

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS - SOLAR COMMITTEE

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Table I. Mean Sunspot Numbers (Ra) for November 2002 [boldface = maximum, minimum]

Day	N	Raw	s.d.	Ra	s.d.	s.e.
1	30	161	7.3	123	4.8	0.88
2	34	161	6.8	122	3.0	0.51
3	34	159	10.3	119	5.3	0.91
4	26	157	7.7	114	2.8	0.55
5	27	171	10.4	128	4.2	0.81
6	32	190	8.9	143	6.1	1.08
7	33	181	9.3	140	4.6	0.80
8	36	175	9.8	132	3.7	0.62
9	28	179	9.9	134	4.5	0.85
10	27	174	8.5	130	4.0	0.77
11	27	153	9.6	112	3.9	0.75
12	31	135	7.3	100	3.8	0.68
13	27	125	6.8	91	2.6	0.50
14	35	148	7.1	114	3.2	0.54
15	27	144	9.3	109	4.8	0.92
16	25	137	5.3	110	3.2	0.64
17	29	129	6.4	98	2.6	0.48
18	31	114	6.9	85	2.9	0.52
19	29	112	6.6	83	3.6	0.67
20	35	119	7.1	88	2.9	0.49
21	22	107	5.3	81	3.2	0.68
22	22	111	7.2	81	2.8	0.60
23	31	99	4.8	82	4.4	0.79
24	36	93	5.2	74	5.4	0.90
25	20	78	4.7	57	1.9	0.42
26	27	69	3.2	51	2.1	0.40
27	27	96	4.6	70	3.0	0.58
28	23	88	8.1	61	3.4	0.71
29	27	85	5.2	61	2.6	0.50
30	33	94	3.8	71	3.2	0.56
31	---	---	---	---	---	---

Means: 29.0 130.4 98.7

Total No. of Observers: 69

Total No. of Observations: 871

Table II. November Observers

10 AAP P.Abbott	21 KAPJ J.Kaplan
2 ANDE E.Anderson	21 KHAR R.Khan
12 ARAG G.Araujo	8 KNJS J&S Knight
15 BARH H.Barnes	6 KROL L.Krozel
4 BATR R.Battaiola	7 LARJ J.Larriba
2 BEB R.Berg	22 LEVM M.Leventhal
7 BERJ J.Berdejo	2 LUBT T.Lubbers
4 BMF M.Boschat	18 MALK K.Malde
9 BOJP P.Bojda	25 MARJ J.Maranon
25 BOSB B.Bose	18 MCE E.Mochizuki
10 BRAD D.Branchett	6 MILJ J.Miller
25 BRAB B.Branchett	12 MMI M.Moeller
10 BRAD D.Branchett	12 OBSO IPS Observatory
23 BROB R.Brown	7 RICE E.Richardson
4 CAMP P.Campbell	15 RITA A.Ritchie
7 CARJ J.Carlson	13 SCGL G.Schott
29 CHAG G.Morales	1 SIMC C.Simpson
19 CKB B.Cudnik	8 STEF G.Stefanopoulos
9 CLZ C.Laurent	14 STEM G.Stemmler
4 COMT T.Compton	10 STQ N.Stoikidis
30 CORA A.Coroas	25 SUZM M.Suzuki
29 CR T.Cragg	10 SZUM M.Szulc
8 DELS S.Delaney	17 TESD D.Teske
13 DGP G.Dyck	4 THR R.Thompson
20 DRAJ J.Dragesco	6 TJV J.Temprano
17 DUBF F.Dubois	17 URBP P.Urbanski
22 ELR E.Reed	15 VALD D.delValle
2 ERRA A.Errico	16 VARG A.Vargas
10 FEEC C.Feehrer	17 WILW W.Wilson
15 FERJ J.Fernandes	
22 FLET T.Fleming	
21 FUJK K.Fujimori	
4 GARE E.Garcia	
13 GIOR R.Giovanoni	
3 GOEM M.Goetz	
2 GOTS S.Gottschalk	
2 HALB B.Halls	
1 HAYK K.Hay	
7 HRUT T.Hrutkay	
18 JAMD D.James	
19 JEFT T.Jeffrey	

