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The Whale Mountain allochthon: a relic of the Iapetus Ocean preserved in the northeastern Brooks Range, Alaska (supplemental file)

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LA-ICPMS U-Pb Zircon Geochronology

U-Pb isotopic ratios for zircon from two volcaniclastic samples from the Whale Mountain allochthon were analyzed by LA-ICPMS at the University of Arizona LaserChron Center. Instrument setup, tuning, run parameters, standard-unknown bracketing, and data reduction followed that of Gehrels et al. (2006, 2008) and Gehrels and Pecha (2014). The separated zircon grains were ablated with a Photon Machines Analyte G2 excimer laser with a HelEx ablation cell using a spot diameter of 20 μm. The ablation pit was ~12 μm in depth using an energy density of ~5 J/cm^2, repetition rate of 8 hz, and an ablation time of 10 seconds. Each analysis included counting for 5 seconds with the laser off for backgrounds and 10 seconds with

the laser firing for peak intensities, followed by a 20 second delay to purge the previous sample and to save the files.

The measured intensities for each analysis were imported into the Arizona LaserChron Center's data reduction program, "agecalc," which reduces the data, alerts users to unusual analyses (e.g., large age uncertainty), calculates ages, and produces a publication ready data table (e.g., Table DR-2). Three types of zircon grains with known ages were mounted along with unknown grains from our sample set. These were used as primary standards to assess reproducibility and analytical uncertainty of the unknown analyses from our sample set, and they include the Sri Lanka ($^{206}Pb/^{238}U$ age of 563.2 ± 4.8 Ma, 2, Gehrels et al., 2008), FC-52 ($^{206}Pb/^{207}U$ age of 1099.0 ± 0.6 Ma; Paces and Miller, 1993), and R33 ($^{206}Pb/^{238}U$ age of 420.53 ± 0.16 Ma, 2, Mattinson, 2010). For each analysis, the errors in determining $^{206}Pb/^{238}U$ and $^{206}Pb/^{204}Pb$ result in a measurement error of ~1%–2% (at the 2σ level) in the $^{206}Pb/^{238}U$ age. The errors in measurement of $^{206}Pb/^{207}Pb$ and $^{206}Pb/^{204}Pb$ also result in ~1%–2% (at the 2σ level) uncertainty in age for grains that are >900 Ma, but are substantially larger for younger grains due to the low intensity of the ^{207}Pb signal. For this reason, we report a "Best Age" in Table DR2, which selects from the either the $^{206}Pb/^{238}U$ or $^{206}Pb/^{207}Pb$ age using a cutoff of 900 Ma in the $^{206}Pb/^{238}U$ age. Analyses that are >20% discordant or >5% reverse discordant (by comparison of $^{206}Pb/238U$ and $^{206}Pb/^{207}Pb$ ages) were filtered out and rejected from any further interpretation.

Zircon Lu-Hf Isotopic Analysis

A subset of the zircon grains were analyzed for their Lu-Hf isotopic composition using a Nu Instruments HR-ICP-MS connected to a Photon Machines Analyte G2 excimer laser equipped with a HelEX cell at the Arizona LaserChron Center. Instrument setup, tuning, run parameters, standard-unknown bracketing, and data reduction followed that of Gehrels and

Pecha (2014). In each analysis, a 40 µm diameter ablation site is centered over the previously excavated U–Pb analysis pit. The analytical routine consists of a 40 second on-peak background measurement, a 60 second laser ablation measurement, and a 15 second washout time. Using a typical laser effluence of ~5 J/cm^2 and pulse rate of 7 Hz, the ablation rate is ~0.8 microns per second. Unknown analyses were bracketed by several standard, including R33, SL2, Plesovice, Temora-2, FC-52, 91500, and Mud Tank (Woodhead and Hergt 2005; Sláma et al. 2008; Bahlburg et al. 2010; Vervoort 2010).

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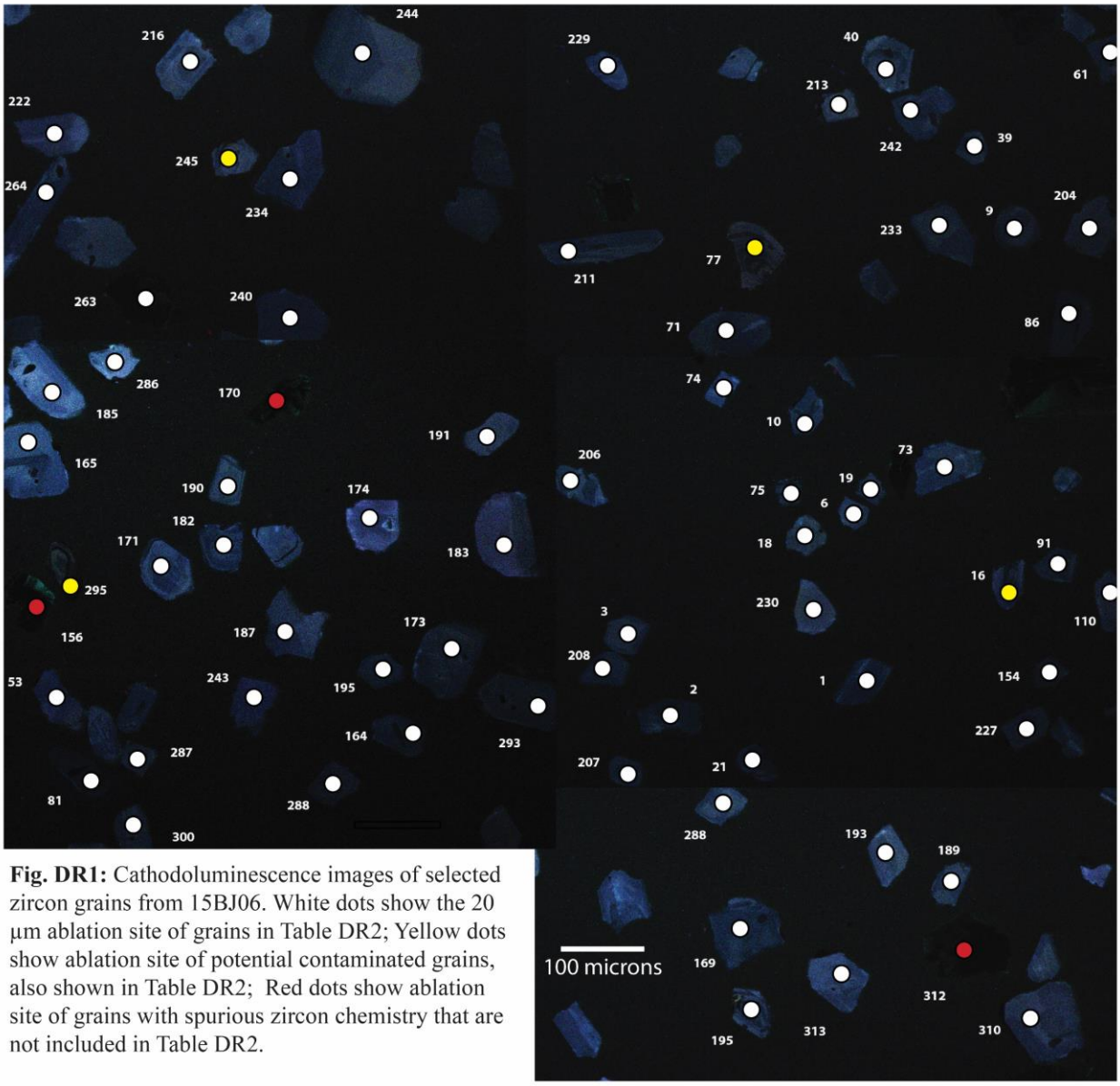

Fig. DR1: Cathodoluminescence images of selected zircon grains from 15BJ06. White dots show the 20 µm ablation site of grains in Table DR2; Yellow dots show ablation site of potential contaminated grains, also shown in Table DR2; Red dots show ablation site of grains with spurious zircon chemistry that are not included in Table DR2.

