Additional files for

Surface Deformation of Asama Volcano, Japan, Detected by Time Series InSAR Combining Persistent and Distributed Scatterers, 2014–2018

Table S1. The interferogram pairs used in this study from the descending Sentinel-1 images (Path 119).

Table S2. The interferogram pairs used in this study from the ascending Sentinel-1 images (Path 39).

Table S3. The interferogram pairs used in this study from the ALOS-2 images (Path 19).

Fig. S1. An example of coherence map form two Sentinel-1 images acquired in summer season.

Fig. S2. The number of SHPs for each pixel from three SAR datasets.

Fig. S3. The distributions of the selected PS and DS from the ascending Sentinel-1 images (path 39).

Fig. S4. The standard errors of the LOS velocities.

Fig. S5. Quasi- east-west and up-down displacement velocities.

Fig. S6. The displacement time series in east-west, north-south, and vertical directions at these three GPS sites.

		-		
20150517_20150610	20160511_20160722	20161026_20170611	20170611_20170810	20171009_20171208
20150517_20150704	20160511_20160815	20161026_20170623	20170611_20170903	20171021_20171102
20150517_20150728	20160511_20160908	20161026_20170729	20170611_20170915	20171021_20171114
20150517_20150821	20160511_20170518	20161026_20170810	20170611_20171009	20171102_20171114
20150517_20150914	20160604_20160628	20161026_20170903	20170611_20171021	20171102_20171208
20150517_20160604	20160604_20160722	20161026_20170915	20170623_20170705	20171102_20171220
20150610_20150704	20160604_20160815	20161026_20171009	20170623_20170717	20171114_20171126
20150610_20150728	20160604_20161002	20161026_20171021	20170623_20170729	20171114_20171208
20150610_20150821	20160604_20161026	20161119_20170106	20170623_20170810	20171114_20171220
20150610_20150914	20160604_20170506	20170307_20170319	20170623_20171021	20171114_20180101
20150610_20151008	20160604_20170611	20170319_20170331	20170705_20170717	20171126_20171208
20150610_20160511	20160604_20170623	20170319_20170424	20170705_20170729	20171126_20171220
20150610_20160628	20160628_20160722	20170319_20170506	20170705_20170810	20171208_20171220
20150704_20150728	20160628_20160815	20170319_20170518	20170705_20170903	20171208_20180101
20150704_20150821	20160628_20161026	20170412_20170611	20170705_20170927	20171220_20180101
20150704_20150914	20160628_20170518	20170424_20170506	20170717_20170729	20180101_20180113
20150704_20160604	20160628_20170611	20170424_20170518	20170717_20170810	20180101_20180218
20150704 20160628	20160628 20170729	20170424 20170530	20170717 20170903	20180101 20180302
20150704 20160722	20160722 20160815	20170424 20170611	20170717 20170915	20180125 20180218
20150728 20150821	20160722 20160908	20170424 20170623	20170717 20170927	20180218 20180302
20150728 20150914	20160722 20161026	20170506 20170518	20170729 20170810	_
20150728 20160604	20160722 20170518	20170506 20170530	20170729 20170903	
20150728 20160815	20160722 20170611	20170506 20170611	20170729 20170915	
20150821 20150914	20160722 20170729	20170506 20170623	20170729 20170927	
20150821 20151008	20160722 20170810	20170506 20170705	20170729 20171009	
20150821 20160604	20160815 20160908	20170506 20170810	20170729 20171021	
20150821 20160628	20160815 20161002	20170506 20170903	20170810 20170903	
20150821 20160722	20160815 20161026	20170506 20170915	20170810 20170915	
20150821 20160815	20160815 20170506	20170506 20171009	20170810 20170927	
20150914 20151008	20160815 20170518	20170506 20171021	20170810 20171009	
20150914 20151101	20160815 20170611	20170518 20170530	20170810 20171021	
20150914 20160511	20160815 20170729	20170518 20170611	20170903 20170915	
20150914 20160628	20160815 20170810	20170518 20170623	20170903 20170927	
20150914 20160722	20160815 20170903	20170518 20170705	20170903 20171009	
20150914 20160815	20160815 20170915	20170518 20170717	20170903 20171021	
20150914 20160908	20160908 20161002	20170518 20170729	20170903 20171102	
20151008 20151101	20160908_20161026	20170518 20170810	20170915 20170927	
20151008_20160628	20160908_20170518	20170518_20170903	20170915_20171009	
20151008_20160722	20160908_20170530	20170518_20170915	20170915_20171021	
20151008_20160815	20160908_20170705	20170518_20170927	20170915_20171102	
20151008_20160908	20160908_20170717	20170518 20171009	20170915_20171114	
20151101_20151219	20160908_20170927	20170530_20170611	20170927 20171009	
20151219 20160112	20161002 20161026	20170530_20170623	20170927_20171021	
20151219_20160112	20101002_20101020	20170530_20170025	20170927_20171021	
20160229 20160324	20161002_20170506	20170530_20170707	20170927_20171102	
20160324 20160511	20101002_20170500	20170530_20170729	20170927_20171114	
20160324_20100311	20161002_20170023	20170530_20170729	20171009 20171021	
20160417_20160511	2016102_20171021	20170611_20170023	20171009_20171021	
20160511 20160604	20161026_20101119	20170611_20170703	20171009_20171102	
20160511_20160604	20101020_20170500	20170611_20170717	20171009_20171114	
20100311_20100020	20101020_20170310	201/0011_201/0/29	201/100/_201/1120	

