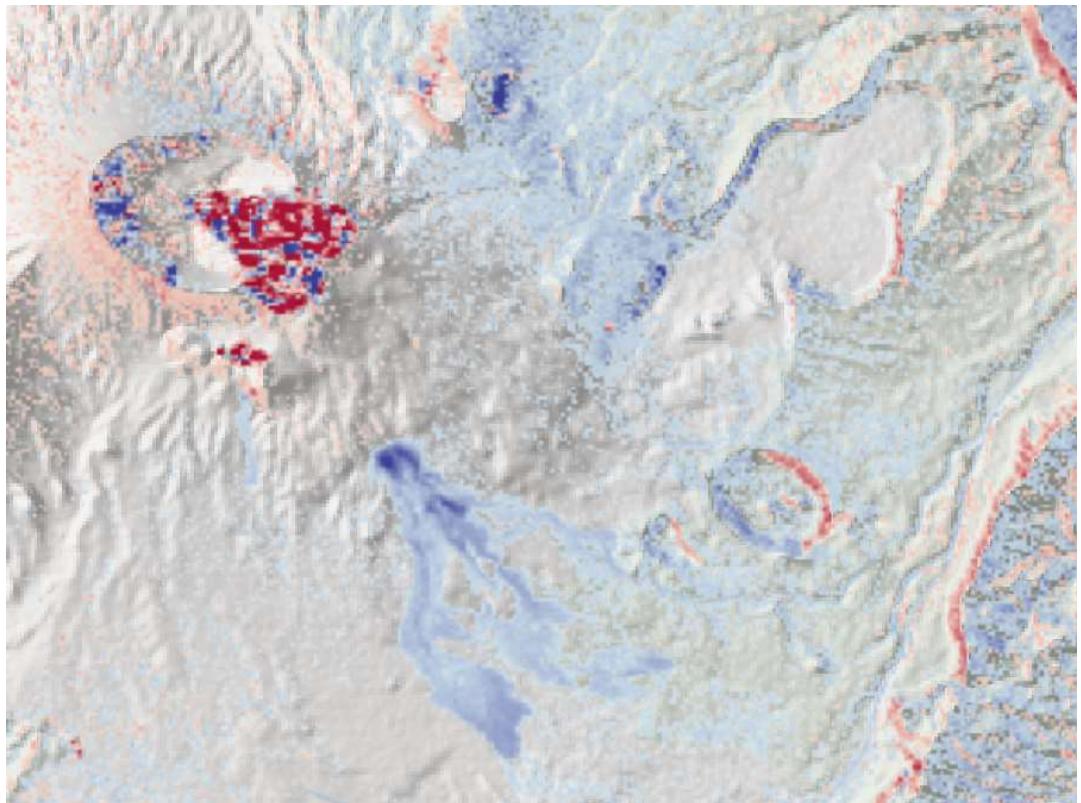
## Other volcanoes in the DCM

Volcanoes shown after this point were not included in the global statistics quoted in the main manuscript, though may occasionally be mentioned as being of interest.