Table DR1 Sample Locations from the Whale Mountain allochthon

Sample Number	Latitude	Longitude	Stratigraphic Unit	Analysis
Southern Belt				
14BJ22	N 69.117	W 143.173	Marsh Fork volcanic rocks	WR-Geochem
14BJ24	N 69.117	W 143.178	Marsh Fork volcanic rocks	WR-Geochem
15BJ08	N 69.069	W 143.907	Marsh Fork volcanic rocks	WR-Geochem
15BJ06	N 69.108	W 143.894	Marsh Fork volcanic rocks	U-Pb & Lu-hf
J1475	N 69.116	W 143.256	Egaksrak formation	Fossil location
Central Belt				
12JT13B	N 69.251	W 141.729	Whale Mountain volcanic rocks	WR-Geochem
12JT14	N 69.251	W 141.729	Whale Mountain volcanic rocks	WR-Geochem
12JT15	N 69.251	W 141.729	Whale Mountain volcanic rocks	WR-Geochem
12JT16	N 69.251	W 141.729	Whale Mountain volcanic rocks	WR-Geochem
12JT17	N 69.251	W 141.729	Whale Mountain volcanic rocks	WR-Geochem
12JT18	N 69.251	W 141.729	Whale Mountain volcanic rocks	WR-Geochem
12JT19	N 69.251	W 141.729	Whale Mountain volcanic rocks	WR-Geochem
12JT20	N 69.251	W 141.729	Whale Mountain volcanic rocks	WR-Geochem
12JT21	N 69.247	W 141.723	Whale Mountain volcanic rocks	WR-Geochem
17LF13	N 69.347	W 142.639	Whale Mountain volcanic rocks	WR-Geochem
18LF13	N 69.347	W 142.639	Whale Mountain volcanic rocks	WR-Geochem
19LF13	N 69.347	W 142.639	Whale Mountain volcanic rocks	WR-Geochem
20LF13	N 69.347	W 142.639	Whale Mountain volcanic rocks	WR-Geochem
21LF13	N 69.347	W 142.639	Whale Mountain volcanic rocks	WR-Geochem
22LF13	N 69.347	W 142.639	Whale Mountain volcanic rocks	WR-Geochem
23LF13	N 69.347	W 142.639	Whale Mountain volcanic rocks	WR-Geochem
13MC-062	N 69.176	W 140.924	Whale Mountain volcanic rocks	WR-Geochem
13MC-063	N 69.169	W 140.879	Whale Mountain volcanic rocks	WR-Geochem
13MC-065	N 69.169	W 140.882	Whale Mountain volcanic rocks	WR-Geochem
13JVS-362	N 69.184	W 140.921	Whale Mountain volcanic rocks	WR-Geochem
13WW23	N 69.182	W 140.924	Whale Mountain volcanic rocks	U-Pb & Lu-hf
J1352	N 69.184	W 140.917	Egaksrak formation	Fossil location
J1480	N 69.346	W 142.656	Egaksrak formation	Fossil location
Northern Belt				
12JT37	N 69.469	W 141.468	Ekaluakat formation	WR-Geochem
12JT39	N 69.456	W 141.451	Ekaluakat formation	WR-Geochem

Note: WR-Geochem stands for whole-rock geochemical analysis

Table DR2: LA-ICMS U-Pb geochronology data																			
						Isotope ratios					Apparent ages (Ma)								
Analysis	U	206Pb	U/Th	206Pb*	±	207Pb*	±	206Pb*	±	error	206Pb*	±	207Pb*	±	206Pb*	±	Best age	±	Conc
	(ppm)	204Pb		207Pb*	(%)	235U*	(%)	238U	(%)	corr.	238U*	(Ma)	235U	(Ma)	207Pb*	(Ma)	(Ma)	(Ma)	(%)
13WW23; Whale Mountain volcanic rocks (central belt)						**N 69.182**	**W 140.924**												
13WW24-55	634	44178	1.0	17.3436	2.1	0.6227	7.1	0.0783	6.8	0.96	486	32	492	28	517	45	486	32	94
13WW24-56	112	14897	1.2	17.5262	3.4	0.6249	3.9	0.0794	2.0	0.51	493	10	493	15	494	74	493	10	100
13WW24-53	175	30946	1.7	17.3077	2.1	0.6424	4.0	0.0806	3.5	0.86	500	17	504	16	521	46	500	17	96
13WW24-59	199	30104	1.7	16.8963	1.9	0.6690	5.6	0.0820	5.2	0.94	508	26	520	23	574	41	508	26	89
13WW24-58	116	32355	1.2	17.0912	3.0	0.6636	5.8	0.0823	5.0	0.85	510	24	517	24	549	66	510	24	93
13WW24-57	278	48440	1.7	17.2312	2.0	0.6637	2.6	0.0829	1.7	0.63	514	8	517	11	531	45	514	8	97
>20% Discordance																			
13WW24-54	107	19777	1.2	13.2383	9.7	0.8213	10.1	0.0789	2.5	0.25	489	12	609	46	1083	196	489	12	45
15BJ06; Marsh Fork volcanic rocks (southern belt)						**N 69.108**	**W 143.894**												
15BJ06-202	163	93547	1.0	17.2362	2.4	0.6100	3.3	0.0763	2.3	0.68	474	10	484	13	530	53	474	10	89
15BJ06-001	130	46589	0.8	17.3079	2.2	0.6255	3.2	0.0785	2.3	0.73	487	11	493	12	521	47	487	11	93
15BJ06-278	106	97855	1.9	17.0735	3.4	0.6383	3.9	0.0790	2.0	0.51	490	9	501	16	551	74	490	9	89
15BJ06-155	277	39032	0.9	17.1415	1.8	0.6358	2.8	0.0790	2.1	0.76	490	10	500	11	542	39	490	10	90
15BJ06-248	97	28710	1.4	17.5903	2.0	0.6270	2.7	0.0800	1.7	0.64	496	8	494	10	486	45	496	8	102
15BJ06-115	69	12511	1.1	17.5736	4.2	0.6295	4.9	0.0802	2.6	0.52	497	12	496	19	488	93	497	12	102
15BJ06-260	254	40924	1.2	17.6899	1.8	0.6258	2.8	0.0803	2.2	0.78	498	10	494	11	473	39	498	10	105
15BJ06-293	98	36533	1.9	16.8836	2.6	0.6560	3.3	0.0803	2.0	0.61	498	10	512	13	576	56	498	10	87
15BJ06-080	68	26811	1.1	17.4418	2.7	0.6355	3.5	0.0804	2.2	0.63	498	10	500	14	504	59	498	10	99
15BJ06-249	107	33981	1.3	16.9182	2.0	0.6559	2.9	0.0805	2.1	0.73	499	10	512	11	571	42	499	10	87
15BJ06-206	146	174000	1.3	17.4839	2.2	0.6347	3.0	0.0805	2.1	0.69	499	10	499	12	499	49	499	10	100
15BJ06-167	155	234322	1.8	17.5200	2.0	0.6336	2.5	0.0805	1.6	0.64	499	8	498	10	495	43	499	8	101
15BJ06-291	286	81360	0.8	17.2898	2.1	0.6421	2.9	0.0805	1.9	0.67	499	9	504	11	524	47	499	9	95
15BJ06-268	48	14287	1.7	16.5934	4.0	0.6693	4.4	0.0806	1.9	0.42	499	9	520	18	613	86	499	9	81
15BJ06-227	64	21797	1.2	17.3255	2.6	0.6415	3.3	0.0806	2.1	0.63	500	10	503	13	519	56	500	10	96
15BJ06-241	84	103733	1.6	16.9833	2.6	0.6546	3.2	0.0806	1.9	0.58	500	9	511	13	563	56	500	9	89
15BJ06-266	199	37789	1.4	17.2687	1.9	0.6441	2.8	0.0807	2.0	0.72	500	10	505	11	526	42	500	10	95
15BJ06-236	71	16377	1.7	17.6721	2.8	0.6295	3.7	0.0807	2.3	0.64	500	11	496	14	475	63	500	11	105
15BJ06-270	91	48704	1.2	17.0566	2.8	0.6524	3.6	0.0807	2.3	0.63	500	11	510	14	553	61	500	11	90
15BJ06-246	77	42754	1.6	16.9160	2.7	0.6580	3.4	0.0807	2.1	0.62	500	10	513	14	571	58	500	10	88
15BJ06-276	113	59878	1.4	16.4925	2.8	0.6764	3.4	0.0809	2.0	0.58	502	10	525	14	626	60	502	10	80
15BJ06-144	84	43418	1.6	17.2568	3.4	0.6471	4.0	0.0810	2.1	0.53	502	10	507	16	528	75	502	10	95
15BJ06-275	43	17931	1.5	17.3920	2.8	0.6423	3.4	0.0810	1.9	0.56	502	9	504	14	511	62	502	9	98
15BJ06-104	159	67233	1.5	17.1982	2.0	0.6498	2.8	0.0811	2.0	0.72	502	10	508	11	535	43	502	10	94
15BJ06-222	27	20331	1.4	17.3464	5.6	0.6445	6.0	0.0811	2.1	0.36	503	10	505	24	516	123	503	10	97
15BJ06-264	94	49399	1.5	16.9482	2.1	0.6597	2.9	0.0811	1.9	0.67	503	9	514	12	567	47	503	9	89
15BJ06-239	201	62966	1.3	17.5265	1.9	0.6384	2.6	0.0811	1.8	0.68	503	9	501	10	494	42	503	9	102
15BJ06-010	164	48694	1.9	17.1355	2.3	0.6530	3.2	0.0811	2.3	0.70	503	11	510	13	543	50	503	11	93
15BJ06-137	84	36451	2.2	16.9650	2.0	0.6598	2.7	0.0812	1.8	0.66	503	9	515	11	565	44	503	9	89
15BJ06-129	55	34203	1.4	16.9870	3.3	0.6592	4.2	0.0812	2.6	0.61	503	13	514	17	562	73	503	13	90
15BJ06-294	96	164226	1.2	16.7457	2.5	0.6687	3.0	0.0812	1.7	0.56	503	8	520	12	593	55	503	8	85

