

2008 May 26

SL, MR, JB, MB

Gas cell measurements in the lab

$$w_{\text{no}} = 546.4 \text{ cm}^{-1}$$

/data/may08/test

cell.0001 slit = 260

.0002 slit = 240

 $w_{\text{no}} = 797 \text{ cm}^{-1}$ don't see anything, go to next w_{no} ...

$w_{\text{no}} = 1260.34 \text{ cm}^{-1}$

cell.0003 slit = 240

see one quite faint line here

.0004 slit = 220

no good, ended early

.0005 slit = 220

$w_{\text{no}} = 1656 \text{ cm}^{-1}$

cell.0006 slit = 80 4 pix slit

.0007 slit = 140 3 pix slit

went to $w_{\text{no}} = 1234 \text{ cm}^{-1}$ to look for detector "feature"
but saw nothingtry CO_2 in the gas cell @ $w_{\text{no}} = 740 \text{ cm}^{-1}$

cell.0008 slit = 240

.0009

.0010

.0011

.0012

slit = 220 } - both garbage, too quick on go button

~~slit = 220~~ slit = 220

slit = 260

Back to 1260 cm⁻¹. With blaze centered, line is easy. Gain = 50

cell cell.0013	slit = 260
.0014	240
15	220

Go to 833 cm⁻¹ for bias measurements.
Moved paraboloid to get a good gradient in illumination.

Start with bias at 3.8 V & step to 4.4 or more.

bias.0016	-3.8V	see fluctuations of 0.004 V
.0017	-3.84	
18	3.88	
19	3.92	
20	3.96	
21	4.00	
22	4.04	
23	4.08	
24	4.12	
25	4.16	
26	4.20	
27	4.24	
28	4.28	
29	4.32	
30	4.36	
31	4.40	
32	4.44	
33	4.48	
34	4.52	some saturated pixels

Adjust paraboloid to shift blaze to other side of center

35	-4.40 V
36	-4.20 V
37	-4.00 V
38	-3.80 V

Pip is 2.70 at 21:00

2008 May 28 UT

JL, MR, JB, AK, MB

best focus = -1.65

temp., TDB = 5.39

pup.1001 pupil image

wno0 = 816 cm^{-1}

go to Alpha Boo

aboo.1002 peaking throughout

.1003

wno0 = 587 cm^{-1} H₂ S(1)

aboo.1004 nsum=4

.1005 change nsum=8

.1006

go to Psyche, AST 16

psyche.1007 peaking throughout

go to Alpha Boo
wno0 = 1310 cm^{-1}

aboo.1008

.1009 int time = 2 sec, gain = 50, good at pair 5

go to Juno AST 3

wno0 = 744 cm^{-1} C₂H₂ R(5)

couldn't get a good signal - check focus

focus looks alright on Alpha Her

go to Alpha Her

changed focus to -1.75

aher.1010 peaking thru pair 10

go to AFG 2136

went to camera mode to find it.

10.6 W, 6.1 N, rough estimate of how far
had to move to see it centered on slit

10.6 W, 5.6 N - actual offsets

gl2136.1011 offset guiding, peaking thru pair 5
slight bounce in pair 11

.1012 nsum=8, seeing variation, slight bounce pr. 10

.1013

.1014 peaking a bit at start, bounce pr. 5

.1015

.1016

go to NML Cyg

nmleyg.1017 nsum=6, moved 1 pix N during pr. 7+8

.1018

wno0 = 779 cm^{-1}

nmleyg.1019 ended early

.1020 shifted paraboloid to see red

.1021

go to AFGL 2136

gl 2136.1022 nsum=6 moved up in slit 1 pix during pr. 4

.1023

.1024

.1025 accidentally aborted

.1026

.1027

.1028

.1029

.1030

go to AFGL 2591

gl 2591.1031 peaking thru pair 6

.1032

wno0 = 1310 cm^{-1}

gl 2591.1033 int time = 2 sec nsum = 4 peaking thru pr. 4

.1034

go to NML Cyg

nmlcyg.1035 int = 2 sec. nsum = 4

.1036

go to AFGL 2591

gl 2591.1037

.1038

~~2136.~~

go to AFGL 2136

gr 2136.1039

.1040

moved telescope shutter before .1041

.1041 telescope went crazy and ran away on about pair 9

~~about~~

~~about~~ ~~telescope~~

.1042 not sure what happened here, but do know it's garbage

after ~ 15 minutes, re-slewed, now back on it

.1043 moved up in slit during pair 9

lost guiding, everything after pair 8 is garbage

2008 May 29 UT

MR, AR, MB, KH, JL, JB

start focus at -1.6 since we liked -1.65 at start of night yesterday and temp. is warmer for our afternoon setup \Rightarrow less negative (we think)

$w_{\text{nod}} = 587 \text{ cm}^{-1}$, shifted to see blue w/ ~~echelle~~ echelle

*(209, 116) position of 587.1604 CO_2 line

went to camera mode to find it RA: 09:47:56.5

Dec: 13:17:00.3

set focus = -1.7 , went to $-1.9 + -1.3$
 \uparrow \leftarrow donut
 not donut

IRC + 10216

i.10216.2000

$n_{\text{sum}} = 4$, int time = 1 sec.

587.1604 CO_2 line @ (209, 116)

peaking throughout

seeing is poor

.2001

moved ~ 1 pix along slit before 2001 stopping after 3 pairs to change nod.

.2002

nod = 0 4.5N

2003

moved along slit between pairs 3+4

2004

moved $0.5''$ along slit before 2004

adjust echelle so non deskewed center of 587.1604 CO_2 line is at $x=212$ $y=93$

2005

2006

peaking through pair 7

2007

2008

go to $w_{\text{nod}} = 951$, C_2H_4

re-center blaze function

change focus to -1.6

i10216.2009 gain = 50, moving along slit, good at pair 4

increased nod before .2010

.2010

.2011 drifting along slit. Adjust

.2012

Adjust echelle to center on 946 cm^{-1} . 948.2635 cm^{-1} in 3rd order from bottom.

i10216.2013 peaking at start

.2014

.2015 moved up in slit during pair 6 by ~ 1 pixel

.2016 " " " " " pair 9 by ~ 1 pixel

$w_{no} = 954 \text{ cm}^{-1}$ C_2H_4

~~410~~ i10216.2017

.2018

.2019 moved up in slit by 1 pix before .2019

.2020 " " " " " " " before .2020

go back to $w_{no} = 951 \text{ cm}^{-1}$

i10216.2021

.2022 moved up on slit by 1 pix before .2022

.2023

.2024

go back to $w_{no} = 946 \text{ cm}^{-1}$, adjust paraboloid to change systematics
 947.7420 CO_2 , fourth from bottom

i10216.2025 peaking thru pair 9

.2026

Practicing scans. Go to α Boo

α Boo. 2027

Change to 952 cm^{-1} [SIV]

α Boo. 2028 (not great, but who cares).

