

ADDITIONAL FILE 2

**CATALOG OF ERUPTIVE ACTIVITY OF THE NEVADO DEL RUIZ VOLCANO
USING INFRASOUND TECHNIQUE AND REPORTED DATA BY SGC-OVSM**

Servicio Geológico Colombiano –Observatorio Vulcanológico y Sismológico de Manizales (SGC-OVSM) monitors, analyzes and reports volcanic and seismic events that occur in the Volcanic North Segment of Colombia, including Nevado del Ruiz Volcano (NRV). Since 2003, the SGC-OVSM records event catalog in a digital form.

The digital catalog consists of manually classified and identified seismic events using PROVIG software (Acevedo 2012). For each event, the catalog supplies the corresponding signal or event type, time of occurrence (local time), duration, maximum amplitude and period, frequency, and S-P and hypocenter if identified.

There are two important groups of classified signals: volcanic and non-volcanic. The categories for volcanic events are volcano-tectonic (VT), long and very long period (LP/VLP), hybrid (HB), tornillo (“screw”, TO), discrete volcanic tremor (TR), continuous volcanic tremor (TI), explosion (EX) and multiple earthquakes (SM). Non-volcanic categories are related to both surface activity, which includes avalanches or rock/snow-falls (AV) and icequakes (IC), and tectonic earthquakes, which are classified as teleseisms (DS), regional earthquakes (RE) or local (TL) earthquakes.

From the above-mentioned SGC-OVSM’s volcanic seismic event catalog at NRV, we selected events associated with observations of the volcano’s surface activity either or both by the monitoring cameras and external reports and constructed a new catalog for these confirmed eruptive events (Table S2.1). The activity included ash emission and glow. We also noted the ash plume characteristics (height, direction, density, and color), when the plume was visible. The catalog covered the period when the infrasound data was analyzed (from December 10, 2016, to November 30, 2018). The events included in the thermaly

active periods P2 (October 2016-May 2017) and P3 (September 2017-March 2018) are indicated by the orange and blue colors on the event time (UTC) in Table S2.1, respectively.

We used this eruption catalog to search infrasound signals in the data from ACOLM, ACINM, and ACRUM infrasound stations. In some cases of the volcanic earthquake events, we recognized clear infrasound signals similar to those with eruptive activity but without confirmation by cameras or reports. We listed these cases in Table S2.2. On the right-most columns of Tables S2.1 and S2.2, we represented the infrasound signal detection at each of the stations with “1” and “0” for detection and non-detection, respectively. When we recognized the infrasound signals on the filtered wave traces, we listed the peak pressure values.

Table S2.1 includes 311 confirmed eruptions, of which the monitoring cameras recorded 294 cases. Most of the eruptions are small with plume heights less than hundreds of meters above the summit. The infrasound detection tends to fail for these small eruptions (Fig. S2.1).

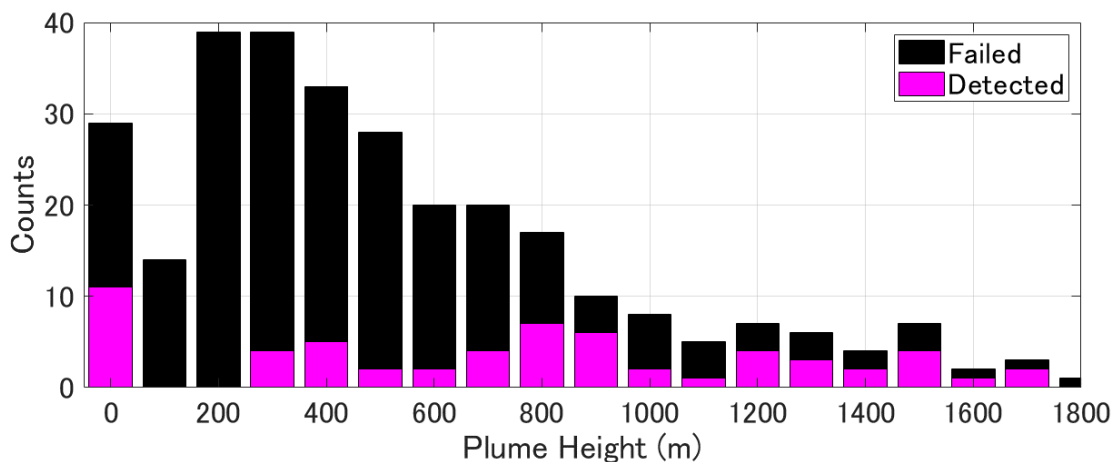


Figure S2.1. The relation of infrasound detection to the plume height for the eruptions confirmed by the cameras.

References

Acevedo, A. P. (2012). Sistema PROVIG (PROcesamiento VIGilancia volcánica). Observatorio Vulcanológico y Sismológico de Manizales – Servicio Geológico Colombiano. Reporte interno, 8 p.

