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Solar-Terrestrial Physics

SYNOPTIC OBSERVATIONS OF THE SOLAR CORONA DURING CARRINGTON ROTATIONS 1580 - 1596

(11 October 1971 - 15 January 1973)

July 1975

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SECTION I. EXPLANATORY TEXT

1. Introduction

Before the successful launch of NASA's OSO-7 (Orbiting Solar Observatory No. 7) on 29 September 1971, the outer white light corona of the sun was observable only (a) during natural eclipse, (b) during flights of stratospheric balloons or high altitude rockets which carried coronagraphs above the earth's light-scattering atmosphere [Tousey, 1965; Newkirk and Bohlin, 1965; Dollfus *et al.*, 1968] and (c) during sunrise and sunset from the surface of the moon [Norton *et al.*, 1967; Bohlin, 1971]. With OSO-7, day-to-day observations of the outer corona became available from the Naval Research Laboratory (NRL) White Light Coronagraph experiment on board. In addition to the white light images from this instrument which covered the corona from 3 - 10 solar radii ($R_\odot$) we were also receiving other daily data for the inner corona. These were ground-based High Altitude Observatory (HAO) K-coronameter records at elongations from 1.1 - 2 $R_\odot$, and NRL ultraviolet coronagrams (recorded also from OSO-7) in the wavelength band 171 - 630 Å. These latter images showed the XUV corona lying above active regions, either projected onto the solar disk or extending some distance beyond the solar limb.

The purpose of this report is to present a day-to-day summary of these three sets of coronal data for the first 15 months of OSO-7 operation (11 October 1971 - 15 January 1973).

We hope the material presented will be useful for comparison with other manifestations of the changing sun (positions of radio noise sources, magnetic field configurations, etc.), for study of evolution of discrete active regions, and for correlation with various interplanetary phenomena (solar wind parameters, magnetic field reversals).

In Part 2 of this section we describe briefly the three observing instruments. The data recorded by these instruments have been reduced to pictures and graphs which are described in Parts 3 and 4 of this section. In Section II the pictures and graphs are reproduced.

For further information and data we invite interested persons to communicate directly with the authors.

2. Description of Experiment Instruments

2.1 OSO-7 White Light Coronagraph

A detailed description of this coronagraph, including construction, calibration and in-orbit operation, has been given elsewhere [Koomen *et al.*, 1975]. A brief description is given here. Essentially, the instrument is a telescopic system of 193 mm effective focal length and 26 mm aperture. A circular occulting disk is held in front of the aperture at the end of a spar 760 mm (30 inches) long. This disk shields the aperture from direct sunlight and artifically eclipses the sun. This arrangement, plus several additional features which minimize stray light, allows the faint outer corona to be recorded against the dark sky at oribting altitudes.

* The National Center for Atmospheric Research is sponsored by The National Science Foundation.

Because the occulting disk is relatively close to the instrument objective, the disk of the sun cannot be occulted cleanly as in a lunar eclipse, and considerable over-occulting must be tolerated. The corona is recorded, in the OSO-7 instrument, beyond approximately 3 solar radii to an outer field limit of 10 solar radii (measured from sun center).

The presence of the occulting disk produces a very steep radial vignetting function in the inward direction, i.e., the periphery of the field receives more light than areas near the optical axis. The parameters in the OSO-7 coronagraph are such that the vignetting function approximately compensates the radial decrease in brightness of the corona and produces an approximately uniform illumination over the entire faceplate of the vidicon.

The focal plane detector is an SEC vidicon, which is scanned in a square raster of 256 lines with 256 points per line. Thus each picture point subtends approximately 1.25 arc min. The intensity of each picture point is converted to a 7-bit intensity word (128 intensity steps) for telemetry transmission. An optional mode of time-compression of telemetered data is provided at the expense of spatial resolution by not transmitting the data for those picture points whose intensities fall within an established corridor relative to the previously transmitted element. Corridors of various widths are selectable by ground command and can be used when several images in rapid succession are desired. A few of the white-light images in Section II show the coarse resolution which is characteristic of the corridor mode.

The field of the instrument is calibrated in units of mean solar disk brightness.

2.2 OSO-7 Extreme Ultraviolet (XUV) Coronagraph

The extreme ultraviolet "coronagraph" or heliograph is a Herschelian reflective system utilizing an off-axis parabolic telescope mirror of 750 mm focal length. In the focal plane of the mirror is a circular aperture 20 arc sec in diameter, and behind it a channel electron multiplier.

The instrument has no spectral dispersion, but depends upon the reflectance of the platinum-coated mirror and the ultraviolet transmittance of thin aluminum films for limitation of the response to a broad band of XUV wavelengths which spans roughly the region 170 - 630 Å [Hass *et al.*, 1974; Hunter *et al.*, 1965]. The films are unbacked, and approximately 1000 Å thick. Two films are located immediately behind the instrument aperture, which is a 29 x 29 mm square opening. The films are supported on fine mesh electroformed nickel screens. A final filter is placed near the detector pinhole. The serial filter arrangement is used because the films are delicate and subject to small pinholes and local ruptures. Since these defects are not likely to occur in the same place in all filters, the integrity of the total pass band is preserved in spite of the fragile nature of the filters.

An XUV image is generated by commanding the OSO-7 spacecraft into "large-raster" mode, wherein the XUV instrument is scanned back and forth by the spacecraft in a raster pattern to build up a picture of the sun and corona point by point. The dimensions of the raster are 60 x 60 arc min, and the pattern consists of 64 parallel scan lines spaced on 56 arc sec centers. The 20 arc sec scanning aperture does not, therefore, cover the entire sun in the direction normal to the scan lines, but leaves gaps 36 arc sec in width. Along a scan line, raster motion is continuous and the data collection interval of 160 milliseconds results in averaging across an element 75 arc sec in length. The raster picture element therefore subtends approximately 1 x 1.25 arc min. The intensity count, up to a maximum count of 32,768, from the channel multiplier plate is compressed into an 8-bit telemetry word using a quasi-logarithmic scheme which results in a relative error of about 3%.

2.3 Mauna Loa White Light Coronagraphs

The brightness distribution of the innermost corona (approximately 1.1 through 2.0 $R_\odot$) during this same time period was determined with ground-based coronagraphs operated at the Mauna Loa Station of the High Altitude Observatory (HAO). These instruments are photoelectric polarimeters attached to conventional Lyot coronagraphs which measure the quantity "pB" as the telescope scans around the perimeter of the sun at a selected height above the solar limb; "p" is the polarization tangential to the limb and "B" the radiance of the corona in units of 10^{-8} the radiance of the center of the solar disk.

The circular polar plots of the corona at a height of 1.5 $R_\odot$ (Section II-2) were made with the K-coronameter [Wlérick and Axtell, 1957] and the synoptic maps of the coronal isophotes at heights of 1.1 and 1.5 $R_\odot$ (Sections II-3 and -4) were taken from measurements with the Coronal Activity Monitor [Garcia *et al.*, 1971].

3. Description of Data Displayed in Section II

3.1 Images of the White Light Corona Between 3 and 10 Solar Radii

In Section II-1, OSO-7 photographs of the white light corona and the extreme ultraviolet corona are presented side-by-side for each day. Many of the white light images have appeared earlier in the

Solar-Geophysical Data, (U.S. Department of Commerce, Boulder, Colorado 80302, U.S.A, 332, Part I, April 1972 to 360, Part I, August 1974), though these were derived from quick-look telemetry data. The present daily images have been chosen from the best of the several available for each day. Data errors and permanent field blemishes have been removed where possible.

The central dark area in each picture is an out-of-focus image of the coronagraph's external occulting disk. It occults the corona to about 3 $R_\odot$, measured from sun center. The outer field limit is approximately 10 $R_\odot$. The white circular spot, which has been introduced in the reconstruction process, shows the size and position of the occulted sun. The image of the disk support is also out of focus and produces a broad shadow extending radially outward. This shadow rotates slowly during the year as the spacecraft rolls about the solar direction, and is seen generally in the western half of each photograph. The position angle actually ranges from SE to NW.

A segmented polarizing filter was cemented to the vidicon faceplate. The effect of the filter can be seen as the two concentric annular rings. In these rings the polarization of the filter is approximately radial. All other places in the field of view are covered by a "concentric" polarizing filter, which admits everywhere the electric vector perpendicular to the solar radius. The filter is described elsewhere [Koomen *et al.*, 1975].

The outward decrease in brightness of the corona is compensated by the radial vignetting function in the coronagraph, so that the final image has approximately uniform radial brightness. The images therefore have the same characteristics as modern eclipse pictures taken with radial gradient filters, in that the brightness scale is altered. However, the visual impression is somewhat akin to that obtained when viewing natural eclipses, where the eye compresses the large brightness range which is actually present. The images thus give a good record of the spatial structure of the corona and give a qualitative idea of polarization. Since the television image is relatively coarse (1.25 arc min resolution elements), it is assumed that unresolved fine structure may sometimes be present.

The date and universal time of each image is given. In the few cases where a time interval is given, the coronal image has been taken in separate sectors which were later assembled into a final photograph. The time of exposure of the first and last sectors are given.

3.2 Solar XUV Coronagrams

As in the case of the white light coronal images, these are reconstructions of telemetered data. Some of these images, in their quick look form, have been published in *Solar-Geophysical Data* (U.S. Department of Commerce, Boulder, Colorado 80302, U.S.A., 340, Part I, December 1972 to 354, Part I, February 1974). The present images have been reprocessed and improved, using the best available data. The instrument characteristics and data-taking methods have been discussed in Section I-2.2. It will be repeated here that the response of the instrument is confined to the band 170 - 630 Å. It is estimated that 20 - 30% of the total signal is chromospheric (He I and II). The remaining signal comes from high temperature coronal ions.

The images themselves are recorded by a 20 arc sec detector, but the resolution element is effectively 1 x 1.25 arc min (see Section I-2.2) scanning in a raster pattern measuring 60 x 60 arc min. Only the central portion of the raster, showing XUV plages and coronal emissions over the disk and outward to 1.5 solar radii, is reproduced.

In interpreting the images, it should be noted that the tiny square picture elements (19 x 19 arc sec) are considerably smaller than the basic resolution element. This effect (matrix expansion) is introduced during processing. Brightness scaling of the image has also been employed for two reasons: first, to reproduce most satisfactorily the large intensity range in the telemetered data, and second, to compensate for in-orbit changes in the aluminum film filters. The exact nature of the filter changes is not known, but the net effect was a slow change in signal level and image contrast. The scaling was therefore adjusted to give a good overall reproduction of coronal structure. For quantitative work with the images it is necessary to consult the numerical data.

The time listed with each image is the starting time of each raster frame.

3.3 Daily Polar Plots of Coronal Brightness at 1.5 and 4 Solar Radii

These white light data are presented in Section II-2. The observations were taken respectively with the HAO Mauna Loa K-coronameter and NRL coronagraph aboard OSO-7. For both heights the brightness is plotted radially versus position angle, with distance outward from the limb of the central circle linearly proportional to the brightness.

Brightness curves for 6 or 7 consecutive days are superposed on a single plot, so that the data for a single solar rotation occupy a single page. The day of the month is indicated on each curve. Plots for 1.5 $R_\odot$ occupy the left side of each page and can be compared with similar plots for 4 $R_\odot$ on the right.

Several properties of the corona are immediately apparent by inspection of these superpositions:

- Within the integrated spatial resolution of the coronagraph and K-coronameter (approximately one arc minute), the general brightness distribution of the corona changes relatively slowly from day to day;

- Some well-defined features at 1.5 $R_\odot$ (such as the NE quadrant of 6-9 January 1973) are not detected at 4 $R_\odot$;

- But on the other hand, other features (such as the structure directly over the east limb on 22-26 December 1972 (probably transequatorial arch [Hansen *et al.*, 1972]) and the high-latitude helmet streamer in the SE of 31 December 1972 - 1 January 1973) are clearly identifiable from both sets of measurements.

- Several of the structures seem to be quite long-lived, making successive limb passages over time periods of several months (such as W of 10-15 November, E of 22-28 November, and W of 6-12 December, E of 20-26 December 1972) and will thus serve as tracers for determinations of coronal rotation rates [as Hansen *et al.*, 1969].

3.4 Synoptic Maps of Coronal Brightness at 1.1, 1.5 and 4 Solar Radii

Daily plane-of-sky data at heights of 1.1 and 1.5 $R_\odot$ from Mauna Loa and 4.0 $R_\odot$ from OSO-7 have been transformed into synoptic charts for Carrington rotations 1580 - 1596.

The synoptic maps for 4.0 $R_\odot$ were derived solely from east limb observations with the NRL OSO-7 coronagraph, because the image of the external occulter support obscured part of the corona over the west limb. Preparation of the charts therefore consisted simply of mapping coronal brightness on a grid whose coordinates are east limb passage date and position angle north or south of the equator. Brightness contour levels were then drawn, to delineate the generally prevalent equatorial band of enhanced corona and the localized bright streamers. It should be emphasized that the brightness data have not been deconvolved and that the contours therefore do not represent accurately the cross sections of streamers. The numbers on the contours give coronal surface brightness in units of 10^{-11} solar disk brightness. Both east limb and central meridian passage (CMP) dates are given at the top of the map (assuming a 7 day lag between east limb and CMP at all latitudes). Carrington longitude of the underlying meridian on the solar disk is given at the bottom of the map.

The synoptic maps for 1.1 and 1.5 $R_\odot$ were prepared in the same way as those for 4.0 $R_\odot$, using ground-based data from the HAO Mauna Loa Coronal Activity Monitor. Ordinarily, observations are made on approximately 250 days/year (0.60-0.70 probability for each day) but there were unusually extensive gaps during the 1972 time period due to cloudy weather, equipment failures, etc., and it was necessary to average east limb and west limb observations (when available) for 7 days earlier and 7 days later, respectively, than the indicated CMP dates. Even so, some gaps remained, as indicated by solid bars at the top of the isophotal maps for 1.1 and 1.5 $R_\odot$. We have interpolated where one or two days are missing, but for more than two days gaps are left in the isophotal maps.

Contour levels are in units of pB and were chosen arbitrarily to emphasize the generally prevalent equatorial band of enhanced corona and the more localized bright streamers and condensations. Successive levels (in equal pB increments) are contoured by: Light line, heavy line, cross-hatching, and with still higher levels within the hatched areas. In addition, the maps at 1.1 $R_\odot$ have a dashed contour showing regions substantially below the average intensity; these are the so-called coronal holes (see Withbroe *et al.*, [1971] for a comparison of holes with XUV spectroheliograms, and Hansen *et al.*, [1975] for a comparison with geomagnetic indices).

For the most part, the data used here were taken from daily survey observations made during the morning hours at Mauna Loa (approximately 1700-2100 UT). The brightness distribution is assumed to have evolved only slowly in time. That is, variations in appearance of the corona over the limb from day to day are due principally to solar rotation as individual coronal structures are brought into and out of the plane of the sky (see for example the discussion by Hansen *et al.*, [1969]). These assumptions are known to be not entirely correct because large regions of the inner corona have been found to be abruptly depleted, usually in association with flares or ascending prominences [Hansen *et al.*, 1974], as discussed in Section I-3.7 below, but the synoptic data serve as a reasonable first approximation to a description of the average properties of the inner corona.

3.5 "Compressed" Synoptic Maps of the Corona at 1.5 Solar Radii

The figure of Section II-4 is a set of highly compressed synoptic maps derived from HAO K-coronal data at 1.5 $R_\odot$ for nearly four years during the declining phase of the solar cycle, that is, from February 1971 through August 1974 (from Hansen *et al.*, [1975]). The part of the map covering the period October 1971 - January 1973 was prepared from the same data presented in Section II-3, described above. As in those more detailed maps, the K-coronal data from east and west limbs for a given CMP date have been averaged. Time progresses from right to left (thus for each Carrington rotation, longitude increases from left to right).

Several rather general statements can be made about the corona during the year 1972:

- Particularly around the time of the great August 1972 activity, the corona was quite bright at 1.5 $R_\odot$, in comparison with the adjacent years 1971 and 1973.

- Most of the bright streamers were concentrated at low latitudes, near the plane of the equator (in contrast, during 1974, the brightest streamers appeared at latitudes as high as 50-60°).

At these particular isophotal contours, the overall structures do not appear to be very stable from rotation to rotation, especially when compared to features in the southern hemisphere in 1973 and the overall corona of 1974.

3.6 Use of the Synoptic Charts

One intent of the present synoptic charts is to permit comparison of the OSO-7 and Mauna Loa coronal observations with solar magnetic and chromospheric data presented in the same form -- in particular the Mt. Wilson synoptic maps, the *Cartes Synoptiques* from the Meudon Observatory, and the Hα synoptic charts prepared by P. McIntosh which have been published in *Solar-Geophysical Data*, 348, Part I, August 1973, (U.S. Department of Commerce, Boulder, Colorado 80302, U.S.A.) and later issues.

Comparisons should be made with some reserve, however, because implicit in our synoptic charts is the assumption that the structure of the white-light corona is reasonably stable over the time period of 7 days or more and that the coronal intensity distribution at both limb passages is indeed representative of what it would be near central meridian. On the basis of several studies of the larger coronal structures [Bohlin, 1970a, 1970b; Hansen *et al.*, 1972] where it was found that they slowly evolve over a period of several months, this seems to be a reasonably valid approximation.

However, it is now known that the sun's corona frequently undergoes abrupt transient changes, whose time scale is hours or less, corresponding to plane-of-sky expulsion speeds of 100-1000 km/sec.

3.7 Coronal Transients

A list of white light coronal transients observed during this period is given in Section II-5. These disturbances usually manifest themselves in the observations between 3 and 10 $R_\odot$ as outward-moving plasma clouds, rapid brightenings or structural changes in the corona [Tousey *et al.*, 1974; Gosling *et al.*, 1974]. Included are several coronal brightenings which may be classed as fast evolution, since the time scale was comparatively long and since the events did not clearly consist of outward expulsions of material through the corona. In several instances depletions in the inner corona were observed at Mauna Loa simultaneously with or just preceding the outward moving plasma clouds observed by NRL. These events have been described by Koomen *et al.*, [1974], Stewart *et al.*, [1974a, 1974b] and Hansen *et al.*, [1974].

In one instance, material in the low corona was apparently transferred from one structure to another at higher latitude, accompanied by a green line coronal "whip", described by Wagner *et al.*, [1974].

In some cases the coronal changes were found to be temporary. Some appeared to be homologous, for example the flare-spray events of 11 January 1973 with accompanying plasma expulsions. On 14/15 May 1971 a large coronal streamer observed in the low corona by HAO reformed in the same gross configuration within 24 hours of the expulsion [Gergely and Kundu, 1974]. However, some of the transient disturbances apparently produced permanent, evolutionary changes.

In addition to outward-moving transients which take place in a matter of hours, OSO-7 has observed the rapid brightening and fading of individual streamers on a time scale of a day or two, faster than can be expected from the effects of solar rotation alone. An example is the sudden appearance of a very bright SE streamer on 21 October 1972. At low heights in the corona, sudden brightenings have also been observed by HAO in corona directly over active regions.

Various estimates put the frequency of major depletions of the inner corona at several per month [Hansen *et al.*, 1974] and disruptions of the outer corona at 10 or more per month [Tousey *et al.*, 1974; Gosling *et al.*, 1974].

4. Summary

We present in this report synoptic observations of the white light corona from 1.1 to 10 $R_\odot$ in several formats, together with daily disk observations of the extreme ultraviolet.

Because the three-dimensional corona is recorded as a two-dimensional structure in the plane of the sky, because of the possibility of rapid coronal rearrangements, and because even fast transients

may leave long-term evolutionary changes in the corona, the isophotal contours cannot be a totally accurate representation of the structure which is projected toward the earth seven days from the time of observation. By the same token they cannot represent with complete accuracy the coronal structures which overlie Hα and other solar features presented on synoptic maps made from observations of the solar surface. However, our observations show that, while the corona has dynamic and everchanging features, there is also a stable large-scale structure, slowly evolving over periods of many months, which can be studied in connection with solar surface features and interplanetary phenomena.

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Because complex orbiting experiments are the work of so many individuals, it is quite impractical to list all those who made a key contribution to the orbital data presented here. However, it is appropriate to note that the instruments and data reduction of the NRL OSO-7 were fully funded by NASA and of HAO by NSF. All phases of the spacecraft were managed by the NASA OSO Project Office under John Thole and Robert Pickard.

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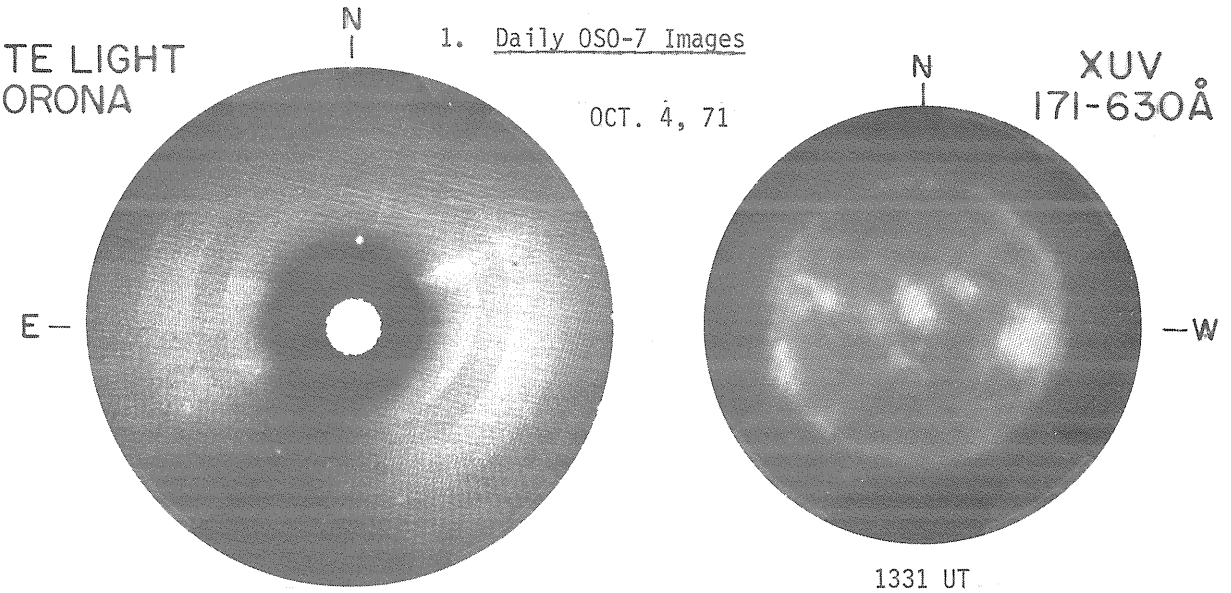
NEWKIRK, G., Jr. and J. D. BOHLIN	1965	Coronascope II Observation of the White Light Corona from a Stratospheric Balloon, *Ann. Astrophys.*, *28*, 234.
NORTON, R. H., J. E. GUNN, W. C. LIVINGSTON, G. A. NEWKIRK and H. ZIRIN	1967	Surveyor I Observations of the Solar Corona, *J. Geophys. Res.*, *72*, 815.
RIDDLE, A. C., E. TANDBERG-HANSSEN and R. T. HANSEN	1974	The Coronal Disturbance of 1972, August 12, *Solar Physics*, *35*, 171.
STEWART, R. T., M. K. MCCABE, M. J. KOOMEN, R. T. HANSEN and G. A. DULK	1974a	Observations of Coronal Disturbances from 1 to 9 $R_\odot$. I: First Event of 1973 January 11, *Solar Physics*, *36*, 203.
STEWART, R. T., R. A. HOWARD, S. F. HANSEN, T. GERGELY and M. KUNDU	1974b	Observations of Coronal Disturbances from 1 to 9 $R_\odot$. II: Second Event of 1973 January 11, *Solar Physics*, *36*, 219.
TOUSEY, R.	1965	Observations of the White-Light Corona by Rocket, *Ann. Astrophys.*, *28*, 600.
TOUSEY, R., R. A. HOWARD, and M. J. KOOMEN	1974	The Frequency and Nature of Coronal Transient Events Observed by OSO-7, Abstract of paper presented at the Solar Physics Division Meeting held 9-11 January 1974 at Honolulu, Hawaii, *Bull. A.A.S.*, *6*, No. 2, Part II, 295.
WAGNER, W. J., R. T. HANSEN and S. F. HANSEN	1974	Coronal Disturbances II: The Fast Rearrangement of Coronal Magnetic Fields, *Solar Physics*, *34*, 453.
WITHBROE, G. L., A. K. DUPREE, M.C.E. HUBER, R. W. NOYES, W. H. PARKINSON and E. M. REEVES	1971	Coronal Electron Density Maps for 7 March 1970 derived from MgX λ625 Spectroheliograms, *Solar Physics*, *21*, 272.
WLÉRICK, G. and J. AXTELL	1957	A New Instrument for Observing the Electron Corona, *Astrophys. J.*, *126*, 253.

1. Daily OSO-7 Images

WHITE LIGHT CORONA

XUV 171-630Å

OCT. 4, 71



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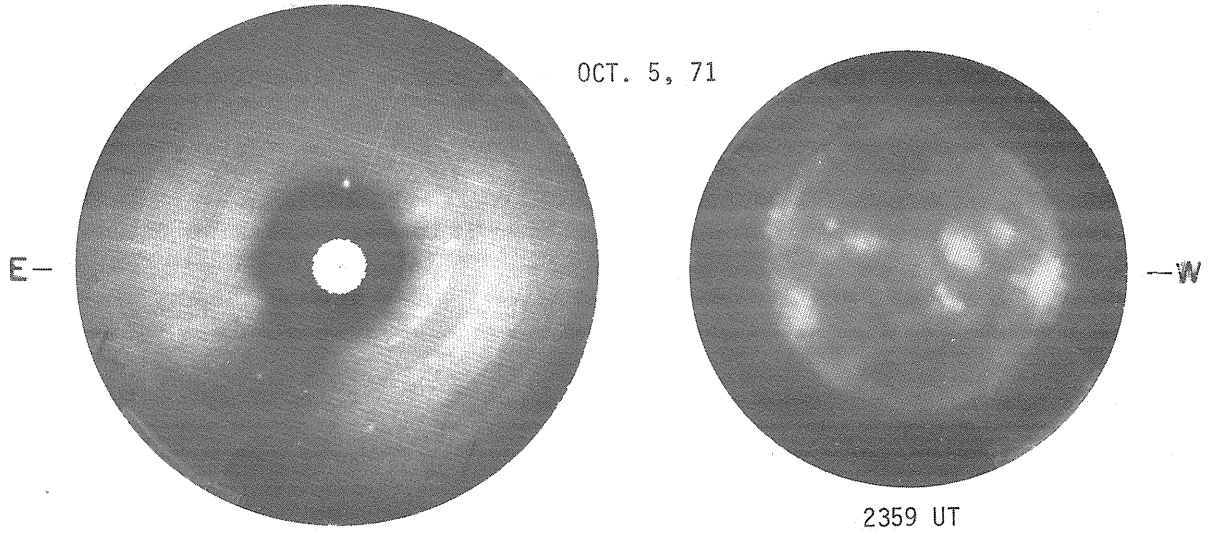
OCT. 5, 71



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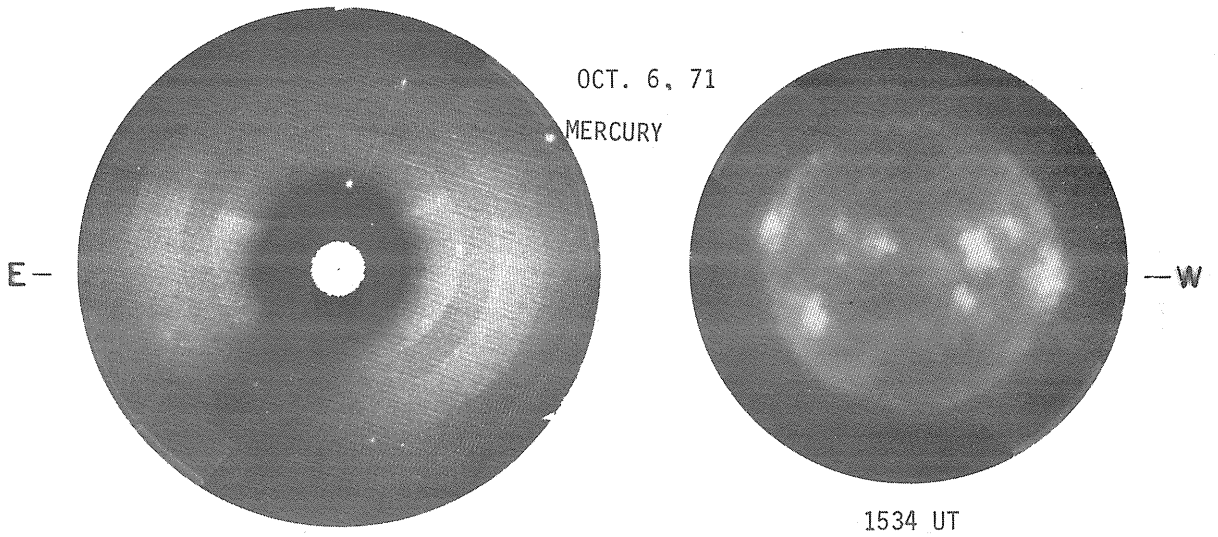

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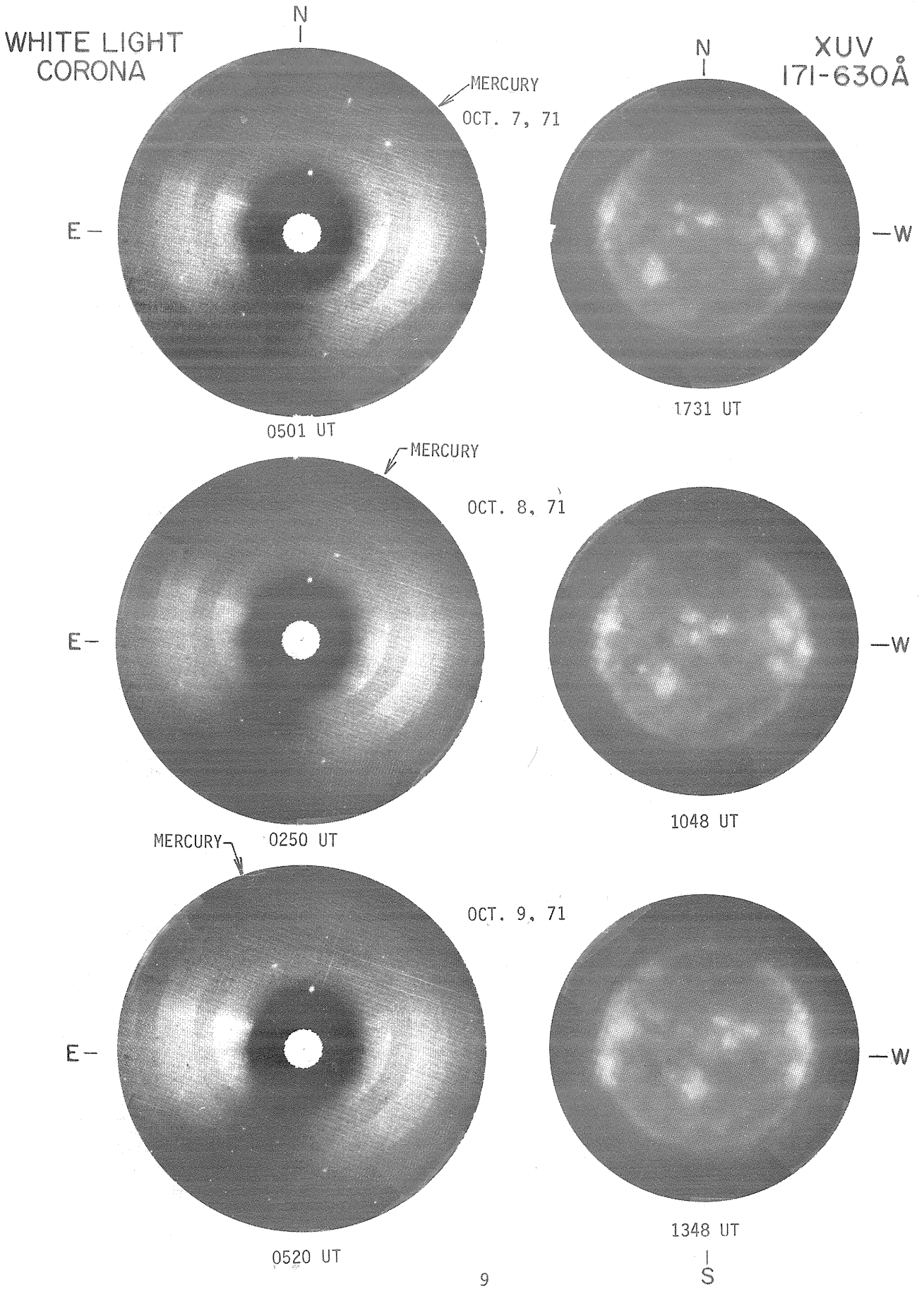
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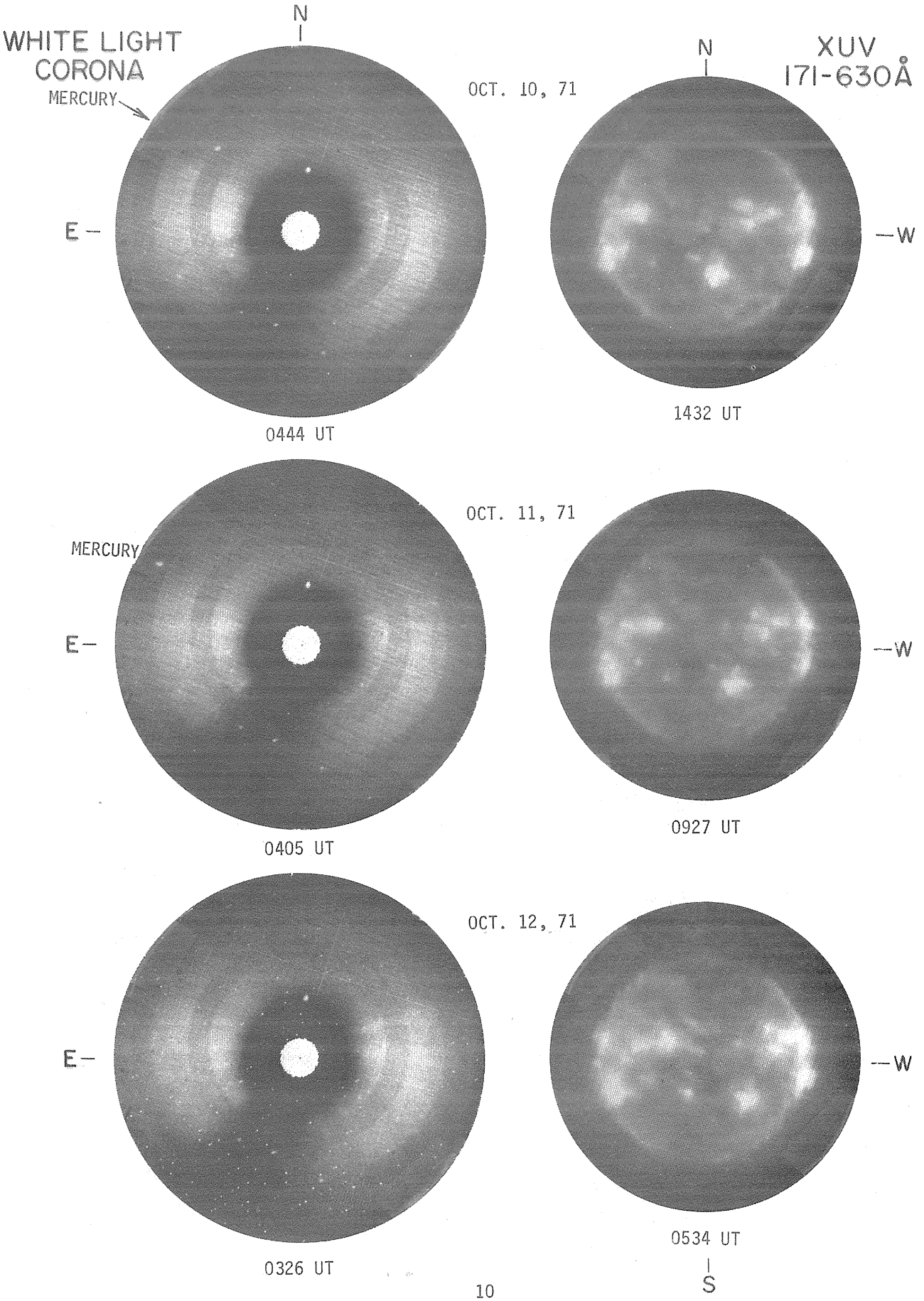
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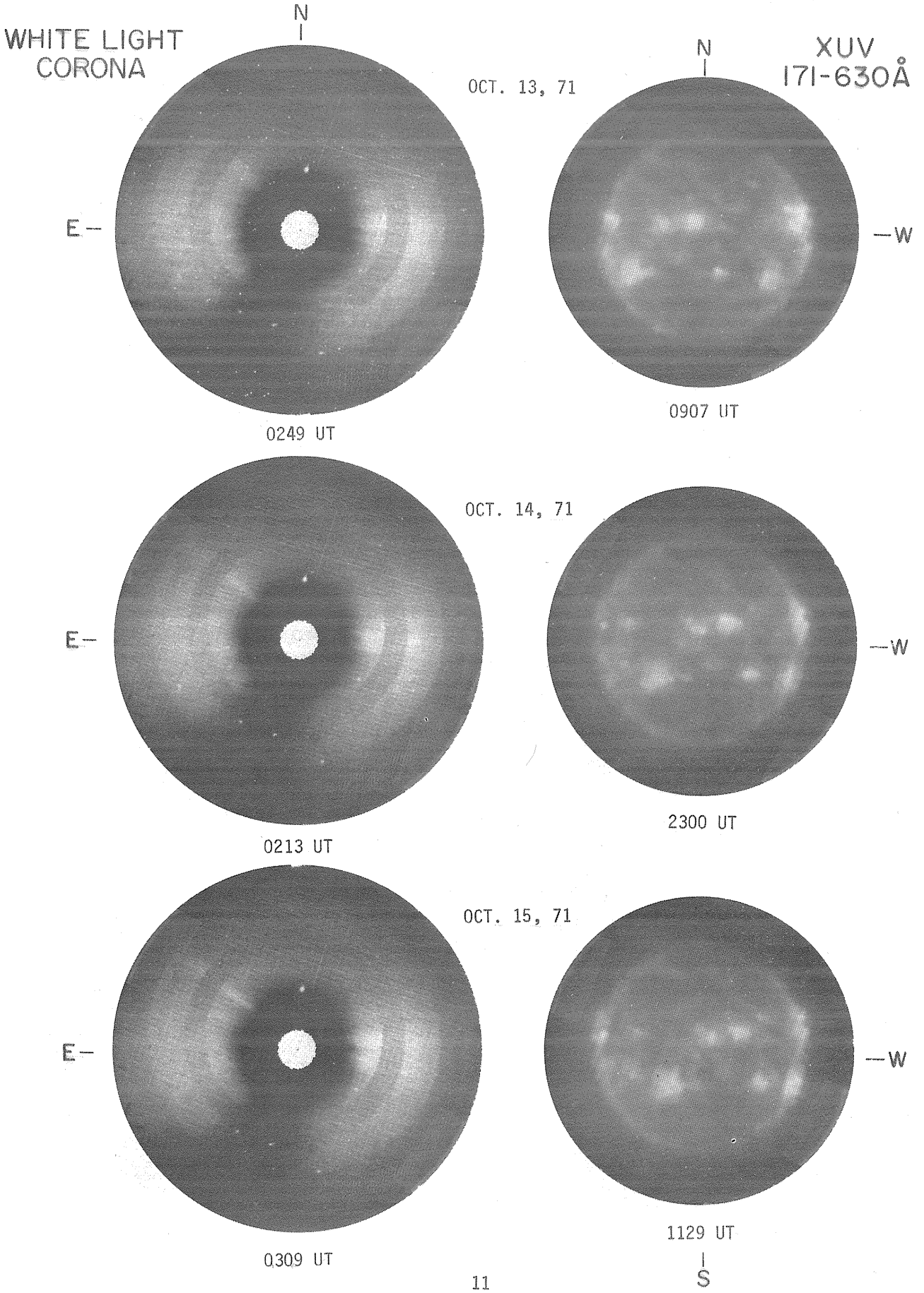
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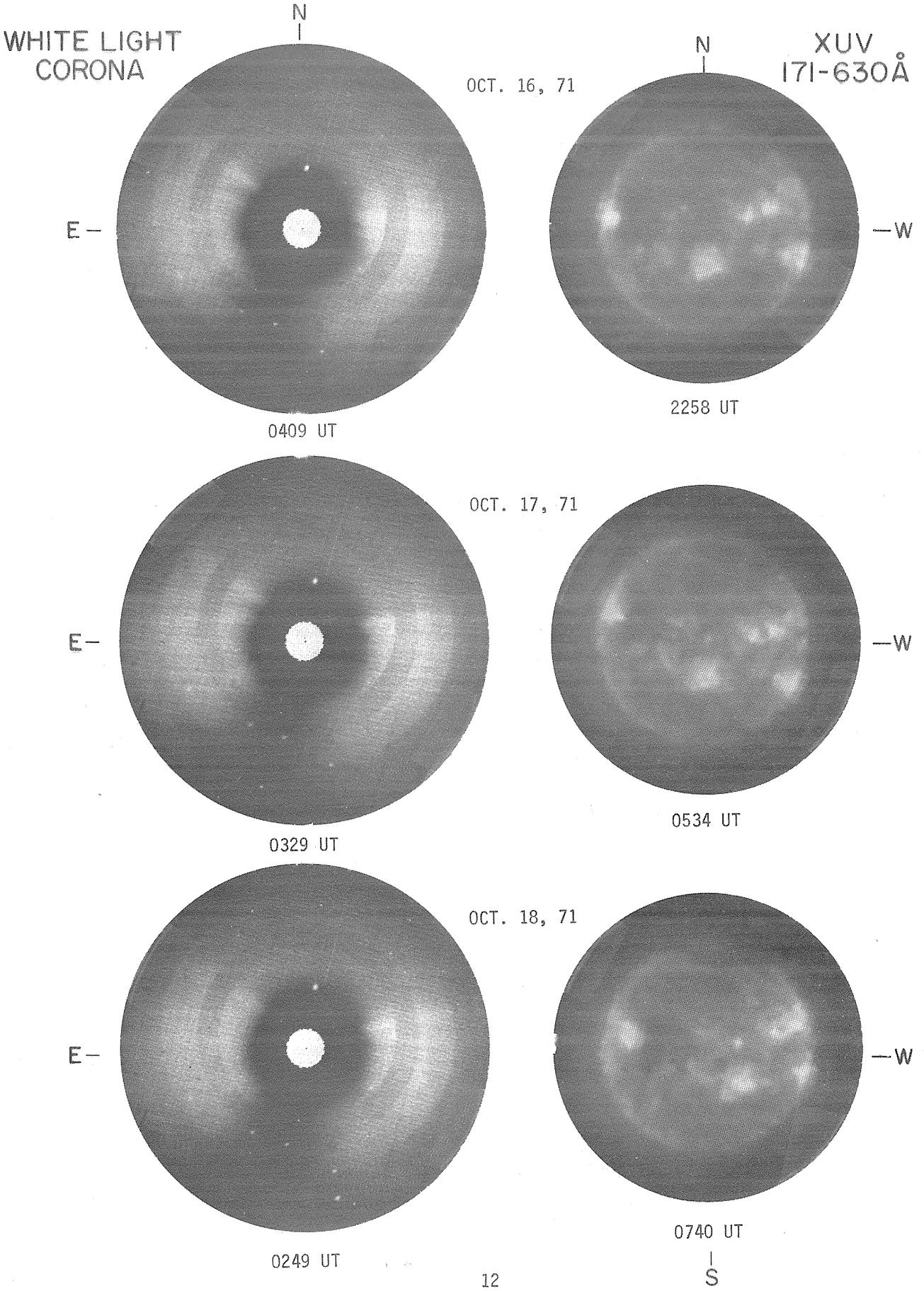
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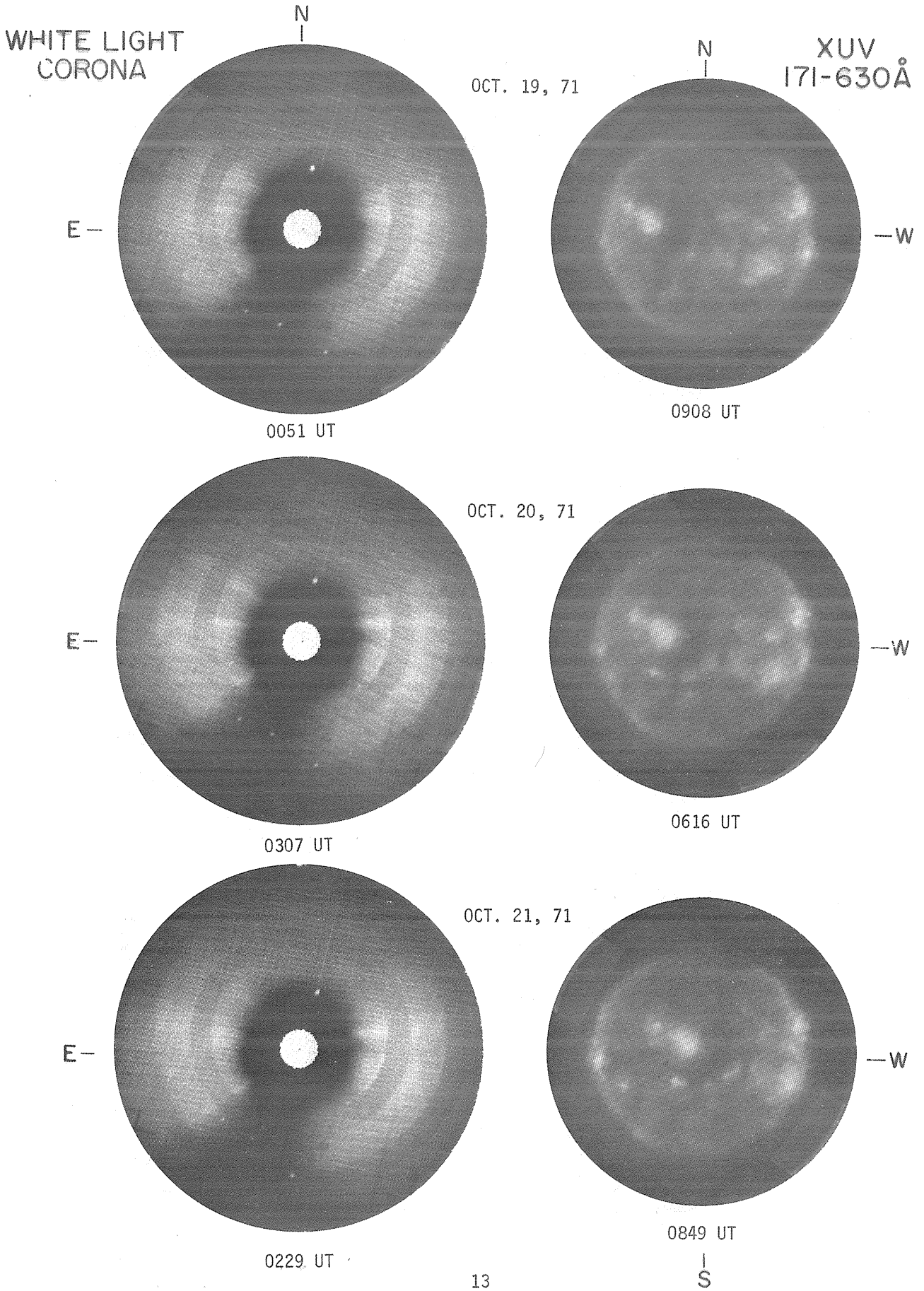
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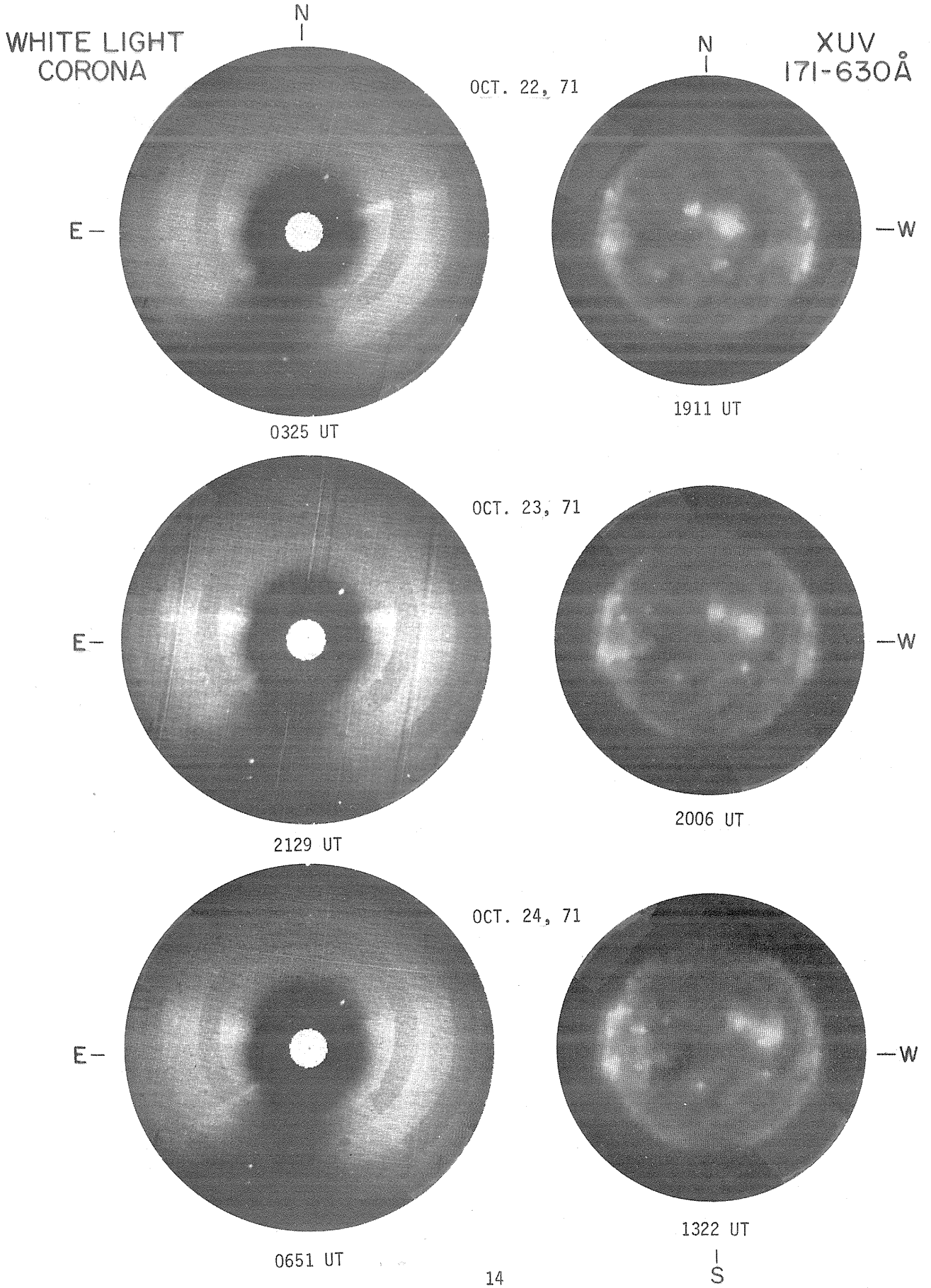
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WHITE LIGHT CORONA

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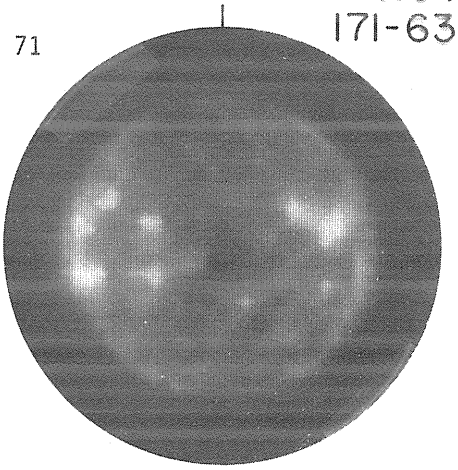
XUV 171-630Å

OCT. 25, 71



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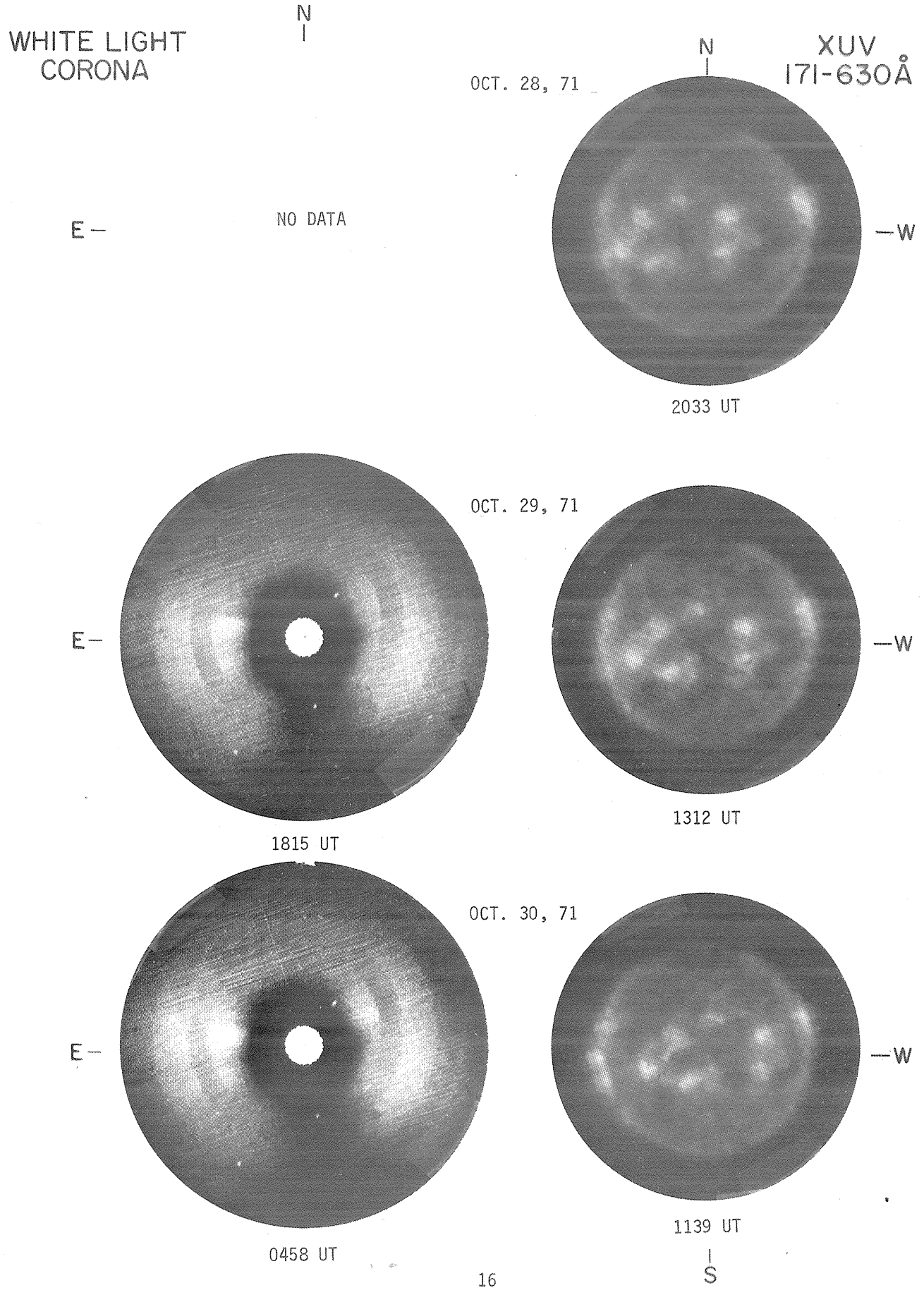
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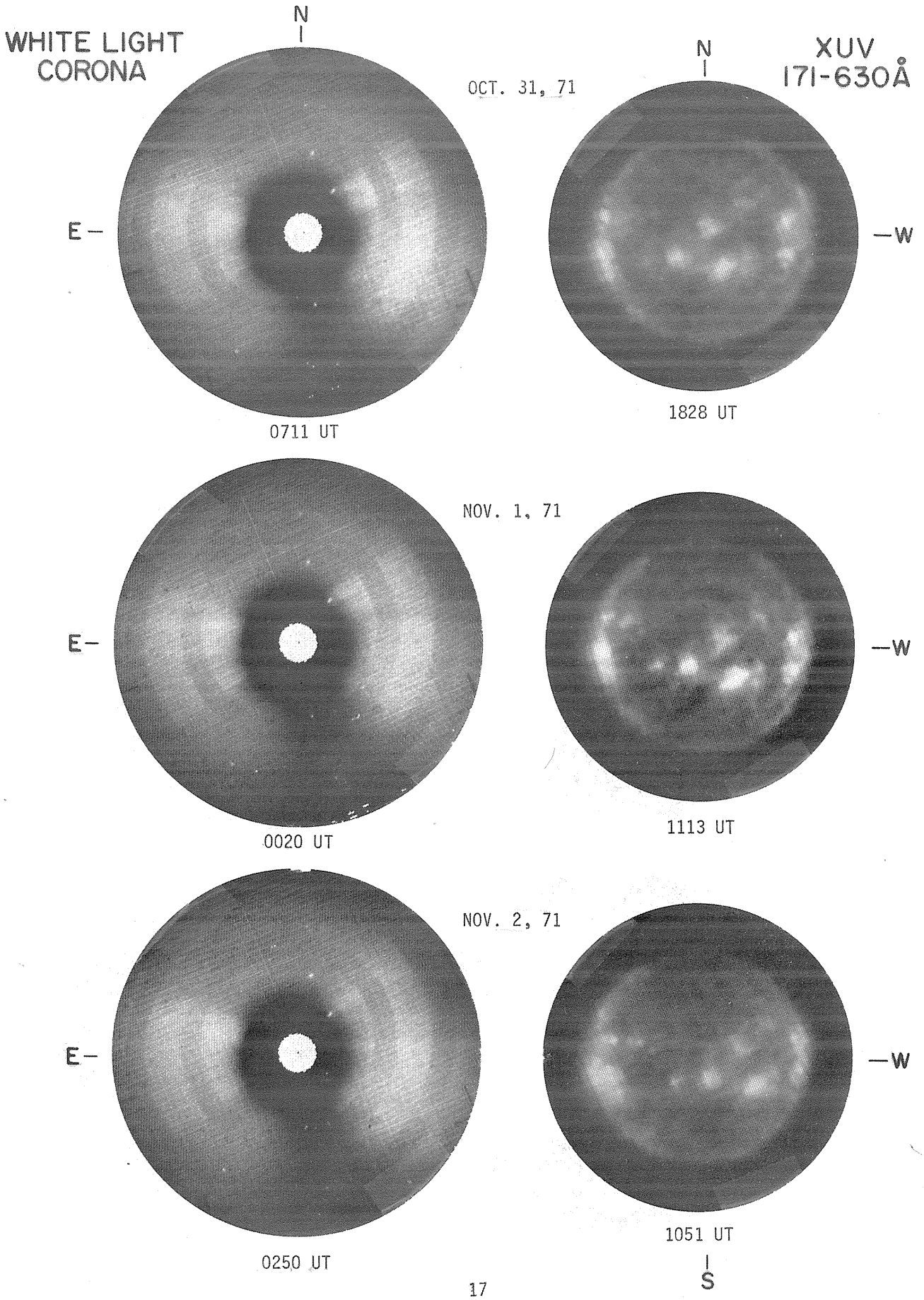
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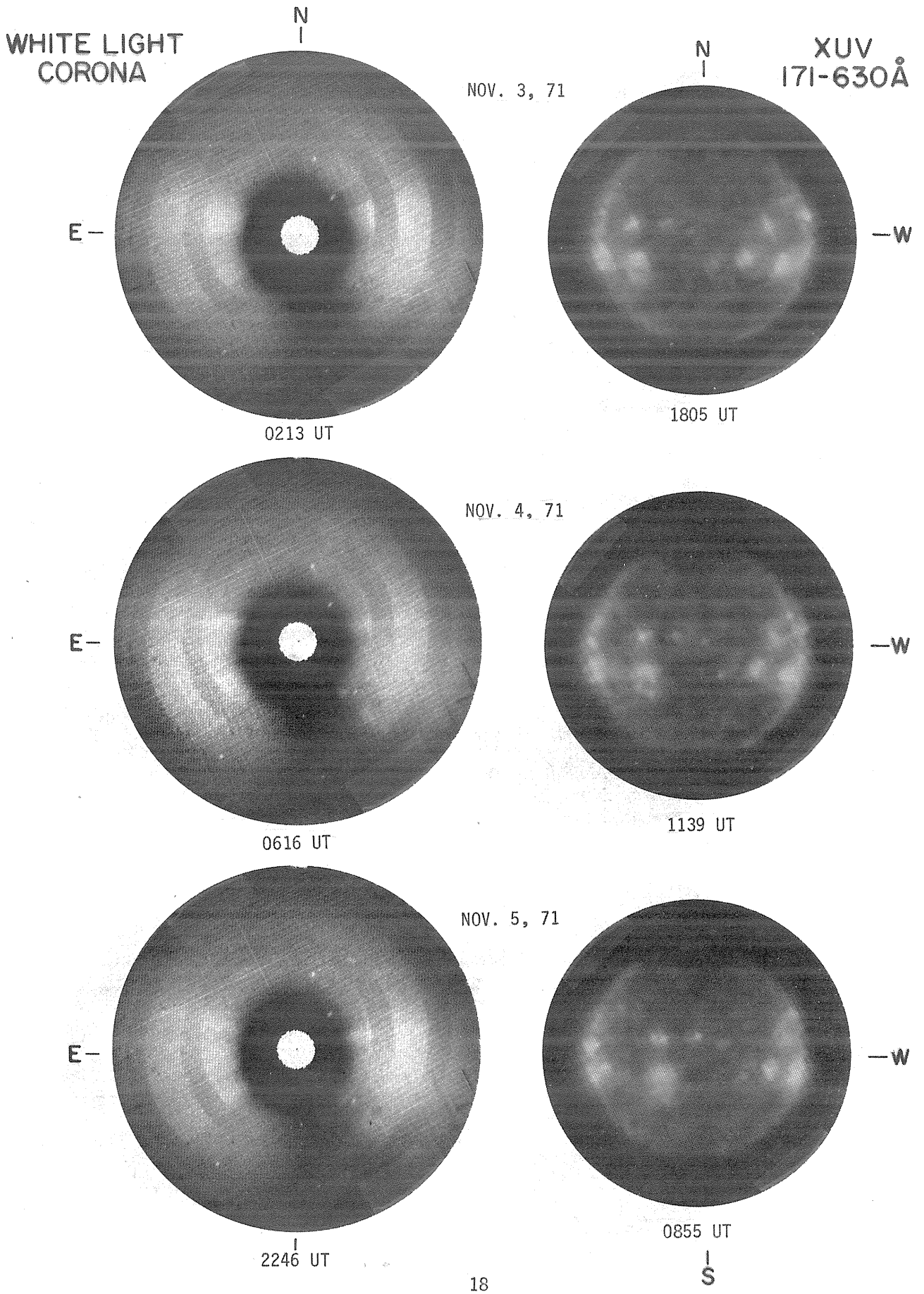
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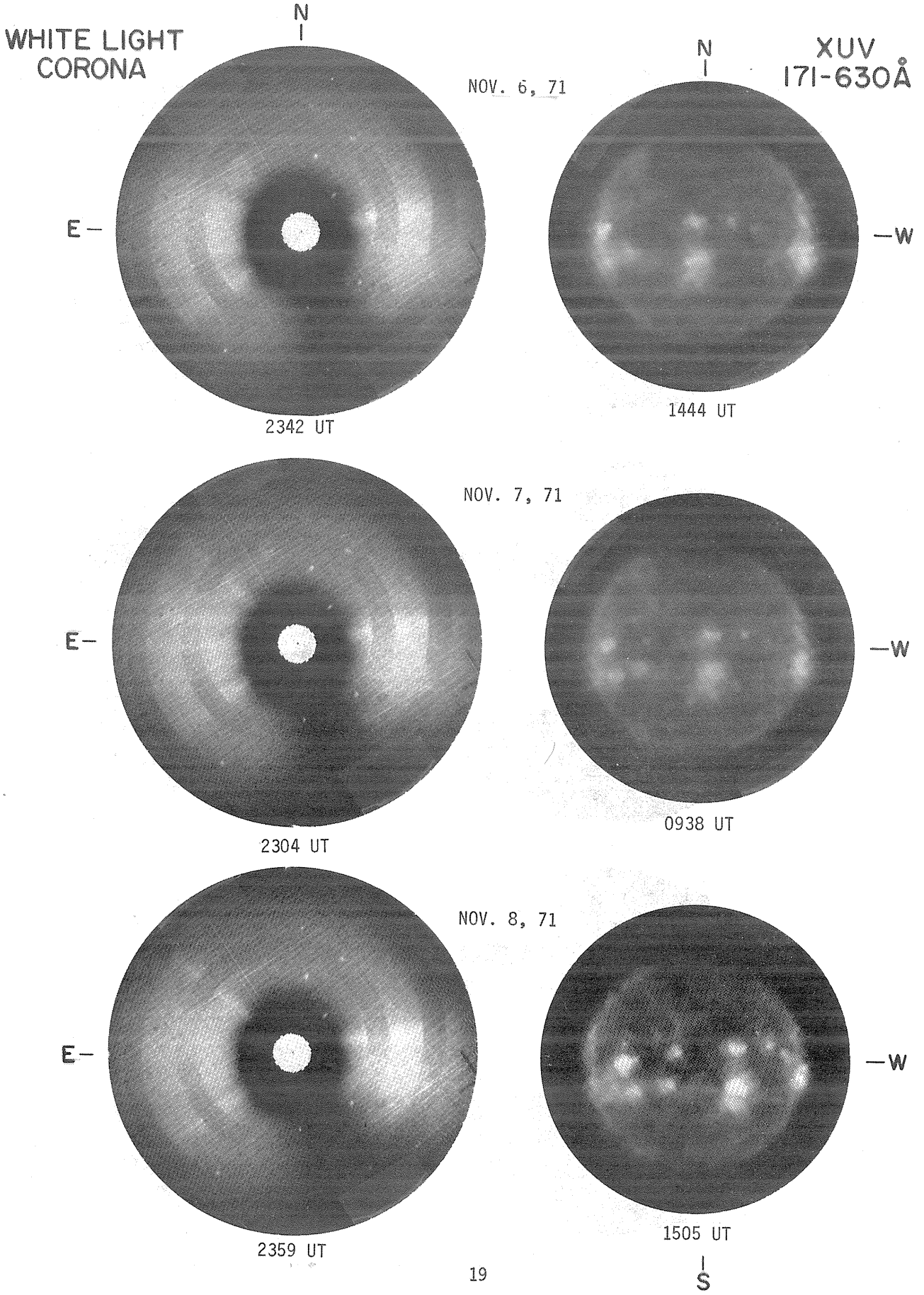
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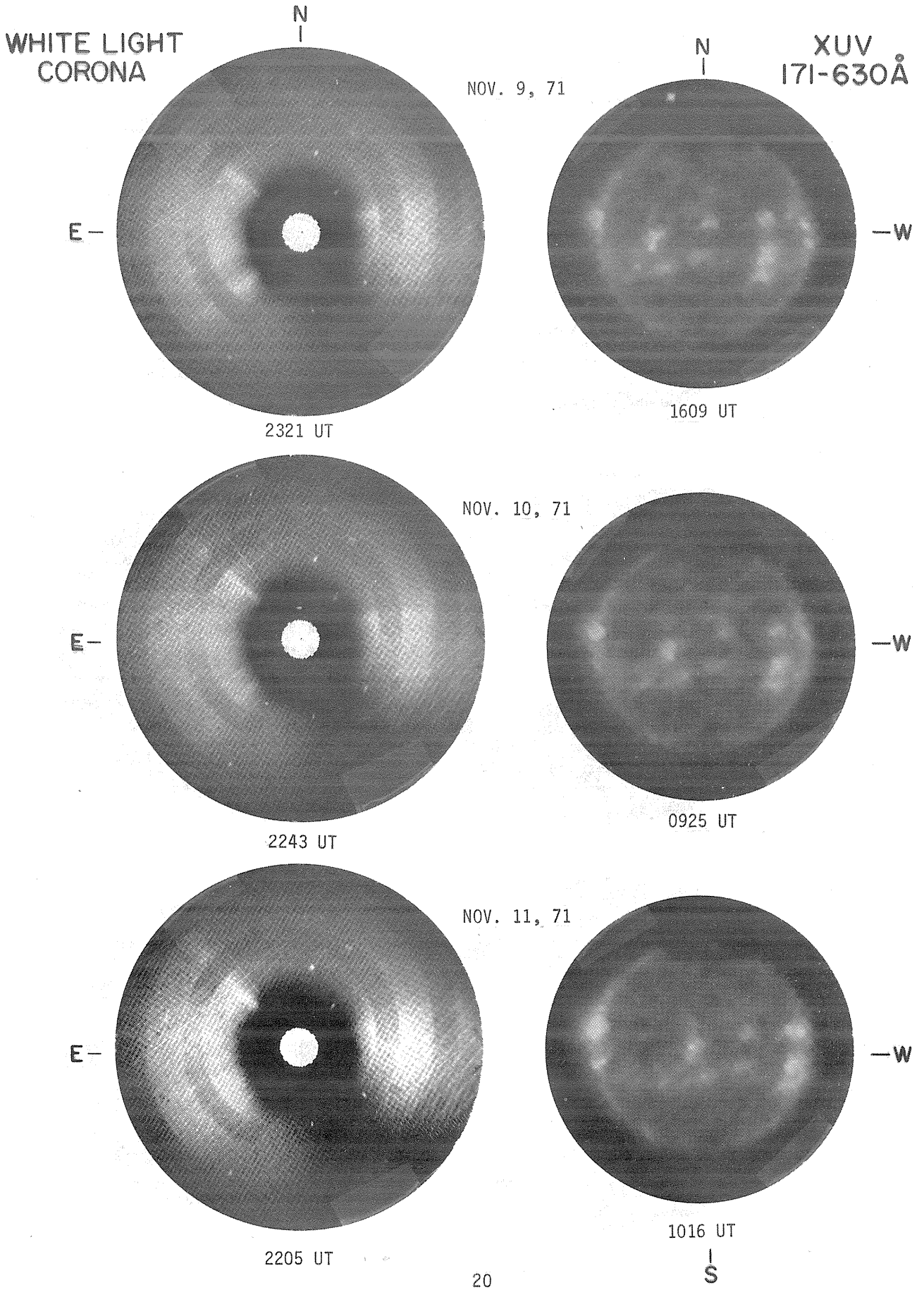
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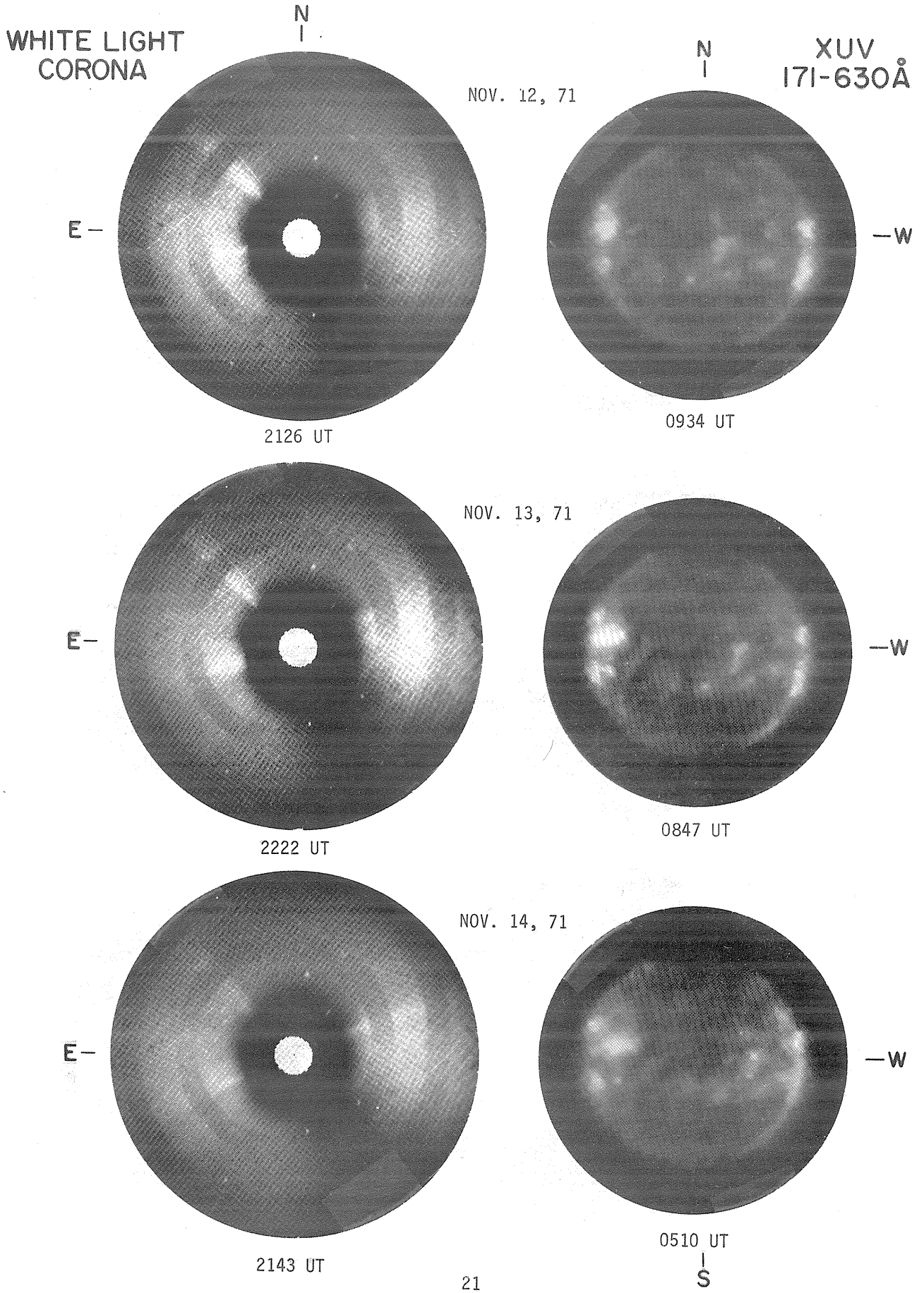
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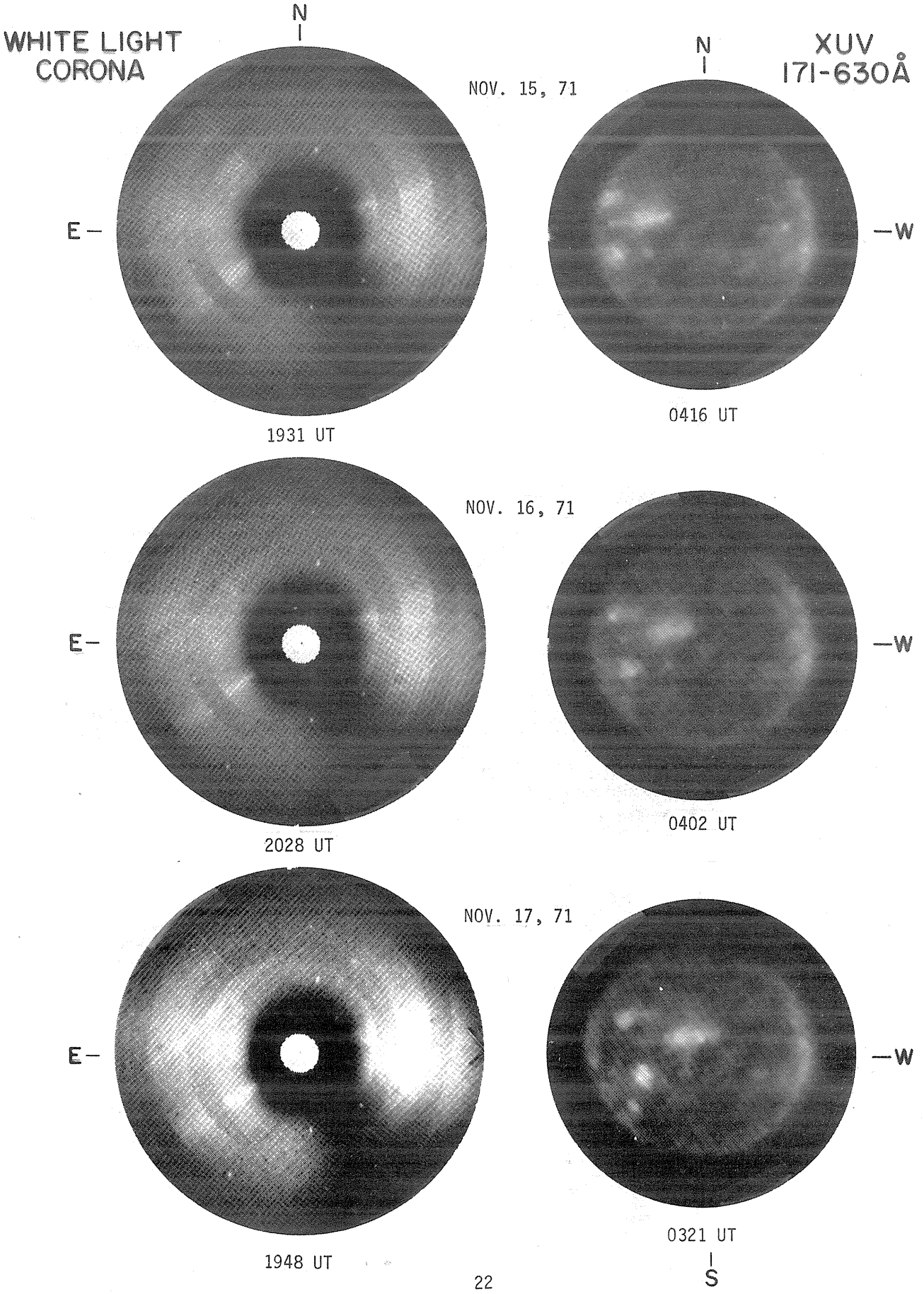
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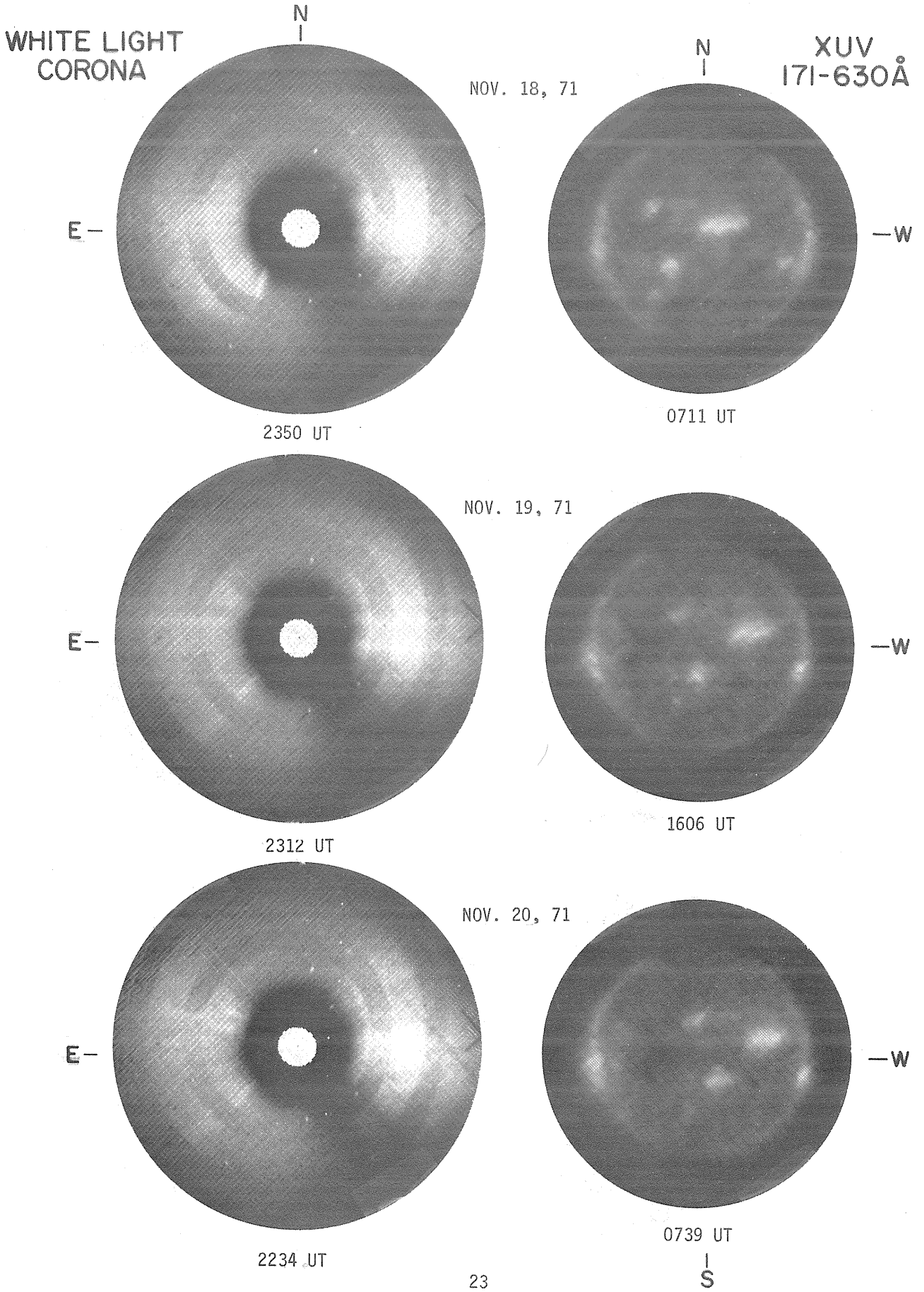
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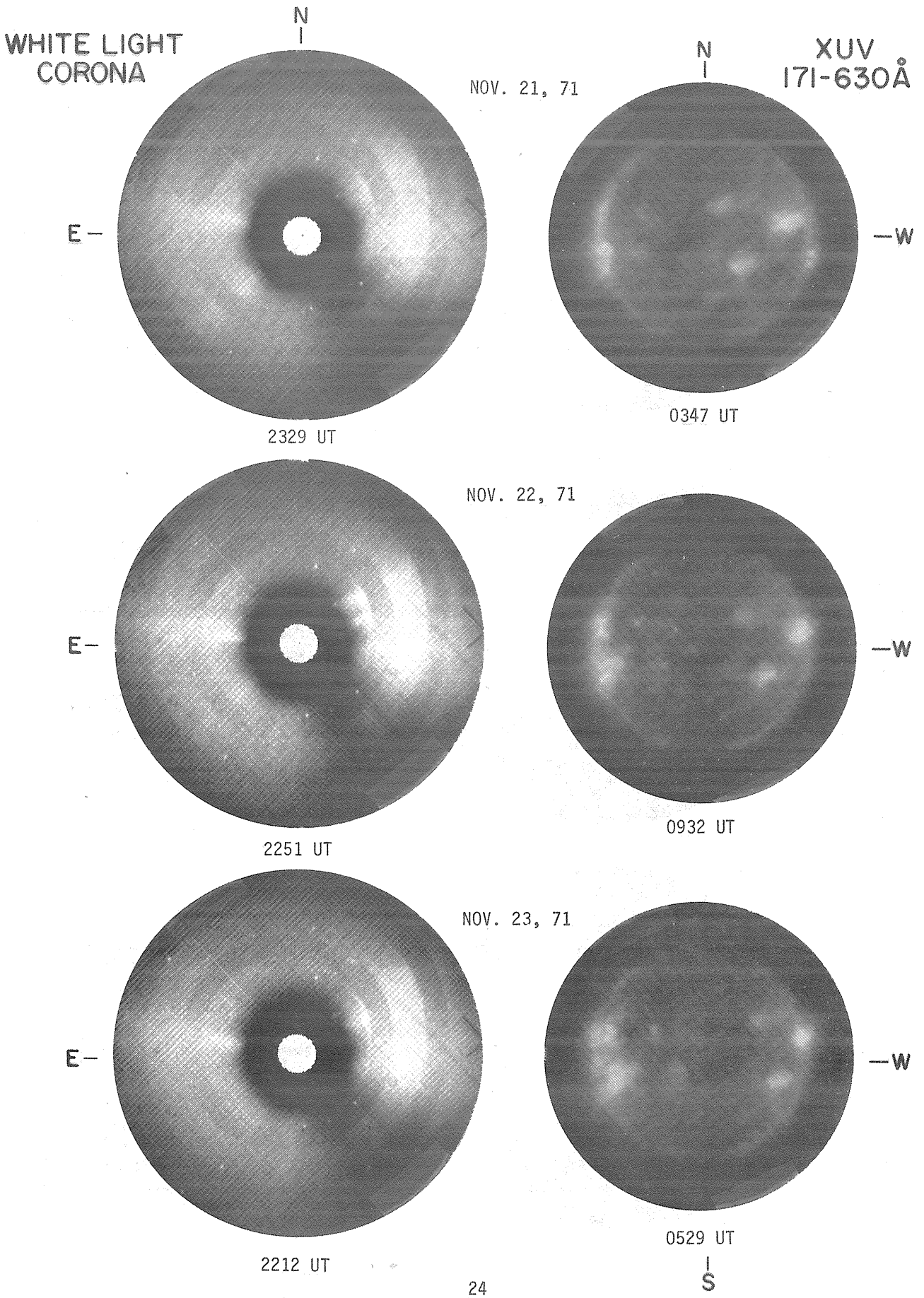
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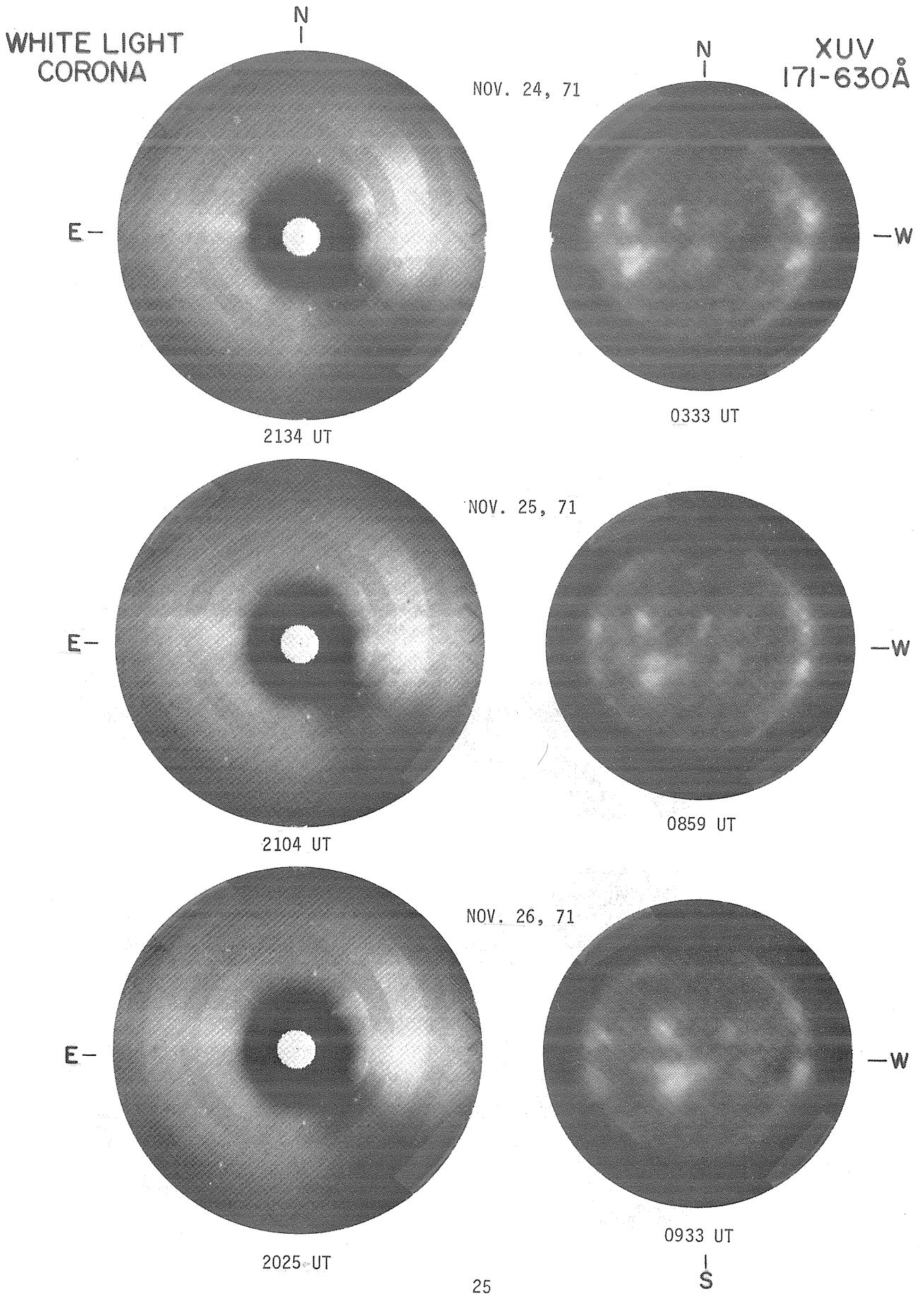
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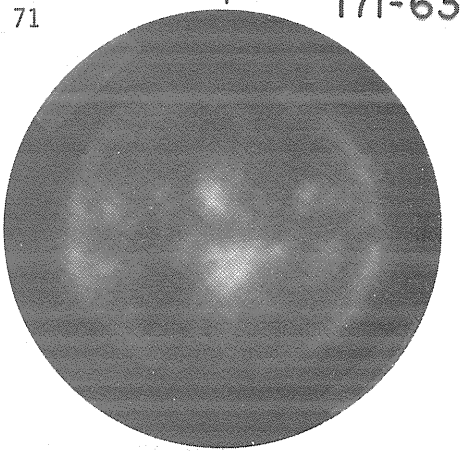

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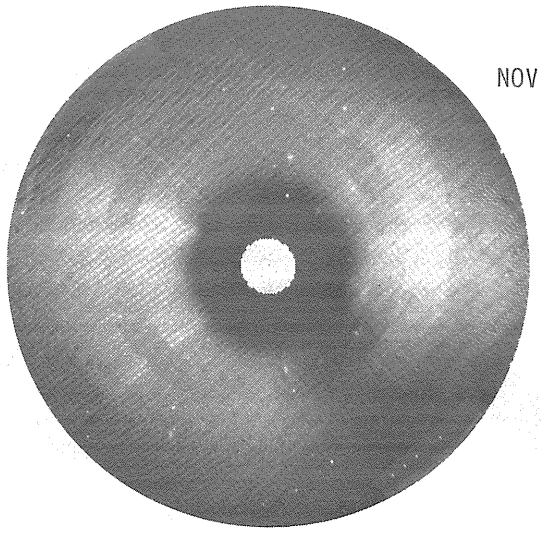

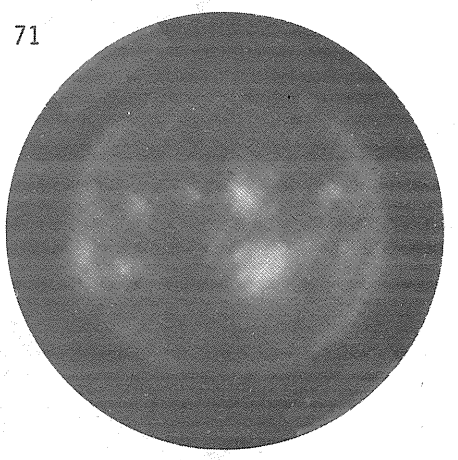

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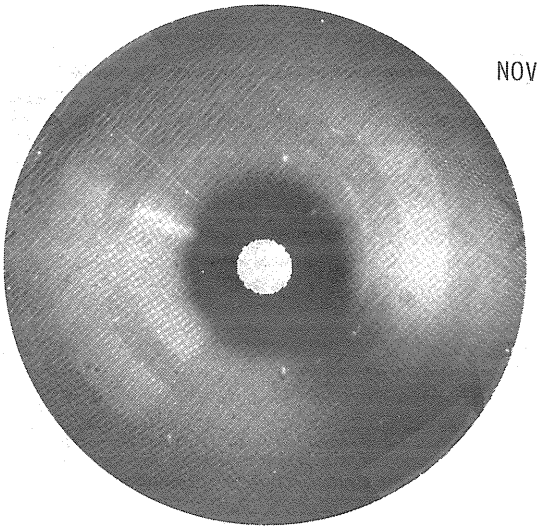

