Performing Group Calculations

It is time to perform group calculations on the blue whale data.

```
load cleanWhaleData.mat
whales
```

whales = 14514×8 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
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

	ID	timestamp	longitude	latitude	sensorQuality
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
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

	ID	timestamp	longitude	latitude	sensorQuality
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
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

	ID	timestamp	longitude	latitude	sensorQuality
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
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

	ID	timestamp	longitude	latitude	sensorQuality
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
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

.
.
.

```
% Compute group summary
newTable2 = groupsummary(whales,"ID","range","latitude");
newTable2.GroupCount = []
```

newTable2 = `140×2 table`

	ID	range_latitude
1	1993CA-Bmu-00834	0.6560
2	1993CA-Bmu-10823	0
3	1993CA-Bmu-10836	0.5510
4	1994CA-Bmu-00848	0.5790
5	1994CA-Bmu-10820	0.9130
6	1994CA-Bmu-10821	0
7	1994CA-Bmu-10822	0
8	1994CA-Bmu-10823	1.5980
9	1994CA-Bmu-10824	0.0450
10	1994CA-Bmu-10828	6.8390
11	1994CA-Bmu-10829	0.4540
12	1994CA-Bmu-23029	0.1680
13	1995CA-Bmu-00837	1.7890
14	1995CA-Bmu-00841	0.8820
15	1995CA-Bmu-00845	2.4040
16	1995CA-Bmu-02082	0.8250
17	1995CA-Bmu-02083	0.5300
18	1995CA-Bmu-04172	5.0840
19	1995CA-Bmu-04173	8.9540
20	1995CA-Bmu-04176	14.3570
21	1995CA-Bmu-23031	1.3780

	ID	range_latitude
22	1995CA-Bmu-23037	0.2420
23	1995CA-Bmu-23040	24.8250
24	1995CA-Bmu-23041	2.1760
25	1995CA-Bmu-23042	8.9680
26	1995CA-Bmu-23043	0
27	1998CA-Bmu-00823	19.2020
28	1998CA-Bmu-00824	10.8430
29	1998CA-Bmu-00826	4.4600
30	1998CA-Bmu-00827	0
31	1998CA-Bmu-00833	3.0330
32	1998CA-Bmu-01390	0.3140
33	1998CA-Bmu-04174	13.7700
34	1998CA-Bmu-04175	20.5010
35	1998CA-Bmu-10823	27.9360
36	1999CA-Bmu-00830	3.1540
37	1999CA-Bmu-00834	15.1520
38	1999CA-Bmu-00837	6.6560
39	1999CA-Bmu-00838	13.4780
40	1999CA-Bmu-00845	0
41	1999CA-Bmu-00849	0
42	1999CA-Bmu-02082	4.6420

	ID	range_latitude
43	1999CA-Bmu-04172	27.3960
44	1999CA-Bmu-04173	10.9910
45	1999CA-Bmu-04176	13.9690
46	1999CA-Bmu-10821	6.0140
47	1999CA-Bmu-10824	19.1760
48	1999CA-Bmu-23030	11.6530
49	1999CA-Bmu-23031	11.7430
50	1999CA-Bmu-23033	14.1570
51	1999CA-Bmu-23038	3.6070
52	1999CA-Bmu-23043	18.7110
53	2000CA-Bmu-00826	0.6820
54	2000CA-Bmu-00827	0.2080
55	2000CA-Bmu-01386	31.6870
56	2000CA-Bmu-01390	30.5800
57	2000CA-Bmu-10823	0.6310
58	2000CA-Bmu-10825	2.6320
59	2000CA-Bmu-10827	0.4980
60	2000CA-Bmu-10828	28.4320
61	2000CA-Bmu-10832	26.9310
62	2000CA-Bmu-23029	11.3450
63	2000CA-Bmu-23035	0.2590