 Table S1. The interferogram pairs used in this study from the descending Sentinel-1 images (Path 119).

20150430_20150524	20160915_20161102	20170531_20170706	20170823_20171010
20150430_20150617	20160915_20161108	20170531_20170718	20170823_20171022
20150524_20150617	20160915_20170612	20170531_20170811	20170904_20170916
20150524_20150711	20160915_20170706	20170531_20170823	20170904_20170928
20150524_20150828	20161009_20161102	20170531_20170904	20170904_20171010
20150524_20150921	20161009_20161108	20170531_20171010	20170904_20171022
20150524_20151015	20161009_20161120	20170612_20170624	20170904_20171103
20150617_20150711	20161009_20170507	20170612_20170706	20170916_20170928
20150617_20150828	20161009_20170531	20170612_20170718	20170916_20171010
20150617_20151015	20161009_20170811	20170612_20170811	20170916_20171022
20150711_20150828	20161009_20170928	20170612_20170823	20170916_20171103
20150711_20151015	20161009_20171010	20170612_20170904	20170916_20171115
20150711_20160518	20161102_20161108	20170612_20170916	20170928_20171010
20150711_20160611	20161102_20161120	20170612_20171010	20170928_20171022
20150828_20150921	20161102_20161226	20170624_20170706	20170928_20171103
20150828_20151015	20161108_20161120	20170624_20170718	20170928_20171115
20150828_20160705	20161108_20161226	20170624_20170730	20170928_20171127
20150921_20151015	20161120_20161226	20170624_20170811	20171010_20171022
20150921_20160611	20161120_20170107	20170624_20170823	20171010_20171103
20150921_20160729	20161226_20170107	20170624_20170904	20171010_20171115
20160307_20160331	20161226_20170131	20170624_20171022	20171022_20171103
20160307_20160424	20170131_20170212	20170706_20170718	20171022_20171115
20160331_20160518	20170212_20170308	20170706_20170730	20171103_20171115
20160424_20160518	20170224_20170308	20170706_20170811	20171103_20171221
20160424_20160611	20170224_20170320	20170706_20170823	20171115_20171209
20160518_20160611	20170308_20170320	20170706_20170904	20171115_20171221
20160518_20160705	20170320_20170425	20170706_20171022	20171115_20180102
20160518_20160729	20170425_20170507	20170718_20170730	20171127_20171209
20160518_20160915	20170425_20170519	20170718_20170811	20171209_20171221
20160611_20160705	20170425_20170531	20170718_20170823	20171209_20180102
20160611_20160729	20170425_20170612	20170718_20170904	20171221_20180102
20160611_20160915	20170425_20170624	20170718_20170916	20171221_20180114
20160611_20161009	20170507_20170519	20170718_20170928	20180102_20180303
20160611_20170519	20170507_20170531	20170718_20171010	20180114_20180126
20160611_20170531	20170507_20170612	20170730_20170811	20180126_20180207
20160705_20160729	20170507_20170624	20170730_20170823	20180207_20180219
20160705_20160822	20170507_20170706	20170730_20170904	20180219_20180303
20160705_20160915	20170507_20170718	20170730_20170916	
20160705_20161009	20170507_20171010	20170730_20170928	
20160705_20170612	20170519_20170531	20170730_20171010	
20160705_20170624	20170519_20170612	20170730_20171022	
20160729_20160822	20170519_20170624	20170811_20170823	
20160729_20160915	20170519_20170706	20170811_20170904	
20160729_20161009	20170519_20170718	20170811_20170916	
20160729_20170706	20170519_20170811	20170811_20170928	
20160729_20170823	20170519_20170916	20170811_20171010	
20160822_20160915	20170519_20170928	20170811_20171022	
20160822_20161009	20170519_20171010	20170823_20170904	
20160822_20170730	20170531_20170612	20170823_20170916	
20160915_20161009	20170531_20170624	20170823_20170928	

