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**GEOLOGICAL SURVEY OF CANADA
OPEN FILE 8705**

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A comprehensive earthquake catalogue for southwestern Alberta, between 2004 and 2015

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Abstract

We revisited seismic data recorded from 2004/05 to 2015/01 by regional seismic networks in western Alberta, with the intention of establishing the most comprehensive earthquake catalogue that the data allow. We use a signal-to-noise ratio (SNR) based algorithm to detect earthquake signals, locate the events with a grid-search method, and determine the moment magnitude from time-domain inversion of the observed amplitudes. Our final catalogue contains a total of 306 earthquakes, of which 60 events are missing from routine earthquake monitoring by both Natural Resources Canada (NRCan) and Alberta Geological Survey (AGS). The 306 earthquakes can be roughly grouped into 5 tightly concentrated clusters; several tens of which are, however, broadly distributed in the region. While some of the clusters identified by this study have been studied previously, a potential induced seismicity cluster located at close range to station PER is newly discovered through our analysis.

1. Introduction

Alberta is located between the low-seismicity intraplate Canadian Shield and the Canadian Cordillera (Figure 1). Although there has been no documented earthquake in Alberta with local magnitude (M_L) exceeding 6, a large number of events with $M_L > 3$ have been detected by the Canadian National Seismograph Network (CNSN) and routinely reported by Natural Resources Canada (NRCan).

Historically, the station coverage of CNSN has not been ideal for detecting small earthquakes in most parts of Alberta. From 2006, the University of Alberta and the AGS have made significant efforts to enhance the overall ability of detecting and locating small earthquakes in the Western Canada Sedimentary Basin by installing new regional seismograph stations (Gu *et al.*, 2011; Stern *et al.*, 2013). The early phase of this collaborative deployment focused on populated areas (e.g., Edmonton, Calgary, and the area in between). Nevertheless, these efforts have significantly improved the completeness of the regional earthquake catalog that led to the recognition of several major regional seismicity clusters (Stern *et al.*, 2013).

Although the oil and gas industry has been developed in Alberta for decades, only a few reported earthquake sequences prior to 2015 were suggested to be associated with the industrial activities. This seismicity was mostly concentrated south of Edmonton, and took place in the time before or during the early stage of the operation of the Alberta regional seismograph network (e.g., Schultz *et al.*, 2014; Wetmiller, 1986). On 23 January 2015, an M_L 4.6 earthquake occurred in the Crooked Lake area adjacent to the Fox Creek township. It was followed by a series of micro- to small-sized aftershocks.

This region remains seismically active with another significant earthquake ($M_L=4.26$) on 13 June 2015, and both sequences are linked to local development of unconventional hydrocarbons (e.g., Schultz *et al.*, 2015). Despite the extended history of unconventional hydrocarbon development in western Alberta dating back to early 2010 (Schultz *et al.*, 2016), however, major infrastructure necessary to monitor regional seismicity was not in place until 2015, leading to a relatively incomplete picture of the regional seismicity.

In this technical report we present results of a comprehensive study of regional seismicity in western Alberta from 1 May 2004 to 23 January 2015. We revisited all waveform data recorded by seismograph stations in this region, including those belonging to a temporary seismic array and to permanent seismograph networks. This study focuses on two key components: 1) detect, identify, and verify regional/local earthquakes, and 2) determine source parameters (origin time, hypocenter, and moment magnitude) for each detected event.

2. Study Area and Data Sources

Our study area is defined by a 200-km radius centered at the seismic station PER (yellow circle, Fig. 1). We collect waveform data from all available stations in the region, including: the Canadian National Seismograph Network (CNSN, operated by NRCan); the Alberta Telemetered Seismograph Network (ATSN, operated by AGS); the Regional Alberta Observatory for Earthquake (RAVEN, operated by AGS); the Canadian Rockies and Alberta Network (CRANE, jointly operated by the University of Alberta and AGS); and the TransAlta Induced Earthquake Monitoring Network (TD, funded by TransAlta and operated by Nanometrics Inc.); along with the temporary deployment of a seismic array (the Canadian Northwest Experiment, from May 2004 to December 2005). Most of the data can be downloaded from the Data Management Center of the Incorporated Research Institutions for Seismology (<http://ds.iris.edu/ds>), except for CNSN waveforms provided by the Canadian Hazard Information Service of NRCan (<http://www.earthquakescanada.nrcan.gc.ca>). Fig. 1 is a map showing all the stations used in this study. The station coverage is generally sufficient for locating seismic events with M_L above ~ 1.0 in the southwest Alberta region.

3. Method and Data Analysis

3.1 Earthquake Detection Based on SNR Triggering

We perform event detection with a SNR-based triggering algorithm (i.e., the ratio between short-term average, STA, and long-term average, LTA; Allen 1978). The SNR calculation is done in the time domain with multiple band-pass filters (0.5–2 Hz, 0.8–3 Hz, 1–5 Hz, 2–10 Hz, and 5-Hz high-pass) in

order to increase the signal's coherency. The usable frequency band is limited by the Nyquist frequency of 10 Hz because most stations installed before 2014 are digitized at 20 samples per second. The window length used in the calculation of LTA and STA is critical, and can be set up dynamically depending on the targeted dominant frequency. Empirically, the optimal STA/LTA ratio is 40 for micro-earthquakes with rich higher frequency content.

We use waveforms recorded by station PER (or stations C14 and C15 for data recorded by the temporary seismic array in 2004–2005) in the initial search for seismic events. Once the STA/LTA exceeds the preset threshold, seismic phases (e.g., P and S) must be clearly visible on all band-pass filtered waveforms before a trigger is declared. We limit the S-P time to less than 22 s at stations PER, C14, and C15 to exclude events that occurred outside the study area. Also, we refer to catalogues published by AGS and NRCAN for events that are possibly missed by our detection algorithm. At the same time, visual inspection allows us to remove all false positives such as unknown spiky noise with an extremely high SNR. We associate triggers that are also identified at other stations by applying the Wadati diagram, which helps to determine whether it is a true seismic event (Fig. 2). For each event, there must be at least 2 stations with both *P*- and *S*-arrivals for us to determine its origin time. Another criterion is that the resulting correlation coefficient for trigger association on the Wadati diagram must be larger than 0.9 (1.0 being a perfect fit, Fig. 2). The origin time and V_p/V_s ratio of each qualified seismic event are determined from the diagram, providing some constraint on the hypocentral location.

3.2 Hypocentral Location

We employ a grid-search based algorithm to determine the hypocentral parameters (i.e., epicentre and focal depth) of each seismic event (Huang *et al.*, 2009; Roecker *et al.*, 2004). The grid-search systematically scans all grid-points within a 3-D volume to find the location with the minimum travel-time variance using a pre-calculated travel-time table. The calculation of travel-times from each grid-point to a seismic station is done on a spherical coordinate system by adapting an Eikonal equation solver (Zhang *et al.*, 2012). This approach can avoid the problem of a calculated hypocenter being trapped in a local minimum, yet is still very efficient since no ray tracing is involved. Nevertheless, a reasonably accurate velocity model is required and needs to be carefully parameterized. We adopt the 1-D model provided by AGS (e.g., Schultz *et al.*, 2015; Fig 3) in the calculation of travel-time tables for all stations. For each event, we require a combination of at least three *P*- and two *S*-arrivals to better constrain its hypocentral location.

3.3 Determination of Moment Magnitude

We perform moment tensor inversion to determine the moment magnitude (M_w) of each event. The method is similar to that of Kao et al. (2012) except that the inversion is based on the matching of time-domain amplitudes. The velocity model used in the calculation of synthetic waveform amplitudes is the same as that used in the hypocenter location process, while the Q_p and Q_s are set to be 500 and 250, respectively (Kao et al., 2012). We consider two key factors that could have critical influences on determining M_w : 1) the effective removal of noise (i.e., to ensure that we are not fitting noise), and 2) the appropriate length of the source duration (i.e., the source time function, STF). For noise removal, we apply a set of trial filters with different pass-bands such that the highest SNR can be selected for individual stations; we require the SNR to be >2 for the station to be included in the inversion process. The length of the SFT is related to the dominant frequency content and can be measured from the time-domain waveform after an appropriate filter is applied.

4. Results

We have retrieved a total of 384 earthquakes in our study area (Fig. 4a). Among them, 60 events are newly discovered, missing from catalogues published by both NRCan and AGS. All events occur in the crust with focal depths ranging from subsurface to less than 40 km. Table 1 is a list of source parameters for all identified and relocated earthquakes. In addition, we have identified 911 quarry blasts in our study area. They are listed in Table 2 and their epicentres are shown in Fig. 4b. Phase arrival times of events listed in Tables 1 and 2 are included in Appendices 1 and 2, respectively.

After the initial location process, we utilize the double-difference method (hypoDD; Waldhauser et al., 2000) to refine the hypocentral distribution. The relocated results are used to further group these seismic events into clusters depending on their spatial relationship. Events rejected by hypoDD during relocation are assigned to the nearest clusters if the distance is <73 km. Otherwise, they are classified as the scattered seismicity (cluster 0, Table 1 and Fig. 5). In total, we have identified 5 major earthquake clusters (clusters 1–5, Fig. 5). There are no clear geological or tectonic boundaries, however, to separate these clusters. Based on the nature of seismogenic processes, they can be classified into 3 categories in general: hydraulic fracturing related, wastewater injection related, and naturally occurring tectonic events. In addition, we report a small cluster near station PER consisting of possible injection-induced events that were not identified by routine earthquake monitoring.

4.1 Events Possibly Induced by Mining Activity

Several mining sites exist in our study area. Although we have identified and located a large number of seismic events that appear to be mining activities (also known as quarry blasts, Figure 4b and Table

2), there are 21 events in southwestern AB showing waveforms more consistent with shear dislocation than blasting (cluster 1, Table 1 and Fig. 5a). As these events are distributed within a close range to the active mining sites, it is likely that they are mining activity induced. One possible scenario is that they occur in response to the artificial strain associated with mining blasts that would otherwise not happen tectonically. Another possible scenario is that they could be due to the strain caused by continuous mass removal (Simpson, 1986).

4.2 Events Related to Hydraulic Fracturing

Seismicity in Clusters 2 (Fig. 5b) and 4 (Fig. 5d) is suggested to be hydraulic fracturing related (Schultz *et al.*, 2015, 2016; Wetmiller, 1986). Part of Cluster 2 is a swarm of 22 earthquakes that occurred between 1 and 6 December 2013 (events no. 29 to 54, Table 1). In Cluster 4, most earthquakes occurred in 2014. It is unclear if the sudden increase of local seismicity is due to improved detection capability of the regional seismograph network in this area since 2013 or the surge of hydraulic fracturing operations associated with the extraction of unconventional hydrocarbons.

4.3 Events Related to Wastewater Injection

In addition to hydraulic fracturing, wastewater injection is also wide-spread in this region. Seismicity near the Cordel Field, west central AB (cluster 3 to the southwest of the Brazeau dam, Fig. 5c) has been linked to a nearby disposal well with injections since 1991 (Schultz *et al.*, 2014). The majority of events in this cluster occurred within 20 km of the disposal well, but we also observe several tens of earthquakes scattered over a larger area (Fig. 5c). None of them occurred in the immediate neighborhood of the Brazeau dam.

4.4 Possible Injection-Induced Seismicity Missing From Routine Monitoring

A group of 12 events in the vicinity of station PER are identified and located (cluster 5, Fig. 5e). Half of them occurred in 2014, while the others from 2004 to 2010. Given the distribution of injection wells in this part of AB, it is likely that they are also related to the development of unconventional hydrocarbon resources. It is worth noting that 7 out of the 12 events in this group are missing from both NRCan and AGS routine earthquake catalogues.

4.5 Scattered Tectonic Events

We observe 22 events that cannot be associated with injection operations. The epicentres of these events are scattered across the region, as shown in Fig. 5f. None of them occurred in 2013 or 2014,

when the injection operations were the highest. They are most likely associated with the tectonic deformation in the Canadian Cordillera and Interior Platform.

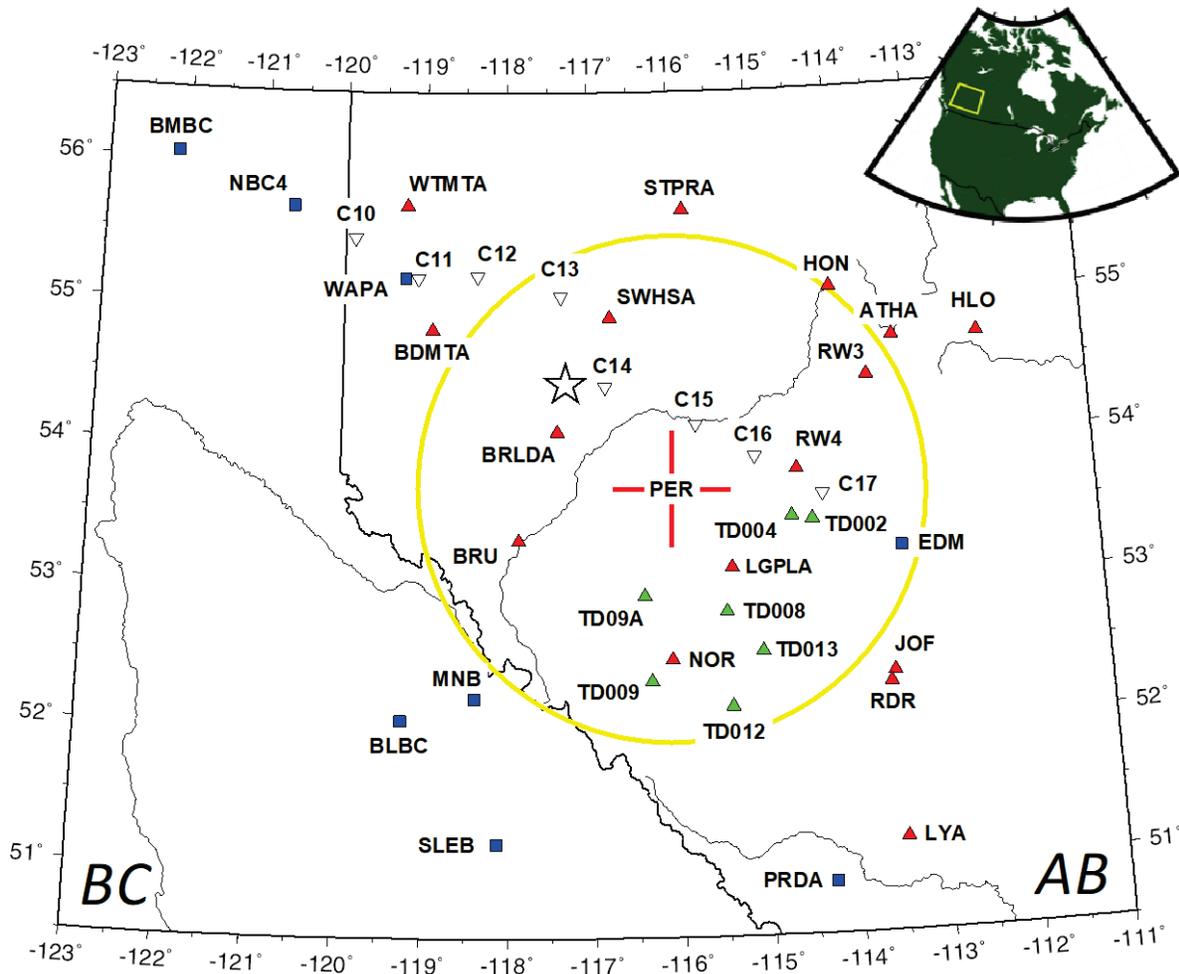
Acknowledgement

We thank Ryan Schultz for sharing the velocity models used by AGS in routine earthquake monitoring. Waveform data used in this study are obtained from IRIS DMC and Canadian Hazard Information Service. The Seismic Analysis Code (SAC) software is used for data processing. All maps are generated by the Generic Mapping Tool (GMT) software. This study is partially supported by NRCan's Induced Seismicity Research Project under contract No. 3000633624.

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- ▲ Stations operated or cosponsored by AGS (ATSN, RAVEN, CRANE)
- Stations operated by NRCan (CNSN, ISR)
- ▲ TransAlta stations
- ▽ Canadian Northwest Experiment stations
- ☆ Epicentre of the 23 January 2015, M_L 4.6, Crooked Lake Event

Figure 1. A map showing southwestern Alberta and seismic stations used in the location process. A yellow dashed circle marks our study area which is centered at station PER (denoted by a big red cross) with a radius of 200 km. Different symbols correspond to the different agencies operating the seismograph stations. The inset shows the study area with respect to North America.

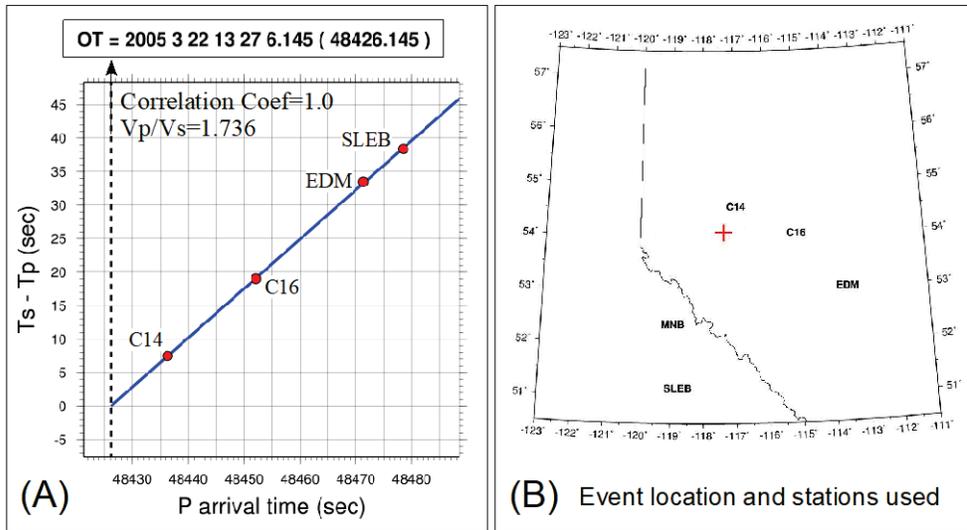


Figure 2. A representative example of event detection and phase association. Panel A: The Wadati diagram that is used to associate triggers spotted at multiple stations. It provides constraints on V_p/V_s ratio and the event's origin time; Panel B: The epicentre (red cross) and stations used in the location process; Panels C and D: Examples of picked P (marked by "A") and S (marked by "T0") arrivals. All waveforms are high-pass filtered with a corner frequency of 5 Hz. Waveform amplitude is in counts/s.