Listed in alphabetical order

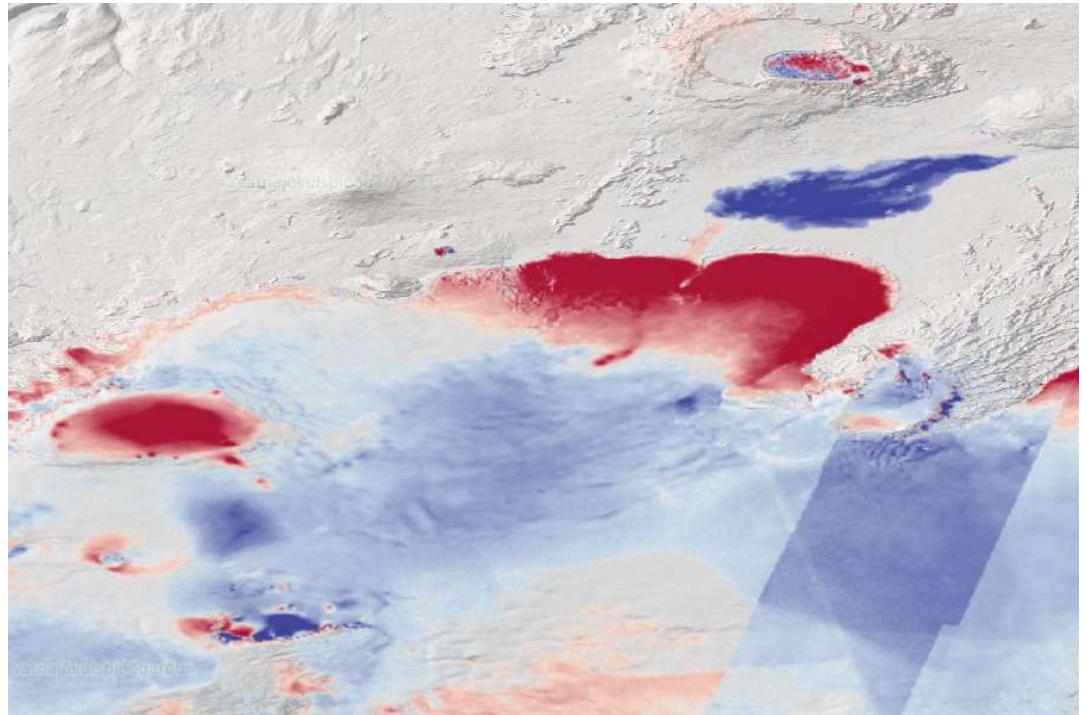
## Ambrym

- Vanuatu
- Lava flow SE flank
- Last change is mostly red, either due to subsidence or misaligned data
- Eruptions 2008-2018, 2022, 2024
- First change 2018-02
- Last change 2019-07
- 50“
  - First change →



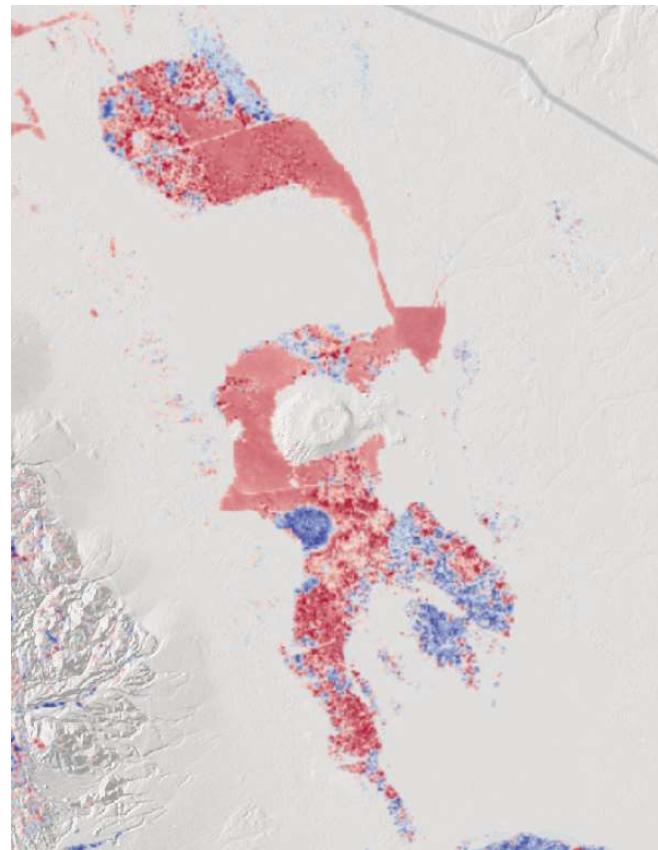
## Bárðarbunga

- Iceland
- Eruption 2014-2015
- Caldera collapse beneath ice
- Subsidence above dyke
- First change 2017-12
- Last change 2017-12/2019-06
- Lava field
- 10'



