

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS - SOLAR COMMITTEE

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September 2003

Table I. American Relative Sunspot Numbers (Ra) for September 2003 [boldface = maximum, minimum]

| Day | N | Raw Mean | Ra | Std. Error |
|-----|-----|----------|-----------|------------|
| 1 | 37 | 76 | 53 | 2.1 |
| 2 | 38 | 64 | 46 | 1.5 |
| 3 | 41 | 60 | 45 | 2.0 |
| 4 | 39 | 72 | 50 | 1.4 |
| 5 | 43 | 58 | 43 | 1.1 |
| 6 | 44 | 55 | 40 | 1.7 |
| 7 | 45 | 37 | 26 | 1.4 |
| 8 | 38 | 26 | 18 | 1.3 |
| 9 | 39 | 29 | 21 | 0.9 |
| 10 | 43 | 44 | 31 | 1.5 |
| 11 | 40 | 49 | 35 | 0.8 |
| 12 | 38 | 44 | 33 | 1.0 |
| 13 | 41 | 45 | 32 | 0.9 |
| 14 | 36 | 51 | 37 | 1.6 |
| 15 | 41 | 53 | 38 | 1.9 |
| 16 | 43 | 63 | 46 | 1.8 |
| 17 | 50 | 83 | 62 | 1.3 |
| 18 | 37 | 80 | 60 | 1.5 |
| 19 | 38 | 73 | 53 | 1.5 |
| 20 | 45 | 65 | 49 | 1.2 |
| 21 | 48 | 69 | 52 | 1.4 |
| 22 | 41 | 80 | 57 | 1.6 |
| 23 | 35 | 92 | 66 | 1.8 |
| 24 | 45 | 100 | 75 | 2.0 |
| 25 | 39 | 105 | 77 | 2.3 |
| 26 | 34 | 120 | 85 | 2.8 |
| 27 | 34 | 122 | 86 | 2.6 |
| 28 | 37 | 109 | 79 | 2.1 |
| 29 | 34 | 99 | 73 | 2.4 |
| 30 | 28 | 102 | 75 | 2.4 |
| 31 | --- | --- | --- | --- |

Means: 39.7 70.8 51.5

Total No. of Observers: 68

Total No. of Observations: 1191

Table II. September Observers

| | |
|---------------------|-------------------------|
| 15 AAP P.Abbott | 13 LERM M.Lerman |
| 28 ARAG G.Araujo | 24 LEVM M.Leventhal |
| 16 ATON A.Attanasio | 2 LUBT T.Lubbers |
| 8 BARH H.Barnes | 14 MALK K.Malde |
| 14 BATR R.Battaiola | 27 MARJ J.Maranon |
| 12 BERJ J.Berdejo | 18 MCE E.Mochizuki |
| 13 BOSB B.Bose | 27 MMI M.Moeller |
| 27 BRAB B.Branchett | 18 OBSO IPS Observatory |
| 29 BRAR R.Branch | 14 RICE E.Richardson |
| 26 BROB R.Brown | 21 RITA A.Ritchie |
| 7 CAMP P.Campbell | 26 SCGL G.Schott |
| 19 CARJ J.Carlson | 1 SDP D.Sharples |
| 29 CHAG G.Morales | 13 SIMC C.Simpson |
| 24 CKB B.Cudnik | 12 STEF G.Stefanopoulos |
| 18 CLZ C.Laurent | 25 STEM G.Stemmler |
| 18 COMT T.Compton | 27 STQ N.Stoikidis |
| 29 CORA A.Coroas | 23 SUZM M.Suzuki |
| 30 CR T.Cragg | 15 SYP Paul Soron |
| 4 CVJ J.Carvajal | 17 SZAK K.Szatkowski |
| 22 DEJV J.van Delft | 25 SZUM M.Szulc |
| 10 DEMF F.Dempsey | 28 TESD D.Teske |
| 23 DRAJ J.Dragesco | 20 THR R.Thompson |
| 24 ELR E.Reed | 23 TJV J.Temprano |
| 14 FEEC C.Feehrer | 22 URBP P.Urbanski |
| 19 FERJ J.Fernandes | 17 VARG A.Vargas |
| 23 FLET T.Fleming | 8 VELM M.Velea |
| 22 FUJK K.Fujimori | 6 VIDD D.Vidican |
| 19 GIOR R.Giovanoni | 23 WILW W.Wilson |
| 12 GOEM M.Goetz | 11 YESH H.Yesilyaprak |
| 7 HAYK K.Hay | |
| 15 HRUT T.Hrutkay | |
| 17 JAMD D.James | |
| 9 JEFT T.Jeffrey | |
| 6 JENS S.Jenner | |
| 22 KAPJ J.Kaplan | |
| 10 KHAR R.Khan | |
| 24 KNJS J&S Knight | |
| 1 KROL L.Krozel | |
| 7 LARJ J.Larriba | |

