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## Mauna Loa Solar Observatory Observer's Log

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Sun Mar 5 17:02:40 GMT 2000

Year: 00 Doy: 065 Observer: koon

WEATHER COMMENT: Sun Mar 5 17:02:42 GMT 2000 Clear sky, wind=5 mph from the South, temp=44 F.

alizing new tape

Sun Mar 5 17:08:12 GMT 2000 MKIV Start Patrol

Sun Mar 5 17:08:21 GMT 2000 CHIP CHIP Start 7 Passband Patrol Sun Mar 5 17:08:21 GMT 2000 CHIP CHIP Start 7 Passband Patrol

Sun Mar 5 18:00:24 GMT 2000 PICS Flat Sun Mar 5 18:03:10 GMT 2000 PICS End Flat \*\*\*\* EVENT COMMENT \*\*\*\*: Sun Mar 5 18:13:39 GMT 2000

There is what appears to be the remnants of a huge EPL falling back to the sun at PA=350. PICS shows it extending out to about RV=1.7, and MkIV shows it extending out to past RV=2.0 ! It has been in progress since the start of observations, I already sent out an alert even though no CME was seen.

COMMENT: Sun Mar 5 19:12:31 GMT 2000

Extended the dome slot.

 Sun Mar
 5
 20:02:38 GMT 2000
 CHIP
 Gain7

 Sun Mar
 5
 20:11:01 GMT 2000
 CHIP
 End Gain

 Sun Mar
 5
 20:11:21 GMT 2000
 CHIP
 Bias

 Sun Mar
 5
 20:12:29 GMT 2000
 CHIP
 End Bias

 \*\*PSPT PROBLEM\*\*: Sun Mar
 5
 22:06:11 GMT 2000

I've improved the "mirror oscillation fuzzy image" problem.

Eric and Haosheng have been discussing the values of output voltages used by the Fast Mirror and found on the Mirror Servo board. Building upon what they started I did some tests shortly after the 2100 UT image sequences ended, while the telescope was pointed near the sun but not under any servo loop controls I opened the dust cover and turned on the quider servo and the mirror servo to get normal Fast Mirror control going. I checked output voltages from the Mirror Servo board and found they were quite different from what Haosheng said they used to be, he said 5 to 7 volts and I was seeing -11 vdc, he may have meant -5 to -7 vdc, but anyway it was different and if I adjusted it to even -7 vdc then the oscillations would be even worse than they were. Giving up on this absolute value type approach I opened the side of the telescope and tapped the telescope to get the Fast Mirror to go unstable and start oscillating, which it did very easily. I changed the setting of the telephoto lens image sizer just before the quad cell to try to enlarge the image so that the light spill over the occulting disk was increased to the point that the "optical gain" of the guad cell would go down below the threshold that contributes to the oscillation instability. I found where that setting is and went a little beyond it to a physical stop in the ring, that's as big as the image will get without moving more optics. The

ring is marked with positions and taped down. I tried moving the quadcell xy-stage to its limits and couldn't get the mirror to oscillate even if I tapped on the telescope, I did this because many months ago I noticed that the oscillation occurred regularly in the flat field images at certain image positions (different quad cell stage positions), I was alerted to a problem with the flat fields by Randy and Kim back then and watched several full sequences to see the regular pattern. The output voltages were slightly different at different stage positions which is not ideal. As I wrote this I looked at the images occasionally and the only fuzzy image I saw was the last image shown in the large image window. So even at the limit of the telephoto lens oscillation might still occur, but it should be drastically better now, I'll have to watch an entire calibration sequence sometime to check. Why the voltages are different from Haosheng's values and the different voltage values at different quadcell stage extremes and that last fuzzy image seem to suggest that more adjustment can be done and something is degrading over time. The fact that unstable oscillations can't be induced anymore by tapping on the telescope shows that the active mirror function has been significantly improved. \*\*\*\* EVENT COMMENT \*\*\*\*: Sun Mar 5 22:33:22 GMT 2000 CME at PA=255, starting around 2220 UT. \*\*\*\* EVENT COMMENT \*\*\*\*: Sun Mar 5 22:38:25 GMT 2000 A EPL can be seen on PICS limb images at the same PA=255 area. \*\*PSPT PROBLEM\*\*: Sun Mar 5 23:01:41 GMT 2000 I ran an unscheduled data set to watch the images, only the red images were fuzzy, maybe all of the red images. A new clue. It would be good to watch how low the U2A and U2B voltages drop during a red image to see if it is different than for blue and Ca-K images, as well as watching a full calibration for quadcell stage position related fuzziness. COMMENT: Sun Mar 5 23:19:57 GMT 2000 Lost Spar guiding when Spar bumped the elevator in the dome. Moved elevator, repointed and reset guider. WEATHER COMMENT: Sun Mar 5 23:39:03 GMT 2000 Orographic clouds have moved in, I think the CME is done anyway. Sun Mar 5 23:39:40 GMT 2000 CHIP ending tape Sun Mar 5 23:39:49 GMT 2000 ending tape CHIP COMMENT: Sun Mar 5 23:53:48 GMT 2000 TAPES:

