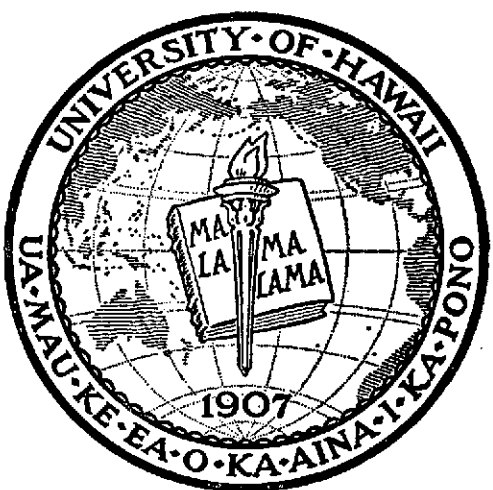


Rec'd 7-31-71

2mp



1974

ATLAS OF ZENITH AIRGLOW PLOTS

OBTAINED AT
HALEAKALA, HAWAII
VOLUME 1. JULY 1961 to DECEMBER 1964

WALTER R. STEIGER
Department of Physics & Astronomy
University of Hawaii
Honolulu, Hawaii 96822

LeROI L. SMITH
Battelle Memorial Institute
Pacific Northwest Laboratories
Richland, Washington 99352

N & R-12-001-001

(NASA-CR-139377) ATLAS OF ZENITH AIRGLOW
PLOTS OBTAINED AT HALEAKALA, HAWAII.
VOLUME 1: JULY 1961 TO DECEMBER 1964
Final Report (Hawaii Univ.)
\$13.00

200 P HC
201

CSCL 04A G3/13

Unclas
45439

N74-29716

ATLAS OF ZENITH AIRGLOW PLOTS OBTAINED AT HALEAKALA, HAWAII

Volume 1. July 1961 to December 1964

Volume 2. January 1965 to January 1969

This Atlas presents zenith airglow intensities as a function of time as observed from Haleakala, Hawaii. Information concerning the location, instrumentation, and data reduction techniques is given in a separate volume: CATALOG AND DATA SUMMARY OF AIRGLOW OBSERVATIONS OBTAINED AT HALEAKALA, HAWAII.

The following comments will assist in interpreting the plots:

1. The date given on the left-hand margin is always the date of the beginning of the night. It is understood, of course, that the date changes at midnight.

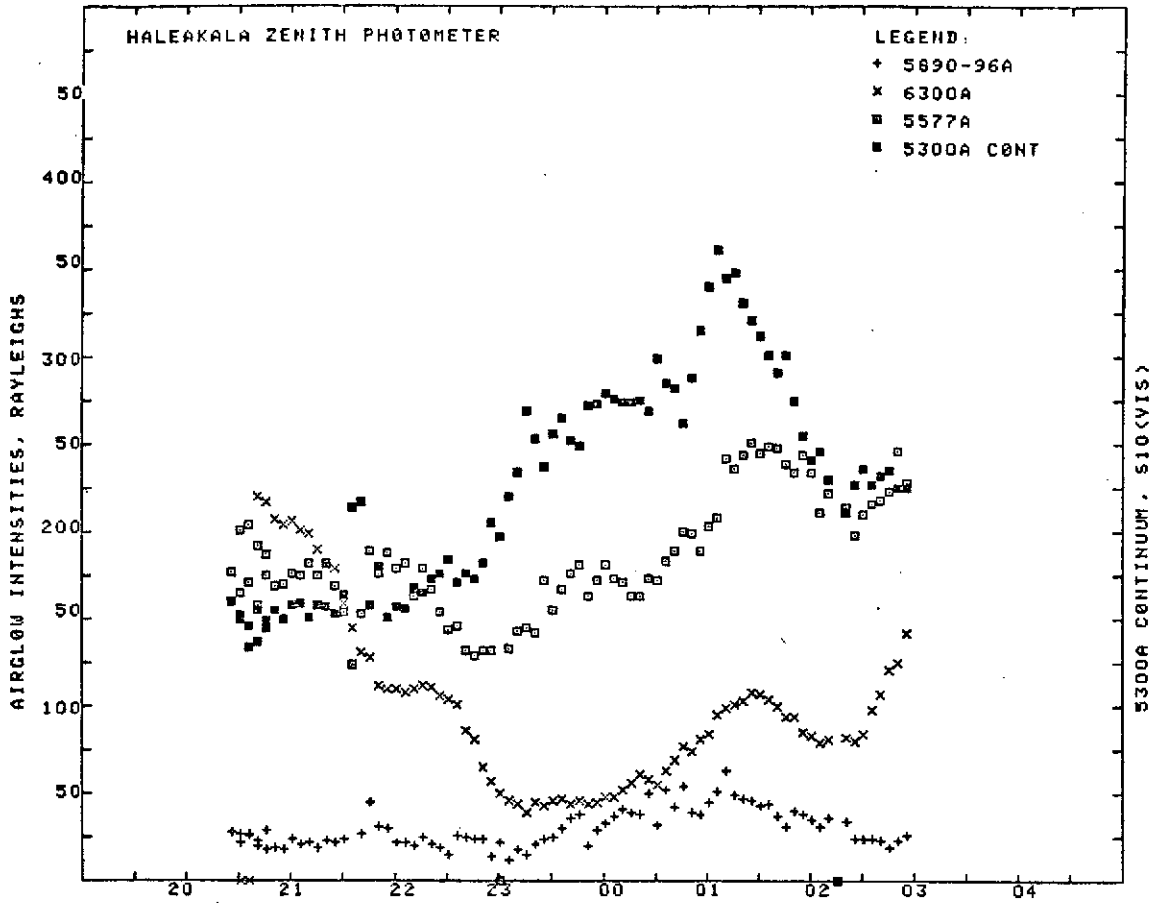
2. The left-hand ordinate scale, in rayleighs, is to be associated with the atomic emissions at 6300, 5577, and 5890-96 Å. The right-hand ordinate scale is to be associated with the continuum at 5300 Å and runs from 0 to 500 $S_{10}(\text{vis})$ units. ($1 \text{ R/A} = 227 S_{10}(\text{vis})$ at 5300 Å)

3. Off-scale points are plotted by first subtracting 500; that is, the abscissa becomes 500 instead of zero.

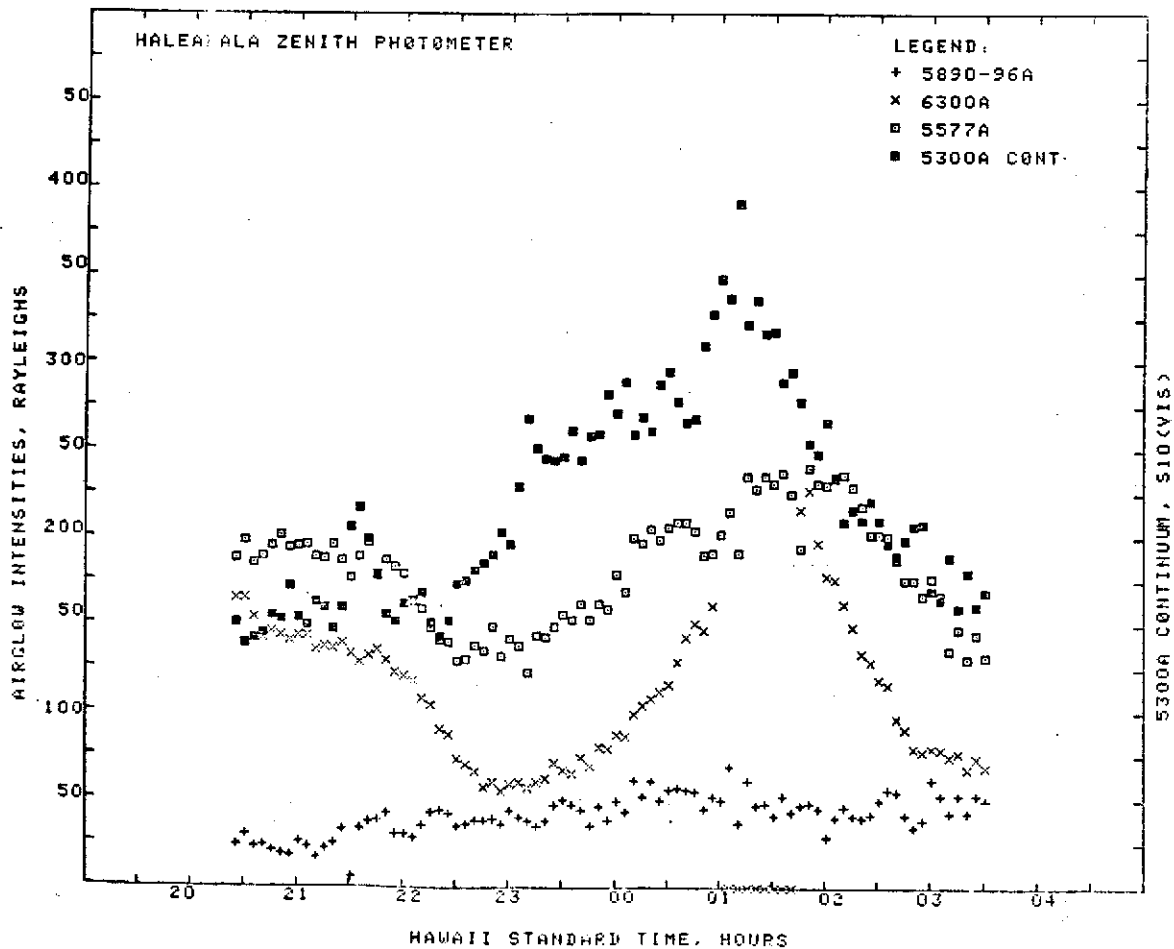
4. A large contribution to the 5300 Å continuum is the integrated starlight of the Milky Way, and the two crossings of the Milky Way can be easily seen on the plots. The star Arcturus also passes directly through the zenith at Haleakala and gives a strong deflection. See for example the plot for 61-09-05. One crossing of the Milky Way occurs at about 2115 HST (the peak is about 515 S_{10} units) and Arcturus appears at about 0300 HST. On each successive day the zenith passage of the Milky Way and Arcturus occur about 4 minutes earlier. Because of the method of data reduction, the calculated intensities of the airglow emissions are not very reliable during the passage of Arcturus.

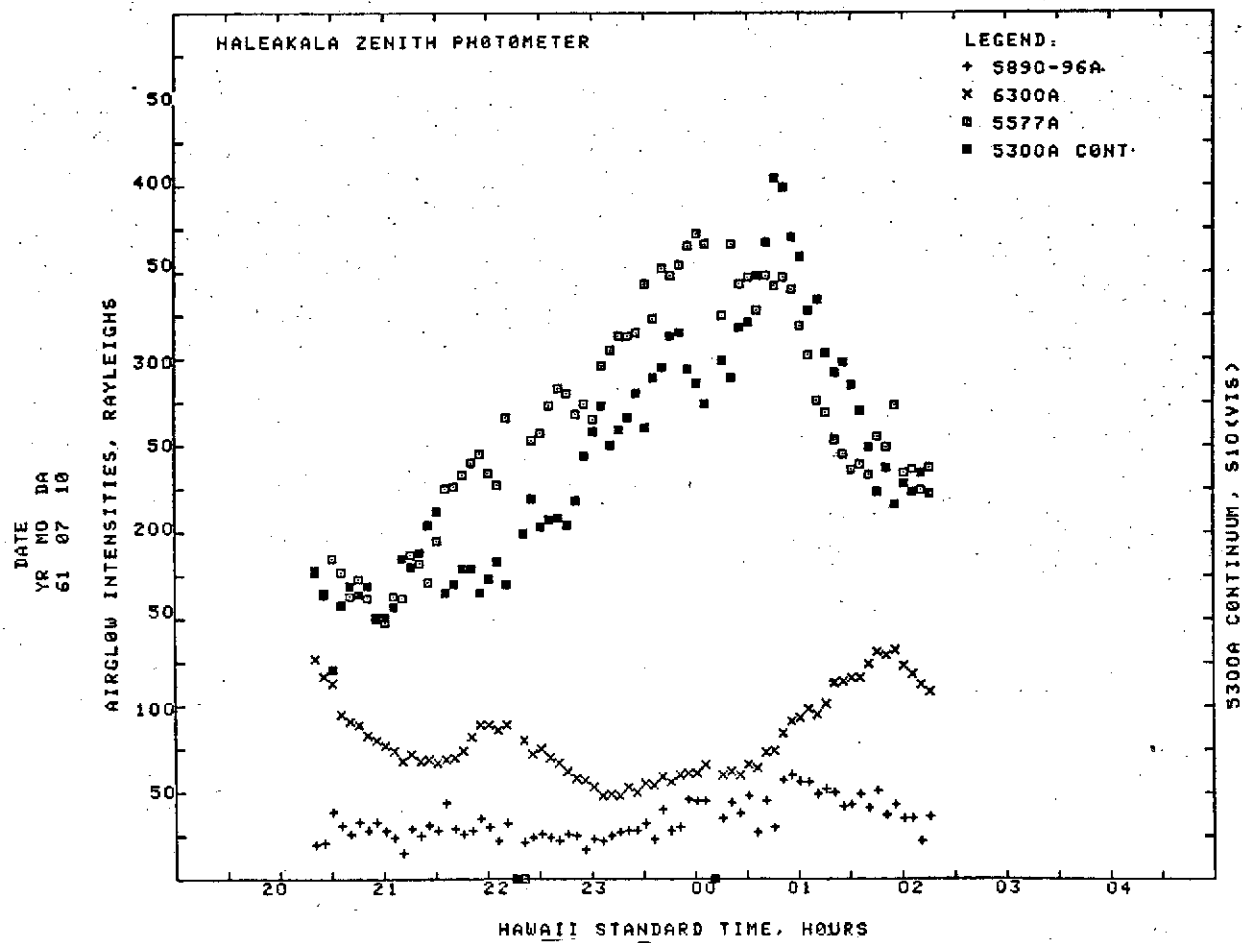
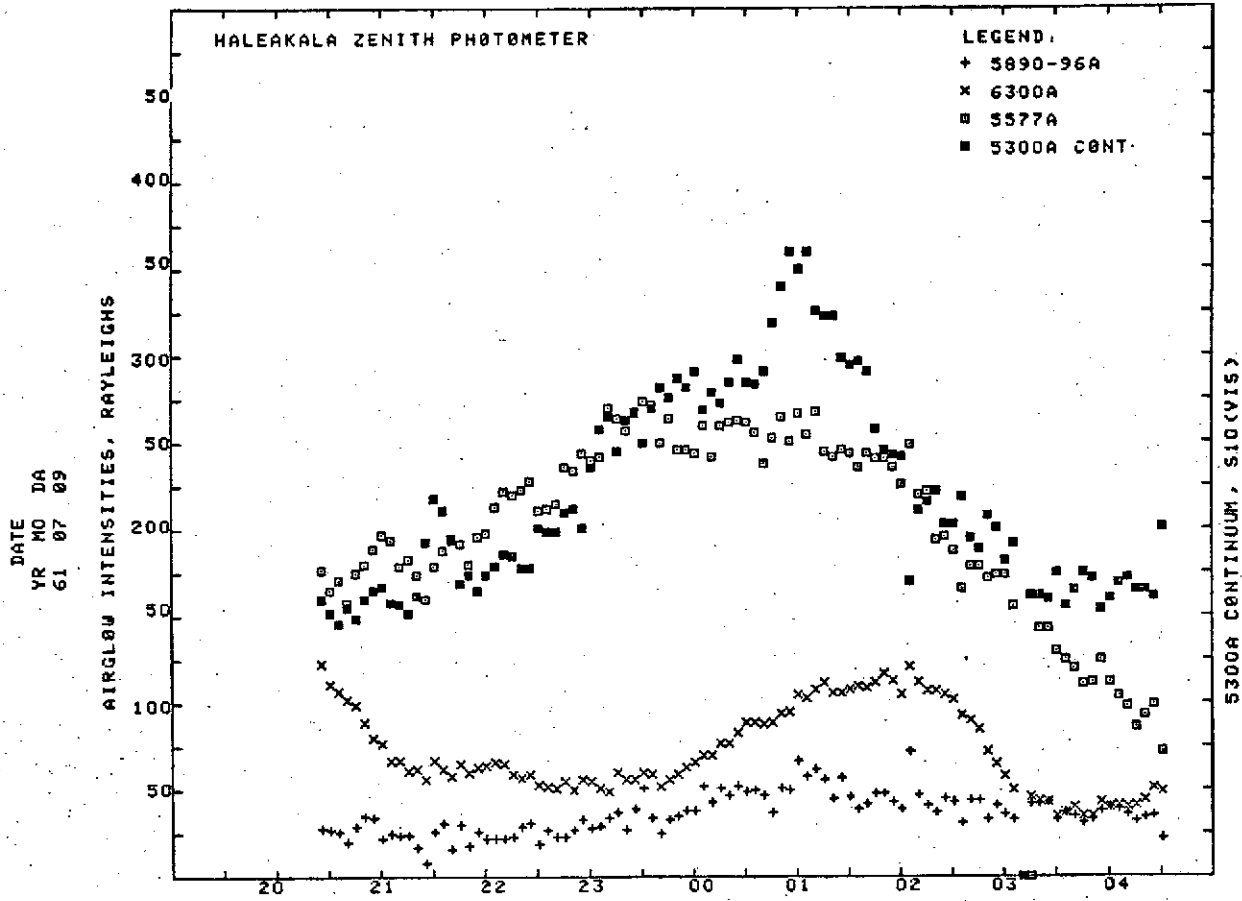
5. Nights having less than two hours of observations have been omitted from this Atlas.

DATE
YR MO DA
61 07 07

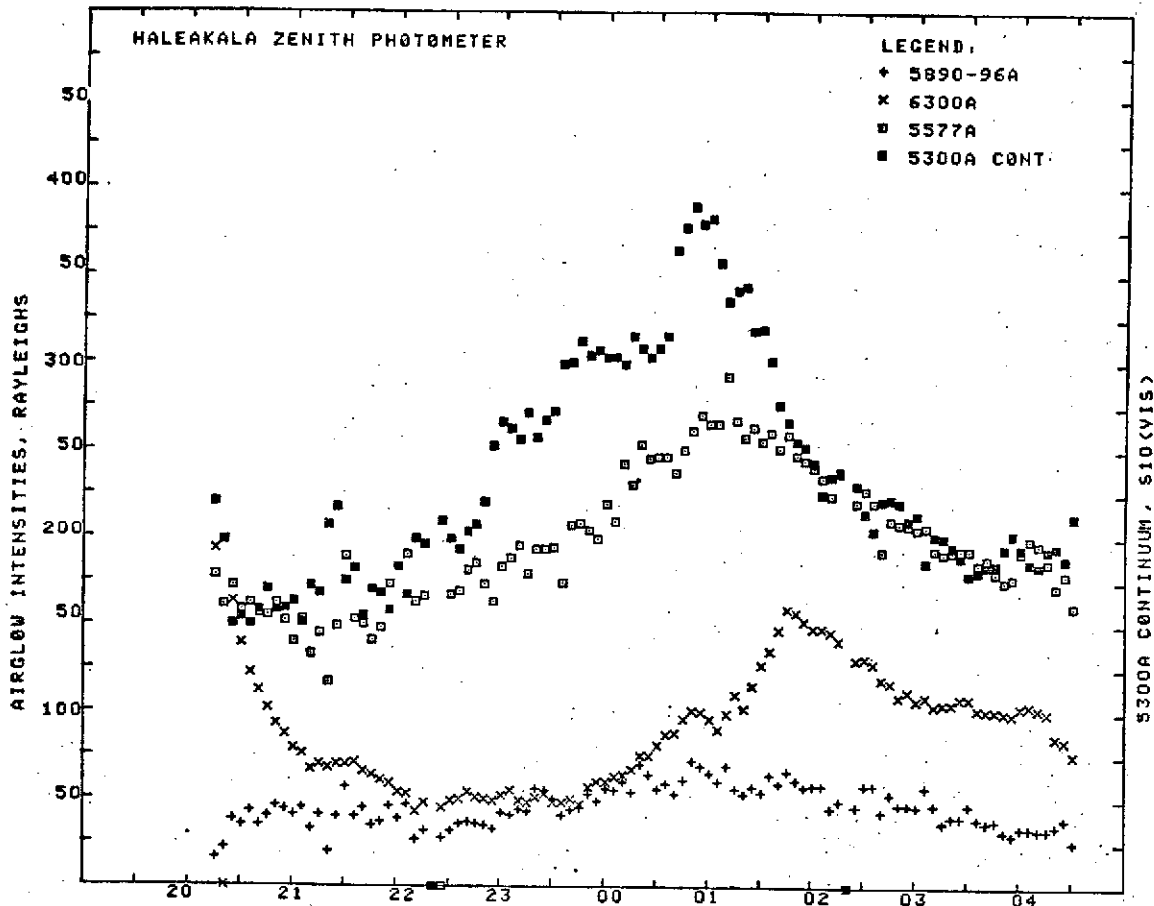


DATE
YR MO DA
61 07 08

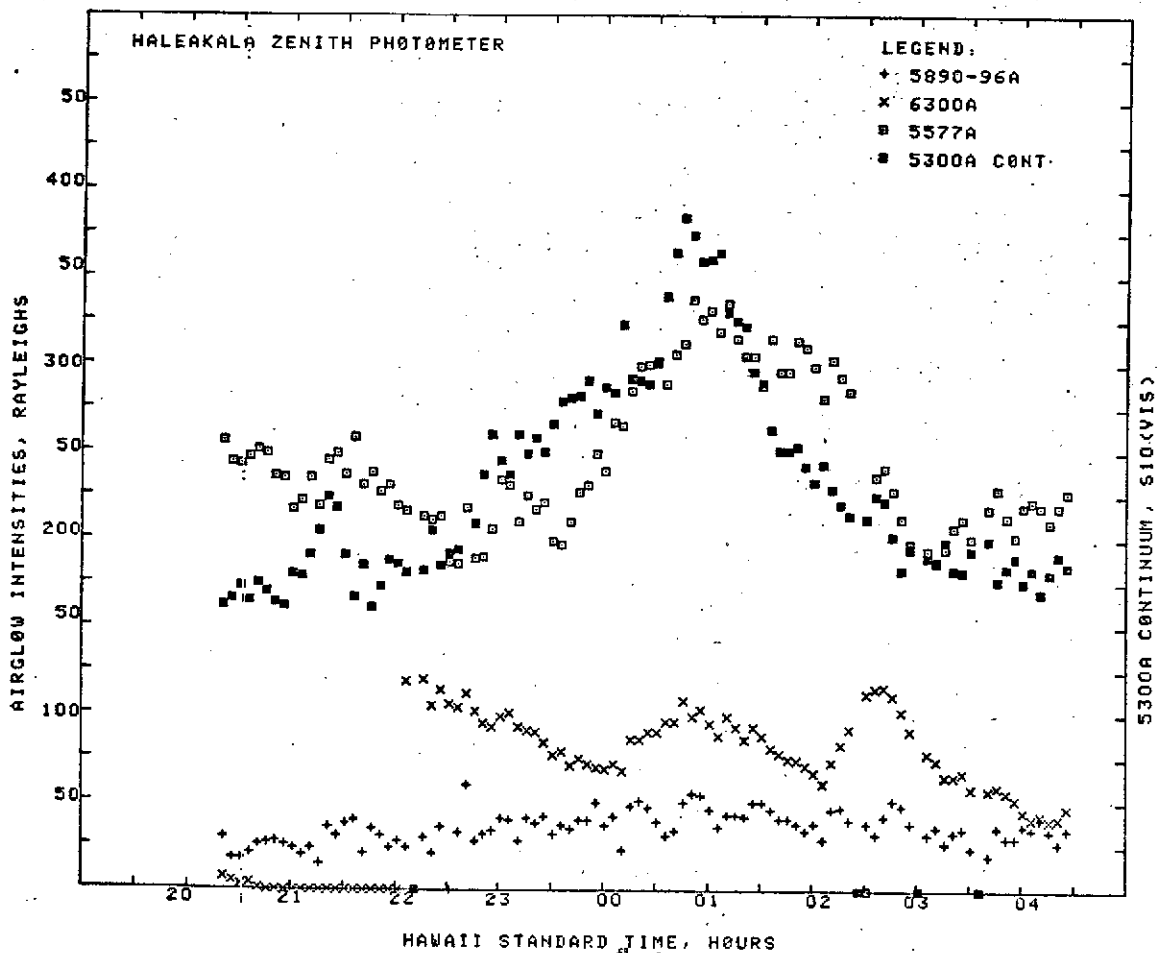




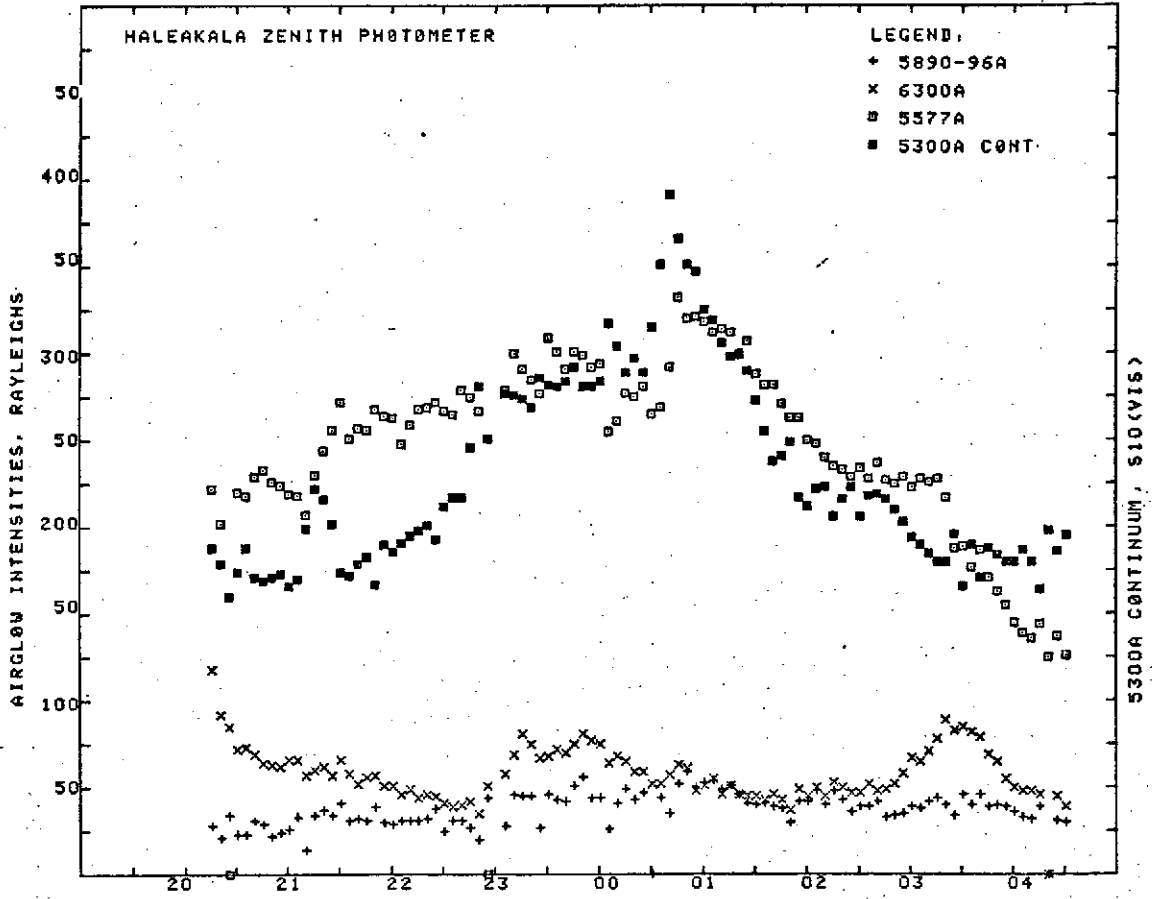
DATE
YR MO DA
61 07 11



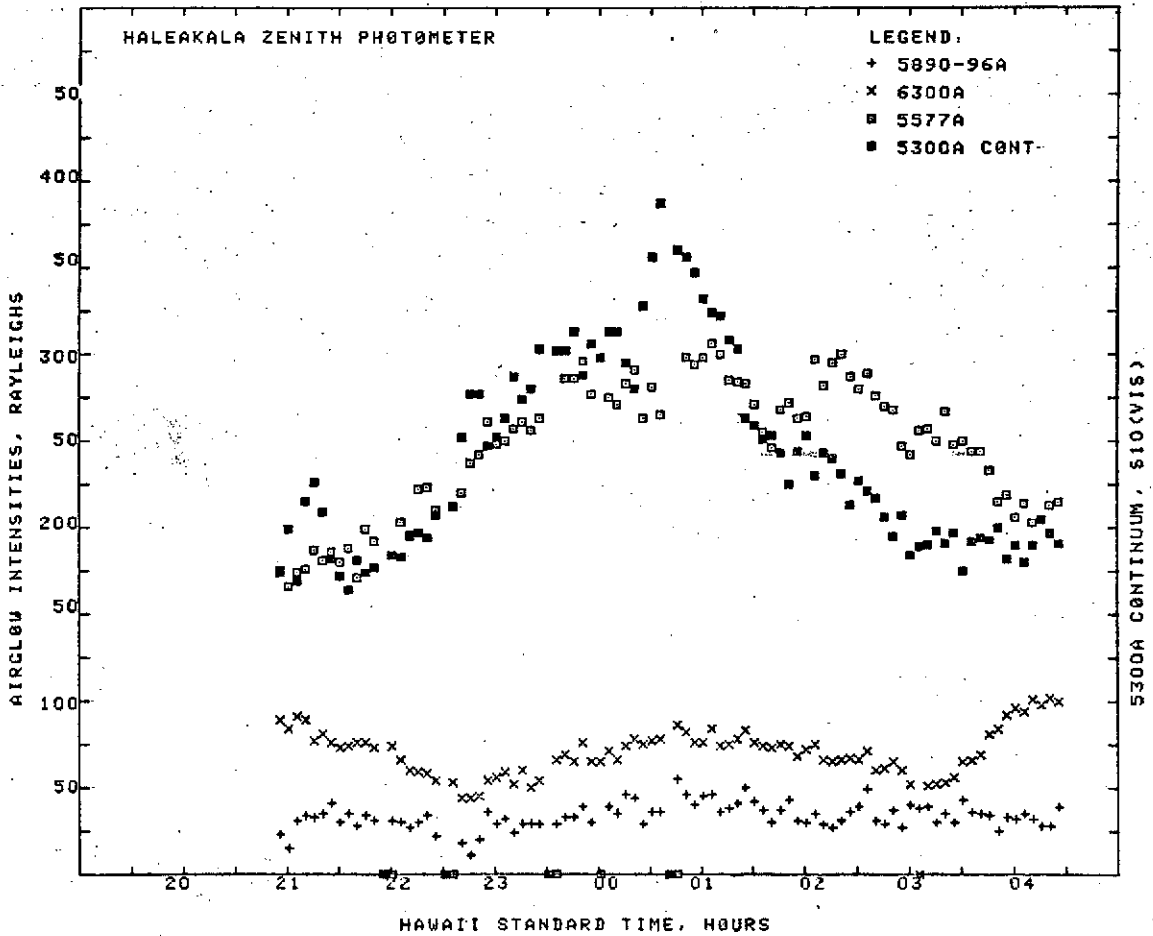
DATE
YR MO DA
61 07 12



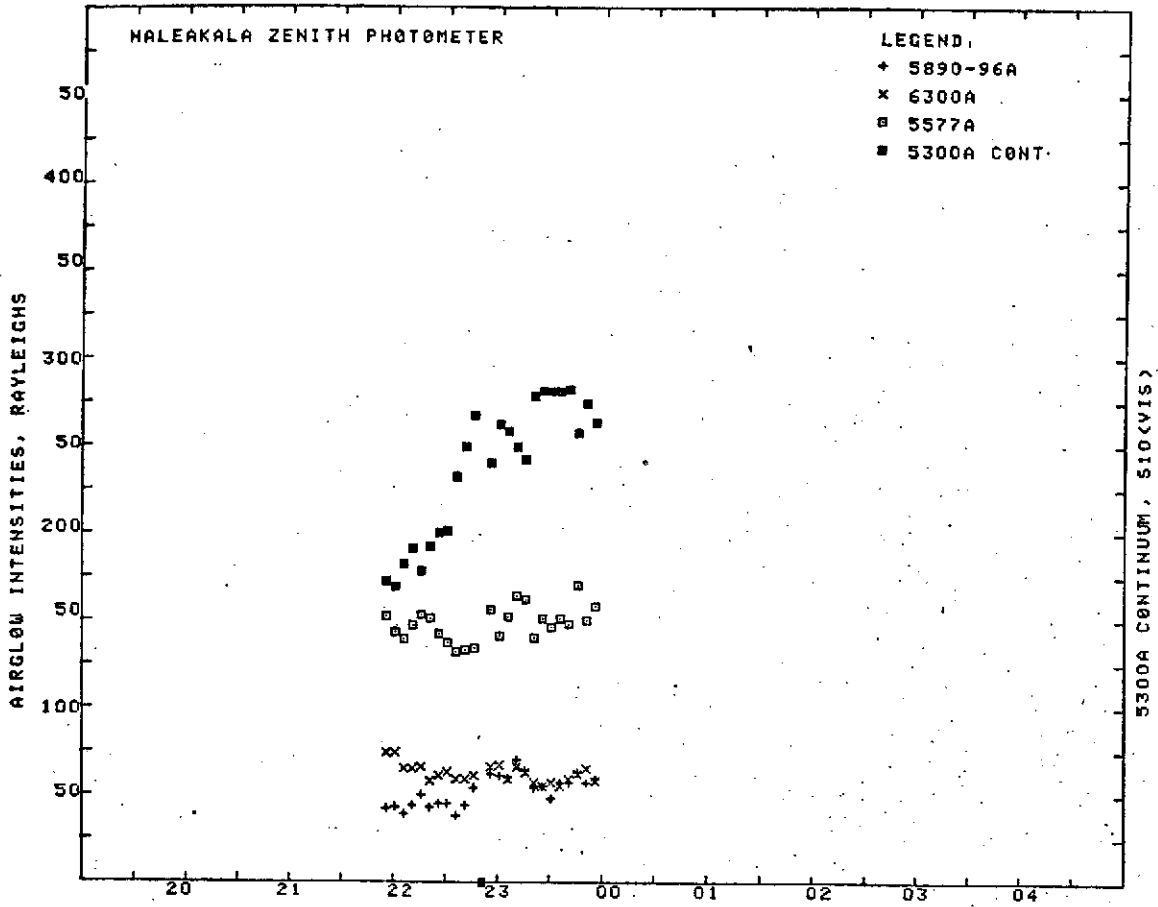
DATE
YR MO DA
61 07 13



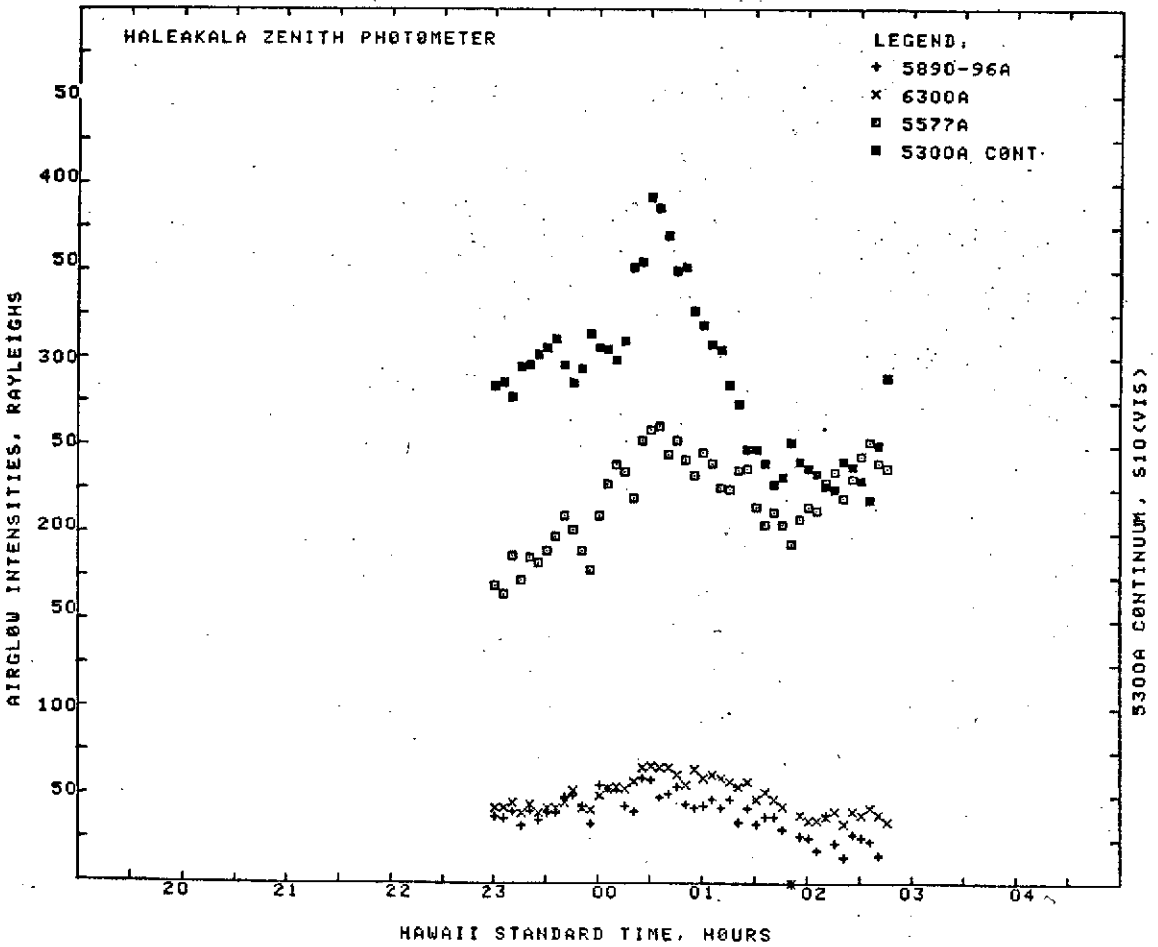
DATE
YR MO DA
61 07 14



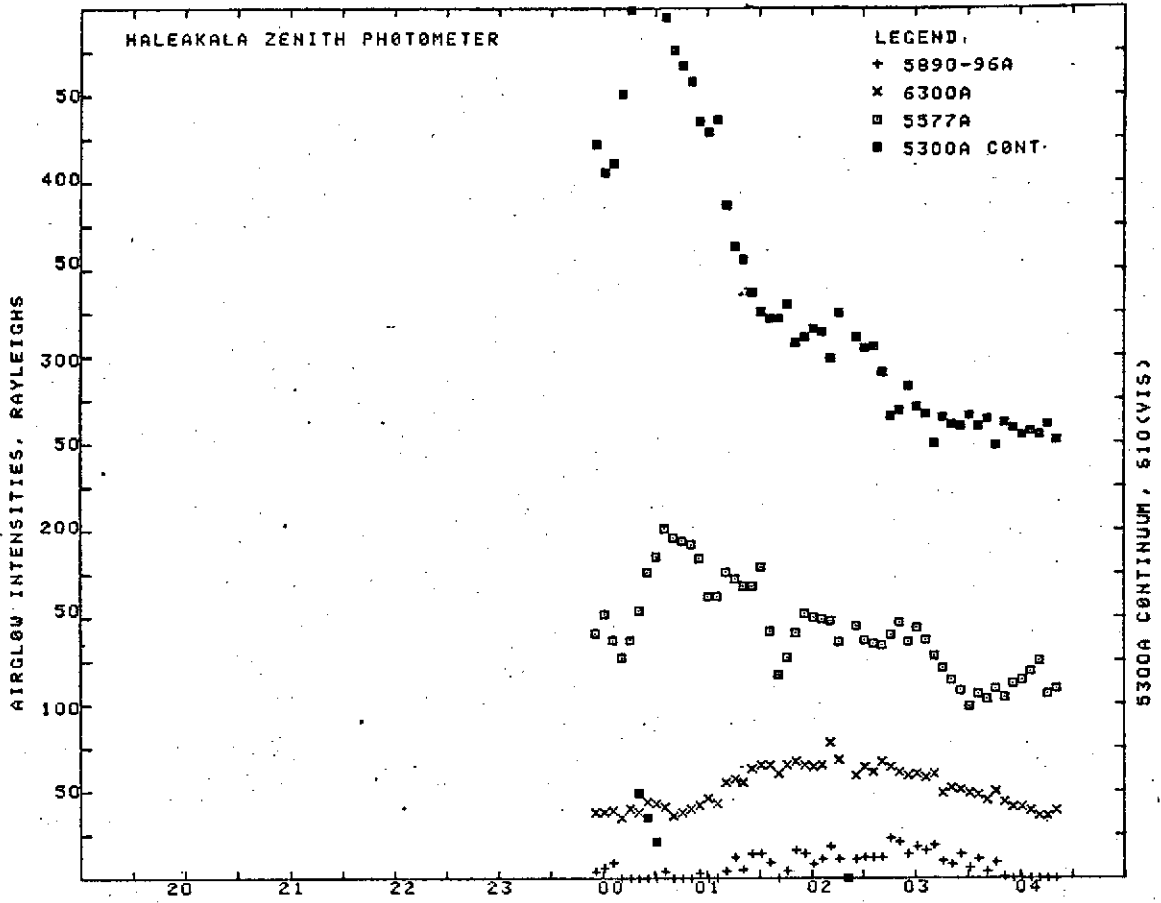
DATE
YR MO DA
61 07 15



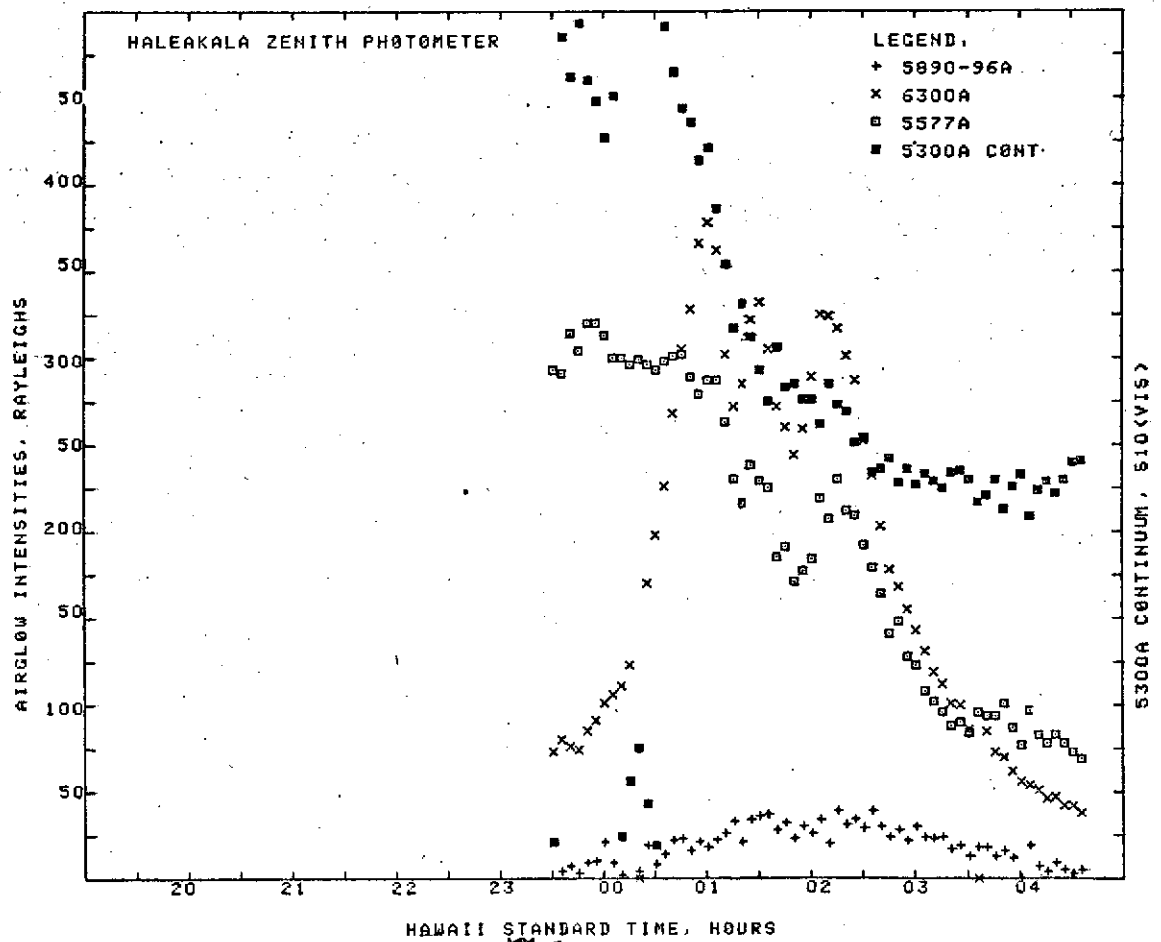
DATE
YR MO DA
61 07 16



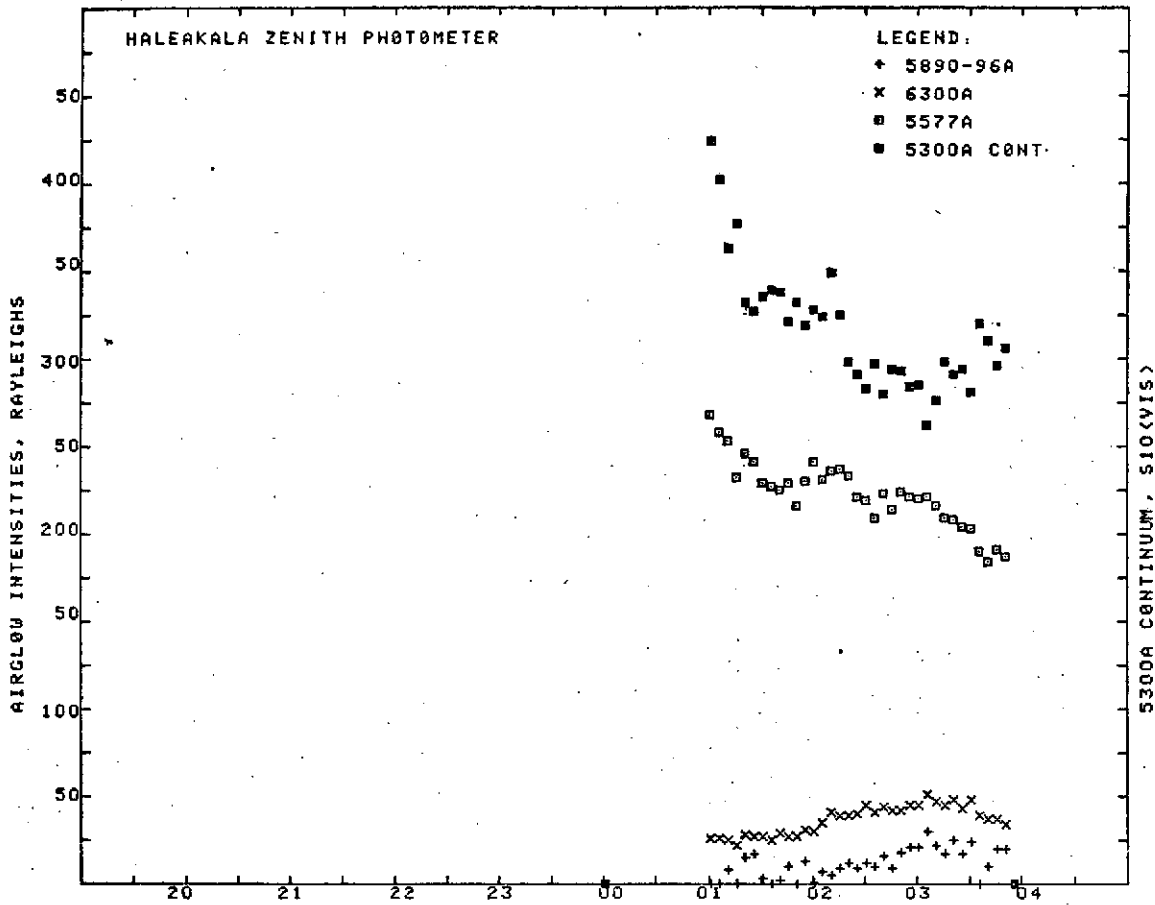
DATE
YR MO DA
61 07 18



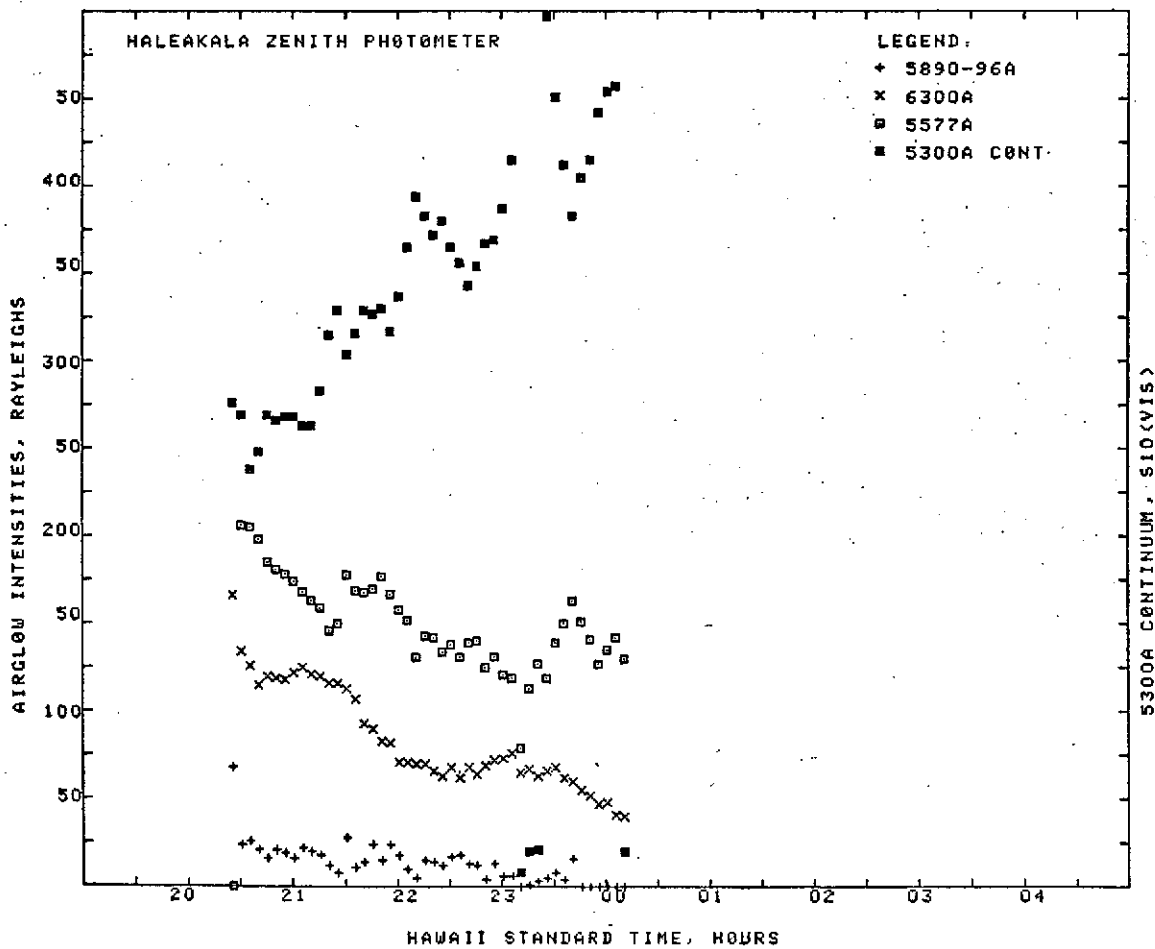
DATE
YR MO DA
61 07 19

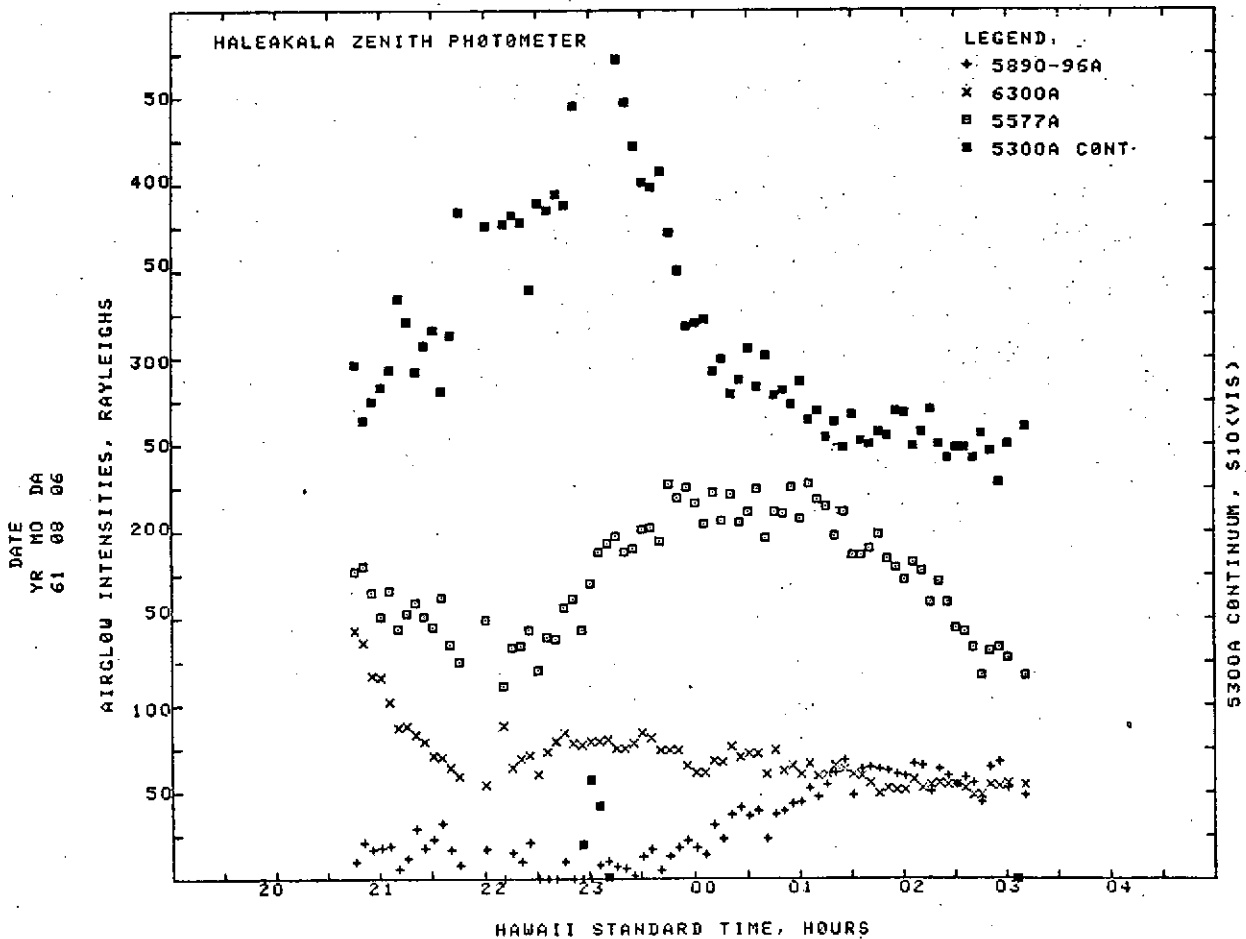
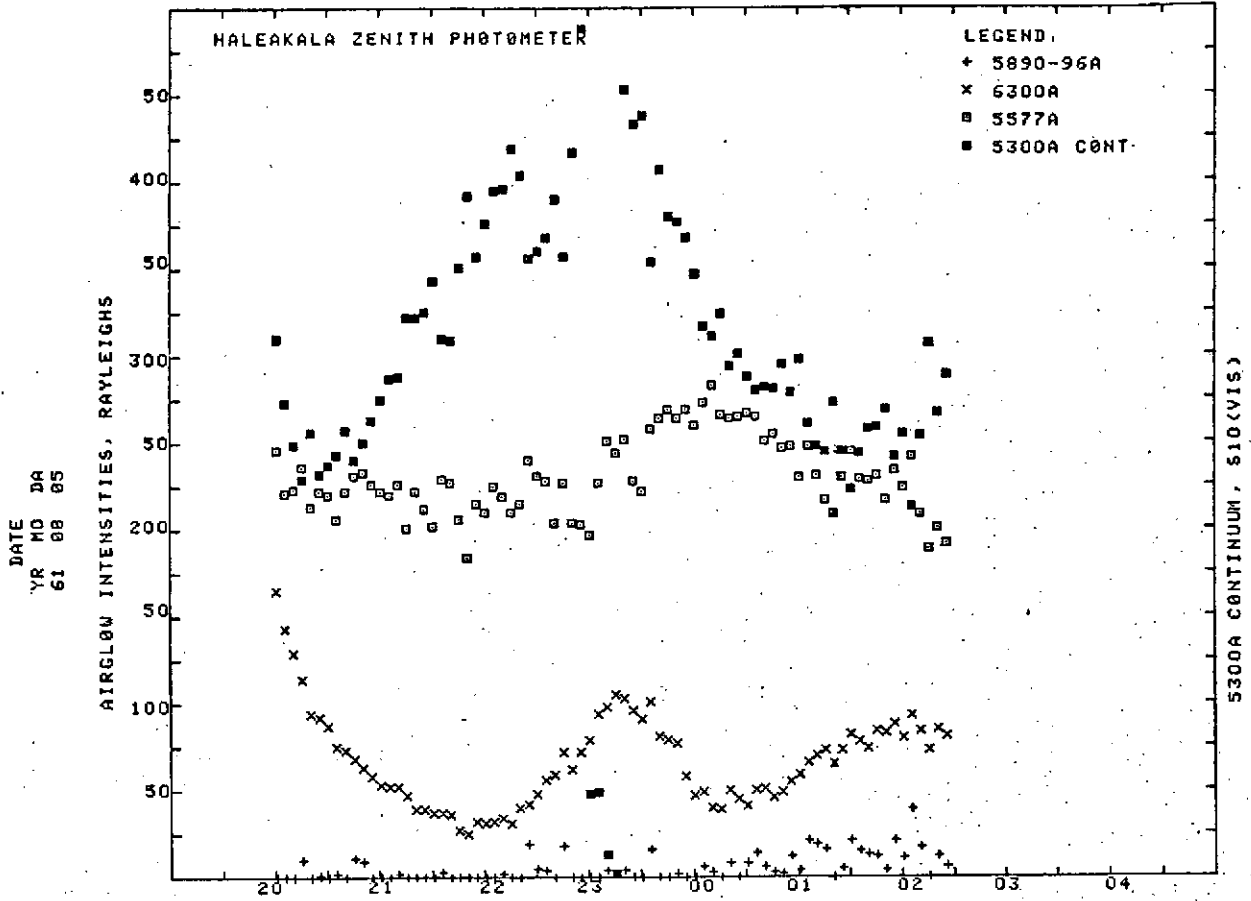


DATE
YR MO DA
61 07 20

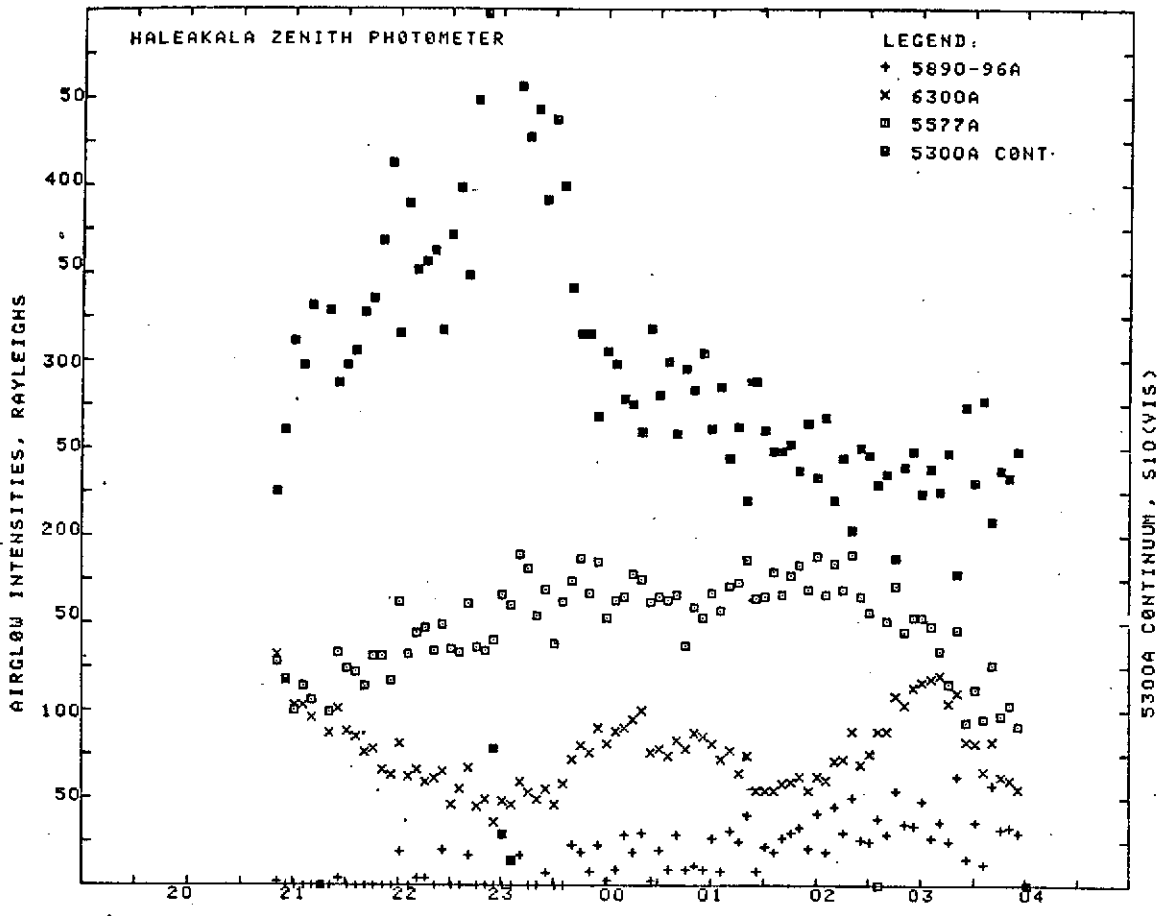


DATE
YR MO DA
61 08 02

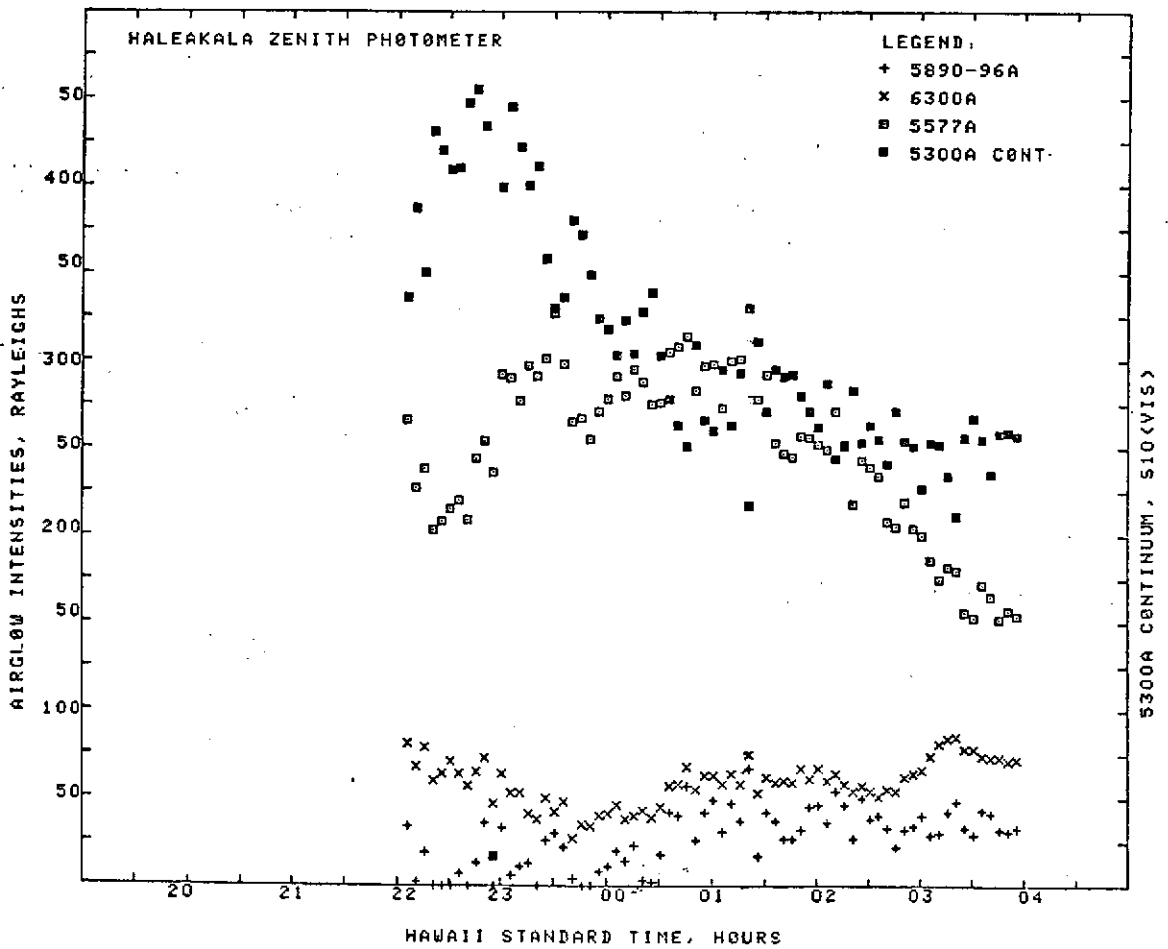




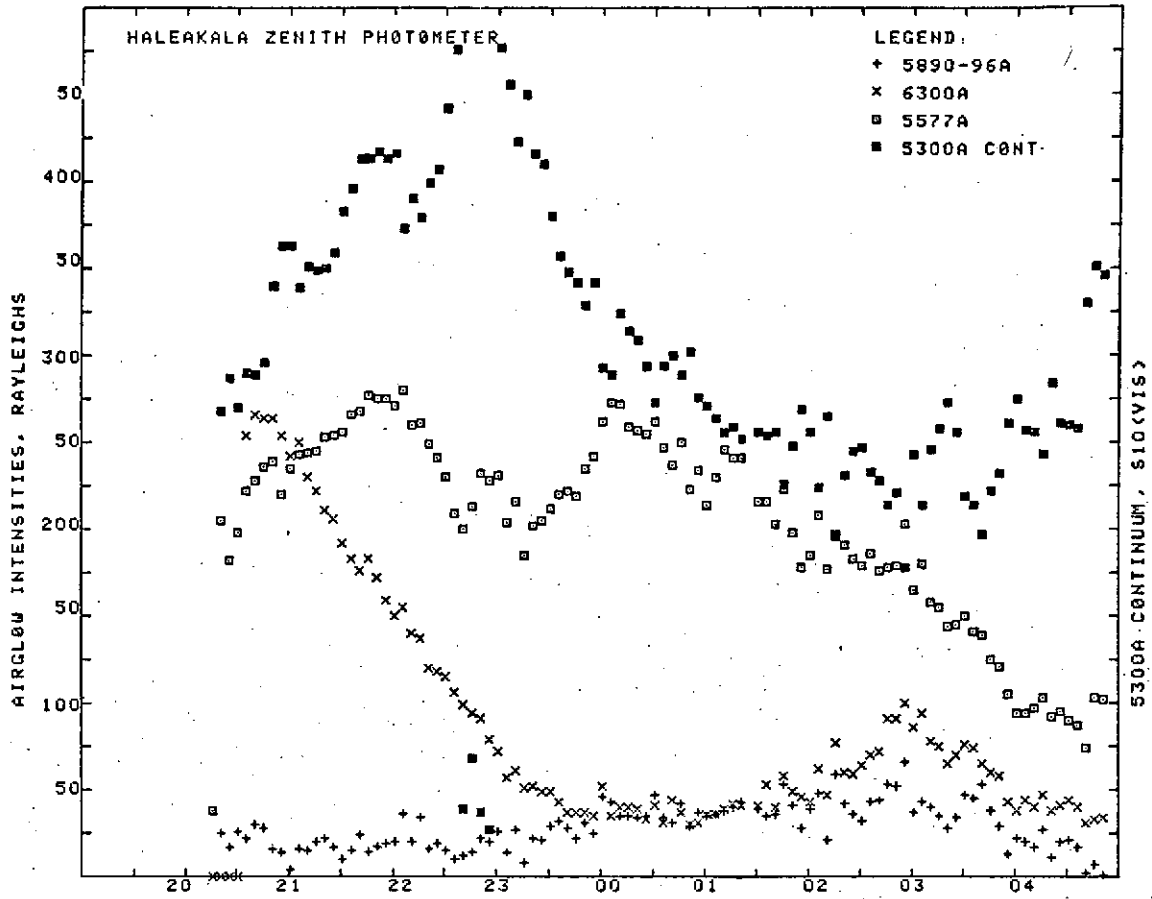
DATE
YR MO DA
61 02 07



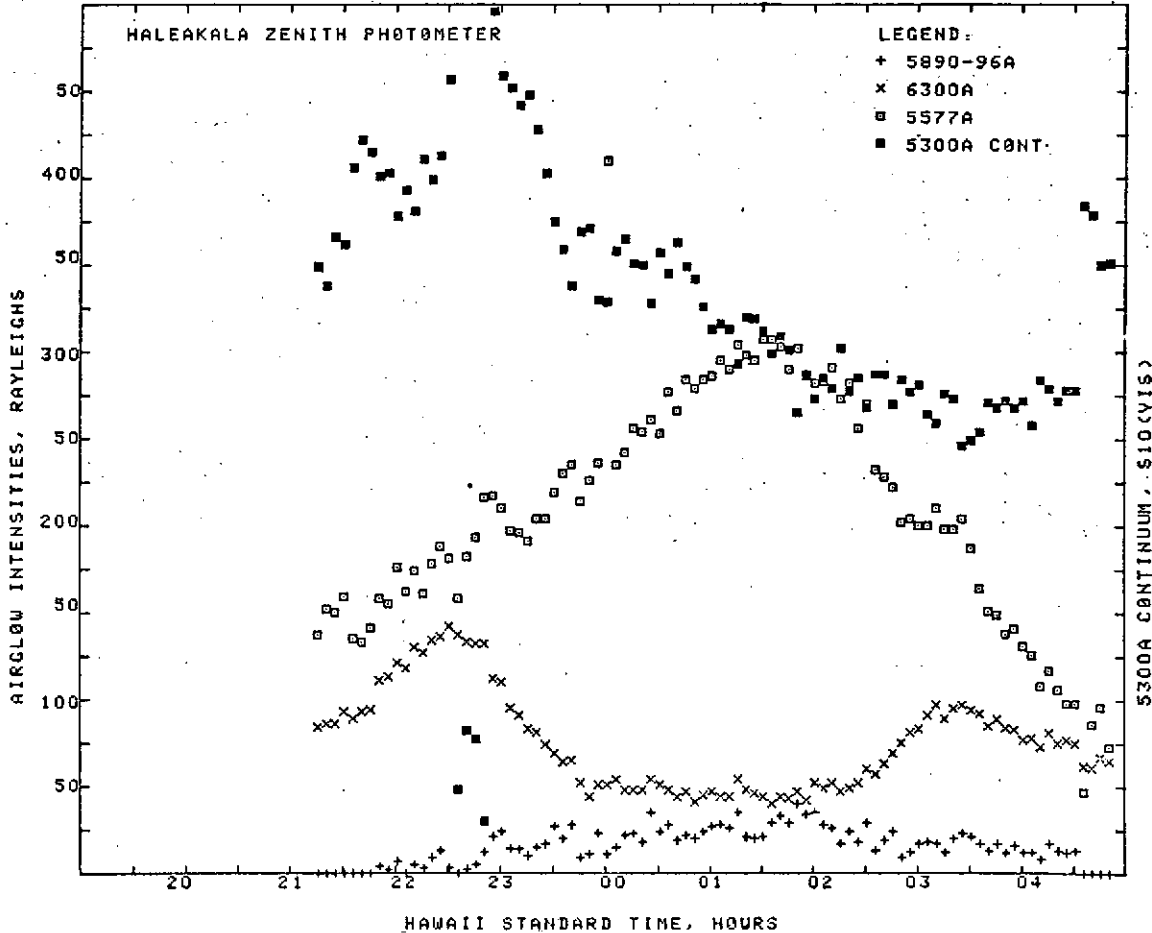
DATE
YR MO DA
61 08 09

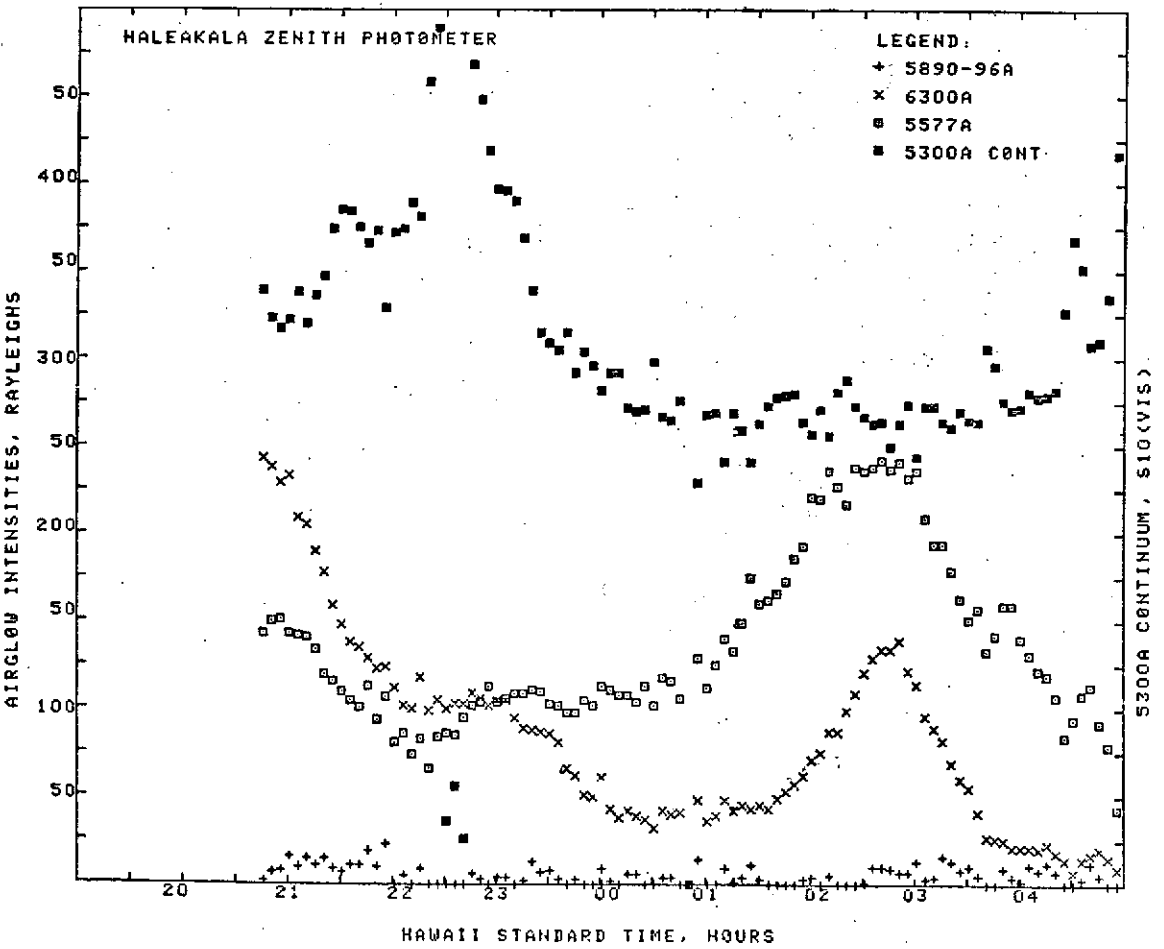
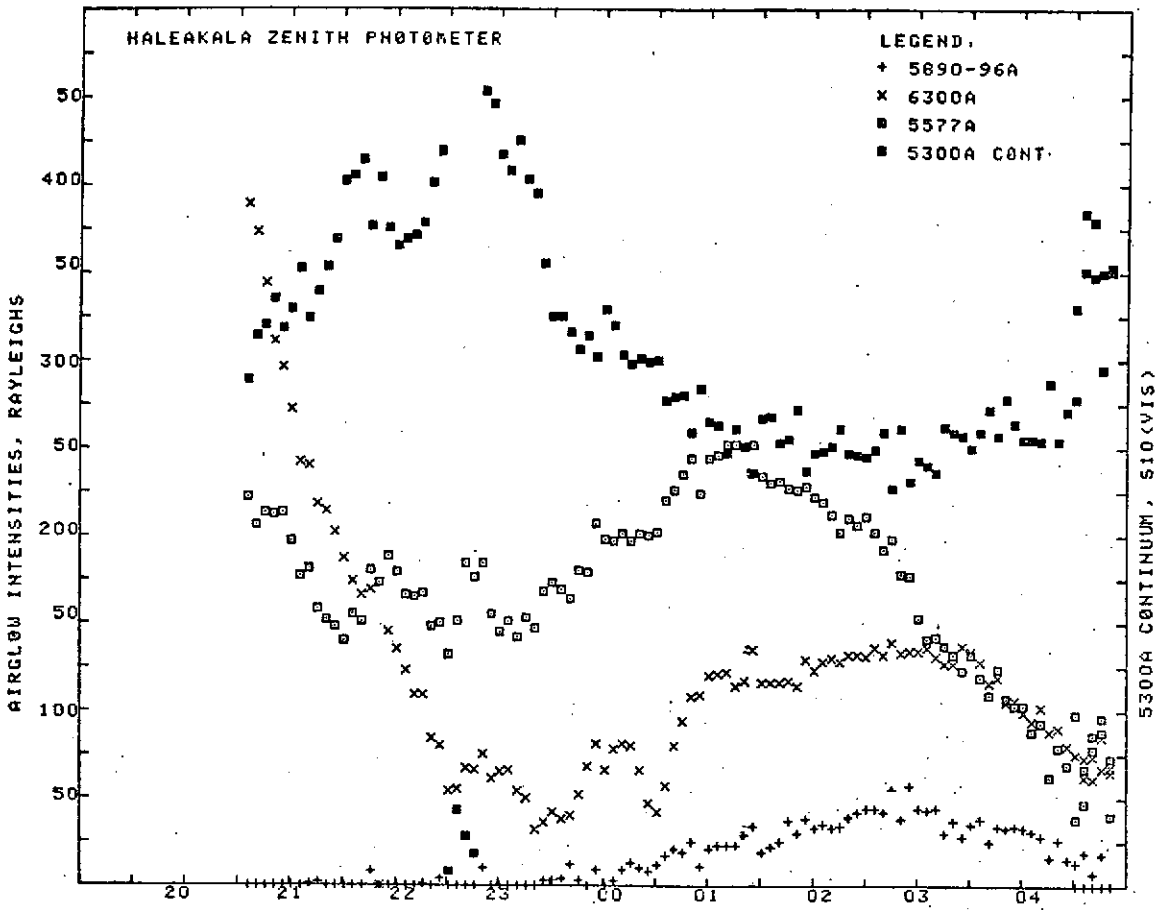


DATE
YR MO DA
61 08 10

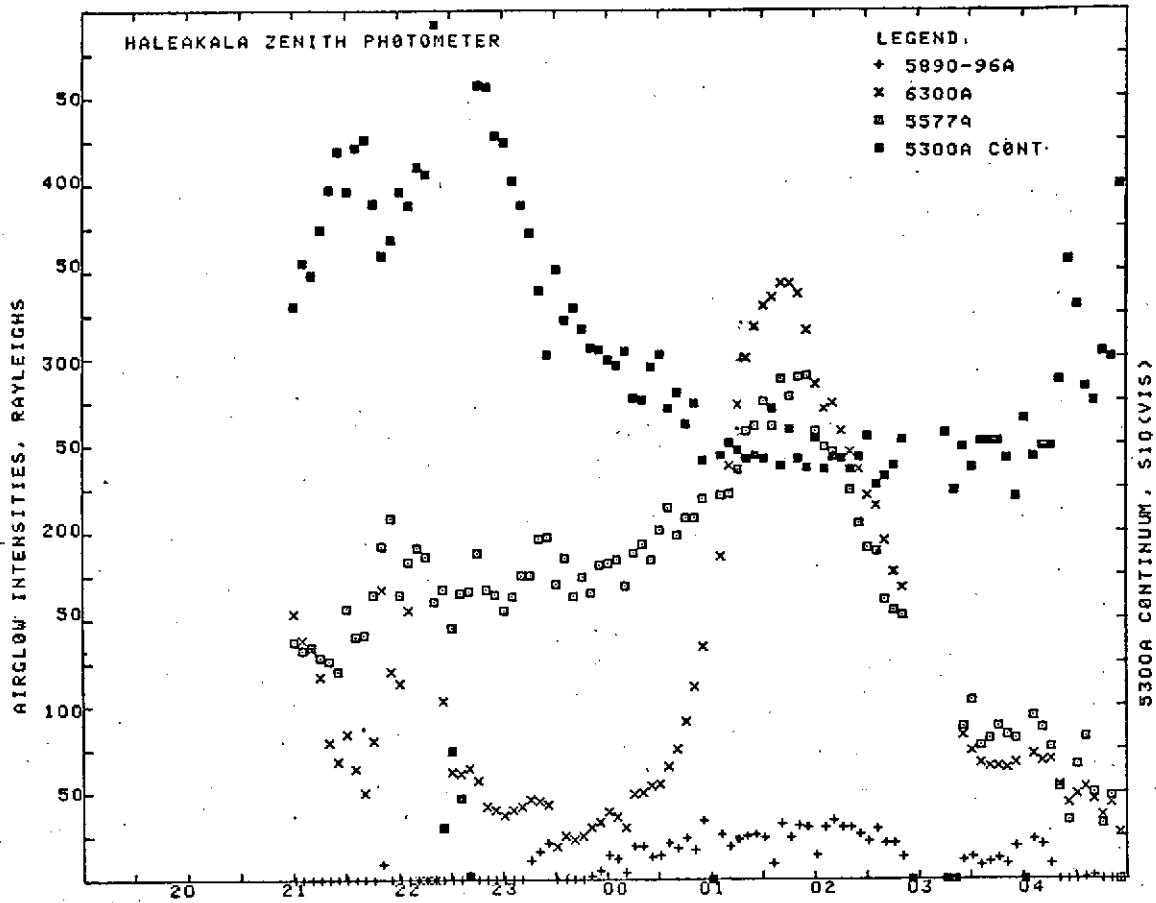


DATE
YR MO DA
61 08 11

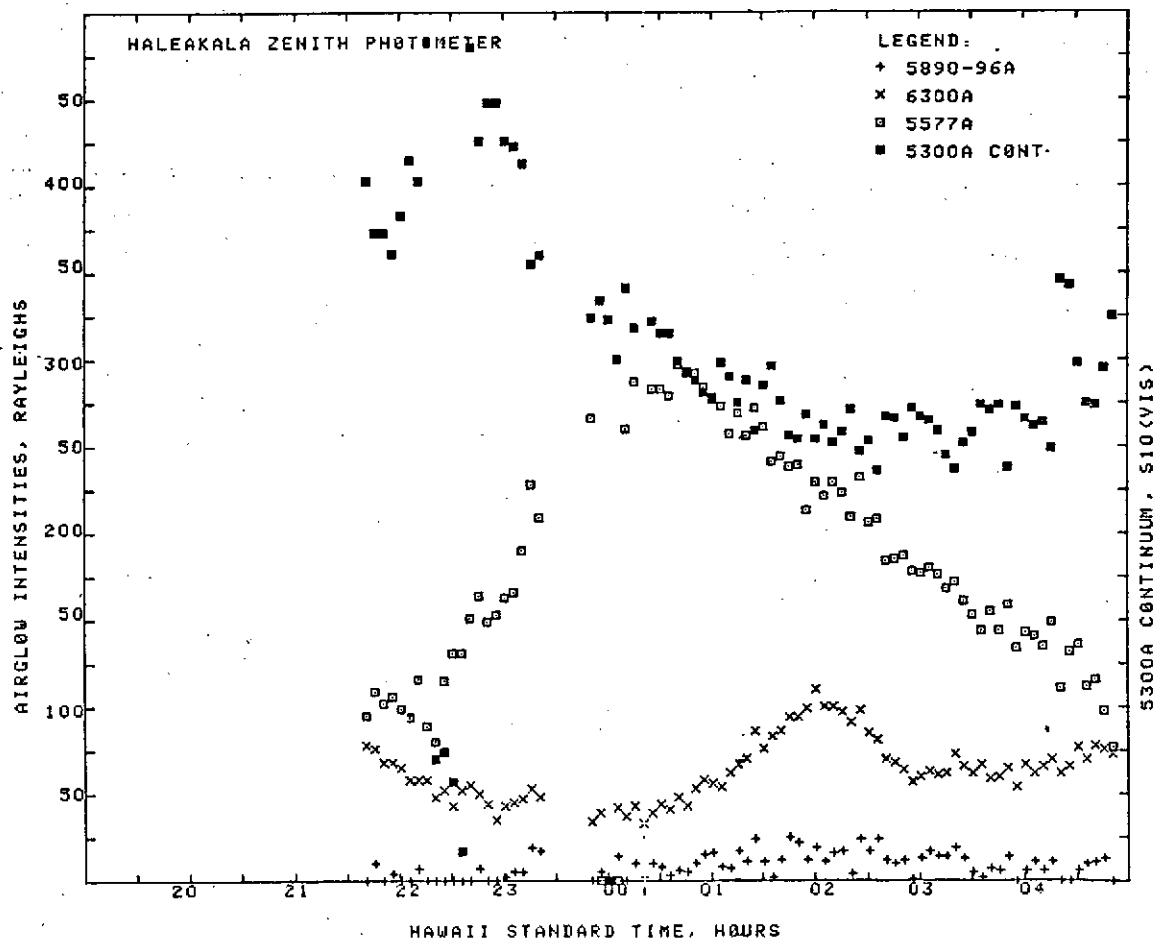




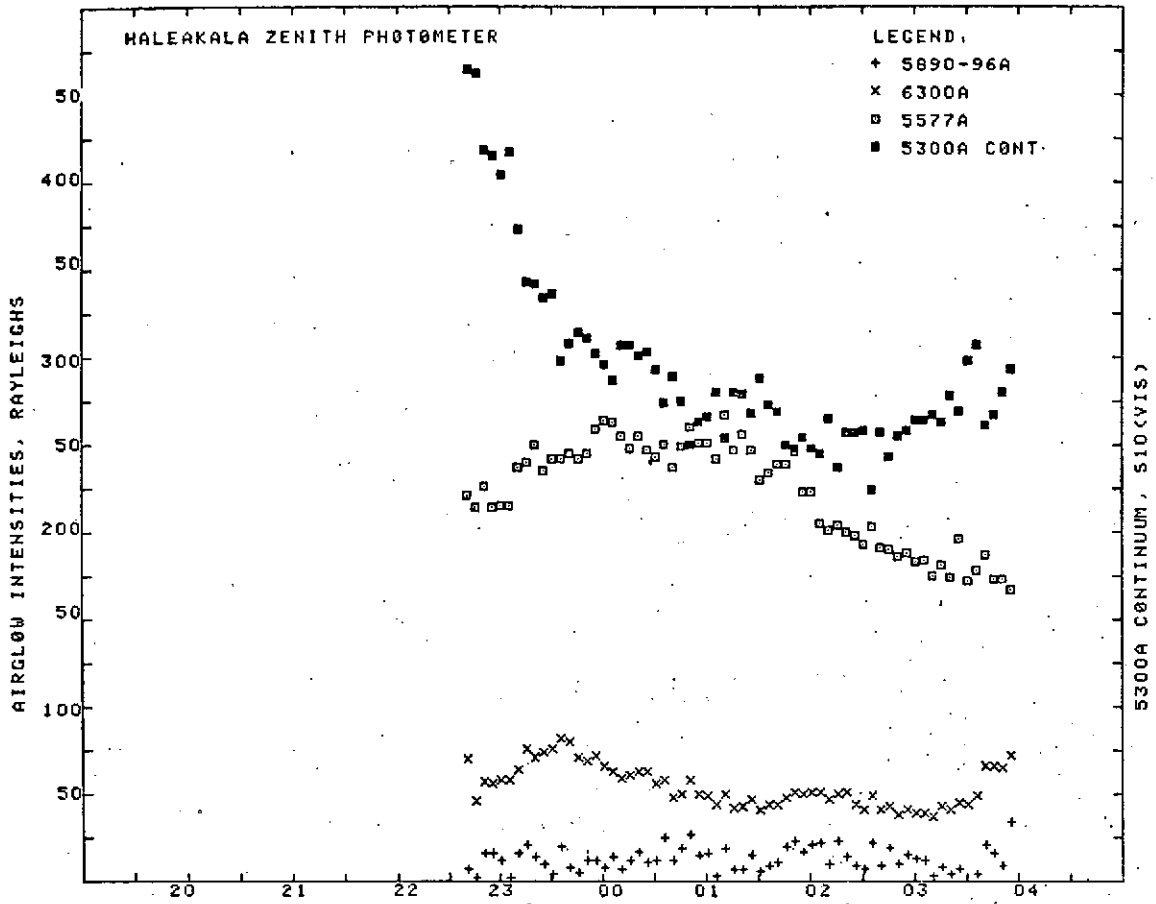
DATE
YR MO DA
.61 08 14



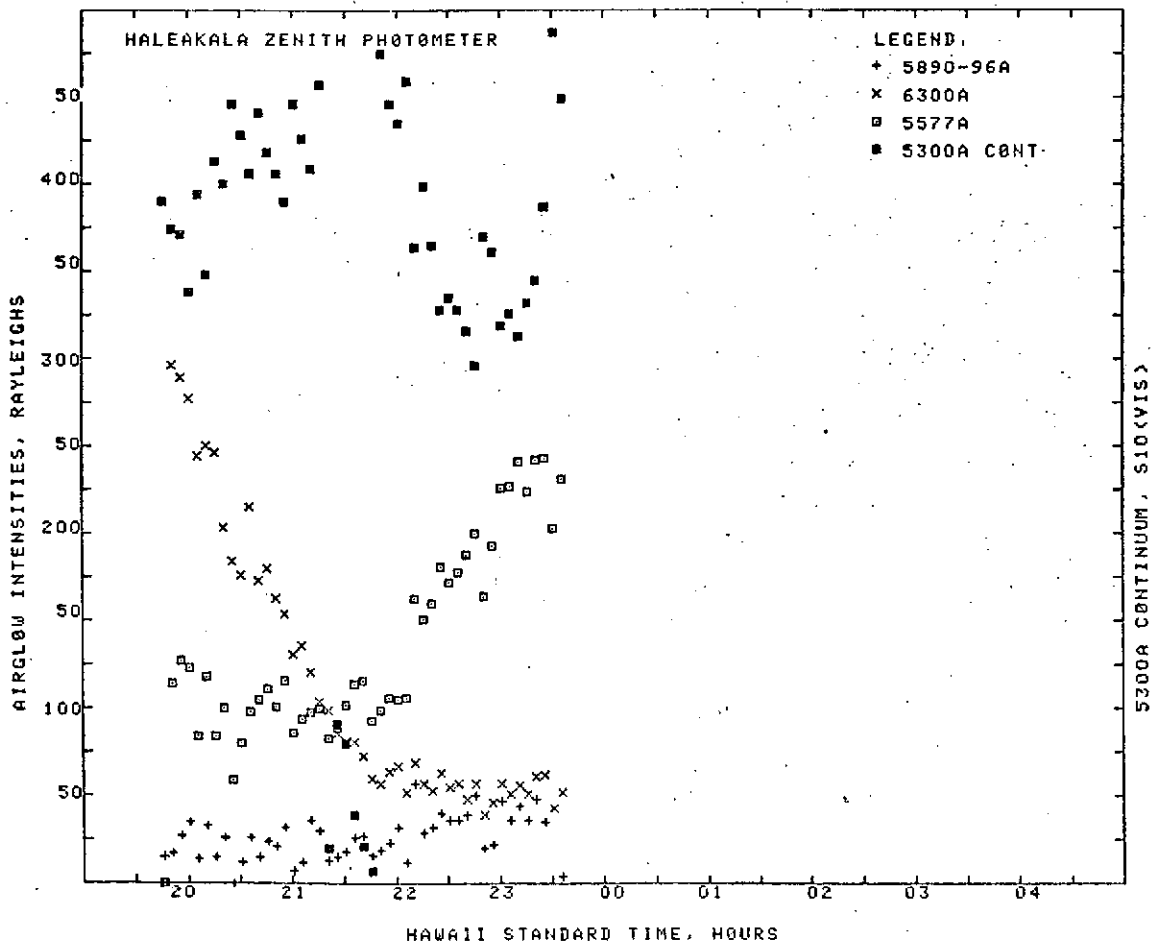
DATE
YR MO DA
.61 08 15



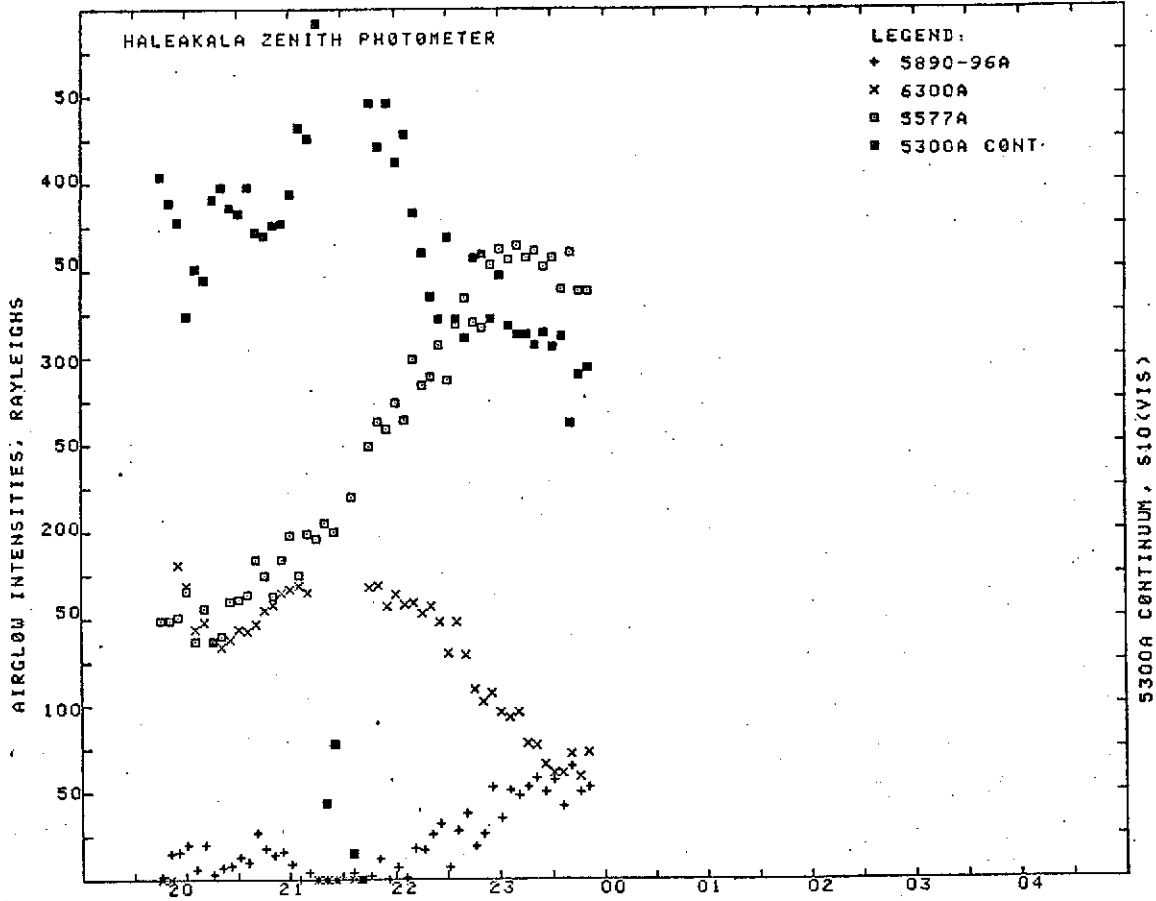
DATE
YR MO DA
61 08 16



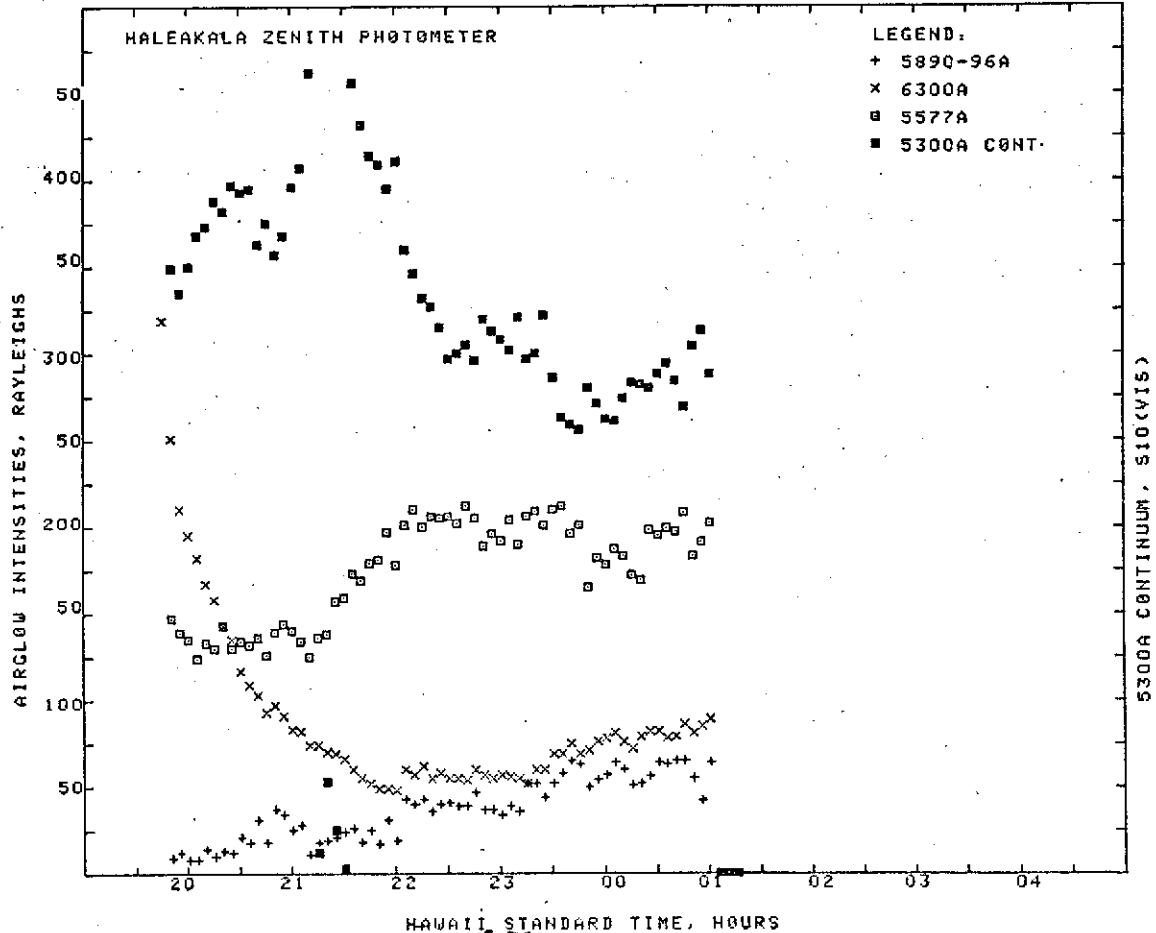
DATE
YR MO DA
61 08 31



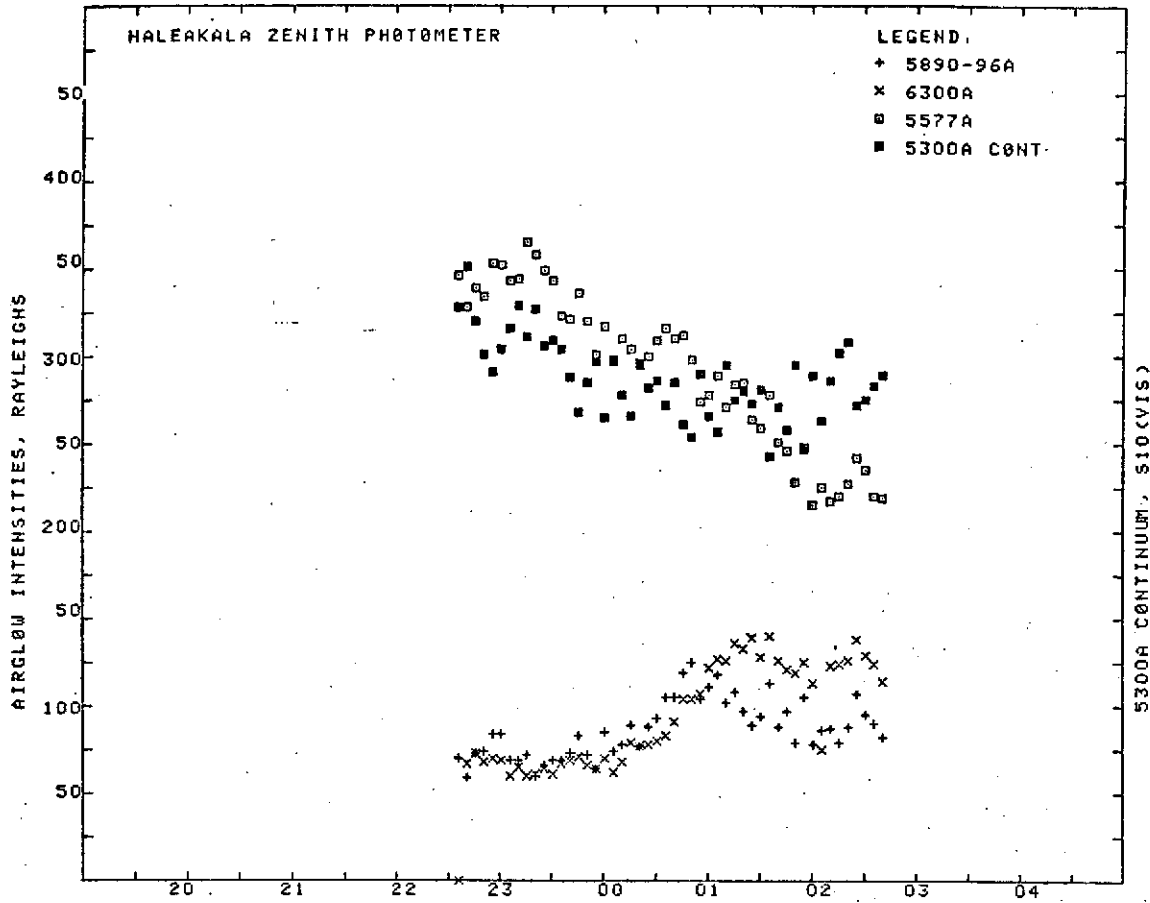
DATE
YR MO DA
61 09 01



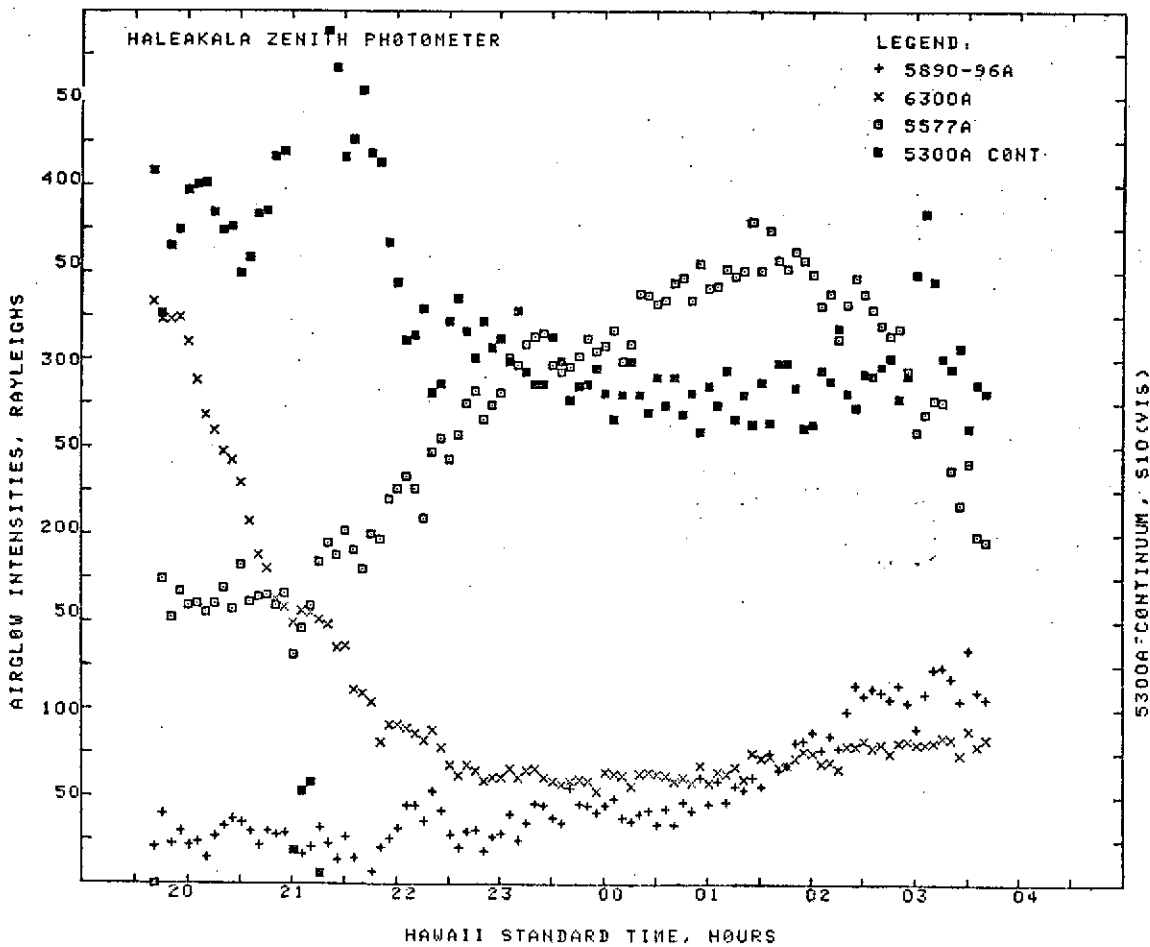
DATE
YR MO DA
61 09 02



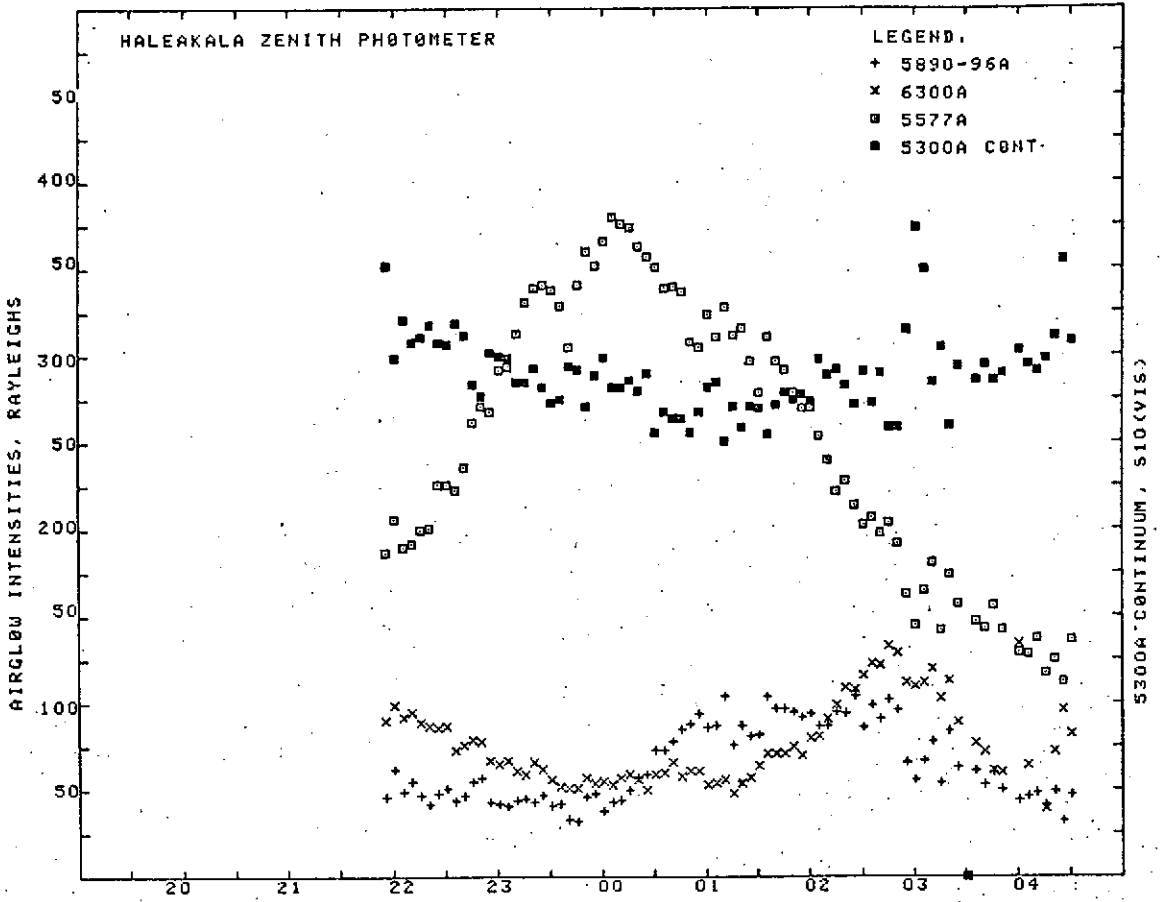
DATE
YR MO DA
61 09 04



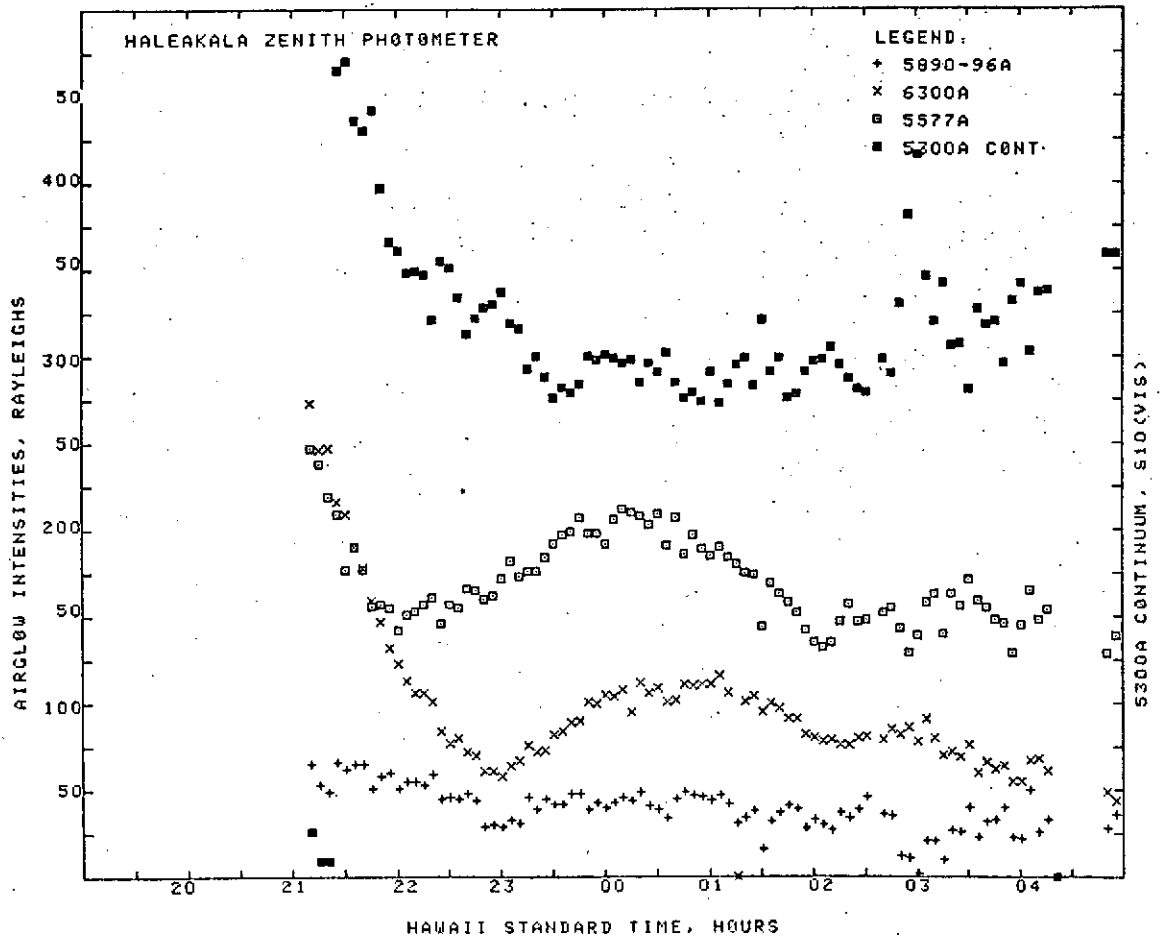
DATE
YR MO DA
61 09 05



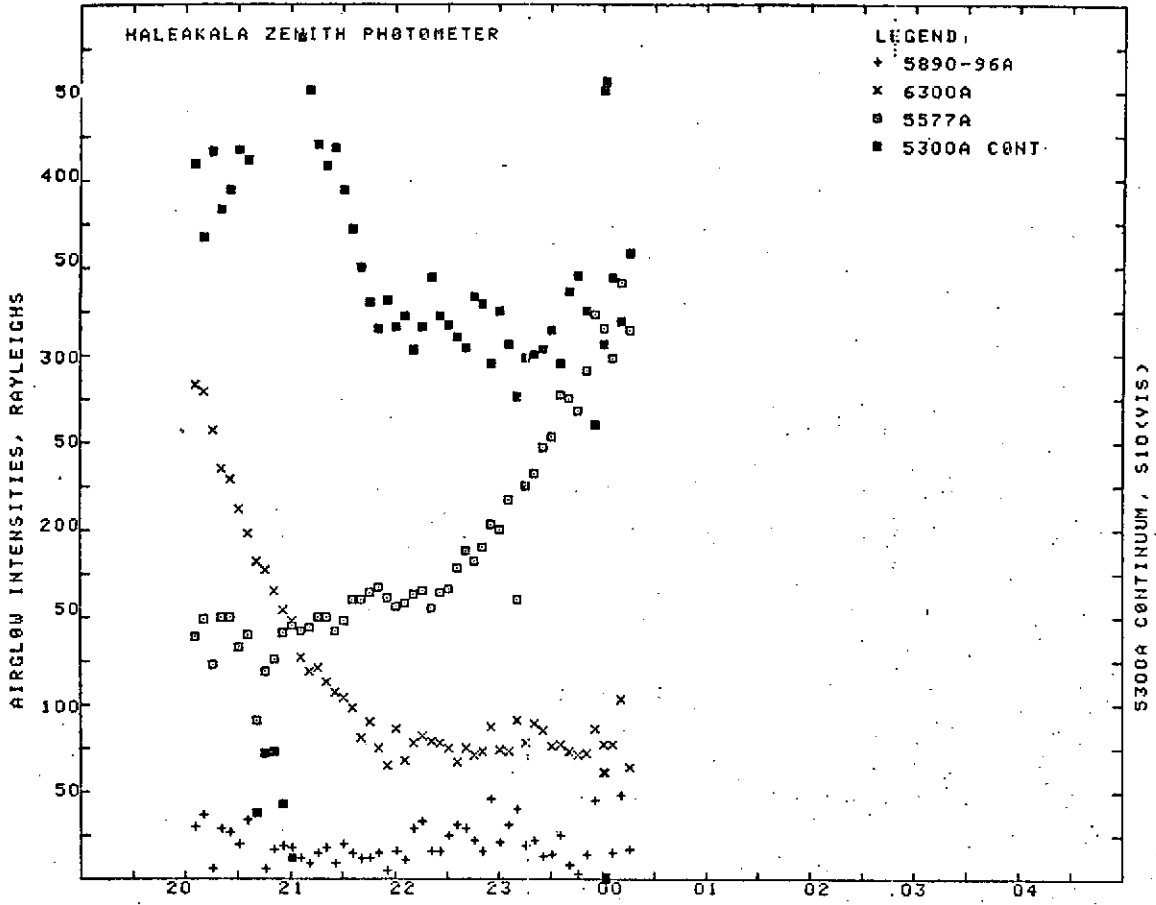
DATE
YR MO DA
61 09 06



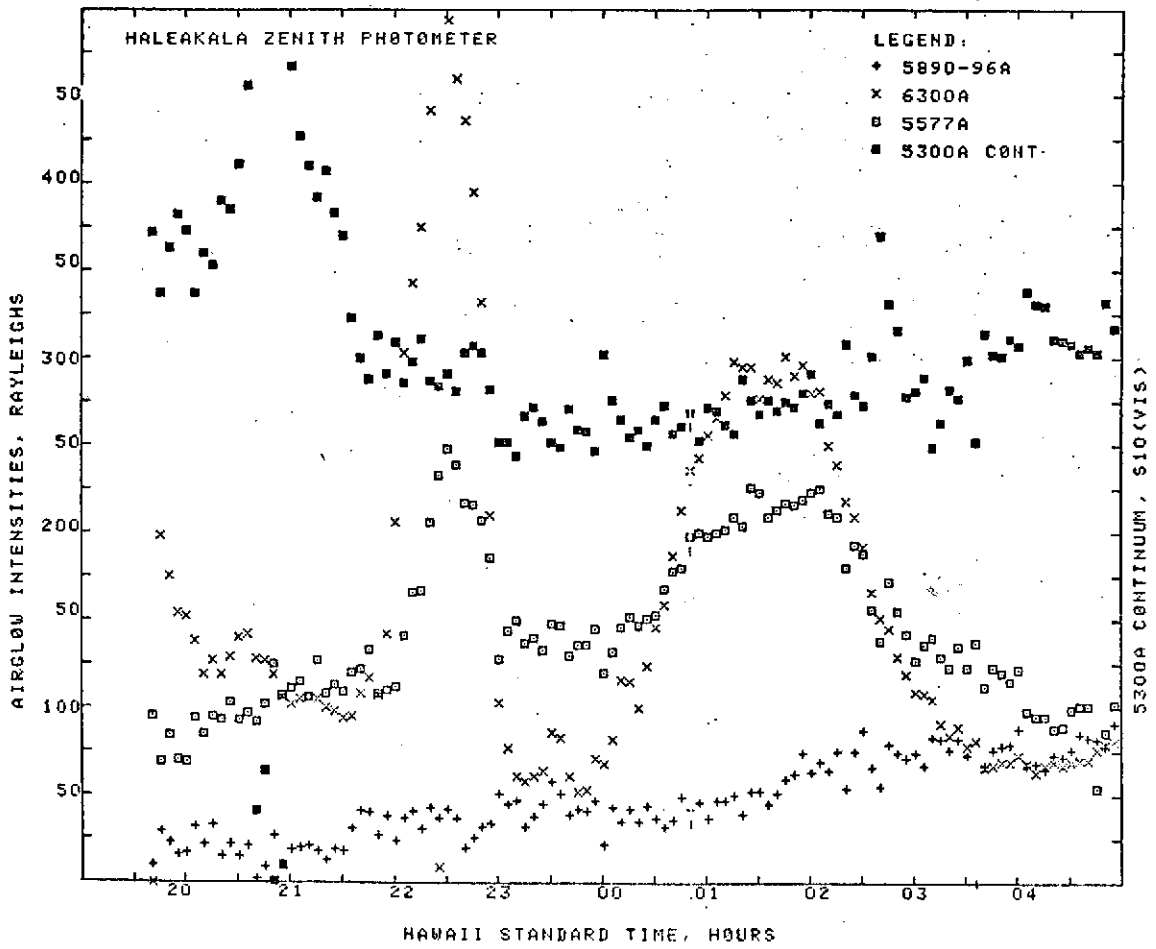
DATE
YR MO DA
61 09 07



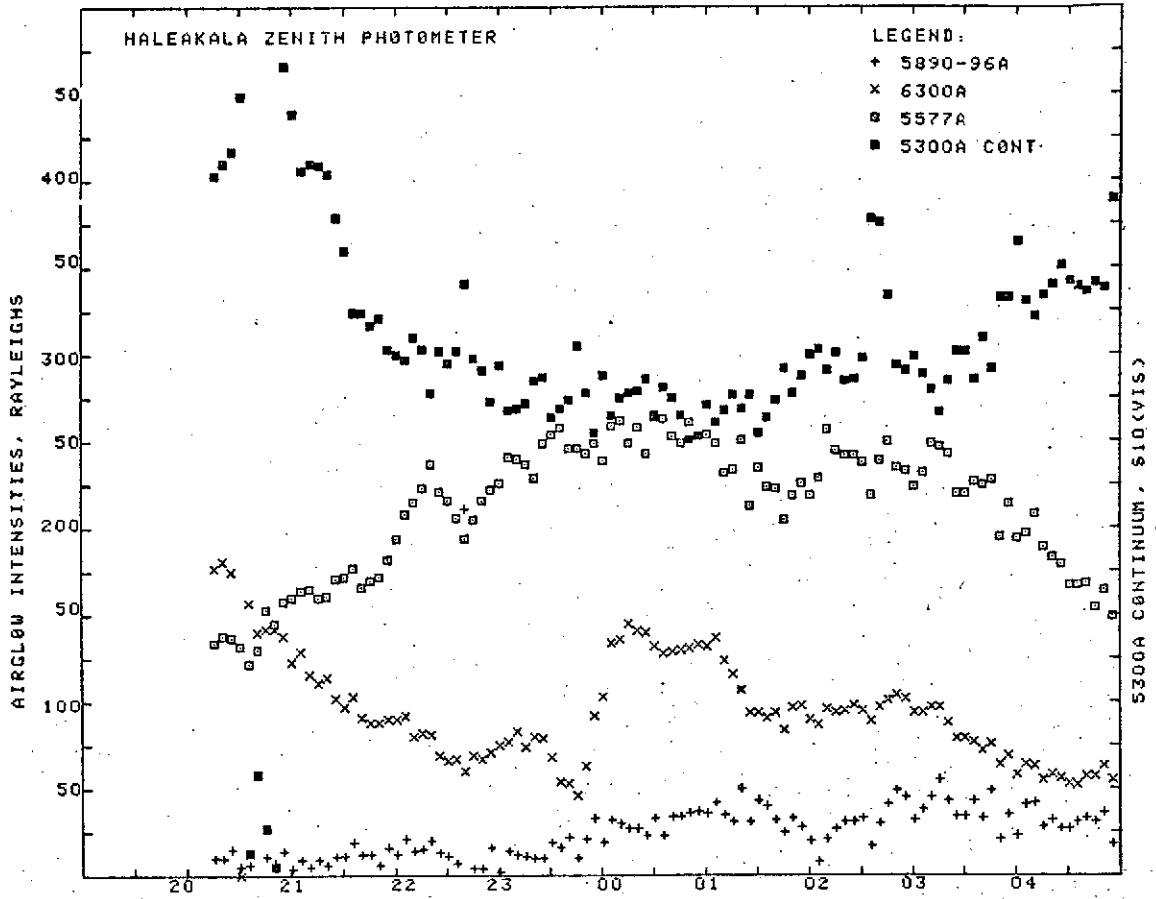
DATE
YR MO DA
61 09 10



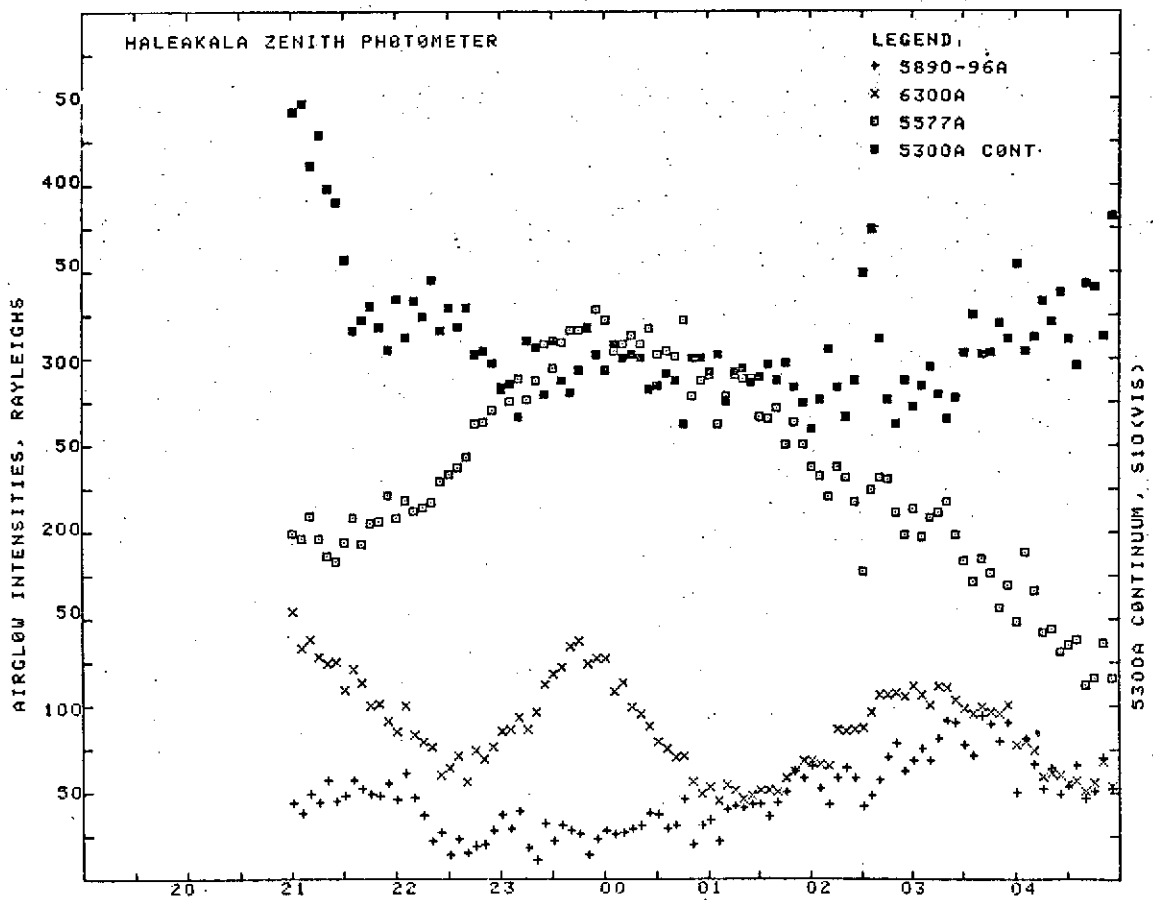
DATE
YR MO DA
61 09 11



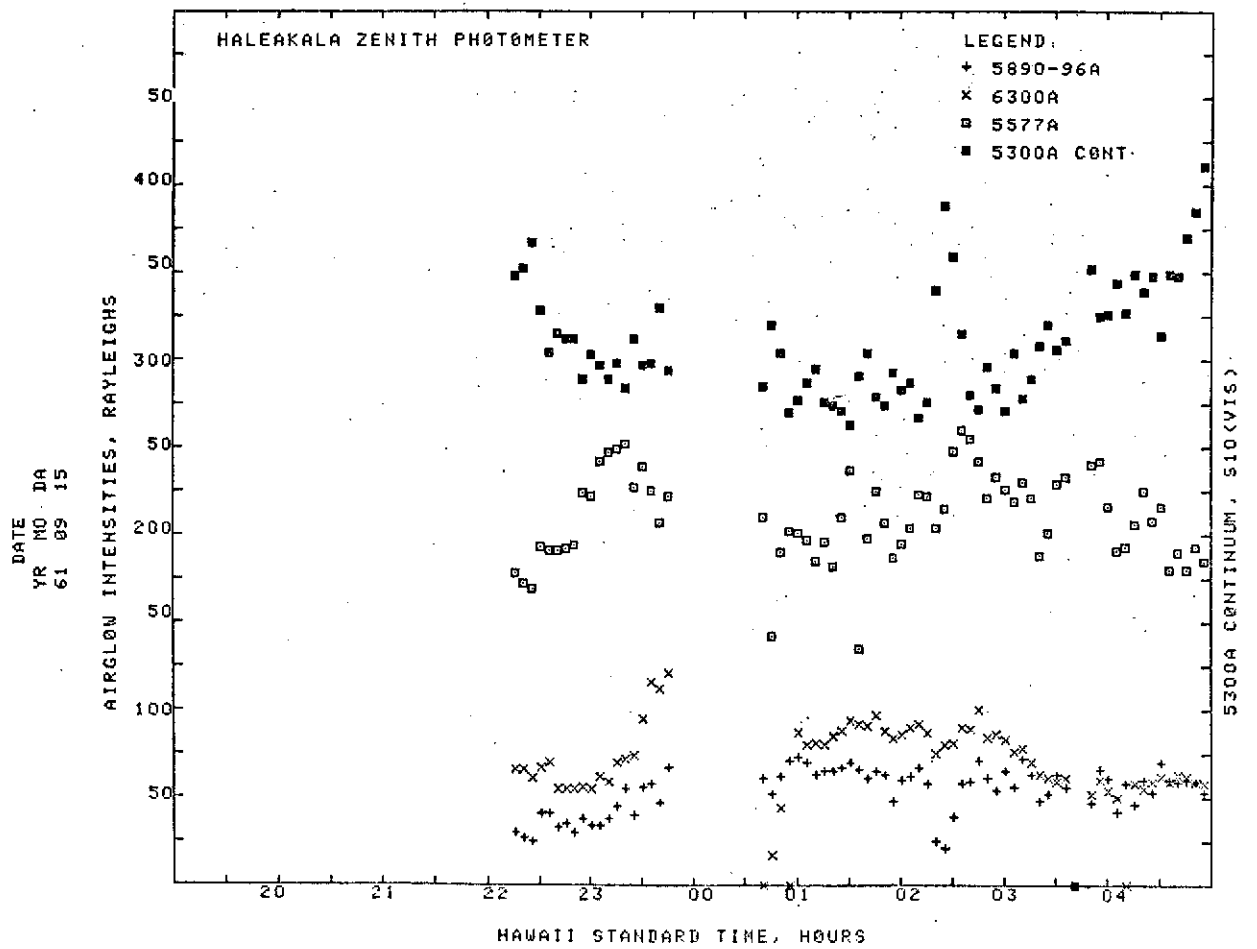
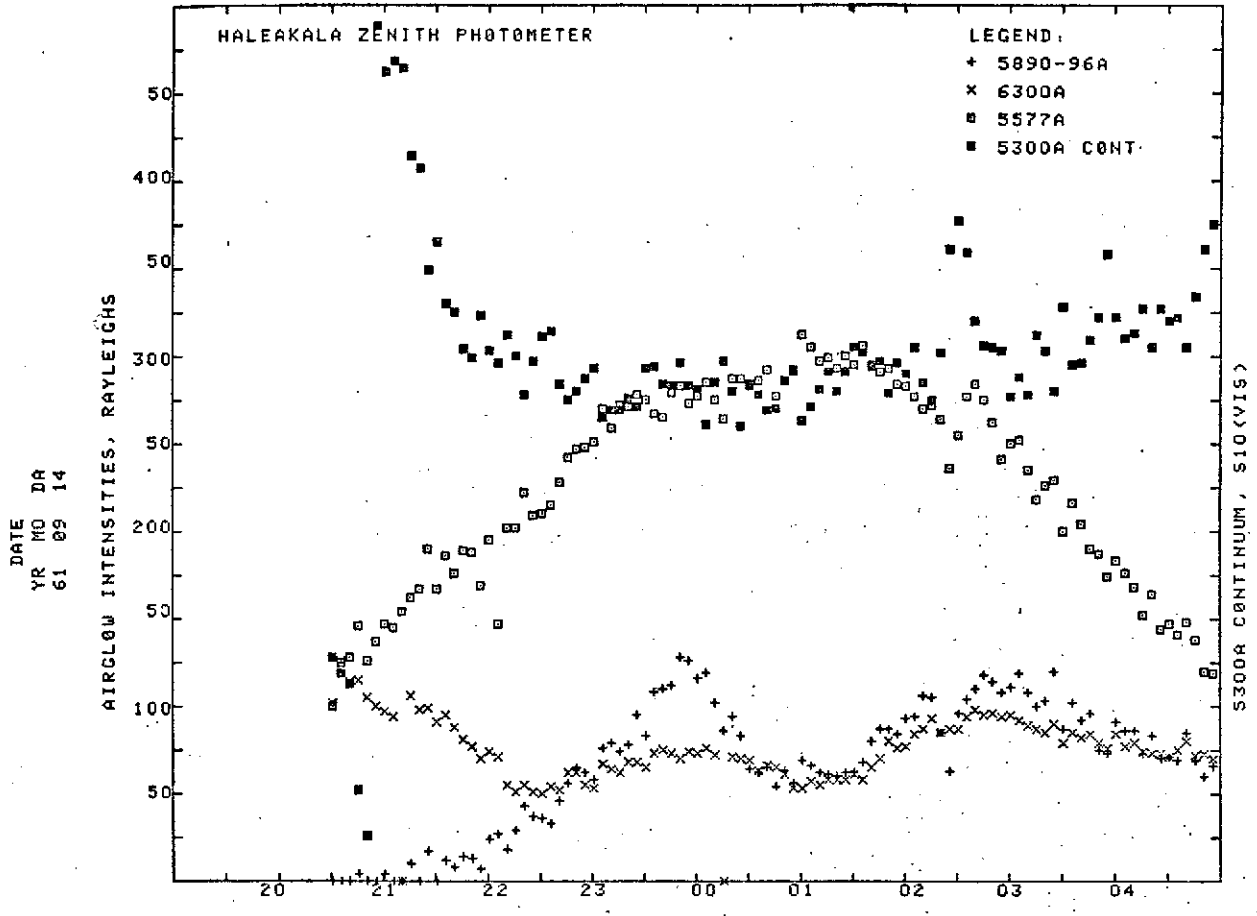
DATE
YR MO DA
61 09 12