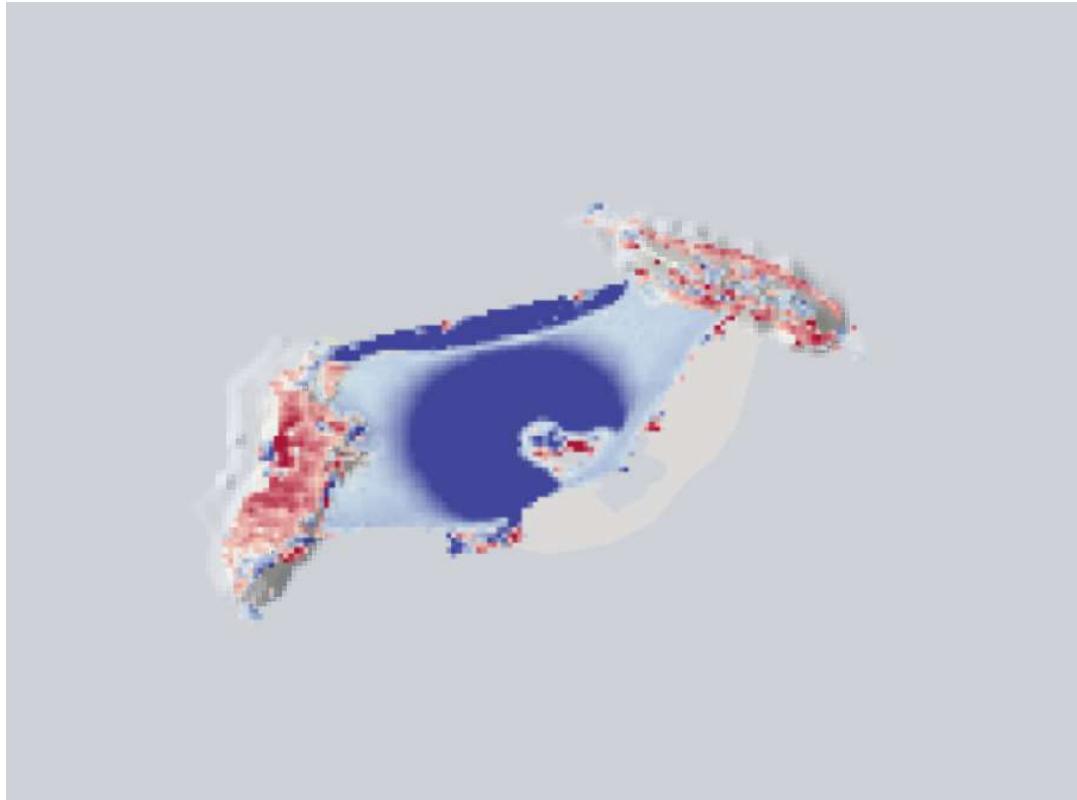
## Dallol

- Ethiopia
- Erupted January 2011
- First and last changes show different sections of outlying flow
- First change 2019-11 – covers most (but not all) of flow); 2018-04, 2019-12
- Last change 2019-11 for west half, 2019-12 for east
- 5'
- Image here shows both changes at once