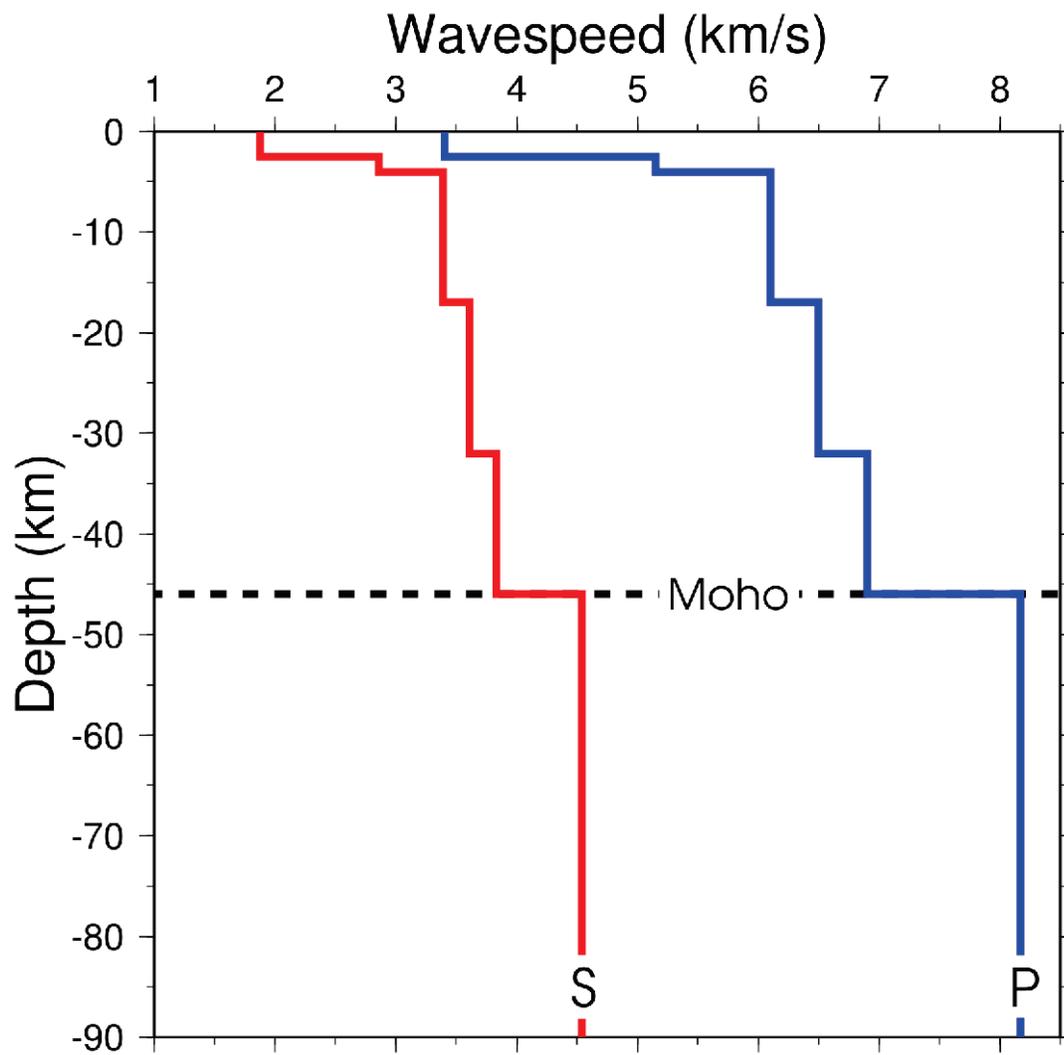
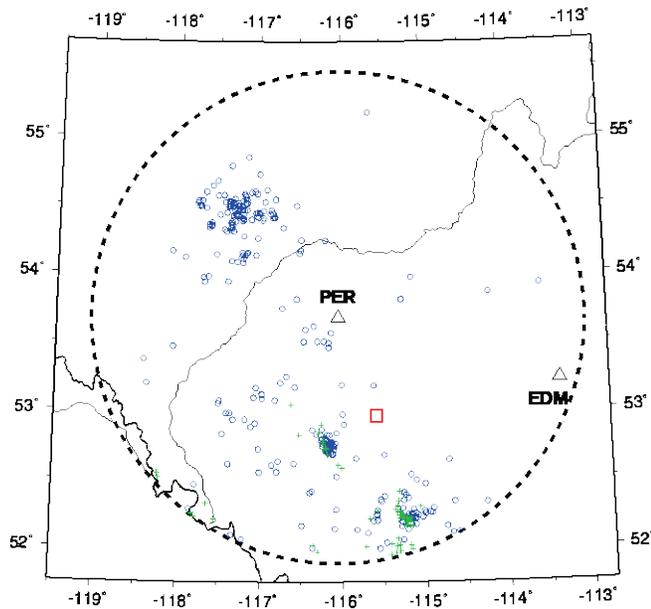


Figure 3. Velocity model used in this study to locate seismic events (after Schultz *et al.*, 2015).

Earthquakes located by this study and other agencies



Quarry events located by this study

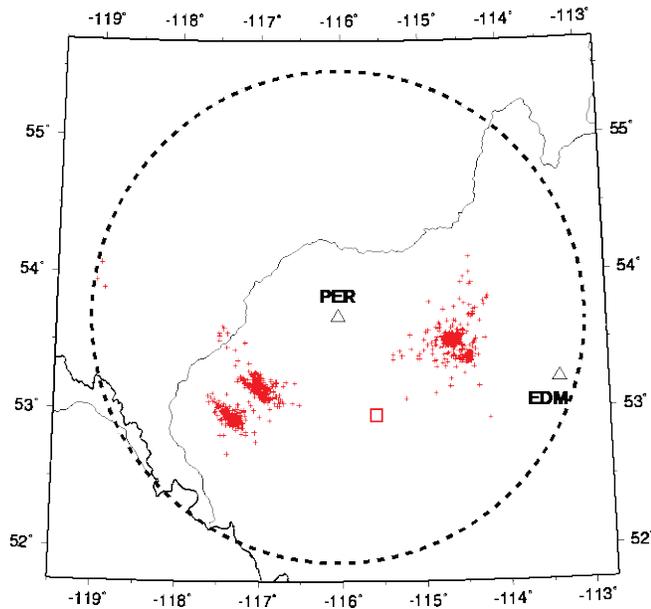
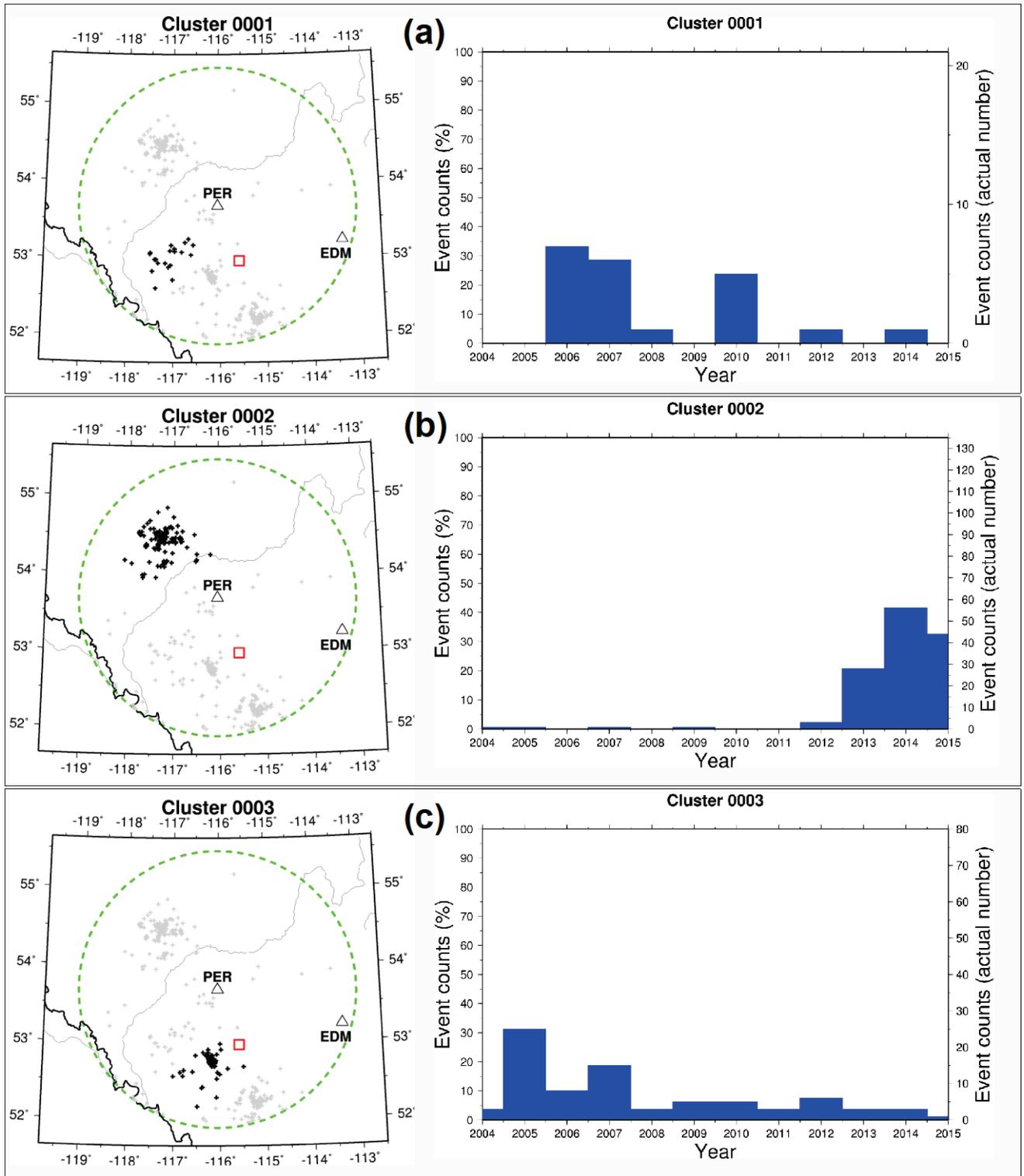


Figure 4. Maps showing the epicentres of earthquakes (upper panel) and quarry blast events (lower panel) that occurred between May 2004 and January 2015. Each event's source parameters are listed in Tables 1 and 2. Events located by this study and other agencies are shown in blue and green, respectively. All blast events (red dots) are located by this study. The dashed circle marks our study area (200 km radius from station PER, which is marked by an open triangle). The open red square corresponds to the location of Brazeau dam.



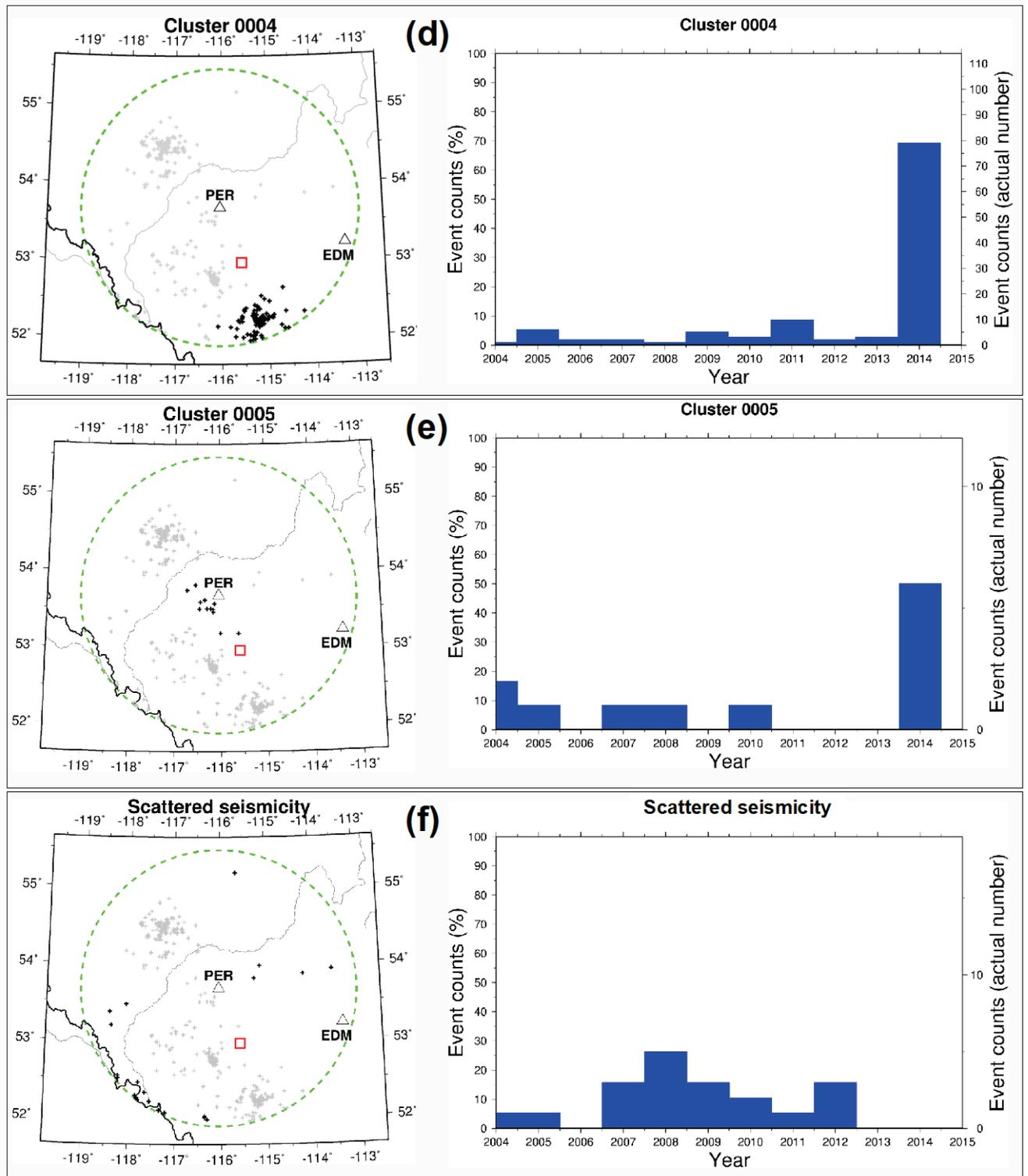


Figure 5. Epicentre maps (left panel) and histograms showing the spatiotemporal distribution of earthquakes in our study area. Earthquakes are grouped into 5 clusters (a – e). A separated group (“scattered seismicity”, panel f) correspond to events broadly distributed across the region. Symbols and layout of the map are the same as that in Figure 4a.

Table 1. A composite earthquake catalog consisting of 384 events. All source parameters are determined by this study unless waveform data are not available (in which case, parameters reported by NRCan or AGS are adopted). Local magnitude values (M_L) reported by other agencies are listed in addition to the moment magnitude (M_w) determined by this study.

Cluster No	Event No	Date (YYYY-MM-DD)	Origin Time -UTC- (hh:mm:ss)	Lat.	Lon.	Depth (km)	M_w	M_L (NRCan)	M_L (AGS)	Remark
1	1	2006-11-10	00:14:32.870	53.0782	-116.8177	3.8	3.23	-----	-----	This_Study
1	2	2006-11-25	02:44:51.510	53.1245	-116.9771	6.2	3.02	-----	-----	This_Study
1	3	2006-12-02	20:56:45.820	52.9366	-117.1790	3.0	1.47	-----	-----	This_Study
1	4	2006-12-08	05:54:20.500	52.9092	-117.0569	19.0	1.94	-----	1.30	This_Study
1	5	2006-12-12	00:25:48.460	53.0894	-116.9733	2.5	2.89	-----	-----	This_Study
1	6	2006-12-23	13:24:27.790	52.8831	-117.1089	5.2	2.00	-----	1.07	This_Study
1	7	2006-12-29	21:13:11.480	53.0979	-117.0726	7.3	2.50	-----	2.07	This_Study
1	8	2007-01-16	22:06:49.220	53.0743	-117.4964	5.3	1.92	-----	-----	This_Study
1	9	2007-05-11	21:37:47.160	53.0556	-117.5044	16.4	2.42	-----	-----	This_Study
1	10	2007-05-24	04:14:41.700	53.1187	-116.9754	6.3	2.96	3.28	2.98	This_Study
1	11	2007-06-15	22:11:30.080	52.9835	-117.4041	5.2	2.53	-----	-----	This_Study
1	12	2007-09-28	04:07:52.750	53.1680	-117.0479	5.4	2.43	-----	2.37	This_Study
1	13	2007-10-15	21:04:22.240	52.9836	-117.3683	8.6	2.47	-----	2.52	This_Study
1	14	2008-02-21	00:23:46.400	53.2522	-116.6771	3.9	2.30	-----	-----	This_Study
1	15	2010-01-03	21:52:18.260	52.8315	-117.4559	17.2	2.25	-----	1.67	This_Study
1	16	2010-03-02	18:10:31.000	52.9364	-117.3282	5.4	2.17	-----	-----	This_Study
1	17	2010-05-25	04:25:26.760	53.1733	-116.5728	7.2	2.52	2.27	2.04	This_Study
1	18	2010-06-01	06:14:50.710	52.7203	-117.0152	24.3	2.34	1.91	2.09	This_Study
1	19	2010-09-03	16:25:57.000	53.0440	-116.6195	3.0	1.09	-----	1.08	AGS
1	20	2012-07-22	19:44:38.095	52.6108	-117.3812	7.5	2.51	-----	-----	This_Study
1	21	2014-03-29	12:30:37.700	53.2047	-116.7507	8.6	1.79	-----	-----	This_Study
2	22	2004-12-08	01:32:24.320	54.0874	-117.2862	17.5	2.69	-----	-----	This_Study
2	23	2005-03-22	13:27:06.338	54.0929	-117.3515	1.1	2.95	1.92	-----	This_Study
2	24	2007-01-22	07:22:36.228	54.3378	-116.7117	2.5	2.59	2.72	2.46	This_Study
2	25	2009-08-10	02:38:45.682	53.9462	-117.3944	0.5	2.74	2.60	2.71	This_Study
2	26	2012-07-06	14:44:31.910	54.1517	-116.5138	9.7	2.94	3.10	3.08	This_Study
2	27	2012-09-16	09:00:59.630	54.1124	-117.2101	7.5	1.87	-----	-----	This_Study
2	28	2012-09-30	06:03:26.800	54.1556	-117.2232	5.3	2.09	-----	1.46	This_Study
2	29	2013-12-01	01:38:09.050	54.4708	-117.2905	17.0	3.19	3.21	3.60	This_Study
2	30	2013-12-01	05:23:13.450	54.5021	-117.2725	2.5	2.18	-----	-----	This_Study
2	31	2013-12-01	05:26:34.440	54.4358	-117.2084	17.5	3.14	3.11	3.60	This_Study

2	32	2013-12-01	06:35:18.850	54.4651	-117.1982	15.1	2.12	-----	-----	This_Study
2	33	2013-12-01	10:06:25.420	54.6037	-117.0664	5.0	2.67	2.87	2.99	This_Study
2	34	2013-12-01	10:31:11.300	54.5194	-117.1644	2.6	2.22	-----	-----	This_Study
2	35	2013-12-01	15:09:28.520	54.4556	-117.2672	15.6	3.28	3.23	3.75	This_Study
2	36	2013-12-01	19:12:45.100	54.4427	-116.8373	2.5	2.57	-----	3.04	This_Study
2	37	2013-12-01	20:26:24.960	54.4608	-116.9621	6.9	2.35	-----	-----	This_Study
2	38	2013-12-01	20:49:07.760	54.5764	-117.4542	4.5	2.69	-----	3.01	This_Study
2	39	2013-12-02	02:51:53.490	54.4625	-117.2697	6.1	3.00	3.16	3.44	This_Study
2	40	2013-12-02	08:41:41.940	54.4700	-117.2228	7.3	2.76	2.93	3.19	This_Study
2	41	2013-12-03	06:27:54.220	54.5230	-117.3260	5.4	3.00	3.18	3.31	This_Study
2	42	2013-12-03	12:59:40.210	54.4148	-116.8310	22.6	2.18	-----	2.73	This_Study
2	43	2013-12-03	16:04:11.580	54.5498	-117.1788	2.7	2.56	2.99	3.12	This_Study
2	44	2013-12-03	18:45:11.960	54.4450	-116.9997	5.5	2.62	2.90	3.11	This_Study
2	45	2013-12-03	21:37:21.620	54.4931	-117.2272	4.8	2.72	2.50	3.12	This_Study
2	46	2013-12-04	00:48:52.614	54.5003	-116.5436	0.5	1.44	-----	2.66	This_Study
2	47	2013-12-04	03:13:23.680	54.4417	-116.8746	18.5	3.08	3.07	3.38	This_Study
2	48	2013-12-04	05:12:10.580	54.4136	-116.8200	11.1	2.15	-----	2.87	This_Study
2	49	2013-12-04	09:52:02.880	54.2780	-117.2009	2.8	2.06	-----	-----	This_Study
2	50	2013-12-04	09:58:29.800	54.4487	-116.8510	2.6	2.73	3.03	3.07	This_Study
2	51	2013-12-05	04:24:07.770	54.4495	-117.0324	8.5	2.22	-----	-----	This_Study
2	52	2013-12-06	06:14:06.809	54.7296	-117.0093	3.5	2.82	3.25	3.22	This_Study
2	53	2013-12-06	14:22:17.330	54.5346	-117.2164	30.7	3.13	3.00	3.33	This_Study
2	54	2013-12-06	15:51:23.113	54.5865	-117.1990	3.5	2.79	2.97	3.34	This_Study
2	55	2013-12-11	21:40:31.480	54.4681	-117.1639	4.2	3.05	-----	3.34	This_Study
2	56	2013-12-12	01:59:44.903	54.4754	-117.2320	3.5	2.61	3.11	3.76	This_Study
2	57	2014-01-02	20:34:39.240	54.5496	-117.3202	31.0	2.98	2.92	3.19	This_Study
2	58	2014-01-25	03:59:42.560	54.5410	-117.1649	6.1	3.34	3.44	3.85	This_Study
2	59	2014-01-27	09:38:00.960	54.1503	-117.1654	0.2	2.29	2.53	2.50	This_Study
2	60	2014-02-03	08:34:51.030	54.5191	-117.1833	16.9	3.30	-----	3.95	This_Study
2	61	2014-02-13	19:30:53.800	54.2481	-116.4927	0.5	1.90	-----	-----	This_Study
2	62	2014-02-17	01:51:36.690	54.1594	-117.1540	3.8	2.61	2.13	2.16	This_Study
2	63	2014-02-21	19:58:03.340	54.4093	-116.8425	2.0	2.10	-----	-----	This_Study
2	64	2014-02-24	18:11:34.434	54.2458	-116.1941	18.2	2.10	-----	-----	This_Study
2	65	2014-03-10	09:34:55.862	54.6155	-116.9169	17.5	2.62	-----	3.21	This_Study
2	66	2014-03-30	03:55:18.250	54.1381	-117.0510	0.4	1.81	-----	-----	This_Study
2	67	2014-04-08	18:24:22.760	54.1733	-116.4979	2.5	1.93	-----	-----	This_Study
2	68	2014-04-12	21:28:17.160	54.3917	-117.2056	5.9	2.25	-----	2.14	This_Study
2	69	2014-04-12	22:52:06.880	54.5454	-116.8107	20.5	2.31	-----	1.93	This_Study
2	70	2014-04-12	22:53:43.920	54.3986	-117.1099	7.0	2.87	-----	3.17	This_Study