15BJ06-043	50	35947	2.0	17.2139	2.4	0.6514	3.2	0.0813	2.1	0.66	504	10	509	13	533	52	504	10	95
15BJ06-084	93	26152	2.0	17.0122	2.6	0.6591	3.5	0.0813	2.3	0.67	504	11	514	14	559	57	504	11	90
15BJ06-161	58	31078	1.9	16.8808	3.5	0.6645	4.1	0.0814	2.2	0.54	504	11	517	17	576	75	504	11	88
15BJ06-212	115	58019	1.8	17.4314	2.3	0.6436	3.5	0.0814	2.6	0.75	504	13	505	14	506	50	504	13	100
15BJ06-126	155	40541	2.0	16.5418	1.9	0.6782	3.0	0.0814	2.3	0.77	504	11	526	12	620	42	504	11	81
15BJ06-243	50	51904	1.3	17.5897	3.2	0.6379	4.0	0.0814	2.4	0.61	504	12	501	16	486	70	504	12	104
15BJ06-261	220	29833	0.9	17.4974	1.8	0.6413	2.6	0.0814	1.9	0.74	504	9	503	10	497	39	504	9	101
15BJ06-238	225	212825	1.6	17.3827	1.9	0.6457	2.8	0.0814	2.1	0.75	504	10	506	11	512	41	504	10	99
15BJ06-060	164	32024	1.2	17.3869	2.1	0.6455	3.1	0.0814	2.3	0.75	504	11	506	12	511	46	504	11	99
15BJ06-117	31	27726	1.6	16.4477	4.5	0.6831	4.9	0.0815	2.0	0.41	505	10	529	20	632	96	505	10	80
15BJ06-253	79	35365	1.5	17.5946	3.0	0.6390	3.6	0.0815	2.0	0.56	505	10	502	14	485	65	505	10	104
15BJ06-013	91	16334	1.2	17.4332	2.2	0.6449	3.1	0.0815	2.1	0.70	505	10	505	12	505	49	505	10	100
15BJ06-306	185	201949	1.4	17.3815	2.0	0.6469	3.0	0.0816	2.2	0.74	505	11	507	12	512	44	505	11	99
15BJ06-285	55	16943	1.5	17.2074	2.7	0.6535	3.6	0.0816	2.4	0.66	505	12	511	14	534	59	505	12	95
15BJ06-185	51	24721	1.3	17.5062	3.4	0.6424	4.3	0.0816	2.7	0.62	505	13	504	17	496	75	505	13	102
15BJ06-190	179	27223	1.7	17.3672	2.2	0.6478	2.8	0.0816	1.7	0.62	506	8	507	11	514	48	506	8	98
15BJ06-302	144	40501	1.3	17.3985	2.0	0.6467	3.1	0.0816	2.3	0.75	506	11	506	12	510	45	506	11	99
15BJ06-228	125	50560	1.6	17.3168	2.7	0.6498	3.3	0.0816	2.0	0.59	506	10	508	13	520	59	506	10	97
15BJ06-234	54	23957	1.3	17.4892	3.2	0.6439	3.8	0.0817	2.1	0.54	506	10	505	15	498	70	506	10	102
15BJ06-078	71	28210	1.6	17.3363	3.4	0.6499	4.3	0.0817	2.7	0.62	506	13	508	17	518	74	506	13	98
15BJ06-113	100	127931	1.7	17.2628	2.1	0.6532	2.8	0.0818	1.8	0.64	507	9	510	11	527	47	507	9	96
15BJ06-182	217	134171	1.2	17.1349	2.4	0.6582	3.1	0.0818	2.0	0.63	507	10	514	13	543	53	507	10	93
15BJ06-072	30	24608	2.2	17.6276	4.2	0.6401	5.0	0.0818	2.6	0.53	507	13	502	20	481	93	507	13	105
15BJ06-191	43	21809	1.9	17.0868	3.3	0.6606	3.9	0.0819	2.1	0.54	507	10	515	16	549	72	507	10	92
15BJ06-122	237	213323	0.9	17.4316	1.5	0.6479	2.4	0.0819	1.9	0.77	507	9	507	10	506	34	507	9	100
15BJ06-232	117	87640	1.6	16.8625	2.5	0.6700	4.0	0.0819	3.1	0.77	508	15	521	16	578	55	508	15	88
15BJ06-022	137	28775	1.2	17.1623	2.8	0.6584	3.4	0.0819	1.9	0.55	508	9	514	14	540	62	508	9	94
15BJ06-231	191	70959	1.6	17.3235	1.8	0.6526	2.5	0.0820	1.8	0.71	508	9	510	10	519	39	508	9	98
15BJ06-050	65	45598	1.9	17.0488	2.7	0.6633	3.3	0.0820	1.9	0.56	508	9	517	13	554	60	508	9	92
15BJ06-175	46	11223	1.3	17.0838	3.7	0.6620	4.4	0.0820	2.4	0.54	508	12	516	18	550	80	508	12	92
15BJ06-087	46	40117	1.3	16.8117	3.6	0.6728	4.1	0.0820	2.0	0.49	508	10	522	17	585	78	508	10	87
15BJ06-089	303	40065	0.9	17.1954	1.8	0.6579	2.9	0.0820	2.2	0.77	508	11	513	12	536	40	508	11	95
15BJ06-135	82	38302	1.7	17.0916	2.8	0.6621	3.5	0.0821	2.0	0.58	508	10	516	14	549	61	508	10	93
15BJ06-058	45	84961	1.2	16.6143	3.5	0.6812	4.2	0.0821	2.3	0.55	509	11	527	17	610	75	509	11	83
15BJ06-025	125	31844	1.4	17.2574	2.4	0.6559	3.0	0.0821	1.8	0.60	509	9	512	12	528	53	509	9	96
15BJ06-225	152	69242	1.9	17.4921	1.8	0.6472	2.8	0.0821	2.2	0.78	509	11	507	11	498	39	509	11	102
15BJ06-226	86	46602	1.6	17.1188	2.9	0.6615	3.7	0.0821	2.2	0.61	509	11	516	15	545	63	509	11	93
15BJ06-012	117	30186	1.6	17.0581	2.5	0.6639	3.3	0.0821	2.2	0.66	509	11	517	13	553	54	509	11	92
15BJ06-064	32	51667	1.4	16.5926	3.0	0.6827	3.7	0.0822	2.2	0.59	509	11	528	15	613	64	509	11	83
15BJ06-136	98	146274	1.8	17.0684	3.1	0.6637	3.7	0.0822	2.0	0.55	509	10	517	15	552	68	509	10	92
15BJ06-119	117	47855	2.1	17.5015	1.9	0.6473	2.8	0.0822	2.0	0.72	509	10	507	11	497	42	509	10	102
15BJ06-194	121	122999	1.8	17.2500	1.9	0.6573	2.9	0.0822	2.2	0.75	509	11	513	12	529	43	509	11	96
15BJ06-105	100	49968	1.7	16.9741	2.1	0.6686	2.6	0.0823	1.5	0.59	510	8	520	11	564	46	510	8	90
15BJ06-014	98	46387	1.5	17.0868	2.4	0.6644	3.3	0.0823	2.2	0.67	510	11	517	13	549	53	510	11	93
15BJ06-203	138	63878	1.9	17.1131	2.6	0.6635	3.8	0.0824	2.8	0.74	510	14	517	15	546	56	510	14	93
15BJ06-171	74	42870	1.6	17.3192	2.2	0.6557	3.0	0.0824	2.0	0.68	510	10	512	12	520	48	510	10	98
15BJ06-307	39	20744	2.0	17.5000	4.4	0.6490	5.2	0.0824	2.8	0.53	510	14	508	21	497	97	510	14	103
15BJ06-301	85	25716	1.9	17.1326	3.1	0.6630	4.0	0.0824	2.6	0.64	510	13	516	16	544	67	510	13	94
15BJ06-062	129	91579	1.2	17.4063	2.3	0.6527	3.3	0.0824	2.4	0.72	510	12	510	13	509	50	510	12	100