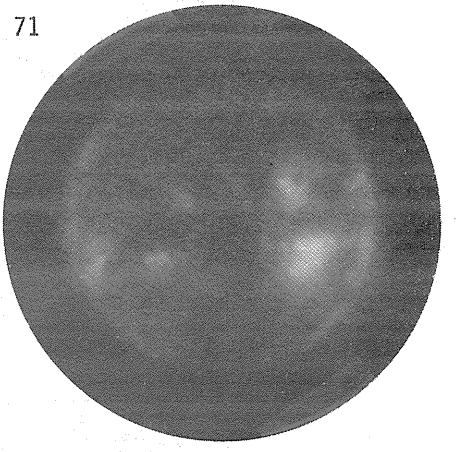

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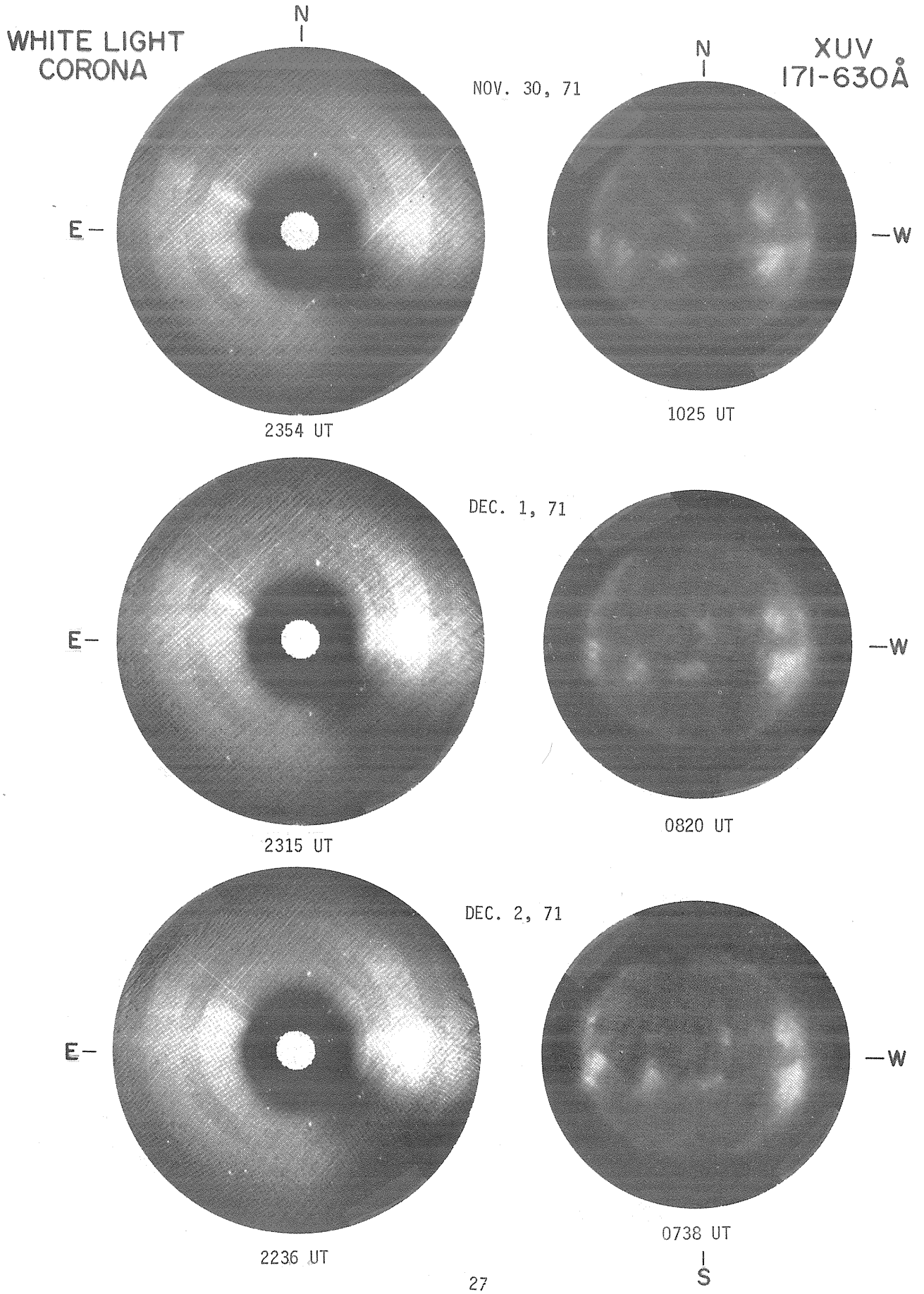
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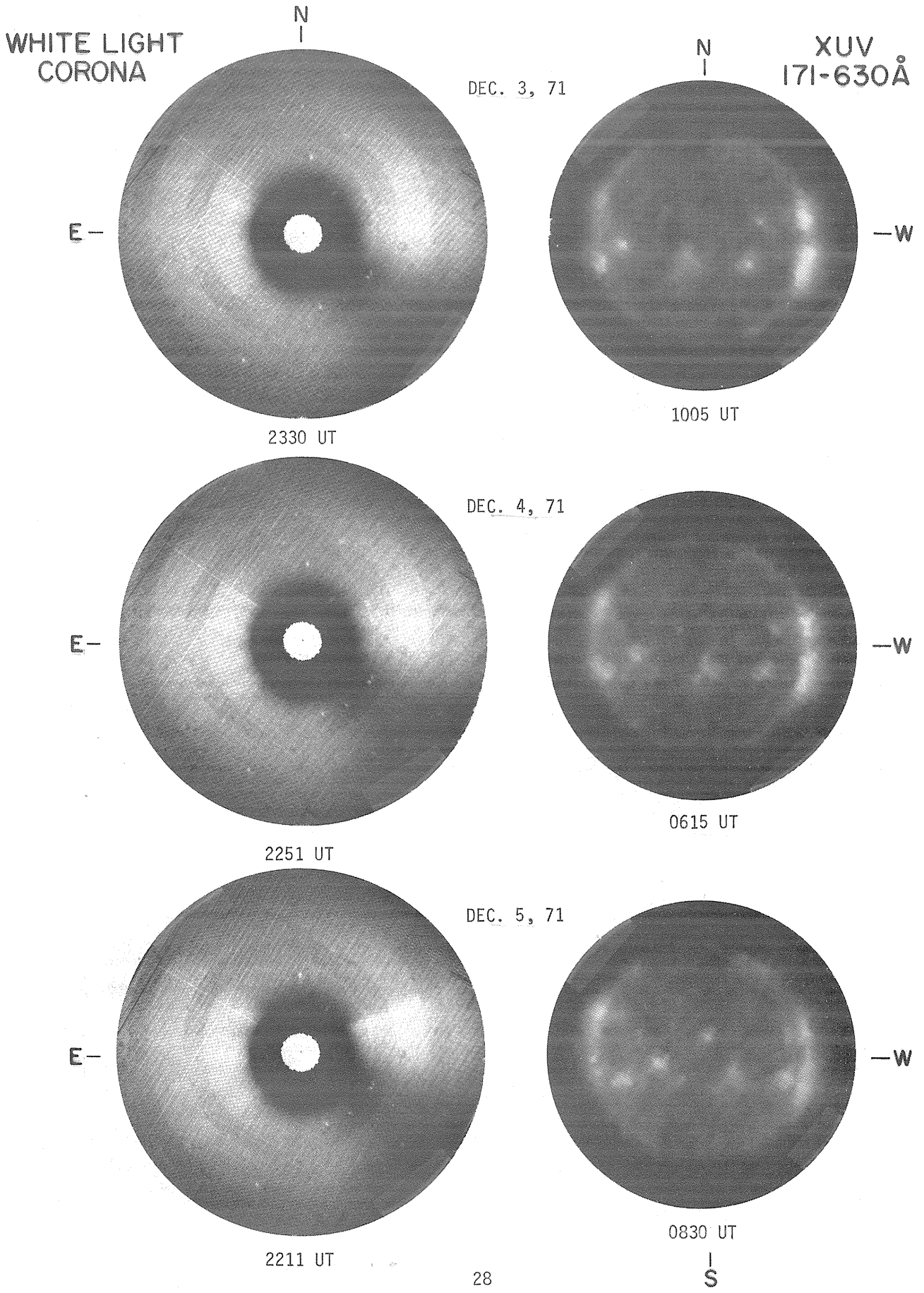
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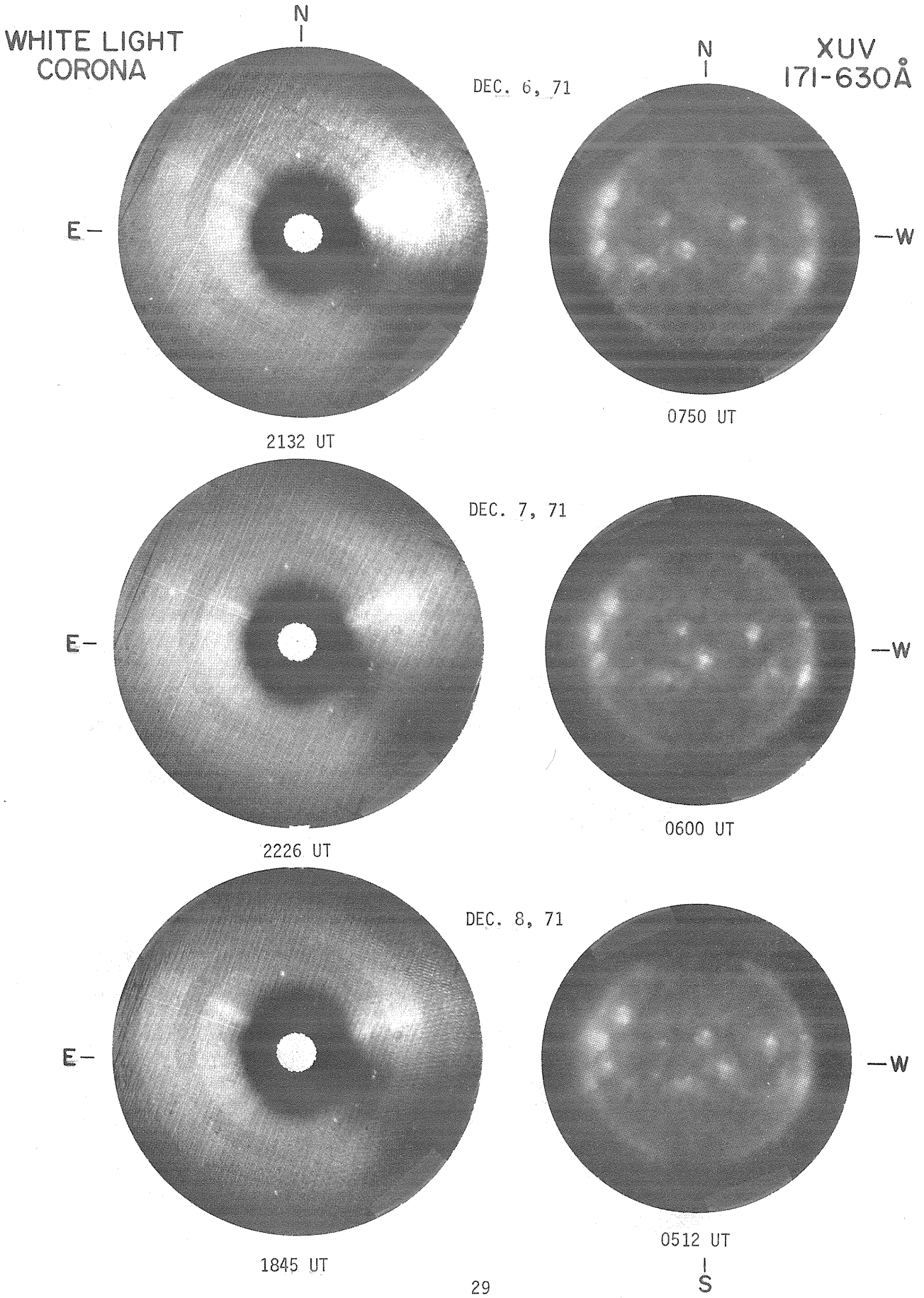
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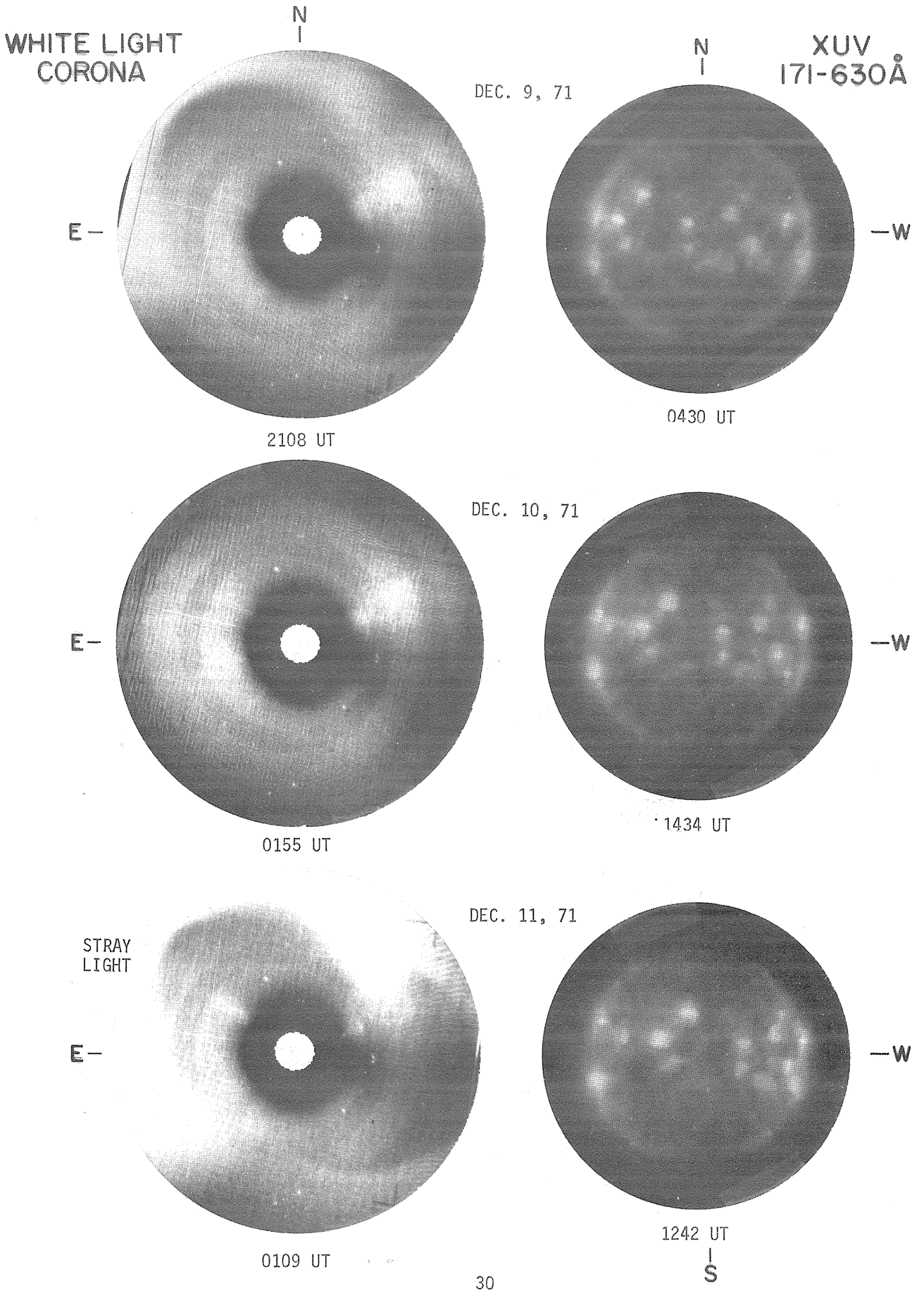
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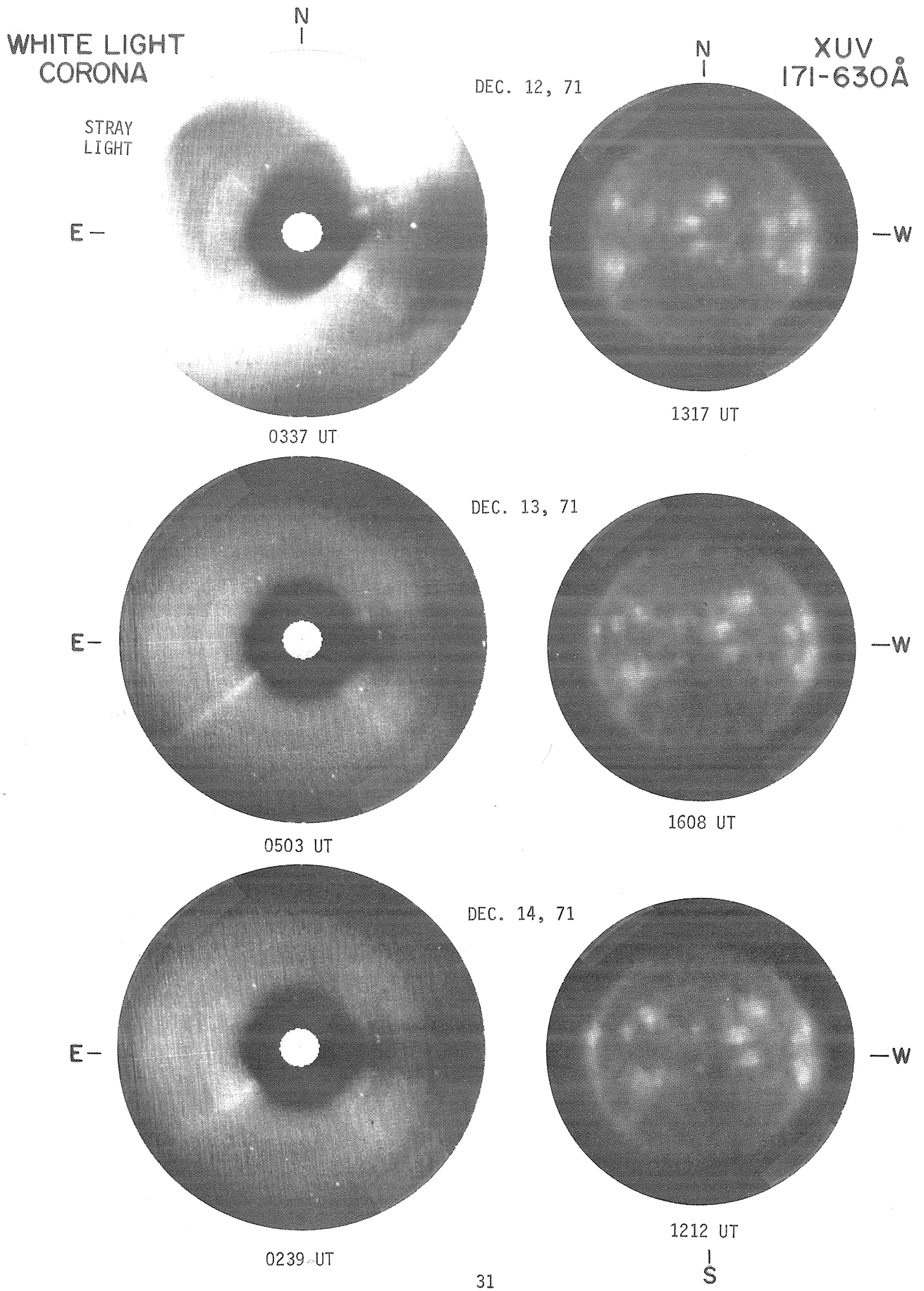
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WHITE LIGHT CORONA

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XUV 171-630Å

DEC. 15, 71

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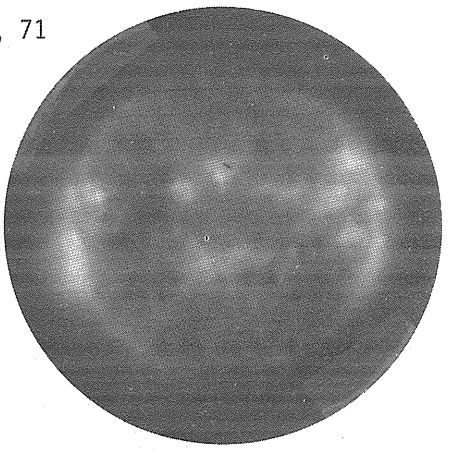

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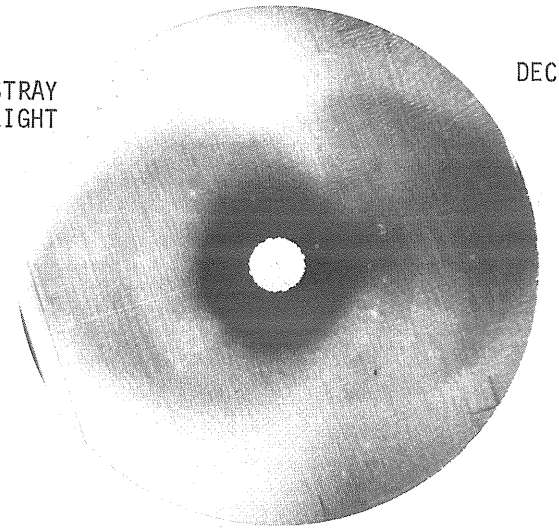

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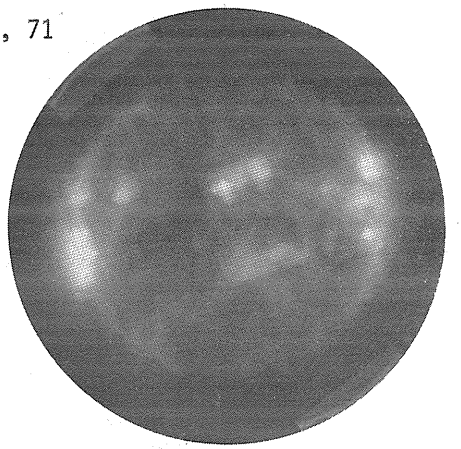

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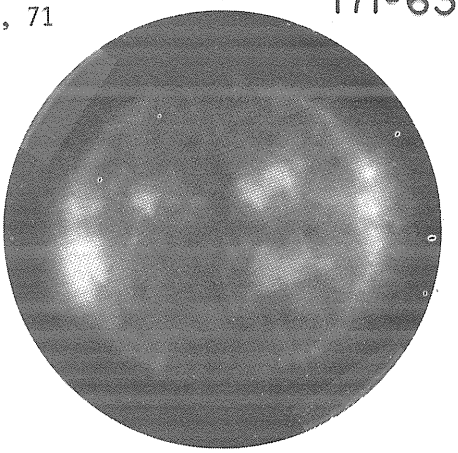

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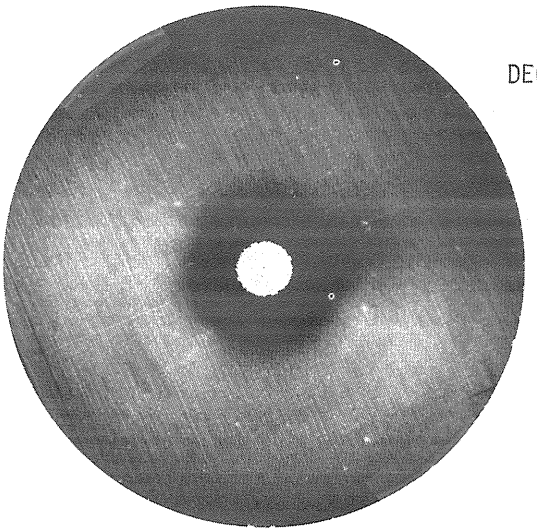

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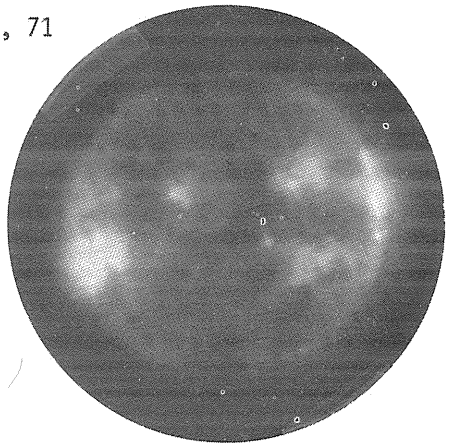

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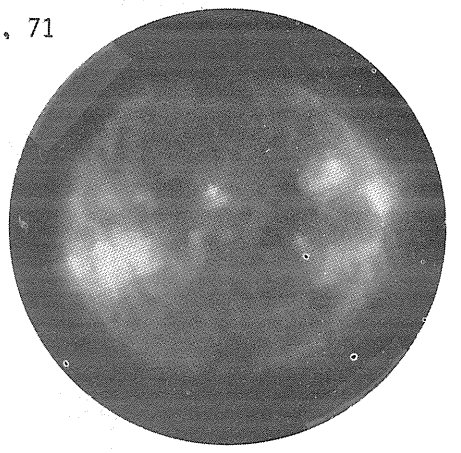

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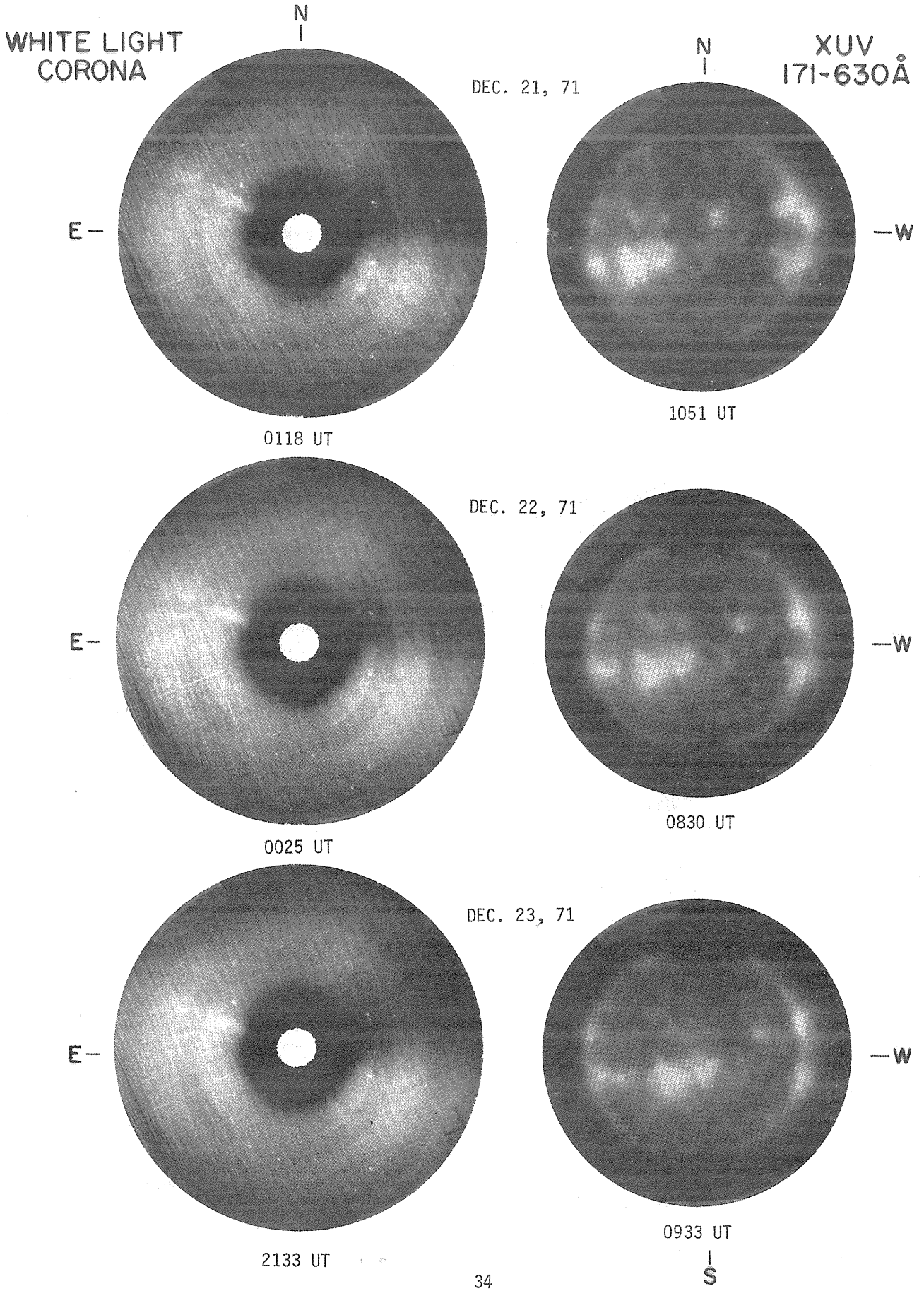
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0025 UT
0830 UT
DEC. 23, 71
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0933 UT
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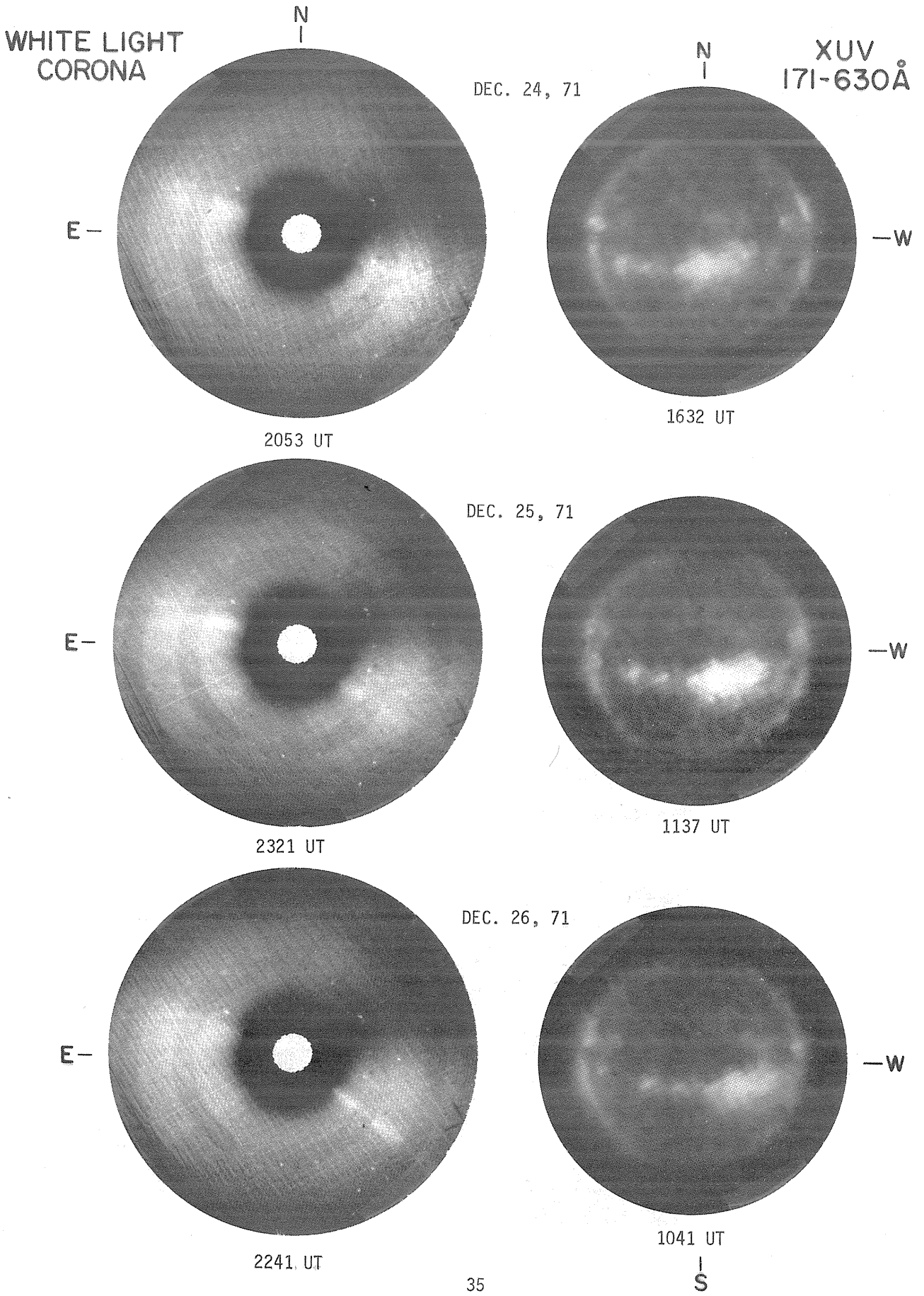
WHITE LIGHT
CORONA
N
XUV
171-630Å
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DEC. 24, 71
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2053 UT
1632 UT
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2321 UT
1137 UT
DEC. 26, 71
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1041 UT
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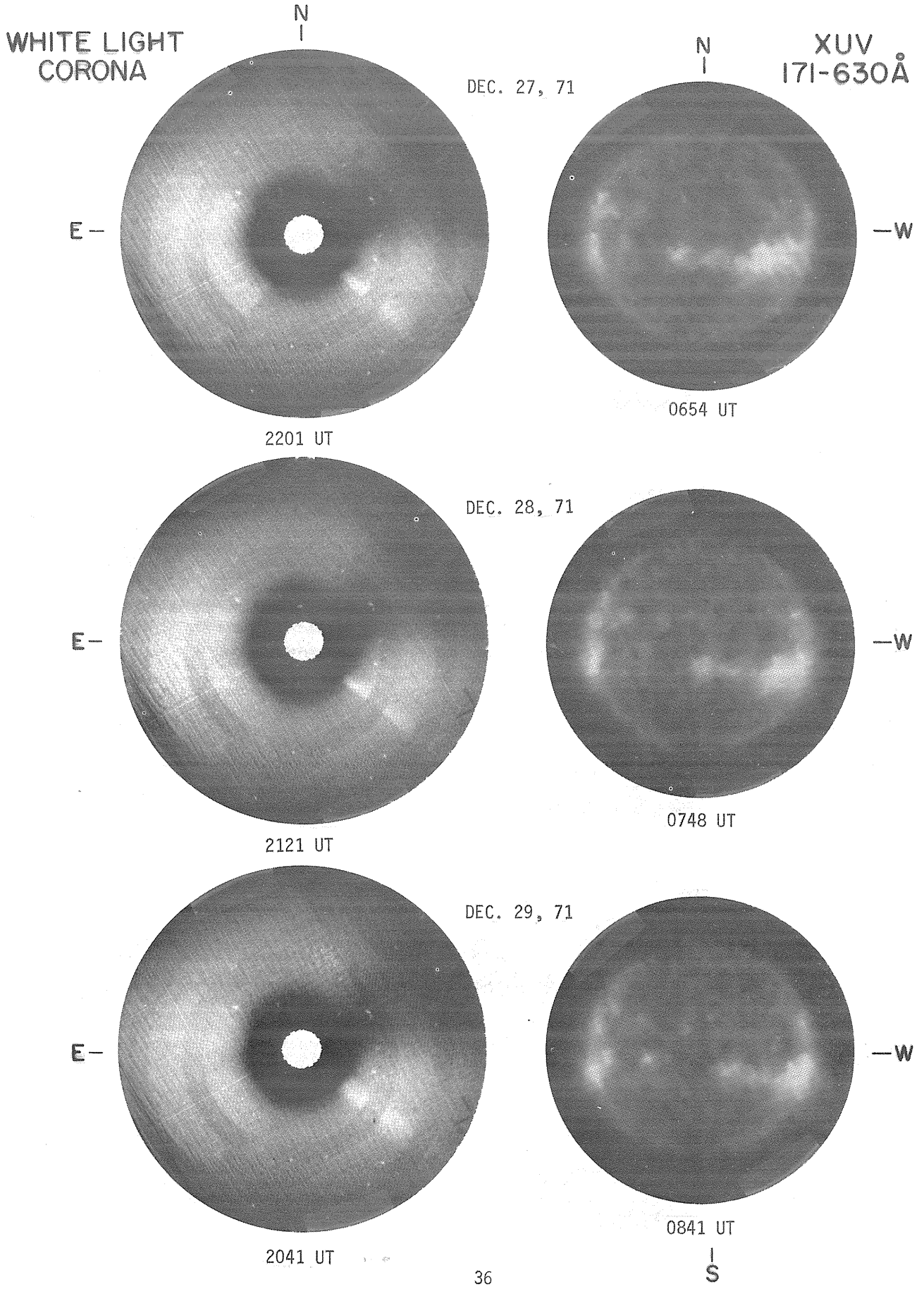
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DEC. 28, 71
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0748 UT
DEC. 29, 71
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0841 UT
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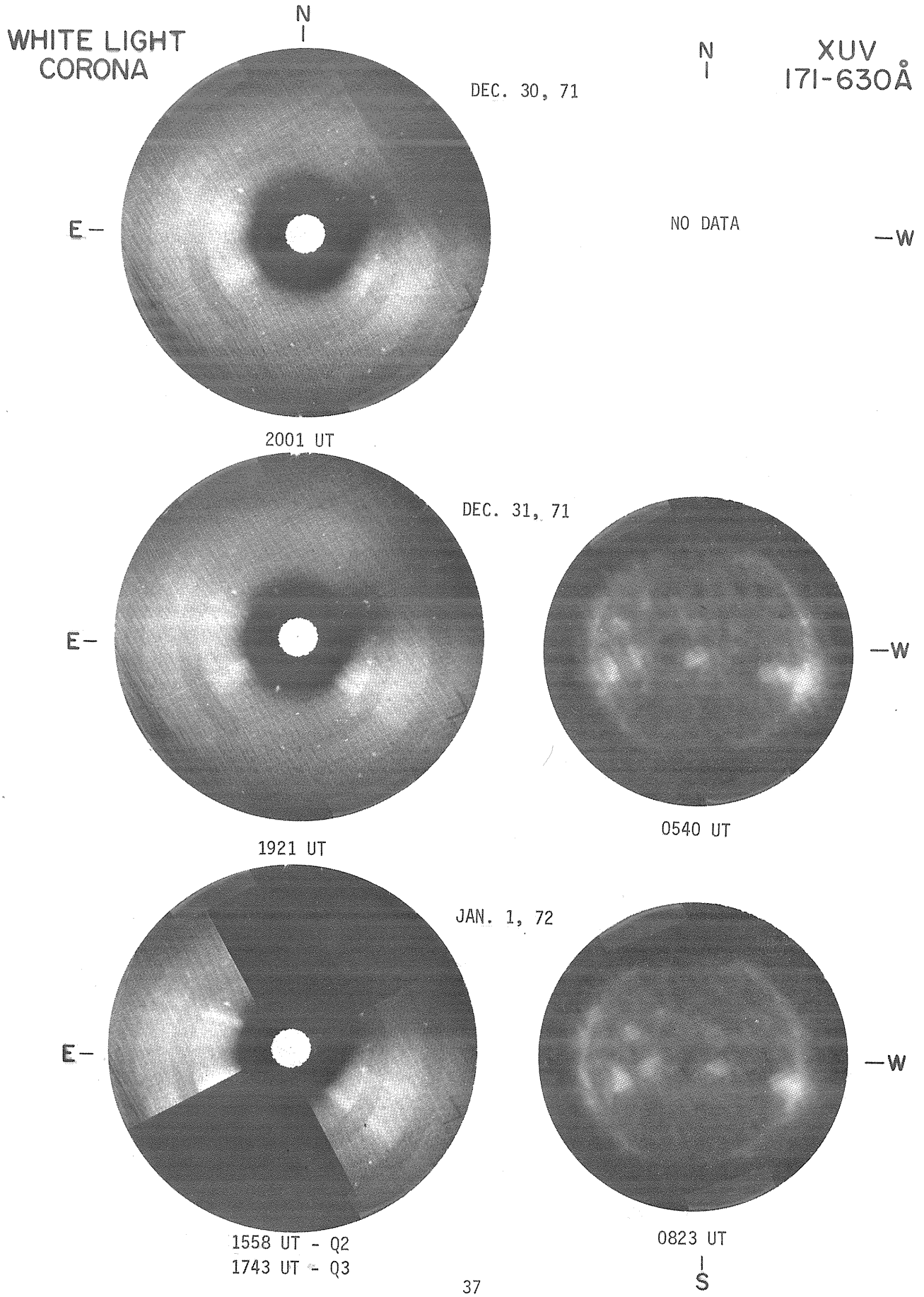
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DEC. 31, 71
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1921 UT
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1743 UT - Q3
0823 UT
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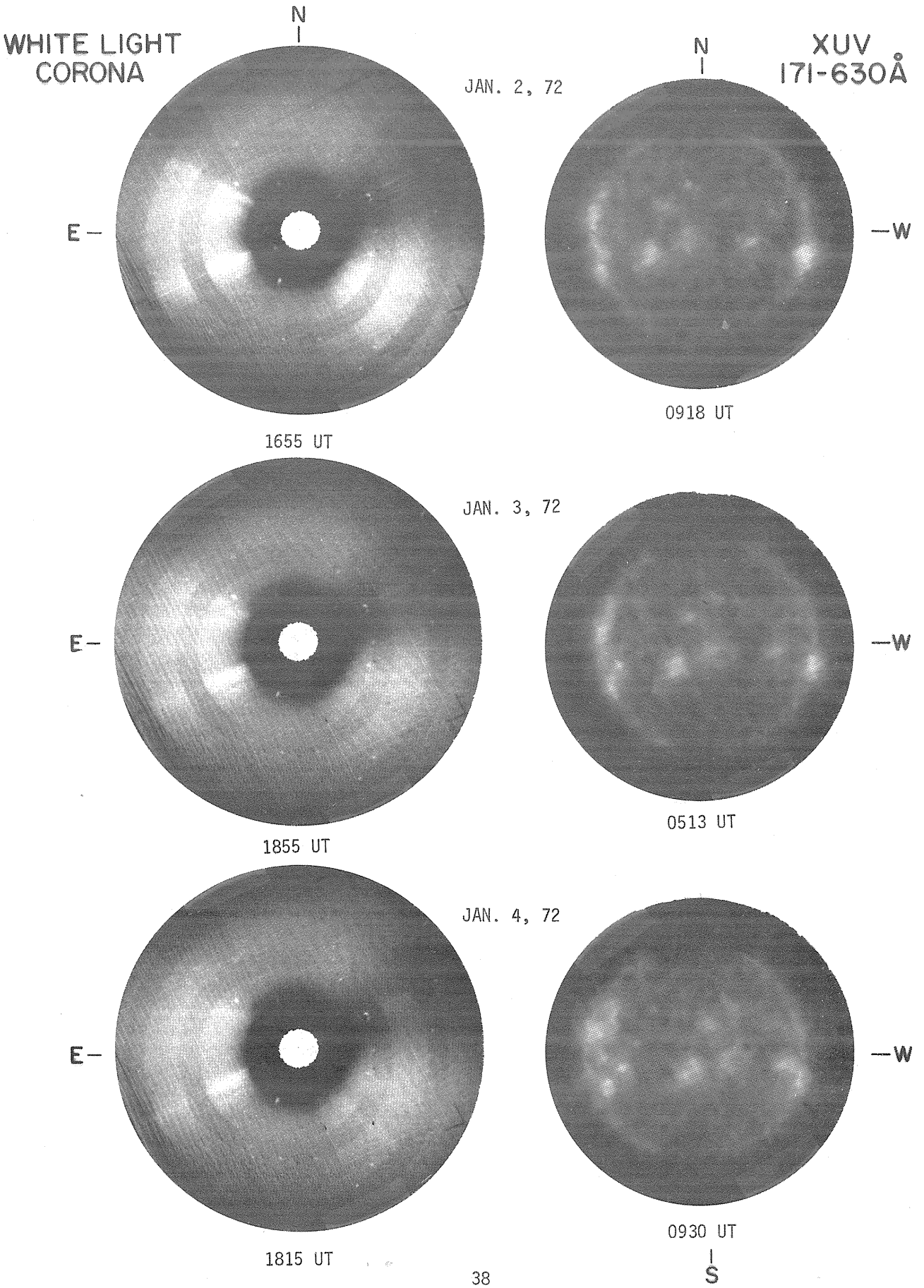
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0513 UT
JAN. 4, 72
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1815 UT
0930 UT
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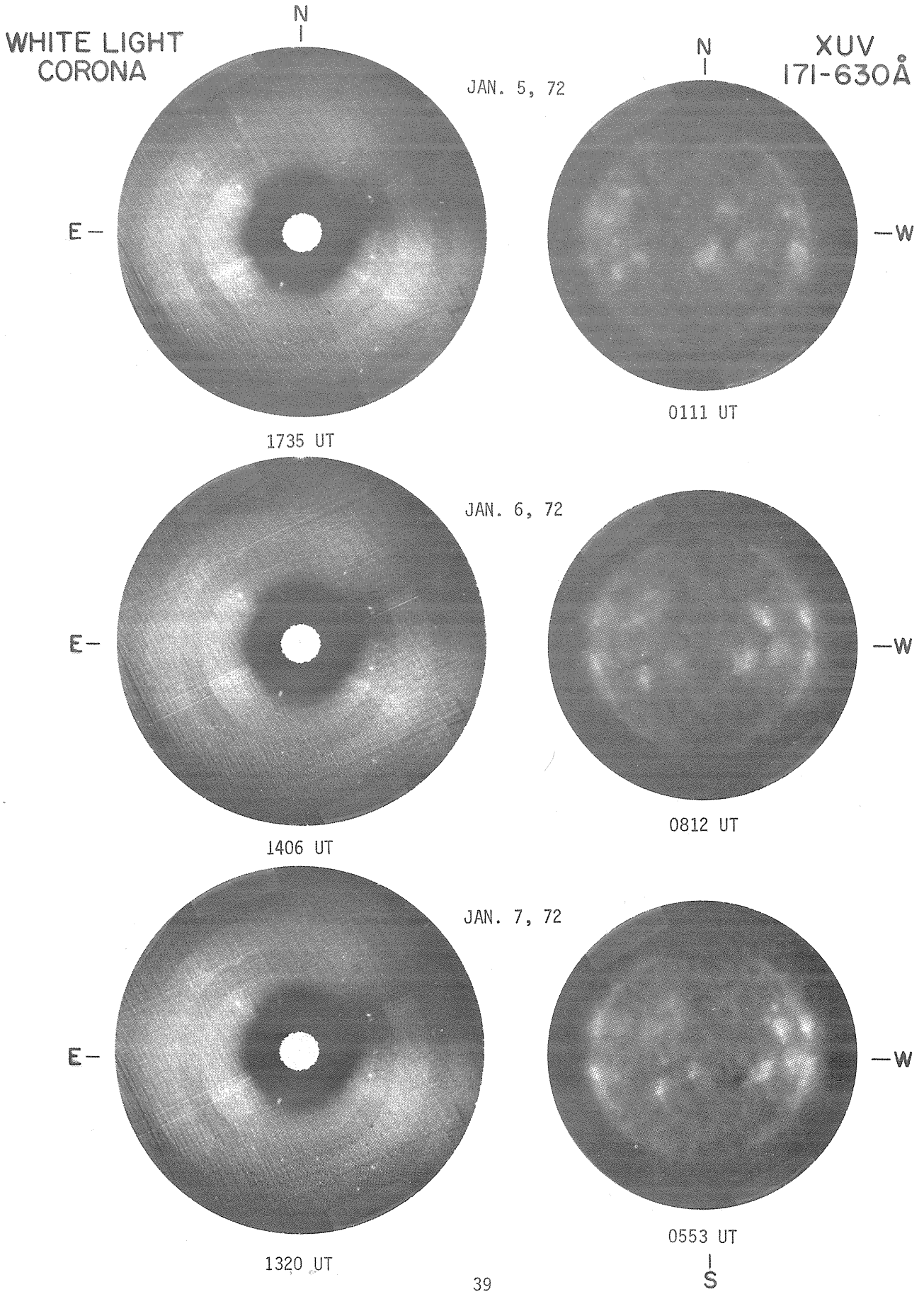
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XUV
171-630Å
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1735 UT
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0812 UT
JAN. 7, 72
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1320 UT
0553 UT
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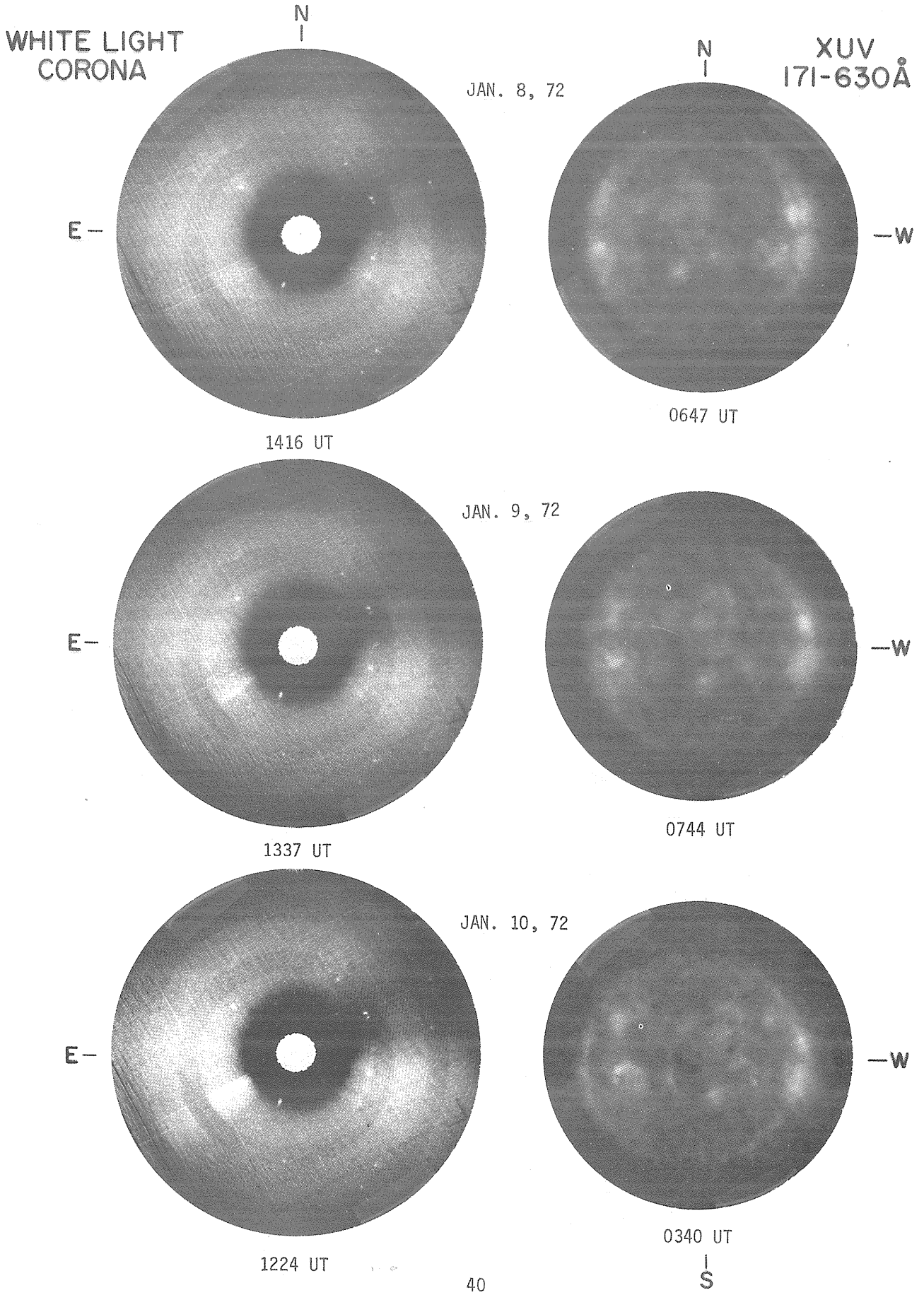
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XUV
171-630Å
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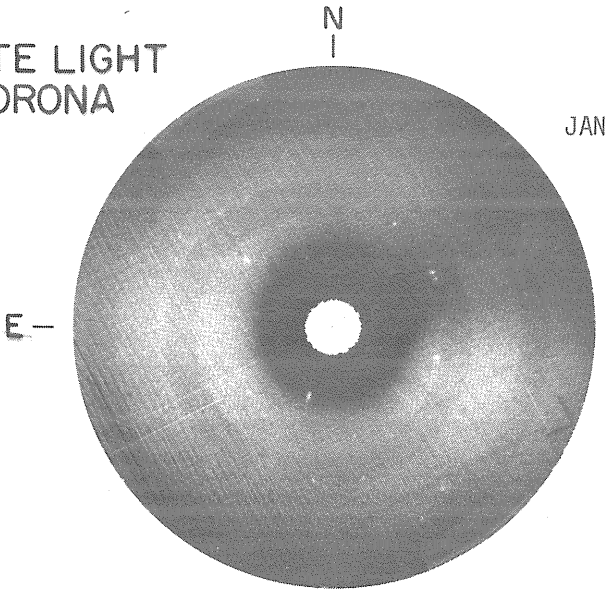
JAN. 8, 72
E—
—W
1416 UT
0647 UT
JAN. 9, 72
E—
—W
1337 UT
0744 UT
JAN. 10, 72
E—
—W
1224 UT
0340 UT
S

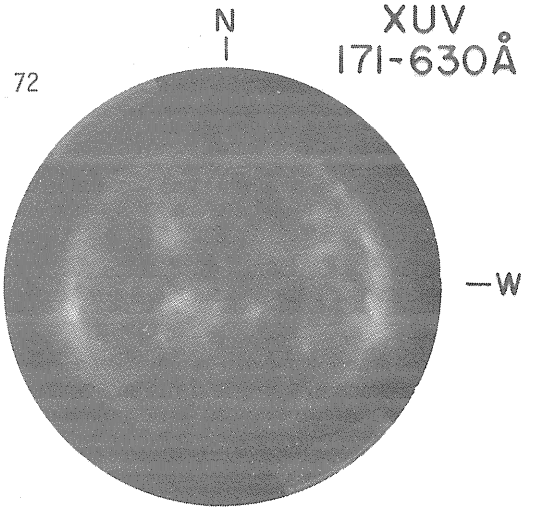
WHITE LIGHT CORONA

XUV 171-630Å

JAN. 11, 72

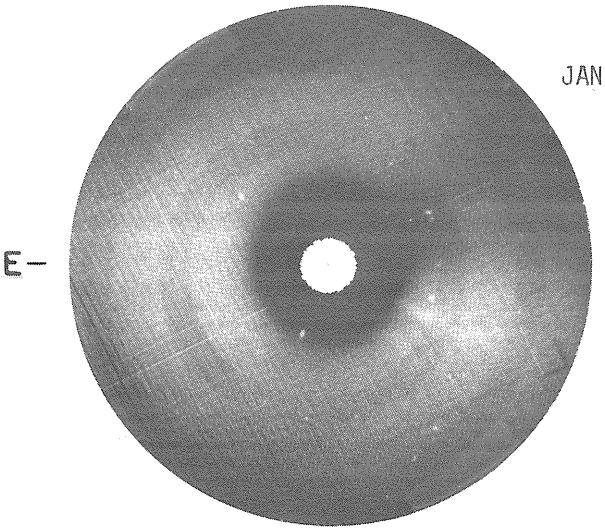


1212 UT

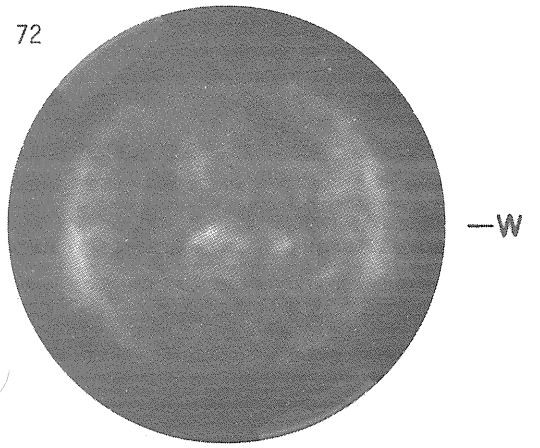


2331 UT

JAN. 12, 72

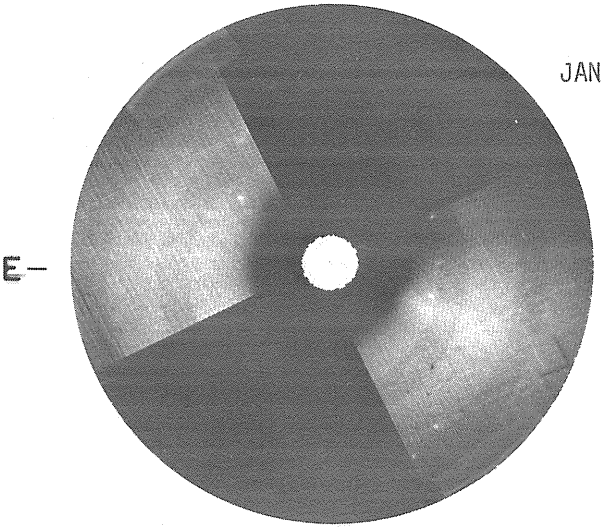


1129 UT

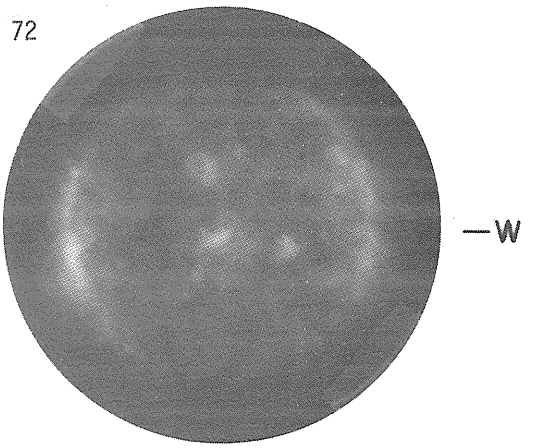


1810 UT

JAN. 13, 72

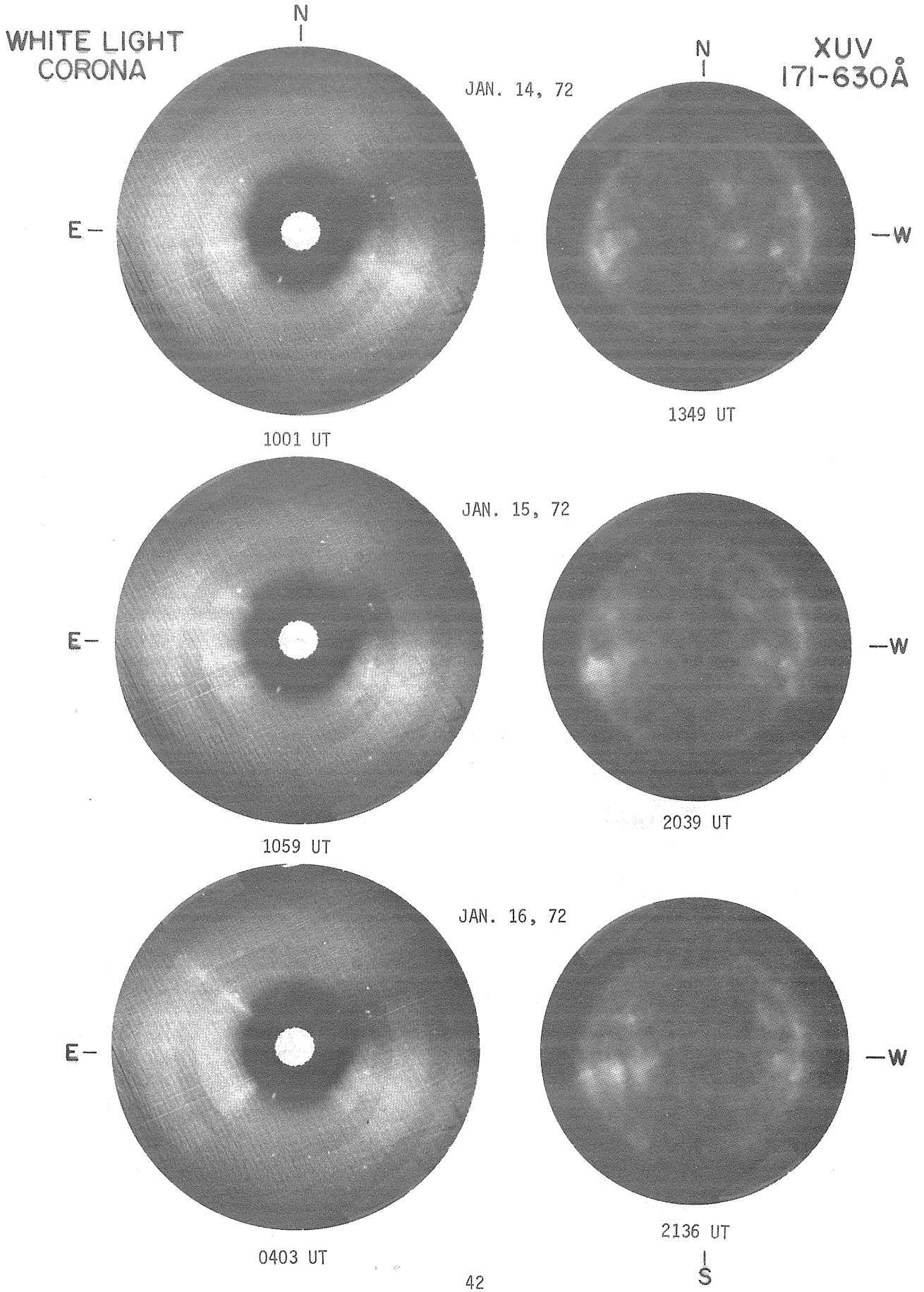


0908 UT - Q2
0936 UT - Q3



0454 UT

S


WHITE LIGHT
CORONA
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XUV
171-630Å
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JAN. 14, 72
E
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1001 UT
1349 UT
JAN. 15, 72
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1059 UT
2039 UT
JAN. 16, 72
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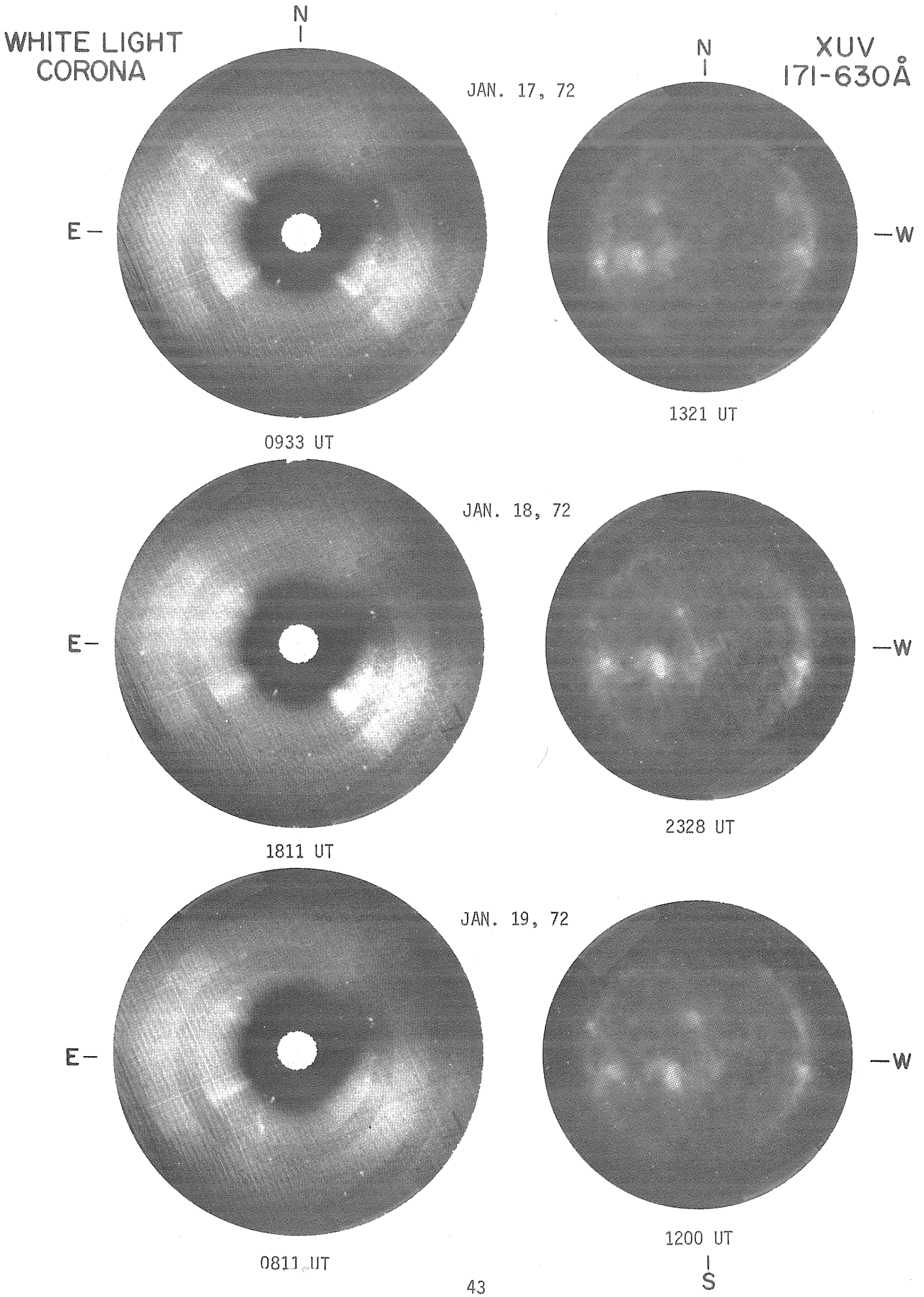
0403 UT
2136 UT
S


WHITE LIGHT
CORONA
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XUV
171-630Å
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JAN. 17, 72
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0933 UT
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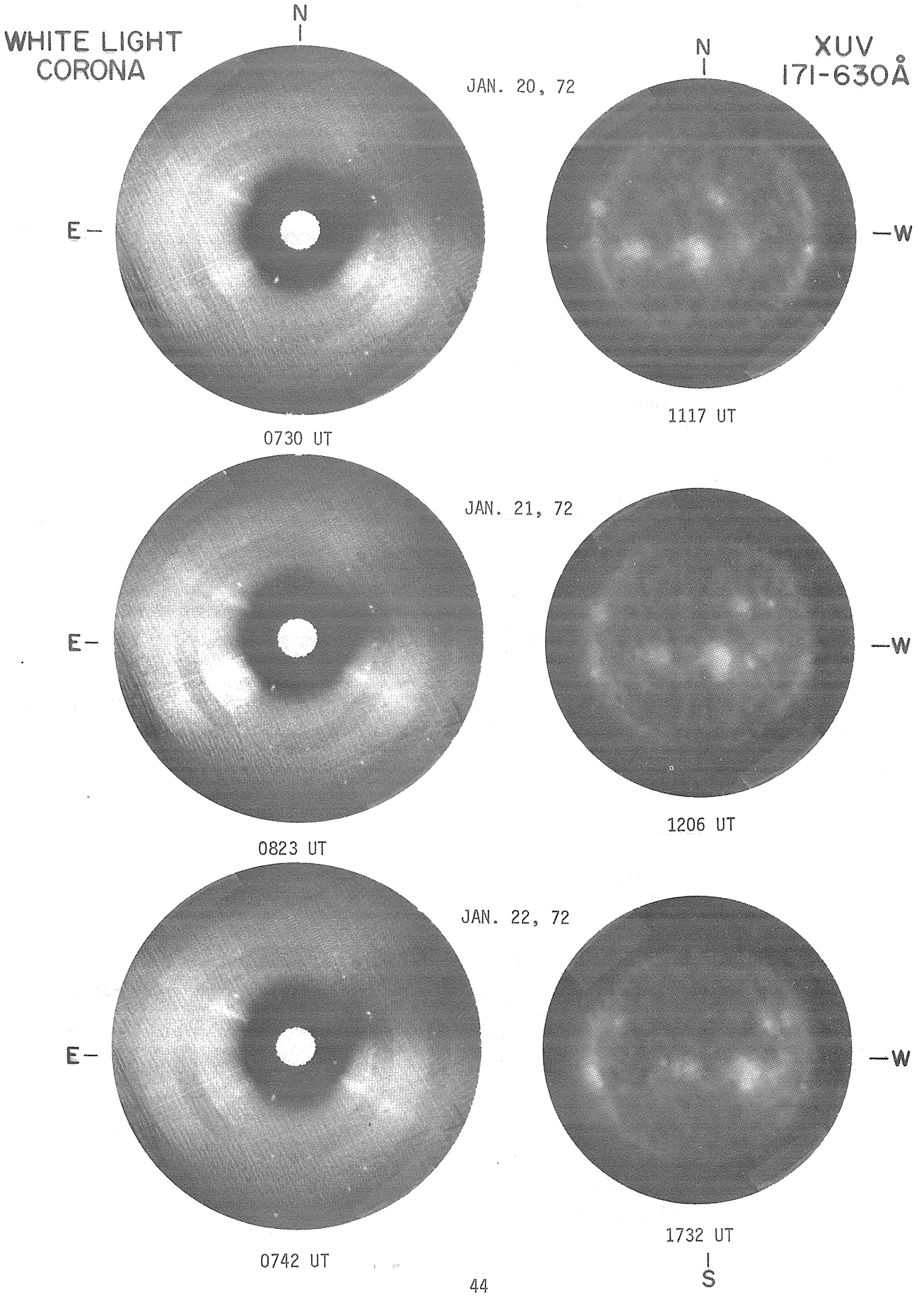
0811 UT
1200 UT
S


WHITE LIGHT
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XUV
171-630Å
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JAN. 20, 72
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0730 UT
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1206 UT
JAN. 22, 72
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0742 UT
1732 UT
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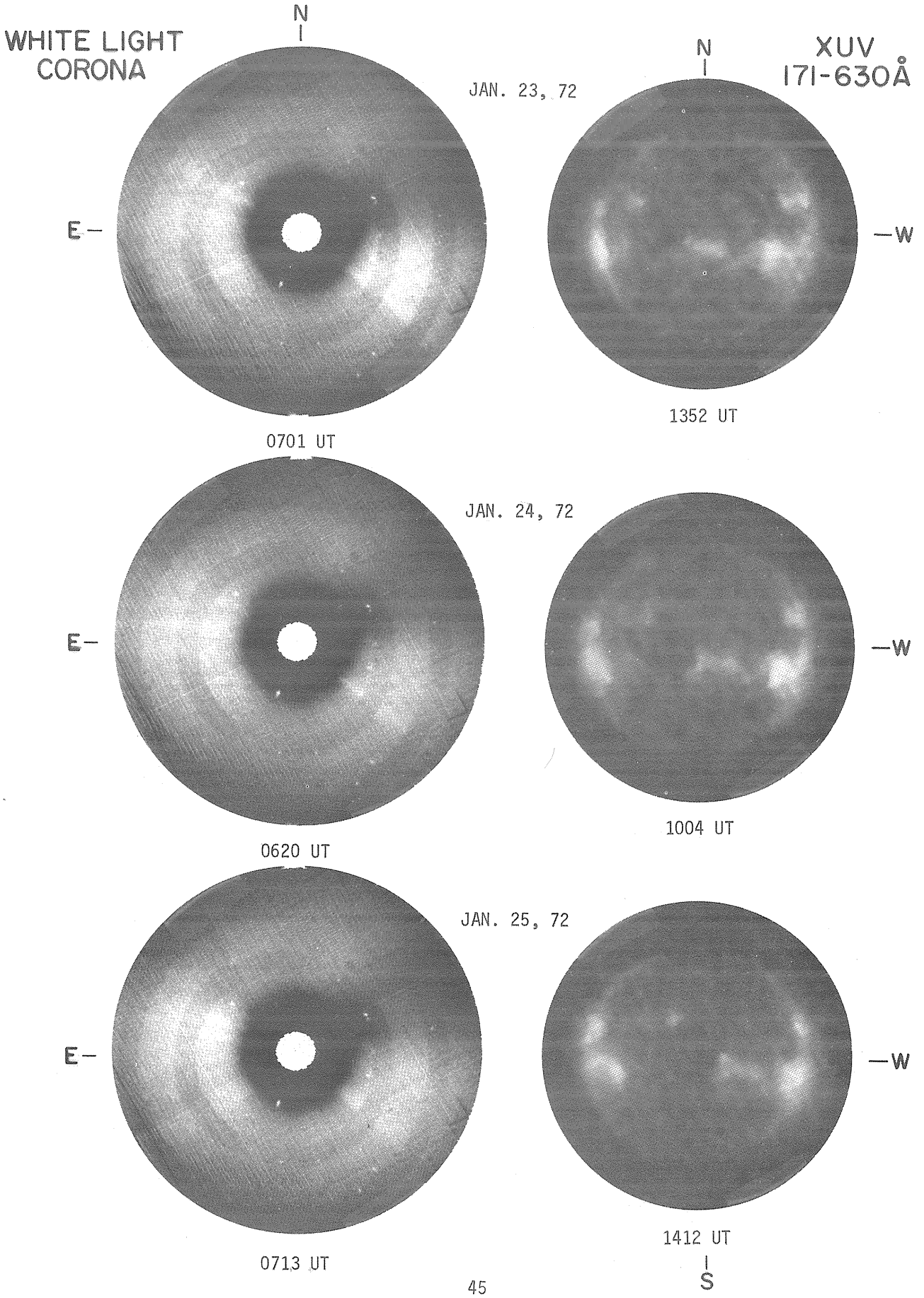
WHITE LIGHT CORONA
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XUV 171-630Å
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JAN. 23, 72
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0701 UT
1352 UT
JAN. 24, 72
E
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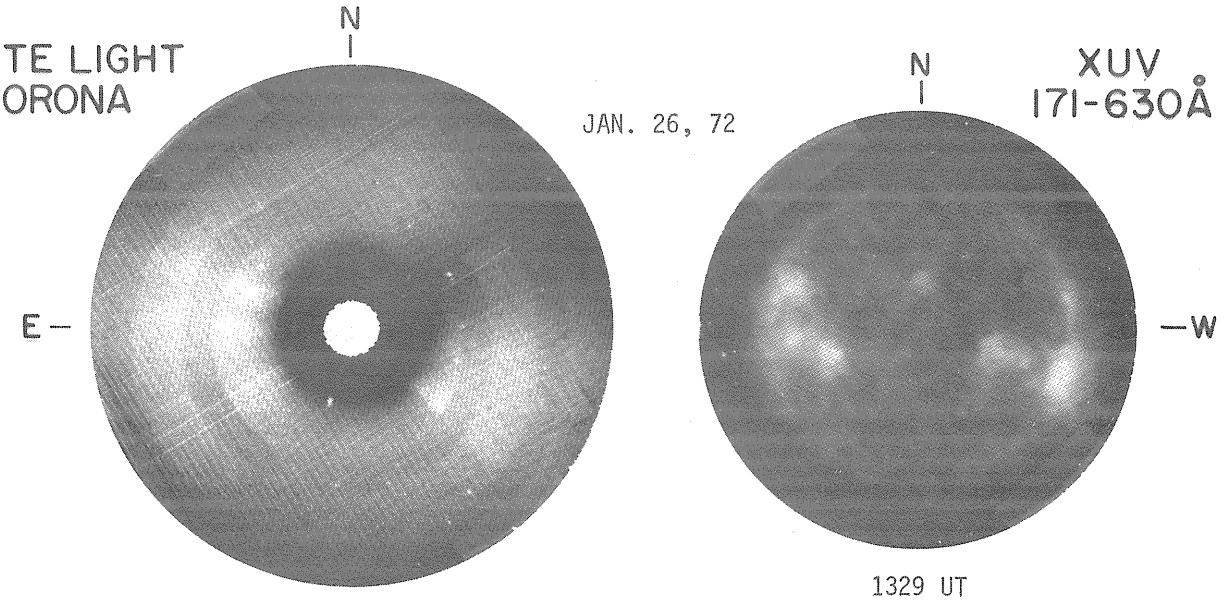
0620 UT
1004 UT
JAN. 25, 72
E
W
0713 UT
1412 UT
S

WHITE LIGHT CORONA

XUV 171-630Å

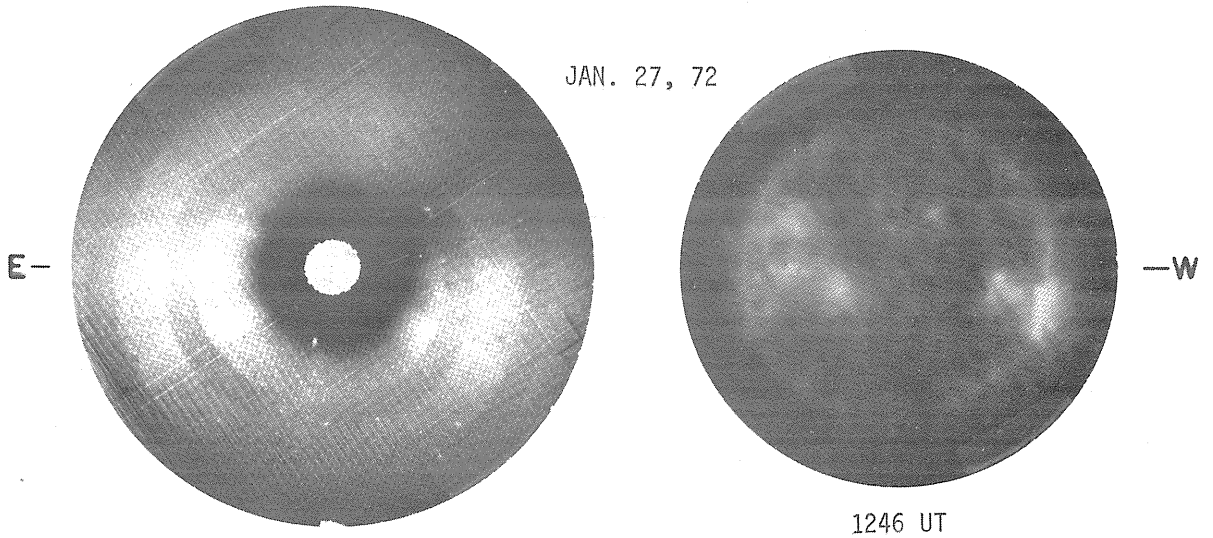
JAN. 26, 72



0503 UT

1329 UT

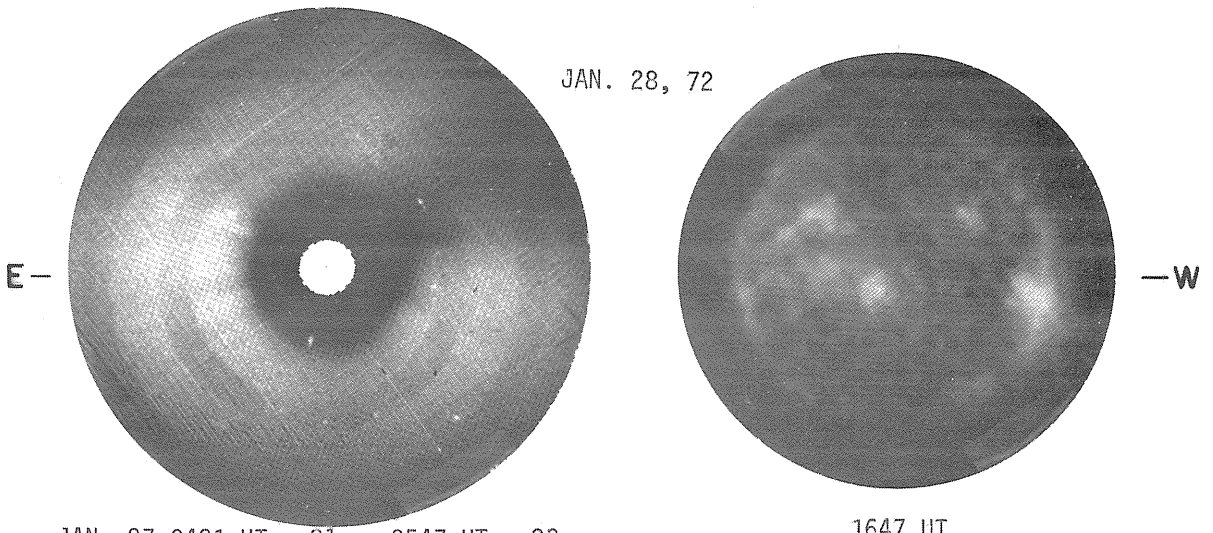
JAN. 27, 72



0421 UT

1246 UT

JAN. 28, 72



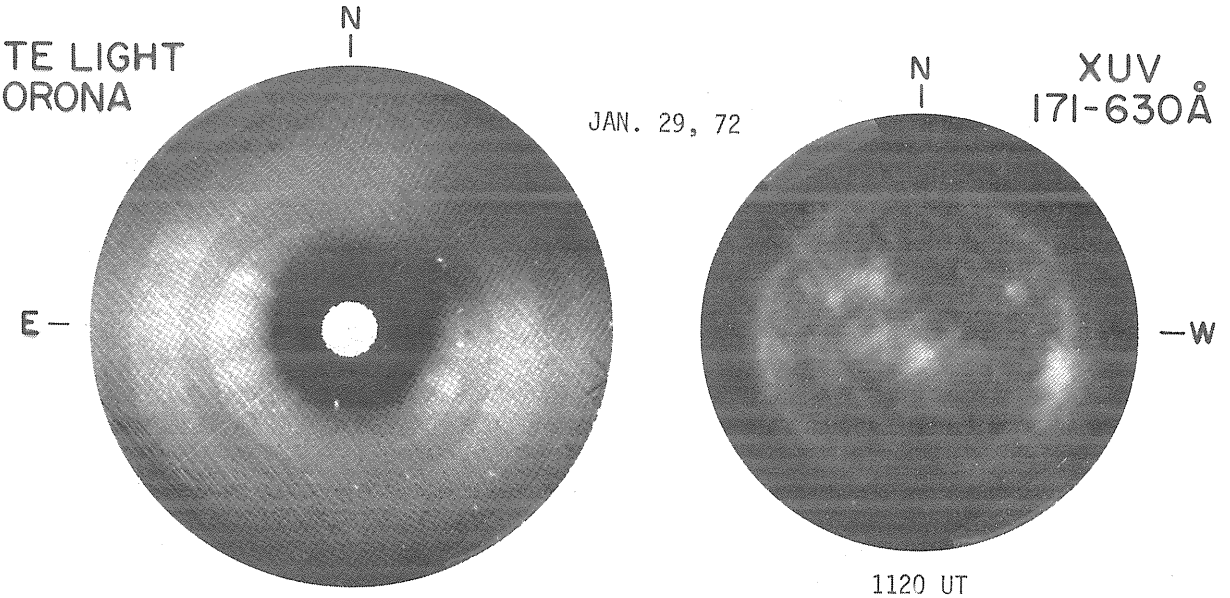
JAN. 27-0421 UT - Q1 0547 UT - Q3
0242 UT - Q2 0721 UT - Q4

1647 UT
S

WHITE LIGHT CORONA

XUV 171-630Å

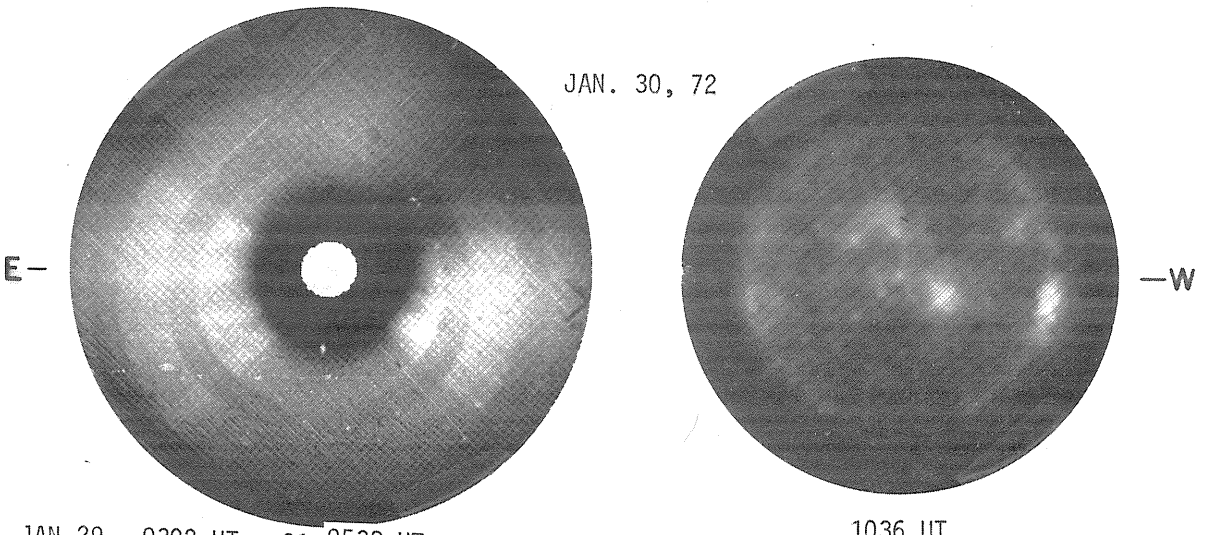
JAN. 29, 72



0302 UT

1120 UT

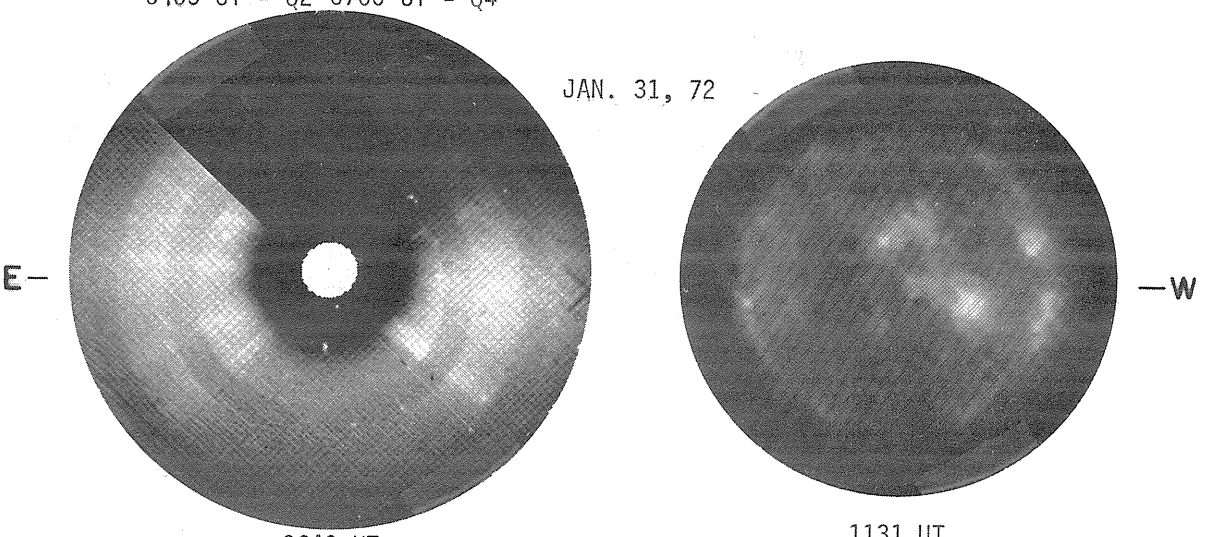
JAN. 30, 72



JAN 29 - 0302 UT - Q1 0538 UT - Q3
0405 UT - Q2 0700 UT - Q4

1036 UT

JAN. 31, 72



0349 UT
0522 UT
0632 UT

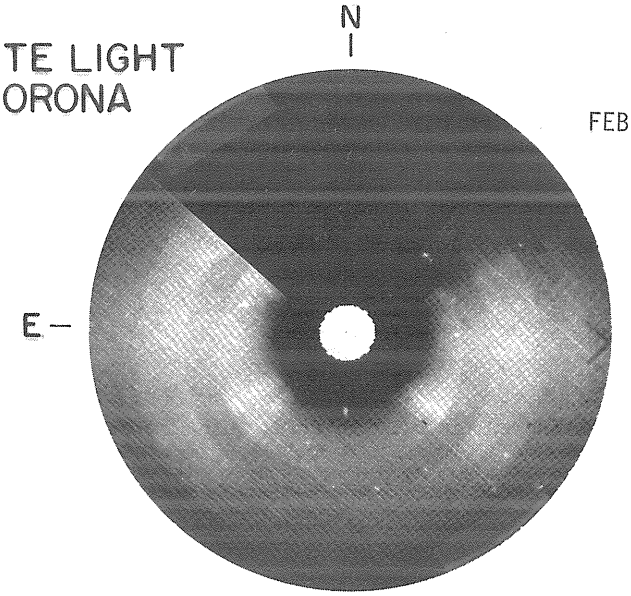
1131 UT

S

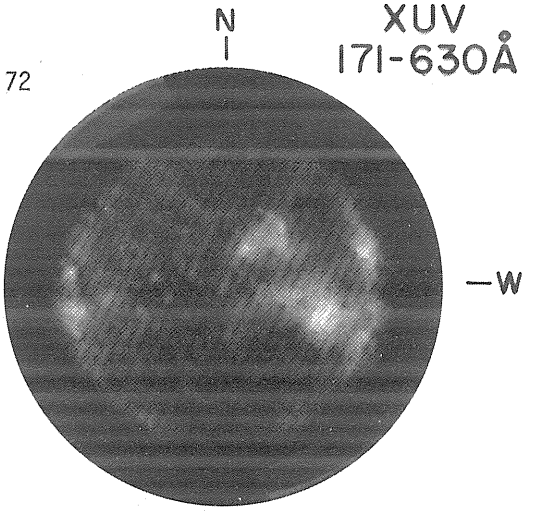
WHITE LIGHT CORONA

XUV 171-630Å

FEB. 1, 72



0443 UT - 04
0553 UT - 03
0726 UT - 02

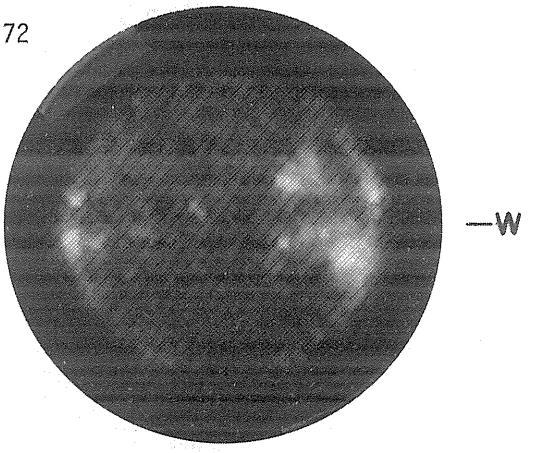


1052 UT

FEB. 2, 72

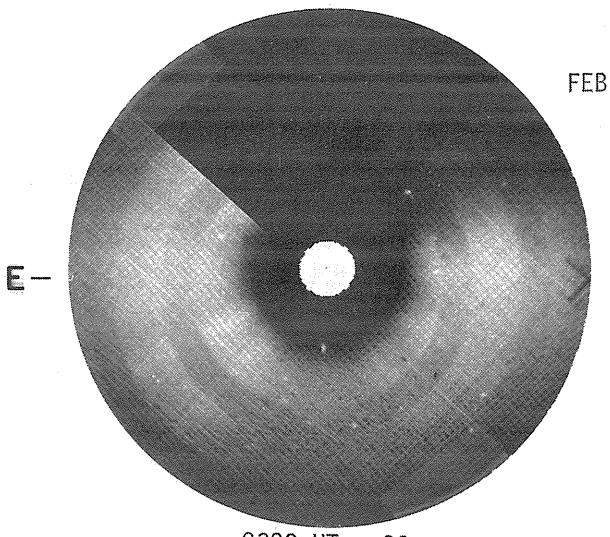
E

NO DATA

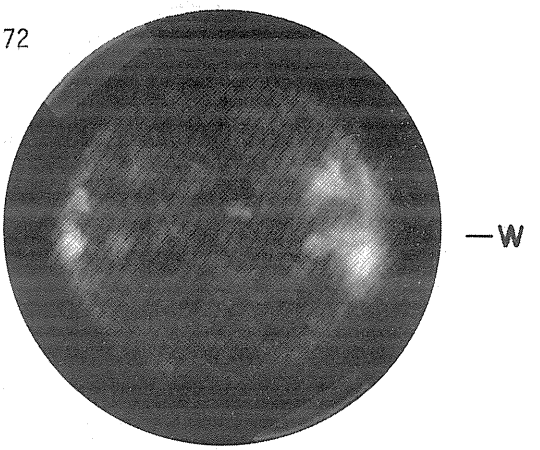


1147 UT

FEB. 3, 72



0323 UT - 03
0456 UT - 04
0740 UT - 02



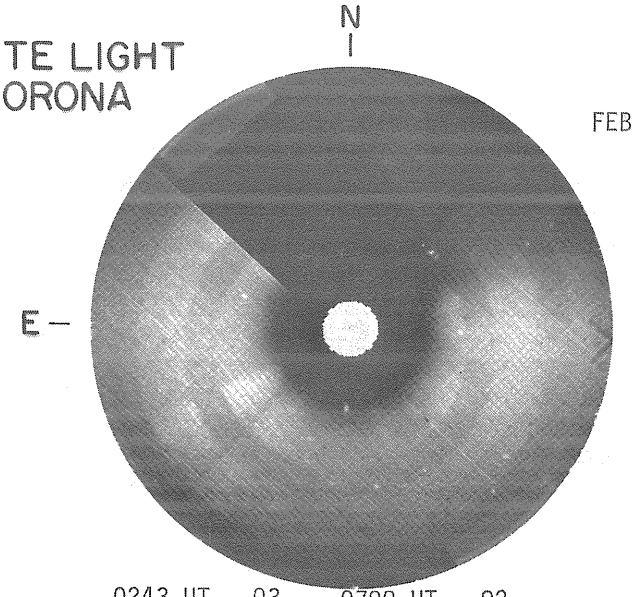
1726 UT

S

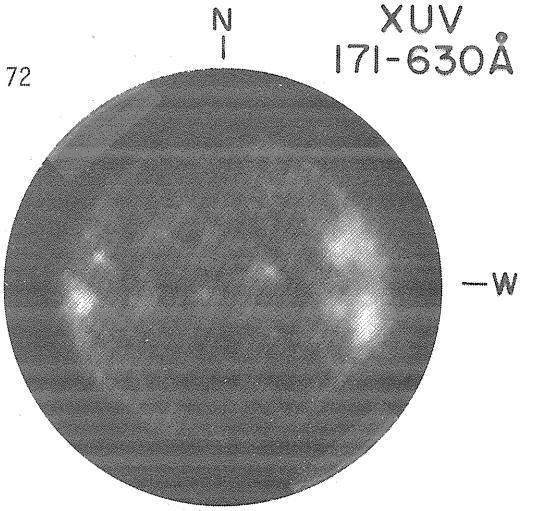
WHITE LIGHT CORONA

XUV 171-630Å

FEB. 4, 72

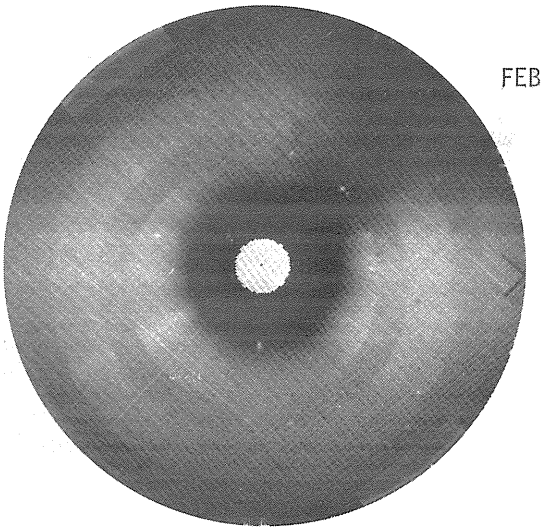


0243 UT - 03
0417 UT - 04
0700 UT - 02

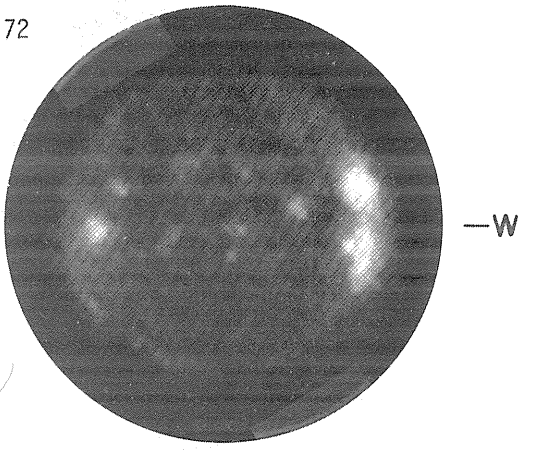


1021 UT

FEB. 5, 72



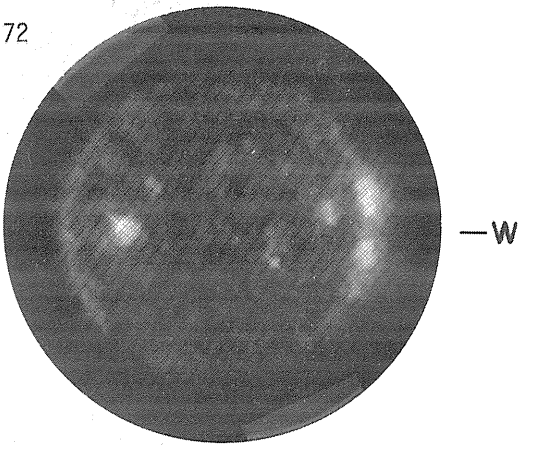
0741 UT



1114 UT

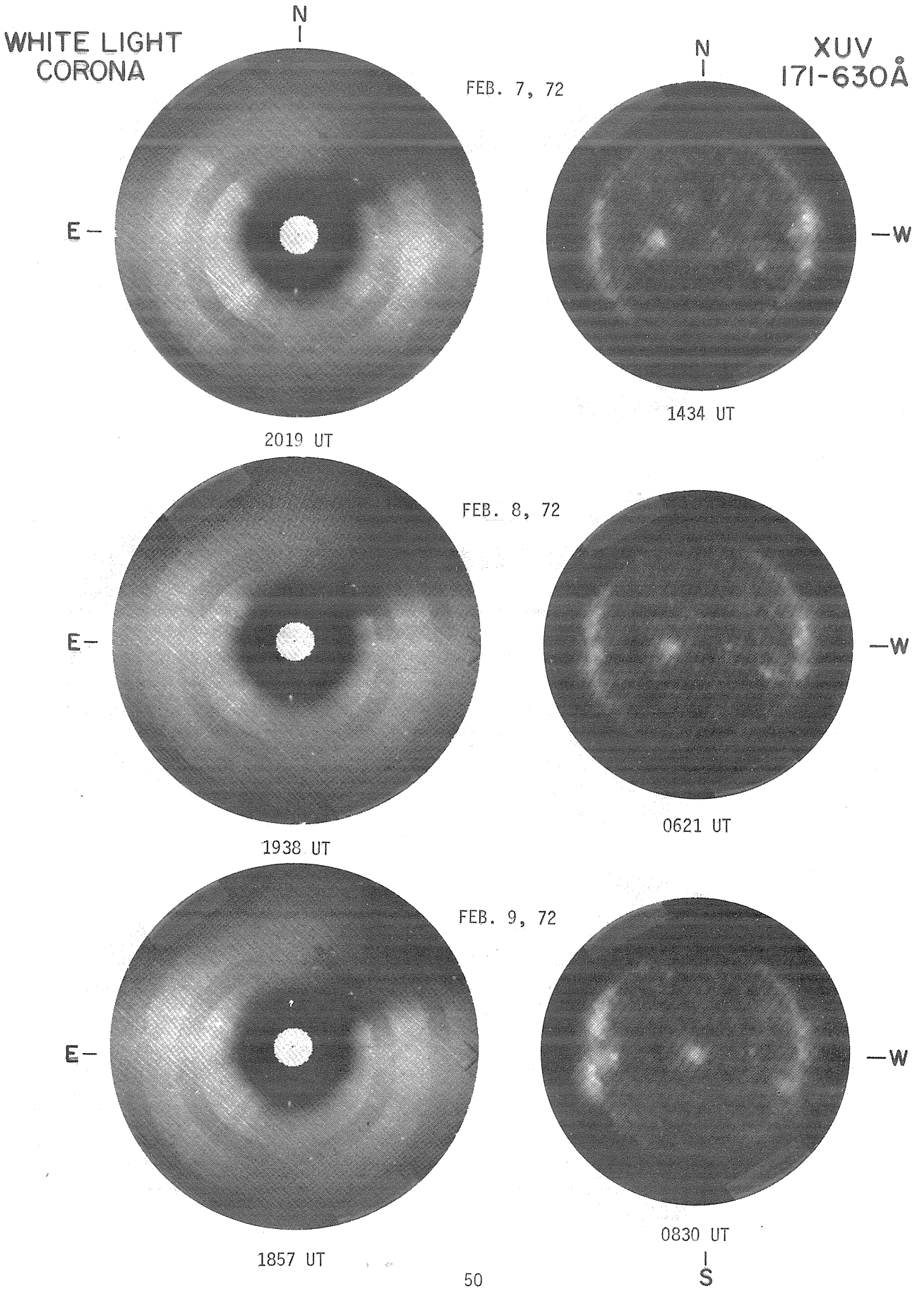
FEB. 6, 72

0221 UT



1338 UT

S


WHITE LIGHT
CORONA
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XUV
171-630Å
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FEB. 7, 72
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2019 UT
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FEB. 8, 72
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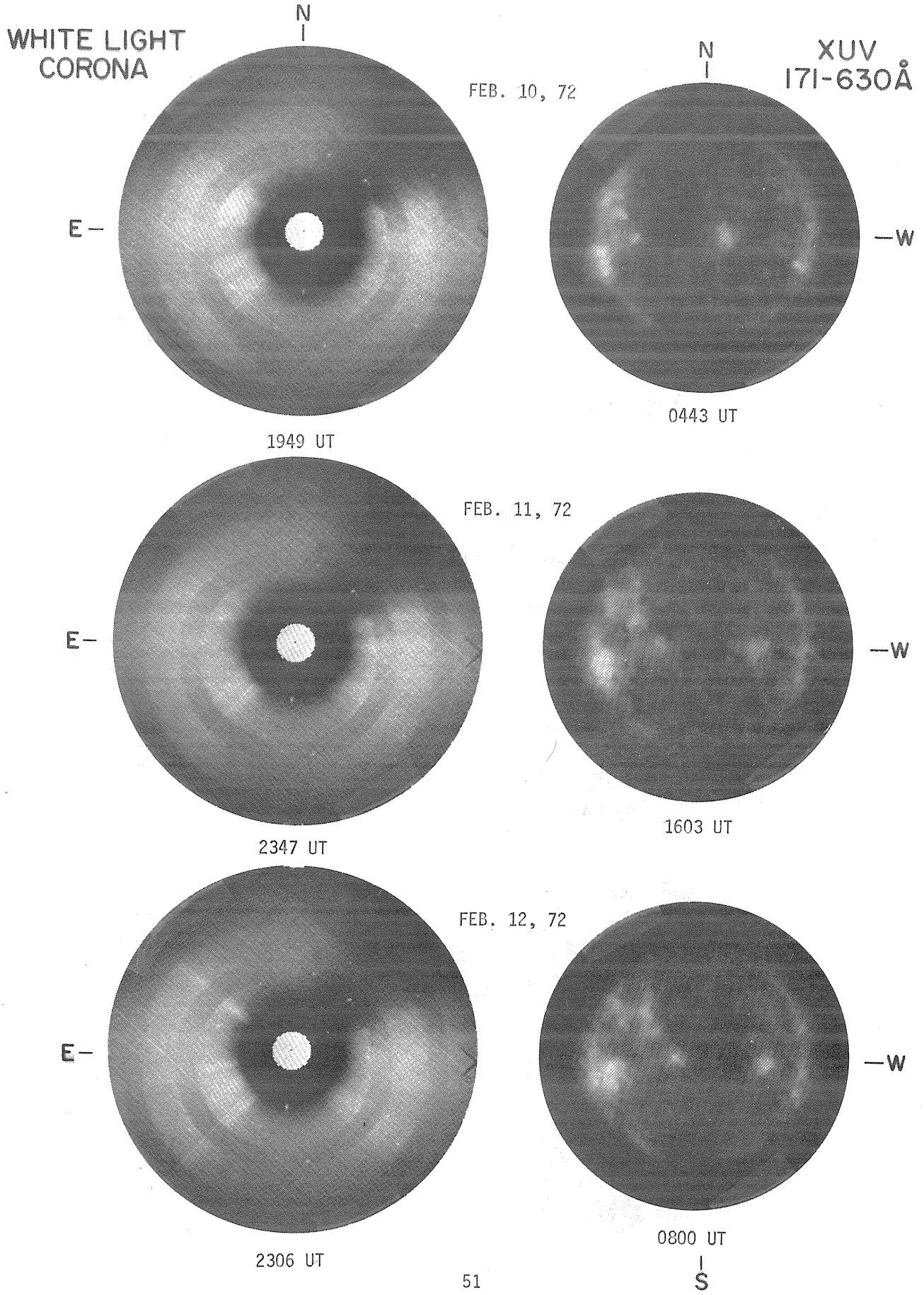
W
1938 UT
0621 UT
FEB. 9, 72
E
W
1857 UT
0830 UT
S