2	71	2014-04-13	03:19:04.760	54.4195	-117.0397	17.3	1.86	-----	-----	This_Study
2	72	2014-04-13	09:03:24.340	54.4148	-117.0249	17.4	2.33	2.27	2.13	This_Study
2	73	2014-04-13	20:07:43.040	54.4669	-116.8585	25.1	2.20	2.18	-----	This_Study
2	74	2014-04-13	20:19:53.200	54.4454	-117.0509	17.7	2.84	2.99	-----	This_Study
2	75	2014-04-13	21:33:11.420	54.4496	-117.0080	16.4	2.69	2.80	3.04	This_Study
2	76	2014-04-14	00:24:11.030	54.3935	-116.9682	5.0	2.09	2.34	2.36	This_Study
2	77	2014-04-14	02:19:48.980	54.5266	-116.9389	16.8	2.35	2.67	-----	This_Study
2	78	2014-04-14	03:23:48.456	54.2613	-117.0311	9.9	2.21	2.10	-----	This_Study
2	79	2014-04-14	08:32:39.400	54.4085	-116.9616	14.0	2.28	2.75	2.53	This_Study
2	80	2014-05-10	01:59:41.040	54.4043	-117.2064	4.8	2.06	-----	-----	This_Study
2	81	2014-05-14	09:46:12.090	54.3845	-117.3120	2.5	3.30	3.28	3.72	This_Study
2	82	2014-05-14	15:30:23.620	54.5861	-117.0388	7.7	2.51	2.02	-----	This_Study
2	83	2014-05-14	17:34:59.005	54.8543	-117.1496	5.0	2.62	-----	-----	This_Study
2	84	2014-05-14	19:26:58.320	54.5134	-117.1665	18.3	3.03	2.76	-----	This_Study
2	85	2014-05-14	22:09:14.100	54.5774	-117.1904	4.7	2.88	2.90	3.10	This_Study
2	86	2014-05-15	04:57:09.700	54.3509	-117.6079	0.8	2.55	1.96	2.15	This_Study
2	87	2014-05-15	11:58:19.080	54.4484	-117.4163	2.6	2.83	2.67	3.01	This_Study
2	88	2014-05-15	13:08:29.150	54.5951	-117.1083	4.7	1.97	1.93	1.81	This_Study
2	89	2014-05-17	07:47:06.930	54.4657	-117.3161	21.5	2.26	-----	-----	This_Study
2	90	2014-05-18	11:48:25.230	54.4574	-117.2717	28.8	2.25	1.93	2.21	This_Study
2	91	2014-05-18	13:34:58.350	54.4306	-117.3365	24.2	2.05	-----	-----	This_Study
2	92	2014-05-19	01:01:57.735	54.5738	-117.5250	17.5	1.96	-----	-----	This_Study
2	93	2014-05-25	13:17:19.203	54.1437	-117.5400	2.5	1.83	2.03	1.52	This_Study
2	94	2014-08-07	20:47:23.400	54.4834	-117.6730	15.1	2.66	2.20	2.44	This_Study
2	95	2014-08-08	07:37:38.110	54.6440	-117.5957	10.8	2.42	2.00	2.23	This_Study
2	96	2014-08-08	18:08:38.913	54.7908	-117.3584	5.0	2.76	2.08	2.08	This_Study
2	97	2014-08-09	07:40:06.790	54.4969	-117.7380	16.6	3.01	2.68	2.99	This_Study
2	98	2014-08-09	08:07:50.590	54.5995	-117.6749	12.1	2.40	-----	2.45	This_Study
2	99	2014-08-09	22:18:33.720	54.6822	-117.5341	9.6	2.79	-----	2.51	This_Study
2	100	2014-08-10	08:06:19.010	54.5375	-117.7217	4.9	2.33	-----	2.17	This_Study
2	101	2014-08-10	12:33:23.520	54.5029	-117.7594	15.2	2.87	3.10	2.97	This_Study
2	102	2014-08-13	10:47:43.340	54.4947	-117.7455	4.9	2.35	-----	2.21	This_Study
2	103	2014-08-14	17:30:17.860	53.9762	-117.6958	18.8	1.91	-----	1.54	This_Study
2	104	2014-08-14	18:08:03.700	53.9840	-117.6428	23.4	2.62	-----	2.20	This_Study
2	105	2014-08-14	18:27:47.183	54.1234	-117.9281	3.5	1.10	-----	1.14	This_Study
2	106	2014-08-14	18:38:43.524	53.9433	-117.6838	5.0	2.59	-----	2.12	This_Study
2	107	2014-08-18	05:02:29.790	54.3485	-117.6078	3.8	2.02	-----	1.67	This_Study
2	108	2014-08-31	21:39:51.280	54.5210	-117.7759	2.5	2.50	-----	2.29	This_Study
2	109	2014-09-02	16:48:50.495	54.5352	-117.7699	17.5	2.10	-----	2.02	This_Study

2	110	2014-09-03	12:25:17.190	54.3583	-117.6005	9.1	1.81	-----	-----	This_Study
2	111	2014-10-17	06:48:20.540	54.5183	-117.2701	24.1	1.79	-----	-----	This_Study
2	112	2014-12-12	12:22:09.360	54.3626	-117.6343	5.4	2.28	-----	1.99	This_Study
2	113	2015-01-05	03:44:59.880	54.5016	-117.2513	6.6	2.23	-----	2.40	This_Study
2	114	2015-01-07	04:50:45.890	54.4278	-117.3004	5.5	3.32	3.43	3.70	This_Study
2	115	2015-01-07	05:28:45.280	54.4243	-117.2874	5.5	3.21	3.20	3.52	This_Study
2	116	2015-01-10	03:32:06.790	54.4180	-117.2475	7.0	1.89	-----	-----	This_Study
2	117	2015-01-10	10:57:33.800	54.3760	-117.6068	3.5	1.83	-----	1.44	This_Study
2	118	2015-01-11	22:50:23.900	54.1382	-117.1836	0.4	2.29	-----	2.00	This_Study
2	119	2015-01-12	10:03:50.560	54.3255	-117.4465	17.7	2.31	-----	1.91	This_Study
2	120	2015-01-12	10:07:09.530	54.3116	-117.4185	17.6	2.44	-----	2.05	This_Study
2	121	2015-01-12	20:29:21.600	54.4898	-117.3907	17.1	2.43	-----	2.08	This_Study
2	122	2015-01-13	01:45:38.380	54.0815	-117.2114	7.0	2.03	-----	-----	This_Study
2	123	2015-01-13	03:26:17.670	54.1376	-117.2158	12.5	2.29	-----	-----	This_Study
2	124	2015-01-13	05:40:57.040	54.1184	-117.2370	0.4	1.67	-----	-----	This_Study
2	125	2015-01-13	06:31:15.670	54.4212	-117.3352	5.1	1.17	-----	1.45	This_Study
2	126	2015-01-13	07:46:37.500	54.3206	-117.3648	14.2	1.80	-----	-----	This_Study
2	127	2015-01-13	08:51:24.380	54.3912	-117.2279	11.2	2.27	-----	-----	This_Study
2	128	2015-01-13	10:42:53.040	54.3123	-117.3369	2.7	2.75	2.77	2.68	This_Study
2	129	2015-01-13	12:07:48.520	54.3419	-117.6343	0.5	2.13	-----	-----	This_Study
2	130	2015-01-13	12:22:09.663	54.1674	-118.0848	41.7	1.93	-----	-----	This_Study
2	131	2015-01-13	12:22:41.030	54.3834	-117.3511	3.7	2.48	-----	2.29	This_Study
2	132	2015-01-13	14:48:04.720	54.4340	-117.5016	3.2	2.58	-----	2.07	This_Study
2	133	2015-01-13	19:46:05.720	54.3383	-117.3458	5.5	2.75	2.61	2.46	This_Study
2	134	2015-01-13	20:58:51.780	54.3118	-117.3288	4.0	2.83	2.67	2.66	This_Study
2	135	2015-01-14	00:48:29.830	54.4092	-117.2173	2.5	2.92	2.72	2.99	This_Study
2	136	2015-01-14	03:40:21.770	54.3398	-117.3624	2.6	2.83	2.72	2.87	This_Study
2	137	2015-01-14	07:51:49.810	54.3590	-117.3435	2.5	2.52	2.50	2.33	This_Study
2	138	2015-01-14	16:06:23.930	54.3626	-117.3585	9.4	3.70	3.83	4.23	This_Study
2	139	2015-01-15	19:18:29.360	54.3740	-117.3618	4.9	3.40	3.68	3.88	This_Study
2	140	2015-01-15	21:37:31.820	54.3572	-117.6003	9.9	2.42	-----	2.26	This_Study
2	141	2015-01-16	22:55:20.080	54.5663	-117.1815	5.5	2.92	-----	3.09	This_Study
2	142	2015-01-17	13:45:30.460	54.5267	-117.3707	4.9	2.46	-----	2.36	This_Study
2	143	2015-01-18	15:44:50.170	54.4952	-117.3351	11.3	2.74	2.94	2.82	This_Study
2	144	2015-01-19	06:41:13.780	54.4944	-117.3512	4.4	2.61	2.80	2.43	This_Study
2	145	2015-01-19	14:51:01.620	54.4928	-117.3865	4.9	2.67	2.78	2.61	This_Study
2	146	2015-01-19	22:37:46.960	54.5255	-117.3817	2.5	2.58	2.53	2.41	This_Study
2	147	2015-01-20	00:38:17.530	54.5136	-117.3777	8.2	2.85	-----	2.58	This_Study
2	148	2015-01-20	14:02:17.170	54.4762	-117.2549	5.2	2.55	-----	2.43	This_Study

2	149	2015-01-20	20:42:11.640	54.5251	-117.4354	4.2	2.52	-----	2.55	This_Study
2	150	2015-01-20	21:40:15.220	54.4324	-117.3039	5.1	2.57	-----	2.68	This_Study
2	151	2015-01-21	01:50:19.950	54.5212	-117.3358	2.6	2.58	-----	2.32	This_Study
2	152	2015-01-21	08:45:55.400	54.4983	-117.3687	7.1	2.67	-----	2.85	This_Study
2	153	2015-01-21	17:00:43.300	54.5198	-117.3478	2.5	2.75	-----	1.93	This_Study
2	154	2015-01-22	05:11:16.250	54.4967	-117.3768	7.7	2.48	-----	1.88	This_Study
2	155	2015-01-22	08:37:41.560	54.5319	-117.3851	2.5	2.20	-----	2.22	This_Study
2	156	2015-01-22	13:35:44.080	54.4948	-117.2311	0.8	2.41	-----	2.48	This_Study
3	157	2004-02-12	10:35:53.000	52.8240	-116.5220	1.0	1.52	2.10	-----	NRcan
3	158	2004-11-05	15:04:00.712	52.9016	-115.9767	6.3	2.83	3.13	-----	This_Study
3	159	2004-11-13	21:50:17.668	52.8382	-116.0680	25.2	2.27	2.50	-----	This_Study
3	160	2005-01-25	15:45:03.560	52.8618	-116.3630	3.5	2.45	2.12	-----	This_Study
3	161	2005-03-07	23:19:01.132	52.9763	-115.9938	35.0	3.10	2.77	-----	This_Study
3	162	2005-03-07	23:42:53.000	52.7964	-116.1943	14.8	2.48	2.52	-----	This_Study
3	163	2005-05-29	15:49:19.320	52.7217	-116.1057	9.8	2.55	-----	-----	This_Study
3	164	2005-06-26	09:25:33.160	52.7928	-116.1976	15.0	3.49	2.94	-----	This_Study
3	165	2005-06-26	09:33:08.390	52.7691	-116.1295	10.2	2.31	2.02	-----	This_Study
3	166	2005-06-26	11:09:20.790	52.8037	-116.2093	20.1	2.40	2.34	-----	This_Study
3	167	2005-06-26	18:03:53.920	52.7906	-116.1953	10.9	3.54	3.54	-----	This_Study
3	168	2005-06-26	18:24:27.374	52.8237	-116.1565	3.5	2.47	2.15	-----	This_Study
3	169	2005-06-26	22:22:11.040	52.7943	-116.1947	17.8	2.73	2.18	-----	This_Study
3	170	2005-06-26	22:56:56.880	52.8259	-116.1842	2.5	2.28	1.82	-----	This_Study
3	171	2005-06-27	08:01:15.600	52.8639	-116.2465	17.4	2.36	1.90	-----	This_Study
3	172	2005-07-19	18:24:41.760	52.7404	-116.2370	19.1	2.82	-----	-----	This_Study
3	173	2005-07-28	00:30:07.890	52.7488	-116.1781	14.7	3.26	-----	-----	This_Study
3	174	2005-07-28	04:27:10.658	52.7420	-116.2405	3.5	2.11	1.95	-----	This_Study
3	175	2005-07-28	11:13:14.610	52.7604	-116.2359	18.2	2.56	2.31	-----	This_Study
3	176	2005-07-30	10:29:58.000	52.9010	-116.2530	10.0	1.39	1.70	-----	NRcan
3	177	2005-10-23	03:12:37.000	52.7320	-116.2010	1.0	1.65	2.50	-----	NRcan
3	178	2005-10-24	05:16:48.000	52.7610	-116.2330	1.0	1.65	2.50	-----	NRcan
3	179	2005-10-24	11:02:17.000	52.7760	-116.2390	1.0	1.58	2.30	-----	NRcan
3	180	2005-10-24	22:32:27.000	52.7230	-116.1880	1.0	1.71	2.70	-----	NRcan
3	181	2005-11-08	20:59:19.000	52.6810	-116.1760	1.0	1.80	3.00	-----	NRcan
3	182	2005-11-11	08:52:46.000	52.6050	-116.0520	1.0	1.52	2.10	-----	NRcan
3	183	2005-12-21	19:35:54.000	52.7850	-116.2330	5.0	1.84	3.10	-----	NRcan
3	184	2005-12-30	12:33:42.000	52.8320	-116.2860	1.0	1.68	2.60	-----	NRcan
3	185	2006-01-19	02:36:0-----0	52.5790	-116.0080	1.0	1.61	2.40	-----	NRcan
3	186	2006-02-19	15:35:15.000	52.8520	-116.2740	1.0	1.61	2.40	-----	NRcan

3	187	2006-09-02	03:38:01.000	52.7230	-116.2260	5.0	1.52	2.10	-----	NRcan
3	188	2006-10-21	06:51:54.460	52.6802	-116.1200	9.2	1.92	-----	0.70	This_Study
3	189	2006-10-21	09:26:51.560	52.7531	-116.1923	3.9	2.03	-----	1.08	This_Study
3	190	2006-11-08	19:05:08.140	52.6951	-116.1813	5.1	2.87	-----	2.74	This_Study
3	191	2006-12-05	08:00:30.680	52.7399	-116.0983	7.8	1.91	-----	0.85	This_Study
3	192	2006-12-06	05:48:07.030	52.7611	-116.0856	5.3	2.21	-----	1.38	This_Study
3	193	2007-02-26	15:14:57.150	52.7093	-116.1835	5.0	2.39	2.30	1.48	This_Study
3	194	2007-03-22	09:24:07.580	52.7322	-116.1306	10.3	2.32	2.34	1.90	This_Study
3	195	2007-03-28	05:57:46.160	52.7748	-116.1240	9.7	2.13	2.03	1.64	This_Study
3	196	2007-05-25	23:09:55.460	52.7590	-116.2031	4.3	2.58	2.20	1.83	This_Study
3	197	2007-07-06	19:02:30.380	52.7387	-116.1234	6.0	2.73	-----	2.66	This_Study
3	198	2007-07-06	19:06:04.000	52.7460	-116.1343	4.3	2.74	-----	-----	This_Study
3	199	2007-07-08	11:23:53.310	52.7618	-116.1559	3.9	2.28	-----	2.08	This_Study
3	200	2007-07-17	16:52:19.120	52.7542	-116.1167	4.2	2.25	-----	2.06	This_Study
3	201	2007-09-21	01:53:25.580	52.7279	-116.1775	5.0	2.69	2.98	2.74	This_Study
3	202	2007-10-09	03:07:17.180	52.7268	-116.1419	2.6	2.26	2.35	1.62	This_Study
3	203	2007-10-16	08:10:26.050	52.6902	-116.1693	5.5	2.33	2.38	2.07	This_Study
3	204	2007-10-16	09:58:12.410	52.7299	-116.1668	5.0	2.25	2.38	2.24	This_Study
3	205	2007-10-16	11:33:44.880	52.6961	-116.1388	2.7	2.08	2.05	1.24	This_Study
3	206	2007-10-20	03:32:12.050	52.7115	-116.1783	4.7	2.23	1.86	-----	This_Study
3	207	2007-11-23	12:48:35.010	52.8258	-116.2618	17.7	2.21	2.16	0.84	This_Study
3	208	2008-01-31	18:42:43.420	52.7861	-116.2534	17.4	2.83	-----	2.15	This_Study
3	209	2008-02-06	04:26:48.290	52.6885	-116.1209	5.2	2.22	1.93	1.16	This_Study
3	210	2008-03-23	07:57:46.760	52.7807	-116.1980	13.0	2.17	2.15	0.52	This_Study
3	211	2009-04-01	13:01:33.790	52.6035	-116.8540	5.2	2.65	2.70	2.74	This_Study
3	212	2009-06-21	02:24:46.950	52.7608	-116.1253	15.2	2.30	-----	1.70	This_Study
3	213	2009-07-09	07:35:58.270	52.7984	-116.2443	17.7	2.37	-----	1.70	This_Study
3	214	2009-12-01	15:54:30.460	52.8307	-116.3142	23.0	2.12	1.84	1.07	This_Study
3	215	2009-12-01	15:56:13.070	52.7900	-116.2524	17.5	2.63	2.61	2.59	This_Study
3	216	2010-04-17	20:37:49.360	52.7126	-116.2029	4.3	2.30	-----	1.46	This_Study
3	217	2010-05-09	21:42:04.500	52.4136	-116.3714	5.0	2.36	1.98	2.22	This_Study
3	218	2010-05-10	14:38:37.956	52.2792	-116.0781	5.0	2.30	-----	1.87	This_Study
3	219	2010-10-29	12:50:56.998	52.6789	-115.4942	18.3	2.28	-----	1.33	This_Study
3	220	2010-12-15	15:33:20.598	52.5209	-116.0720	26.1	2.66	-----	-----	This_Study
3	221	2011-04-07	08:15:31.360	52.7592	-116.1665	6.0	2.05	1.75	1.25	This_Study
3	222	2011-06-17	04:09:14.760	52.5553	-116.7936	5.0	3.14	-----	2.43	This_Study
3	223	2011-07-18	10:20:39.830	52.7302	-116.1327	7.9	2.30	1.72	1.58	This_Study
3	224	2012-03-09	07:01:17.540	52.7385	-116.1615	5.9	2.12	-----	0.92	This_Study
3	225	2012-03-09	07:21:24.590	52.7419	-116.1486	3.5	1.95	-----	0.39	This_Study