	ID	range_latitude
64	2000CA-Bmu-23042	0
65	2001MX-Bmu-10831	13.1470
66	2002MX-Bmu-00837	10.5610
67	2002MX-Bmu-00840	8.1890
68	2004CA-Bmu-00832	0.9660
69	2004CA-Bmu-00834	14.4760
70	2004CA-Bmu-00840	22.3780
71	2004CA-Bmu-00849	4.1920
72	2004CA-Bmu-01389	6.0760
73	2004CA-Bmu-04175	29.3870
74	2004CA-Bmu-10820	1.1840
75	2004CA-Bmu-10821	22.7190
76	2004CA-Bmu-10825	2.2790
77	2004CA-Bmu-10829	0.0340
78	2004CA-Bmu-10831	5.2360
79	2004CA-Bmu-10833	11.4730
80	2004CA-Bmu-10834	7.1830
81	2004CA-Bmu-10840	0.2580
82	2004CA-Bmu-10843	23.4030
83	2004CA-Bmu-23030	4.0290
84	2004CA-Bmu-23034	9.0840

	ID	range_latitude
85	2004CA-Bmu-23036	0
86	2004CA-Bmu-23043	0.9950
87	2005CA-Bmu-00834	14.6340
88	2005CA-Bmu-00845	7.0210
89	2005CA-Bmu-00849	4.9500
90	2005CA-Bmu-01388	4.3620
91	2005CA-Bmu-01389	5.8640
92	2005CA-Bmu-01390	28.7470
93	2005CA-Bmu-02082	2.2700
94	2005CA-Bmu-10820	12.5360
95	2005CA-Bmu-10821	33.2080
96	2005CA-Bmu-10823	7.8740
97	2005CA-Bmu-10826	4.2600
98	2005CA-Bmu-10828	1.2330
99	2005CA-Bmu-10829	28.6470
100	2005CA-Bmu-10830	8.1690

⋮

```
newTable2 = sortrows(newTable2, "range_latitude", "descend")
```

newTable2 = 140×2 table

	ID	range_latitude
1	2008CA-Bmu-04176	34.6520
2	2007CA-Bmu-01385	34.4950
3	2005CA-Bmu-10821	33.2080

	ID	range_latitude
4	2000CA-Bmu-01386	31.6870
5	2000CA-Bmu-01390	30.5800
6	2004CA-Bmu-04175	29.3870
7	2005CA-Bmu-01390	28.7470
8	2005CA-Bmu-10829	28.6470
9	2000CA-Bmu-10828	28.4320
10	2006CA-Bmu-02083	27.9980
11	1998CA-Bmu-10823	27.9360
12	1999CA-Bmu-04172	27.3960
13	2000CA-Bmu-10832	26.9310
14	2007CA-Bmu-23043	25.9640
15	2007CA-Bmu-05801	25.8410
16	2006CA-Bmu-10840	24.9870
17	2007CA-Bmu-05670	24.8680
18	1995CA-Bmu-23040	24.8250
19	2006CA-Bmu-00832	23.5940
20	2006CA-Bmu-10831	23.4340
21	2008CA-Bmu-00825	23.4110
22	2004CA-Bmu-10843	23.4030
23	2008CR-Bmu-01388	22.9580
24	2004CA-Bmu-10821	22.7190

	ID	range_latitude
25	2008CR-Bmu-00846	22.6440
26	2007CA-Bmu-10838	22.5600
27	2004CA-Bmu-00840	22.3780
28	2008CA-Bmu-01386	21.6030
29	2006CA-Bmu-23036	21.1180
30	1998CA-Bmu-04175	20.5010
31	1998CA-Bmu-00823	19.2020
32	1999CA-Bmu-10824	19.1760
33	1999CA-Bmu-23043	18.7110
34	2006CA-Bmu-00838	17.3420
35	2006CA-Bmu-10839	15.4120
36	1999CA-Bmu-00834	15.1520
37	2005CA-Bmu-00834	14.6340
38	2007CA-Bmu-04174	14.6180
39	2008CA-Bmu-10821	14.4900
40	2004CA-Bmu-00834	14.4760
41	1995CA-Bmu-04176	14.3570
42	1999CA-Bmu-23033	14.1570
43	1999CA-Bmu-04176	13.9690
44	1998CA-Bmu-04174	13.7700
45	1999CA-Bmu-00838	13.4780