WHITE LIGHT
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2347 UT
1603 UT
FEB. 12, 72
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0800 UT
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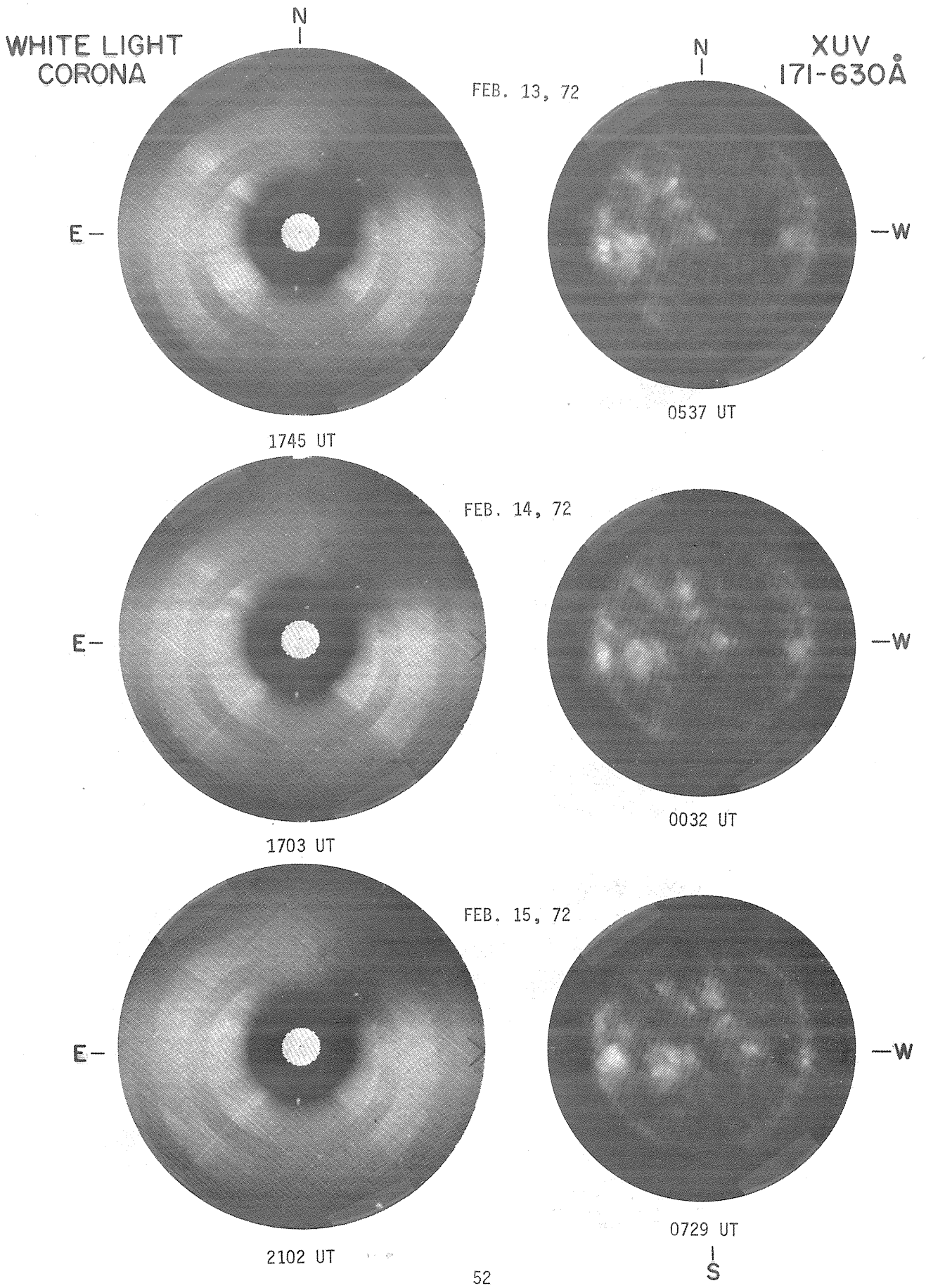
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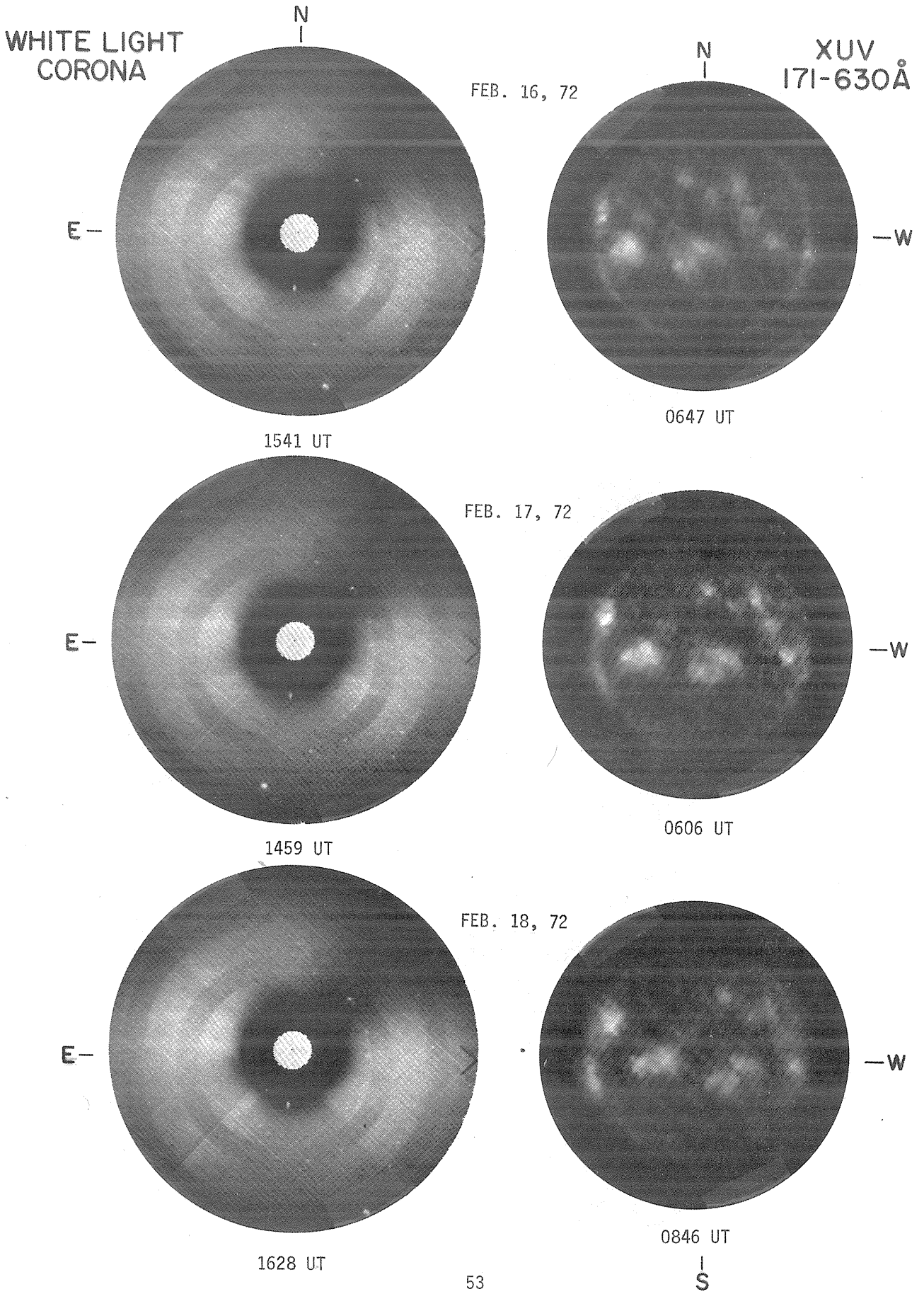
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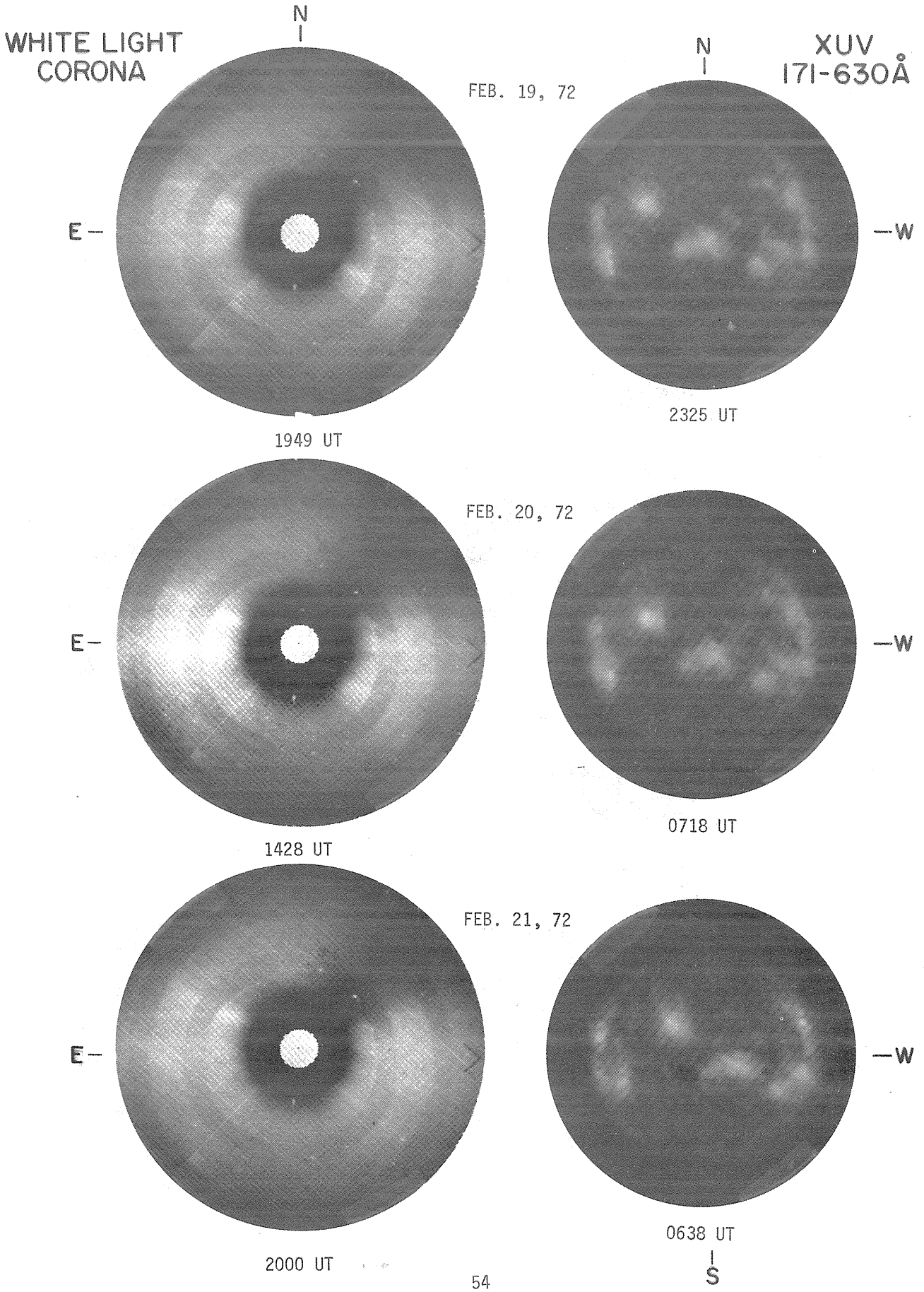
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171-630Å
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1428 UT
0718 UT
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2000 UT
0638 UT
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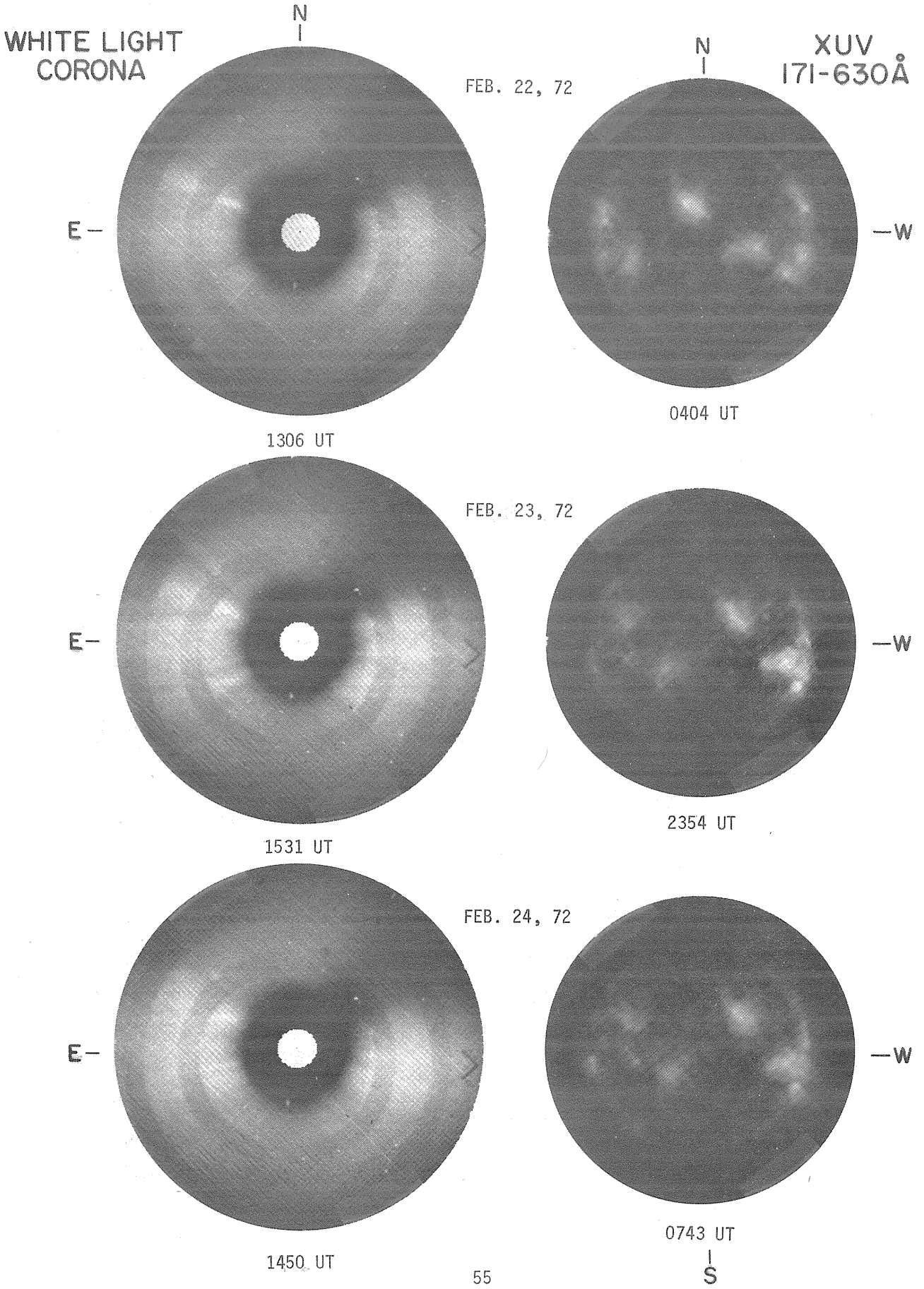
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2354 UT
FEB. 24, 72
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0743 UT
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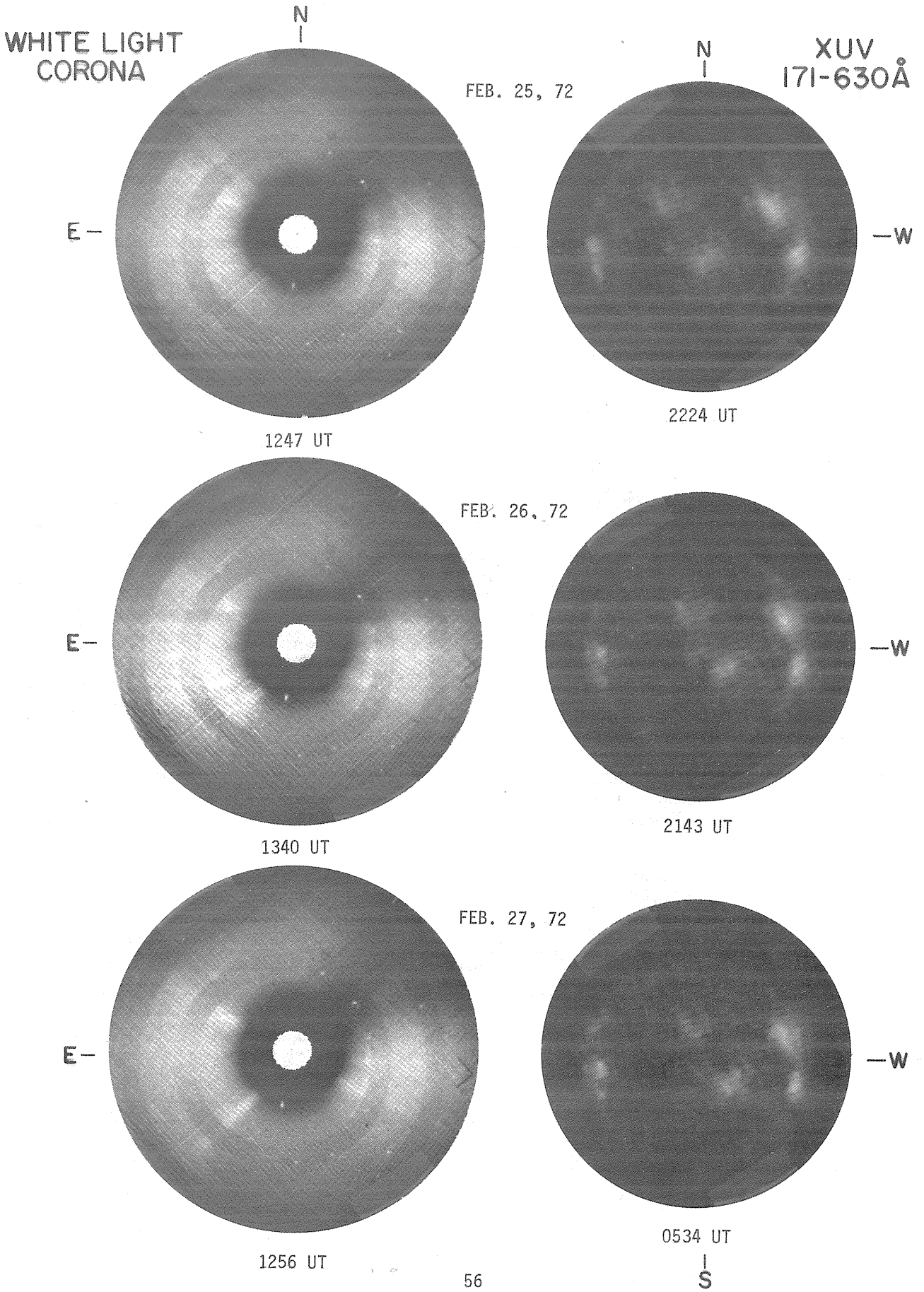
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XUV
171-630Å
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1340 UT
2143 UT
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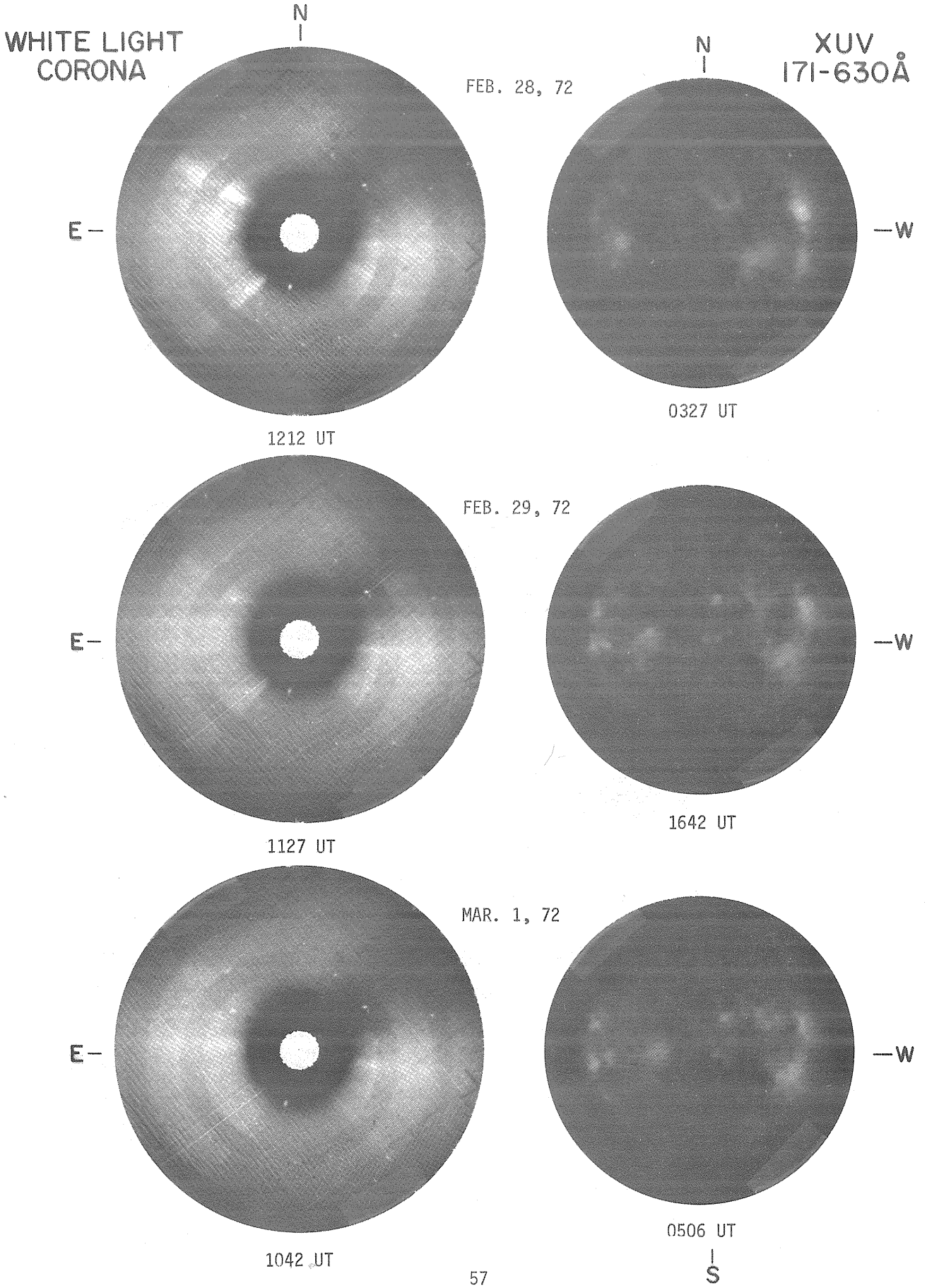
1256 UT
0534 UT
S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XUV 171-630Å
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1127 UT
1642 UT
MAR. 1, 72
1042 UT
0506 UT
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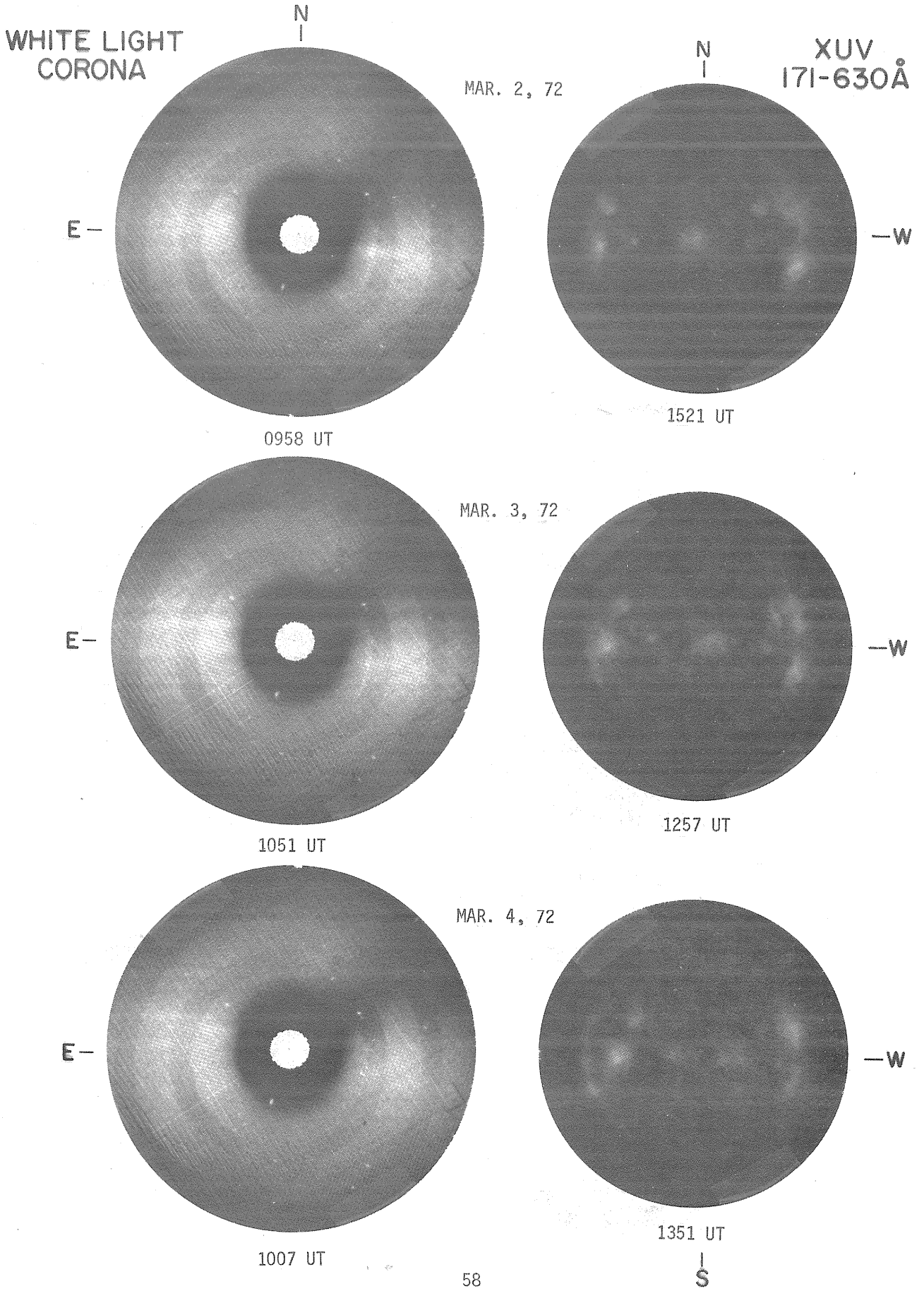
WHITE LIGHT
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XUV
171-630Å
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1007 UT
1351 UT
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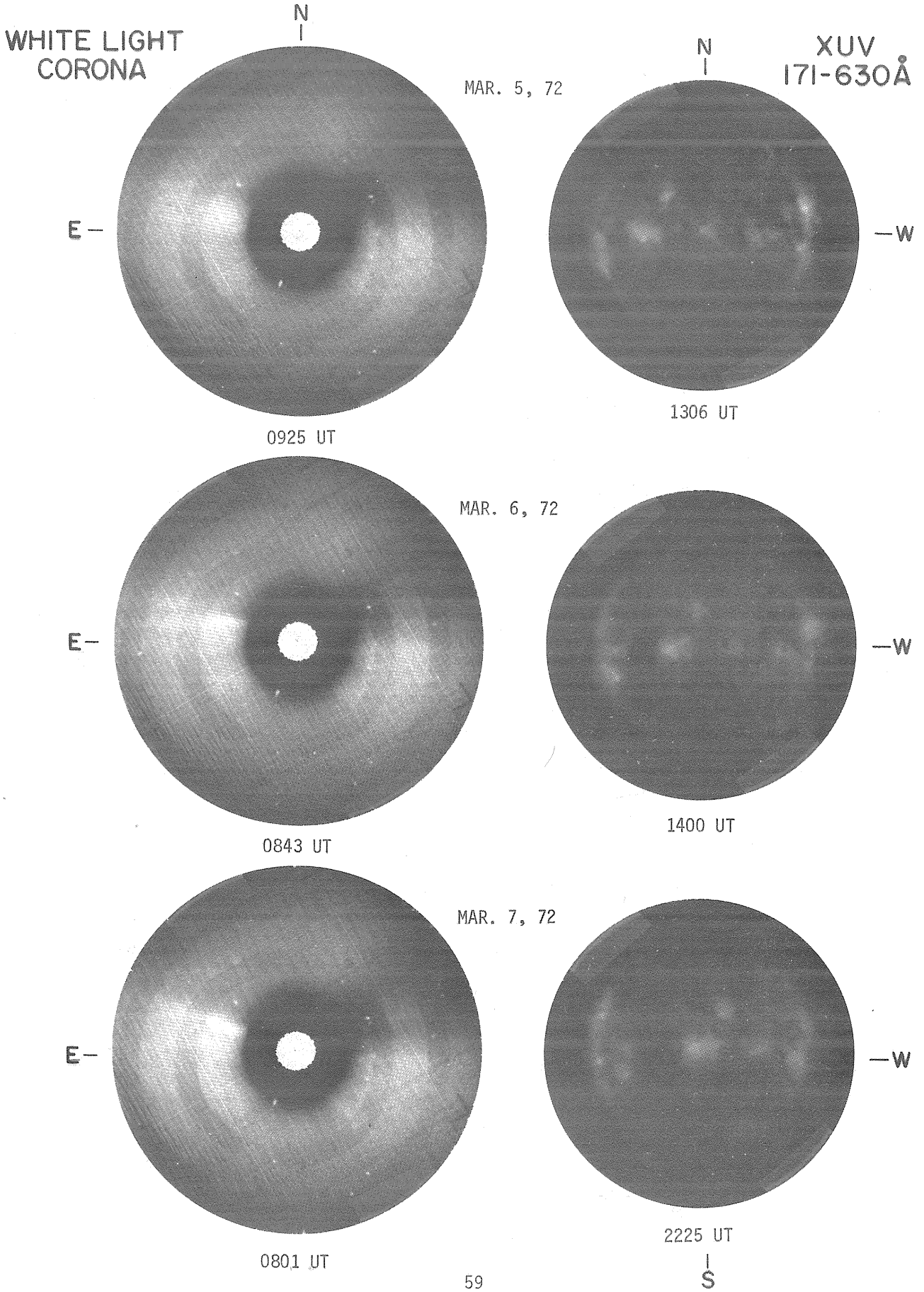
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2225 UT
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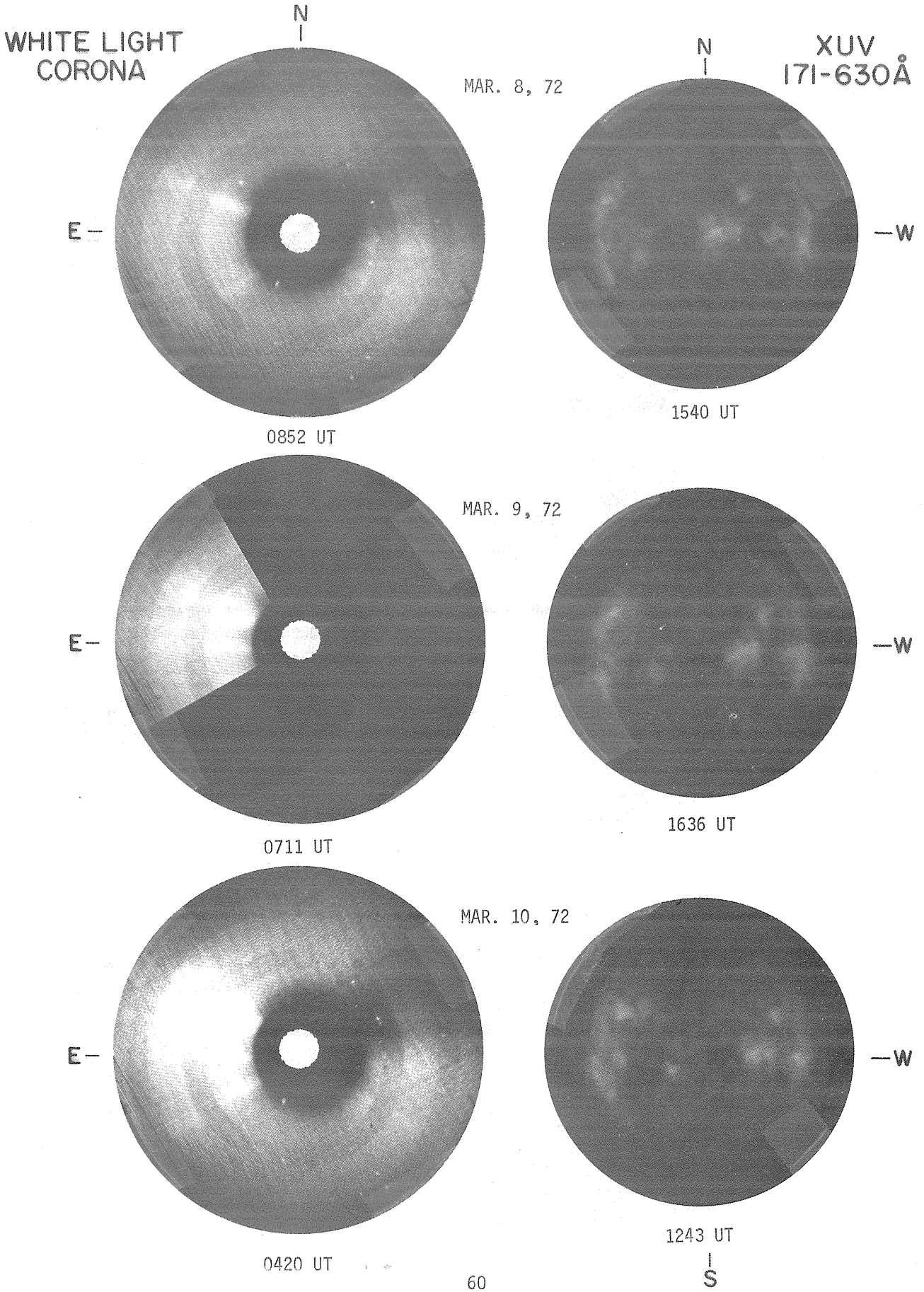
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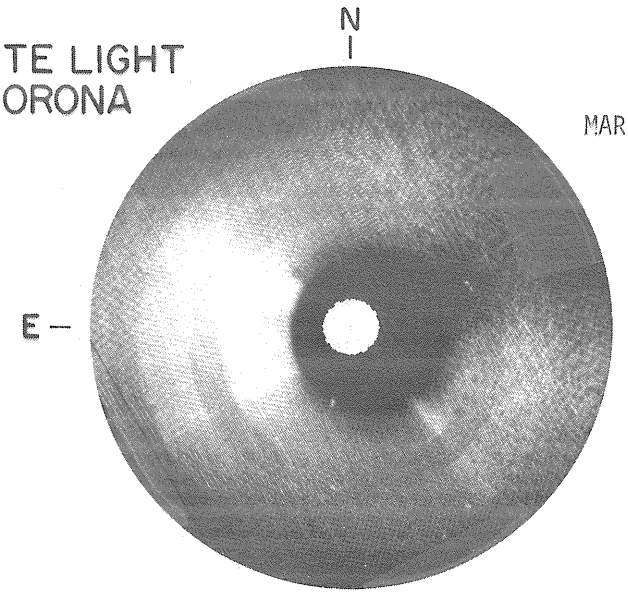
0711 UT
1636 UT
MAR. 10, 72
E
W
0420 UT
1243 UT
S

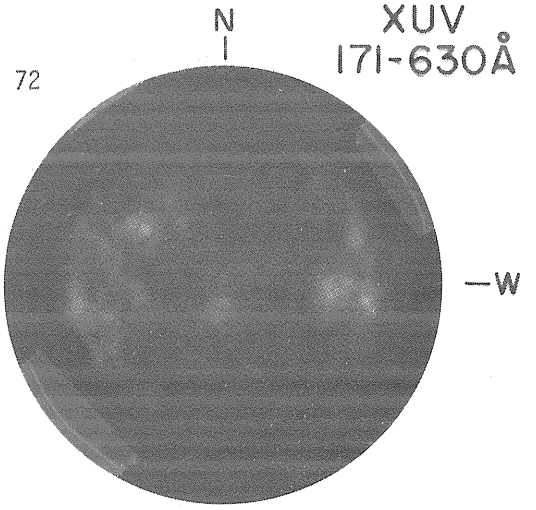
WHITE LIGHT CORONA

XUV 171-630Å

MAR. 11, 72



0339 UT

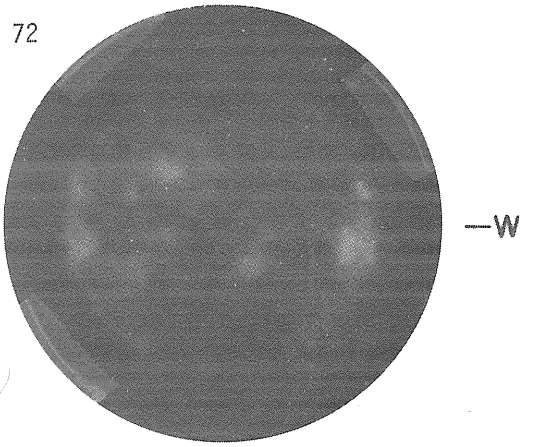


1515 UT

MAR. 12, 72

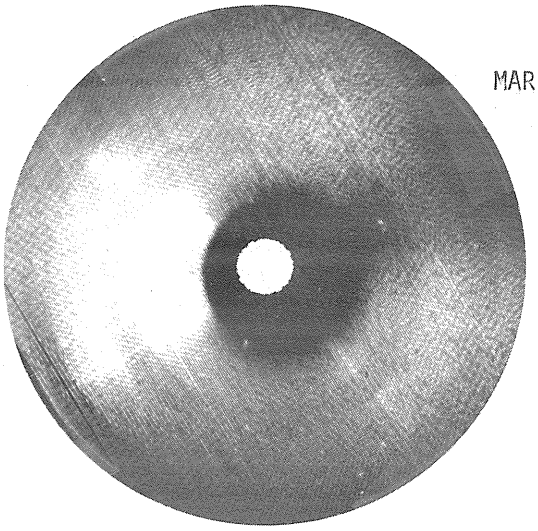
NO DATA

E

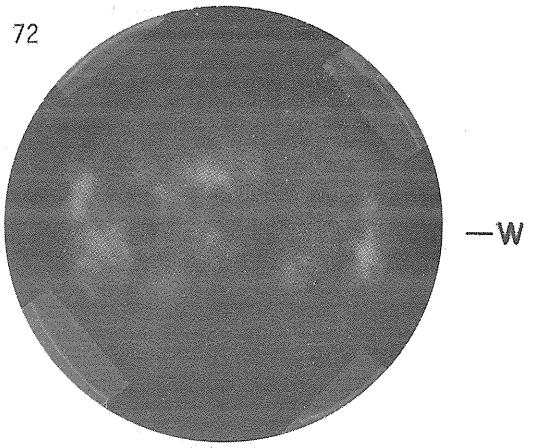


1606 UT

MAR. 13, 72



0347 UT



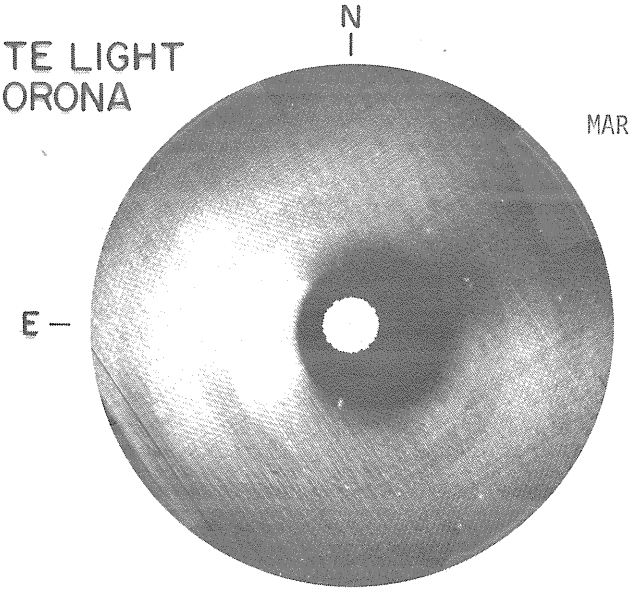
2252 UT

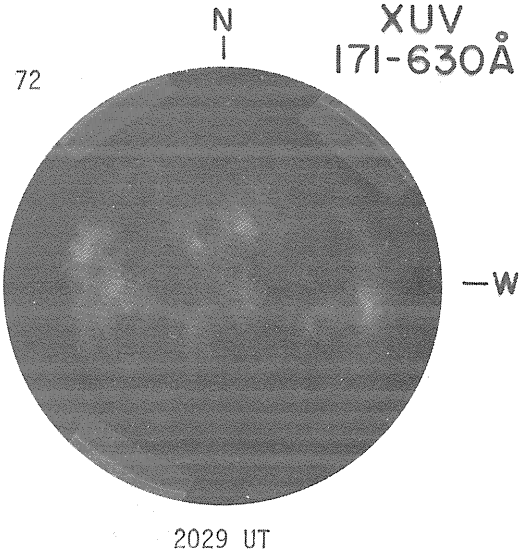
S

WHITE LIGHT CORONA

XUV 171-630Å

MAR. 14, 72



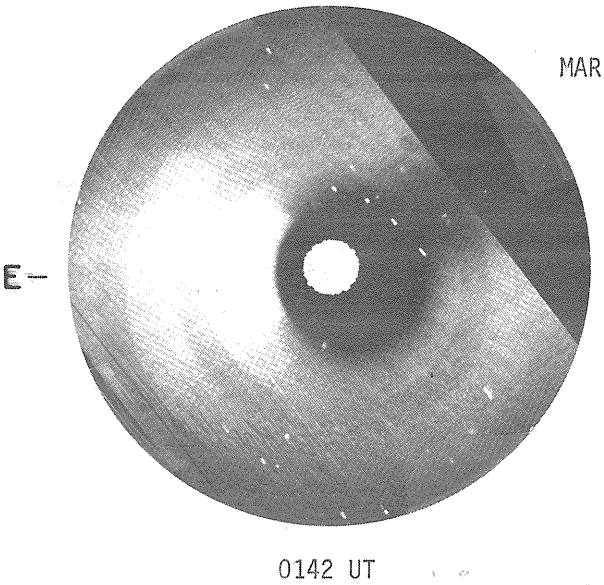


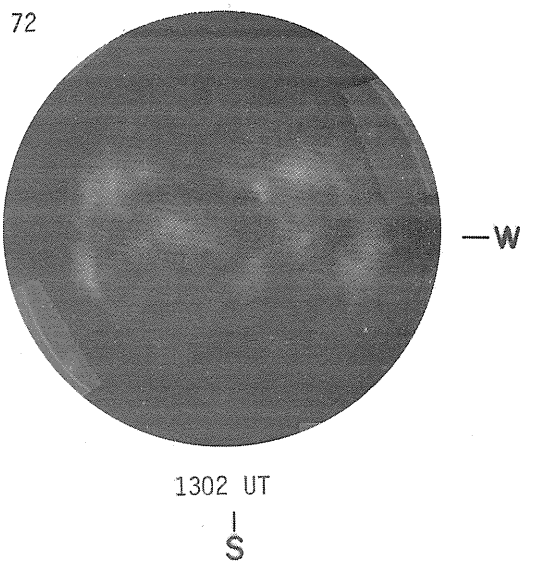
MAR. 15, 72

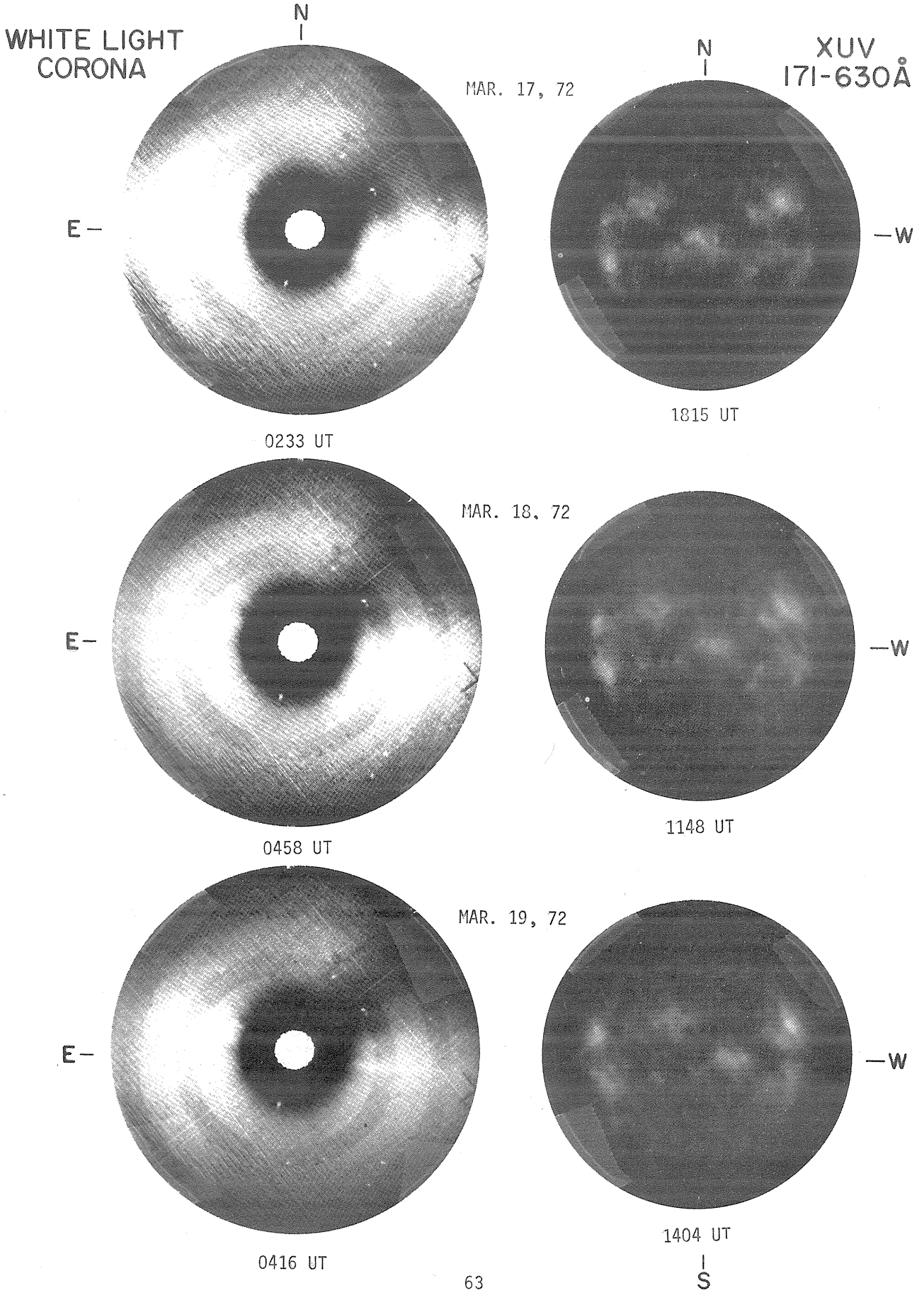
E — NO DATA

NO DATA — W

MAR. 16, 72






WHITE LIGHT
CORONA
N
XUV
171-630Å
N
MAR. 17, 72
E
W
0233 UT
1815 UT
MAR. 18, 72
E
W
0458 UT
1148 UT
MAR. 19, 72
E
W
0416 UT
1404 UT
S

WHITE LIGHT CORONA

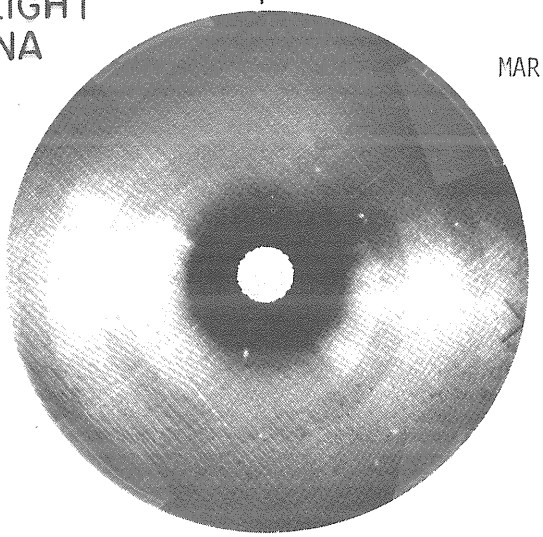
XUV 171-630Å

MAR. 20, 72

N

E—

—W



0334 UT

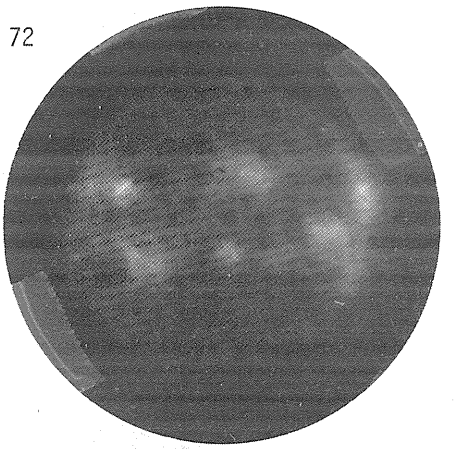
NO DATA

MAR. 21, 72

E—

NO DATA

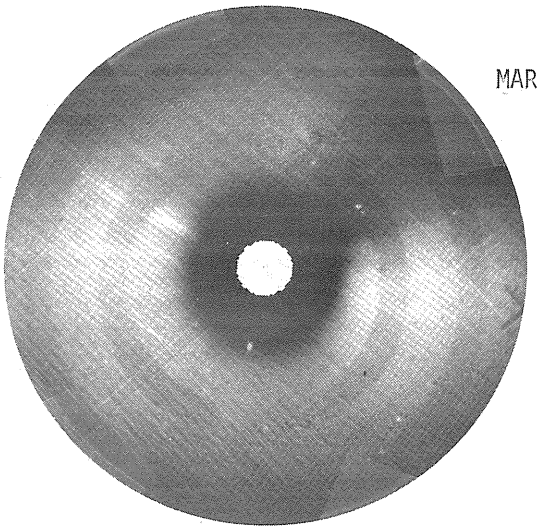
—W



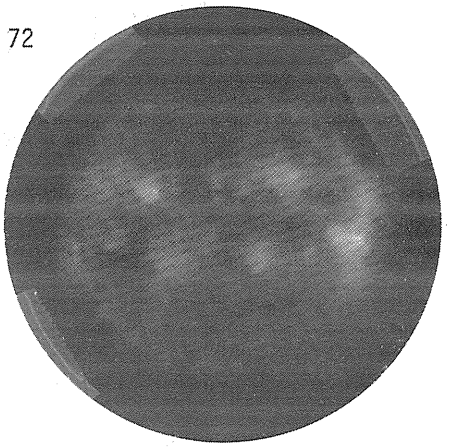
1238 UT

MAR. 22, 72

E—



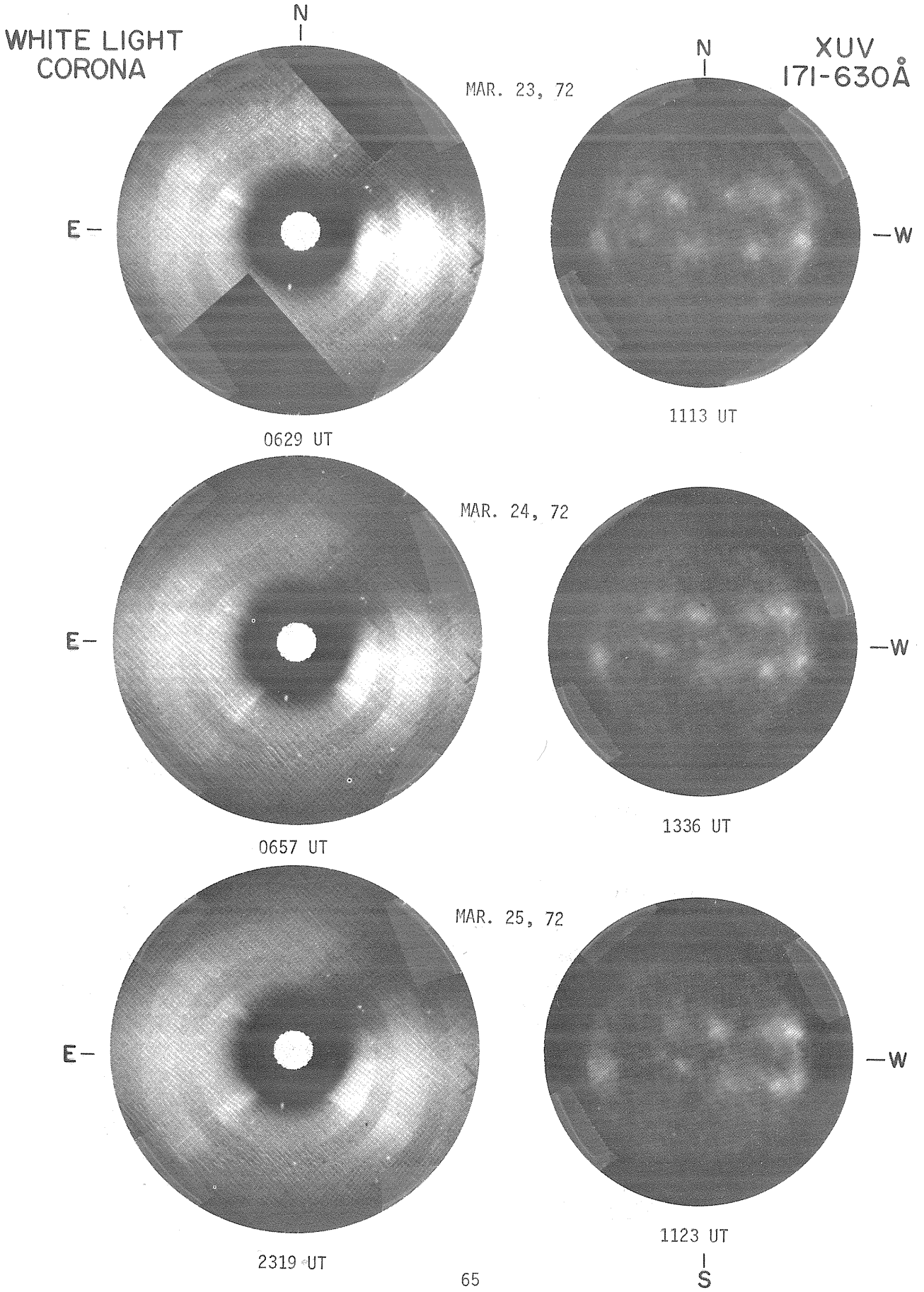
0955 UT

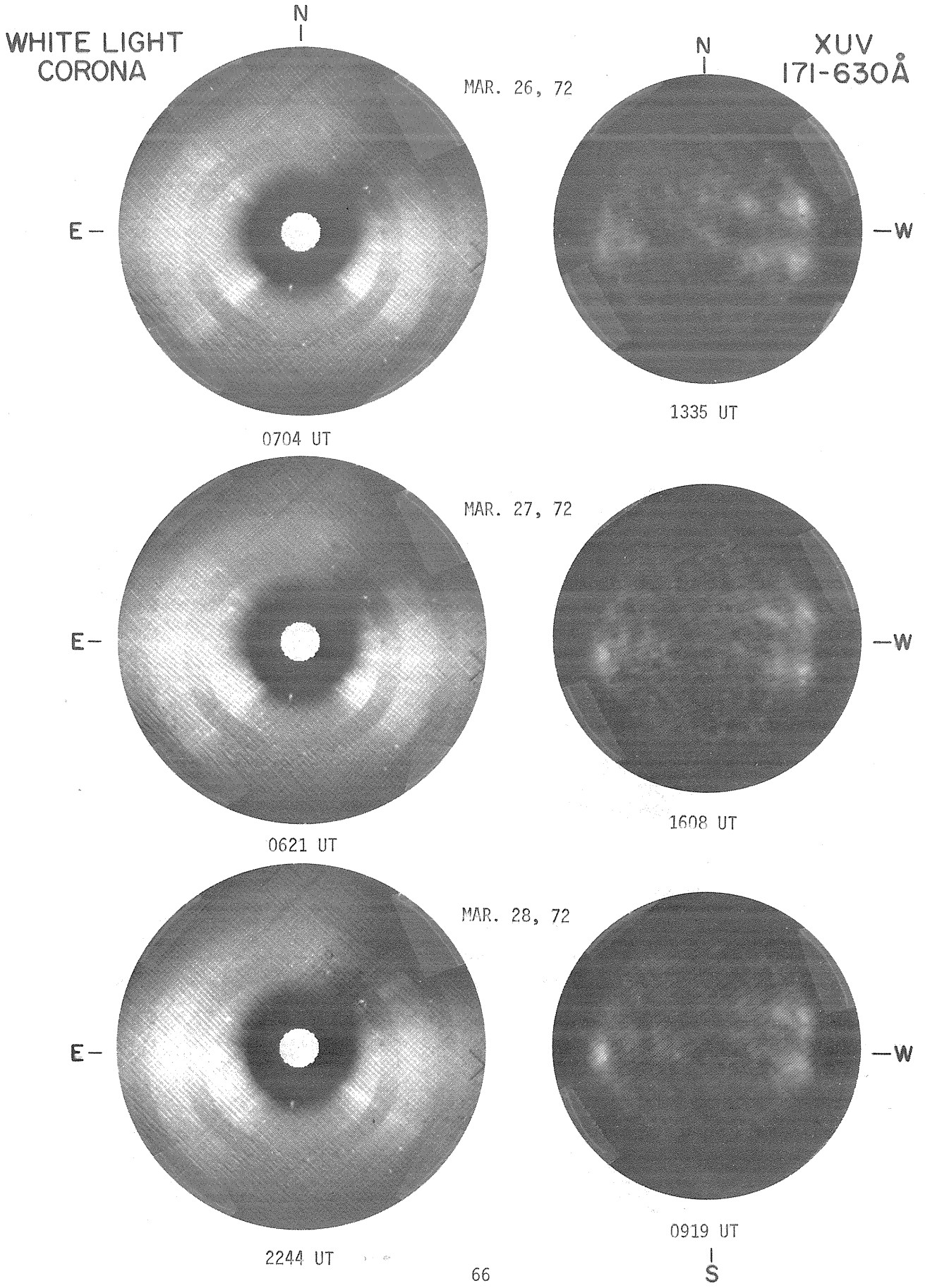


1336 UT

—W

S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
MAR. 23, 72
E
W
0629 UT
1113 UT
MAR. 24, 72
E
W
0657 UT
1336 UT
MAR. 25, 72
E
W
2319 UT
1123 UT
S


WHITE LIGHT
CORONA
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XUV
171-630Å
N
MAR. 26, 72
E
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0704 UT
1335 UT
MAR. 27, 72
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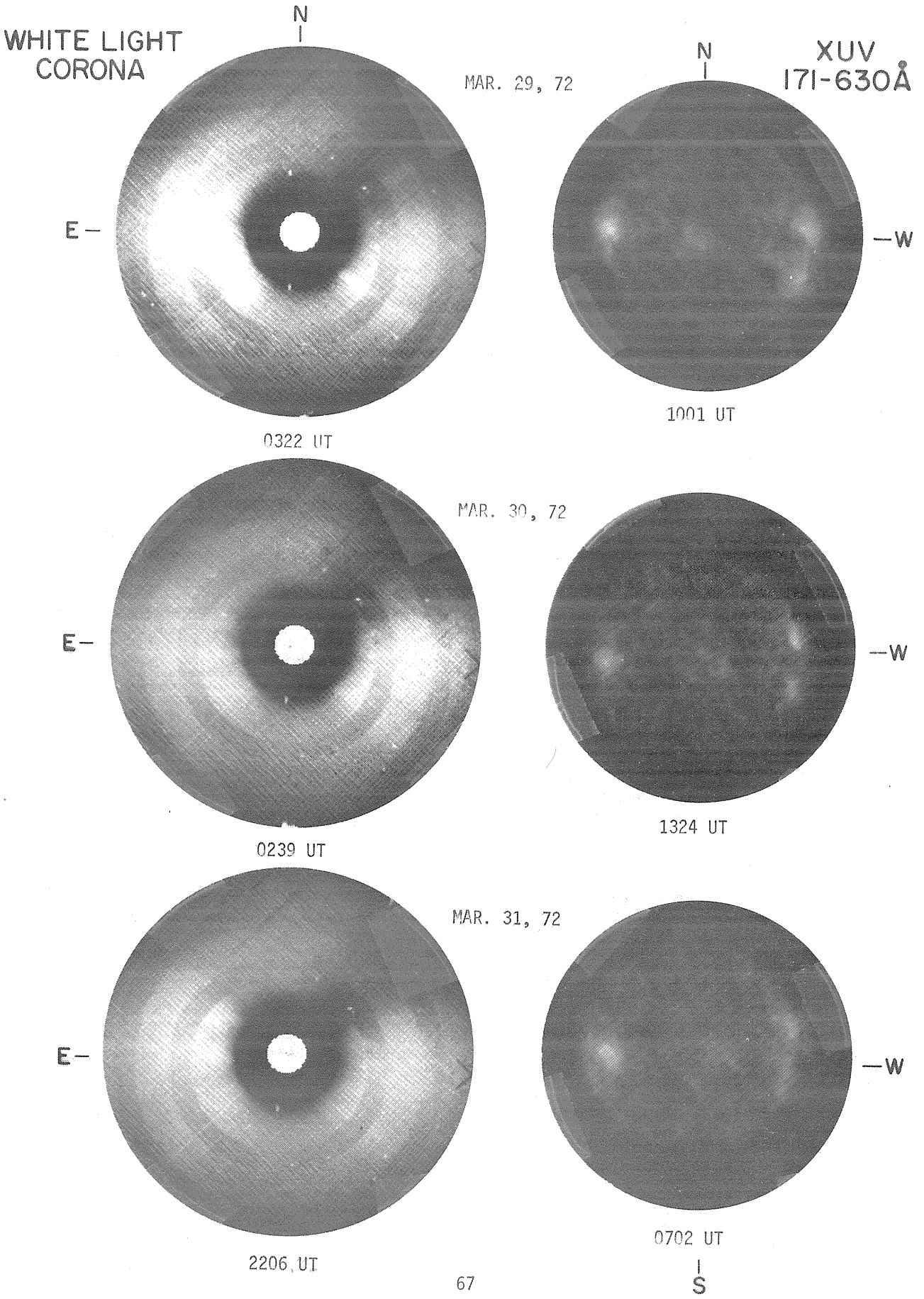
W
0621 UT
1608 UT
MAR. 28, 72
E
W
2244 UT
0919 UT
S


WHITE LIGHT
CORONA
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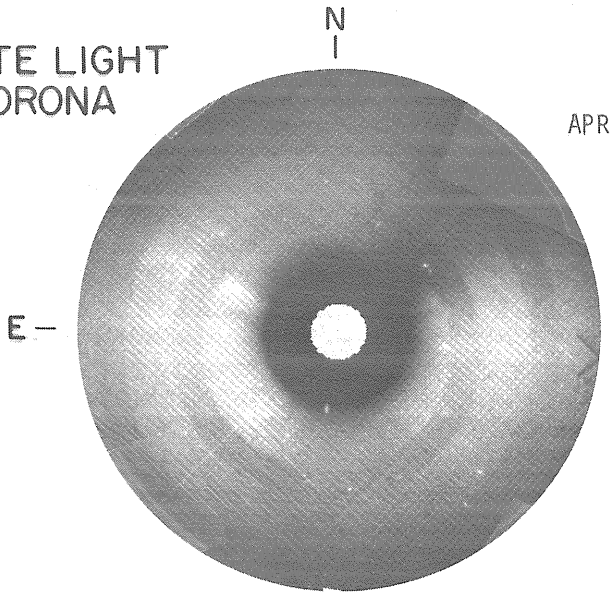
XUV
171-630Å
N
MAR. 29, 72
E
W
0322 UT
1001 UT
MAR. 30, 72
E
W
0239 UT
1324 UT
MAR. 31, 72
E
W
2206 UT
0702 UT
S

WHITE LIGHT CORONA

XUV 171-630Å

APR. 1, 72



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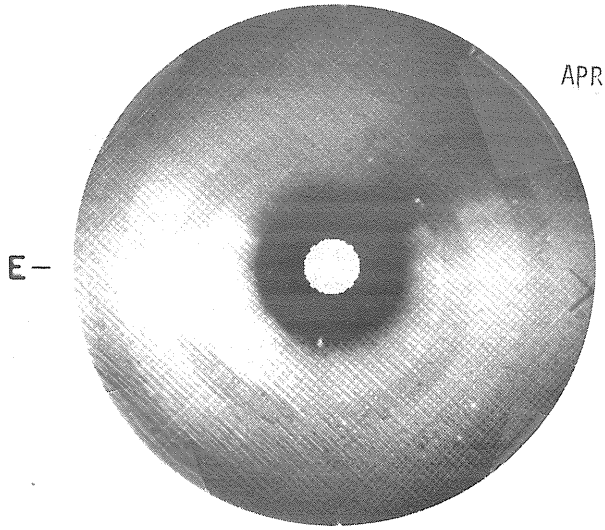
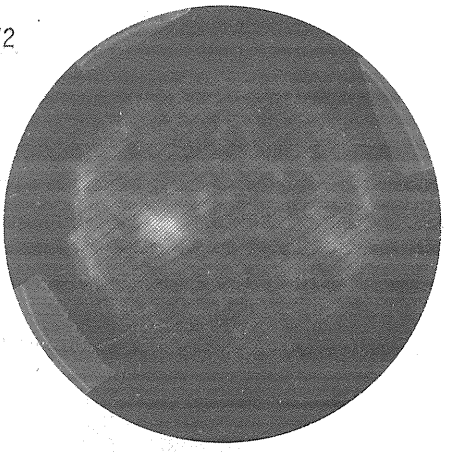
NO DATA

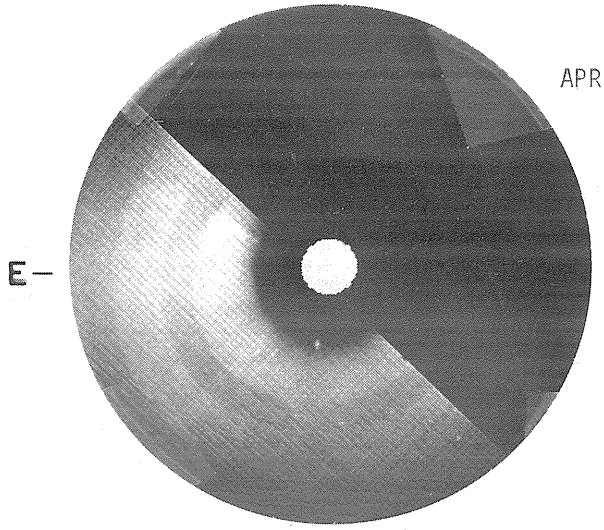
W

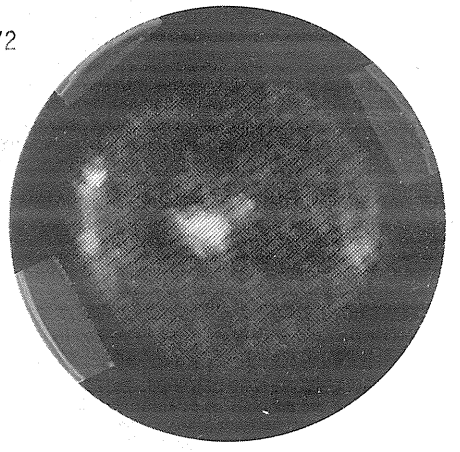
APR. 2, 72

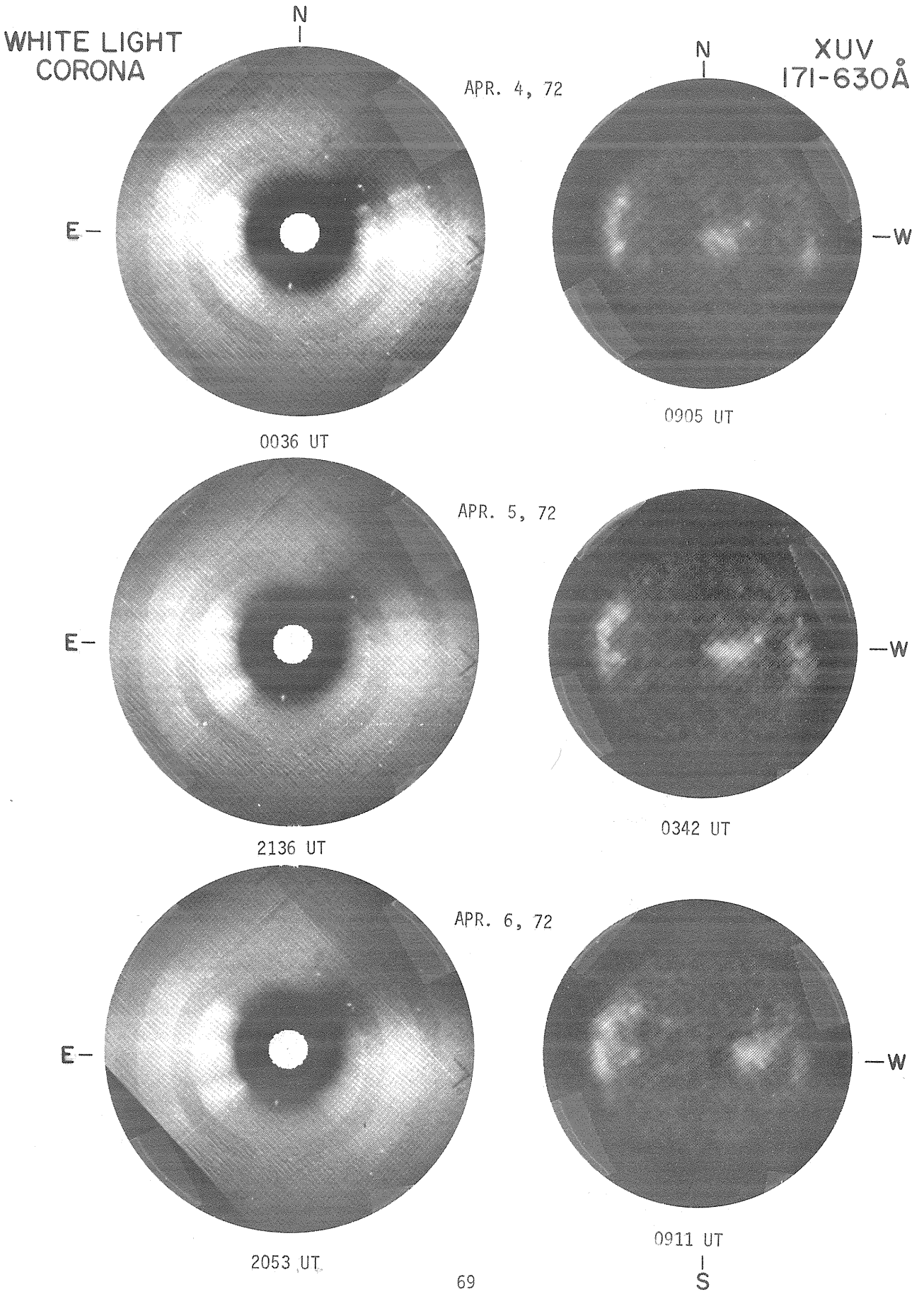




APR. 3, 72






WHITE LIGHT
CORONA
N
XUV
171-630Å
N
APR. 4, 72
E
W
0036 UT
0905 UT
APR. 5, 72
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W
2136 UT
0342 UT
APR. 6, 72
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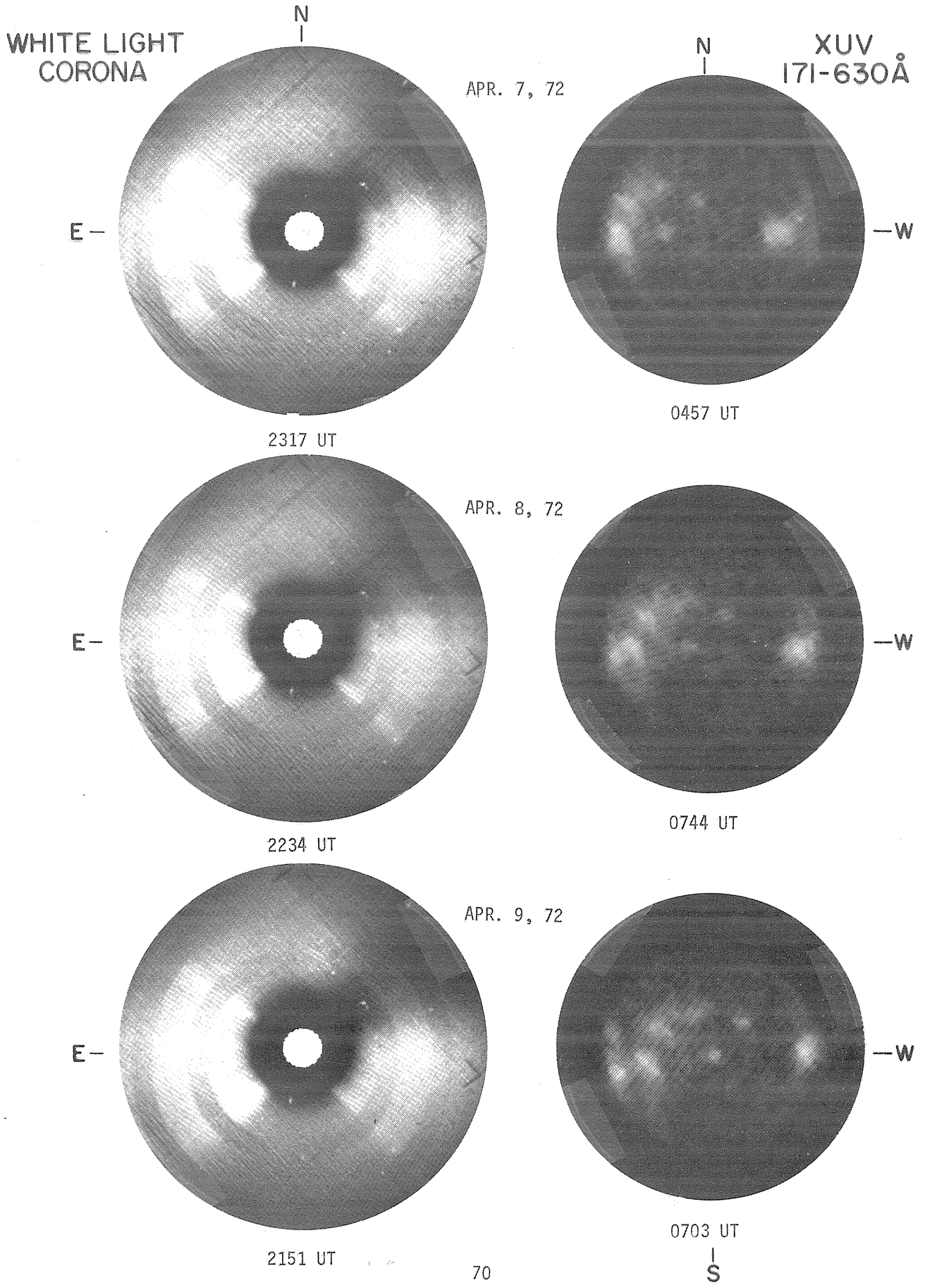
W
2053 UT
0911 UT
S


WHITE LIGHT
CORONA
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XUV
171-630Å
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APR. 7, 72
E
W
2317 UT
0457 UT
APR. 8, 72
E
W
2234 UT
0744 UT
APR. 9, 72
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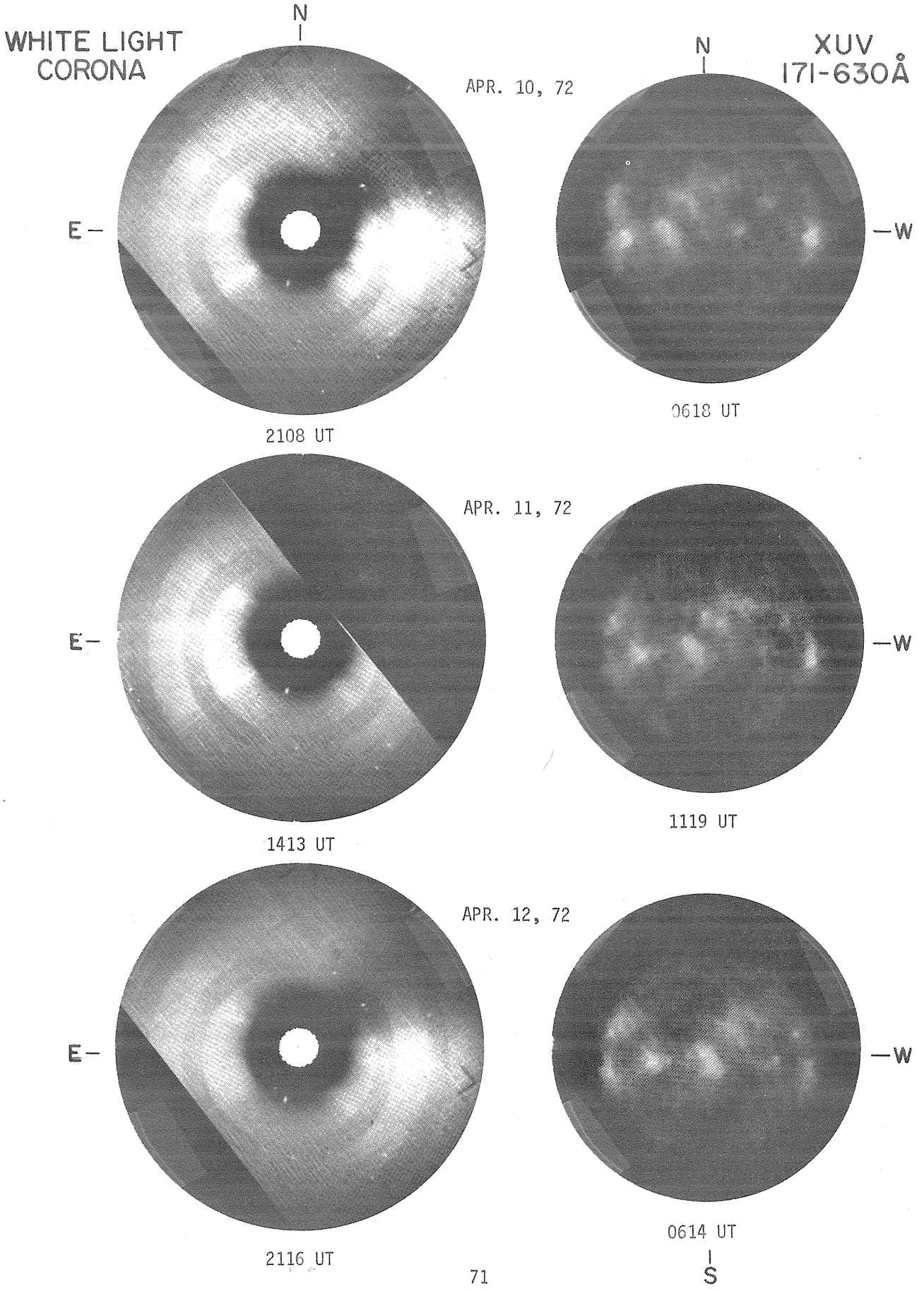
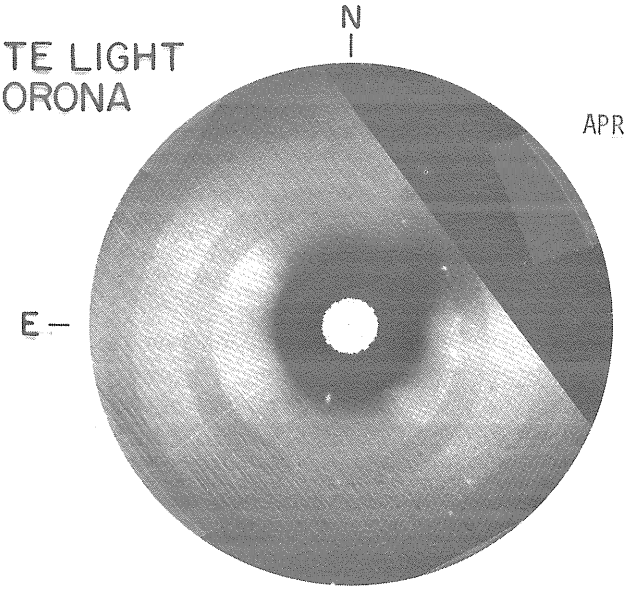
W
2151 UT
0703 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
APR. 10, 72
E
W
2108 UT
0618 UT
APR. 11, 72
E
W
1413 UT
1119 UT
APR. 12, 72
E
W
2116 UT
0614 UT
S

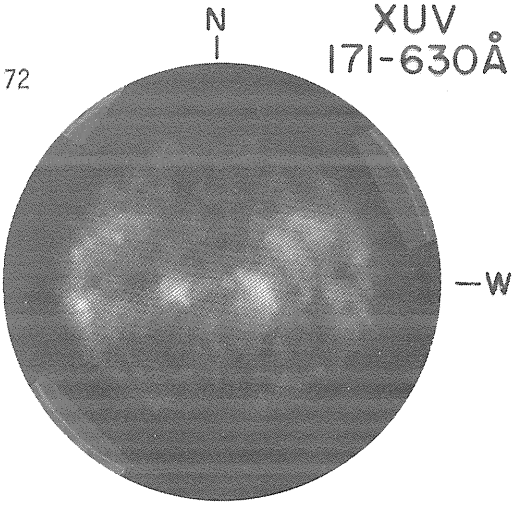
WHITE LIGHT CORONA

XUV 171-630Å

APR. 13, 72

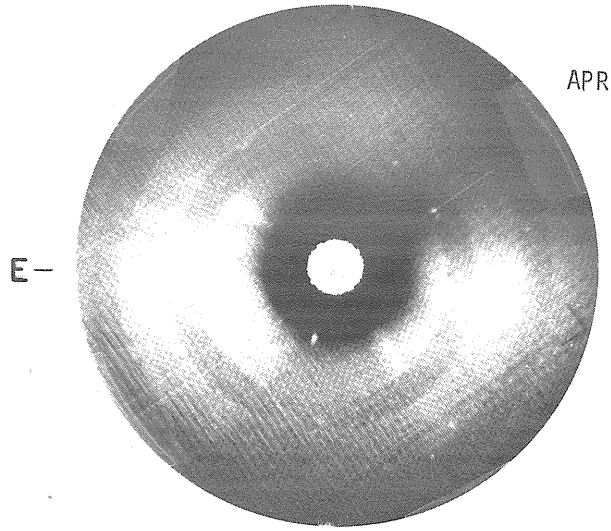


1248 UT

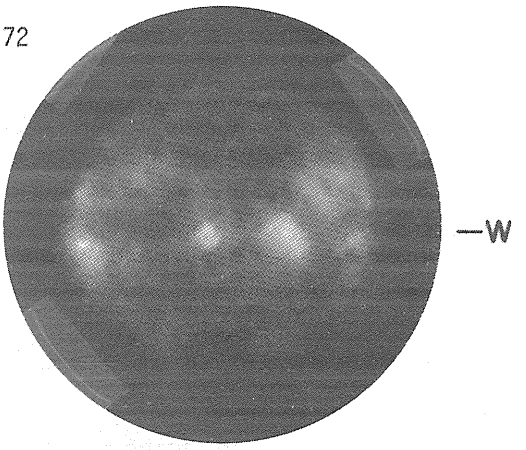


0846 UT

APR. 14, 72

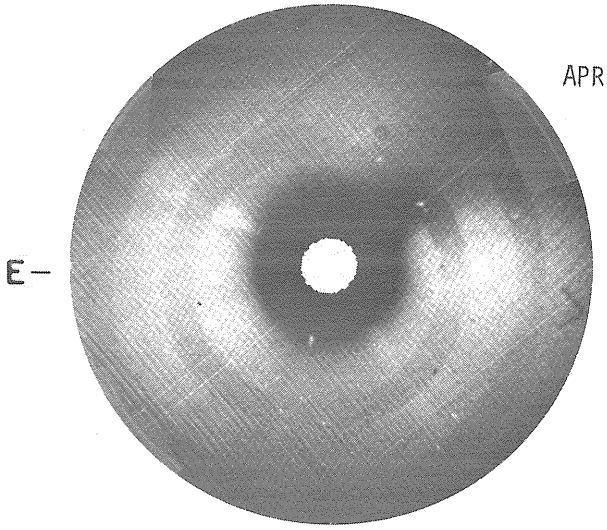


1211 UT

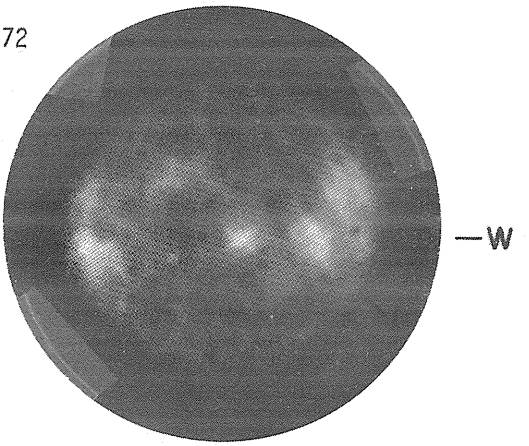


0623 UT

APR. 15, 72

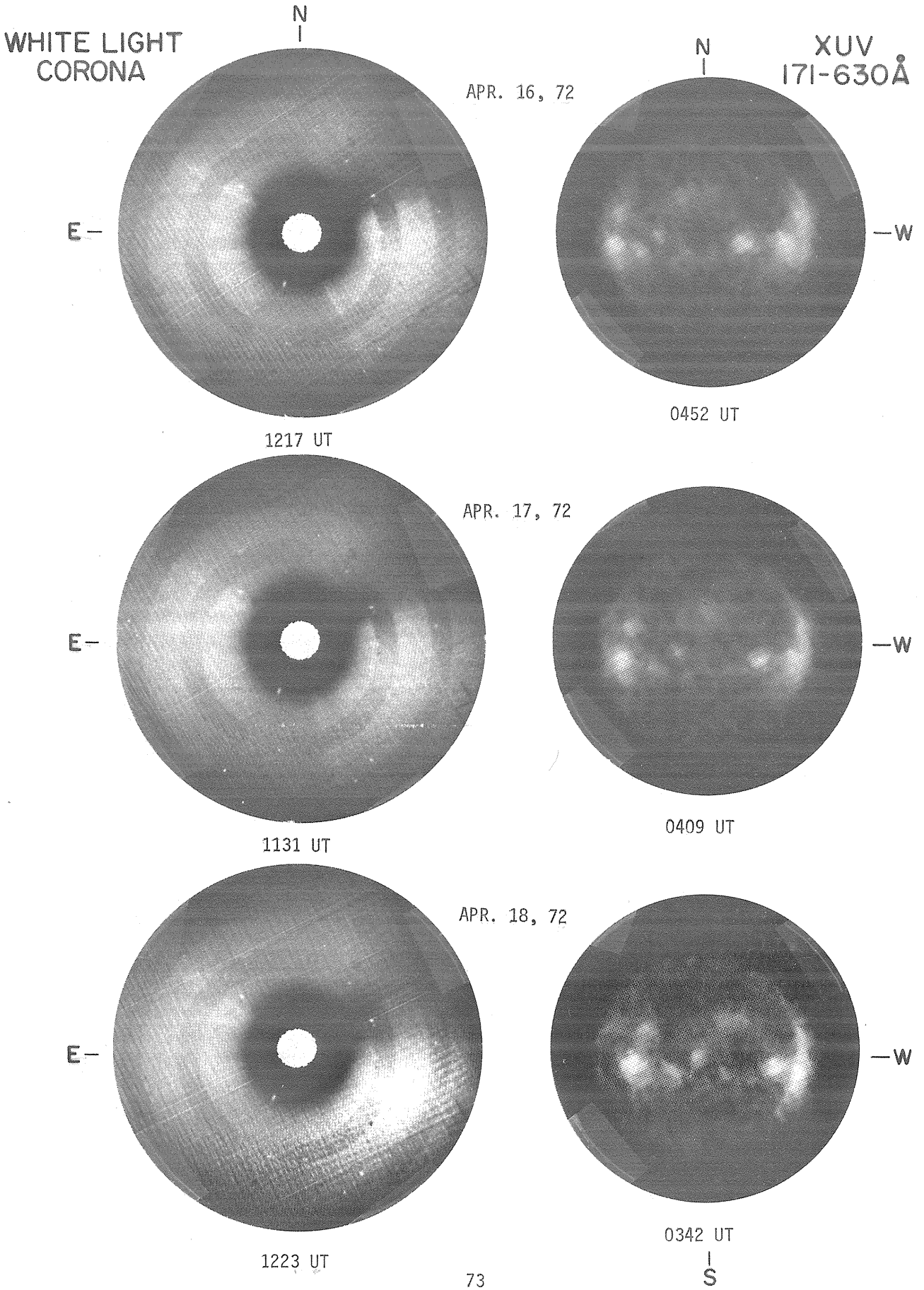


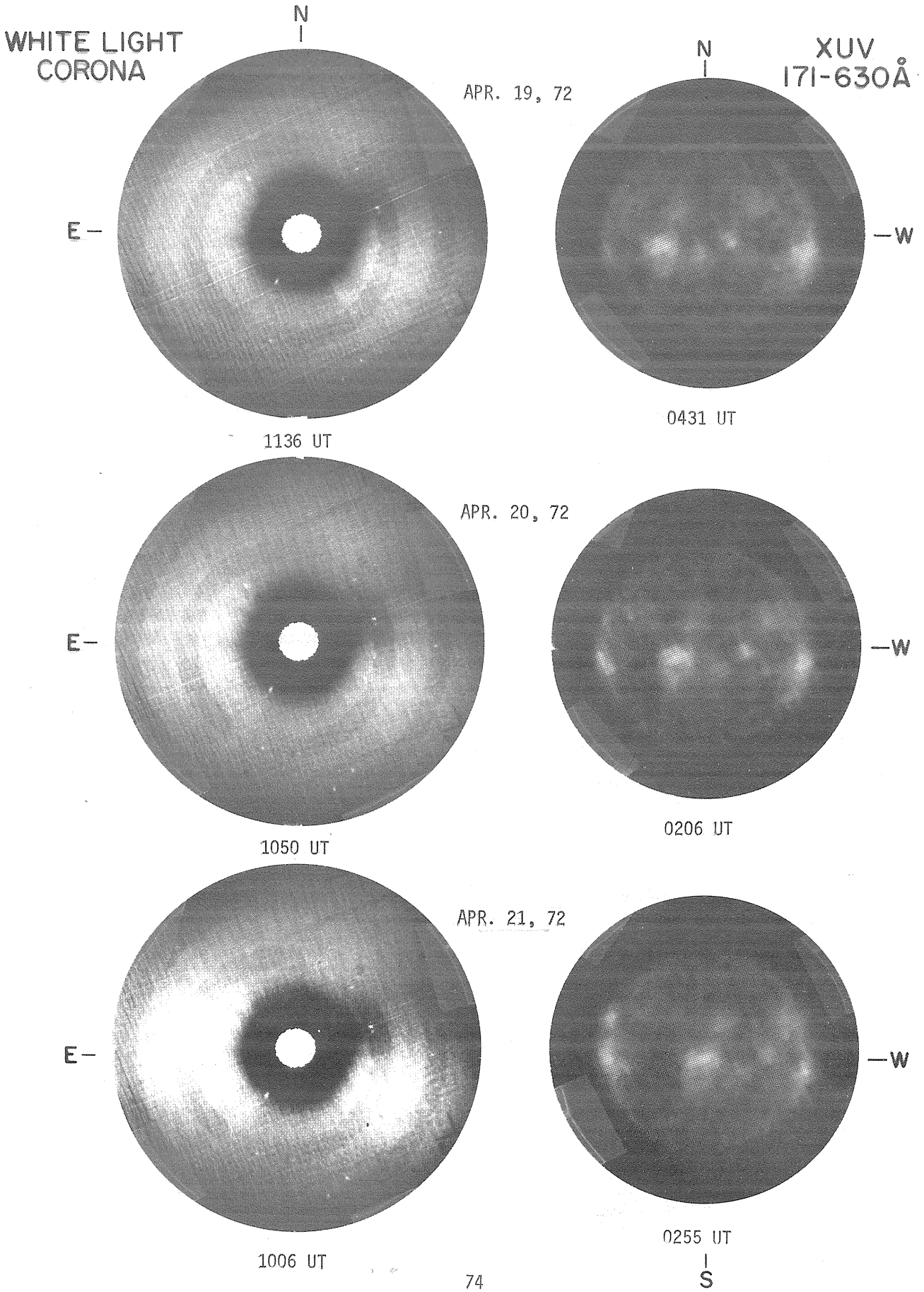
1126 UT



0544 UT

S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
APR. 16, 72
E
W
1217 UT
0452 UT
APR. 17, 72
E
W
1131 UT
0409 UT
APR. 18, 72
E
W
1223 UT
0342 UT
S


WHITE LIGHT
CORONA
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XUV
171-630Å
N
APR. 19, 72
E
W
1136 UT
0431 UT
APR. 20, 72
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W
1050 UT
0206 UT
APR. 21, 72
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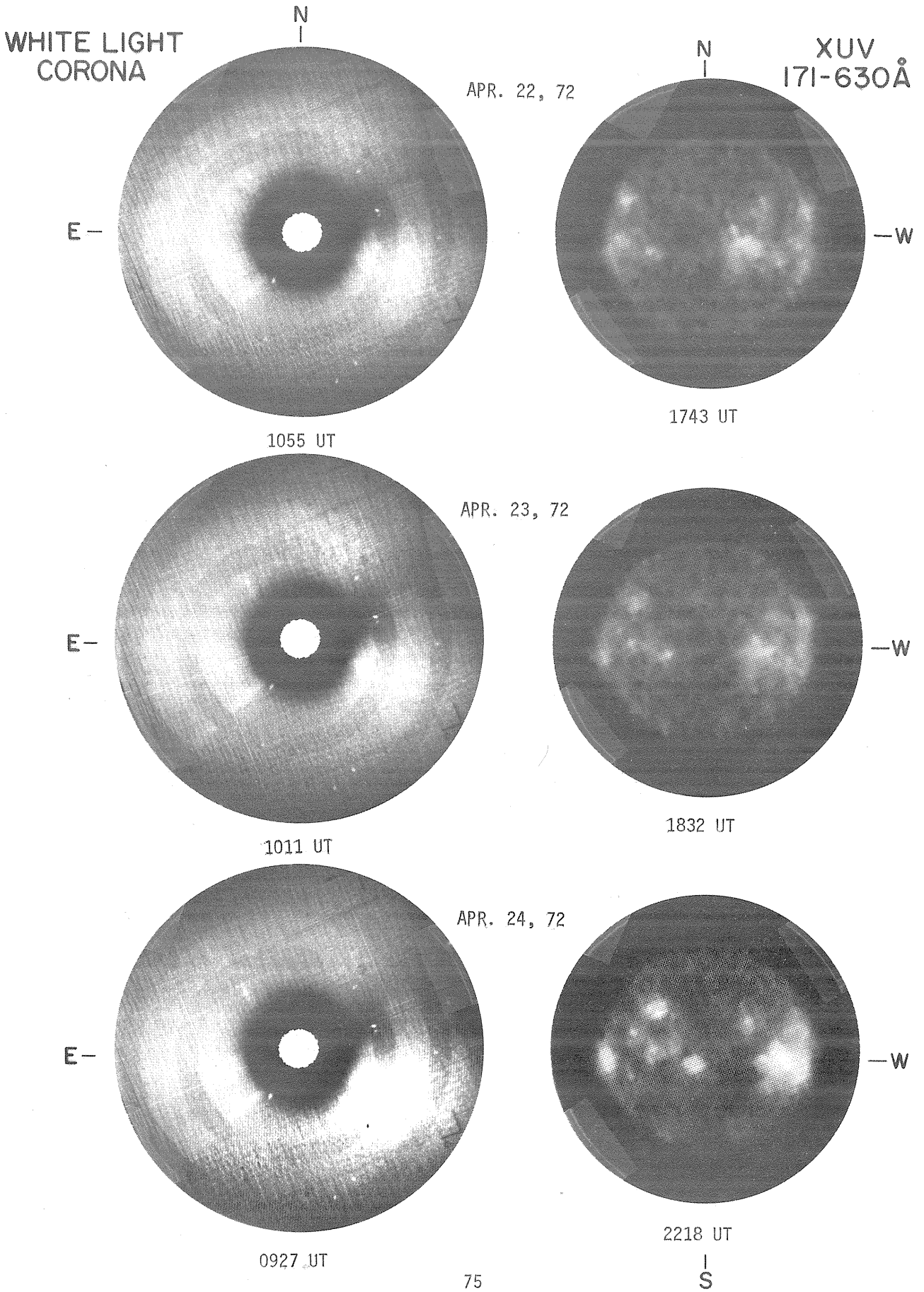
W
1006 UT
0255 UT
S


