

# Combined High Density Proton Event and Strongest Southward Bz Ever Observed (by me)

## CME hit 9:00 PM, October 1<sup>st</sup> (local time)

This is a magnetic filament eruption that occurred on 4:45 PM, September 29 (local time)

My observations did not start until the first entry in this table.

It is assumed that from about 9:00 PM onward, the data would look similar to the first entry, if not even more severe.

Archives show C1 as strongest flare during this period.

G2 (Kp=6 ) geomagnetic storm first noticed by me at 1:45 AM, October 2 (local time)

Date/time Stamp	Solar wind speed (km/sec)	Proton Density (protons/cm <sup>3</sup> )	IMF (nT)		Sunspot Number	7 Days, Worldwide Magnitude		
			B <sub>TOTAL</sub>	B <sub>z</sub>		2.5	4.5+	All
10/1/2013 11:29 PM	<b>583.0</b>	6.6	<b>30.9</b>	<b>27.3 south</b>	49	242	74	1454
10/1/2013 11:33 PM	621.6	8.4	23.6	7.2 south	49	241	73	1451
10/1/2013 11:43 PM	592.4	<b>15.6</b>	24.2	3.3 south	49	241	73	1450
10/1/2013 11:53 PM	<b>605.8</b>	<b>49.5</b>	21.6	10.9 south	49	241	73	1450
10/2/2013 12:03 AM	605.4	29.1	18.3	<b>1.9 north</b>	49	242	73	1450
10/2/2013 12:13 AM	616.5	29.8	15.8	6.7 south	49	242	73	1447
10/2/2013 12:22 AM	<b>636.0</b>	<b>64.4</b>	20.9	8 south	49	242	73	1448
10/2/2013 1:41 AM	566.3	20.3	22.4	<b>0.5 north</b>	49	245	74	1447
10/2/2013 1:46 AM	604.7	6.7	19.0	0.8 south	49	245	74	1448
10/2/2013 2:13 AM	547.5	23.3	16.6	0.5 south	49	244	73	1446
Event lasted approximately six hours until settling to a Kp=3. Significant southward Bz continues. Though no entry was made, last observed high density protons were around 4:00 AM in the low 20s								
10/2/2013 8:41 AM	554.0	4.6	2.6	0.7 north	49	239	71	1435
10/2/2013 10:43 AM	600.8	3.6	6.1	0.5 south	49	238	70	1439
10/2/2013 11:02 AM	597.8	3.5	5.3	<b>3.1 south</b>	49	237	70	1438
10/2/2013 1:54 PM	597.3	3.3	5.4	<b>5 south</b>	49	235	70	1459
10/2/2013 3:25 PM	573.1	1.2	6.9	<b>5.3 south</b>	49	235	70	1473
<b>Event not over</b> , Kp=5 (storm) is happening as of this next entry. Note that C1 is still the highest flare on record for the past 24 hours. Proton density is low, but made more significant by the elevated solar wind speed								
10/2/2013 4:31 PM	599.4	2.5	5.3	<b>3.5 south</b>	49	237	72	1487
10/2/2013 5:38 PM	569.0	3.4	3.1	0.2 south	49	240	72	1487
10/2/2013 5:58 PM	552.5	1.1	7.6	<b>4.1 south</b>	49	240	72	1485
<b>Event Over For Sure</b> Kp=4 (unsettled), Solar Wind Slowing, Below Normal Proton Density, Northward/Weak Bz								
10/2/2013 7:24 PM	524.9	0.3	7.4	<b>2.0 north</b>	49	240	73	1491
10/2/2013 7:33 PM	<b>486.9</b>	0.1	7.7	0.3 south	49	240	73	1491
10/2/2013 7:42 PM	488.9	<b>0.0</b>	7.7	0.1 south	49	240	73	1490
10/2/2013 8:47 PM	565.0	0.3	7.9	3.0 north	49	243	73	<b>1539</b>
<b>Roughly 24 hours later Event Declared Over...Now Tracking for Seismic Activity Increase</b>								

