Data Repository: Table DR1

Tectonic controls on the nature of large silicic calderas in volcanic arcs Hughes,G.R. and Mahood,G.A.

Table consists of three parts: A. Caldera attributes; B. Caldera references; and C. Arc attributes.

This database is still being added to and updated. If any information is missing or incorrect, please contact the authors.

A. Caldera attributes

Notes:

CFE Comp.: CFE composition code, 1-- Dacite; 2--Rhyodacite; 3--Rhyolite

Local Stress: 1--Extension; -1--Compression

Crustal Thick: Crustal thickness (km)

Conv. Rate: Trench-normal convergence rate from Lallemand et al. (2005) in mm/yr

Backarc Stress: Code from Lallemand et al. (2005),

3--High extension; 2--Moderate extension; 1--Minor extension; 0--Neutral or transform;

-1--Minor compression; -2--Moderate compression; -3--High compression

Obliquity: Angle between the azimuth of convergence and the trench-normal azimuth.

An angle of 0 is perfect trench-normal convergence. Angles from Cruciani et al. 2005, (N. Andes, from Ego et al. 1996)

Oldest Crust: 1--Oceanic; 2--Tertiary; 3--Mezozoic; 4-- Paleozoic; 5--Precambrian, where dates apply only to continental crust.

Note on Toba: Rhyolitic based on huge volumes compared to older dacite.

Note on Atuel: Composition unsure but purported to be similar to Diamante.

Caldera Name	Arc Name	Avg Diam.	Lat	Lon	CFE Comp.	Local Stress	Crust Thick.	Conv. Rate	Backarc Stress	Obliquity	Oldest Crust
Morne Trois Pitons	Lesser Antilles	10	15.37	-61.33	1	-1	30	11	1	24	2
Crater Lake	Cascades, U.S.	9	42.93	-122.12	2	1	40	24	0	28	4
Kulshan	Cascades, U.S.	6.3	48.83	-121.71	2	-1	40	37	0	5	4
Newberry	Cascades, U.S.	7	43.72	-121.23	2	1	37	24	0	28	4
Maninjau	Sumatra	14	-0.33	100.18	3	1	30	37	0	39	4

Caldera Name	Arc Name	Avg Diam.	Lat	Lon	CFE Comp.	Local Stress	Crust Thick.	Conv. Rate	Backarc Stress	Obliquity	Oldest Crust
Ranau	Sumatra	18	-4.83	103.92	3	1	30	50	0	21	4
Toba	Sumatra	68	2.58	98.83	3	1	30	41	0	33	4
Chacana	Andes- North	26.5	-0.27	-78.39	3	1	50	42	-3	13	4
Chalupas-Barrancas	Andes- North	14	-0.79	-78.32	3	1	50	42	-3	13	4
Higashi-aogashima	Izu-Bonin	7.5	32.45	139.92	2	1	23	55	2	26	1
Kurose Hole	Izu-Bonin	6	33.40	139.66	1	1	23	55	2	26	1
Myojin Knoll	Izu-Bonin	6.5	32.10	139.85	3	1	23	53	2	27	1
Myojin-sho	Izu-Bonin	8.5	31.95	140.01	1	1	23	53	2	27	1
Sumisu	Izu-Bonin	6	31.47	140.05	2	1	23	53	2	27	1
Azufres, Los	Mexican Volcanic Belt	19	19.78	-100.68	3	1	35	51	1	10	5
Humeros, Los	Mexican Volcanic Belt	18	19.68	-97.45	3	1	42	57.5	1	8	5
Primavera, La	Mexican Volcanic Belt	11	20.67	-103.50	3	1	26	40	1	8	3
Aniakchak	Alaskan Peninsula	9.5	56.90	-158.15	2	-1	33	58	0	2	3
Emmons Lake	Alaskan Peninsula	14.5	55.34	-162.08	3	-1	37	62	0	11	3
Fisher	Alaskan Peninsula	14.5	54.67	-164.39	1	-1	33	64	0	13	3
Kanaton	Aleutian	5.5	51.91	-177.14	1	-1	27	61	0	36	1
Semisopochnoi	Aleutian	8	51.94	179.61	1	-1	27	51	0	40	1
Denham	Kermadec	6	-29.27	-177.96	1	1	15	59	2	24	1
Macauley Island	Kermadec	12	-30.23	-178.43	2	1	15	55	2	24	1

Caldera Name	Arc Name	Avg Diam.	Lat	Lon	CFE Comp.	Local Stress	Crust Thick.	Conv. Rate	Backarc Stress	Obliquity	Oldest Crust
Batur	Java-Bali	12	-8.24	115.38	1	1	20	64	0	5	1
Bratan	Java-Bali	9	-8.28	115.13	1	1	20	64	0	5	1
Danau	Java-Bali	15	-6.30	106.00	2	1	20	53	0	8	2
Krakatau	Java-Bali	6	-6.10	105.42	1	1	20	53	0	8	2
Segara Anak	Java-Bali	7.25	-8.41	116.41	1	-1	20	66	0	17	1
Incapillo	Andes- Central	5	-27.90	-68.83	2	1	70	68	-3	26	5
Purico Complex	Andes- Central	15	-23.00	-67.75	3	1	70	71	-3	15	5
Robledo	Andes- Central	6	-26.76	-67.74	3	1	70	68	-3	26	5
Kuwae	Vanuatu	9	-16.83	168.54	1	-1	28	85	3	13	1
Atuel, Caldera del	Andes- South	37.5	-34.65	-70.05	3*	-1	54	66	-1	32	4
Calabozos	Andes- South	20	-35.56	-70.50	2	1	47	62	-1	32	4
Copahue-Caviahue	Andes- South	16	-37.84	-71.06	3	1	32	72	-1	27	4
Cordillera Nevada	Andes- South	9	-40.50	-72.22	1	1	32	75	-1	20	4
Diamante	Andes- South	15.5	-34.17	-69.78	3	-1	55	66	-1	32	4
Maule, Laguna del	Andes- South	20	-36.06	-70.51	2	1	32	62	-1	32	4
Pino Hachado	Andes- South	10	-38.67	-71.17	3	1	32	73.5	-1	21	4
Quetrupillan	Andes- South	8.5	-39.50	-71.70	1	1	32	75	-1	20	4

Caldera Name	Arc Name	Avg Diam.	Lat	Lon	CFE Comp.	Local Stress	Crust Thick.	Conv. Rate	Backarc Stress	Obliquity	Oldest Crust
Rio Colorado	Andes- South	9	-35.99	-70.85	3	1	37	62	-1	32	4
Apoyo	Central America-South	6.5	11.92	-86.03	1	1	33	78	0	3	1
Guachipelin	Central America-South	17.5	10.83	-85.33	3	1	37	81	0	9	1
Guayabo	Central America-South	17.5	10.75	-85.15	3	1	37	81	0	9	1
Pelona	Central America-South	6	12.68	-86.94	1	1	35	78	0	3	1
Akan	Kurile	19	43.38	144.01	1	1	28	77	-2	31	2
Chirpoi	Kurile	8.5	46.52	150.88	2	-1	17	77	-2	18	1
Golovnin	Kurile	7	43.87	145.50	2	-1	25	74	-2	31	1
Kutcharo (Mashu)	Kurile	23	43.55	144.43	1	1	28	77	-2	31	2
L'vinaya Past	Kurile	8	44.60	147.00	1	-1	20	76	-2	26	1
Medvezhii or Medvezhia	Kurile	16	45.38	148.80	1	-1	21	73.5	-2	26	1
Mendeleev	Kurile	6	43.98	145.74	1	-1	25	74	-2	31	1
Nemo Peak	Kurile	10	49.57	154.81	1	-1	25	77	-1	3	1
Tao-Rusyr	Kurile	8	49.36	154.71	1	-1	25	77	-1	3	1
Urbich	Kurile	6.5	44.63	147.20	1	-1	20	76	-2	26	1
Vetrovoi Isthmus	Kurile	6.5	45.19	148.22	1	-1	21	73.5	-2	26	1
Zavaritsky	Kurile	10	46.92	151.95	2	-1	17	77	-2	18	1
Aira	Northern Ryukyu	20	31.65	130.71	3	1	30	73	2	5	3
Aso	Northern Ryukyu	21	32.88	131.11	2	1	30	73	2	5	3