May 29 cont'd

Go to NGC 6058 (PN) to scan something neat.

ngc6058.2029 scan parm: 1.5E steps
-20E offset
27 points

Didn't see S(IV) but see funny continuum source
in stare mode. Take a file w/ obsmode = stare

ngc6058.2030 looks like it was just dust on lens.

change focus to -1.8

On to AFGL 2136 in 815 cm^{-1} ($\text{NH}_3 \nu_2$ aP(6,K), 14NCO , H_2)
nsum=6, unod=16, gain=50. Start at AN=1.6

gl2136.2031 ± 300 signal
2032
2033 turn read down to 3"
2034
2035
2036

AFGL 2591 at the same setting had to go ^{2.50} 2.5" to find

gl2591.2037 ± 1000
• 2038
• 2039
• 2040

NML Cygni, same setting Offset $0.9'' \text{ E}$, $0.0'' \text{ N}$

nmlcyg.2041
• 2042

$\text{NH}_3 \nu_2$ Q-branch setting centered at $\sim 930 \text{ cm}^{-1}$

nmlcyg.2043
• 2044

Back to AFGL 2591 at the same setting
Had difficulty finding it so went to imaging mode, then back to 930 cm^{-1}

Found 2591 with offsets 3"1W 1"0S

g|2591.2045
 .2046
 .2047
 .2048

signal ± 80

gain = 12.5
 (by mistake)

.2049
 .2050
 .2051
 .2052
 .2053

moved lower shutter
 gain = 50 guiding a lot

Onwards and upwards to AF6L 2136 at the 930 cm^{-1} setting

g|2136.2054

Signal $\sim \pm 65$

ended after 2 pair to fix eckelle angle
 Don't use

.2055

Moved up on the slit ~ 2 pix during early pairs
 Good by pair 5

.2056

.2057

.2058

.2059

.2060

.2061

Peaked up E-W through pair 6

Bad - don't use

Guiding off after .2060 to adjust dome shutter
 Object lost on returning to autoguiding -
 ended after 8 pairs w/no object

Went to camera mode to find object

.2062

Manual guiding from here on
 Moved up in pair 6

.2063

Bad - don't use

.2064

Probably bad - UTIR crashed, no
 autoguiding, flying blind...

2008 May 30 UT JL, AK, JB, MB, TE

set up at 1235 cm⁻¹ for H₂O, H₂O₂, C₂H₄ on Mars

tried to focus on R Leo, couldn't find it
so start w/ focus = -1.6 (best we found yesterday)

mars. 3000 not starting far enough off

mars. 3001 now have offset -7, 0
step .5, 0 x 25

mars. 3002 do 8 scans
stop after 4 to correct guiding

mars. 3003 before starting, get more west guiding rate
current rate: 15.0277 W

mars. 3004 too much W rate try 15.0227
starting too far W

mars. 3005 guide 2" E before scan set

mars. 3006 do 8 scans since position looked
stable in .3005
end after 5 scans

mars. 3007 moved 1 arcsec south before starting

.3008 nscan = 4

.3009 nscan = 4

.3010 guide 1.5" E before starting scan

.3011 guide 1.0" E before starting scan
looks good

.3012 nscan = 8

.3013 guide 1.0" South before start, ~~1.0"~~ 0.5" E

.3014 guide 1.5" E before start

- mars .3015 move 1.5" S + 1.5" E before starting
 .3016
 .3017 move 2" S before start
 .3018 move 4" N before start w/ nscan=2 end early
 after 1 scan
 .3019 move 6" S before start, looks good N-S
 .3020 nscan=4, end after 3 scans
 .3021 change guide rate to .0074 S before .3021
 moved 1.5" S before starting
 end early after 2 scans
 .3022 move 3" E before start + 3" S, nscan=1
 that looks great
 .3023 ~~major~~ nscan=1
 .3024 moved 1.5" E before start
 .3025 move 1" E before start + 1" S
 .3026 move 2" S, 0.5" E before start
 stop after 2
 .3027 move 1.5" S before start nscan=2
 .3028 move 1.5" S before start 1" E
 .3029 1" E, 1" S before starting nscan=4
 sky variation in scan 3
 .3030 1" S before start, sky variation
 .3031 1" S, 1" W before start

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mars.3032 1.5" S before start

.3033 2" S before start

On to IRC+10216 for Cernicharo. Switched flat mode back to normal. First setting is centered at 1265 cm^{-1} . Seeing is not good right now.

i10216.3034 16 nod pairs

Next setting is at 1262 cm^{-1}

.3035 16 nod pairs; may be falling off slit

.3036 8 nod pairs. Changed nod throw to 2.5

Next setting is at 1259 cm^{-1}

.3037

Next setting is at 1256 cm^{-1} . This now takes us onto the CVF. Slit set to 60° , filter = 100.56.

.3038 Bad - don't use

.3039 Peaked E-W during early frames. Good by pair 5.

Next setting is at 1253 cm^{-1} . Did not take suggested filter move but made a 0.25° manual move to avoid having to re-peak on the CVF (should be faster, predicting filter movement rather than peaking). Filter = 100.74, same slit.

.3040

.3041

Next setting is at 1250 cm^{-1} . Filter = 100.98, same slit. Paused to raise lower dome shutter, reacquired object.

.3042 16 nod pairs to allow peaking early in 1 filter rather than taking two at 8 nod pairs. $N_{\text{sum}} = 3$.

Next setting is at 1247 cm^{-1} . Filter = 101.28. Same slit. Changed $n_{\text{sum}} = 4$, $n_{\text{nod}} = 12$.

ST

12:46 .3043

Next setting is at 1244 cm^{-1} . Filter = 101.58, same slit.

18:00 .3044

Next setting is at 1241 cm^{-1} . Filter = 102.06, same slit

22:55 .3045

Next setting is at 1238 cm^{-1} . Filter = 102.~~02~~⁰⁰, same slit

27:48 .3046

Next setting is at ~~1235~~¹²³⁸ cm^{-1} . Filter = 102.30, same slit
 ← appear to have gotten out of sync when number

33:06 .3047

Next setting is at ~~1232~~¹²³⁵ cm^{-1} . Filter = 102.54, same slit

.3048

Next setting is 1232 cm^{-1} . Filter = 102.78, same slit

3:51 .3049 AM = 1.96

Exceeded AM = 2 during this exposure, so moving on...
 Set up on [Ne II] at 780 cm^{-1} for Murray Campbell's program. Scanning

asco.3050 Nod throw = 4". Focus to -1.9. Telstep = 0.5" E, 0.0" N,
 offset = -5.0" E, 0.0" N, npts = 23 0.7"

.3051 Moved N by 2" before start of this scan

.3052 Focus back to -1.8.