### Tracking Earthquake Increases

Date/time Stamp	Solar wind speed (km/sec)	Proton Density (protons/cm <sup>3</sup> )	IMF (nT)		Sunspot Number	7 Days, Worldwide Magnitude		
			B <sub>TOTAL</sub>	B <sub>z</sub>		2.5	4.5+	All
10/3/2013 8:13 AM	457.9	0.6	7.5	6.1 north	59	244	74	1482
10/3/2013 6:53 PM	402.2	1.0	4.8	3.3 north	59	249	79	1494
10/3/2013 11:53 PM	418.6	0.4	3.2	2.5 north	61	253	81	1478
10/4/2013 8:09 AM	383.2	1.6	2.6	1.6 north	61	244	84	1450
10/4/2013 3:10 PM	360.6	1.4	2.1	1.9 north	61	236	79	1464
10/5/2013 9:11 AM	325.7	1.2	2.1	1.1 north	84	218	81	1395
10/5/2013 3:34 PM	325.4	1.1	1.2	0.3 north	84	215	80	1363
10/6/2013 10:02 AM	306.2	1.3	3.4	0.3 south	69	215	75	1305
10/6/2013 3:30 PM	311.3	1.8	3.3	1 south	69	219	75	1304
10/7/2013 7:58 AM	301.2	2.1	4.8	0.3 south	53	191	70	1205

## Five Days out, and the turnaround begins.

There has been nearly zero activity on the sun since the event. That largest flare a single C2. There were a couple C1 flares. As of this writing, a B9 flare is the largest in 24 hours. Kp=1 and even Kp=0 has predominated.

10/7/2013 6:18 PM	297.7	2.1	3.8	2.6 north	53	191	73	1251
10/8/2013 8:35 AM	291.7	3.1	5.3	0.8 north	76	204	77	1241
M2 Solar Flare & Minor CME, Brief Kp=5 (storm)								
10/8/2013 4:02 PM	380.7	12.3	12.9	7.4 south	76	206	75	1319
10/9/2013 7:48 AM	574.6	7.9	8.4	1 south	99	210	75	1336
10/9/2013 8:38 PM	490.8	4.0	7.8	5.1 north	99	210	73	1409
10/10/2013 8:15 AM	446.2	1.9	5.1	1.4 south	111	202	73	1399
10/10/2013 6:19 PM	426.7	1.1	4.6	2.7 south	111	204	70	1448
10/11/2013 8:25 AM	384.9	2.4	3.7	0.1 south	138	213	69	1508
10/11/2013 8:06 PM	370.6	1.6	3.5	0.6 north	138	225	73	1591

# UTC DATE **October 12, 2013**

## **10 Days Out and the Show Begins**

**There were three 6.0+ quakes early this UTC day, and several volcanic eruptions of note.** On average, there are normally only two 6.0+ quakes a week. More importantly, small quakes are ramping up very fast. Here is what I think is happening; Basically we are dealing with a fluid here. Forget the crust. In the classic comparison, if the earth were the size of a basketball, the crust is only as thick as a sheet of paper. We know from Tesla that the earth is a good conductor of electricity. So when the earth is bombarded with radiation as in this most recent 24 hour event, the earth becomes relatively more fluid. This results in the tectonic plates finding (i.e. "floating to") an equilibrium. Think of them being relative frozen before the event, and then thawing and floating more freely than usual. This is why there is no immediate response to the event. Quite the contrary, things calm down. Then, as the molten rock below the crust cools, the plates begin to drift into one another (lose equilibrium or "freeze" up again). This is first evidenced in a spike of small quakes (far right-hand column). I am writing this at the date and time of the next log entry (Friday night), but feel confident all hell is about to break loose. Again, I emphasize the most important point of all, which is that this scenario routinely plays out a week or so after an event. **The closeness in time of this cause and effect relationship between solar and seismic activity is clear evidence that, after the [Modern Maximum](#), the planet is like a pot ready to boil.** Over the next six or seven years on the back side of the bell curve we call solar max, it looks like major events such as this one are going to be accompanied by south facing Bz (or IMF). That means a very large earth-directed flare is going to mean a lot more than just a threat to satellites, electrical devices and the grid. **It is going to mean huge earthquakes**, the likes of which this planet rarely ever sees.



