

Appendix E. Supplementary Material to Support Chapter 5

Table E1 shows the calculation of magma supply and eruption efficiency during this period.

Figure E1A–B presents time series data covering the entire period.

Figure E2A–R presents yearly data from 1967 through 1976 in plots similar to figures 5.1 and E1.

Figures E3–E8 present time series and earthquake locations for events during the pre-Mauna Ulu period listed in table 5.1 and figure 5.1.

Figures E9–E21 present time series and earthquake locations for events during period IA of the Mauna Ulu eruption listed in table 5.3 and figure 5.4.

Figures E22–E36 present time series and earthquake locations for events during period IB of the Mauna Ulu eruption listed in table 5.4 and figure 5.5.

Figures E37–E56 present time series and earthquake locations for events during the Mauna Ulu pause listed in table 5.5 and figure 5.7.

Figures E57–E70 present time series and earthquake locations for events during period II of the Mauna Ulu eruption listed in table 5.6 and figure 5.9.

Figures E71–E87 present time series and earthquake locations for events during the period between the end of Mauna Ulu II and the 1975 earthquake listed in table 5.7 and figure 5.11.

Appendix table E1. Tilt volume, eruption efficiency and msr 1967-1975

Cycle	Event ⁱ	begin date	end date	Δt (yr)	T_{mag}^{ii}	T_{az}	T_{vol}^{iii}	E_{vol}^{iv}	E_{eff}^v	msr^{vi}	Comment
1965-1967	Net	12/23/1965	11/5/1967	1.8672	123.5	327.41	.0555				Pre-eruption inf
	Def	12/23/1965	12/29/1965		47.4	99.37	.0213				
	Def	10/1/1966	10/7/1966		9.8	139.40	.0044				
	Def	8/9/1967	8/18/1967		8.4	120.85	.0038				
	Sum E	11/5/1967	7/14/1968	1.8672 .69268	189.1		.0850	.07479		.0455 .1083	Pre-eruption msr Hm filling rate
1967-1969	Net	11/5/1967	8/21/1968	0.7967	16.3	193.90					Pre-eruption <i>def</i>
	Def	11/5/1967	11/6/1967		13.4	125.39	.0060				Initial def
	Def				18.7	149.49	.0084				
	Sum E	8/22/1968	8/26/1968	0.7967 .0114	32.1		.0144	.000079	.0031	.0181	Pre-eruption msr
	Net	8/21/1968	10/6/1968	.12594	16.3	147.99	.0255				Pre-eruption <i>def</i>
	Def	8/21/1968	8/25/1968		56.7	113.96	.0255		.2717	.2025	Pre-eruption msr
	Sum E	10/7/1968	10/12/1968	.01374				.0075			Pre-eruption <i>def</i> ?
	Net	10/6/1968	2/21/1969	.37782	7.0	218.29					
	Def	10/6/1968	10/9/1968		61.5	115.24	.0276				
	Def	12/1/1968	12/11/1968		8.6	140.44	.0039				
	Def	1/7/1969	1/10/1969		8.4	112.17	.0038				
	Sum E	2/22/1969	2/28/1969	.37782 .01565			.0353	.0160	.5498	.0933	Pre-eruption msr
	Net	2/21/1969	5/22/1969	.24641	9.6	17.35	.0043				Pre-eruption inf
	Def	2/21/1969	2/28/1969		48.7	124.16	.0291				
	Def	5/4/1969	5/9/1969		4.5	129.81	.0020				
	Sum E	5/24/1969	5/25/1969	.24641 .003907			.0354	.00424		.1437	Pre-eruption msr
1967-MU I	Net Sum	11/5/1967	5/22/1969	1.54415 1.54415	26.1	172.41	.1106	.0744		.1198	Net <i>def</i> 1967-MU I msr
MU IA	Net E	5/22/1969	12/29/1969	.60507	17.6	265.31	.00794				Pre-eruption inf
	Def	5/24/1969	5/25/1969					.00424	37.86		Episode 1
	Def E	5/22/1969	5/25/1969		25.0	110.54	.01124				
	Def	5/27/1969	5/29/1969					.00329	99.54		Episode 2
	Def E	5/28/1969	5/29/1969		7.4	120.58	.00331				
	Def	6/12/1969	6/13/1969					.00376	54.49		Episode 3
	Def E	6/11/1969	6/13/1969		15.4	112.35	.00693				
	Def	6/25/1969	6/26/1969					.00424	47.11		Episode 4
	Def E	6/25/1969	6/26/1969		20.0	114.72	.00898				
	Def	7/15/1969	7/15/1969					.00376	60.65		Episode 5
	Def E	7/14/1969	7/15/1969		13.9	110.70	.00623				
	Def	8/3/1969	8/4/1969					.00329	58.75		Episode 6
	Def E	8/2/1969	8/4/1969		12.4	107.59	.00558				
	Def	8/5/1969	8/6/1969					.00376	65.97		Episode 7
	Def E	8/5/1969	8/6/1969		12.6	120.07	.00569				
	Def	8/22/1969	8/22/1969					.00329	64.51		Episode 8
	Def E	8/21/1969	8/23/1969		11.3	109.36	.00508				
	Def	9/6/1969	9/7/1969					.01129	83.63		Episode 9
	Def E	9/6/1969	9/7/1969		30.0	114.35	.01350				
	Def	10/10/1969	10/13/1969					.00376	67.14		Episode 10
	Def E	10/8/1969	10/13/1969								
	Def	10/20/1969	10/20/1969					.00988	101.90		Episode 11
	Def Sum	10/19/1969	10/20/1969	.60507			.00097 .08981			.1484	MU IA msr

Cycle	Event ⁱ	begin date	end date	Δt (yr)	T_{mag}^{ii}	T_{az}	T_{vol}^{iii}	E_{vol}^{iv}	E_{eff}^v	msr^{vi}	Comment
MU II	Sum	2/5/1972	6/30/1974	.62697	33.7	268.53	.10436			.1665	MU pause msr
	Net			2.3984			.01515				MU II inf
Post-MU	Sum	6/30/1974	11/28/1975	2.3984			.07852	.126		.0916	MU II msr
	Net										Post MU <i>def</i>
1967-1975	Sum			1.41273			.1462			.1035	Post-MU msr
				8.0657			.3801	.2817		.0953	Inc. 0.1072 km ³ inf

ⁱ inf=inf; def=def; trans=transfer; I=intrusion; E=eruption; ks=Kilauea's summit; erz=East rift zone; swr=Southwest rift zone; kfz=Koae fault zone; Hm=Halema'uma'u

ⁱⁱ Tilt magnitude in microradians

ⁱⁱⁱ Tilt volume in cubic kilometers=tilt magnitude*.00045 (see text for explanation)

^{iv} Values are equivalent magma volume obtained by multiplying published volumes by 0.8 to account for vesiculation

^v **Eruption** efficiency calculated for non-sustained rift eruptions as erupted volume/def volume associated with the eruption. A value of 1.0 corresponds to eruption of all of the magma supplied with none left underground. The intrusion fraction = 1.0- eruption efficiency. For consistency eruption efficiencies are only calculated using the Uwekahuna tilt.

^{vi} Minimum msr calculated as described in text. The true msr would include the volume of rift dilation created by spreading during each period. These values are not known because of limitations imposed by the early ground deformation network. The volume equivalent for pre-eruption inf is added to the sum of volume equivalents for subsequent defs and then divided by the elapsed time. Values used in the calculation are shown in bold text. The volume equivalent of pre-eruption def (*italics used for emphasis*) is not used as it is already included in the def sum.

^{vii} Corrected for offset caused by Honomu earthquake

Cross references, chapter 5 tables and appendix E map figures

[Table column heads are row “0;” only rows with information are counted; “do,” same as above; color coding indicates eruptions (red), traditional intrusions without eruption (blue); inflationary intusions (green), and suspected deep intrusions (magenta)]

Chap. 5 page	Chap. 5 table	Row in table	App. E figure
85	5.1	1	E4
do	do	11	E5
do	do	20	E6
do	do	29	E7
do	do	33	E8
91	5.3	1	E10
do	do	3	E11
do	do	7	E12
do	do	15	E13
do	do	16	E14
92	5.3 cont	1,3	E15
do	do	10, 11	E16
do	do	16	E17
93	5.3 cont	1	E18
do	do	5	E19
do	do	6	E20
do	do	8	E21
95	5.4	1	E23
do	do	2	E24
do	do	3	E25
do	do	7	E26
do	do	10	E27
do	do	11	E28
do	do	21	E29

Chap. 5 page	Chap. 5 table	Row in table	App. E figure
do	do	22	E30
do	do	23	E31
96	5.4 cont	1	E32
do	do	2	E33A
do	do	3	E33B
do	do	4	E33C
do	do	5	E33D
do	do	6	E33E
do	do	8	E34
do	do	9	E35
do	do	10	E36
100	5.5	2	E38
do	do	3	E39
do	do	4	E40
do	do	5	E41
do	do	9	E42
do	do	10-15	E43
do	do	16	E44
do	do	19	E45
do	do	21	E46
do	do	23	E47
do	do	24	E48A-E
do	do	28	E48F
do	do	29	E49A
do	do	31	E49B
do	do	33	E49C
do	do	36	E50
101	5.5 cont	1	E51
do	do	4	E52

Chap. 5 page	Chap. 5 table	Row in table	App. E figure
do	do	5	E53A-E
do	do	10	E54
do	do	15	E55
do	do	18	E56A
do	do	22	E56B
102	5.6	1	E58
do	do	4	E59
do	do	5	E60
do	do	7	E61
do	do	8	E62
do	do	18	E63
do	do	20	E64
do	do	22	E65
do	do	24	E66
do	do	26	E67
do	do	27	E68
103	5.6 cont	2	E69
do	do	5	E70A
do	do	8	E70B
do	do	10	E70C
108	5.7	3	E72
do	do	4	E73
do	do	11	E74
do	do	12	E75
do	do	15	E76
do	do	17,18	E77
do	do	19	E78
do	do	21	E79

Chap. 5 page	Chap. 5 table	Row in table	App. E figure
do	do	24	E80A-F
109	5.7 cont	1	E81
do	do	5	E82
do	do	6,7	E83
do	do	8	E84
do	do	9	E85
do	do	10	E86
do	do	11	E87

Figure E1. Time series of Kīlauea earthquakes for the entire period 1967-1976. *A*, Earthquakes/day (eq/day) and earthquakes $M > 4$. *B*, Earthquake swarms for all regions.

Figure E2. 1967-1976: Time series plots at 1-year intervals for 1967–1976. *A–I*, Uwēkahuna tilt, times of eruption and intrusion, earthquake counts, and earthquakes of $M > 4$. *J–R*, Uwēkahuna tilt, times of eruption and intrusion, and earthquake swarms.

Figure E3. Earthquake swarms for the period 1 January 1967 to 1 April 1969 (pre-Mauna Ulu) for all regions. See caption for figure D1.

Figure E4. Map showing earthquake locations for the period 5 November 1967 to 13 July 1968, covering the entire 1967–68 Halema‘uma‘u eruption, on a background of labeled seismic regions (see fig. A4). Suspected deep intrusions are outlined in black. Data are shown for periods before (blue), during (orange), and after (green) the event, and eruptive vents are plotted as red triangles. Dates on figure in mm/dd/yyyy format.

Figure E5. Map showing activity around eruption of 22–26 August 1968. Exceptionally sparse shallow seismicity extends into the Koa'e Fault Zone. South flank seismicity is distributed parallel to the rift zone with a preeruption concentration suggesting a possible suspected deep intrusion beneath the eastern south flank (sf2mer). Eruption is followed by several earthquakes along the deep magma-supply path. Dates on figure in mm/dd/yyyy format.

Figure E6. Map showing activity around suspected deep intrusion of 16-17 December 1968. A heavy concentration of south flank earthquakes beneath site SDI 2 extends back to the pre-swarm period. Dates on figure in mm/dd/yyyy format.

Figure E7. Map showing activity around ruption of 22–28 February 1969. Shallow seismicity beneath Kīlauea’s summit accompanies the eruption. Note the high concentration of precursory south flank earthquakes. Dates on figure in mm/dd/yyyy format.

Figure E8. Map showing activity around traditional intrusion of 21March 1969. Dates on figure in mm/dd/yyyy format.

Figure E9. Earthquake swarms for all regions during the period 1 April 1969 to 1 January 1970 (Mauna Ulu period IA). High-fountaining episodes 1–12 are labeled on the top panel. Dates on figure in mm/dd/yyyy format.

Figure E10. Map showing activity around summit intrusion of 30 April 1969. The intrusion beneath Kīlauea’s summit, defined by a small swarm of shallow earthquakes and inflationary tilt (table 5.3) was preceded on the same day by south flank earthquakes suggestive of a deep intrusion. Dates on figure in mm/dd/yyyy format.

Figure E11. Map showing activity around inflationary intrusion of 4–6 May 1969. Dates on figure in mm/dd/yyyy format.

Figure E12. Map showing acitivity around inflationary intrusion of 21–22 May 1969. Note the abundance of precursory earthquakes beneath the south flank. These continue without interruption beyond the end of episode 1 (24–25 May 1969). Dates on figure in mm/dd/yyyy format.

Figure E13. Map showing acitivity around Mauna Ulu episodes 1 (24–25 May 1969) and 2 (27–29 May 1969). South flank earthquakes continue east of the Mauna Ulu vent with little rift seismicity, suggesting the possibility of deeper aseismic intrusion farther downrift. Dates on figure in mm/dd/yyyy format.

Figure E14. Map showing activity around suspected deep intrusion 3–9 June 1969. This is interpreted as an increase in spreading rate associated with increase in magma supply rate. Dates on figure in mm/dd/yyyy format.

Figure E15. Map showing activity around traditional intrusion of 3 July 1969. The intrusion is unaccompanied by summit deflation and perhaps was fed from previously intruded magma stored within the rift zone. Dates on figure in mm/dd/yyyy format.

Figure E16. Map showing activity around episodes 6 (3–4 August) and 7 (5–6 August) of Mauna Ulu phase IA. Most of the episodes following episode 1 are accompanied by very little if any seismicity beneath the rift zone. These episodes are an exception, but rift seismicity is still sparse. Dates on figure in mm/dd/yyyy format.

Figure E17. Maps showing activity around suspected deep intrusions preceding episode 10 (stage I of the Mauna Ulu eruption). Dates on figure in mm/dd/yyyy format. *A*, 29 September to 4 October 1969: Four suspected deep intrusions are concentrated south of the Koa'e Fault Zone and upper east rift (site SDI 2 of fig. 5.2). *B*, 7–11 October 1970: A suspected deep intrusion is located south of the seismic southwest rift zone (site SDI 1 of fig. 5.2)

Figure E18. Map showing activity around traditional intrusion of 2–4 November 1969. Dates on figure in mm/dd/yyyy format.

Figure E19. Map showing activity around inflationary intrusion of 11–12 December 1969. This and figures E20 and E21 show the location of earthquakes that heralded the end of high fountaining at Mauna Ulu on 30 December 1969. Rift seismicity is dominantly beneath the seismic southwest rift zone. Dates on figure in mm/dd/yyyy format.

Figure E20. Map showing activity around inflationary intrusion of 23 December 1969. This and figures E19 and E21 show the location of earthquakes that heralded the end of high fountaining at Mauna Ulu on 30 December 1969. Rift seismicity is dominantly beneath the seismic southwest rift zone. Dates on figure in mm/dd/yyyy format.

Figure E21. Map showing activity around suspected deep intrusion (site SDI 2) of 27–29 December 1969 associated with simultaneous inflationary intrusion beneath the upper east rift zone and upper seismic southwest rift zone. The latter intrusions anticipate the paired inflationary intrusions of Mauna Ulu stage IB. This and figures E19 and E21 show the location of earthquakes that heralded the end of high fountaining at Mauna Ulu on 30 December 1969. Rift seismicity is dominantly beneath the seismic southwest rift zone. Dates on figure in mm/dd/yyyy format.

Figure E22. Kilauea activity, 1 January 1970 to 15 June 1971 (Mauna Ulu eruption stage IB). Earthquake swarms are shown for all regions. See also caption for figure E1. Dates on figure in mm/dd/yyyy format.

Figure E23. Map showing activity around suspected deep intrusions of 15 January 1970. Two suspected deep intrusions are defined by broken earthquake sequences of 3–7 events. The more westerly sequence occurs before 12 January, overlapping in time with the more easterly sequence. Dates on figure in mm/dd/yyyy format.

Figure E24. Map showing activity around summit intrusion of 22 January 1970, which was preceded by a concentration of deep magma supply earthquakes. Dates on figure in mm/dd/yyyy format.

Figure E25. Map showing continuation of the inflationary intrusion through 11 February 1970. Deflationary tilt and earthquake locations indicate dominant magma transfer to east rift zone. Dates on figure in mm/dd/yyyy format.

Figure E26. Map showing activity around paired inflationary intrusion of 17–23 March 1970. Dates on figure in mm/dd/yyyy format.

Figure E27. Map showing activity around paired inflationary intrusion of 4–7 April 1970, preceding a traditional intrusion on 7–8 April 1970. Dates on figure in mm/dd/yyyy format.

Figure E28. Map showing activity around a traditional intrusion beneath the east rift zone, 15–18 May 1970. This is an exceptionally energetic event and appears to be accompanied and followed by suspected deep intrusion at site DSDI 2. The intrusion triggered six deep tectonic earthquakes beneath the eastern south flank. Dates on figure in mm/dd/yyyy format.

Figure E29. Map showing activity around south flank earthquake swarm of 15–16 July 1970. Dates on figure in mm/dd/yyyy format.

Figure E30. Map showing activity around south flank earthquake ($M_{4.46}$) at 01:27 on 21 September 1970, which was preceded by two foreshocks and many aftershocks. The main part of the aftershock sequence resembles a suspected deep intrusion. Dates on figure in mm/dd/yyyy format.

Figure E31. Map showing activity around summit intrusion of 26–27 October 1970. Dates on figure in mm/dd/yyyy format.

Figure E32. Map showing activity around summit intrusion of 12–14 December 1970, possibly preceded and accompanied by a suspected deep intrusion. Dates on figure in mm/dd/yyyy format.

Figure E33. Maps showing activity around a series of inflationary intrusions between 22 December 1970 and 5 January 1971. Small suspected deep intrusions occur before, between and after the intrusions, along with a normal south flank response to rift intrusion. Dates on figure in mm/dd/yyyy format. *A*, 21–23 December 1970. The initial intrusion is beneath Kīlauea's summit. *B*, 25–26 December 1970. The second and third intrusions extend from the uppermost seismic southwest rift zone westward into the traditional southwest rift zone. *C*, 28–29 December 1970. The second and third intrusions extend from the uppermost seismic southwest rift zone westward into the traditional southwest rift zone. *D*, 29 December 1970 to 1 January 1971. The fourth and fifth intrusions are

concentrated beneath the summit and uppermost seismic southwest rift zone. *E*, 3–6 January 1971. The fourth and fifth intrusions are concentrated beneath the summit and uppermost seismic southwest rift zone.

Figure E34. Map showing activity around inflationary intrusion of 1–2 June 1971. Dates on figure in mm/dd/yyyy format.

Figure E35. Map showing activity around inflationary intrusion of 8–10 June 1971. Dates on figure in mm/dd/yyyy format.

Figure E36. Map showing activity around inflationary intrusion of 11–14 June 1971. Dates on figure in mm/dd/yyyy format.

Figure E37. Kilauea activity, 16 June 1971 to 4 February 1972 (Mauna Ulu pause). Earthquake swarms are shown for all regions. Dates on figure in mm/dd/yyyy format. See also caption for figure E1.

Figure E38. Map showing activity around inflationary intrusion of 12–14 July 1971 beneath upper seismic southwest rift zone, preceded by suspected deep intrusion on 9 July. Dates on figure in mm/dd/yyyy format.

Figure E39. Map showing activity around inflationary intrusion of 18–19 July 1971 beneath upper seismic southwest rift zone. Dates on figure in mm/dd/yyyy format.

Figure E40. Map showing activity around inflationary intrusion of 21–24 July 1971 beneath upper east rift zone. Dates on figure in mm/dd/yyyy format.

Figure E41. Map showing activity around inflationary intrusion of 27–30 July 1971 beneath both rift zones. Dates on figure in mm/dd/yyyy format.

Figure E42. Map showing activity around inflationary intrusion of 5–6 August 1971 beneath both rift zones. Dates on figure in mm/dd/yyyy format.

Figure E43. Maps showing locations of earthquakes associated with the intrusion that heralded the summit eruption of 14 August 1971. Dates on figure in mm/dd/yyyy format. *A*, Precursory seismicity, 8 August. Earthquakes beneath upper seismic southwest rift zone. *B*, Precursory seismicity, 9 August. Earthquakes beneath upper seismic southwest rift zone. *C*, Precursory seismicity, 10 August. Earthquakes beneath upper seismic southwest rift zone. *D*, Precursory seismicity, 11 August. Earthquakes beneath both rift zones, with increasing seismicity beneath east rift zone. *E*, Precursory seismicity, 12 August. Earthquakes beneath both rift zones, with increasing seismicity beneath east rift zone. *F*, Precursory seismicity, 13 August.

Figure E44. Map showing activity around summit eruption of 14 August 1971, including precursory seismicity on that date ending at the time of eruption. Dates on figure in mm/dd/yyyy format.

Figure E45. Map showing activity around inflationary intrusions between eruptions—27–29 August 1971. Dates on figure in mm/dd/yyyy format.

Figure E46. Map showing activity around inflationary intrusions between eruptions, 6–8 September 1971. Dates on figure in mm/dd/yyyy format.

Figure E47. Map showing activity around inflationary intrusions between eruptions, 12–14 September 1971. Dates on figure in mm/dd/yyyy format.

Figure E48. Maps showing locations of earthquakes associated with the intrusion that heralded the summit eruption of 19 September. Dates on figure in mm/dd/yyyy format. *A*, Activity of 17 September. *B*, Activity of 18 September. *C*, Activity of 19 September. *D*, Activity of 20 September. *E*, Activity of 21 September. *F*, Activity of 22 September, including deep magma-supply swarm.

Figure E49. Maps showing locations of earthquakes associated with the southwest rift eruption of 24 September 1971. Dates on figure in mm/dd/yyyy format. *A*, Preeruption seismicity on 23–24 September. *B*, Posteruption seismicity on 24–25 September. Seismicity masked by tremor and not recorded during this short eruption. *C*, Posteruption seismicity on 26 September to 1 October.

Figure E50. Map showing activity around suspected deep intrusion of 8–9 October 1971. Dates on figure in mm/dd/yyyy format.

Figure E51. Map showing activity around suspected deep intrusion of 14–16 November 1971 at site SDI 1. Dates on figure in mm/dd/yyyy format.

Figure E52. Map showing activity around inflationary intrusion of 12–13 December 1971. Dates on figure in mm/dd/yyyy format.

Figure E53. Maps showing seismicity associated with the suspected deep intrusions of 22–30 December 1971. Dates on figure in mm/dd/yyyy format. *A*, 12/22. Earthquake swarm on 22 December beneath central south flank (suspected deep intrusion?) at site SDI 2. *B*, Activity on 23 December; suspected deep intrusions at sites SDI 1 and SDI 2. *C*, Activity on 24–25 December; continuation of suspected deep intrusion at site SDI 1. *D*, Activity on 26–28 December; continuation of suspected deep intrusion at site SDI 1. *E*, Activity 29–31 December; continuation of suspected deep intrusion followed by intrusion into upper east rift zone and possible new suspected deep intrusion near site SDI 2.

Figure E54. Map showing activity on 1–4 January 1972. Suspected deep intrusion shown by earthquake swarms associated with the return of eruption at Mauna Ulu on 4 February 1972. Dates on figure in mm/dd/yyyy format.

Figure E55. Map showing activity on 10-12 January 1972. Traditional intrusion beneath upper east rift zone with south flank response before and after. Earthquake swarms associated with the return of eruption at Mauna Ulu on 4 February 1972. Dates on figure in mm/dd/yyyy format.

Figure E56. Maps showing activity around the two last intrusions before the return of lava to Mauna Ulu. Dates on figure in mm/dd/yyyy format. *A*, Activity on 18–25 January 1972. Inflationary intrusion beneath uppermost east rift zone on 20–22 January. *B*, Activity on 26 January-1 February. Inflationary intrusion beneath uppermost east rift zone on 26–28 January.

Figure E57. Kīlauea activity, 4 February 1972–14 June 1974 (Mauna Ulu stage II). Earthquake swarms are shown for all regions. Dates on figure in mm/dd/yyyy format.

Figure E58. Map showing seismic activity, 26 January-1 February 1972, precursory to Mauna Ulu stage II. Dates on figure in mm/dd/yyyy format.

Figure E59. Map showing activity around traditional intrusion of 18 March 1972, followed by an extended south flank response. Dates on figure in mm/dd/yyyy format.

Figure E60. Map showing activity around suspected deep intrusion of 1–2 May 1972 near site SDI 2. Dates on figure in mm/dd/yyyy format.

Figure E61. Map showing activity around suspected deep intrusion(?) of 7–8 March 1973. Dates on figure in mm/dd/yyyy format.

Figure E62. Map showing south flank earthquake on 15 April 1973. The aftershock pattern mimics that of a slow earthquake. Dates on figure in mm/dd/yyyy format.

Figure E63. Map showing activity around traditional intrusion of 8–10 June 1973 into the east rift zone and adjacent Koa'e Fault Zone. Dates on figure in mm/dd/yyyy format.

Figure E64. Map showing activity around traditional intrusion of 25 July 1973—a small intrusion followed by a large south flank response. Dates on figure in mm/dd/yyyy format.

Figure E65. Map showing activity around 10–11 November 1973 east rift eruption in and near Pauahi Crater. Eruption continues at low level until 9 December 9. Some south flank earthquakes accompanying the extended eruption mimic a slow earthquake pattern, but are not concentrated in time. Dates on figure in mm/dd/yyyy format.

Figure E66. Map showing activity around suspected deep intrusion of 25–26 December 1973. Dates on figure in mm/dd/yyyy format.

Figure E67. Map showing activity around inflationary intrusion of 23 February to 4 March 1973. The intrusion continues for an unusually long time. Dates on figure in mm/dd/yyyy format.

Figure E68. Map showing activity around inflationary intrusion of 10–19 March 1973. Dates on figure in mm/dd/yyyy format.

Figure E69. Map showing locations of earthquakes associated with a traditional intrusion on 24 March 1974. Intrusion is followed by a suspected deep intrusion near site SDI 2 and by a cluster of deep magma-supply earthquakes. Dates on figure in mm/dd/yyyy format.

Figure E70. Maps showing increased seismicity associated with the end of eruption at Mauna Ulu in June 1974. Dates on figure in mm/dd/yyyy format. *A*, Summit intrusion of 22 May 1974. Preintrusion seismicity includes a possible suspected deep intrusion near

site SDI 2 and a cluster of three deep magma-supply earthquakes. *B*, Suspected deep intrusion on 24–25 May near sites SDI 1 and 2. *C*, East rift intrusion of 28–30 May.

Figure E71. Kilauea activity, 15 June 1974–29 November 1975 (Post Mauna Ulu). Earthquake swarms are shown for all regions.

Figure E72. Map showing activity around suspected deep intrusion of 21–22 June 1974. Dates on figure in mm/dd/yyyy format.

Figure E73. Map showing activity around summit intrusion of 27 June 1974. Dates on figure in mm/dd/yyyy format.

Figure E74. Map showing activity around eruption of 19 September 1974. The eruption is apparently aseismic, preceded by intrusion into upper seismic southwest rift zone and followed by south flank seismicity. Dates on figure in mm/dd/yyyy format.

Figure E75. Map showing activity around inflationary intrusion of 6–15 October 1974, a composite of small swarms of earthquakes beneath the east rift zone and south flank. Dates on figure in mm/dd/yyyy format.

Figure E76. Map showing activity around inflationary intrusions of 31 October–2 November and 5–6 November 1974. The first intrusion is confined to the upper seismic southwest rift zone, whereas the second is a paired seismic southwest rift and east rift intrusion. Dates on figure in mm/dd/yyyy format.

Figure E77. Map showing activity around inflationary intrusions of 21–25 November and 1–5 December 1974. Both intrusions are focused beneath the upper seismic southwest rift zone, with the second intrusion showing additional activity beneath Kilauea's summit. Dates on figure in mm/dd/yyyy format.

Figure E78. Map showing activity around inflationary intrusion of 6–14 December 1974. Locus of this intrusion shifts to the upper east rift zone, and it is followed by a cluster of deep magma-supply earthquakes. Dates on figure in mm/dd/yyyy format.

Figure E79. Map showing activity around inflationary intrusion of 17–21 December 1974. A paired intrusion beneath the upper parts of both rift zones. Dates on figure in mm/dd/yyyy format.

Figure E80. Following the 31 December 1974 southwest rift eruption, intense intrusion continued beneath the lower seismic southwest rift zone, and south flank seismicity resumes beneath the upper east rift zone and Koa'e. Dates on figures in mm/dd/yyyy format. *A*, Activity on 1 January 1975. *B*, Activity on 2 January 1975. *C*, Activity on 3 January 1975. *D*, Activity on 4 January 1975. *E*, Activity on 5 January 1975. Seismicity begins to diminish beneath the lower southwest rift zone and western south flank. *F*, Activity on 6–8 January 1975.

Figure E81. Map showing activity around suspected deep intrusions of 15–16 and 18–20 March 1975. Clusters of south flank earthquakes at sites SDI 1, 2, and in between 1 and 2 are followed by a cluster of deep magma-supply earthquakes. Dates on figure in mm/dd/yyyy format.

Figure E82. Map showing activity around suspected deep intrusion of 24–26 March 1975. A continuation of seismic patterns shown in the preceding figure. Dates on figure in mm/dd/yyyy format.

Figure E83. Map showing activity around suspected deep intrusions of 2–3 and 5 April 1975. An intensification of the activity shown in March. Dates on figure in mm/dd/yyyy format.

Figure E84. Map showing activity around suspected deep intrusion of 16–18 April 1975 at site SDI 2. Dates on figure in mm/dd/yyyy format.

Figure E85. Map showing activity around suspected deep intrusion of 5 August 1975 at site SDI 1. Dates on figure in mm/dd/yyyy format.

Figure E86. Map showing activity around suspected deep intrusion of 23 October 23 at site SDI 2. Dates on figure in mm/dd/yyyy format.

Figure E87. Map showing activity around inflationary intrusion of 12-14 November 1975. Dates on figure in mm/dd/yyyy format.

Figure E1 a. 1/1/1967-12/1/1975 short-period located earthquakes, single eq ($M \geq 4.0$) and tilt

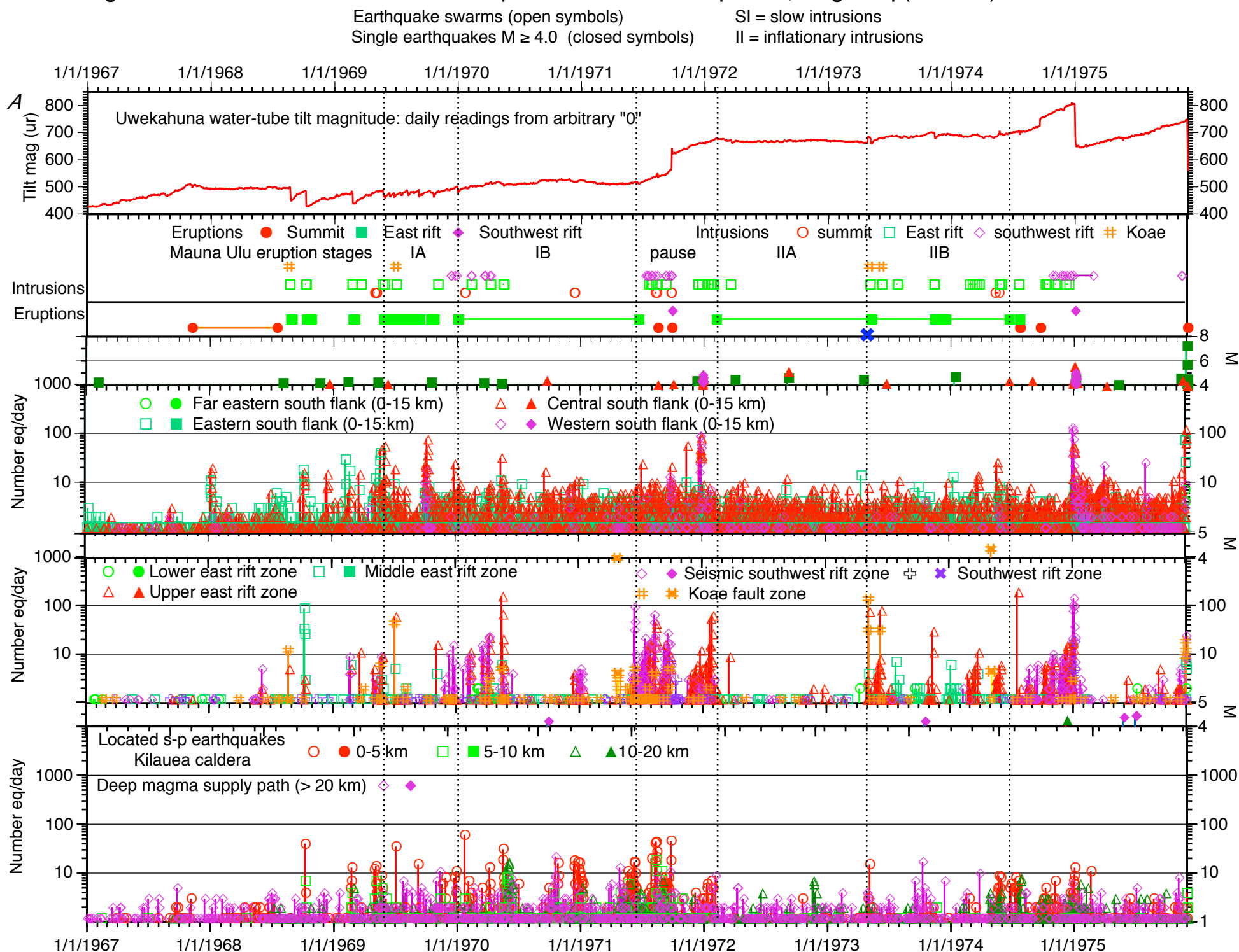
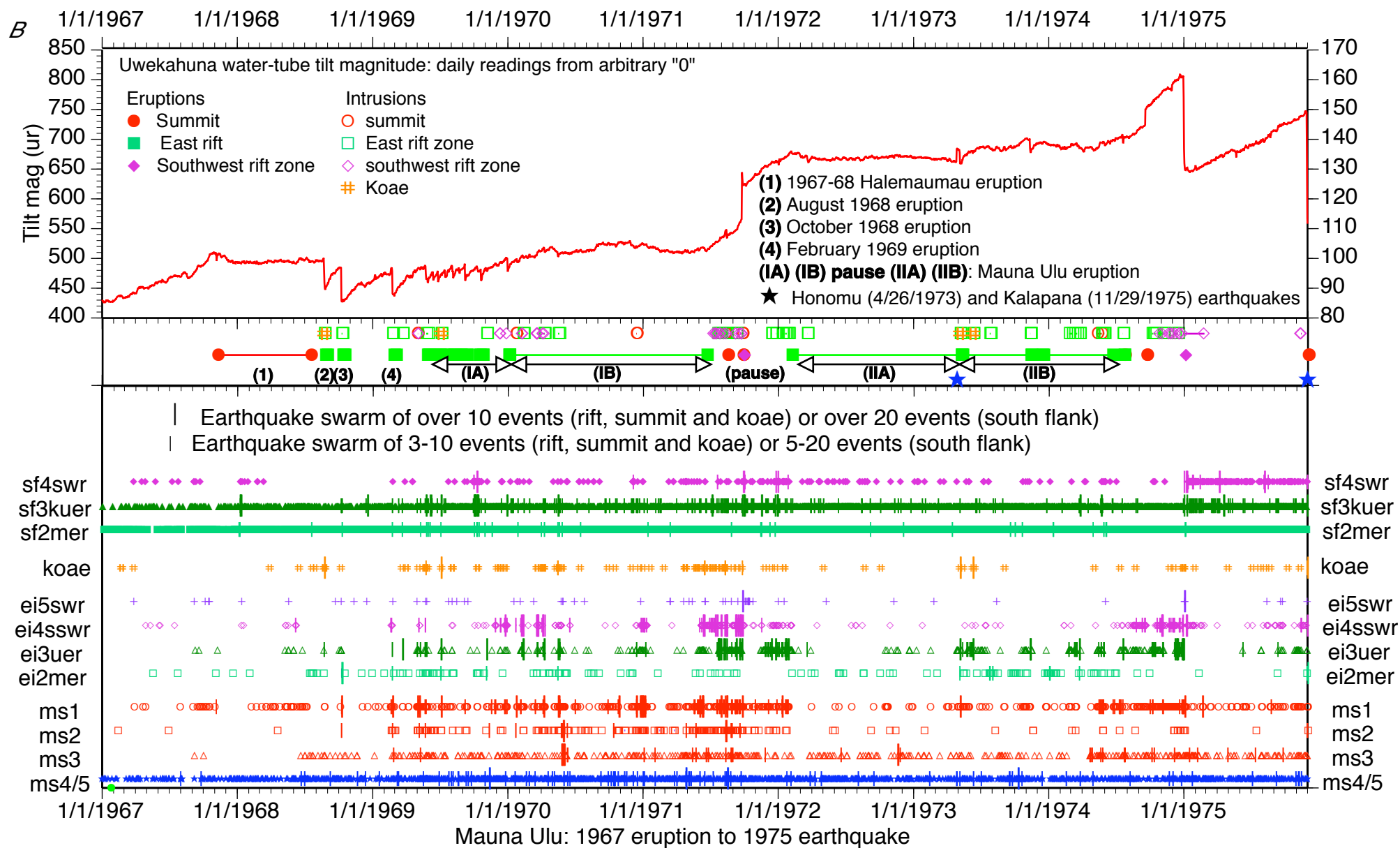


Figure E1b

Mauna Ulu: 1967-68 eruption through 1975 earthquake



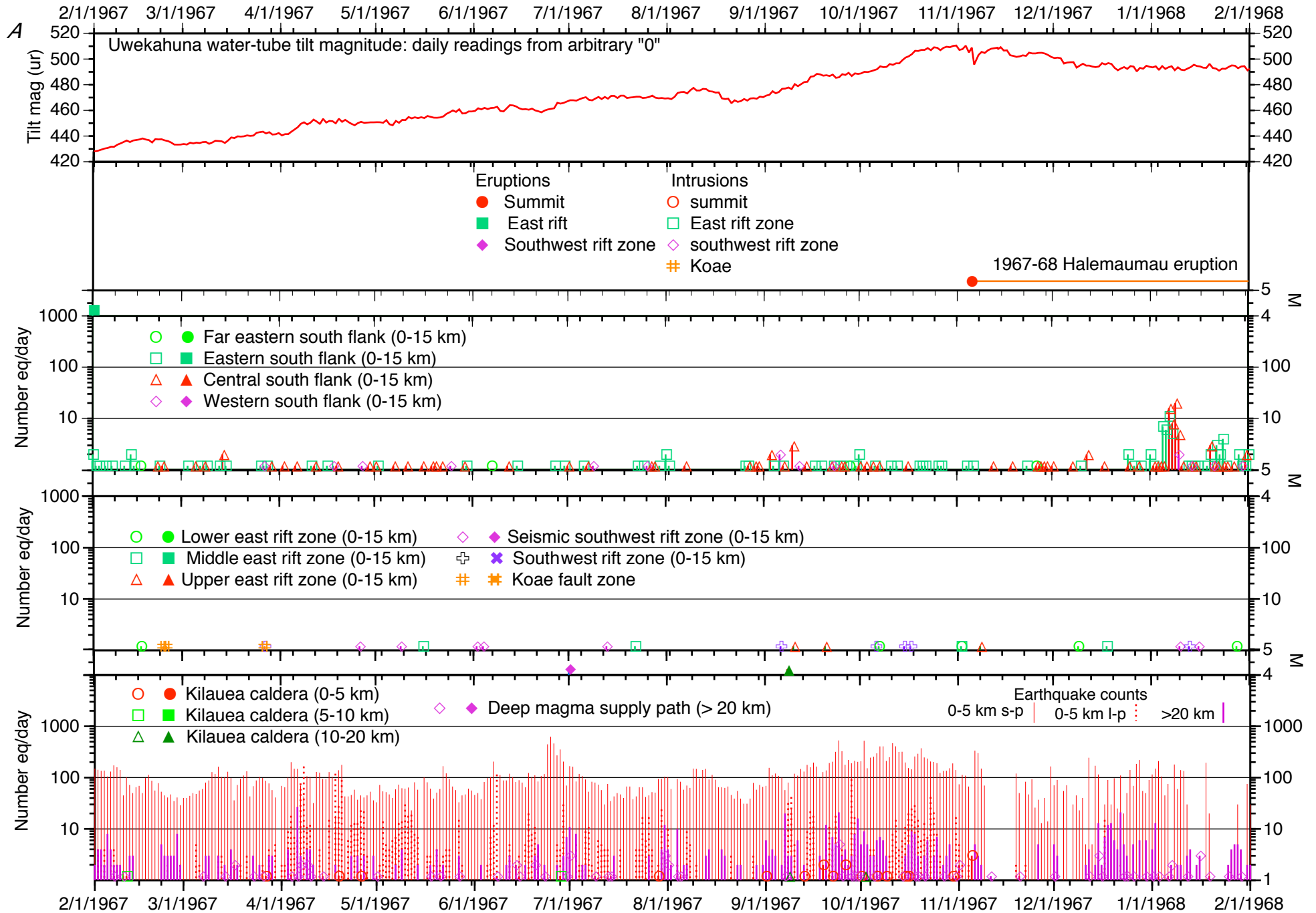
Appendix Figure E2 a. 2/1/1967-2/1/1968 eq counts, single eq ($M \geq 4.0$) and tilt

Earthquake swarms (open symbols)

SI = slow intrusions

Single earthquakes $M \geq 4.0$ (closed symbols)

II = inflationary intrusions



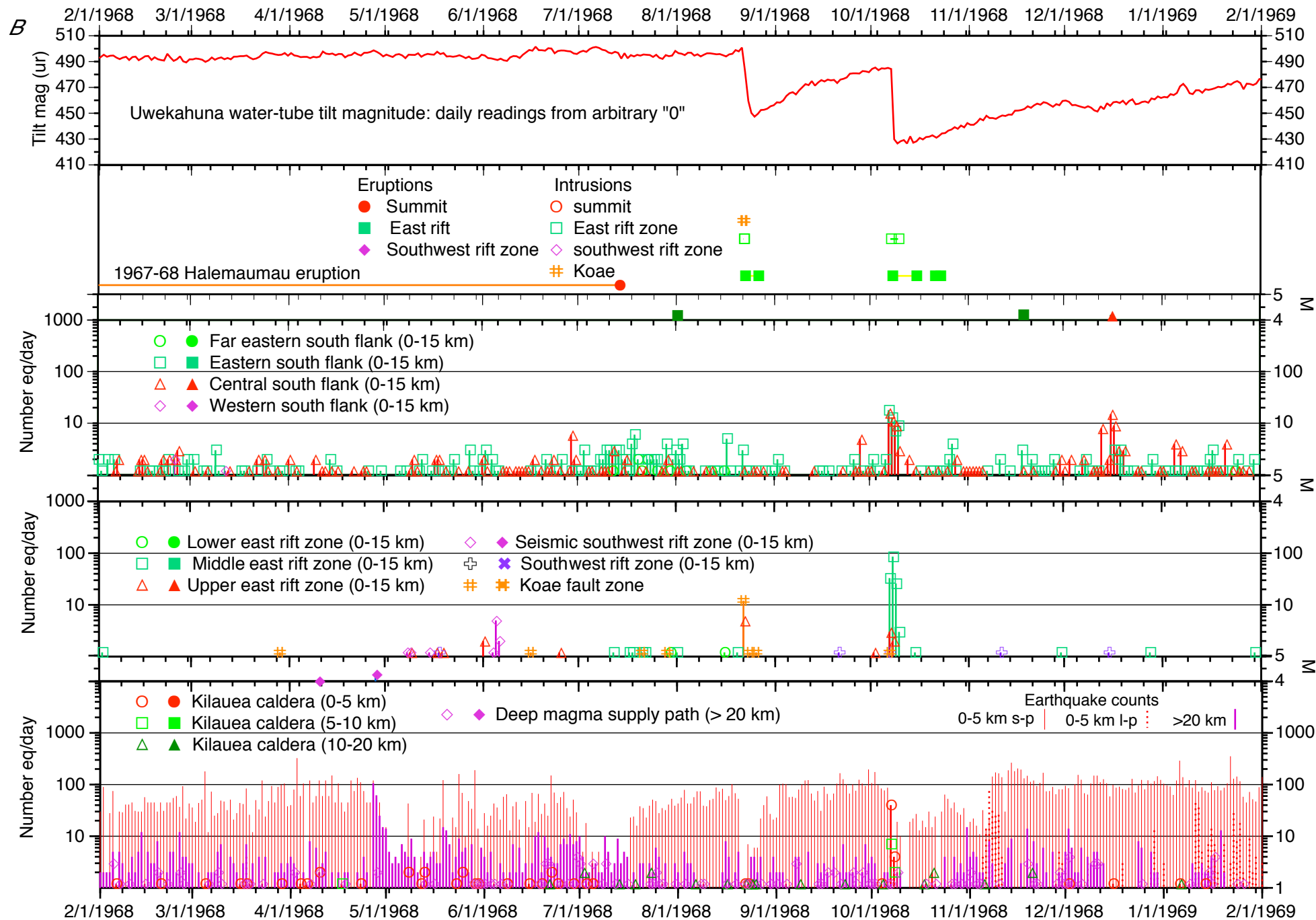
Appendix Figure E2 b. 2/1/1968-2/1/1969 eq counts, single eq ($M \geq 4.0$) and tilt

Earthquake swarms (open symbols)

SI = slow intrusions

Single earthquakes $M \geq 4.0$ (closed symbols)

II = inflationary intrusions



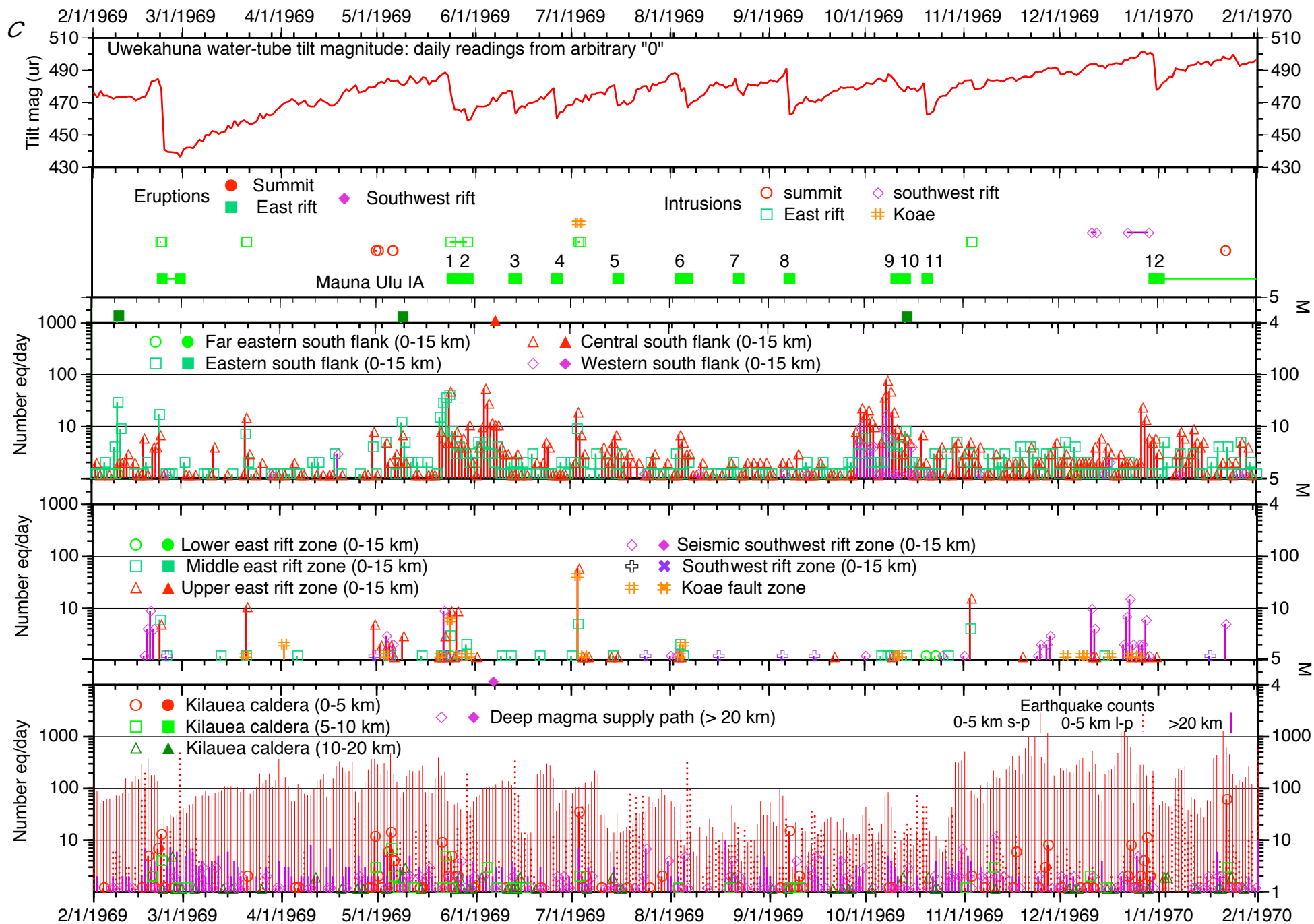
Appendix Figure E2 c. 2/1/1969-2/1/1970 eq counts, single eq (M ≥ 4.0) and tilt

Earthquake swarms (open symbols)

SI = slow intrusions

Single earthquakes M ≥ 4.0 (closed symbols)

II = inflationary intrusions



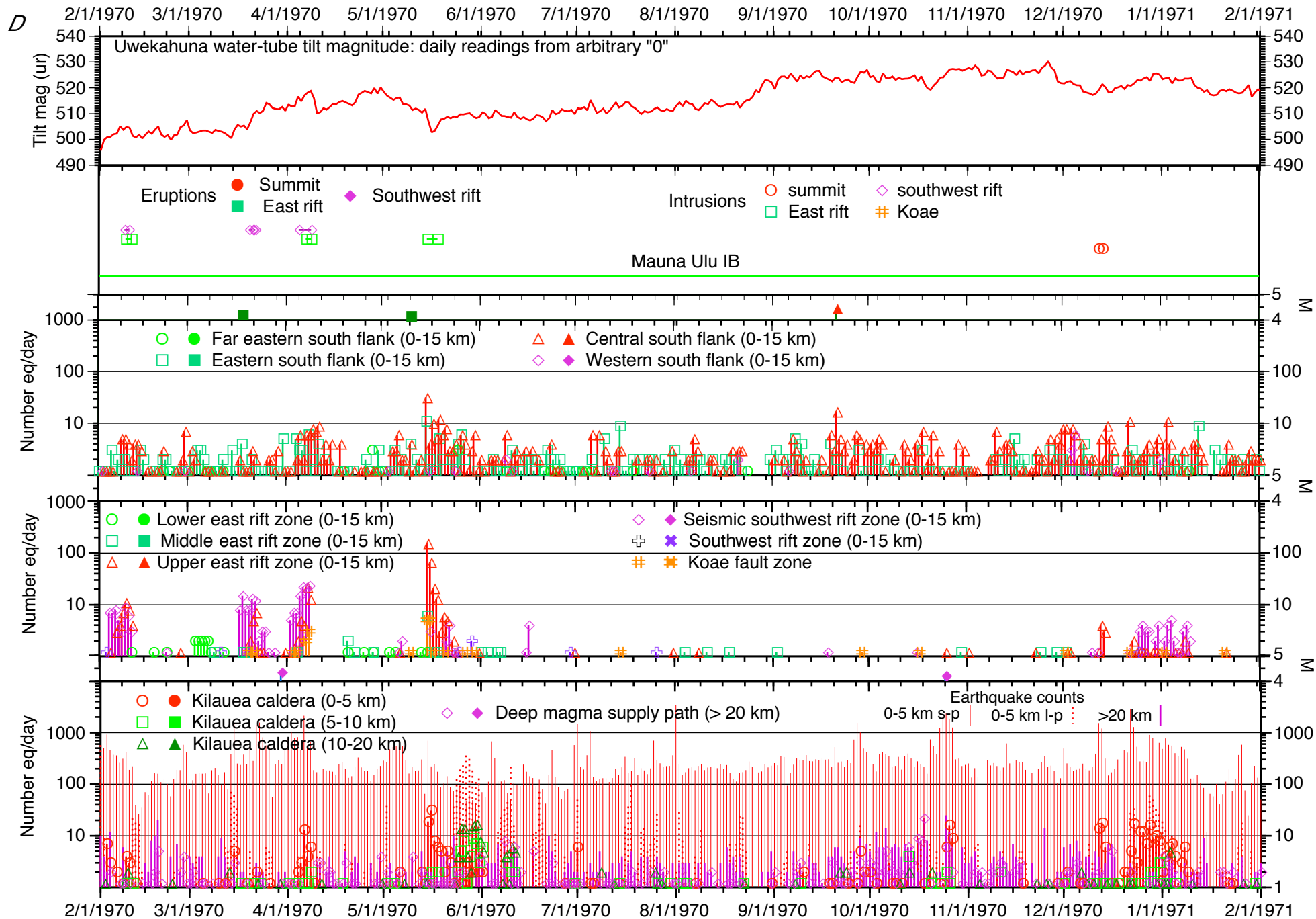
Appendix Figure E2 d. 2/1/1970-2/1/1971 eq counts, single eq ($M \geq 4.0$) and tilt

Earthquake swarms (open symbols)

SI = slow intrusions

Single earthquakes $M \geq 4.0$ (closed symbols)

II = inflationary intrusions



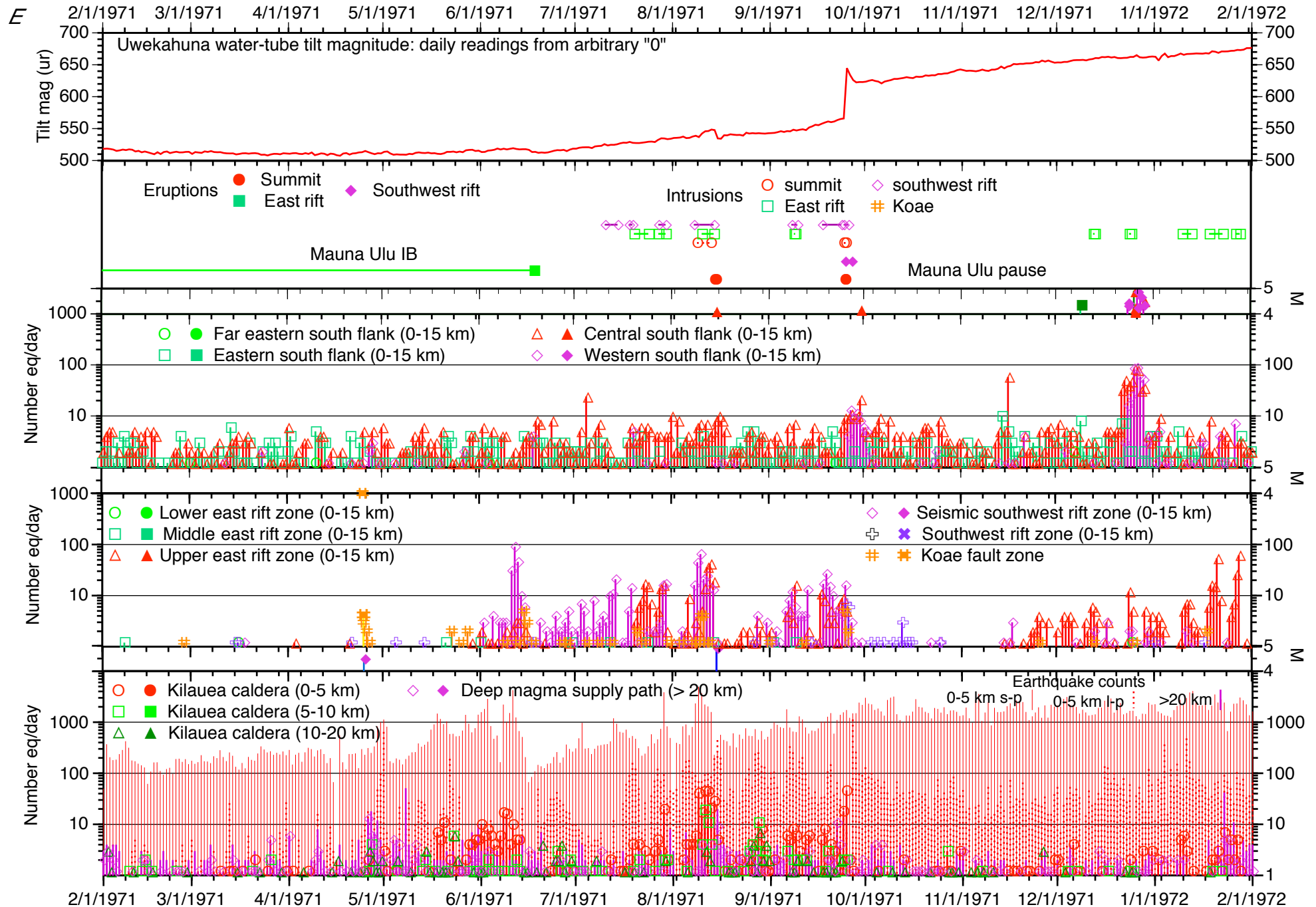
Appendix Figure E2 e. 2/1/1971-2/1/1972 eq counts, single eq (M ≥ 4.0) and tilt

Earthquake swarms (open symbols)

SI = slow intrusions

Single earthquakes M ≥ 4.0 (closed symbols)

II = inflationary intrusions



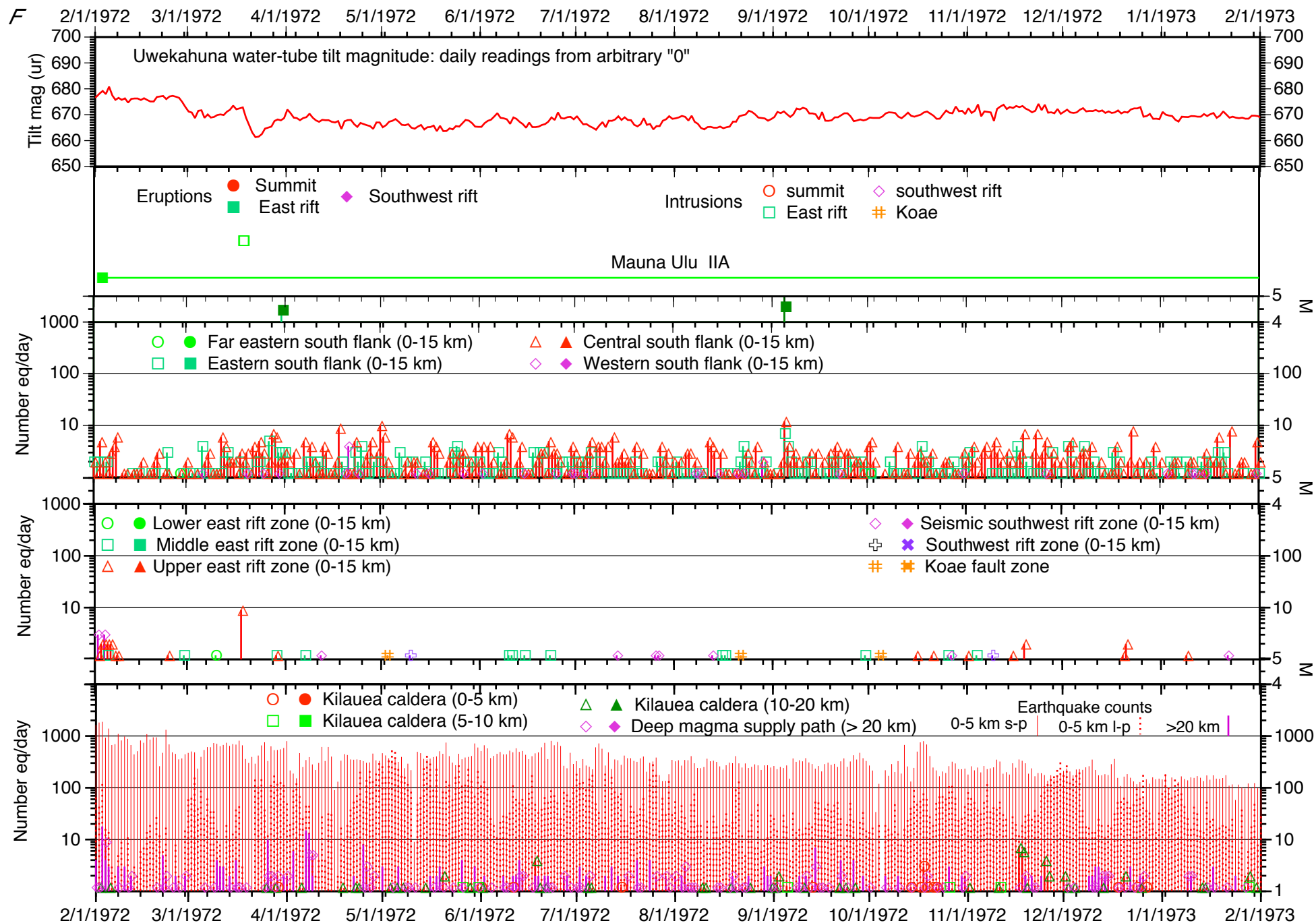
Appendix Figure E2 f. 2/1/1972-2/1/1973 eq counts, single eq ($M \geq 4.0$) and tilt

Earthquake swarms (open symbols)

SI = slow intrusions

Single earthquakes $M \geq 4.0$ (closed symbols)

II = inflationary intrusions



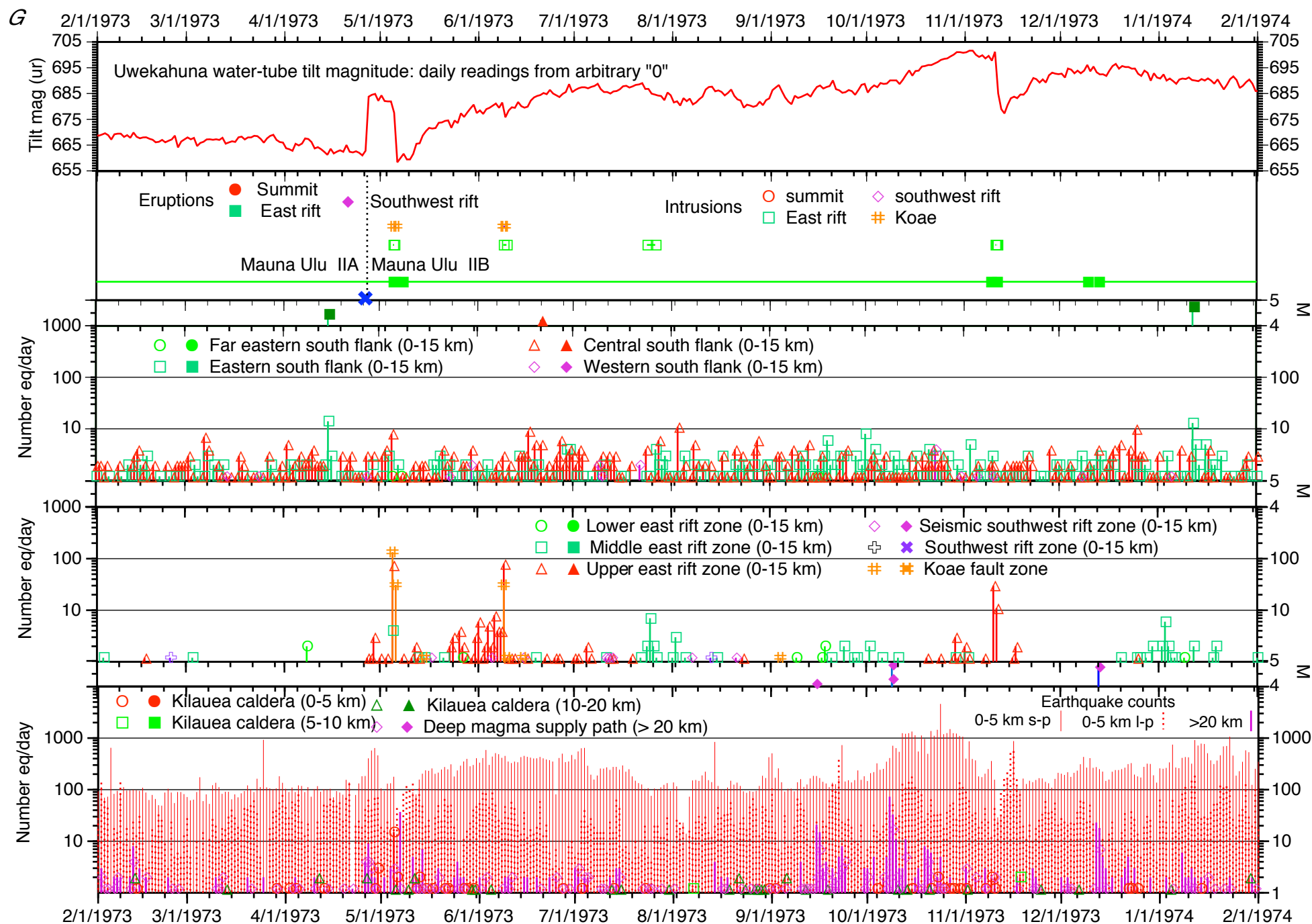
Appendix Figure E2 g. 2/1/1973-2/1/1974 eq counts, single eq ($M \geq 4.0$) and tilt

Earthquake swarms (open symbols)

SI = slow intrusions

Single earthquakes $M \geq 4.0$ (closed symbols)

II = inflationary intrusions



Appendix Figure E2 h. 2/1/1974-2/1/1975 eq counts, single eq ($M \geq 4.0$) and tilt

Earthquake swarms (open symbols)

SI = slow intrusions

Single earthquakes $M \geq 4.0$ (closed symbols)

