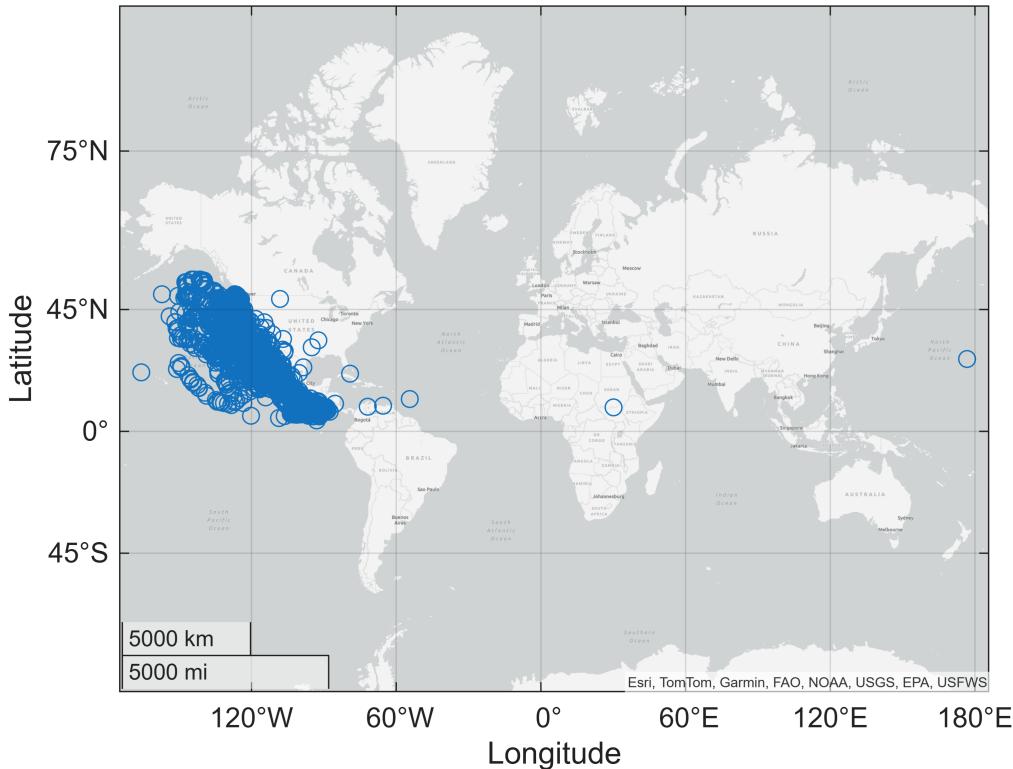


Preprocessing Data

```
whalesRaw = BlueWhaleData_1;
geoscatter (whalesRaw.latitude,whalesRaw.longitude)
```



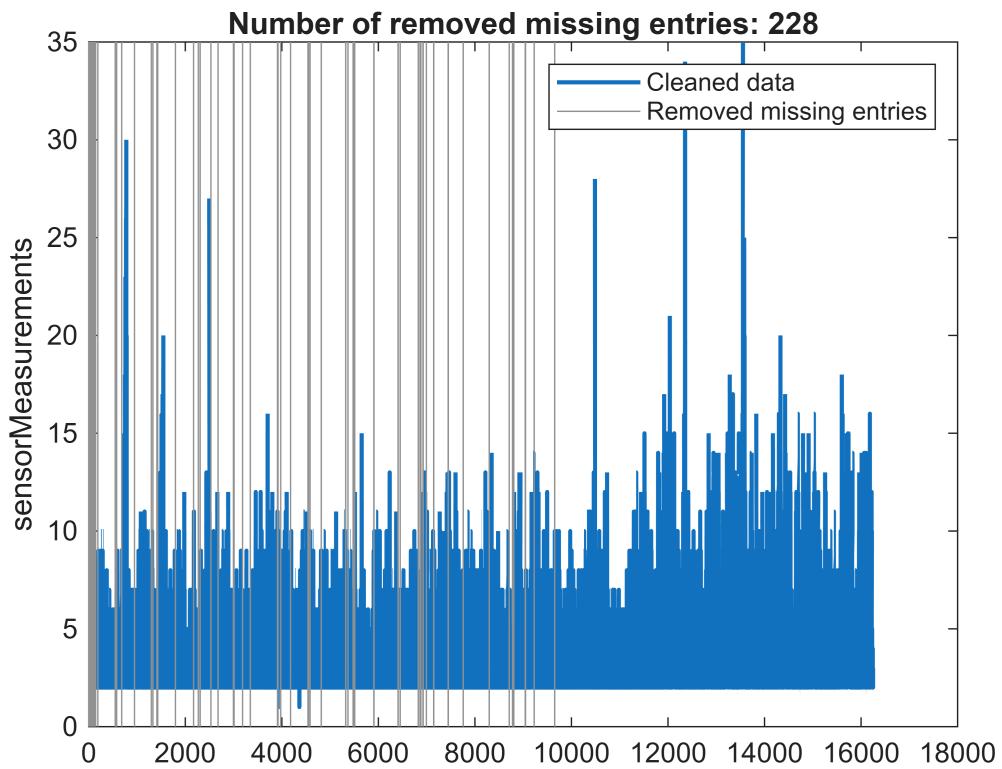
```
% Remove missing data
[whalesClean1,missingIndices] = rmmissing(whalesRaw, ...
    DataVariables="sensorMeasurements");

% Display results
figure

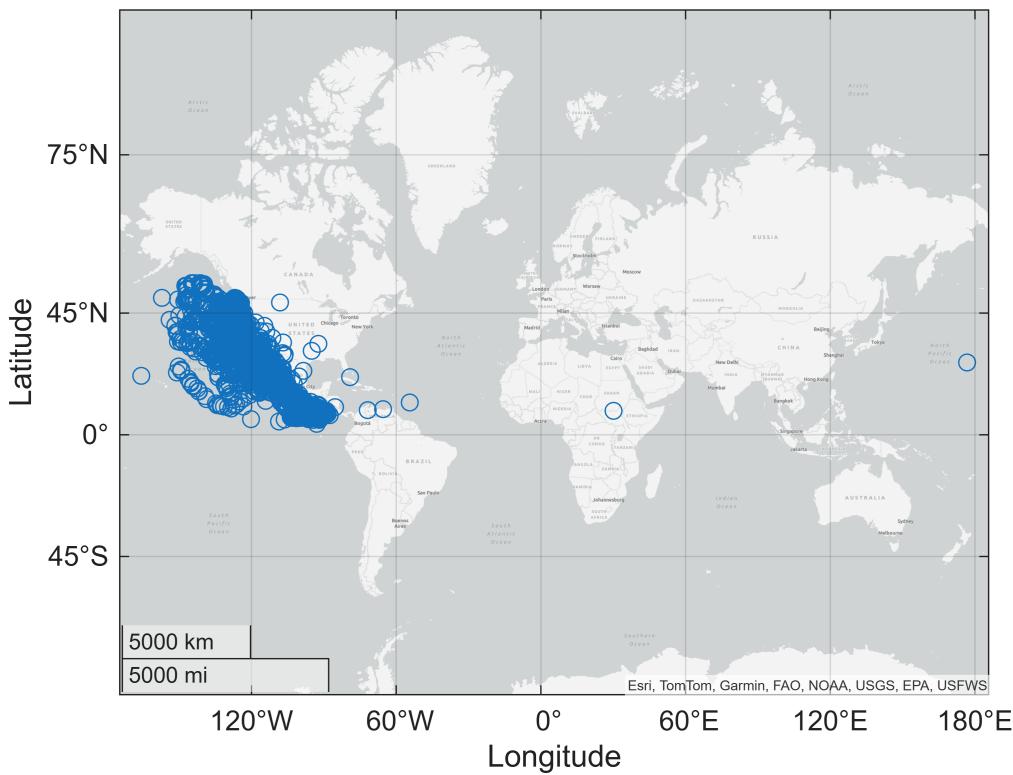
% Plot cleaned data
plot(find(~missingIndices),whalesClean1.sensorMeasurements, SeriesIndex=1, ...
    LineWidth=1.5, DisplayName="Cleaned data")
hold on

% Plot removed missing entries
x5 = repelem(find(missingIndices),3);
y = repmat([ylim(gca) missing]',nnz(missingIndices),1);
plot(x5,y, "Color", [145 145 145]/255, DisplayName="Removed missing entries")
title("Number of removed missing entries: " + nnz(missingIndices))

hold off
legend
ylabel("sensorMeasurements")
```



```
clear x5 y  
geoscatte(whalesClean1.latitude, whalesClean1.longitude)
```



```
rowsToKeep = whalesClean1.sensorQuality ~="Z"
```

