



Lessons learned from 12 years of Queued Service Observations

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Plan



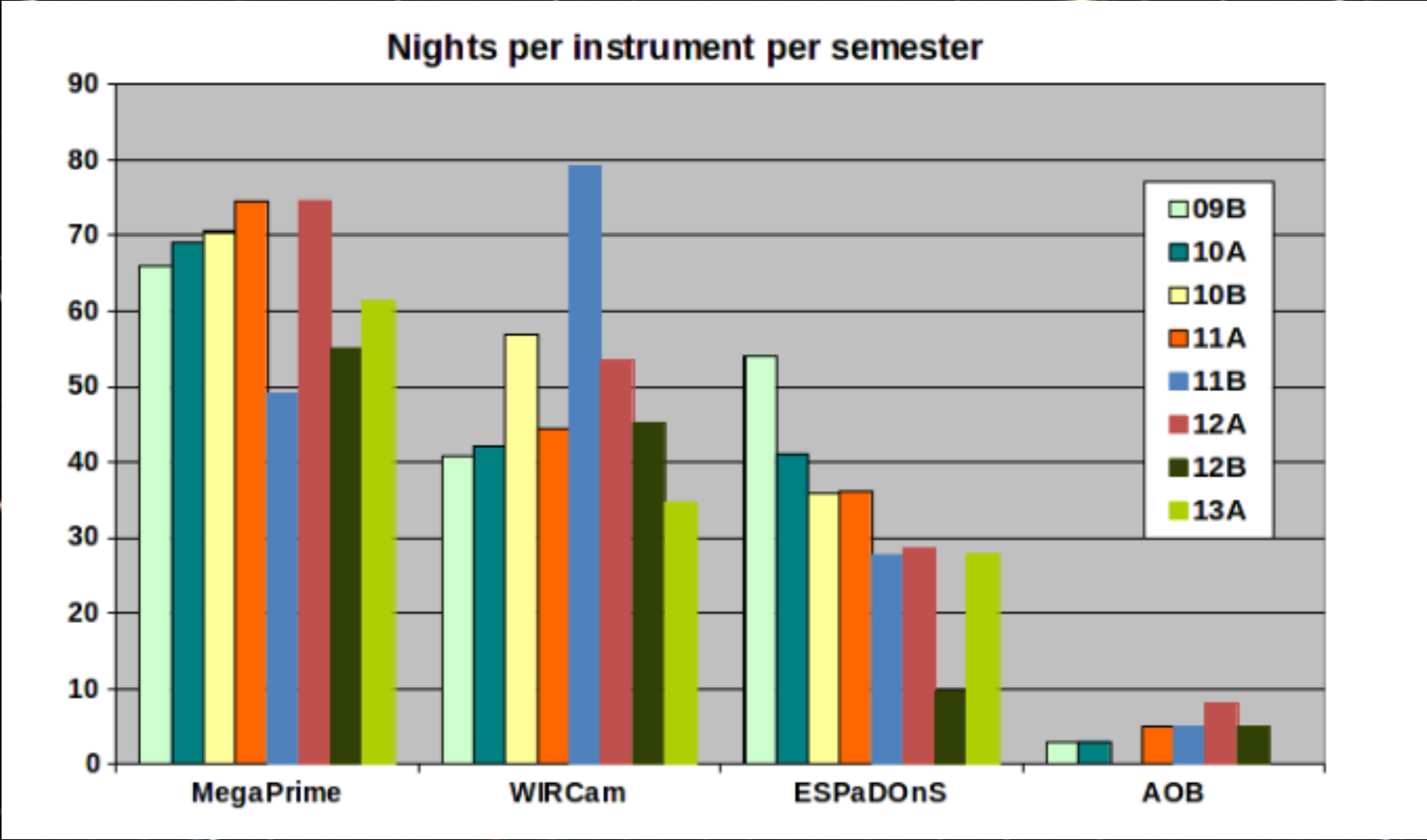
- Quick history of QSO at CFHT.
- CFHT Science Operations and QSO in a nutshell.
- Keys to an efficient QSO system
- Lessons learned.