WHITE LIGHT
CORONA
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XUV
171-630Å
N
APR. 22, 72
E
W
1055 UT
1743 UT
APR. 23, 72
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W
1011 UT
1832 UT
APR. 24, 72
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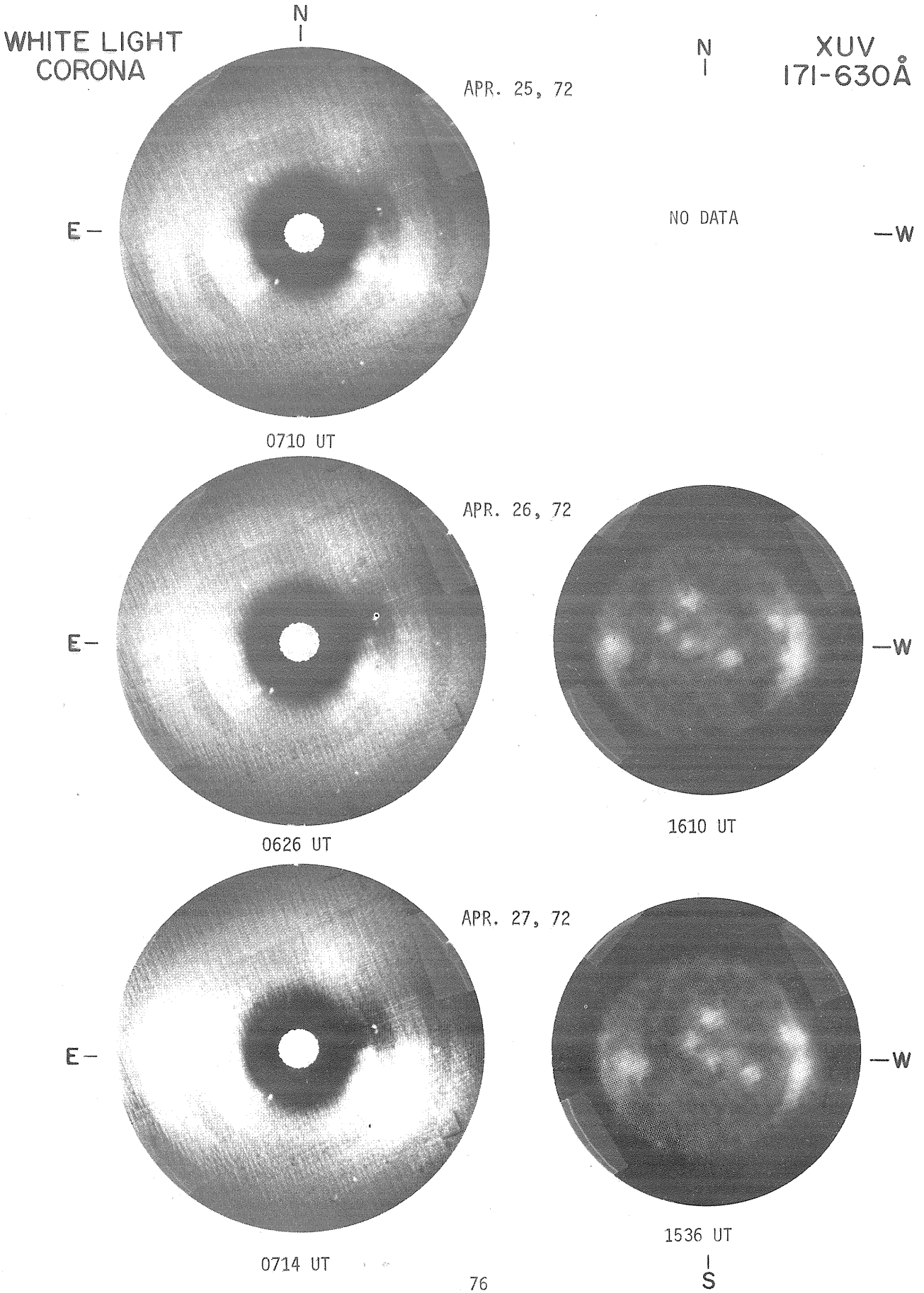
W
0927 UT
2218 UT
S


WHITE LIGHT
CORONA
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XUV
171-630Å
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APR. 25, 72
E
NO DATA
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0710 UT
APR. 26, 72
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0626 UT
1610 UT
APR. 27, 72
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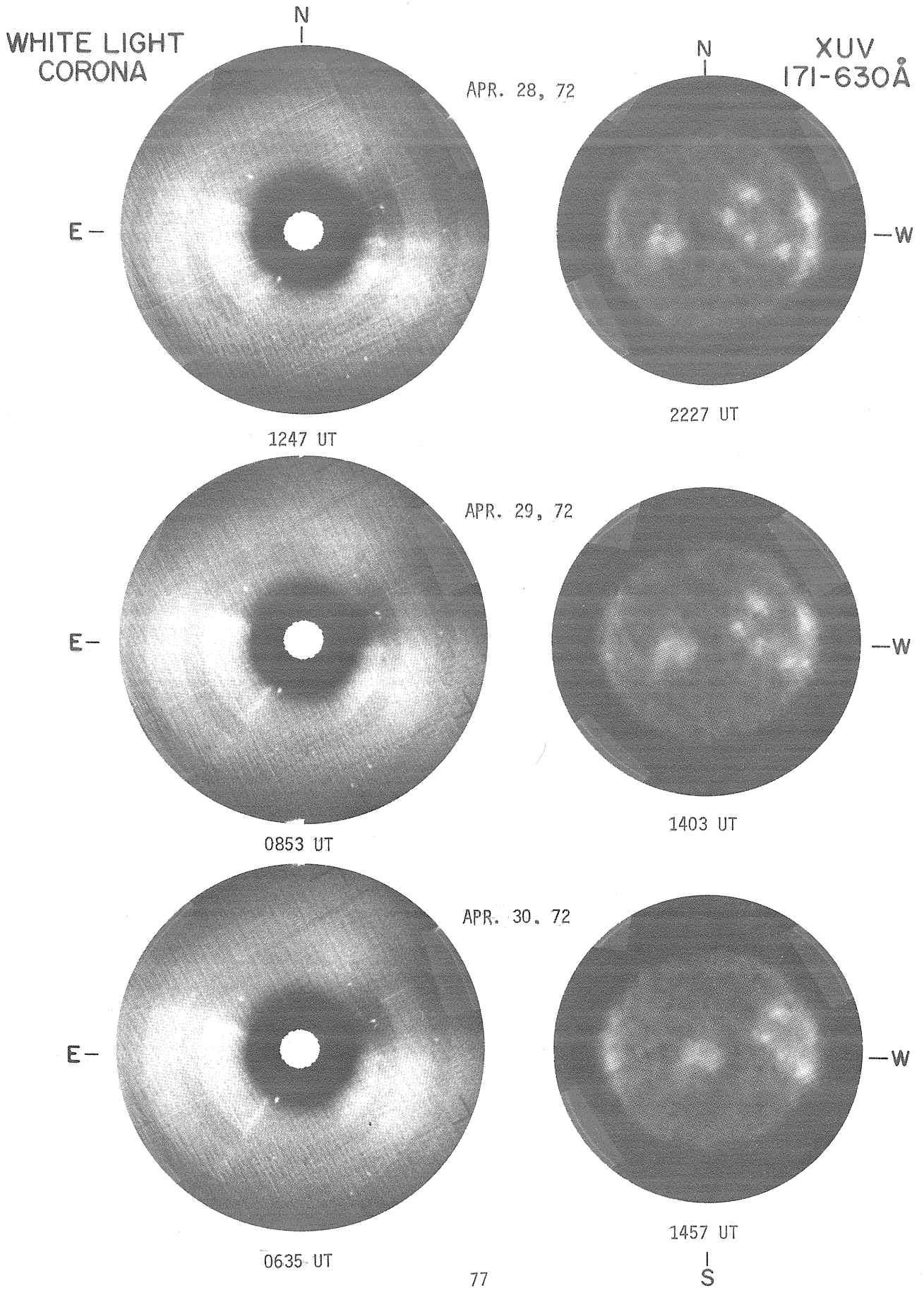
W
0714 UT
1536 UT
S


WHITE LIGHT
CORONA
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XUV
171-630Å
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APR. 28, 72
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W
1247 UT
2227 UT
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0853 UT
1403 UT
APR. 30. 72
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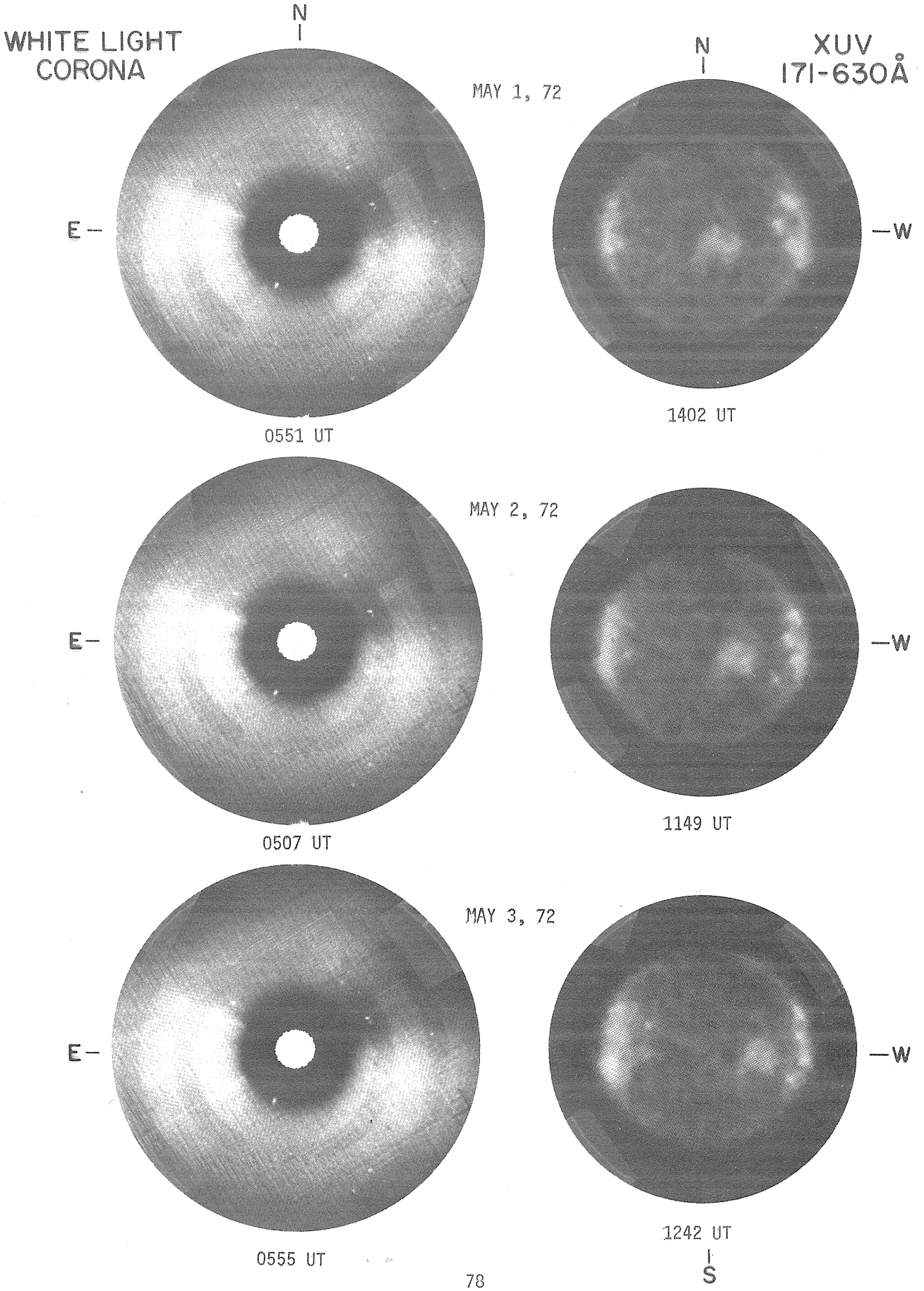
W
0635 UT
1457 UT
S


WHITE LIGHT
CORONA
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XUV
171-630Å
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MAY 1, 72
E
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0551 UT
1402 UT
MAY 2, 72
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0507 UT
1149 UT
MAY 3, 72
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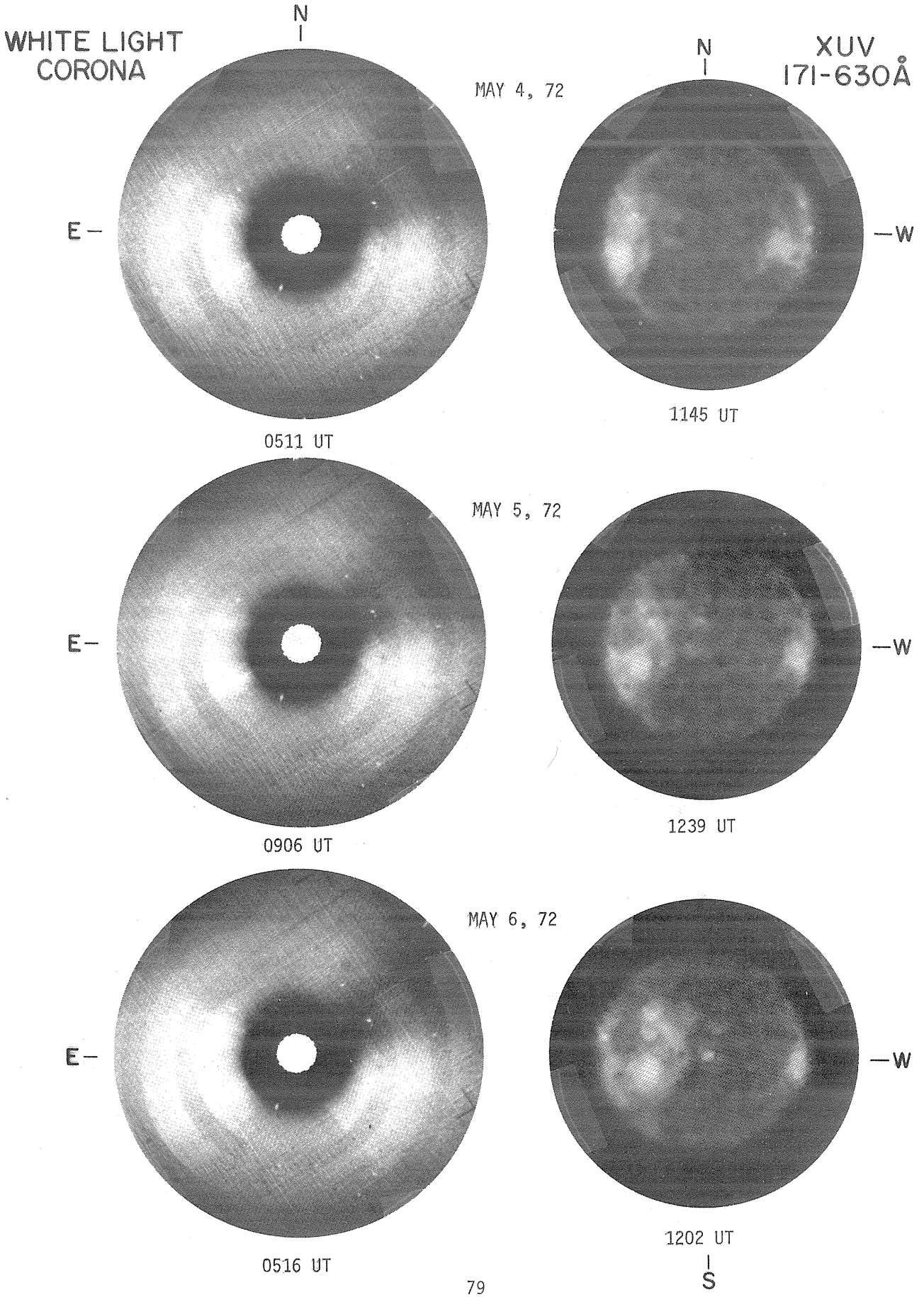
W
0555 UT
1242 UT
S


WHITE LIGHT
CORONA
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XUV
171-630Å
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MAY 4, 72
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0511 UT
1145 UT
MAY 5, 72
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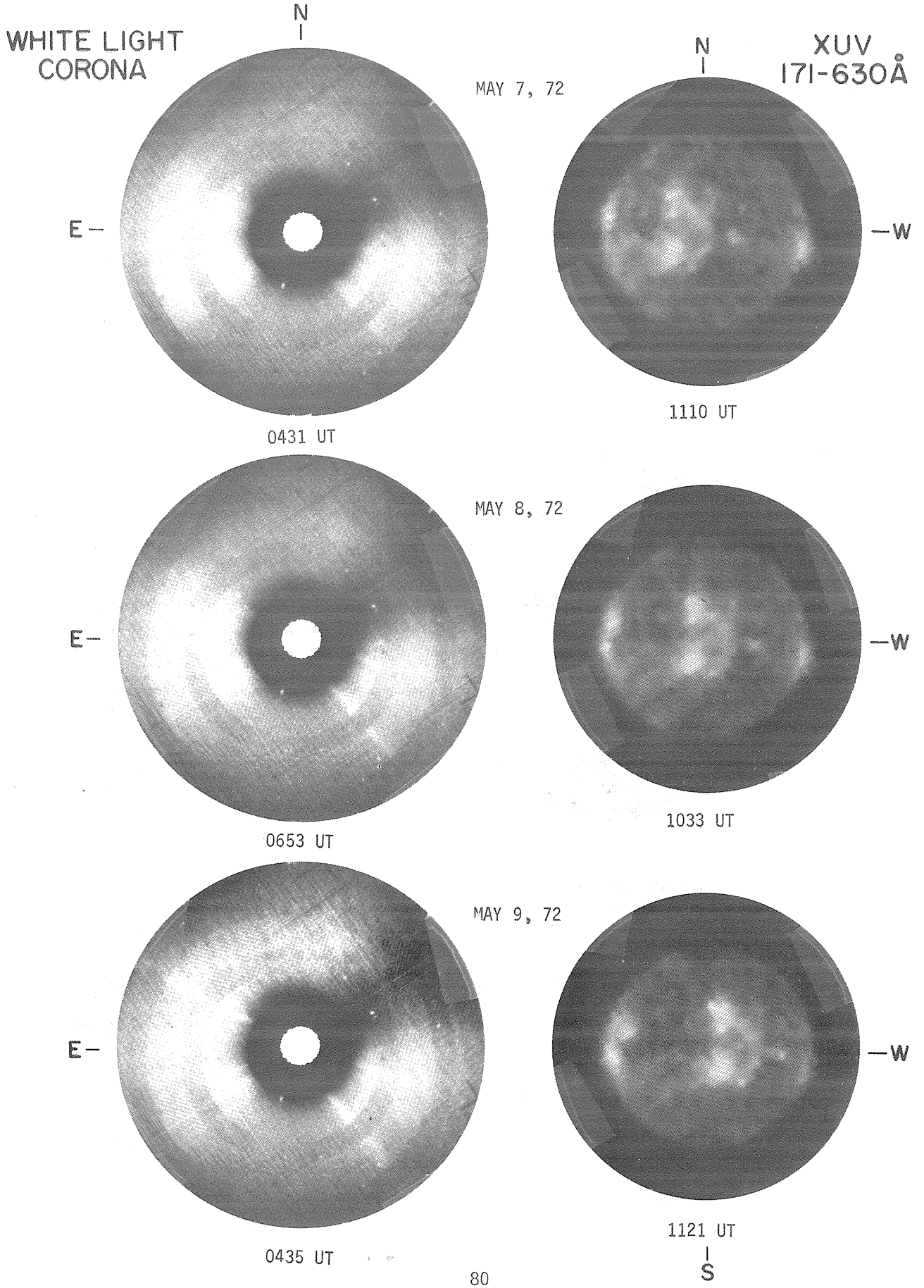
0906 UT
1239 UT
MAY 6, 72
E
W
0516 UT
1202 UT
S


WHITE LIGHT
CORONA
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XUV
171-630Å
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MAY 7, 72
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0431 UT
1110 UT
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0653 UT
1033 UT
MAY 9, 72
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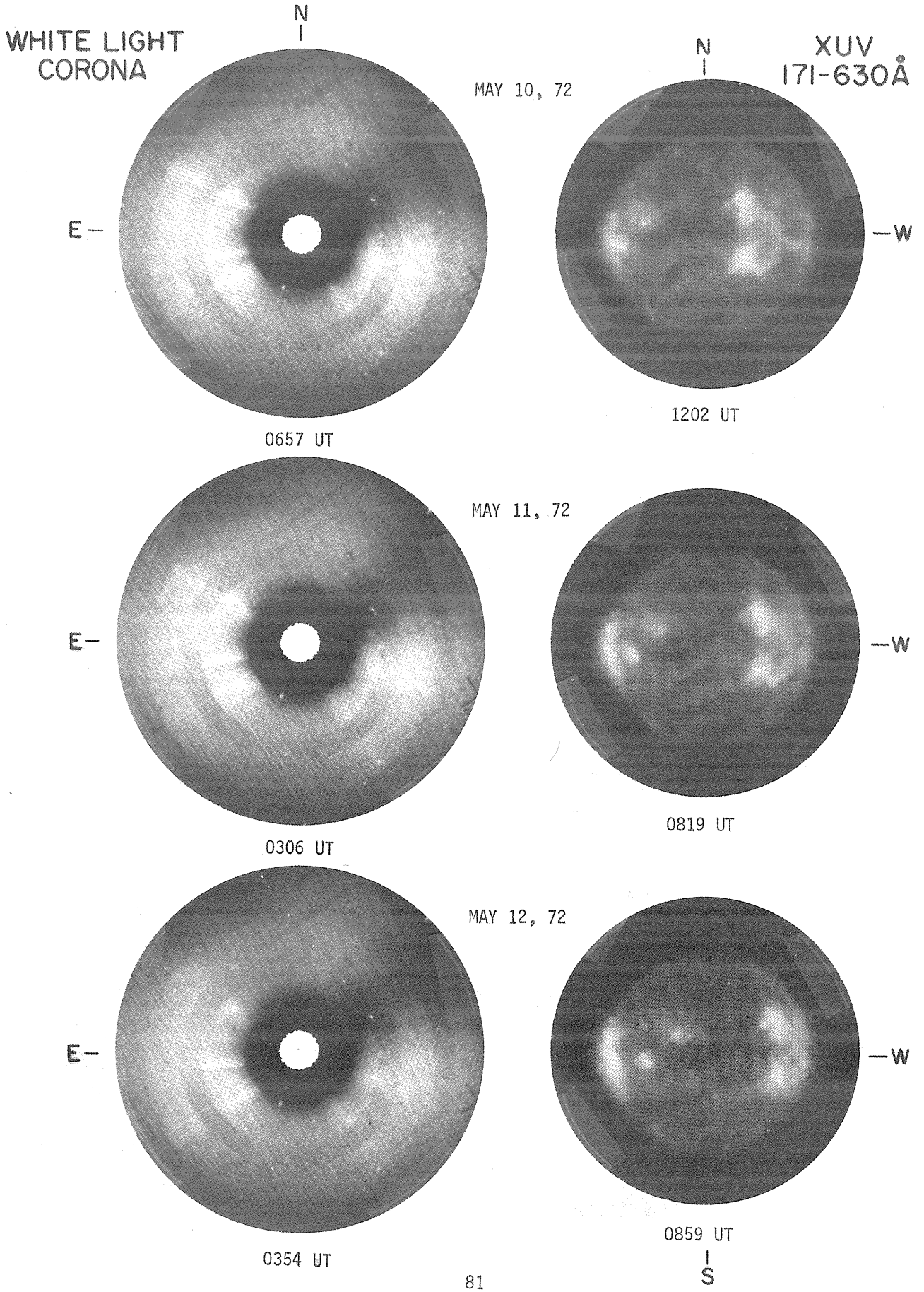
W
0435 UT
1121 UT
S


WHITE LIGHT CORONA
XUV 171-630Å
N
N
E
W
MAY 10, 72
0657 UT
1202 UT
MAY 11, 72
E
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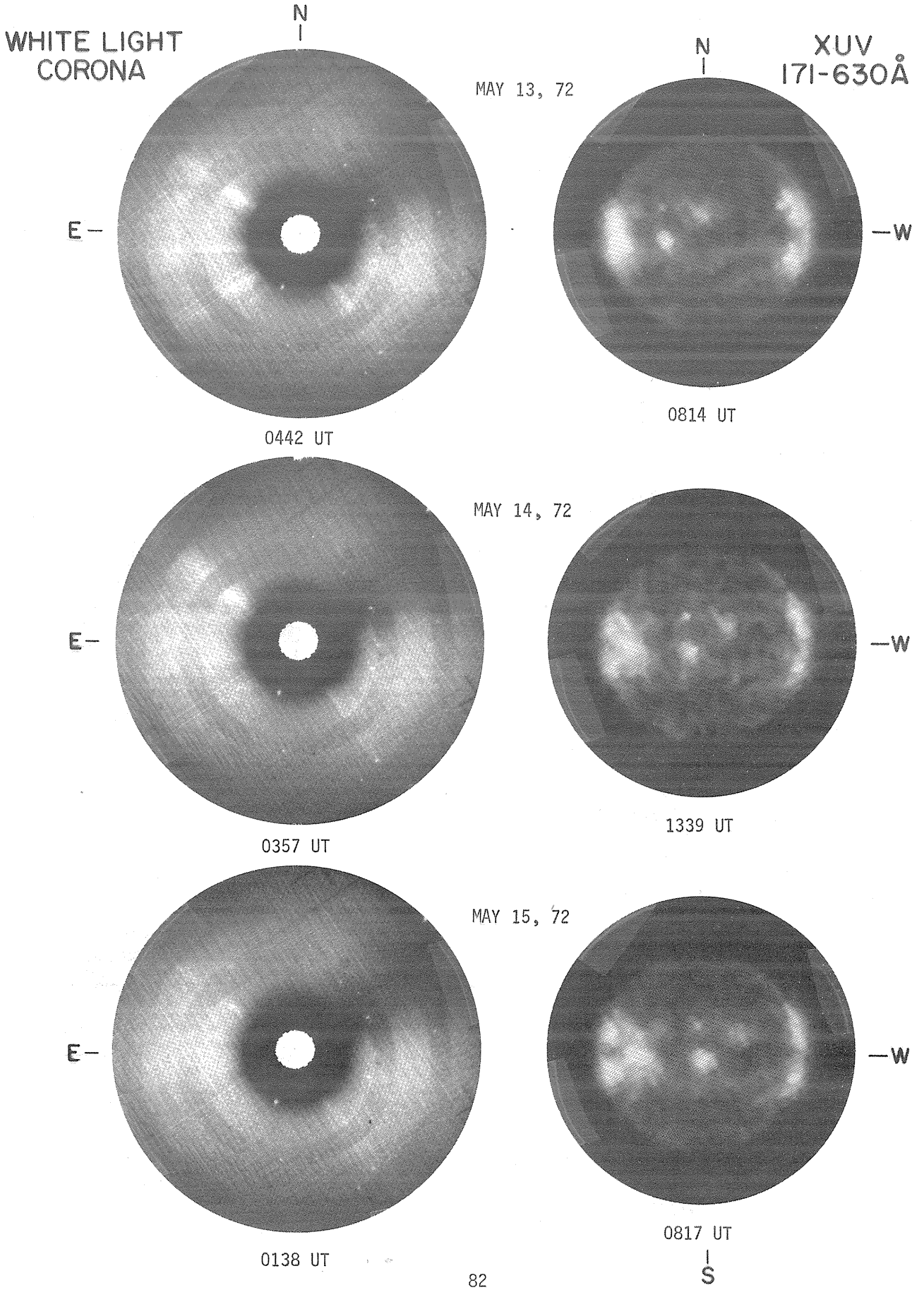
0306 UT
0819 UT
MAY 12, 72
E
W
0354 UT
0859 UT
S


WHITE LIGHT
CORONA
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XUV
171-630Å
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MAY 13, 72
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0442 UT
0814 UT
MAY 14, 72
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0357 UT
1339 UT
MAY 15, 72
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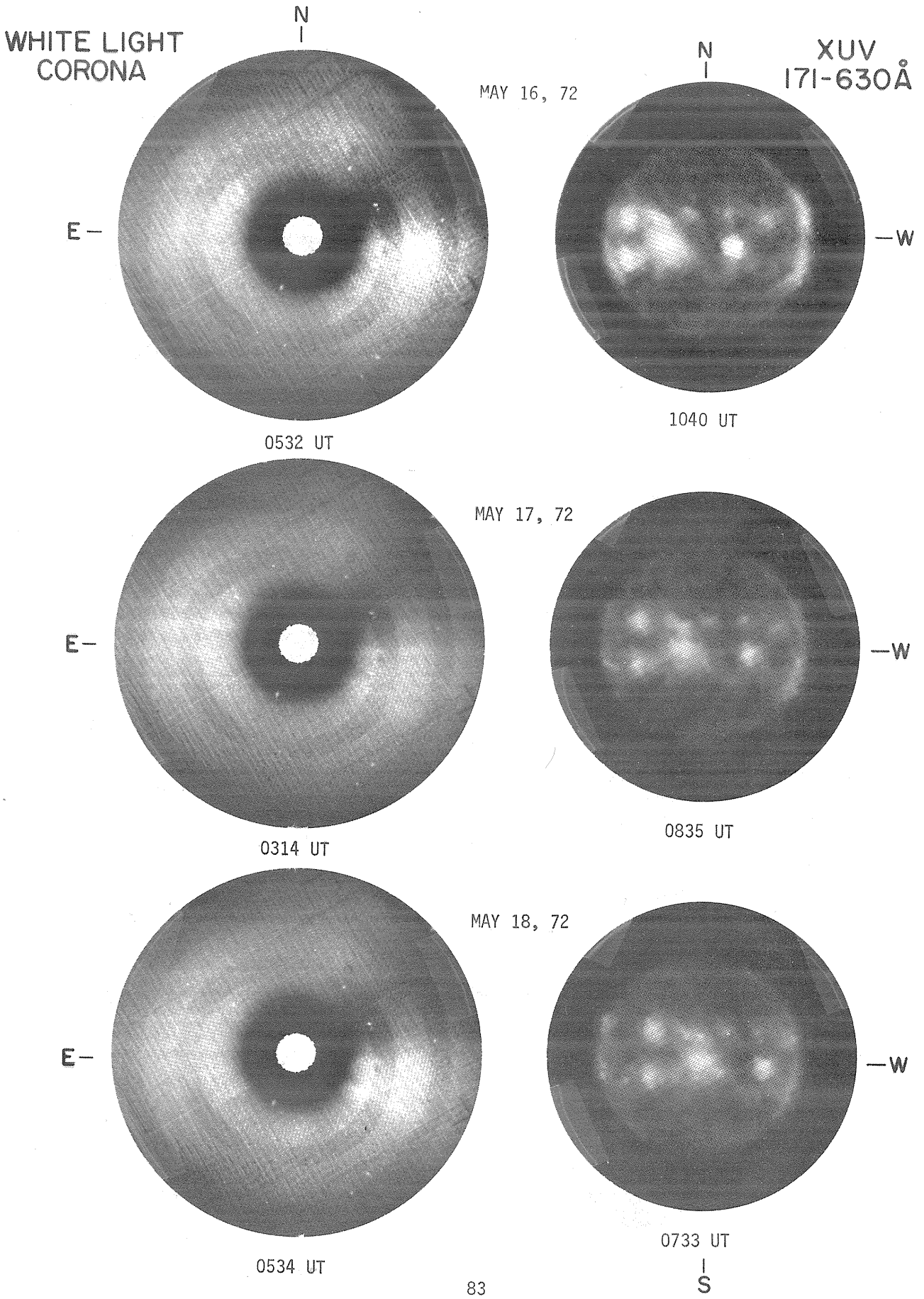
0138 UT
0817 UT
S


WHITE LIGHT
CORONA
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XUV
171-630Å
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MAY 16, 72
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0532 UT
1040 UT
MAY 17, 72
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0314 UT
0835 UT
MAY 18, 72
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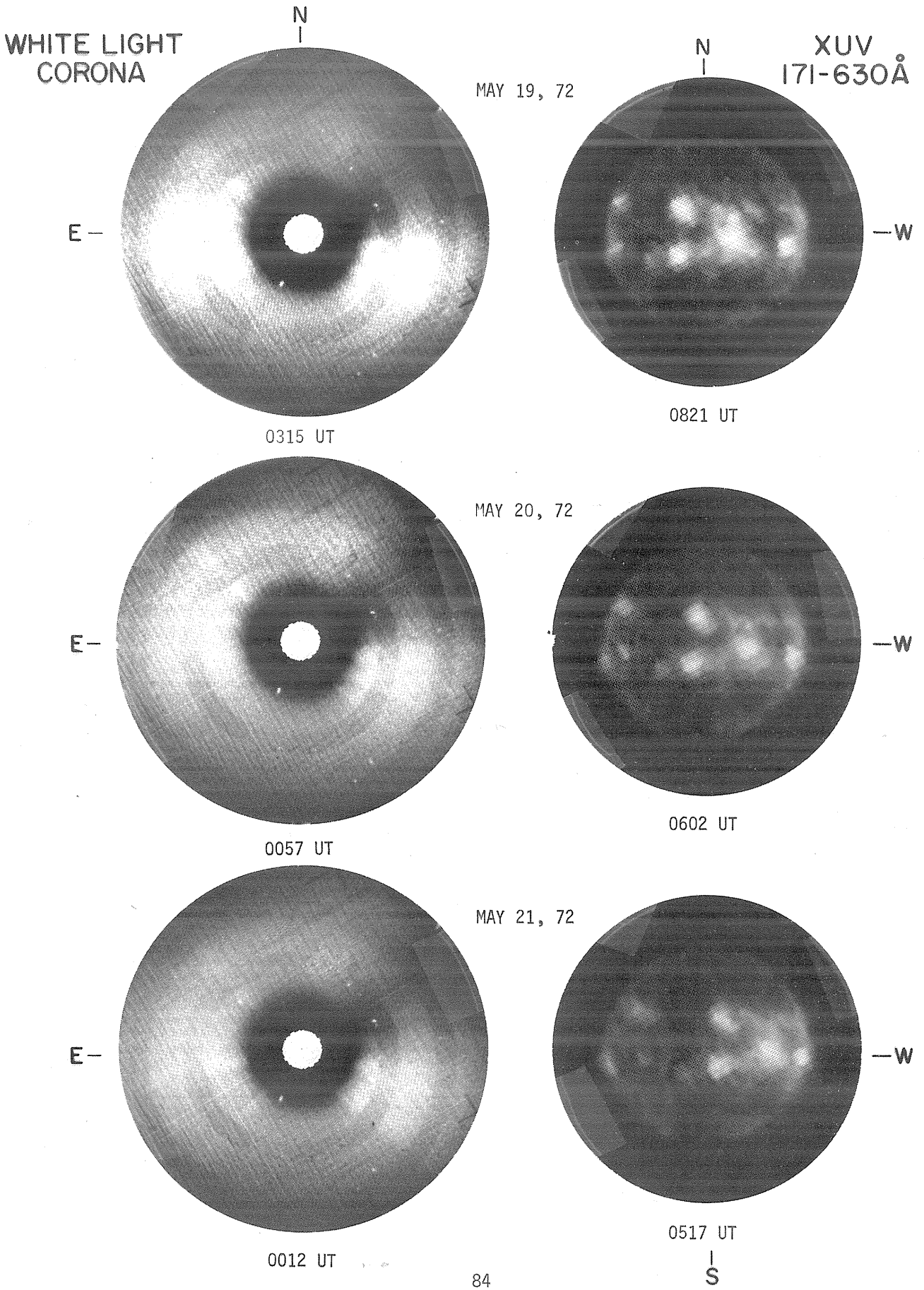
0534 UT
0733 UT
S


WHITE LIGHT
CORONA
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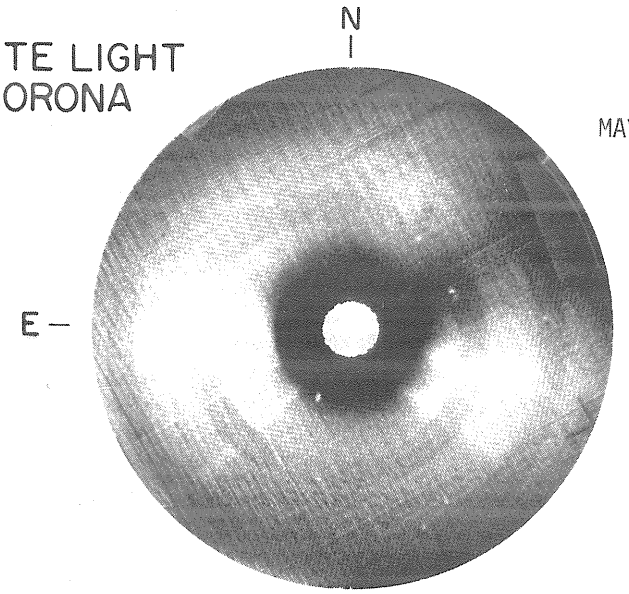
XUV
171-630Å
N
MAY 19, 72
E
W
0315 UT
0821 UT
MAY 20, 72
E
W
0057 UT
0602 UT
MAY 21, 72
E
W
0012 UT
0517 UT
S

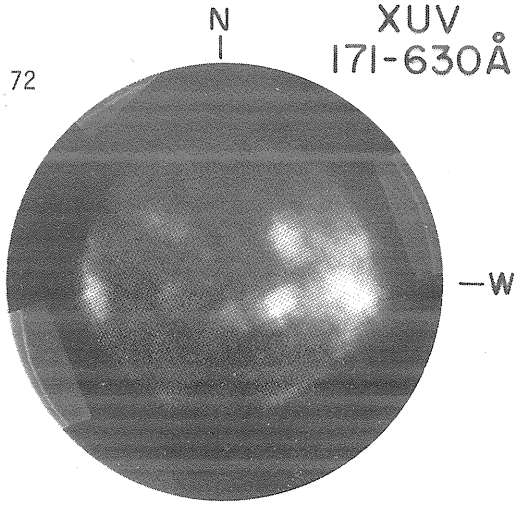
WHITE LIGHT CORONA

XUV 171-630Å

MAY 22, 72



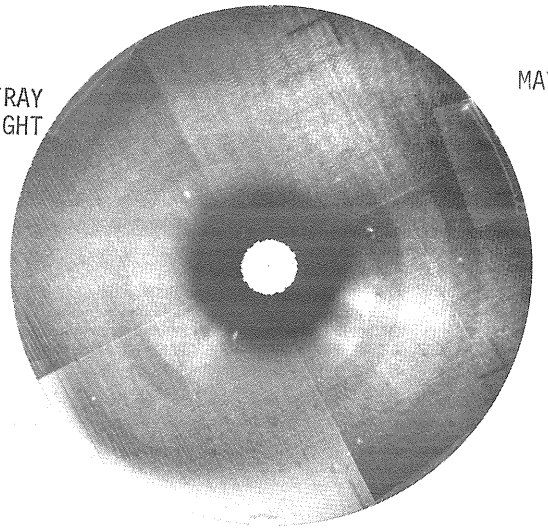
0059 UT



0737 UT

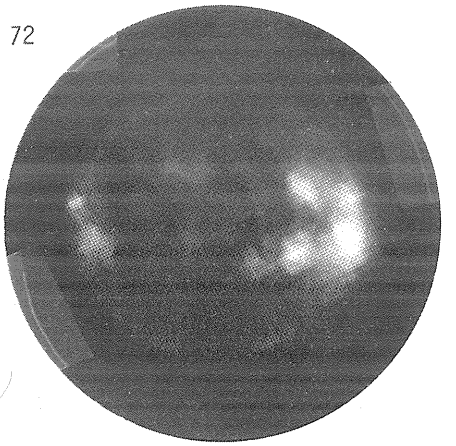
MAY 23, 72

STRAY LIGHT



1913 UT - Q3

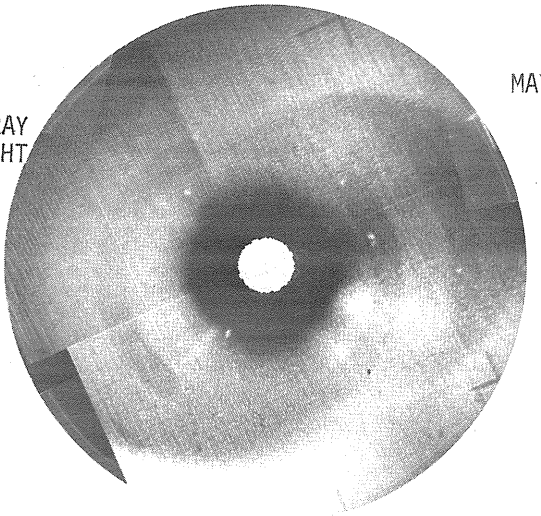
2023 UT FULL



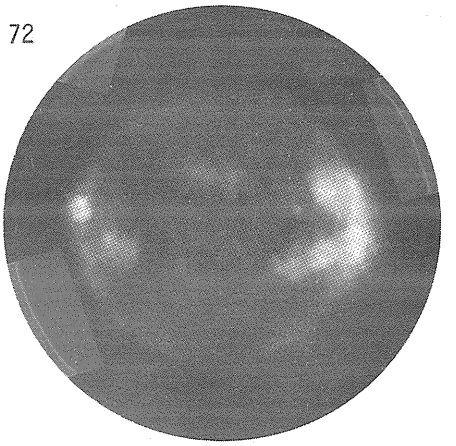
0712 UT

MAY 24, 72

STRAY LIGHT



1632 UT FULL
1816 UT - Q3



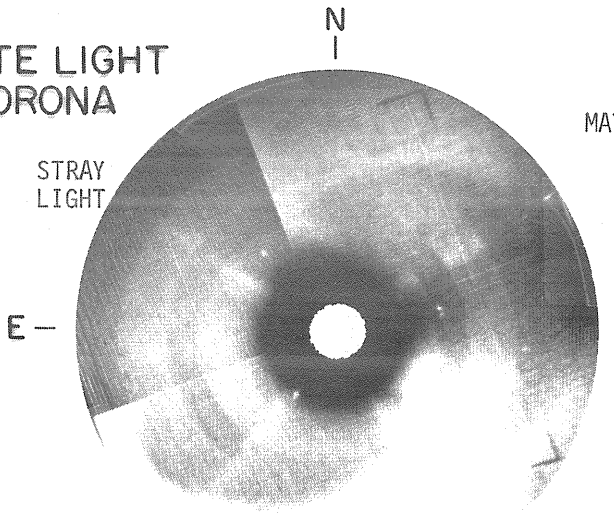
0607 UT

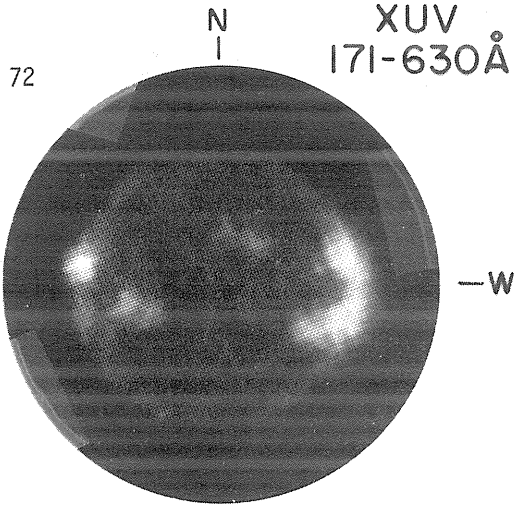
S

WHITE LIGHT CORONA

XUV 171-630Å

MAY 25, 72

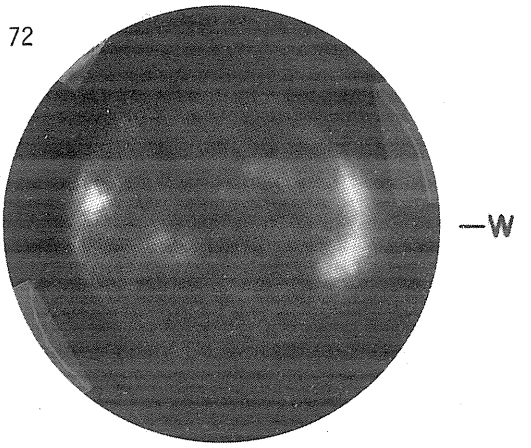




1905 UT - Q3 2159 UT FULL

0522 UT

MAY 26, 72

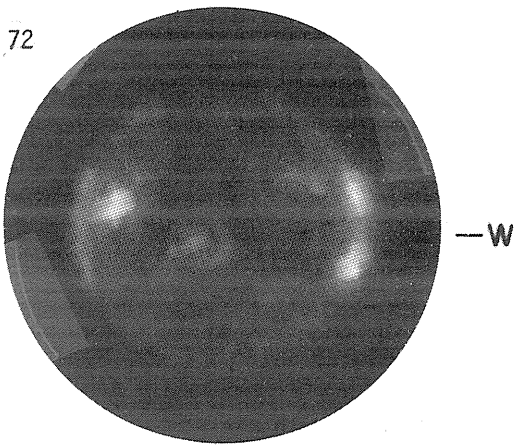


1820 UT - Q3
2002 UT - Q2

2248 UT FULL

0632 UT

MAY 27, 72



1736 UT - Q2
1911 UT - Q3

2204 UT FULL

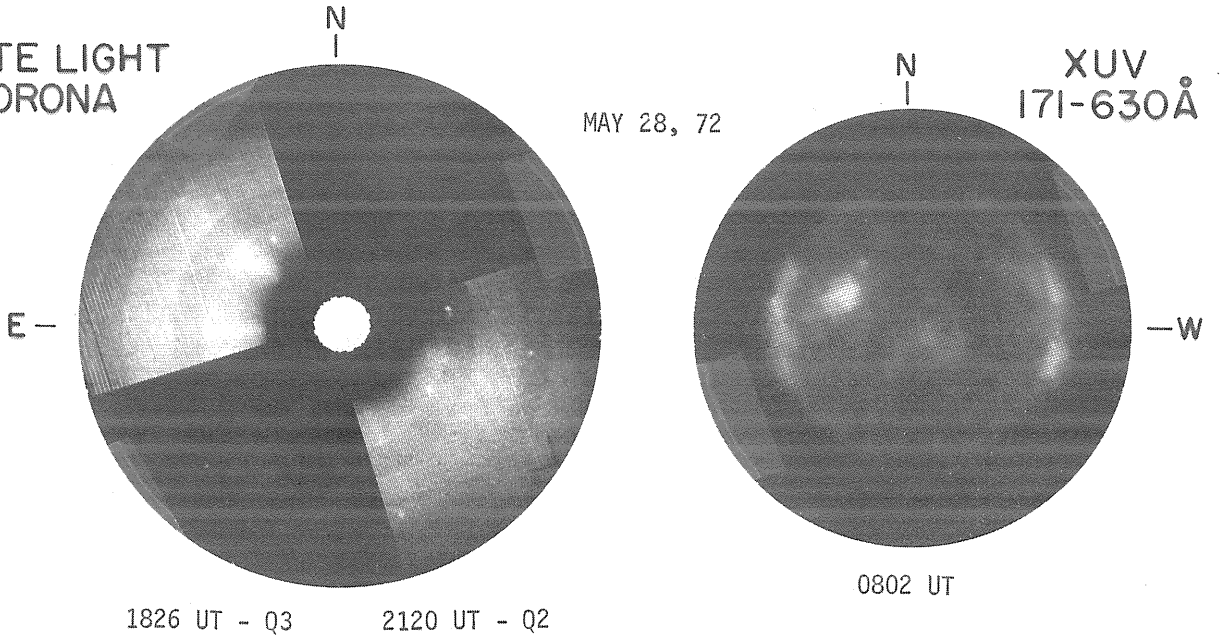
0721 UT

S

WHITE LIGHT CORONA

XUV 171-630Å

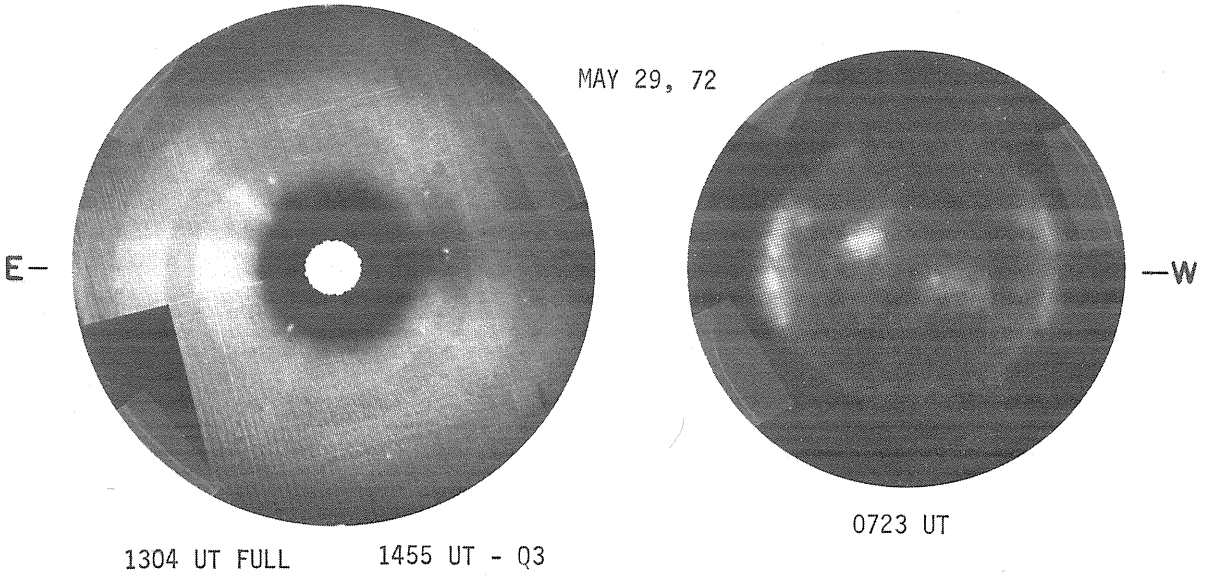
MAY 28, 72



1826 UT - Q3 2120 UT - Q2

0802 UT

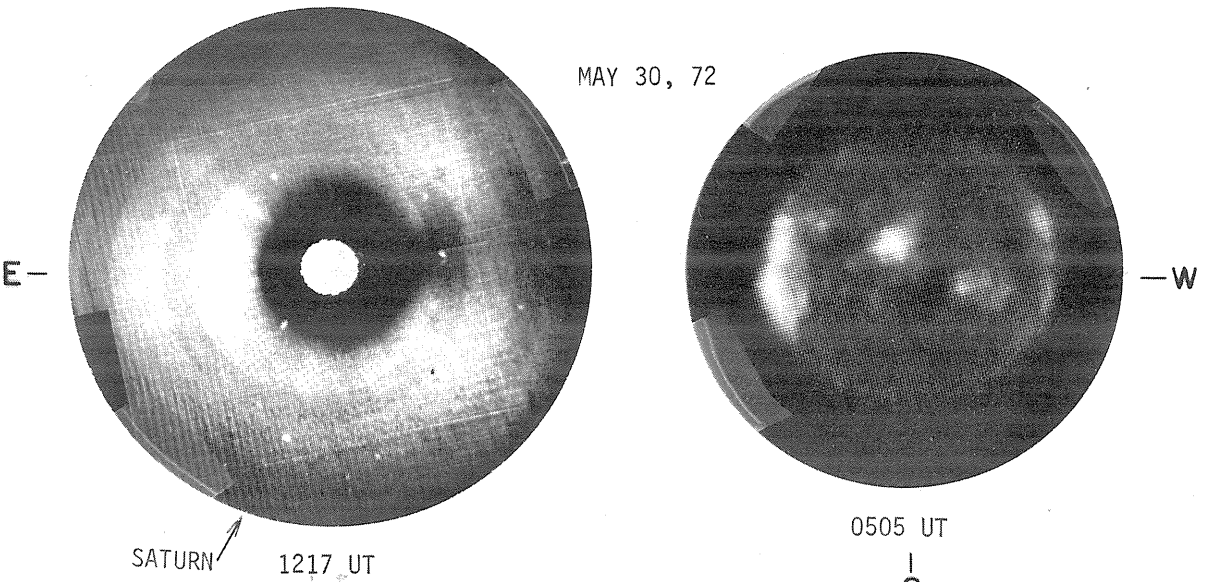
MAY 29, 72



1304 UT FULL 1455 UT - Q3

0723 UT

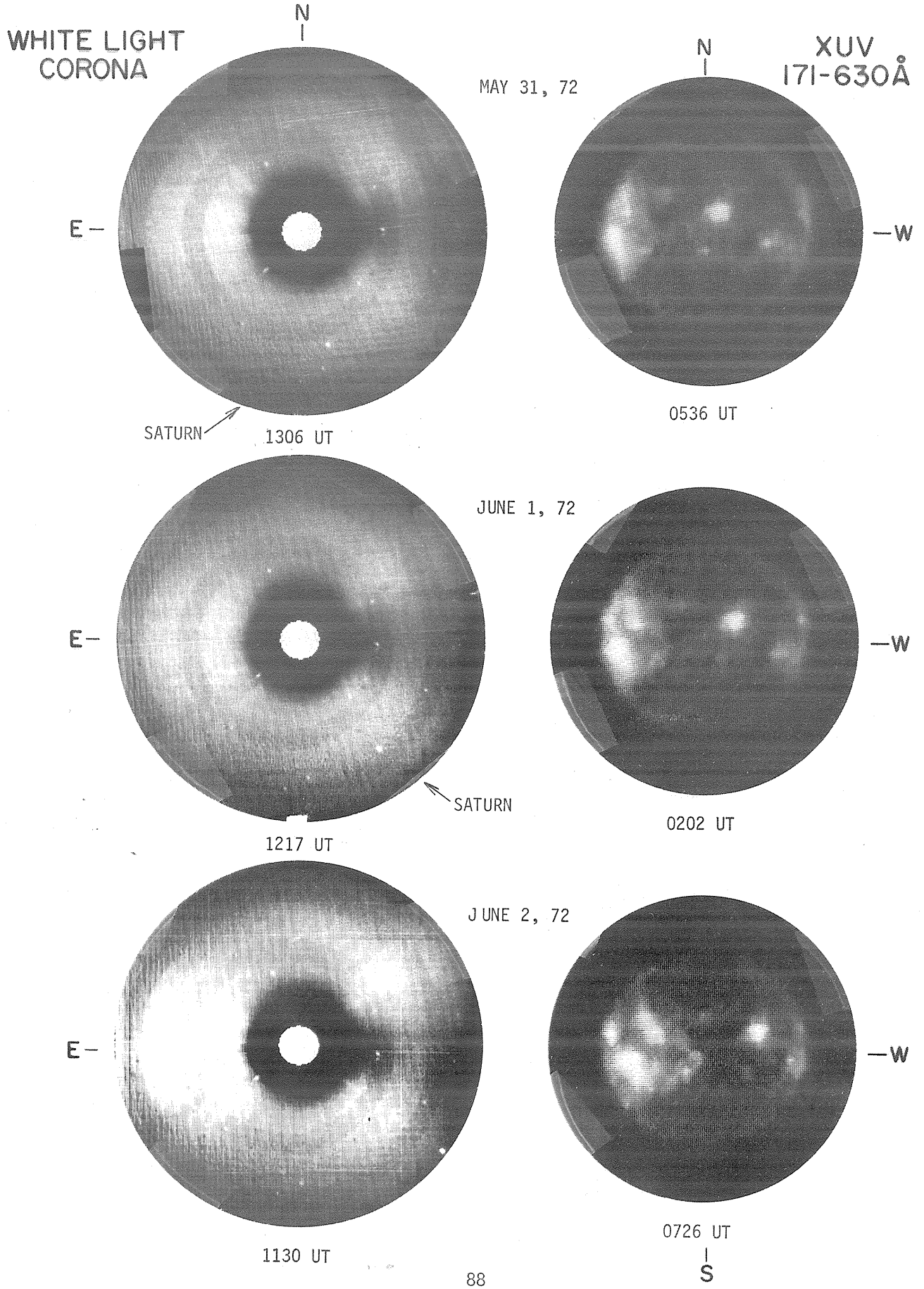
MAY 30, 72

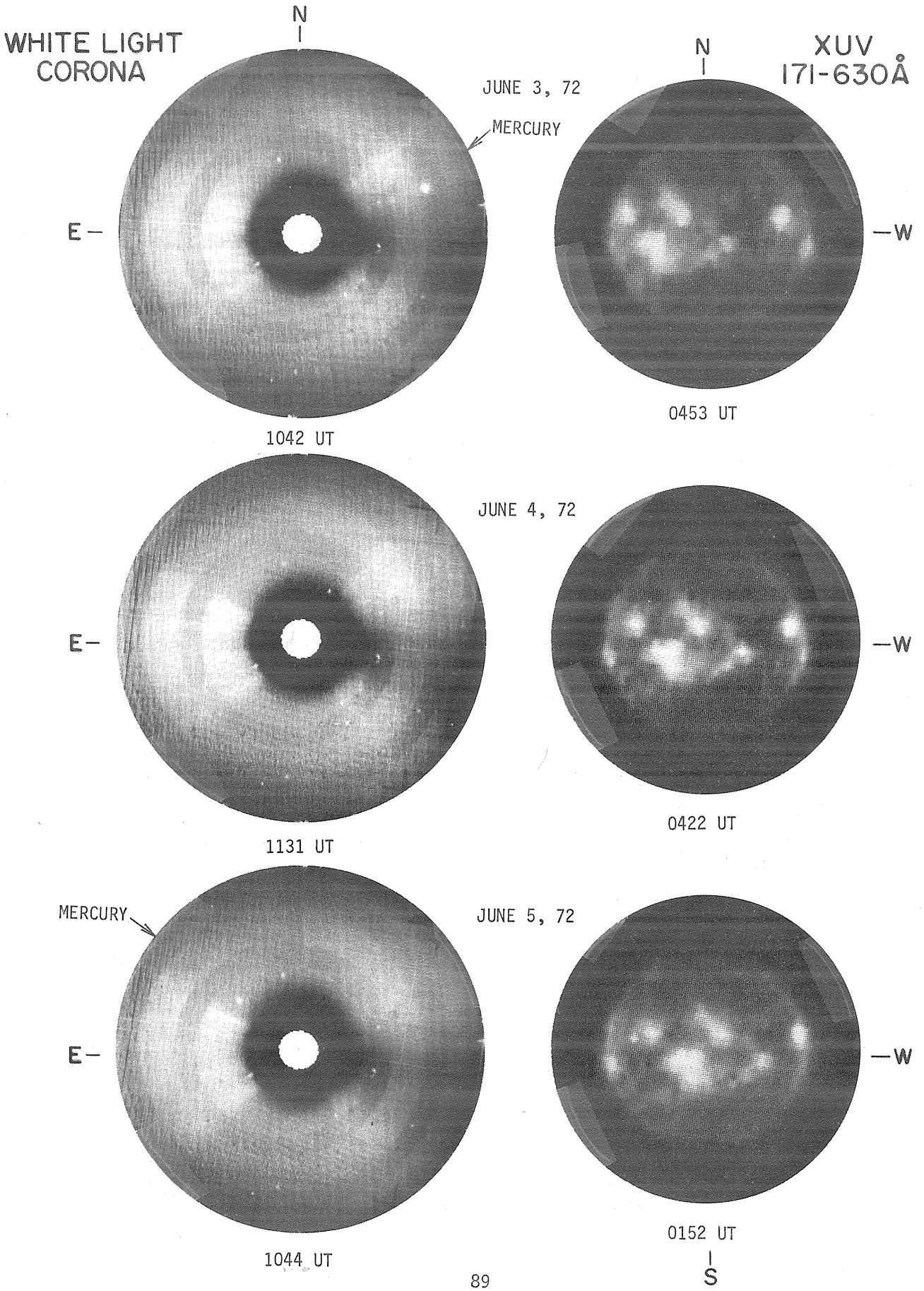


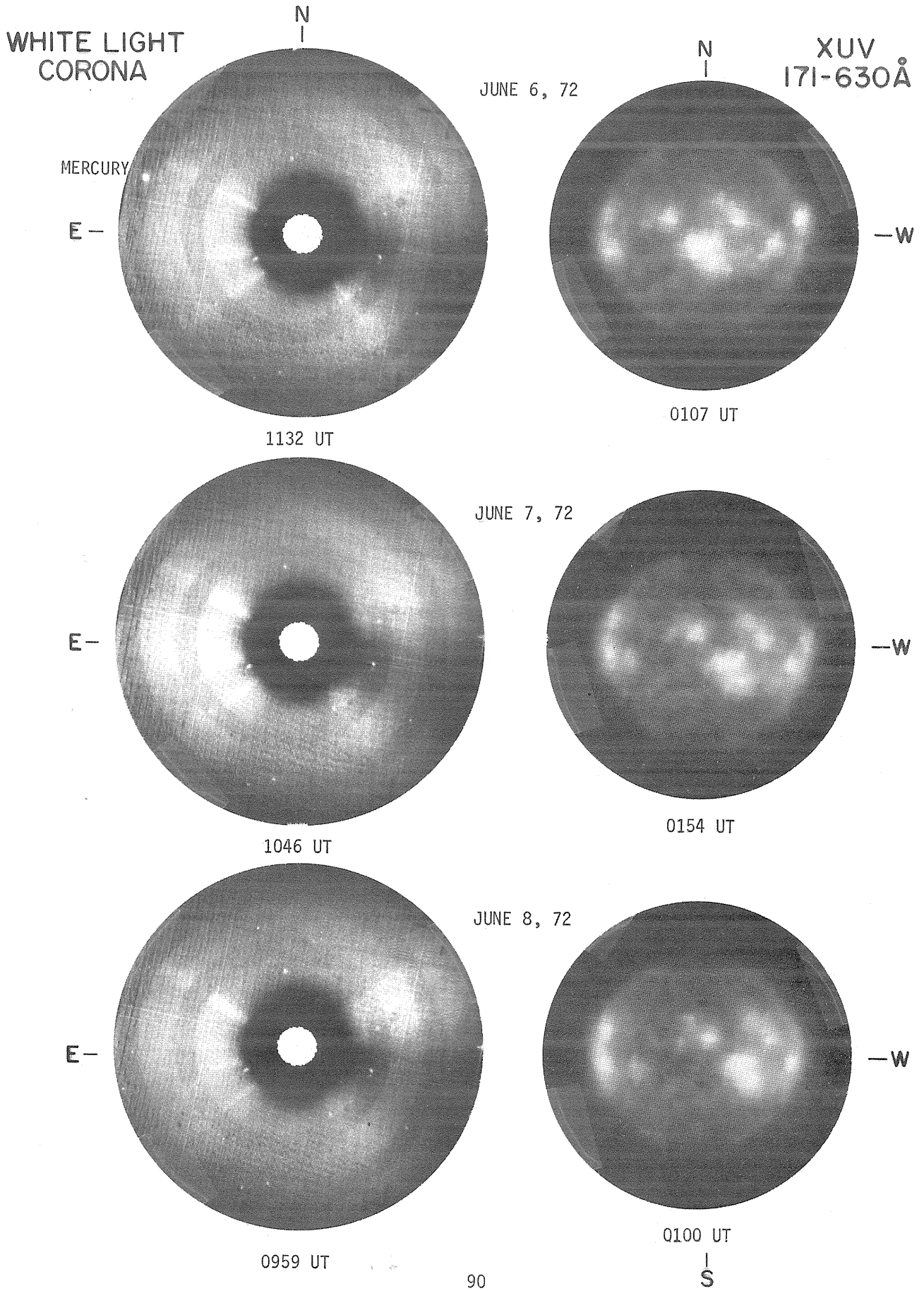
SATURN 1217 UT

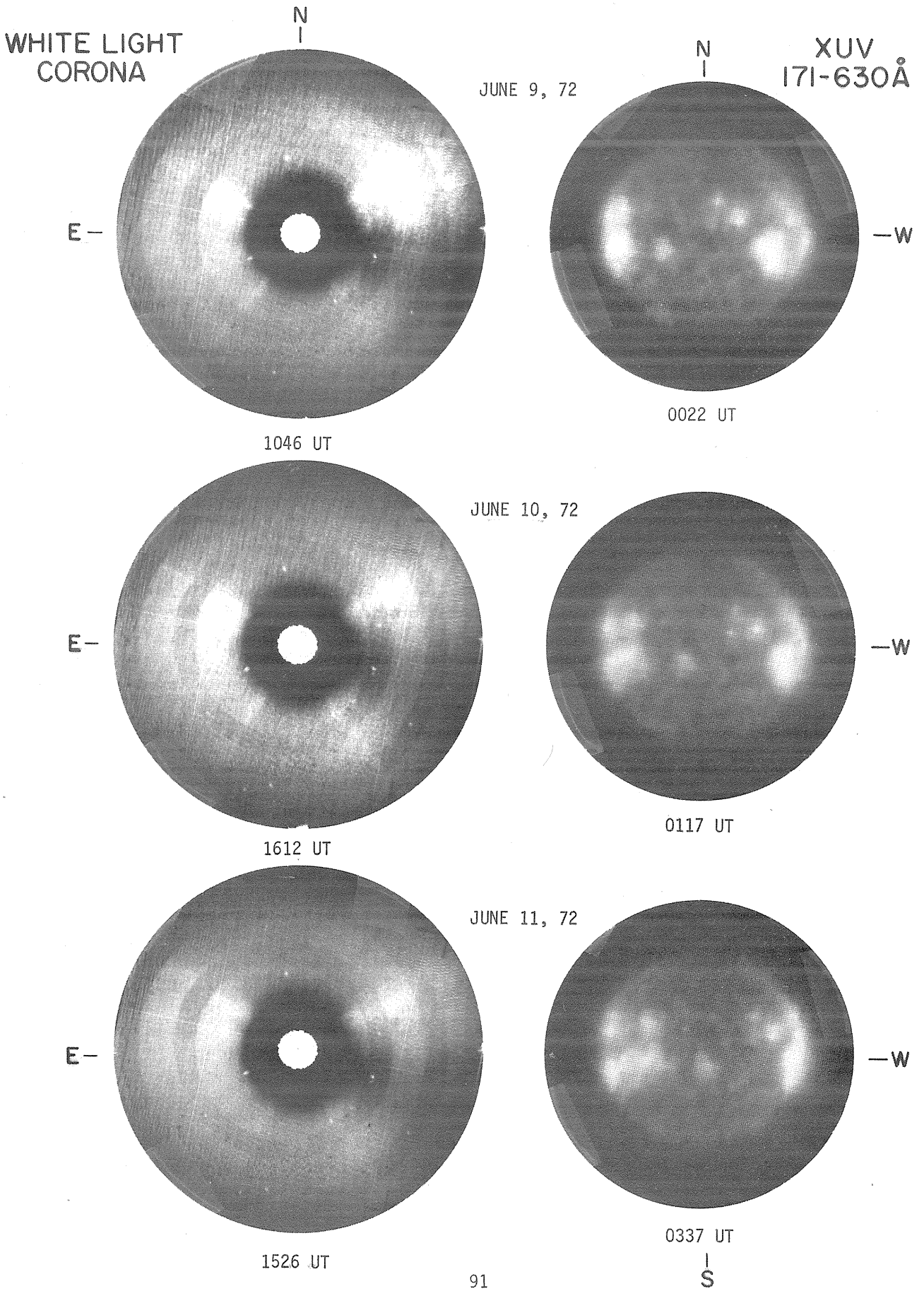
0505 UT

S


WHITE LIGHT CORONA
N
XUV 171-630Å
N
MAY 31, 72
E
W
SATURN
1306 UT
0536 UT
JUNE 1, 72
E
W
SATURN
1217 UT
0202 UT
JUNE 2, 72
E
W
1130 UT
0726 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
JUNE 3, 72
MERCURY
E
W
1042 UT
0453 UT
JUNE 4, 72
E
W
1131 UT
0422 UT
MERCURY
JUNE 5, 72
E
W
1044 UT
0152 UT
S

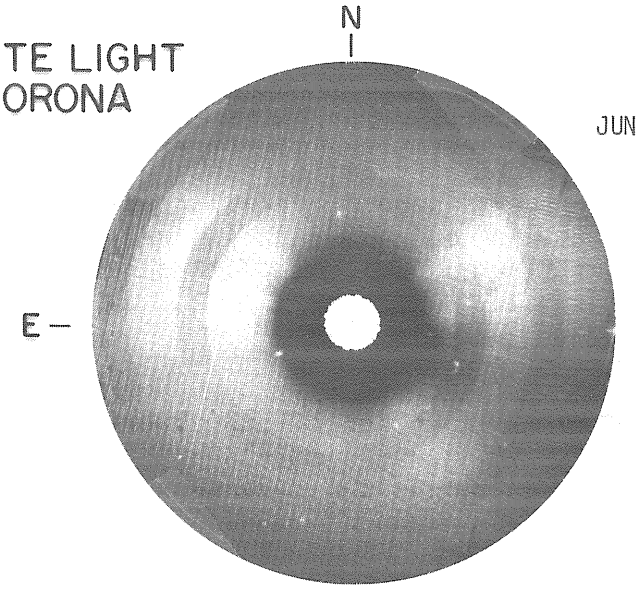

WHITE LIGHT
CORONA
N
MERCURY
E—
1132 UT
JUNE 6, 72
N
XUV
171-630Å
—W
0107 UT
JUNE 7, 72
E—
1046 UT
—W
0154 UT
JUNE 8, 72
E—
0959 UT
—W
0100 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
JUNE 9, 72
E
W
1046 UT
0022 UT
JUNE 10, 72
E
W
1612 UT
0117 UT
JUNE 11, 72
E
W
1526 UT
0337 UT
S

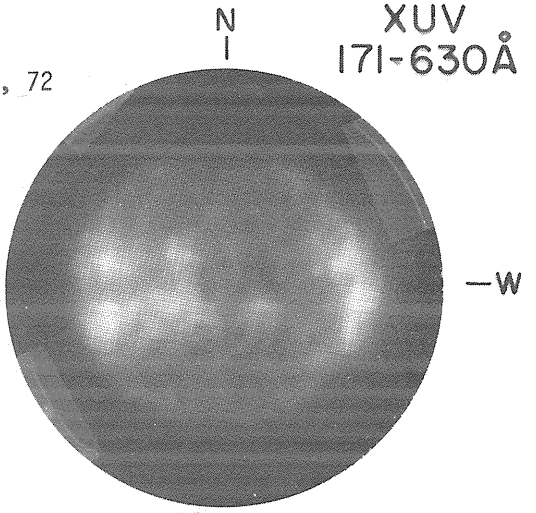
WHITE LIGHT CORONA

XUV 171-630Å

JUNE 12, 72

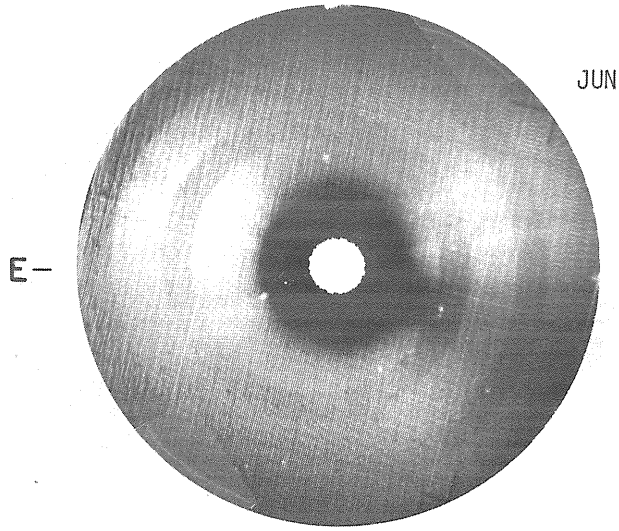


1612 UT

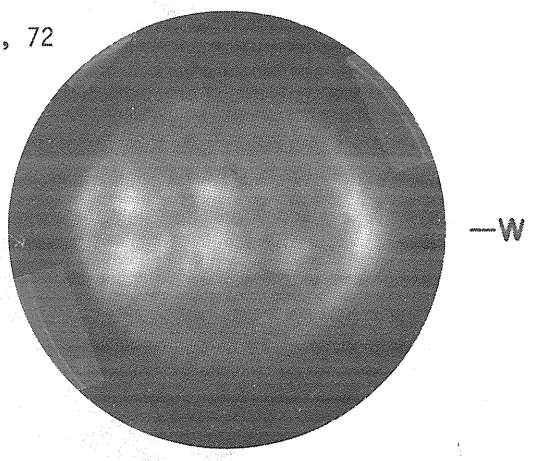


0420 UT

JUNE 13, 72



1659 UT

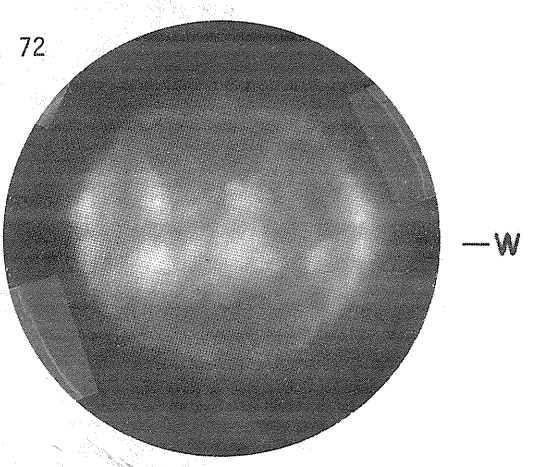


0513 UT

JUNE 14, 72

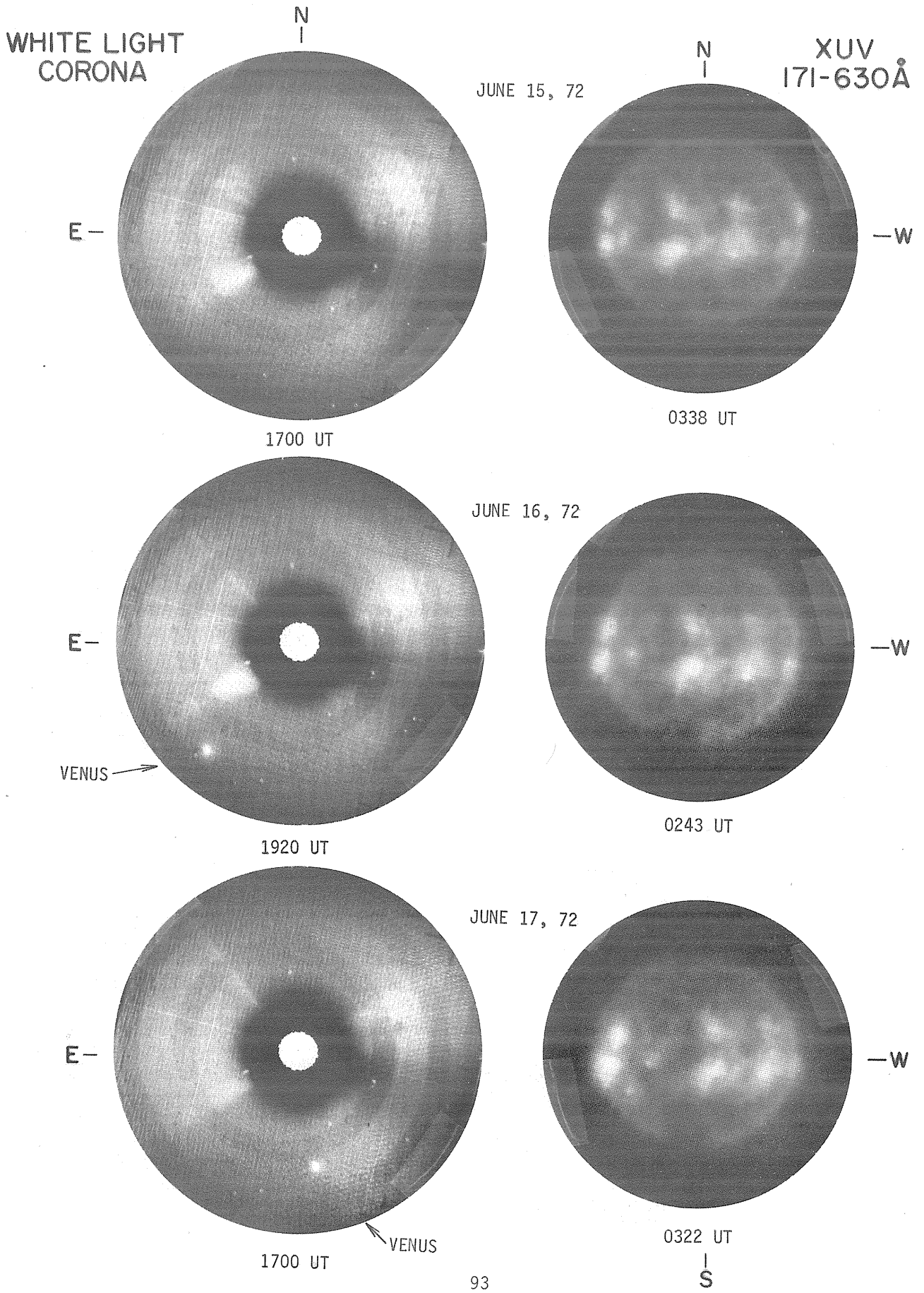
E

NO DATA



0417 UT

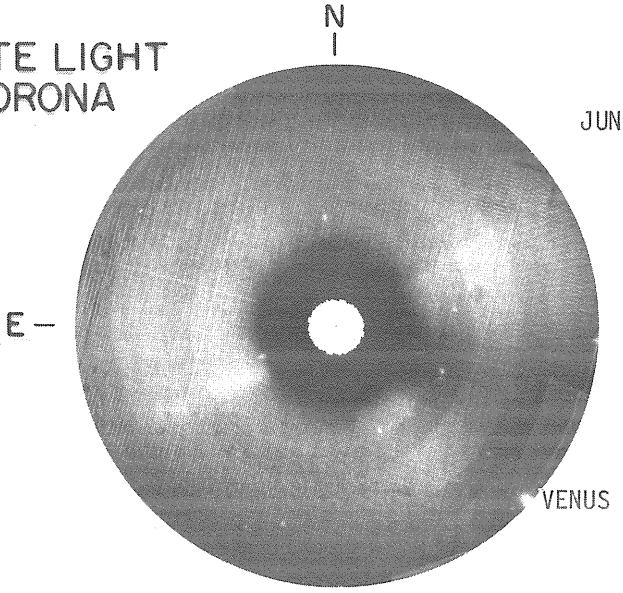
S


WHITE LIGHT CORONA
N
XUV 171-630Å
N
JUNE 15, 72
E
W
1700 UT
0338 UT
JUNE 16, 72
E
W
VENUS
1920 UT
0243 UT
JUNE 17, 72
E
W
VENUS
1700 UT
0322 UT
S

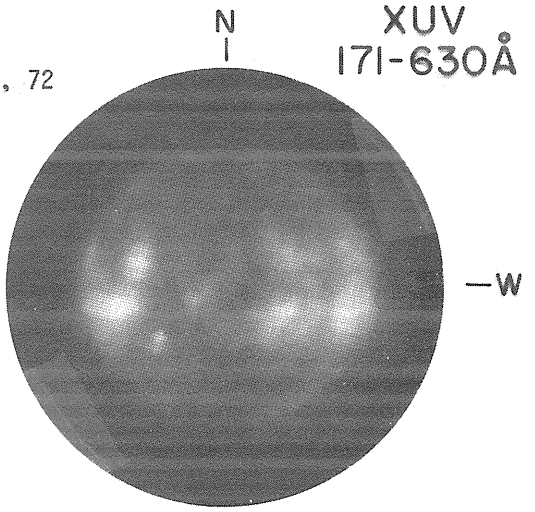
WHITE LIGHT CORONA

XUV 171-630Å

JUNE 18, 72



1614 UT

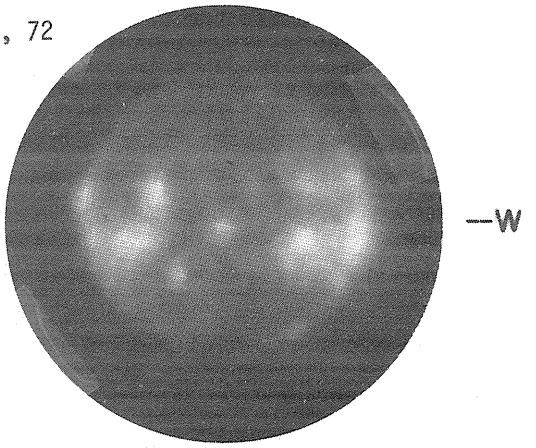


0558 UT

JUNE 19, 72

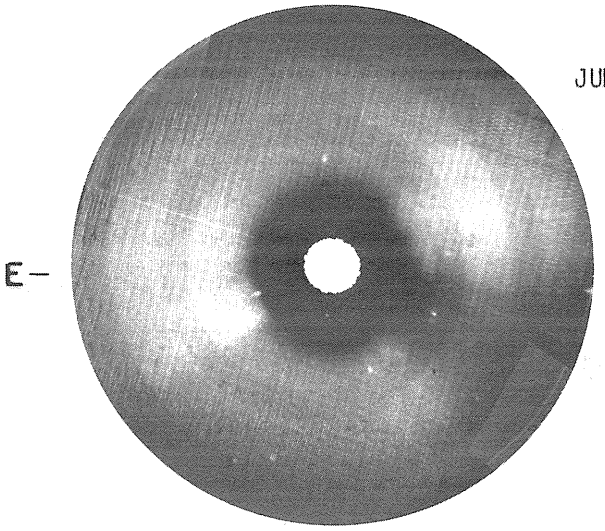
E

NO DATA

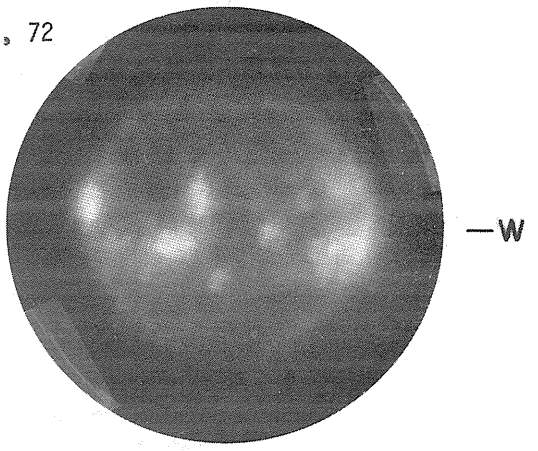


0157 UT

JUNE 20, 72

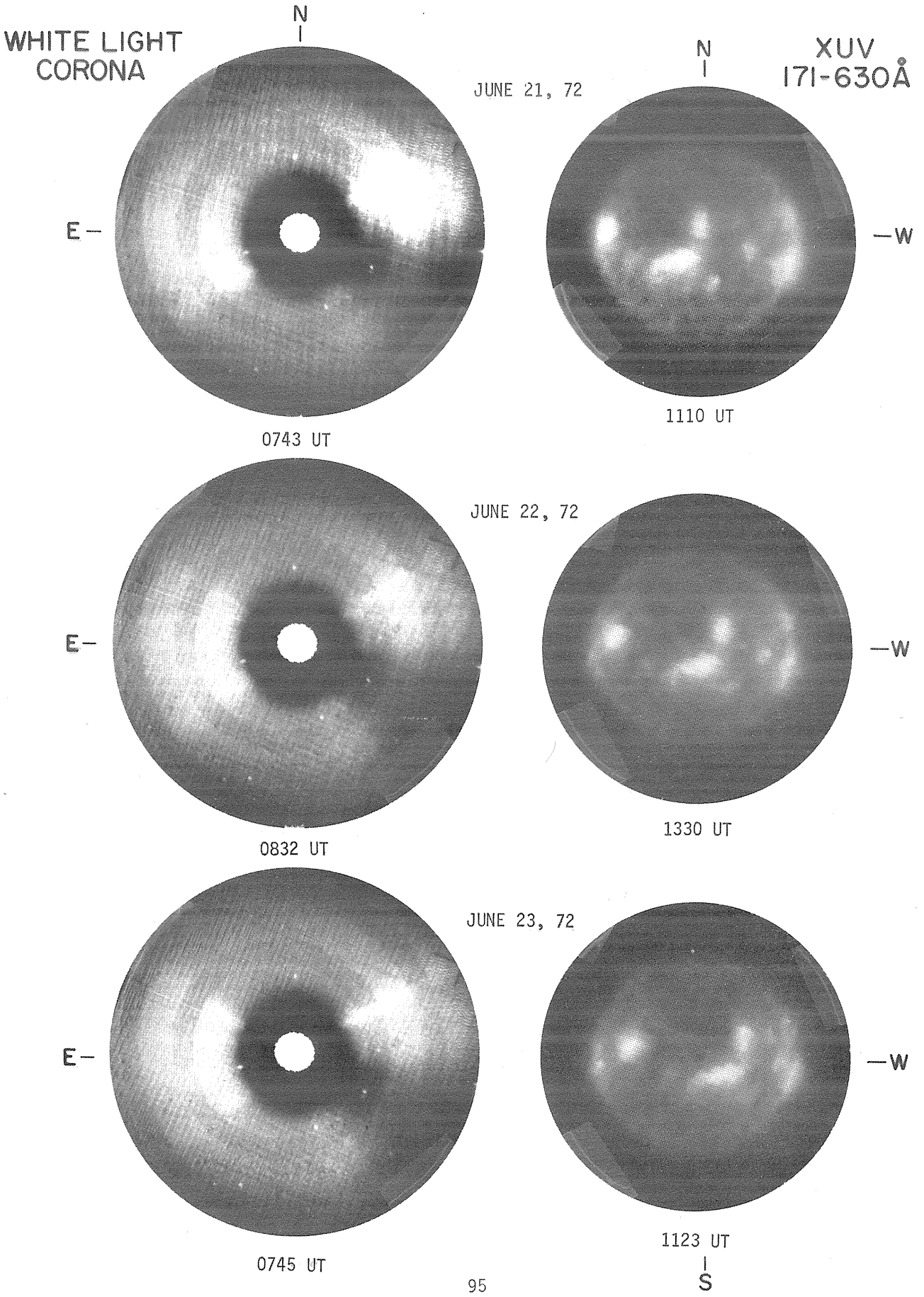


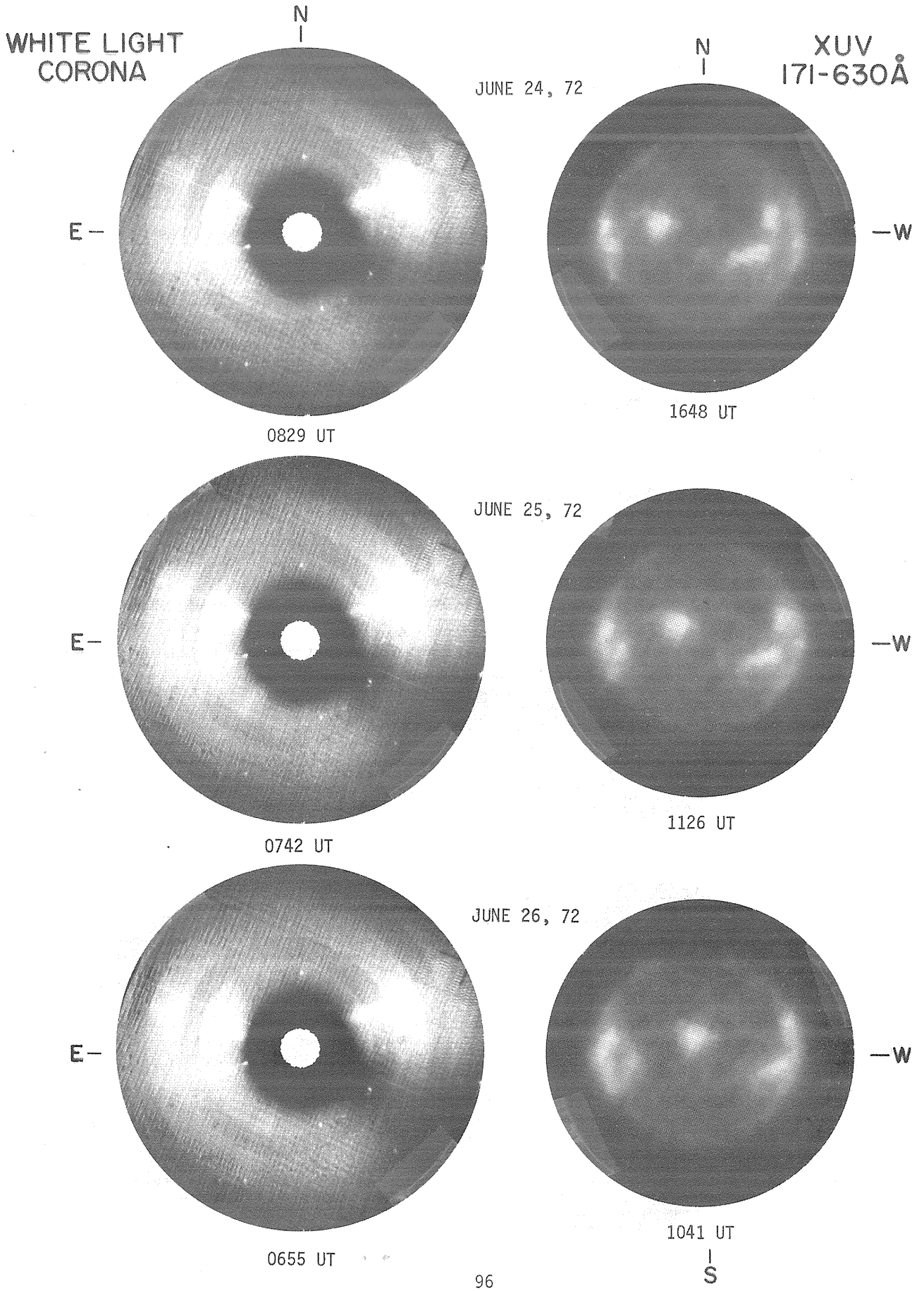
0836 UT

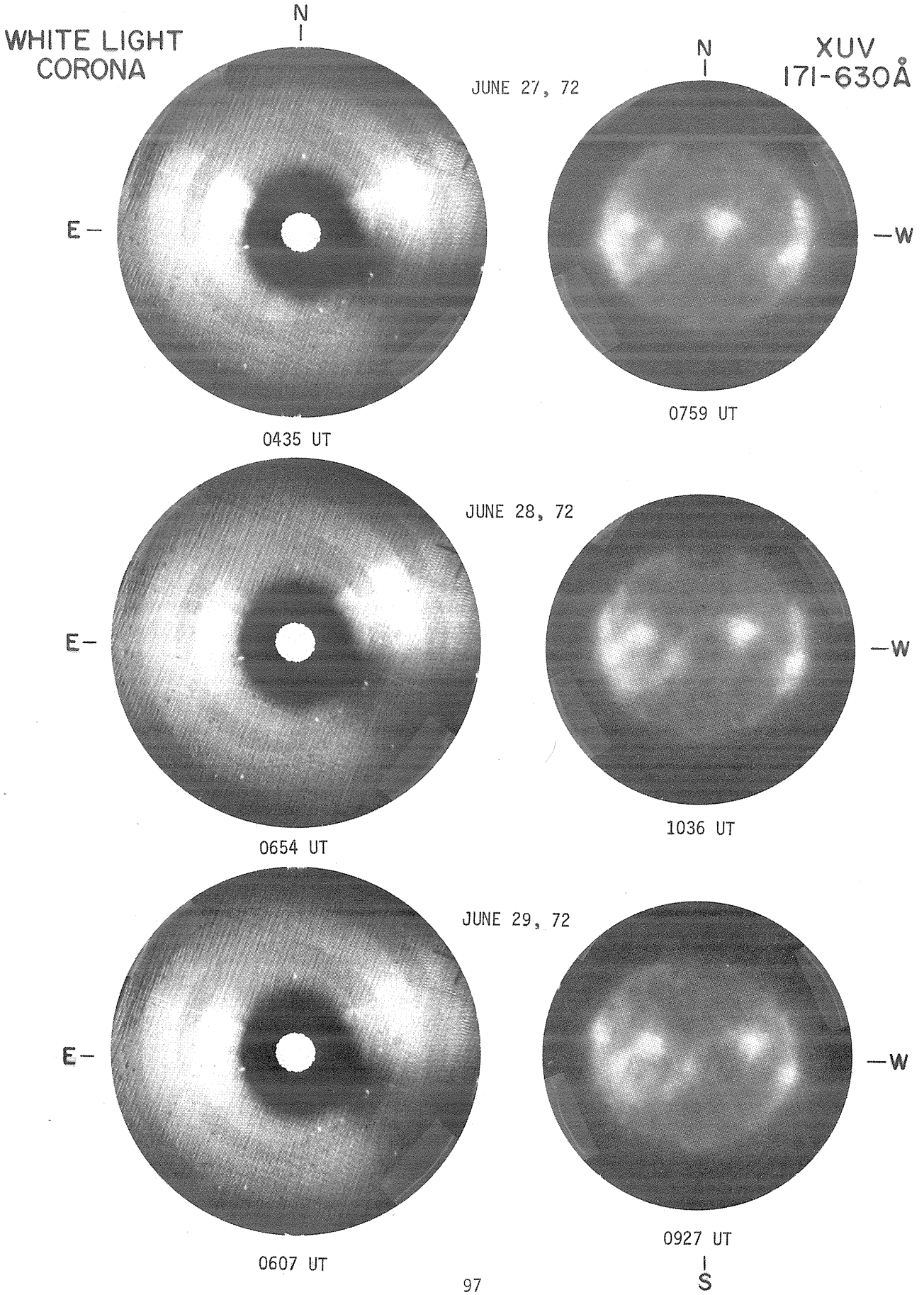


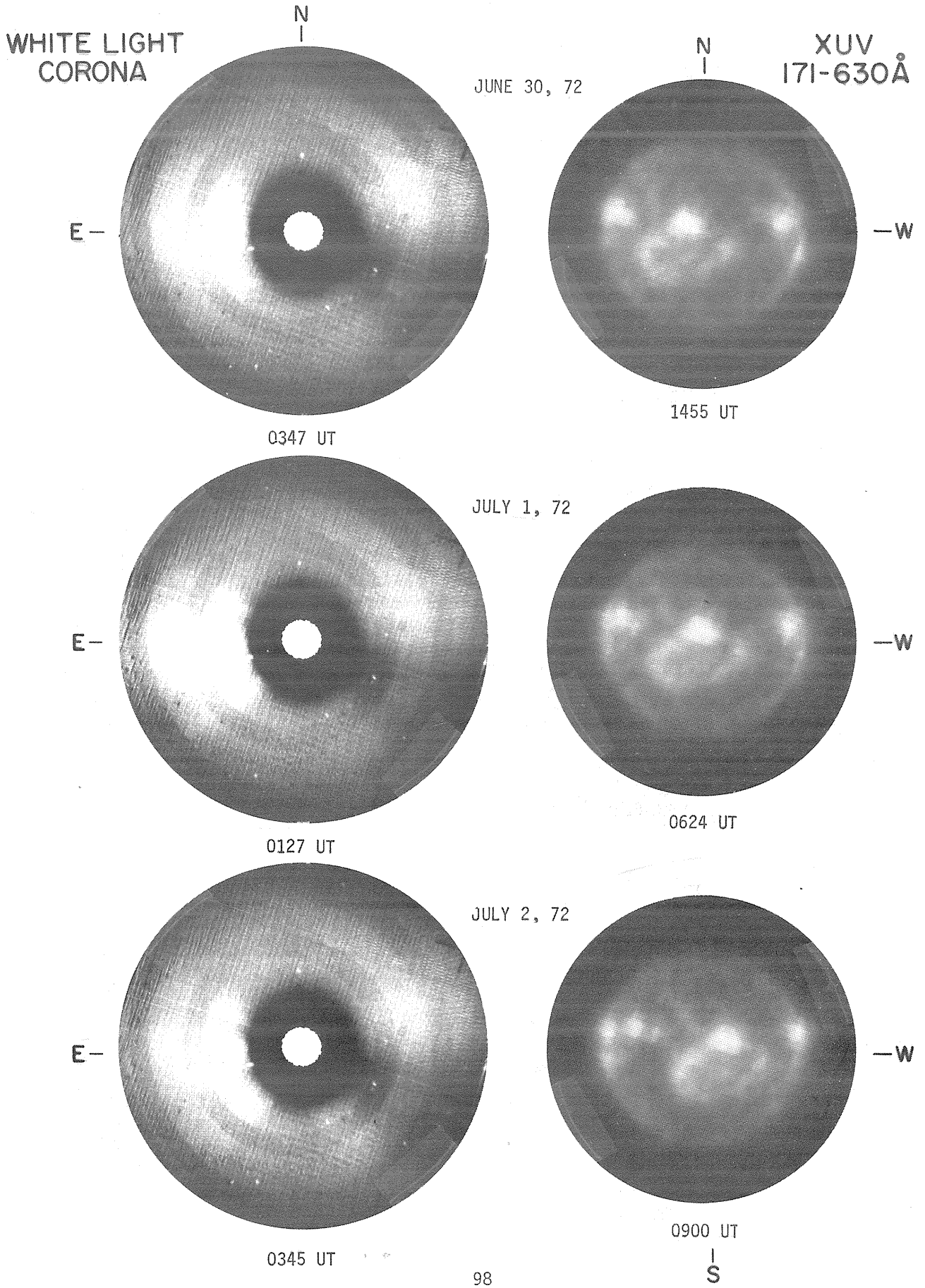
1158 UT

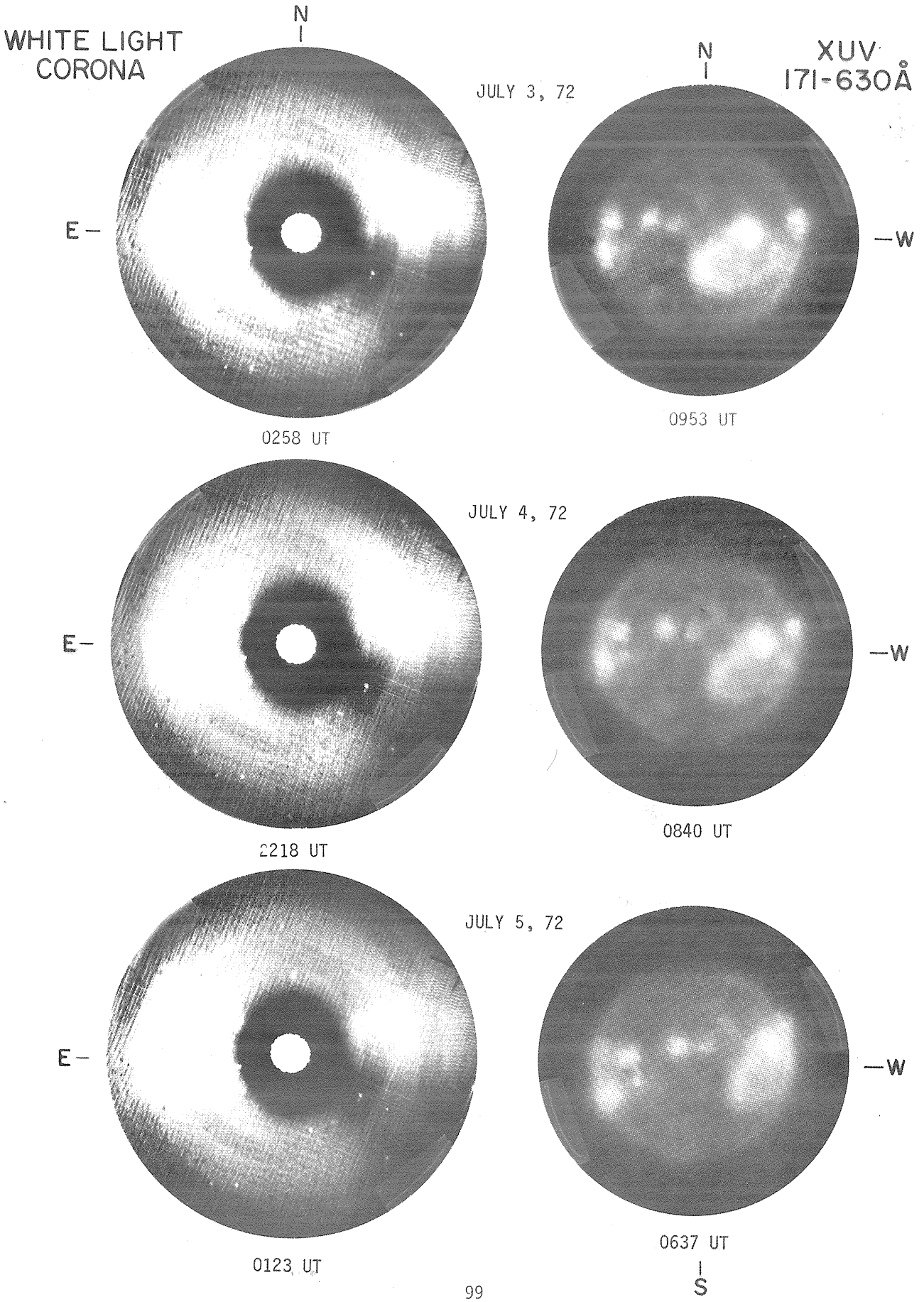
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
JUNE 21, 72
E—
—W
0743 UT
1110 UT
JUNE 22, 72
E—
—W
0832 UT
1330 UT
JUNE 23, 72
E—
—W
0745 UT
1123 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
JUNE 24, 72
E
W
0829 UT
1648 UT
JUNE 25, 72
E
W
0742 UT
1126 UT
JUNE 26, 72
E
W
0655 UT
1041 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
JUNE 27, 72
E
W
0435 UT
0759 UT
JUNE 28, 72
E
W
0654 UT
1036 UT
JUNE 29, 72
E
W
0607 UT
0927 UT
S