15BJ06-229	270	39040	1.3	17.5401	1.9	0.6477	2.9	0.0824	2.2	0.76	510	11	507	12	492	42	510	11	104
15BJ06-151	24	19320	1.3	17.5357	4.1	0.6479	4.8	0.0824	2.5	0.52	510	12	507	19	493	91	510	12	104
15BJ06-124	81	49641	1.5	17.2459	2.6	0.6588	3.2	0.0824	1.9	0.58	510	9	514	13	529	58	510	9	96
15BJ06-290	76	25694	1.9	17.4398	2.6	0.6515	3.7	0.0824	2.6	0.71	510	13	509	15	505	57	510	13	101
15BJ06-065	152	28754	1.2	17.0583	1.8	0.6660	2.9	0.0824	2.3	0.79	510	11	518	12	553	40	510	11	92
15BJ06-242	74	45814	1.5	17.2041	2.4	0.6605	3.5	0.0824	2.4	0.71	510	12	515	14	535	54	510	12	96
15BJ06-073	87	26924	1.6	17.1770	2.1	0.6615	3.2	0.0824	2.4	0.75	511	12	516	13	538	46	511	12	95
15BJ06-197	183	120634	1.2	17.0692	2.1	0.6660	2.8	0.0824	1.8	0.65	511	9	518	11	552	47	511	9	93
15BJ06-311	100	42300	1.0	16.9206	3.5	0.6720	4.0	0.0825	2.1	0.52	511	10	522	16	571	75	511	10	89
15BJ06-150	158	245577	1.9	17.2972	2.3	0.6575	3.1	0.0825	2.0	0.65	511	10	513	12	523	52	511	10	98
15BJ06-289	179	64058	1.7	17.0790	2.2	0.6659	2.5	0.0825	1.3	0.51	511	6	518	10	550	47	511	6	93
15BJ06-217	65	40825	2.0	17.3556	2.7	0.6553	4.0	0.0825	3.0	0.74	511	15	512	16	515	60	511	15	99
15BJ06-096	42	236354	1.5	17.0268	3.6	0.6681	4.2	0.0825	2.3	0.54	511	11	520	17	557	78	511	11	92
15BJ06-003	46	45551	2.1	17.1967	2.8	0.6615	3.5	0.0825	2.2	0.62	511	11	516	14	535	60	511	11	95
15BJ06-032	190	66997	0.9	17.0580	2.1	0.6671	2.9	0.0825	2.0	0.69	511	10	519	12	553	46	511	10	92
15BJ06-297	46	33227	1.7	17.3595	3.6	0.6555	3.9	0.0825	1.4	0.36	511	7	512	15	515	79	511	7	99
15BJ06-145	58	29157	2.0	17.4072	3.2	0.6537	3.6	0.0825	1.7	0.46	511	8	511	15	509	71	511	8	100
15BJ06-128	173	162542	1.4	17.5413	1.4	0.6487	2.4	0.0825	1.9	0.81	511	9	508	10	492	31	511	9	104
15BJ06-187	41	36321	1.6	16.9236	3.9	0.6725	4.4	0.0825	2.2	0.49	511	11	522	18	570	84	511	11	90
15BJ06-114	66	28763	1.3	17.3887	3.4	0.6548	4.1	0.0826	2.2	0.54	511	11	511	16	511	75	511	11	100
15BJ06-160	96	25311	1.6	17.4520	2.4	0.6525	2.9	0.0826	1.7	0.58	512	8	510	12	503	52	512	8	102
15BJ06-074	44	28434	1.1	17.2397	4.2	0.6606	4.9	0.0826	2.5	0.51	512	12	515	20	530	92	512	12	97
15BJ06-298	243	132932	0.9	17.3192	1.7	0.6577	2.8	0.0826	2.2	0.80	512	11	513	11	520	37	512	11	98
15BJ06-189	81	42627	1.4	16.9089	2.4	0.6736	3.4	0.0826	2.3	0.69	512	11	523	14	572	53	512	11	89
15BJ06-002	215	158409	1.6	17.5423	1.7	0.6493	3.0	0.0826	2.5	0.83	512	12	508	12	492	38	512	12	104
15BJ06-154	56	23730	1.4	17.0285	2.5	0.6691	3.2	0.0826	2.0	0.63	512	10	520	13	557	54	512	10	92
15BJ06-257	91	195778	1.9	17.2287	2.2	0.6615	2.8	0.0827	1.8	0.63	512	9	516	11	531	48	512	9	96
15BJ06-024	137	28151	1.3	17.2489	2.3	0.6610	3.1	0.0827	2.1	0.68	512	10	515	13	529	50	512	10	97
15BJ06-034	71	41928	1.4	16.5713	2.9	0.6880	3.6	0.0827	2.2	0.60	512	11	532	15	616	62	512	11	83
15BJ06-103	147	81165	0.9	17.2003	1.7	0.6629	2.5	0.0827	1.8	0.72	512	9	516	10	535	38	512	9	96
15BJ06-284	280	28582	0.9	17.0460	1.5	0.6690	2.6	0.0827	2.1	0.82	512	11	520	11	555	32	512	11	92
15BJ06-085	130	91408	1.3	17.2090	2.4	0.6627	3.5	0.0827	2.6	0.73	512	13	516	14	534	53	512	13	96
15BJ06-211	282	143573	0.8	17.3577	1.5	0.6572	2.6	0.0827	2.2	0.82	512	11	513	11	515	33	512	11	100
15BJ06-015	126	41323	1.2	17.3348	2.5	0.6581	3.3	0.0827	2.2	0.67	512	11	513	13	518	54	512	11	99
15BJ06-169	178	39066	1.2	17.4874	2.9	0.6525	3.8	0.0828	2.4	0.64	513	12	510	15	499	64	513	12	103
15BJ06-053	48	46801	1.3	16.9906	3.4	0.6717	4.2	0.0828	2.4	0.57	513	12	522	17	562	75	513	12	91
15BJ06-180	45	223993	2.0	17.1079	3.3	0.6671	3.9	0.0828	1.9	0.50	513	9	519	16	547	73	513	9	94
15BJ06-256	84	37321	2.0	17.4155	2.7	0.6554	3.5	0.0828	2.2	0.62	513	11	512	14	508	60	513	11	101
15BJ06-230	27	41578	1.8	17.0062	3.9	0.6713	4.3	0.0828	1.8	0.41	513	9	522	17	560	85	513	9	92
15BJ06-066	70	25105	1.1	17.5290	2.5	0.6513	3.2	0.0828	2.1	0.64	513	10	509	13	493	55	513	10	104
15BJ06-305	145	93255	1.3	17.3642	2.2	0.6581	3.0	0.0829	2.0	0.67	513	10	513	12	514	48	513	10	100
15BJ06-134	72	28534	1.5	17.4753	3.4	0.6540	4.1	0.0829	2.3	0.55	513	11	511	16	500	75	513	11	103
15BJ06-035	72	45811	1.8	16.6142	2.5	0.6880	3.0	0.0829	1.7	0.58	513	9	532	13	610	53	513	9	84
15BJ06-123	111	139781	1.2	17.3642	2.4	0.6583	3.7	0.0829	2.8	0.76	513	14	514	15	514	53	513	14	100
15BJ06-100	29	17831	1.3	17.4600	4.6	0.6549	5.2	0.0829	2.5	0.48	514	12	511	21	502	101	514	12	102
15BJ06-283	273	237236	0.8	17.3714	1.8	0.6584	2.6	0.0829	1.9	0.72	514	9	514	10	513	40	514	9	100
15BJ06-005	88	192337	1.1	17.3878	3.2	0.6579	4.3	0.0830	2.9	0.68	514	14	513	17	511	70	514	14	101
15BJ06-051	210	131258	1.6	17.4342	2.0	0.6570	2.8	0.0831	1.9	0.68	514	9	513	11	505	45	514	9	102
15BJ06-204	35	38992	1.9	16.9655	3.7	0.6752	4.3	0.0831	2.1	0.49	514	10	524	18	565	82	514	10	91