3	226	2012-03-10	05:05:55.550	52.7071	-116.1650	6.9	2.09	2.01	1.67	This_Study
3	227	2012-03-10	07:50:17.930	52.7341	-116.1759	2.9	1.94	1.77	1.40	This_Study
3	228	2012-03-10	12:17:39.490	52.7388	-116.1576	6.8	2.35	2.04	1.97	This_Study
3	229	2012-05-05	20:37:34.520	52.6858	-116.1060	5.2	2.10	1.66	1.56	This_Study
3	230	2013-02-09	06:06:28.164	52.1610	-116.4911	7.0	2.16	2.07	-----	This_Study
3	231	2013-02-16	01:03:18.770	52.7080	-116.2034	2.6	2.73	2.90	2.64	This_Study
3	232	2013-06-03	09:14:43.460	52.4032	-116.3954	8.6	3.35	3.47	3.48	This_Study
3	233	2014-01-26	14:32:37.145	52.5528	-117.0063	17.5	2.54	-----	2.37	This_Study
3	234	2014-03-21	10:40:27.357	52.6526	-115.8331	13.3	2.33	1.90	1.81	This_Study
3	235	2014-06-21	14:41:17.558	52.6140	-116.5868	19.6	1.58	1.45	1.21	This_Study
3	236	2015-01-15	07:14:12.640	52.6304	-116.7787	4.7	2.23	1.71	-----	This_Study
4	237	2004-02-15	04:34:01.000	52.1610	-115.2420	1.0	1.61	2.40	-----	NRcan
4	238	2005-03-09	09:49:56.550	52.1966	-115.6309	3.5	2.71	2.89	-----	This_Study
4	239	2005-04-02	09:46:1-----0	52.0180	-115.1870	10.0	1.55	2.20	-----	NRcan
4	240	2005-05-05	09:51:01.391	52.3753	-115.4954	29.5	3.59	3.41	-----	This_Study
4	241	2005-05-05	12:11:22.480	52.2002	-115.5811	3.5	2.75	2.42	-----	This_Study
4	242	2005-06-07	11:11:39.800	52.1135	-114.6842	7.5	2.35	2.19	-----	This_Study
4	243	2005-11-24	12:23:53.000	52.2130	-115.6680	5.0	1.52	2.10	-----	NRcan
4	244	2006-12-01	00:07:32.507	52.0353	-115.4766	37.9	2.04	-----	1.47	This_Study
4	245	2006-12-01	00:10:56.990	52.2888	-115.2809	8.0	1.41	-----	1.36	This_Study
4	246	2007-03-19	05:31:36.460	52.2809	-115.3365	4.9	2.48	2.48	2.52	This_Study
4	247	2007-04-20	11:38:23.740	52.2240	-115.2598	7.7	2.00	2.05	1.77	This_Study
4	248	2008-09-22	21:37:48.000	52.4131	-115.3114	1.0	1.40	-----	2.51	AGS
4	249	2009-03-30	15:20:34.513	52.1071	-115.6967	11.5	3.42	3.71	3.48	This_Study
4	250	2009-04-11	08:20:32.410	52.2381	-115.5888	7.4	3.04	3.08	3.05	This_Study
4	251	2009-08-18	04:30:44.320	52.2797	-115.1493	3.3	1.99	1.55	1.94	This_Study
4	252	2009-11-18	10:01:29.954	52.3310	-114.2647	0.5	2.58	-----	2.60	This_Study
4	253	2009-12-28	09:00:42.000	52.0052	-115.7188	3.0	1.83	1.62	2.11	AGS
4	254	2010-01-03	13:42:24.640	52.2193	-115.1945	4.5	2.35	2.10	2.62	This_Study
4	255	2010-04-12	16:28:40.330	52.2218	-115.1538	2.5	2.29	1.91	2.33	This_Study
4	256	2010-10-16	06:22:56.400	52.1332	-115.2198	12.7	2.58	-----	2.55	This_Study
4	257	2011-03-04	07:08:28.060	52.4027	-115.2643	21.7	2.17	-----	2.17	This_Study
4	258	2011-03-29	04:22:00.201	52.1307	-115.8277	7.4	1.51	1.46	0.89	This_Study
4	259	2011-04-10	01:52:49.340	52.2421	-115.5912	2.5	3.18	3.36	3.39	This_Study
4	260	2011-04-10	01:58:10.840	52.2696	-115.5823	5.0	2.47	1.61	2.38	This_Study
4	261	2011-04-10	02:03:55.000	52.2631	-115.5765	1.0	1.58	1.61	0.99	AGS
4	262	2011-04-18	21:26:58.000	52.4935	-115.1120	5.0	1.30	-----	2.06	AGS
4	263	2011-05-03	23:10:26.000	52.3008	-115.0674	5.0	1.30	-----	2.03	AGS

4	264	2011-08-11	03:29:04.264	52.3376	-114.6557	5.0	2.68	2.12	2.48	This_Study
4	265	2011-09-07	17:41:38.820	52.3372	-115.5349	10.2	2.37	-----	-----	This_Study
4	266	2011-10-31	05:00:39.710	52.2300	-115.1984	8.0	1.95	1.87	1.90	This_Study
4	267	2012-04-30	04:23:39.999	52.5343	-115.1766	3.8	1.88	-----	-----	This_Study
4	268	2012-07-20	09:57:03.000	52.1542	-115.2938	3.0	1.18	-----	1.52	AGS
4	269	2013-01-01	06:10:14.623	52.6416	-114.7127	0.5	2.67	-----	-----	This_Study
4	270	2013-06-28	09:55:51.500	52.3519	-115.5403	5.0	2.10	-----	-----	This_Study
4	271	2013-10-01	21:22:24.480	52.2212	-115.1948	2.7	2.78	2.25	2.59	This_Study
4	272	2014-01-17	09:49:55.000	52.1577	-114.7495	1.0	1.07	-----	1.00	AGS
4	273	2014-04-15	12:26:03.280	52.1161	-114.6068	15.3	2.91	2.63	2.70	This_Study
4	274	2014-04-17	04:32:02.880	52.0570	-115.2724	11.1	2.42	-----	1.26	This_Study
4	275	2014-05-01	06:21:10.930	52.3469	-115.2631	5.8	2.25	2.32	2.59	This_Study
4	276	2014-05-12	04:15:32.000	51.9774	-115.3098	5.0	1.32	-----	2.16	AGS
4	277	2014-05-29	18:51:25.000	52.0207	-115.3148	5.0	1.30	-----	2.04	AGS
4	278	2014-06-24	00:14:14.000	51.9917	-115.1704	5.0	1.85	1.92	1.77	AGS
4	279	2014-06-30	01:37:54.650	52.2487	-115.1747	6.7	2.48	2.21	2.52	This_Study
4	280	2014-07-01	20:24:08.560	52.3631	-115.2115	25.0	2.73	2.68	2.91	This_Study
4	281	2014-07-02	15:37:00.180	52.2364	-115.1702	8.3	2.40	1.70	1.98	This_Study
4	282	2014-07-04	02:36:45.910	52.2895	-114.9093	23.1	2.64	-----	2.65	This_Study
4	283	2014-07-04	03:03:13.490	52.2511	-115.0098	3.5	2.22	-----	2.06	This_Study
4	284	2014-07-04	09:07:53.000	52.0659	-115.3357	5.0	1.17	-----	1.45	AGS
4	285	2014-07-06	12:06:49.620	52.2147	-115.1841	3.7	2.10	-----	1.97	This_Study
4	286	2014-07-13	09:12:00.240	52.1922	-115.2957	5.2	3.17	3.25	3.60	This_Study
4	287	2014-07-29	21:15:4-----0	51.9633	-115.3566	5.0	1.08	-----	1.05	AGS
4	288	2014-08-02	19:49:26.000	51.9946	-115.5569	3.0	1.72	1.59	1.66	AGS
4	289	2014-08-06	07:25:56.350	52.2521	-115.1226	17.7	2.81	2.50	2.78	This_Study
4	290	2014-08-06	14:56:44.410	52.2510	-115.1590	16.1	2.73	2.19	1.83	This_Study
4	291	2014-08-09	15:28:50.090	52.2046	-115.1855	5.8	3.86	3.78	4.26	This_Study
4	292	2014-08-09	15:42:23.410	52.2564	-114.9250	25.8	2.08	-----	1.76	This_Study
4	293	2014-08-09	16:08:5-----0	52.2138	-115.2070	5.0	0.92	-----	0.31	AGS
4	294	2014-08-09	16:11:2-----0	52.2171	-115.1873	5.0	0.99	-----	0.63	AGS
4	295	2014-08-09	16:58:24.000	52.2159	-115.2679	5.0	1.03	-----	0.83	AGS
4	296	2014-08-09	23:08:48.000	52.2639	-115.3171	5.0	1.08	-----	1.04	AGS
4	297	2014-08-10	00:00:22.570	52.2618	-114.9504	27.1	2.37	2.17	1.96	This_Study
4	298	2014-08-10	01:39:48.000	52.2330	-115.3085	5.0	1.01	-----	0.75	AGS
4	299	2014-08-10	05:31:27.000	52.1871	-115.1908	5.0	1.05	-----	0.93	AGS
4	300	2014-08-10	05:31:28.000	52.1600	-115.1602	1.0	1.07	-----	0.99	AGS
4	301	2014-08-10	09:57:4-----0	52.1642	-115.1905	5.0	1.07	-----	1.00	AGS
4	302	2014-08-10	10:55:51.000	52.0265	-115.4107	5.0	1.07	-----	1.00	AGS

4	303	2014-08-10	13:26:12.000	52.2067	-115.2668	5.0	0.98	----	0.58	AGS
4	304	2014-08-10	17:32:03.240	52.2086	-115.2331	3.4	1.75	----	0.15	This_Study
4	305	2014-08-10	17:41:54.080	52.2065	-115.1916	4.8	2.10	----	1.58	This_Study
4	306	2014-08-10	17:41:54.080	52.2099	-115.1815	4.9	2.32	----	1.31	This_Study
4	307	2014-08-10	19:39:36.920	52.2402	-115.0960	12.5	1.82	----	1.05	This_Study
4	308	2014-08-10	19:41:23.360	52.1713	-115.1207	2.5	1.86	----	1.10	This_Study
4	309	2014-08-10	22:02:40.440	52.1871	-115.2829	12.8	1.64	----	0.77	This_Study
4	310	2014-08-11	00:53:32.000	52.0114	-115.3517	5.0	1.03	----	0.84	AGS
4	311	2014-08-11	02:24:25.000	52.2173	-115.2822	5.0	1.07	----	1.00	AGS
4	312	2014-08-11	03:16:32.430	52.2233	-115.0390	21.1	2.28	1.78	1.80	This_Study
4	313	2014-08-11	04:18:52.200	52.2161	-115.1278	5.0	2.49	2.16	2.28	This_Study
4	314	2014-08-11	06:07:34.000	52.2537	-115.3060	5.0	1.01	----	0.71	AGS
4	315	2014-08-11	06:51:39.280	52.2692	-115.0163	5.0	1.83	----	0.10	This_Study
4	316	2014-08-11	07:08:4-----0	52.1665	-115.1689	2.5	1.04	----	0.87	This_Study
4	317	2014-08-11	12:33:39.000	52.2335	-115.3197	5.0	0.92	----	0.30	AGS
4	318	2014-08-11	12:40:02.800	52.2098	-115.1269	4.9	1.65	----	0.93	This_Study
4	319	2014-08-11	17:20:55.440	52.2201	-115.1207	2.5	2.06	1.84	1.66	This_Study
4	320	2014-08-12	16:38:01.000	52.2101	-115.2388	5.0	1.13	----	1.26	AGS
4	321	2014-08-12	20:29:03.000	52.1907	-115.1954	5.0	1.07	----	1.01	AGS
4	322	2014-08-13	04:08:48.000	52.2206	-115.2779	5.0	0.86	----	0.04	AGS
4	323	2014-08-13	06:14:58.000	52.2578	-115.3388	5.0	1.00	----	0.70	AGS
4	324	2014-08-13	06:28:25.000	52.2131	-115.3143	5.0	0.92	----	0.33	AGS
4	325	2014-08-14	05:52:26.000	52.3395	-115.3274	5.0	0.91	----	0.29	AGS
4	326	2014-08-14	08:57:19.122	52.4646	-115.0042	5.0	1.03	----	0.81	This_Study
4	327	2014-08-14	13:29:29.000	52.2186	-115.2243	5.0	1.11	----	1.20	AGS
4	328	2014-08-15	06:52:16.920	52.2216	-115.1557	17.1	2.13	----	1.89	This_Study
4	329	2014-08-15	06:58:23.760	52.2159	-115.1268	5.1	2.29	----	1.97	This_Study
4	330	2014-08-15	16:42:15.000	52.2045	-115.2176	5.0	1.05	----	0.90	AGS
4	331	2014-08-16	03:28:55.000	52.2779	-115.3659	5.0	1.01	----	0.73	AGS
4	332	2014-08-16	06:16:02.060	52.1768	-115.1917	7.5	2.06	----	1.39	This_Study
4	333	2014-08-16	09:34:28.990	52.2183	-115.1763	23.1	1.97	----	0.56	This_Study
4	334	2014-08-17	08:37:08.000	52.1929	-115.2248	5.0	0.93	----	0.37	AGS
4	335	2014-08-19	00:45:56.810	52.2114	-115.1668	4.9	1.99	----	1.03	This_Study
4	336	2014-08-19	13:17:47.000	52.2251	-115.2941	5.0	0.94	----	0.40	AGS
4	337	2014-08-20	14:50:41.000	52.2069	-115.2078	5.0	1.10	----	1.15	AGS
4	338	2014-08-22	09:13:54.000	52.2253	-115.2718	5.0	0.97	----	0.55	AGS
4	339	2014-08-22	19:42:34.000	52.2090	-115.2367	5.0	1.09	----	1.09	AGS
4	340	2014-08-25	11:50:04.000	52.2383	-115.3007	5.0	1.05	----	0.92	AGS
4	341	2014-08-26	00:03:25.580	52.1864	-115.2217	4.0	0.97	----	0.56	This_Study

4	342	2014-08-27	09:53:13.000	52.3073	-115.3436	5.0	0.96	-----	0.50	AGS
4	343	2014-09-01	10:18:23.000	52.2333	-115.2893	5.0	0.99	-----	0.65	AGS
4	344	2014-09-03	06:49:51.000	52.1630	-115.2301	5.0	0.99	-----	0.64	AGS
4	345	2014-09-16	22:45:43.000	51.9512	-115.4202	5.0	1.24	-----	1.77	AGS
4	346	2014-10-28	02:43:32.240	52.3855	-115.2437	21.5	1.90	-----	0.74	This_Study
4	347	2014-12-10	20:34:25.441	52.1393	-116.0976	5.0	3.18	2.97	2.67	This_Study
4	348	2014-12-11	21:39:58.000	52.1864	-115.2139	3.0	1.01	-----	0.74	AGS
4	349	2014-12-15	02:49:31.000	52.2368	-115.2677	5.0	0.99	-----	0.65	AGS
4	350	2014-12-21	20:03:03.840	52.2423	-115.2081	2.6	2.45	-----	-----	This_Study
5	351	2004-05-23	20:14:24.385	53.5955	-116.4423	2.2	2.79	-----	-----	This_Study
5	352	2004-09-13	08:01:51.347	53.1861	-115.6149	1.3	2.30	-----	-----	This_Study
5	353	2005-04-23	06:10:39.437	53.5086	-116.2952	26.8	2.47	2.39	-----	This_Study
5	354	2007-11-12	20:16:38.311	53.1894	-116.0032	4.3	3.48	3.59	3.72	This_Study
5	355	2008-01-31	09:14:37.443	53.8170	-116.5483	15.4	2.11	2.45	2.90	This_Study
5	356	2010-03-12	04:47:59.350	53.4627	-116.1594	6.7	2.43	2.14	2.88	This_Study
5	357	2014-03-20	01:19:27.737	53.6198	-116.3413	5.0	2.69	2.63	2.61	This_Study
5	358	2014-04-10	13:53:47.756	53.5056	-116.4627	32.6	2.59	-----	-----	This_Study
5	359	2014-11-01	14:38:55.040	53.4977	-116.1614	13.6	1.80	-----	-----	This_Study
5	360	2014-11-03	12:44:42.340	53.5719	-116.1331	17.5	1.77	-----	-----	This_Study
5	361	2014-11-03	18:14:15.080	53.5073	-116.2194	7.5	2.06	-----	-----	This_Study
5	362	2014-12-12	02:53:56.071	53.7497	-116.7298	10.8	1.89	-----	-----	This_Study
0	363	2004-07-16	18:40:24.763	53.8656	-114.1946	32.0	2.51	----	----	This_Study
0	364	2004-12-05	11:30:43.000	52.5450	-118.2270	1.0	1.42	1.80	-----	NRcan
0	365	2005-11-17	09:53:55.000	52.2290	-117.7850	1.0	1.14	0.90	-----	NRcan
0	366	2007-06-17	14:51:19.825	53.2001	-118.3796	5.0	2.16	-----	1.91	This_Study
0	367	2007-07-25	19:11:54.000	52.0928	-117.3387	5.0	1.27	-----	1.89	AGS
0	368	2007-08-14	20:51:50.502	53.3739	-118.4188	11.5	2.61	-----	2.61	This_Study
0	368	2008-01-08	06:28:09.000	52.2459	-117.8170	1.0	2.01	2.42	1.75	AGS
0	370	2008-01-13	01:08:39.000	51.9728	-116.3001	1.0	1.25	-----	1.83	AGS
0	371	2008-02-19	04:28:31.000	52.5120	-118.2173	1.0	1.76	1.54	1.89	AGS
0	372	2008-11-04	21:10:43.000	51.9968	-116.3620	3.0	1.35	-----	2.26	AGS
0	373	2008-11-09	21:23:38.000	53.4700	-118.0601	1.0	1.24	-----	1.76	AGS
0	374	2009-02-05	05:58:58.014	53.9760	-115.1436	20.2	2.32	1.89	2.62	This_Study
0	375	2009-04-27	01:33:23.000	52.3250	-117.6418	1.0	1.30	0.94	0.67	AGS
0	376	2009-09-01	05:01:09.000	52.0607	-117.2096	1.0	1.56	1.26	1.41	AGS
0	377	2009-09-23	05:16:12.000	52.2087	-117.5460	1.0	1.75	1.32	2.18	AGS
0	378	2010-02-28	10:32:37.000	52.2558	-117.8101	5.0	1.47	1.56	0.58	AGS

0	379	2010-09-03	08:13:43.000	52.0153	-116.3584	1.0	1.52	1.44	0.95	AGS
0	380	2011-04-06	07:59:57.408	52.4585	-117.7821	10.0	2.29	-----	0.74	This_Study
0	381	2012-06-30	13:50:56.520	52.2836	-117.8477	5.0	2.53	2.81	-----	This_Study
0	382	2012-08-16	21:05:05.018	53.9229	-113.5594	0.5	2.32	-----	-----	This_Study
0	383	2012-10-21	11:13:33.236	55.1821	-115.6559	16.0	2.48	-----	2.38	This_Study
0	384	2013-02-03	22:23:40.233	53.8153	-115.2679	5.0	2.07	----	----	This_Study

Table 2. A catalog of quarry blast events determined by this study. All depths are placed at 0 km.