Table S2.1. Confirmed eruptive events using infrasound tecnique, surveillance cameras and external reports																	
time (UTC)	time (local)	event type*	isolated event	duration (s)	mean reduced displacement (cm ²)	associated surface activity	confirmation		time of confirmation (local time)	estimated plume height (m)	color	density	direction of ash dispertion	infrasound analysis			
							cameras	external report						ACOLM	ACINM	ACRUM	Peak[Pa]
10/12/2016 11:18	10/12/2016 06:18	VLP	No	27	6.69	ash emission	X		06:19	720	light gray	low	Northwest	0	0	0	1.31
10/12/2016 13:27	10/12/2016 08:27	VLP	No	27	4.15	ash emission	X		08:28	N/A	light gray	medium	N/A	1	1	1	
12/12/2016 10:30	12/12/2016 05:30	LP	No	33	3.79	ash emission	X		05:32	390	change in tonality	change in density	West	0	0	0	
12/12/2016 14:04	12/12/2016 09:04	VLP	No	32	1.13	ash emission	X		09:07	290	light gray	low	Northwest	0	0	0	
12/12/2016 19:17	12/12/2016 14:17	LP	No	37	2.19	ash emission		X		N/A	N/A	N/A	N/A	0	0	0	
12/12/2016 22:13	12/12/2016 17:13	TR	No	56	1.63	ash emission	X		17:15	260	gray	medium	West - Northwest	0	0	0	
14/12/2016 04:57	13/12/2016 23:57	LP	No	28	1.79	ash emission	X	X	00:00	530	change in tonality	change in density	Vertical	0	0	0	
14/12/2016 14:36	14/12/2016 09:36	LP	No	40	1.63	ash emission	X	X	09:38	500	gray	medium	West	0	0	0	
14/12/2016 18:34	14/12/2016 13:34	LP	No	32	2.04	ash emission	X		13:34	250	light gray	low	N/A	0	0	0	
14/12/2016 21:24	14/12/2016 16:24	LP	No	37	2.84	ash emission	X		16:24	1200	light gray	low	West - Southwest	1	0	0	
15/12/2016 01:43	14/12/2016 20:43	LP	No	11	2.55	ash emission	X		20:46	690	change in tonality	change in density	West	1	0	0	0.17
15/12/2016 03:18	14/12/2016 22:18	LP	No	37	1.27	glow	X		22:20	N/A	N/A	N/A	West	0	0	0	
15/12/2016 09:21	15/12/2016 04:21	LP	No	37	2.89	glow and possible ash emission	X		04:21	500	change in tonality	N/A	West - Northwest	0	0	0	
15/12/2016 09:26	15/12/2016 04:26	LP	No	27	0.92	possible ash emission?	X		04:29	250	change in tonality?	N/A	West - Northwest	0	0	0	
15/12/2016 12:54	15/12/2016 07:54	LP	No	32	0.98	ash emission	X		07:56	410	very ligh gray	very low	Northwest	0	0	0	
15/12/2016 14:18	15/12/2016 09:18	LP	No	19	0.83	ash emission	X		09:20	140	very ligh gray	very low	Northwest	0	0	0	
16/12/2016 09:17	16/12/2016 04:17	LP	No	16	4.28	ash emission	X		04:17	1800	change in tonality	change in density	Vertical- after West	0	0	0	
16/12/2016 12:50	16/12/2016 07:50	LP	No	15	1.05	possible ash emission	X		07:51	130	very ligh gray	low	Southeast	0	0	0	
16/12/2016 21:29	16/12/2016 16:29	LP	No	31	2.17	ash emission	X		16:32	350	light gray	low	Southwest	0	0	0	
18/12/2016 02:39	17/12/2016 21:39	LP	No	27	2.15	glow and possible ash emission	X		21:40	N/A	N/A	N/A	N/A	0	0	0	
18/12/2016 13:13	18/12/2016 08:13	VLP	No	28	11.89	ash emission	X		08:16	220	very ligh gray	medium	South - Southwest	0	0	0	
18/12/2016 16:07	18/12/2016 11:07	LP	No	64	10.15	ash emission	X		11:08	1100	gray	medium	Vertical	0	0	0	
18/12/2016 17:16	18/12/2016 12:16	LP	Yes	20	1.08	possible ash emission?	X		12:17	540	light gray	medium	South - Southwest	0	0	0	
19/12/2016 01:39	18/12/2016 20:39	VLP	No	22	5.70	weak glow?	X		20:41	N/A	N/A	N/A	N/A	1	1	0	0.18
19/12/2016 09:04	19/12/2016 04:04	LP	No	31	5.11	glow?	X		04:05	500	change in tonality	change in density	Vertical	0	0	0	
20/12/2016 12:23	20/12/2016 07:23	LP	No	42	1.21	possible ash emission?	X		07:25	340	light gray	N/A	East - Southeast	0	0	0	
20/12/2016 15:52	20/12/2016 10:52	LP	No	37	3.35	ash emission	X	X	10:54	1600	light gray	medium	East - Southeast	1	0	0	
22/12/2016 10:55	22/12/2016 05:55	LP	No	31	9.08	ash emission	X	X	05:57	900	gray	medium	East	0	0	0	
22/12/2016 13:04	22/12/2016 08:04	LP	No	33	1.57	ash emission	X	X	08:06	340	light gray	medium	Northwest	0	0	0	
23/12/2016 13:03	23/12/2016 08:03	LP	No	11	1.51	ash emission	X		08:03	1000	light gray	medium	North-Northeast	0	0	0	
24/12/2016 04:08	23/12/2016 23:08	LP	No	13	0.41	glow	X		23:10	N/A	N/A	N/A	N/A	0	0	0	
24/12/2016 11:05	24/12/2016 06:05	VLP	No	13	1.52	ash emission	X		06:07	480	gray	high	N/A	0	0	0	
26/12/2016 10:55	26/12/2016 05:55	LP	No	30	1.91	ash emission	X		05:56	500	light brown	medium to low	Southwest	0	0	0	
26/12/2016 22:58	26/12/2016 17:58	LP	No	23	0.86	ash emission	X		17:59	750	light gray	medium	West	0	0	0	
27/12/2016 22:53	27/12/2016 17:53	LP	No	28	1.84	ash emission	X		17:54	530	gray to dark gray	medium	N/A	0	0	0	
28/12/2016 11:44	28/12/2016 06:44	TR	No	41	2.51	ash emission	X		06:45	800	brown	medium	South	1	1	0	0.47
29/12/2016 12:49	29/12/2016 07:49	LP	No	28	3.14	ash emission	X		07:51	500	light gray	medium to low	South	1	0	1	
30/12/2016 13:55	30/12/2016 08:55	TR	Yes	71	3.19	ash emission	X	X	08:56	500	light gray	medium to low	Northwest	0	0	0	
31/12/2016 14:10	31/12/2016 09:10	TR	Yes	138	1.51	ash emission	X	X	09:13	720	gray	medium	North-Northwest	0	0	0	
01/01/2017 11:19	01/01/2017 06:19	TR	Yes	320	0.89	ash emission	X		06:23	370	brown	medium	Vertical	0	0	0	
01/01/2017 15:01	01/01/2017 10:01	TR	No	413	1.21	ash emission	X	X	10:05	400**	light gray	medium to low	West	0	0	0	
01/01/2017 16:21	01/01/2017 11:21	LP	No	28	1.39	ash emission		X		N/A	N/A	N/A	West	0	0	0	
01/01/2017 21:04	01/01/2017 16:04	LP	No	32	2.57	ash emission	X	X	16:00	1200	gray	medium to high	N/A	1	0	0	1.38
02/01/2017 13:13	02/01/2017 08:13	VLP	No	43	8.52	ash emission	X	X	08:16	480	gray	medium to high	West - Southwest	1	0	0	
02/01/2017 22:30	02/01/2017 17:30	TR	No	34	0.94	ash emission	X		17:34	400	brown	medium	Northwest	0	0	0	
02/01/2017 22:35	02/01/2017 17:35	LP	No	17	0.73	ash emission	X		17:38	350	brown	medium	Northwest	0	0	0	
02/01/2017 23:38	02/01/2017 18:38	LP	Yes	22	0.95	possible ash emission?	X		18:38	170	N/A	change in density	Northwest	0	0	0	
03/01/2017 12:41	03/01/2017 07:41	LP	No	35	1.66	ash emission	X		07:43	200	gray	medium	West	1	0	0	
03/01/2017 13:28	03/01/2017 08:28	TR	No	122	2.45	ash emission	X	X	08:30	400	dark gray	high	West	1	1	0	0.29
04/01/2017 04:14	03/01/2017 23:14	LP	No	54	8.77	ash emission	X		23:17	350**	change in tonality	change in density	Northeast	1	1	1	
04/01/2017 12:59	04/01/2017 07:59	LP	No	35	1.49	possible ash emission?	X		08:00	420	gray	medium	Northeast	0	0	0	
04/01/2017 13:42	04/01/2017 08:42	VLP	No	23	3.28	ash emission	X	X	08:43	970	gray	medium	Northeast	1	1	0	
04/01/2017 14:17	04/01/2017 09:17	LP	No	39	2.25	ash emission	X		09:18	660	gray	low	Northeast	1	0	0	
04/01/2017 22:24	04/01/2017 17:24	VLP	No	27	3.16	ash emission	X		17:28	650	gray	medium	Northeast	0	0	0	