Caldera Name	Arc Name	Avg Diam.	Lat	Lon	CFE Comp.	Local Stress	Crust Thick.	Conv. Rate	Backarc Stress	Obliquity	Oldest Crust
Ata	Northern Ryukyu	20	31.35	130.68	3	1	30	73	2	5	3
Kakuto	Northern Ryukyu	12.5	32.03	130.82	3	1	30	73	2	5	3
Kikai	Northern Ryukyu	19	30.79	130.31	2	1	30	73	2	5	3
Amatitlan	Central America-North	15	14.45	-90.59	3	1	47	68	0	0	4
Atitlan	Central America-North	18.5	14.68	-91.19	3	1	47	68	0	0	4
Berlin	Central America-North	5.5	13.50	-88.52	1	1	35	75.5	0	2	4
Boqueron	Central America-North	5.25	13.73	-89.29	1	1	37	73	0	2	4
Carbonera Caldera, La	Central America-North	5	13.63	-88.93	1	1	36	73	0	2	4
Coatepeque	Central America-North	18.5	13.87	-89.55	2	-1	37	73	0	2	4
Ilopango	Central America-North	9.5	13.67	-89.05	2	1	36	73	0	2	4
Akaigawa	Northern Japan	6.5	43.08	140.82	3	-1	30	83.5	-2	31	3
Daisetsu	Northern Japan	25	43.68	142.88	2	1	40	83.5	-2	31	3
Hakkoda	Northern Japan	8	40.65	140.88	2	-1	30	90	-3	16	3
Hatori	Northern Japan	18	37.19	139.85	2	-1	30	86	-3	16	4
Mukaimachi	Northern Japan	15	38.74	140.52	1	-1	30	89	-3	10	3
Narugo	Northern Japan	6	38.73	140.73	1	-1	30	89	-3	10	3
Okiura	Northern Japan	11.5	40.58	140.77	2	-1	30	90	-3	16	3
Onikobe	Northern Japan	8	38.83	140.70	2	-1	30	89	-3	10	3
Shikotsu	Northern Japan	14	42.75	141.32	3	-1	30	83.5	-2	31	3

Caldera Name	Arc Name	Avg Diam.	Lat	Lon	CFE Comp.	Local Stress	Crust Thick.	Conv. Rate	Backarc Stress	Obliquity	Oldest Crust
Sunagohara	Northern Japan	8	37.47	139.58	3	-1	30	93	-3	11	4
Tokachi-Mitsumata	Northern Japan	13	43.52	143.15	3	1	34	83.5	-2	31	3
Towada	Northern Japan	11	40.47	140.88	2	-1	30	90	-3	16	3
Toya	Northern Japan	10	42.60	140.85	3	-1	30	83.5	-2	31	3
Gorely	Kamchatka	11.25	52.56	158.03	1	1	32	76	1	3	3
Krasheninnikov	Kamchatka	10	54.59	160.27	1	1	37	74	1	12	3
Ksudach Massif	Kamchatka	9	51.81	157.53	2	1	32	77	-1	3	3
Opala	Kamchatka	13	52.51	157.33	3	1	37	76	1	3	3
Pauzhetka- Kurile Lake	Kamchatka	22.5	51.43	156.93	3	1	30	77	-1	3	3
Polovinka/ Akademia-Nauk	Kamchatka	15	53.96	159.39	2	1	37	75	1	12	3
Stena-Soboliny / Maly Semiachik	Kamchatka	18	54.12	159.59	1	1	37	74.5	1	12	3
Uzon-Geyzernaya	Kamchatka	10.5	54.50	159.97	2	1	37	74.5	1	12	3

B. Caldera references

Notes:

Volcano number provided where possible.

References are shown as ID numbers that correspond to the indexed references in Data Repository item DR1.

Caldera Name	Volcano Number	Ref. 1	Ref. 2	Ref. 3	Ref. 4	Ref. 5	Ref. 6	Ref. 7	Ref. 8	Ref. 9	Ref. 10
Morne Trois Pitons	1600-10	136	190	196	8485	15561	17486	17486	25098	35902	41341
Crater Lake	1202-16	21	64	72	108	159	4538	8259	40901		
Kulshan	1201-01 (Baker)	21	72	98	278	8259	27359	33667	40901		
Newberry	1202-11	18	64	6681	6681	40901	44696				
Maninjau	0601-14	108	5590	19753	30958	35888	43294				
Ranau	0601-251	215	5590	19753	20063	30958	35888				
Toba	0601-09	108	136	5590	13887	19753	20204	30958	35888	94832	
Chacana	1502-022	108	5147	7055	11521	13997	22831	40151	48154	48650	
Chalupas-Barrancas	1502-05 (Cotopaxi)	5147	5913	7055	11521	13997	35902	40151	48154	64410	
Higashi-Aogashima	0804-06 (Aogashima)	4295	4308	11477	14974	27788	29220				
Kurose Hole	0804-042	52	1306	4295	4308	14974	27788	46307			
Myojin Knoll	0804-061	4295	4308	14974	29220	48347					
Myojin-sho	0804-07 (Bayonnaise)	1306	4295	4308	14974	27788	28565	29220			
Sumisu	0804-08 (Smith Rock)	4295	4308	11477	14974	27788	29220	46307			
Azufres, Los	140106=A	66	92	94	153	23418	27901	29553	46228		
Humeros, Los	1401-093	52	58	59	61	94	153	286	27901	46228	64915
Primavera, La	1401031E	12	53	60	69	70	94	153	9393	27901	46228
Aniakchak	1102-09	7	9	46	78	79	108	136	166	285	93468
Emmons Lake	1102-02	37	46	78	79	108	166	277	285	285	48205
Fisher	1101-35	4	9	46	78	79	108	166	285	285	12288

Caldera Name	Volcano Number	Ref. 1	Ref. 2	Ref. 3	Ref. 4	Ref. 5	Ref. 6	Ref. 7	Ref. 8	Ref. 9	Ref. 10
Kanaton	1101-11 (Kanaga)	46	78	108	136	285	41880				
Semisopochnoi	1101-06	46	46	78	108	285	41880				
Denham	0402-03 (Raoul Island)	17164	19488	34845	80822						
Macauley Island	0402-021	19488	34845	80822							
Batur	0604-01	4183	19753	35888	50459						
Bratan	0604-001	108	10863	19753	19888	35888					
Danau	0603-02 (Karang)	108	136	5590	10863	19753	35888				
Krakatau	0602-00	5590	19753	20063	29891	35888	58698				
Segara Anak	0604-03 (Rinjani)	108	19753	21395	35888						
Incapillo		141	198	3193	13779	46783	48154	53825			
Purico Complex	1505-094	108	141	198	5824	33696	46783	48154	53825		
Robledo	1505-21-	108	141	198	5824	22831	25720	46783	48154	53825	
Kuwae	0507-07	20	136	8200	38668	47270	49938	49938			
Atuel, Caldera del	1507-023	108	1894	10071	21022	23244	27962	38514			
Calabozos	1507-042	108	873	1894	10071	14249	21022	22380	27962	38514	50068
Copahue-Caviahue	1507-09	167	1894	3287	10071	18835	21022	25300	27962	29580	39348
Cordillera Nevada	1507-12 (Villarrica)	136	167	211	1894	5305	10071	15730	21022	27962	84647
Diamante	1507-021 (Maipo)	108	136	1894	10071	17273	21022	27962	38514		
Maule, Laguna del	1507-061	108	167	1618	1894	10071	14249	21022	23587	27962	46942
Pino Hachado		167	1894	10071	14470	18271	21022	27962	29580		
Quetrupillan	1507-121	108	167	1894	10071	21022	22518	27962	43956		
Rio Colorado	1507-062 (San Pedro-Pellado)	108	1894	7990	10071	14249	17278	21022	27962		

Caldera Name	Volcano Number	Ref. 1	Ref. 2	Ref. 3	Ref. 4	Ref. 5	Ref. 6	Ref. 7	Ref. 8	Ref. 9	Ref. 10
Apoyo	1404-101	108	136	186	186	196	25098	42728			
Guachipelin	1405-02 (Rincon de la Vieja)	184	186	196	212	5537	8869	25098	48209		
Guayabo	1405-03 (Miravalles)	184	186	196	5537	8869	25098	49119			
Pelona	1404-02 (San Cristòbal)	186	196	244	318	25098					
Akan	0805-07	108	279	16666	44037						
Chirpoi	0900-15	108	136	16666							
Golovnin	0900-01	108	211	12245	14029	16666	22533				
Kutcharo (Mashu)	0805-081	108	136	279	16666	27403	44037	44037			
L'vinaya Past	0900-041	136	242	14029	15437	16666	31852				
Medvezhii or Medvezhia	0900-10	108	136	7631	15437	16666					
Mendeleev	0900-02	108	14029	16666	22533	31852					
Nemo Peak	0900-32	108	136	16666							
Tao-Rusyr	0900-31	108	211	14029	16666						
Urbich		242	16666								
Vetrovoi Isthmus		242	15437	16666							
Zavaritsky	1000-124	108	136	14029	15437	16666					
Aira	0802-08 (Sakura-jima)	108	136	279	3117	3117	22652	34347			
Aso	0802-11	108	136	279	3117	3117	22652	34347			
Ata	0802-07	108	279	3117	22652	34347					
Kakuto	0802-09	108	211	279	3117	22652	34347				
Kikai	0802-06	108	279	3117	22652	34347					
Amatitlan	1402-11 (Pacaya)	135	136	186	196	267	5537	13923	25098	46265	

