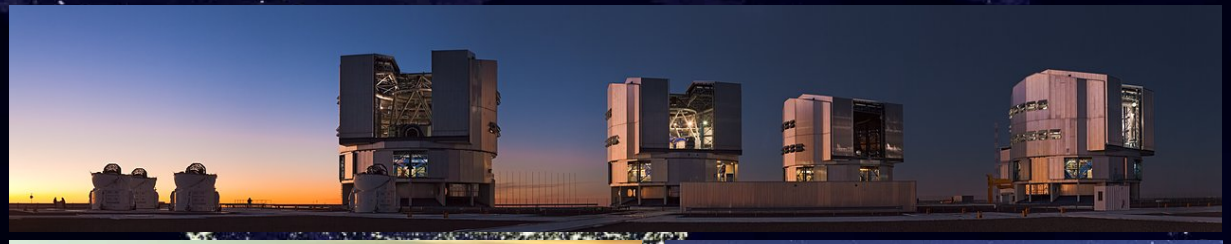
VLT/ELT Integrated Operations

Olivier **Hainaut** - ESO | DMO | **E2E**

Multi-site ESO



HQ

ELT

VLT

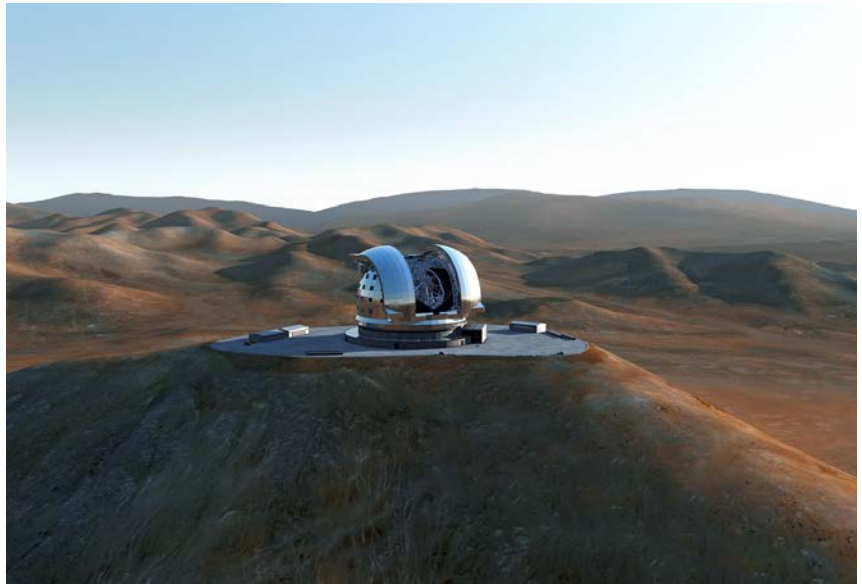
ALMA

APEX

La Silla

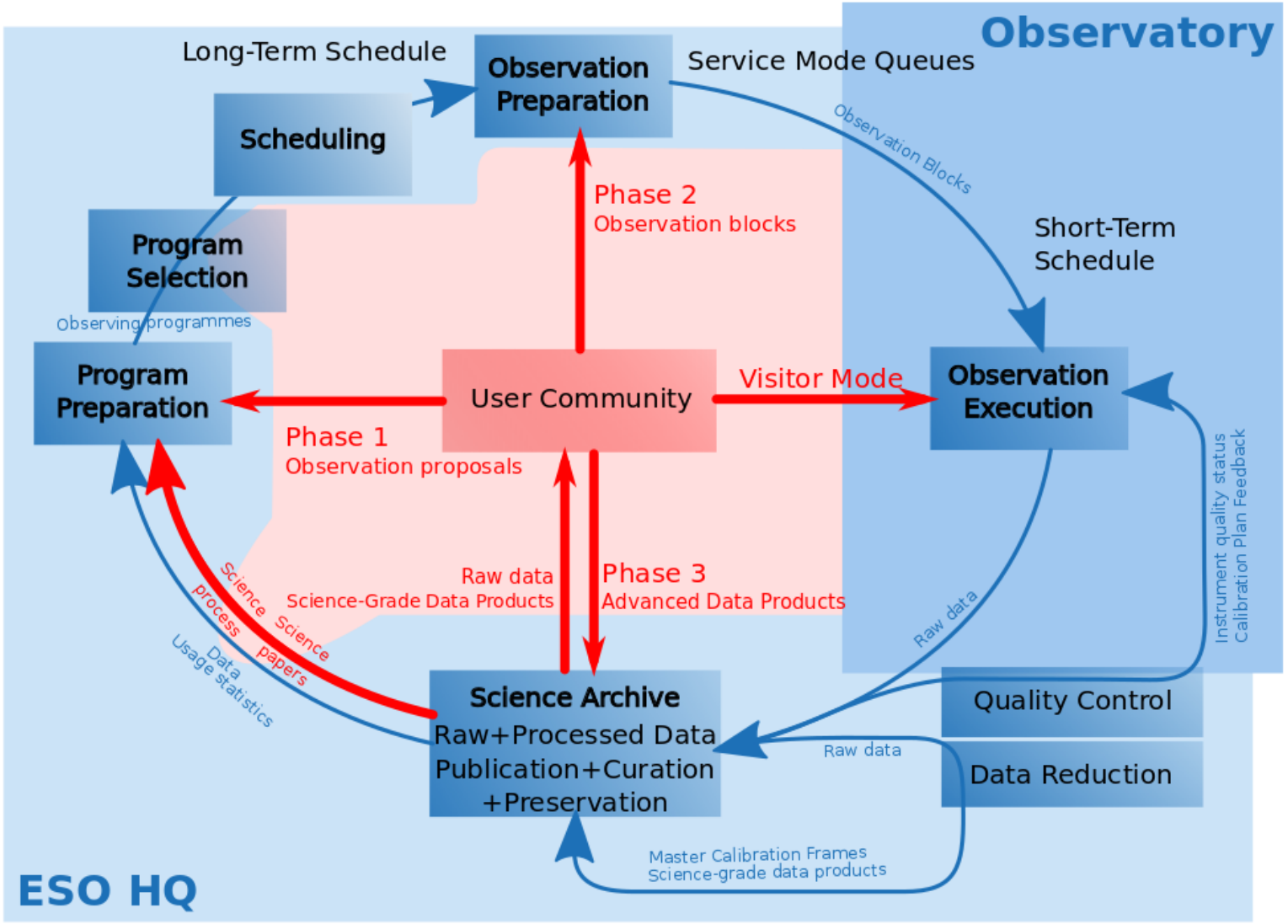