**Alaska's Veniaminof Volcano erupts- sends traces of ash over 2 Alaskan communities**

**October 12, 2013** – [ANCHORAGE, Alaska](#) – A volcano on the Alaska Peninsula has again become active during a months-long eruption, with a trace of ash falling on communities up to 35 miles away. The Alaska Volcano Observatory says in a release that Veniamin of Volcano resumed its 2013 eruption on Saturday after being quiet for about a month. It's been marked by lava flows, fountaining and intermittent but small ash, steam and gas plumes. The plumes usually only travel a few miles from the volcano, but the communities of Chignik Lake and Chignik Lagoon, about 35 miles away, reported trace ash on Friday. The observatory says ash fall from the volcano 480 miles southwest of Anchorage is not considered to be significant. The eruption started in June. –News Miner

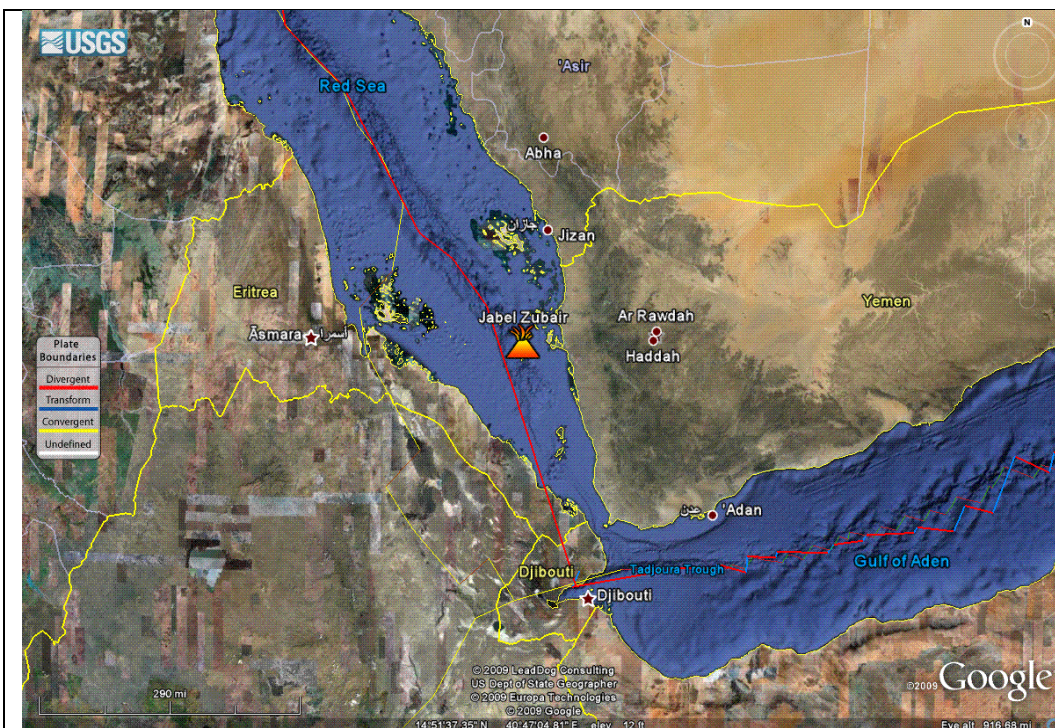


**New Zealand’s White Island Volcano erupts: alert level raised**

**October 12, 2013 - NEW ZEALAND** – New Zealand’s geological agency GNS Science said on Saturday that it’s raised the alert level for White Island after the volcano erupted. The agency said a moderate explosion eruption, lasting about a minute, happened just after 8 p.m. Friday night. GNS Science said the volcanic alert level has been raised from one to two which indicates minor activity. The aviation color code has been upgraded to orange, the second- highest alert level. GNS volcanologist Arthur Jolly said the eruption was about the same size as the previous one in August 2012, Radio New Zealand reported. Jolly said the eruption threw mostly mud, rather than ash, into the air. He said bad weather on Saturday prevented GNS volcanologists from flying over the island to observe the volcano. –Global Times

10/12/2013 7:58 AM	357.8	7.3	4.7	2.0 north	115			226	72	1538
10/13/2013 10:09 AM	348.6	1.6	2.7	1.3 north	106			211	77	1418
10/13/2013 11:22 PM	336.1	3.2	4.8	3.9 south	125			197	73	1342