time (UTC)	time (local)	event type*	isolated event	duration (s)	mean reduced displacement (cm ²)	associated surface activity	confirmation		time of confirmation (local time)	estimated plume height (m)	color	density	direction of ash dispersion	infrasound analysis			
							cameras	external report						ACOLM	ACINM	ACRUM	Peak[Pa]
05/01/2017 03:57	04/01/2017 22:57	TR	Yes	385	6.13	glow and observation of glowing material at Arenas crater boundary (Azufrado canyon)	X		22:59	357	N/A	N/A	Northeast	1	1	1	0.49
05/01/2017 08:32	05/01/2017 03:32	TR	No	166	4.08	glow and glowing material at plume	X		03:33	N/A	N/A	N/A	Northeast	1	0	0	
06/01/2017 02:25	05/01/2017 21:25	LP	No	52	3.41	glow	X		21:26	N/A	N/A	N/A	N/A	0	0	0	
06/01/2017 10:55	06/01/2017 05:55	LP	No	30	1.91	ash emission	X		05:56	250	light gray	low	East - Southeast	0	0	0	
06/01/2017 14:35	06/01/2017 09:35	TR	Yes	370	4.66	ash emission	X	X	09:36	1200	dark gray	high	Southeast	1	1	1	0.77
08/01/2017 12:44	08/01/2017 07:44	TR	No	354	3.84	ash emission	X		07:47	1170	gray	high	South - Southwest	1	1	0	0.24
08/01/2017 12:53	08/01/2017 07:53	TR	No	30	0.48	ash emission	X		07:55	790	gray	high	South - Southwest	0	0	0	
08/01/2017 21:42	08/01/2017 16:42	LP	No	26	5.32	ash emission	X		16:45	700	gray	medium	Northwest	0	0	0	
10/01/2017 12:45	10/01/2017 07:45	TR	Yes	71	1.23	ash emission	X		07:47	200	light gray	medium	Southeast	0	0	0	
11/01/2017 23:07	11/01/2017 18:07	TR	Yes	142	2.40	ash emission	X		18:10	1050	light gray	medium	Southwest	0	1	0	
12/01/2017 21:42	12/01/2017 16:42	LP	No	33	0.41	ash emission	X		16:44	420	light gray	medium	Southeast	0	0	0	
13/01/2017 05:02	13/01/2017 00:02	VLP	No	32	3.74	ash emission	X		00:03	1400	change in tonality	change in density	Vertical	1	1	1	0.60
13/01/2017 20:21	13/01/2017 15:21	TR	No	40	2.89	ash emission		X		N/A	N/A	N/A	N/A	1	1	0	0.41
14/01/2017 14:13	14/01/2017 09:13	LP	No	10	1.77	ash emission	X		09:14	1380	dark gray	high	Southeast	0	0	0	
14/01/2017 14:19	14/01/2017 09:19	TR	No	52	0.46	ash emission	X		09:20	480	gray	medium	Southeast	0	0	0	
14/01/2017 14:55	14/01/2017 09:55	TR	No	41	1.14	ash emission	X		09:57	300	gray	medium	Southeast	0	0	0	
14/01/2017 16:20	14/01/2017 11:20	TR	No	42	0.65	ash emission	X		11:22	450	gray	medium	Southeast	0	0	0	
14/01/2017 20:01	14/01/2017 15:01	TR	No	78	2.32	ash emission	X		15:09	N/A	brown	N/A	Southwest	0	0	0	
15/01/2017 11:05	15/01/2017 06:05	TR	No	41	2.70	ash emission	X		06:06	740	brown	medium	Southeast	0	0	0	
15/01/2017 12:22	15/01/2017 07:22	TR	No	71	0.54	ash emission (very low contained of ash)	X		07:23	300	very light gray	medium	Southeast	0	0	0	
16/01/2017 11:43	16/01/2017 06:43	TR	No	47	1.64	ash emission	X		06:44	320	brown	high	Southeast	0	0	0	
16/01/2017 22:50	16/01/2017 17:50	LP	No	37	1.42	ash emission	X		17:51	100	brown	medium	Northeast	0	0	0	
17/01/2017 15:54	17/01/2017 10:54	LP	No	117	2.64	ash emission	X		10:56	200**	gray	medium	East - Southeast	0	0	0	
19/01/2017 10:18	19/01/2017 05:18	TR	No	134	11.27	ash emission		X		N/A	N/A	change in density	N/A	1	1	1	
19/01/2017 12:34	19/01/2017 07:34	TR	No	311	0.90	Possible ash emission	X		07:35	160	gray	medium -high	Northeast	0	0	0	
19/01/2017 14:26	19/01/2017 09:26	TR	No	121	3.68	ash emission	X		09:27	1500	gray	high	West - Southwest	1	1	1	0.48
20/01/2017 13:46	20/01/2017 08:46	LP	No	18	0.90	ash emission	X		08:47	270	light gray	medium	Northeast	0	0	0	
20/01/2017 15:04	20/01/2017 10:04	LP	No	13	0.39	ash emission	X		10:06	740	dark brown	medium	East - Northeast	0	0	0	
21/01/2017 17:19	21/01/2017 12:19	TR	Yes	59	0.38	ash emission	X		12:21	450	light gray	medium	Southwest	0	0	0	
21/01/2017 17:32	21/01/2017 12:32	TR	Yes	501	0.62	ash emission	X	X	12:33	1300	gray	medium	Southwest	0	0	0	
22/01/2017 11:31	22/01/2017 06:31	TR	No	51	2.27	ash emission	X		06:31	1550	brown	high	Southwest	0	0	0	
22/01/2017 12:53	22/01/2017 07:53	LP	No	31	3.96	ash emission	X	X	07:51	1550	gray	high	Southwest	1	0	1	0.63
22/01/2017 12:56	22/01/2017 07:56	TR	Yes	426	0.57	ash emission	X		07:58	400	gray	medium	Southwest	0	0	0	
22/01/2017 14:53	22/01/2017 09:53	LP	No	29	1.15	ash emission	X		09:54	400	very light gray	medium- low	Southwest	0	0	0	
22/01/2017 14:55	22/01/2017 09:55	TR	No	552	0.91	ash emission	X		09:57	120	gray	high	Southwest	0	0	0	
22/01/2017 20:06	22/01/2017 15:06	TR	Yes	507	0.34	ash emission	X		15:07	650	gray	medium	South - Southwest	0	0	0	
23/01/2017 13:29	23/01/2017 08:29	LP	No	34	3.19	ash emission	X		08:30	600	light gray	medium	Vertical	1	0	0	0.19
23/01/2017 14:19	23/01/2017 09:19	TR	No	126	1.37	ash emission	X		09:19	550	light gray	medium	Northeast	1	1	1	0.27
23/01/2017 14:52	23/01/2017 09:52	TR	Yes	52	0.56	ash emission	X		09:54	250	very light gray	low	Northwest	1	0	0	
23/01/2017 16:49	23/01/2017 11:49	TR	No	302	2.88	ash emission	X		11:50	1730	dark gray	high	Northwest	1	0	1	0.83
23/01/2017 22:48	23/01/2017 17:48	TR	No	74	3.51	ash emission	X		17:53	1500**	light gray	medium	South - Southwest	1	0	0	
24/01/2017 05:25	24/01/2017 00:25	LP	No	34	3.65	glow	X		00:26	N/A	N/A	N/A	N/A	0	1	1	
24/01/2017 13:52	24/01/2017 08:52	LP	No	33	1.04	ash emission	X		08:53	780	light brown	low	Southwest	0	0	0	
25/01/2017 11:11	25/01/2017 06:11	LP	No	37	4.93	ash emission	X		06:13	800	N/A	change in density	Southeast	1	0	0	
25/01/2017 11:52	25/01/2017 06:52	LP	No	30	1.93	ash emission	X		06:54	280	N/A	change in density	Southeast	0	0	0	
25/01/2017 17:15	25/01/2017 12:15	TR	No	201	1.76	ash emission	X		12:16	450	light gray	medium	Southwest	0	0	0	
25/01/2017 23:33	25/01/2017 18:33	LP	No	37	1.70	ash emission	X		18:34	450	brown	medium	West - Southwest	0	0	0	
28/01/2017 12:03	28/01/2017 07:03	TR	Yes	141	1.87	ash emission	X	X	07:04	490	gray	medium	West	0	0	0	
29/01/2017 12:37	29/01/2017 07:37	LP	No	31	1.20	ash emission	X		07:38	270	gray	medium	Northwest	0	0	0	
29/01/2017 16:29	29/01/2017 11:29	TR	No	101	2.71	ash emission		X	12:00	N/A	N/A	N/A	N/A	0	0	0	
29/01/2017 23:04	29/01/2017 18:04	LP	No	27	2.38	ash emission	X		18:04	800	brown	medium	Northeast	0	1	1	
30/01/2017 22:22	30/01/2017 17:22	LP	No	18	1.55	ash emission	X		17:23	750	gray	medium	Northwest	0	0	0	
31/01/2017 12:33	31/01/2017 07:33	VLP	No	39	4.04	ash emission	X		07:34	1300	gray	medium to high	Southwest	1	0	1	1.32
02/02/2017 10:50	02/02/2017 05:50	TR	No	42	2.08	ash emission	X		05:50	300	gray	medium	Southwest	1	0	0	0.29
02/02/2017 21:37	02/02/2017 16:37	LP	No	16	4.51	ash emission	X		16:39	1200	gray	medium	Northwest	1	1	1	0.30