`rowsToKeep = 16021×1 logical array`

```
whalesClean2 = whalesClean1(rowsToKeep, :)
```

```
whalesClean2 = 14830×8 table
```

	ID	timestamp	longitude	latitude	sensorQuality
1	1993CA-Bmu-00834	1993-08-29 01:23:17.000	-122.4070	36.9810	1

	ID	timestamp	longitude	latitude	sensorQuality
2	1993CA-Bmu-00834	1993-08-31 13:04:34.000	-122.7880	37.6370	B
3	1993CA-Bmu-00834	1993-09-01 01:57:39.000	-122.8270	37.1660	B
4	1993CA-Bmu-00834	1993-09-05 13:41:06.000	-122.7470	38.2310	B
5	1993CA-Bmu-10823	1993-08-30 15:03:19.000	-122.2420	37.6870	B
6	1993CA-Bmu-10823	1993-08-31 03:58:08.000	-122.8500	38.1650	B
7	1993CA-Bmu-10823	1993-09-01 11:12:09.000	-123.0090	38.5840	B
8	1993CA-Bmu-10823	1993-09-01 22:35:12.000	-123.4660	38.1840	B
9	1993CA-Bmu-10833	1993-08-28 21:45:56.000	-122.0650	37.0890	B
10	1993CA-Bmu-10836	1993-09-01 03:40:17.000	-123.4100	37.1410	B
11	1993CA-Bmu-10836	1993-09-02 15:32:56.000	-123.0010	36.8550	B
12	1993CA-Bmu-10836	1993-09-03 15:13:56.000	-122.3770	36.8770	B
13	1993CA-Bmu-10836	1993-09-04 04:16:04.000	-122.4170	36.5900	B
14	1993CA-Bmu-10836	1993-09-04 16:35:40.000	-123.3160	36.7250	B
15	1994CA-Bmu-00848	1994-10-07 00:38:35.000	-123.2270	33.5940	A
16	1994CA-Bmu-00848	1994-10-07 15:03:17.000	-120.7650	34.1730	B
17	1994CA-Bmu-00848	1994-10-07 16:42:35.000	-120.3090	34.1100	0
18	1994CA-Bmu-00848	1994-10-08 00:30:09.000	-119.9460	34.1350	0
19	1994CA-Bmu-00848	1994-10-08 02:23:57.000	-119.9870	33.9610	0
20	1994CA-Bmu-00848	1994-10-08 03:22:55.000	-120.0400	34.1580	B
21	1994CA-Bmu-00848	1994-10-08 04:01:11.000	-120.2230	34.0260	B
22	1994CA-Bmu-10820	1994-09-15 16:17:22.000	-122.7790	37.7440	B