II = inflationary intrusions



Appendix Figure E2 i. 2/1/1975-2/1/1976 eq counts, single eq ($M \geq 4.0$) and tilt

Earthquake swarms (open symbols)

SI = slow intrusions

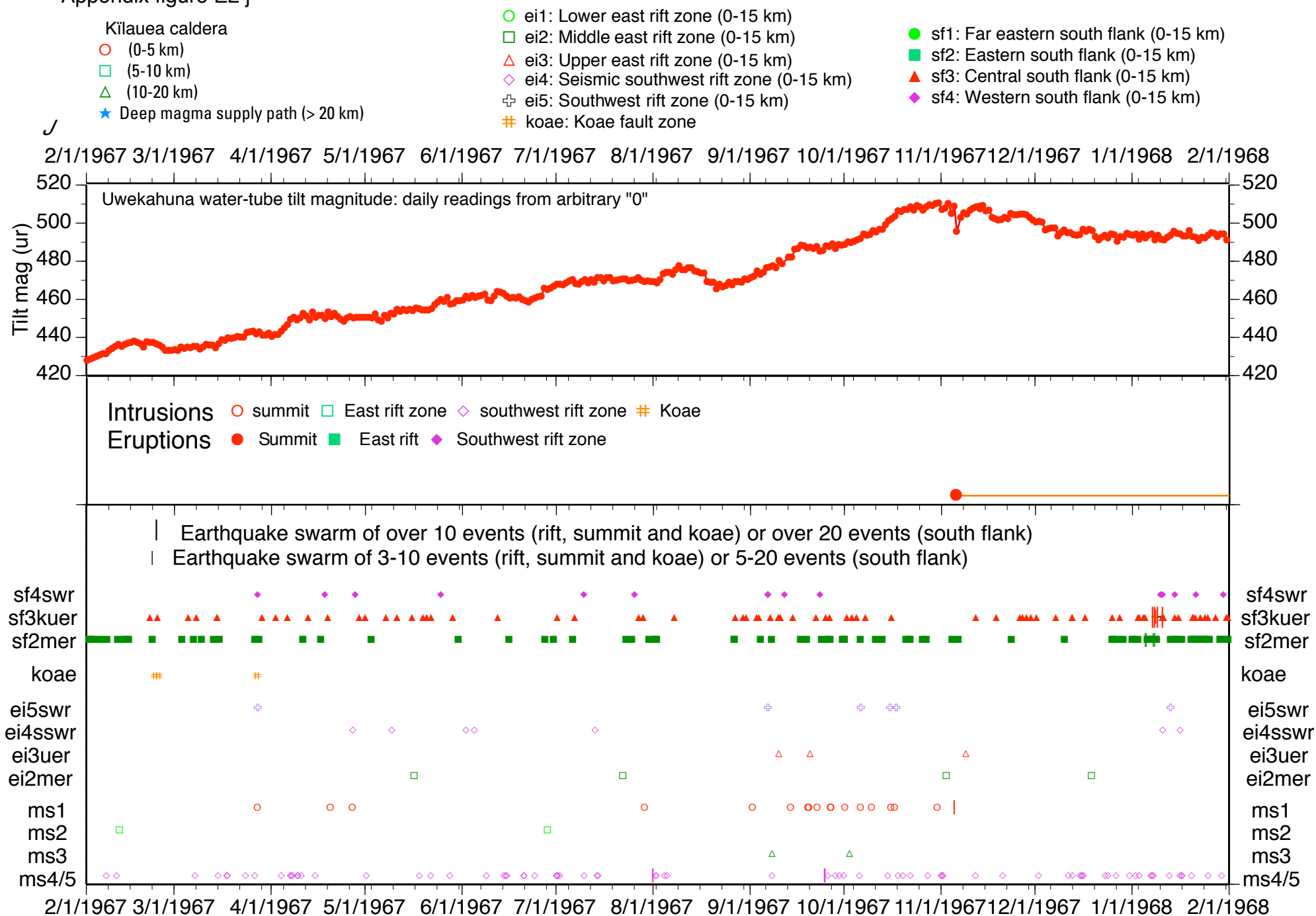
Single earthquakes $M \geq 4.0$ (closed symbols)

II = inflationary intrusions



Appendix figure E2 j

Mauna Ulu: 1967-68 eruption through 1975 earthquake



Mauna Ulu: 1967-68 eruption through 1975 earthquake

Appendix figure E2 k

Kīlauea caldera

○ (0-5 km)

□ (5-10 km)

△ (10-20 km)

★ Deep magma supply path (> 20 km)

○ ei1: Lower east rift zone (0-15 km)

□ ei2: Middle east rift zone (0-15 km)

△ ei3: Upper east rift zone (0-15 km)

◇ ei4: Seismic southwest rift zone (0-15 km)

⊕ ei5: Southwest rift zone (0-15 km)

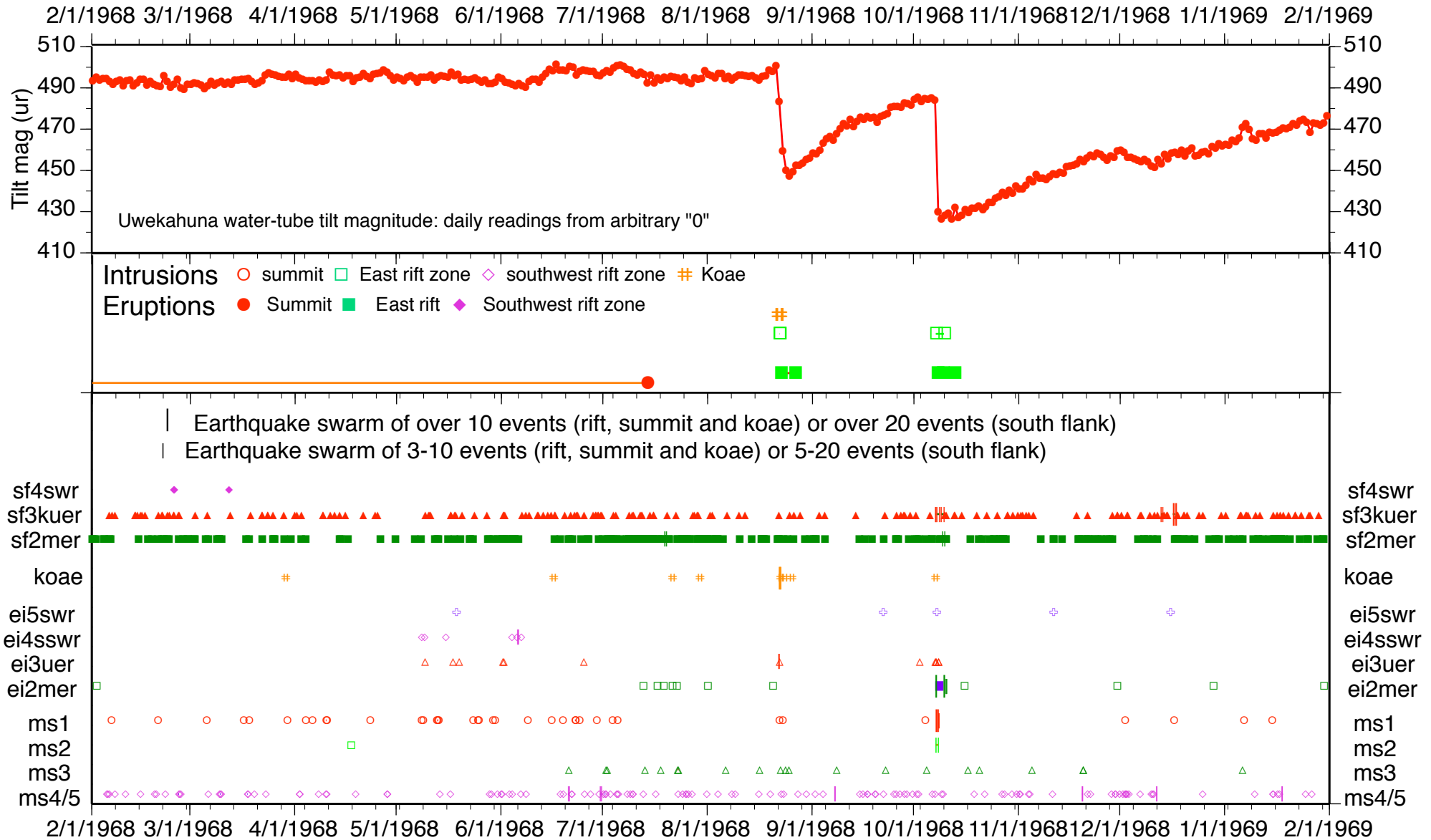
⊞ koae: Koae fault zone

● sf1: Far eastern south flank (0-15 km)

■ sf2: Eastern south flank (0-15 km)

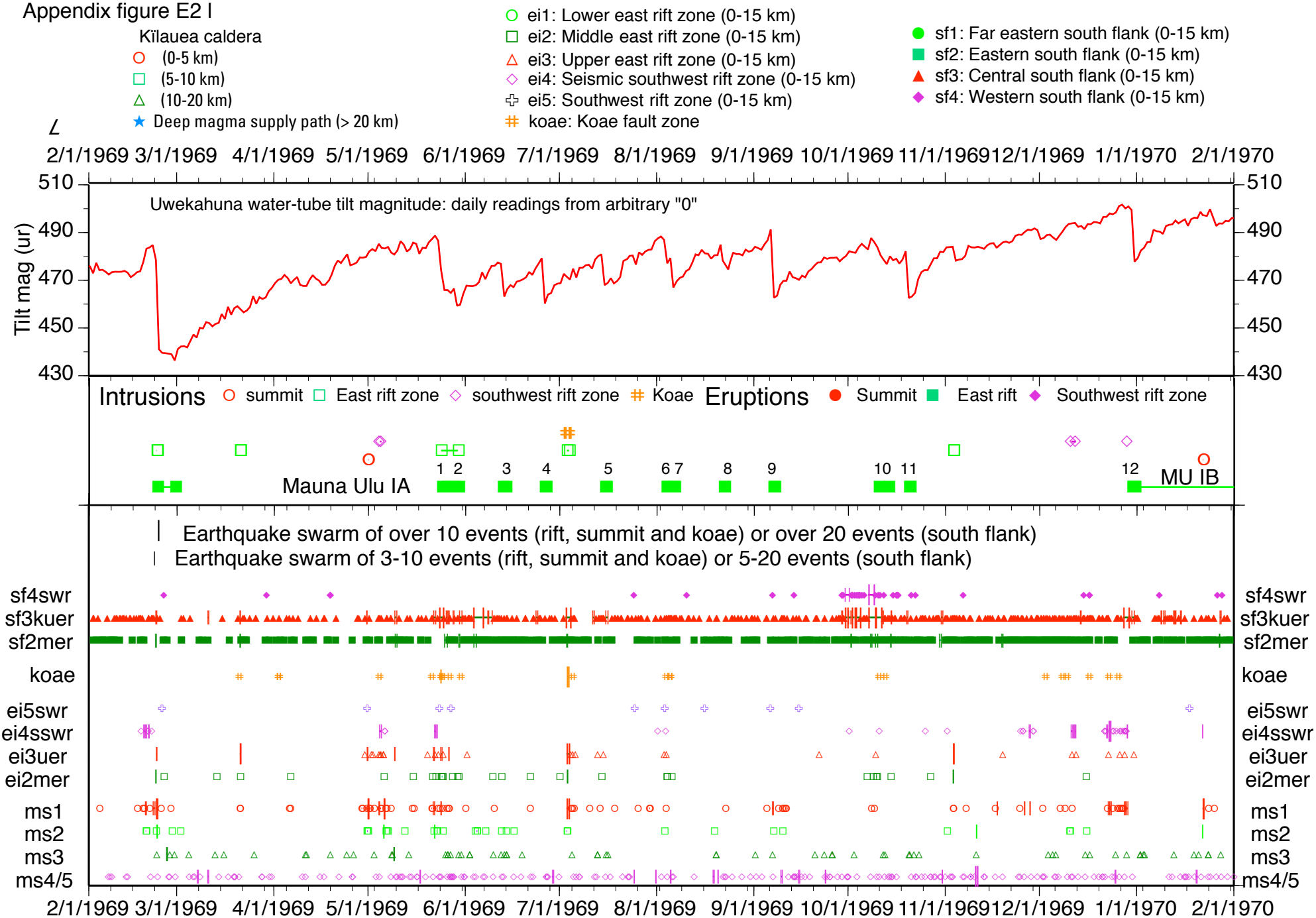
▲ sf3: Central south flank (0-15 km)

◆ sf4: Western south flank (0-15 km)



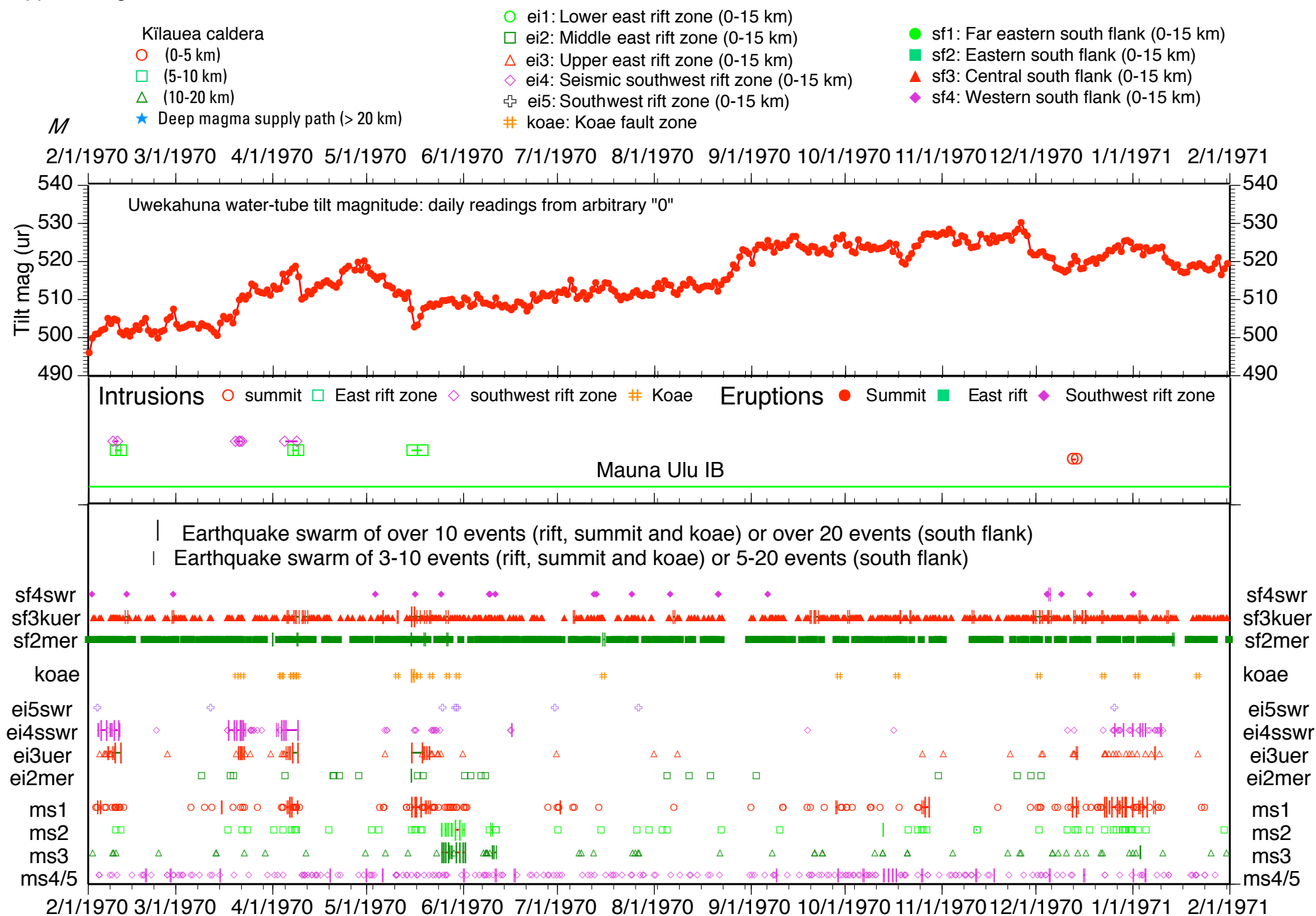
Mauna Ulu: 1967-68 eruption through 1975 earthquake

Appendix figure E2 I



Appendix figure E2 m

Mauna Ulu: 1967-68 eruption through 1975 earthquake



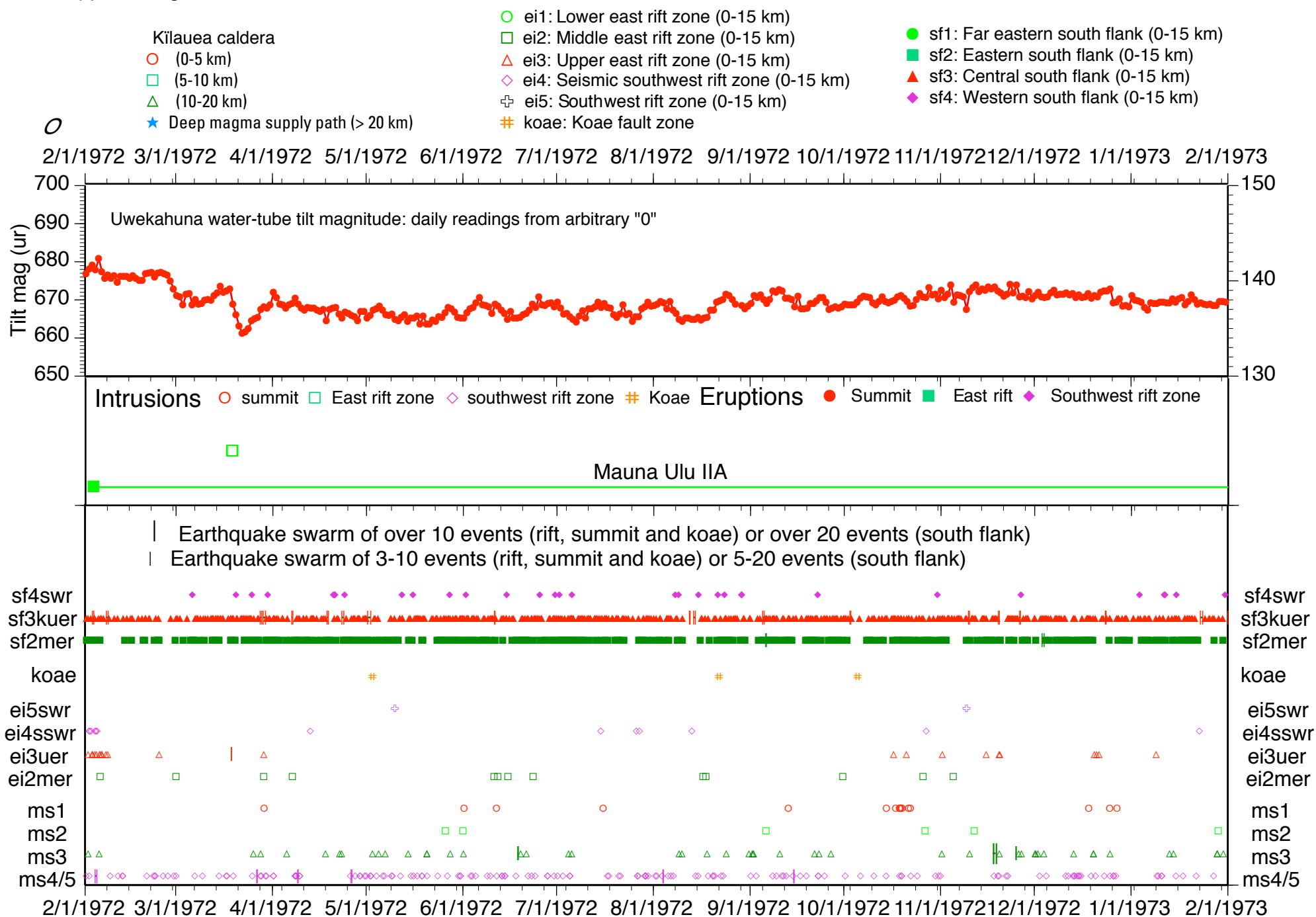
Mauna Ulu: 1967-68 eruption through 1975 earthquake

Appendix figure E2 n



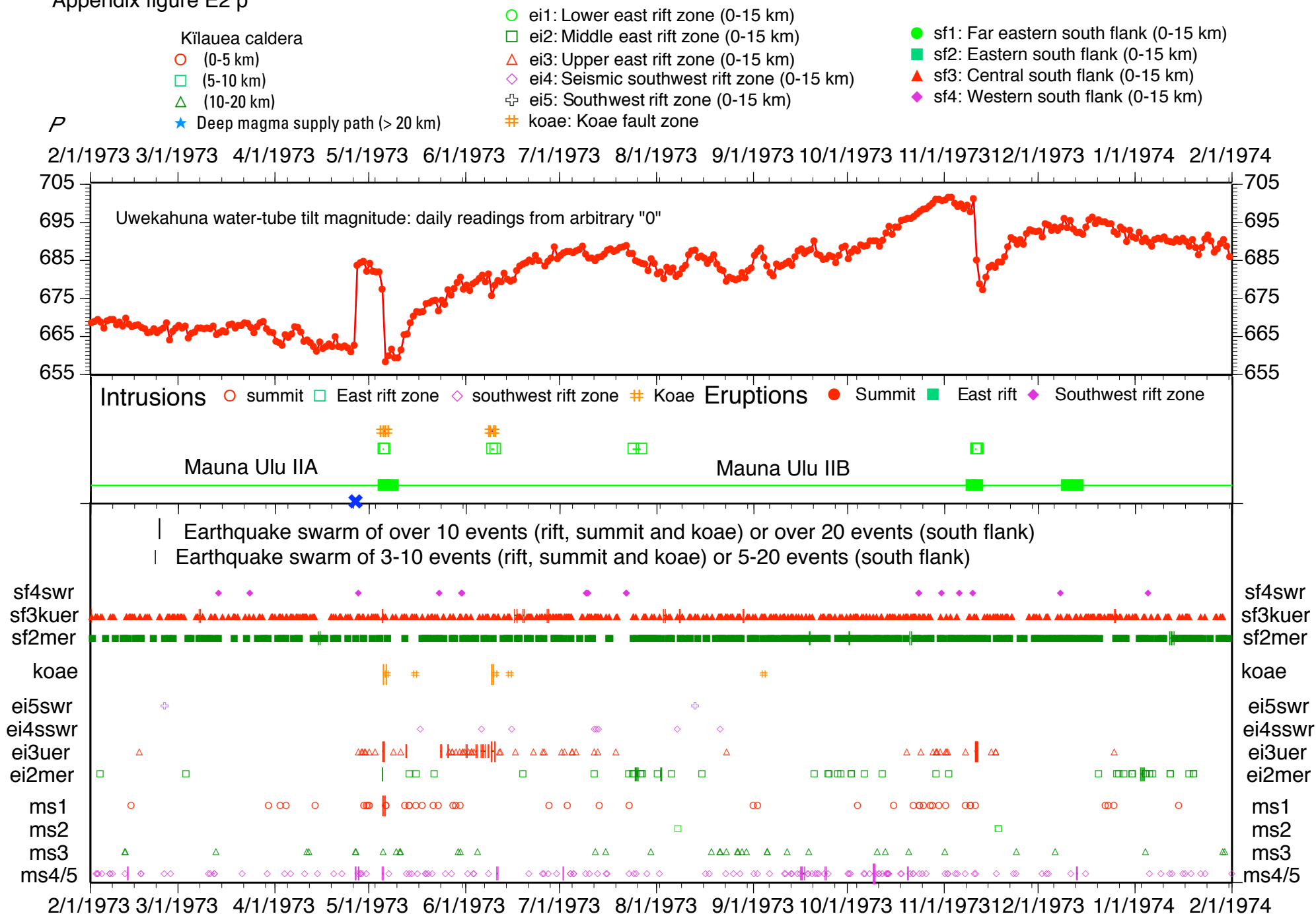
Appendix figure E2 o

Mauna Ulu: 1967-68 eruption through 1975 earthquake



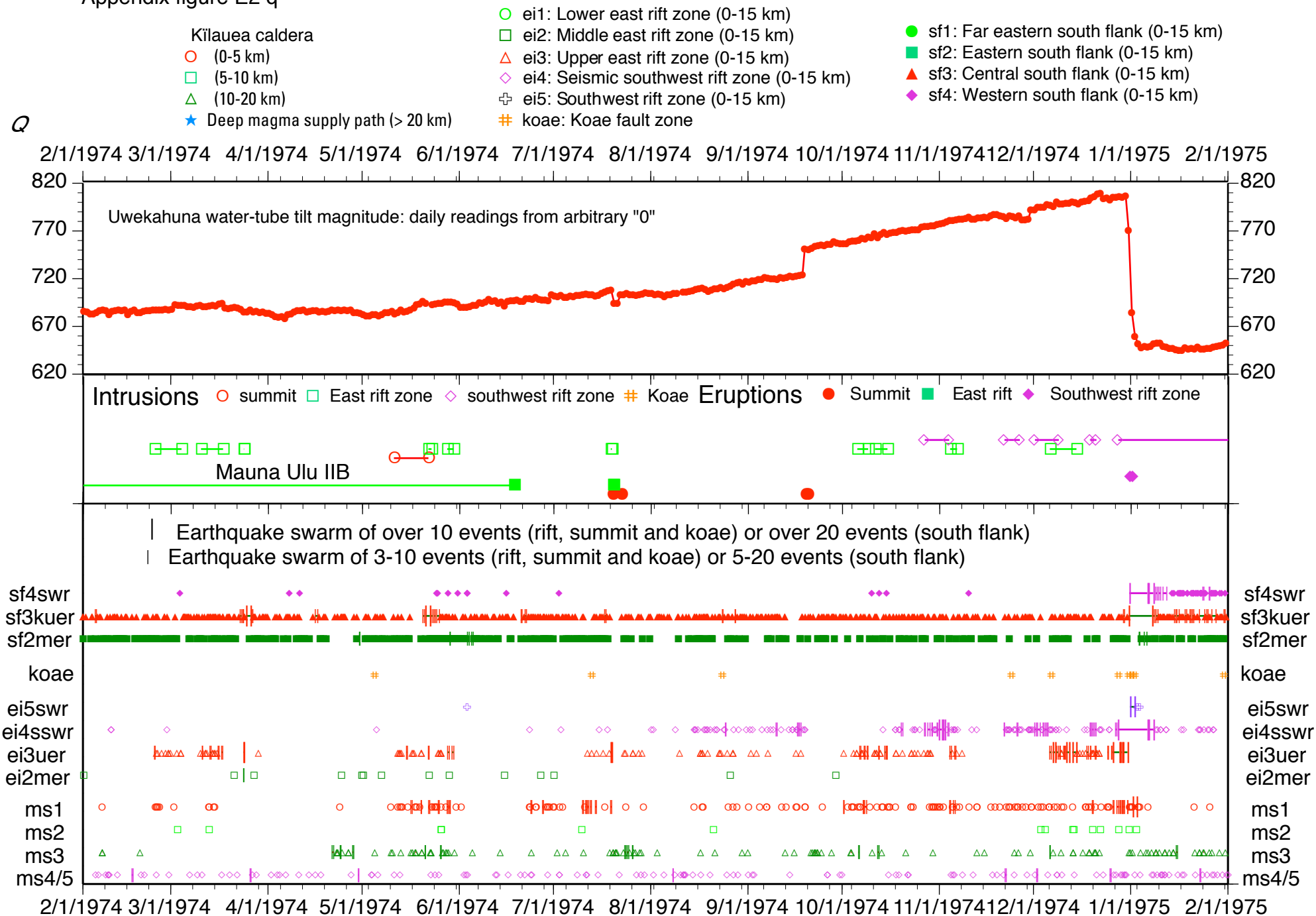
Appendix figure E2 p

Mauna Ulu: 1967-68 eruption through 1975 earthquake



Mauna Ulu: 1967-68 eruption through 1975 earthquake

Appendix figure E2 q



Mauna Ulu: 1967-68 eruption through 1975 earthquake

Appendix figure E2 r



Figure E3. 1967-68 summit eruption through 1968-1969 east rift eruptions: earthquake counts and tilt

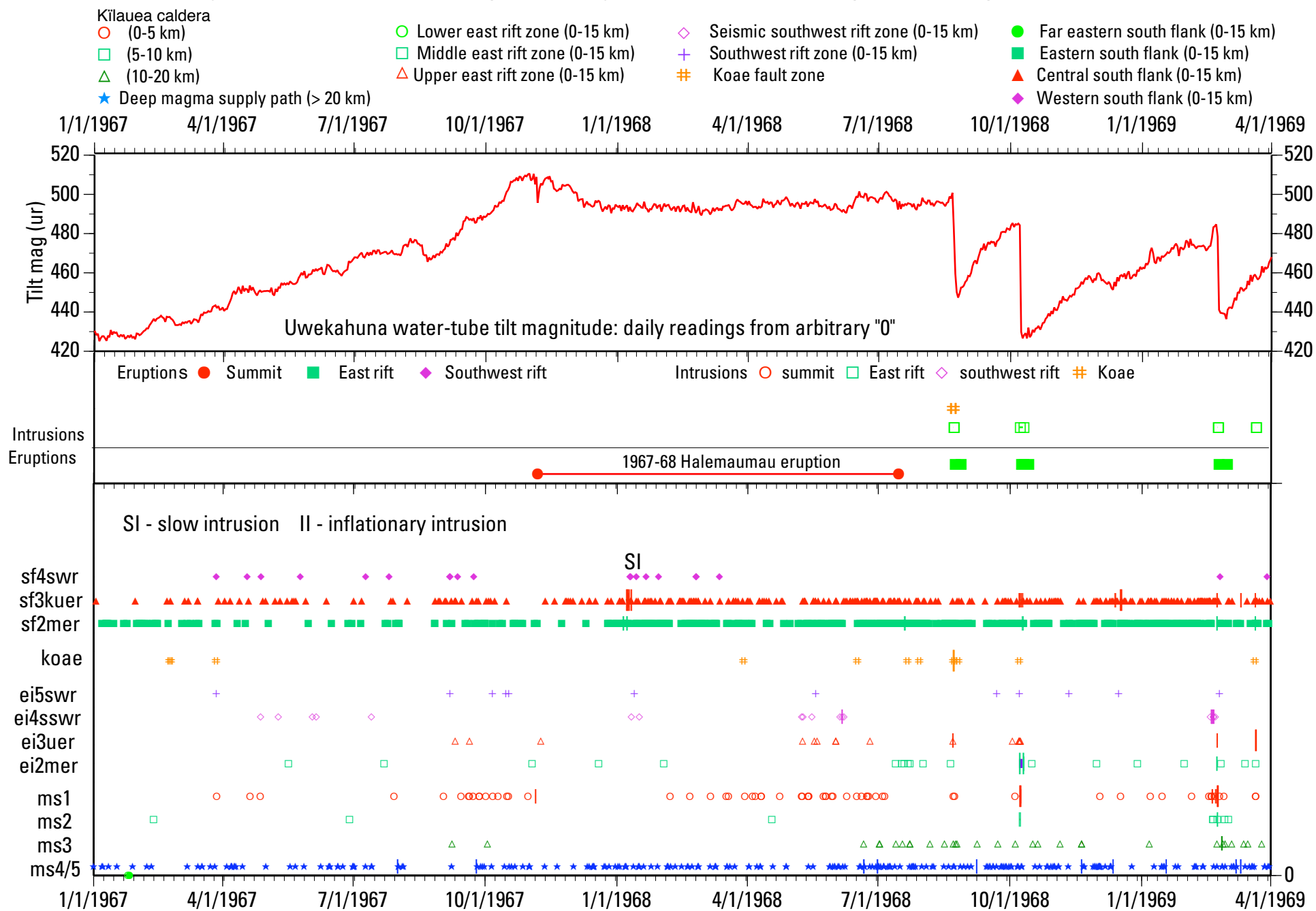
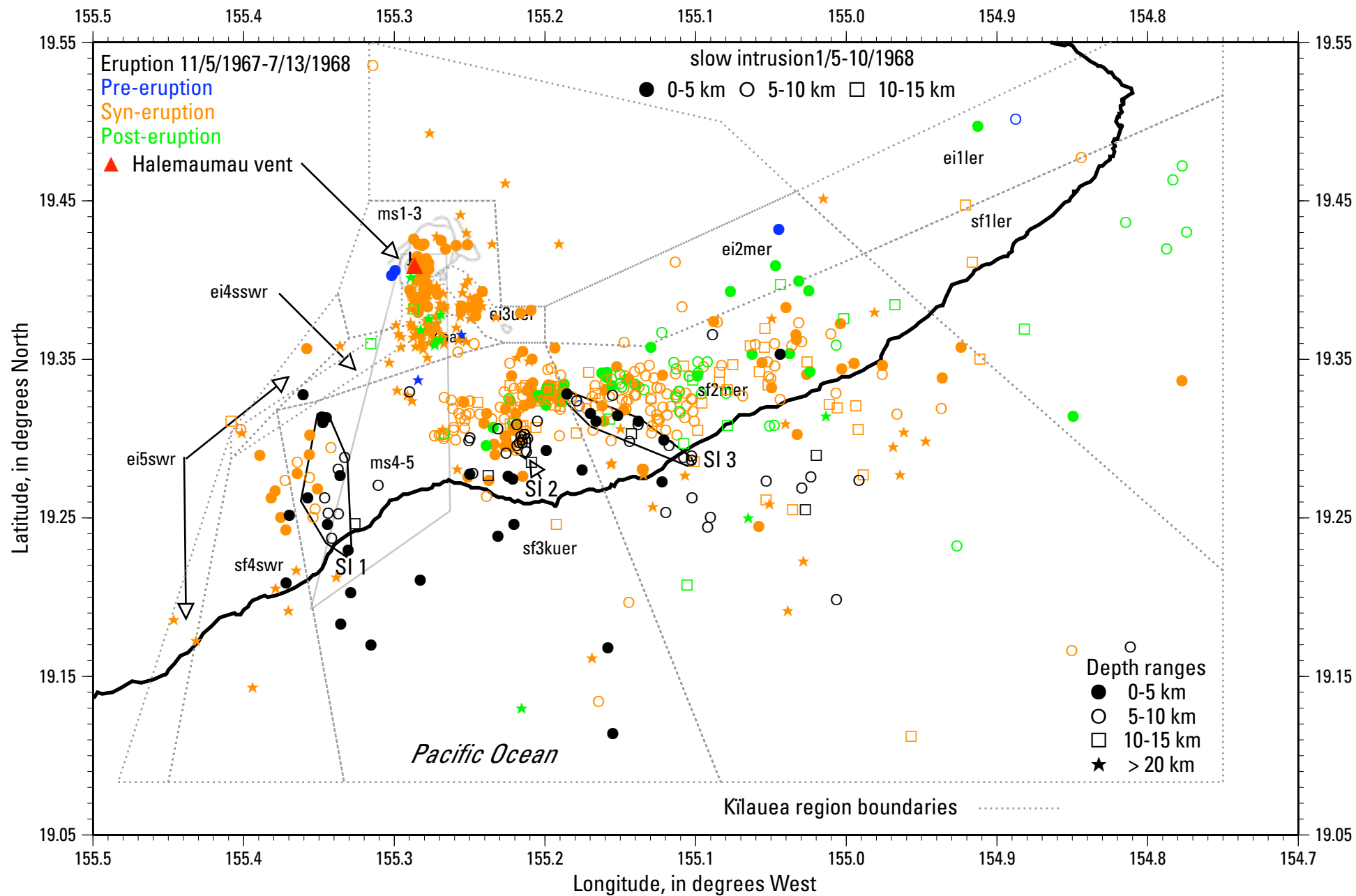


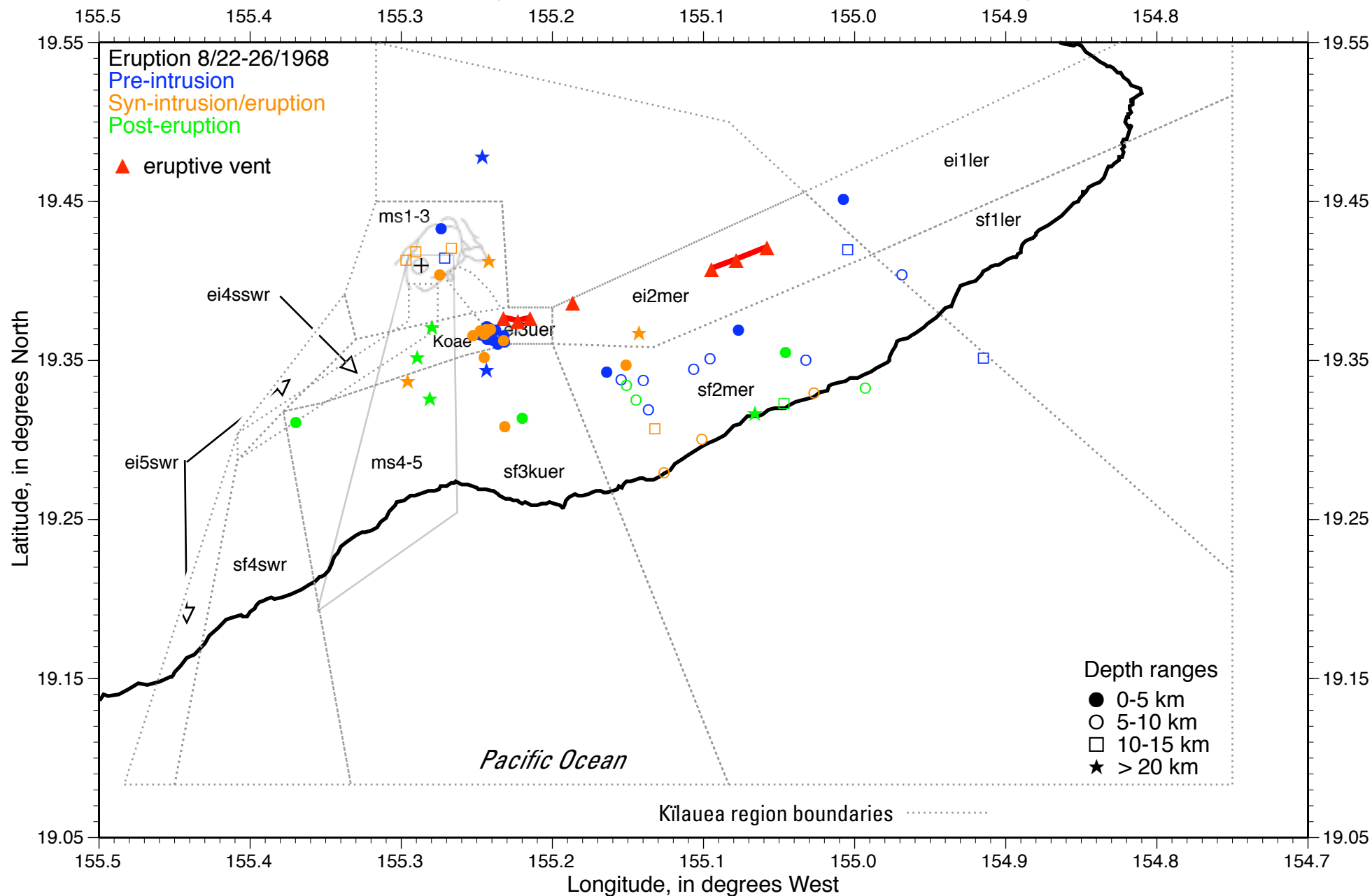
Figure E4

Pre-Mauna Ulu Kīlauea 1967-68 summit eruption: data from 11/1/1967 through 8/1/1968

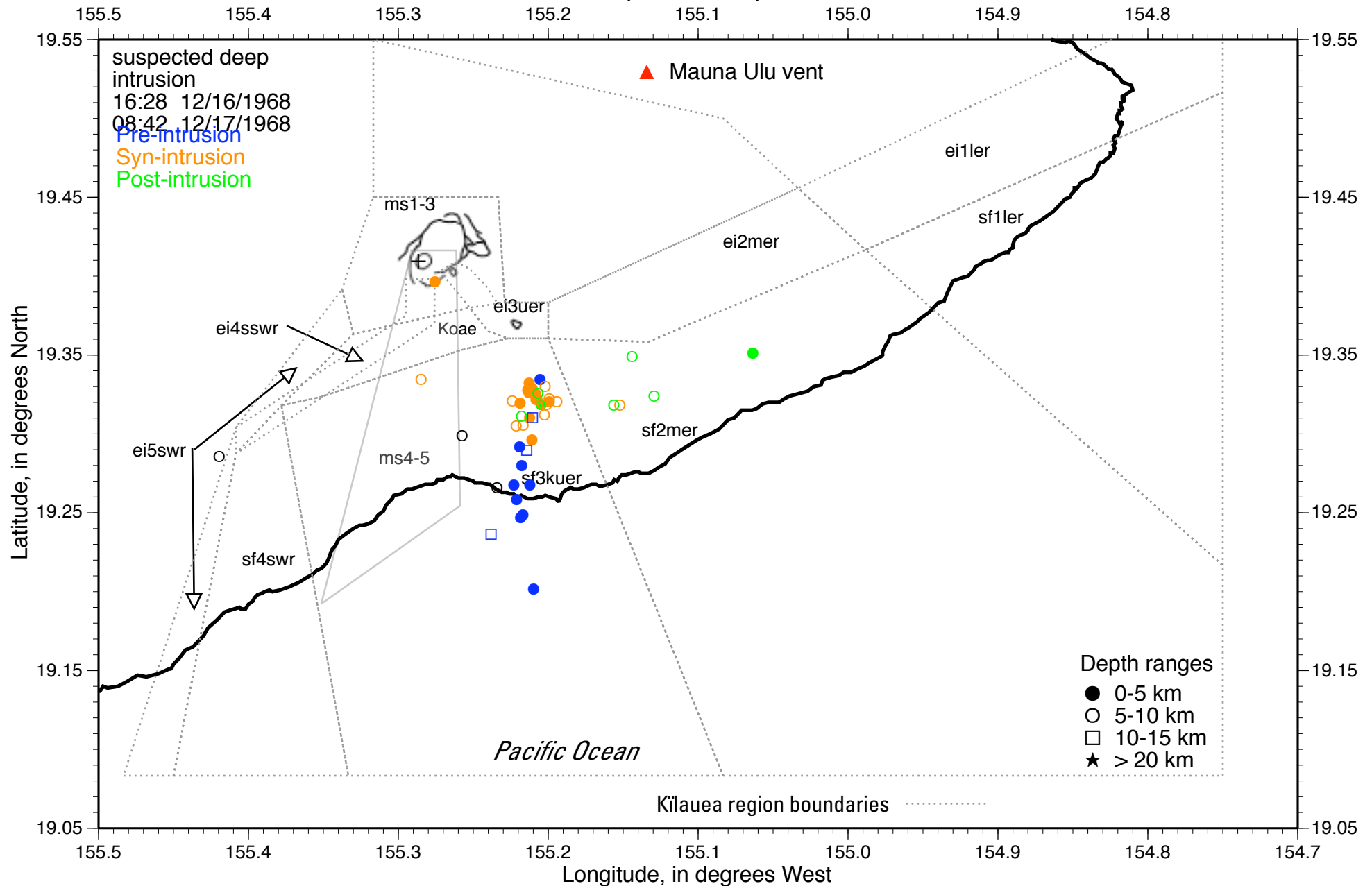


Appendix Figure E5

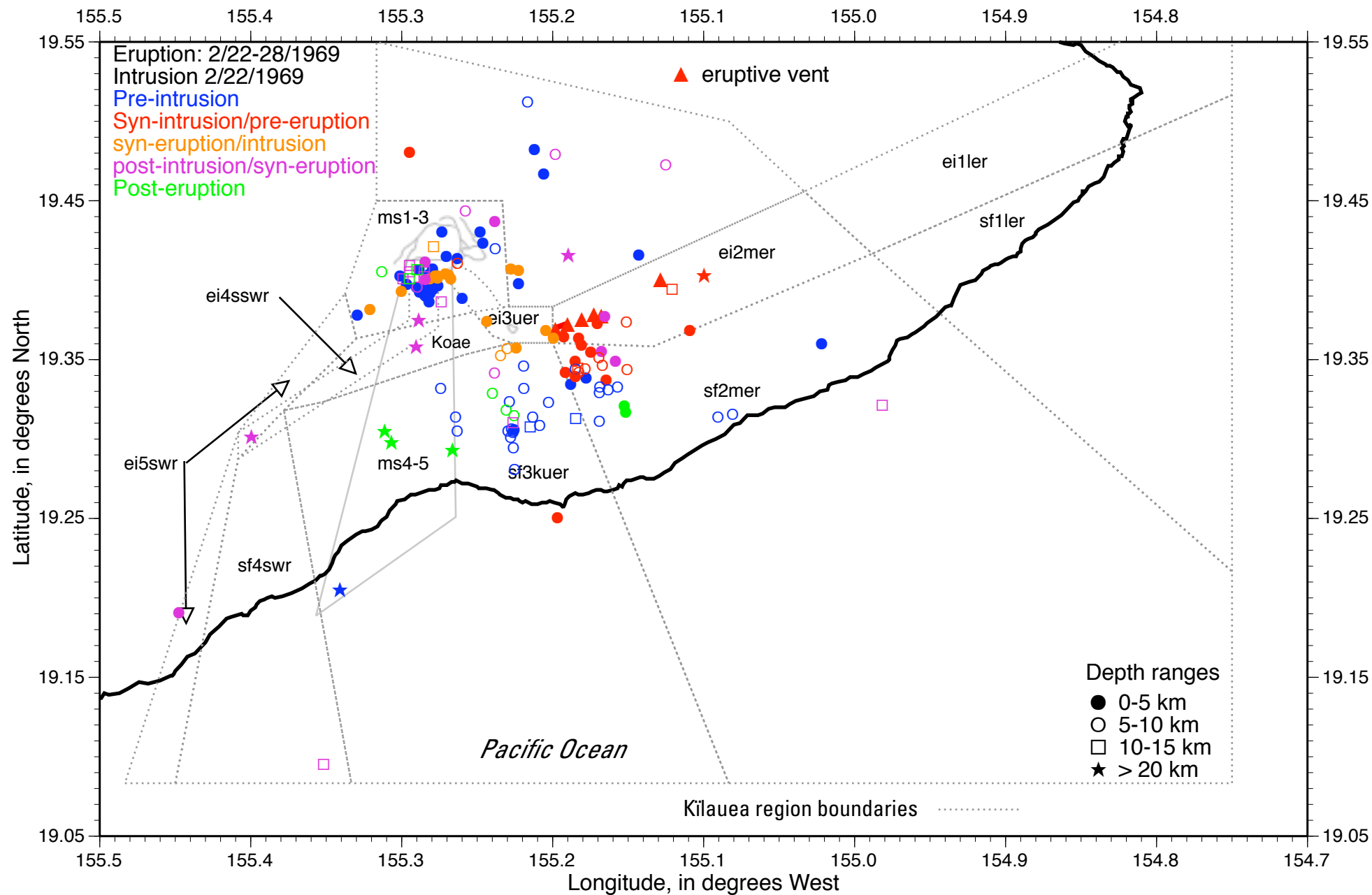
Pre-Mauna Ulu August 1968 flank eruption: data from 8/15 through 9/2/1968



Appendix Figure E6
Mauna Ulu December 1968 suspected deep intrusion: data from 12/13-18/1968



Appendix Figure E7
Pre-Mauna Ulu February 1969 eruption: data from 2/16-3/6/1969



Appendix Figure E8

Pre-Mauna Ulu March 1969 intrusion: data from 3/20-22/1969

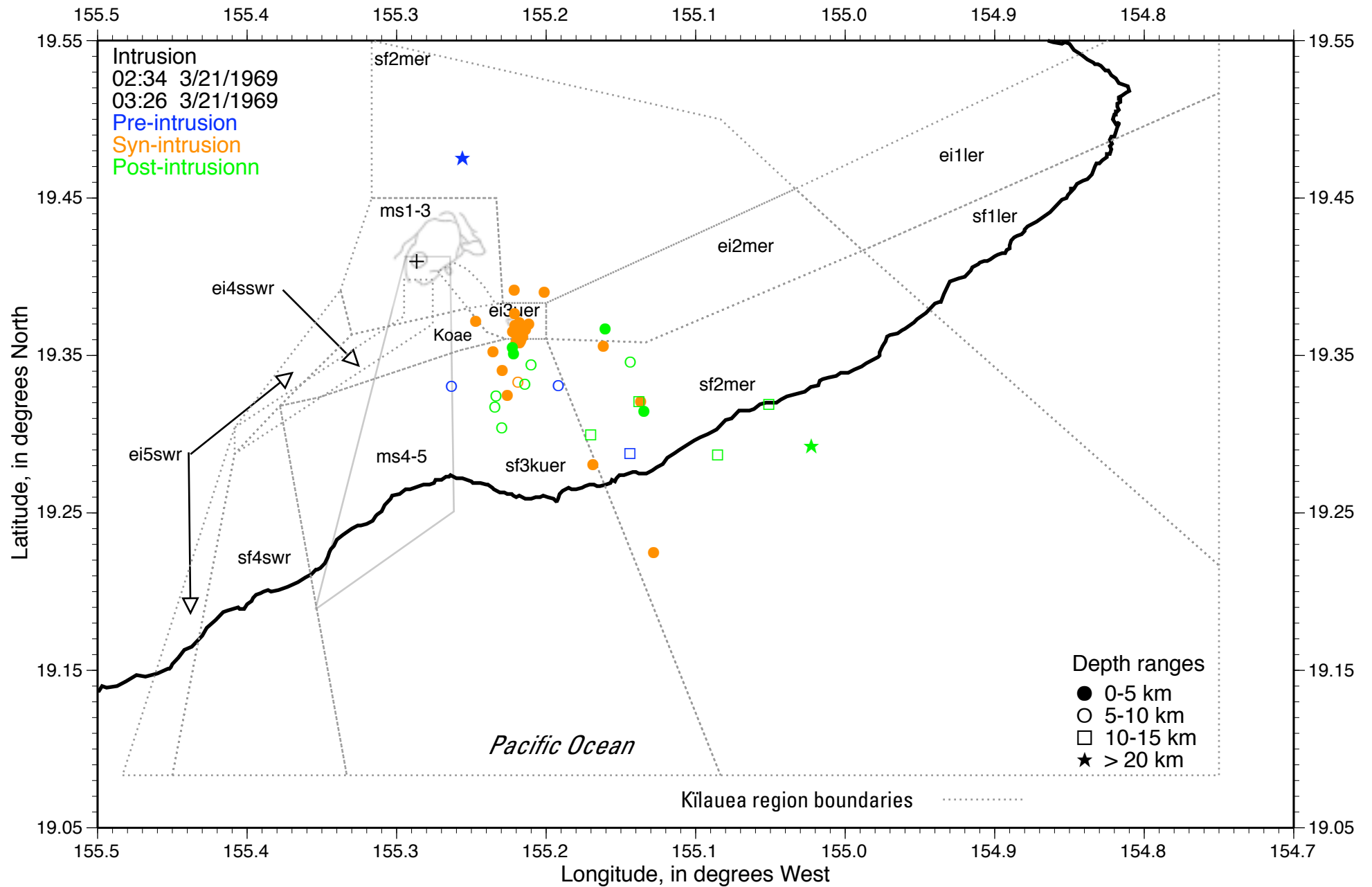
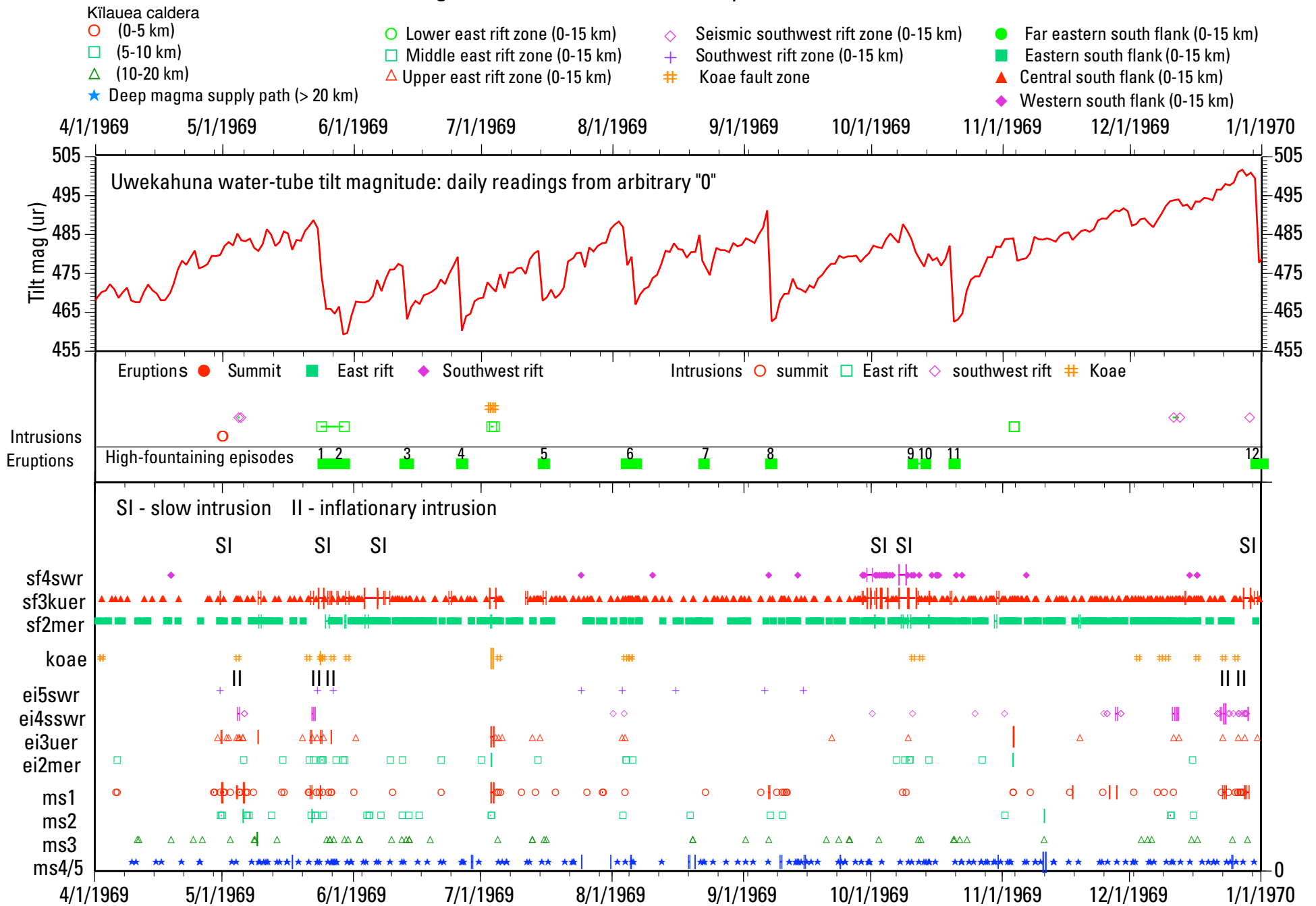
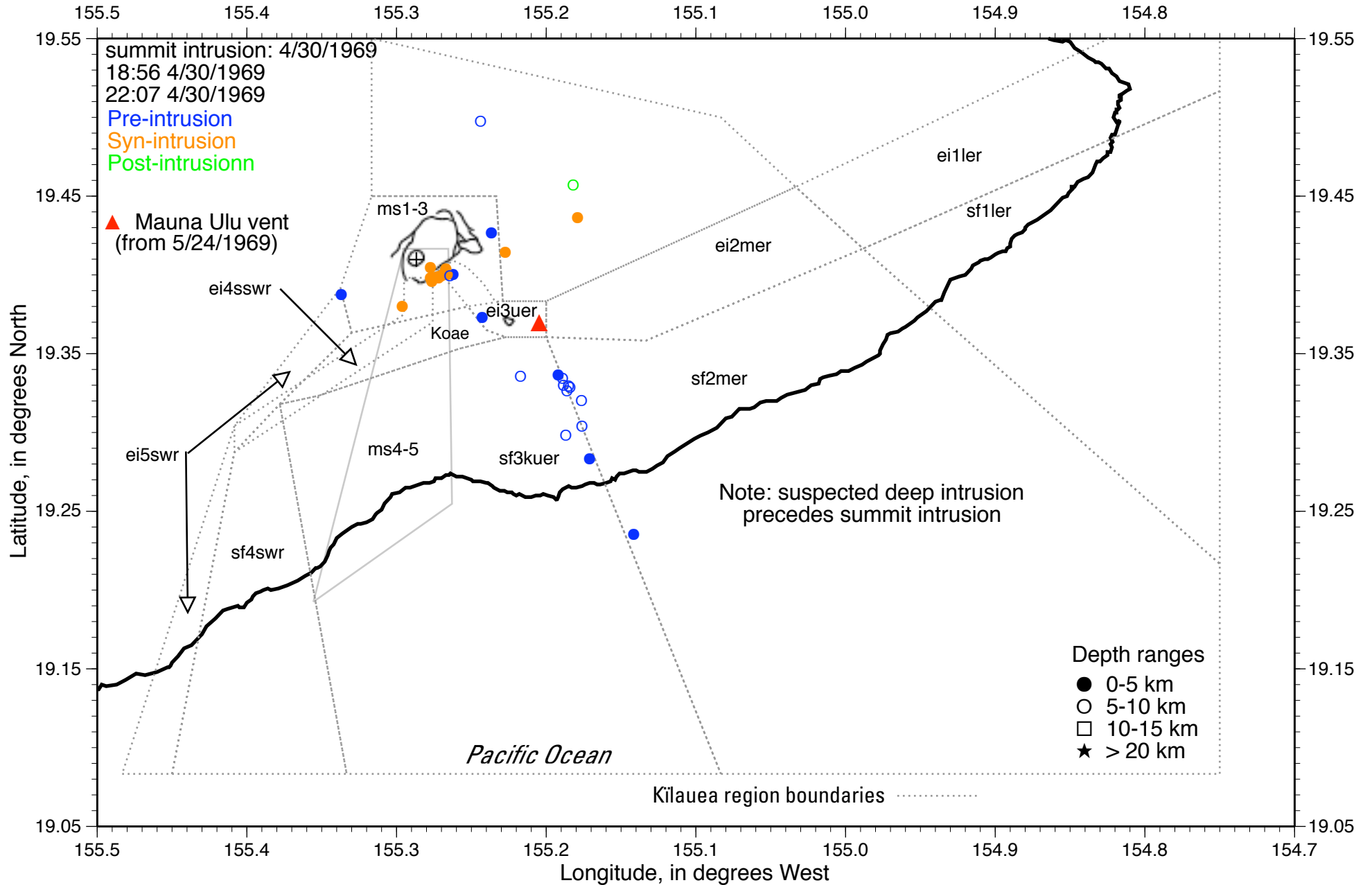


