Observing Blocks and Phase 2 Tool

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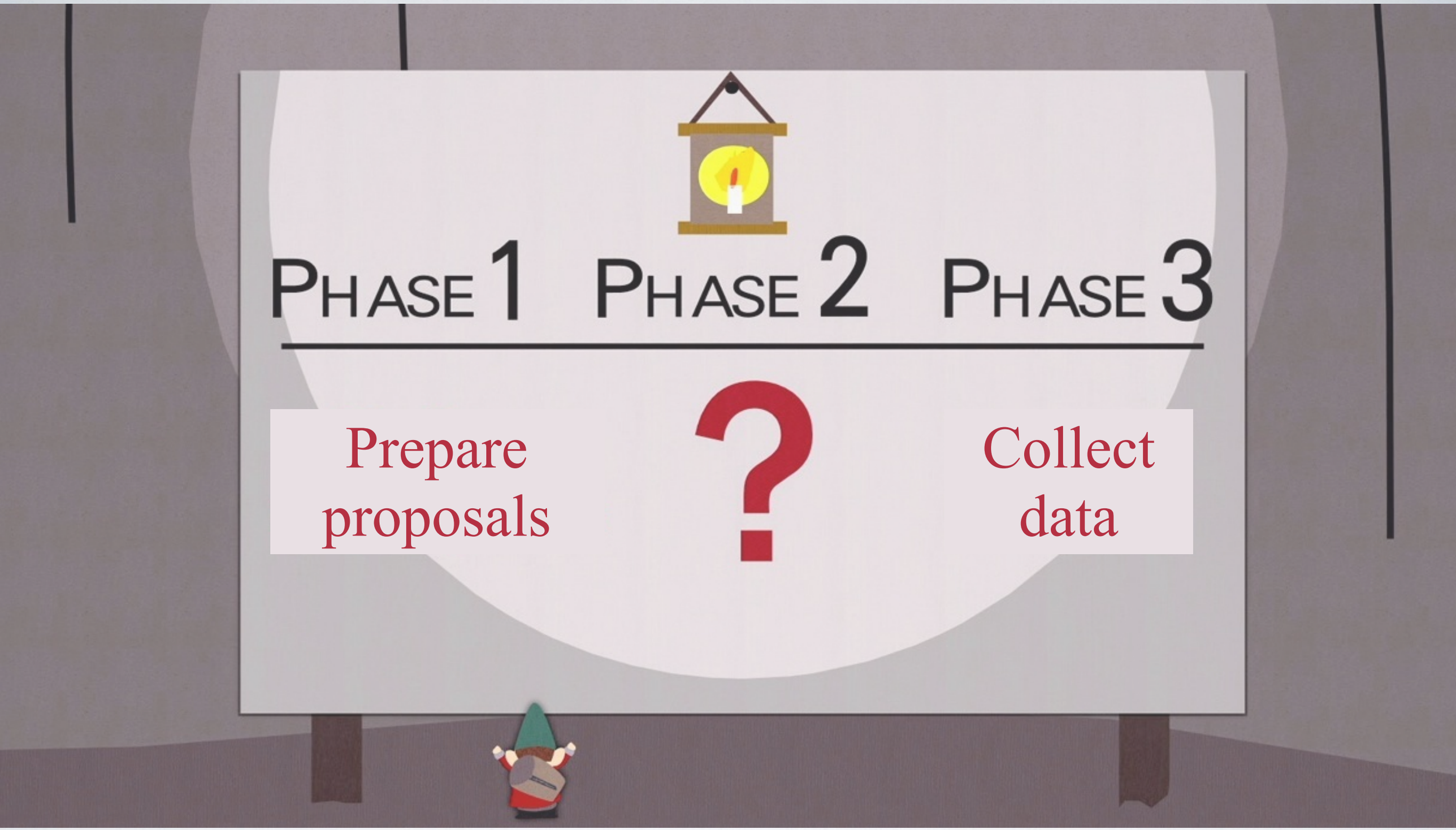
Mitaka Queue Workshop
June 17, 2015



What's for PIs to do in Phase 2?