Caldera Name	Volcano Number	Ref. 1	Ref. 2	Ref. 3	Ref. 4	Ref. 5	Ref. 6	Ref. 7	Ref. 8	Ref. 9	Ref. 10
Atitlan	1402-06 (Atitlàn)	136	186	194	196	267	5537	7522	25098		
Berlin	1900-022	108	186	196	263	267	5537	25098			
Boqueron	1403-05 (San Salvador)	108	186	196	267	273	5537	23805	25098		
Carbonera Caldera, La	1403-07 (San Vicente)	186	186	196	267	5537	25098				
Coatepeque	1403-041	20	108	135	186	196	253	267	5537	13923	25098
Ilopango	1403-06	186	186	196	261	267	5537	13923	25098		
Akaigawa	08-05-04E	94	279	16666	22649	36805					
Daisetsu	0805-06	108	279	16666	23241						
Hakkoda	0803-28	279	11342	11342	16841	22760					
Hatori		279	3385	5184	15836	22470	22760				
Mukaimachi		279	11342	22760	27403	47529					
Narugo	0803-20	136	279	11342	22760	25981	43947				
Okiura		279	11342	22760							
Onikobe	080320=A	279	11342	22760	23524	46455					
Shikotsu	0805-04	136	279	5513	16666	22649	22649				
Sunagohara	0803-151 (Numazawa)	279	3385	19479	22760	27403	29626				
Tokachi-Mitsumata	0805-05	279	16666	23241	27403						
Towada	0803-271	108	279	11342	22760	24053	49716				
Toya	0805-03 (Usu)	94	108	279	16666	18242	22649	22649	25107		
Gorely	1000-07	108	234	238	242	324	11867	22218			
Krasheninnikov	1000-19	234	238	242	246	324	11867				
Ksudach Massif	1000-05	211	234	238	242	246	287	324			

Caldera Name	Volcano Number	Ref. 1	Ref. 2	Ref. 3	Ref. 4	Ref. 5	Ref. 6	Ref. 7	Ref. 8	Ref. 9	Ref. 10
Opala	1000-08	234	238	242	246	324	4725	11867			
Pauzhetka- Kurile Lake	1000-023	108	234	238	242	246	324	7496			
Polovinka/ Akademia-Nauk	1000-125	211	234	238	242	245	246	324			
Stena Soboliny / Maly Semiachik	1000-14	211	234	238	242	246	324	6095			
Uzon-Geyzernaya	1000-17	211	234	238	242	246	324	11867			

C. Arc Attributes

Notes:

Begin and End volcanoes mark the endpoints of the arc or arc segment.

Arc Length: Length of arc in km measured in Google Earth from beginning to end volcano.
Some arcs are arc segments, defined in literature by changes in tectonic properties.

Calderas: Number of calderas in arc. Nested calderas are counted only once.

Caldera Density: Number of calderas per 1000 km of arc (or arc segment)

Crustal Thick.: Crustal thickness in km, averaged over the arc

Conv. Rate: Trench-normal convergence rates averaged from Lallemand et al. (2005) in mm/yr

Arc Duration: The duration of arc in its present location (number without parentheses) in millions of years.
Dates in parantheses also important in arc history. Ex/ Western Cascade volcanism initiated at 35 Ma, but High Cascades volcanism, the location of the current arc, began around 7 Ma.

Duration Ref.: Reference identification number for duration of arc. References given in Data Repository item DR1

Arcs with numbers beginning with 0 do not contain calderas meeting our specifications

Arc Name	Arc #	Begin Volcano	End Volcano	Arc Length	Calderas	Caldera Density	Crustal Thick.	Conv. Rate	Arc Duration	Duration Source
Lesser Antilles	1	Saba	St. Catherine	700	1	1.4	30.0	10	~23 (13)	17486, 25098
Cascades	2	Meager	Lassen	1150	3	2.6	39.0	34	(35) 7	40901
Sumatra	3	Pulau Weh	Hulubelu	1700	3	1.8	30.0	34	65	35888
Northern Andes	4	Romeral	Sangay	900	2	2.2	50.0	45	(180) 25 (5)	5147
Izu-Bonin	5	Fuji	Nikko	1500	5	3.3	23.0	50	(43) 25	14974

Arc Name	Arc #	Begin Volcano	End Volcano	Arc Length	Calderas	Caldera Density	Crustal Thick.	Conv. Rate	Arc Duration	Duration Ref.
Mexico	6	Sangangue y	Los Atlixcos	1000	3	3.0	34.0	51	38 (15)	27901
Alaska Peninsula	7	Westdahl	Hayes	1120	3	2.7	35.0	50	42 (15)	285
Aleutians	8	Buldir	Akutan	1300	2	1.5	27.0	55	55 (6)	285
Kermadec	9	Monowai	Clark	1400	2	1.4	15.0	55	23 (2)	17164
Java-Bali	10	Rajabasa	Sangeang Api	1500	5	3.3	20.0	61	(42) 10	35888
Central Andes	11	Auquihuato	Incapillo	1600	3	1.9	70.0	67	(185) 26	25224, 48154
Vanuatu	12	Motlov	Hunter Island	1100	1	0.9	28.0	85	25 (7)	49938
Southern Andes	13	Tupungatito	Maca	1300	9	6.9	44.0	70	(165) (27) 15	10071, 48154
Southern Central America	14	San Cristobal	Irazu	500	4	8.0	35.0	81	(60 25) 12	51494
Kurile	15	Ebeko	Akan	1350	12	8.9	23.0	76	(100) ~25	16666
Northern Ryukyu	16	Tsurumi	Akuseki-jima	670	5	7.5	30.0	78	6	34347
Northern Central America	17	Tacana	Cosiguina	600	7	11.7	42.0	71	(60, 25) 12	51494

Arc Name	Arc #	Begin Volcano	End Volcano	Arc Length	Calderas	Caldera Density	Crustal Thick.	Conv. Rate	Arc Duration	Duration Source
Northeast Japan	18	Daisetsu	Tateshina	1000	13	13.0	35.0	90	(66) 13	22760
Kamchatka	19	Vysoky	Mashkovtsev	550	8	14.5	34.0	75	5	324
Tonga	O1	Curacoa	Unnamed	700	0	0.0	18	155	(23) 3	17164
Marianas	O2	Fukujin	Seamount X	1100	0	0.0	20.0	49	43 (4)	14974
South Sandwich	O3	Protector Shoal	Thule Islands	550	0	0.0	18.0	56	3	6926

Data Repository Item 1 (DR1)
Tectonic controls on the nature of large silicic calderas in volcanic arcs
Hughes,G.R. and Mahood,G.A.

LIST OF REFERENCES USED IN COMPILATION
Each reference has a unique ID number. These ID numbers are referred to in the accompanying data file

ID#	Reference
4	Bindeman, I. N., Fournelle, J. H. and, Valley, J. W., 2001, Low-delta O18 tephra from a compositionally zoned magma body; Fisher Caldera, Unimak Island, Aleutians: Journal of Volcanology and Geothermal Research, v. 111, p. 35-53.
7	Dreher, S. T., 2002, The physical volcanology and petrology of the 3400 YBP caldera-forming eruption of Aniakchak Volcano, Alaska [PhD Thesis]: University of Alaska Fairbanks, 179 p.
9	Hildreth, W. H., 1996, Kulshan Caldera: A Quaternary subglacial caldera in the North Cascades, Washington: Geological Society of America Bulletin, v. 108, p. 786-793.
12	Mahood, G. A., 1981, A summary of the geology and petrology of the Sierra la Primavera, Jalisco, Mexico; Granites and rhyolites: Journal of Geophysical Research, v. 86, p. 10137-10152.
18	Templeton, J. H., 2004, Petrologic analysis of the Tepee Draw Tuff, Newberry Volcano, Oregon; preliminary constraints on compositional zoning in the pre-eruptive magma chamber, in Geological Society of America, Rocky Mountain Section, 56th annual meeting, Boise, v. 36 p. 8.
20	Reinecker, J., Heidbach, O., Tingay, M., Connolly, P. and, Muller, B., 2004, World Stress Map, 2004 release: http://www-wsm.physik.uni-karlsruhe.de/, (June, 2007)
21	Orr, W. and, Orr, E., 1996, Geology of the Pacific Northwest, 2nd ed.: Boston, McGraw Hill, 337 p.
37	Mangan, M. T., Waythomas, C. F., Miller, T. P. and, Trusdell, F. A., 2003, Emmons Lake volcanic center, Alaska Peninsula; source of the late Wisconsin Dawson Tephra, Yukon Territory, Canada: Canadian Journal of Earth Sciences, v. 40, p. 925-936.
46	Holbrook, W. S., Lizarralde, D., McGeary, S., Bangs, N. and, Diebold, J., 1999, Structure and composition of the Aleutian island arc and implications for continental crustal growth: Geology, v. 27, p. 31-34.
52	Campos-Enriquez, J. O., Dominguez-Mendez, F., Lozada-Zumaeta, A., Morales-Rodriguez, H. F. and, Andaverde-Arredondo, J. A., 2005, Application of the Gauss theorem to the study of silicic calderas: The calderas of La Primavera, Los Azufres, and Los Humeros (Mexico): Journal of Volcanology and Geothermal Research, v. 147, p. 39-67.
53	Campos-Enriquez, J. O., Arroyo-Esquivel, M. A. and, Urrutia-Fucugauchi, J., 1990, Basement, Curie isotherm and shallow-crustal structure of the Trans-Mexican volcanic belt, from aeromagnetic data: Tectonophysics, v. 172, p. 77-90.
59	Ferriz, H. and, Mahood, G. A., 1987, Strong compositional zonation in a silicic magmatic system: Los Humeros, Mexican neovolcanic belt: Journal of Petrology, v. 28, p. 171-209.
60	Mahood, G. A., 1980, Geological evolution of a Pleistocene rhyolitic center; Sierra La Primavera, Jalisco, Mexico: Journal of Volcanology and Geothermal Research, v. 8, p. 199-230.