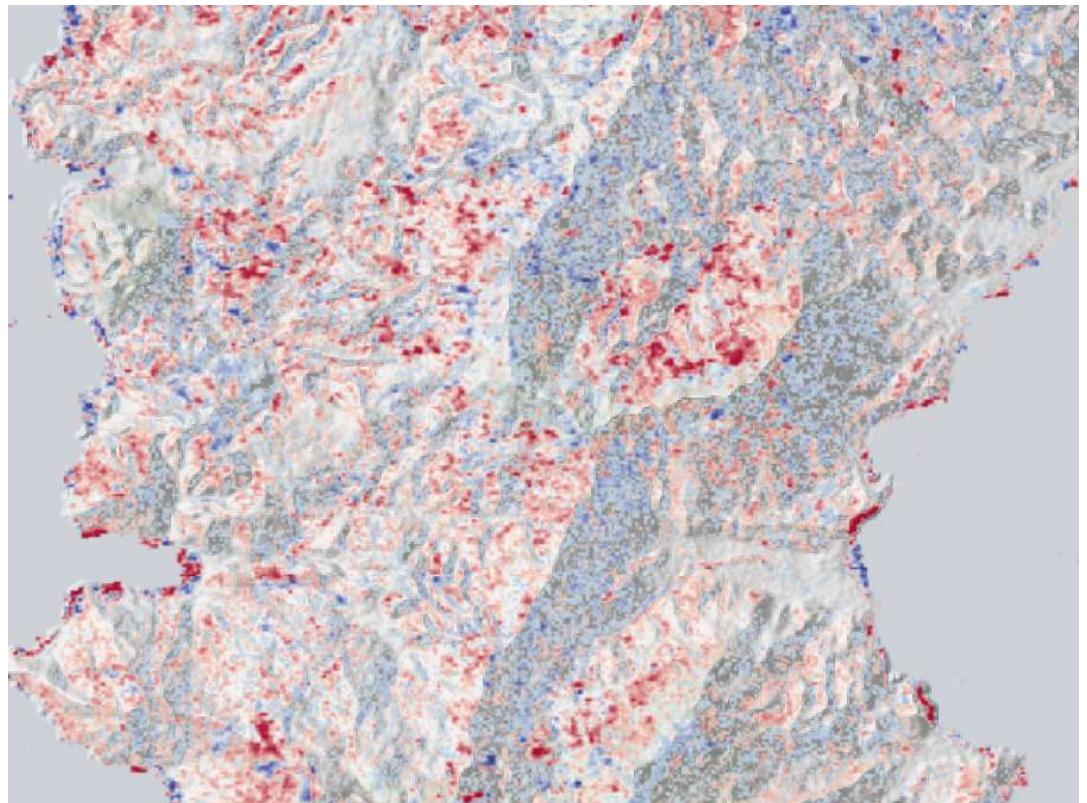
## Hunga Tonga-Hunga Ha'apai

- Tonga
- Eruptions 2014-15,  
2021-2022
- First/last change 2017-  
10
- Partially submerged  
anyway
- 2014-15 eruption seems  
to be visible
- Later eruption not  
included



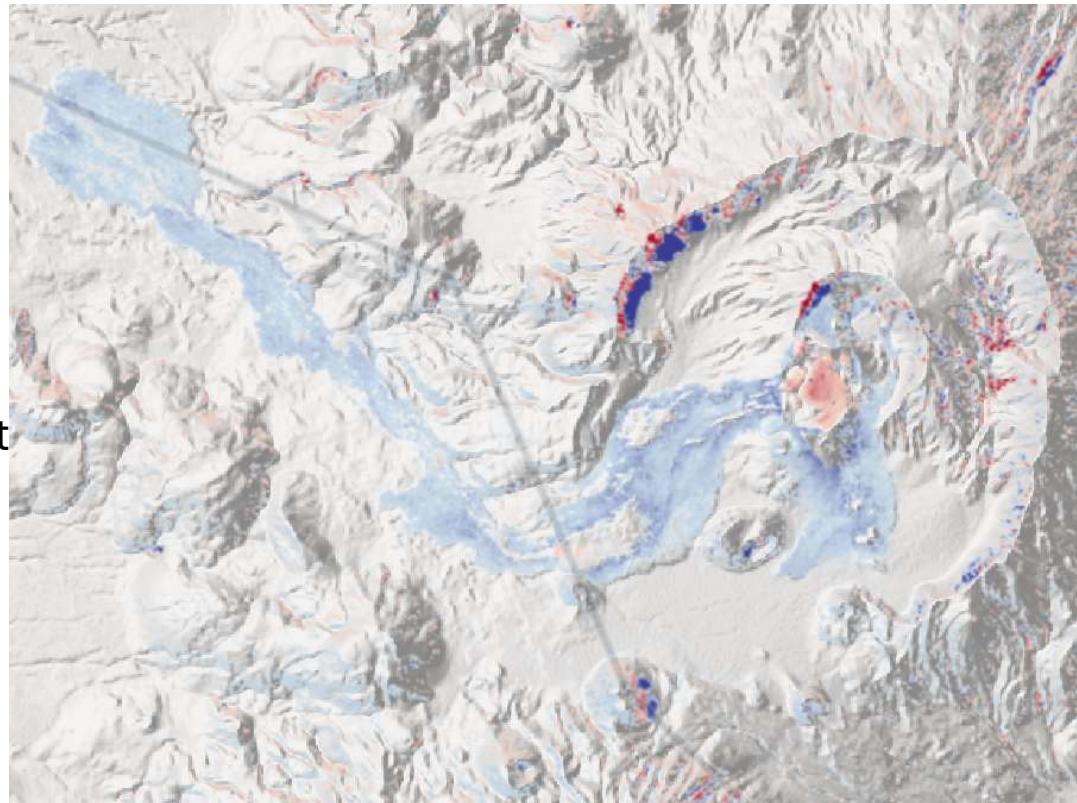
## Mayotte

- Island between Madagascar and mainland Africa
- Vegetative noise
- Erupted July 2018 – August 2019
- First change 2018-02/2019-11
- Last change 2019-11
- 50"