time (UTC)	time (local)	event type*	isolated event	duration (s)	mean reduced displacement (cm ²)	associated surface activity	confirmation		time of confirmation (local time)	estimated plume height (m)	color	density	direction of ash dispersion	infrasound analysis			
							cameras	external report						ACOLM	ACINM	ACRUM	Peak[Pa]
02/02/2017 23:07	02/02/2017 18:07	TR	No	69	1.64	ash emission	X		18:08	800	gray	medium	Northwest	1	0	1	0.25
03/02/2017 02:00	02/02/2017 21:00	LP	No	27	3.00	glow and glowing material at summit boundary (Azufrado canyon)	X		21:01	N/A	N/A	N/A	N/A	1	1	1	0.76
03/02/2017 10:53	03/02/2017 05:53	VLP	No	21	2.68	ash emission	X		05:55	700	light gray	medium	North - Northwest	0	0	0	
03/02/2017 12:12	03/02/2017 07:12	LP	No	23	1.80	ash emission	X		07:13	670	light gray	medium	Northwest	0	1	1	
04/02/2017 12:48	04/02/2017 07:48	LP	No	22	2.83	ash emission	X	X	07:49	320	light gray	medium	Northwest	1	1	0	0.16
04/02/2017 18:06	04/02/2017 13:06	TR	No	43	3.95	ash emission	X		13:08	700	light gray	medium	West - Northwest	0	0	0	
04/02/2017 23:35	04/02/2017 18:35	LP	No	21	2.74	ash emission	X		18:36	650	change in tonality	medium	Northwest	0	0	0	
05/02/2017 14:00	05/02/2017 09:00	LP	No	28	9.81	ash emission	X		09:01	500	light brown	low	West - Northwest	0	0	0	
06/02/2017 16:19	06/02/2017 11:19	LP	No	43	1.58	ash emission	X		11:21	650	gray	medium to high	Northwest	0	0	0	
06/02/2017 21:46	06/02/2017 16:46	VLP	No	25	3.48	ash emission	X		16:48	750	light brown	medium	West	0	0	0	
07/02/2017 11:58	07/02/2017 06:58	LP	No	27	1.08	ash emission	X		06:59	320	gray	medium to low	Northwest	0	0	0	
07/02/2017 13:21	07/02/2017 08:21	VLP	No	17	1.51	ash emission	X		08:22	250	light gray	medium	Northwest	0	0	0	
07/02/2017 22:59	07/02/2017 17:59	LP	No	33	1.03	ash emission	X	X	18:00	230	brown	medium	South - Southwest	0	0	0	
08/02/2017 10:17	08/02/2017 05:17	LP	No	40	2.55	glow	X		05:17	N/A	N/A	N/A	West	0	0	0	
08/02/2017 12:00	08/02/2017 07:00	TR	No	94	3.47	ash emission	X	X	07:01	760	brown	medium to high	Southwest	0	0	0	
08/02/2017 16:27	08/02/2017 11:27	TR	Yes	98	0.52	ash emission	X	X	11:29	250	light gray	medium to low	Southwest	0	0	0	
08/02/2017 19:33	08/02/2017 14:33	TR	Yes	73	0.72	ash emission	X		14:35	350	light gray	medium to low	West	0	0	0	
09/02/2017 07:22	09/02/2017 02:22	LP	No	36	1.82	glow, glow material?, ash emission	X		02:23	N/A	N/A	N/A	N/A	1	0	0	0.59
09/02/2017 10:48	09/02/2017 05:48	TR	No	98	0.83	ash emission	X		05:49	650	change in tonality	medium	Southwest	1	0	0	
09/02/2017 11:52	09/02/2017 06:52	LP	No	31	0.69	ash emission	X		06:52	N/A	very light gray	N/A	Southwest	0	0	0	
09/02/2017 15:05	09/02/2017 10:05	TR	No	60	1.43	ash emission	X	X	10:06	980	gray	medium to low	Southwest	0	0	0	
09/02/2017 15:42	09/02/2017 10:42	TR	No	48	1.29	ash emission	X		10:43	450	gray	medium to low	Southwest	0	0	0	
09/02/2017 19:45	09/02/2017 14:45	TR	Yes	371	4.25	ash emission	X		14:47	N/A	gray	N/A		1	1	1	0.48
10/02/2017 01:20	09/02/2017 20:20	TR	No	85	1.85	weak glow	X		20:21	N/A	N/A	N/A	N/A	1	0	1	0.52
10/02/2017 08:10	10/02/2017 03:10	TR	No	75	0.79	possible ash emission	X		03:11	900	change in tonality	N/A		1	0	1	0.15
10/02/2017 12:48	10/02/2017 07:48	TR	No	81	1.23	ash emission	X		07:49	630	gray	medium to high	Southeast	1	0	1	0.43
11/02/2017 03:40	10/02/2017 22:40	TR	No	61	1.70	possible ash emission	X		22:42	600	change in tonality	change in density	Southeast	1	0	0	0.22
11/02/2017 11:17	11/02/2017 06:17	TR	Yes	90	0.78	ash emission	X		06:18	250	light brown	low	Southeast	0	0	0	
13/02/2017 11:01	13/02/2017 06:01	LP	No	10	1.48	ash emission	X		06:02	150	light gray	low	Northeast	0	0	0	
13/02/2017 14:23	13/02/2017 09:23	TR	No	441	1.29	ash emission	X		09:24	200	gray	medium to low	North-Northeast	0	0	0	
13/02/2017 22:09	13/02/2017 17:09	TR	No	289	6.11	ash emission		X	20:00	N/A	N/A	N/A		1	1	1	
14/02/2017 11:37	14/02/2017 06:37	TR	No	56	1.20	ash emission	X		06:38	250	light brown	low	East - Northeast	0	0	0	
15/02/2017 17:46	15/02/2017 12:46	TR	No	127	2.44	ash emission	X		12:46	380	light gray	medium	East - Southeast	0	0	0	
15/02/2017 23:49	15/02/2017 18:49	LP	No	31	3.04	possible ash emission?	X		18:49	450	N/A	change in density	East - Northeast	0	0	0	
16/02/2017 11:09	16/02/2017 06:09	LP	No	32	1.03	ash emission	X		06:11	250	light brown	low	East	0	0	0	
16/02/2017 12:59	16/02/2017 07:59	LP	No	27	1.58	ash emission	X		08:00	190	very light gray	low	East - Northeast	0	0	0	
16/02/2017 15:10	16/02/2017 10:10	LP	No	37	2.42	ash emission	X		10:11	400	gray	medium	East - Northeast	0	0	0	
17/02/2017 13:10	17/02/2017 08:10	LP	No	29	1.36	ash emission	X		08:11	800	light gray	medium	Vertical	0	0	0	
17/02/2017 13:14	17/02/2017 08:14	LP	No	27	0.57	ash emission	X		08:15	1400	light gray	medium	Vertical	0	0	0	
18/02/2017 10:48	18/02/2017 05:48	LP	No	31	1.30	ash emission	X		05:49	1200	change in tonality	medium to low	Northwest	0	0	0	
18/02/2017 23:23	18/02/2017 18:23	TR	Yes	106	0.86	ash emission	X		18:26	600	light gray	medium to low	Northwest	0	0	0	
19/02/2017 12:21	19/02/2017 07:21	LP	No	33	1.11	possible ash emission?	X		07:22	100	very light gray	low	Northwest	0	0	0	
19/02/2017 17:40	19/02/2017 12:40	LP	No	29	1.71	ash emission		X	13:06	N/A	N/A	N/A		0	0	0	
21/02/2017 02:33	20/02/2017 21:33	TR	No	57	0.75	glow	X		21:34	N/A	N/A	N/A		0	0	0	
21/02/2017 11:47	21/02/2017 06:47	TR	No	59	2.54	ash emission	X		06:48	600	very light gray	medium to low	Northwest	0	0	0	
23/02/2017 03:36	22/02/2017 22:36	LP	No	56	2.49	glow	X		22:36	N/A	N/A	N/A	N/A	1	0	1	0.23
23/02/2017 18:02	23/02/2017 13:02	LP	No	15	1.47	ash emission		X		N/A	N/A	N/A		0	0	0	
25/02/2017 07:39	25/02/2017 02:39	TR	No	123	4.09	weak glow?	X		02:39	N/A	N/A	N/A	N/A	1	1	1	0.36
26/02/2017 00:55	25/02/2017 19:55	TR	Yes	179	3.13	possible ash emission?	X		19:56	N/A	N/A	N/A	N/A	0	0	0	
26/02/2017 14:04	26/02/2017 09:04	TR	No	159	2.13	ash emission	X		09:05	1300	gray	medium to high	Northwest	0	0	1	
27/02/2017 12:03	27/02/2017 07:03	TR	No	321	0.72	ash emission	X		07:04	550	gray	medium	Southwest	0	0	0	
28/02/2017 11:17	28/02/2017 06:17	TR	No	57	1.46	ash emission	X		06:18	110	light brown	medium to low	Southwest	0	0	0	
28/02/2017 13:17	28/02/2017 08:17	TR	No	336	4.45	ash emission	X		08:18	1420	gray to dark gray	high	Southwest	1	0	1	0.88
01/03/2017 11:19	01/03/2017 06:19	LP	No	29	5.20	ash emission	X		06:20	1200	light gray	medium	Southeast	1	1	0	0.20
01/03/2017 11:49	01/03/2017 06:49	LP	No	42	2.31	ash emission	X		06:50	420	light gray	medium	Southeast	0	0	0	