Ferrari, L. and, Rosas-Elguera, J., 2000, Late Miocene to Quaternary extension at the northern boundary of the Jalisco Block, western Mexico: The Tepic-Zacoalco Rift revised, *in* eds. Delgado-Granados, H., Aguirre-Diaz, G., Stock, J, eds.Cenozoic tectonics and volcanism of Mexico, Geological Society of America Special
70 Paper, v. 334, p. 41-63.

Mooney, W. D. and, Weaver, C. S., 1989, Regional crustal structure and tectonics of the Pacific coastal states; California, Oregon, and Washington, *in* Pakiser, L. and Mooney, W., eds., Geophysical framework of
72 the continental United States: Geological Society of America Memoir, v. 172, p. 129-161.

Fliedner, M. M. and, Klemperer, S. L., 2000, Crustal structure transition from oceanic arc to continental arc,
78 eastern Aleutian Islands and Alaska Peninsula: Earth and Planetary Science Letters, v. 179, p. 567-579.

Lizarralde, D., Holbrook, W. S., McGeary, S., Bangs, N. L. and, Diebold, J. B., 2002, Crustal construction of a volcanic arc, wide-angle seismic results from the western Alaska Peninsula: Journal of Geophysical
79 Research, B, v. 107, p. EPM 4-1 - 21.

Alatorre-Zamora, M. A. and, Campos-Enriquez, J. O., 1991, La Primavera Caldera (Mexico): Structure
81 inferred from gravity and hydrogeological considerations: Geophysics, v. 31, p. 992-1002.

Ferrari, L., Garduno M, V. H., Pasquare, G. and, Tibaldi, A., 1991, Geology of Los Azufres Caldera, Mexico, and its relationships with regional tectonics: Journal of Volcanology and Geothermal Research, v. 47, p. 129-
92 148.

Bassin, C., Laske, G. and, Masters, G., 2000, The current limits of resolution for surface wave tomography
94 in North America: EOS (Transactions, American Geophysical Union), v. 81, p. 897.

Hildreth, W., Lanphere, M. A. and, Fierstein, J., 2003, Geochronology and eruptive history of the Katmai
98 volcanic cluster, Alaska Peninsula: Earth and Planetary Science Letters, v. 214, p. 93-114.

Newhall, C. G. and, Dzurisin, D., 1988, Historical unrest at large calderas of the world, Volumes 1 and 2: US
108 Geological Survey Bulletin, v. 1855, p. 1108.

Rose, W. I., Conway, F. M., Pullinger, C. R., Deino, A. and, MacIntosh, W. C., 1999, An improved age framework for late Quaternary silicic eruptions in northern Central America: Bulletin of Volcanology, v. 61,
135 p. 106-120.

Siebert, L. and, Simkin, T., 2002, Volcanoes of the World: an Illustrated Catalog of Holocene Volcanoes and their Eruptions: Smithsonian Institution,Global Volcanism Program Digital Information Series, GVP-3,
136 http://www.volcano.si.edu/world/, (August 2005- January 2008)
Siebel, W., Schnurr, W. B. W., Hahne, K., Kraemer, B., Trumbull, R. B., van den Bogaard, P. and, Emmermann, R., 2001, Geochemistry and isotope systematics of small- to medium-volume Neogene-Quaternary ignimbrites in the southern Central Andes: Evidence for derivation from andesitic magma
141 sources: Chemical Geology, v. 171, p. 213-237.

Silberling, N. J., Jones, D. L., Monger, J. W. H. and, Coney, P. J., 1992, Lithotectonic terrane map of the
153 North American Cordillera: U. S. Geological Survey, Report 1-2176, 1:5,000,000, 2 sheets.

Druitt, T. H., Bacon, C. R. and, Brown, P. E., 1988, Compositional zonation and cumulus processes in the Mount Mazama magma chamber, Crater Lake, Oregon: Transactions of the Royal Society of Edinburgh,
159 Earth Sciences, v. 79, p. 289-297.

Beck, S. L. and, Zandt, G., 2002, The nature of orogenic crust in the Central Andes: Journal of Geophysical
166 Research, v. 107, p. 2230-2247.

Bohm, M., Lueth, S., Echtler, H., Asch, G., Bataille, K., Bruhn, C., Rietbrock, A. and, Wigger, P., 2002, The Southern Andes between 36 and 40 S latitude: Seismicity and average seismic velocities: Tectonophysics

Newhall, C. G., 1987, Geology of the Lake Atitlan region, western Guatemala: Journal of Volcanology and
194 Geothermal Research, v. 33, p. 23-55.

Pindell, J. L., Barrett, S. F., Dengo, G.and, Case, J. E. 1990, Geological evolution of the Caribbean region: a plate tectonic perspective, *in* Dengo, G. and Case, J.E. eds., The Caribbean region: The Geology of North
196 America, Boulder, Colorado: Geological Society of America, p. 405-432.

Ramos, V. A.and, Aleman, A. M. 2000, Tectonic evolution of the Andes *in* Cordani, U. G., Milani, E. J.and, Thomaz Filho, A., eds. Tectonic evolution of South America: Proceedings, 31st International Geological
198 Congress, Rio de Janeiro, p. 635-685.

Mason, B., Lipman, P., Self, S., Ponomareva, V., Smellie, J., Permenter, J., Fridrich, C., Allen, S., Isaia, R.,
211 Wu, J. and, Pyle, D., 2005, Volcanic eruption database (October 2005, December 2006, December 2007)

Kempter, K. A., Benner, S. G. and, Williams, S. N., 1996, Rincon de la Vieja Volcano, Guanacaste Province, Costa Rica: Geology of the southwestern flank and hazards implications: Journal of Volcanology and
212 Geothermal Research, v. 71, p. 109-127.

Bellier, O., Bellon, H., Sebrier, M., Sutanto and, Maury, R. C., 1999, K-Ar age of the Ranau tuffs: implications for the Ranau Caldera emplacement and slip-partitioning in Sumatra (Indonesia):
215 Tectonophysics, v. 312, p. 347-359.

Bogoyavlenskaya, G. E., 1973, Melted xenoliths of intrusive rocks in the pyroclastic deposits of the Uzon
234 and Semyatchinskaya ring structures (Kamchatka): Bulletin Volcanologique, v. 36, p. 443-445.

Bindeman, I. N., Vinogradov, V. I., Valley, J. W., Wooden, J. L. and, Natal'in, B. A., 2002, Archean protolith and accretion of crust in Kamchatka; SHRIMP dating of zircons from Sredinny and Ganal massifs: Journal of
238 Geology, v. 110, p. 271-289.

Erlich, E. N., 1986, Geology of the calderas of Kamchatka and Kurile Islands with comparison to calderas of
242 Japan and the Aleutians, Alaska: US Geological Survey Open File Report 86-0291, 300 p.

Hazlett, R. W., 1987, Geology of the San Cristobal volcanic complex, Nicaragua: Journal of Volcanology and
244 Geothermal Research, v. 33, p. 223-230.

Izbekov, P., Gardner, J. E. and, Eichelberger, J. C., 2004, Comagmatic granophyre and dacite from Karymsky volcanic center, Kamchatka; experimental constraints for magma storage conditions: Journal of
245 Volcanology and Geothermal Research, v. 131, p. 1-18.

Levin, V., Park, J., Brandon, M., Lees, J. M., Peyton, V., Gordeev, E. and, Ozerov, A., 2002, Crust and upper mantle of Kamchatka from teleseismic receiver functions; Structure of the continental lithosphere and upper
246 mantle: Tectonophysics, v. 358, p. 233-265.

Mann, C. P., Stix, J., Vallance, J. W.and, Richer, M. 2004, Subaqueous intracaldera volcanism, Ilopango Caldera, El Salvador, Central America, *in* Rose, W. I., Bommer, J. J., Lopez, D. L., Carr, M. J.and, Major, J.
261 J., eds. Natural Hazards in El Salvador, Geological Society of America Special Paper 375, p. 159-174.

Parini, M., Pisani, P. and, Monterrosa, M., 1995, Resource Assessment at the Berlin Geothermal Field (El Salvador), *in* Proceedings of the World Geothermal Congress, v. 3, Florence: International Geothermal
263 Association, p. 1537-1548.