Figure E9. Mauna Ulu IA: earthquake swarms and tilt



Appendix figure E10

Mauna Ulu IA 4/30/1969 intrusion: data from 4/30/1969



Appendix Figure E11
Mauna Ulu IA 5/1969 intrusion: data from 5/3-10/1969

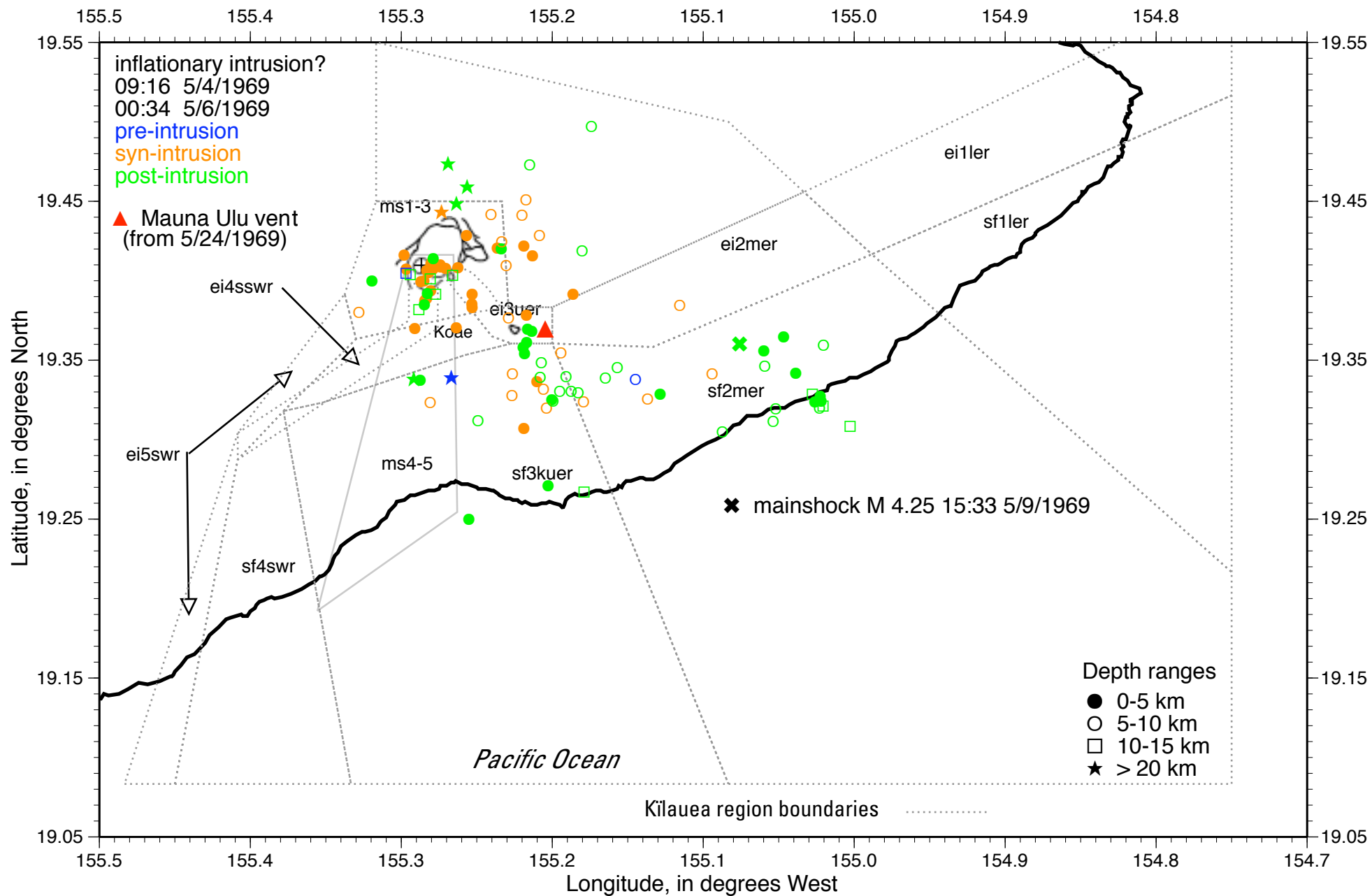


Figure E12

Mauna Ulu IA 5/1969 precursory intrusion: data from 5/20-22/1969

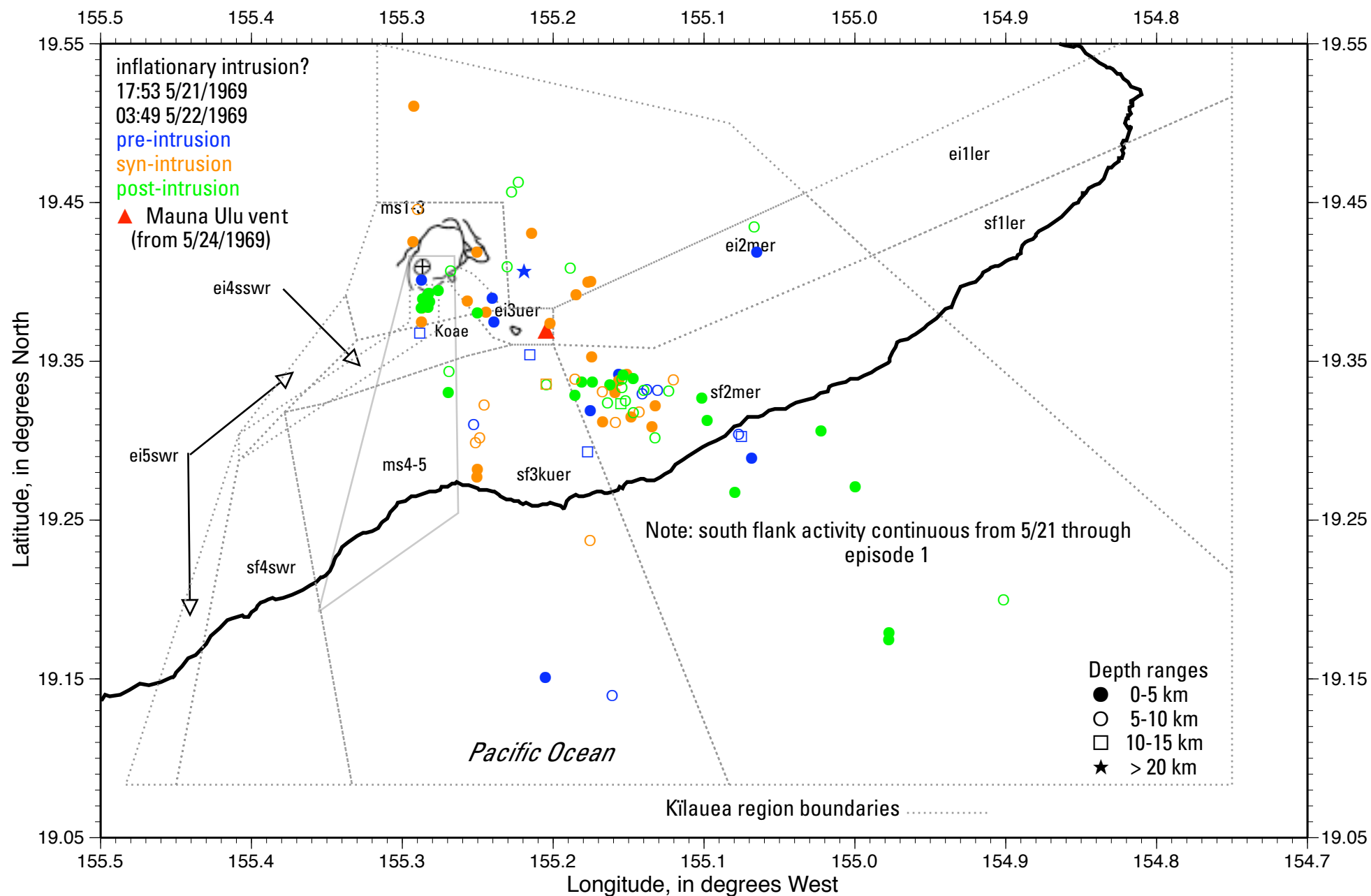
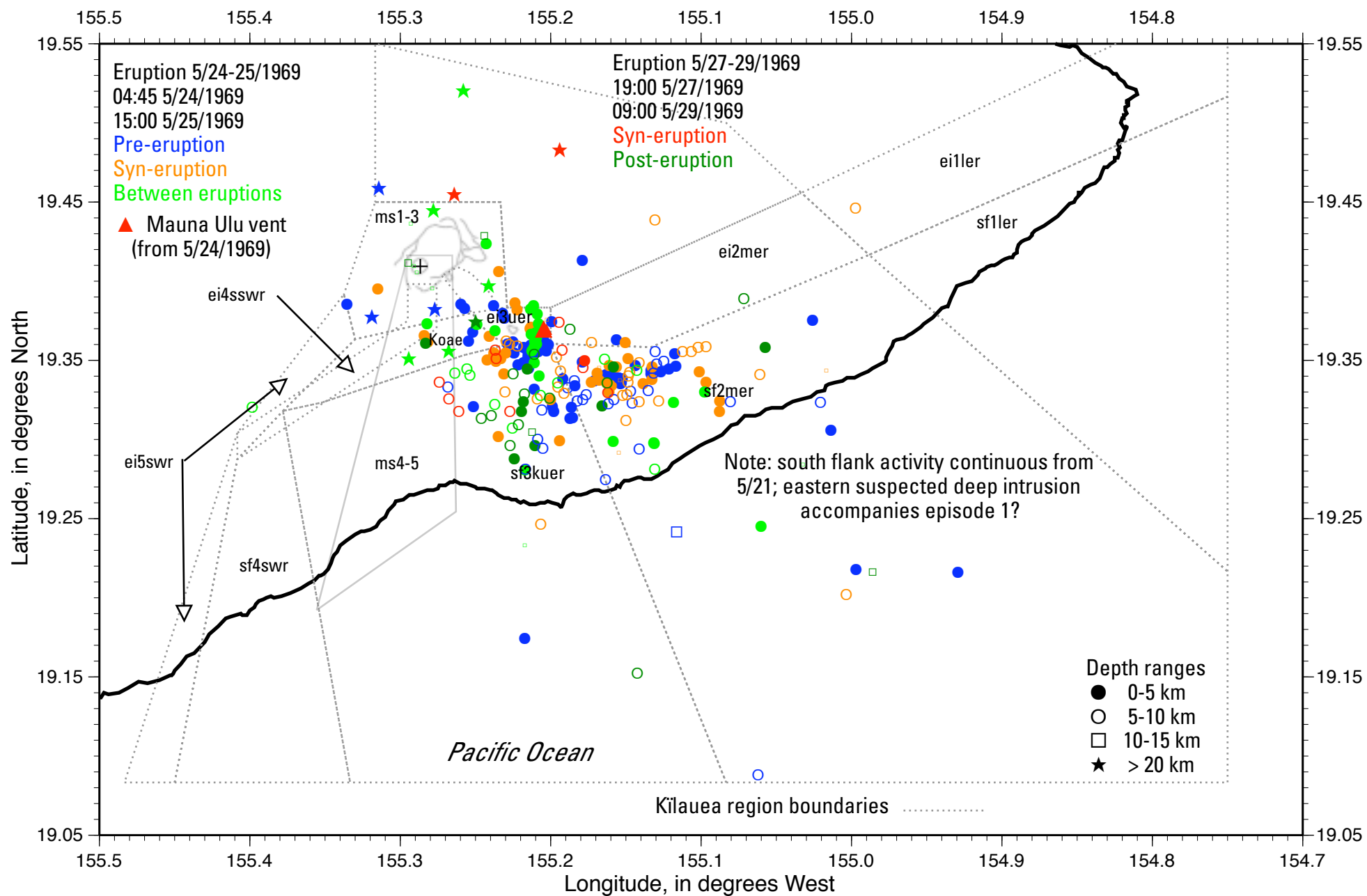
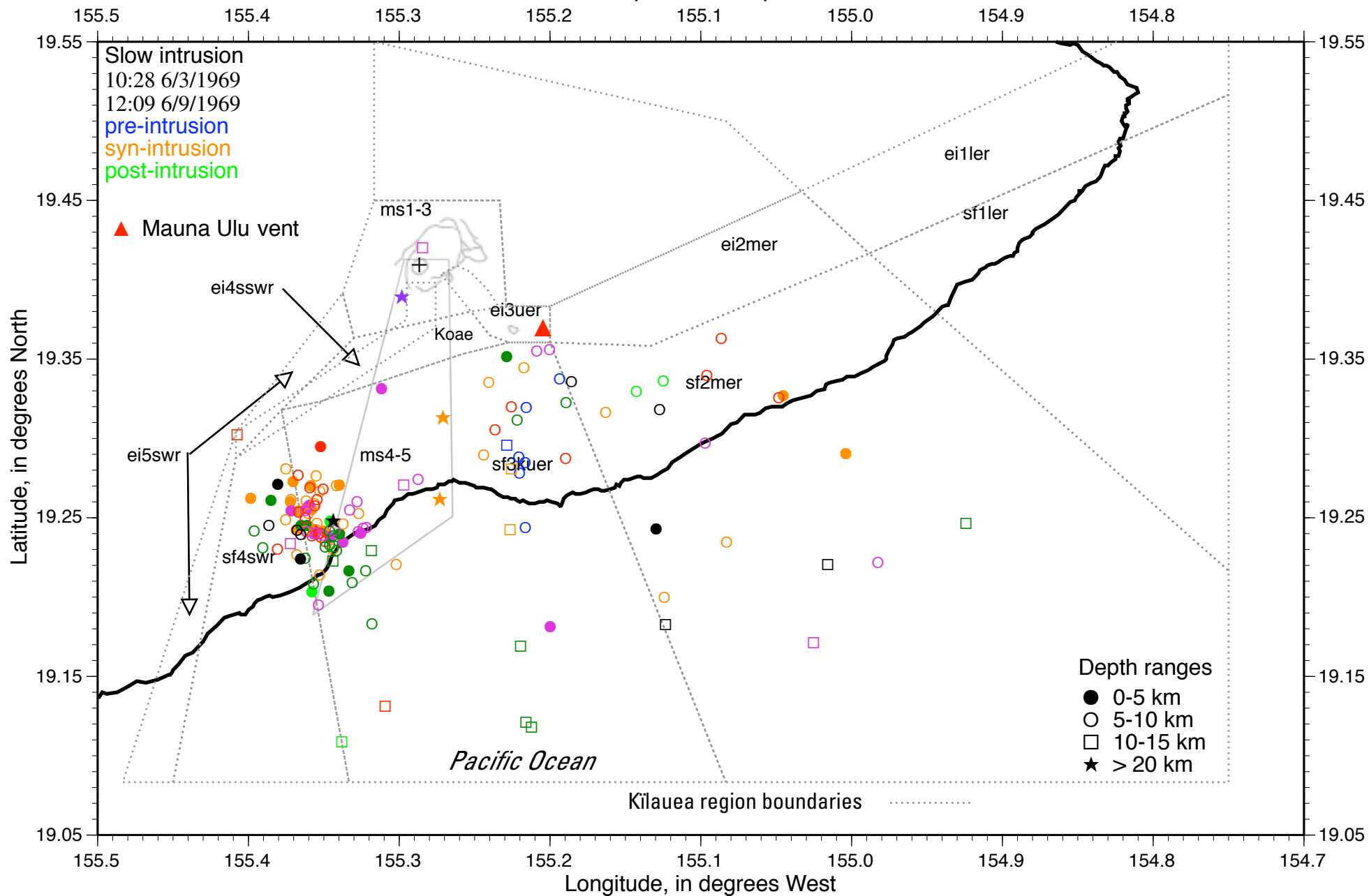


Figure E13

Mauna Ulu IA Episode 1 and 2 data from 5/23-30/1969

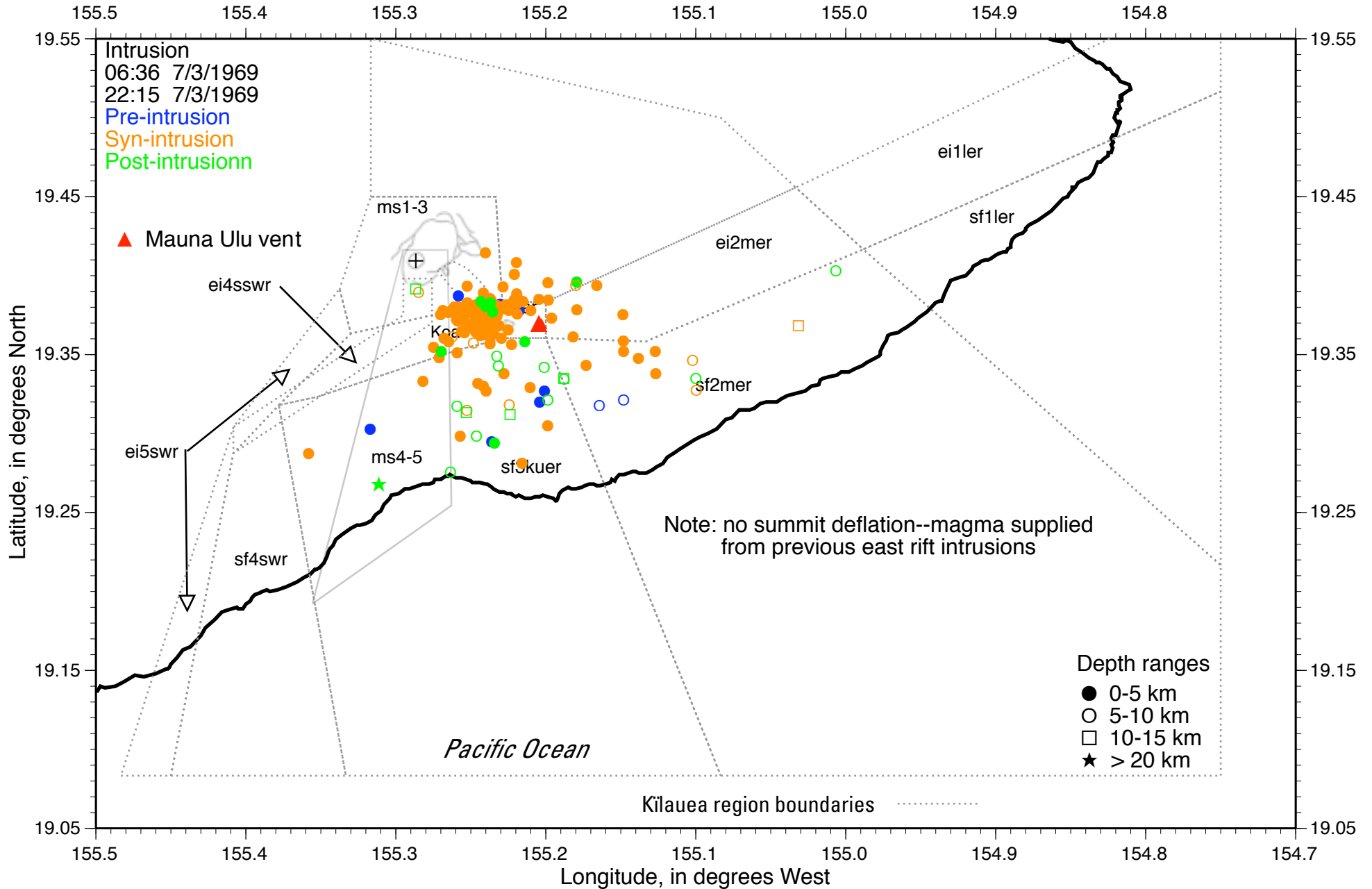


Appendix Figure E14
 Mauna Ulu IA 6/1969 suspected deep intrusion: data from 6/2-10/1969

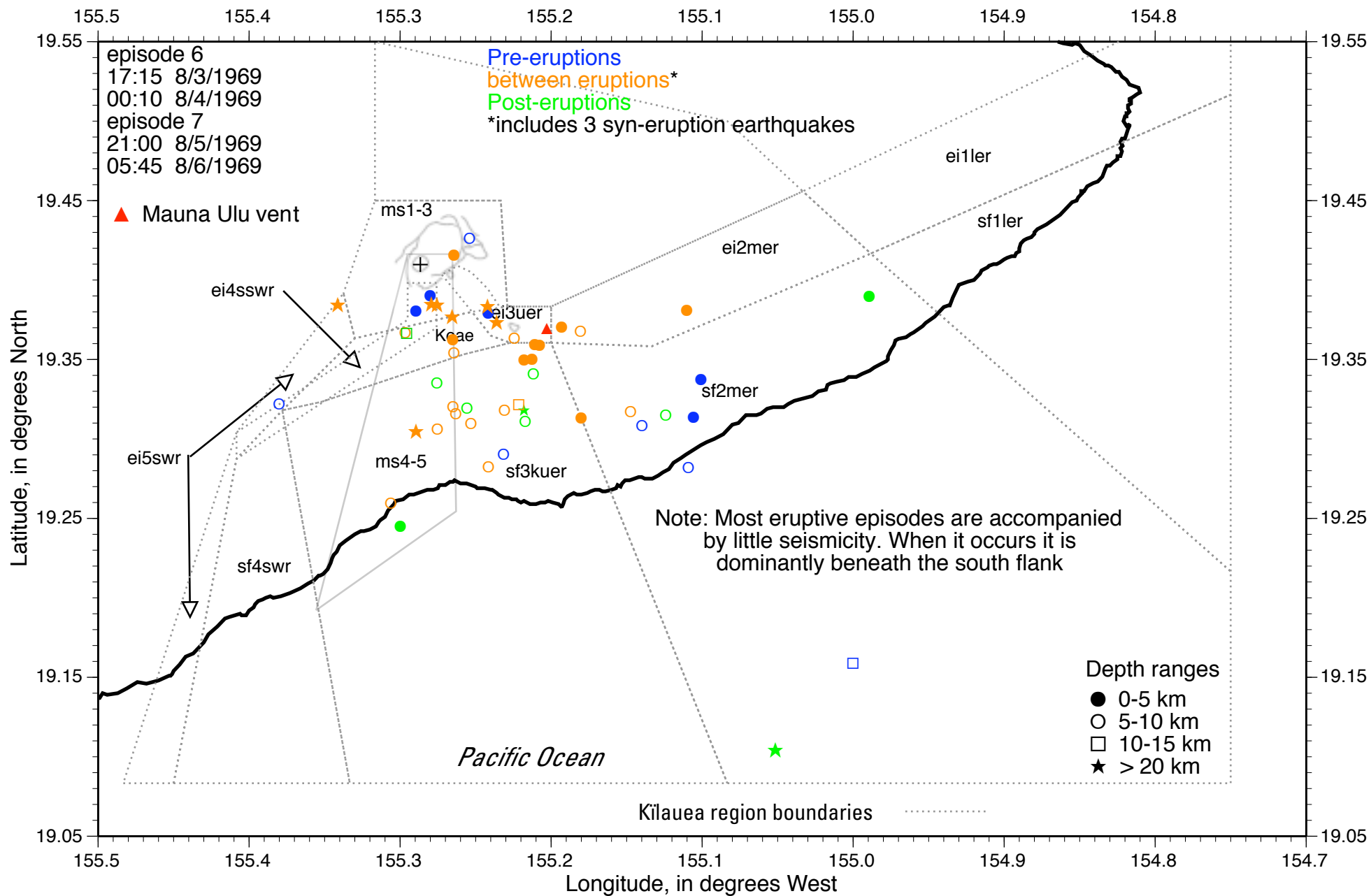


Appendix Figure E15

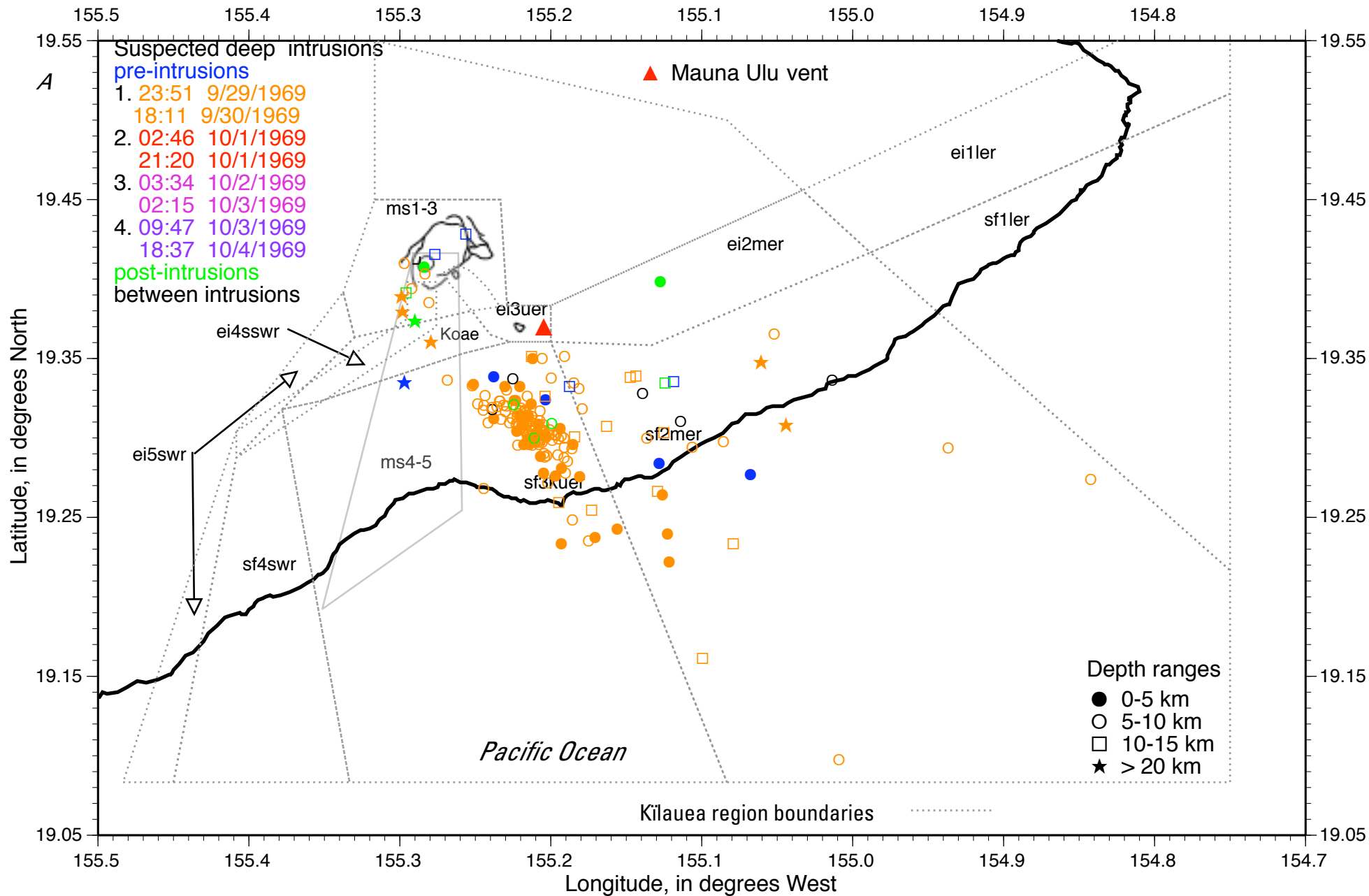
Mauna Ulu IA Intrusion 7/3/1969: data from 7/2-5/1969



Appendix Figure E16
Mauna Ulu IA episodes 6-7: data from 8/1-7/1969

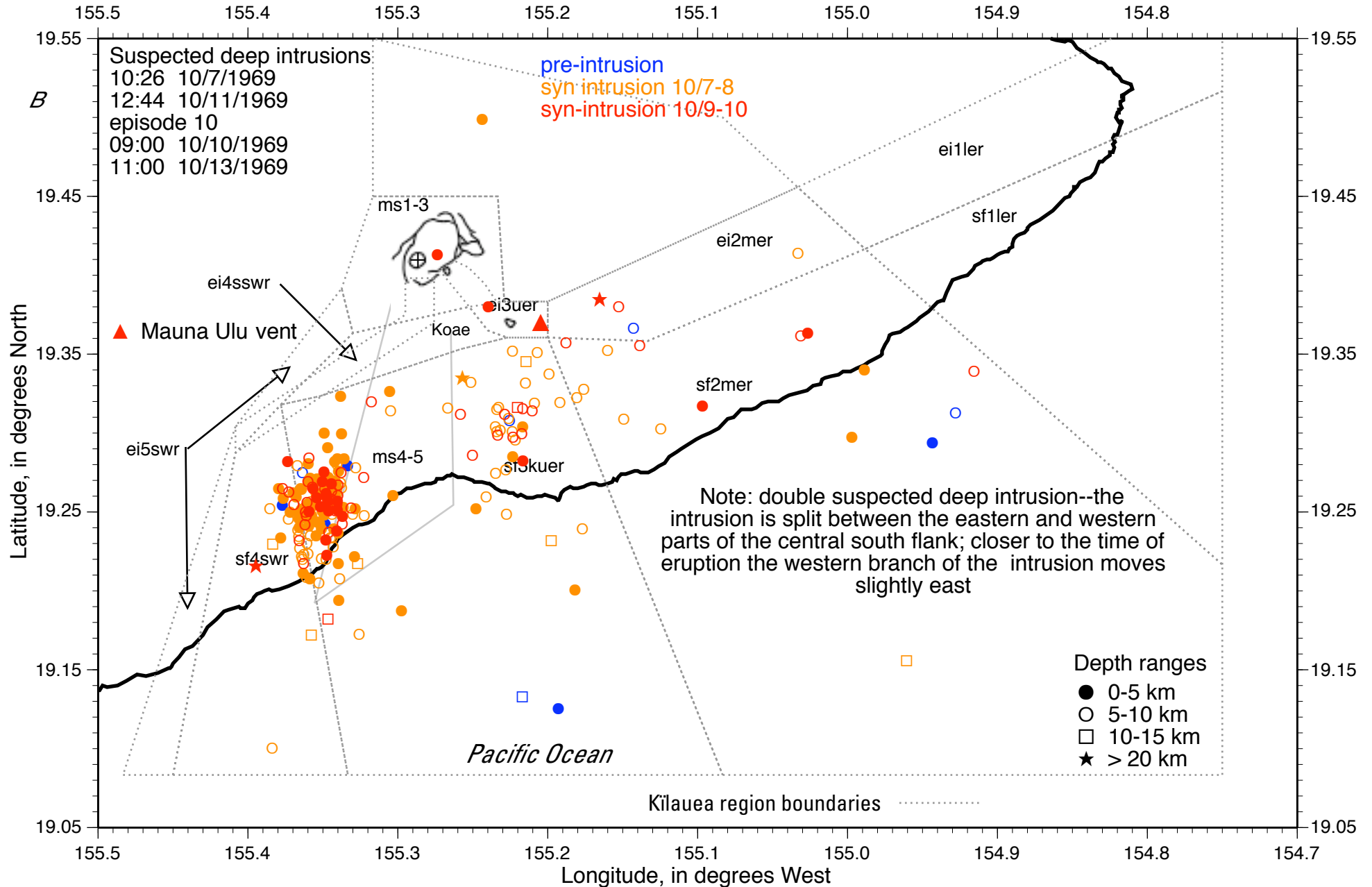


Appendix Figure E17a
Mauna Ulu IA Suspected deep intrusions 10/1969: data from 9/28-10/5/1969

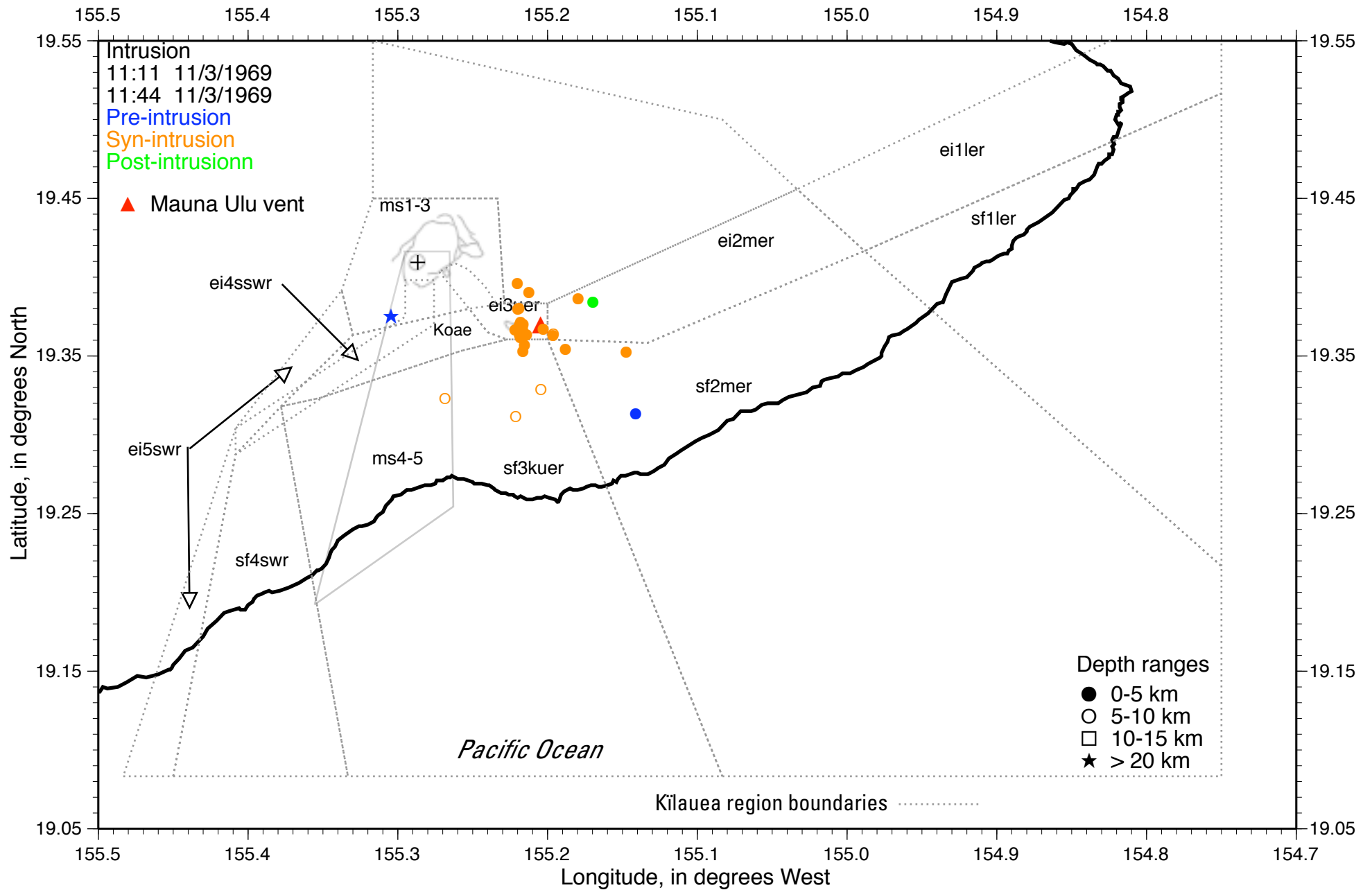


Appendix Figure E17b

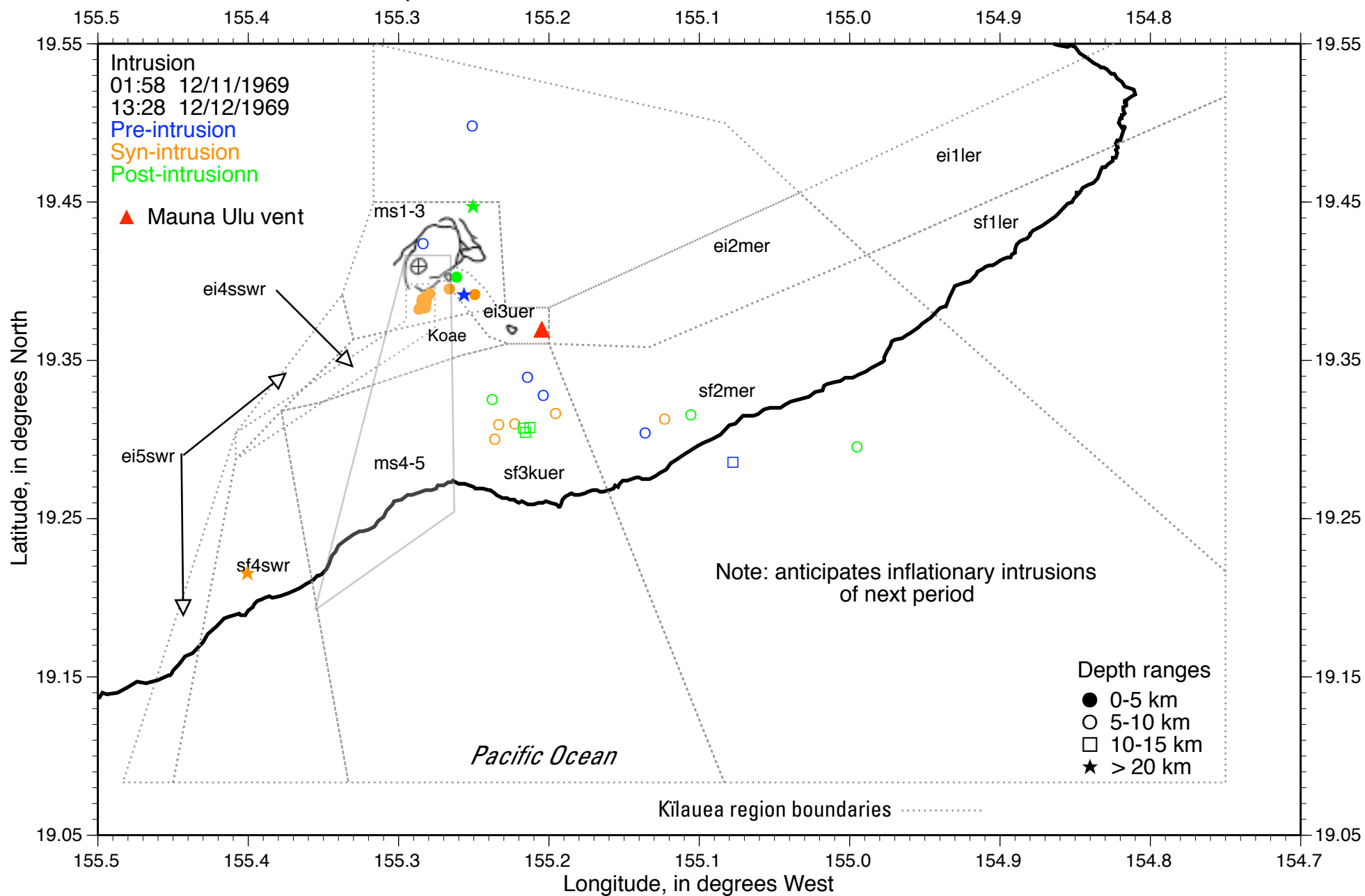
Mauna Ulu IA Suspected deep intrusion/pre-episode 10 by date: data from 10/6-10/1969



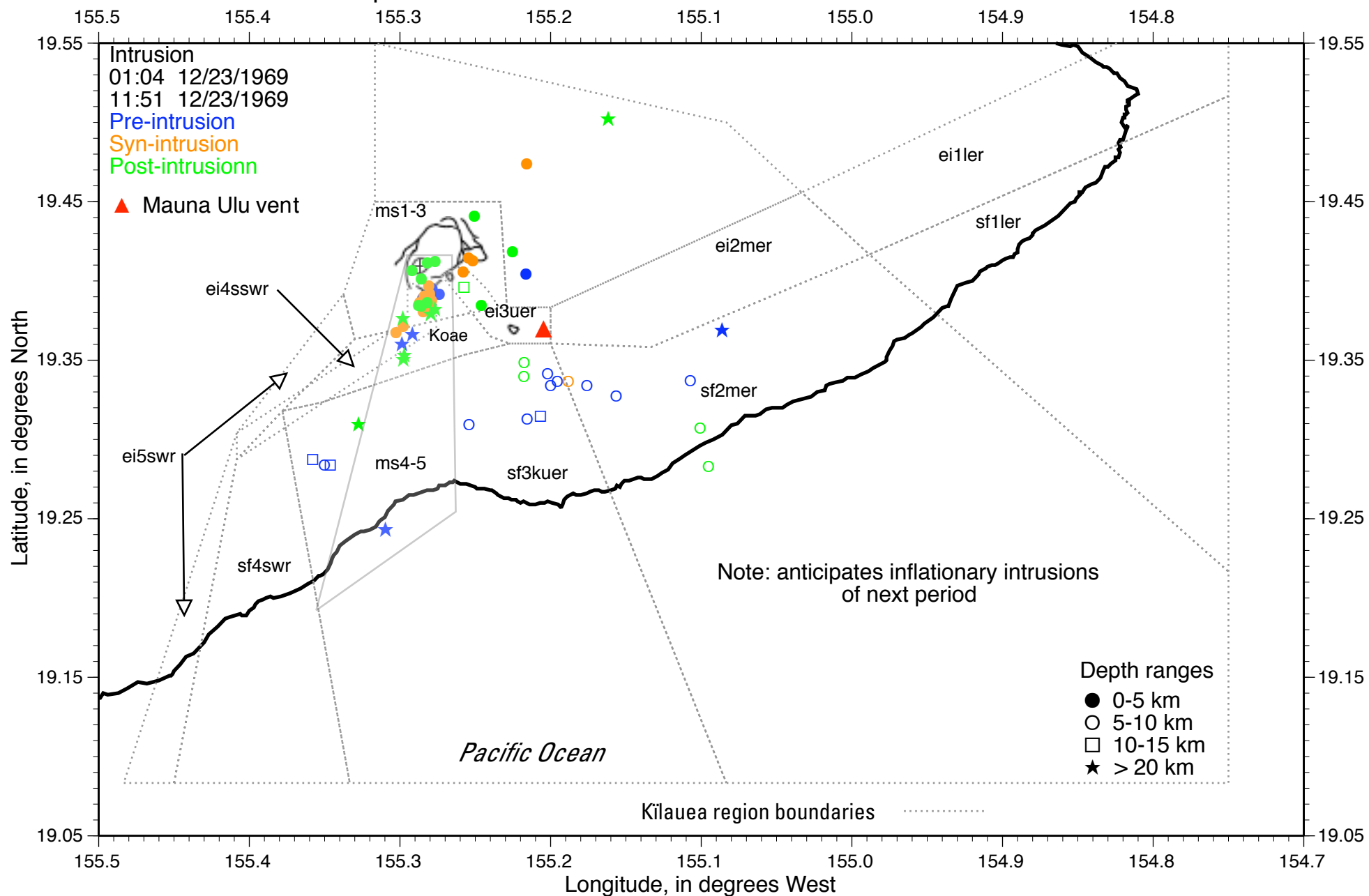
Appendix Figure E18
 Mauna Ulu IA Intrusion 11/3-4/1969: data from 10/27-11/6/1969



Appendix Figure E19
Seismic precursors to end of Mauna Ulu IA: data from 12/10-13/1969



Appendix Figure E20
Seismic precursors to end of Mauna Ulu IA: data from 12/20-25 1969



Appendix Figure E21

Seismic precursors to end of Mauna Ulu IA. Suspected deep intrusion: data from 12/26-29/1969

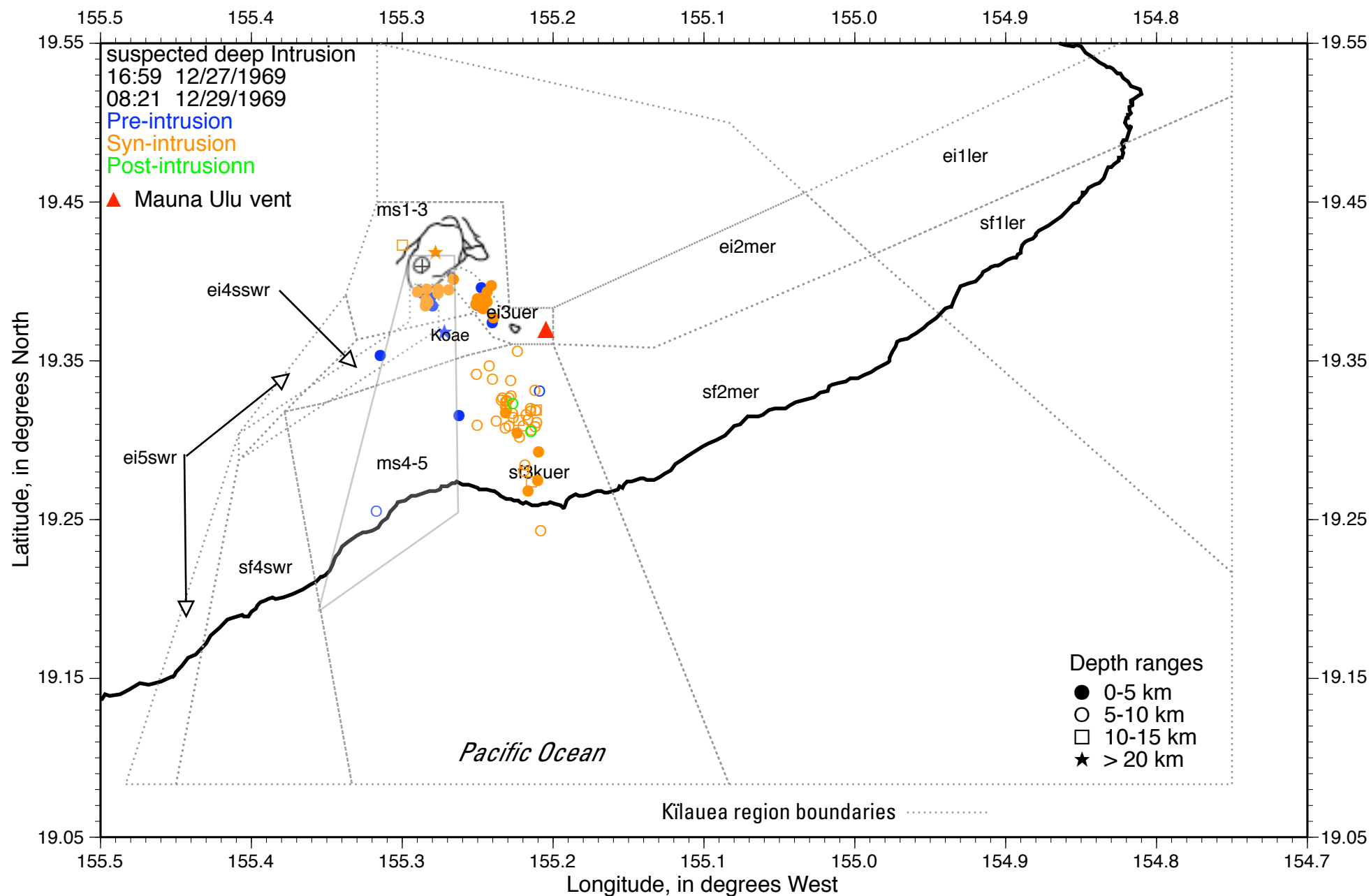
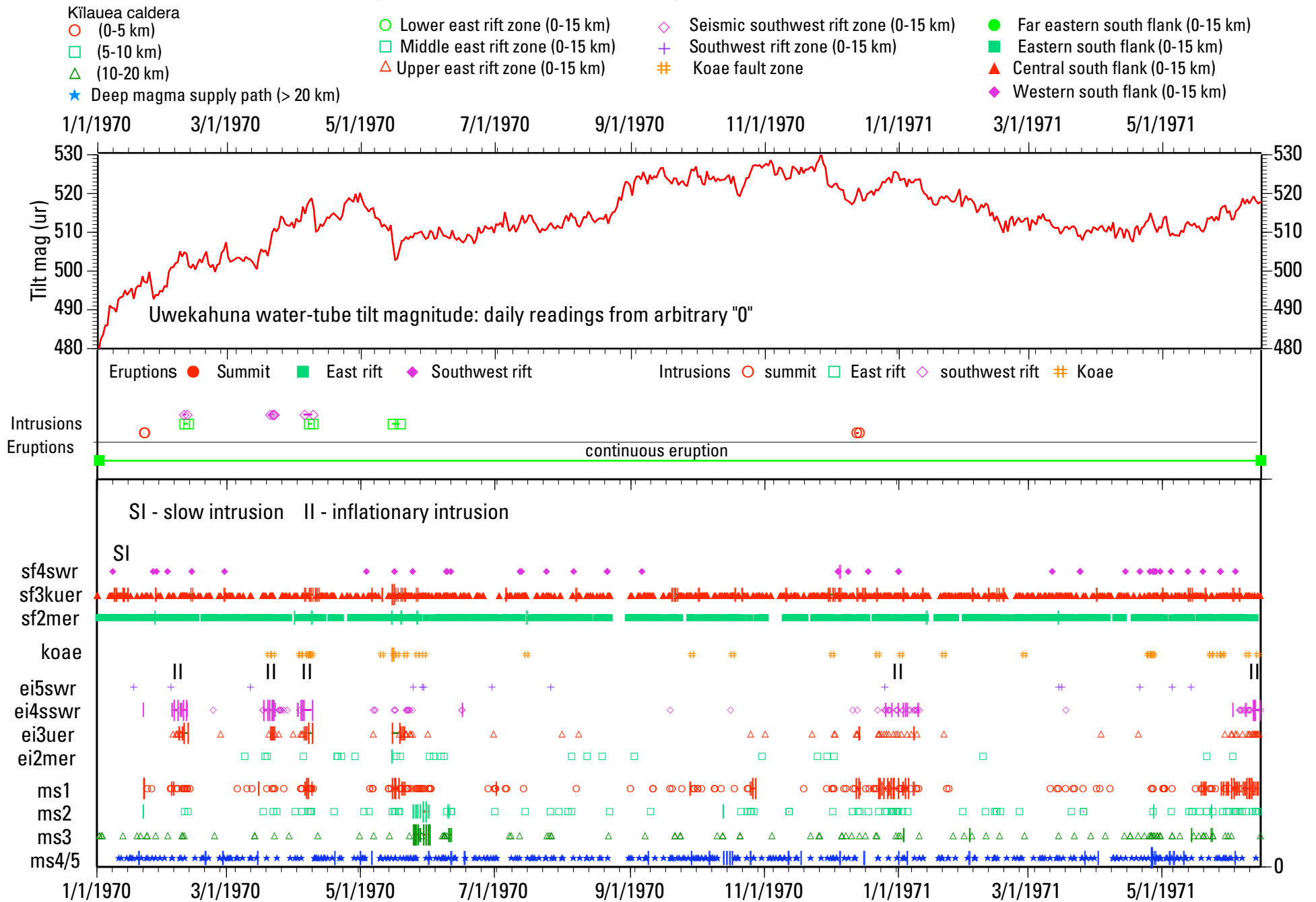
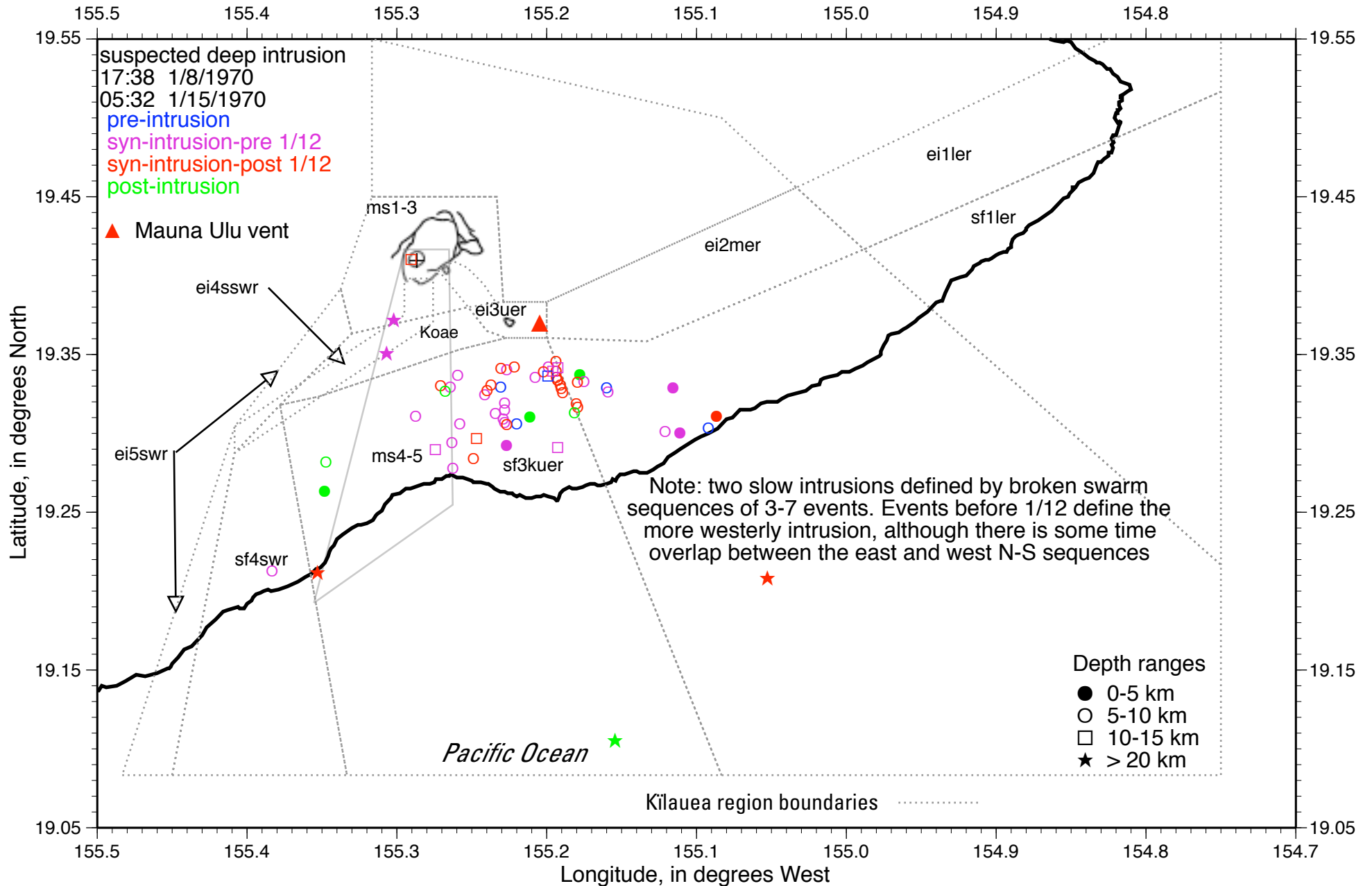


Figure E22. Mauna Ulu IB earthquake swarms and tilt

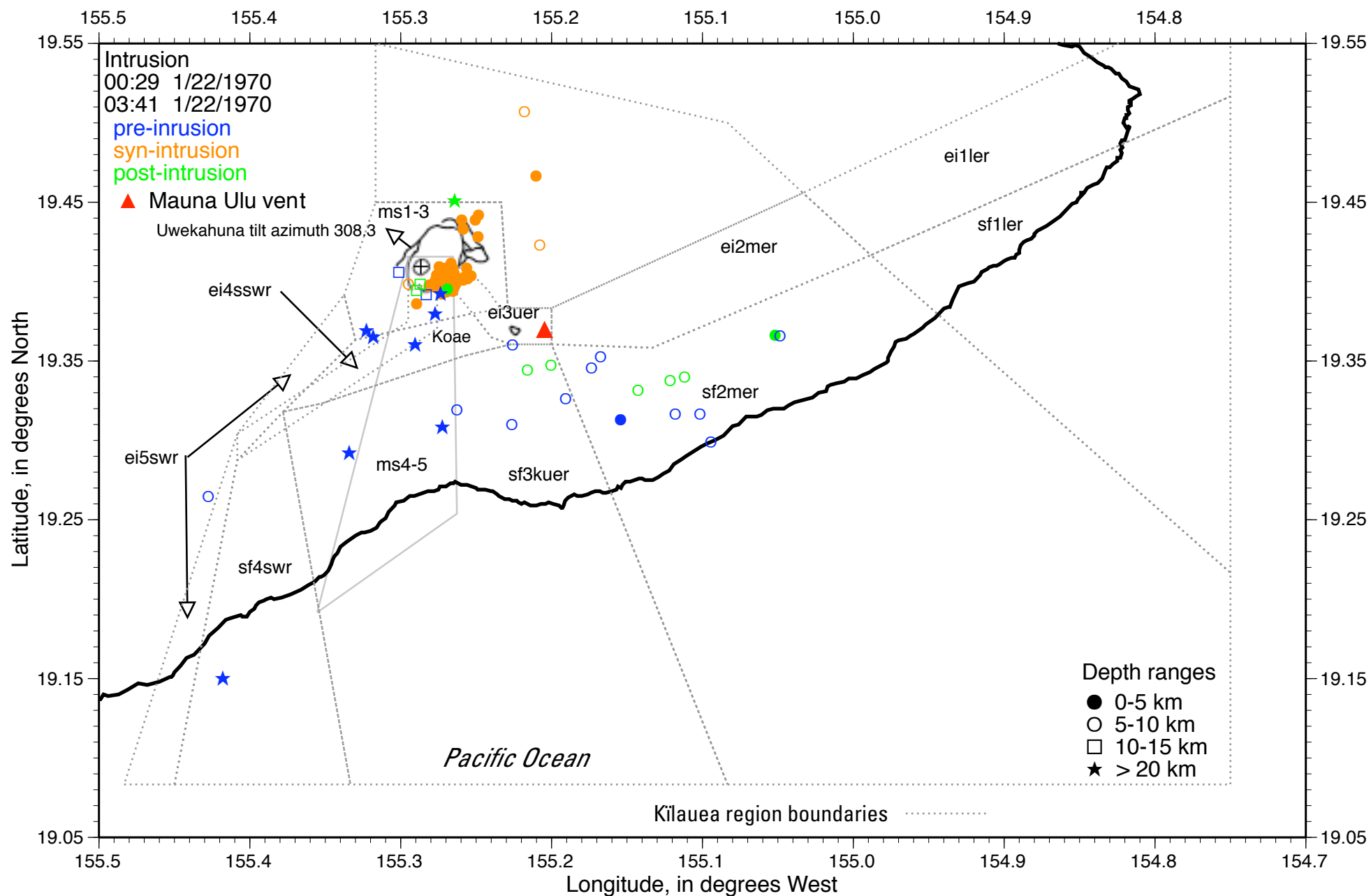


Appendix Figure E23

Mauna Ulu IB 1/1970 suspected deep intrusion: data from 1/7-15/1970

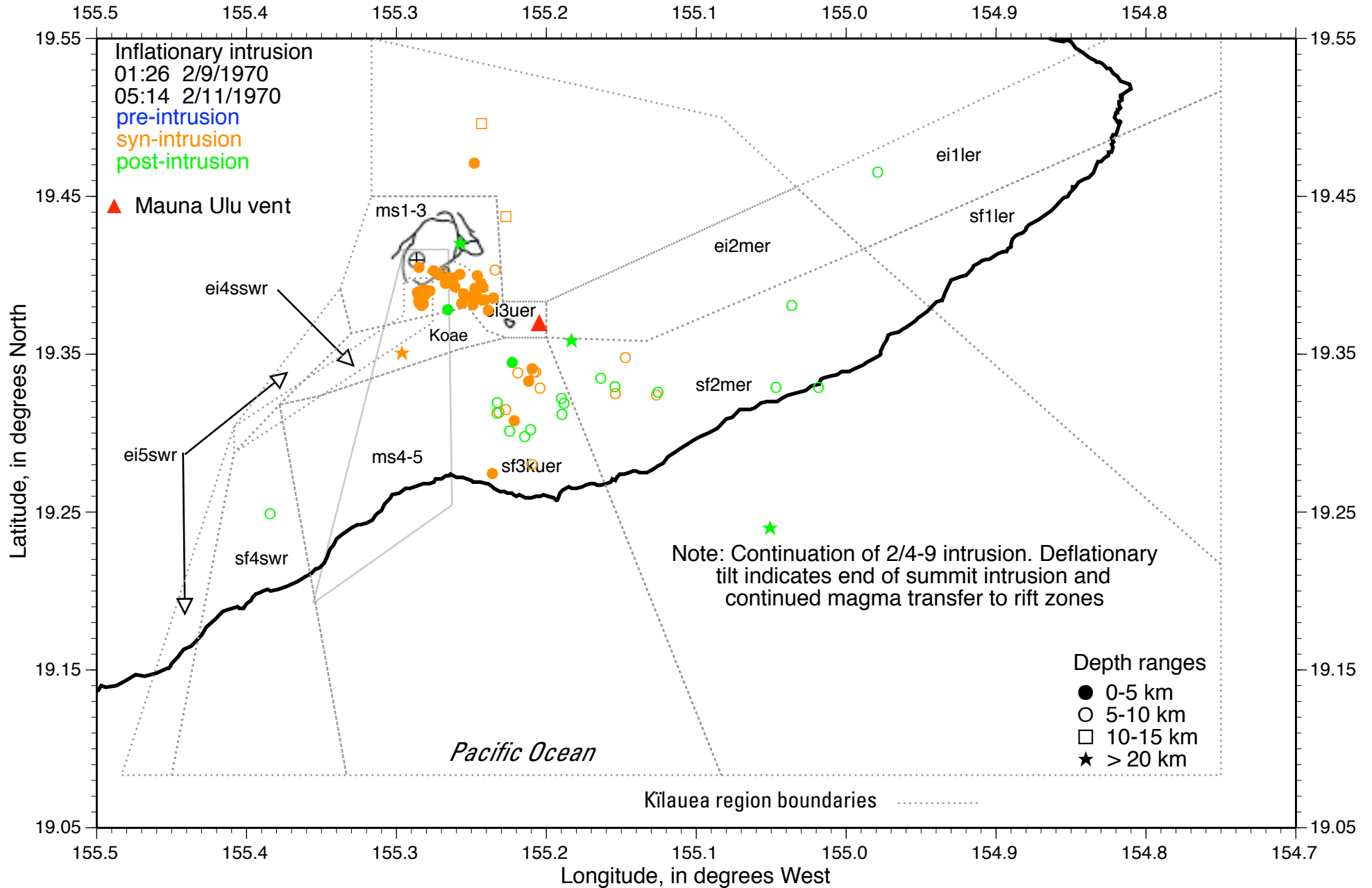


Appendix Figure E24
Mauna Ulu IB 1/1970 intrusion: data from 1/16-23/1970

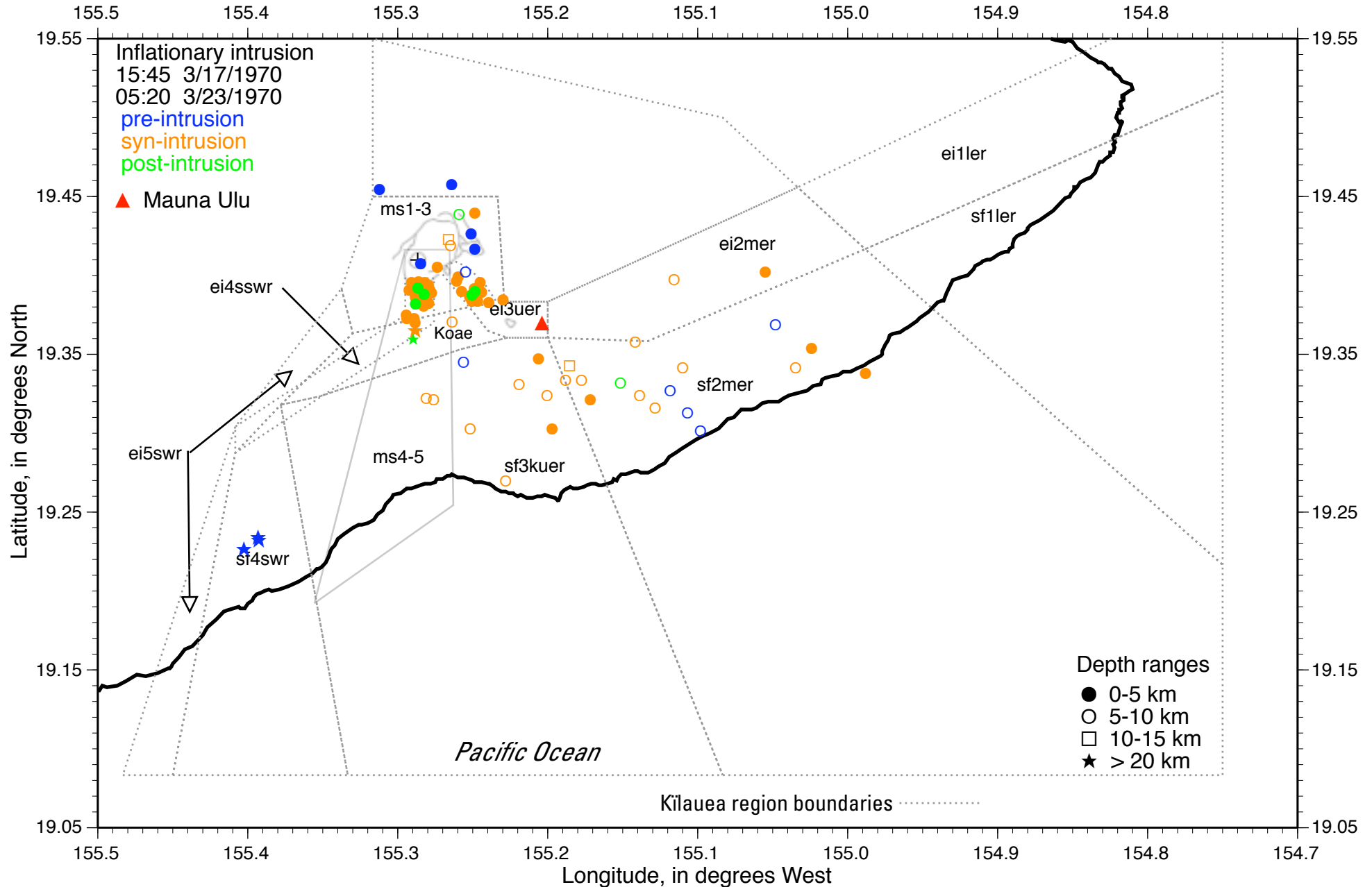


Appendix Figure E25

Mauna Ulu IB 2/1970 inflationary intrusion: data from 2/9-15/1970



Appendix Figure E26
 Mauna Ulu IB 3/1970 inflationary intrusion: data from 3/15-24/1970



Appendix Figure E27
 Mauna Ulu IB 4/1970 inflationary intrusion: data from 4/2-11/1970

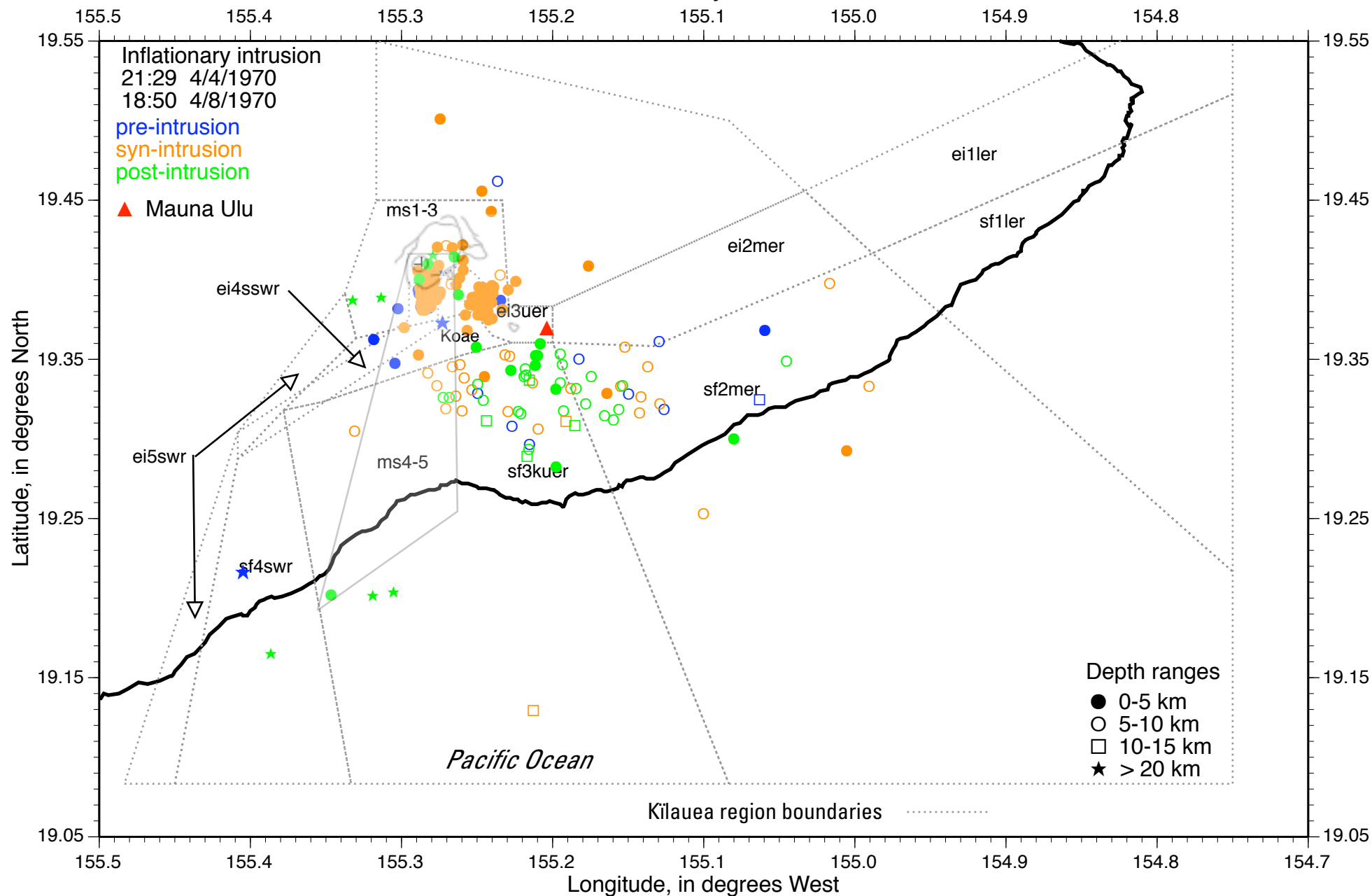
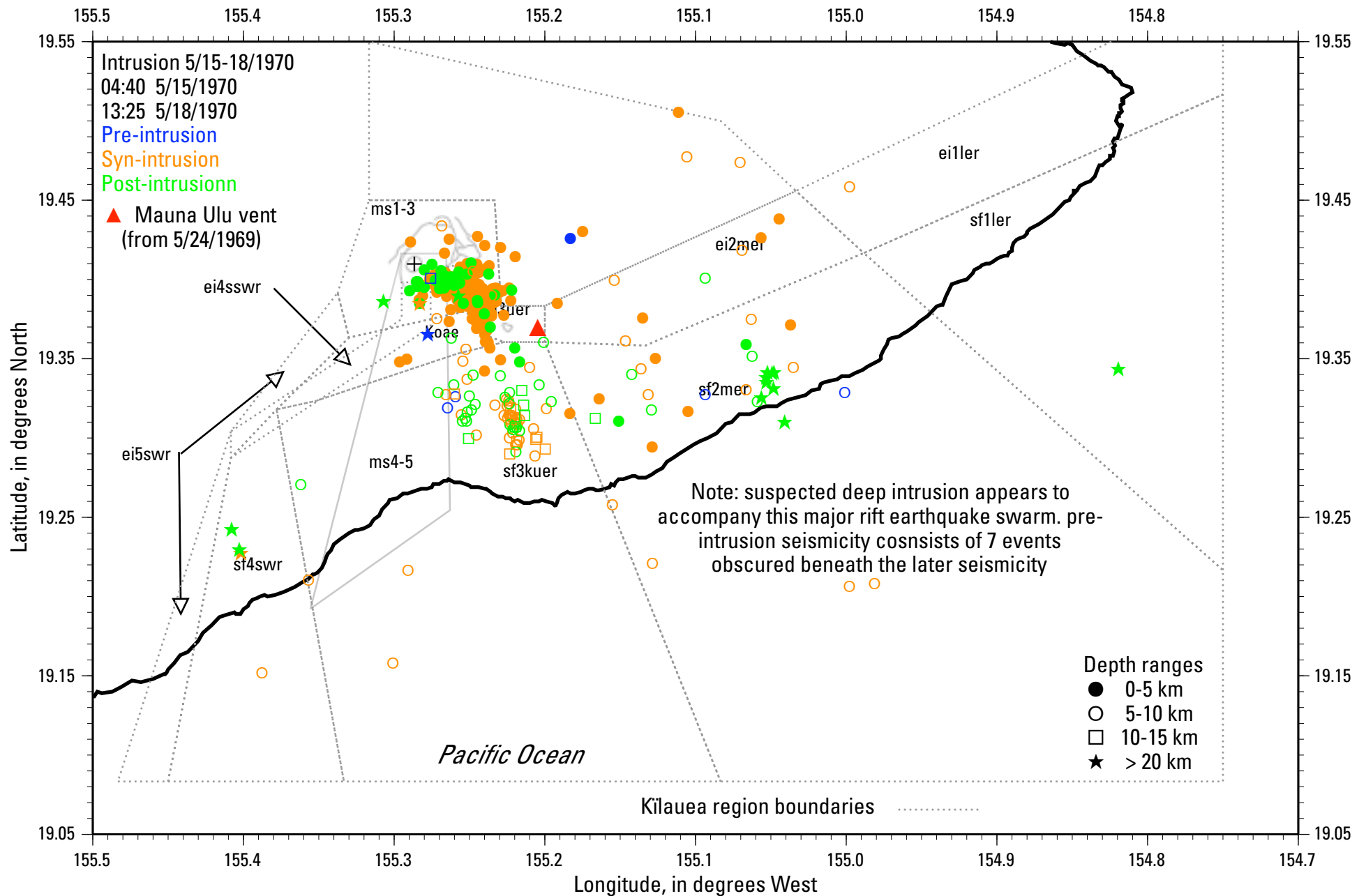