Observing Blocks (OBs)

- Specifies enough information to observe a target with a telescope and instrument configuration, and specifies any limiting criteria.

Each OB contains information of targets, inscfg, envcfg, telcfg

Phase 2 Tool

- Excel spreadsheets prepared in Excel, LibreOffice, OpenOffice, etc.

Cross-platform spreadsheets, user friendly, possibly with built-in ETC, lookup tables, etc.

Data fed into `qplan`.
(see talks on June 16)

Targets

ph2-spdsht-exp.ods – OpenOffice Calc

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Code	Target Name	RA	DEC	Equinox	SDSS RA	SDSS DEC	Comment					
2	n1234	NGC1234	03:09:39.00	-07:50:47.00	J2000	03:00:00.00	-08:00:00.00						
3	IRAS3+5	IRAS01234+5500	01:23:40.00	55:00:00.00	J2000	01:00:00.00	55:00:00.00						
4	H9000	Hal9000	07:00:30.00	12:45:00.00	B1950	07:00:00.00	13:00:00.00						
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32													

carries information in every target

Phase 2 parameter tabs

targets envcfg inscfg telcfg ob

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Environment configuration

A	B	C	D	E	F	G
Code	Seeing	Airmass	Moon	Moon Sep	Transparency	Comment
dark_s0.8_am2_trans0.8	0.8	2	dark	30	0.8	
gray_s1_am2.5_trans0.5	1	2.5	gray	30	0.5	

carries information in every environment configuration

1 to 0
(100% transparent, photometric, to 0%, opaque)

Sanity check

H	I	J
Seeing Check	Phase 1 Seeing Constraint	Phase 1 Transparency constraint
Seeing okay	0.8	0.8
Transparency Check		
Transparency okay		

Instrument configuration

A	B	C	D	E	F	G	H	I	J	K
Code	Instrumen	Mode	Filter	PA	Exp Time	Num Exp	Dither	Guiding	Offset RA	Offset DEC
g_300x5	HSC	imaging	g	0	300	5	5	Y	0	0
r_300x1	HSC	imaging	r	0	300	1	1	N	0	0
i_300x4	HSC	imaging	i	0	300	4	N	Y	0	0
z_300x6	HSC	imaging	z	0	300	6	N	Y	0	0
Y_300x6	HSC	imaging	Y	0	300	6	N	Y	0	0

L	M	N	O	P	Q	R
Dith1	Dith2	Skip	Stop	On-src Time	Total Time	Comment
120	120	0	5	1500	1700	
0	0	0	1	300	340	
120	15	0	4	1200	1360	
120	15	0	6	1800	2040	
120	15	0	6	1800	2040	