15BJ06-224	84	54550	1.9	17.5015	2.5	0.6549	3.3	0.0831	2.1	0.64	515	10	511	13	497	56	515	10	104
15BJ06-127	56	138723	2.0	16.6930	3.1	0.6867	4.0	0.0831	2.5	0.64	515	13	531	16	600	66	515	13	86
15BJ06-063	67	41444	1.2	17.1924	2.4	0.6670	2.9	0.0832	1.7	0.58	515	9	519	12	536	52	515	9	96
15BJ06-299	40	78687	1.2	16.7226	3.3	0.6858	3.7	0.0832	1.7	0.47	515	9	530	15	596	71	515	9	86
15BJ06-267	64	27766	1.4	17.5583	3.2	0.6532	3.8	0.0832	2.1	0.56	515	11	510	15	490	70	515	11	105
15BJ06-147	86	66631	1.3	16.9004	2.5	0.6787	3.5	0.0832	2.4	0.70	515	12	526	14	573	54	515	12	90
15BJ06-059	55	190792	1.5	17.3556	3.1	0.6612	3.6	0.0832	1.9	0.53	515	10	515	15	515	68	515	10	100
15BJ06-199	179	42081	1.1	17.3816	1.7	0.6604	2.6	0.0832	1.9	0.74	515	10	515	10	512	38	515	10	101
15BJ06-007	64	20658	1.6	17.3502	3.0	0.6616	3.6	0.0833	2.1	0.58	516	10	516	15	516	65	516	10	100
15BJ06-075	128	185827	1.1	17.1504	2.3	0.6694	3.1	0.0833	2.1	0.67	516	10	520	13	541	51	516	10	95
15BJ06-271	93	37691	1.9	17.1585	2.9	0.6692	3.7	0.0833	2.3	0.62	516	12	520	15	540	64	516	12	95
15BJ06-031	60	20886	2.1	16.9854	3.6	0.6764	4.4	0.0833	2.6	0.59	516	13	525	18	562	78	516	13	92
15BJ06-142	105	55153	1.9	17.4059	2.4	0.6604	3.0	0.0834	1.9	0.61	516	9	515	12	509	53	516	9	101
15BJ06-157	163	42504	1.6	17.4633	2.0	0.6583	3.1	0.0834	2.4	0.76	516	12	514	13	502	44	516	12	103
15BJ06-215	43	39103	1.6	17.4530	2.9	0.6589	4.2	0.0834	2.9	0.71	516	15	514	17	503	64	516	15	103
15BJ06-037	50	27044	1.2	17.2151	3.2	0.6685	4.1	0.0835	2.5	0.61	517	12	520	17	533	71	517	12	97
15BJ06-110	37	22228	2.1	17.2914	3.7	0.6656	4.6	0.0835	2.7	0.58	517	13	518	19	523	82	517	13	99
15BJ06-168	222	63309	1.0	17.3426	1.6	0.6642	2.5	0.0835	2.0	0.77	517	10	517	10	517	35	517	10	100
15BJ06-292	60	27158	1.4	17.4698	2.9	0.6596	3.5	0.0836	2.0	0.57	517	10	514	14	501	64	517	10	103
15BJ06-108	123	46730	1.3	17.2483	1.6	0.6681	2.5	0.0836	2.0	0.79	517	10	520	10	529	34	517	10	98
15BJ06-083	127	28747	1.9	17.4272	2.1	0.6619	2.8	0.0837	1.8	0.65	518	9	516	11	506	46	518	9	102
15BJ06-164	71	148396	2.1	17.4028	2.8	0.6628	3.2	0.0837	1.5	0.48	518	8	516	13	509	62	518	8	102
15BJ06-026	70	104685	2.0	17.3007	2.7	0.6668	3.6	0.0837	2.3	0.66	518	12	519	15	522	59	518	12	99
15BJ06-023	111	35458	1.4	17.5183	2.6	0.6595	3.5	0.0838	2.3	0.66	519	11	514	14	495	58	519	11	105
15BJ06-041	31	40414	2.0	16.9882	3.2	0.6801	4.0	0.0838	2.4	0.61	519	12	527	17	562	70	519	12	92
15BJ06-196	88	32419	1.7	17.1525	2.7	0.6743	3.2	0.0839	1.8	0.55	519	9	523	13	541	59	519	9	96
15BJ06-098	59	41799	1.7	16.5231	3.1	0.7000	4.0	0.0839	2.5	0.63	519	12	539	17	622	67	519	12	83
15BJ06-109	27	21776	0.8	17.5213	4.5	0.6605	5.0	0.0839	2.1	0.42	520	10	515	20	494	100	520	10	105
15BJ06-208	73	32267	1.4	17.1122	3.1	0.6766	3.7	0.0840	1.9	0.52	520	10	525	15	546	69	520	10	95
15BJ06-056	63	44603	1.9	17.2139	3.4	0.6729	3.9	0.0840	1.8	0.46	520	9	522	16	533	75	520	9	98
15BJ06-004	59	31709	2.1	17.2337	3.5	0.6722	4.3	0.0840	2.4	0.56	520	12	522	18	531	78	520	12	98
15BJ06-106	293	131732	1.1	17.2676	1.9	0.6709	2.7	0.0840	2.0	0.72	520	10	521	11	526	41	520	10	99
15BJ06-036	33	37219	1.0	17.3497	4.2	0.6678	4.9	0.0840	2.6	0.52	520	13	519	20	516	93	520	13	101
15BJ06-091	112	134304	1.5	16.9815	2.6	0.6823	3.3	0.0840	1.9	0.59	520	10	528	13	563	58	520	10	92
15BJ06-018	81	47044	2.0	17.2618	2.8	0.6713	3.7	0.0840	2.3	0.64	520	12	521	15	527	62	520	12	99
15BJ06-310	26	29208	1.8	17.4343	3.9	0.6650	4.4	0.0841	2.0	0.46	520	10	518	18	505	85	520	10	103
15BJ06-061	54	34669	1.4	16.8870	2.6	0.6866	3.6	0.0841	2.5	0.68	520	12	531	15	575	57	520	12	91
15BJ06-287	84	93786	1.9	17.3523	2.5	0.6682	3.2	0.0841	2.0	0.63	521	10	520	13	516	54	521	10	101
15BJ06-193	74	115381	2.3	17.3520	2.6	0.6684	3.2	0.0841	1.8	0.57	521	9	520	13	516	57	521	9	101
15BJ06-033	135	62924	1.2	17.2595	1.9	0.6724	3.0	0.0842	2.4	0.78	521	12	522	12	527	42	521	12	99
15BJ06-314	74	32933	2.0	17.1055	3.1	0.6795	4.0	0.0843	2.5	0.62	522	12	526	17	547	69	522	12	95
15BJ06-216	42	10218	1.6	17.4106	4.3	0.6677	4.9	0.0843	2.4	0.50	522	12	519	20	508	94	522	12	103
15BJ06-188	547	155902	0.6	17.5003	1.4	0.6644	2.8	0.0843	2.4	0.87	522	12	517	11	497	31	522	12	105
15BJ06-055	115	754043	1.7	17.0998	2.7	0.6803	3.4	0.0844	2.0	0.59	522	10	527	14	548	60	522	10	95
15BJ06-198	25	10815	1.5	16.9251	4.1	0.6880	4.7	0.0845	2.3	0.49	523	11	532	19	570	90	523	11	92
15BJ06-121	175	68675	1.0	17.1547	1.8	0.6790	2.5	0.0845	1.8	0.71	523	9	526	10	541	38	523	9	97
15BJ06-112	84	167171	1.7	17.2816	2.5	0.6746	3.5	0.0846	2.4	0.69	523	12	524	14	525	55	523	12	100
15BJ06-186	84	24793	1.3	16.9517	1.9	0.6879	2.8	0.0846	2.1	0.75	523	11	532	12	567	41	523	11	92
15BJ06-017	49	109121	1.7	17.1128	3.1	0.6822	3.7	0.0847	2.1	0.57	524	11	528	15	546	67	524	11	96