Event No	Date (YYYY-MM-DD)	Origin Time - UTC- (hh:mm:ss)	Lat.	Lon.	Depth (km)	Mw	M _L (NRcan)	M _L (AGS)
1	2004-06-08	04:26:10.700	53.1280	-116.8962	0	2.88	2.56	----
2	2004-06-14	04:31:06.140	53.1453	-116.8663	0	2.92	2.69	----
3	2004-06-20	00:14:46.810	53.1124	-116.7633	0	2.65	----	----
4	2004-06-30	04:43:14.620	53.2048	-116.6840	0	2.44	----	----
5	2004-07-06	03:28:16.850	53.2065	-116.7997	0	2.79	2.42	----
6	2004-07-06	20:55:47.080	53.4684	-114.5344	0	2.70	----	----
7	2004-07-08	23:14:16.680	53.1769	-116.7164	0	2.97	----	----
8	2004-07-12	21:34:45.840	53.6445	-114.3092	0	2.25	----	----
9	2004-07-14	23:32:16.720	53.1964	-116.7965	0	3.26	----	----
10	2004-07-22	01:17:05.020	53.1981	-116.8235	0	2.84	----	----
11	2004-07-24	00:54:13.629	53.0633	-117.1308	0	2.90	----	----
12	2004-08-05	19:24:18.840	53.6874	-114.4424	0	2.03	----	----
13	2004-10-05	23:36:03.320	53.2247	-116.8651	0	2.89	----	----
14	2004-10-21	18:55:40.600	53.5788	-114.5094	0	2.91	----	----
15	2004-10-28	16:09:44.670	53.6755	-114.4140	0	2.10	----	----
16	2004-11-05	20:53:07.440	53.2114	-116.8653	0	3.08	----	----
17	2004-11-17	19:49:49.360	53.4977	-114.6145	0	3.24	----	----
18	2004-11-18	00:42:40.260	53.2065	-116.8074	0	3.19	----	----
19	2004-12-02	18:14:51.080	53.5801	-114.5257	0	2.98	----	----
20	2004-12-23	19:30:12.960	53.8149	-114.2135	0	2.31	----	----
21	2005-01-08	19:07:37.960	53.0725	-116.8910	0	2.87	----	----
22	2005-01-12	17:00:13.580	53.7381	-114.3511	0	2.28	----	----
23	2005-01-14	20:49:45.920	53.7662	-114.2522	0	2.95	----	----
24	2005-01-15	23:14:04.200	53.1018	-116.9213	0	3.17	----	----
25	2005-01-16	19:51:29.428	53.0817	-115.2119	0	3.14	3.12	----
26	2005-01-17	23:53:54.720	53.0501	-116.7637	0	2.64	----	----
27	2005-01-22	00:18:42.510	53.0290	-116.7606	0	2.89	----	----
28	2005-01-24	18:49:56.360	52.9048	-117.2439	0	2.65	----	----
29	2005-01-25	00:01:47.020	53.0756	-116.8773	0	2.60	----	----
30	2005-01-29	00:09:20.440	53.1962	-116.5747	0	2.44	----	----
31	2005-02-01	19:12:40.160	53.0800	-116.9779	0	2.83	----	----
32	2005-02-16	21:13:05.920	53.0823	-116.9430	0	3.25	----	----

33	2005-02-26	23:49:31.740	53.0871	-116.8778	0	3.20	----	----
34	2005-03-05	19:15:08.920	53.1940	-117.0697	0	2.65	----	----
35	2005-03-19	22:27:16.800	52.9604	-117.2419	0	2.58	----	----
36	2005-03-22	01:01:47.150	53.0858	-116.9489	0	2.68	----	----
37	2005-03-27	23:06:49.240	53.1325	-117.0351	0	2.87	----	----
38	2005-04-04	21:22:45.400	52.9923	-117.4017	0	2.44	----	----
39	2005-04-07	19:44:57.360	53.1945	-117.0890	0	2.65	----	----
40	2005-04-11	23:52:48.680	53.0748	-116.7507	0	2.67	----	----
41	2005-04-29	23:09:07.920	53.0762	-116.9561	0	2.75	----	----
42	2005-05-04	23:11:53.140	53.0815	-116.9201	0	2.66	----	----
43	2005-05-05	17:36:49.040	53.6902	-114.3901	0	2.41	----	----
44	2005-05-08	00:59:46.840	53.0534	-116.7649	0	2.62	----	----
45	2005-05-09	00:52:24.990	52.9783	-117.3741	0	2.38	----	----
46	2005-05-12	18:10:44.600	53.7126	-114.3851	0	2.61	----	----
47	2005-05-12	21:26:27.400	53.0305	-116.7844	0	2.40	----	----
48	2005-05-19	18:05:03.500	53.4964	-114.5961	0	3.30	----	----
49	2005-05-22	21:13:32.040	53.0845	-116.9525	0	2.82	----	----
50	2005-05-26	19:15:55.800	53.4814	-114.6173	0	3.19	----	----
51	2005-06-01	18:56:52.760	53.5412	-114.5516	0	3.25	----	----
52	2005-06-02	23:28:31.280	53.0945	-116.8382	0	2.69	----	----
53	2005-06-09	18:10:04.880	53.5502	-114.5408	0	2.90	----	----
54	2005-06-13	17:40:46.980	53.6954	-114.3863	0	2.96	----	----
55	2005-06-16	16:25:56.990	53.7949	-114.2631	0	3.20	----	----
56	2005-06-19	22:33:52.820	53.0757	-116.7682	0	2.70	----	----
57	2005-06-23	17:15:30.480	53.4927	-114.6122	0	3.01	----	----
58	2005-06-30	17:26:27.800	53.8302	-114.2022	0	2.78	----	----
59	2005-07-01	22:17:04.200	53.0880	-116.9749	0	2.81	----	----
60	2005-07-05	19:19:49.080	53.7334	-114.3803	0	2.47	----	----
61	2005-07-06	00:27:51.090	53.0826	-116.9672	0	2.94	----	----
62	2005-07-21	17:14:21.280	53.4774	-114.6141	0	3.06	----	----
63	2005-07-28	18:04:33.040	53.4811	-114.6228	0	3.05	----	----
64	2005-07-30	00:39:16.140	52.9446	-117.2676	0	2.77	----	----
65	2005-08-01	23:19:38.920	53.0628	-116.9440	0	3.25	----	----
66	2005-08-04	17:23:27.000	53.6184	-114.4443	0	2.88	----	----
67	2005-08-11	16:18:58.380	53.4887	-114.5930	0	3.21	----	----
68	2005-08-15	19:14:29.120	53.5063	-114.5906	0	3.08	----	----
69	2005-08-16	19:09:50.060	53.9154	-114.4245	0	2.24	----	----

70	2005-08-19	18:05:40.080	53.5471	-114.5192	0	2.83	----	----
71	2005-08-26	17:56:53.620	53.4906	-114.5778	0	3.24	----	----
72	2005-08-26	21:53:06.780	53.0721	-116.9249	0	3.05	----	----
73	2005-09-01	16:44:09.330	53.8080	-114.2182	0	3.43	----	----
74	2005-09-04	20:22:29.560	53.1154	-116.9352	0	2.91	----	----
75	2005-09-06	23:24:08.460	53.0883	-116.9405	0	3.05	----	----
76	2006-09-21	17:13:05.420	53.5832	-114.5752	0	2.47	----	----
77	2006-09-29	18:37:12.120	53.4685	-114.6159	0	2.66	----	----
78	2006-10-04	18:51:57.960	53.5173	-114.3576	0	2.11	----	----
79	2006-10-05	18:36:44.480	53.5226	-114.5826	0	2.79	----	----
80	2006-10-07	00:38:35.400	52.9127	-117.3379	0	2.33	----	----
81	2006-10-16	19:29:16.120	53.5145	-114.5807	0	2.73	----	----
82	2006-10-19	00:53:40.990	53.1427	-117.0274	0	2.81	----	----
83	2006-10-19	20:47:38.400	53.4370	-114.5243	0	2.21	----	----
84	2006-10-20	16:43:31.300	53.5247	-114.5891	0	2.39	----	----
85	2006-10-24	21:07:26.920	52.9523	-117.3873	0	2.28	----	----
86	2006-10-28	00:07:53.290	53.1316	-117.0135	0	2.82	----	----
87	2006-10-30	21:42:18.260	53.5104	-114.5804	0	2.76	----	----
88	2006-11-03	18:37:59.640	53.5029	-114.5754	0	2.66	----	----
89	2006-11-10	22:26:59.800	52.9783	-117.3908	0	2.46	----	----
90	2006-11-24	17:14:23.820	53.4850	-114.6810	0	2.50	----	----
91	2006-12-03	19:55:06.360	53.1426	-116.8698	0	2.45	----	----
92	2006-12-10	19:05:10.840	52.9371	-117.4003	0	2.63	----	----
93	2006-12-12	23:00:05.960	53.4994	-114.6179	0	2.73	----	----
94	2006-12-22	19:13:51.880	53.5223	-114.5843	0	2.81	----	----
95	2006-12-23	00:37:02.200	53.1333	-117.0147	0	2.90	----	----
96	2006-12-30	19:03:42.280	53.5857	-114.5178	0	2.20	----	----
97	2007-01-02	23:40:58.200	53.0841	-116.8370	0	2.47	----	----
98	2007-01-09	21:23:25.140	53.5974	-114.8445	0	2.82	----	----
99	2007-01-10	18:40:04.000	53.0133	-117.4159	0	2.67	----	----
100	2007-01-11	22:39:05.000	53.0085	-116.8732	0	2.59	----	----
101	2007-01-12	20:14:18.000	53.5211	-114.5908	0	2.65	----	----
102	2007-01-16	17:09:37.180	53.4778	-114.5338	0	2.50	----	----
103	2007-01-16	23:05:19.320	53.0490	-116.8183	0	2.85	----	----
104	2007-01-18	22:28:56.640	53.1405	-116.8342	0	2.98	----	----
105	2007-01-19	20:39:58.480	53.4960	-114.6861	0	2.33	----	----
106	2007-01-25	17:55:06.840	53.4949	-114.5572	0	2.72	----	----

107	2007-01-30	18:28:20.800	53.5511	-114.5675	0	2.75	----	----
108	2007-02-02	23:52:05.920	53.1434	-116.9894	0	2.75	----	----
109	2007-02-06	20:31:36.400	53.5204	-114.5950	0	3.09	----	----
110	2007-02-09	20:17:07.960	53.4541	-114.6140	0	2.53	----	----
111	2007-02-11	18:26:43.840	52.9508	-117.4128	0	2.50	----	----
112	2007-02-15	20:15:42.800	53.5208	-114.6278	0	2.60	----	----
113	2007-02-16	00:17:56.480	53.1609	-116.9952	0	2.63	----	----
114	2007-02-17	18:06:05.660	52.9598	-117.3624	0	2.29	----	----
115	2007-02-17	21:35:01.800	53.1029	-116.7906	0	2.61	----	----
116	2007-02-21	17:03:23.400	53.4899	-114.5883	0	2.58	----	----
117	2007-02-26	21:26:54.420	53.5110	-114.5578	0	2.49	----	----
118	2007-02-27	23:26:44.980	53.1560	-117.0356	0	2.88	----	----
119	2007-03-06	18:19:22.360	53.4862	-114.5868	0	2.33	----	----
120	2007-03-08	17:44:20.120	53.5100	-114.5453	0	2.31	----	----
121	2007-03-10	21:10:11.400	53.1136	-116.9803	0	2.97	----	----
122	2007-03-11	19:20:12.900	53.1030	-116.8082	0	2.54	----	----
123	2007-03-12	20:29:20.140	53.4720	-114.6006	0	2.20	----	----
124	2007-03-17	21:11:32.840	52.9479	-117.4022	0	2.40	----	----
125	2007-03-18	21:57:12.360	53.2009	-117.1909	0	2.36	----	----
126	2007-03-20	19:13:02.040	53.4944	-114.5732	0	2.69	----	----
127	2007-03-21	23:43:49.520	53.1140	-116.9141	0	3.03	----	----
128	2007-03-28	19:10:10.520	53.5024	-114.5726	0	2.81	----	----
129	2007-03-28	22:13:13.440	53.1460	-116.9271	0	2.87	----	----
130	2007-04-04	22:34:02.700	53.0923	-116.8648	0	3.15	----	----
131	2007-04-13	17:03:43.060	53.5124	-114.5505	0	2.64	----	----
132	2007-04-19	19:19:58.480	53.5116	-114.5535	0	2.69	----	----
133	2007-04-27	19:23:43.240	53.5117	-114.5693	0	2.64	----	----
134	2007-04-27	20:06:09.920	53.1153	-116.9904	0	2.88	----	----
135	2007-05-02	22:22:16.080	53.4281	-114.5434	0	2.08	----	----
136	2007-05-03	16:20:40.910	53.5264	-114.5971	0	2.78	----	----
137	2007-05-04	19:50:19.440	53.4909	-114.6473	0	2.37	----	----
138	2007-05-10	19:22:23.860	53.5247	-114.5747	0	2.82	----	----
139	2007-05-12	00:32:12.560	53.1080	-116.9568	0	2.87	----	----
140	2007-05-15	18:02:34.820	53.5505	-114.5770	0	2.82	----	----
141	2007-05-16	00:37:33.490	52.9722	-117.3617	0	2.61	----	----
142	2007-05-17	23:45:06.920	53.1494	-116.9221	0	3.29	----	----
143	2007-05-24	16:40:56.210	53.4825	-114.6138	0	2.21	----	----

144	2007-05-26	21:14:48.720	52.9554	-117.3557	0	2.57	----	----
145	2007-05-31	19:15:11.920	53.5073	-114.5823	0	2.75	----	----
146	2007-06-07	19:16:17.680	53.5174	-114.5963	0	2.79	----	----
147	2007-06-10	20:23:45.200	53.1146	-116.9728	0	2.94	----	----
148	2007-06-12	19:37:10.940	53.5042	-114.6615	0	2.47	----	----
149	2007-06-19	17:32:44.200	53.5424	-114.5995	0	2.51	----	----
150	2007-06-20	00:07:23.190	53.1482	-117.0252	0	2.89	----	----
151	2007-06-23	18:09:19.900	53.1527	-117.0594	0	2.87	----	----
152	2007-06-24	21:17:14.640	52.9507	-117.3508	0	2.67	----	----
153	2007-06-27	20:08:48.860	53.5022	-114.6187	0	2.60	----	----
154	2007-06-29	18:11:18.900	53.1381	-117.0114	0	2.99	----	----
155	2007-07-01	00:35:50.860	53.1160	-116.9634	0	3.05	----	----
156	2007-07-03	23:06:31.880	53.1193	-116.9643	0	2.79	----	----
157	2007-07-09	20:07:20.120	53.1017	-116.9480	0	2.49	----	----
158	2007-07-14	20:56:41.160	53.0952	-116.9220	0	2.78	----	----
159	2007-07-17	00:01:22.930	53.1469	-116.9993	0	2.67	----	----
160	2007-07-19	22:25:30.900	53.1219	-116.9871	0	3.12	----	----
161	2007-07-25	23:46:47.000	53.1268	-117.0338	0	3.15	----	----
162	2007-08-08	17:52:51.360	53.1453	-117.0370	0	3.07	----	----
163	2007-08-09	18:45:16.080	53.5288	-114.5434	0	2.32	----	----
164	2007-08-12	00:35:54.020	52.9472	-117.3293	0	2.37	----	----
165	2007-08-16	21:05:34.960	52.9778	-117.3568	0	2.34	----	----
166	2007-08-21	00:43:18.650	53.1486	-117.0411	0	2.94	----	----
167	2007-08-23	16:17:21.100	53.4771	-114.5569	0	2.54	----	----
168	2007-08-26	22:13:13.240	53.1414	-117.0383	0	2.97	----	----
169	2007-09-01	00:59:09.180	53.1419	-117.0226	0	2.70	----	----
170	2007-09-06	21:05:13.840	53.1368	-117.0113	0	2.97	----	----
171	2007-09-07	20:20:02.260	53.4856	-114.5473	0	2.65	----	----
172	2007-09-23	22:44:40.440	53.1343	-116.9967	0	3.13	3.48	----
173	2007-09-25	17:59:05.520	53.5131	-114.5486	0	2.75	----	----
174	2007-09-26	00:32:18.960	53.1417	-117.0185	0	2.90	----	----
175	2007-10-02	20:23:25.860	53.1564	-117.0490	0	2.61	----	----
176	2007-10-03	17:10:12.280	52.9480	-117.3583	0	2.41	----	----
177	2007-10-03	19:34:46.380	53.5213	-114.5465	0	2.68	----	----
178	2007-10-03	22:18:58.460	53.1545	-117.0259	0	2.41	----	----
179	2007-10-07	18:14:48.400	53.1499	-117.0188	0	2.80	----	----
180	2007-10-11	20:17:42.240	53.4696	-114.5926	0	2.66	----	----

181	2007-10-18	17:45:48.800	53.4820	-114.5766	0	2.77	----	----
182	2007-10-18	23:27:12.600	53.1453	-117.0262	0	2.49	----	----
183	2007-10-27	20:19:45.800	53.1478	-117.0276	0	2.98	----	----
184	2007-11-07	17:33:39.180	53.4835	-114.5799	0	2.53	----	----
185	2007-11-07	18:21:49.760	52.9638	-117.4195	0	2.66	----	----
186	2007-11-08	00:04:30.460	53.1556	-117.0265	0	2.59	----	----
187	2007-11-13	18:21:45.160	53.4627	-114.6290	0	2.73	----	----
188	2007-11-15	01:01:17.620	53.1351	-117.0142	0	3.01	----	----
189	2007-11-16	17:05:11.520	53.5034	-114.6014	0	2.43	----	----
190	2007-11-22	19:26:48.080	53.5527	-114.5857	0	2.51	----	----
191	2007-11-22	21:11:01.040	53.1607	-117.0382	0	3.05	----	----
192	2007-11-25	22:08:18.720	52.9738	-117.4000	0	2.62	----	----
193	2007-11-29	21:16:26.220	53.4862	-114.5680	0	2.67	----	----
194	2007-11-30	22:41:40.360	53.1755	-117.0296	0	3.19	----	----
195	2007-12-05	17:35:56.560	53.4863	-114.6110	0	2.62	----	----
196	2007-12-07	18:12:33.280	53.5069	-114.6013	0	2.63	----	----
197	2007-12-09	22:24:38.820	52.9307	-117.3198	0	2.32	----	----
198	2007-12-19	21:56:10.420	53.1462	-117.0291	0	3.19	----	----
199	2007-12-20	18:29:08.280	52.8865	-117.3309	0	2.40	----	----
200	2007-12-20	20:06:06.060	53.4767	-114.7002	0	2.36	----	----
201	2007-12-21	19:48:06.360	53.5295	-114.5999	0	2.33	----	----
202	2007-12-22	22:05:10.720	53.1169	-117.3970	0	2.28	----	----
203	2007-12-28	19:08:47.920	53.4969	-114.6031	0	2.39	----	----
204	2008-01-06	21:25:30.880	53.1493	-117.0250	0	3.01	----	----
205	2008-01-08	20:40:42.800	53.4874	-114.5692	0	2.60	----	----
206	2008-01-18	22:21:17.580	52.9456	-117.3602	0	2.59	----	----
207	2008-01-24	00:08:47.260	53.1024	-117.0581	0	3.22	----	----
208	2008-01-25	00:17:12.660	53.1211	-116.9872	0	2.57	----	----
209	2008-02-01	17:48:11.520	53.5199	-114.5589	0	2.81	----	----
210	2008-02-01	21:50:10.680	53.1287	-116.9986	0	2.94	----	----
211	2008-02-06	20:10:02.120	53.4901	-114.5750	0	2.93	----	----
212	2008-02-15	18:22:08.520	53.4913	-114.7168	0	2.22	----	----
213	2008-02-16	19:26:39.640	53.1803	-117.0693	0	2.99	----	----
214	2008-02-19	22:07:13.120	52.8552	-117.2863	0	2.16	----	----
215	2008-02-21	19:01:10.760	53.5157	-114.5754	0	2.85	----	----
216	2008-02-21	20:26:37.120	53.1496	-117.0239	0	3.11	----	----
217	2008-02-25	20:16:21.480	53.5609	-114.6521	0	1.98	----	----

218	2008-03-04	18:59:44.700	53.5506	-114.5058	0	2.72	----	----
219	2008-03-07	23:17:58.440	53.1440	-117.0433	0	3.28	----	----
220	2008-03-09	21:08:59.900	52.9213	-117.3131	0	2.56	----	----
221	2008-03-12	18:42:10.320	53.5711	-114.5466	0	2.75	----	----
222	2008-03-12	18:50:47.000	53.1529	-117.0283	0	2.98	----	----
223	2008-03-18	22:39:00.120	53.1610	-117.0643	0	3.04	----	----
224	2008-03-21	21:13:06.880	52.9405	-117.3458	0	2.57	----	----
225	2008-03-26	16:29:46.010	53.5241	-114.5659	0	2.53	----	----
226	2008-04-02	22:20:22.760	53.1616	-117.0449	0	2.49	----	----
227	2008-04-03	16:21:21.330	53.5458	-114.6085	0	2.46	----	----
228	2008-04-07	20:59:42.380	53.1481	-117.0235	0	2.98	----	----
229	2008-04-08	17:19:34.800	53.5200	-114.5838	0	2.54	----	----
230	2008-04-10	19:44:12.900	53.4623	-114.4931	0	2.19	----	----
231	2008-04-14	21:20:38.560	53.1446	-117.0350	0	3.20	----	----
232	2008-04-15	17:27:28.080	53.5117	-114.6147	0	2.75	----	----
233	2008-04-18	18:13:58.360	53.5097	-114.5978	0	2.83	----	----
234	2008-04-19	21:21:14.120	52.9315	-117.4554	0	2.14	----	----
235	2008-04-25	17:43:25.960	53.4992	-114.5926	0	2.91	----	----
236	2008-04-27	21:09:43.320	52.8914	-117.3115	0	2.70	----	----
237	2008-04-28	22:58:17.600	52.9257	-117.2916	0	2.42	----	----
238	2008-04-30	00:06:37.130	53.1533	-117.0427	0	3.24	----	----
239	2008-05-01	19:57:06.860	53.5227	-114.6014	0	2.85	----	----
240	2008-05-01	21:11:54.400	52.9387	-117.3712	0	2.46	----	----
241	2008-05-05	20:13:39.920	53.1477	-117.0502	0	3.35	----	----
242	2008-05-05	23:20:19.000	53.1602	-117.0431	0	2.16	----	----
243	2008-05-06	18:52:56.720	53.5072	-114.5692	0	2.73	----	----
244	2008-05-06	21:07:22.120	52.9607	-117.3926	0	2.67	----	----
245	2008-05-08	19:23:52.920	53.5451	-114.5964	0	2.68	----	----
246	2008-05-17	21:40:11.920	53.1574	-117.0427	0	3.23	----	----
247	2008-05-20	21:06:33.480	52.9901	-117.4641	0	2.51	----	----
248	2008-05-21	18:51:21.080	53.4999	-114.6735	0	2.21	----	----
249	2008-05-23	22:08:42.200	53.1399	-117.0038	0	2.96	----	----
250	2008-05-30	17:18:08.650	53.1143	-116.9548	0	2.41	----	----
251	2008-05-31	02:30:01.420	52.9281	-117.2959	0	2.38	----	----
252	2008-05-31	20:09:24.840	53.1487	-117.0357	0	2.40	----	----
253	2008-06-05	19:30:07.820	53.1479	-117.0332	0	3.29	----	----
254	2008-06-07	17:21:14.080	52.9130	-117.3679	0	2.19	----	----