The history of the CFHT QSO

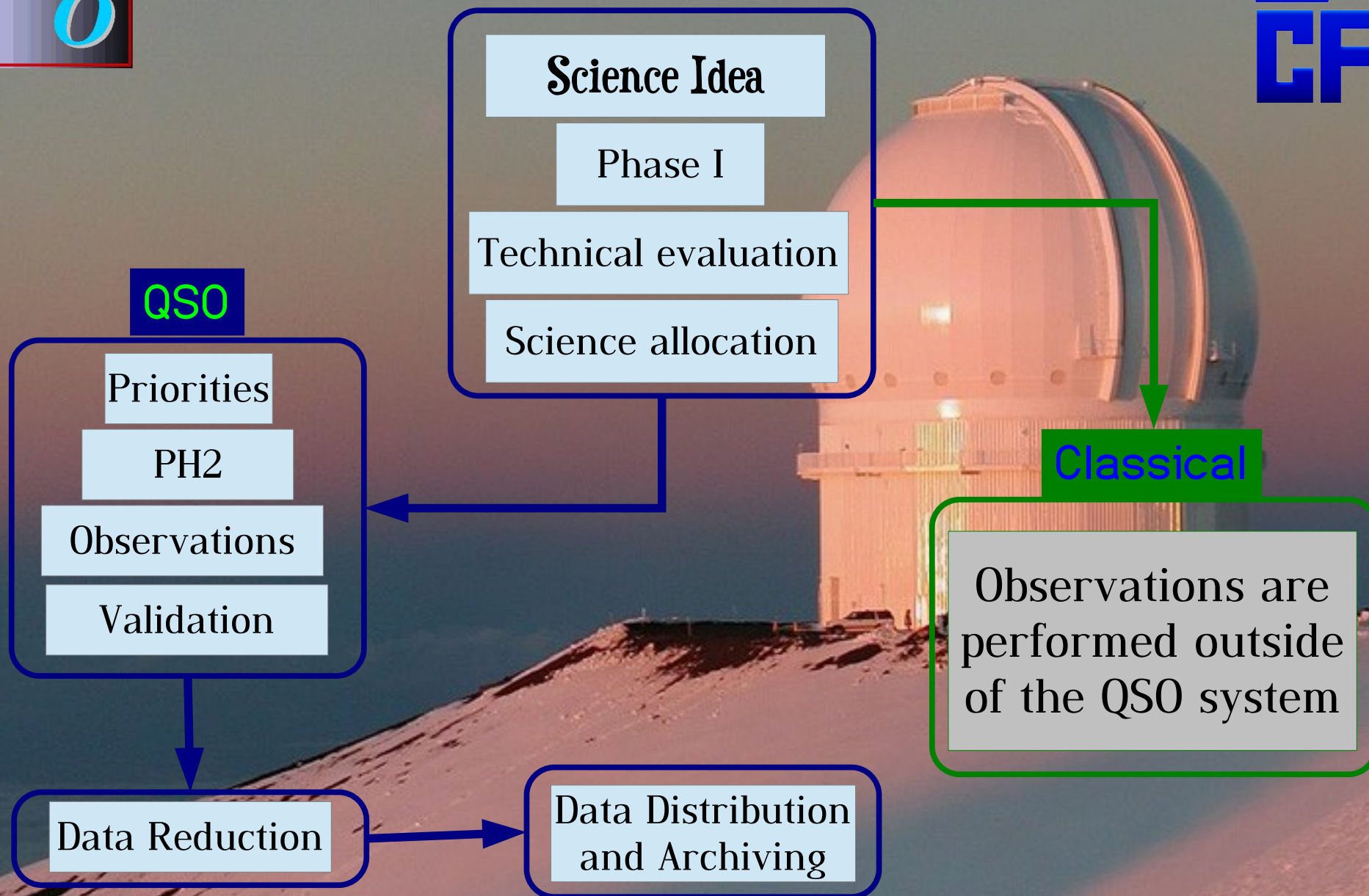


- 2001A CFH2IK – 56 nights
- 2003A MegaCam – 92 nights
- 2005B MegaCam, WIRCam – 105 nights
- 2008A MegaCam, WIRCam, ESPaDOnS – 170 nights