Reporting Addresses

Sunspot Reports -- email: solar@aaavso.org
 postal mail: AAVSO, 25 Birch St. Cambridge, MA 02138
 FAX (AAVSO): (617) 354-0665
SID Solar Flare Reports -- email: noatak@aol.com
 postal mail: Mike Hill
 114 Prospect St. Marlboro, MA 01752

Table III. Means of Raw Group Counts (RG) and Ratios of Spots to Groups (S:G) in November 2002

Day	RG	S:G	Day	RG	S:G	Day	RG	S:G	Day	RG	S:G
1	10.5	5.3	9	9.8	8.3	17	6.2	10.8	25	5.7	3.7
2	10.6	5.2	10	9.0	9.3	18	5.8	9.7	26	5.3	3.0
3	10.1	5.7	11	7.3	11.0	19	6.3	7.8	27	7.3	3.2
4	9.4	6.7	12	6.4	11.1	20	7.1	6.8	28	5.8	5.2
5	8.7	9.7	13	6.2	10.2	21	6.7	6.0	29	5.9	4.4
6	9.4	10.2	14	7.2	10.6	22	6.7	6.6	30	6.1	5.4
7	9.3	9.5	15	6.7	11.5	23	6.1	6.2	31	---	---
8	9.5	8.4	16	6.9	9.9	24	5.9	5.8	Mn.	7.5	7.6