255	2008-06-13	18:59:48.280	53.4930	-114.5839	0	2.51	----	----
256	2008-06-19	16:57:33.440	53.5252	-114.6316	0	2.77	----	----
257	2008-06-24	21:19:15.320	52.9052	-117.3535	0	2.69	----	----
258	2008-06-27	18:10:57.020	53.5151	-114.5652	0	2.82	----	----
259	2008-06-28	00:33:46.120	52.9532	-117.3014	0	2.58	----	----
260	2008-07-03	20:21:36.200	53.1487	-117.0103	0	3.11	----	----
261	2008-07-08	01:48:41.660	53.1413	-117.0211	0	2.43	----	----
262	2008-07-08	16:07:42.980	53.5197	-114.5654	0	2.81	----	----
263	2008-07-08	19:28:59.060	53.5022	-114.6953	0	2.23	----	----
264	2008-07-09	02:03:31.560	53.1091	-116.9574	0	3.18	----	----
265	2008-07-10	18:18:36.960	53.5060	-114.5720	0	2.94	----	----
266	2008-07-16	16:01:09.270	53.5228	-114.5787	0	2.99	----	----
267	2008-07-19	20:49:50.320	53.1457	-117.0542	0	3.16	----	----
268	2008-07-21	16:07:41.140	53.5366	-114.5824	0	2.92	----	----
269	2008-07-27	19:46:38.600	53.1746	-116.8499	0	2.94	----	----
270	2008-07-29	21:16:08.440	52.9880	-117.5323	0	2.23	----	----
271	2008-07-31	17:17:40.700	52.9453	-117.3850	0	2.21	----	----
272	2008-08-04	17:08:03.280	52.8937	-117.2375	0	2.31	----	----
273	2008-08-04	22:04:44.800	53.1632	-117.0273	0	3.10	----	----
274	2008-08-05	19:15:37.520	53.3825	-114.5931	0	2.76	----	----
275	2008-08-08	17:03:16.940	52.9543	-117.3471	0	2.52	----	----
276	2008-08-12	19:16:35.680	53.5565	-114.6352	0	2.74	----	----
277	2008-08-16	17:13:10.440	52.9467	-117.3305	0	2.57	----	----
278	2008-09-03	16:49:24.010	53.4352	-114.6330	0	2.65	----	2.44
279	2008-09-05	23:13:43.820	53.1108	-116.9296	0	2.83	----	----
280	2008-09-08	16:15:15.810	53.9263	-114.4048	0	2.65	----	----
281	2008-09-11	18:11:30.220	53.1423	-117.0006	0	3.13	----	----
282	2008-09-18	17:15:27.440	53.1397	-116.9826	0	2.59	----	----
283	2008-09-21	18:51:15.580	53.1731	-116.9846	0	2.55	----	----
284	2008-09-26	17:07:06.320	52.9469	-117.2824	0	2.68	----	----
285	2008-09-29	21:09:54.000	52.9809	-117.2770	0	2.43	----	----
286	2008-09-30	16:45:27.240	53.1662	-117.0337	0	2.88	----	----
287	2008-10-01	19:18:36.520	53.3922	-115.0684	0	2.03	----	----
288	2008-10-01	21:06:36.320	52.9531	-117.3535	0	2.40	----	2.04
289	2008-10-07	18:17:13.320	53.4046	-115.3717	0	2.34	----	----
290	2008-10-07	22:21:25.720	53.1678	-117.0230	0	3.15	----	----
291	2008-10-12	17:14:23.120	52.9726	-117.3359	0	2.45	----	----

292	2008-10-17	19:14:12.860	53.4436	-115.1519	0	2.66	----	----
293	2008-10-20	18:35:28.660	53.1678	-117.0064	0	3.16	----	----
294	2008-10-20	21:11:18.020	52.9294	-117.3678	0	2.13	----	----
295	2008-10-28	17:08:08.620	53.4284	-115.2923	0	2.60	----	----
296	2008-10-28	21:09:54.320	52.9753	-117.3077	0	2.54	----	----
297	2008-10-29	23:08:46.800	53.1733	-116.9963	0	3.00	----	----
298	2008-11-04	20:07:13.440	53.5722	-114.5134	0	2.41	----	----
299	2008-11-05	22:05:48.280	53.0123	-117.3924	0	2.44	----	----
300	2008-11-14	19:01:32.640	53.1893	-116.9773	0	2.80	----	----
301	2008-11-16	17:57:49.540	53.0352	-116.5195	0	3.03	----	----
302	2008-11-21	21:55:47.760	53.1642	-116.9992	0	2.22	----	----
303	2008-11-24	19:08:48.520	53.0534	-116.6031	0	3.21	----	----
304	2008-11-24	22:03:07.160	53.0006	-117.4081	0	2.30	----	----
305	2008-12-04	01:12:01.900	53.1903	-117.0379	0	2.82	----	----
306	2008-12-06	19:20:20.680	53.1635	-117.0120	0	3.34	----	----
307	2008-12-06	22:13:48.720	53.0289	-117.4034	0	2.37	----	----
308	2008-12-07	22:13:32.200	53.0287	-117.3614	0	2.45	----	----
309	2009-01-18	18:22:29.120	52.9593	-117.3838	0	2.50	----	----
310	2009-01-28	17:16:38.460	53.2436	-117.2195	0	2.71	----	----
311	2009-02-02	19:36:42.500	53.6359	-114.8109	0	1.76	----	----
312	2009-02-02	22:14:20.040	52.9786	-117.3771	0	2.29	----	----
313	2009-02-04	23:00:21.080	53.1530	-117.0409	0	2.67	----	----
314	2009-02-07	01:22:26.080	52.9831	-117.3804	0	2.58	----	----
315	2009-02-13	22:05:09.060	52.9372	-117.3403	0	2.61	----	----
316	2009-02-18	19:42:53.040	53.7585	-114.4225	0	2.75	----	----
317	2009-02-19	19:42:25.880	53.9676	-114.5024	0	2.77	----	----
318	2009-02-20	20:38:58.080	53.1179	-117.0111	0	3.44	----	----
319	2009-02-25	19:45:10.160	53.5800	-114.5843	0	2.38	----	----
320	2009-02-27	19:48:05.720	53.6477	-114.5993	0	2.53	----	----
321	2009-02-27	22:12:31.020	52.9500	-117.3764	0	2.59	----	----
322	2009-03-02	20:01:38.720	53.5357	-114.6741	0	2.38	----	----
323	2009-03-07	23:44:09.320	53.1604	-117.0436	0	2.78	----	----
324	2009-03-16	21:12:41.840	52.9180	-117.3331	0	2.40	----	----
325	2009-03-17	19:06:01.680	53.6520	-114.6221	0	2.36	----	----
326	2009-03-18	20:30:16.000	53.2091	-117.0546	0	2.92	----	----
327	2009-03-21	21:23:59.840	52.9821	-117.4081	0	2.54	----	----
328	2009-03-25	23:32:28.840	53.2802	-117.0564	0	2.58	----	----

329	2009-03-26	18:31:18.240	53.6127	-114.6385	0	2.35	----	----
330	2009-03-31	20:33:33.640	53.1154	-116.9855	0	2.83	----	----
331	2009-04-02	22:27:41.620	53.5660	-117.4959	0	2.98	----	----
332	2009-04-14	20:50:49.160	53.1385	-117.0404	0	3.29	----	----
333	2009-04-17	17:24:38.680	53.1269	-116.9821	0	2.70	----	----
334	2009-04-19	21:10:07.600	53.5443	-117.4916	0	3.00	----	----
335	2009-04-20	22:15:55.800	53.1357	-117.0271	0	2.99	----	----
336	2009-04-23	21:16:18.360	53.0192	-117.5186	0	2.64	----	----
337	2009-04-25	21:40:24.520	53.1430	-117.0317	0	3.32	----	----
338	2009-04-28	00:28:44.750	52.9669	-117.3811	0	2.27	----	----
339	2009-05-03	23:25:29.480	53.1465	-117.0536	0	3.21	----	----
340	2009-05-10	17:34:24.200	53.1318	-116.9406	0	2.77	----	----
341	2009-05-19	20:19:33.880	53.1543	-117.0492	0	2.79	----	----
342	2009-05-27	20:20:41.400	53.0532	-116.9020	0	3.00	----	----
343	2009-06-02	19:28:18.600	53.4720	-114.7199	0	2.10	----	----
344	2009-06-10	20:33:12.280	53.1154	-116.9990	0	2.89	----	----
345	2009-06-20	18:58:46.000	53.1247	-117.0069	0	3.26	----	----
346	2009-07-05	19:17:56.440	53.1394	-116.9113	0	3.33	----	----
347	2009-07-08	00:42:59.830	52.9348	-117.4053	0	2.25	----	----
348	2009-07-14	23:10:12.500	53.1313	-117.0277	0	3.36	----	----
349	2009-07-18	21:20:05.840	52.9477	-117.3660	0	2.54	----	----
350	2009-07-22	23:25:28.540	53.1434	-116.9968	0	2.94	----	----
351	2009-07-30	19:15:46.480	53.4093	-114.7059	0	2.43	----	----
352	2009-07-31	20:09:41.380	53.0964	-116.9326	0	2.85	----	----
353	2009-08-05	20:55:32.440	53.1775	-116.9851	0	2.68	----	----
354	2009-08-18	19:02:51.880	53.4619	-114.6864	0	2.72	----	----
355	2009-08-19	20:09:10.940	53.4968	-114.7299	0	2.46	----	----
356	2009-08-20	17:08:02.280	53.0951	-117.5982	0	2.61	----	----
357	2009-08-23	21:41:09.880	53.2743	-117.0566	0	2.67	----	----
358	2009-08-24	16:56:04.910	52.9296	-117.3182	0	3.00	----	----
359	2009-08-31	21:16:34.380	53.1847	-116.9751	0	2.75	----	----
360	2009-09-03	16:07:37.050	53.4926	-114.6397	0	2.25	----	----
361	2009-09-05	20:05:49.620	53.4402	-117.3047	0	3.08	----	----
362	2009-09-06	21:03:16.660	52.9435	-117.3475	0	2.83	----	----
363	2009-09-08	21:30:13.040	53.1787	-116.9746	0	3.02	----	----
364	2009-09-19	19:11:38.100	52.9400	-117.3404	0	2.85	----	----
365	2009-09-25	20:59:04.480	52.9464	-117.3975	0	2.58	----	----

366	2009-09-29	20:50:28.840	53.1197	-116.9134	0	3.26	----	----
367	2009-10-03	21:35:09.280	52.9062	-117.2838	0	2.47	----	----
368	2009-10-09	21:05:39.200	53.1381	-117.0451	0	2.76	----	----
369	2009-10-16	21:28:48.000	53.0829	-116.9032	0	3.09	----	----
370	2009-10-24	23:01:18.860	53.1302	-116.9968	0	3.15	----	----
371	2009-10-31	18:17:01.800	53.2215	-116.9962	0	2.64	----	----
372	2009-11-05	21:57:28.400	53.1939	-116.9743	0	2.80	----	----
373	2009-11-05	22:28:49.520	52.9337	-117.3354	0	2.46	----	----
374	2009-11-07	19:59:55.020	53.1545	-116.9209	0	2.86	----	----
375	2009-11-08	18:06:27.440	52.9442	-117.3413	0	2.83	----	----
376	2009-11-10	20:16:07.720	53.5404	-114.5910	0	2.36	----	----
377	2009-11-11	22:10:36.100	52.8798	-117.2839	0	2.38	----	----
378	2009-11-14	22:10:09.720	53.0575	-117.6202	0	2.49	----	----
379	2009-11-19	17:01:05.040	53.2609	-117.0603	0	2.76	----	----
380	2009-11-20	23:37:19.640	53.1345	-117.0187	0	2.70	----	----
381	2009-11-27	21:25:50.680	53.1418	-117.0192	0	3.21	----	----
382	2009-11-29	18:09:19.880	52.9982	-117.3862	0	2.67	----	----
383	2009-12-06	22:21:44.520	52.9258	-117.3344	0	2.61	----	----
384	2009-12-07	00:30:01.850	53.1193	-116.9802	0	3.41	----	----
385	2009-12-09	21:41:34.040	53.1893	-116.9580	0	3.18	----	----
386	2009-12-16	18:31:25.760	53.1914	-116.9724	0	2.99	----	----
387	2010-01-08	00:10:48.660	53.1819	-116.9688	0	2.93	----	----
388	2010-01-12	20:48:16.760	53.8077	-114.5430	0	2.03	----	----
389	2010-01-13	23:40:01.160	52.9036	-117.3992	0	2.39	----	----
390	2010-01-19	00:10:54.550	52.9110	-117.3501	0	2.44	----	----
391	2010-01-19	22:21:56.840	53.2504	-117.0774	0	2.73	----	----
392	2010-01-28	18:25:29.300	52.9825	-117.4178	0	2.61	----	----
393	2010-02-03	23:15:01.240	53.1779	-116.9565	0	2.94	----	----
394	2010-02-17	21:25:14.160	53.1809	-116.9934	0	3.06	----	----
395	2010-02-23	21:09:52.440	53.2392	-117.0247	0	2.74	----	----
396	2010-02-24	18:54:53.520	53.5591	-114.6731	0	2.61	----	----
397	2010-02-24	21:19:01.640	53.1625	-116.9813	0	3.05	----	----
398	2010-02-26	20:24:49.360	53.0756	-116.9197	0	3.12	----	----
399	2010-03-03	20:05:37.040	53.2436	-117.0181	0	2.81	----	----
400	2010-03-05	19:47:41.800	53.0967	-116.9704	0	3.27	----	----
401	2010-03-08	21:13:53.300	53.0892	-116.8869	0	3.14	----	----
402	2010-03-09	20:28:31.680	53.5088	-114.6671	0	2.36	----	----

403	2010-03-09	22:13:38.280	53.1137	-116.9835	0	2.87	----	----
404	2010-03-13	22:18:51.360	53.1894	-116.9573	0	3.16	----	----
405	2010-03-20	20:21:30.340	53.1721	-116.9411	0	2.89	----	----
406	2010-03-22	20:01:26.360	53.0958	-116.9321	0	3.00	----	----
407	2010-03-23	19:54:00.960	53.3666	-115.3739	0	2.58	----	----
408	2010-03-24	21:28:48.960	52.9410	-117.3665	0	2.66	----	----
409	2010-03-24	23:01:52.920	53.0491	-116.7078	0	2.65	----	----
410	2010-03-26	18:11:51.540	53.4327	-114.9962	0	1.98	----	----
411	2010-04-03	16:35:03.190	53.1705	-116.9656	0	3.01	----	----
412	2010-04-03	17:09:48.000	52.9955	-117.4615	0	2.65	----	----
413	2010-04-04	17:11:56.960	53.1210	-116.9692	0	3.02	----	----
414	2010-04-05	20:16:15.080	53.1400	-116.8993	0	2.47	----	----
415	2010-04-11	03:02:32.520	52.9196	-117.3499	0	2.32	----	----
416	2010-04-11	20:26:56.760	53.1867	-117.0828	0	2.40	----	----
417	2010-04-21	17:23:21.400	53.1662	-116.9512	0	3.16	----	----
418	2010-04-24	21:25:55.200	53.6125	-117.4572	0	2.67	----	----
419	2010-04-26	23:13:12.640	53.1894	-116.9880	0	3.09	----	----
420	2010-04-29	18:36:48.440	53.4566	-114.7262	0	2.31	----	----
421	2010-05-02	21:20:36.300	53.1803	-117.0917	0	3.15	----	----
422	2010-05-04	20:05:53.800	53.5537	-114.5874	0	1.90	----	----
423	2010-05-05	21:12:28.980	53.5621	-117.3929	0	2.67	----	----
424	2010-05-07	19:19:11.100	53.2091	-117.0195	0	2.92	----	----
425	2010-05-08	20:11:53.960	53.1901	-116.9903	0	3.07	----	----
426	2010-05-09	00:36:43.120	52.9638	-117.4150	0	2.77	----	----
427	2010-05-09	22:21:40.120	53.1861	-117.0039	0	3.02	----	----
428	2010-05-12	17:05:24.280	53.1865	-117.1170	0	2.96	----	----
429	2010-05-13	19:26:50.634	53.7320	-114.7544	0	2.18	----	----
430	2010-05-14	00:33:26.190	52.9275	-117.3636	0	2.64	----	----
431	2010-05-16	21:07:32.740	52.9486	-117.3566	0	2.56	----	----
432	2010-05-18	17:27:52.640	53.1936	-116.9609	0	2.77	----	----
433	2010-05-18	23:31:21.640	53.5973	-117.4451	0	2.88	----	----
434	2010-05-23	00:05:31.170	53.6025	-117.4395	0	0.00	----	----
435	2010-05-25	16:13:52.910	53.1777	-116.9939	0	3.01	----	----
436	2010-05-25	20:40:39.100	52.9495	-117.3847	0	2.39	----	----
437	2010-05-26	17:19:19.140	53.1828	-116.9747	0	3.27	----	----
438	2010-05-30	16:09:59.730	53.1896	-117.0872	0	2.62	----	----
439	2010-05-30	17:27:31.820	52.9484	-117.3859	0	2.44	----	----

440	2010-06-01	20:06:36.780	53.2209	-116.9571	0	3.03	----	----
441	2010-06-07	22:28:35.320	53.1832	-117.1035	0	2.55	----	----
442	2010-06-08	00:29:58.300	52.9252	-117.3507	0	2.85	----	----
443	2010-06-09	01:02:41.470	52.9572	-117.4019	0	2.76	----	----
444	2010-06-10	17:12:00.560	53.1336	-116.9382	0	3.02	----	----
445	2010-06-11	21:22:02.640	52.9842	-117.4370	0	2.44	----	----
446	2010-06-12	18:27:18.520	53.3259	-117.3009	0	2.75	----	----
447	2010-06-17	03:24:05.000	52.9510	-117.4008	0	2.61	----	----
448	2010-06-18	20:18:12.280	53.4613	-117.4015	0	2.65	----	----
449	2010-06-21	17:28:16.240	53.1823	-117.0917	0	2.96	----	----
450	2010-06-23	21:11:49.180	52.9134	-117.2997	0	2.40	----	----
451	2010-07-09	15:05:12.610	53.9305	-114.5315	0	2.12	----	----
452	2010-07-14	20:24:33.680	53.1817	-116.9774	0	2.94	----	----
453	2010-07-19	17:20:09.320	53.1787	-116.9754	0	3.17	----	----
454	2010-07-22	23:32:45.360	53.1837	-116.9737	0	2.79	----	----
455	2010-07-27	17:04:58.560	53.1694	-117.1003	0	2.39	----	----
456	2010-08-03	20:14:46.400	53.1642	-116.9278	0	2.67	----	----
457	2010-08-03	22:15:02.380	53.0642	-117.5737	0	2.32	----	----
458	2010-08-07	21:17:28.940	53.0376	-117.5037	0	2.52	----	----
459	2010-08-07	23:39:32.460	53.2548	-117.0821	0	2.96	----	----
460	2010-08-10	22:11:58.600	53.2061	-117.0080	0	2.93	----	----
461	2010-08-14	17:39:13.120	53.0599	-117.5468	0	2.36	----	----
462	2010-08-16	20:26:17.680	53.1846	-116.9629	0	3.00	----	----
463	2010-08-21	20:14:46.940	53.1630	-116.9043	0	3.10	----	----
464	2010-08-24	20:04:13.600	54.0037	-114.4285	0	2.26	----	----
465	2010-08-25	17:23:38.800	53.1376	-117.0151	0	2.67	----	----
466	2010-08-25	21:27:18.240	53.0541	-117.5268	0	2.44	----	----
467	2010-08-30	21:07:09.040	52.9673	-117.3871	0	2.67	----	----
468	2010-08-31	17:36:36.320	53.1922	-117.1197	0	2.88	----	----
469	2010-09-03	00:52:11.120	52.9059	-117.3038	0	2.31	----	----
470	2010-09-03	17:39:37.040	53.1734	-117.1216	0	3.04	----	----
471	2010-09-07	21:46:53.680	53.1926	-117.1397	0	2.97	----	----
472	2010-09-08	00:28:51.640	52.9841	-117.4125	0	2.64	----	----
473	2010-09-10	16:34:54.226	54.1169	-114.4285	0	2.35	----	----
474	2010-09-15	00:45:14.480	52.9239	-117.3168	0	2.65	----	----
475	2010-09-19	19:16:41.380	53.1928	-117.1454	0	3.00	----	----
476	2010-09-20	21:13:47.320	52.9581	-117.3937	0	2.58	----	----