time (UTC)	time (local)	event type*	isolated event	duration (s)	mean reduced displacement (cm ²)	associated surface activity	confirmation		time of confirmation (local time)	estimated plume height (m)	color	density	direction of ash dispersion	infrasound analysis			
							cameras	external report						ACOLM	ACINM	ACRUM	Peak[Pa]
04/03/2017 11:40	04/03/2017 06:40	LP	No	47	4.26	ash emission	X		06:41	770	light brown	medium to low	Northwest	1	1	0	0.10
05/03/2017 00:38	04/03/2017 19:37	TR	No	106	5.24	glow?	X		23:04	N/A	N/A	N/A	N/A	0	0	1	
05/03/2017 11:02	05/03/2017 06:02	TR	Yes	153	1.71	ash emission	X		06:03	700	gray	medium to high	West - Southwest	1	1	1	0.88
05/03/2017 11:34	05/03/2017 06:34	TR	No	61	0.84	ash emission	X		06:37	300	gray	low	West - Southwest	1	0	0	0.33
05/03/2017 13:01	05/03/2017 08:01	TR	No	40	0.33	ash emission	X		08:03	250	light gray	low	Southwest	0	0	0	
05/03/2017 13:11	05/03/2017 08:11	LP	No	13	0.39	ash emission	X		08:12	200	light gray	low	Southwest	0	0	0	
05/03/2017 20:56	05/03/2017 15:56	TR	No	171	2.68	ash emission	X		16:01	2700**	light gray	N/A	East - Northeast	1	1	1	0.84
05/03/2017 23:07	05/03/2017 18:07	TR	No	71	1.25	ash emission	X		18:09	800	brown to light brown	medium to low	Southeast	0	0	0	
05/03/2017 23:15	05/03/2017 18:15	LP	No	15	0.55	ash emission	X		18:16	550	brown to light brown	low	Southeast	0	0	0	
06/03/2017 05:24	06/03/2017 00:24	LP	No	17	1.12	possible ash emission?	X		00:00	N/A	N/A	N/A	N/A	1	0	1	0.18
06/03/2017 14:41	06/03/2017 09:41	LP	No	28	2.18	ash emission	X		09:44	1000	light gray	medium to low	North	0	0	0	
09/03/2017 11:59	09/03/2017 06:59	LP	No	23	4.41	ash emission	X		07:00	1100	light gray	medium to low	North-Northeast	0	0	1	
10/03/2017 07:05	10/03/2017 02:05	LP	No	19	2.21	possible ash emission?	X	X	02:05	1700**	N/A	N/A	East	0	0	0	
11/03/2017 11:24	11/03/2017 06:24	TR	No	241	4.22	ash emission	X		06:25	1700	brown	medium	Northwest	1	1	1	0.32
11/03/2017 15:42	11/03/2017 10:42	TR	No	42	3.76	ash emission	X		10:43	540	gray	medium to low	Northwest	0	0	0	
16/03/2017 14:32	16/03/2017 09:32	LP	No	34	2.97	ash emission	X	X	09:34	840	gray	medium	West - Northwest	0	0	0	
17/03/2017 14:59	17/03/2017 09:59	LP	No	21	1.52	ash emission	X		10:02	640	gray	N/A	West - Southwest	0	0	0	
17/03/2017 23:26	17/03/2017 18:26	LP	No	48	3.18	ash emission	X		18:27	840	brown	medium	West - Northwest	1	1	1	0.41
18/03/2017 12:40	18/03/2017 07:40	LP	No	38	2.78	ash emission	X		07:41	500	light gray to very light gray	medium	Northwest	1	0	0	0.14
23/03/2017 11:18	23/03/2017 06:18	TR	No	79	0.50	ash emission	X		06:21	270	very light gray	medium to low	Northwest	0	0	0	
23/03/2017 12:20	23/03/2017 07:20	TR	Yes	188	0.78	ash emission	X		07:23	300	light gray	medium to low	Northwest	1	1	1	
23/03/2017 17:06	23/03/2017 12:06	TR	No	59	2.18	ash emission		X		N/A	N/A	N/A	N/A	1	1	0	0.18
24/03/2017 11:41	24/03/2017 06:41	LP	No	28	1.81	ash emission	X		06:42	620	light gray	medium to low	East - Northeast	1	0	1	
24/03/2017 23:04	24/03/2017 18:04	TR	Yes	60	0.71	ash emission	X		18:05	450	gray	low	East	0	0	0	
25/03/2017 13:05	25/03/2017 08:05	TR	No	319	1.97	ash emission	X		08:06	850	gray to dark gray	high	North - Northwest	1	1	1	0.19
26/03/2017 22:53	26/03/2017 17:53	TR	Yes	79	1.07	ash emission	X		17:57	1300	light gray	medium to low	North - Northwest	1	0	1	0.16
27/03/2017 11:21	27/03/2017 06:21	LP	No	35	5.62	ash emission	X		06:22	180**	gray	low	East - Northeast	0	0	0	
27/03/2017 12:06	27/03/2017 07:06	TR	No	103	0.49	ash emission	X		07:07	350**	gray	low to medium	Northeast	0	0	0	
27/03/2017 12:42	27/03/2017 07:42	TR	No	79	0.56	ash emission	X		07:43	520**	gray	low	Northeast	1	0	0	
27/03/2017 15:30	27/03/2017 10:30	LP	No	43	8.68	ash emission	X		10:32	900	gray	medium to low	East	1	1	1	
27/03/2017 16:01	27/03/2017 11:01	TR	Yes	287	0.08	ash emission	X		11:00	800	light gray	low	Southwest	0	0	0	
28/03/2017 12:14	28/03/2017 07:14	LP	No	37	2.34	ash emission	X	X	07:15	900	gray	medium	Southwest	1	0	0	0.26
28/03/2017 14:50	28/03/2017 09:50	LP	No	63	5.45	ash emission	X		09:53	2300	light gray	medium to low	Southeast	1	1	1	0.26
29/03/2017 10:49	29/03/2017 05:49	TI	Yes	172	0.98	ash emission	X		05:50	280	brown		South - Southwest	1	0	0	0.57
29/03/2017 12:21	29/03/2017 07:21	TI	Yes	220	0.34	ash emission	X		07:21	350	light brown	low	West-Northwest	0	0	0	
29/03/2017 13:21	29/03/2017 08:21	TI	Yes	107	0.47	ash emission		X		N/A	N/A	N/A	Northwest	0	0	0	
29/03/2017 16:56	29/03/2017 11:56	TR	Yes	537	0.68	ash emission	X		11:57:10 a. m.; 12:00:00	750	gray	low	Northwest	0	0	0	
29/03/2017 21:51	29/03/2017 16:51	LP	No	31	1.90	ash emission	X		16:52	450	gray	low	Northwest	1	1	1	0.35
30/03/2017 14:53	30/03/2017 09:53	LP	No	38	1.71	ash emission	X		09:58	590	light gray	medium to low	West - Southwest	0	0	0	
30/03/2017 15:58	30/03/2017 10:58	LP	No	35	4.70	ash emission		X		N/A	N/A	N/A	N/A	0	0	0	
03/04/2017 19:03	03/04/2017 14:03	LP	No	22	1.05	ash emission	X		14:04	270	light gray	medium to low	West	0	0	0	
03/04/2017 23:51	03/04/2017 18:51	LP	No	29	1.20	possible ash emission	X		18:52	550	N/A	N/A	West - Northwest	0	0	0	
04/04/2017 11:10	04/04/2017 06:10	LP	No	35	4.47	ash emission	X		06:11	950	light gray	medium	West - Northwest	1	1	1	
04/04/2017 11:50	04/04/2017 06:50	LP	No	35	0.99	ash emission	X		06:50	440	light gray	medium to low	West - Northwest	0	0	0	
04/04/2017 13:10	04/04/2017 08:10	LP	No	36	1.44	ash emission	X		08:11	410	light gray	medium	Northwest	1	1	0	
04/04/2017 14:15	04/04/2017 09:15	LP	No	26	1.25	ash emission	X		09:16	350	light gray	low	West - Northwest	0	0	0	
04/04/2017 20:40	04/04/2017 15:40	LP	No	29	2.72	ash emission	X		15:41	300	light gray	medium to low	Northwest	0	0	0	
04/04/2017 22:43	04/04/2017 17:43	LP	No	21	2.54	ash emission	X		17:44	330	brown	medium	Northwest	0	1	0	
05/04/2017 10:17	05/04/2017 05:17	LP	No	26	2.76	ash emission	X		05:18	180	N/A	medium to low	Northwest	0	0	0	
05/04/2017 16:55	05/04/2017 11:55	LP	No	32	3.30	ash emission	X		11:57	825**	gray	medium	Northwest	0	0	0	
06/04/2017 12:38	06/04/2017 07:38	LP	No	26	0.85	ash emission	X		07:39	100	light gray	medium to low	Northwest	0	0	0	
06/04/2017 13:25	06/04/2017 08:25	LP	No	19	0.59	ash emission	X		08:26	150	light gray	low	Northwest	0	0	0	
06/04/2017 14:27	06/04/2017 09:27	LP	No	24	0.50	ash emission	X		09:29	180	very light gray	low	Northwest	0	0	0	
06/04/2017 16:29	06/04/2017 11:29	LP	No	21	7.26	ash emission	X		11:30	600	gray	medium	Northwest	0	0	0	
06/04/2017 16:57	06/04/2017 11:57	LP	No	36	2.21	ash emission	X		11:58	190	gray	medium to low	Northwest	0	0	0	
06/04/2017 18:27	06/04/2017 13:27	LP	No	30	1.02	ash emission	X		13:28	600	very light gray	low	Northwest	0	0	0	