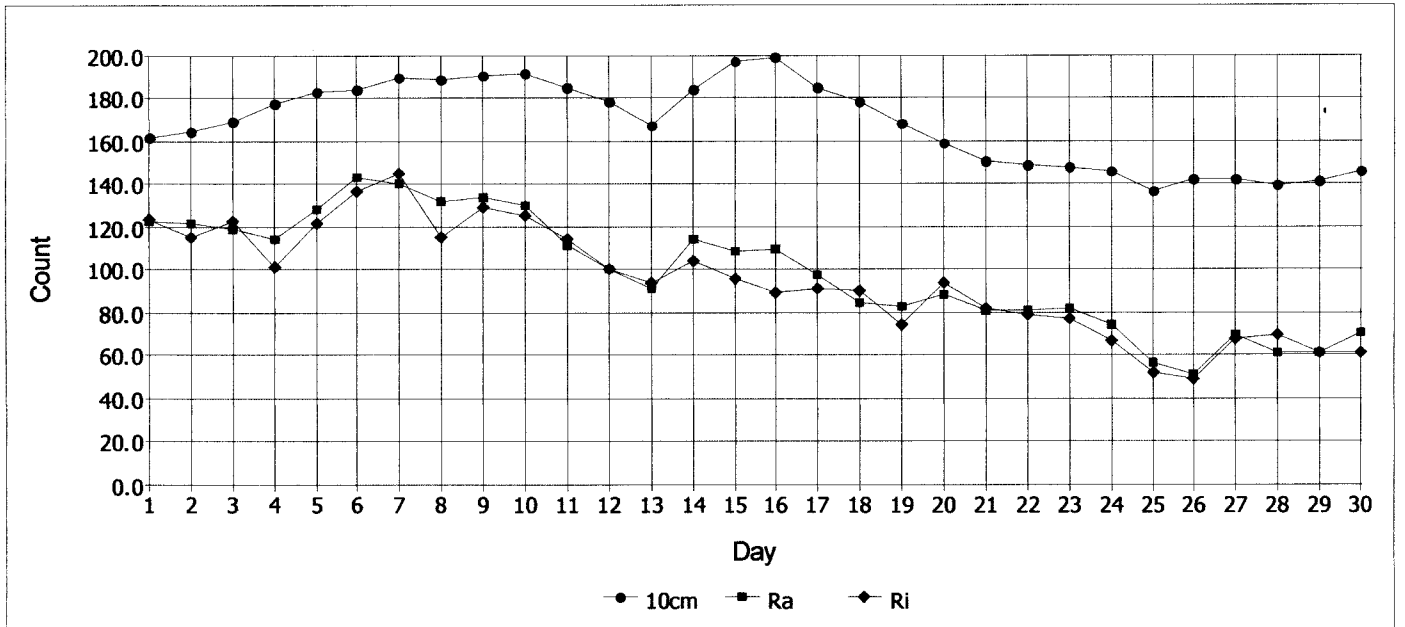


Fig. 1. 10 cm Solar Flux and Comparison of Ri (provisional) with Ra Estimates for November 2002 [$r = 0.965$]

Ri source: <http://www.sidc.oma.be/index.php3>
 10 cm source: <http://www.drao.nrc.ca/icarus>

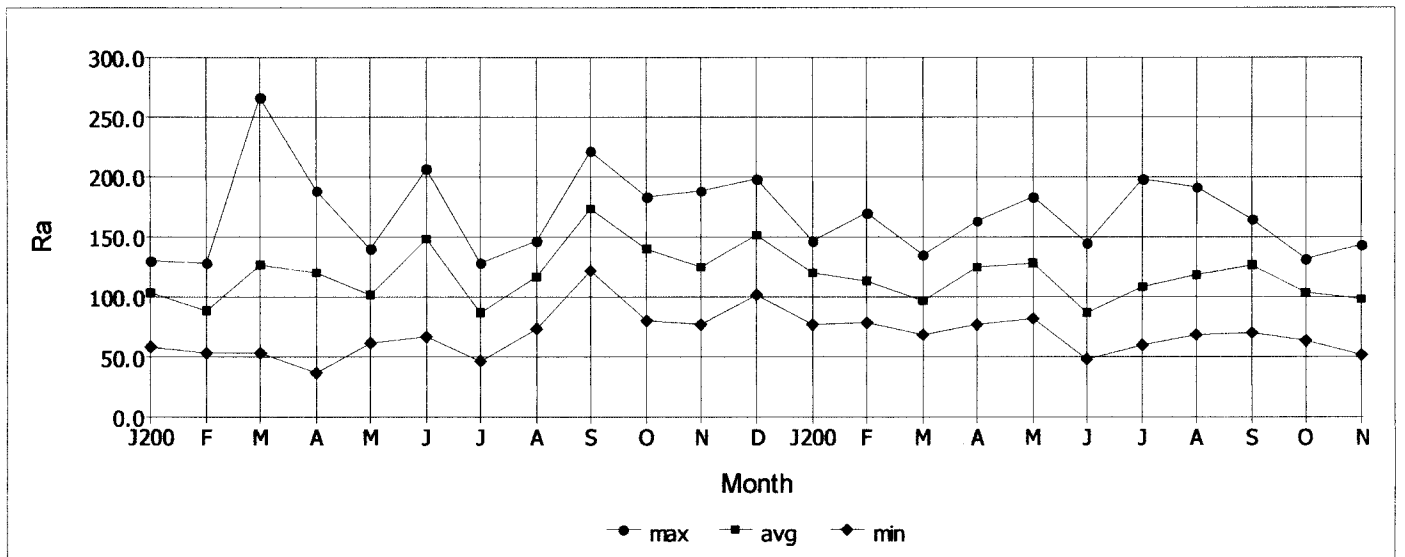


Fig. 2. Maximum, Mean, and Minimum Values of Ra for Each Month from January 2001 to Present.