477	2010-09-21	18:31:16.940	53.1808	-116.9787	0	3.05	----	----
478	2010-09-25	22:41:53.220	53.1739	-116.9519	0	2.76	----	----
479	2010-10-03	19:47:24.200	52.9550	-117.3766	0	2.86	----	----
480	2010-10-04	20:24:50.200	53.1208	-116.9040	0	3.06	----	----
481	2010-10-07	00:36:04.630	52.9078	-117.3640	0	2.59	----	----
482	2010-10-07	01:22:28.800	53.1832	-117.1108	0	3.47	----	----
483	2010-10-08	20:14:18.680	53.2232	-117.0607	0	2.95	----	----
484	2010-10-12	23:51:33.260	53.1894	-117.0085	0	2.90	----	----
485	2010-10-13	21:10:44.520	52.9510	-117.3316	0	2.41	----	----
486	2010-10-16	23:07:09.480	53.2870	-117.1305	0	2.41	----	----
487	2010-10-17	17:44:33.000	52.9302	-117.3089	0	2.70	----	----
488	2010-10-17	21:16:31.240	53.1534	-117.0909	0	3.02	----	----
489	2010-10-19	20:25:32.040	53.1342	-116.9362	0	2.45	----	----
490	2010-10-20	21:42:41.720	52.9100	-117.2682	0	2.78	----	----
491	2010-10-21	00:07:46.260	53.1548	-117.0890	0	2.67	----	----
492	2010-10-23	16:50:00.230	53.1541	-116.9549	0	2.60	----	----
493	2010-10-24	21:53:53.840	53.1800	-117.1436	0	2.97	----	----
494	2010-11-02	17:10:10.420	53.1379	-116.9208	0	2.18	----	2.19
495	2010-11-05	19:19:43.320	53.5687	-114.9612	0	2.35	----	----
496	2010-11-06	00:25:43.777	52.6808	-117.3909	0	2.02	----	----
497	2010-11-12	00:11:40.130	52.8177	-117.4274	0	2.50	----	----
498	2010-11-17	22:16:18.520	52.8399	-117.1644	0	2.39	----	----
499	2010-11-18	18:14:05.360	53.0896	-117.0018	0	2.71	----	----
500	2010-11-19	00:46:53.680	52.9686	-117.3426	0	2.22	----	----
501	2010-11-24	23:28:03.000	53.1148	-116.9679	0	2.68	----	----
502	2010-12-02	23:43:09.760	52.8159	-117.4764	0	2.22	----	----
503	2010-12-03	23:11:53.280	52.8872	-117.4069	0	3.71	----	----
504	2010-12-23	23:49:02.160	53.1336	-116.8345	0	2.64	----	----
505	2011-01-10	20:28:28.295	53.7907	-114.9259	0	2.29	----	----
506	2011-02-02	22:37:00.500	52.9520	-117.3882	0	2.62	----	----
507	2011-02-02	23:09:30.120	53.2242	-117.0797	0	2.88	----	----
508	2011-02-08	20:44:11.320	53.5293	-114.6807	0	2.40	----	----
509	2011-02-11	20:41:00.800	53.5190	-114.6603	0	2.06	----	----
510	2011-02-12	18:27:47.280	52.9026	-117.4481	0	2.70	----	----
511	2011-02-17	19:52:08.600	53.5281	-114.6424	0	2.38	----	----
512	2011-02-20	22:17:32.060	52.9562	-117.3970	0	2.23	----	----
513	2011-02-25	20:24:18.960	53.2192	-117.1932	0	2.90	----	----

514	2011-03-08	01:37:22.560	52.9638	-117.4100	0	2.76	----	----
515	2011-03-16	17:23:50.600	52.9431	-117.3974	0	2.59	----	----
516	2011-03-22	17:15:44.080	53.0185	-117.4864	0	2.33	----	----
517	2011-03-24	22:34:15.640	53.1382	-117.0767	0	2.55	----	----
518	2011-03-26	16:13:42.100	53.1980	-117.1677	0	2.63	----	----
519	2011-03-28	18:48:46.240	53.2690	-117.0667	0	2.33	----	----
520	2011-03-30	17:36:17.040	52.9288	-117.3435	0	2.77	----	----
521	2011-04-02	18:19:03.200	52.9277	-117.3071	0	2.73	----	----
522	2011-04-07	21:21:11.320	53.1057	-117.6288	0	2.28	----	----
523	2011-04-10	22:42:13.960	52.9902	-117.4311	0	2.52	----	----
524	2011-04-14	19:35:53.400	53.4856	-114.7038	0	2.11	----	----
525	2011-04-15	21:27:37.680	52.9697	-117.3746	0	2.75	----	----
526	2011-04-15	21:51:02.240	53.1710	-117.1271	0	2.84	----	----
527	2011-04-18	20:19:00.840	53.3969	-114.4927	0	2.01	----	----
528	2011-04-20	18:05:46.920	53.4153	-114.4390	0	2.06	----	----
529	2011-04-21	17:23:18.800	52.9664	-117.3998	0	2.63	----	----
530	2011-04-21	21:05:34.240	53.1715	-117.1731	0	2.67	----	----
531	2011-04-22	19:35:22.000	53.2167	-117.0365	0	2.68	----	----
532	2011-04-25	19:09:47.100	53.2121	-117.0481	0	3.06	----	----
533	2011-04-26	21:33:25.760	53.0334	-117.4899	0	2.92	----	----
534	2011-04-28	22:29:58.120	53.1891	-117.1099	0	2.52	----	----
535	2011-05-07	22:28:02.680	53.2178	-117.0573	0	2.80	----	----
536	2011-05-09	03:40:38.930	52.8670	-117.1988	0	2.17	----	----
537	2011-05-16	17:50:59.720	52.9736	-117.4431	0	2.45	----	----
538	2011-05-21	22:02:08.160	52.9198	-117.3016	0	2.17	----	----
539	2011-05-25	22:22:32.280	53.1915	-116.9230	0	1.76	----	----
540	2011-05-27	19:19:37.196	53.1354	-116.9205	0	2.02	----	----
541	2011-05-31	17:16:49.040	52.9930	-117.4397	0	2.26	----	----
542	2011-05-31	17:29:53.040	53.3750	-114.5297	0	2.15	----	----
543	2011-05-31	21:15:56.140	52.9252	-117.2357	0	2.56	----	----
544	2011-06-02	19:12:47.328	53.1705	-114.3249	0	2.57	----	----
545	2011-06-05	19:19:25.880	53.2041	-117.1685	0	2.63	----	----
546	2011-06-06	21:09:47.360	52.8873	-117.3600	0	2.46	----	----
547	2011-06-10	17:03:18.660	53.1742	-117.0952	0	2.88	----	----
548	2011-06-11	17:00:20.580	53.1897	-117.0316	0	2.07	----	----
549	2011-06-17	15:36:32.670	53.6009	-114.7934	0	2.37	----	----
550	2011-07-07	17:42:29.760	52.9747	-117.4378	0	2.37	----	----

551	2011-07-10	21:43:24.640	53.3424	-117.1310	0	2.27	----	----
552	2011-07-13	03:28:08.880	52.9617	-117.3521	0	2.46	----	----
553	2011-07-17	18:30:17.120	53.0302	-117.5058	0	2.26	----	----
554	2011-07-18	19:18:30.700	53.4399	-114.3590	0	2.43	----	----
555	2011-07-19	18:12:10.620	53.5058	-114.6631	0	2.09	----	----
556	2011-08-03	21:24:07.660	52.8905	-117.2901	0	2.54	----	----
557	2011-08-04	19:38:16.240	53.4907	-114.7185	0	2.24	----	----
558	2011-08-06	17:12:17.600	52.9309	-117.4094	0	2.25	----	----
559	2011-08-07	21:15:41.600	52.9848	-117.4480	0	2.16	----	----
560	2011-08-08	21:39:46.213	53.4907	-117.1806	0	2.63	----	----
561	2011-08-11	19:16:36.820	53.4511	-114.6352	0	2.27	----	----
562	2011-08-12	18:07:24.440	53.5040	-114.7336	0	2.28	----	----
563	2011-08-14	21:15:04.180	52.9140	-117.2736	0	2.18	----	----
564	2011-08-20	21:22:42.120	52.9565	-117.3856	0	2.18	----	----
565	2011-08-29	22:20:27.520	53.2455	-117.0820	0	2.24	----	----
566	2011-09-01	19:07:25.151	53.3116	-114.8424	0	2.15	----	----
567	2011-09-08	22:22:46.520	53.1066	-116.9922	0	2.56	----	----
568	2011-09-13	17:43:32.960	52.9145	-117.2965	0	2.13	----	----
569	2011-09-23	16:44:38.520	53.4189	-114.4245	0	1.99	----	----
570	2011-10-04	19:08:22.060	53.5080	-114.7436	0	2.28	----	----
571	2011-10-06	17:26:25.880	52.9941	-117.4485	0	2.41	----	----
572	2011-10-06	19:45:39.240	53.1356	-117.1011	0	2.23	----	----
573	2011-10-12	19:16:19.200	53.5241	-114.7517	0	2.35	----	----
574	2011-10-16	21:08:01.160	52.9228	-117.2742	0	2.48	----	----
575	2011-10-26	20:34:00.625	53.1764	-116.9385	0	2.28	----	----
576	2011-10-27	00:36:28.150	52.9413	-117.2783	0	2.29	----	----
577	2011-11-04	19:31:09.240	53.1867	-117.1320	0	2.16	----	----
578	2011-11-08	18:15:31.560	52.8942	-117.2895	0	2.27	----	----
579	2011-11-09	23:42:53.380	52.9783	-117.4259	0	2.15	----	----
580	2011-11-18	22:18:26.080	52.9531	-117.4057	0	2.28	----	----
581	2011-11-20	20:25:38.440	53.2219	-117.2064	0	2.38	----	----
582	2011-11-20	22:27:33.248	52.9624	-117.5073	0	2.29	----	----
583	2011-11-27	23:35:01.320	52.9541	-117.3070	0	2.27	----	----
584	2011-11-29	17:06:30.660	53.5154	-114.7447	0	2.26	----	----
585	2011-12-02	22:15:42.120	52.9072	-117.2046	0	2.17	----	1.79
586	2011-12-03	19:00:35.840	53.2290	-117.2427	0	2.40	----	----
587	2011-12-04	18:08:37.640	52.9670	-117.3360	0	2.46	2.56	----

588	2011-12-06	18:43:41.140	53.1677	-116.9668	0	2.86	2.96	----
589	2011-12-25	23:40:06.040	53.2221	-116.9860	0	2.37	----	----
590	2012-02-08	20:48:25.720	53.4972	-114.7608	0	2.55	----	----
591	2012-02-09	22:43:54.546	52.9506	-116.9975	0	1.98	----	----
592	2012-02-10	22:22:07.120	53.2126	-117.0019	0	2.26	----	----
593	2012-02-26	21:41:59.720	53.1753	-116.8420	0	1.86	----	----
594	2012-02-28	22:29:32.006	52.9257	-116.8782	0	2.34	----	----
595	2012-02-29	23:27:47.640	53.2333	-116.9572	0	2.25	----	----
596	2012-03-13	17:15:44.440	52.9535	-117.3290	0	2.01	----	----
597	2012-03-13	18:44:08.987	53.3544	-114.4847	0	1.88	----	----
598	2012-03-14	17:12:22.200	53.0060	-117.4196	0	2.27	----	----
599	2012-03-16	20:22:56.040	53.5071	-114.7376	0	2.27	----	----
600	2012-03-19	19:22:24.840	53.5412	-114.6753	0	1.90	----	----
601	2012-03-21	19:19:22.820	53.4901	-114.3804	0	2.28	----	----
602	2012-03-22	00:29:38.500	52.9544	-117.3026	0	2.44	----	----
603	2012-03-22	16:43:07.380	53.5059	-114.6488	0	1.87	----	----
604	2012-03-22	22:16:55.920	53.2314	-117.2217	0	2.29	----	----
605	2012-03-26	19:13:04.720	53.5438	-114.6781	0	2.04	----	----
606	2012-03-26	21:53:25.720	53.2477	-117.2421	0	2.88	----	----
607	2012-03-31	22:06:54.700	53.2409	-117.2068	0	2.15	----	----
608	2012-04-20	20:54:56.680	53.2326	-117.2552	0	2.38	----	----
609	2012-04-24	21:16:00.560	52.9314	-117.2689	0	2.33	----	----
610	2012-04-26	19:44:57.680	53.5543	-114.6835	0	2.25	----	----
611	2012-04-26	21:58:58.760	53.2275	-117.0667	0	2.44	----	----
612	2012-05-01	19:39:19.200	53.5030	-114.6815	0	2.33	----	----
613	2012-05-04	17:08:50.760	52.8857	-117.3567	0	2.62	----	----
614	2012-05-04	19:33:45.140	53.5257	-114.6913	0	2.31	----	----
615	2012-05-14	19:33:18.320	53.2263	-117.0140	0	3.03	2.95	----
616	2012-05-17	19:29:12.120	53.3656	-114.4373	0	1.98	----	----
617	2012-05-17	21:30:26.400	52.9113	-117.3481	0	2.18	----	----
618	2012-05-23	17:10:00.800	52.9016	-117.1993	0	2.15	----	----
619	2012-05-24	19:24:23.280	53.2199	-117.0420	0	2.40	----	----
620	2012-06-01	18:55:21.560	53.4738	-114.8370	0	2.03	----	----
621	2012-06-07	19:14:58.000	53.4420	-114.8853	0	2.09	----	----
622	2012-06-15	16:45:20.050	53.3686	-114.7379	0	1.83	----	----
623	2012-06-16	17:11:09.500	52.9607	-117.2883	0	2.43	----	----
624	2012-06-26	18:52:26.280	53.1764	-117.1246	0	2.00	----	----

625	2012-06-26	19:01:03.960	53.4706	-114.6953	0	2.37	----	----
626	2012-07-10	20:08:33.680	53.5108	-117.4944	0	2.03	----	----
627	2012-07-14	16:24:17.740	53.2111	-117.2763	0	2.37	----	----
628	2012-07-14	17:16:11.740	52.9561	-117.3124	0	2.26	----	----
629	2012-07-25	19:42:54.040	53.4006	-114.4238	0	1.99	----	----
630	2012-07-25	20:06:54.260	53.2000	-117.1856	0	1.93	----	----
631	2012-08-17	17:25:16.989	52.8287	-117.2152	0	2.33	----	----
632	2012-09-30	00:32:33.290	52.9728	-117.4009	0	2.05	----	----
633	2012-11-01	21:17:08.940	53.0393	-117.2638	0	2.31	----	----
634	2012-11-02	20:30:17.580	53.2038	-117.1770	0	2.33	----	----
635	2012-11-03	20:41:23.800	53.2219	-117.1465	0	2.22	----	----
636	2012-11-07	18:04:22.060	52.9822	-117.2478	0	2.20	----	----
637	2012-11-11	21:29:35.920	53.1562	-116.8909	0	2.11	----	----
638	2012-11-13	23:11:00.360	52.9349	-117.2417	0	2.46	----	----
639	2012-11-14	19:37:23.600	53.4887	-114.7090	0	2.19	----	----
640	2012-11-15	20:36:23.920	53.3713	-114.4660	0	2.42	----	----
641	2012-11-18	22:09:21.720	53.0665	-117.4931	0	2.48	----	----
642	2013-01-03	22:48:17.520	53.2287	-117.0325	0	2.43	----	----
643	2013-01-11	20:09:18.480	53.3715	-114.5229	0	2.36	----	----
644	2013-01-26	22:06:12.180	52.9094	-117.3793	0	2.37	----	----
645	2013-01-30	20:47:50.280	53.3968	-114.5245	0	2.09	----	----
646	2013-02-06	18:26:51.760	52.9906	-117.4263	0	2.04	----	----
647	2013-02-11	19:37:45.240	53.4005	-114.4744	0	2.17	----	----
648	2013-02-25	20:08:36.480	53.4052	-114.4258	0	2.00	----	----
649	2013-02-26	19:04:24.600	53.2317	-117.1852	0	2.41	----	----
650	2013-02-26	19:35:10.420	53.3913	-114.4450	0	2.14	----	----
651	2013-02-28	20:29:08.720	53.4432	-114.5193	0	2.04	----	----
652	2013-03-05	22:19:43.600	52.9330	-117.2590	0	2.21	----	----
653	2013-03-08	23:55:01.000	52.9566	-117.2718	0	2.20	----	----
654	2013-03-11	19:13:29.100	53.4843	-114.6875	0	2.13	----	----
655	2013-03-13	21:20:54.280	53.2590	-117.1031	0	2.37	----	----
656	2013-03-14	19:17:02.440	53.4951	-114.6954	0	2.31	----	----
657	2013-03-20	19:25:07.900	53.4749	-114.6566	0	2.16	----	----
658	2013-03-25	19:21:11.000	53.4050	-114.4085	0	2.16	----	----
659	2013-03-26	19:04:13.120	53.3785	-114.4796	0	2.16	----	----
660	2013-03-28	18:53:08.780	53.3836	-114.3958	0	2.17	----	----
661	2013-03-29	21:41:33.520	53.0278	-117.4383	0	2.09	----	----

662	2013-03-31	21:15:05.760	52.9567	-117.2149	0	2.64	----	----
663	2013-04-03	19:39:15.680	53.4563	-114.7211	0	2.22	----	----
664	2013-04-12	19:25:24.980	53.3844	-114.4326	0	2.29	----	----
665	2013-04-15	19:10:36.700	53.1885	-117.1506	0	2.59	----	----
666	2013-04-15	19:13:53.840	53.4085	-114.4626	0	2.18	----	----
667	2013-04-19	17:44:50.100	53.3985	-114.6266	0	1.78	----	----
668	2013-04-21	17:49:14.240	52.9740	-117.3941	0	2.22	----	----
669	2013-05-06	18:59:01.340	53.4642	-114.7000	0	2.18	----	----
670	2013-05-09	19:30:41.300	53.4884	-114.7036	0	2.52	----	----
671	2013-05-10	18:06:01.340	53.4987	-114.7444	0	2.33	----	----
672	2013-05-24	19:24:39.040	53.2258	-114.6660	0	2.26	----	----
673	2013-05-29	19:42:50.560	53.3585	-114.4196	0	2.10	----	----
674	2013-05-30	19:11:59.080	53.3559	-114.4329	0	2.18	----	----
675	2013-05-31	18:34:05.640	53.3967	-114.4878	0	2.25	----	----
676	2013-06-02	20:56:47.600	53.1656	-116.8969	0	2.33	----	----
677	2013-06-03	18:13:48.720	53.3793	-114.5491	0	1.98	----	----
678	2013-06-04	23:19:21.880	52.9459	-117.2832	0	2.30	1.84	----
679	2013-06-07	18:03:00.320	53.3819	-114.4354	0	1.90	----	----
680	2013-06-11	19:10:44.440	53.4905	-114.7285	0	2.04	----	----
681	2013-06-13	19:53:53.760	53.1789	-116.9589	0	2.42	----	----
682	2013-06-14	19:03:19.520	53.3957	-114.5557	0	2.06	----	----
683	2013-06-25	15:06:39.140	53.0368	-117.4625	0	2.14	----	----
684	2013-06-27	18:35:31.099	52.9377	-114.2037	0	2.45	----	----
685	2013-07-05	17:06:03.840	52.9326	-117.1664	0	2.14	----	----
686	2013-07-07	20:09:54.480	53.1567	-116.9270	0	2.26	----	----
687	2013-07-08	18:32:17.220	53.4696	-114.6681	0	2.16	----	----
688	2013-07-09	19:21:54.640	53.1675	-116.9929	0	2.27	----	----
689	2013-07-11	19:14:02.000	53.5182	-114.7459	0	2.27	----	----
690	2013-07-15	21:09:56.540	52.9220	-117.2462	0	2.56	----	----
691	2013-07-20	21:34:52.440	52.9170	-117.2786	0	2.59	2.41	----
692	2013-07-23	19:10:54.240	53.5314	-114.7351	0	2.38	----	----
693	2013-07-24	18:52:56.960	53.4978	-114.6636	0	2.21	----	----
694	2013-07-30	19:06:09.400	53.3897	-114.4513	0	2.50	----	----
695	2013-08-01	19:06:17.920	53.4920	-114.5379	0	2.21	----	----
696	2013-08-07	18:42:48.140	53.4934	-114.6897	0	2.07	----	----
697	2013-08-12	20:18:27.720	53.3966	-114.4880	0	2.31	----	----
698	2013-08-15	19:23:35.891	53.5574	-114.7449	0	2.20	----	----