Next object is IRAS 18247-1147

i18247.3053 npts = 15, otherwise same scan params as before
 nframe = 2

.3054 West rate to +.001. Ended after 2

UT 2008 MAY 30 cont'd

- i18247.3055 Moved a bit W before start to center up better.
 .3056 Moved $1.5''$ N before this file
 .3057 Moved another $1.5''$ N before this file and $1''$ W

Moving on to IRAS 18530+0215

- i18530.3058 npts=23
 .3059 Moved $1.5''$ W before this file, added another 001 W rate. Didn't get much sky by doing this... Stopped after 1 scan to make further adjustments. Moved $2''$ W before next file.
 .3060 Amount of sky at start of scan looks good.
 .3061
 .3062 Moved $1.5''$ N before this file
 .3063 Moved $5''$ N before this file - will be able to patch these and earlier data together later. Also moved $3''$ W to get some more sky at start.
 .3064
 .3065 Moved $1.5''$ W before this file
 .3066
 .3067 Moved $1.5''$ W before this file
 .3068 Moved $1.0''$ W before this file

Switched to nod mode to check reliability of tracking ~~is~~ here. Moved to $8.8''$ W. Noted $1''$ W drift in 6 min - added. .0027 W rate

- .3069 Saved one file here in nod mode after establishing that we liked the tracking

Changed setting to [Ar III] at 1112.2 cm^{-1}

i18530.3070 Not autoguiding during this file. Requested guiding after it ended

Back to the [Ne II] setting to confirm pointing, but did not make the suggested slit move. Orders overlapped here so we changed the slit length.

Had trouble starting autoguiding
Got it going and recentered on [Ne II] source

i18530.3071	should be on it, but not obvious	
3072	try 1" E of previous	
3073	another 1" E	pretty clearly there
3074	now 3" E	Setting weaker
3075	now 4" E	
3076	repeat at 4" E	
3077	back to 3" E	
3078	2" E	
3079	1" E	
3080	original position	
3081	1" W	
3082	again	

Go to 767 cm^{-1} and GC 2136 $\text{Nod} = 0'' \text{ E}, 3.5'' \text{ N}$
Found it with an offset of $3.1'' \text{ S}, 3.9'' \text{ E}$ then zeroed offsets

g12136.3083 Signal is ± 300 Lost object before start of this file by zeroing offsets while guiding
Found it again with an offset $2.8'' \text{ S}, 3.9'' \text{ E}$
Good after pair 8. $N_{\text{sum}} = 6$

• 3084	$N_{\text{sum}} = 8$
• 3085	
• 3086	signal coming up
• 3087	Lowered nod wait Lowered nod wait to 2.5
• 3088	
• 3089	Drifted off toward the S during this exposure

On to AFGL 2591 at the same setting

g12591.3090

UT 2008 MAY 30

g|2591.3091

.3092

.3093

Shifted echelle slightly to the red before this file

Changing settings here to 1236 cm^{-1} including HDO lines
Switched to $\text{itime} = 2 \text{ sec}$

g|2591.3094

g|2591.3095

complaints about chopper
flats may be tashed

2008 May 31 UT

JL, JB, AK, MB, TE

start focus at -1.6

set up at 1240 cm⁻¹ for H₂O₂ on Mars

offset -7E ON

tel step 0.5E ON

npoints 29

current track rates: 15.0187 W

0.0074 S

.4000 mars. 4000 does not have a mars flat! nscan = 1

.4001 nscan = 2, turned mars flats 8 on

.4002 nscan = 4 temp. = 9.31°C

.4003 nscan = 4 guiding seems ok for now

.4004 ~~we~~ put mirror in, moved 2.8" W to center on TV, adjusted rates. New rates: 15.0227 W .0074 S nscan = 4

.4005 at end of .4004, had remnant 0.4" E in offsets (due to our motions?) should have been 0" so, took it out before starting (i.e. guided 0.4" W)

bring in TV camera, ~~we~~ move by 1" N new guide rates: 15.0227 W .0061 S wrong way

.4006 mirror was still in, garbage

.4007 new guide rates: 15.0227 W 0.0085 S nscan = 2 move 2" S before starting

.4008 move by 2" E before starting + change East rates new guide rates 15.0214 W .0085 S (16:57)

.4009 move by 2" E before starting, add East rate new guide rates 15.201 W 0.0085 S

UT 2008 MAY 31 cont'd

mars. 4010 nscan = 4 move 2.5" E before start

new guide rates: 15.0196 W 0.0085 S
looks well-centered

.4011 looks ok E-W, N-S, just go again
nscan = 4

.4012 seems stable, try 8 scans
maybe not, end early after 1 scan
move 1.5" N before start

.4013 nscan = 2, make sure we're in good spot

.4014 move 1.5" N before start but don't change rate
for now

.4015 nscan = 4, ~~4015~~

.4016 nscan = 4, .4015 was in a nice spot according to pipe

.4017 nscan = 8, .4016 well-centered in pipe

going to move 2.5" E before next file
+ 0.5" N (but don't change rate in N)
new guide rates: 15.0189 W 0.0079 S

.4018 back to nscan = 4

move 1" E before starting

.4019 new guide rates: 15.0172 W 0.0079 S, nscan = 4

move 0.5" S before starting, leave rates alone (18:15)

.4020 nscan = 4

.4021 nscan = 4

move 2" W before start, leave rates for now
1" S " " " " " "

.4022 nscan = 4

move 2" S before start; new rates 15.0172 W 0.0109 S

.4023 nscan = 4

mars.4024 nscan = 4 gratings shift in scan 1

change to rates ~~15.018 W~~ 0.109 S
15.016 W

move 2" E + 2" N before start

.4025 nscan = 4

move 2" S before start

.4026 nscan = 4

.4027 nscan = 4, change rates back to 15.017 W
move 3" W before starting

.4028

move 1.5" W before start

.4029 new rates: 15.018 W 0.109 S
bounce in scan 4

.4030 nscan = 4

move 1.5" E before start

.4031 nscan = 4

go. to IRC +10216 for Cernicharo
change focus to -1.75

First setting is at 1232 cm^{-1} . Filter = 102.42

j10216.4032 Still on mars flats for this sequence

.4033 Nnod = 18, back to normal flats. Nsum = 3

HST Next setting is 1239 cm^{-1} . Filter = 102.66

0:14:36 i10216.4034 Nod throw = 0.8 E, 2.5 N

Next setting is 1226 cm^{-1} . Filter = 102.90

0:19:51 .4035

UT 2008 May 31 cont'd

HST Next setting is 1223 cm^{-1} . Filter = 103.14

20:25:26 i 10216.4036 Nnod = 12 Peaking in first ~ 3 to 4 pairs of each file
~~Peak~~ May be that seeing isn't so great...

Next setting is 1220 cm^{-1} . Filter = 103.50

20:29:30 .4037

Next setting is 1217 cm^{-1} . Filter = 103.80

20:34:00 (appx.) .4038 Nnod = 16. We're debating Nnod = 16 vs. 12
 given seeing conditions, settling on 16 for now

Next setting is 1214 cm^{-1} . Filter = 104.10

20:39:38 .4039 Nnod = 12

Next setting is 1211 cm^{-1} . Filter = —

~~.4040~~
 NO FILE
 TAKEN HERE.

Setup in next header suggested going from order 7 to 6 on the echelle and changing angle accordingly. (to $\sim 52^\circ$), or $\sim \Delta$ by 4.5° . Filter angle $\Delta = 0.26^\circ$ to 104.40° . That gave order overlap with suggested slit setting. Did slitlen - 1, slit $\rightarrow 120^\circ$, still had overlap. Apparent CVF light leak ($25 \mu\text{m}$ light leaking in).