	ID	range_latitude
46	2001MX-Bmu-10831	13.1470
47	2005CA-Bmu-10820	12.5360
48	1999CA-Bmu-23031	11.7430
49	1999CA-Bmu-23030	11.6530
50	2007CA-Bmu-00831	11.6450
51	2006CA-Bmu-04175	11.5480
52	2004CA-Bmu-10833	11.4730
53	2000CA-Bmu-23029	11.3450
54	2008CA-Bmu-00830	11.0060
55	1999CA-Bmu-04173	10.9910
56	1998CA-Bmu-00824	10.8430
57	2002MX-Bmu-00837	10.5610
58	2008CA-Bmu-04177	10.0300
59	2004CA-Bmu-23034	9.0840
60	1995CA-Bmu-23042	8.9680
61	1995CA-Bmu-04173	8.9540
62	2006CA-Bmu-23039	8.8090
63	2007CA-Bmu-10836	8.7420
64	2007CA-Bmu-00835	8.7410
65	2002MX-Bmu-00840	8.1890
66	2005CA-Bmu-10830	8.1690

	ID	range_latitude
67	2005CA-Bmu-10823	7.8740
68	2004CA-Bmu-10834	7.1830
69	2005CA-Bmu-00845	7.0210
70	1994CA-Bmu-10828	6.8390
71	1999CA-Bmu-00837	6.6560
72	2008CA-Bmu-00840	6.3810
73	2004CA-Bmu-01389	6.0760
74	1999CA-Bmu-10821	6.0140
75	2005CA-Bmu-01389	5.8640
76	2007CA-Bmu-00847	5.6480
77	2004CA-Bmu-10831	5.2360
78	1995CA-Bmu-04172	5.0840
79	2005CA-Bmu-00849	4.9500
80	2008CA-Bmu-05644	4.8800
81	1999CA-Bmu-02082	4.6420
82	2008CA-Bmu-10839	4.5890
83	1998CA-Bmu-00826	4.4600
84	2005CA-Bmu-01388	4.3620
85	2005CA-Bmu-10826	4.2600
86	2004CA-Bmu-00849	4.1920
87	2004CA-Bmu-23030	4.0290

	ID	range_latitude
88	1999CA-Bmu-23038	3.6070
89	2008CA-Bmu-05878	3.4070
90	2005CA-Bmu-10833	3.4020
91	1999CA-Bmu-00830	3.1540
92	1998CA-Bmu-00833	3.0330
93	2007CA-Bmu-04172	2.9400
94	2000CA-Bmu-10825	2.6320
95	2007CA-Bmu-00836	2.4380
96	1995CA-Bmu-00845	2.4040
97	2004CA-Bmu-10825	2.2790
98	2005CA-Bmu-02082	2.2700
99	1995CA-Bmu-23041	2.1760
100	1995CA-Bmu-00837	1.7890

⋮

```
whaleSummary = newTable2
```

whaleSummary = 140×2 table

	ID	range_latitude
1	2008CA-Bmu-04176	34.6520
2	2007CA-Bmu-01385	34.4950
3	2005CA-Bmu-10821	33.2080
4	2000CA-Bmu-01386	31.6870
5	2000CA-Bmu-01390	30.5800
6	2004CA-Bmu-04175	29.3870

	ID	range_latitude
7	2005CA-Bmu-01390	28.7470
8	2005CA-Bmu-10829	28.6470
9	2000CA-Bmu-10828	28.4320
10	2006CA-Bmu-02083	27.9980
11	1998CA-Bmu-10823	27.9360
12	1999CA-Bmu-04172	27.3960
13	2000CA-Bmu-10832	26.9310
14	2007CA-Bmu-23043	25.9640
15	2007CA-Bmu-05801	25.8410
16	2006CA-Bmu-10840	24.9870
17	2007CA-Bmu-05670	24.8680
18	1995CA-Bmu-23040	24.8250
19	2006CA-Bmu-00832	23.5940
20	2006CA-Bmu-10831	23.4340
21	2008CA-Bmu-00825	23.4110
22	2004CA-Bmu-10843	23.4030
23	2008CR-Bmu-01388	22.9580
24	2004CA-Bmu-10821	22.7190
25	2008CR-Bmu-00846	22.6440
26	2007CA-Bmu-10838	22.5600
27	2004CA-Bmu-00840	22.3780