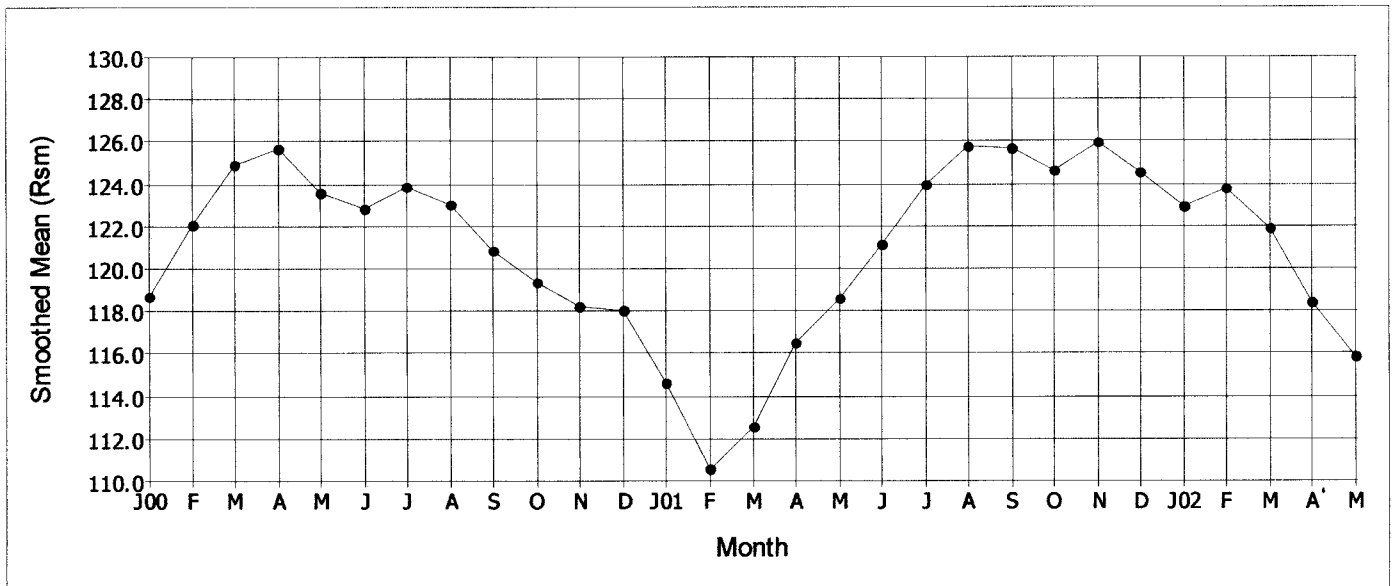


Fig. 3. Smoothed Mean Sunspot Numbers (Rsm) from January 2000 to May 2002 (Waldmeier Method).