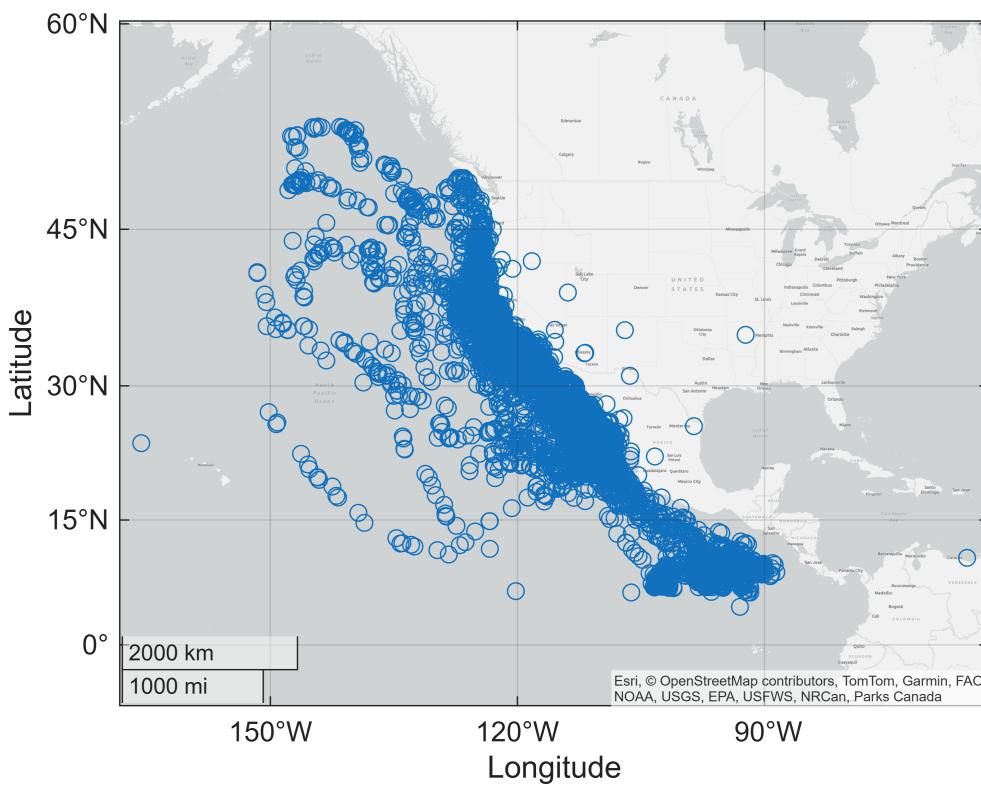
	ID	timestamp	longitude	latitude	sensorQuality
23	1994CA-Bmu-10820	1994-09-16 01:37:00.000	-123.4340	37.4860	A
24	1994CA-Bmu-10820	1994-09-16 03:40:58.000	-123.6630	37.4440	B
25	1994CA-Bmu-10820	1994-09-18 16:55:45.000	-126.3190	37.7790	B
26	1994CA-Bmu-10820	1994-09-19 13:28:52.000	-126.9490	36.8660	B
27	1994CA-Bmu-10821	1994-09-14 00:23:34.000	-123.0560	37.6690	A
28	1994CA-Bmu-10822	1994-09-14 00:21:58.000	-123.4240	36.0630	B
29	1994CA-Bmu-10822	1994-09-14 12:49:42.000	-122.3870	38.0910	B
30	1994CA-Bmu-10822	1994-09-14 14:24:39.000	-122.1480	37.7660	B
31	1994CA-Bmu-10822	1994-09-14 16:41:38.000	-122.4070	38.1200	B
32	1994CA-Bmu-10823	1994-09-15 01:53:29.000	-123.2880	37.5540	A
33	1994CA-Bmu-10823	1994-09-15 03:22:44.000	-122.5810	37.4400	B
34	1994CA-Bmu-10823	1994-09-15 04:06:31.000	-123.6110	37.6930	B
35	1994CA-Bmu-10823	1994-09-15 12:35:24.000	-122.9770	37.8800	A
36	1994CA-Bmu-10823	1994-09-15 16:21:18.000	-123.1620	37.7600	A
37	1994CA-Bmu-10823	1994-09-16 23:46:00.000	-123.3440	37.7610	B
38	1994CA-Bmu-10823	1994-09-17 01:28:34.000	-122.9480	37.7060	B
39	1994CA-Bmu-10823	1994-09-17 01:37:56.000	-123.1410	37.7720	B
40	1994CA-Bmu-10823	1994-09-17 15:33:04.000	-123.3010	37.9670	B
41	1994CA-Bmu-10823	1994-09-18 01:16:37.000	-123.1580	38.3960	B
42	1994CA-Bmu-10823	1994-09-18 02:43:52.000	-121.6690	39.0330	B
43	1994CA-Bmu-10823	1994-09-23 00:13:26.000	-122.3780	36.7980	B

	ID	timestamp	longitude	latitude	sensorQuality
44	1994CA-Bmu-10824	1994-09-15 02:23:30.000	-122.8070	37.5840	B
45	1994CA-Bmu-10824	1994-09-15 04:03:58.000	-123.1210	37.6290	B
46	1994CA-Bmu-10828	1994-10-02 01:14:03.000	-120.5820	34.4240	0
47	1994CA-Bmu-10828	1994-10-02 01:41:13.000	-121.3030	34.4400	0
48	1994CA-Bmu-10828	1994-10-02 04:40:59.000	-120.1680	34.1340	0
49	1994CA-Bmu-10828	1994-10-02 12:25:43.000	-120.6140	34.0720	0
50	1994CA-Bmu-10828	1994-10-02 14:07:38.000	-120.7610	34.0590	B
51	1994CA-Bmu-10828	1994-10-02 15:14:55.000	-120.6710	34.0750	0
52	1994CA-Bmu-10828	1994-10-02 23:52:14.000	-120.4190	34.4380	0
53	1994CA-Bmu-10828	1994-10-03 02:30:49.000	-120.6680	34.1960	0
54	1994CA-Bmu-10828	1994-10-03 04:29:17.000	-120.8010	34.1380	0
55	1994CA-Bmu-10828	1994-10-03 12:18:47.000	-120.4720	33.7250	B
56	1994CA-Bmu-10828	1994-10-03 13:59:59.000	-120.3920	33.6940	0
57	1994CA-Bmu-10828	1994-10-03 16:31:25.000	-120.8150	33.8510	A
58	1994CA-Bmu-10828	1994-10-03 16:52:13.000	-120.6460	33.8340	A
59	1994CA-Bmu-10828	1994-10-03 23:39:00.000	-120.9550	33.9140	A
60	1994CA-Bmu-10828	1994-10-04 01:19:40.000	-120.5740	33.9780	0
61	1994CA-Bmu-10828	1994-10-04 02:06:49.000	-120.4910	33.8000	B
62	1994CA-Bmu-10828	1994-10-04 03:49:17.000	-120.7510	33.6940	0
63	1994CA-Bmu-10828	1994-10-04 13:39:49.000	-118.2230	33.1090	B
64	1994CA-Bmu-10828	1994-10-04 14:30:05.000	-120.4820	34.1140	B