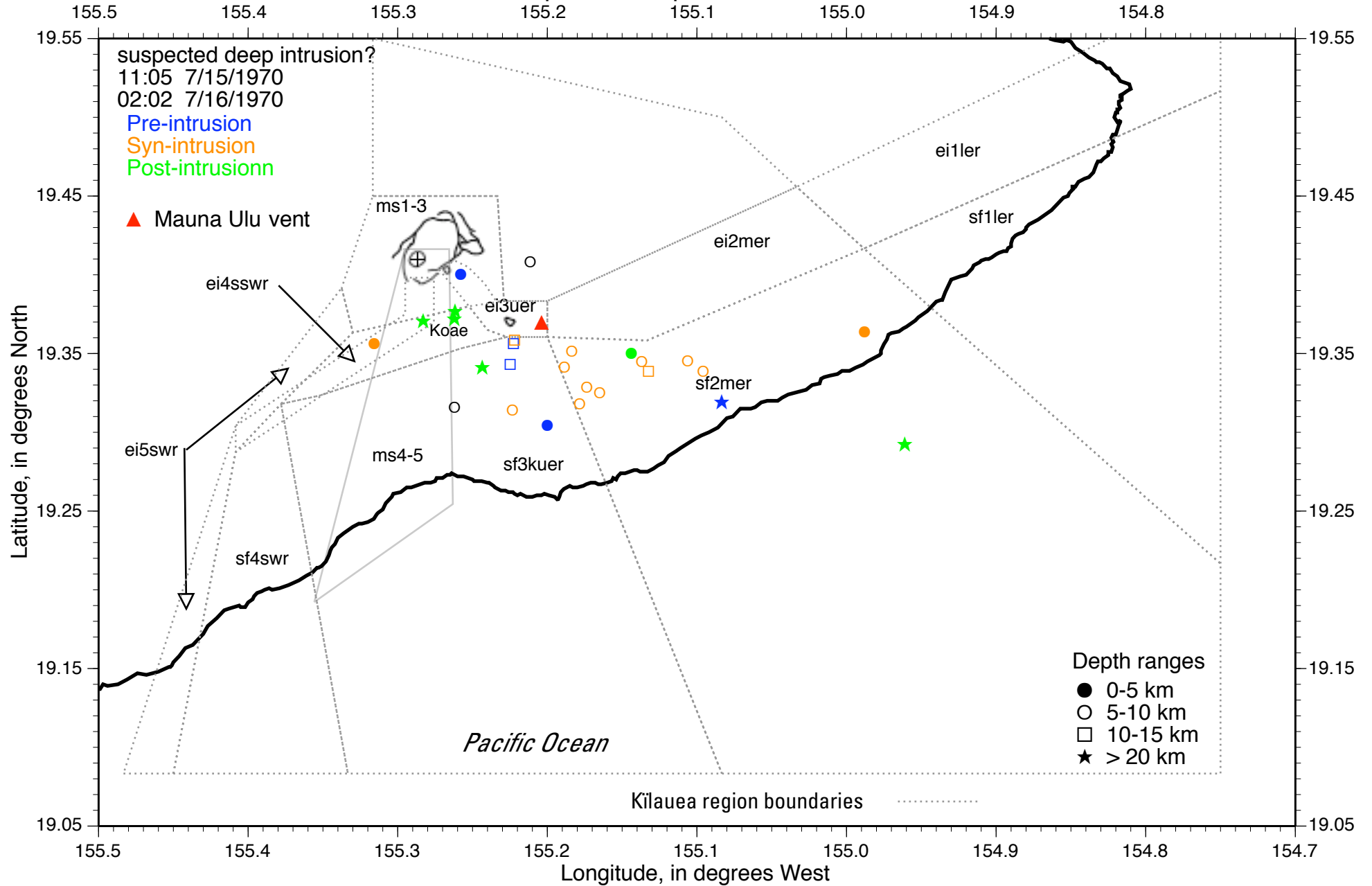
Figure E28

Mauna Ulu IB May 1970 intrusion: data from 5/14-22/1970

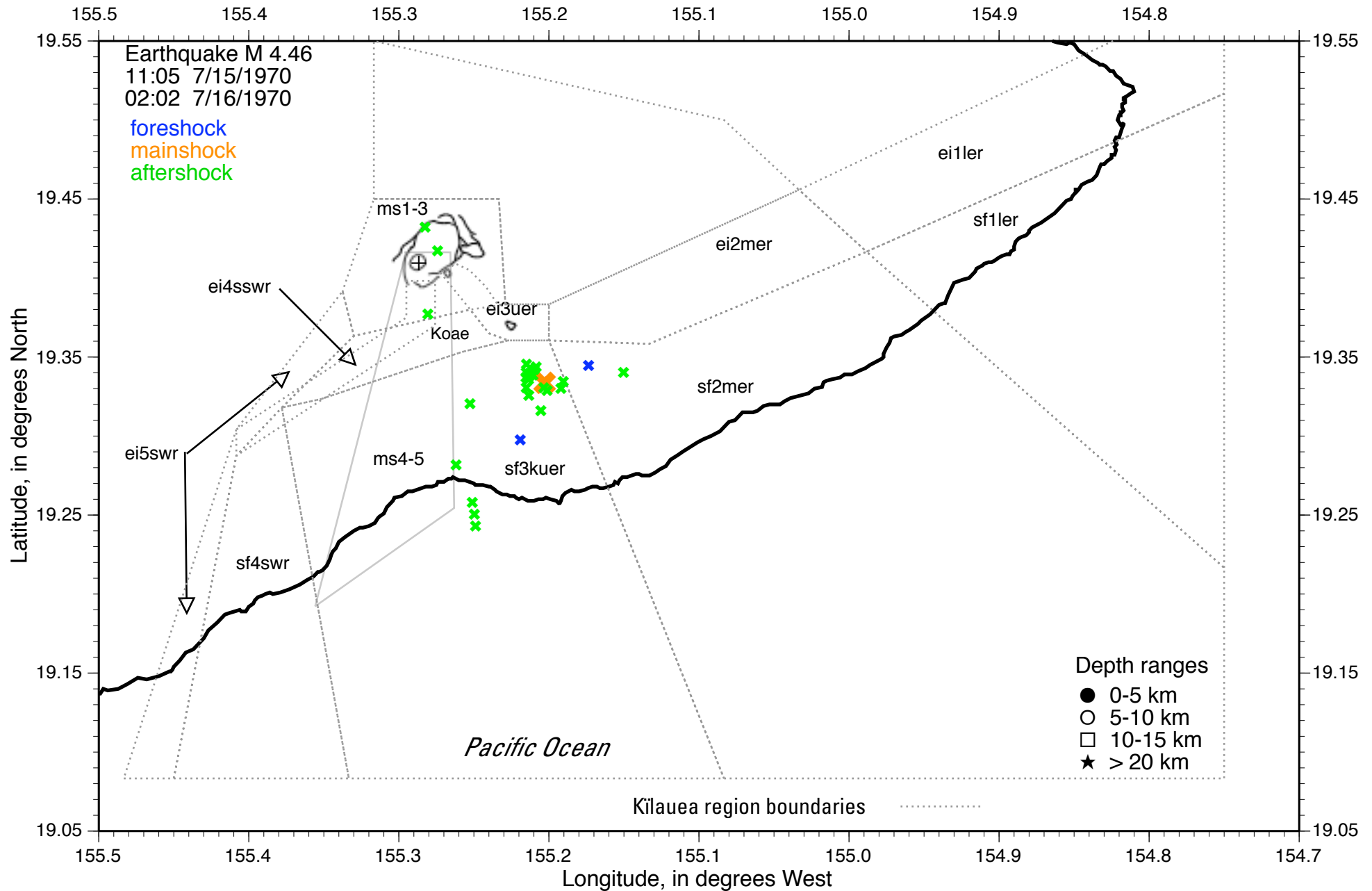


Appendix Figure E29

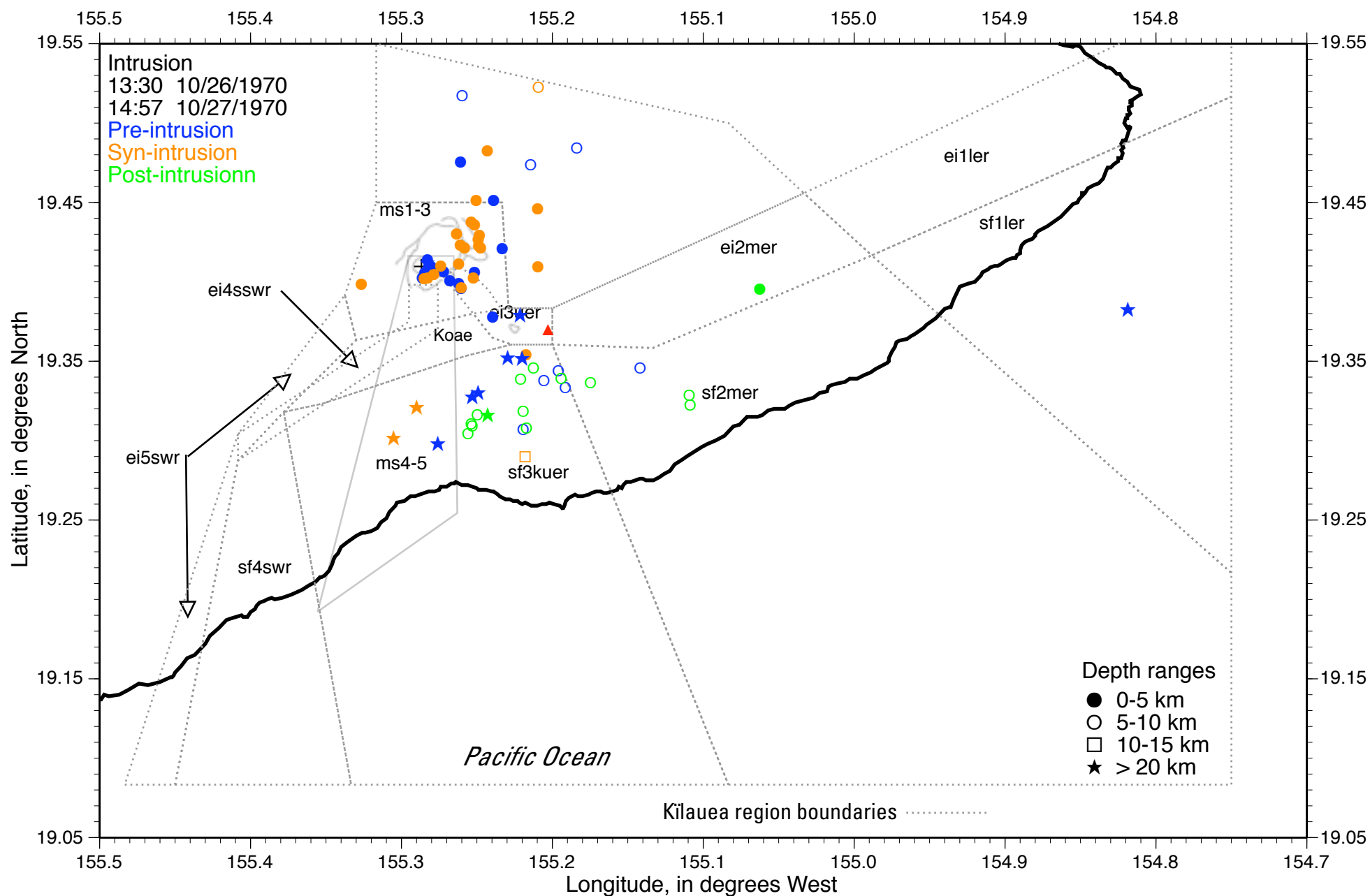
Mauna Ulu IB suspected deep intrusion?: data from 7/8-15/1970



Appendix Figure E30
 Mauna Ulu IB South flank earthquake: data from 9/20-22/1970

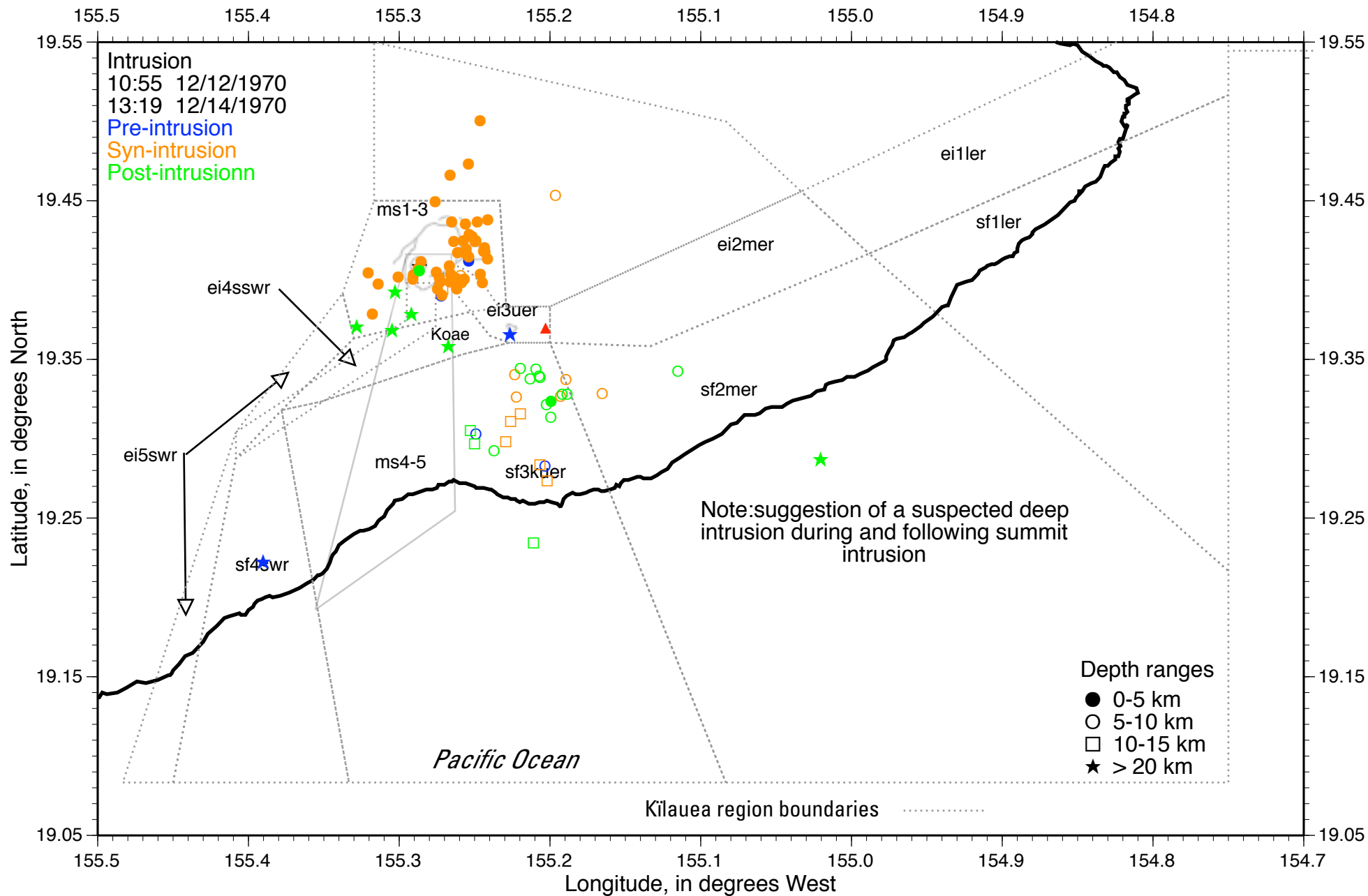


Appendix Figure E31
Mauna Ulu IB October 1970 intrusion: data from 10/23-31/1970



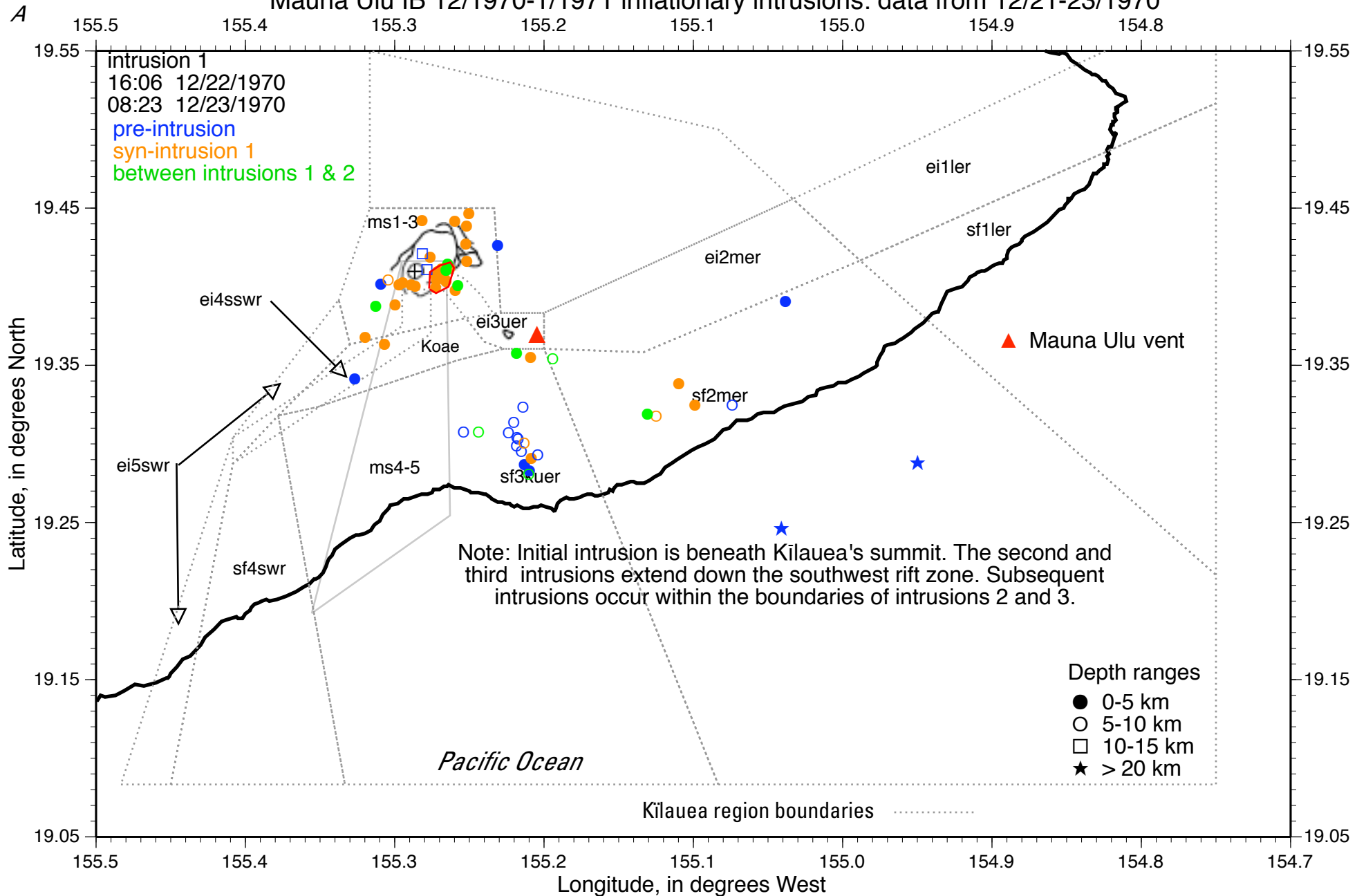
Appendix Figure E32

Mauna Ulu IB December 1970 intrusion: data from 12/11-16/1970



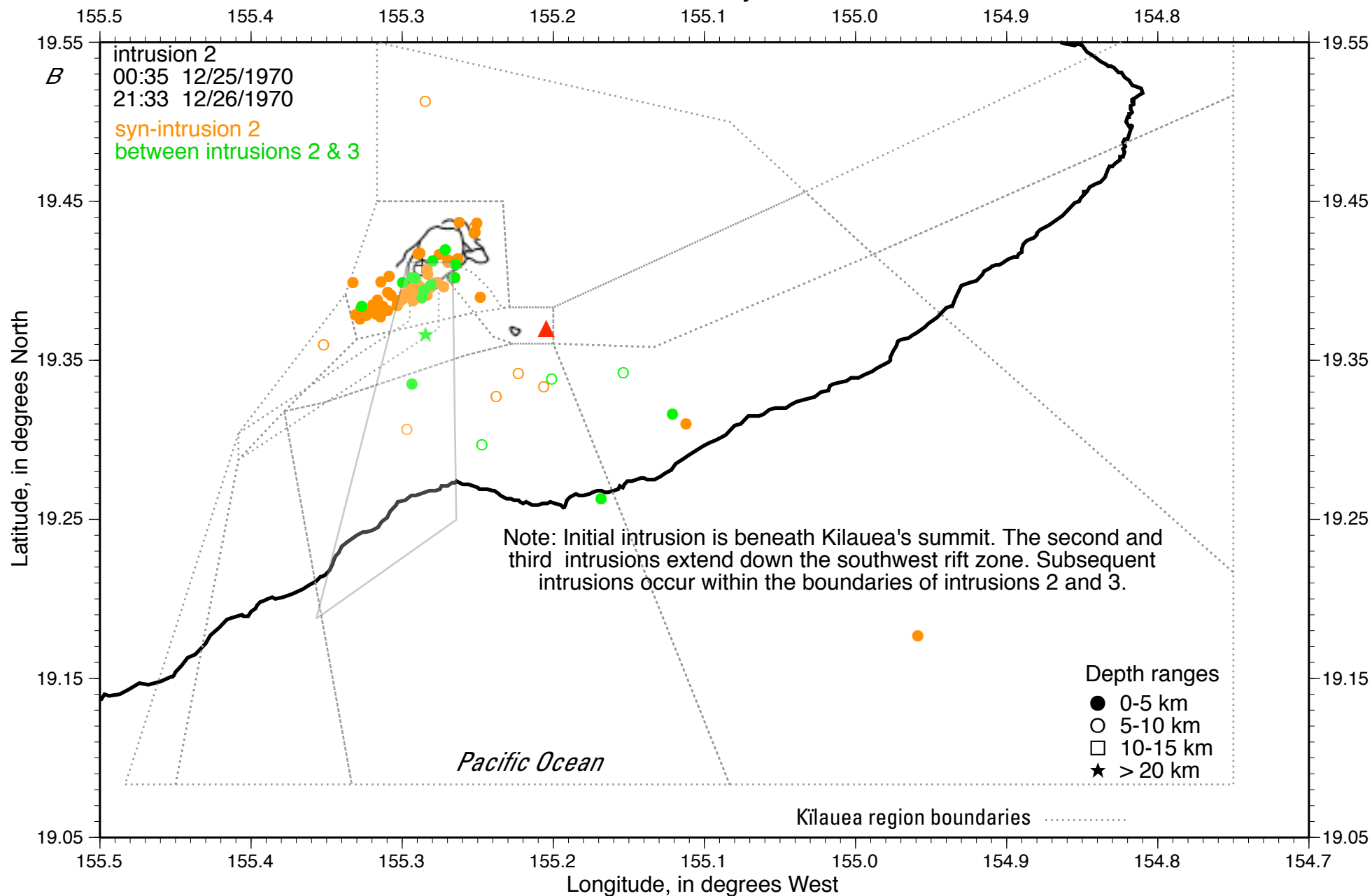
Appendix Figure E33a

Mauna Ulu IB 12/1970-1/1971 inflationary intrusions: data from 12/21-23/1970



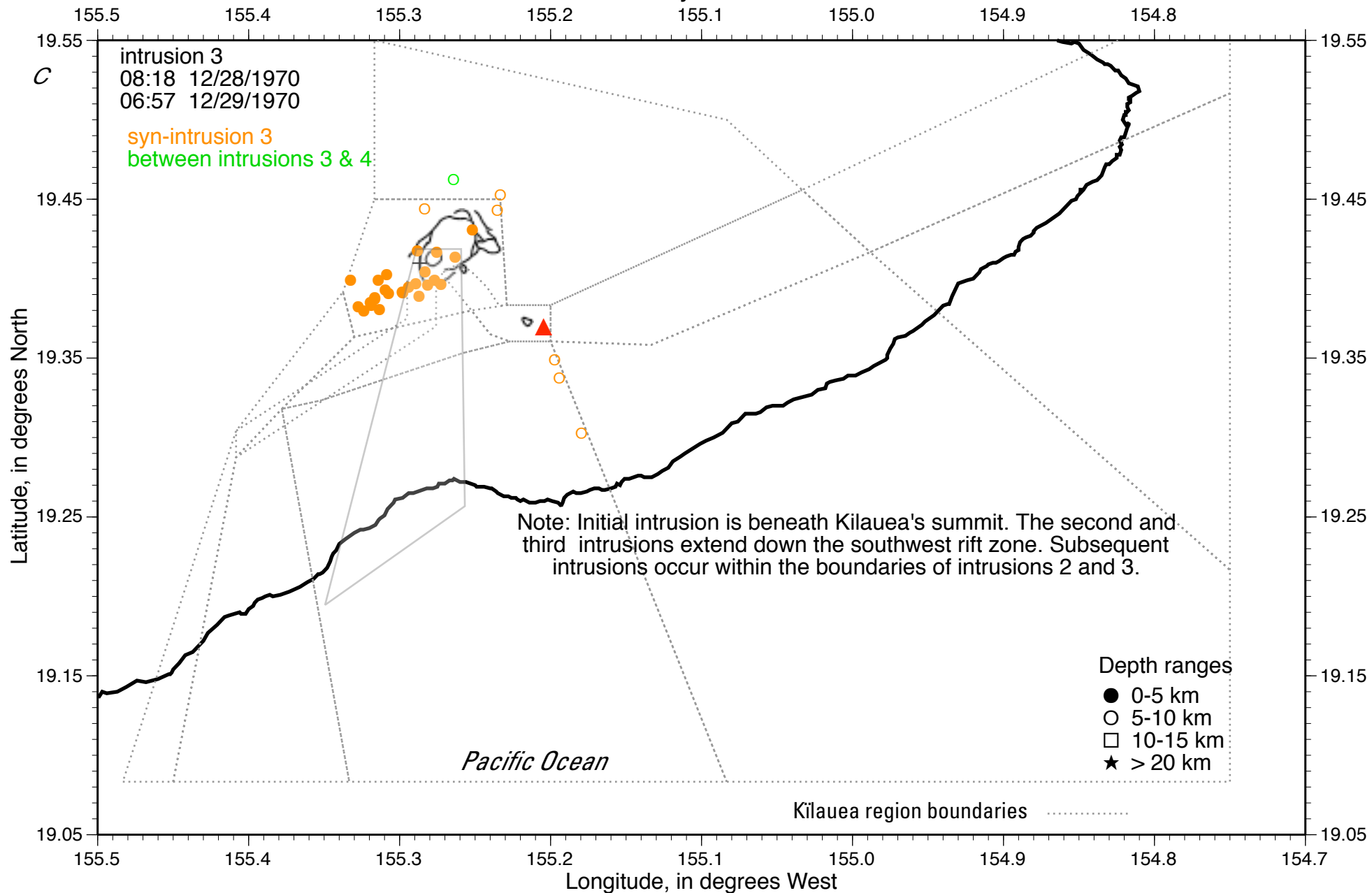
Appendix Figure E33b

Mauna Ulu IB 12/1970-1/1971 inflationary intrusions: data from 12/25-26/1970



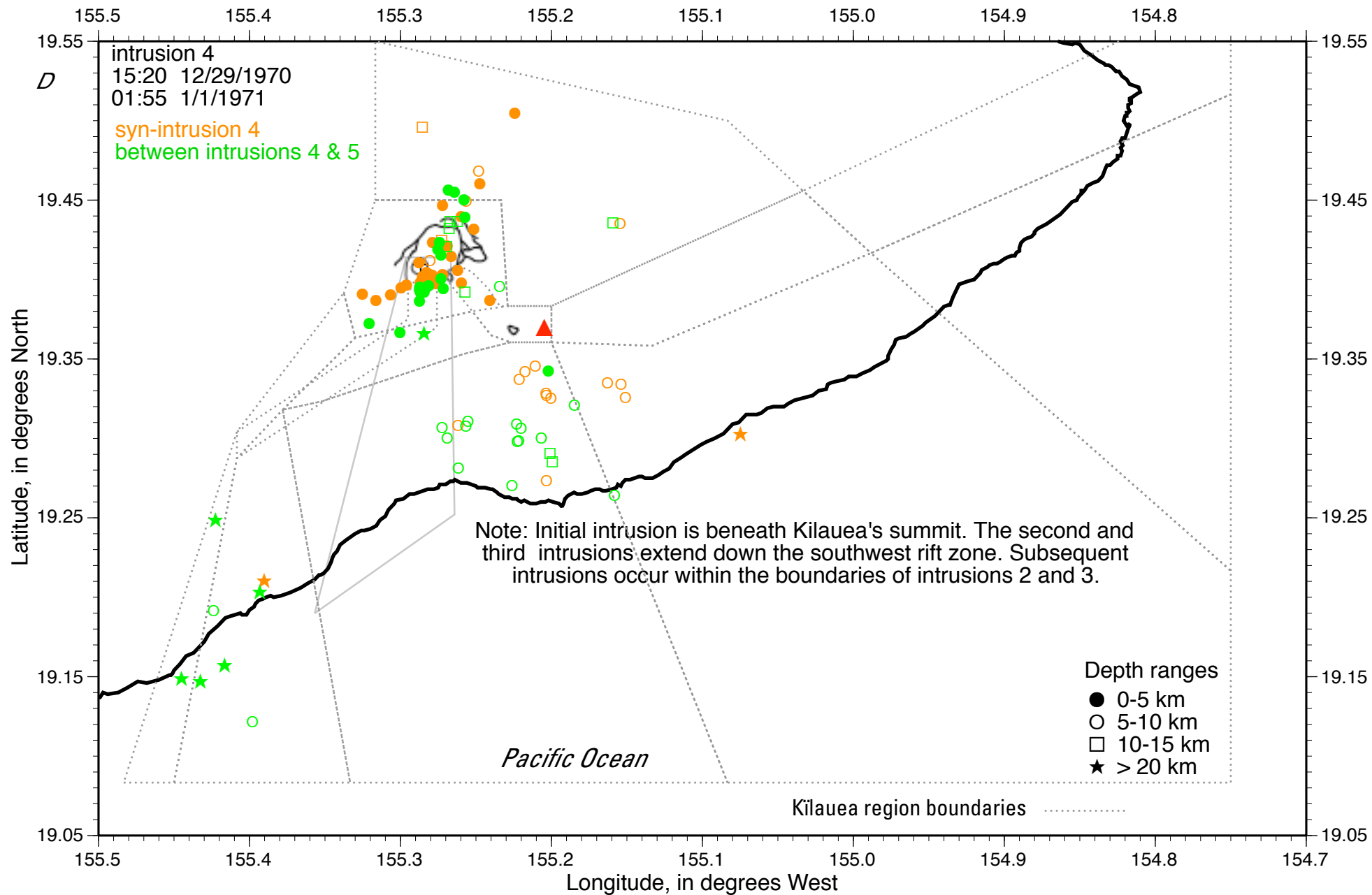
Appendix Figure E33c

Mauna Ulu IB 12/1970-1/1971 inflationary intrusions: data from 12/28-29/1970

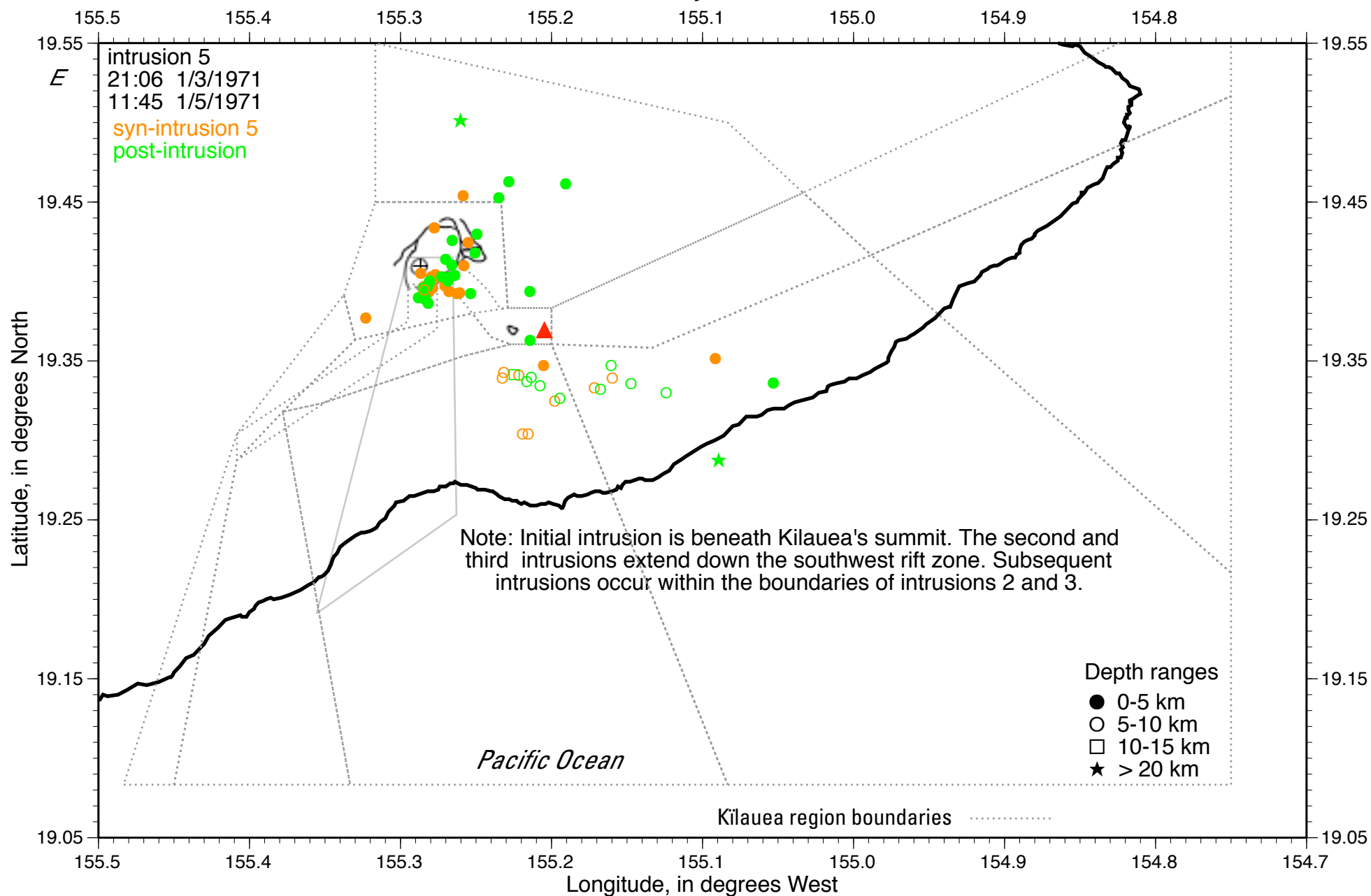


Appendix Figure E33d

Mauna Ulu IB 12/1970-1/1971 inflationary intrusions: data from 12/29/1970-1/1/1971

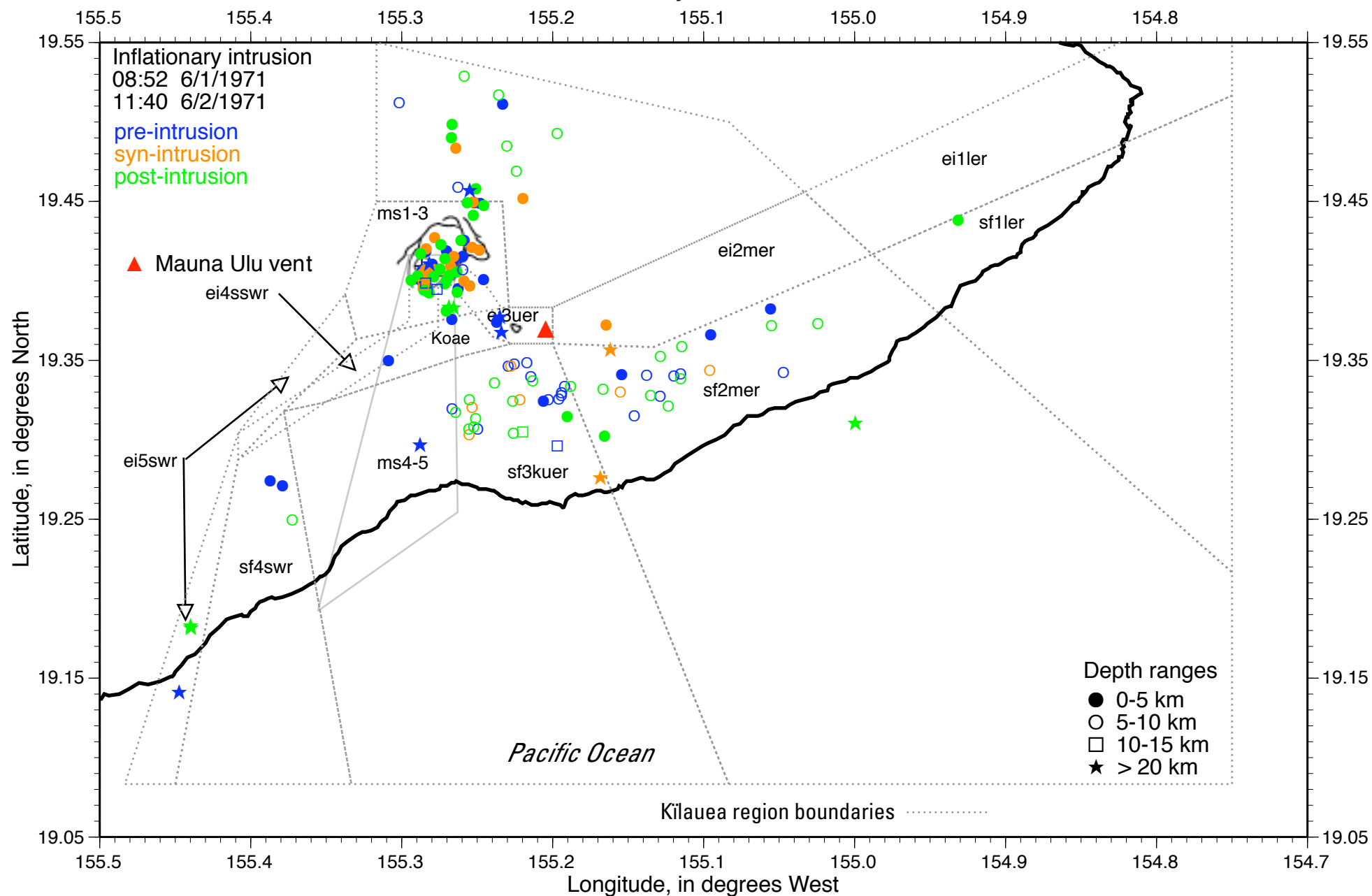


Appendix Figure E33e
 Mauna Ulu IB 12/1970-1/1971 inflationary intrusions: data from 1/3/1970-1/6/1971



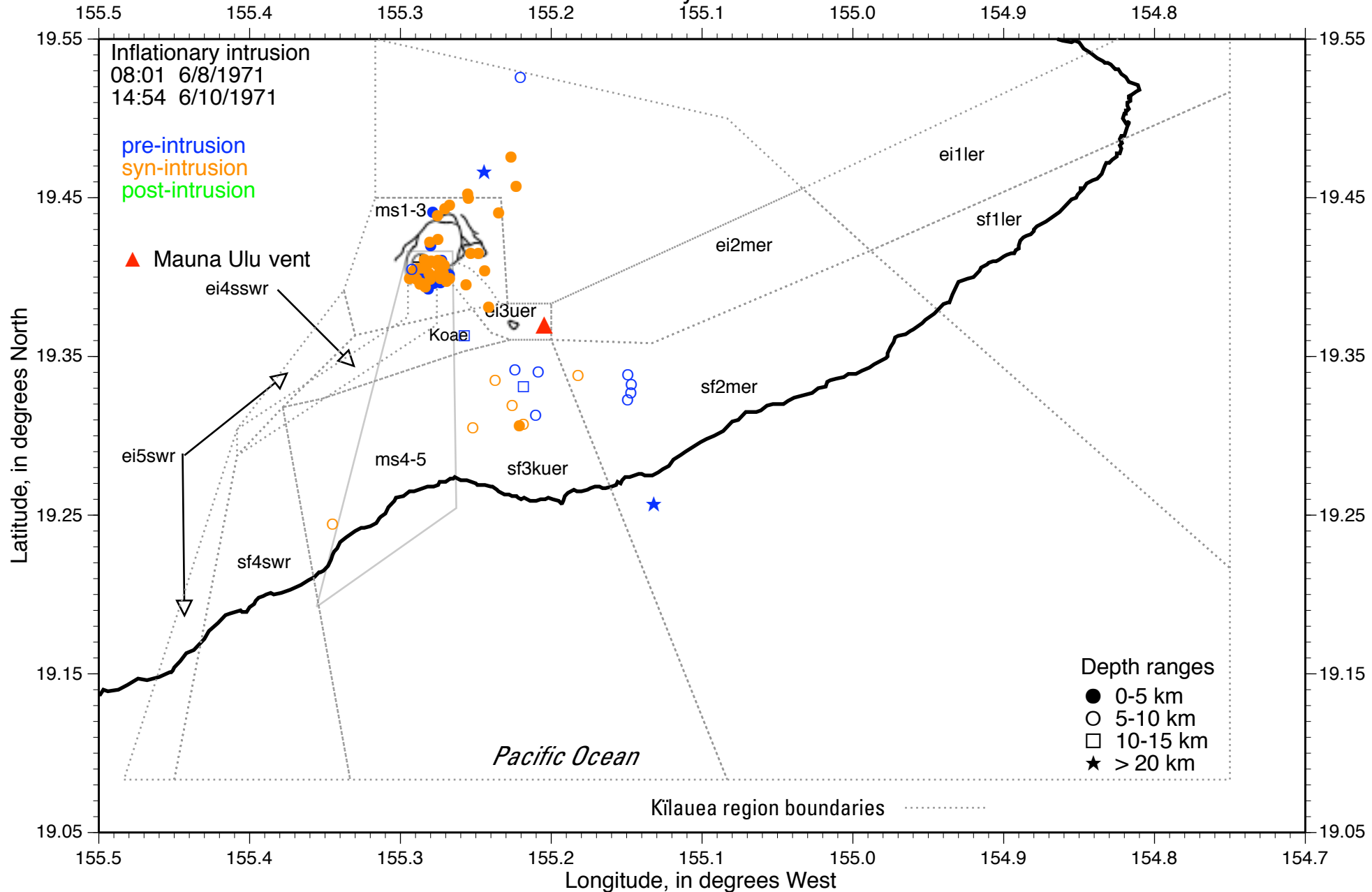
Appendix Figure E34

Mauna Ulu IB 6/1971 inflationary intrusion: data from 5/27-6/5/1971



Appendix Figure E35

Mauna Ulu IB 6/1971 inflationary intrusion: data from 6/6-10/1971



Appendix Figure E36
 Mauna Ulu IB 6/1971 inflationary intrusion: data from 6/11-16/1971

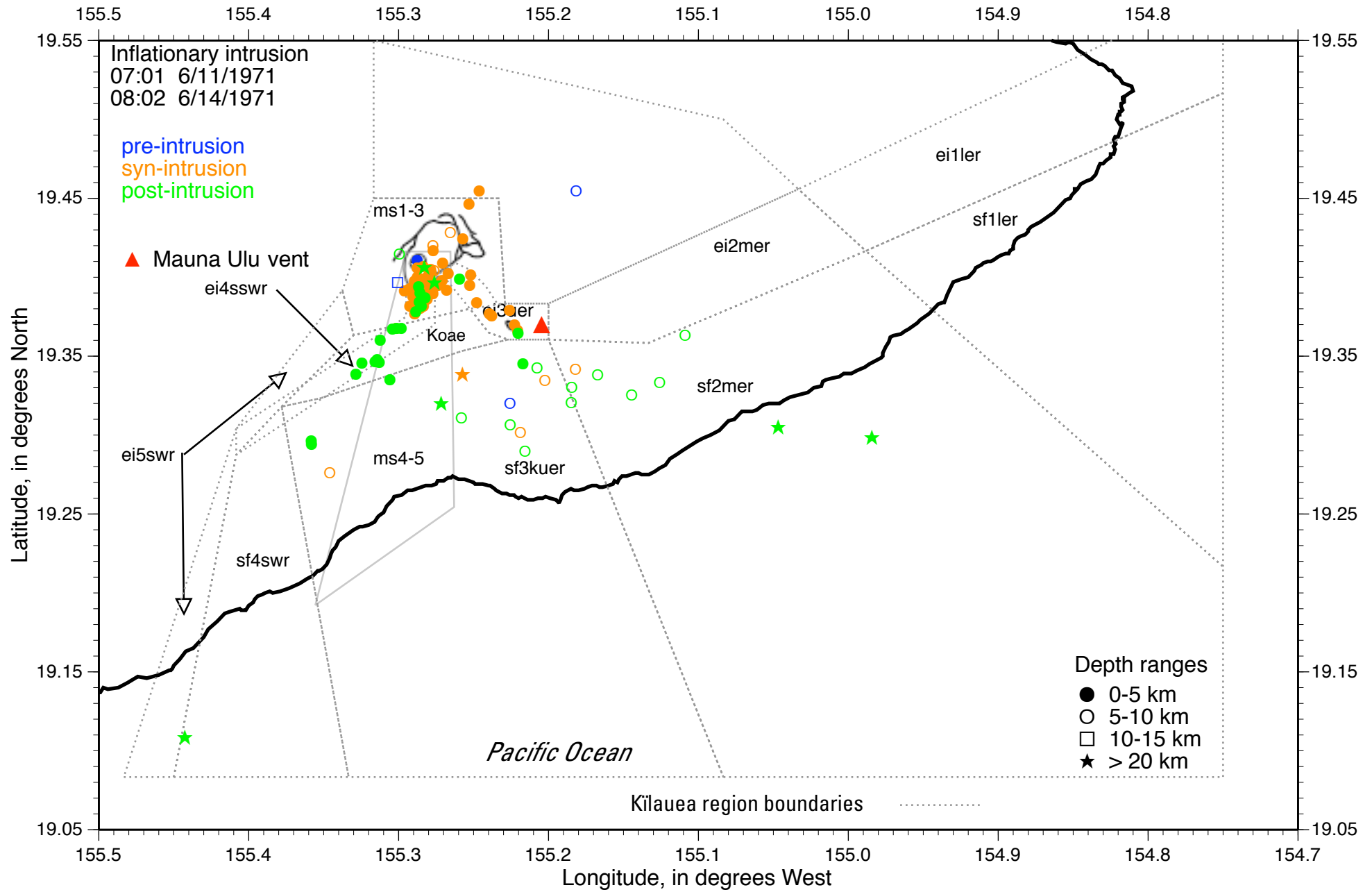
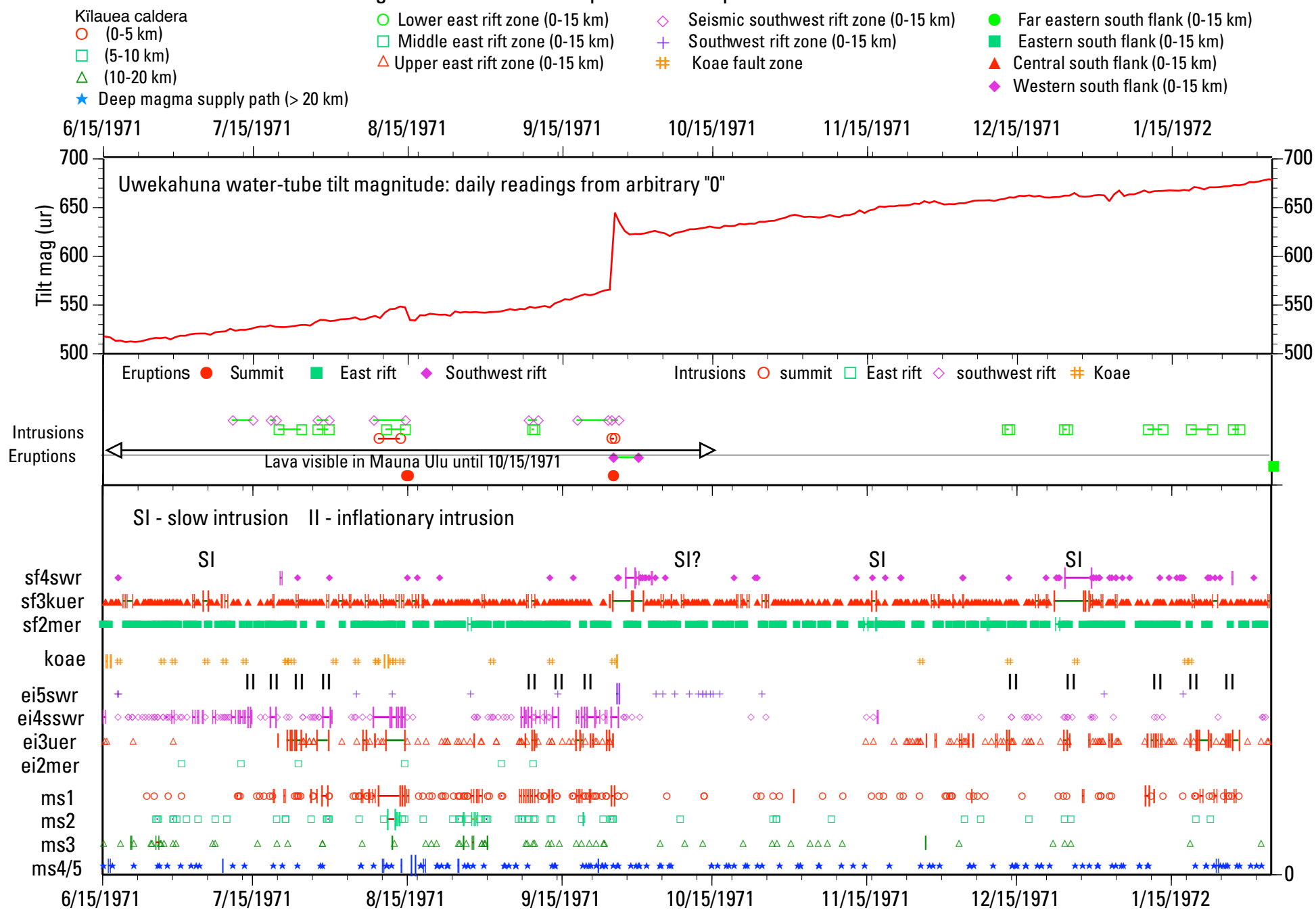
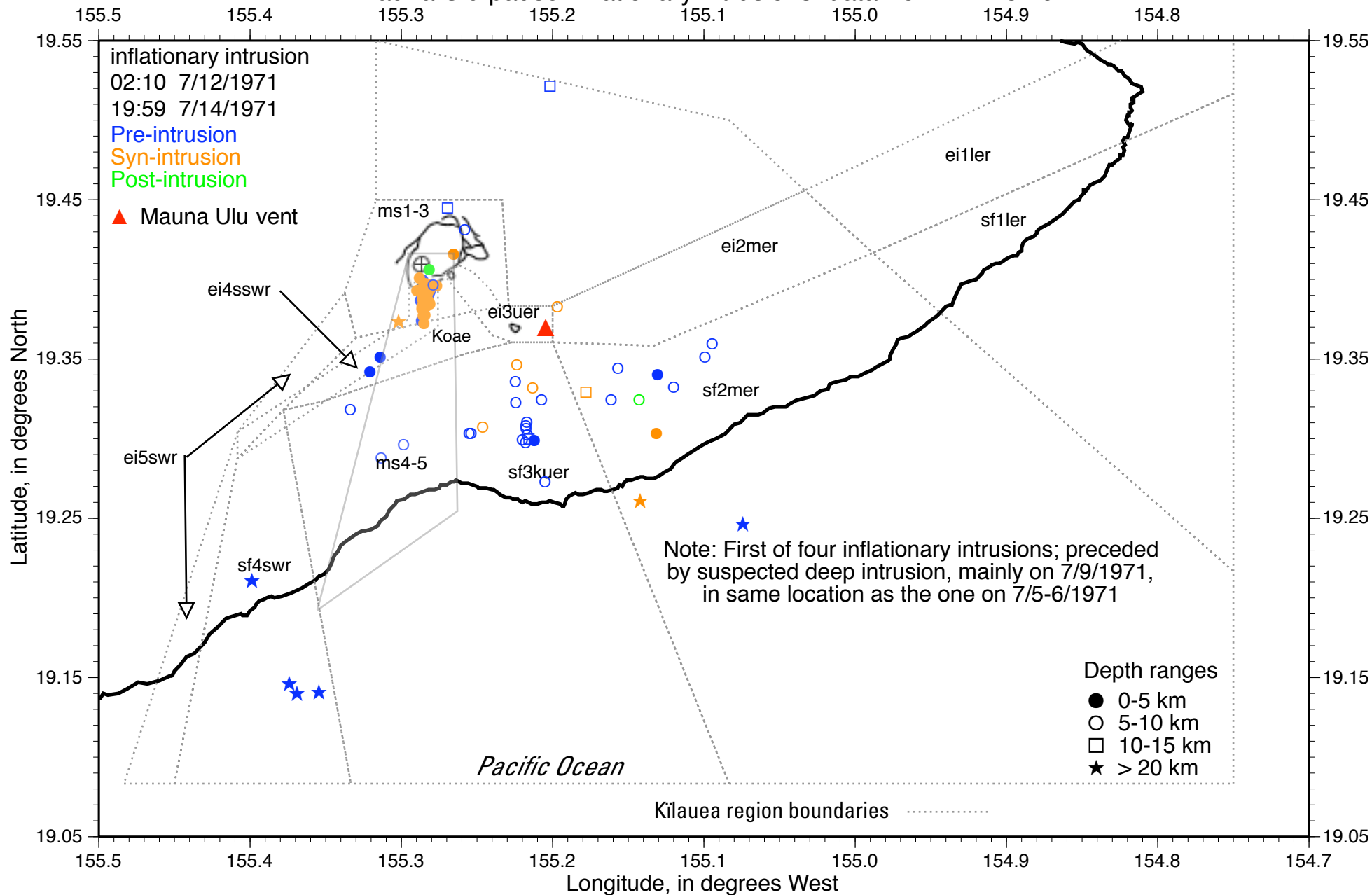


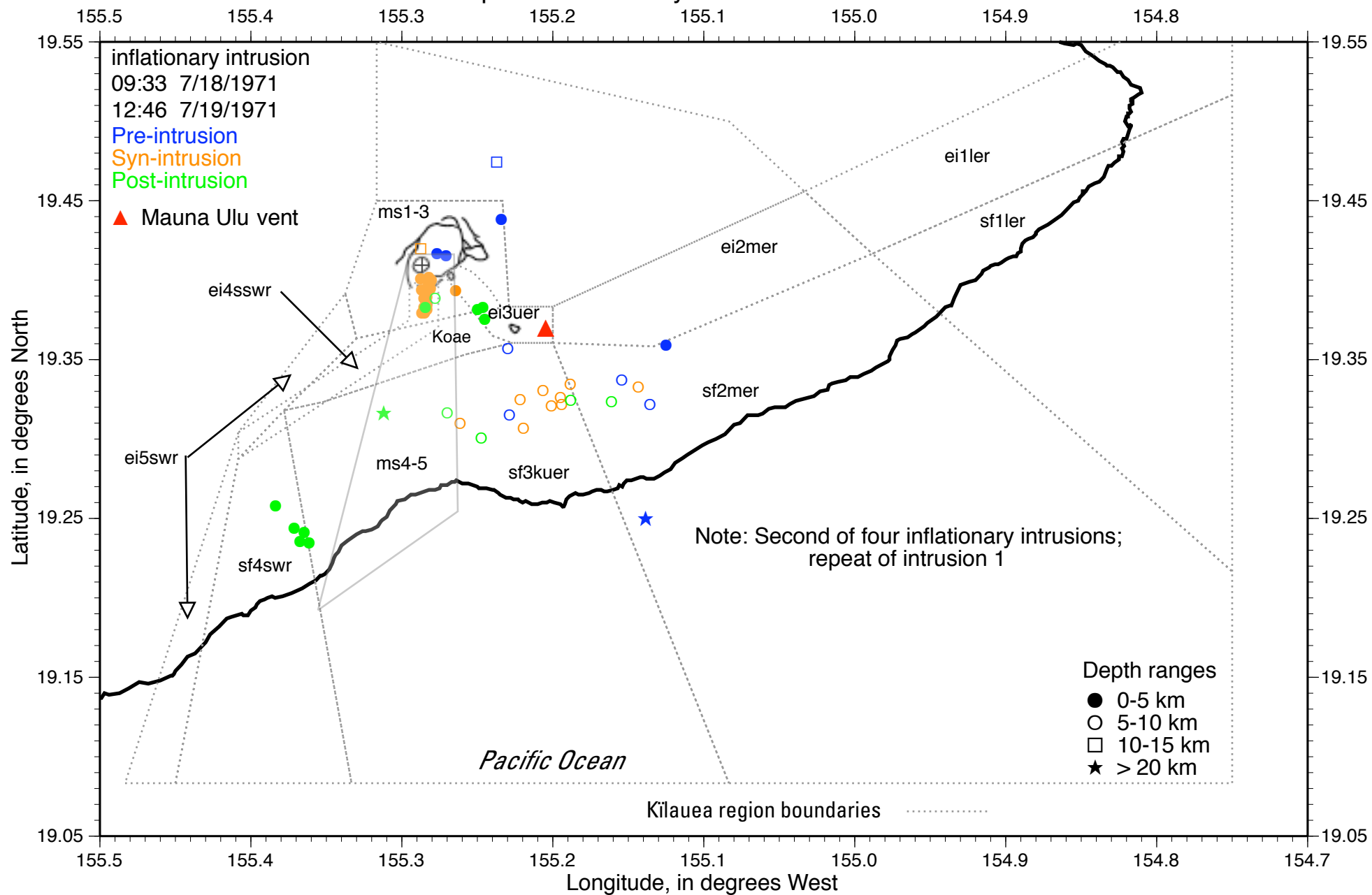
Figure E37. Mauna Ulu pause: earthquake swarms and tilt



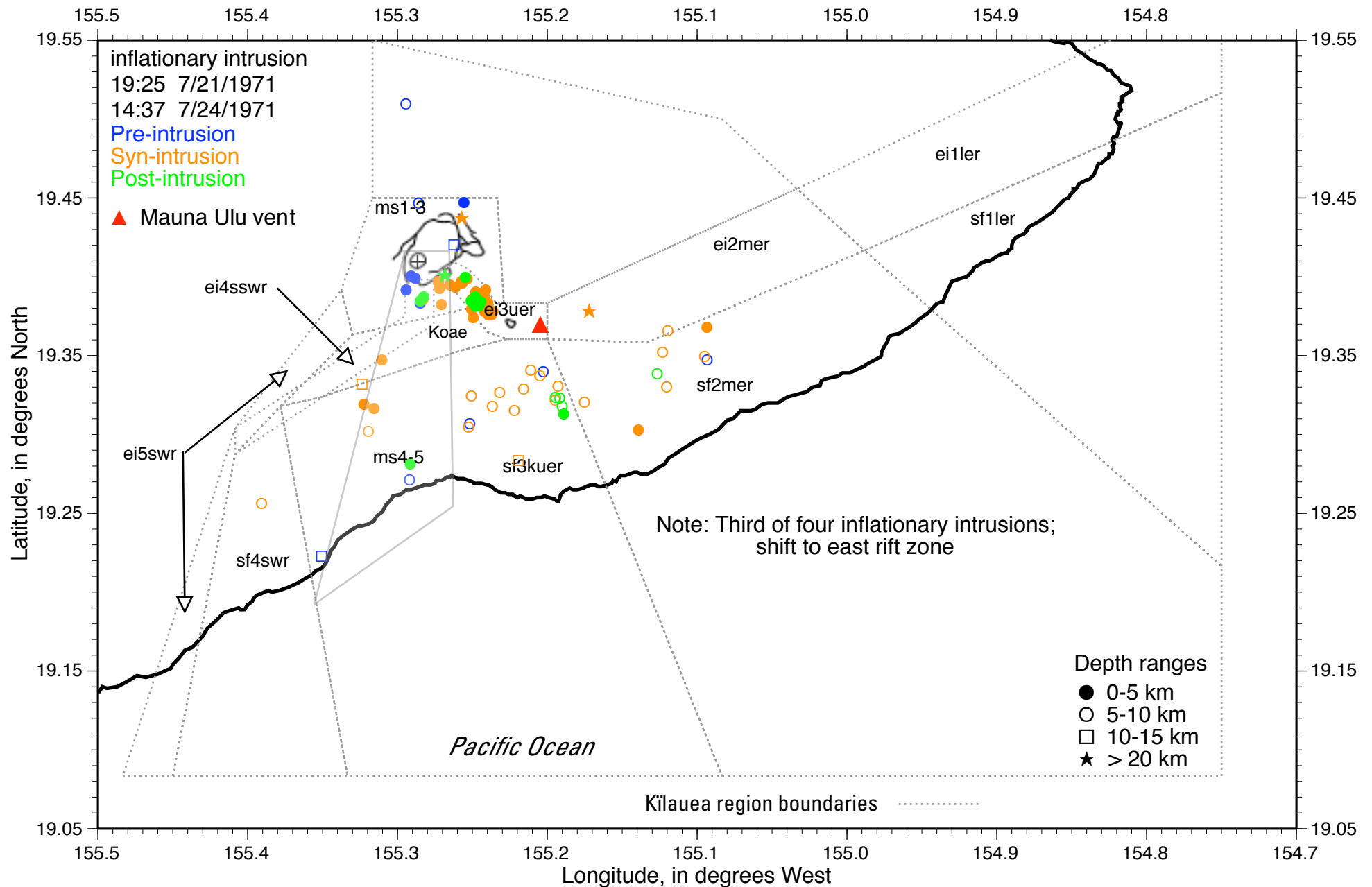
Appendix Figure E38
Mauna Ulu pause inflationary intrusions: data from 7/7-15/1971



Appendix Figure E39
Mauna Ulu pause inflationary intrusions: data from 7/16-20/1971

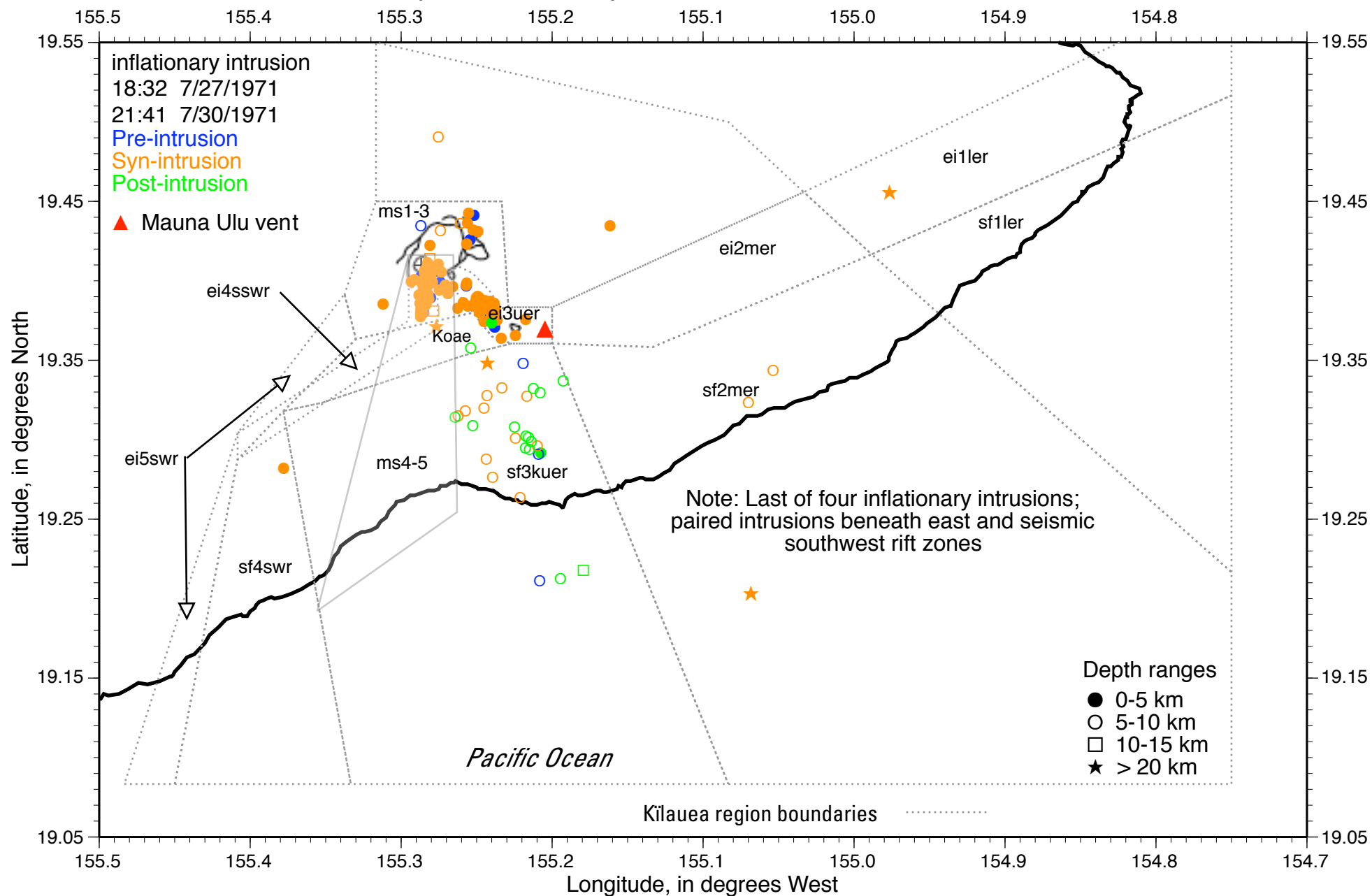


Appendix Figure E40
Mauna Ulu pause inflationary intrusions: data from 7/20-25/1971