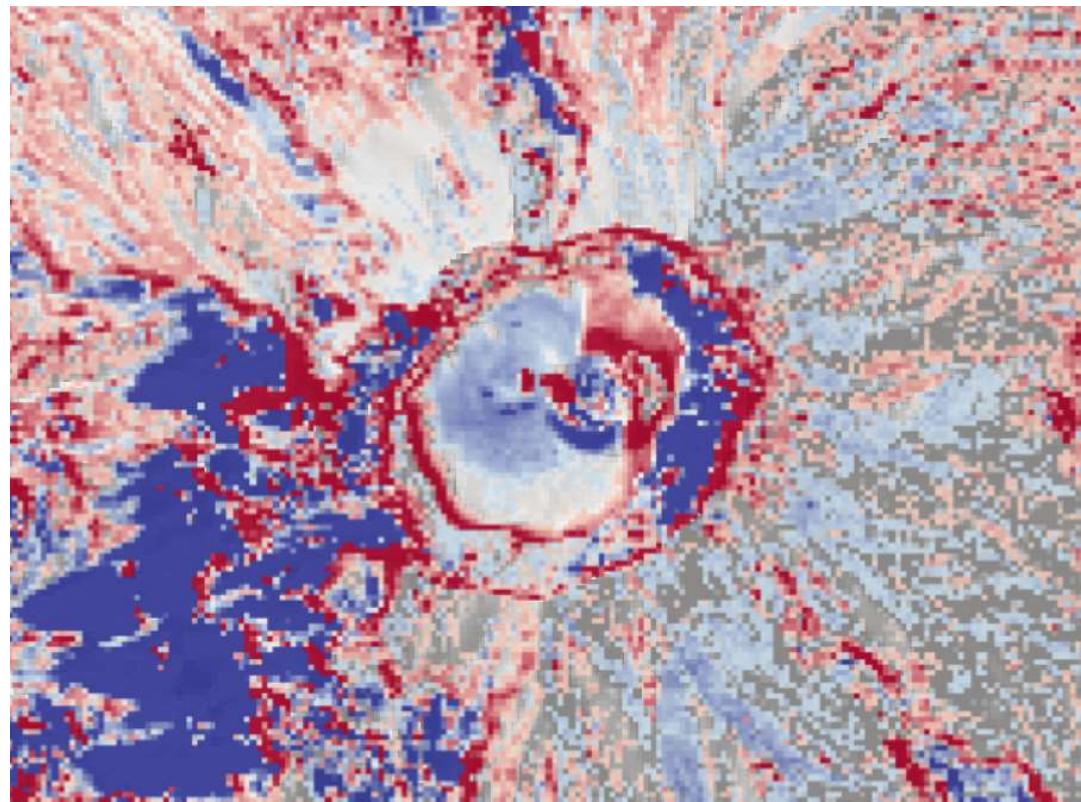
## Nabro

- Eritrea (bordering Ethiopia)
- Eruption 2011-2012
- First change 2018-02/2018-03
- Last change same dates, but larger proportion is 2018-03
- Flows actually seem to follow preexisting topography, suggests some of the change may be included in DEM