Frankly, I was underwhelmed by these results, which explains why I did not make a log entry this morning. I thought the effects of this event were over. Certainly, I expected more in terms of the sheer number of earthquakes. However, I will keep monitoring because of the 7.2 earthquake today. There are normally only 1.5 7.0+ earthquakes per month. So the timing of this large earthquake seems to be a continuation of the tectonic plates colliding after this particular event.



## **79: Jebel Zubair volcano erupts in the Red Sea**

**October 13, 2013** –**SAUDI ARABIA** – As of today, the submarine eruption continues with the production of a steam plume of variable size, not always easily identifiable on satellite images. A SO<sub>2</sub> plume is also visible on satellite data drifting from the eruption site. No ash can be seen on satellite imagery, only steam, and the area of discolored water (indicator of suspended particles) is small if not has disappeared. That suggests that the eruption is currently rather weak and probably has not yet entered the so-called surtseyan phase where solid fragments (ash, lava blocks) are ejected above the surface of the sea. –Volcano Discovery

10/14/2013 7:37 PM	467.2	4.5	11.1	1.1 north	125			216	74	<b>1492</b>
10/15/2013 8:36 AM	544.6	1.7	2.4	2.1 north	136			230	89	1507
10/15/2013 8:54 PM	538.9	2.1	4.0	2.6 south	136			238	94	<b>1569</b>
10/16/2013 7:19 AM	480.6	1.4	3.8	1.6 south	148			247	<b>104</b>	1560
10/16/2013 9:02 PM	463.9	1.0	3.6	1.2 south	148			257	105	1588
10/17/2013 6:41 PM	405.2	1.3	4.6	1.5 north	120			254	105	<b>1621</b>
10/18/2013 9:55 PM	363.6	2.2	3.2	2.2 north	166			245	105	1608
10/20/2013 8:22 AM	349.0	0.2	3.9	1.6 south	149			<b>275</b>	<b>115</b>	1534
10/21/2013 8:51 AM	296.9	2.9	2.5	1.3 south	117			276	<b>124</b>	1442
10/22/2013 5:46 AM	325.7	8.1	7.7	1.8 north	<b>179</b>			265	114	1476
10/22/2013 1:51 PM	390.5	5.3	8.9	3.8 north	179			253	110	1496
10/22/2013 5:37 PM	367.0	7.1	5.8	0.6 north	179			249	108	1527
10/22/2013 10:15 PM	381.7	3.1	5.0	4.1 south	179			246	105	1524

**“...our life-giving star suddenly let loose with 24 medium strength M-class solar flares and four significantly stronger X-class flares between Oct. 23 and Oct. 30, it felt like a surprise. Many of the flares originated from sunspot AR1884, a particularly active region of the sun that is currently facing Earth...”**