	ID	timestamp	longitude	latitude	sensorQuality
65	1994CA-Bmu-10828	1994-10-04 16:42:08.000	-120.3920	33.8560	B
66	1994CA-Bmu-10828	1994-10-04 23:26:07.000	-120.3430	33.4380	B
67	1994CA-Bmu-10828	1994-10-05 01:04:42.000	-120.3800	33.3850	B
68	1994CA-Bmu-10828	1994-10-05 01:45:15.000	-120.8020	33.2250	0
69	1994CA-Bmu-10828	1994-10-05 03:27:33.000	-120.4710	33.4860	0
70	1994CA-Bmu-10828	1994-10-05 04:01:48.000	-120.2910	33.4720	A
71	1994CA-Bmu-10828	1994-10-05 15:48:54.000	-120.0590	33.3390	A
72	1994CA-Bmu-10828	1994-10-05 16:27:54.000	-120.0120	33.3160	0
73	1994CA-Bmu-10828	1994-10-05 23:13:19.000	-119.5780	32.9860	0
74	1994CA-Bmu-10828	1994-10-06 00:52:34.000	-119.6790	32.9600	0
75	1994CA-Bmu-10828	1994-10-06 01:26:14.000	-119.4430	32.9550	B
76	1994CA-Bmu-10828	1994-10-06 03:06:57.000	-119.5710	32.8450	0
77	1994CA-Bmu-10828	1994-10-06 03:48:36.000	-119.5710	32.8580	0
78	1994CA-Bmu-10828	1994-10-06 13:20:59.000	-119.2490	32.4540	1
79	1994CA-Bmu-10828	1994-10-06 13:46:06.000	-118.9200	32.5060	B
80	1994CA-Bmu-10828	1994-10-06 15:24:44.000	-118.4910	32.4640	0
81	1994CA-Bmu-10828	1994-10-07 00:39:46.000	-119.2710	32.0260	B
82	1994CA-Bmu-10828	1994-10-07 02:43:31.000	-118.4820	32.2410	A
83	1994CA-Bmu-10828	1994-10-07 16:45:04.000	-118.0100	31.5970	B
84	1994CA-Bmu-10828	1994-10-08 00:29:43.000	-117.3920	31.2530	0
85	1994CA-Bmu-10828	1994-10-08 02:23:31.000	-117.3770	31.1560	A

	ID	timestamp	longitude	latitude	sensorQuality
86	1994CA-Bmu-10828	1994-10-08 03:24:40.000	-117.3420	31.1410	0
87	1994CA-Bmu-10828	1994-10-08 04:03:45.000	-117.4820	31.0730	B
88	1994CA-Bmu-10828	1994-10-08 14:35:45.000	-116.9480	30.7760	0
89	1994CA-Bmu-10828	1994-10-08 14:39:11.000	-116.1790	31.0780	A
90	1994CA-Bmu-10828	1994-10-08 16:22:55.000	-116.7800	30.7050	0
91	1994CA-Bmu-10828	1994-10-09 03:42:39.000	-116.4880	30.2920	B
92	1994CA-Bmu-10828	1994-10-09 12:45:11.000	-116.4000	30.1470	B
93	1994CA-Bmu-10828	1994-10-09 15:58:24.000	-116.0160	29.9940	A
94	1994CA-Bmu-10828	1994-10-10 01:41:00.000	-115.8290	29.3910	0
95	1994CA-Bmu-10828	1994-10-10 02:58:03.000	-115.6590	29.4260	0
96	1994CA-Bmu-10828	1994-10-10 03:19:44.000	-115.6580	29.2660	0
97	1994CA-Bmu-10828	1994-10-10 04:37:40.000	-115.6500	29.2020	0
98	1994CA-Bmu-10828	1994-10-10 12:30:16.000	-115.2900	28.7900	B
99	1994CA-Bmu-10828	1994-10-10 14:12:05.000	-114.8310	28.2860	0
100	1994CA-Bmu-10828	1994-10-10 15:40:27.000	-115.1330	28.7530	0
⋮					

```
geoscatteR(walesClean2.latitude,walesClean2.longitude)
```



```
rowsToKeep = whalesClean2.markedOutliers ~= "true"
```

`rowsToKeep` = 14830×1 logical array

1
1
1
0
0
0
0
1
0
1
1
1
1
1
1
1

```
whalesClean3 = whalesClean2(rowsToKeep, :)
```

`whalesClean3 = 14514×8 table`

	ID	timestamp	longitude	latitude	sensorQuality
1	1993CA-Bmu-00834	1993-08-29 01:23:17.000	-122.4070	36.9810	1