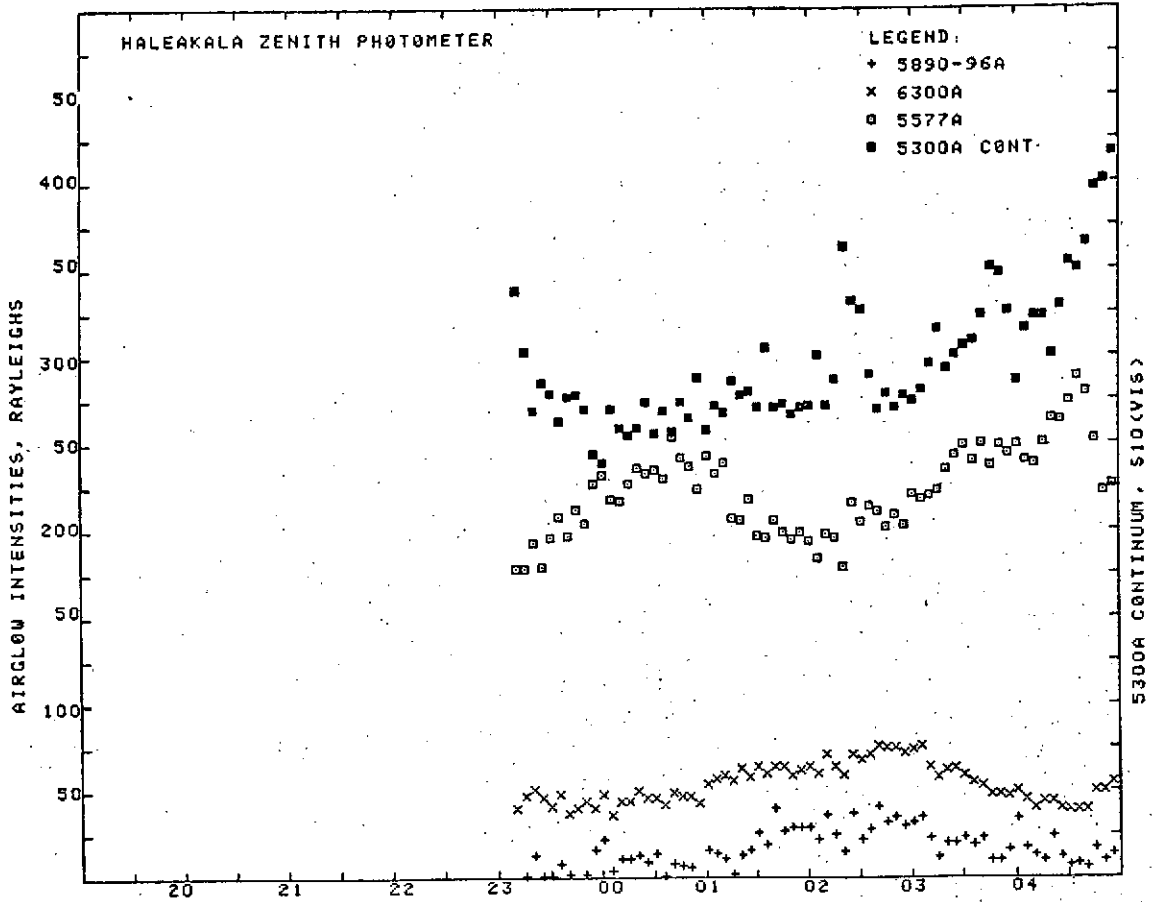
DATE
YR MO DA
61 09 13



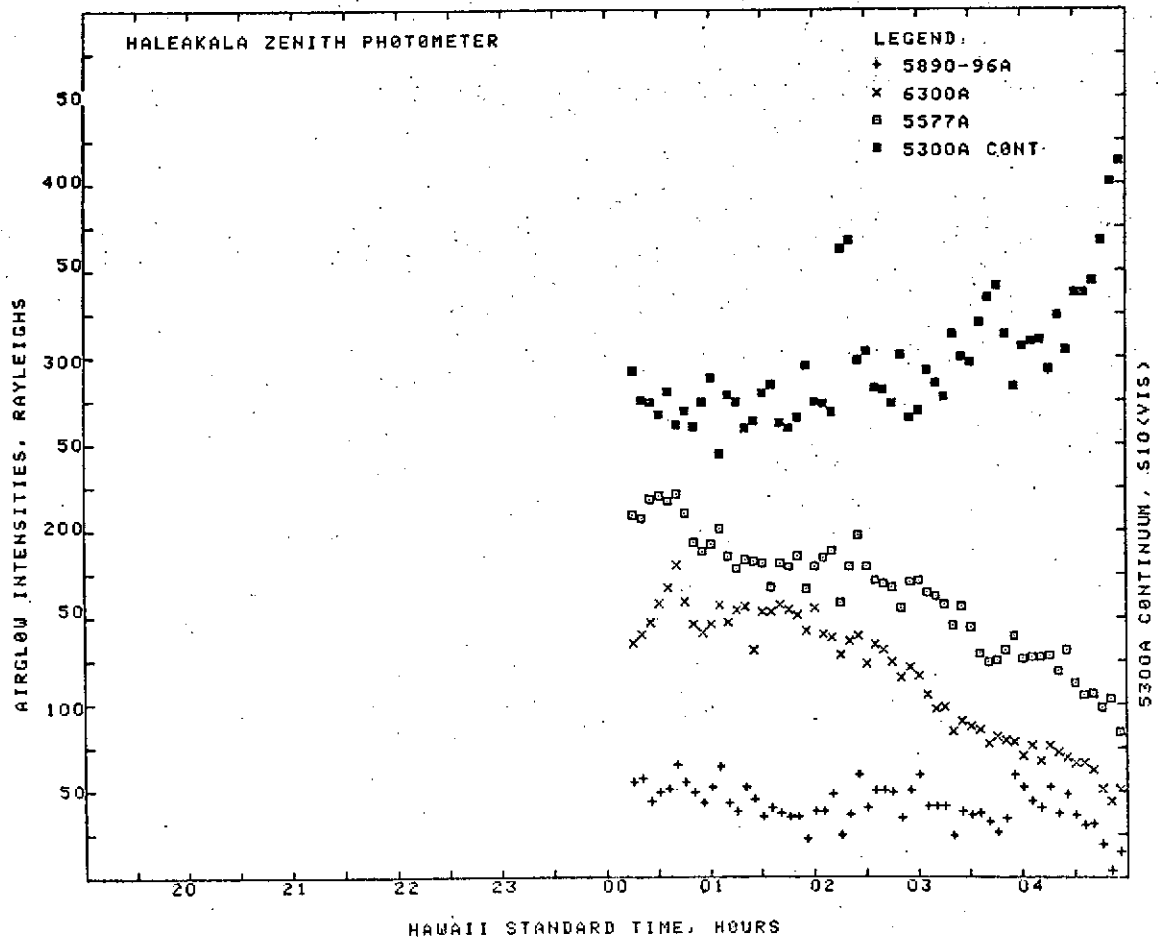
HAWAII STANDARD TIME, HOURS



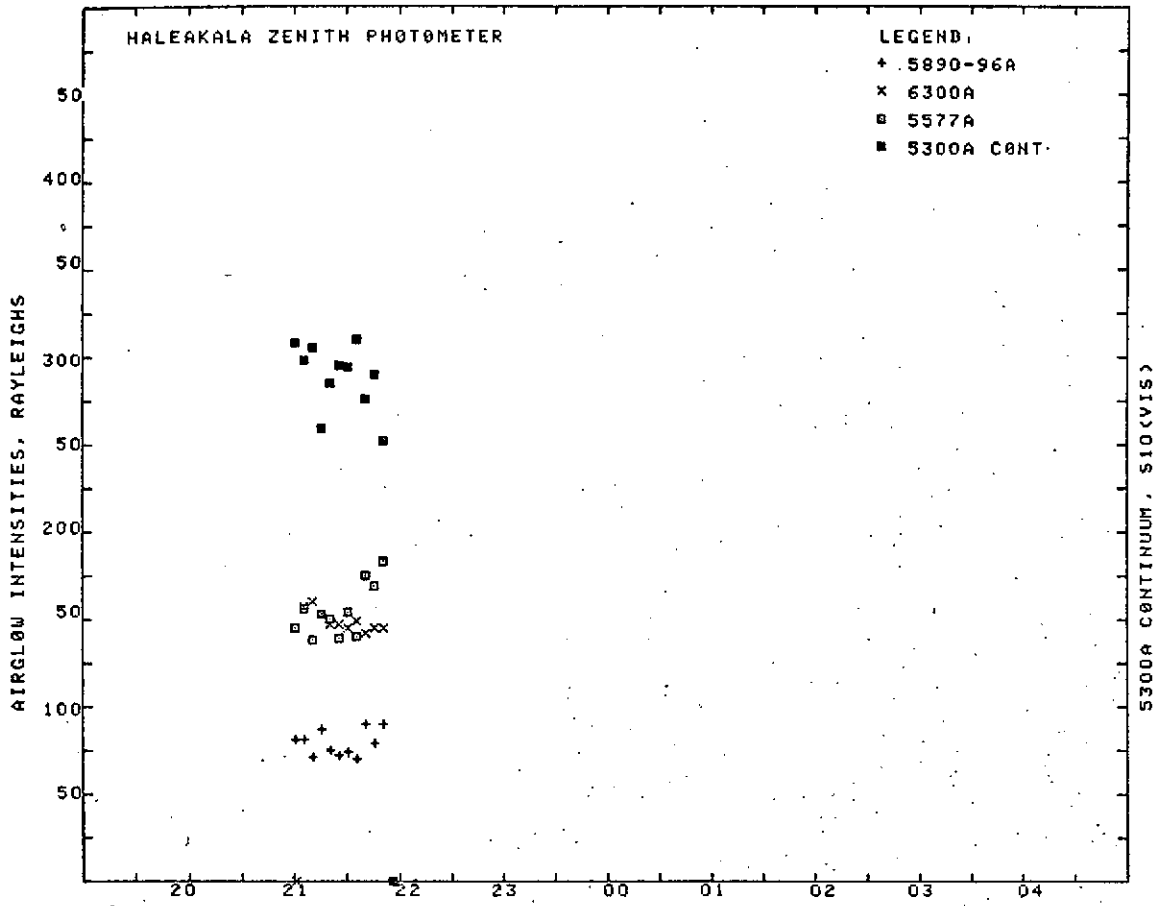
DATE
YR MO DA
61 09 16



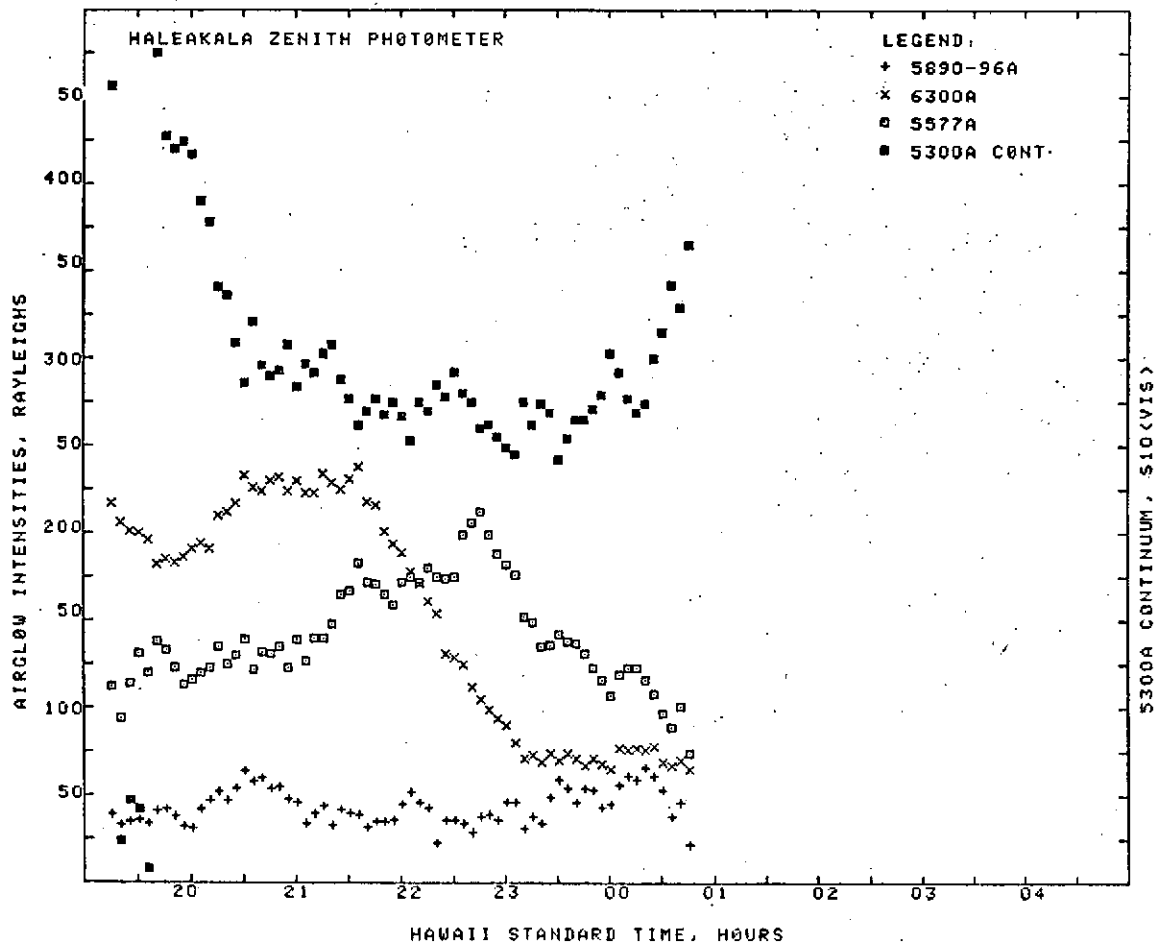
DATE
YR MO DA
61 09 17



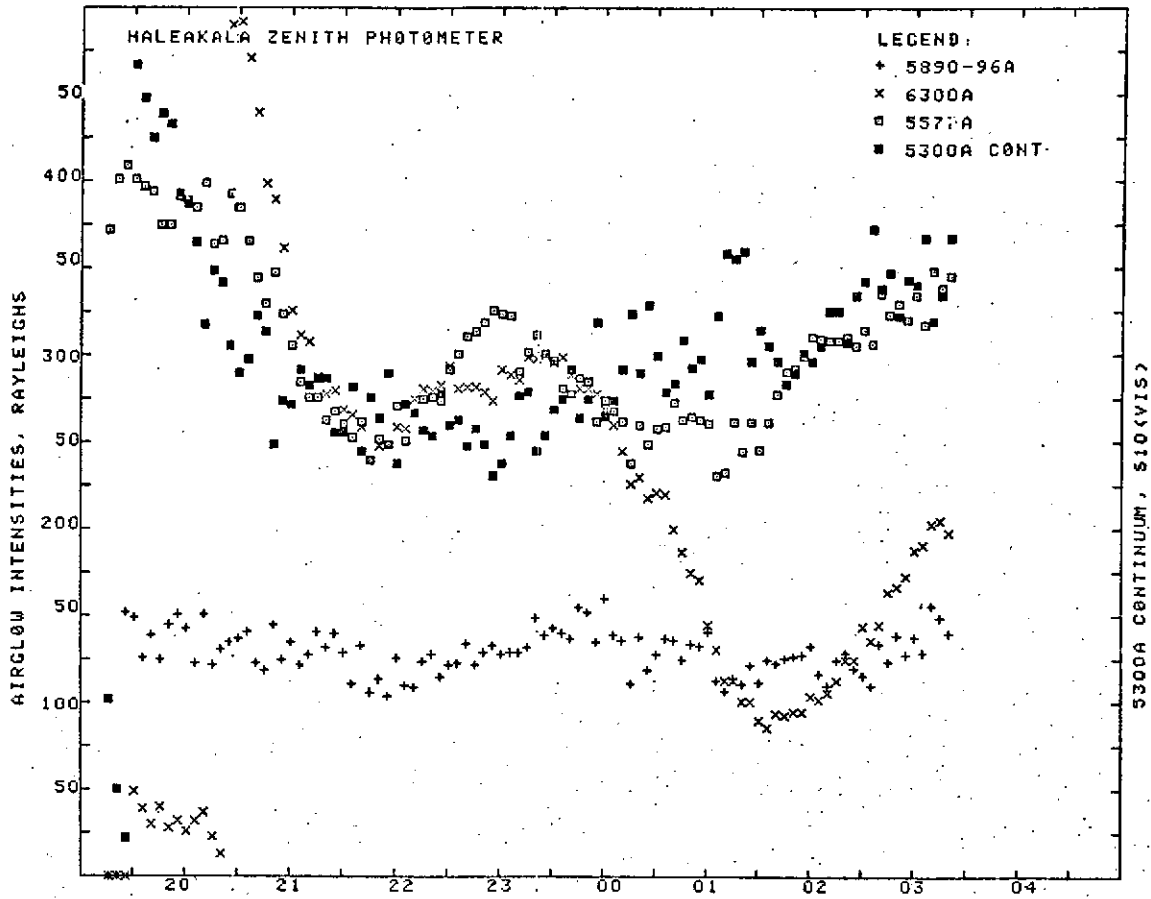
DATE
YR MO DA
61 09 29



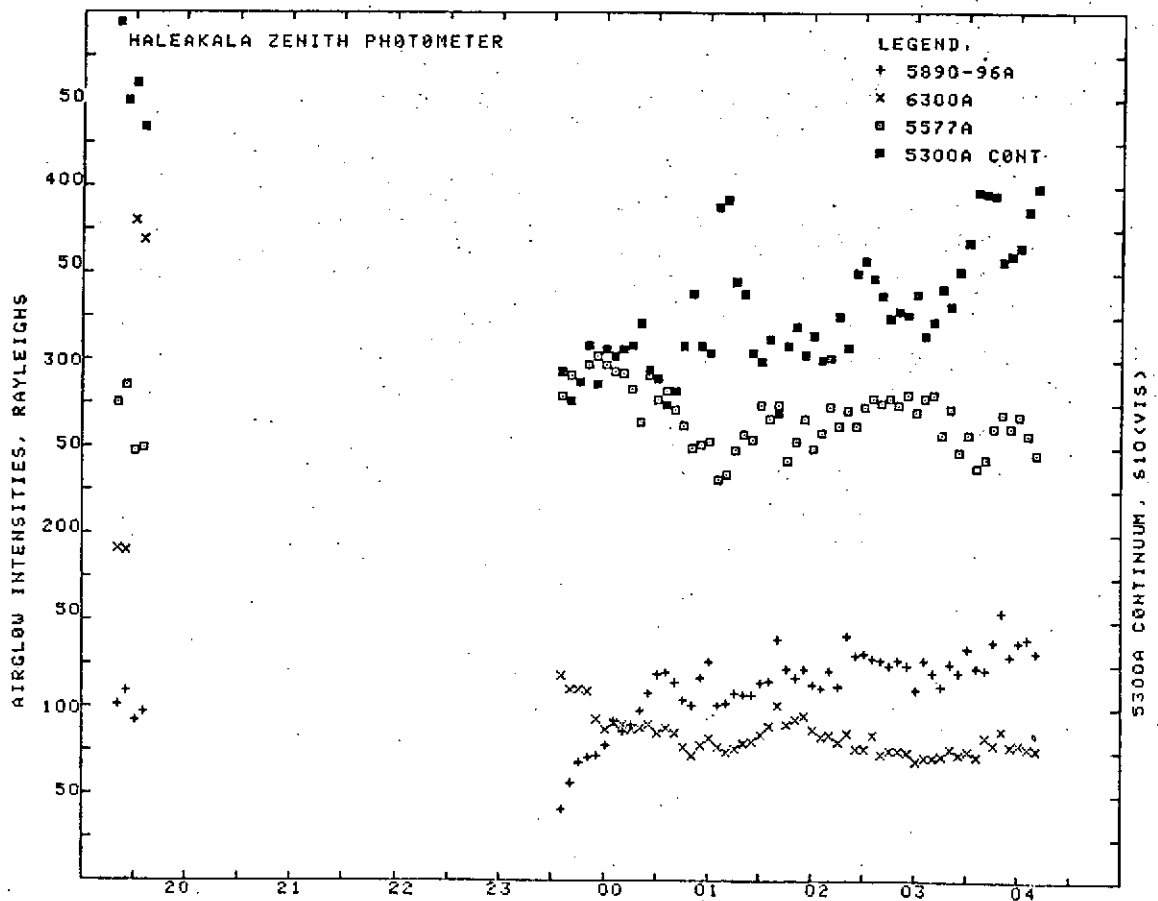
DATE
YR MO DA
61 10 01



DATE
YR MO DA
61 10 04

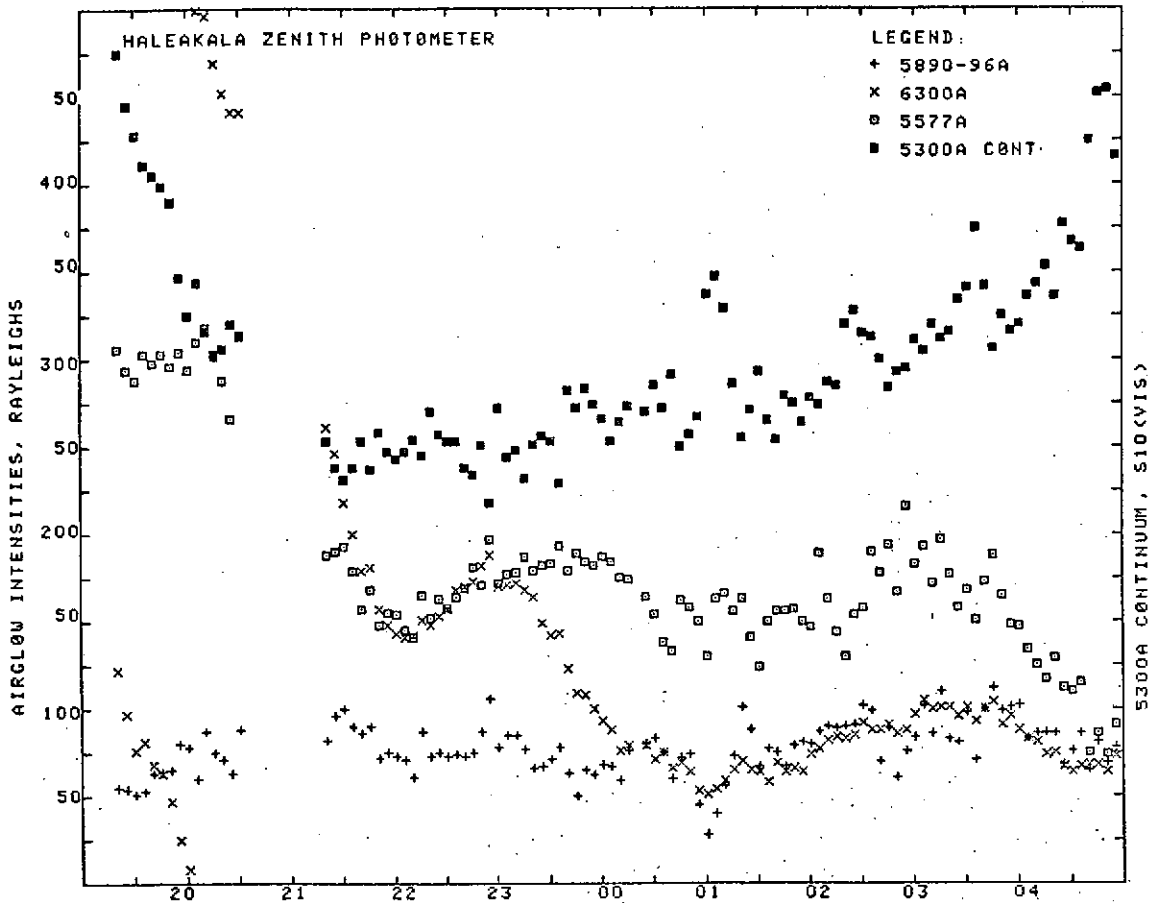


DATE
YR MO DA
61 10 05

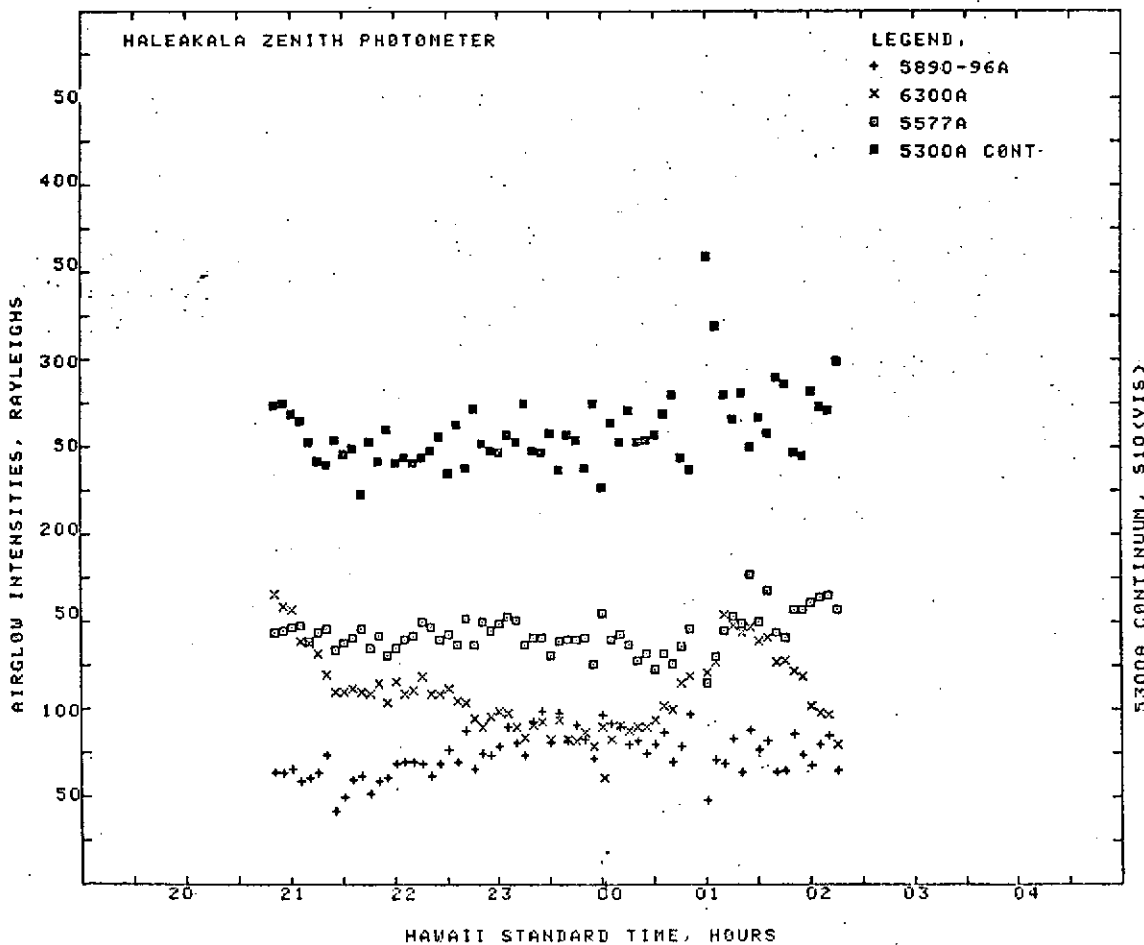


HAWAII STANDARD TIME, HOURS

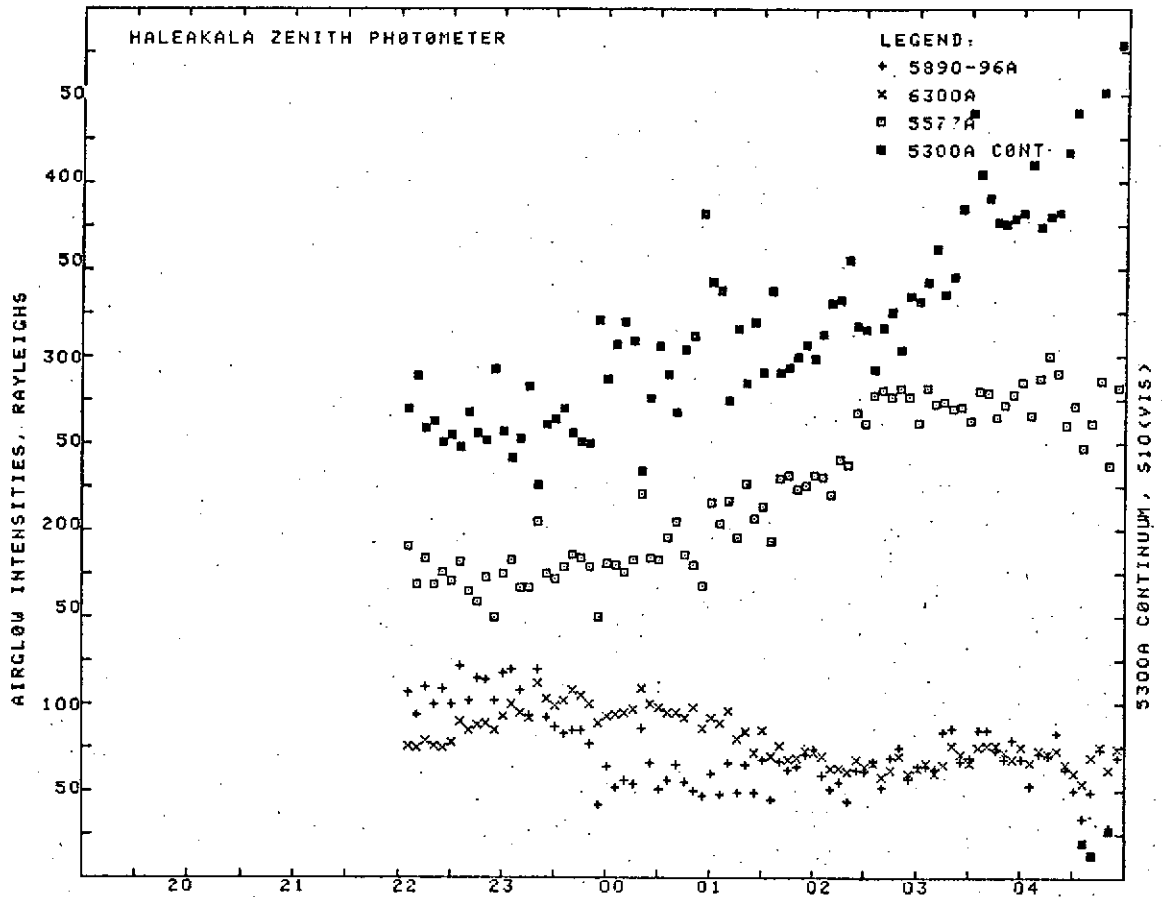
DATE
YR MO DA
61 10 06



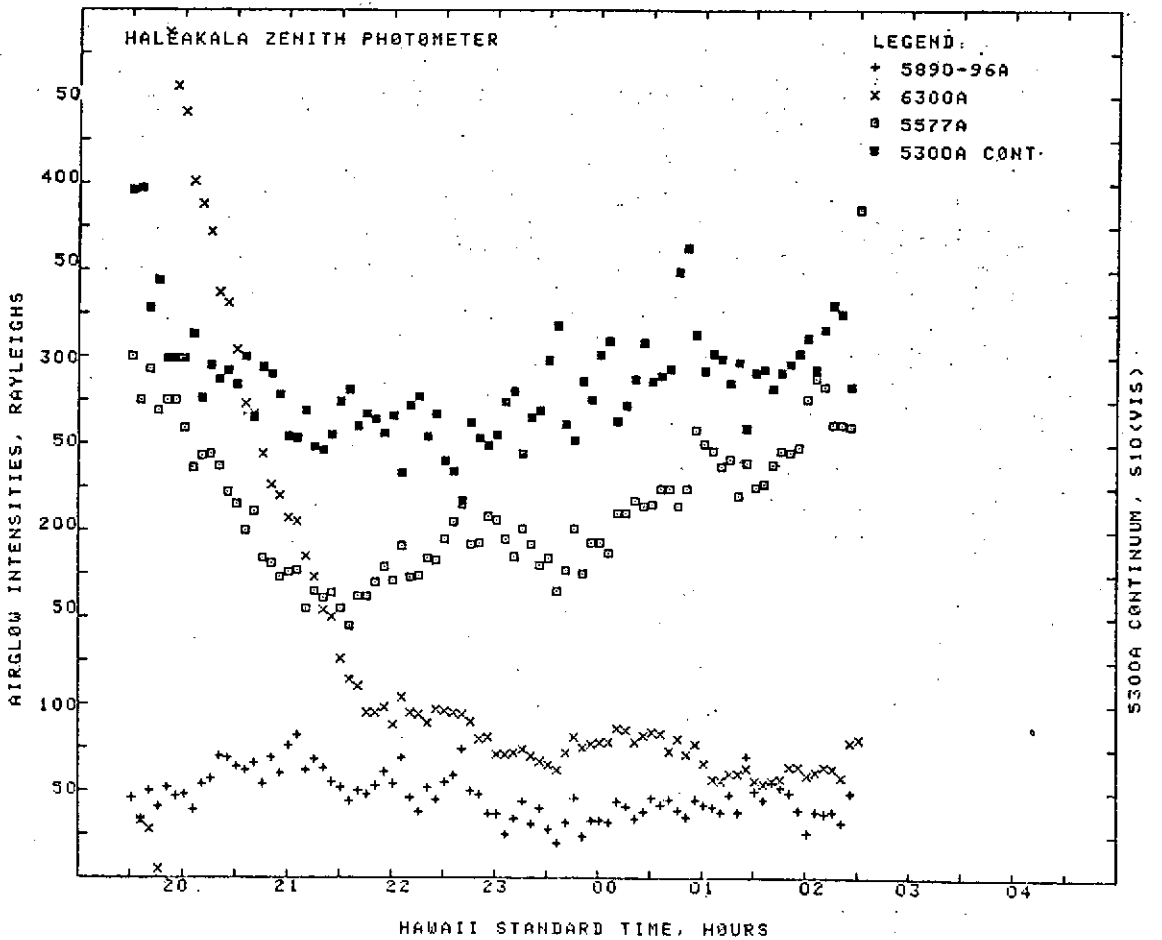
DATE
YR MO DA
61 10 07



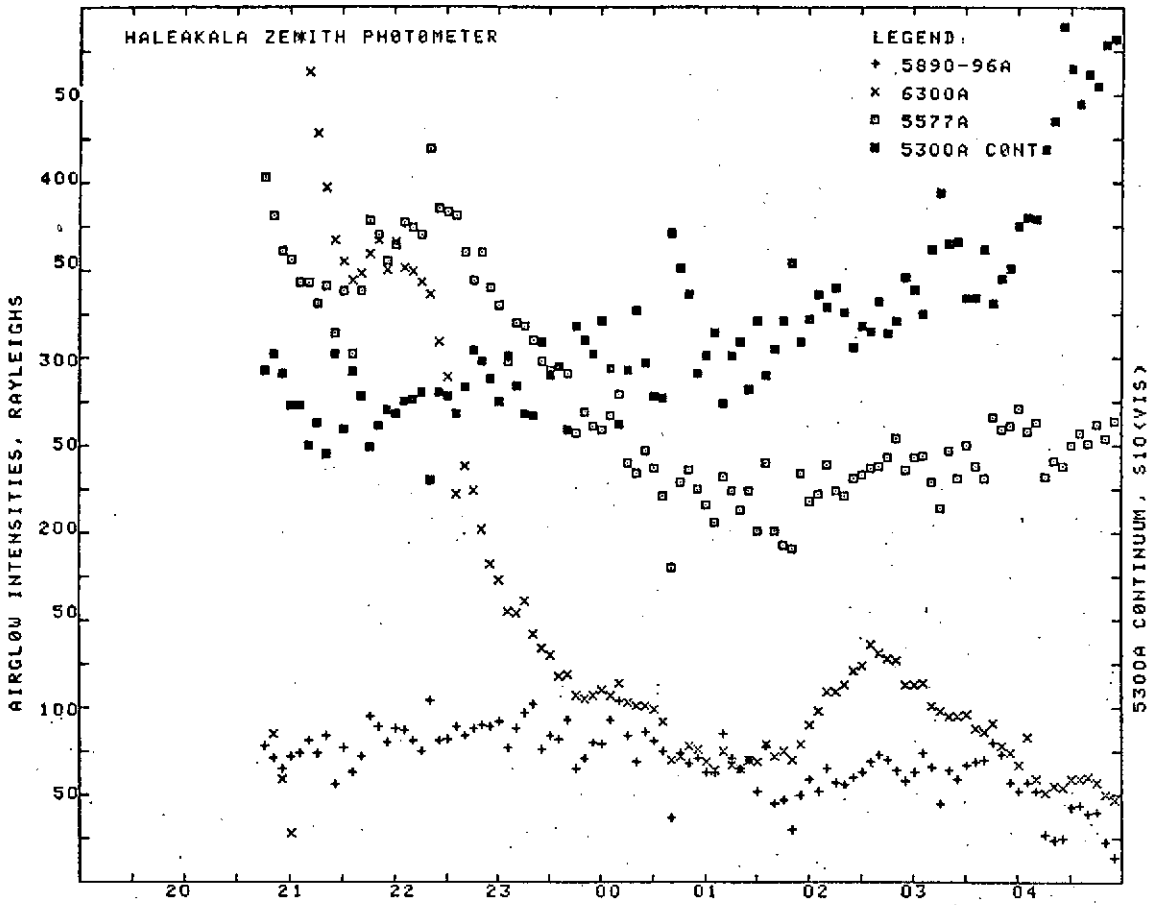
DATE
YR MO DA
61 10 08



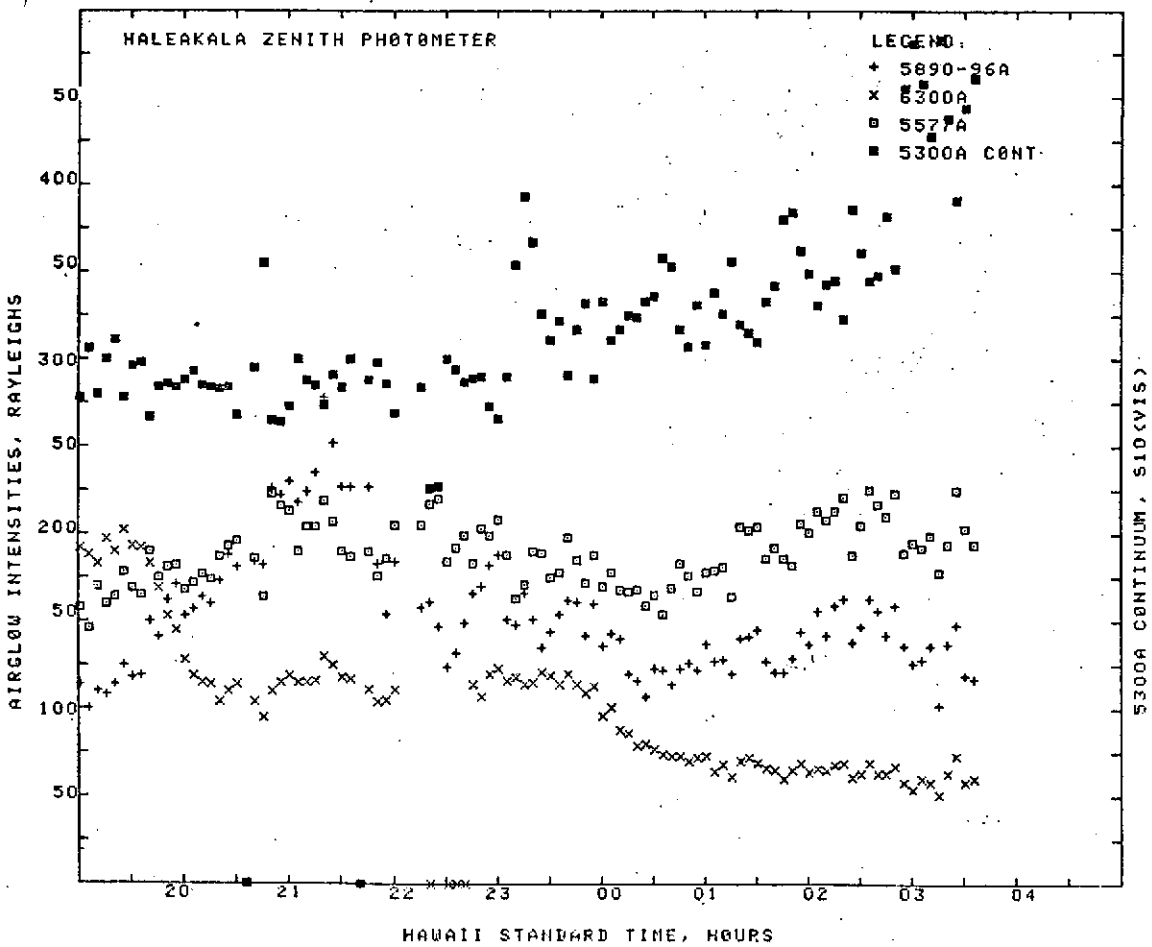
DATE
YR MO DA
61 10 10



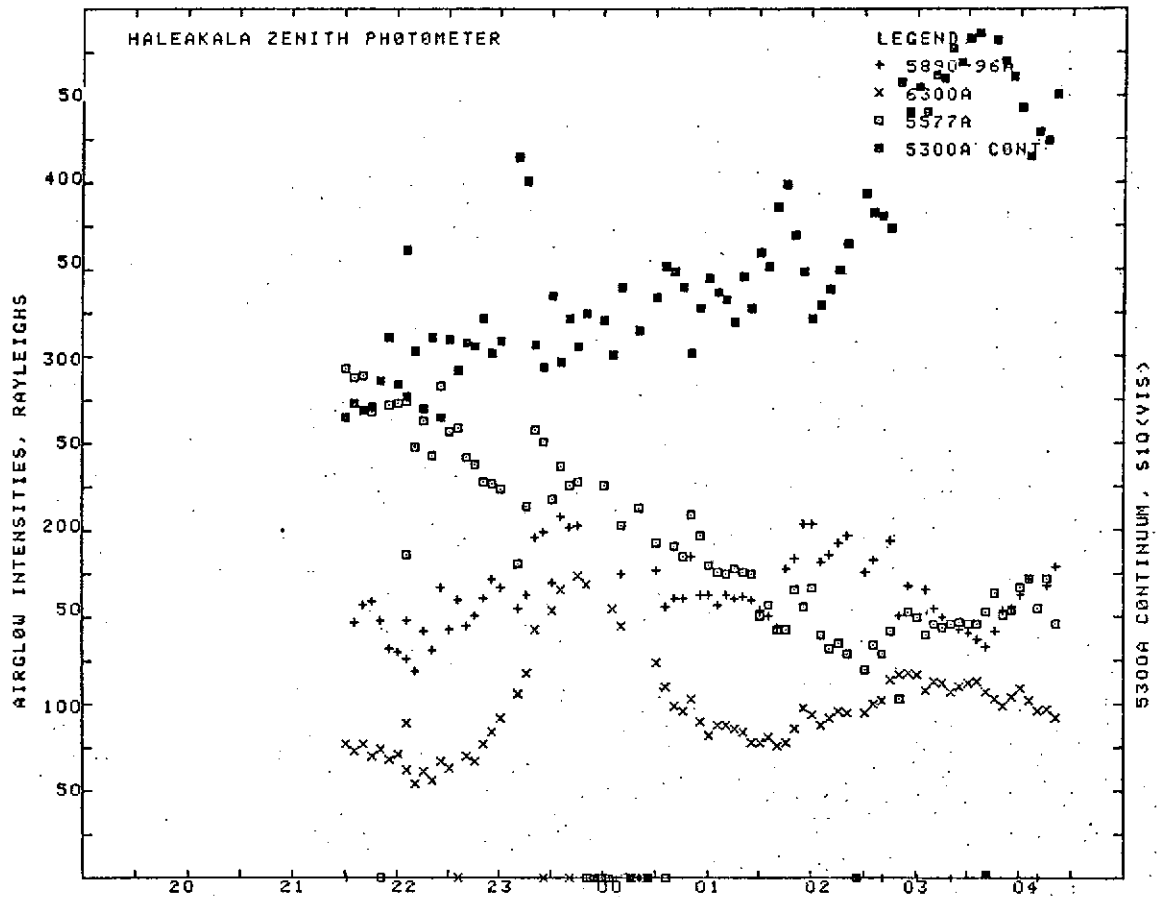
DATE
YR MO DA
61 10 11



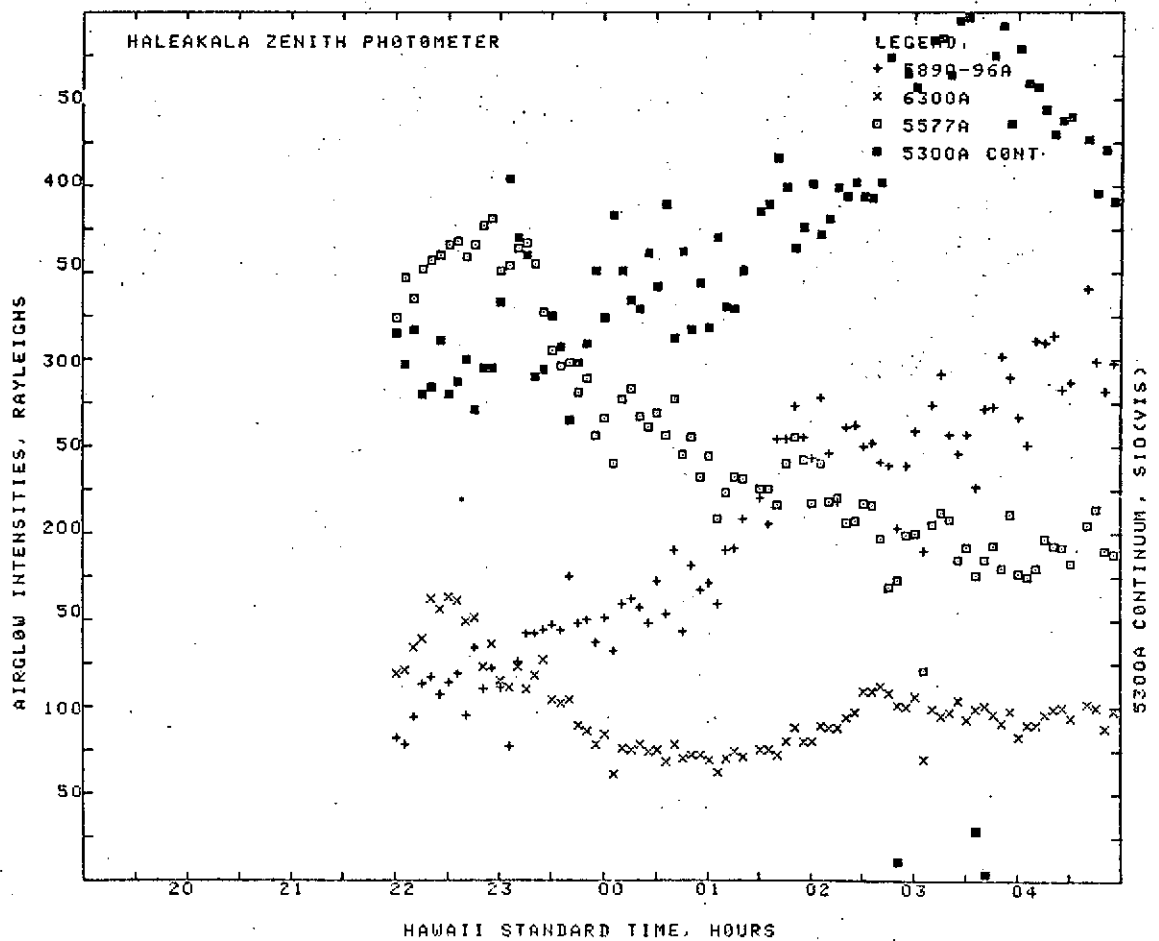
DATE
YR MO DA
61 11 03



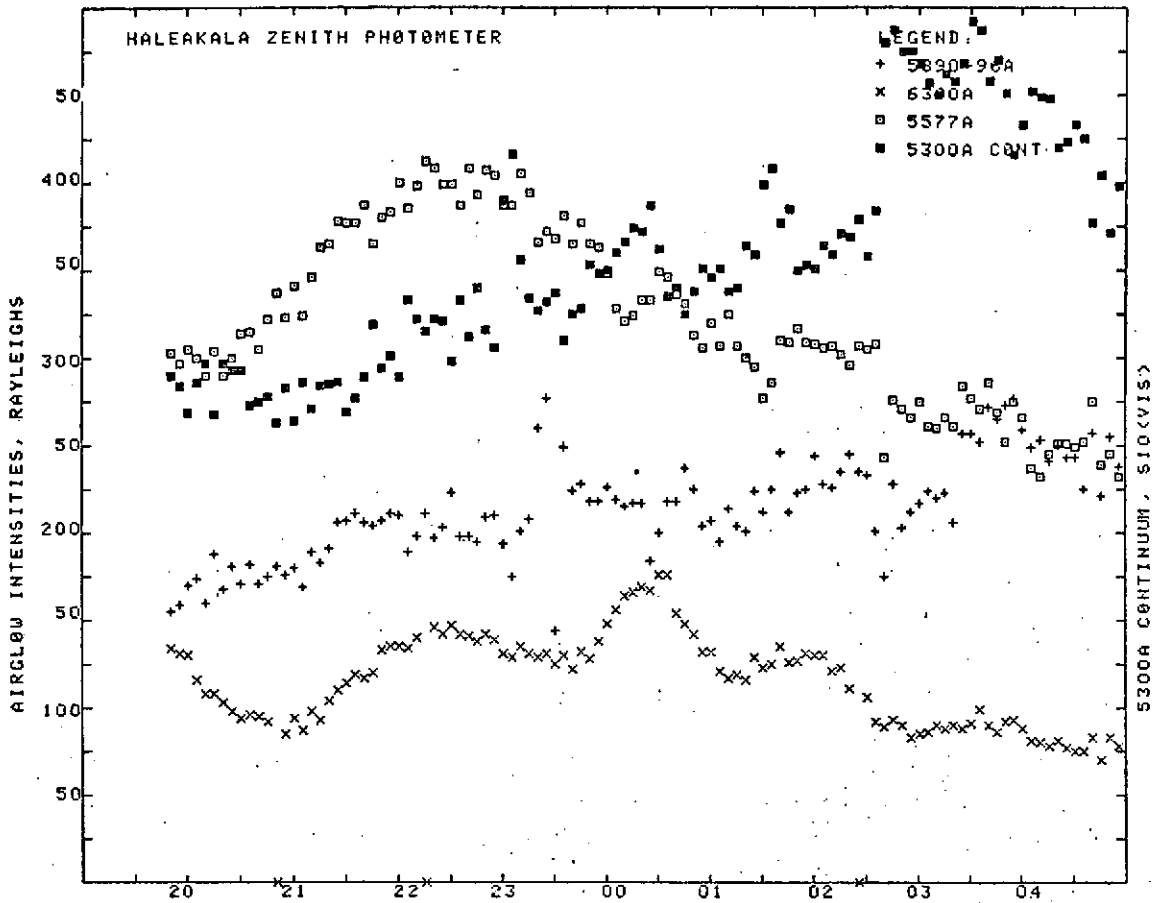
DATE
YR MO DA
61 11 04



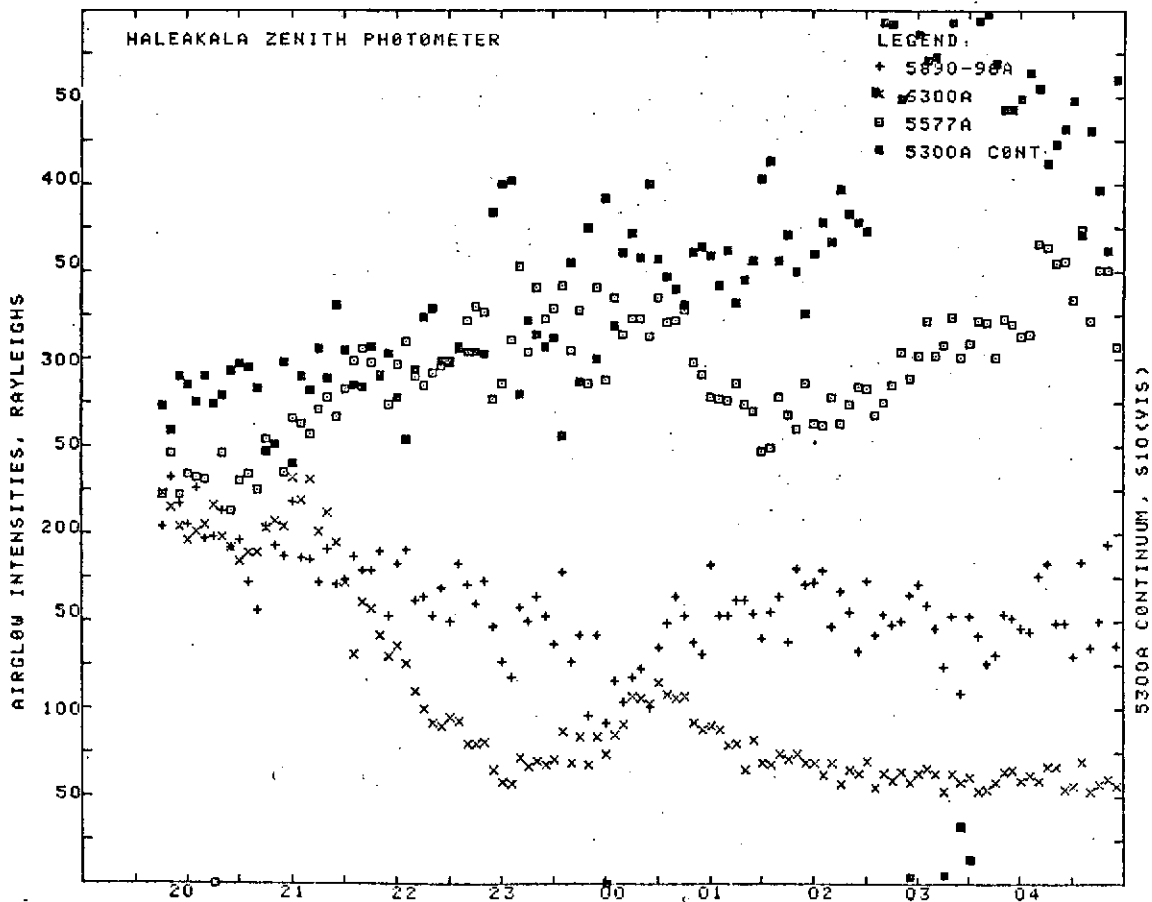
DATE
YR MO DA
61 11 05



DATE YR MO DA
61 11 06

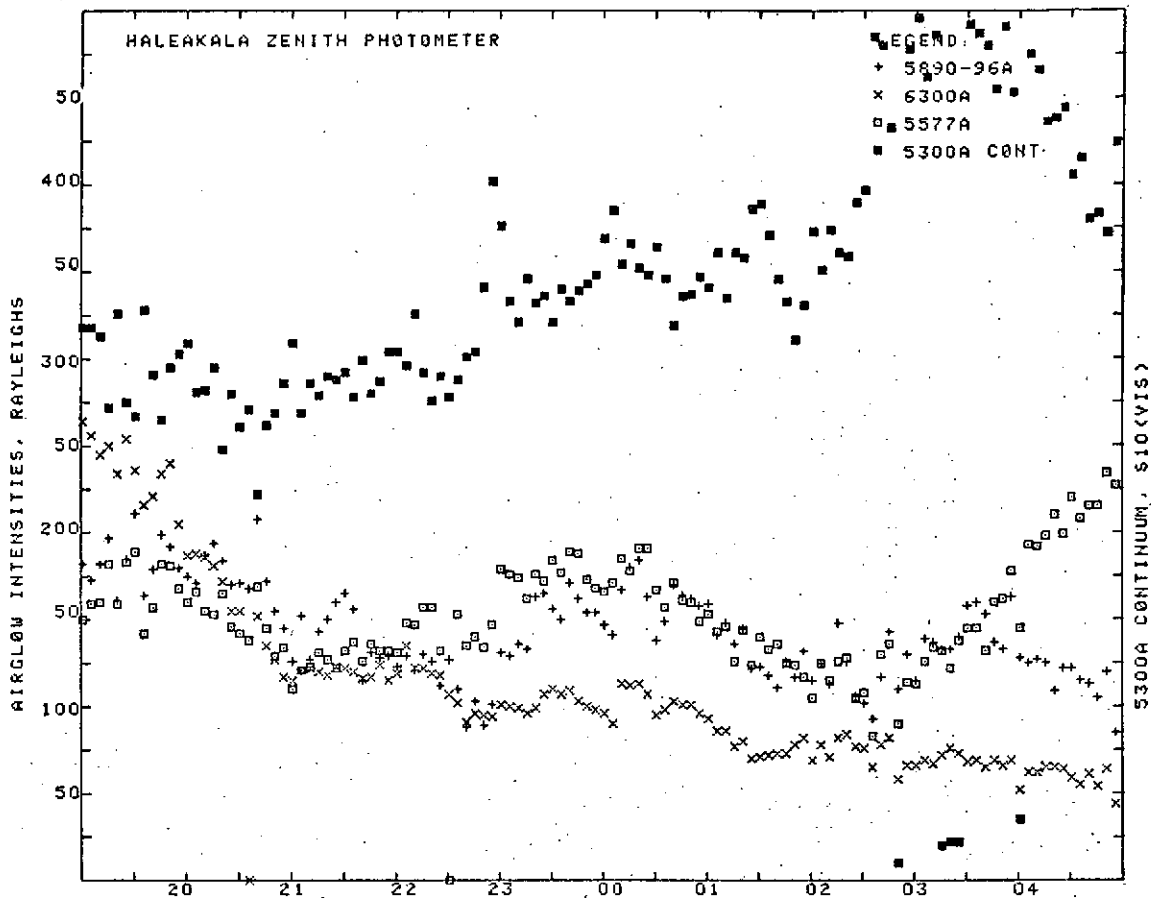


DATE YR MO DA
61 11 07

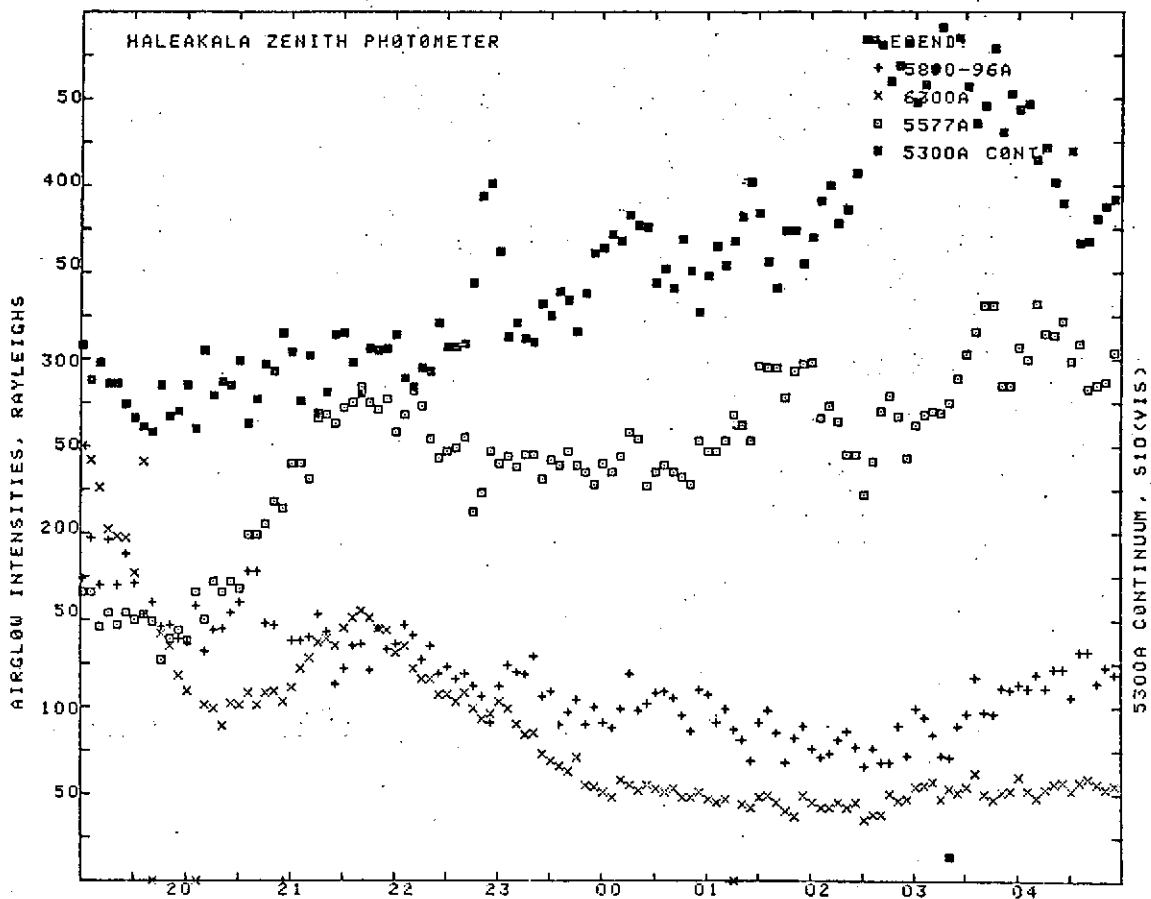


HAWAII STANDARD TIME, HOURS

DATE
YR MO DA
61 11 08

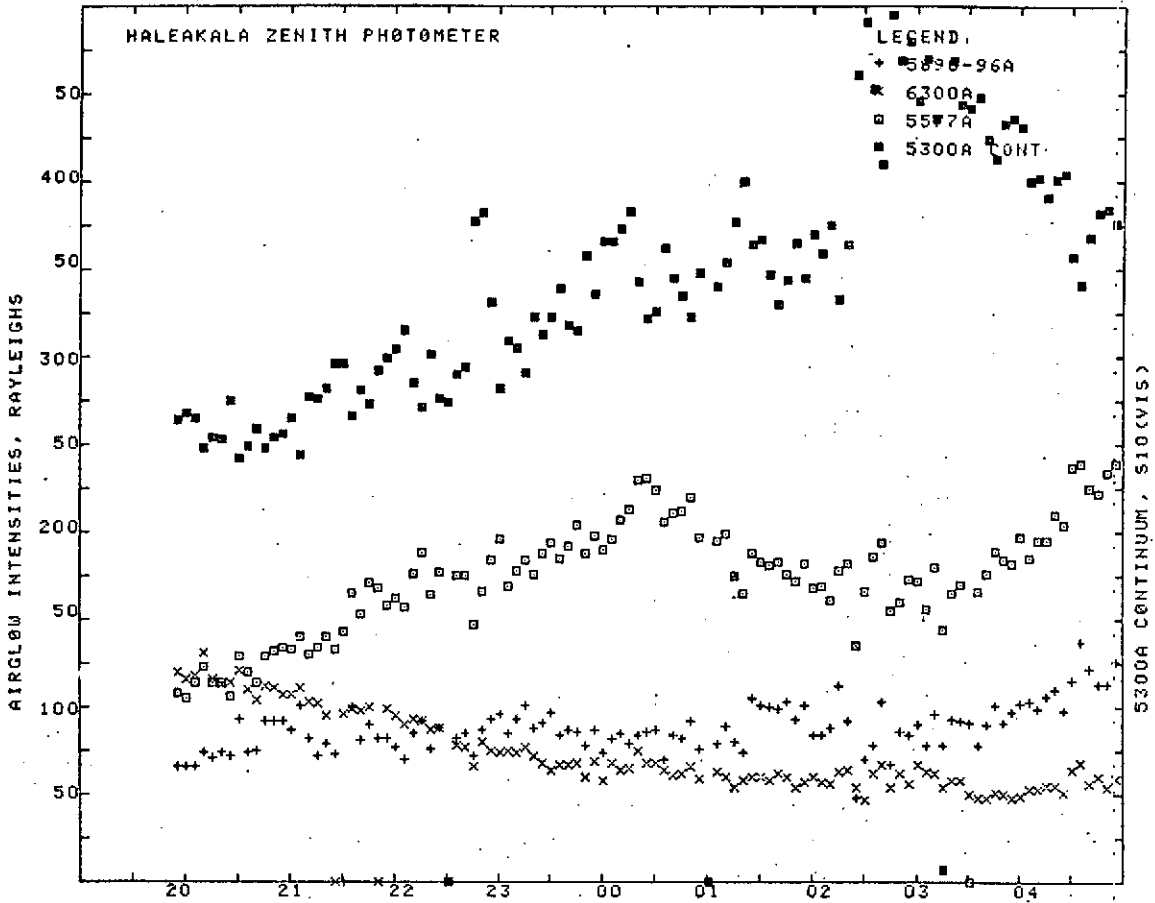


DATE
YR MO DA
61 11 09

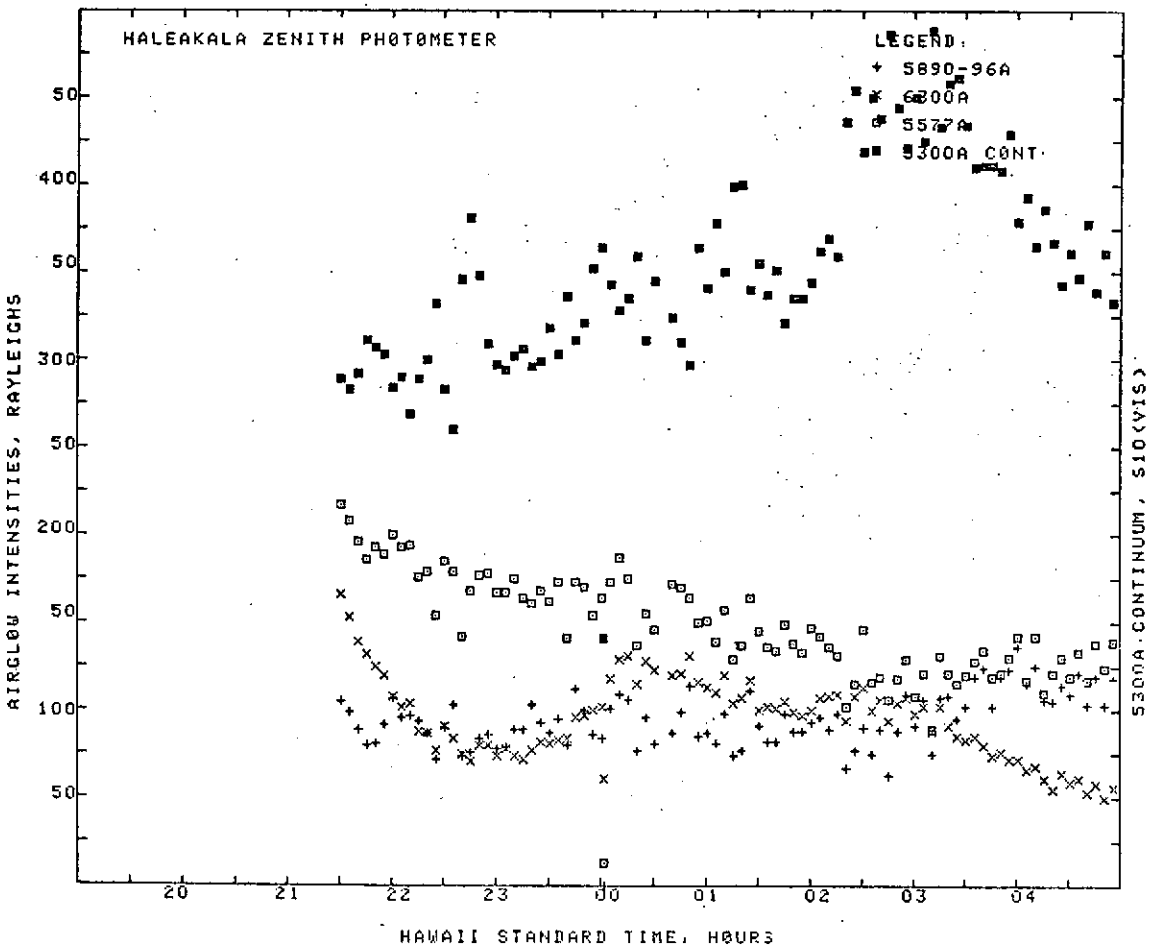


HAWAII STANDARD TIME, HOURS

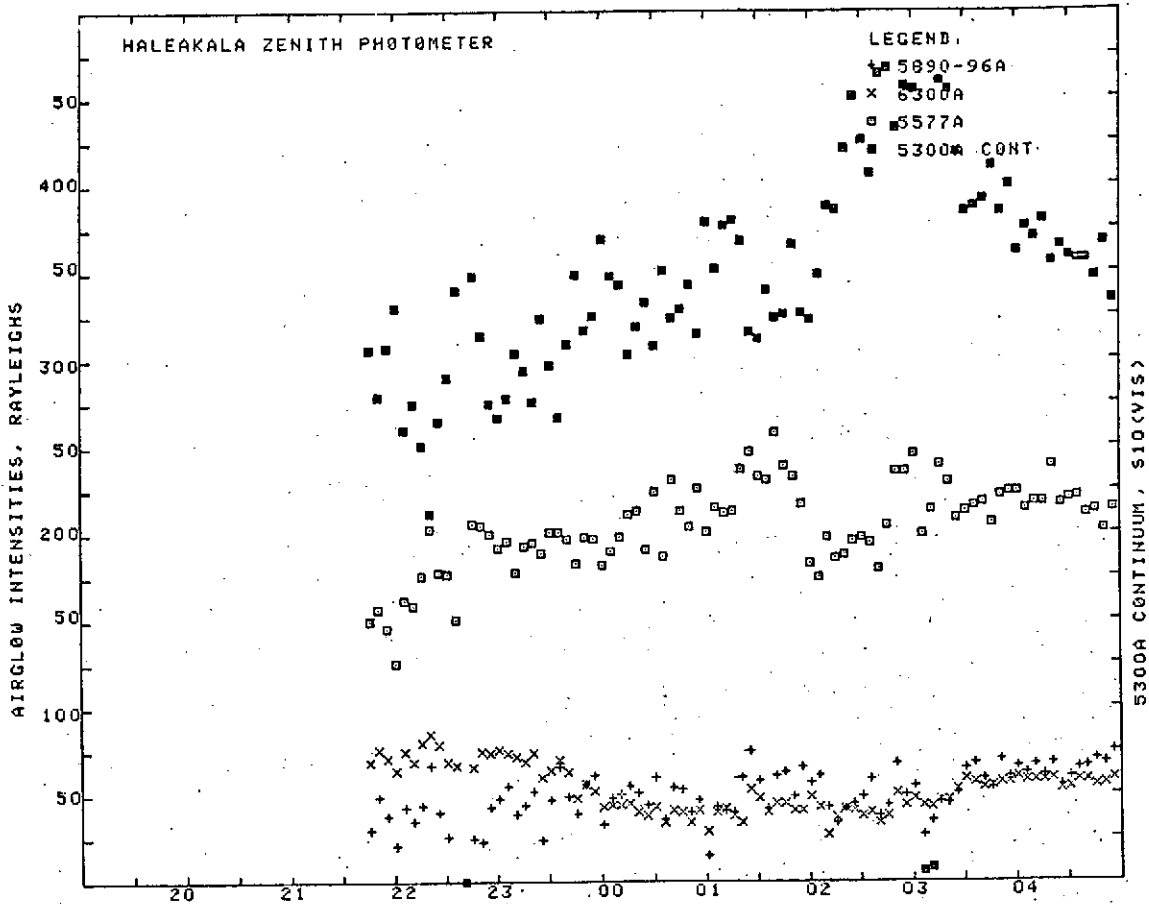
DATE
YR MO DA
61 11 10



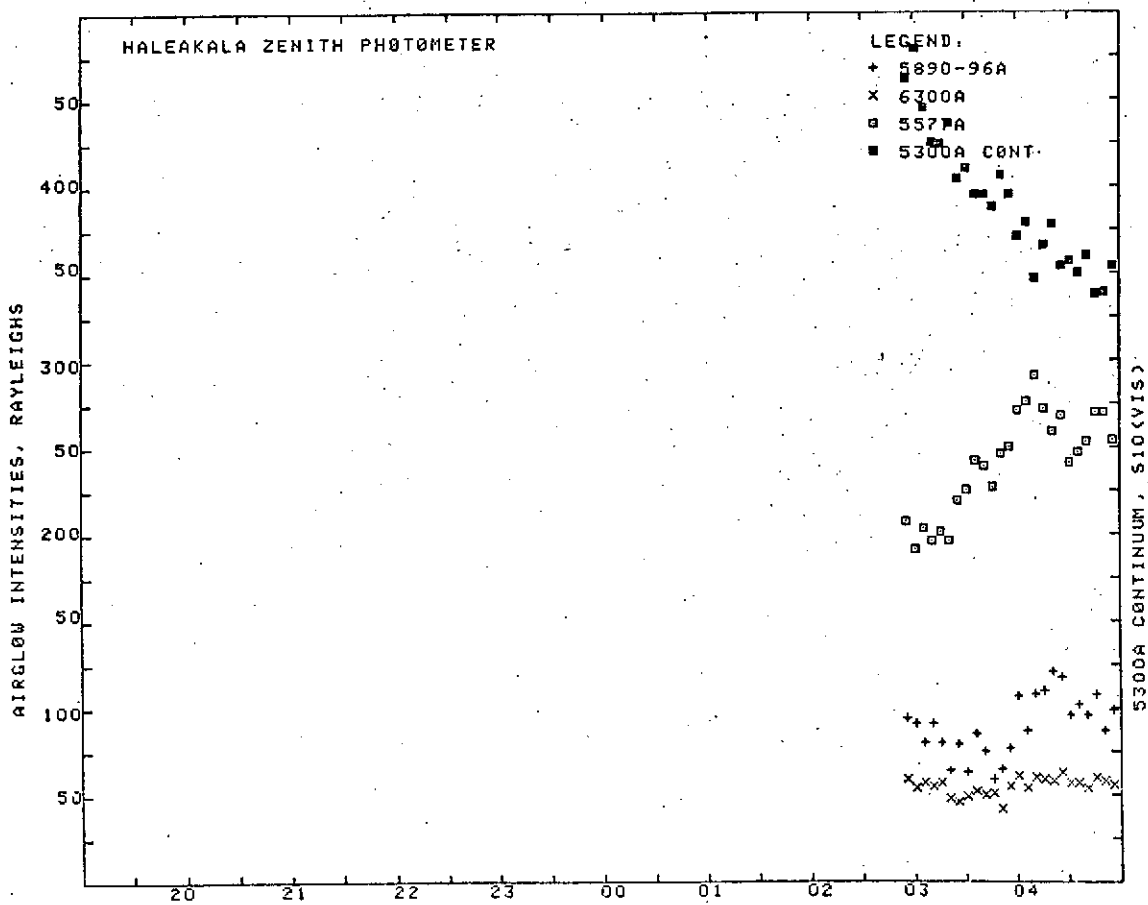
DATE
YR MO DA
61 11 11



DATE
YR MO DA
61 11 12

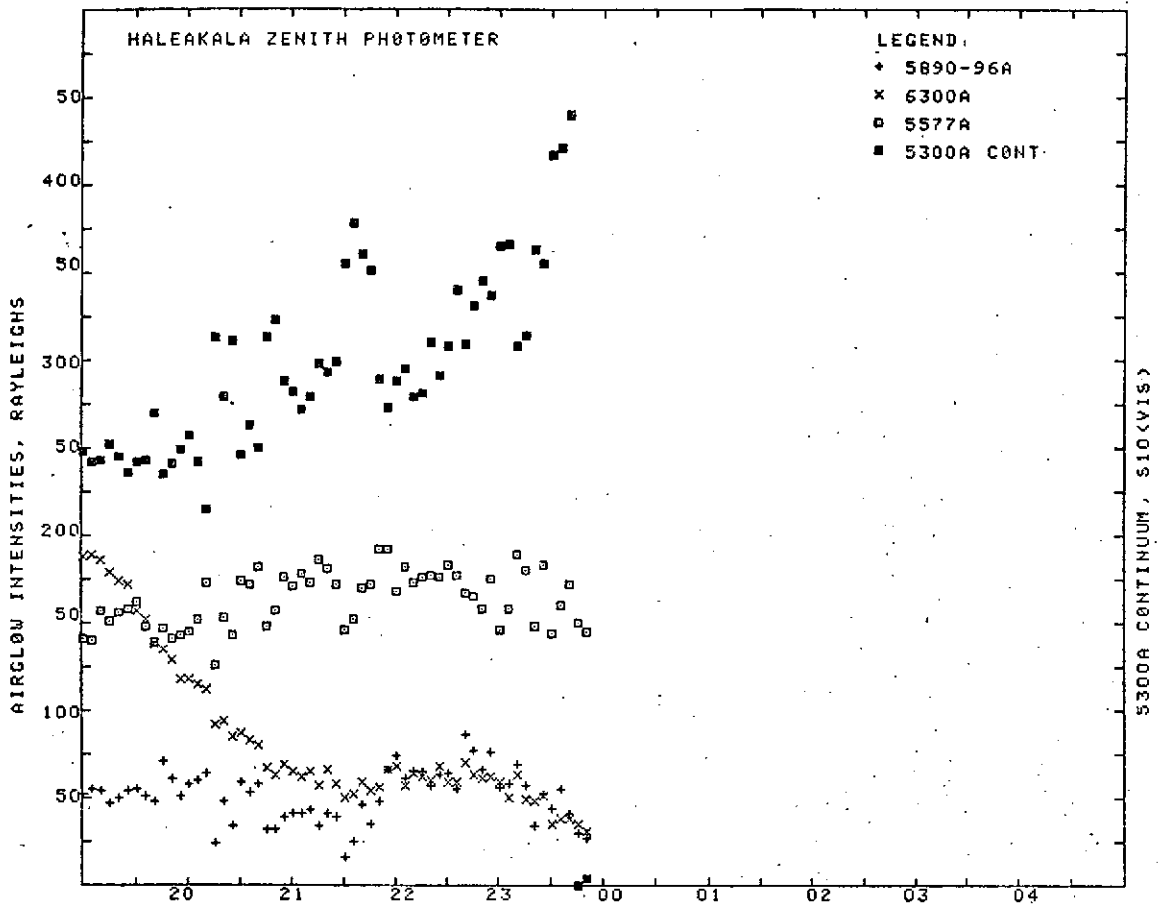


DATE
YR MO DA
61 11 16

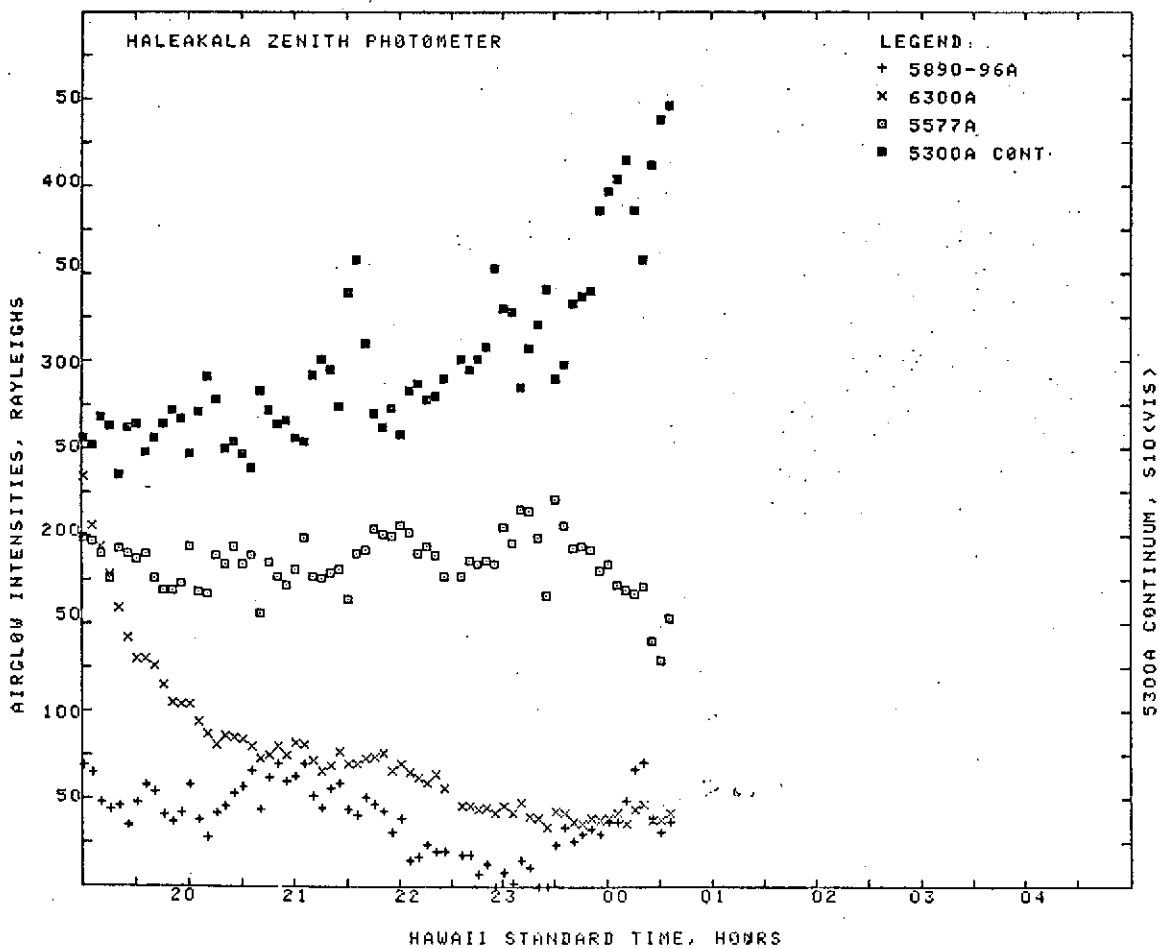


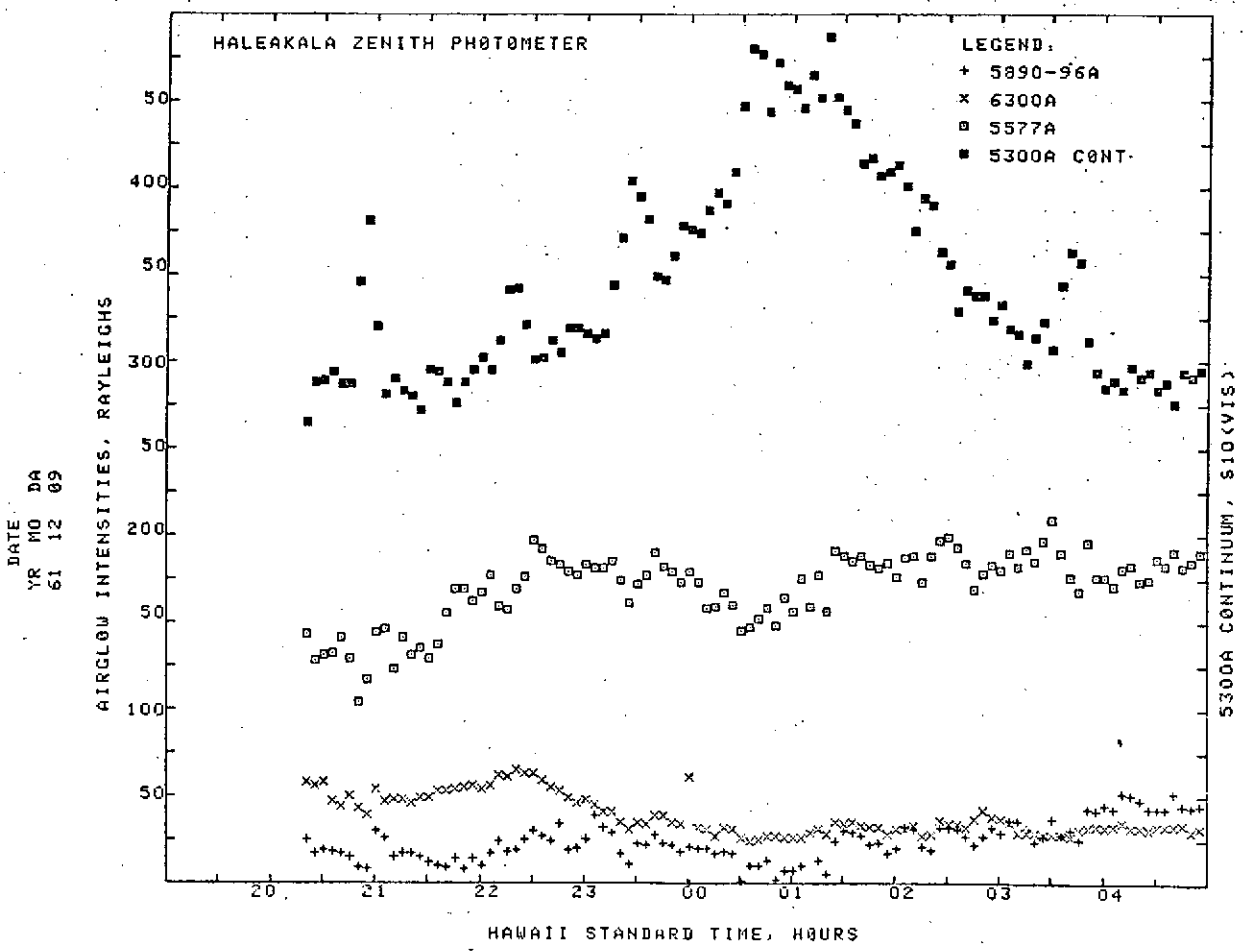
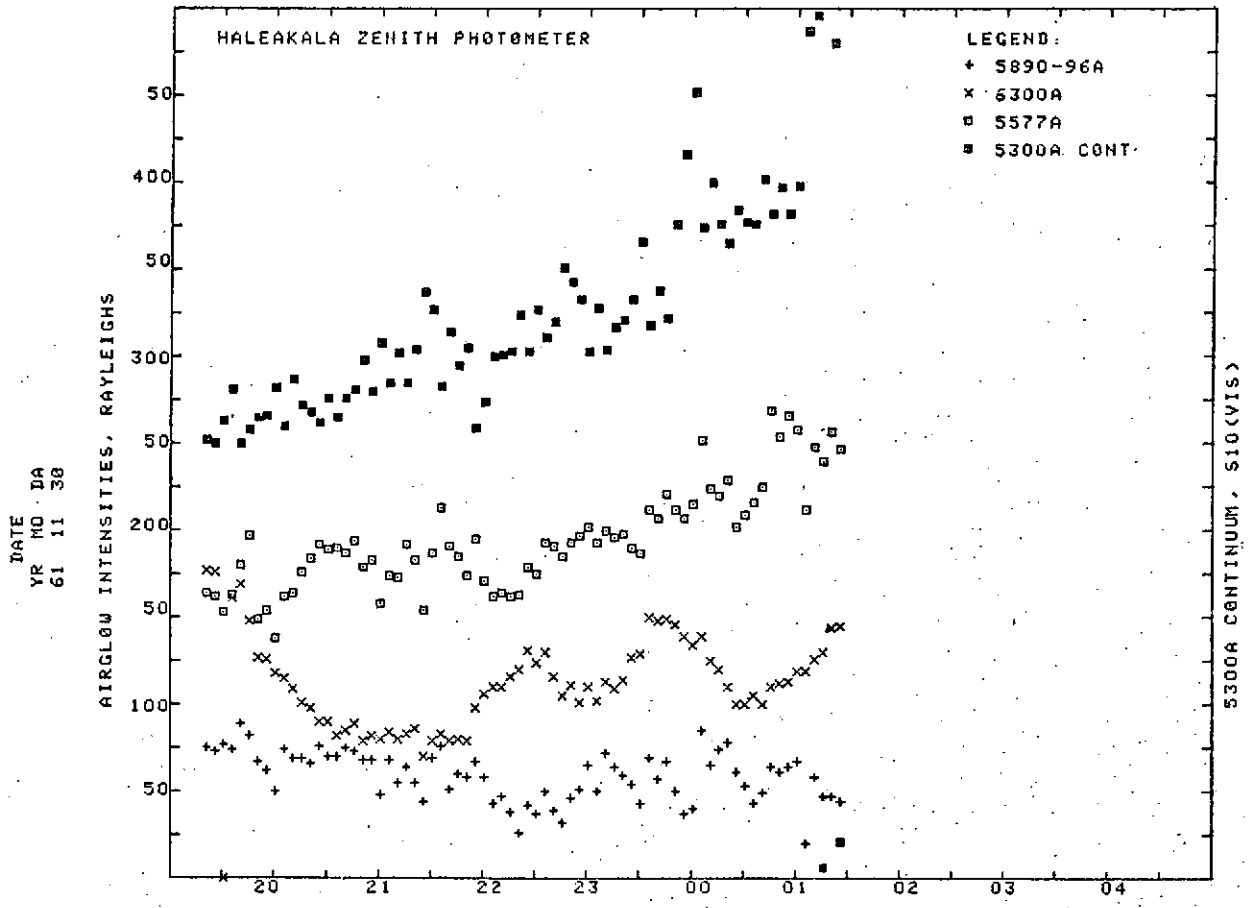
HAWAII STANDARD TIME, HOURS

DATE
YR MO DA
61 11 28

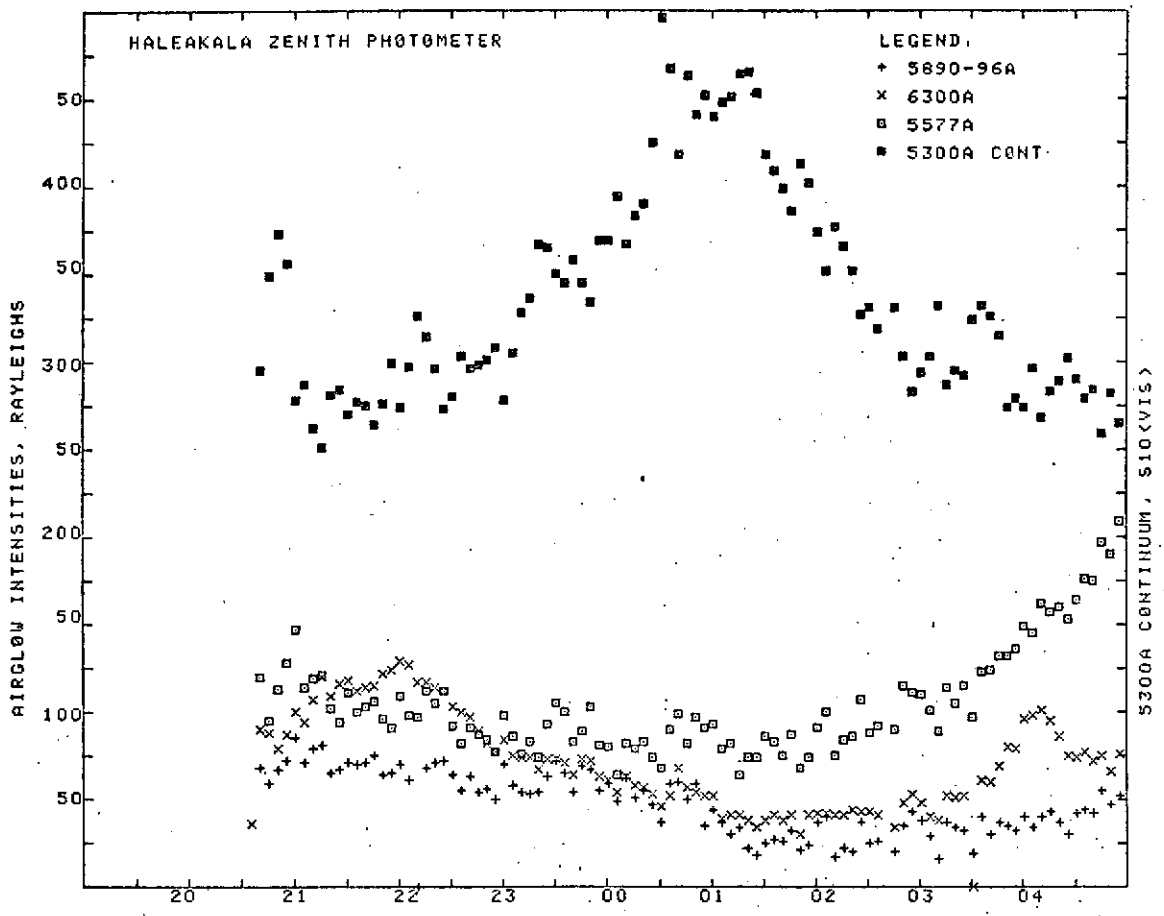


DATE
YR MO DA
61 11 29

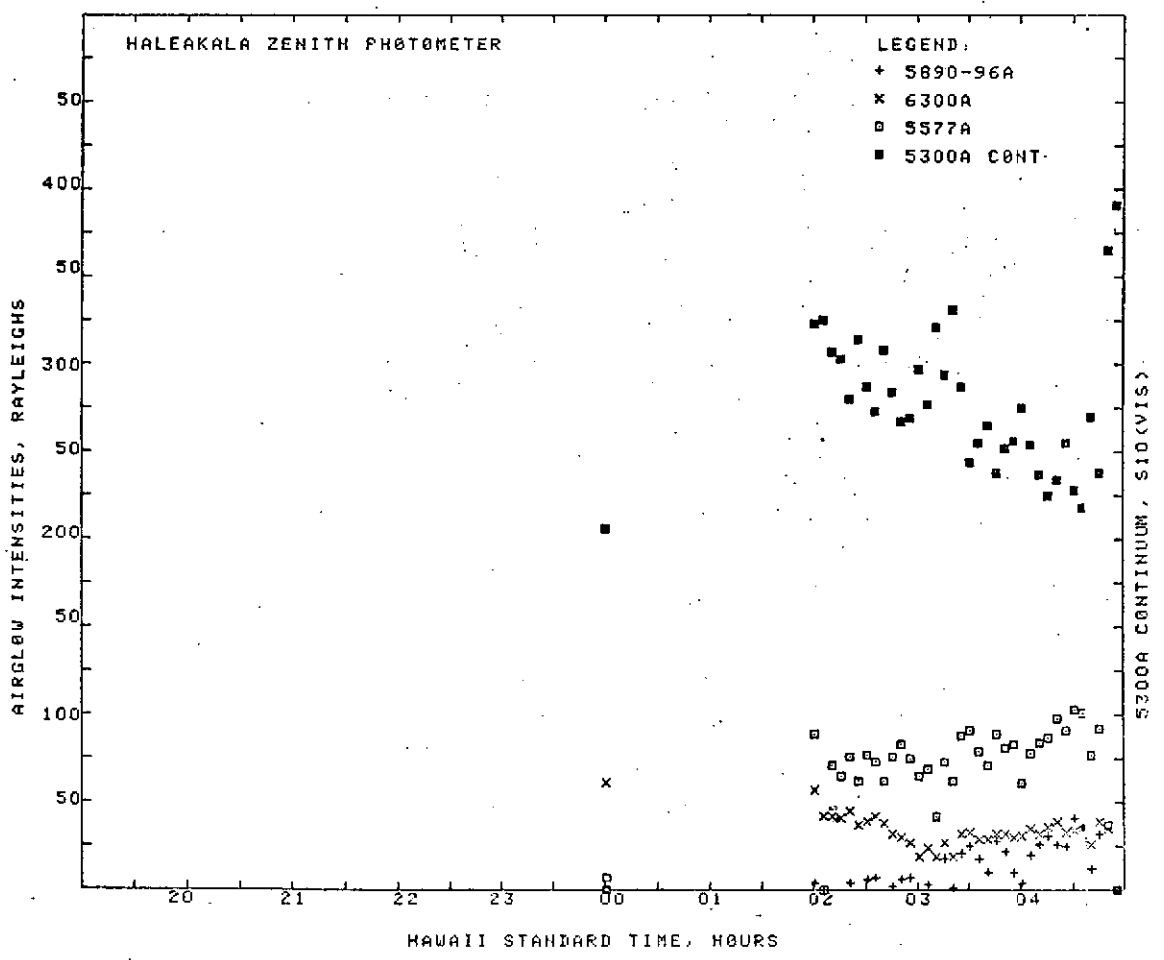


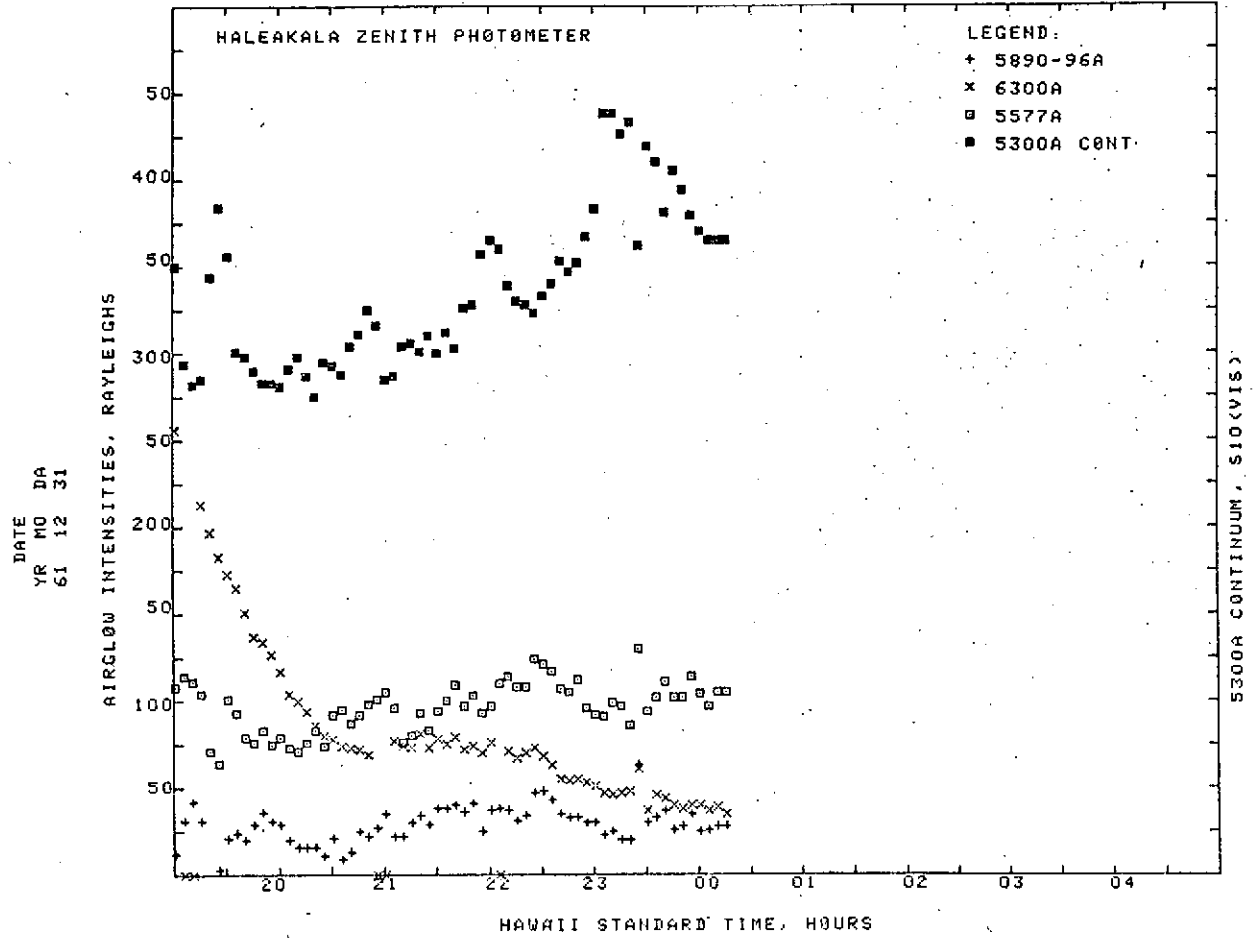
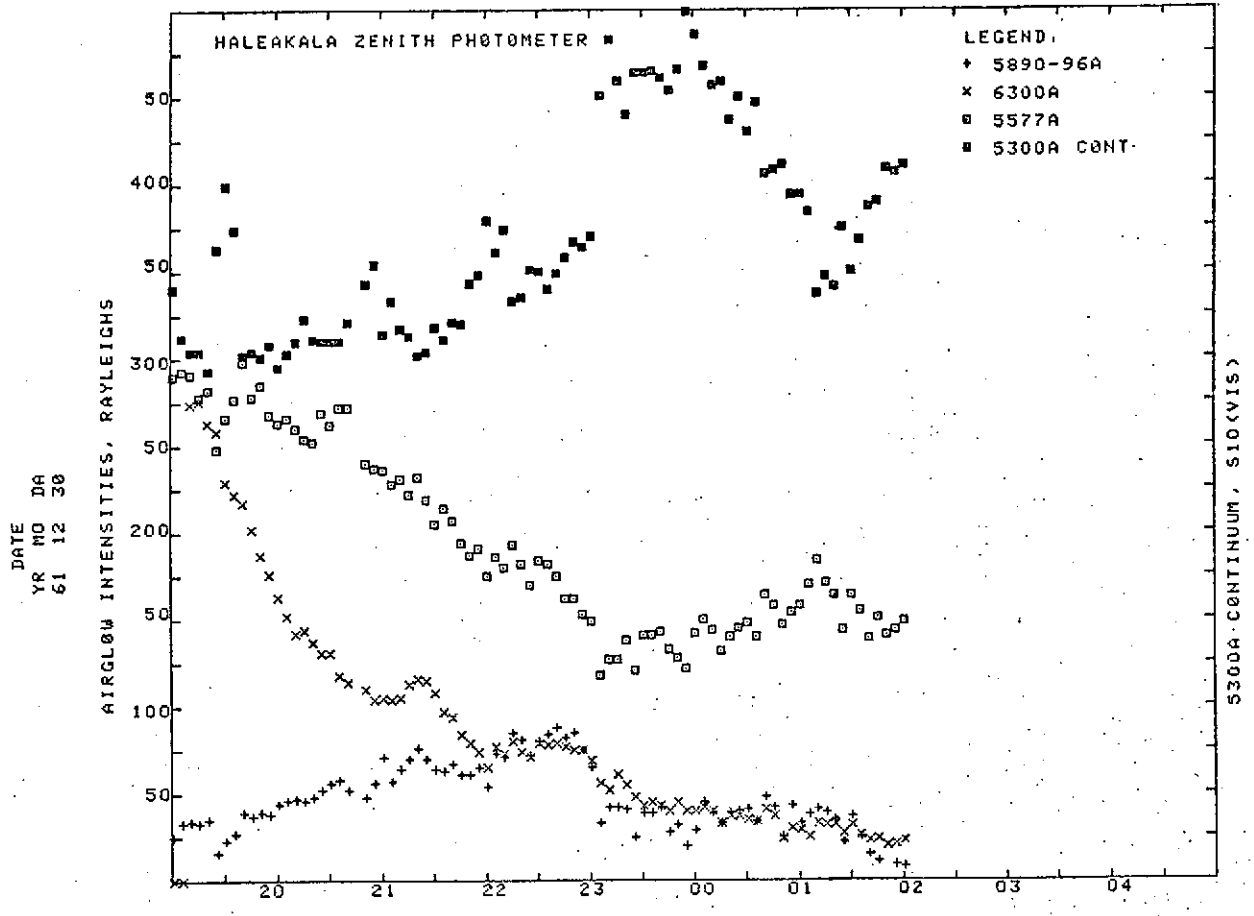


DATE
YR MO DA
61 12 10

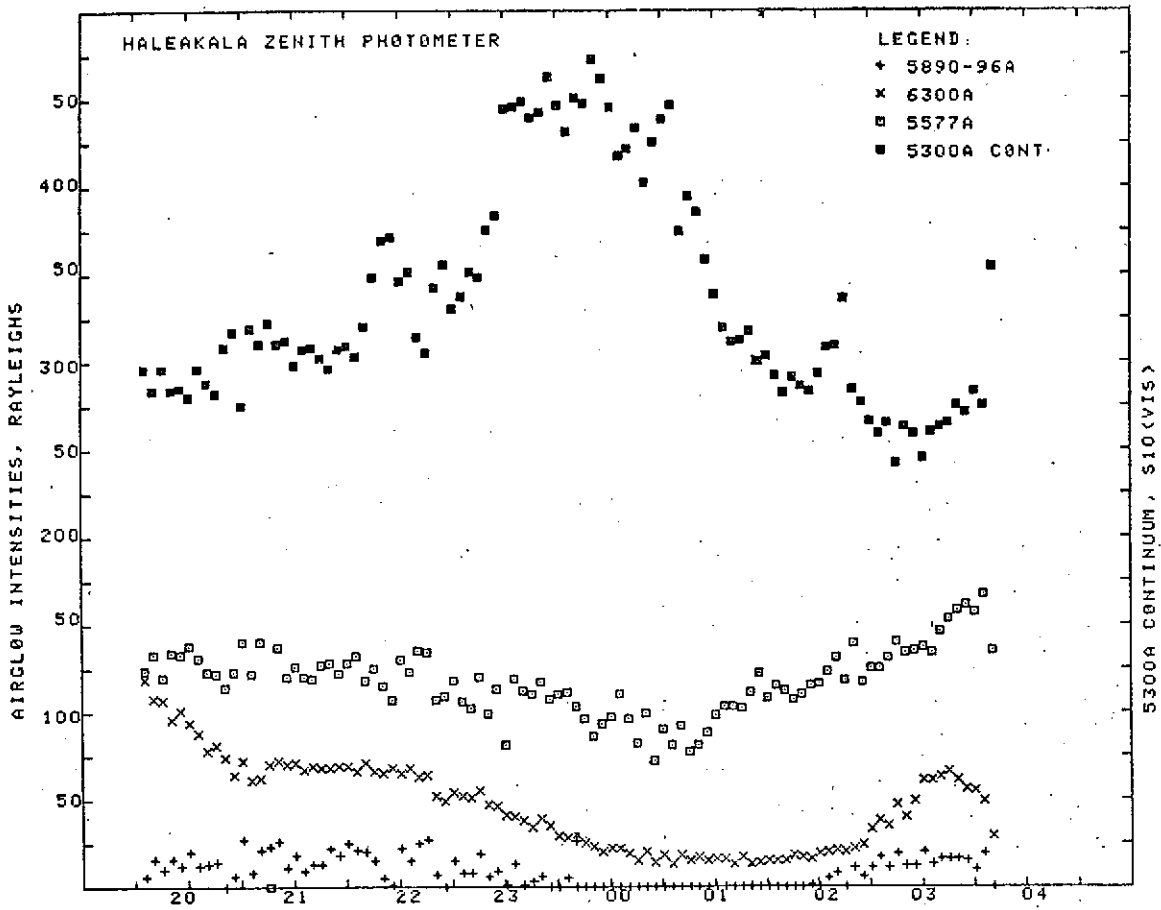


DATE
YR MO DA
61 12 15

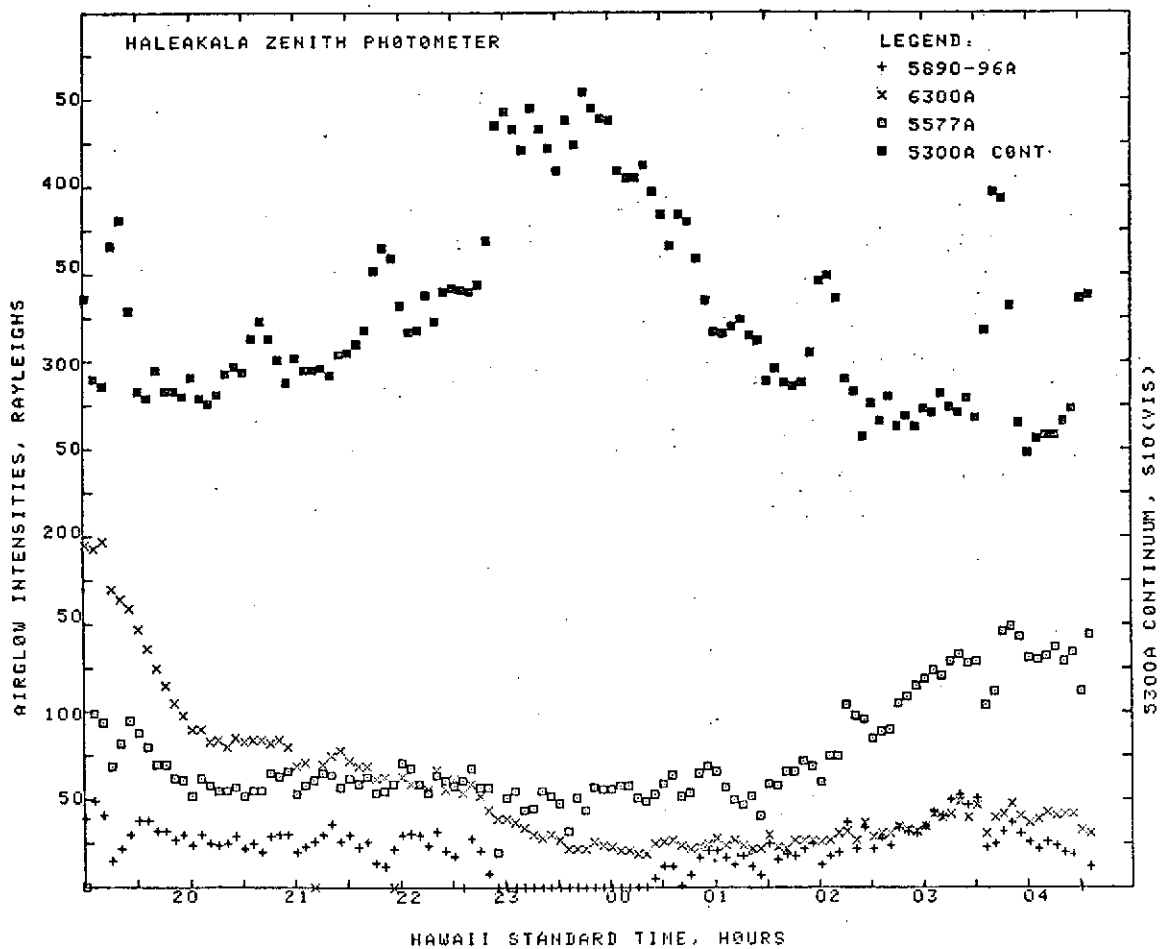




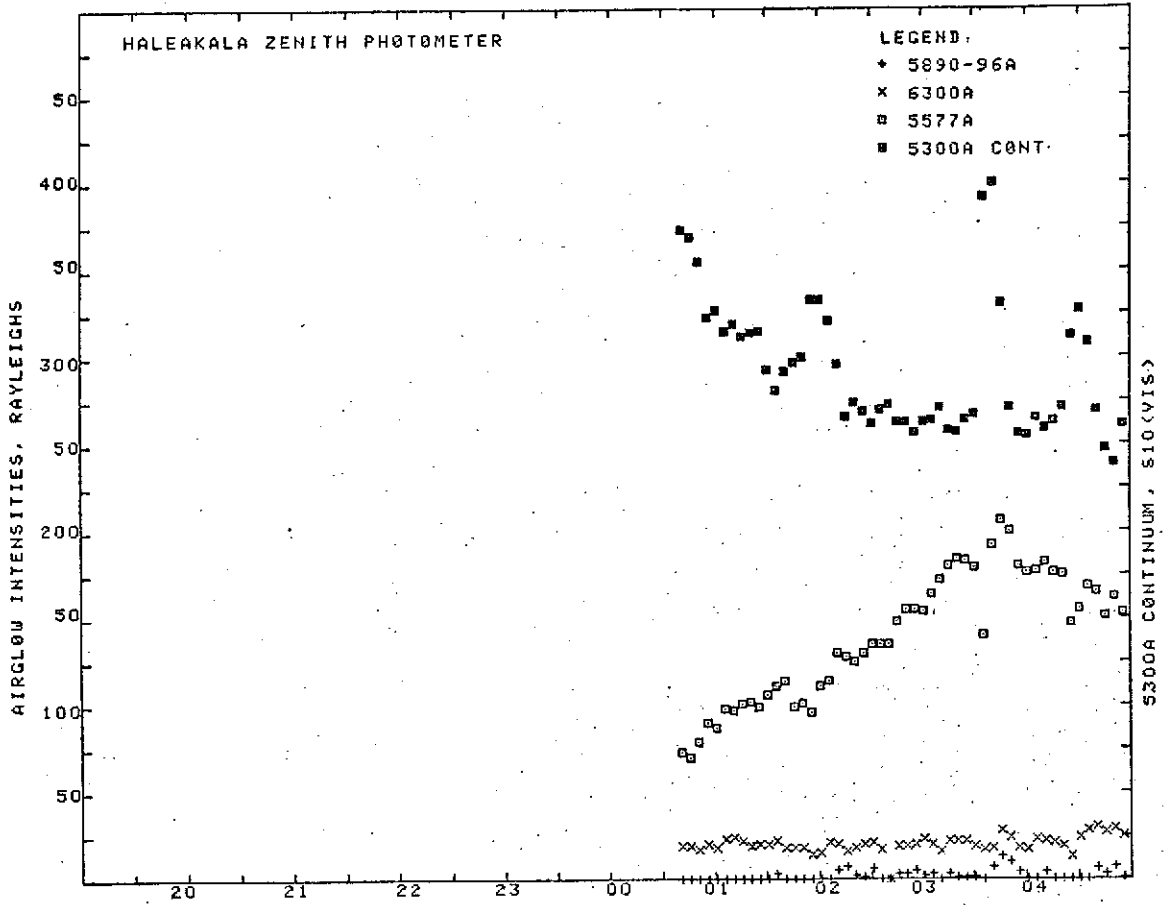
DATE
YR MO DA
62 01 01



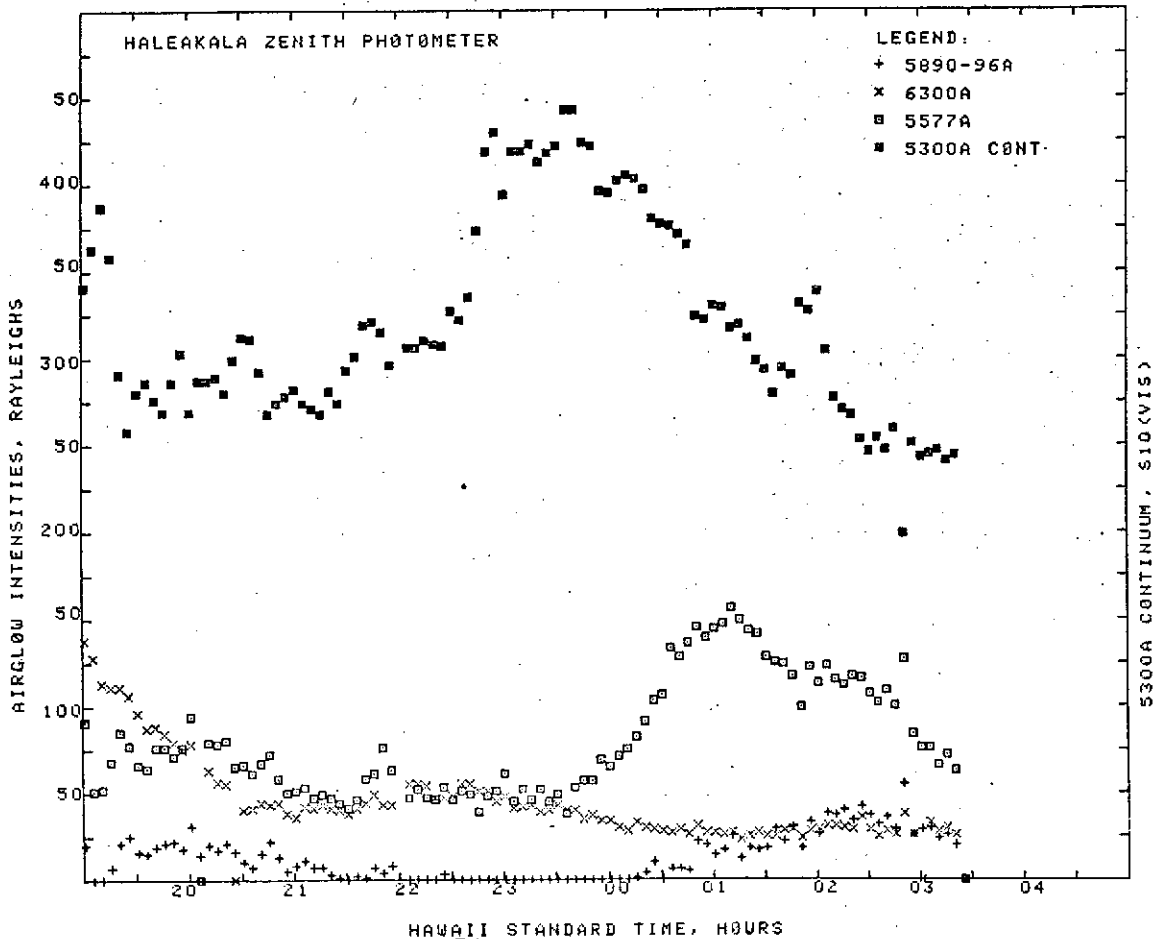
DATE
YR MO DA
62 01 02



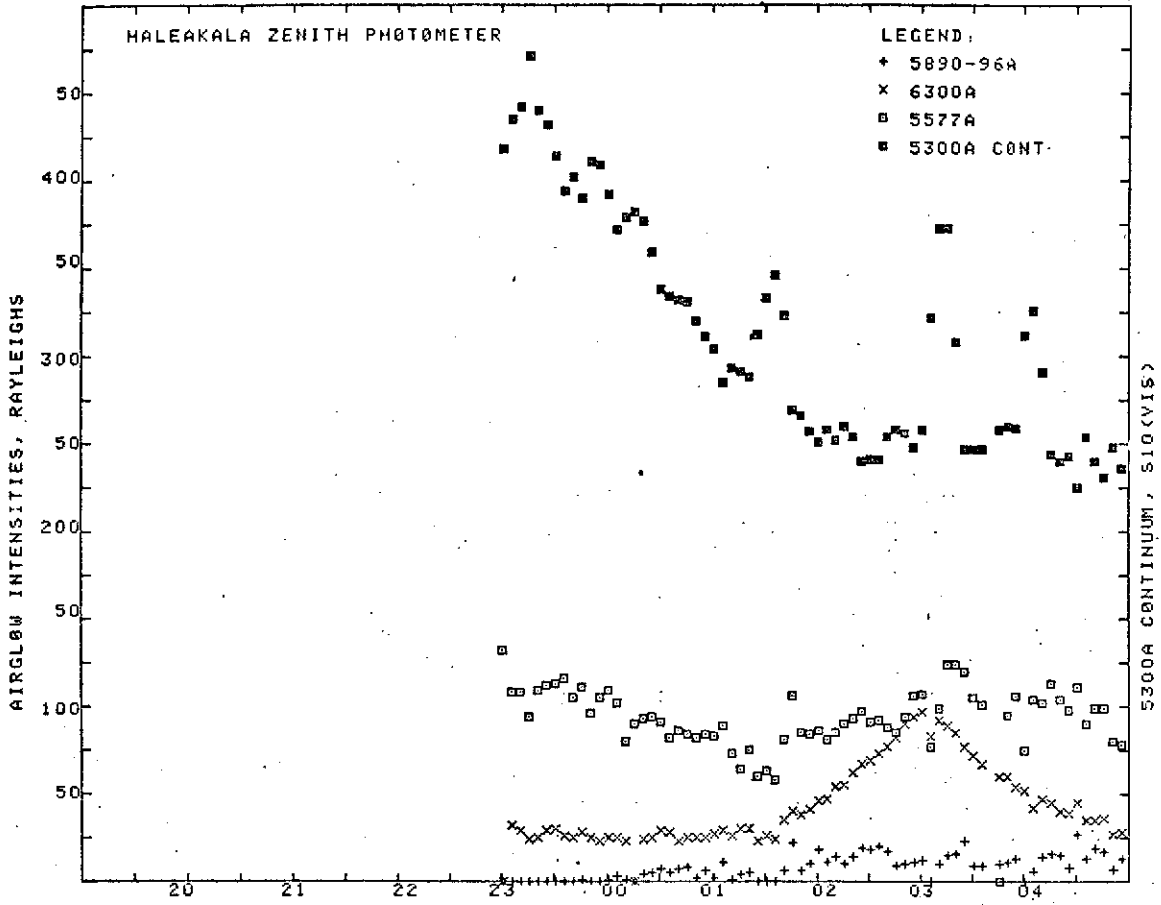
DATE
YR MO DA
62 01 03



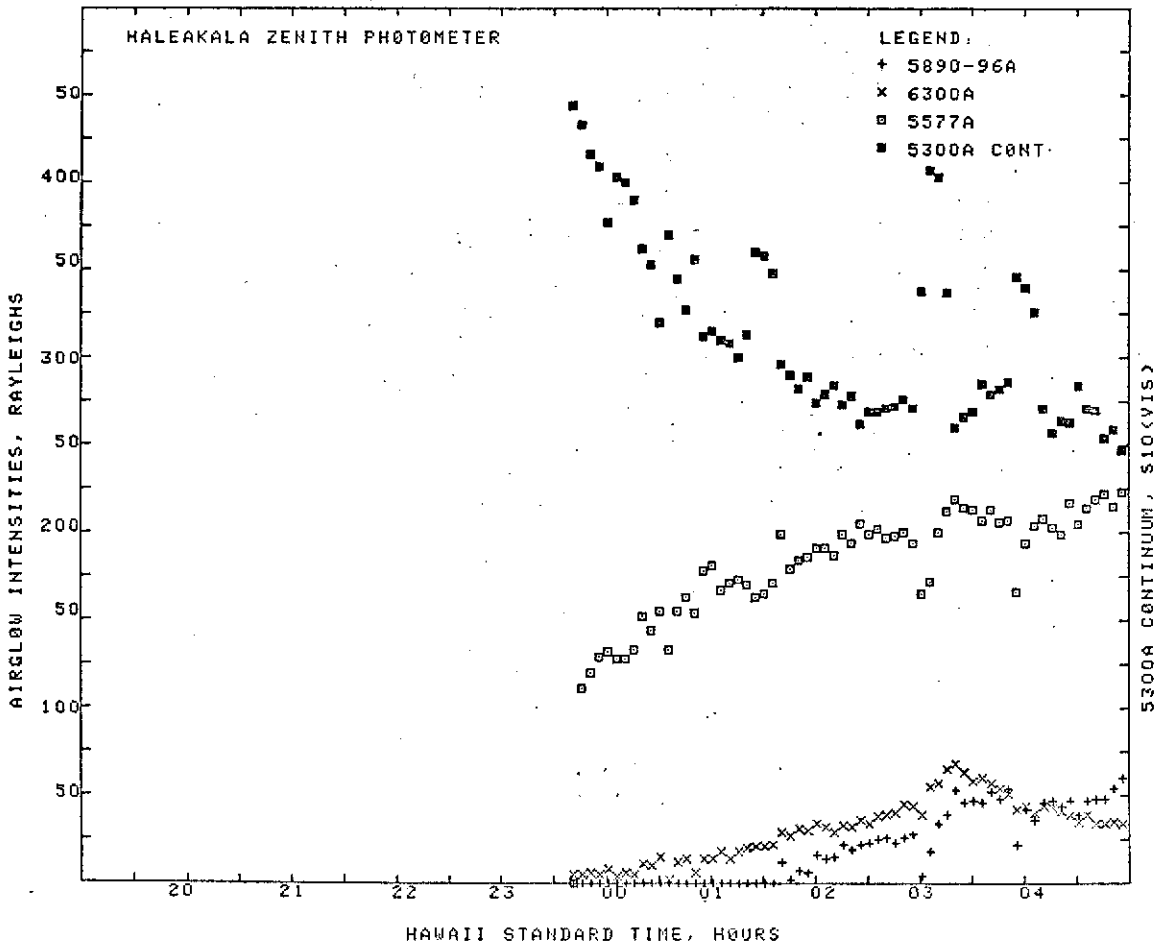
DATE
YR MO DA
62 01 04



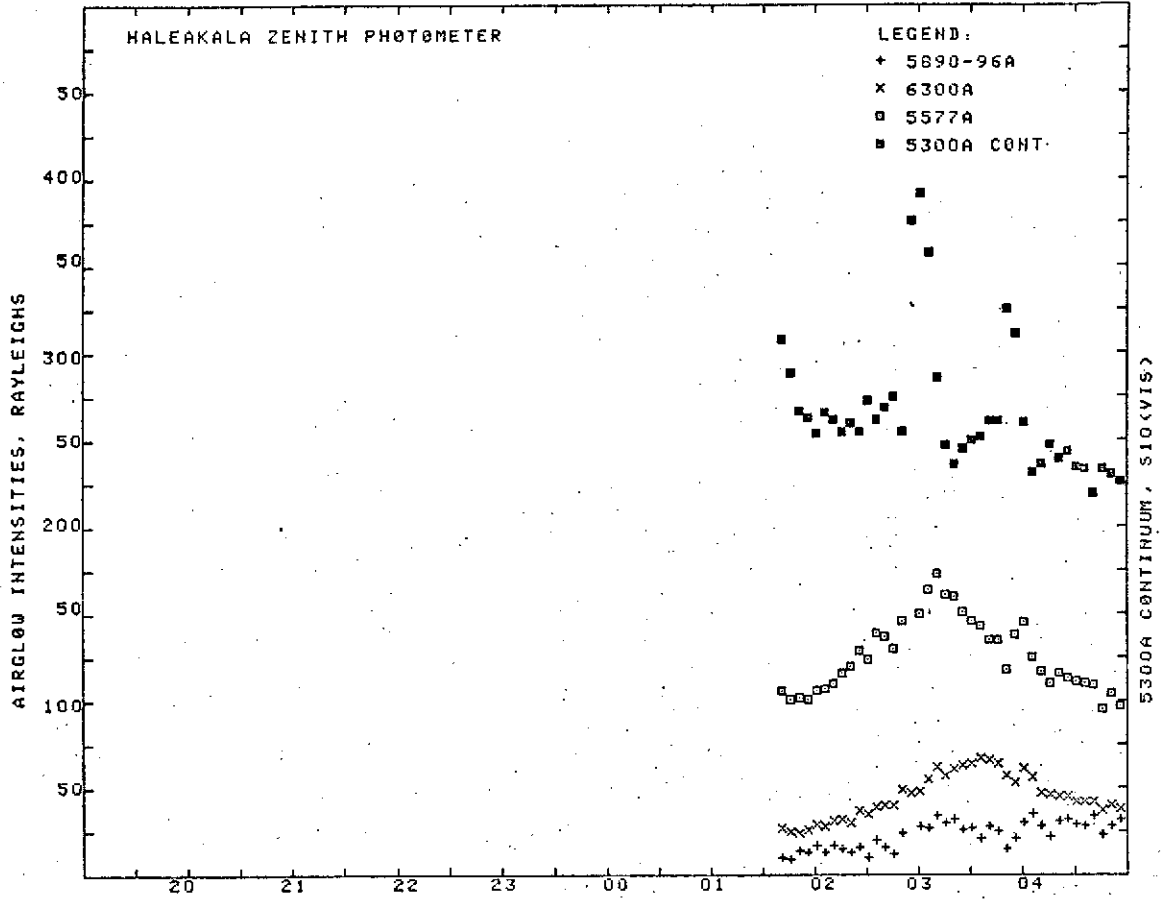
DATE
YR MO DA
62 01 10



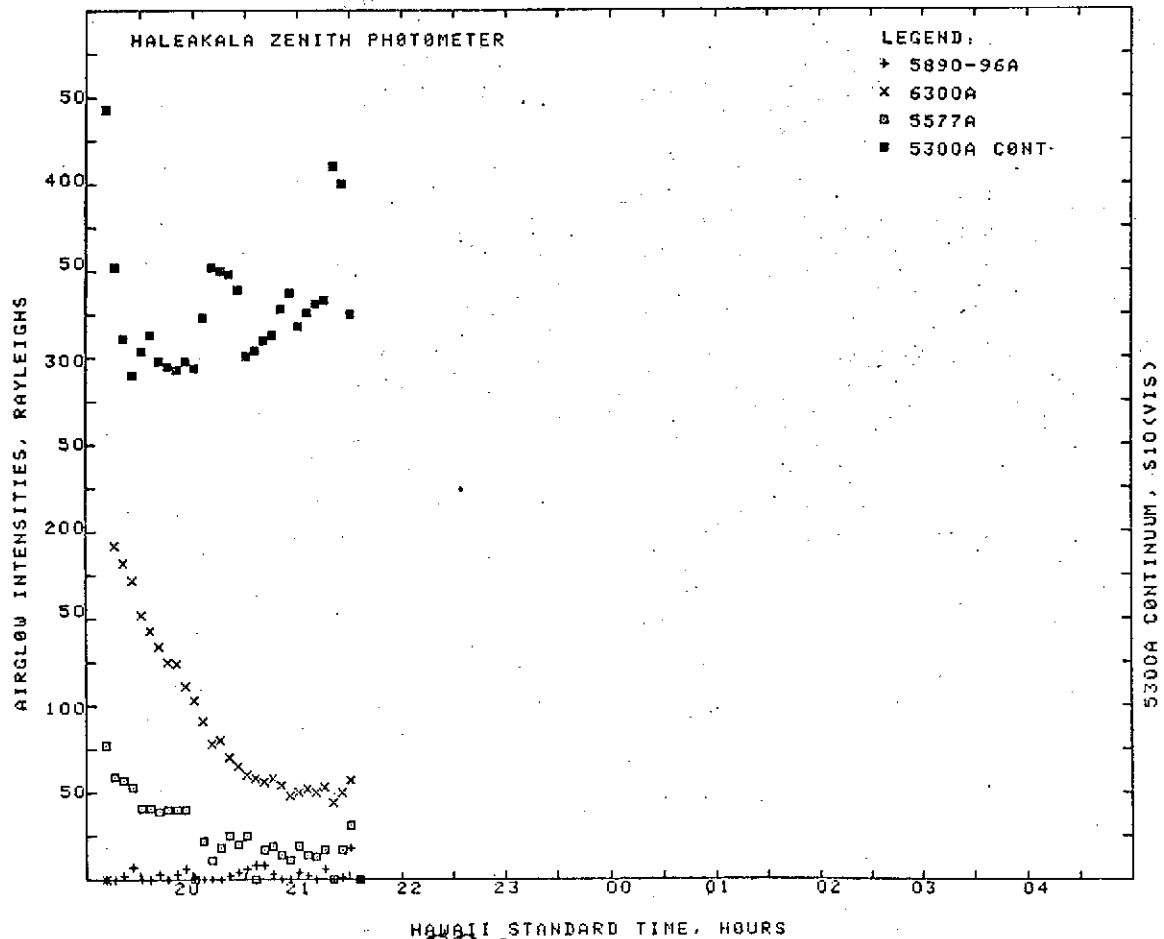
DATE
YR MO DA
62 01 11



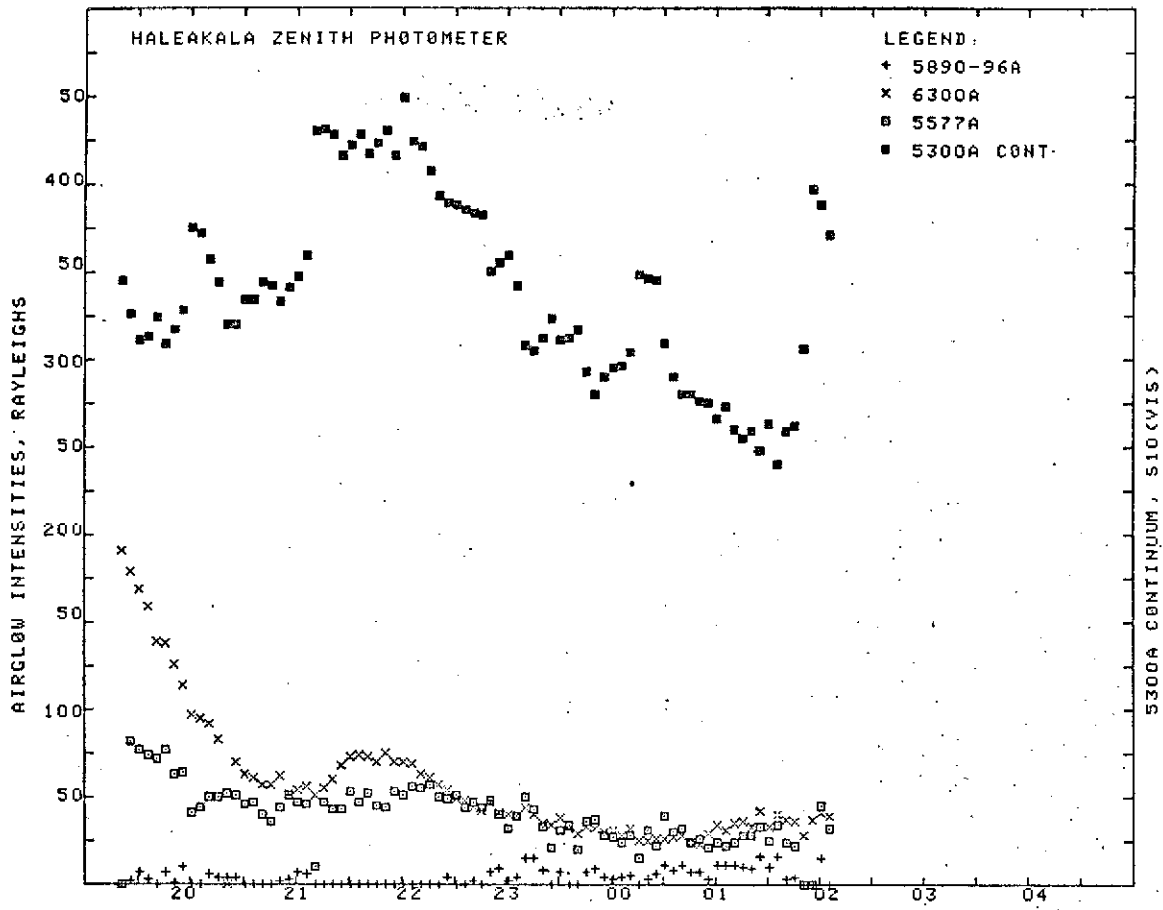
DATE
YR MO DA
62 01 13



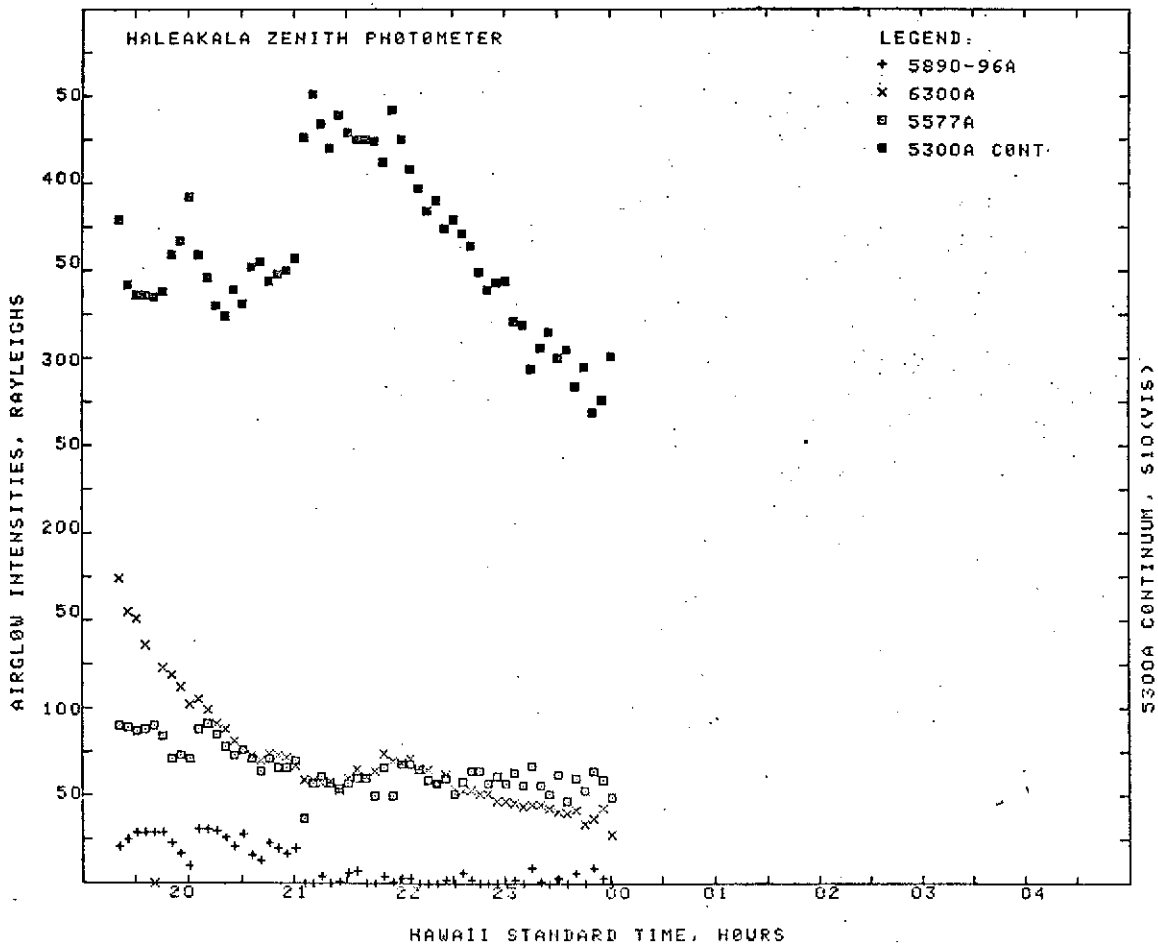
DATE
YR MO DA
62 01 26



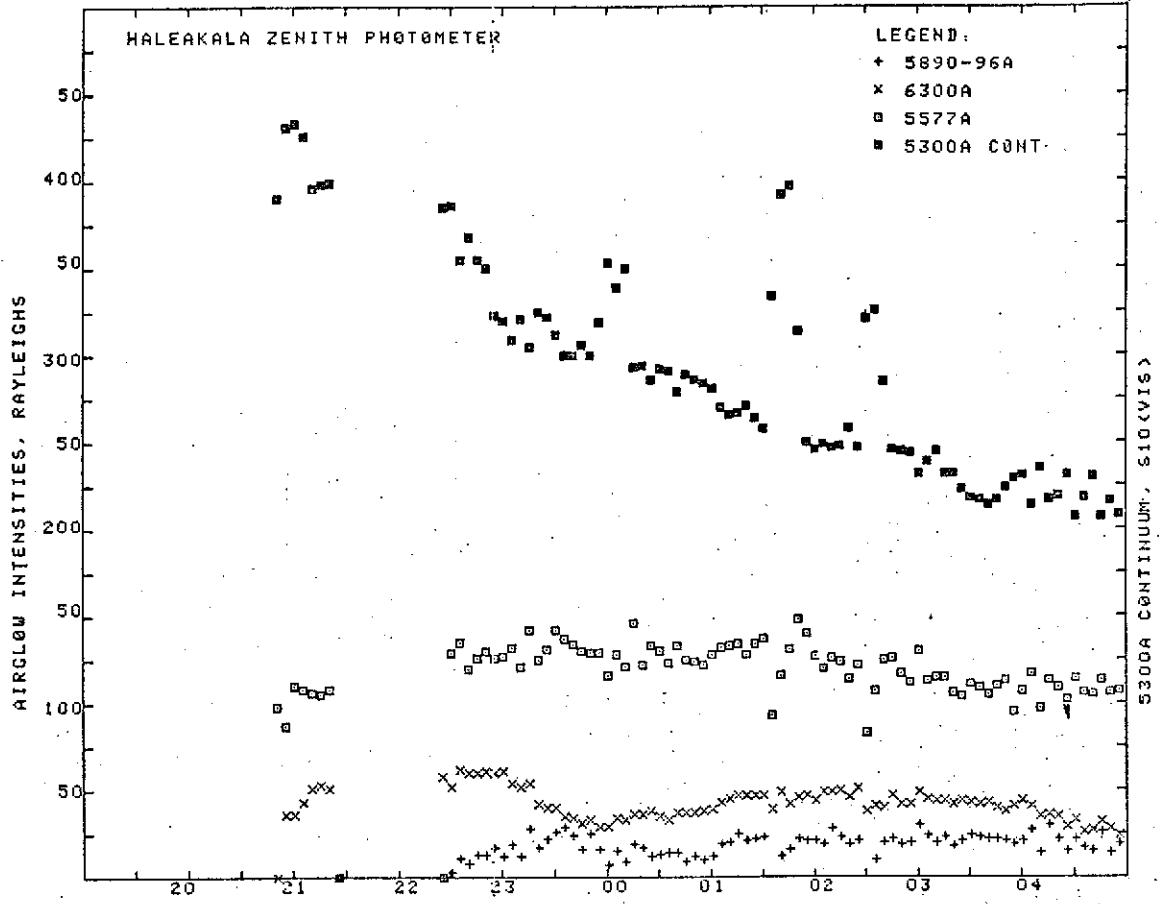
DATE
YR MO DA
62 01 29



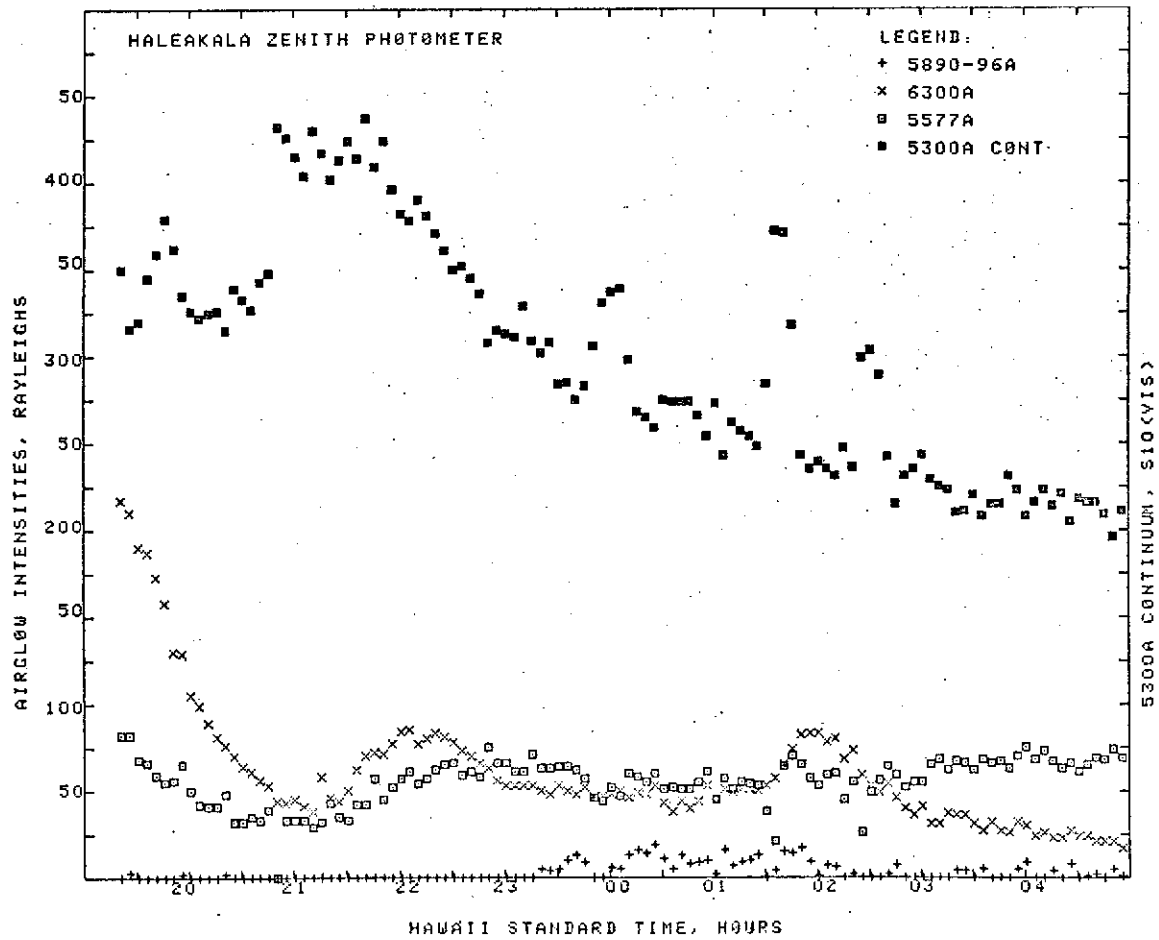
DATE
YR MO DA
62 01 30



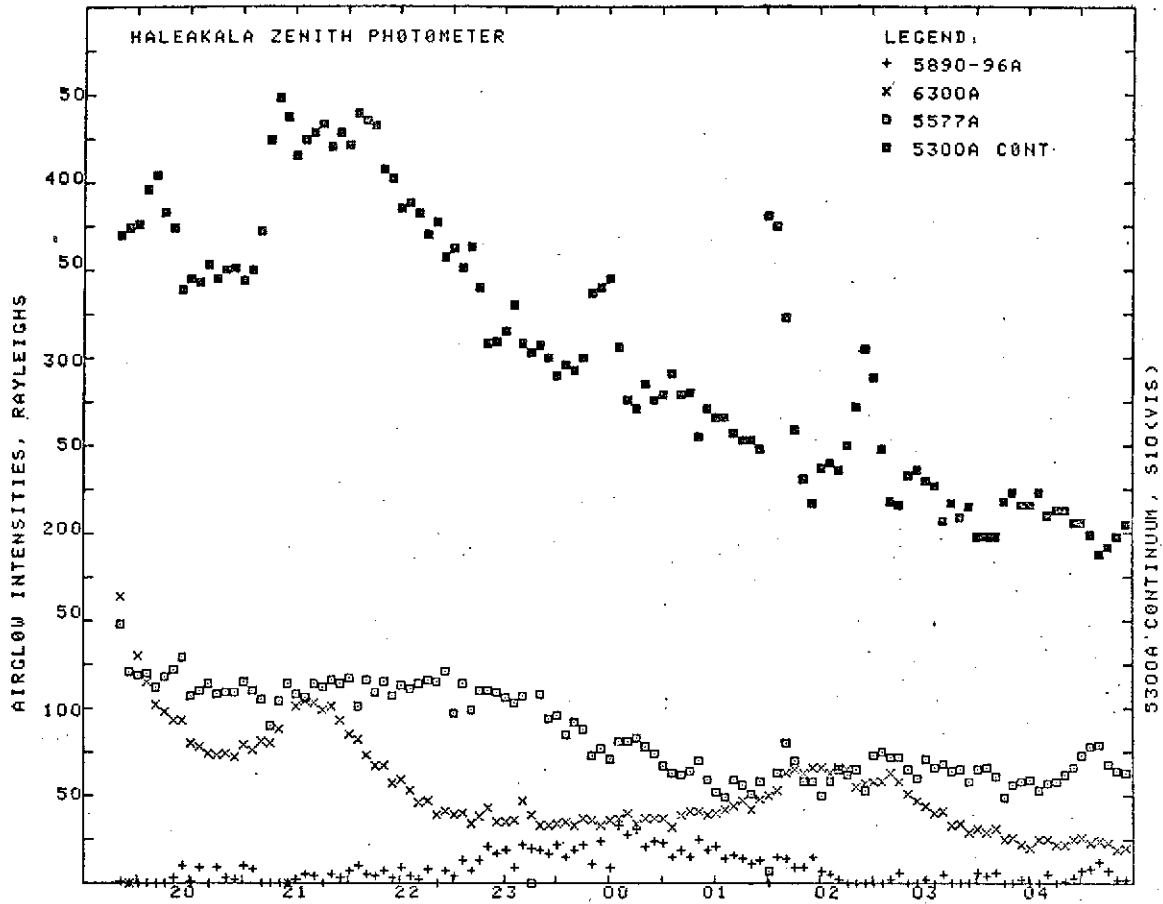
DATE
YR MO DA
62 02 02



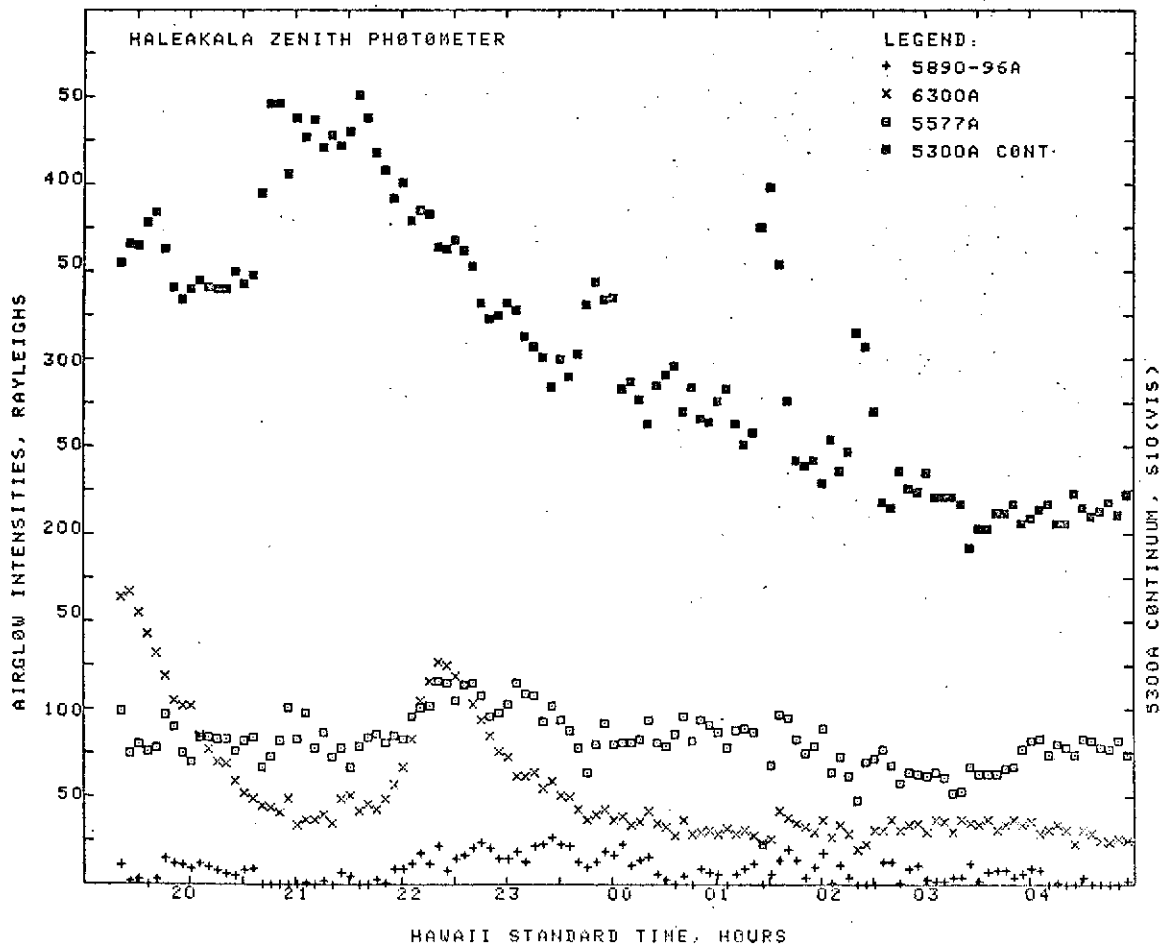
DATE
YR MO DA
62 02 03



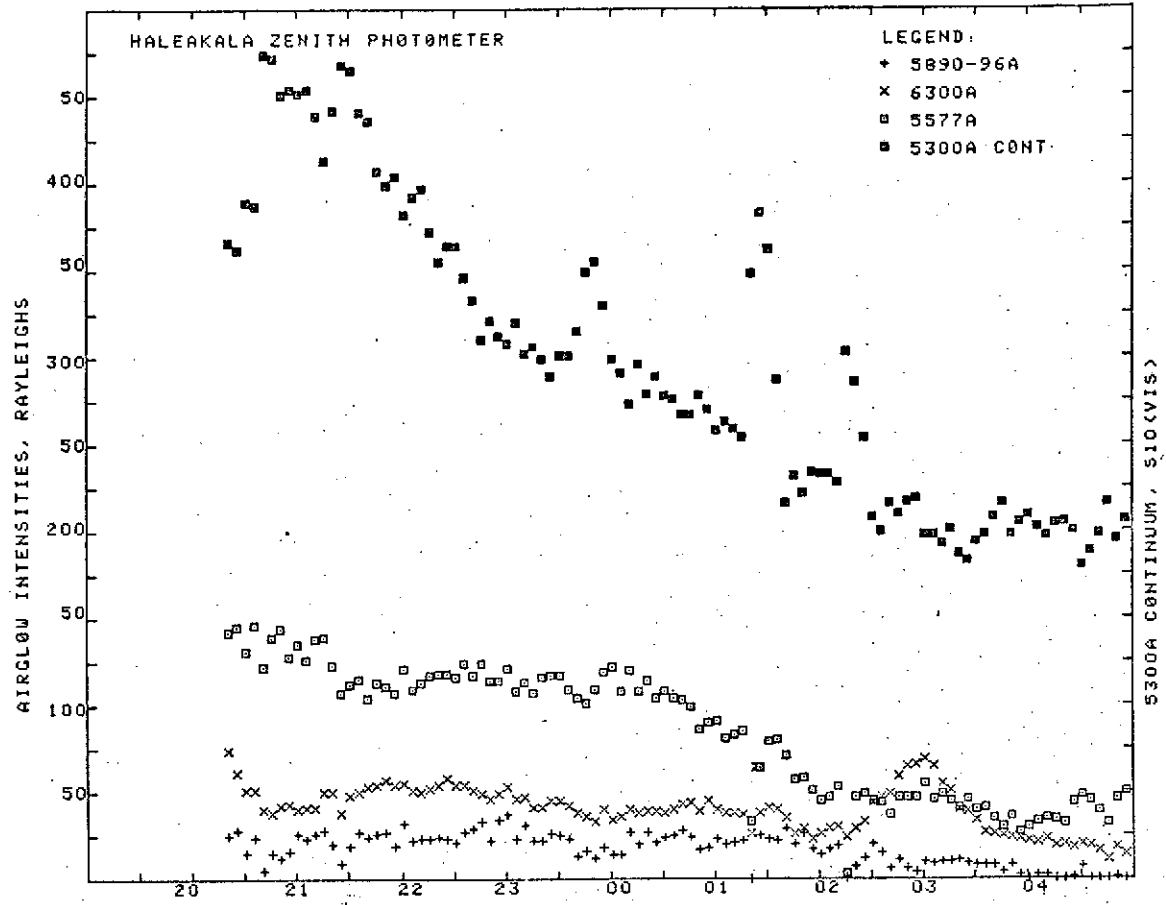
DATE
YR MO DA
62 02 04



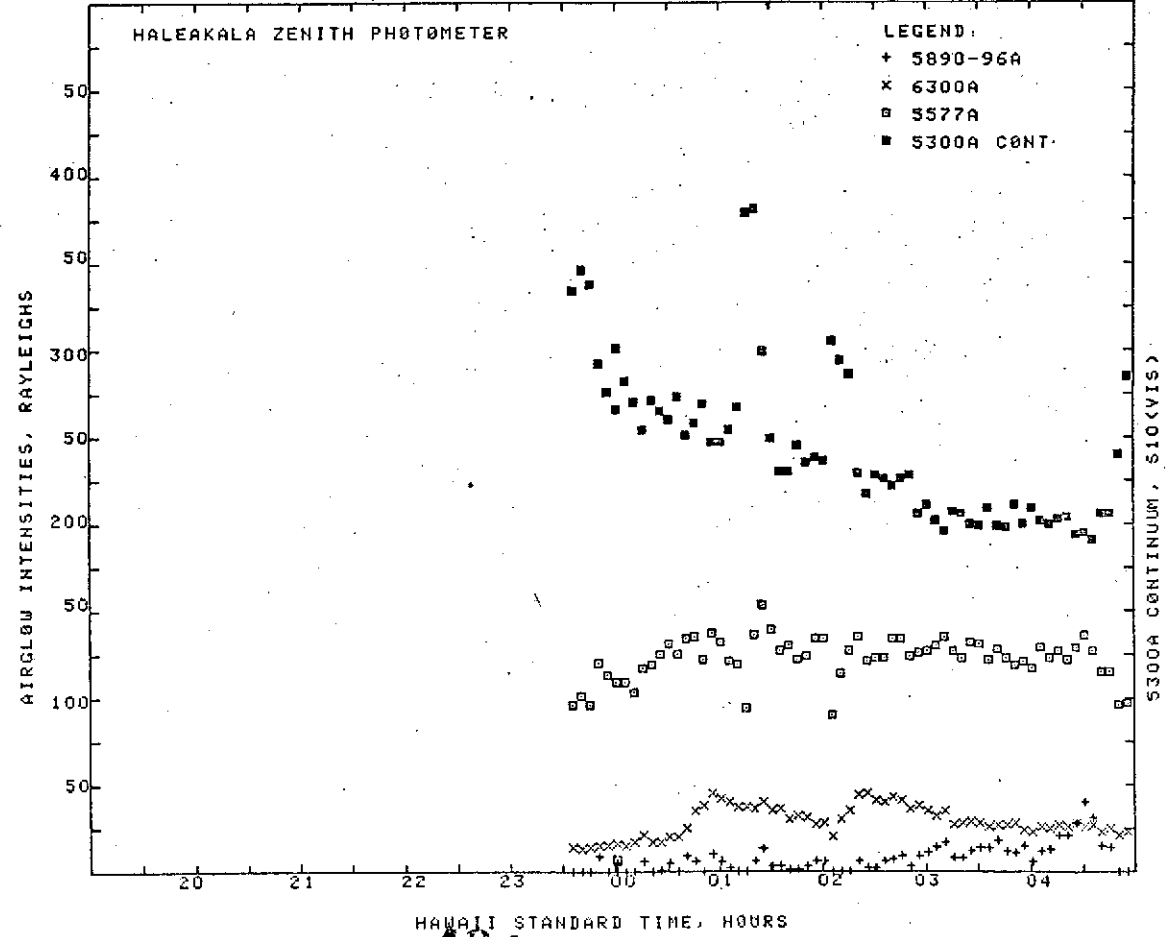
DATE
YR MO DA
62 02 05



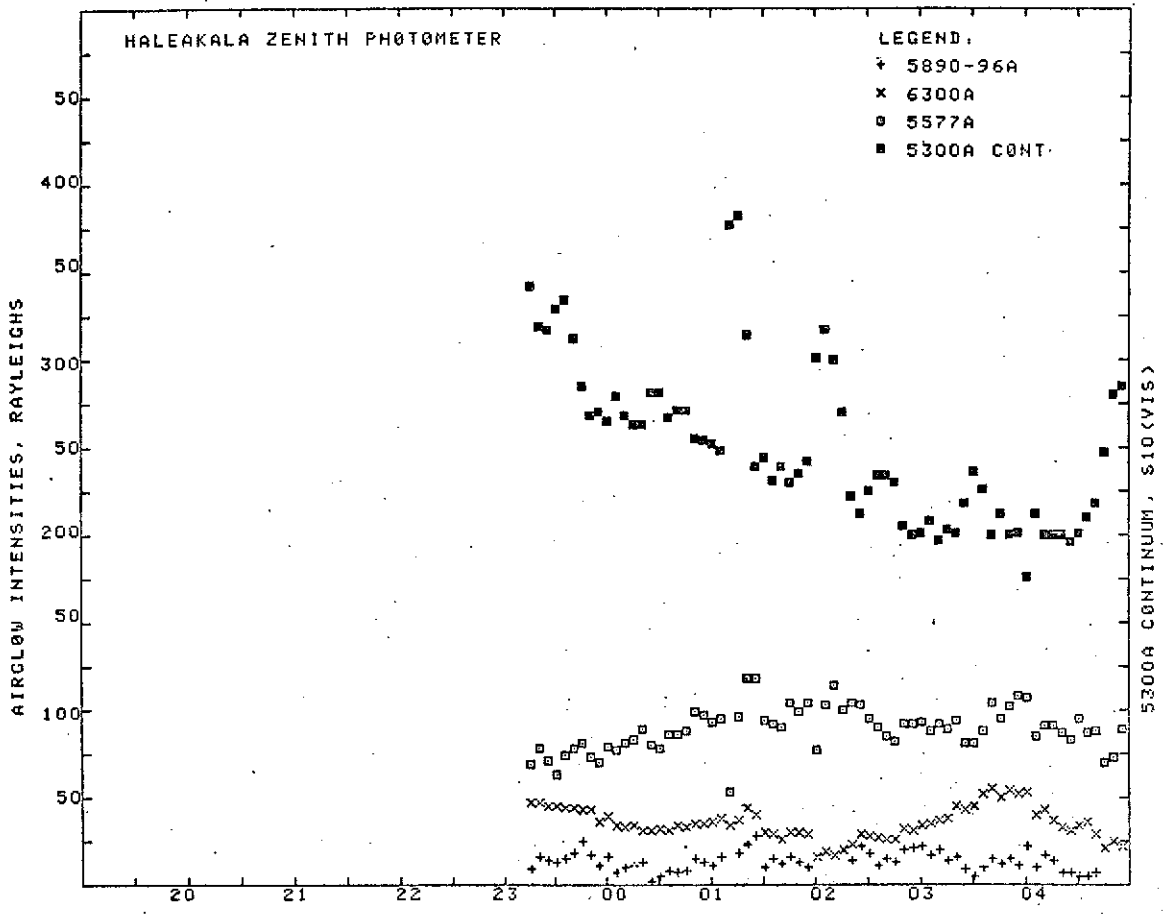
DATE
YR MO DA
62 02 06



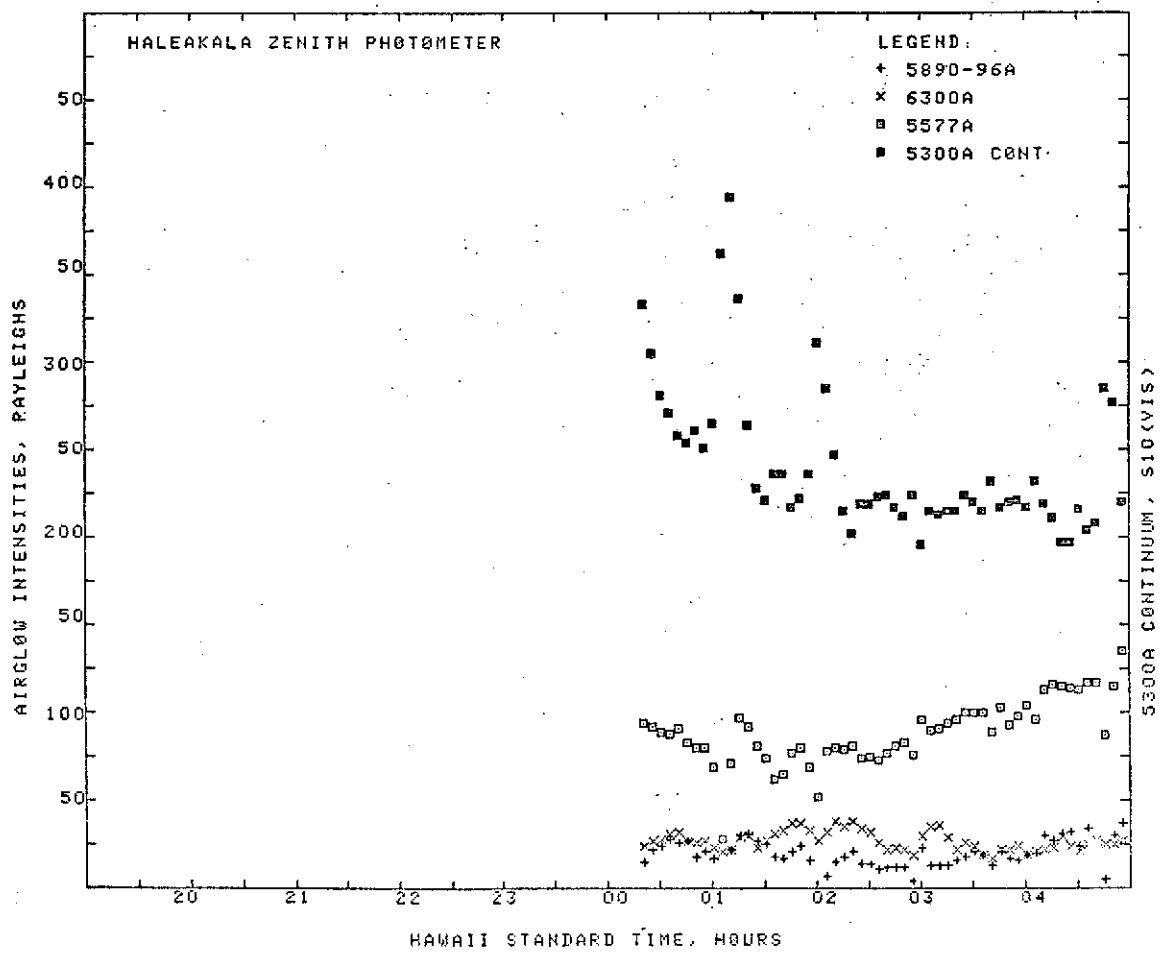
DATE
YR MO DA
62 02 08



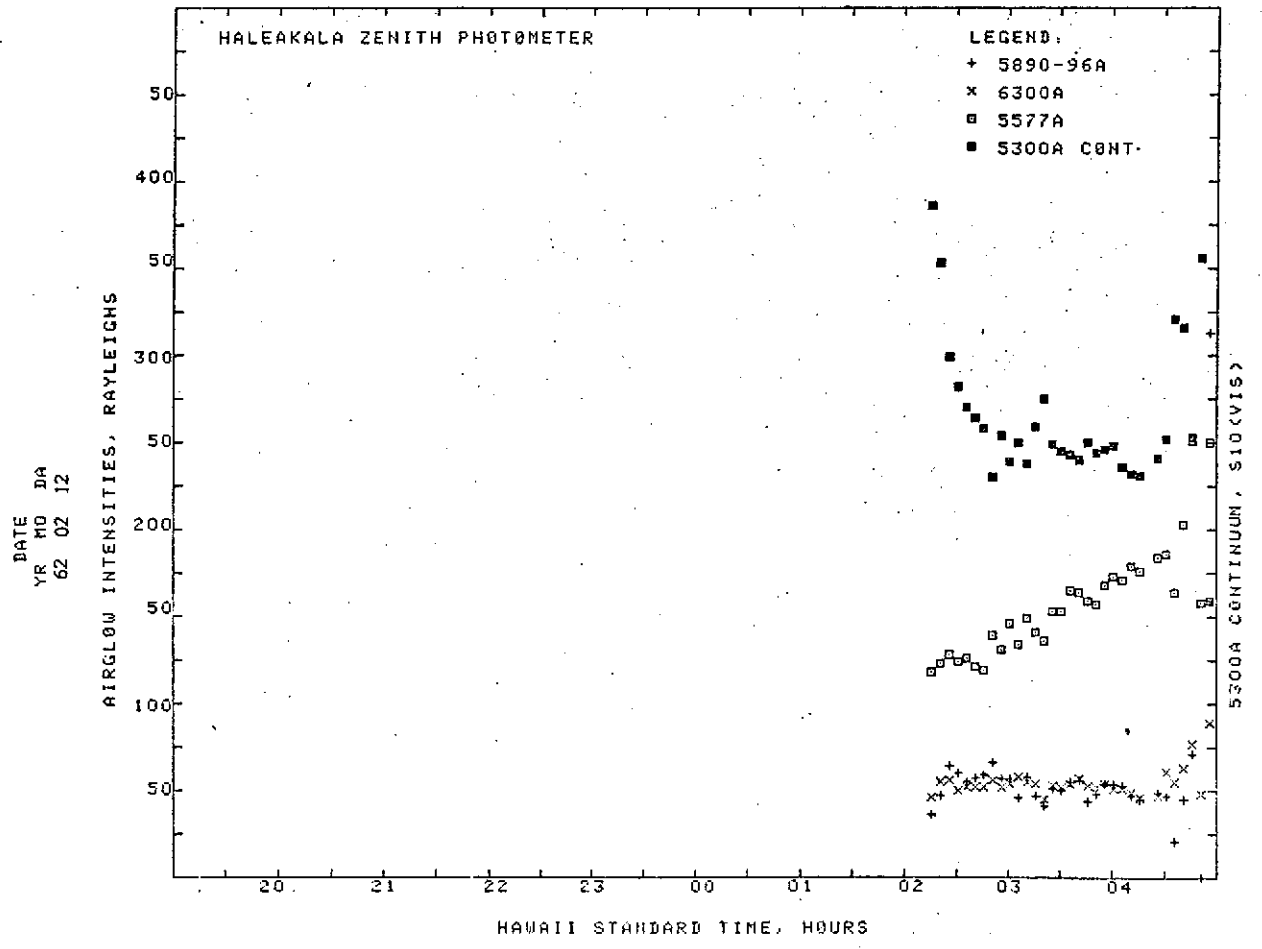
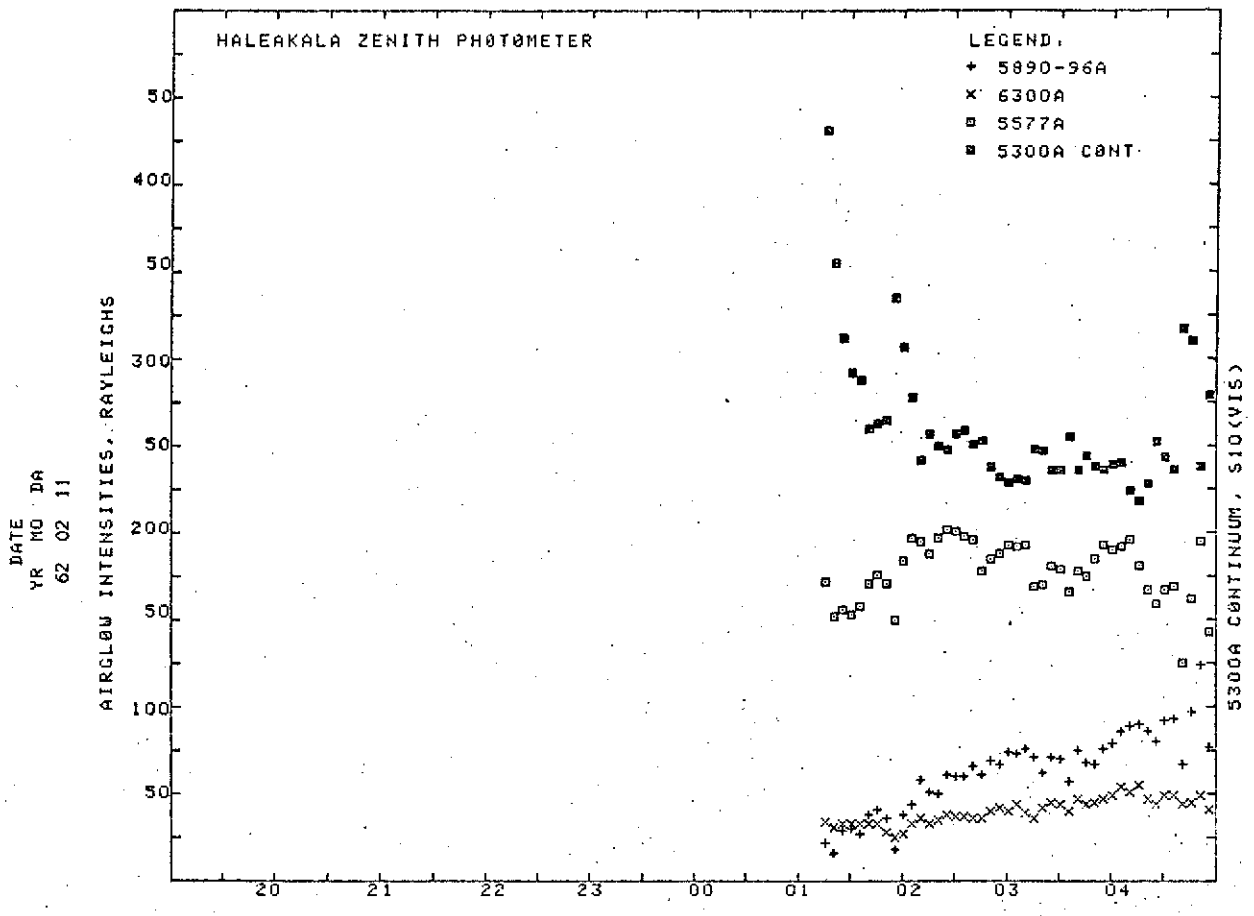
DATE
YR MO DA
62 02 09



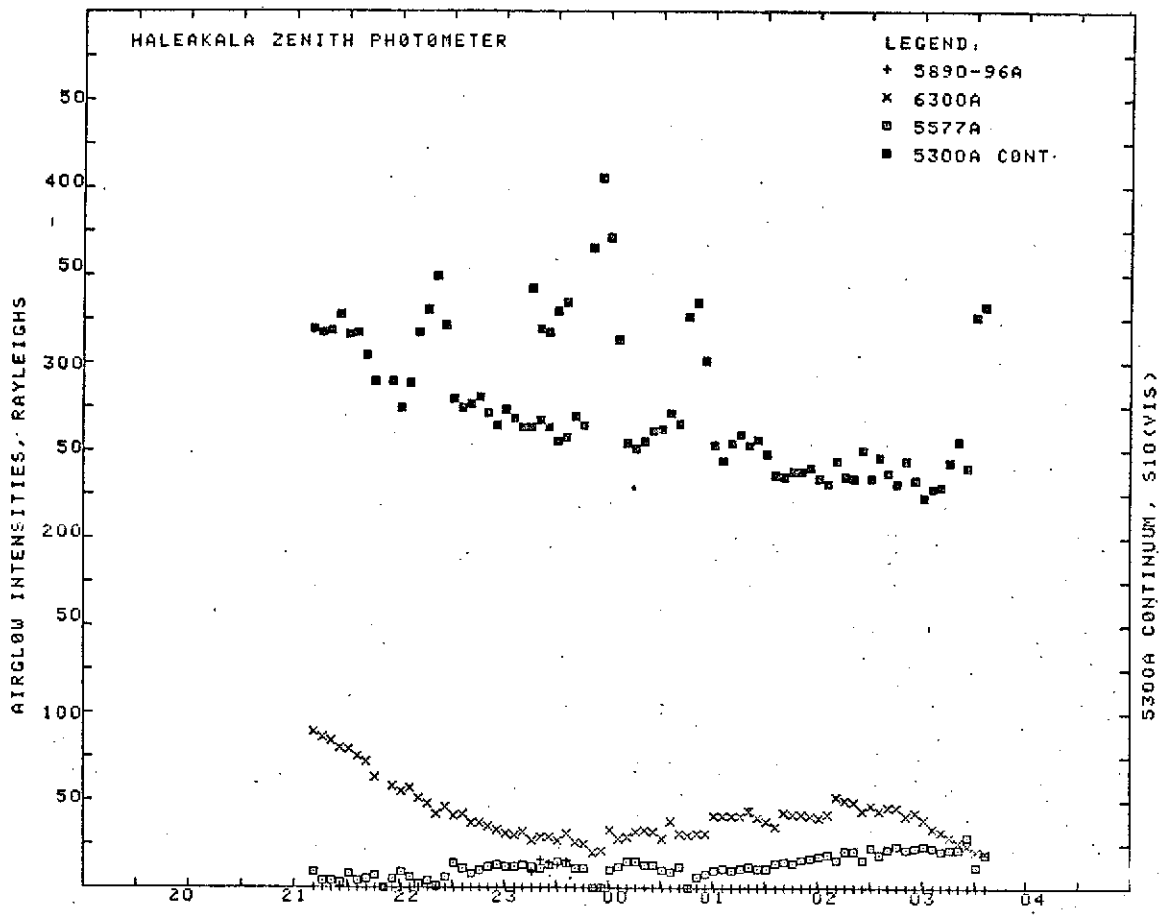
DATE
YR MO DA
62 02 10



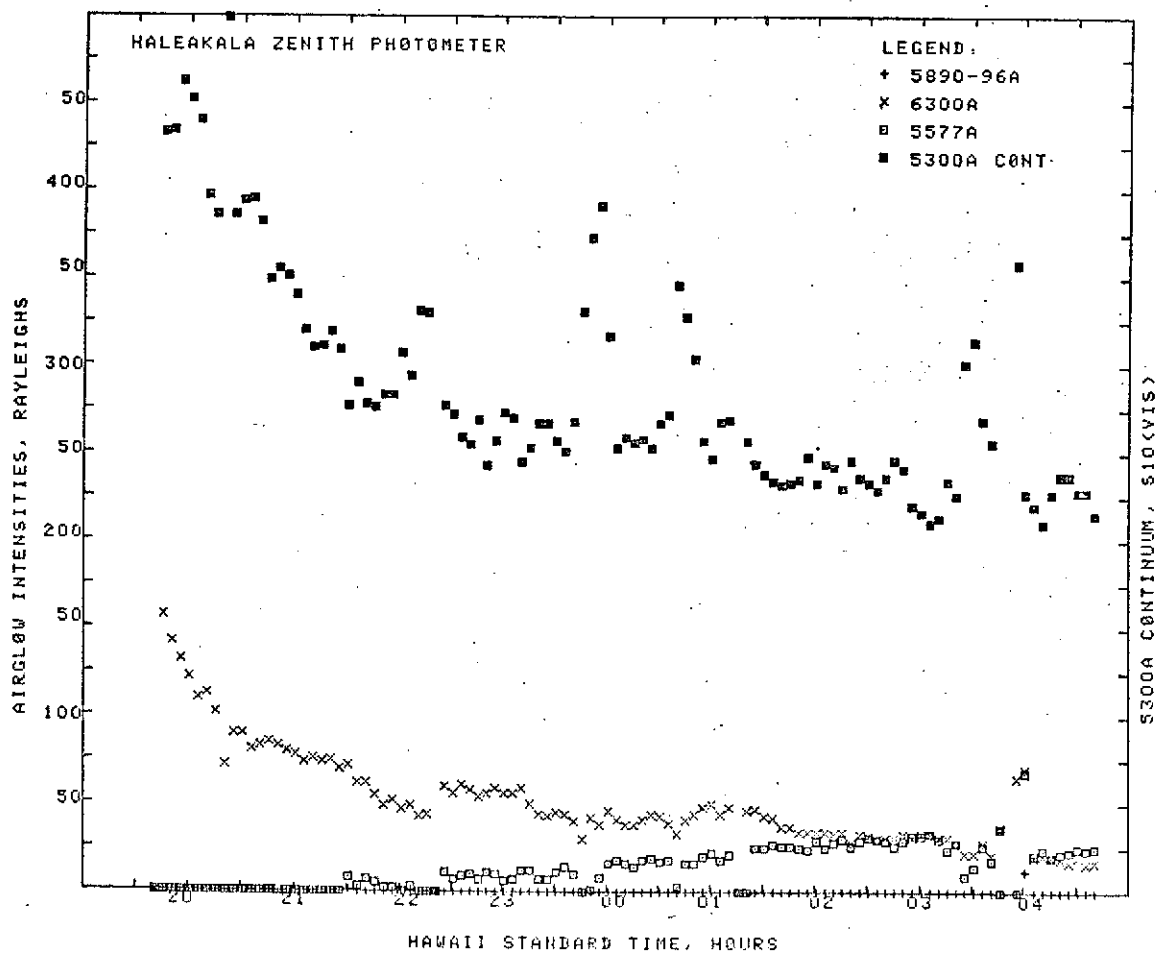
44



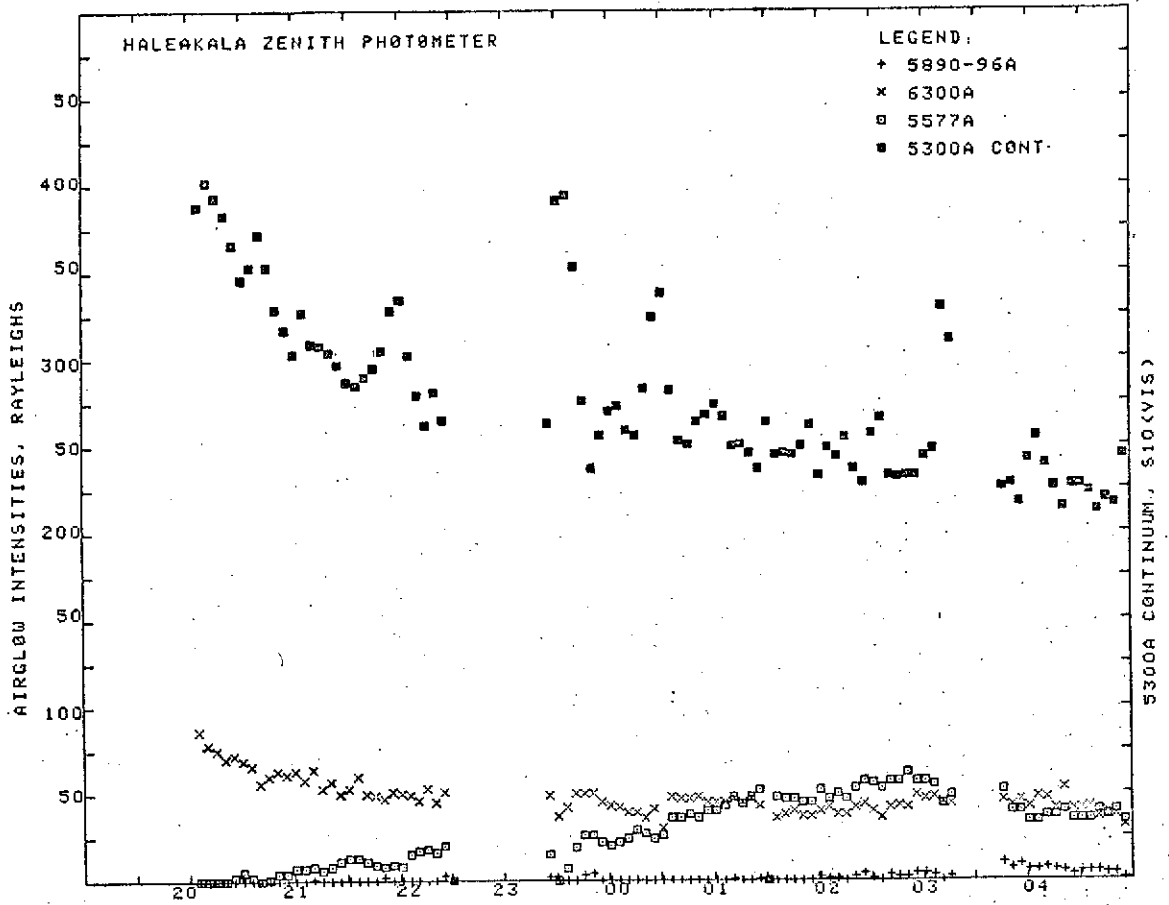
DATE
YR MO DA
62 03 01



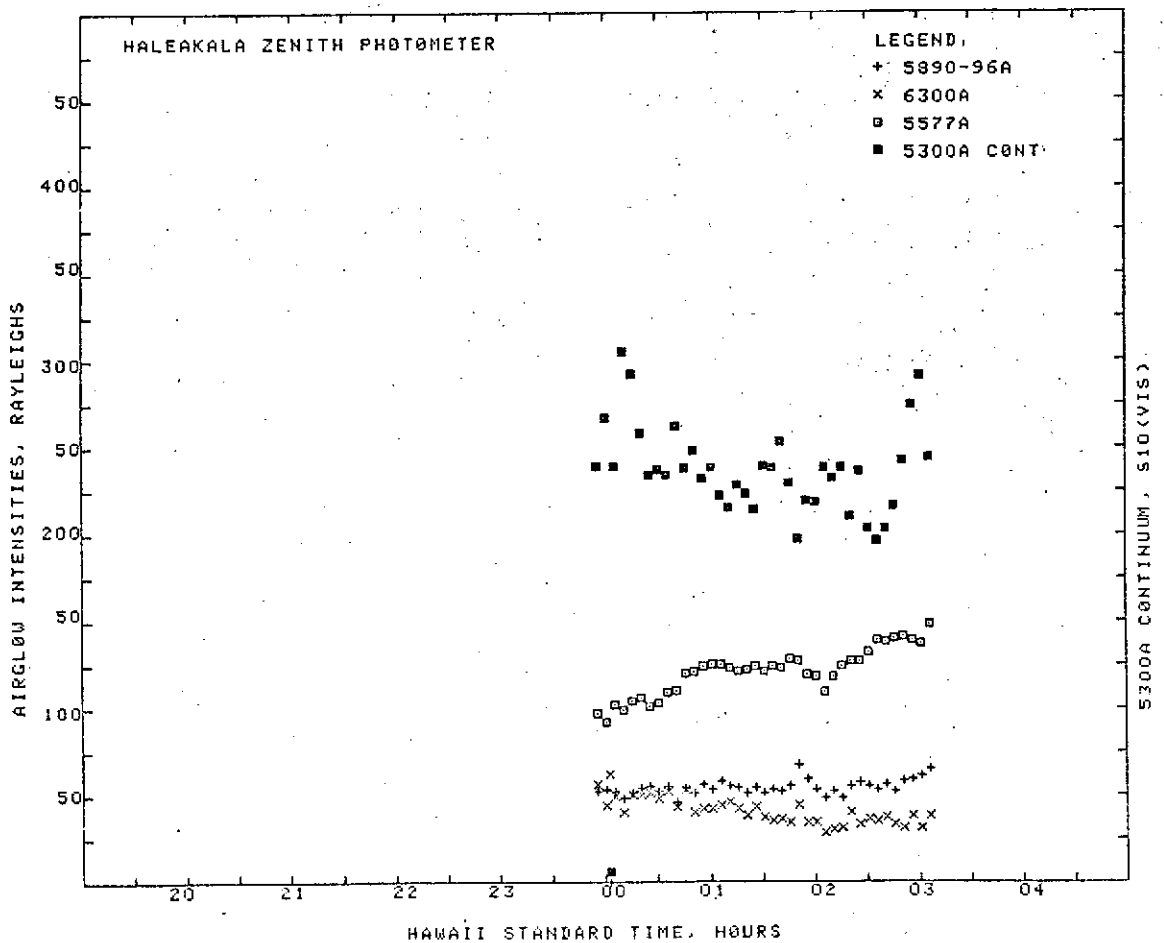
DATE
YR MO DA
62 03 02



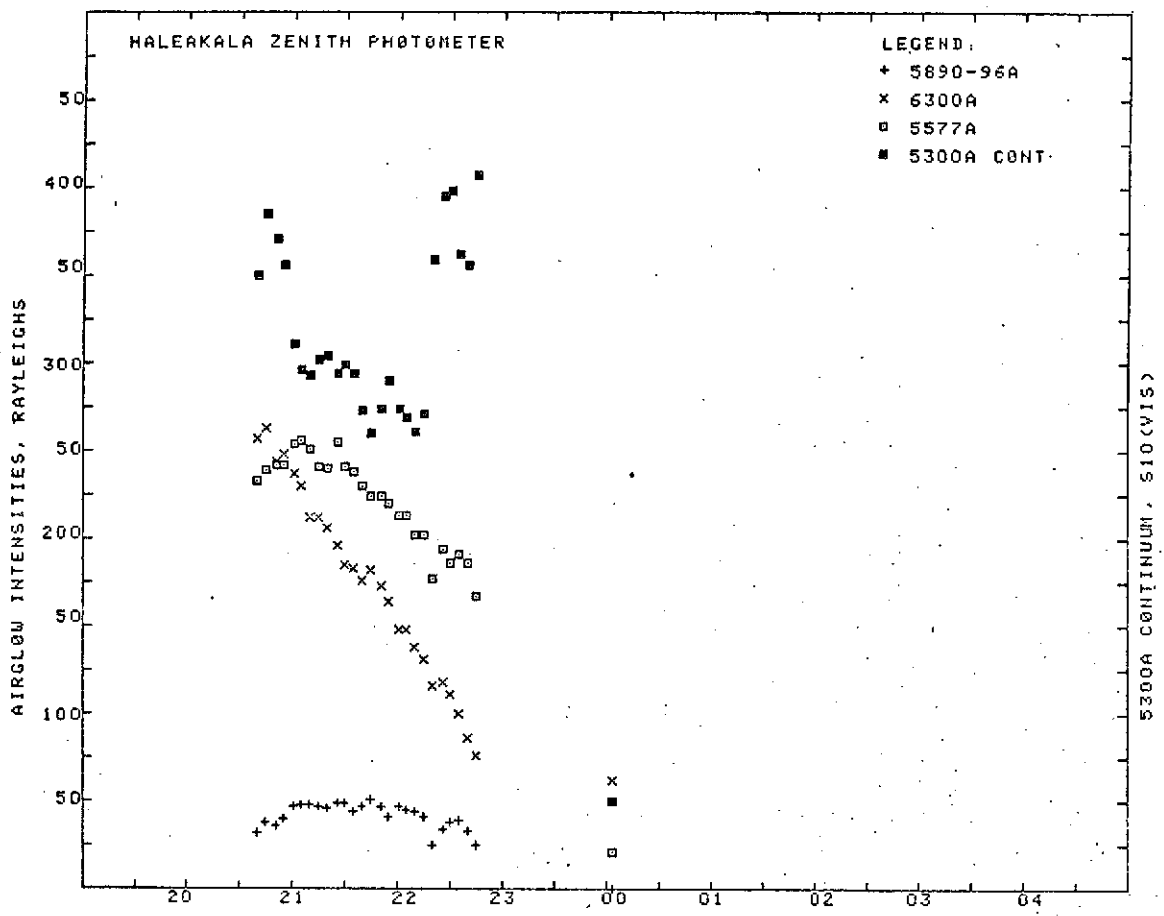
DATE
YR MO DA
62 03 06



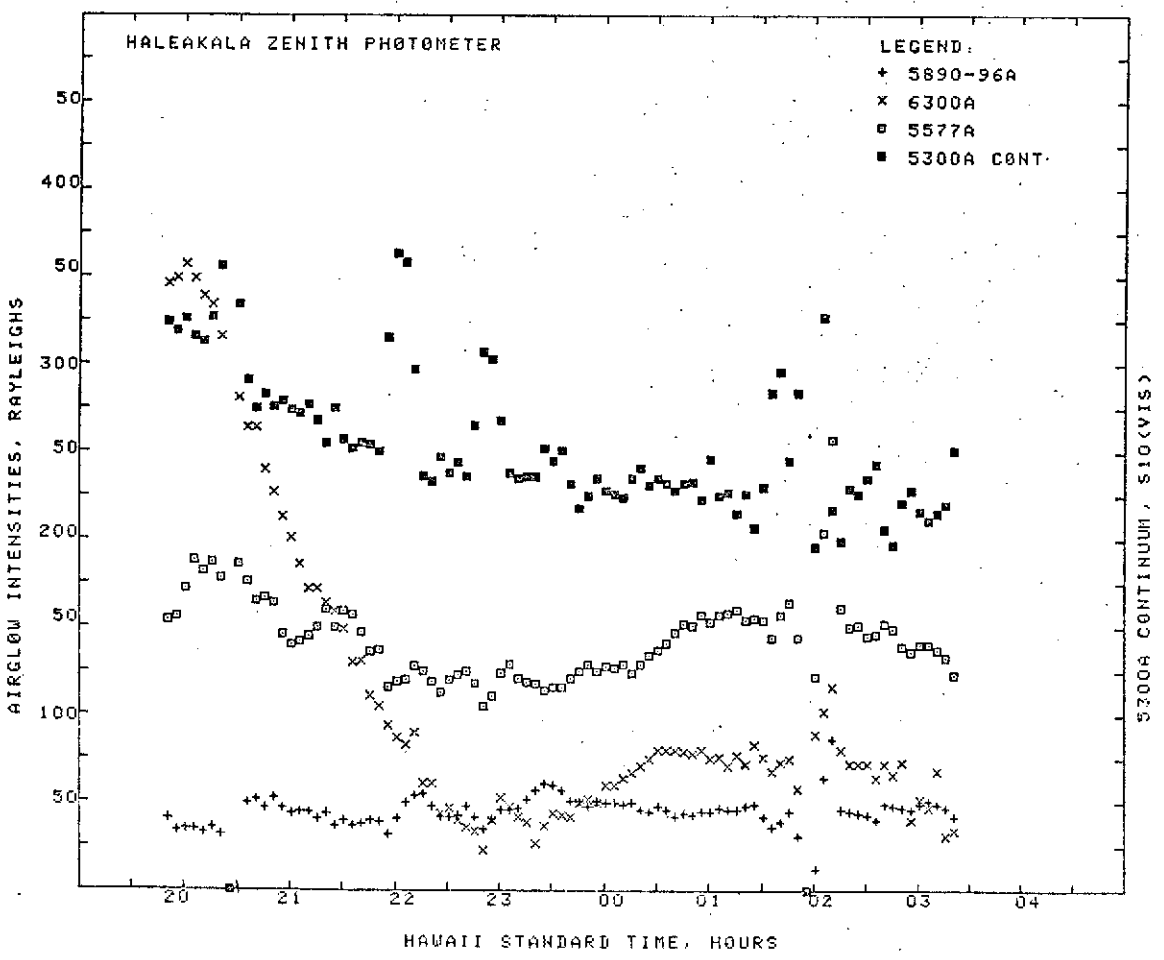
DATE
YR MO DA
62 03 10

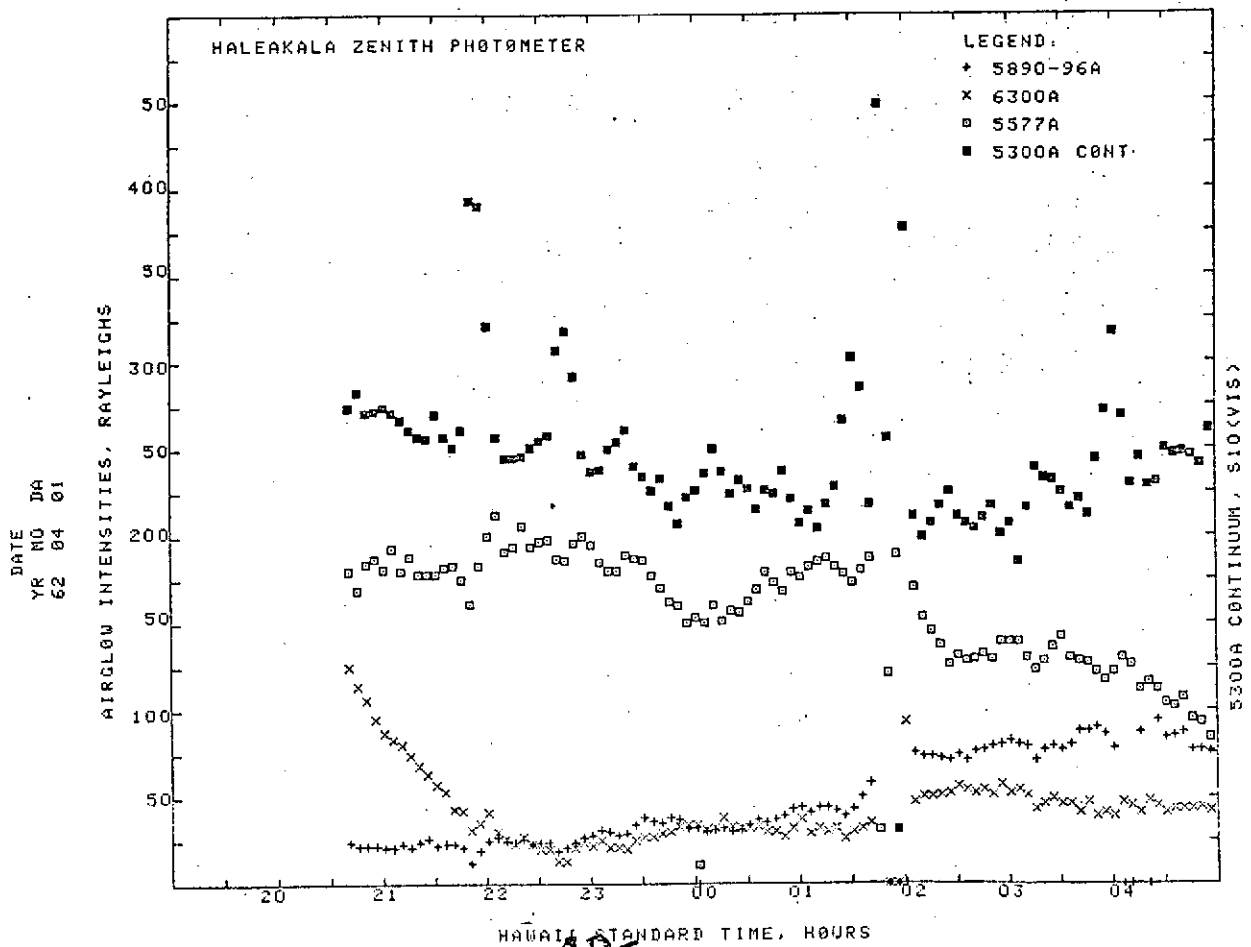
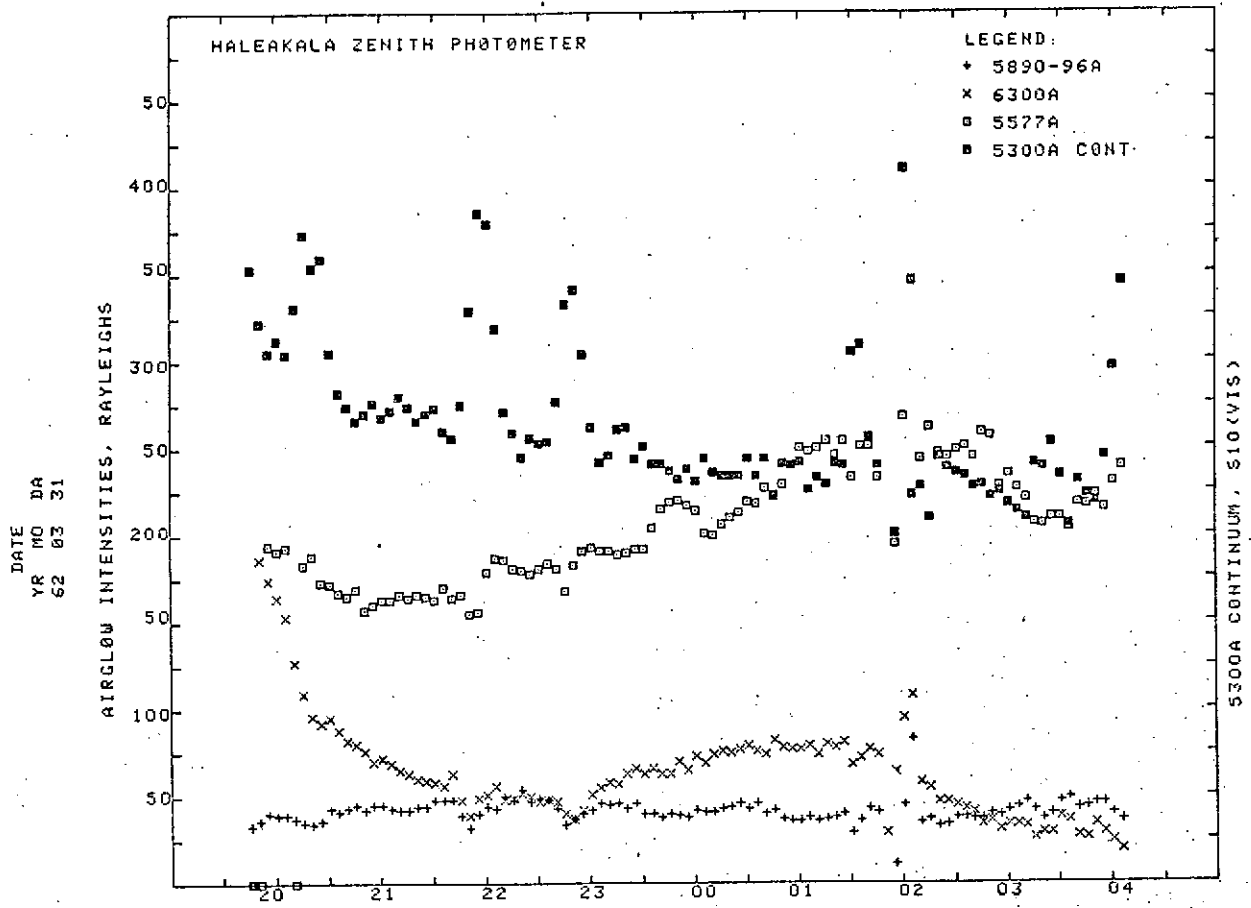