CFHT Science Operations





The CFHT QSO in a nutshell



- A quick word on priorities

*Agency
Allocated
time.*

PI	TAC rank	QSO Grade	QSO Rank	Time(h)
Smith	0.5	A	1	10h
Tremblay	0.64	A	2	30h
Chen	0.72	B	1	20h
Arnouts	0.88	B	2	15h
Hula	0.95	B	3	25h
Devost	1.1	C	1	10h
Manset	1.17	C	2	20h
(snapshot)		S	1	



The CFHT QSO in a nutshell



PH2

PI/QSO team

Validation

Queue Coordinator

-Processing
-Quality check
-Data Delivery

Observations

Remote Observer
Queue Coordinator

Archival
(CADC)



The CFHT QSO in a nutshell



PH2

PI/QSO team

Processing
and
Delivery

Validation
Queue Coordinator

Observations

Remote Observer
Queue Coordinator

Archival
(CADC)



The CFHT QSO in a nutshell



- The nuts and bolts of QSO

1 Target

+

N Instrument Configuration(s)

+

1 Constraint

=

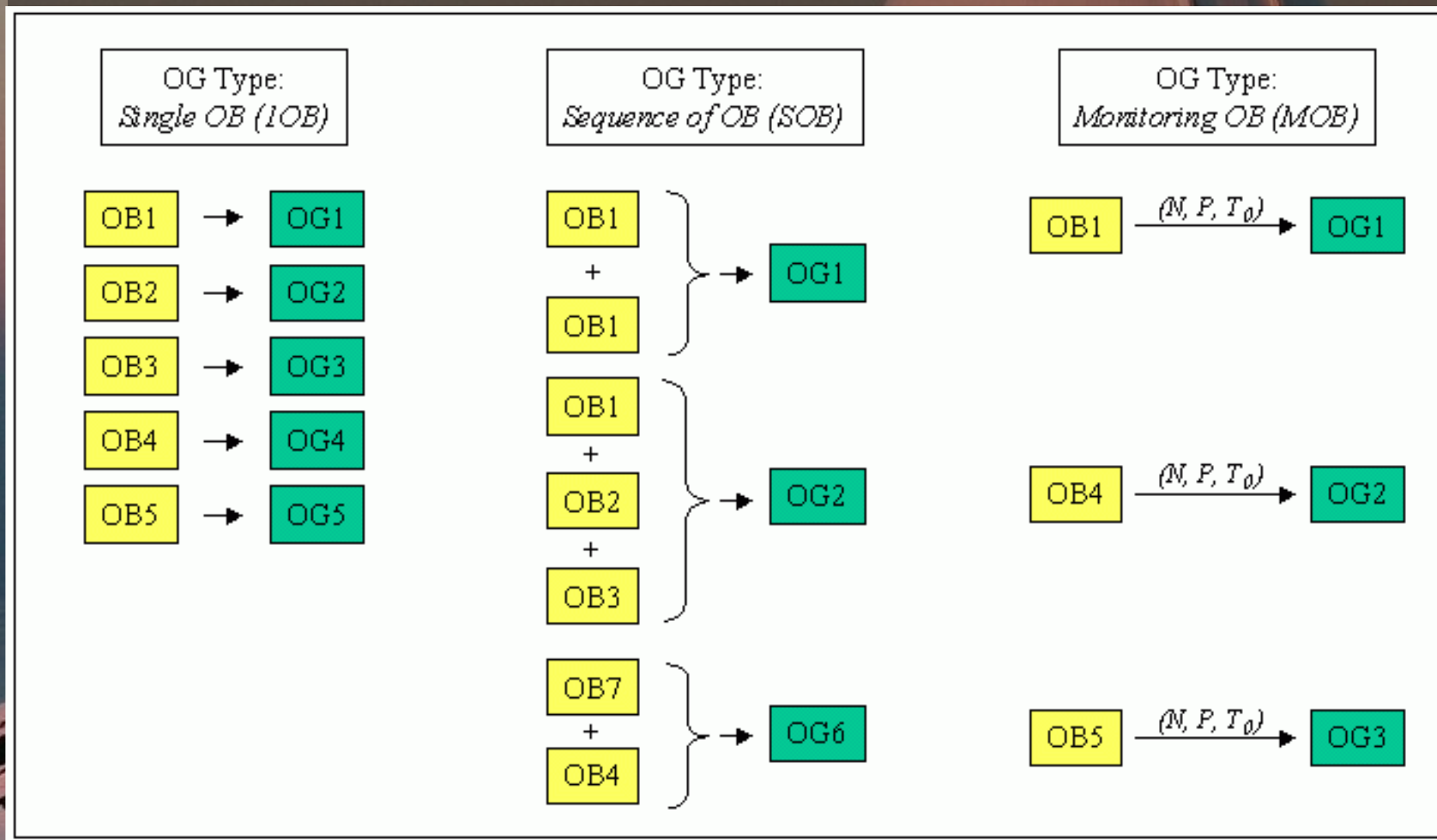
1 Observation Block



The CFHT QSO system in a nutshell



- The nuts and bolts of QSO.





The keys to an efficient system



- **Flexibility**; keep the PIs Happy
 - Allow PIs to make changes to their PH2 after the deadline.
 - Give the time back to PIs if an observing mistake is made, even if it is their fault.
 - Keep communicating directly with the PIs. A helpdesk did not work for us. PIs prefer one point of contact.