time (UTC)	time (local)	event type*	isolated event	duration (s)	mean reduced displacement (cm²)	associated surface activity	confirmation		time of confirmation (local time)	estimated plume height (m)	color	density	direction of ash dispersion	infrasound analysis			
							cameras	external report						ACOLM	ACINM	ACRUM	Peak[Pa]
06/04/2017 19:39	06/04/2017 14:39	LP	No	29	1.75	ash emission	X		14:40	300	very light gray	low	Northwest	0	0	0	
06/04/2017 23:13	06/04/2017 18:13	LP	No	33	2.54	ash emission	X		18:14	350	N/A	N/A	Northwest	0	0	0	
07/04/2017 06:24	07/04/2017 01:24	TR	No	85	3.14	glow	X		01:24	440	N/A	N/A	West - Northwest	1	1	1	0.00
07/04/2017 11:42	07/04/2017 06:42	LP	No	24	1.27	ash emission	X		06:43	300	very light gray	low	Northwest	0	0	0	
07/04/2017 11:48	07/04/2017 06:48	LP	No	96	3.69	ash emission	X		06:49	790	brown to dark brown	medium to high	West - Northwest	1	1	1	0.00
07/04/2017 23:15	07/04/2017 18:15	LP	No	14	3.21	ash emission	X		18:16	1600	gray	medium	Northwest	1	0	1	0.46
08/04/2017 13:28	08/04/2017 08:28	LP	No	13	3.28	ash emission	X		08:29	450	light gray	medium to low	North - Northwest	0	0	0	
10/04/2017 10:43	10/04/2017 05:43	LP	No	16	2.84	ash emission	X		05:44	1500	very light gray	medium	Southeast	0	0	0	
10/04/2017 12:12	10/04/2017 07:12	LP	No	30	1.51	ash emission	X		07:13	570	very light gray	medium to low	East - Southeast	0	0	0	
10/04/2017 13:57	10/04/2017 08:57	LP	No	22	6.57	ash emission	X		08:58	900	gray	medium	East - Southeast	1	1	1	0.46
11/04/2017 07:29	11/04/2017 02:29	TR	Yes	158	0.30	possible ash emission?	X	X	02:32	1300	change in tonality	medium	Southeast	0	0	0	
11/04/2017 22:05	11/04/2017 17:05	LP	No	18	4.12	ash emission	X		17:06	1100	light gray	medium	Southeast	1	0	1	
11/04/2017 23:20	11/04/2017 18:20	LP	No	23	2.02	ash emission	X		18:21	880	light gray	medium to low	Southeast	1	1	1	0.61
13/04/2017 13:33	13/04/2017 08:33	LP	No	24	2.66	ash emission	X		08:35	700	very light gray	medium to low	Southeast	0	0	0	
14/04/2017 01:36	13/04/2017 20:36	LP	No	25	8.96	weak glow?	X		21:41	N/A	N/A	N/A	N/A	0	0	0	
14/04/2017 23:22	14/04/2017 18:22	LP	No	46	10.95	ash emission	X	X	18:23	1150	gray	medium	Northwest	0	0	0	
15/04/2017 14:19	15/04/2017 09:19	LP	No	35	3.35	ash emission	X		09:20	530	very light gray	medium to low	West - Northwest	0	0	0	
16/04/2017 11:43	16/04/2017 06:43	LP	No	33	1.66	ash emission	X		06:44	370	very light gray	low	West - Northwest	0	0	0	
16/04/2017 14:13	16/04/2017 09:13	LP	No	31	11.42	ash emission	X		09:14	1300	light gray	medium	East - Northeast	1	1	1	
17/04/2017 23:14	17/04/2017 18:14	LP	No	22	1.73	ash emission	X	X	18:15	1500	gray	medium to high	Northwest	1	1	1	0.38
18/04/2017 12:38	18/04/2017 07:38	TR	Yes	214	1.36	ash emission	X	X	07:39	950	very light gray	medium to low	Northwest	1	0	1	0.18
18/04/2017 13:43	18/04/2017 08:43	TR	No	50	0.57	possible ash emission?	X		08:46	190	very light gray	medium	Northwest	0	0	0	
21/04/2017 10:52	21/04/2017 05:52	TR	No	59	1.68	ash emission	X	X	05:53	350	light gray	medium	Southeast	0	0	0	
21/04/2017 14:29	21/04/2017 09:29	LP	No	105	5.71	ash emission	X		08:30	1000	light gray	medium	Southeast	0	0	0	
23/04/2017 11:25	23/04/2017 06:25	LP	No	37	1.37	ash emission	X		06:26	520	light gray	medium to low	Southwest	0	0	0	
24/04/2017 07:40	24/04/2017 02:40	LP	No	33	5.49	weak glow, ash emission?	X		02:41	N/A	change in tonality	N/A	N/A	1	1	1	0.82
24/04/2017 12:36	24/04/2017 07:36	LP	No	20	2.67	ash emission	X	X	07:37	390	light gray	medium	West - Northwest	0	0	0	
26/04/2017 22:48	26/04/2017 17:48	LP	No	61	7.91	ash emission	X		17:47	900	change in tonality	medium to high	Southwest	0	0	0	
27/04/2017 14:51	27/04/2017 09:51	LP	No	18	1.45	ash emission	X		09:52	1100	light gray to gray	medium	West - Southwest	0	0	0	
27/04/2017 16:49	27/04/2017 11:49	LP	No	15	0.84	ash emission	X		11:50	600	light gray	medium to low	West - Southwest	0	0	0	
27/04/2017 23:21	27/04/2017 18:21	LP	No	24	0.77	ash emission	X		18:23	470	brown	low	West - Northwest	0	0	0	
28/04/2017 11:56	28/04/2017 06:56	LP	No	28	5.51	ash emission	X	X	06:57	830	brown	medium	North - Northwest	0	0	0	
28/04/2017 23:35	28/04/2017 18:35	LP	No	13	2.47	ash emission	X		18:36	400	N/A	N/A	Northwest	0	0	0	
29/04/2017 12:51	29/04/2017 07:51	LP	No	27	4.23	ash emission	X		07:52	200	light gray	medium to low	Northwest	0	0	0	
04/05/2017 12:24	04/05/2017 07:24	LP	No	97	3.40	ash emission	X		07:26	1050	light gray	medium to low	Vertical	0	0	0	
07/05/2017 12:17	07/05/2017 07:17	LP	No	20	5.27	ash emission		X		N/A	N/A	N/A	N/A	1	1	1	0.67
11/05/2017 01:17	10/05/2017 20:17	LP	No	35	1.77	possible ash emission ?	X		20:18	N/A	change in tonality	N/A	Northwest	0	0	0	
13/05/2017 12:59	13/05/2017 07:59	LP	No	16	4.13	ash emission	X		08:00	N/A	light brown	N/A	N/A	0	0	0	
18/05/2017 16:21	18/05/2017 11:21	TR	Yes	100	1.75	ash emission		X		N/A	N/A	N/A	N/A	0	0	0	
18/05/2017 21:59	18/05/2017 16:59	TR	No	33	1.18	ash emission	X		17:00	280	very light brown	low	Vertical	0	0	0	
19/05/2017 11:35	19/05/2017 06:35	TR	Yes	100	1.20	ash emission	X		06:36	200	light gray	medium to low	West - Southwest	0	0	0	
19/05/2017 12:24	19/05/2017 07:24	TR	Yes	72	1.72	ash emission	X		07:25	430	light gray	medium to low	West - Southwest	0	0	0	
21/05/2017 10:48	21/05/2017 05:48	LP	No	27	2.96	possible ash emission?	X		05:50	900	very light brown	N/A	West	0	0	0	
22/05/2017 18:50	22/05/2017 13:50	LP	No	70	1.30	ash emission		X		N/A	N/A	N/A	N/A	0	0	0	
23/05/2017 16:48	23/05/2017 11:48	LP	No	28	2.49	ash emission	X		11:50	690	very light gray	medium to low	Southwest	0	0	0	
24/05/2017 12:59	24/05/2017 07:59	LP	No	27	1.13	ash emission	X		08:00	200	very light gray	low	West	0	0	0	
24/05/2017 15:35	24/05/2017 10:35	LP	No	24	1.67	ash emission	X		10:37	300	very light brown	medium to low	West	0	0	0	
25/05/2017 16:38	25/05/2017 11:38	TR	No	42	0.46	ash emission	X		11:39	110	very light brown	low	Northwest	0	0	0	
25/05/2017 19:48	25/05/2017 14:48	TR	Yes	65	1.03	ash emission	X		14:49	100	very light gray	low	West	0	0	0	
25/05/2017 19:50	25/05/2017 14:50	TR	No	69	1.16	ash emission	X		14:51	110	light gray	low	West	0	0	0	
26/05/2017 13:04	26/05/2017 08:04	TR	Yes	71	1.51	ash emission	X		08:05	215	brown	low	West - Southwest	0	0	0	
27/05/2017 11:55	27/05/2017 06:55	LP	No	20	2.78	ash emission	X		06:56	200	light gray	medium to low	Northwest	0	0	0	
27/05/2017 21:38	27/05/2017 16:38	LP	No	24	2.18	ash emission	X		16:38	620**	light gray to gray	low	Northwest	0	0	0	
28/05/2017 23:14	28/05/2017 18:14	TR	Yes	88	1.60	ash emission	X		18:16	500**	very light brown	low	Northwest	0	0	0	
03/06/2017 05:22	03/06/2017 05:22	LP	No	12	1.20	ash emission	X		05:24	280	N/A	N/A	Northwest	0	0	0	