Rotolo, S. G. and, Castorina, F., 1998, Transition from mildly-tholeiitic to calc-alkaline suite: the case of Chichontepec volcanic centre, El Salvador, Central America: Journal of Volcanology and Geothermal
267 Research, v. 86, p. 117-136.

Sofield, D. 2004, Eruptive history and volcanic hazards of Volcan San Salvador, *in* Rose, W. I., Bommer, J.

Verma, S. P., 2000, Geochemical evidence for a lithospheric source for magmas from Los Humeros Caldera,
286 Puebla, Mexico: Chemical Geology, v. 164, p. 35-60.

Volynets, O. N., Ponomareva, V. V., Braitseva, O. A., Melekestsev, I. V. and, Chen, C. H., 1999, Holocene
eruptive history of Ksudach volcanic massif, South Kamchatka; evolution of a large magmatic chamber:
287 Journal of Volcanology and Geothermal Research, v. 91, p. 23-42.

Kerle, N., 2001, The 1998 debris avalanche at Casita volcano, Nicaragua-investigation of structural
deformation as the cause of slope instability using remote sensing: Journal of Volcanology and Geothermal
318 Research, v. 105, p. 49-63.

Konstantinovskaia, E. A., 2000, Geodynamics of an Early Eocene arc-continent collision reconstructed from
324 the Kamchatka Orogenic Belt, NE Russia: Tectonophysics, v. 325, p. 87-105.

DeMoor, M., Varekamp, J., Goss, A., Merrill, M., Colvin, A. and, Vroon, P., 2004, Abstracts with Programs-
873 Geological Society of America, v. 36, p. 69.

Tamura, Y. and, Tatsumi, Y., 2002, Remelting of an Andesitic crust as a possible origin for rhyolitic magma
1306 in oceanic arcs: an example from the Izu-Bonin Arc: Journal of Petrology, v. 43, p. 1029-1047.

Hildreth, W., Drake, R. E., Godoy, E. and, Munizaga, F., 1991, Bobadilla caldera and 1.1 Ma ignimbrite at
1618 Laguna del Maule, Central Chile: Congreso Geologico Chileno, v. 6, p. 62-63.

Kay, S. M., 2005, Tertiary to recent evolution of Andean arc and backarc magmas between 36 S and 38 S
and evidence for Miocene shallowing of the Nazca plate under the Neuquèn basin, *in* 6th International
1894 Symposium on Andean Geodynamics, Barcelona, p. 420-423.

Fauzi, M. C. R., McCaffrey, R., Wark, D. and, Sunaryo, D., 1996, Lateral variation in slab orientation
2204 beneath Toba Caldera, northern Sumatra: Geophysical Research Letters, v. 23, p. 443-446.

Shinjo, R., Woodhead, J. D. and, Hergt, J. M., 2000, Geochemical variation within the northern Ryukyu Arc:
magma source compositions and geodynamic implications: Contributions to Mineralogy and Petrology, v.
3117 140, p. 263-282.

Goss, A. R., Kay, S. M., Depine, G. and, Mpodozis, C., 2006, The Incapillo Caldera: A stranded magma
chamber over a dying Andean arc: EOS (Transactions, American Geophysical Union), v. 87 Fall Meet.
3193 Suppl., Abstract V11A-0557,
Varekamp, J. C., deMoor, J. M., Merrill, M. D., Colvin, A. S., Goss, A. R., Vroon, P. Z. and, Hilton, D. R.,
2006, Geochemistry and isotopic characteristics of the Caviahue-Copahue volcanic complex, Province of
Neuquen, Argentina: Evolution of an Andean Margin, Geological Society of America Special Paper, v. 407, p.
3287 317-342.

Kimura, J. I. and, Yoshida, T., 1999, Mantle diapir-induced arc volcanism: The Ueno Basalts, Nomugi-Toge
3385 and Hida volcanic suites, central Japan: The Island Arc, v. 8, p. 304-322.

Kamata, H. and, Kodama, K., 1994, Tectonics of an arc-arc junction: an example from Kyushu Island at the
34347 junction of the Southwest Japan arc and the Ryukyu arc: Tectonophysics, v. 233, p. 69-81.

Reubi, O. and, Nicholls, I. A., 2004, Variability in eruptive dynamics associated with caldera collapse: an
example from two successive eruptions at Batur volcanic field, Bali, Indonesia: Bulletin of Volcanology, v.
4183 66, p. 134-148.

Takahashi, N., Ueshiro, K. S. and, Hirahara, M. S., 1998, Implications from the seismic crustal structure of

Aleman, A.and, Ramos, V. A. 2000, Northern Andes *in* Cordani, U. G., Milani, E. J., Thomaz Filho, A.and, Campos, D. A., eds. Tectonic evolution of South America: Proceedings of the 31st International Geological
5147 Congress, Rio de Janeiro, p. 453-480.

Yoshida, H. and, Takahashi, M., 1991, Geology of the eastern part of the Shirakawa pyroclastic flow field:
5184 Journal of the Geological Society of Japan, v. 97, p. 231-249.

Sepulveda, F., Lahsen, A., Bonvalot, S., Cembrano, J., Alvarado, A. and, Leteller, P., 2005, Morpho-structural evolution of the Cord√≥n Caulle geothermal region, Southern Volcanic Zone, Chile: Insights from
5305 gravity and 40Ar / 39Ar dating: Journal of Volcanology and Geothermal Research, v. 148, p. 165-189.

Yamagata, K., 1991, Formation of lithic breccia and vent evolution during the 32 KA. Eruption of Shikotsu
5513 caldera, Japan: Geographical Reports of Tokyo Metropolitan University, v. 26, p. 227-240.

Vogel, T. A., Patino, L. C., Alvarado, G. E. and, Gans, P. B., 2004, Silicic ignimbrites within the Costa Rican volcanic front; evidence for the formation of continental crust: Earth and Planetary Science Letters, v. 226,
5537 p. 149-159.

Katili, J. A., 1975, Volcanism and plate tectonics in the Indonesian island arcs: Tectonophysics, v. 26, p.
5590 165-188.

Riller, U., Petrinovic, I., Ramelow, J., Strecker, M. R. and, Oncken, O., 2001, Late Cenozoic tectonism, collapse caldera and plateau formation in the Central Andes: Earth and Planetary Science Letters, v. 188, p.
5824 299-311.

Barberi, F., Coltelli, M., Ferrara, G., Innocenti, F., Navarro, J. M. and, Santacroce, R., 1988, Plio-Quaternary
5913 volcanism in Ecuador: Geological Magazine, v. 125, p. 1-14.

Bindeman, I. N., Ponomareva, V. V., Bailey, J. C. and, Valley, J. W., 2004, Volcanic arc of Kamchatka: a province with high-18 O wagma sources and large-scale 18 O/16 O depletion of the upper crust:
6095 Geochimica Cosmochimica Acta, v. 68, p. 841-865.

Catchings, R. D. and, Mooney, W. D., 1988, Crustal structure of east central Oregon: Relation between
6681 Newberry Volcano and regional crustal structure: Journal of Geophysical Research, v. 93, p. 10081-10094.

Hall, M. L. and, Wood, C. A., 1985, Volcano-tectonic segmentation of the Northern Andes: Geology, v. 13,
7055 p. 203-207.
Ponomareva, V. V., Kyle, P. R., Melekestsev, I. V., Rinkleff, P. G., Dirksen, O. V., Sulerzhitsky, L. D., Zaretskaia, N. E. and, Rourke, R., 2004, The 7600 (14 C) year BP Kurile Lake caldera-forming eruption, Kamchatka, Russia: stratigraphy and field relationships: Journal of Volcanology and Geothermal Research,
7496 v. 136, p. 199-222.

Newhall, C. G., Paull, C. K., Bradbury, J. P., Higuera-Gundy, A., Poppe, L. J., Self, S., Sharpless, N. B. and, Ziagos, J., 1987, Recent geologic history of lake Atitlan, a caldera lake in western Guatemala: Journal of
7522 Volcanology and Geothermal Research, v. 33, p. 81-107.

Yermakov, V. A. and, Shteynberg, G. S., 1999, Kudryavyy Volcano and evolution of Medvezhiya Caldera:
7631 Iturup Island, Kuril islands: Vulkanologiya i Seysmologiya, v. 1999, p. 19-40.

Ferguson, K. M., Dungan, M. A., Davidson, J. P. and, Colucci, M. T., 1992, The Tatara-San Pedro Volcano, 36 degrees S, Chile: A chemically variable, dominantly mafic magmatic system: Journal of Petrology, v. 33,
7990 p. 1-43.

Robin, C., Monzier, M. and, Eissen, J. P., 1994, Formation of the mid-fifteenth century Kuwae caldera (Vanuatu) by an initial hydroclastic and subsequent ignimbritic eruptions: Bulletin of Volcanology, v. 56, p.