699	2013-08-22	19:11:02.600	53.4784	-114.6747	0	2.37	----	----
700	2013-08-27	21:21:16.380	53.2015	-116.9547	0	2.35	----	----
701	2013-08-29	21:36:08.200	52.9073	-117.3239	0	2.83	----	----
702	2013-09-01	22:29:55.320	53.3624	-117.2696	0	2.50	----	----
703	2013-09-09	20:46:45.080	53.2695	-117.0990	0	2.33	----	----
704	2013-09-10	19:10:44.420	53.3916	-114.4682	0	2.35	----	----
705	2013-09-11	19:04:23.602	53.3151	-114.3834	0	1.97	----	----
706	2013-09-19	19:04:59.240	53.4030	-114.4537	0	2.17	----	----
707	2013-09-22	17:22:45.960	53.2741	-117.1017	0	2.44	----	----
708	2013-09-24	18:35:31.740	53.4266	-114.5660	0	2.36	----	----
709	2013-09-30	19:03:27.000	53.5430	-114.7184	0	2.00	----	----
710	2013-09-30	21:11:28.800	52.9265	-117.2799	0	2.52	----	----
711	2013-10-03	18:32:53.160	53.5276	-114.7748	0	2.30	----	----
712	2013-10-06	21:08:40.680	52.9462	-117.2267	0	2.34	----	----
713	2013-10-10	17:52:32.980	52.9143	-117.2354	0	2.43	----	----
714	2013-10-10	19:04:38.660	53.4976	-114.7013	0	2.31	----	----
715	2013-10-17	19:07:21.040	53.6241	-114.8028	0	2.12	----	----
716	2013-10-18	18:00:30.880	53.4855	-114.5640	0	2.23	----	----
717	2013-10-22	19:11:20.428	53.7771	-114.4928	0	2.38	----	----
718	2013-10-29	18:16:51.760	53.4755	-114.6891	0	2.16	----	----
719	2013-11-03	22:18:55.720	52.9941	-117.1883	0	2.34	----	----
720	2013-11-04	20:47:04.300	53.3460	-114.5341	0	2.31	----	----
721	2013-11-05	19:40:26.158	53.3734	-114.4883	0	2.67	----	----
722	2013-11-07	20:08:26.640	53.3704	-114.4468	0	2.60	----	----
723	2013-11-08	19:03:51.234	53.3589	-114.5128	0	2.11	----	----
724	2013-11-12	20:13:22.240	53.5927	-114.8210	0	2.21	----	----
725	2013-11-12	22:09:53.580	52.9903	-117.1859	0	2.46	----	----
726	2013-11-14	20:30:05.700	53.3700	-114.4576	0	2.06	----	----
727	2013-11-15	19:36:18.840	53.3597	-114.4524	0	2.21	----	----
728	2013-11-17	19:16:35.240	53.2392	-116.9802	0	2.17	----	----
729	2013-11-18	20:11:28.700	53.3651	-114.4611	0	2.03	----	----
730	2013-11-23	20:32:53.240	53.1772	-116.8060	0	2.38	----	----
731	2013-11-25	22:47:45.560	52.9241	-117.2285	0	2.12	----	----
732	2013-11-29	20:39:26.440	53.3712	-114.4313	0	2.23	----	----
733	2013-12-01	22:07:26.760	52.9095	-117.2300	0	2.57	----	----
734	2013-12-02	20:41:51.160	53.5003	-114.7429	0	2.25	----	----
735	2014-01-13	23:22:25.520	53.2157	-116.9976	0	2.43	----	----

736	2014-01-24	20:16:27.788	53.3642	-114.4313	0	2.15	----	----
737	2014-01-24	21:37:02.040	53.2353	-117.0301	0	2.18	----	----
738	2014-01-24	21:52:16.640	53.0288	-117.5085	0	2.11	----	----
739	2014-01-28	20:12:23.160	53.5637	-114.4655	0	2.16	----	----
740	2014-01-28	22:08:23.620	53.0040	-117.2645	0	2.65	----	----
741	2014-02-04	20:09:07.260	53.3925	-115.2587	0	2.16	----	----
742	2014-02-06	20:10:31.960	53.5476	-114.6876	0	2.11	----	----
743	2014-02-06	22:20:54.480	53.0130	-117.3898	0	2.35	----	----
744	2014-02-10	19:40:53.520	53.4785	-114.7472	0	1.94	----	----
745	2014-02-11	19:44:21.013	53.6987	-114.4338	0	2.10	----	----
746	2014-02-12	20:06:02.980	53.5357	-114.7803	0	2.14	----	----
747	2014-02-21	18:09:51.560	52.9219	-117.2517	0	3.09	3.26	----
748	2014-02-24	18:55:15.080	53.2219	-116.9934	0	2.24	----	----
749	2014-02-25	22:16:43.320	52.9160	-117.2956	0	2.56	----	----
750	2014-02-26	19:58:35.280	53.3598	-114.8470	0	1.82	----	----
751	2014-02-27	18:17:19.080	52.9368	-117.4675	0	2.50	2.67	----
752	2014-02-27	20:03:39.480	53.3567	-114.8627	0	1.89	2.47	----
753	2014-03-02	22:09:31.220	52.9873	-117.5443	0	2.22	----	----
754	2014-03-04	19:37:58.320	53.4078	-115.0443	0	2.00	----	----
755	2014-03-05	19:13:40.955	53.3417	-114.7632	0	2.23	----	----
756	2014-03-06	22:18:4----0	52.9306	-117.4764	0	2.52	----	----
757	2014-03-07	19:09:22.440	53.1691	-114.6743	0	2.03	----	----
758	2014-03-10	16:19:56.960	53.4546	-114.7942	0	2.16	----	----
759	2014-03-10	17:02:33.000	53.0672	-116.7251	0	1.81	----	----
760	2014-03-10	19:38:37.760	53.5328	-114.7190	0	2.23	----	----
761	2014-03-10	23:01:03.640	52.8670	-117.1985	0	2.53	----	----
762	2014-03-11	18:55:03.280	53.3738	-115.0447	0	2.38	----	----
763	2014-03-12	18:31:35.480	53.3951	-114.6310	0	2.01	----	----
764	2014-03-12	18:40:38.675	53.4940	-117.1774	0	2.39	----	----
765	2014-03-14	23:26:22.280	52.9301	-117.2286	0	2.66	2.76	----
766	2014-03-18	21:13:08.360	52.8678	-117.2496	0	2.39	----	----
767	2014-03-19	20:11:06.080	53.4010	-114.4073	0	2.05	----	----
768	2014-03-19	21:02:04.720	52.9990	-117.3788	0	2.33	----	----
769	2014-03-27	19:39:38.260	53.3657	-114.4168	0	2.02	----	----
770	2014-03-27	23:08:50.720	52.9520	-117.2492	0	2.49	----	----
771	2014-03-30	21:15:42.220	52.9513	-117.2732	0	2.45	----	----
772	2014-03-31	20:03:46.120	53.5347	-114.5950	0	2.12	----	----

773	2014-04-01	19:07:59.200	53.4055	-114.8920	0	2.13	----	----
774	2014-04-04	18:04:57.951	53.5446	-115.1613	0	1.90	----	----
775	2014-04-07	21:09:48.900	52.8383	-117.0636	0	2.38	----	----
776	2014-04-08	23:50:21.720	53.0460	-117.4320	0	2.29	----	----
777	2014-04-14	21:21:16.980	52.8777	-117.2238	0	2.14	----	----
778	2014-04-16	19:12:49.960	53.3612	-114.4271	0	2.24	----	----
779	2014-04-17	19:03:53.160	53.4308	-114.4626	0	2.70	----	----
780	2014-04-19	19:24:19.840	53.2390	-117.0077	0	2.58	----	----
781	2014-04-19	21:23:24.920	53.0843	-117.5530	0	2.55	----	----
782	2014-04-25	18:44:09.880	53.7505	-114.6196	0	2.26	----	----
783	2014-04-30	19:02:42.240	53.6187	-114.7860	0	2.30	----	----
784	2014-05-01	18:39:00.180	53.6497	-114.7077	0	2.25	----	----
785	2014-05-05	20:12:18.800	53.4535	-114.3906	0	2.45	----	----
786	2014-05-07	19:08:54.420	53.4758	-114.7618	0	2.15	----	----
787	2014-05-09	19:15:49.880	53.3630	-114.4304	0	2.48	----	----
788	2014-05-12	21:05:52.440	52.9382	-117.2968	0	2.17	----	----
789	2014-05-14	19:01:34.660	53.4586	-114.7638	0	2.02	----	----
790	2014-05-16	17:59:16.549	53.6198	-114.5455	0	1.95	----	----
791	2014-05-19	17:09:54.740	52.9043	-117.2885	0	2.01	----	----
792	2014-05-22	17:07:47.540	52.9430	-117.3096	0	2.07	----	----
793	2014-05-25	17:13:52.300	52.9266	-117.2381	0	2.47	----	----
794	2014-05-26	18:46:35.520	53.4986	-114.3734	0	2.01	----	----
795	2014-05-28	19:25:06.160	53.4156	-114.4134	0	2.53	----	----
796	2014-05-30	17:11:52.560	52.9089	-117.2817	0	2.40	----	----
797	2014-06-05	21:30:46.400	52.9660	-117.3052	0	2.44	----	----
798	2014-06-06	16:26:45.530	53.4023	-114.7443	0	1.99	----	----
799	2014-06-06	20:19:34.794	53.1224	-114.8559	0	2.06	----	----
800	2014-06-14	21:10:03.120	52.9529	-117.3508	0	2.64	----	----
801	2014-06-15	23:33:09.600	52.9302	-117.2252	0	2.29	----	----
802	2014-06-17	19:12:35.580	53.3950	-114.4390	0	2.49	----	----
803	2014-06-18	20:11:24.600	53.2648	-114.5011	0	2.52	----	----
804	2014-06-20	19:03:4----0	53.5197	-114.7141	0	2.01	----	----
805	2014-06-21	23:02:46.080	52.8780	-117.3305	0	2.63	----	----
806	2014-06-23	19:20:14.800	53.3523	-114.4520	0	2.29	----	----
807	2014-06-26	18:38:38.960	53.5297	-114.6959	0	2.09	----	----
808	2014-06-26	19:21:59.040	53.2434	-116.9916	0	2.06	----	----
809	2014-06-30	17:21:22.380	52.8179	-117.1651	0	2.50	----	----

810	2014-07-04	17:58:42.350	52.8706	-117.1962	0	2.74	2.00	----
811	2014-07-04	19:16:03.780	53.4679	-114.8565	0	2.44	----	----
812	2014-07-08	19:09:47.140	53.3649	-114.6121	0	2.28	----	----
813	2014-07-08	21:59:31.560	52.9594	-117.2868	0	2.44	----	----
814	2014-07-09	19:14:37.800	53.3719	-114.5102	0	2.36	----	----
815	2014-07-13	17:37:19.440	52.9586	-117.3363	0	2.27	----	----
816	2014-07-17	19:32:57.080	53.5194	-114.2462	0	2.56	----	----
817	2014-07-18	17:42:01.600	52.8879	-117.2697	0	2.46	----	----
818	2014-07-21	19:00:40.120	53.4960	-114.6425	0	2.08	----	----
819	2014-07-22	19:12:10.620	53.4003	-114.4486	0	2.27	----	----
820	2014-07-23	19:08:30.230	53.4245	-114.4289	0	2.71	----	----
821	2014-07-26	17:15:04.940	52.8668	-117.2027	0	2.47	----	----
822	2014-07-28	18:35:52.500	53.5644	-114.7188	0	2.12	----	----
823	2014-08-01	17:09:41.000	52.7668	-117.0458	0	2.40	----	----
824	2014-08-05	21:29:30.833	53.1212	-117.5758	0	2.40	----	----
825	2014-08-06	19:09:05.260	53.5307	-114.7089	0	2.19	----	----
826	2014-08-08	21:04:54.200	53.0016	-117.3212	0	2.28	----	----
827	2014-08-10	17:08:46.920	52.9000	-117.2498	0	2.26	----	----
828	2014-08-14	22:21:10.840	53.2094	-117.0119	0	1.83	----	----
829	2014-08-19	19:04:42.960	53.3522	-114.4176	0	2.25	----	----
830	2014-08-21	21:26:22.440	52.9048	-117.2421	0	2.61	2.26	----
831	2014-08-22	18:08:04.180	53.5148	-114.7096	0	2.35	----	----
832	2014-08-26	18:56:44.760	53.4845	-114.8964	0	2.07	----	----
833	2014-08-26	21:22:12.760	52.9042	-117.2013	0	2.37	----	----
834	2014-08-28	19:13:26.720	53.3904	-114.5467	0	2.12	----	----
835	2014-09-02	19:38:31.140	53.3744	-114.4449	0	2.45	----	----
836	2014-09-02	21:11:09.760	52.9387	-117.3089	0	2.47	2.00	----
837	2014-09-03	19:14:30.960	53.3665	-114.5533	0	2.55	----	----
838	2014-09-03	22:20:13.240	53.2692	-116.9860	0	2.22	----	----
839	2014-09-05	17:19:26.300	52.9885	-117.2401	0	2.51	----	----
840	2014-09-08	00:57:15.980	53.2759	-117.0367	0	2.25	----	----
841	2014-09-08	19:07:22.280	53.4869	-114.7412	0	2.42	----	----
842	2014-09-09	19:06:59.520	53.3081	-114.6080	0	2.37	----	----
843	2014-09-12	21:18:28.020	53.0031	-117.1874	0	2.46	----	----
844	2014-09-14	22:21:15.160	53.2663	-117.0188	0	2.20	----	----
845	2014-09-15	18:54:07.300	53.4888	-114.6556	0	2.18	----	----
846	2014-09-18	18:11:01.820	53.5027	-114.7596	0	2.10	----	----

847	2014-09-20	17:08:43.080	53.0349	-117.1031	0	2.56	----	----
848	2014-09-21	17:35:36.360	52.9992	-117.2222	0	2.56	----	----
849	2014-09-23	19:05:14.960	53.5257	-114.7785	0	2.49	----	----
850	2014-09-24	19:07:31.294	53.5282	-114.6428	0	2.27	----	----
851	2014-09-25	19:15:46.060	53.3941	-114.3365	0	2.38	----	----
852	2014-09-26	18:07:03.340	53.5269	-114.7158	0	2.24	----	----
853	2014-09-28	22:15:50.440	52.9158	-117.2586	0	2.16	----	----
854	2014-09-29	18:06:34.560	53.4720	-114.9483	0	2.41	----	----
855	2014-10-01	18:06:35.060	53.4112	-114.4237	0	2.21	----	----
856	2014-10-03	18:10:20.900	53.5078	-114.7105	0	2.27	----	----
857	2014-10-03	21:12:46.920	52.9568	-117.1767	0	2.38	----	----
858	2014-10-07	22:09:48.680	52.9674	-117.2403	0	2.78	----	----
859	2014-10-08	19:18:27.320	53.3932	-114.4939	0	2.18	----	----
860	2014-10-09	19:01:55.620	53.3860	-114.6145	0	2.35	----	----
861	2014-10-10	18:33:23.080	53.3890	-114.6338	0	2.38	----	----
862	2014-10-11	21:17:37.260	53.0395	-117.2653	0	2.44	1.86	----
863	2014-10-17	18:34:31.762	53.3729	-115.0647	0	2.19	----	----
864	2014-10-18	21:32:04.920	52.9257	-117.2555	0	2.32	----	----
865	2014-10-27	18:29:17.080	53.3854	-114.6586	0	2.39	----	----
866	2014-10-29	16:42:17.630	53.4617	-114.6940	0	2.55	----	----
867	2014-10-29	19:16:09.300	53.2597	-117.0126	0	2.07	----	----
868	2014-10-30	20:51:46.440	53.5227	-114.7265	0	2.14	----	----
869	2014-10-31	19:49:17.840	53.3495	-114.7041	0	2.63	----	----
870	2014-11-02	22:33:49.400	52.9593	-117.2824	0	2.67	----	----
871	2014-11-03	12:13:25.970	53.5101	-114.9909	0	1.89	----	----
872	2014-11-03	20:11:04.040	53.3729	-114.5608	0	2.27	----	----
873	2014-11-04	19:38:4----0	53.5186	-114.7489	0	2.38	----	----
874	2014-11-05	20:32:57.460	53.4326	-114.4938	0	2.19	----	----
875	2014-11-05	22:48:26.620	52.9358	-117.3111	0	2.37	----	----
876	2014-11-07	20:05:14.240	52.9619	-117.2960	0	2.50	----	----
877	2014-11-07	20:27:47.080	53.5012	-114.8536	0	2.14	----	----
878	2014-11-13	21:44:21.600	53.5512	-114.7286	0	2.46	----	----
879	2014-11-14	21:13:23.240	53.3420	-114.4690	0	2.79	----	----
880	2014-11-16	18:41:26.440	52.9577	-117.3238	0	2.63	----	----
881	2014-11-20	17:38:39.840	53.5300	-114.6665	0	2.27	----	----
882	2014-11-20	18:23:54.760	52.8776	-117.2202	0	2.64	----	----
883	2014-11-24	21:17:34.580	53.4770	-114.3976	0	2.47	----	----

884	2014-11-24	22:15:04.240	52.9287	-117.2231	0	2.68	----	----
885	2014-11-26	20:44:20.880	53.3863	-114.4623	0	2.39	----	----
886	2014-12-01	20:17:52.640	53.3999	-114.4472	0	2.47	----	----
887	2014-12-02	21:30:06.600	53.3756	-114.4718	0	2.33	----	----
888	2014-12-03	20:50:24.180	53.4984	-114.6388	0	2.50	----	----
889	2014-12-04	20:13:05.600	53.3573	-114.4842	0	2.47	----	----
890	2014-12-13	22:09:29.540	52.9655	-117.2973	0	2.75	----	----
891	2014-12-15	20:27:09.220	53.5277	-114.8335	0	2.27	----	----
892	2014-12-16	20:09:59.760	53.3549	-114.4268	0	2.79	----	----
893	2014-12-17	20:05:50.400	53.2656	-117.0967	0	2.37	----	----
894	2014-12-17	20:34:30.680	53.5993	-114.6537	0	2.34	----	----
895	2014-12-18	20:03:45.600	53.4805	-114.7277	0	1.86	----	----
896	2014-12-21	18:30:28.325	52.9989	-117.0732	0	2.84	2.87	----
897	2014-12-22	20:39:58.680	53.4152	-114.6831	0	2.23	----	----
898	2015-01-01	22:19:34.240	52.9575	-117.2887	0	2.47	----	----
899	2015-01-02	20:47:57.000	53.3518	-114.4562	0	2.25	----	----
900	2015-01-04	22:06:47.160	53.0099	-117.2958	0	2.31	----	----
901	2015-01-05	20:53:00.780	53.3154	-114.7291	0	2.44	----	----
902	2015-01-06	20:35:01.400	53.5734	-114.8040	0	2.06	----	----
903	2015-01-07	21:58:31.880	53.5001	-114.3694	0	2.37	----	----
904	2015-01-09	21:29:59.300	53.4772	-114.7110	0	2.43	2.31	----
905	2015-01-09	22:16:27.900	53.4277	-114.4371	0	2.46	----	----
906	2015-01-14	20:28:46.400	53.4676	-114.4342	0	2.34	----	----
907	2015-01-14	22:47:39.040	52.9474	-117.2738	0	2.45	----	----
908	2015-01-15	20:09:53.100	53.5760	-114.9369	0	2.07	----	----
909	2015-01-16	20:02:06.220	53.4004	-114.3956	0	2.38	----	----
910	2015-01-16	21:33:24.920	53.1628	-116.9812	0	2.40	----	----
911	2015-01-20	20:33:45.600	53.5044	-114.8364	0	2.57	----	----