15BJ06-132	107	55274	1.7	17.3821	2.4	0.6717	3.0	0.0847	1.8	0.61	524	9	522	12	512	52	524	9	102
15BJ06-086	50	22011	1.7	17.4981	2.6	0.6679	3.2	0.0848	1.9	0.59	525	10	519	13	497	57	525	10	105
15BJ06-179	63	31495	1.8	17.3515	2.8	0.6741	3.7	0.0848	2.5	0.66	525	12	523	15	516	61	525	12	102
15BJ06-237	277	119454	0.8	17.3604	1.7	0.6741	2.5	0.0849	1.8	0.71	525	9	523	10	515	38	525	9	102
15BJ06-006	35	13962	2.2	17.3241	3.4	0.6769	3.8	0.0851	1.8	0.47	526	9	525	16	519	74	526	9	101
15BJ06-205	46	27020	1.9	16.3731	3.7	0.7167	4.0	0.0851	1.6	0.40	527	8	549	17	642	79	527	8	82
15BJ06-090	149	78466	1.9	17.1492	2.3	0.6843	3.2	0.0851	2.2	0.68	527	11	529	13	541	51	527	11	97
15BJ06-149	114	34808	1.7	17.1640	2.3	0.6846	3.4	0.0852	2.5	0.74	527	13	530	14	540	50	527	13	98
15BJ06-102	49	40008	2.0	16.8385	3.1	0.6981	3.7	0.0852	2.2	0.58	527	11	538	16	581	67	527	11	91
15BJ06-027	87	35345	1.6	17.2773	2.2	0.6824	2.9	0.0855	2.0	0.68	529	10	528	12	525	47	529	10	101
15BJ06-213	38	28582	1.7	16.9796	3.6	0.6954	4.3	0.0856	2.3	0.54	530	12	536	18	563	79	530	12	94
15BJ06-220	33	13865	0.9	17.2623	3.2	0.6850	4.1	0.0858	2.6	0.63	530	13	530	17	527	70	530	13	101
15BJ06-181	37	34478	1.4	16.9730	3.0	0.6968	3.5	0.0858	1.7	0.49	531	9	537	14	564	66	531	9	94
15BJ06-177	51	41861	1.3	17.2057	2.2	0.6891	3.7	0.0860	2.9	0.79	532	15	532	15	534	49	532	15	100
15BJ06-195	109	154670	1.7	17.1391	2.2	0.6924	3.6	0.0861	2.8	0.79	532	14	534	15	543	48	532	14	98
15BJ06-265	146	29612	1.5	17.3290	1.7	0.6872	2.6	0.0864	1.9	0.74	534	10	531	11	519	38	534	10	103
15BJ06-045	44	28165	1.2	17.2385	3.9	0.6927	4.6	0.0866	2.4	0.53	535	12	534	19	530	85	535	12	101
15BJ06-210	59	146544	1.5	17.3751	3.6	0.6878	4.1	0.0867	2.0	0.48	536	10	531	17	513	79	536	10	104
15BJ06-049	32	13329	1.9	17.0590	4.2	0.7007	4.7	0.0867	2.1	0.44	536	11	539	19	553	91	536	11	97
15BJ06-042	81	83826	1.8	17.2694	2.0	0.6942	3.1	0.0869	2.3	0.74	537	12	535	13	526	45	537	12	102
15BJ06-099	67	25385	1.5	16.8463	2.9	0.7130	3.4	0.0871	1.9	0.55	538	10	547	15	580	63	538	10	93
15BJ06-130	52	31116	1.4	17.0797	2.7	0.7111	3.4	0.0881	2.1	0.61	544	11	545	15	550	59	544	11	99
15BJ06-046	68	200485	0.8	8.9402	1.6	5.0788	2.4	0.3293	1.8	0.75	1835	29	1833	21	1830	29	1830	29	100
15BJ06-081	851	204103	0.6	5.8099	1.2	9.6076	2.6	0.4048	2.4	0.90	2191	44	2398	24	2578	19	2578	19	85
>20% Discordance																			
15BJ06-159	379	119943	0.8	16.5069	2.1	0.6610	2.6	0.0791	1.5	0.59	491	7	515	10	624	45	491	7	79
15BJ06-020	48	28854	1.7	16.2408	3.1	0.6861	3.7	0.0808	2.1	0.56	501	10	530	15	659	67	501	10	76
15BJ06-028	32	84872	1.8	16.0384	4.3	0.7022	4.9	0.0817	2.3	0.47	506	11	540	21	686	93	506	11	74
15BJ06-166	49	40597	1.6	16.0767	3.7	0.7014	4.6	0.0818	2.8	0.61	507	14	540	19	681	79	507	14	74
15BJ06-118	96	59722	1.7	14.7893	3.6	0.7653	3.9	0.0821	1.6	0.41	509	8	577	17	857	75	509	8	59
15BJ06-250	118	95334	1.9	16.0817	2.4	0.7099	3.0	0.0828	1.8	0.61	513	9	545	13	680	51	513	9	75
15BJ06-125	162	50083	1.8	16.0659	3.0	0.7191	3.4	0.0838	1.6	0.47	519	8	550	14	682	64	519	8	76
15BJ06-040	131	70295	1.4	15.8409	2.5	0.7294	3.4	0.0838	2.3	0.68	519	12	556	15	713	53	519	12	73
15BJ06-139	72	42771	2.0	16.0634	3.8	0.7231	4.5	0.0842	2.4	0.54	521	12	553	19	683	81	521	12	76
15BJ06-068	86	31193	1.2	15.2386	2.6	0.7667	3.2	0.0847	1.8	0.57	524	9	578	14	794	55	524	9	66
15BJ06-071	42	67013	1.9	14.5362	6.3	0.8218	7.0	0.0866	2.9	0.42	536	15	609	32	893	130	536	15	60
15BJ06-069	55	11947	1.8	13.5093	8.0	0.8944	8.6	0.0876	3.1	0.36	542	16	649	41	1042	161	542	16	52
15BJ06-300	218	40136	0.7	9.7635	2.6	3.0556	3.3	0.2164	2.0	0.61	1263	23	1422	25	1668	48	1668	48	76
15BJ06-038	961	64229	2.4	9.2351	1.7	3.6215	2.7	0.2426	2.1	0.77	1400	26	1554	22	1771	32	1771	32	79
>5% Reverse Discordance																			
15BJ06-252	84	40335	1.4	17.7183	2.6	0.6218	3.4	0.0799	2.2	0.65	496	10	491	13	470	57	496	10	106
15BJ06-308	56	18472	1.3	17.7042	3.2	0.6282	4.0	0.0807	2.3	0.59	500	11	495	16	471	71	500	11	106
15BJ06-158	71	15673	1.6	17.8002	3.1	0.6250	3.7	0.0807	2.0	0.53	500	9	493	14	459	70	500	9	109
15BJ06-162	77	33709	1.9	17.7049	3.5	0.6320	3.9	0.0812	1.8	0.46	503	9	497	16	471	77	503	9	107
15BJ06-148	73	13500	1.9	17.7937	2.3	0.6289	3.4	0.0812	2.5	0.74	503	12	495	13	460	51	503	12	109
15BJ06-244	61	25898	1.3	17.6764	3.6	0.6339	4.3	0.0813	2.4	0.56	504	12	499	17	475	79	504	12	106
15BJ06-277	50	61628	1.5	17.9615	3.2	0.6240	4.0	0.0813	2.4	0.59	504	11	492	16	439	72	504	11	115