	ID	range_latitude
28	2008CA-Bmu-01386	21.6030
29	2006CA-Bmu-23036	21.1180
30	1998CA-Bmu-04175	20.5010
31	1998CA-Bmu-00823	19.2020
32	1999CA-Bmu-10824	19.1760
33	1999CA-Bmu-23043	18.7110
34	2006CA-Bmu-00838	17.3420
35	2006CA-Bmu-10839	15.4120
36	1999CA-Bmu-00834	15.1520
37	2005CA-Bmu-00834	14.6340
38	2007CA-Bmu-04174	14.6180
39	2008CA-Bmu-10821	14.4900
40	2004CA-Bmu-00834	14.4760
41	1995CA-Bmu-04176	14.3570
42	1999CA-Bmu-23033	14.1570
43	1999CA-Bmu-04176	13.9690
44	1998CA-Bmu-04174	13.7700
45	1999CA-Bmu-00838	13.4780
46	2001MX-Bmu-10831	13.1470
47	2005CA-Bmu-10820	12.5360
48	1999CA-Bmu-23031	11.7430

	ID	range_latitude
49	1999CA-Bmu-23030	11.6530
50	2007CA-Bmu-00831	11.6450
51	2006CA-Bmu-04175	11.5480
52	2004CA-Bmu-10833	11.4730
53	2000CA-Bmu-23029	11.3450
54	2008CA-Bmu-00830	11.0060
55	1999CA-Bmu-04173	10.9910
56	1998CA-Bmu-00824	10.8430
57	2002MX-Bmu-00837	10.5610
58	2008CA-Bmu-04177	10.0300
59	2004CA-Bmu-23034	9.0840
60	1995CA-Bmu-23042	8.9680
61	1995CA-Bmu-04173	8.9540
62	2006CA-Bmu-23039	8.8090
63	2007CA-Bmu-10836	8.7420
64	2007CA-Bmu-00835	8.7410
65	2002MX-Bmu-00840	8.1890
66	2005CA-Bmu-10830	8.1690
67	2005CA-Bmu-10823	7.8740
68	2004CA-Bmu-10834	7.1830
69	2005CA-Bmu-00845	7.0210

	ID	range_latitude
70	1994CA-Bmu-10828	6.8390
71	1999CA-Bmu-00837	6.6560
72	2008CA-Bmu-00840	6.3810
73	2004CA-Bmu-01389	6.0760
74	1999CA-Bmu-10821	6.0140
75	2005CA-Bmu-01389	5.8640
76	2007CA-Bmu-00847	5.6480
77	2004CA-Bmu-10831	5.2360
78	1995CA-Bmu-04172	5.0840
79	2005CA-Bmu-00849	4.9500
80	2008CA-Bmu-05644	4.8800
81	1999CA-Bmu-02082	4.6420
82	2008CA-Bmu-10839	4.5890
83	1998CA-Bmu-00826	4.4600
84	2005CA-Bmu-01388	4.3620
85	2005CA-Bmu-10826	4.2600
86	2004CA-Bmu-00849	4.1920
87	2004CA-Bmu-23030	4.0290
88	1999CA-Bmu-23038	3.6070
89	2008CA-Bmu-05878	3.4070
90	2005CA-Bmu-10833	3.4020

	ID	range_latitude
91	1999CA-Bmu-00830	3.1540
92	1998CA-Bmu-00833	3.0330
93	2007CA-Bmu-04172	2.9400
94	2000CA-Bmu-10825	2.6320
95	2007CA-Bmu-00836	2.4380
96	1995CA-Bmu-00845	2.4040
97	2004CA-Bmu-10825	2.2790
98	2005CA-Bmu-02082	2.2700
99	1995CA-Bmu-23041	2.1760
100	1995CA-Bmu-00837	1.7890

⋮

```
topID = whaleSummary.ID(1)
```

```
topID = categorical
    2008CA-Bmu-04176
```

```
rowsToKeep= whales.ID == topID
```

```
rowsToKeep = 14514×1 logical array
    0
    0
    0
    0
    0
    0
    0
    0
    0
    0
    0
    0
    0
    0
    0
    ⋮
```

```
topWhale = whales(rowsToKeep,:)
```

```
topWhale = 259×8 table
```

20

	ID	timestamp	longitude	latitude	sensorQuality
1	2008CA-Bmu-04176	2008-07-28 00:40:25.000	-120.0440	34.1340	0
2	2008CA-Bmu-04176	2008-07-28 21:24:11.000	-120.6060	34.1150	0
3	2008CA-Bmu-04176	2008-07-29 21:11:49.000	-119.1460	33.2770	A
4	2008CA-Bmu-04176	2008-07-30 13:52:54.000	-120.0030	31.9730	B
5	2008CA-Bmu-04176	2008-08-01 00:43:05.000	-119.2100	31.2420	0
6	2008CA-Bmu-04176	2008-08-01 13:45:07.000	-119.2250	31.2030	0
7	2008CA-Bmu-04176	2008-08-02 00:15:53.000	-119.3980	31.2690	B
8	2008CA-Bmu-04176	2008-08-02 01:01:38.000	-119.2560	31.2220	B
9	2008CA-Bmu-04176	2008-08-02 10:50:19.000	-119.3380	31.2270	1
10	2008CA-Bmu-04176	2008-08-02 13:28:52.000	-119.3360	31.2550	1
11	2008CA-Bmu-04176	2008-08-03 00:54:28.000	-119.1410	31.3110	0
12	2008CA-Bmu-04176	2008-08-03 10:39:27.000	-119.0370	31.3630	A
13	2008CA-Bmu-04176	2008-08-03 13:18:47.000	-118.9730	31.3520	1
14	2008CA-Bmu-04176	2008-08-03 13:55:42.000	-118.9720	31.3250	A
15	2008CA-Bmu-04176	2008-08-03 21:59:34.000	-119.0060	31.3890	A
16	2008CA-Bmu-04176	2008-08-04 10:28:45.000	-119.1730	31.2570	2
17	2008CA-Bmu-04176	2008-08-04 13:05:09.000	-119.0720	31.3440	1
18	2008CA-Bmu-04176	2008-08-04 21:52:23.000	-119.0980	31.5560	0
19	2008CA-Bmu-04176	2008-08-05 00:28:43.000	-119.2520	31.7170	1
20	2008CA-Bmu-04176	2008-08-05 10:19:34.000	-119.2350	31.9560	0
21	2008CA-Bmu-04176	2008-08-05 13:06:19.000	-119.2520	31.9990	0

	ID	timestamp	longitude	latitude	sensorQuality
22	2008CA-Bmu-04176	2008-08-05 21:37:46.000	-119.2030	31.8710	0
23	2008CA-Bmu-04176	2008-08-06 00:19:13.000	-119.1360	31.8750	0
24	2008CA-Bmu-04176	2008-08-06 00:24:17.000	-119.0010	31.8320	B
25	2008CA-Bmu-04176	2008-08-06 10:10:14.000	-118.8020	31.7560	1
26	2008CA-Bmu-04176	2008-08-07 00:02:53.000	-118.4630	31.9410	B
27	2008CA-Bmu-04176	2008-08-07 00:05:17.000	-118.4840	31.8690	1
28	2008CA-Bmu-04176	2008-08-07 21:19:35.000	-118.4670	32.0740	1
29	2008CA-Bmu-04176	2008-08-08 13:57:53.000	-118.4310	32.1430	A
30	2008CA-Bmu-04176	2008-08-09 00:50:26.000	-118.4070	32.0680	2
31	2008CA-Bmu-04176	2008-08-09 13:10:43.000	-118.3980	32.1160	0
32	2008CA-Bmu-04176	2008-08-09 13:47:12.000	-118.4170	32.1300	0
33	2008CA-Bmu-04176	2008-08-10 00:28:59.000	-118.7140	32.2030	0
34	2008CA-Bmu-04176	2008-08-10 13:36:48.000	-118.5200	32.5090	1
35	2008CA-Bmu-04176	2008-08-11 00:05:06.000	-118.3540	32.4750	B
36	2008CA-Bmu-04176	2008-08-11 00:58:46.000	-118.3350	32.4700	0
37	2008CA-Bmu-04176	2008-08-11 10:56:54.000	-118.2620	32.5060	A
38	2008CA-Bmu-04176	2008-08-11 13:22:36.000	-118.2740	32.5350	2
39	2008CA-Bmu-04176	2008-08-11 14:03:12.000	-118.3060	32.5480	B
40	2008CA-Bmu-04176	2008-08-12 00:46:35.000	-118.0130	32.5410	A
41	2008CA-Bmu-04176	2008-08-12 10:47:32.000	-118.2550	32.5640	1
42	2008CA-Bmu-04176	2008-08-13 00:31:35.000	-118.1720	32.6870	1

	ID	timestamp	longitude	latitude	sensorQuality
43	2008CA-Bmu-04176	2008-08-13 00:55:46.000	-118.1420	32.6660	A
44	2008CA-Bmu-04176	2008-08-13 10:34:25.000	-118.3770	32.6290	2
45	2008CA-Bmu-04176	2008-08-13 13:05:45.000	-118.2700	32.5770	B
46	2008CA-Bmu-04176	2008-08-14 00:23:27.000	-118.3830	32.7110	0
47	2008CA-Bmu-04176	2008-08-14 00:31:33.000	-118.4950	32.6820	0
48	2008CA-Bmu-04176	2008-08-14 10:23:47.000	-118.2660	32.7770	1
49	2008CA-Bmu-04176	2008-08-14 21:47:40.000	-118.2700	32.8660	1
50	2008CA-Bmu-04176	2008-08-15 00:09:31.000	-118.2620	32.8580	2
51	2008CA-Bmu-04176	2008-08-15 00:10:09.000	-118.2860	32.8590	1
52	2008CA-Bmu-04176	2008-08-15 10:16:13.000	-118.2930	32.7620	1
53	2008CA-Bmu-04176	2008-08-15 21:35:34.000	-117.9960	32.7600	1
54	2008CA-Bmu-04176	2008-08-16 10:06:42.000	-117.8970	32.5900	A
55	2008CA-Bmu-04176	2008-08-16 13:46:32.000	-117.9440	32.6640	A
56	2008CA-Bmu-04176	2008-08-16 21:22:50.000	-117.9060	32.3420	0
57	2008CA-Bmu-04176	2008-08-17 01:02:33.000	-118.0540	32.3220	0
58	2008CA-Bmu-04176	2008-08-17 13:19:28.000	-118.6580	32.3100	0
59	2008CA-Bmu-04176	2008-08-17 13:53:13.000	-118.5710	32.3220	0
60	2008CA-Bmu-04176	2008-08-17 21:13:30.000	-118.8610	32.5730	0
61	2008CA-Bmu-04176	2008-08-18 00:35:27.000	-119.2700	32.6460	A
62	2008CA-Bmu-04176	2008-08-18 13:43:59.000	-120.0210	33.0510	1
63	2008CA-Bmu-04176	2008-08-20 11:02:23.000	-122.3600	34.8790	B