10/23/2013 8:26 AM	350.0	3.5	5.3	0.1 south	228			244	97	1459
10/23/2013 6:42 PM	308.6	1.9	5.2	0.5 south	228			243	96	1483
10/24/2013 8:02 AM	343.0	2.7	6.7	3.0 north	141			253	102	1425
10/24/2013 9:21 PM	324.5	1.2	5.7	0.8 south	141			247	102	1469
10/25/2013 10:05 AM	333.7	0.9	1.9	0.7 north	148			243	102	1397
10/26/2013 8:00 AM	285.1	1.9	3.9	0.7 south	148			249	103	1485
10/26/2013 2:50 PM	284.2	1.3	4.2	1.2 south	148			244	98	1484
10/26/2013 6:19 PM	291.1	2.6	6.5	3.0 north	148			233	93	1461
10/28/2013 7:28 PM	307.8	2.6	3.8	0.9 south	206			200	76	1393
10/29/2013 9:27 AM	284.9	1.1	11.3	0.6 south	155			196	80	1323
10/29/2013 1:24 PM	334.8	6.9	8.8	1.3 north	155			199	81	1347
10/29/2013 7:34 PM	315.1	6.1	7.2	5.3 north	155			198	81	1362
10/30/2013 2:30 AM	341.6	4.0	9.6	9.5 south	171			200	84	1344
10/30/2013 9:38 AM	353.6	5.5	7.0	7 south	171			198	85	1303
10/30/2013 1:23 PM	351.0	4.3	6.4	3.8 south	171			192	84	1308
10/31/2013 8:36 AM	374.2	9.0	9.1	6.8 north	132			198	78	1351
10/31/2013 9:41 PM	386.7	5.5	6.2	3.7 south	132			194	76	1443
11/1/2013 1:20 PM	352.6	2.3	4.0	2.4 south	128			181	68	1396
11/1/2013 6:22 PM	348.4	4.3	2.4	1.2 south	128			186	64	1487
11/2/2013 11:36 PM	397.4	3.7	6.3	4.9 south	123			197	73	1445
<b>Adding two new columns for daily seismic activity.</b>										
11/3/2013 4:35 AM	370.1	4.2	5.7	4.1 north	123	44	152	208	83	1428
11/6/2013 7:58 AM	355.1	5.9	4.8	3.8 north	134	36	172	213	82	1344
11/7/2013 7:39 AM	365.3	10.4	5.6	2.5 north	148	18	166	220	77	1451
11/7/2013 4:18 PM	367.6	3.9	4.9	3.9 south	148	24	186	228	80	1489
11/8/2013 8:16 AM	385.0	4.7	3.4	0.9 south	159	32	178	240	81	1464
11/8/2013 6:07 PM	407.7	4.8	8.4	4 south	159	25	175	239	76	1495
11/8/2013 10:56 PM	404.7	6.8	13.5	12.5 south	160	27	208	248	79	1523
11/9/2013 8:49 AM	544.2	3.2	8.7	1.4 north	160	20	173	242	82	1506
11/9/2013 11:25 AM	618.7	1.0	4.5	2.7 north	160	26	183	241	80	1507
11/9/2013 3:07 PM	586.2	1.6	4.7	1.9 north	160	28	182	247	78	1520
<b>X1 0514 UT Nov10</b>										
This is the third X-flare from AR1890 since Nov. 5th, and all three have something in common: brevity. AR1890 tends to produce impulsive flares, peaking sharply in a matter of minutes or less. Often, brief flares do not produce coronal mass ejections (CMEs), but this one is an exception. <a href="#">A movie of the flare</a> shows a plume of material lifting off the sun shortly after the UV flash. <b>Update:</b> A faint CME associated with that plume could deliver a glancing blow to Earth's magnetic field on Nov. 12th or 13th.										
11/10/2013 3:30 AM	576.4	1.4	3.3	2.6 south	95	29	162	230	68	1467
11/10/2013 6:45 PM	488.0	3.5	7.7	1 south	95	19	146	213	63	1421
11/11/2013 6:57 AM	496.2	1.2	5.7	2.7 south	90	18	147	214	61	1418
11/12/2013 8:17 AM	401.2	1.6	4.3	2.4 north	104	29	156	212	63	1429
11/13/2013 (2346 UT)	360.5	3.1	2.3	1.5 south	128					