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 September 2003

| Day | RG | S:G | Day | RG | S:G | Day | RG | S:G | Day | RG | S:G |
|-----|-----|-----|-----|-----|------|-----|-----|------|-----|-----|------|
| 1 | 5.1 | 4.9 | 9 | 1.6 | 8.1 | 17 | 5.3 | 5.7 | 25 | 4.6 | 12.8 |
| 2 | 4.5 | 4.2 | 10 | 1.9 | 13.2 | 18 | 5.0 | 6.0 | 26 | 5.3 | 12.6 |
| 3 | 4.2 | 4.3 | 11 | 2.3 | 11.3 | 19 | 5.1 | 4.3 | 27 | 5.2 | 13.5 |
| 4 | 4.6 | 5.7 | 12 | 2.3 | 9.1 | 20 | 4.6 | 4.1 | 28 | 4.8 | 12.7 |
| 5 | 3.7 | 5.7 | 13 | 2.2 | 10.5 | 21 | 4.4 | 5.7 | 29 | 5.6 | 7.7 |
| 6 | 4.0 | 3.8 | 14 | 3.1 | 6.5 | 22 | 4.8 | 6.7 | 30 | 6.0 | 7.0 |
| 7 | 3.0 | 2.3 | 15 | 4.0 | 3.3 | 23 | 5.2 | 7.7 | 31 | --- | --- |
| 8 | 1.7 | 5.3 | 16 | 4.1 | 5.4 | 24 | 4.7 | 11.3 | Mn. | 4.1 | 7.4 |