dither definition same as SCam

Dithering pattern

Dither=5

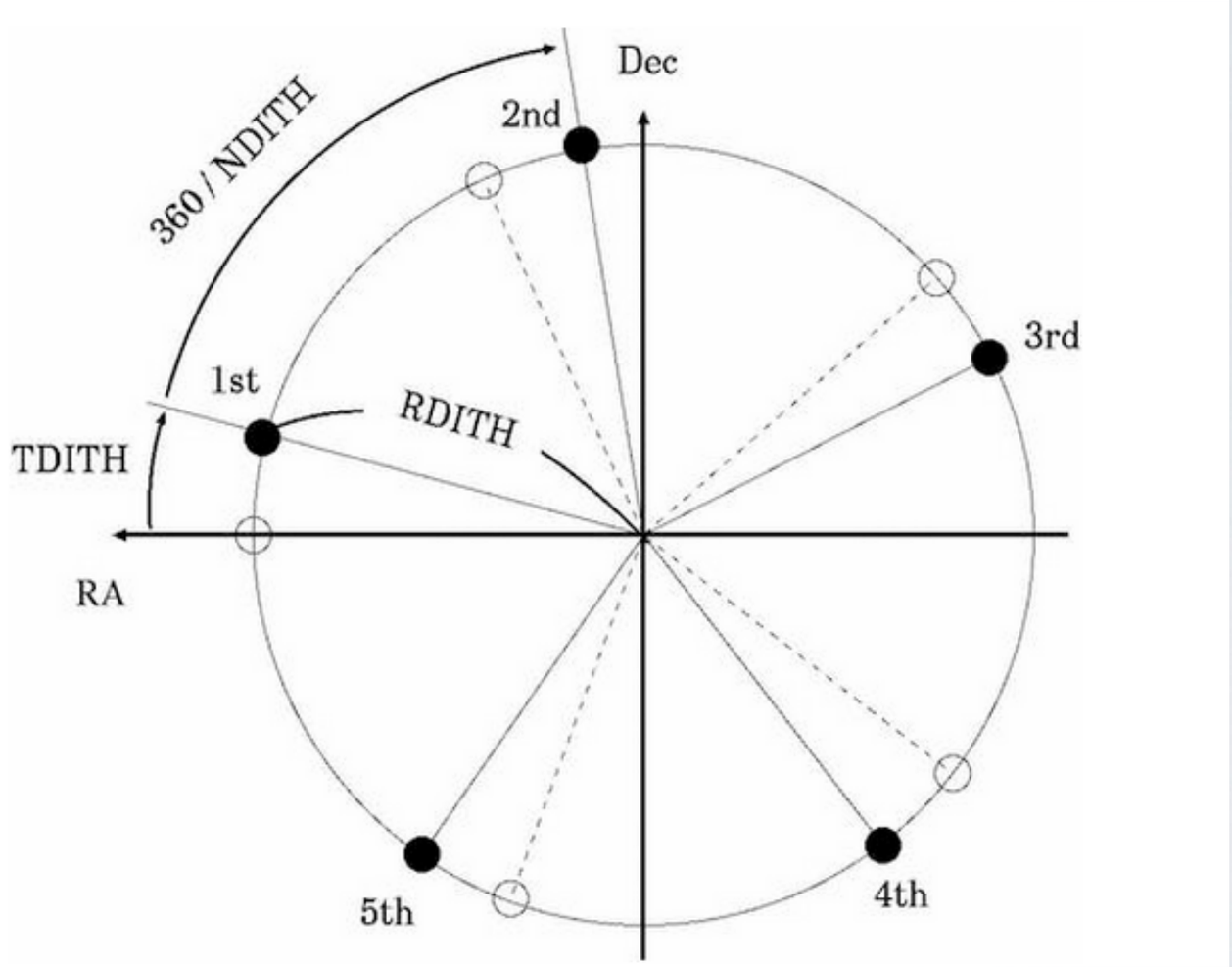
dith1=dith_ra, dith2=dith_dec

```
              RA,   DEC
1st pos:       0,     0
2nd pos:    1dx, -2dy
3rd pos:    2dx,   1dy
4th pos:   -1dx,   2dy
5th pos:   -2dx, -1dy
where dx=DITH_RA and dy=DITH_DEC in arcsec.


   . . . 4 .
   3 . . . .          Dec
   . . 1 . .           ^
   . . . . 5           |
   . 2 . . .    RA <---
->|  |<-
   dx
```