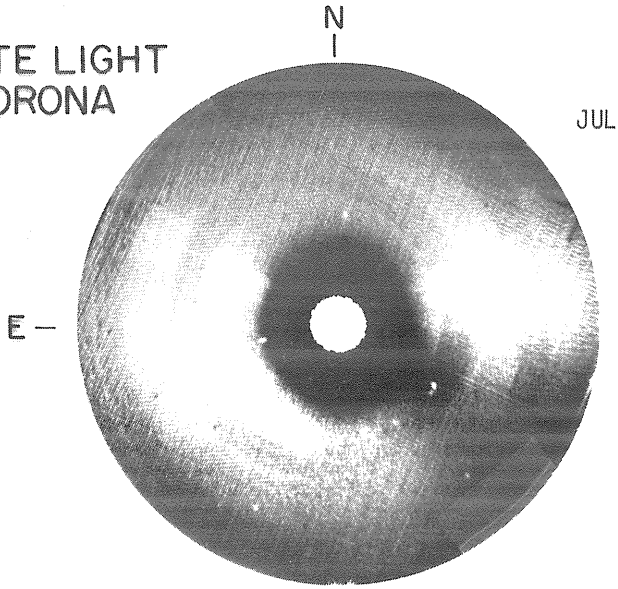

WHITE LIGHT
CORONA
N
XUV
171-630Å
N
JUNE 30, 72
E
W
0347 UT
1455 UT
JULY 1, 72
E
W
0127 UT
0624 UT
JULY 2, 72
E
W
0345 UT
0900 UT
S


WHITE LIGHT CORONA
N
XUV 171-630Å
N
JULY 3, 72
E
W
0258 UT
0953 UT
JULY 4, 72
E
W
2218 UT
0840 UT
JULY 5, 72
E
W
0123 UT
0637 UT
S

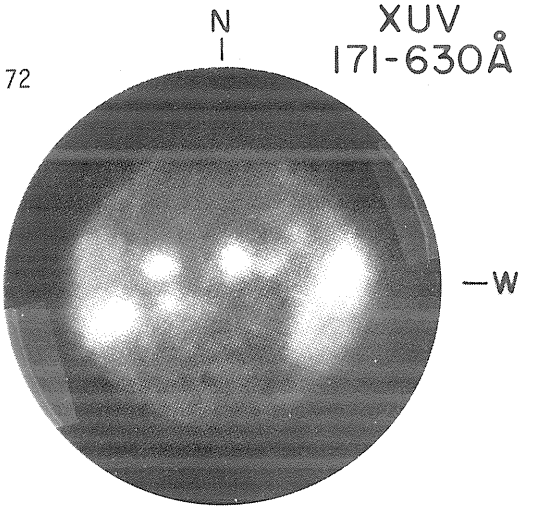
WHITE LIGHT CORONA

XUV 171-630Å

JULY 6, 72

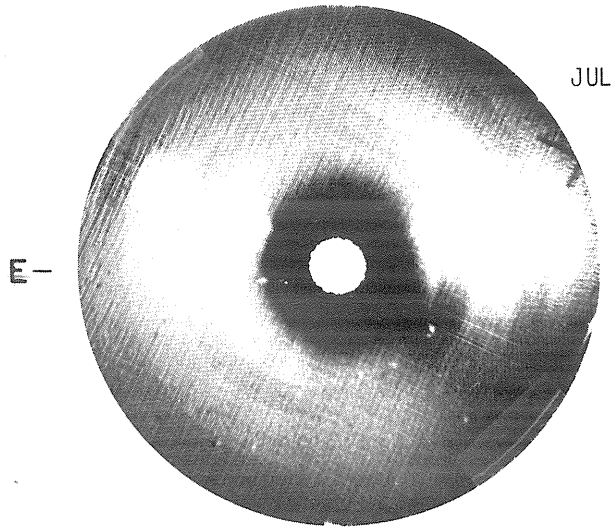


0515 UT

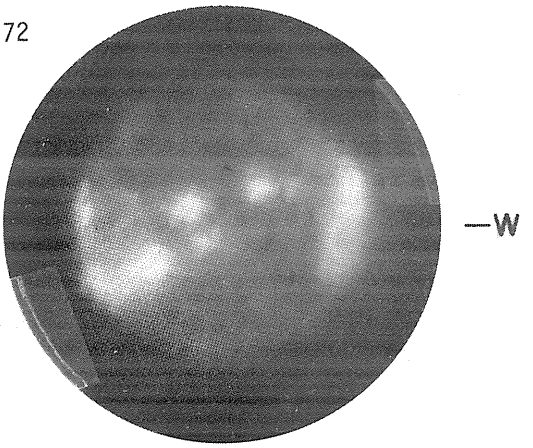


0839 UT

JULY 7, 72

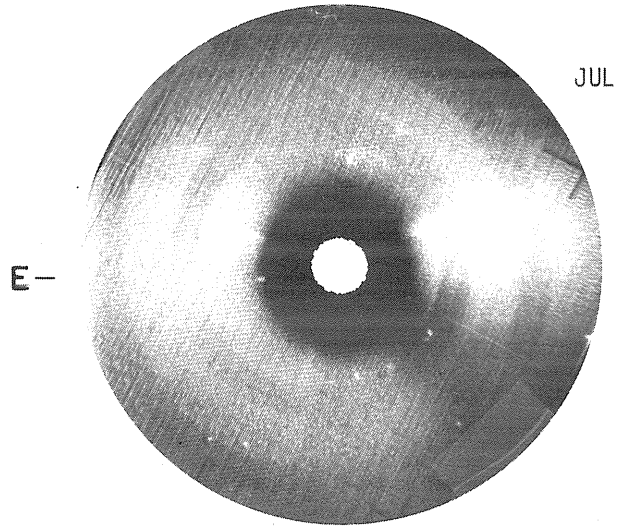


0122 UT



0751 UT

JULY 8, 72



2348 UT

NO DATA

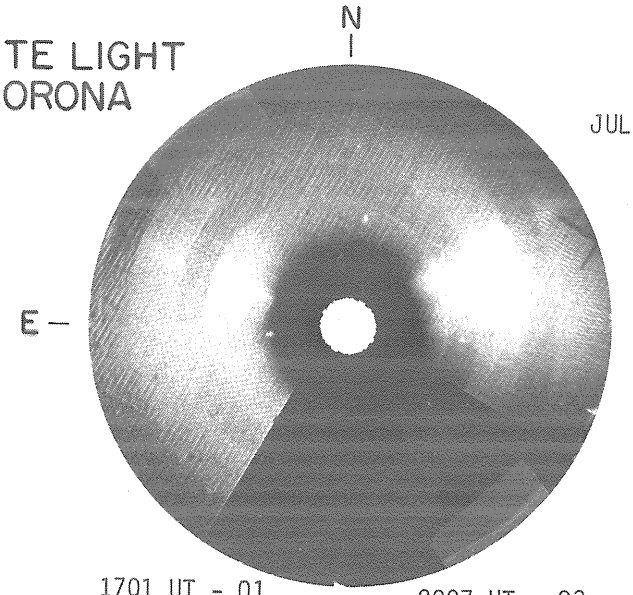
W

S

WHITE LIGHT CORONA

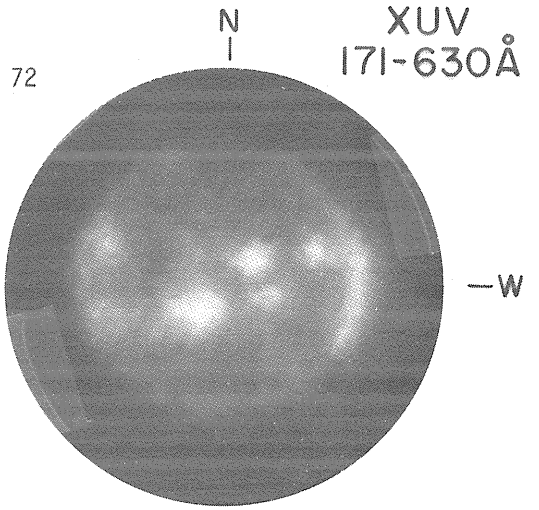
XUV 171-630Å

JULY 9, 72



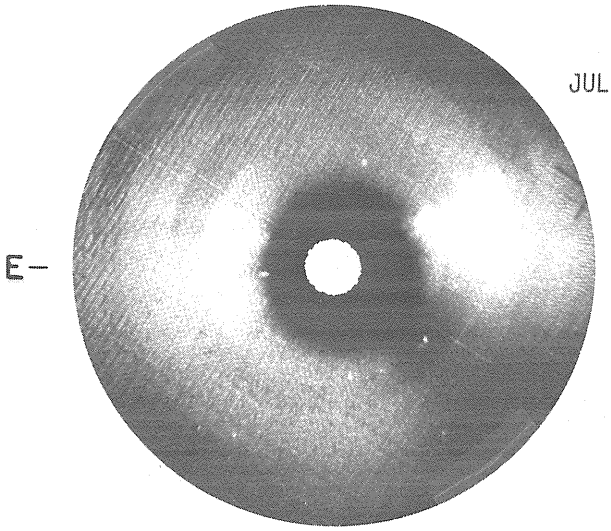
1701 UT - Q1
1834 UT - Q4

2007 UT - Q3

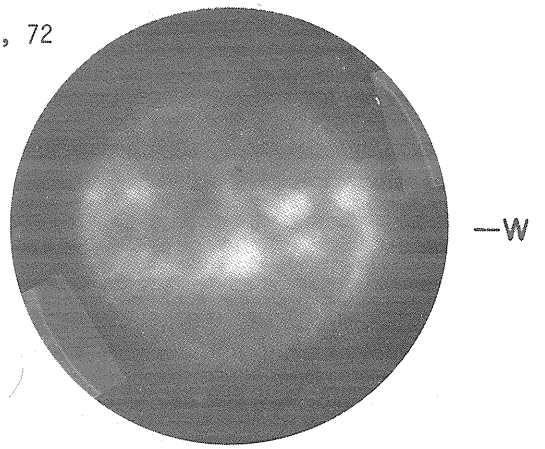


0617 UT

JULY 10, 72

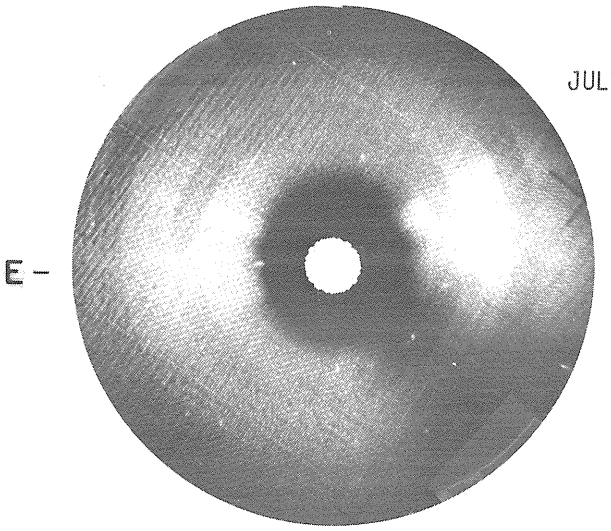


1456 UT

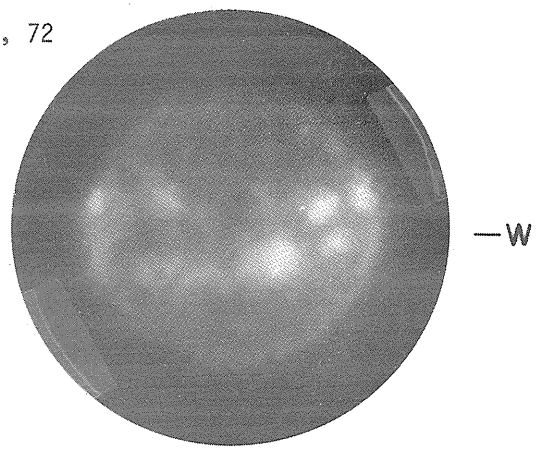


0722 UT

JULY 11, 72

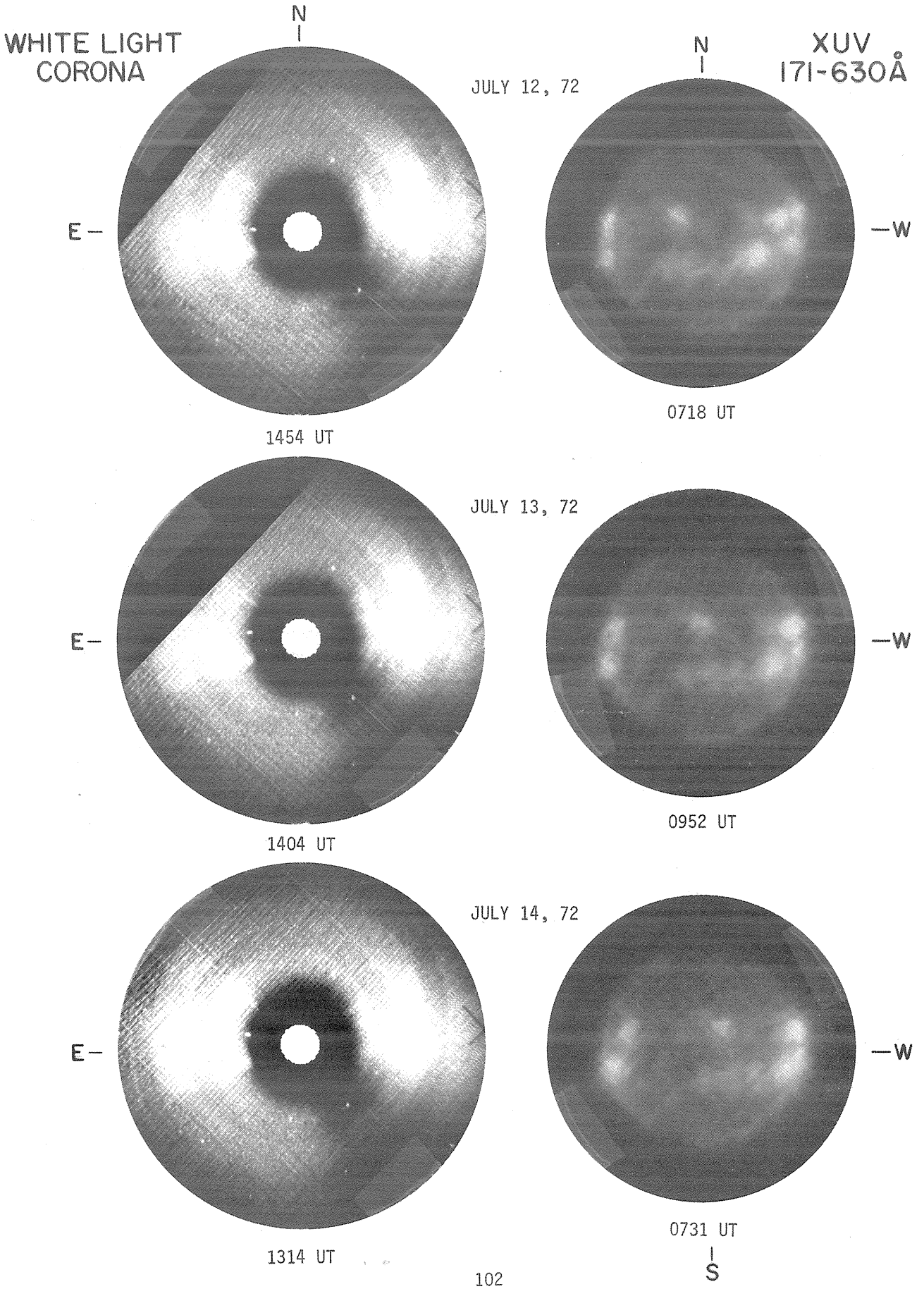


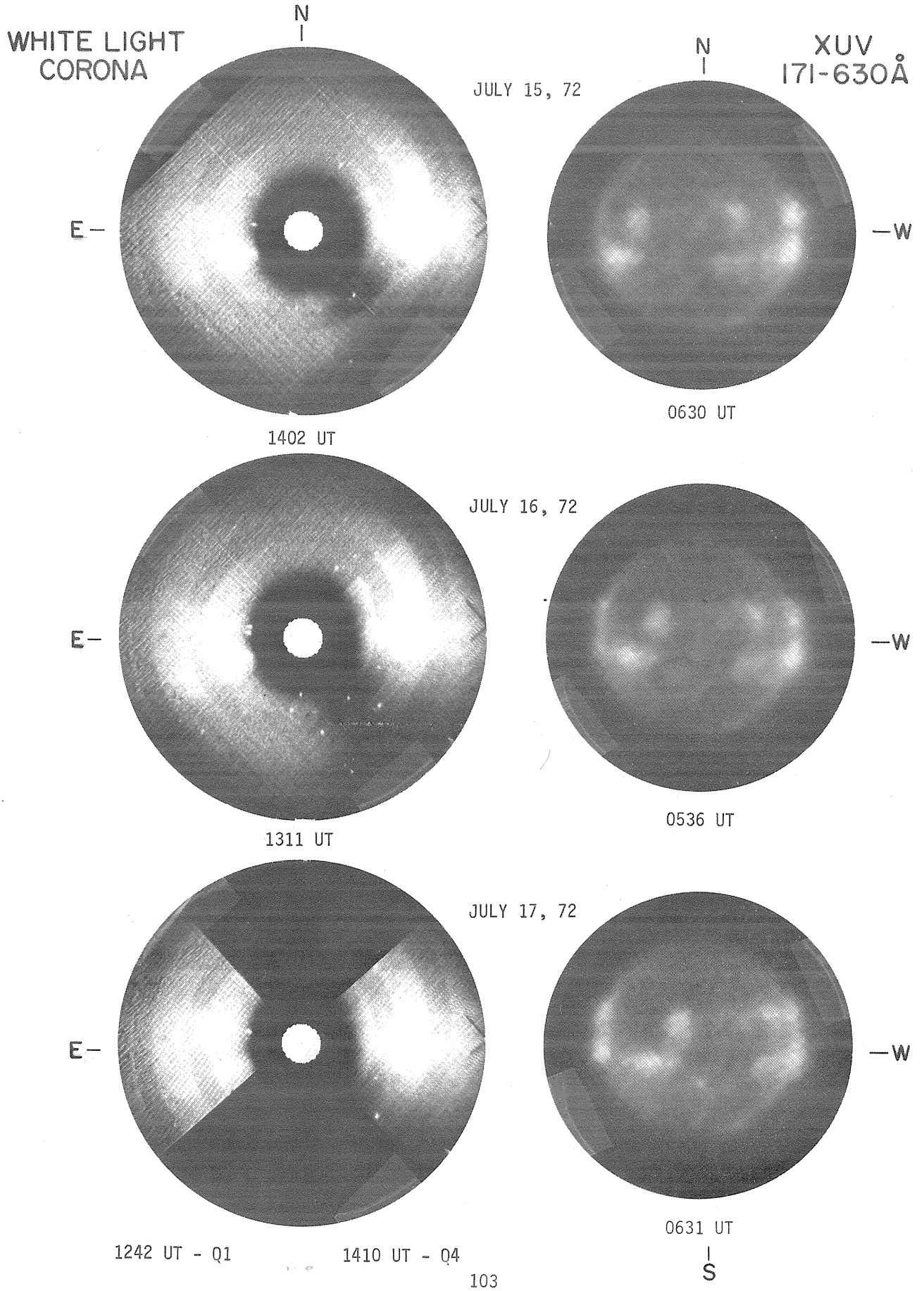
0437 UT



0643 UT

S

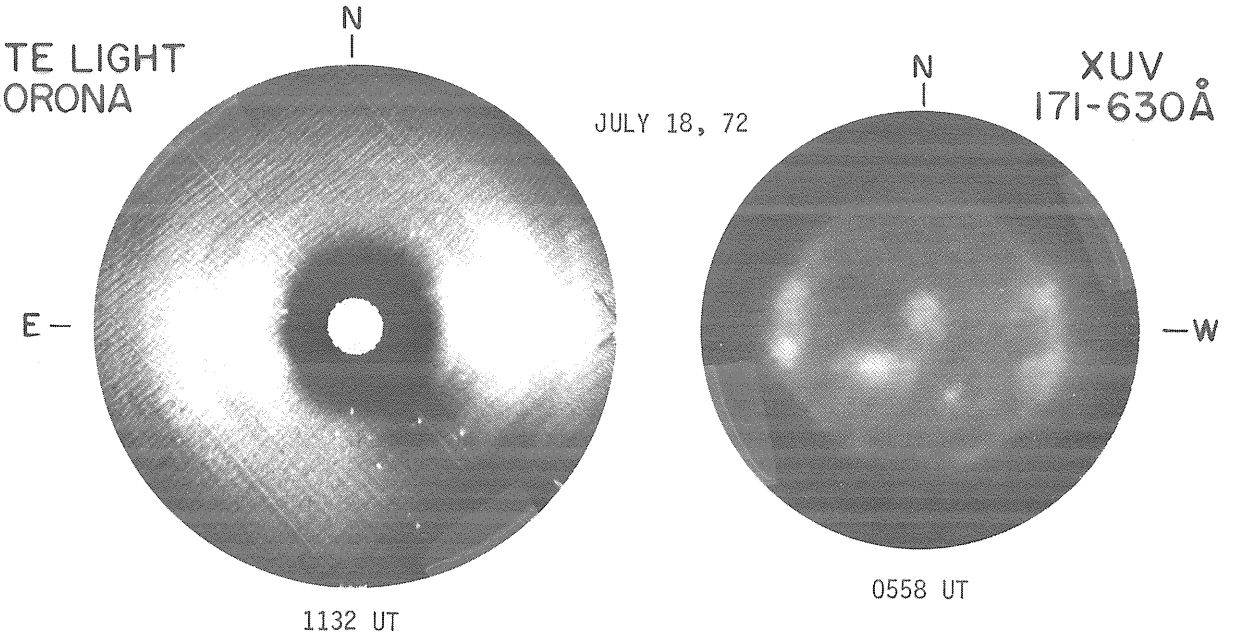

WHITE LIGHT
CORONA
N
XUV
171-630Å
N
JULY 12, 72
E
W
1454 UT
0718 UT
JULY 13, 72
E
W
1404 UT
0952 UT
JULY 14, 72
E
W
1314 UT
0731 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
JULY 15, 72
E—
—W
1402 UT
0630 UT
JULY 16, 72
E—
—W
1311 UT
0536 UT
JULY 17, 72
E—
—W
0631 UT
1242 UT - Q1
1410 UT - Q4
S

WHITE LIGHT CORONA

XUV 171-630Å

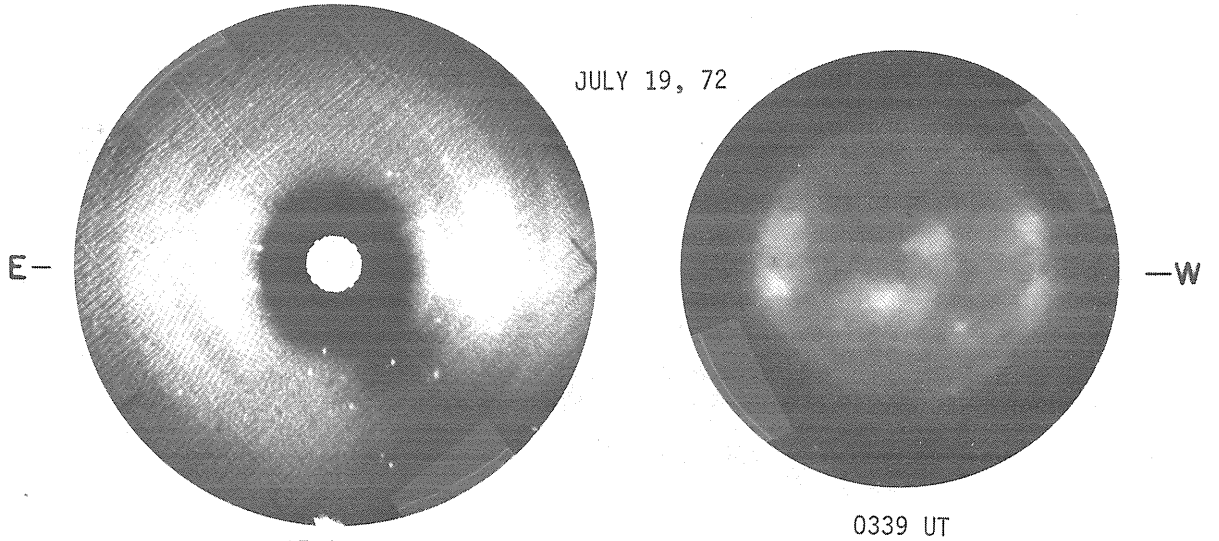
JULY 18, 72



1132 UT

0558 UT

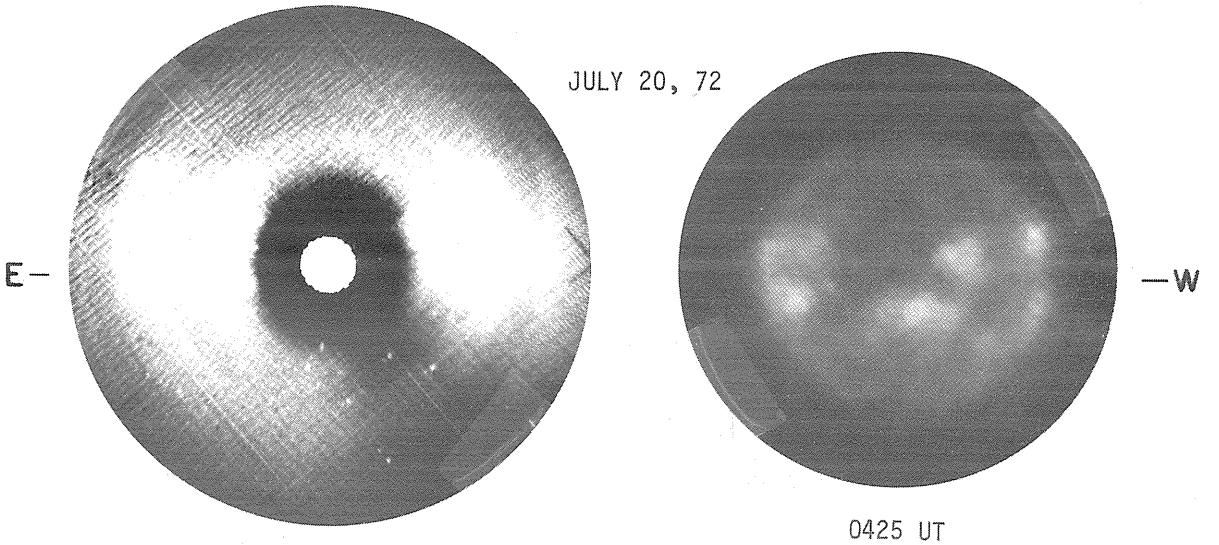
JULY 19, 72



1714 UT

0339 UT

JULY 20, 72



1128 UT

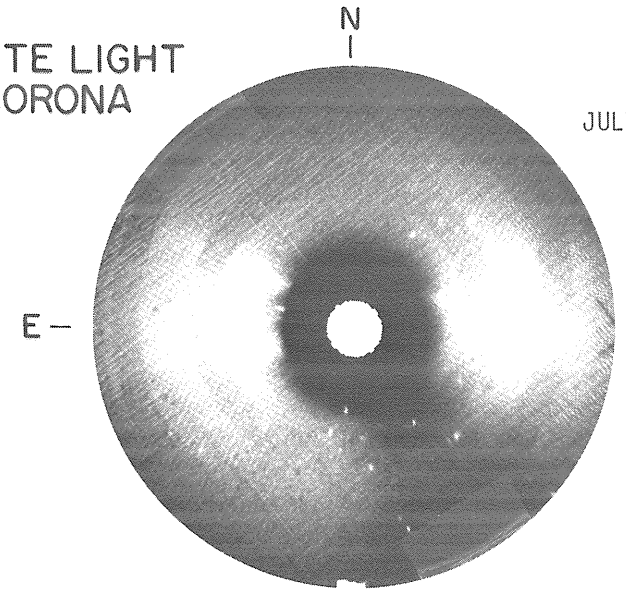
0425 UT

S

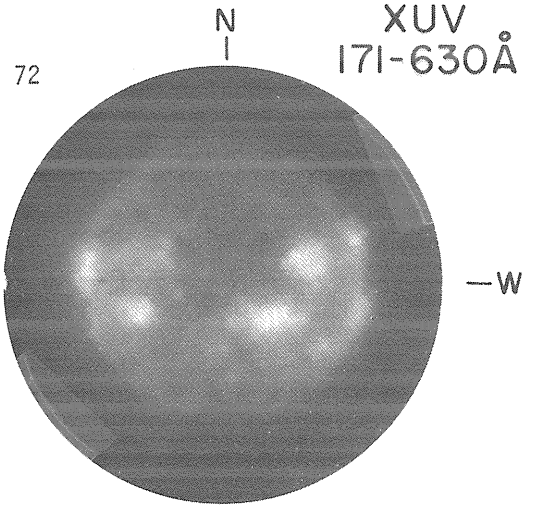
WHITE LIGHT CORONA

XUV 171-630Å

JULY 21, 72

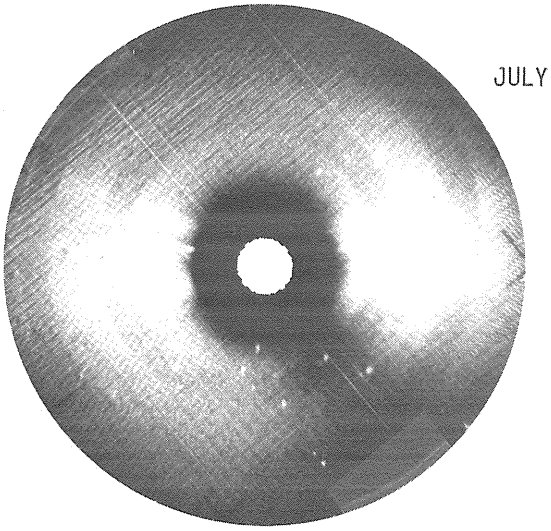


1039 UT

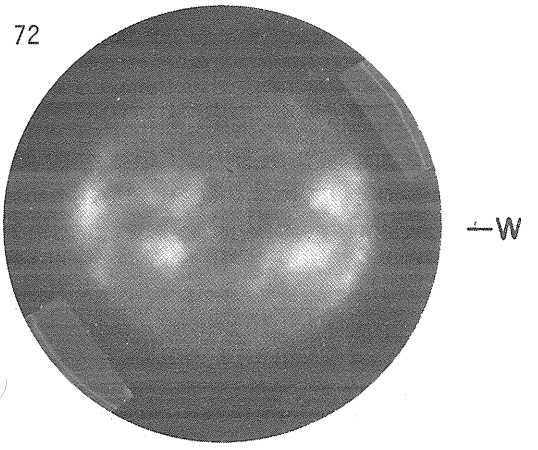


0331 UT

JULY 22, 72

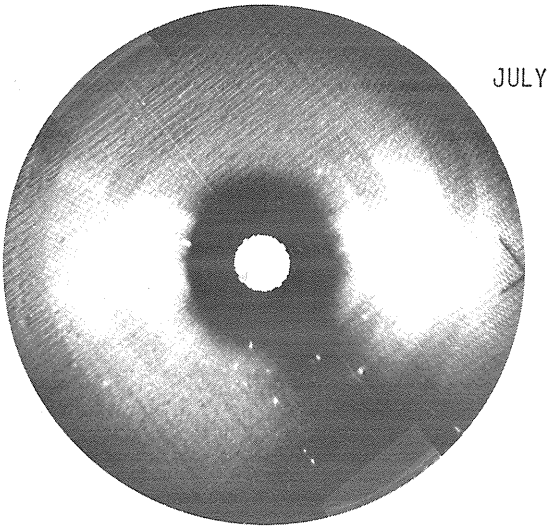


1126 UT



0423 UT

JULY 23, 72

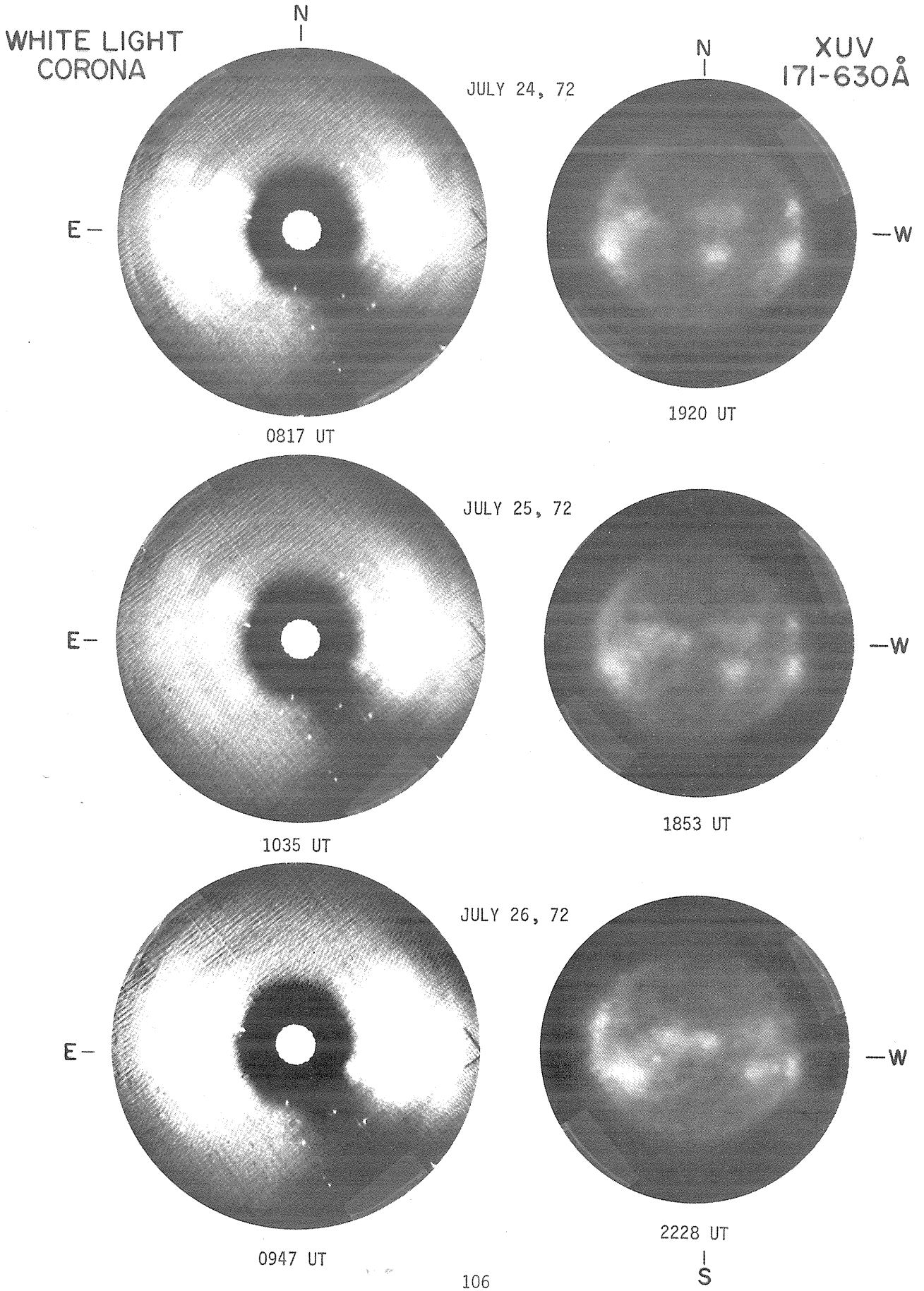


1213 UT

NO DATA

W

S


WHITE LIGHT
CORONA
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XUV
171-630Å
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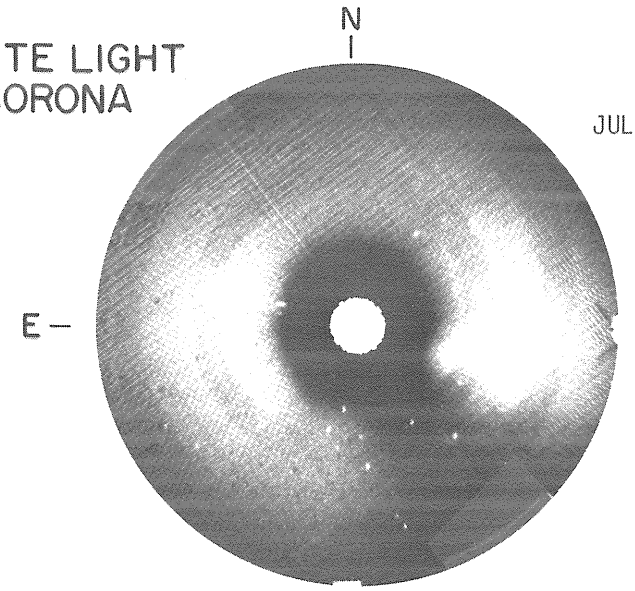
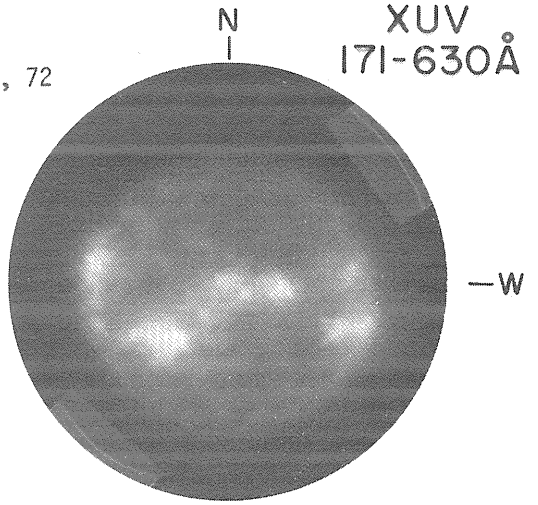
JULY 24, 72
E
W
0817 UT
1920 UT
JULY 25, 72
E
W
1035 UT
1853 UT
JULY 26, 72
E
W
0947 UT
2228 UT
S

WHITE LIGHT CORONA

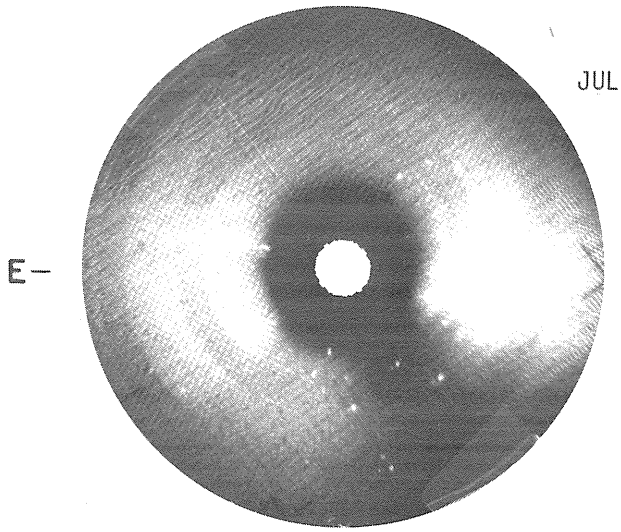
XUV 171-630Å

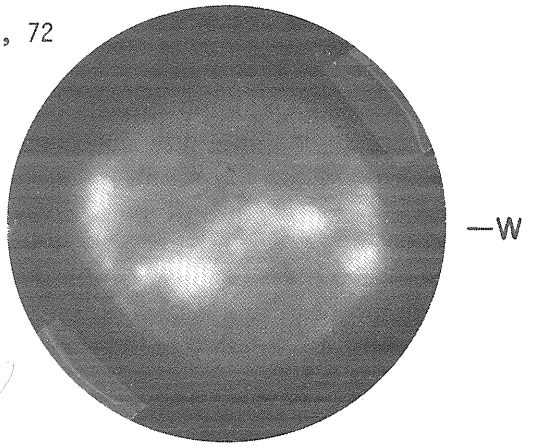
JULY 27, 72



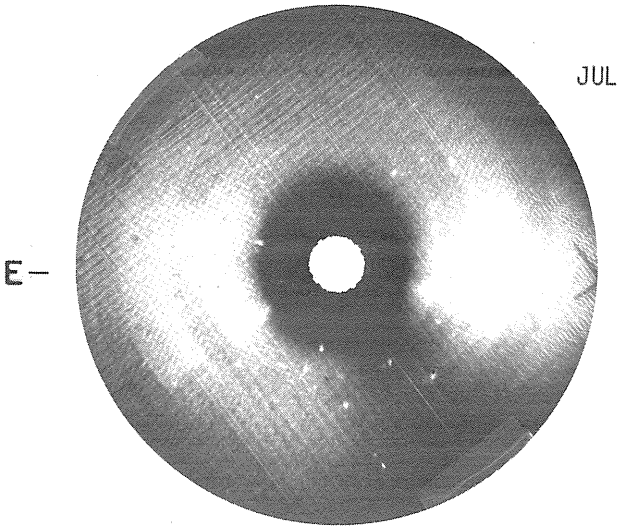


JULY 28, 72





JULY 29, 72



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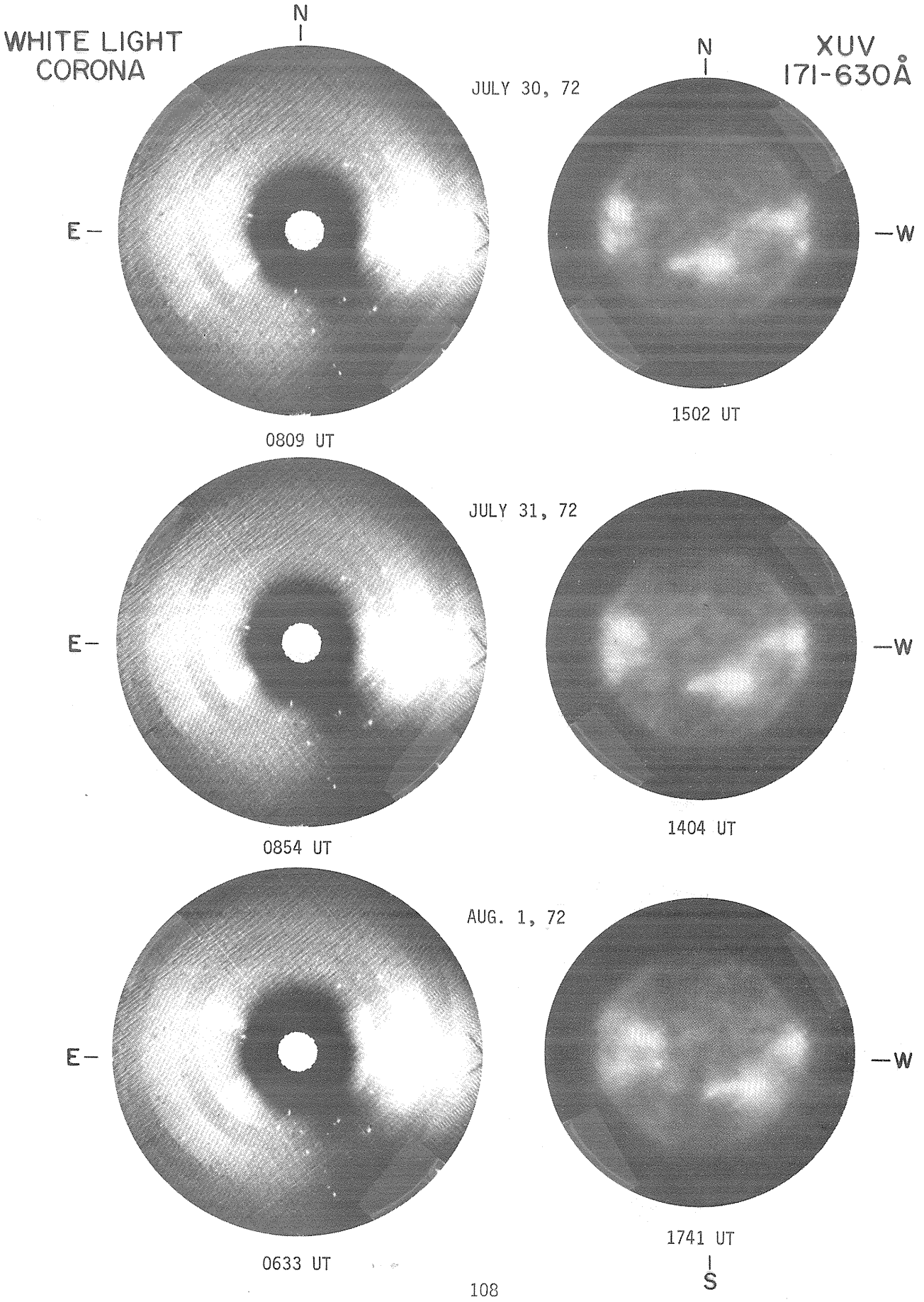
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XUV
171-630Å
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JULY 30, 72
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1404 UT
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0633 UT
1741 UT
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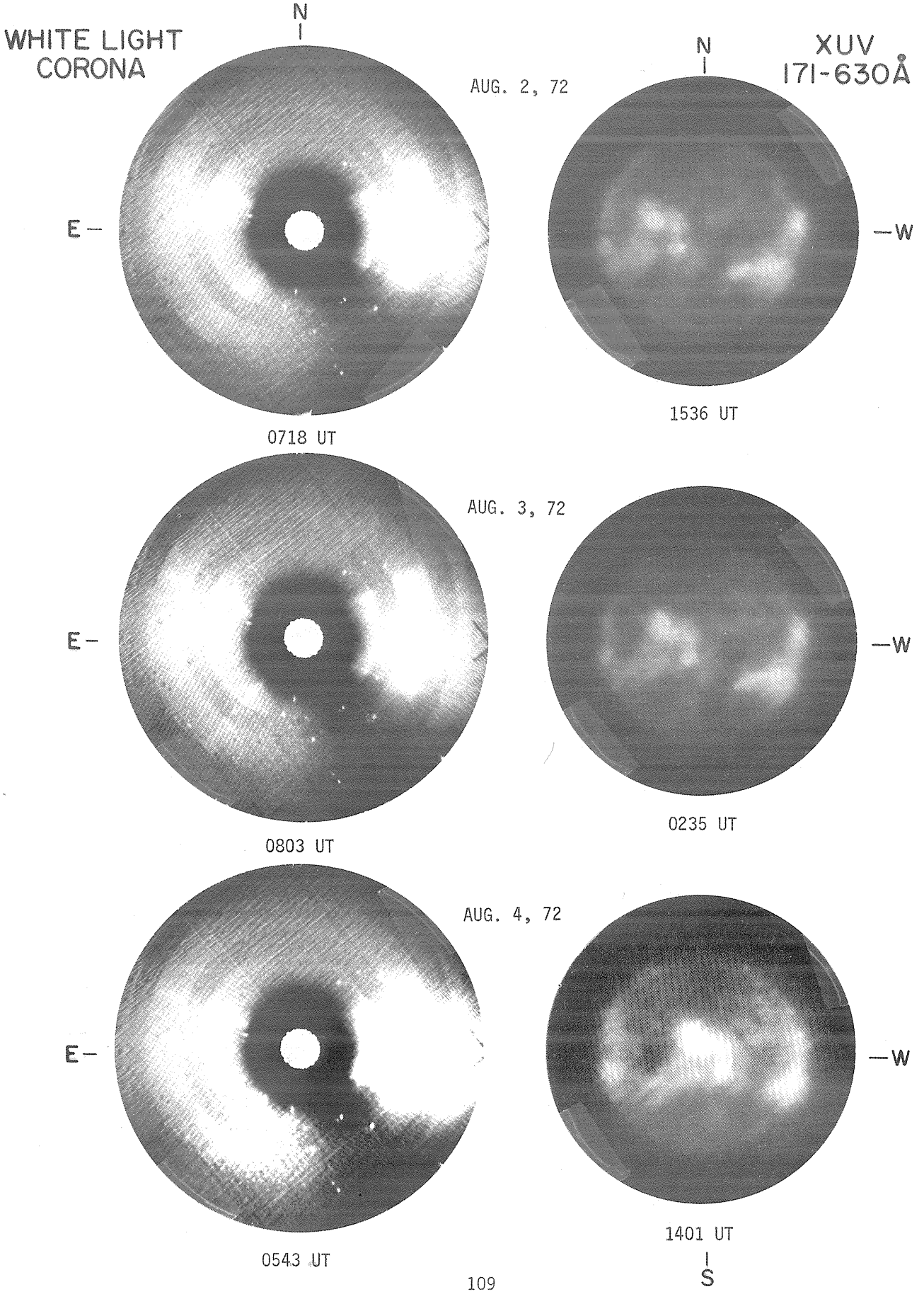
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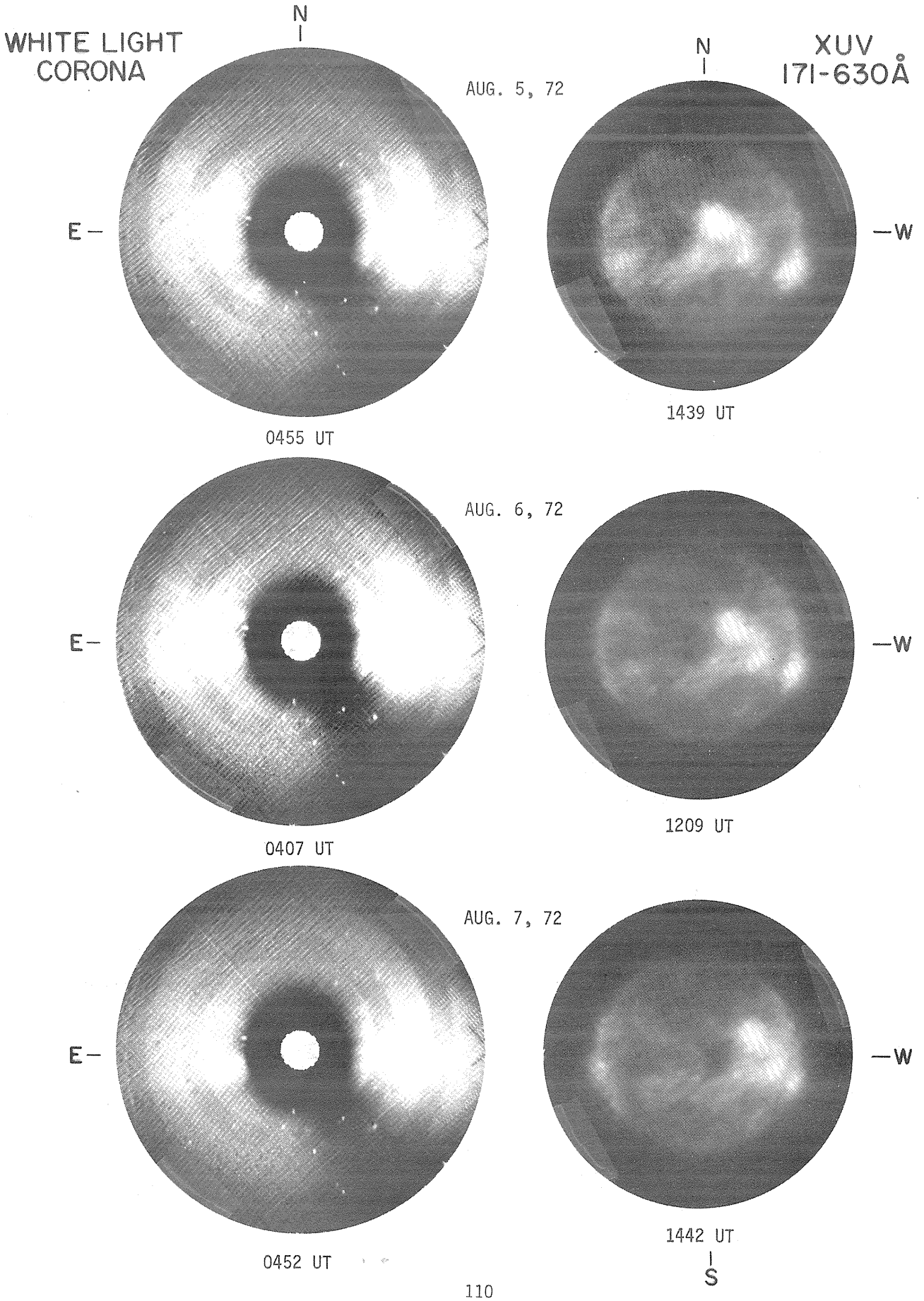
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1442 UT
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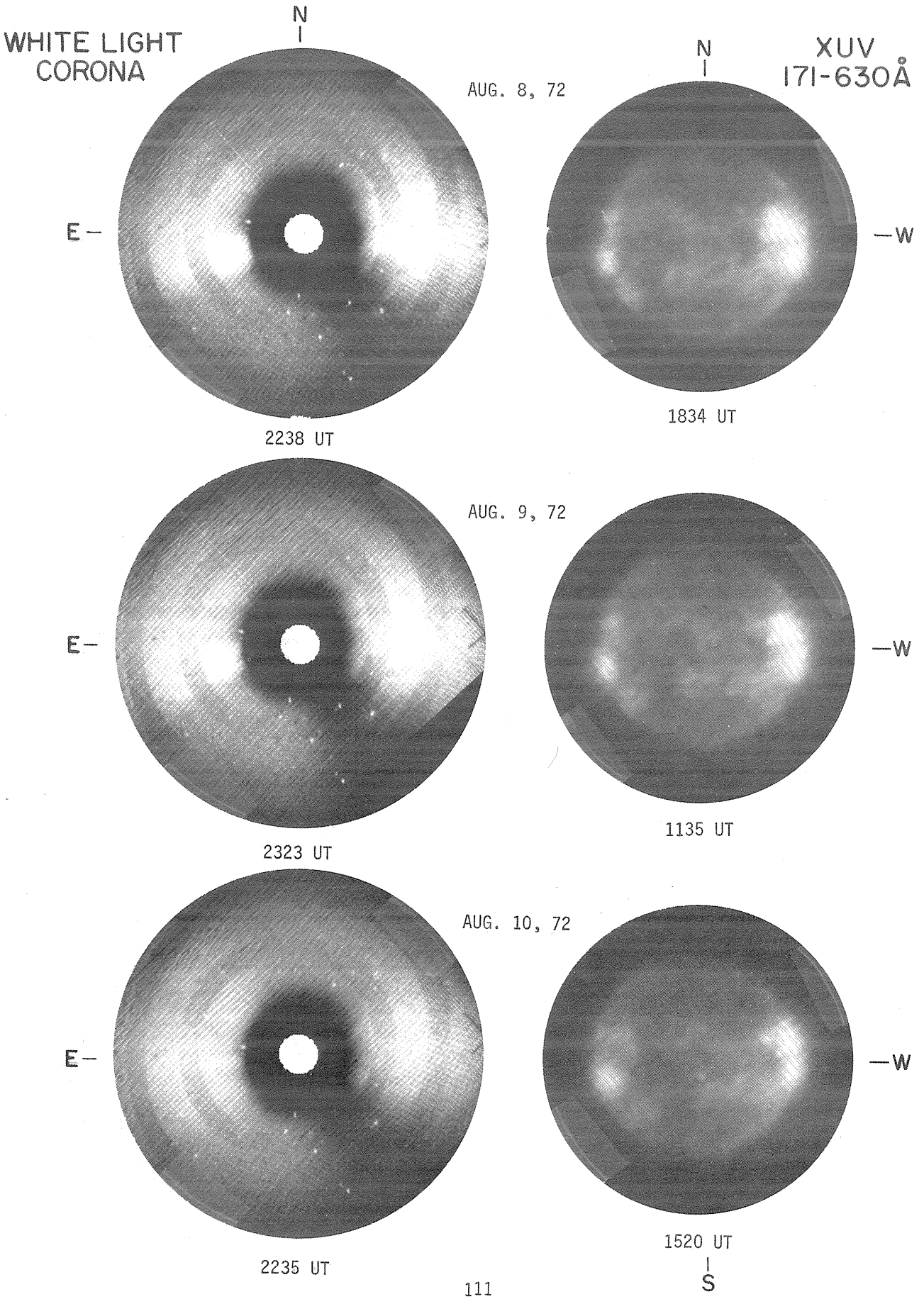
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1520 UT
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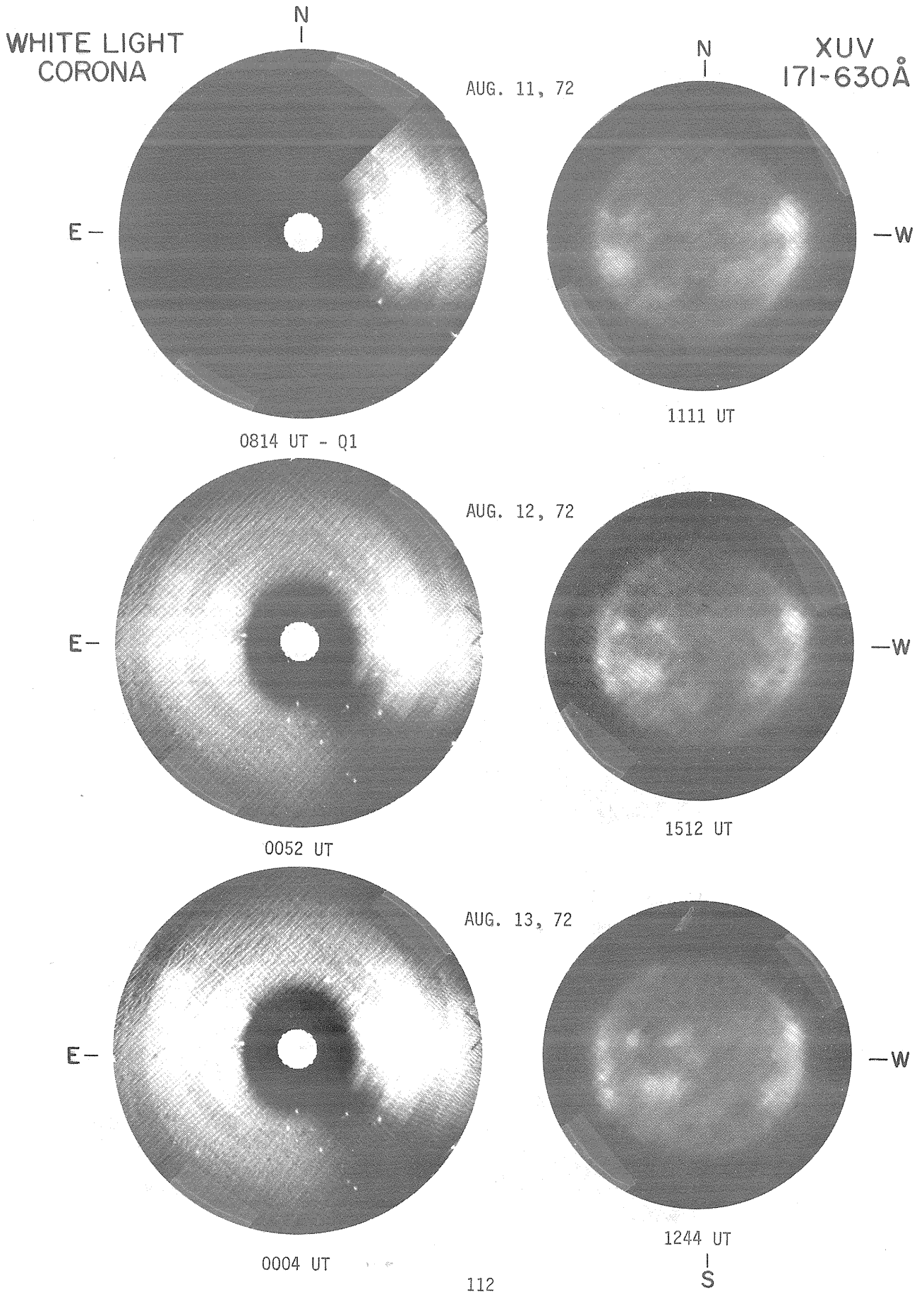
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171-630Å
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1512 UT
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0004 UT
1244 UT
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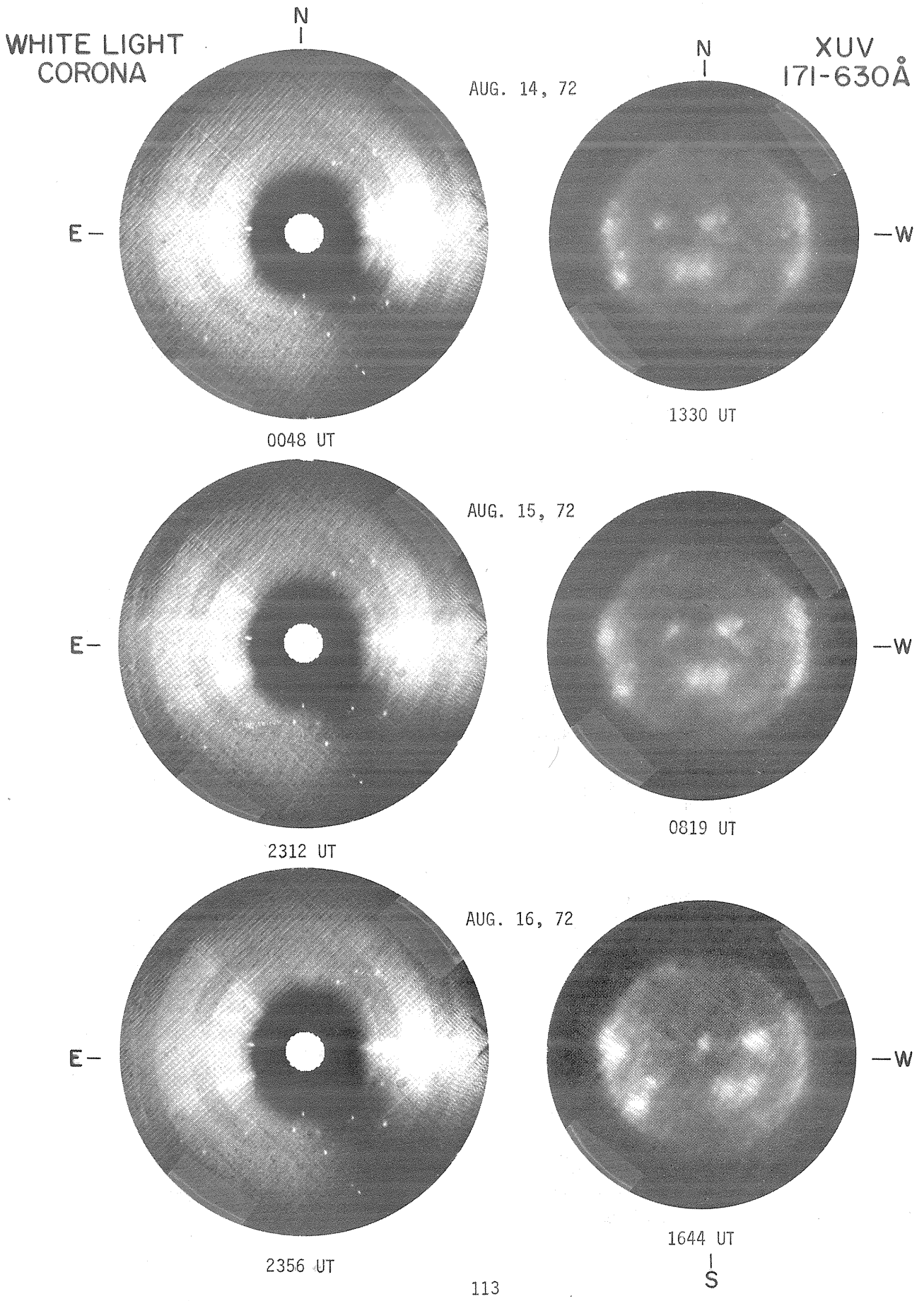
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171-630Å
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1330 UT
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2312 UT
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1644 UT
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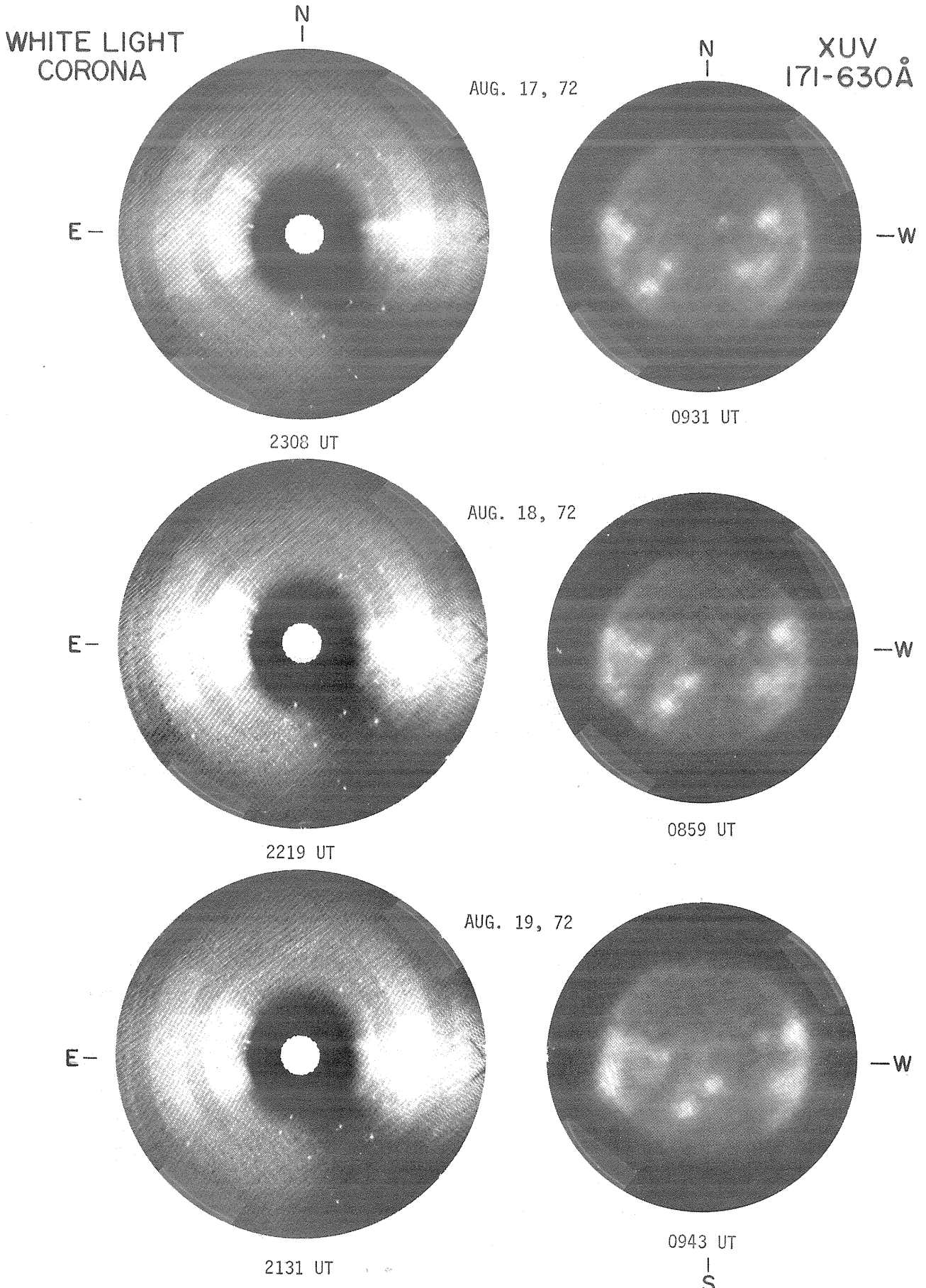
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0859 UT
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0943 UT
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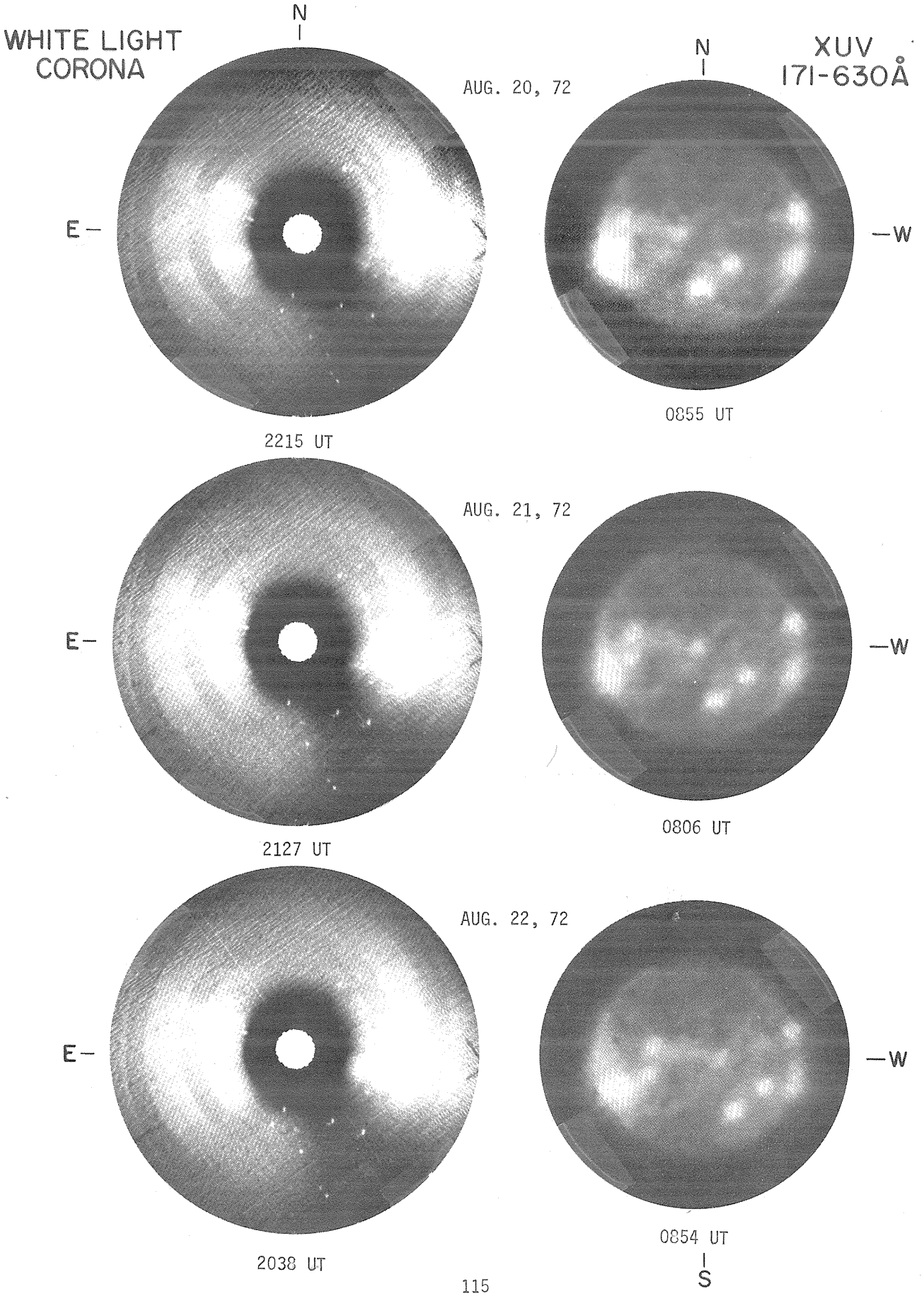
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XUV
171-630Å
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AUG. 20, 72
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AUG. 22, 72
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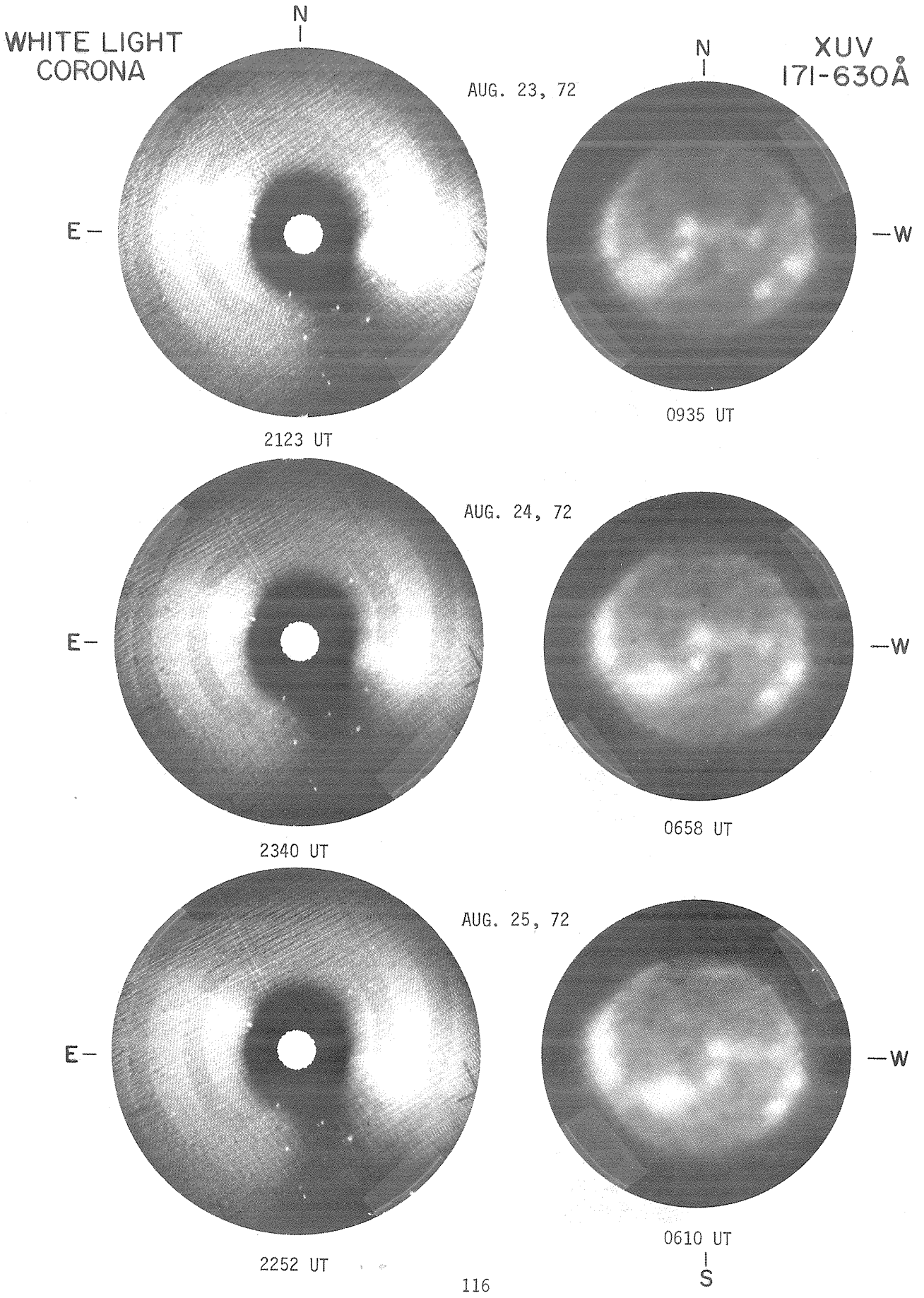
2038 UT
0854 UT
S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XUV
171-630Å
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0610 UT
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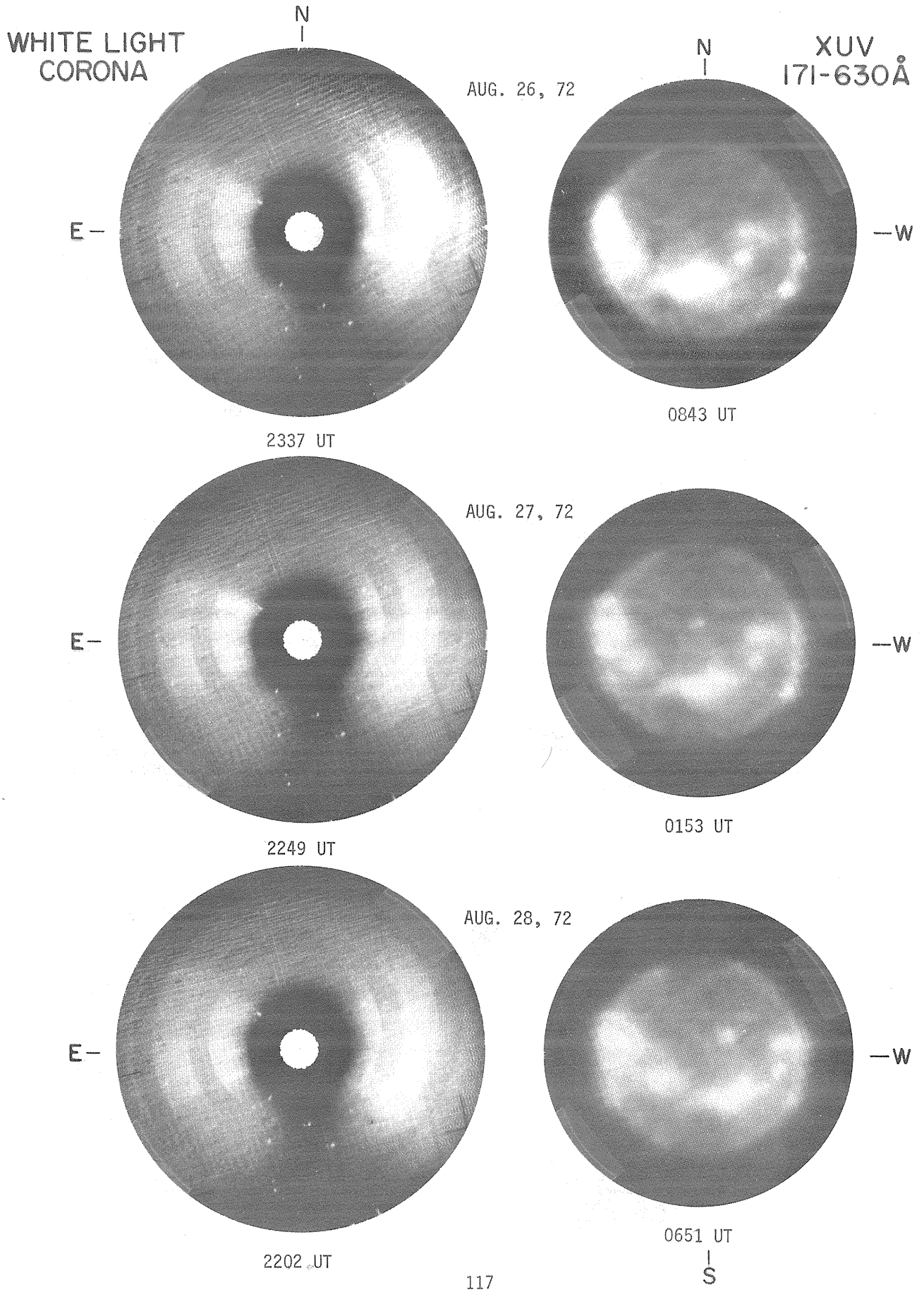
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171-630Å
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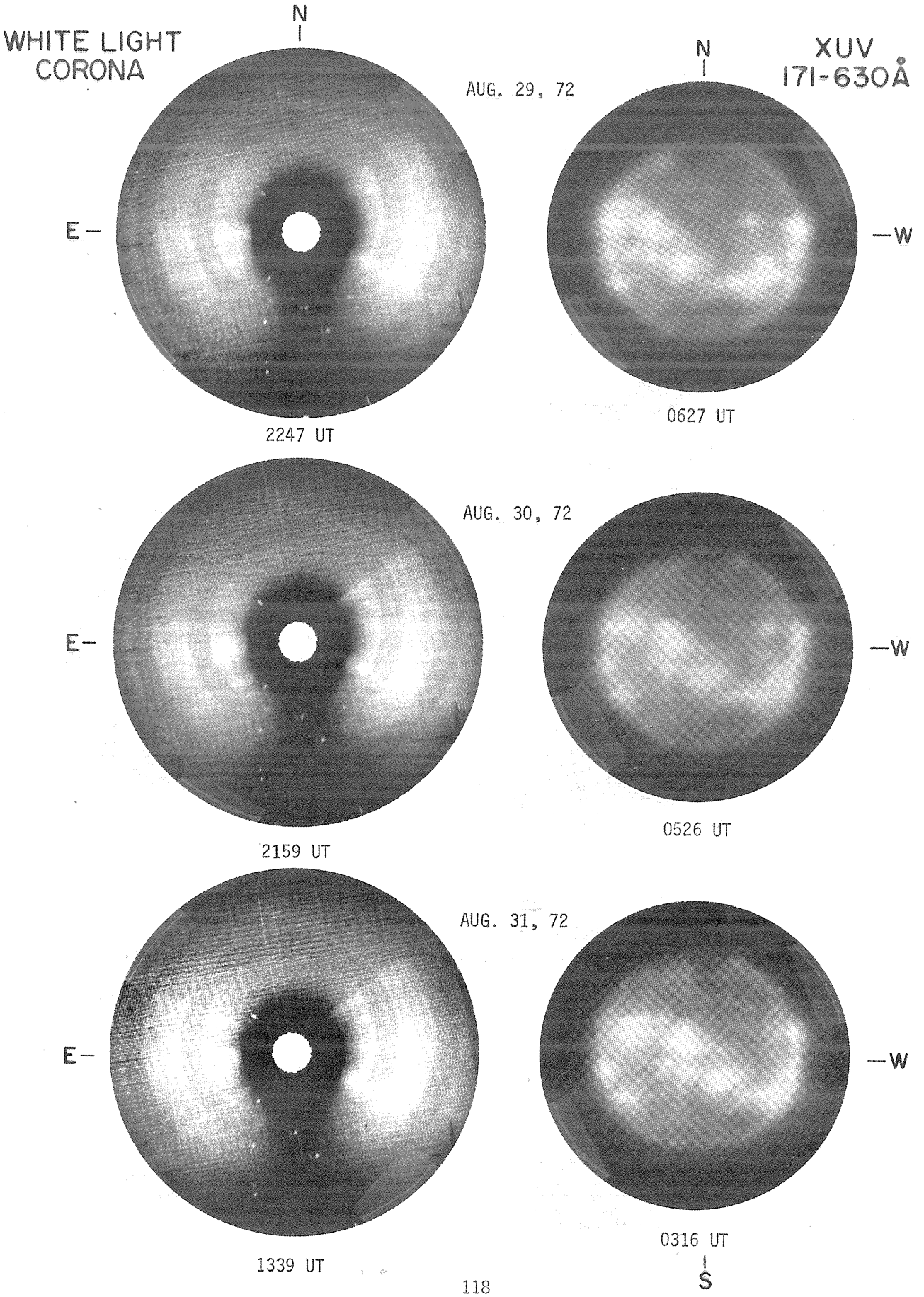
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XUV
171-630Å
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W
2247 UT
0627 UT
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0526 UT
AUG. 31, 72
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1339 UT
0316 UT
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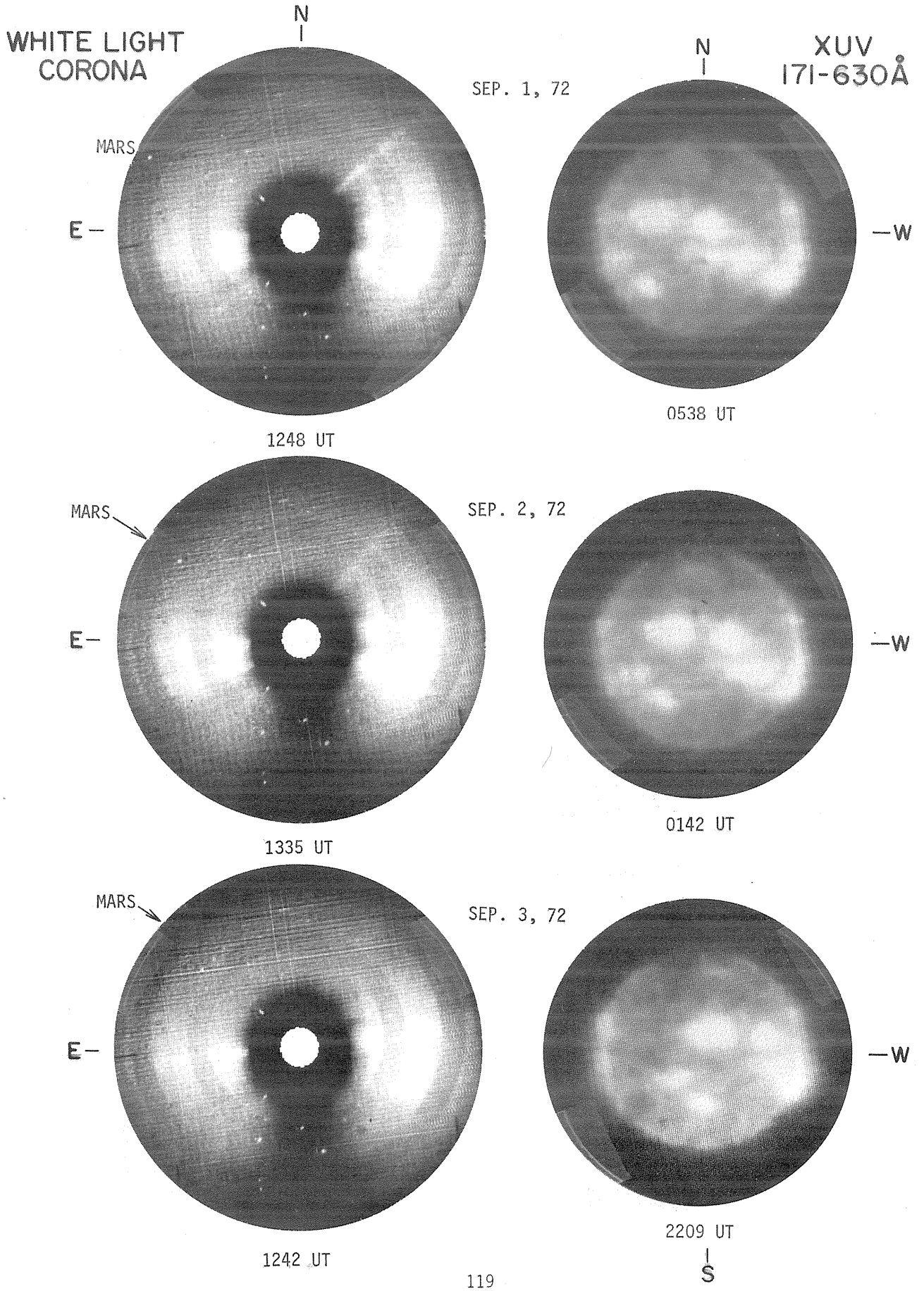
WHITE LIGHT CORONA
XUV 171-630Å
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SEP. 1, 72
MARS
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W
1248 UT
0538 UT
MARS
SEP. 2, 72
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W
1335 UT
0142 UT
MARS
SEP. 3, 72
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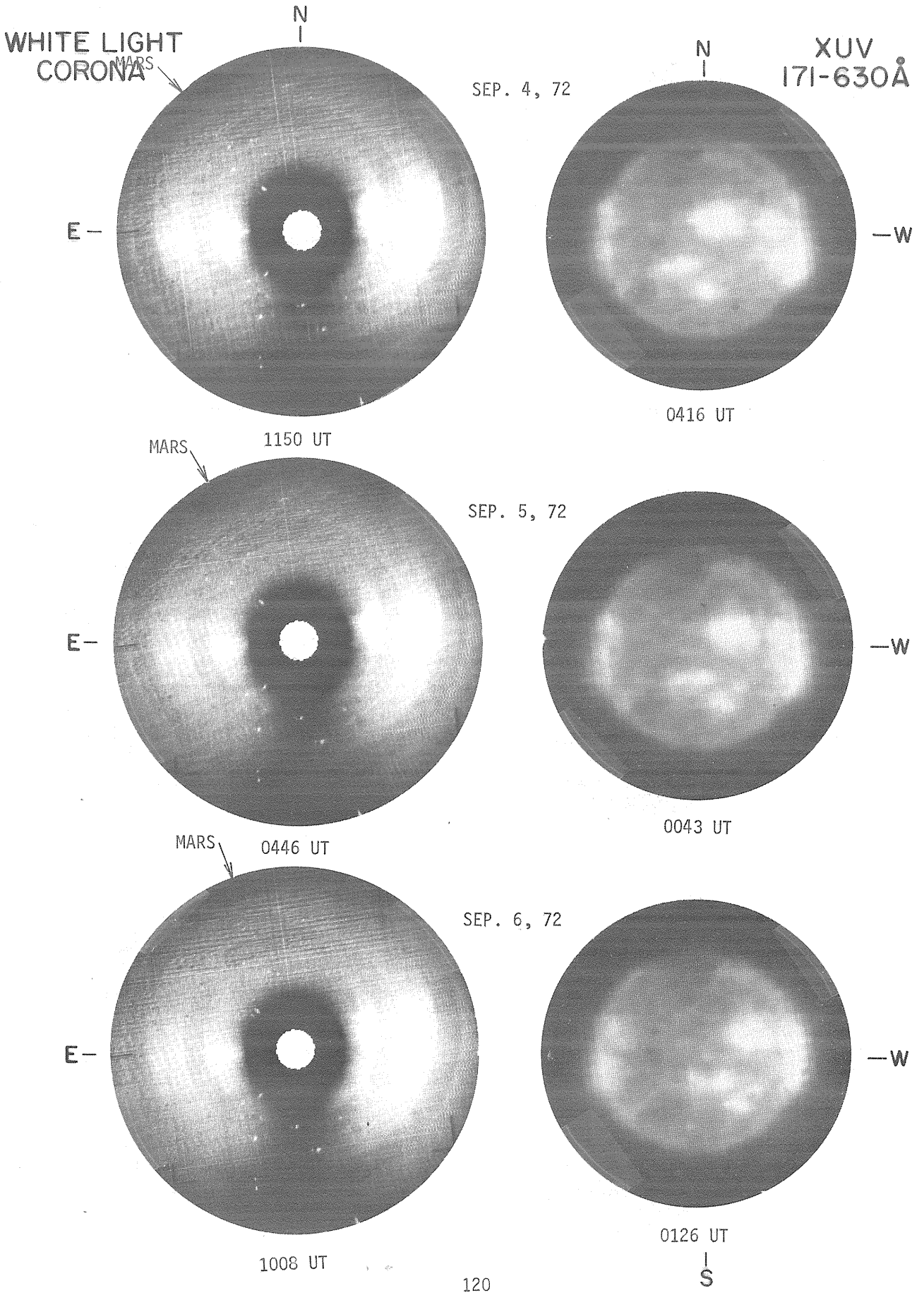
W
1242 UT
2209 UT
S


WHITE LIGHT CORONA
XUV 171-630Å
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MARS
SEP. 4, 72
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1150 UT
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MARS
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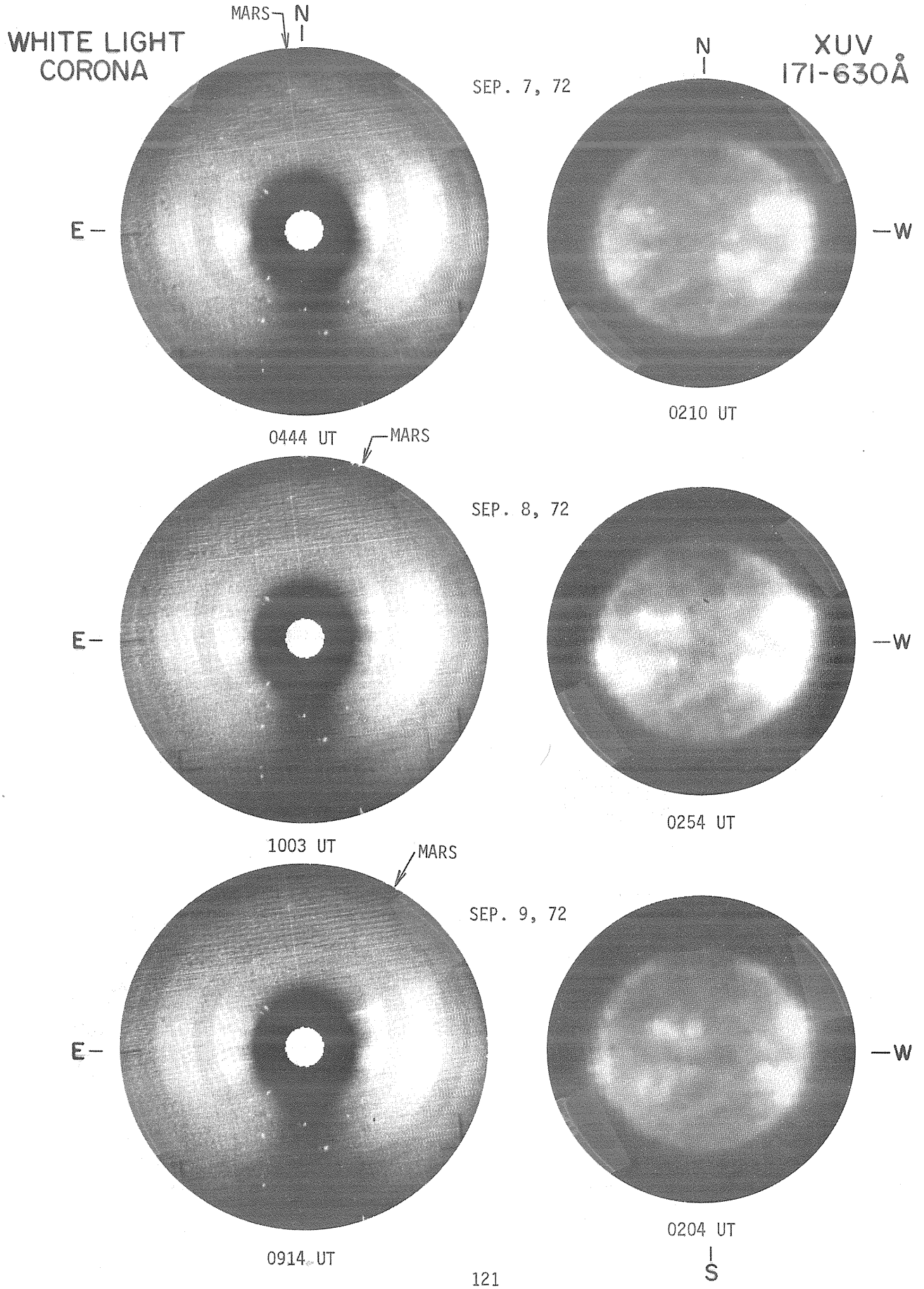
MARS
SEP. 6, 72
1008 UT
0126 UT
S


WHITE LIGHT
CORONA
XUV
171-630Å
MARS
N
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0210 UT
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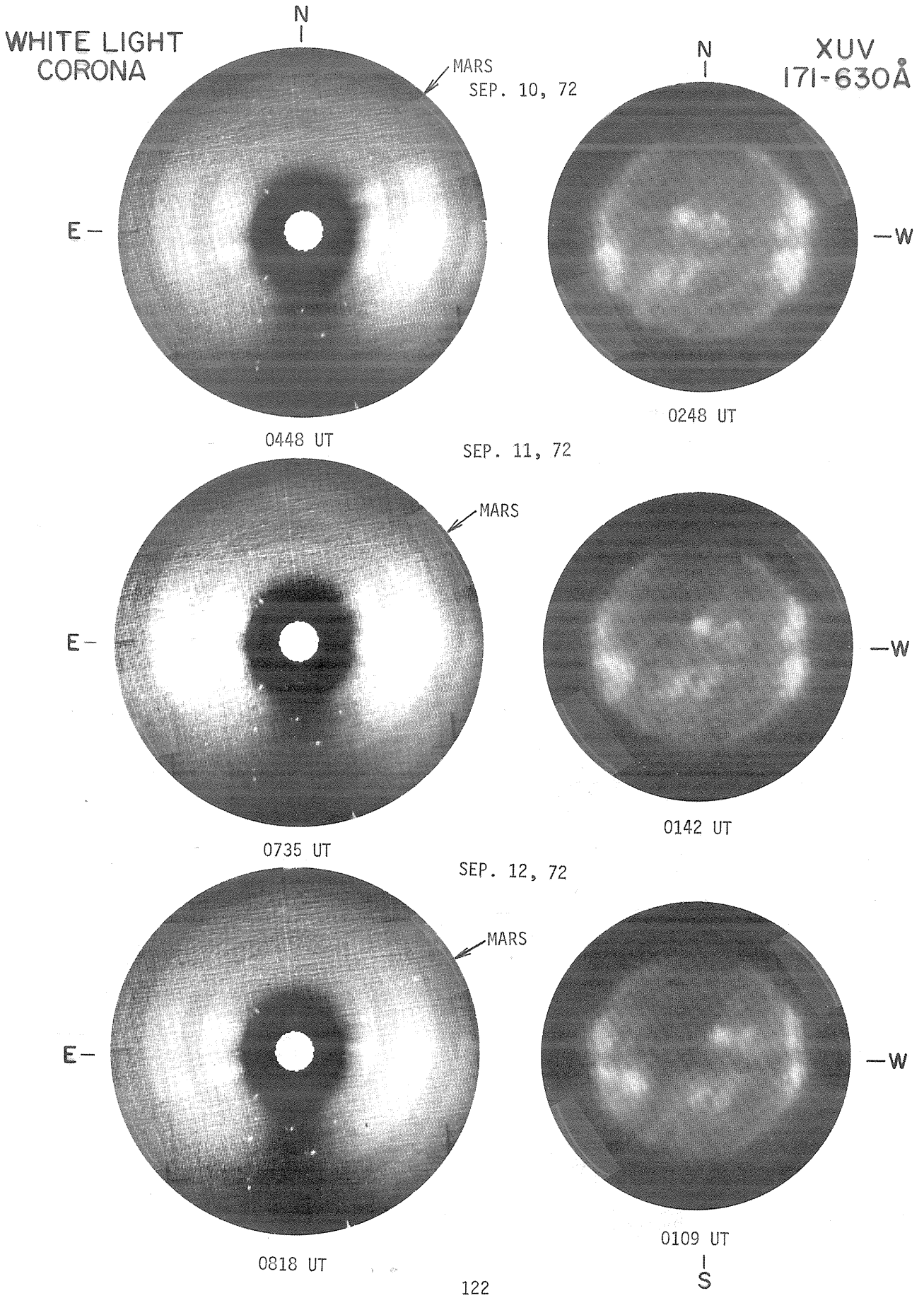
0254 UT
SEP. 9, 72
0914 UT
0204 UT