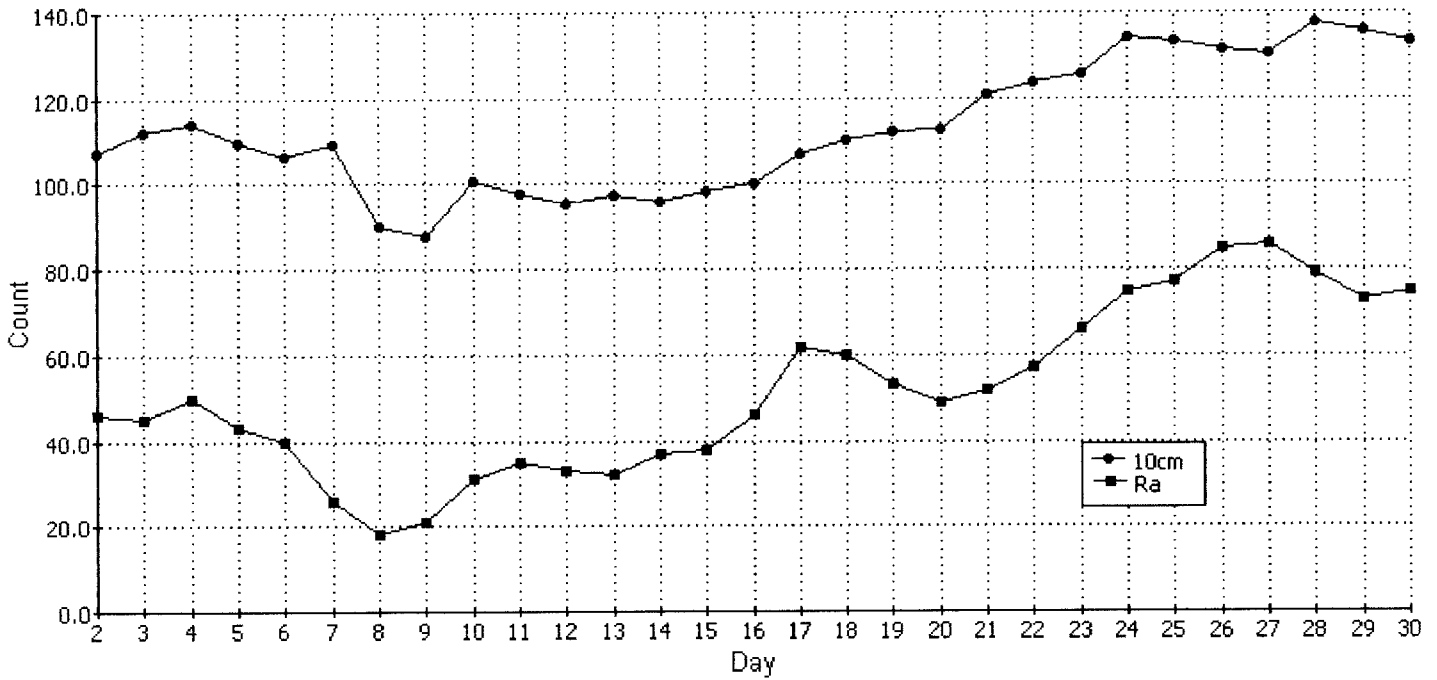


Fig. 1. 10 cm Solar Flux and American Relative Sunspot Numbers (Ra) for September 2003

10 cm source: <http://www.drao.nrc.ca/icarus>

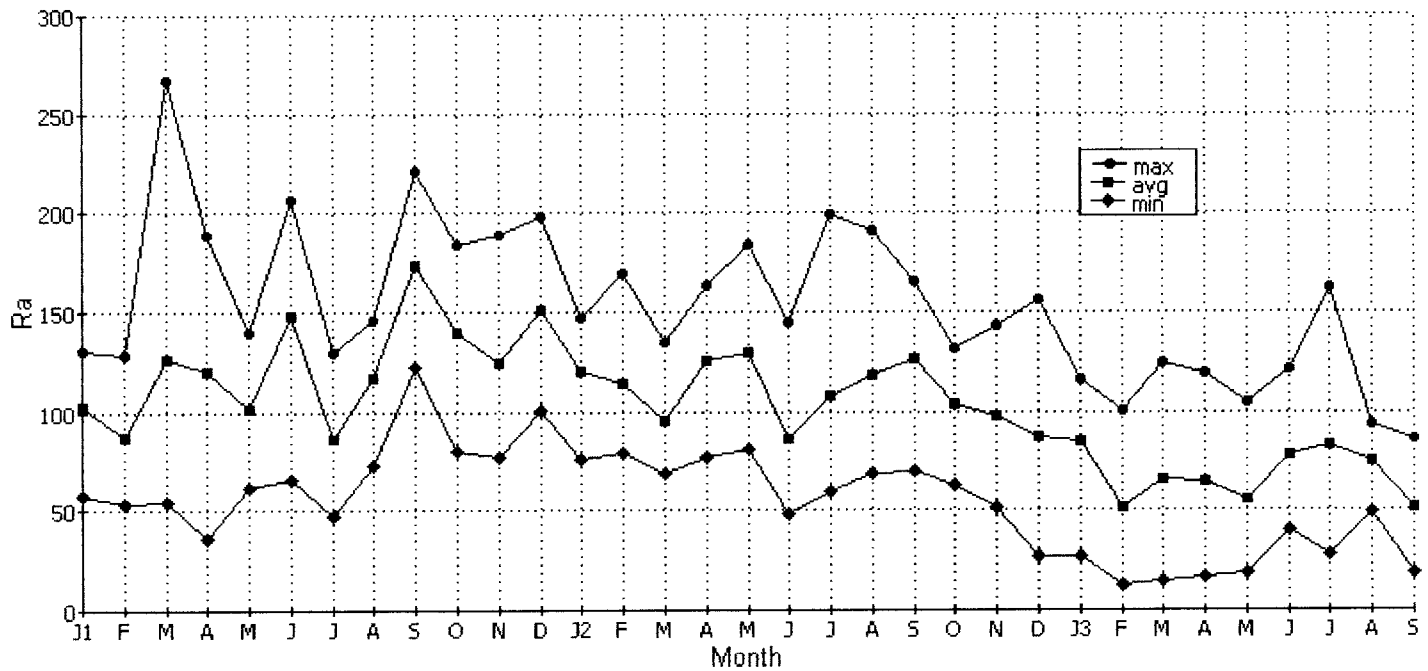
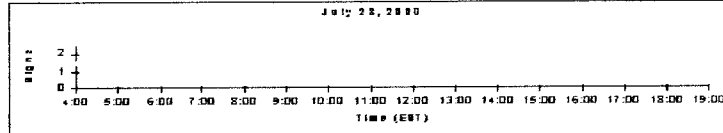


Fig. 2. Maximum, Mean, and Minimum Values of Ra for Each Month from January 2001 to Present.