DATE
YR MO DA
62 03 25

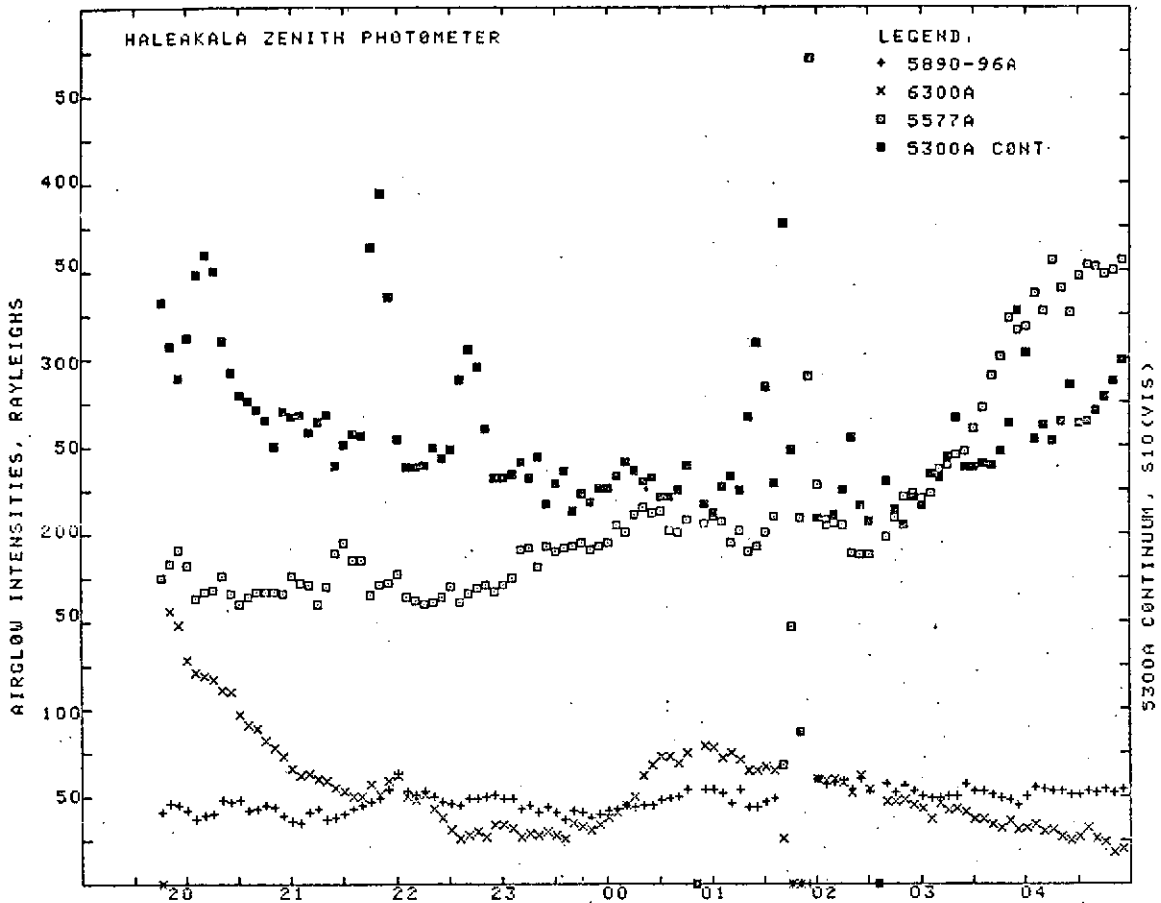


DATE
YR MO DA
62 03 30

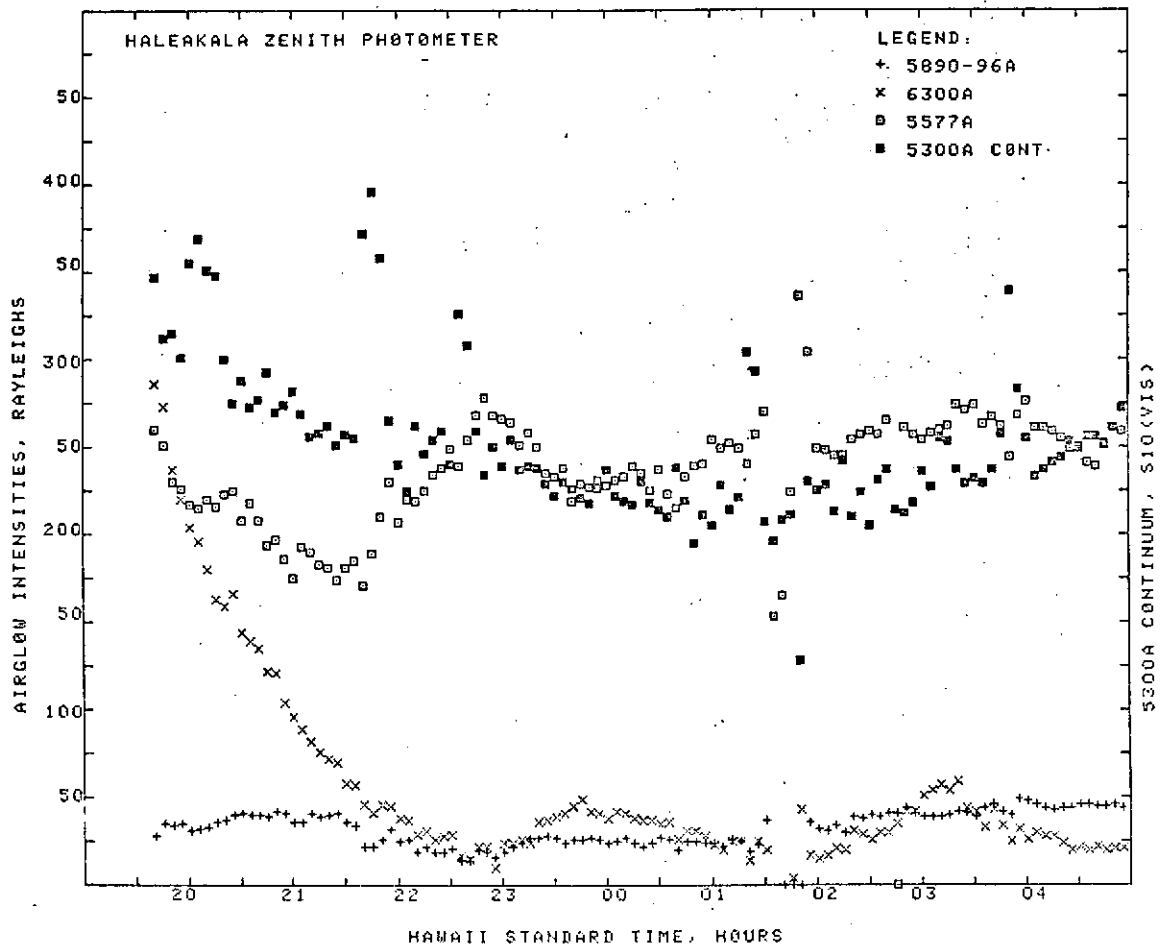




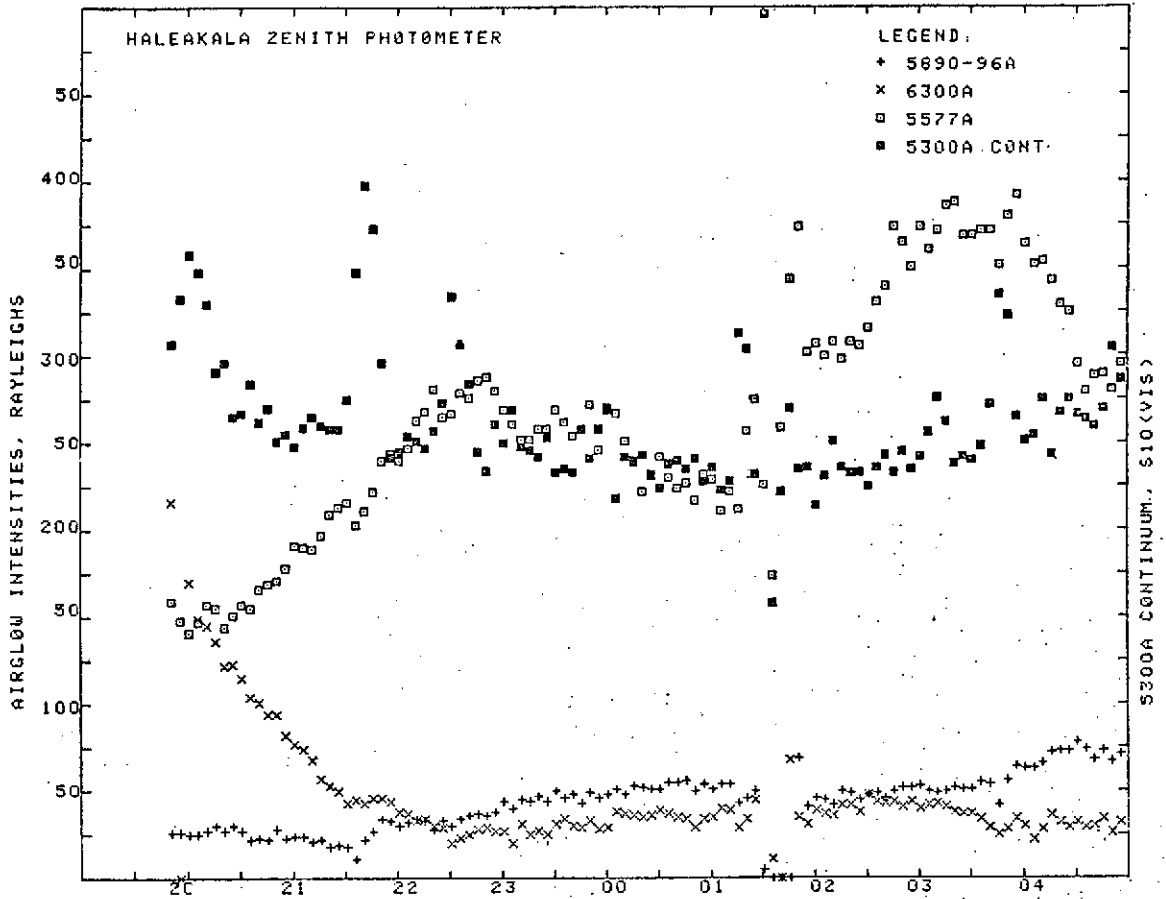
DATE
YR MO DA
62 04 02



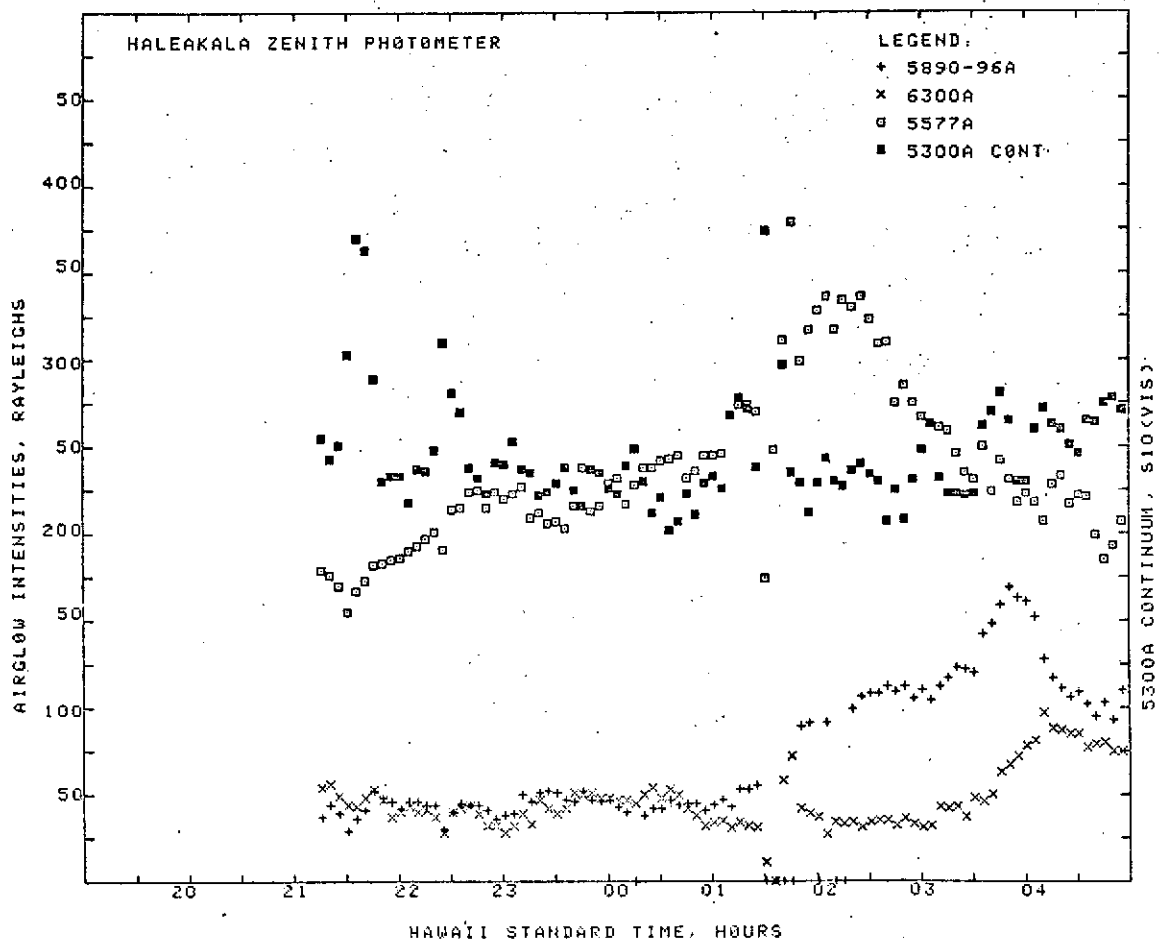
DATE
YR MO DA
62 04 03



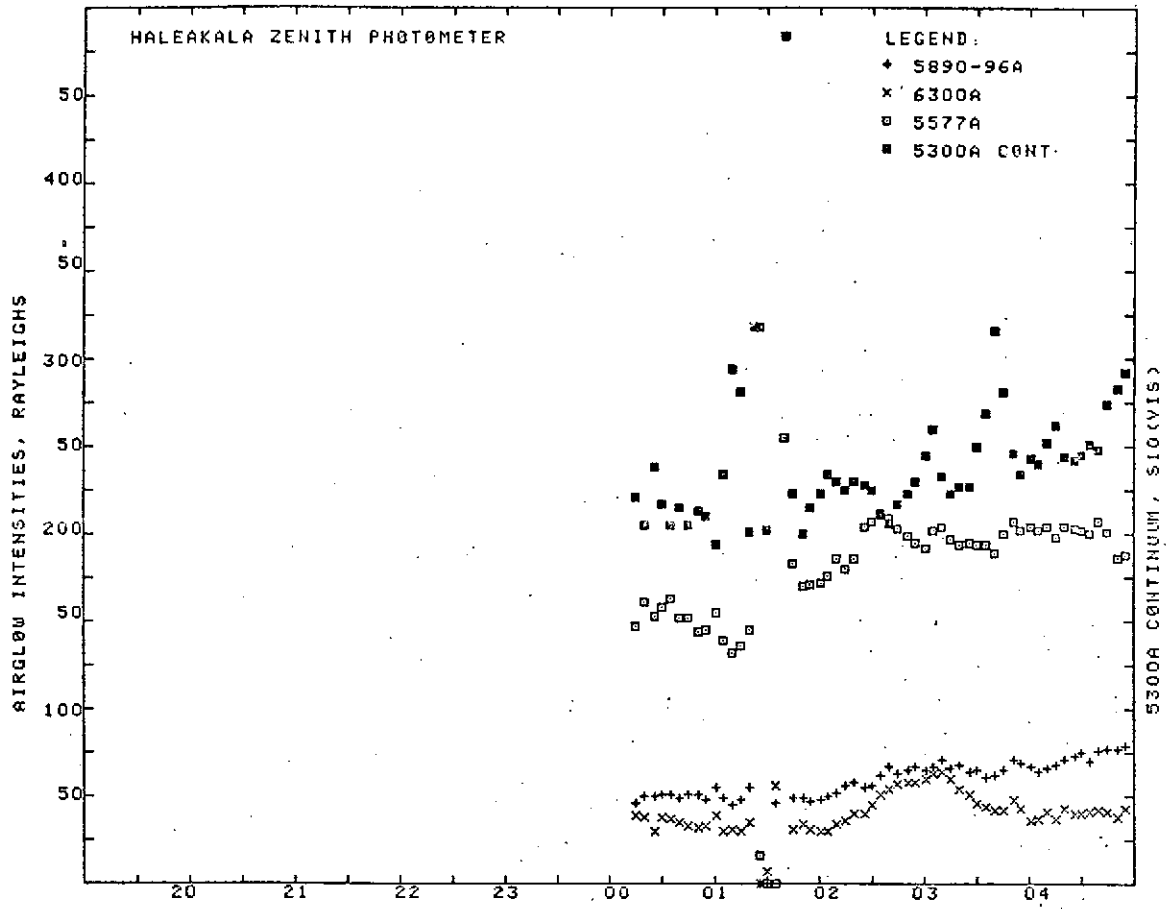
DATE
YR MO DA
62 04 04



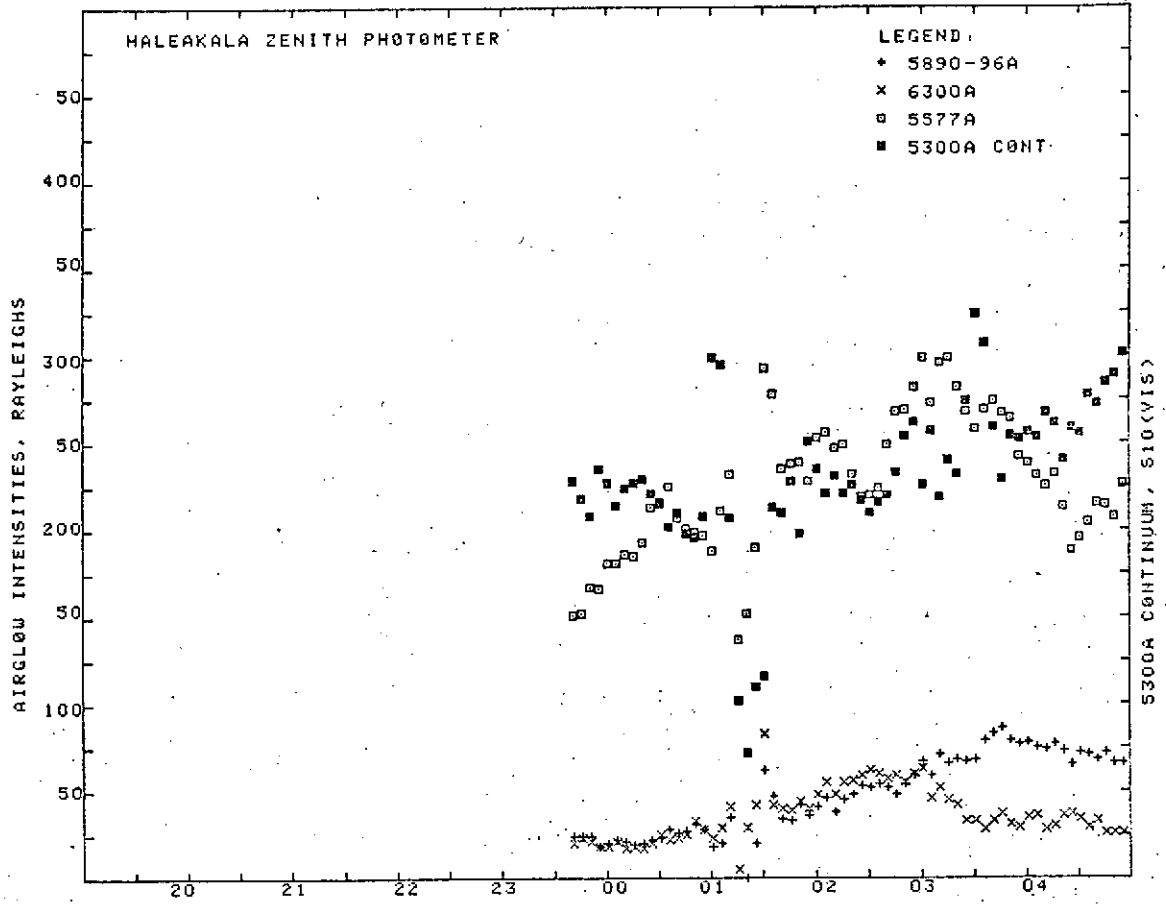
DATE
YR MO DA
62 04 05



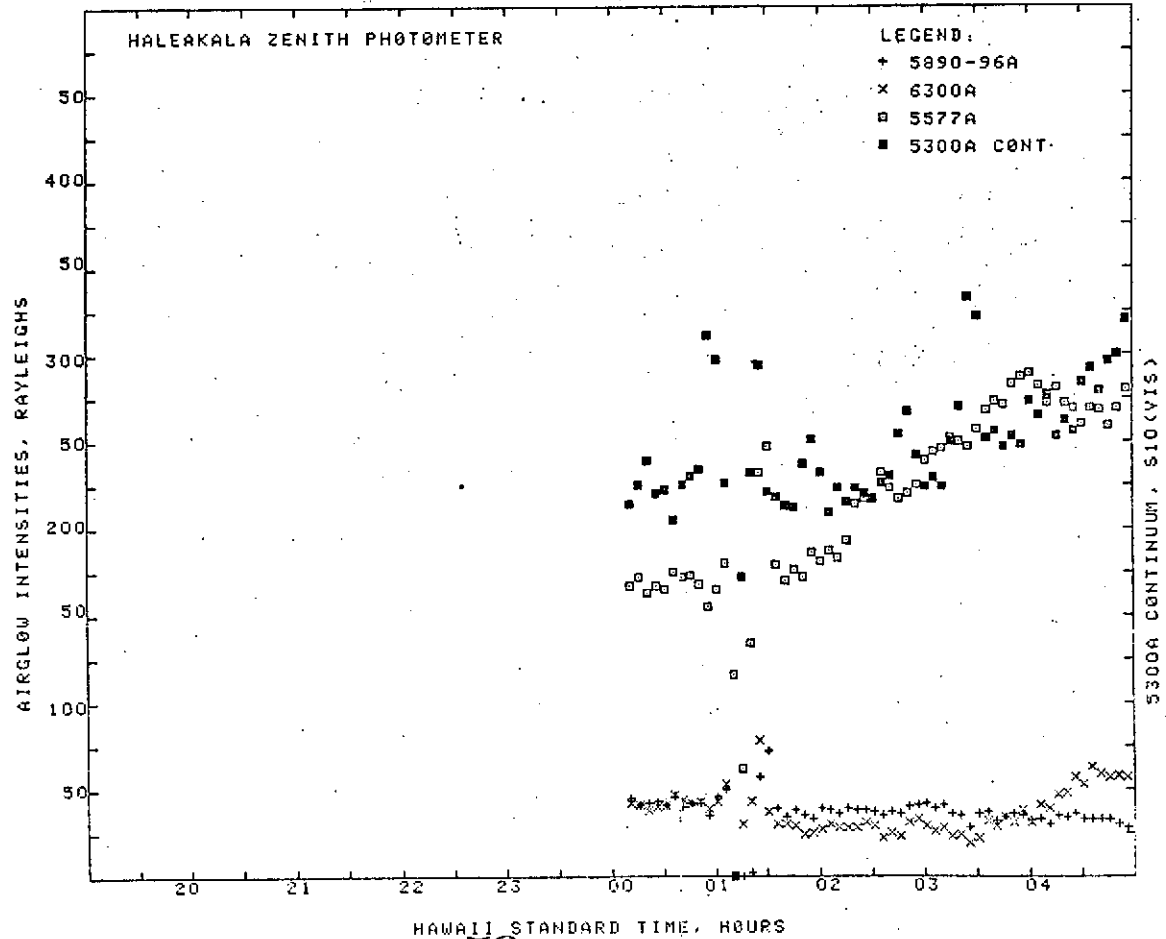
DATE
YR MO DA
62 04 06



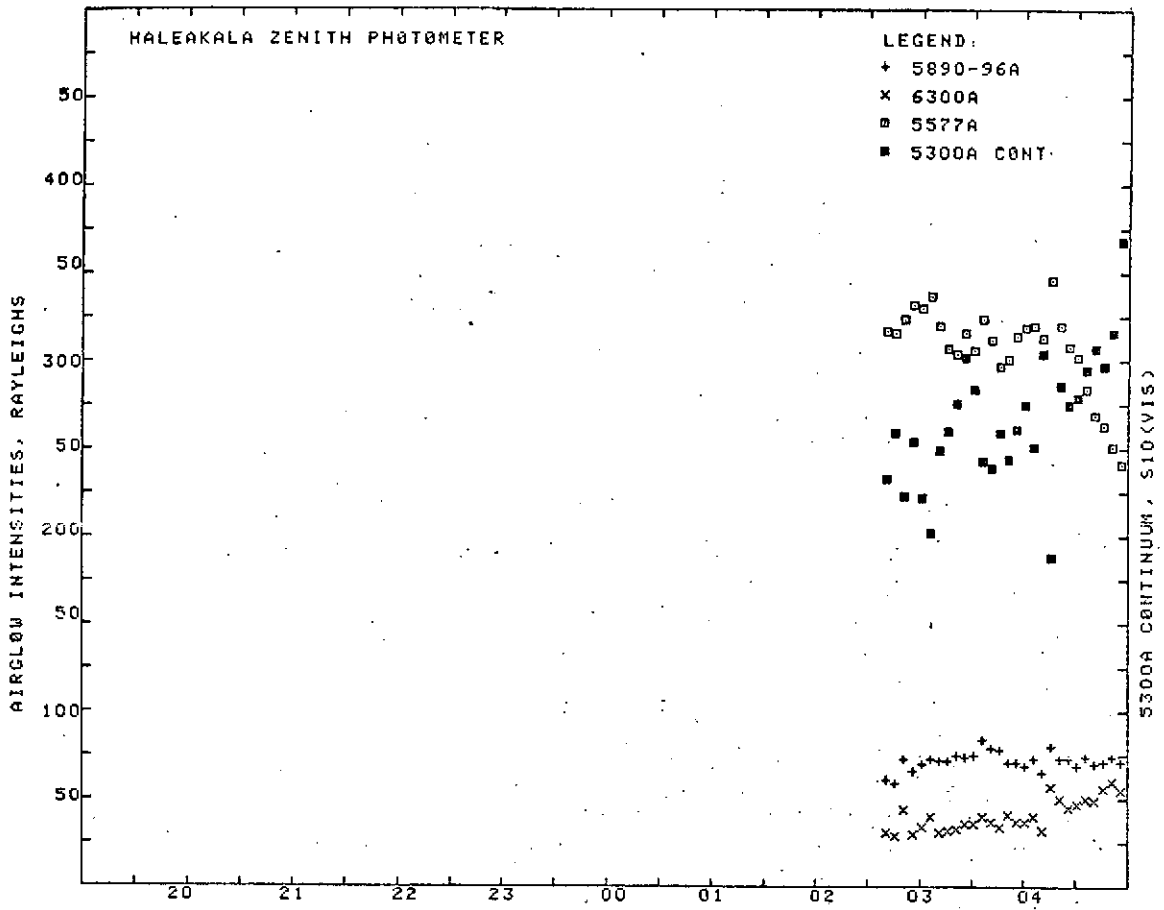
DATE
YR MO DA
62 04 08



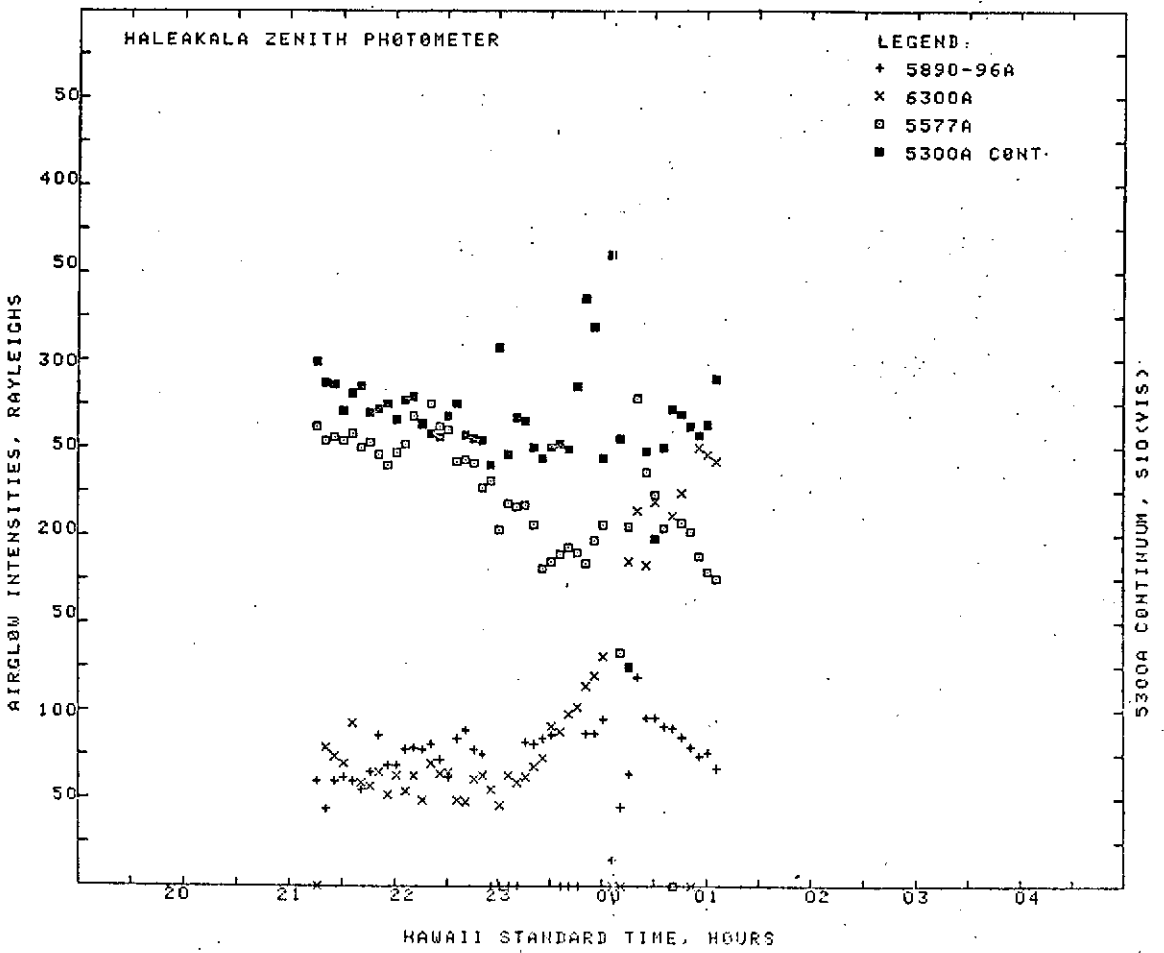
DATE
YR MO DA
62 04 09



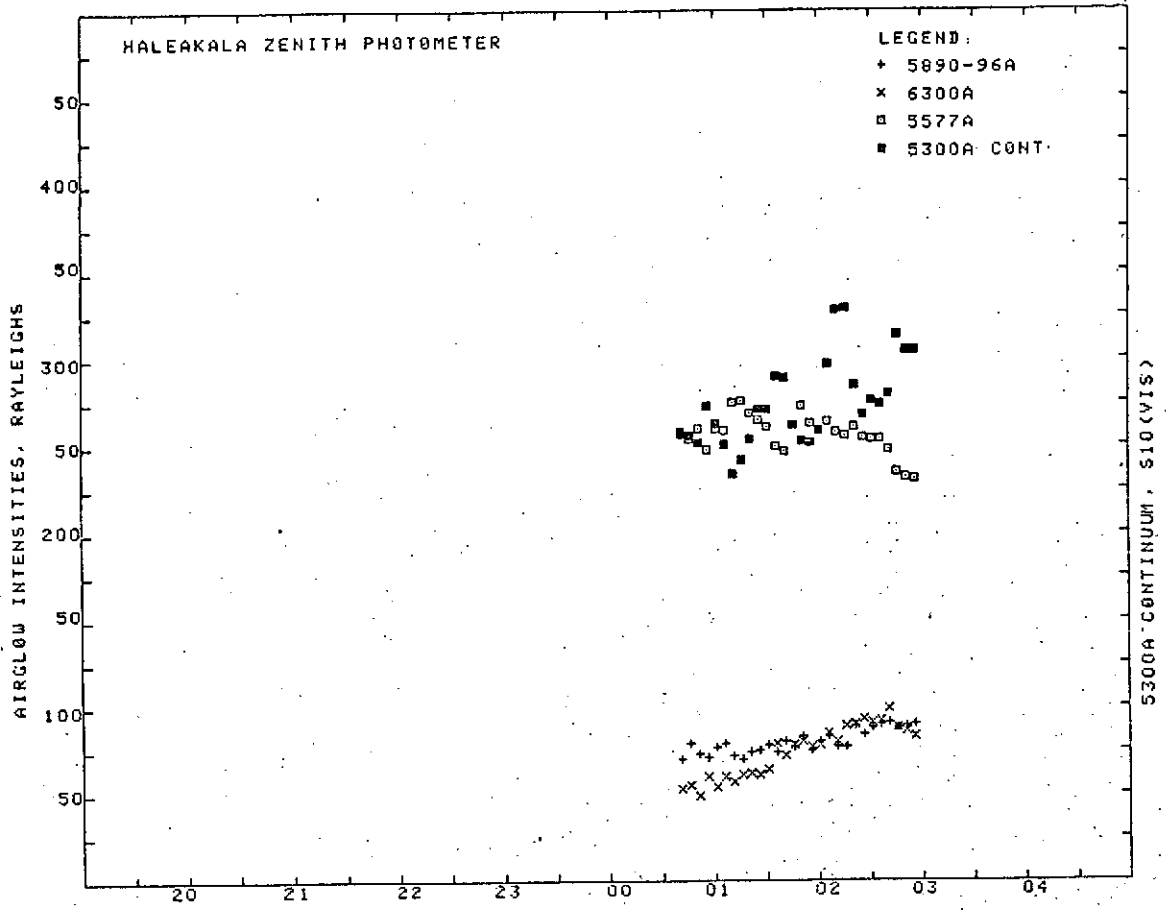
DATE
YR MO DA
62 04 10



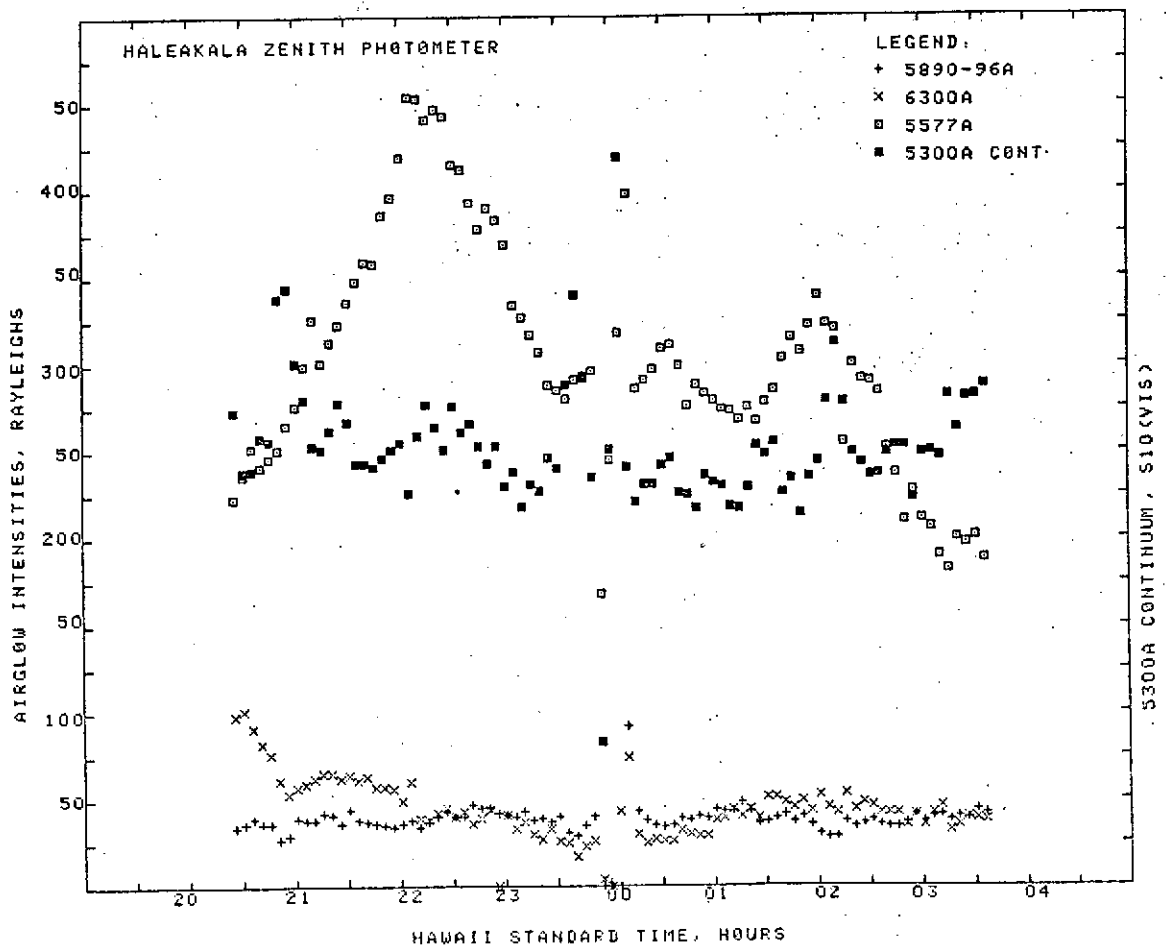
DATE
YR MO DA
62 04 26



DATE
YR MO DA
62 04 28

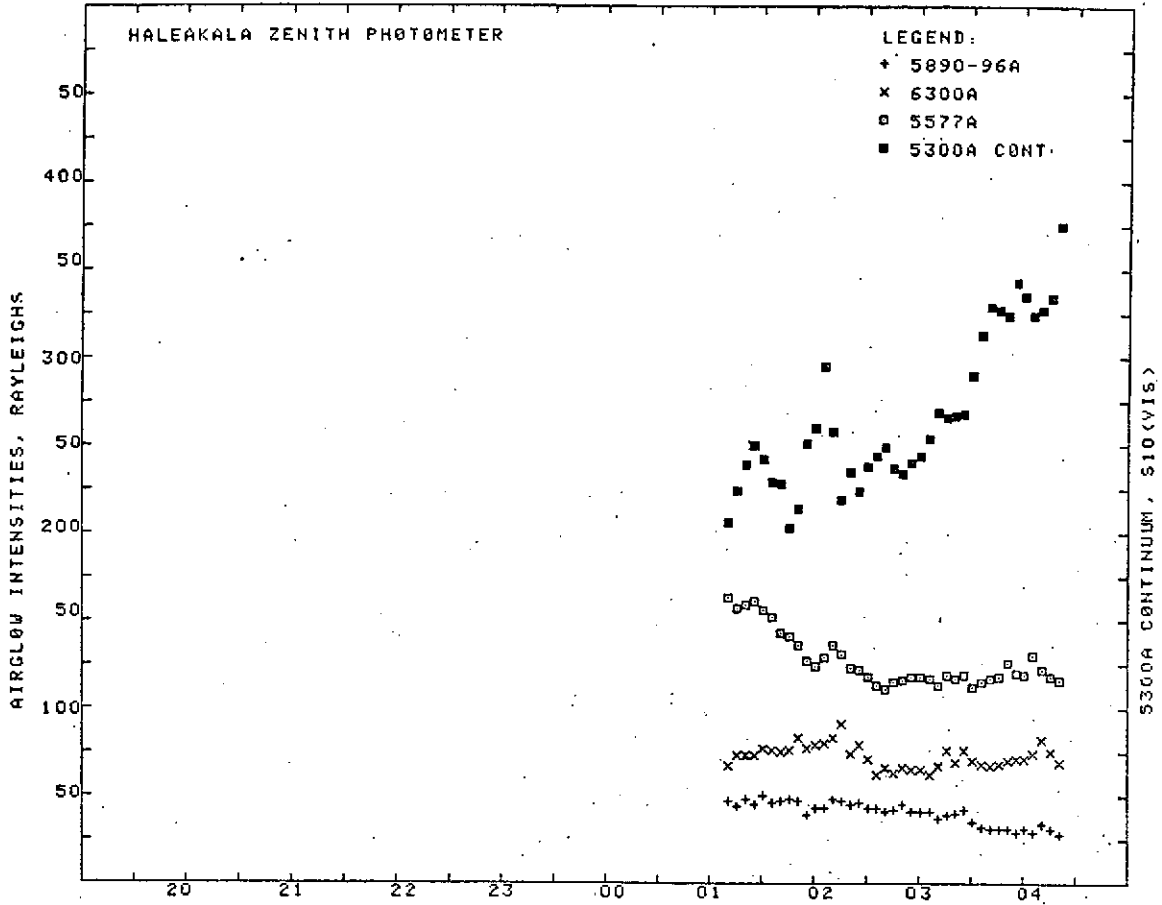


DATE
YR MO DA
62 04 29

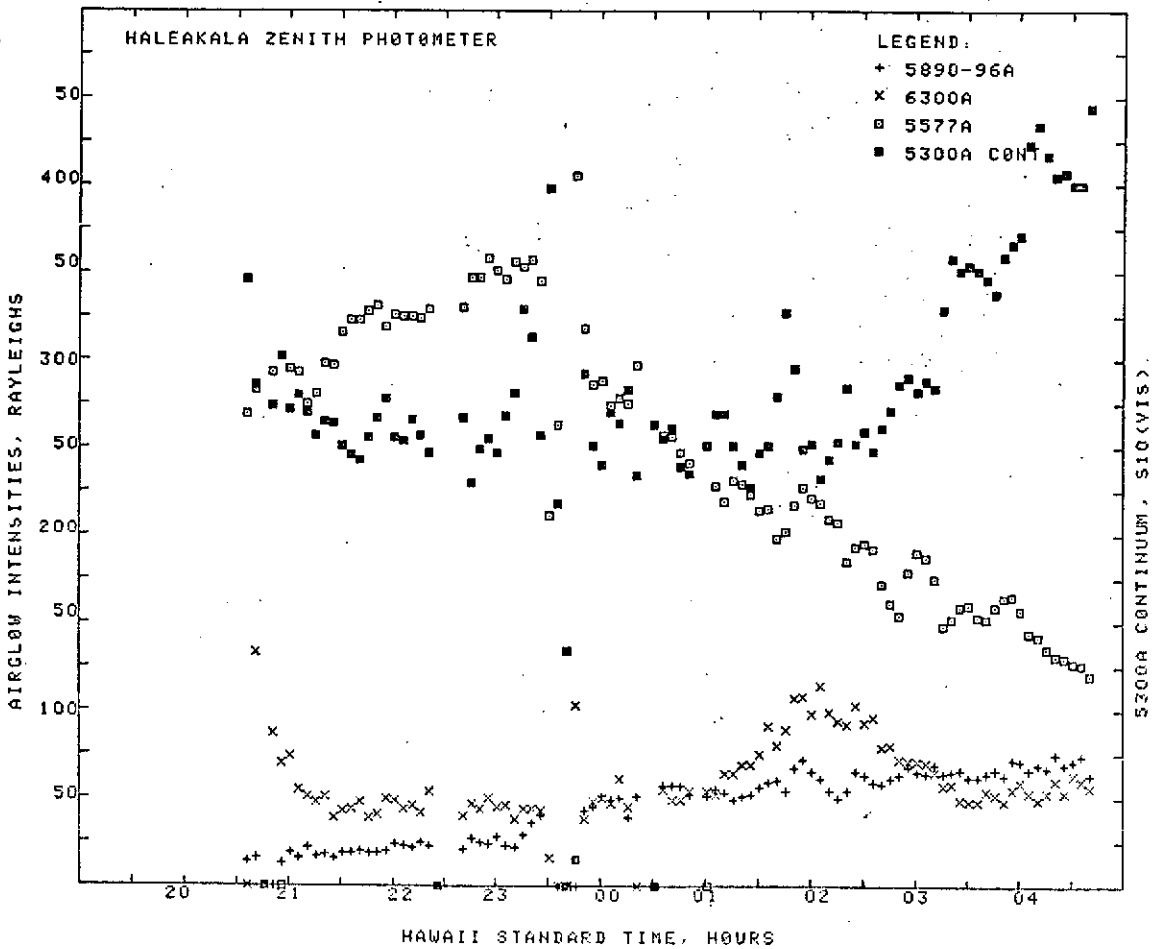


HAWAII STANDARD TIME, HOURS

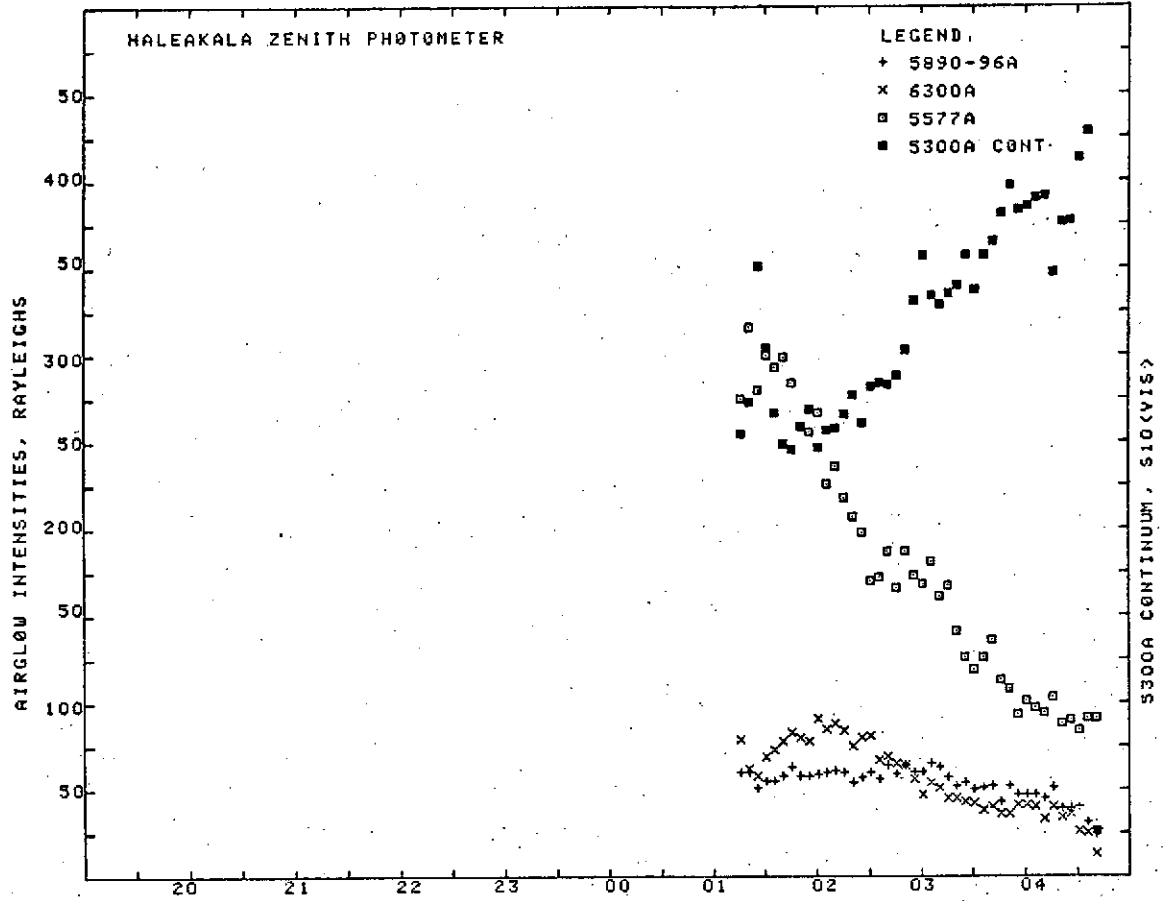
DATE
YR MO DA
62 04 30



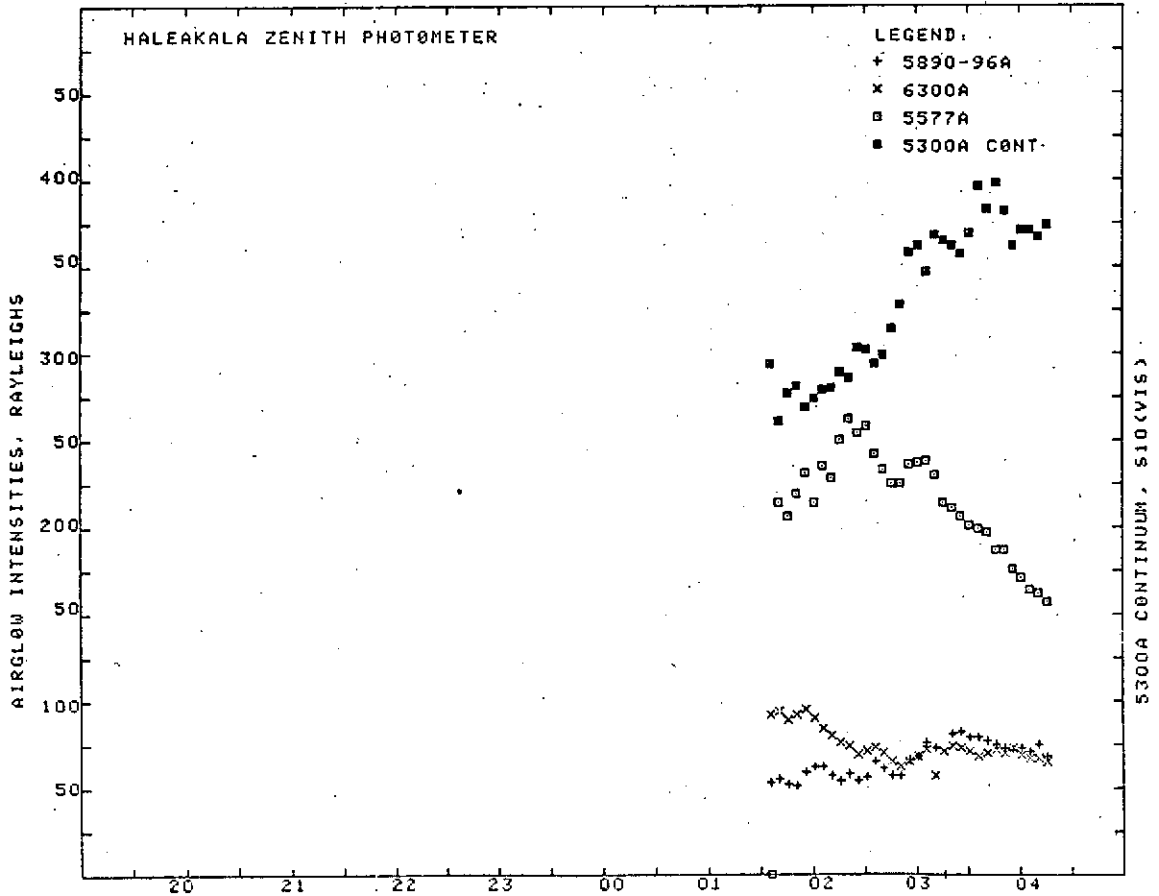
DATE
YR MO DA
62 05 05



DATE
YR MO DA
62 05 10

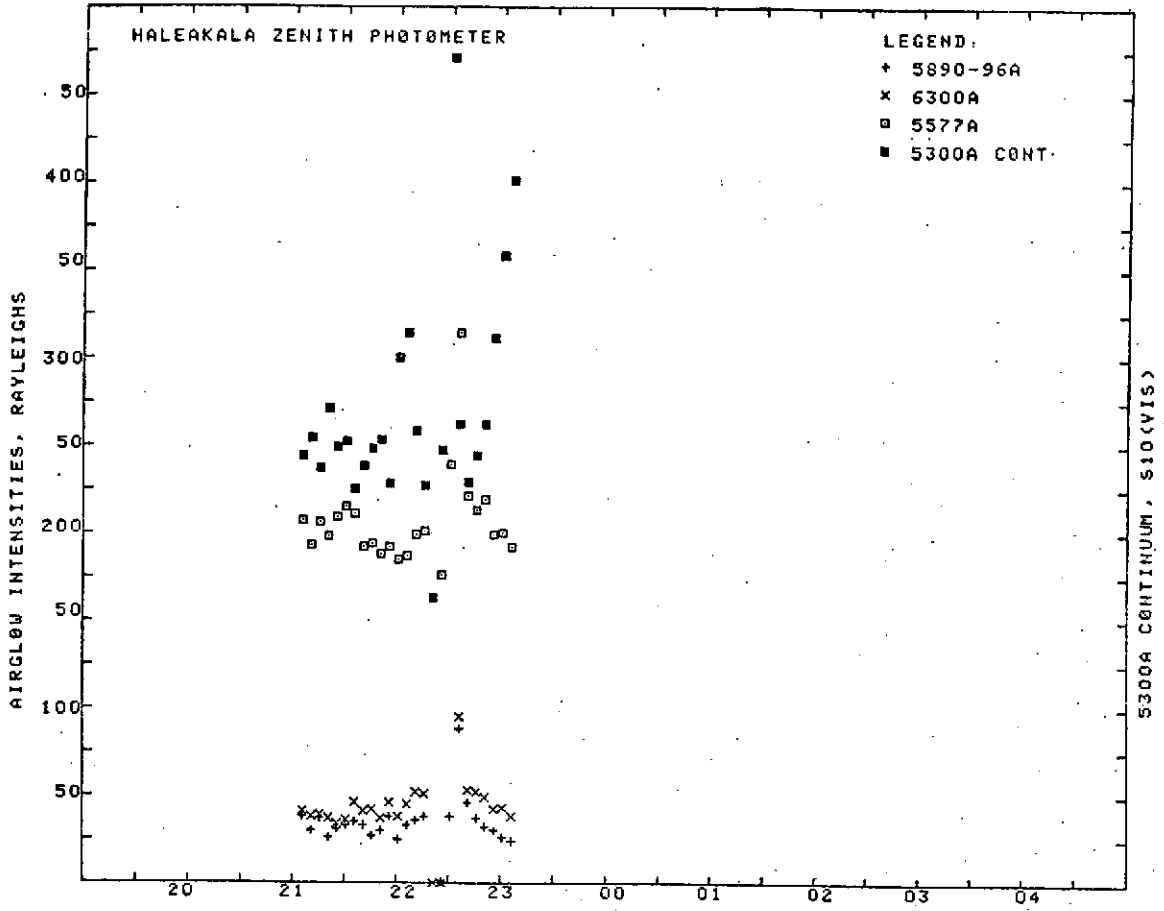


DATE
YR MO DA
62 05 11

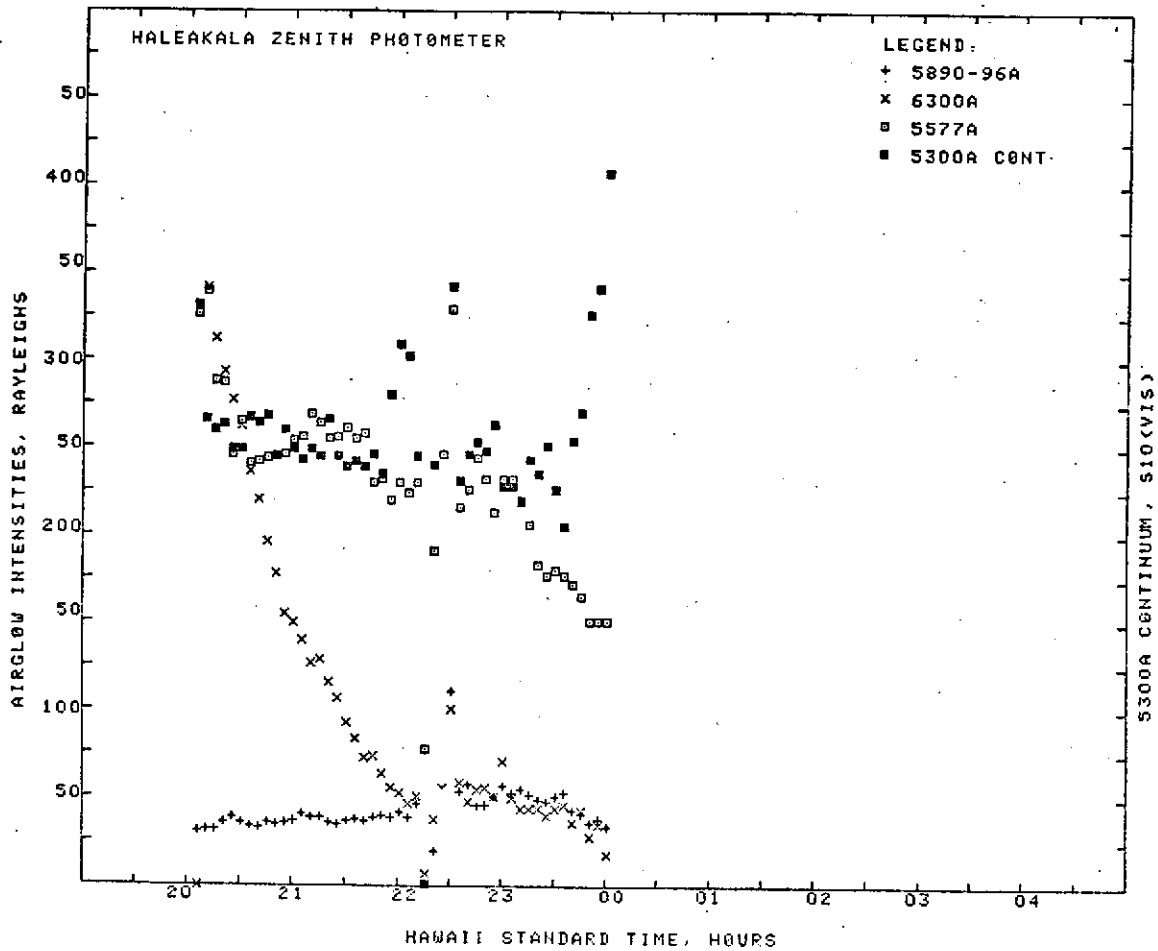


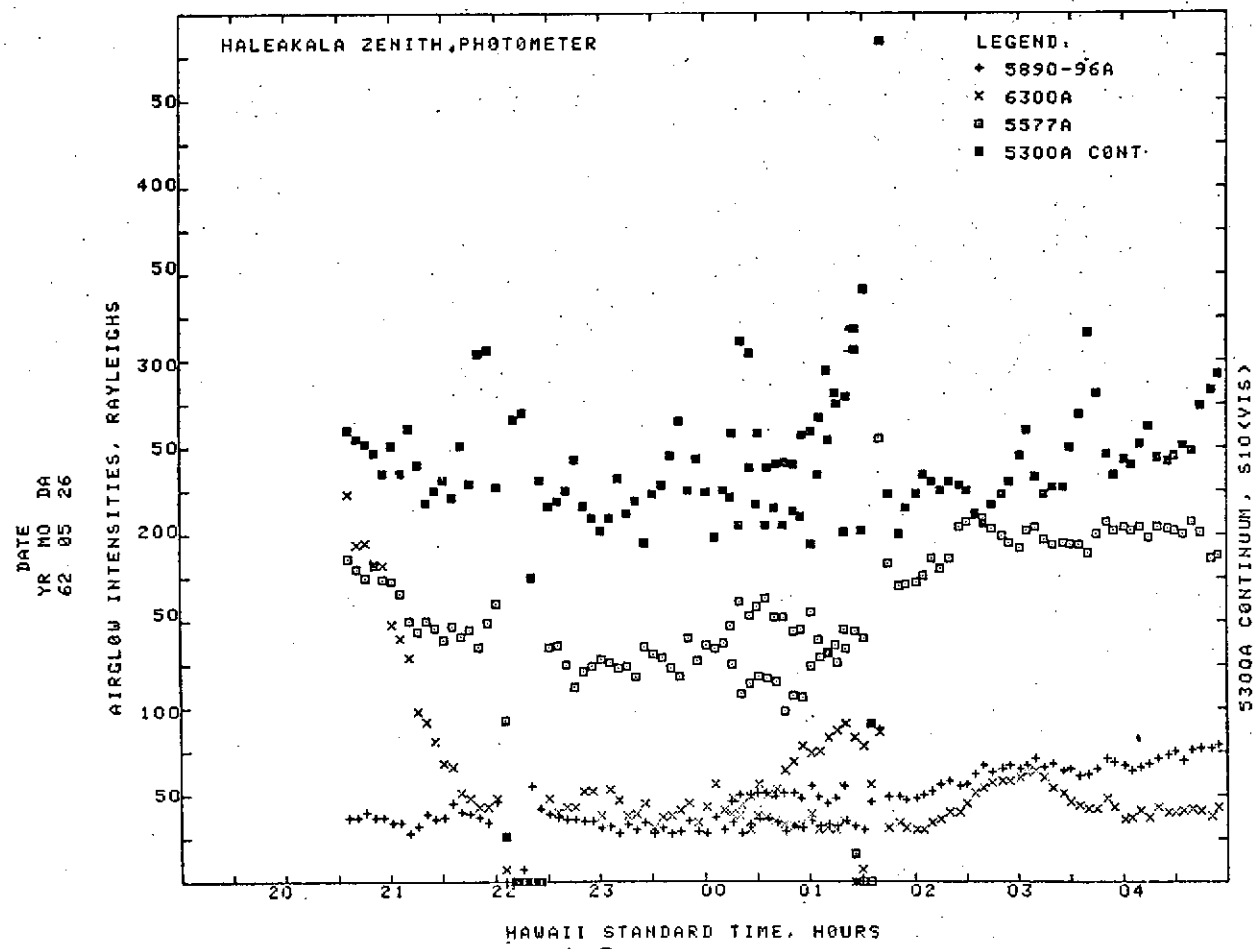
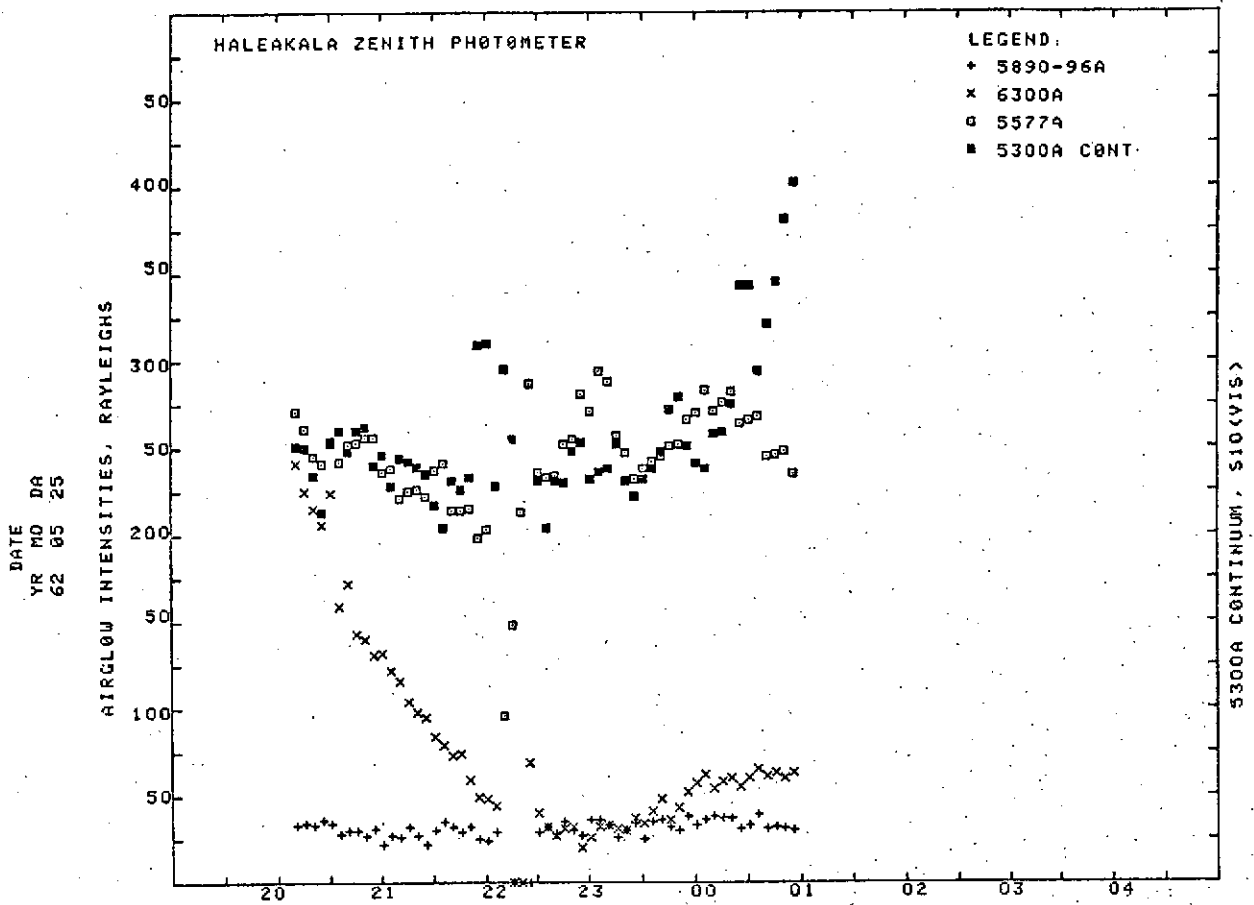
HAWAII STANDARD TIME, HOURS

DATE
YR MO DA
62 00 23

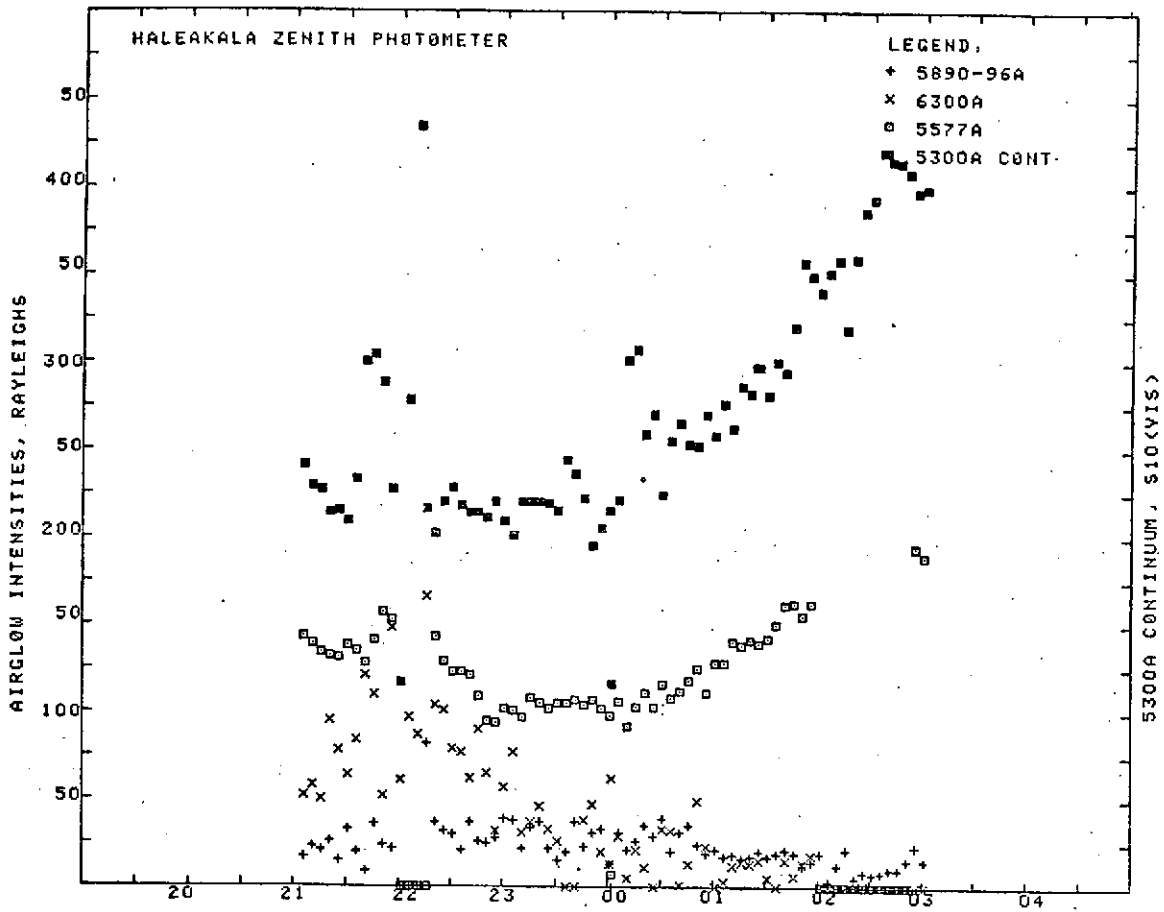


DATE
YR MO DA
62 05 24

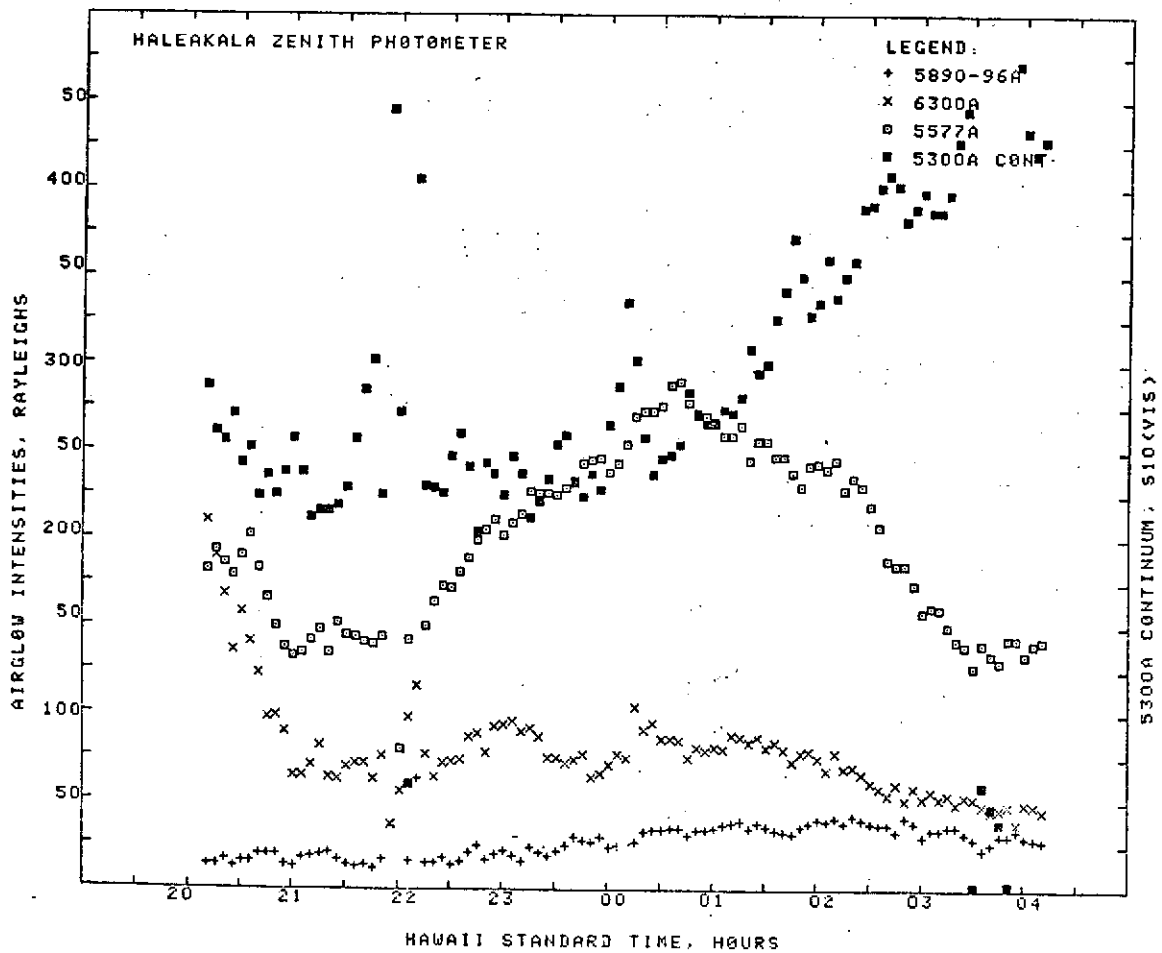




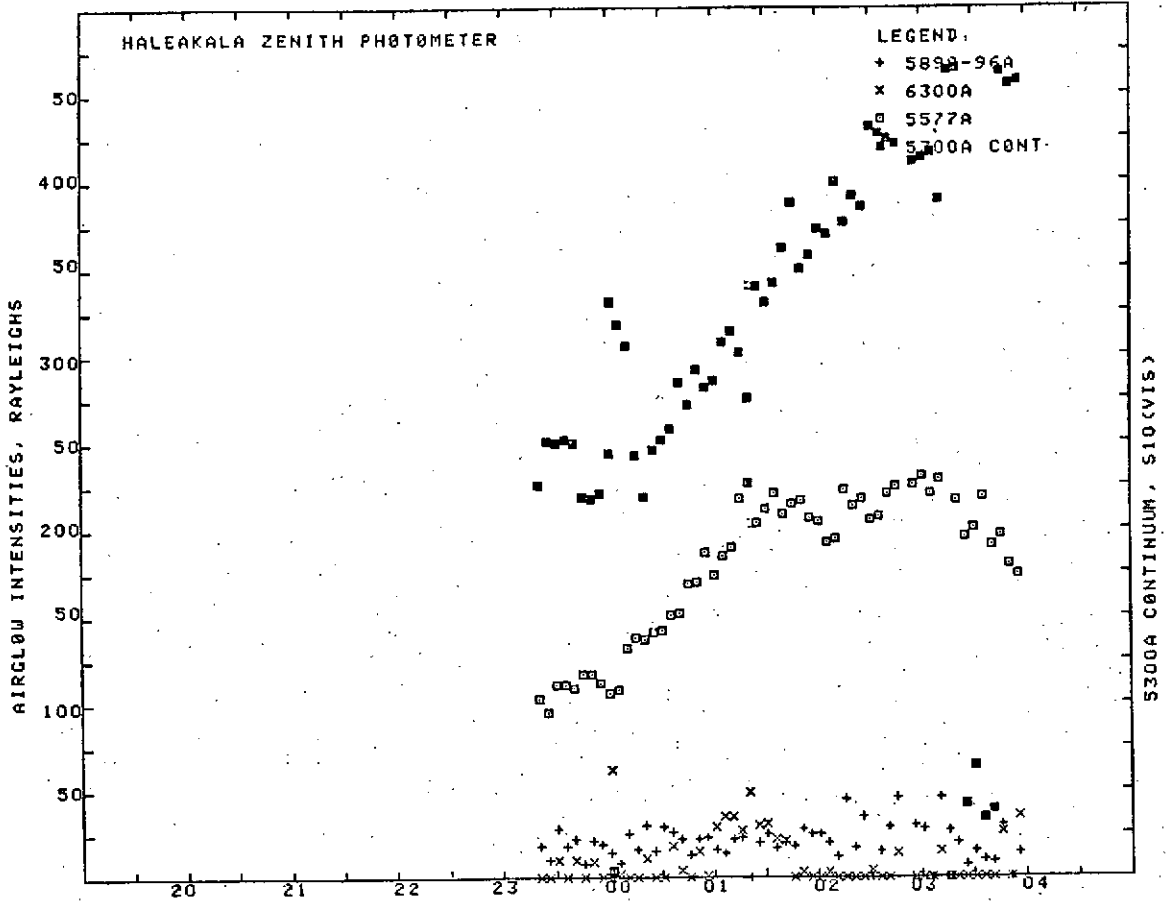
DATE
YR MO DA
62 05 28



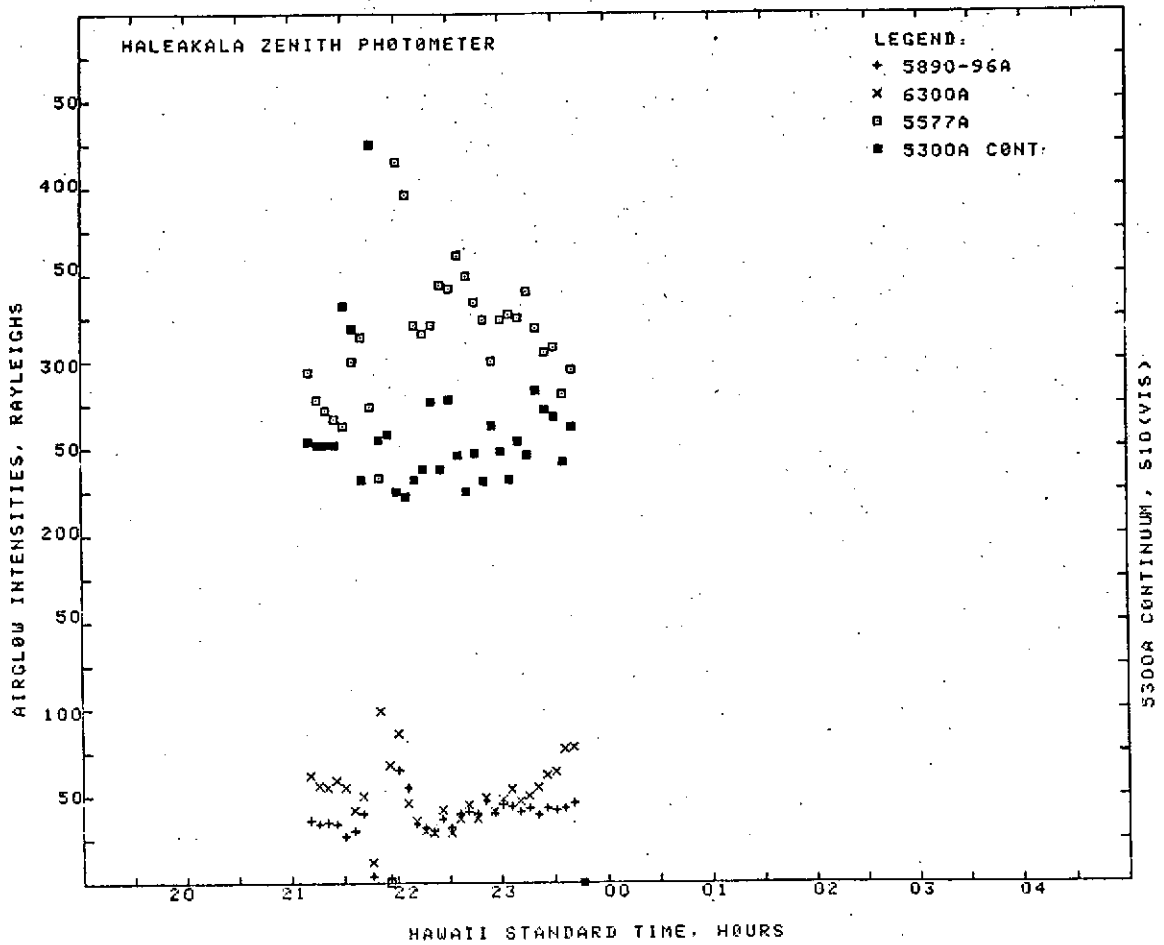
DATE
YR MO DA
62 05 29



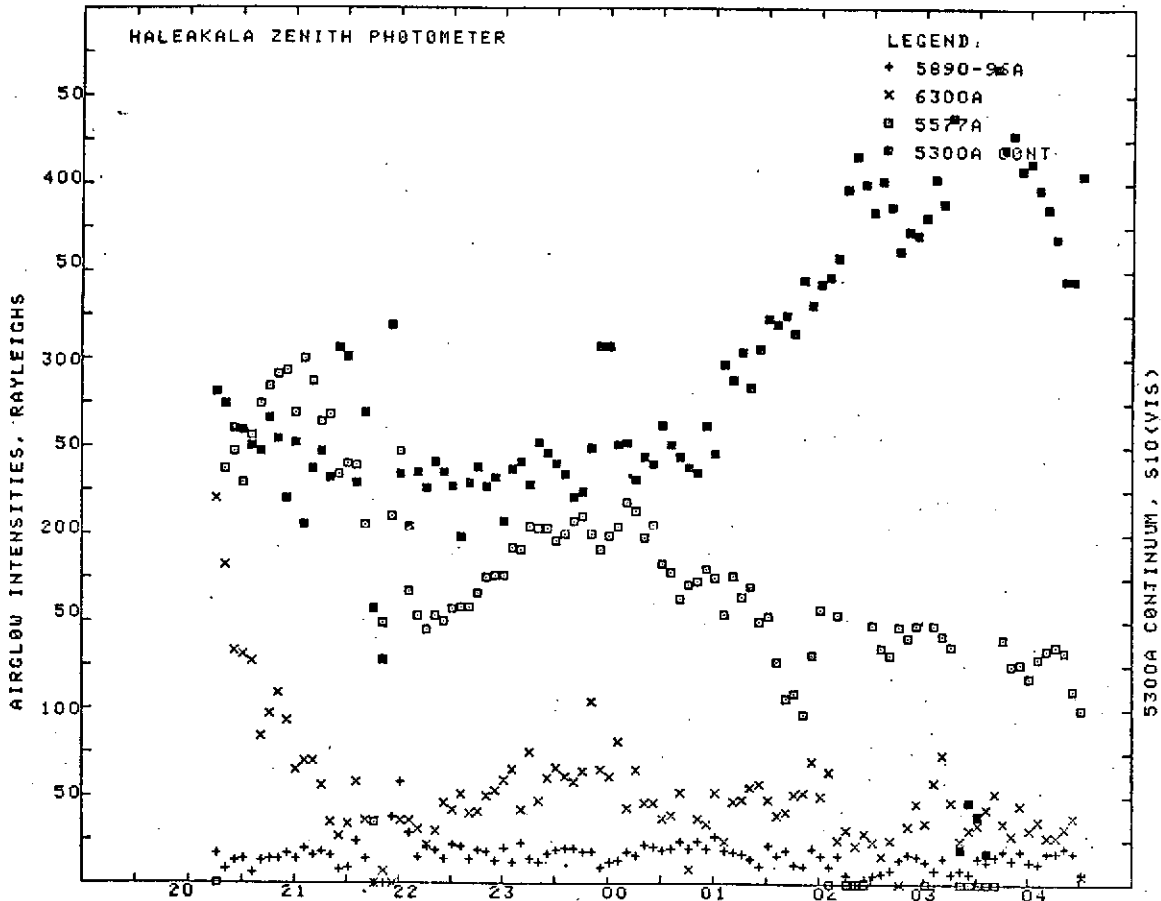
DATE
YR MO DA
62 05 30



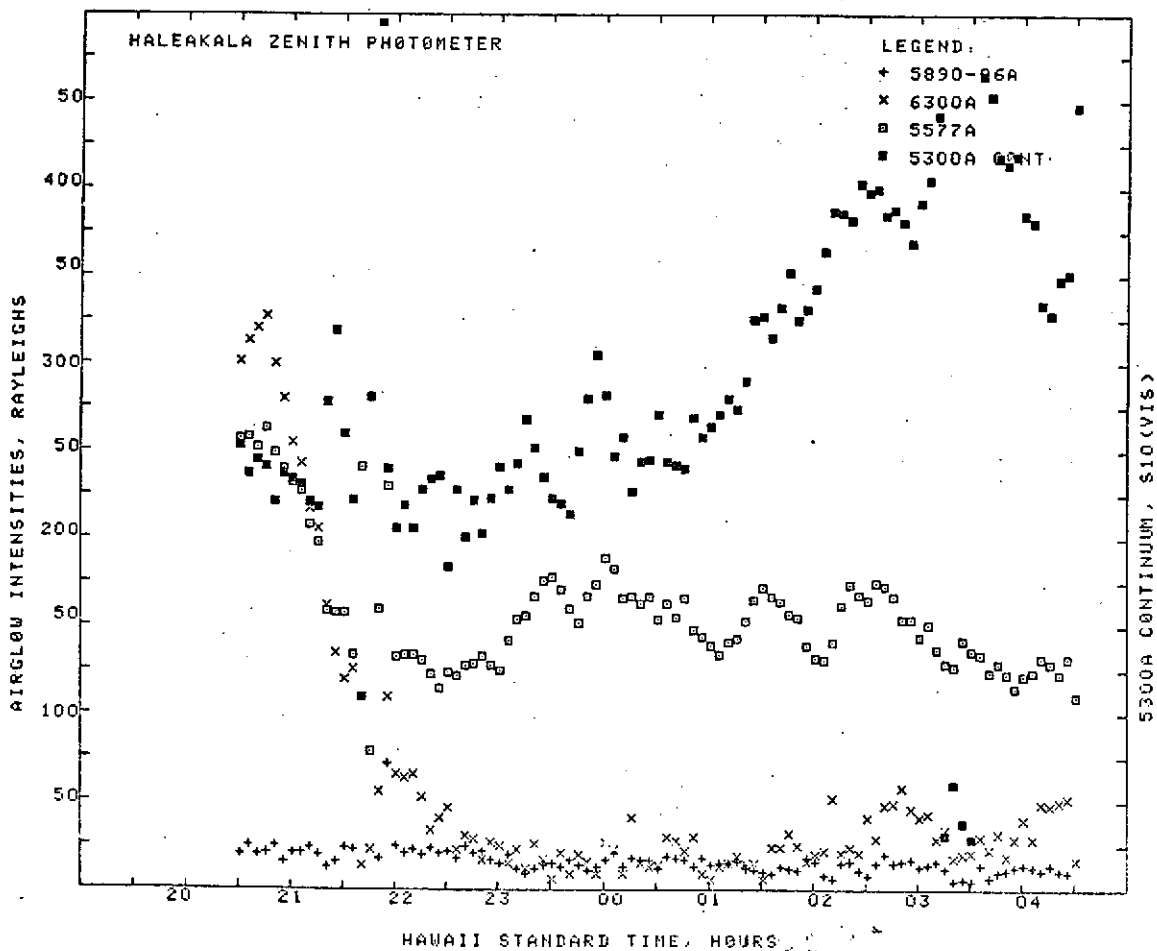
DATE
YR MO DA
62 05 31



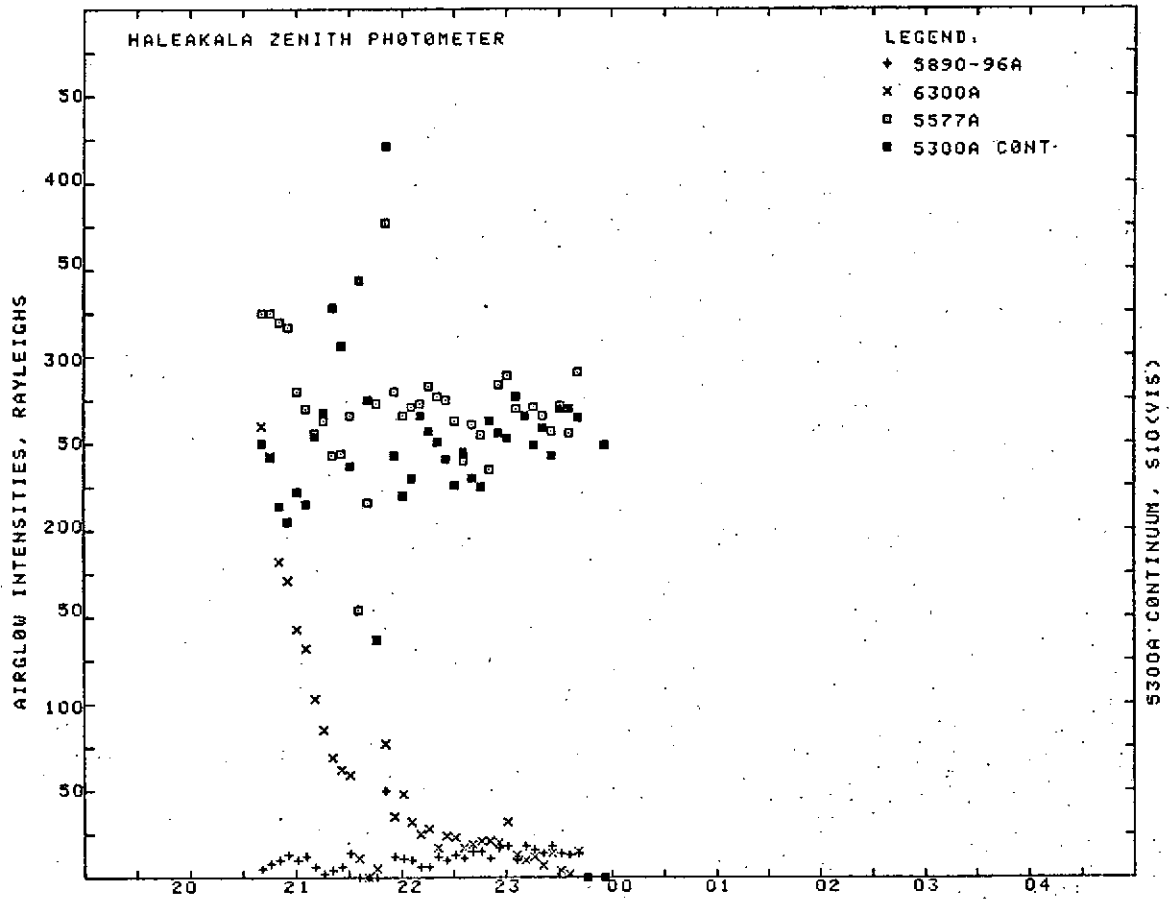
DATE
YR MO DA
62 05 01



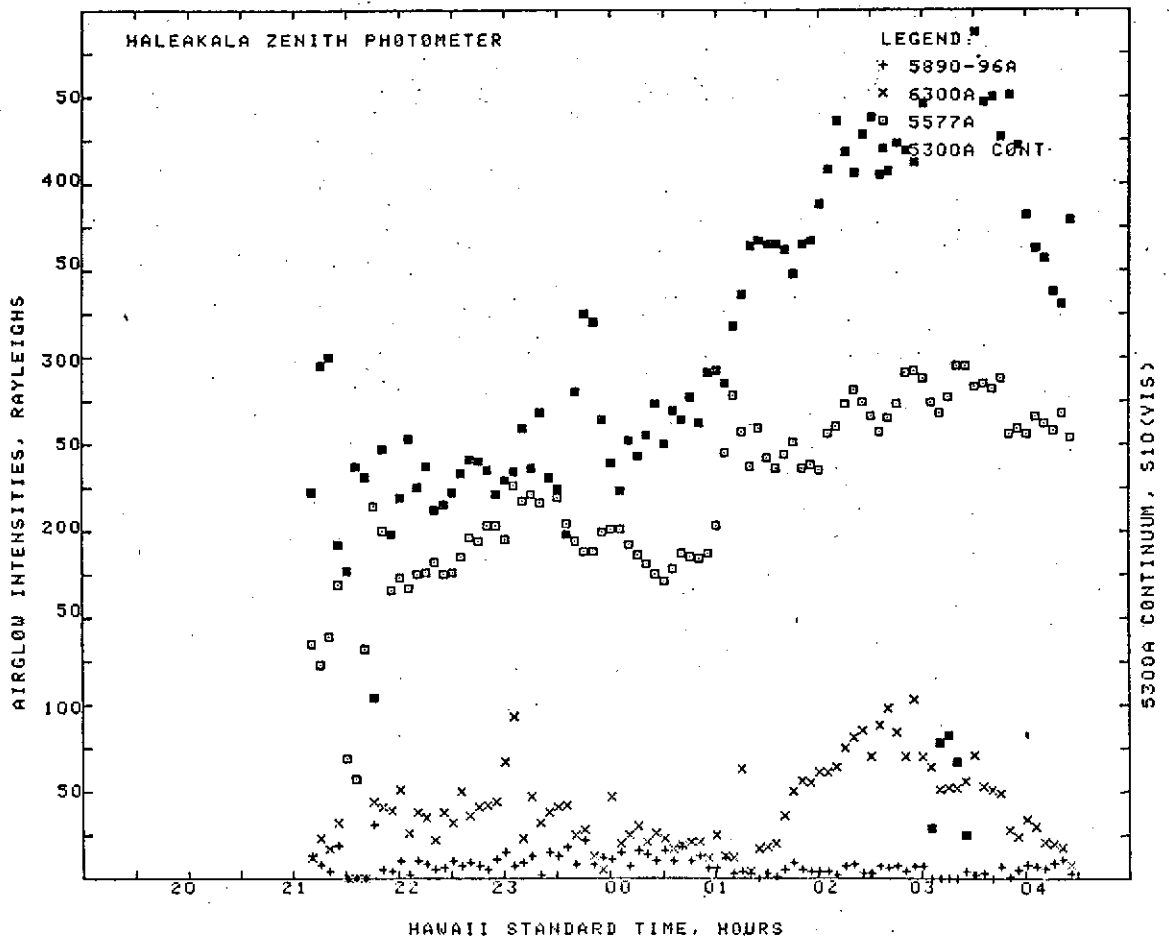
DATE
YR MO DA
62 06 02



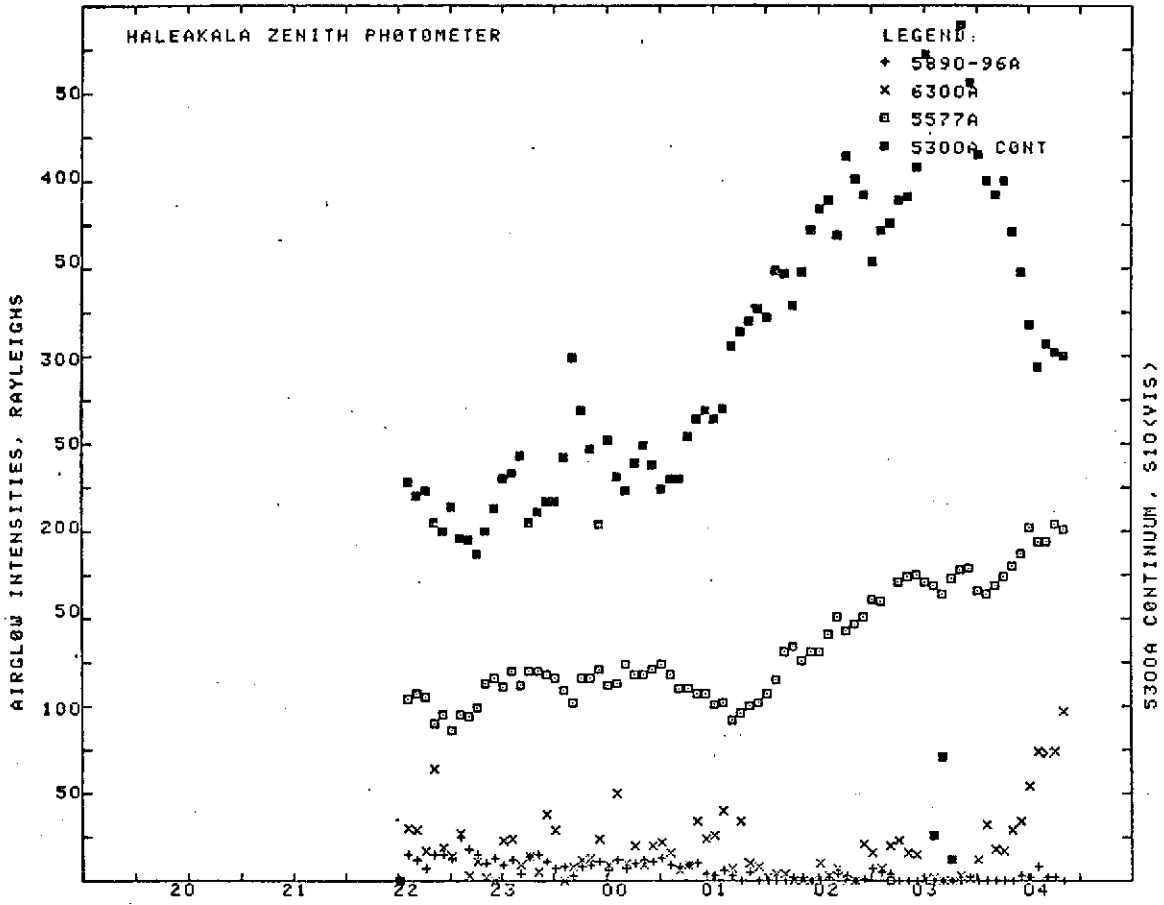
DATE
YR MO DA
62 06 03



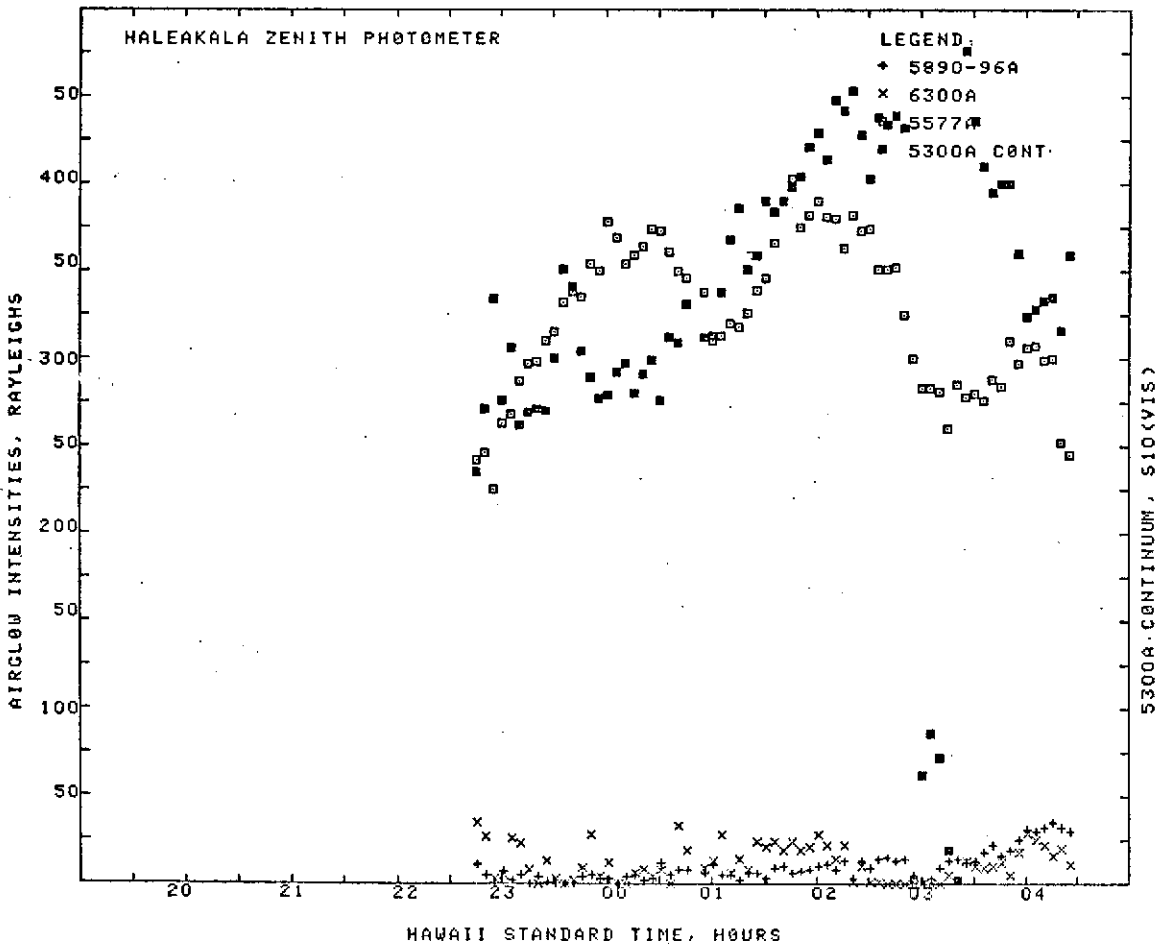
DATE
YR MO DA
62 06 04



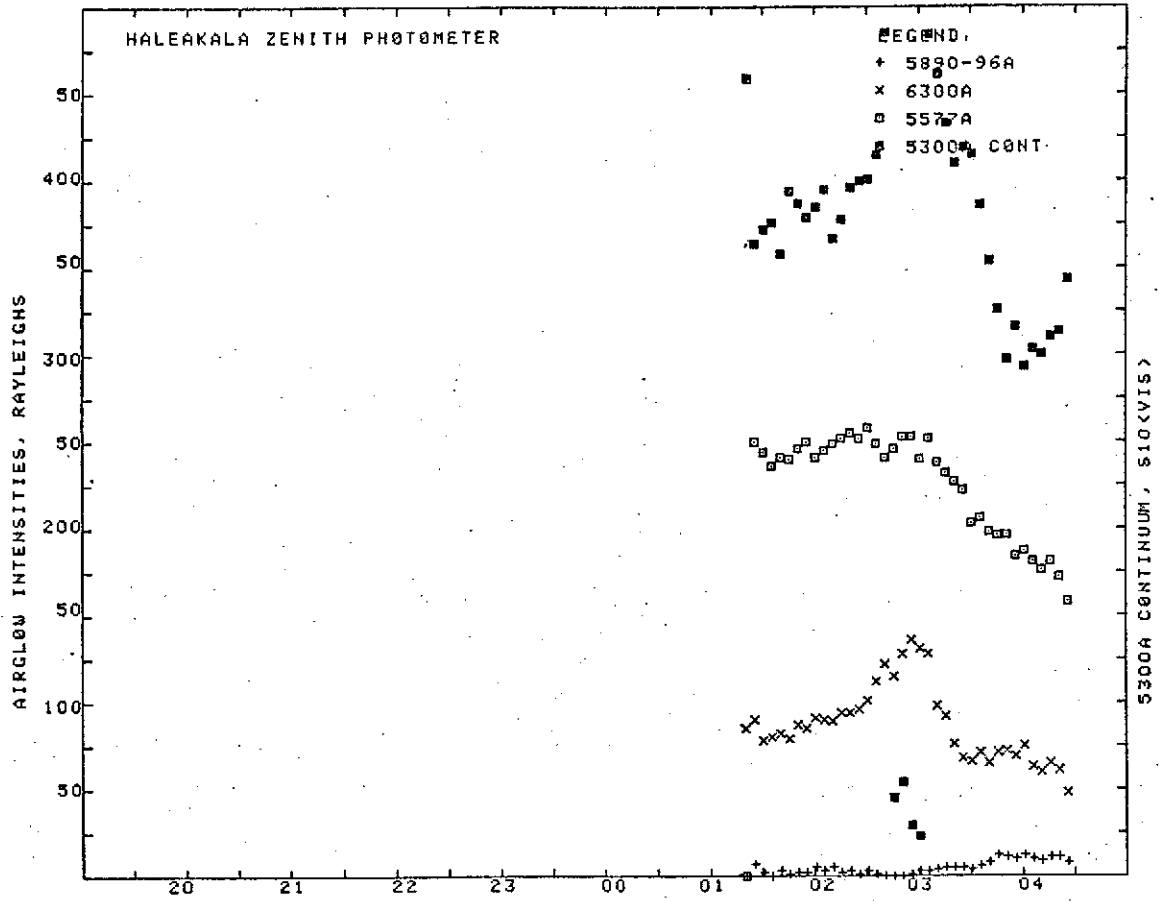
DATE
YR MO DA
62 06 05



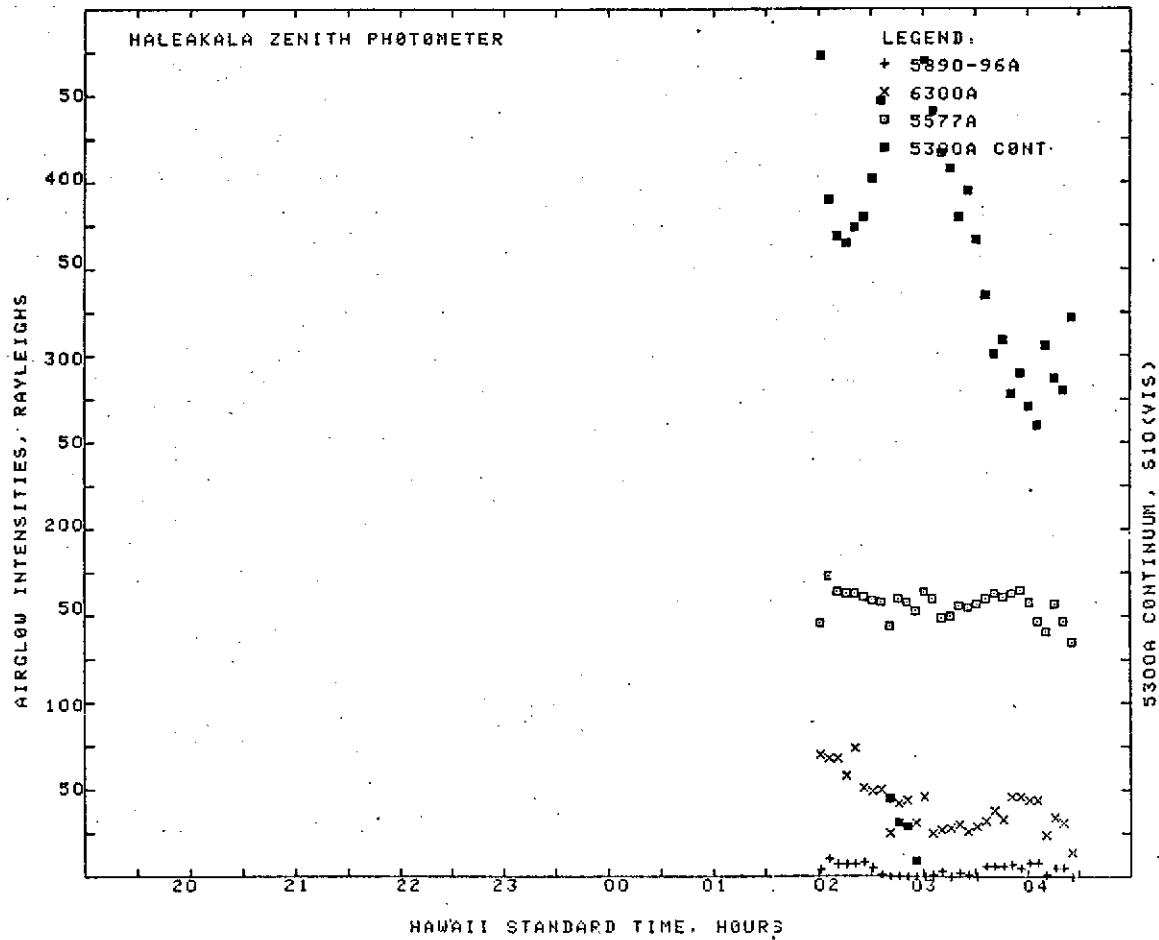
DATE
YR MO DA
62 06 05



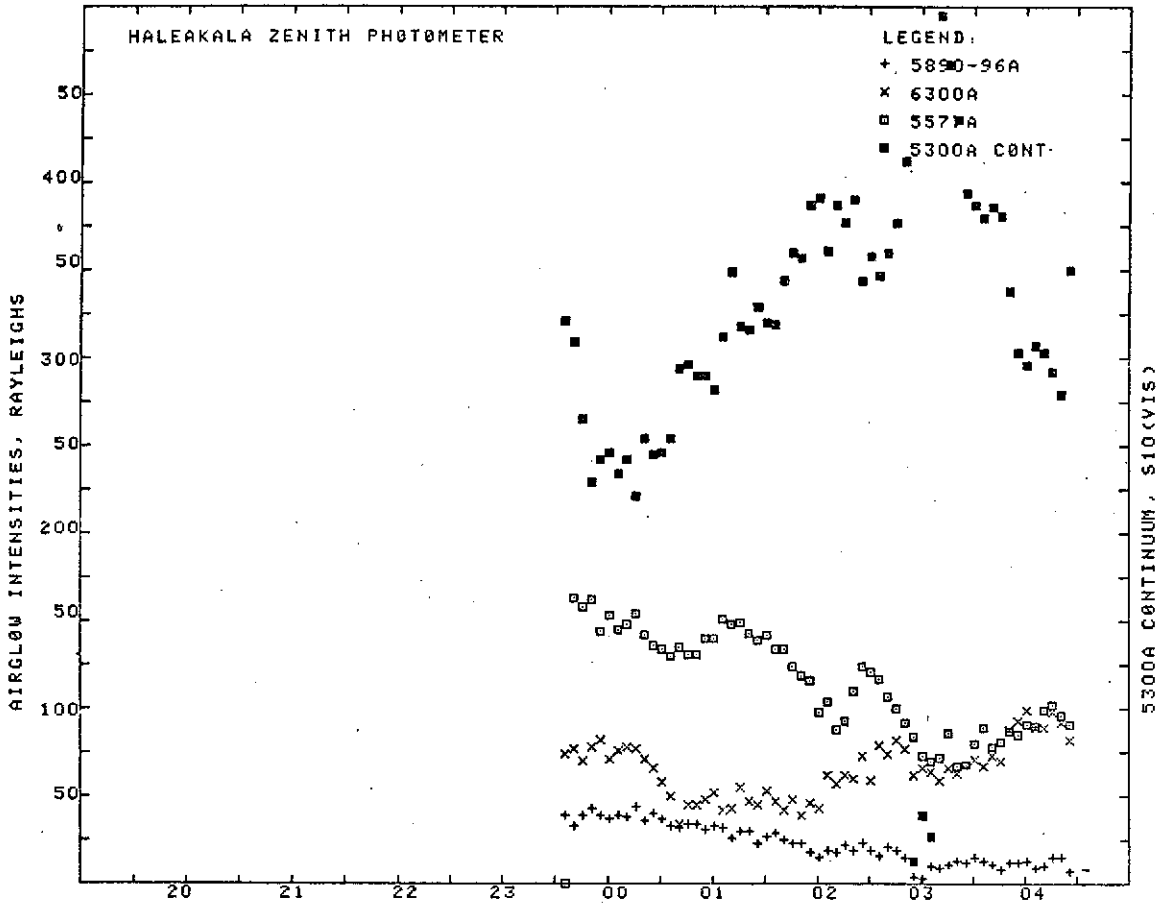
DATE
YR MO DA
62 06 10



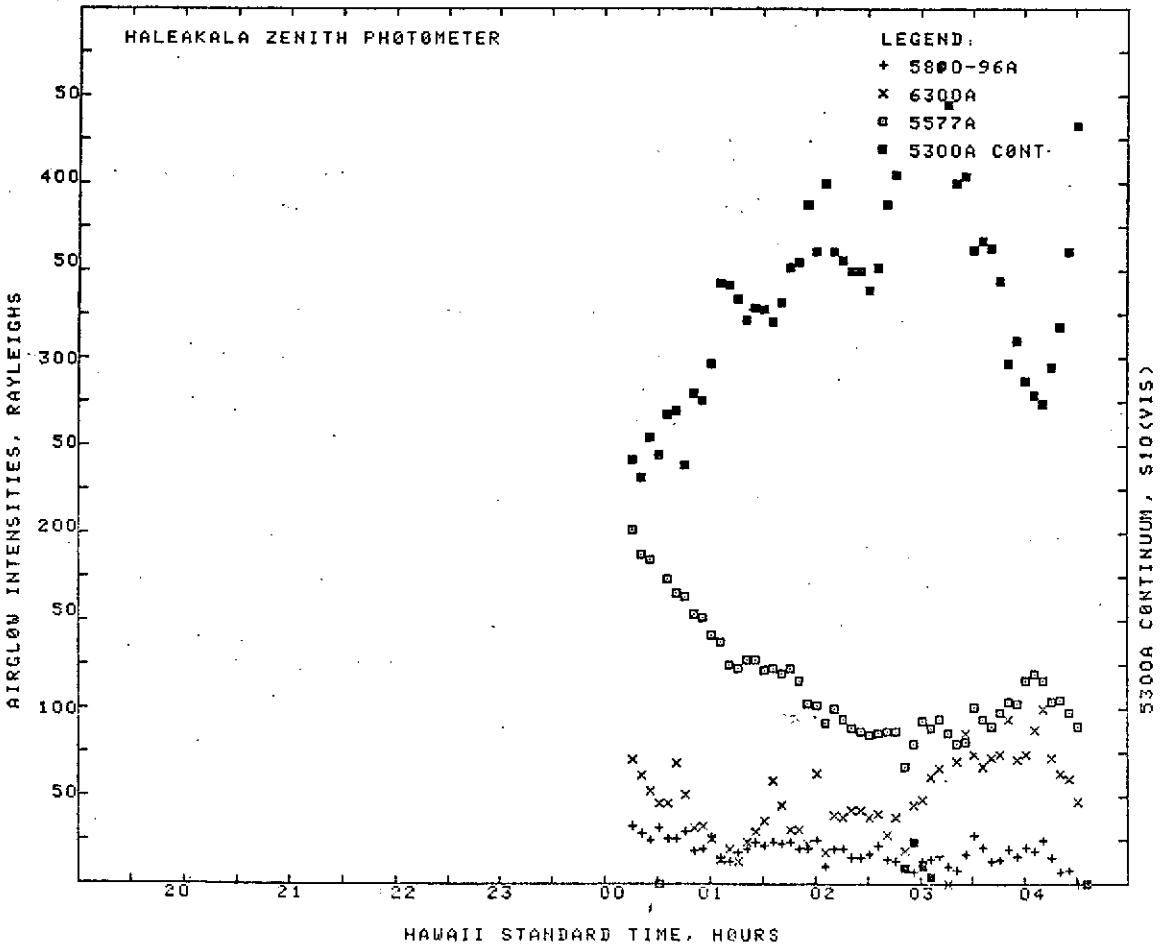
DATE
YR MO DA
62 06 11



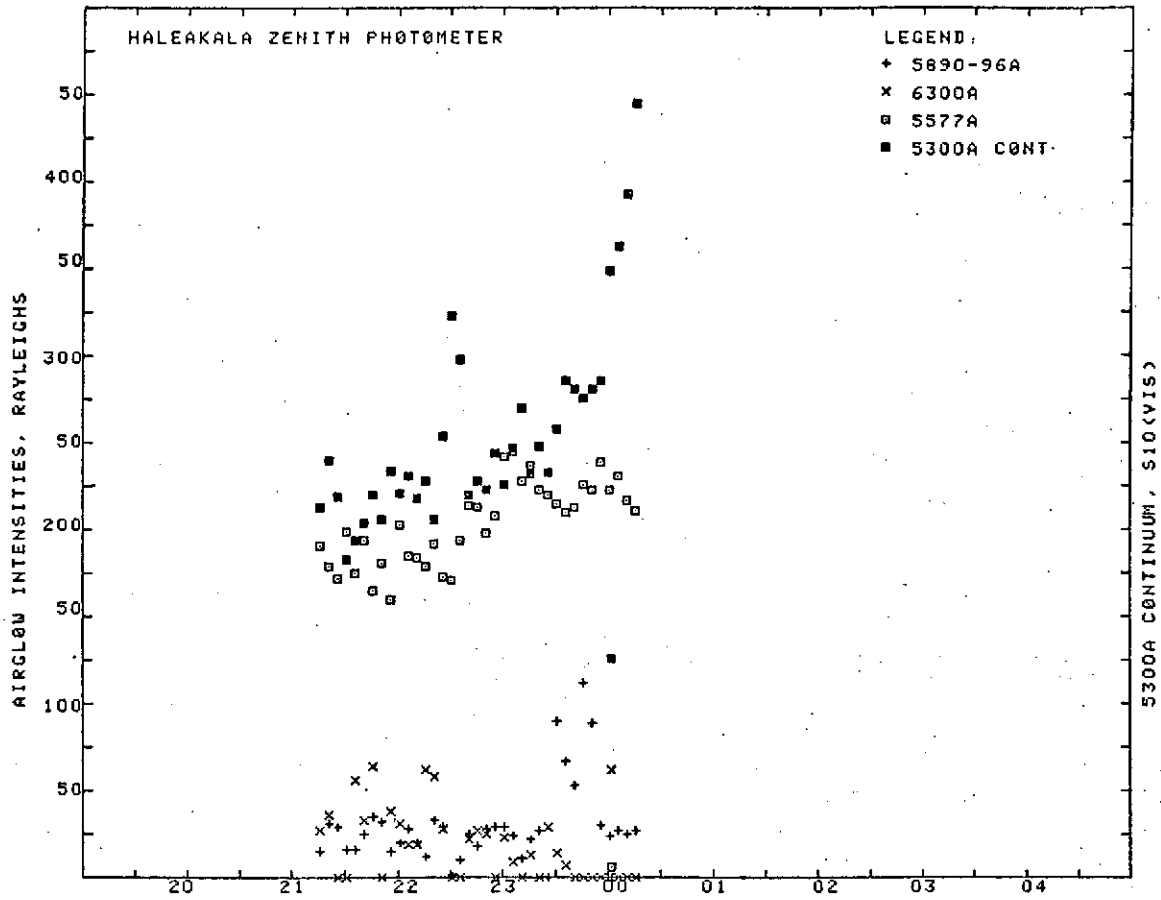
DATE
YR MO DA
62 06 07



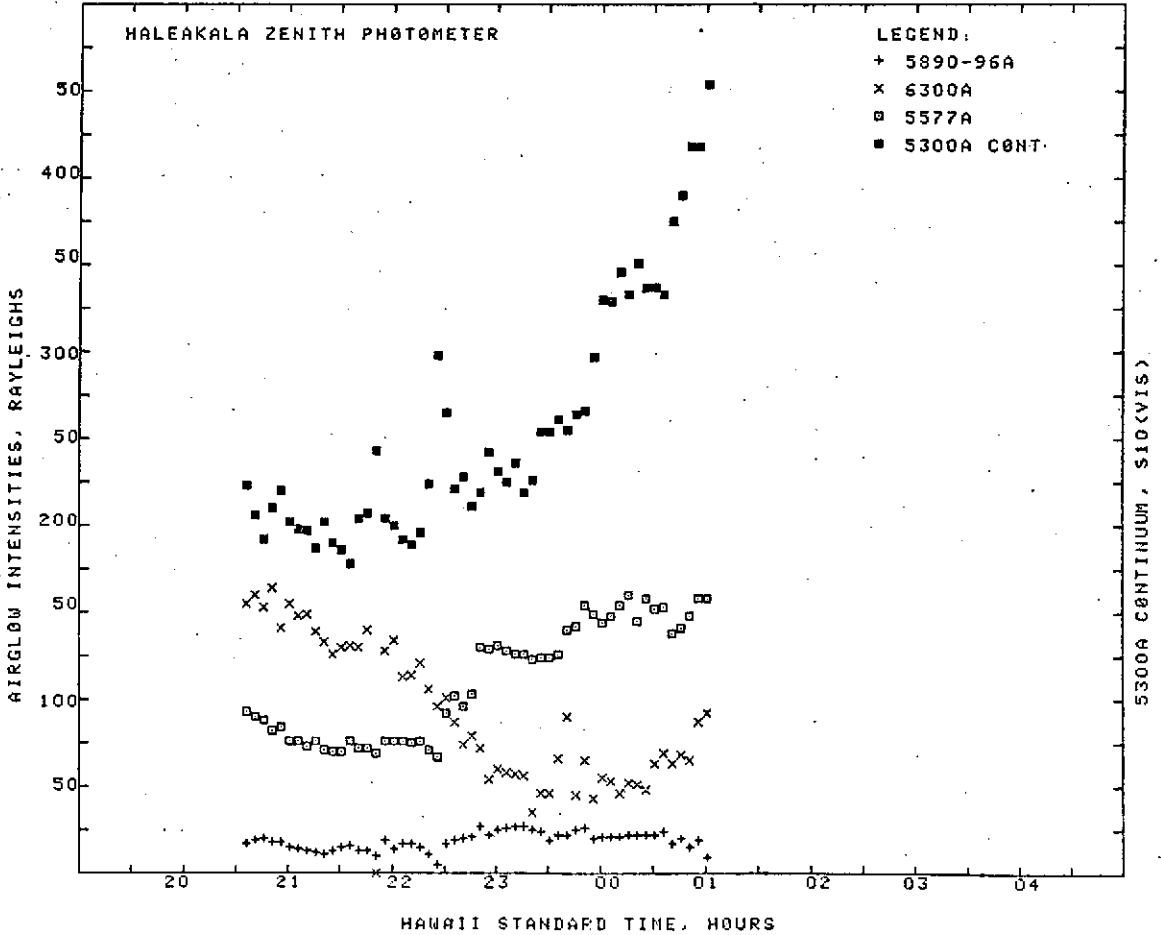
DATE
YR MO DA
62 06 09



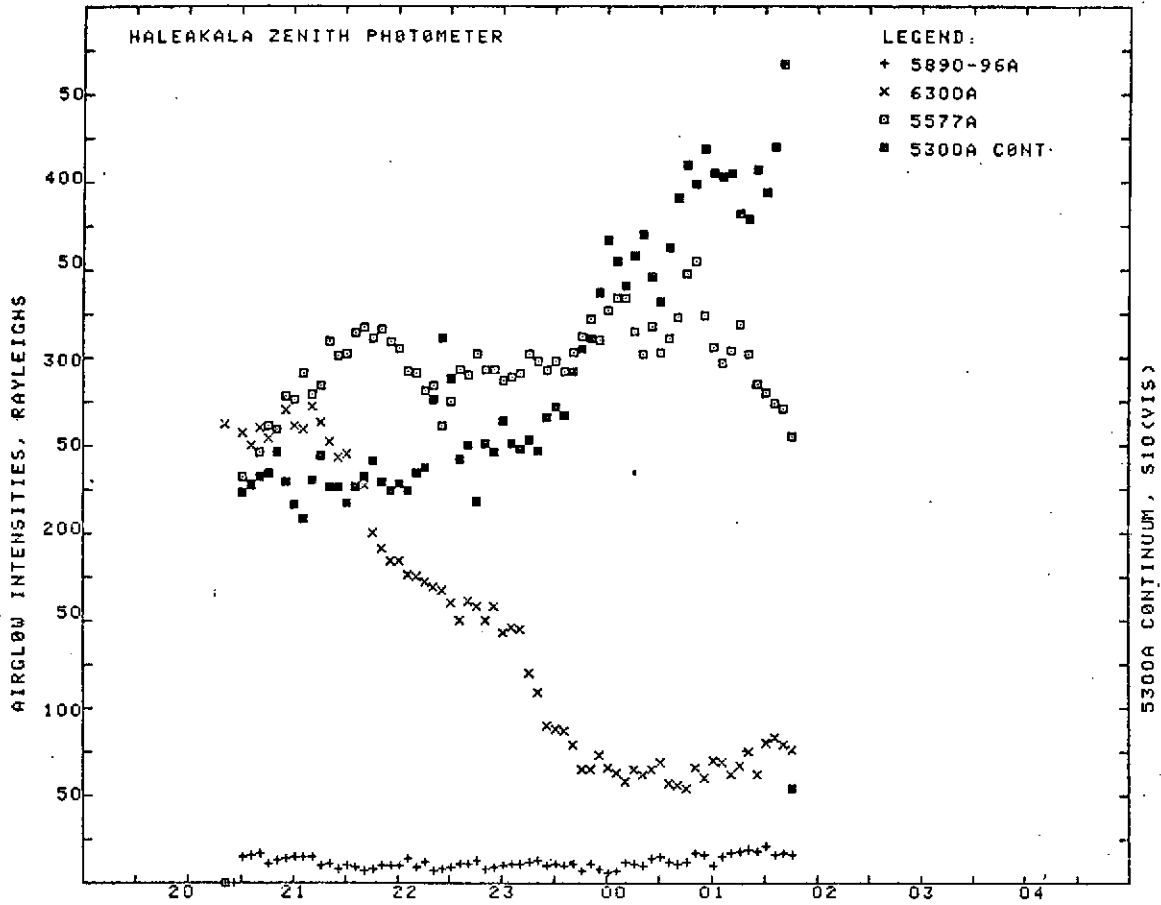
DATE
YR MO DA
62 06 23



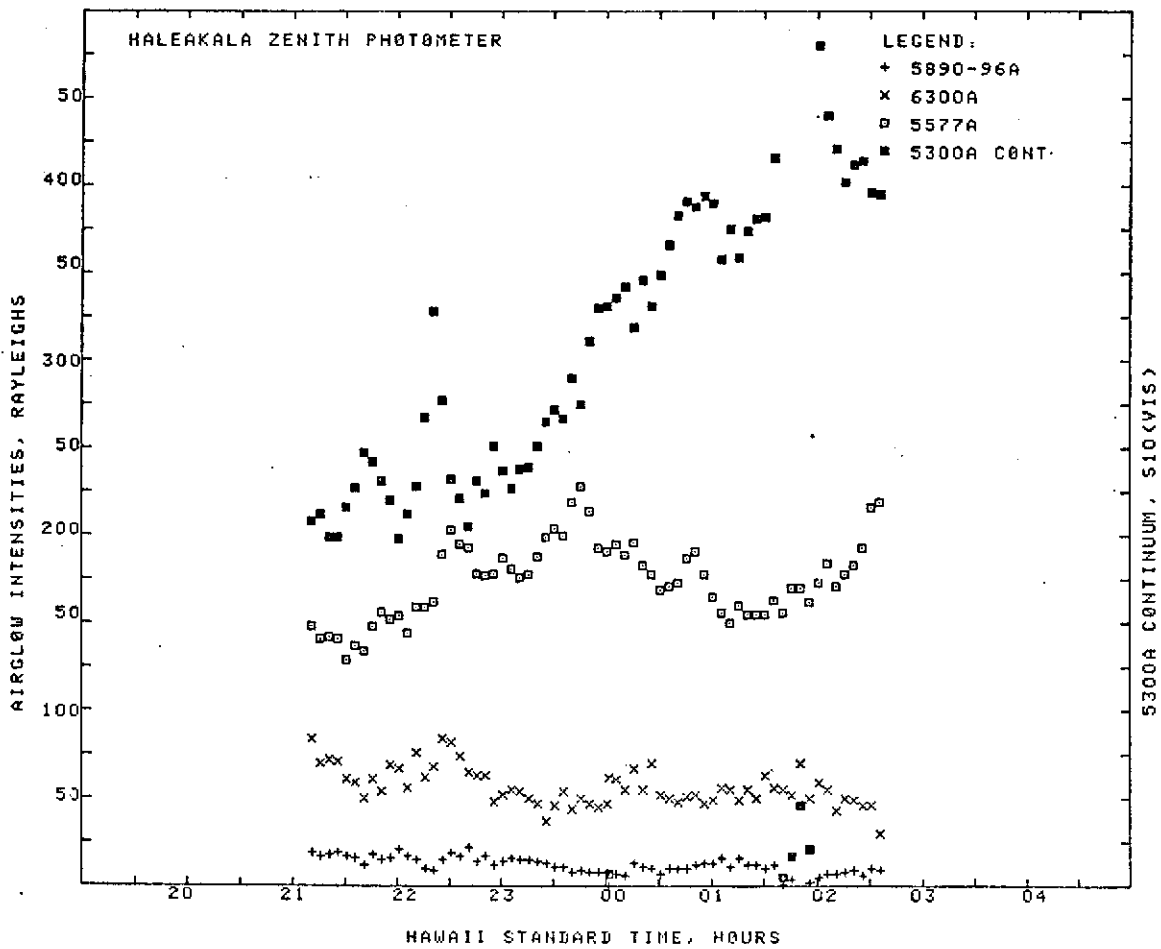
DATE
YR MO DA
62 06 24



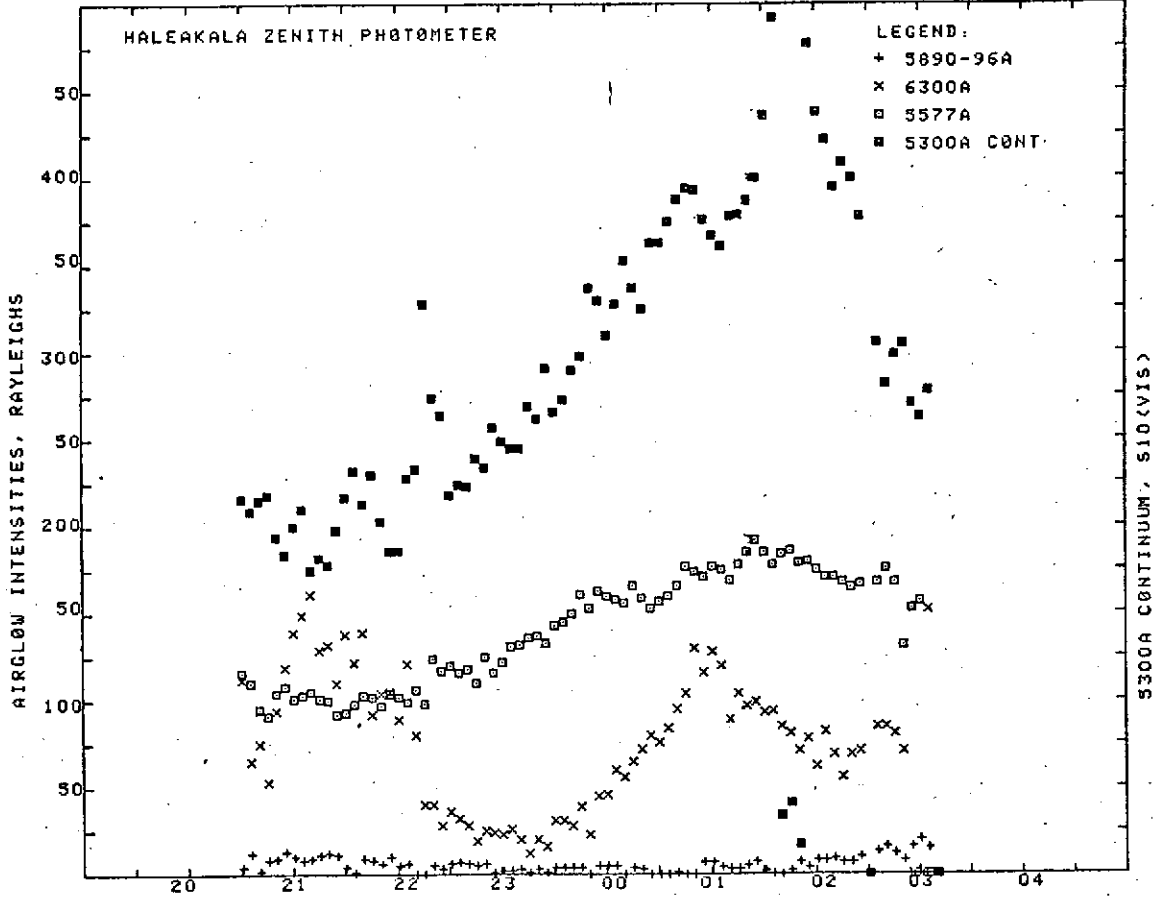
DATE
YR MO DA
62 06 25



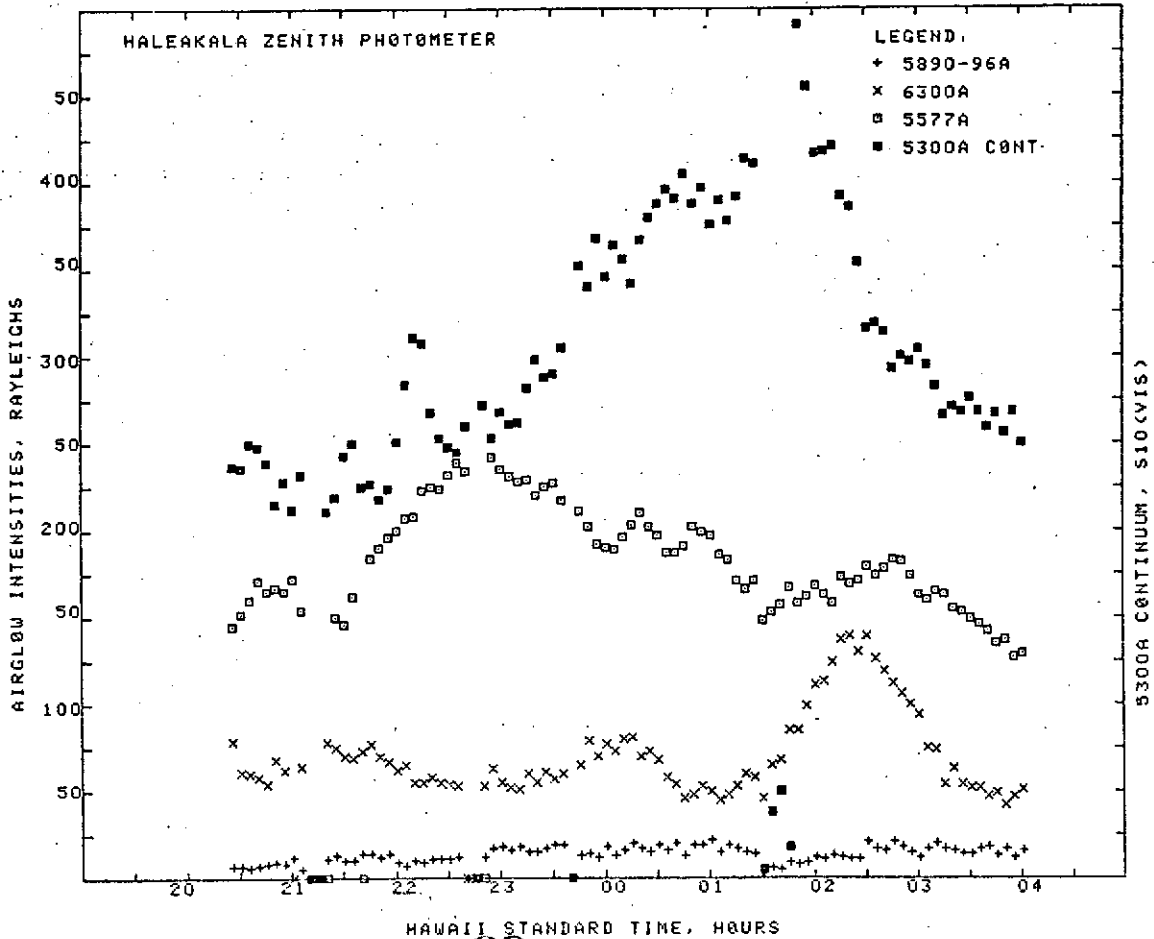
DATE
YR MO DA
62 06 26



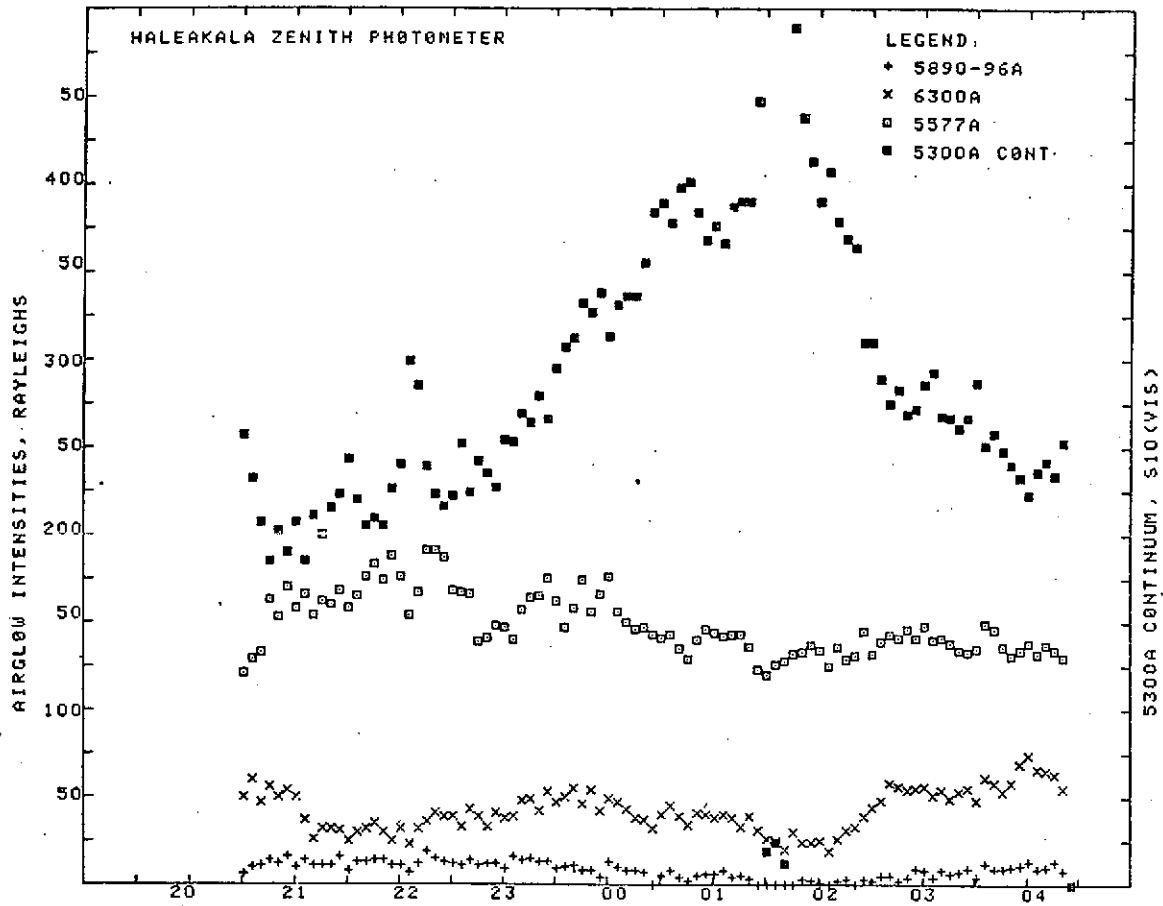
DATE
YR MO DA
62 06 27



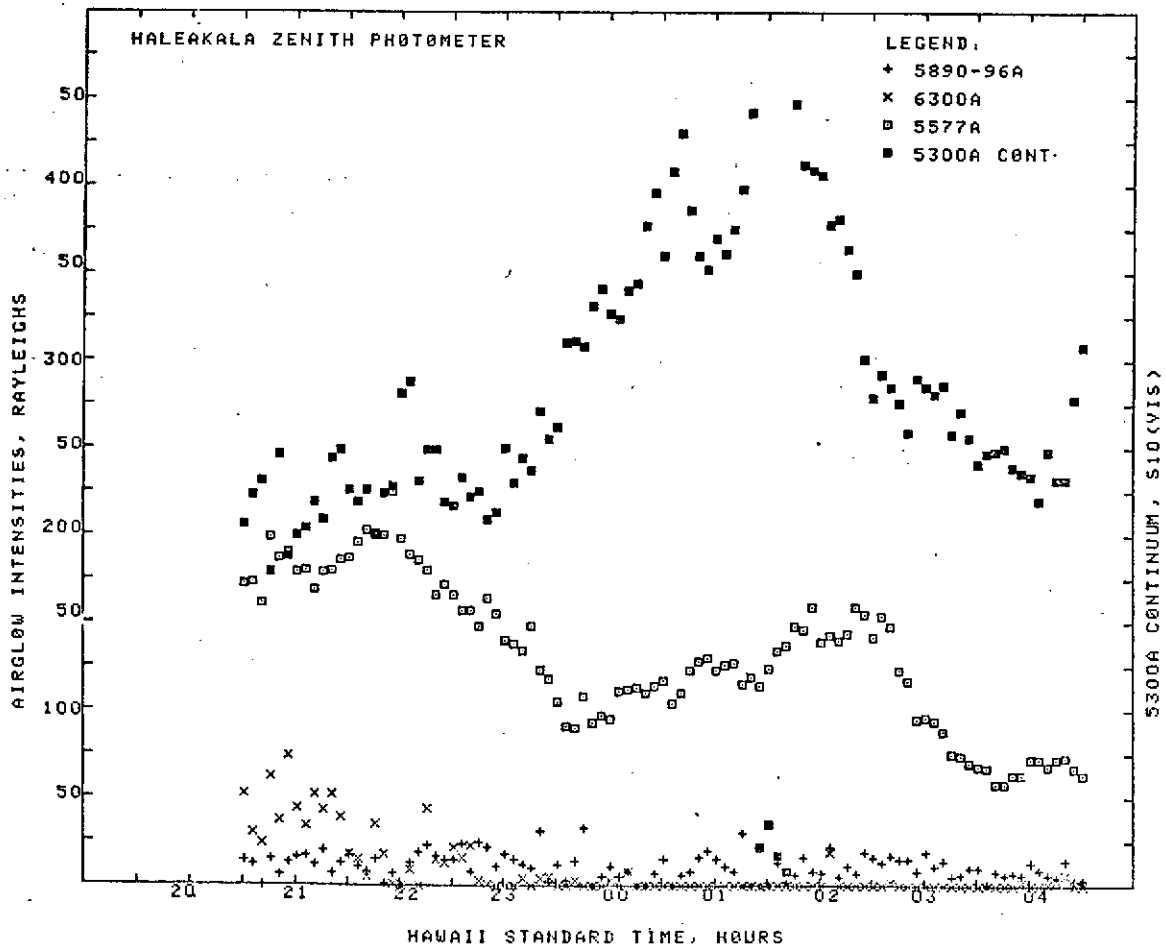
DATE
YR MO DA
62 06 28



DATE
YR MO DA
62 06 29

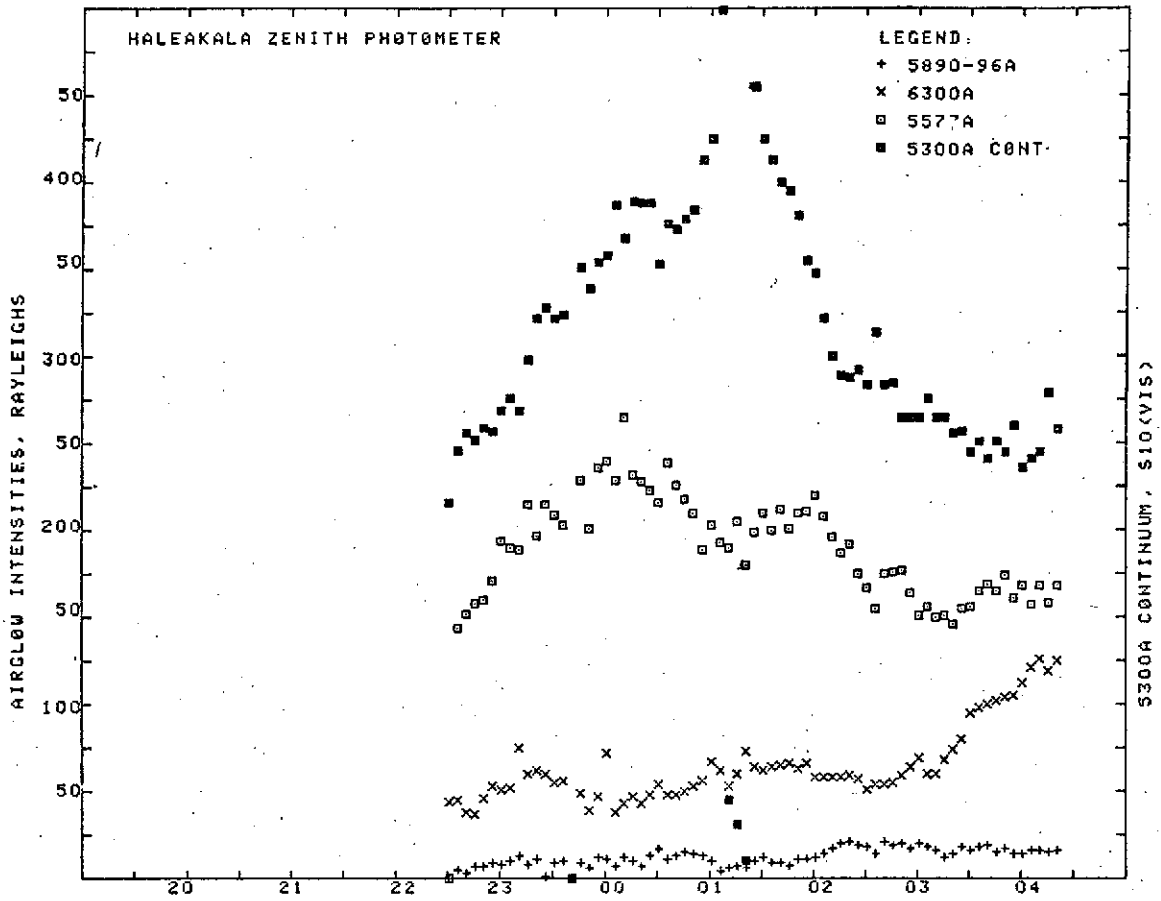


DATE
YR MO DA
62 06 30

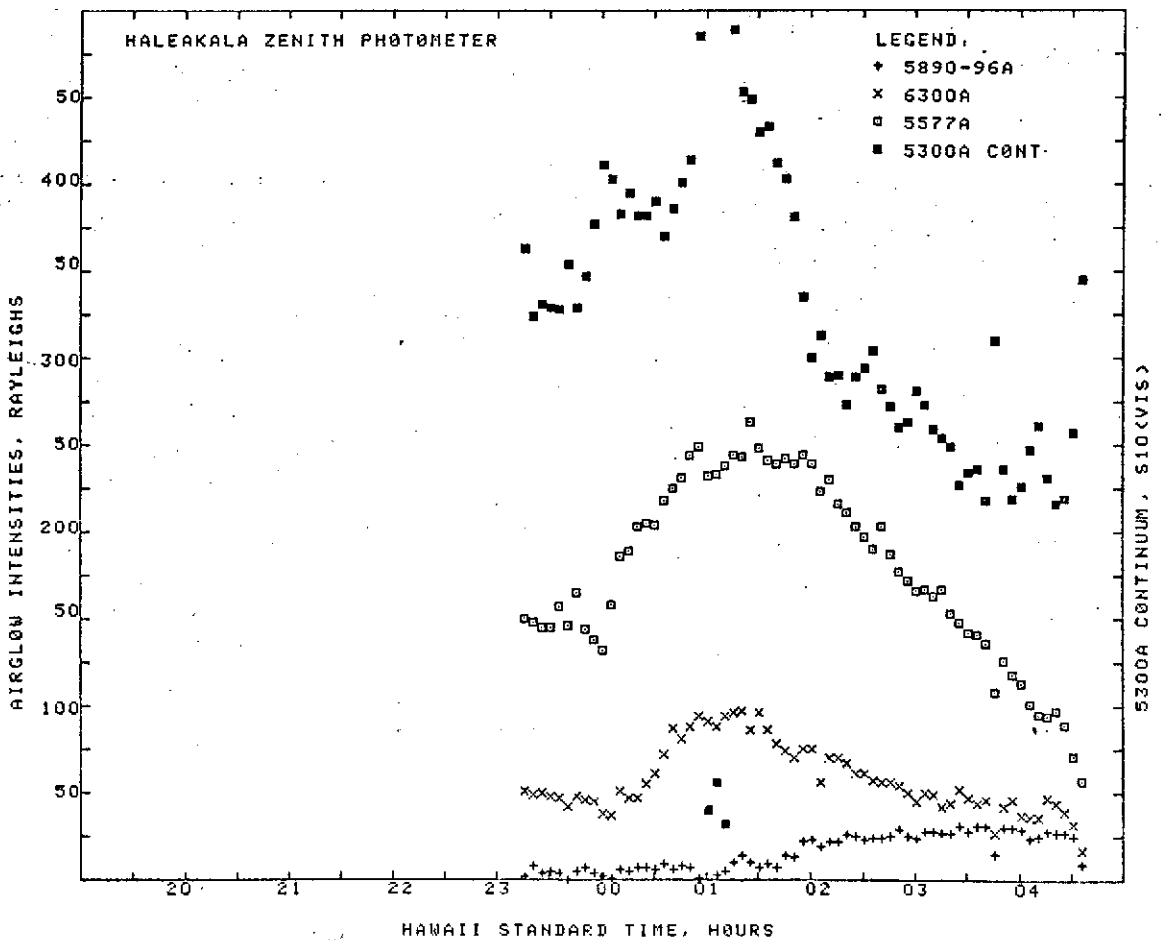


HAWAII STANDARD TIME, HOURS

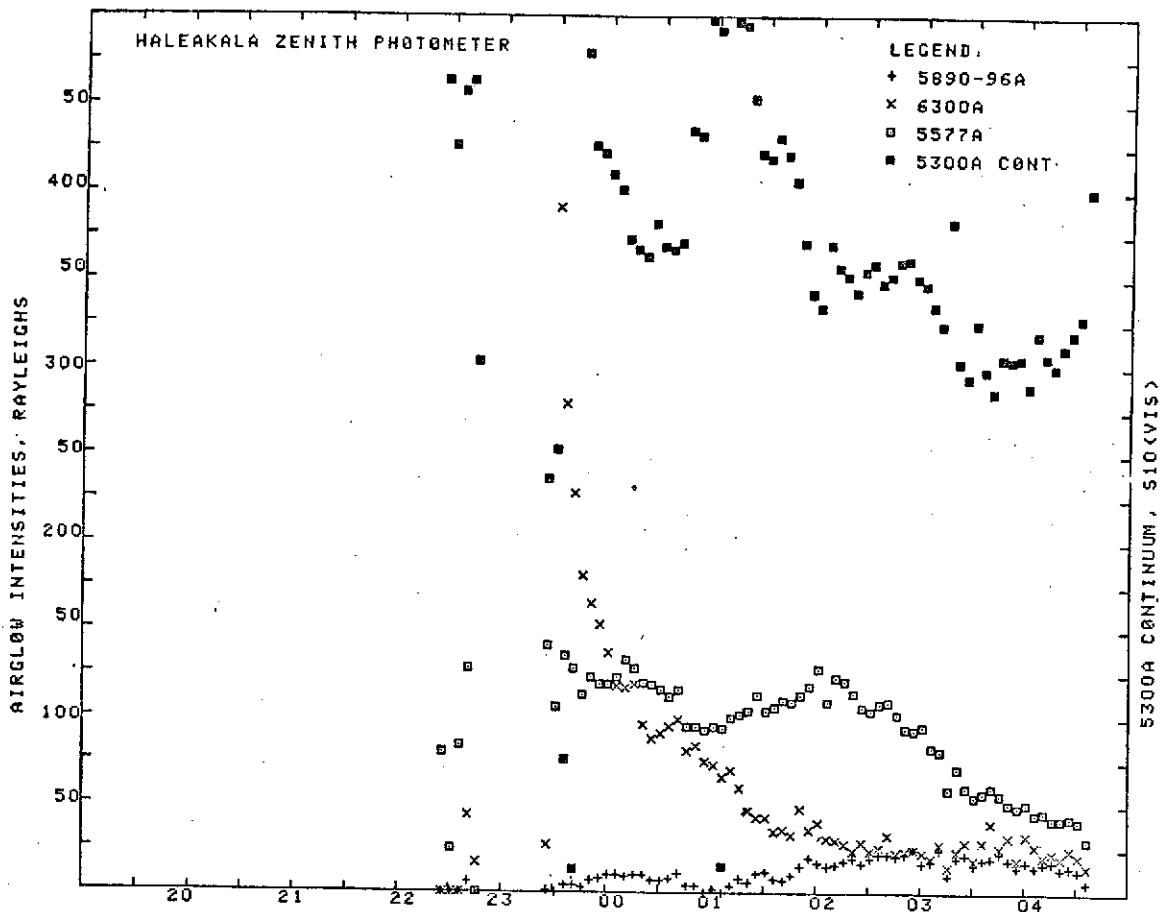
DATE
YR MO DA
62 07 05



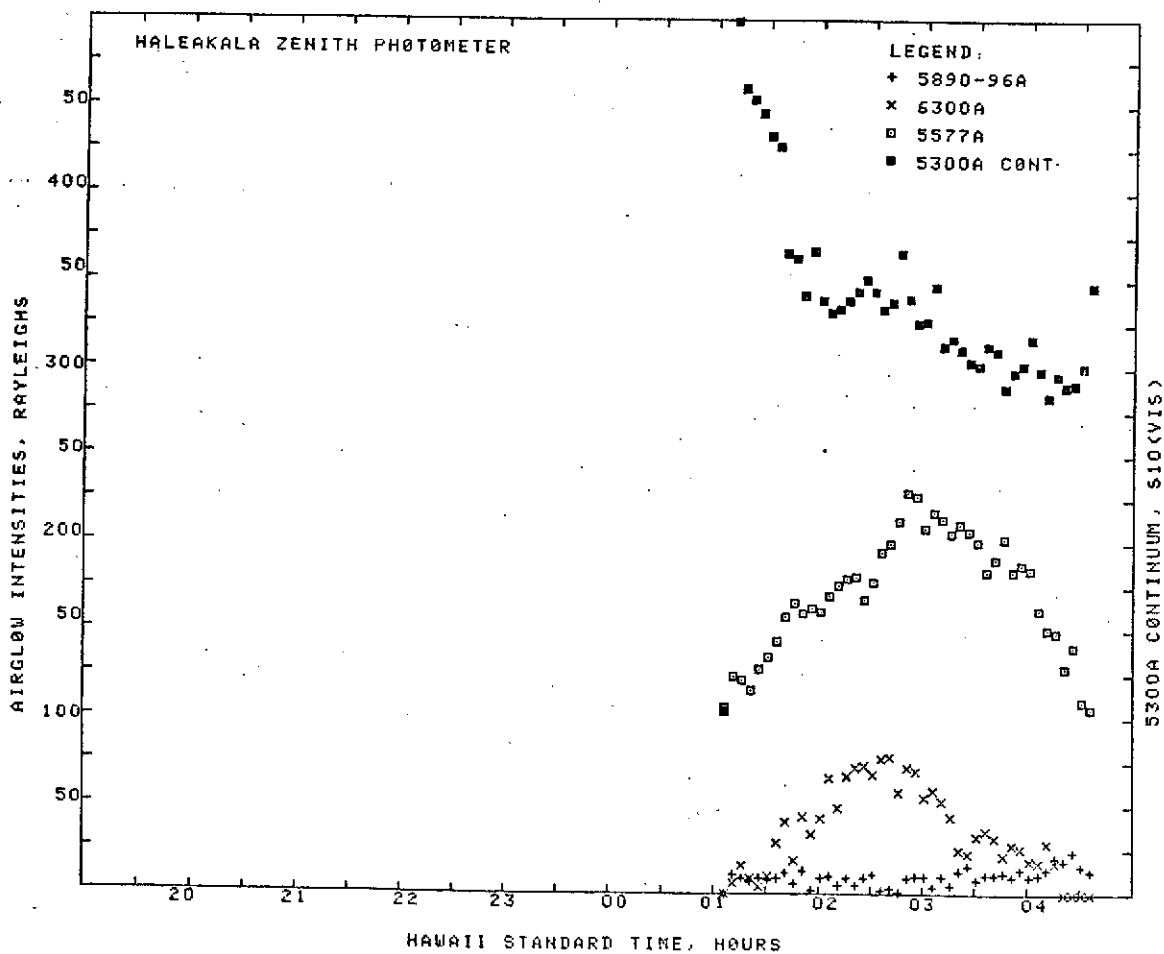
DATE
YR MO DA
62 07 07



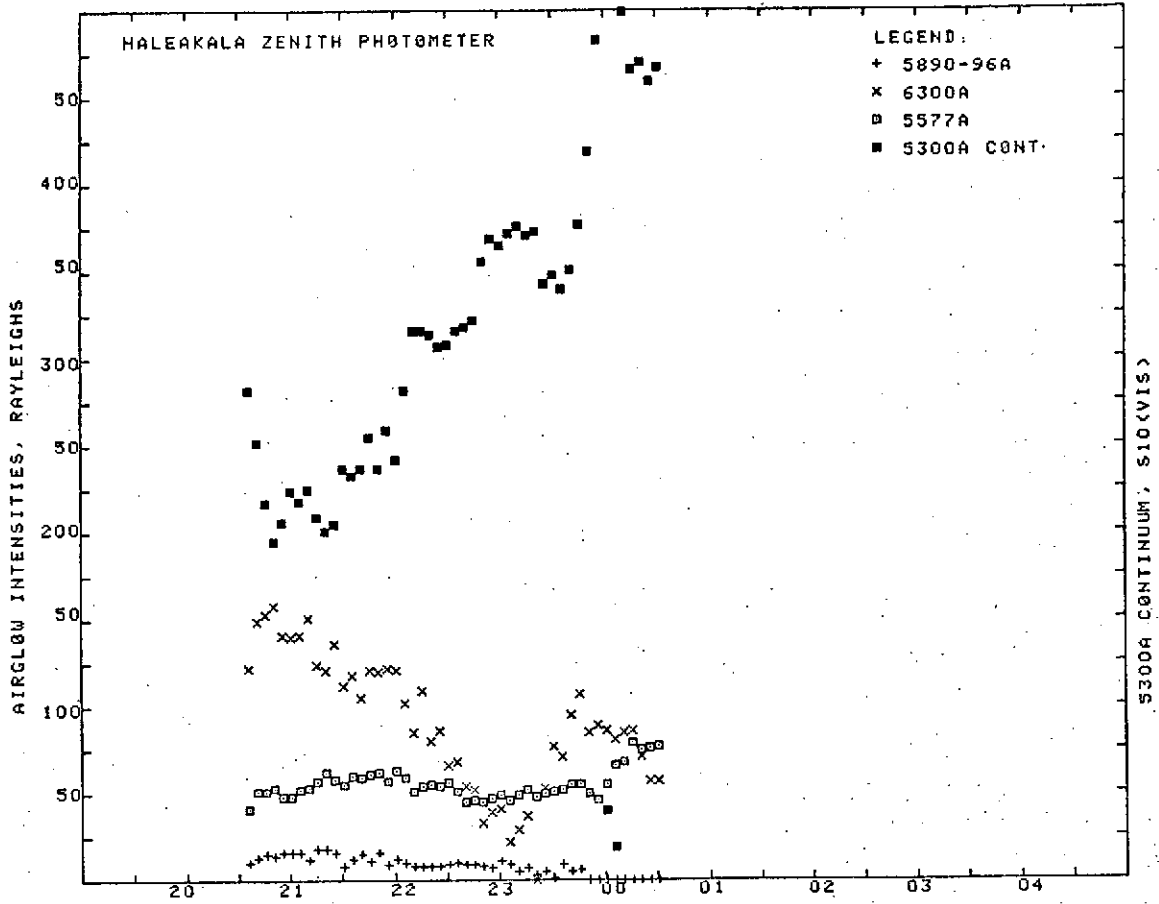
DATE
YR MO DA
62 07 08



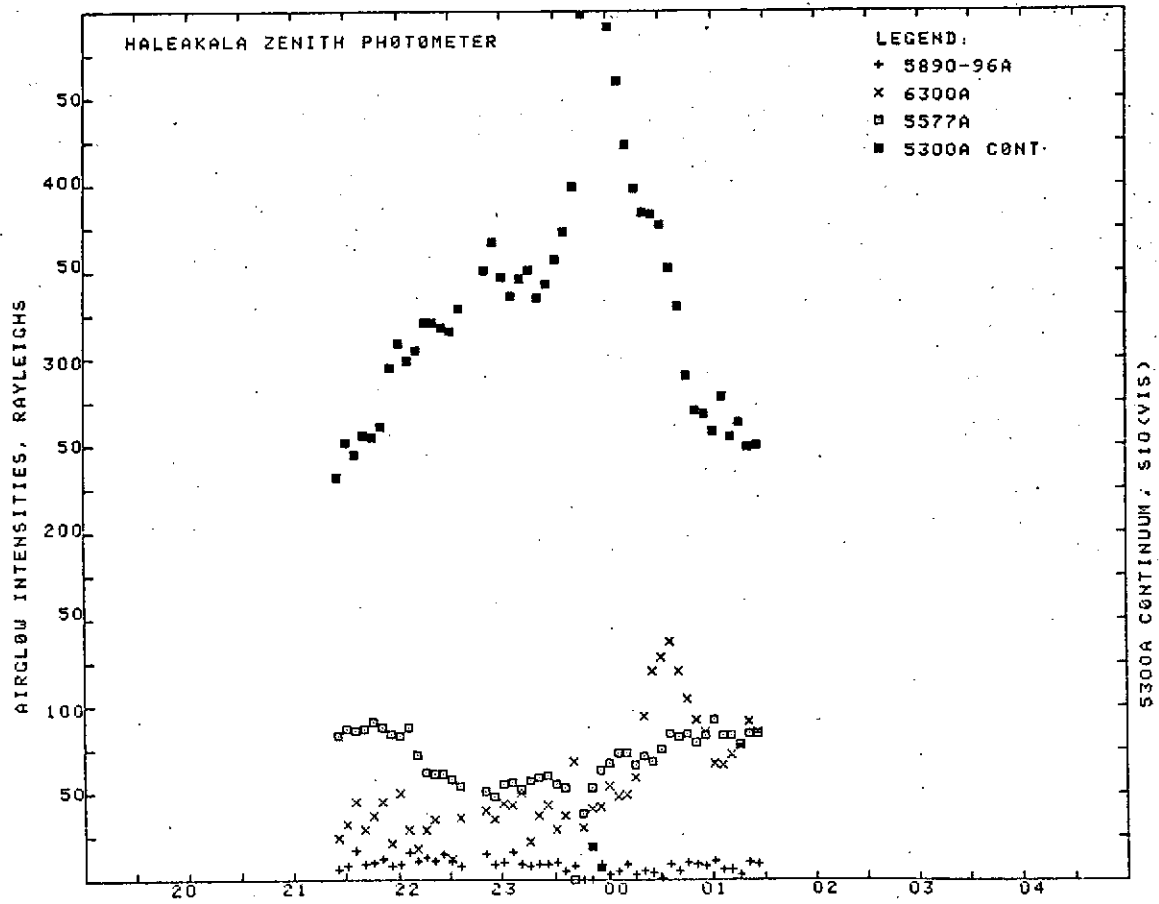
DATE
YR MO DA
62 07 10



DATE
YR MO DA
62 07 23

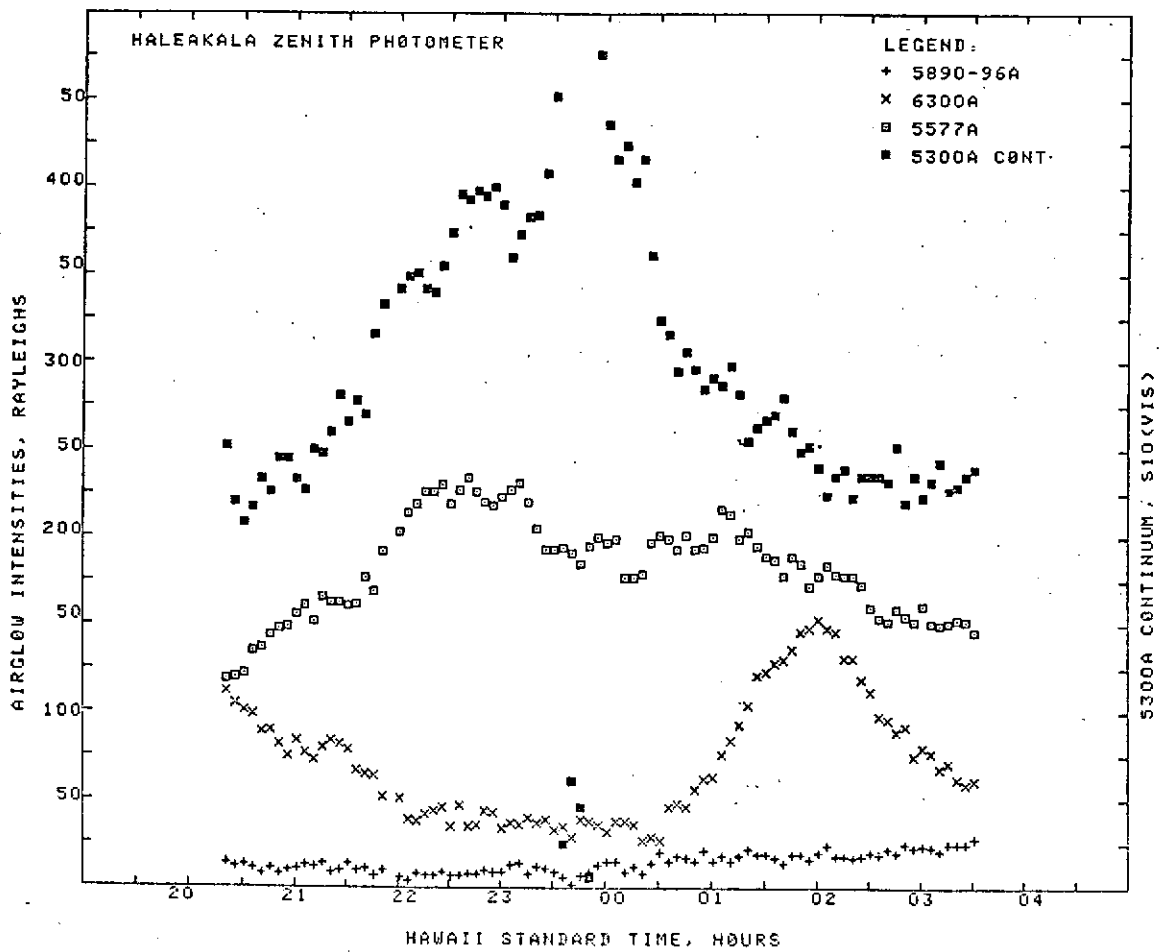


DATE
YR MO DA
62 07 25

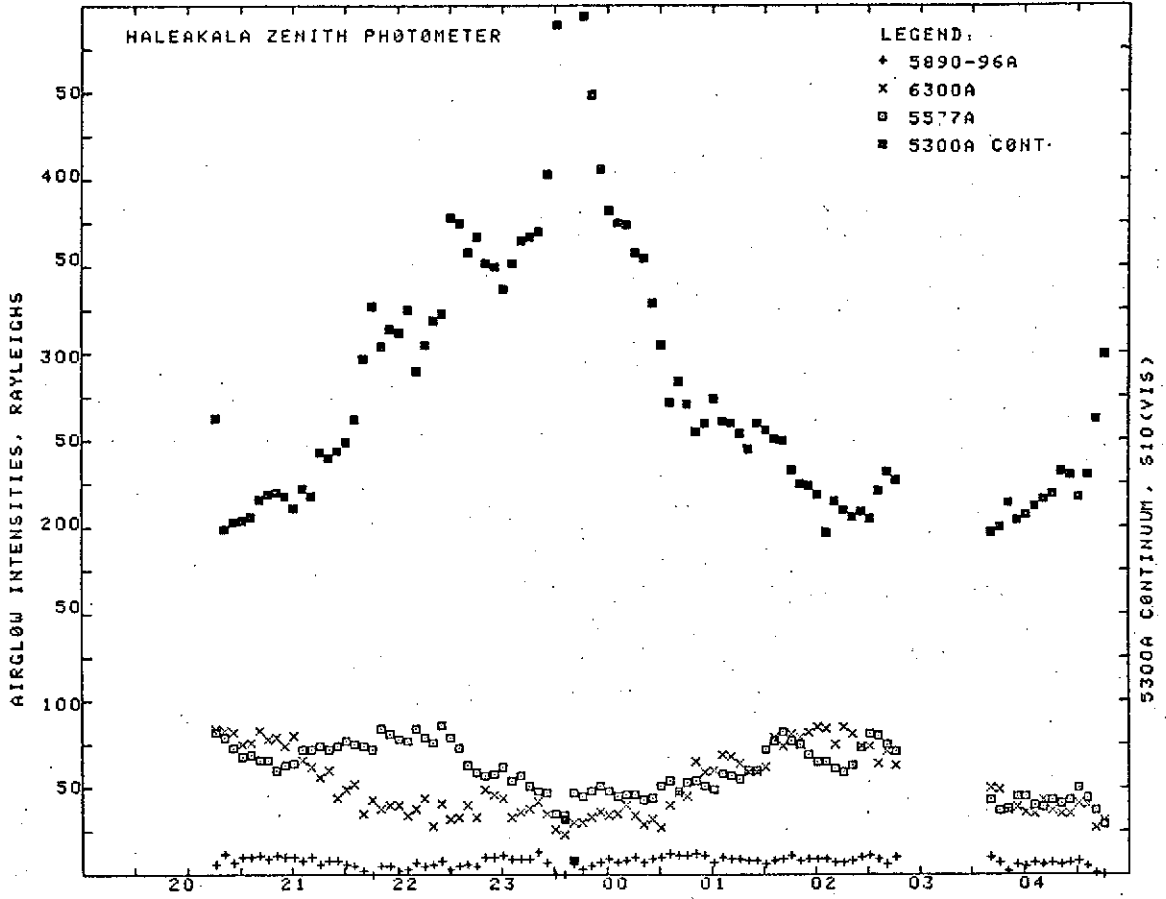


HAWAII STANDARD TIME, HOURS

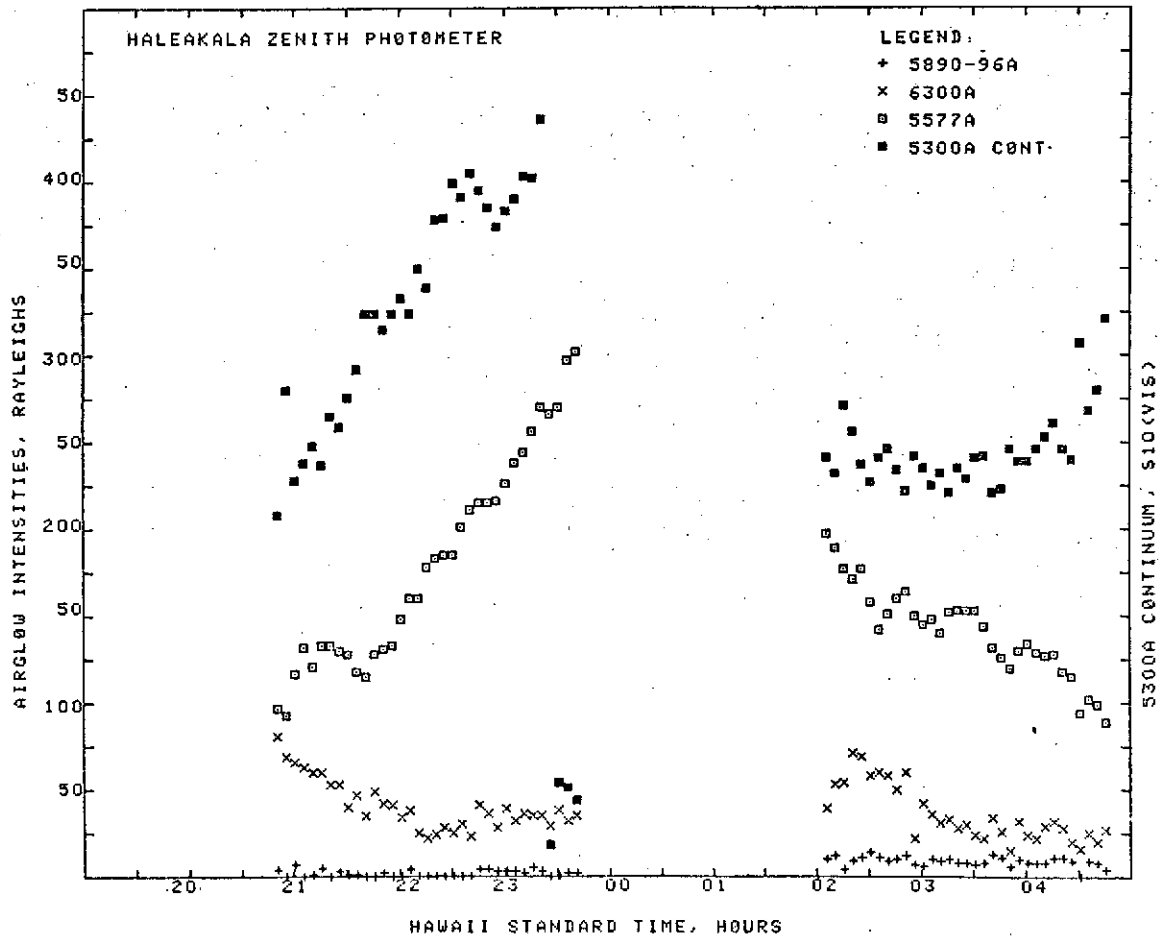
DATE
YR MO DA
62 07 28



DATE
YR NO DA
62 07 29

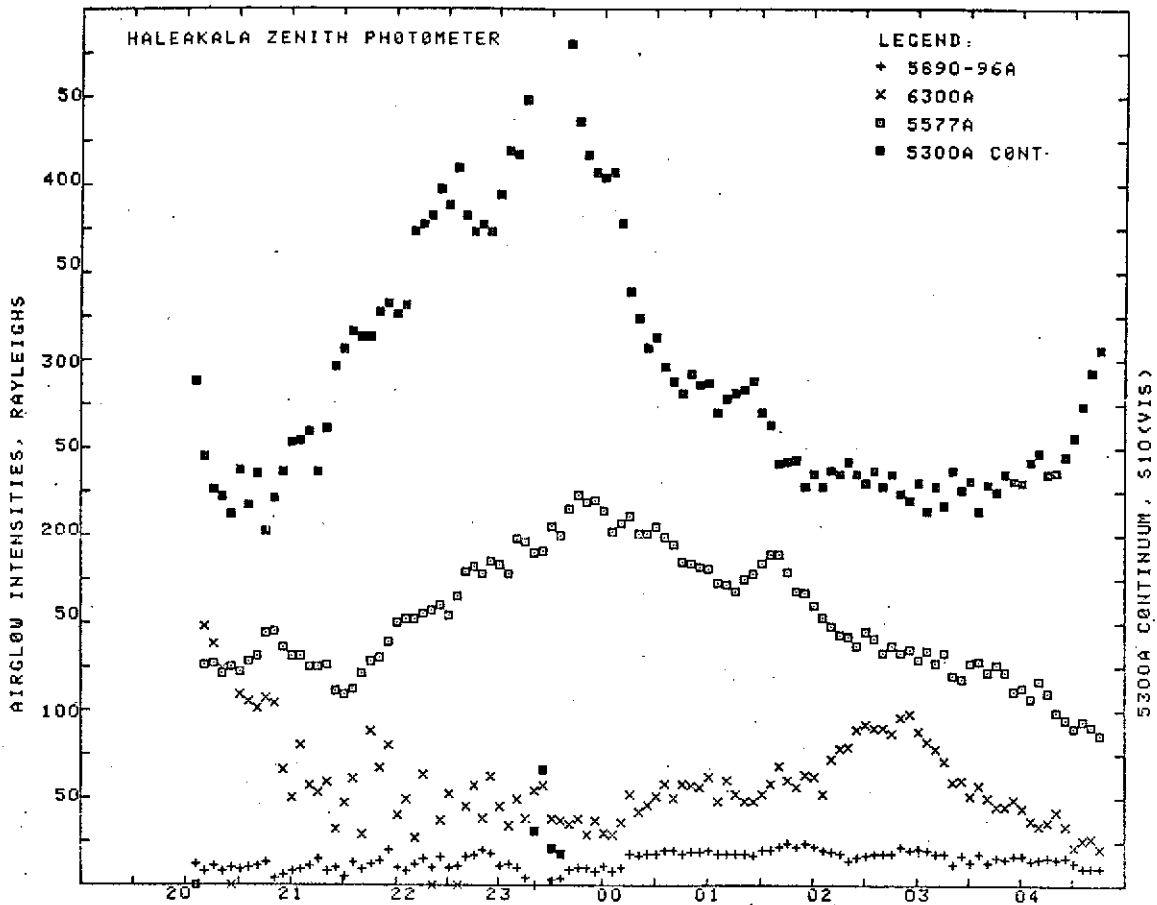


DATE
YR NO DA
62 07 30

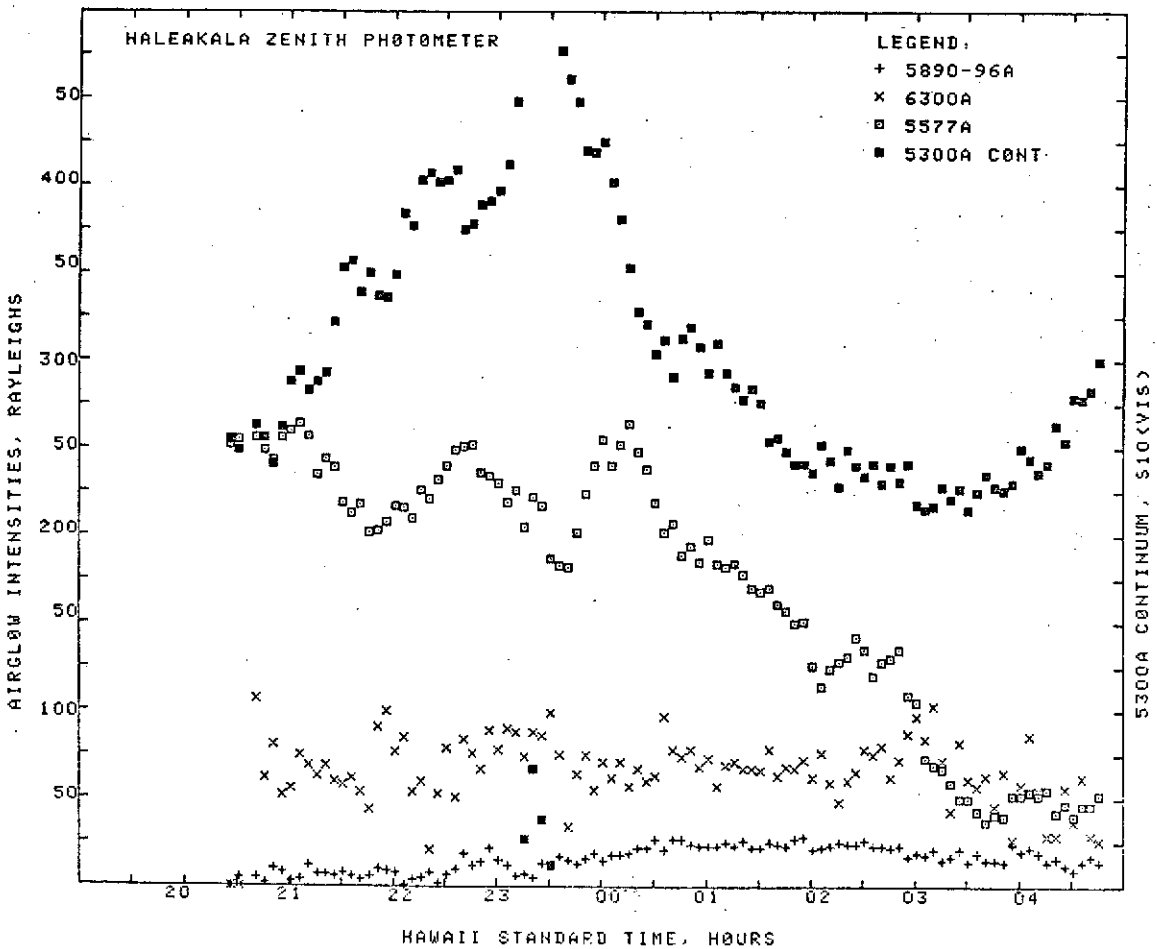


HAWAII STANDARD TIME, HOURS

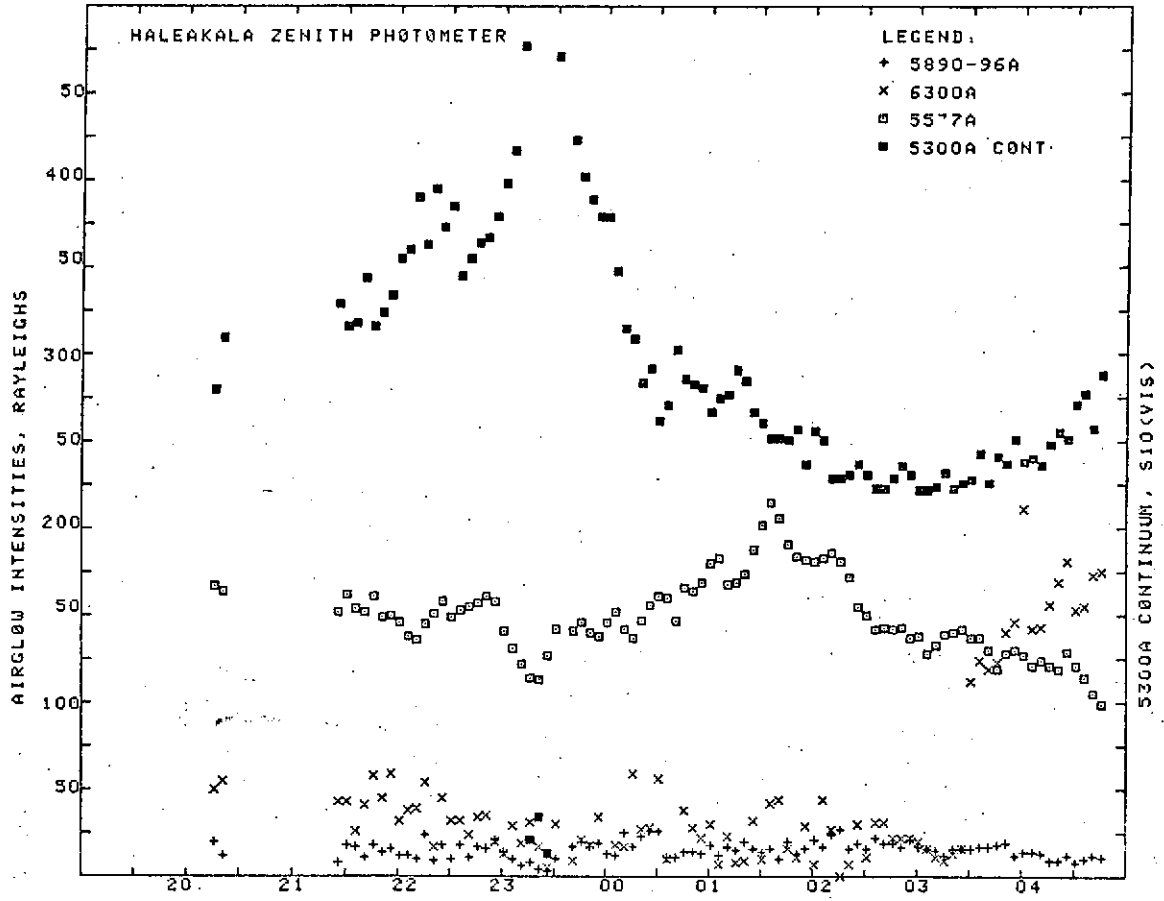
DATE
YR NO DA
62 08 01



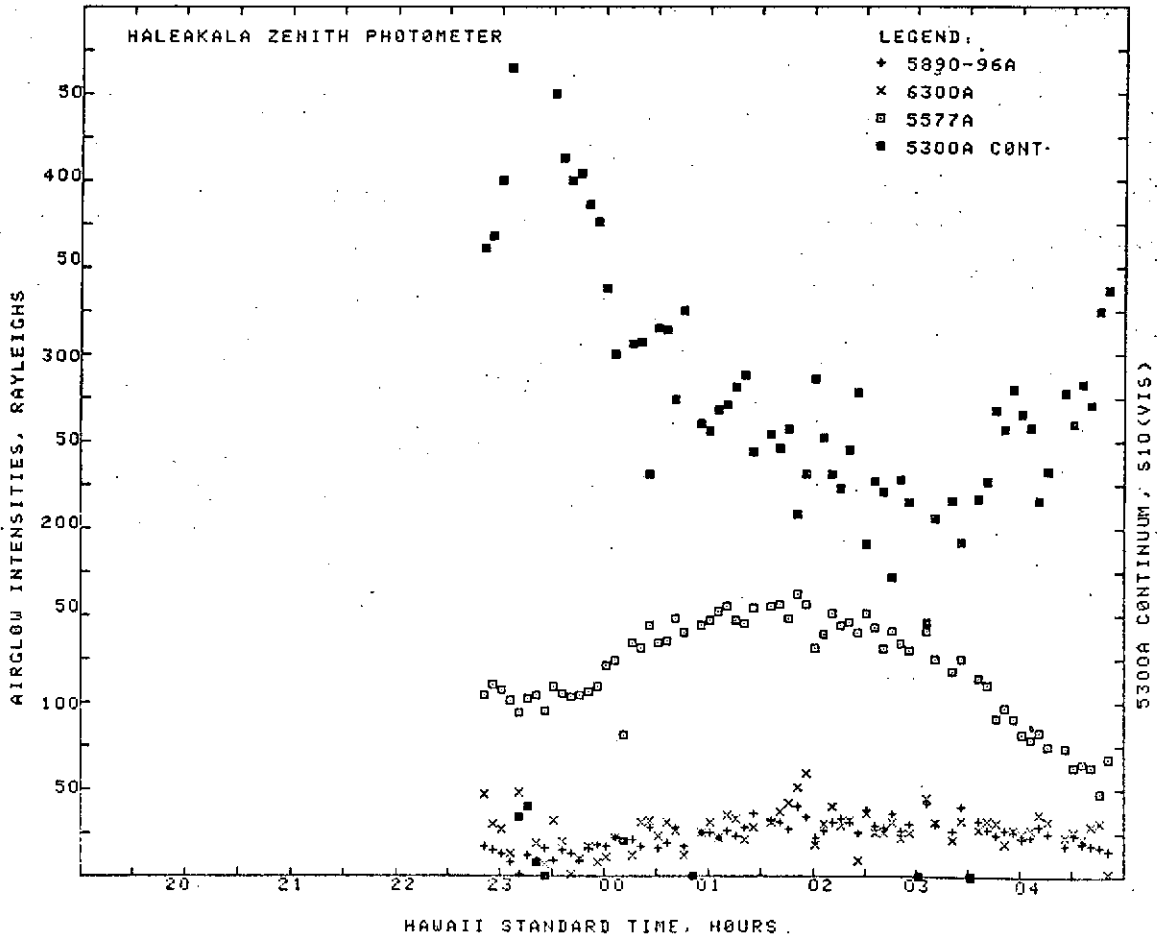
DATE
YR NO DA
62 08 02



DATE
YR MO DA
62 08 03



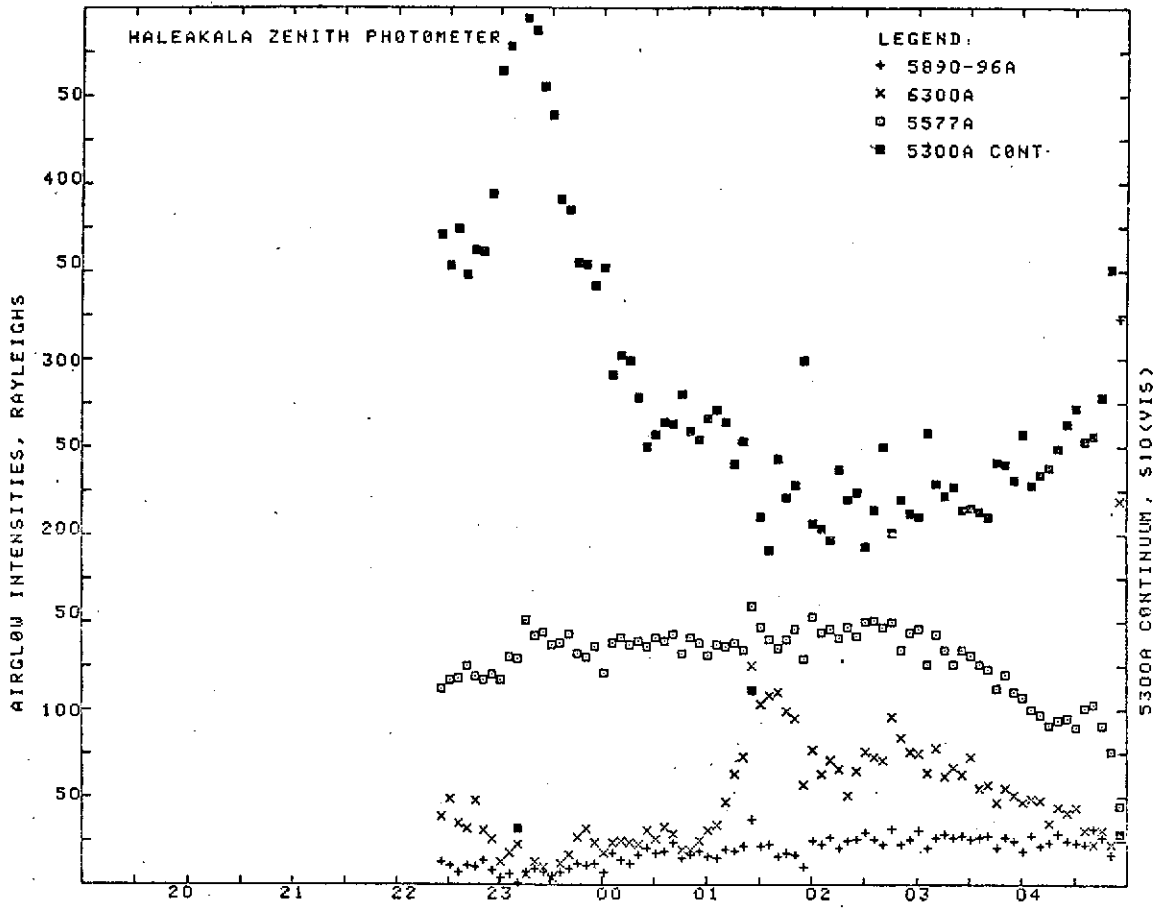
DATE
YR MO DA
62 08 04



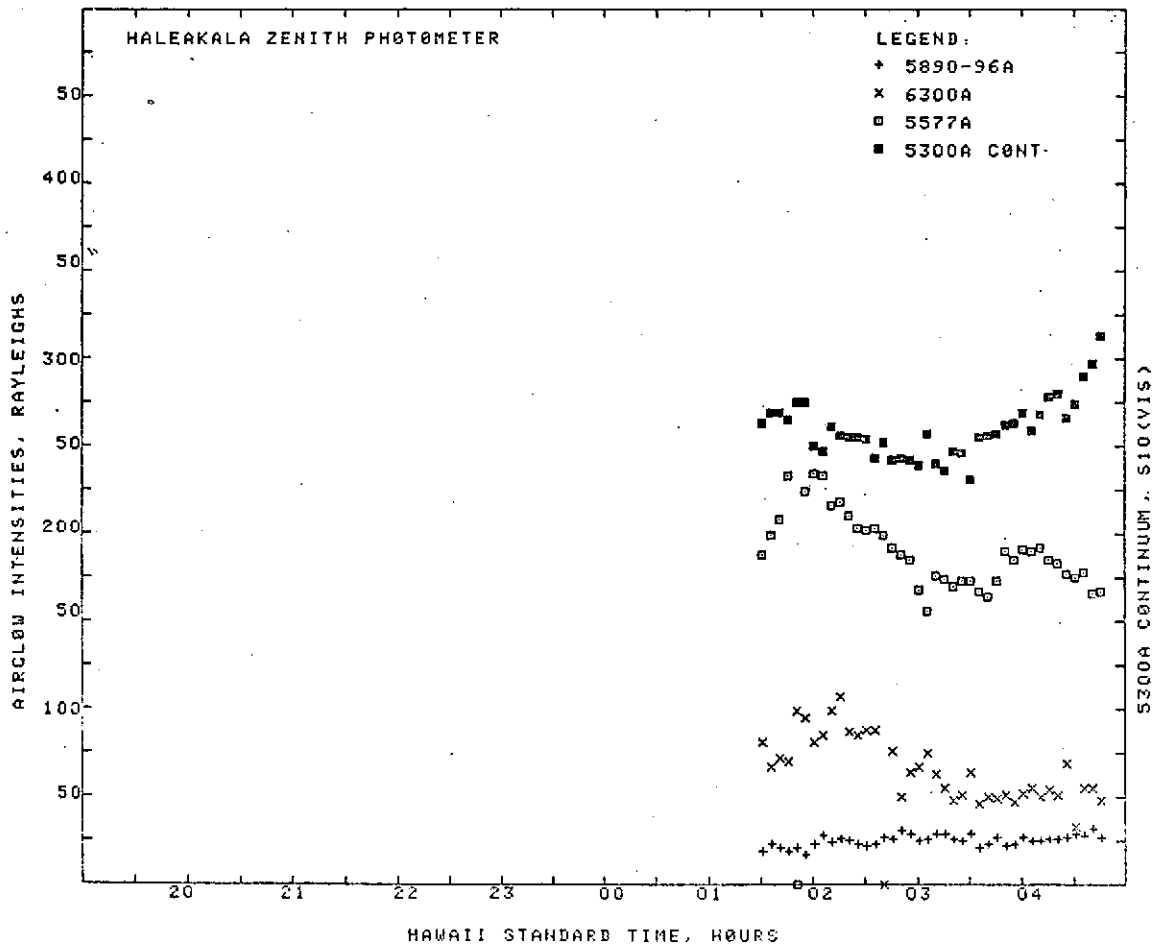
HAWAII STANDARD TIME, HOURS.