## TAPES:

MKIV: 00065 CHIP: C01064 PICS: P01683

LOWL: L00675 in drive #0

Sun Mar 5 23:55:00 GMT 2000 MkIV

17_08.rawmk4	18_25.rawmk4	19_51.rawmk4	21_09.rawmk4	22_26.rawmk4
17_11.rawmk4	18_28.rawmk4	19_55.rawmk4	21_12.rawmk4	22_29.rawmk4
17_14.rawmk4	18_31.rawmk4	19_58.rawmk4	21_15.rawmk4	22_32.rawmk4
17_17.rawmk4	18_34.rawmk4	20_00.rawmk4	21_18.rawmk4	22_35.rawmk4
17_20.rawmk4	18_37.rawmk4	20_03.rawmk4	21_21.rawmk4	22_38.rawmk4
17_23.rawmk4	18_40.rawmk4	20_06.rawmk4	21_24.rawmk4	22_41.rawmk4
17_26.rawmk4	18_43.rawmk4	20_09.rawmk4	21_26.rawmk4	22_44.rawmk4
17_29.rawmk4	18_46.rawmk4	20_12.rawmk4	21_29.rawmk4	22_47.rawmk4
17_32.rawmk4	18_49.rawmk4	20_15.rawmk4	21_32.rawmk4	22_49.rawmk4
17_34.rawmk4	18_51.rawmk4	20_18.rawmk4	21_35.rawmk4	22_52.rawmk4
17_37.rawmk4	18_54.rawmk4	20_21.rawmk4	21_38.rawmk4	22_55.rawmk4
17_40.rawmk4	18_57.rawmk4	20_24.rawmk4	21_41.rawmk4	22_58.rawmk4
17_43.rawmk4	19_00.rawmk4	20_27.rawmk4	21_44.rawmk4	23_01.rawmk4
17_46.rawmk4	19_03.rawmk4	20_30.rawmk4	21_47.rawmk4	23_04.rawmk4
17_49.rawmk4	19_06.rawmk4	20_33.rawmk4	21_50.rawmk4	23_07.rawmk4
17_52.rawmk4	19_09.rawmk4	20_36.rawmk4	21_53.rawmk4	23_10.rawmk4
17_55.rawmk4	19_12.rawmk4	20_39.rawmk4	21_56.rawmk4	23_13.rawmk4
17_58.rawmk4	19_15.rawmk4	20_42.rawmk4	21_59.rawmk4	23_16.rawmk4
18_01.rawmk4	19_18.rawmk4	20_45.rawmk4	22_02.rawmk4	23_19.rawmk4
18_04.rawmk4	19_21.rawmk4	20_48.rawmk4	22_05.rawmk4	23_22.rawmk4
18_07.rawmk4	19_24.rawmk4	20_51.rawmk4	22_08.rawmk4	23_25.rawmk4
18_10.rawmk4	19_27.rawmk4	20_54.rawmk4	22_11.rawmk4	23_28.rawmk4
18_13.rawmk4	19_30.rawmk4	20_57.rawmk4	22_14.rawmk4	23_31.rawmk4
18_16.rawmk4	19_33.rawmk4	21_00.rawmk4	22_17.rawmk4	c19_36.rawmk4
18_19.rawmk4	19_39.rawmk4	21_03.rawmk4	22_20.rawmk4	c19_42.rawmk4
18_22.rawmk4	19_45.rawmk4	21_06.rawmk4	22_23.rawmk4	c19_48.rawmk4