
Mauna Loa Solar Observatory Observer's Log

Mon May 30 16:41:59 GMT 2022

Year: 22 Doy: 150

Observer: mlso

WEATHER COMMENT: mcotter: Mon May 30 16:47:28 GMT 2022

Temp: 52.8f, Humidity: 11%, Pressure: 28.529in, Wind: 5mph from 123degs, Skies: The Sky to the east is scattered with Cirrus, Cirrostratus and Cirrocumulus clouds. The clouds stretch all across the eastern sky going toward to the south. There are additional Cirrocumulus in patches across various parts of the sky from Zenith stretching westward. The inversion layer is a blue gray color and is well below Haleakala on the horizon but above it the sky is a bit hazy. The sky is also a bit hazy at lower elevations with VOG, but not nearly as bad as it has been for the last couple of weeks. Light wind blowing from the east.

___end___

GENERAL COMMENT BY mcotter: Mon May 30 16:47:39 GMT 2022

Opened windows upstairs

___end___

GENERAL COMMENT BY mcotter: Mon May 30 16:47:46 GMT 2022

PM Blew off UCOMP 01

___end___

GENERAL COMMENT BY mcotter: Mon May 30 16:47:52 GMT 2022

PM Blew off Kcor 01

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GENERAL COMMENT BY mcotter: Mon May 30 16:49:35 GMT 2022

There are currentky too many clouds stretched across the sky toward the east to observe at this time. I am hoping that some of the clouds may burn off and dissipate as the morning progresses.

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Mon May 30 17:36:01 GMT 2022 Kcor Focus/alignment program exited

Mon May 30 17:54:45 GMT 2022 Kcor Focus/alignment program exited

KCOR COMMENT BY mcotter: Mon May 30 18:03:47 GMT 2022

Some of the clouds to the east have burned off and the sky appears to be "Bluer" in color, though I continue to see some clouds on the fringes of the Yawcam Preview image. I tried running Kcor a couple of times, but the sky remains much too bright. The first time I ran the Kcor Focus Routine the image for the parabola came out as straight line, top right to bottom left. I put the lens cover in and waited twenty minutes or so and tried again. I was able to get a parabola the second time I ran the focus routine, though not a great one. I tried running the Kcor Stand Alone Acquisition Controller but the Synoptic images came out much too bright to proceed. I'll give it another twenty minutes or so and try again.

___end___

KCOR COMMENT BY mcotter: Mon May 30 18:22:53 GMT 2022

I tried running Kcor again and though the Synoptic Images are a bit bright I am going to let it run and see how the Kcor NRGF Images turn out.

Kcor now observing.

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Mon May 30 18:23:45 GMT 2022 Running UCOMP Cookbook all_wavelength_coronal_flat.cbk line 0

Mon May 30 18:25:31 GMT 2022 Running UCOMP Cookbook all_wavelength_coronal_flat.cbk line 2

UCOMP COMMENT BY mcotter: Mon May 30 18:25:12 GMT 2022

Ucomp now observing.

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GENERAL COMMENT BY mcotter: Mon May 30 18:26:06 GMT 2022

The sky has improved from when I first started the instrument observing.

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Mon May 30 18:39:39 GMT 2022 Running UCOMP Cookbook all_wavelength_coronal.cbk line 0

Mon May 30 19:07:34 GMT 2022 Running UCOMP Cookbook all_wavelength_coronal.cbk line 0

WEATHER COMMENT: mcotter: Mon May 30 19:12:01 GMT 2022

The sky is brightening a bit at this time. I'll keep an eye on it and if it does get worse I will need to pause.

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Mon May 30 19:13:28 GMT 2022 UCOMP Paused for clouds

UCOMP COMMENT BY mcotter: Mon May 30 19:14:36 GMT 2022

Ucomp has been paused due to brightening skies.

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KCOR COMMENT BY mcotter: Mon May 30 19:15:07 GMT 2022

Kcor has been stopped due to brightening skies.

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WEATHER COMMENT: mcotter: Mon May 30 19:24:09 GMT 2022

I just went outside and long wisps of high altitude Cirrus is beginning to stretch across the sky from southeast going westward. Our observation may have been short lived if the Cirrus gets thicker.

I will continue to monitor the skies closely.

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GENERAL COMMENT BY mcotter: Mon May 30 22:22:14 GMT 2022

Today has started out with scattered upper level clouds on the eastern horizon with small infrequent gaps in the cloud coverage. I have attempted to observe several times, starting and then stopping, as sky conditions develop and change. I want to take this opportunity to explain and note the different sky conditions I typically encounter and the criteria I apply and use in order to make a judgment call on when to observe, pause, or stop.