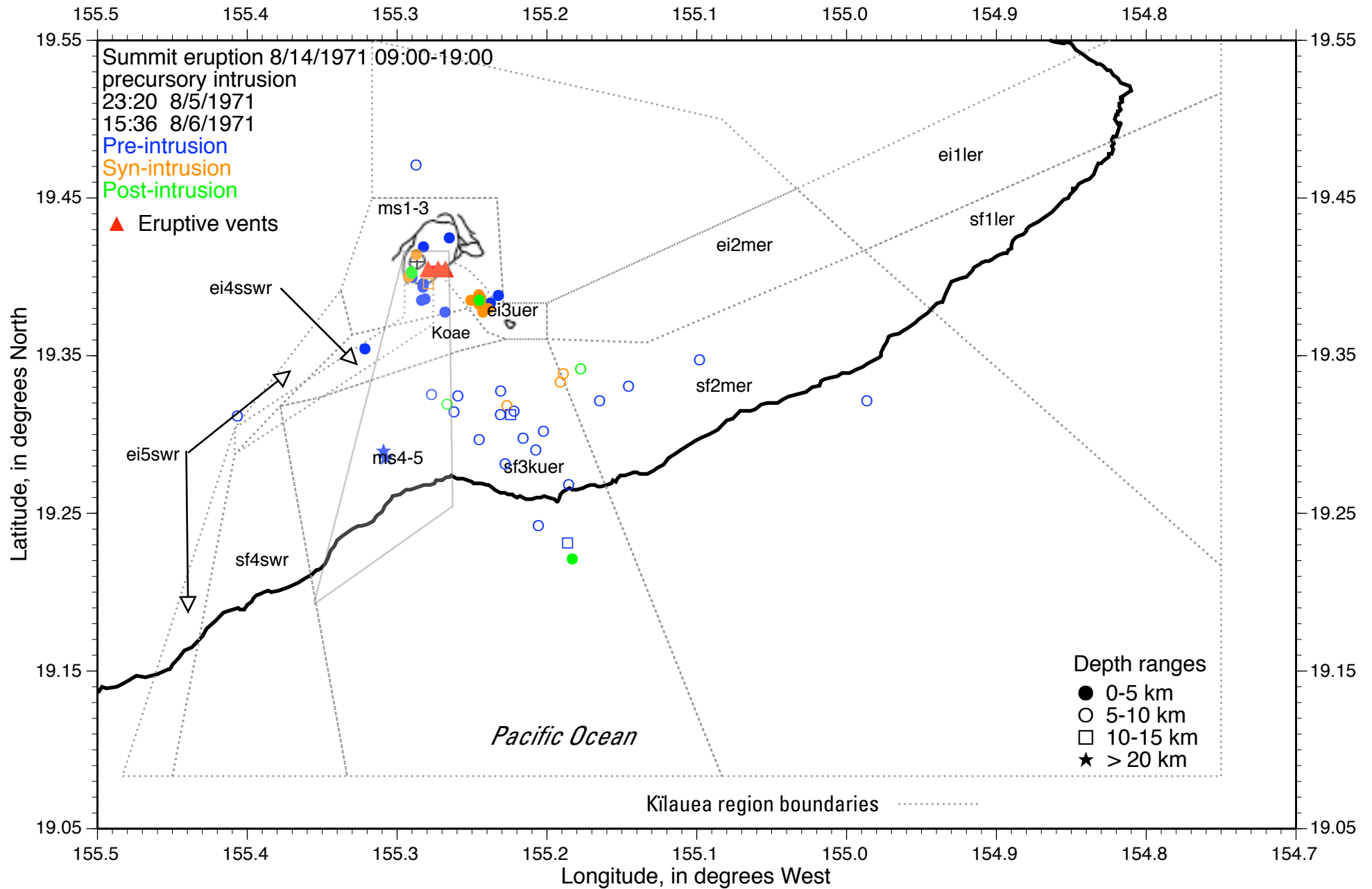
Appendix Figure E41

Mauna Ulu pause inflationary intrusions: data from 7/26-8/1/1971



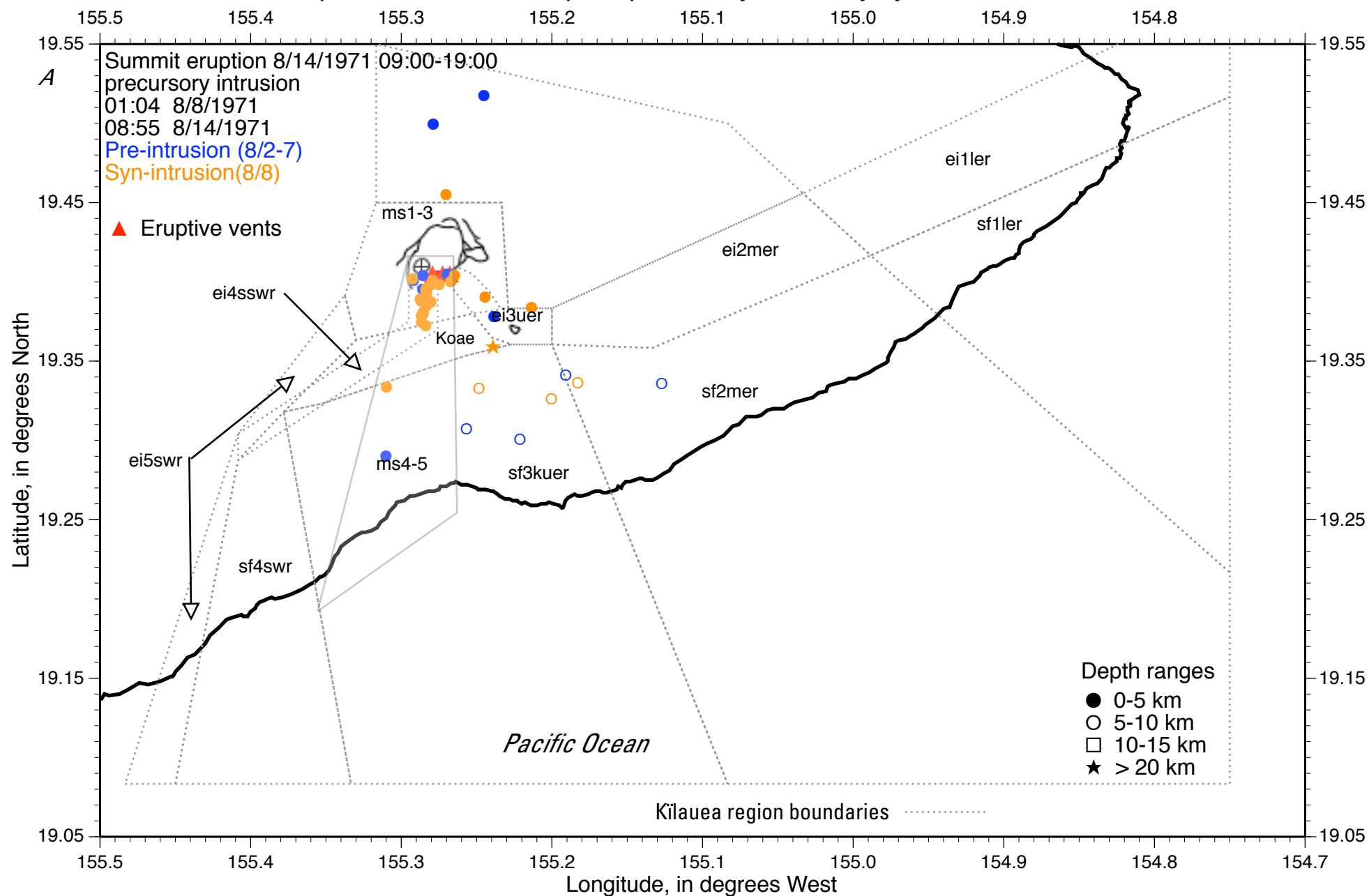
Appendix Figure E42

Mauna Ulu pause 8/14/1971 eruption precursory intrusion: data from 8/2-8/1971



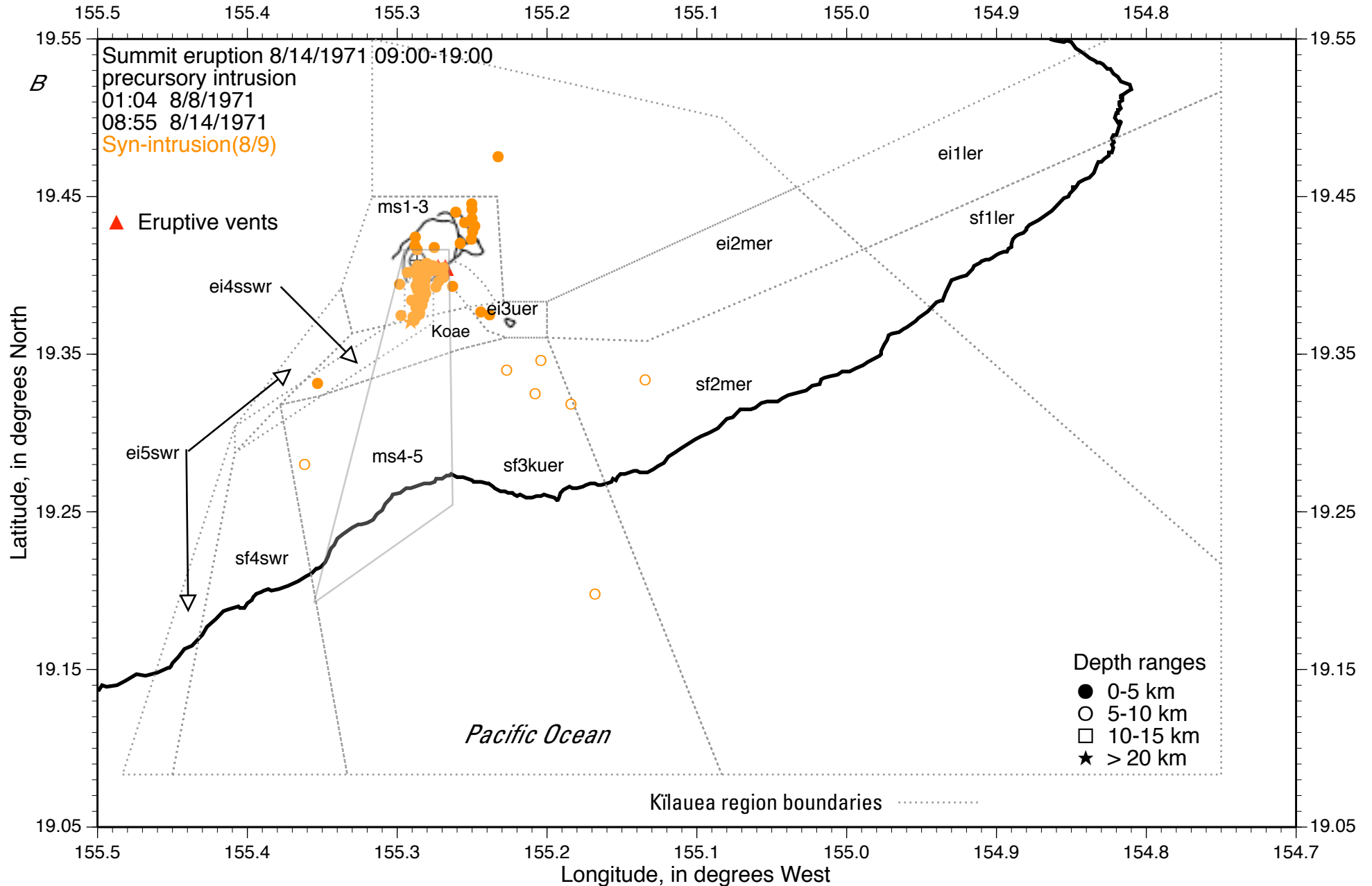
Appendix Figure E43a

Mauna Ulu pause 8/14/1971 eruption precursory seismicity by date: data for 8/8/1971



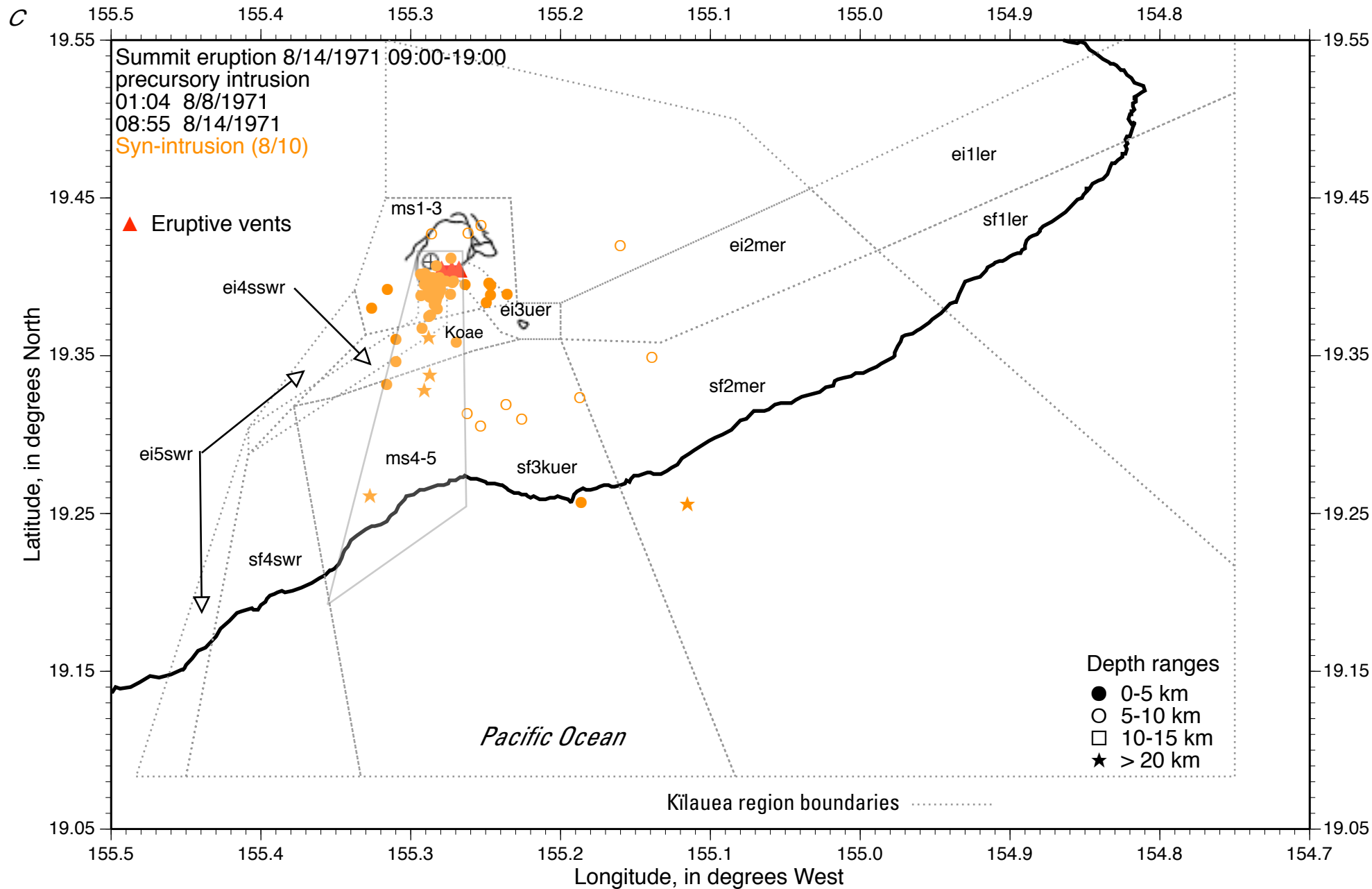
Appendix Figure E43b

Mauna Ulu pause 8/14/1971 eruption precursory seismicity by date: data for 8/9/1971



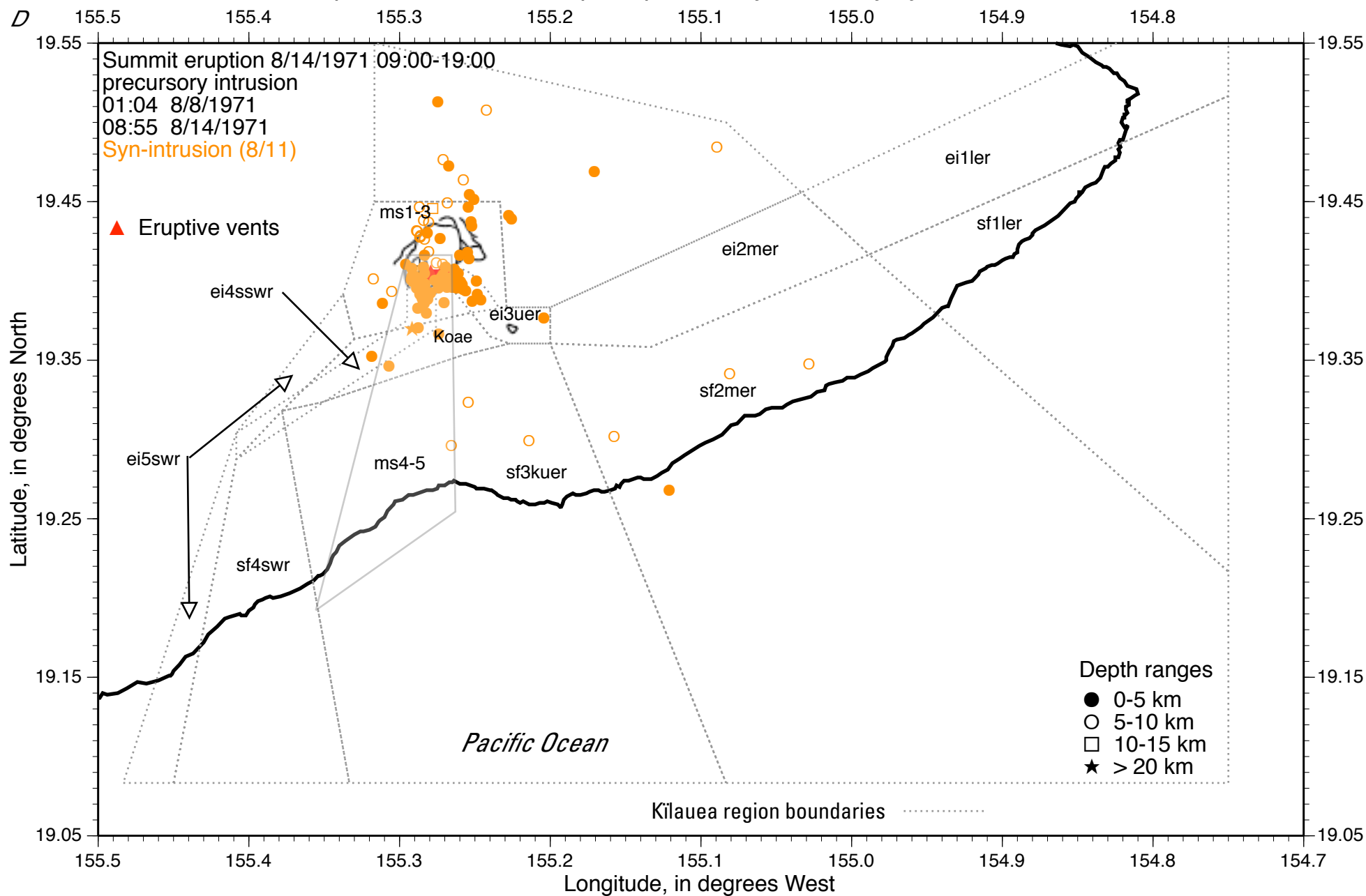
Appendix Figure E43c

Mauna Ulu pause 8/14/1971 eruption precursory seismicity by date: data for 8/10/1971



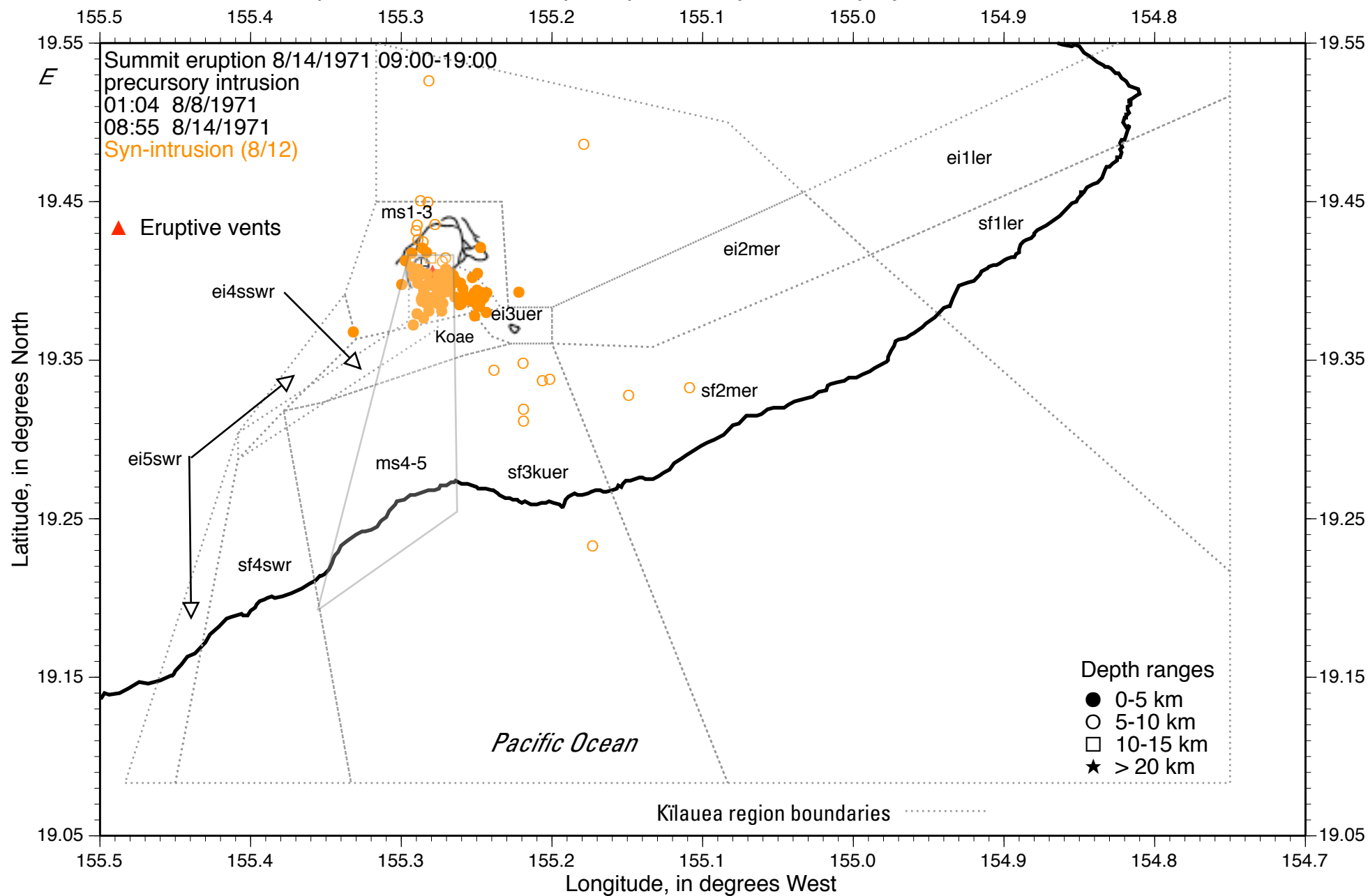
Appendix Figure E43d

Mauna Ulu pause 8/14/1971 eruption precursory seismicity by date: data for 8/11/1971



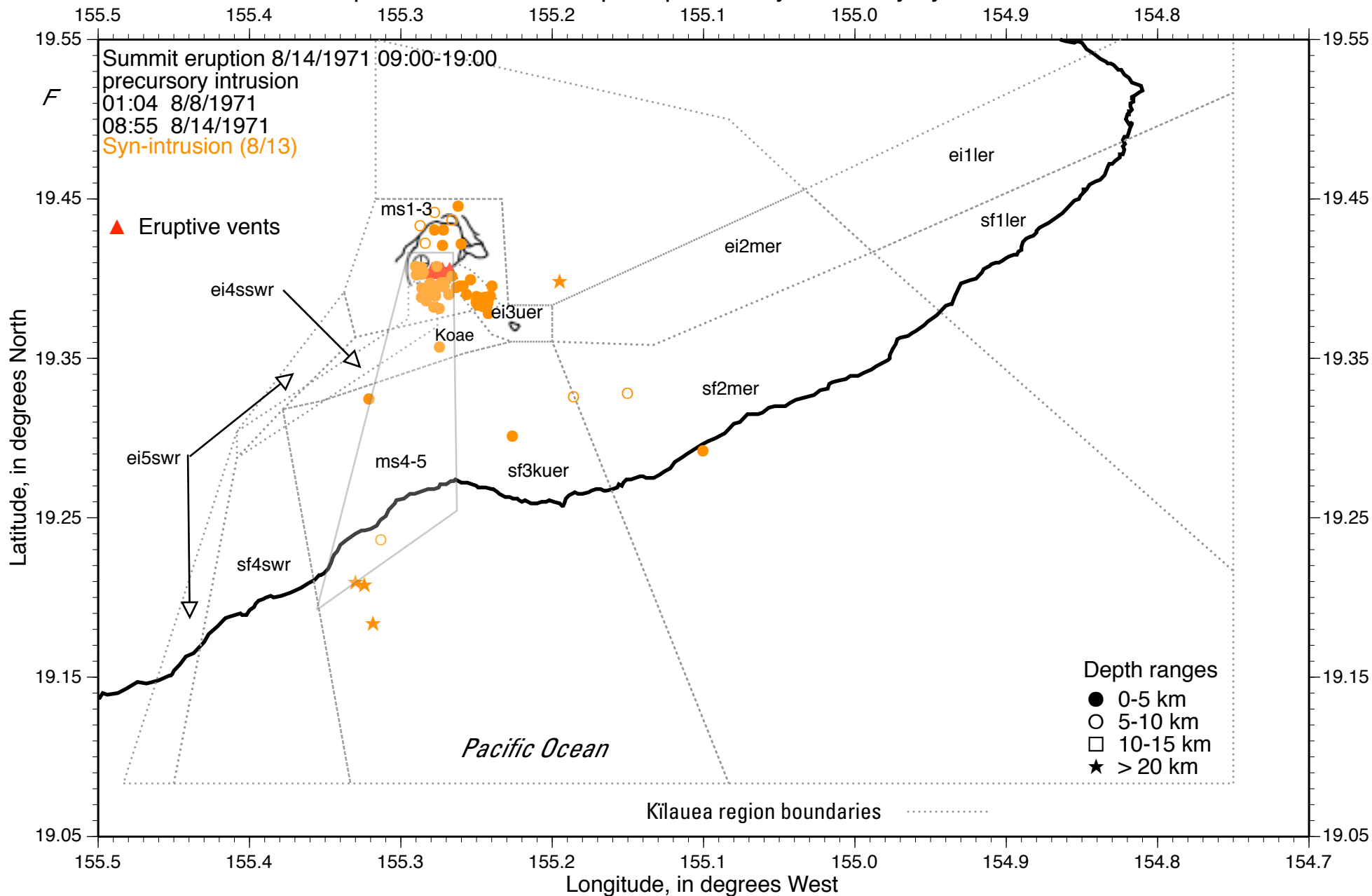
Appendix Figure E43e

Mauna Ulu pause 8/14/1971 eruption precursory seismicity by date: data for 8/12/1971



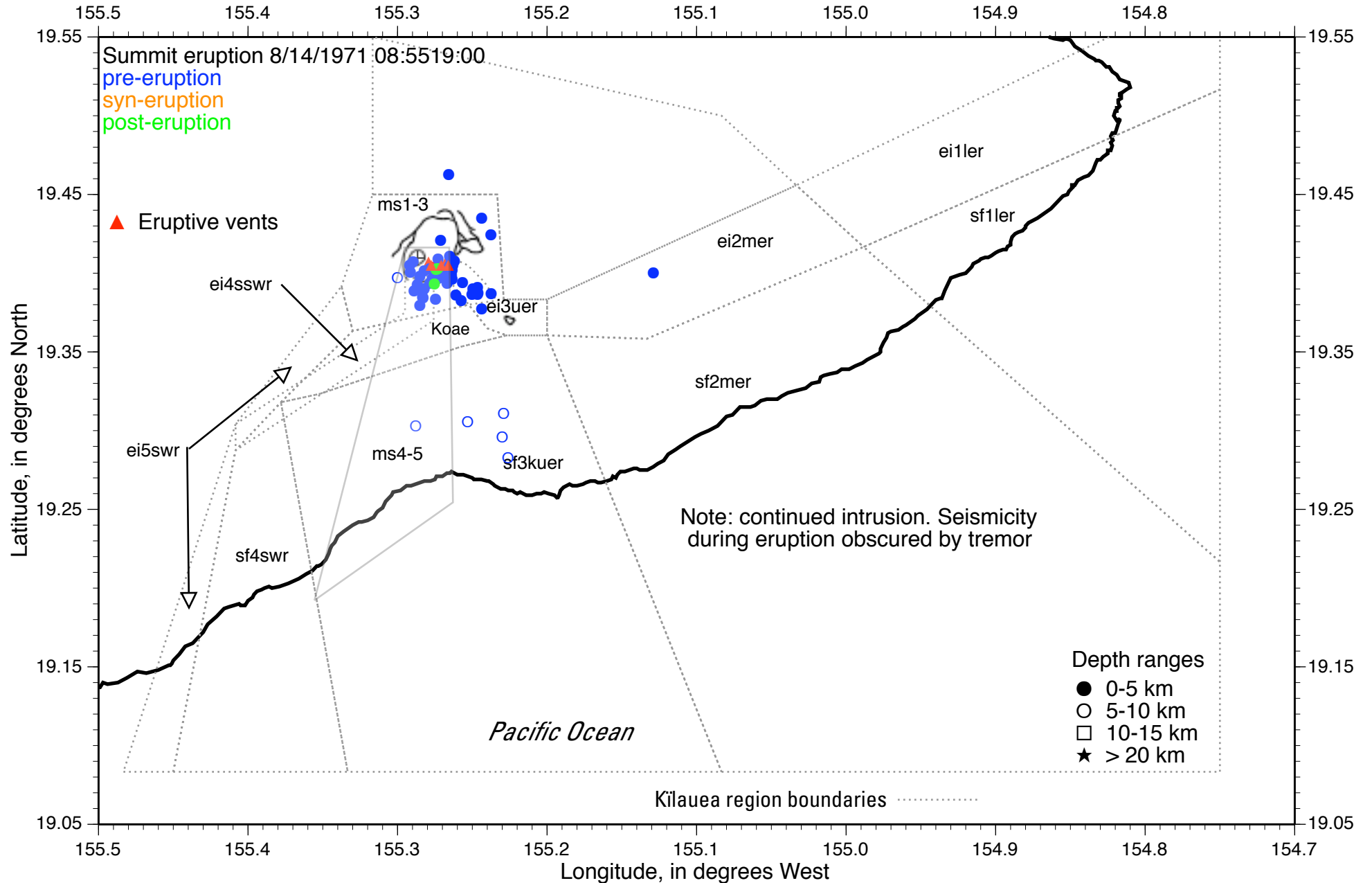
Appendix Figure E43f

Mauna Ulu pause 8/14/1971 eruption precursory seismicity by date: data for 8/13/1971



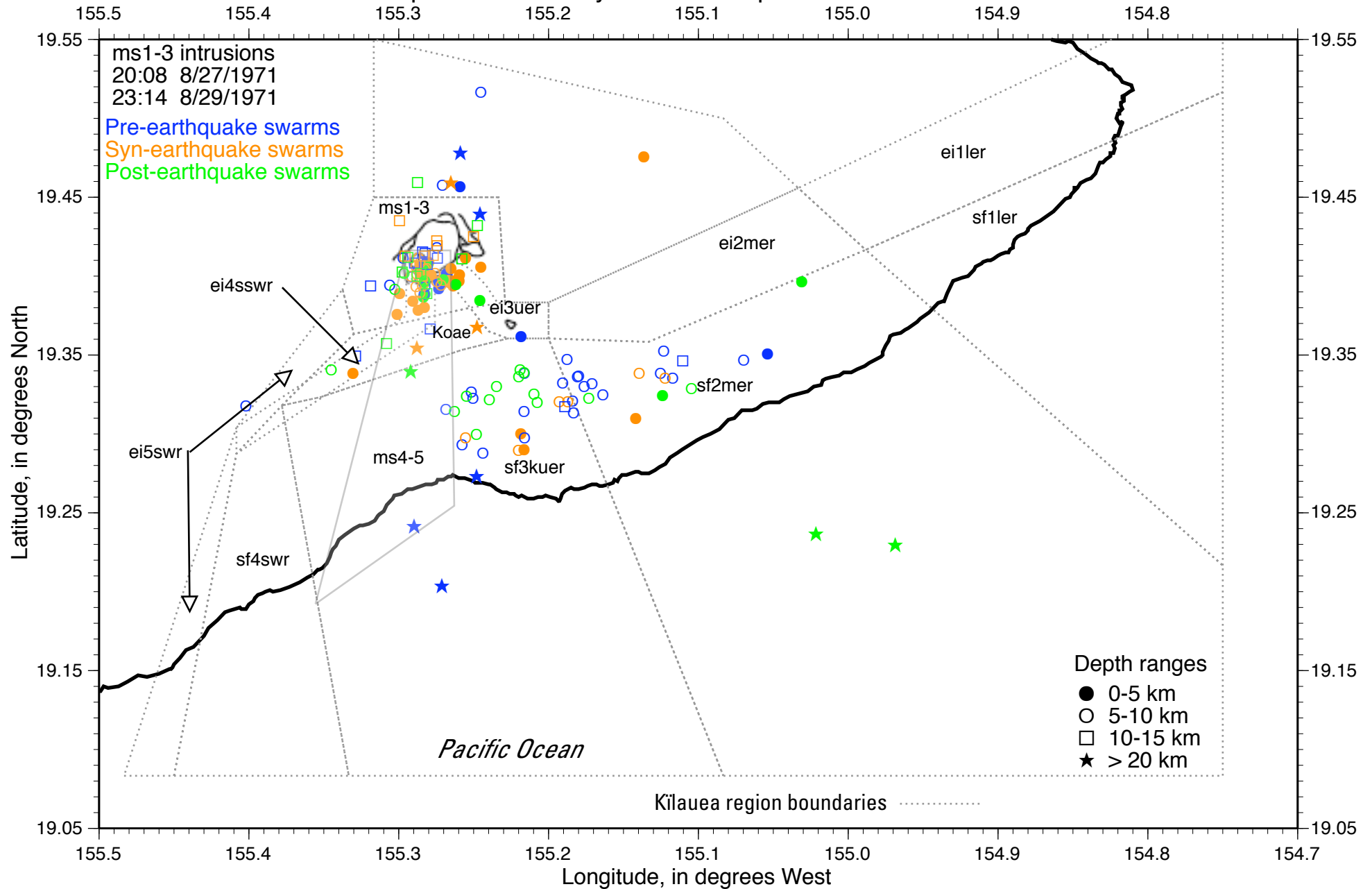
Appendix Figure E44

Mauna Ulu pause 8/14/1971 eruption precursory seismicity by date: data for 8/14/1971

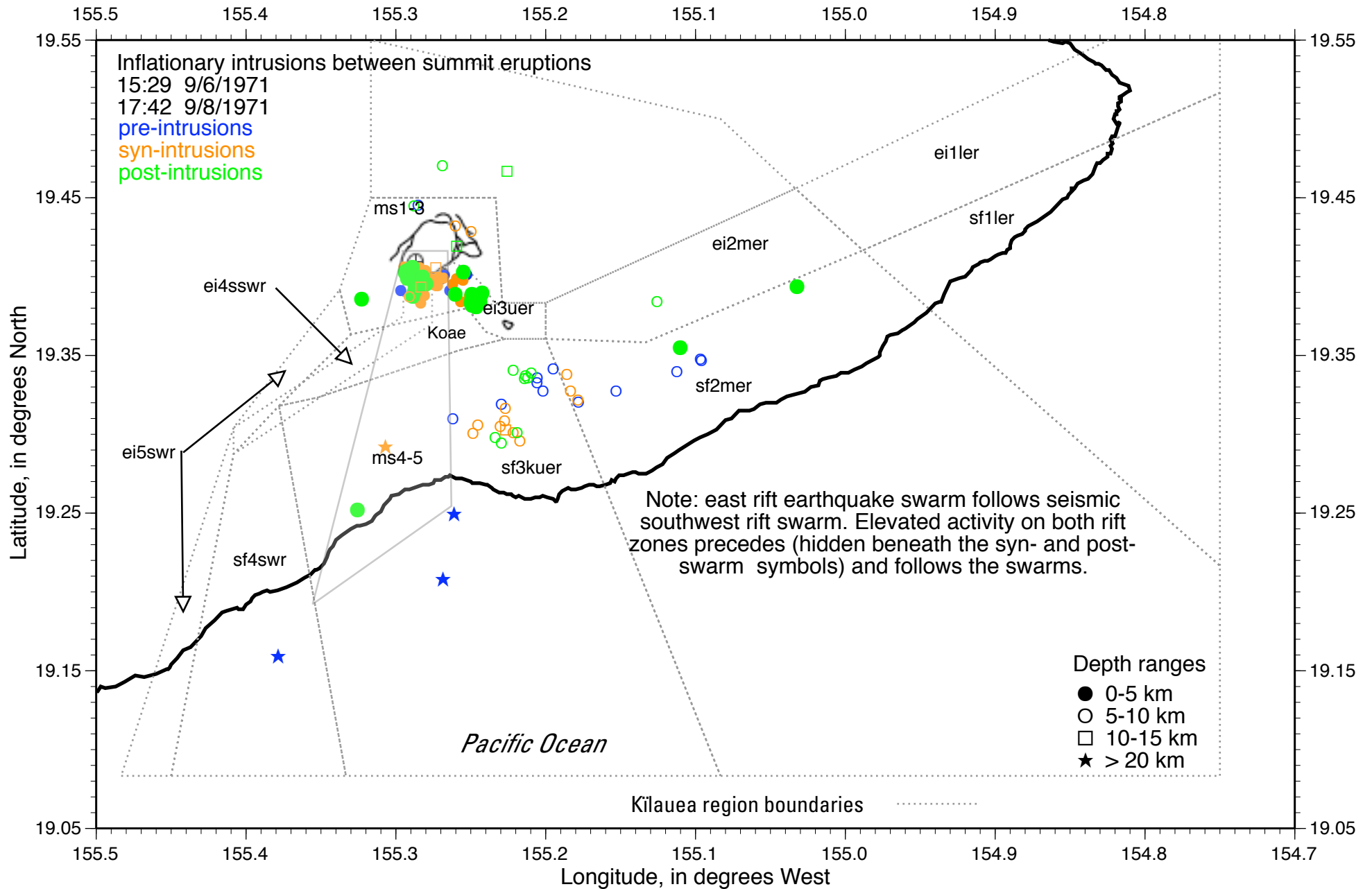


Appendix Figure E45

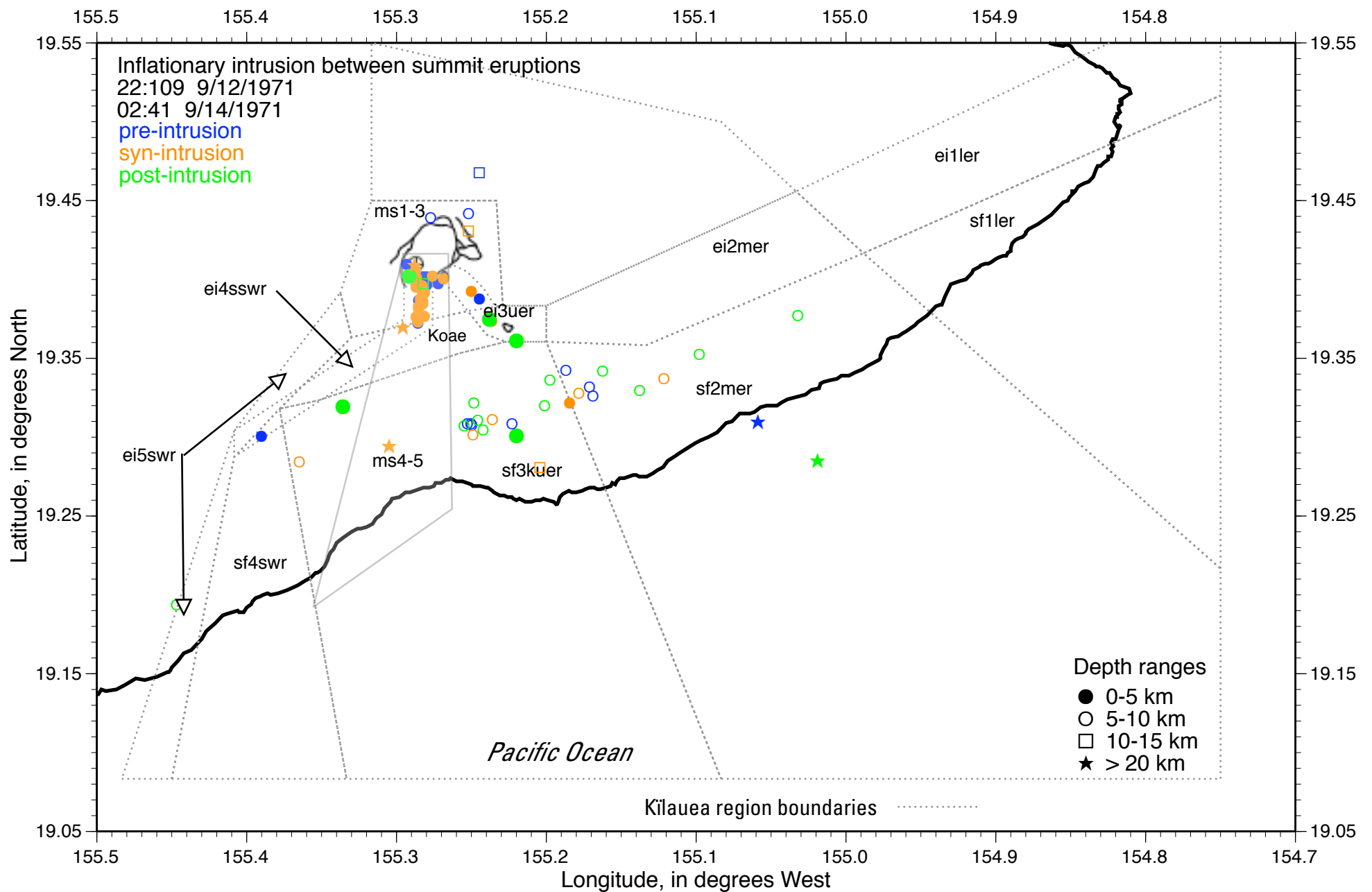
Mauna Ulu pause seismicity between eruptions: data from 8/25-9/1/1971



Appendix Figure E46
Mauna Ulu pause inflationary intrusions: data from 9/4-10/1971

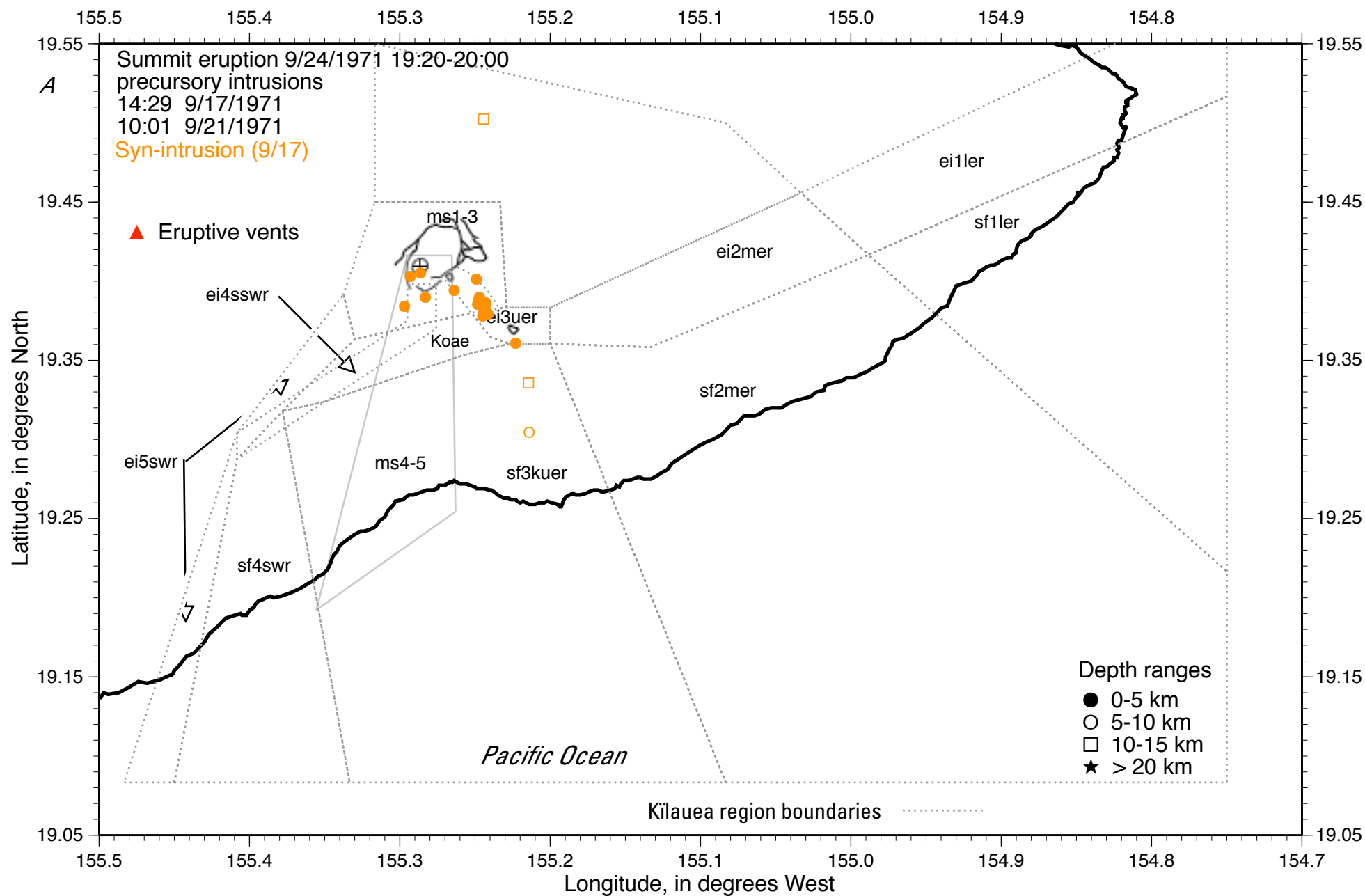


Appendix Figure E47
Mauna Ulu pause inflationary intrusions: data from 9/11-16/1971

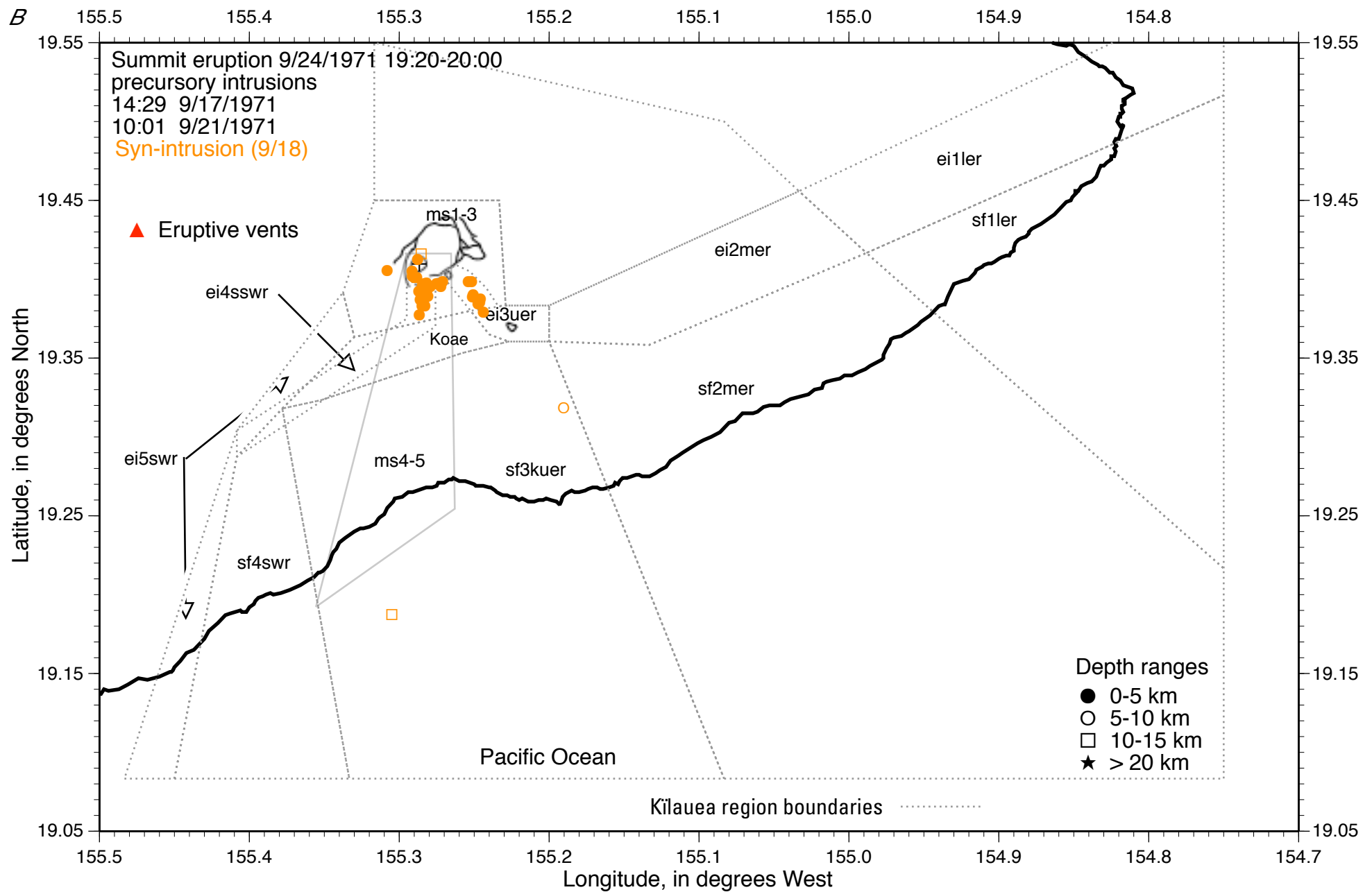


Appendix Figure E48a

Mauna Ulu pause 9/24/1971 eruption--pre-eruption seismicity by date: data from 9/17/1971

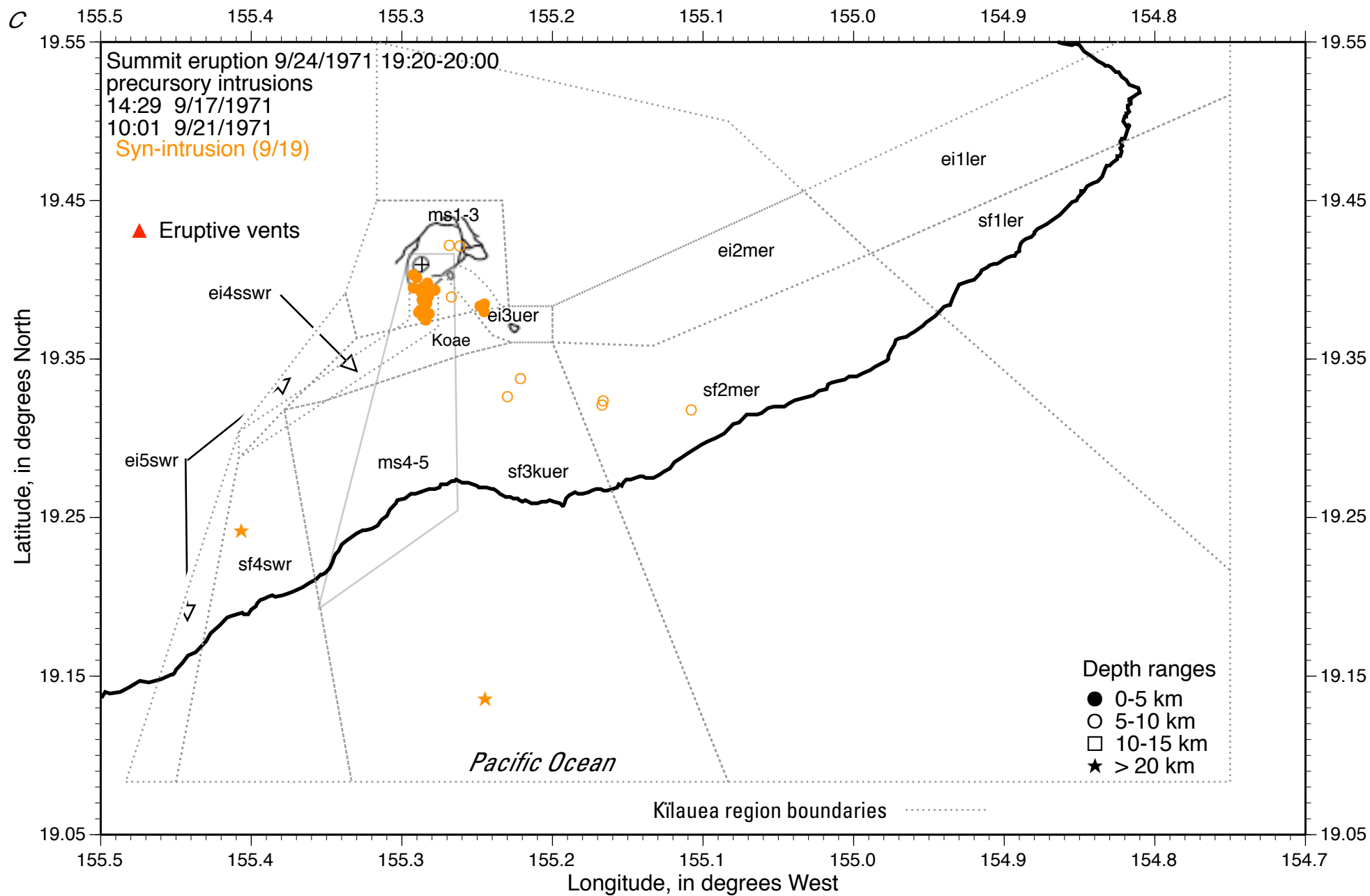


Appendix Figure E48b
Mauna Ulu pause 9/24/1971 eruption--pre-eruption seismicity by date: data from 9/18/1971



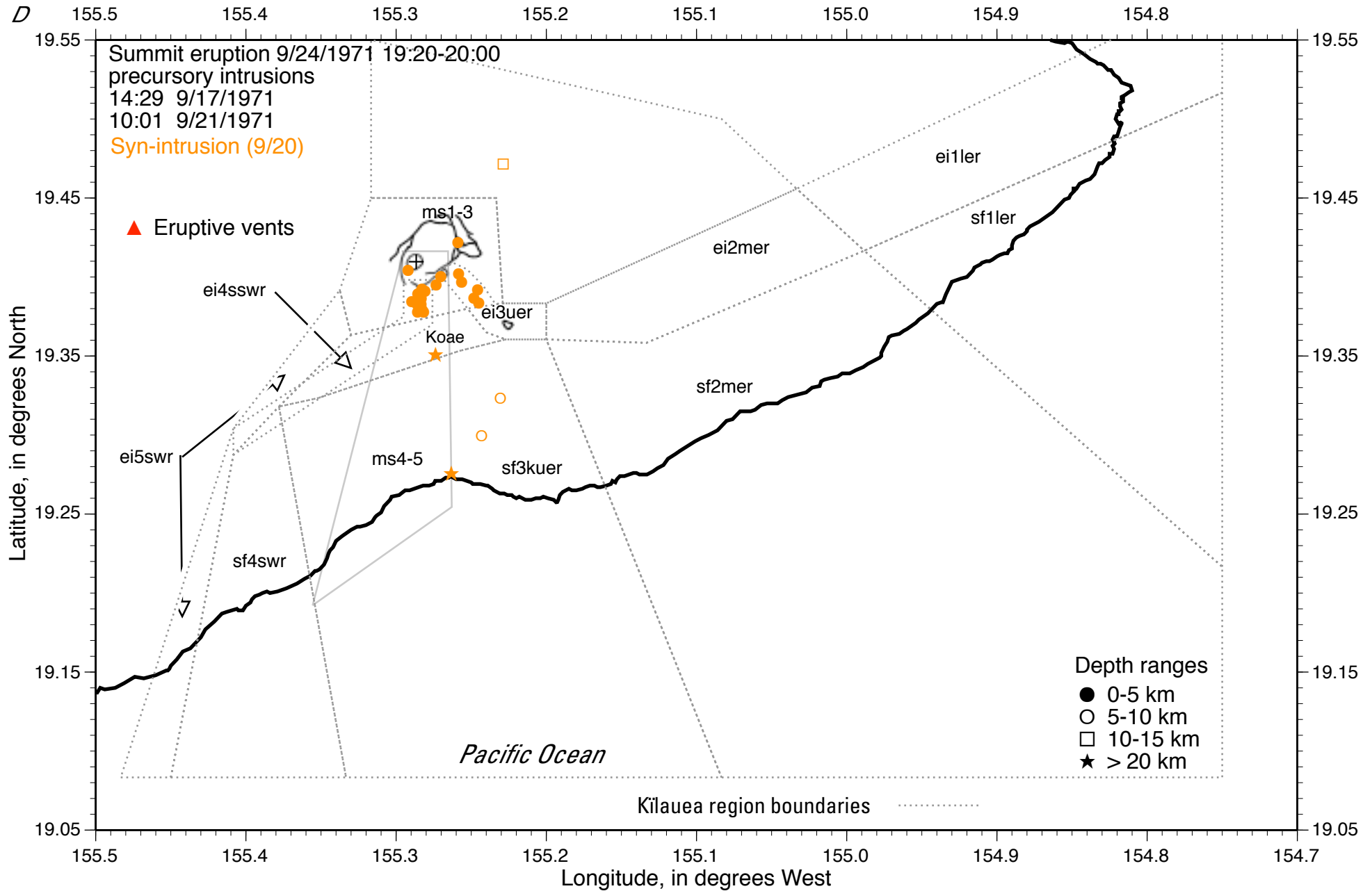
Appendix Figure E48c

Mauna Ulu pause 9/24/1971 eruption--pre-eruption seismicity by date: data from 9//19/1971



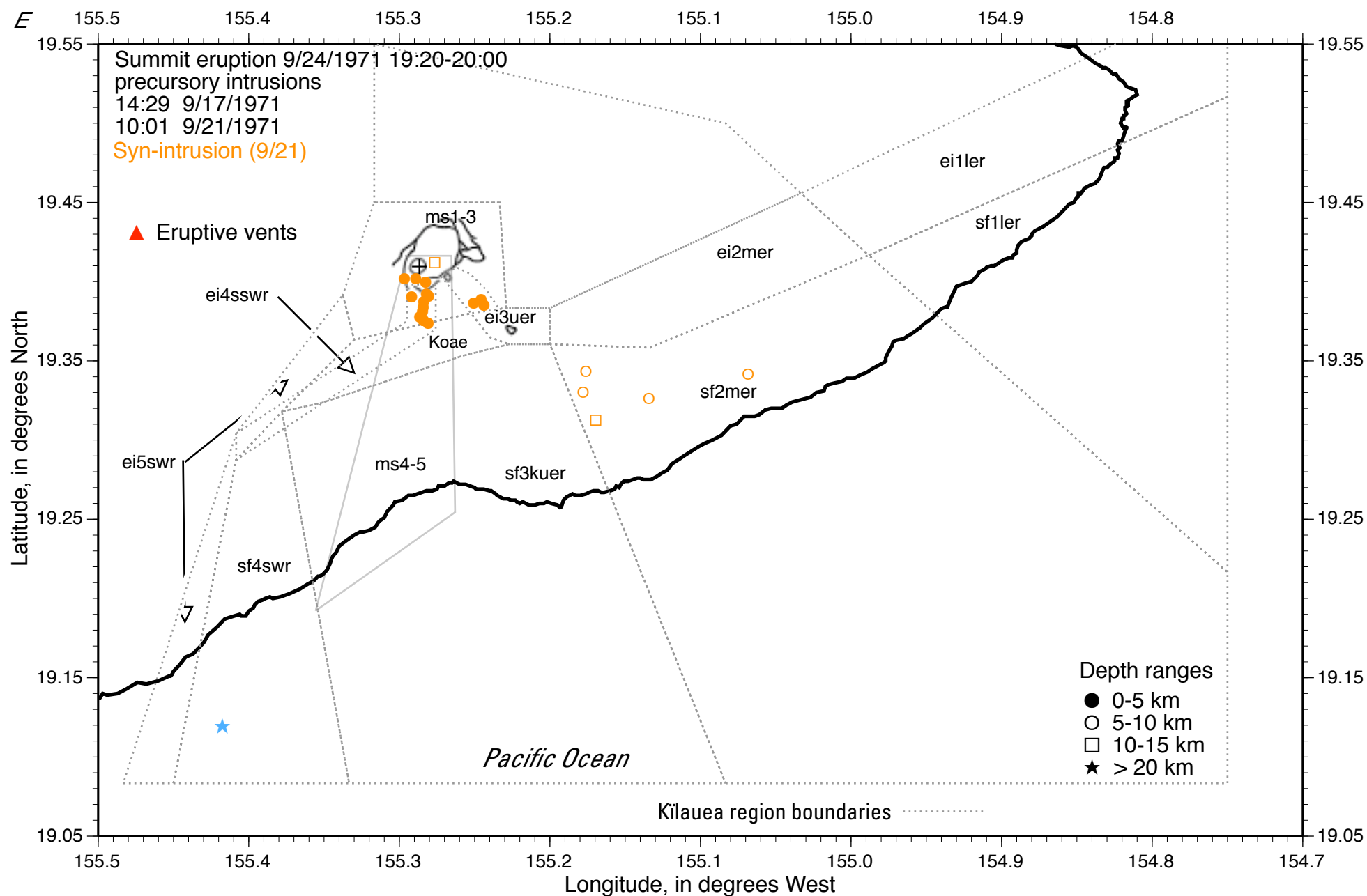
Appendix Figure E48d

Mauna Ulu pause 9/24/1971 eruption--pre-eruption seismicity by date: data from 9/20/1971



Appendix Figure E48e

Mauna Ulu pause 9/24/1971 eruption--pre-eruption seismicity by date: data from 9/21/1971



Appendix Figure E48f

Mauna Ulu pause 9/24/1971 eruption--pre-eruption seismicity--deep magma supply event 9/22/1971