	ID	timestamp	longitude	latitude	sensorQuality
2	1993CA-Bmu-00834	1993-08-31 13:04:34.000	-122.7880	37.6370	B
3	1993CA-Bmu-00834	1993-09-01 01:57:39.000	-122.8270	37.1660	B
4	1993CA-Bmu-10823	1993-09-01 22:35:12.000	-123.4660	38.1840	B
5	1993CA-Bmu-10836	1993-09-01 03:40:17.000	-123.4100	37.1410	B
6	1993CA-Bmu-10836	1993-09-02 15:32:56.000	-123.0010	36.8550	B
7	1993CA-Bmu-10836	1993-09-03 15:13:56.000	-122.3770	36.8770	B
8	1993CA-Bmu-10836	1993-09-04 04:16:04.000	-122.4170	36.5900	B
9	1993CA-Bmu-10836	1993-09-04 16:35:40.000	-123.3160	36.7250	B
10	1994CA-Bmu-00848	1994-10-07 00:38:35.000	-123.2270	33.5940	A
11	1994CA-Bmu-00848	1994-10-07 15:03:17.000	-120.7650	34.1730	B
12	1994CA-Bmu-00848	1994-10-07 16:42:35.000	-120.3090	34.1100	0
13	1994CA-Bmu-00848	1994-10-08 00:30:09.000	-119.9460	34.1350	0
14	1994CA-Bmu-00848	1994-10-08 02:23:57.000	-119.9870	33.9610	0
15	1994CA-Bmu-00848	1994-10-08 03:22:55.000	-120.0400	34.1580	B
16	1994CA-Bmu-00848	1994-10-08 04:01:11.000	-120.2230	34.0260	B
17	1994CA-Bmu-10820	1994-09-15 16:17:22.000	-122.7790	37.7440	B
18	1994CA-Bmu-10820	1994-09-16 01:37:00.000	-123.4340	37.4860	A
19	1994CA-Bmu-10820	1994-09-16 03:40:58.000	-123.6630	37.4440	B
20	1994CA-Bmu-10820	1994-09-18 16:55:45.000	-126.3190	37.7790	B
21	1994CA-Bmu-10820	1994-09-19 13:28:52.000	-126.9490	36.8660	B
22	1994CA-Bmu-10821	1994-09-14 00:23:34.000	-123.0560	37.6690	A

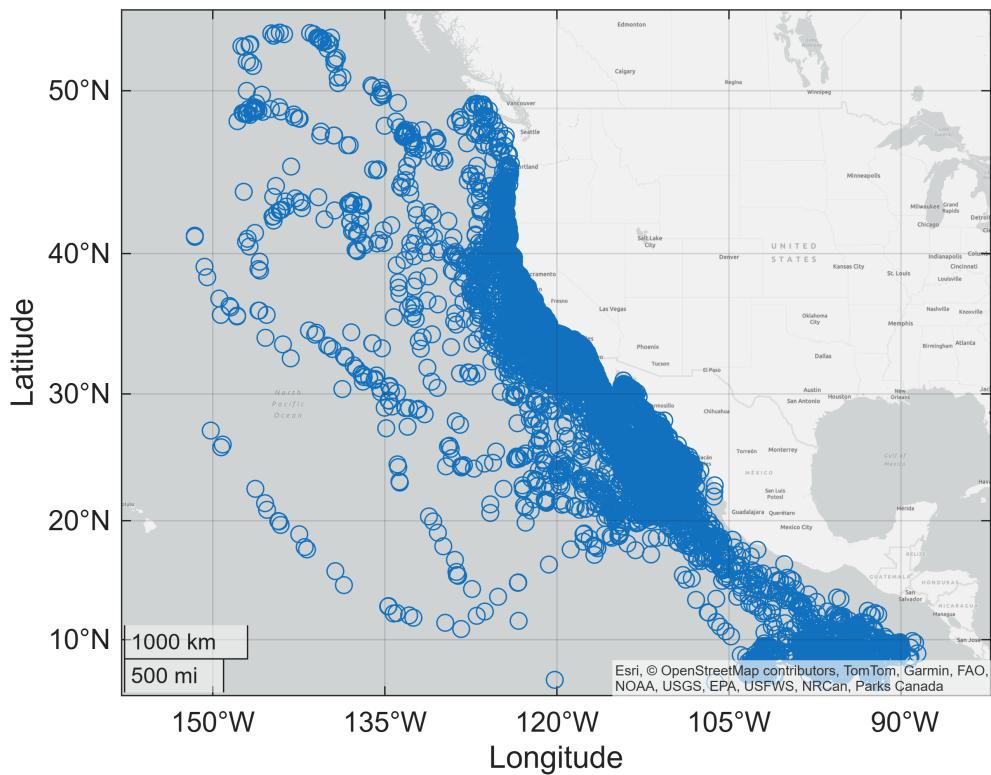
	ID	timestamp	longitude	latitude	sensorQuality
23	1994CA-Bmu-10822	1994-09-14 00:21:58.000	-123.4240	36.0630	B
24	1994CA-Bmu-10823	1994-09-15 01:53:29.000	-123.2880	37.5540	A
25	1994CA-Bmu-10823	1994-09-15 03:22:44.000	-122.5810	37.4400	B
26	1994CA-Bmu-10823	1994-09-15 04:06:31.000	-123.6110	37.6930	B
27	1994CA-Bmu-10823	1994-09-15 12:35:24.000	-122.9770	37.8800	A
28	1994CA-Bmu-10823	1994-09-15 16:21:18.000	-123.1620	37.7600	A
29	1994CA-Bmu-10823	1994-09-16 23:46:00.000	-123.3440	37.7610	B
30	1994CA-Bmu-10823	1994-09-17 01:28:34.000	-122.9480	37.7060	B
31	1994CA-Bmu-10823	1994-09-17 01:37:56.000	-123.1410	37.7720	B
32	1994CA-Bmu-10823	1994-09-17 15:33:04.000	-123.3010	37.9670	B
33	1994CA-Bmu-10823	1994-09-18 01:16:37.000	-123.1580	38.3960	B
34	1994CA-Bmu-10823	1994-09-23 00:13:26.000	-122.3780	36.7980	B
35	1994CA-Bmu-10824	1994-09-15 02:23:30.000	-122.8070	37.5840	B
36	1994CA-Bmu-10824	1994-09-15 04:03:58.000	-123.1210	37.6290	B
37	1994CA-Bmu-10828	1994-10-02 01:14:03.000	-120.5820	34.4240	0
38	1994CA-Bmu-10828	1994-10-02 01:41:13.000	-121.3030	34.4400	0
39	1994CA-Bmu-10828	1994-10-02 04:40:59.000	-120.1680	34.1340	0
40	1994CA-Bmu-10828	1994-10-02 12:25:43.000	-120.6140	34.0720	0
41	1994CA-Bmu-10828	1994-10-02 14:07:38.000	-120.7610	34.0590	B
42	1994CA-Bmu-10828	1994-10-02 15:14:55.000	-120.6710	34.0750	0
43	1994CA-Bmu-10828	1994-10-02 23:52:14.000	-120.4190	34.4380	0