Moving on past this questionable region of the CVF and on to a discrete filter. Lab tests earlier in the run suggest we will be okay there. The next setting is 1191 cm^{-1} , filter = 211.62° , slit = 120.06° , echelle angle 58.265 in 6^{th} order. On the edge of this filter with some fringing but that should improve as settings progress.

21:04:55 i 10216.4040 Nnod = 12, Nsum = 3. Seeing has improved. Peaked during first 8 pairs but we think all eight are useful.

Next setting is 1188 cm^{-1} . Filter = 216.48° , Slit = 240.06°
 Next header setup suggested going to a long slit (240°) but we rather decided to keep a short slit and go to the center of the filter.

HST

21:18:06 i10216.4041 Nnod=16, Nsum=3

Next setting is 1185 cm⁻¹. Filter=216.66° slit=239.94°

21:27:07 .4042 Nnod=16, Nsum=3

Next setting is 1182 cm⁻¹. Filter=216.66° Slit=240.00°

21:32:47 .4043

Engineering: looking for spikes in biases as a function of V-det for Andrew

bias.4044 V-det = -4.2V Can't see spiking on the Wallace
After this set filter Δ=0.3. Settled at 149.82

.4045 V-det = -4.2V

.4046 V-det = -4.15V

.4047 V-det = -4.10V

.4048 V-det = -4.05V

.4049 V-det = -4.00V

.4050 V-det = -3.95V

.4051 V-det = -3.90V

.4052 V-det = -3.85V

.4053 V-det = -3.80V

.4054 V-det = -3.75V

.4055 V-det = -3.65V Some weirdness in pair 10?
Set back to -4.0V after this file.Next on to Cenicharo's Galactic Center program; first
to asteroid (3) Juno for a divisor. Setting is (2Hz R(5,6) at

UT 2008 May 31 cont'd

approximately 744 cm^{-1} .

shifted paraboid to see blue

tried peaking on asteroid. It's not terribly bright

changed focus = -1.9

juno. 4056 see it in the diffrs $n_{\text{nod}}=16, n_{\text{sum}}=6$

• 4057

• 4058

• 4059

• 4060

• 4061

• 4062

going to SgrA IRS1 W, use

nod $5'' \text{ E } \odot \text{ N}$, nodding off slit

irslw. 4063 $N_{\text{sum}}=6, N_{\text{nod}}=16$
moved $.75'' \text{ N}$ during pair 4

• 4064

• 4065

• 4066

• 4067

• 4068

• 4069

see IRS 10 near top of slit
probably should try slit
to pick it up better

irs1w. 4070

.4071 Bounce pair 10

.4072

.4073

.4074

.4075

.4076

.4077

Juno didn't make for a very good divisor, so we're getting Jo at this setting.

io. 4078

Same parameters as Galactic Center files
Bounce pair 1, 2, 8 Sky variation pair 6, 10, 11, 13

.4079

Nod $0''.0$, $3''.0$ N. Bounce pair 7

.4080

Bad - don't use

.4081

Nod $0''.0$, $4''.0$ N Sky variation ~~same~~ pair 16
(Mirror went in by accident)

.4082

Variation pair 8

.4083

Moved slightly S before start of this file

.4084

.4085

Bumped S again slightly. CR hit(?) in pair 5.

.4086

Moved S again $\sim 1''$ before start of this file

.4087

Next we did IRAS 18247 for M. Campbell, starting on [Ne II] to find and center up on the source. Then changed to [Ar III] at 1112 cm^{-1} .

118427.4088	Nod $0.0'' \text{ E}$, $4.0'' \text{ N}$ - looks a little too long
.4089	Nod $0.0'' \text{ E}$, $3.0'' \text{ W}$
.4090	Went $0.7'' \text{ W}$ before start of this file
.4091	At same offset as previous file
.4092	Went $1.4'' \text{ E}$ before start of this file (or $0.7'' \text{ E}$ of the nominal starting position)
.4093	Same offset as previous file Signal seems weaker at this position
.4094	Back to nominal center (shifted $0.7'' \text{ W}$)

Checked pointing on [Ne II] setting again, then changed to H_2 setting at 814 cm^{-1} moving only the echelle

118427.4095	
.4096	
.4097	Went $0.7'' \text{ W}$ before start of this file. Getting more continuum on the Wallace display
.4098	At same offset as previous file
.4099	Went an add'l $0.7'' \text{ W}$ (total $1.4'' \text{ W}$ from nominal center) Guider off after pair 2 because of increasing sky brightness

Back to I_0 for a divisor at this setting.

110.4100

.4101

2008 May 32 UT

JL, JS, AK, MB, TE

Start at focus -1.65

Set up at 1235.2 cm^{-1} for HDO on Mars

offset -7E ON

telstep 0.5E ON

npoints 29

Current track rates 15.0200W

0.0070S

peaked up CVF before starting + centered blaze

Mars. 5000 nscan=2

focus seems soft at -1.65, change back to -1.6
offset by 2.5" W, 1" S before starting

Mars. 5001 nscan=2

Mars. 5002 nscan=4, 5001 was in a good spot
offset by 1.5" W before start

Mars. 5003 nscan=4, looked very circular as it came in
sky conditions may be better today

Mars. 5004 nscan=4, scan 3 didn't look great, scan 4 better
still looks centered ok

Mars. 5005

offset by 1" E before start, leave tracking alone
seeing seems much better today than past two days

Mars. 5006

nscan=4

looks centered nicely, so let it be

Mars. 5007

centered ok

Mars. 5008

nscan=4, strange shift in scan 2

Mars. 5009

nscan=4

still centered ok, thought about nscan=8, but like checking each 4.

Mars. 5010

nscan=4

move 1" E before starting

Mars. 5011

nscan=4

move 1" E before start + 1.5" S

Mars. 5012

nscan=4

planet drifting east ~~4" E~~

offset 3" E + ~~1" S~~ before start

adjust rates

UT 2008 MAY 32

- mars. 5013 $n_{\text{scan}} = 2$, adjusted guide rates
 * new rates: 15.012 W 0.01 S
 centered ok, see if stays that way
- mars. 5014 $n_{\text{scan}} = 2$
 now Mars drifting to West
 * change rates: 15.016 W 0.01 S
- mars. 5015 $n_{\text{scan}} = 2$
 move 1.5" W
 * new rates: 15.018 W .0085 S
- mars. 5016 $n_{\text{scan}} = 2$
 offset 1.5" N 1" W
 * new rates: 15.018 W .0075 S
- mars. 5017 $n_{\text{scan}} = 2$
 looks ok, will it hold?
- mars. 5018 $n_{\text{scan}} = 2$
 looks good, well-centered
- mars. 5019 $n_{\text{scan}} = 4$, seeing is degraded a bit
 well-centered still at end of scan
- mars. 5020 $n_{\text{scan}} = 4$
 move 2.5" E before start
- mars. 5021 $n_{\text{scan}} = 4$
 move 1" S before start
- mars. 5022 $n_{\text{scan}} = 4$
 * new guide rates: 15.017 W .0075 S
 move 2" E
- Change to $w_{\text{no}} = 1240 \text{ cm}^{-1}$
 peak up CVF
- mars. 5023 $n_{\text{scan}} = 2$

offset by 1.5" S before start
quicklook died during .5023 did retall recover

Mars. 5024 nscan = 2 quicklook died again after
taking flats, gonna restart if
offset 0.5" S before start

Mars. 5025 nscan = 2

Mars. 5026 }
Mars. 5027 } fibs don't exist?