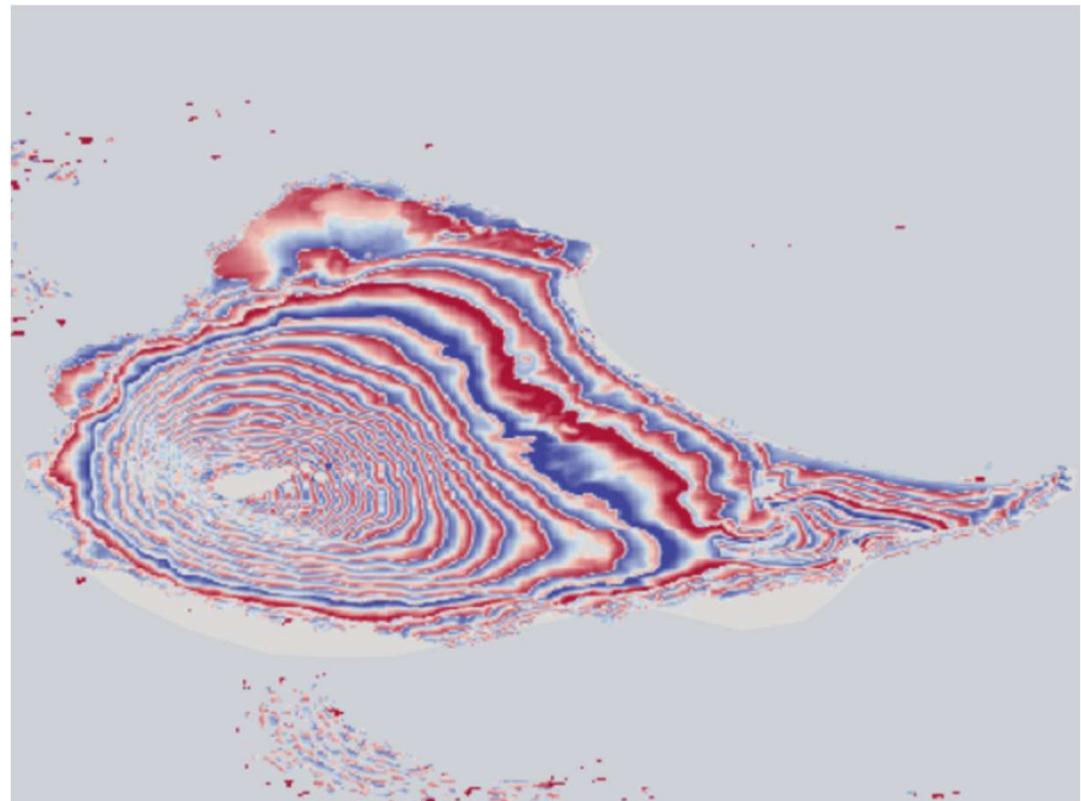
# Raung

- Java, Indonesia
- Eruptions 2012-2013, 2013, 2014 (unconfirmed), 2014-2015, 2020, 2021, 2022
- Very noisy due to vegetation and slopes
- Appears to be lava flows within caldera,
- First change shows crater filled with blue – possible lava dome with later collapse/subsidence?
- Light blue surrounding caldera could be ash deposits
- First change 2019-02
- Last change 2021-08
- 20"