Table S2. The interferogram pairs used in this study from the ascending Sentinel-1 images (Path 39).

20141028_20141111	20151124_20170606	20170606_20180508
20141028_20150623	20160301_20160607	20170606_20180605
20141028_20150915	20160301_20170815	20170606_20180814
20141028_20151124	20160607_20160816	20170815_20171107
20141028_20160301	20160607_20161108	20170815_20180116
20141028_20160607	20160607_20170228	20170815_20180424
20141111_20150623	20160607_20170606	20170815_20180508
20141111_20150915	20160607_20170815	20170815_20180605
20141111_20151124	20160607_20171107	20170815_20180814
20141111_20160301	20160816_20161108	20171107_20180116
20141111_20160607	20160816_20170606	20171107_20180424
20150623_20150915	20160816_20170815	20171107_20180508
20150623_20151124	20160816_20171107	20171107_20180605
20150623_20160301	20160816_20180116	20171107_20180814
20150623_20160607	20161108_20170606	20180116_20180130
20150623_20160816	20161108_20170815	20180116_20180605
20150623_20161108	20161108_20171107	20180130_20180227
20150915_20151124	20161108_20180424	20180227_20180424
20150915_20160607	20161108_20180508	20180227_20180605
20150915_20160816	20161108_20180605	20180424_20180508
20150915_20161108	20170228_20170606	20180424_20180605
20150915_20170228	20170228_20180814	20180424_20180814
20151124_20160607	20170606_20170815	20180508_20180605
20151124_20160816	20170606_20171107	20180508_20180814
20151124_20161108	20170606_20180424	20180605_20180814

Table S3. The interferogram pairs used in this study from the ALOS-2 images (Path 19).



Fig. S1. Example of coherence from the two Sentinel-1 SAR images acquired on June 23 and July 17, 2017, respectively. The white dashed line indicates the region we focused on for deformation analysis.



Fig. S2. The number of Statistical Homogenous Pixels (SHPs) for each pixel from the (a) ALOS-2, (b) ascending Sentinel-1 (path 39), and descending Sentinel-1 (path 119).



Fig. S3. The distributions of the selected Persistent Scatterers (PS) and Distributed Scatterers (DS) from the ascending Sentinel-1 images (path 39).



Fig. S4. The standard errors of the LOS velocities derived from the (a) ALOS-2 images, (b) ascending Sentinel-1 (path 39) images, and (c) descending Sentinel-1 (path 119) images.



Fig. S5. Quasi- east-west and vertical displacement velocities calculated from the descending ALOS-2, ascending Sentinel-1, descending Sentinel-1 SAR images.



Fig. S6. Displacement time series in east-west, north-south, and vertical directions at the AVOG, KAHG, and KAWG GPS sites (see Fig. 1 for their locations). The unit of displacements are in meter.