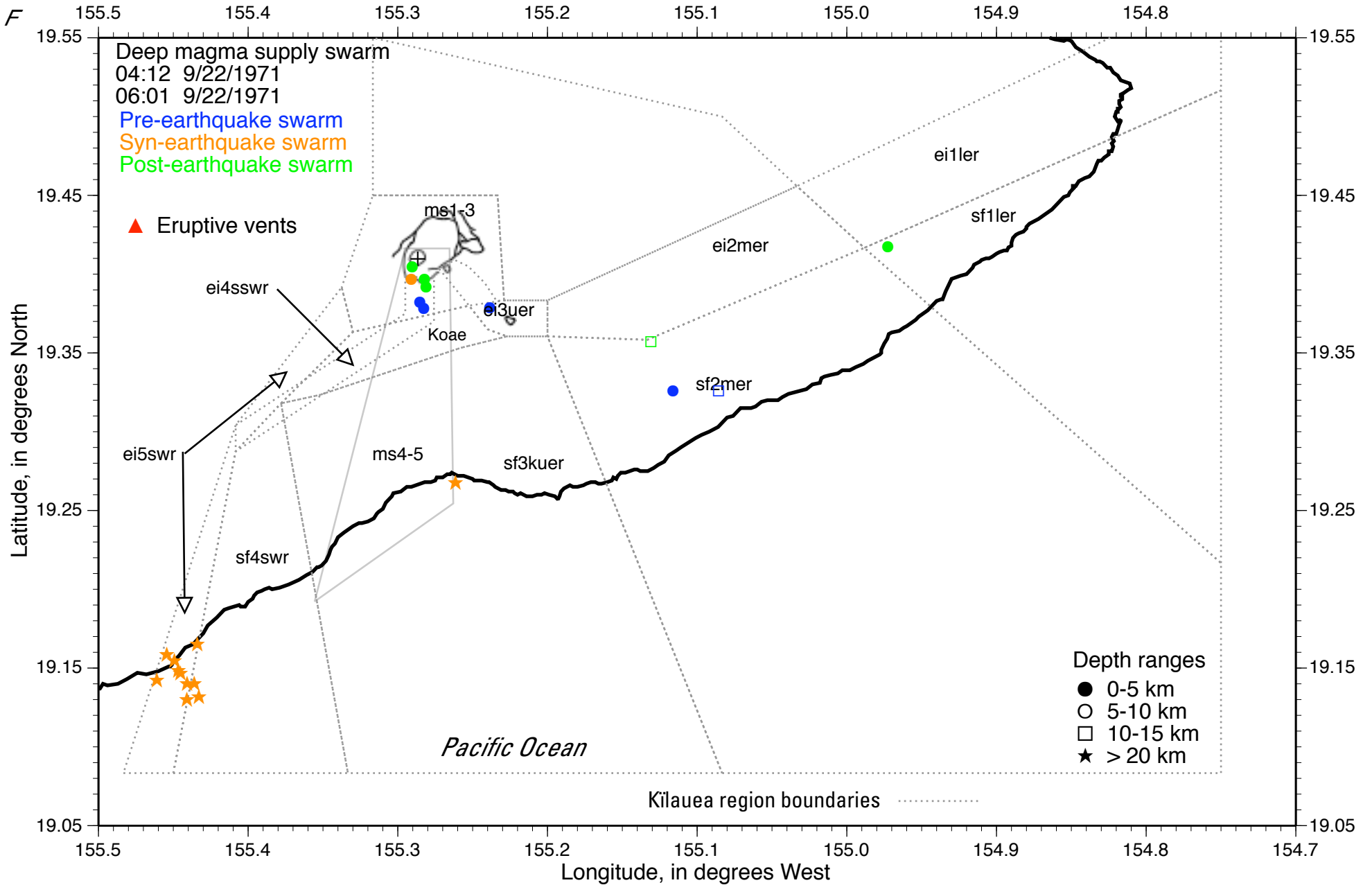


Figure E49a

Mauna Ulu pause 9/24/1971 eruption: pre-eruption seismicity by date 9/23-24/1971

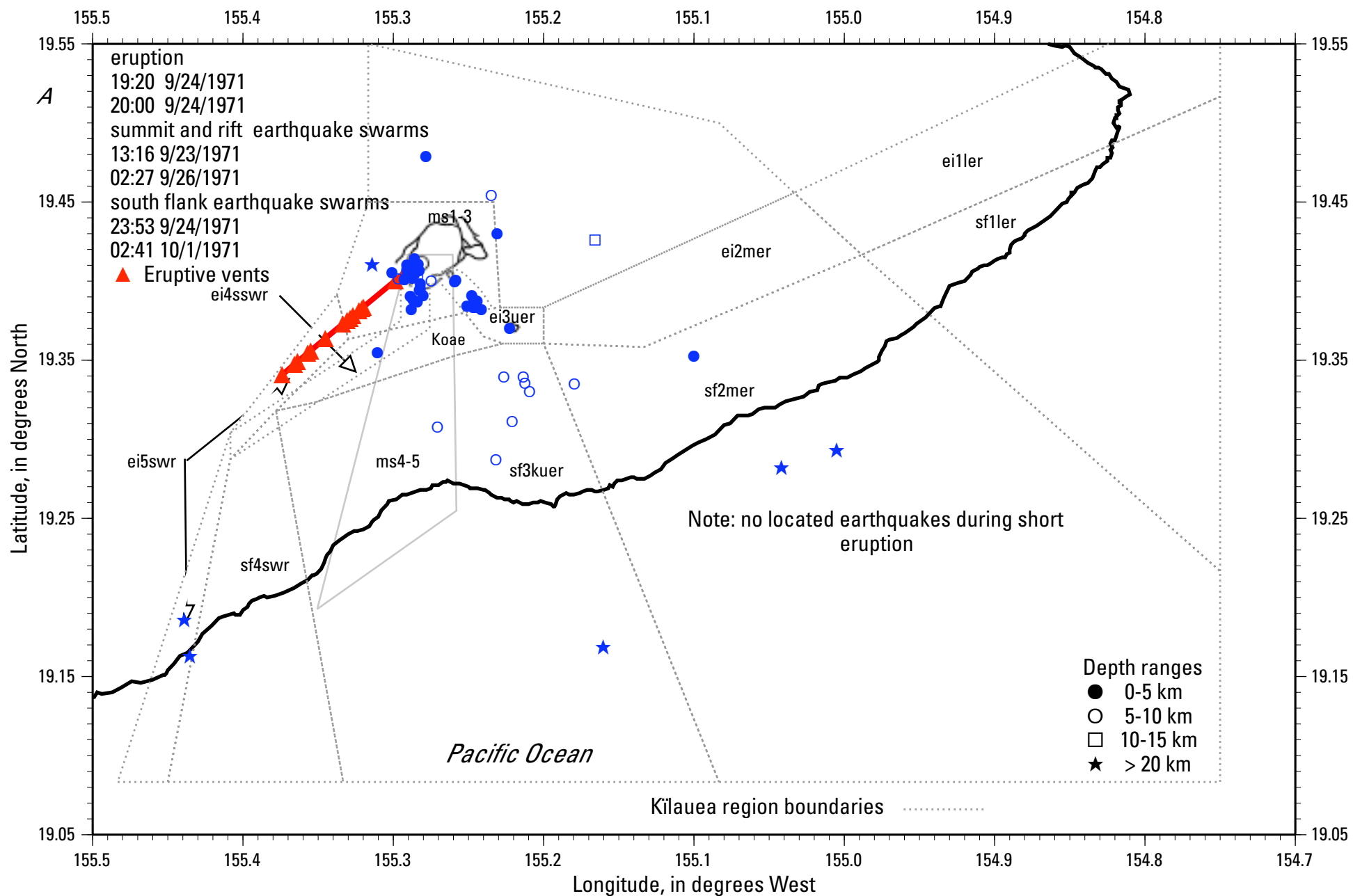


Figure E49b

Mauna Ulu pause 9/24/1971 eruption: post-eruption seismicity by date 9/24-25/1971

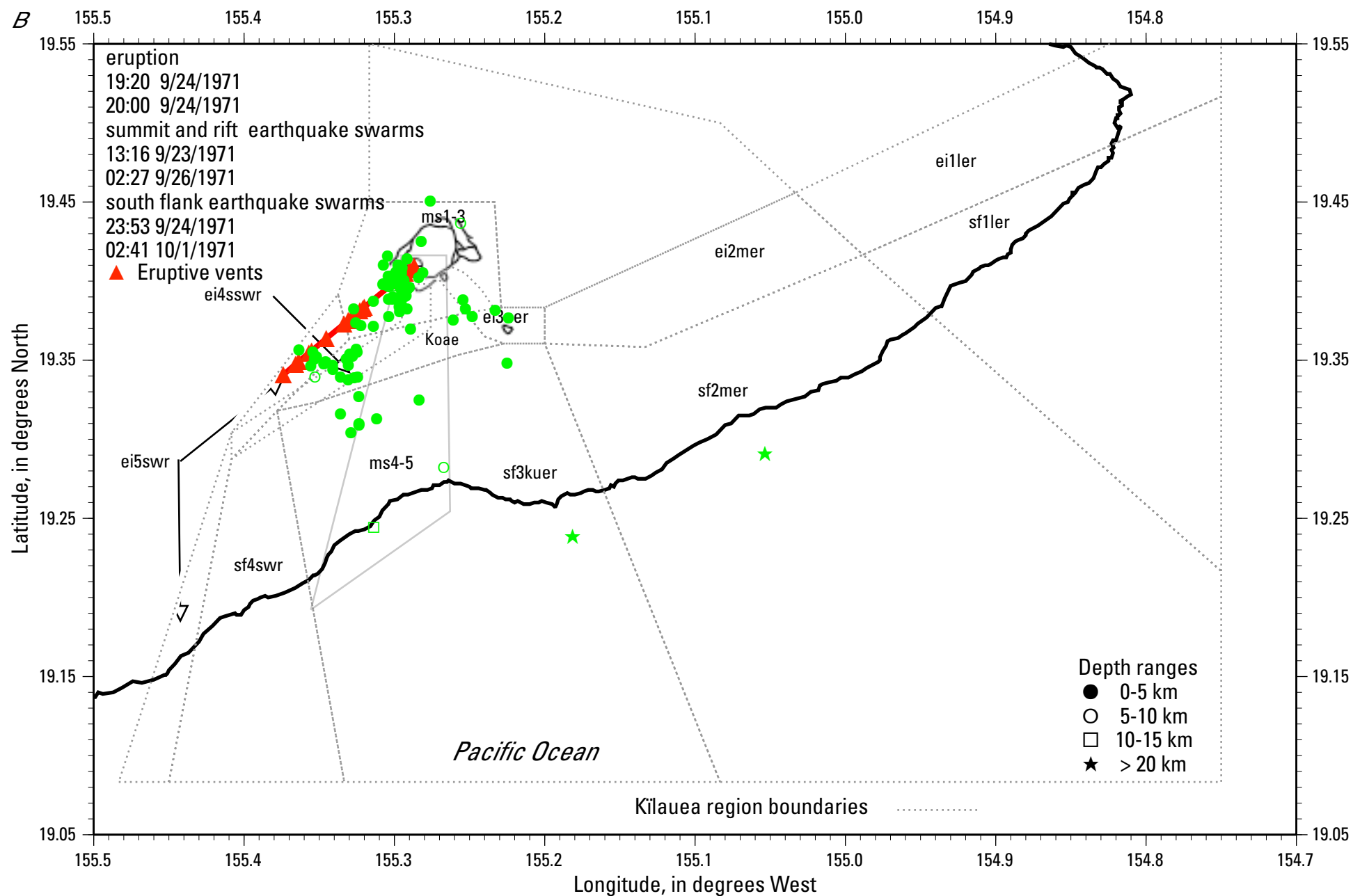
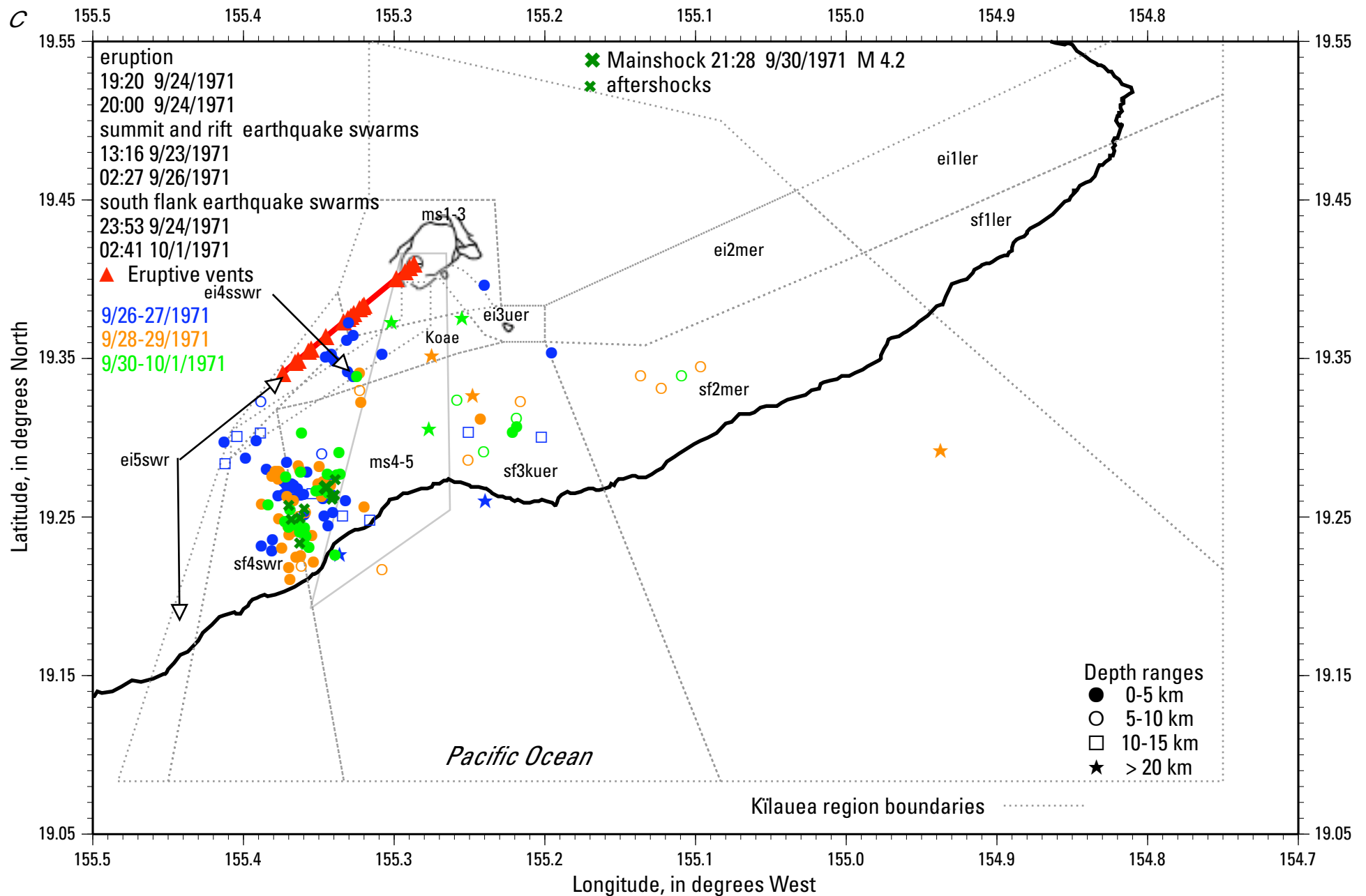
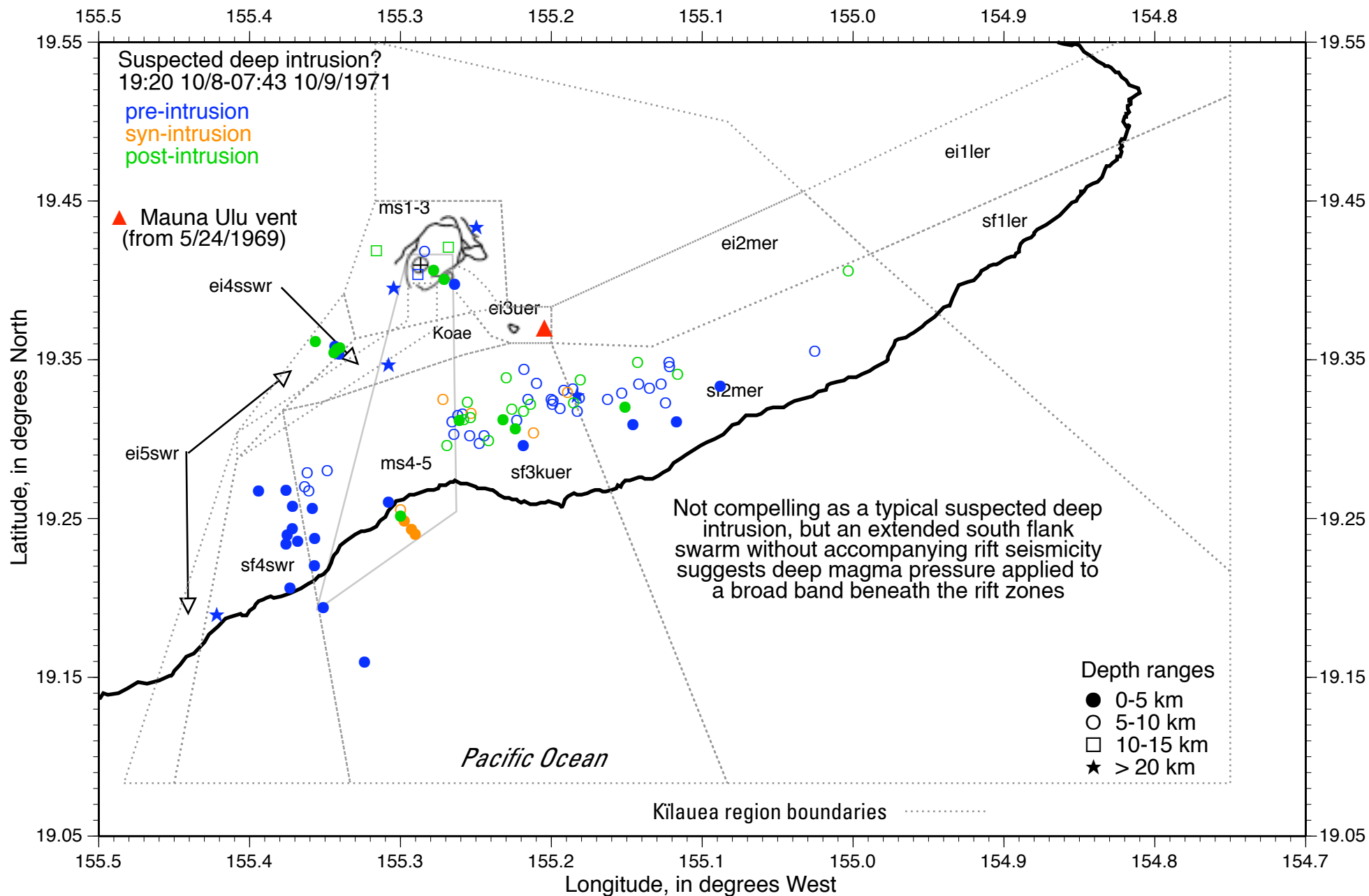


Figure E49c

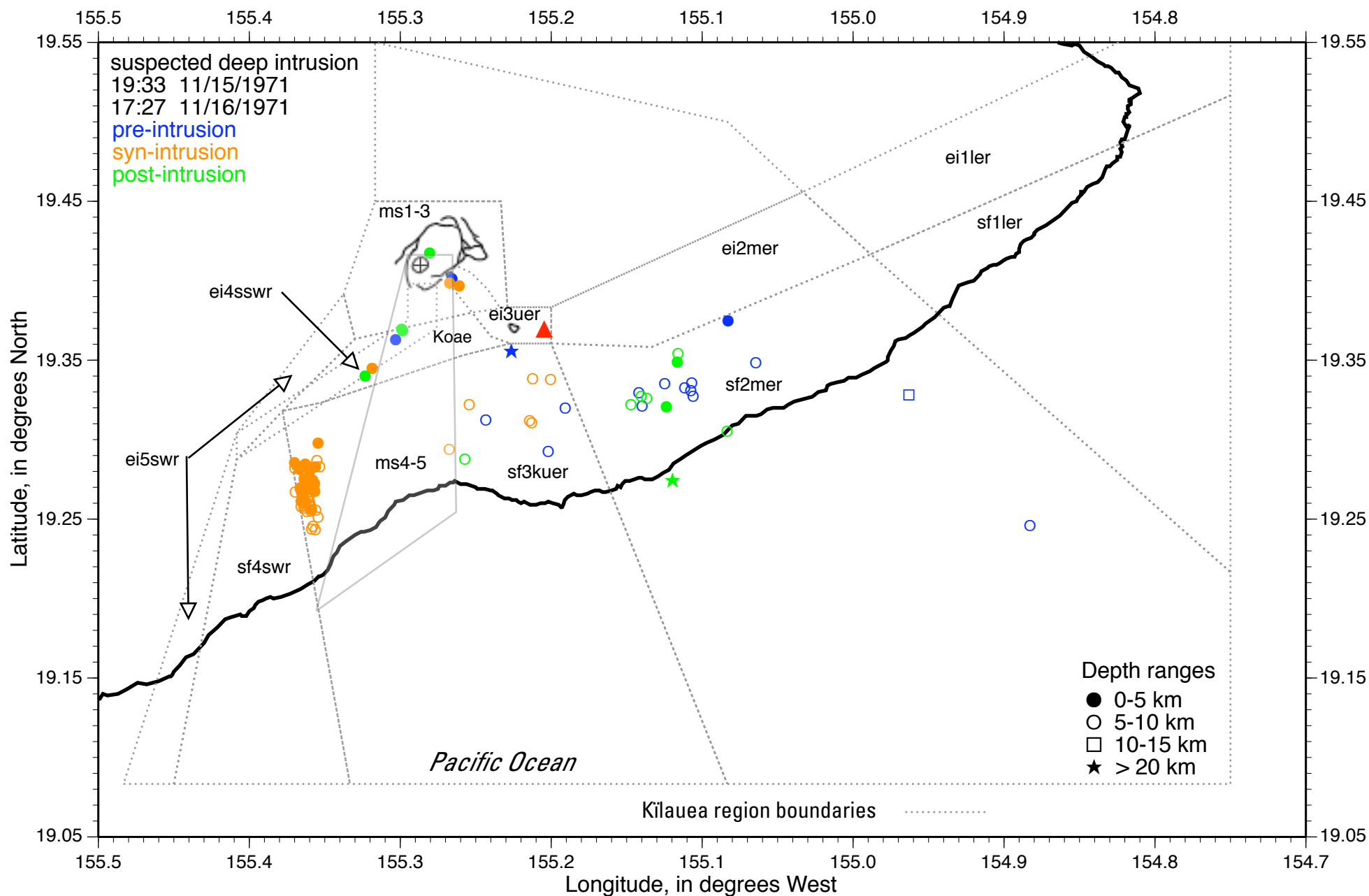
Mauna Ulu pause 9/24/1971 eruption: post-eruption seismicity by date 9/26-10/1/1971



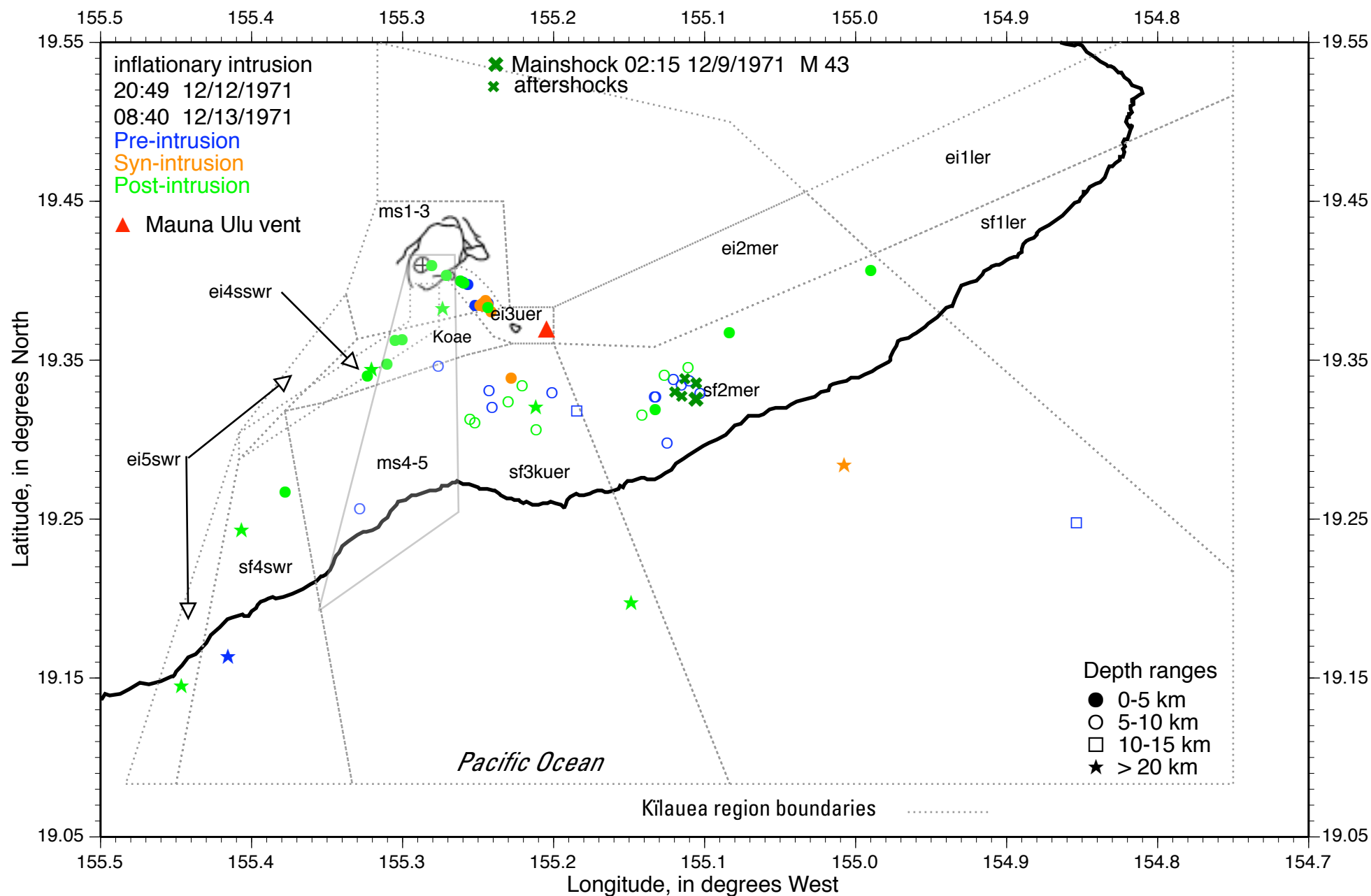
Appendix Figure E50
Mauna Ulu pause Suspected deep intrusion?: data from 10/2-13/1971



Appendix Figure E51
Mauna Ulu pause 11/1971 suspected deep intrusion: data from 11/14-16/1971

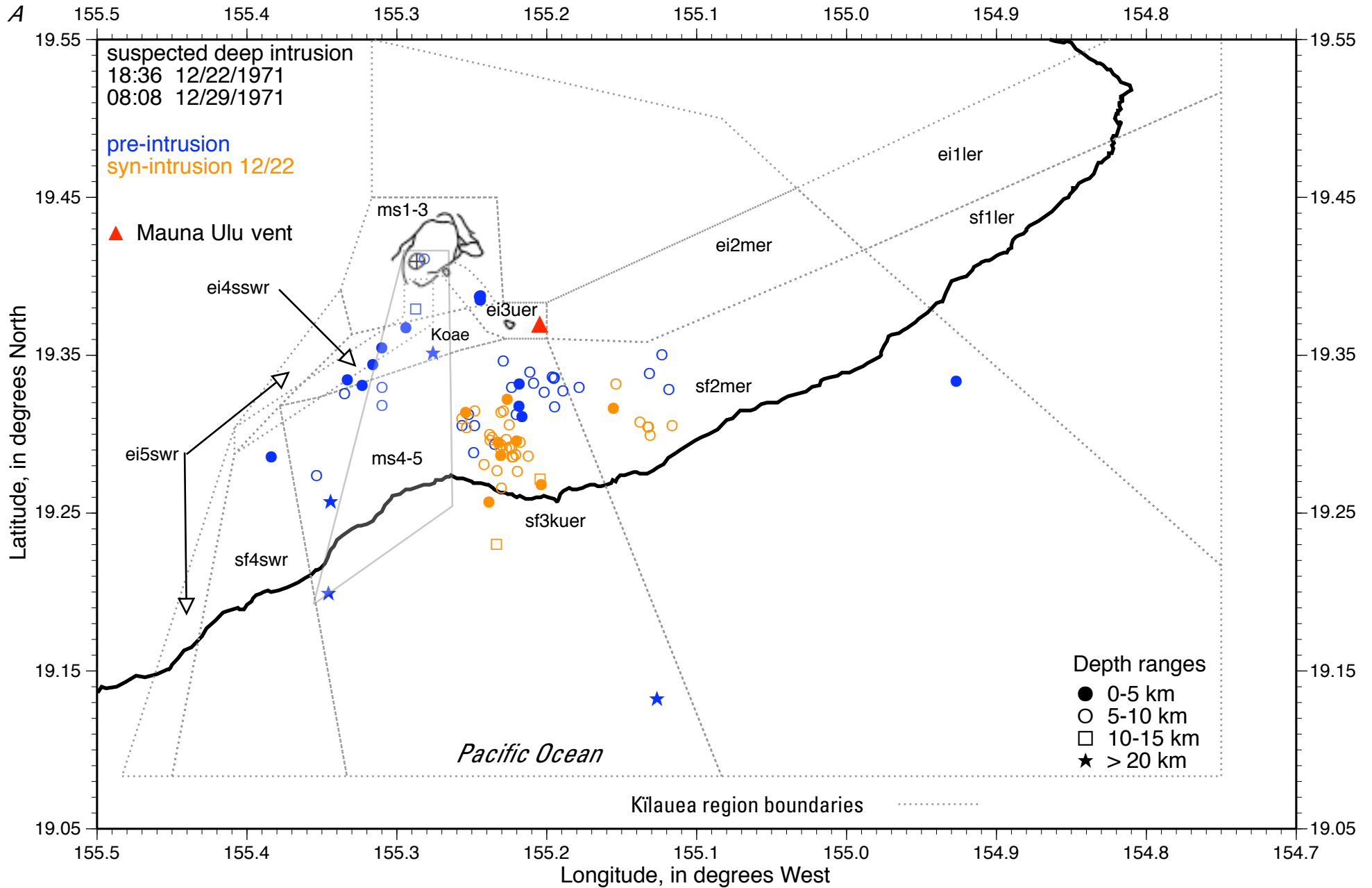


Appendix Figure E52
Mauna Ulu pause inflationary intrusion: data from 12/9-16/1971



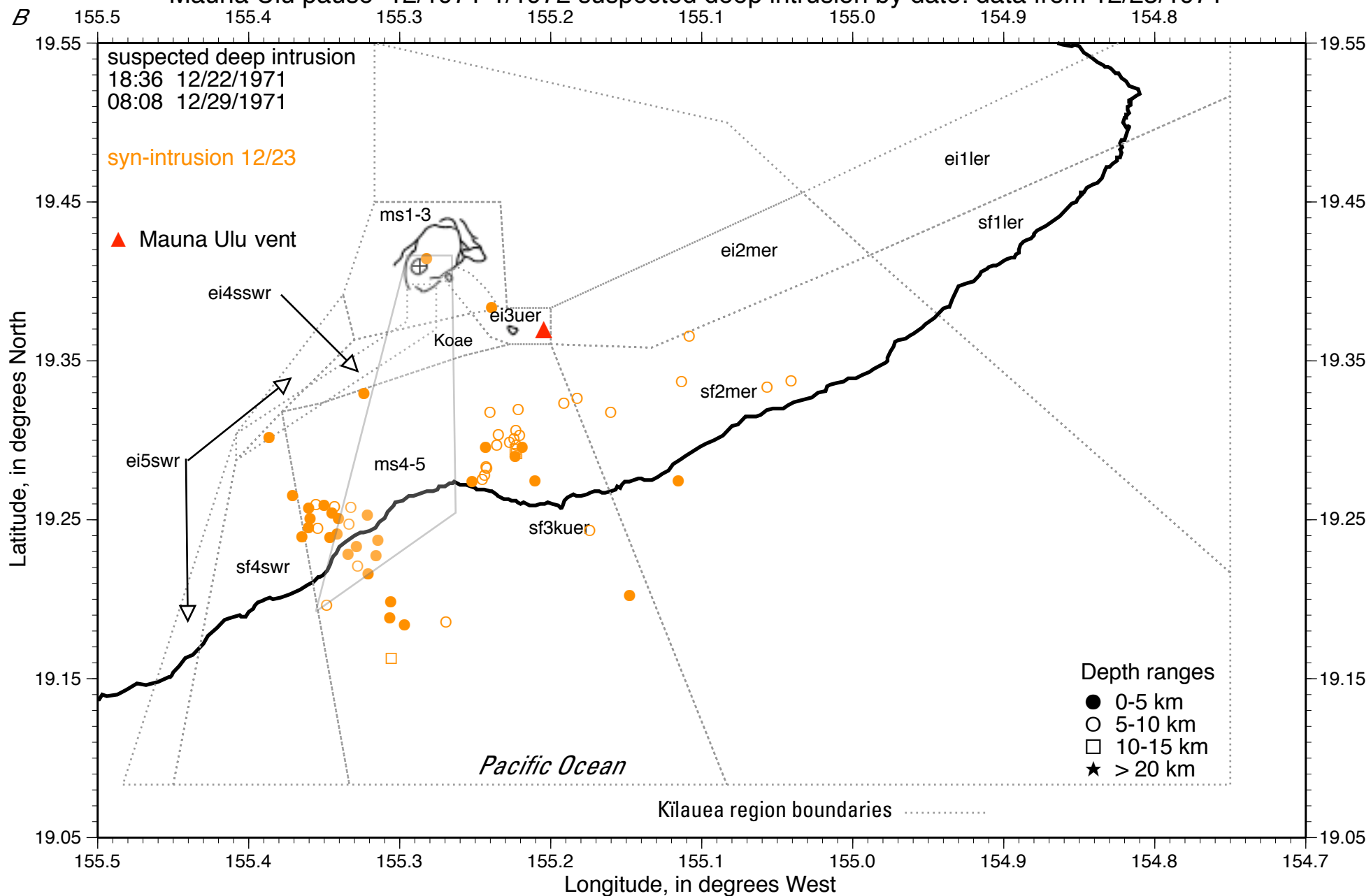
Appendix Figure E53a

Mauna Ulu pause 12/1971-1/1972 suspected deep intrusion by date: data from 12/22/1971



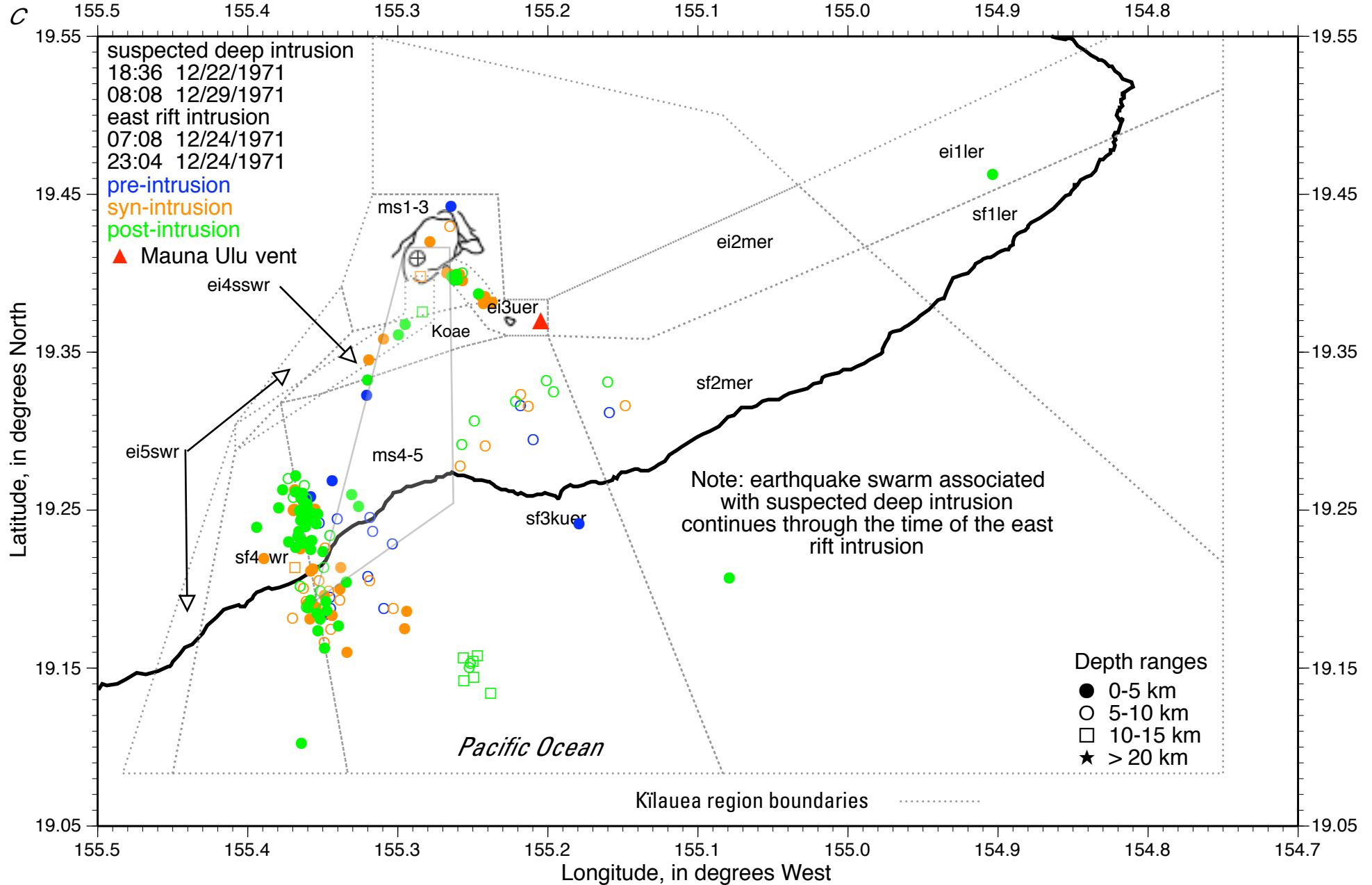
Appendix Figure E53b

Mauna Ulu pause 12/1971-1/1972 suspected deep intrusion by date: data from 12/23/1971



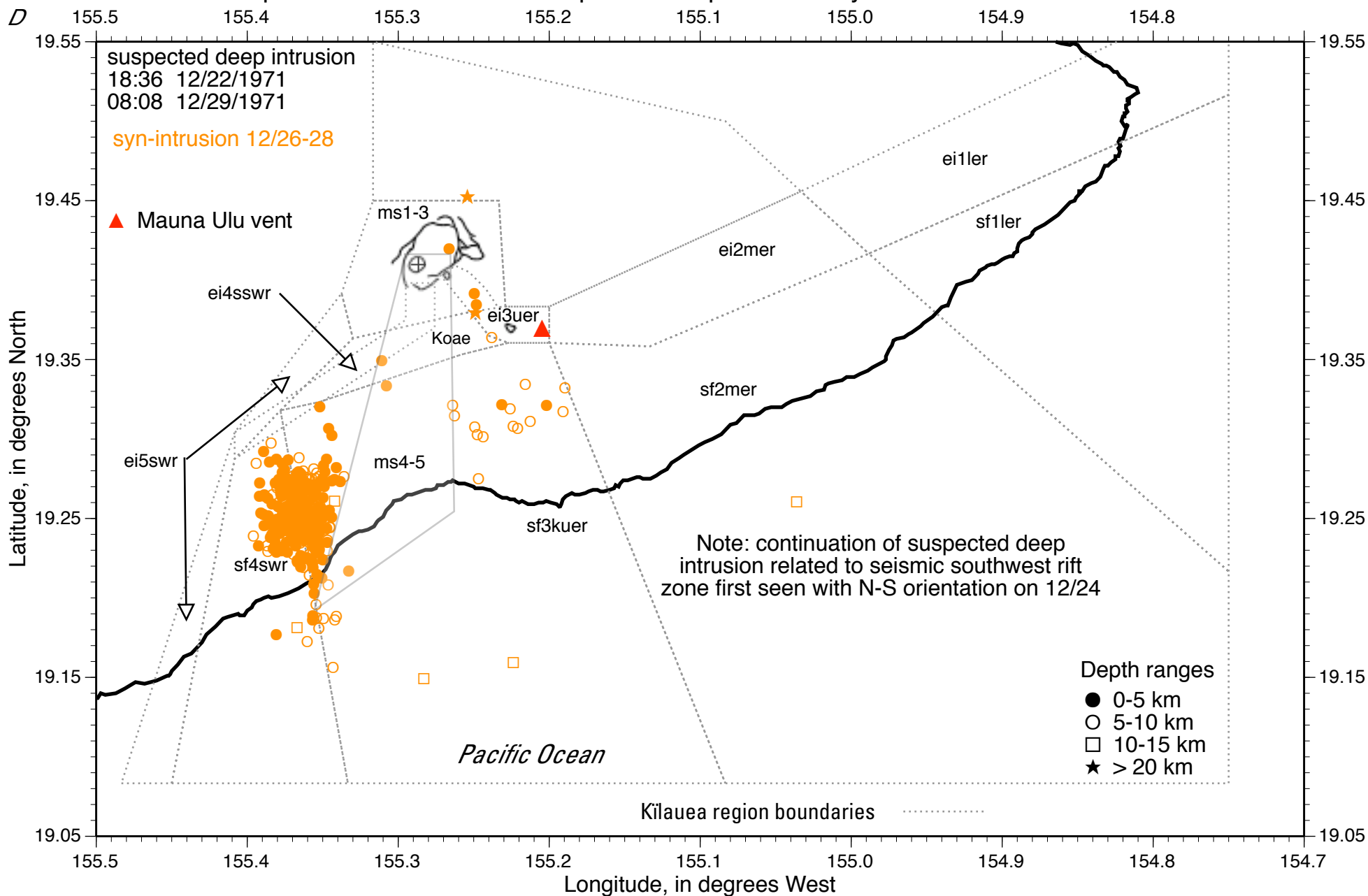
Appendix Figure E53c

Mauna Ulu pause 12/1971-1/1972 east rift intrusion: data from 12/24-25/1971



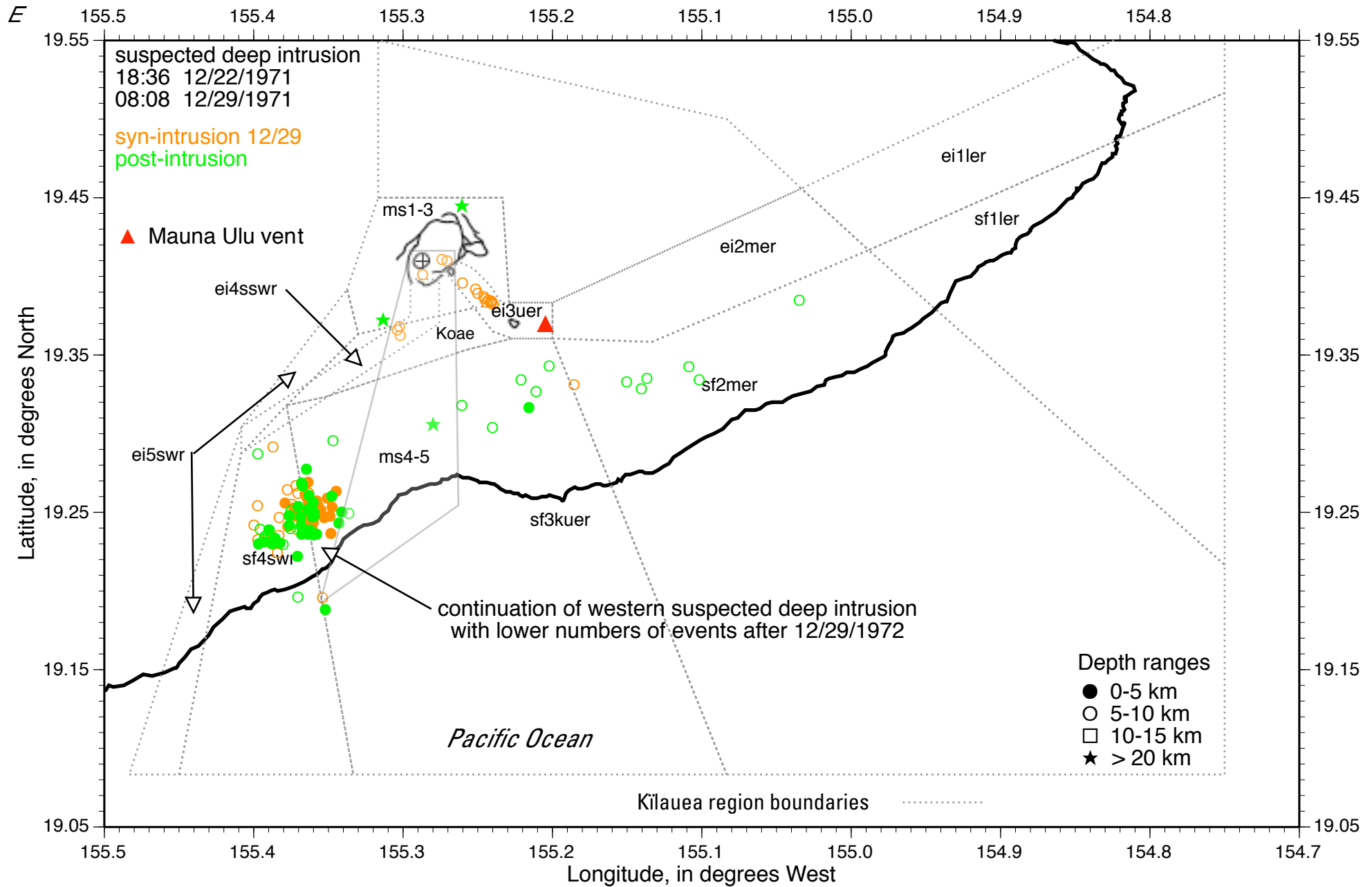
Appendix Figure E53d

Mauna Ulu pause 12/1971-1/1972 suspected deep intrusion by date: data from 12/26-28/1971



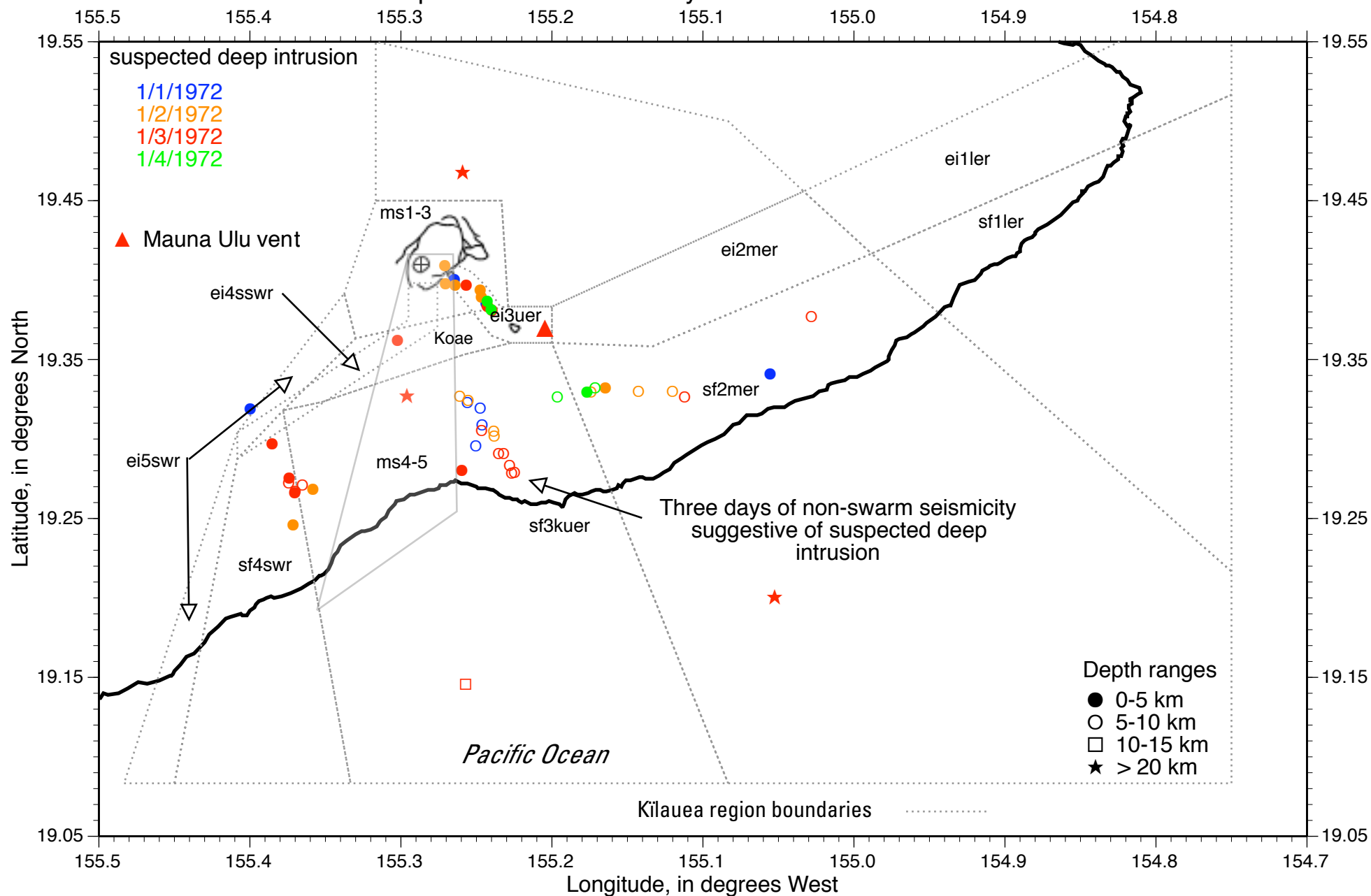
Appendix Figure E53e

Mauna Ulu pause 12/1971-1/1972 suspected deep intrusion: data from 12/29-31/1971



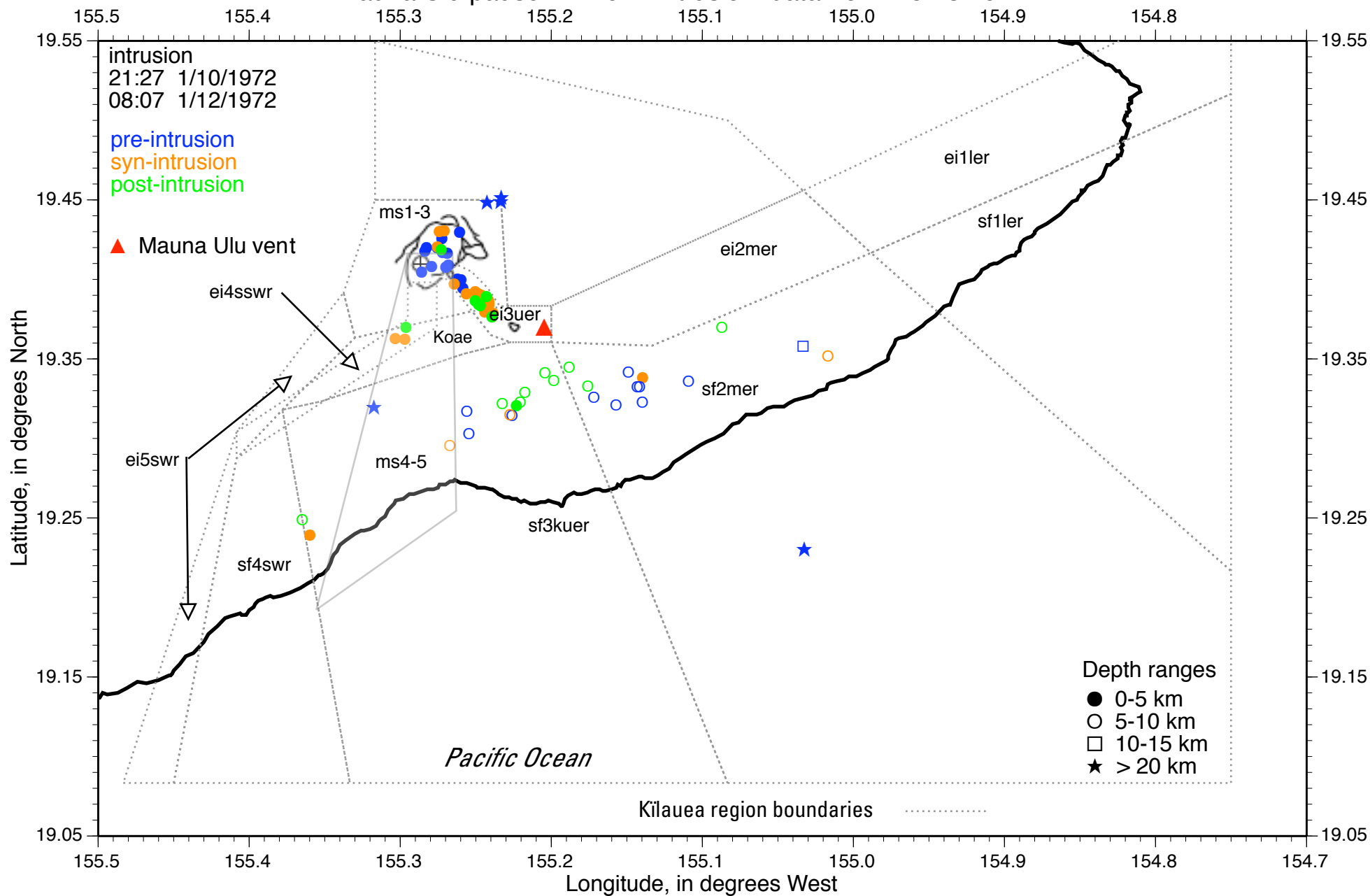
Appendix Figure E54

Mauna Ulu pause Post-intrusion by date: data from 1/1-4/1972

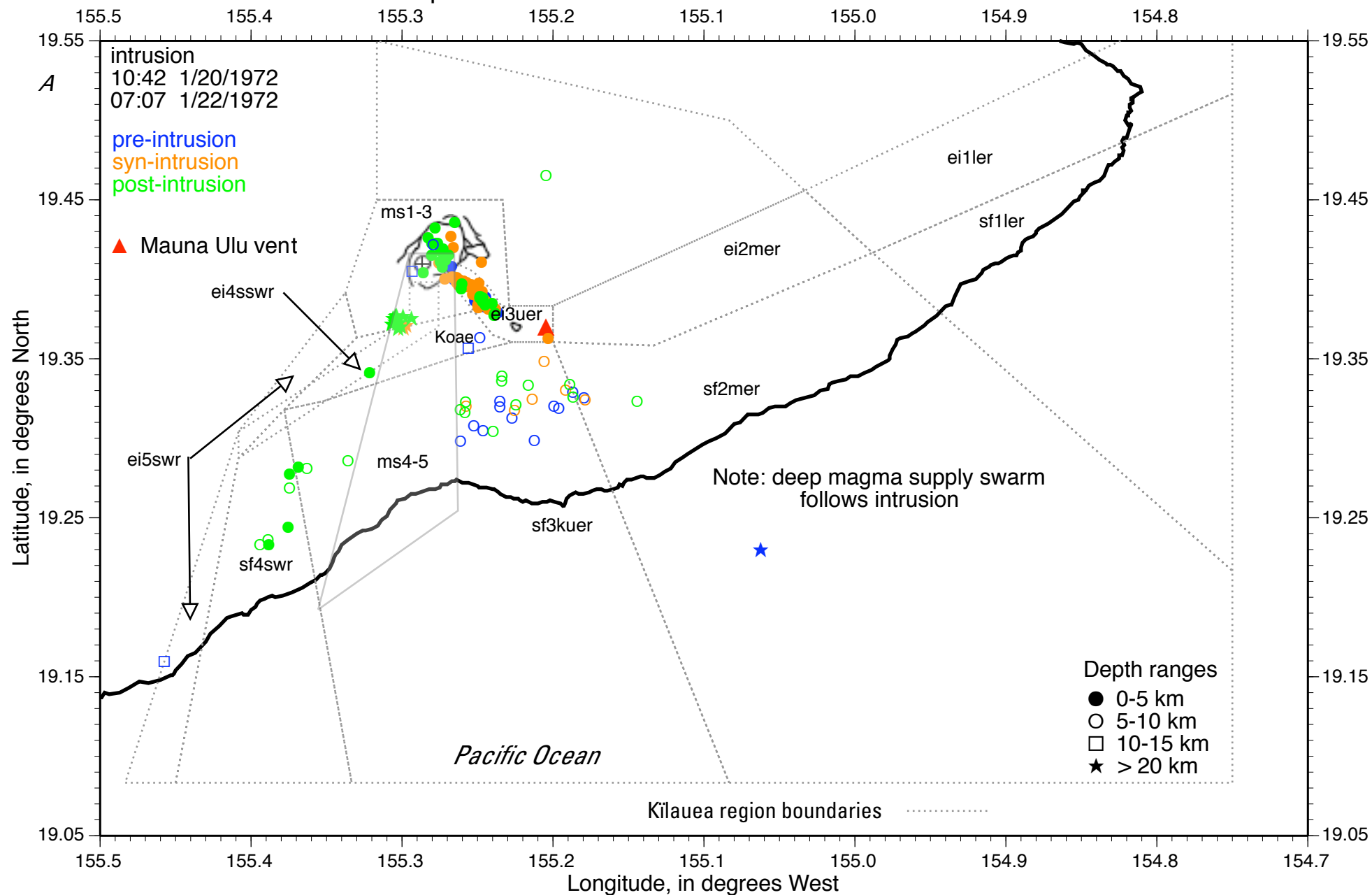


Appendix Figure E55

Mauna Ulu pause 11/1972 intrusion: data from 1/8-13/1972



Appendix Figure E56 a
 Mauna Ulu pause 1/20-22/1972 intrusion: data from 1/18-25/1972



Appendix Figure E56 b

Mauna Ulu pause 1/26-28/1972 intrusion: data from 1/26-2/1/1972

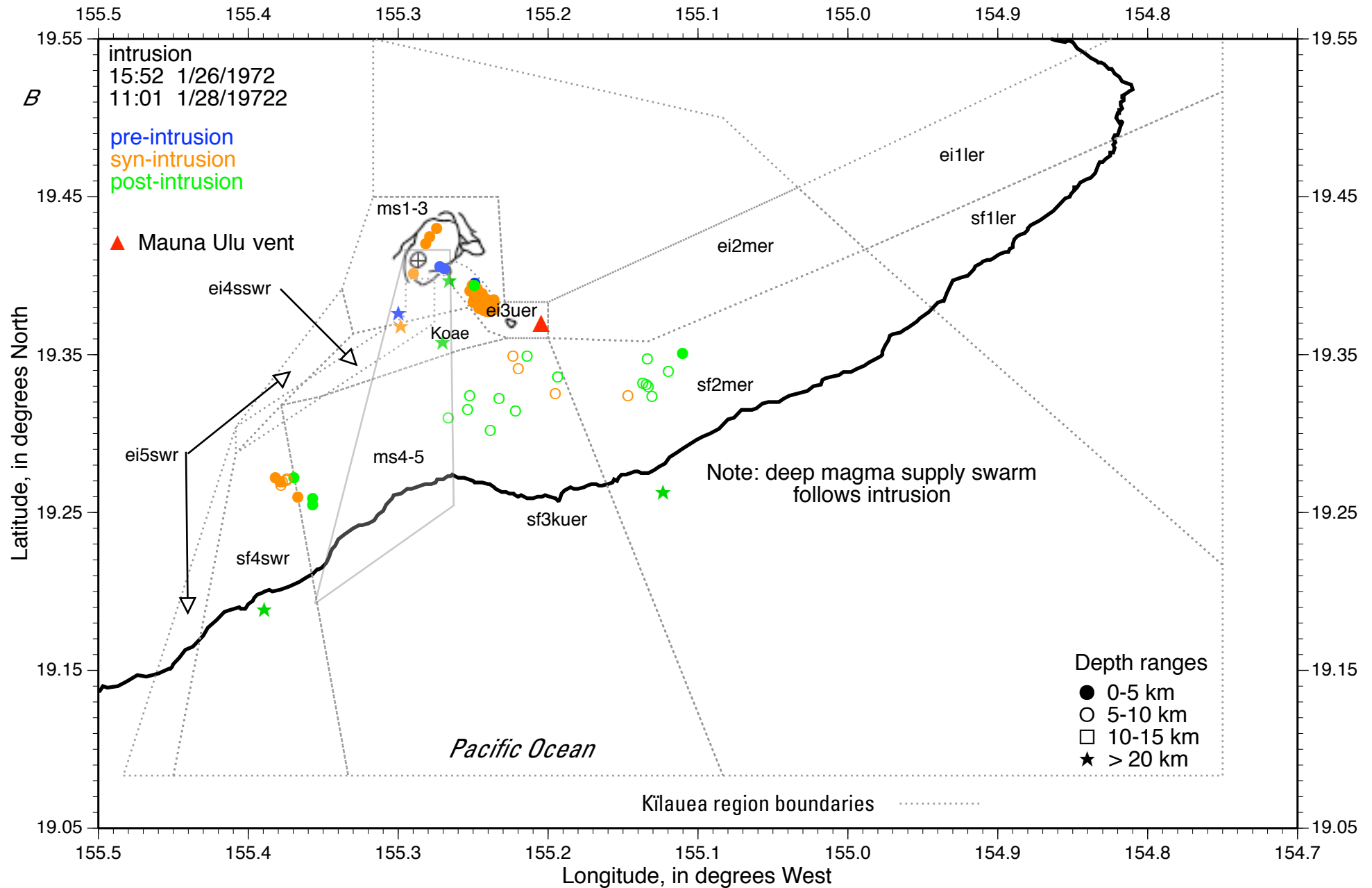


Figure E57 Mauna ULU II: earthquake swarms and tilt

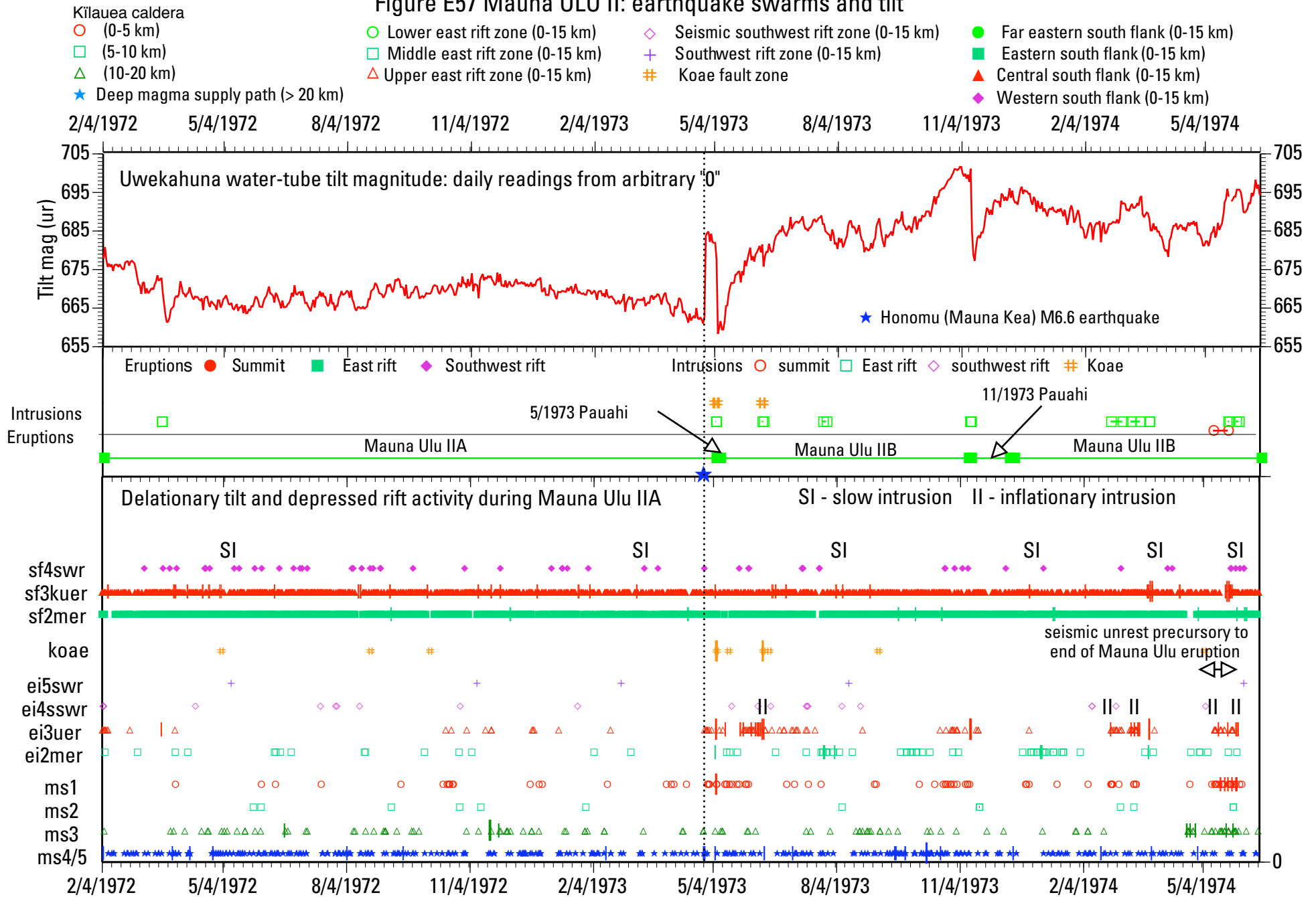
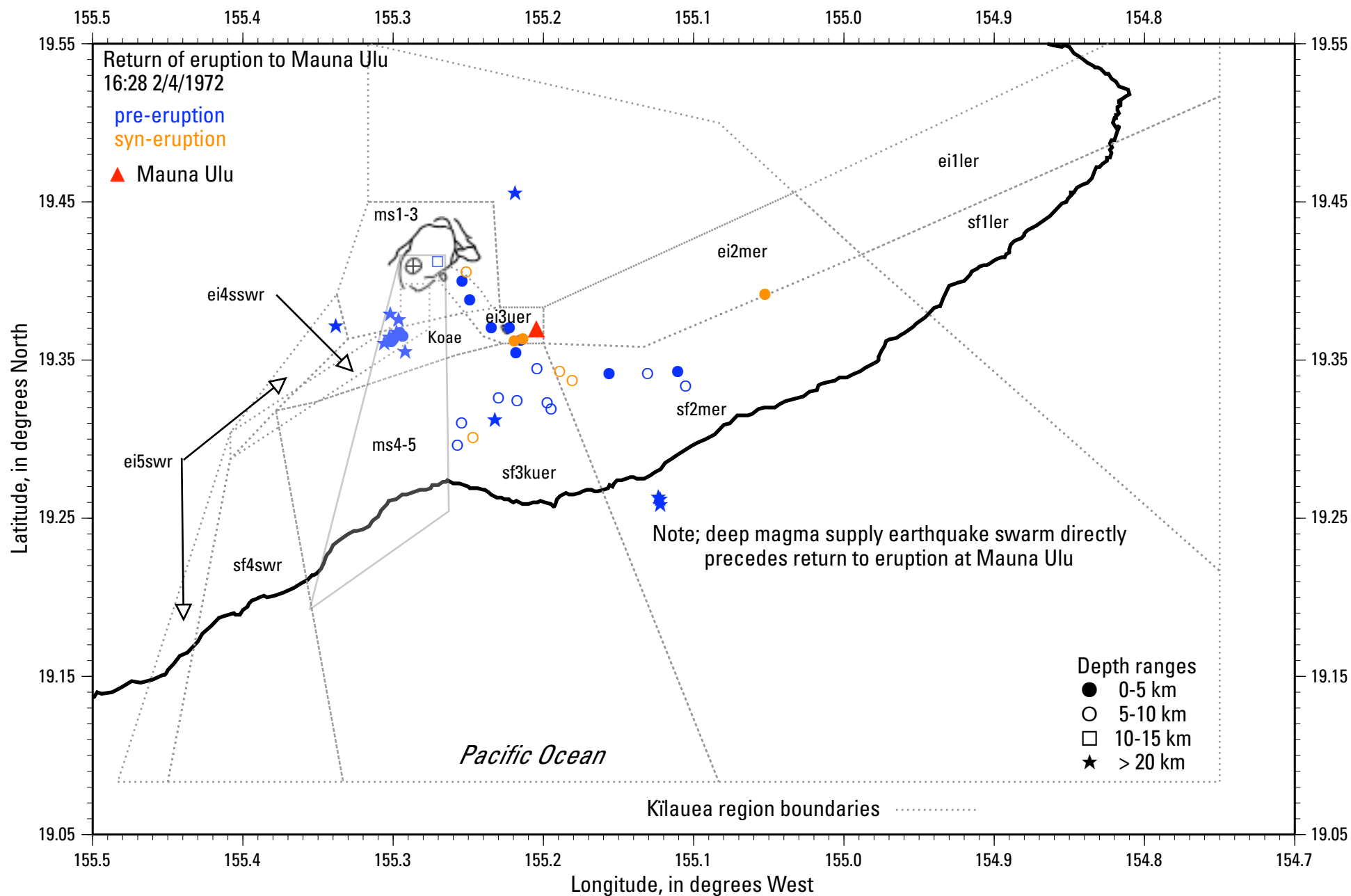