9393 Mahood, G. A. and, Halliday, A. N., 1988, Generation of high-silica rhyolite: A Nd, Sr, and O isotopic study of Sierra La Primavera, Mexican Neovolcanic Belt: Contributions to Mineralogy and Petrology, v. 100, p. 183-191.

10071 Kay, S. M., Godoy, E. and, Kurtz, A., 2005, Episodic arc migration, crustal thickening, subduction erosion, and magmatism in the south-central Andes: Bulletin of the Geological Society of America, v. 117, p. 67-88.

10863 Department of Energy and Mineral Resources, Republic of Indonesia, 2003, Atlas, Geology and Potency of Mineral and Energy Resources, Indonesian Region, scale 1:10,000,000: Bandung, Indonesia, Pusat Penelitian dan Pengembangan Geologi, 39 p.

11342 Kudo, T., Sasaki, M., Uchiyama, Y., Nozawa, A., Sasaki, H., Tokizawa, T. and, Takarada, S., 2007, Petrological variation of large-volume felsic magmas from Hakkoda-Towada caldera cluster: Implications for the origin of high-K felsic magmas in the Northeast Japan Arc: The Island Arc, v. 16, p. 133-155.

11477 Takada, A., Nasution, A. and, Mulyana, R., 2003, Eruptive history during the last 10 ky for the caldera-forming eruption of Rinjani volcano, Indonesia, in Japan Earth and Planetary Science Joint Meeting, Chiba: p. Abstract V055-001.

11521 Samaniego, P., Martin, H., Monzier, M., Robin, C., Fornari, M., Eissen, J.-P. and, Cotten, J., 2005, Temporal evolution of magmatism in the northern volcanic zone of the Andes: the geology and petrology of Cayambe volcanic complex (Ecuador): Journal of Petrology, v. 46, p. 2225-2252.

11867 Melekestsev, I. V., Ponomareva, V. V. and, Volynets, O. N., 1995, Kizimen Volcano, Kamchatka--A future Mount St. Helens?: Journal of Volcanology and Geothermal Research, v. 65, p. 205-226.

12245 Braitseva, O. A. and, Melekestsev, I. V., 1991, Eruptive history of Karymsky volcano, Kamchatka, USSR, based on tephra stratigraphy and 14 C dating: Bulletin of Volcanology, v. 53, p. 195-206.

12288 Stelling, P., Gardner, J. E. and, Beg√®t, J., 2005, Eruptive history of Fisher Caldera, Alaska, USA: Journal of Volcanology and Geothermal Research, v. 139(3-4), p. 163-183.

13779 Goss, A. R., 2007, Personal communication: Stress regime around Incapillo: Supposedly extensional but unsure.

13887 Nishimura, S., Harjono, H. and, Suparka, S., 1992, The Krakatau islands: The geotectonic setting: GeoJournal, v. 28, p. 87-98.

13923 Rose, W. I., Newhall, C. G., Bornhorst, T. J. and, Self, S., 1987, Quaternary silicic pyroclastic deposits of Atitlan caldera, Guatemala: Journal of Volcanology and Geothermal Research, v. 33, p. 57-80.

13997 Ego, F., Sobrier, M., Lavenu, A., Yepes, H. and, Egues, A., 1996, Quaternary state of stress in the Northern Andes and the restraining bend model for the Ecuadorian Andes: Tectonophysics, v. 259, p. 101-116.

14029 Gorshkov, G. S., 1970, Volcanism and the upper mantle: investigations in the Kurile Island Arc: New York, Plenum Press, 385 p.

14249 Folguera, A., Ramos, V. A., Zapata, T., Spagnuolo, M. and, Miranda, F., 2005, Pliocene to Quaternary retro-arc extension in the Andes at 35-37o 30' S, in 6th International Symposium on Andean Geodynamics, Extended Abstracts, Barcelona: p. 277-280.

Lara, L. E.and, Folguera, A. 2006, The Pliocene to Quaternary narrowing of the Southern Andean volcanic arc between 37 and 41S latitude in: Kay, S. M and, Ramos, V., eds, Evolution of an Andean Margin

Gerlach, D. C., Frey, F. A., Moreno-Roa, H. and, Lopez-Escobar, L., 1988, Recent Volcanism in the Puyehue-Cordon Caulle Region, Southern Andes, Chile (40.5 S): Petrogenesis of Evolved Lavas: Journal of Petrology, v. 29, p. 333-382.

Takahashi, M. and, Yoshida, H., 1996, Evolution of magma plumbing system of the Shirakawa pyroclastic flow deposits: Journal of Mineralogy, Petrology and Economic Geology, v. 91, p. 177-184.

Bailey, J. C., Frolova, T. I. and, Burikova, I. A., 1989, Mineralogy, geochemistry and petrogenesis of Kurile island-arc basalts: Contributions to Mineralogy and Petrology, v. 102, p. 265-280.

Suzuki, T., Eden, D., Danhara, T. and, Fujiwara, O., 2005, Correlation of the Hakkoda--Kokumoto Tephra, a widespread Middle Pleistocene tephra erupted from the Hakkoda Caldera, northeast Japan: The Island Arc, v. 14, p. 666-678.

Ballance, P. F., Ablaev, A. G., Pushchin, I. K., Pletnev, S. P., Birylina, M. G., Itaya, T., Follas, H. A. and, Gibson, G. W., 1999, Morphology and history of the Kermadec trench-arc-backarc basin-remnant arc system at 30 to 32oS: geophysical profile, microfossil and K-Ar data: Marine Geology, v. 159, p. 35-62.

Harrington, R., 1989, The Diamante Caldera and Maipo Caldera complex in southern Andes of Argentina and Chile (24o 10' S): Revista de la Asociacion Geologica Argentina, v. 44, p. 186-193.

Dungan, M. A., Davidson, J., Colucci, M. and, Ferguson, K., 1986, The Rio Colorado Caldera: a silicic ash-flow tuff caldera in the central Southern Volcanic Zone (SVZ) of the Chilean Andes (36 degrees S, 70 degrees W): Abstracts with Programs - Geological Society of America, v. 18, p. 589.

Macdonald, R., Hawkesworth, C. J. and, Heath, E., 2000, The Lesser Antilles volcanic chain: a study in arc magmatism: Earth-Science Reviews, v. 49, p. 1-76.

Kondo, H., Kudo, C. and, Okamura, S., 2005, Chemical zonation of the rhyolitic Toya caldera magma body (Southwest Hokkaido, Japan), in Asia Oceania Geosciences Society 2nd Annual Meeting, Singapore: p. Paper ID 58-SE-A1112.

Munoz, J. B. and, Stern, C. R., 1989, Alkaline magmatism within the segment 38-39 S of the Plio-Quaternary volcanic belt of the southern South American continental margin: Journal of Geophysical Research, v. 94, p. 4545-4560.

Colvin, A., Merrill, M., Demoor, M., Goss, A. and, Varekamp, J. C., 2004, The Riscos Bayos Ignimbrites of the Caviahue-Copahue volcanic caldera complex, southern Andes, Argentina: EOS (Transactions, American Geophysical Union), v. 85, Joint Assembly Supplement, Abstract # V43A-16.

Yamamoto, T., 1992, The middle Pleistocene explosive volcanism in Sunagohara caldera volcano, Aizu, Japan: Evidence from non-marine volcaniclastic facies of the Todera formation: Journal of the Geologic Society of Japan, v. 99, p. 721-737.

Gertisser, R. and, Keller, J., 2003, Trace element and Sr, Nd, Pb and O isotope variations in medium-K and high-K volcanic rocks from Merapi Volcano, Central Java, Indonesia: Evidence for the involvement of subducted sediments in Sunda Arc magma genesis: Journal of Petrology, v. 44, p. 457-489.

Reubi, O., 2004, Magmatic dynamics and volcanic evolution at Slamet volcano, Java and Batur volcanic field, Bali, Indonesia. [PhD Thesis], Monash University, 215 p.

Kopp, H., Flueh, E. R., Klaeschen, D., Bialas, J. and, Reichert, C., 2001, Crustal structure of the central Sunda margin at the onset of oblique subduction: Geophysical Journal International, v. 147, p. 449-474.

Herve, F., Demant, A., Ramos, V. A., Pankhurst, R. J.and, Suarez, M. 2000, The Southern Andes, *in* Cordani, U. G., Milani, E. J.and, Filho, A. T., eds, Tectonic evolution of South America: Proceedings 31st

Kimura, J. I., Tanji, T., Yoshida, T. and, Iizumi, S., 2001, Geology and geochemistry of lavas at Nekoma volcano: Implications for origin of Quaternary low-K andesite in the north-eastern Honshu arc, Japan: The
22470 Island Arc, v. 10, p. 116-134.

Pavez, A. and, Moreno, H., 1994, Contribution to the geologic knowledge of the Quetrupillan volcanic
22518 complex, Southern Andes, 39.5o S, in Actas, 7 Congreso Geologico Chileno, v. 2, p. 1141-1145.