Typically, I start my day by visually scanning the skies to see if there are any clouds present in the vicinity of the Sun (as well as general sky conditions). I will attempt to mask the Sun, with my hand out at arms length in front of my eyes, and determine if the sky appears overly bright around the Sun, or in general. When I start the Kcor Focus Routine program I am presented with two images on the GUI screen. They are mirror images of each other and there is a round dark (black) circle in the center of the image showing the Occulter disk shadow. Ideally, the background behind the Occulter disk will be very dark (almost black) with a bright thin ring circling around the Occulter disk, which is the Corona of the Sun. The background is not always dark and can appear an infinite amount of shades of gray until the background is bright and white. There are times when the background appears a bright gray in color but the Coronal ring is still present and appears bright and well defined. If the background image in the focus routine appears a little bright, but a coronal ring is still observable, I consider this to be an acceptable threshold to go forward. I will initiate an Auto-focus command and try to obtain an image of a parabola, which shows the averages of the automatic focus. Sometime when the sky is bright as described the parabola will not come out very well shaped, but as long as the shape is somewhat of a parabola (even a "V" shape is acceptable) I will continue onto the Kcor-Stand Alone Image Acquisition Controller program and see what the Synoptic Images look like. There are eight images, two rows of four images side by side together and they are mirror image of each other. These images will typically come up within ten to fifteen seconds and show a round dark (black) circle in the center of the Occulter disk. Again, like the focus routine images, ideally a nice clear, crisp and bright Corona ring should be around the Occulter disk, with the background being very dark up to many shades of gray from dark to light with eventually a white background. If the Synoptic Images appear acceptable (a well defined Coronal ring around the Occulter disk with a background between dark (black) and somewhere in the light gray color I will allow the Kcor-Stand Alone Image Acquisition Controller program to continue to run until The Kcor NRGF Images begin to appear (after approximately ten minutes or so). The quality of Kcor NRGF images, I feel, are the ultimate arbiter of whether to proceed with observing. If these images appear relatively well defined, not too much graininess and shadows then I continue to observe with the Kcor Instrument.

There are several steps in order to observe and each step is accomplished with a level of objective tolerance. There are times when running the focus routine that the background may appear a gray-white color and the Coronal ring is not distinguishable, but the brightness of the background is not overly bright and is not saturating the Occulter disk with light. At these times I will check the image of the Yawcam Preview Camera (the Yawcam Preview Camera is mounted on the Spar and looks out toward the sky allowing the operator to see what the instrument(s) see). If the sky appears blue(ish), without the presence of clouds, I will run the focus routine, obtain the best parabola I can obtain and go onto Kcor-Stand Alone Acquisition Controller program so that I may observe how the synoptic images appear. I find the synoptic images to be the best indicator whether observations can take place. If the synoptic images look acceptable I know with a fair degree of certainty that the Kcor NRGF images will be acceptable.

While I am observing I pay most attention to the synoptic images and the Yawcam Preview images as I scan across the various monitor. Additionally I periodically go outside and scan the sky by eye. The first indicator that seeing conditions are getting poorer will be the Yawcam image, followed within seconds by the Synoptic Images. A brightening o

f the sky, or incoming clouds, can be immediately observed in the Yawcam image. When this happens the Synoptic images typically react in one of two ways.

1) The Synoptic images may begin to brighten in the background, going from a dark background, through many shades of gray, to eventually becoming white or bright white, where the background brightness saturates into the Occulter disk shadow. If the background begins to lighten I will focus on the coronal ring and observe if the coronal ring is staying intact and relatively sharp, well defined and is not bleeding out away from the Occulter disk shadow. As long as the coronal ring remains relatively well defined and is not getting distorted I will continue to observe with the instrument. If the background continues to brighten, eventually I find it does affect the integrity of the Coronal ring and the ring will become less defined and will fade into the background. At this time observations are paused and the Kcor-Stand Alone Acquisition Controller is stopped and the Lens Cover is put into the Beam.

2) The other reaction I find when the sky begins to look bright in the Yawcam Preview Image (or by eye) is that the brightening effect of the Synoptic Images begins with the Coronal ring itself. The general background may stay consistent or brighten a little bit, but the Coronal ring will begin to grow brighter and brighter until it eventually it begins to grow in size and it becomes wider as it saturates outward away from the Occulter disk shadow. When this happens I will continue to observe only if the Coronal ring stays relatively well defined and maintains a relatively tight ring appearance around the Occulter disk shadow. As it grows bigger in diameter the Kcor NRGF images will later show less definition in the Corona region and the images will tend to look out of focus, flat looking, fuzzy and less defined. If the Synoptic Images show the appearance that at the Coronal ring is brightening, widening, becoming less defined and growing larger, I pause observations. The Kcor-Stand Alone Acquisition Controller is stopped and the Lens Cover is put into the Beam.

For all observation that I make with the Ucomp Instrument I rely upon and use the Kcor instrument as my lead indicator. If conditions are determined to be good and I am observing with the Kcor Instrument I observe with the Ucomp Instrument. If, by means of using the Kcor Instrument, as described, I determine that conditions are questionable or poor, I pause the Ucomp Instrument until I am satisfied that conditions are again acceptable by means of the Kcor Instrument.

I write this out so that Ben, Joan, Lisa and all others within our team understand how I am performing observation, operating the instruments and the criteria I have developed in order to best collect data. I want to ensure that I am performing the best observations possible and that my methods are in parallel with other observations being performed.

Operating the instruments and assessing the data images lends itself to be subjective to interpretation. After reading how I perform observation and accessing the final data I generate please let me know if there is anything that I may do to improve my methods for making observations. I would appreciate any feedback anyone may provide.

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GENERAL COMMENT BY mcotter: Mon May 30 22:28:06 GMT 2022

The day started out somewhat clear but there were some upper level Cirrus clouds present on the eastern horizon that delayed observations. There were also some upper level Cirrostratus clouds in the southern sky that stretched off to the west. I was hoping that the cloud coverage would burn off as the Sun rose, and it did for a while, but the clouds that were present to the south and west continued to increase and now the sky is completely overcast with Cirrostratus clouds.

Other than a brief period of observations this morning when some of the cloud coverage burned off, no further observations today.

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ONSITE STAFF: mcotter