15BJ06-019	57	33539	1.4	17.7116	3.4	0.6338	4.2	0.0814	2.4	0.58	505	12	498	16	471	75	505	12	107
15BJ06-052	54	28509	2.3	17.6520	3.0	0.6365	3.8	0.0815	2.3	0.60	505	11	500	15	478	67	505	11	106
15BJ06-280	57	26989	1.6	17.7050	3.7	0.6364	4.2	0.0817	2.0	0.47	506	10	500	17	471	82	506	10	107
15BJ06-233	51	27352	1.7	17.6652	3.6	0.6379	4.0	0.0817	1.9	0.47	506	9	501	16	476	79	506	9	106
15BJ06-258	109	28685	1.5	17.6909	2.9	0.6377	3.9	0.0818	2.6	0.67	507	13	501	15	473	63	507	13	107
15BJ06-207	84	39013	0.9	17.9837	2.4	0.6274	3.4	0.0818	2.4	0.71	507	12	494	13	437	54	507	12	116
15BJ06-163	274	27927	1.1	17.6626	1.9	0.6398	2.7	0.0820	1.9	0.71	508	9	502	11	477	43	508	9	107
15BJ06-274	117	34347	1.6	17.7330	2.4	0.6377	3.0	0.0820	1.9	0.63	508	9	501	12	468	52	508	9	109
15BJ06-221	36	20341	1.7	18.0391	4.0	0.6274	4.7	0.0821	2.4	0.52	509	12	494	18	430	89	509	12	118
15BJ06-209	65	44772	1.4	17.6870	2.7	0.6410	3.3	0.0822	1.9	0.58	509	9	503	13	474	59	509	9	108
15BJ06-008	52	20604	1.9	17.8587	3.0	0.6351	4.1	0.0823	2.7	0.66	510	13	499	16	452	68	510	13	113
15BJ06-255	45	11939	1.7	17.7411	3.3	0.6397	4.3	0.0823	2.7	0.63	510	13	502	17	467	73	510	13	109
15BJ06-088	60	23249	2.0	18.0346	2.9	0.6296	3.6	0.0824	2.2	0.62	510	11	496	14	430	64	510	11	119
15BJ06-240	30	12590	1.4	18.0023	4.0	0.6311	4.6	0.0824	2.2	0.48	510	11	497	18	434	90	510	11	118
15BJ06-146	39	26905	1.5	17.6084	4.6	0.6457	5.1	0.0825	2.3	0.45	511	11	506	20	483	101	511	11	106
15BJ06-303	95	68710	1.3	17.6433	2.9	0.6448	3.5	0.0825	1.9	0.55	511	9	505	14	479	64	511	9	107
15BJ06-116	85	35223	1.1	17.6316	2.2	0.6458	2.9	0.0826	1.9	0.65	511	9	506	12	481	49	511	9	106
15BJ06-039	64	26846	1.7	17.6724	3.9	0.6443	4.4	0.0826	2.0	0.45	512	10	505	17	475	86	512	10	108
15BJ06-176	70	215027	2.2	17.8774	2.8	0.6371	3.5	0.0826	2.1	0.59	512	10	501	14	450	63	512	10	114
15BJ06-286	40	511982	1.8	17.9458	3.6	0.6353	4.5	0.0827	2.6	0.58	512	13	499	18	441	81	512	13	116
15BJ06-201	138	31585	1.6	17.6126	2.0	0.6476	2.7	0.0827	1.7	0.64	512	8	507	11	483	45	512	8	106
15BJ06-076	122	29197	1.4	17.6855	2.4	0.6456	3.1	0.0828	2.1	0.65	513	10	506	13	474	53	513	10	108
15BJ06-313	65	52904	1.8	17.6584	2.7	0.6467	3.4	0.0828	2.1	0.61	513	10	506	14	477	60	513	10	107
15BJ06-172	78	35662	1.9	17.8143	2.3	0.6412	3.1	0.0828	2.1	0.66	513	10	503	12	458	52	513	10	112
15BJ06-214	103	36135	1.4	17.6986	2.4	0.6456	3.0	0.0829	1.9	0.61	513	9	506	12	472	53	513	9	109
15BJ06-141	54	36631	1.7	17.8150	3.7	0.6416	4.2	0.0829	2.1	0.50	513	10	503	17	458	81	513	10	112
15BJ06-219	55	35025	1.4	17.6547	3.6	0.6477	4.3	0.0829	2.3	0.53	514	11	507	17	478	80	514	11	108
15BJ06-047	91	36516	1.1	17.5696	2.5	0.6533	3.7	0.0833	2.7	0.74	516	13	511	15	488	55	516	13	106
15BJ06-165	157	84956	1.1	17.6383	1.8	0.6509	3.0	0.0833	2.3	0.79	516	12	509	12	480	41	516	12	107
15BJ06-133	64	20564	1.8	17.8110	2.6	0.6447	3.6	0.0833	2.5	0.70	516	13	505	14	458	58	516	13	113
15BJ06-079	32	8881	0.8	17.9283	3.9	0.6409	4.8	0.0833	2.7	0.57	516	13	503	19	444	87	516	13	116
15BJ06-173	136	25282	1.6	17.6362	1.6	0.6532	2.6	0.0835	2.0	0.77	517	10	510	10	480	36	517	10	108
15BJ06-309	65	39136	1.6	17.5888	2.9	0.6555	3.8	0.0836	2.6	0.67	518	13	512	15	486	63	518	13	107
15BJ06-247	171	140436	1.7	17.6040	2.3	0.6555	3.0	0.0837	2.0	0.65	518	10	512	12	484	51	518	10	107
15BJ06-094	64	63901	2.3	17.6212	2.3	0.6552	3.1	0.0837	2.0	0.65	518	10	512	12	482	51	518	10	108
15BJ06-288	82	38733	1.6	17.7584	3.1	0.6514	4.0	0.0839	2.5	0.63	519	13	509	16	465	68	519	13	112
15BJ06-070	38	15834	1.5	17.9912	2.7	0.6433	4.1	0.0839	3.0	0.74	520	15	504	16	436	61	520	15	119
15BJ06-282	38	19400	2.1	17.5878	4.8	0.6582	5.5	0.0840	2.7	0.48	520	13	514	22	486	106	520	13	107
15BJ06-200	75	26537	1.2	17.7651	2.5	0.6530	3.2	0.0841	2.0	0.62	521	10	510	13	464	56	521	10	112
15BJ06-057	79	56052	2.0	17.6789	2.5	0.6575	3.0	0.0843	1.7	0.57	522	8	513	12	475	54	522	8	110
15BJ06-304	75	20040	1.8	17.6994	3.3	0.6574	4.0	0.0844	2.2	0.55	522	11	513	16	472	74	522	11	111
15BJ06-140	53	38819	1.9	17.5490	2.5	0.6632	3.5	0.0844	2.4	0.69	522	12	517	14	491	56	522	12	106
15BJ06-296	49	24493	1.5	17.5306	2.9	0.6659	3.5	0.0847	1.9	0.55	524	10	518	14	493	64	524	10	106
15BJ06-138	59	38203	1.6	17.9324	2.9	0.6520	3.9	0.0848	2.7	0.68	525	14	510	16	443	64	525	14	118
15BJ06-009	49	14680	1.5	17.6870	2.8	0.6614	3.6	0.0848	2.2	0.62	525	11	515	15	474	63	525	11	111
15BJ06-093	77	26297	1.4	17.7674	3.0	0.6611	3.5	0.0852	1.9	0.54	527	10	515	14	464	66	527	10	114
15BJ06-315	216	8440759	1.8	17.5047	1.9	0.6719	3.0	0.0853	2.3	0.78	528	12	522	12	496	42	528	12	106
15BJ06-030	160	122865	1.3	17.5252	1.8	0.6713	2.7	0.0853	2.1	0.76	528	10	521	11	494	39	528	10	107
15BJ06-095	56	21416	1.0	17.6454	2.8	0.6725	3.5	0.0861	2.1	0.60	532	11	522	14	479	62	532	11	111