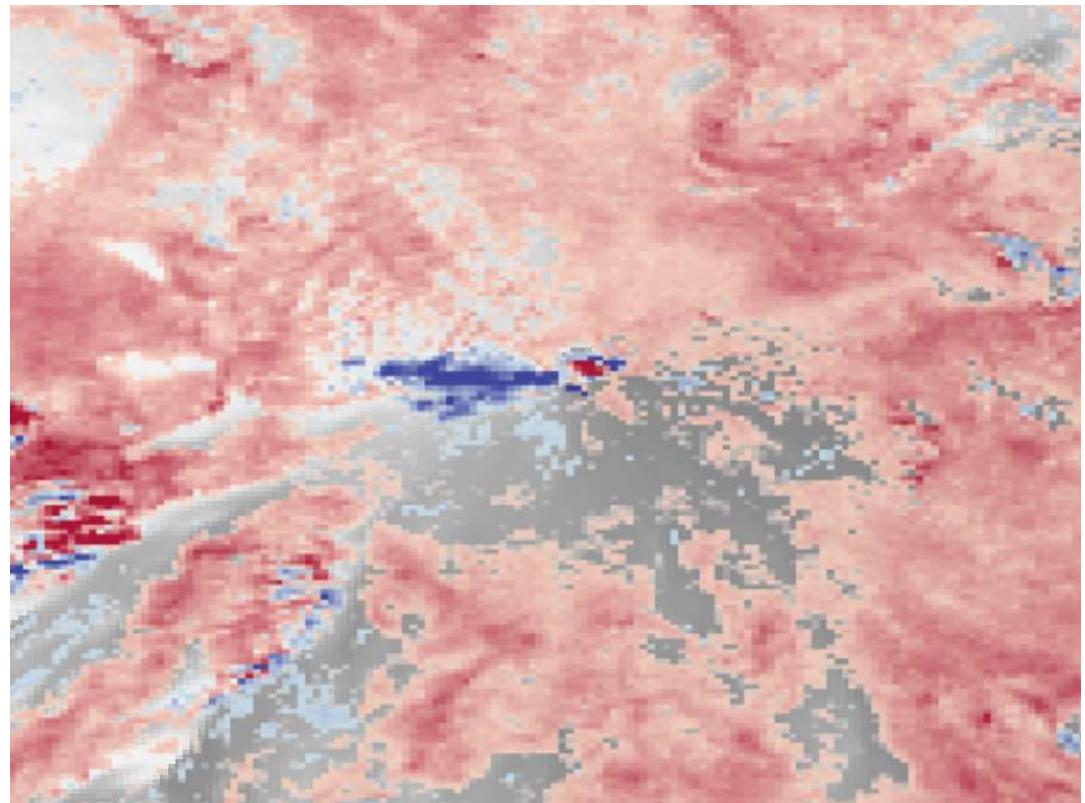
## Saunders

- South Sandwich Islands
- Eruption 2014-2025
- Appears to be processing errors, not real signal
- 2'



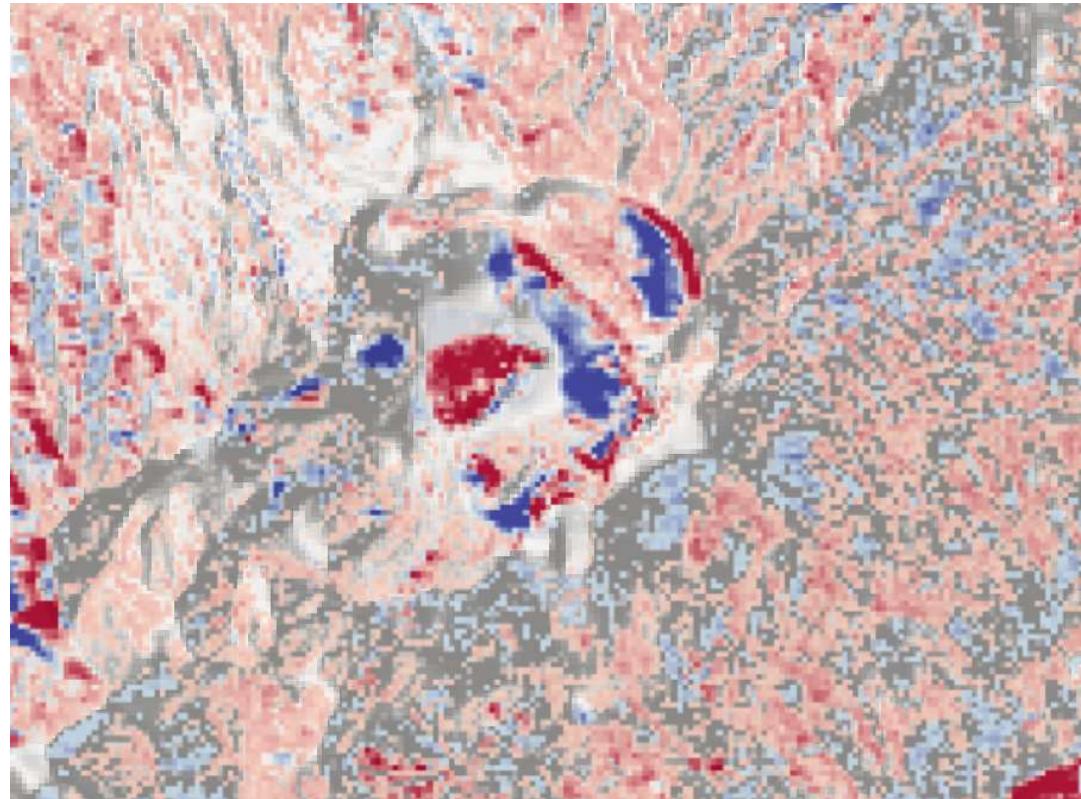
## Shishaldin

- Aleutian Islands, Alaska
- Eruptions 2014-2015, 2019-2020, 2023
- Shows lava from 2014-2015
- Lots of noise from ice cover
- Probable small lava flow
- First change 2018-01
- Last change 2019-01
- 50"



## Sirung

- Indonesia
- Eruptions 2012, 2015, 2021
- First change 2018-03
- Last change 2019-03
- 20"



## Taal

- Philippines
- Eruption 1977, Jan 2020, 2021, 2021-2022, 2024
- Not included in change period
- First change 2019-09
- Last change 2020-01
- 50"

