HIGH ALTITUDE OBSERVATORY
OF THE
UNIVERSITY OF COLORADO

Observing Station:
CLIMAX, COLORADO

Research Center
NIVERSITY OF COLORADO
BOULDER, COLORADO

Please reply to:
HIGH ALTITUDE OBSERVATORY
CLIMAX, COLORADO

14 February 1961

THIS MONTH AT CLIMAX

JANUARY 1961

The big news from Climax this month, and the biggest in many, many months, is the development by Bob James and Dick Hansen of a new method of reading the coronal surveys. It consists of projecting an image of the coronal spectra on a screen and measuring the intensity of the emission line with a standard Ansco densitometer. The same is done with the standards on the film with the result that absolute coronal intensities can be computed readily. Tests on the system indicate some problems that need to be ironed out, but generally it appears to be a reliable method. Not only that, but it will make available on a daily fast-reporting basis absolute coronal values instead of the shaky preliminary values reported for years. By shifting all coronal reduction to Climax we should maintain better quality control on the spectra, and at the same time free up the microdensitometer for other reduction purposes. In short, it looks like we may have our cake and eat it too if all goes well. The new reduction program will take from two to five hours per day to reduce both red and green; so an additional man is being hired to handle the routine maintenance work around the site. We hope to have the new system in operation before too long.

It is developing into one of the driest winters on record, and along with this is an unusually high amount of coronal sky. For the amateur and professional meteorologists: Snow on the ground today, 26 inches; total for the year to date 93.7 inches. Last winter (a "normal" winter) the snow on the ground on 14 February was 48 inches, and the total fall to date was 173.4 inches. Sky time for January was 73 hours of Class I, 30 hours of Class II, 6 of Class III, and 2 of Class IV - this is roughly 45% of total available sky time for the month. Compare this with the 2¼ hours of coronal sky in January of 1960.

The coronagraph work stacks up this way for January:

Green Survey: 15 good, 3 partial. 5 of these were usable for the 1660 UT comparison.

Red Survey: 16 good, and 1 APR survey through cirrus.

Iron Series: 4 good, 1 no good.

Paschen Series: 1 good, 1 partial.

H_α and D_3 Spicules: 1 good, 1 partial.

Long Prominence: 2 good, 2 partial. This program has now been worked out completely, and one of the good sets was extremely interesting. It was taken on 31 January on a large quiescent at the east limb. The base of the prominence yielded a number of faint lines not usually present. The program covers from 5876 down to the Balmer limit and 7062.

Activity was very low for the month, so none of the active region programs was attempted. Some tests were run on the effect of the image rotator on transmission in the blue. Several electrical changes were made by Charlie Garcia during the month that added appreciably to the ease of operation of the instrument.

Dick Hansen reports that 3500 feet of film was taken by the Flare Patrol in January. Work continues on improving the image quality, and we now feel that a change to 5E film will possibly do the trick. Tests on 5E have produced some pictures of the sun that compare favorably with the best from other stations. A new scheme to determine the bandpass setting of the filter will be tried soon using a piece of lucite to carry light from the flare patrol to the coronagraph and down to the spectrograph. The calibration wedge used in the flare patrol has never been itself calibrated, and this will be done soon. The patrol continues to operate at 6 pictures per minute on 4E film until the order of 5E arrives - sometime around 1 April I would guess.

The big dome is still down for the door modification, but the bottom two doors are now operating. This is not enough to put the Coronameter in operation, but it would allow Gordon's work on Venus.

This about sums up January. Herb reports that the skiing is not too good, but the night-time sledding remains excellent. Only two serious accidents so far, and these were both inexperienced female drivers.

Keith