15BJ06-048	88	41100	1.4	17.7501	2.1	0.6721	2.7	0.0865	1.7	0.62	535	9	522	11	466	46	535	9	115
15BJ06-152	111	26487	0.9	17.4453	2.3	0.6866	3.1	0.0869	2.1	0.69	537	11	531	13	504	50	537	11	107
15BJ06-178	28	22951	1.6	17.4189	4.4	0.7279	5.2	0.0920	2.8	0.53	567	15	555	22	507	96	567	15	112
Contamination(?)																			
15BJ06-295	601	74913	3.2	20.7301	2.6	0.0814	3.6	0.0122	2.6	0.70	78	2	79	3	111	61	78	2	NA
15BJ06-077	691	31702	1.2	21.0592	2.4	0.0965	3.1	0.0147	2.0	0.65	94	2	94	3	74	57	94	2	NA
15BJ06-016	438	19822	1.6	21.4375	2.8	0.1017	3.4	0.0158	1.9	0.57	101	2	98	3	31	67	101	2	NA
15BJ06-192	202	23558	2.2	21.2151	4.2	0.1122	4.7	0.0173	2.2	0.46	110	2	108	5	56	100	110	2	NA
15BJ06-245	83	19745	3.3	19.6888	3.9	0.1938	4.4	0.0277	2.1	0.48	176	4	180	7	231	90	176	4	NA
Pb loss(?)																			
15BJ06-131	706	117177	1.7	18.2575	1.8	0.4272	2.7	0.0566	2.0	0.75	355	7	361	8	403	40	355	7	NA

1. Best age is chosen to be the 206Pb/238U age for analyses with 206Pb/238U age <900 Ma otherwise the 206Pb/207Pb age is preferred for analyses with 206Pb/238Uage >900 Ma.

2. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age and higher sensitivity to discordance.

3. All uncertainties are reported at the 1-sigma level, and include measurement errors and an additional factor based on MSWD of sets of secondary standards to account for overdispersion of standard measurements

4. Systematic errors (at 2-sigma level) include contributions from U decay constants, composition of common Pb, true age of the standard, and scatter of measured age of the standards, and are as follows: 1.0% (206Pb/238U) & 0.9% (206Pb/207Pb)

5. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975), and Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.

6. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.88.

Table-DR3 Hf isotopic data.

Sample	(^{176}Yb + ^{176}Lu) / ^{176}Hf (%)	Volts Hf	^{176}Hf/^{177}Hf	± (1σ)	^{176}Lu/^{177}Hf	^{176}Hf/^{177}Hf (T)	E-Hf (0)	E-Hf (0) ± (1σ)	E-Hf (T)	Age (Ma)	± (1σ)
13WW23; Whale Mountain volcanic rock (central belt)						**N 69.182**	**W 140.924**				
13WW24-055	46.9	2.5	0.282638	0.000032	0.002581	0.282615	-5.2	1.1	4.8	486	32
13WW24-056	12.8	3.7	0.282709	0.000025	0.000735	0.282702	-2.7	0.9	8.1	493	10
13WW24-053	28.2	2.5	0.282622	0.000036	0.001634	0.282607	-5.8	1.3	4.9	500	17
13WW24-059	30.9	3.2	0.282685	0.000030	0.001699	0.282668	-3.6	1.1	7.2	508	26
13WW24-058	21.9	3.3	0.282779	0.000027	0.001445	0.282765	-0.2	1.0	10.7	510	24
13WW24-057	13.5	2.8	0.282628	0.000034	0.000797	0.282620	-5.6	1.2	5.6	514	8
15BJ06; Marsh Fork volcanic rocs (southern belt)						**N 69.108**	**W 143.894**				
15BJ06-297	14.7	3.1	0.282745	0.000029	0.000711	0.282738	-1.4	1.0	9.7	511	7
15BJ06-145	16.6	3.6	0.282721	0.000029	0.000775	0.282714	-2.2	1.0	8.9	511	8
15BJ06-257	13.4	3.7	0.282674	0.000024	0.000600	0.282668	-3.9	0.8	7.3	512	9
15BJ06-256	15.7	3.0	0.282707	0.000029	0.000681	0.282700	-2.8	1.0	8.4	513	11
15BJ06-063	20.4	1.3	0.282753	0.000047	0.001136	0.282742	-1.1	1.7	10.0	515	9