SC

VLT and ELT

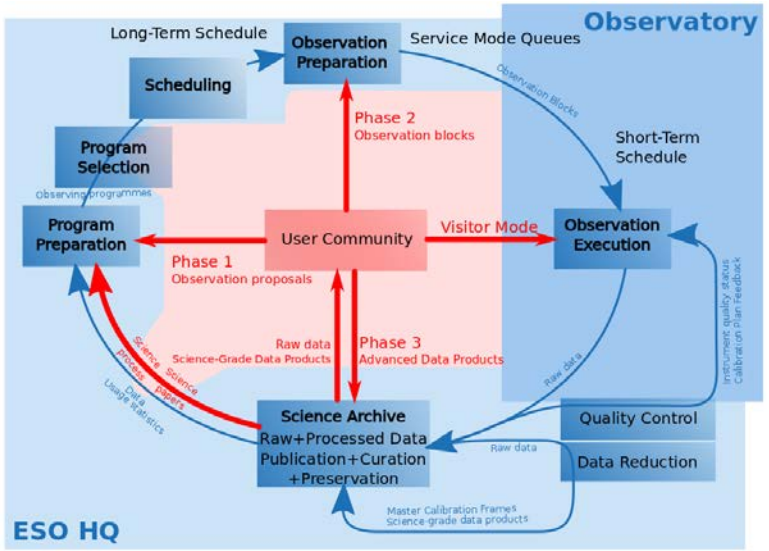


Top-level requirement:
ELT operations to be integrated into VLT operations

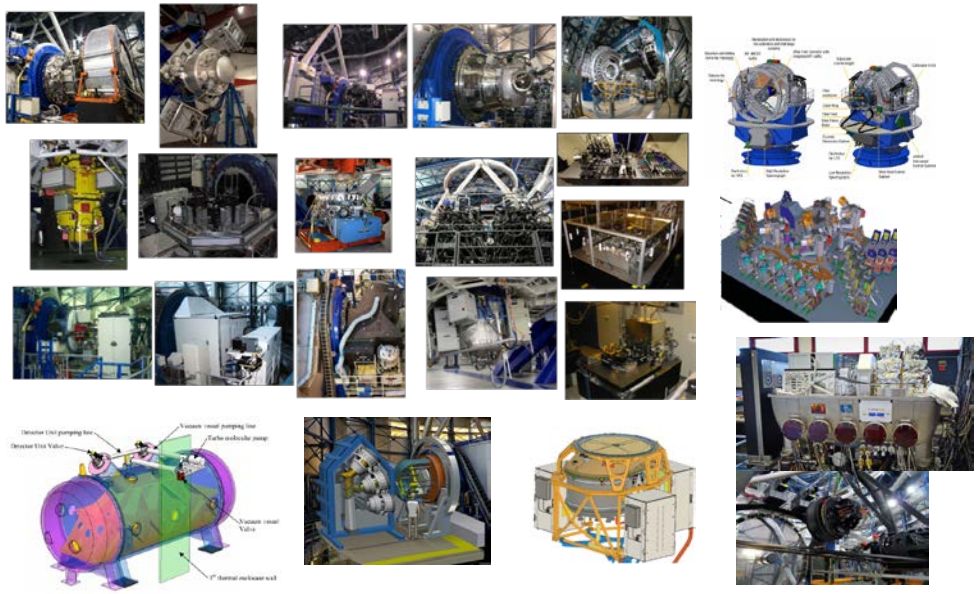
End-to-end operations model: Data-Flow System wheel