77<

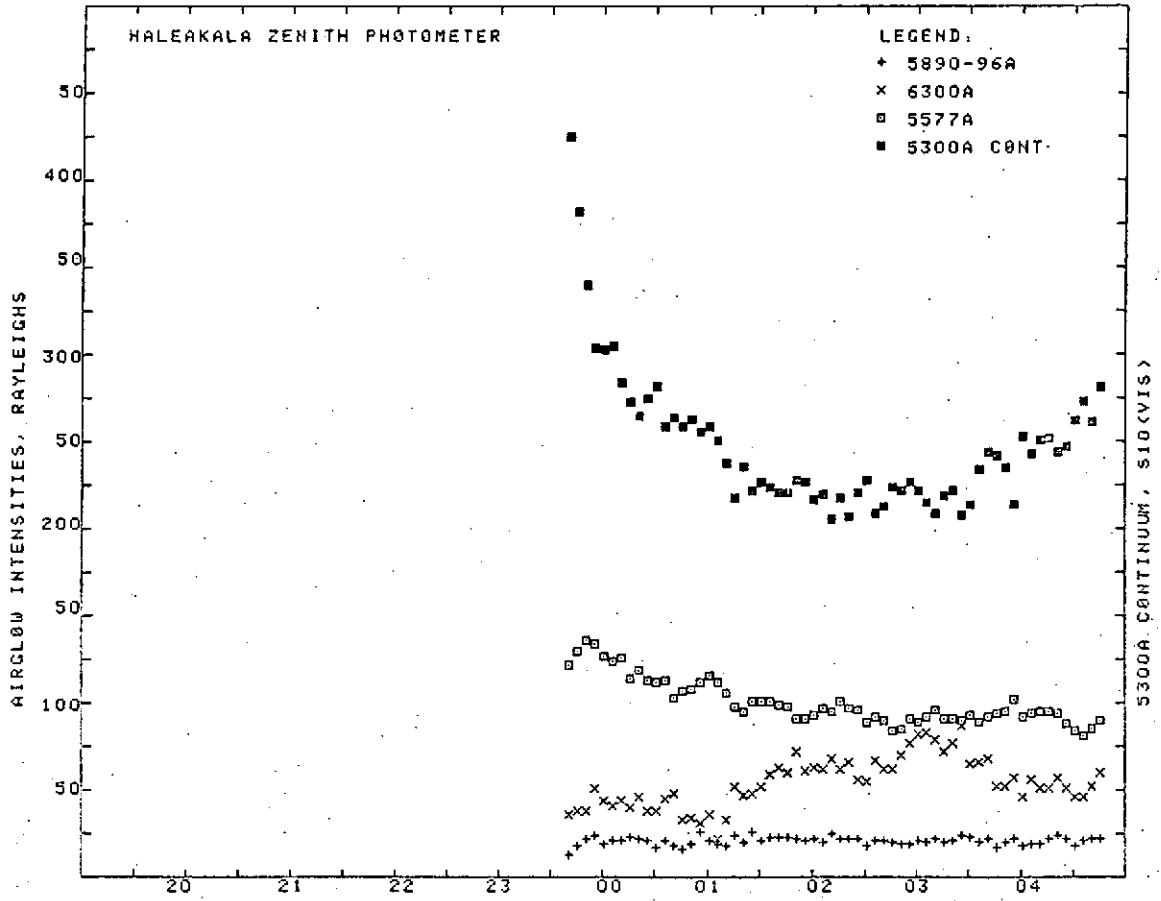
DATE
YR MO DA
62 08 05



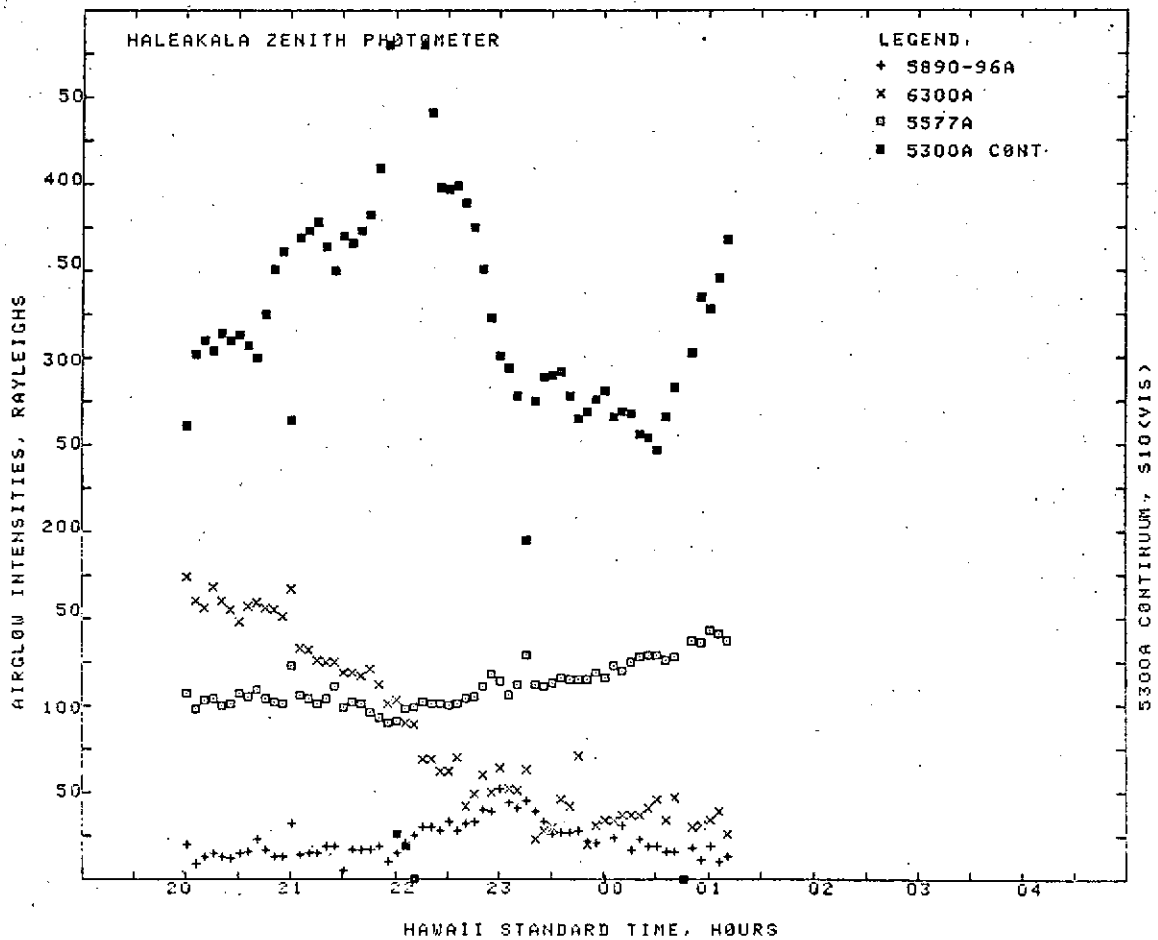
DATE
YR MO DA
62 08 06



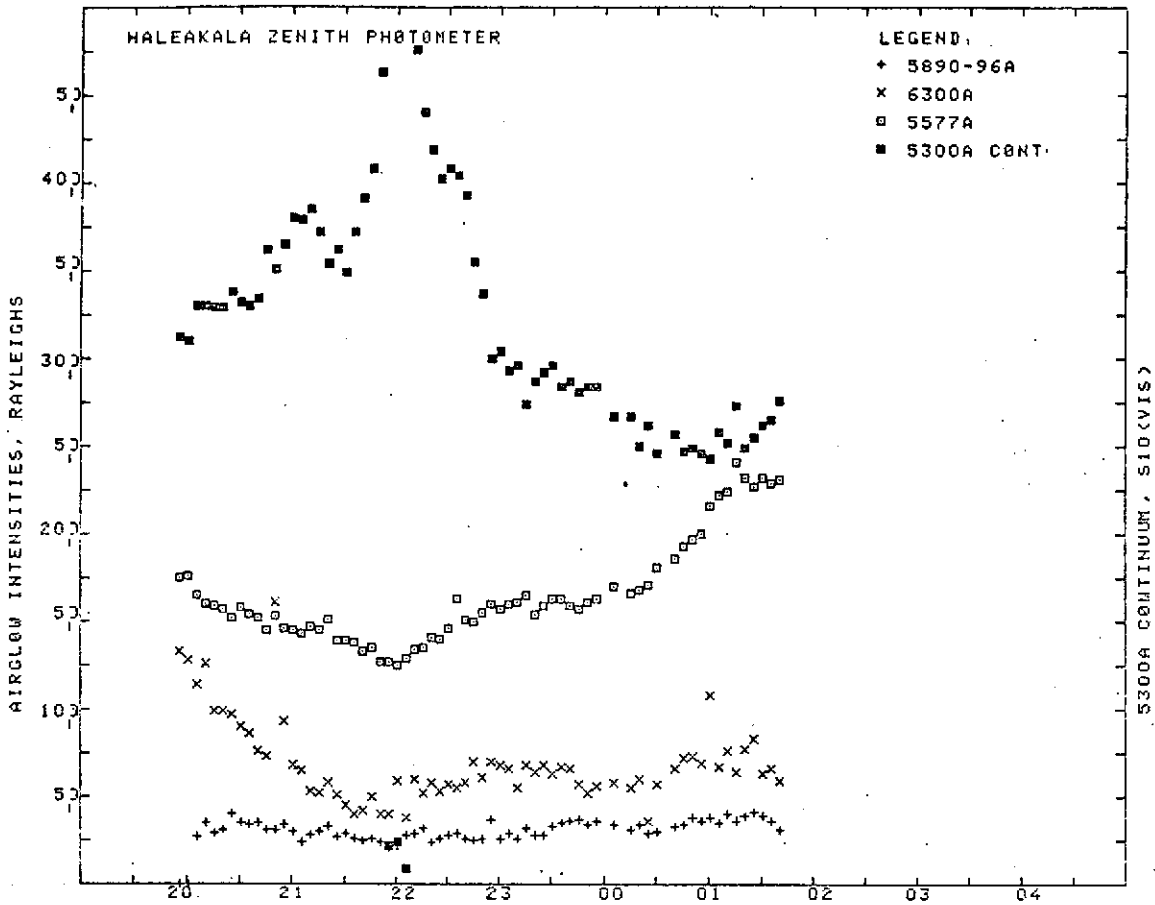
DATE
YR MO DA
62 08 07



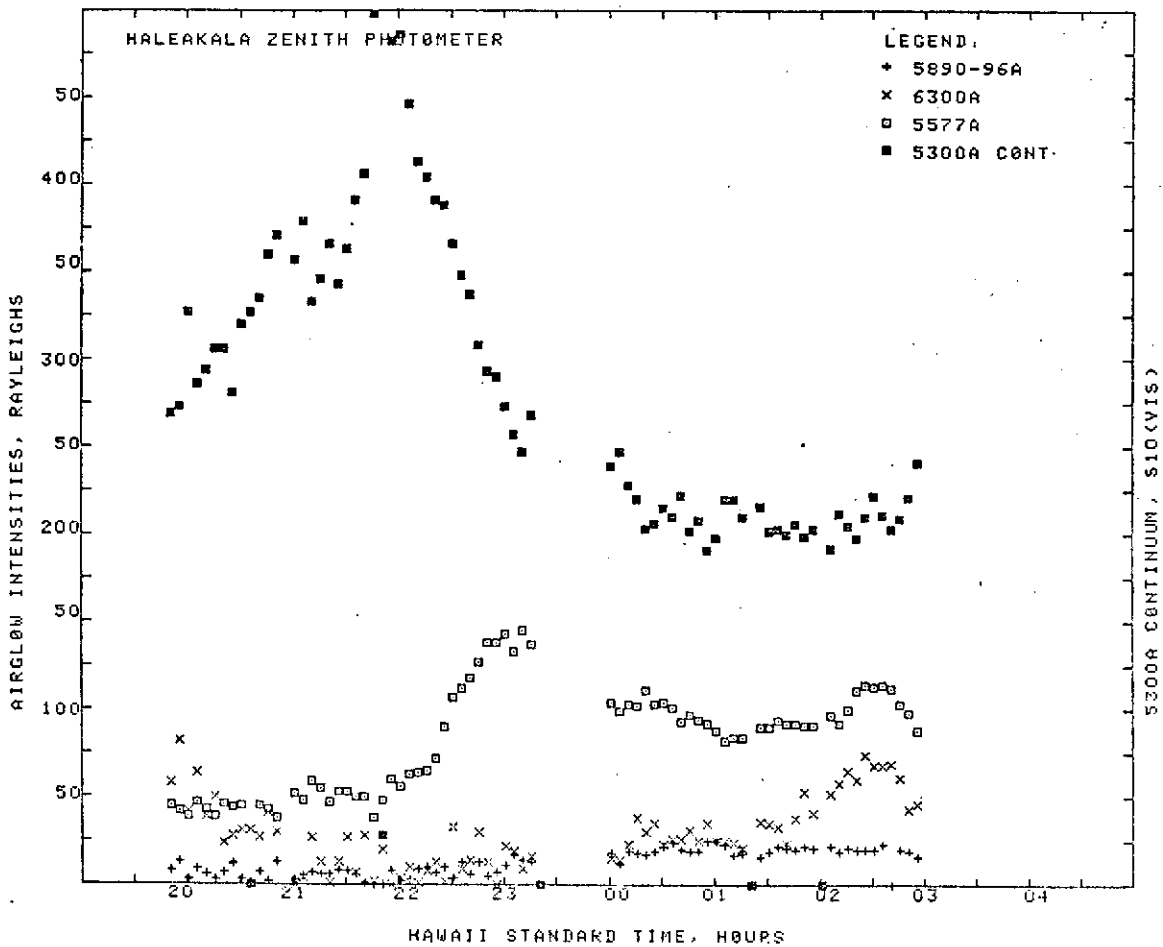
DATE
YR MO DA
62 08 22



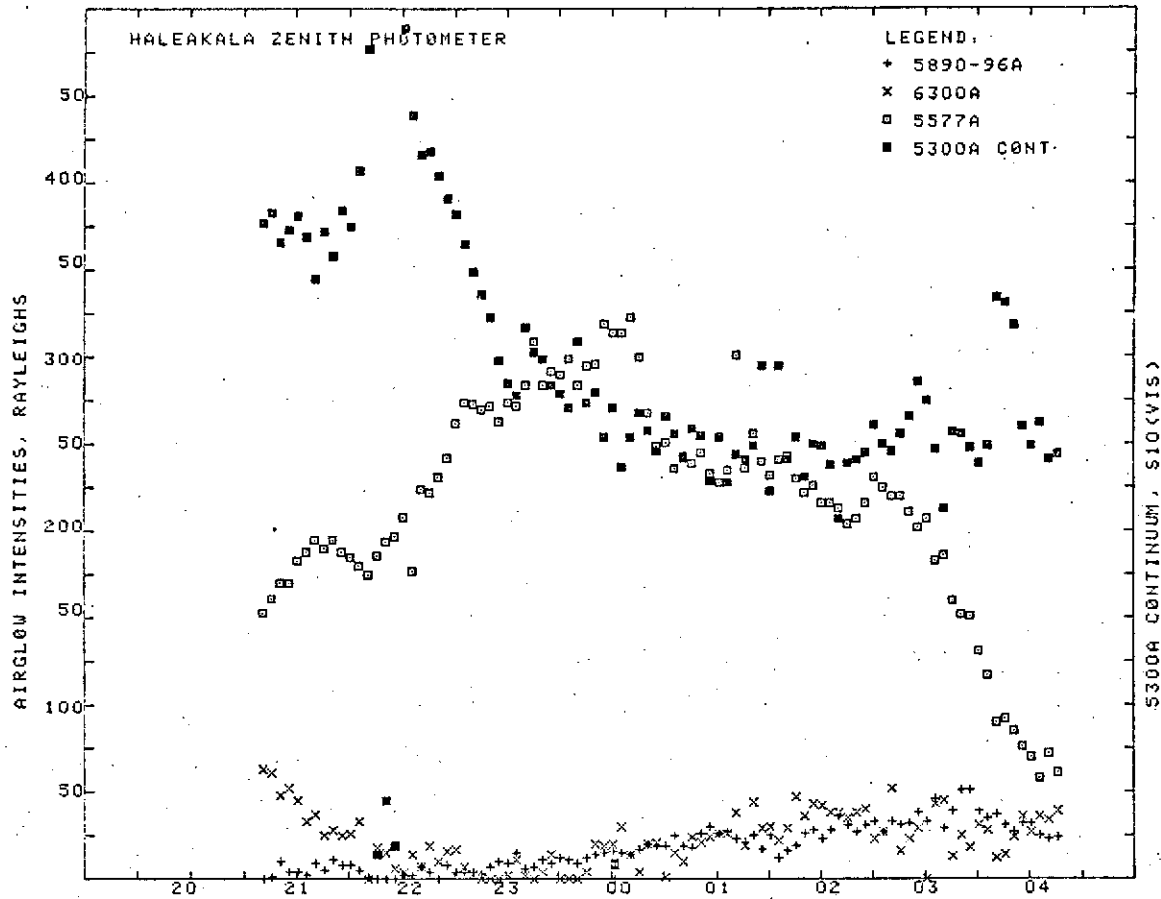
DATE
YR MO DA
62 08 23



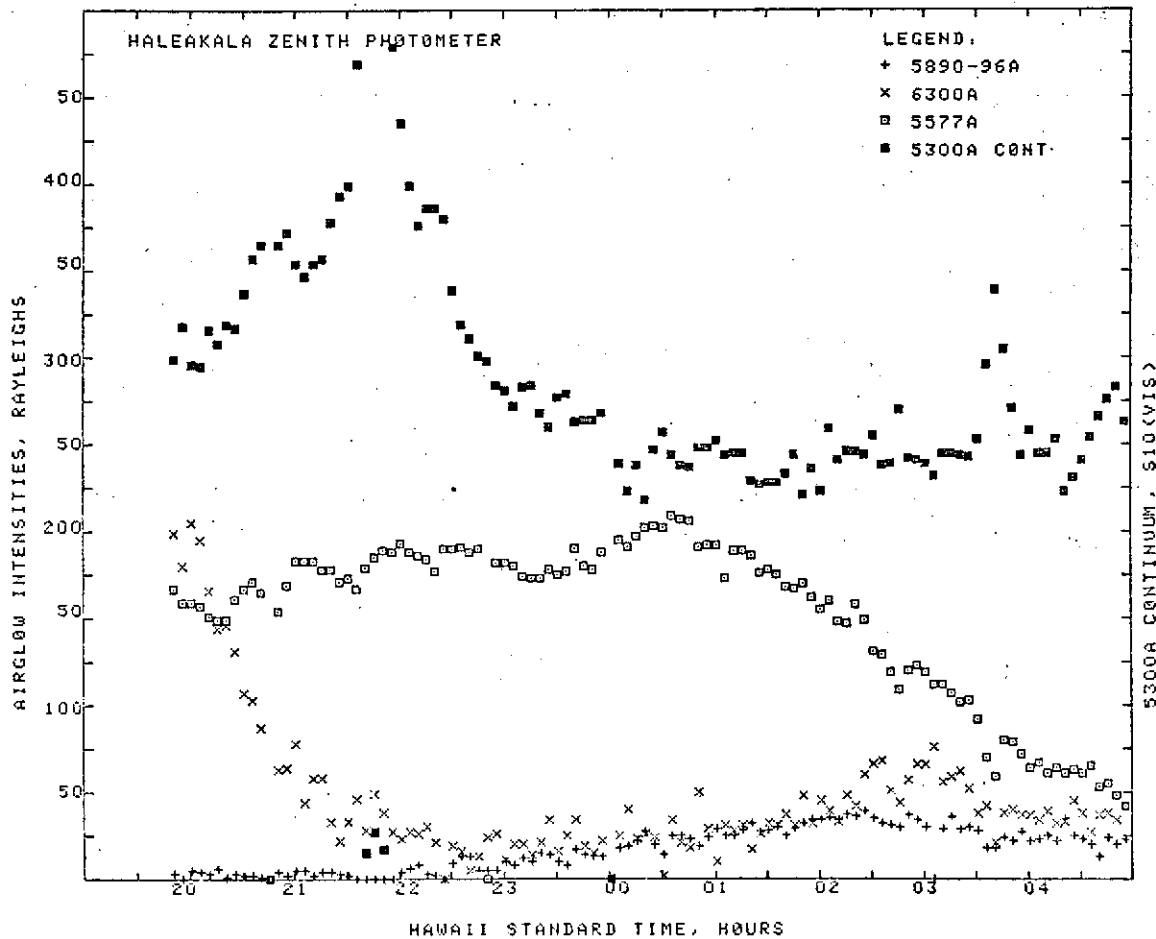
DATE
YR MO DA
62 08 25



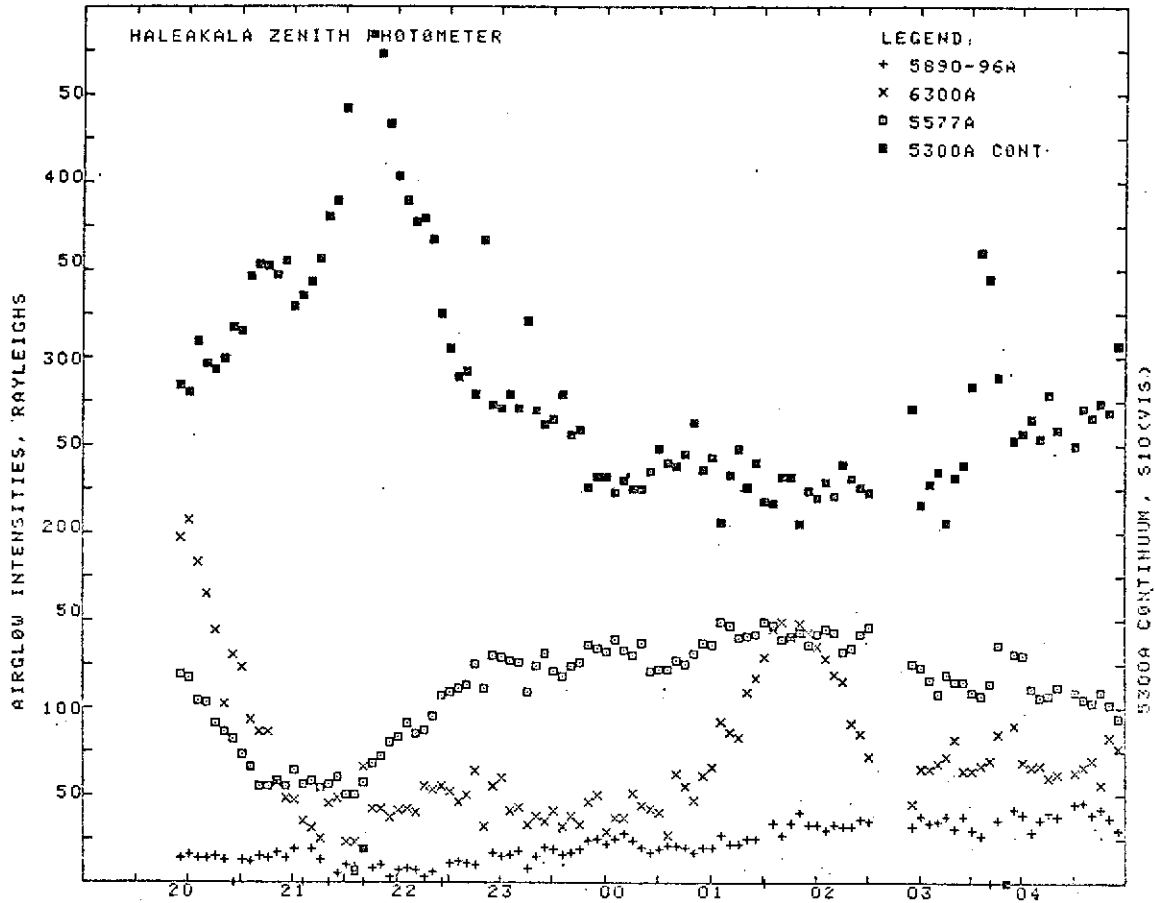
DATE
YR MO DA
62 08 26



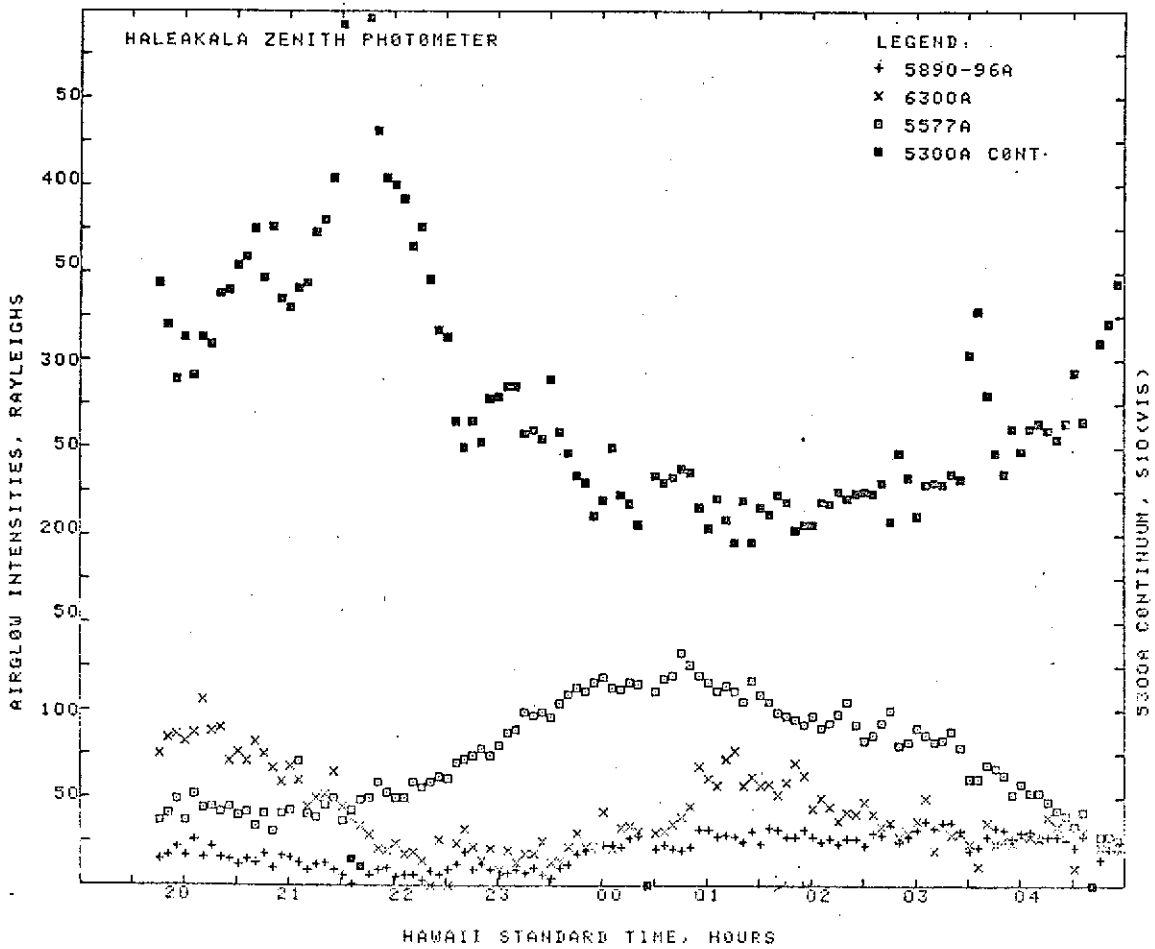
DATE
YR MO DA
62 08 27



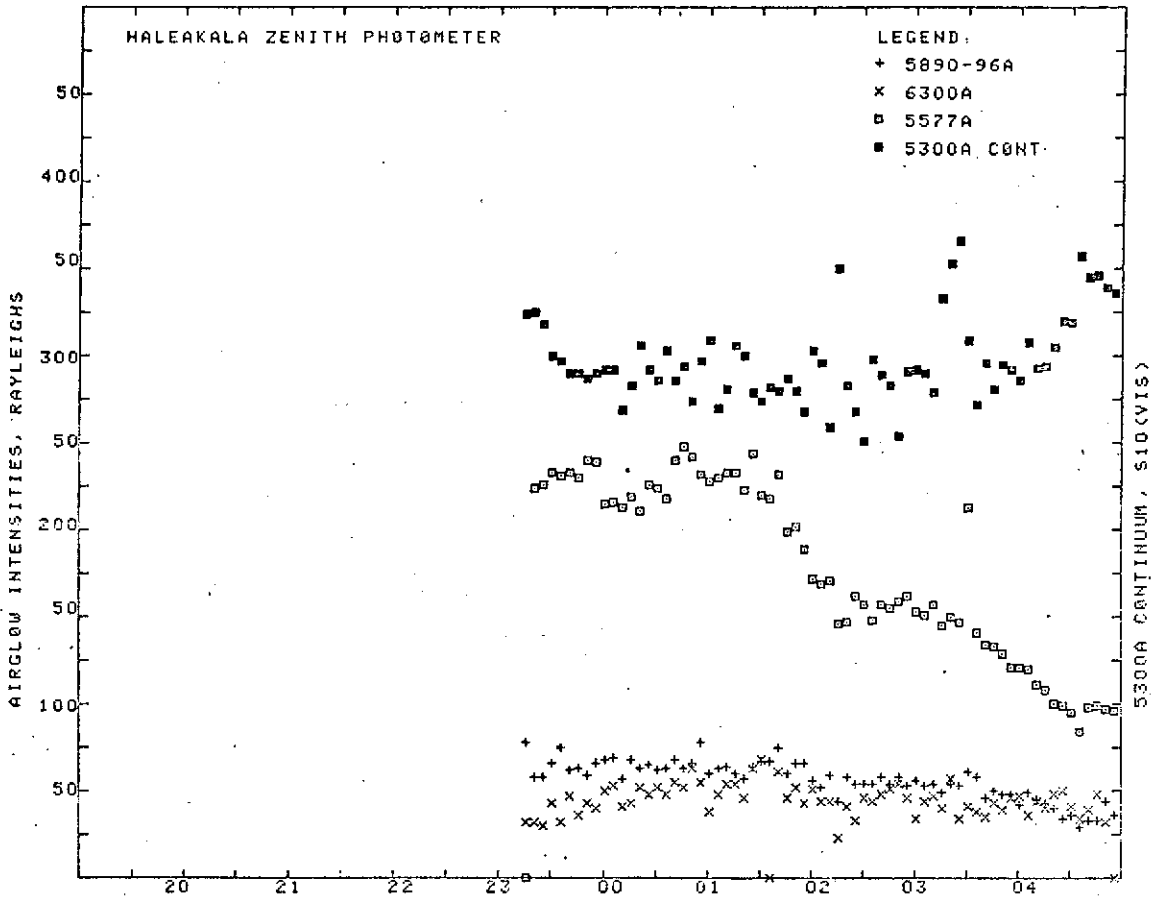
DATE
YR MO DA
62 03 28



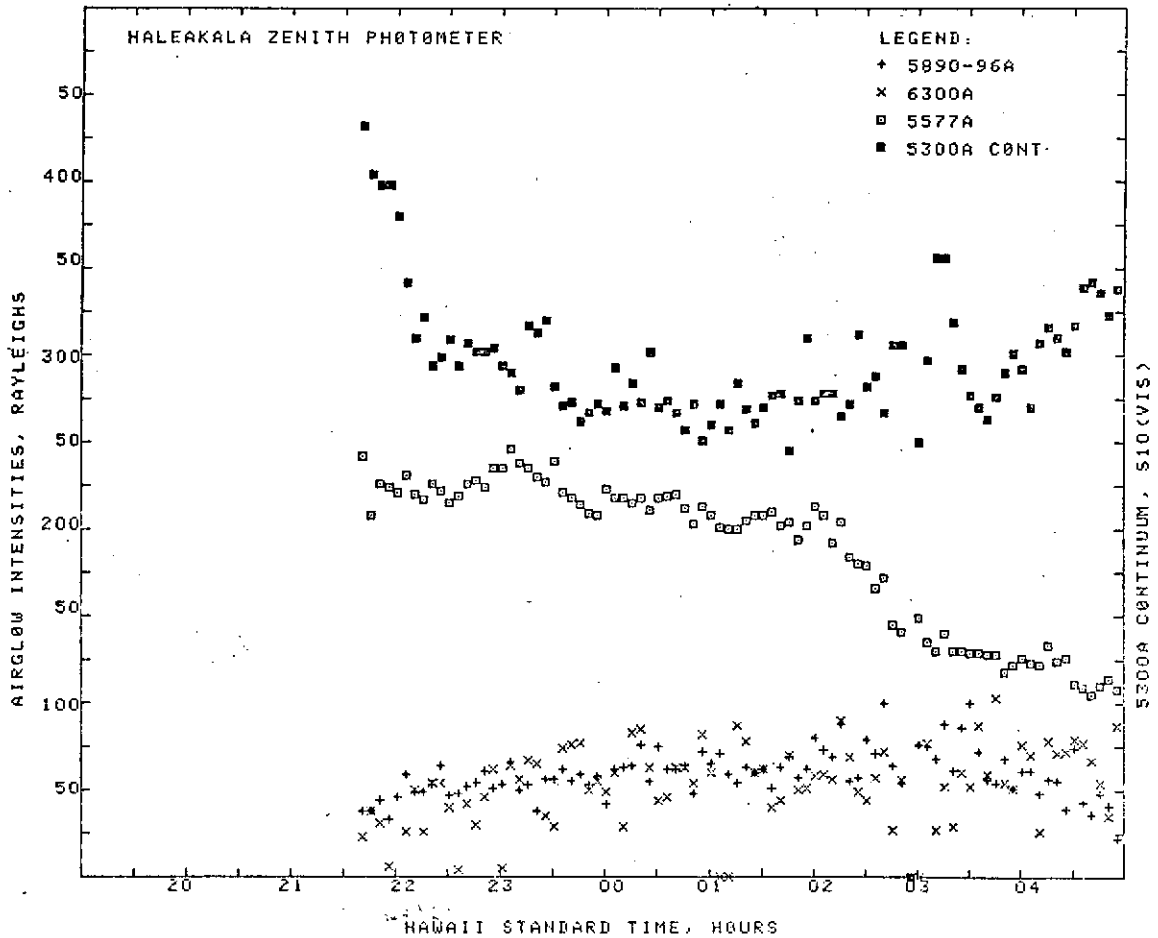
DATE
YR MO DA
62 08 29



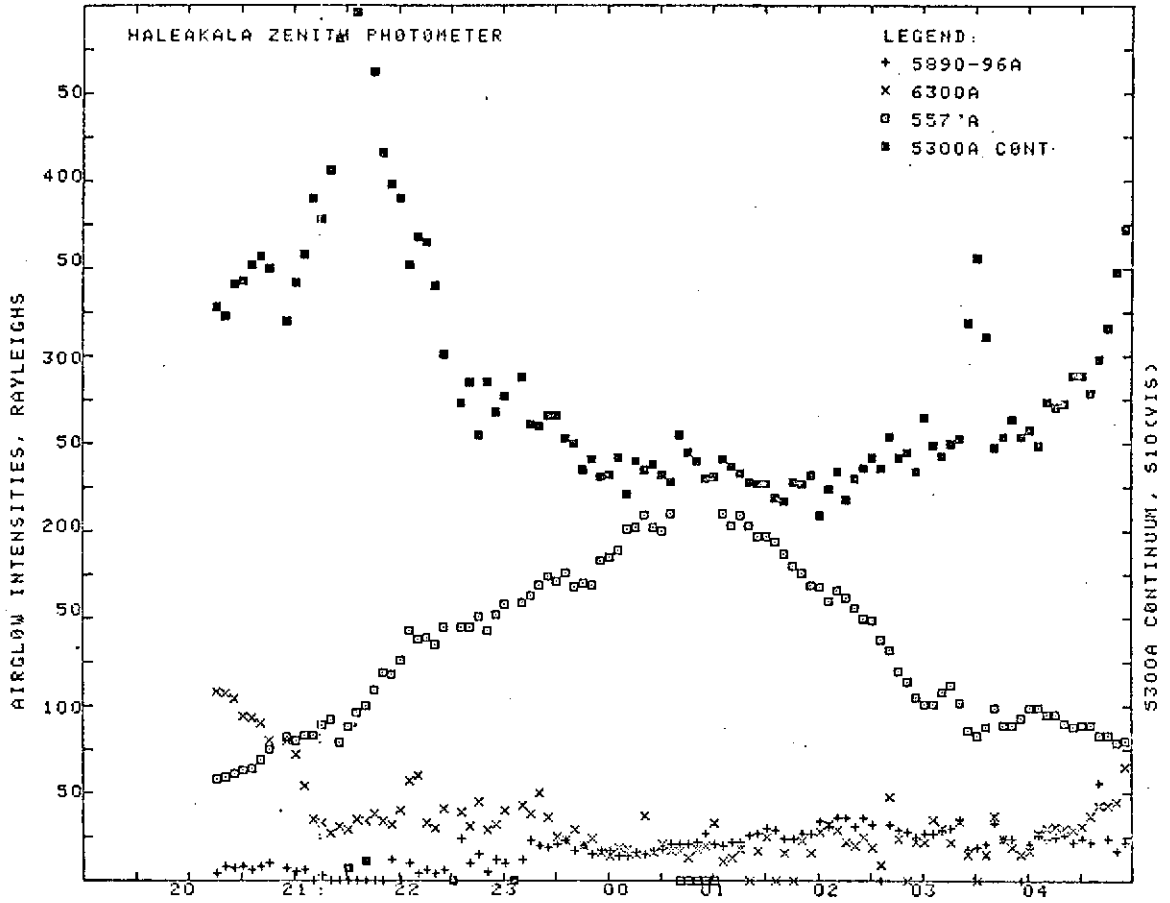
DATE
YR MO DA
62 09 01



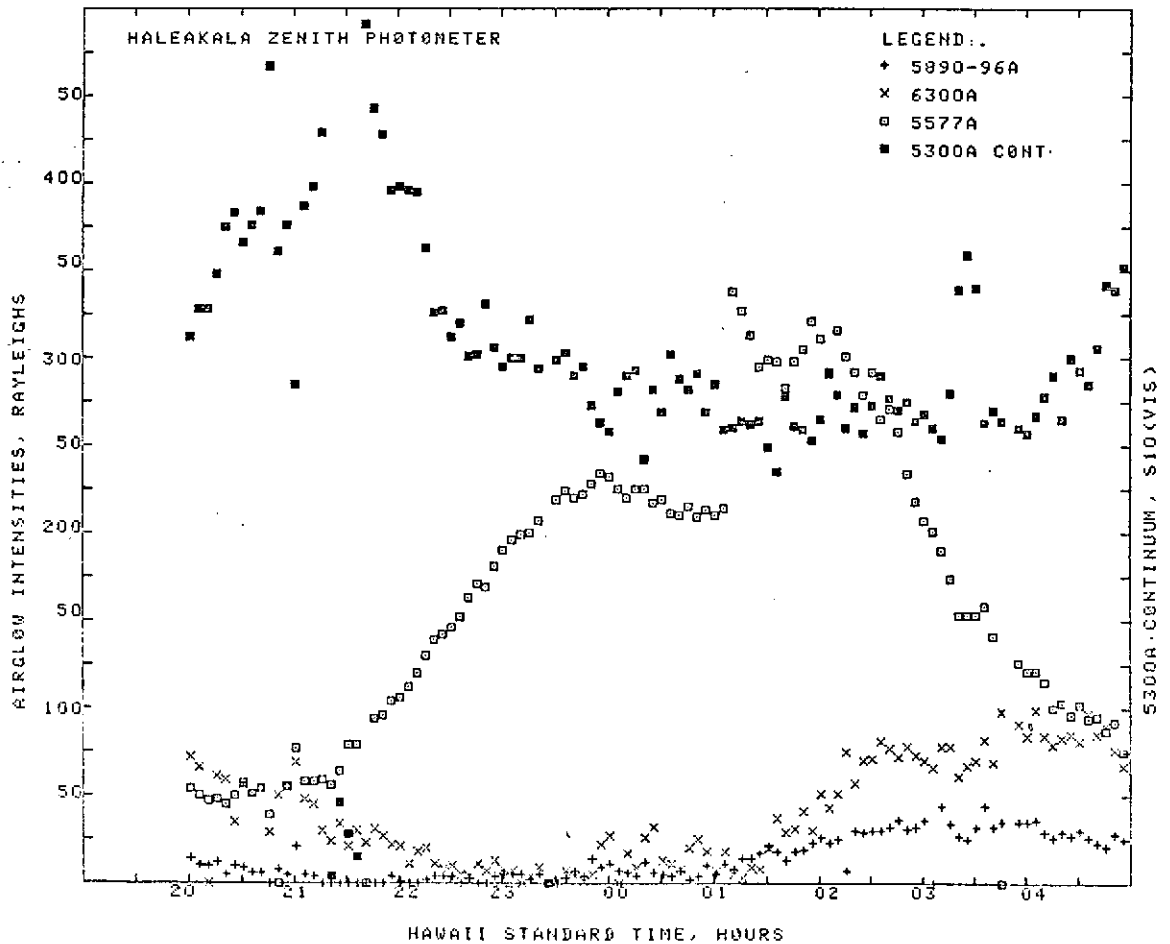
DATE
YR MO DA
62 09 03



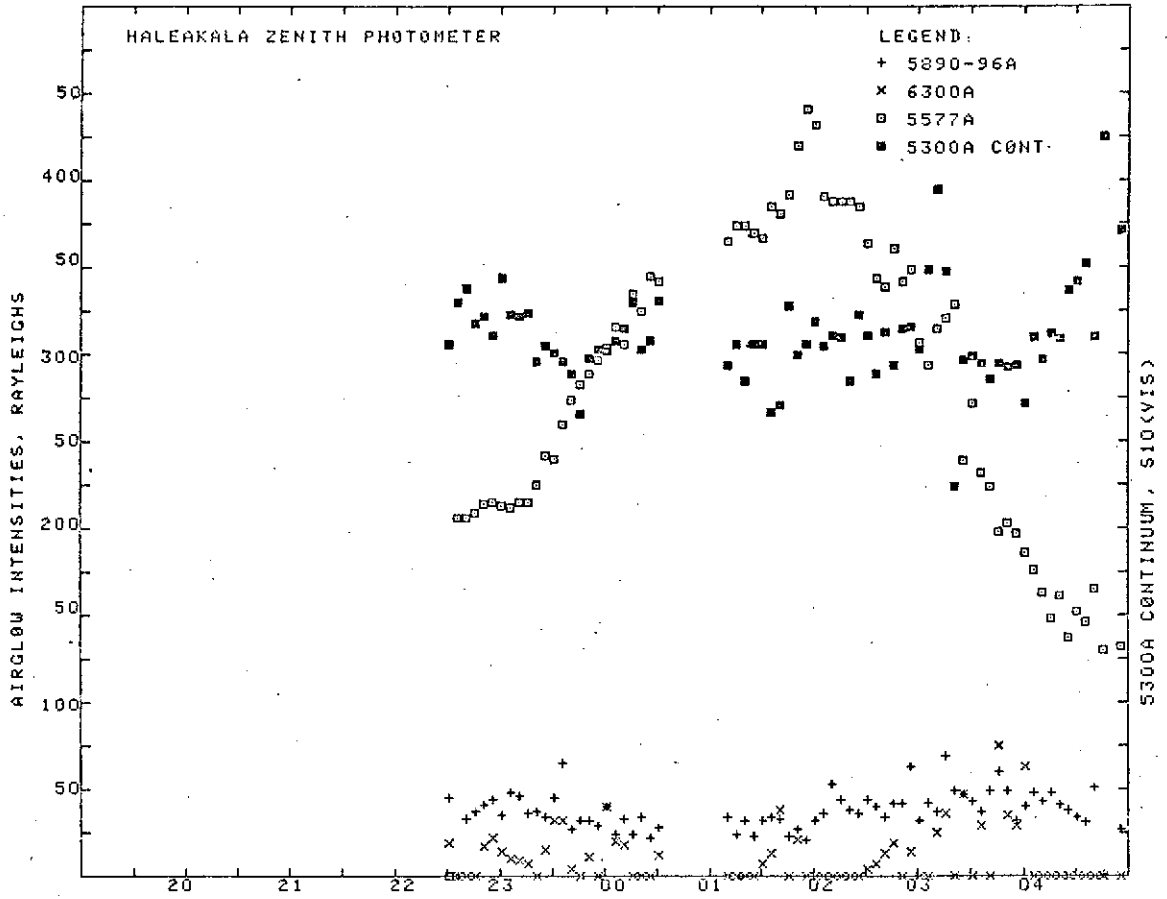
DATE
YR MO DA
62 08 30



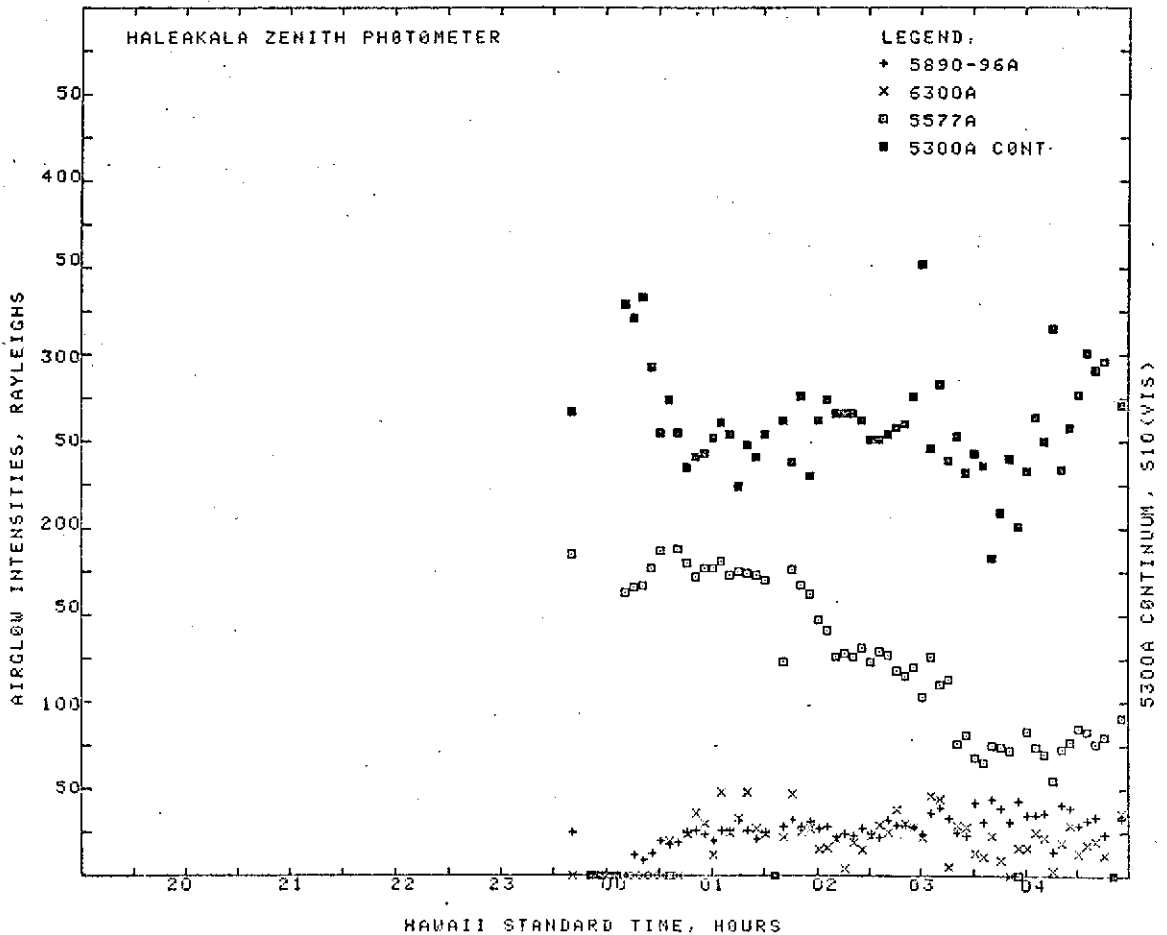
DATE
YR MO DA
62 08 31



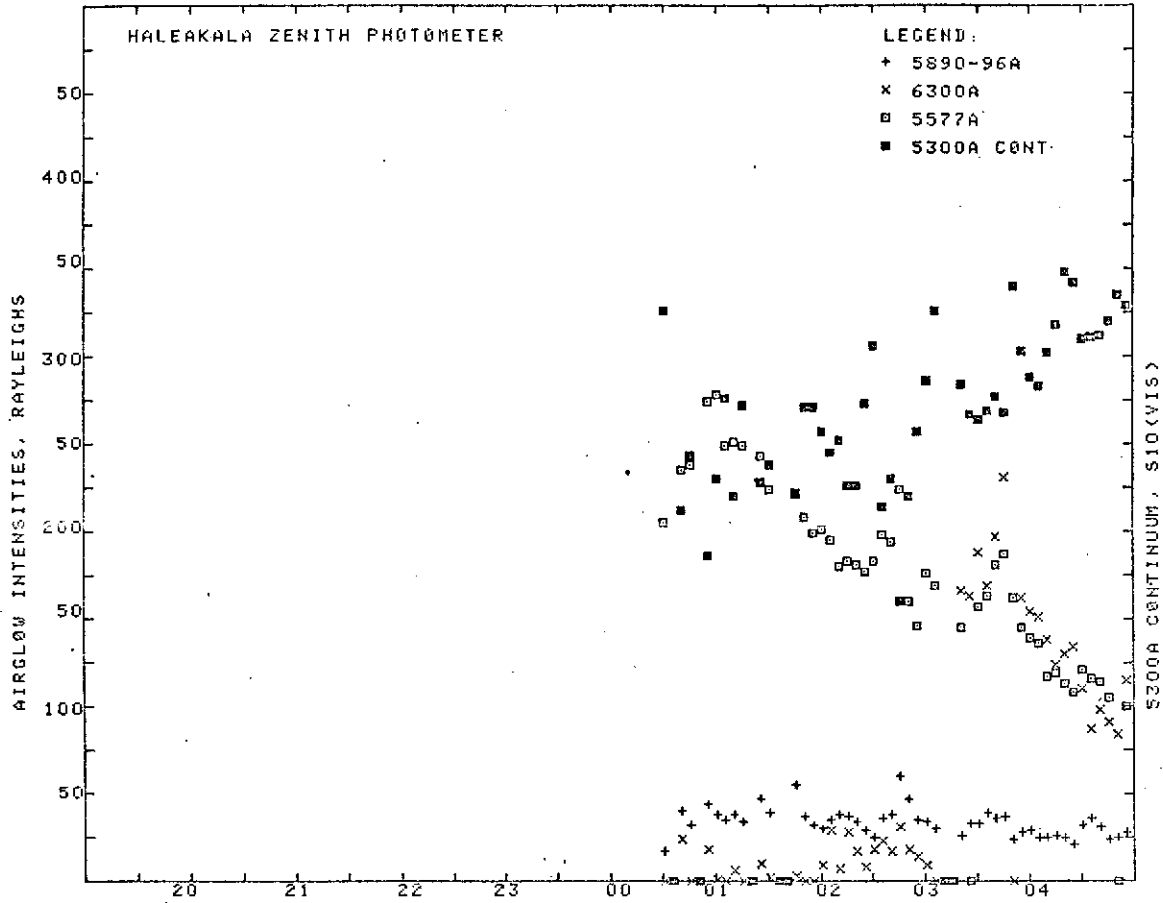
DATE
YR MO DA
62 09 04



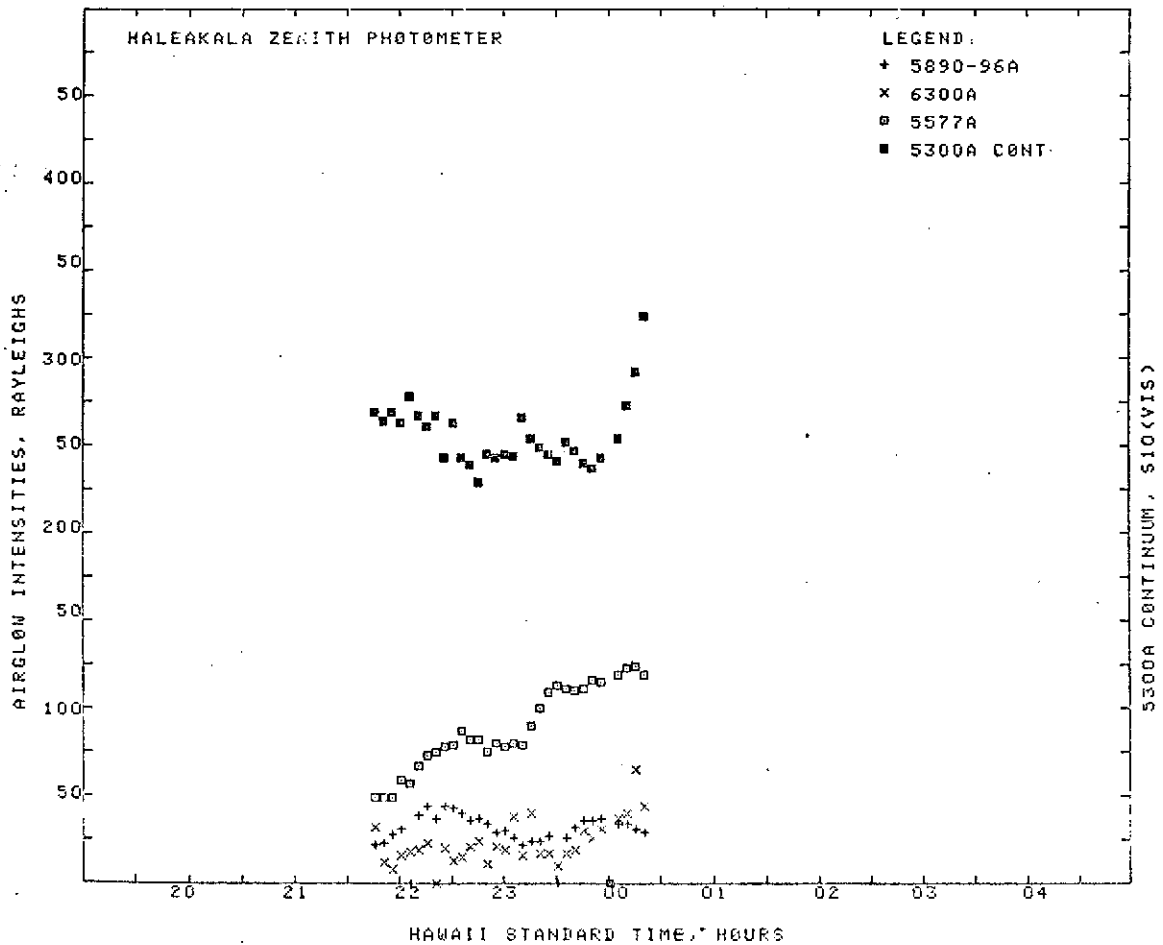
DATE
YR MO DA
62 09 06



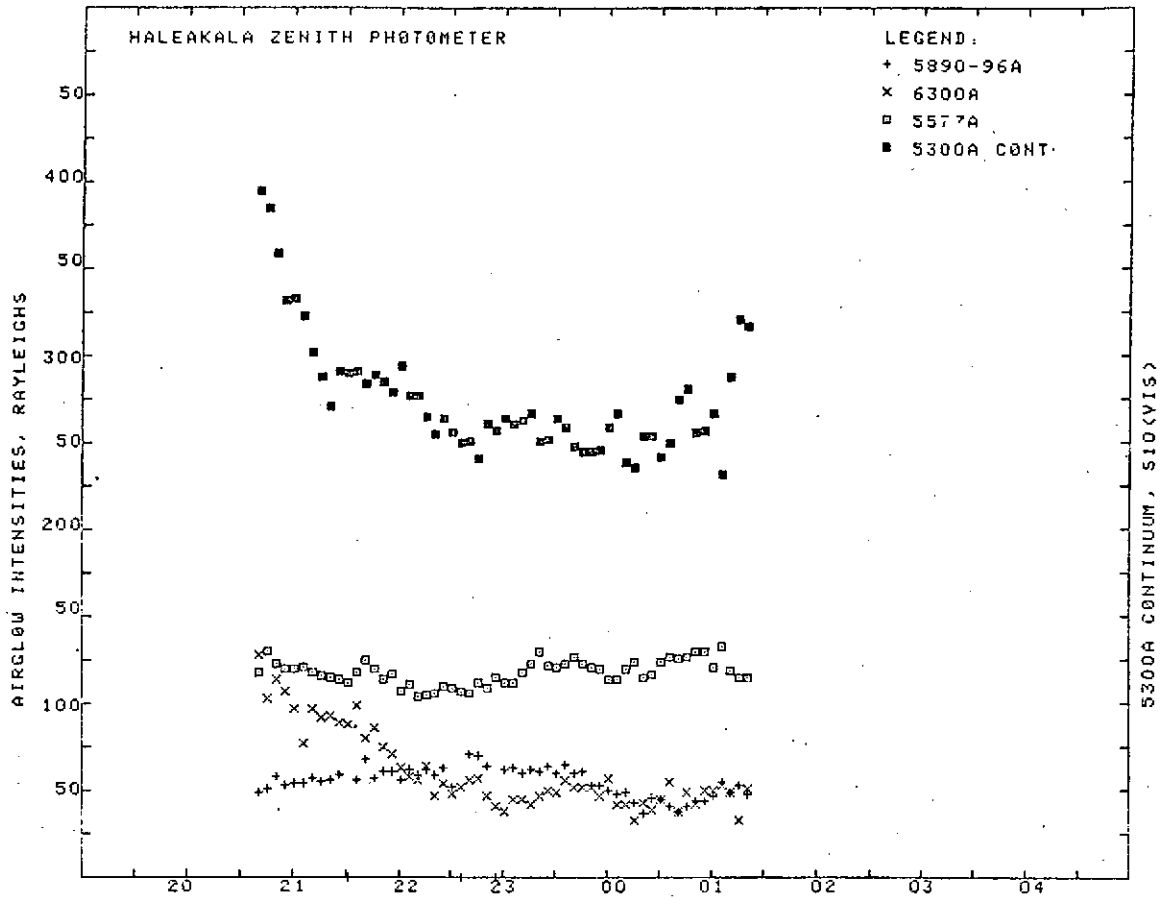
DATE
YR MO DA
62 09 07



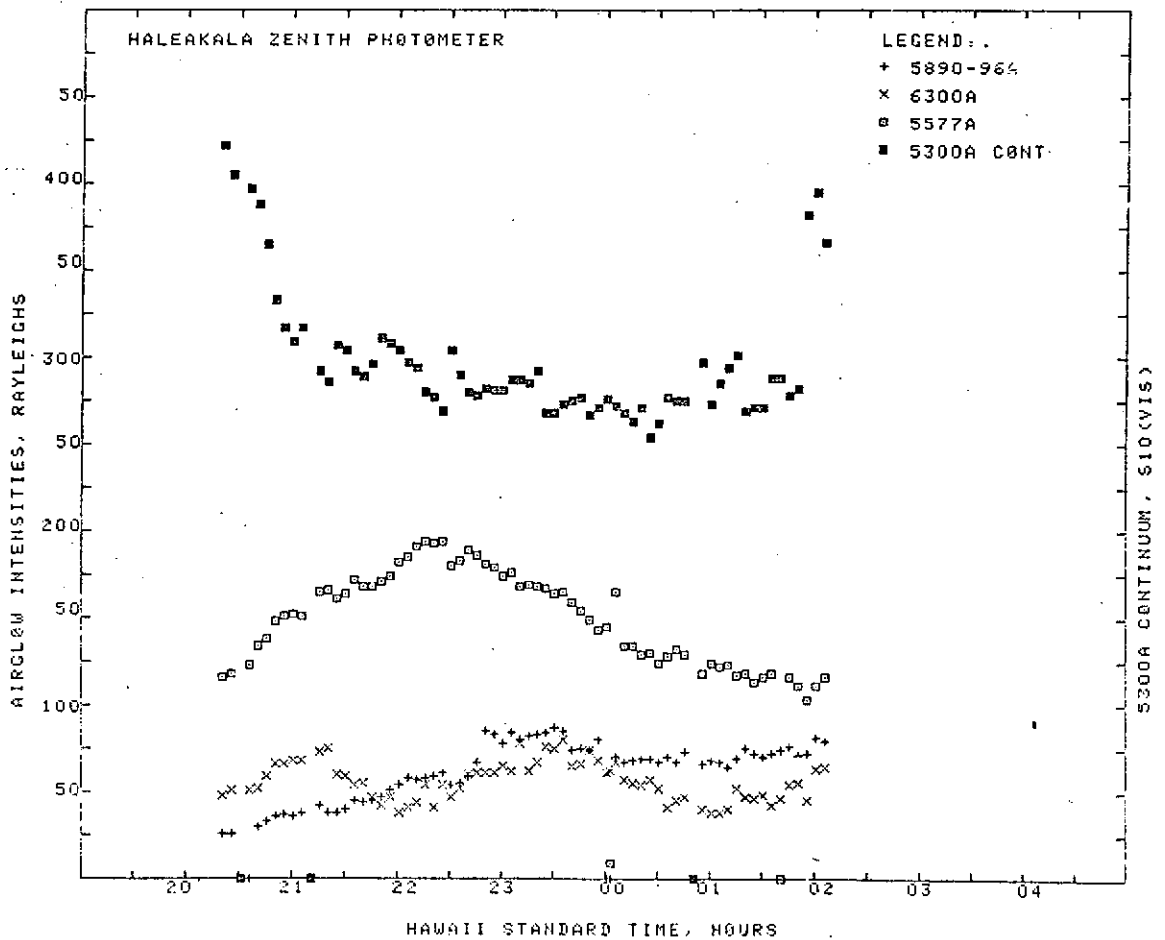
DATE
YR MO DA
62 09 20



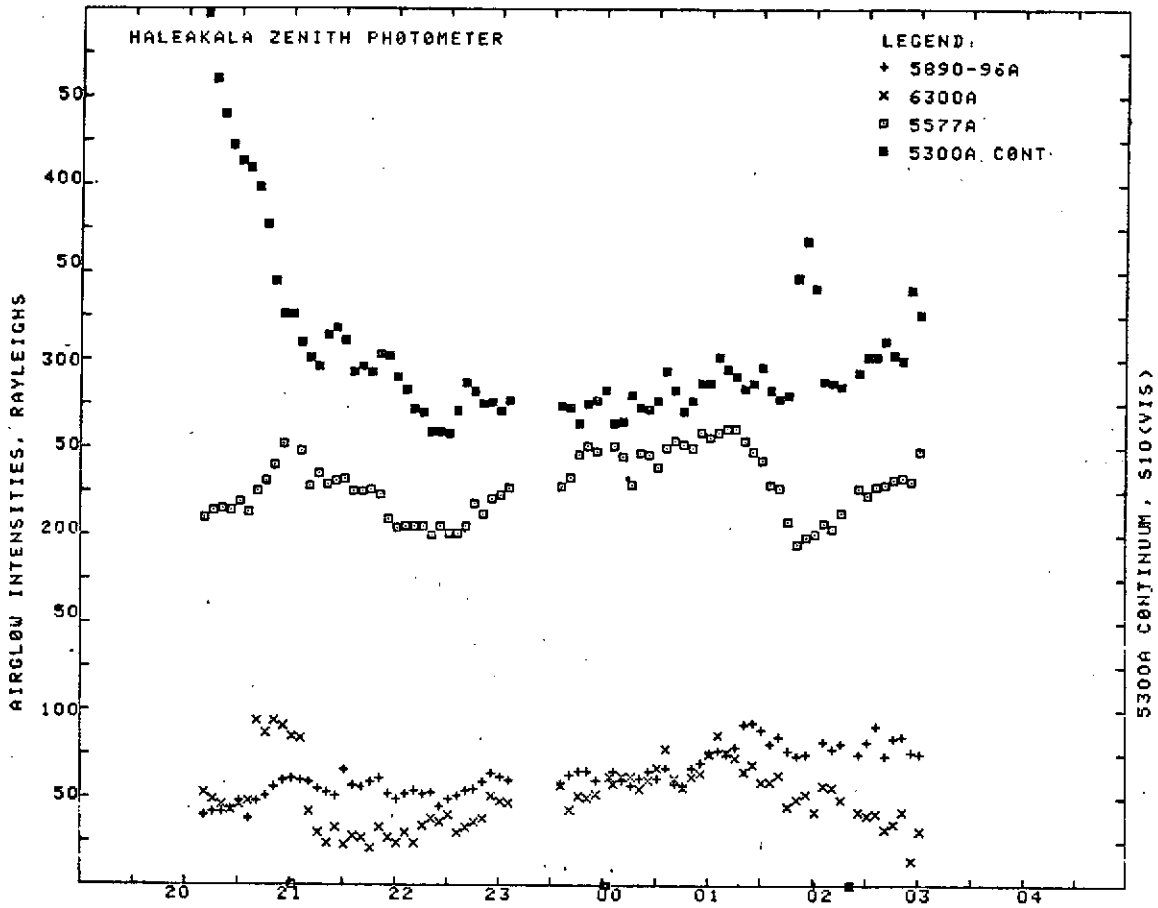
DATE
YR MO DA
62 09 21



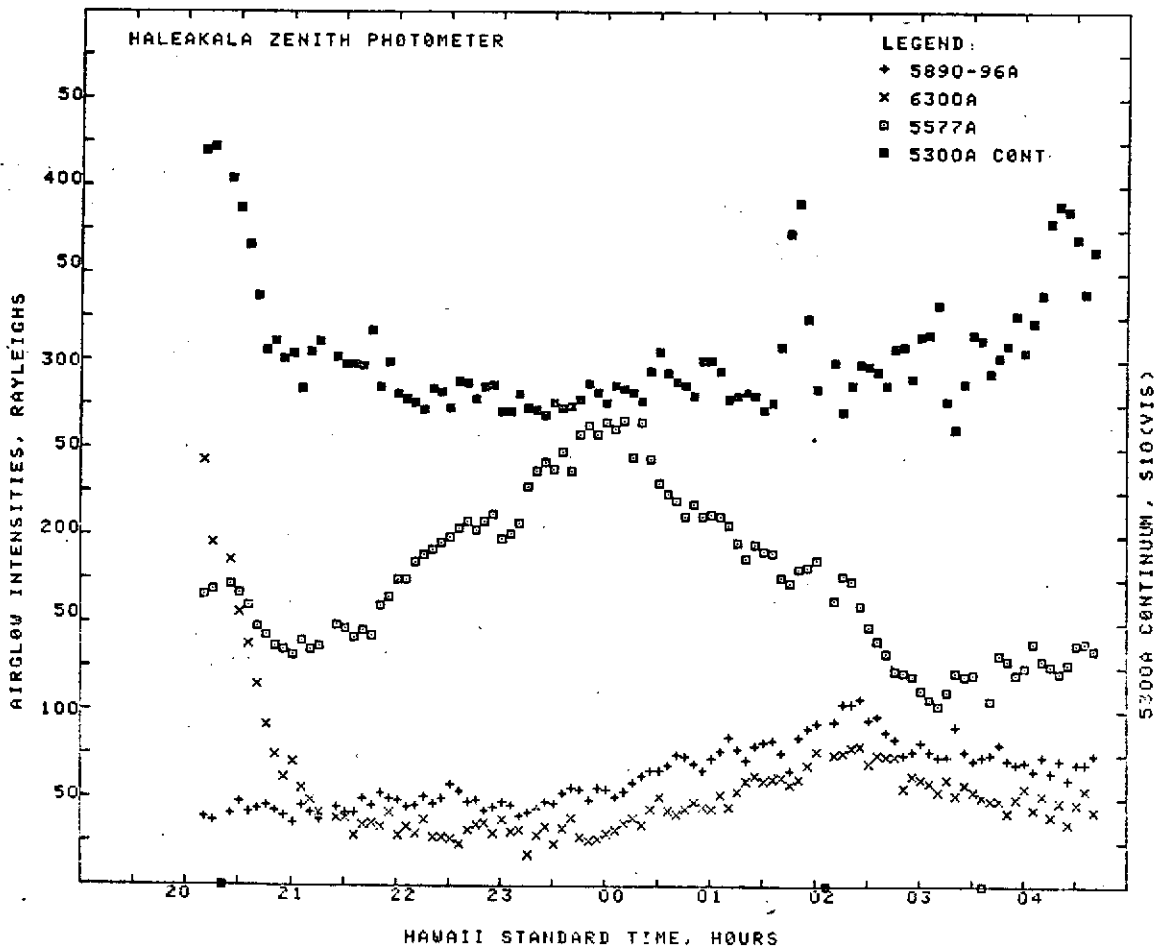
DATE
YR MO DA
62 09 22



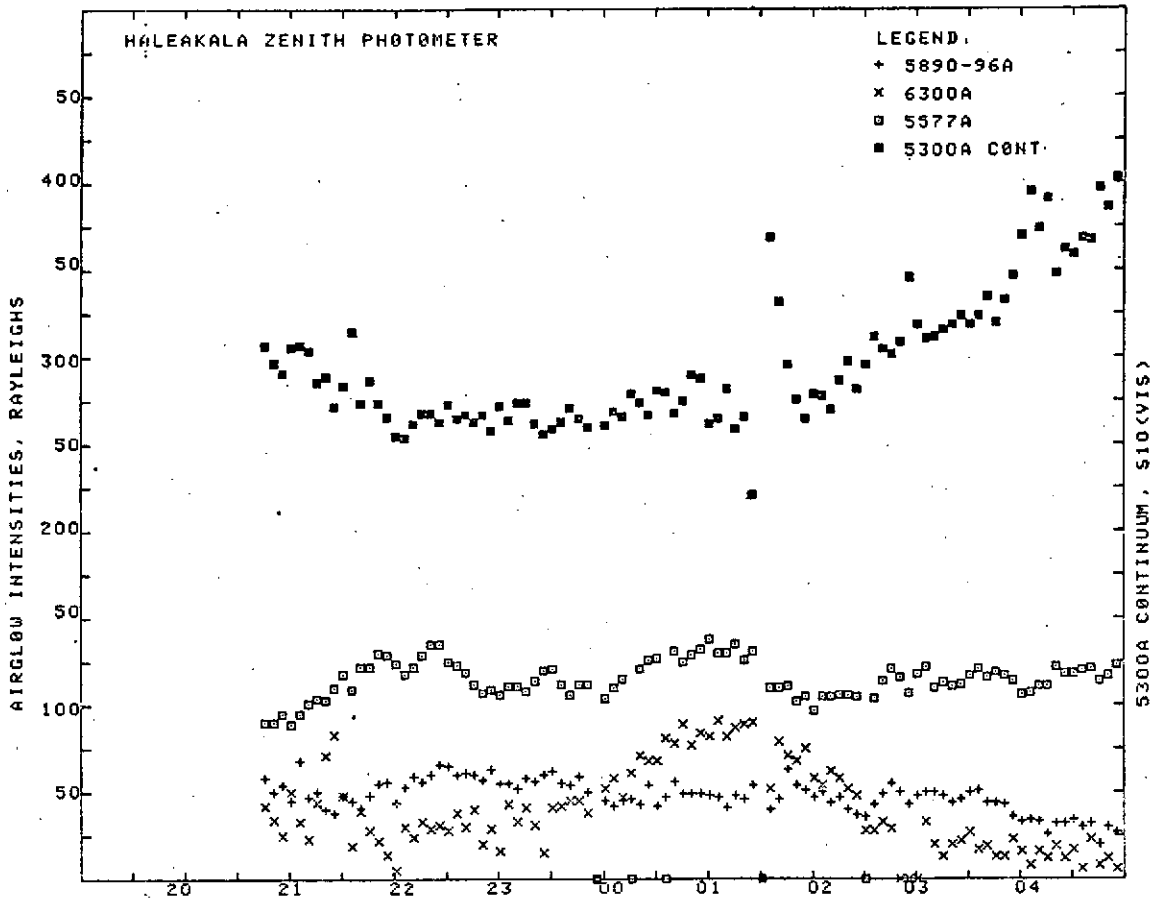
DATE
YR MO DA
62 09 23



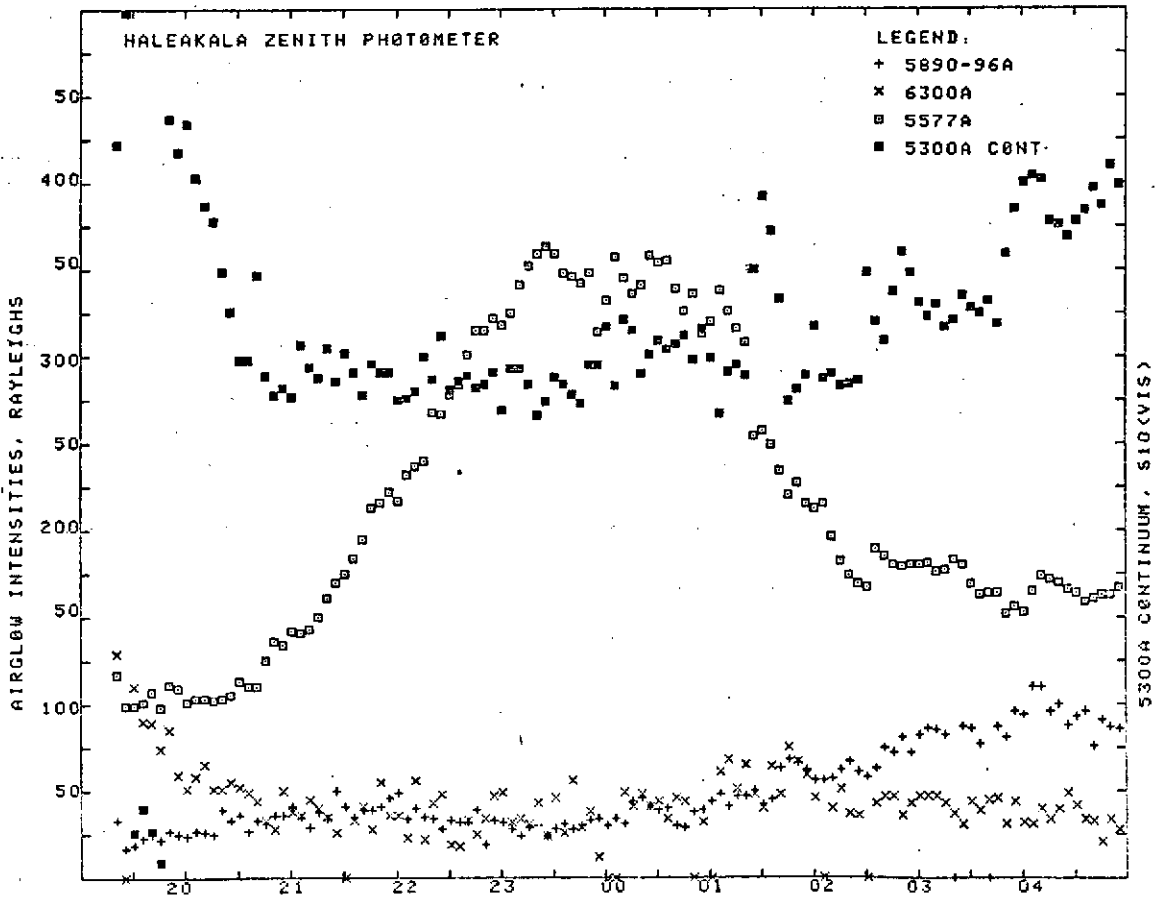
DATE
YR MO DA
62 09 25



DATE
YR MO DA
62 09 28

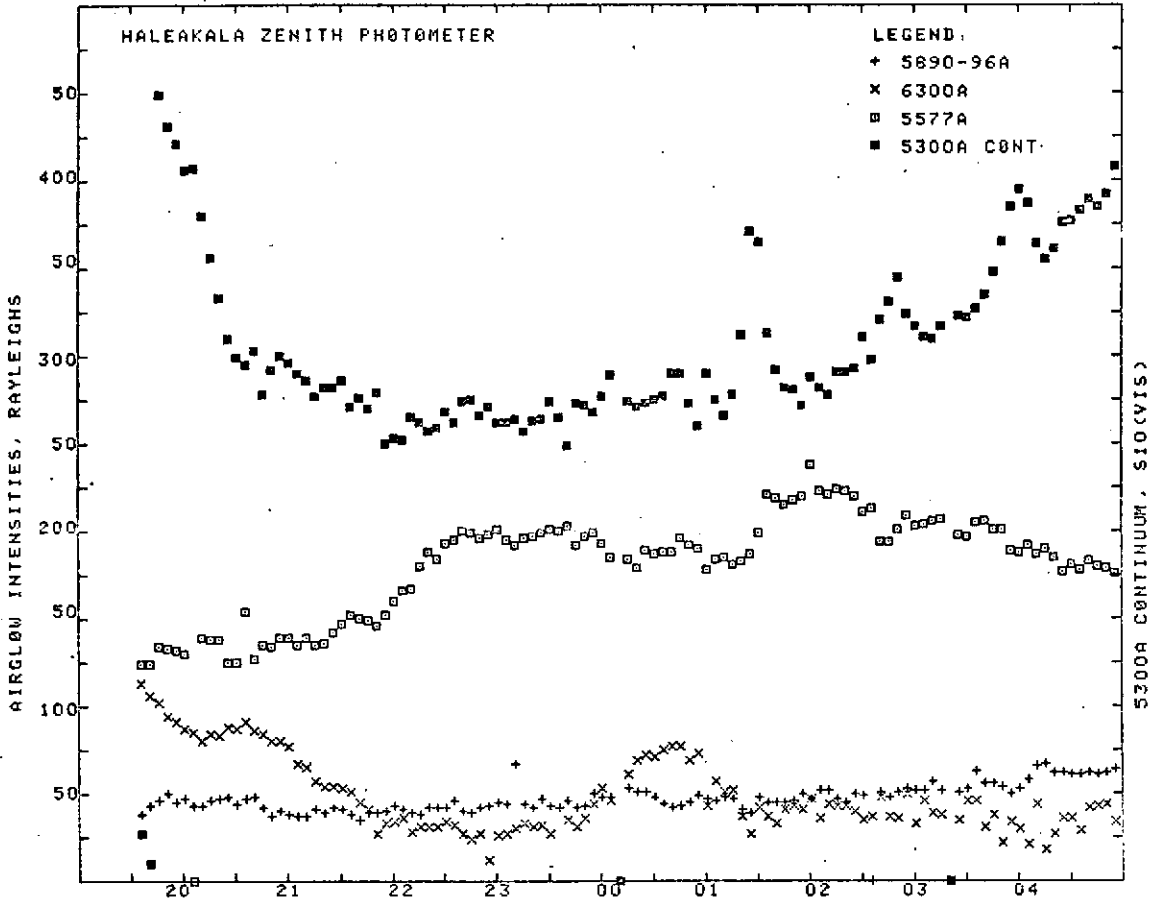


DATE
YR MO DA
62 09 29

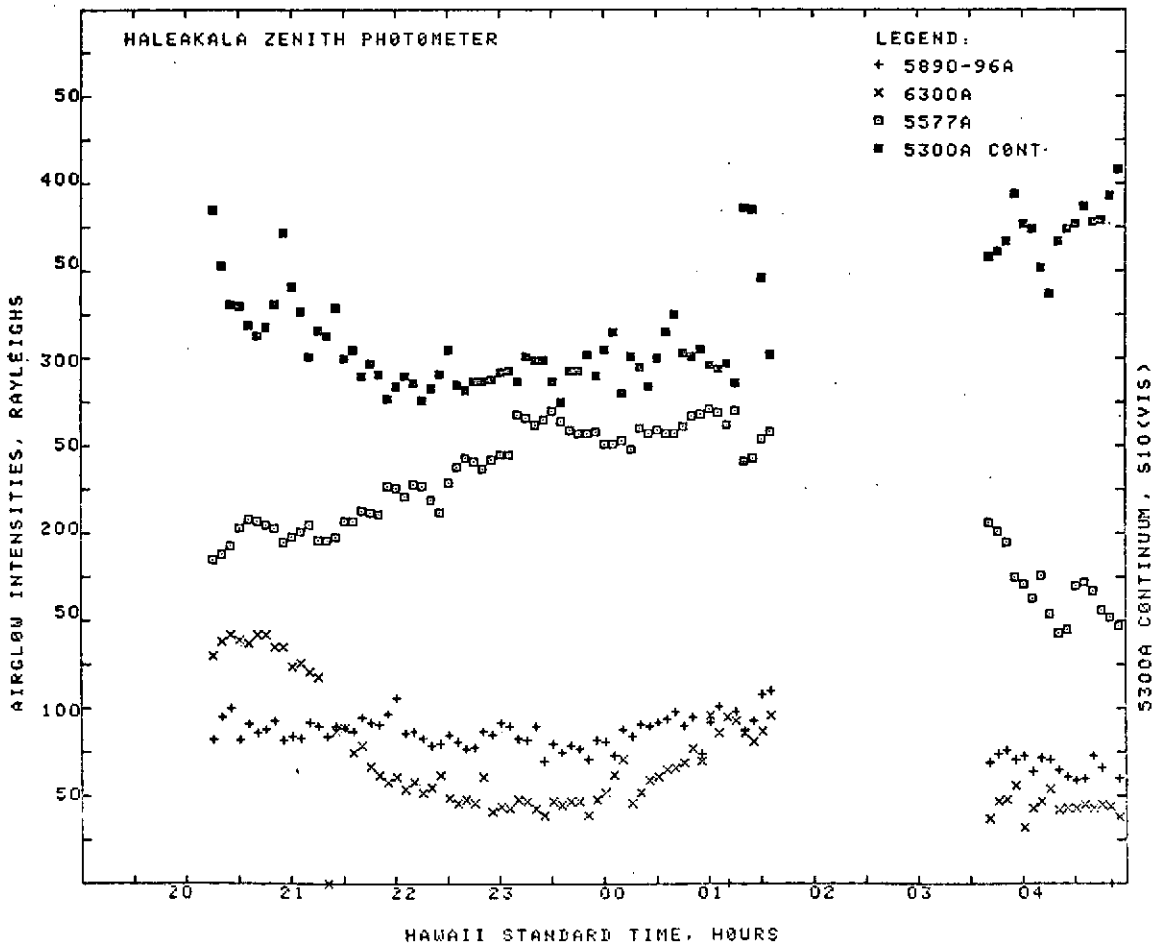


HAWAII STANDARD TIME, HOURS

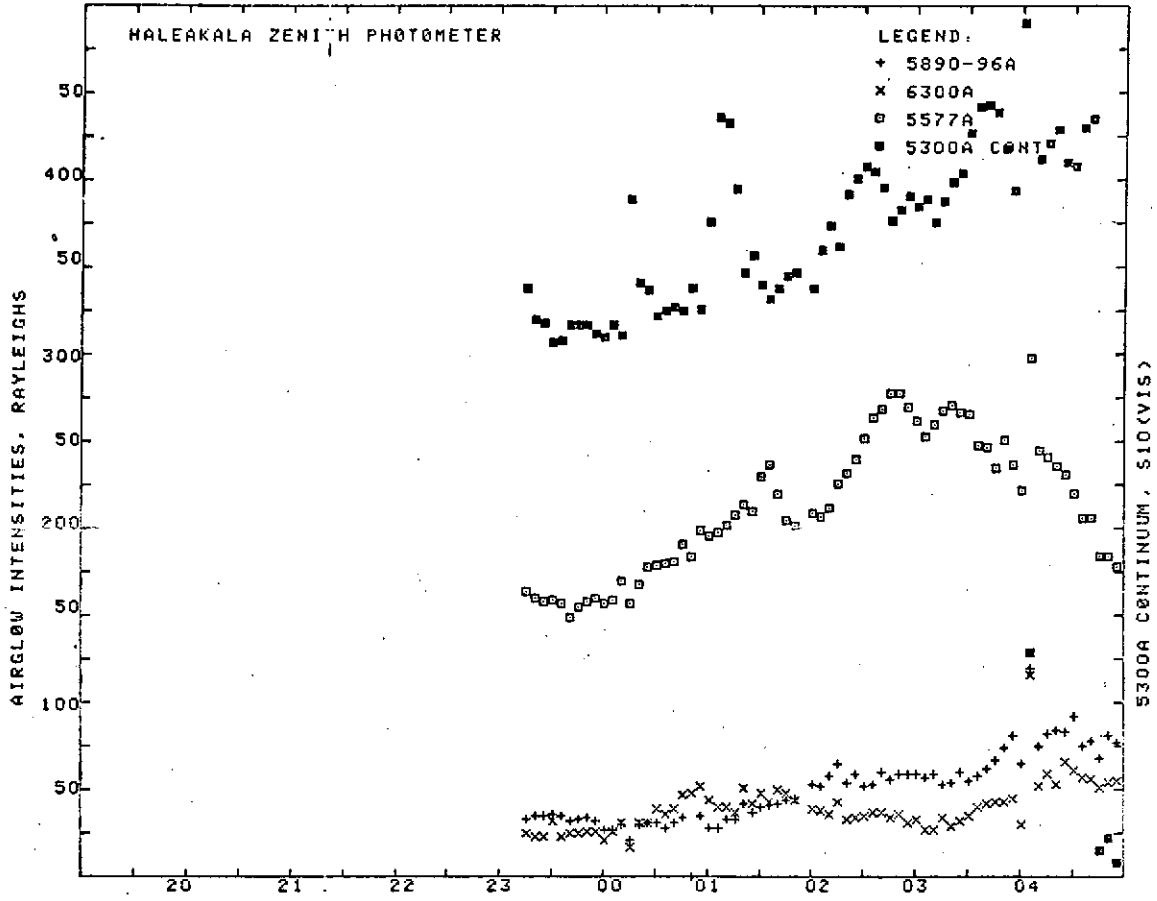
DATE
YR MO DA
62 09 30



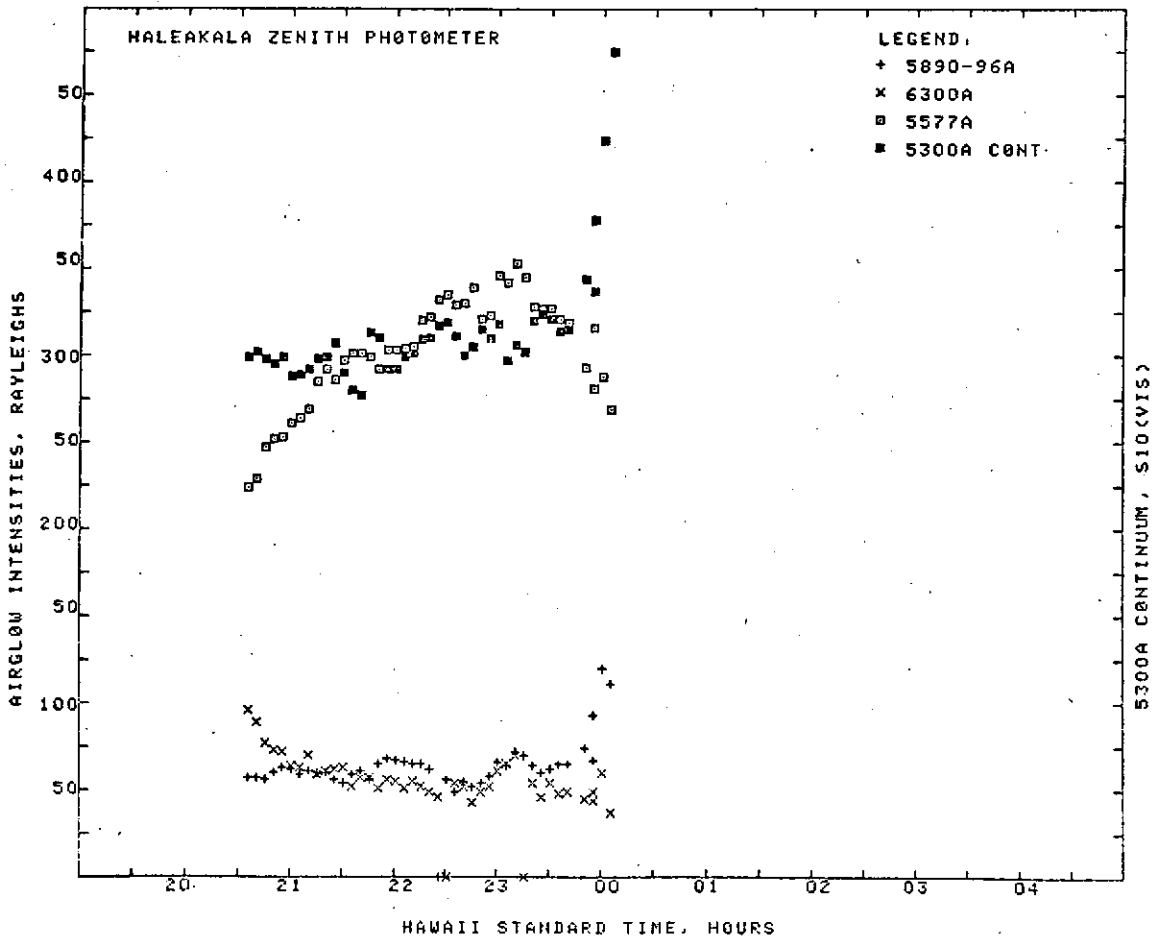
DATE
YR MO DA
62 10 01

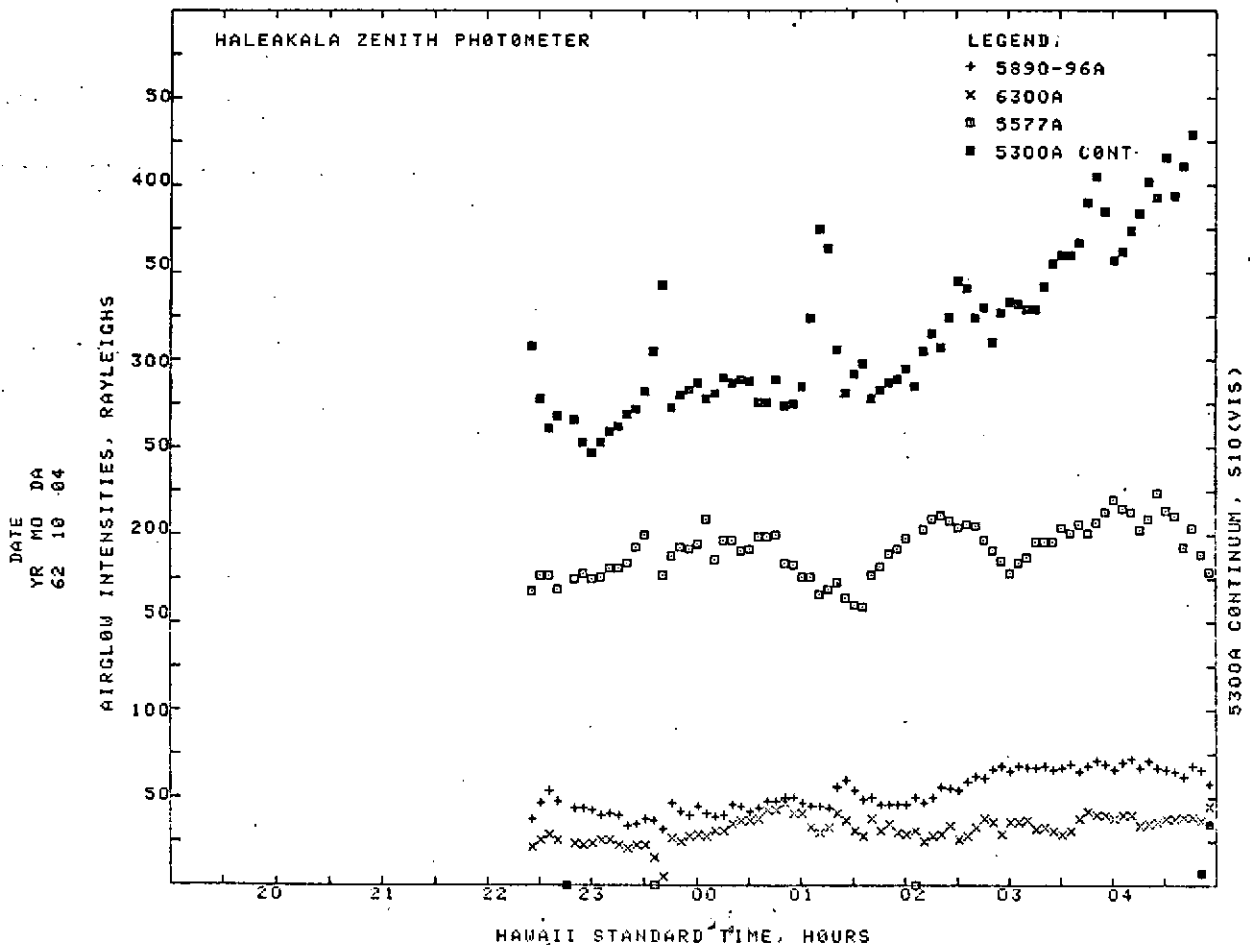
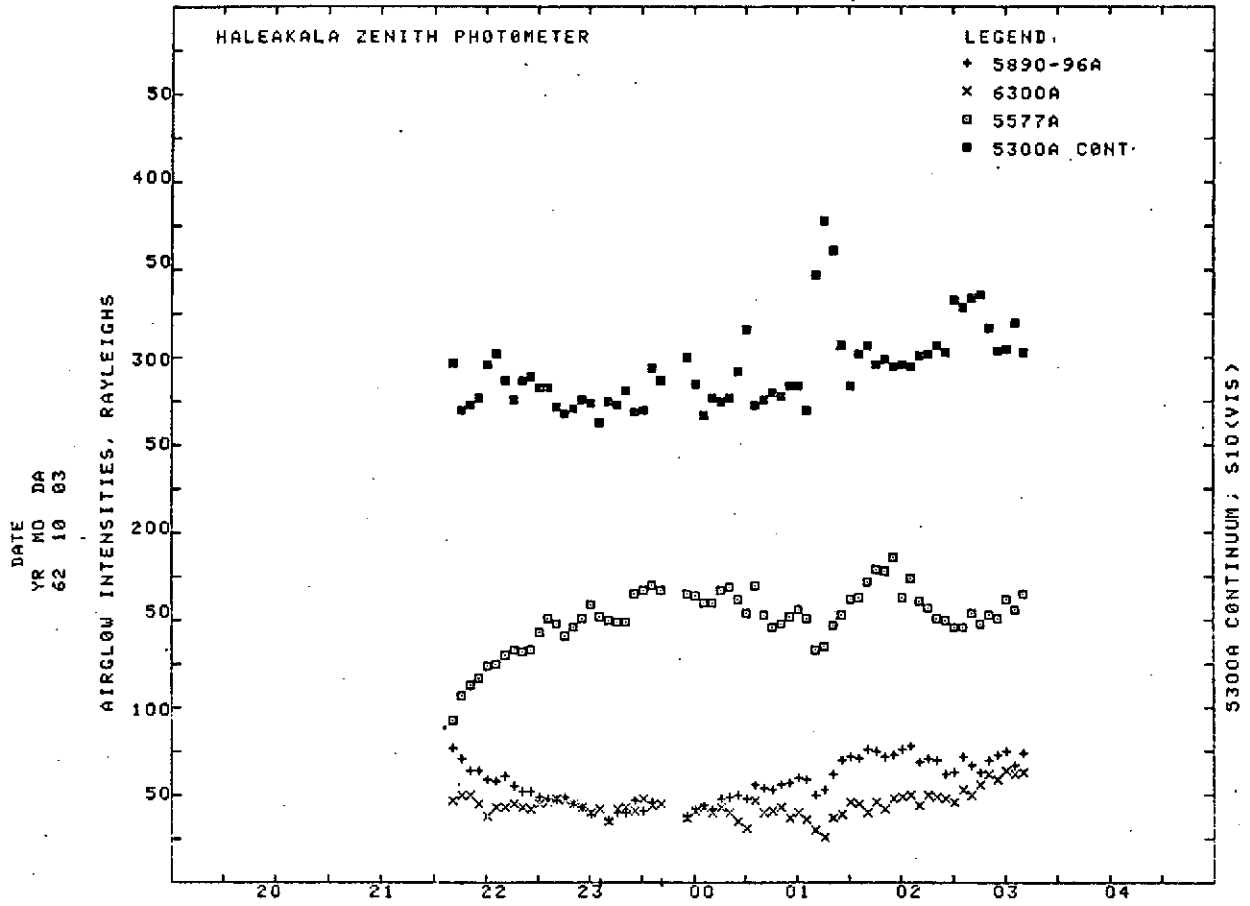


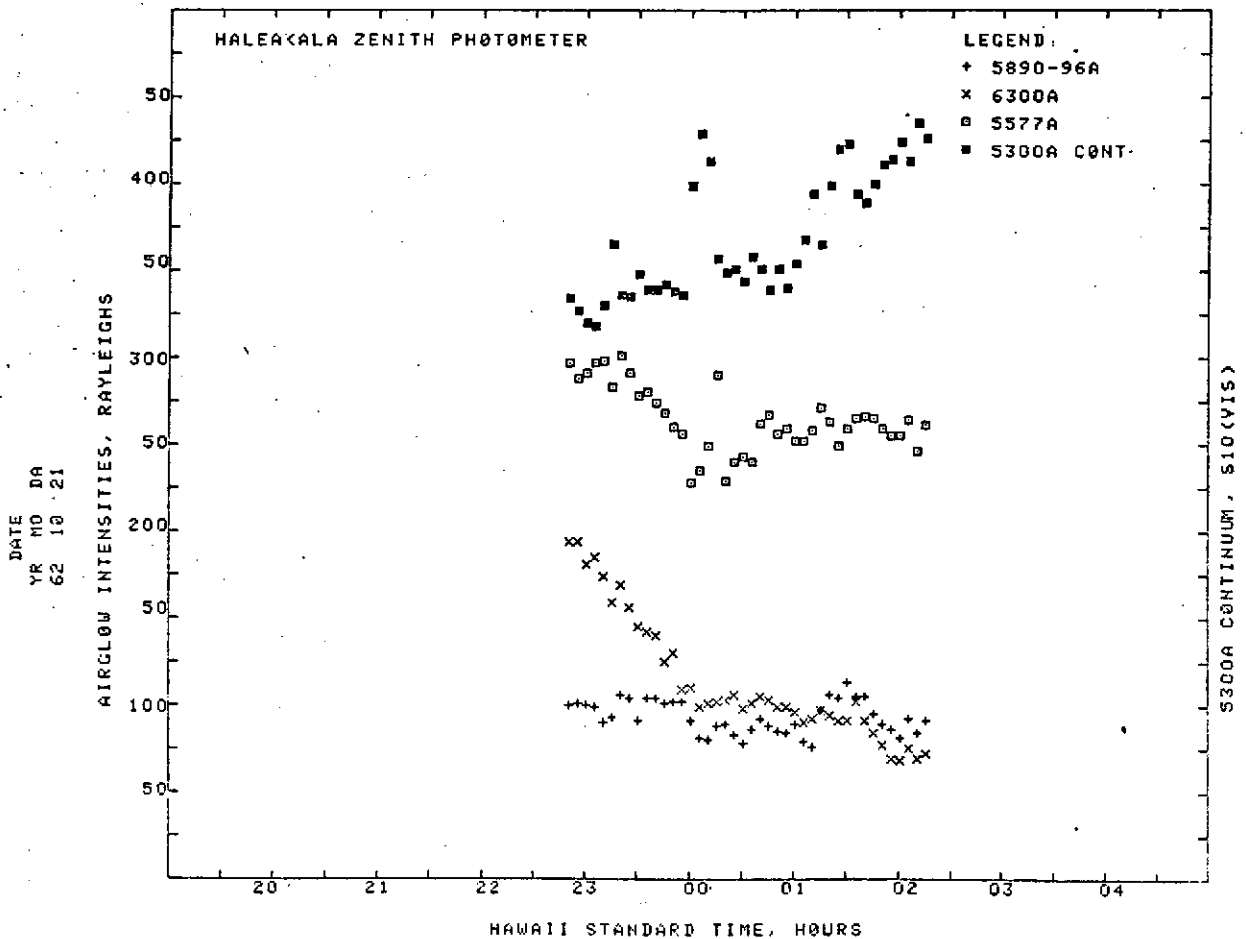
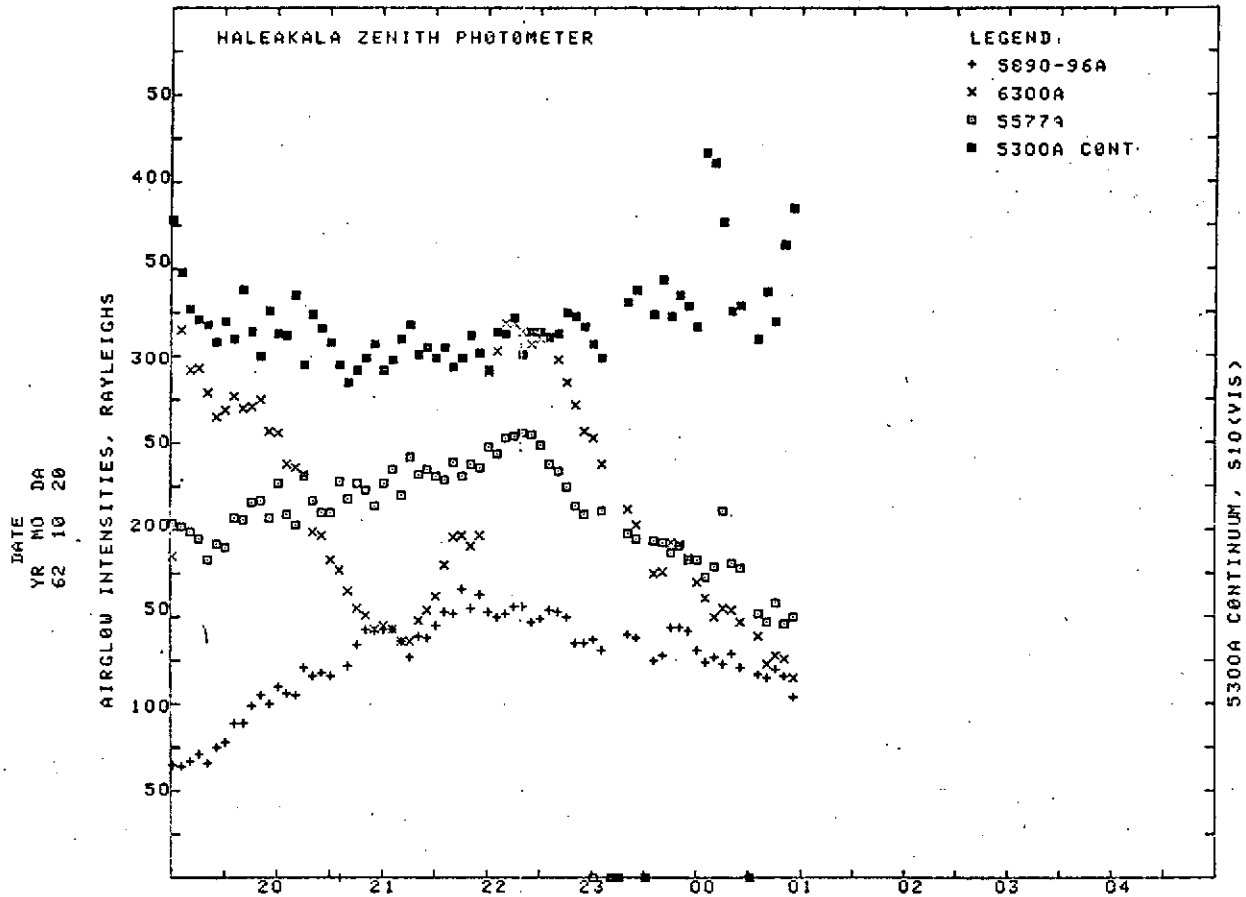
DATE
YR MO DA
62 10 05



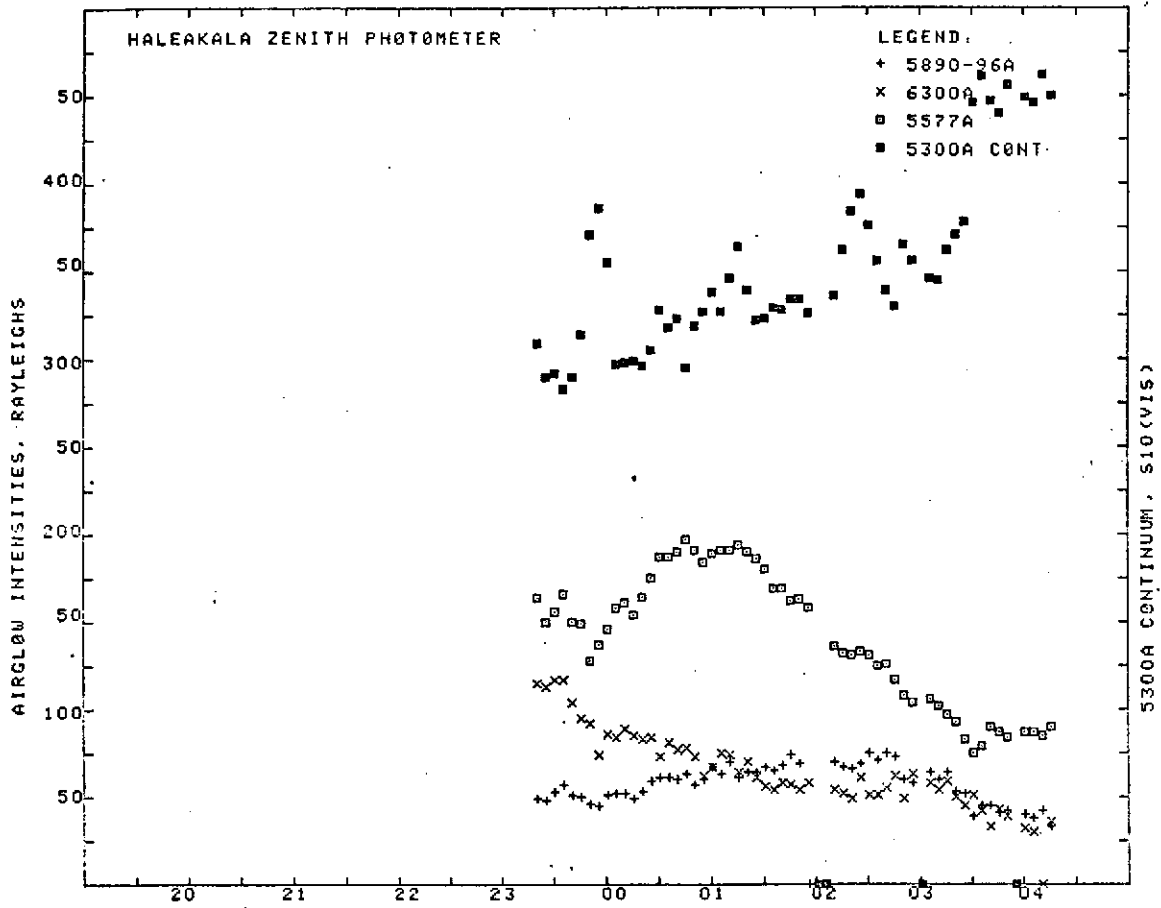
DATE
YR MO DA
62 10 19



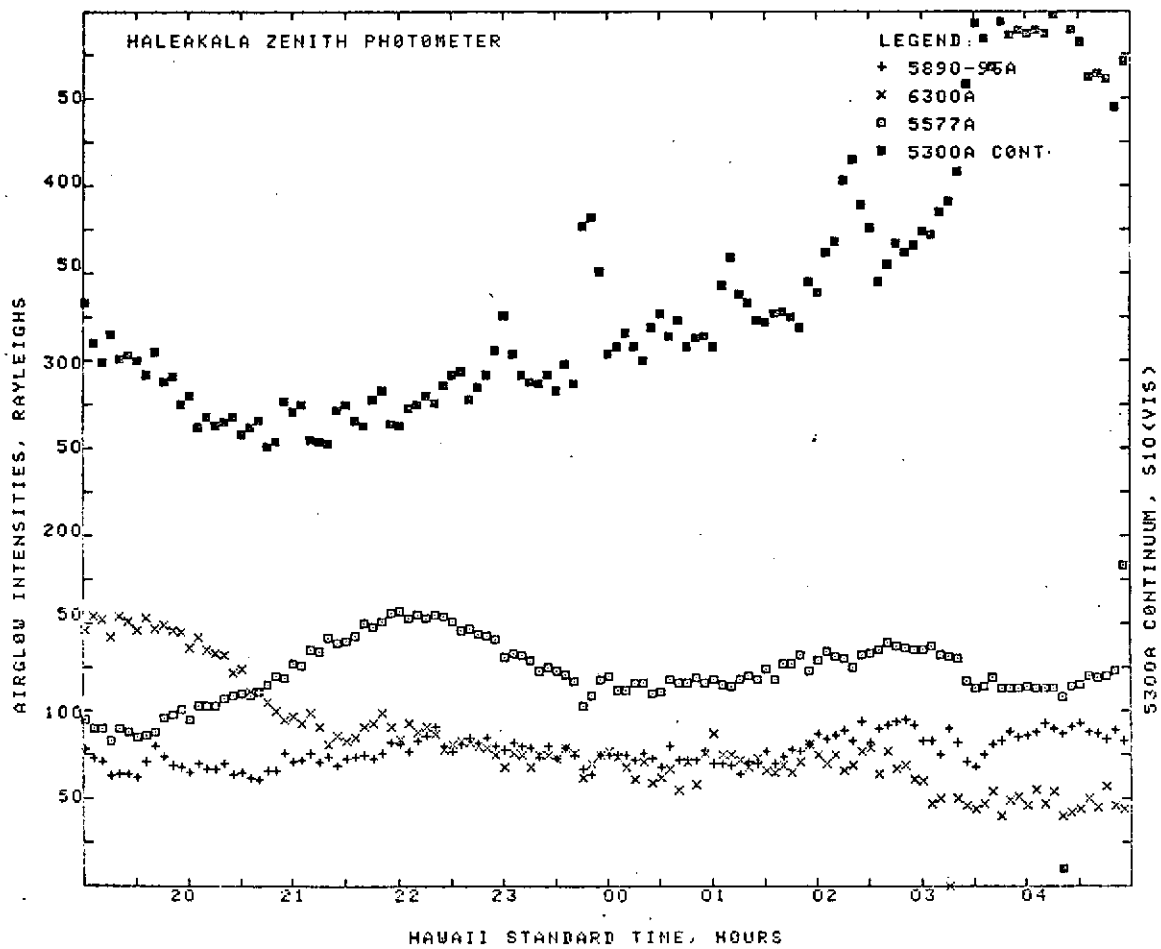


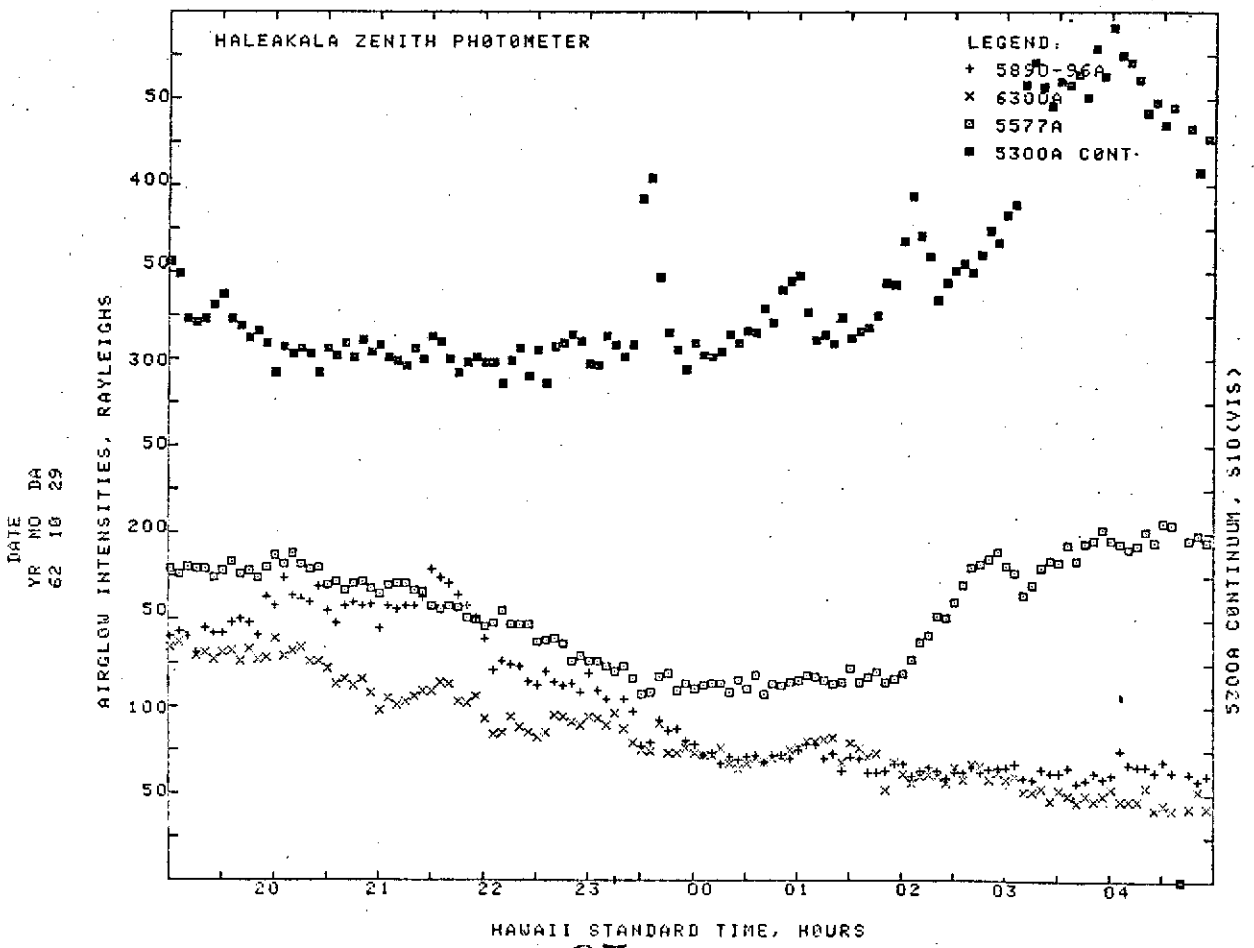
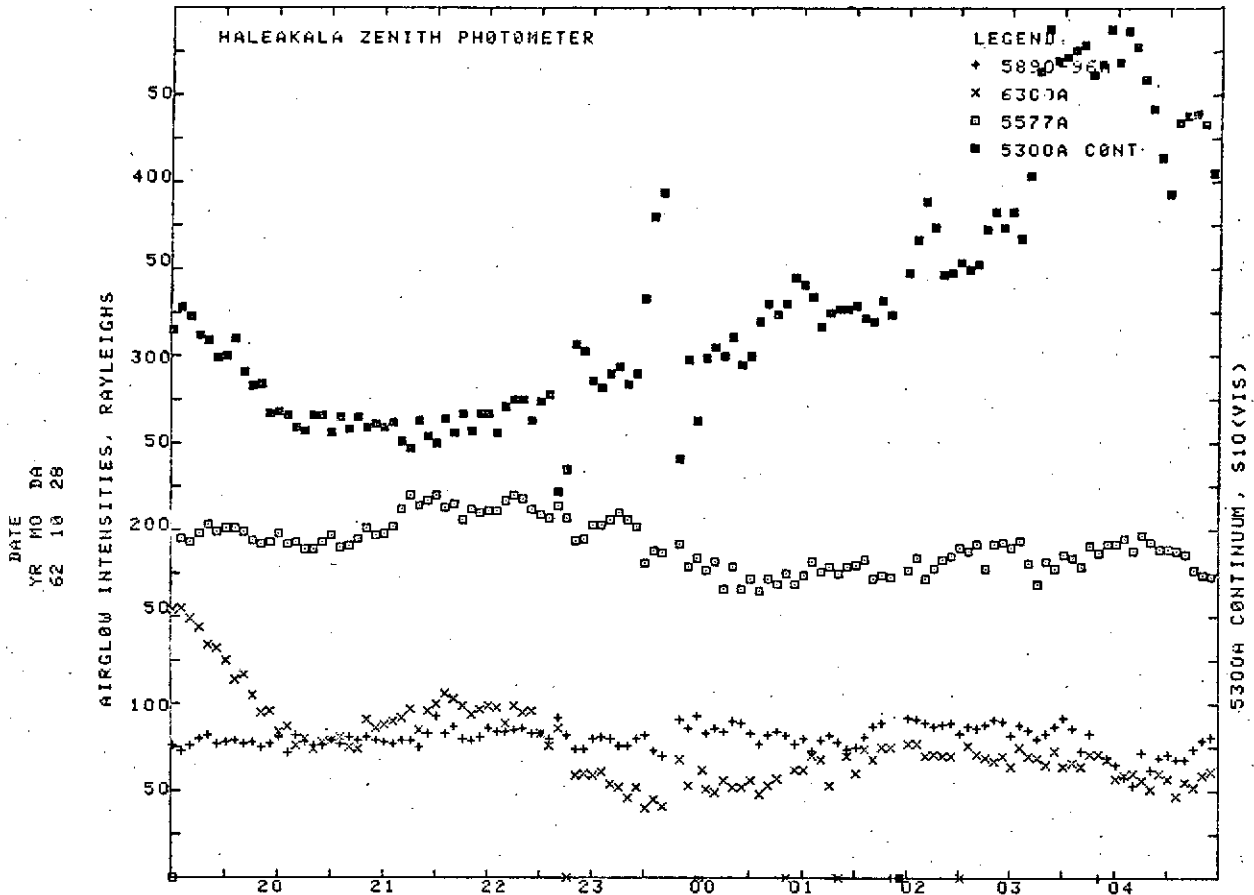


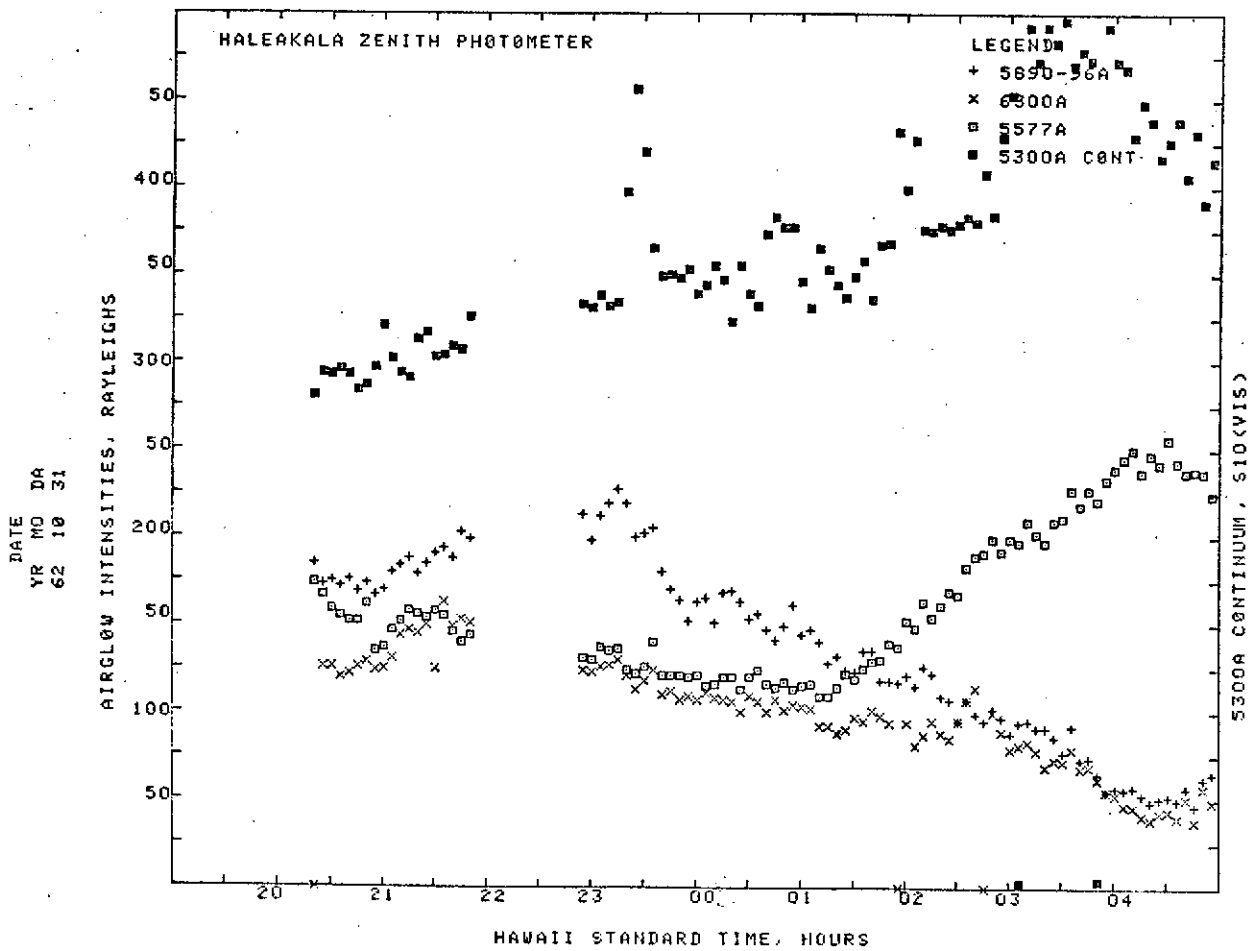
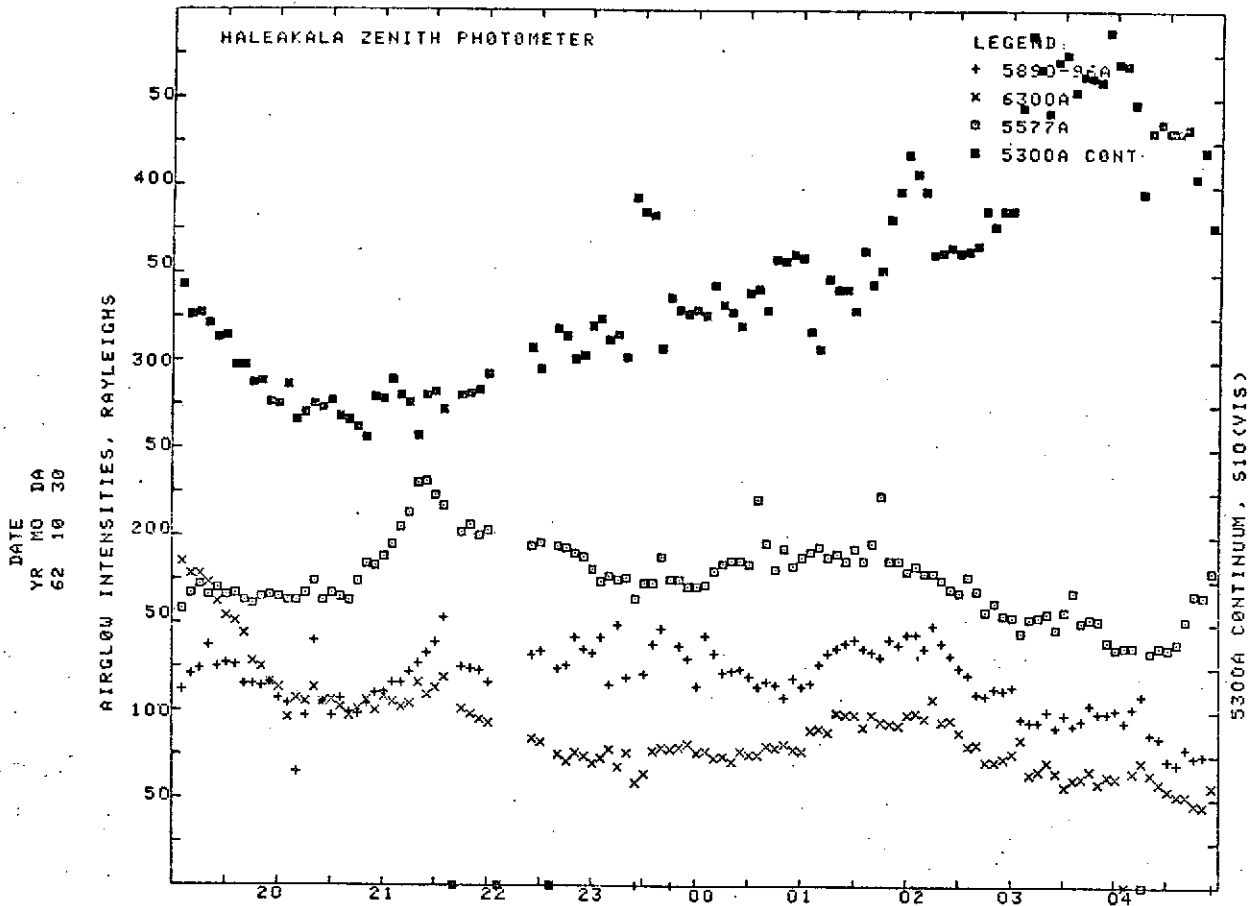
DATE
YR MO DA
62 10 24