Mars. 5028 nscan = 2

Mars. 5029 move 2" S before start
image degrading try focus = ~~1.65~~ -1.65

Mars. 5030 nscan = 2

filter off?
try changing filter to same as yesterday
from 100.2 to 100.98

Mars. 5031 nscan = 2, image looks better, more signal
move by 1.5" S before start

Mars. 5032 nscan = 4

new guide rates: 15.017 W .0092 S
move by 2" E before start + 0.5" S

Mars. 5033 nscan = 4, poor seeing + variable
move by 1" W before start 0.5" S

Mars. 5034 nscan = 4, image in scan 2 looks pretty round
move 1.5" S before start

Mars. 5035 nscan = 4 sky variation in 4

Mars. 5036 nscan = 4
move 0.5" S before starting

Mars. 5037 nscan = 4, some bounce in scan 1
2.5" W + 0.5" N

Mars. 5038 nscan = 4, some bounce in scan 1, 2

UT 2008 MAY 32

go to IRC +10216 Cornichard $\nu_{\text{obs}} = 1188 \text{ cm}^{-1}$ First setting is 1188 cm^{-1} . Filter = 208.320° Slit = 239.16° This repeats last night's obs but with different filter settings
Final filter setting after some tweaking was 209.70°

HST

9:52:15 i10216.5039 Nod throw $0''.0 \text{ E}$, $2''.0 \text{ N}$ on account of the short slit here. Changed to $3''.0$ because the beams looked a little too close together.
Nnod = ~~16~~, Nsum = 3, itime = 2 s

Next setting is 1185 cm^{-1} . No change to filter, only the echelle.

59:09 i10216.5040 Nsum = 4, Nnod = 12

Next setting is 1182 cm^{-1} . Moved only the echelle.

:06:00 .5041

Next setting is 1179 cm^{-1} . Again, moved only the echelle

:12:39 .5042

Next setting is 1176 cm^{-1} . Next blader suggests we now move to the next filter, and who are we to argue? We checked things by going to obsmode = stare and putting in black. Slit was a bit too long, so we adjusted the filter setting to prevent order overlap. Final filter number was 220.38°

24:33 i10216.5043 itime = 2, Nnod = 12, Nsum = 4 BAD
Was in stare mode still - don't use

:28:39 .5044 Nod throw now $0''.0 \text{ E}$, $3''.5 \text{ N}$ Next setting is also 1176 cm^{-1} but re-doing w/smaller nod throw:37:06 .5045 Nod throw now $0''.0 \text{ E}$, $3''.0 \text{ N}$ Next setting is 1173 cm^{-1} . Only moved the echelle.

:43:36 .5046

- HST Paused to raise lower dome shutter. Next setting is 1170 cm^{-1} !
- 20:51:21 110216.5047 Only moved the echelle.
Next setting is 1167 cm^{-1} . Changed focus to -1.7 before next file.
- .5048 Only moved the echelle.
Next setting is 1164 cm^{-1} . Changed focus to -1.75 before next file.
- 21:06:00 .5049 Only moved the echelle.
Next setting is 1161 cm^{-1} . Went back to a focus of -1.7 .
- .5050 Only moved the echelle.
Next setting is 1158 cm^{-1} . No change to focus.
- 21:20:00 .5051 Only moved the echelle.
Next setting is 1155 cm^{-1} .
- 21:26:15 .5052 Only moved the echelle
Next (and last) setting is 1152 cm^{-1} .
- 21:32:40 .5053 Only moved the echelle
Alpha Boo
- 22:30 9600.5054 out of focus
9600.5055 focus = -2.0
9600.5056
change $\nu_{\text{no}} = 734 \text{ cm}^{-1}$ C_2H_2 R(1), HCN R(7), R(6)
Focus = -1.8
rotate instrument:
take north end of instrument east by 15 deg

go to Alpha Sco to check boresight after rotating slit.

ASCO. 5057 end after 8 nod pairs

go to Galactic center nodding 8" E

gc. 5058 lots of guiding, looking for it occasional bad bounce

.5059 reasonably well on it for whole set

.5060

.5061

.5062

.5063

00:12 .5064

00:18 .5065

.5066

5067

5068

5069 some bounce ^{before} ~~the~~ pair 5, not sure where sine _{accum} was on

5070

5071

5072

5073

gc. 5074

.5075

5076

5077

5078

5079

5080

go to Callisto for divisor

call. 5081 ended early, adjust echelle to where it was before so that orders are in same place

call. 5082 high on the slit, probably losing some of positive beam. Auto-guiding not yet working

5083

5084

5085

5086

After much hunting we switched to IRAS 18530 for Murray Campbell. Set up for a scan in $H_2 S(2)$ at 814 cm^{-1} . Setting up as for scans on UT May 30:

telstep = 0.7E 0.0N

offset = -5.0E 0.0N

nod = 0.0E 0.0N

Set up on [Ne II] setting first before changing to the H_2 setting

npoints = 23

itime = 1 s

nsum = 1

nframe = 2

irobs complained that $\text{itime} \times \text{nframe} < 1.5 \text{ s}$ with $\text{nframe} = 1$, so we upped it

18530.5088

First scan with these settings

i18530.5089 Appears we were auto guiding during at least this exposure - not sure if it's good.

Went back to [Ne II] to check pointing. Took a scan here

.5090 2 scans for practice

Back to 814 cm^{-1} .

.5091 2 scans start 5" W of [Ne II] peak

.5092 4 scans step $23 \times 0.7''$ \leftarrow

.5093

.5094 typically moving $< 1''$ after each scan

.5095 to keep * on +

.5096

.5097 sky getting brighter will lose guide * soon

.5098 * some do 16 scans

2008 May 33 UT

MB, AK

Spectral Survey of IRC +10216, Cernicharo

starting at 1158 cm^{-1}

focus = -1.7

filter = 220.44

slit = 240.06

~~starting at~~

19:20 i10216.6000

2 second int., 16 nodes
nsum = 4

pair 4,5 moved up in slit by a pixel
pair 9 is garbage, sky
pair 10 good

i10216.6001

wno = 1155 cm^{-1}

nnode = 16

.6002

wno = 1152 cm^{-1}

nnode = 12

.6003

wno = 1149 cm^{-1}

nnode = 12, seeing/focus are good

.6004

wno = 1146 cm^{-1}

.6005

wno = 1143 cm^{-1}

.6006

wno = 1140 cm^{-1}

20:13

.6007

wno = 1137 cm^{-1}

20:19

.6008

wno = 1134 cm^{-1}

20:26

.6009

wno = 1131 cm^{-1}

.6010

wno = 1128 cm^{-1}

slit = 240 filter = 220.5
echelle = 57.81

.6011

wno = 1125 cm^{-1}

.6012

wno = 1122 cm^{-1}

slit = 240 filter = 220.5
move lower shutter before next file T = 6.6°C

.6013

wno = 1119 cm^{-1}

110216.6014 $wno = 1116 \text{ cm}^{-1}$ filter = 211
 → black looks ok after filter move
 .6015 $wno = 1113 \text{ cm}^{-1}$ filter = 211, black ok

moving back into CVF for $wno = 1110 \text{ cm}^{-1}$
 peak up CVF, change slit = 60

.6016 $wno = 1110 \text{ cm}^{-1}$ slit = 60, into CVF now
 filter = 113.76
 peaked up CVF, had to offset to find source
 int time = 2 sec nsum = 4 gain = 50
 airmass = 1.9

.6017 $wno = 1107 \text{ cm}^{-1}$ move echelle, then adjust filter
 by +0.27 deg.
 black counts look alright
 airmass quickly approaching 2.0!

filter = 114.0 slit = 60 echelle = 59.573

go to R Cr B

- couldn't find it

went to X Her to try to get
 good offset coordinates, was unsuccessful

Going to camera mode, mainly to practice
 couldn't find X Her, ~~going to~~

Going to A Her

searching in cam mode, NEW and S, but
 couldn't find it

Set up on 780.424 cm^{-1} Ne[II]
 shifted parabola to see red

Going to A Sco
searched around but couldn't find A Her

We've gone back and forth about 8" in both directions E and W, and moved N and S and redid E and W, but aren't finding the A Sco. We are sure we're seeing out because we see sky, and also means we have filter, slit, etc right.

Going to camera mode and have telescope operator do a systematic sweep in widening circles to try to see A Sco.

We've gone to Jupiter, couldn't see it, and couldn't even see it when placing paper on entrance window (on the paper)

Went to A Her, doing a 1' search in camera mode, 10" nod, ~~now~~ searching in squares of 20"

Found star at 60" S (0"E) The star is off the TV screen, cross hair on it but can only see part of cross hair.

center of slit 159, 132

Going to Hi-med, 780.424 cm^{-1} Ne(II) for Zhu
peaking up on A Her to get some sight and focus
~~focus still at 1.7~~ focus = -1.8

Going to G43.89 - 0.78

peaking up on Ne II then will switch wavelength,
nod SE ON

to do nod mode on H₂ S(2)

Haven't peaked up yet, (on Ne II) but things don't look right,
~~titles~~ looks like no sky features

g 43.6018 to check if seeing sky
median sky = median black wheel ok?
piped file and sky bad

doing movec is not acting like it should
calibration wheel is off.
in file, sky = shiny \approx black

.6019 tried to get calibration wheel in proper
spot before starting $nmod=8$
chopper wheel in wrong spot?

.6020 sky still doesn't look right

.6021 think I fixed chopper wheel but sky
still seems funny

.6022 do another one w/ Andrew watching the
chopper wheel, oops - stare mode

.6023 do file w/ Andrew watching

going to ~~do~~ pup and take a pupil image

pup. 6024 we don't see the spider of secondary

voltage is off for chopper wheel. We set it ~~right~~ right, position
went to stare mode, continuous, still don't see
spider. (It's on sky position)

pup. 6025 visually verified chopper in right position
and stayed in right position, but no spider

The problem turns out to be with the
on axis mirror.

pup. 6026 for fun, can see sky, but also edge cut off

Do movec -10 to reestablish chopper wheel

Joing moves to

pup. 6027 Same, edge cut off

Choppers Joing fine now, just has wrong voltage

2008 May 31 UT

MB, AK

Start focus = -1.7

Cernicharo IRC + 10216 7.9-9.1 μm survey

starting at $wno = 1110 \text{ cm}^{-1}$
 slit = 60, echelle = 59.310 filter = 113.520
 peak up CVF + center on blaze

exercised chopper wheel w/ several amovec = 90
 to see that it's working ok
 n.b. chockwheelpos voltages will be off b/c
 wheel slipped last night

- Looking at sky at zenith, ~~moving~~ moving chopper to
 check that it's working, things look good after moving
 back and forth by 90°
 - Moving mirror in and out, checking that it's
 operating ok, things look good

Going to R Leo to set bare site for i/0216
 went 5" E-W, no see, waiting for darkness so
 can see with IRTF cam

Found R Leo, centered, put mirror in and pulled
 to check repeatability of mirror movement

Going to IRC + 10216

nod = 12 nod = OE 3N
 asun = 4 gain = 50

i/0216.7000 skip pair 7 ... Things are moving - offset guiding
 lots of movement, so scrapping, don't use us off
 starts thru

i/0216.7001 $wno = 1110 \text{ cm}^{-1}$, move echelle, and adjust filter
 echelle = 59.58 filter = 113.76 by + 0.28 deg.
 slit = 60

- 1107
- .10216.7002 $w_{no} = \cancel{1104} \text{ cm}^{-1}$ $n_{nod} = 12$ int time = 2 sec
- .7003 $w_{no} = \overset{1104}{\cancel{1104}} \text{ cm}^{-1}$
- .7004 $w_{no} = \overset{1101}{\cancel{1098}} \text{ cm}^{-1}$ (the last in the survey)
now turn around and work back
- .7005 $w_{no} = \overset{1098}{\cancel{1099.5}} \text{ cm}^{-1}$ change to nod 2.5" N
+ bump up in slit
coming close to losing it
- .7006 $w_{no} = 1099.5 \text{ cm}^{-1}$
- .7007 $w_{no} = 1102.5 \text{ cm}^{-1}$
- .7008 $w_{no} = 1105.5 \text{ cm}^{-1}$ filter = 113.76 echelle = 59.708
move lower shutter after this file
- .7009 $w_{no} = 1108.5 \text{ cm}^{-1}$ filter = 113.46 echelle = 59.445
- .7010 $w_{no} = 1111.5 \text{ cm}^{-1}$ moving out of CVF now
slit = 240, filter = 211, blacks look ok
- .7011 $w_{no} = 1114.5 \text{ cm}^{-1}$ slit = 240 filter = 211,
- .7012 $w_{no} = 1117.5 \text{ cm}^{-1}$ slit = 240 filter = 220
- .7013 $w_{no} = 1120.5 \text{ cm}^{-1}$ only move echelle
bump north on guide paddle before next file
- .7014 $w_{no} = 1123.5 \text{ cm}^{-1}$
- .7015 $w_{no} = 1126.5 \text{ cm}^{-1}$, last one, getting towards airmass = 2.0

set up at $w_{no} = 557 \text{ cm}^{-1}$ fell on RCrB

can't find source, so going to 1120 cm^{-1} to try to find it.

It's asking us for texes @ 128.171.165.6's password
Error: Permission denied, please try again.
Connection closed by 128.171.165.6

May 34 2008 cont'd

We just noticed $n_{\text{nod}} = 10000$, don't know ~~why~~ why
~~It's the same~~
 did a recover, looks to be happy again

found ~~R~~ R Cr B at $\nu_{\text{no}} = 1120 \text{ cm}^{-1}$
 taking data here, ~~fine~~. Don't know if it will
 be of any interest but...

rcrib.7016

$n_{\text{sum}} = 4$ $n_{\text{nod}} = 16$
 everything is behaving itself, finally

rcrib.7017

.7018

.7019

.7020

.7021

.7022

decrease nod to $205'' N$

.7023

seeing occasional bounce

Go to A SCO, checking bore sight
 set bore sight

Going to Galactic Center
 go to GC 2 then offset from there
 telescope acquisition camera having to re-initialize

switched to Ne II to find position

Saving one to see if at right place
 gc.7024 orders are overlapping

Going back to C_2H_2 R(1) $\nu_{\text{no}} = 734 \text{ cm}^{-1}$

gc.7025

seeing some bounce

gc. 7026 we are offset guiding

.7027 don't see much in accum, going to stay here anyway assuming (Ne II) indicated we were in the right place

.7028

.7029

.7030

.7031

7032

7033

7034

7035

7036

7037

change focus = -1.8

going to Callisto for divisor

bounce pretty bad, ~~exit guide here~~ ~~down says~~
guiding assuming Callisto not moving, wrt Jupiter

call. 7038 occasional bounce

move 1" N on guide paddle to move down on slit

.7039 nsum = 4 int. time = 1 sec

7040

34 May 2008 cont'd

Switch to Zhu's project

Nod off slit in H_2 ~~S(2)~~, don't do ~~S(1)~~ since
~~water vapor is high~~ Earth's motion adds blueshift
 taking us off blaze + into CO_2 feature.

Go to $wno = 814.424$

Object = $G 5.89 - 0.39$

g589.7041 obsmode = stare, ended early - garbage

01:44 g589.7042 nod 8 E O N, nsum=4 nmod=16

.7043

.7044

7045

7046

7047 shifted to see blue, too much?

center up on blaze

check boresight of R Aq1, came right in.

water vapor killing us at S(2)
 switch to H_2 S(1)

$wno = 587.0324$ shift to see blue

Object = $G 43.89 - 0.78$

02:25 g4389.7048 nod 8 E O N nsum=4 nmod=16

7049

7050

g 4389. ~~7050~~
7051

7052

7053

7054

7055

possibly seeing a line in pipe?
do a few more files

7056

7057

switch to $645.12 + 0.13$

g 4512 - 7058

finally see continuum from one of
these guys.
Little high on the slit though, bump it down
before next file

.7059

.7060

7061

change nsum = 6

7062

7063

7064

switch to G 33.92+0.11

g 3392.7065

7066

7067

7068

7069

7070

7071 maybe something there in pipe

switch to G 30.54+0.02

g 3054.7072

7073

7074

7075

7076

2008 May 35 UT

MB, AK

focus = -1.7

Cernicharo IRC + 10216 7.9 μm - 8.1 μm surveygoing to try hi-lo mode near 1200 cm^{-1}

slit w/ angle = 320 filter = 213.75

orders are very well separated

15 orders on the detector, looks fringy, but not too bad
wasn't in hi-lo modeset up at $\text{wno} = 1265 \text{ cm}^{-1}$ on IRC + 10216

i10216.8000

pair 8, moved up slit by pixel
again in pair 9

8001

 $\text{wno} = 1263.5 \text{ cm}^{-1}$ moved ~~exactly~~ ^{filter} by +0.13 deg
not offset guiding yet
grating shift pair ~10?

8002

 $\text{wno} = 1260.5 \text{ cm}^{-1}$ started ~~grating~~ offset guiding during this set
skip this file - garbage

8003

 $\text{wno} = 1260.5 \text{ cm}^{-1}$

doing another at this setting

8004

 $\text{wno} = 1257.5 \text{ cm}^{-1}$ offset guiding seems to be
working. Next to hi-lo mode

try hi-lo mode

~1187-1224 cm^{-1} wavelength coverage

i10216.8005

 $\text{wno} \approx 1187-1224 \text{ cm}^{-1}$ in hi-lo moderod 15" E O N, oops obsmode = start
garbage

program suggested

~~lo-res = 17.65~~ lo-res = 18.35, but we moved it
to 17.65

SO correction factor = -0.7

35 May 2008 cont'd

i10216.8006

nmod=16 int time=2 nsum=4

nodwait=5 nod=0 E 15 N

pipes wno=1227, thought it was 1205

.8007

move lo-res = 17.415 wno=1220 cm⁻¹

program suggested 18.118

looks like ~~waveno 0~~ will be wrong
in header

go back to wno=1205, this time accept
computer's recommended lo-res angle

.8008

lo-res = 18.352 wno=1205 cm⁻¹

n.b. different lo-res angle than

.8006 which was also (according to header)
at 1205 cm⁻¹

.8009

lo-res = 18.118, taking program's suggestion

for lo-res angle at wno=1220 cm⁻¹

n.b. different lo-res angle than .8007

.8010

lo-res = 17.887 wno=1235

taking program's suggestion for lo-res angle

airmass = 2.0, done here

go back to hi-med mode

moved x-d screwdriver to get back centered on
detector

go to medium resolution mode, do some scans

Going to A Boo, doing some scans at 966 cm⁻¹

telstep = 1E 0N

npoints = 21

offset = -10E 0N

a boo .8011

nsum = 1

nmod = 4

was at -4.0V = Vdet

guidelook ~~did~~ died,

said too many elements

2300, 8012

VDET = -3.4V

8013

move 1" S before start nscan = 2

move 2" E before start

8014

VDET = -4.4V

nscan = 2

go to Alpha Sco to check boresight + focus

focus = -1.8, set boresight

1) go to GC2 on crosshair w/ 1980 coordinates
on piece of paper to operator

2) offset 16" S 2.5" W

3) peak up at [NeII] settings

4) change to 734 cm^{-1} for C_2H_2 R(1)found continuum and are taking data, we are offset
guidinggc. 8015 at 780.424 cm^{-1} [NeII]change to 734 cm^{-1}

gc. 8016

wno = 734 cm^{-1} nsum = 6 C_2H_2 R(1)stay in same place where saw [NeII] continuum
shifted to see blue

8017

8018

seeing bounce

8019

8020

8021

8022

8023

8024

8025

35 May 2008 cont'd

gc. 8026 $w_{no} = 734 \text{ cm}^{-1}$ C_2H_2 R(1)

8027

8028 bounce has settled down

8029

8030

8031

8032

8033

going to Callisto for divisor

call. 8034 nod ~~0~~ E 4 N
 $n_{sum} = 6$ int time = 1 sec.
 some bounce

8035

8036 bounce

8037

go to 65.89-0.39
 peak up on (Ne II)

g589.8038 garbage int time * nframe < 1.5 sec.

g589.8039 $n_{scan} = 4$ $w_{no} = 587 \text{ cm}^{-1}$ H_2 S(1)
 offset 5" W ~~step~~ step = 1" E $n_{points} = 16$
 could get bigger slit, shifted to see blue

8040 offset 6" W step 1" E $n_{points} = 13$

8041 offset guiding during scans

8042 Dave says it's not a problem
 seeing bounce

g 589.8043

8044

8045

8046

8047

8048

8049

go to R Aql . to check pointing + boresight

then go to G 43.89-0.78

g 4389.8050

nscan = 4

H₂ SC(1)

offset -8" E -2" N

telstep = 1" E

npoints = 15

8051

8052

8053

8054

8055

8056

8057

8058

8059

8060

8061

8062

8063

8064

35 May 2008 cont'd

go to G 30.54 + 0.02 H₂ S(1)

g 3054.8065 offset -10 E -2 N
 telstep 1 E
 n points 15

.8066
 8067
 8068
 8069
 8070
 8071
 8072
 8073
 8074

go to Callisto for divisor

call. 8075 nod 0 5 N
 somehow lost it file is good at pr. 9

.8076 decrease nod to 0 4 N
 8077
 8078
 8079
 8080

36 May 2008

MB, AK

set focus = -1.7, check at Alpha Boo & set boresight
 go to IRC+10216, try to fill in gap of Cernichars
 spectral survey 1220-1190 cm^{-1} in hi-med mode

- 10216.9000 wno = 1220 cm^{-1} slit = 100 filter = 103.56
 peaking throughout, do another one
- .9001 int time bumped up to 2 sec.
- 9002 wno = 1217 cm^{-1} filter = 103.86 order = 7
- 9003 wno = 1214 cm^{-1} nmod = 12, filter = 104.04 order = 7
- 9004 wno = 1211 cm^{-1} program suggests order = 6
 force order = 7 filter = 104.3
- 9005 wno = 1208 cm^{-1} order = 7
- 9006 wno = 1205 cm^{-1} order = 7 filter = 104.76
 losing signal, clouds?
 IRTF guide star "a lot fainter" Dave says
 some cirrus overhead
 Satellite shows big blob of cirrus heading our way
- 9007 wno = 1205 cm^{-1} , do another file here
 cirrus coming in + out
- 9008 wno = 1202 cm^{-1} order = 7 filter = 105.06
 skip = 7, 8
- 9009 wno = 1199 cm^{-1} order = 7 filter = 105.36
 signal is looking strong
- 9010 wno = 1196 cm^{-1} order = 7 filter = 105.9 (!)
 ended early, filter off from
 where I wanted it

36 May 2008 cont'd

10216.9011 $w_{no} = 1196 \text{ cm}^{-1}$ filter = 105.66

9012 $w_{no} = 1193 \text{ cm}^{-1}$ filter = 105.9
peaking thru par II, cirrus?

9013 $w_{no} = 1190 \text{ cm}^{-1}$ filter = 106.2
program recommends discreet filter,
stay in CVF for now

now turn around and work back to
higher waveno

9014 $w_{no} = 1191.5 \text{ cm}^{-1}$ filter = 106.08

9015 $w_{no} = 1194.5 \text{ cm}^{-1}$ filter = 105.78
last one before airmass = 2.0
we're going into the muck!
largely garbage

go to zenith, practice Fowler mode

Use gain = 50 $w_{no} = 2040 \text{ cm}^{-1}$

find int time that doesn't saturate black
but fills A/D halfway

We tried 4.5, 9, + 18³⁶ seconds int. time.

18 seconds seems to be optimal

go to Alpha Sco, set boresight, check focus

change focus = -1.85

go to $w_{no} = 1244 \text{ cm}^{-1}$ for CH₄ high-5

AFGL 2136 @ 1244 cm^{-1}

cirrus coming in makes it hard to peak up
peaked up on it, sky seems to have settled down

gl 2136. 9016 nsum = 4 int time = 2 sec. nmod = 16

cirrus is back, washing things out
occasional good pairs

9017 go again, see if sky holds up

int time = 2 nsum = 4

sky was fairly stable

9018 cirrus coming back towards end of file

this may be a fool's errand

turn autosave off and watch for a bit

9019 garbage. I hit auto save on before
continuous nodding ended

9020

9021 sky looks good

9022 nsum = 6, skip = 6 → end

cirrus is killing us here, go to 2030 cm^{-1}
switch to Fowler mode

gl 2136. 9023 int time = 18 sec nframe = 32 gain = 50

nmod = 4, tot. time ~ 20 minutes!!

~~and ready~~ but it only took a few minutes

were we even on it?

bump by 1" N before next file, starting at 7.25

.9024

don't know that we were on it

we're offset guiding and were peaked up at 1244 cm^{-1}

bump by 1" N before starting

offset reads 9.2 S, did we throw a mod?

36 May 2008 cont'd

gl2136. 9025 we bumped up by 1" N on slit before starting.

think we saw something, but not everytime,
bump 0.5" S before starting
ending offset is 8.2" S, threw a nod again?
start at 5.7" S for next file

.9026 Don't think we saw anything

this isn't working

go to wno = 1244 cm⁻¹ on AFGL 2591,
hope cirrus isn't around

gl2591. 9027 nsum=4 nmod=16, peaked up E-W
sky is stable int. time = 2 sec.

.9028

9029 nsum=6 since sky is behaving like a
good boy

9030

9031

9032

9033

9034 slight bounce pr. 13

go to A Lyr for a divisor
couldn't find it, not bright @ 8 um?
or just off

go to Chi Cyg - much better

chicyg. 9035 nsum=6 int time = 2
move up in slit pair 2,3 by 1 pix

9036 end early, features everywhere!

go back to AFGL 2136 @ 1244 cm⁻¹

gl 2136.9037 int time=2 nsum=6 nrod=16
move up on slit by 1 pix during pr. 4,5

9038

9039 some clouds pr. 8-11

9040 some clouds, skip = 2-6, 8, 10,

9041 change nsum=4
some clouds, skip=1, 4-6, 13-14

9042 skip=2-5, 7-9

9043 skip=5-16

Cirrus is killing us

For fun, try [NeII] med-res scans of SGR 1900+14
for Zhu

sgr 1900.9045 offset 15" W 0" N telstep 1" E 0" N
npoints = 31
int time = 0.2 nframe = 8 gain = 12.5
quicklook dired try not to saturate black

9046 nscan=2, black looks ok
we're flying blind!

9047 keep nscan=2 since sky is so variable

9048

9049

9050

9051

9052

9053

9054

36 May 2008 cont'd

sgr 1900.9055 nscan = 2, med-res (No II)

9056

9057

9058

9059 noticed dec is off by 13"
adjust before next file

9060 initial posn: RA: 19 07 14.33
Dec: +09 19 19.2

9061

9062 drifting in dec slightly ~ 1 arcsec / scan
keep resetting before each file

9063

RA, Dec

9064 now ~~at~~ offset guiding is off and dec is holding perfectly.

Elvis has left the building.