The keys to an efficient system



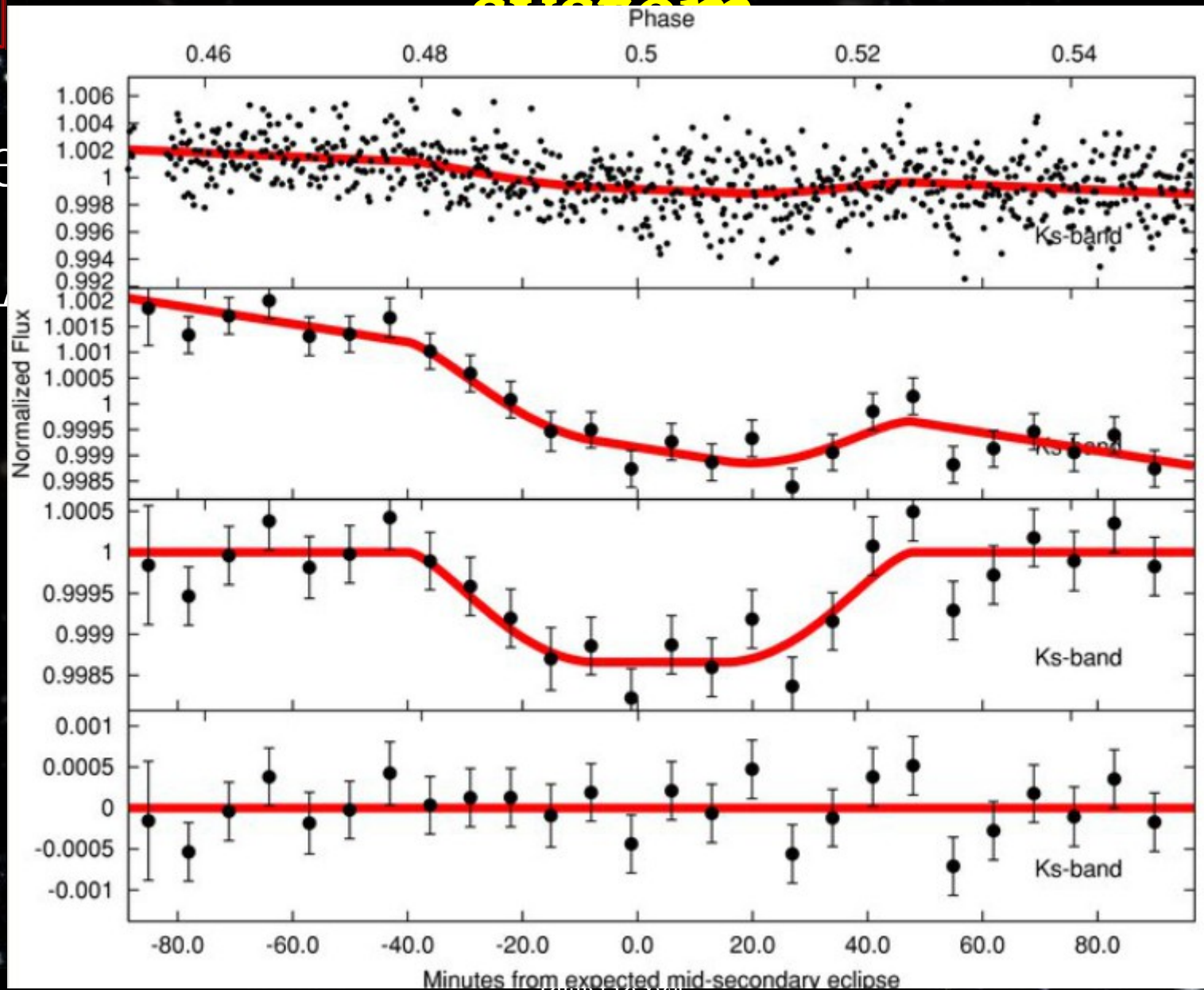
- **Flexibility**; System evolution
 - Allow for implementation of
 - New observing strategies
 - New observing modes
 - Carry-over of programs into subsequent semesters.



The keys to an efficient system



- Fle





The keys to an efficient system



- **Flexibility;** QSO system evolution





The keys to an efficient system



- **Communications**
 - Regular communications between PI and the QSO team.
 - Communication within the team
 - Strategy for the run/semester
 - Tactics for the short term
 - Execution on a nightly basis



The keys to an efficient system



- **Staff**; Queue Coordinators
 - Generally Astronomers on the staff
 - A good understanding of the instrument is needed
 - Prepares the observations during the day
 - Is on call at night
 - Validates the observations in the morning
 - Analyses how the observations were done and brings problems to the Observer.