A sudden outburst of brightness from sun diving Comet ISON has catapulted it to the threshold of naked-eye visibility...Apparently, during the early hours of November 14th Comet ISON surged in brightness by a factor of approximately 6. In terms of astronomical magnitudes, it jumped from +8 to +6. If the trend continues, it could be a faint but easy naked-eye object by the end of the week.



11/14/2013 10:46 PM	351.7	2.4	4.9	3.1 south	234	29	183	222	78	1594
11/15/2013 1:14 AM	352.8	2.4	4.9	4.6 south	234	28	171	220	80	1565
11/15/2013 9:02 AM	355.3	3.4	5.8	1.5 south	234	27	124	221	80	1516
11/15/2013 3:19 PM	353.1	4.1	7.8	7.5 south	234	31	157	233	82	1624
11/15/2013 7:29 PM	335.3	6.1	5.7	4.7 south	234	28	168	231	81	1658
11/15/2013 11:07 PM	357.8	3.8	11.2	10.1 north	272	31	176	235	85	1638
11/16/2013 6:30 AM	493.8	6.9	9.5	9.5 north	272	34	158	244	94	1598
11/16/2013 10:58 AM	501.2	5.6	7.2	4.1 north	272	33	163	241	94	1580
11/16/2013 5:21 PM	516.2	1.7	4.9	0.7 south	272	32	145	244	95	1586
<b>7.8 Magnitude Earthquake (Scotia Sea)</b>										
11/17/2013 6:26 AM	457.7	2.1	2.2	0.3 north	213	30	131	241	96	1520
11/17/2013 11:10 AM	447.6	1.7	2.7	1.5 south	213	43	140	261	110	1523
11/17/2013 3:51 PM	432.0	1.5	2.4	1.4 south	213	51	158	268	114	1513
11/17/2013 5:37 PM	432.7	1.5	2.3	0.1 south	213	54	163	269	114	1506
11/17/2013 10:27 PM	412.2	1.8	2.4	1.7 south	282	49	154	269	114	1488
11/18/2013 2:40 AM	391.6	0.7	2.9	0.3 north	282	63	161	279	121	1477
11/18/2013 10:13 AM	373.6	2.1	2.9	1.2 north	282	42	155	281	122	1483
11/18/2013 5:47 PM	365.3	1.7	2.7	0.9 north	282	39	165	287	125	1572
<b>X1 1026 UT Nov19</b>										
11/19/2013 6:26 AM	389.9	3.2	4.0	0.1 north	144	29	156	276	122	1513
11/19/2013 9:56 PM	399.7	4.2	4.2	4.0 north	113	35	171	283	119	1573
11/20/2013 5:19 AM	390.9	3.4	4.0	0.1 north	113	32	157	270	124	1492
11/20/2013 8:01 PM	370.6	1.9	2.1	1 south	113	22	153	271	126	1484
<b>???? Comet Encke perihelion 21 November 2013 ?????</b>										
11/21/2013 10:57 AM	334.0	1.5	2.3	1 south	95	29	158	270	128	1406
11/22/2013 7:52 AM	339.1	2.9	4.3	3.8 north	85	22	97	255	125	1381
11/22/2013 4:50 PM	279.2	1.1	4.8	1.7 north	85	29	123	259	128	1395
11/22/2013 9:28 PM	350.5	6.4	8.1	0.5 south	51	28	146	262	127	1434