time (UTC)	time (local)	event type*	isolated event	duration (s)	mean reduced displacement (cm ²)	associated surface activity	confirmation		time of confirmation (local time)	estimated plume height (m)	color	density	direction of ash dispertion	infrasound analysis			
							cameras	external report						ACOLM	ACINM	ACRUM	Peak[Pa]
16/06/2017 23:37	16/06/2017 18:37	TR	No	55	1.02	ash emission	X		18:39	260	N/A	low	Northwest	0	0	0	
16/06/2017 23:40	16/06/2017 18:40	LP	No	37	0.37	ash emission	X		18:41	250	N/A	low	Northwest	0	0	0	
17/06/2017 12:47	17/06/2017 07:47	LP	No	37	0.54	ash emission	X		07:48	200	very light brown	low	Northwest	0	0	0	
18/10/2017 23:02	18/10/2017 18:02	LP	No	34	0.86	possible ash emission?	X		18:03	250	N/A	low	Northwest	0	0	0	
28/10/2017 03:48	27/10/2017 22:48	LP	Yes	32	3.93	glow?	X		22:48	N/A	N/A	N/A	N/A	0	0	0	
08/11/2017 10:17	08/11/2017 05:17	TR	No	200	0.31	possible ash emission?	X		05:19	N/A	change in tonality	N/A	N/A	0	0	0	
24/11/2017 11:51	24/11/2017 06:51	TR	No	174	2.64	ash emission	X		06:53	530	very light gray	low	West - Southwest	0	0	0	
06/02/2018 23:06	06/02/2018 18:06	TR	Yes	70	0.90	ash emission	X		18:09	110	light brown	low	Southeast	0	0	0	
22/07/2018 14:02	22/07/2018 09:02	TR	No	79	3.37	ash emission	X		09:05	250	very light gray	medium to low	West - Northwest	0	0	0	
25/07/2018 11:57	25/07/2018 06:57	LP	No	30	1.72	ash emission	X		06:59	470	very light gray	medium to low	West - Northwest	1	0	0	0.11
10/08/2018 21:10	10/08/2018 16:10	LP	No	19	7.98	ash emission	X		16:12	300	light gray	medium to low	Northwest	0	0	0	
12/08/2018 18:04	12/08/2018 13:04	TR	Yes	127	0.64	ash emission		X	13:24	N/A	N/A	N/A	N/A	0	0	0	
17/08/2018 14:14	17/08/2018 09:14	TR	Yes	299	2.13	ash emission		X		N/A	N/A	N/A	N/A	0	0	0	
20/08/2018 15:43	20/08/2018 10:43	LP	No	29	1.09	ash emission	X	X	10:45	280	light gray	medium to low	North - Northwest	0	0	0	
24/08/2018 11:37	24/08/2018 06:37	LP	No	19	1.85	ash emission	X	X	06:38	650	light gray	medium to low?	Northwest	0	0	1	
24/08/2018 18:37	24/08/2018 13:37	LP	No	20	2.14	ash emission	X	X	13:42	635	light gray	N/A	Northwest	0	0	0	
27/08/2018 14:04	27/08/2018 09:04	LP	No	60	2.16	ash emission	X		09:06	195	very light gray	low	Southwest	0	0	0	
01/09/2018 23:00	01/09/2018 18:00	LP	No	37	1.71	ash emission	X	X	18:01	1550	dark gray	medium to high	Northwest	1	1	1	0.45
04/09/2018 16:17	04/09/2018 11:17	TR	No	1204	2.81	ash emission	X		11:19	960	gray to dark gray	medium	West - Northwest	0	1	1	
04/09/2018 20:19	04/09/2018 15:19	LP	No	46	1.41	ash emission	X	X	15:26	N/A	light gray	medium to low	N/A	0	1	1	
05/09/2018 01:31	04/09/2018 20:31	TR	Yes	339	1.43	ash emission		X		N/A	N/A	N/A	N/A	0	0	0	
05/09/2018 23:04	05/09/2018 18:04	TR	No	799	1.79	ash emission	X		18:06	660	gray	medium	West - Northwest	1	1	0	
15/09/2018 10:41	15/09/2018 05:41	LP	No	28	0.73	ash emission	X		05:45	N/A	gray	N/A	Northwest	0	0	0	
17/09/2018 12:33	17/09/2018 07:33	TR	Yes	1688	1.72	continuous ash emission	X		07:35	700	light gray	medium to low	West - Northwest	0	1	0	
20/09/2018 11:43	20/09/2018 06:43	TR	Yes	4282	1.41	continuous ash emission	X		06:44	400	brown	medium	West - Northwest	0	1	0	
20/09/2018 13:14	20/09/2018 08:14	TC	Yes		0.04	continuous ash emission	X		from 07:32	200	light gray	medium to low		0	1	0	
20/09/2018 14:47	20/09/2018 09:47	TR	Yes	665	1.17	continuous ash emission	X	X	09:49	500	gray	medium	West	0	1	0	
20/09/2018 21:09	20/09/2018 16:09	LP	Yes	35	3.01	continuous ash emission	X		16:11	400	gray	medium to high	West - Northwest	0	1	0	
21/09/2018 14:32	21/09/2018 09:32	TR	Yes	630	0.19	ash emission	X		09:34	180	light gray	medium	West - Northwest	0	0	0	
21/09/2018 14:42	21/09/2018 09:42	TI	Yes	1657	0.21	continuous ash emission	X		09:42	120	light gray	medium to low	West - Northwest	0	0	0	
21/09/2018 17:37	21/09/2018 12:37	TR	Yes	395	0.19	ash emission	X		12:39	300	light gray	medium	West - Northwest	0	0	0	
21/09/2018 23:21	21/09/2018 18:21	TC			0.09	continuous ash emission?	X			230	N/A	medium?		1	0	0	1.14
22/09/2018 15:10	22/09/2018 10:10	LP	No	20	1.51	ash emission	X	X	10:11	390	gray	medium to high	Northwest	0	0	0	
24/09/2018 02:40	23/09/2018 21:40	LP	No	30	1.44	ash emission	X		21:41	300	change in tonality	change in density		1	1	0	1.30
26/09/2018 22:44	26/09/2018 17:44	LP	No	58	1.35	ash emission	X		17:47	700	light gray	low	Northwest	1	1	0	
02/10/2018 10:37	02/10/2018 05:37	LP	No	43	2.61	ash emission	X		05:40	230	very light gray	low	Northeast	0	0	0	

* In the case of events formed by several signals, event type correspond to the most energetic signal. ** Estimation made under limited visual conditions.