Sergeev, K. F. and, Krasnyi, M. L., 1987, Geology-Geophysical Atlas of the Kuril-Kamchatka Island System:
22533 Leningrad, Ministerstvo geologii SSSR, 72 plates.

Katsui, Y., Yamagishi, H., Soya, T., Watanabe, Y.and, Nakagawa, M. 1992, Cenozoic volcanism in southwestern Hokkaido, *in* Kato, H.and, Noro, H., eds. 29th IGC Field Trip Guidebook, Vol. 4: Volcanoes
22649 and Geothermal Fields of Japan: Ibaraki, Japan: Geological Survey of Japan, p. 1-28.

Ui, T., Kobayashi, T.and, Suzuki-Kamata, K. 1992, Calderas and Pyroclastic Flows in Southern Kyushu in Kato, H.and, Noro, H., eds. 29th IGC Field Trip Guidebook, Vol. 4: Volcanoes and Geothermal Fields of
22652 Japan: Ibaraki, Japan: Geological Survey of Japan, p. 245-276.

Yoshida, T., 2001, The evolution of arc magmatism in the NE Honshu arc, Japan: Tohoku Geophysical
22760 Journal, v. 36, p. 131-149.

Barberi, F., Ghigliotti, M., Macedonio, G., Orellana, H., Pareschi, M. T. and, Rosi, M., 1992, Volcanic hazard assessment of Guagua Pichincha (Ecuador) based on past behaviour and numerical models: Journal of
22831 Volcanology and Geothermal Research, v. 49, p. 53-68.

Wells, R. E., 2003, Tectonics of the Cascade magmatic arc, in 2003 GSA Annual Meeting, Seattle: p. Paper.
22837 No. 251-1.

Ogawa, Y., Nishida, Y. and, Makino, M., 1994, A collision boundary imaged by magnetotellurics, Hidaka
23241 Mountains, central Hokkaido, Japan: Journal of Geophysical Research, v. 99, p. 22-373.

23244 Gonzalez-Ferran, O., 1995, Volcanes de Chile: Santiago, Chile, Instituto Geografico Militar, 640 p.

Takahashi, N., Kodaira, S., Klemperer, S. L., Tatsumi, Y., Kaneda, Y. and, K., S., 2007, Crustal structure
23267 and evolution of the Mariana intra-oceanic island arc: Geology, v. 35, p. 203-206.

Aguirre-Diaz, G. J., Dubois, M., Laureyns, J. and, Schaaf, P., 2002, Nature and PT conditions of the crust beneath the Central Mexican Volcanic Belt based on a Precambrian crustal xenolith: International Geology
23418 Review, v. 44, p. 222-242.

Yamada, E., 1988, Geologic development of the Onikobe caldera, Northeast Japan, with special reference to
23524 its hydrothermal system: Report of the Geological Survey of Japan, v. 268, p. 61-190.

Gonzalez-Ferran, O., 1997, Laguna del Maule Caldera: Southern Andean Range, Chile, in IAVCEI General
23587 Assembly: Volcanic Activity and the Environment, Puerto Vallarta: Unidad Editorial, p. 14.

Williams, H. and, Meyer-Abich, H., 1955, Volcanism in the southern part of El Salvador, with particular reference to the collapse basins of lakes Coatepeque and Ilopango: University of California Publications in
23805 Geological Sciences, v. 32, p. 1-64.

Arakawa, Y., Kurosawa, M., Takahashi, K., Kobayashi, Y., Tsukui, M. and, Amakawa, H., 1998, Sr-Nd isotopic and chemical characteristics of the silicic magma reservoir of the Aira pyroclastic eruption

25720 De Silva, S. L. and, Francis, P. W., 1991, Volcanoes of the Central Andes: Berlin, Springer-Verlag, 216 p.

Ban, M., Takahashi, K., Horie, T. and, Toya, N., 2005, Petrogenesis of mafic inclusions in rhyolitic lavas
25981 from Narugo Volcano, Northeastern Japan: Journal of Petrology, v. 46, p. 1543-1563.

Rose, W. I. J., Hahn, G. A., Drexler, J. M., Malinconico, M. L., Peterson, P. S. and, RL, W., 1981, Quaternary tephra of Northern Central America, *in* Self, S. and Sparks, R.S.J. eds., Tephra Studies as a Tool in
27359 Quaternary Research, p. 193-212.

Geological Survey of Japan, 2006, Quaternary volcanoes in Japan:
27403 http://riodb02.ibase.aist.go.jp/strata/welcome_e.html, (2006-Janu)

Iizasa, K., Fiske, R. S., Ishizuka, O., Yuasa, M., Hashimoto, J., Ishibashi, J., Naka, J., Horii, Y., Fujiwara, Y., Imai, A. and, others, 1999, A Kuroko-type polymetallic sulfide deposit in a submarine silicic caldera:
27788 Science, v. 283, p. 975-977.

Ferrari, L., Lopez Martinez, M., Aguirre Diaz, G. and, Carrasco Nunez, G., 1999, Space-time patterns of Cenozoic arc volcanism in central Mexico: From the Sierra Madre Occidental to the Mexican volcanic belt:
27901 Geology, v. 27, p. 303-306.

Hildreth, W. and, Moorbath, S., 1988, Crustal contributions to arc magmatism in the Andes of Central Chile:
27962 Contributions to Mineralogy and Petrology, v. 98, p. 455-489.

Glasby, G. P., Iizasa, K., Yuasa, M. and, Usui, A., 2000, Submarine hydrothermal mineralization on the Izu-
29220 Bonin Arc, South of Japan: An overview: Marine Georesources & Geotechnology, v. 18, p. 141-176.

Campos-Enriquez, J. O. and, Garduno-Monroy, V. H., 1995, Los Azufres silicic center (Mexico): Inference of caldera structural elements from gravity, aeromagnetic, and geoelectric data: Journal of Volcanology and
29553 Geothermal Research, v. 67, p. 123-152.

Munoz, J. and, C, S., 1985, El complejo volc√ºnico Pino Hachado en el sector nor-occidental de la Patagonia (38-39¬∞ S): Volcanismo pliocuaternario de trasarco en Sudam√©rica: Congreso Geol√≤gico Chileno, v.
29580 60, p. 380-412.

Kimura, J. I., Stern, R. J. and, Yoshida, T., 2005, Reinitiation of subduction and magmatic responses in SW
29626 Japan during Neogene time: Bulletin of the Geological Society of America, v. 117, p. 969-986.

Beauregard, J., 2001, Explosive rhyodacitic volcanism: the evolution and frequency of pre-1883 eruptions
29891 at Krakatau Volcano, Indonesia, [PhD thesis], University of Rhode Island, 358 p.

Page, B. G. N., Bennett, J. D., Cameron, N. R., Bridge, D. M. C., Jeffery, D. H., Keats, W., Thaib, J. and, Hepworth, J. V., 1979, A review of the main structural and magmatic features of northern Sumatra: Journal
30958 of the Geological Society of London, v. 136, p. 569-579.

Braitseva, O. A., Melekestsev, I. V., Ponomareva, V. V. and, Sulerzhitsky, L. D., 1995, Ages of calderas, large explosive craters and active volcanoes in the Kuril-Kamchatka region, Russia: Bulletin of Volcanology,
31852 v. 57, p. 383-402.

Ferrari, L., Pasquar√®, G., Venegas-Salgado, S. and, Romero-Rios, F., 2000, Geology of the western Mexican Volcanic Belt and adjacent Sierra Madre Occidental and Jalisco block: Geological Society of
32383 America, Special Paper, v. 334, p. 65-84.

Sherrod, D. R. and, Smith, J. G., 1990, Quaternary extrusion rates of the Cascade Range, northwestern

Bellon, H., Maury, R. C., Soeria-Atmadja, R., Cotten, J. and, Polve, M., 2004, 65 my-long magmatic activity in Sumatra (Indonesia), from Paleocene to Present: Bulletin de la Societe Geologique de France, v. 175, p. 35888 61-72.

Hall, M. L. and, Mothes, P. A., 1997, Chacana caldera--The largest rhyolitic eruptive center in the Northern 35902 Andes, in IAVCEI General Assembly, Puerta Vallerta, Mexico: p. 14.

Hikaru, Y., Masahiro, Y., Satoshi, O. and, Hirotsugu, N., 2003, Volcano-stratigraphy and geological development of Akaigawa Caldera from southwest Hokkaido, Japan: Japanese Magazine of Mineralogical 36805 and Petrological Sciences, v. 32, p. 80-95.

Tormey, D. R., Hickey-Vargas, R., Frey, R. A., Lopez-Escobar, L., Harmon, R. S. E. and, Rapela, C. W. E., 1991, Recent lavas from the Andean volcanic front (33-42 S): interpretations of along-arc compositional variations: Andean magmatism and its tectonic setting, *in* Harmon, R.S., and Rapela, C.W., eds., Andean 38514 magmatism and its tectonic setting, Geological Society of America Special Paper 265, p. 57-77.