11/23/2013 5:51 AM	358.0	4.4	6.9	3.0 north	51	36	136	264	117	1391
11/23/2013 9:40 PM	344.6	1.7	4.3	0.1 north	65	29	98	262	114	1365
11/24/2013 6:58 AM	336.9	1.6	4.0	2.3 north	65	22	94	246	104	1304
<b>Magnitude 7.0 Earthquake (South Atlantic Ocean)</b>										
11/25/2013 2:45 PM	322.1	1.3	1.7	0.8 north	69	32	132	222	96	1230
11/25/2013 9:48 PM	285.0	0.7	2.1	0.1 north	52	31	175	229	95	1432
11/26/2013 7:53 AM	284.8	1.0	2.1	1.3 north	52	23	165	222	90	1403
11/26/2013 4:17 PM	317.6	7.0	3.4	2.6 north	52	25	196	218	84	1487
11/27/2013 1:13 AM	302.3	1.1	5.1	4.6 north	47	21	178	218	81	1511
X-ray Solar Flares 6-hr max: B6 0418 UT Nov27 24-hr: B6 0211 UT Nov27										
11/27/2013 4:37 AM	280.7	0.8	5.1	3.8 north	47	24	159	225	81	1506
11/27/2013 7:44 AM	287.6	1.8	5.0	1.8 south	47					
<b>Comet ISON Perihelion at 12:14 PM (Local Time)</b>										
X-ray Solar Flares 6-hr max: B9 1853 UT Nov27 24-hr: C1 1539 UT Nov27 ----- 6-hr max: C1 0937 UT Nov28 24-hr: C1 0041 UT Nov28										
11/28/2013 12:05 AM	284.6	0.9	5.4	0.6 south	76	21	182	223	82	1602
11/28/2013 8:02 AM	281.1	3.1	6.4	2.2 north	76	19	177	212	79	1557
11/28/2013 4:24 PM	266.7	1.7	6.1	2.2 south	76	14	156	212	80	1581
X-ray Solar Flares 6-hr max: C1 1006 UT Nov29 24-hr: C1 1006 UT Nov29										
11/29/2013 7:10 AM	306.5	5.1	10.1	9.3 south	100	27	148	217	81	1551
11/29/2013 7:18 AM	319.0	8.2	8.8	6.9 south	100	27	148	217	81	1551
11/29/2013 12:58 PM	344.0	6.6	8.9	5.5 south	100	24	128	207	78	1532
11/29/2013 1:55 PM	355.9	10.0	9.2	7.6 north	100	23	130	207	78	1527
11/29/2013 4:10 PM	343.0	8.2	8.7	1.8 south	100	23	122	203	76	1517
11/29/2013 6:08 PM	356.4	10.4	6.8	2.0 north	100	22	123	203	75	
11/29/2013 9:26 PM	359.9	9.2	6.7	1.7 south	95	17	134	201	75	1520
X-ray Solar Flares 6-hr max: B4 0600 UT Nov30 24-hr: B4 0600 UT Nov30										
11/30/2013 12:28 AM	375.9	14.5	7.5	0.0	95	11	132	196	74	1510
11/30/2013 5:15 AM	361.2	5.1	10.2	5.2 north	95	18	140	196	69	1509
11/30/2013 9:50 AM	381.7	6.8	7.2	4.1 south	95	16	137	196	71	1495
11/30/2013 4:37 PM	507.8	3.8	11.6	1.4 south	95	18	134	188	69	1424
11/30/2013 8:33 PM	527.4	2.8	8.7	0.3 north	95	21	130	188	71	1369
X-ray Solar Flares 6-hr max: C1 1121 UT Dec01 24-hr: C1 1121 UT Dec01										
12/1/2013 6:15 AM	475.0	3.5	8.6	4.9 north	102	28	138	190	76	1308
12/1/2013 6:11 PM	459.0	0.7	8.1	2.8 north	102	29	163	183	72	1261
X-ray Solar Flares 6-hr max: C2 1444 UT Dec02 24-hr: C2 1444 UT Dec02										