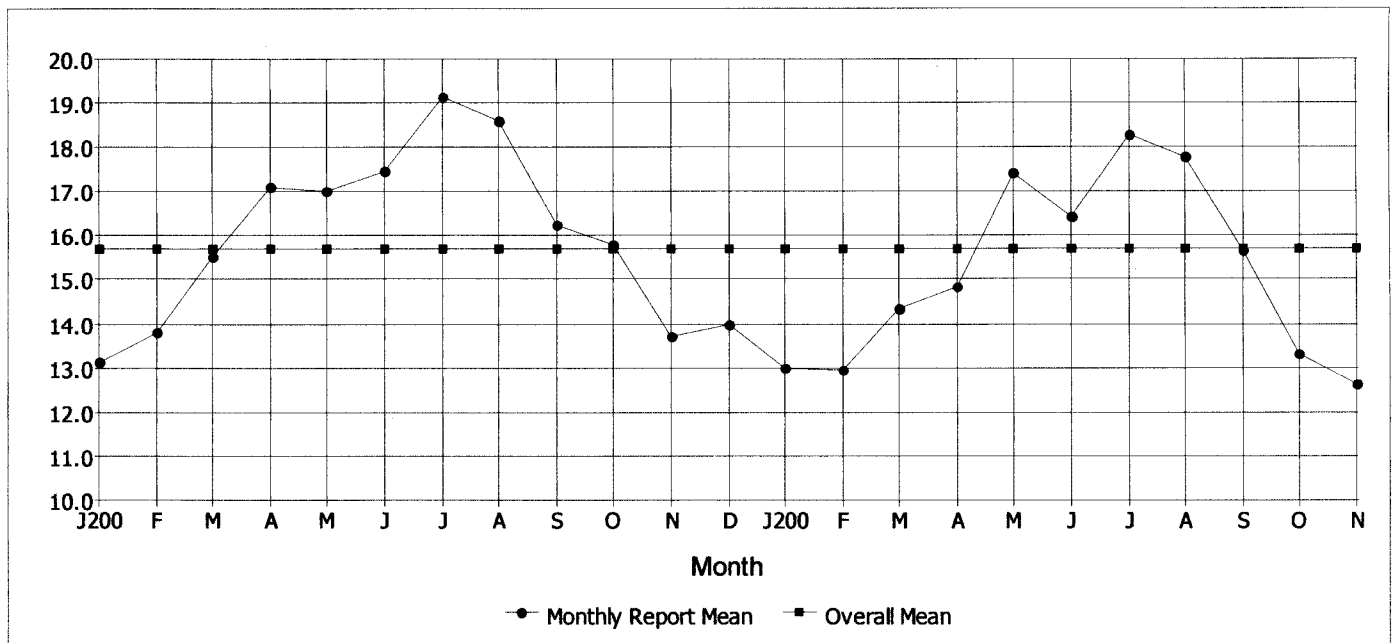


Fig. 4. Mean Numbers of Observations Contained in Sunspot Reports Each Month from January 2001 to Present.

Editor's Notes

Casper Hossfield (1918-2002)

It is my sad duty to inform observers that Casper, "Cap", Hossfield (A-05, HSF) died at the age of 84 on November 26 as the result of a stroke sustained the day before. According to his sons, his passing was peaceful and dignified.

Cap joined the AAVSO 40 years ago. He served as chair of the Solar Division from 1963 to 1979 and, for the last three years, has been the Editor of the *Sudden Ionospheric Disturbances Supplement* that is published along with the *Solar Bulletin* each month. In 1999, he received an Honor Award for outstanding contributions and dedication to the goals of the organization.

Along with Arthur Stokes, who passed away almost exactly a year ago, Cap was responsible for creating the designs of most of the SID receivers and antenna configurations used by observers today. Until the very end of his life, he continued to work at simplifying these designs and reducing component costs in order to attract the largest possible audience of builders. His latest revision appeared in last month's Solar Bulletin.

Cap's interests were not limited to the design of SID equipment.. He also devoted much time and energy to the design of seismic sensors, gravity wave detectors, and magnetometers, and he contributed designs, authored papers and presented talks on and demonstrations of many of these items. In recent years, he became convinced that SID receivers were capable of detecting strong gamma ray bursts (GRB) and, only a few months ago, had the satisfaction of reporting a candidate signal received by an observer to the High Energy Group at NASA/Huntsville with whom the AAVSO has a working relationship. At the time of his death, he was working on a paper relating to the history of sunspot observation in the Solar Division and was administering an experiment aimed at demonstrating the differences to be expected between the classic Wolf and more modern Zurich methods of counting. (I engaged in an animated email exchange regarding this experiment with Cap the day before his stroke and can attest to the excitement with which he looked forward to the outcome of the research.)

Whether they met Cap in person or via email, most all observers will remember him as a patient, resourceful, helpful, inventive, cheerful, truly unique individual who was always ready to try something technically new and who encouraged all who wanted to share in that adventure to "Come along. You'll never know if it works if you don't try it!"

Thank you, Cap, for all you have done for us. We will miss you very much.

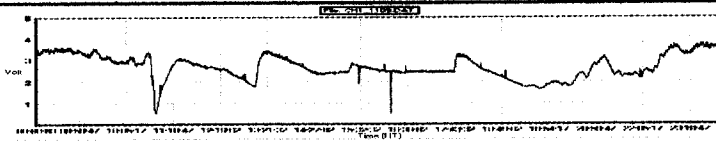
Continuation of SID Observing, Reporting and Analysis

Although there is no plan at present to continue the monthly SID Supplement to the Bulletin, analyses and reporting of solar flare data will continue to be conducted by Mike Hill, chairperson of the SID group. Observers are encouraged to send their monthly reports to him, as before.