WHITE LIGHT
CORONA
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SEP. 10, 72
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0448 UT
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XUV
171-630Å
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0248 UT
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E
0735 UT
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0142 UT
SEP. 12, 72
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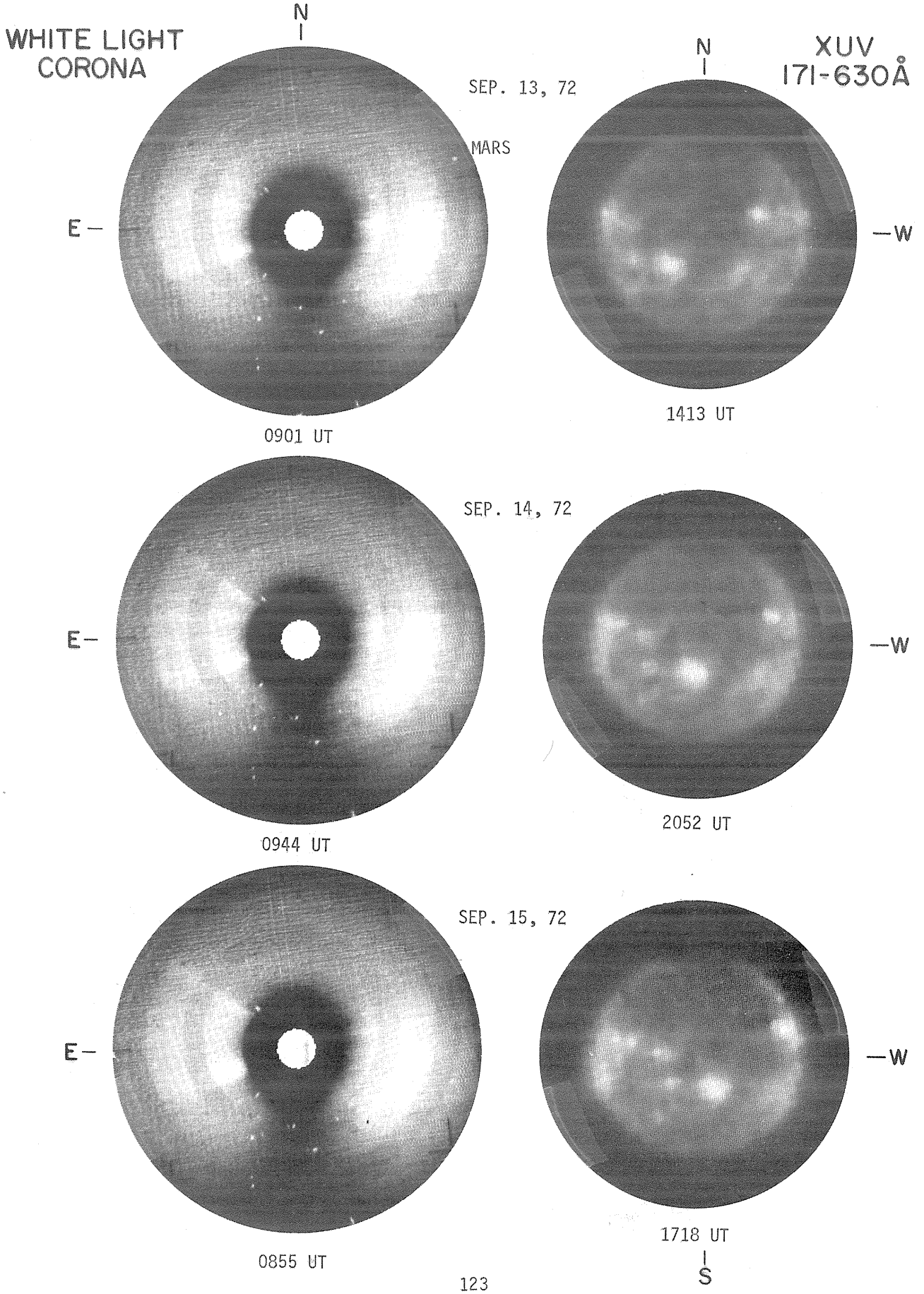
0818 UT
W
0109 UT
S


WHITE LIGHT
CORONA
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XUV
171-630Å
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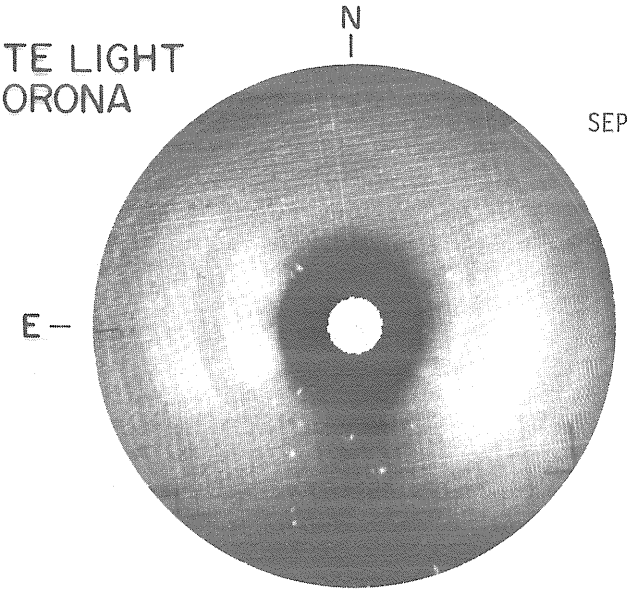
SEP. 13, 72
MARS
E
W
0901 UT
1413 UT
SEP. 14, 72
E
W
0944 UT
2052 UT
SEP. 15, 72
E
W
0855 UT
1718 UT
S

WHITE LIGHT CORONA

XUV 171-630Å

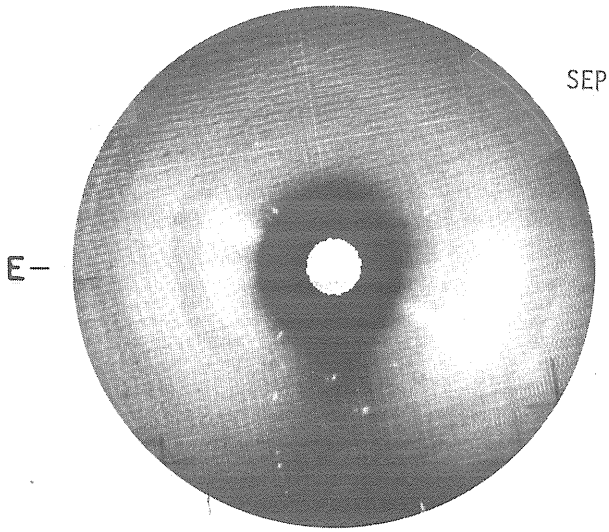
SEP. 16, 72



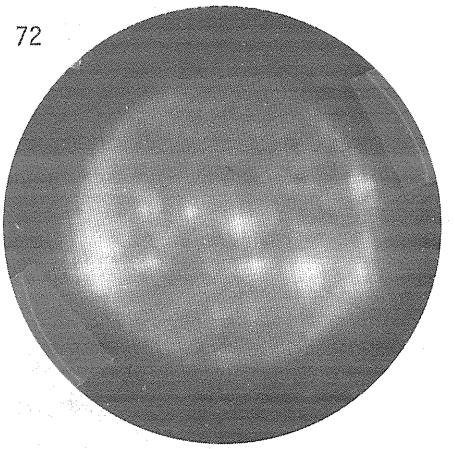
1111 UT

NO DATA

SEP. 17, 72

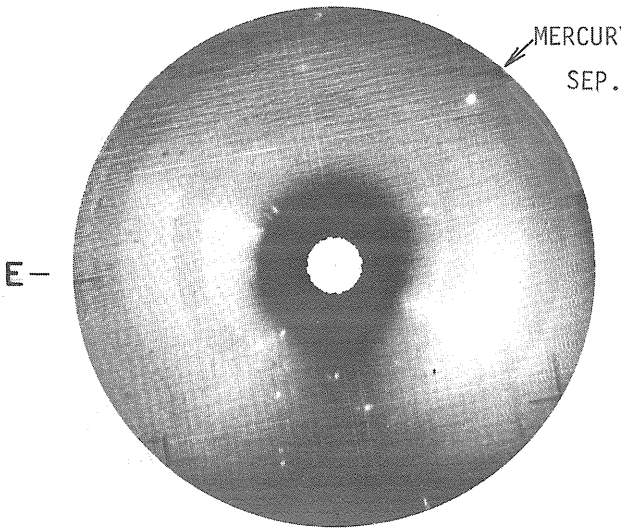


1022 UT

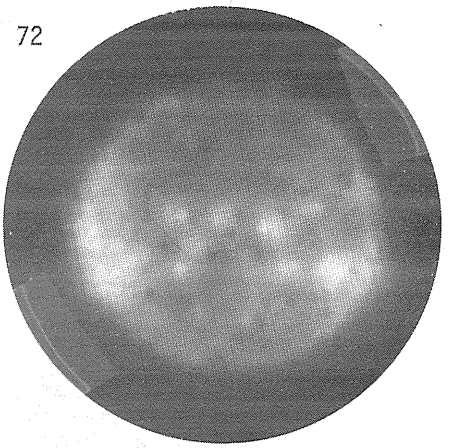


1824 UT

SEP. 18, 72

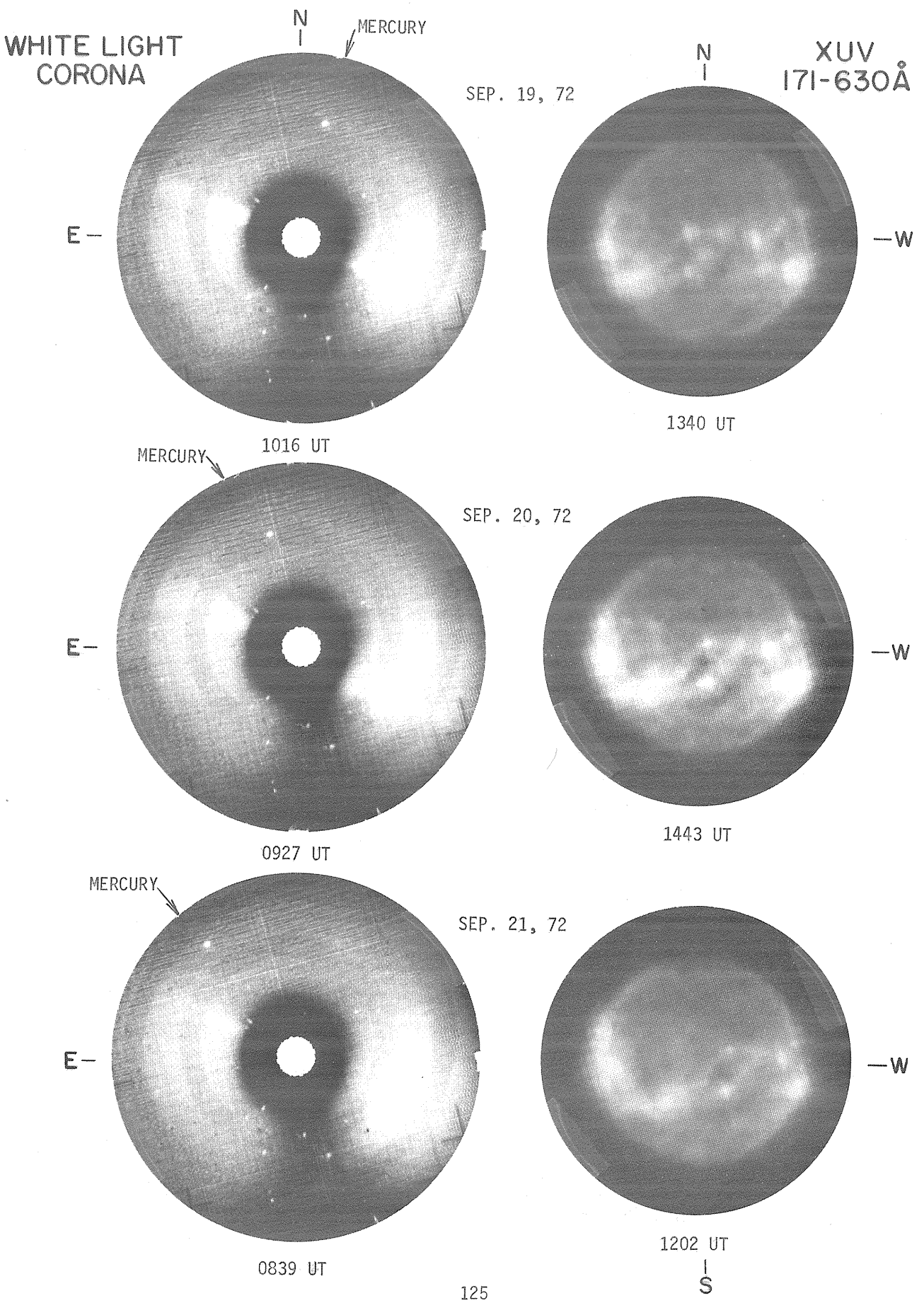


0800 UT



1429 UT

S


WHITE LIGHT
CORONA
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MERCURY
XUV
171-630Å
SEP. 19, 72
E
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1016 UT
1340 UT
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1202 UT
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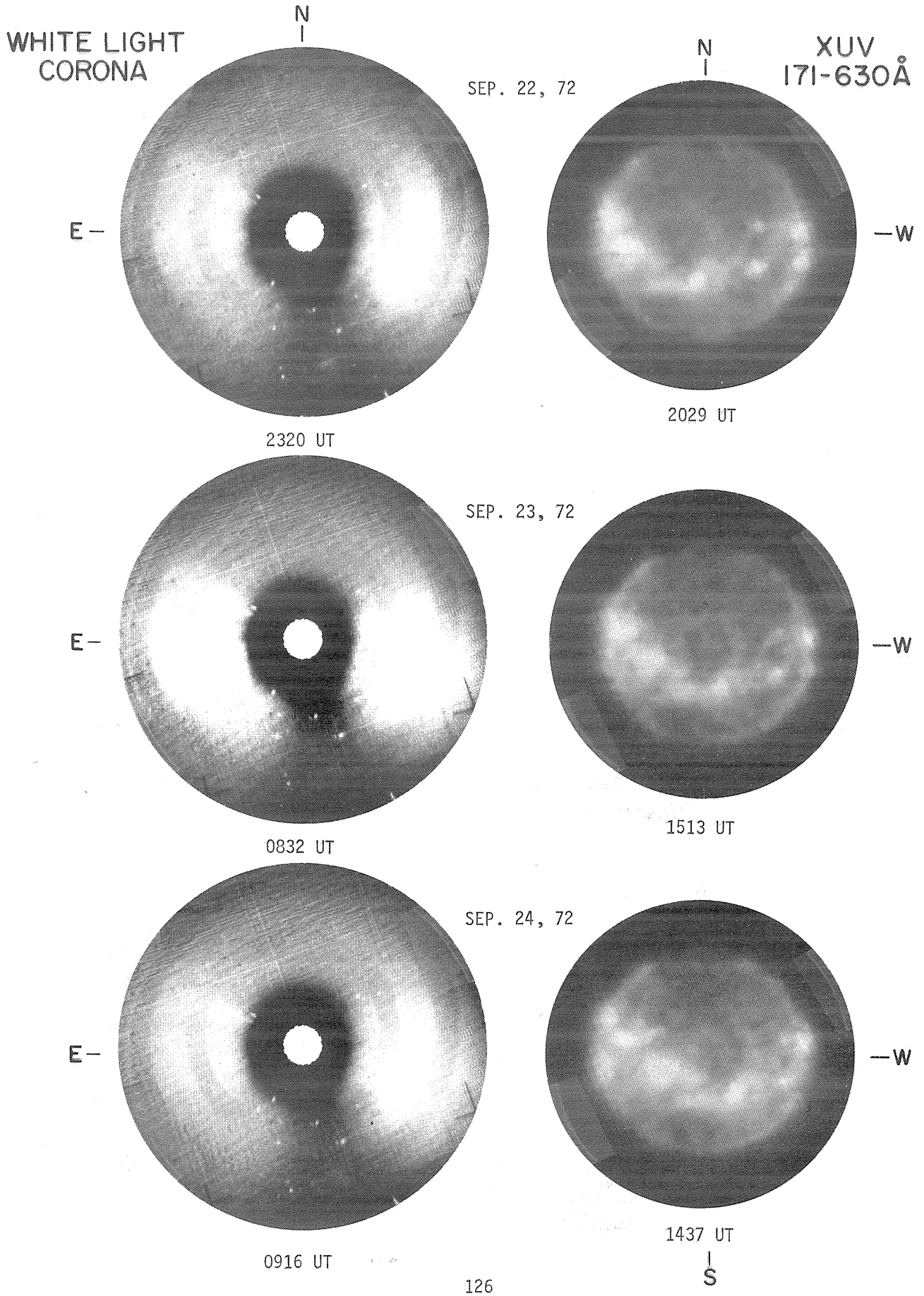
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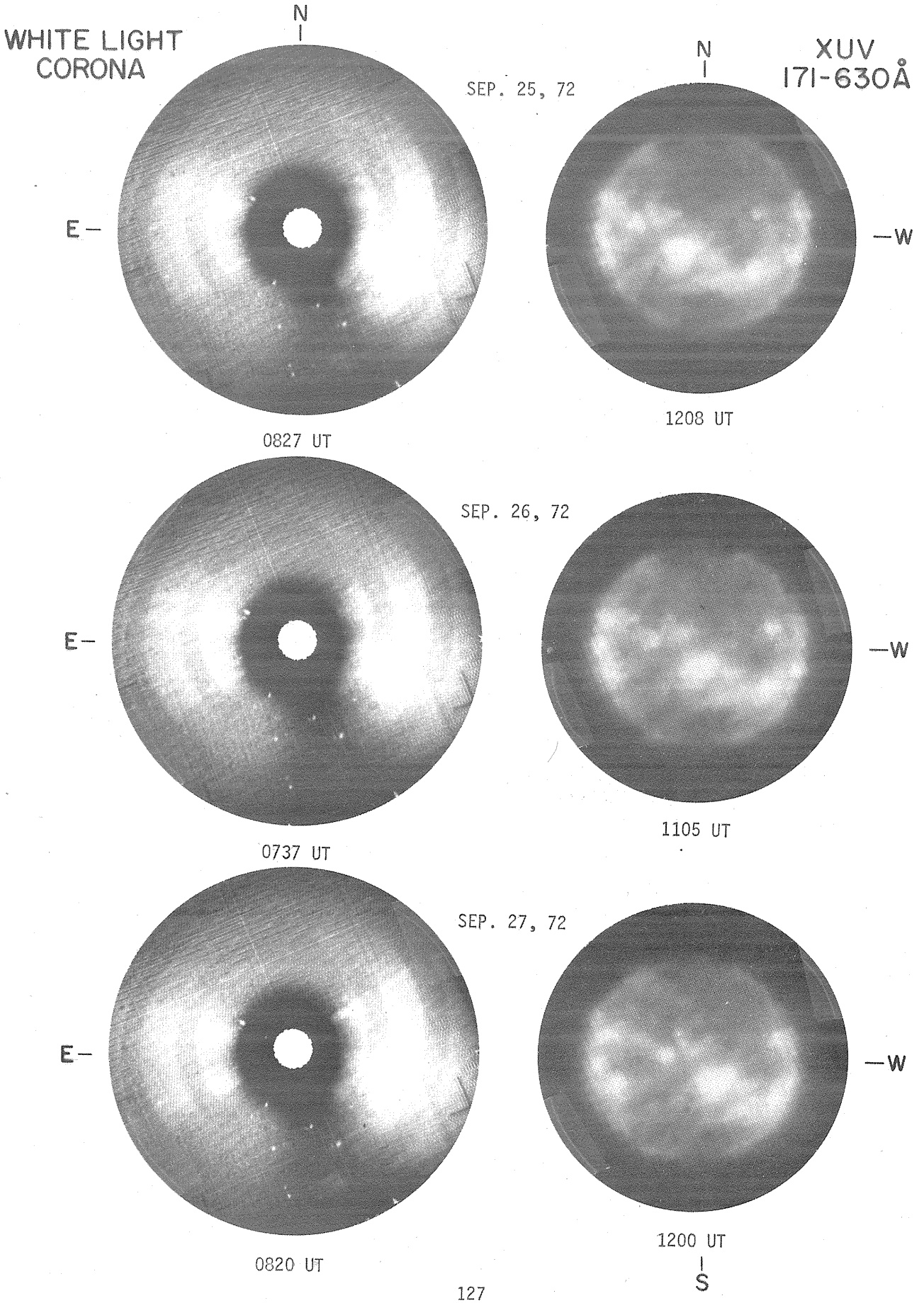
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171-630Å
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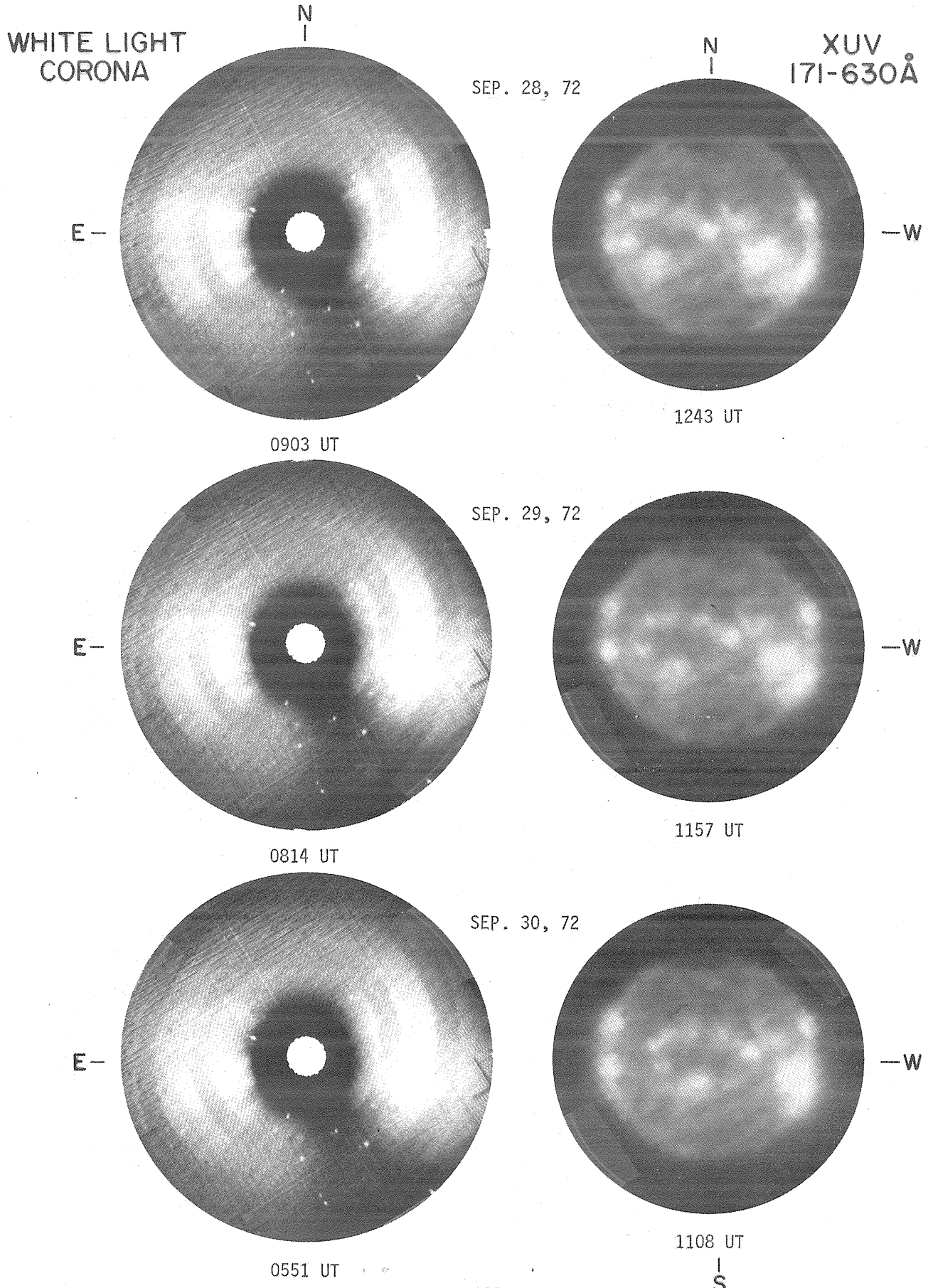
—W
0820 UT
1200 UT
S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1157 UT
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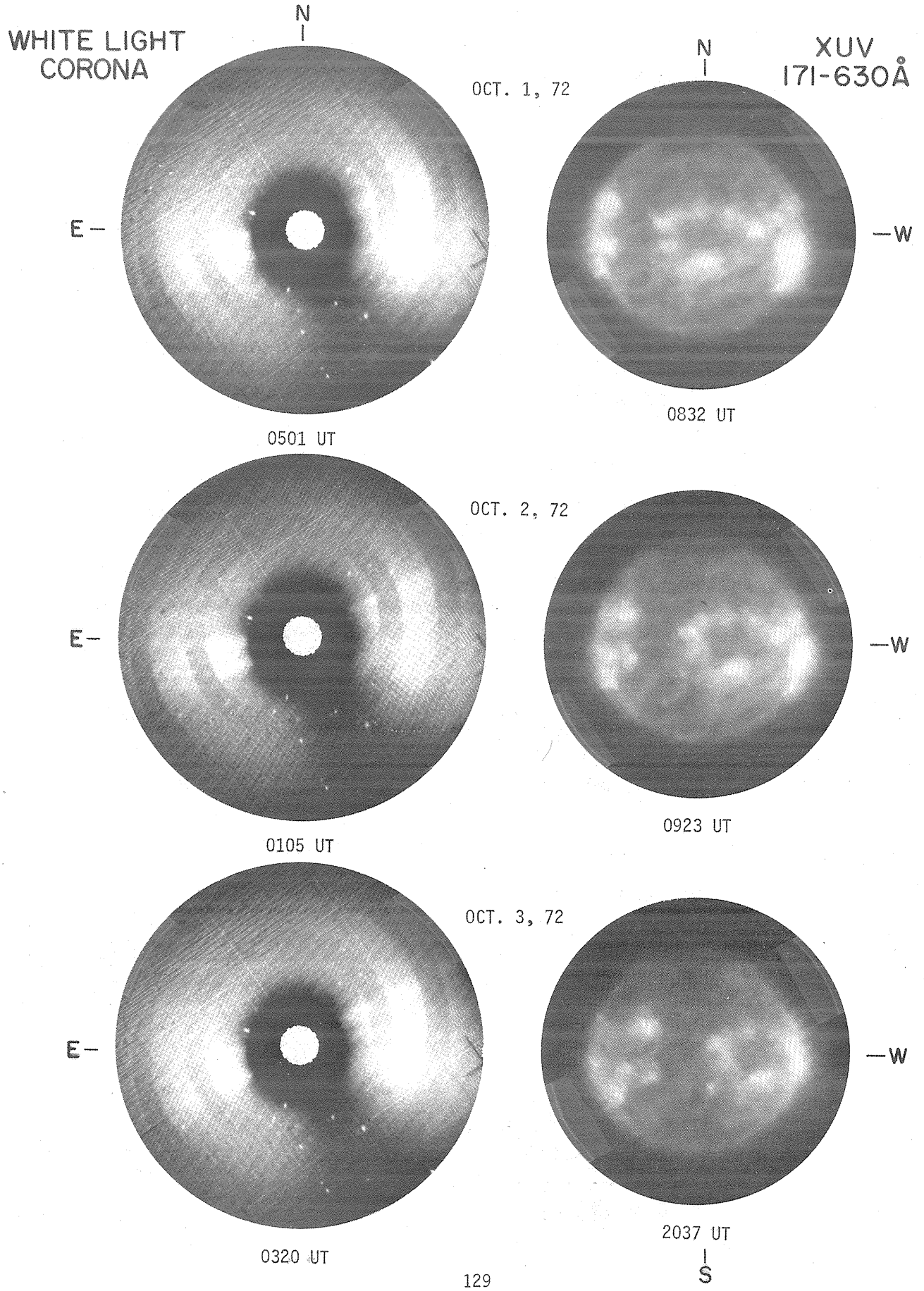
1108 UT
S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2037 UT
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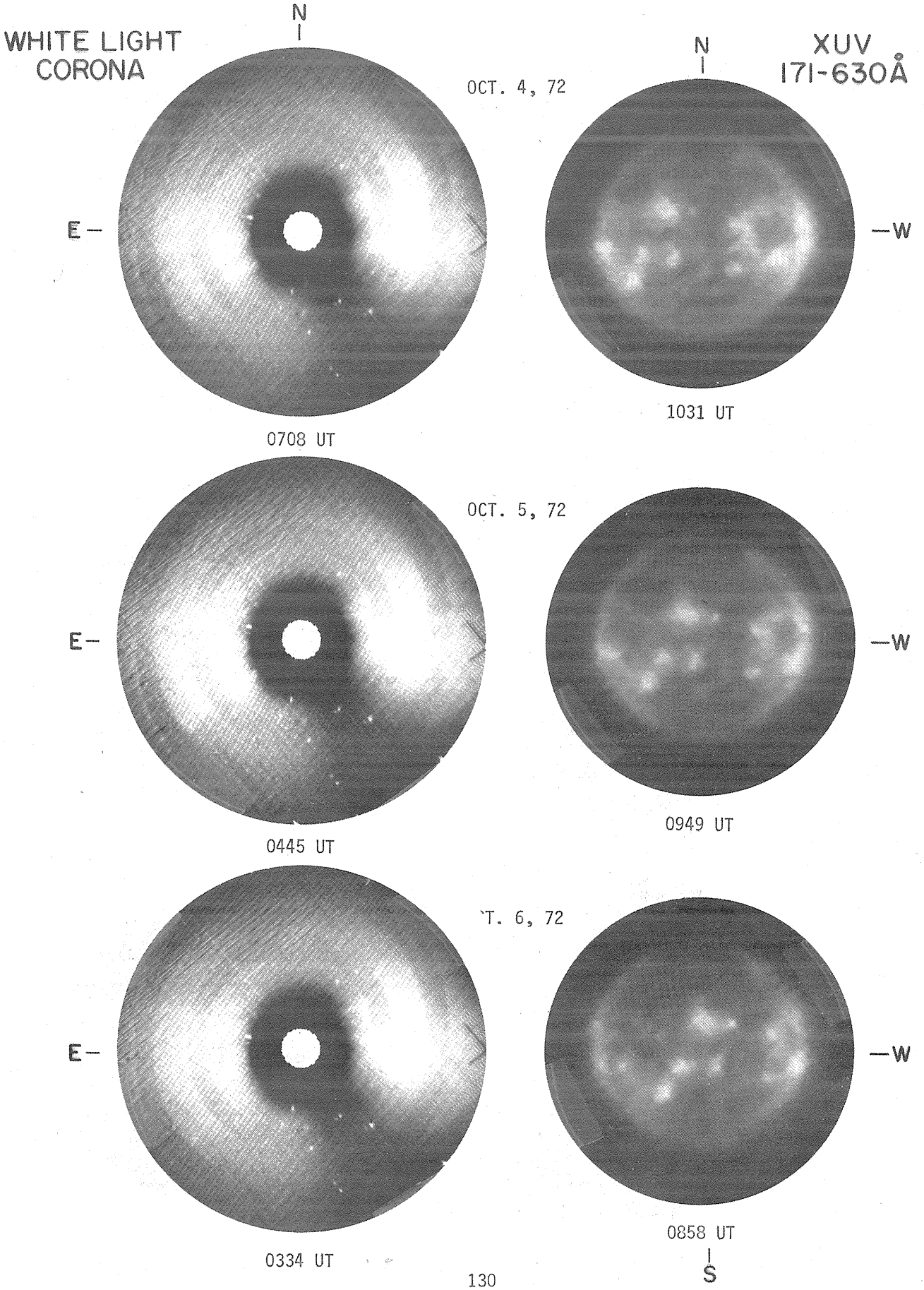
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0949 UT
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0858 UT
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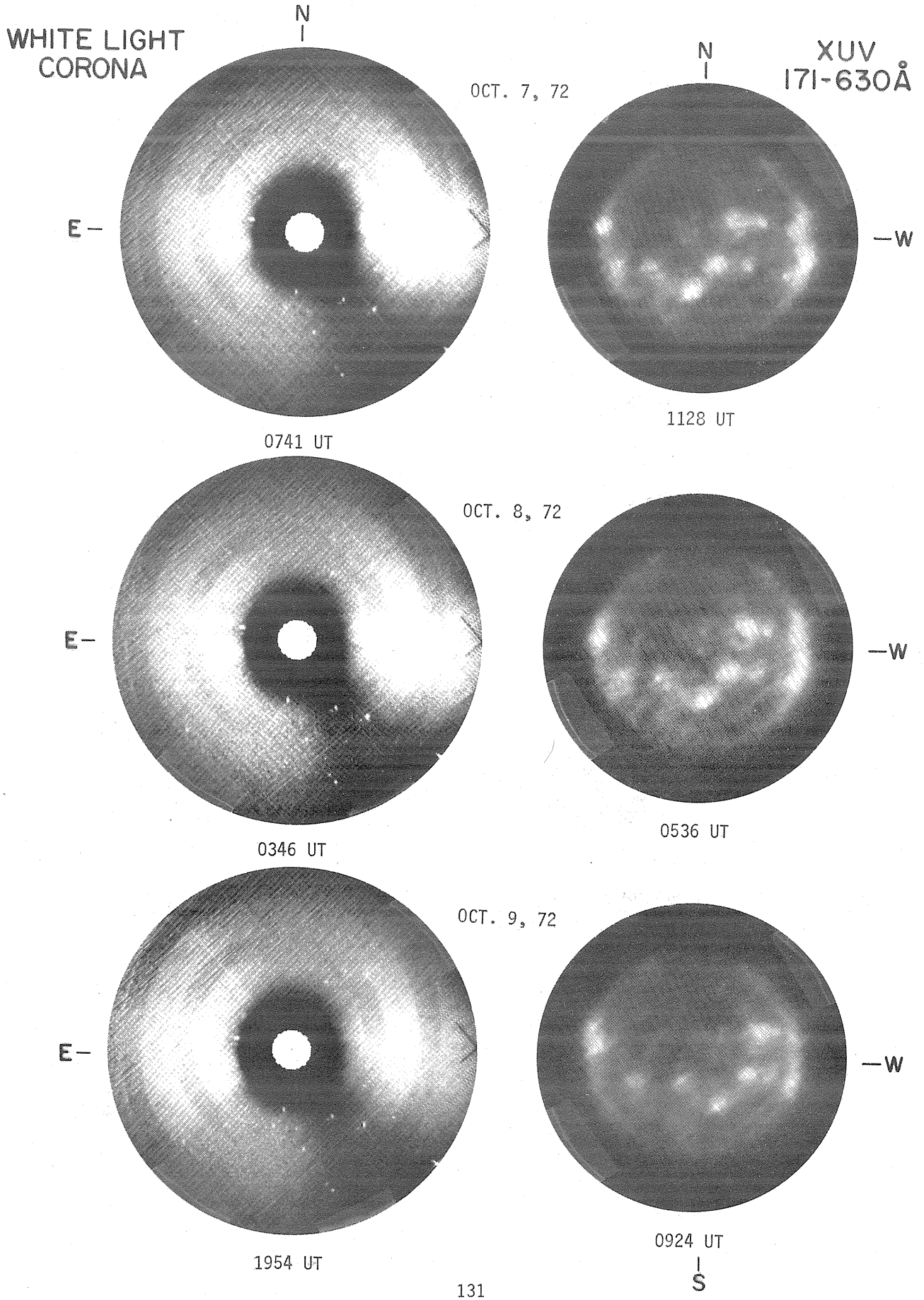
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0346 UT
0536 UT
OCT. 9, 72
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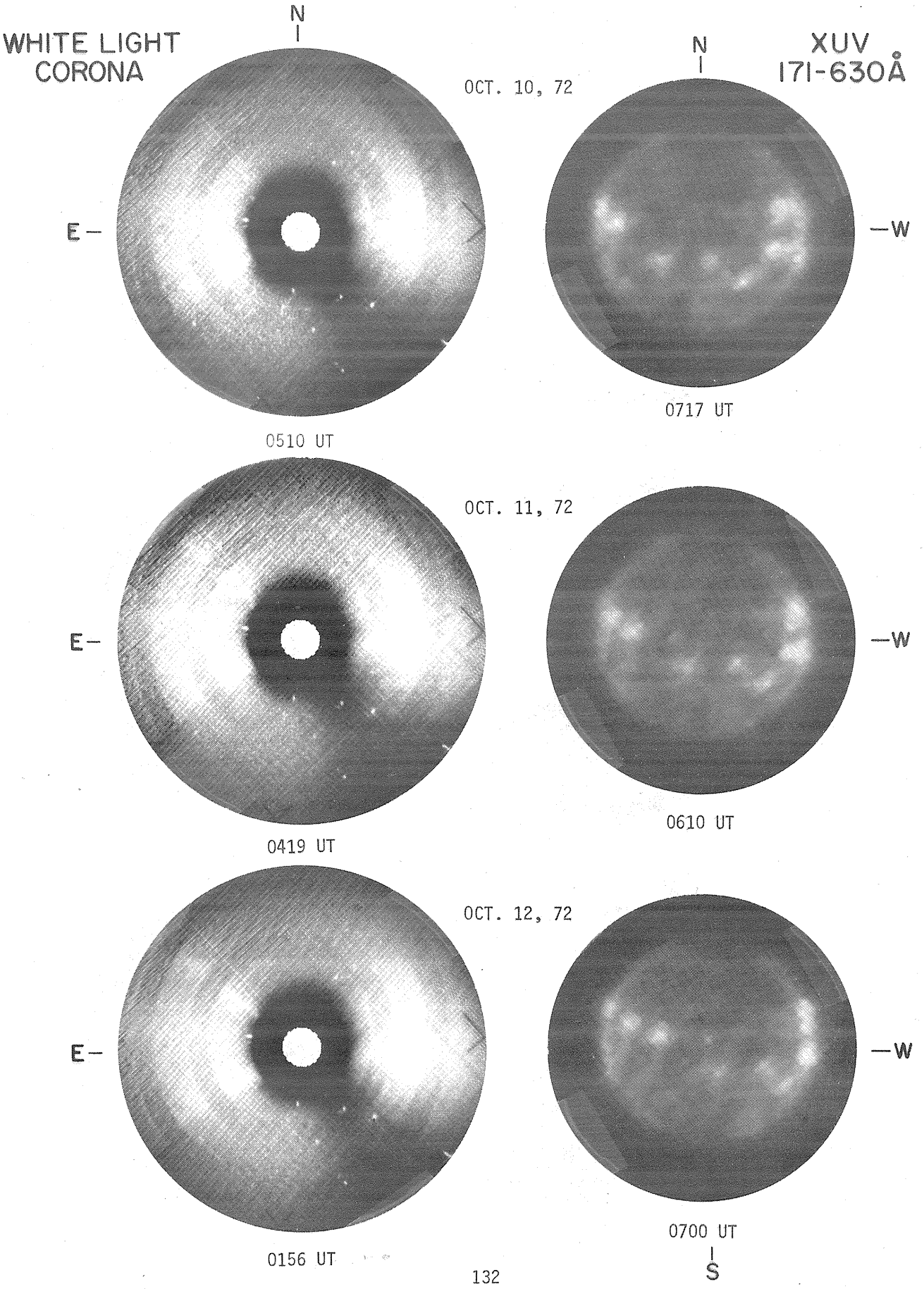
1954 UT
0924 UT
S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XUV
171-630Å
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0419 UT
0610 UT
OCT. 12, 72
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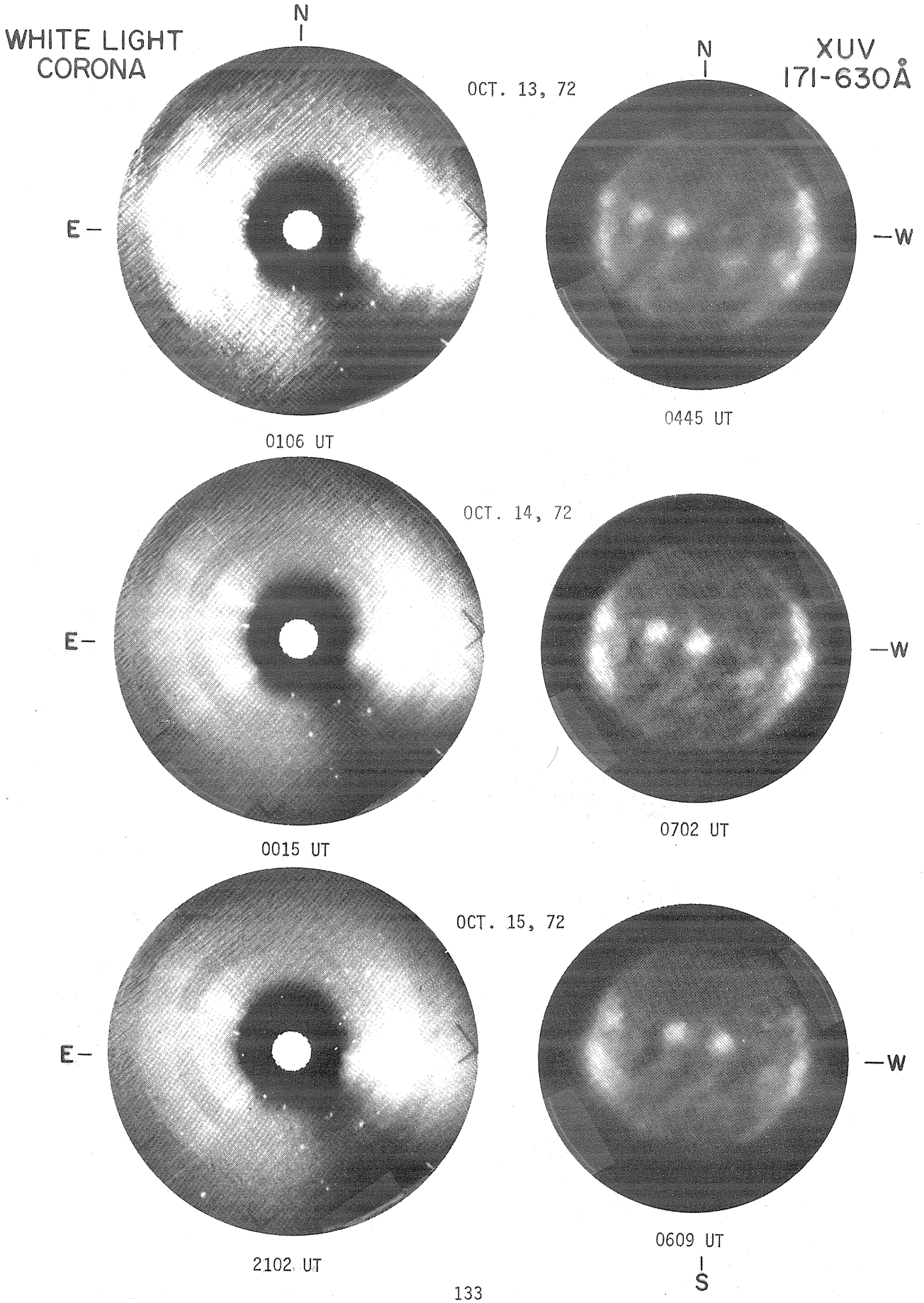
0156 UT
0700 UT
S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171-630Å
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2102 UT
0609 UT
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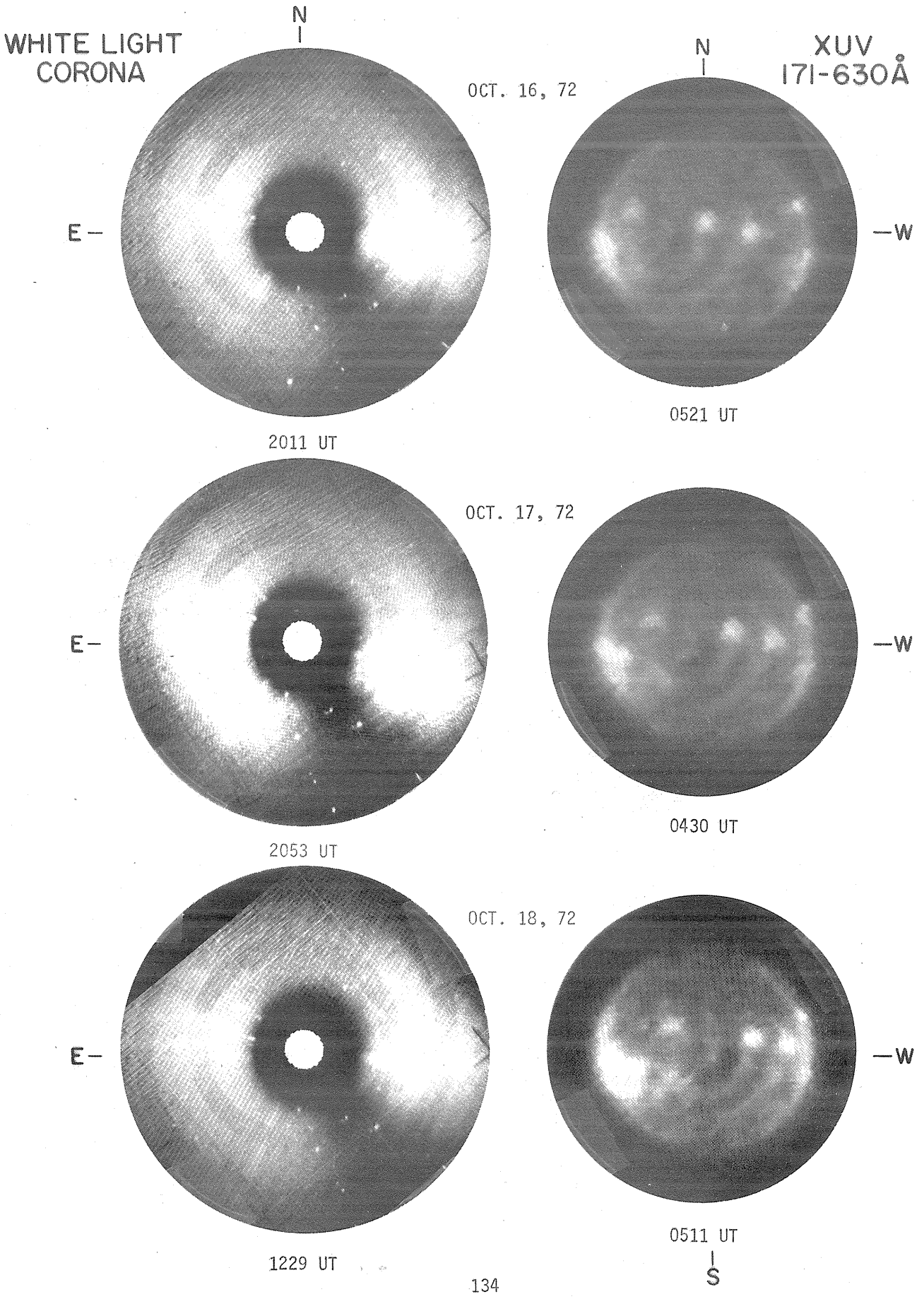
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171-630Å
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1229 UT
0511 UT
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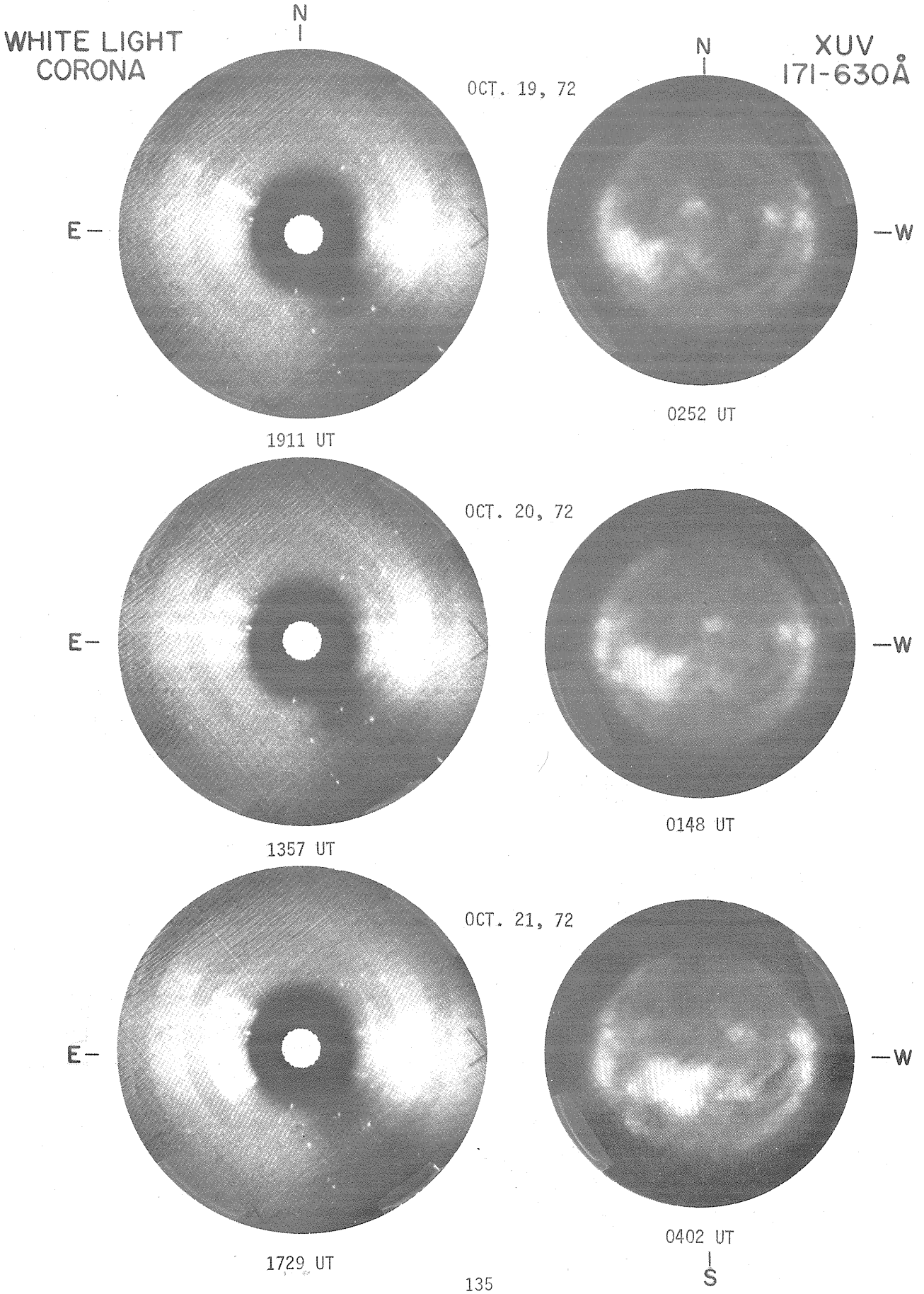
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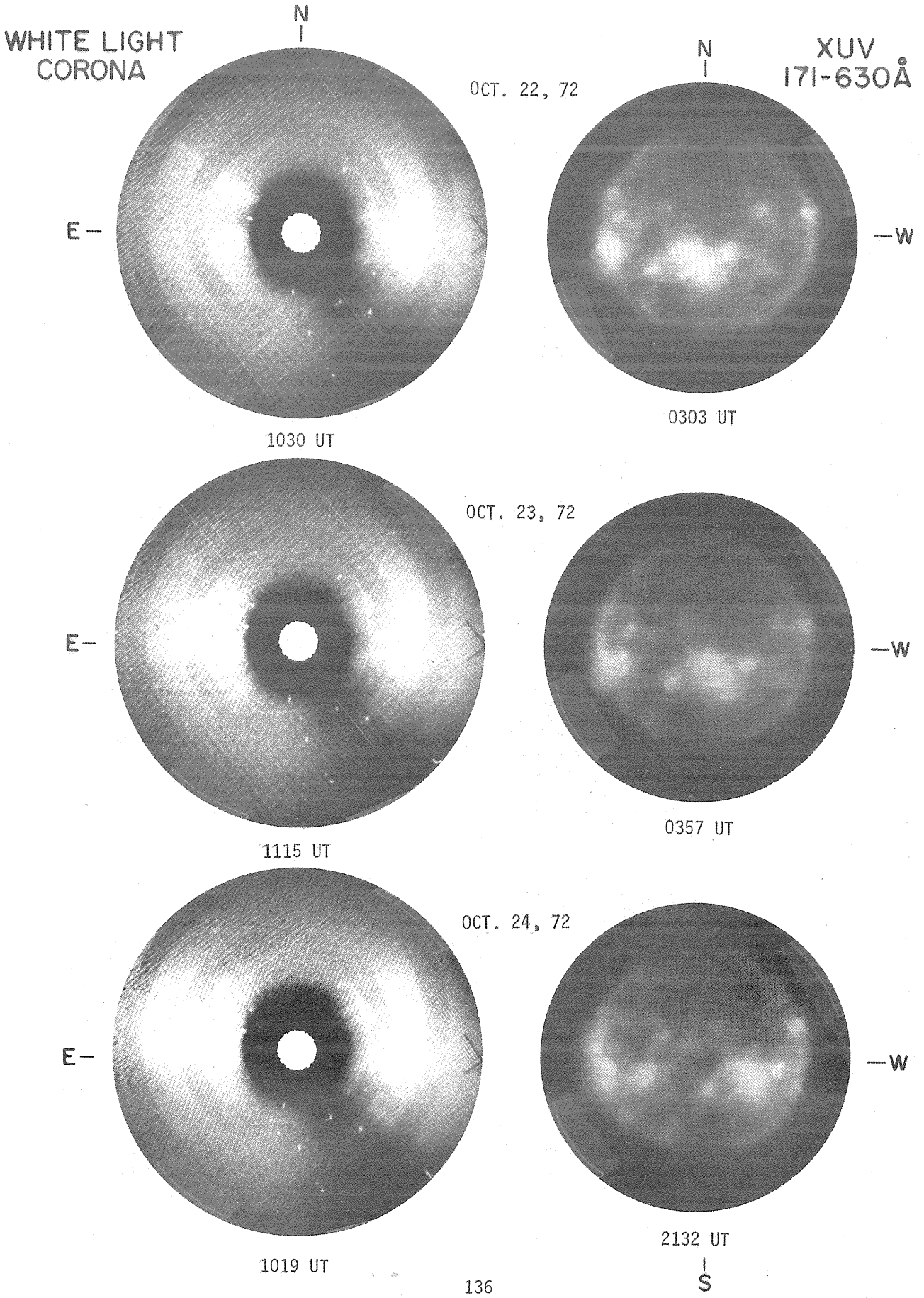
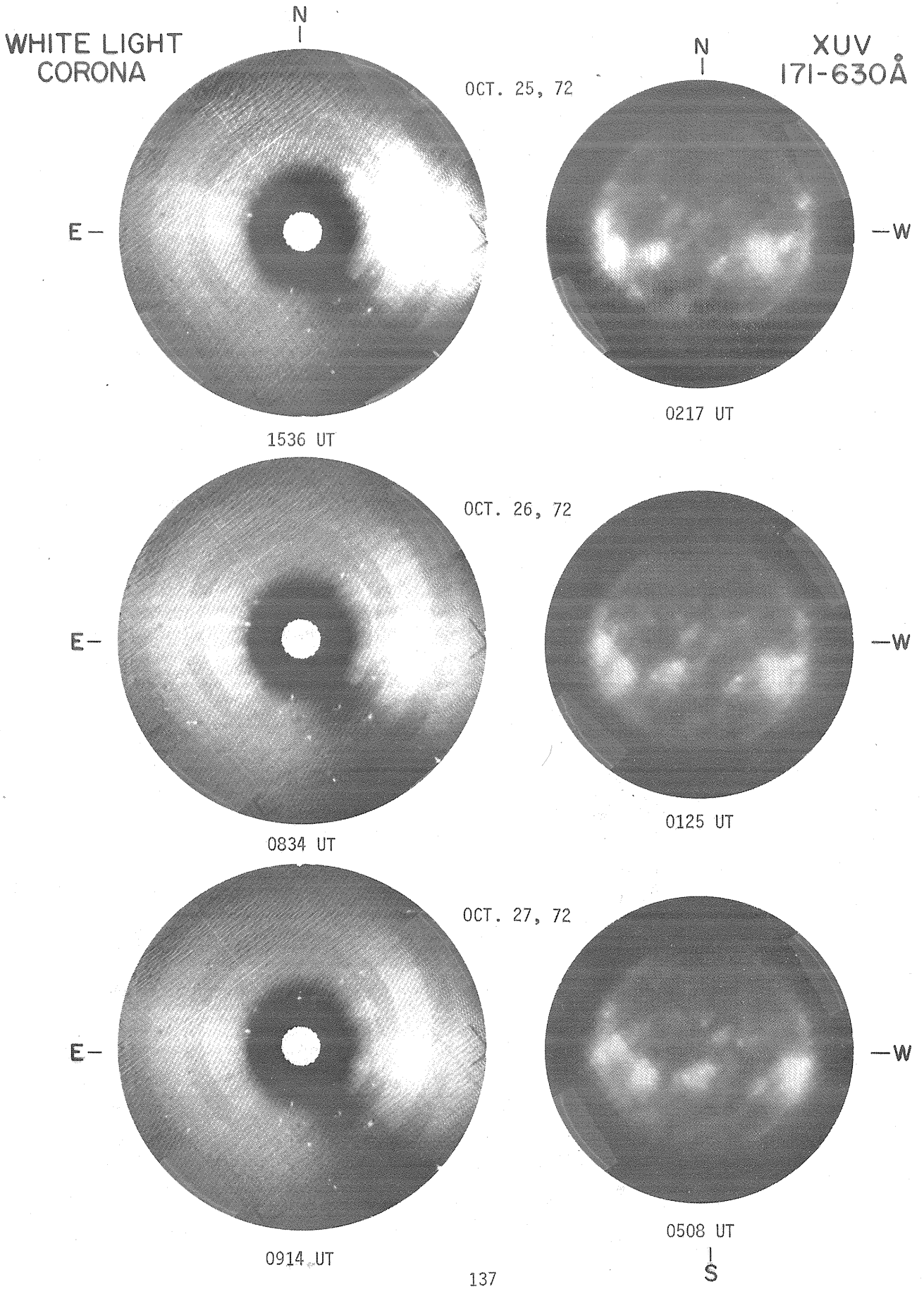
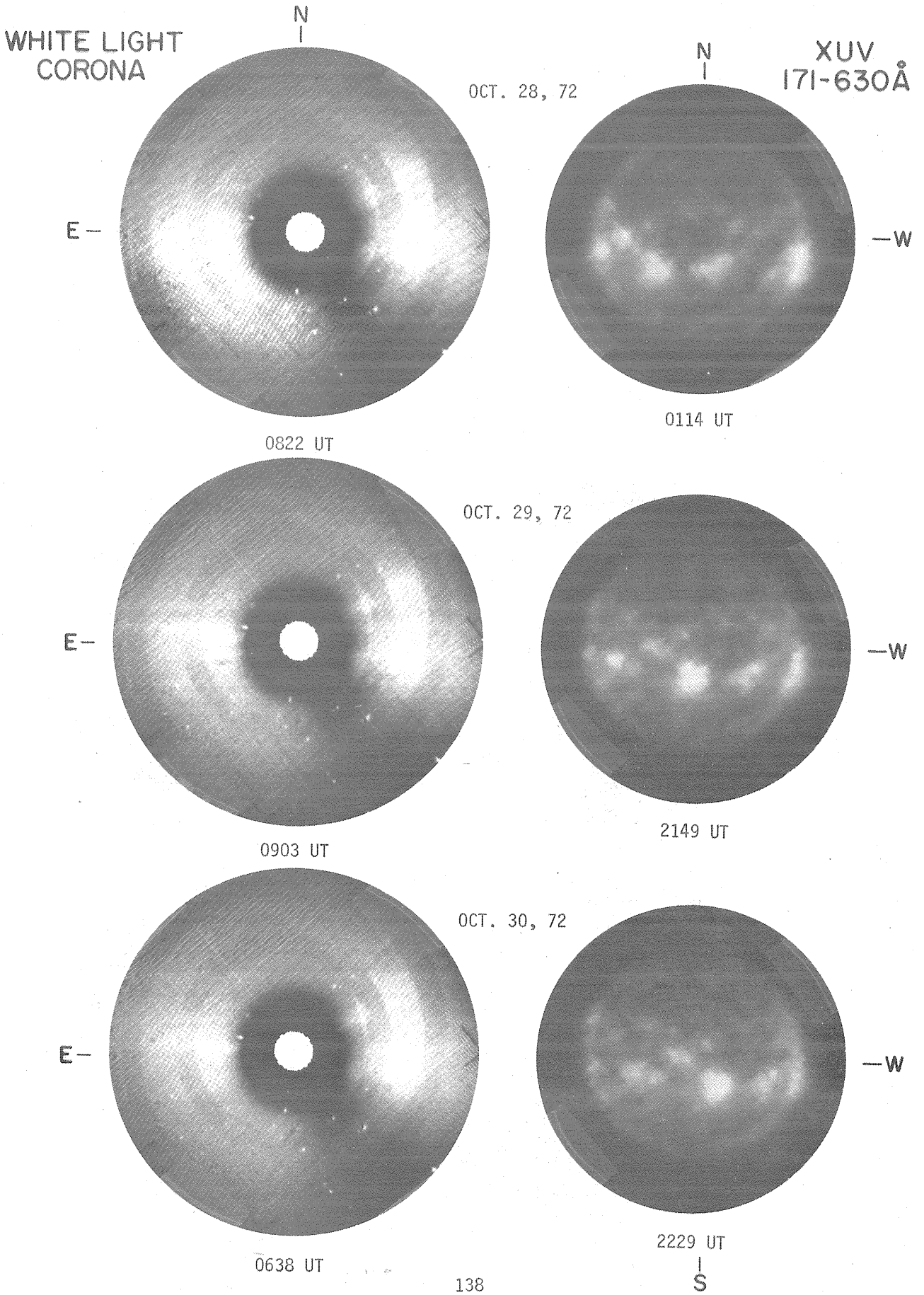
CORONA
N
XUV
171-630Å
N
OCT. 19, 72
E—
—W
1911 UT
0252 UT
OCT. 20, 72
E—
—W
1357 UT
0148 UT
OCT. 21, 72
E—
—W
1729 UT
0402 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
OCT. 22, 72
E—
—W
1030 UT
0303 UT
OCT. 23, 72
E—
—W
1115 UT
0357 UT
OCT. 24, 72
E—
—W
1019 UT
2132 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
OCT. 25, 72
E
W
1536 UT
0217 UT
OCT. 26, 72
E
W
0834 UT
0125 UT
OCT. 27, 72
E
W
0914 UT
0508 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
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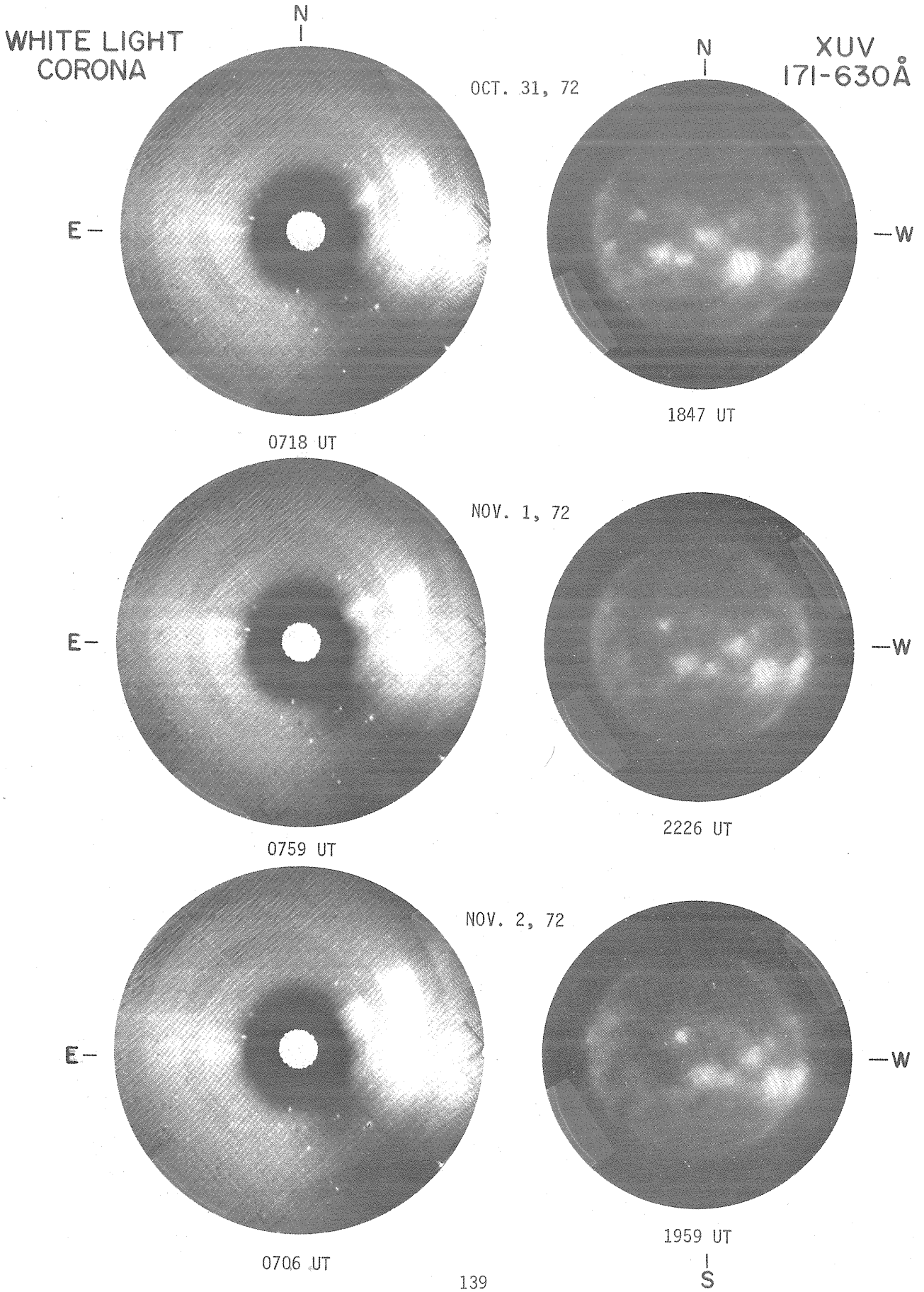
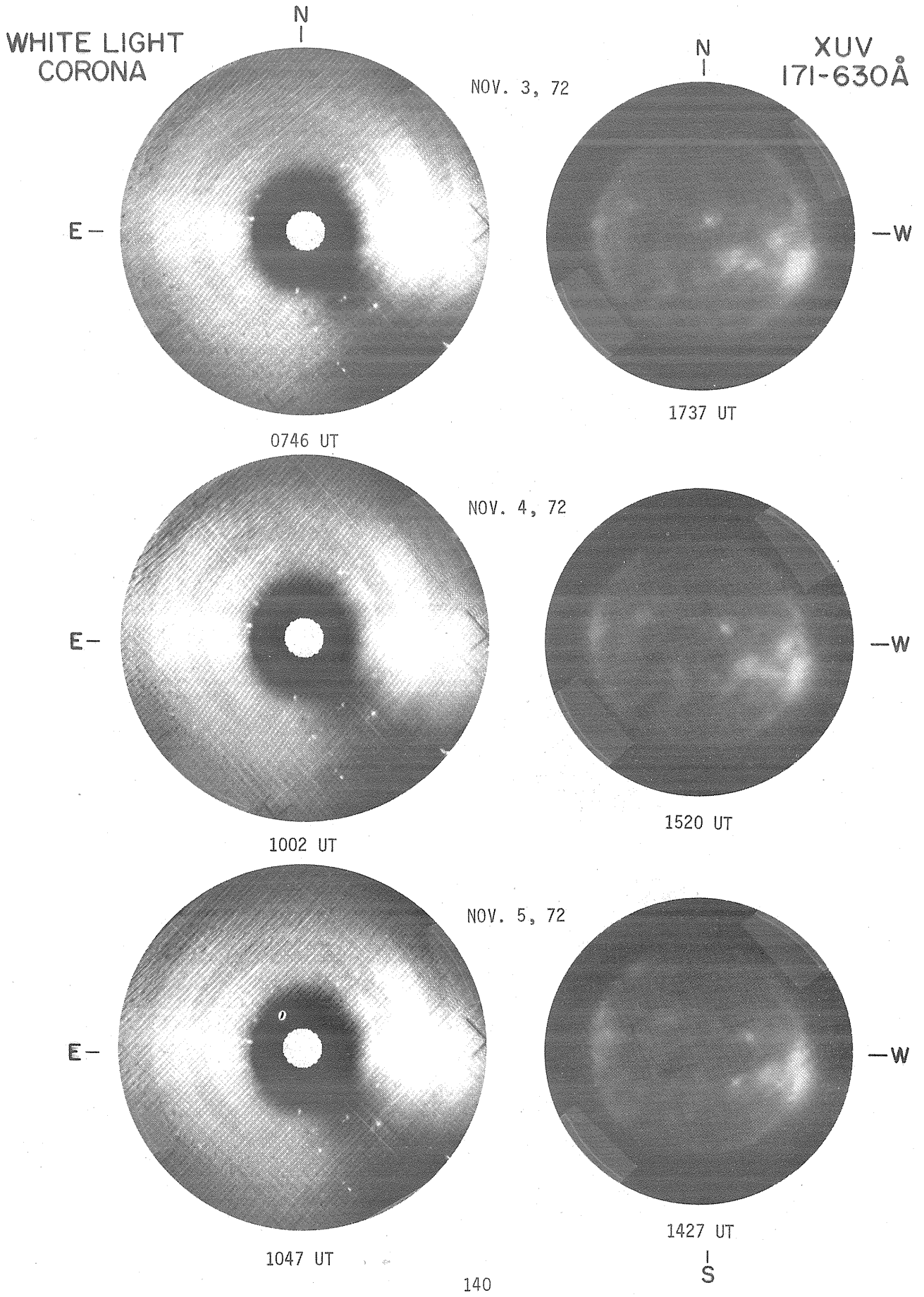
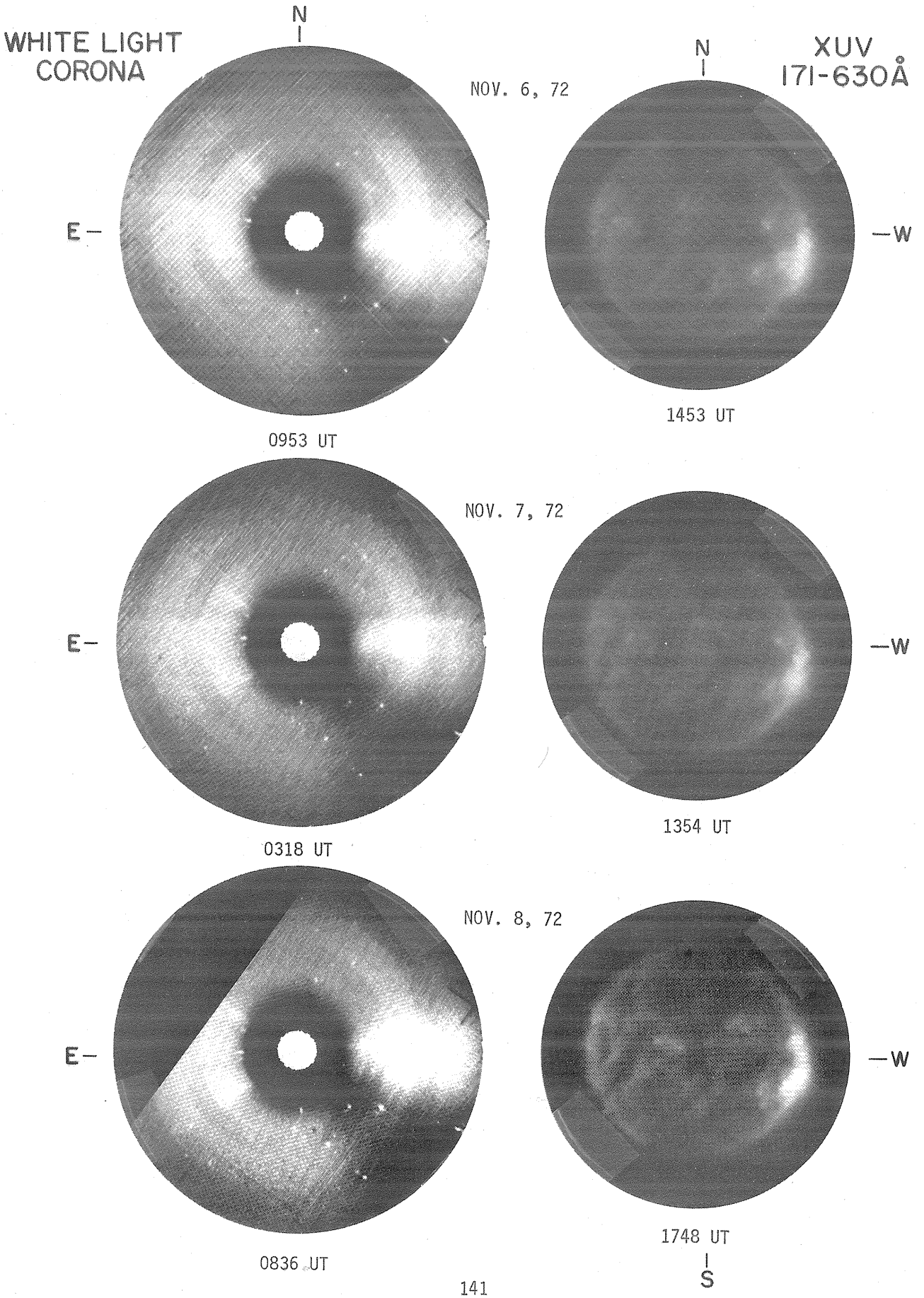
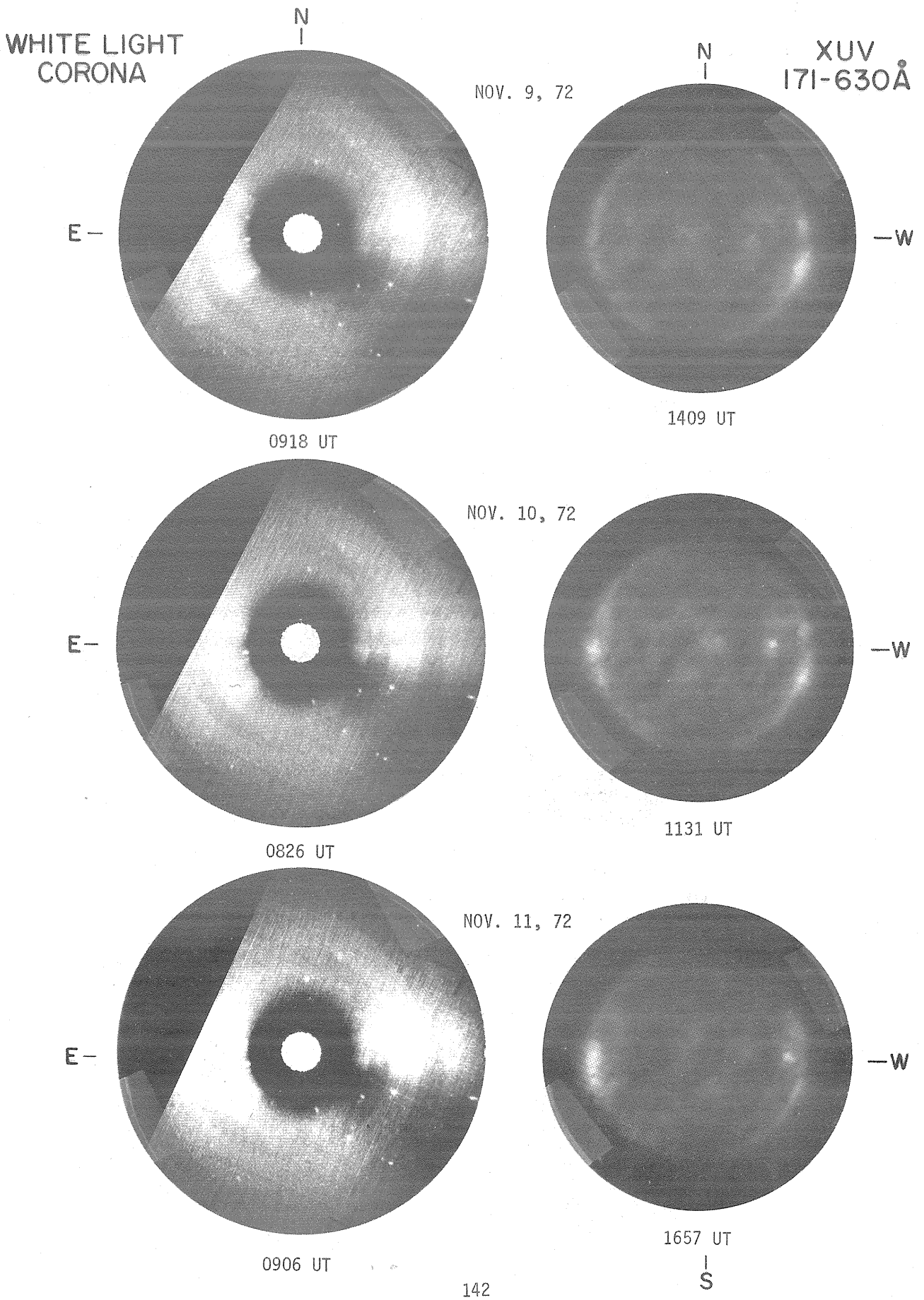
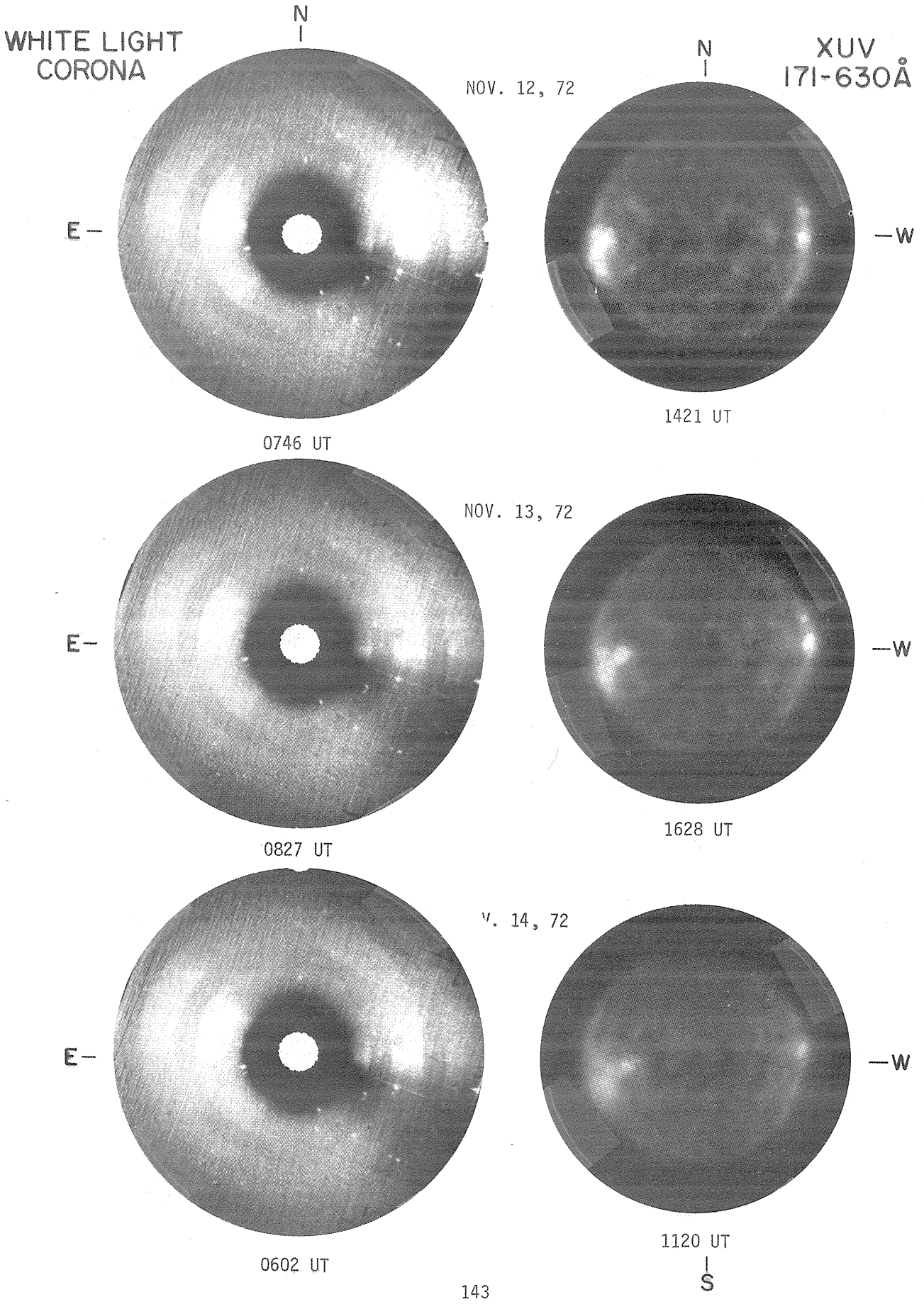
OCT. 28, 72
E
W
0822 UT
0114 UT
OCT. 29, 72
E
W
0903 UT
2149 UT
OCT. 30, 72
E
W
0638 UT
2229 UT
S


WHITE LIGHT CORONA
N
XUV 171-630Å
N
OCT. 31, 72
E
W
0718 UT
1847 UT
NOV. 1, 72
E
W
0759 UT
2226 UT
NOV. 2, 72
E
W
0706 UT
1959 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
NOV. 3, 72
E
W
0746 UT
1737 UT
NOV. 4, 72
E
W
1002 UT
1520 UT
NOV. 5, 72
E
W
1047 UT
1427 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
NOV. 6, 72
E
W
0953 UT
1453 UT
NOV. 7, 72
E
W
0318 UT
1354 UT
NOV. 8, 72
E
W
0836 UT
1748 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
NOV. 9, 72
E
W
0918 UT
1409 UT
NOV. 10, 72
0826 UT
1131 UT
NOV. 11, 72
0906 UT
1657 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
NOV. 12, 72
E
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0746 UT
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NOV. 13, 72
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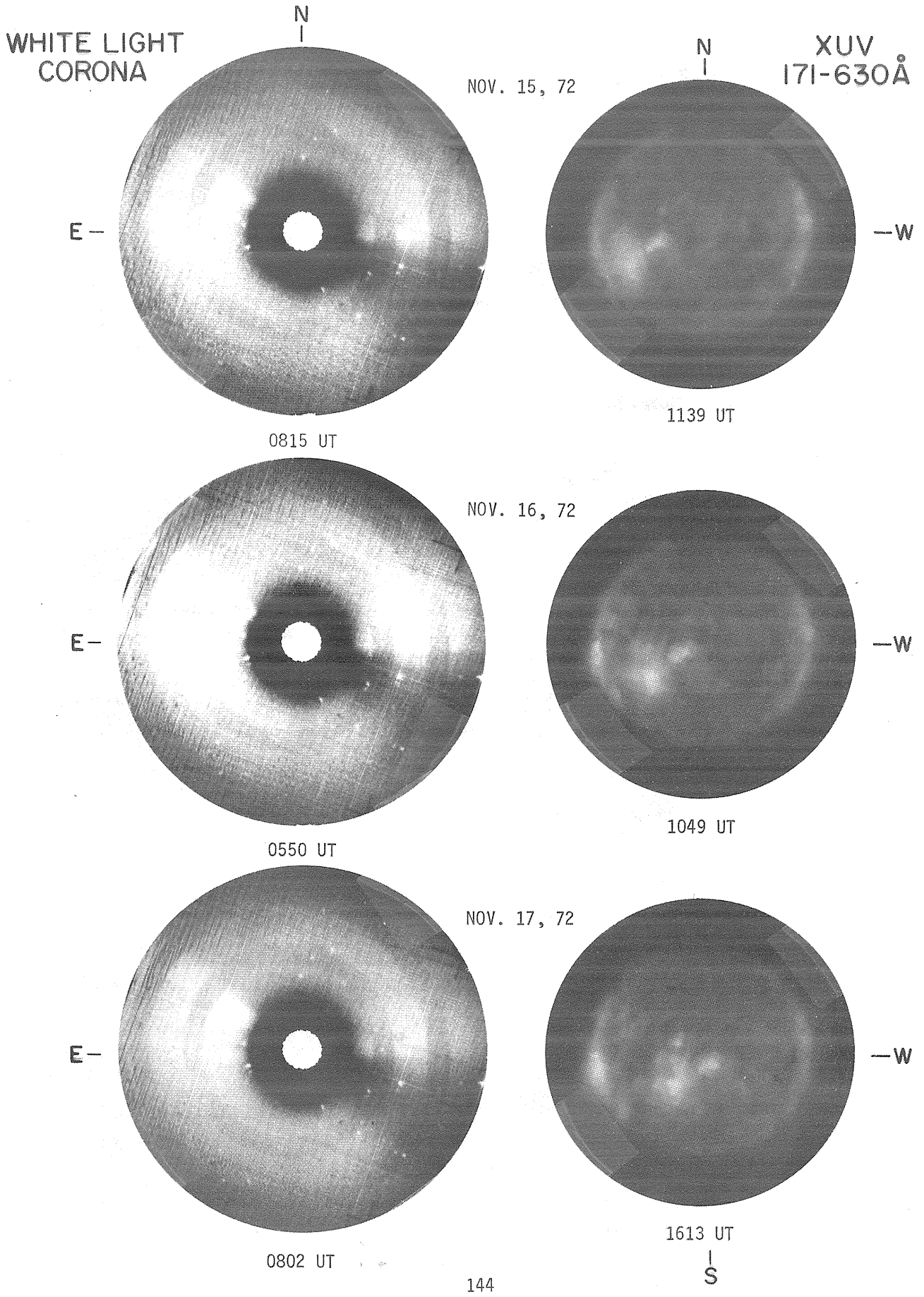
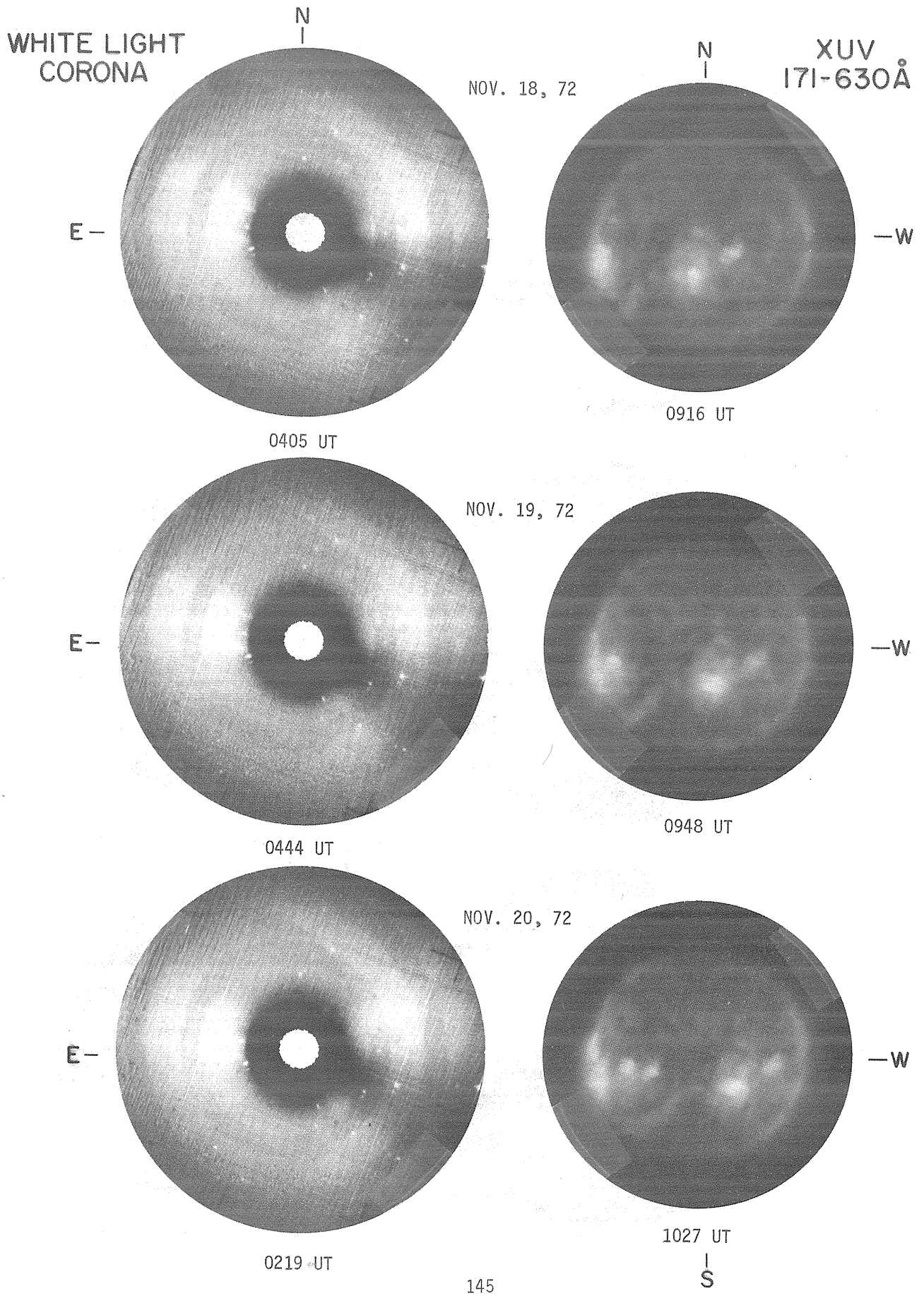
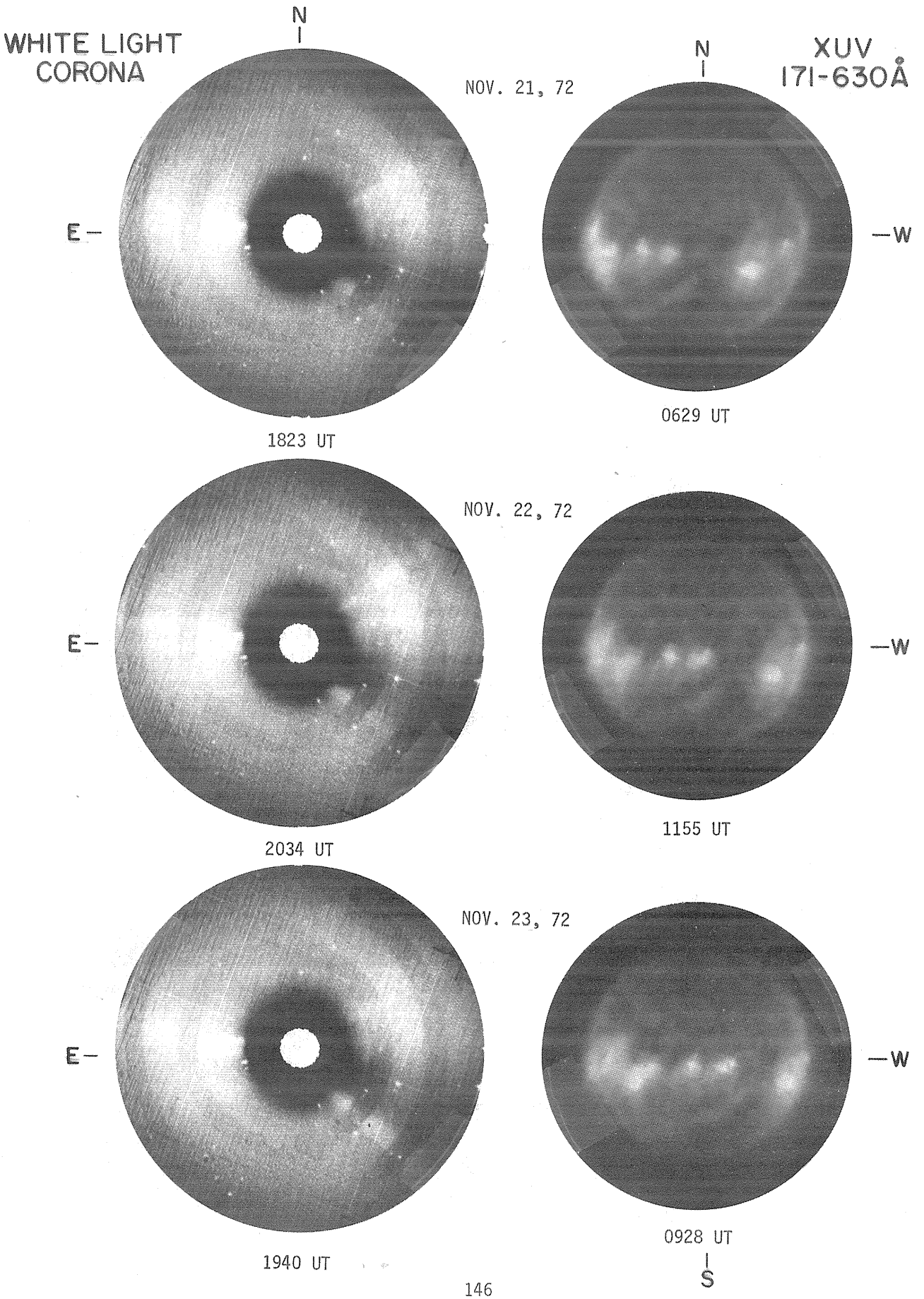
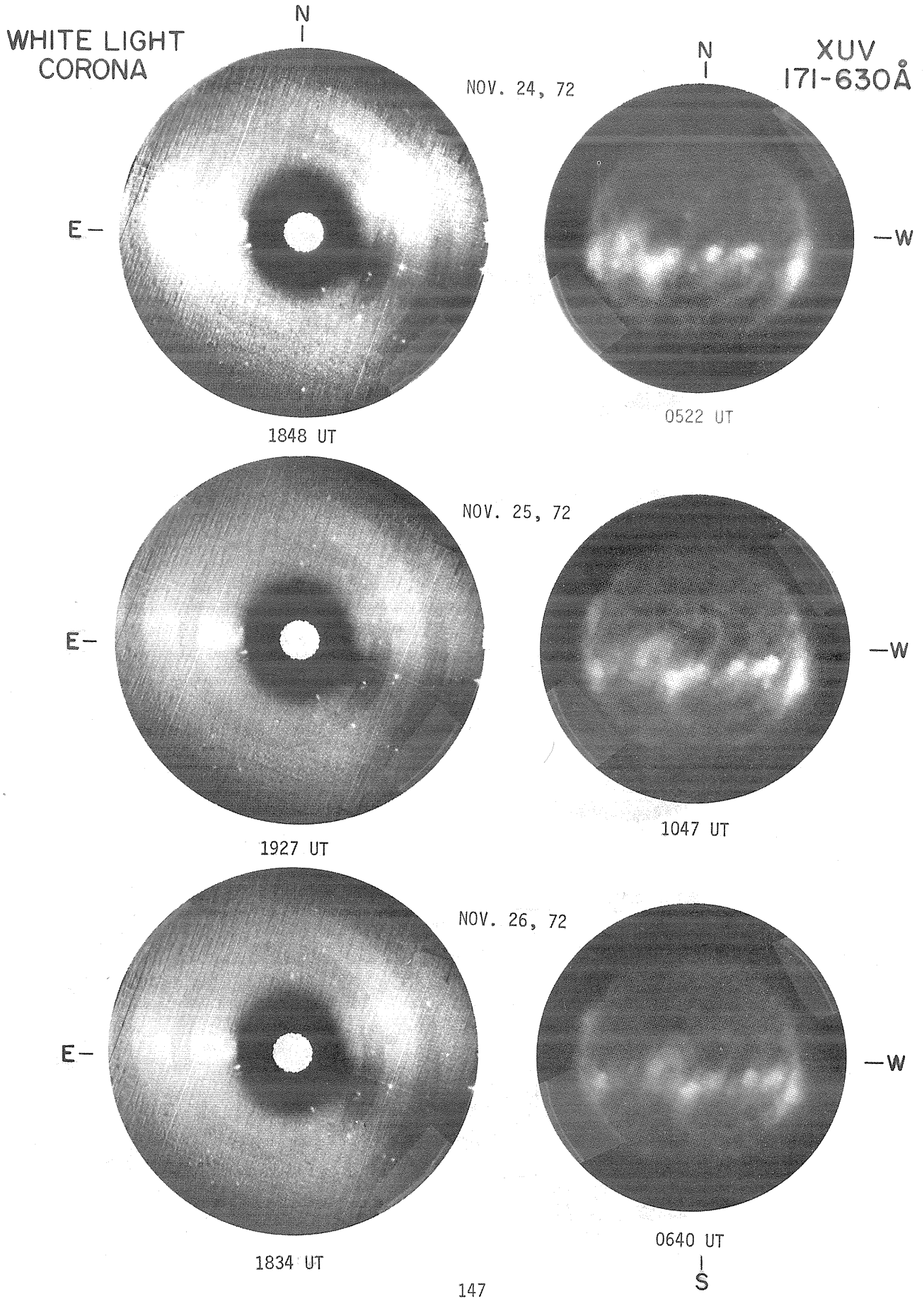
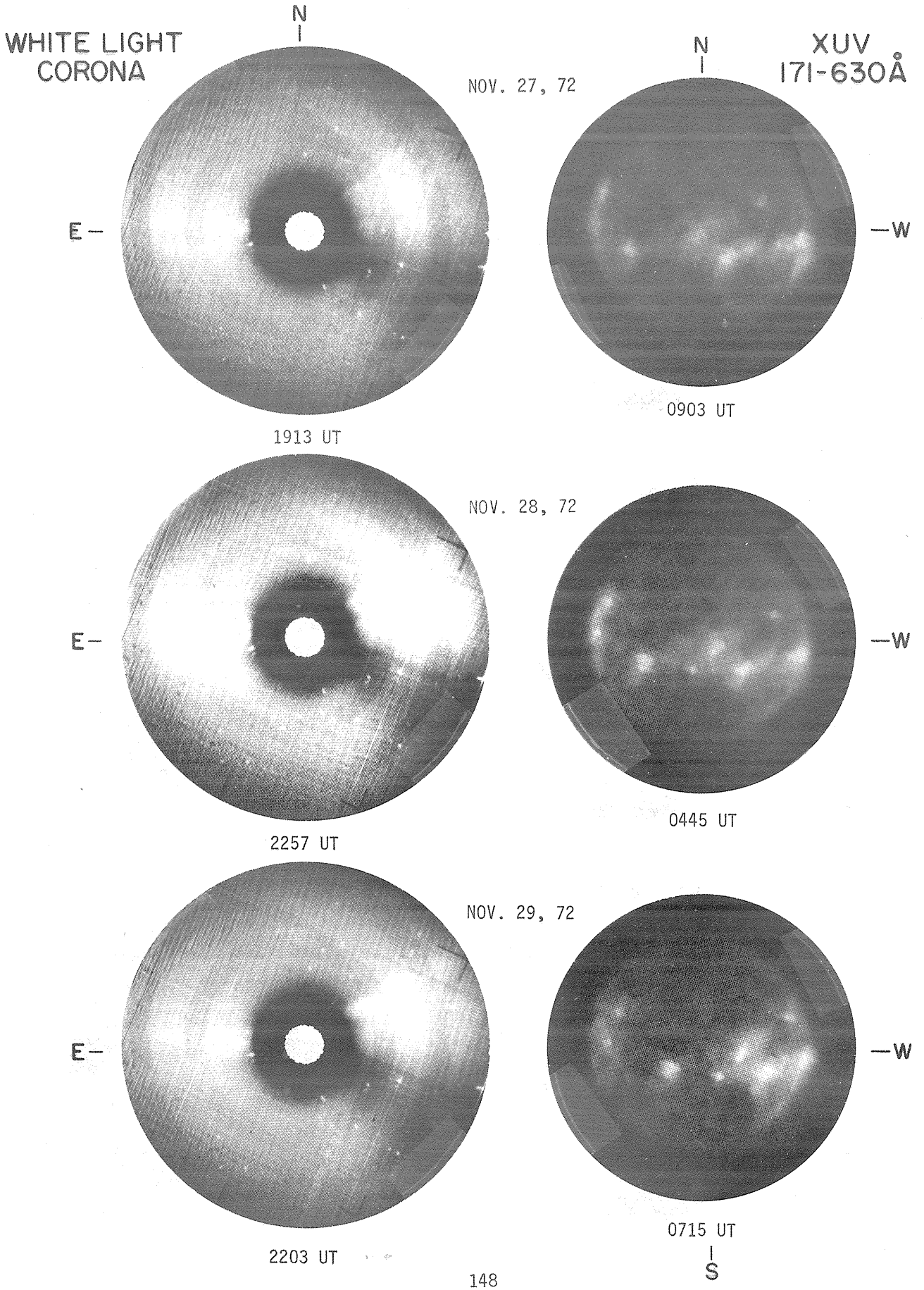
W
0827 UT
1628 UT
14, 72
E
W
0602 UT
1120 UT
S