End-to-end operations model: Data-Flow System ~~wheel~~ Ring



x

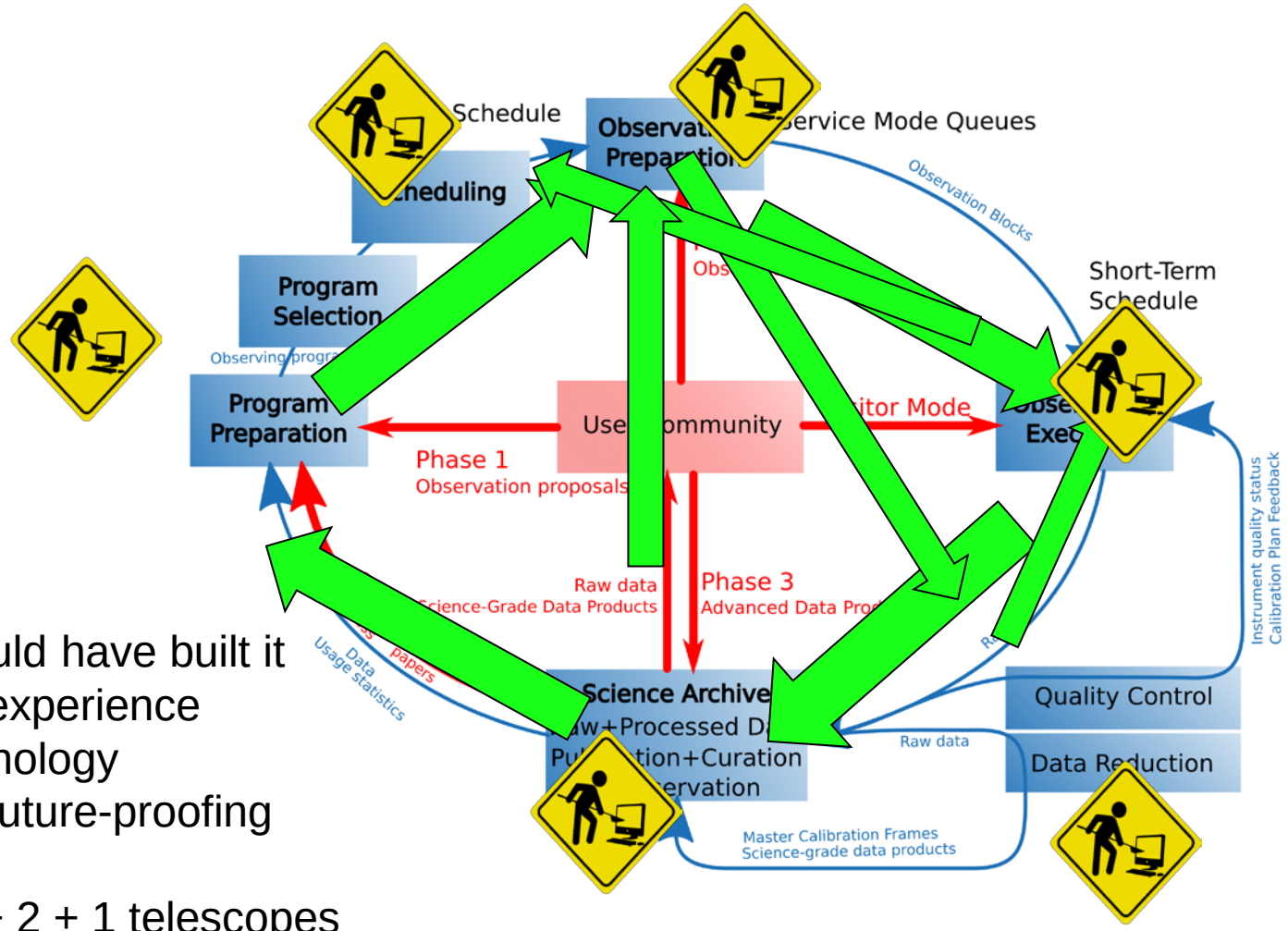


One DFS to rule them all, one DFS to operate them,
One DFS to bring them all to the community, and in the dark night bind them…

Requirements

- ELT
  - Top Level Req, 1st Level Req: ***ELT ops integrated in VLT ops***
  - Science Ops Requirements + ELT Instruments Req.
- External stakeholders
  - ESO + Community + Consortia + …
- Experience + lesson learned
- Internal from DataFlow System
  - New requirements + new possibilities
  - Obsolescence
  - Integrate all E2E processes
    - Same conventions
    - Free flow of information