Table S2.2 Unconfirmed erupted events detected only by infrasound technique

time (UTC)	time (local)	event type*	isolated event	duration (s)	mean reduced displacement (cm ²)	associated surface activity	confirmation		time of confirmation (local time)				direction of ash dispertion	infrasound analysis			
							cameras	external report						ACOLM	ACINM	ACRUM	Peak[Pa]
11/12/2016 08:41	11/12/2016 03:40	TR	No	169	2.37									1	1	0	2.46
01/01/2017 08:06	01/01/2017 03:04	TR	No	167	6.37									1	0	0	0.69
01/01/2017 17:46	01/01/2017 12:45	TR	Yes	319	1.10									1	0	0	0.57
02/01/2017 01:37	01/01/2017 20:36	TR	No	109	2.17									1	0	0	0.40
03/01/2017 02:37	02/01/2017 21:36	TR	Yes	84	1.81									1	0	0	0.27
03/01/2017 10:12	03/01/2017 05:12	TR	No	60	2.92									1	1	0	0.44
04/01/2017 01:37	03/01/2017 20:37	LP	No	34	2.87									1	1	0	0.25
06/01/2017 23:00	06/01/2017 18:00	TR	Yes	131	3.66									1	0	0	0.31
08/01/2017 06:33	08/01/2017 01:33	LP	No	39	3.68									1	1	0	0.14

time (UTC)	time (local)	event type*	isolated event	duration (s)	mean reduced displacement (cm ²)	associated surface activity	confirmation		time of confirmation (local time)	estimated plume height (m)	color	density	direction of ash dispertion	infrasound analysis			
							cameras	external report						ACOLM	ACINM	ACRUM	Peak[Pa]
08/01/2017 19:14	08/01/2017 14:20	LP	No	35	4.75									1	1	0	0.16
08/01/2017 20:19	08/01/2017 15:19	LP	No	32	4.46									1	0	0	0.26
09/01/2017 00:13	08/01/2017 19:13	LP	No	77	10.23									1	1	1	0.44
09/01/2017 13:24	08/01/2017 08:23	LP	No	96	6.78									1	1	1	0.86
11/01/2017 19:48	11/01/2017 14:48	LP	No	42	3.76									1	0	0	0.24
11/01/2017 19:51	11/01/2017 14:51	LP	No	40	2.95									1	1	1	0.66
11/01/2017 22:31	11/01/2017 17:31	TR	Yes	194	3.40									1	1	1	0.35
12/01/2017 13:54	12/01/2017 08:53	TR	Yes	129	2.42									1	0	0	0.26
15/01/2017 00:38	14/01/2017 19:38	TR	No	156	2.87									1	0	1	0.55
19/01/2017 02:15	18/01/2017 21:15	LP	No	34	2.06									1	0	1	0.41
19/01/2017 06:50	19/01/2017 01:50	LP	No	45	4.01									1	1	1	0.26
19/01/2017 20:07	19/01/2017 15:06	TR	No	72	3.79									1	0	0	0.54
20/01/2017 16:55	20/01/2017 11:55	LP	Yes	62	2.74									1	0	0	0.61
20/01/2017 19:35	20/01/2017 14:35	TR	No	66	5.24									1	0	0	0.62
20/01/2017 21:36	20/01/2017 16:36	TR	No	94	5.05									1	0	0	0.11
21/01/2017 11:30	21/01/2017 06:30	LP	No	39	2.04									1	0	0	0.47
23/01/2017 03:53	22/01/2017 22:53	LP	No	16	6.71									1	0	1	0.63
24/01/2017 01:30	23/01/2017 20:30	TR	No	127	1.81									1	0	1	0.15
25/01/2017 06:09	25/01/2017 01:09	TR	No	177	5.31									1	1	1	0.42
28/01/2017 07:21	28/01/2017 02:21	TR	No	374	1.52									1	0	0	0.25
29/01/2017 04:06	28/01/2017 23:06	TR	No	79	2.44									1	1	1	0.49
02/02/2017 07:28	02/02/2017 02:29	LP	No	52	3.75									1	0	1	0.30
16/02/2017 21:56	16/02/2017 16:56	TR	No	92	1.75									1	0	0	0.38
18/02/2017 00:29	17/02/2017 19:29	TR	No	280	1.60									1	1	1	0.64
24/02/2017 03:29	23/01/2017 22:29	LP	No	23	4.29									1	1	1	0.45
26/02/2017 03:24	25/02/2017 22:24	TR	Yes	171	2.40									1	0	0	0.25
27/02/2017 01:44	26/02/2017 20:44	LP	No	35	1.75									1	0	0	0.15
27/02/2017 15:44	27/02/2017 10:43	TR	No	295	2.23									1	0	0	0.34
03/03/2017 05:57	03/03/2017 00:57	LP	No	85	6.75									1	1	1	0.52
04/03/2017 01:28	03/03/2017 20:28	VLP	No	37	6.22									1	0	0	0.06
07/03/2017 12:19	07/03/2017 07:18	LP	No	20	1.43									1	0	0	0.14
08/03/2017 00:09	07/03/2017 19:07	VLP	No	30	1.49									1	0	1	0.20
11/03/2017 01:36	10/03/2017 20:36	LP	No	34	2.90									1	1	1	0.10
13/03/2017 00:40	12/03/2017 19:40	TR	No	88	4.69									1	1	1	0.29
13/03/2017 06:47	13/03/2017 01:47	LP	No	27	2.28									1	1	1	0.11
14/03/2017 05:44	14/03/2017 00:44	TR	Yes	175	3.27									1	1	1	0.28
17/03/2017 00:28	16/03/2017 19:28	TR	Yes	95	1.96									1	0	1	0.22
17/03/2017 09:08	17/03/2017 04:08	LP	No	39	2.06									1	0	0	0.17
18/03/2017 17:28	18/03/2017 12:28	LP	No	39	5.68									1	0	0	0.54
19/03/2017 04:03	18/03/2017 23:03	VLP	No	35	5.81									0	0	1	
19/03/2017 15:36	19/03/2017 10:36	TR	No	100	2.21									1	1	1	0.32
21/03/2017 07:40	21/03/2017 02:41	TR	No	119	4.04									1	1	1	0.35
21/03/2017 10:14	21/03/2017 05:14	TR	No	96	1.25									1	1	0	0.07
22/03/2017 22:26	22/03/2016 17:27	LP	No	13	2.06									1	0	0	0.10
23/03/2017 21:48	23/03/2017 16:48	VLP	No	29	5.30									1	1	1	0.16
24/03/2017 04:10	23/03/2017 23:11	TR	No	115	3.16									1	1	1	0.24
24/03/2017 07:34	24/03/2017 02:34	VLP	No	25	8.70									1	1	1	0.44
25/03/2017 01:11	24/03/2017 20:12	LP	No	31	1.54									1	0	1	0.18
26/03/2017 12:28	26/03/2017 07:28	LP	No	31	2.58									1	1	0	0.18
26/03/2017 20:08	26/03/2017 15:09	LP	No	29	1.07									1	0	0	0.20
27/03/2017 01:10	26/03/2017 20:10	TR	No	179	4.05									1	1	1	0.79
29/03/2017 06:05	29/03/2017 01:05	TR	No	89	2.69									1	0	1	0.25
29/03/2017 07:20	29/03/2017 02:20	TR	Yes	105	1.62									1	1	0	0.27
29/03/2017 08:11	29/03/2017 03:11	LP	No	62	3.50									1	1	1	0.53
29/03/2017 10:09	29/03/2017 05:09	TR	No	164	0.94									1	0	0	0.84
30/03/2017 00:39	29/03/2017 19:40	LP	No	20	3.20									1	1	1	0.33

time (UTC)	time (local)	event type*	isolated event	duration (s)	mean reduced displacement (cm ²)	associated surface activity	confirmation		time of confirmation (local time)	estimated plume height (m)	color	density	direction of ash dispersion	infrasound analysis			
							cameras	external report						ACOLM	ACINM	ACRUM	Peak[Pa]
30/03/2017 06:46	30/03/2017 01:46	LP	No	43	11.83									1	0	1	0.39
07/04/2017 18:13	07/04/2017 13:13	TR	No	120	3.98									1	0	0	0.49
08/04/2017 07:29	08/04/2017 02:29	TR	No	119	5.19									1	0	1	0.30
11/04/2017 01:09	10/04/2017 20:09	TR	No	40	6.81									1	0	1	0.54
15/04/2017 04:12	14/04/2017 23:12	LP	No	38	13.35									1	0	0	1.03
19/04/2017 00:24	18/04/2017 19:24	VLP	No	21	3.16									1	1	1	0.33
19/04/2017 10:21	19/04/2017 05:21	LP	No	28	1.61									1	0	1	0.09
20/04/2017 09:50	20/04/2017 04:50	LP	No	40	6.96									1	1	1	0.26
10/05/2017 06:57	10/05/2017 01:58	LP	No	45	1.30									1	1	1	0.27
05/09/2018 10:13	05/09/2018 05:14	TR	No	372	1.52									1	1	1	0.27
06/09/2018 02:43	05/09/2018 21:43	LP	No	30	3.02									1	1	0	0.52
17/09/2018 03:48	16/09/2018 22:48	VLP	No	29	2.25									1	1	0	0.47
17/09/2018 08:02	17/09/2018 03:02	VLP	No	35	2.94									1	1	1	2.24
20/09/2018 06:04	20/09/2018 06:04	TR	No	938	1.90									1	1	0	0.41
21/09/2018 01:11	20/09/2018 20:11	LP	No	30	0.90									1	1	1	0.79
22/09/2018 05:16	22/09/2018 00:16	LP	No	32	1.47									1	0	0	1.62