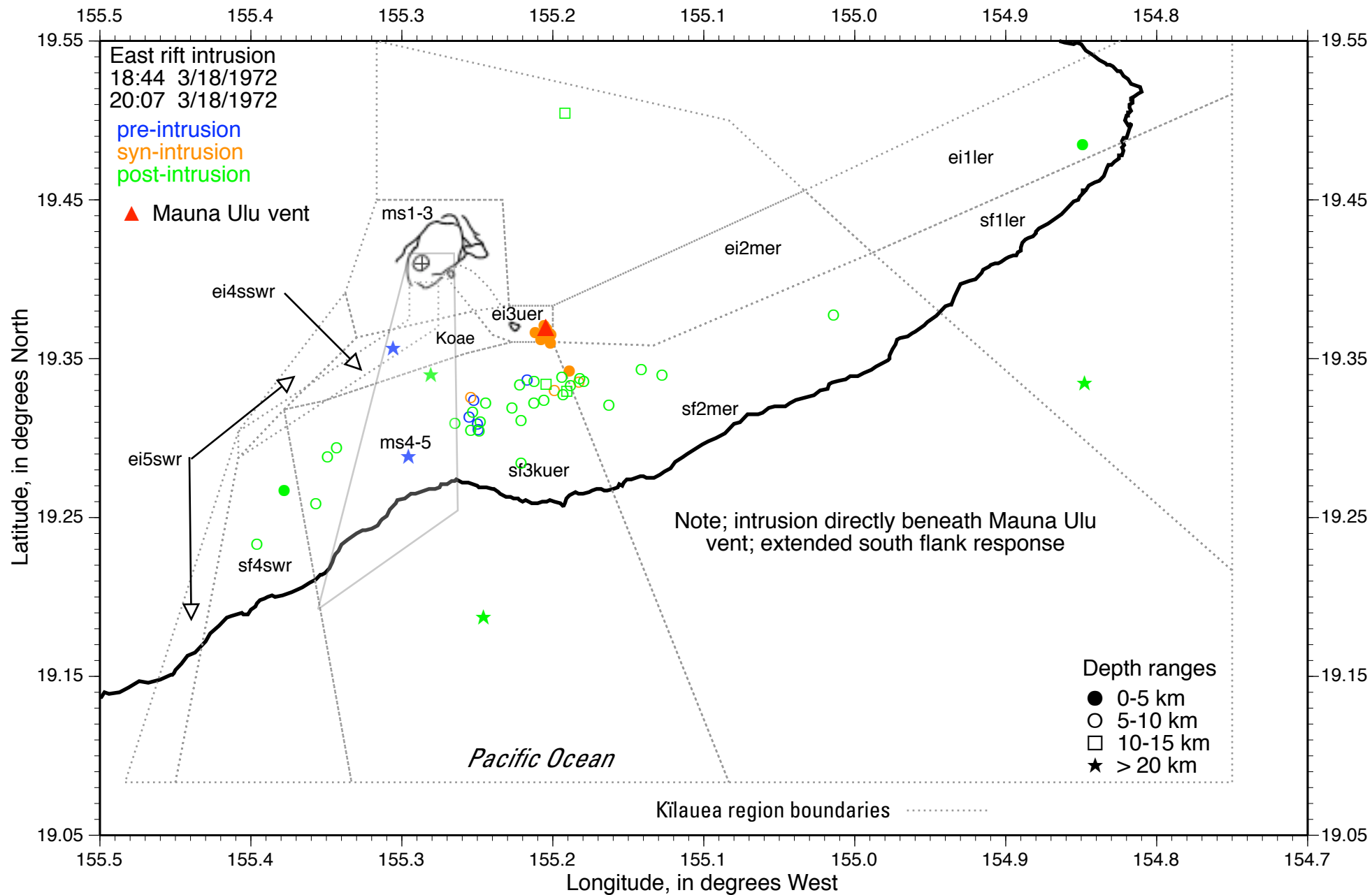
Figure E58

Mauna Ulu IIA 3/1972 Precursory seismicity to Mauna Ulu II: data from 2/2-5/1972

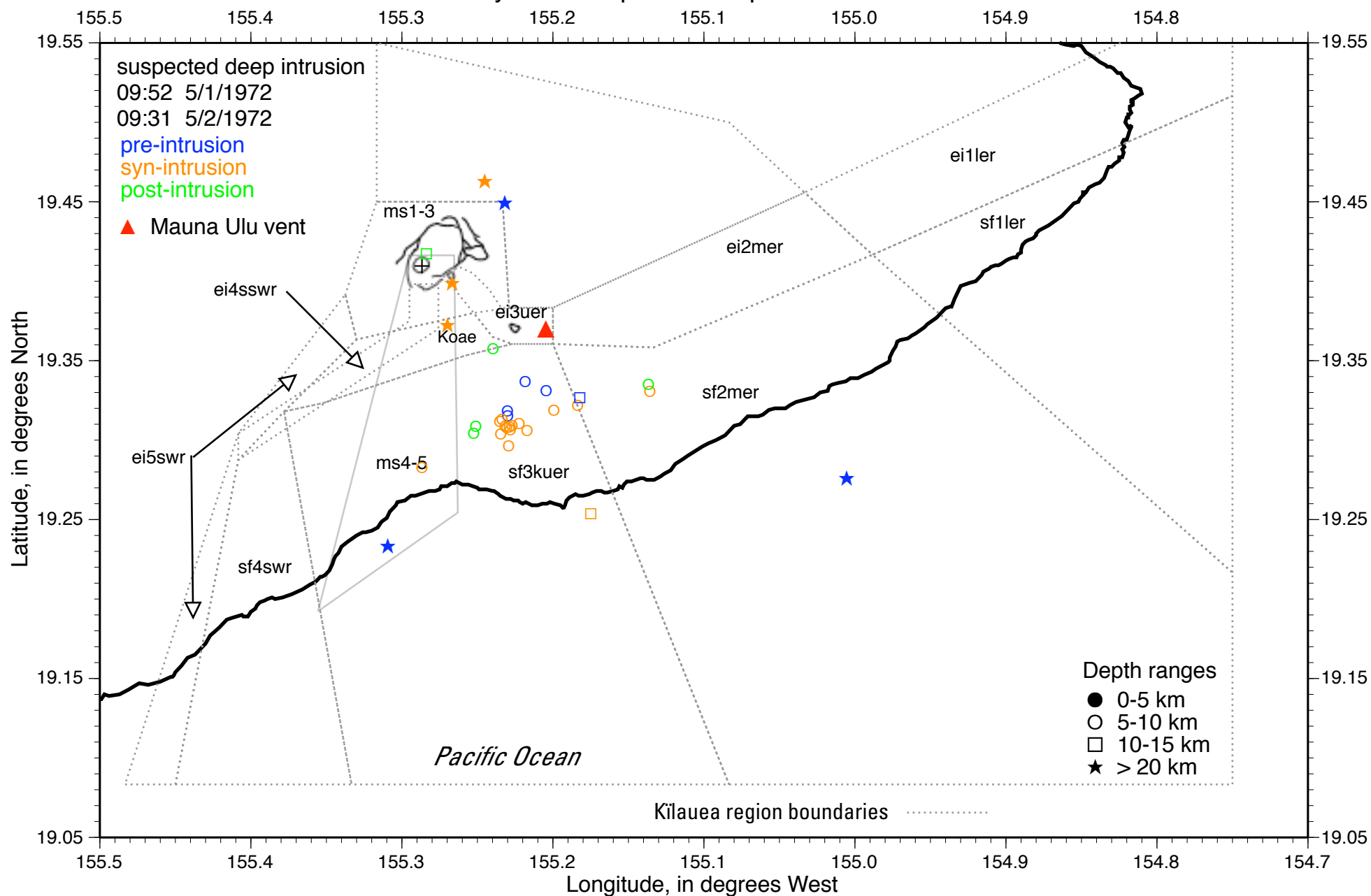


Appendix figure E59

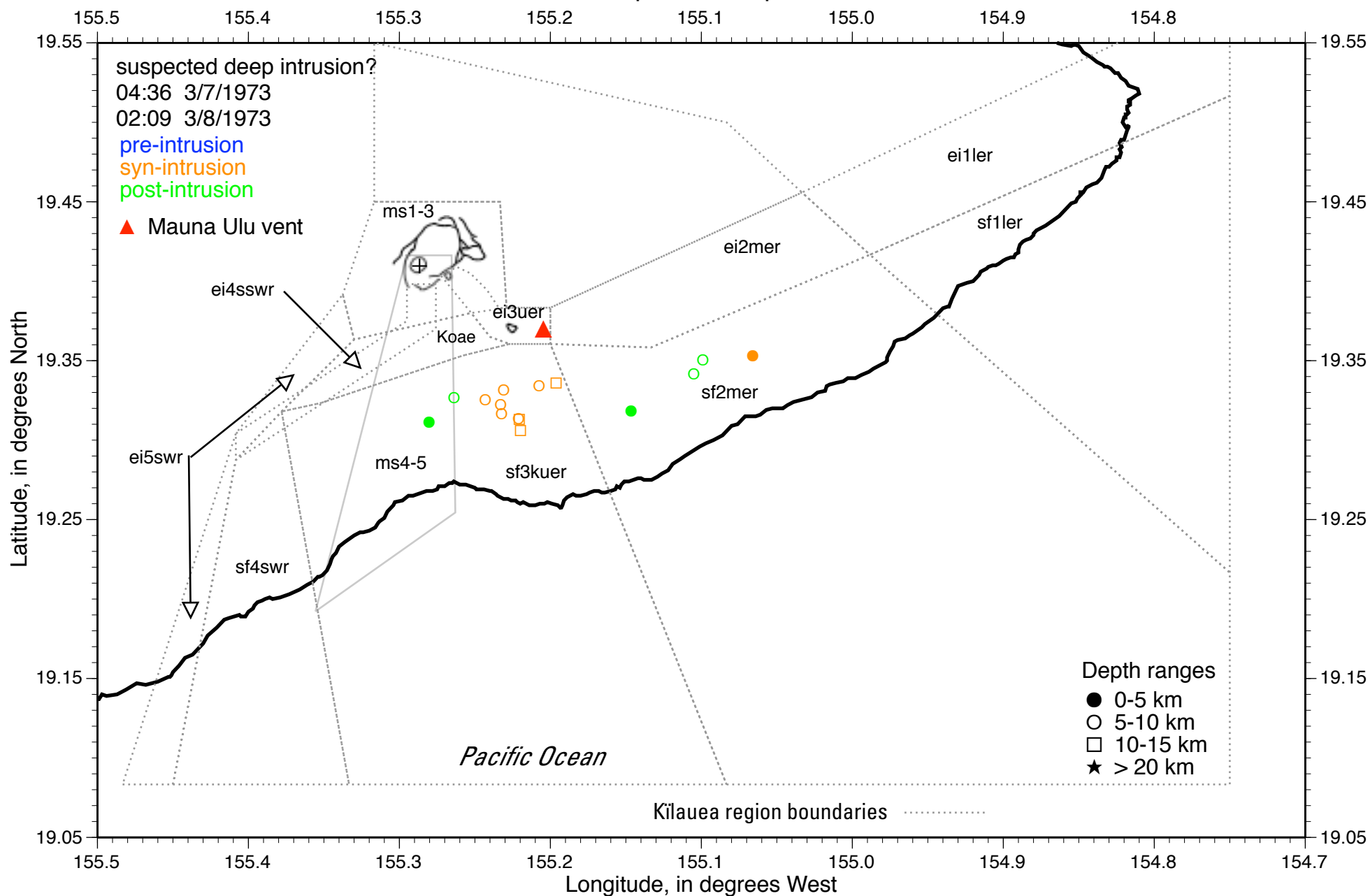
Mauna Ulu IIA 3/1972 intrusion: data from 3/15-25/1972



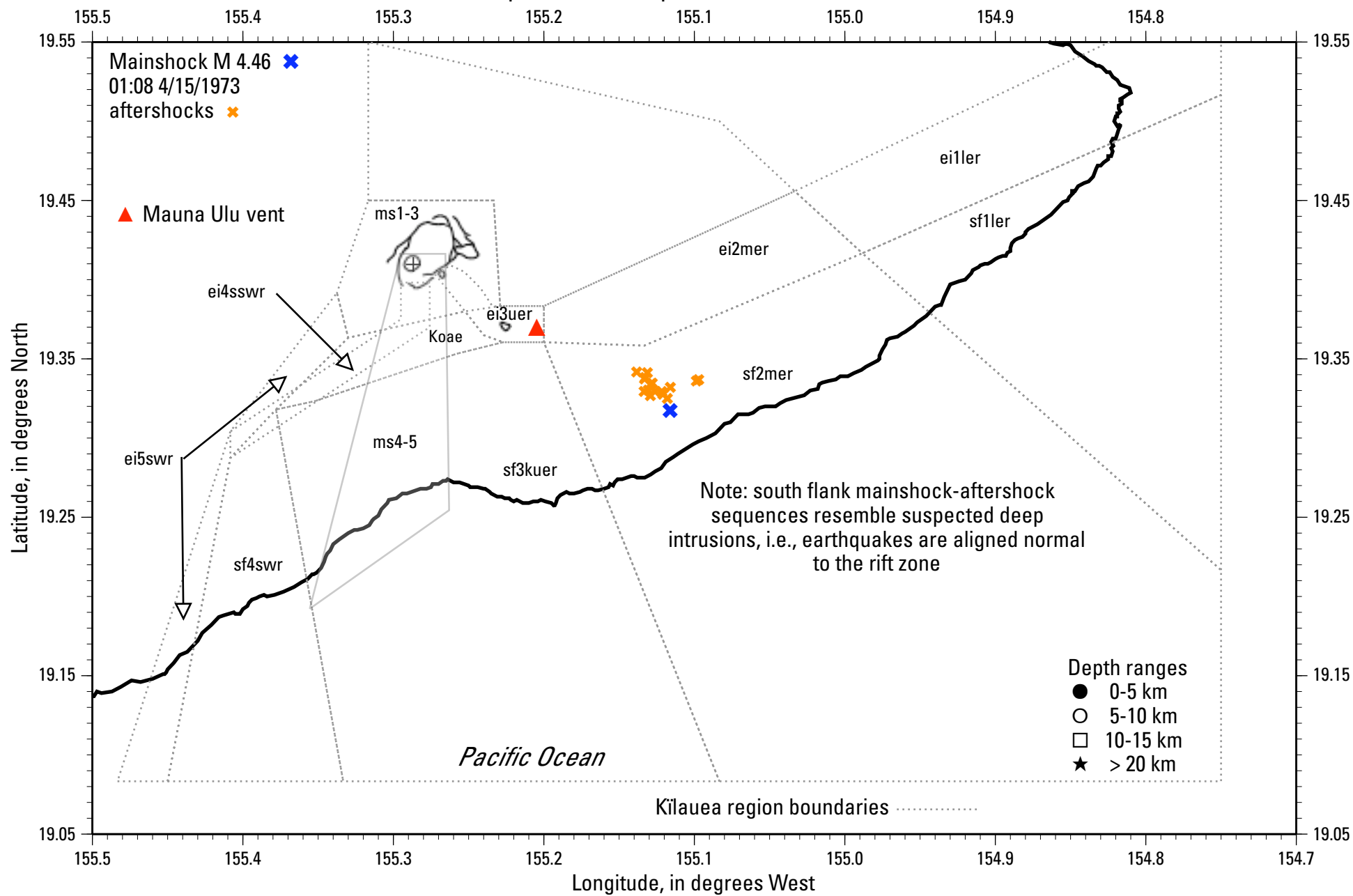
Appendix figure E60
 Mauna Ulu IIA--May 1972 suspected deep intrusion: data from 4/30-5/3/1972



Appendix figure E61
 Mauna Ulu IIA--March 1973 suspected deep intrusion?: data from 3/7-8/1973

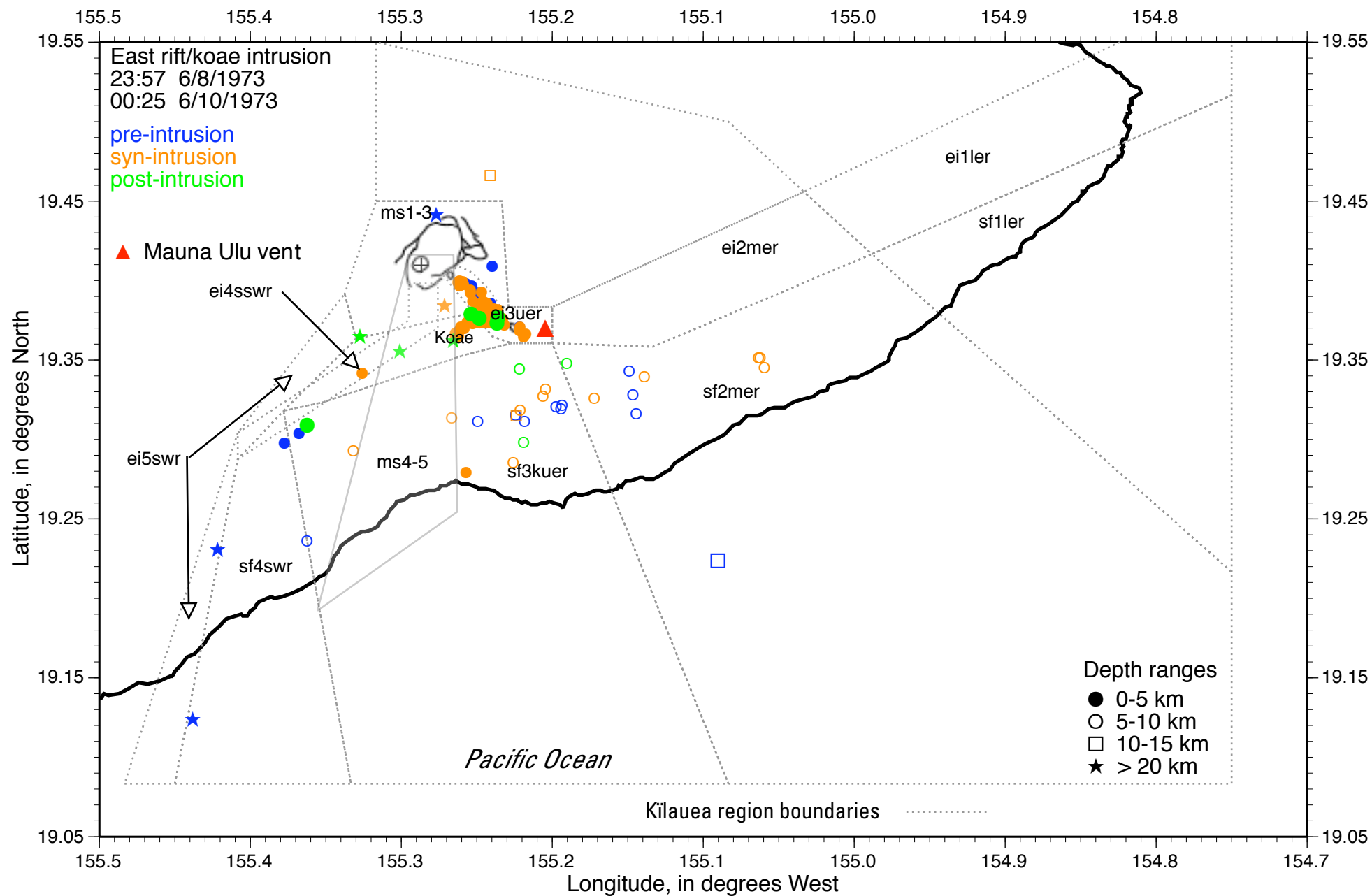


Appendix figure E62
Mauna Ulu IIA April 1973 earthquake and aftershocks: data from 4/15-16/1973

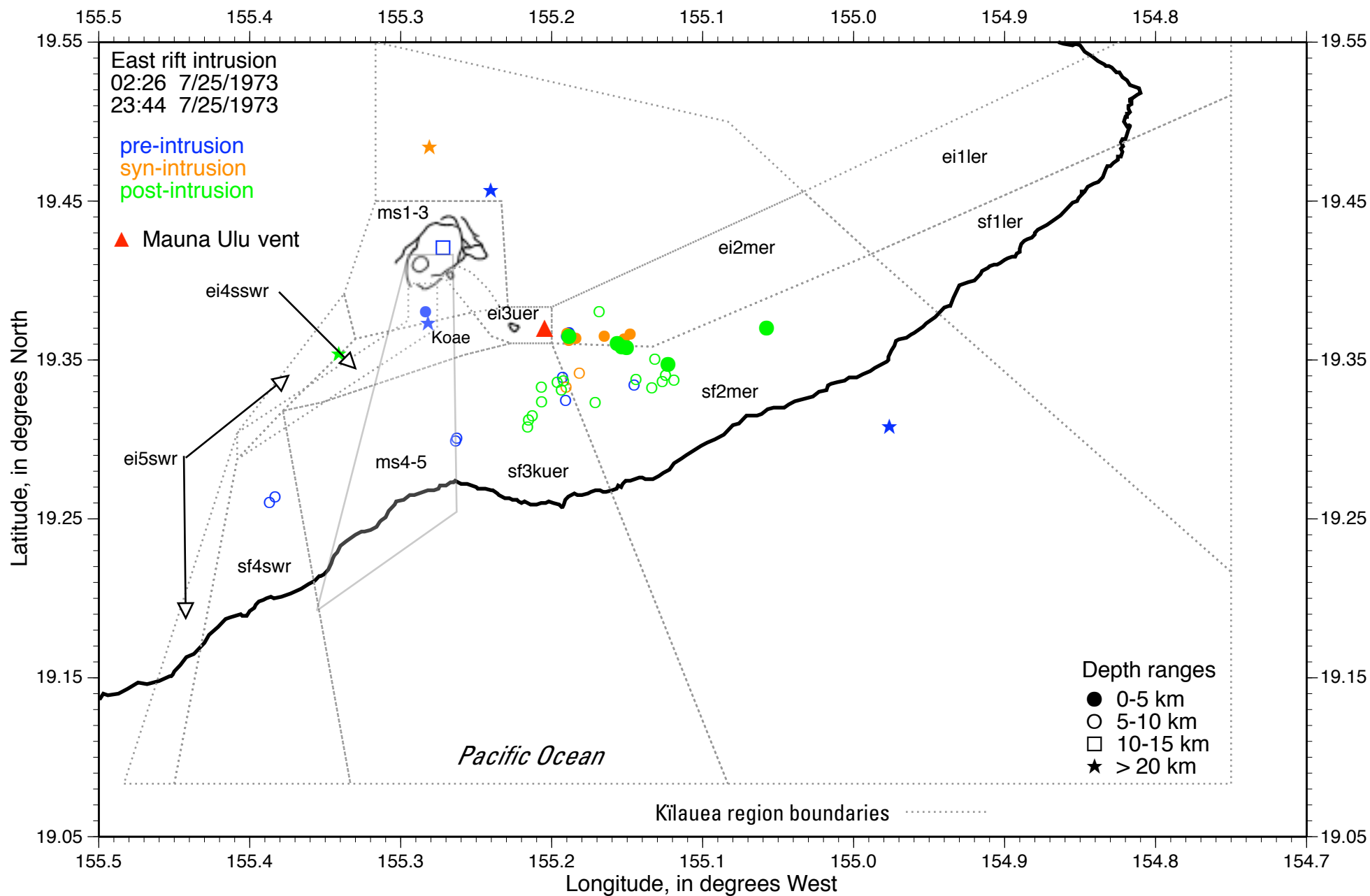


Appendix figure E63

Mauna Ulu IIB June 1973 intrusion: data from 5/30-6/12/1973

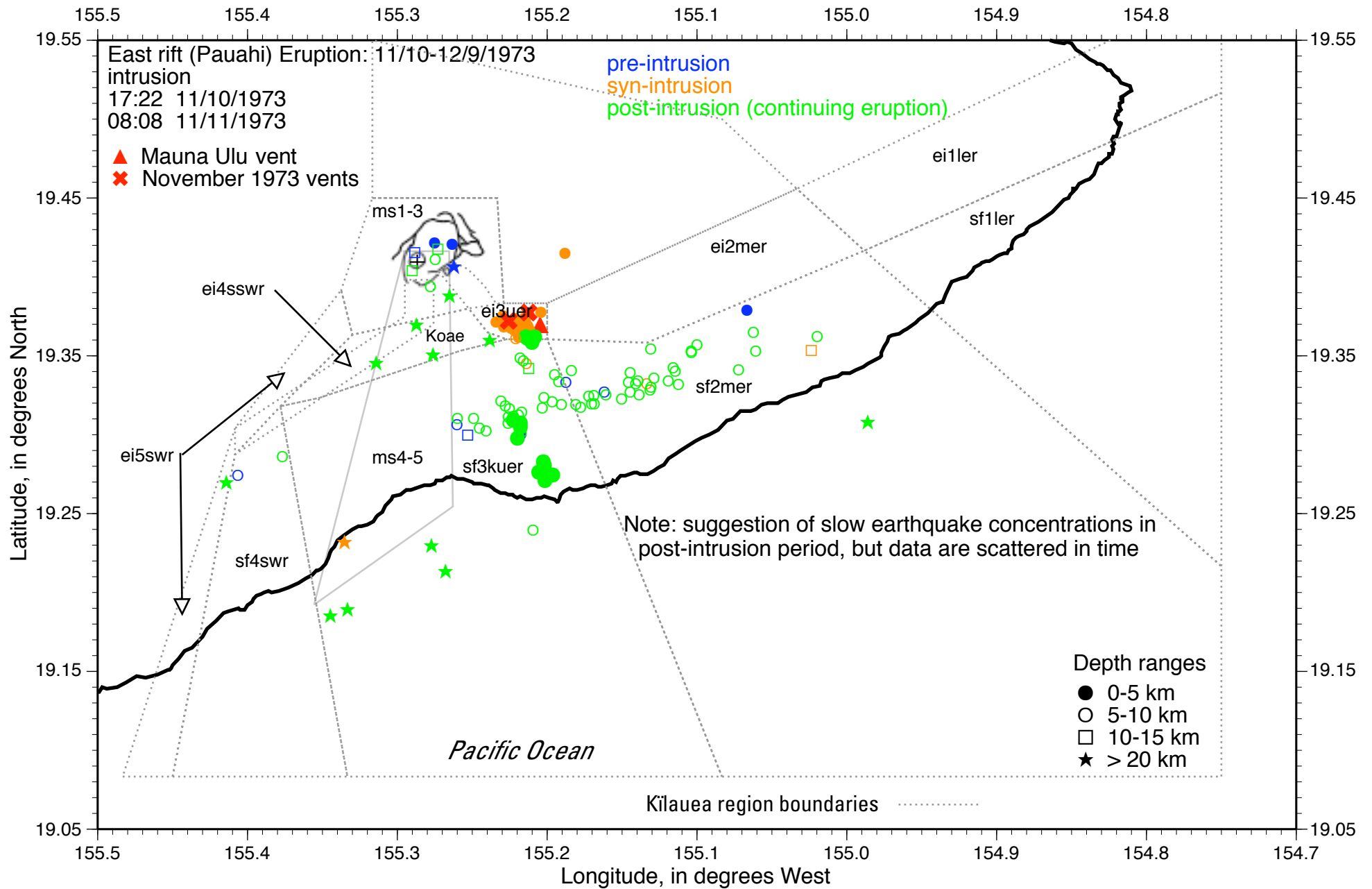


Appendix figure E64
Mauna Ulu IIB 7/1973 intrusion: data from 7/21-30/1973



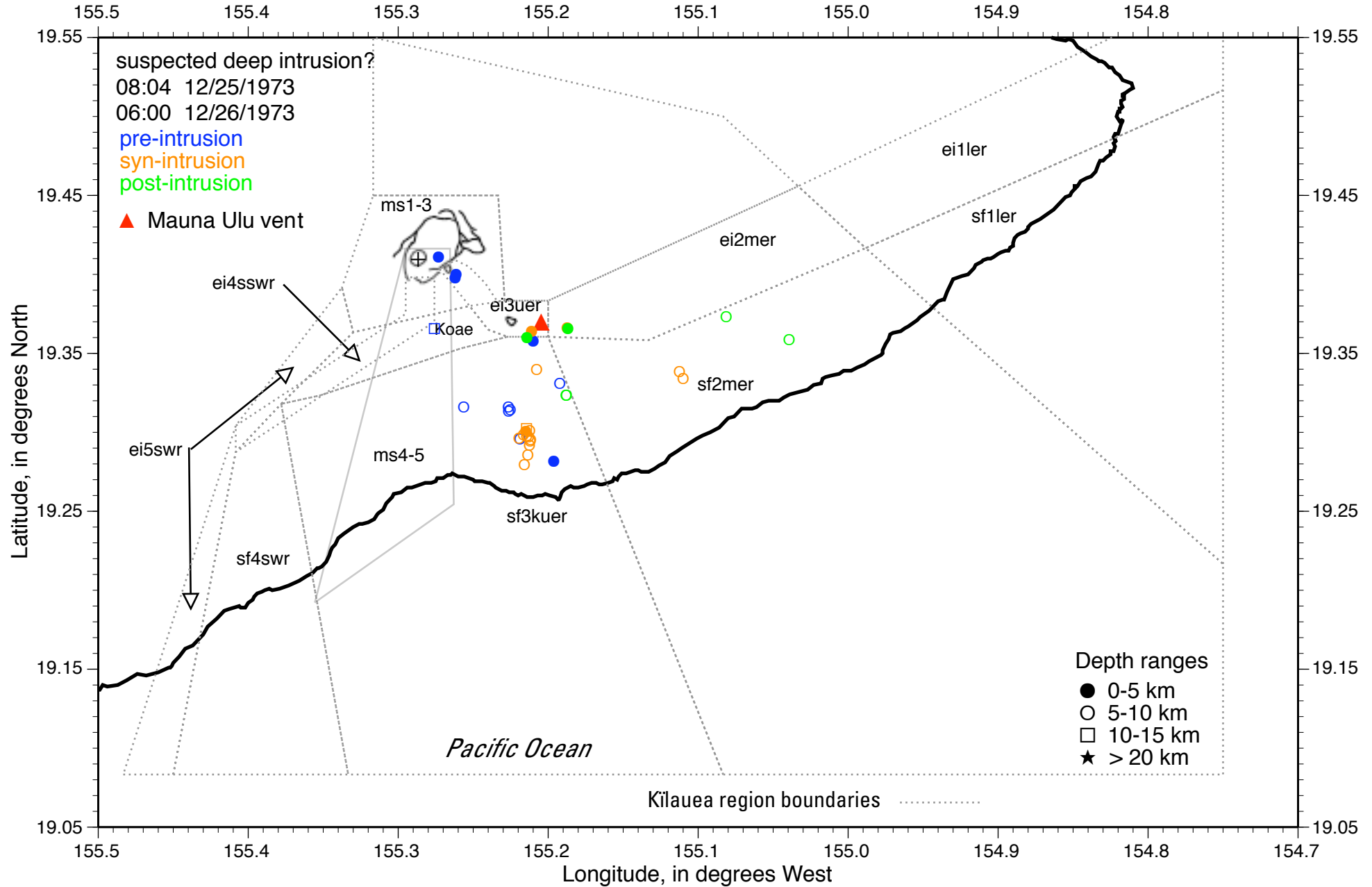
Appendix figure E65

Mauna Ulu IIB 11/1973 eruption and intrusion: data from 11/9-12/12/1973



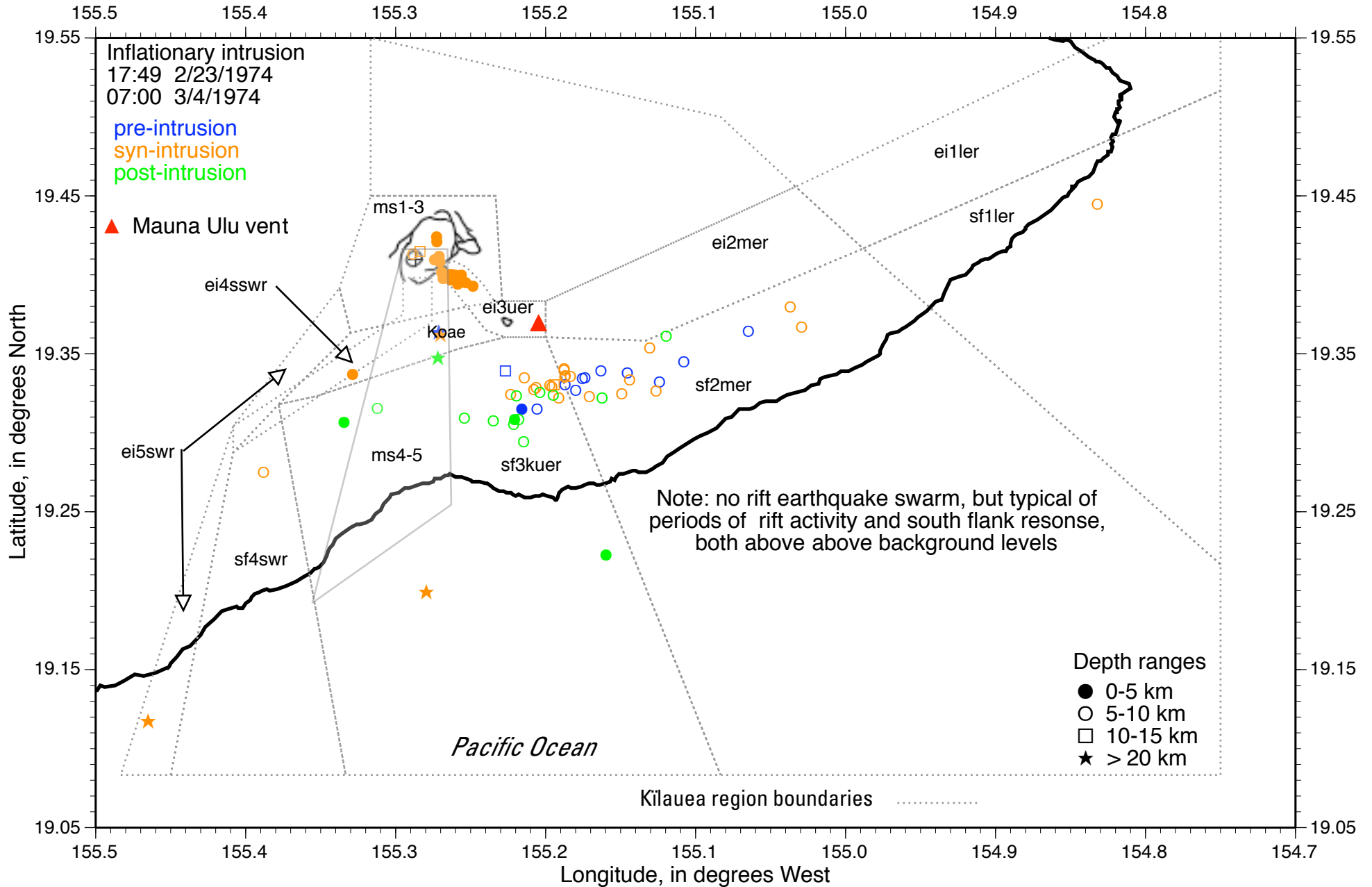
Appendix figure E66

Mauna Ulu IIB--December 1973 suspected deep intrusion?: data from 12/22-27/1973



Appendix figure E67

Mauna Ulu IIB 2, 3/1974 inflationary intrusion: data from 2/21-3/7/1974



Appendix figure E68

Mauna Ulu IIB 3/1974 inflationary intrusions data from 3/10-19/1974

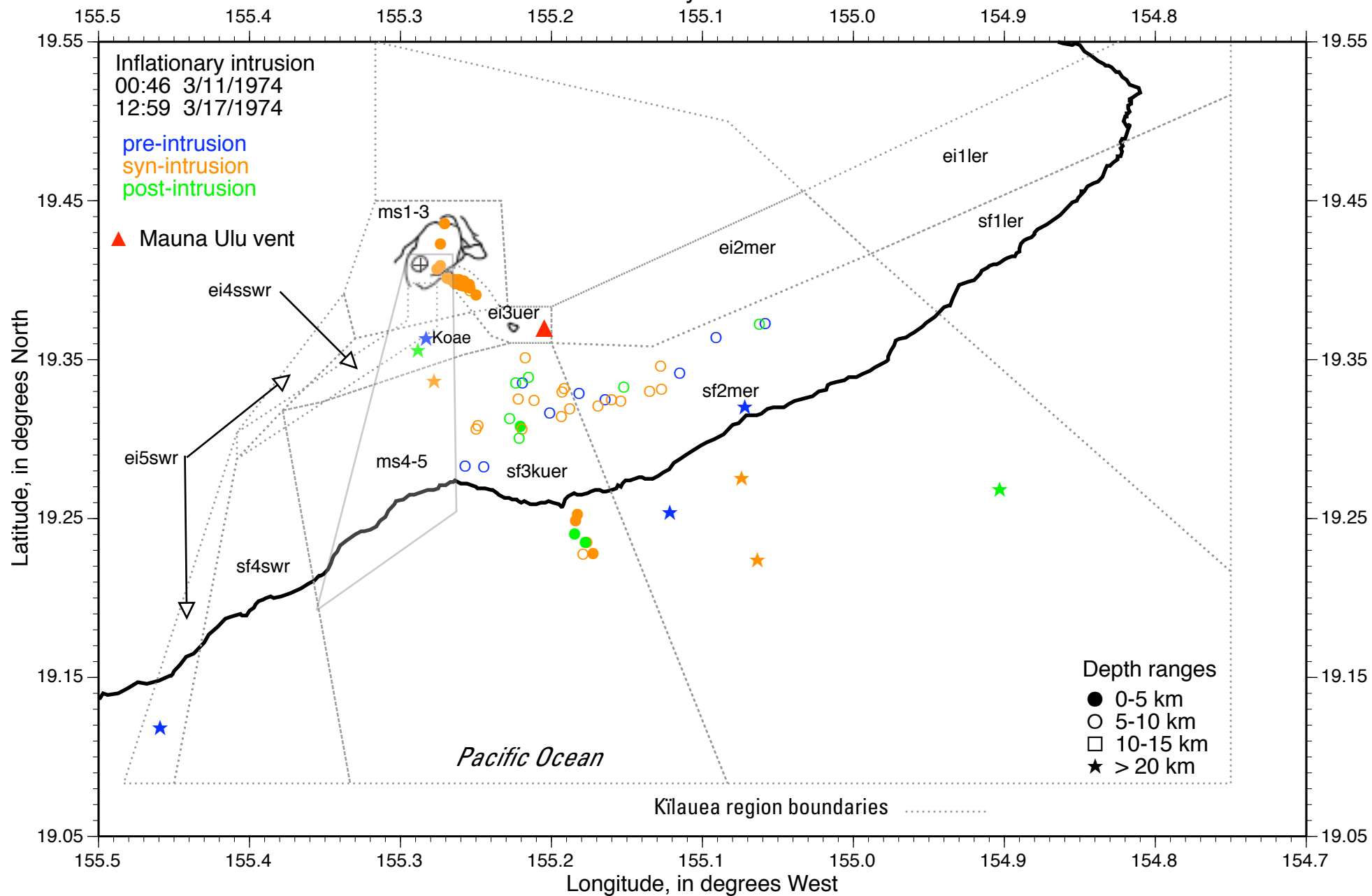
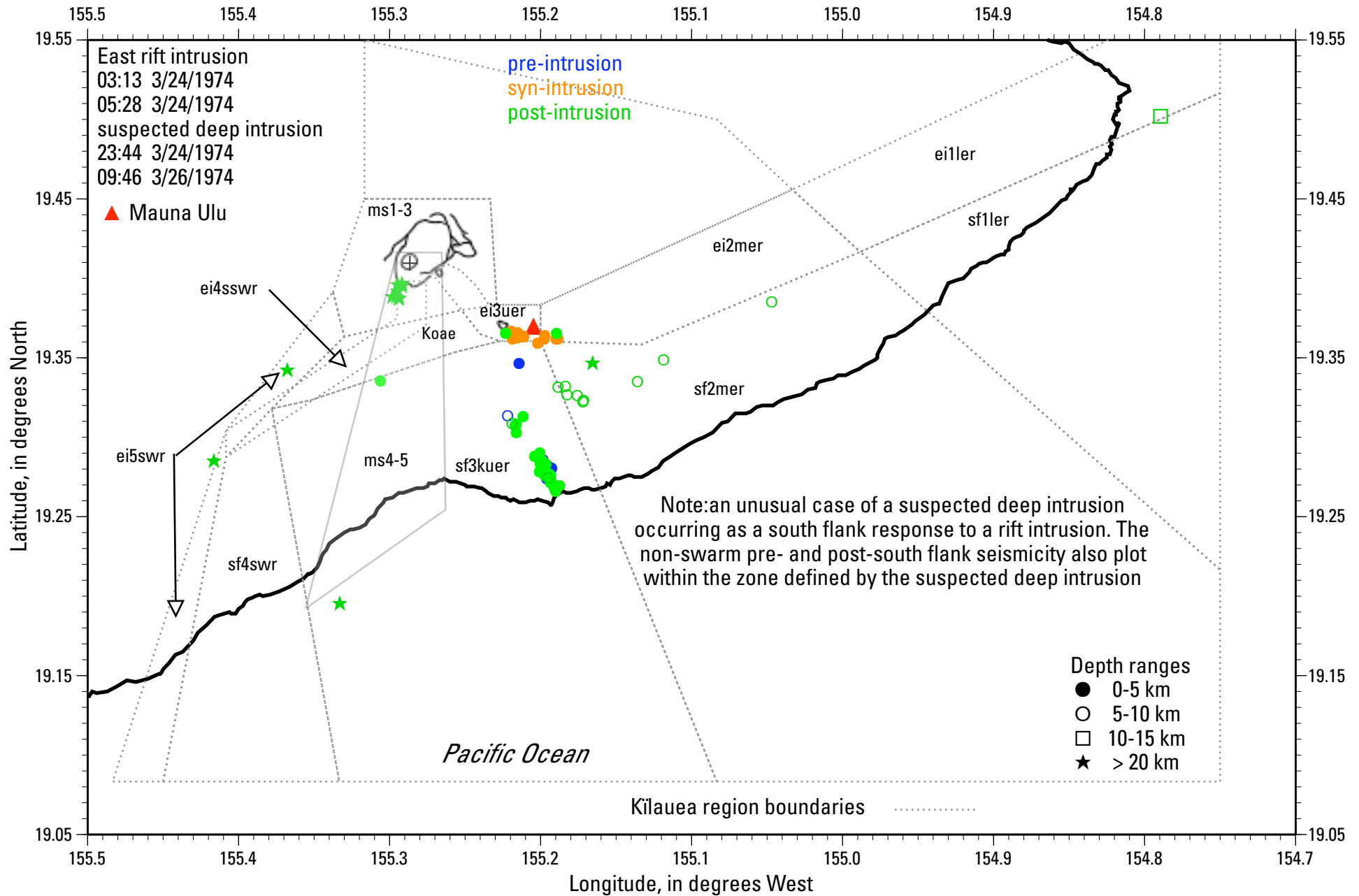


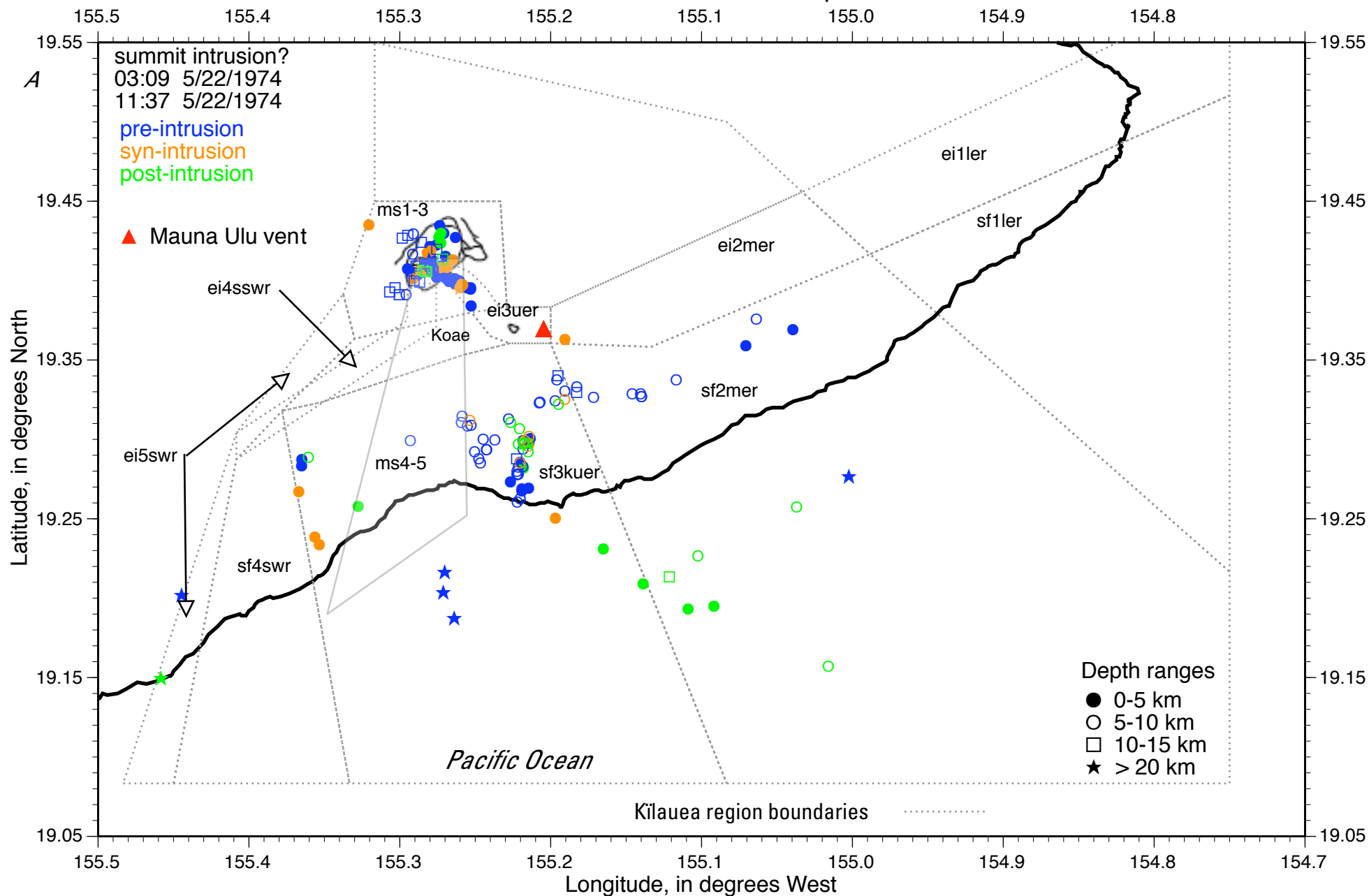
Figure E69

Mauna Ulu IIB 3/1974 intrusion: data from 3/23-26/1974



Appendix figure E70a

Mauna Ulu IIB Precursors to end of Mauna Ulu eruption: data from 5/12-23/1974



Mauna Ulu IIB Precursors to end of Mauna Ulu eruption: data from 5/24-26/1974

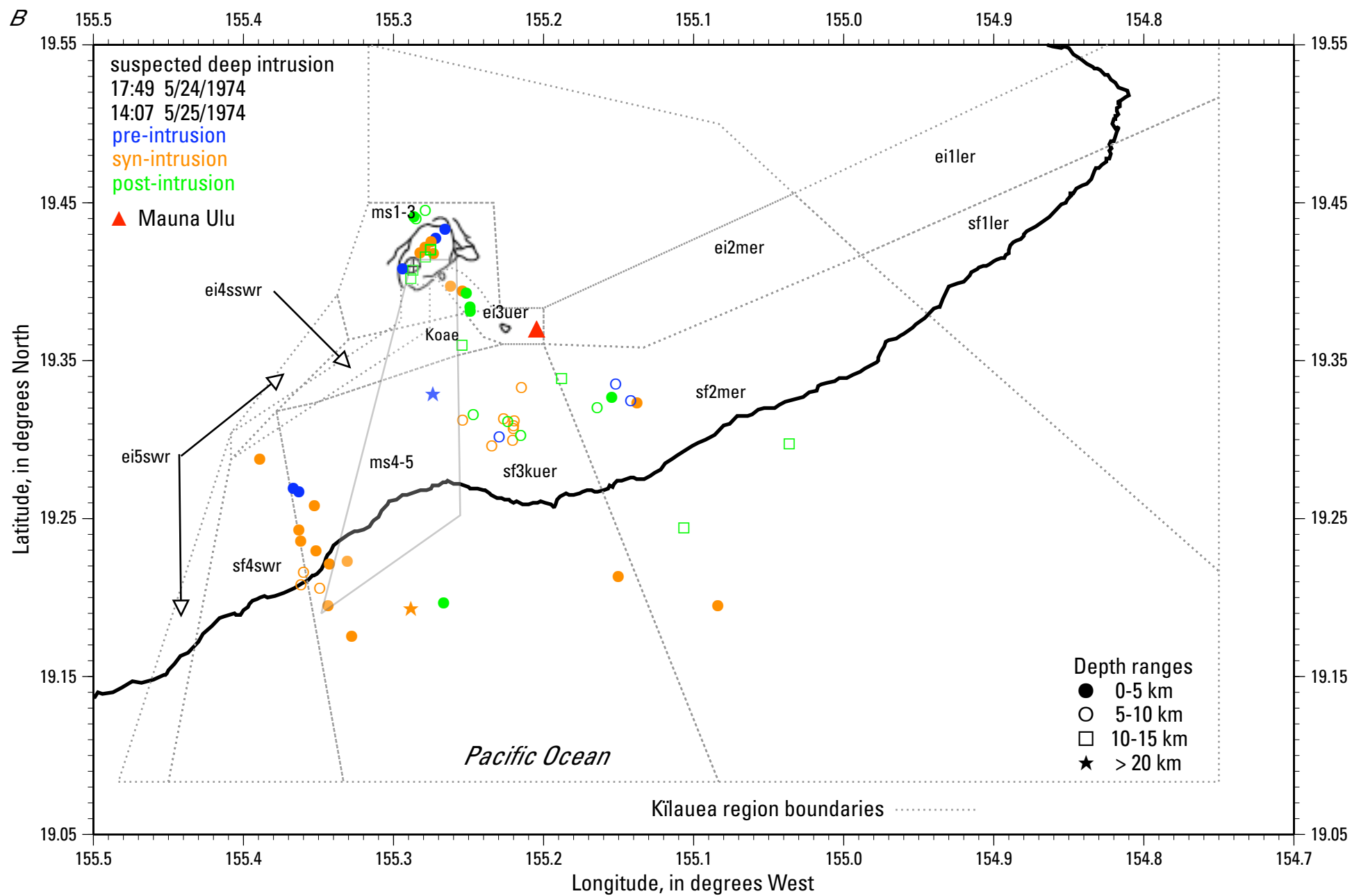


Figure E70c

Mauna Ulu IIB Precursors to end of Mauna Ulu eruption: data from 5/27-6/3/1974

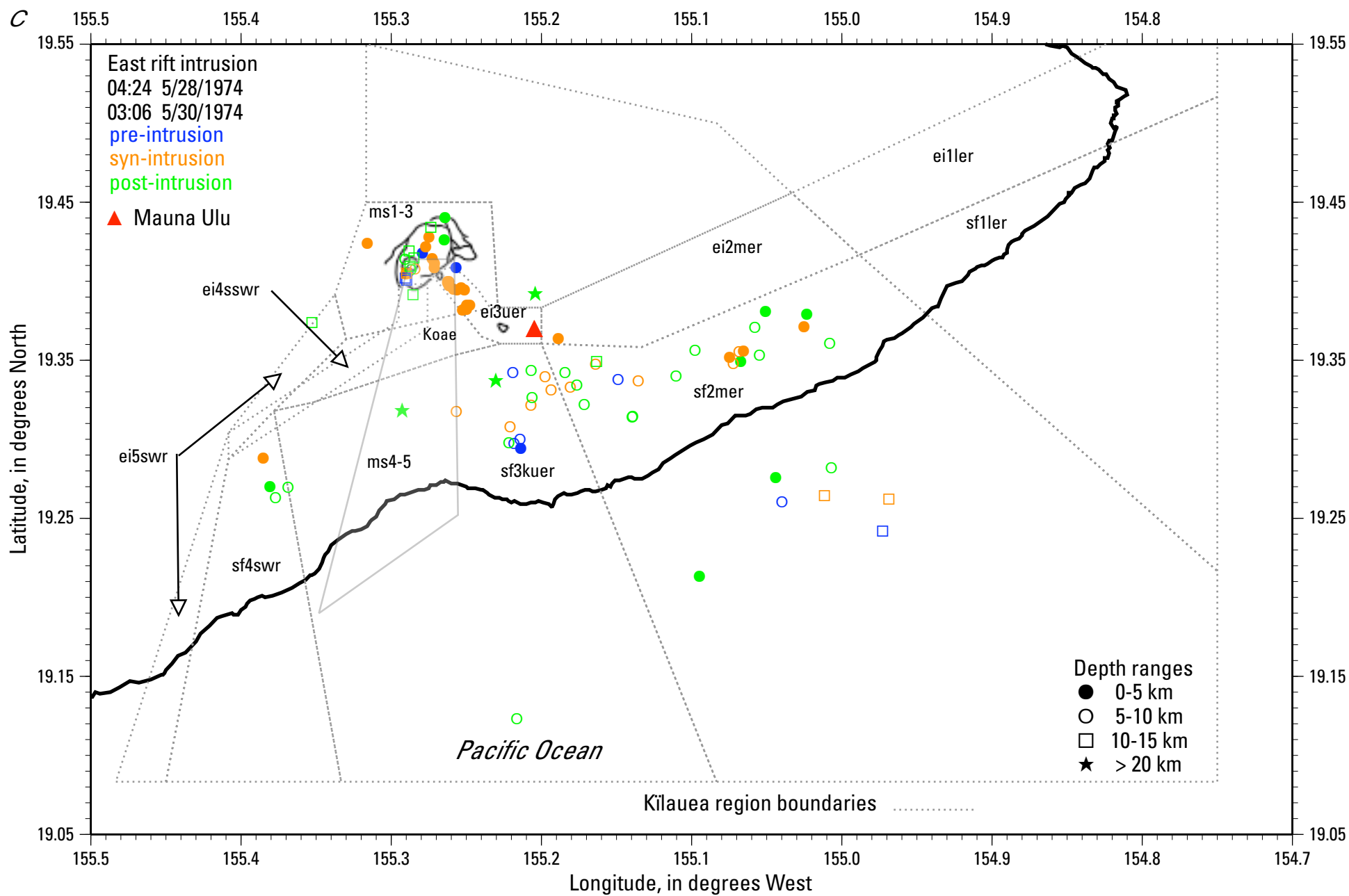
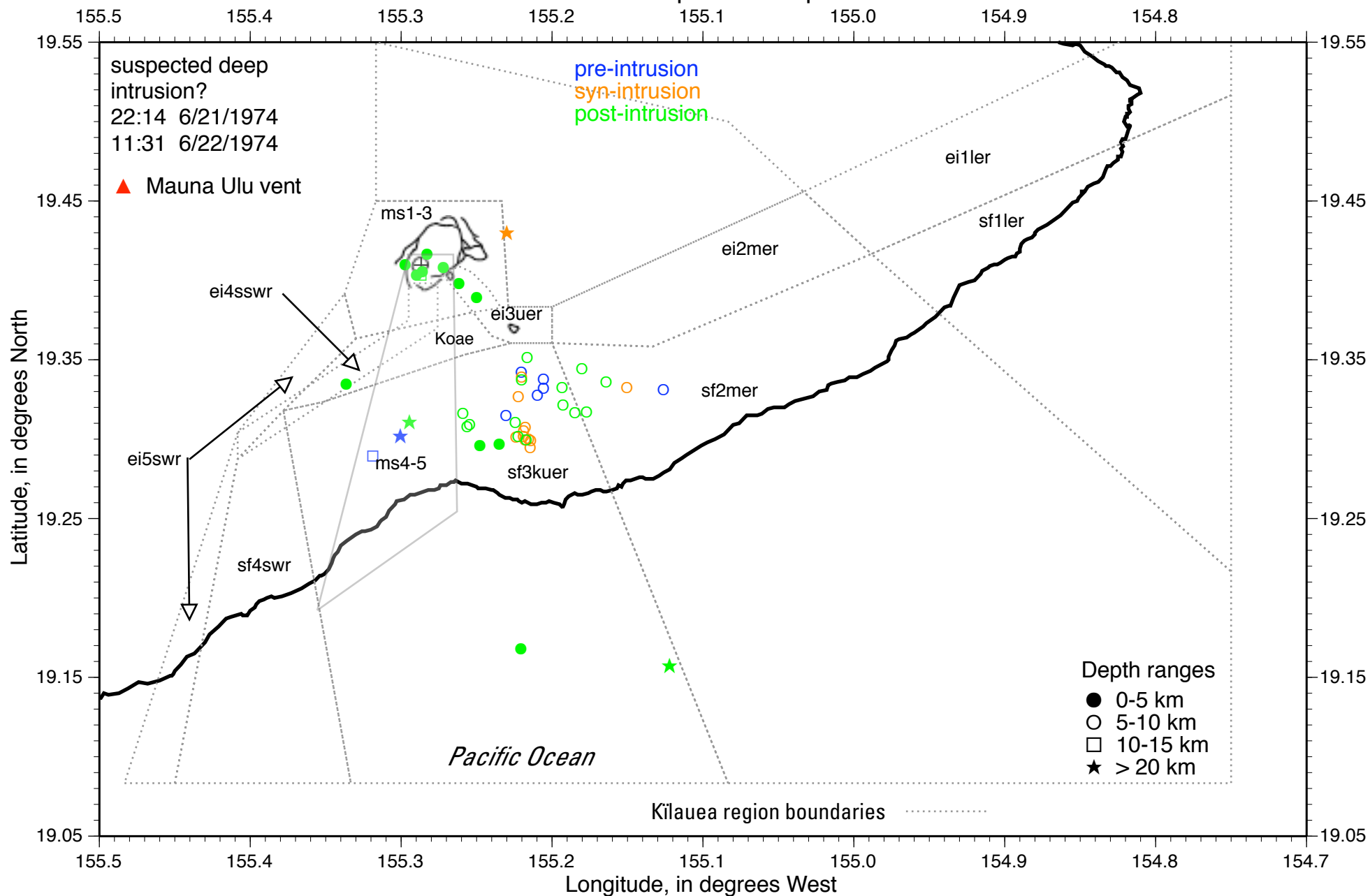