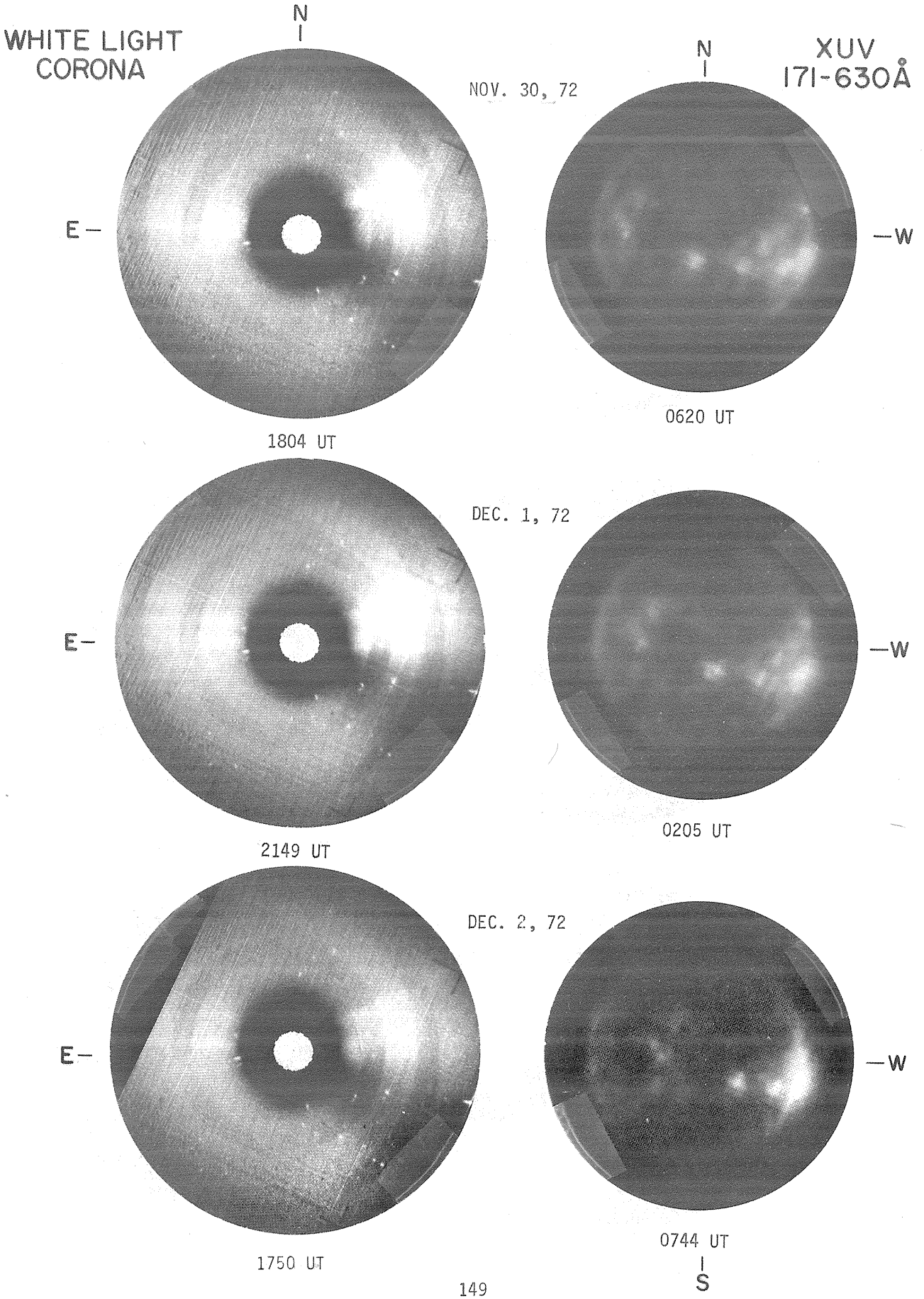

WHITE LIGHT
CORONA
N
XUV
171-630Å
N
NOV. 15, 72
E
W
0815 UT
1139 UT
NOV. 16, 72
E
W
0550 UT
1049 UT
NOV. 17, 72
E
W
0802 UT
1613 UT
S

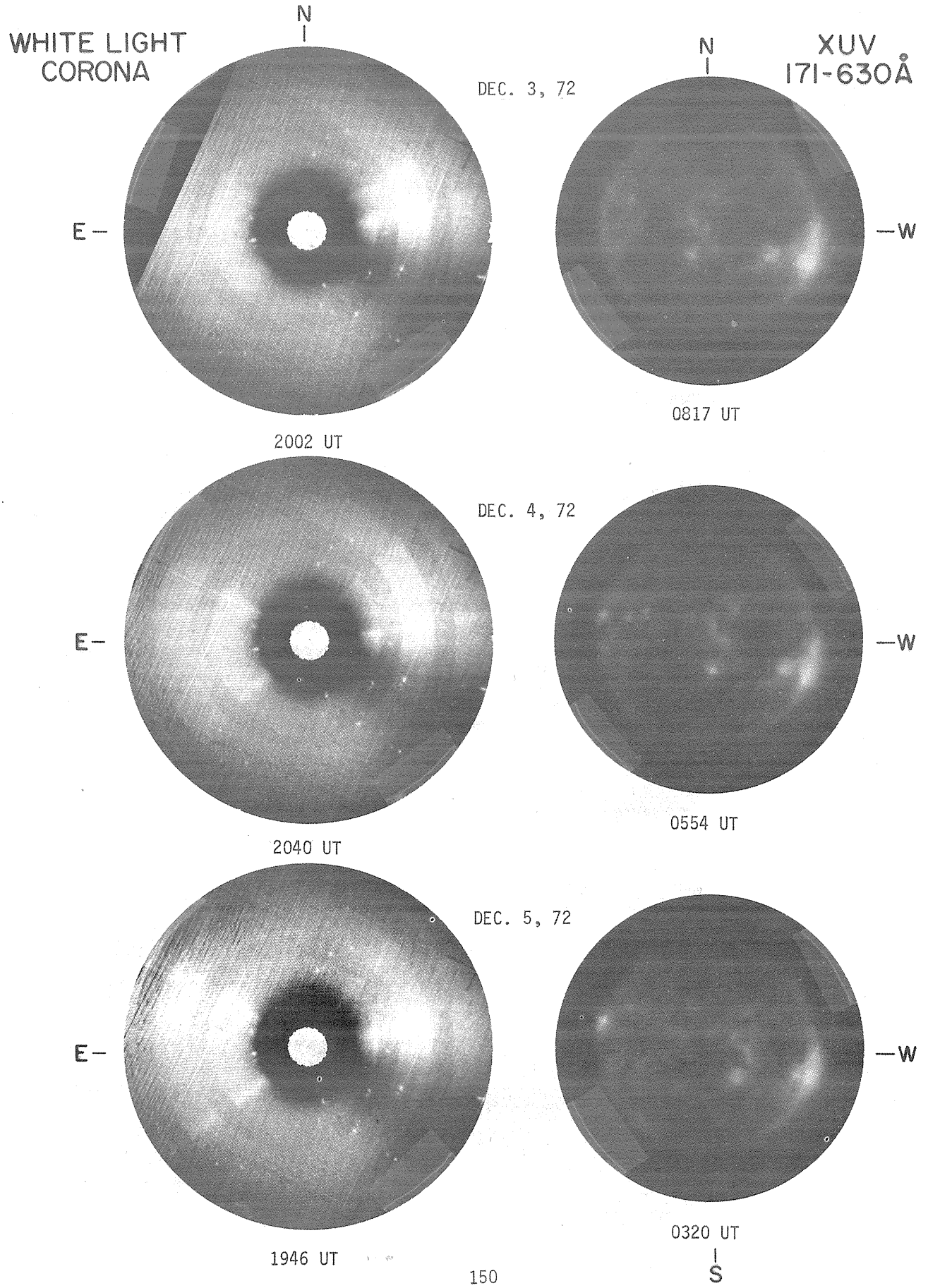

WHITE LIGHT
CORONA
N
XUV
171-630Å
NOV. 18, 72
E
W
0405 UT
0916 UT
NOV. 19, 72
E
W
0444 UT
0948 UT
NOV. 20, 72
E
W
0219 UT
1027 UT
S

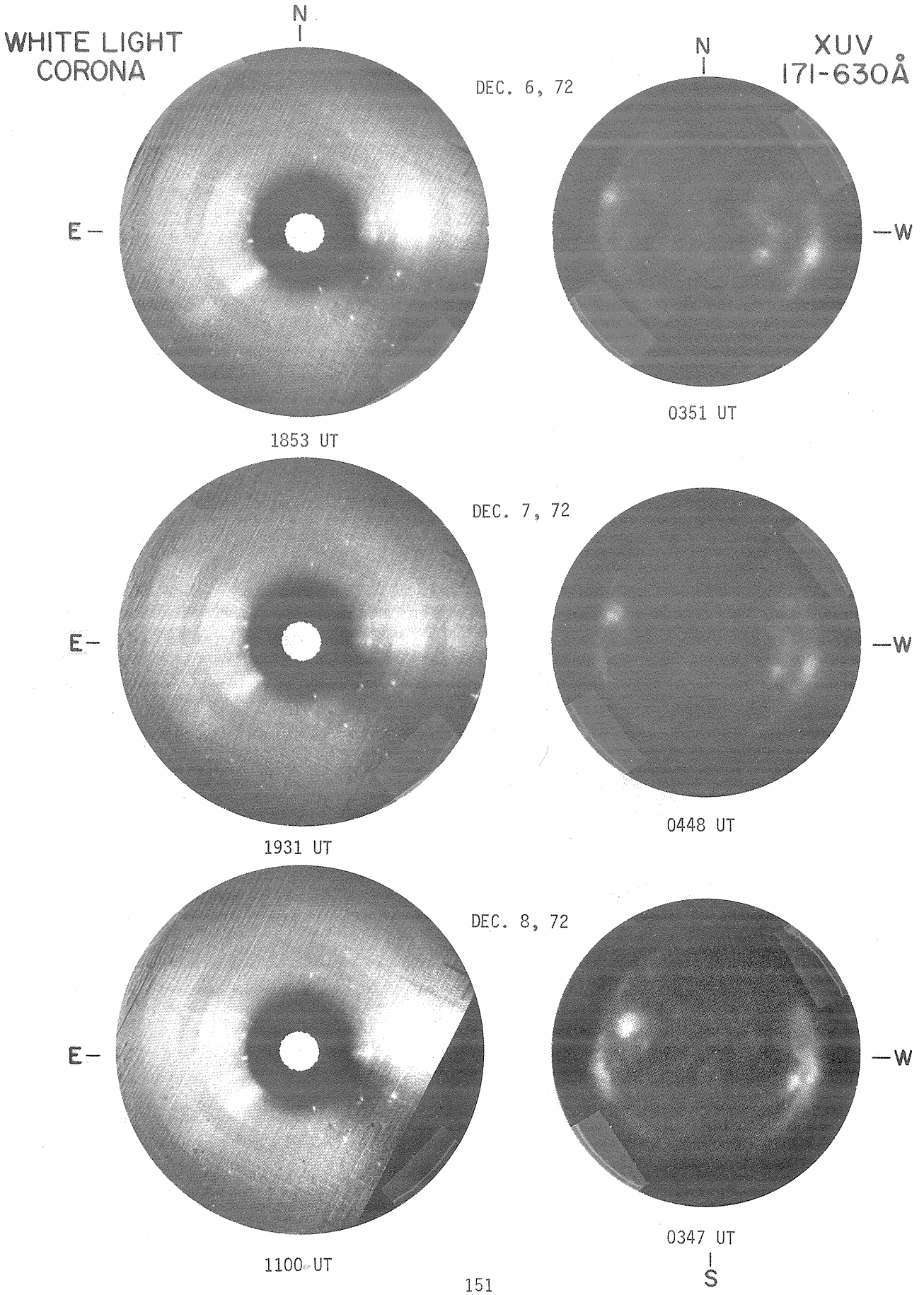

WHITE LIGHT
CORONA
N
XUV
171-630Å
NOV. 21, 72
E
W
1823 UT
0629 UT
NOV. 22, 72
2034 UT
1155 UT
NOV. 23, 72
1940 UT
0928 UT
S

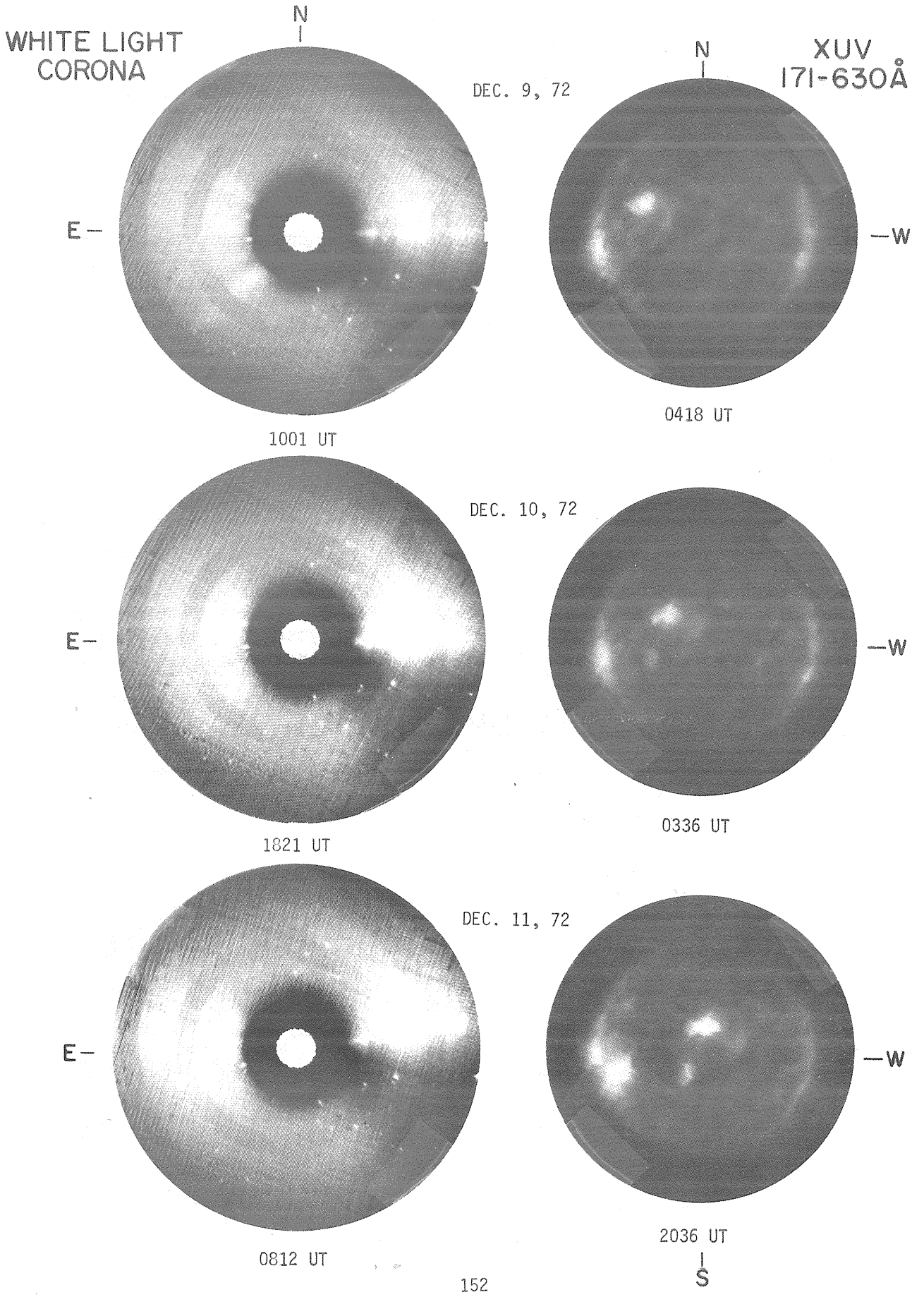

WHITE LIGHT
CORONA
N
XUV
171-630Å
NOV. 24, 72
E
W
1848 UT
0522 UT
NOV. 25, 72
E
W
1927 UT
1047 UT
NOV. 26, 72
E
W
1834 UT
0640 UT
S

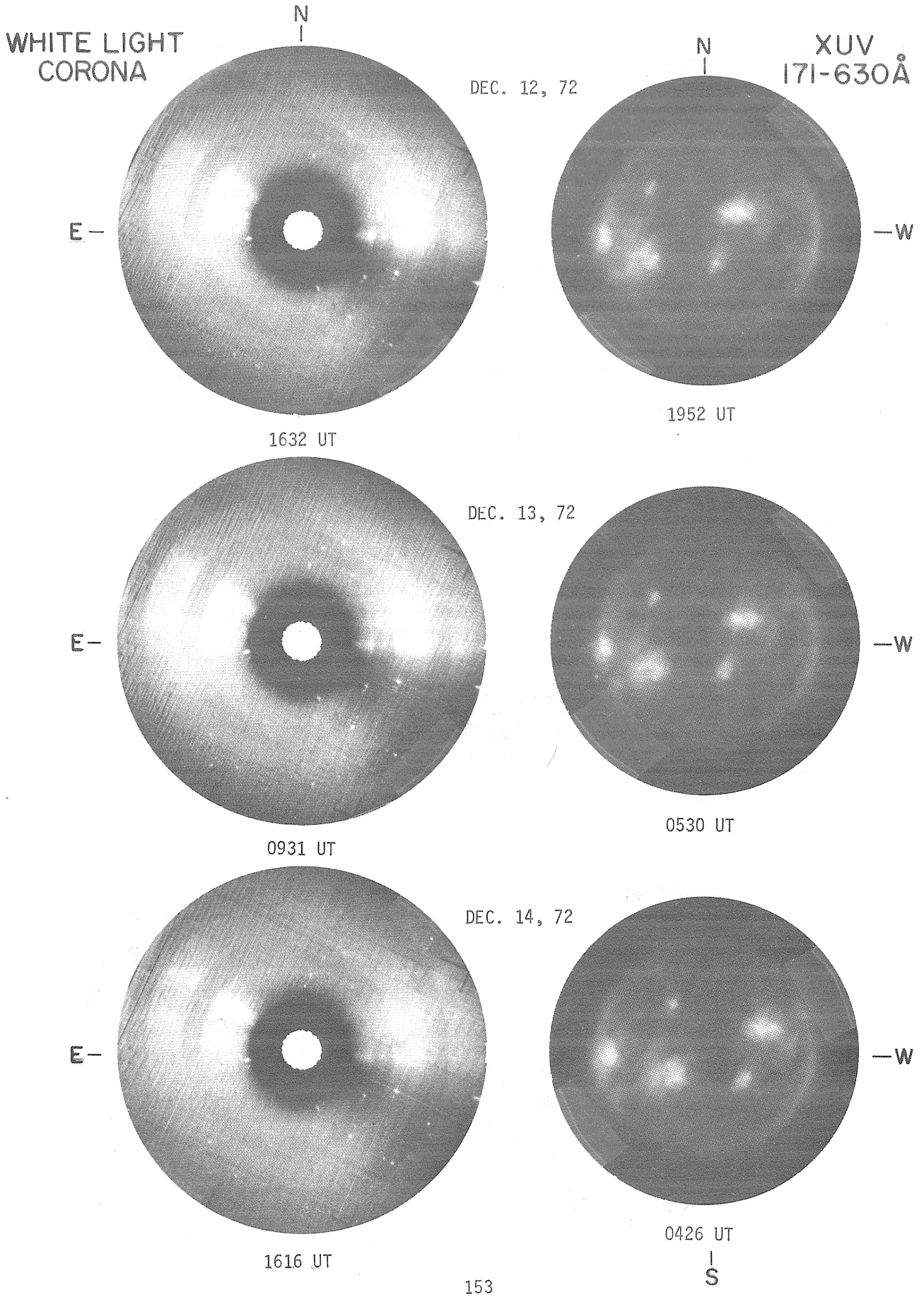

WHITE LIGHT
CORONA
N
XUV
171-630Å
NOV. 27, 72
E
W
1913 UT
0903 UT
NOV. 28, 72
E
W
2257 UT
0445 UT
NOV. 29, 72
E
W
2203 UT
0715 UT
S

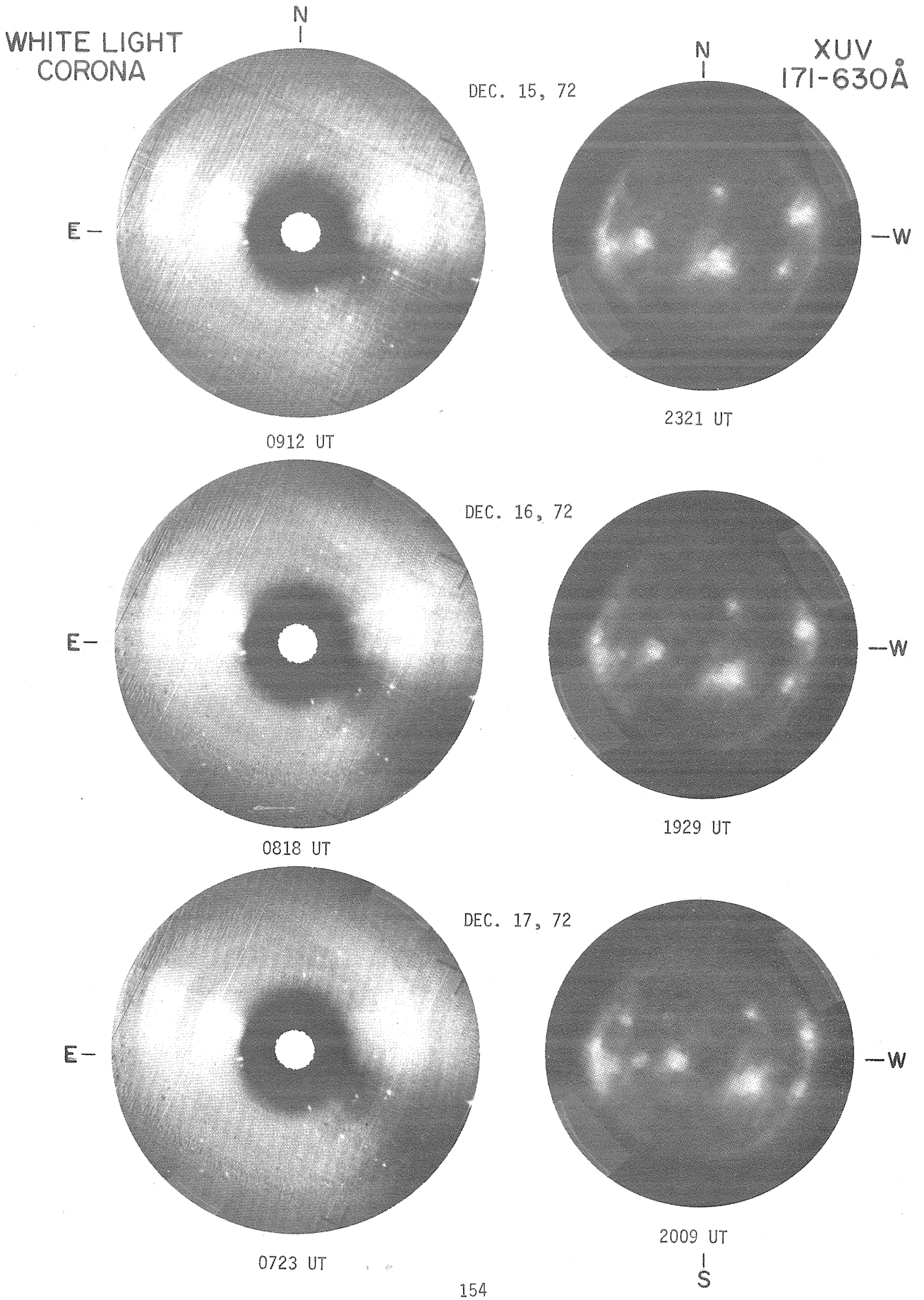

WHITE LIGHT
CORONA
N
XUV
171-630Å
NOV. 30, 72
E
W
1804 UT
0620 UT
DEC. 1, 72
2149 UT
0205 UT
DEC. 2, 72
1750 UT
0744 UT
S

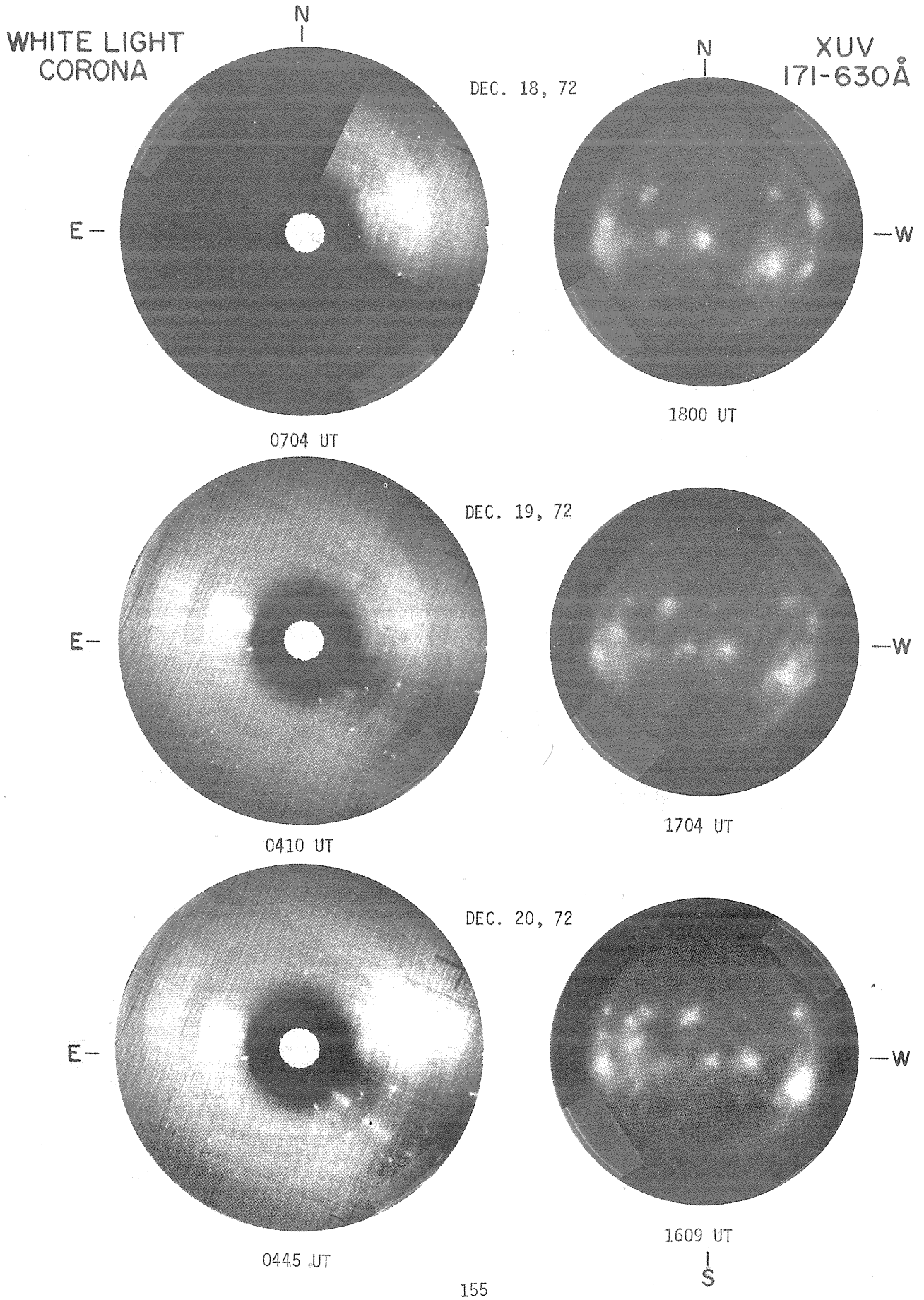

WHITE LIGHT
CORONA
N
XUV
171-630Å
N
DEC. 3, 72
E
W
2002 UT
0817 UT
DEC. 4, 72
E
W
2040 UT
0554 UT
DEC. 5, 72
E
W
1946 UT
0320 UT
S

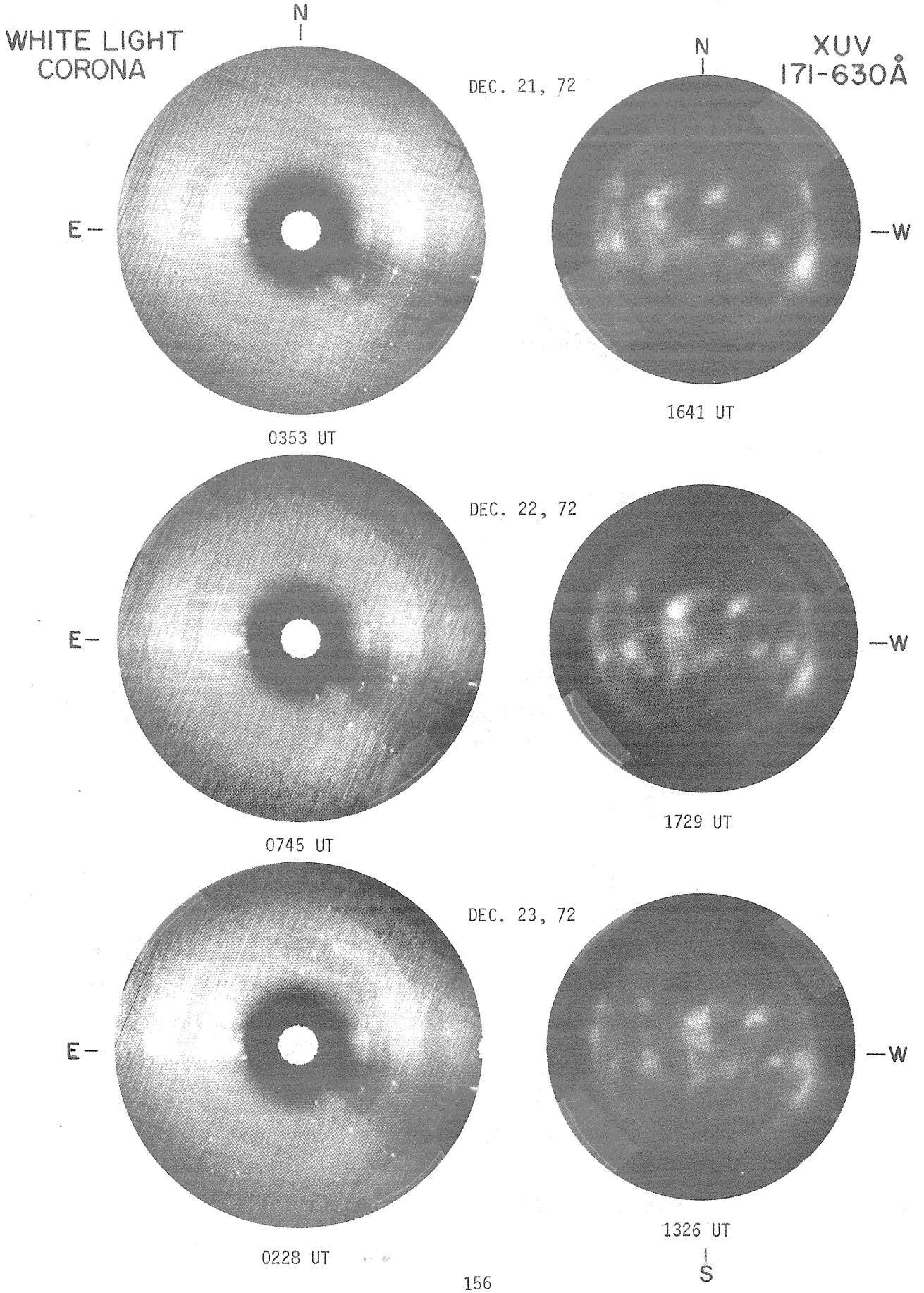

WHITE LIGHT
CORONA
N
XUV
171-630Å
N
DEC. 6, 72
E
W
1853 UT
0351 UT
DEC. 7, 72
E
W
1931 UT
0448 UT
DEC. 8, 72
E
W
1100 UT
0347 UT
S

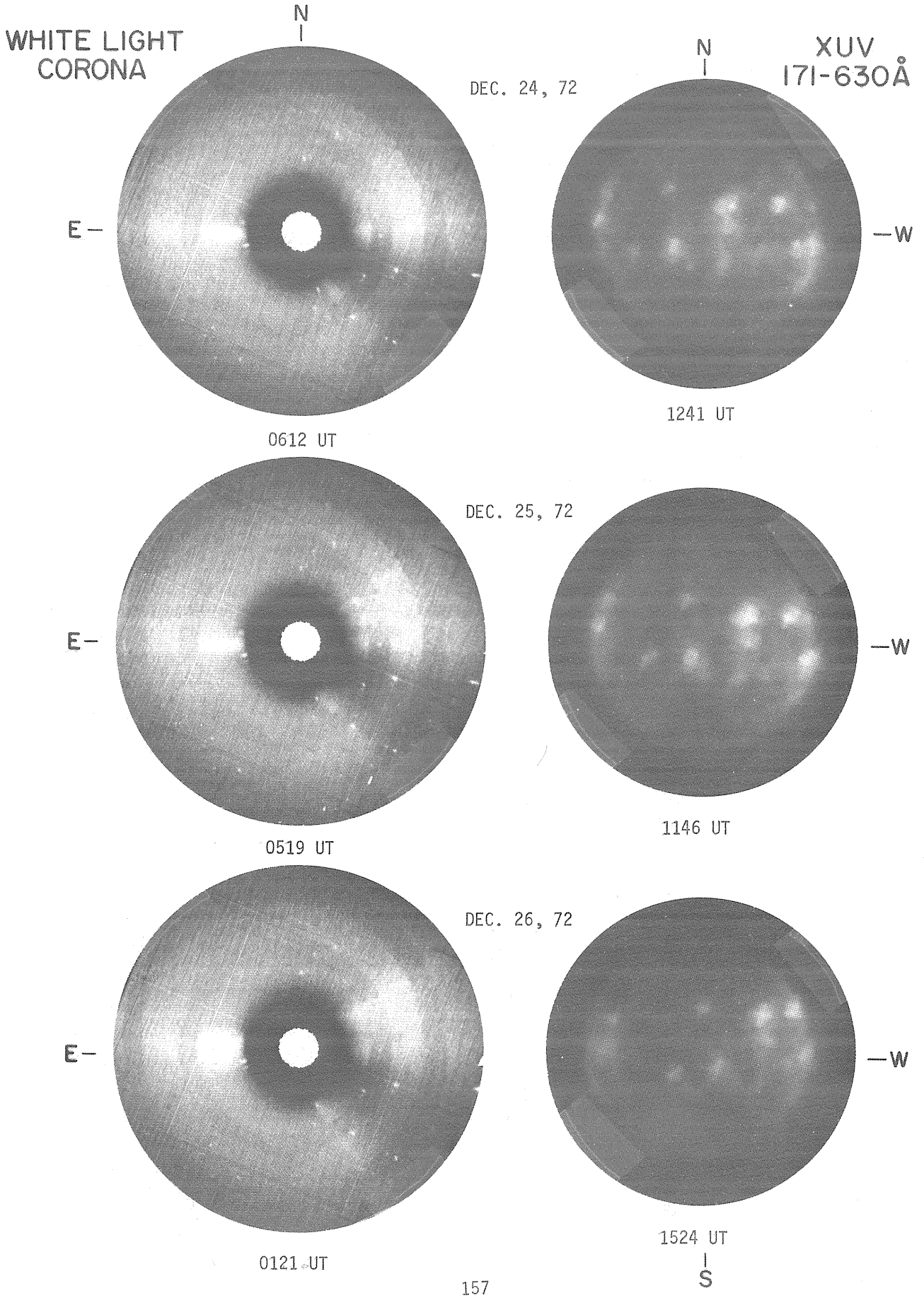

WHITE LIGHT
CORONA
N
XUV
171-630Å
N
DEC. 9, 72
E—
—W
1001 UT
0418 UT
DEC. 10, 72
E—
—W
1821 UT
0336 UT
DEC. 11, 72
E—
—W
0812 UT
2036 UT
S

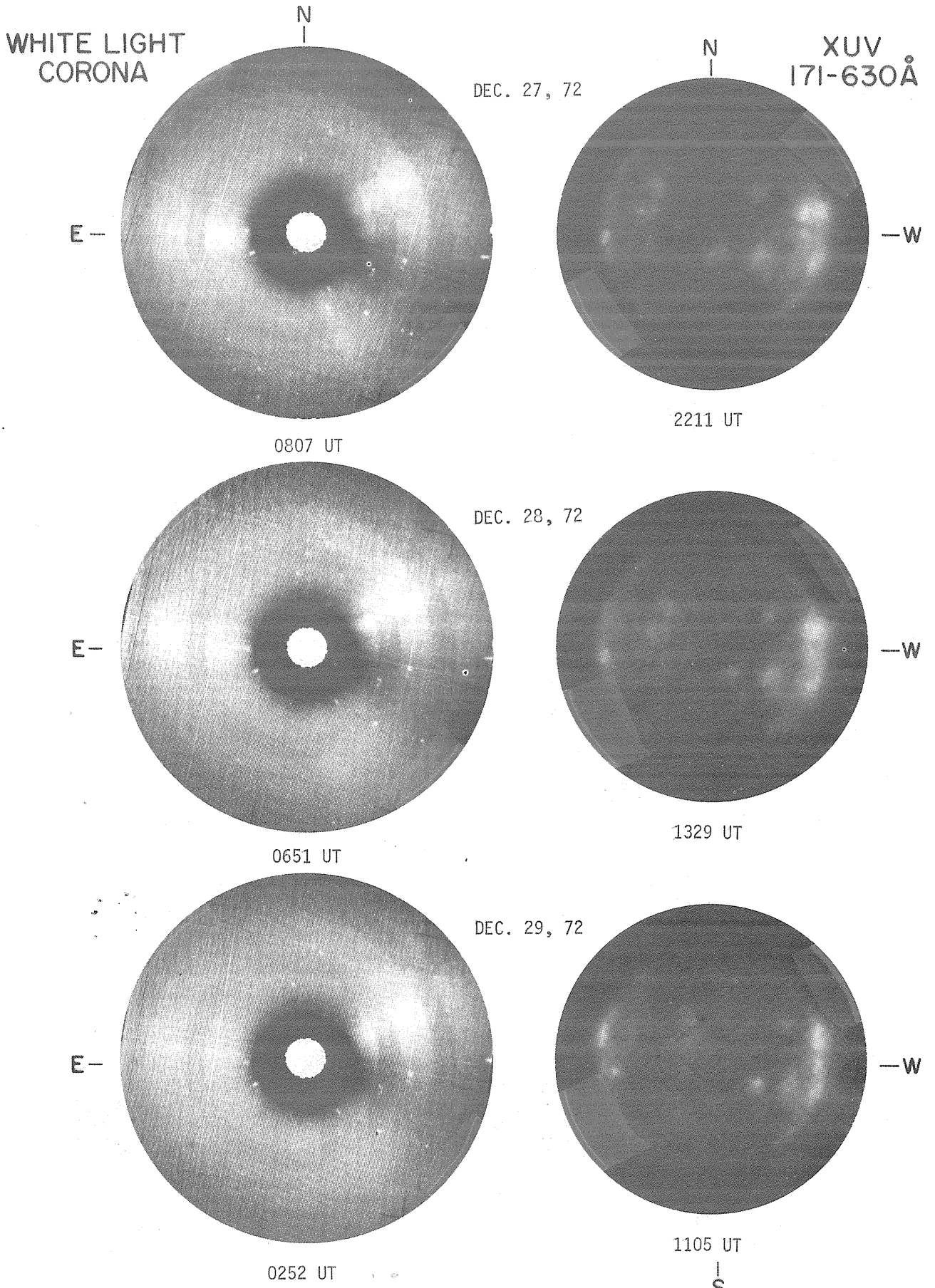

WHITE LIGHT
CORONA
N
XUV
171-630Å
N
DEC. 12, 72
E
W
1632 UT
1952 UT
DEC. 13, 72
E
W
0931 UT
0530 UT
DEC. 14, 72
E
W
1616 UT
0426 UT
S

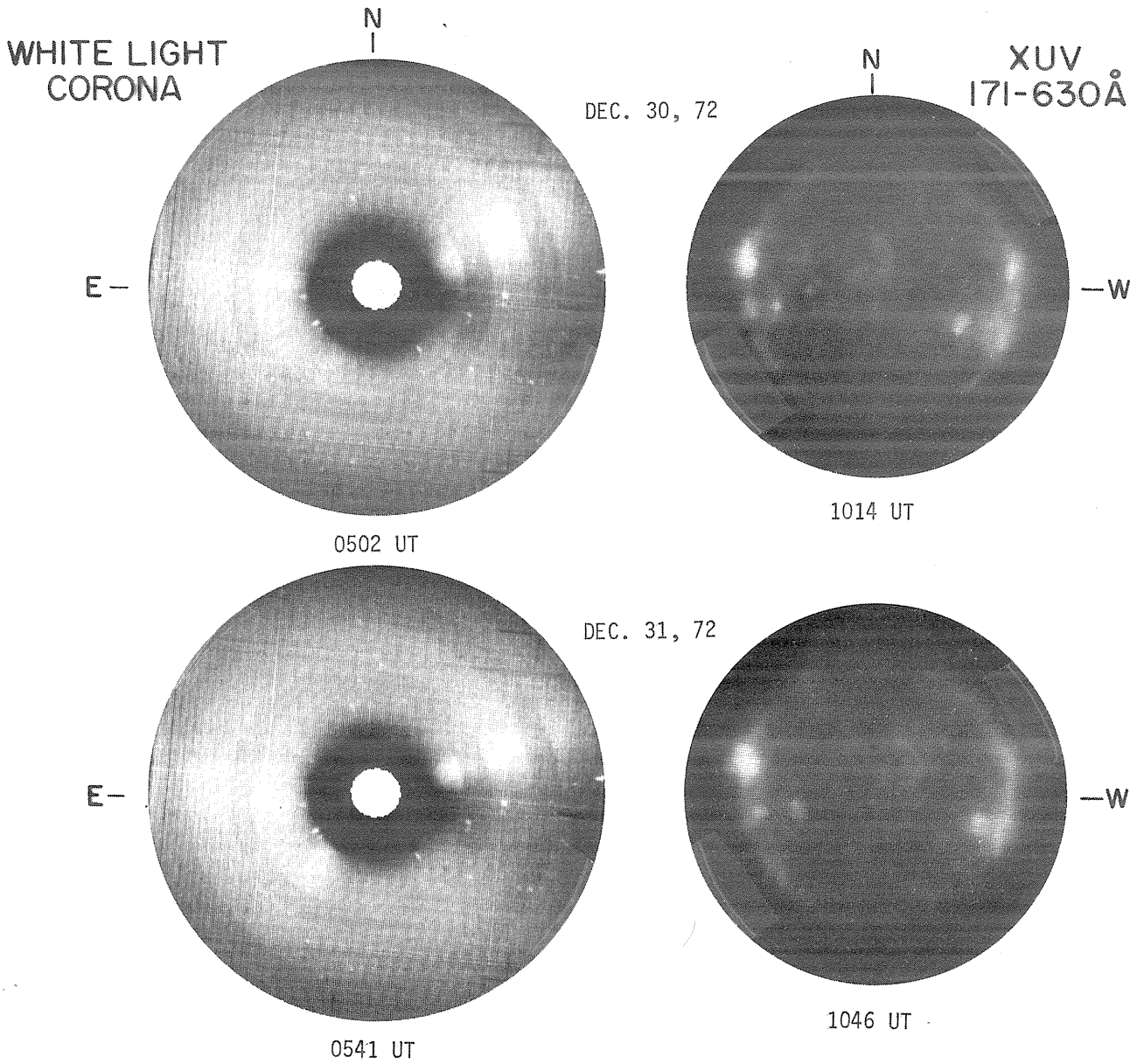

WHITE LIGHT
CORONA
N
XUV
171-630Å
N
DEC. 15, 72
E
W
0912 UT
2321 UT
DEC. 16, 72
E
W
0818 UT
1929 UT
DEC. 17, 72
E
W
0723 UT
2009 UT
S


WHITE LIGHT
CORONA
N
E
XUV
171-630Å
N
W
DEC. 18, 72
0704 UT
1800 UT
DEC. 19, 72
E
W
0410 UT
1704 UT
DEC. 20, 72
E
W
0445 UT
1609 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
DEC. 21, 72
E
W
0353 UT
1641 UT
DEC. 22, 72
E
W
0745 UT
1729 UT
DEC. 23, 72
E
W
0228 UT
1326 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
DEC. 24, 72
E
W
0612 UT
1241 UT
DEC. 25, 72
E
W
0519 UT
1146 UT
DEC. 26, 72
E
W
0121 UT
1524 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
DEC. 27, 72
E
W
0807 UT
2211 UT
DEC. 28, 72
E
W
0651 UT
1329 UT
DEC. 29, 72
E
W
0252 UT
1105 UT
S


WHITE LIGHT
CORONA
N
XUV
171-630Å
N
DEC. 30, 72
E
W
0502 UT
1014 UT
DEC. 31, 72
E
W
0541 UT
1046 UT

E W

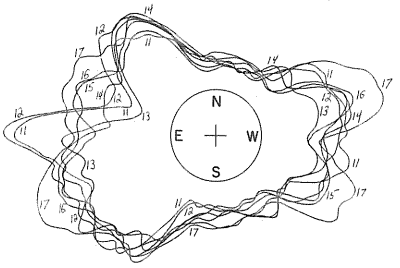
S

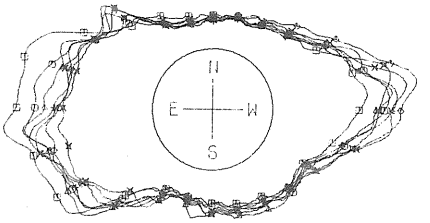
2. Daily Polar Plots of Coronal Brightness at 1.5 (Mauna Loa) and 4 (OSO-7) Solar Radii

C# 1580 (Carrington)
11 OCT to 5 NOV 1971

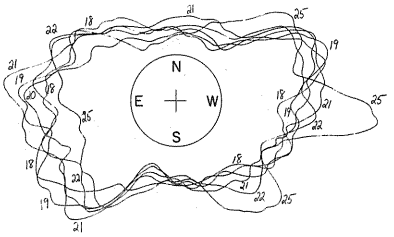
1.5R **4.0R**

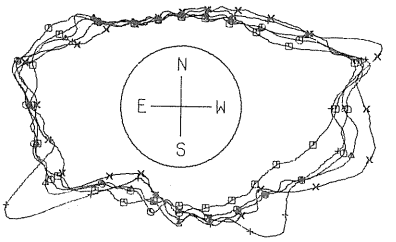
OCT 11, 1971 0405UT
OCT 12, 1971 0326UT
OCT 13, 1971 0249UT
OCT 14, 1971 0213UT
OCT 15, 1971 0309UT
OCT 16, 1971 0409UT
OCT 17, 1971 0329UT



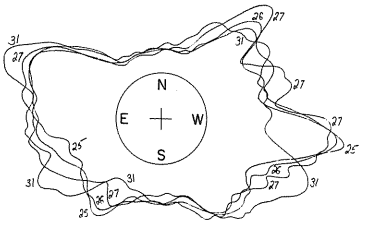


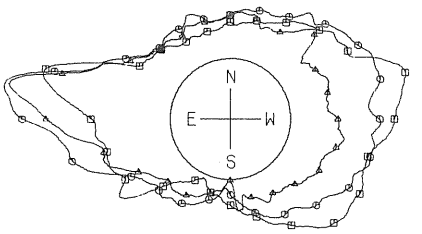
OCT 18, 1971 0249UT
OCT 19, 1971 0651UT
OCT 20, 1971 0307UT
OCT 21, 1971 0229UT
OCT 22, 1971 0325UT



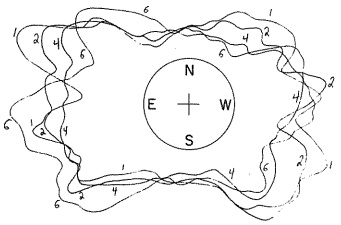


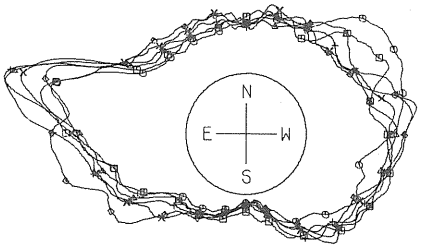
OCT 24, 1971 0651UT
OCT 29, 1971 1815UT
OCT 30, 1971 0458UT





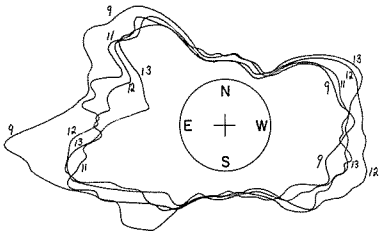
OCT 31, 1971 0711UT
NOV 01, 1971 0020UT
NOV 02, 1971 0250UT
NOV 03, 1971 0213UT
NOV 04, 1971 0616UT
NOV 05, 1971 2246UT





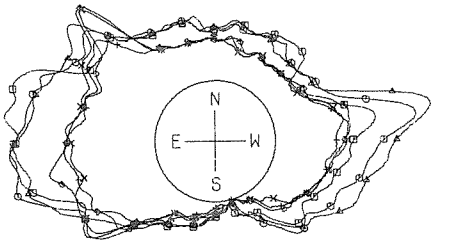
C# 1581
6 NOV to 3 DEC 1971

1.5R

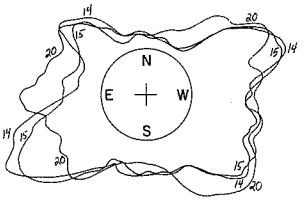


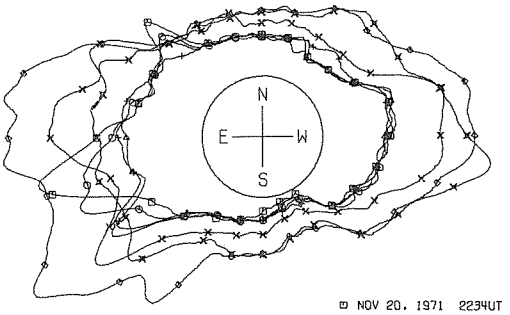
4.0R

NOV 06, 1971 2342UT
NOV 07, 1971 2304UT
NOV 08, 1971 2359UT
NOV 10, 1971 2243UT
NOV 11, 1971 2205UT
NOV 12, 1971 2126UT

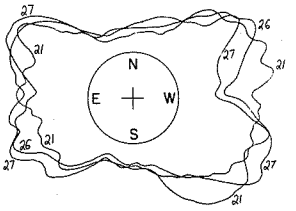


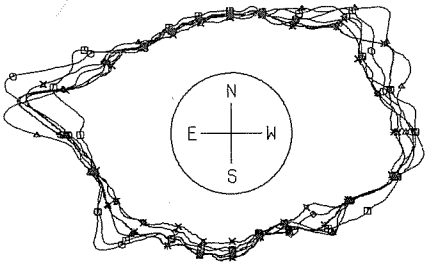
NOV 13, 1971 2222UT
NOV 14, 1971 2143UT
NOV 15, 1971 1931UT
NOV 16, 1971 2028UT
NOV 17, 1971 1948UT
NOV 18, 1971 2350UT
NOV 19, 1971 2312UT



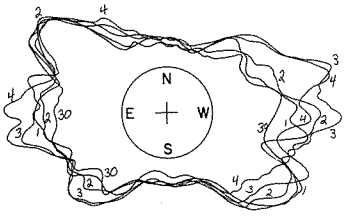


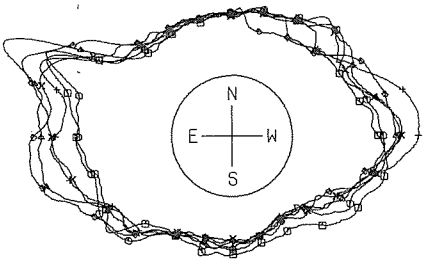
NOV 20, 1971 2234UT
NOV 21, 1971 2329UT
NOV 22, 1971 2251UT
NOV 23, 1971 2212UT
NOV 24, 1971 2134UT
NOV 25, 1971 2104UT
NOV 26, 1971 2025UT





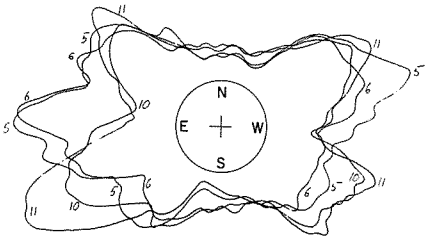
NOV 28, 1971 2339UT
NOV 29, 1971 2260UT
NOV 30, 1971 2354UT
DEC 01, 1971 2315UT
DEC 02, 1971 2236UT
DEC 03, 1971 2330UT





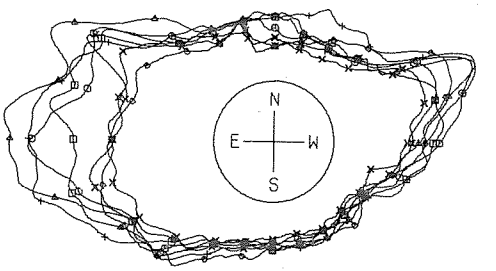
C# 1582
4 DEC to 30 DEC 1971

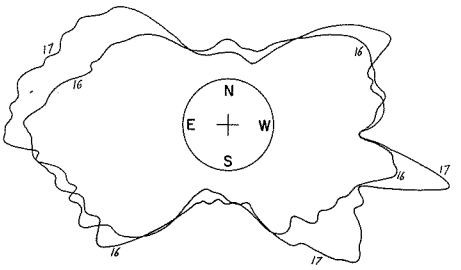
1.5R



4.0R

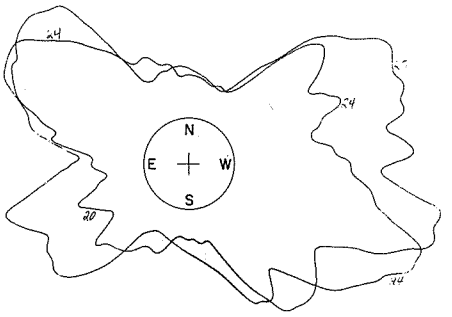
DEC 04, 1971 2251UT
DEC 05, 1971 2211UT
DEC 06, 1971 2132UT
DEC 07, 1971 2226UT
DEC 08, 1971 1845UT
DEC 09, 1971 2108UT
DEC 10, 1971 0155UT

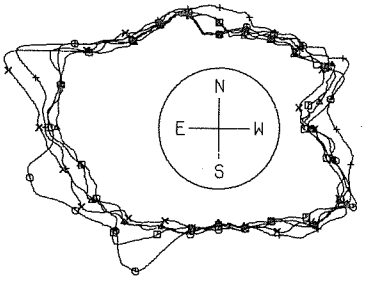




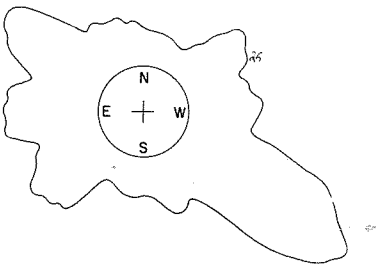
NO DATA

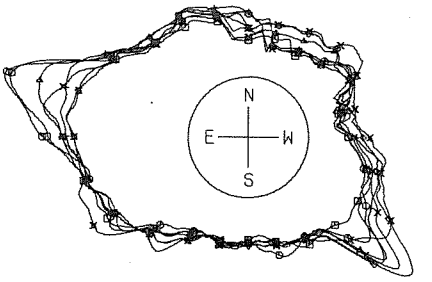
DEC 19, 1971 0411UT
DEC 20, 1971 0038UT
DEC 21, 1971 0118UT
DEC 22, 1971 0025UT
DEC 23, 1971 2133UT





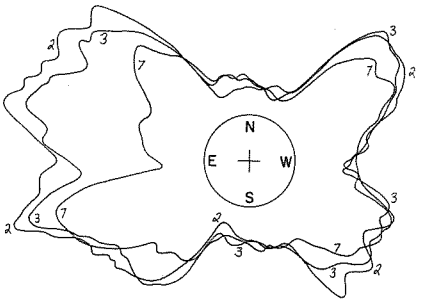
DEC 24, 1971 2053UT
DEC 25, 1971 2321UT
DEC 26, 1971 2241UT
DEC 27, 1971 2201UT
DEC 28, 1971 2121UT
DEC 29, 1971 2041UT
DEC 30, 1971 2001UT





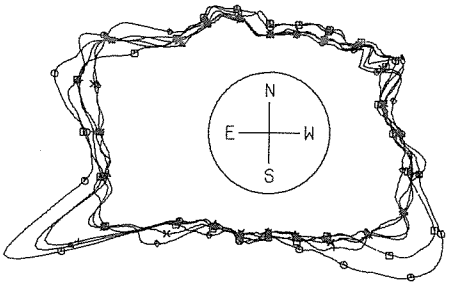
C# 1583
31 DEC to 27 JAN 1972

1.5R

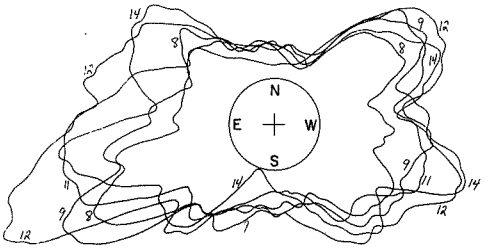


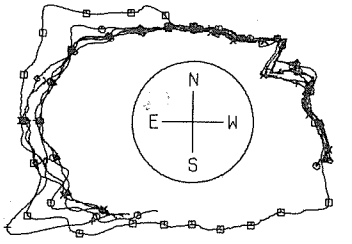
4.0R

DEC 31, 1971 1921UT
JAN 02, 1972 1655UT
JAN 03, 1972 1855UT
JAN 04, 1972 1815UT
JAN 05, 1972 1735UT
JAN 06, 1972 1406UT

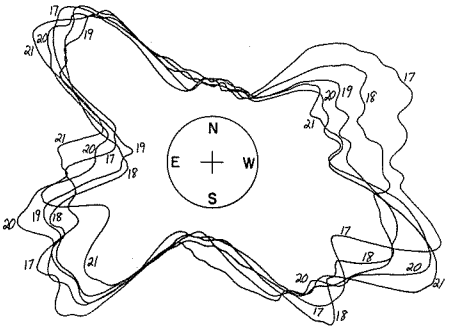


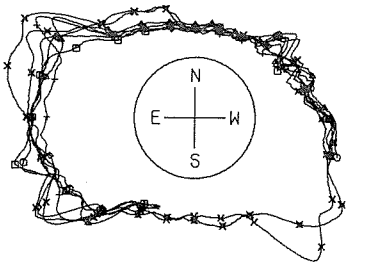
JAN 07, 1972 1615UT
JAN 08, 1972 1420UT
JAN 09, 1972 1337UT
JAN 10, 1972 1254UT
JAN 11, 1972 1212UT
JAN 12, 1972 1129UT



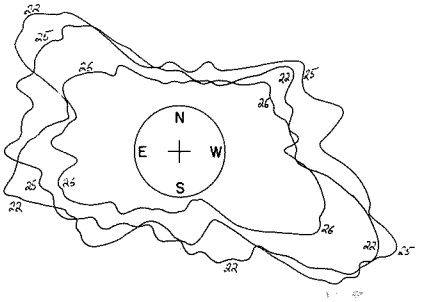


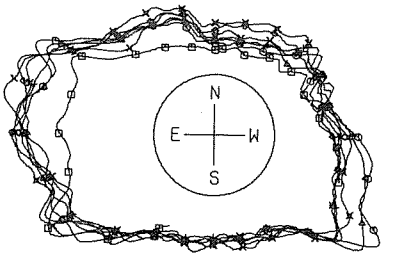
JAN 14, 1972 1003UT
JAN 15, 1059UT
JAN 16, 1903UT
JAN 17, 1933UT
JAN 18, 1811UT
JAN 19, 0811UT
JAN 20, 0730UT





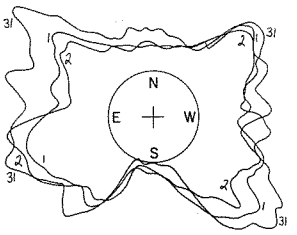
JAN 21, 1972 0823UT
JAN 22, 1972 0742UT
JAN 23, 1972 0701UT
JAN 24, 1972 0620UT
JAN 25, 1972 0713UT
JAN 26, 1972 0503UT
JAN 27, 1972 0421UT





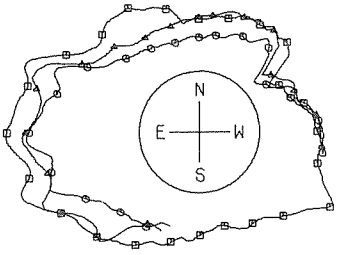
C# 1584
28 JAN to 23 FEB 1972

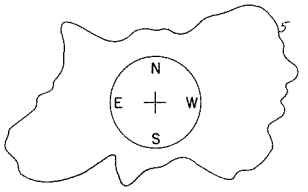
1.5R



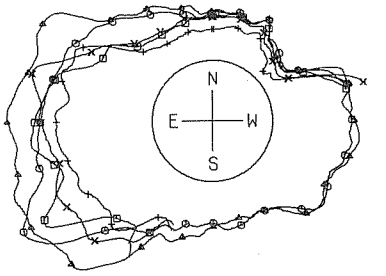
4.0R

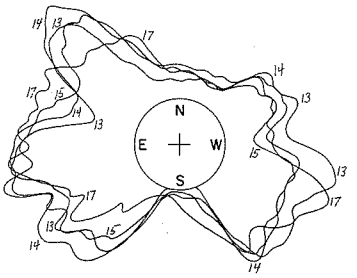
JAN 28, 1972 0547UT
JAN 29, 1972 0302UT
JAN 30, 1972 0538UT



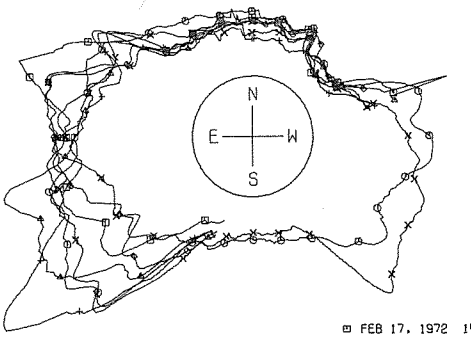


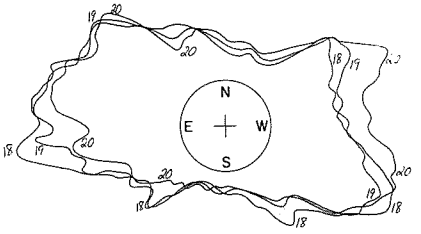
FEB 05, 1972 0741UT
FEB 06, 1972 0220UT
FEB 07, 1972 2019UT
FEB 08, 1972 1938UT
FEB 09, 1972 1656UT



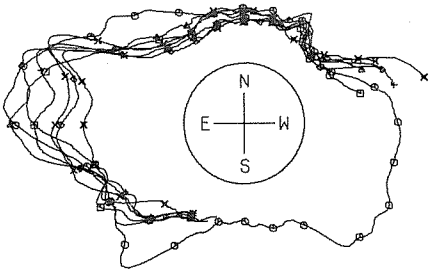


FEB 10, 1972 1949UT
FEB 11, 1972 2347UT
FEB 12, 1972 2306UT
FEB 13, 1972 1744UT
FEB 14, 1972 1703UT
FEB 15, 1972 2101UT
FEB 16, 1972 1540UT



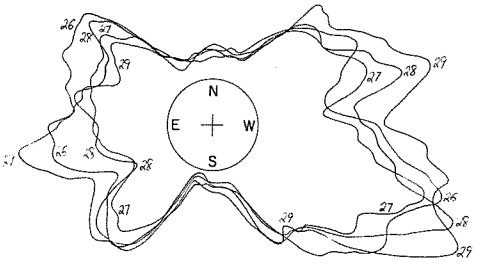


FEB 17, 1972 1459UT
FEB 18, 1972 1627UT
FEB 19, 1972 1949UT
FEB 20, 1972 1428UT
FEB 21, 1972 2000UT
FEB 22, 1972 1305UT
FEB 23, 1972 1837UT



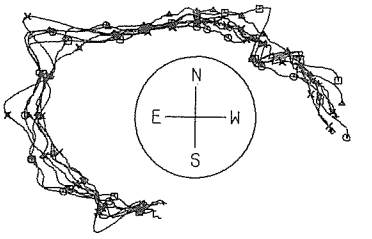
C# 1585
24 FEB to 21 MAR 1972

1.5R

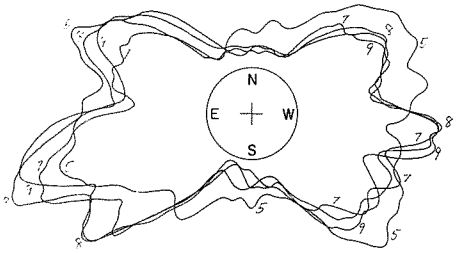


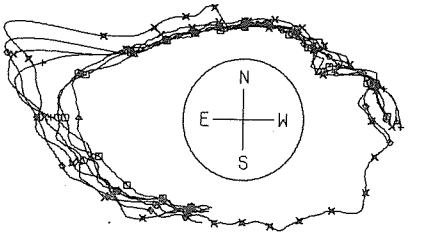
4.0R

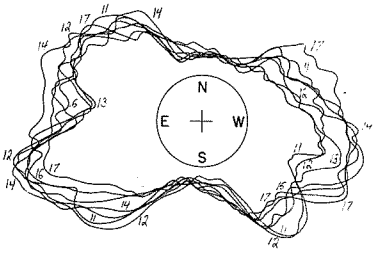
FEB 24, 1972 1756UT
FEB 25, 1972 1246UT
FEB 26, 1972 1340UT
FEB 27, 1972 1256UT
FEB 28, 1972 1212UT
FEB 29, 1972 1126UT
MAR 01, 1972 1042UT



MAR 02, 1972 0957UT
MAR 03, 1972 1051UT
MAR 04, 1972 1007UT
MAR 05, 1972 0924UT
MAR 06, 1972 0842UT
MAR 07, 1972 0600UT
MAR 08, 1972 0852UT

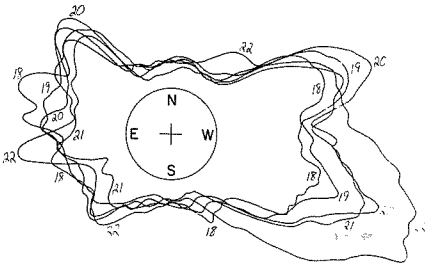


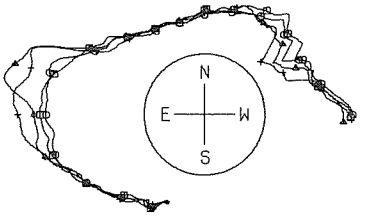




NO DATA

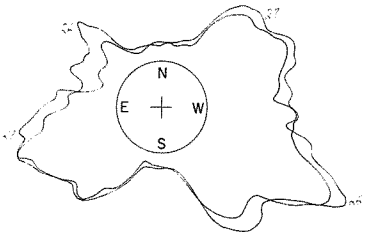
MAR 17, 1972 0232UT
MAR 18, 1972 0457UT
MAR 19, 1972 0415UT
MAR 20, 1972 0339UT





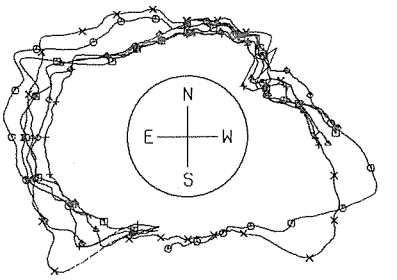
C# 1586
22 MAR to 17 APR 1972

1.5R

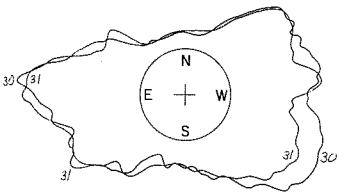


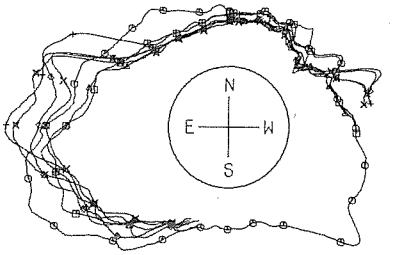
4.0R

□ MAR 22, 1972 0955UT
○ MAR 23, 1972 0259UT
△ MAR 24, 1972 0656UT
+ MAR 25, 1972 2318UT
× MAR 26, 1972 0704UT
◇ MAR 27, 1972 0621UT

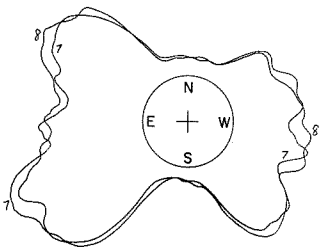


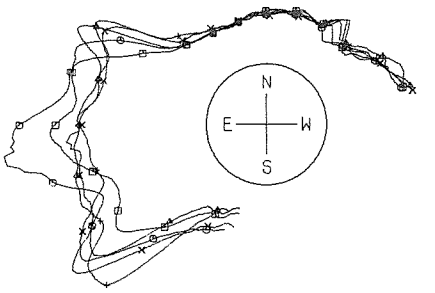
□ MAR 28, 1972 2243UT
○ MAR 29, 1972 0322UT
△ MAR 30, 1972 0236UT
+ MAR 31, 1972 2206UT
× APR 01, 1972 2255UT
◇ APR 02, 1972 2346UT
✱ APR 04, 1972 0035UT



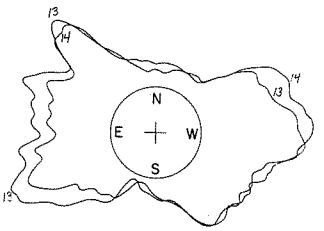


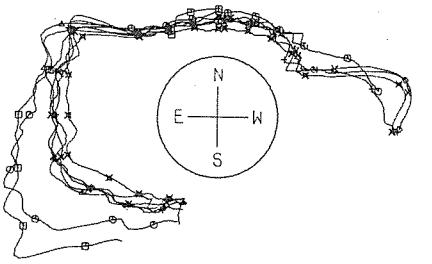
□ APR 05, 1972 2136UT
○ APR 06, 1972 2053UT
△ APR 08, 1972 2233UT
+ APR 09, 1972 2151UT
× APR 10, 1972 2108UT





□ APR 11, 1972 1413UT
○ APR 12, 1972 2116UT
△ APR 13, 1972 1248UT
+ APR 14, 1972 1211UT
× APR 15, 1972 1125UT
◇ APR 16, 1972 1217UT
✱ APR 17, 1972 1130UT



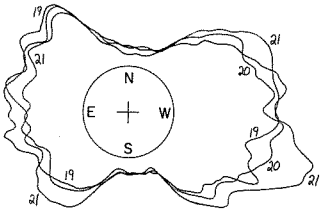


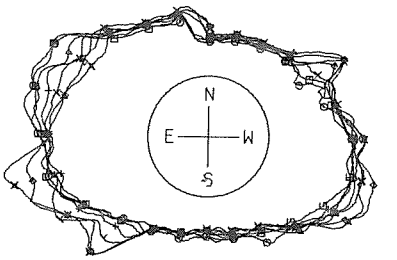
C# 1587
18 APR to 15 MAY 1972

1.5R

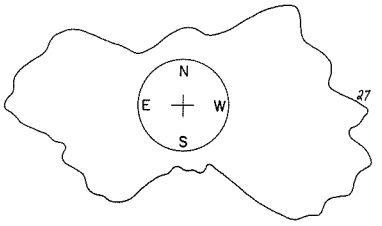
4.0R

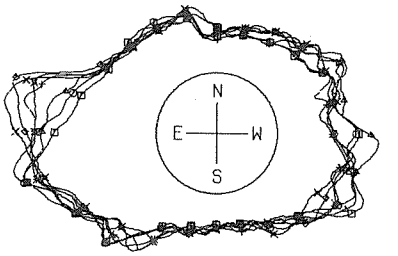
APR 18, 1972 1222UT
APR 19, 1972 1135UT
APR 20, 1972 1051UT
APR 21, 1972 1006UT
APR 22, 1972 1055UT
APR 23, 1972 1011UT
APR 24, 1972 0927UT



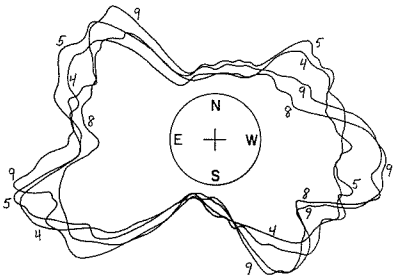


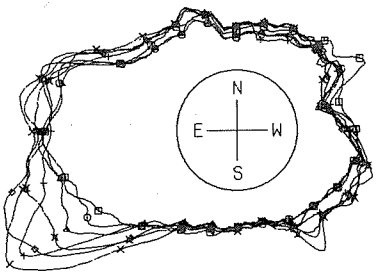
APR 25, 1972 0709UT
APR 26, 1972 0625UT
APR 27, 1972 0714UT
APR 28, 1972 1247UT
APR 29, 1972 0852UT
APR 30, 1972 0634UT
MAY 01, 1972 0550UT



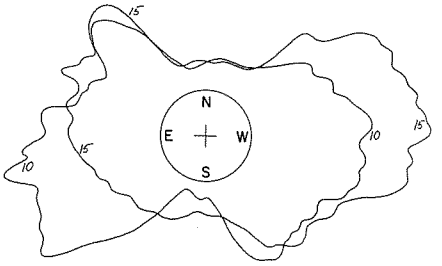


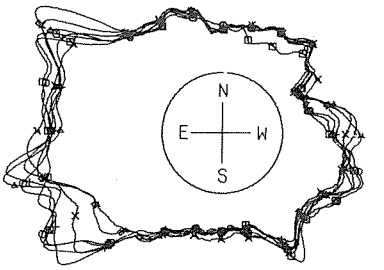
MAY 02, 1972 0506UT
MAY 03, 1972 0555UT
MAY 04, 1972 0511UT
MAY 05, 1972 0906UT
MAY 06, 1972 0515UT
MAY 07, 1972 0431UT
MAY 08, 1972 0652UT





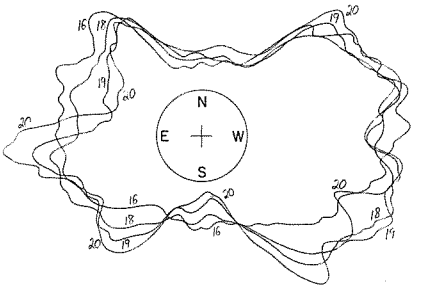
MAY 09, 1972 0435UT
MAY 10, 1972 0656UT
MAY 11, 1972 0305UT
MAY 12, 1972 0353UT
MAY 13, 1972 0441UT
MAY 14, 1972 0356UT
MAY 15, 1972 0138UT



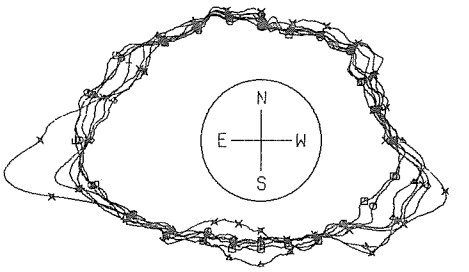


C# 1588
16 MAY to 11 JUN 1972

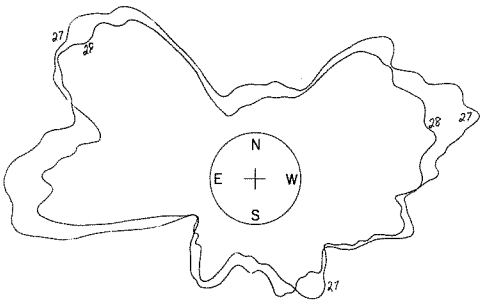
1.5R

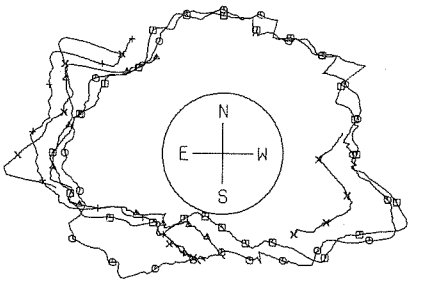


4.0R

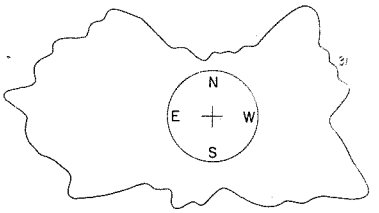


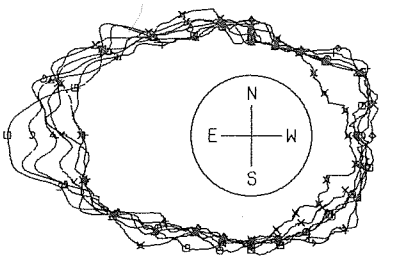
MAY 16, 1972 0532UT
MAY 17, 1972 0313UT
MAY 18, 1972 0534UT
MAY 19, 1972 0315UT
MAY 20, 1972 0057UT
MAY 21, 1972 0011UT
MAY 22, 1972 0059UT



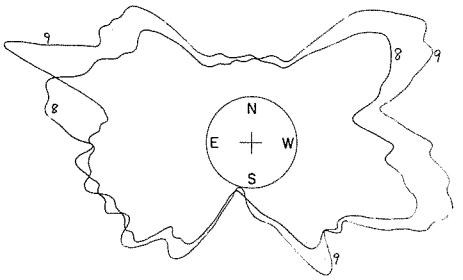


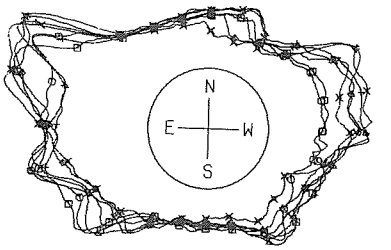
MAY 23, 1972 2022UT
MAY 24, 1972 1631UT
MAY 25, 1972 2159UT
MAY 26, 1972 2247UT
MAY 28, 1972 2021UT





MAY 29, 1972 1304UT
MAY 30, 1972 1217UT
MAY 31, 1972 1306UT
JUN 01, 1972 1217UT
JUN 02, 1972 1130UT
JUN 03, 1972 1041UT
JUN 04, 1972 1130UT





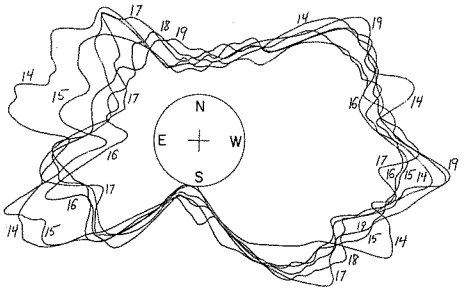
JUN 05, 1972 1043UT
JUN 06, 1972 1131UT
JUN 07, 1972 1046UT
JUN 08, 1972 0959UT
JUN 09, 1972 1046UT
JUN 10, 1972 1611UT
JUN 11, 1972 1525UT

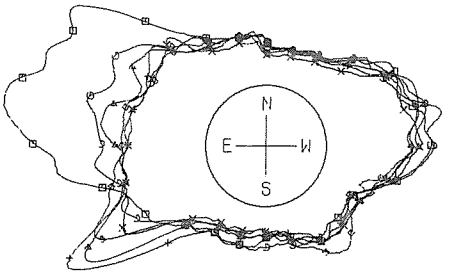
C# 1589
12 JUN to 8 JUL 1972

1.5R

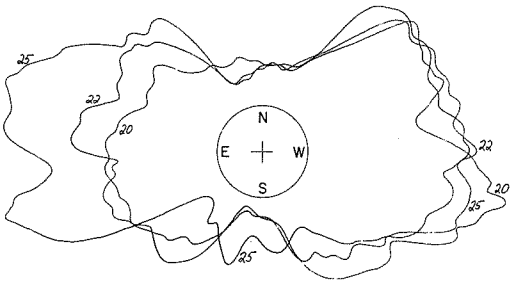
4.0R

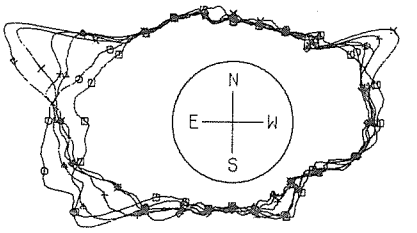
JUN 12, 1972 1612UT
JUN 13 1972 1659UT
JUN 15, 1972 1659UT
JUN 16, 1972 1920UT
JUN 17, 1972 1659UT
JUN 18, 1972 1613UT



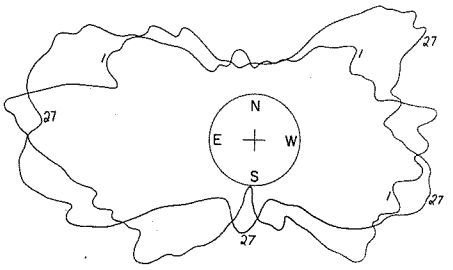


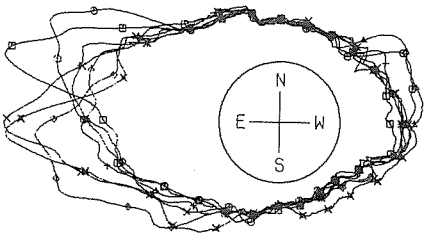
JUN 20, 1972 0836UT
JUN 21, 1972 0742UT
JUN 22, 1972 0832UT
JUN 23, 1972 0745UT
JUN 24, 1972 0828UT
JUN 25, 1972 0742UT



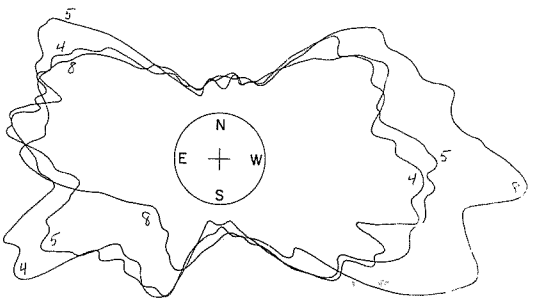


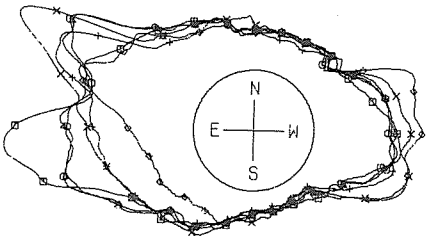
JUN 26, 1972 0655UT
JUN 27, 1972 0435UT
JUN 28, 1972 0654UT
JUN 29, 1972 0607UT
JUN 30, 1972 0347UT
JUL 01, 1972 0126UT
JUL 02, 1972 0345UT





JUL 03, 1972 0258UT
JUL 04, 1972 2217UT
JUL 05, 1972 0123UT
JUL 06, 1972 0514UT
JUL 07, 1972 0121UT
JUL 08, 1972 2347UT



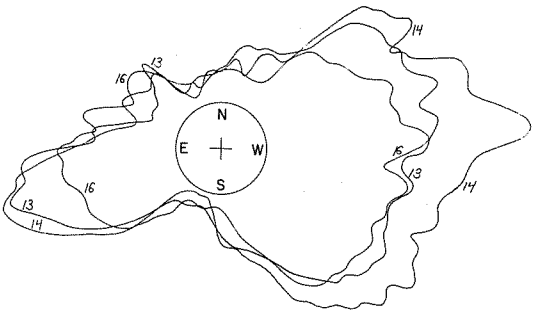


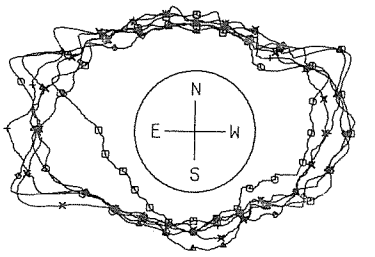
C# 1590
9JUL to 5 AUG 1972

1.5R

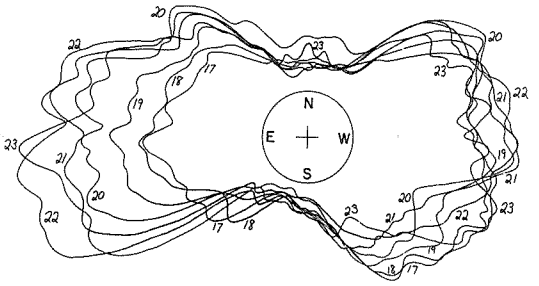
4.0R

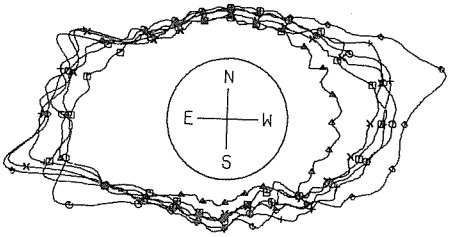
JUL 09, 1972 2301UT
JUL 10, 1972 1456UT
JUL 11, 1972 0437UT
JUL 12, 1972 1454UT
JUL 13, 1972 1404UT
JUL 14, 1972 1313UT
JUL 15, 1972 1401UT



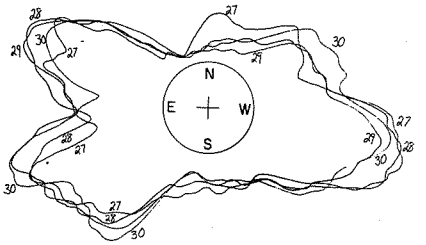


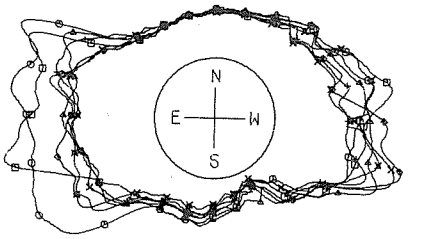
JUL 16, 1972 1311UT
JUL 18, 1972 1131UT
JUL 19, 1972 1713UT
JUL 20, 1972 1126UT
JUL 21, 1972 1039UT
JUL 22, 1972 1126UT



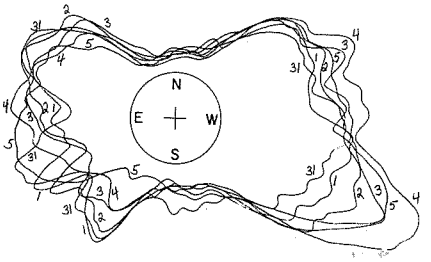


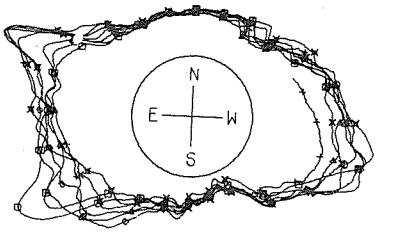
JUL 23, 1972 1212UT
JUL 24, 1972 0816UT
JUL 25, 1972 1034UT
JUL 26, 1972 0947UT
JUL 27, 1972 1032UT
JUL 28, 1972 0944UT
JUL 29, 1972 1204UT





JUL 30, 1972 0808UT
JUL 31, 1972 0853UT
AUG 01, 1972 0633UT
AUG 02, 1972 0716UT
AUG 03, 1972 0803UT
AUG 04, 1972 0542UT
AUG 05, 1972 0454UT

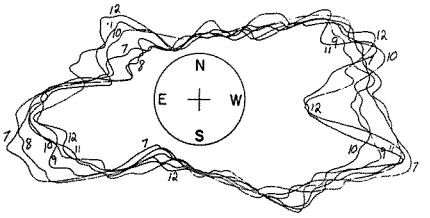




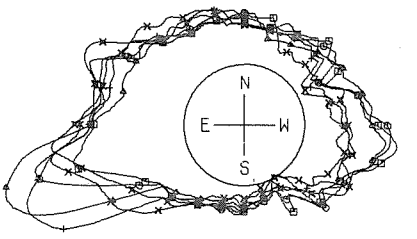
C# 1591
6 AUG to 1 SEPT 1972

AUG 06, 1972 0407UT
AUG 07, 1972 0452UT
AUG 08, 1972 2238UT
AUG 09, 1972 2322UT
AUG 10, 1972 2234UT
AUG 11, 1972 0814UT
AUG 12, 1972 0052UT

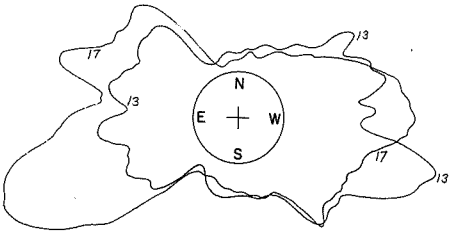
1.5R

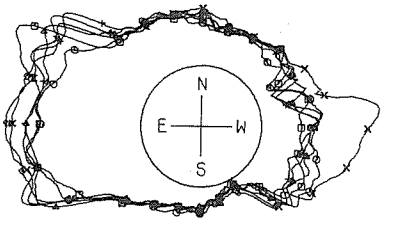


4.0R

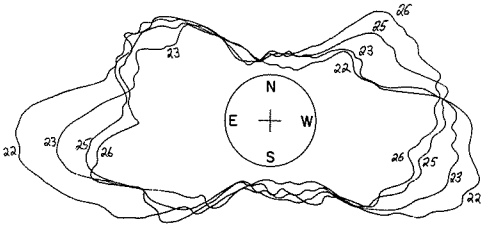


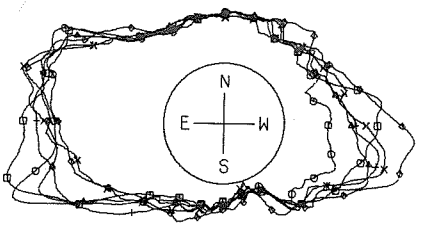
AUG 13, 1972 0004UT
AUG 14, 1972 0048UT
AUG 15, 1972 2311UT
AUG 16, 1972 2356UT
AUG 17, 1972 2307UT
AUG 18, 1972 2219UT



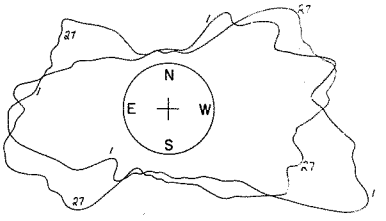


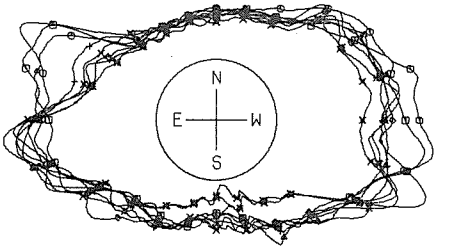
AUG 19, 1972 2130UT
AUG 20, 1972 2215UT
AUG 21, 1972 2126UT
AUG 22, 1972 2038UT
AUG 23, 1972 2122UT
AUG 24, 1972 2034UT





AUG 25, 1972 2252UT
AUG 26, 1972 2337UT
AUG 27, 1972 2249UT
AUG 28, 1972 2201UT
AUG 29, 1972 2246UT
AUG 30, 1972 2158UT
AUG 31, 1972 1339UT
SEP 01, 1972 1247UT



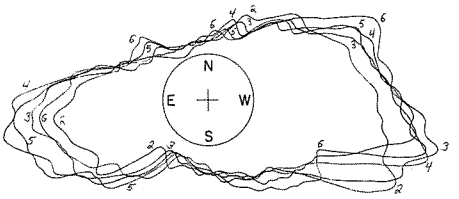


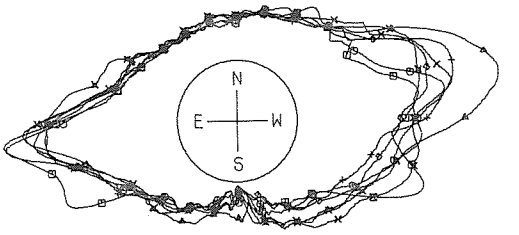
C# 1592
2 SEPT to 28 SEPT 1972

1.5R

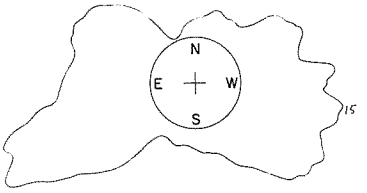
4.0R

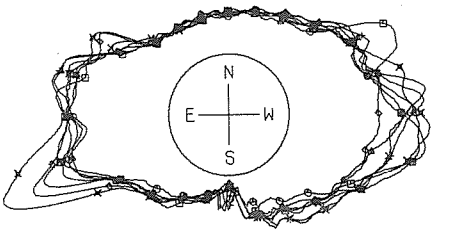
SEP 02, 1972 1334UT
SEP 03, 1972 1242UT
SEP 04, 1972 1150UT
SEP 05, 1972 0446UT
SEP 06, 1972 1008UT
SEP 07, 1972 0443UT
SEP 08, 1972 1002UT



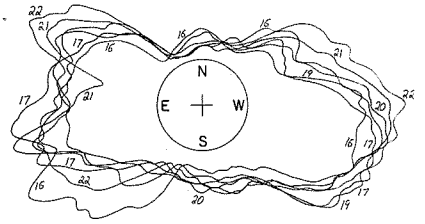


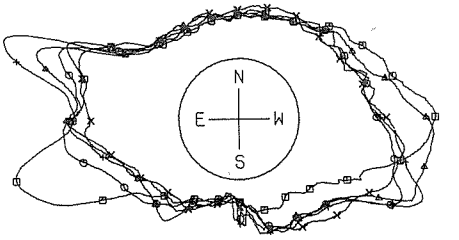
SEP 09, 1972 0913UT
SEP 10, 1972 0448UT
SEP 11, 1972 0734UT
SEP 12, 1972 0618UT
SEP 13, 1972 0901UT
SEP 14, 1972 0944UT
SEP 15, 1972 0655UT



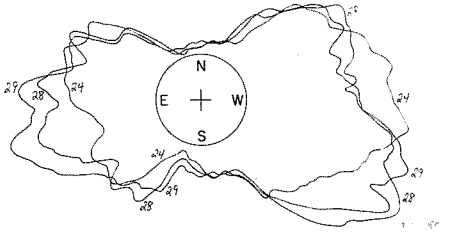


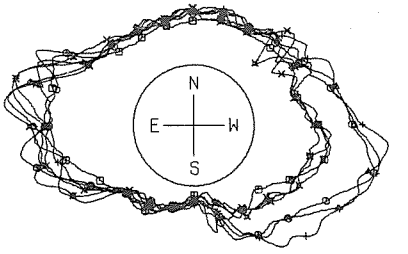
SEP 16, 1972 1111UT
SEP 17, 1972 1022UT
SEP 18, 1972 0800UT
SEP 19, 1972 1016UT
SEP 21, 1972 0639UT





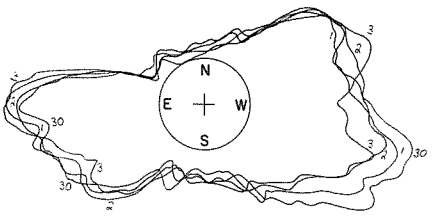
SEP 22, 1972 2319UT
SEP 23, 1972 0832UT
SEP 24, 1972 0916UT
SEP 25, 1972 0826UT
SEP 26, 1972 0737UT
SEP 27, 1972 0620UT
SEP 28, 1972 0903UT