	ID	timestamp	longitude	latitude	sensorQuality
44	1994CA-Bmu-10828	1994-10-03 02:30:49.000	-120.6680	34.1960	0
45	1994CA-Bmu-10828	1994-10-03 04:29:17.000	-120.8010	34.1380	0
46	1994CA-Bmu-10828	1994-10-03 12:18:47.000	-120.4720	33.7250	B
47	1994CA-Bmu-10828	1994-10-03 13:59:59.000	-120.3920	33.6940	0
48	1994CA-Bmu-10828	1994-10-03 16:31:25.000	-120.8150	33.8510	A
49	1994CA-Bmu-10828	1994-10-03 16:52:13.000	-120.6460	33.8340	A
50	1994CA-Bmu-10828	1994-10-03 23:39:00.000	-120.9550	33.9140	A
51	1994CA-Bmu-10828	1994-10-04 01:19:40.000	-120.5740	33.9780	0
52	1994CA-Bmu-10828	1994-10-04 02:06:49.000	-120.4910	33.8000	B
53	1994CA-Bmu-10828	1994-10-04 03:49:17.000	-120.7510	33.6940	0
54	1994CA-Bmu-10828	1994-10-04 13:39:49.000	-118.2230	33.1090	B
55	1994CA-Bmu-10828	1994-10-04 14:30:05.000	-120.4820	34.1140	B
56	1994CA-Bmu-10828	1994-10-04 16:42:08.000	-120.3920	33.8560	B
57	1994CA-Bmu-10828	1994-10-04 23:26:07.000	-120.3430	33.4380	B
58	1994CA-Bmu-10828	1994-10-05 01:04:42.000	-120.3800	33.3850	B
59	1994CA-Bmu-10828	1994-10-05 01:45:15.000	-120.8020	33.2250	0
60	1994CA-Bmu-10828	1994-10-05 03:27:33.000	-120.4710	33.4860	0
61	1994CA-Bmu-10828	1994-10-05 04:01:48.000	-120.2910	33.4720	A
62	1994CA-Bmu-10828	1994-10-05 15:48:54.000	-120.0590	33.3390	A
63	1994CA-Bmu-10828	1994-10-05 16:27:54.000	-120.0120	33.3160	0
64	1994CA-Bmu-10828	1994-10-05 23:13:19.000	-119.5780	32.9860	0

	ID	timestamp	longitude	latitude	sensorQuality
65	1994CA-Bmu-10828	1994-10-06 00:52:34.000	-119.6790	32.9600	0
66	1994CA-Bmu-10828	1994-10-06 01:26:14.000	-119.4430	32.9550	B
67	1994CA-Bmu-10828	1994-10-06 03:06:57.000	-119.5710	32.8450	0
68	1994CA-Bmu-10828	1994-10-06 03:48:36.000	-119.5710	32.8580	0
69	1994CA-Bmu-10828	1994-10-06 13:20:59.000	-119.2490	32.4540	1
70	1994CA-Bmu-10828	1994-10-06 13:46:06.000	-118.9200	32.5060	B
71	1994CA-Bmu-10828	1994-10-06 15:24:44.000	-118.4910	32.4640	0
72	1994CA-Bmu-10828	1994-10-07 00:39:46.000	-119.2710	32.0260	B
73	1994CA-Bmu-10828	1994-10-07 02:43:31.000	-118.4820	32.2410	A
74	1994CA-Bmu-10828	1994-10-07 16:45:04.000	-118.0100	31.5970	B
75	1994CA-Bmu-10828	1994-10-08 00:29:43.000	-117.3920	31.2530	0
76	1994CA-Bmu-10828	1994-10-08 02:23:31.000	-117.3770	31.1560	A
77	1994CA-Bmu-10828	1994-10-08 03:24:40.000	-117.3420	31.1410	0
78	1994CA-Bmu-10828	1994-10-08 04:03:45.000	-117.4820	31.0730	B
79	1994CA-Bmu-10828	1994-10-08 14:35:45.000	-116.9480	30.7760	0
80	1994CA-Bmu-10828	1994-10-08 16:22:55.000	-116.7800	30.7050	0
81	1994CA-Bmu-10828	1994-10-09 03:42:39.000	-116.4880	30.2920	B
82	1994CA-Bmu-10828	1994-10-09 12:45:11.000	-116.4000	30.1470	B
83	1994CA-Bmu-10828	1994-10-09 15:58:24.000	-116.0160	29.9940	A
84	1994CA-Bmu-10828	1994-10-10 01:41:00.000	-115.8290	29.3910	0
85	1994CA-Bmu-10828	1994-10-10 02:58:03.000	-115.6590	29.4260	0

	ID	timestamp	longitude	latitude	sensorQuality
86	1994CA-Bmu-10828	1994-10-10 03:19:44.000	-115.6580	29.2660	0
87	1994CA-Bmu-10828	1994-10-10 04:37:40.000	-115.6500	29.2020	0
88	1994CA-Bmu-10828	1994-10-10 12:30:16.000	-115.2900	28.7900	B
89	1994CA-Bmu-10828	1994-10-10 14:12:05.000	-114.8310	28.2860	0
90	1994CA-Bmu-10828	1994-10-10 15:40:27.000	-115.1330	28.7530	0
91	1994CA-Bmu-10828	1994-10-10 23:49:59.000	-115.0680	28.4810	0
92	1994CA-Bmu-10828	1994-10-11 01:18:58.000	-114.6890	28.2840	A
93	1994CA-Bmu-10828	1994-10-11 02:56:00.000	-114.9480	28.2830	0
94	1994CA-Bmu-10828	1994-10-11 04:22:26.000	-116.8210	27.6010	A
95	1994CA-Bmu-10828	1994-10-11 12:19:36.000	-114.8600	28.1260	0
96	1994CA-Bmu-10828	1994-10-11 13:57:17.000	-114.9690	28.1510	0
97	1994CA-Bmu-10828	1994-10-11 16:50:20.000	-115.1370	28.0300	B
98	1994CA-Bmu-10828	1994-10-12 02:30:10.000	-115.9620	28.1490	B
99	1994CA-Bmu-10828	1994-10-12 13:43:58.000	-114.7330	28.0050	0
100	1994CA-Bmu-10828	1994-10-12 16:36:19.000	-114.8750	27.8730	B
⋮					

```
geoscatte(whalesClean3.latitude, whalesClean3.longitude)
```



```
whales = whalesClean3
```

```
whales = 14514x8 table
```