Figure E71. Post-Mauna Ulu: earthquake swarms and tilt



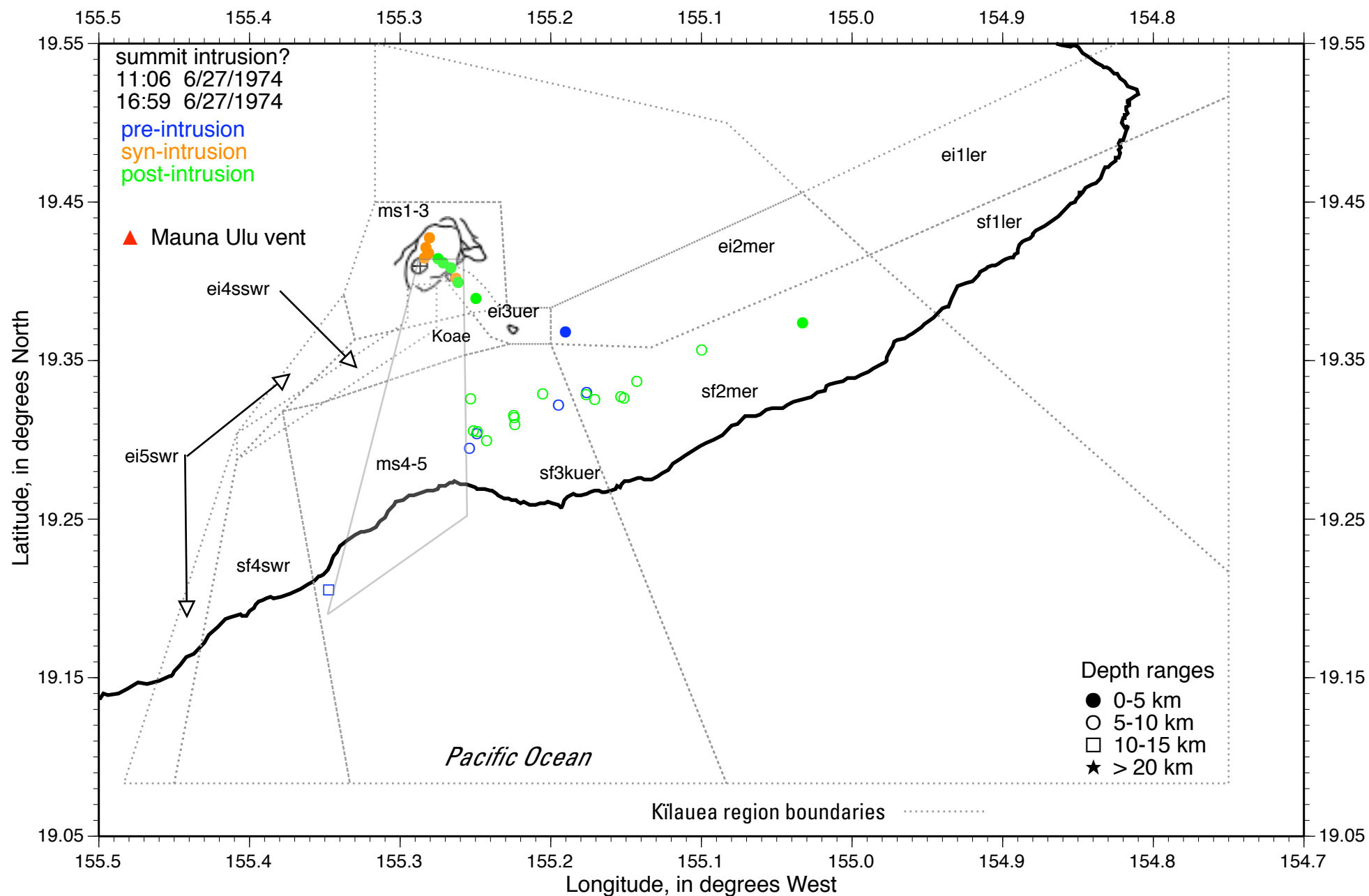
Appendix figure E72

Mauna Ulu Post--June 1974 suspected deep intrusion?: data from 6/20-25/1974



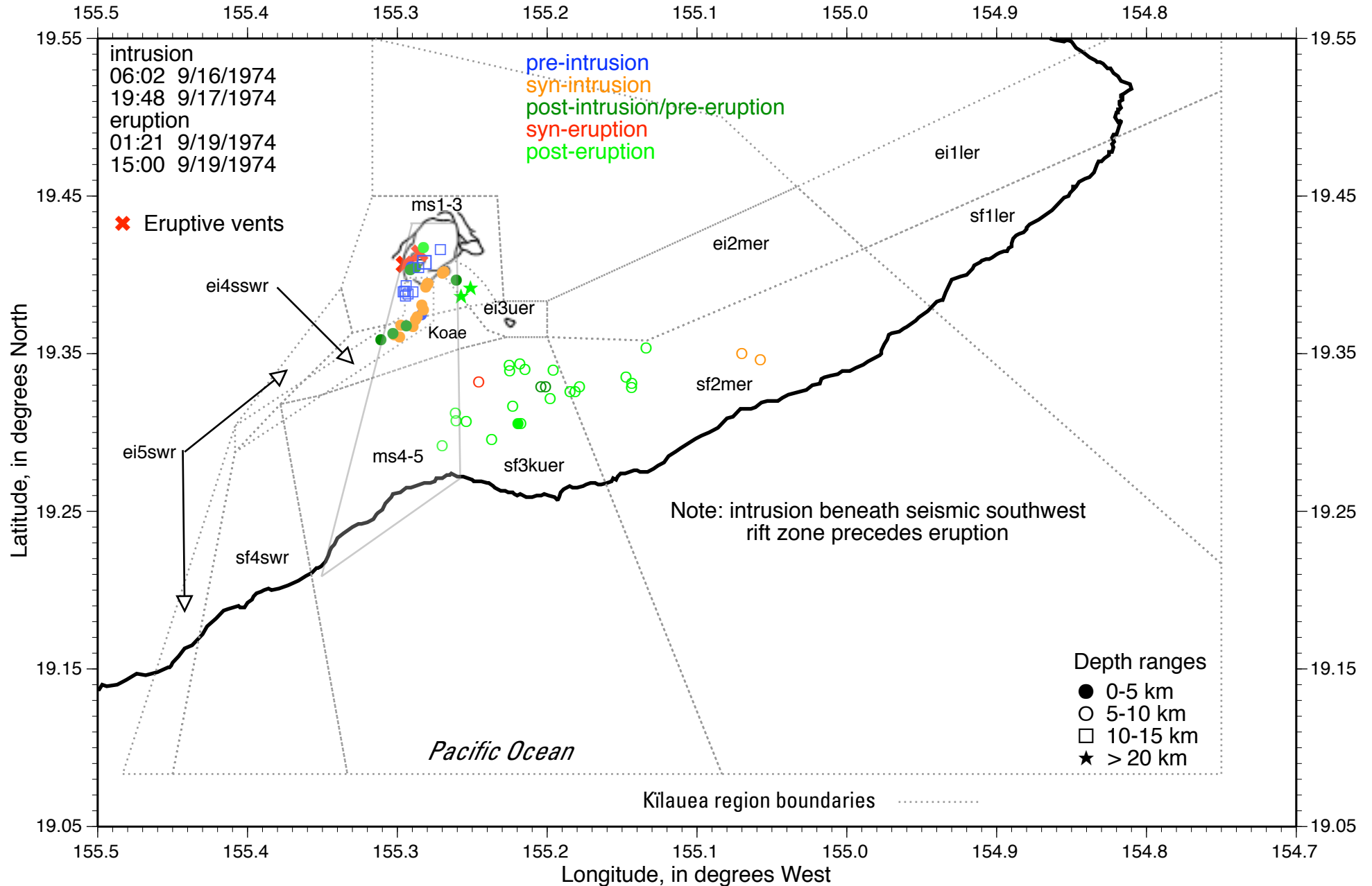
Appendix figure E73

Mauna Ulu post summit intrusion?: data from 6/26-30/1974



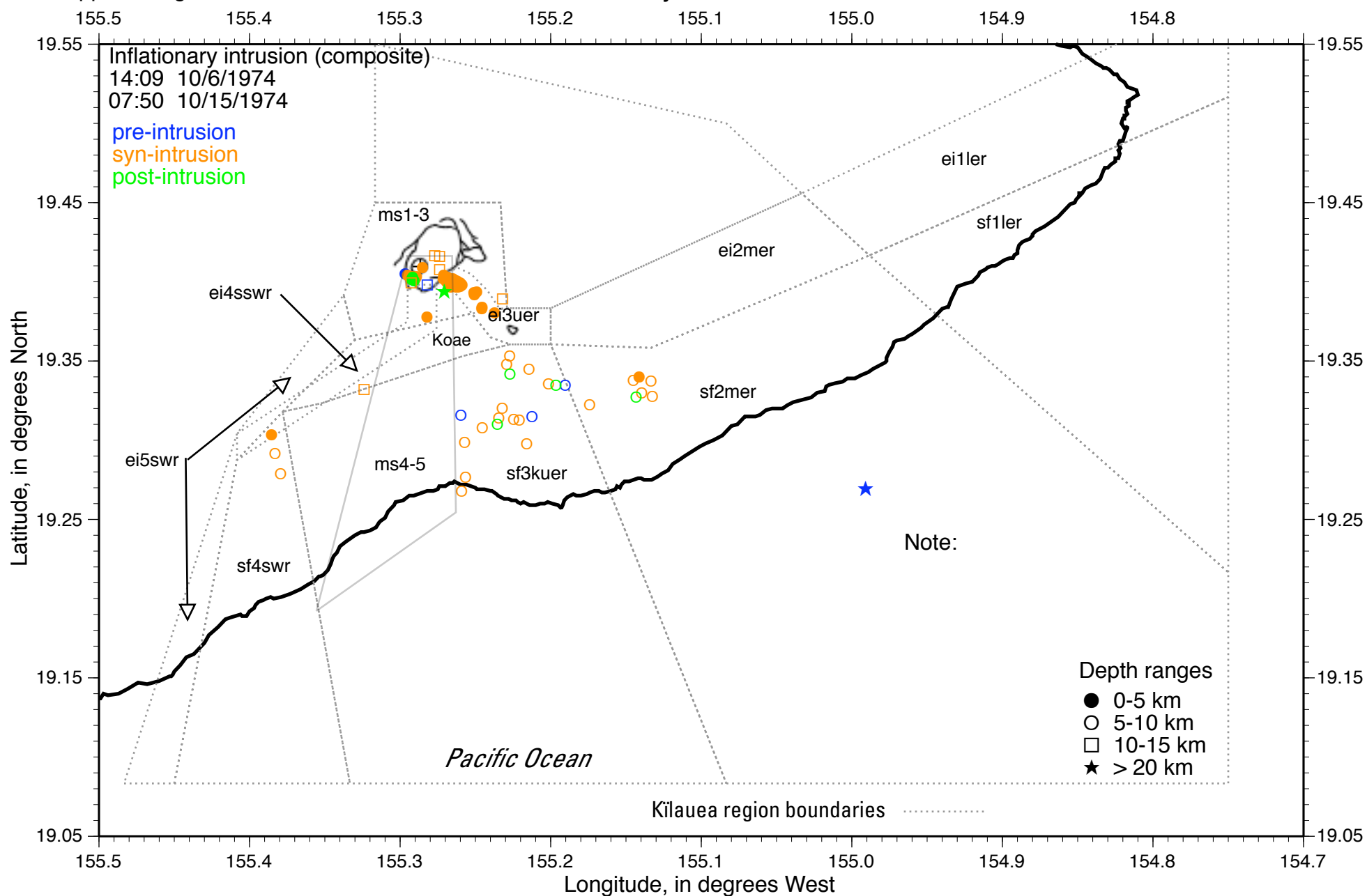
Appendix figure E74

Post-Mauna Ulu 9/19/1974 eruption/intrusion: data from 9/15-26/1974

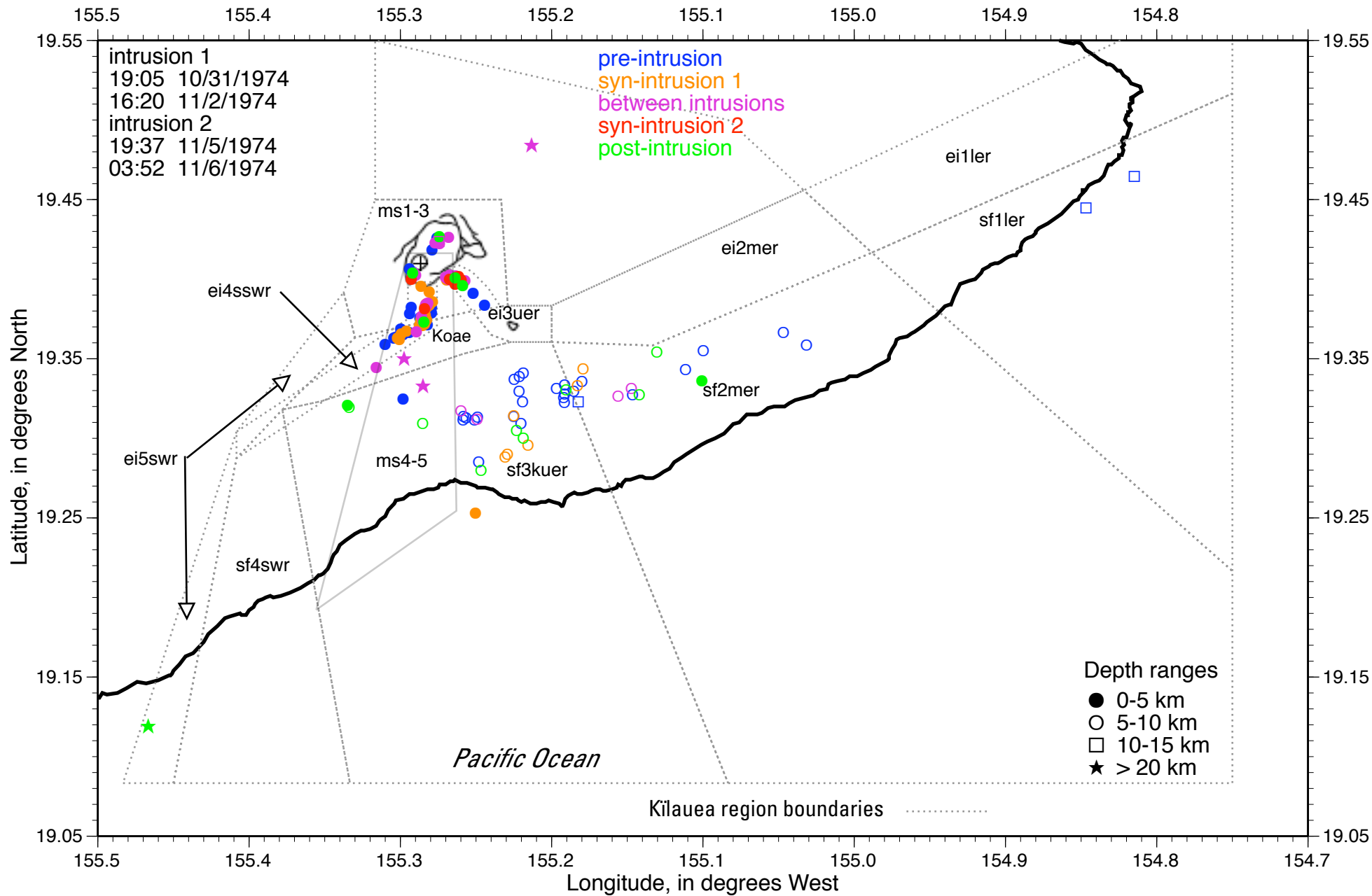


Appendix figure E75

Post-Mauna Ulu inflationary intrusions: data from 10/4-16/1974

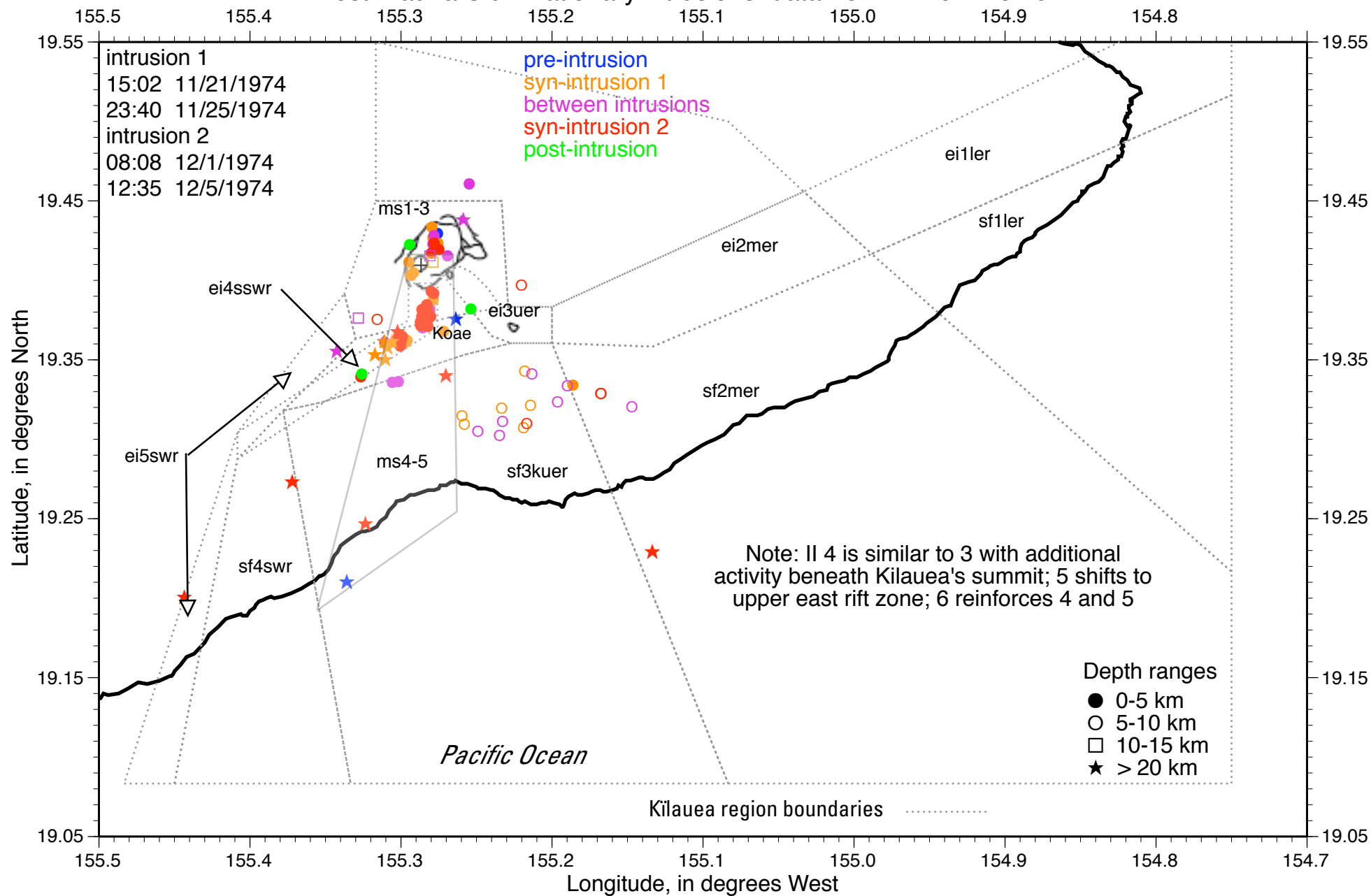


Appendix figure E76
Post-Mauna Ulu inflationary intrusions: data from 10/27-11/9/1974

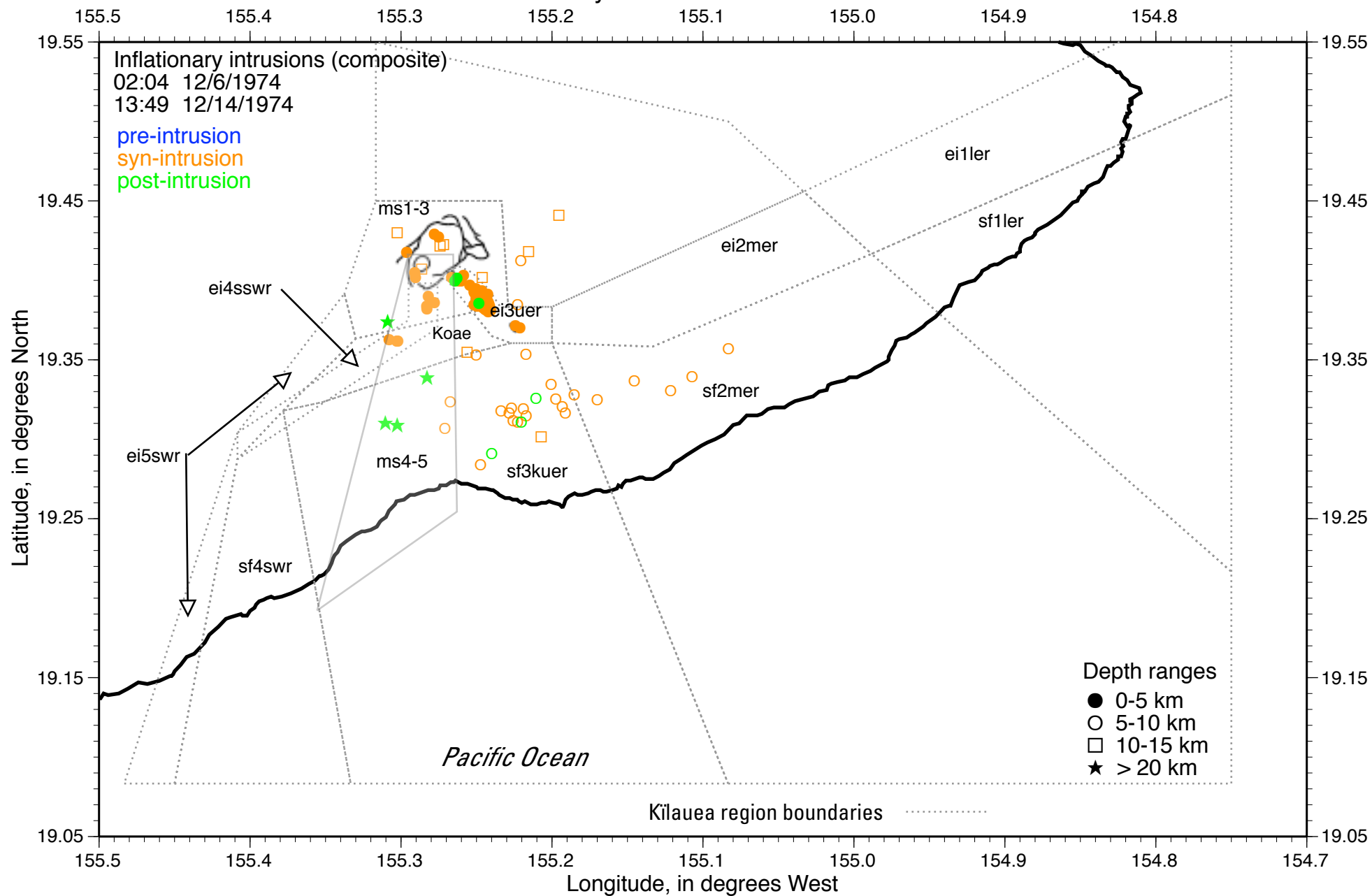


Appendix figure E77

Post-Mauna Ulu inflationary intrusions: data from 11/19-12/5/1974

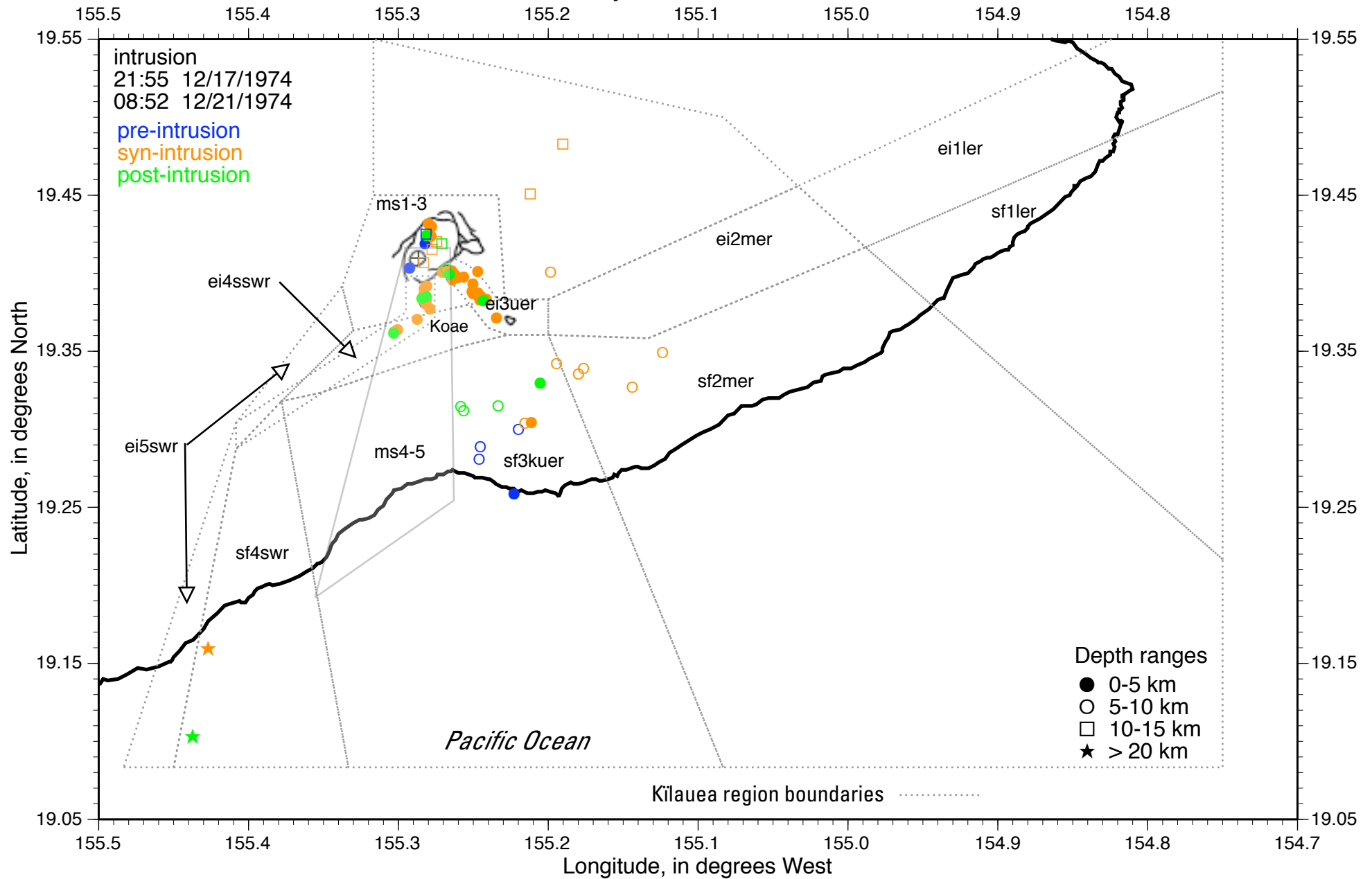


Appendix figure E78 Post-Mauna Ulu inflationary intrusions: data from 12/6-15/1974



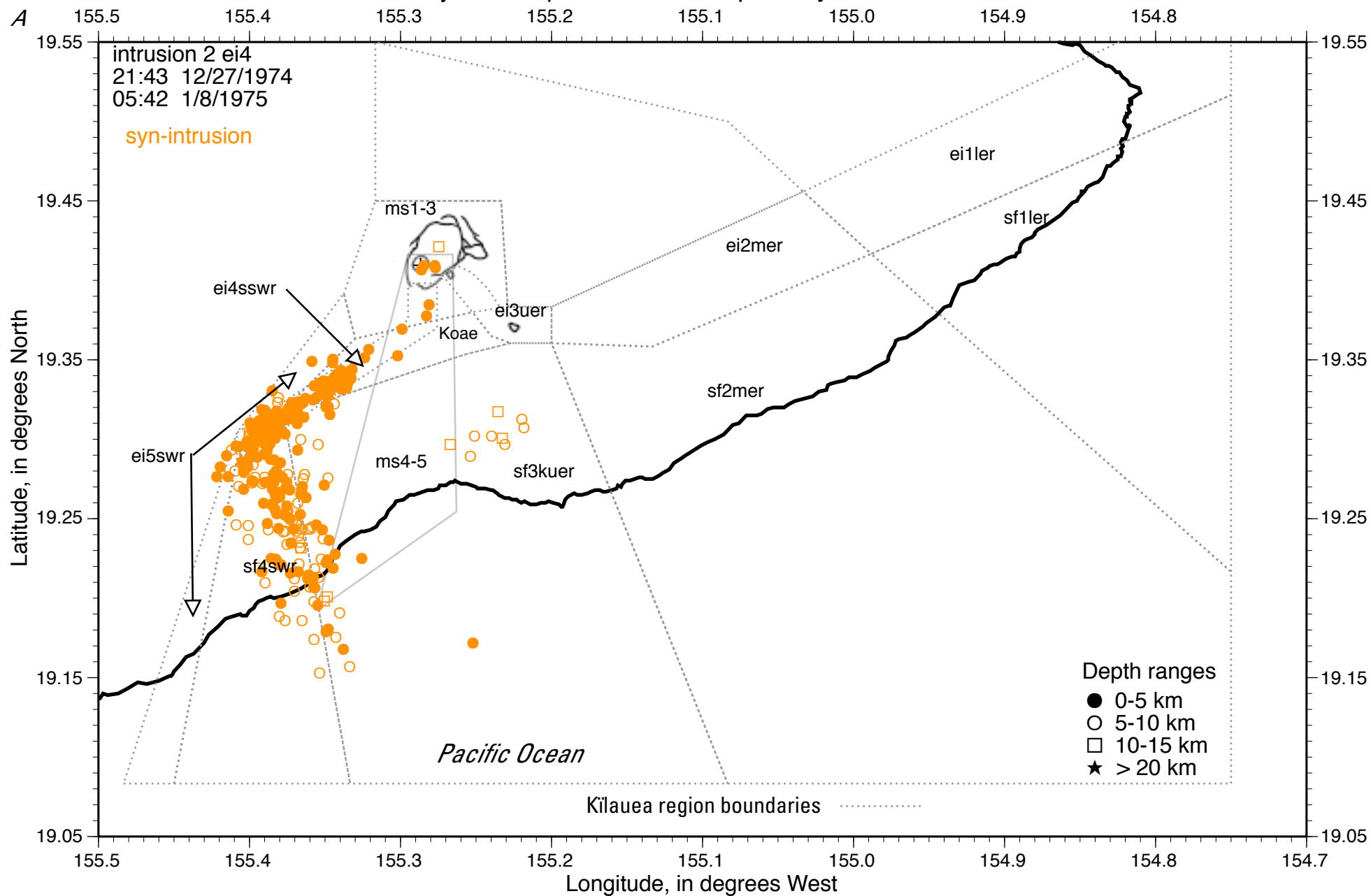
Appendix figure E79

Post-Mauna Ulu inflationary intrusions: data from 12/16-23/1974



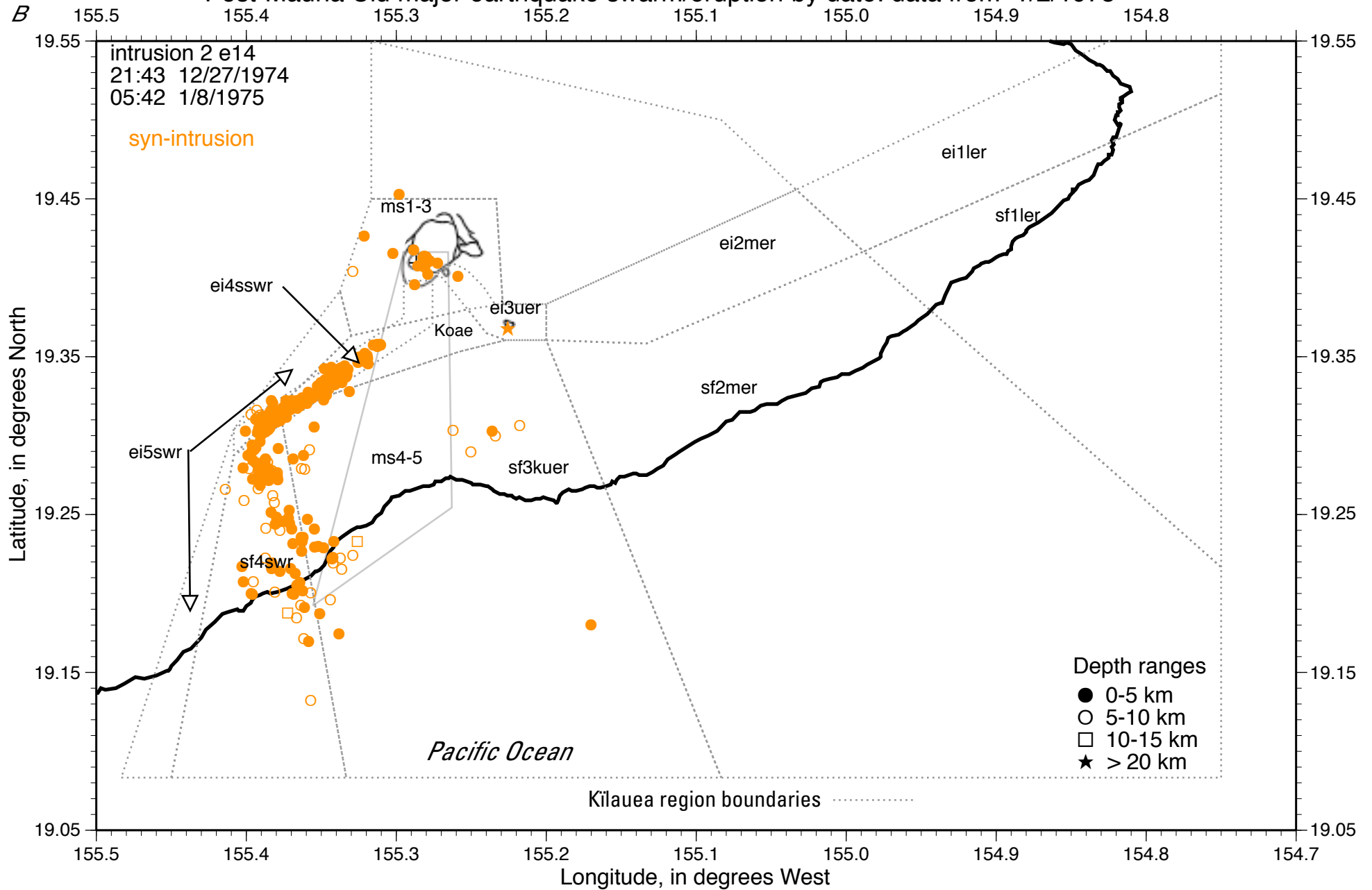
Appendix figure E80a

Post-Mauna Ulu major earthquake swarm/eruption by date: data from 1/1/1975



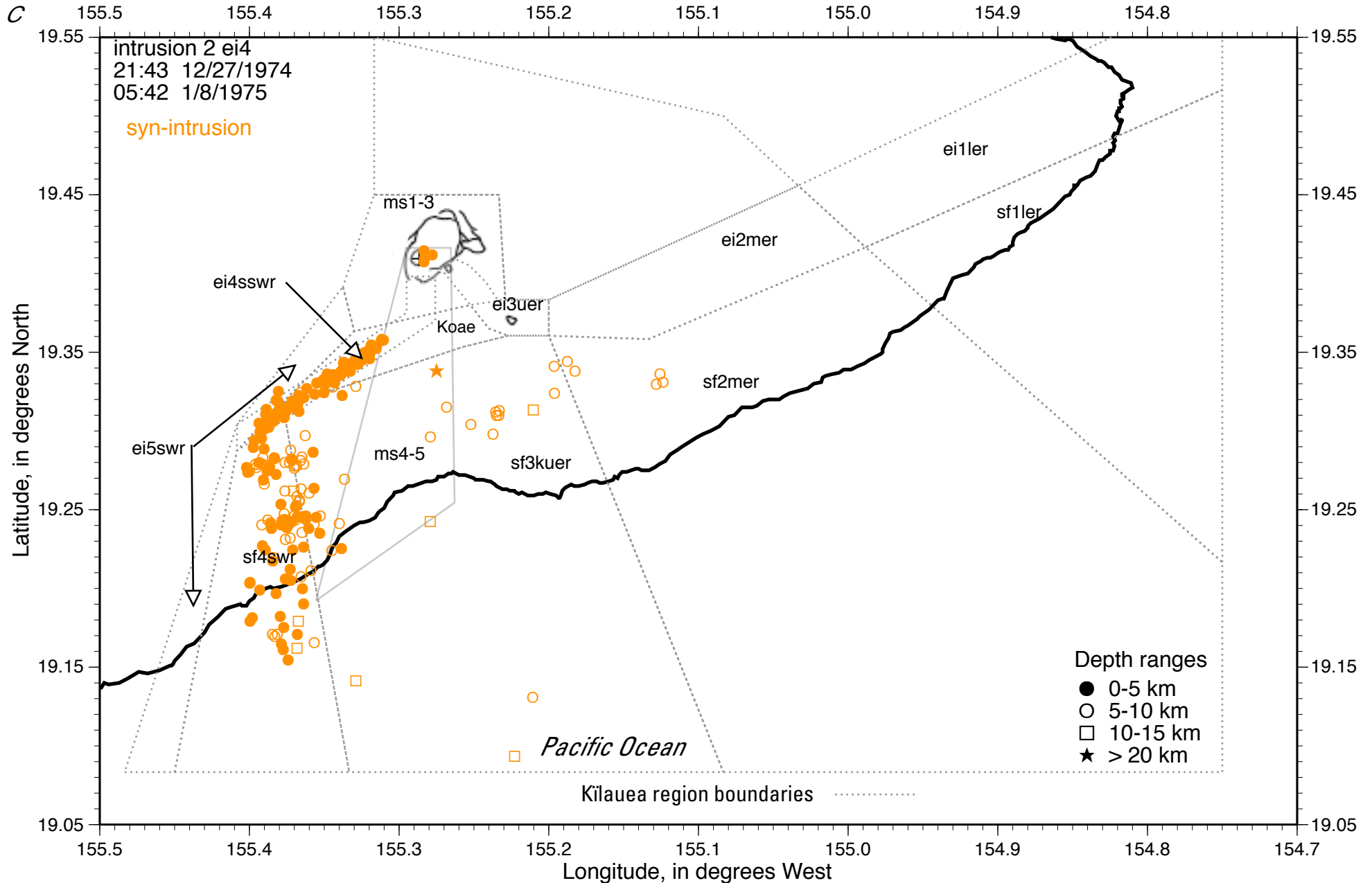
Appendix figure E80b

Post-Mauna Ulu major earthquake swarm/eruption by date: data from 1/2/1975



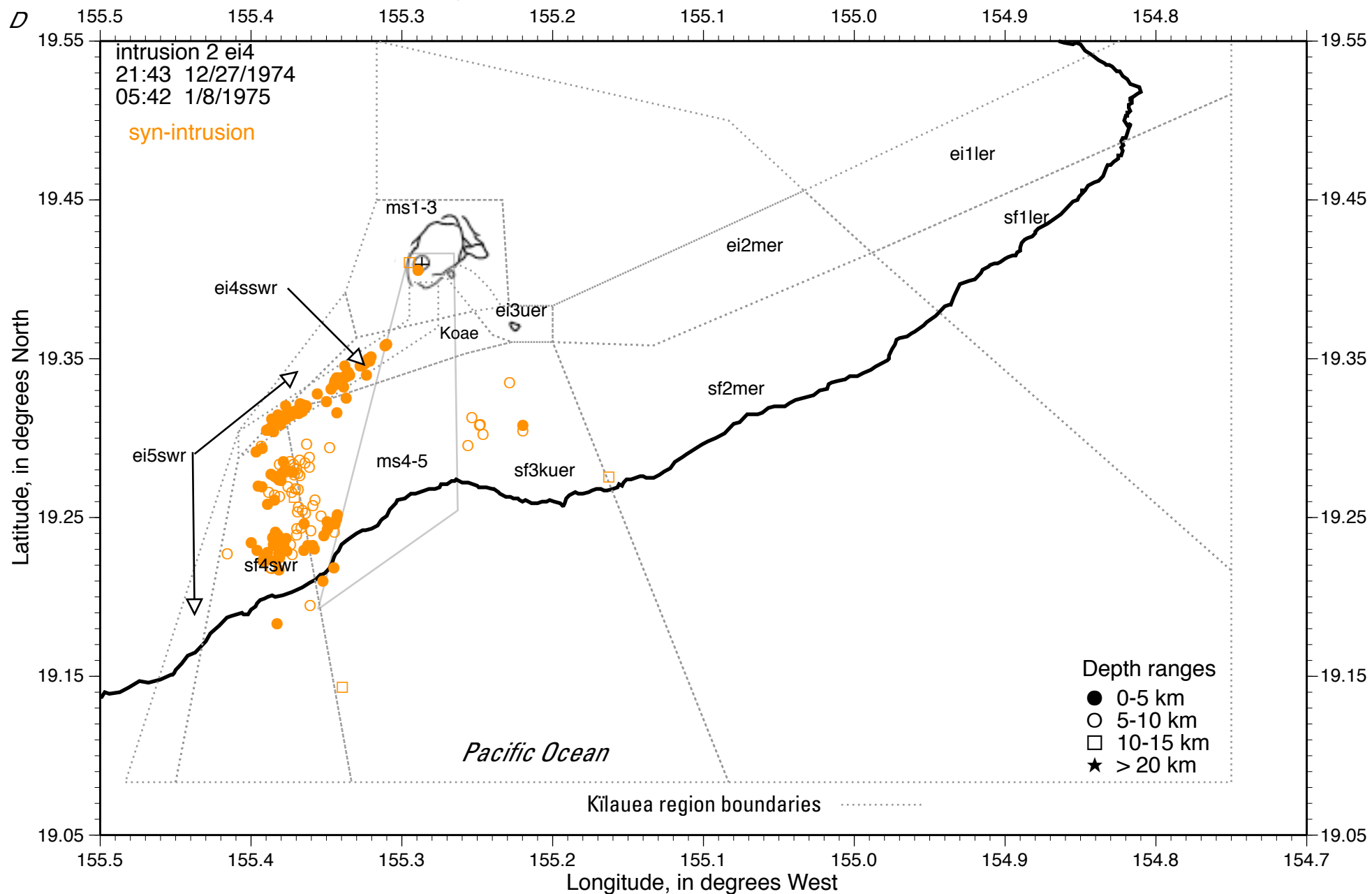
Appendix figure E80c

Post-Mauna Ulu major earthquake swarm/eruption by date: data from 1/3/1975



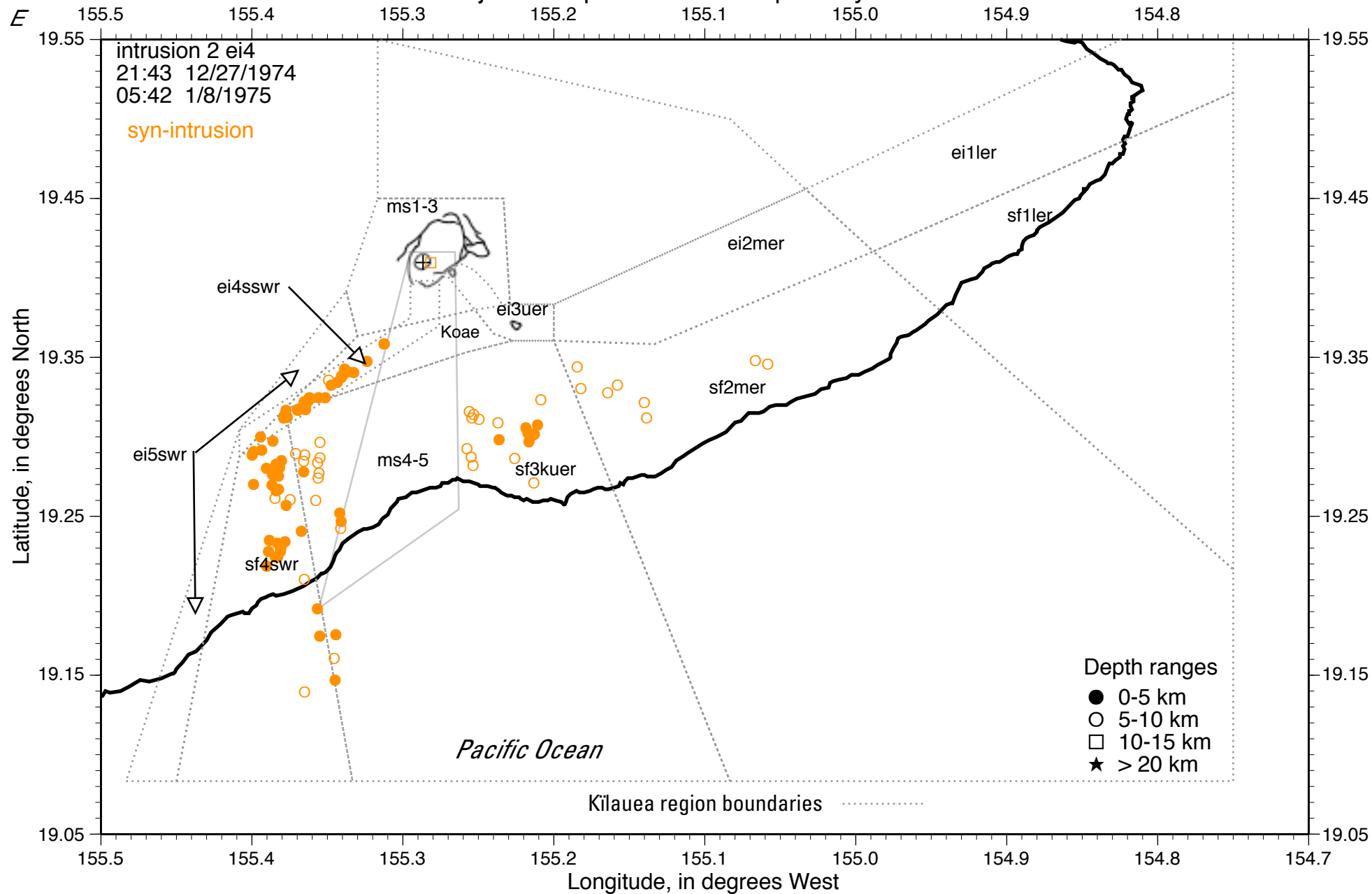
Appendix figure E80d

Post-Mauna Ulu major earthquake swarm/eruption by date: data from 1/4/1975



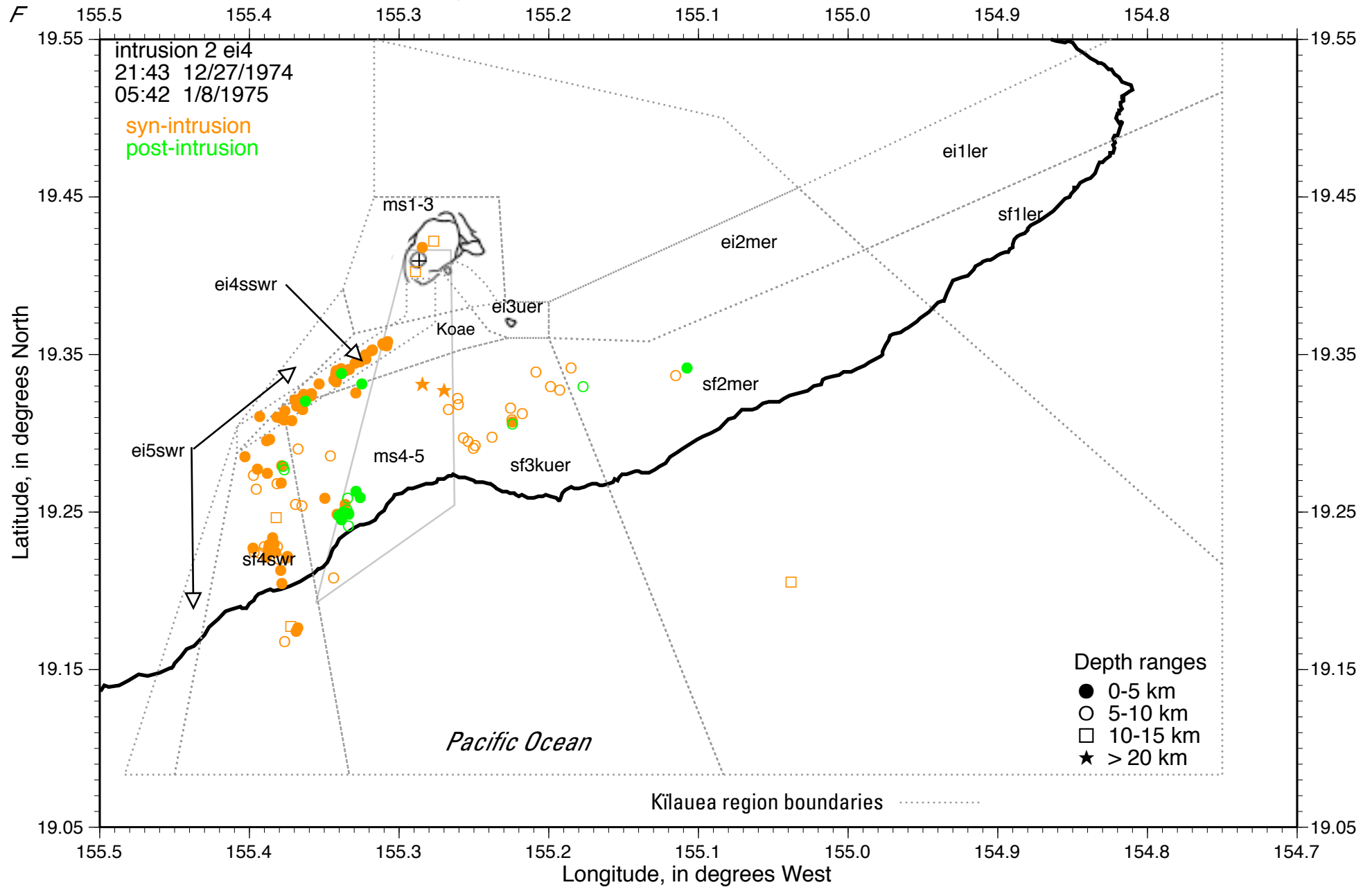
Appendix figure E80e

Post-Mauna Ulu major earthquake swarm/eruption by date: data from 1/5/1975

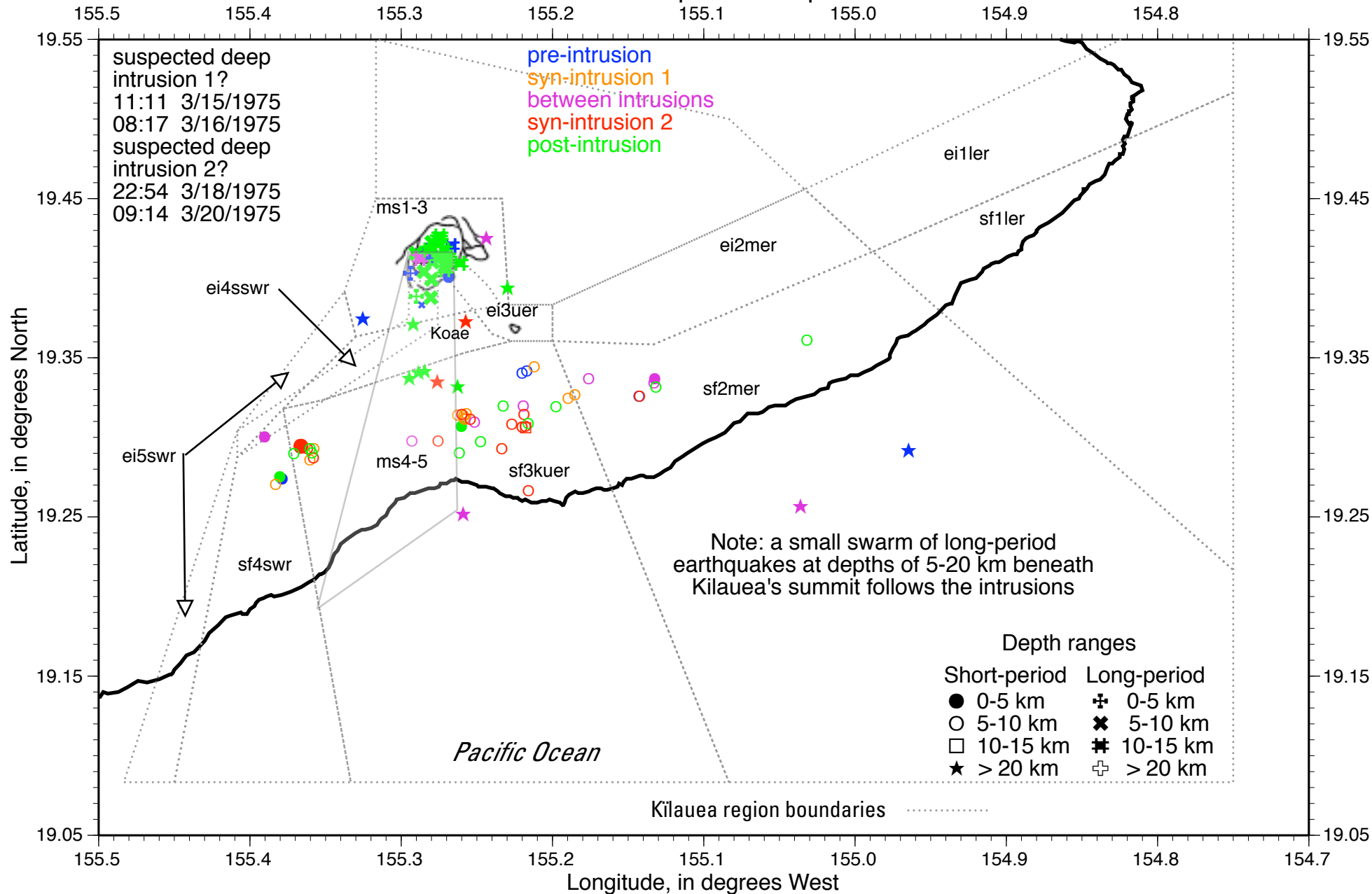


Appendix figure E80f

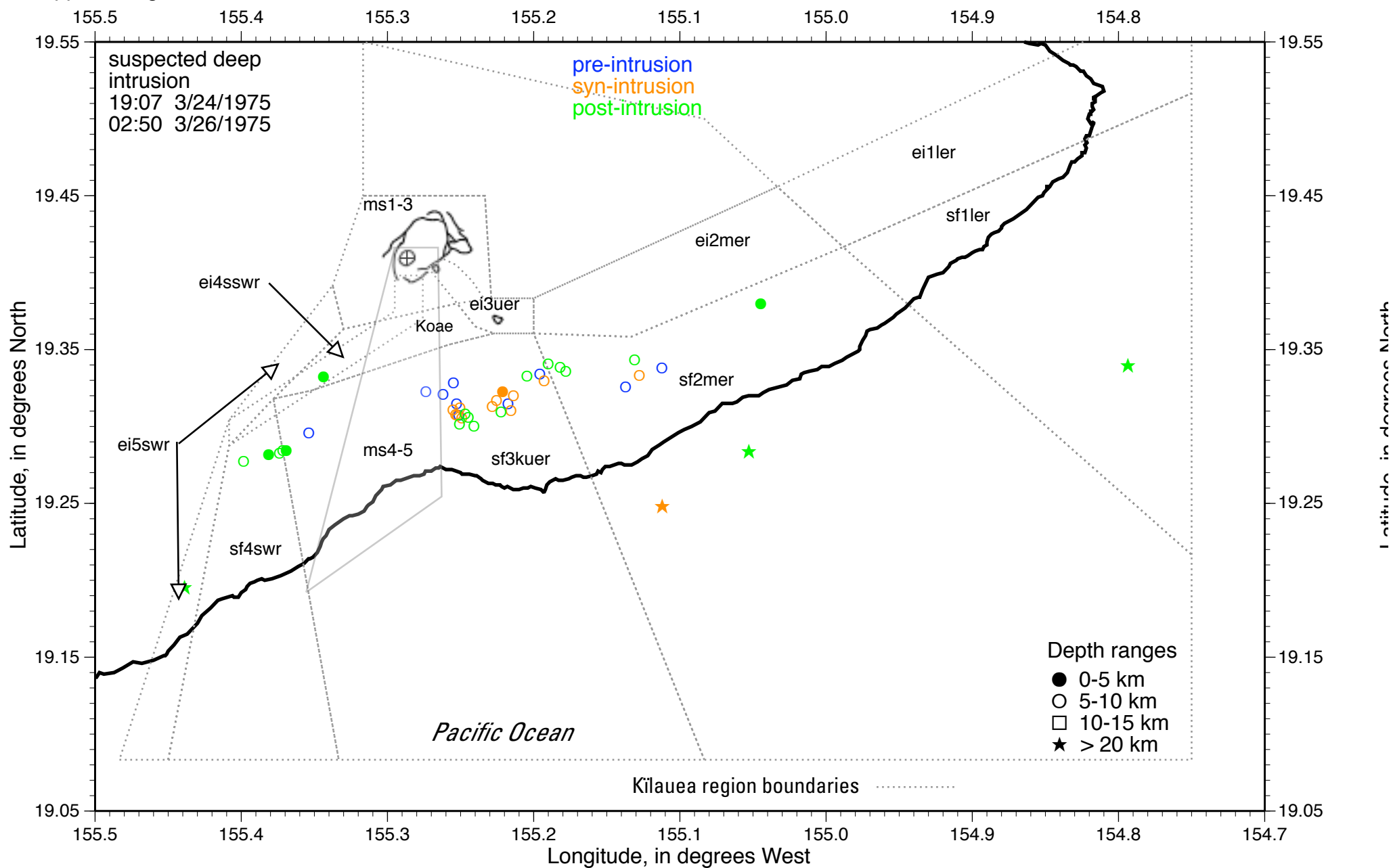
Post-Mauna Ulu major earthquake swarm/eruption by date: data from 1/6-8/1975



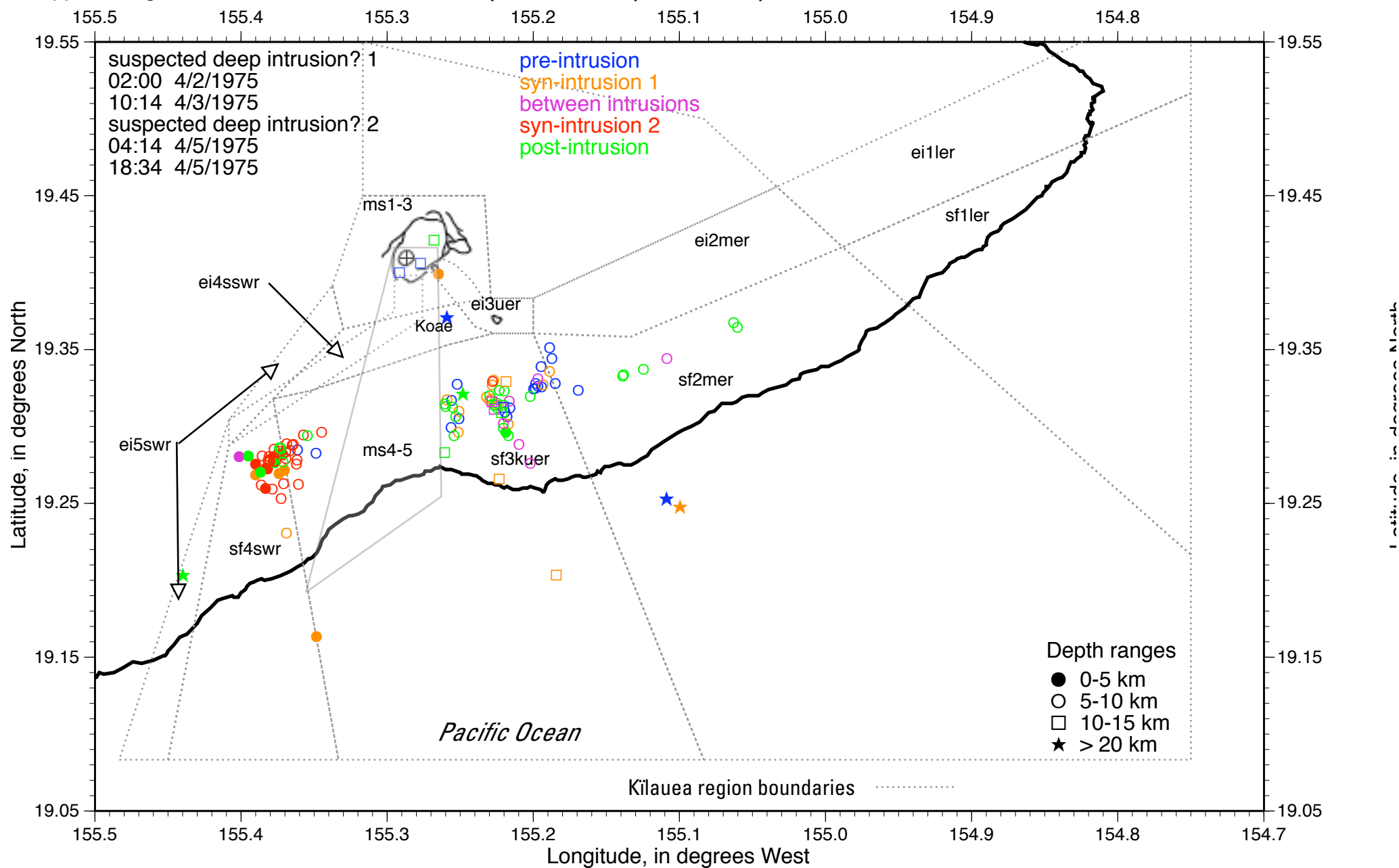
Appendix figure E81 Post-Mauna Ulu March 1975 suspected deep intrusions?: data from 3/15-22/1975



Appendix figure E82 Post-Mauna Ulu March 1975 suspected deep intrusions: data from 3/23-29/1975

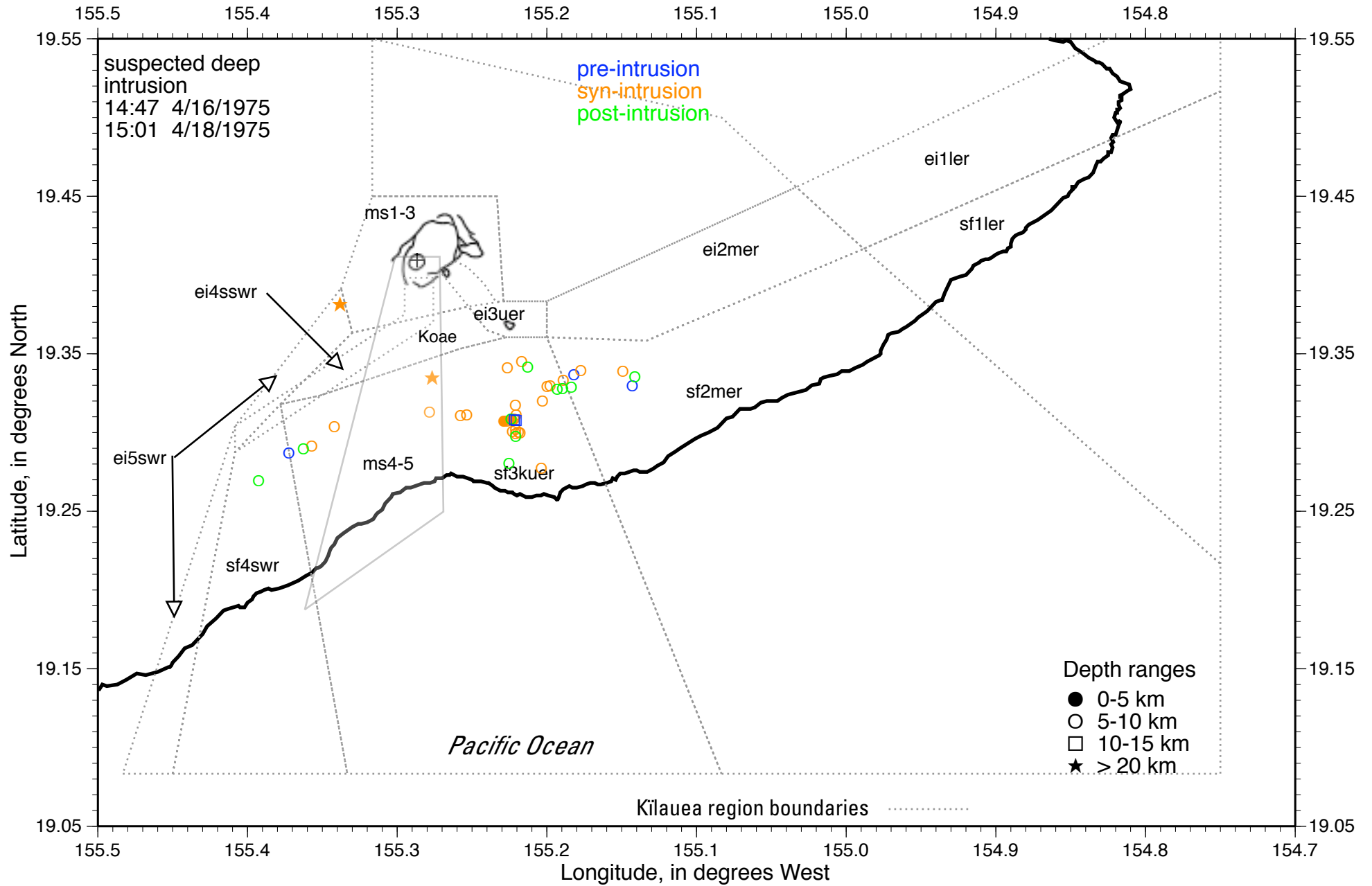


Appendix figure E83 Post-Mauna Ulu April 1975 suspected deep intrusions: data from 3/30-4/9/1975

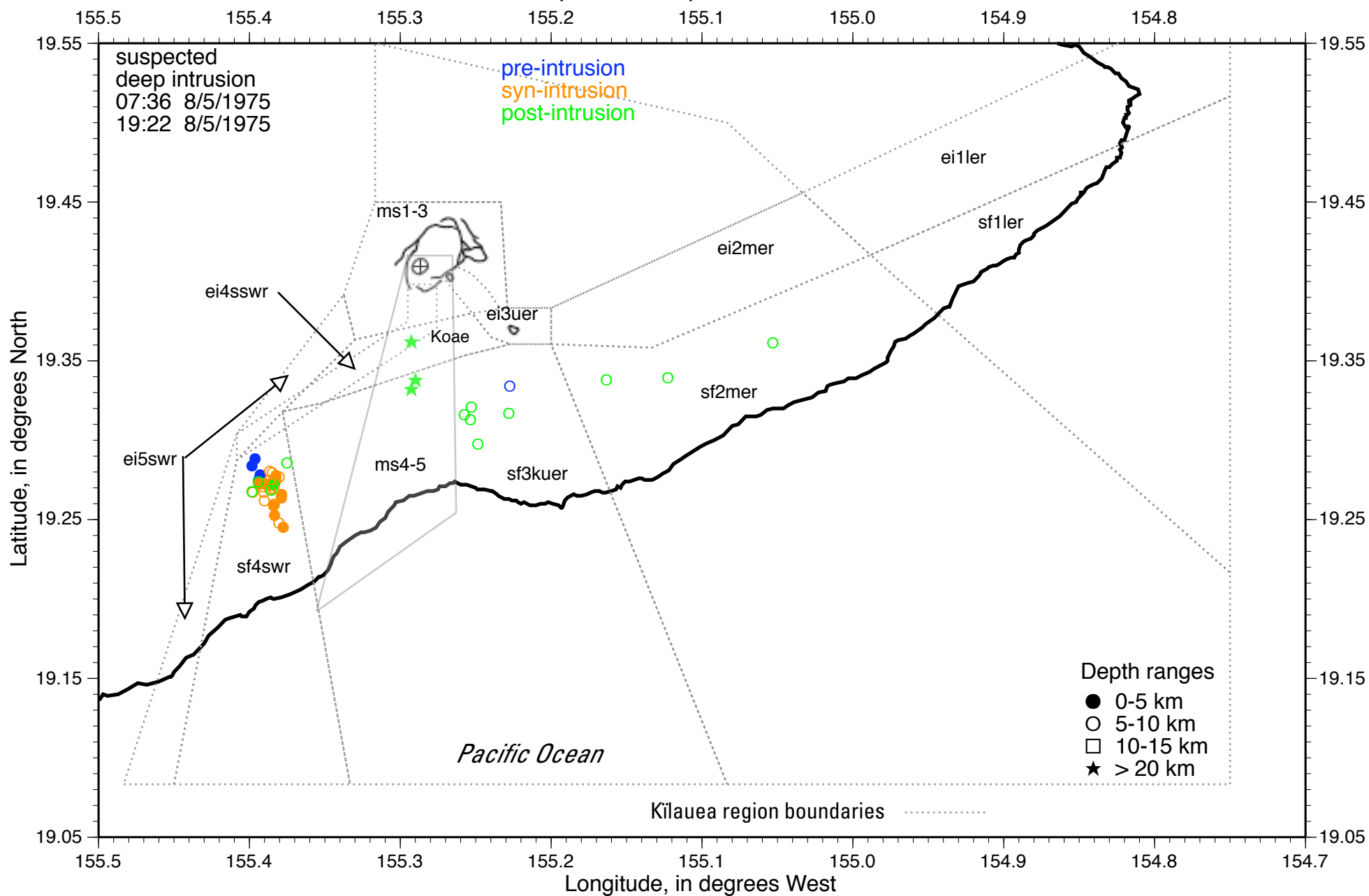


Appendix figure E84

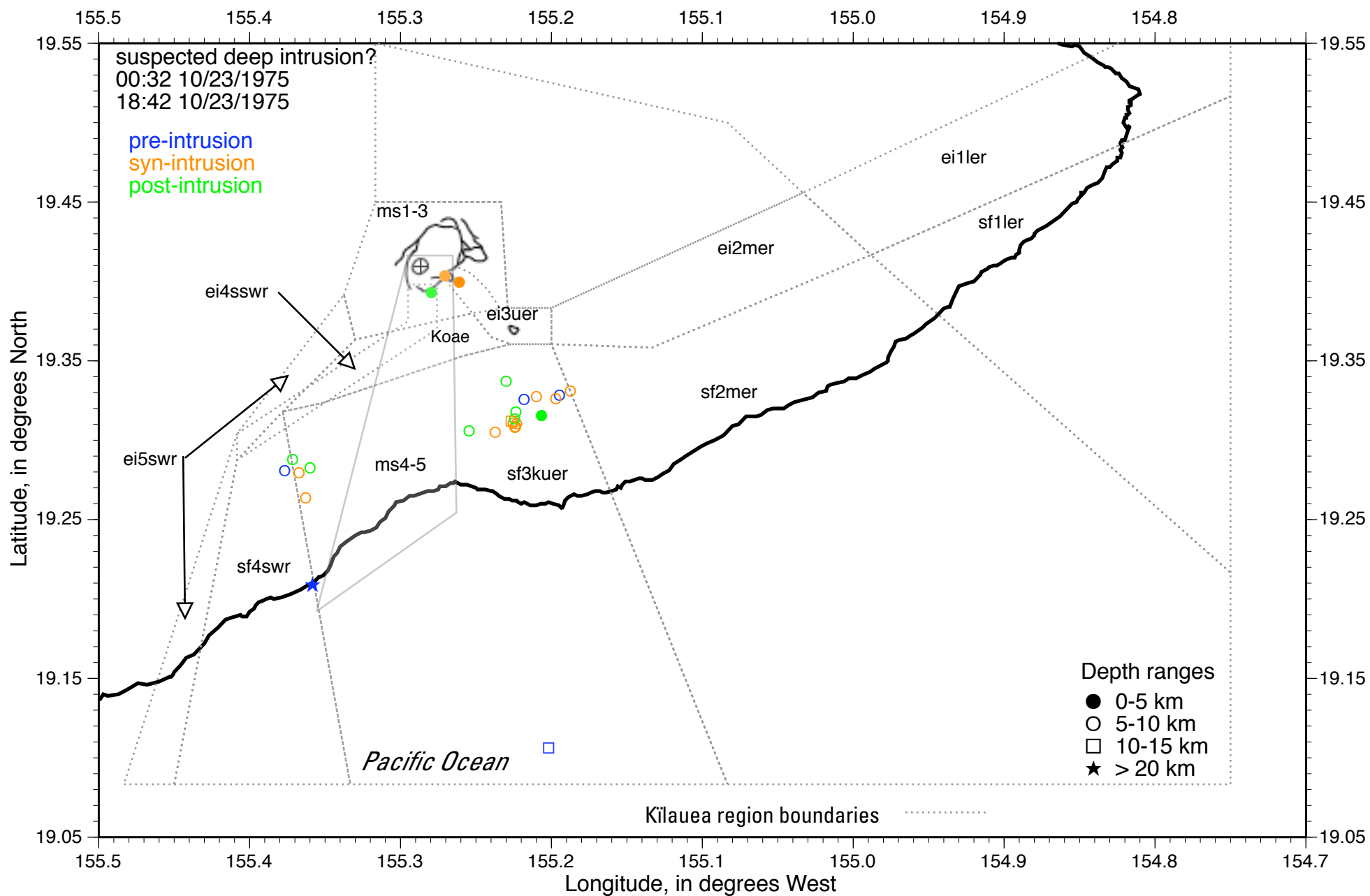
Post-Mauna Ulu April 1975 suspected deep intrusions: data from 4/15-20/1975



Appendix figure E85
 Post-Mauna Ulu suspected deep intrusion: data from 8/4-7/1975



Appendix figure E86 Post-Mauna Ulu suspected deep intrusion: data from 10/22-25/1975



Appendix figure E87

Post-Mauna Ulu inflationary intrusion: data from 11/11-18/1975