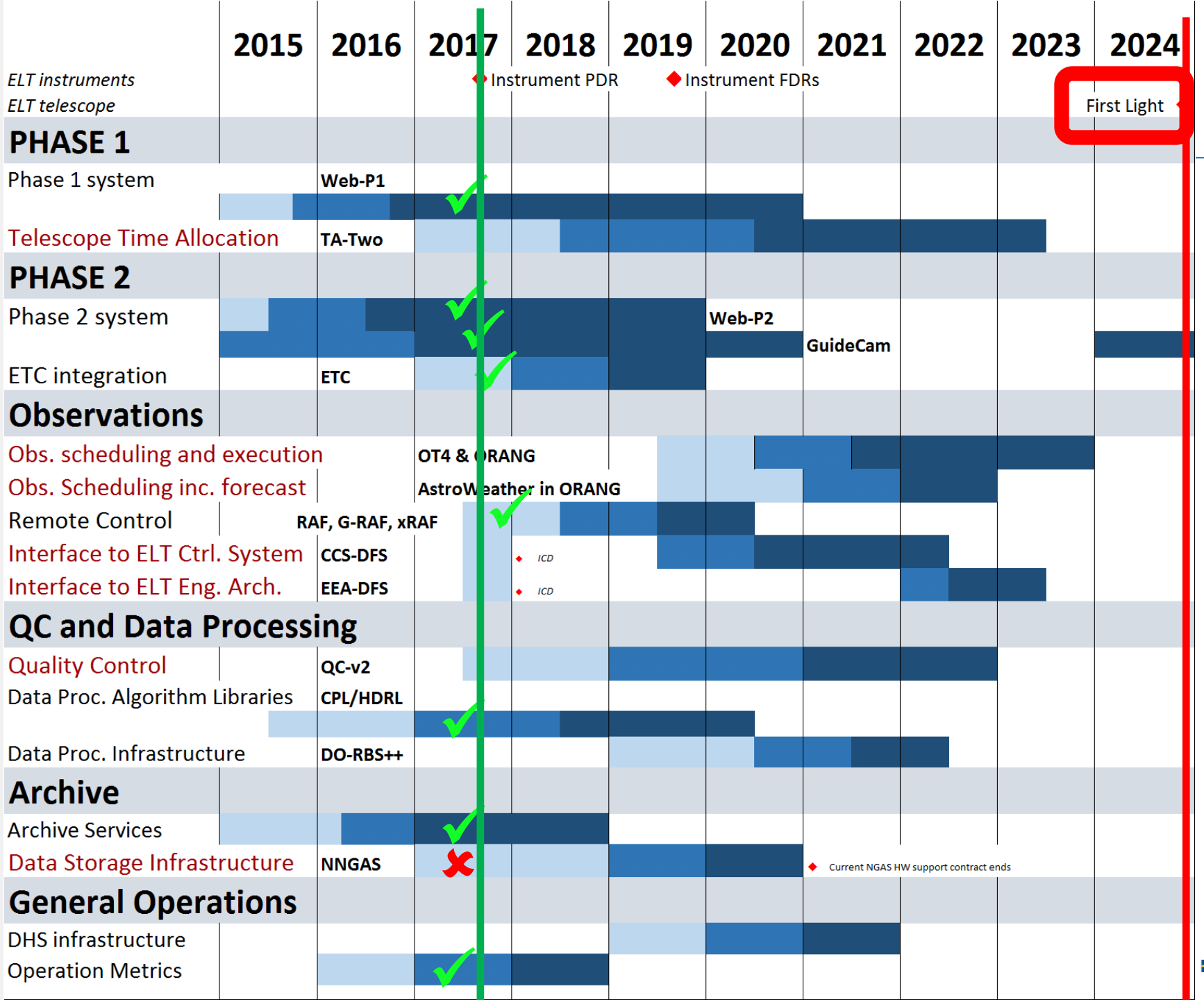
End-to-end operations model: DFS wheel



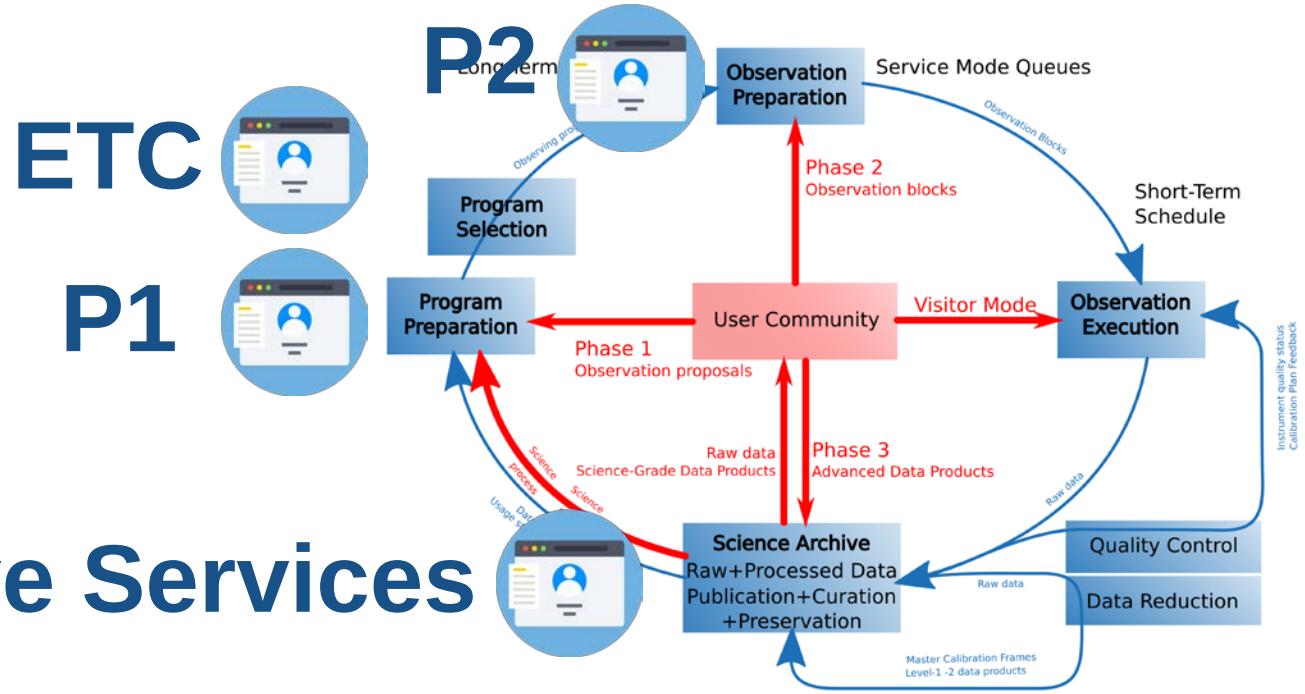
Re-build the DFS
- as we would/should have built it
- with 20 years of experience
- with today's technology
- with 20 years of future-proofing