	ID	timestamp	longitude	latitude	sensorQuality
1	1993CA-Bmu-00834	1993-08-29 01:23:17.000	-122.4070	36.9810	1
2	1993CA-Bmu-00834	1993-08-31 13:04:34.000	-122.7880	37.6370	B
3	1993CA-Bmu-00834	1993-09-01 01:57:39.000	-122.8270	37.1660	B
4	1993CA-Bmu-10823	1993-09-01 22:35:12.000	-123.4660	38.1840	B
5	1993CA-Bmu-10836	1993-09-01 03:40:17.000	-123.4100	37.1410	B
6	1993CA-Bmu-10836	1993-09-02 15:32:56.000	-123.0010	36.8550	B
7	1993CA-Bmu-10836	1993-09-03 15:13:56.000	-122.3770	36.8770	B
8	1993CA-Bmu-10836	1993-09-04 04:16:04.000	-122.4170	36.5900	B
9	1993CA-Bmu-10836	1993-09-04 16:35:40.000	-123.3160	36.7250	B

	ID	timestamp	longitude	latitude	sensorQuality
10	1994CA-Bmu-00848	1994-10-07 00:38:35.000	-123.2270	33.5940	A
11	1994CA-Bmu-00848	1994-10-07 15:03:17.000	-120.7650	34.1730	B
12	1994CA-Bmu-00848	1994-10-07 16:42:35.000	-120.3090	34.1100	0
13	1994CA-Bmu-00848	1994-10-08 00:30:09.000	-119.9460	34.1350	0
14	1994CA-Bmu-00848	1994-10-08 02:23:57.000	-119.9870	33.9610	0
15	1994CA-Bmu-00848	1994-10-08 03:22:55.000	-120.0400	34.1580	B
16	1994CA-Bmu-00848	1994-10-08 04:01:11.000	-120.2230	34.0260	B
17	1994CA-Bmu-10820	1994-09-15 16:17:22.000	-122.7790	37.7440	B
18	1994CA-Bmu-10820	1994-09-16 01:37:00.000	-123.4340	37.4860	A
19	1994CA-Bmu-10820	1994-09-16 03:40:58.000	-123.6630	37.4440	B
20	1994CA-Bmu-10820	1994-09-18 16:55:45.000	-126.3190	37.7790	B
21	1994CA-Bmu-10820	1994-09-19 13:28:52.000	-126.9490	36.8660	B
22	1994CA-Bmu-10821	1994-09-14 00:23:34.000	-123.0560	37.6690	A
23	1994CA-Bmu-10822	1994-09-14 00:21:58.000	-123.4240	36.0630	B
24	1994CA-Bmu-10823	1994-09-15 01:53:29.000	-123.2880	37.5540	A
25	1994CA-Bmu-10823	1994-09-15 03:22:44.000	-122.5810	37.4400	B
26	1994CA-Bmu-10823	1994-09-15 04:06:31.000	-123.6110	37.6930	B
27	1994CA-Bmu-10823	1994-09-15 12:35:24.000	-122.9770	37.8800	A
28	1994CA-Bmu-10823	1994-09-15 16:21:18.000	-123.1620	37.7600	A
29	1994CA-Bmu-10823	1994-09-16 23:46:00.000	-123.3440	37.7610	B
30	1994CA-Bmu-10823	1994-09-17 01:28:34.000	-122.9480	37.7060	B

	ID	timestamp	longitude	latitude	sensorQuality
31	1994CA-Bmu-10823	1994-09-17 01:37:56.000	-123.1410	37.7720	B
32	1994CA-Bmu-10823	1994-09-17 15:33:04.000	-123.3010	37.9670	B
33	1994CA-Bmu-10823	1994-09-18 01:16:37.000	-123.1580	38.3960	B
34	1994CA-Bmu-10823	1994-09-23 00:13:26.000	-122.3780	36.7980	B
35	1994CA-Bmu-10824	1994-09-15 02:23:30.000	-122.8070	37.5840	B
36	1994CA-Bmu-10824	1994-09-15 04:03:58.000	-123.1210	37.6290	B
37	1994CA-Bmu-10828	1994-10-02 01:14:03.000	-120.5820	34.4240	0
38	1994CA-Bmu-10828	1994-10-02 01:41:13.000	-121.3030	34.4400	0
39	1994CA-Bmu-10828	1994-10-02 04:40:59.000	-120.1680	34.1340	0
40	1994CA-Bmu-10828	1994-10-02 12:25:43.000	-120.6140	34.0720	0
41	1994CA-Bmu-10828	1994-10-02 14:07:38.000	-120.7610	34.0590	B
42	1994CA-Bmu-10828	1994-10-02 15:14:55.000	-120.6710	34.0750	0
43	1994CA-Bmu-10828	1994-10-02 23:52:14.000	-120.4190	34.4380	0
44	1994CA-Bmu-10828	1994-10-03 02:30:49.000	-120.6680	34.1960	0
45	1994CA-Bmu-10828	1994-10-03 04:29:17.000	-120.8010	34.1380	0
46	1994CA-Bmu-10828	1994-10-03 12:18:47.000	-120.4720	33.7250	B
47	1994CA-Bmu-10828	1994-10-03 13:59:59.000	-120.3920	33.6940	0
48	1994CA-Bmu-10828	1994-10-03 16:31:25.000	-120.8150	33.8510	A
49	1994CA-Bmu-10828	1994-10-03 16:52:13.000	-120.6460	33.8340	A
50	1994CA-Bmu-10828	1994-10-03 23:39:00.000	-120.9550	33.9140	A
51	1994CA-Bmu-10828	1994-10-04 01:19:40.000	-120.5740	33.9780	0