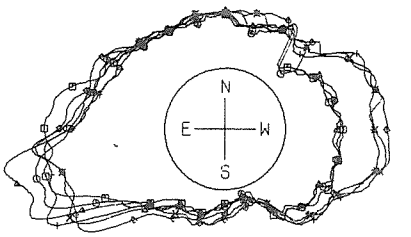
C# 1593
29 SEPT to 25 OCT 1972

1.5R

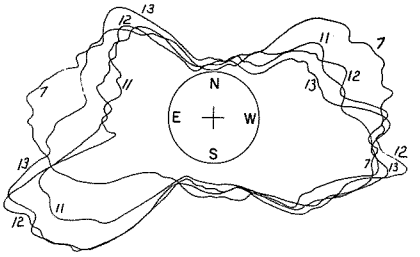


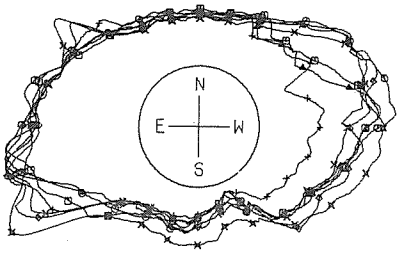
4.0R

SEP 29, 1972 0813UT
SEP 30, 1972 0550UT
OCT 01, 1972 0500UT
OCT 03, 1972 0320UT
OCT 04, 1972 0707UT
OCT 05, 1972 0444UT

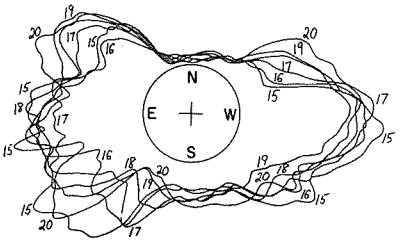


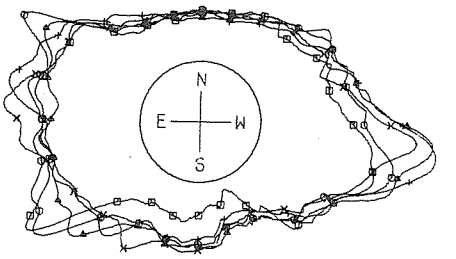
OCT 06, 1972 0354UT
OCT 07, 1972 0741UT
OCT 08, 1972 0345UT
OCT 09, 1972 1954UT
OCT 10, 1972 0509UT
OCT 11, 1972 0419UT
OCT 12, 1972 0156UT



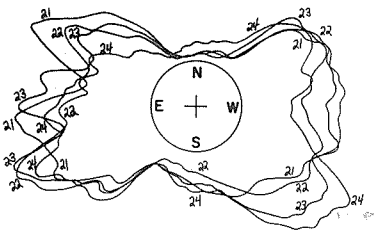


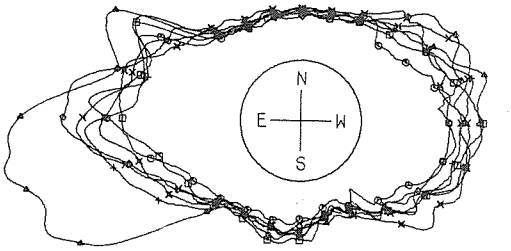
OCT 13, 1972 0105UT
OCT 14, 1972 .0015UT
OCT 15, 1972 2101UT
OCT 16, 1972 2011UT
OCT 17, 1972 2052UT
OCT 18, 1972 1229UT





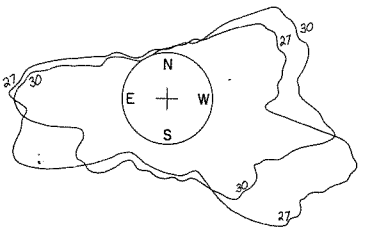
OCT 19, 1972 1911UT
OCT 20, 1972 1356UT
OCT 21, 1972 1729UT
OCT 22, 1972 1030UT
OCT 23, 1972 1114UT
OCT 24, 1972 1019UT
OCT 25, 1972 1535UT





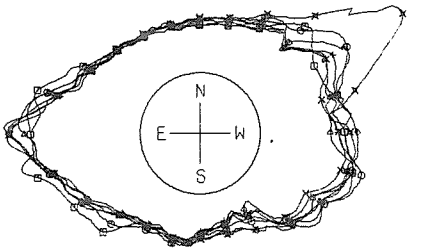
C# 1594
26 OCT to 21 NOV 1972

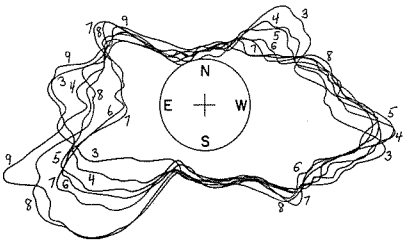
1.5R



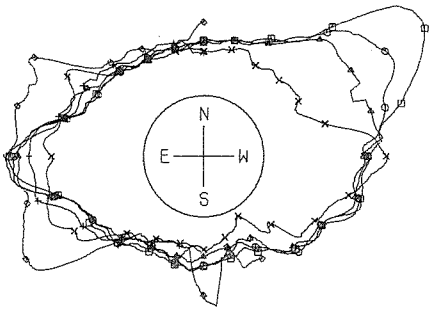
4.0R

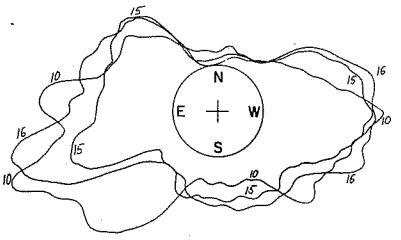
OCT 26, 1972 0833UT
OCT 27, 1972 0914UT
OCT 28, 1972 0822UT
OCT 29, 1972 0902UT
OCT 30, 1972 0637UT
OCT 31, 1972 0718UT
NOV 01, 1972 0758UT



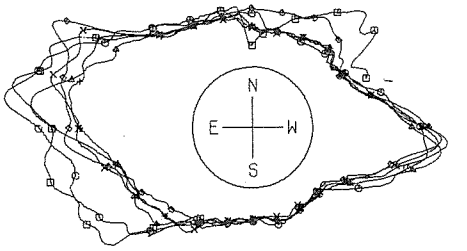


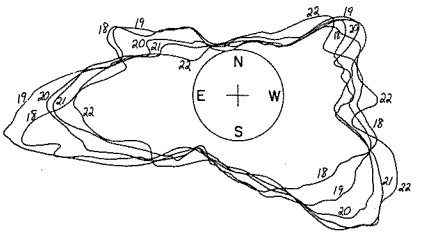
NOV 02, 1972 0706UT
NOV 03, 1972 0746UT
NOV 04, 1972 1001UT
NOV 05, 1972 1046UT
NOV 07, 1972 0317UT
NOV 08, 1972 0836UT



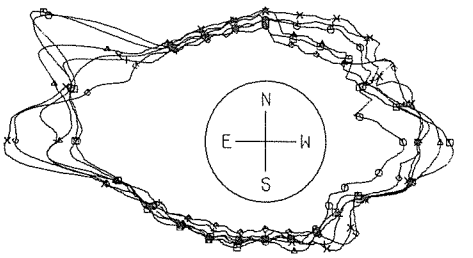


NOV 10, 1972 0826UT
NOV 11, 1972 0906UT
NOV 12, 1972 0746UT
NOV 13, 1972 0827UT
NOV 14, 1972 0602UT
NOV 15, 1972 0815UT



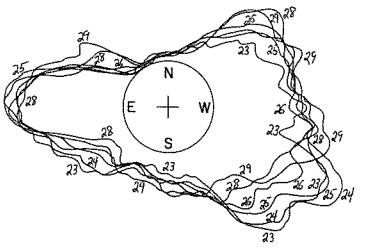


NOV 16, 1972 0550UT
NOV 17, 1972 0602UT
NOV 18, 1972 0404UT
NOV 19, 1972 0444UT
NOV 20, 1972 0216UT
NOV 21, 1972 1822UT



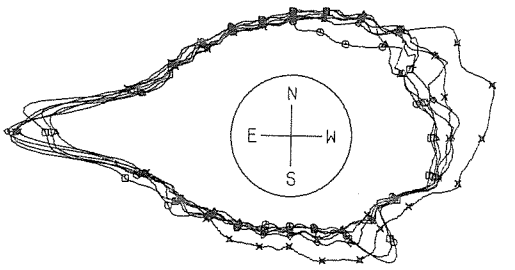
C# 1595
22 NOV to 19 DEC 1972

1.5R

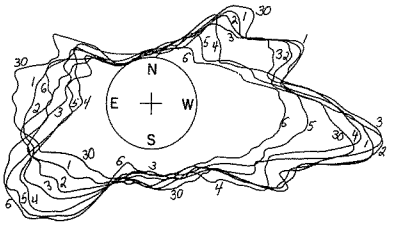


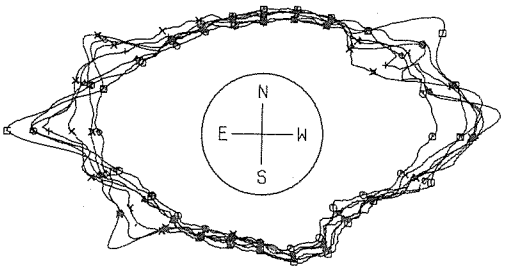
4.0R

NOV 22, 1972 2034UT
NOV 23, 1972 1940UT
NOV 24, 1972 1847UT
NOV 25, 1972 1926UT
NOV 26, 1972 1833UT
NOV 27, 1972 1912UT
NOV 28, 1972 2256UT

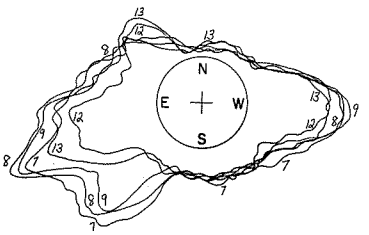


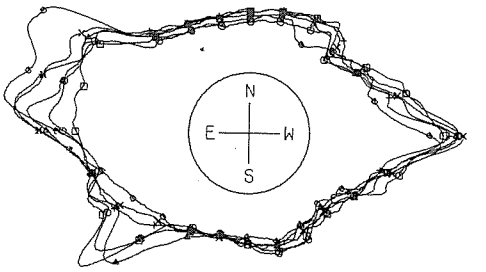
NOV 29, 1972 2203UT
NOV 30, 1972 1604UT
DEC 01, 1972 2148UT
DEC 02, 1972 1750UT
DEC 03, 1972 2001UT
DEC 04, 1972 2040UT
DEC 05, 1972 1946UT



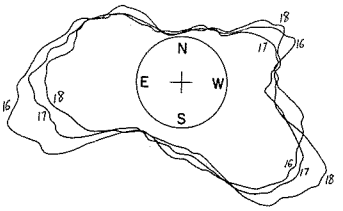


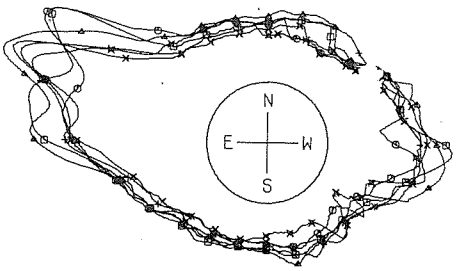
DEC 06, 1972 1853UT
DEC 07, 1972 1930UT
DEC 09, 1972 1001UT
DEC 10, 1972 1820UT
DEC 11, 1972 0812UT
DEC 12, 1972 1632UT





DEC 13, 1972 0930UT
DEC 14, 1972 1616UT
DEC 15, 1972 0912UT
DEC 16, 1972 0617UT
DEC 17, 1972 0723UT
DEC 18, 1972 0703UT
DEC 19, 1972 0409UT

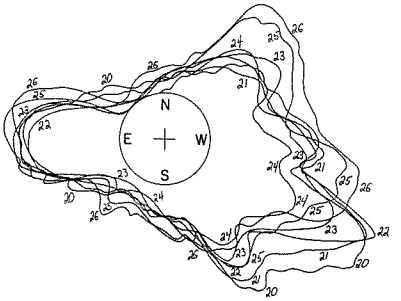


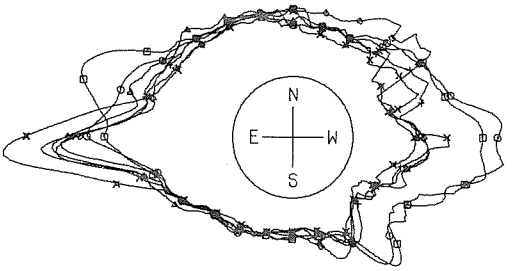


C# 1596
20 DEC 1972 to 16 JAN 1973

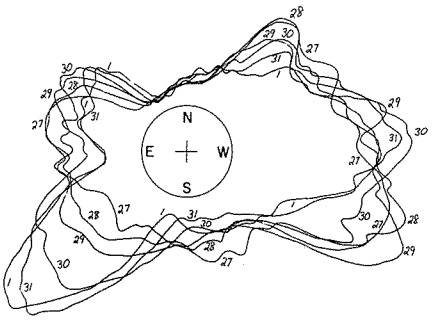
1.5R **4.0R**

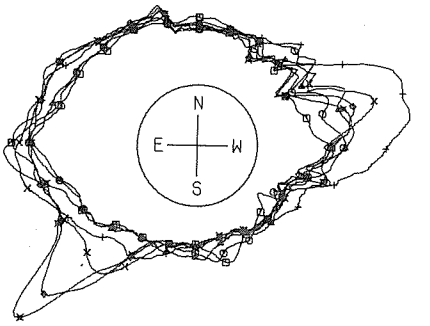
DEC 20, 1972 0445UT
DEC 21, 1972 0352UT
DEC 22, 1972 0745UT
DEC 23, 1972 0227UT
DEC 24, 1972 0611UT
DEC 25, 1972 0518UT
DEC 26, 1972 0121UT



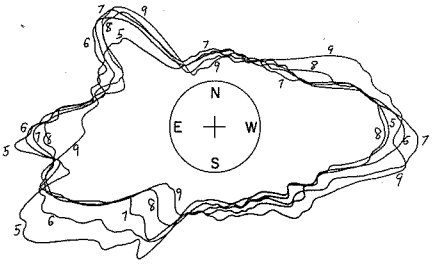


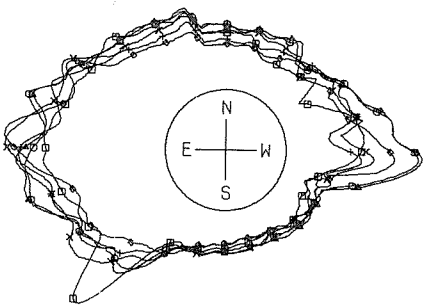
DEC 27, 1972 0806UT
DEC 28, 1972 0650UT
DEC 29, 1972 0252UT
DEC 30, 1972 0502UT
DEC 31, 1972 0540UT
JAN 01, 1973 0446UT
JAN 02, 1973 0524UT



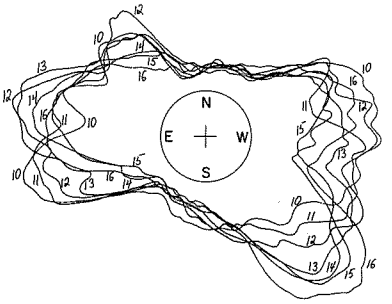


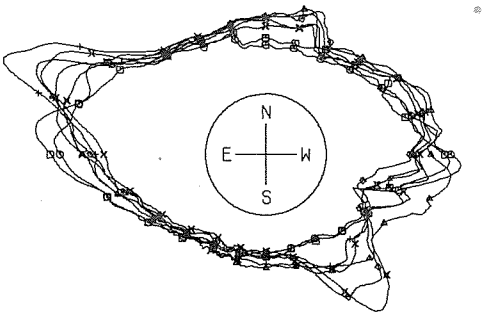
JAN 03, 1973 0430UT
JAN 04, 1973 2334UT
JAN 05, 1973 0417UT
JAN 06, 1973 1840UT
JAN 07, 1973 2049UT
JAN 08, 1973 1954UT



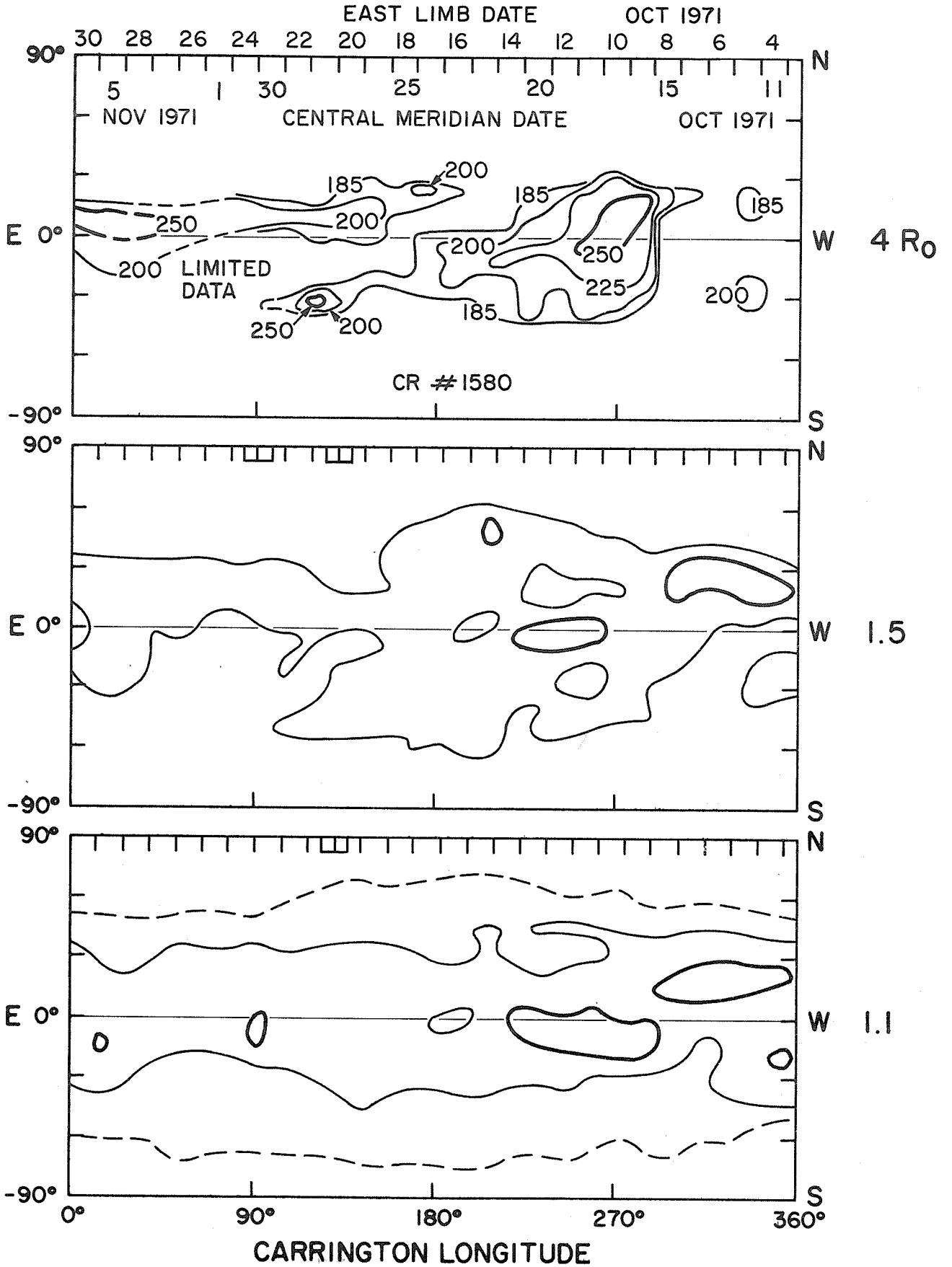


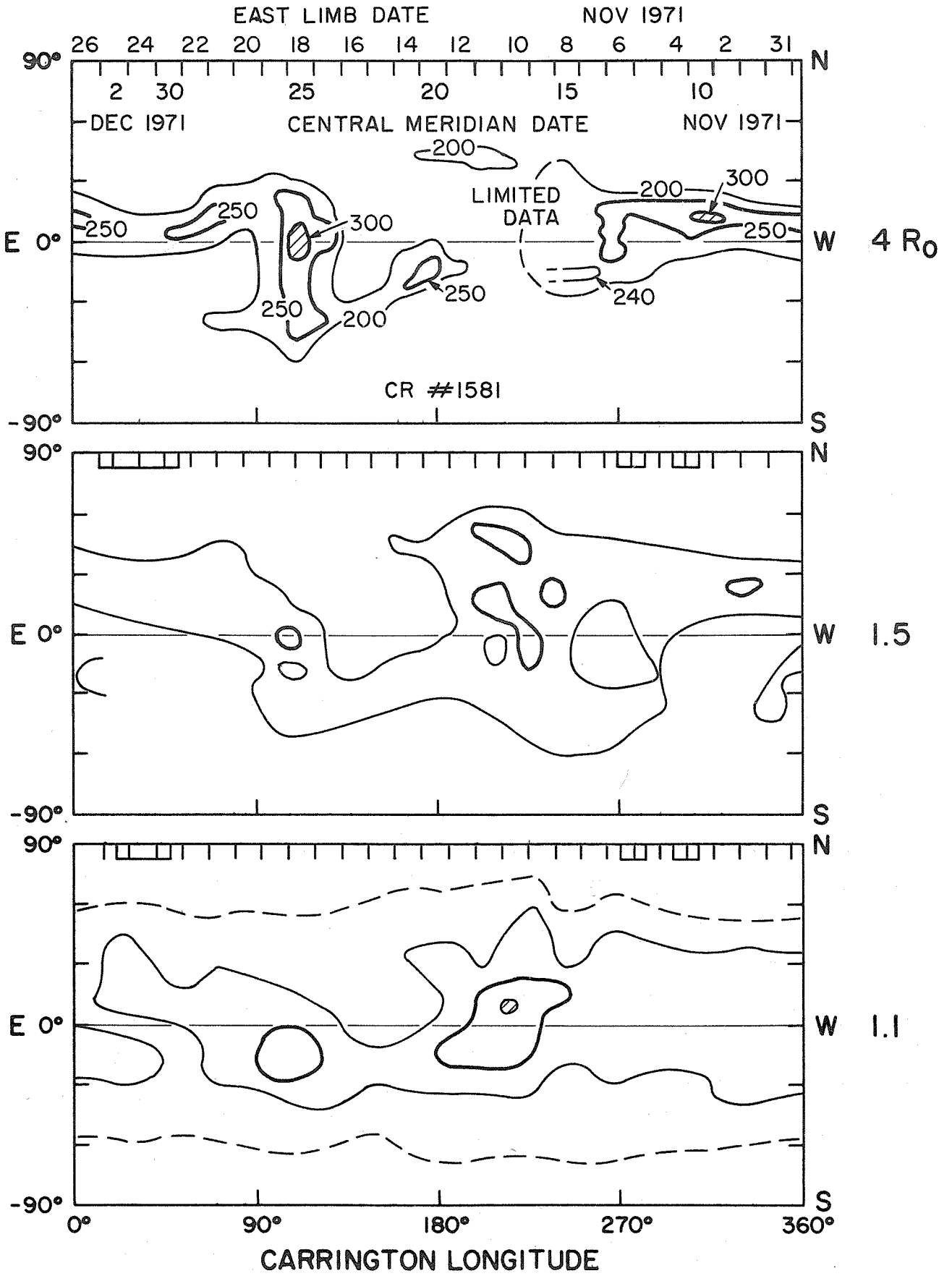
JAN 09, 1973 1859UT
JAN 10, 1973 1804UT
JAN 11, 1973 2319UT
JAN 12, 1973 2051UT
JAN 13, 1973 1956UT
JAN 14, 1973 1901UT
JAN 15, 1973 2111UT

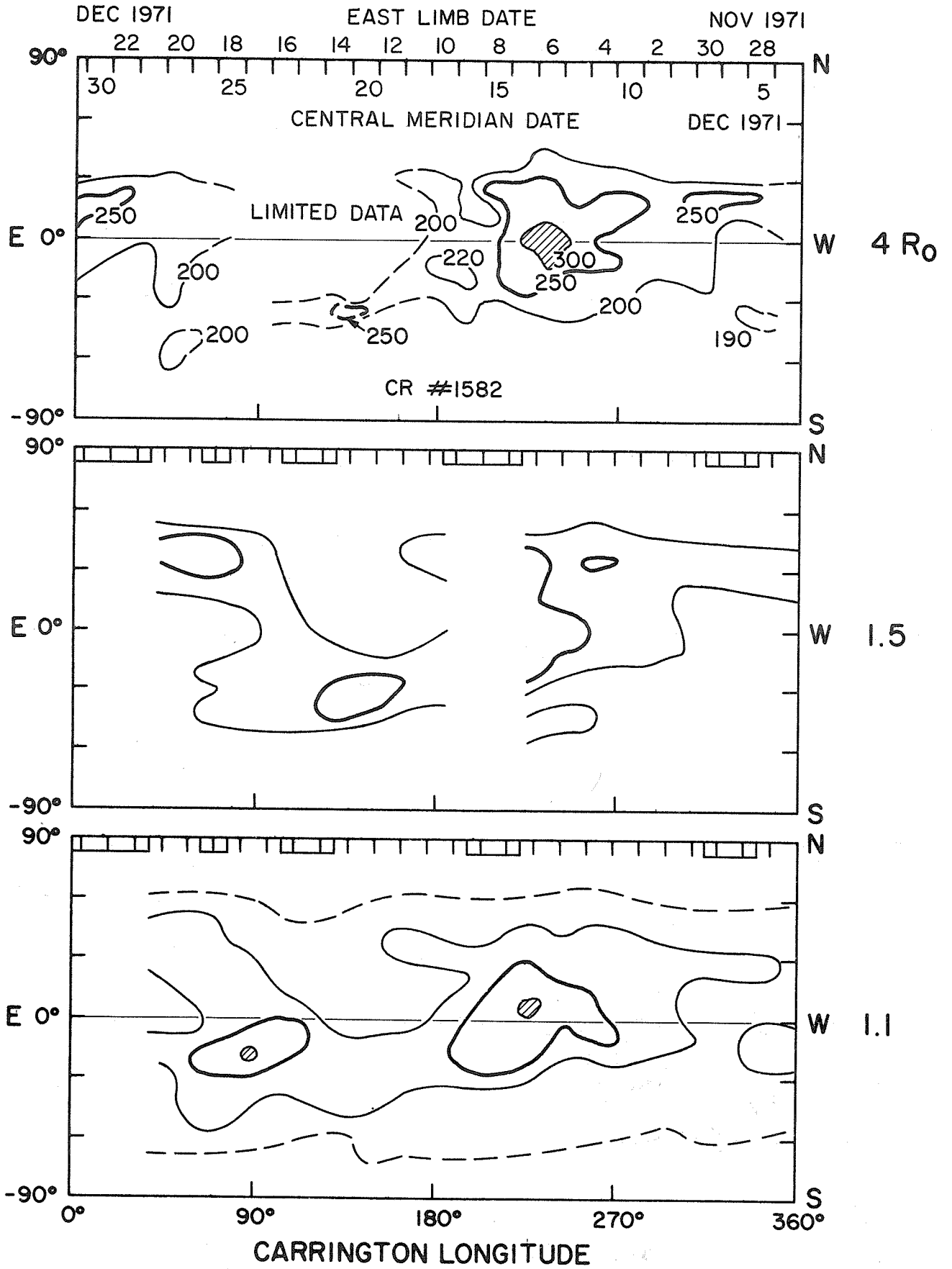


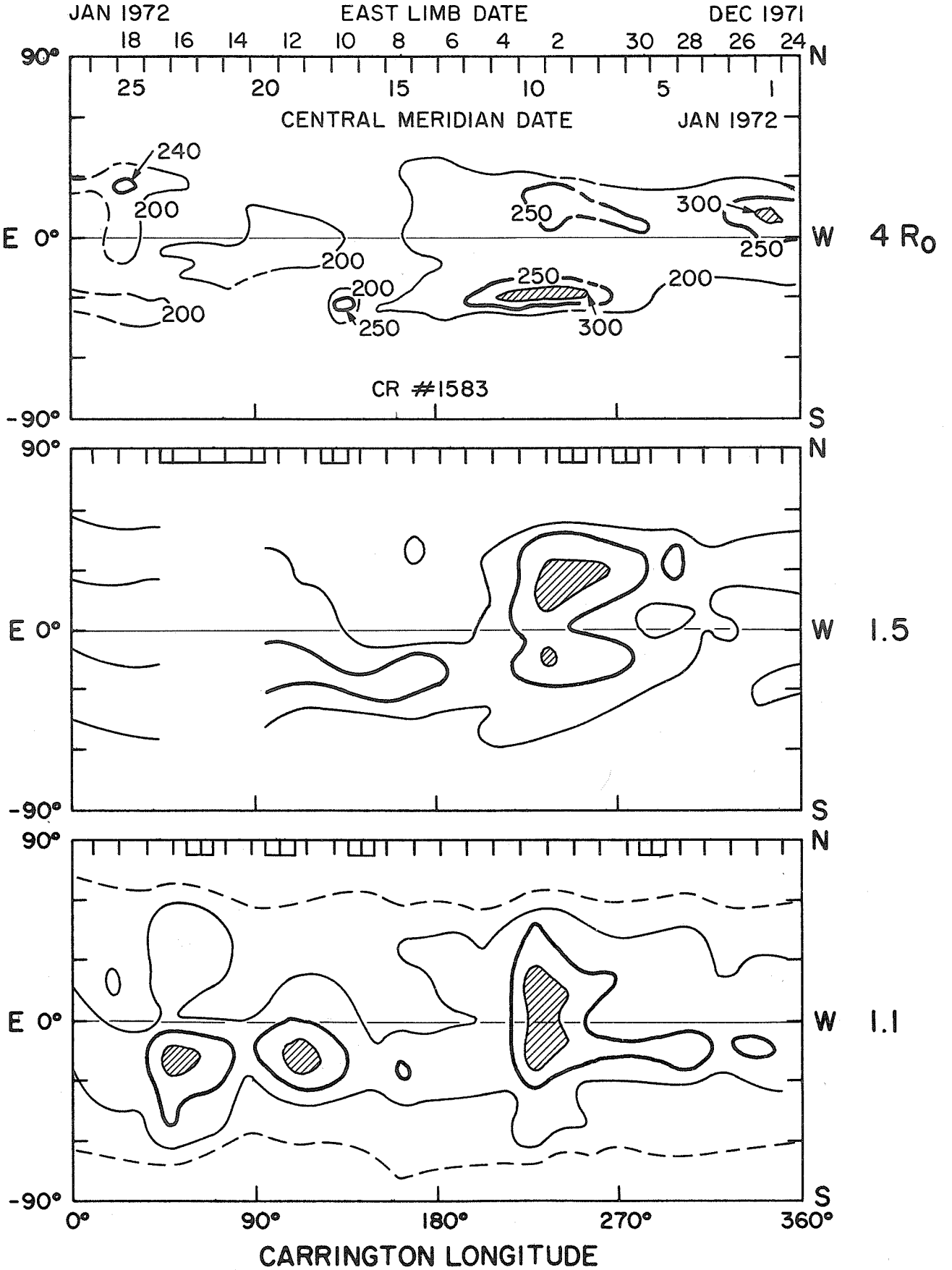


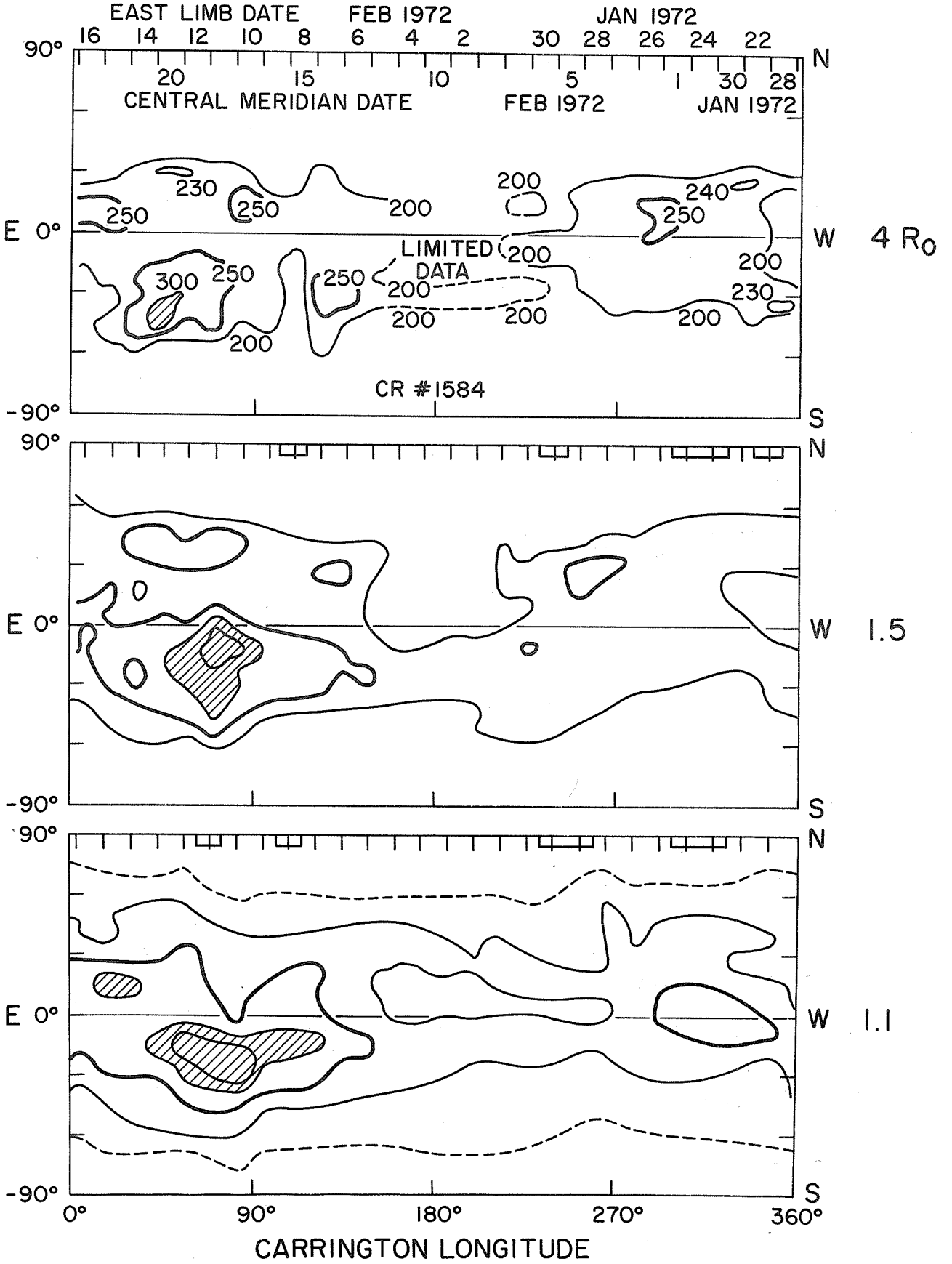
3. Synoptic Maps of Coronal Brightness at 1.1, and 1.5 (Mauna Loa) and 4 (OSO-7) Solar Radii

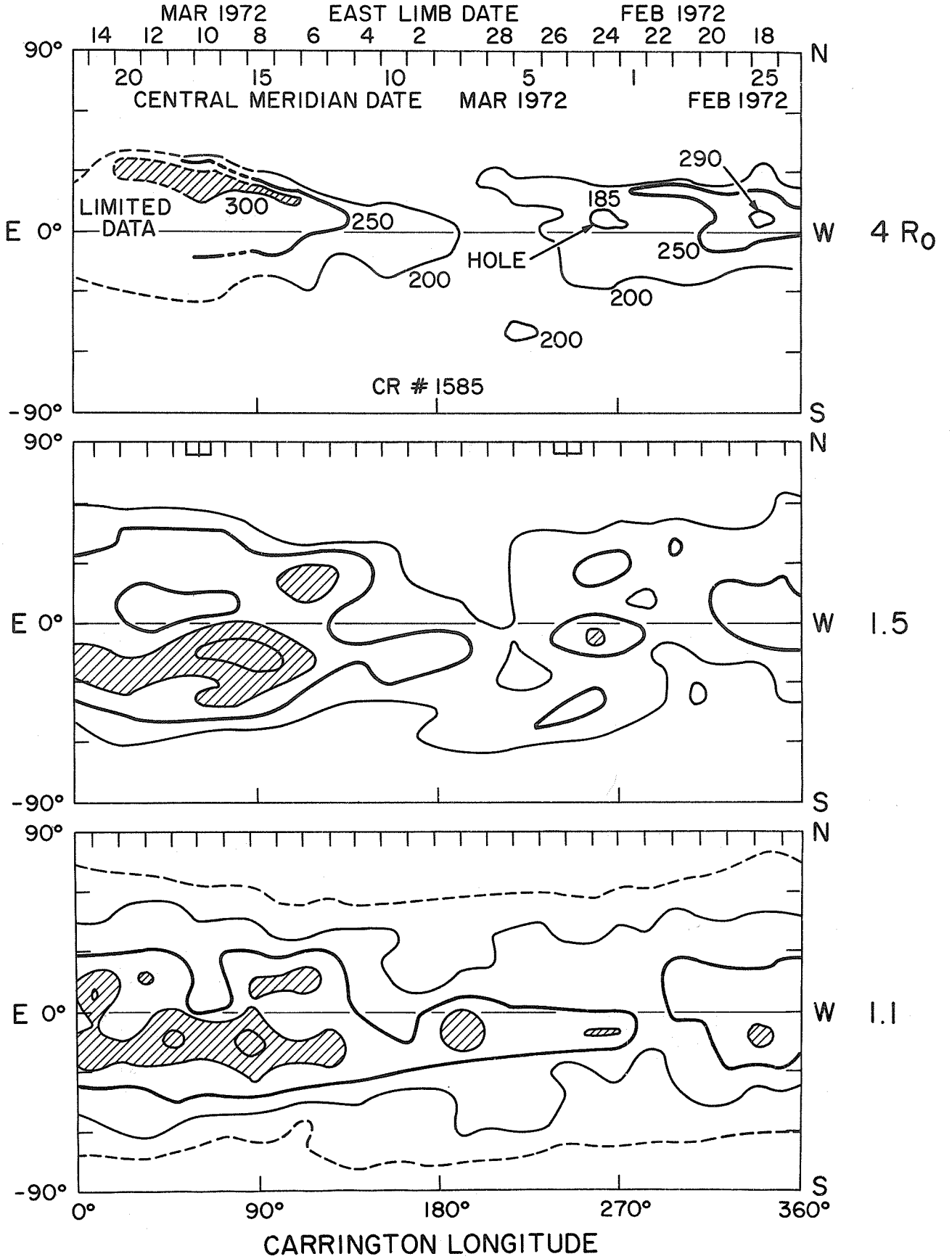


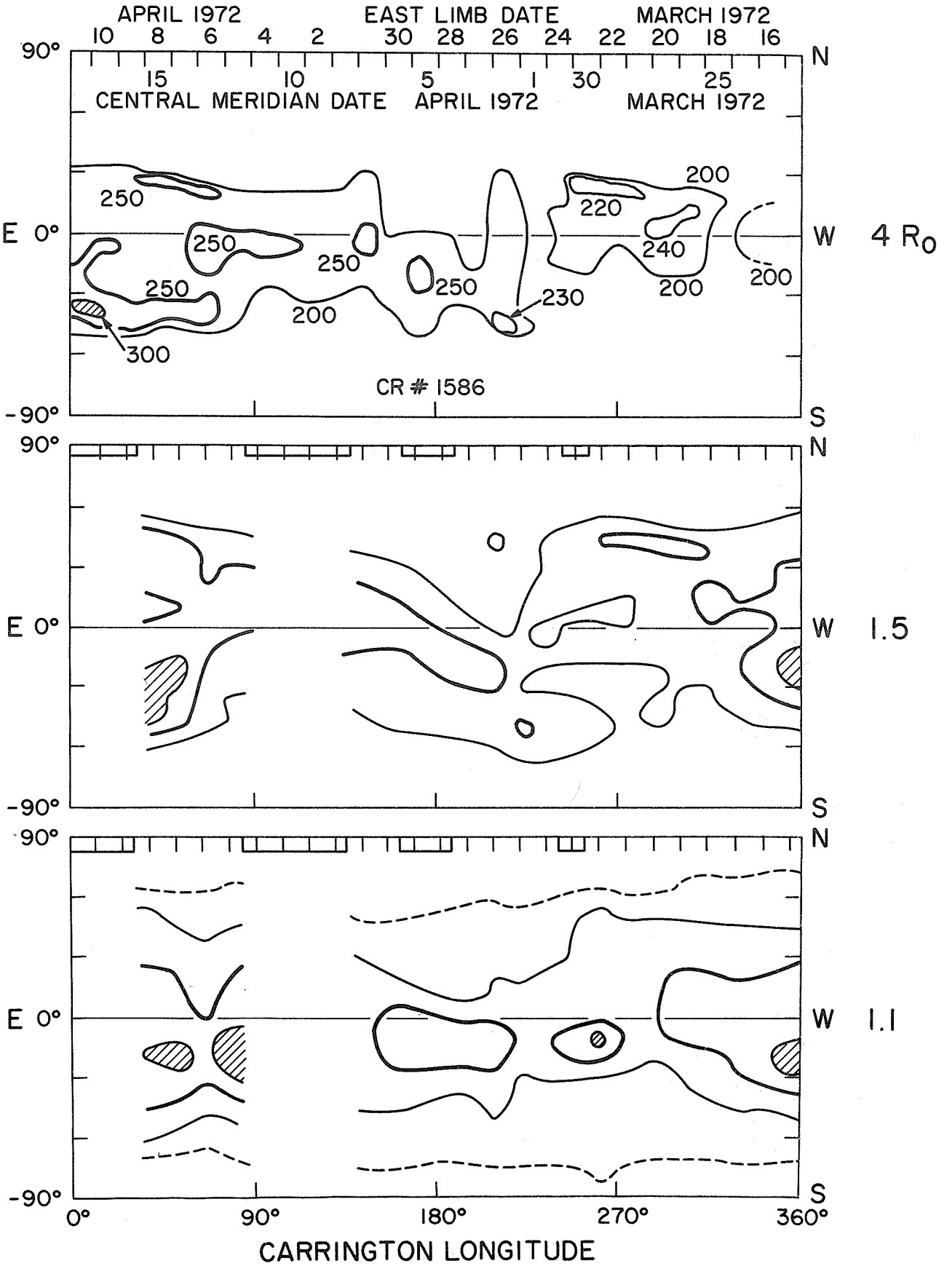

EAST LIMB DATE
NOV 1971
26 24 22 20 18 16 14 12 10 8 6 4 2 31
2 30 25 20 15 10
DEC 1971
CENTRAL MERIDIAN DATE
NOV 1971
200
LIMITED DATA
300
250
240
CR #1581
90°
E 0°
-90°
N
W
S
4 Ro
1.5
1.1
0°
90°
180°
270°
360°
CARRINGTON LONGITUDE

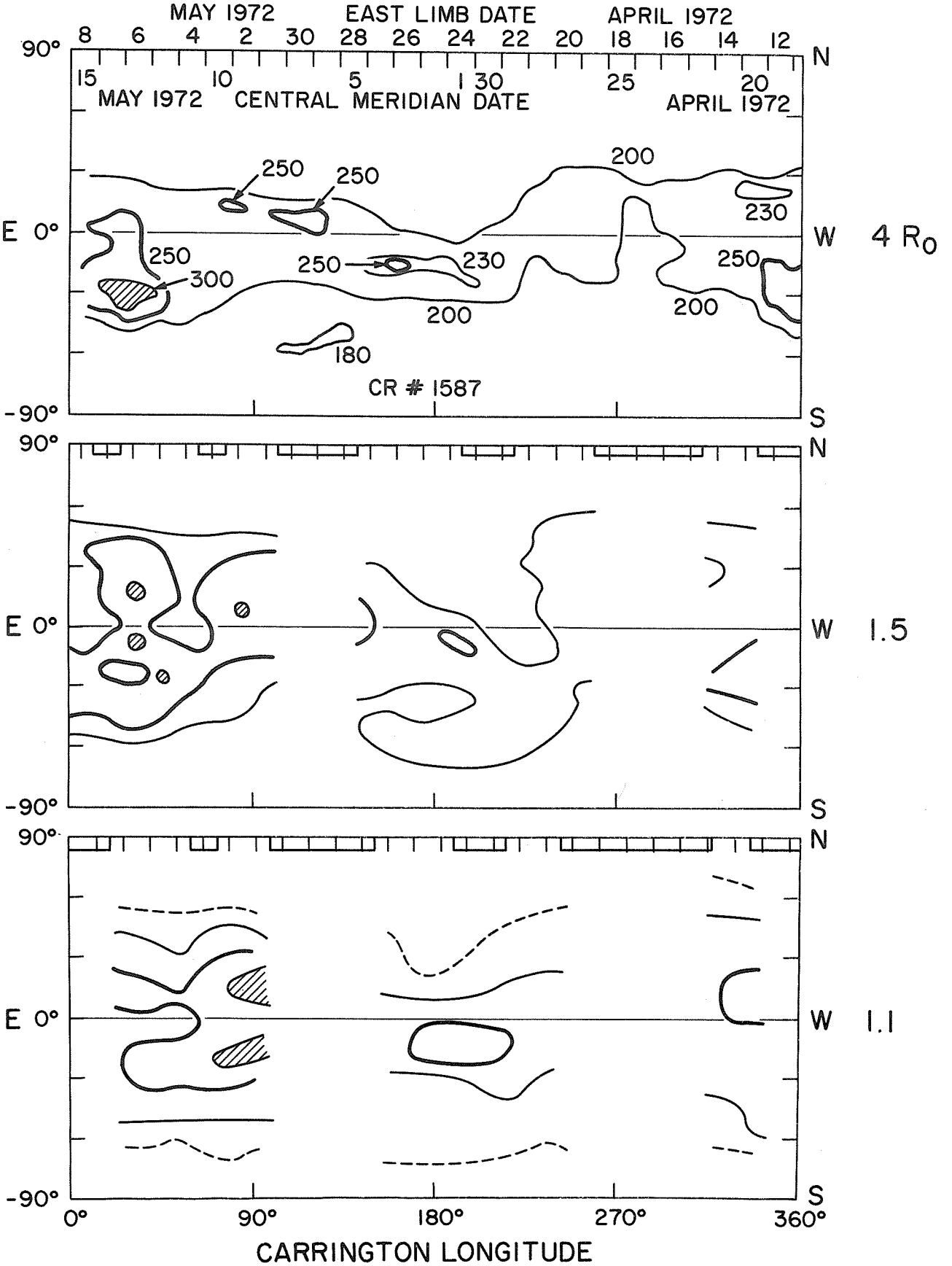

DEC 1971
EAST LIMB DATE
NOV 1971
22 20 18 16 14 12 10 8 6 4 2 30 28
30 25 20 15 10 5
CENTRAL MERIDIAN DATE
DEC 1971
LIMITED DATA
250
200
200
200
250
220
300
250
200
250
190
CR #1582
90°
E 0°
-90°
N
W
S
4 Ro
1.5
1.1
0°
90°
180°
270°
360°
CARRINGTON LONGITUDE

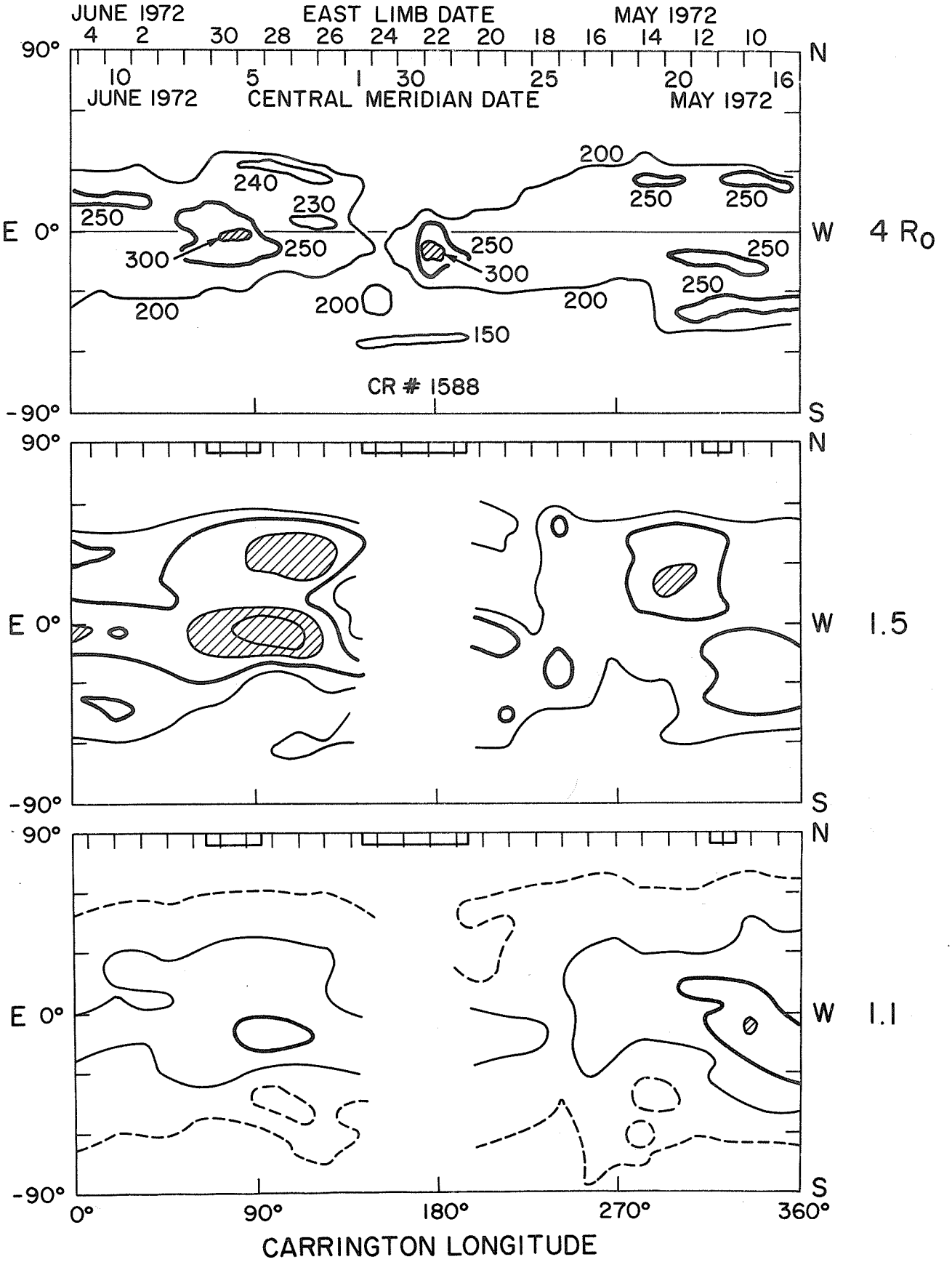

JAN 1972
EAST LIMB DATE
DEC 1971
18 16 14 12 10 8 6 4 2 30 28 26 24
25 20 15 10 5 1
CENTRAL MERIDIAN DATE
JAN 1972
90°
E 0°
-90°
N
W
S
240
200
250
300
CR #1583
4 Ro
1.5
1.1
0° 90° 180° 270° 360°
CARRINGTON LONGITUDE

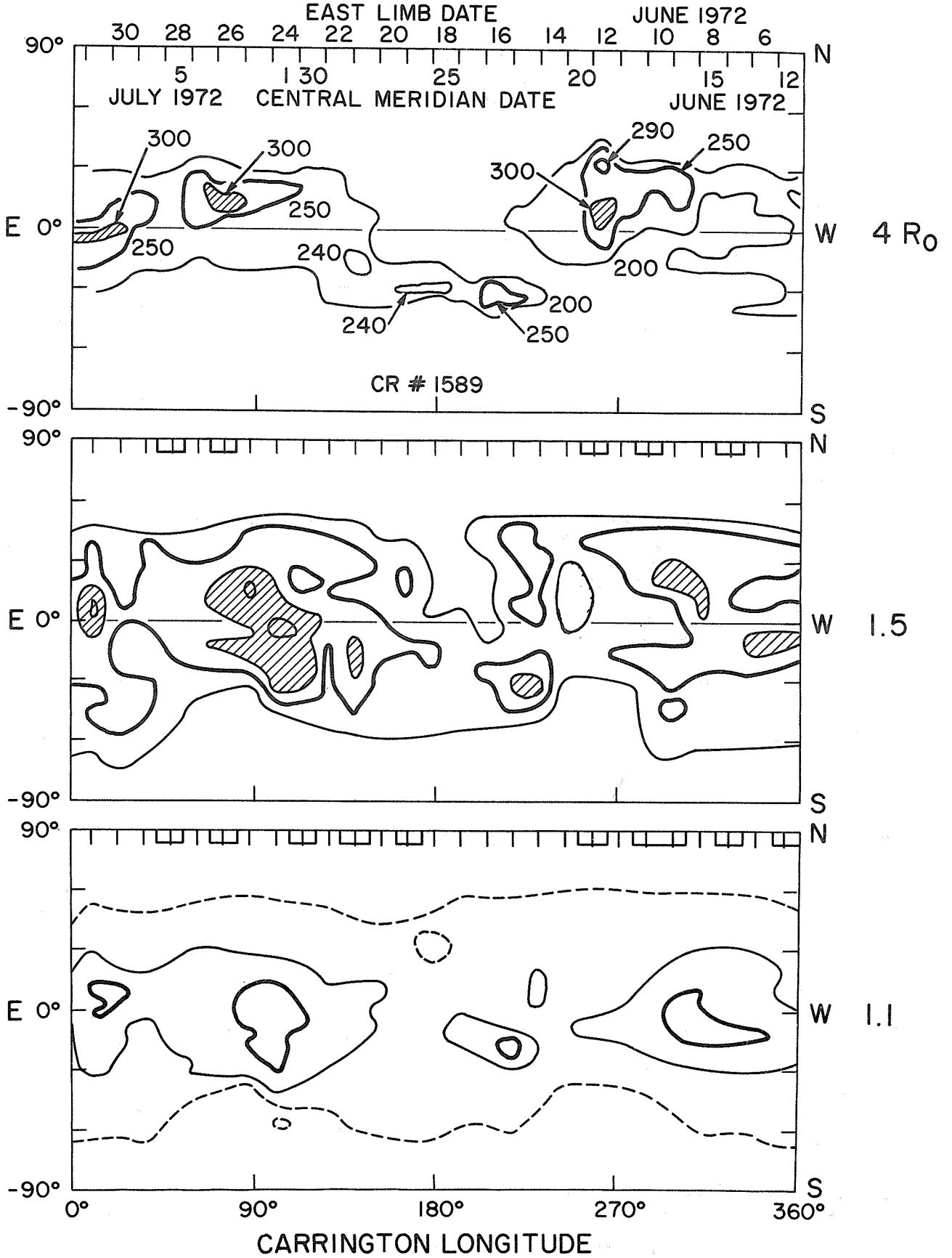

EAST LIMB DATE
FEB 1972
JAN 1972
16 14 12 10 8 6 4 2 30 28 26 24 22
20 15 10 5 1 30 28
CENTRAL MERIDIAN DATE
FEB 1972
JAN 1972
90°
E 0°
-90°
N
W
S
4 R_0
230
250
200
240
LIMITED DATA
300
CR #1584
1.5
1.1
0°
90°
180°
270°
360°
CARRINGTON LONGITUDE

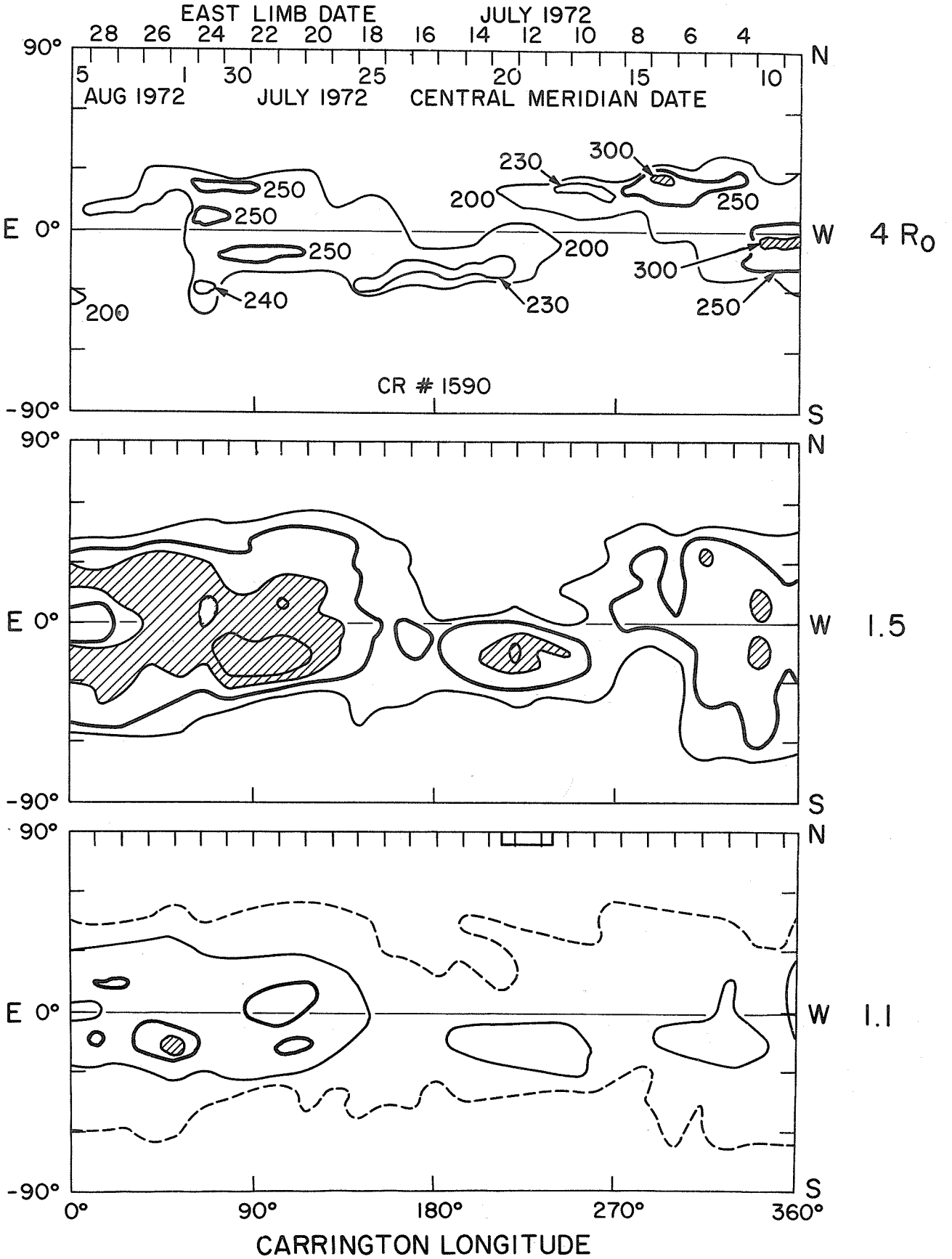

MAR 1972
EAST LIMB DATE
FEB 1972
14 12 10 8 6 4 2 28 26 24 22 20 18
20 15 10 5 1 25
CENTRAL MERIDIAN DATE
MAR 1972
FEB 1972
90°
N
E 0°
W
-90°
S
LIMITED DATA
300
250
200
185
290
250
200
200
HOLE
CR # 1585
4 R0
1.5
1.1
0°
90°
180°
270°
360°
CARRINGTON LONGITUDE

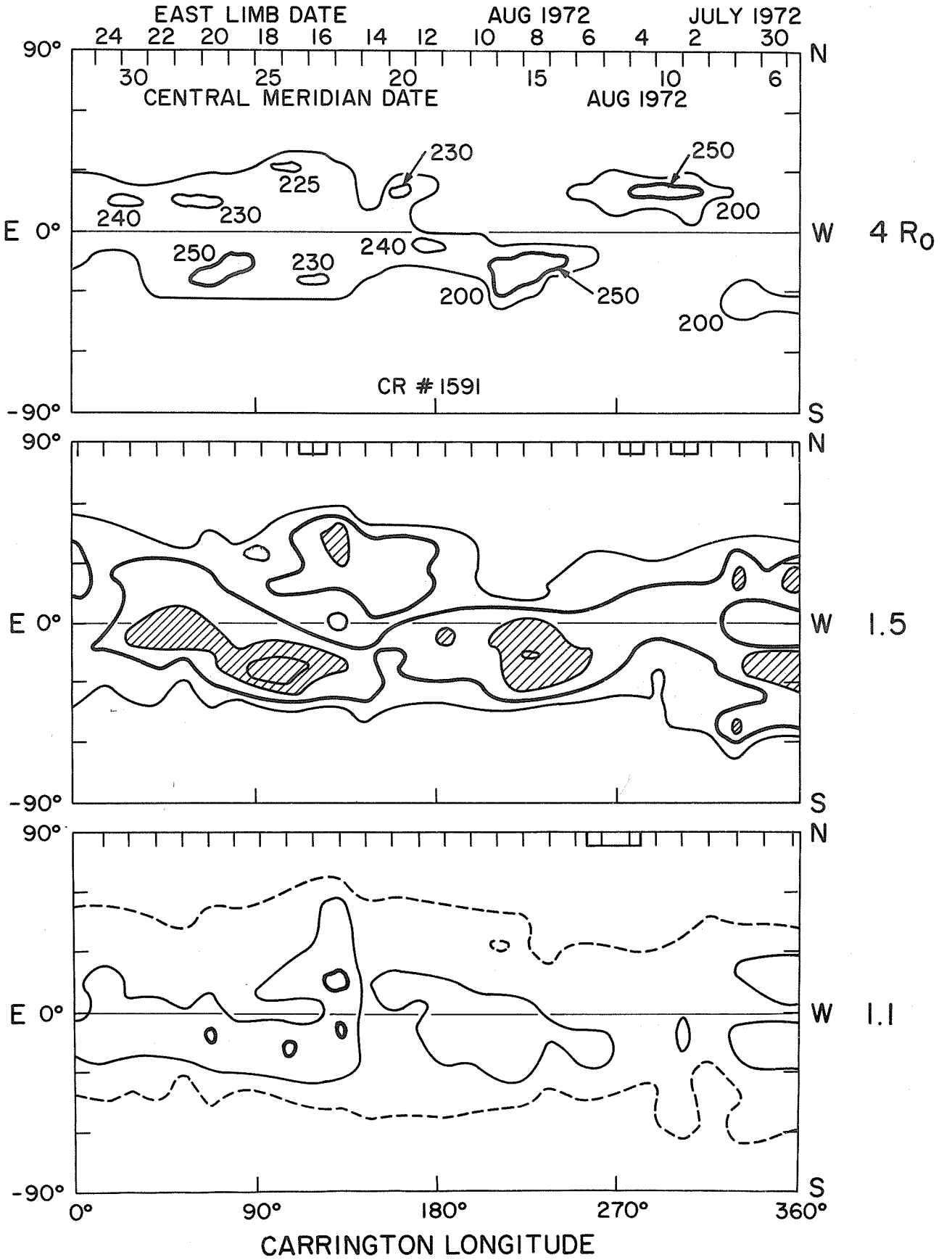

APRIL 1972
EAST LIMB DATE
MARCH 1972
10 8 6 4 2 30 28 26 24 22 20 18 16
15 10 5 1 30 25
CENTRAL MERIDIAN DATE
APRIL 1972
MARCH 1972
90°
E 0°
-90°
N
W
S
250
250
250
250
250
200
200
200
200
220
240
230
300
CR # 1586
4 R0
1.5
1.1
0°
90°
180°
270°
360°
CARRINGTON LONGITUDE

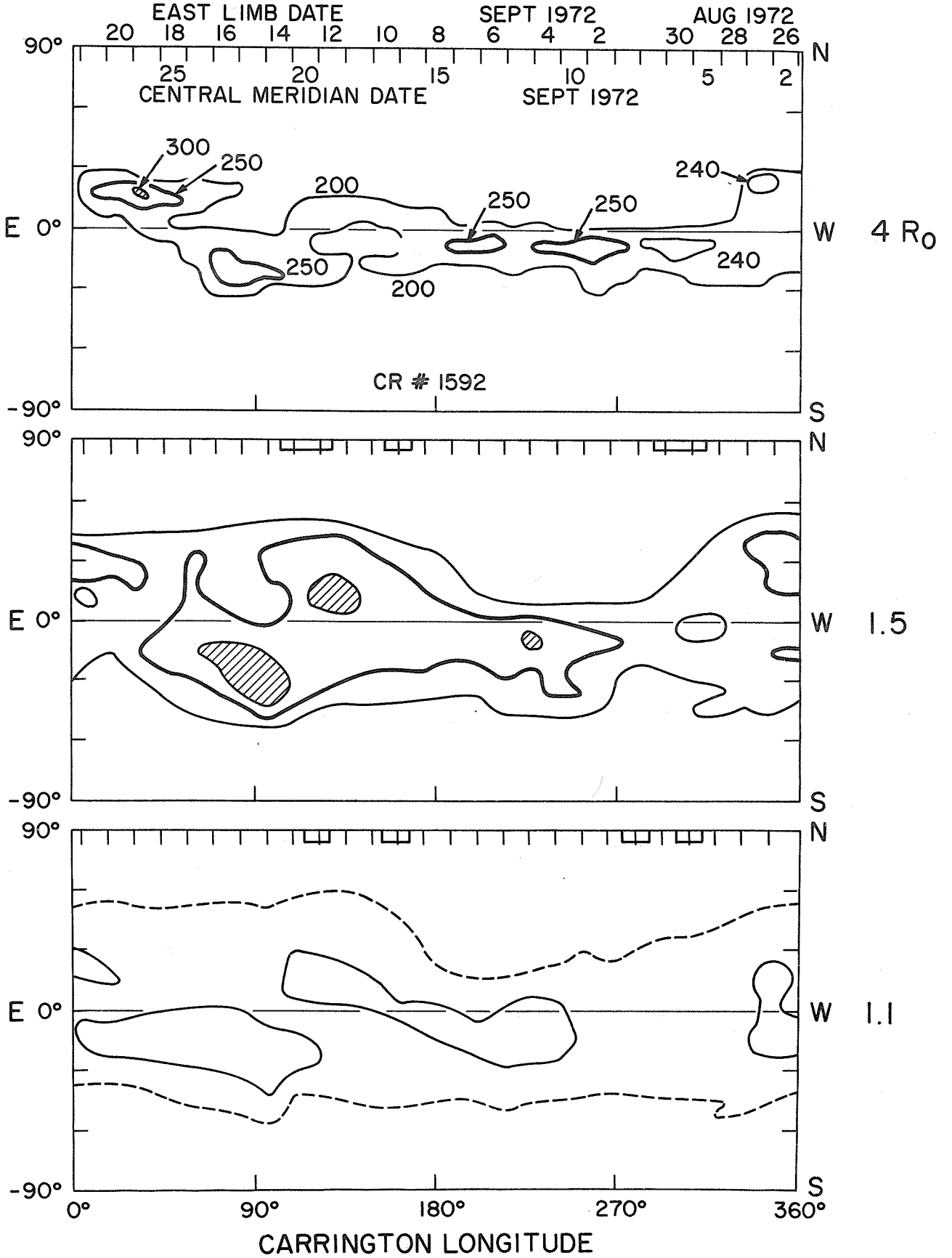

MAY 1972
EAST LIMB DATE
APRIL 1972
8 6 4 2 30 28 26 24 22 20 18 16 14 12
15 10 5 1 30 25 20
MAY 1972 CENTRAL MERIDIAN DATE
APRIL 1972
90°
E 0°
-90°
N
W
S
4 R0
250
250
200
230
250
300
250
230
250
200
200
180
CR # 1587
1.5
1.1
0°
90°
180°
270°
360°
CARRINGTON LONGITUDE

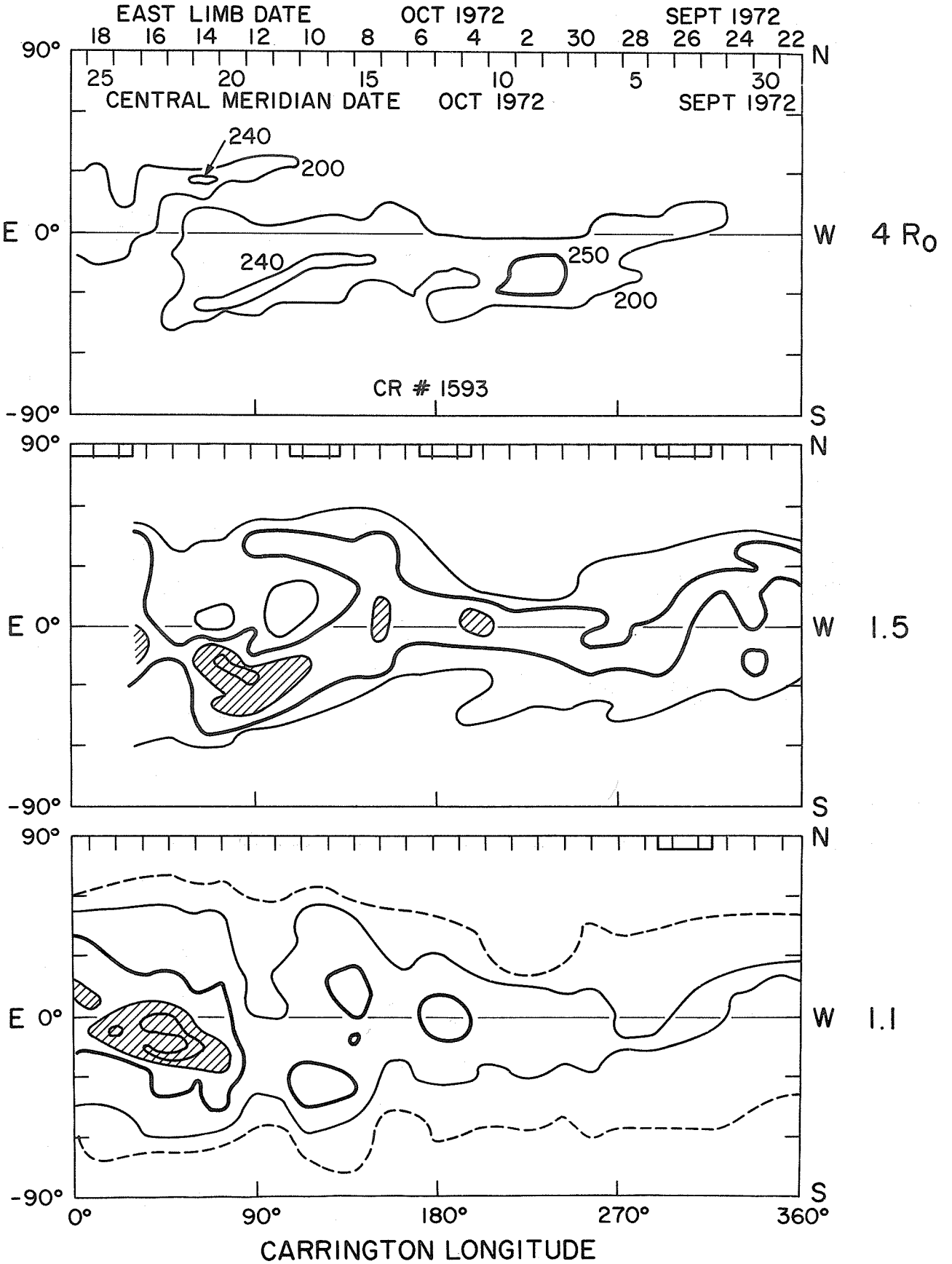

JUNE 1972
EAST LIMB DATE
MAY 1972
4 2 30 28 26 24 22 20 18 16 14 12 10
10 5 1 30 25 20 16
JUNE 1972
CENTRAL MERIDIAN DATE
MAY 1972
90°
E 0°
-90°
N
W
S
4 R0
200
240
230
250
300
150
CR # 1588
1.5
1.1
0°
90°
180°
270°
360°
CARRINGTON LONGITUDE

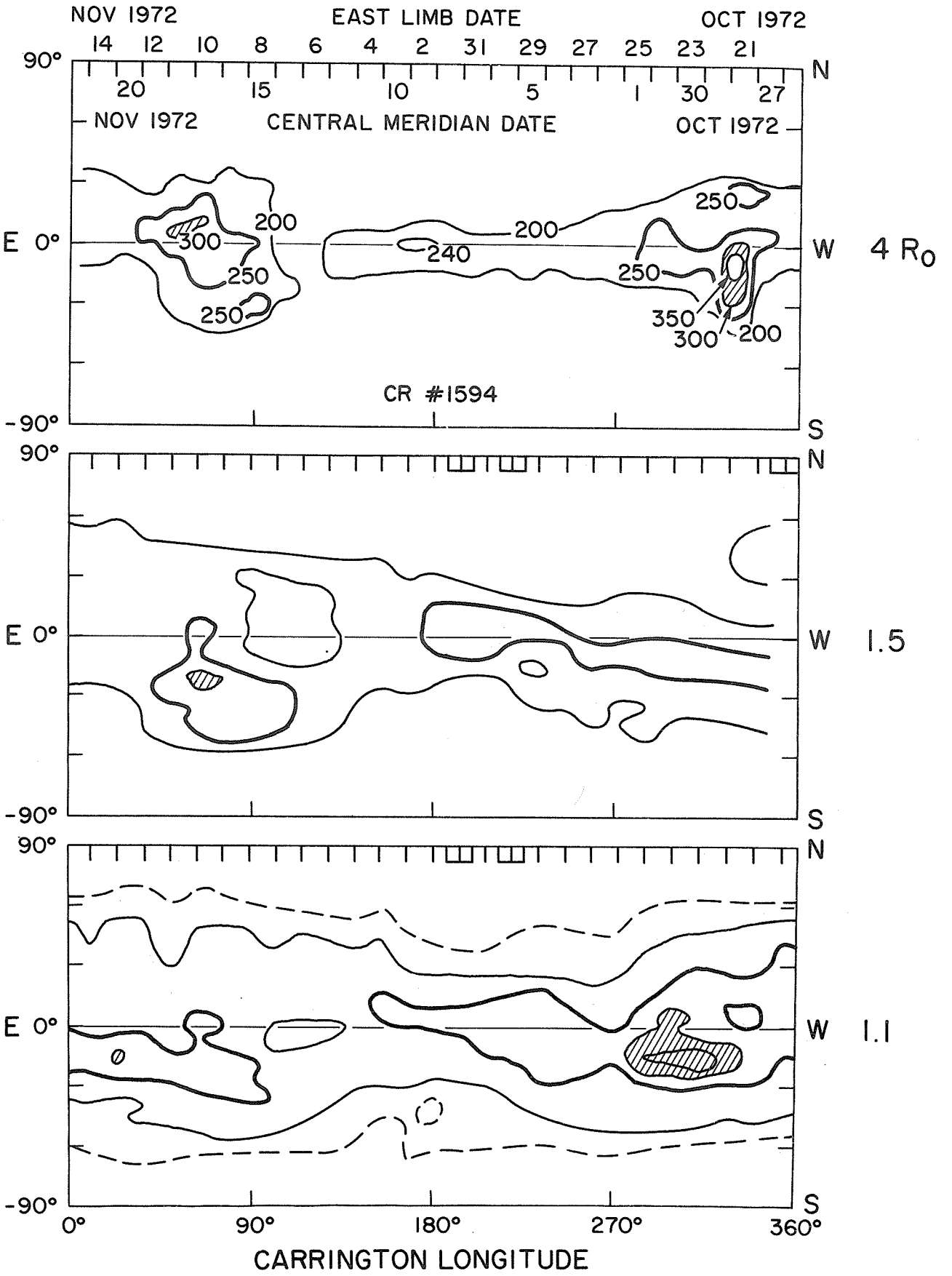

EAST LIMB DATE
JUNE 1972
30 28 26 24 22 20 18 16 14 12 10 8 6
5 1 30 25 20 15 12
JULY 1972
CENTRAL MERIDIAN DATE
JUNE 1972
90°
N
E 0°
W
-90°
S
300
300
250
250
240
240
300
290
250
200
200
250
CR # 1589
4 R0
1.5
1.1
0°
90°
180°
270°
360°
CARRINGTON LONGITUDE

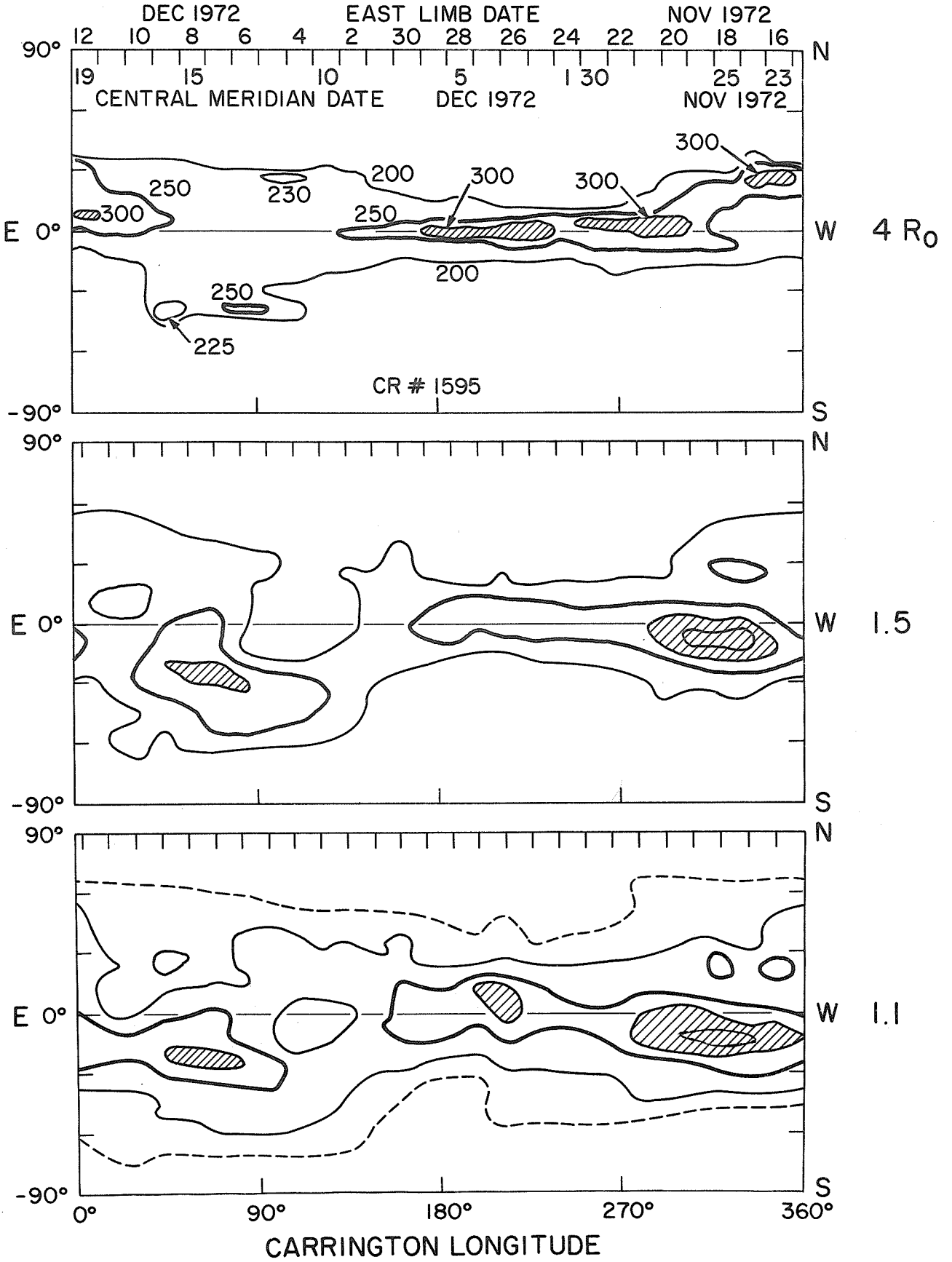

EAST LIMB DATE
JULY 1972
28 26 24 22 20 18 16 14 12 10 8 6 4
5 1 30 25 20 15 10
AUG 1972
JULY 1972
CENTRAL MERIDIAN DATE
90°
E 0°
-90°
N
W
S
4 R0
250
250
250
240
200
230
200
230
300
250
200
300
250
CR # 1590
1.5
1.1
0°
90°
180°
270°
360°
CARRINGTON LONGITUDE

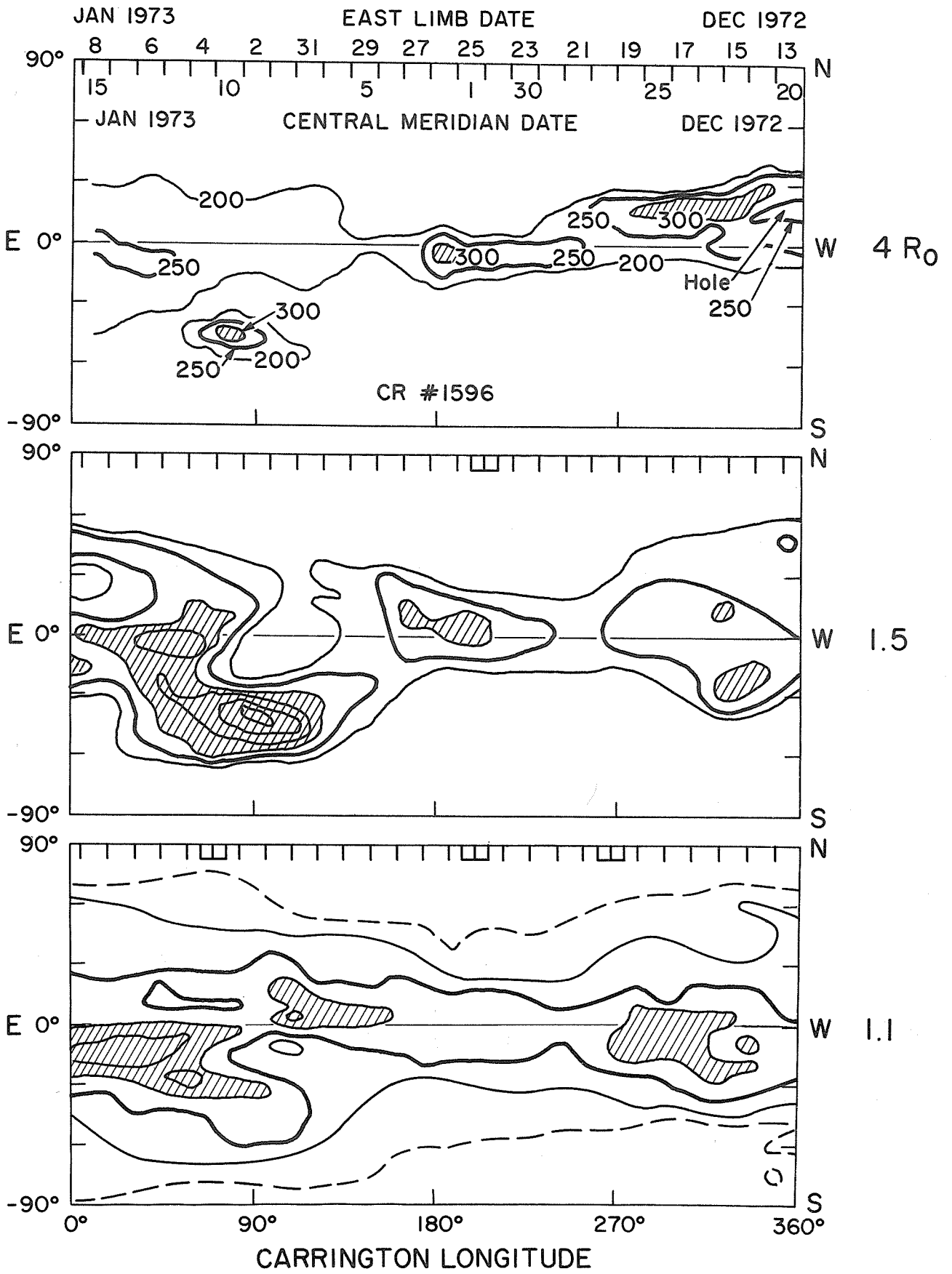

EAST LIMB DATE
AUG 1972
JULY 1972
24 22 20 18 16 14 12 10 8 6 4 2 30
30 25 20 15 10 6
CENTRAL MERIDIAN DATE
AUG 1972
90°
E 0°
-90°
N
W
S
4 R0
230
250
225
240
230
200
240
250
230
200
250
200
CR # 1591
1.5
1.1
0°
90°
180°
270°
360°
CARRINGTON LONGITUDE


EAST LIMB DATE
SEPT 1972
AUG 1972
20 18 16 14 12 10 8 6 4 2 30 28 26
25 20 15 10 5 2
CENTRAL MERIDIAN DATE
SEPT 1972
90°
N
E 0°
W
-90°
S
300
250
200
250
250
240
250
200
240
CR # 1592
4 R0
1.5
1.1
0°
90°
180°
270°
360°
CARRINGTON LONGITUDE

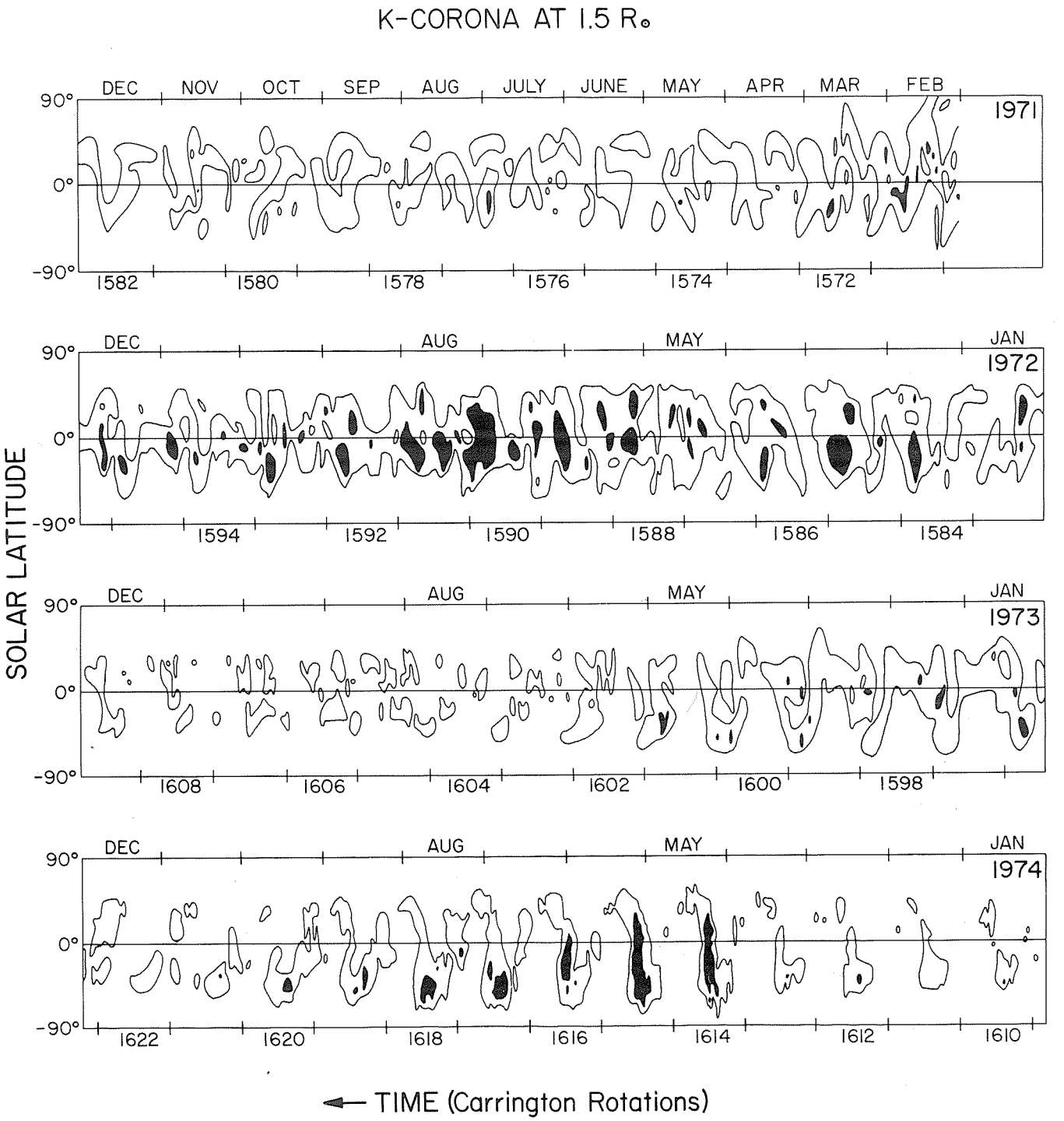

EAST LIMB DATE
OCT 1972
SEPT 1972
18 16 14 12 10 8 6 4 2 30 28 26 24 22
25 20 15 10 5 30
CENTRAL MERIDIAN DATE
OCT 1972
SEPT 1972
90°
E 0°
-90°
N
W
S
240
200
240
250
200
CR # 1593
4 R0
1.5
1.1
0° 90° 180° 270° 360°
CARRINGTON LONGITUDE


NOV 1972
EAST LIMB DATE
OCT 1972
14 12 10 8 6 4 2 31 29 27 25 23 21
20 15 10 5 1 30 27
NOV 1972
CENTRAL MERIDIAN DATE
OCT 1972
90°
E 0°
-90°
N
W
S
4 R0
200
300
250
250
200
240
250
250
350
300
200
CR #1594
1.5
1.1
0°
90°
180°
270°
360°
CARRINGTON LONGITUDE


DEC 1972
EAST LIMB DATE
NOV 1972
12 10 8 6 4 2 30 28 26 24 22 20 18 16
19 15 10 5 1 30 25 23
CENTRAL MERIDIAN DATE
DEC 1972
NOV 1972
90°
E 0°
-90°
N
W
S
4 R0
300
250
230
200
300
300
300
250
200
250
225
CR # 1595
1.5
1.1
0°
90°
180°
270°
360°
CARRINGTON LONGITUDE


JAN 1973
EAST LIMB DATE
DEC 1972
8 6 4 2 31 29 27 25 23 21 19 17 15 13
15 10 5 1 30 25 20
JAN 1973
CENTRAL MERIDIAN DATE
DEC 1972
90°
E 0°
-90°
N
W
S
4 R0
200
250
300
Hole
CR #1596
1.5
1.1
0°
90°
180°
270°
360°
CARRINGTON LONGITUDE

4. Compressed Synoptic Maps of the Corona at 1.5 (Mauna Loa) Solar Radii



5. White Light Coronal Transient Events

(11 Oct. 1971 - 15 Jan. 1973)

(Flare-associated events denoted by * after date)

18 Nov. 1971*	-	Image at 2044 UT shows normal corona. 2350 UT image shows sharp spike 50° SE. No visible flare, but indications of activity behind E limb at Carrington longitude 100°.
14 Dec. 1971*	-	Streamer at 40° SE is in process of dissolution at 0239 UT. Images at 0407 UT show outward moving clouds between 0° E and 40° SE. Possibly associated with flare behind E limb, perhaps in McMath Region 11657 at S10°, 3 days behind limb.
21 Jan. 1972	-	Looks like a transient at 30° SE at 0823 UT but probably fast evolution. Time coverage is poor.
8 Feb. 1972	-	Outward moving blob with loop; leading edge at 4 $R_\odot$ at 2111 UT. Prominence at 40° NE, which lifted off at 1700 UT. Blob disappeared from field at 10 $R_\odot$ at 9 Feb., 0018 UT.
17 Feb. 1972*	-	(Rearrangement of inner white light coronal structures observed at Mauna Loa accompanied by green line coronal whip observed at Sacramento Peak Observatory, interpreted as transfer of coronal material from one structure to another, possibly due to coronal reconnection [Wagner *et al.*, 1974]. Probably related to flare beyond E limb. OSO-7 not observing.)
12 June 1972*	-	Brightening of entire E corona recorded 1447 UT, 20° S - 48° N; probably related to flare in McMath 11926, S12 E50.
16 June 1972*	-	Streamer in SE explosively enhanced ∿1900 UT at 30° S, with concomitant coronal depletion at low coronal heights observed at Mauna Loa [Koomen *et al.*, 1974]. Possibly related to filament-channel flare between McMath Regions 11928 and 11930 on E limb.
27 June 1972	-	Brightening and broadening of large area between 8° - 35° NE; 2224 UT 26 June through 0303 UT 27 June. Nothing known.
21 July 1972	-	Curved streamer in East, shows only in 1039 UT image.
24 July 1972	-	Massive brightening all over East limb, 37° N - 40° S, in 0817 UT image. Nothing known.
31 July 1972	-	Broadening of SE streamer, 23° S, beginning in 0548 UT image, and still present at 0854 UT. Apparently associated with bifurcation of large-scale coronal structure at low heights, from Mauna Loa observations of coronal depletion between 30/31 July.
2 Aug. 1972*	-	NE fan brightening and broadening, 0-25° N, 0413 - 0718 UT, associated with flaring region 331 in McMath 11976.
7-8 Aug. 1972*	-	Brightening and broadening of SE streamer 5-20° S, opposite flaring region 331. Streamer disappeared between 2323 UT 9 Aug. and 2235 UT 10 Aug.
12 Aug. 1972*	-	Beautiful flare spray photographed to 2 $R_\odot$ by Mauna Loa, 2020-2235 UT, followed by depletion in lower corona accompanied by Type IV Radio bursts, described by Riddle *et al.*, [1974]. NRL recorded subsequent brightening of NE streamer (opposite limb) at 0004 UT on 13 Aug., possibly unrelated. Streamer gone day later, 14 Aug. at 0049 UT.
16 Sep. 1972	-	SE streamer brightened and broadened (8-25° S), 15 Sep. 0550 UT to 16 Sep. 1549 UT. Disappeared between 16 Sep. 1549 UT and 17 Sep. 0411 UT. Seemed to be fast evolution.
23 Sep. 1972*	-	Large loop in East, 0700 UT, probably related to flare at N08 E70 0308-0318 UT.

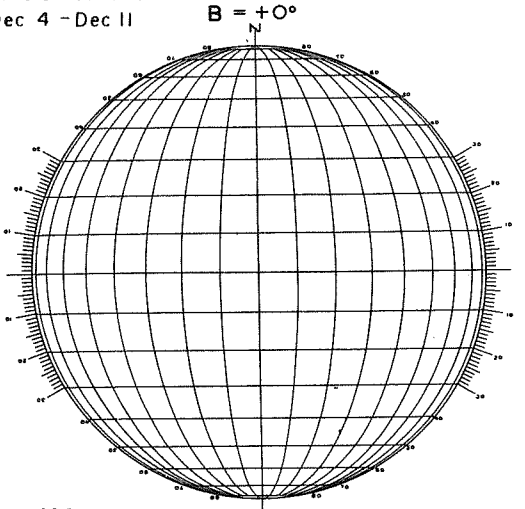
13 Oct. 1972	-	Suggestion of large loop in NE, 0727 UT image.
17 Oct. 1972	-	Bright polar streamer in S. No transient but very unusual.
21 Oct. 1972	-	Brightening of SE corona sometime after 1517 UT. Last seen 2218 UT. Gone 1133 UT 22 Oct.
1 Nov. 1972	-	Intense NW streamer, brightening and fading within a few days. No transient but fast evolution.
26 Nov. 1972	-	Broadening of eastern streamer. No transient, fast evolution.
22-26 Dec. 1972	-	Long bright streamer in E which broadened appreciably on 26 Dec. The same streamer behaved in much the same way one rotation earlier on 26 Nov.
9-13 Jan. 1973*	-	Very quick changes in NE streamer. On 11 Jan. flare sprays were photographed at Mauna Loa originating at approximately 10°N on the West limb at 0036 UT and 1800 UT. Both were followed by depletions in the lower corona observed by HAO at Mauna Loa, and outward moving coronal clouds observed by NRL from OSO-7. Detailed study of these events by Stewart *et al.*, [1974a and b].

APPENDIX: Stonyhurst Disks for Use with XUV Pictures

DEGREES FROM CENTRAL MERIDIAN

June 3 - June 10
Dec 4 - Dec 11

B = +0°

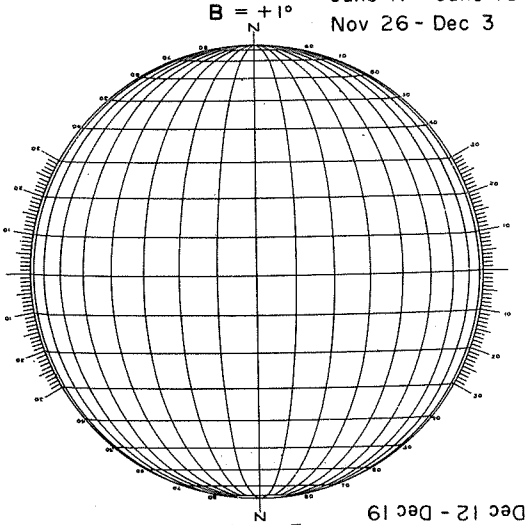


B = −0°

June 3 - June 10
Dec 4 - Dec 11

June 11 - June 18
Nov 26 - Dec 3

B = +1°

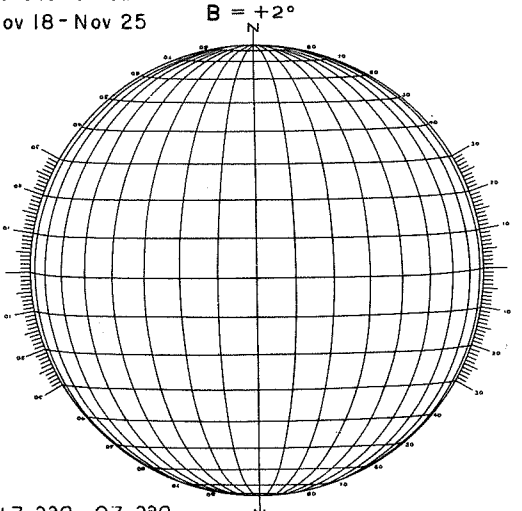


B = −1°

May 25 - June 2
Dec 12 - Dec 19

June 19 - June 27
Nov 18 - Nov 25

B = +2°

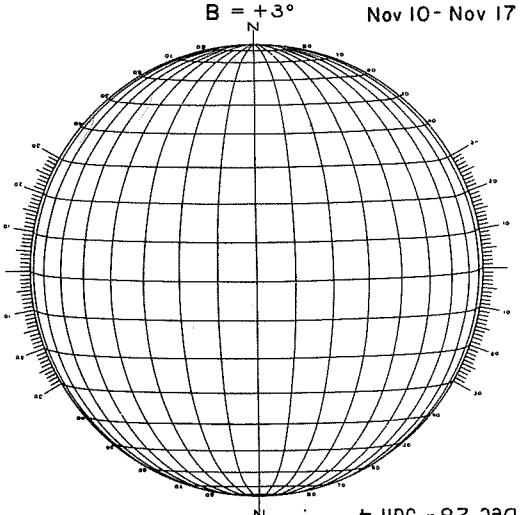


B = −2°

May 17 - May 24
Dec 20 - Dec 27

June 28 - July 6
Nov 10 - Nov 17

B = +3°



B = −3°

May 8 - May 16
Dec 28 - Jan 4

July 7 - July 16
Oct 31 - Nov 9

B = +4°

B = −4°

Apr 28 - May 7
Jun 5 - Jun 14

July 17 - July 28
Oct 20 - Oct 30

B = +5°

B = −5°

Apr 17 - Apr 27
Jun 15 - Jun 24

July 29 - Aug 12
Oct 6 - Oct 19

B = +6°

B = −6°

Apr 2 - Apr 16
Jun 25 - Feb 8

Aug 13 - Oct 5

B = +7°

B = −7°

Feb 9 - Apr 1

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