The SID Equipment section of the Solar Division website will continue to be updated as new designs for SID receivers, antennas, recording methods, etc. that are useful for solar work are developed. Observers who are interested in discussing and building SID and related equipment should subscribe to the special interest group administered by Doug Welch at <http://mailman.mcmaster.ca/mailman/listinfo/aavso-sid> list.

Sudden Ionospheric Disturbance Report

Michael Hill, SID Analyst
 114 Prospect St
 Marlborough, MA 01752 USA
 noatak@aol.com



Sudden Ionospheric Disturbances (SID) Recorded During November 2002

(Analysis performed by Michael Hill, SID Analyst)

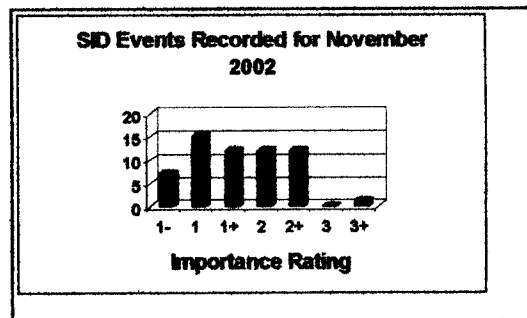
Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
021101	1040	1+	021110	0315	2+	021117	0959	1+
021102	0600	2+	021110	0321	2+	021117	1236	2
021103	0606	2+	021111	0730	2	021117	1449	1+
021103	0958	1-	021111	0730	2+	021117	1454	1+
021103	1358	2+	021111	1338	1	021119	0734	1+
021103	1402	2+	021111	1445	1+	021120	1632	1
021104	1822	1+	021112	0748	2	021120	1725	1+
021105	1259	1	021112	1820	1	021120	1734	1
021105	1610	1	021112	1854	2	021120	1806	1+
021105	1821	1	021114	1113	1	021121	1108	1-
021106	0527	2+	021114	1346	1-	021121	1647	1
021106	1443	1-	021115	0110	2+	021122	1544	1
021107	0630	1	021115	0123	2+	021123	0129	1+
021108	1227	1-	021115	0533	2	021123	0803	2
021109	0959	1	021115	1157	1-	021124	0819	1+
021109	1320	2	021115	1350	1-	021127	1652	1
021109	1328	2+	021116	0635	2	021128	0817	2
021109	1528	2+	021116	1104	1	021128	1139	2
021109	1755	2	021116	1401	1+	021129	0440	2
021110	0125	1	021117	0543	3+			

Importance rating : Duration(min)	-1: <19	1: 19-25	1+: 26-32	2: 33-45	2+: 46-85	3: 86-125	3+: >125
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The events listed above meet at least one of the following criteria

- 1) Event reported by two or more observers within ± 5 minutes
- 2) Event matched to GOES-8 XRA event to within ± 15 minutes and event time < 1000 UT
- 3) reported by observer with a quality rating > 8 (scale 1-10)

Observer	Code	Station(s) monitored
D Toldo	A52	HWU NWC
S Hansen	A59	CFH NAA
J Ellerbe	A63	ICV
A Panzer	A83	NAA
W Moos	A84	FTA
M Hill	A87	NAA
G DiFillipo	A93	HWU
T Poulos	A95	NAA
R Battaiola	A96	DHO HWU
J Wallace	A97	NAA
M King	A99	HWU
P Campbell	A100	NLK
F Steyn	A102	NAA NWC
E Smith	A105	DHO
L Observatory	A107	DHO