Sudden Ionospheric Disturbance Report

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 Marlborough, MA 01752 USA
 noatak@aol.com



Sudden Ionospheric Disturbances (SID) Recorded During September 2003

(Analysis performed by Michael Hill, SID Analyst)

| Date | Max | Imp | Date | Max | Imp | Date | Max | Imp |
|--------|------|-----|--------|------|-----|------|-----|-----|
| 030907 | 1406 | 2+ | 030930 | 2019 | 2+ | | | |
| 030912 | 0902 | 1+ | | | | | | |
| 030912 | 0921 | 2 | | | | | | |
| 030913 | 0707 | 1 | | | | | | |
| 030913 | 0743 | 2 | | | | | | |
| 030914 | 0127 | 1- | | | | | | |
| 030915 | 0452 | 2+ | | | | | | |
| 030915 | 0645 | 1+ | | | | | | |
| 030915 | 0712 | 2 | | | | | | |
| 030916 | 0525 | 1+ | | | | | | |
| 030916 | 0902 | 1+ | | | | | | |
| 030920 | 0514 | 1+ | | | | | | |
| 030920 | 0645 | 2 | | | | | | |
| 030924 | 0438 | 1+ | | | | | | |
| 030924 | 0625 | 1- | | | | | | |
| 030924 | 0718 | 2 | | | | | | |
| 030924 | 0856 | 1- | | | | | | |
| 030929 | 0401 | 2+ | | | | | | |
| 030929 | 0510 | 2+ | | | | | | |
| 030929 | 1510 | 2 | | | | | | |
| 030929 | 2148 | 2+ | | | | | | |
| 030930 | 0339 | 2+ | | | | | | |
| 030930 | 0515 | 2 | | | | | | |
| 030930 | 0802 | 2 | | | | | | |
| 030930 | 0854 | 1+ | | | | | | |

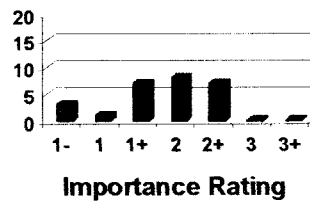
| | | | | | | | |
|-----------------------------------|---------|----------|-----------|----------|-----------|-----------|----------|
| Importance rating : Duration(min) | -1: <19 | 1: 19-25 | 1+: 26-32 | 2: 33-45 | 2+: 46-85 | 3: 86-125 | 3+: >125 |
|-----------------------------------|---------|----------|-----------|----------|-----------|-----------|----------|

The events listed above meet at least one of the following criteria

| Observer | Code | Station(s) monitored |
|--------------|------|----------------------|
| J Winkler | A50 | NPM XXX |
| D Toldo | A52 | NWC XXX |
| L Anderson | A91 | NWC |
| G DiFillipo | A93 | DHO HWU |
| M King | A99 | HWU |
| F Steyn | A102 | NWC |
| B Bose | A103 | VTX |
| Truman State | A110 | XXX |

- 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)

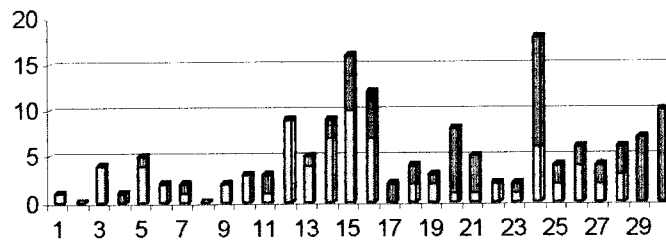
SID Events Recorded for September, 2003



Solar Events

September was another slow month. There were only 26 correlated SID Events to report by observers. The highest importance rating was only a 2+. This corresponds well with the results from the the GOES-12 spacecraft. There were only 152 X-Ray flares recorded for the month. All but one, which was an M-Class event, were lower B and C Class events. The peak activity occurred around the 15th of the month and then again at the end of the month. There were actually two days with no flares at all, the 2nd and the 8th. We have a new station recording SID data which was built by a student at Truman State Univerity located in Kirksville, Missouri. They have an new radio astronomy interest as part of the astronomy department that includes the Radio Jove Jupiter monitoring project, as well as the SID Monitoring station. They have been assigned the station ID of A110 and reported for the first time this month.

Solar Flare Summary Based on GOES-12 Data



September 2003

□ B-Class: ■ C-Class: ■ M-Class: ■ X-Class: