

July 2011 Cool down

Lars pumped on the dewar Wed morn - Thurs afternoon
again on Friday 9:30 - 15:30

He then valved off
pressure on old gauge reads 20-25 mtorr Saturday morning
so no leaks present

Wed & Tommy got set up and started LN₂ fill of LN₂
dewar at 8:30 am Saturday

at 11:45 some LN₂ in inner can - boiling off rapidly.
Going down for lunch - then back up for more filling

started back up at 12:45

2:20 cryogens holding a bit in both cans

4pm - pair filled outer can

LHe = 1.36
Hdr = 1.164
Echelon = 1.012

7:15 pm inner can empty, outer can still filled

LHe = 1.239
Hdr = 1.145
Ech = 1.024

7:45 pm - filled inner dewar

remint of inner can at 9:45

10pm Lars Filled LN₂ dewar 3.5 liters
pressure filled LHe can with LN₂

LHe = 1.363
Hdr = 1.246
Ech = 1.042

Sunday morning 7:45 am
 Still liquid in outer can, dry inner can
 $LHe = 1.318$
 $Ech = 1.115$
 $Hdr = 1.26$

filled outer can ~ 1.5 liters
 pressure filled inner can

11:00 am
 pour filling inner can ~ 3.5 L

$LHe = 1.366$
 $Ech = 1.145$
 $Hdr = 1.314$

2:00 pm
 $LHe = 1.365$
 $Ech = 1.173$
 $Hdr = 1.320$

pour filling inner can, then putting on the pump at 2:15

4:40 pm
 $LHe = 1.373$
 $Ech = 1.2$
 $Hdr = 1.364$

7:30 pm
 $LHe = 1.396$
 $Ech = 1.232$
 $Hdr = 1.385$

filled outer can with 2 liters

9:20 - sucked in ~ 3 liters into LHe can

9:45 pressure ~ 18 ton
 $LHe = 1.407$
 $Ech = 1.251$
 $Hdr = 1.41$

~~Filled both cans at 5:3~~

7:45 am Monday 11th

LHe = 1.46
Ech = 1.398
hdr = 1.501

filled both cans at 8:30
1 liter in LN₂
~2.5 liters in LHe

10:30 am

LHe = 1.45
Ech = 1.428
hdr = 1.464

7:20 pm

LHe = 1.479
Ech = 1.51
hdr = 1.525

filling water can ~ 3 liters

8:15 am

LHe = 1.492
Ech = 1.556
hdr = 1.553

filled water can

squinted out N₂ from He can between 9:30-10:00
pumping on can again

11:00 am started slow helium fill

LHe = 1.458
ech = 1.537
hdr = 1.440

pumped it up & filled at 4 pm
going to dinner Ech = 3.132

6:15 pm

LHe still in dewar
LHe = 4.878
ech = 20.94
hdr = 18.67

about 8 pm realized can was still hot
moved against stop + is now cooling

Testing

all have
gas in
cell

test.0003 room at C_2H_2 setting supposedly
test.0004 empty gas cell
test.0005 C_2H_2 - not pumped in gas cell
test.0006 pumped down C_2H_2
test.0007 continuous pumping 32 frames
test.0008 same

test.0009 1312 cm^{-1} water lines
1000 "
1001 "
test.0012 pumping continuously
a flat at 1312 to check charger
didn't peak up CVF

fscan - note when start file it asks for
script opens gui. - gui doesn't work like
gui - have to type file name each time

Show time

7/15/2011

WTI, TKG

pup. 1001 a tipped up image of secondary
we are working now to fix the central obscuration
problem

added mirror to look at sky

pup. 1002 fixed the problem
image taken @ -20° dec

base sight slit is at spec 130 ±3 remote
spot 170

aboo. 1003 focused at -0.65
ended early - looks

Saturn had to do a fill - both he + Na

started at 2:37 UT Sat. 1004 at equator base sight centered on slit, +
moved slit 4" north of center

.1005 4" north 2 good scans

.1006 6" north 4 scans

check + adjusted flux

.1007 6" north 4 scans

.1008 6" north 4 scans

going to check pointing
added a bit more Erub

.1009 6" north maybe a little bounce in first scan

.1010 5" north ended after 2 scans - drift seemed bad
over corrected earlier

.1011 5" north

.1012 4" north

ended at 3:40
587 cm¹

for divisors changed focus to -0.9
couldn't find it at 8 microns
changed to 587

Jun. 1013 ended early after spins

439 UT Going to Saturn H₂
 Sat. 1014 4" north
 Sat. 1015 0" North
 Sat. 1016 -4" North drifting

Europa I 20 H₂
 Juno I 8 H₂
 try Europa Asteroid 52
 Eur. 1017

Change ? 816 cm⁻¹

at 6 H₂ I 40

Eur. 1018

focus -0.75
 moved south a bit
 in pair 2

Saturn

Sat. 1019

4" north

Sat. 1020

~~0" north~~ 1" North

don't know
 what happened to
 Sat. 1021
 Going to shift schedule two orders to get
 up main probe 22146
 never mind
 moved 1/2 detector detector to blue & just
 went again
 Sat. 1022

Change to 730 cm⁻¹

going to focus on 2 Box + return to Saturn
 focuses good at -0.75

Sat. 1023 2" N

730 cm⁻¹

C₂H₂ Q-branch

Sat. 1024 2" N

Change w an only to C_3H_8 748

Sat. 1025 2" N 748 cm^{-1}

Wow
R(7) line self
absorbing

Sat. 1026 4" N
ended after 1 scan

Sat. 1027 2" N

on edge saw propane
in row
very localized N/S + E/W

Sat. 1028 2" N

Sat. 1029 2" N

~~Done~~

Sat. 1030 2" N

Stick a fork in me. I'm done!

37 liters after
+ set of fill = 9"

16th TKG,

Starting to focus at 950 cm^{-1} using λ Hya

Set focus at -0.60
seeing is really bad

2:15 PST going to Saturn

Sat. 2004 4" north of center
after 2nd scan moved 2" south

Sat. 2005 2" North lots of H₂O variation

Sat. 2006 0" North

Sat. 2007 0" North

Sat. 2008 0" North

Sat. 2009 0" North

to far North moved 2" North after scan 1
1" north after scan 2
moved 6" south after 3

Sat. 2010 moved lower shutter

moved 3" south after scan 1
moved 3" North 1 scan 2
moved 2.7" north again scan 3

tried changing to λ Hya Baan 845 cm^{-1} but had
trouble with

Sat. 2011 C₃H₄ Alone used λ Boo for focus = .75
center

.2012 2" N

.2013 "

.2014 "

.2015 "

Change wave 795.3

Sat. 2016 2" N whopping water line
 Sat. 2017 2" N lots of water variation
 . 2018

changed to 1156 CH3D

direction
 wrong

Sat. 2019 after 2nd scan
 moved 2" N
 moved 2" N after 5 can 3

. 2020 4" N

. 2021 4" N

. 2022 4" N

. 2023

Sat. 2024 checked pointing
 moved 1" north during first scan
 just before getting to hot spot
 moved 3" N after 1st scan

changed to 1148 cm⁻¹ 13C #3D

Sat. 2025 moved -2" N after scan 2

Sat. 2026

~~Sat. 2027~~

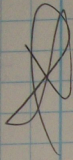
changed to 1247 CH4 I think hot spot set

Sat. 2027 slip = 1 dome got in way
 flat may also be bad?
 end early to try a new start
 was at 0 offset from center

Sat. 2028

31 N

odd background variations



huge drift
maybe cause of
not seeing hot spot
on limb in last
4 files

bounce also

thought I saw C IV emission
lines at very end of scan 2

Sat. 2029

41 N

bounce is pretty rough
some water variation

.2030

.2031

F N p 8

17th TKG, WTI

tel operator Eric got here at 2:15 now doing instrument swap
 w/ us + I already swapped out lenses in guides
 Now Eric is filling specs
 Eric sat down to start to open at 2:35 HST
 had to wait 5 minutes to balance

~~started slewing to α hya~~
 started slewing to α hya at 5 till 3pm

use α hya to focus - going to go to α Boo
 up over α 2 armpers + much easier to see
 slewing to α Boo 303
 1.8 armpers

4pm - focused ~~to~~ -0.85 at 820cm^{-1}
 Temp = 276

820cm^{-1}

going to Saturn

Sat. 3001 nominally in center

Sat. 3002 3" N 2.8" W for start
 we can see Saturn better than
 visible guide camera
 seeing is terrible!

Sat. 3003 ⁵5" N 5" W from original pos
 (sense scattered light at end of scan)

Sat. 3004 7" N 4" E from original pt.

730cm^{-1} seeing is still terrible
 went to 730cm^{-1} focused to -0.80
 but who knows

Sat. 3005 first scan had a lot of H₂O

Sat. 3006 3" N

Changed wave to 1247 cm^{-1}
focus = -0.70

Sat. 3007 2" N
seeing + water vapor are crappy
don't know if this is useable
ended after 2 scans had it time = 2
+ rframe = 2

good → Sat. 3008 4" N

Sat. 3009 4" N

Sat. 3010 6" N
possible light clouds
just put mirror for samty check

Sat. 3011

Sat. 3012 2" N

Changed to -1255.5

Sat. 3013 ended early crap

3014 use 3015 flat → Sat. 3014 flat may be bad but data okay ended after 1 scan

Sat. 3015 fixed the chopper
big water vapor

Sat. 3016 4" N

Sat. 3017 4" N

Sat. 3018 4" N 2 scans

int E954

18th TK6, WTI

105

high + variable water vapor
best setting is 748 so we'll start there

748 cm^{-1}

focus on Hya
set gain to 50 30 k counts on black

Couldn't see Hya or anything else up that is
bright enough
This focus was good previously + shouldn't
be too far off.

Sat. 4001 only 1 scan

Sat. 4002 4 scans 4" N from start pos
after scan 2 ~~at~~ moved 2.1" E
after scan 3 move 2" E

Sat. 4003 4 scans 6" E

put in mirror - realized we were using
wrong crosshair
we'll peel up crosshair and Boo

Sat. 4004 4" N ^{1E}
of new position get North pole
after scan 3 moved 2.5 E

water vapor

Sat. 4005 3.5 E 3" N
after scan 3 move 2" E

4006 7.0 E 0 N

Seeing + Water Vapor are all over the map

4007 7.0 E - 3 N

318 hrs 264 Vert

Sat. 4008 8.5E -6"N
South pole

4009 10E -6"N

Changed to 819 cm⁻¹
focused on α Boo -0.65Sat. 4010 Offset position
who knows what happened
look & slow down
logged off

Sat. 4011 Offset

Sat. 4012 offset -3 N

Sat. 4013 offset -5N
South pole

Seeing is terrible

Water, water, everywhere but not a drop to drink

Sat. 4014 moved 3 N of center
moved 2 E after scan 2

guiding issues

Sat. 4015 5"N
moving 2 N after scan 2Change A 1245 cm⁻¹
tried H₂587 but too much H₂O
focused at α Boo = -0.45
Sat. 4016 0 offset
huge H₂O spike in scan 2
Warm out tonight
clouds

Sat. 4017 North 4"
clouds clouds clouds

Sat. 4018 clouds better in 3rd scan
24th
drifted a long way after the last 3 fills

Sat. 4019 at center
tweak rates again

Sat. 4020 4" north should be okay

Sat. 4021 4" North

Sat. 4022 7" N
I may see the planet
start here for reductions

Sat. 4023 hot spot rising

Sat. 4024 last scan has background variation

Sat. 4025

~~Sat. 4025~~
Sat. 4026

July 19th / 2011

setting up at H₂ S(1) 587
 weather is good & water vapor is low 1.5mm

tried to focus on H₂ notice
 tried to focus on delta Vir & got an approx
 focus -0.8

Sat. 5001 3" N pos

seeing is poor as usual
 water tau = 0.065

.5002 5" N pos

water variation

.5003 2" N pos

ended after 2
 Q look died

.5004 -2" N pos

ended after 2
 Q look still unhappy

.5005 -2" N pos

ended after 1 Q look
 Nozel

.5006 -2" N pos

.5007 -4" N pos

.5008 1" N pos

changed to 518 cm⁻¹ C₂H₂
 used a Bao for focus = -1.0

Sat. 5009

Lacan

.5010

4 scans
 I don't see lines, but I think
 we are seeing Saturn

.5011 2"N

.5012 ? - in the ether - never really happened

Moved
Panel X

.5013 I think Sat is pretty clean
We moved paraboloid to get an blaze

.5014 sky variation scan 2

.5015 "

.5016 nod mode on/off Saturn
pair to big sky

Changed to 5 14.7 HD

.5017 nodals middle

.5018 scan data should be
ended early & look dead define

.5019

.5020

804.5

Changed to 504.5 cm^{-1} C₂H₅D
focus = -0.55 T = 279.5

Sat. 5021 4"N

.5022 4"N

Sat. 5023 0"N

.5024 -3"N moved 1" S after scan 2

Changed λ 1280 cm^{-1}
focused on $2B_{00}$ focus = -0.5

sat. 5025 4" N

sat. 5026 4" N

sat. 5027 6" N

5028 6" N

5029 2" N

5030 2" N

5031 4" N

~~5031~~ moved 1" north after scan 2

5032 7" N

wind shift in 5th scan

Done!

July 2011, 20 UT TKG, WTI
The last night!

Start off at H₂ S(1) 587
we are setting focus to -0.85 referencing
previous nights. We really ~~can't~~ can't do a good job
focusing until 3 when dBoo rises.

Sat. 6001 moved ~~was~~ -2E 2N after 1st scan
after 3rd scan set focus to -0.85
prior ~~was~~ was at -0.65

.6002 started -2E 1N now that we are in
focus

.6003 " "

.6004 -2E -3N
a little sky variation

.6005 -2E -7N

.6006 -2E -7N

.6007

~~6008~~ Changed to 730 cm⁻¹
CaH₂ Qbranch focus = -0.75
on dBoo
Sat. 6008 in continuous mode
saved - nod mode

Sat. 6009 ~~3"N~~ move 3" E after scan
big background & change in scan 2
went the wrong way
after scan 3 move 6" E
Probably ignore shutter occul.
due to

.6010 5"N

.6011 5"N
lacks sounder just rising
shutter got in way

Sat. 6012 5"N
- clear aperture
ignore previous C₂H₂ data

move 3" E after scan 2

Sat. 6013 5"N after scan 2 moved 2"E

6014 7"N

Changed to PH3 settings
988 cm⁻¹ focused -0.65
really good

Sat. 6015 4"N pas

to bin N { Sat. 6016 6"N pas
Sat. 6017 checked via guide camera
6"N

Sat. 6018 2"N
on it pretty good here

6019

6020

6021

3"N

Switched to 2134
CO

Sat. 6022
why did obs mode turn to Euler-
fishing in nud mode
everything got lost on flat
had to kill inobs

~~Star~~ Changed to 1247cm^{-1}

Sat. 6023 2" N stare mode
garbage

Sat. 6024 2" N

,6025

,6026

,6027

,6028 2" W
after 2nd scan moved 1" N

,6029

,6030

" / moved west 2" after
Scan 2

— Fin —