Dither=N

dith1=rdith, dith2=tdith

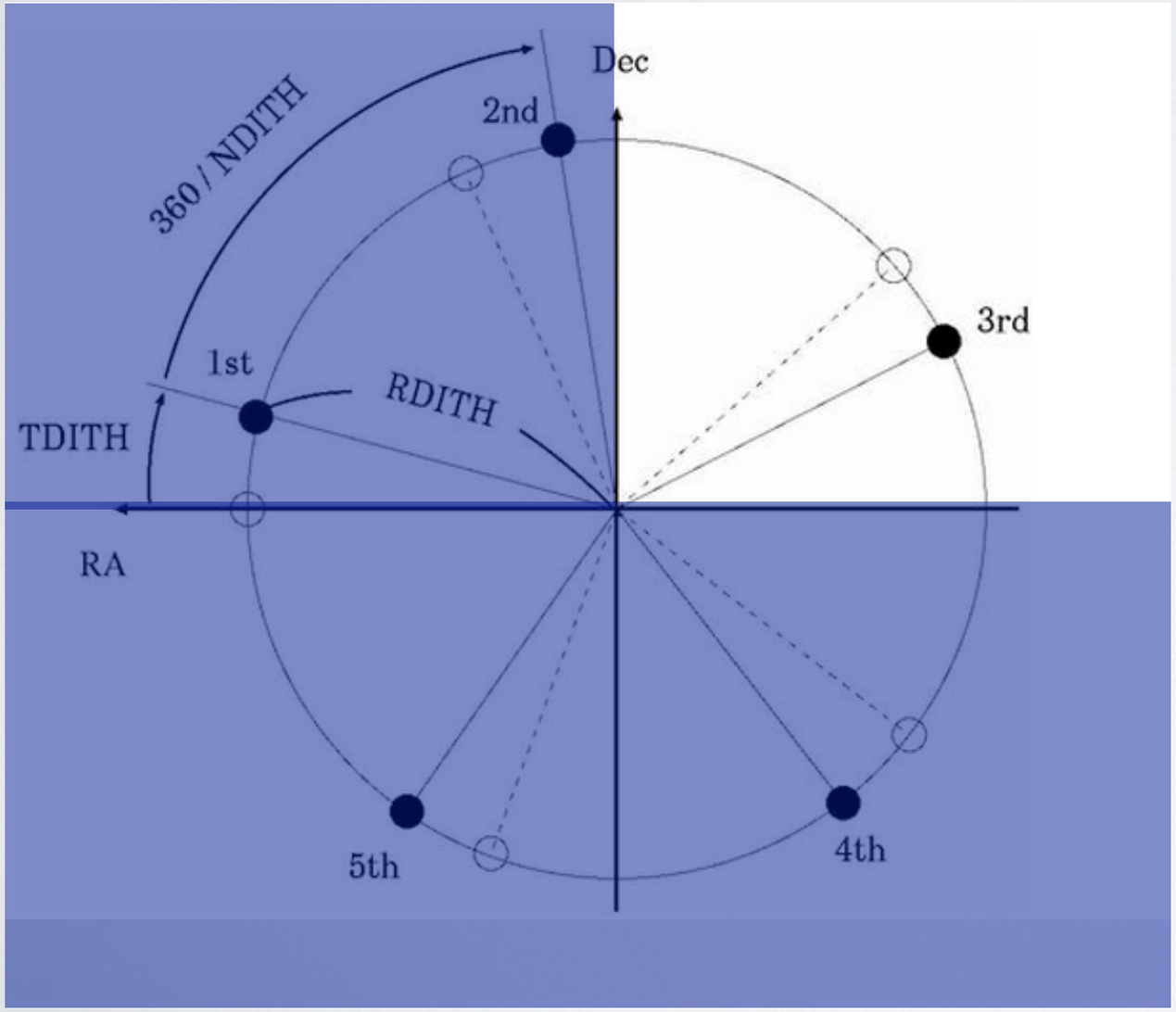


See http://www.naoj.org/staff/nakata/suprime/observing/opedir/ope.html#sec3_5

Skip and Stop in Dither = N mode

Dither=N

dith1==rdith, dith2==tdith



- Flexibility of splitting a long dither into smaller groups
- Skip: skips X dithers, begins at (X+1)th dither
  e.g. Skip=2, begins at the 3rd dither
- Stop: stops at Yth dither
  e.g. stop =3, integration finishes at the 3rd dither.

See http://www.naoj.org/staff/nakata/suprime/observing/opedir/ope.html#sec3_5

Telescope configuration

ph2-spdsht-exp.ods

Arial 10

I15

	A	B	C	D	E	F	G	H	I	J	K
1	Code	Foci	Dome	Comment							
2	p_opt2	P-OPT2	Open								
3	p_closed	P-OPT2	Closed								
4											
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targets | envcfg | inscfg | telcfg | ob