The keys to an efficient system



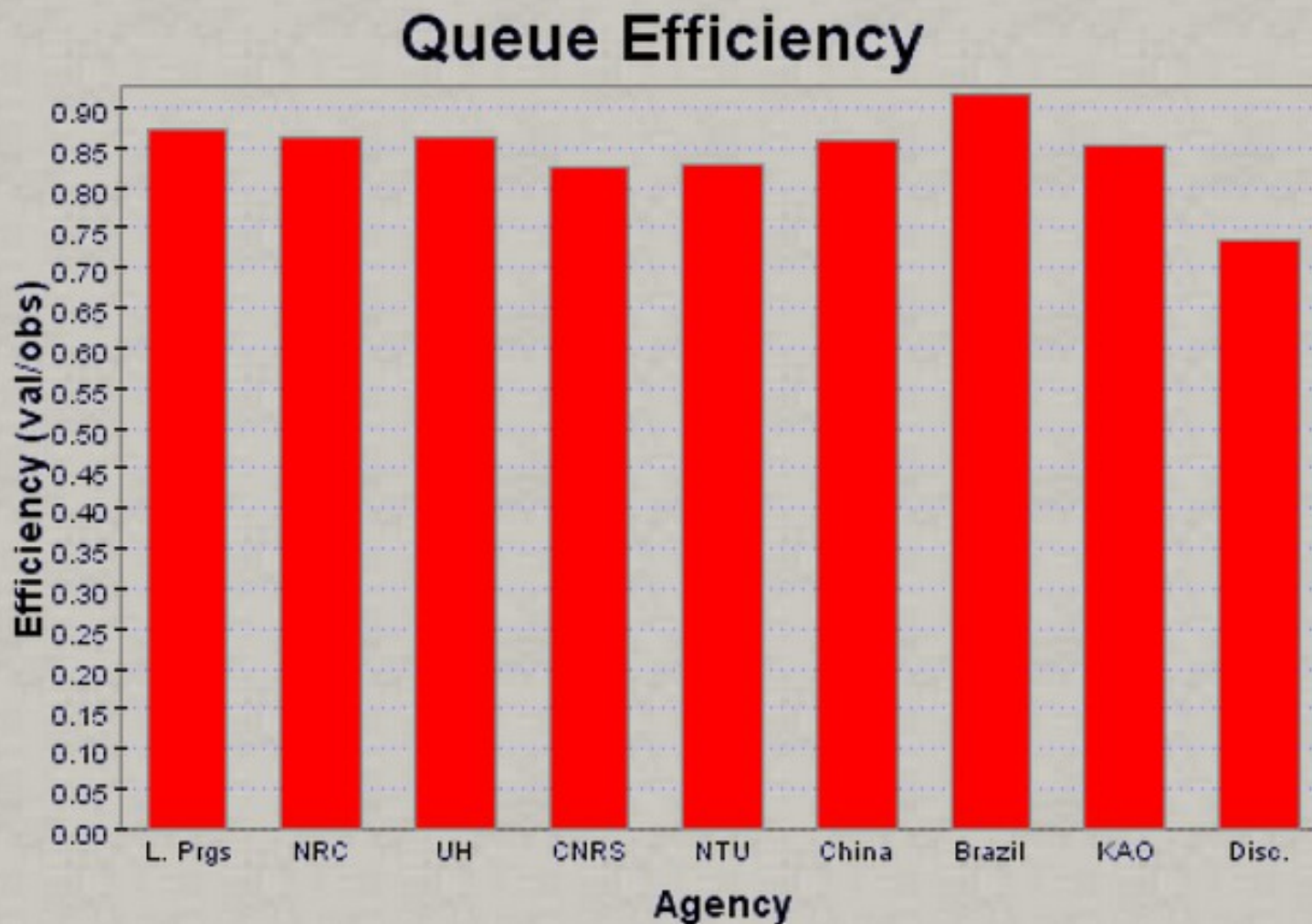
- **Staff**; Remote Observers.
 - Performs the observations at night
 - Grades the observations
 - Non-PhD but has to have good science background to understand the science programs and their relation to the weather conditions.
 - Good Observers can also be QCs.



The keys to an efficient system



- Adapting to weather conditions





The keys to an efficient system



- **Staff**
 - Senior QC and QSO manager.
 - Strategic planning of Semesters and Instrument runs.
 - Coordination of Science program constraints.
 - Direct communications with PIs.



The keys to an efficient system



- Pipelines
 - Technically outside of QSO at CFHT
 - An important point of contact for interactions with PIs.
 - Invaluable feedback on the quality of the QSO process.



Lessons learned.



- Keep Pls happy, it's all about Optimizing the night time to Maximize Science Throughput.
 - Their involvement in all possible aspects of the system is beneficial.
- Observers have to be well trained to understand the science programs and their relation with observing condition, priorities, etc...
- Pipelines and data delivery have to be fast efficient and delivering high quality data products..