Ibrahim, A. K., Pontoise, B., Latham, G. and, others, 1980, Structure of the New Hebrides arc-trench 38668 system: Journal of Geophysical Research, v. 85, p. 253-266.

Folguera, A. and, Ramos, V. A., 2000, Control estructural del volcan Copahue (38oS-71oW): implicancias tectnicas para el arco volcanico cuaternario (36S-39S): Revista de la Asociacion Geologica Argentina, v. 55, 39348 p. 229-244.

Dieterich, J., Cayol, V. and, Okubo, P., 2000, The use of earthquake rate changes as a stress meter at 40000 Kilauea volcano: Nature, v. 408, p. 457-460.

Priest, G. R., 1990, Volcanic and tectonic evolution of the Cascade volcanic arc, central Oregon: Journal of 40901 Geophysical Research, B, v. 95, p. 19-583.

Lindsay, J. M., Trumbull, R. B. and, Siebel, W., 2005, Geochemistry and petrogenesis of late Pleistocene to Recent volcanism in Southern Dominica, Lesser Antilles: Journal of Volcanology and Geothermal Research, 41341 v. 148, p. 253-294.

Geist, E. L., Childs, J. R. and, Scholl, D. W., 1988, The origin of summit basins of the Aleutian ridge: 41880 implications for block rotation of an arc massif: Tectonics, v. 7, p. 327-341.

Sussman, D., 1985, Apoyo caldera, Nicaragua: A major quaternary silicic eruptive center: Journal of 42728 Volcanology and Geothermal Research, v. 24, p. 249-282.

Alloway, B. V., Pribadi, A. and, Westgate, J., 2004, Correspondence between glass-FT and 14 C ages of silicic pyroclastic flow deposits sourced from Maninjau caldera, west-central Sumatra: Earth and Planetary 43294 Science Letters, v. 227, p. 121-133.

Sakaguchi, K. and, Yamada, E., 1988, The Kitagawa Dacite, pyroclastic flow deposits around the Onikobe 43947 caldera, northeast Japan: Report of the Geological Survey of Japan, v. 268, p. 37-59.

Moreno, H. R., Lopez-Escobar, L. and, Cembrano, J., 1994, The Villarrica-Quetrupillan-Lanin volcanic chain; a review and probable significance in the Southern Andes, 39.4 degrees S, Chile; 7 congreso geologico 43956 chileno; actas.: Actas - Congreso Geologico Chileno, v. 7, p. 339-341.

Goto, Y., Funayama, A., Gouchi, N. and, Itaya, T., 2000, K-Ar ages of the Akan-Shiretoko volcanic chain lying oblique to the Kurile trench: Implications for tectonic control of volcanism: The Island Arc, v. 9, p. 204-
44037 218.

Fitterman, D. V., 1988, Overview of the structure and geothermal potential of Newberry Volcano, Oregon:

Nakajima, J. and, Hasegawa, A., 2003, Tomographic imaging of seismic velocity structure in and around the Onikobe volcanic area, northeastern Japan: implications for fluid distribution: Journal of Volcanology and
46455 Geothermal Research, v. 127, p. 1-18.

Lucassen, F., Becchio, R., Harmon, R., Kasemann, S., Franz, G., Trumbull, R., Wilke, H. G., Romer, R. L. and, Dulski, P., 2001, Composition and density model of the continental crust at an active continental
46783 margin: The Central Andes between 21 and 27 S: Tectonophysics, v. 341, p. 195-223.

Frey, F. A., Gerlach, D. C., Hickey, R. L., Lopez-Escobar, L. and, Munizaga-Villavicencio, F., 1984, Petrogenesis of the Laguna del Maule volcanic complex, Chile (36 S): Contributions to Mineralogy and
46942 Petrology, v. 88, p. 133-149.

Peate, D. W., Pearce, J. A., Hawkesworth, C., Colley, H., Edwards, C. M. H. and, Hirose, K., 1997, Geochemical variations in Vanuatu Arc lavas: the role of subducted material and a variable mantle wedge
47270 tomposition: Journal of Petrology, v. 38, p. 1331-1358.

Kondo, H., Tanaka, K., Mizuochi, Y. and, Ninomiya, A., 2004, Long-term changes in distribution and chemistry of middle Miocene to Quaternary volcanism in the Chokai-Kurikoma area across the Northeast
47529 Japan Arc: The Island Arc, v. 13, p. 18-46.

Stern, C. R., 2004, Active Andean volcanism: Its geologic and tectonic setting: Revista geolgica de Chile, v.
48154 31, p. 161-206.

Van Avendonk, H. J. A., Shillington, D. J., Holbrook, W. S. and, Hornbach, M. J., 2004, Inferring crustal structure in the Aleutian island arc from a sparse wide-angle seismic data set: Geochemistry Geophysics
48205 Geosystems, v. 5, p. doi:10.1029/2003GC000664.

Deering, C. D., Vogel, T. A., Patino, L. C. and, Alvarado, G. E., 2005, Petrogenesis of distinct silicic magma types from the lower Pleistocene Guachipelin Caldera, NW Costa Rica: extensive magma mixing and
48209 protracted subvolcanic residence: Abstracts with Programs - Geological Society of America, v. 37, p. 308.

Fiske, R. S., Naka, J., Iizasa, K., Yuasa, M. and, Klaus, A., 2001, Submarine silicic caldera at the front of the Izu-Bonin arc, Japan: Voluminous seafloor eruptions of rhyolite pumice: Bulletin of the Geological
48347 Society of America, v. 113, p. 813-824.

Hall, M. L., Mothes, P. A. and, Eissen, J.-P., 2000, Rhyolitic magma body and ascending basic andesites:
48650 Bimodal Cotopaxi magmatism: EOS (Transactions, American Geophysical Union), v. 81, p. 1309.

Hallinan, S., 1993, Nonchaotic collapse at funnel calderas; gravity study of the ring fractures at Guayabo
49119 Caldera, Costa Rica: Geology, v. 21, p. 367-370.

Hunter, A. G. and, Blake, S., 1995, Petrogenetic evolution of a transitional tholeiitic--calc-alkaline series:
49716 Towada Volcano, Japan: Journal of Petrology, v. 36, p. 1579-1605.

Greene, H. G., Macfarlane, A., Johnson, D. P.and, Crawford, A. J. 1988, Structure and tectonics of the central New Hebrides Arc *in* Greene, H. G.and, Wong, F. L., eds. Circum-Pacific Council for Energy and
49938 Mineral Resources, Earth Science Series, v. 8, p. 377-412.

Hildreth, H., Grunder, A. L. and, Drake, R. E., 1984, The Loma Seca Tuff and the Calabozos Caldera; a major ash-flow and caldera complex in the Southern Andes of central Chile: Bulletin of the Geological
50068 Society of America, v. 95, p. 45-54.

Reubi, O. and, Nicholls, I. A., 2005, Structure and dynamics of a silicic magmatic system associated with caldera-forming eruptions at Batur Volcanic Field, Bali, Indonesia: Journal of Petrology, v. 46, p. 1367-
50459 1391.

Alvarado, G. E., Dengo, C., Martens, U., Bundschuh, J., Aguilar, T.and, Bonis, S. B. 2007, Chapter 13: Stratigraphy and geologic history in Bundschuh, J.and, Alvarado, G. E., eds. Central America: Geology

64410 Hall, M. and, Mothes, P., 2008, The rhyolitic-andesitic eruptive history of Cotopaxi volcano, Ecuador: Bulletin of Volcanology, v. 70, p. 675-702.

64915 Gomez-Tuena, A., Orozco-Esquivel, M. T. and, Ferrari, L., 2007, Igneous petrogenesis of the Trans-Mexican Volcanic Belt: Special Papers, Geological Society of America, v. 422, p. 129-182.

76762 Turner, S. and, Foden, J., 2001, U, Thand Ra disequilibria, Sr, Ndand Pb isotope and trace element variations in Sunda arc lavas: predominance of a subducted sediment component: Contributions to Mineralogy and Petrology, v. 142, p. 43-57.

80822 Worthington, T. J., Gregory, M. R. and, Bondarenko, V., 1999, The Denham Caldera on Raoul Volcano: dacitic volcanism in the Tonga-Kermadec arc: Journal of Volcanology and Geothermal Research, v. 90, p. 29-48.

82323 Leat, P. T., Larter, R. D. and, Millar, I. L., 2006, Silicic magmas of Protector Shoal, South Sandwich arc: indicators of generation of primitive continental crust in an island arc: Geological Magazine, v. 144, p. 179-190.

84647 Lara, LE, Moreno, H., Naranjo, J. A., Matthews, S. and, Perez de Arce, C., 2006, Magmatic evolution of the Puyehue-Cordon Caulle Volcanic Complex (40oS), Southern Andean Volcanic Zone: From shield to unusual rhyolitic fissure volcanism: Journal of Volcanology and Geothermal Research, v. 157, p. 343-366.

94832 Chesner, C., 1998, Petrogenesis of the Toba Tuffs, Sumatra, Indonesia: Journal of Petrology, v. 39, p. 397-438.