Sheet 4 / 5 | Default | Sum=0 | 100%

Observing blocks

A	B	C	D	E	F	G	H	I
Code	tgtcfg	inscfg	telcfg	envcfg	On-src Time	Total Time	Priority	Comment
n1234_g1	n1234	g_300x5	p_opt2	dark_s0.8_am2_trans0.8	1500	1700	1	
n1234_g2	n1234	g_300x5	p_opt2	dark_s0.8_am2_trans0.8	1500	1700	1	
n1234_g3	n1234	g_300x5	p_opt2	dark_s0.8_am2_trans0.8	1500	1700	1	
n1234 i1	n1234	i_300x4	p_opt2	gray_s1_am2.5_trans0.5	1200	1360	1	
n1234 # r1	n1234	r_300x1	p_opt2	gray_s1_am2.5_trans0.5	300	340	2	
This is OB y1	n1234	Y_300x6	p_opt2	gray_s1_am2.5_trans0.5	1800	2040	3	
This is OB y2	n1234	Y_300x6	p_opt2	gray_s1_am2.5_trans0.5	1800	2040	3	
This is OB y3	n1234	Y_300x6	p_opt2	gray_s1_am2.5_trans0.5	1800	2040	3	
This is OB y4	n1234	Y_300x6	p_opt2	gray_s1_am2.5_trans0.5	1800	2040	3	
					#N/A	#N/A		
10	H9000	g_300x5	p_opt2	dark_s0.8_am2_trans0.8	1500	1700	1	
11	H9000	g_300x5	p_opt2	dark_s0.8_am2_trans0.8	1500	1700	1	
12	H9000	g_300x5	p_opt2	dark_s0.8_am2_trans0.8	1500	1700	1	
13	H9000	i_300x4	p_opt2	gray_s1_am2.5_trans0.5	1200	1360	1	
14	H9000	r_300x1	p_opt2	gray_s1_am2.5_trans0.5	300	340	2	
15	H9000	Y_300x6	p_opt2	gray_s1_am2.5_trans0.5	1800	2040	3	
16	H9000	Y_300x6	p_opt2	gray_s1_am2.5_trans0.5	1800	2040	3	
17	H9000	Y_300x6	p_opt2	gray_s1_am2.5_trans0.5	1800	2040	3	
18	H9000	Y_300x6	p_opt2	gray_s1_am2.5_trans0.5	1800	2040	3	

Customized OB codes
reported in qplan

"codes" defined in
targets, envcfg, inscfg, telcfg

OB priorities within one proposal
1 is highest

Note:
Priority 1 OBs are not always executed first

Observing blocks: sanity check

I	J
Comment	Total On-src Time
	26400
	Total Allocated Time
	36000
	On-src Time Check
	total on-src time ok

Total on-src time <= Total allocated time

OB preparation remarks

- *Readout and data transfer overheads are not charged to PIs, but they are included in each OB total time for scheduling purposes.*

- Average overhead per exposure is ~ 40 sec.
  e.g. 5-point dither, 300 sec per exposure
  tot exp. time is (300+40) sec x 5 = 1700 sec.

Code	tgtcfg	inscfg	telcfg	envcfg	On-src Time	Total Time	Priority	Comment
n1234_g1	n1234	g_300x5	p_opt2	dark_s0.8_am2_trans0.8	1500	1700	1	
n1234_g2	n1234	g_300x5	p_opt2	dark_s0.8_am2_trans0.8	1500	1700	1	
n1234_g3	n1234	g_300x5	p_opt2	dark_s0.8_am2_trans0.8	1500	1700	1	
n1234 i1	n1234	i_300x4	p_opt2	gray_s1_am2.5_trans0.5	1200	1360	1	
n1234 # r1	n1234	r_300x1	p_opt2	gray_s1_am2.5_trans0.5	300	340	2	
This is OB y1	n1234	Y_300x6	p_opt2	gray_s1_am2.5_trans0.5	1800	2040	3	
This is OB y2	n1234	Y_300x6	p_opt2	gray_s1_am2.5_trans0.5	1800	2040	3	

- No limit for number of OBs per proposal

- No lower limit of exposure time per OB

- Columns/cells with built-in formulas are color-coded

OB preparation remarks

- Breakdown observations into shorter OBs

  Shorter OBs:

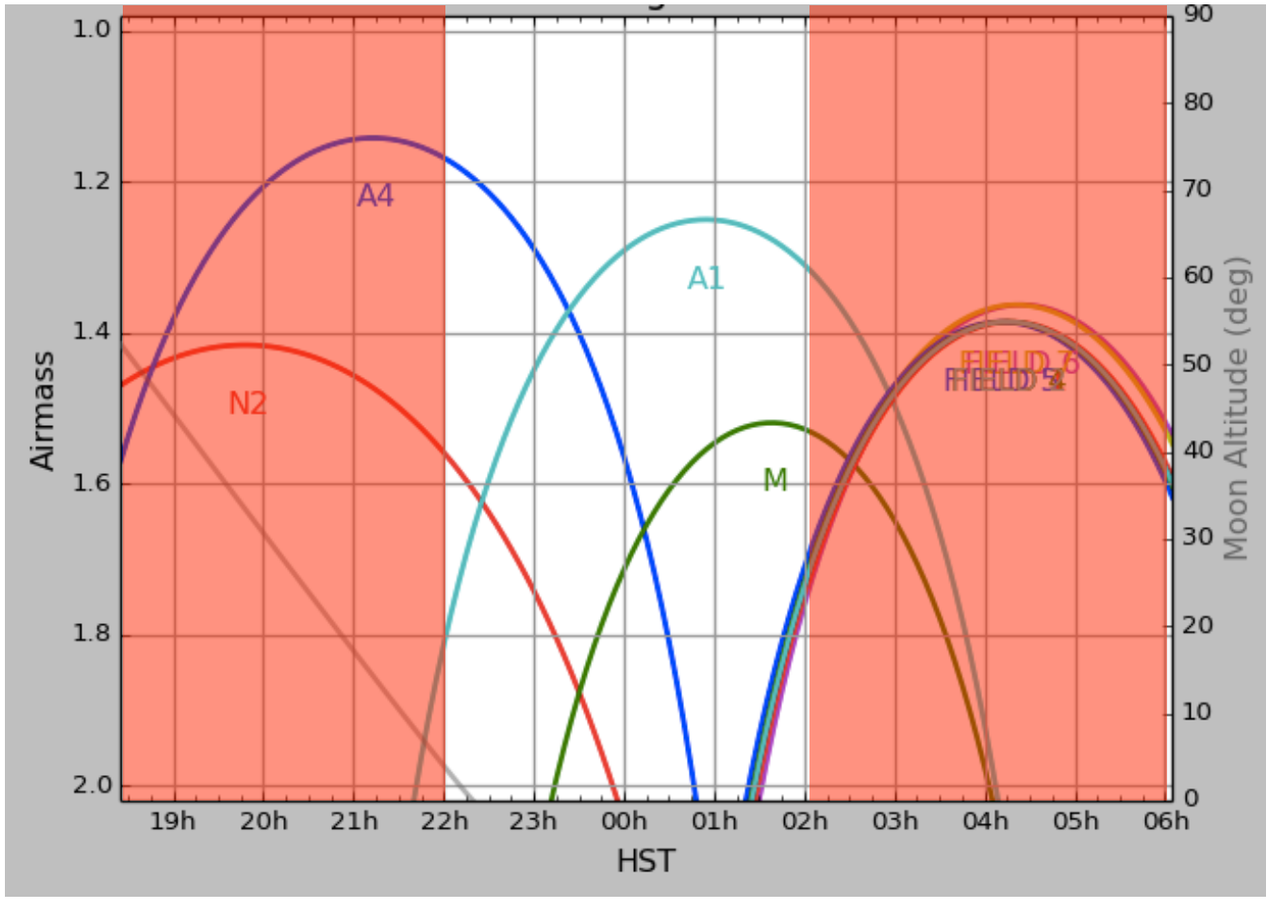
  - Easy and flexible to schedule
  - Minimize impact of sudden weather change, instrument malfunction, etc.

- *Each OB should not exceed 2 hours (including all overheads)*
  On-source time per OB should not exceed 100 min.

<u>e.g. 10 hours allocated</u>

5-hr OB x 2?

2-hr OB x 5?



5-hr OB x 2, CR = 0%

2-hr OB x 5, CR = 100% (2.5 nights)

Questions?

How to use Phase 2 tool and hands-on session

Please open

ph2-spdsht-exp.xls
ph2-spdsht-prac.xls

on your laptop