	ID	timestamp	longitude	latitude	sensorQuality
64	2008CA-Bmu-04176	2008-08-20 13:18:50.000	-122.3410	35.0050	A
65	2008CA-Bmu-04176	2008-08-20 13:45:20.000	-122.3200	35.0290	0
66	2008CA-Bmu-04176	2008-08-21 00:43:53.000	-123.0780	35.2640	0
67	2008CA-Bmu-04176	2008-08-21 10:50:58.000	-121.9950	35.9290	2
68	2008CA-Bmu-04176	2008-08-21 13:23:46.000	-121.9130	36.0460	1
69	2008CA-Bmu-04176	2008-08-22 00:31:47.000	-121.9860	36.4940	0
70	2008CA-Bmu-04176	2008-08-22 00:43:54.000	-122.0650	36.5060	B
71	2008CA-Bmu-04176	2008-08-22 10:39:43.000	-122.1000	36.9220	0
72	2008CA-Bmu-04176	2008-08-23 21:54:10.000	-122.8860	37.4380	2
73	2008CA-Bmu-04176	2008-08-24 00:09:45.000	-122.9170	37.4560	0
74	2008CA-Bmu-04176	2008-08-24 10:17:52.000	-122.5900	37.4500	0
75	2008CA-Bmu-04176	2008-08-24 13:53:02.000	-122.9080	37.4880	1
76	2008CA-Bmu-04176	2008-08-24 21:46:31.000	-123.0320	37.6400	1
77	2008CA-Bmu-04176	2008-08-25 13:27:39.000	-123.1090	38.2010	B
78	2008CA-Bmu-04176	2008-08-25 14:00:37.000	-123.1710	38.2560	0
79	2008CA-Bmu-04176	2008-08-25 21:35:56.000	-123.2350	38.5190	0
80	2008CA-Bmu-04176	2008-08-26 10:02:33.000	-124.7360	39.0200	B
81	2008CA-Bmu-04176	2008-08-26 13:05:32.000	-123.4580	38.1710	2
82	2008CA-Bmu-04176	2008-08-27 00:22:25.000	-123.1030	37.3400	0
83	2008CA-Bmu-04176	2008-08-29 11:04:29.000	-121.1770	35.1520	B
84	2008CA-Bmu-04176	2008-08-29 13:11:19.000	-121.3060	35.1840	0

	ID	timestamp	longitude	latitude	sensorQuality
85	2008CA-Bmu-04176	2008-08-30 00:34:06.000	-121.3290	34.7580	A
86	2008CA-Bmu-04176	2008-08-30 00:50:35.000	-121.2070	34.7610	0
87	2008CA-Bmu-04176	2008-08-30 11:03:09.000	-121.2630	34.8000	0
88	2008CA-Bmu-04176	2008-08-30 13:08:24.000	-121.2610	34.7870	1
89	2008CA-Bmu-04176	2008-08-31 00:28:06.000	-121.4440	34.7170	A
90	2008CA-Bmu-04176	2008-08-31 10:49:50.000	-121.0870	34.5940	1
91	2008CA-Bmu-04176	2008-09-01 10:38:38.000	-120.4850	33.9610	A
92	2008CA-Bmu-04176	2008-09-01 21:59:03.000	-120.1990	33.3780	1
93	2008CA-Bmu-04176	2008-09-02 10:27:11.000	-120.1030	32.8510	1
94	2008CA-Bmu-04176	2008-09-02 21:50:12.000	-119.9350	32.6060	<undefined>
95	2008CA-Bmu-04176	2008-09-03 00:53:39.000	-119.8160	32.5800	1
96	2008CA-Bmu-04176	2008-09-03 10:15:30.000	-119.6490	32.5020	0
97	2008CA-Bmu-04176	2008-09-03 13:15:30.000	-119.7150	32.4990	0
98	2008CA-Bmu-04176	2008-09-03 13:54:06.000	-119.6790	32.4770	B
99	2008CA-Bmu-04176	2008-09-03 21:41:49.000	-119.5870	32.5140	0
100	2008CA-Bmu-04176	2008-09-04 13:42:29.000	-119.5710	32.4800	0

:
:

```
geoplot(topWhale.latitude,topWhale.longitude)
```