Solar Events

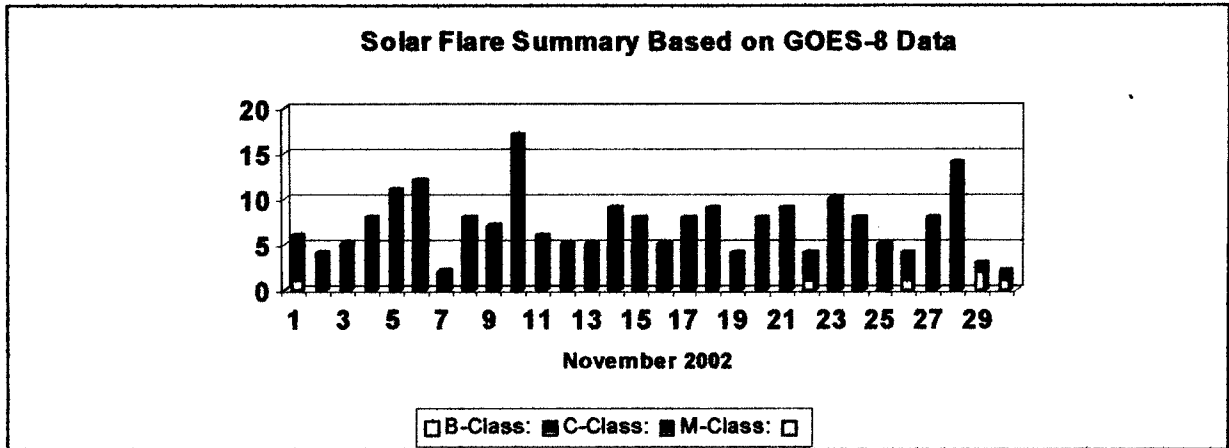
On the 26th of November we all lost a most important member of our group. As most of you must know by now, Cap Hossfield passed away that day. He died happily doing what he enjoyed most, which is what any of us can hope for. I wish him peace and farewell.

Cap was an amateur. An amateur radio man, an amateur astronomer, an amateur physicist; A true amateur scientist. I met him four years ago. When I first heard his name, "Cap", I just naturally envisioned an old timer - tinkering with old tube type radios and whip antennas. When I met him, he looked just like I had envisioned. An older man with a big old white bearded face, dressed in jeans and a plaid shirt. Sort of rough around the edges but with a big friendly smile, always willing to talk to anyone. He looked like a "Cap". He looked like he had been around and seen a few things in his years.

But beyond this look of an old timer who had been around since the birth of radio, he had a way about him. He had ideas – lots of them. And he followed up on these with more ideas and projects that he had worked on to test out these ideas. He had dreams – lots of them. And he worked diligently at accomplishing these dreams. He never seemed to stop. He was always on the go. You have all seen his monthly supplement. You have all seen his enthusiastic postings to the SID/GRB newsgroup. He was eternally involved. Cap inspired all of us and was a great asset to the AAVSO Solar Division and in his latter years, the SID group.

Now that we have lost him we will certainly have a void. People like him are hard to replace. Not just because of what he knew, and he certainly knew a lot, but because of the time and energy that he was able to give to our group. People like him are often replaced by more than one person. And those people will wonder how he did it all himself. This will be the case with Cap. He will be sorely missed but we should always be happy with the memories of his life and his contributions to the group. We would do well to use these as our continued inspiration to be the amateur that he was. Ever productive and ever inquisitive about the world around us and the many opportunities that we have at hand to peer into its mysteries.

November is showing signs of a slowing solar activity level. There were 213 X-Ray flare events recorded by the GOES-8 Satellite. Of these 12 were M-Class events. The rest were for the most part C-Class events. Observers recorded a total of 59 Correlated events this month. Most had a low to medium importance rating with one large event recorded on the 17th at 0543 UT. I have been watching the sun a bit on the weekends and (I'll admit it) on-line at Spaceweather.com, and one can certainly see the slowing down. Much smaller spot groups and many fewer large prominences visible in the H-Alpha range.



Keep those recorders going. It may be slowing down but SID event data, even the low counts during minimum are important to make better sense of the data during the maximum years. Lets keep at this with the same enthusiasm as would be fitting for Cap.