	ID	timestamp	longitude	latitude	sensorQuality
52	1994CA-Bmu-10828	1994-10-04 02:06:49.000	-120.4910	33.8000	B
53	1994CA-Bmu-10828	1994-10-04 03:49:17.000	-120.7510	33.6940	0
54	1994CA-Bmu-10828	1994-10-04 13:39:49.000	-118.2230	33.1090	B
55	1994CA-Bmu-10828	1994-10-04 14:30:05.000	-120.4820	34.1140	B
56	1994CA-Bmu-10828	1994-10-04 16:42:08.000	-120.3920	33.8560	B
57	1994CA-Bmu-10828	1994-10-04 23:26:07.000	-120.3430	33.4380	B
58	1994CA-Bmu-10828	1994-10-05 01:04:42.000	-120.3800	33.3850	B
59	1994CA-Bmu-10828	1994-10-05 01:45:15.000	-120.8020	33.2250	0
60	1994CA-Bmu-10828	1994-10-05 03:27:33.000	-120.4710	33.4860	0
61	1994CA-Bmu-10828	1994-10-05 04:01:48.000	-120.2910	33.4720	A
62	1994CA-Bmu-10828	1994-10-05 15:48:54.000	-120.0590	33.3390	A
63	1994CA-Bmu-10828	1994-10-05 16:27:54.000	-120.0120	33.3160	0
64	1994CA-Bmu-10828	1994-10-05 23:13:19.000	-119.5780	32.9860	0
65	1994CA-Bmu-10828	1994-10-06 00:52:34.000	-119.6790	32.9600	0
66	1994CA-Bmu-10828	1994-10-06 01:26:14.000	-119.4430	32.9550	B
67	1994CA-Bmu-10828	1994-10-06 03:06:57.000	-119.5710	32.8450	0
68	1994CA-Bmu-10828	1994-10-06 03:48:36.000	-119.5710	32.8580	0
69	1994CA-Bmu-10828	1994-10-06 13:20:59.000	-119.2490	32.4540	1
70	1994CA-Bmu-10828	1994-10-06 13:46:06.000	-118.9200	32.5060	B
71	1994CA-Bmu-10828	1994-10-06 15:24:44.000	-118.4910	32.4640	0
72	1994CA-Bmu-10828	1994-10-07 00:39:46.000	-119.2710	32.0260	B

	ID	timestamp	longitude	latitude	sensorQuality
73	1994CA-Bmu-10828	1994-10-07 02:43:31.000	-118.4820	32.2410	A
74	1994CA-Bmu-10828	1994-10-07 16:45:04.000	-118.0100	31.5970	B
75	1994CA-Bmu-10828	1994-10-08 00:29:43.000	-117.3920	31.2530	0
76	1994CA-Bmu-10828	1994-10-08 02:23:31.000	-117.3770	31.1560	A
77	1994CA-Bmu-10828	1994-10-08 03:24:40.000	-117.3420	31.1410	0
78	1994CA-Bmu-10828	1994-10-08 04:03:45.000	-117.4820	31.0730	B
79	1994CA-Bmu-10828	1994-10-08 14:35:45.000	-116.9480	30.7760	0
80	1994CA-Bmu-10828	1994-10-08 16:22:55.000	-116.7800	30.7050	0
81	1994CA-Bmu-10828	1994-10-09 03:42:39.000	-116.4880	30.2920	B
82	1994CA-Bmu-10828	1994-10-09 12:45:11.000	-116.4000	30.1470	B
83	1994CA-Bmu-10828	1994-10-09 15:58:24.000	-116.0160	29.9940	A
84	1994CA-Bmu-10828	1994-10-10 01:41:00.000	-115.8290	29.3910	0
85	1994CA-Bmu-10828	1994-10-10 02:58:03.000	-115.6590	29.4260	0
86	1994CA-Bmu-10828	1994-10-10 03:19:44.000	-115.6580	29.2660	0
87	1994CA-Bmu-10828	1994-10-10 04:37:40.000	-115.6500	29.2020	0
88	1994CA-Bmu-10828	1994-10-10 12:30:16.000	-115.2900	28.7900	B
89	1994CA-Bmu-10828	1994-10-10 14:12:05.000	-114.8310	28.2860	0
90	1994CA-Bmu-10828	1994-10-10 15:40:27.000	-115.1330	28.7530	0
91	1994CA-Bmu-10828	1994-10-10 23:49:59.000	-115.0680	28.4810	0
92	1994CA-Bmu-10828	1994-10-11 01:18:58.000	-114.6890	28.2840	A
93	1994CA-Bmu-10828	1994-10-11 02:56:00.000	-114.9480	28.2830	0

	ID	timestamp	longitude	latitude	sensorQuality
94	1994CA-Bmu-10828	1994-10-11 04:22:26.000	-116.8210	27.6010	A
95	1994CA-Bmu-10828	1994-10-11 12:19:36.000	-114.8600	28.1260	0
96	1994CA-Bmu-10828	1994-10-11 13:57:17.000	-114.9690	28.1510	0
97	1994CA-Bmu-10828	1994-10-11 16:50:20.000	-115.1370	28.0300	B
98	1994CA-Bmu-10828	1994-10-12 02:30:10.000	-115.9620	28.1490	B
99	1994CA-Bmu-10828	1994-10-12 13:43:58.000	-114.7330	28.0050	0
100	1994CA-Bmu-10828	1994-10-12 16:36:19.000	-114.8750	27.8730	B

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```
save cleanWhaleData
```