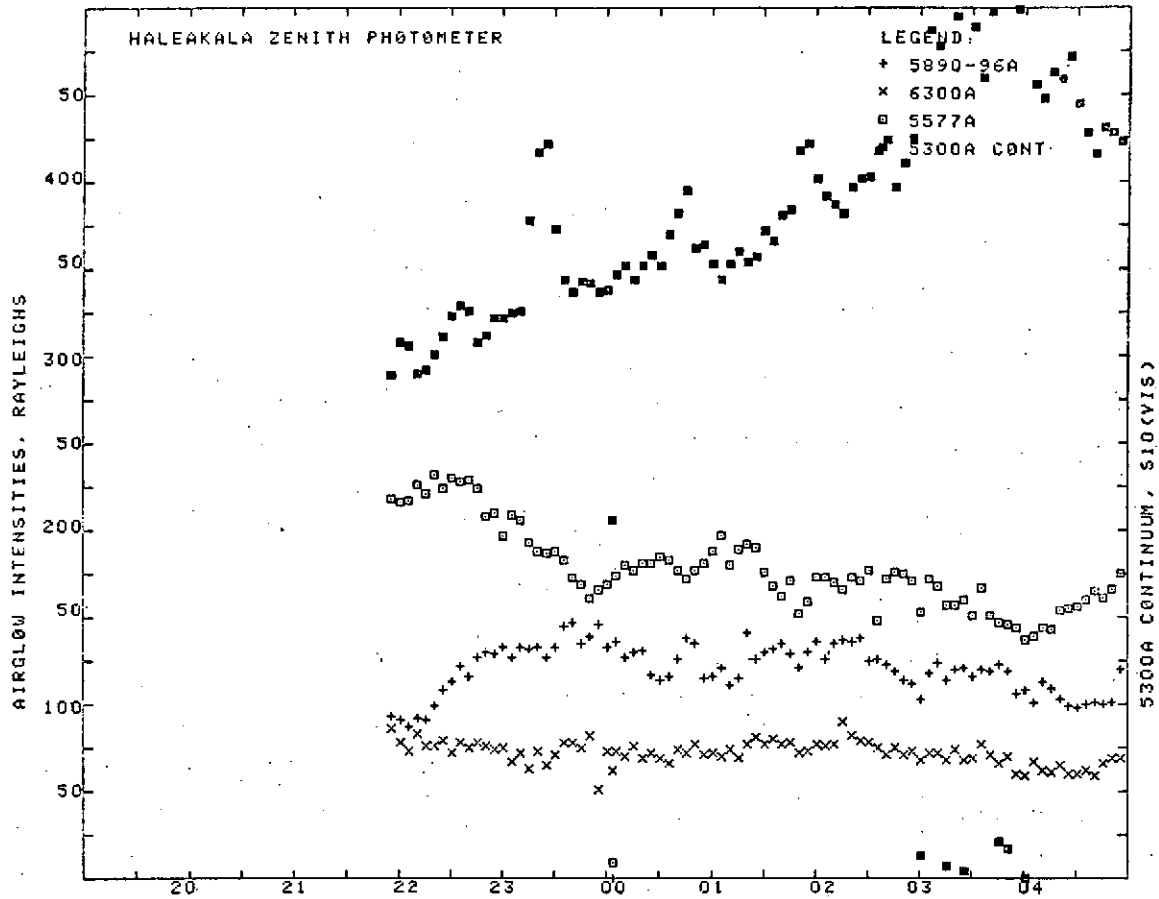
DATE
YR MO DA
62 10 25



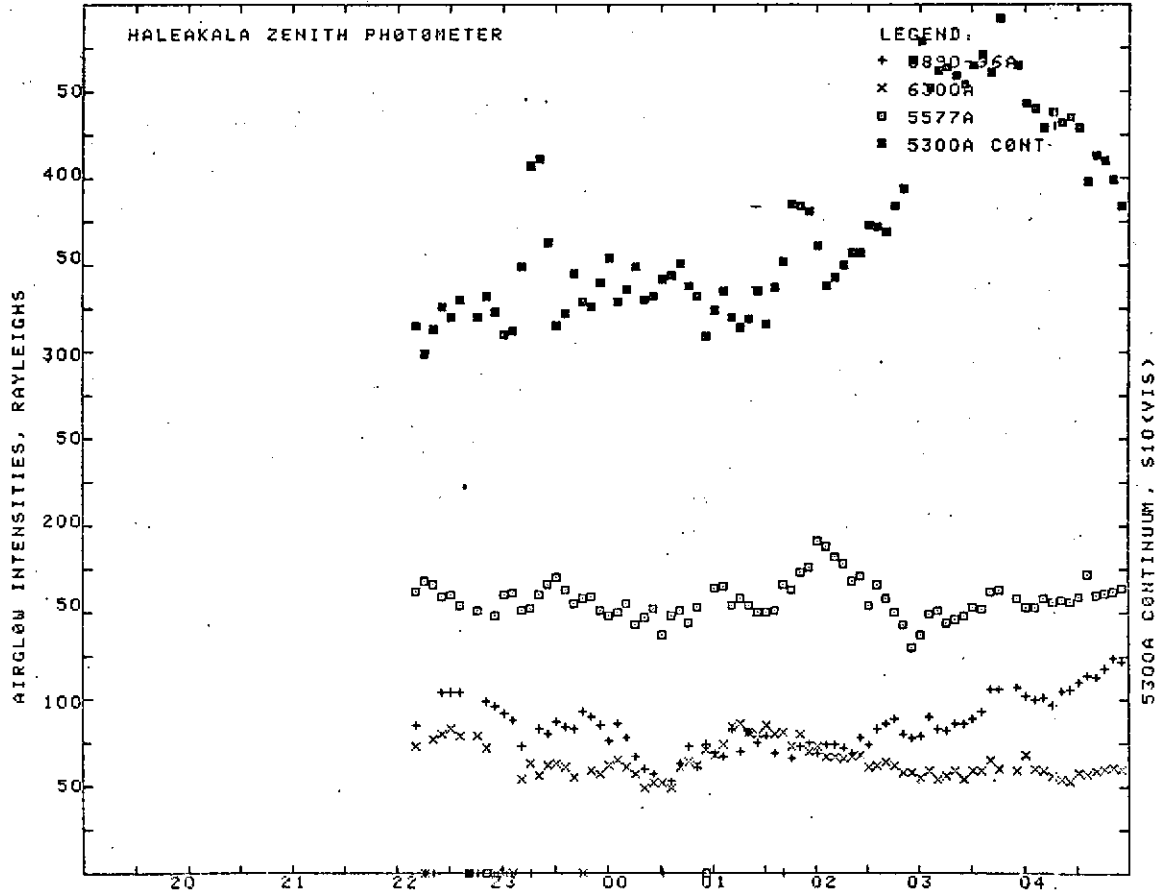




DATE
YR MO DA
62 11 01



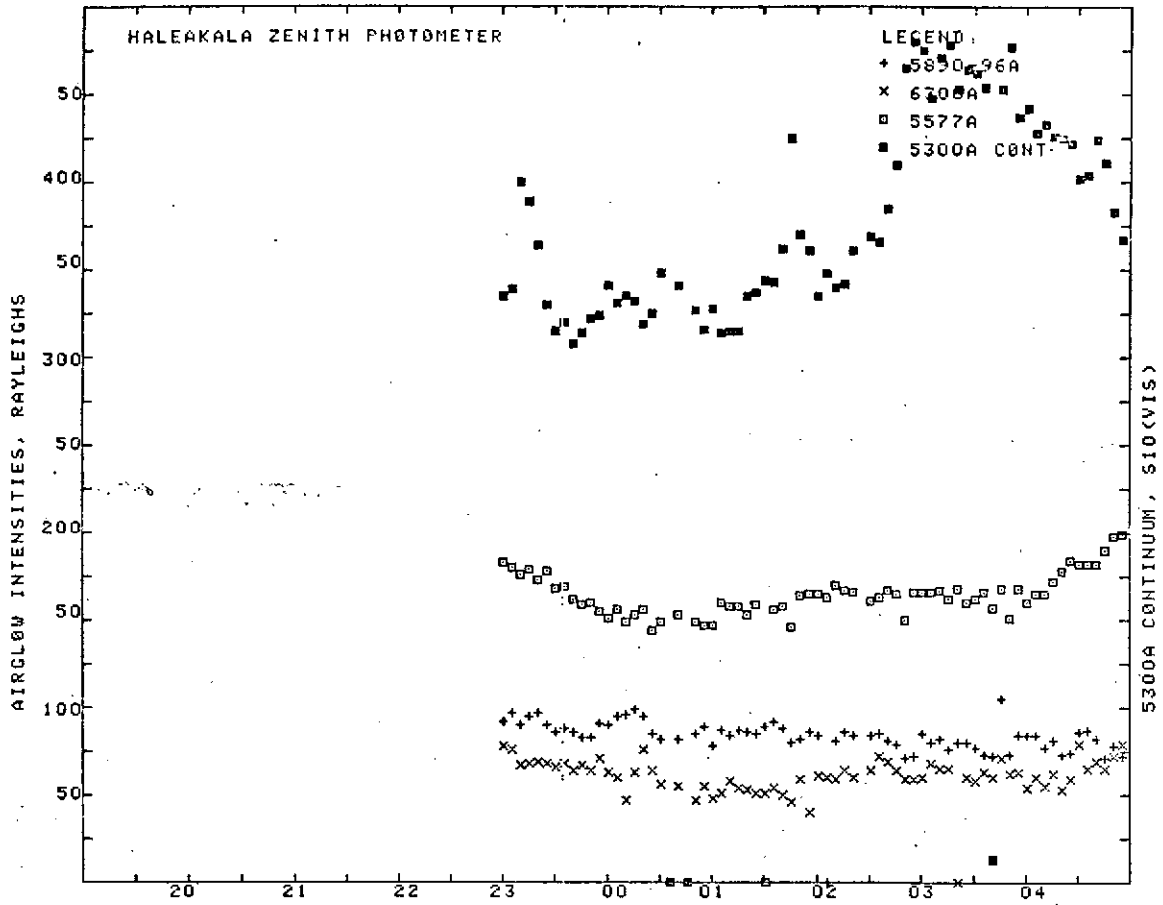
DATE
YR MO DA
62 11 02



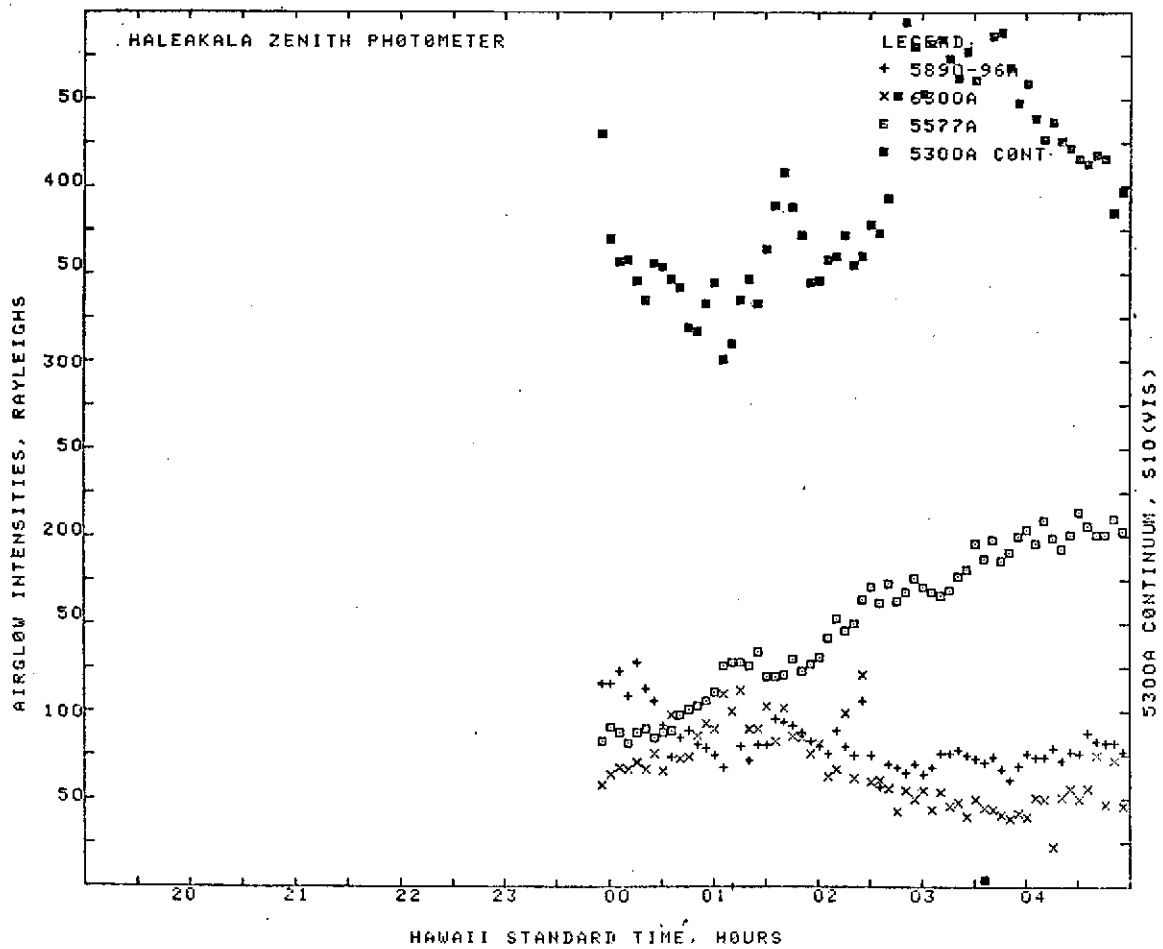
HAWAII STANDARD TIME, HOURS

C-2

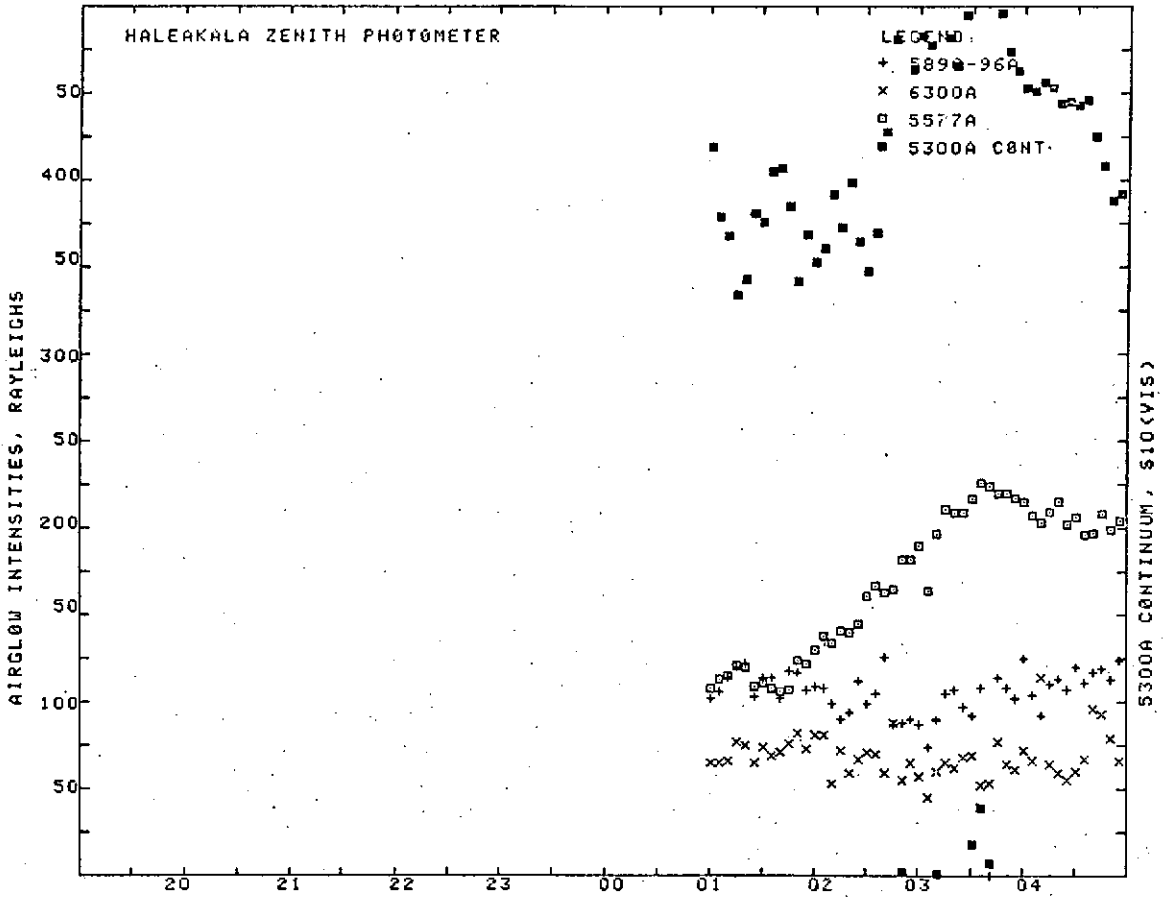
DATE
YR MO DA
62 11 03



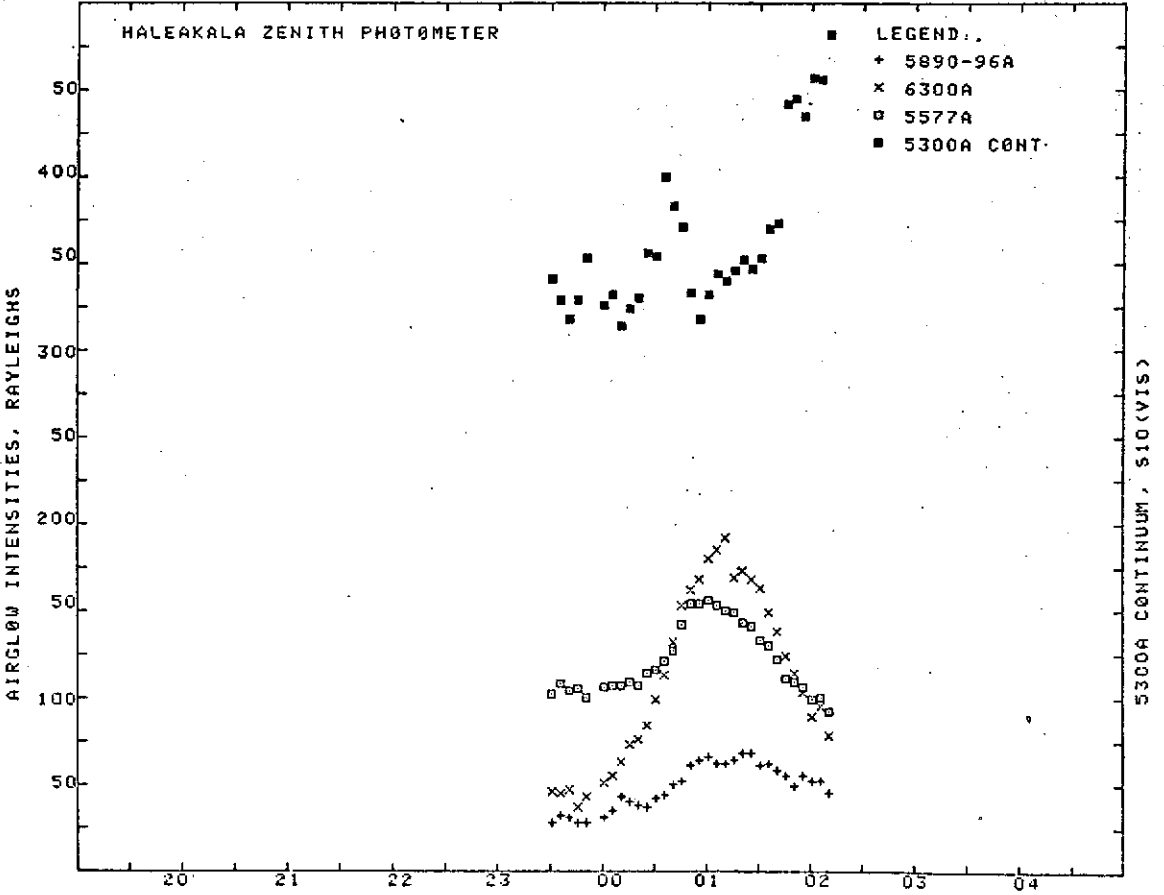
DATE
YR MO DA
62 11 04



DATE
YR MO DA
62 11 05

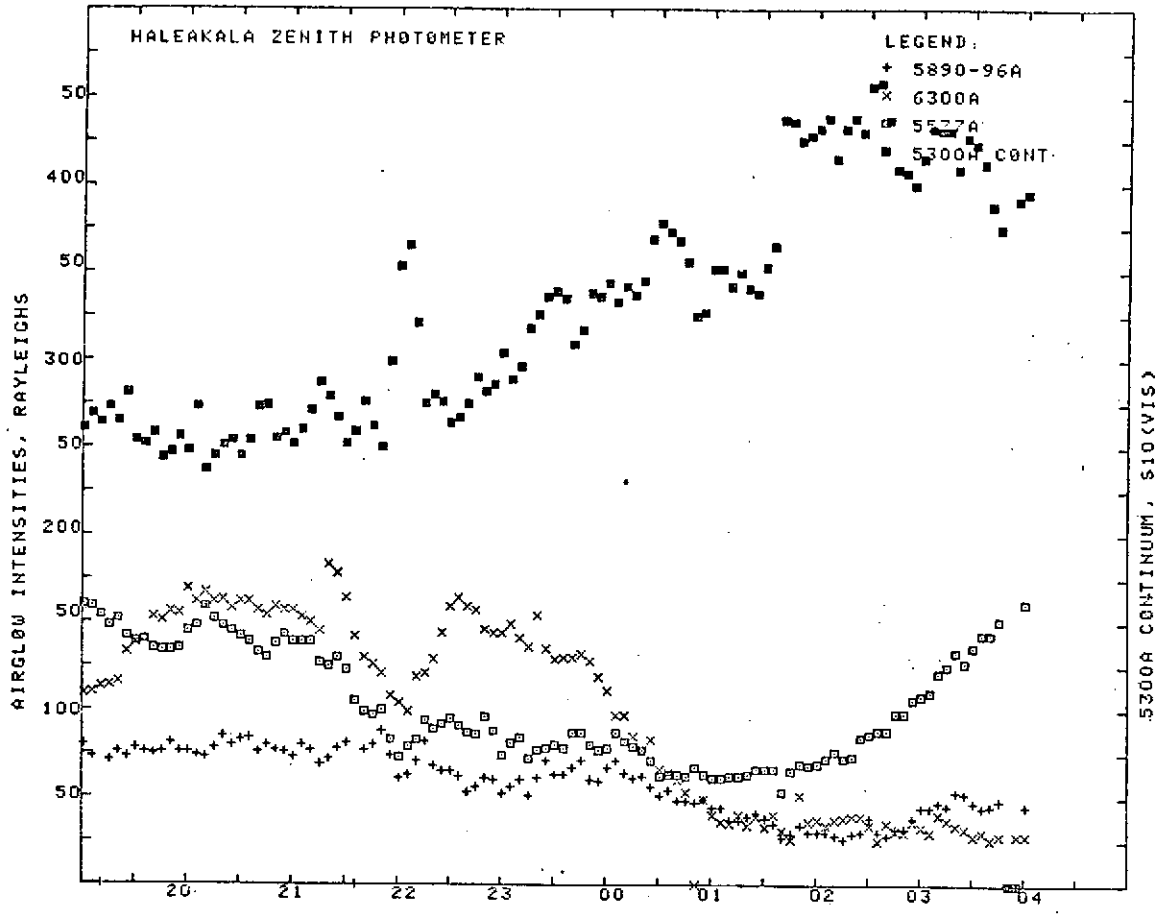


DATE
YR MO DA
62 11 20

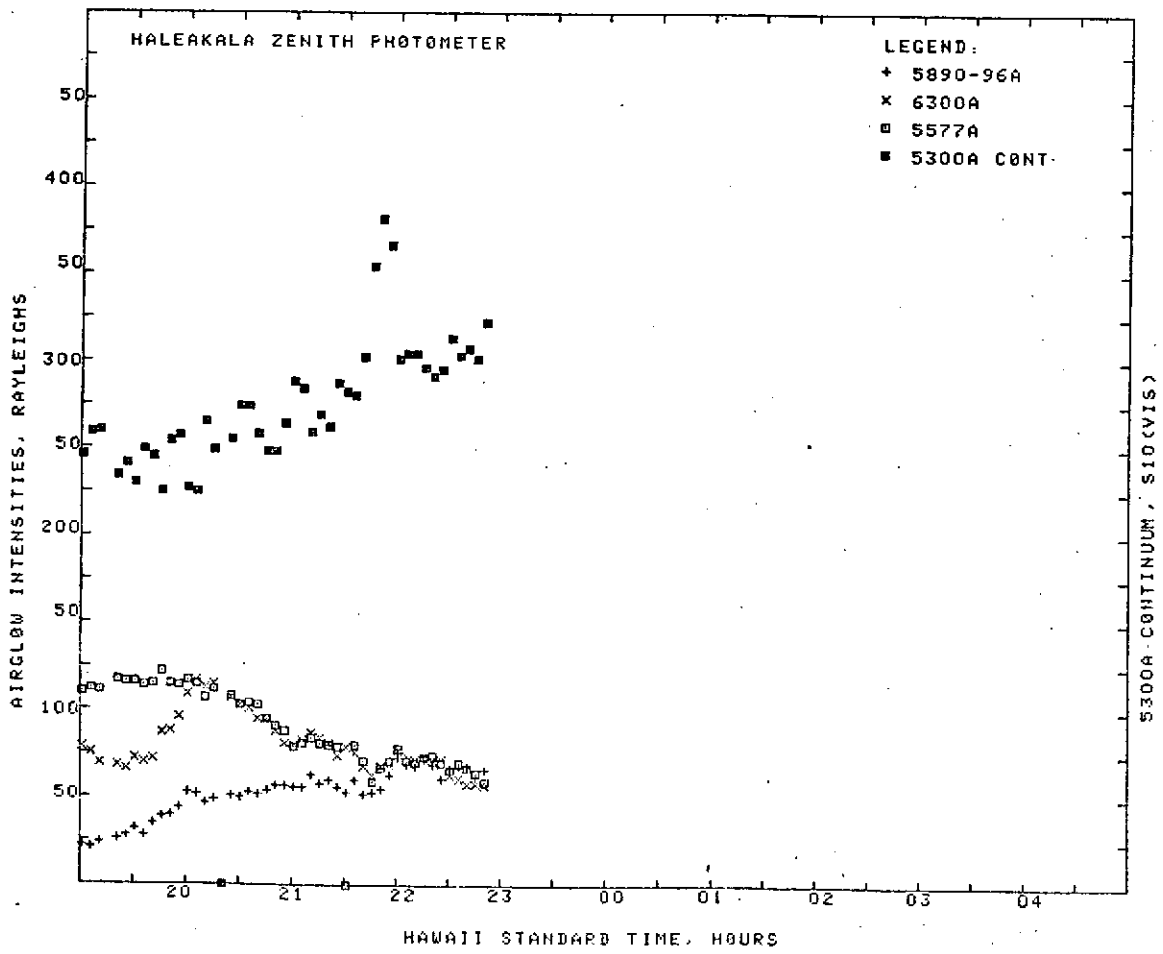


HAWAII STANDARD TIME, HOURS

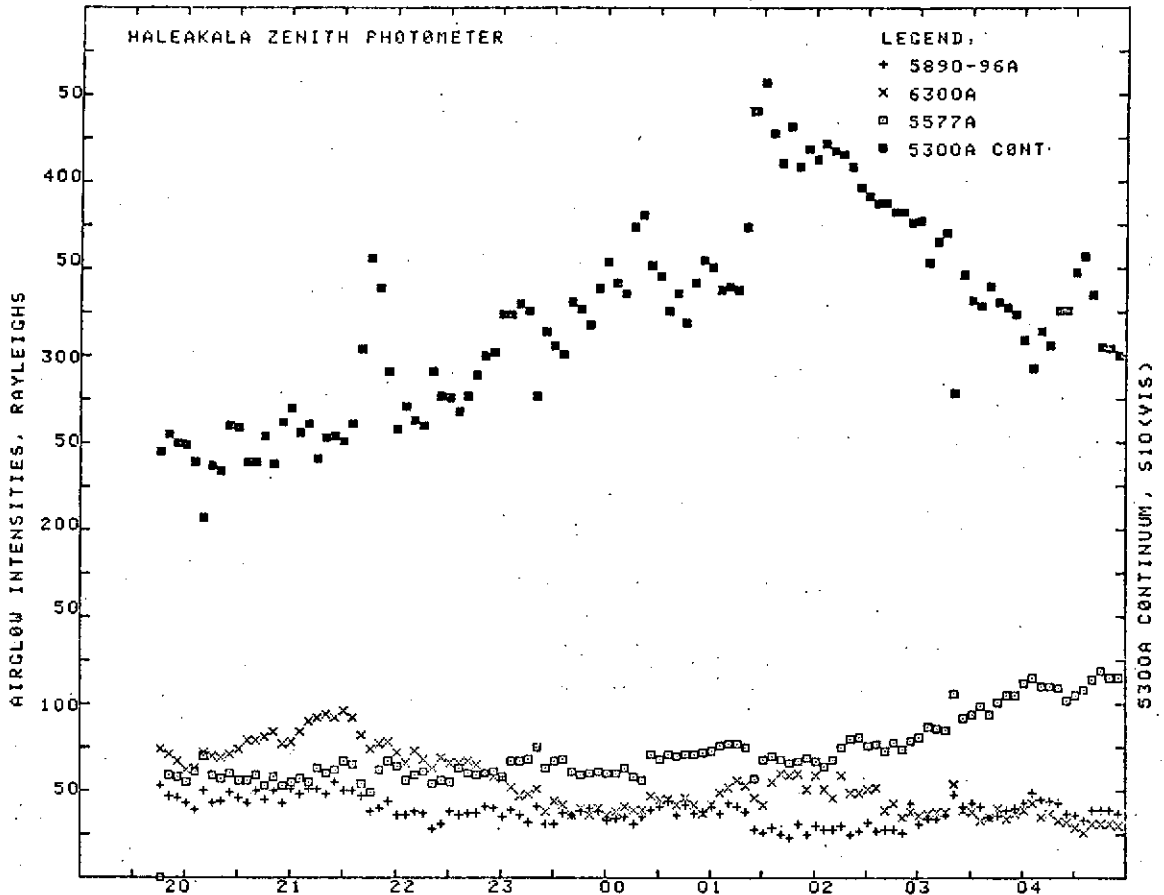
DATE
YR MO DA
62 11 21



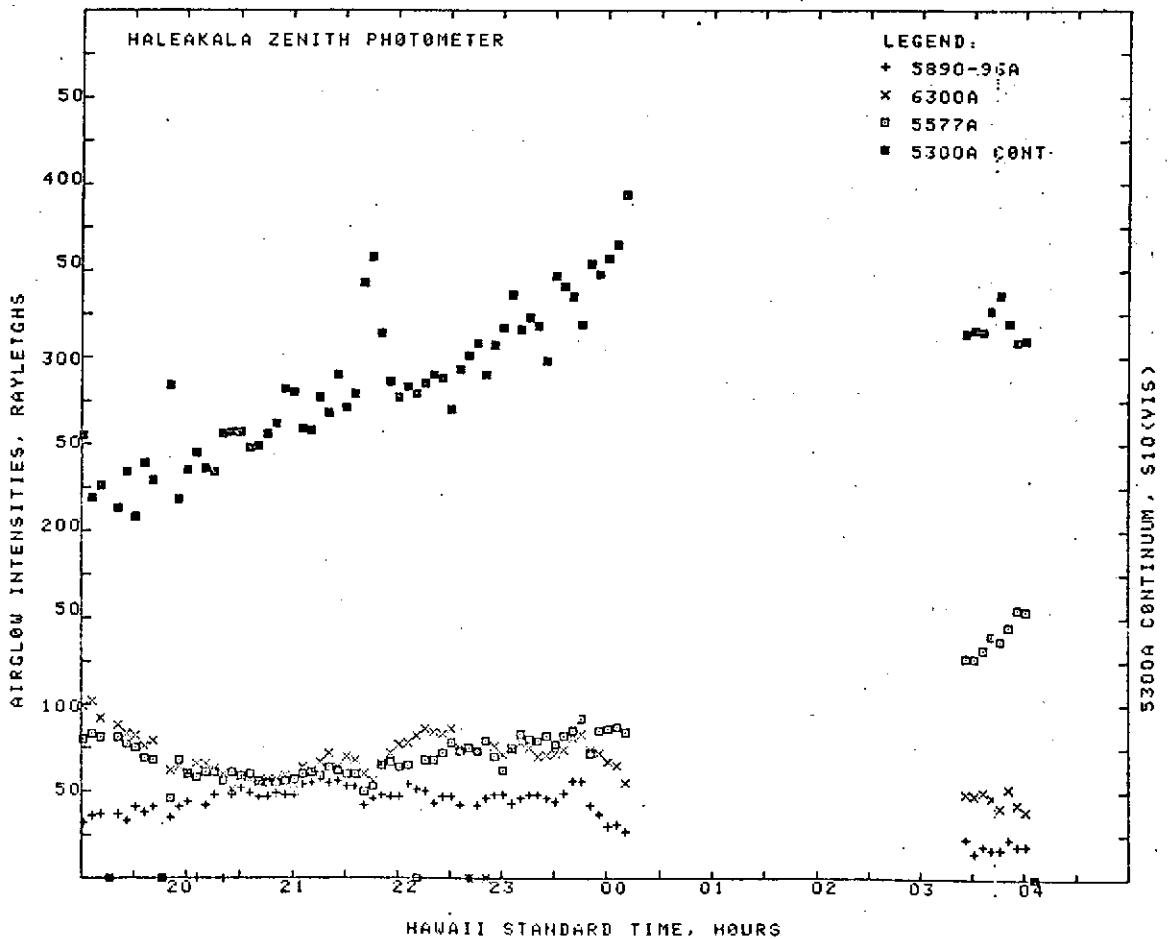
DATE
YR MO DA
62 11 24



DATE
YR MO DA
62 11 25

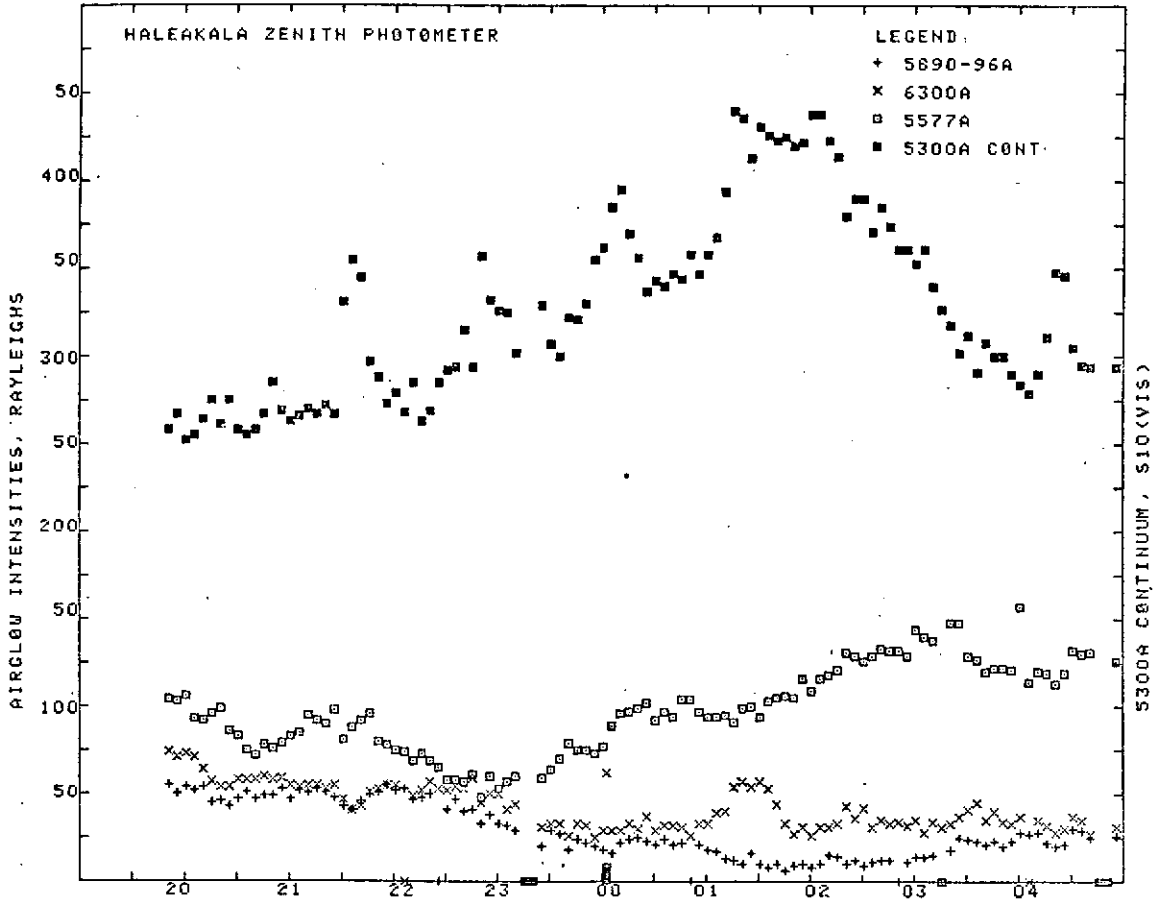


DATE
YR MO DA
62 11 26

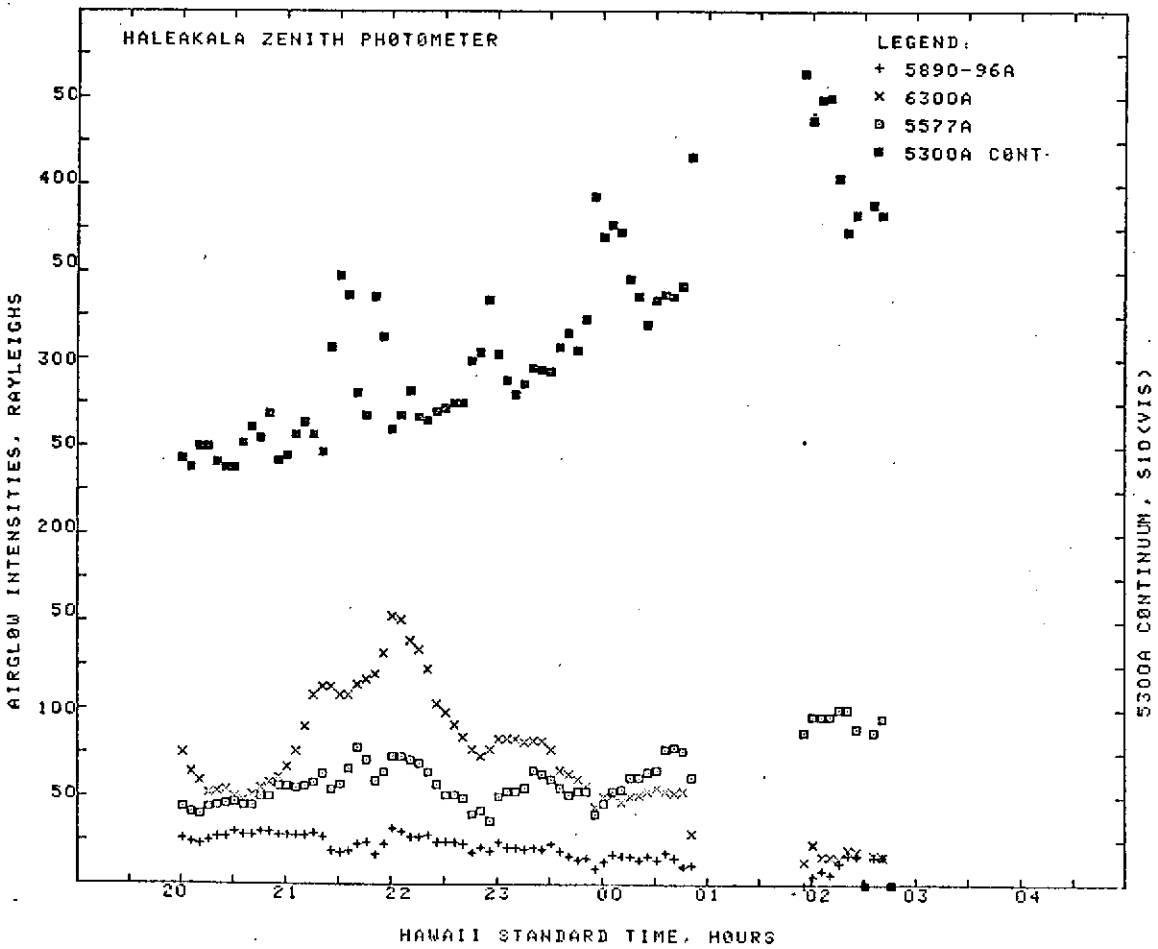


HAWAII STANDARD TIME, HOURS

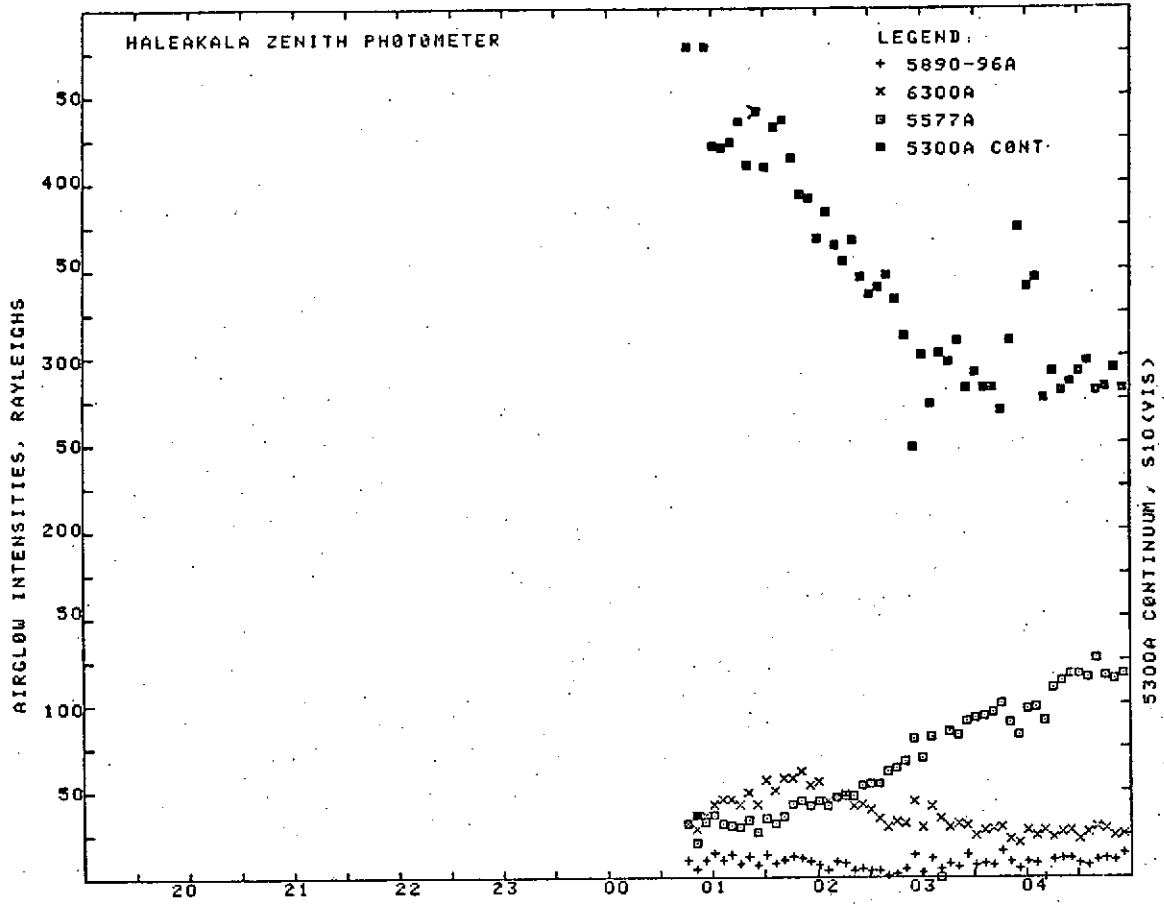
DATE
YR MO DA
62 11 28



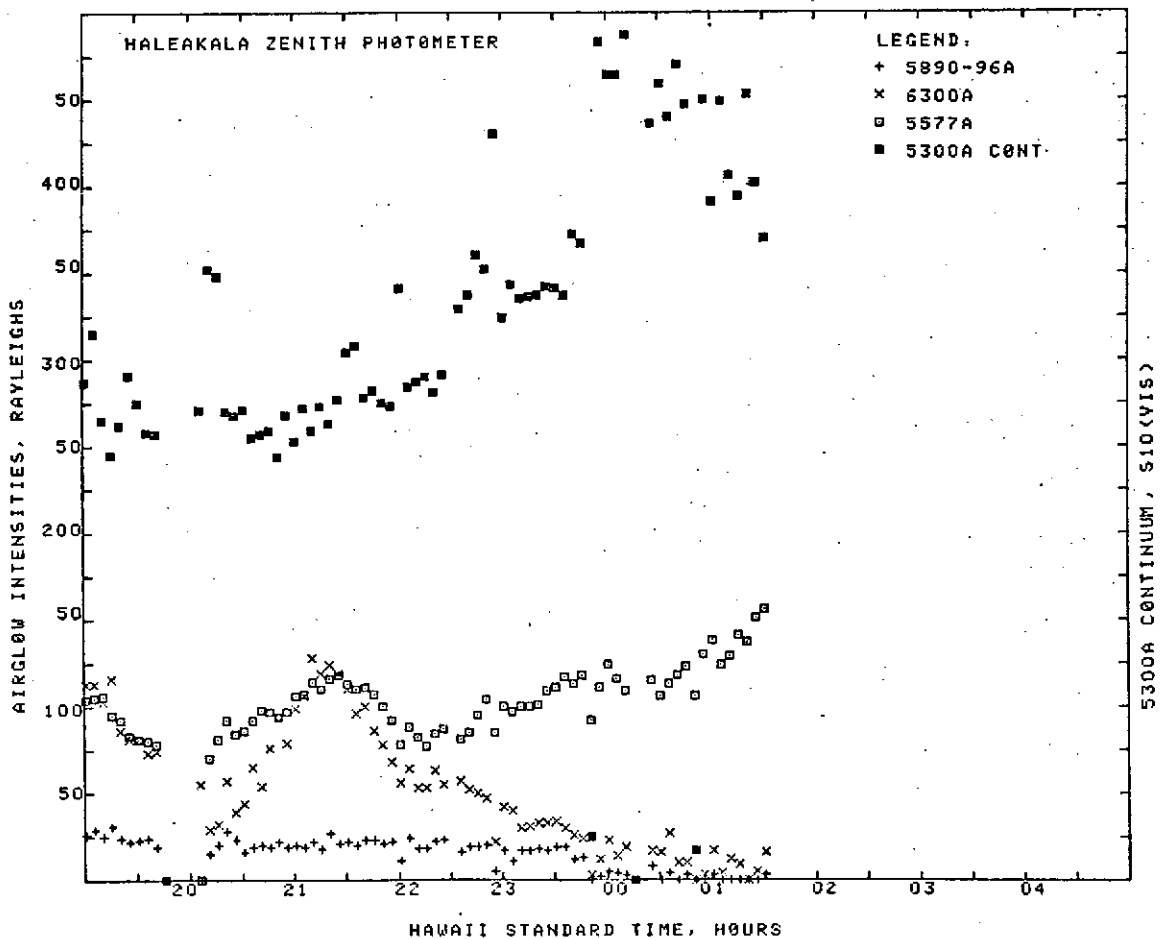
DATE
YR MO DA
62 11 29



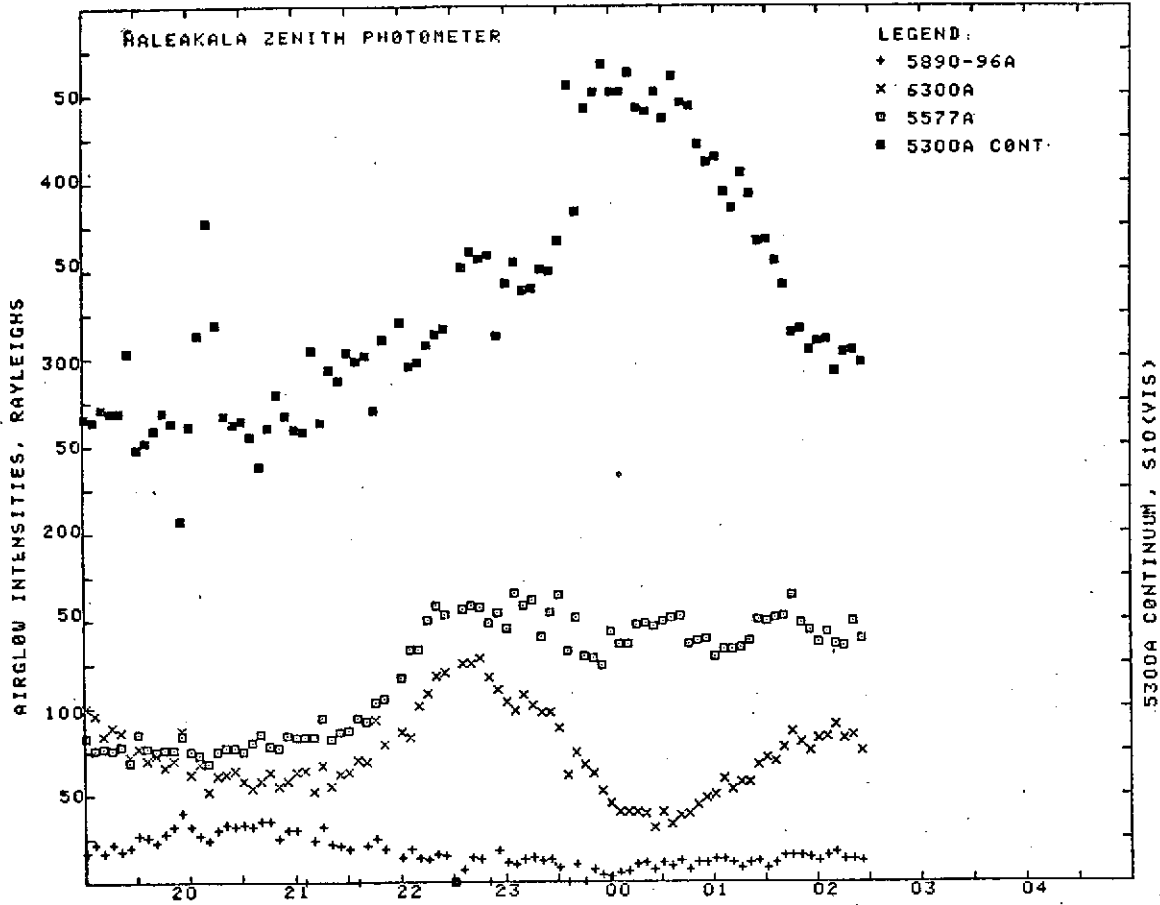
DATE
YR MO DA
62 12 04



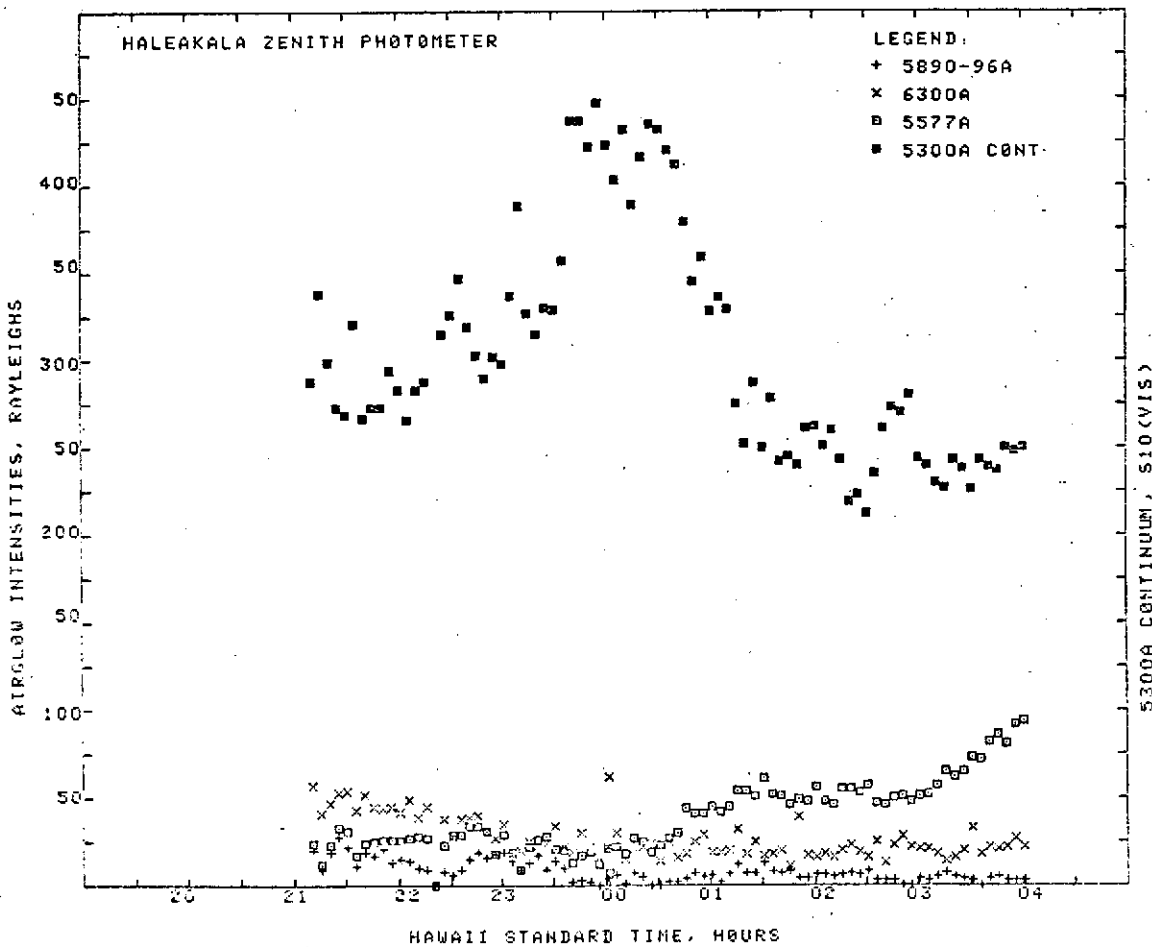
DATE
YR MO DA
62 12 19



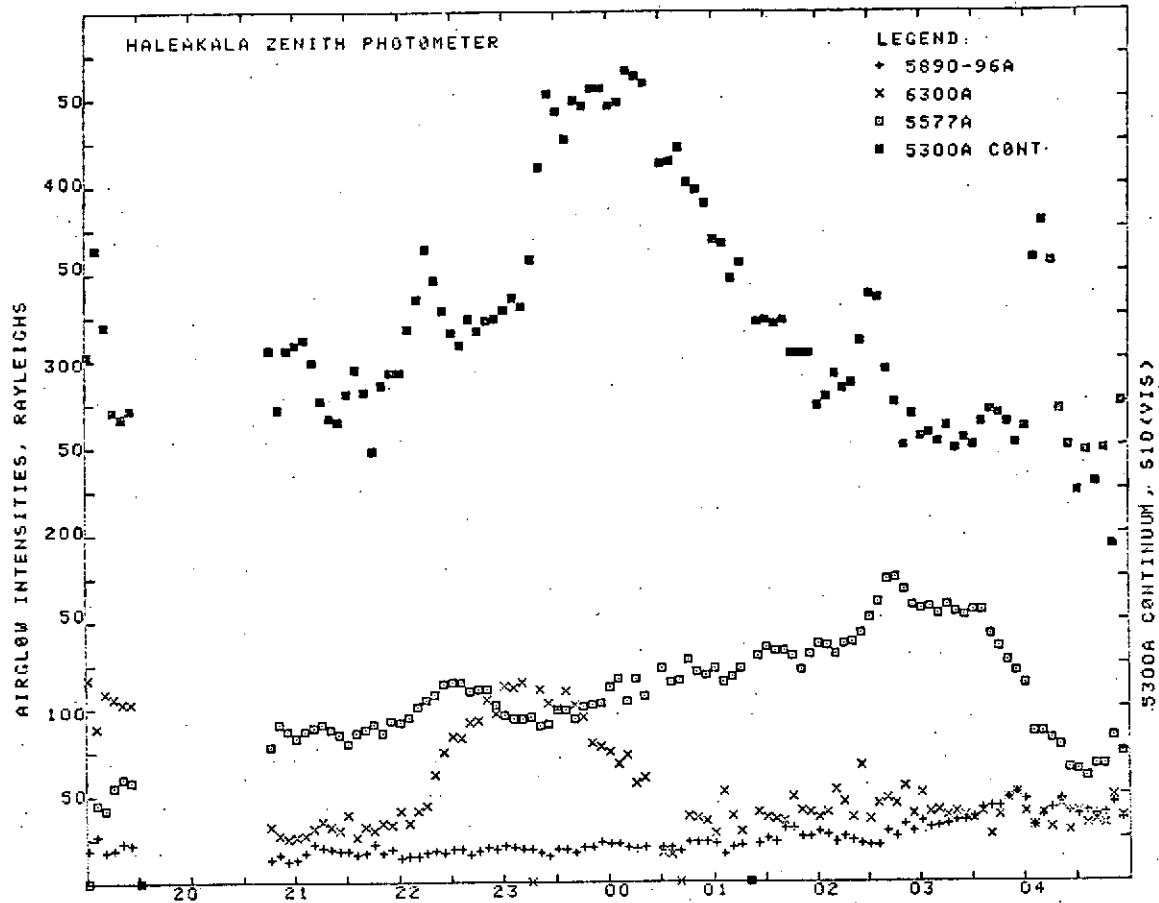
DATE
YR MO DA
62 12 20



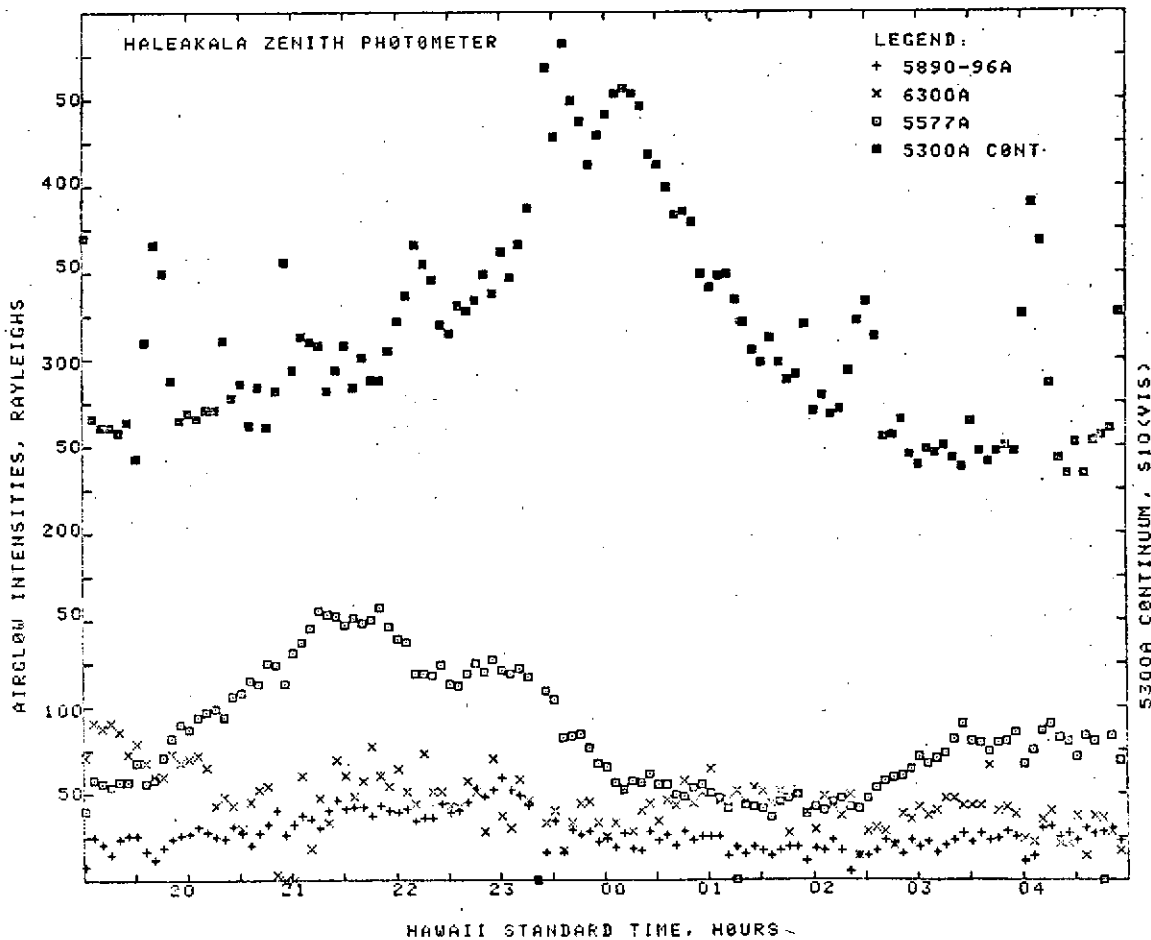
DATE
YR MO DA
62 12 22



DATE
YR MO DA
62 12 26

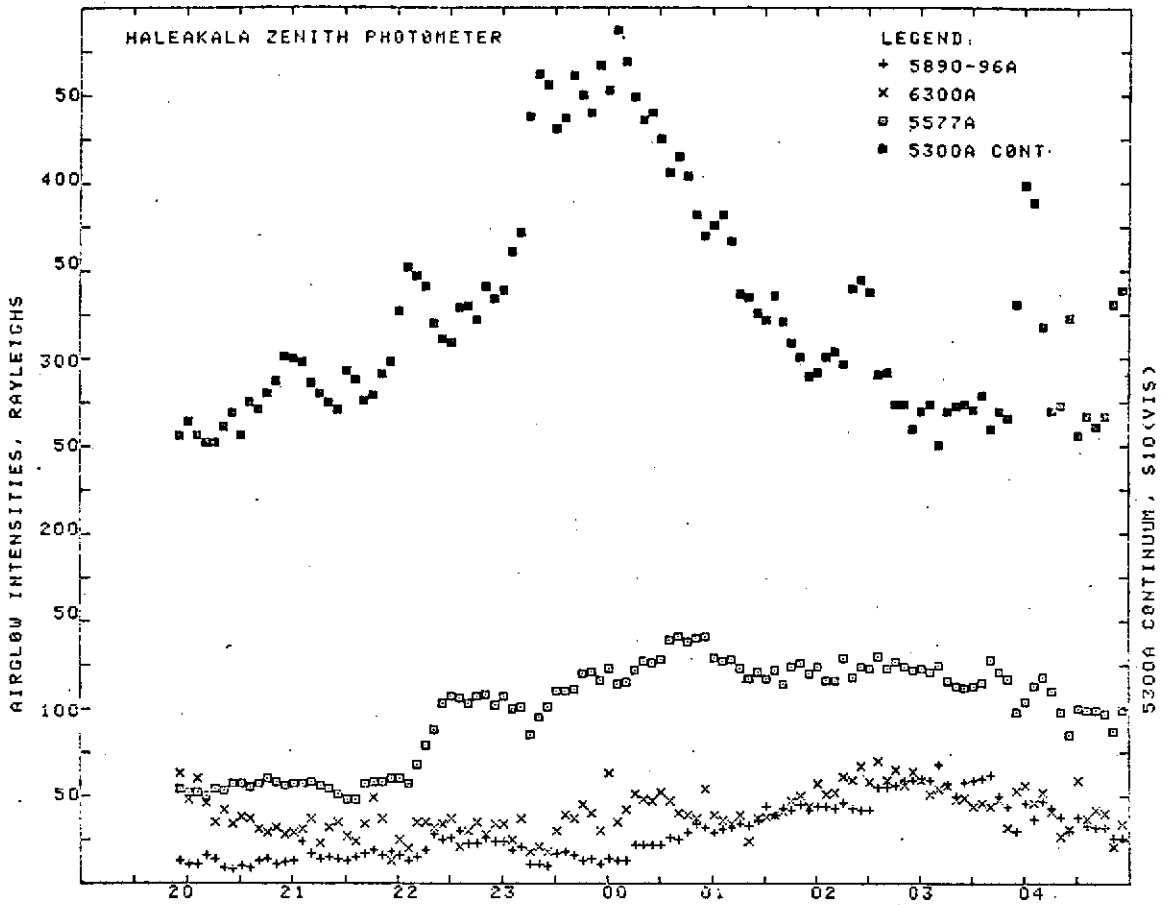


DATE
YR MO DA
62 12 27

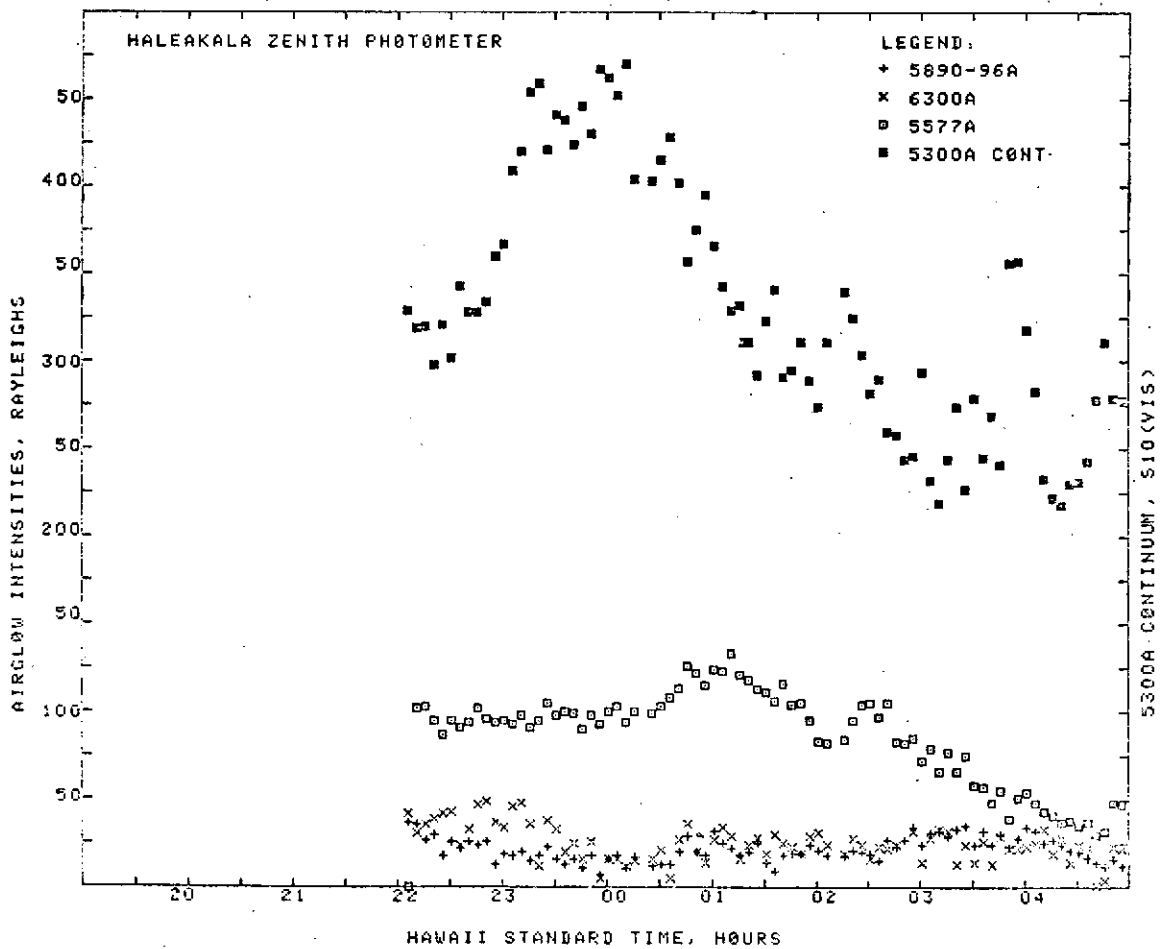


HAWAII STANDARD TIME, HOURS

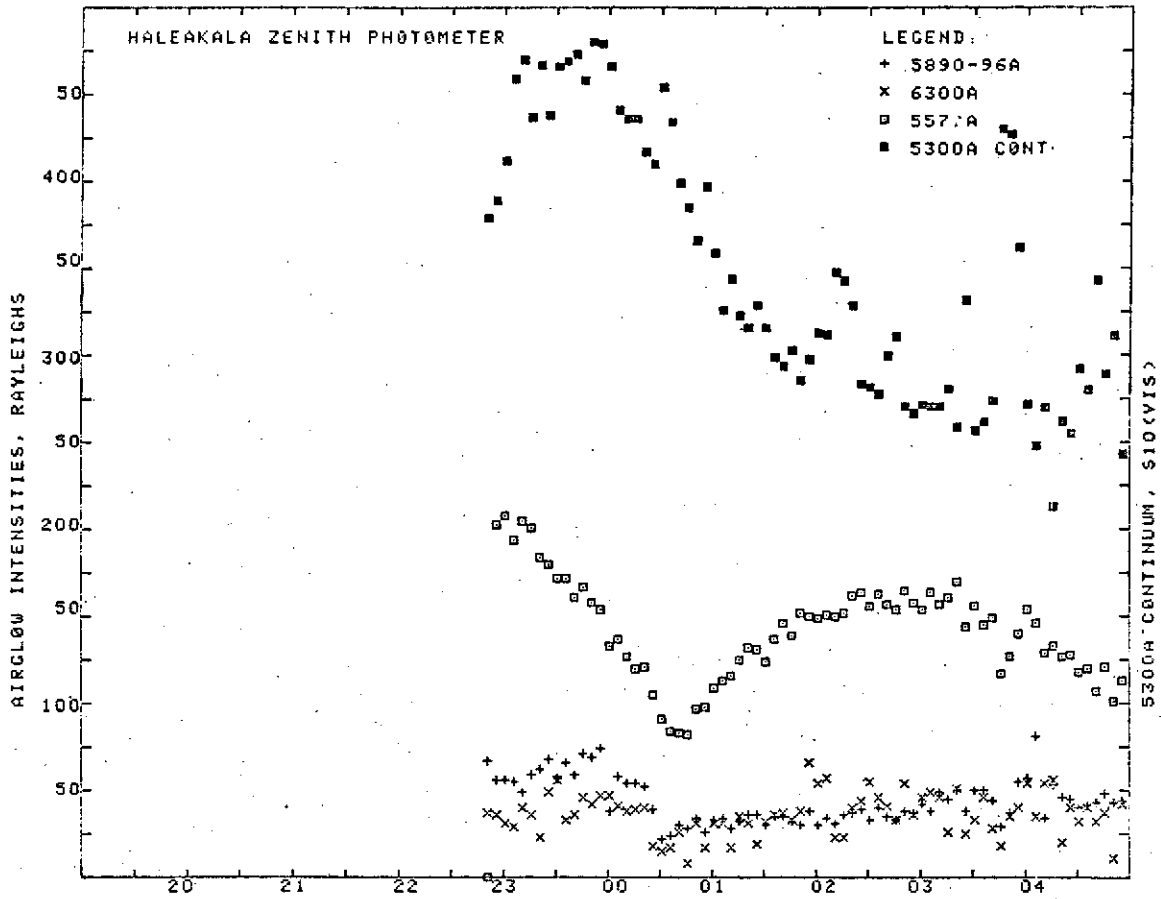
DATE
YR MO DA
62 12 28



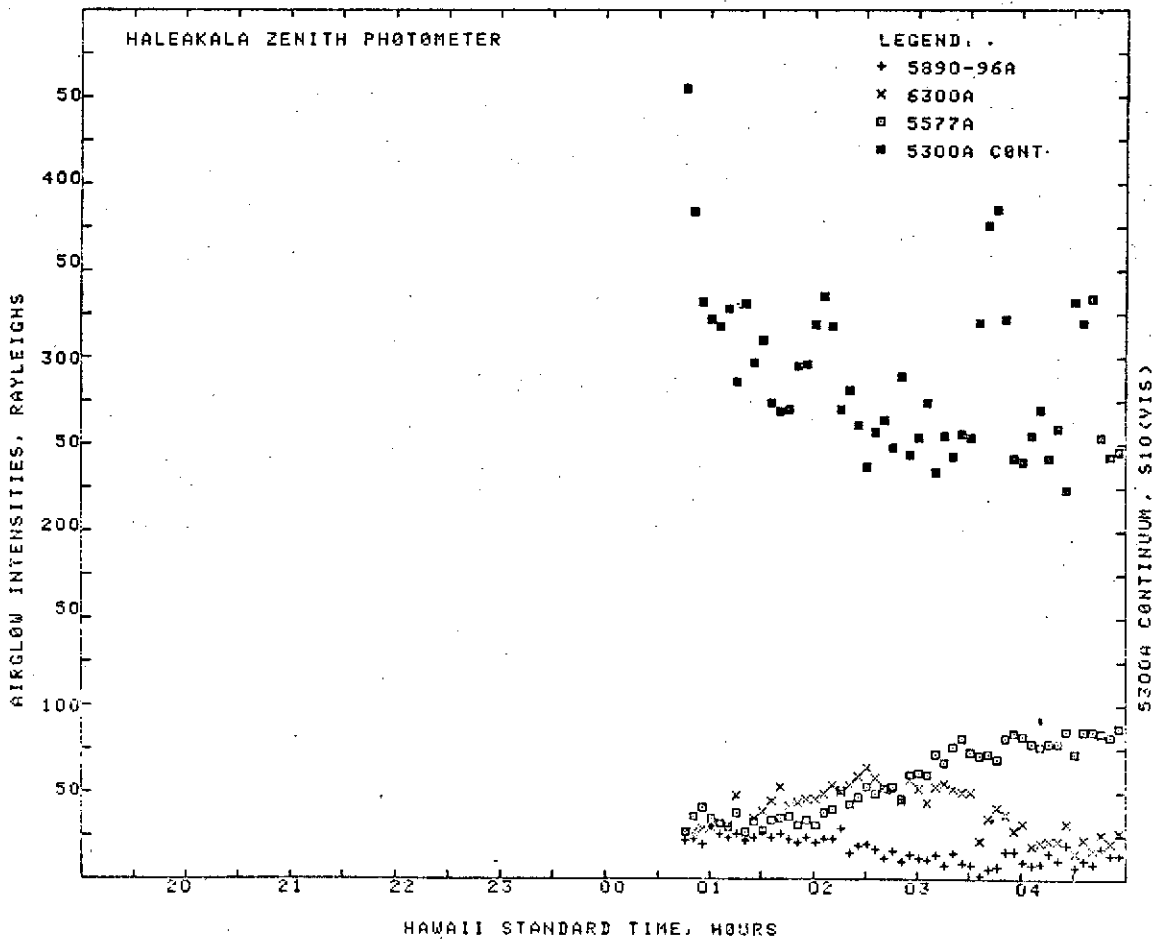
DATE
YR MO DA
62 12 30



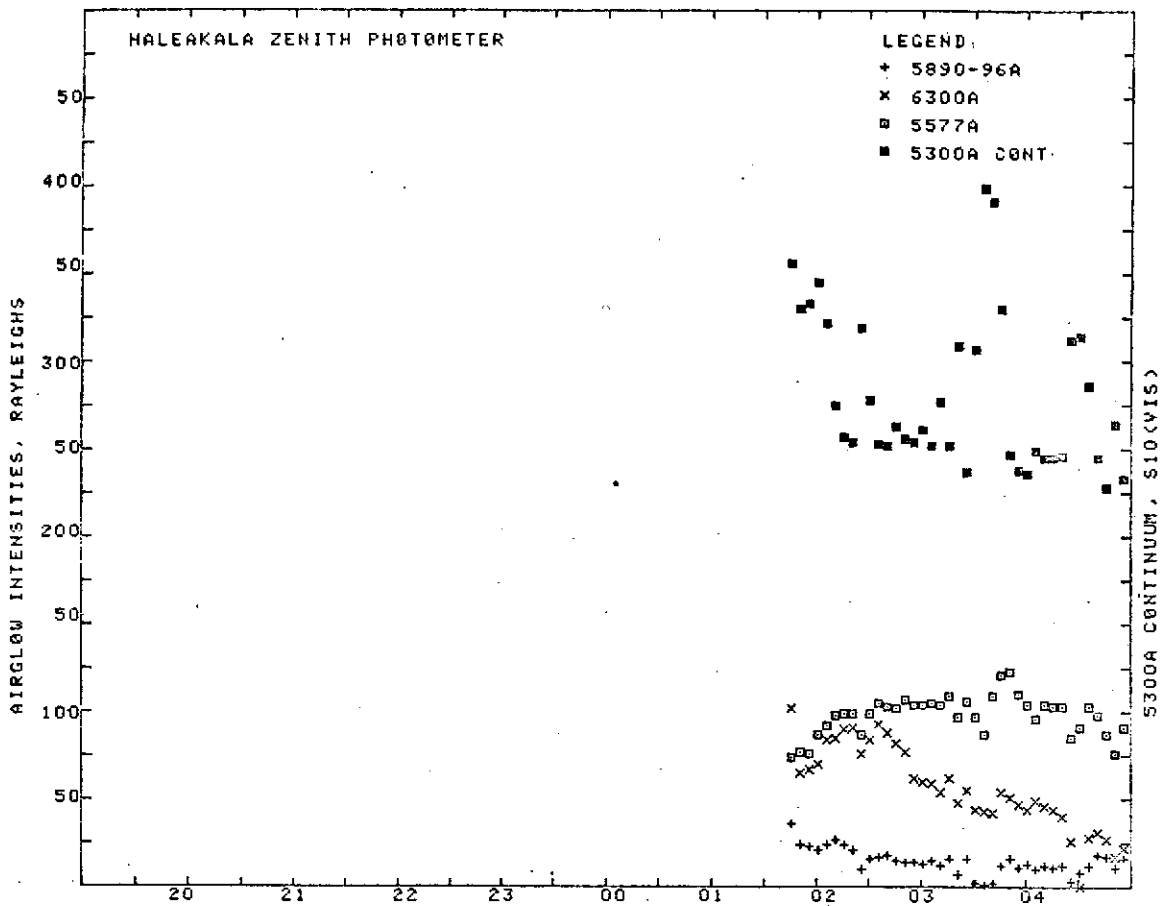
DATE
YR MO DA
62 12 31



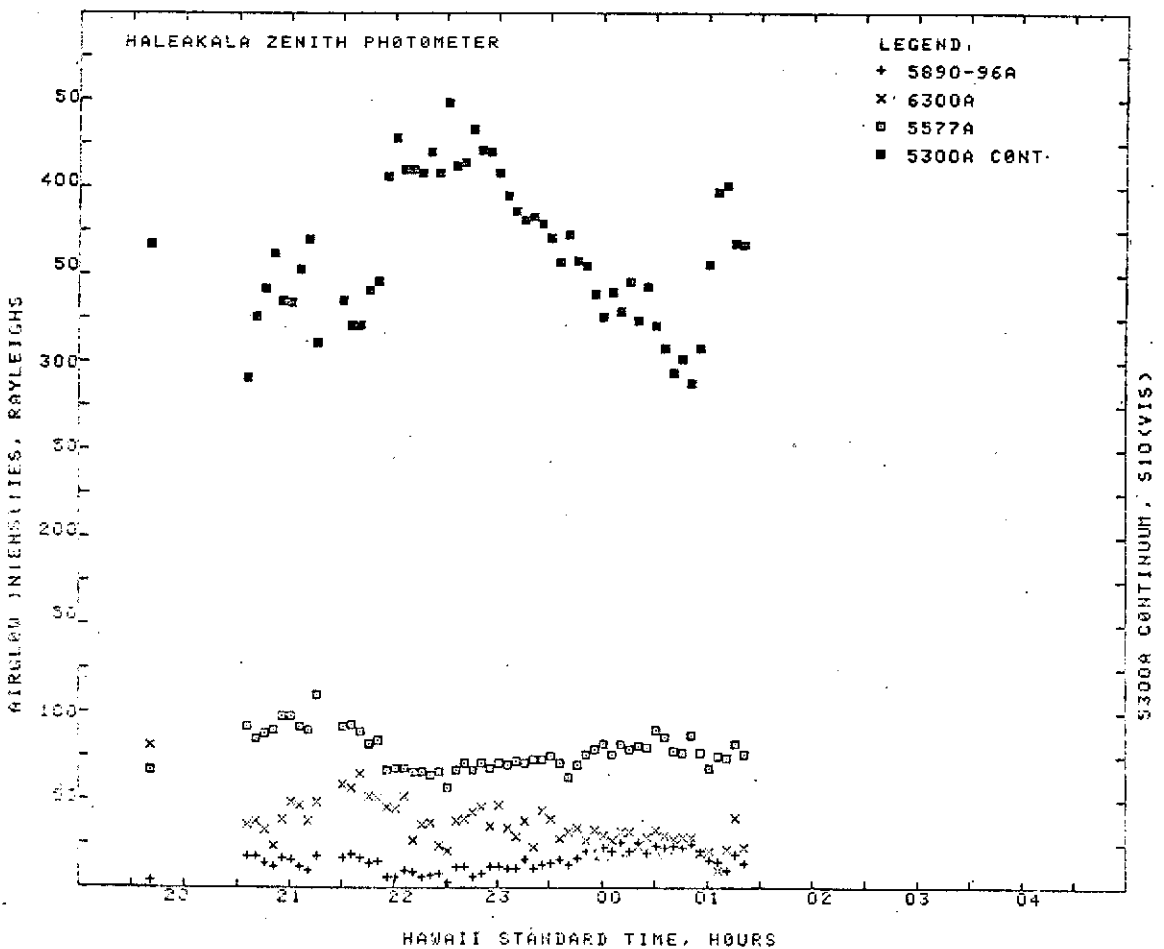
DATE
YR MO DA
63 01 02



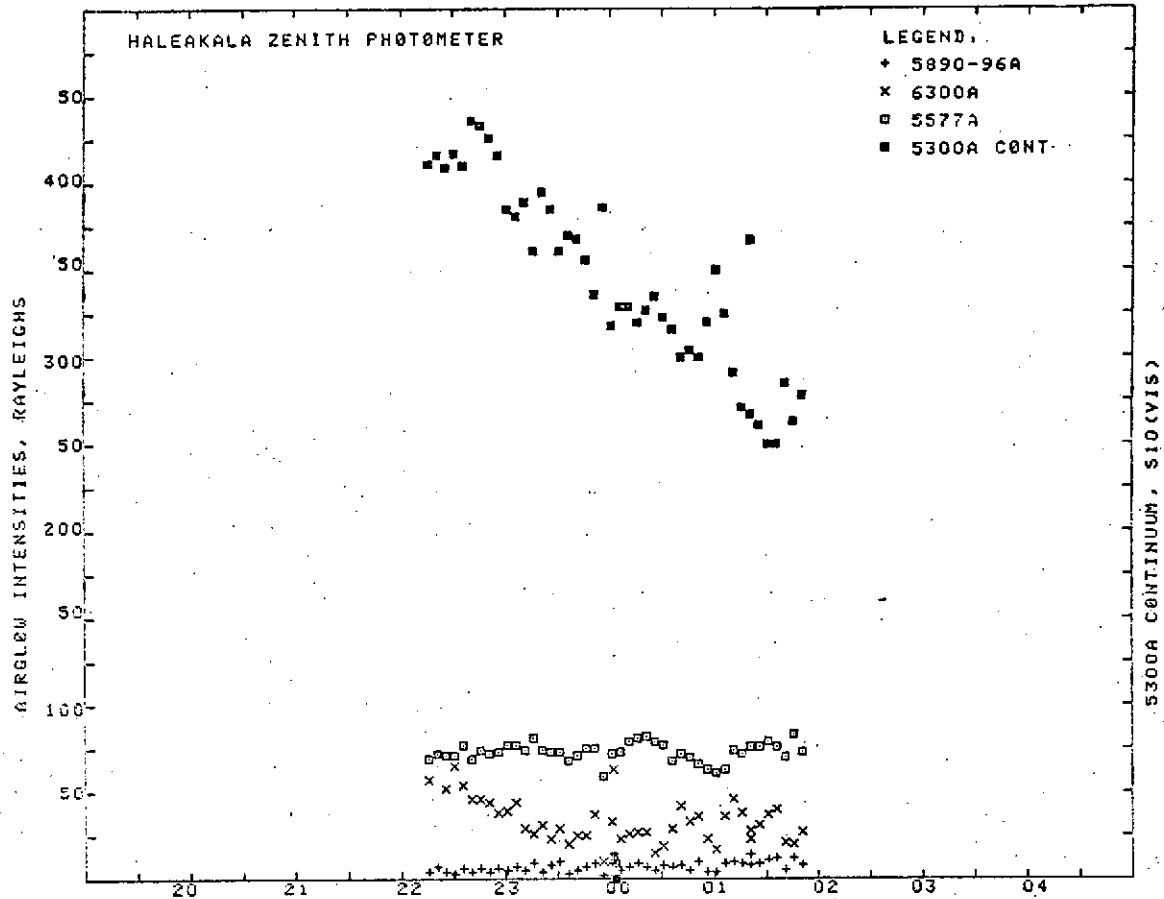
DATE
YR MO DA
63 01 03



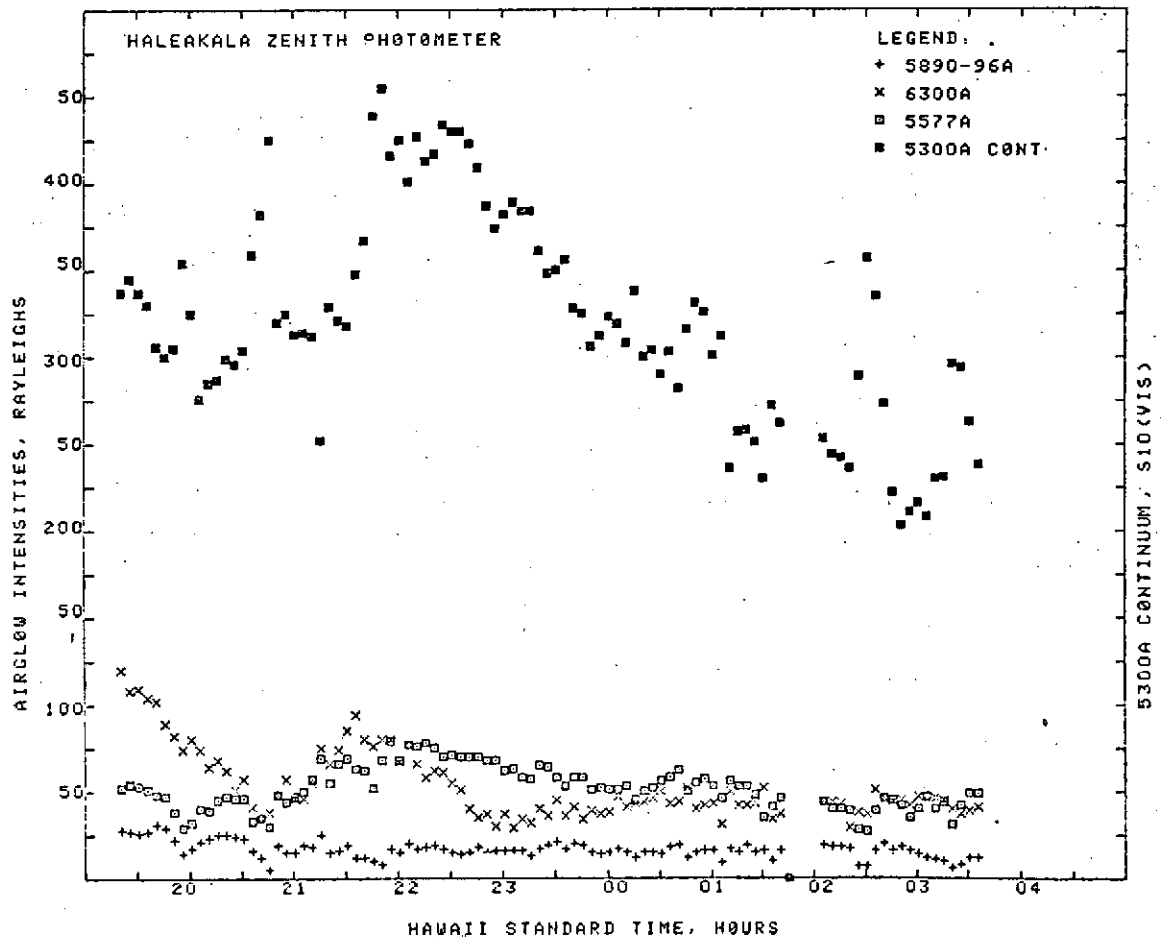
DATE
YR MO DA
63 01 17



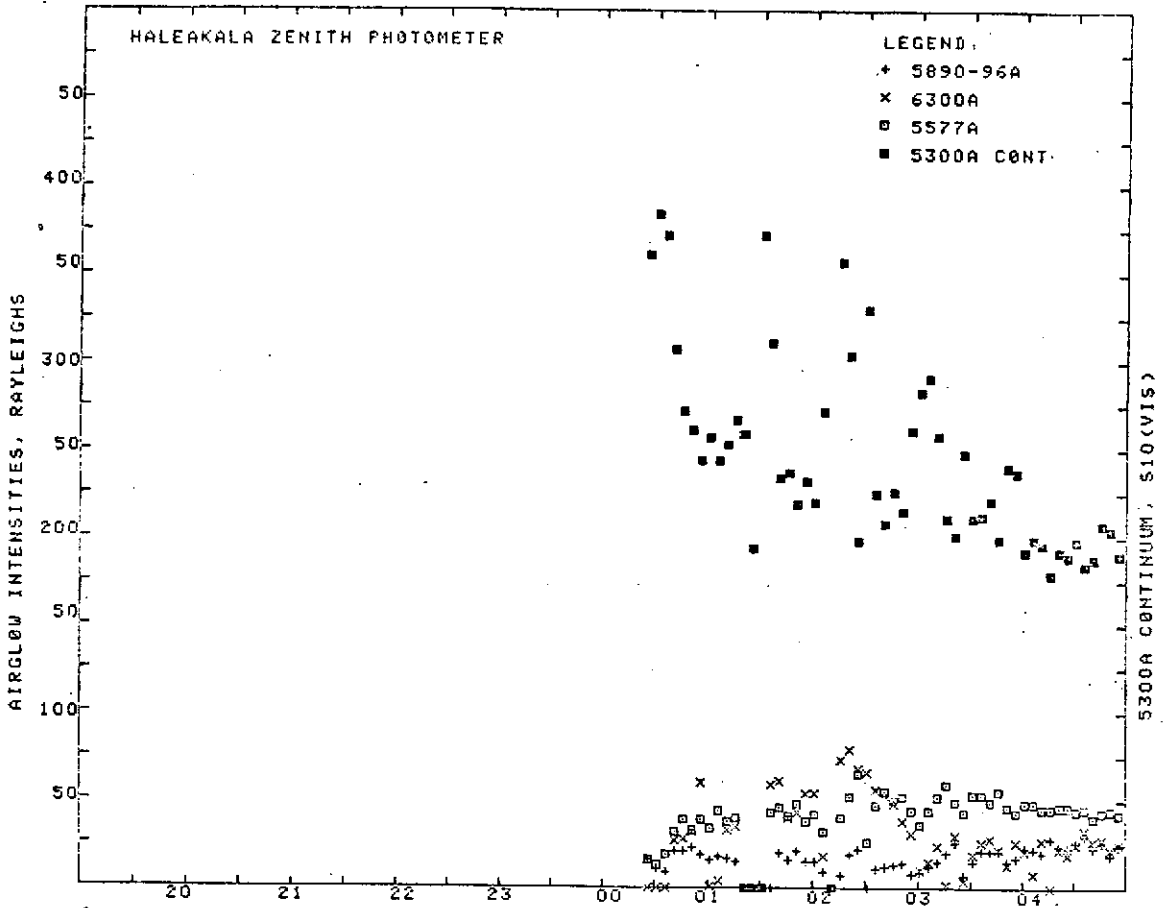
DATE
YR MO DA
63 01 18



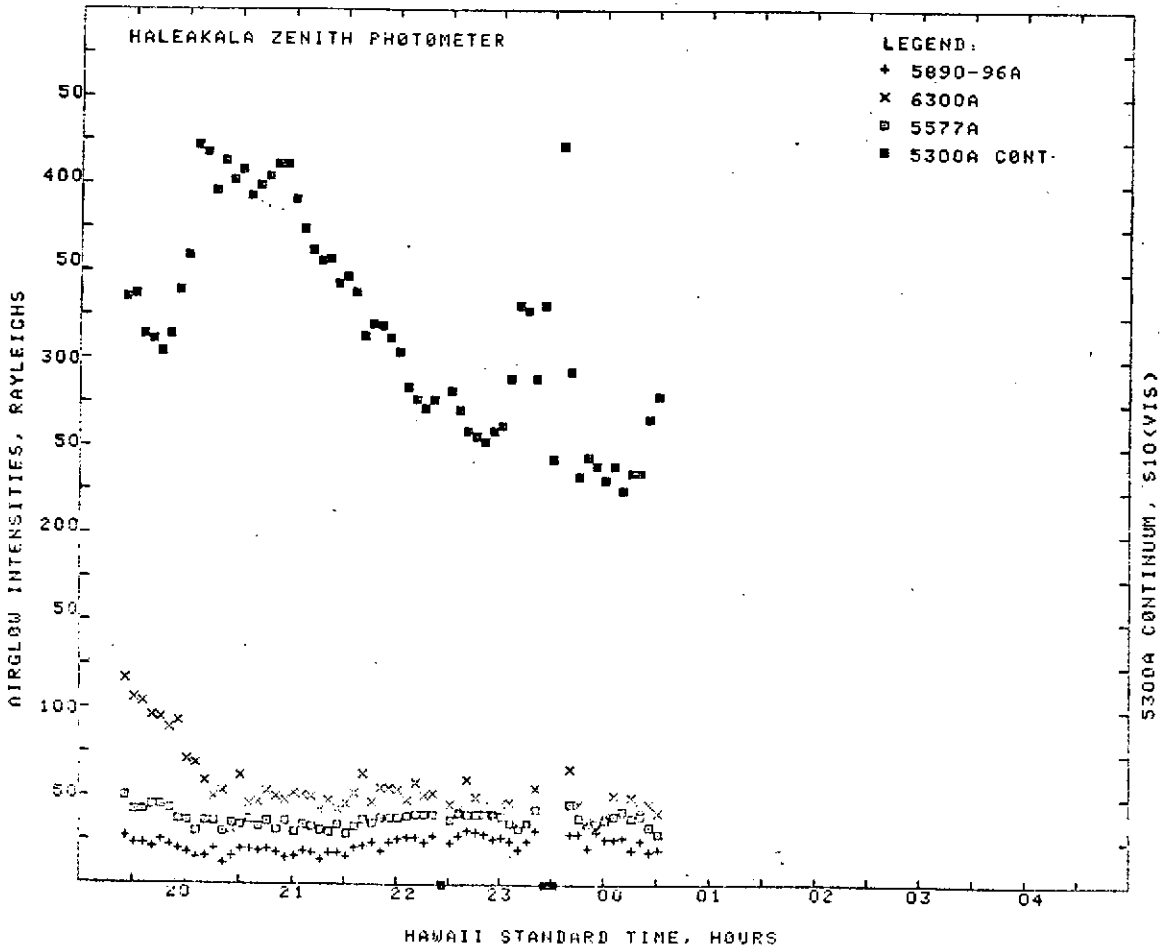
DATE
YR MO DA
63 01 20



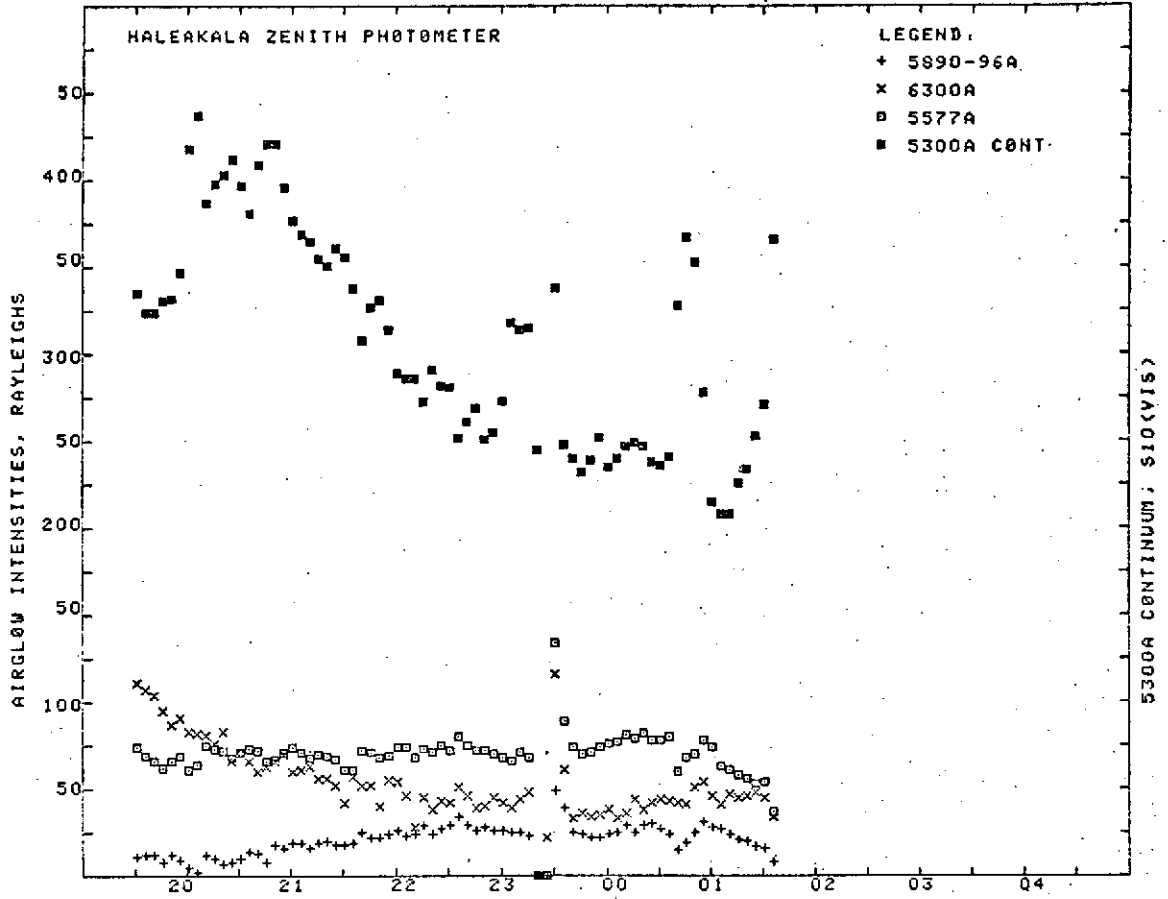
DATE
YR NO DA
63 01 25



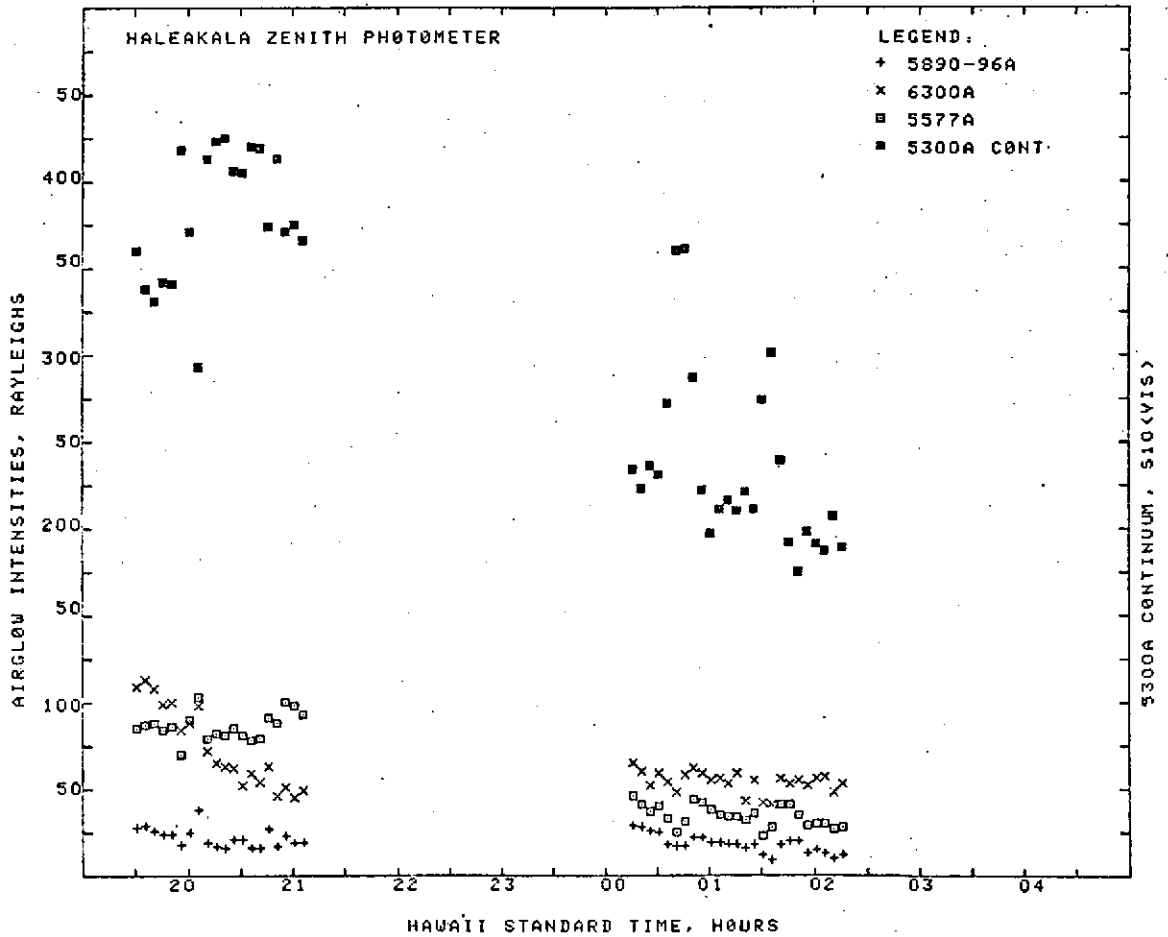
DATE
YR NO DA
63 02 15



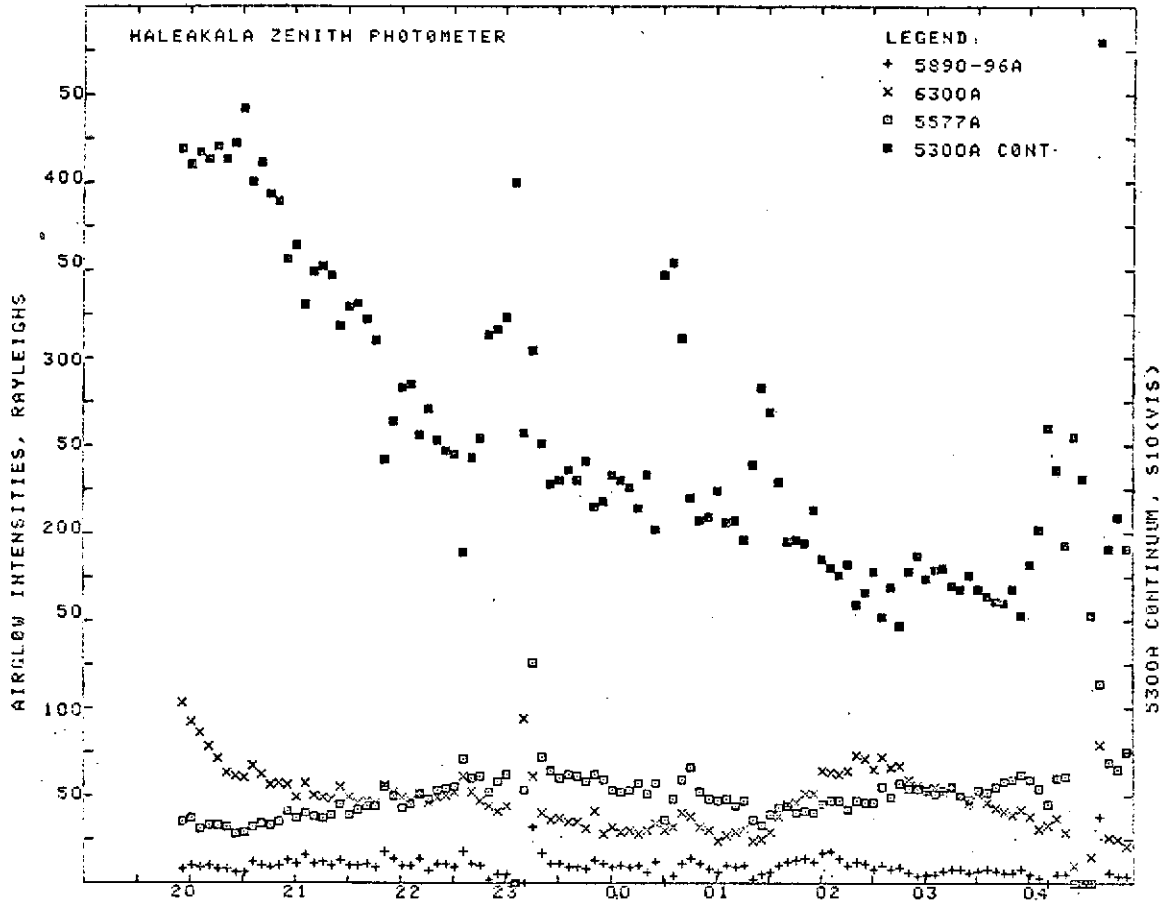
DATE
YR MO DA
63 02 16



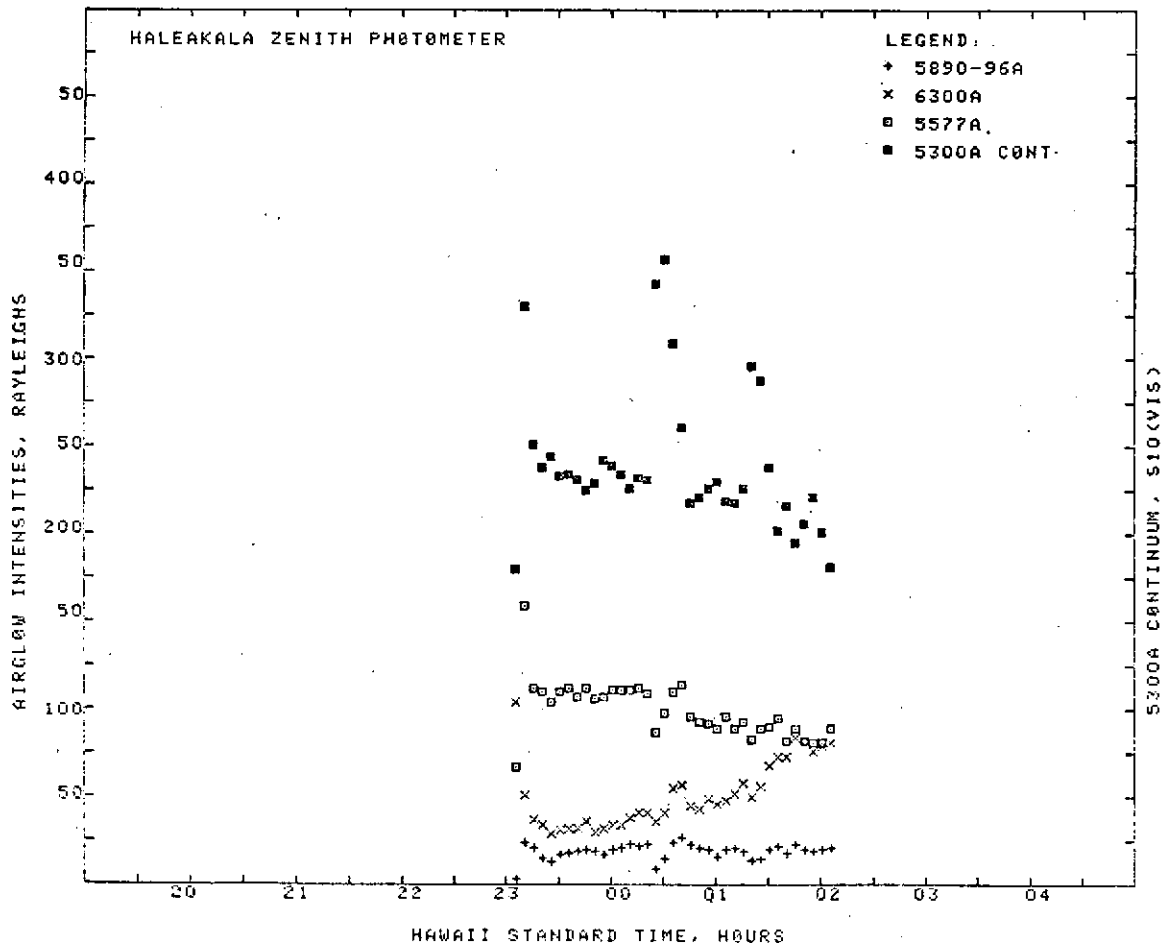
DATE
YR MO DA
63 02 17



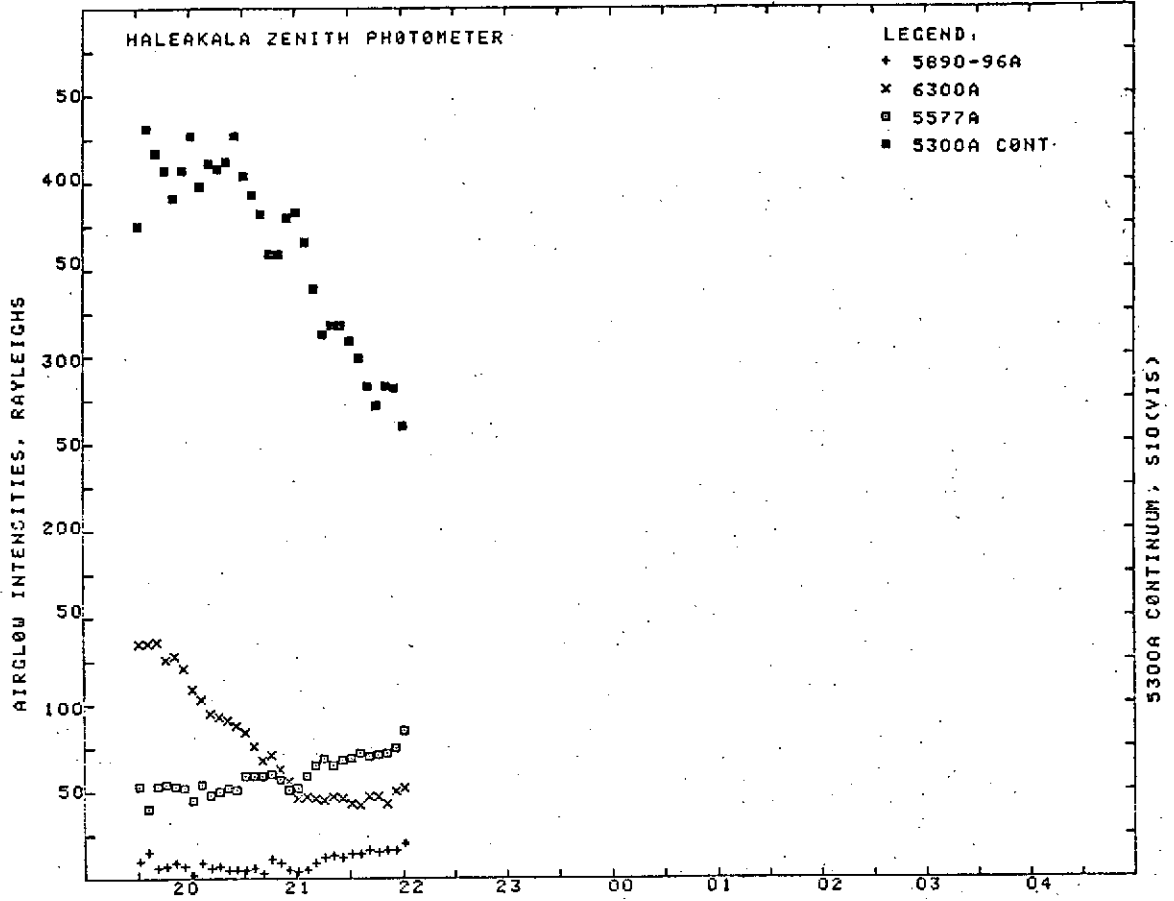
DATE
YR MO DA
63 02 19



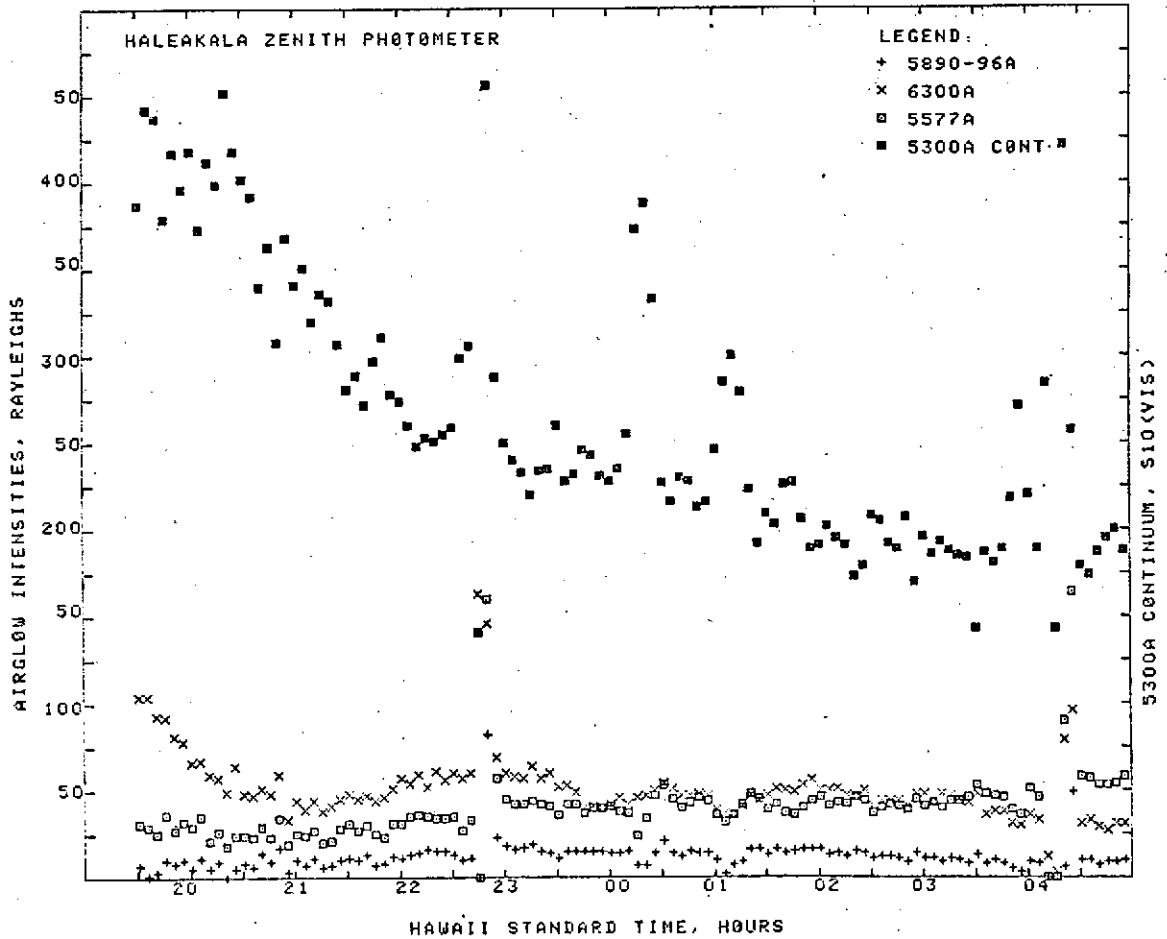
DATE
YR MO DA
63 02 20



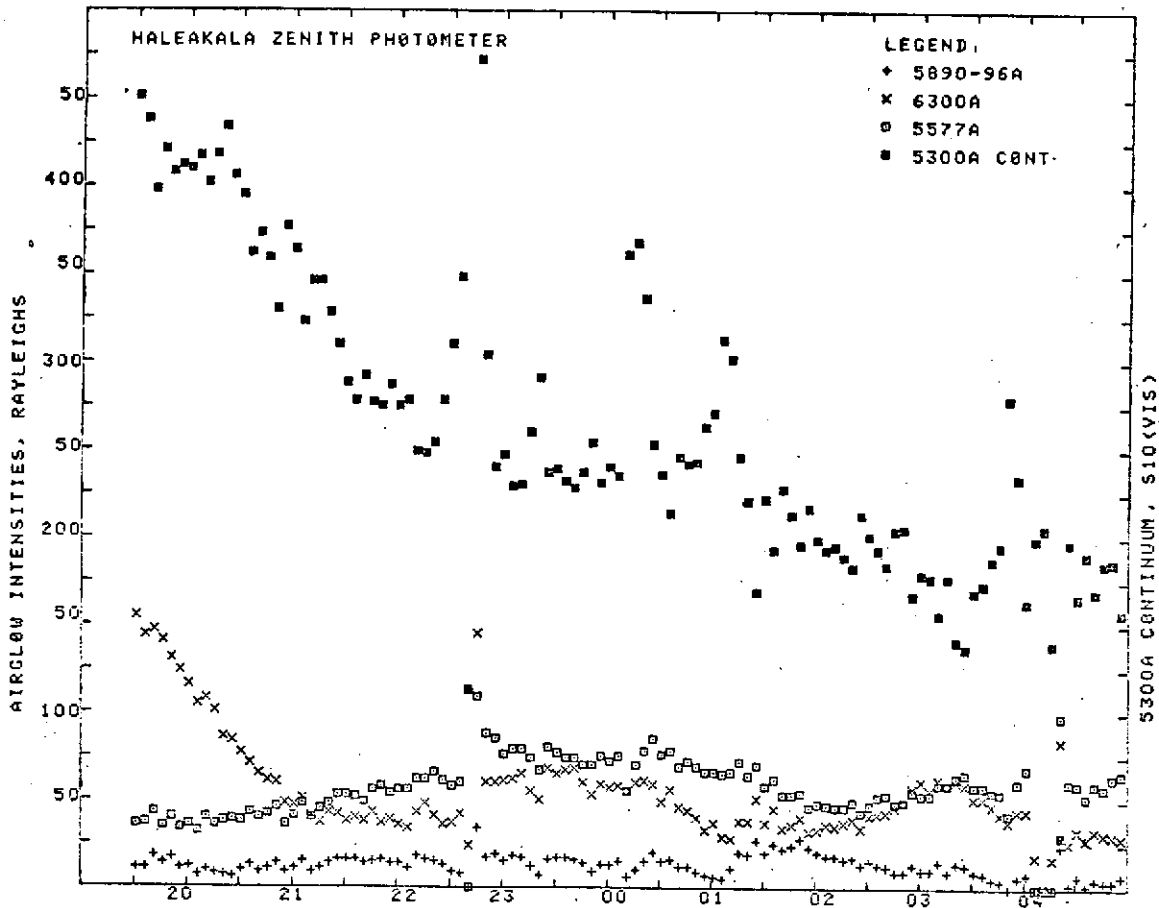
DATE
YR MO DA
63 02 22



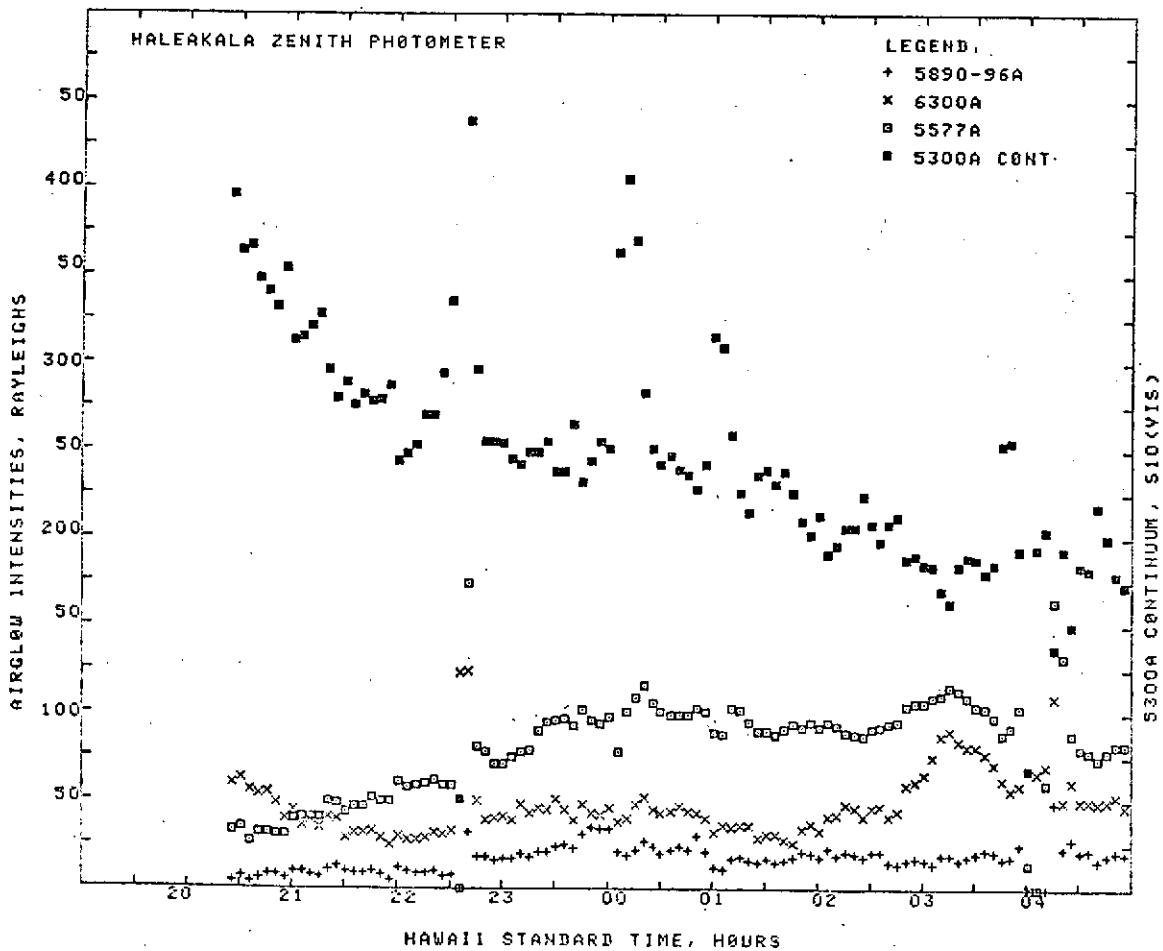
DATE
YR MO DA
63 02 23



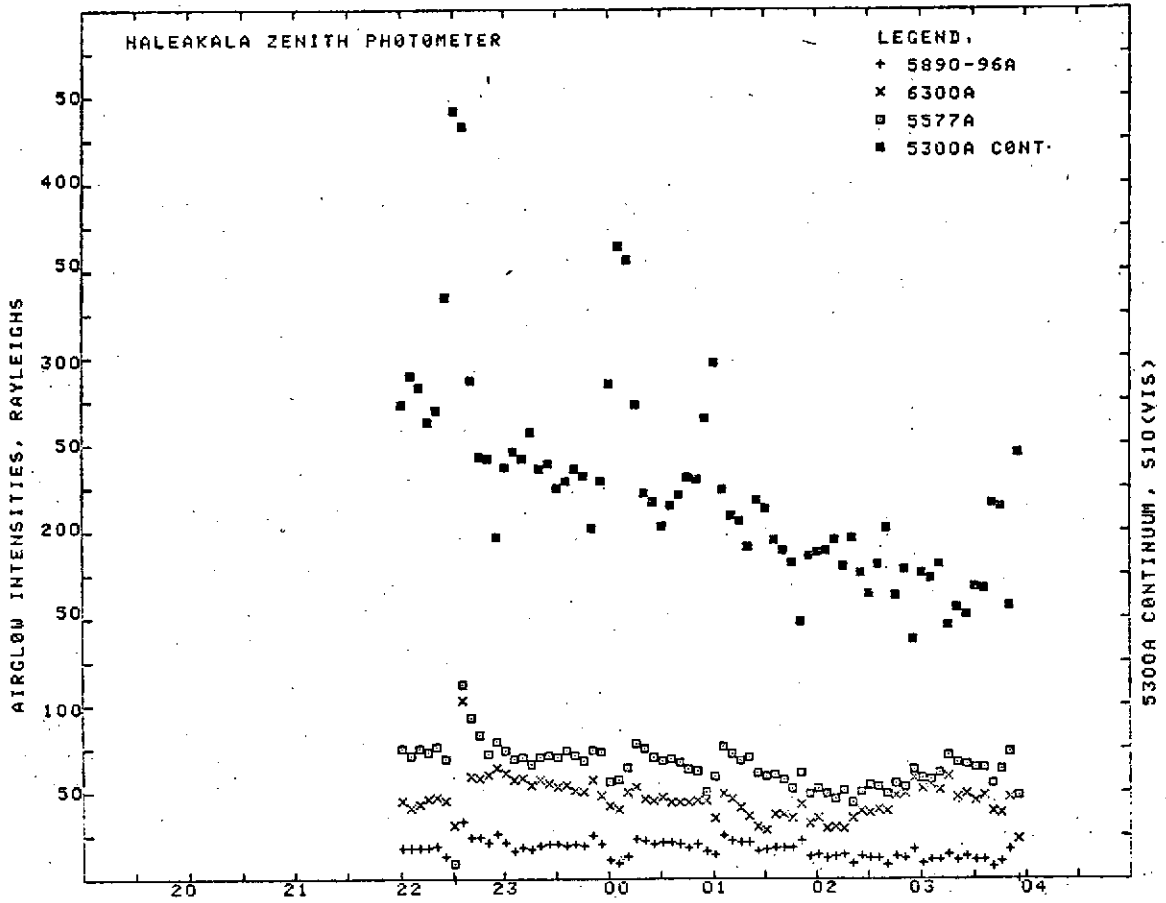
DATE
YR MO DA
63 02 24



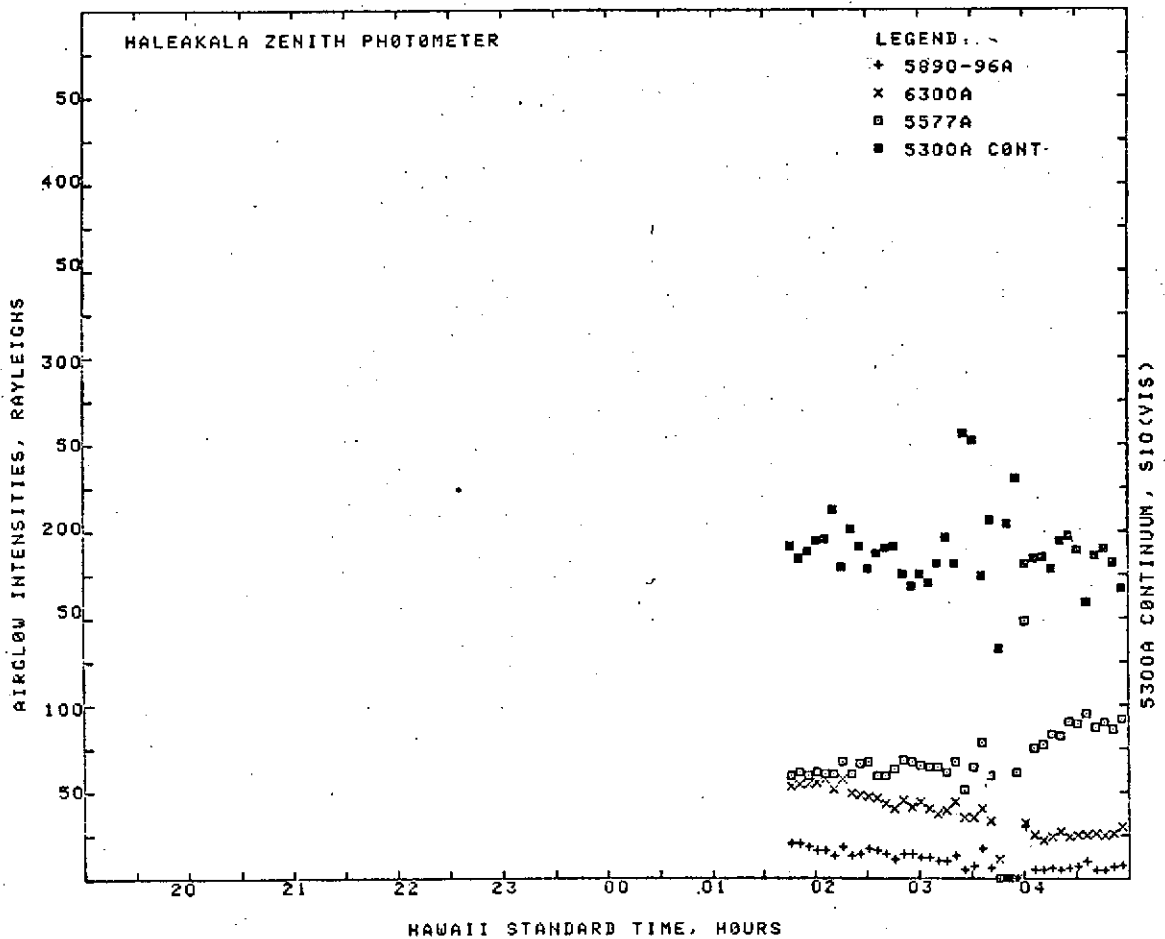
DATE
YR MO DA
63 02 25



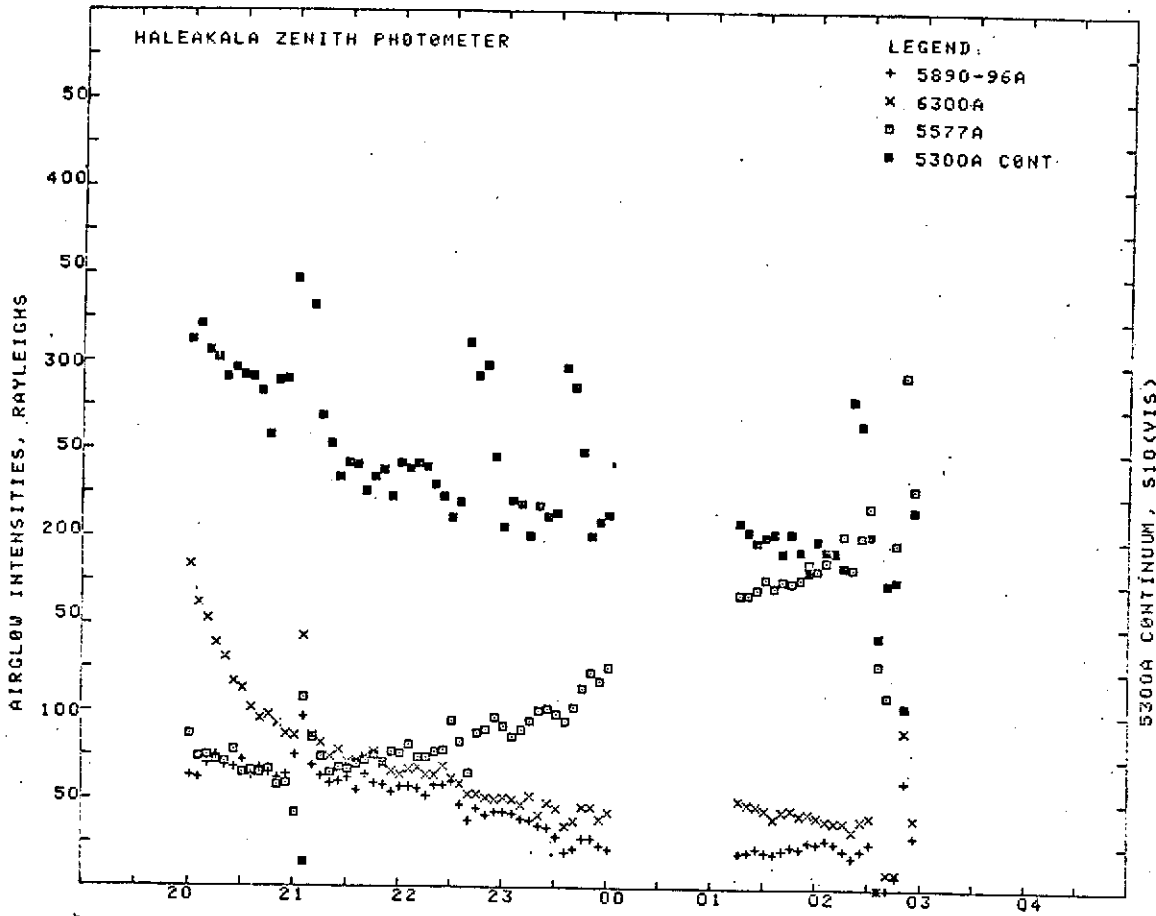
DATE
YR MO DA
63 02 26



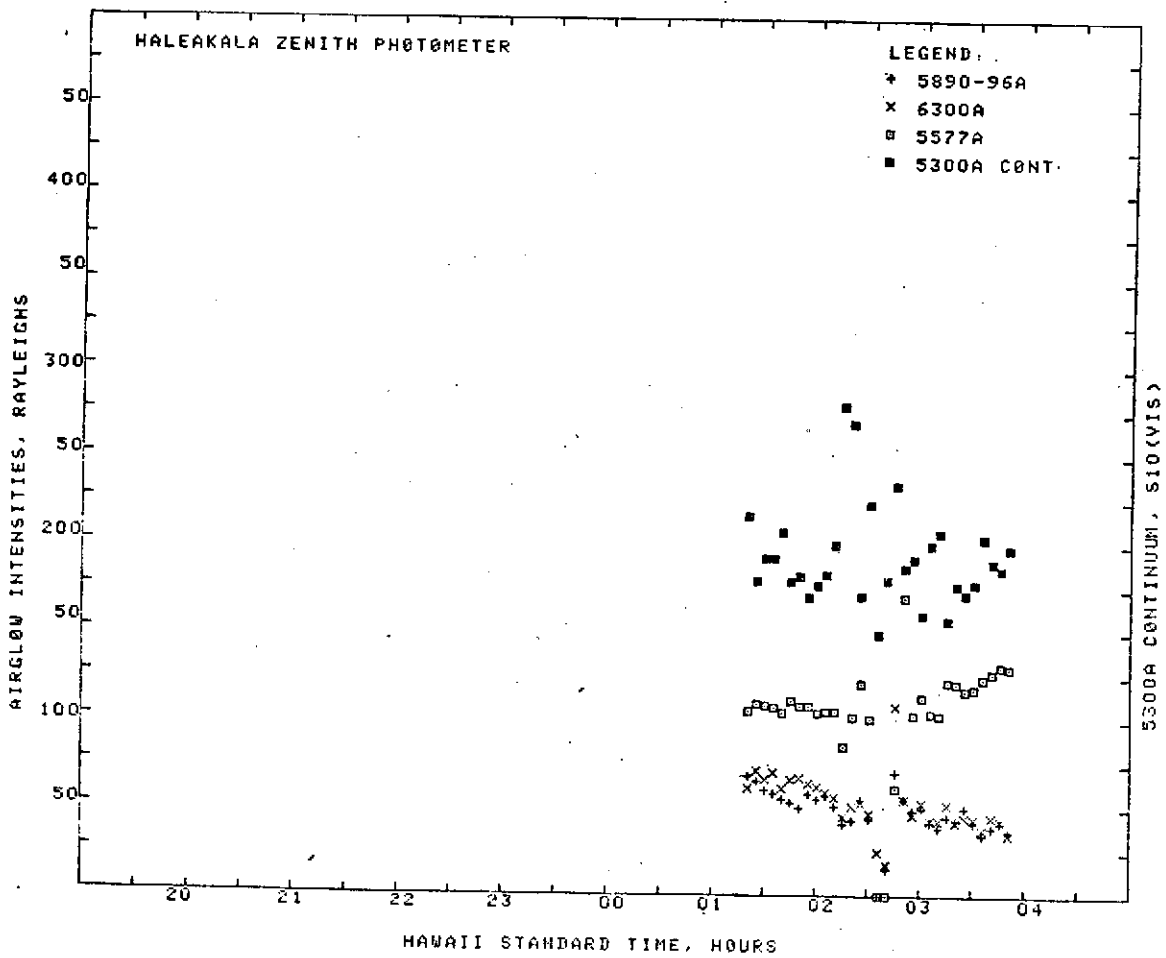
DATE
YR MO DA
63 03 02



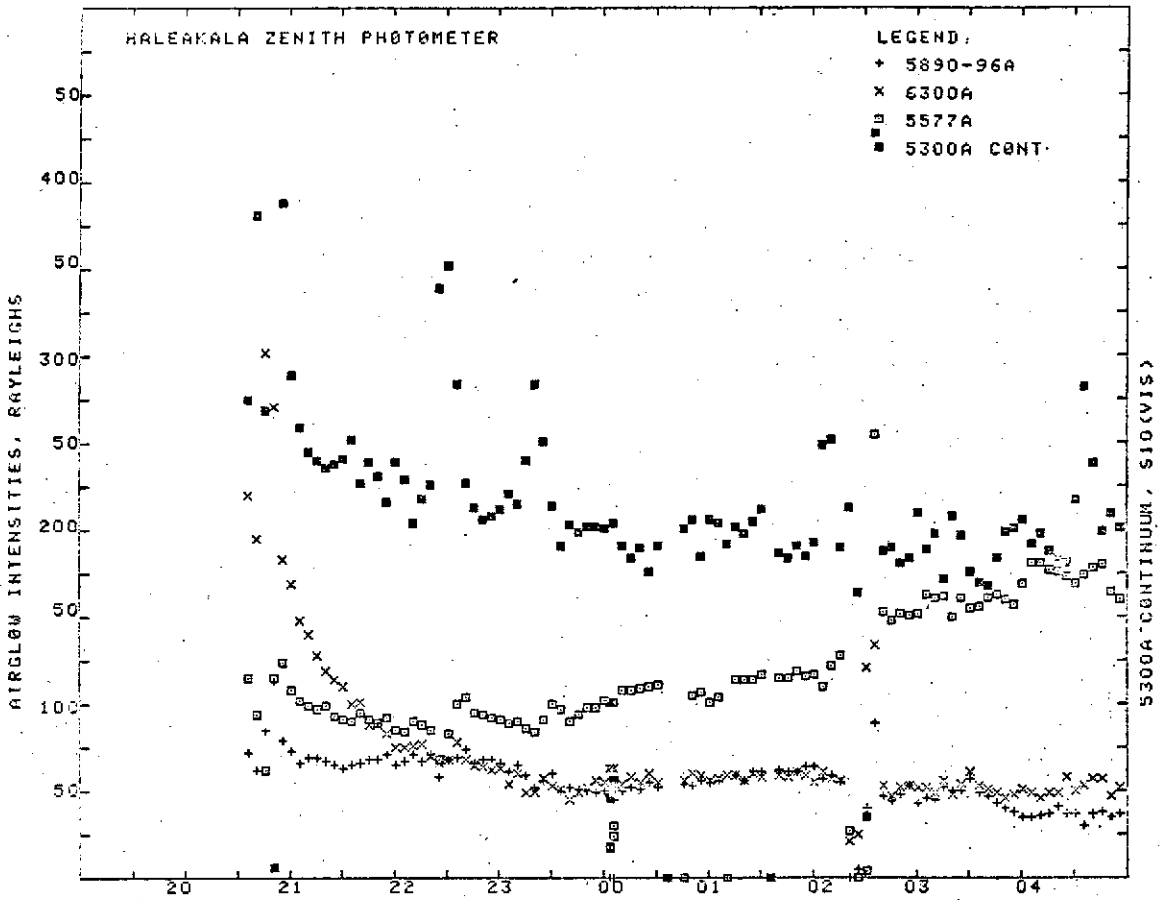
DATE
YR MO DA
63 03 19



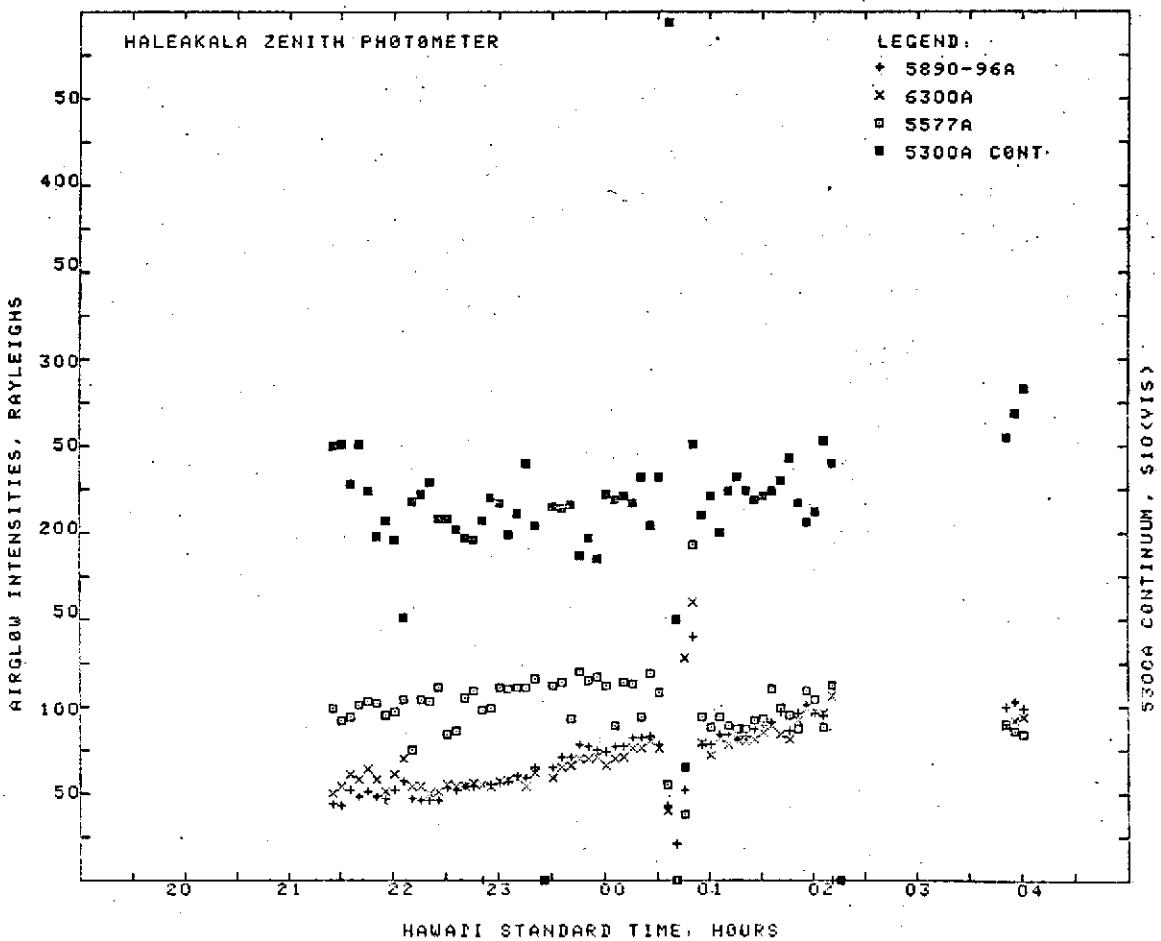
DATE
YR MO DA
63 03 20



DATE
YR MO DA
63 03 23

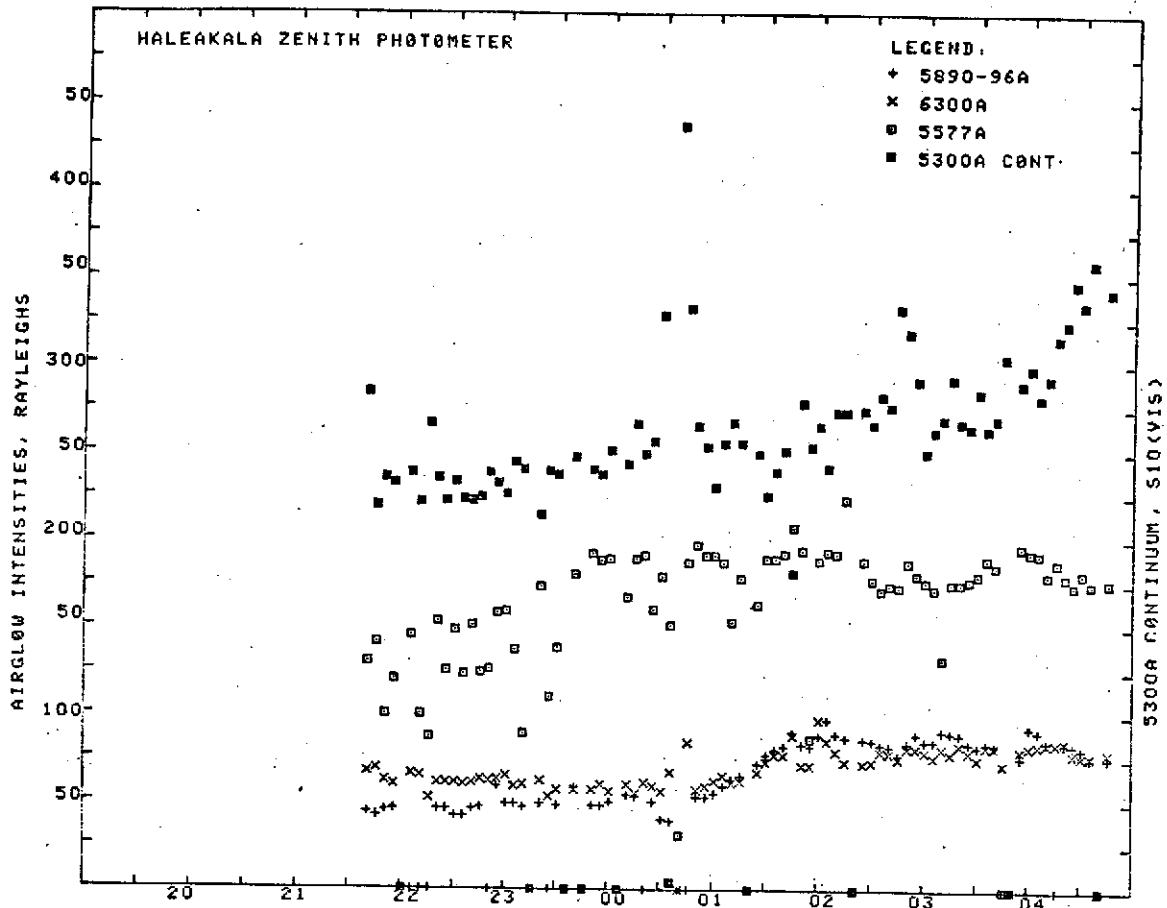


DATE
YR MO DA
63 04 19

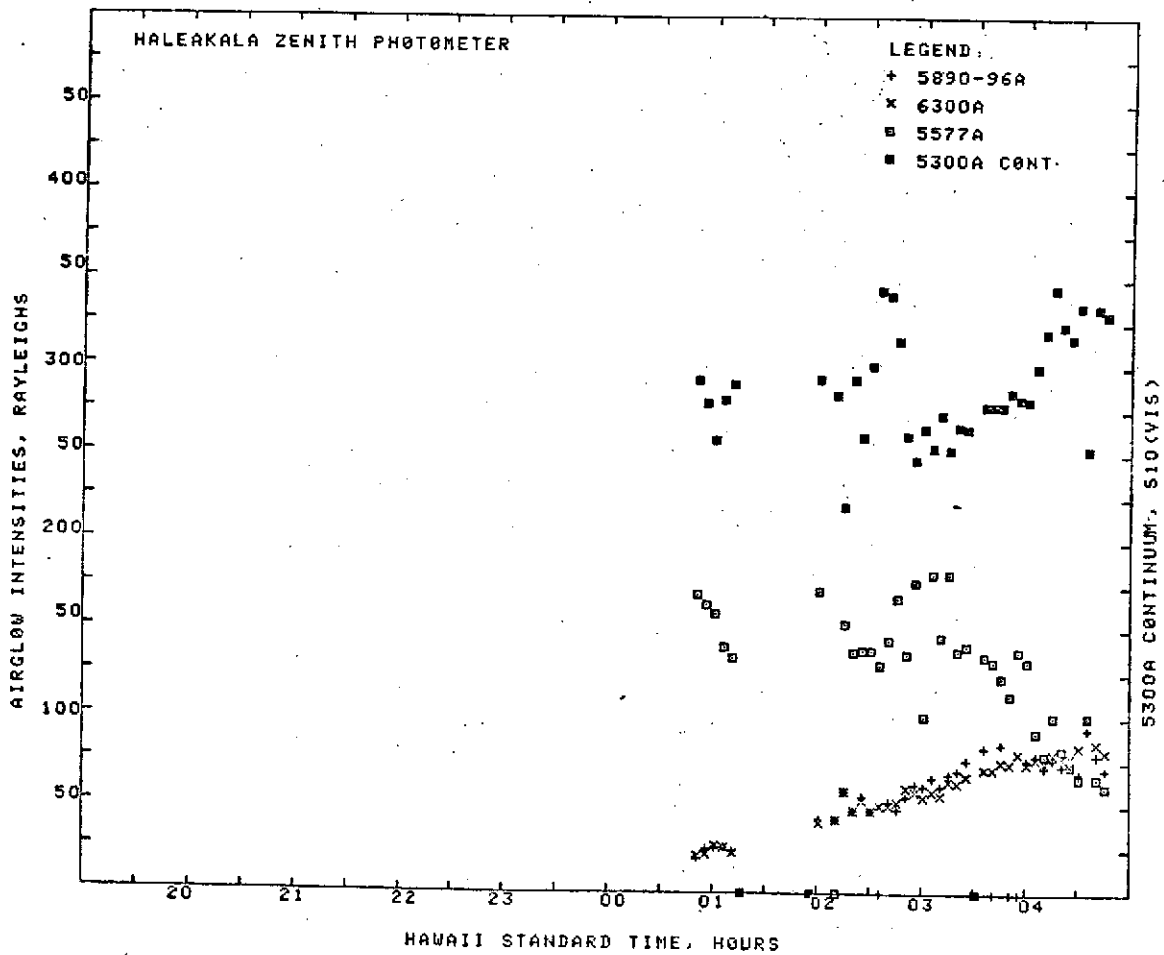


HAWAII STANDARD TIME, HOURS

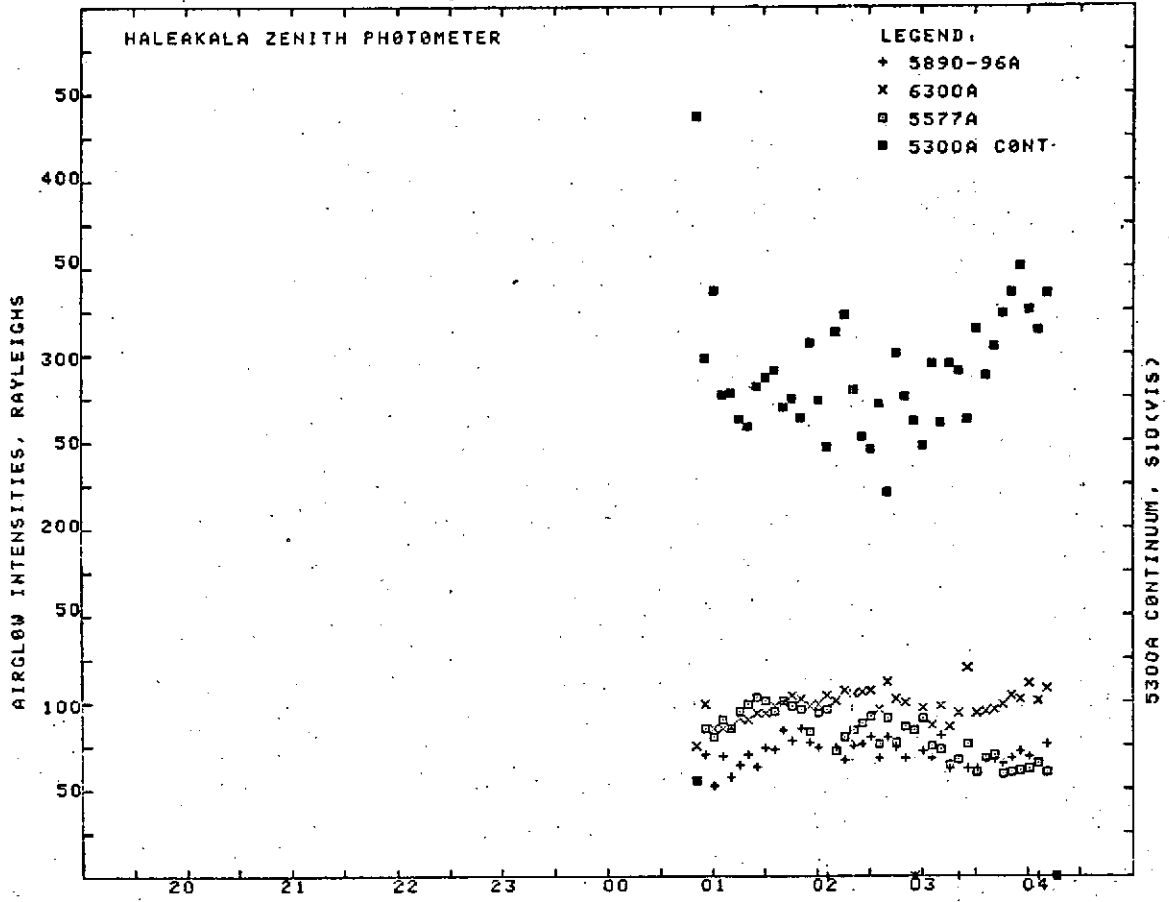
DATE
YR MO DA
63 04 20



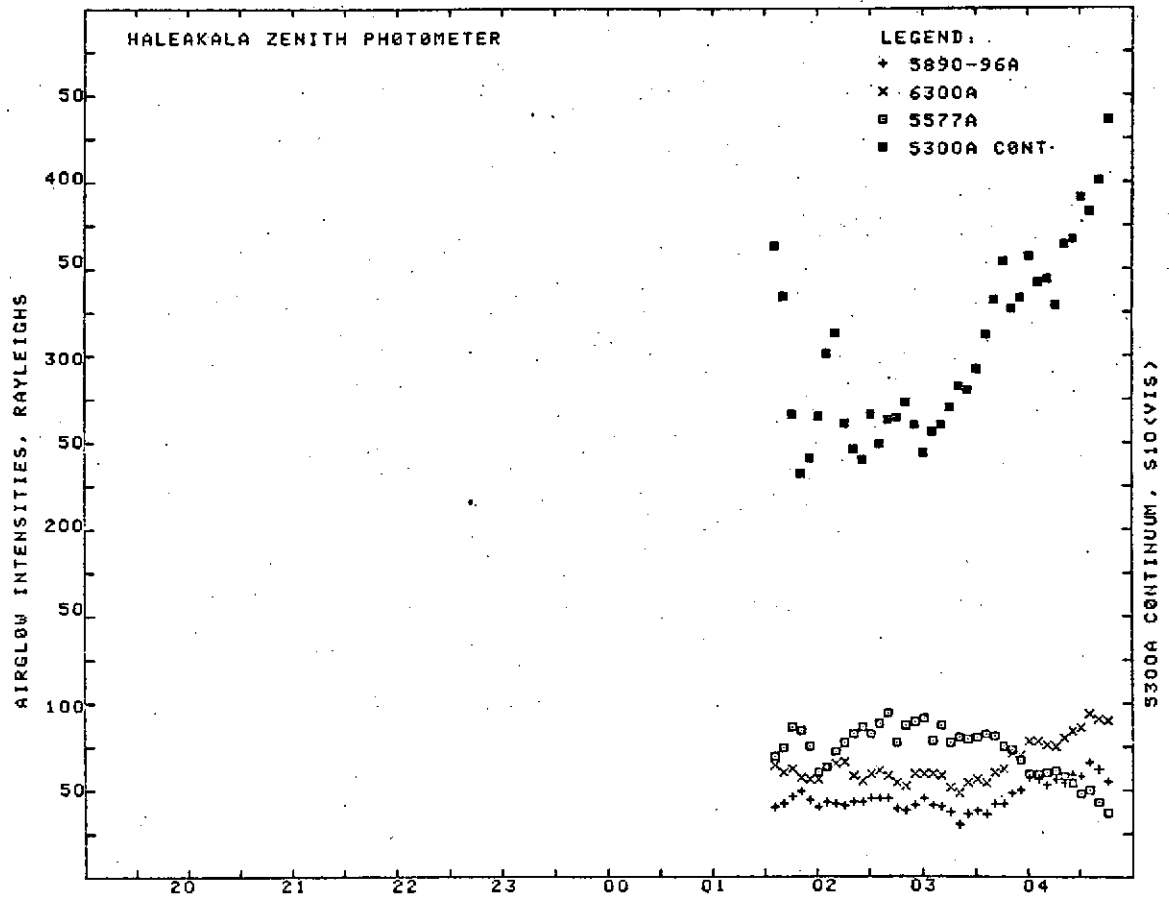
DATE
YR MO DA
63 04 22



DATE
YR MO DA
63 04 29

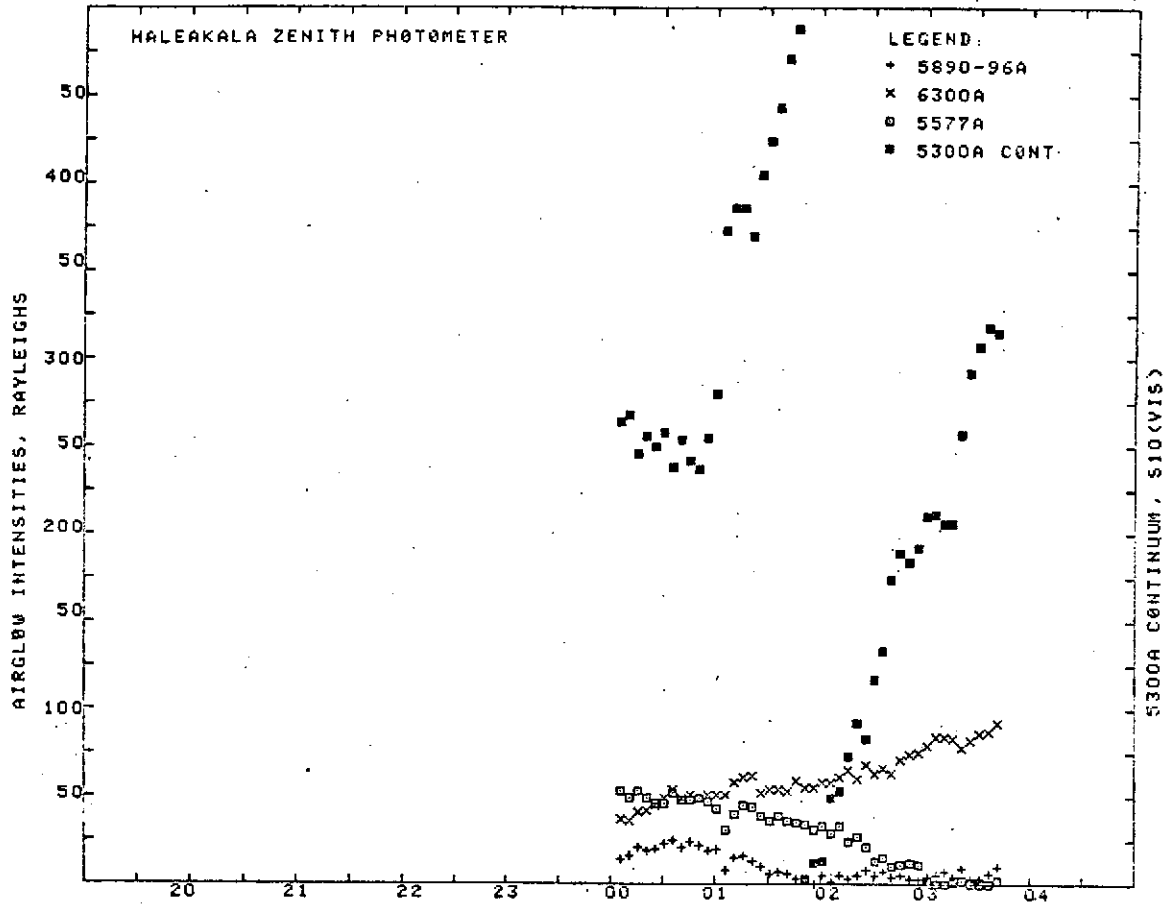


DATE
YR MO DA
63 04 30

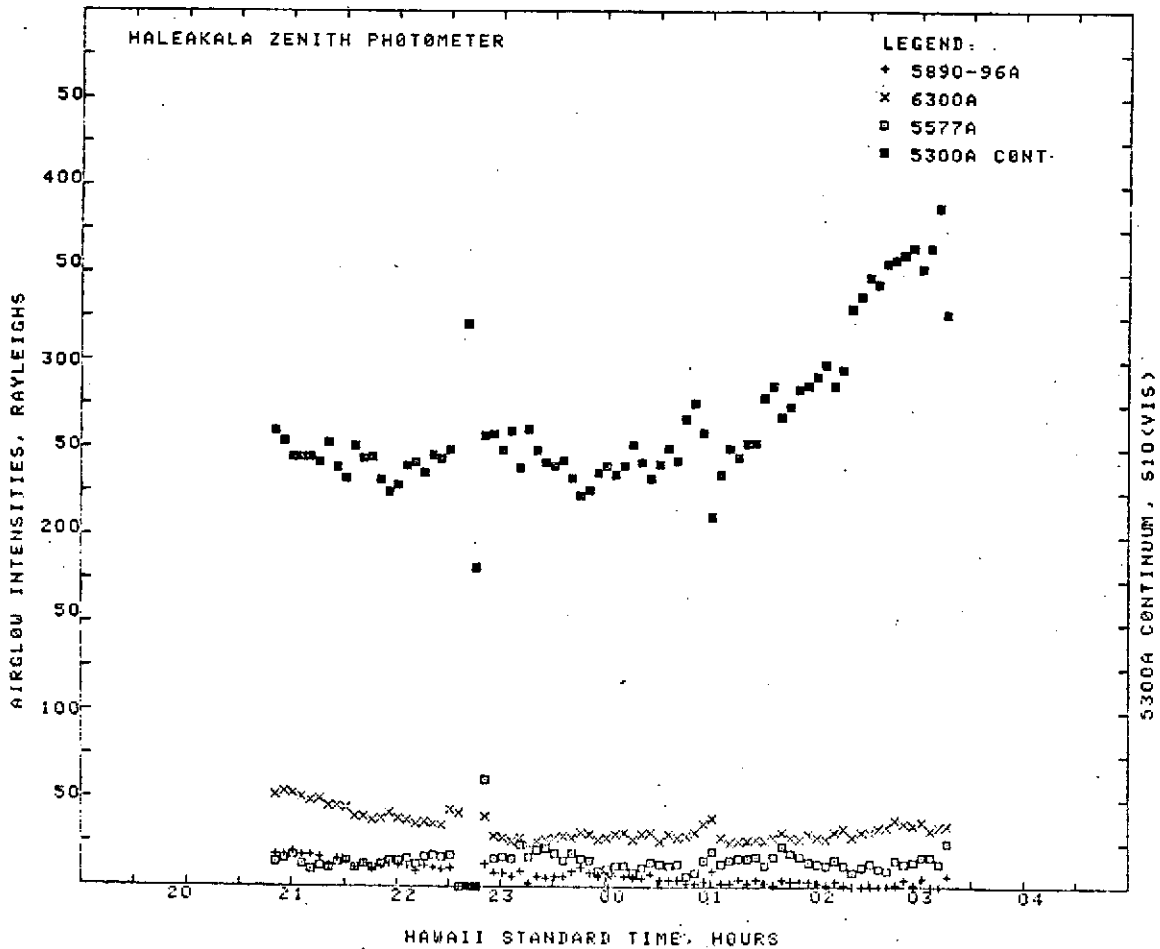


HAWAII STANDARD TIME, HOURS

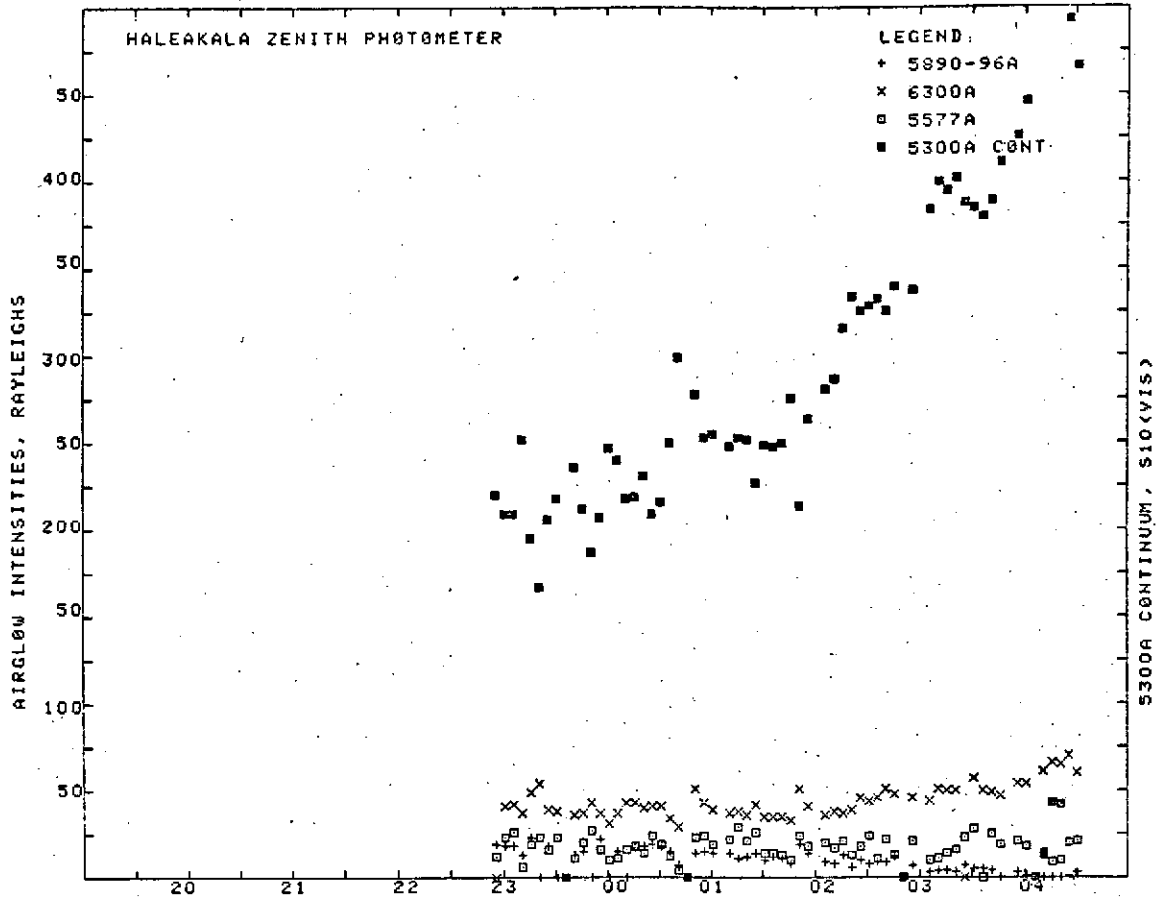
DATE
YR MO DA
63 05 15



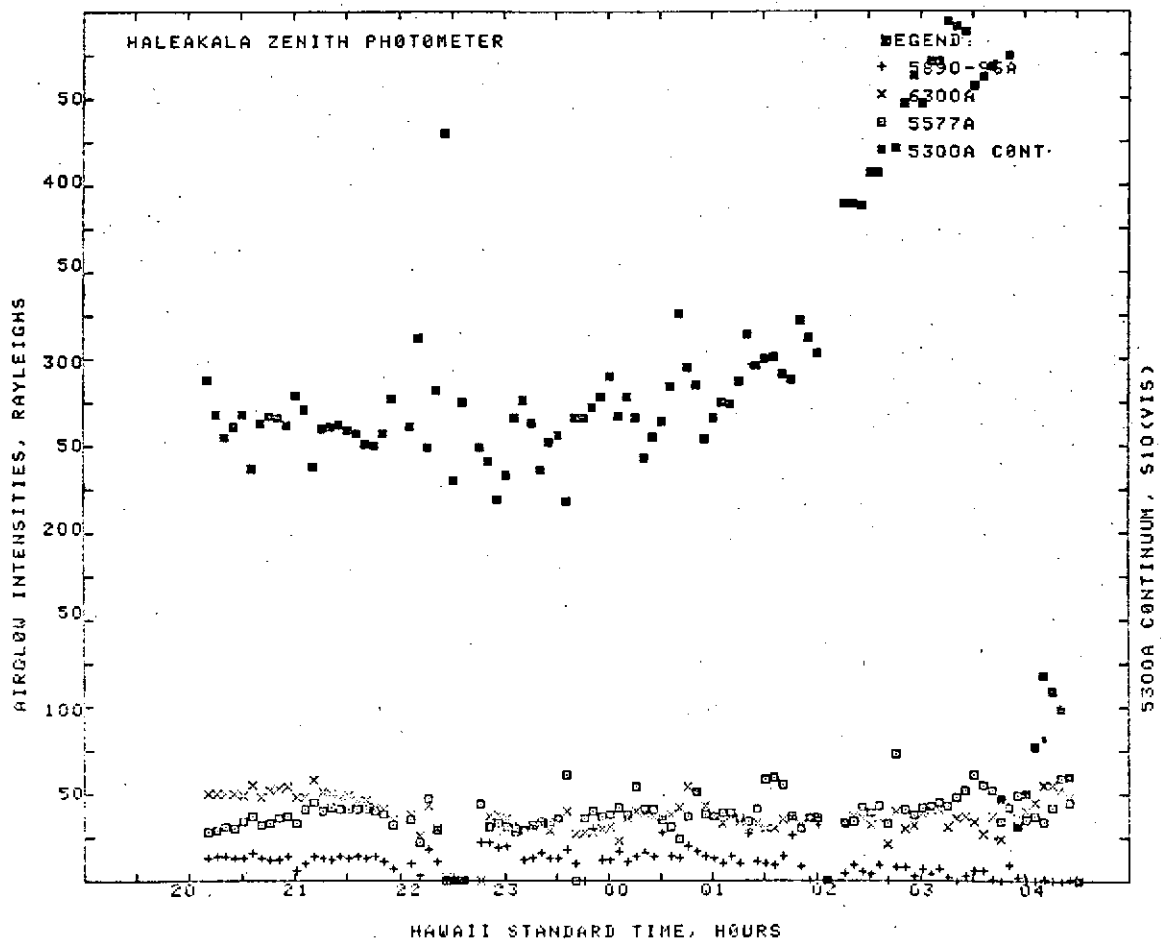
DATE
YR MO DA
63 05 20



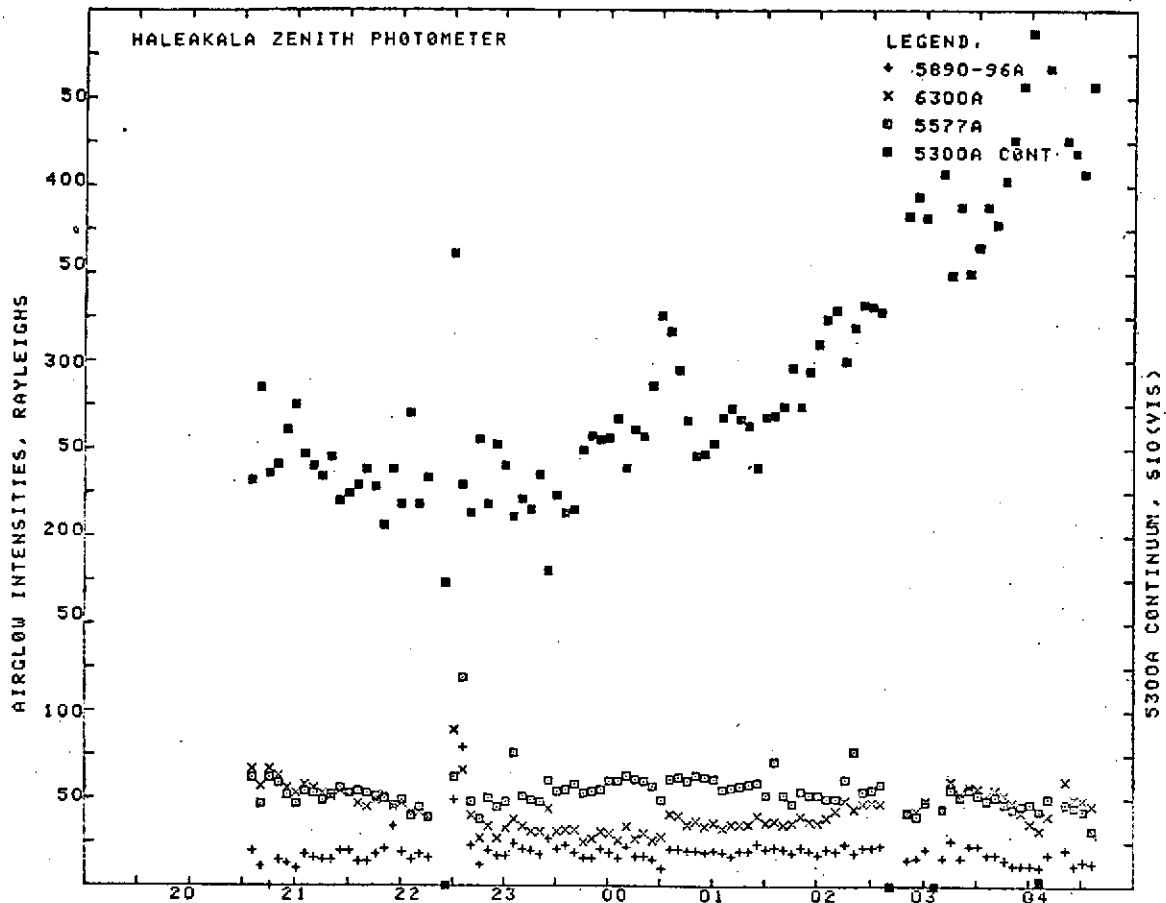
DATE
YR MO DA
63 05 21



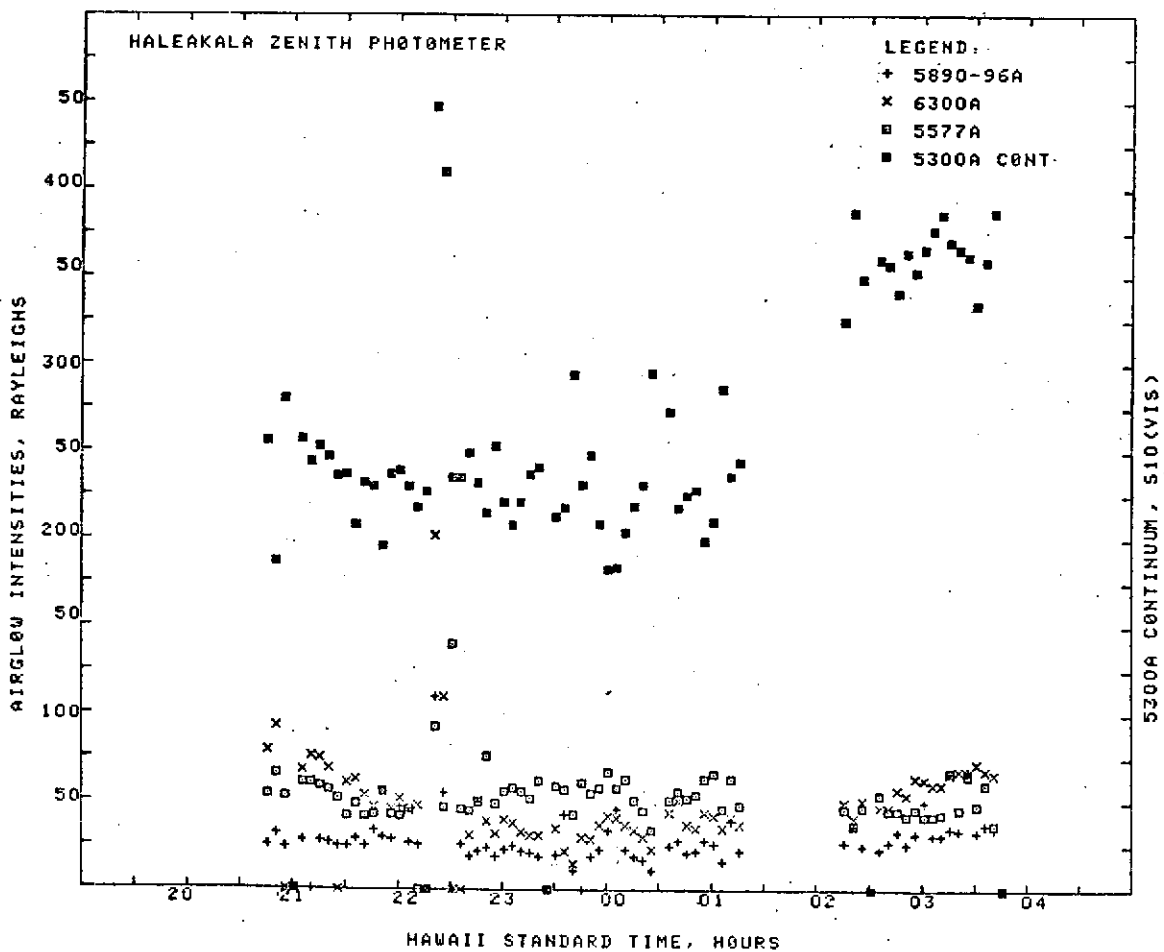
DATE
YR MO DA
63 05 22



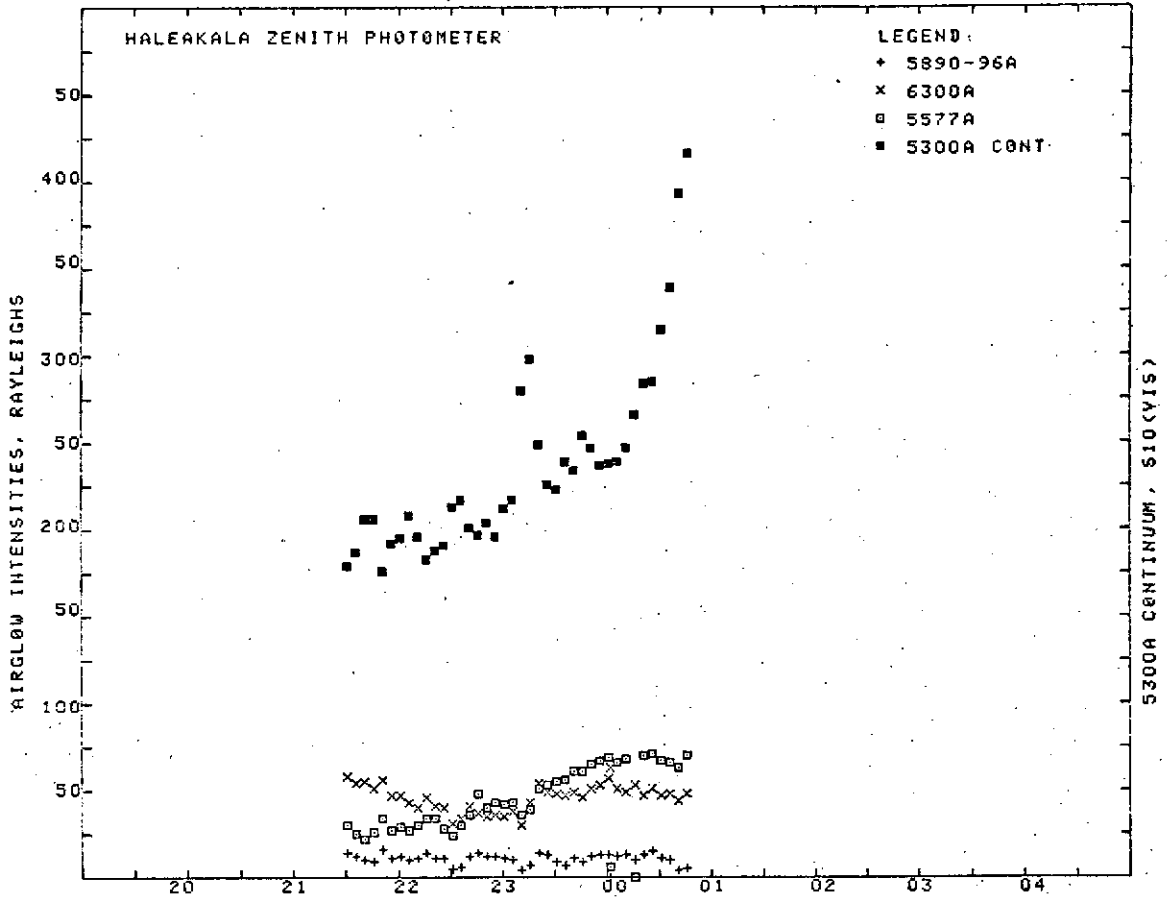
DATE
YR MO DA
63 05 24



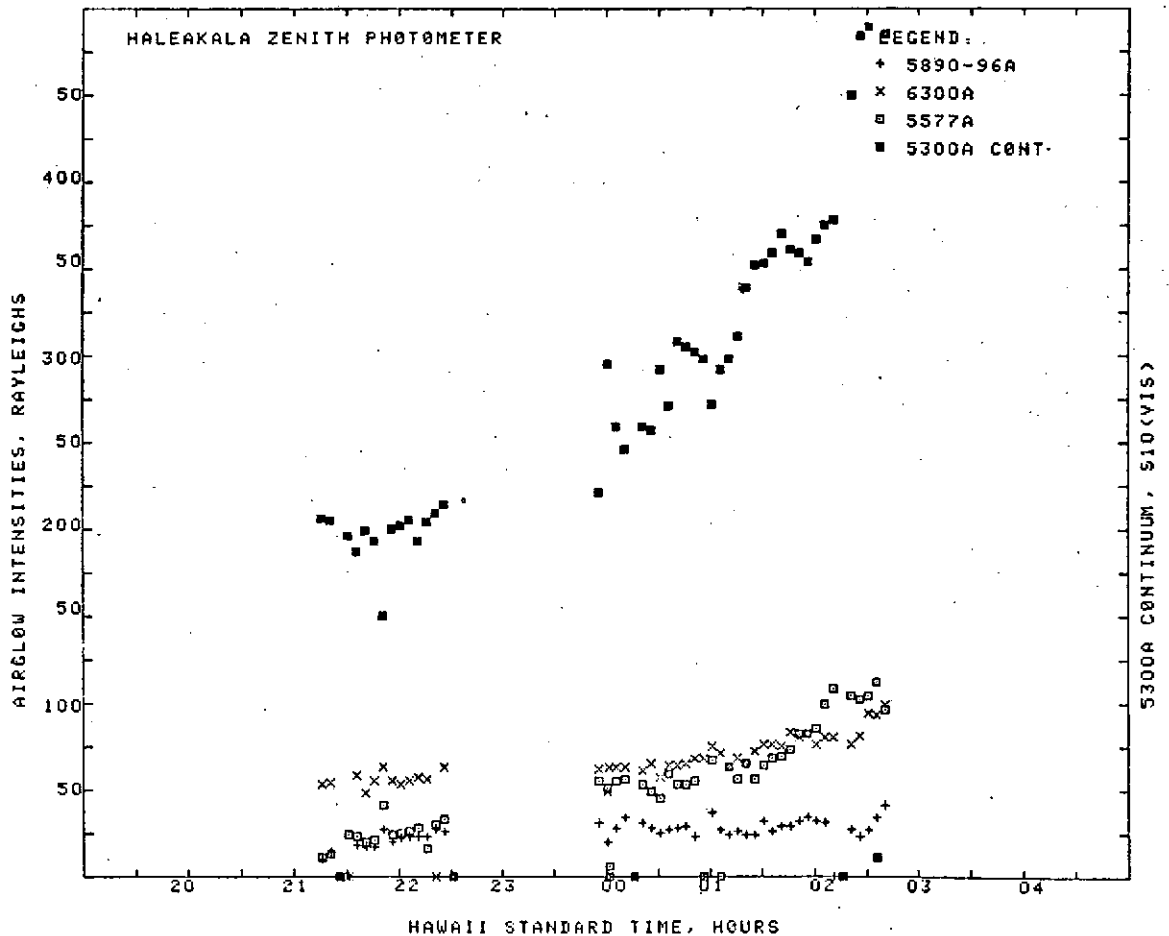
DATE
YR MO DA
63 05 25



DATE
YR MO DA
63 06 13

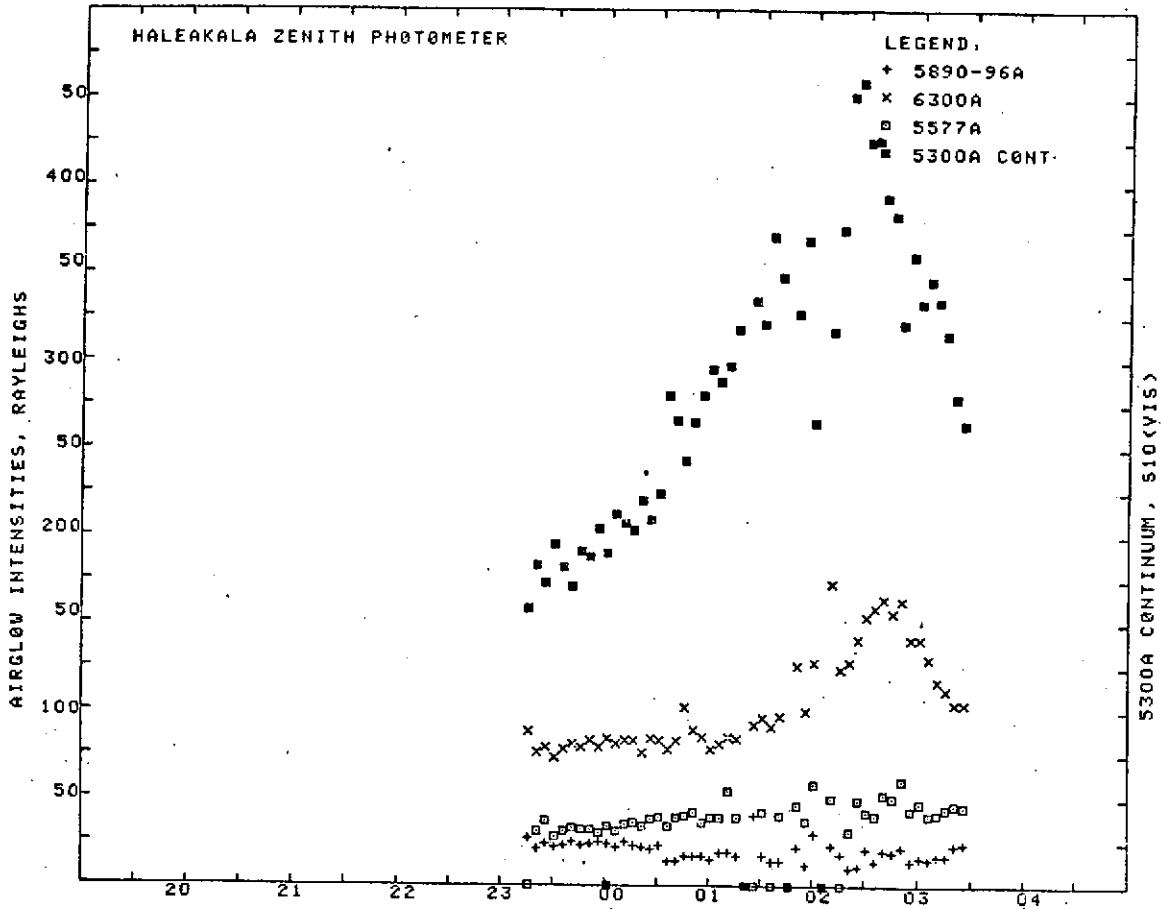


DATE
YR MO DA
63 06 16

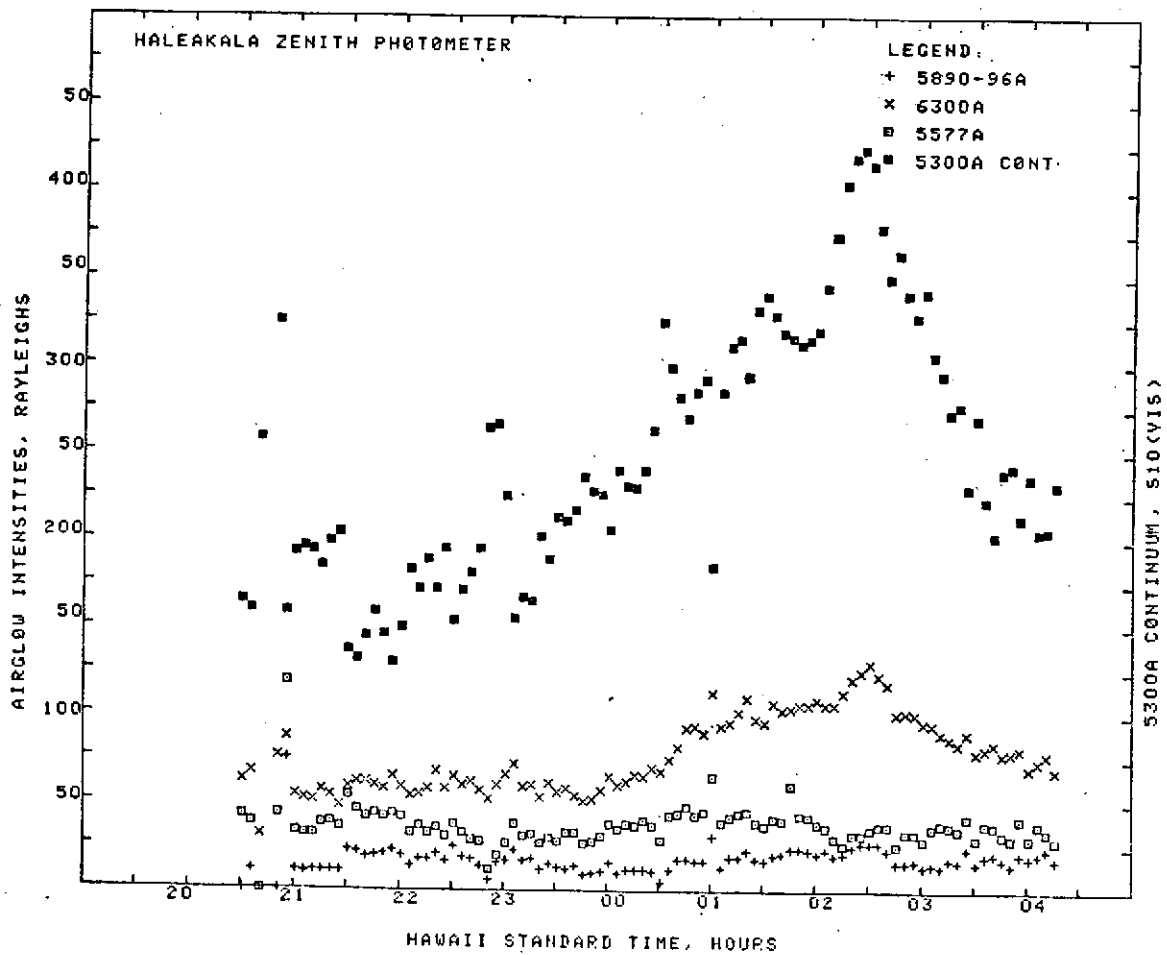


HAWAII STANDARD TIME, HOURS

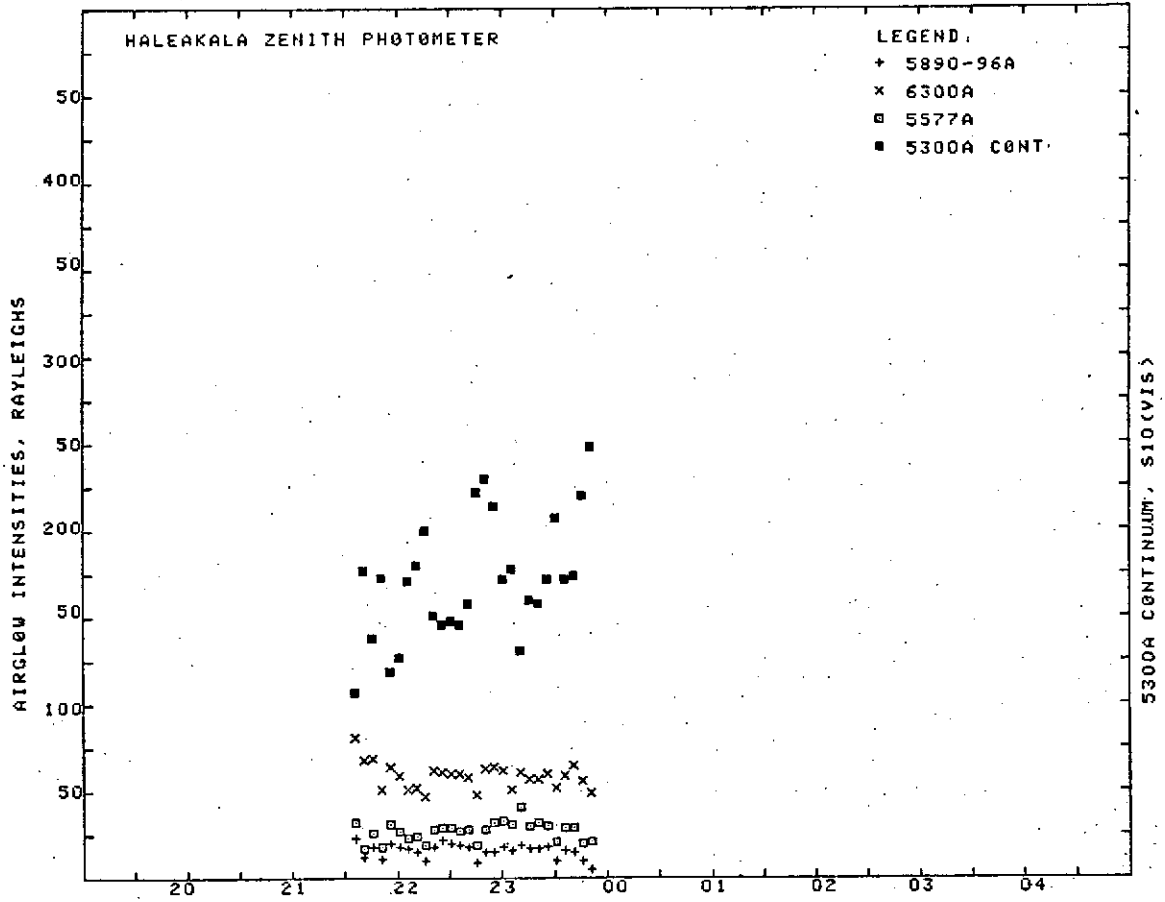
DATE
YR MO DA
63 06 17



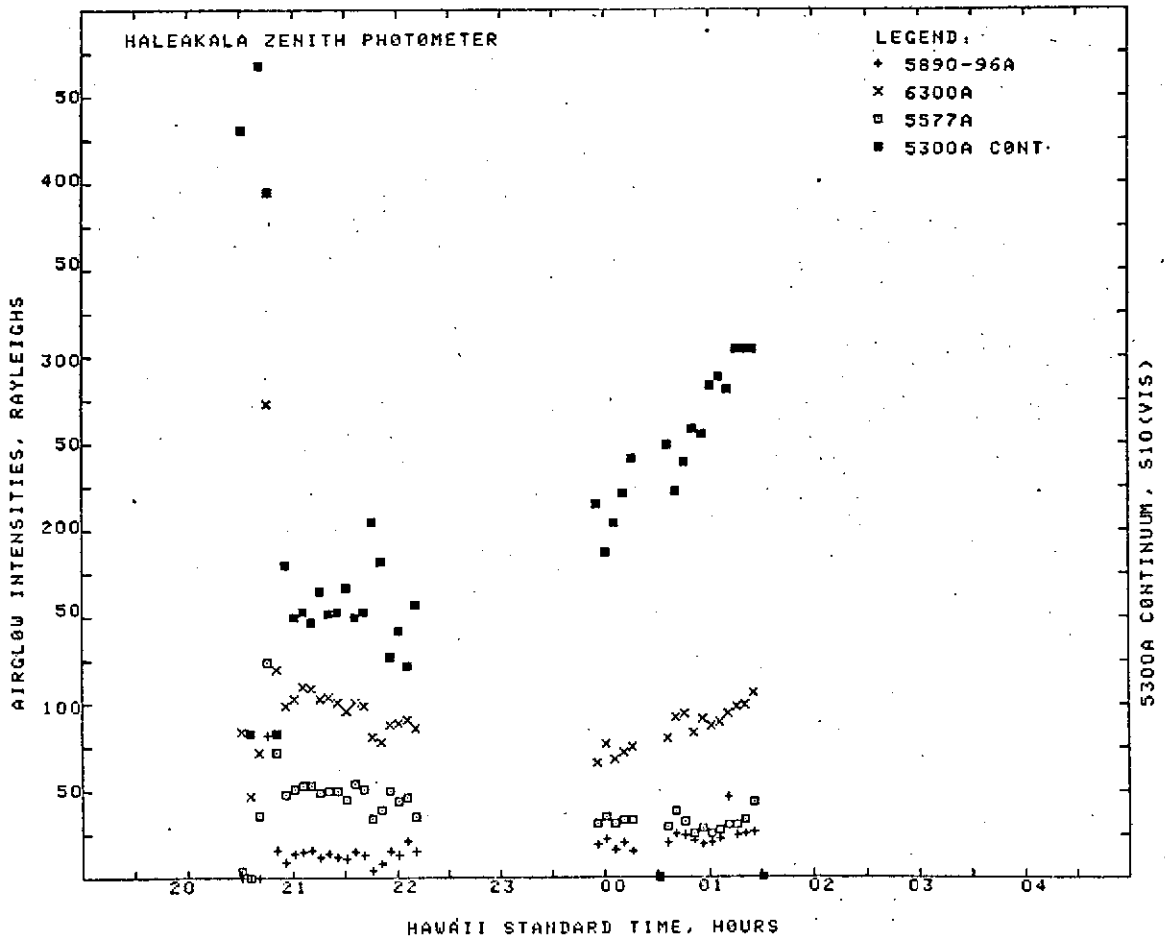
DATE
YR MO DA
63 06 18



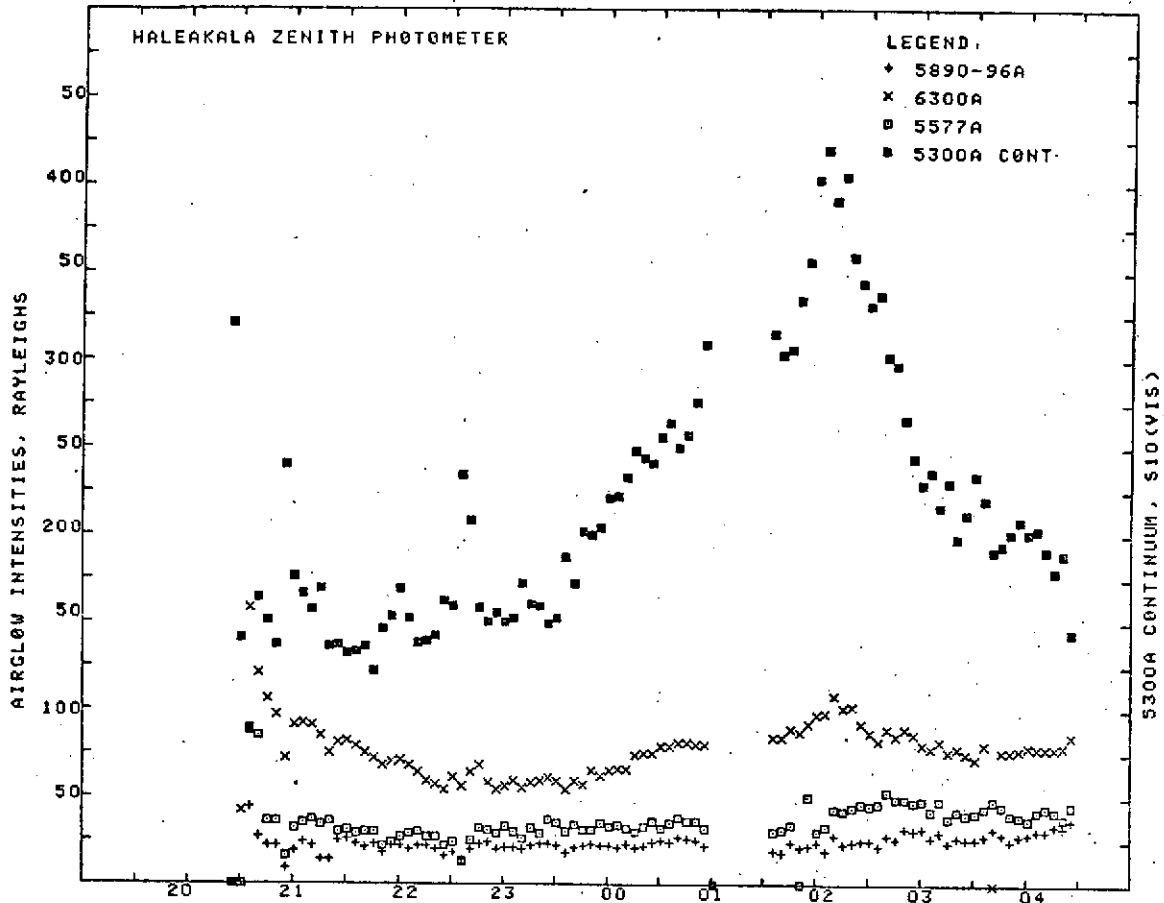
DATE
YR MO DA
63 06 19



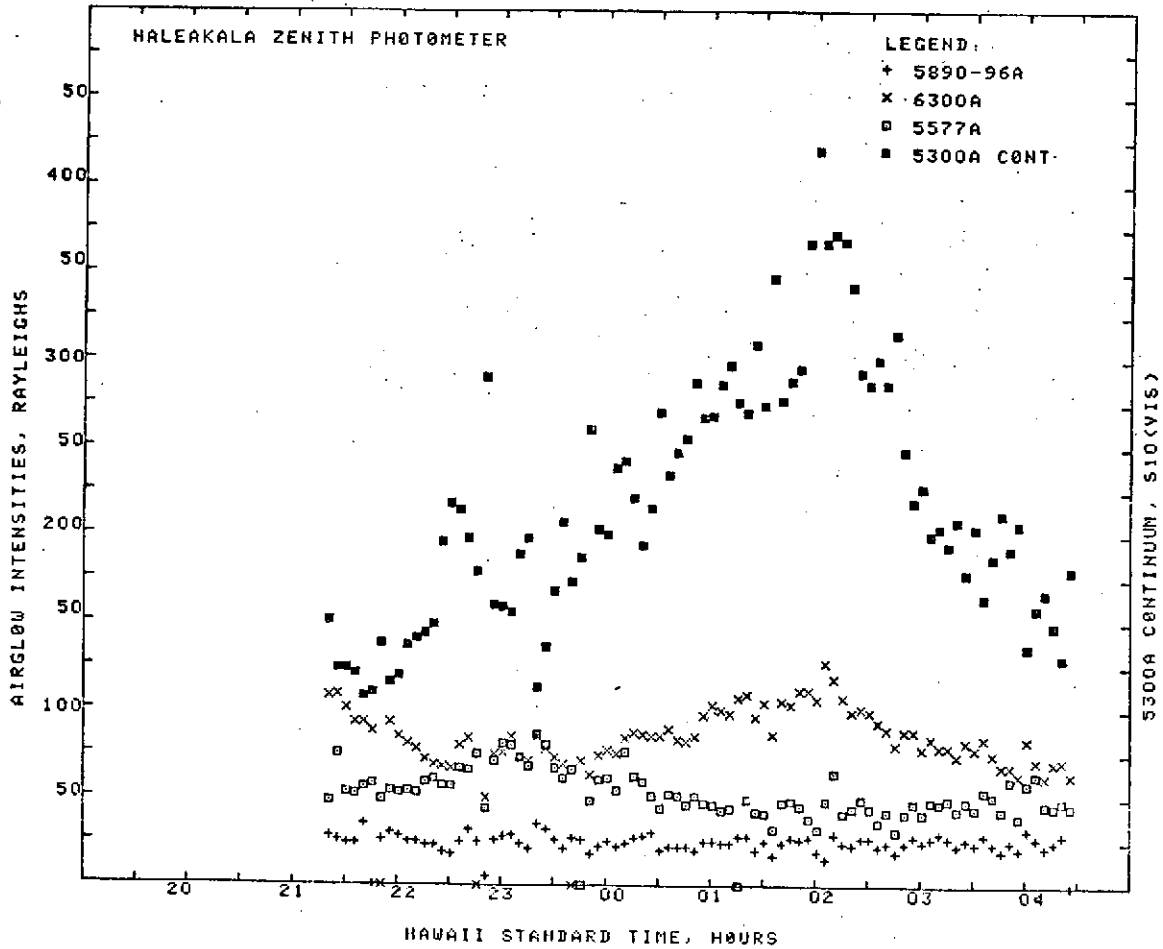
DATE
YR MO DA
63 06 20



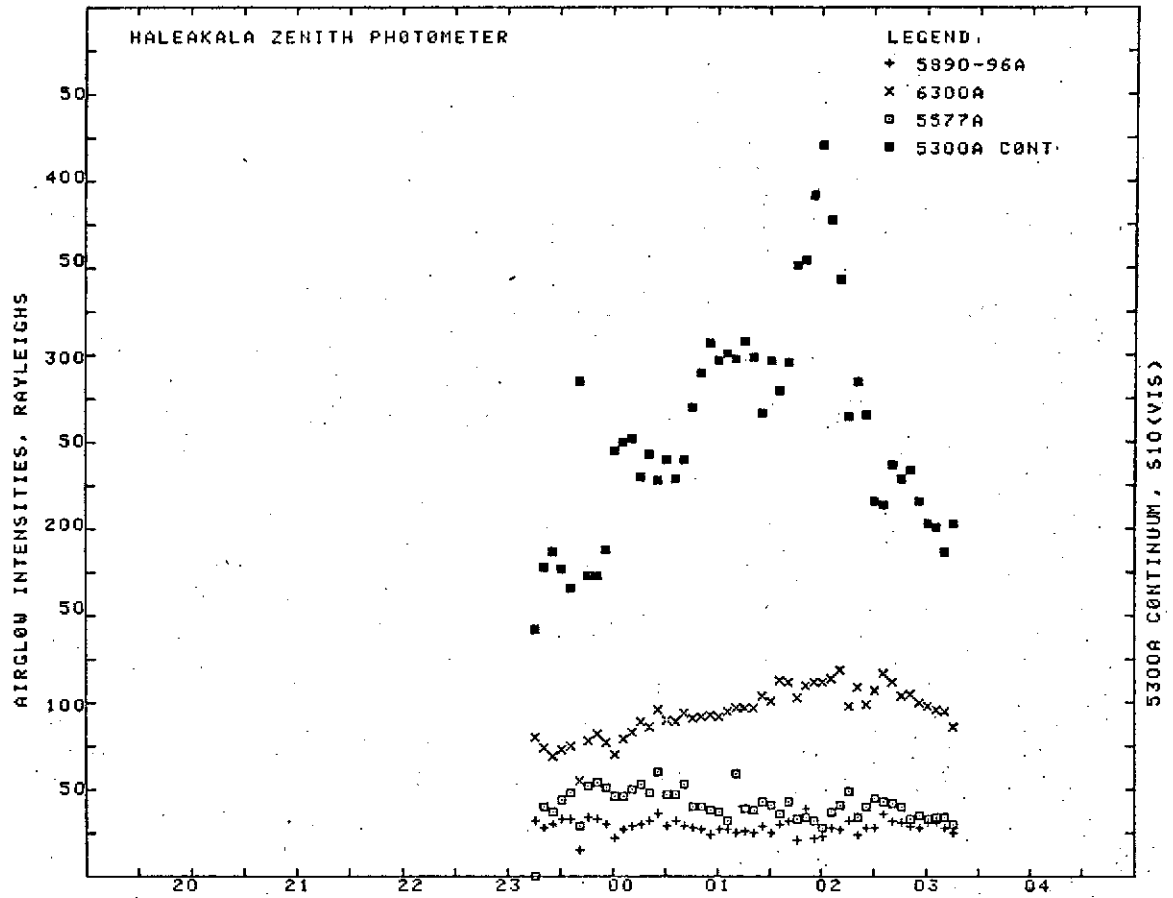
DATE
YR MO DA
63 06 22



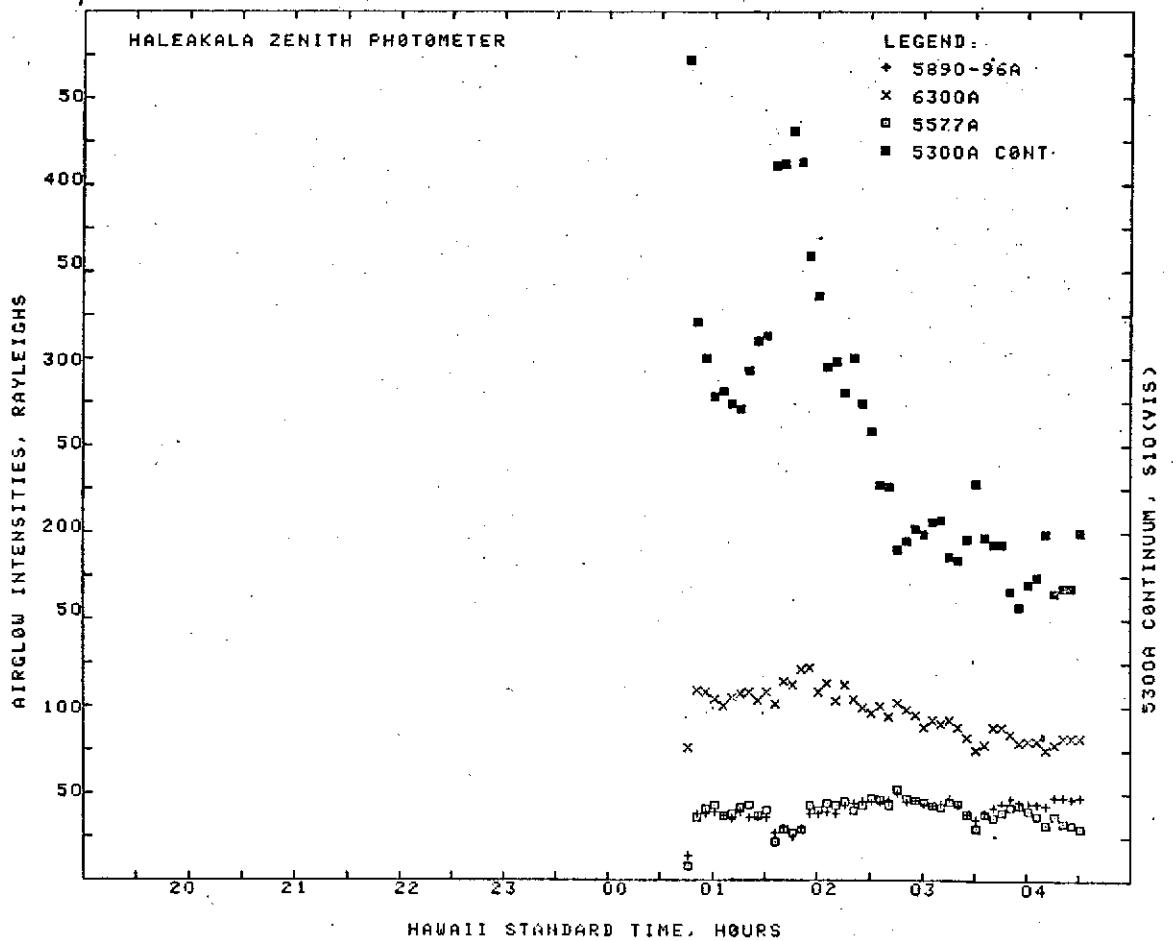
DATE
YR MO DA
63 06 23



DATE
YR MO DA
63 06 24

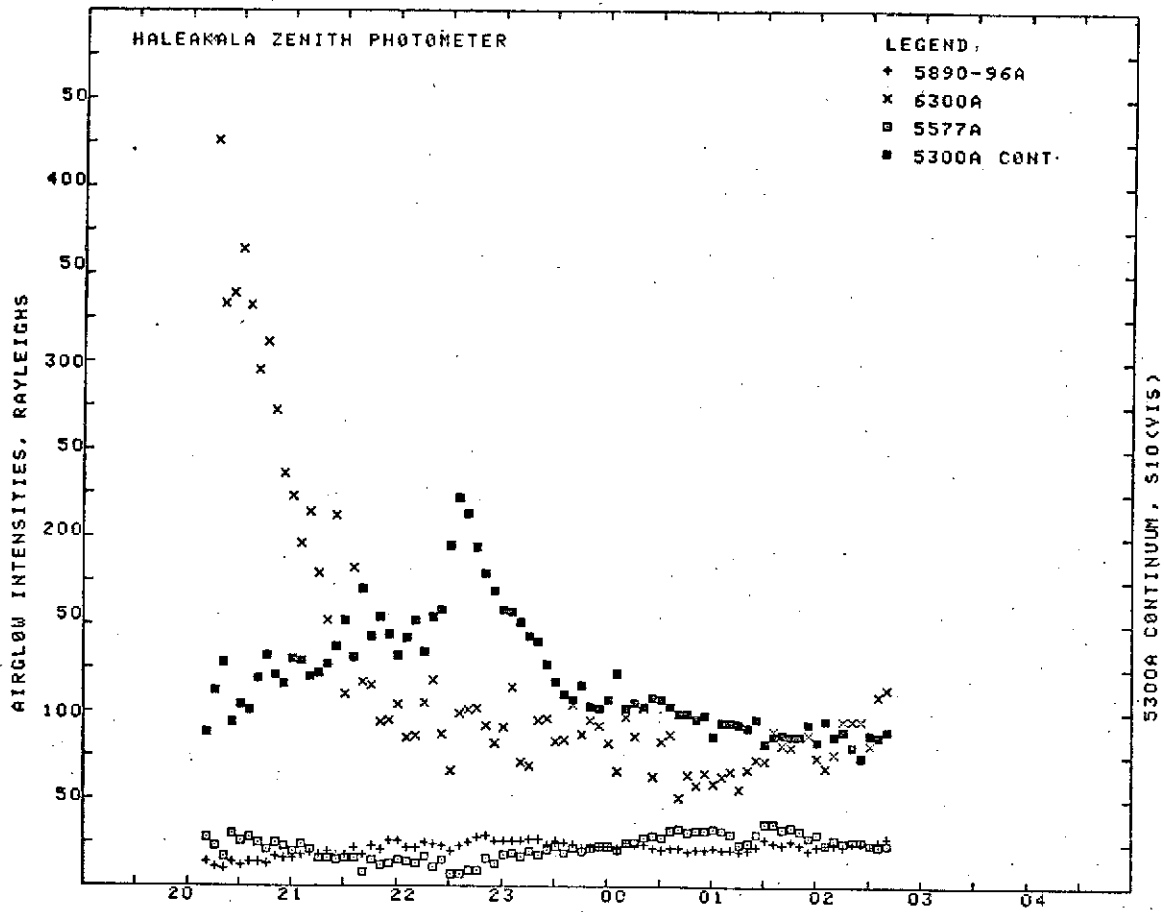


DATE
YR MO DA
63 06 28

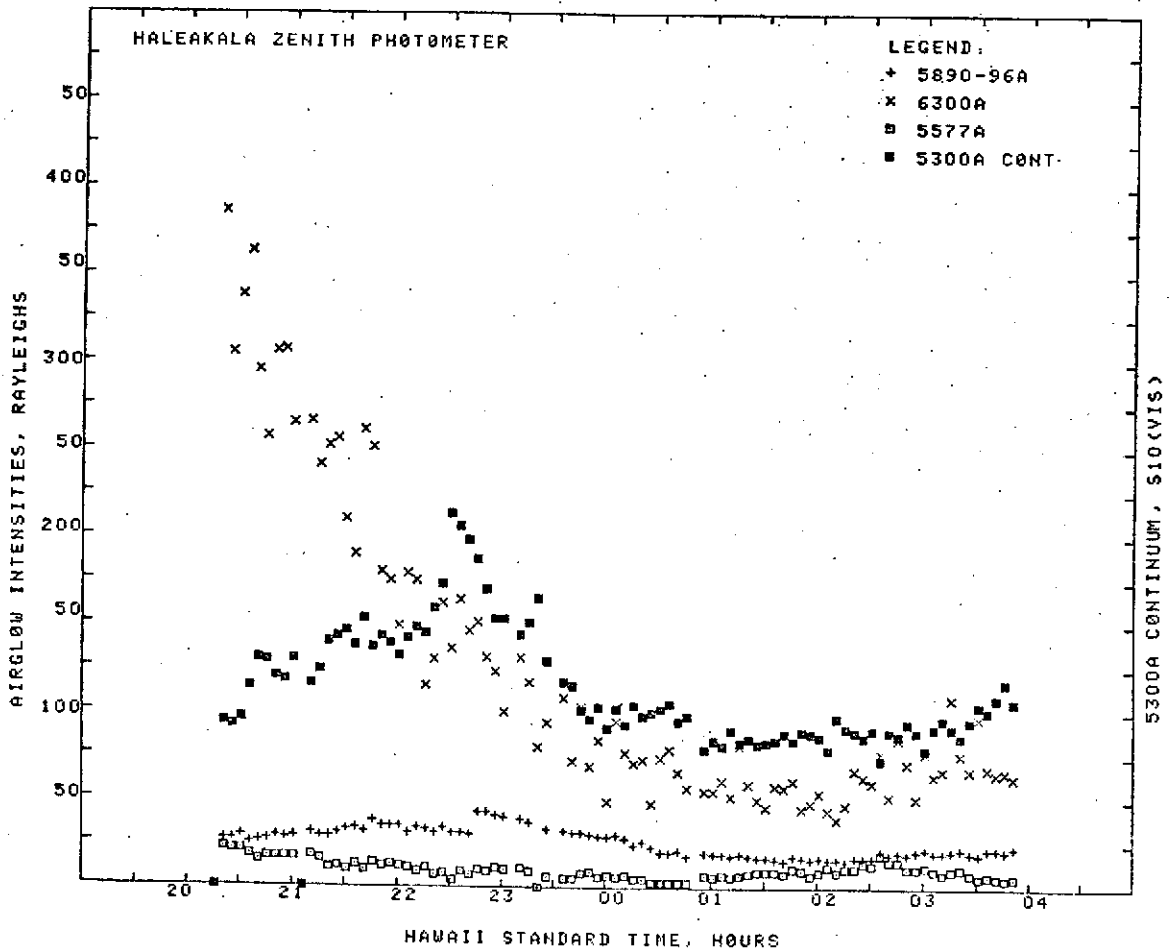


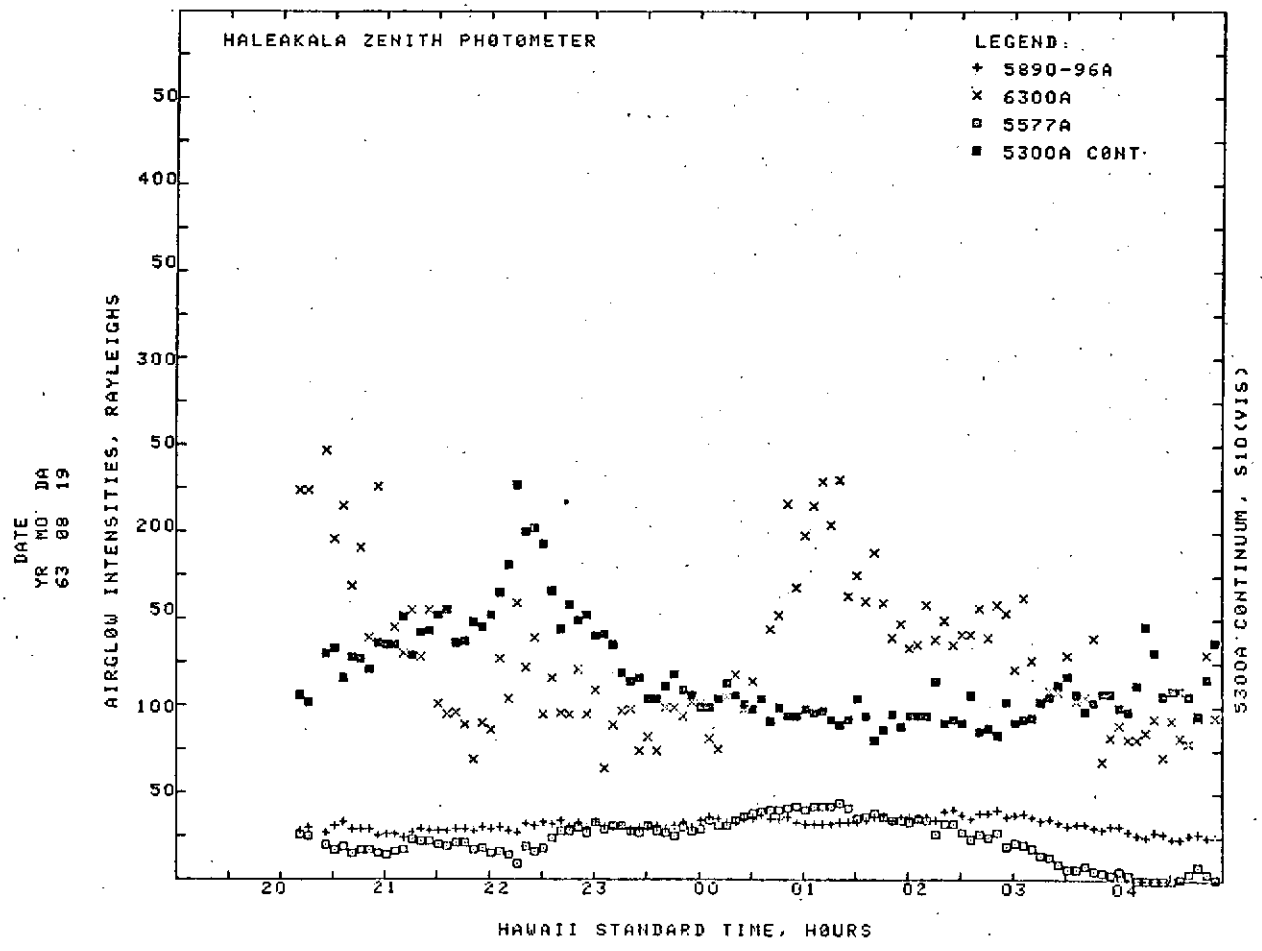
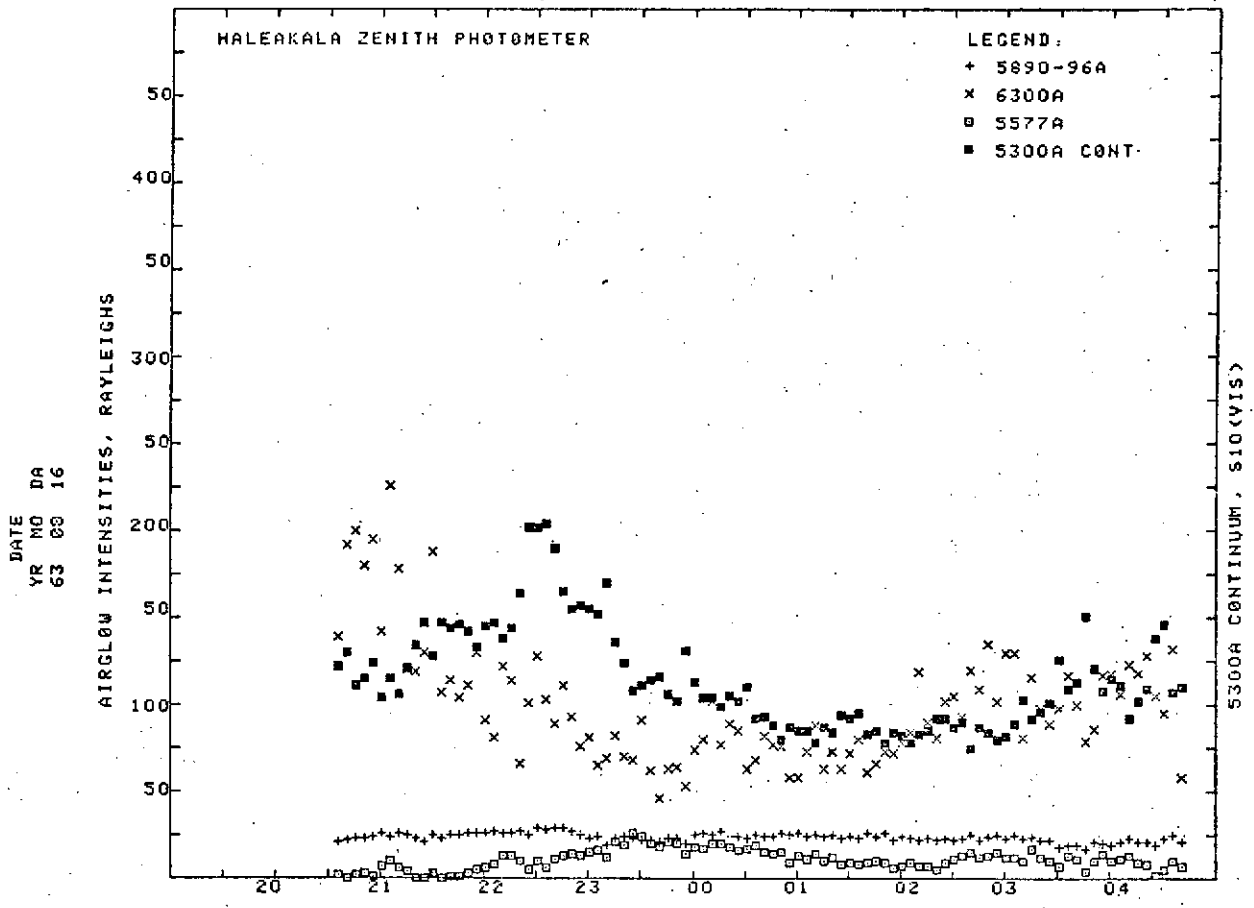
HAWAII STANDARD TIME, HOURS

DATE
YR MO DA
63 08 14

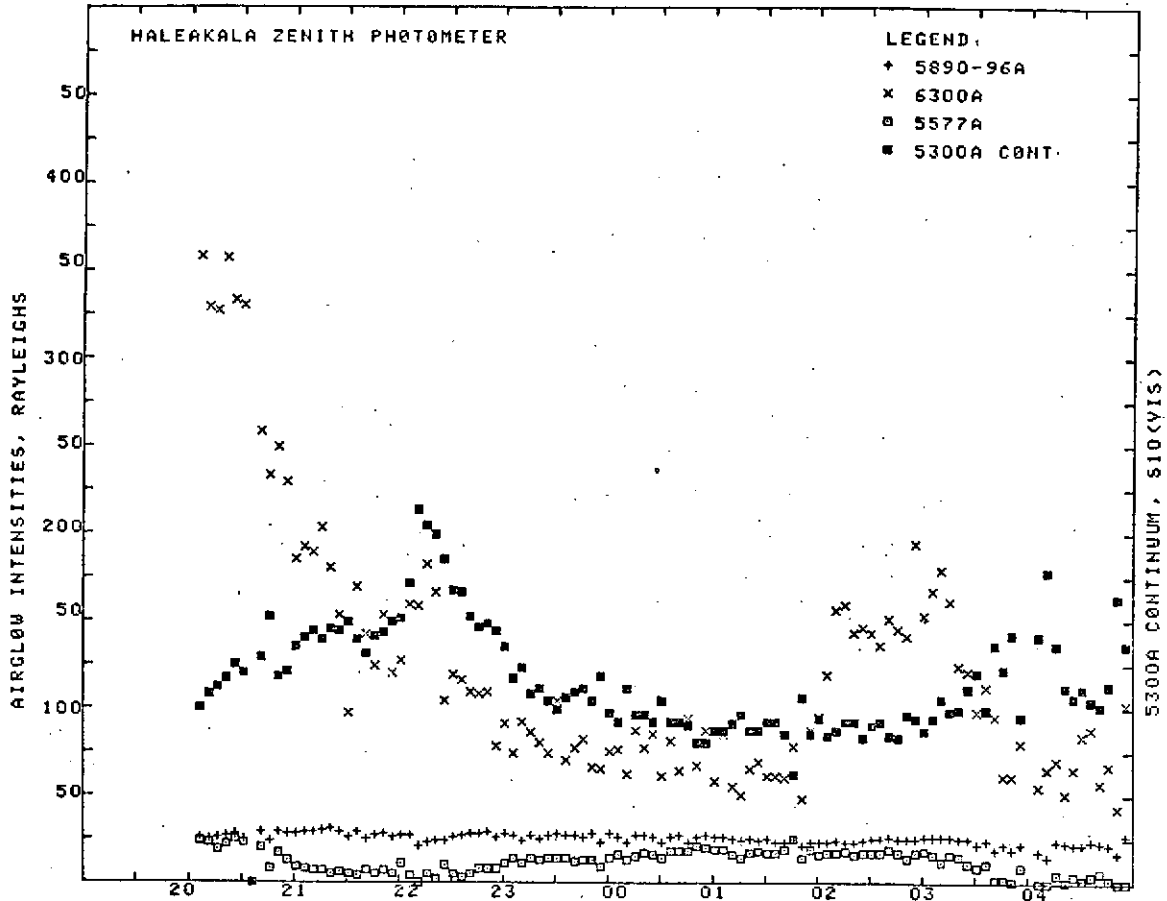


DATE
YR MO DA
63 08 15

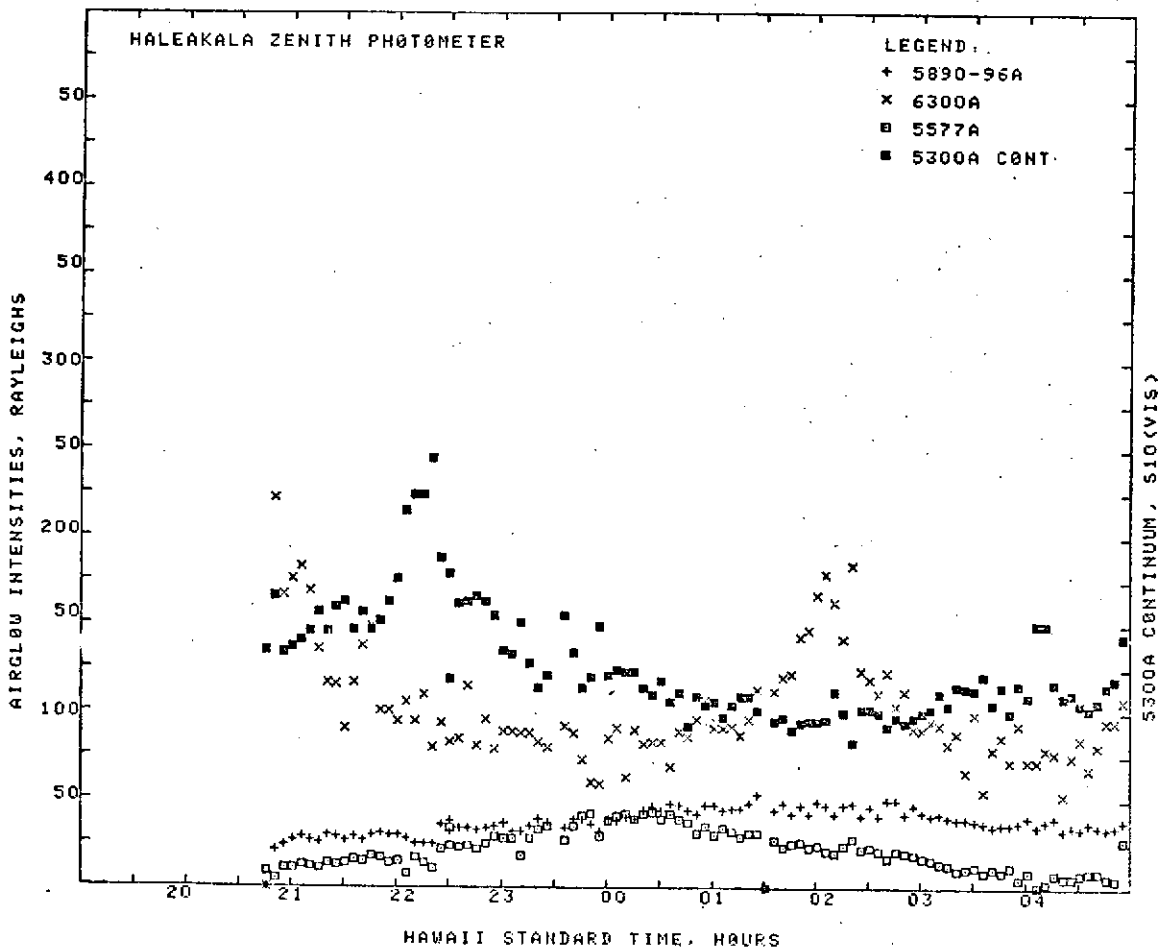


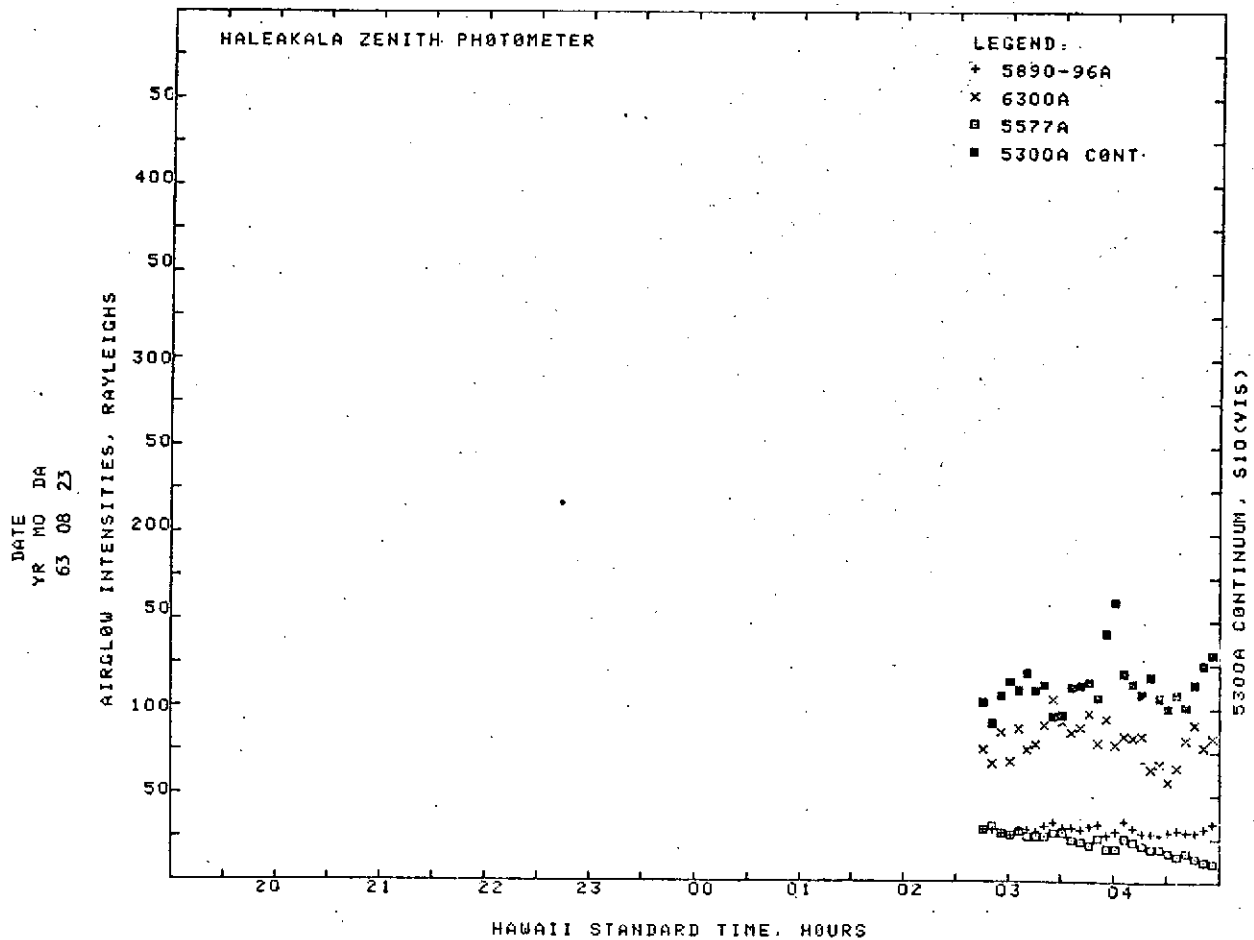
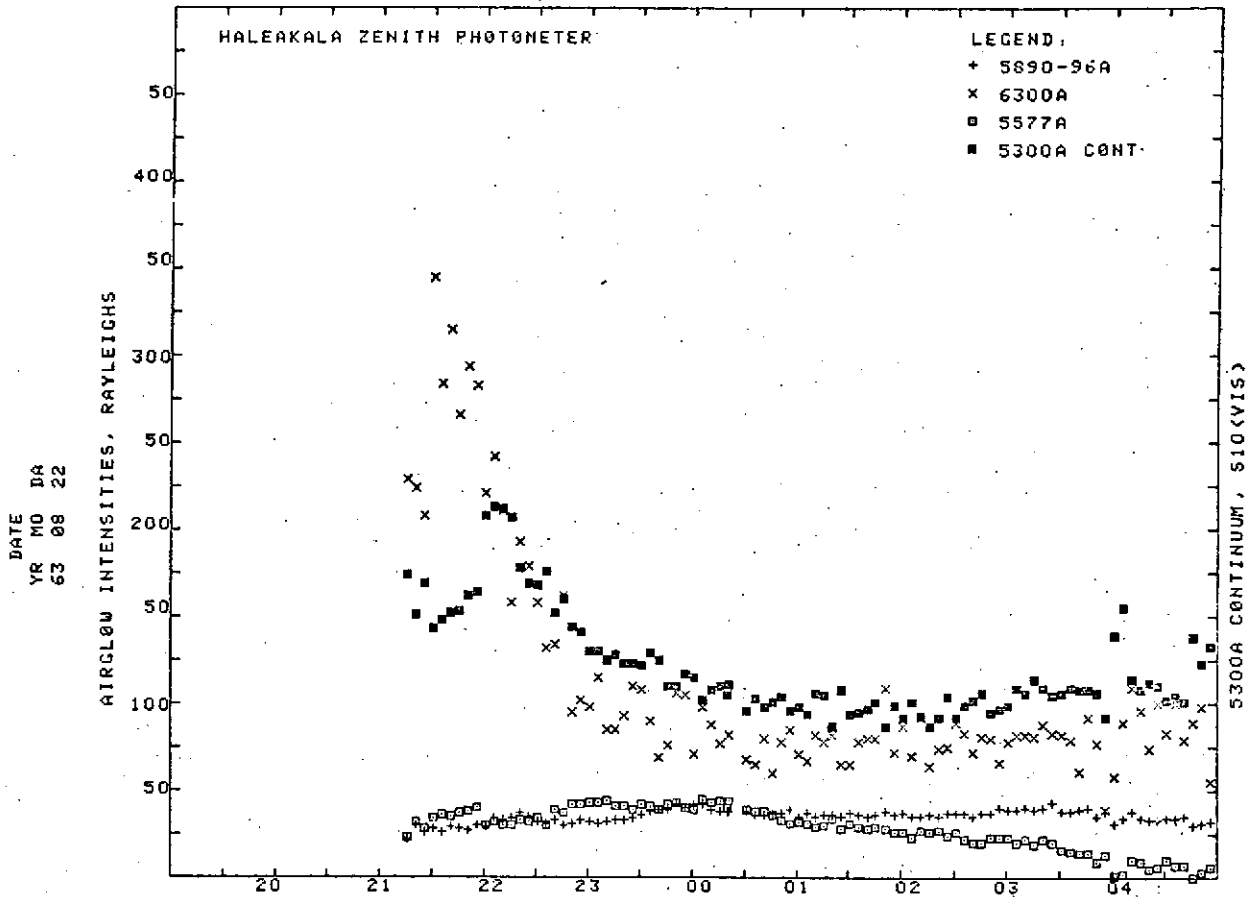


DATE
YR MO DA
63 08 20

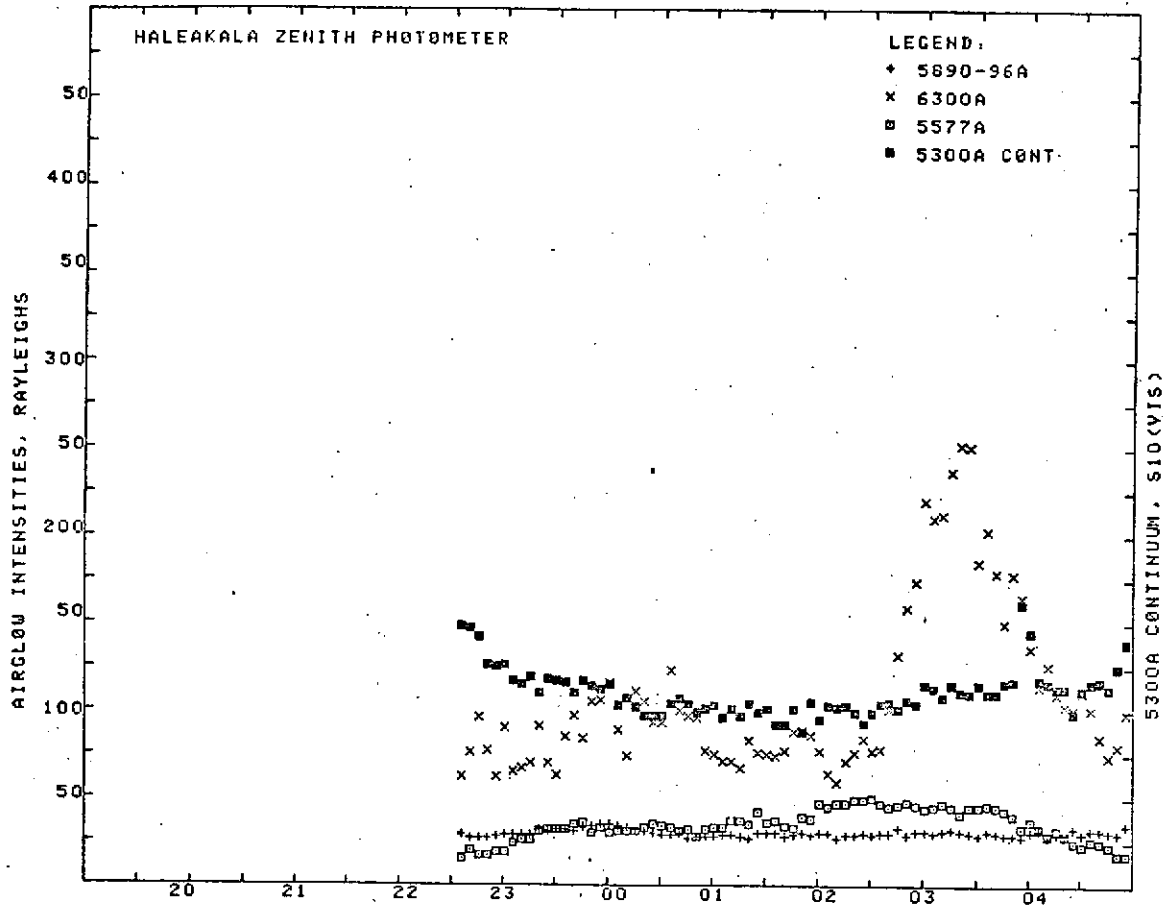


DATE
YR MO DA
63 08 21

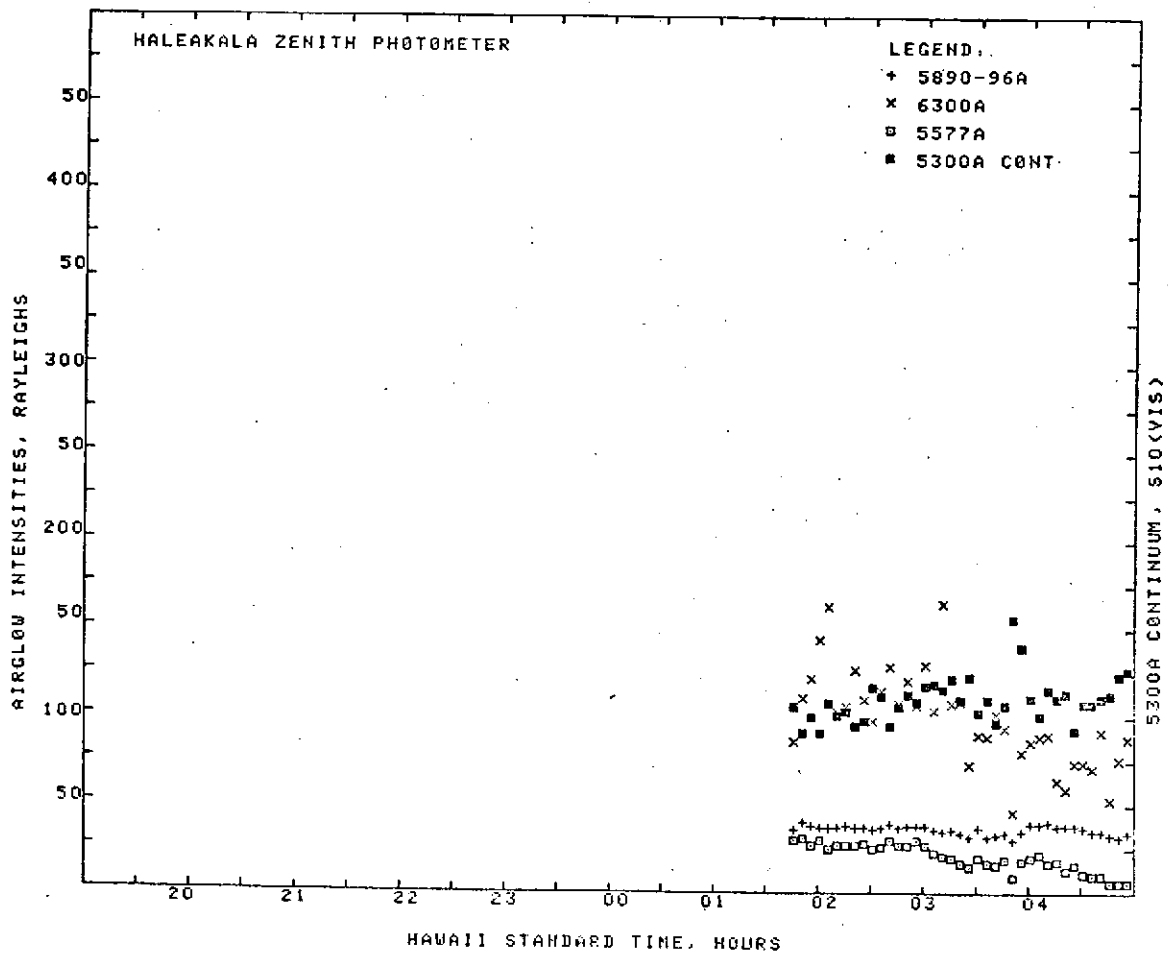




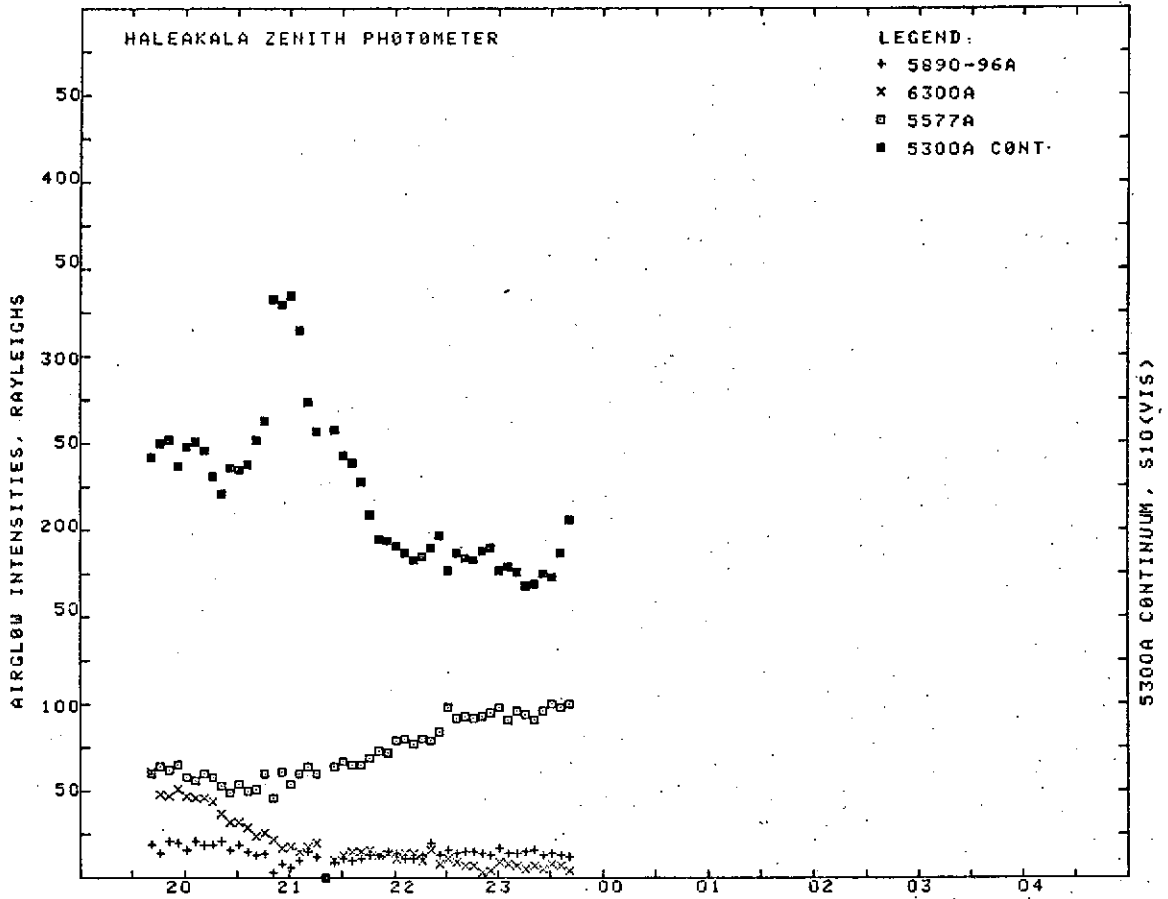
DATE
YR MO DA
63 08 24



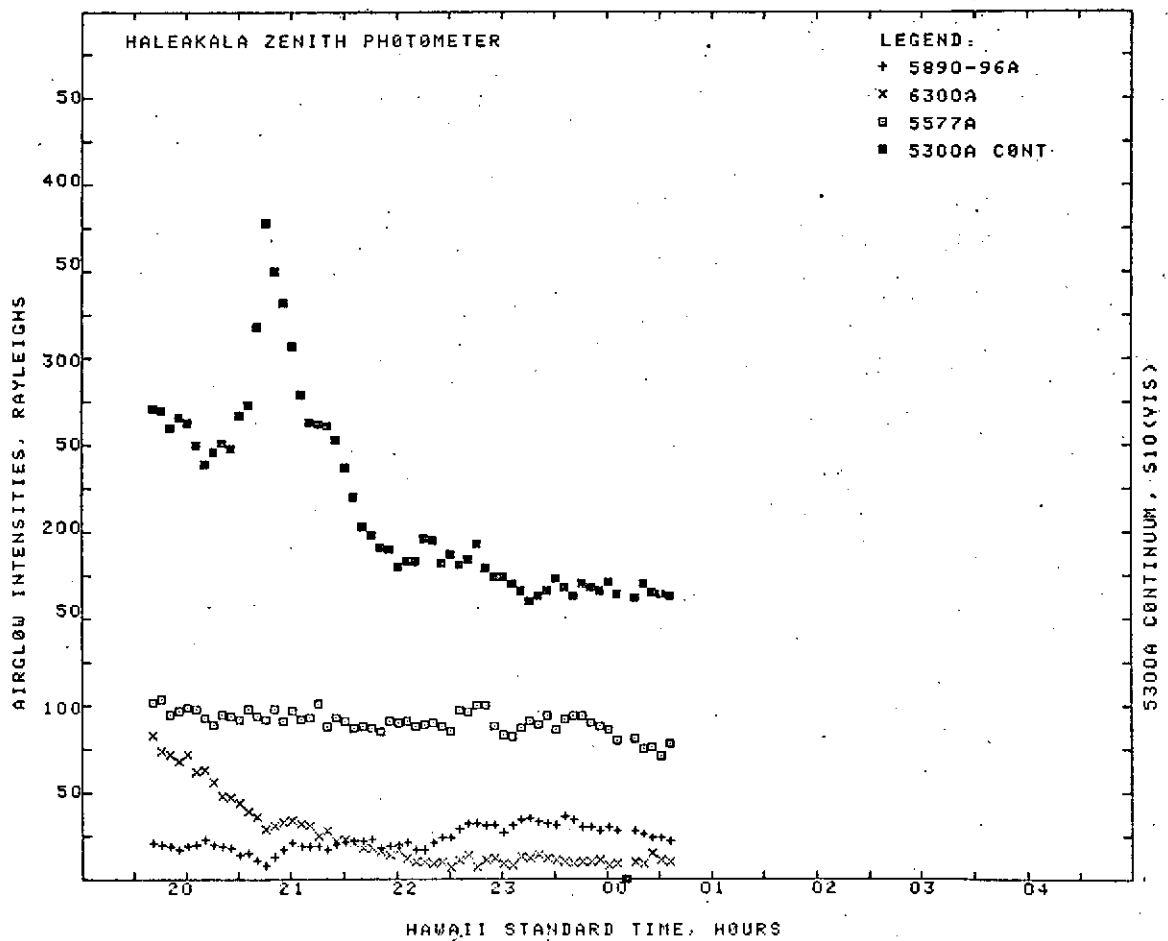
DATE
YR MO DA
63 08 25



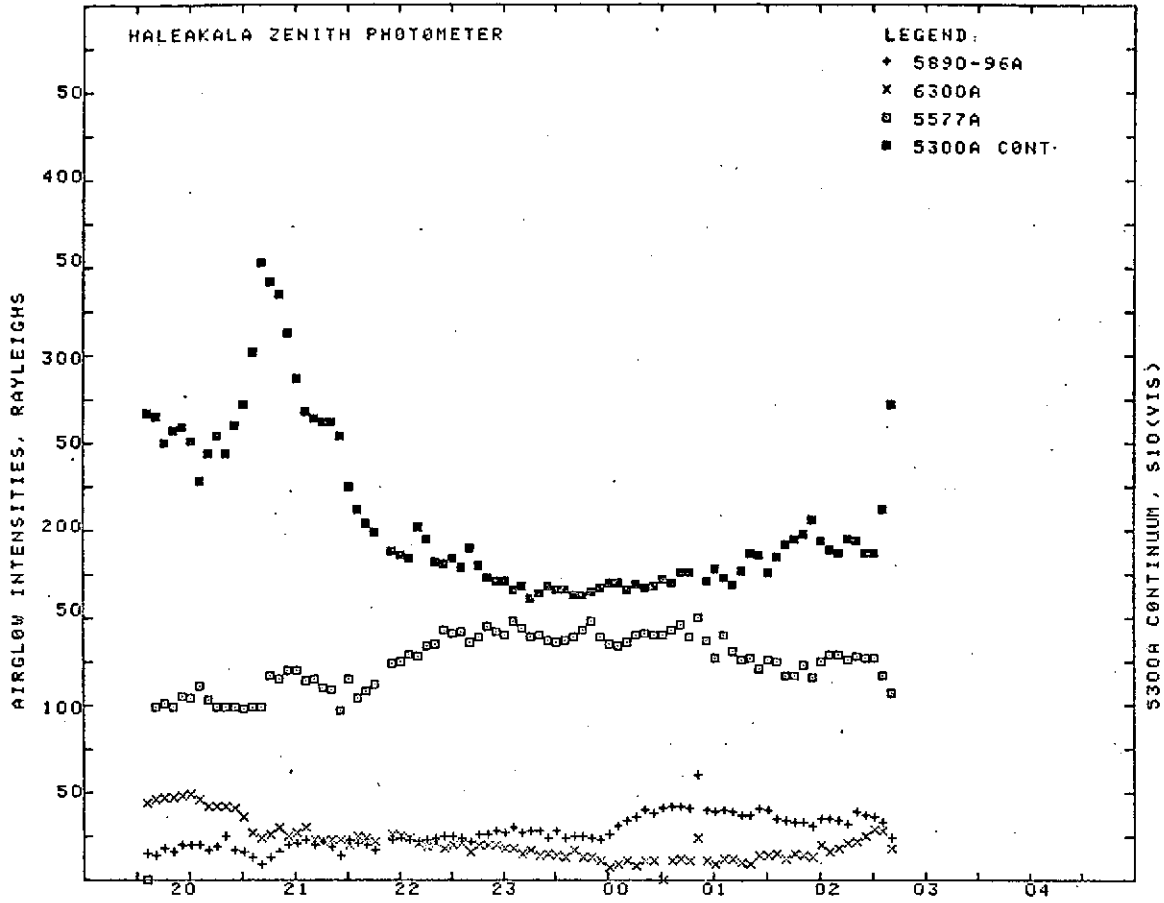
DATE
YR MO DA
63 09 09



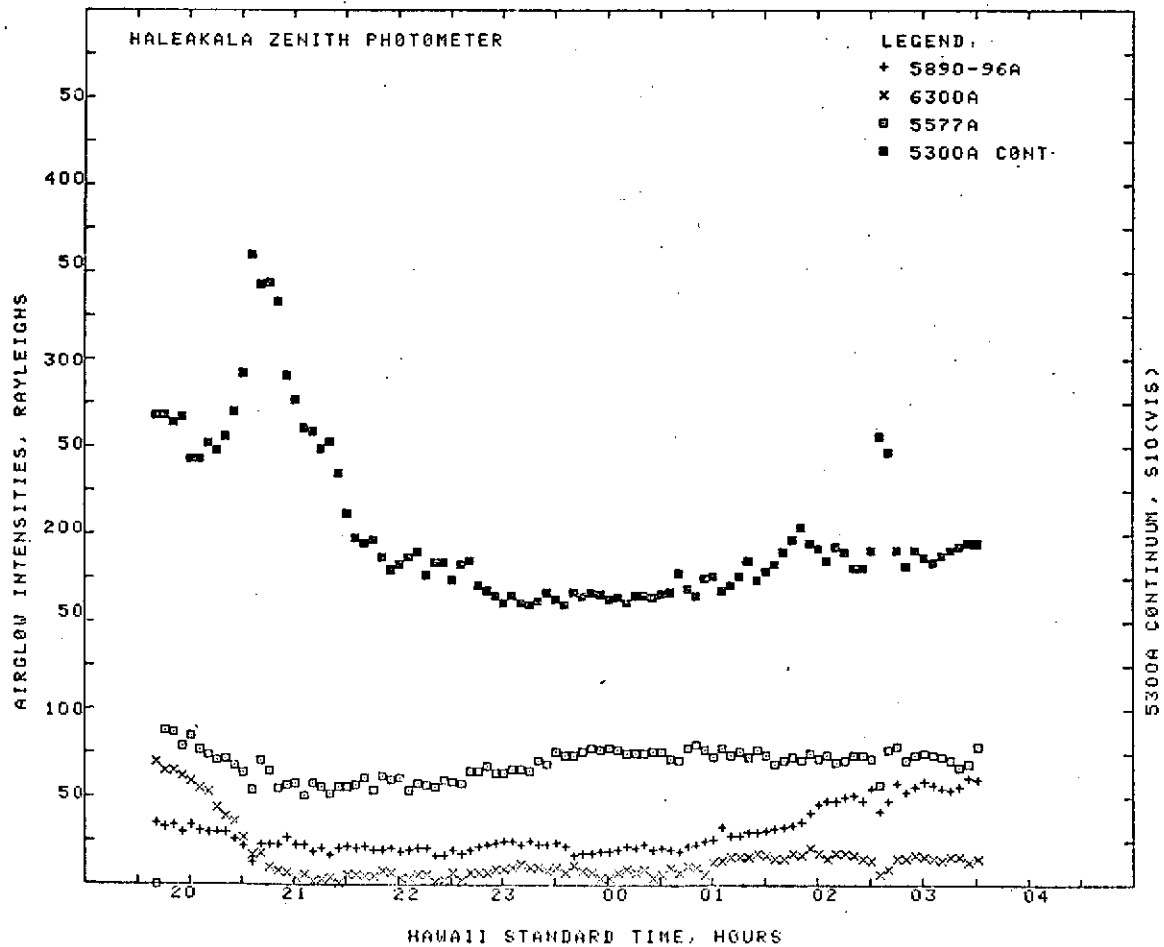
DATE
YR MO DA
63 09 11



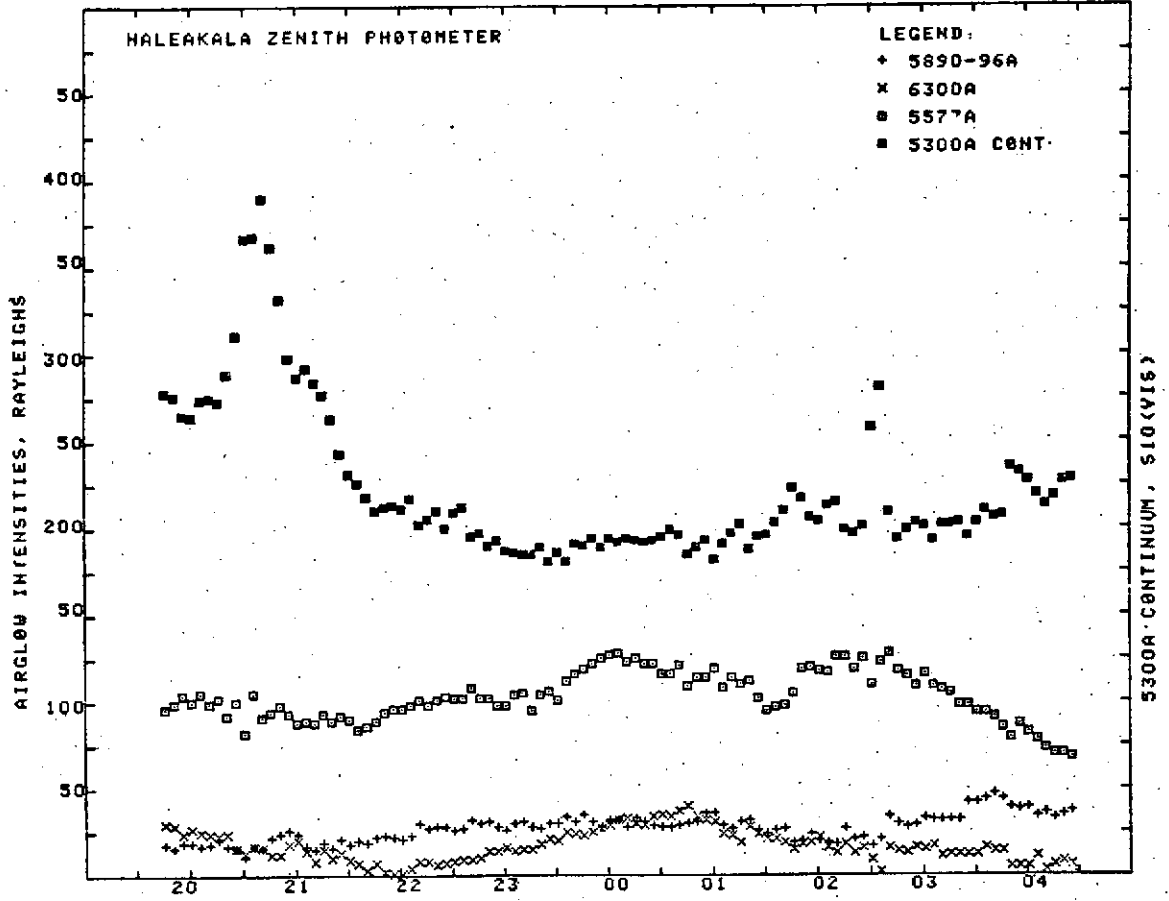
DATE
YR MO DA
63 09 12



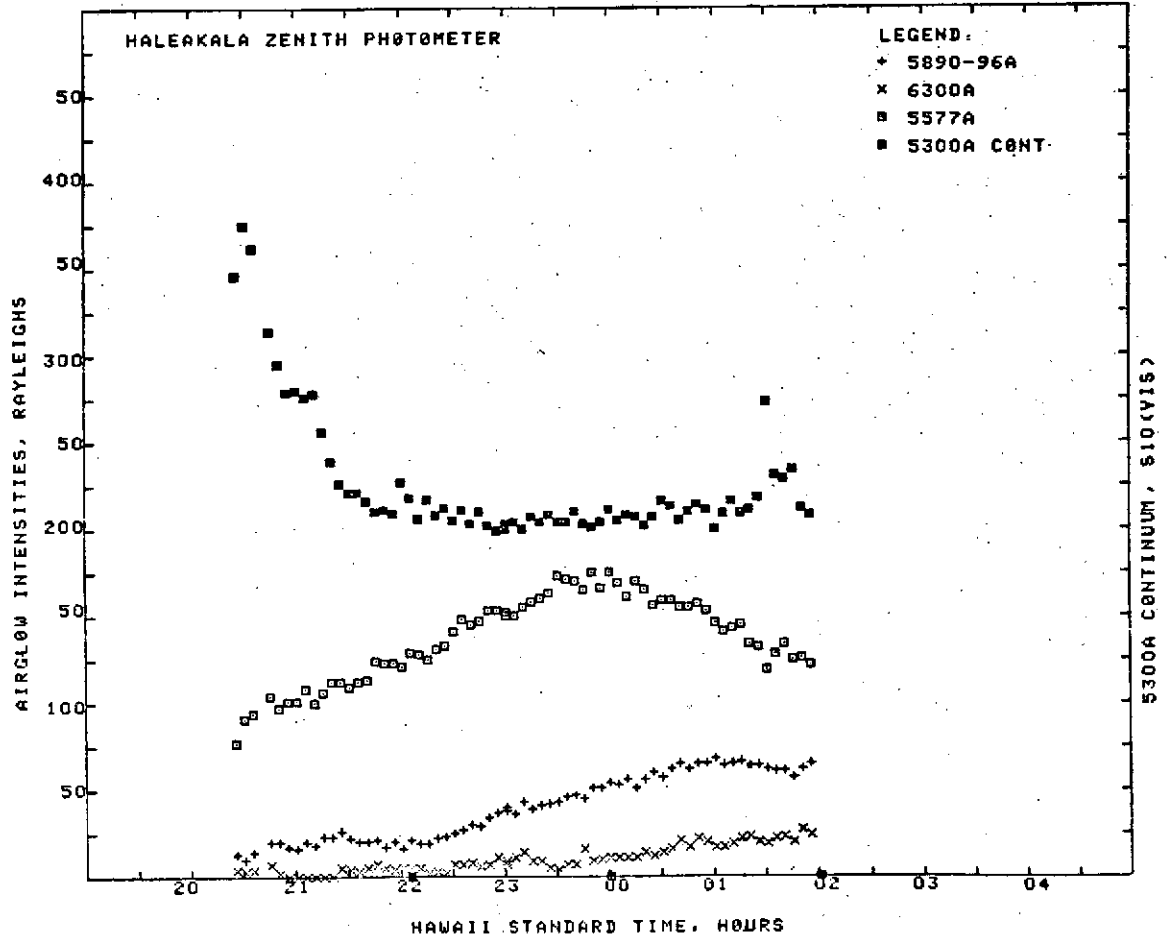
DATE
YR MO DA
63 09 13



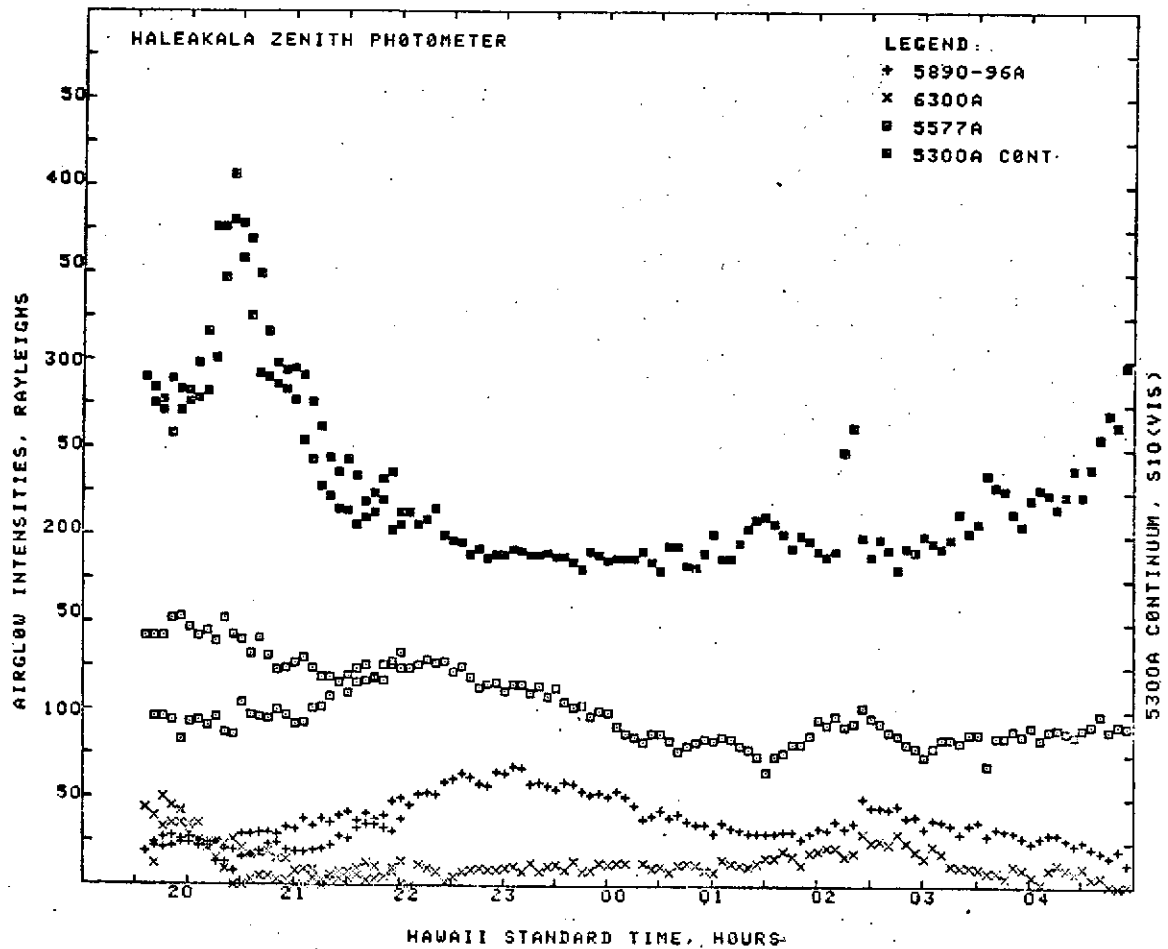
DATE
YR MO DA
63 09 14

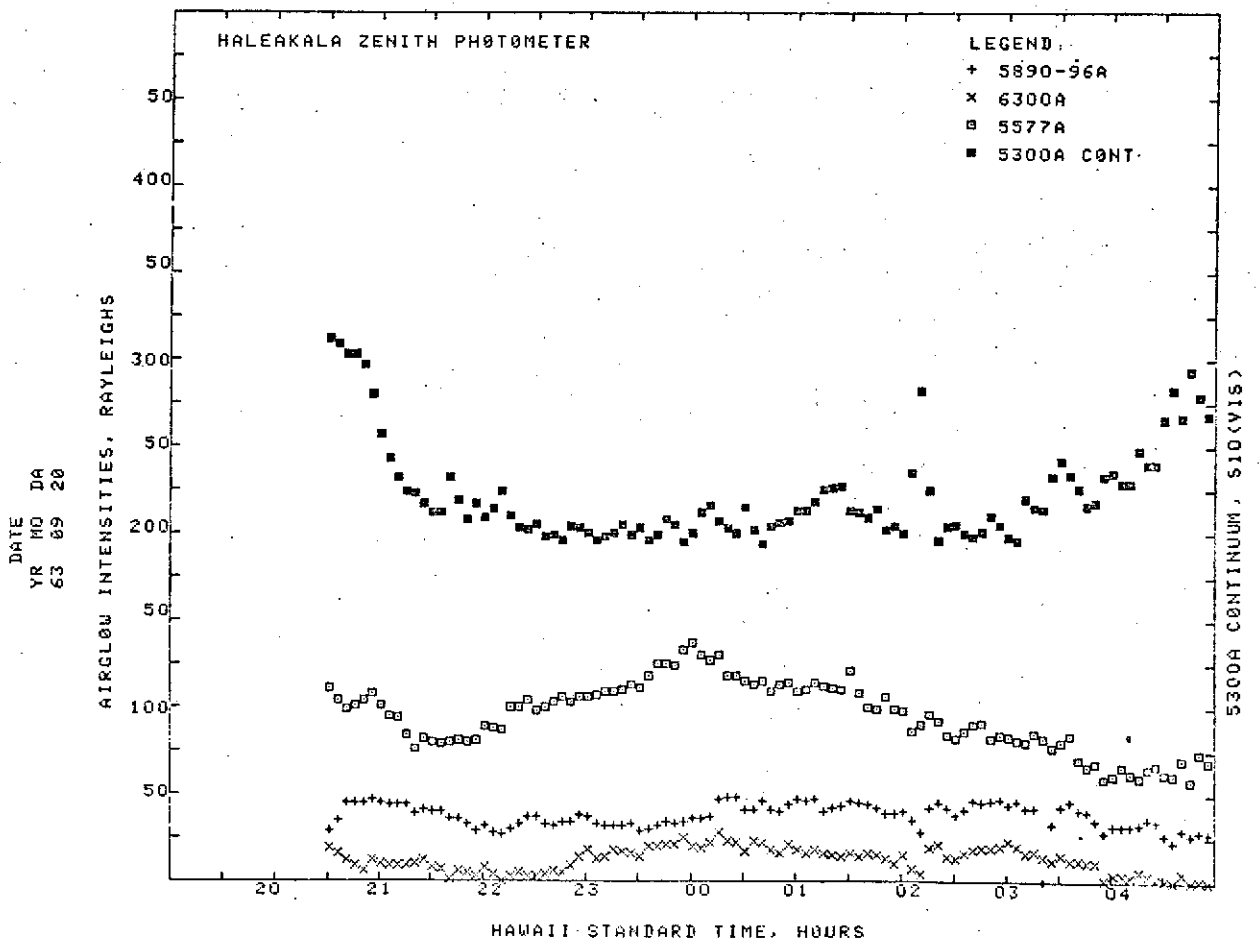
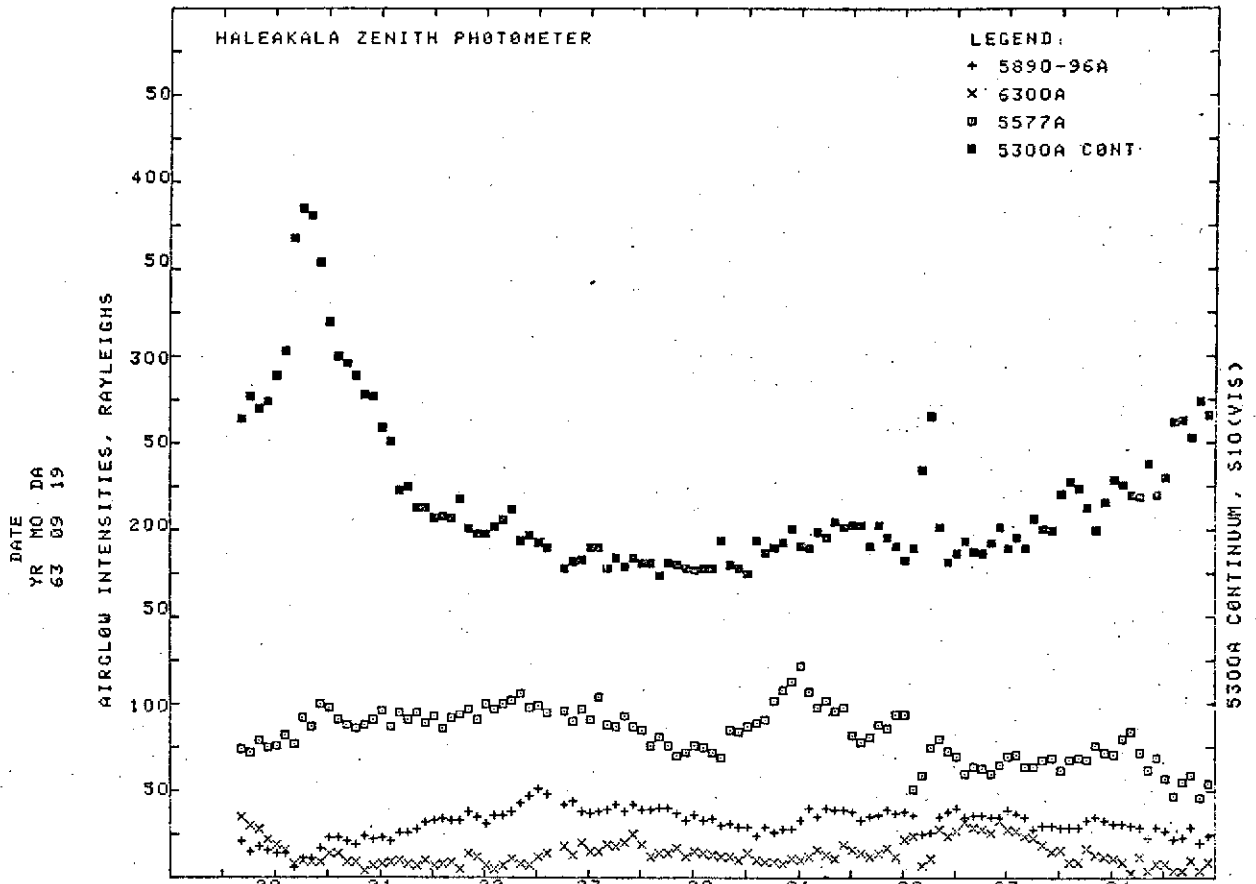


DATE
YR MO DA
63 09 15

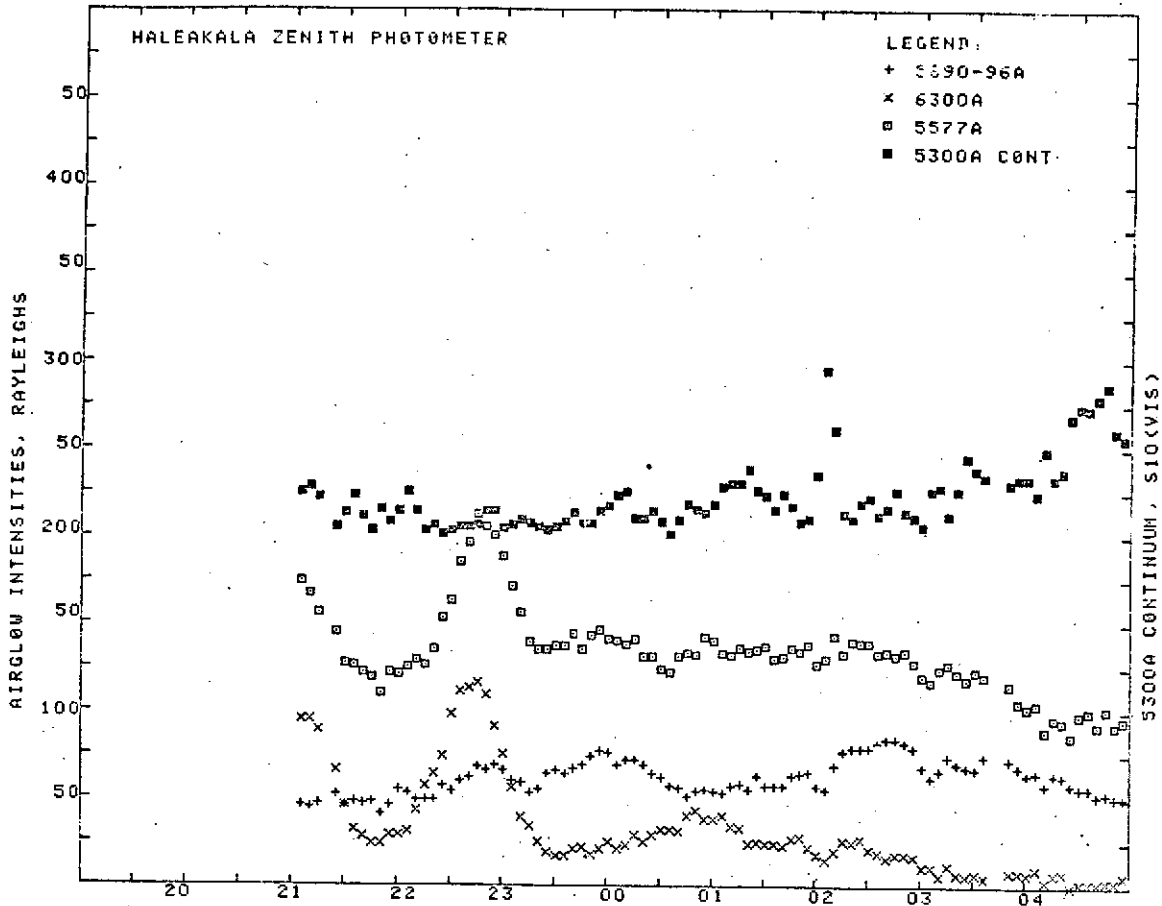


DATE
YR MO DA
63 09 18

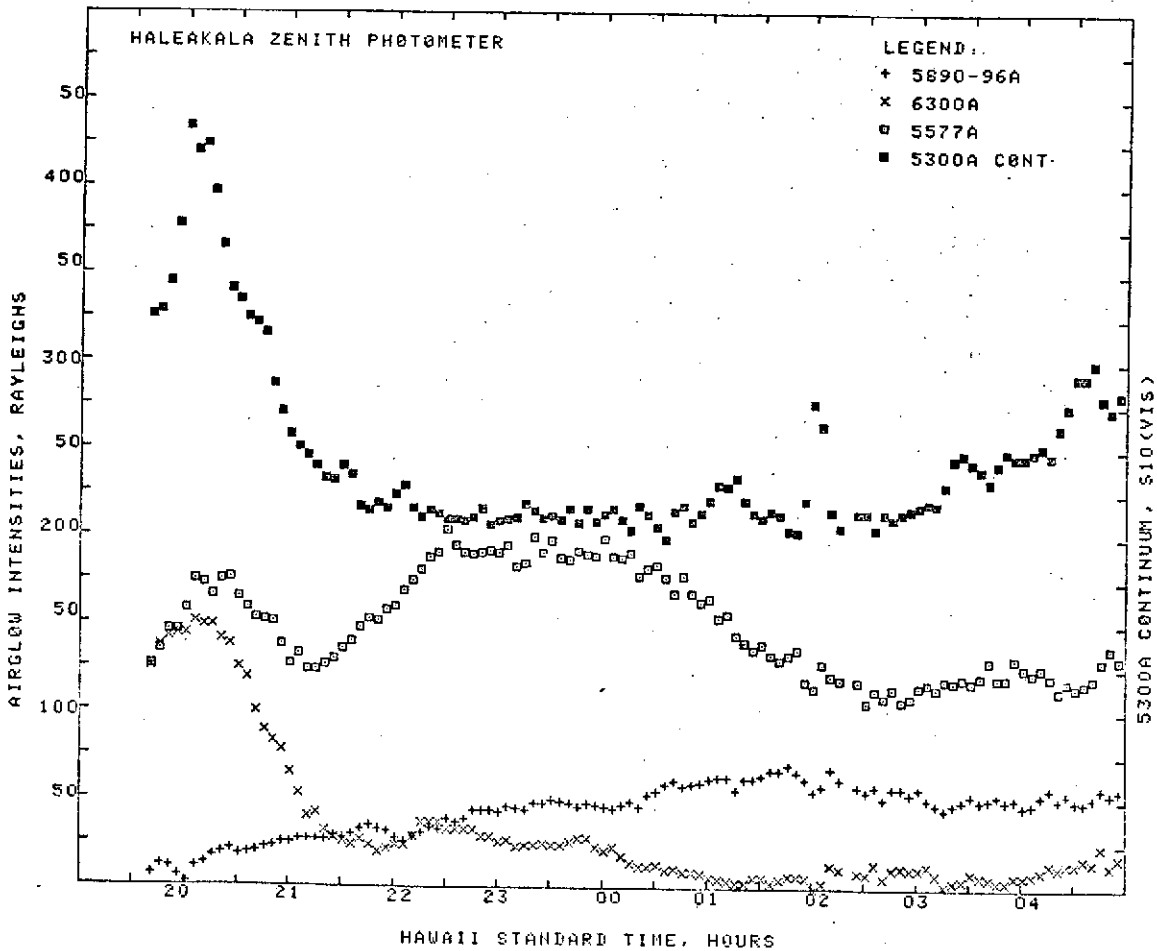


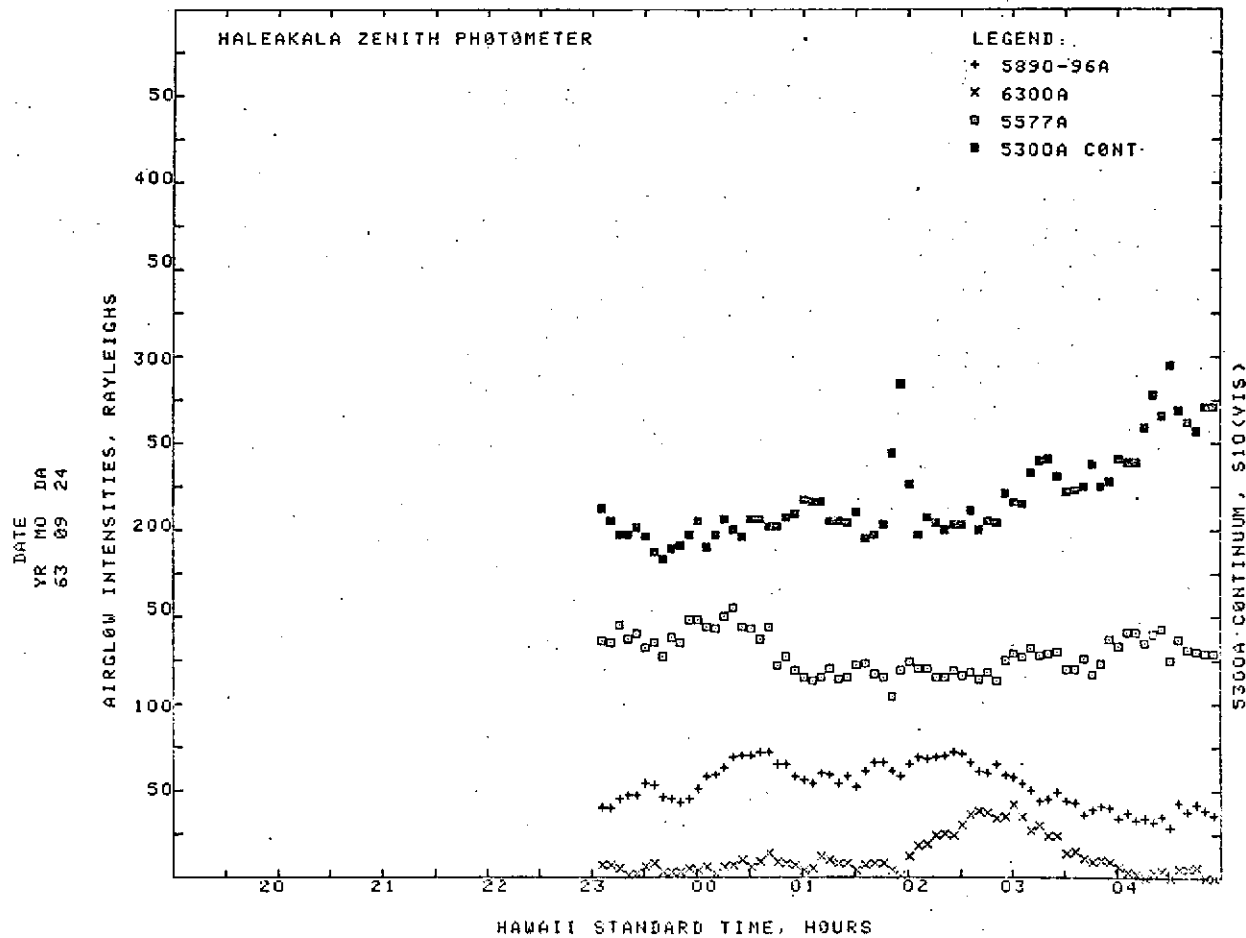
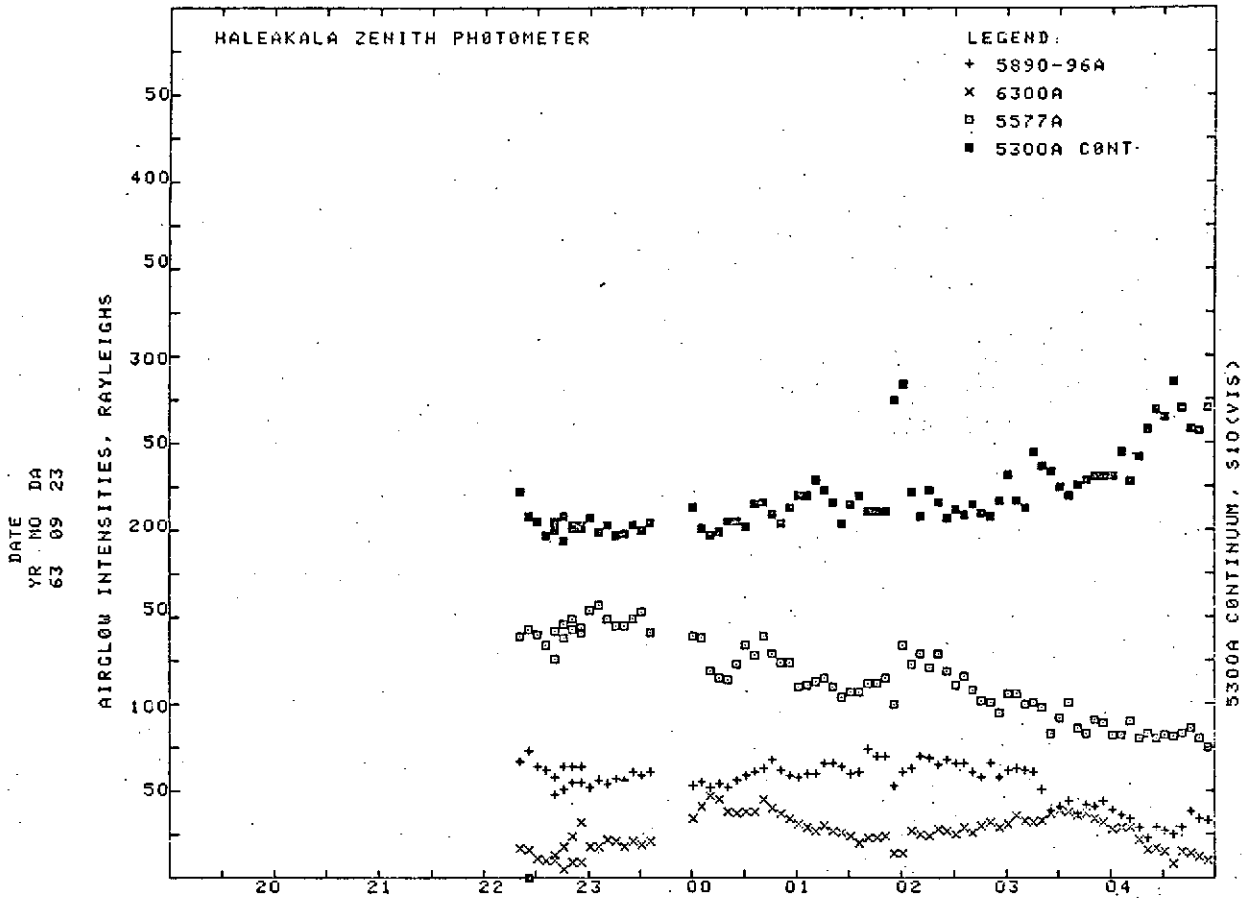


DATE
YR MO DA
63 09 21

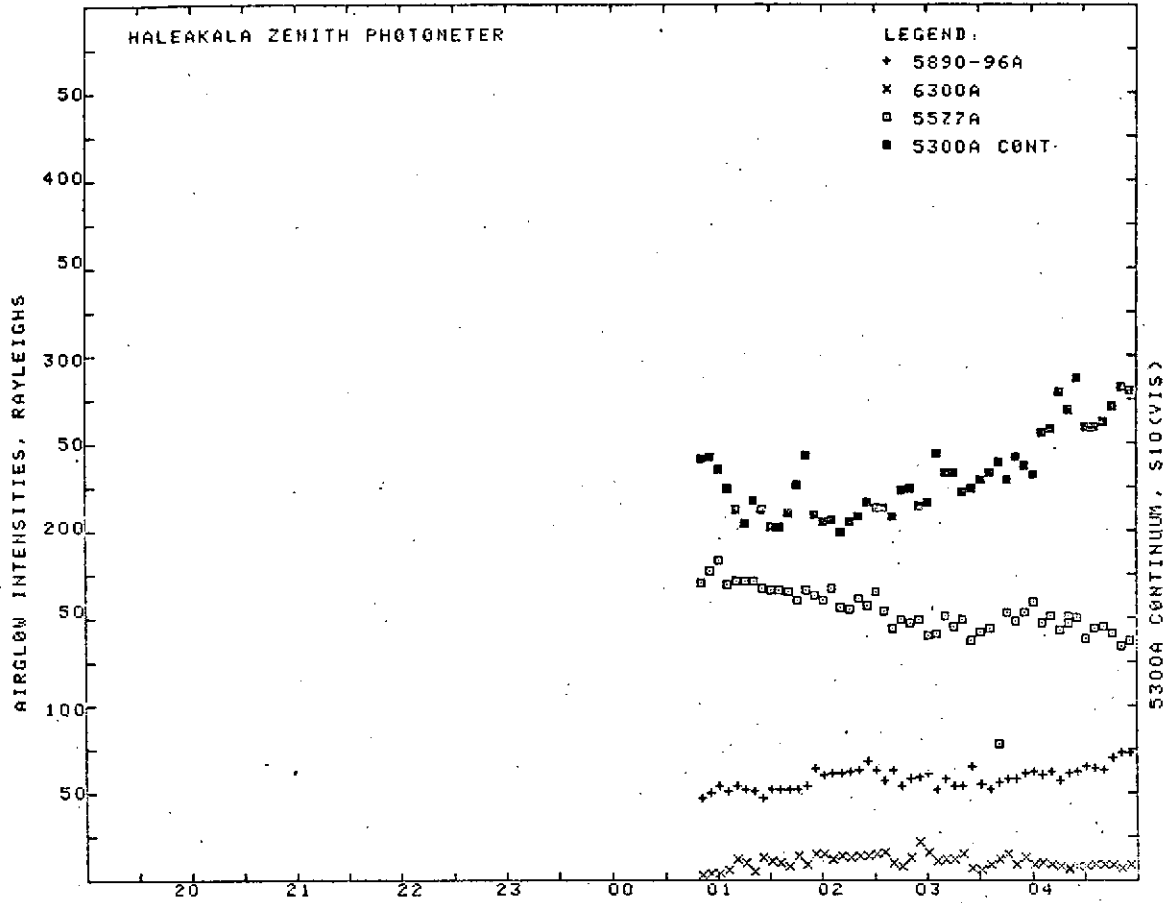


DATE
YR MO DA
63 09 22

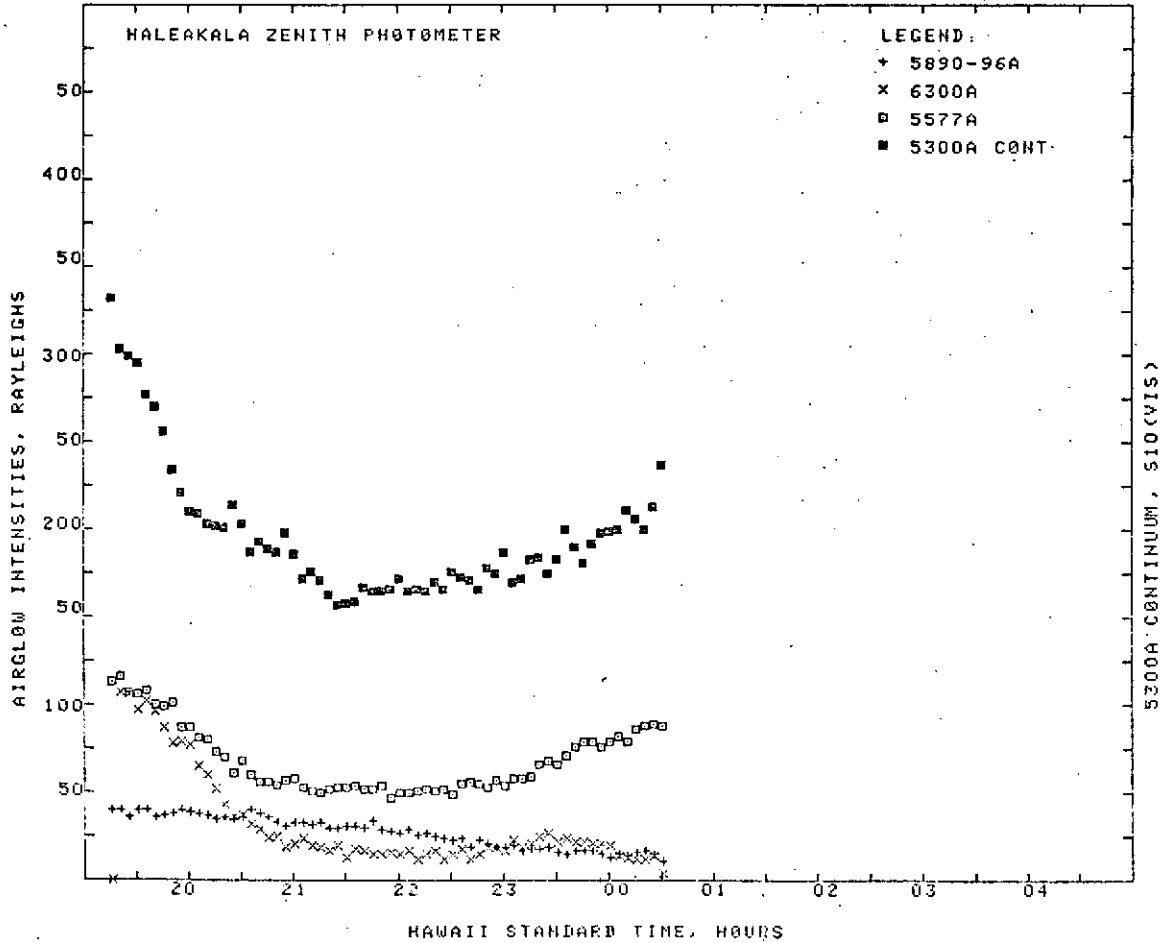


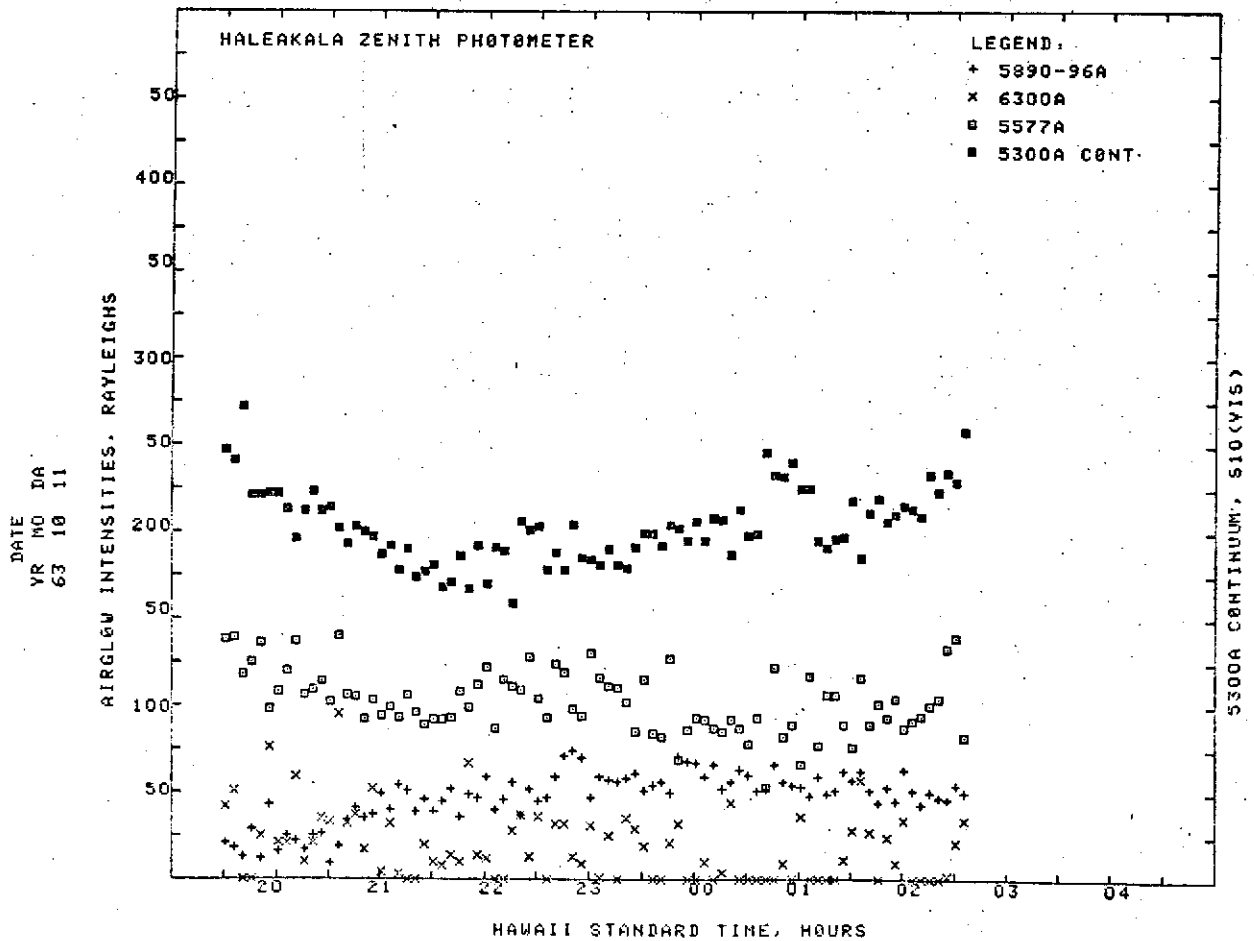
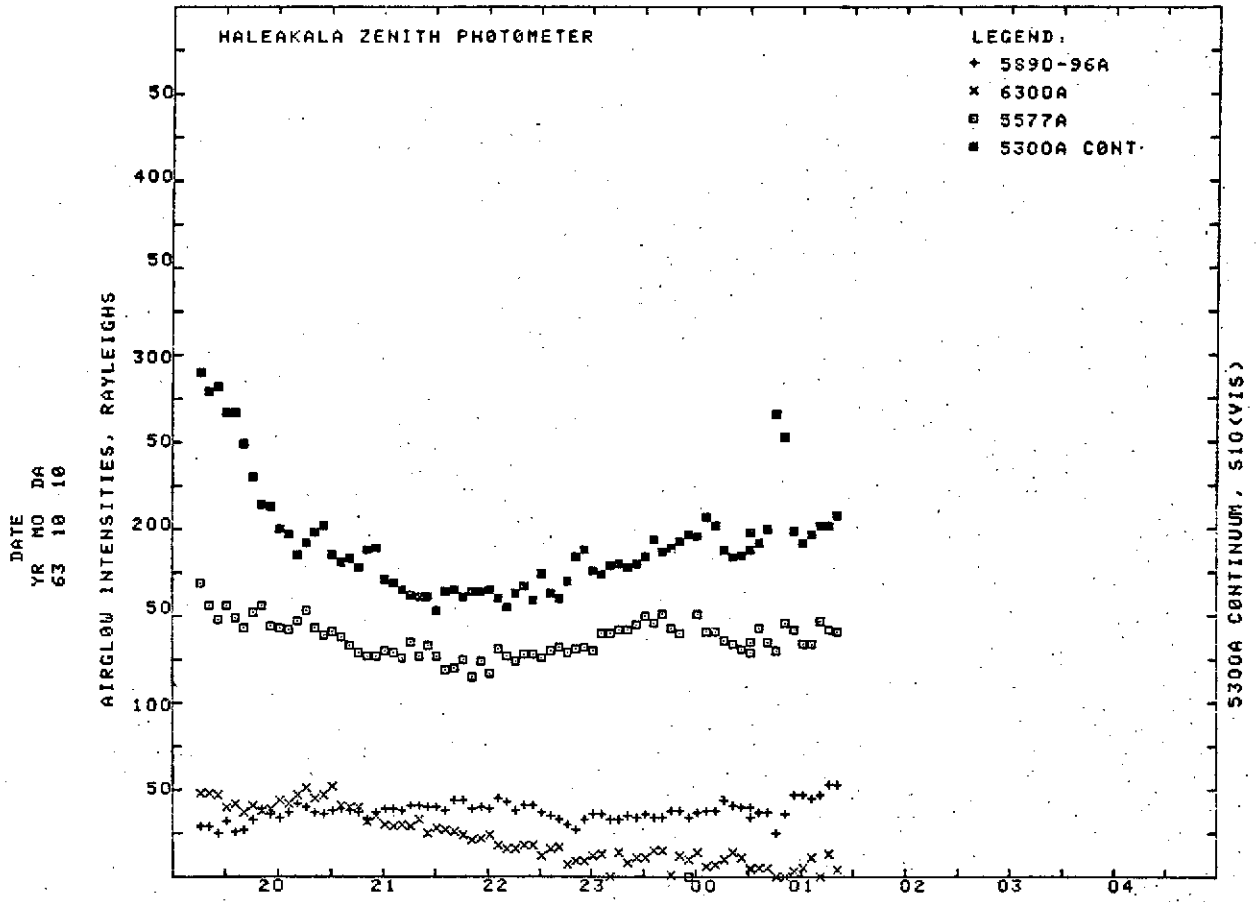


DATE
YR MO DA
63 09 26

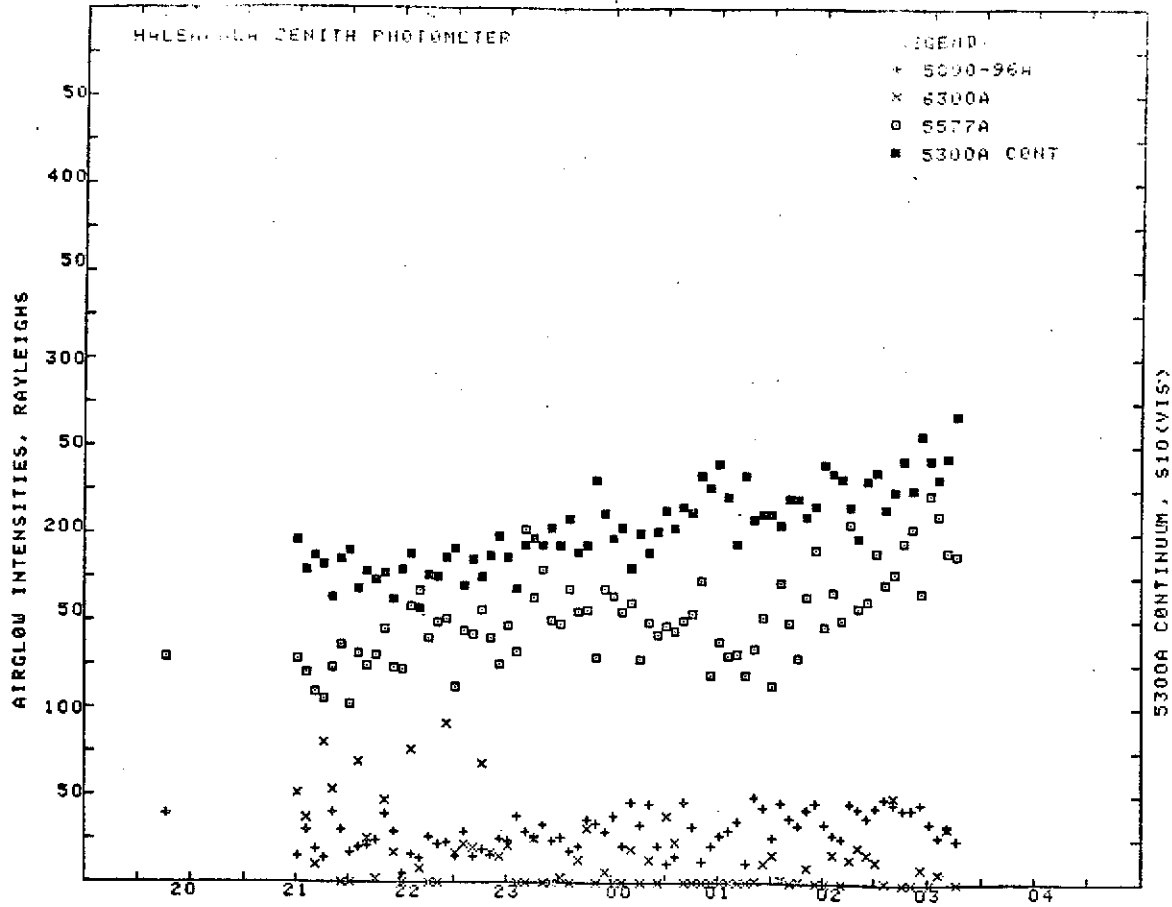


DATE
YR MO DA
63 10 09

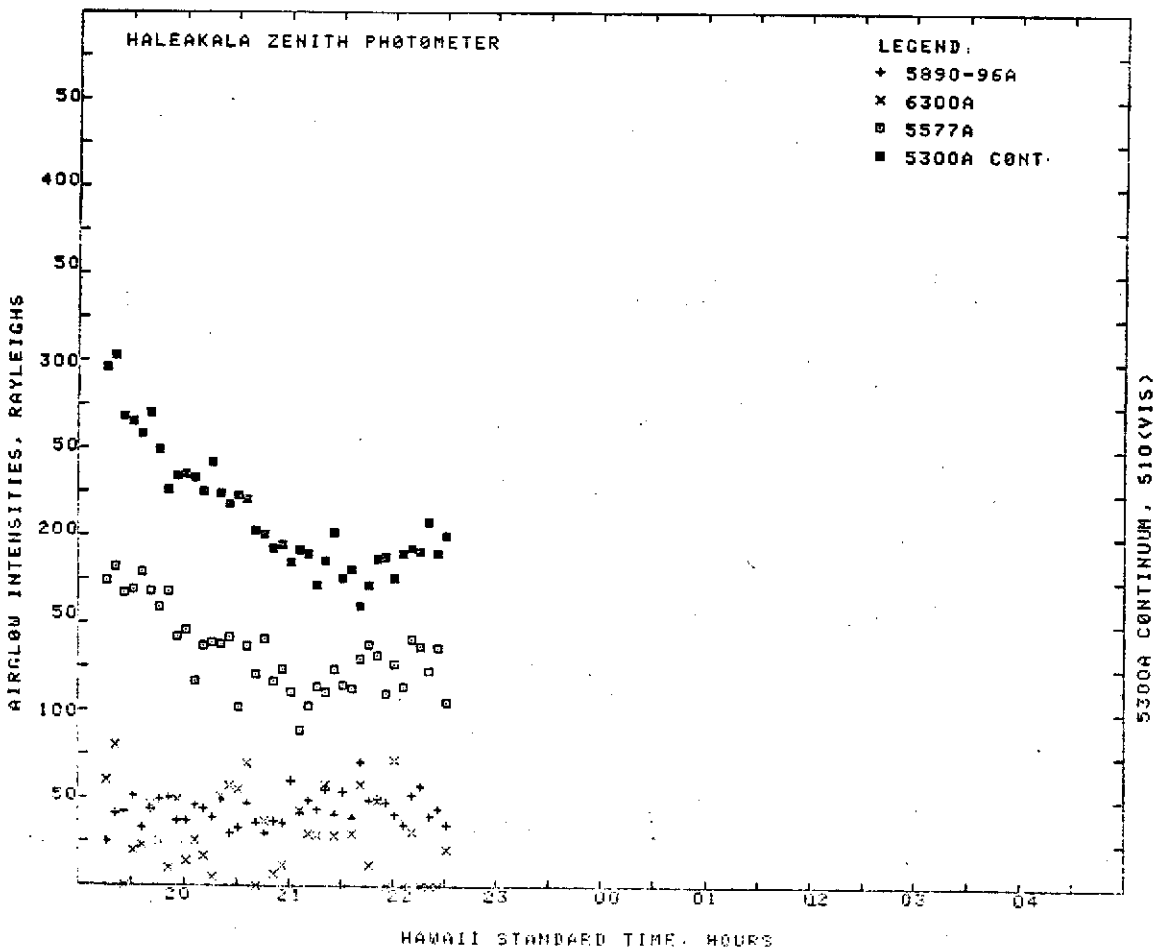




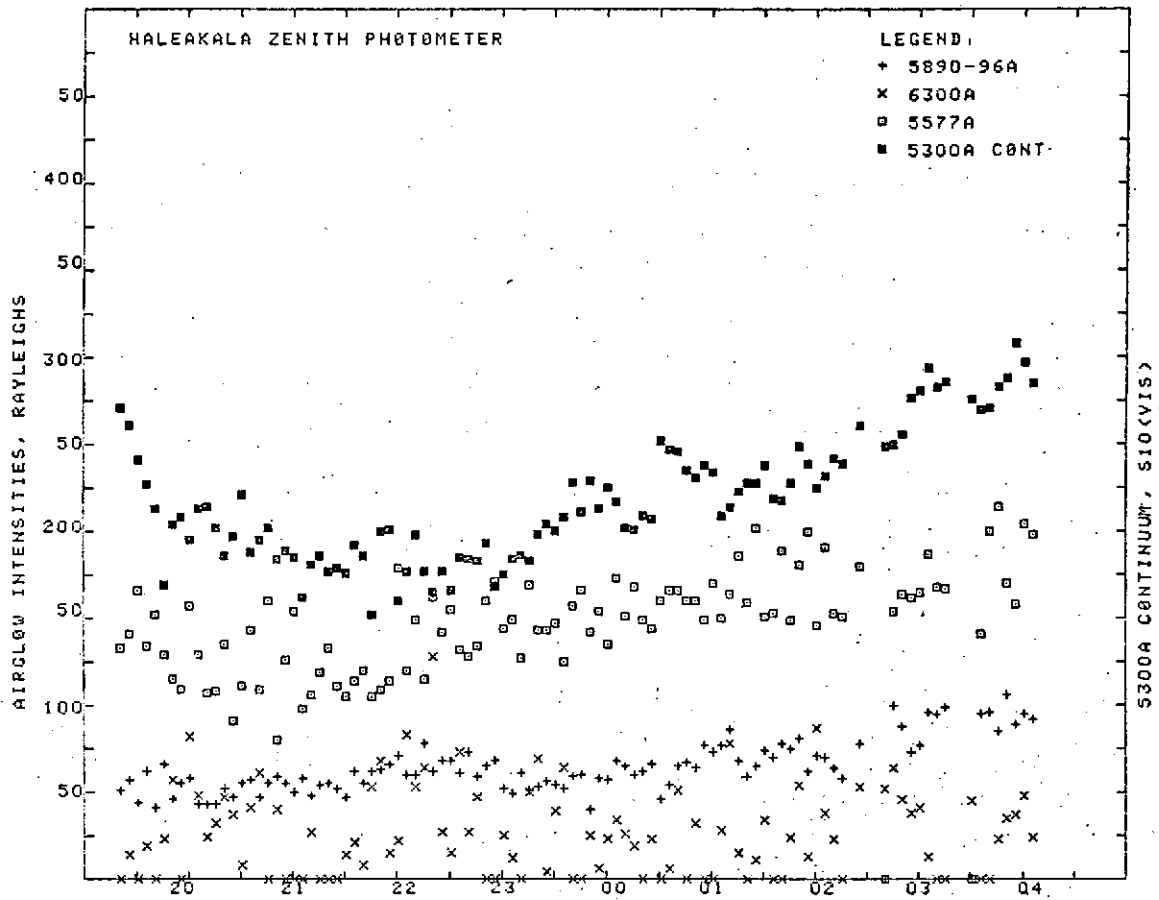
DATE
YR MO DA
63 10 12



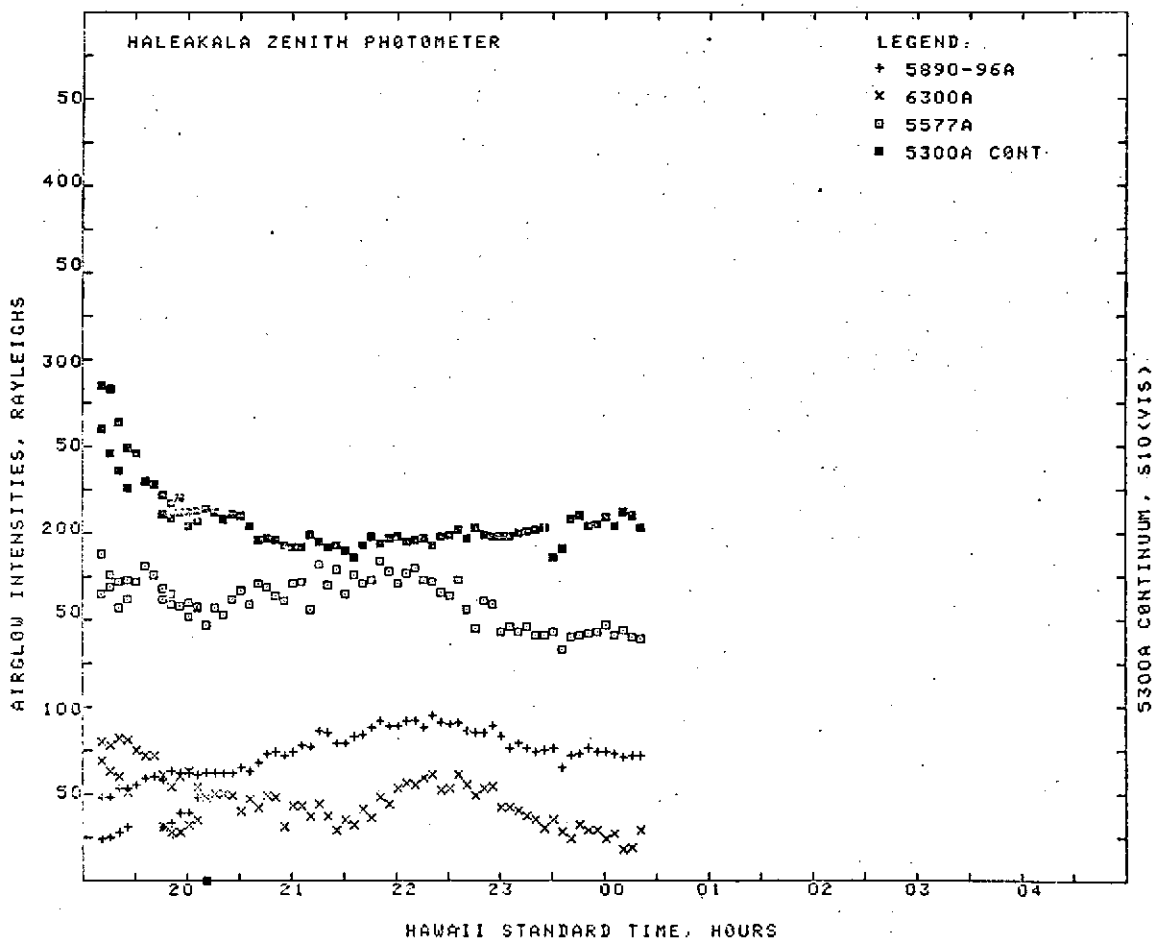
DATE
YR MO DA
63 10 13



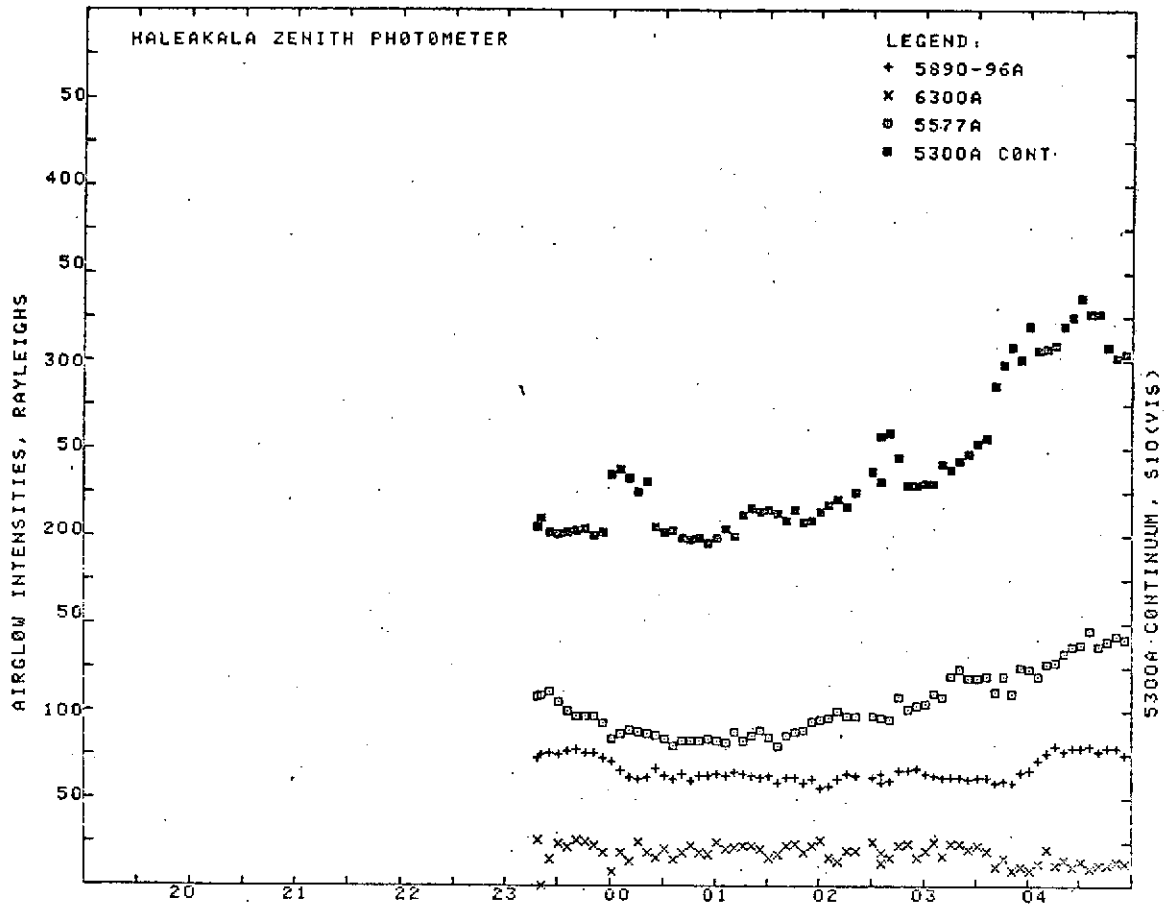
DATE
YR MO DA
63 10 14



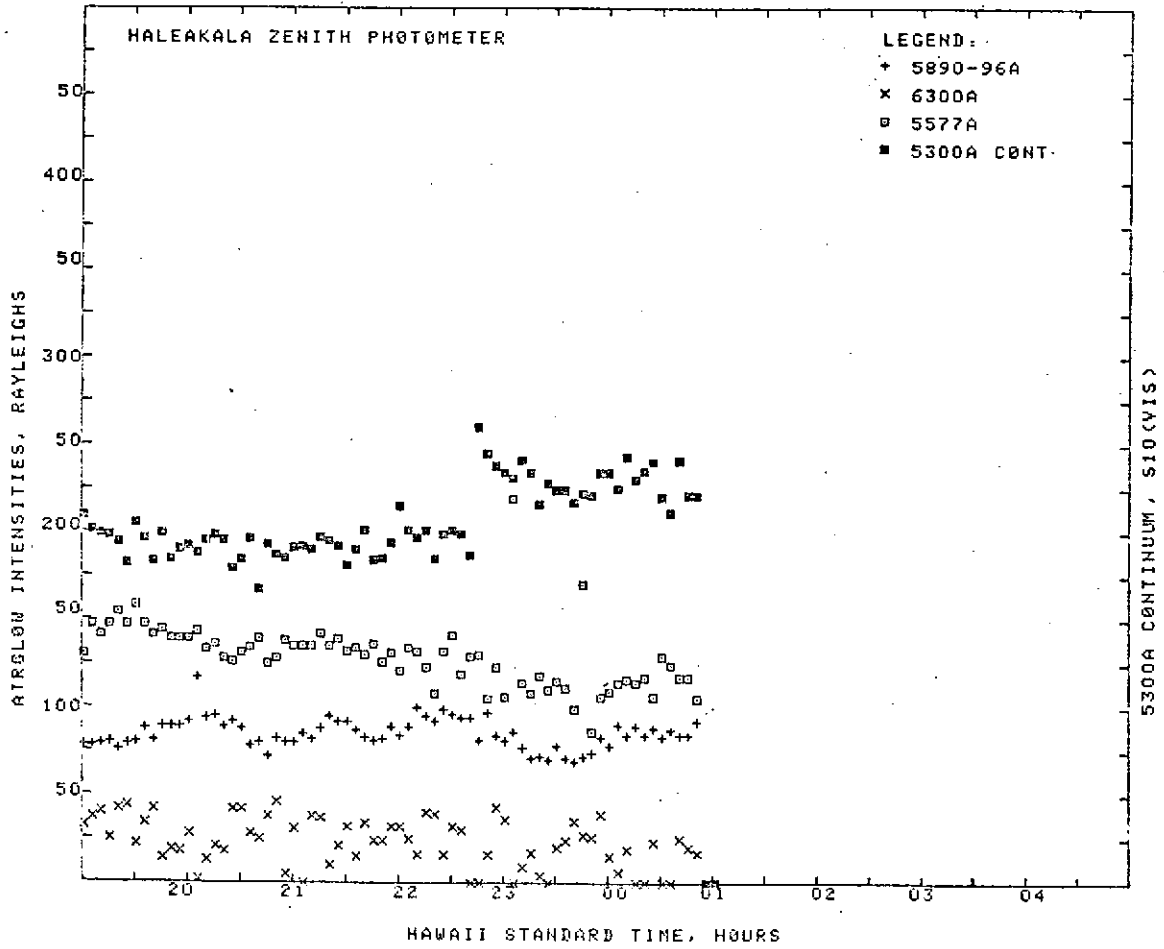
DATE
YR MO DA
63 10 15



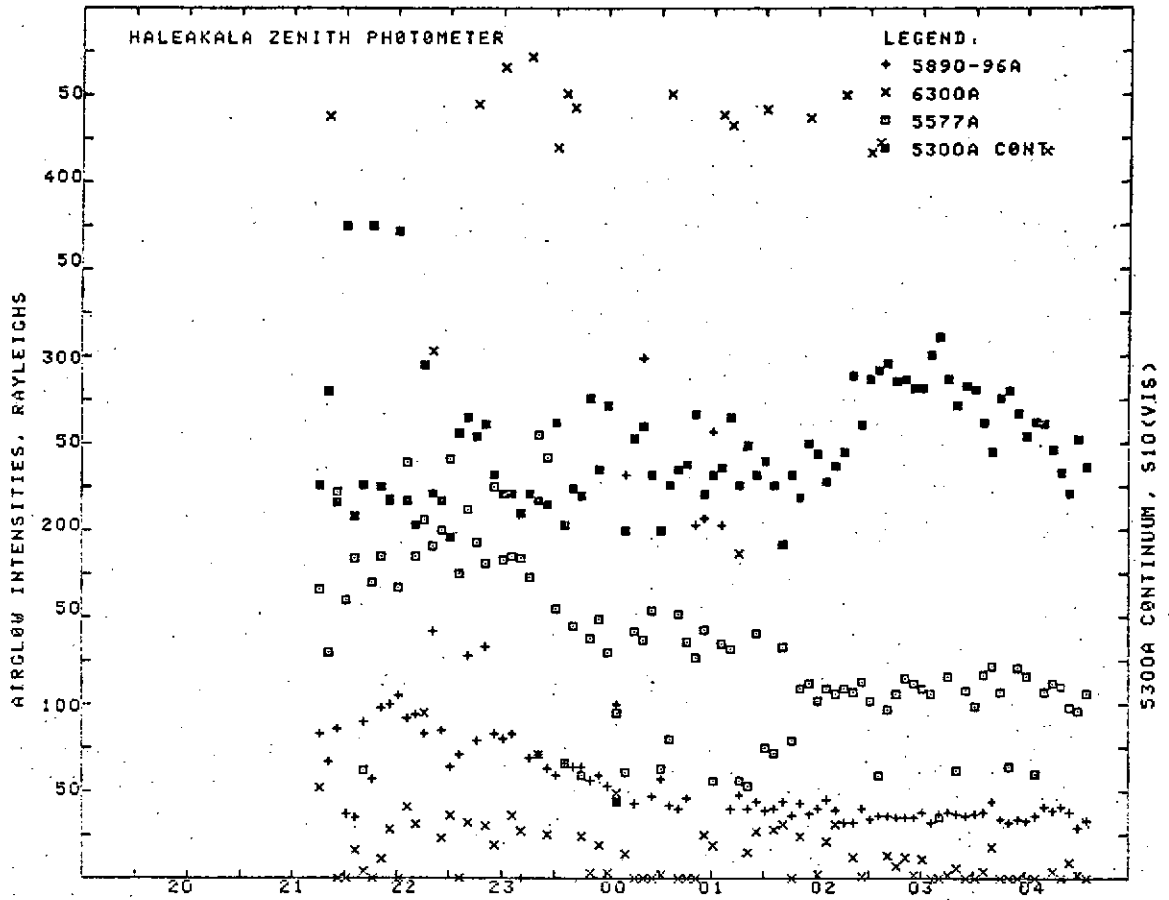
DATE
YR MO DA
63 10 22



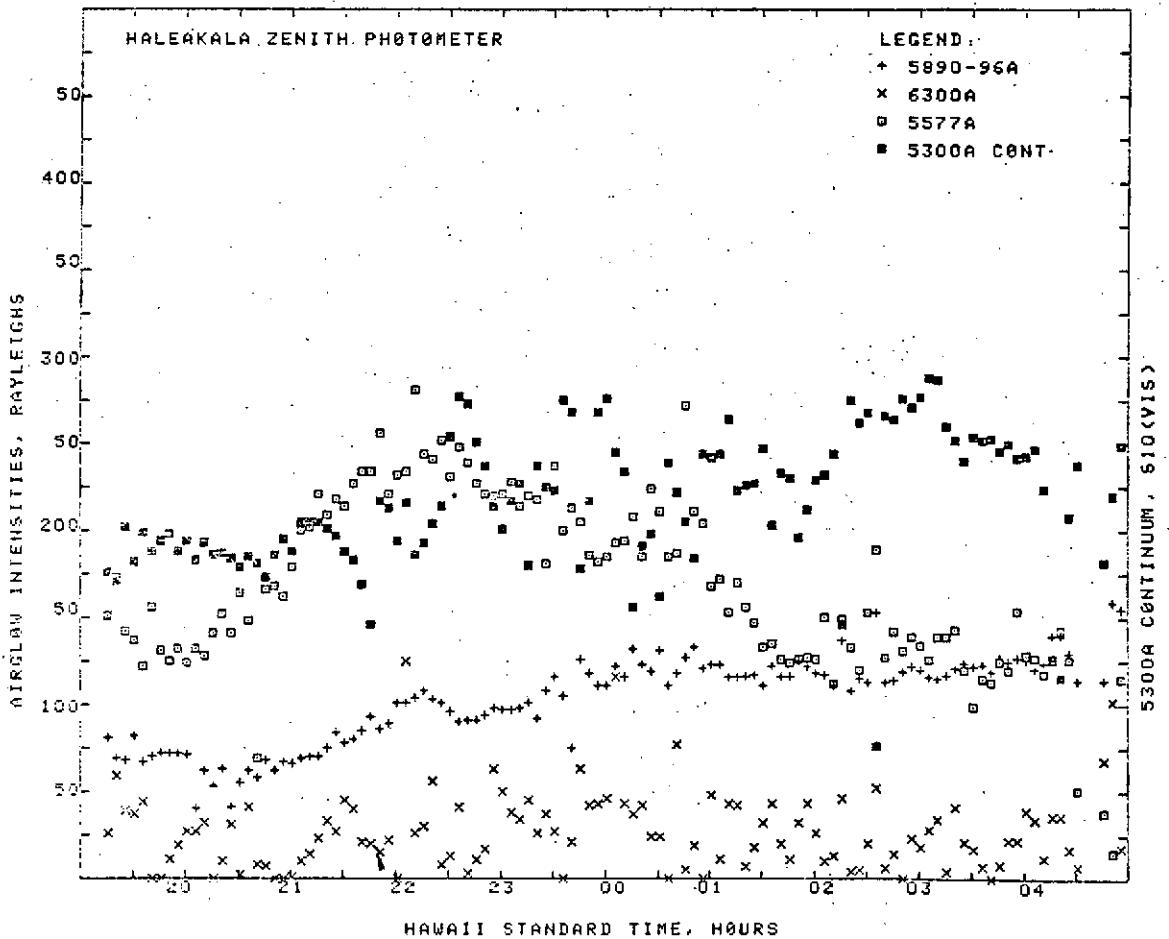
DATE
YR MO DA
63 11 10



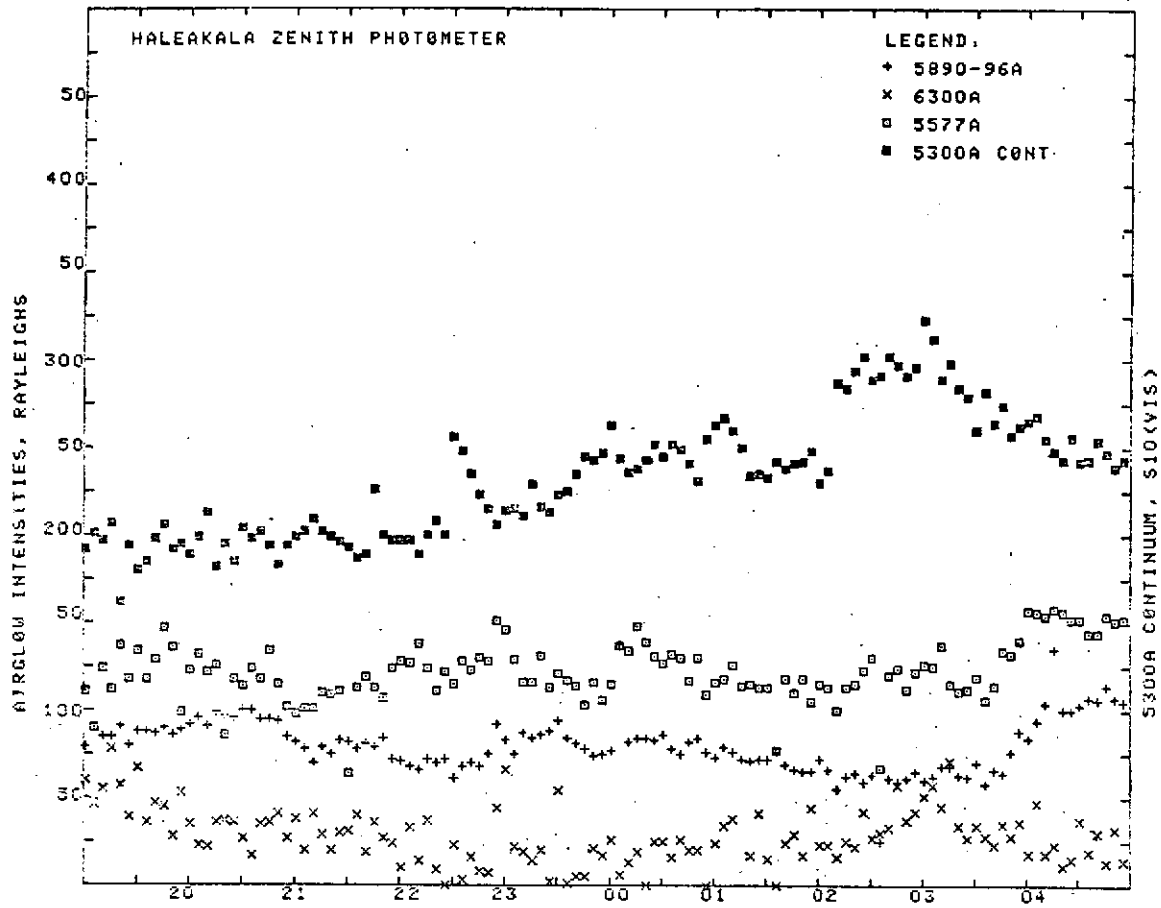
DATE
YR MO DA
63 11 12



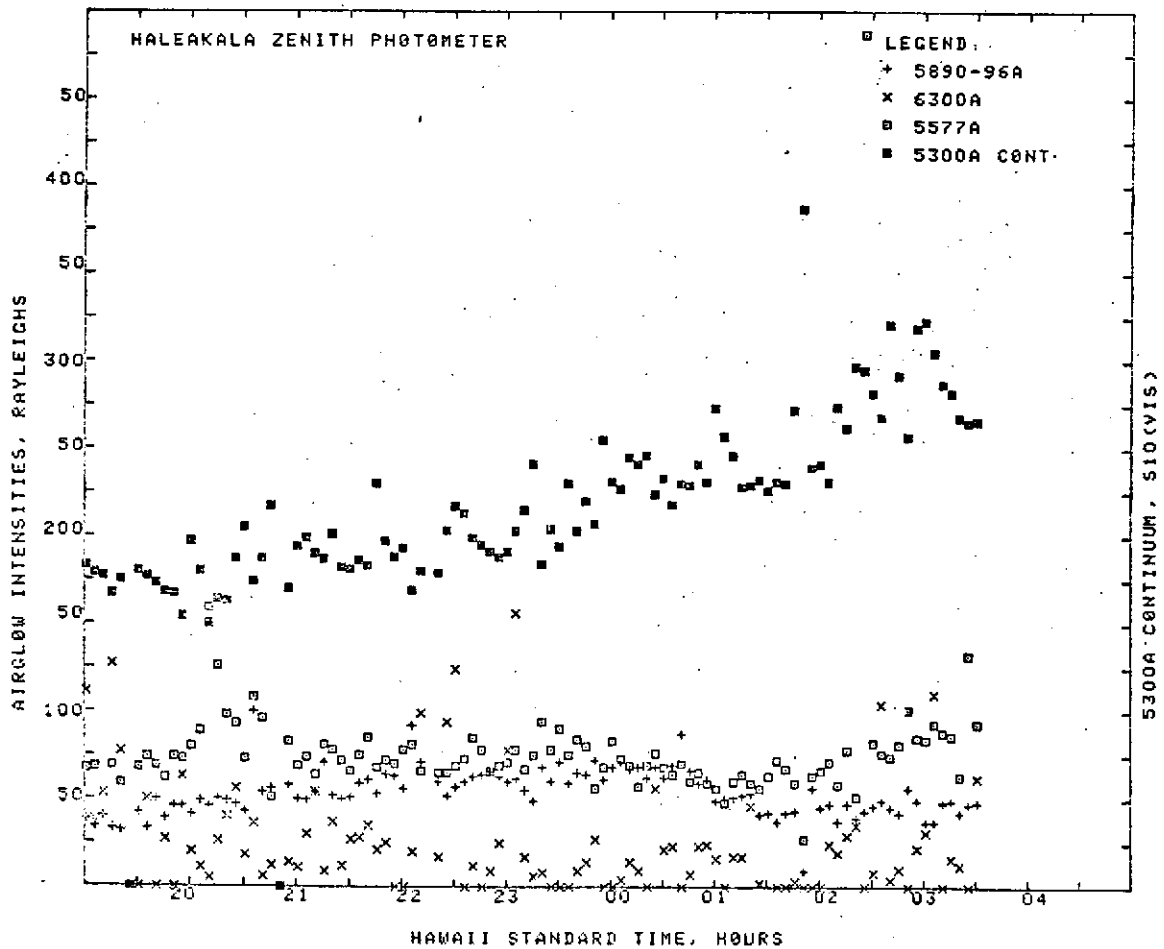
DATE
YR MO DA
63 11 13



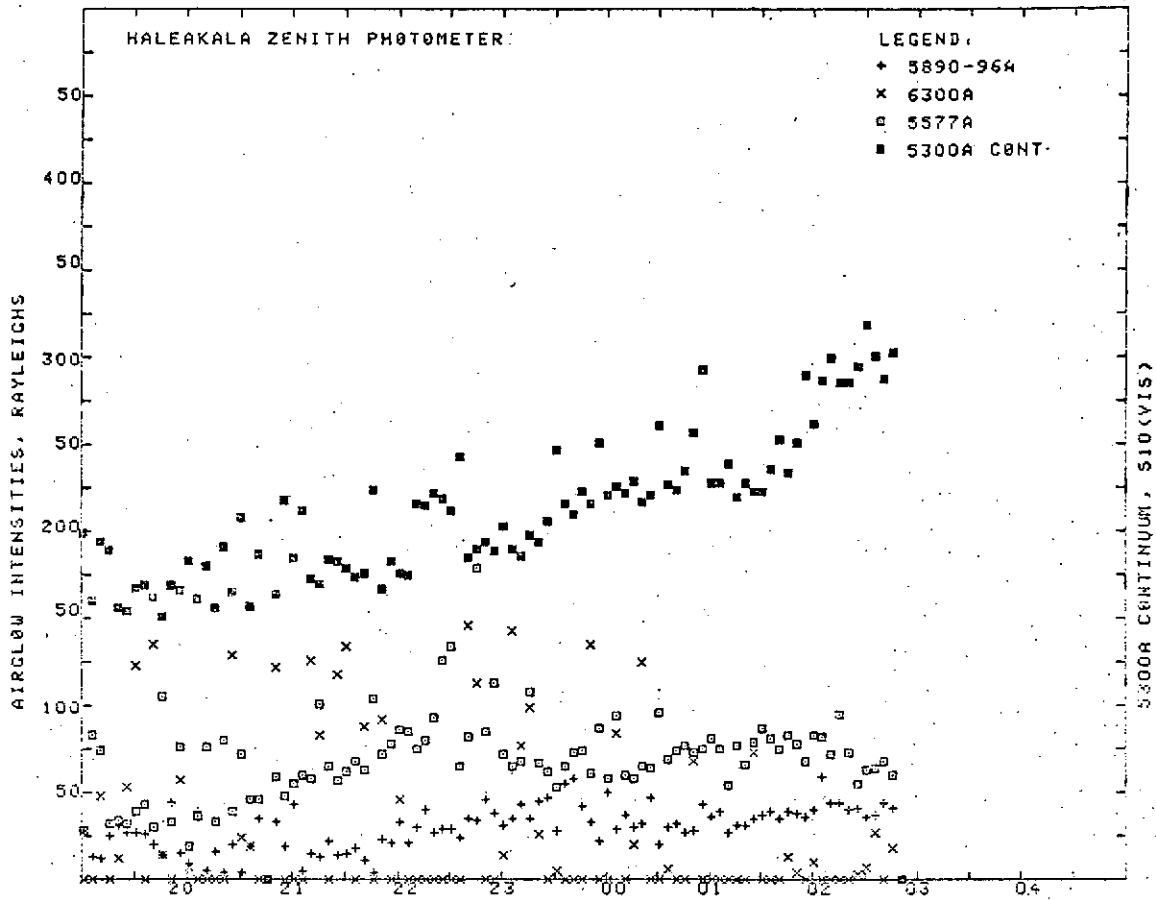
DATE
YR MO DA
63 11 14



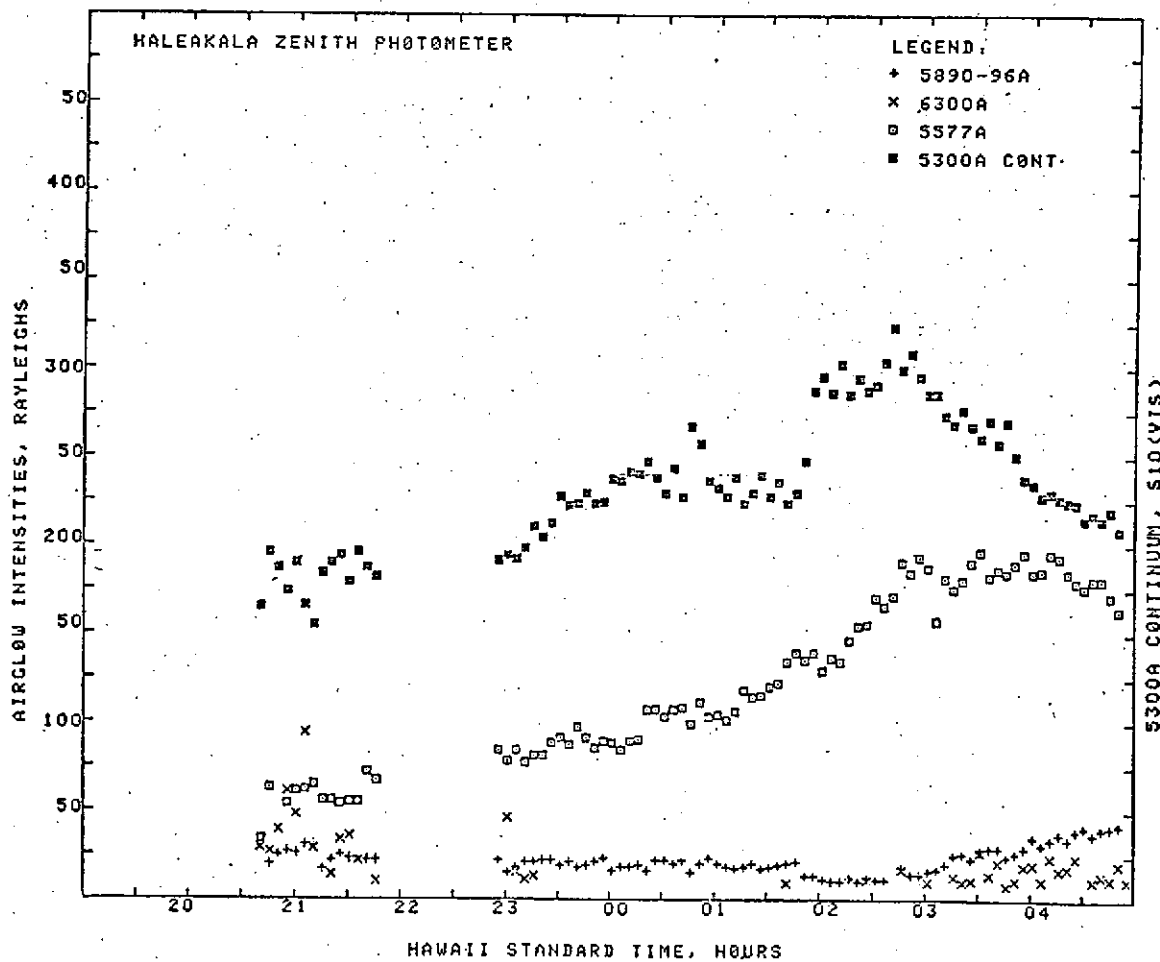
DATE
YR MO DA
63 11 16



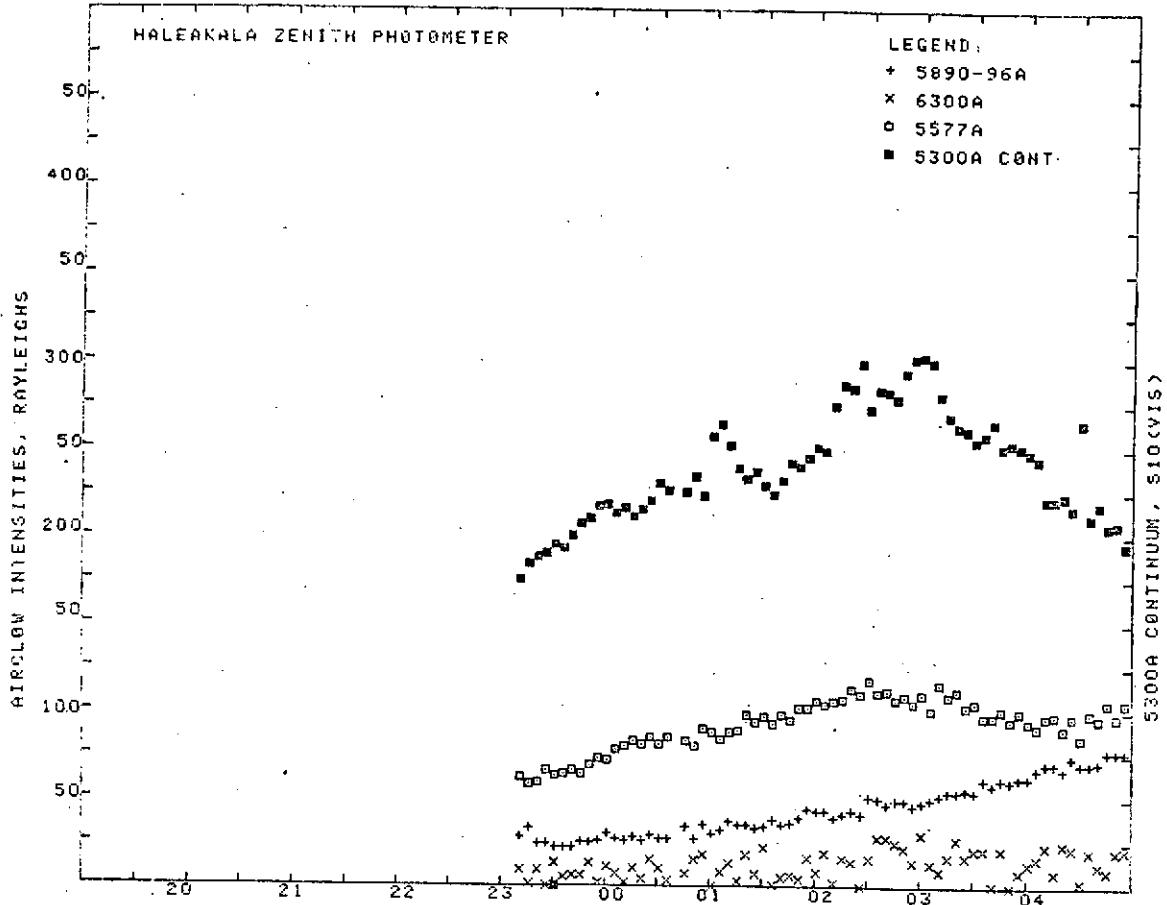
DATE
YR MO DA
63 11 18



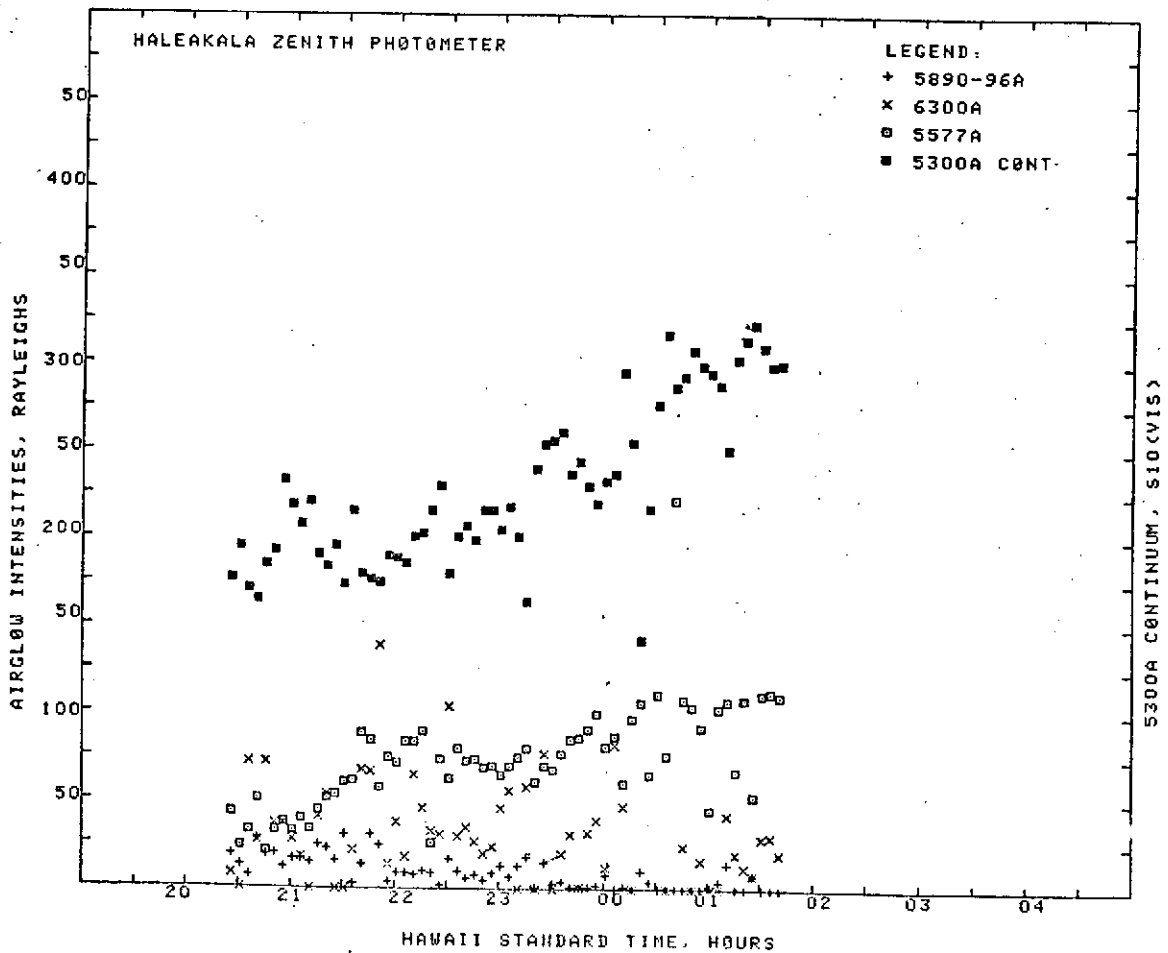
DATE
YR MO DA
63 11 19

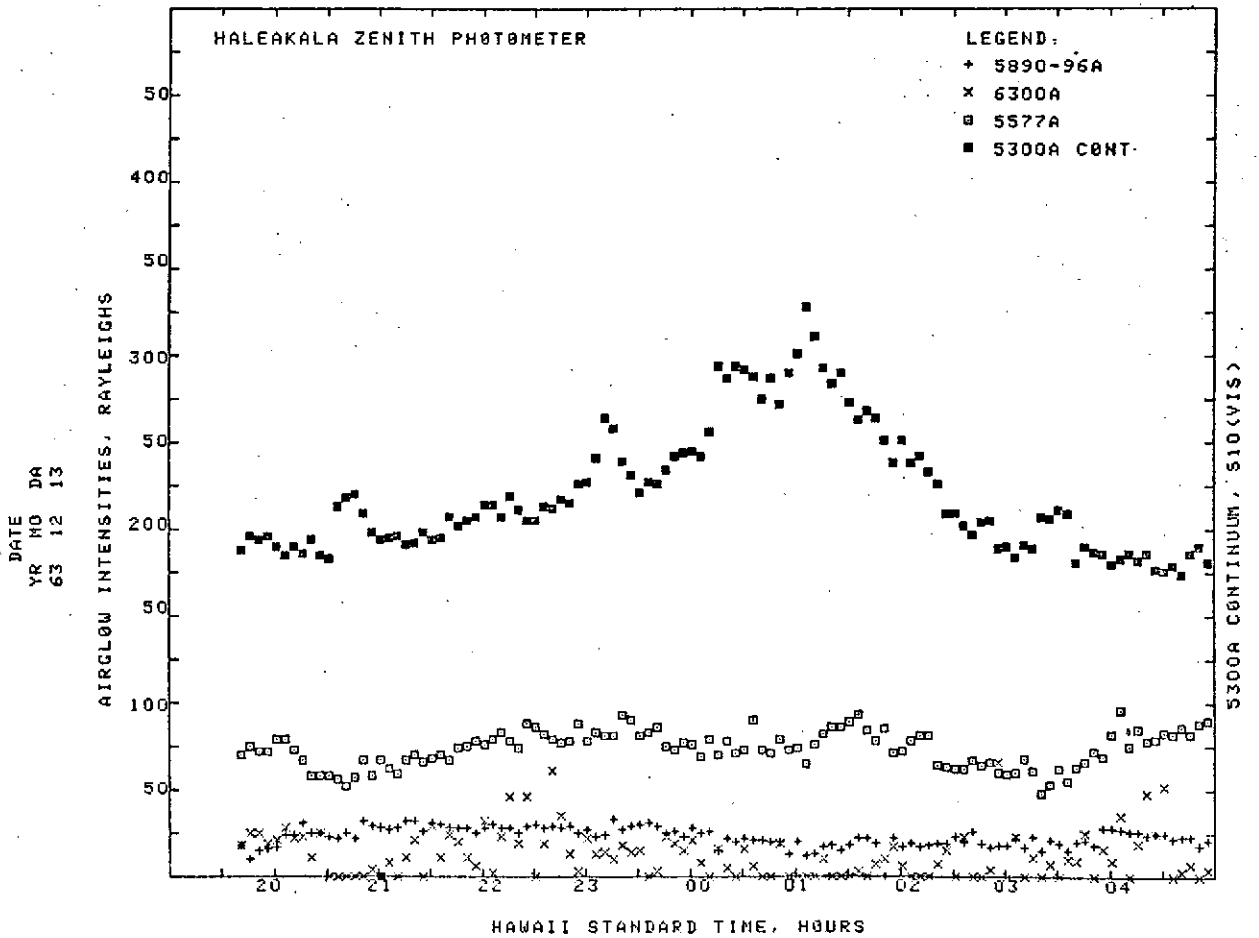
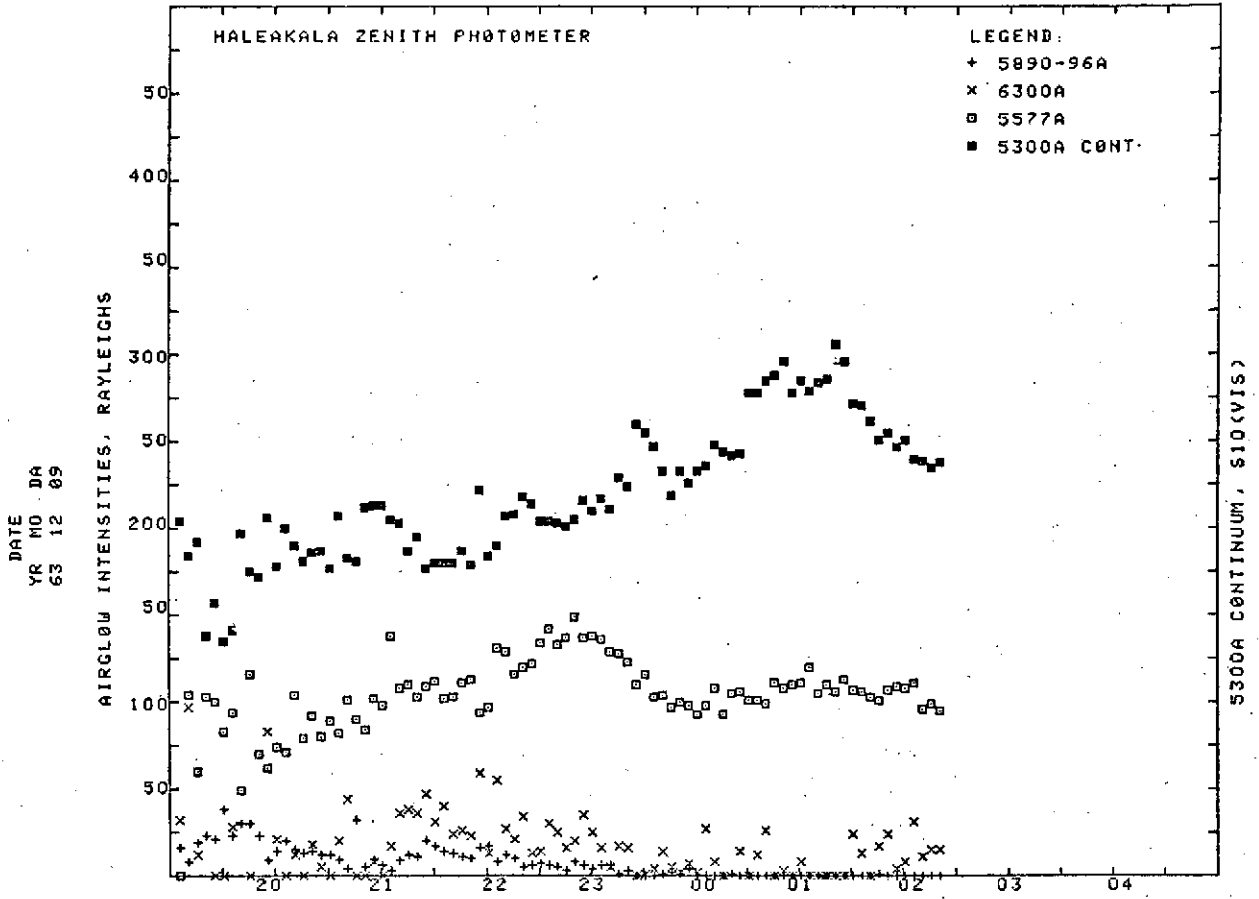


DATE
YR MO DA
63 11 21

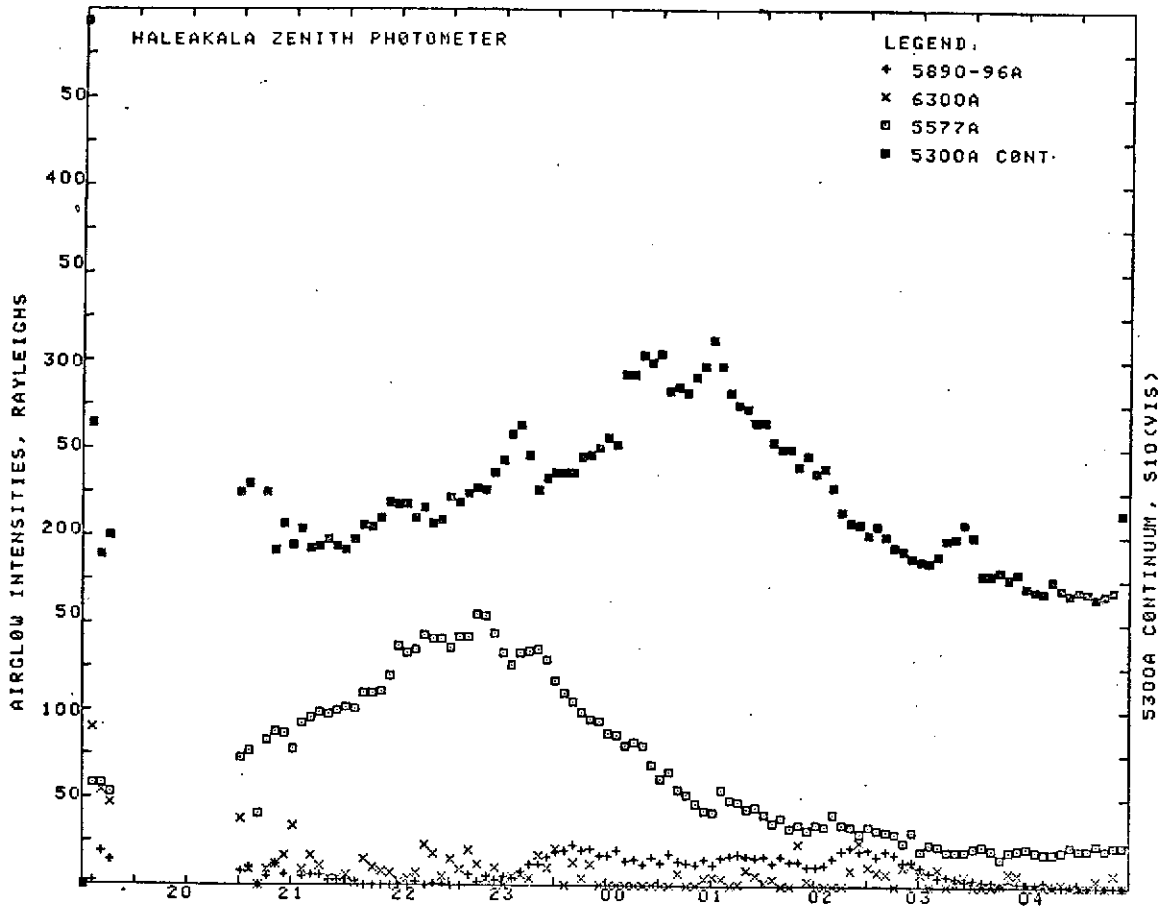


DATE
YR MO DA
63 12 08

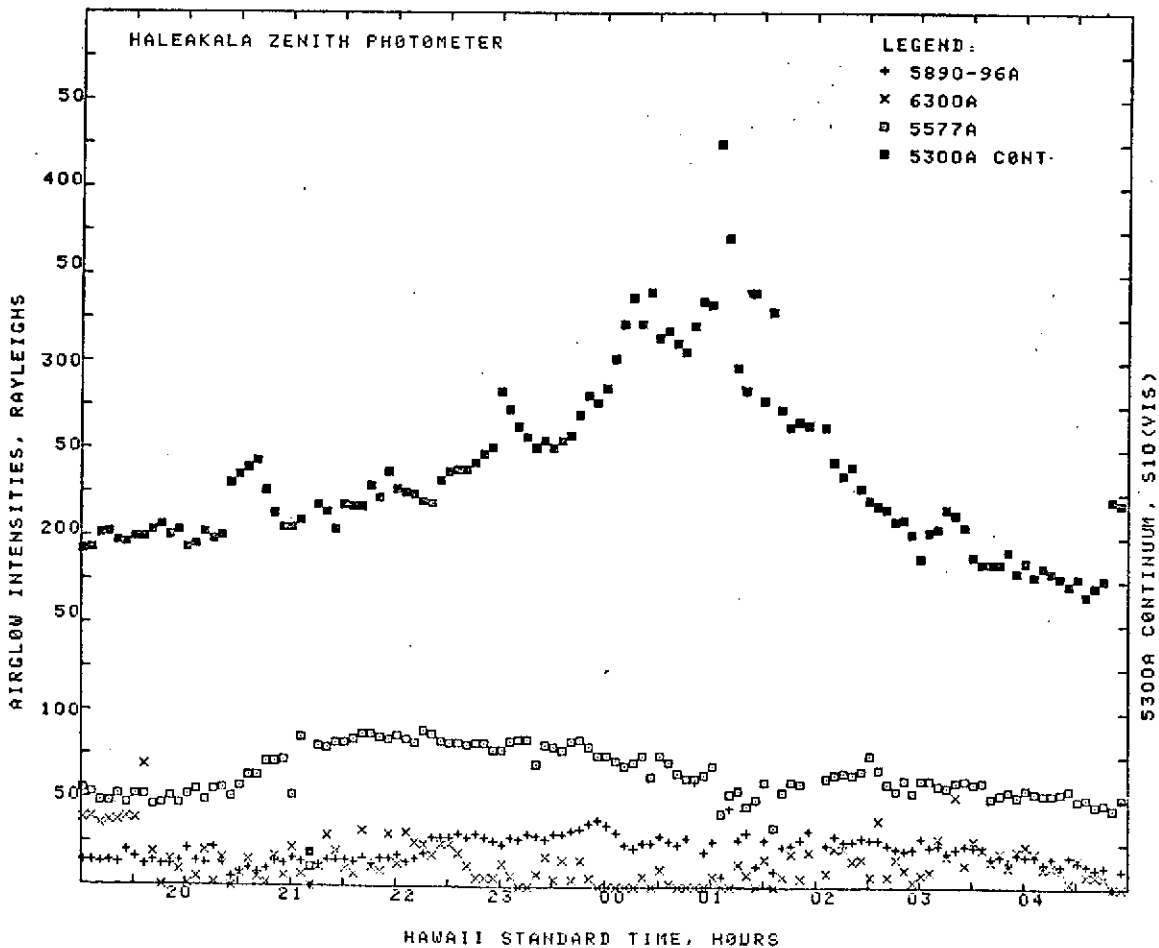


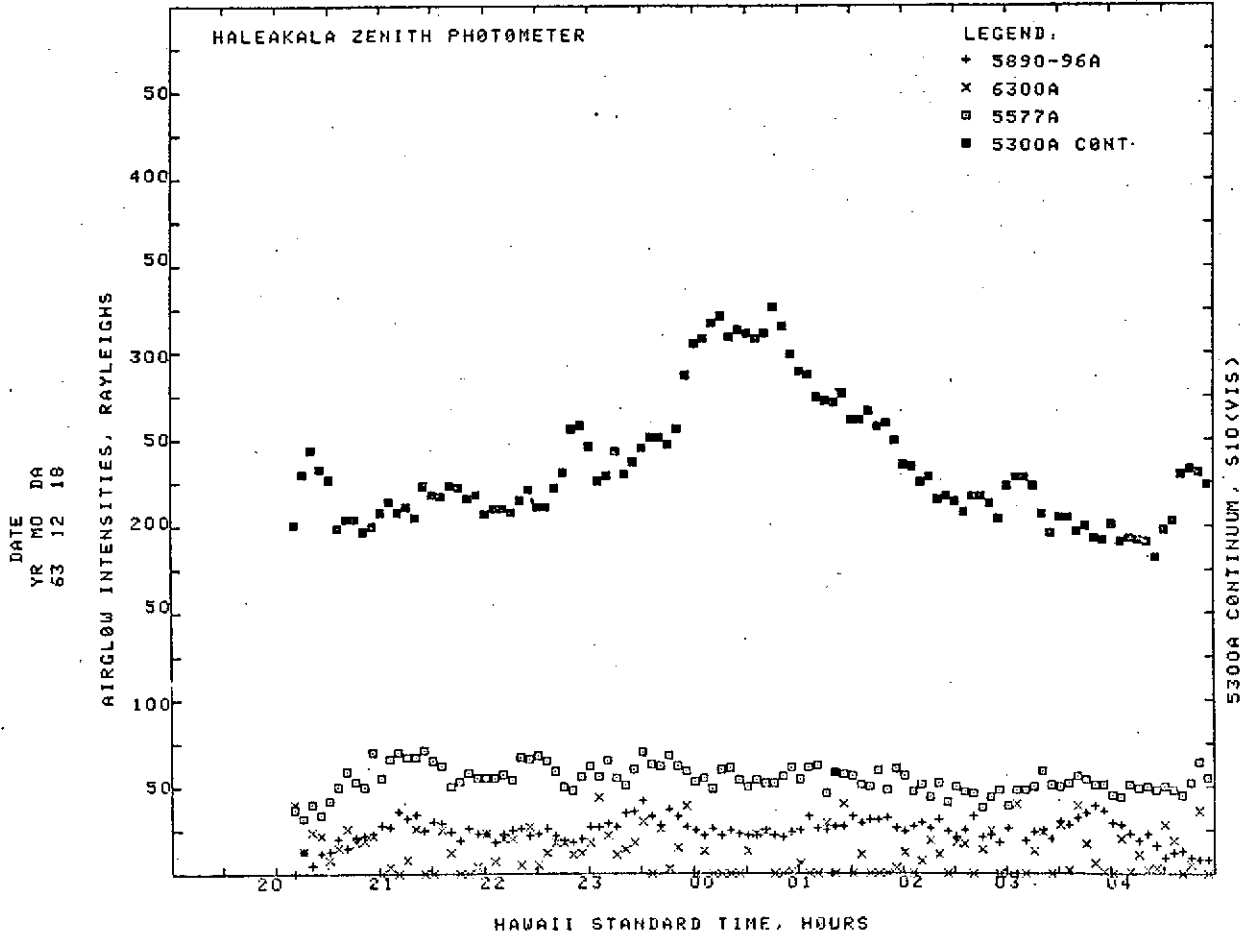
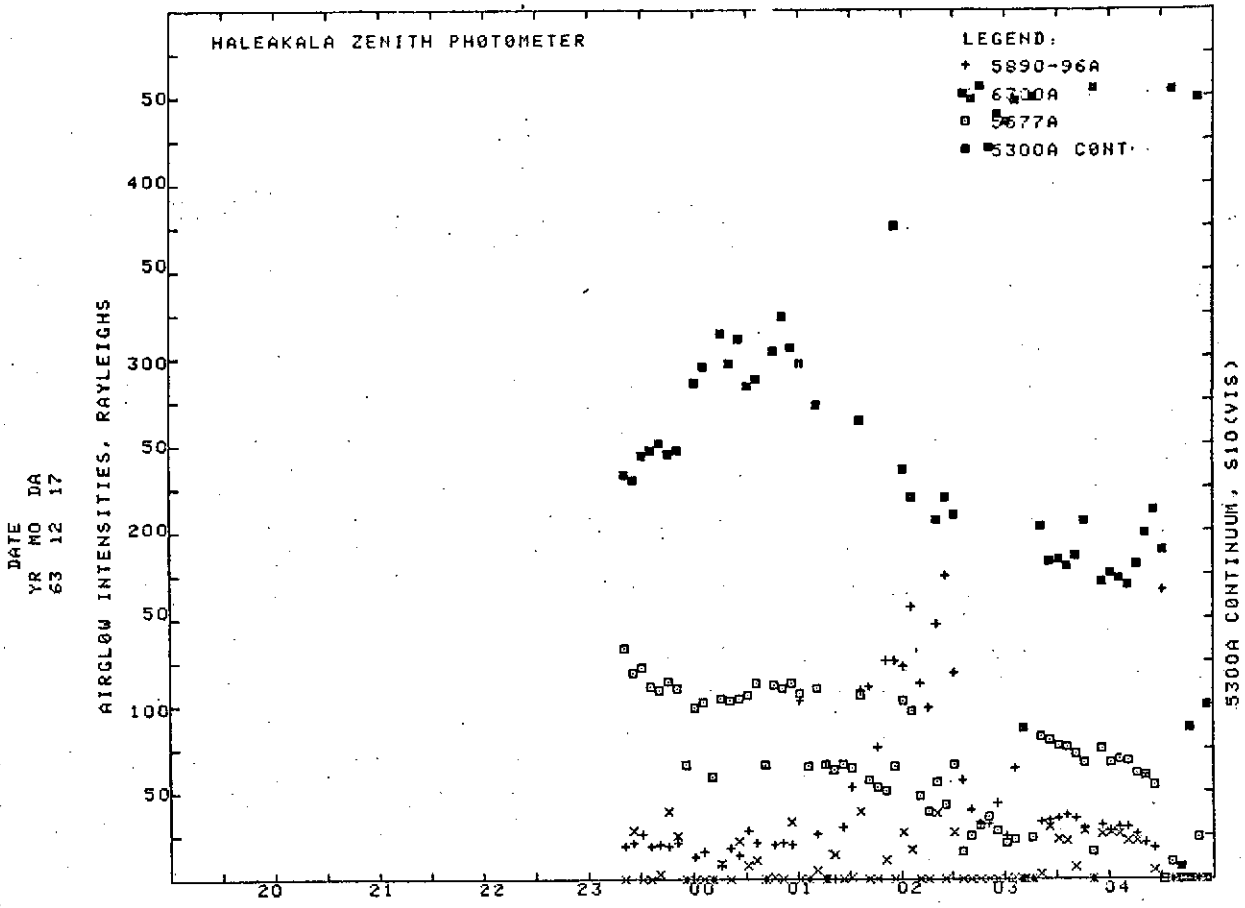


DATE
YR MO DA
63 12 14

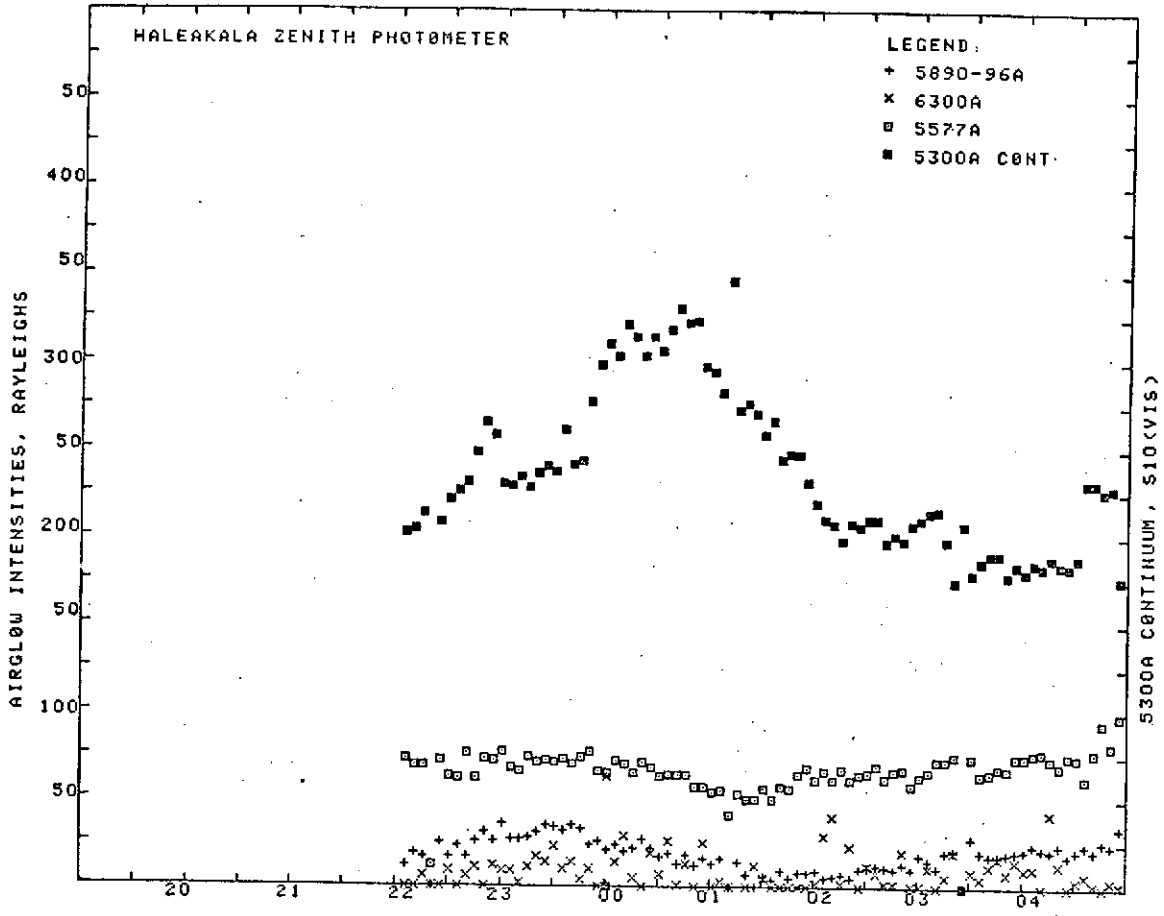


DATE
YR MO DA
63 12 15

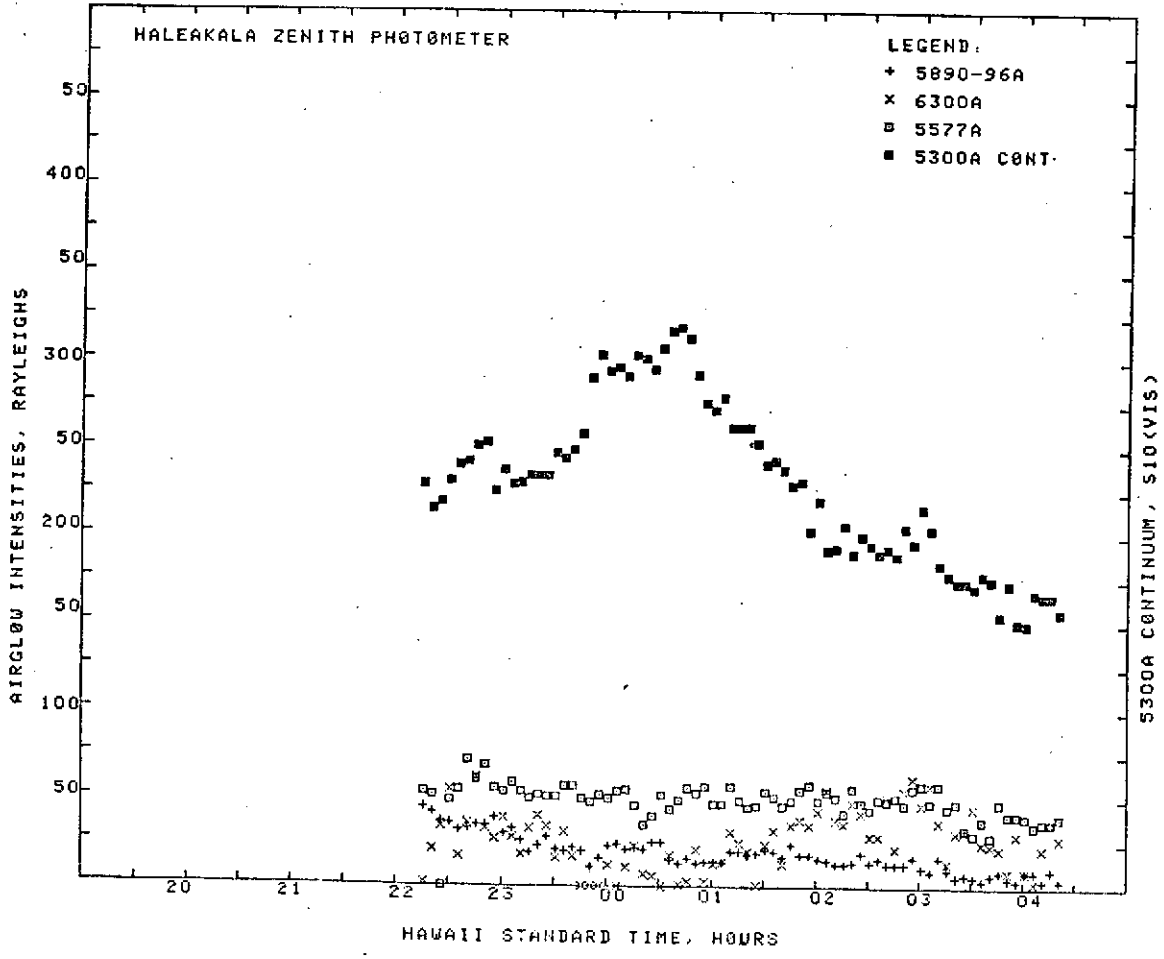


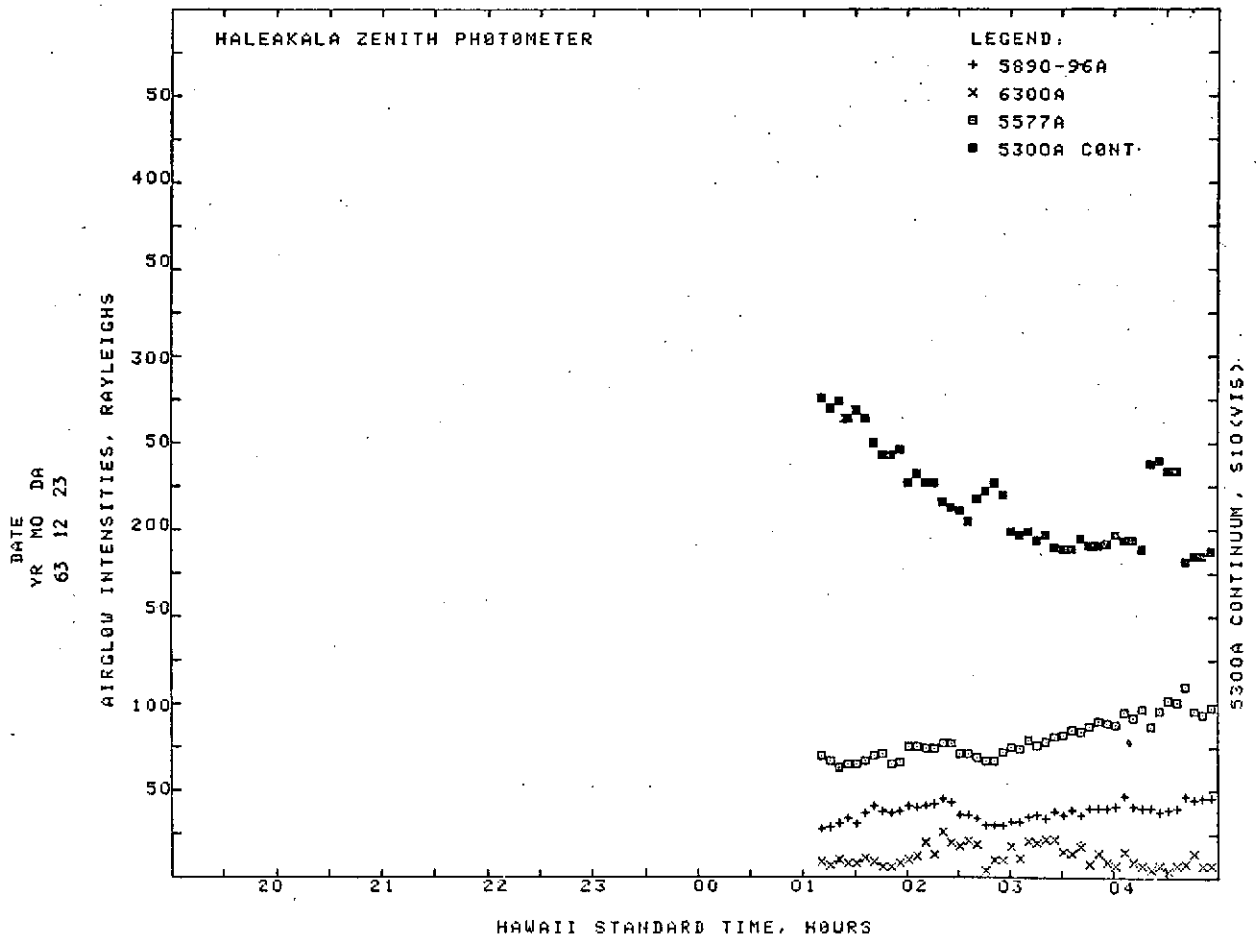
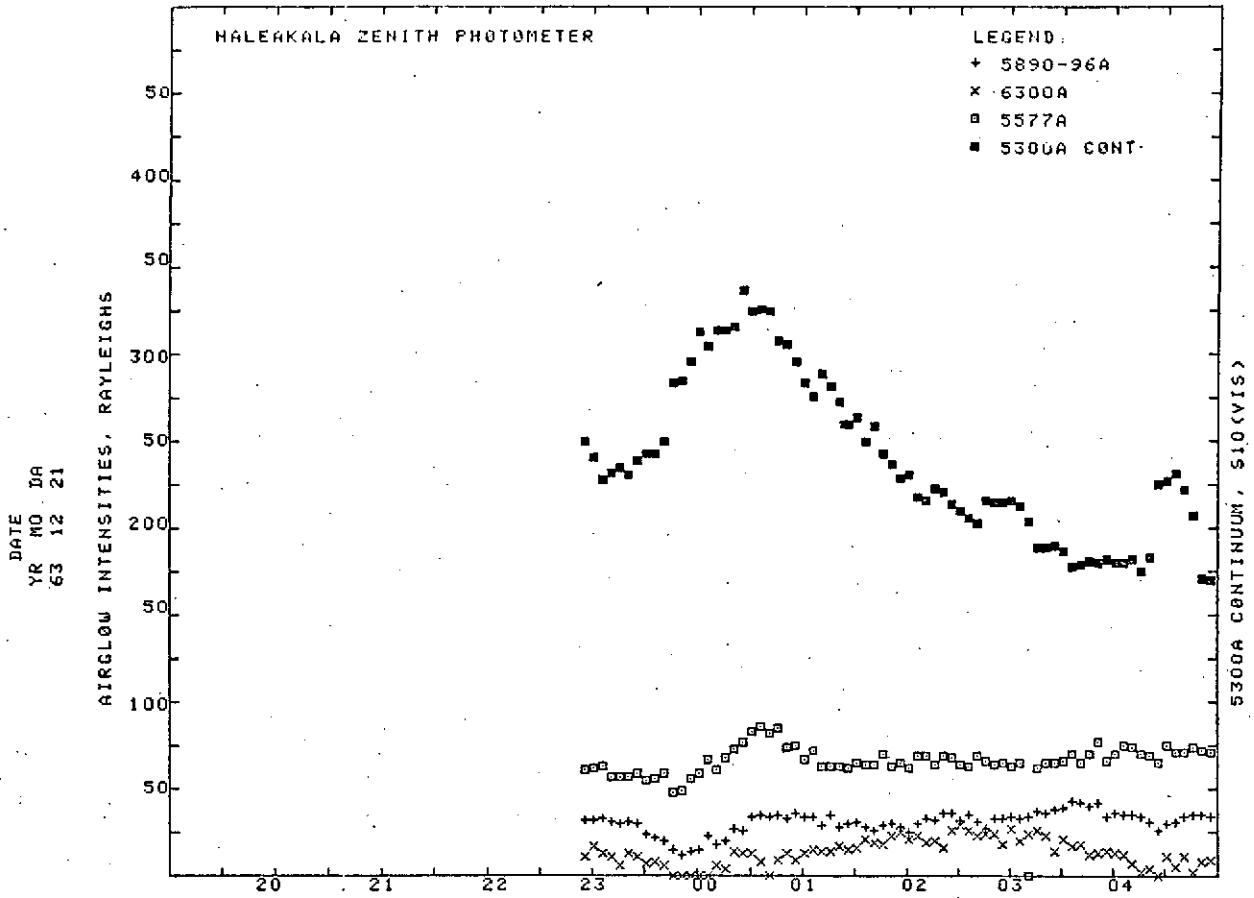


DATE
YR MO DA
63 12 19

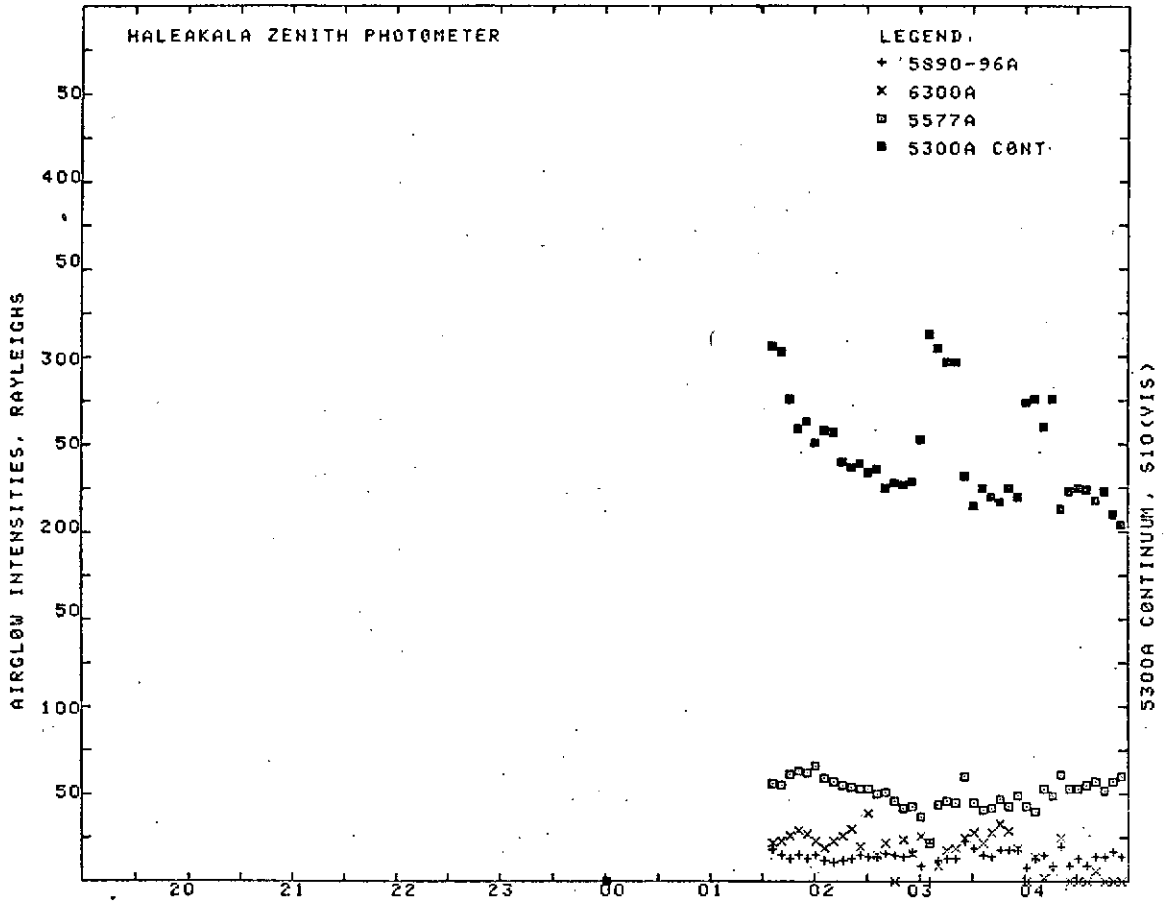


DATE
YR MO DA
63 12 20

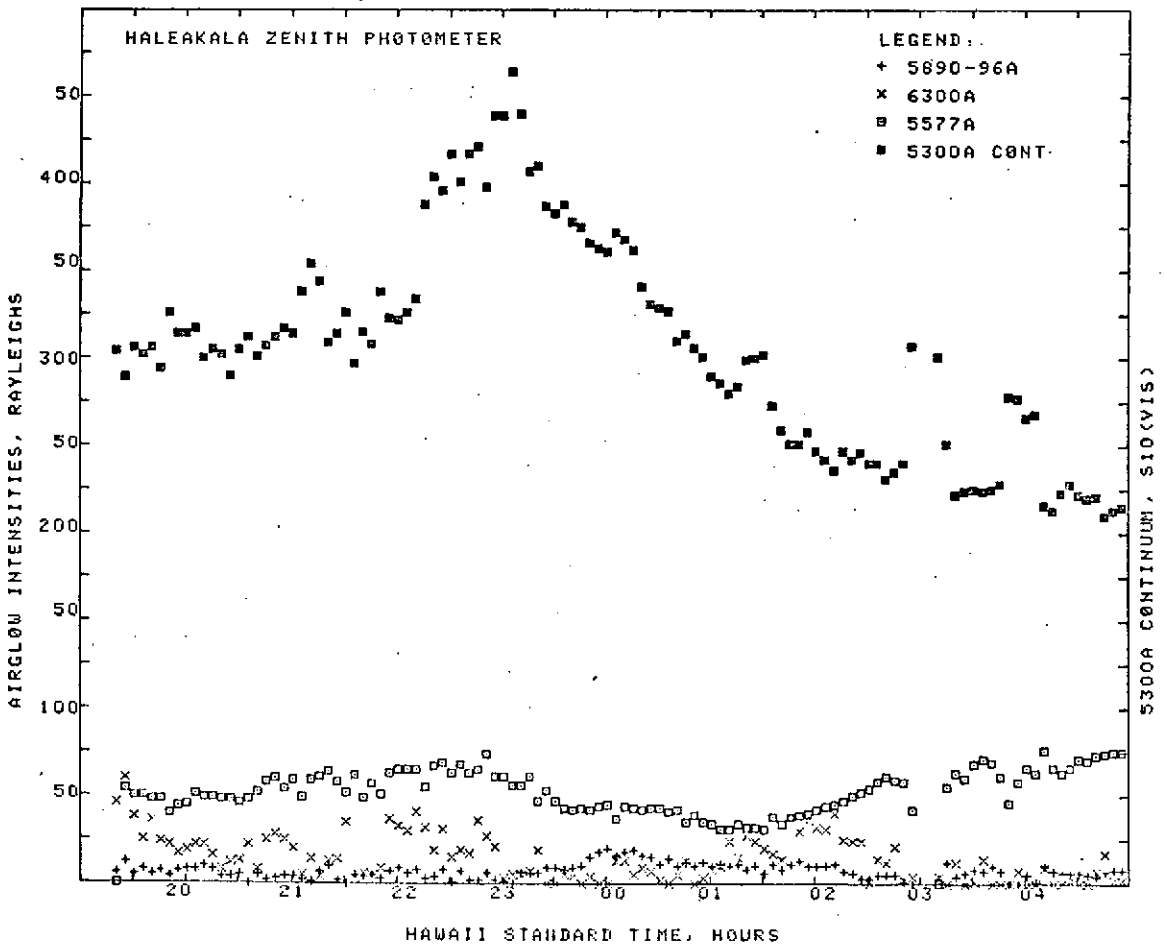


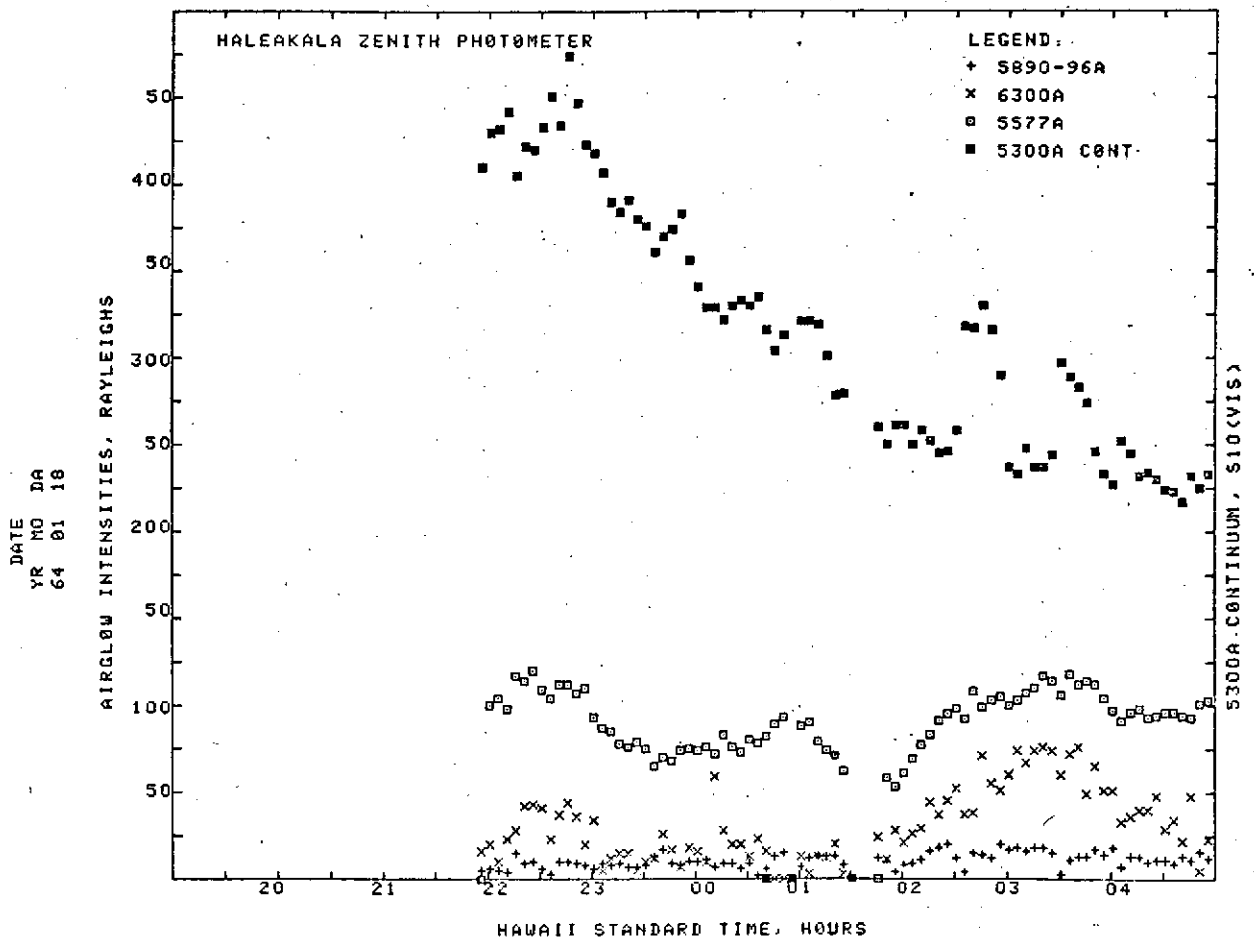
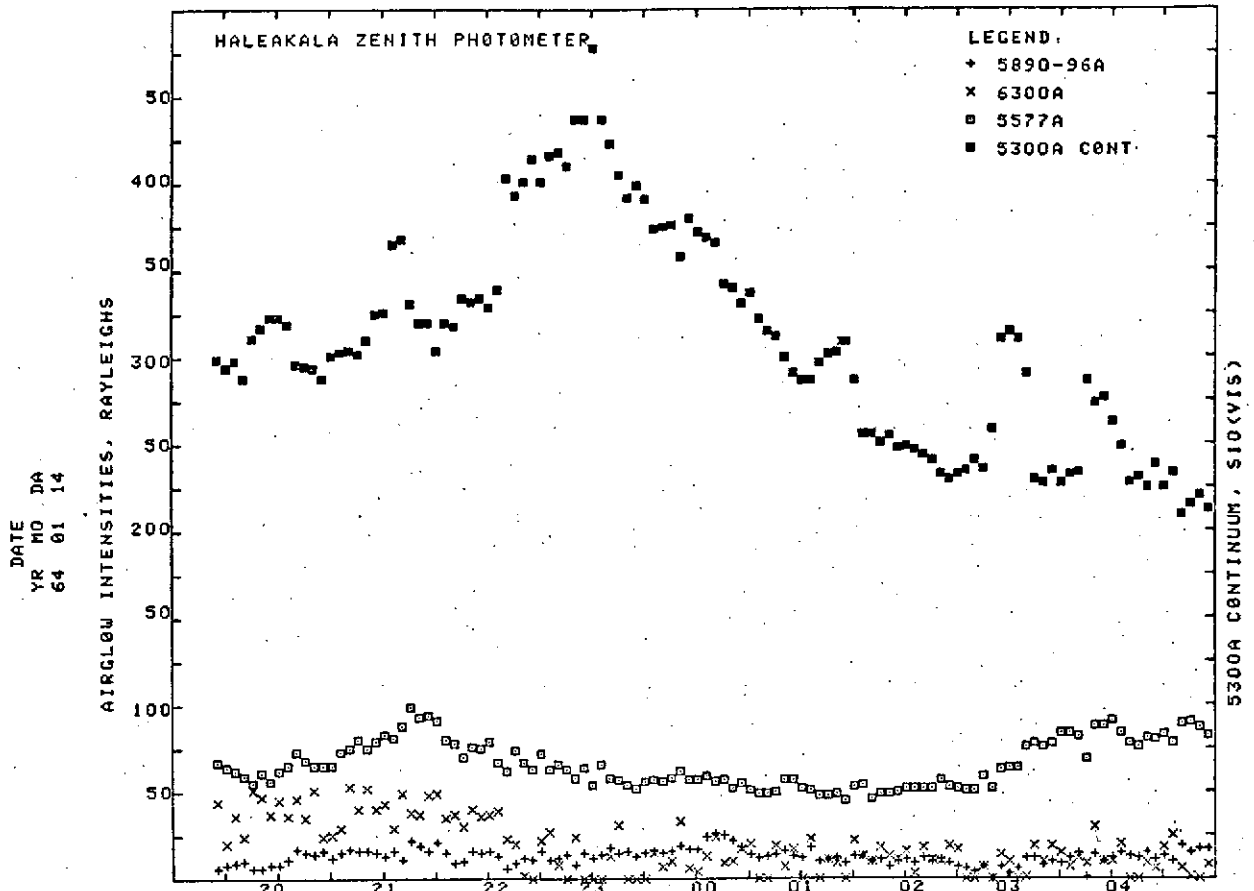


DATE
YR MO DA
64 01 11

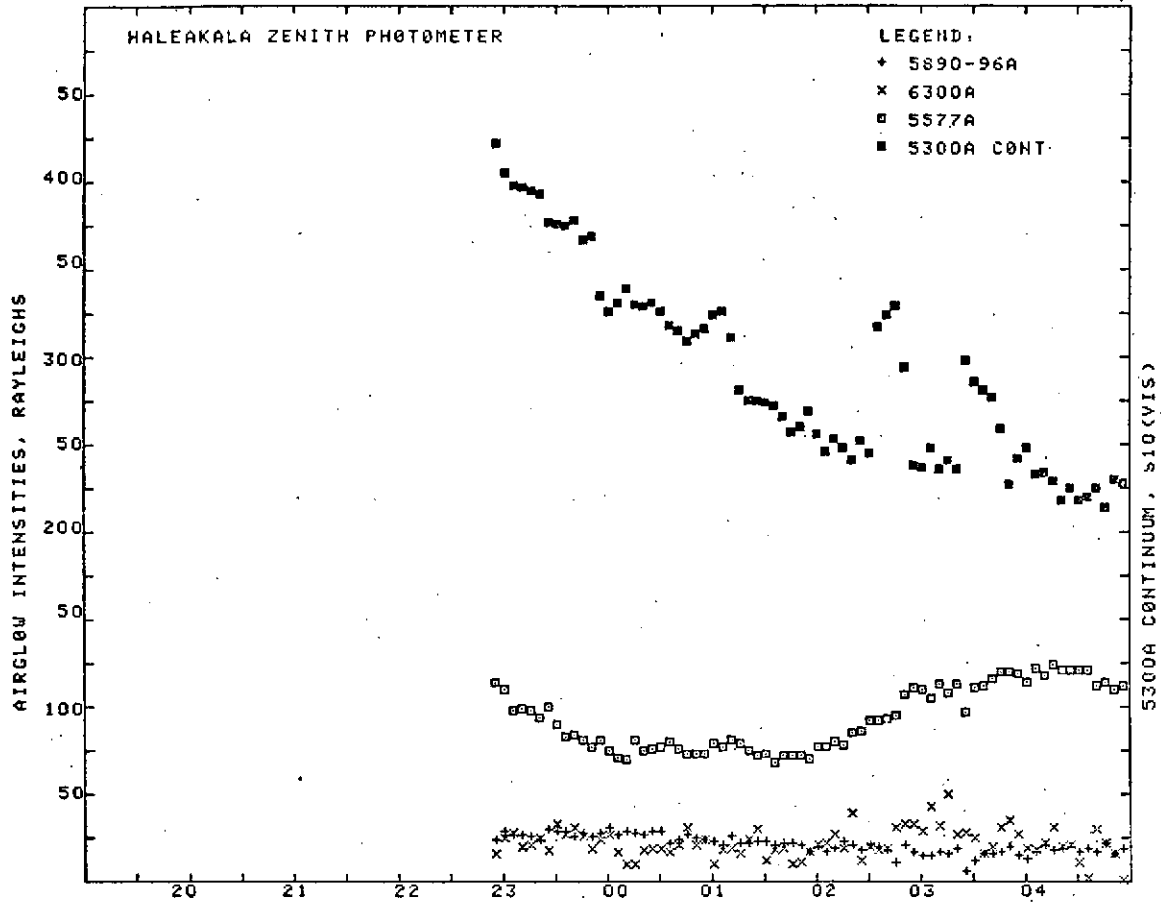


DATE
YR MO DA
64 01 13

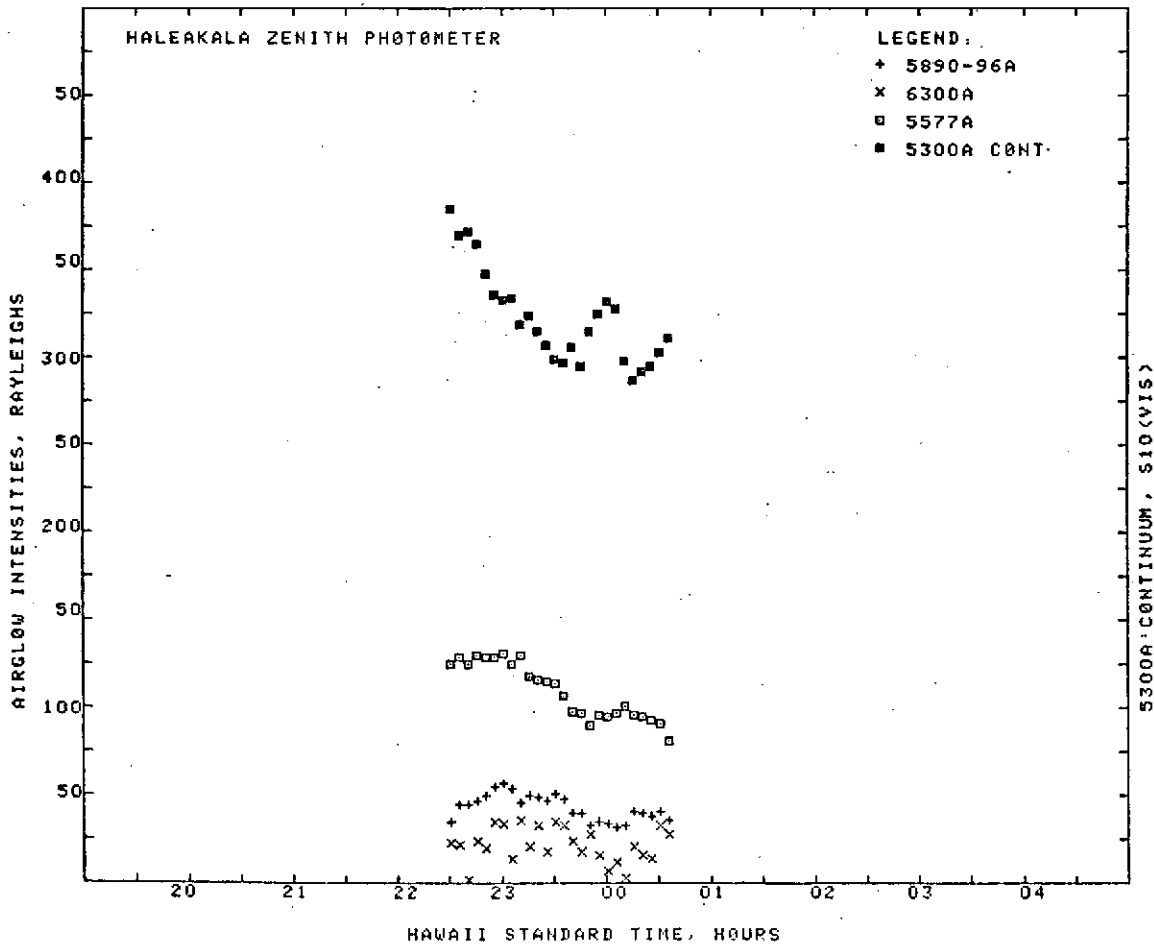


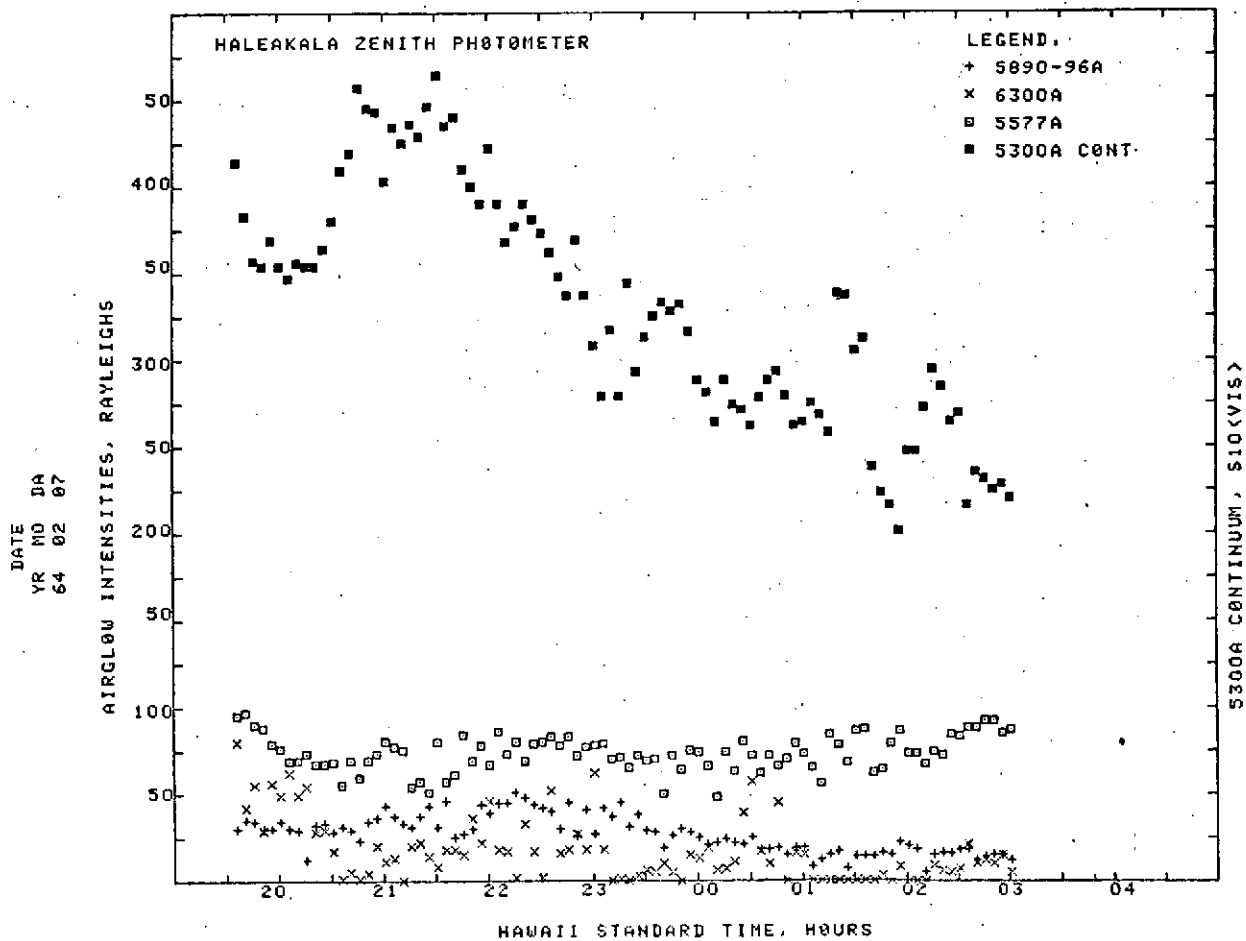
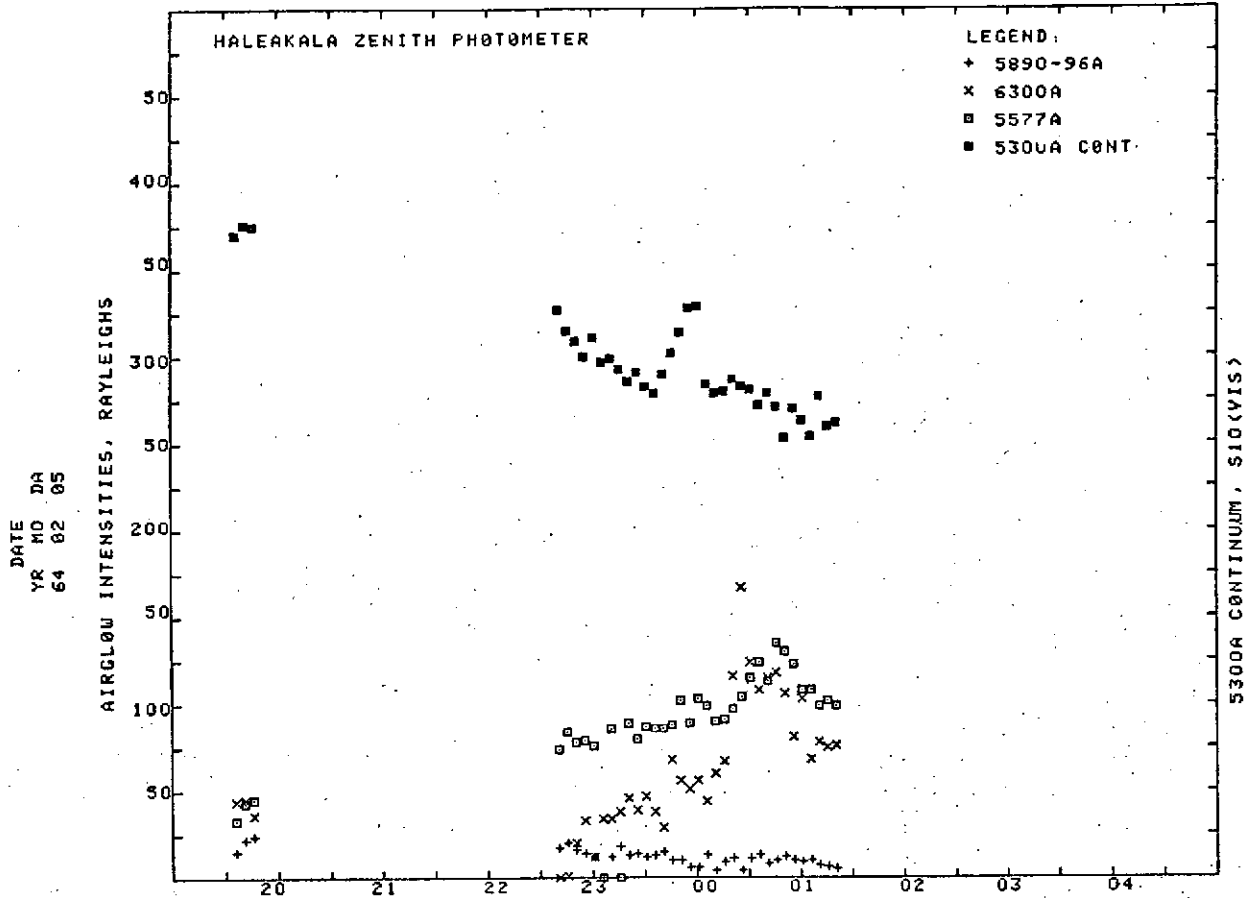


DATE
YR MO DA
64 01 19

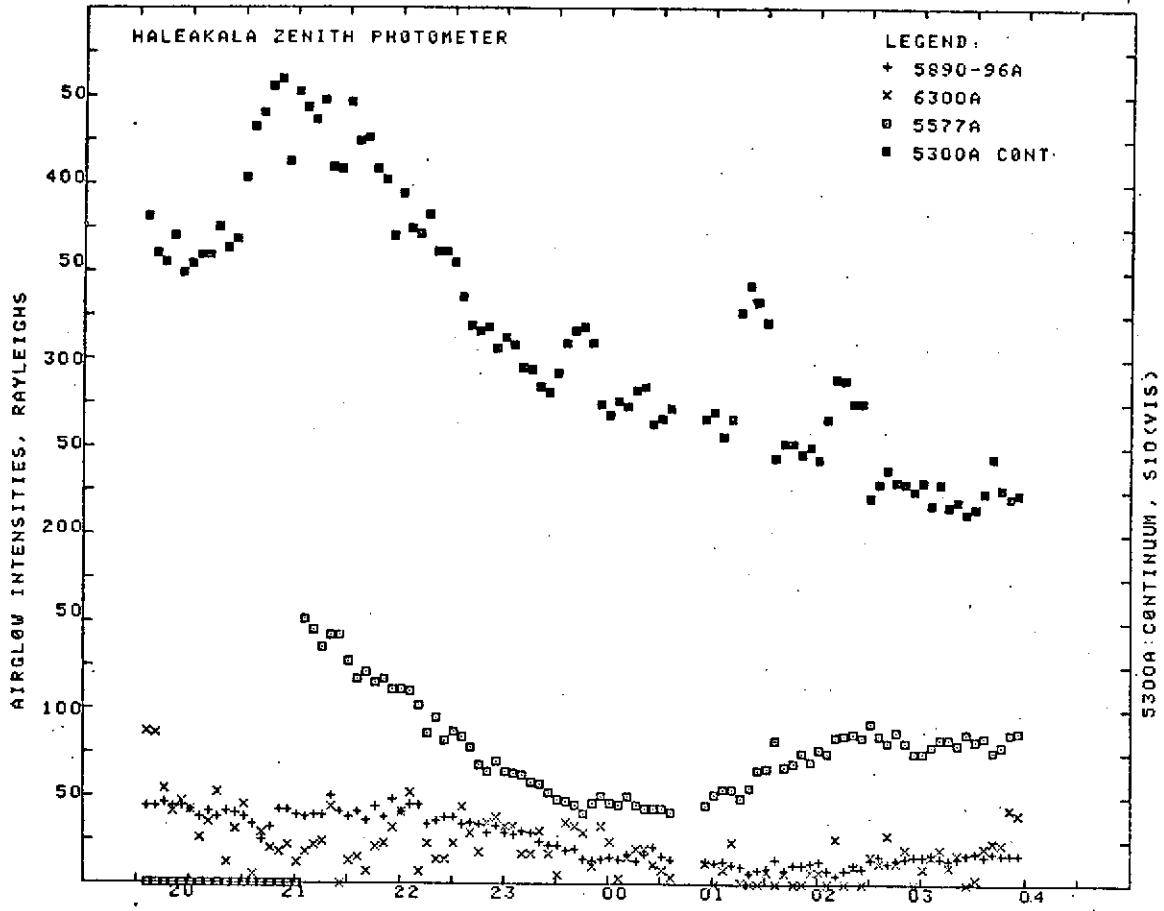


DATE
YR MO DA
64 02 04

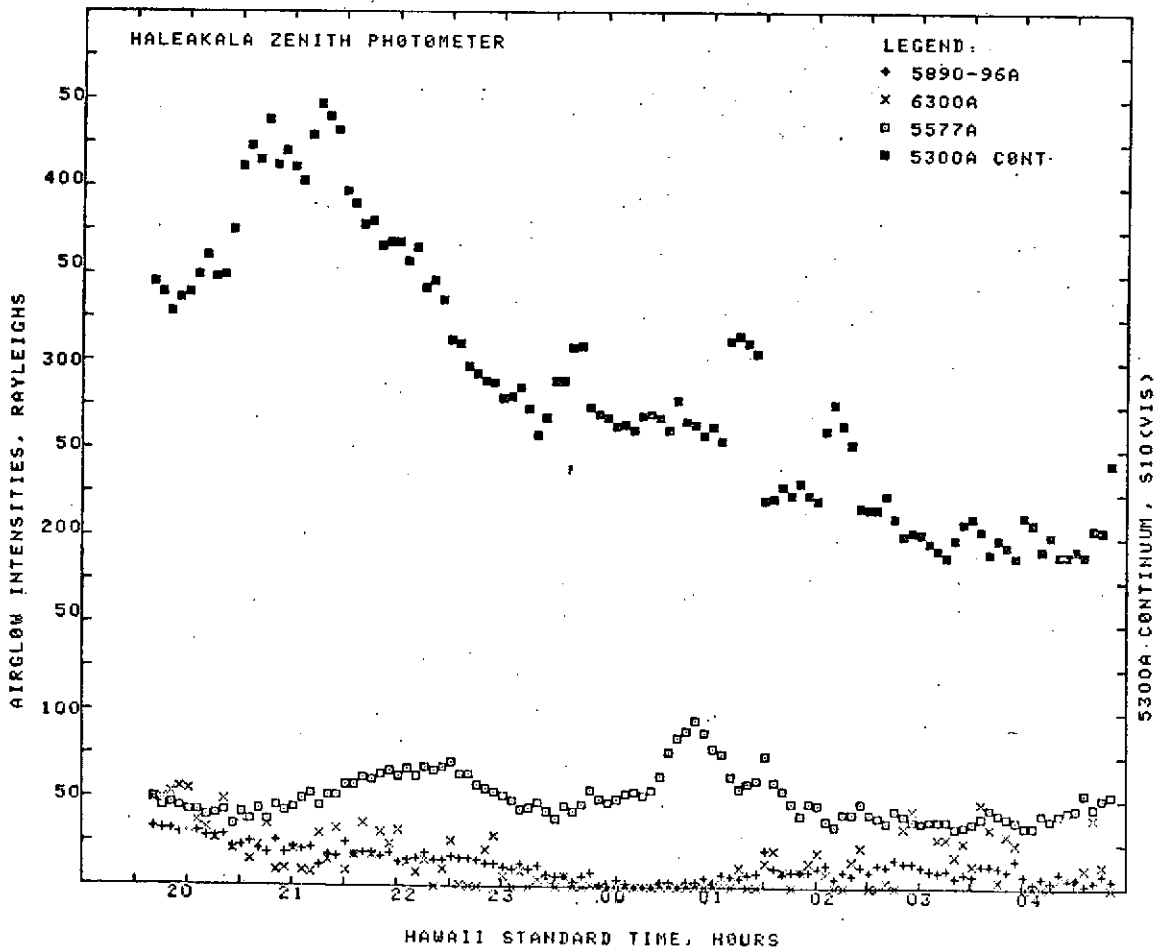




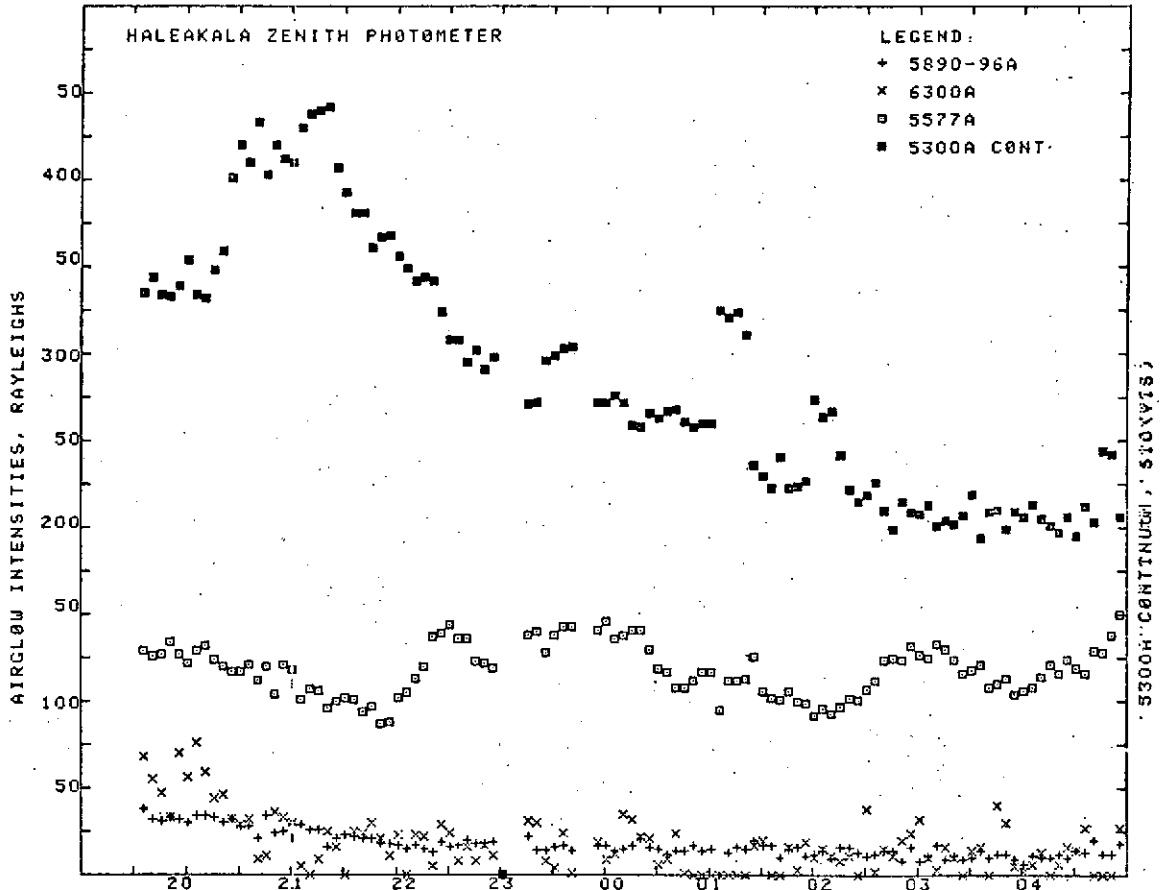
DATE
YR MO DA
64 02 08



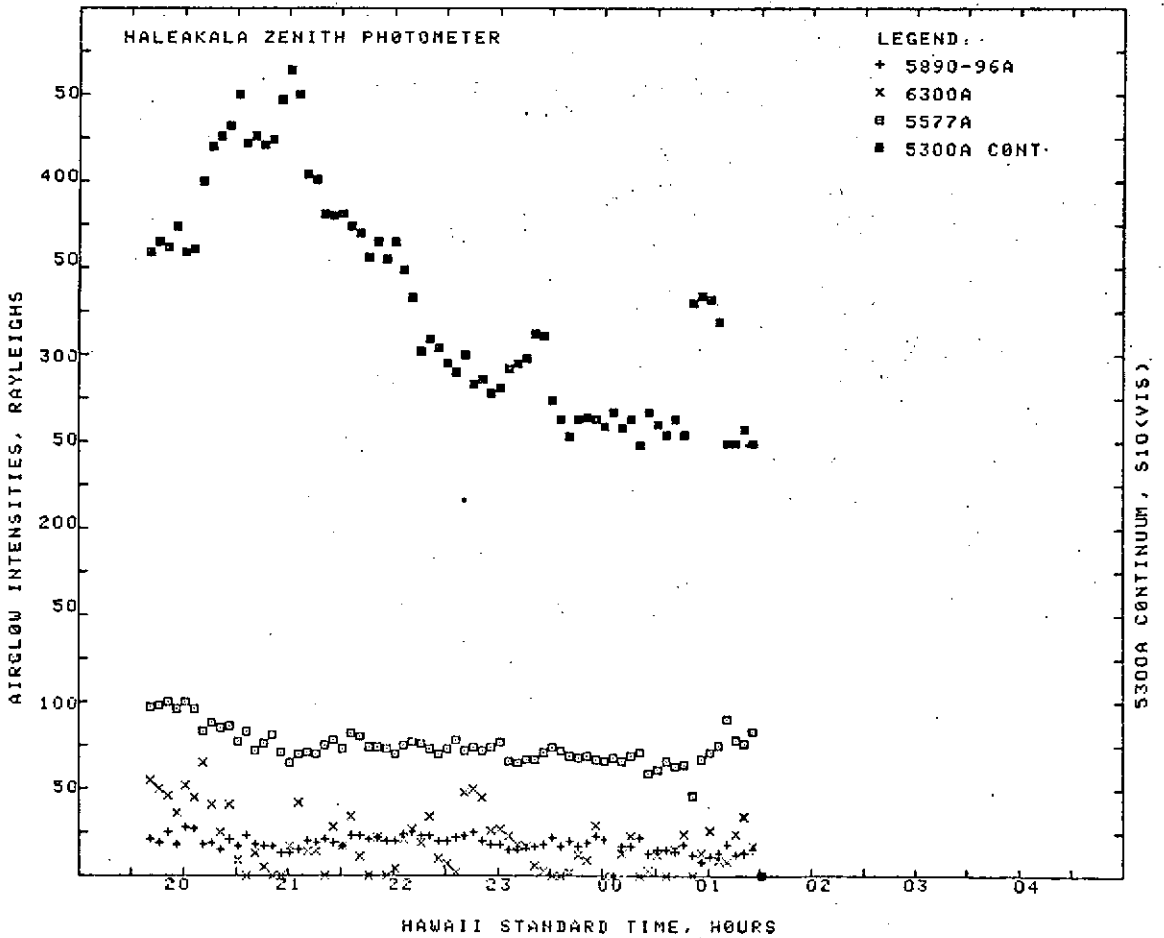
DATE
YR MO DA
64 02 09



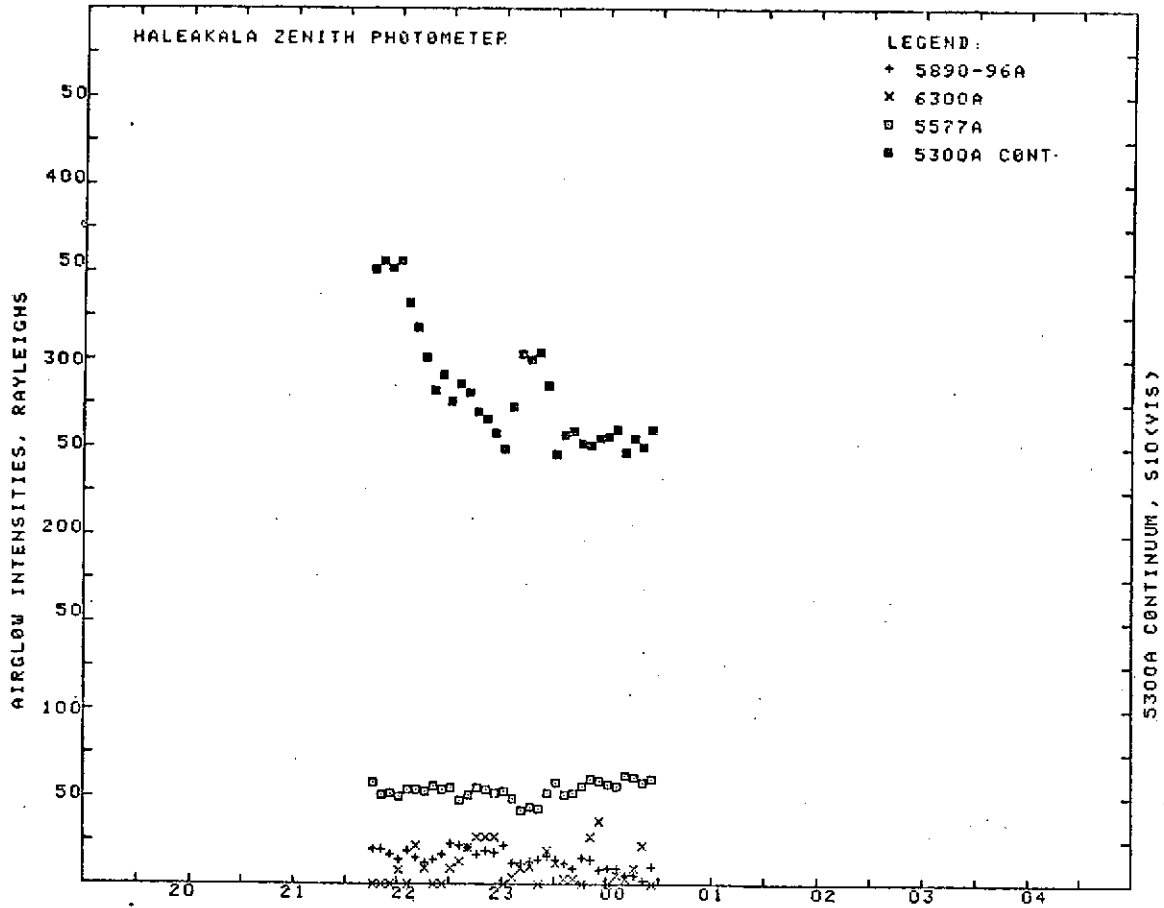
DATE
YR MO DA
64 02 10



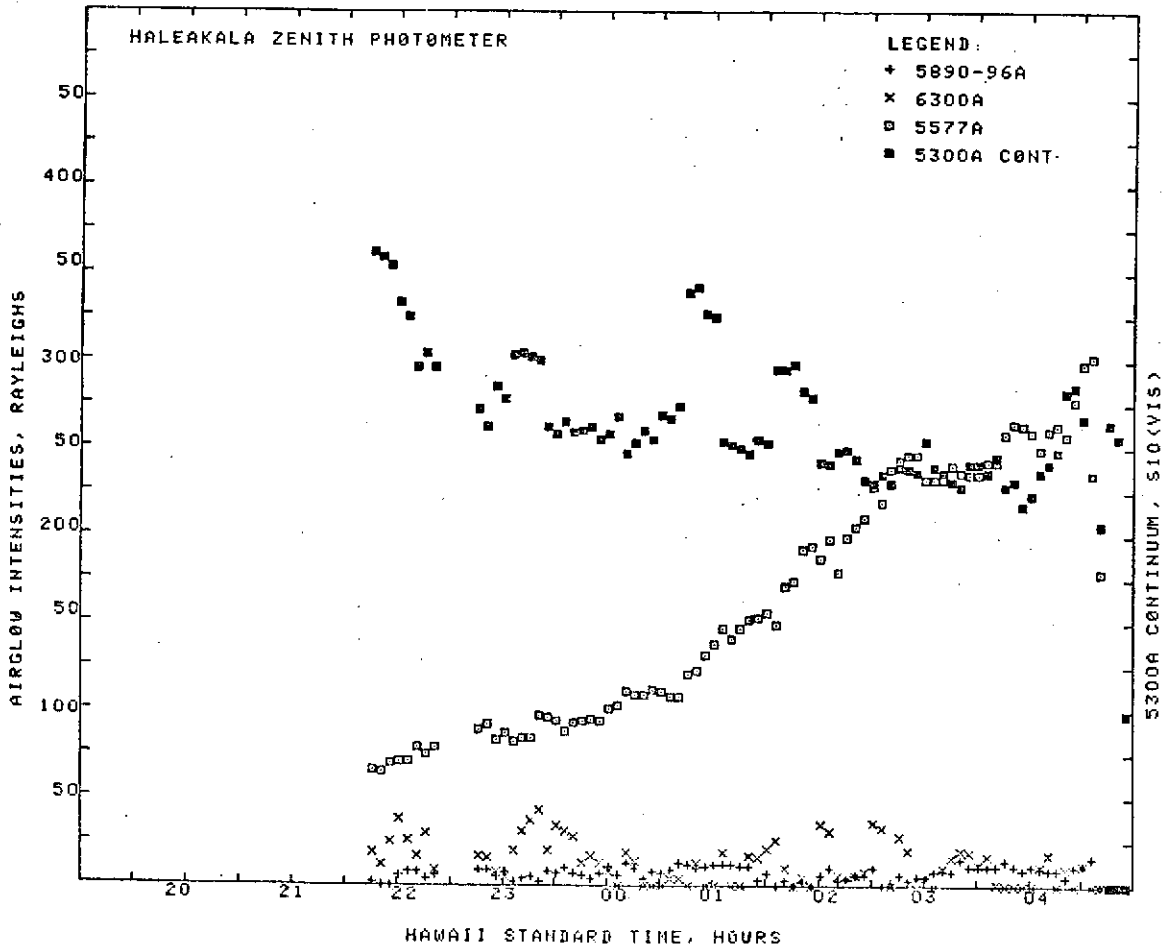
DATE
YR MO DA
64 02 13



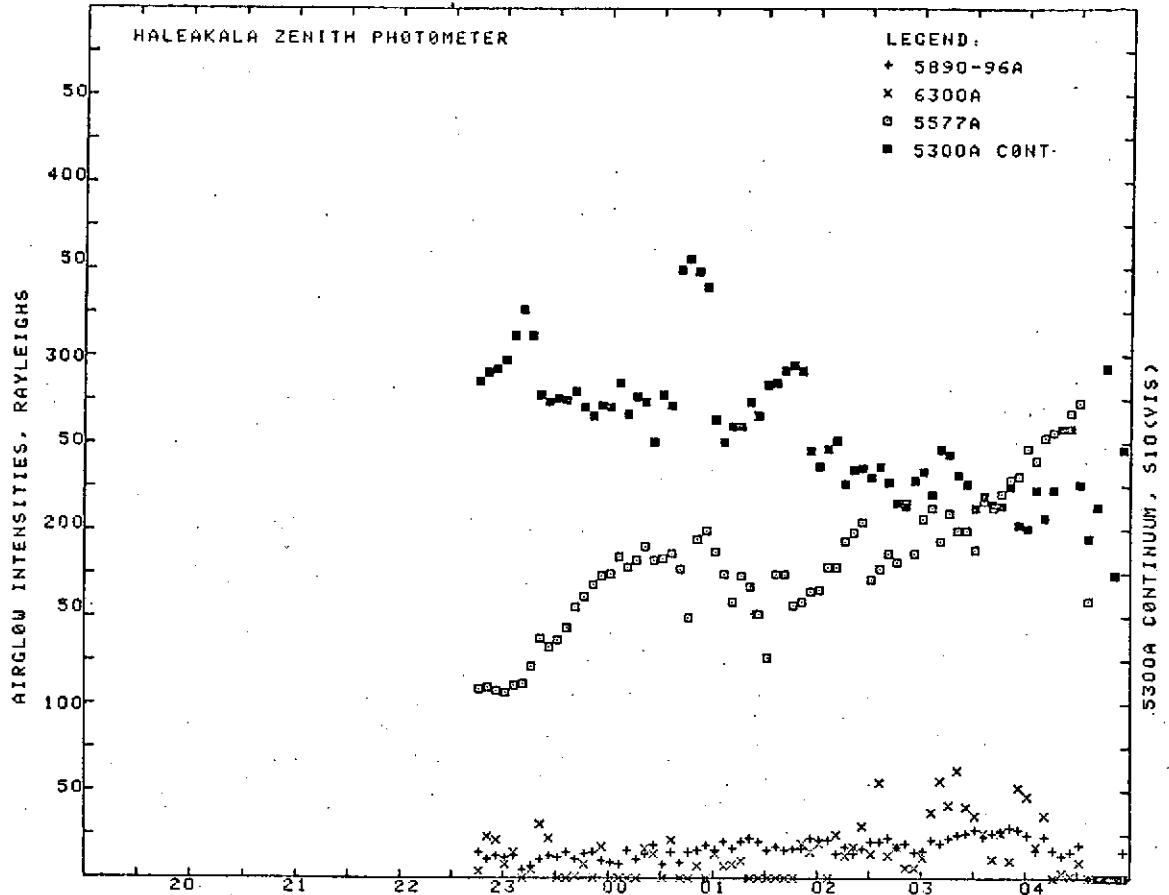
DATE
YR MO DA
64 02 15



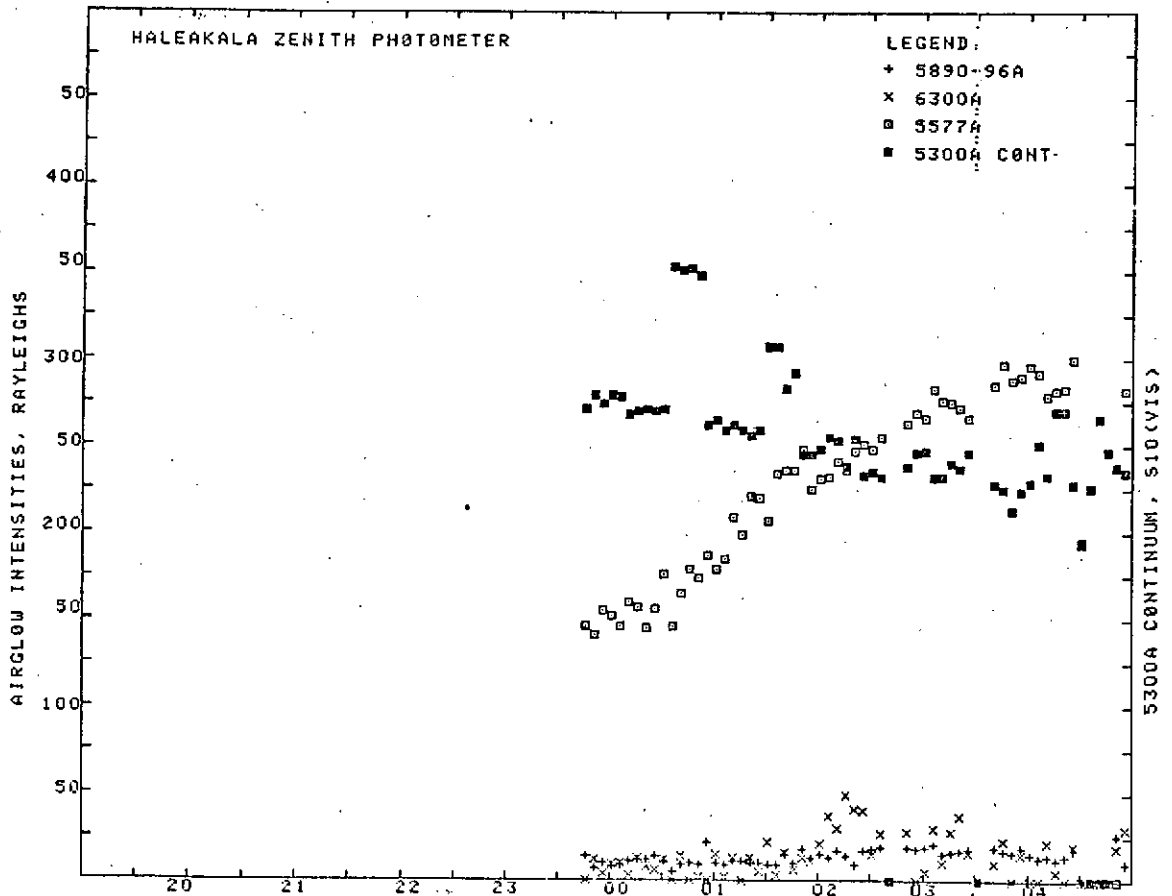
DATE
YR MO DA
64 02 16



DATE
YR MO DA
64 02 17

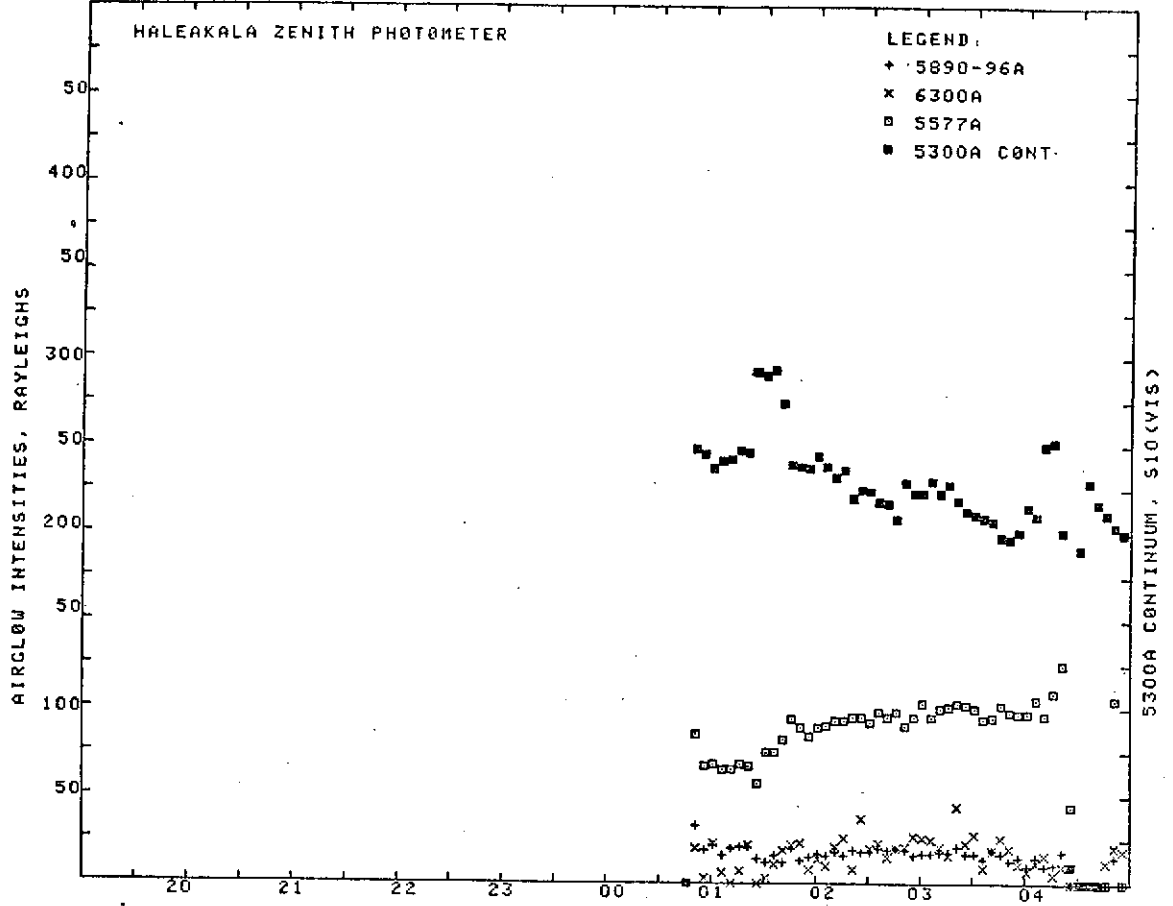


DATE
YR MO DA
64 02 18

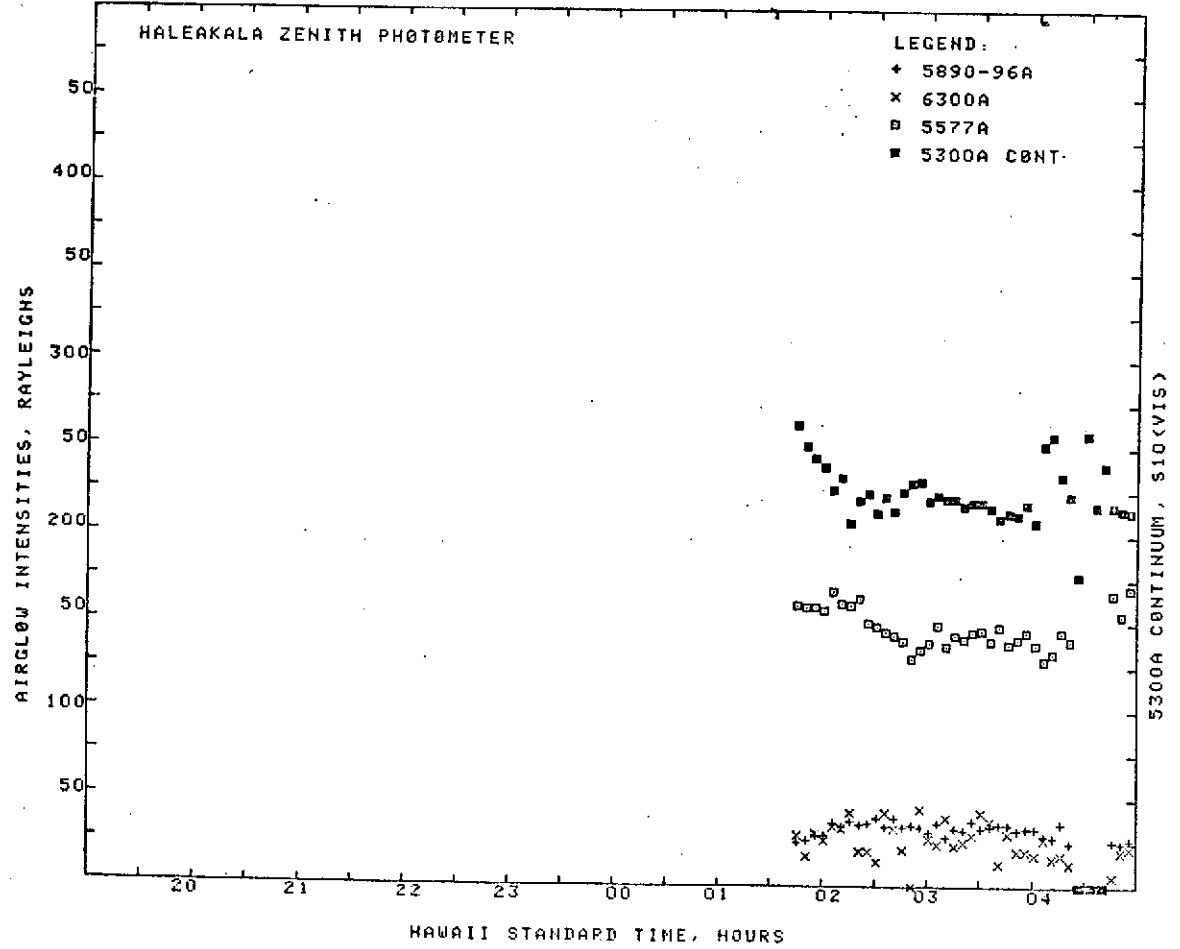


HAWAII STANDARD TIME, HOURS

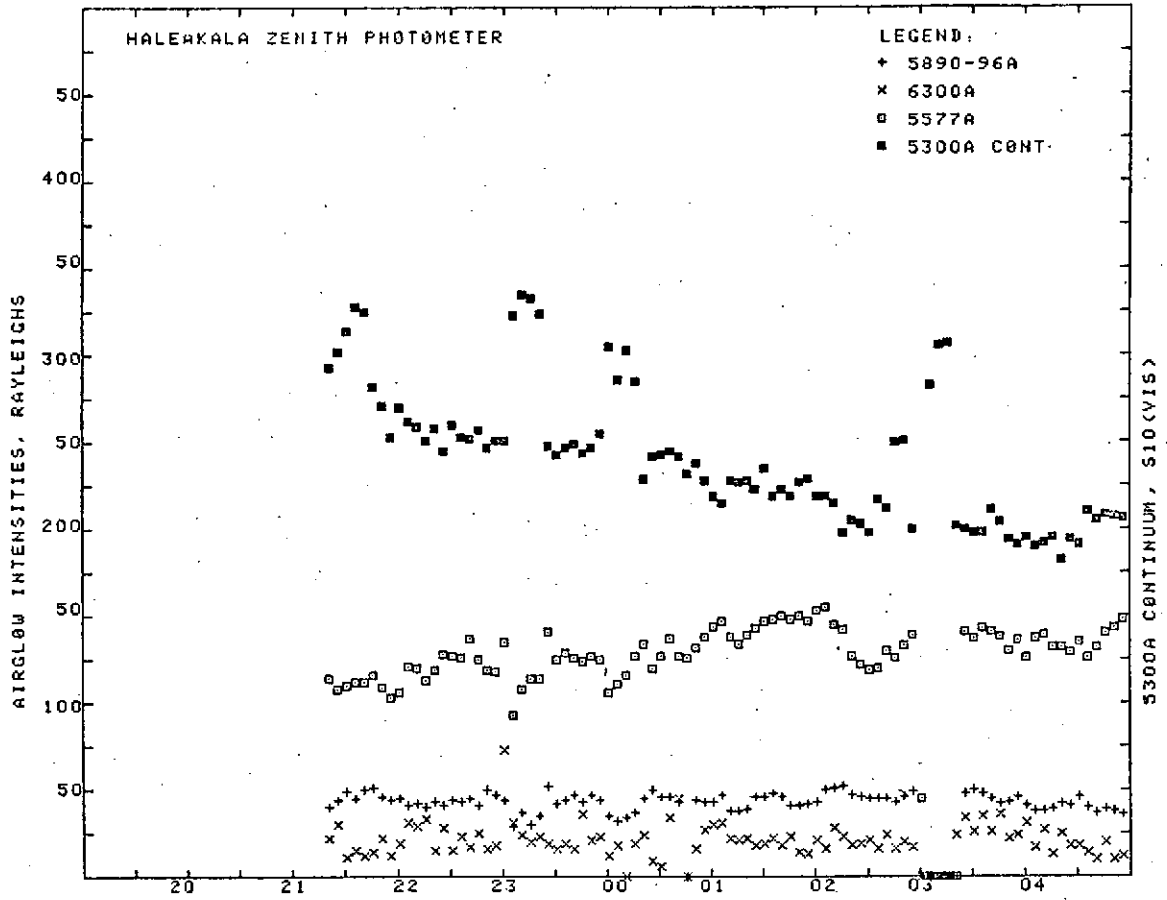
DATE
YR MO DA
64 02 19



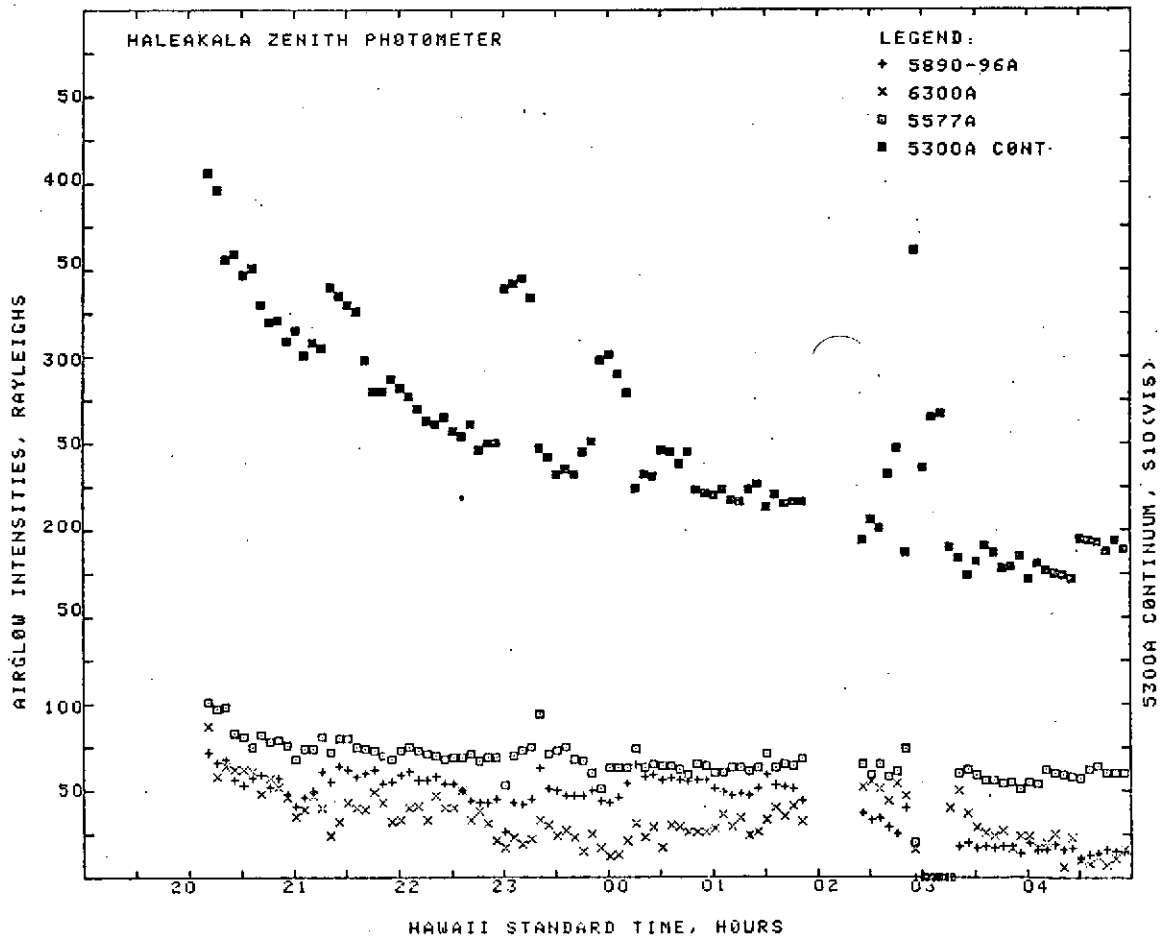
DATE
YR MO DA
64 02 20



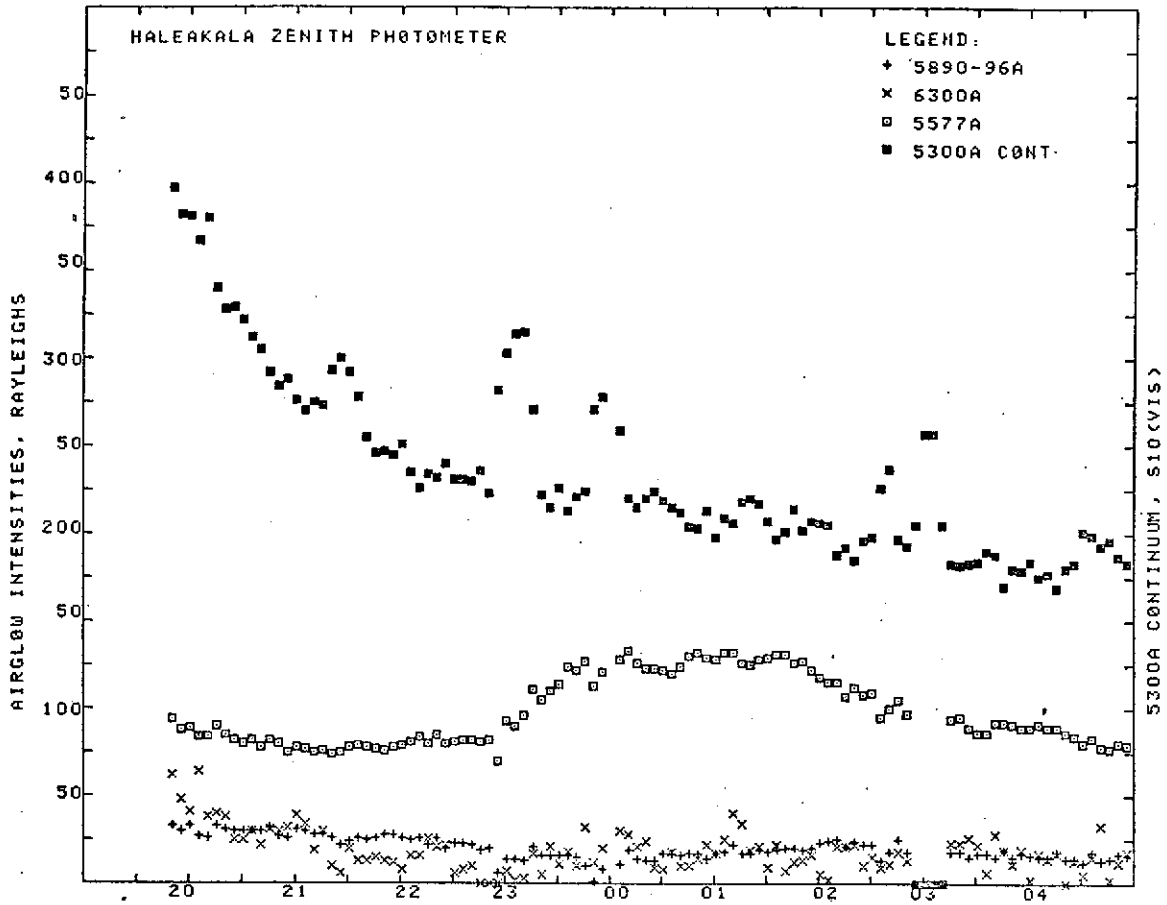
DATE
YR MO DA
64 03 12



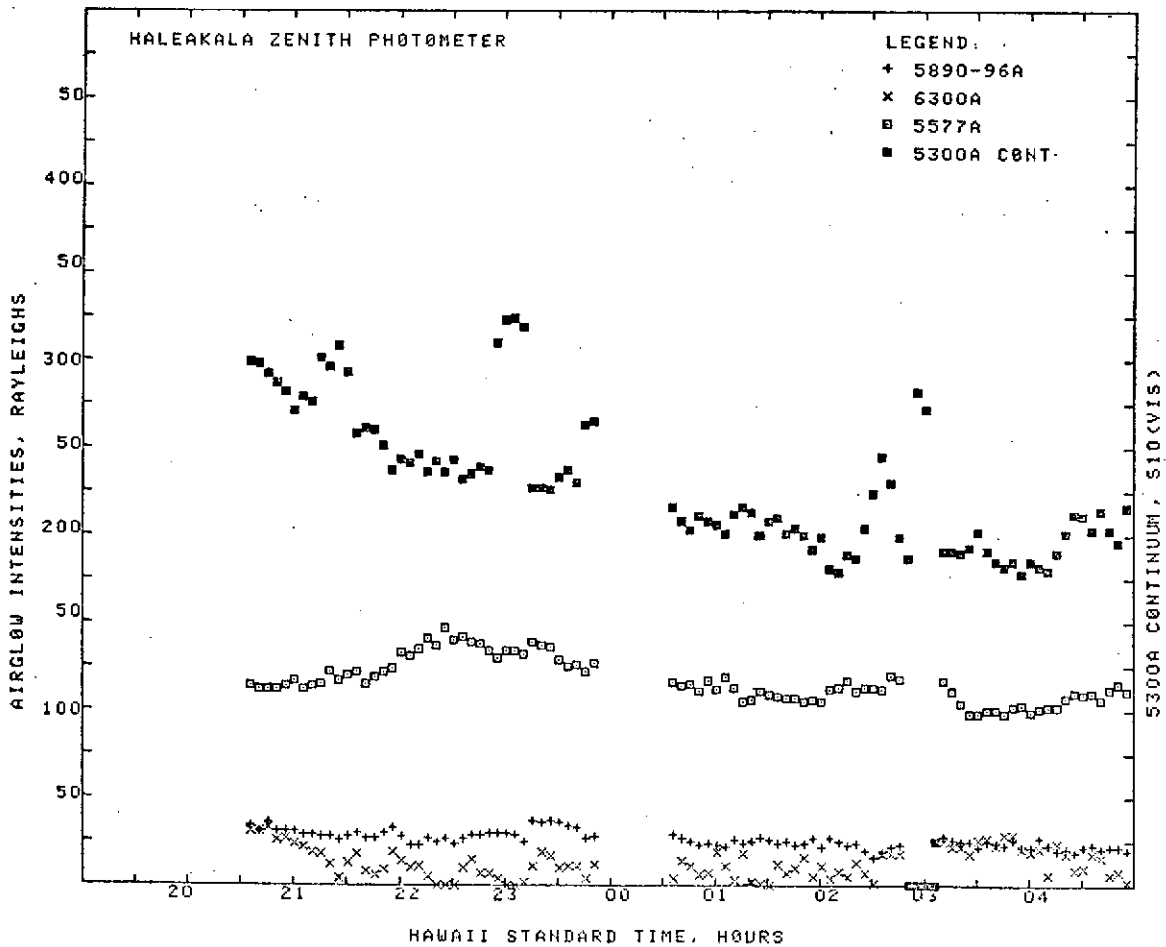
DATE
YR MO DA
64 03 13

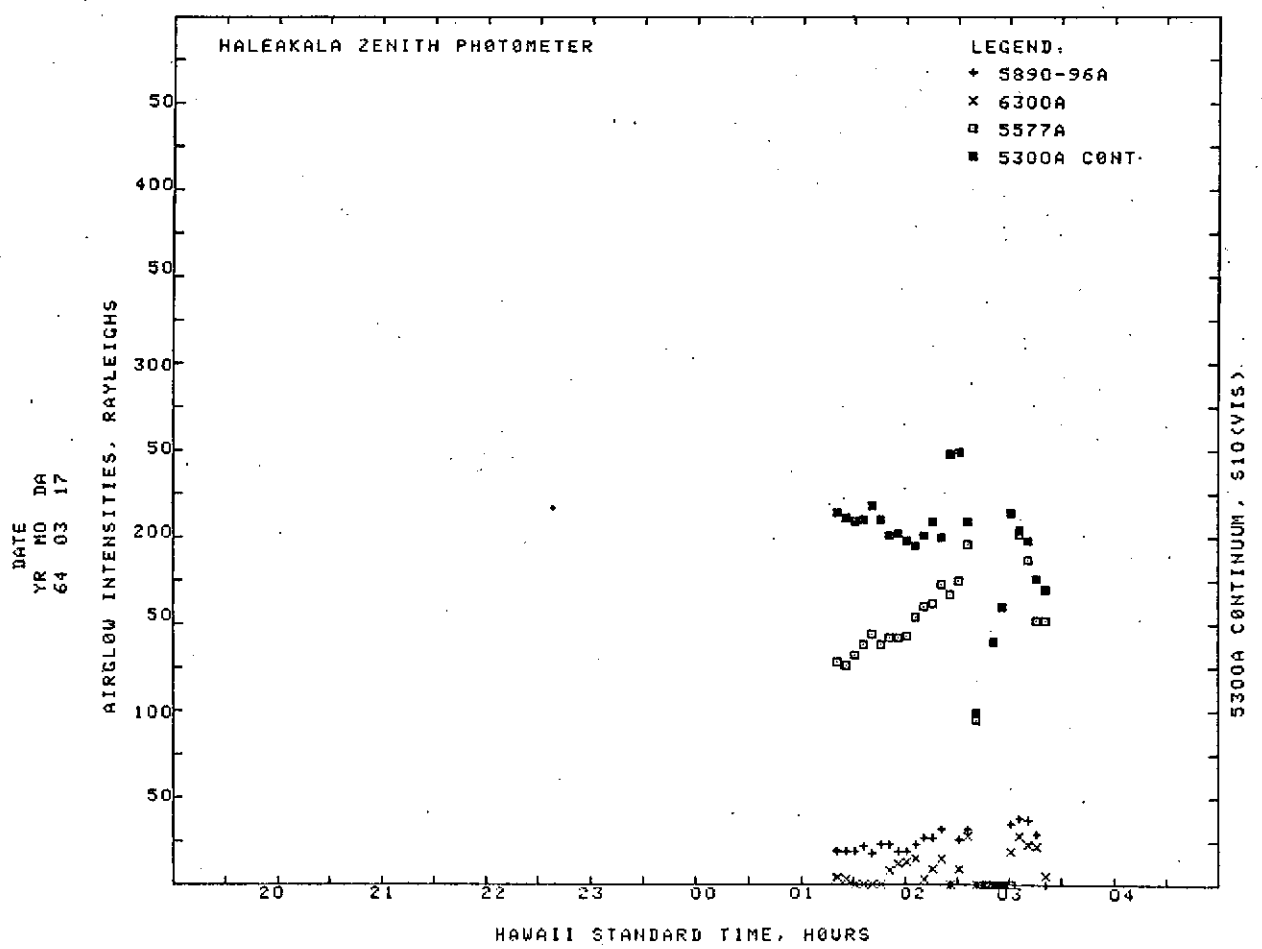
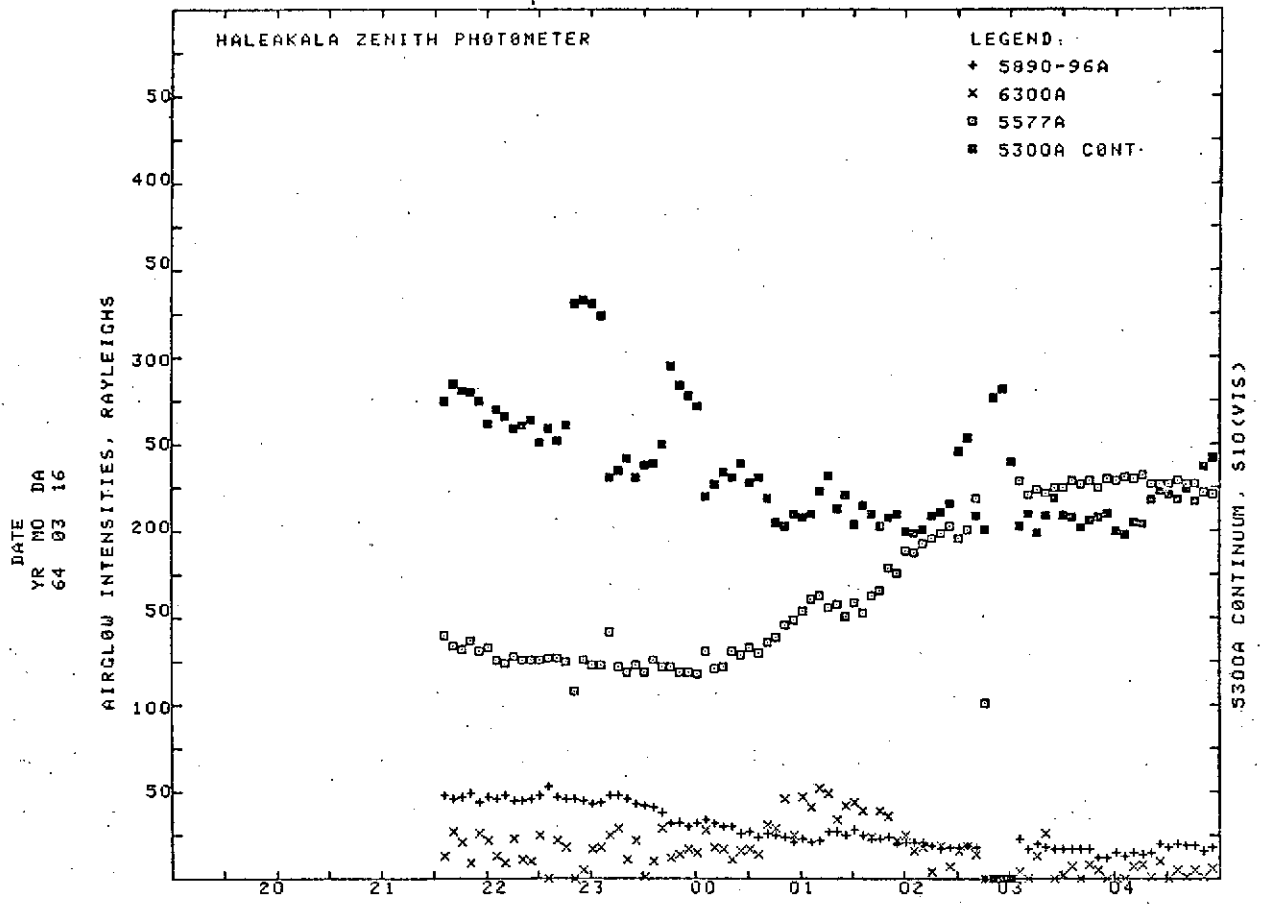


DATE
YR MO DA
64 03 14

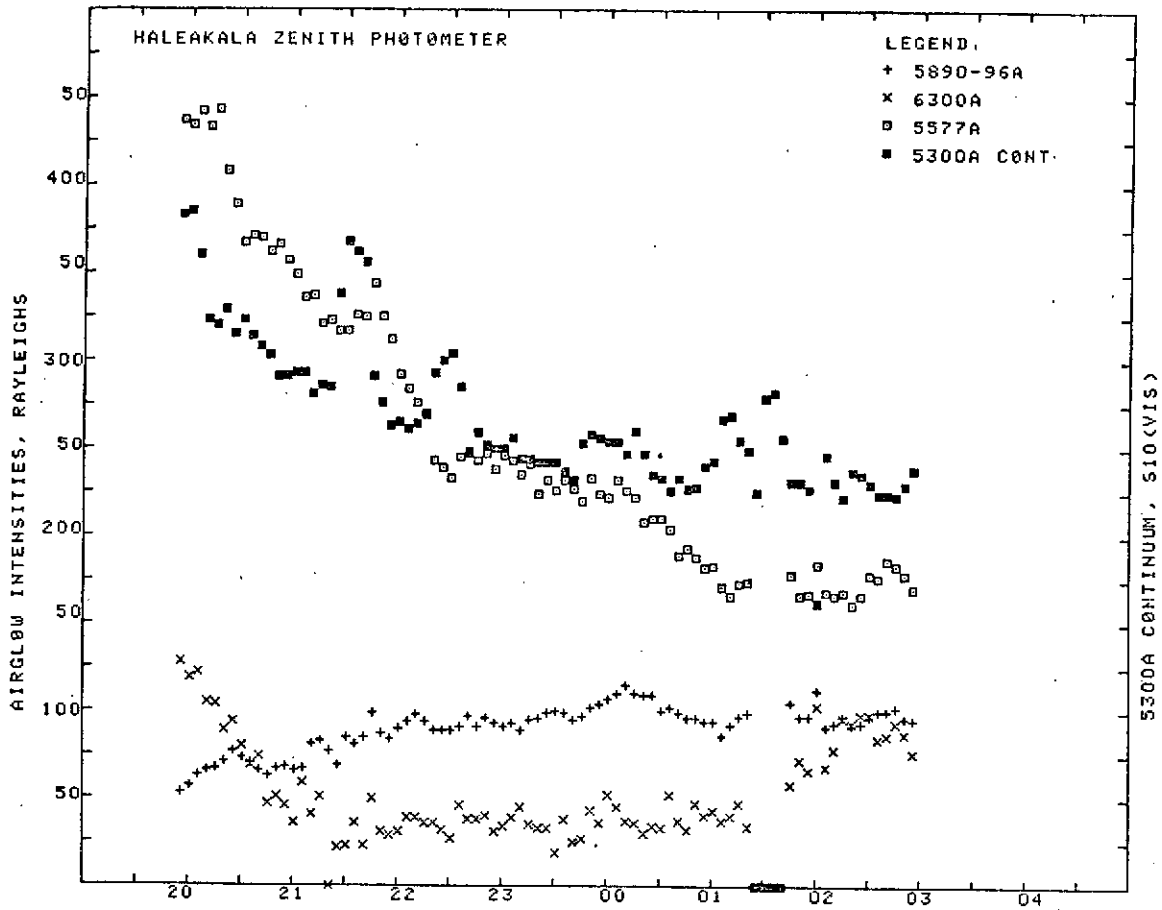


DATE
YR MO DA
64 03 15

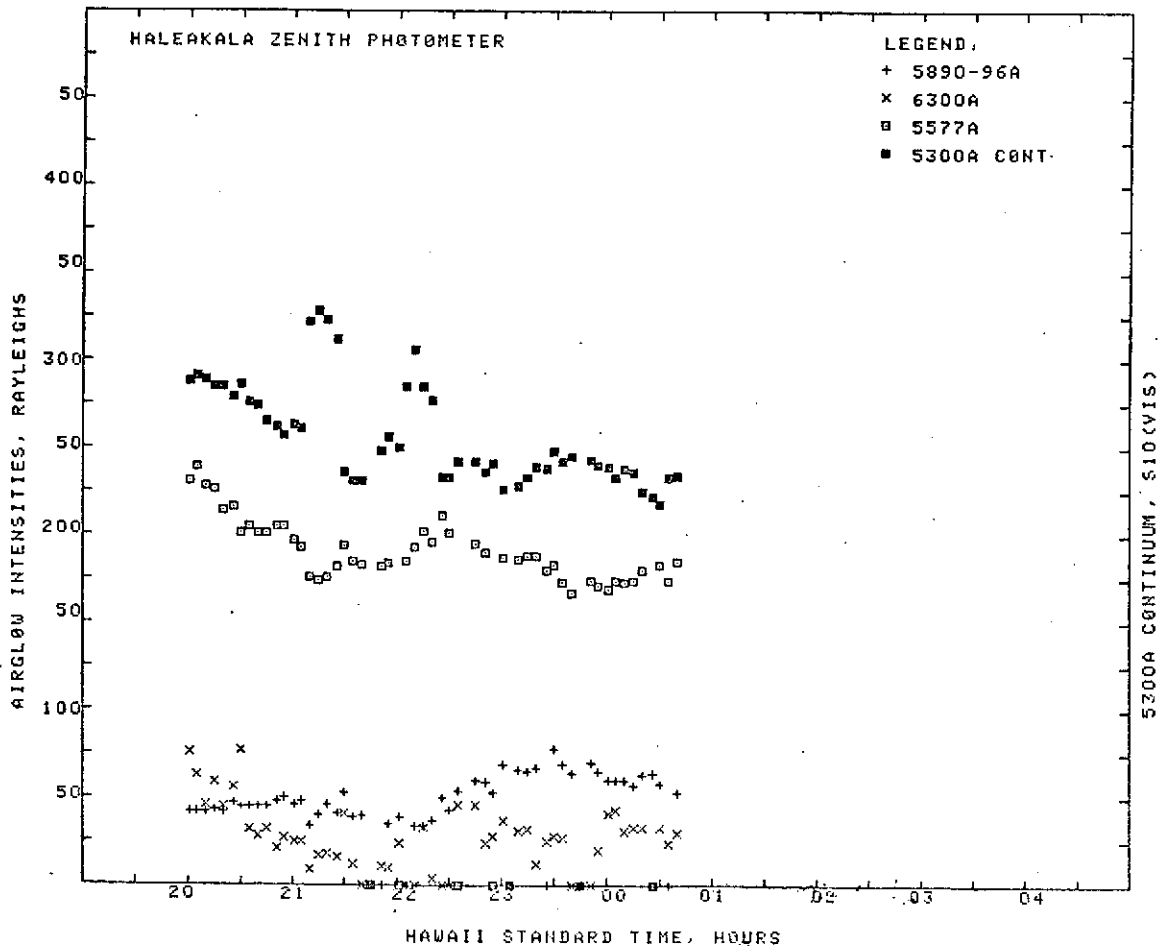


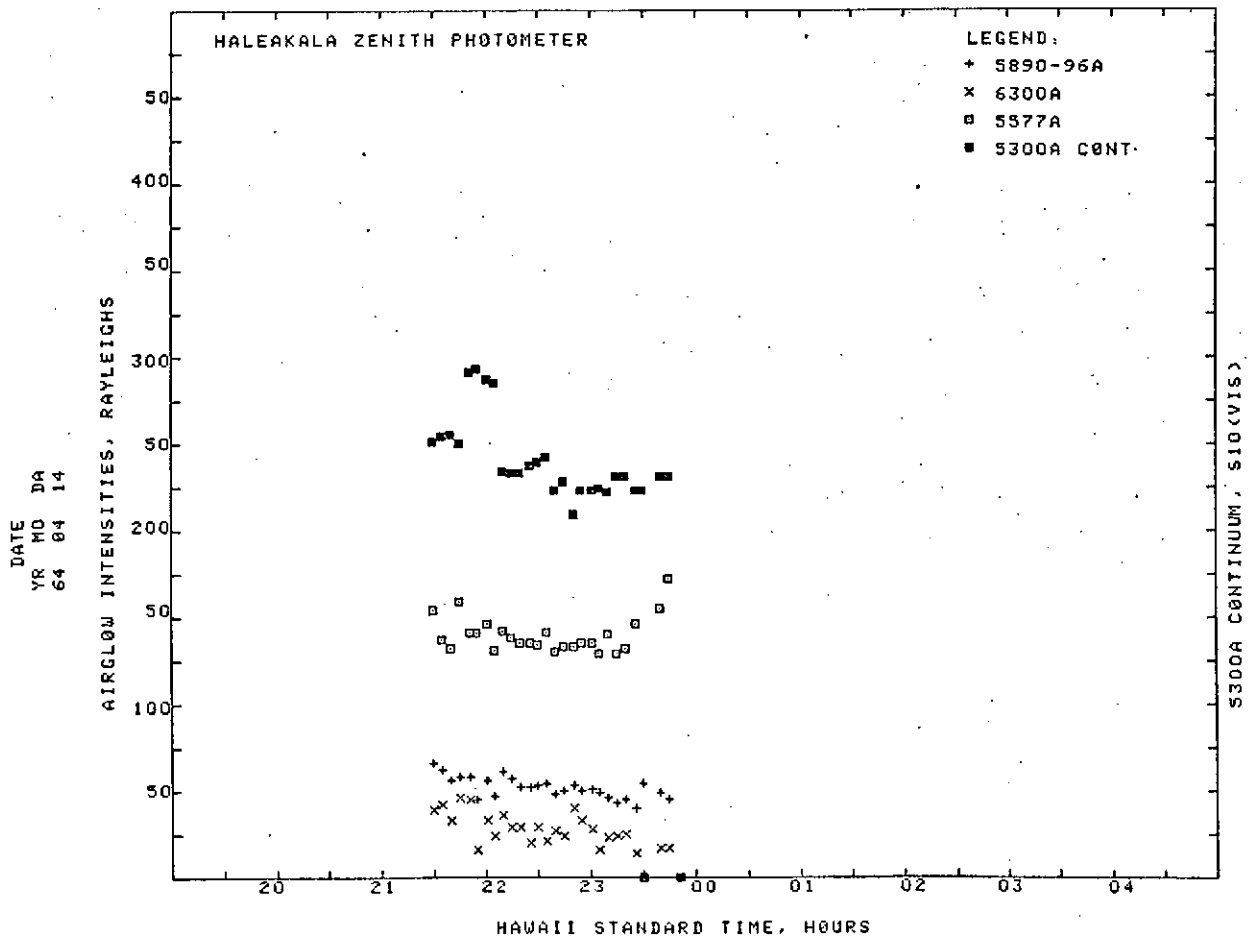
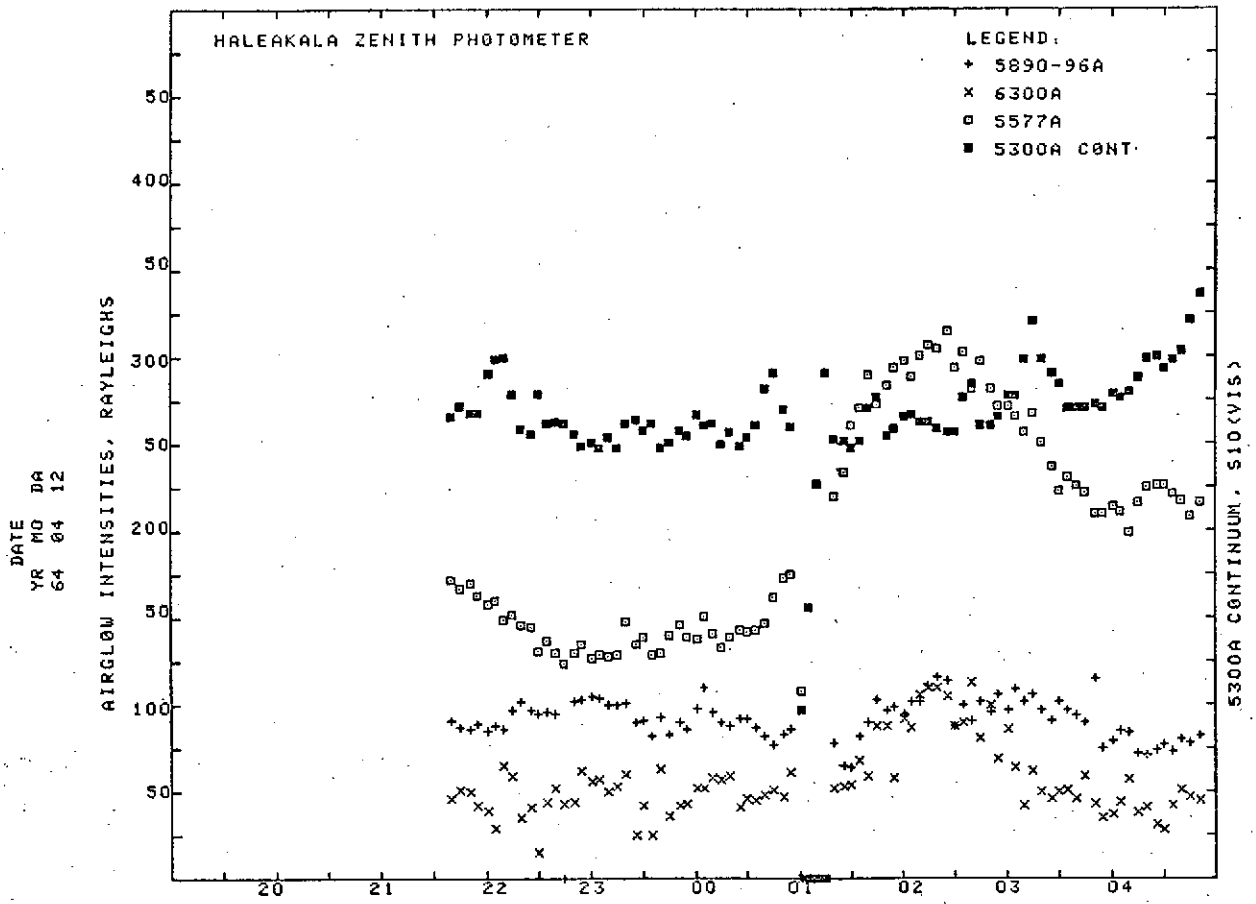


DATE
YR MO DA
64 04 05

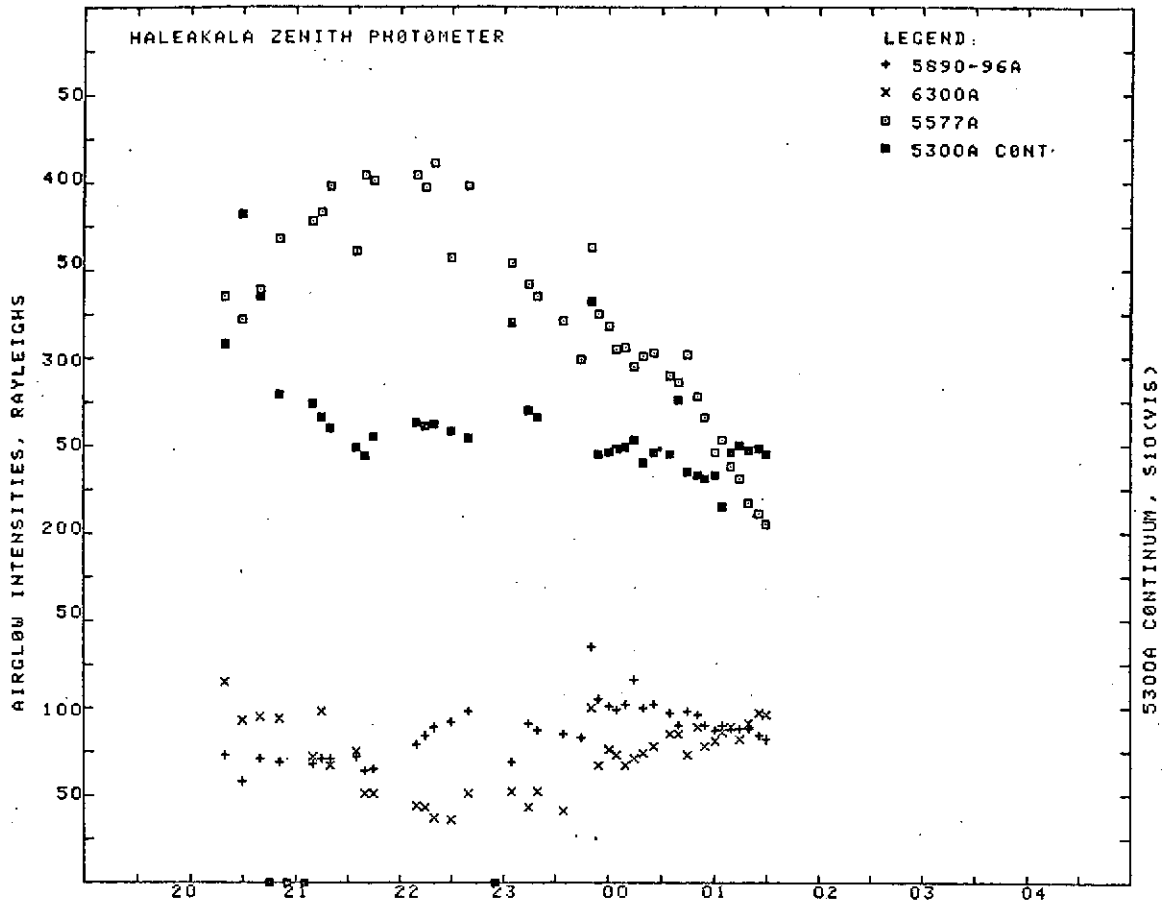


DATE
YR MO DA
64 04 18

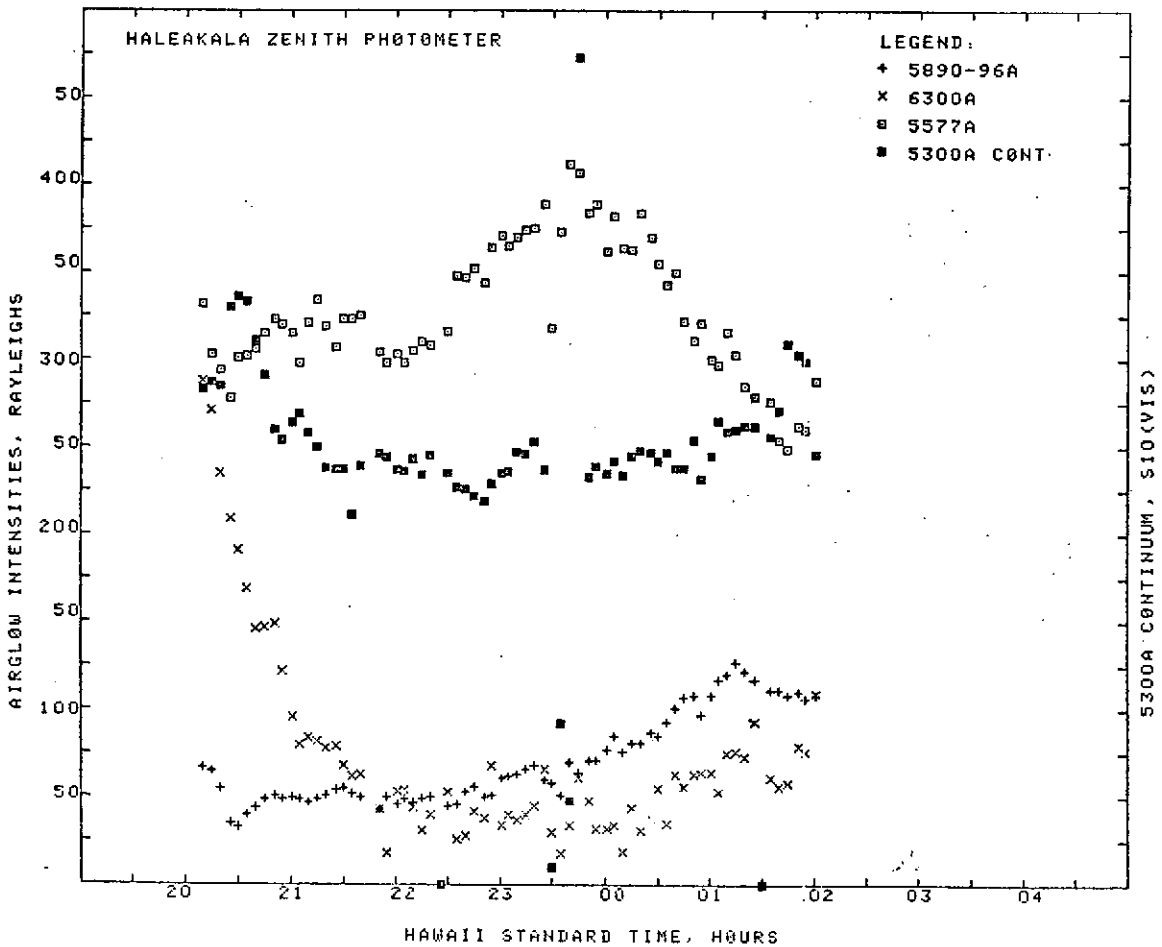


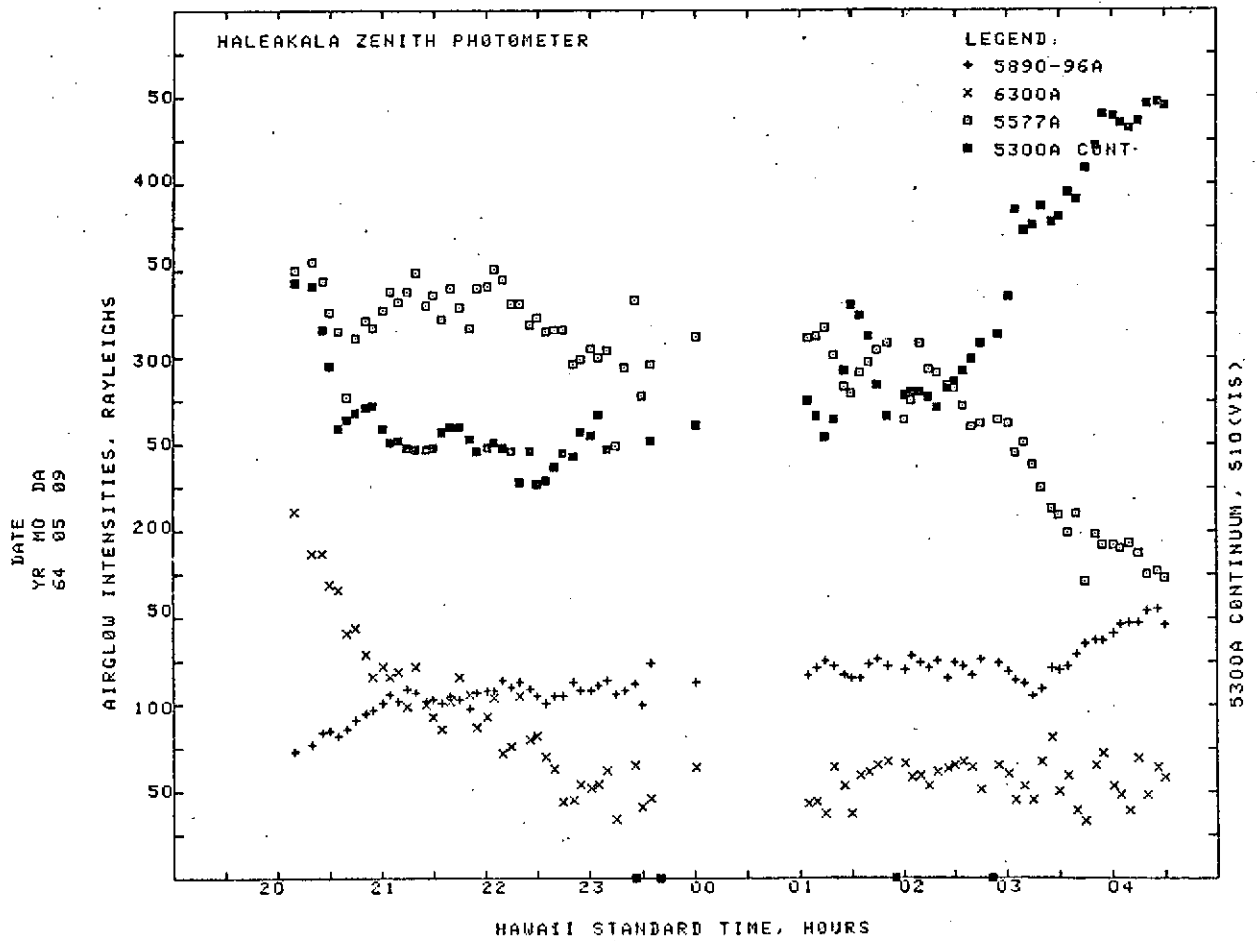
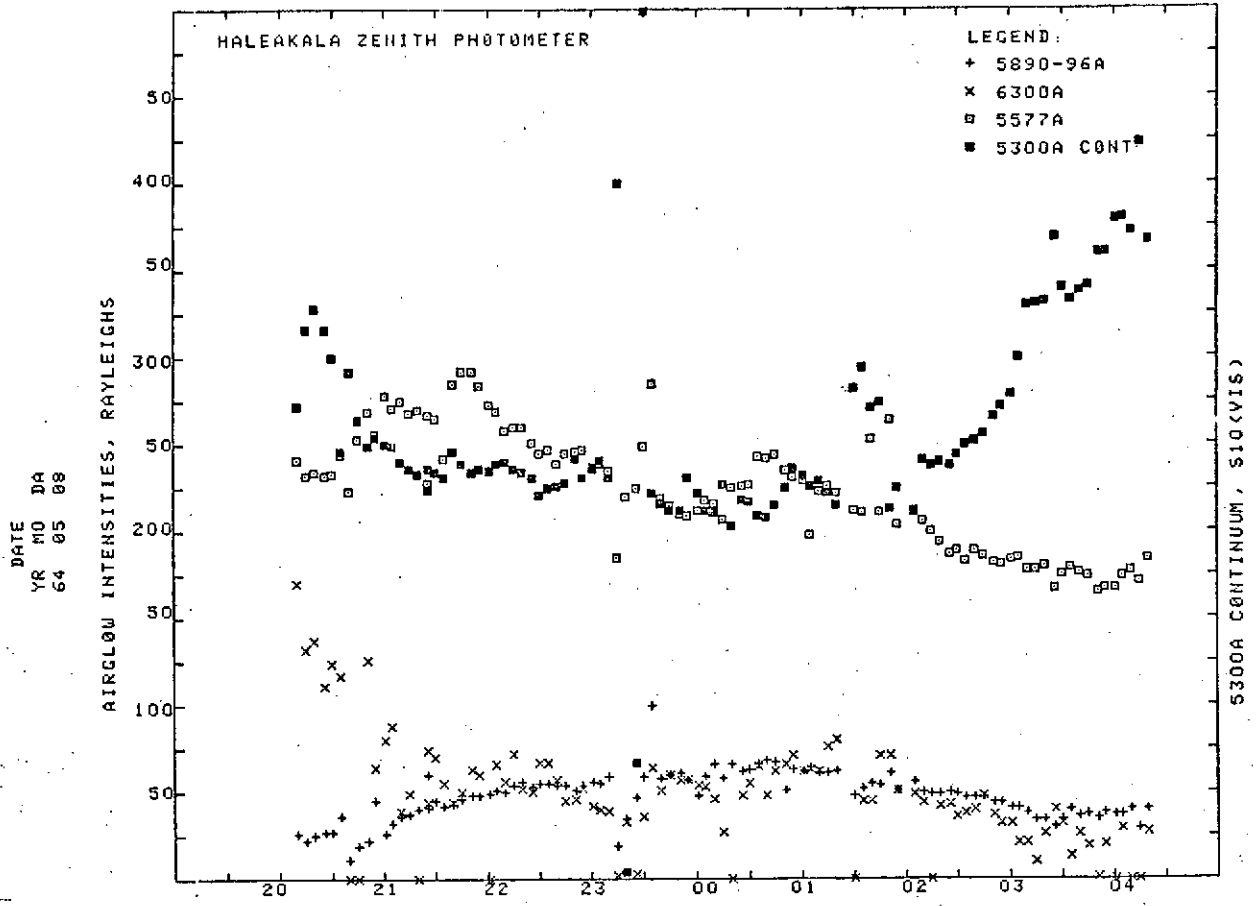


DATE
YR MO DA
64 05 04

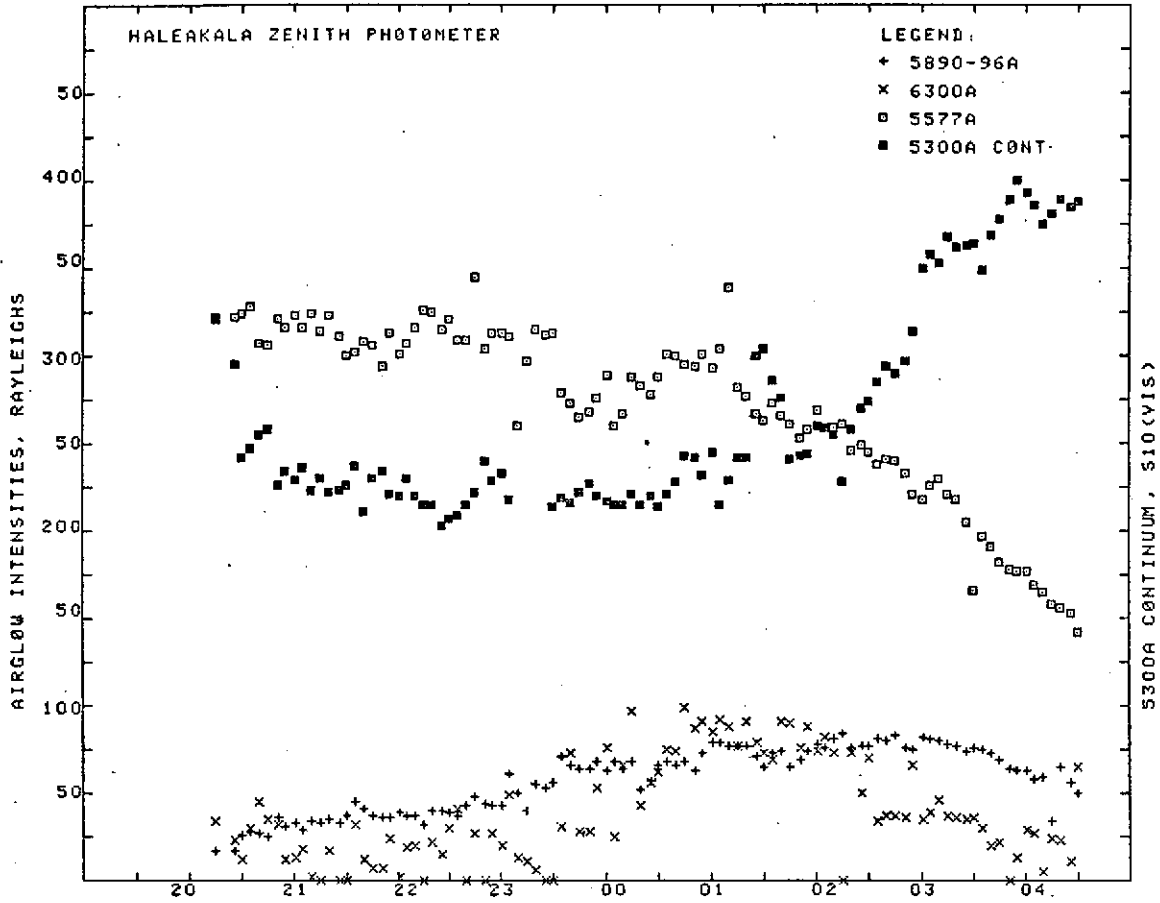


DATE
YR MO DA
64 05 05

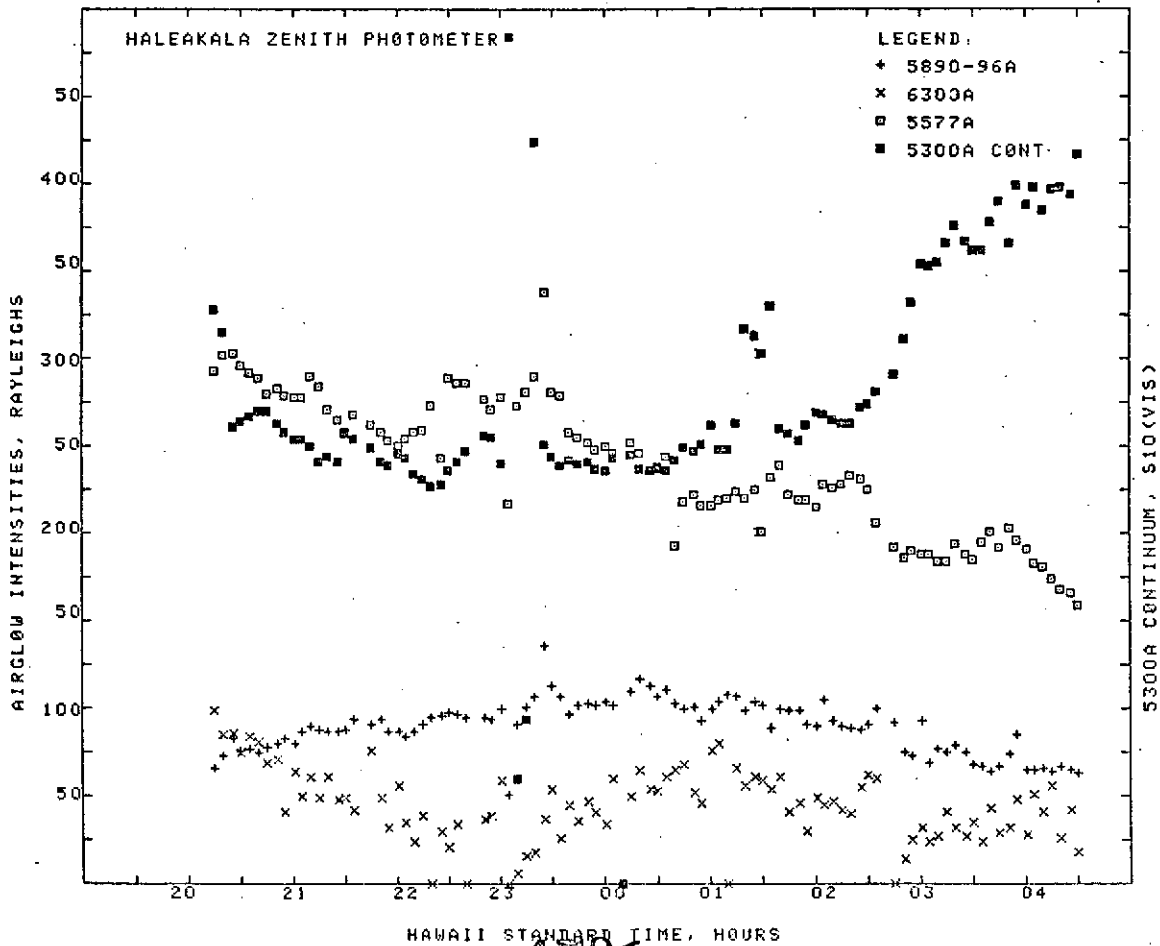


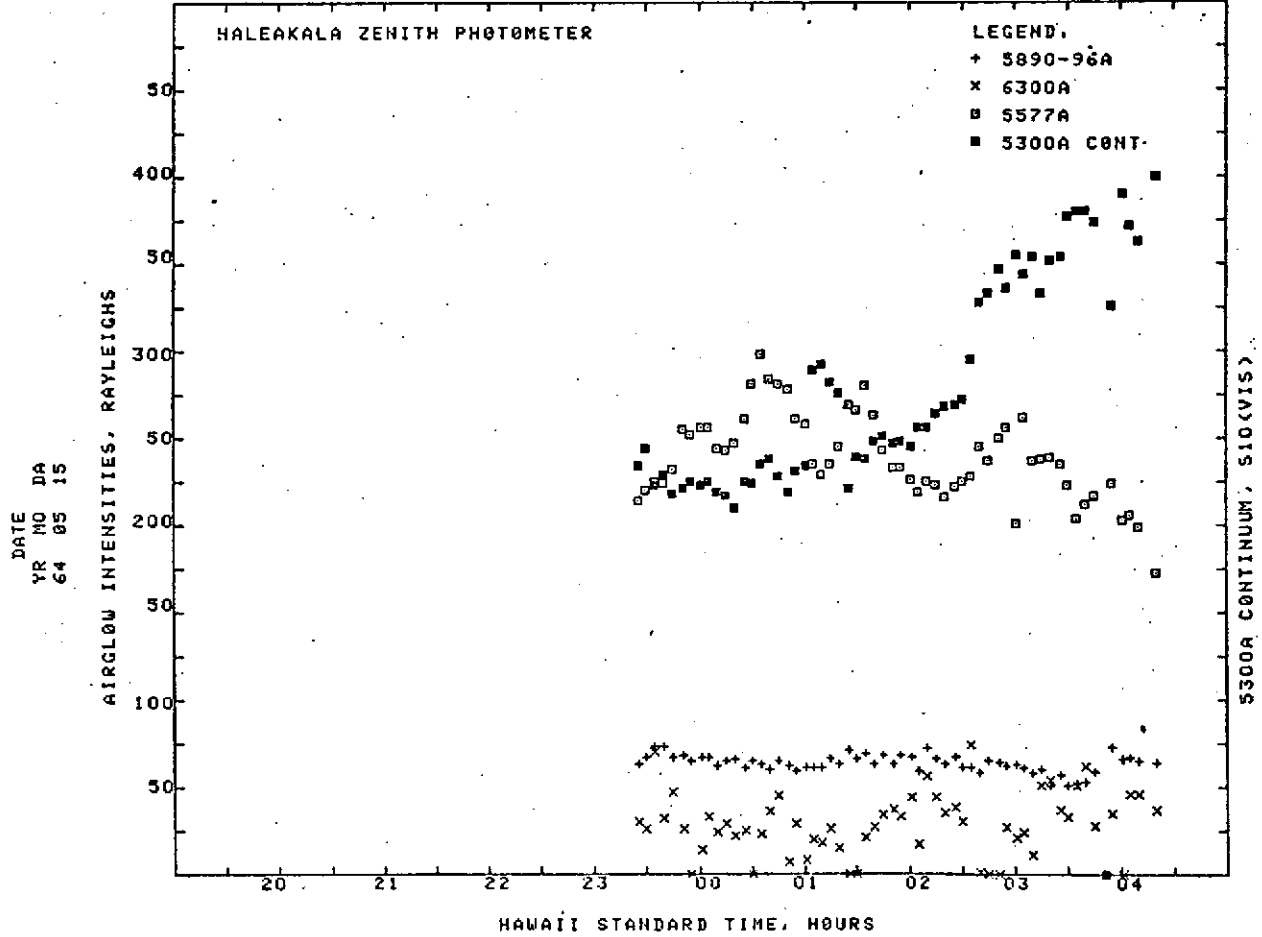
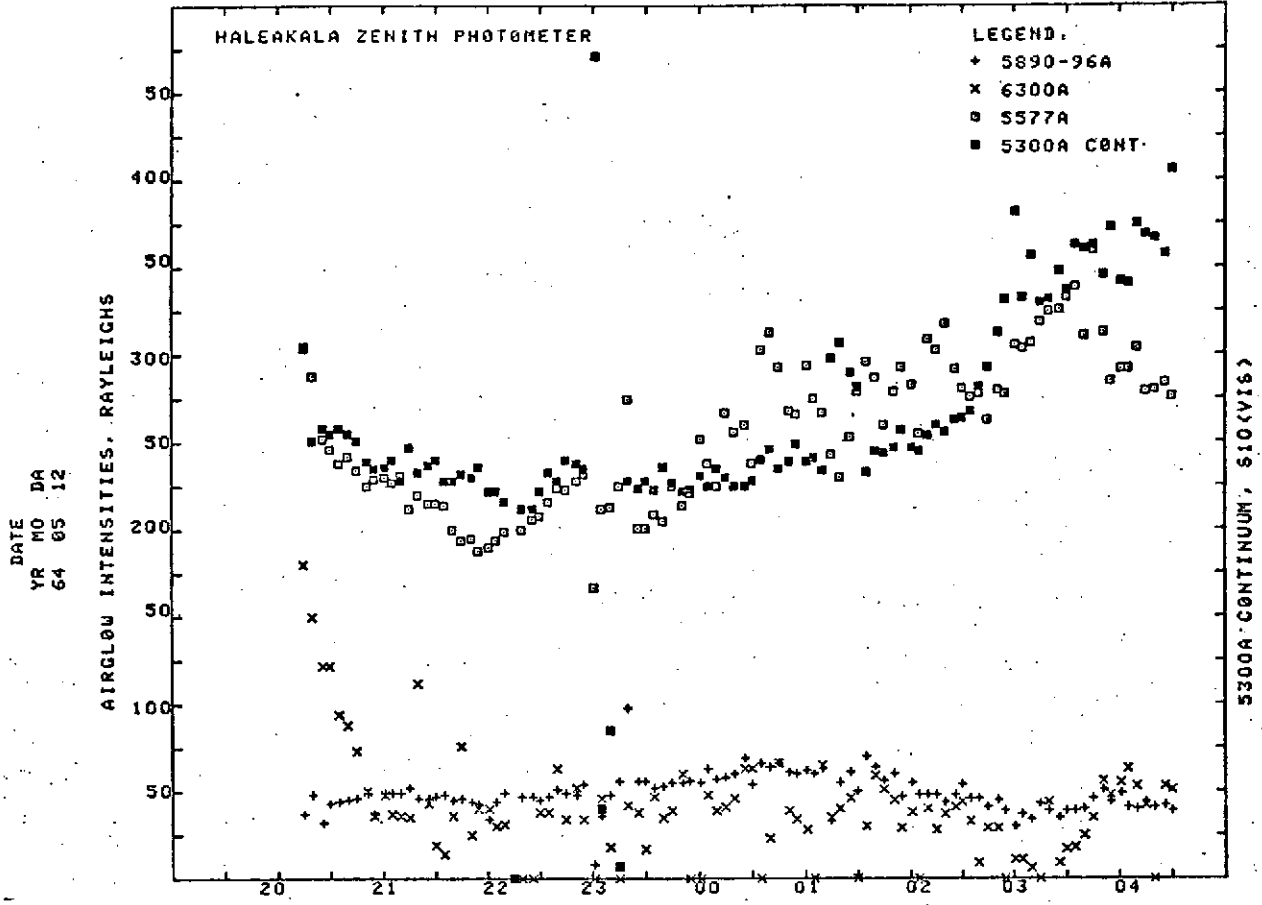


DATE
YR MO DA
64 05 10

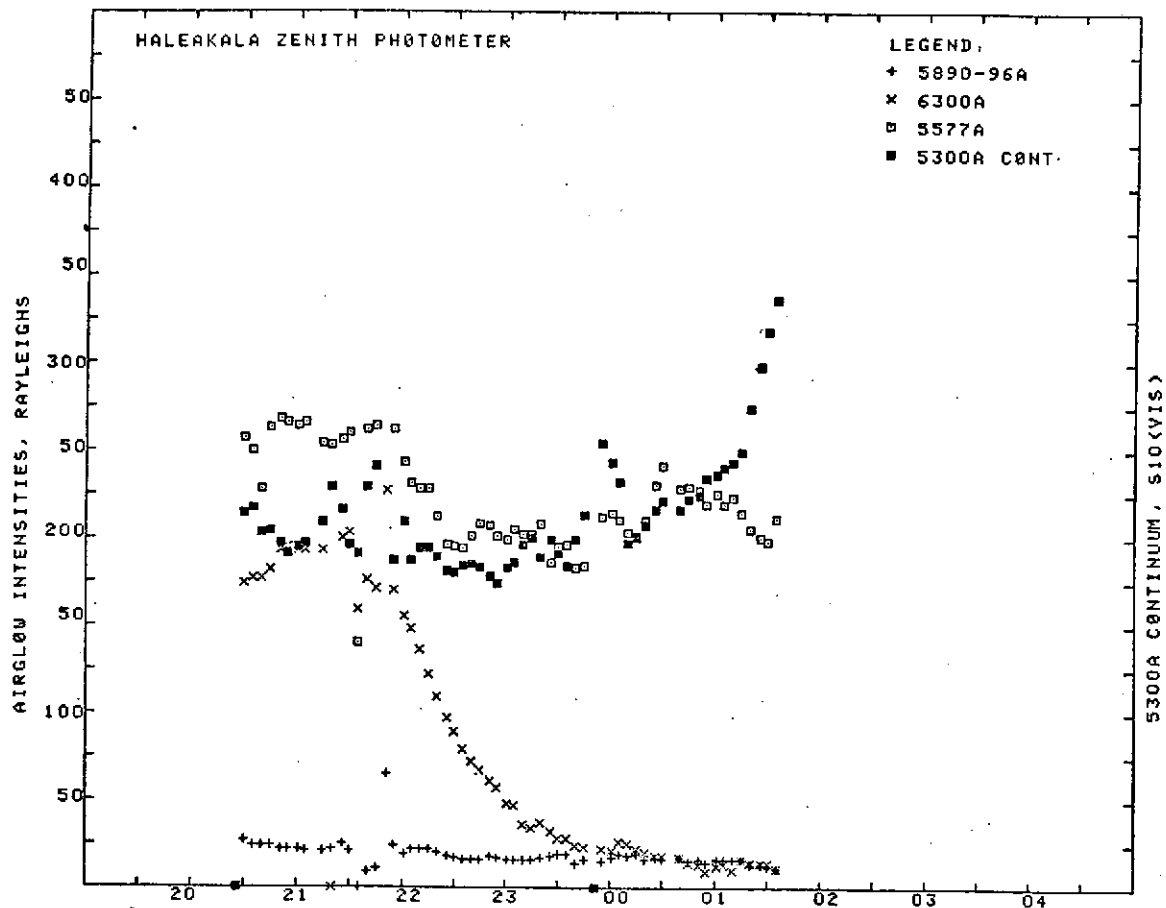


DATE
YR MO DA
64 05 11

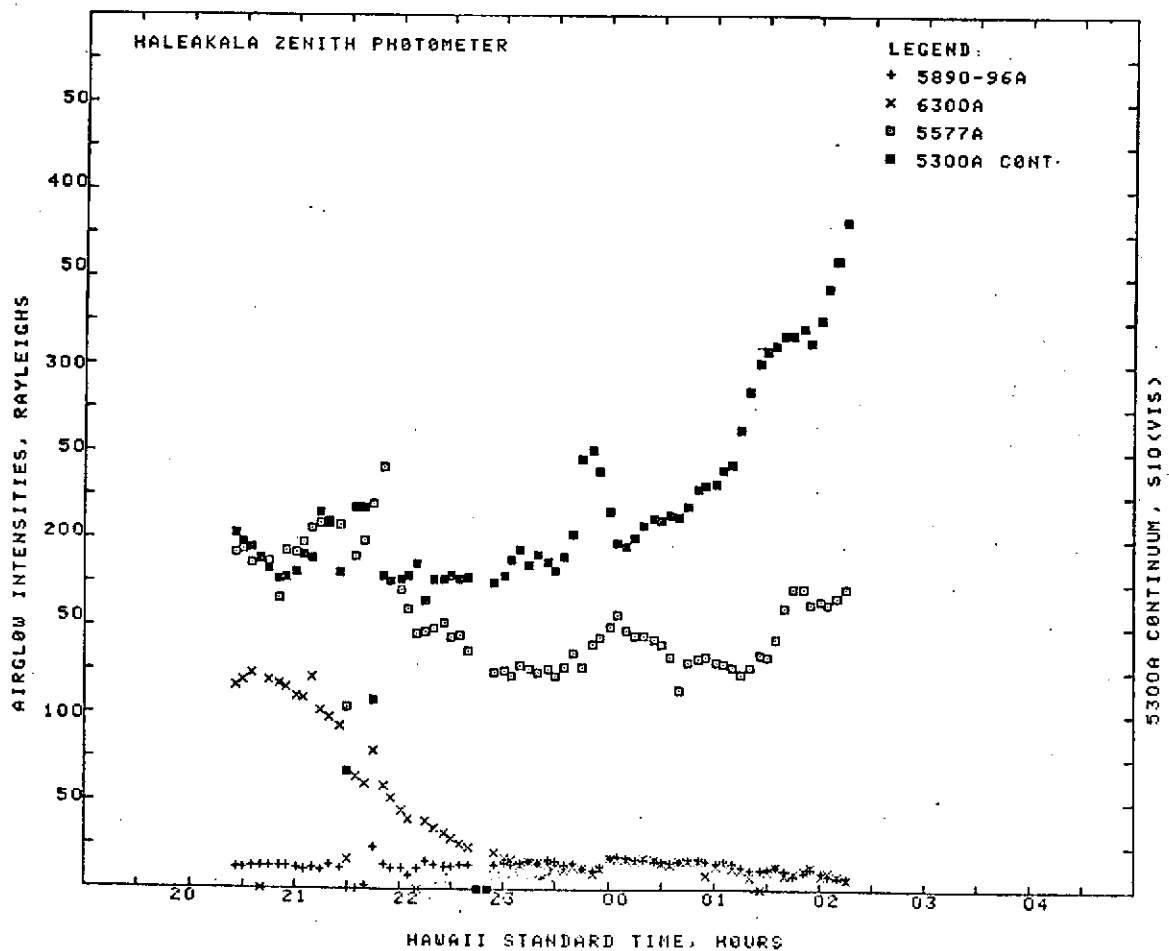


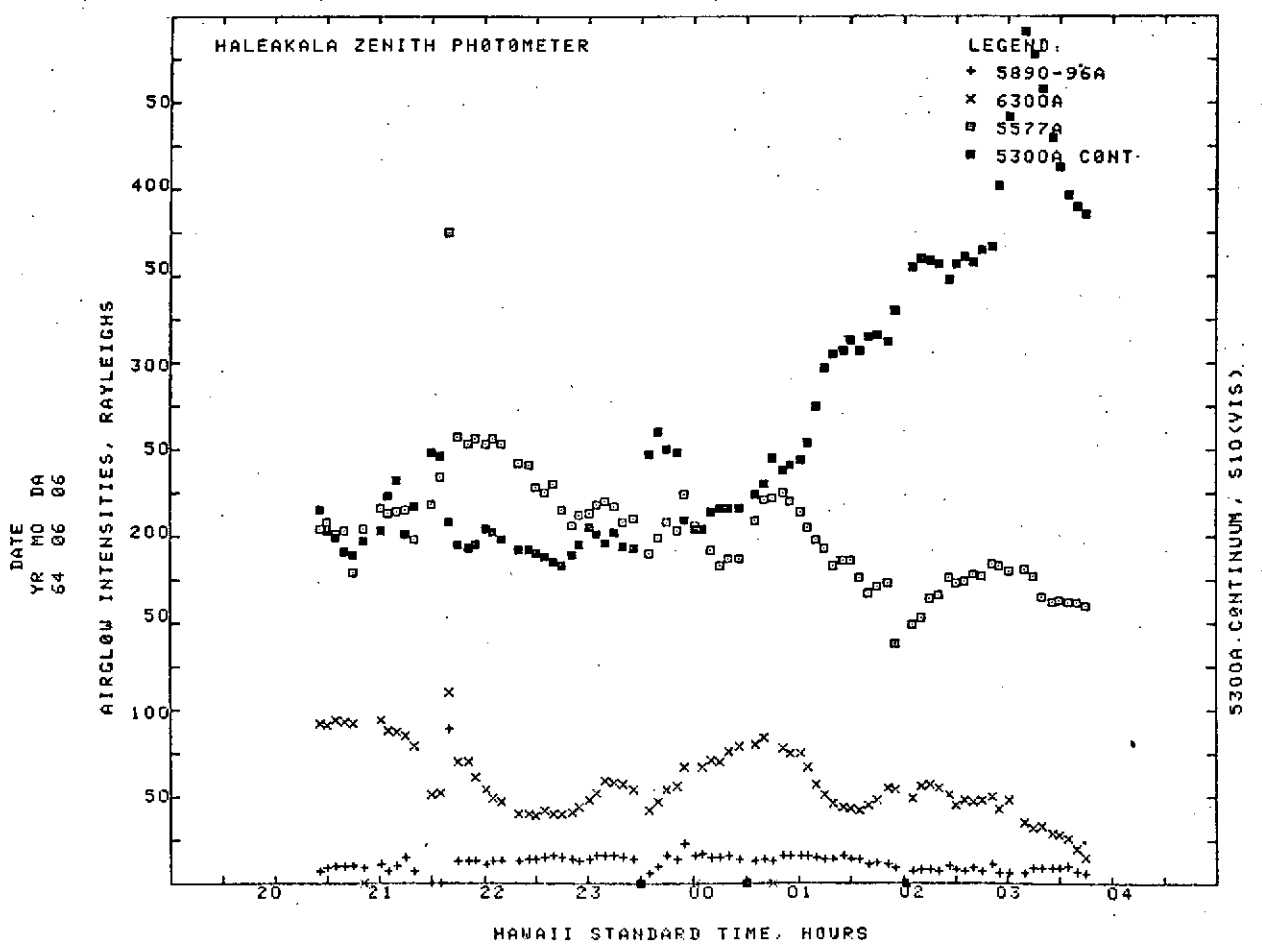
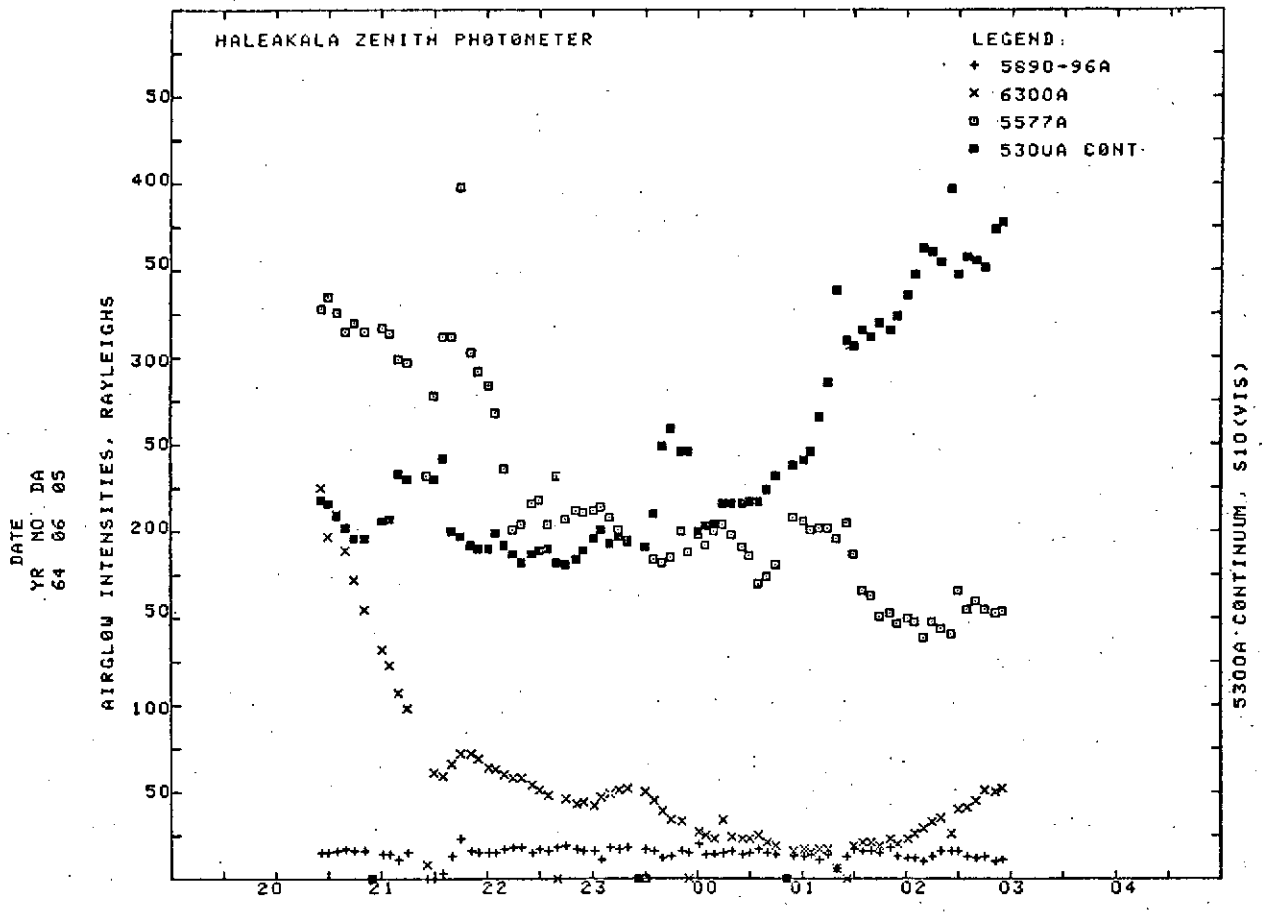


DATE
YR MO DA
64 06 03

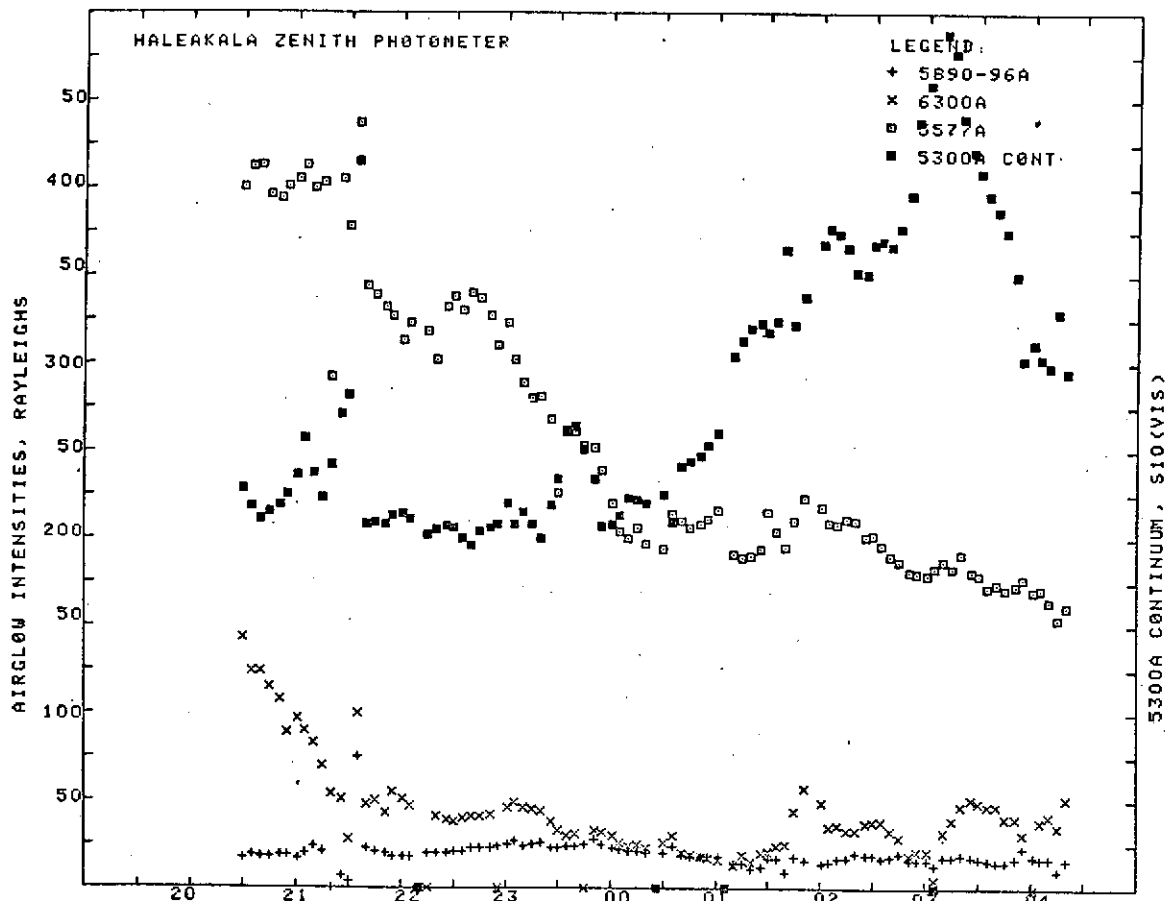


DATE
YR MO DA
64 06 04

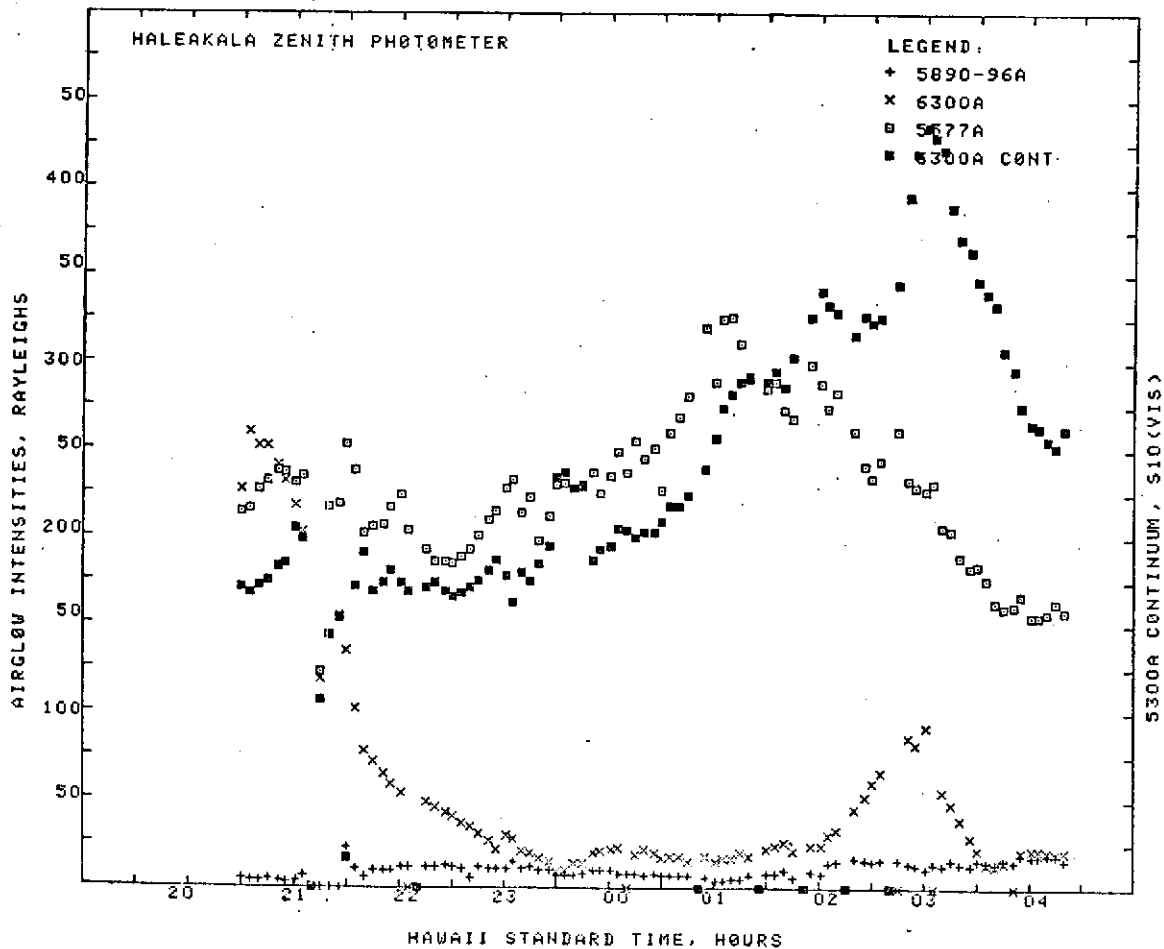




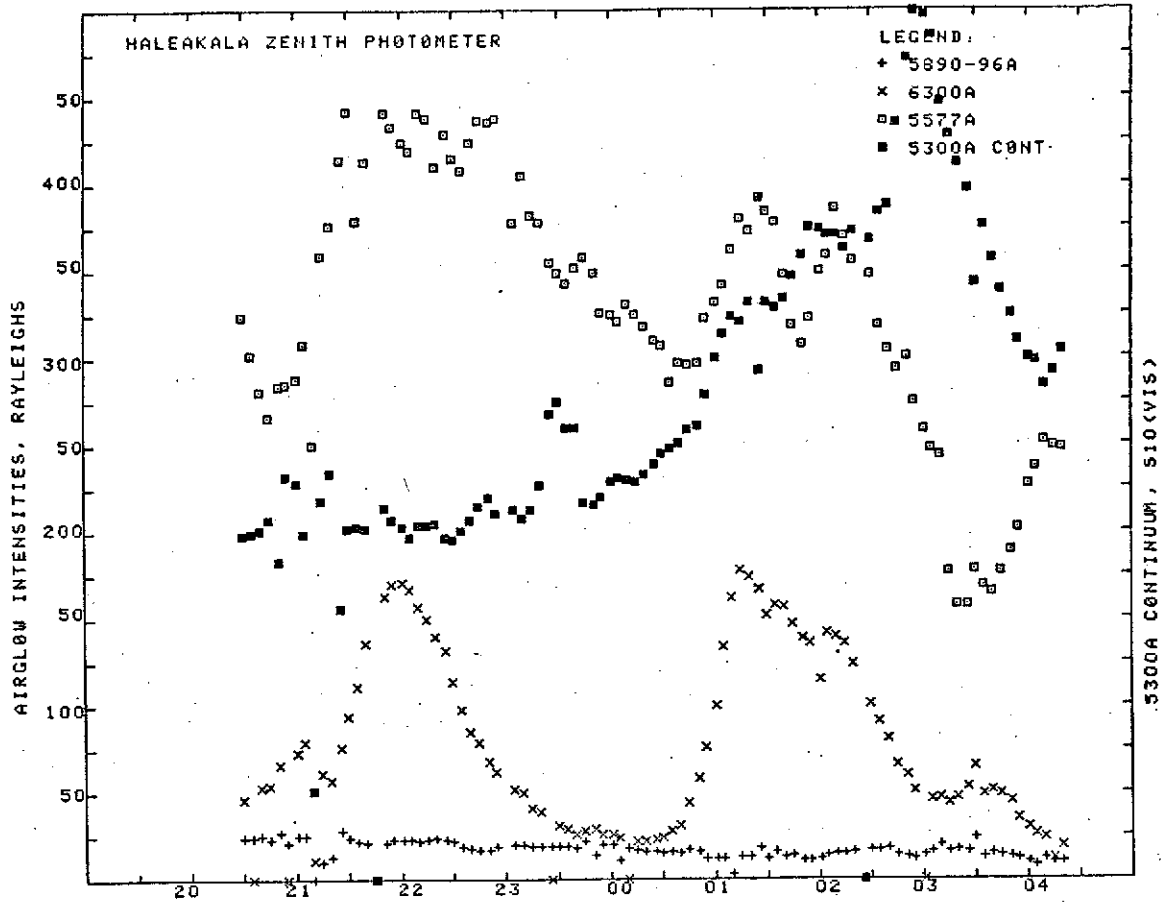
DATE
YR MO DA
64 06 07



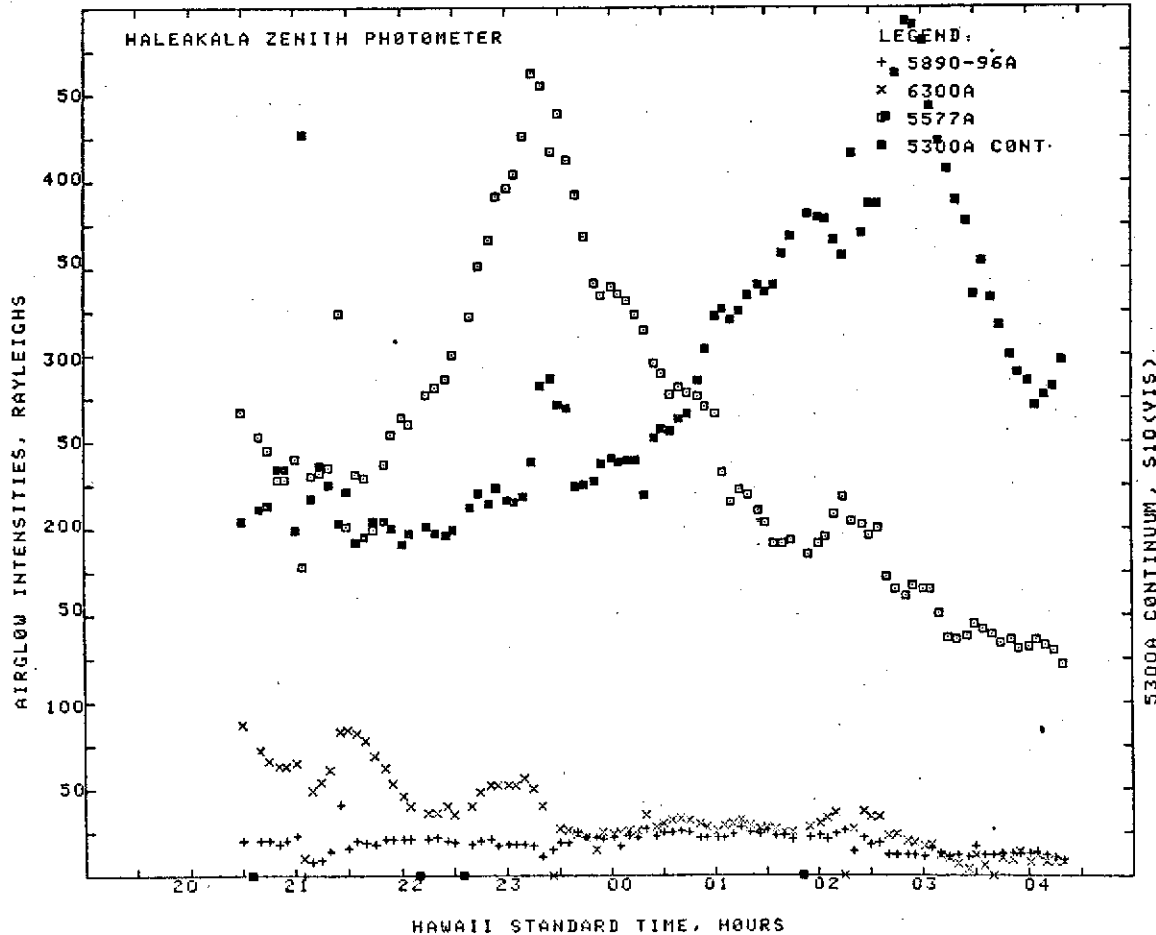
DATE
YR MO DA
64 06 08



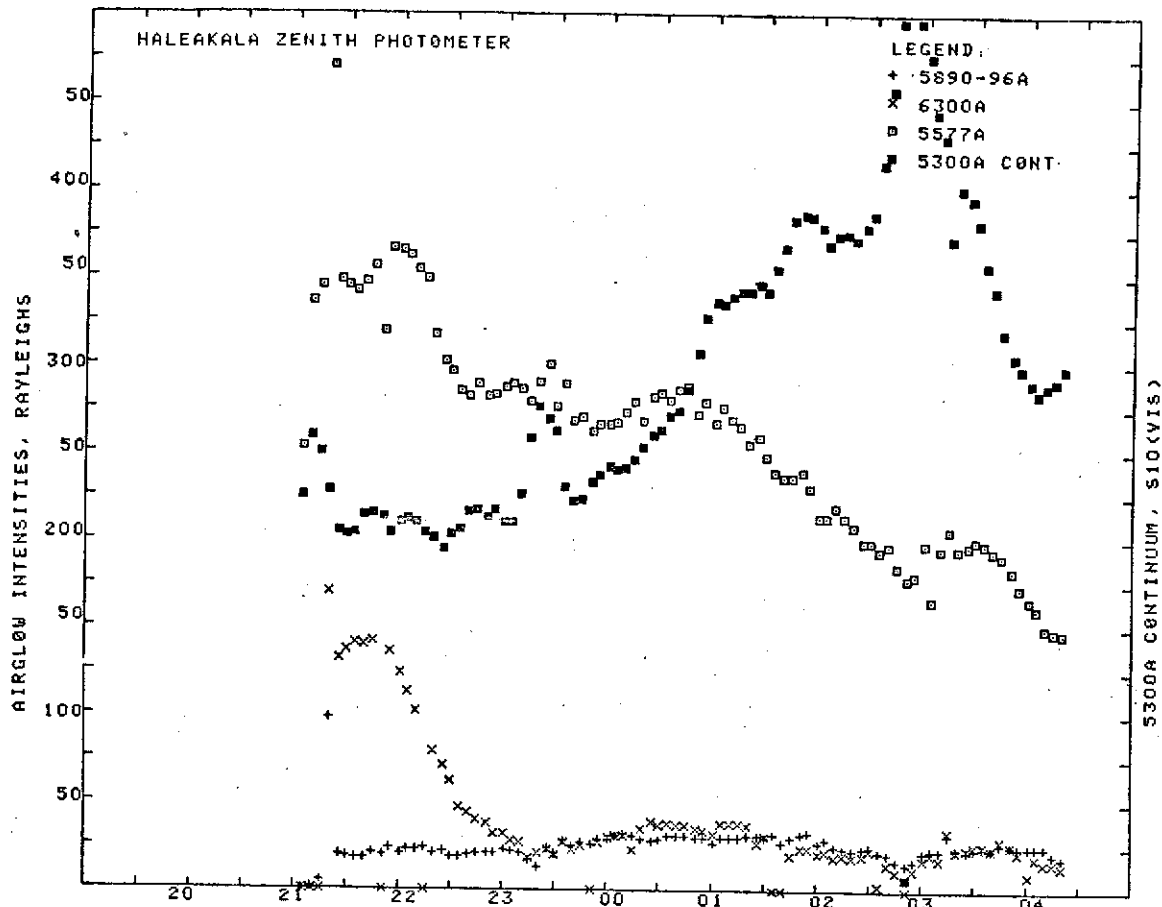
DATE
YR MO DA
64 06 09



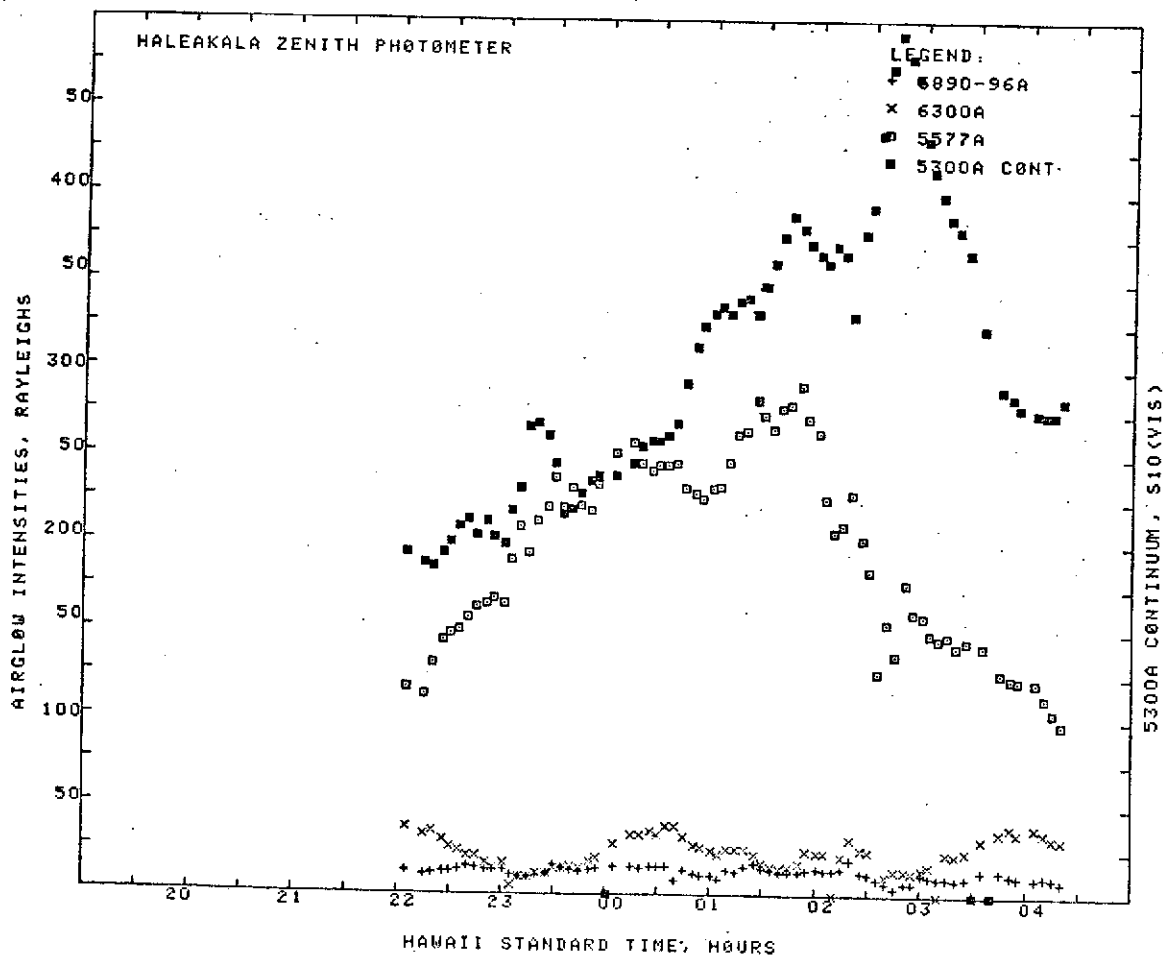
DATE
YR MO DA
64 06 10



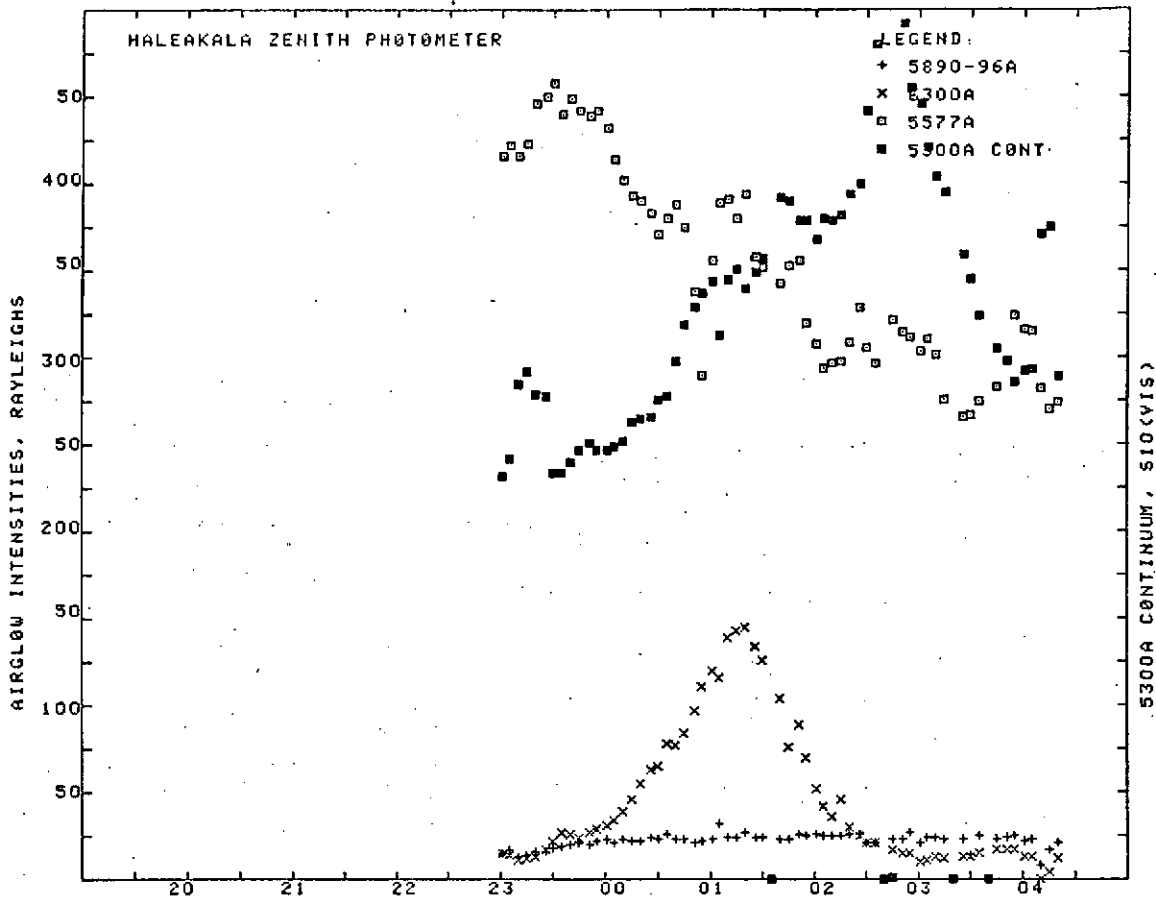
DATE
YR MO DA
64 06 11



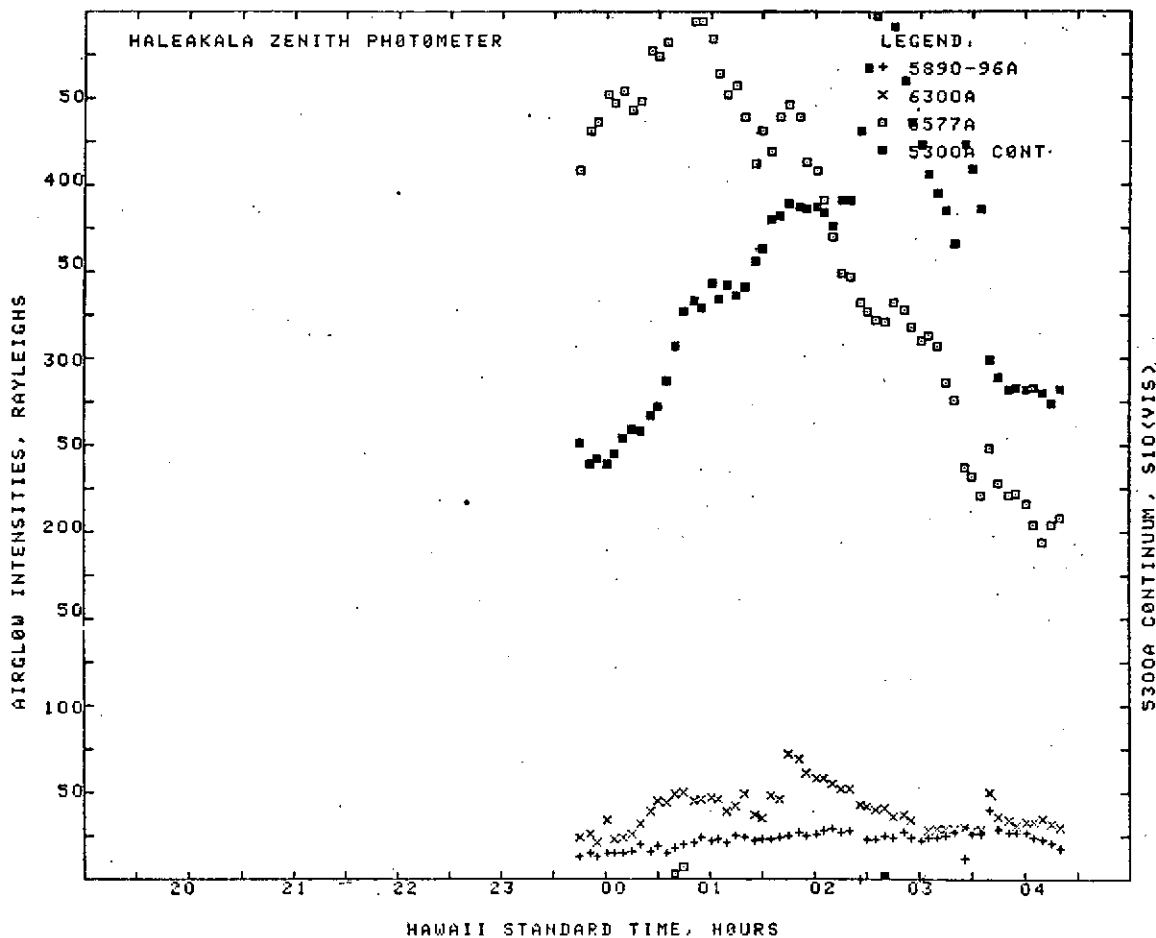
DATE
YR MO DA
64 06 12



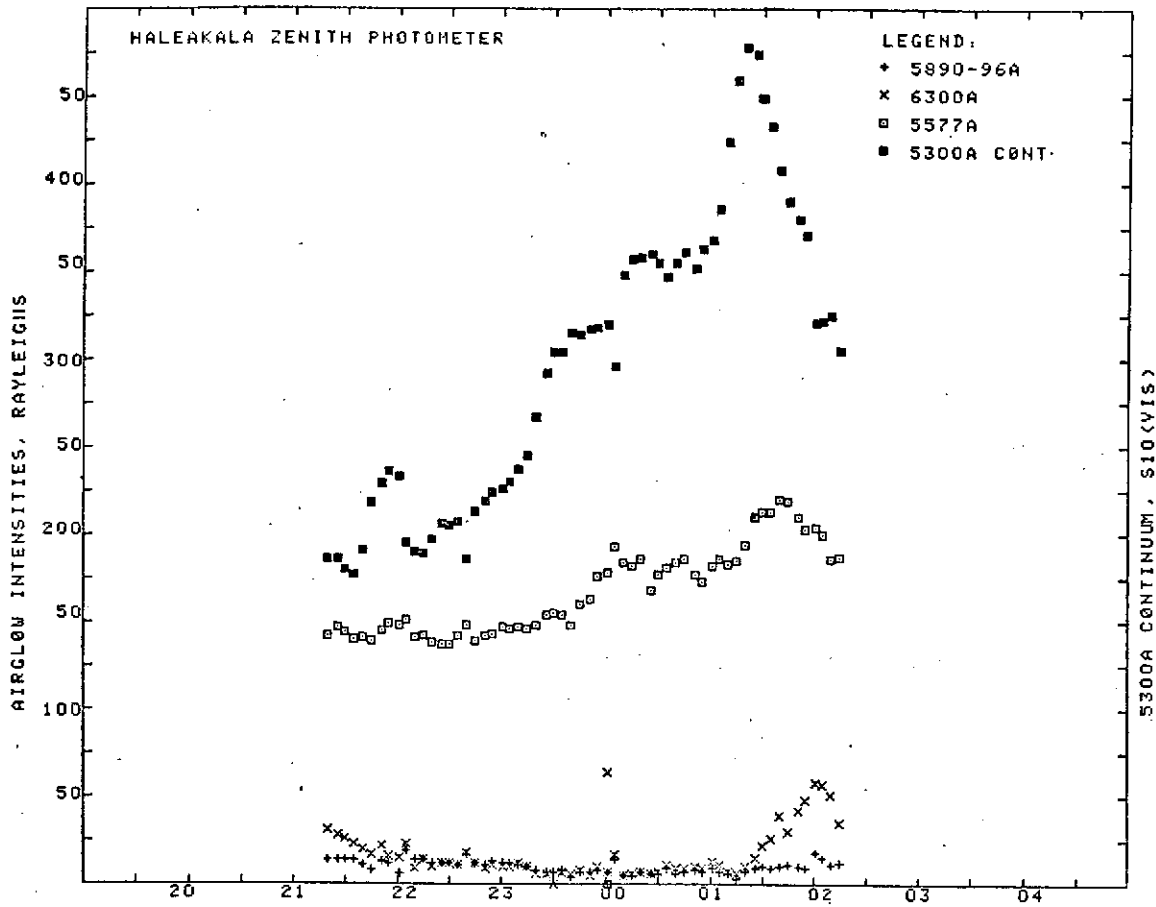
DATE
YR MO DA
64 06 13



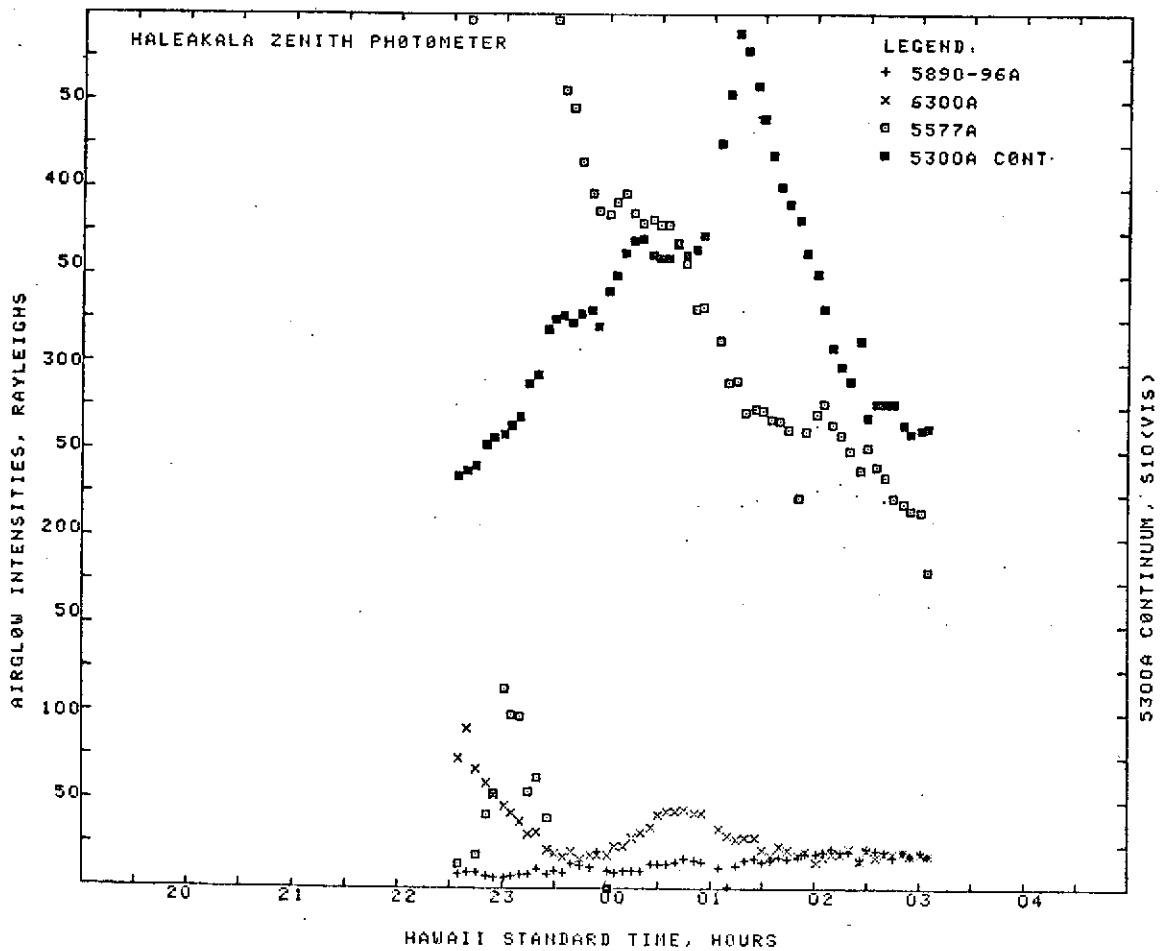
DATE
YR MO DA
64 06 14



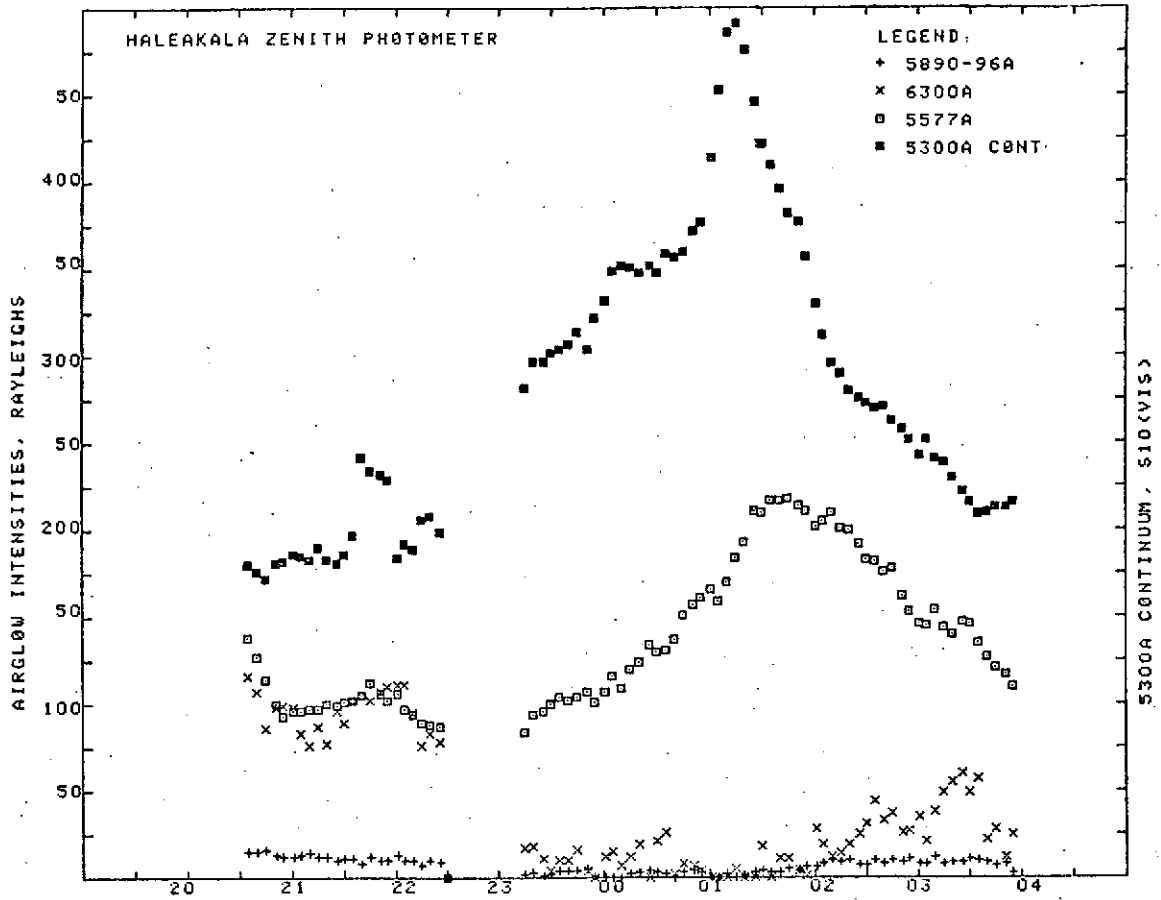
DATE
YR MO DA
64 07 04



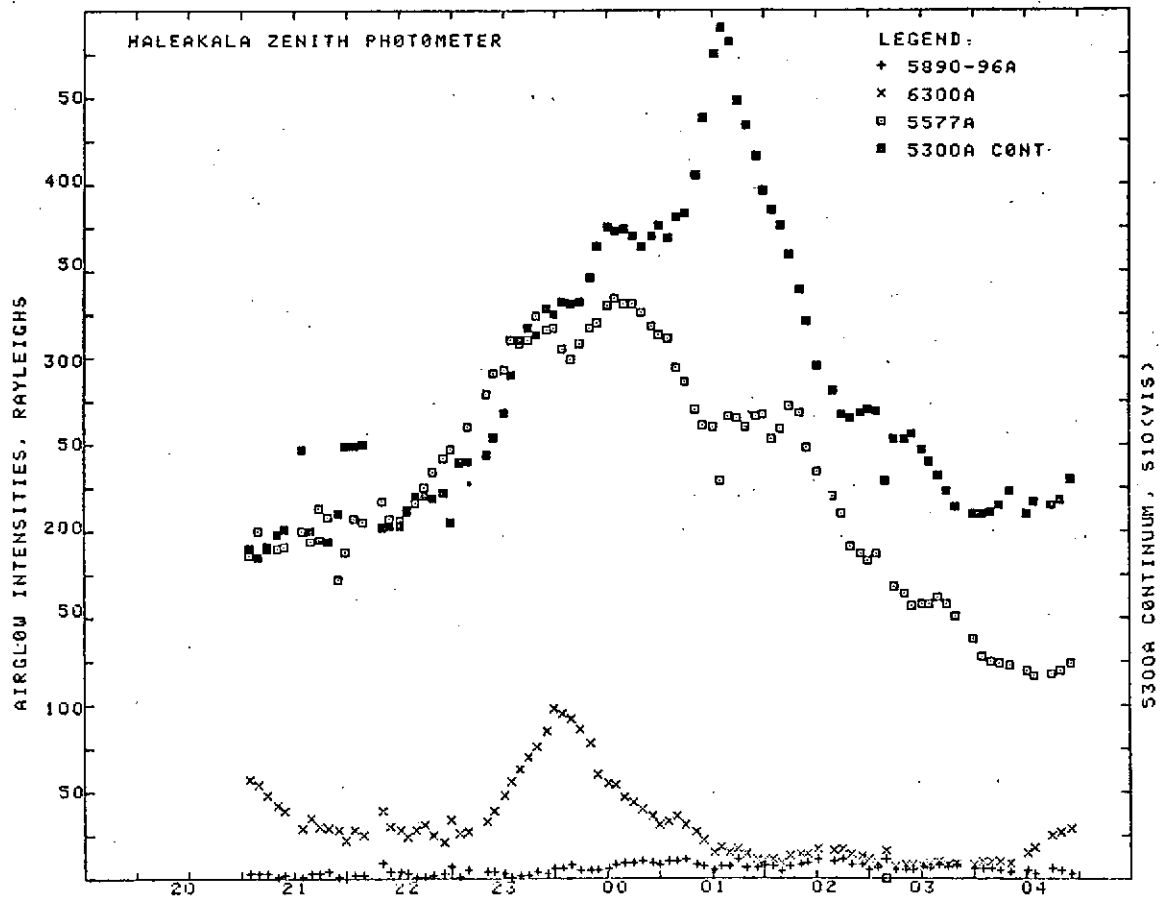
DATE
YR MO DA
64 07 05



DATE
YR MO DA
64 07 06

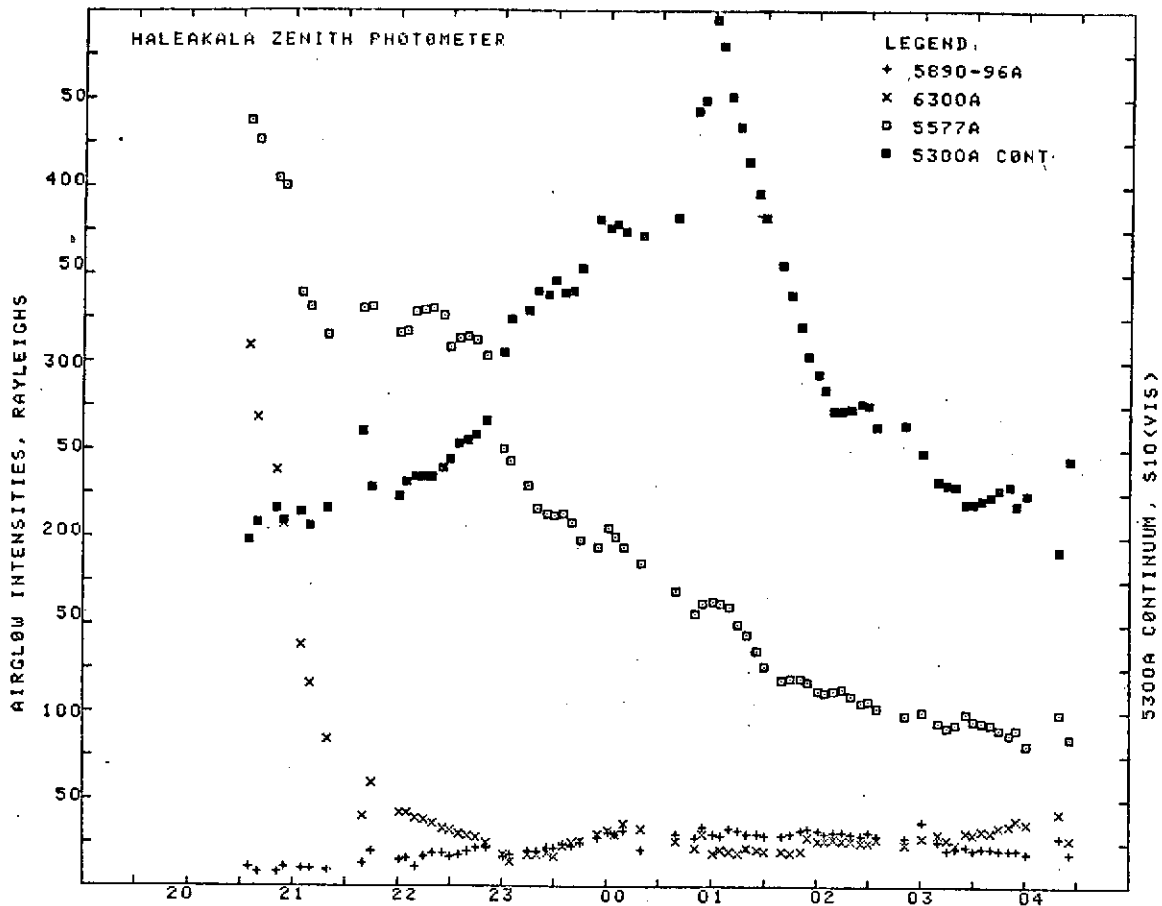


DATE
YR MO DA
64 07 08

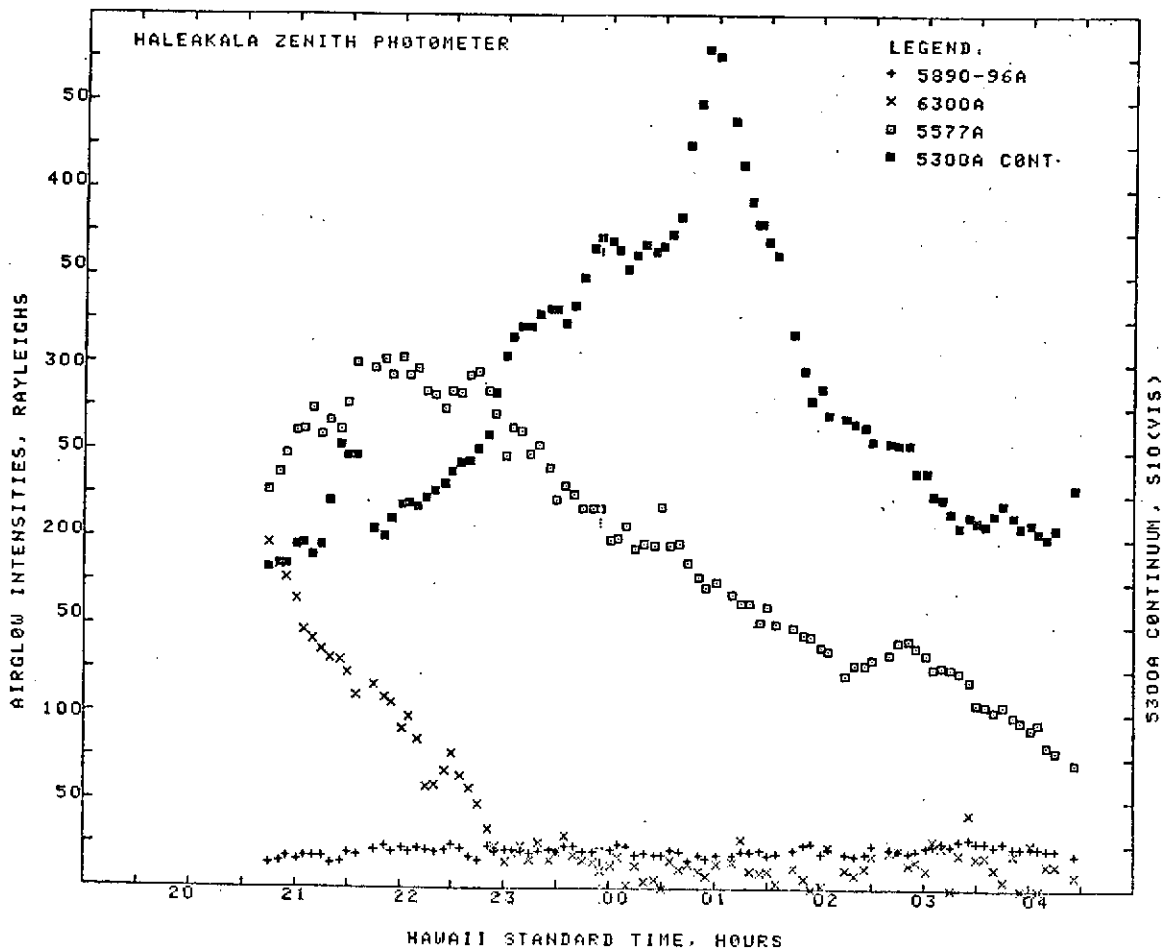


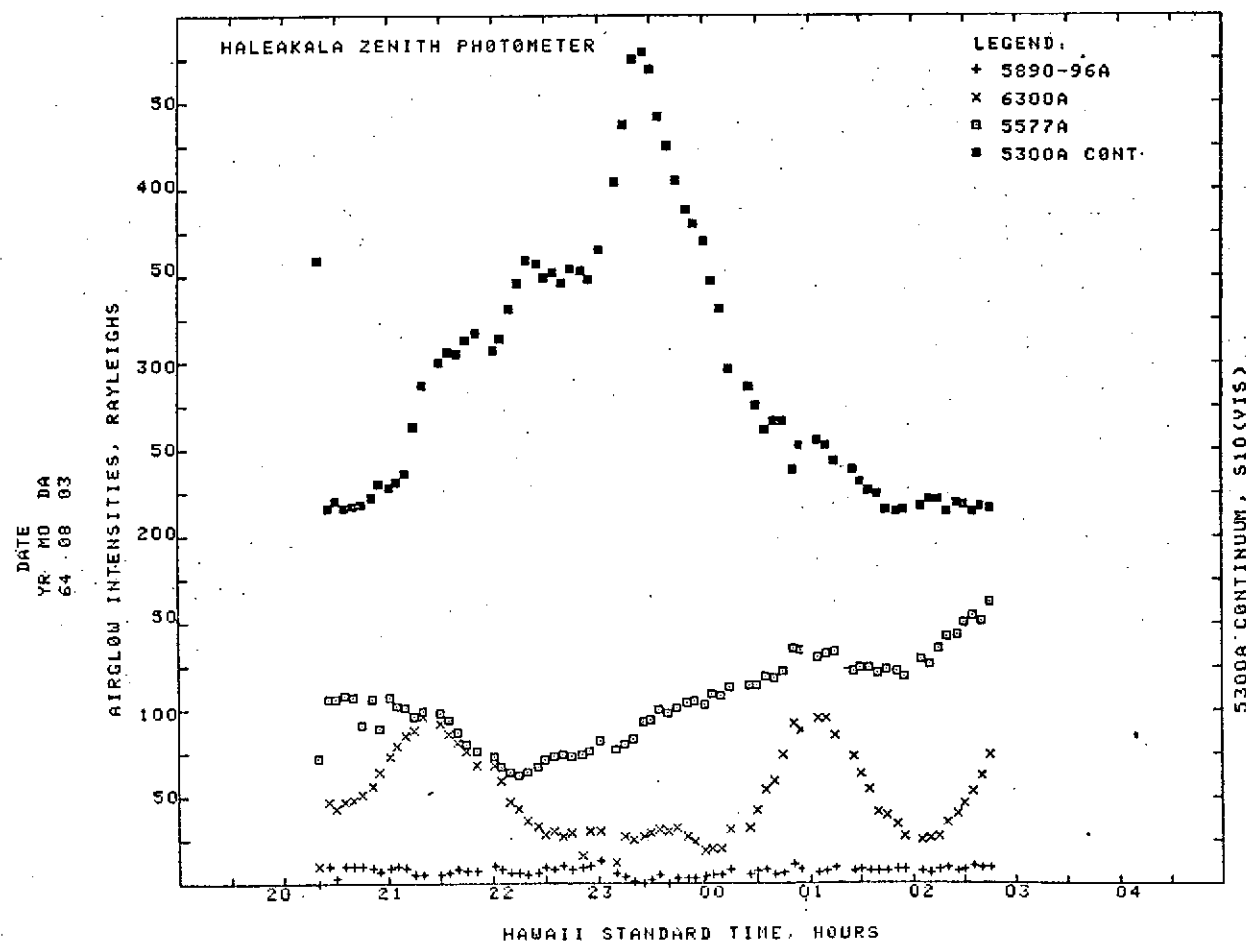
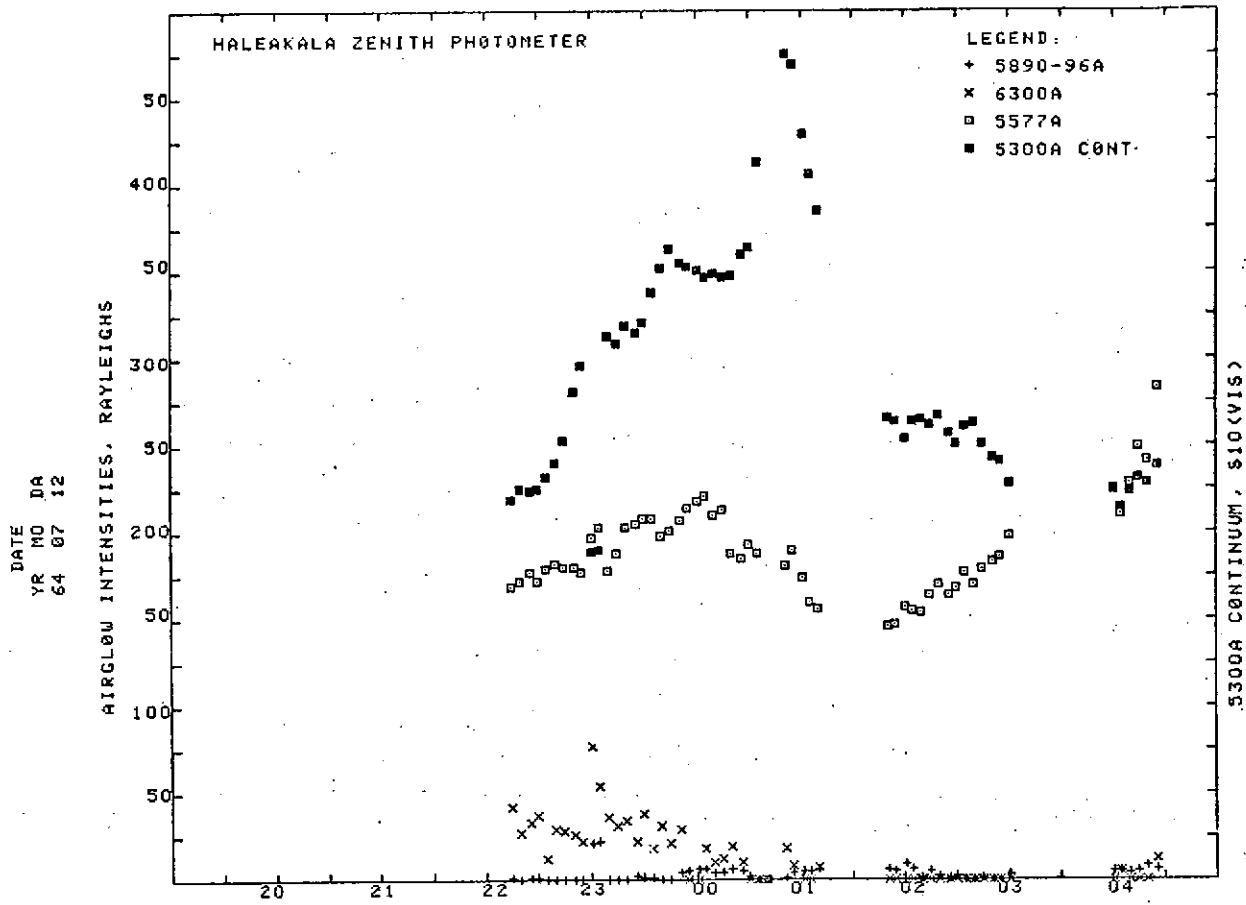
HAWAII STANDARD TIME, HOURS

DATE
YR MO DA
64 9? 09

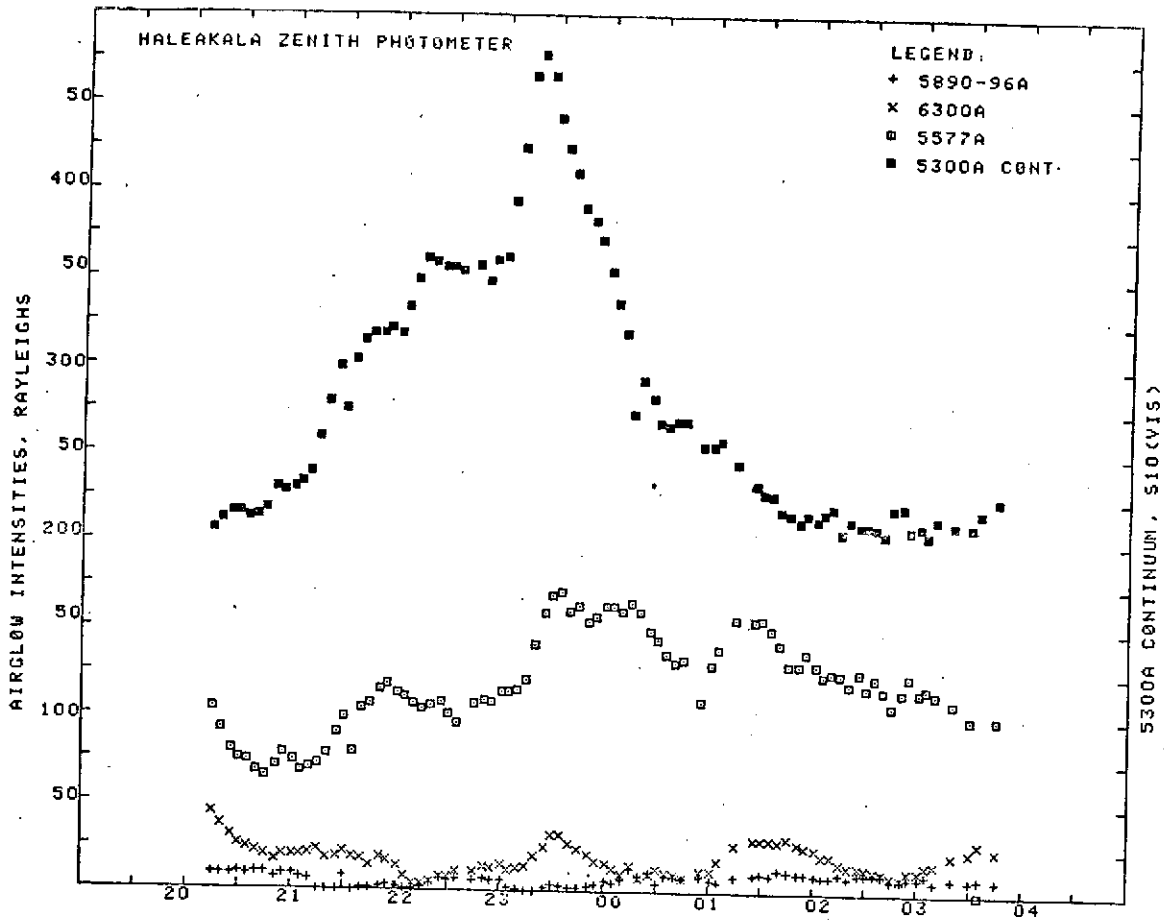


DATE
YR MO DA
64 07 10

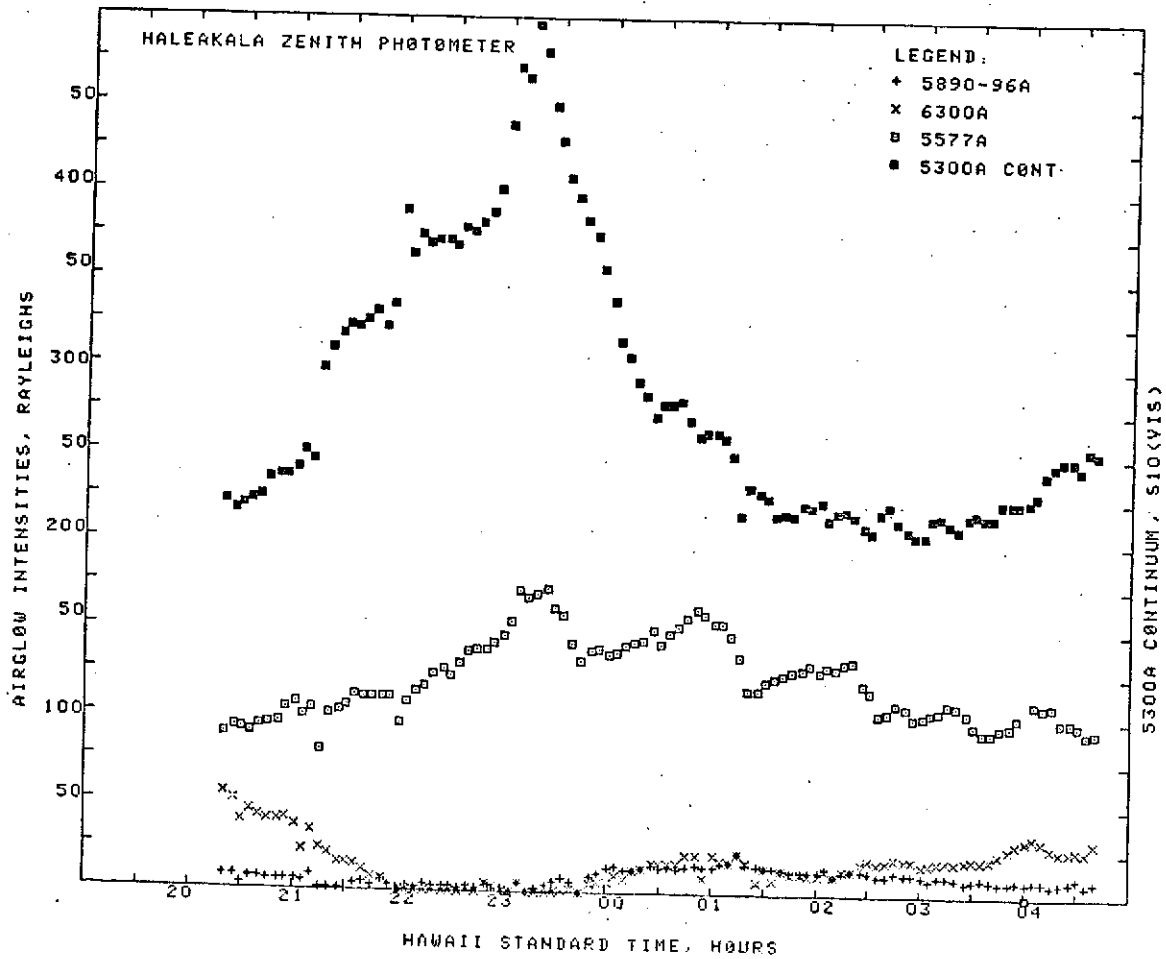




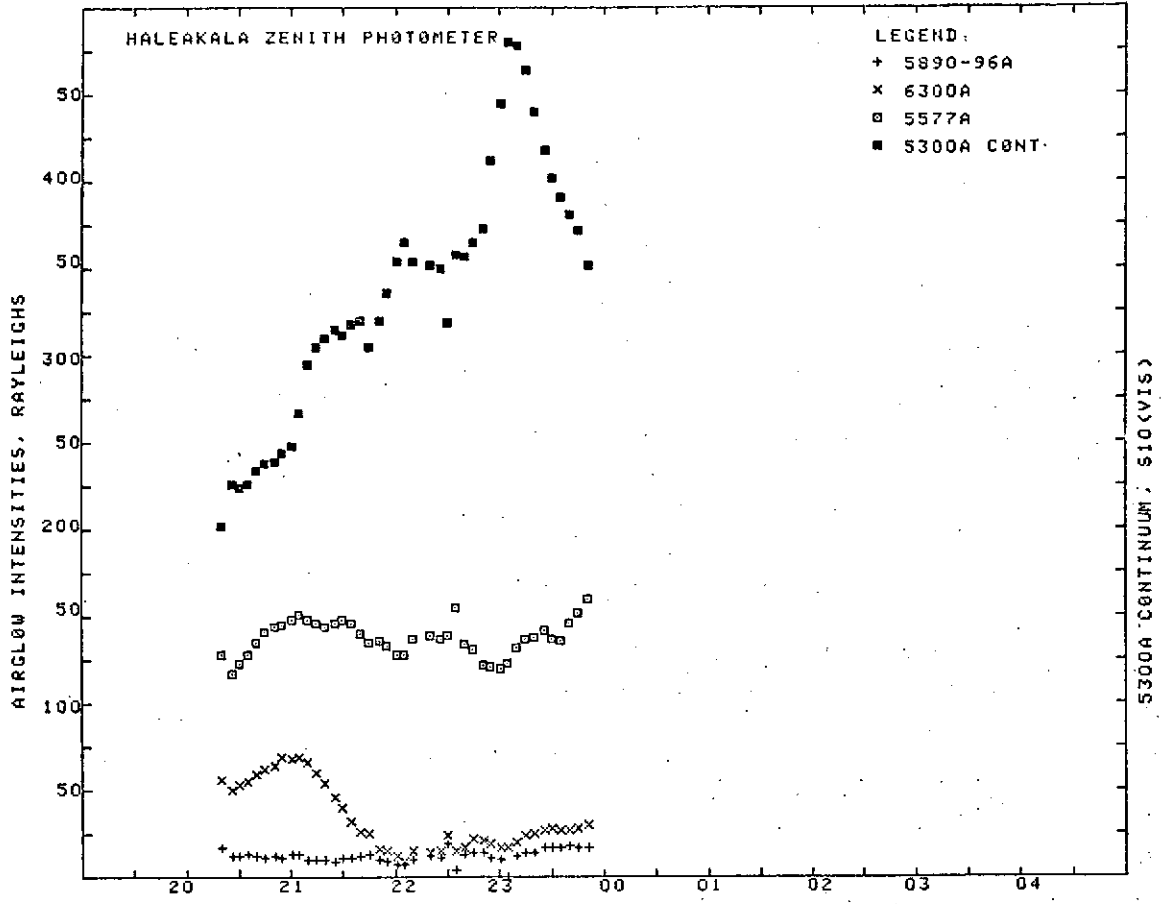
DATE
YR MO DA
64 08 04



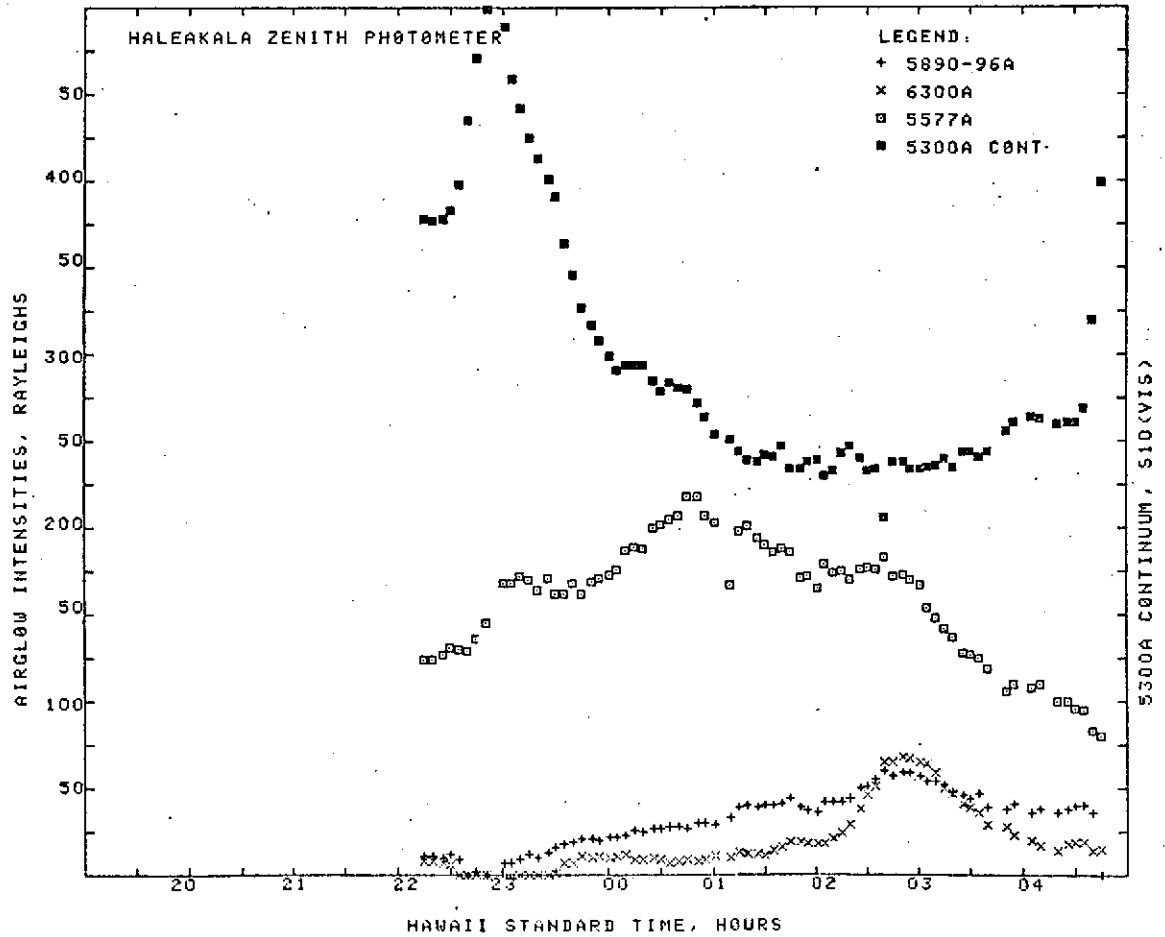
DATE
YR MO DA
64 08 06



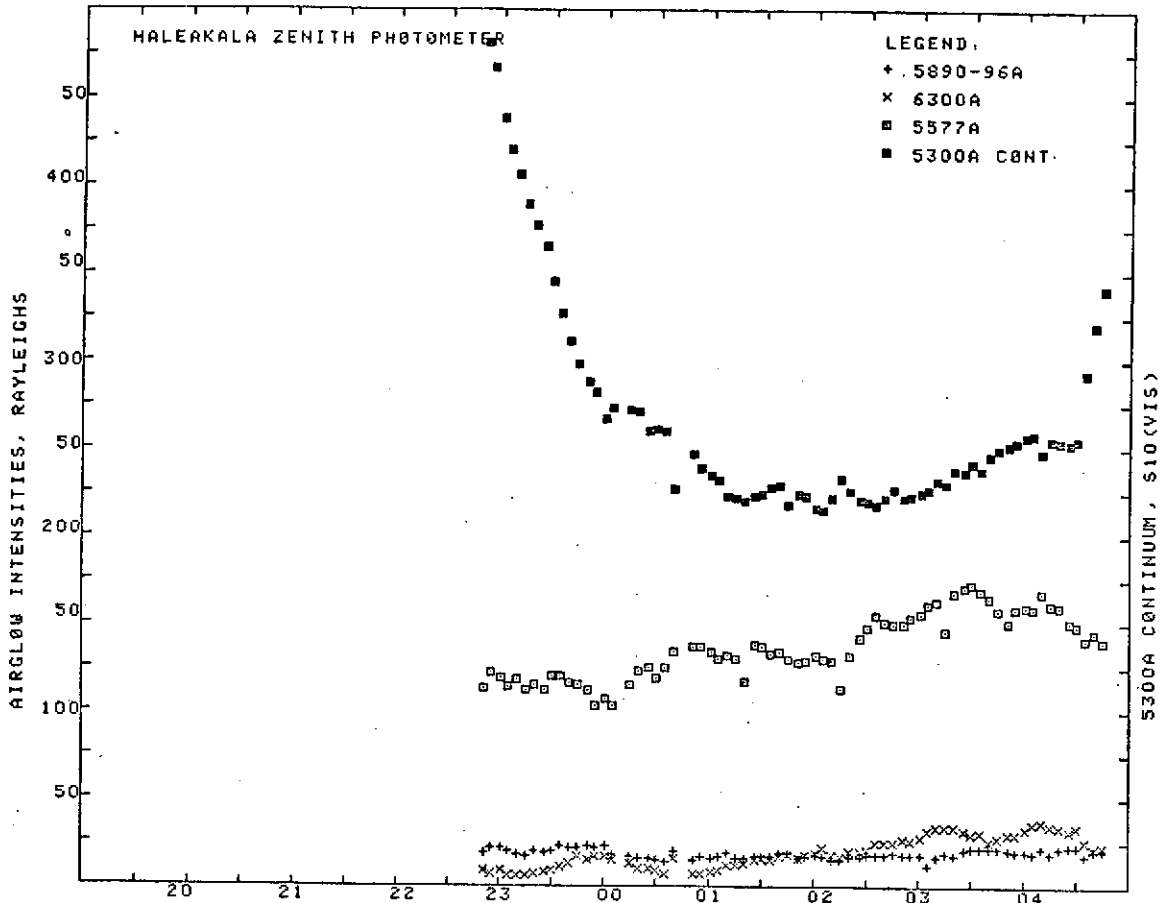
DATE
YR MO DA
64 08 07



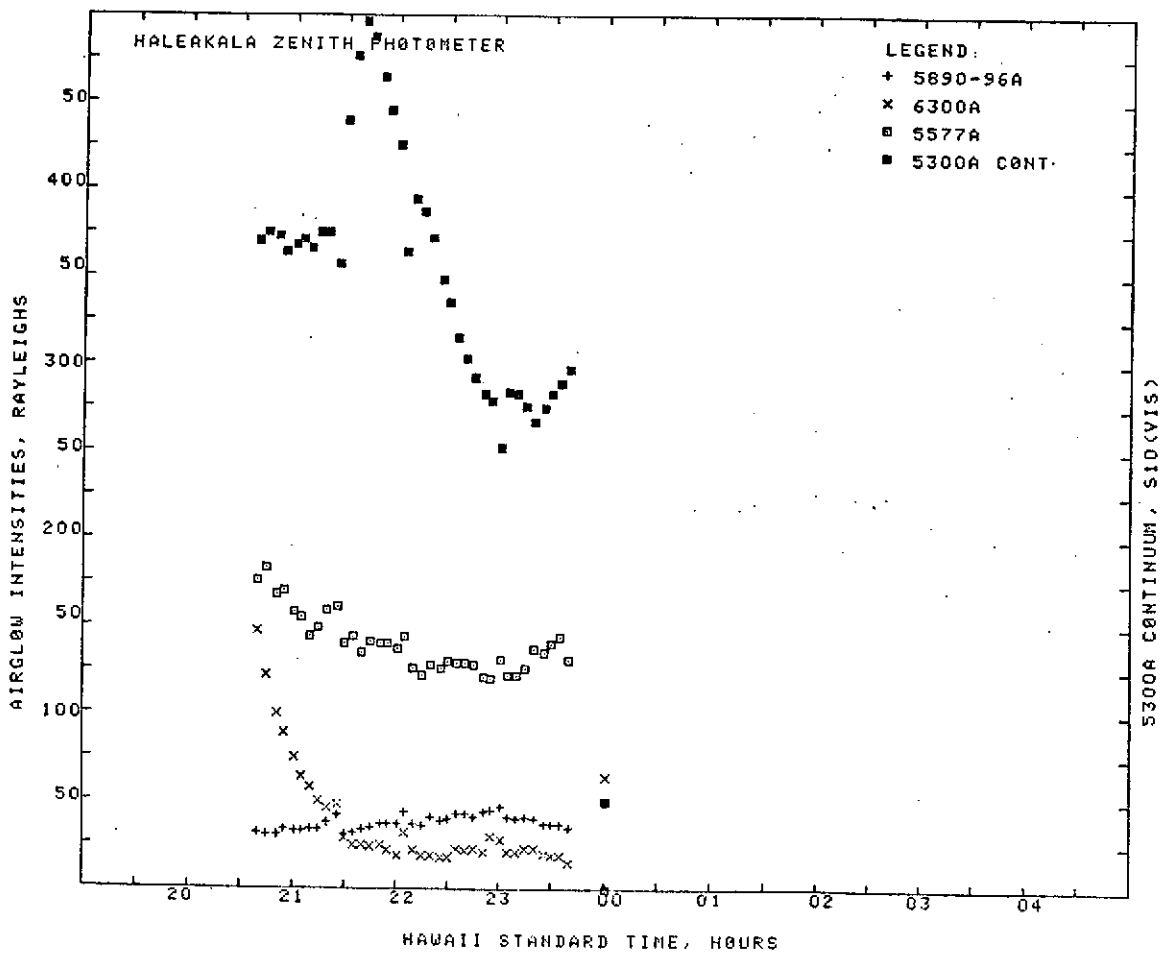
DATE
YR MO DA
64 08 11



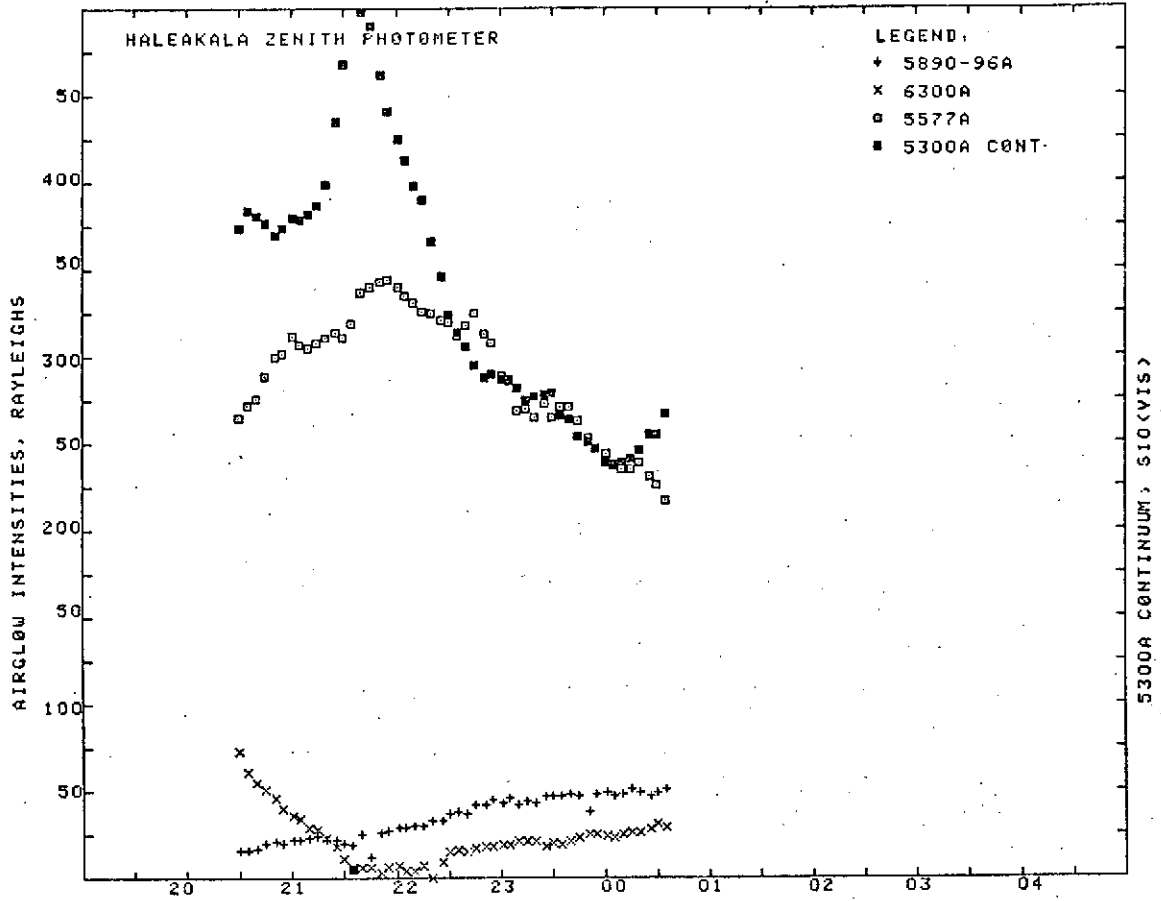
DATE
YR MO DA
64 08 12



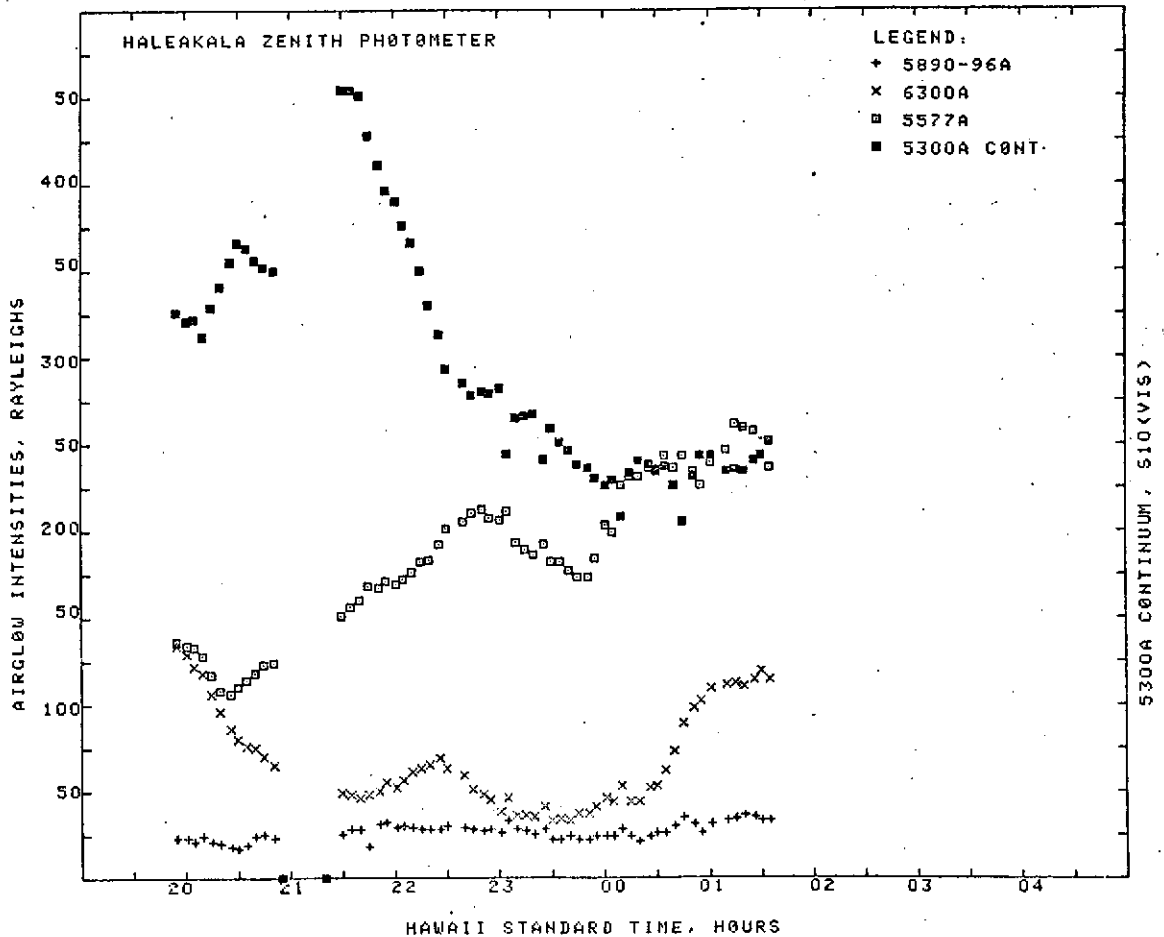
DATE
YR MO DA
64 08 29



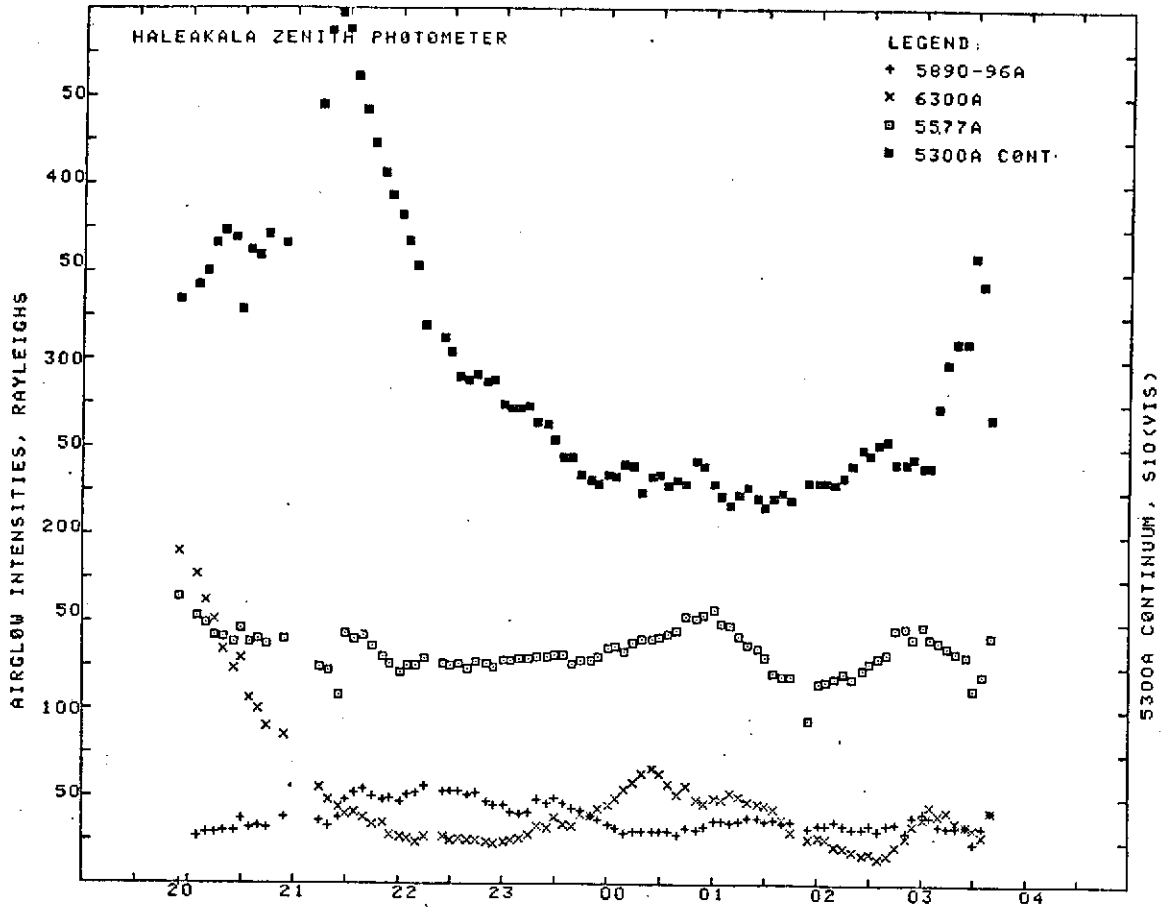
DATE
YR MO DA
64 08 30



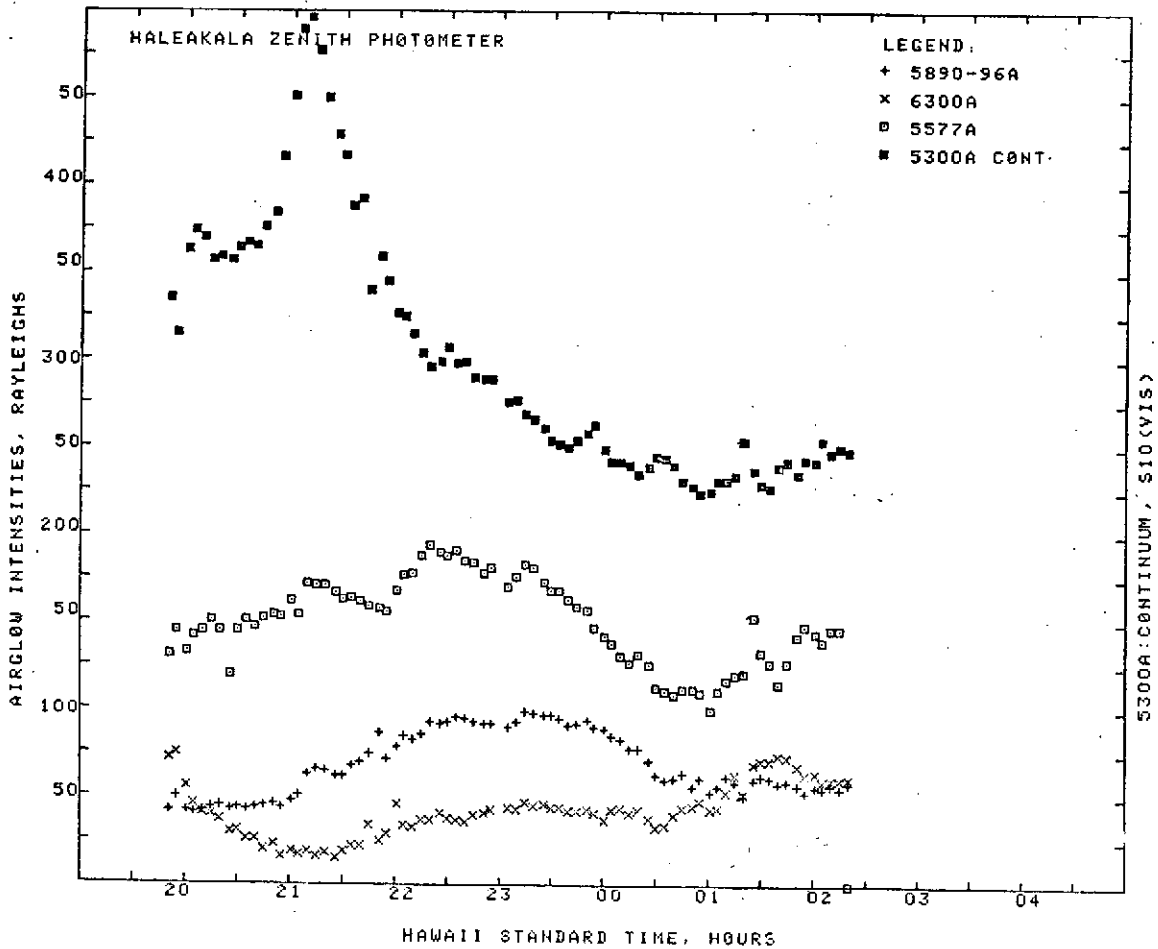
DATE
YR MO DA
64 08 31



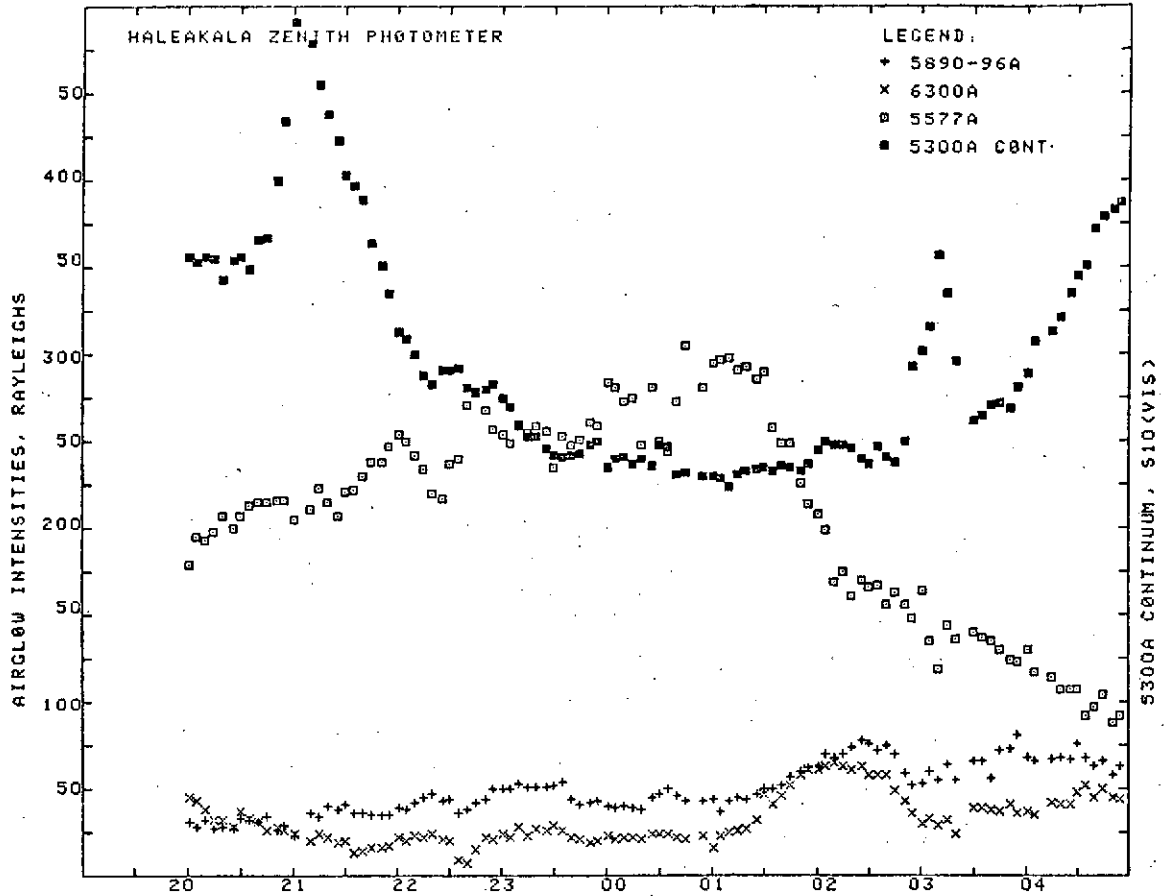
DATE
YR MO DA
64 09 02



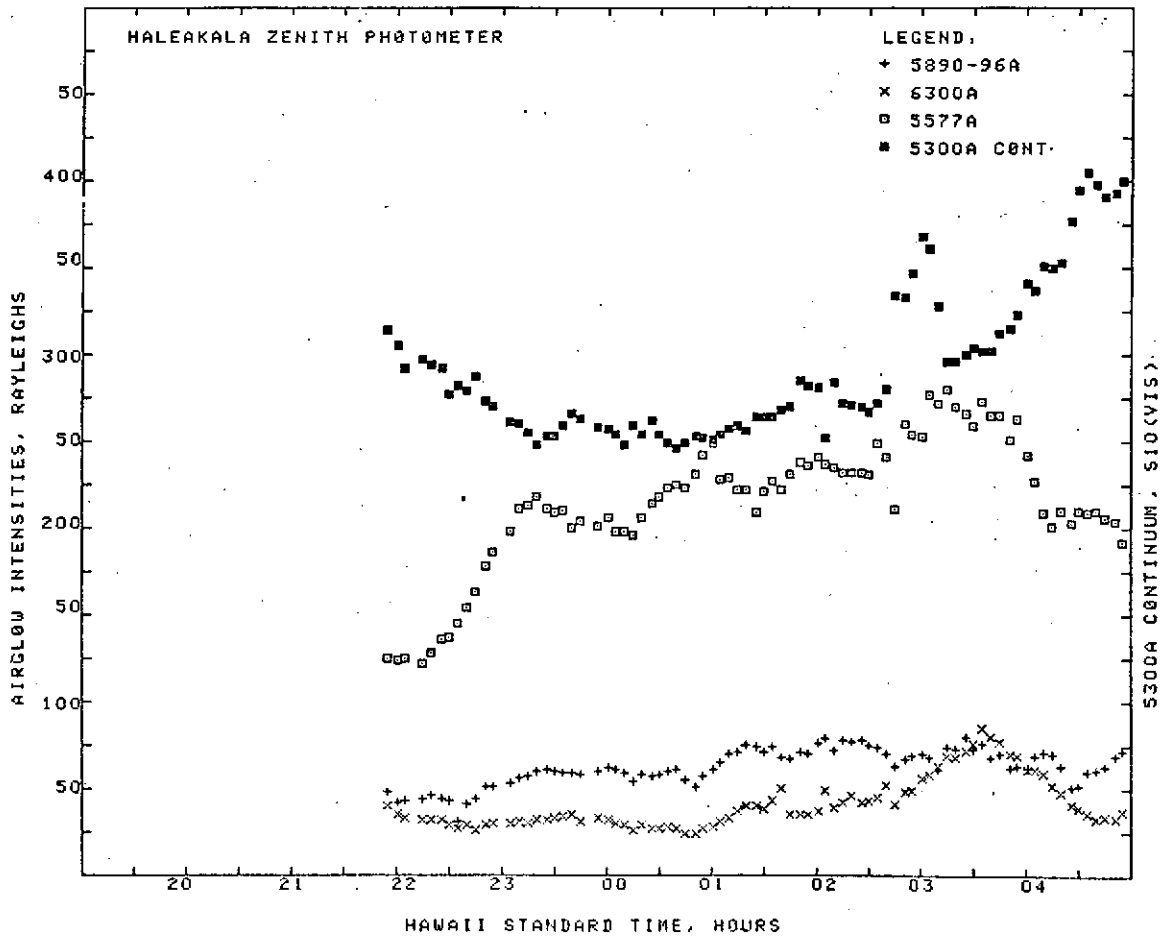
DATE
YR MO DA
64 09 06



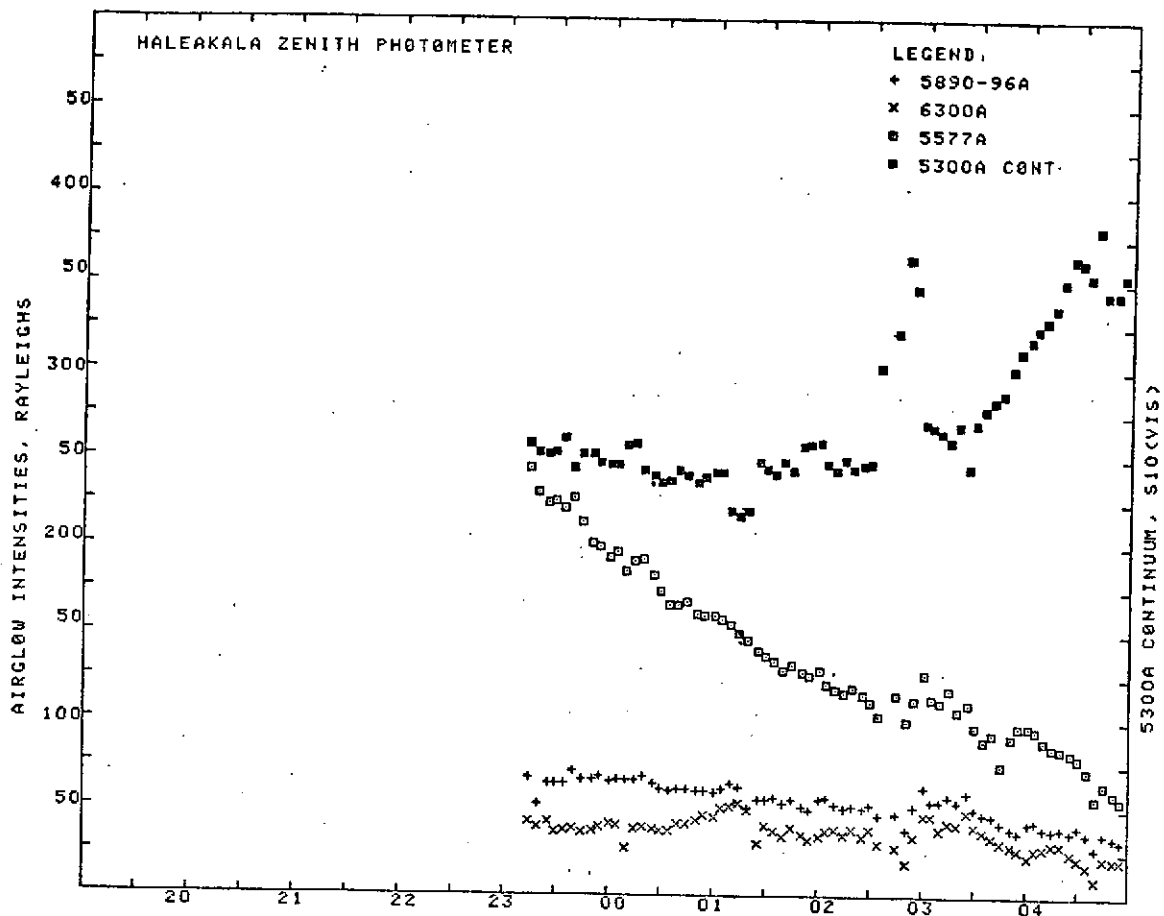
DATE
YR MO DA
64 03 07



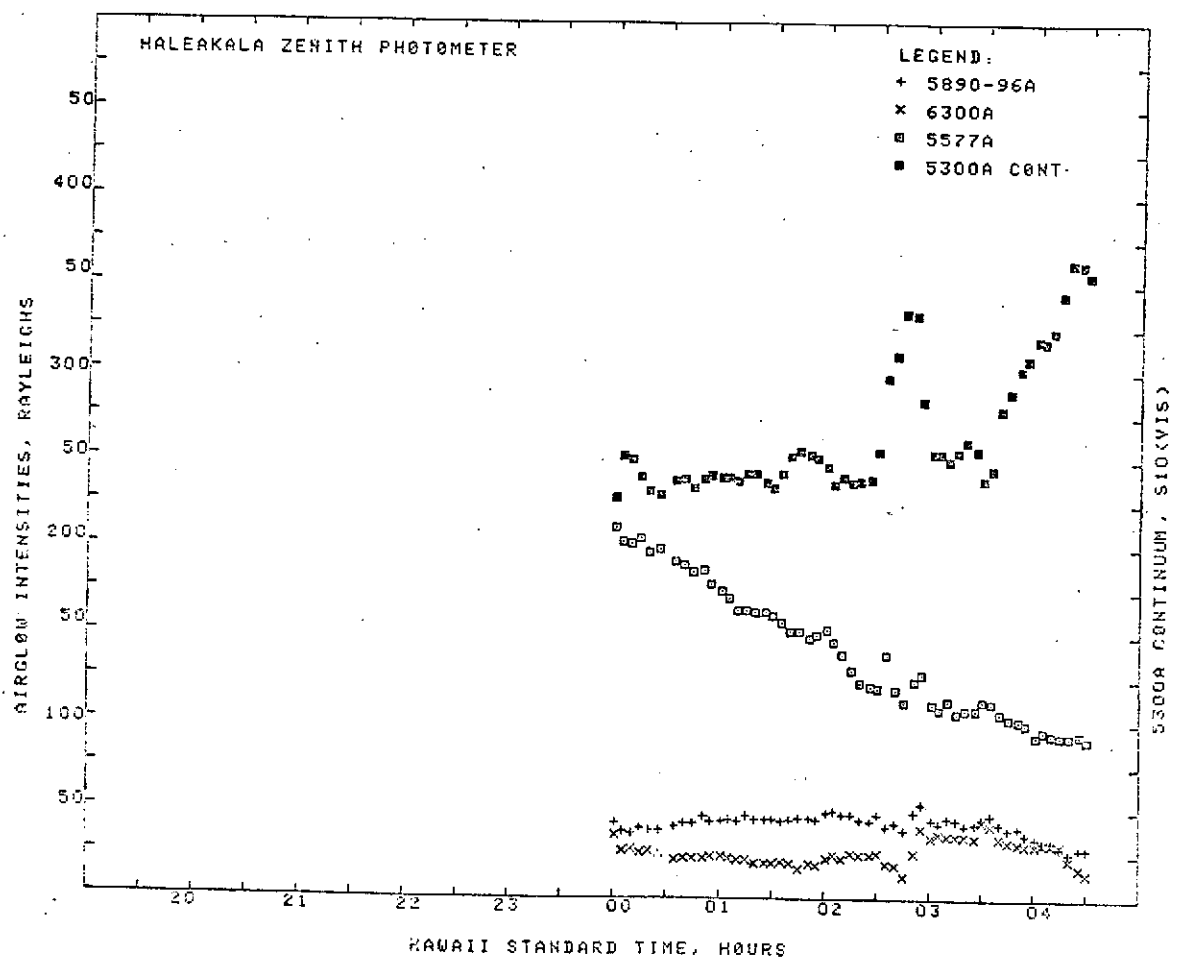
DATE
YR MO DA
64 09 10



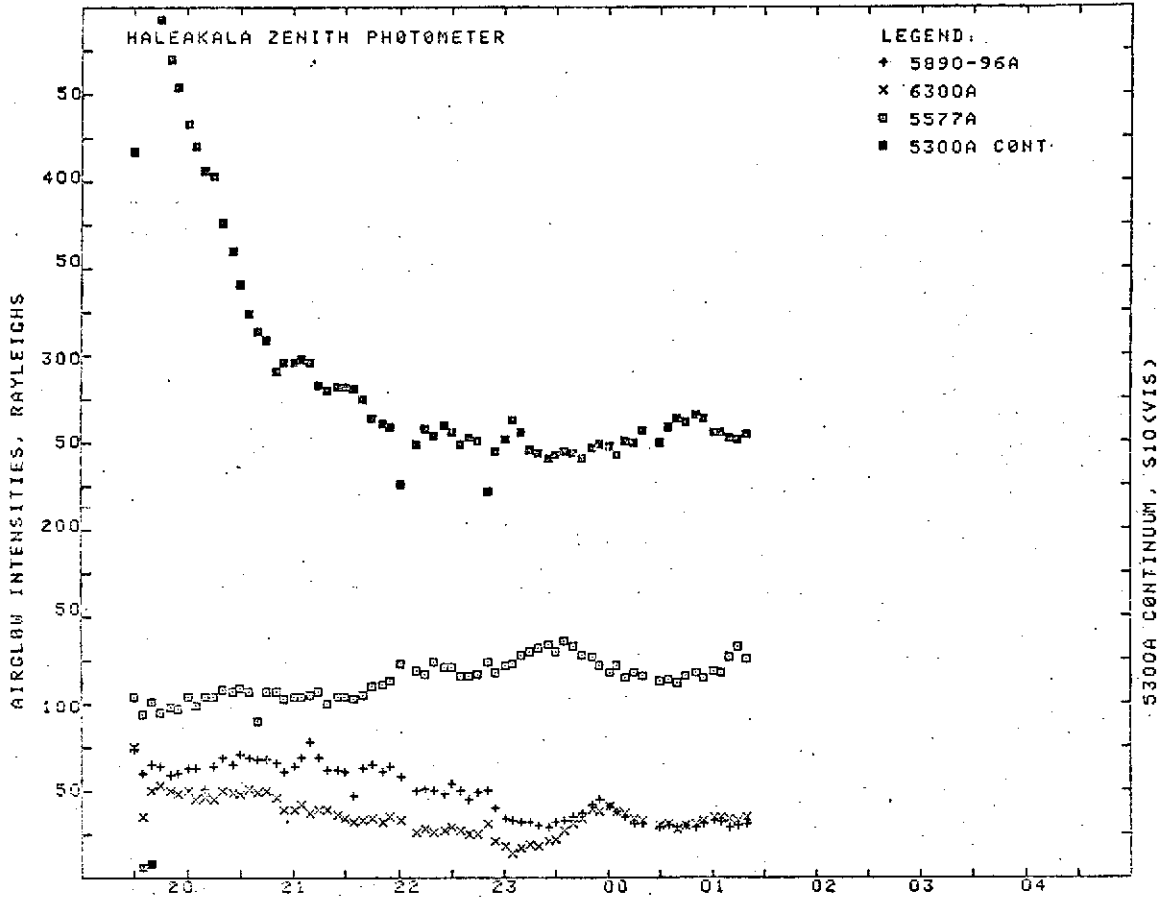
DATE
YR MO DA
64 09 12



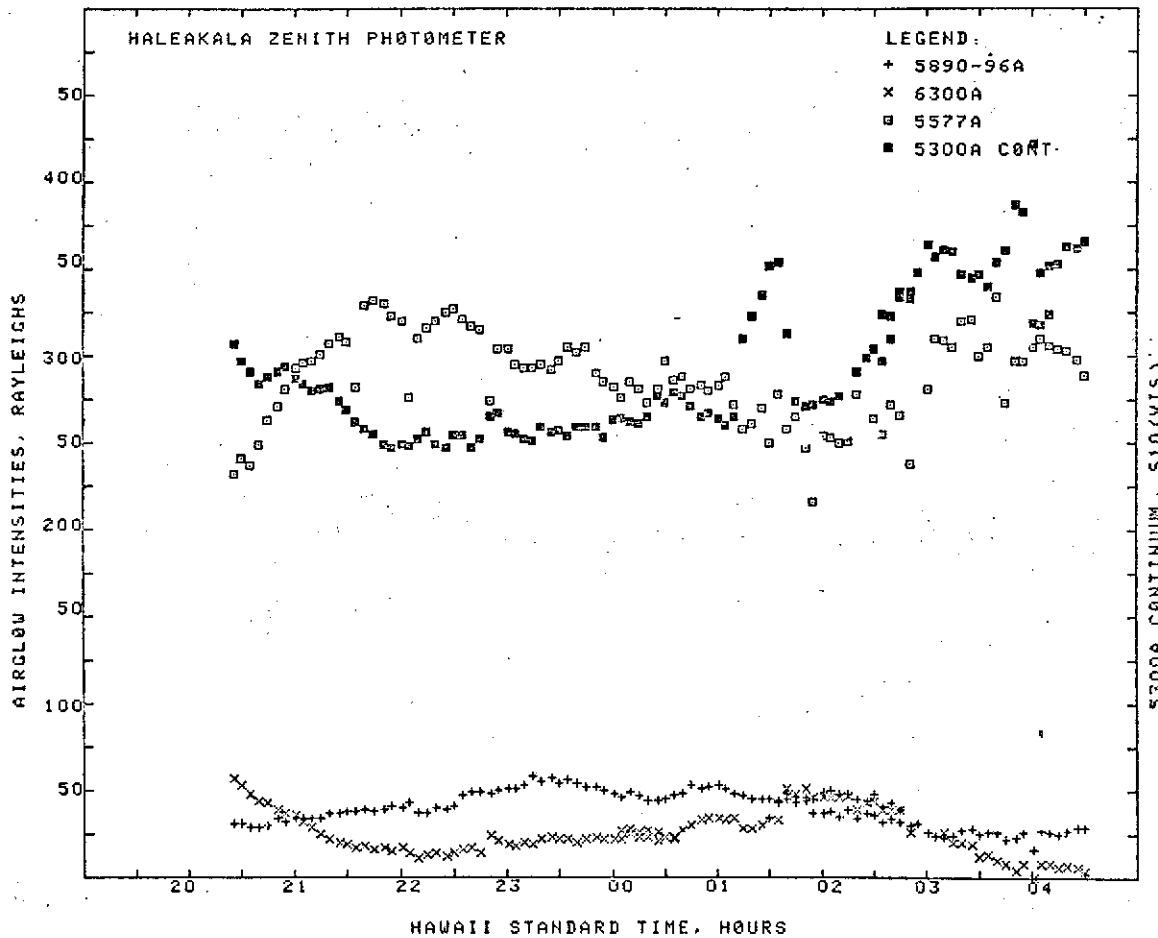
DATE
YR MO DA
64 09 13



DATE
YR MO DA
64 09 29

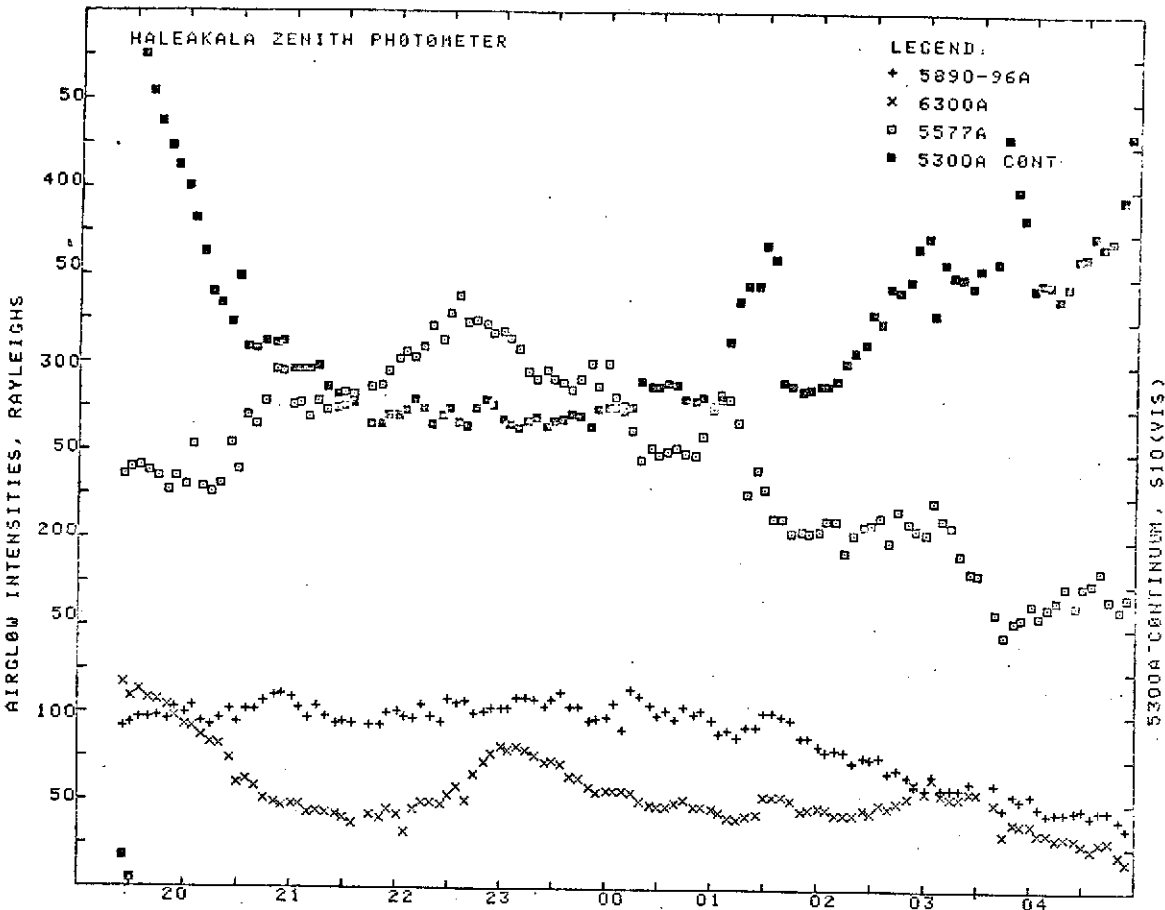


DATE
YR MO DA
64 10 02

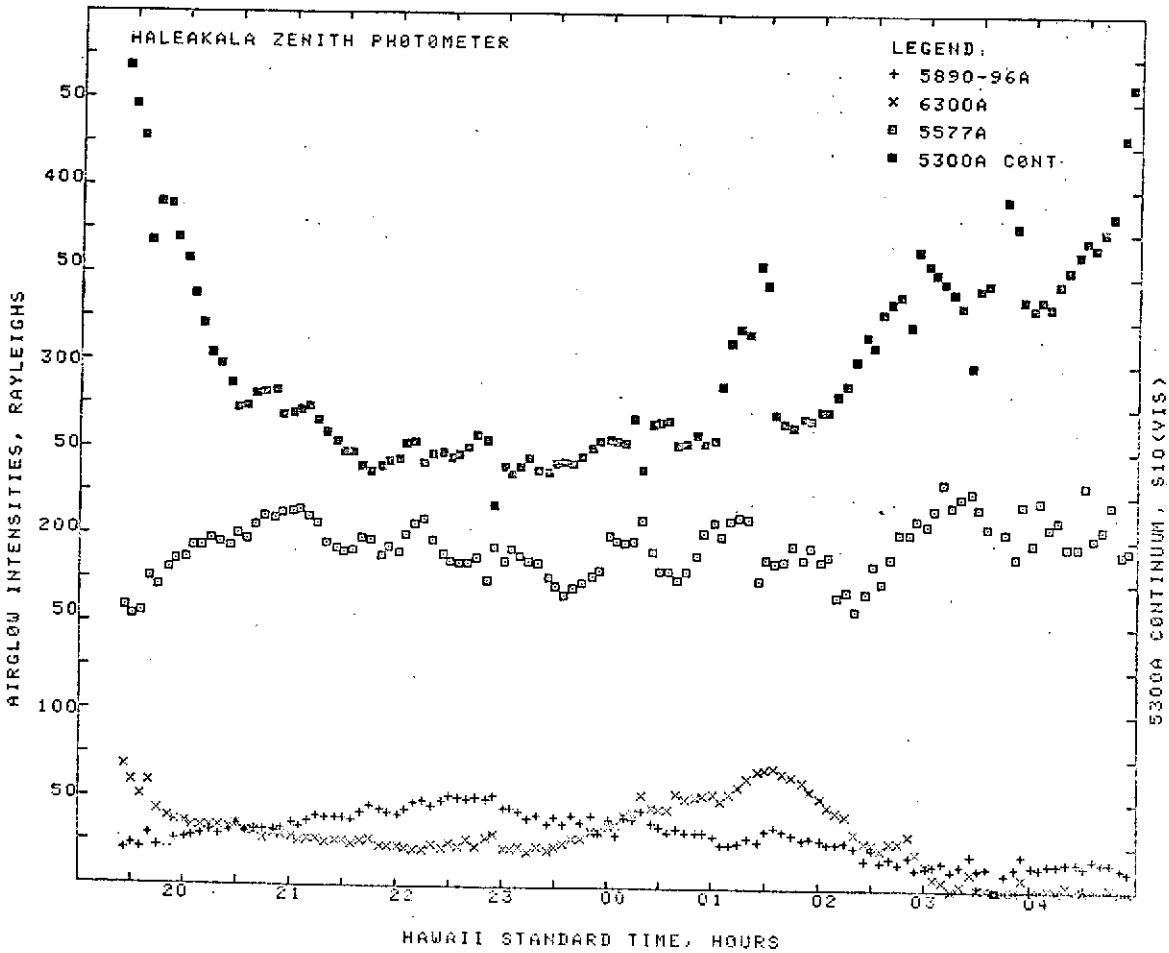


HAWAII STANDARD TIME, HOURS

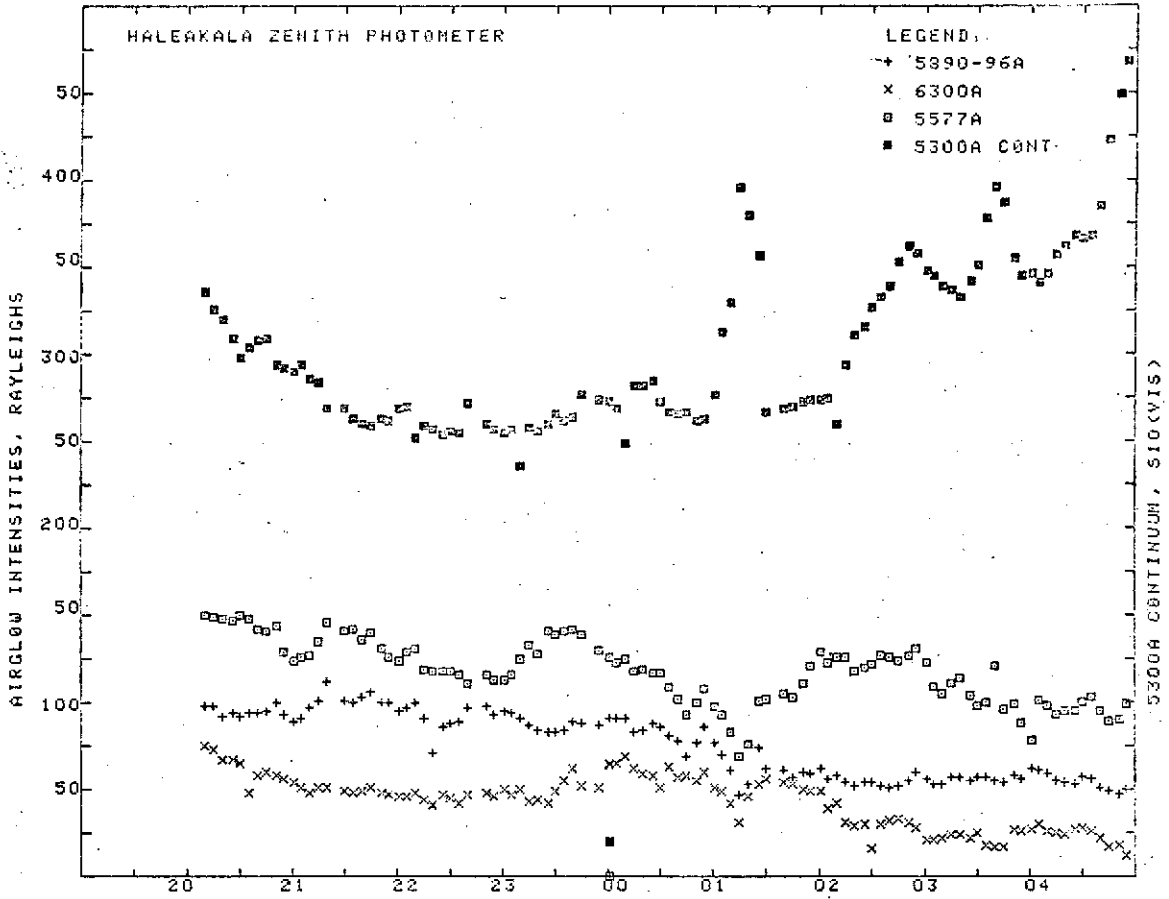
DATE
YR MO DA
64 10 03



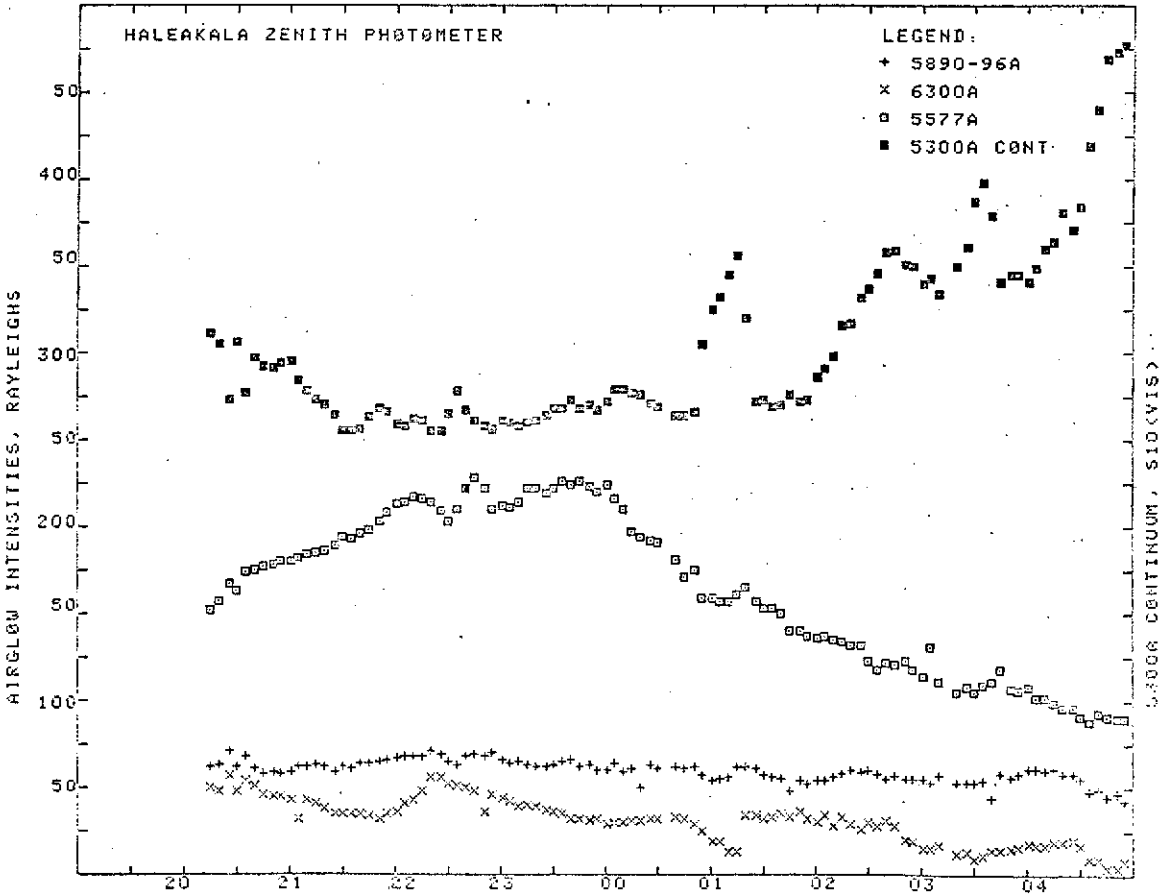
DATE
YR MO DA
64 10 04



DATE
YR MO DA
64 10 05

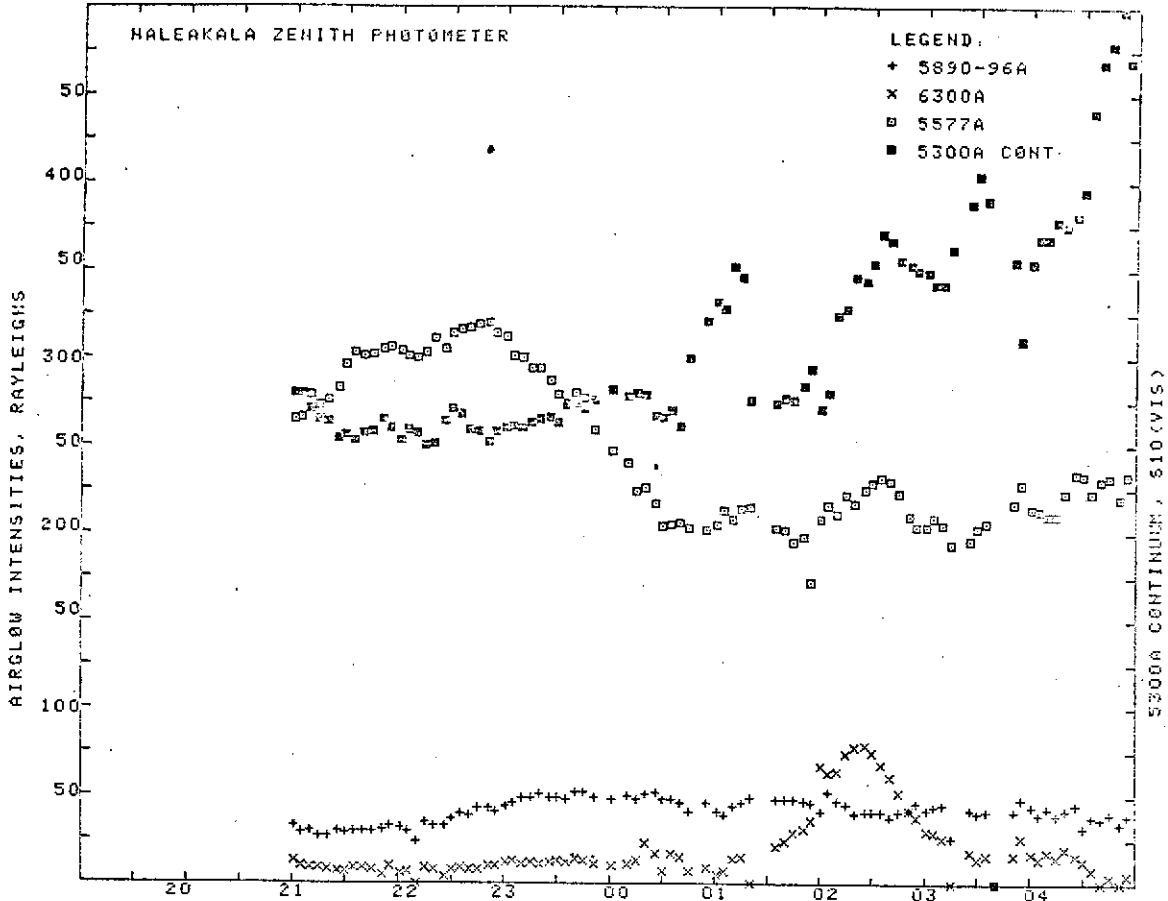


DATE
YR MO DA
64 10 07

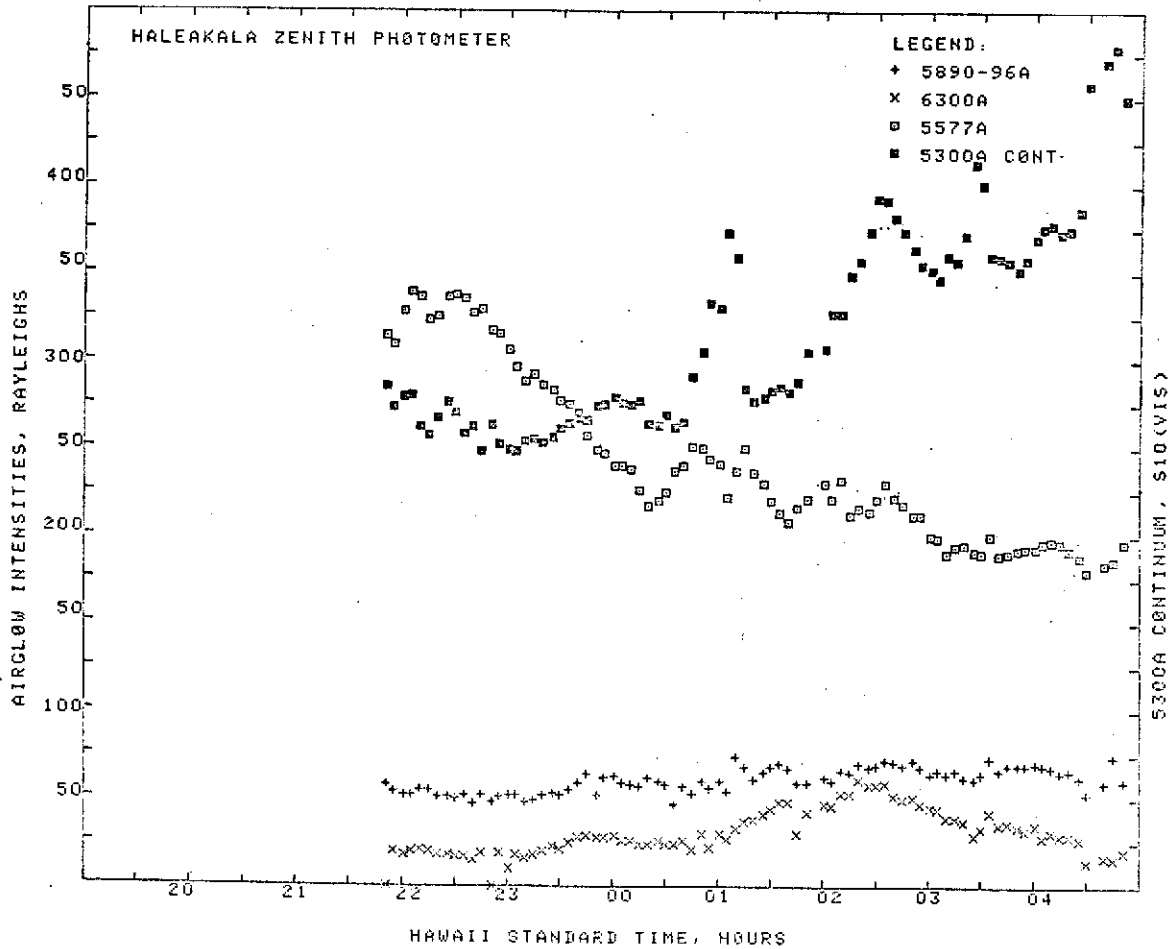


HAWAII STANDARD TIME, HOURS

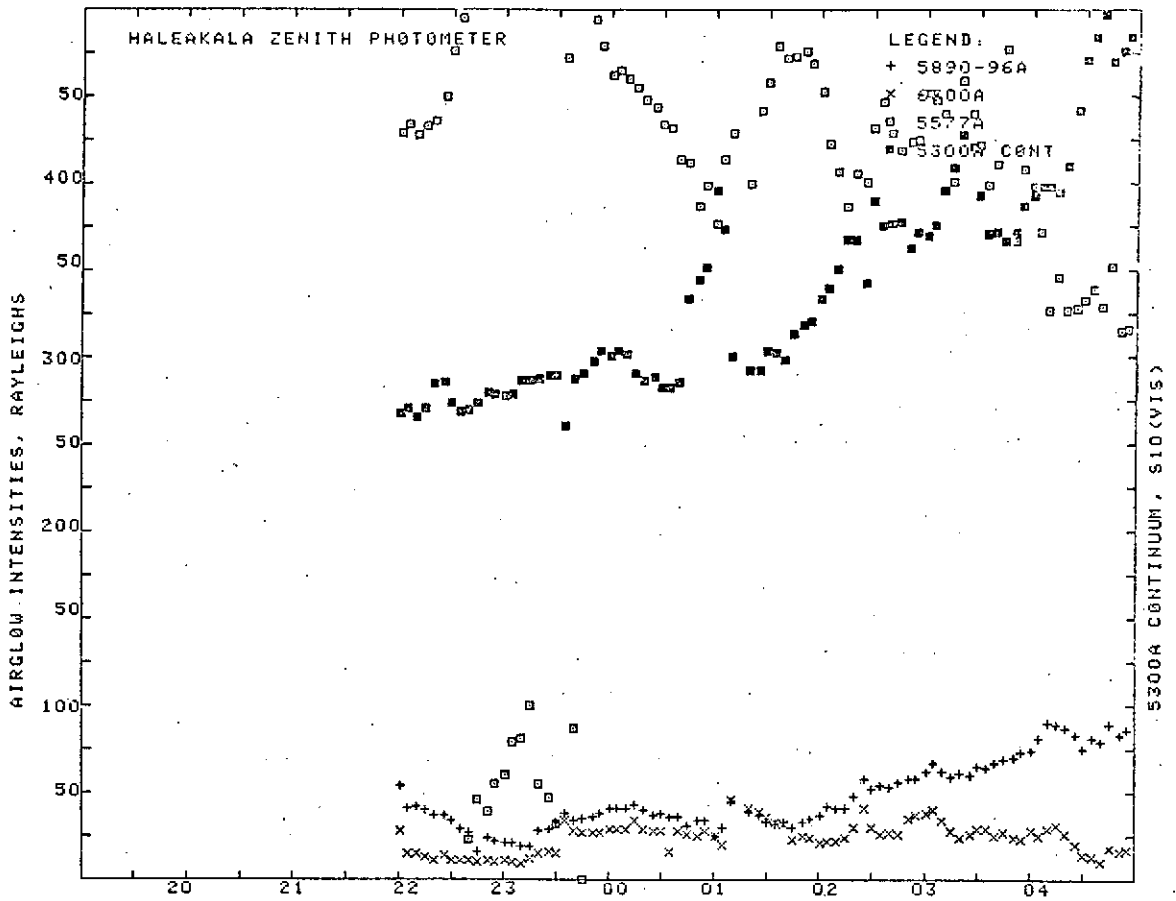
DATE
YR MO DA
64 10 08



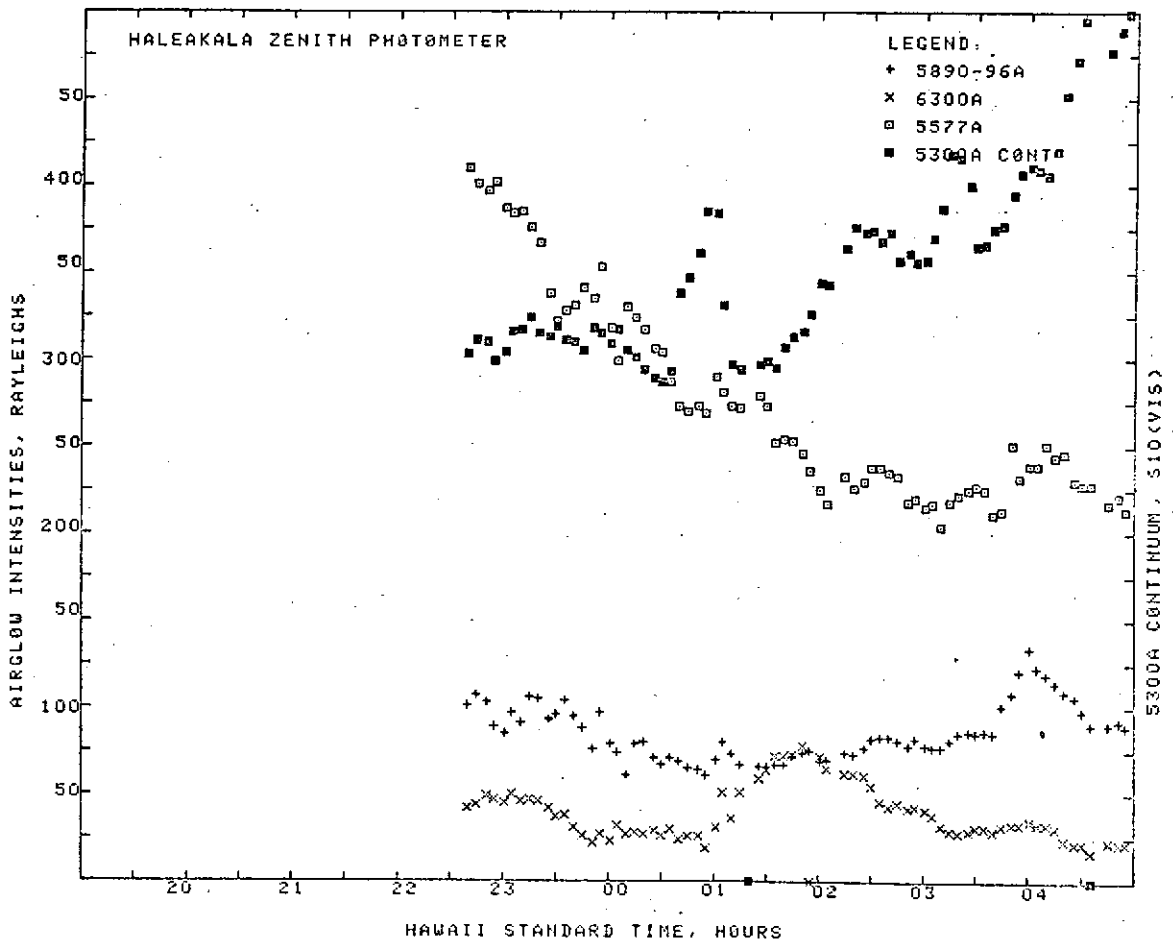
DATE
YR MO DA
64 10 09



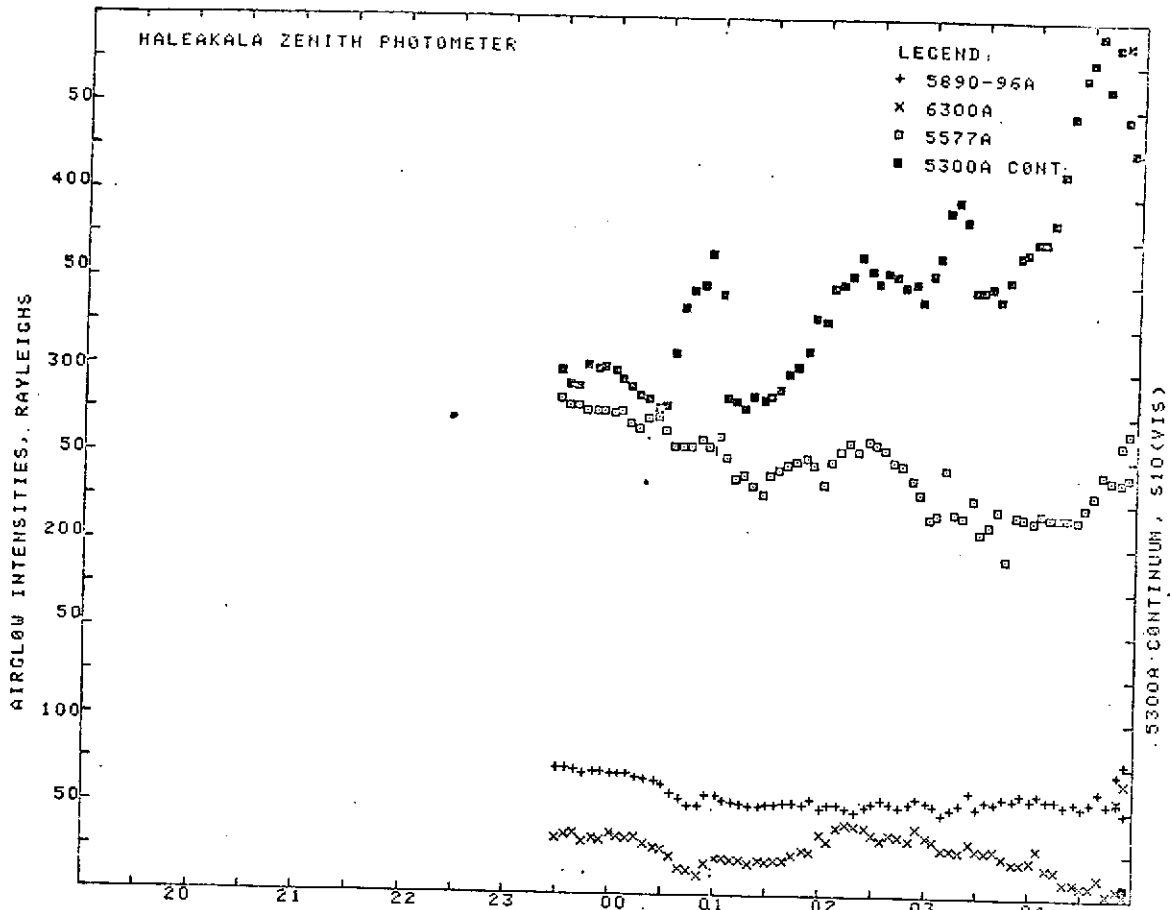
DATE
YR MO DA
64 10 10



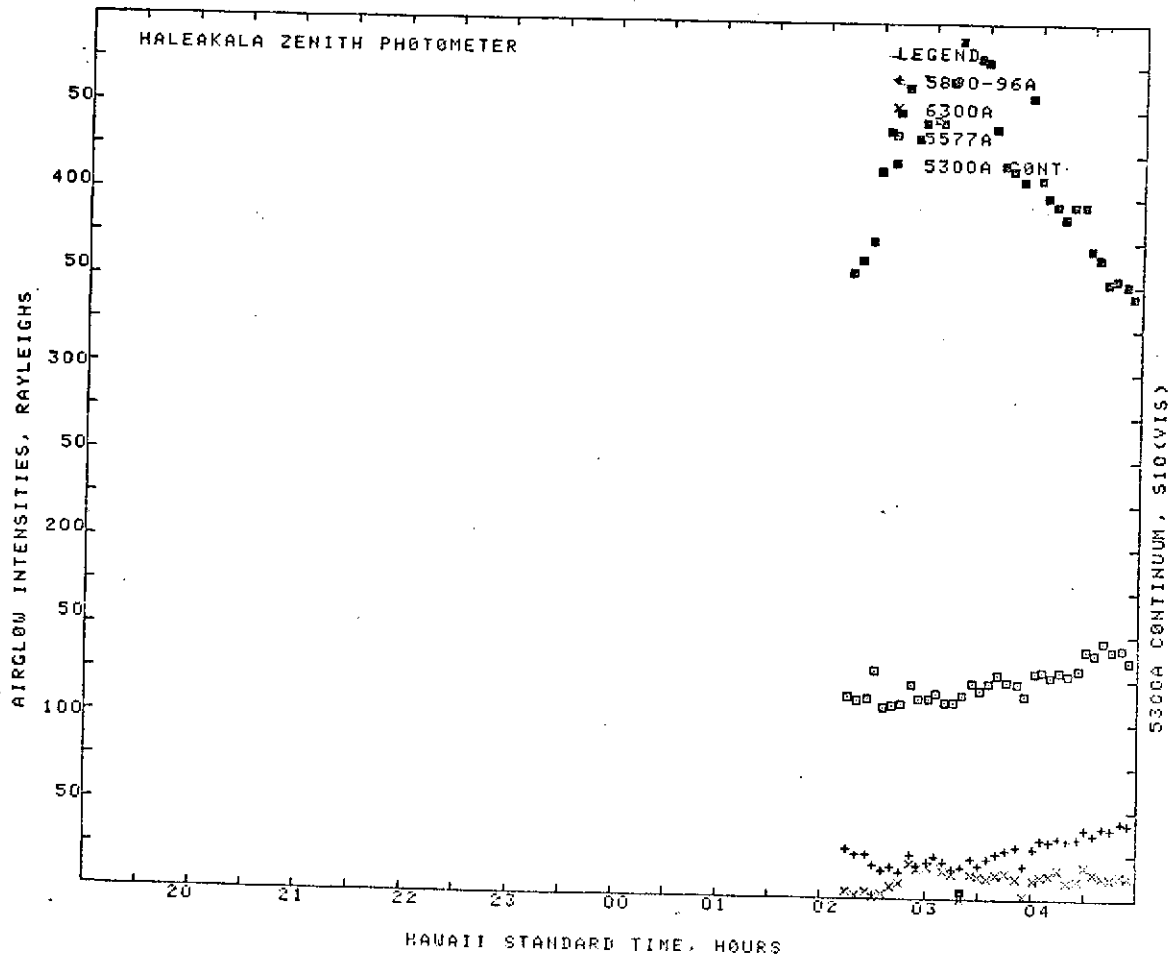
DATE
YR MO DA
64 10 11



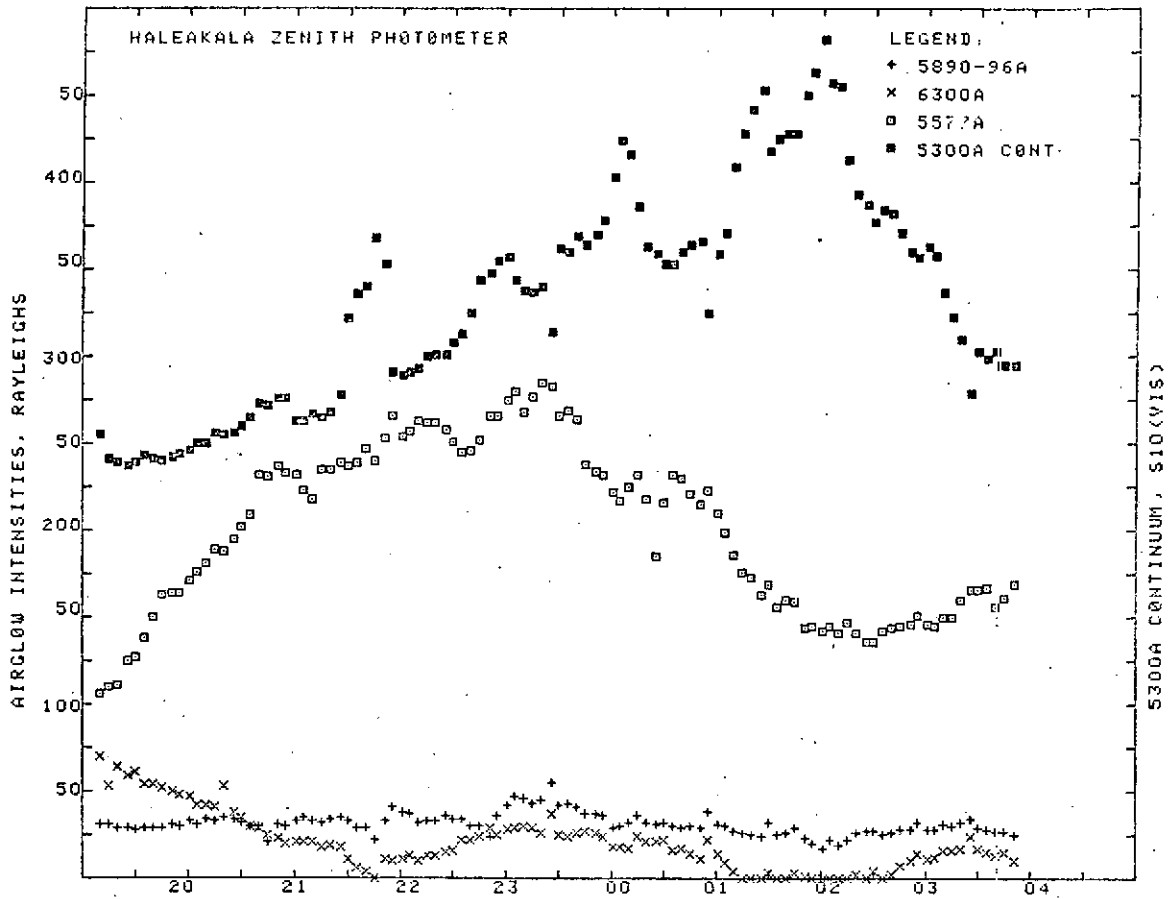
DATE
YR MO DA
64 10 12



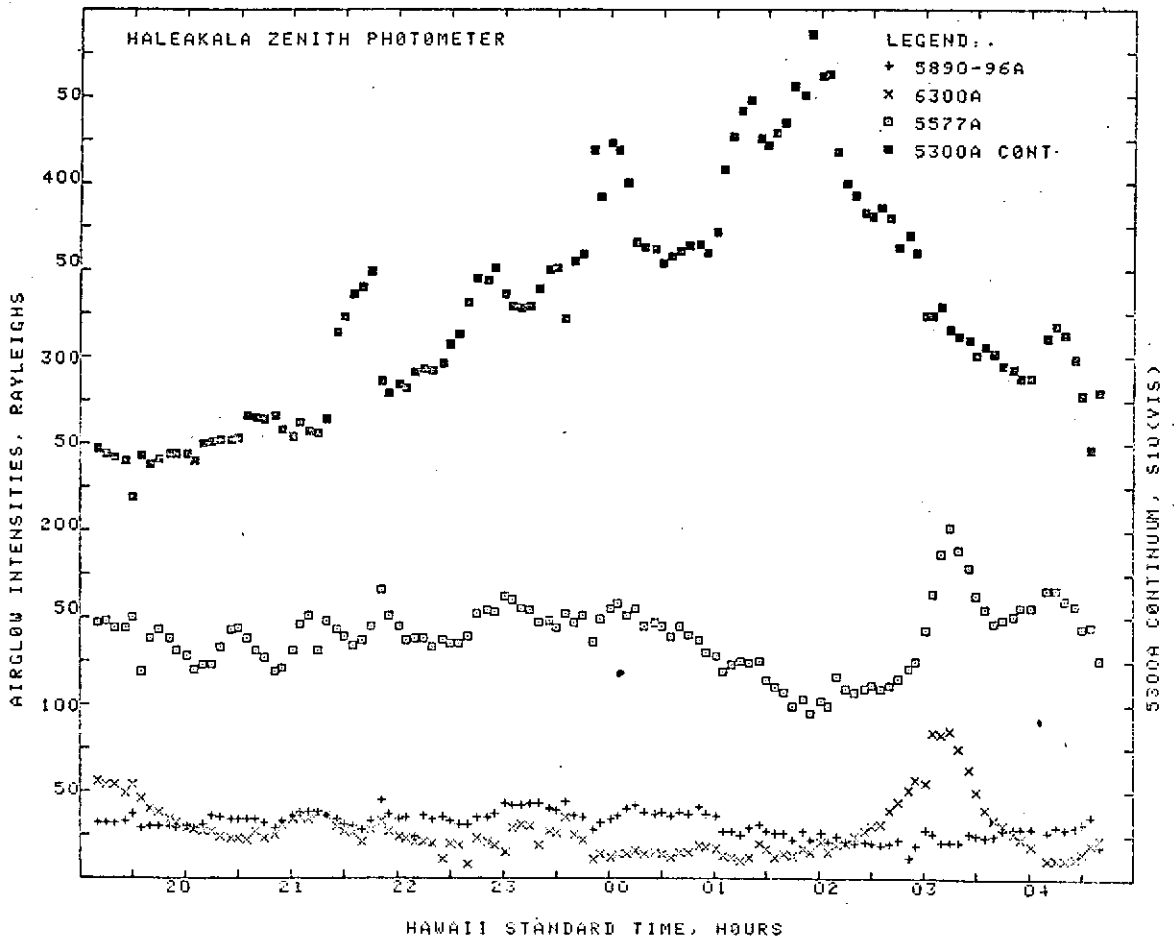
DATE
YR MO DA
64 11 09



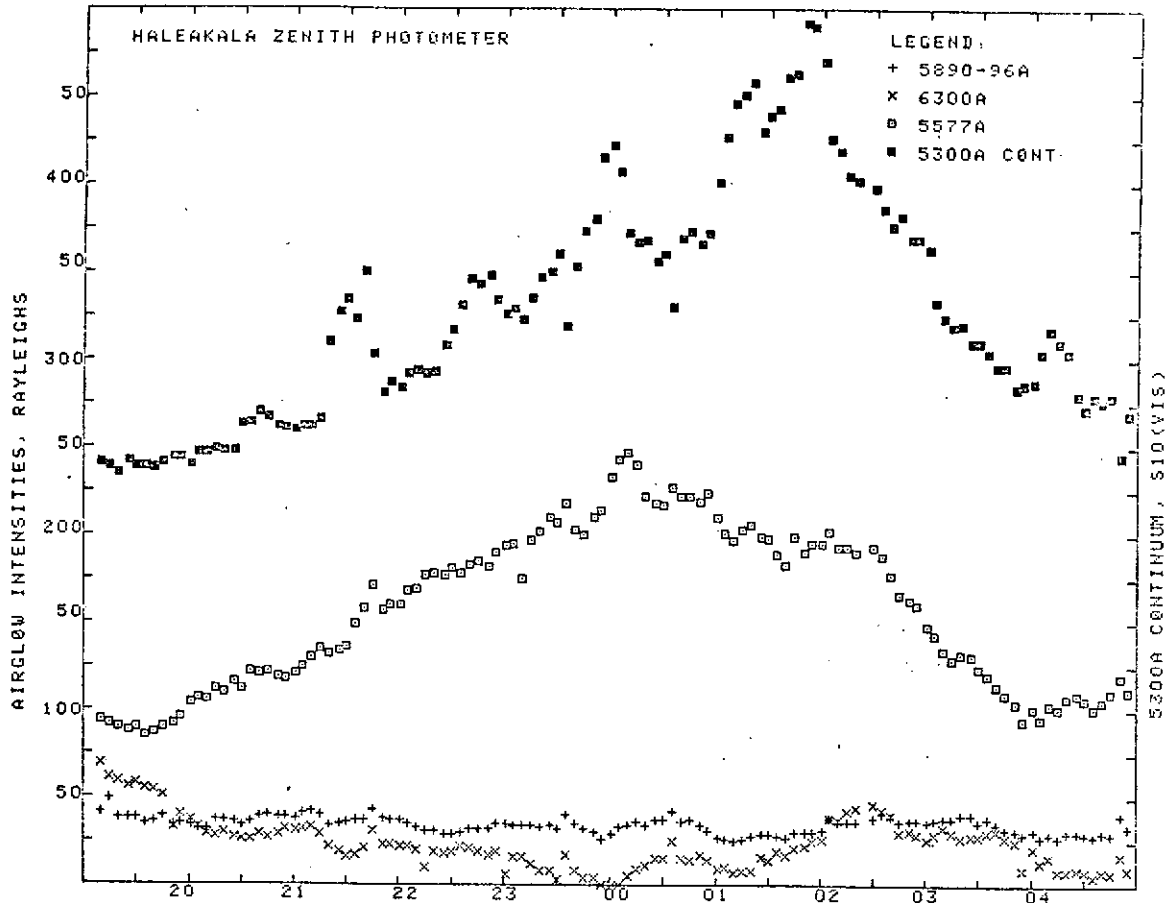
DATE
YR MO DA
64 11 29



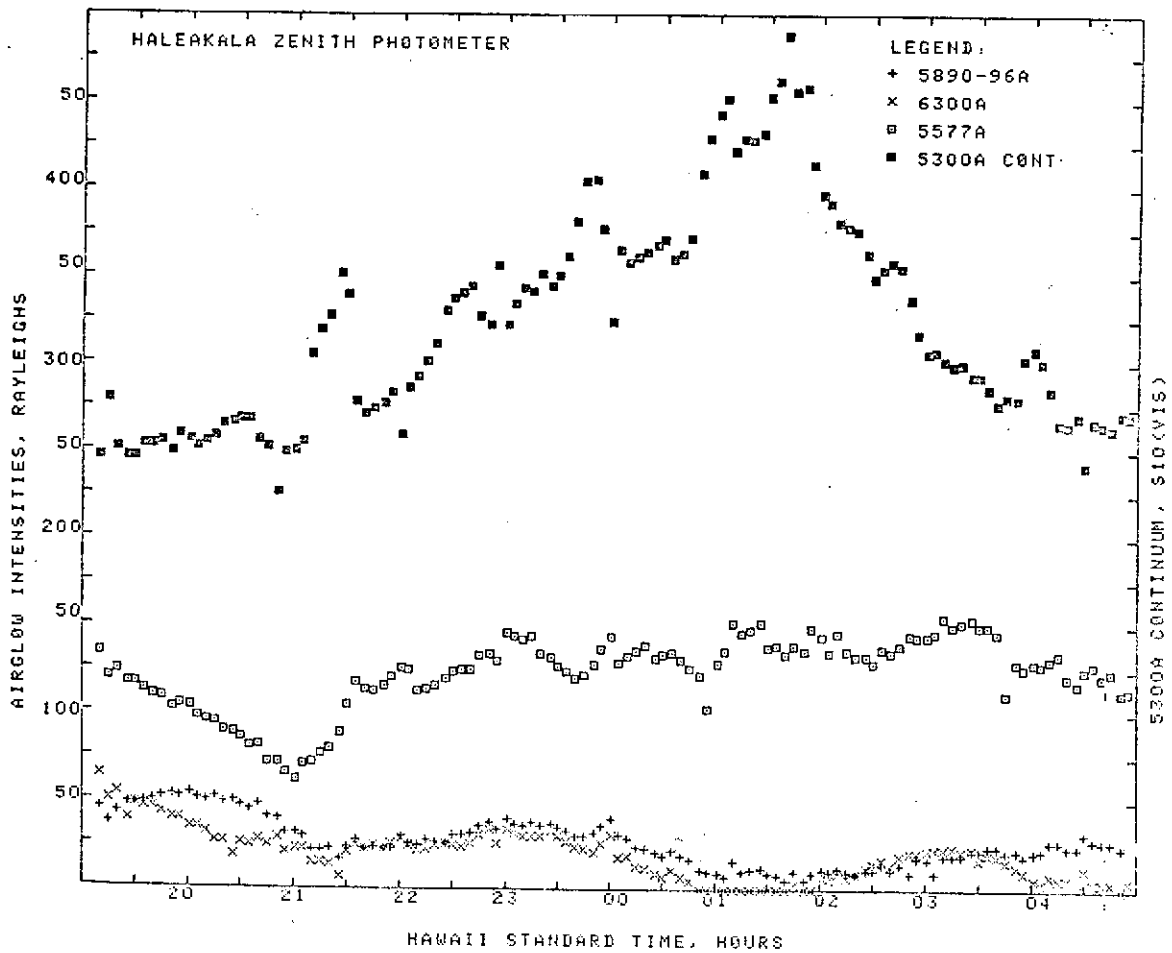
DATE
YR MO DA
64 11 30



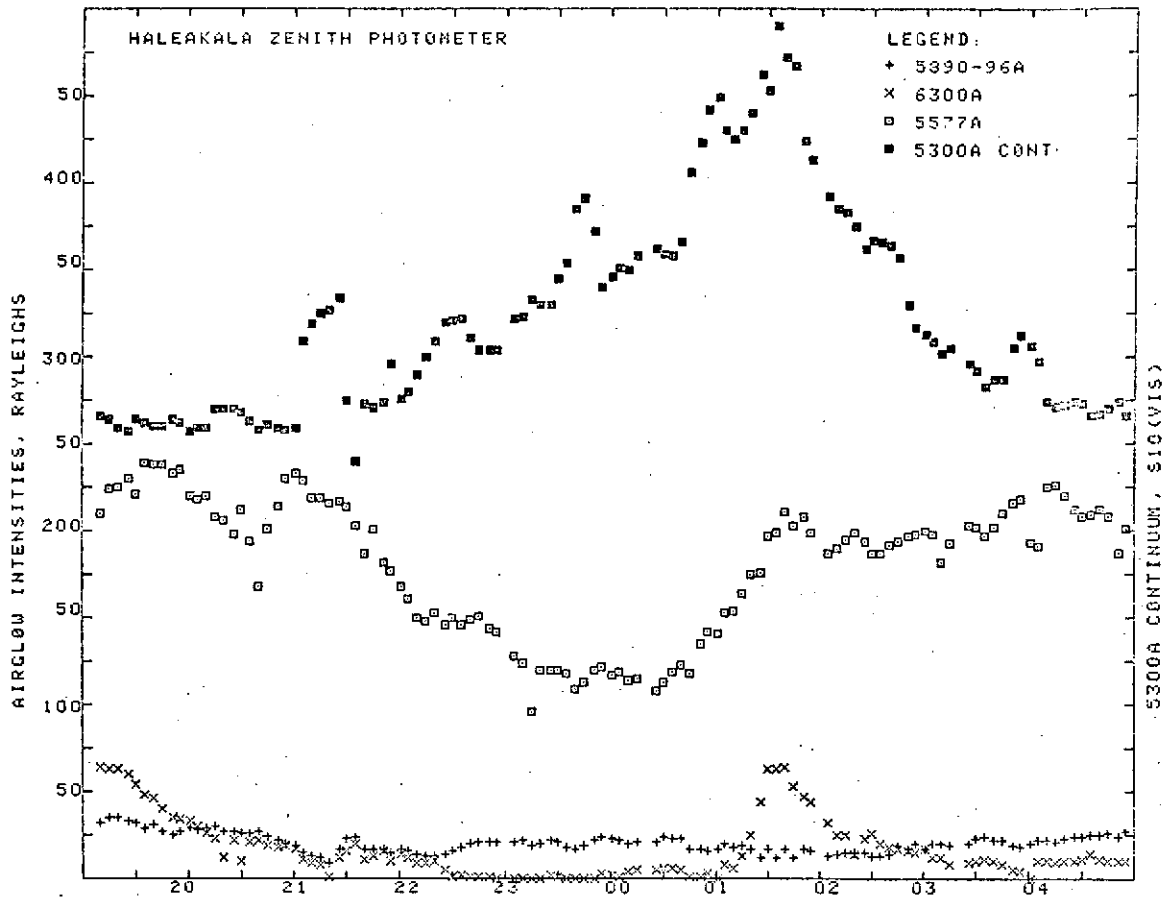
DATE
YR MO DA
64 12 01



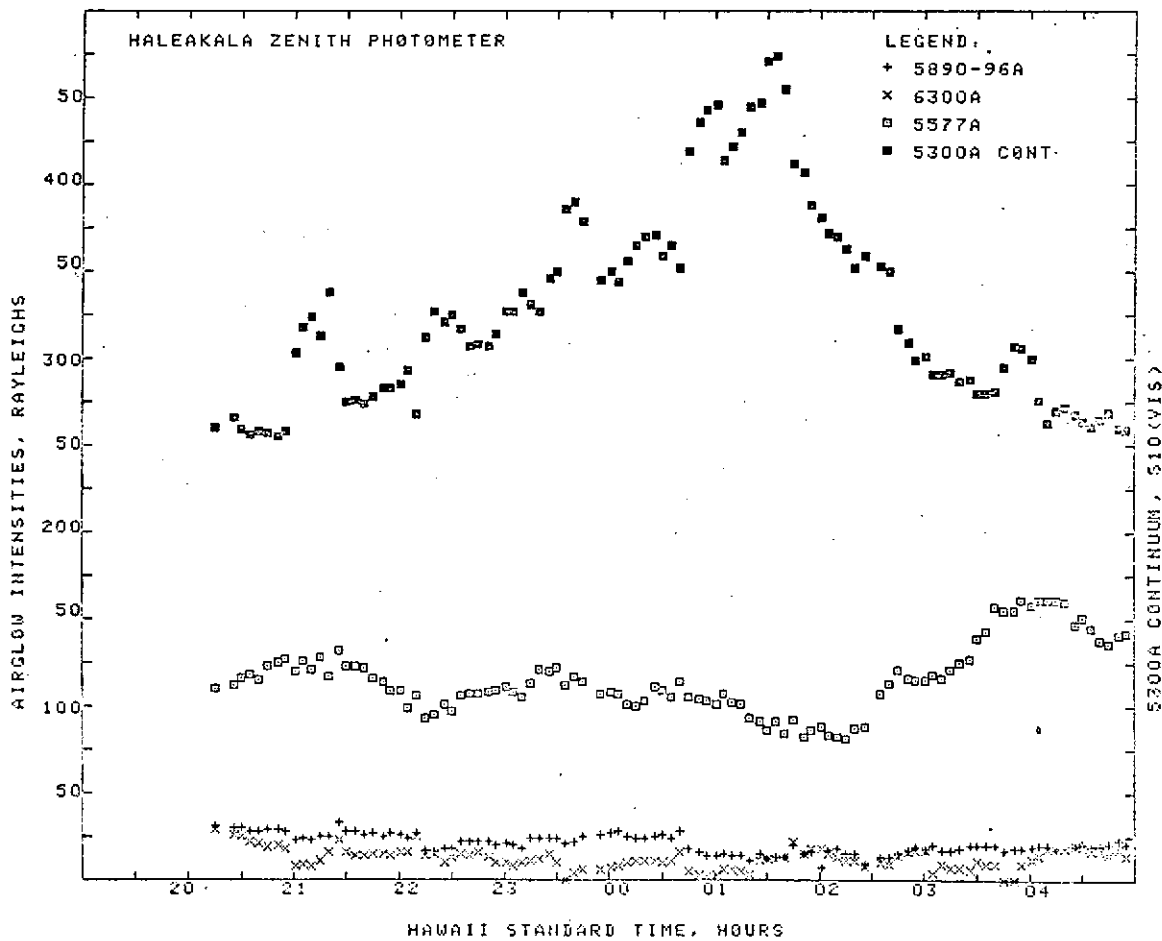
DATE
YR MO DA
64 12 04



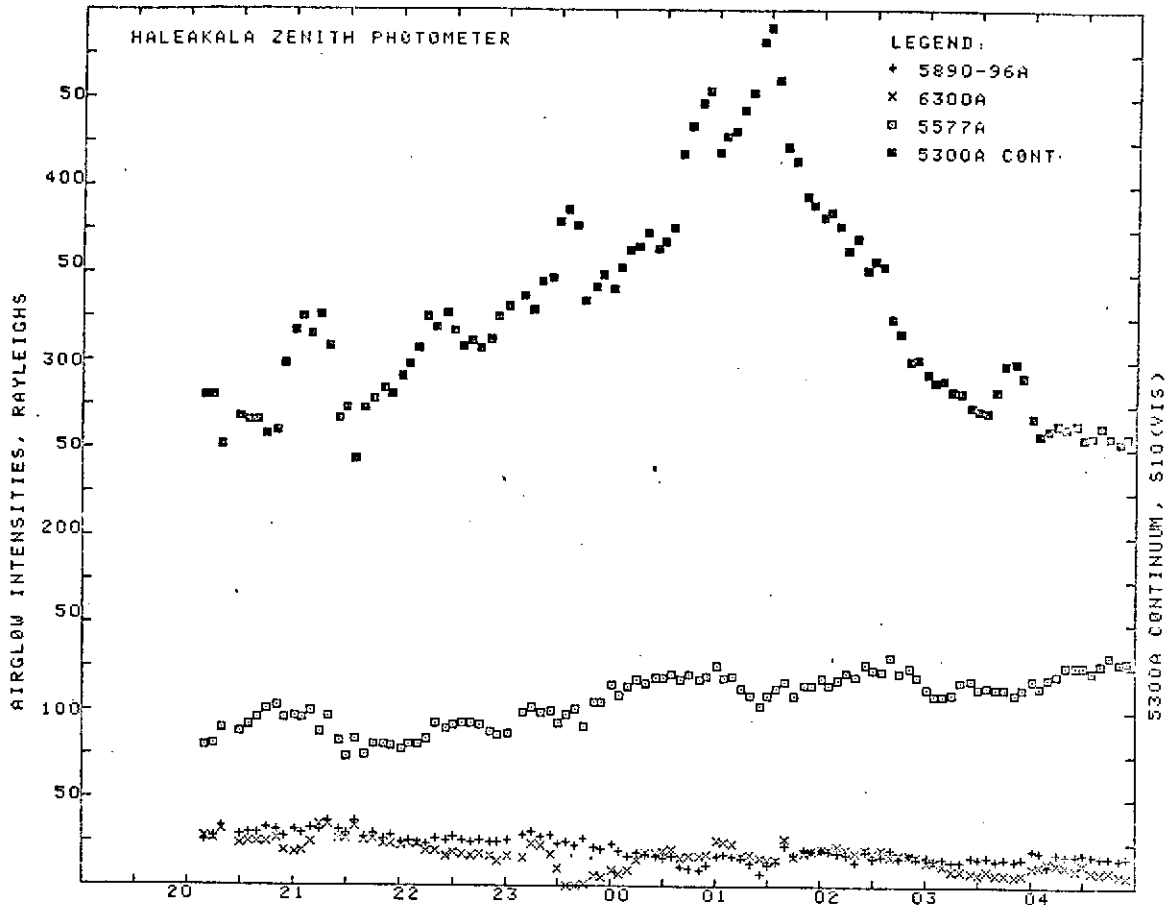
DATE
YR MO DA
64 12 05



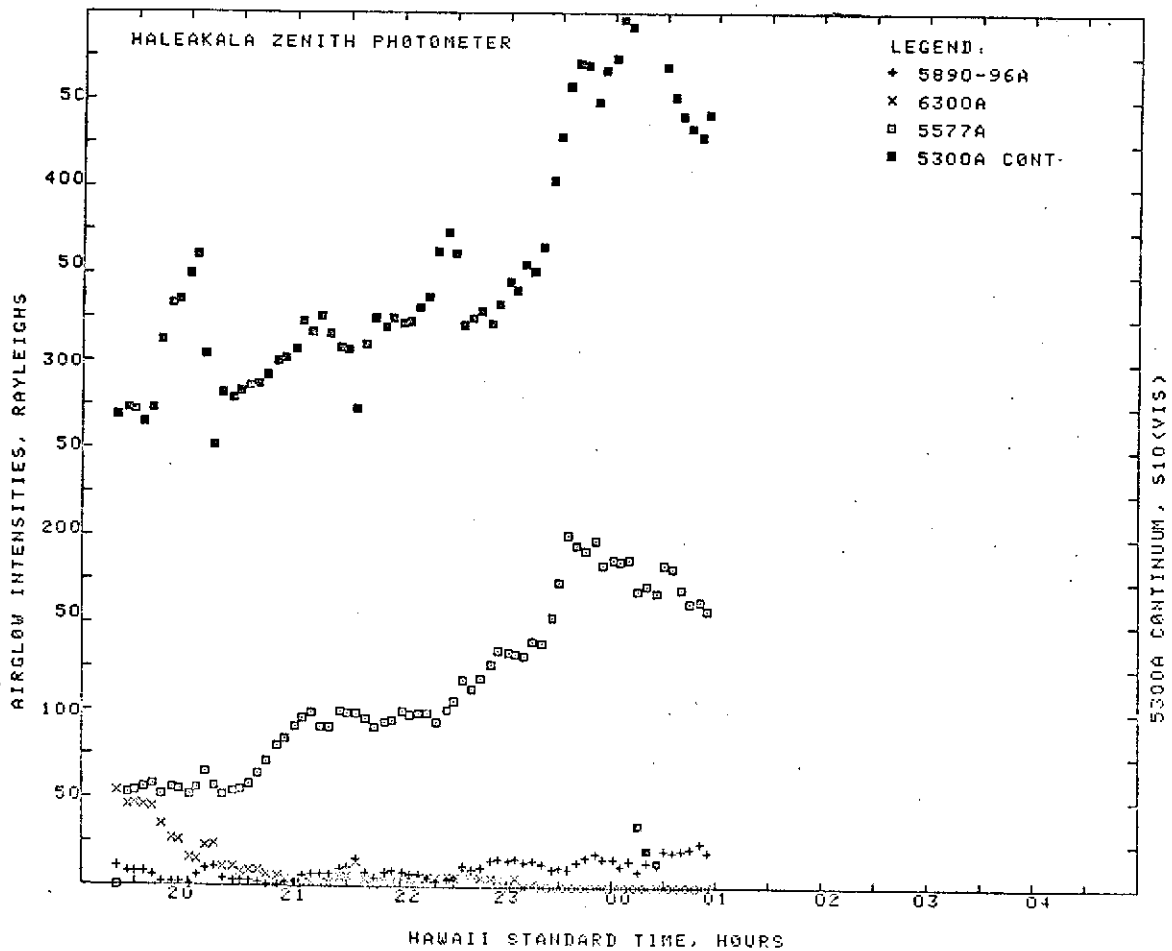
DATE
YR MO DA
64 12 06



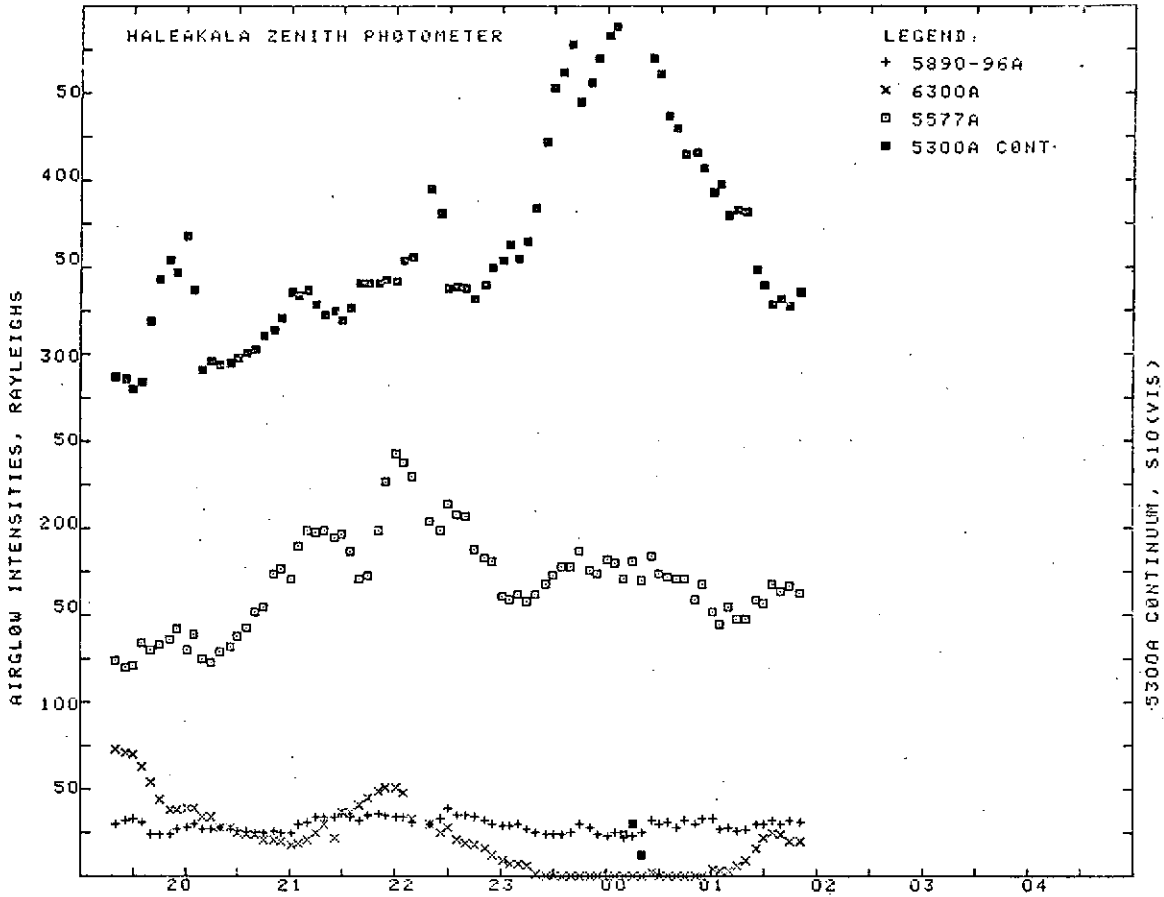
DATE
YR MO DA
64 12 07



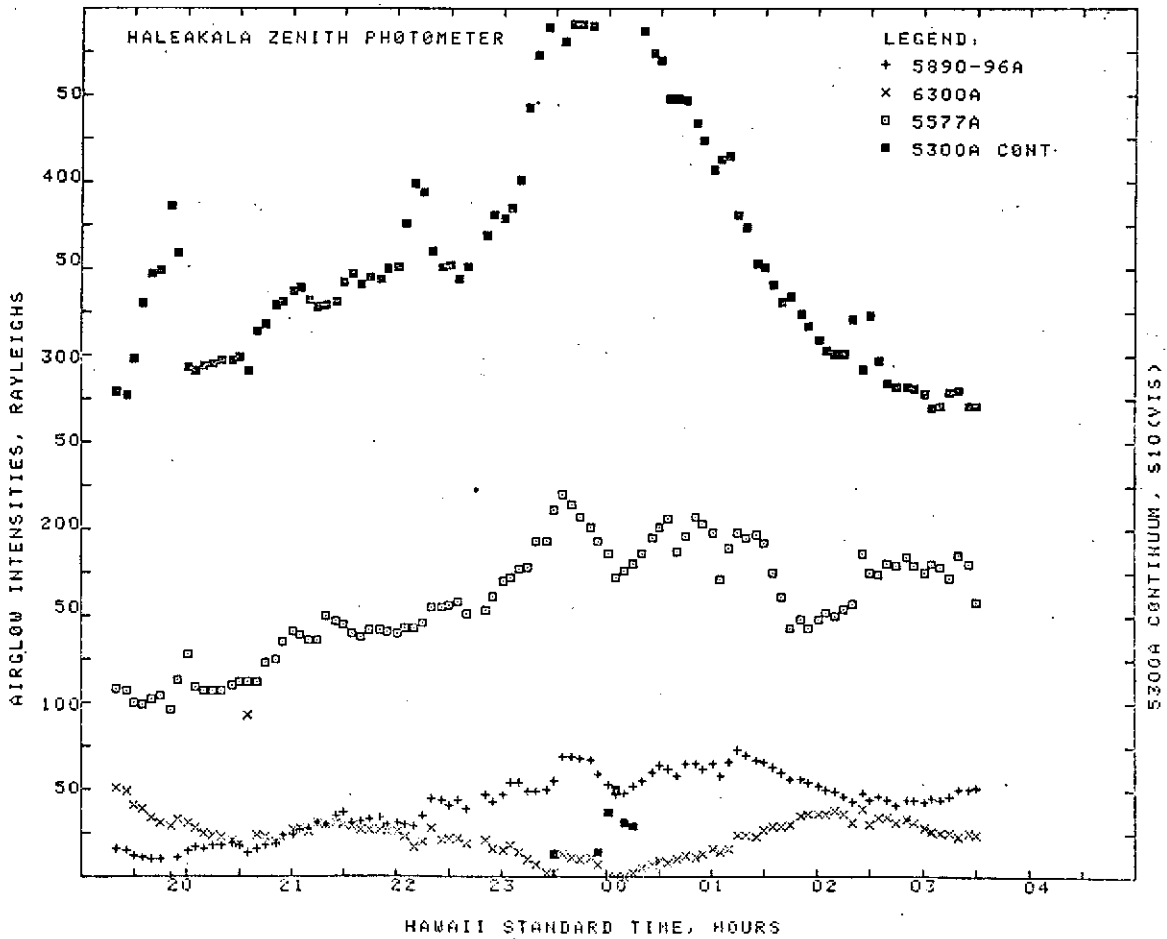
DATE
YR MO DA
64 12 25



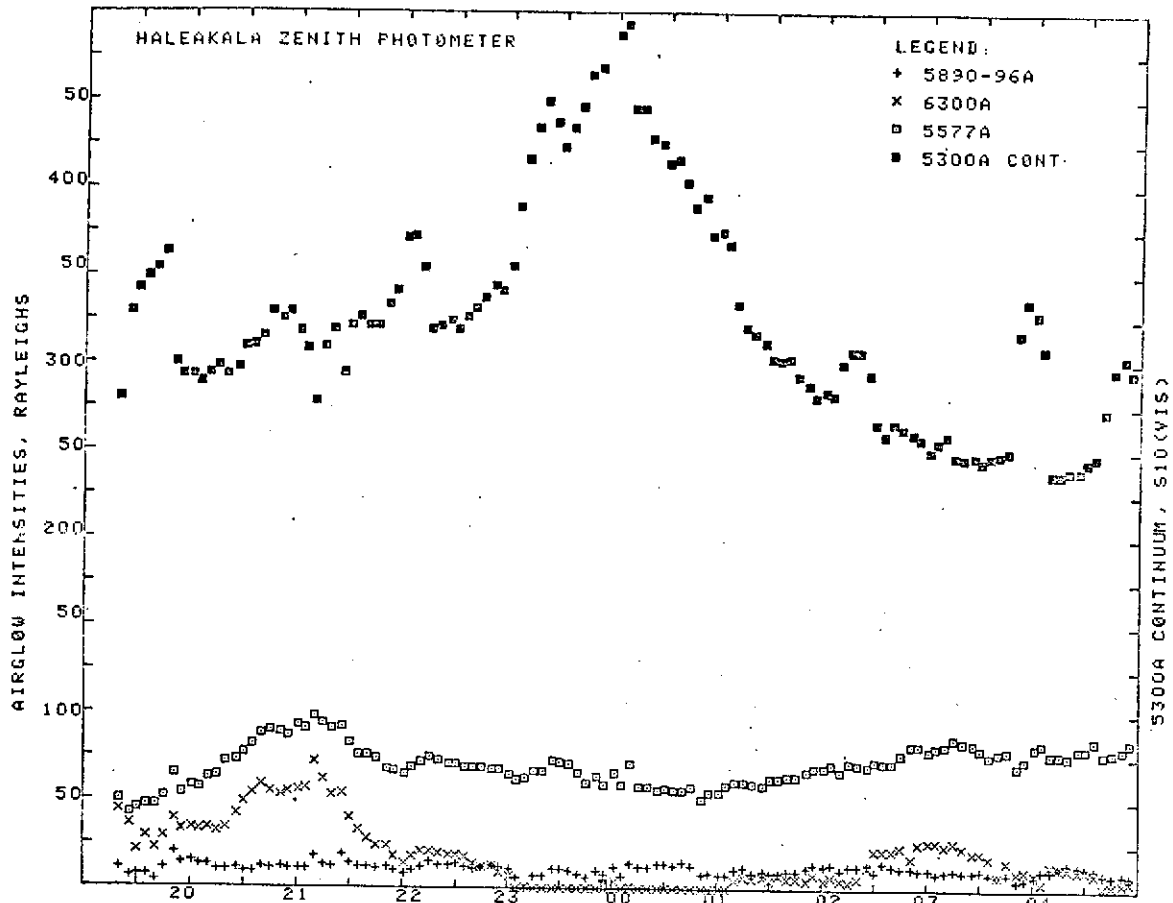
DATE
YR MO DA
64 12 26



DATE
YR MO DA
64 12 28



DATE
YR MO DA
64 12 30



DATE
YR MO DA
65 01 08