While in operations
- supporting 4+2+4+ 2 + 1 telescopes
- and 20++ instruments
- and 2000 proposals / year

Implementation Roadmap



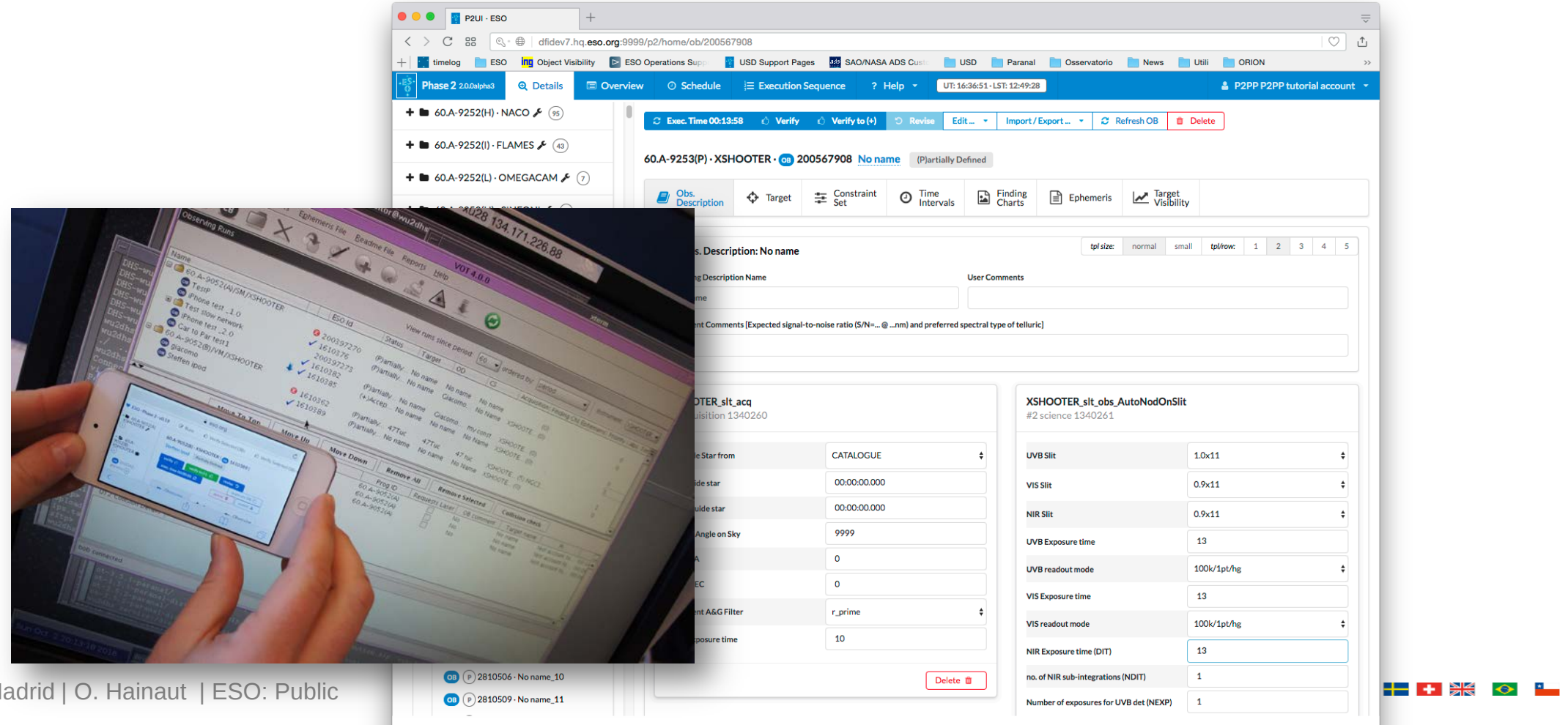
Integration: Web tools



- Same technology stack (RestAPI, Angular, Semantic UI)
- Same UI convention
- Same underlying models (Instrument Packages, Databases…)

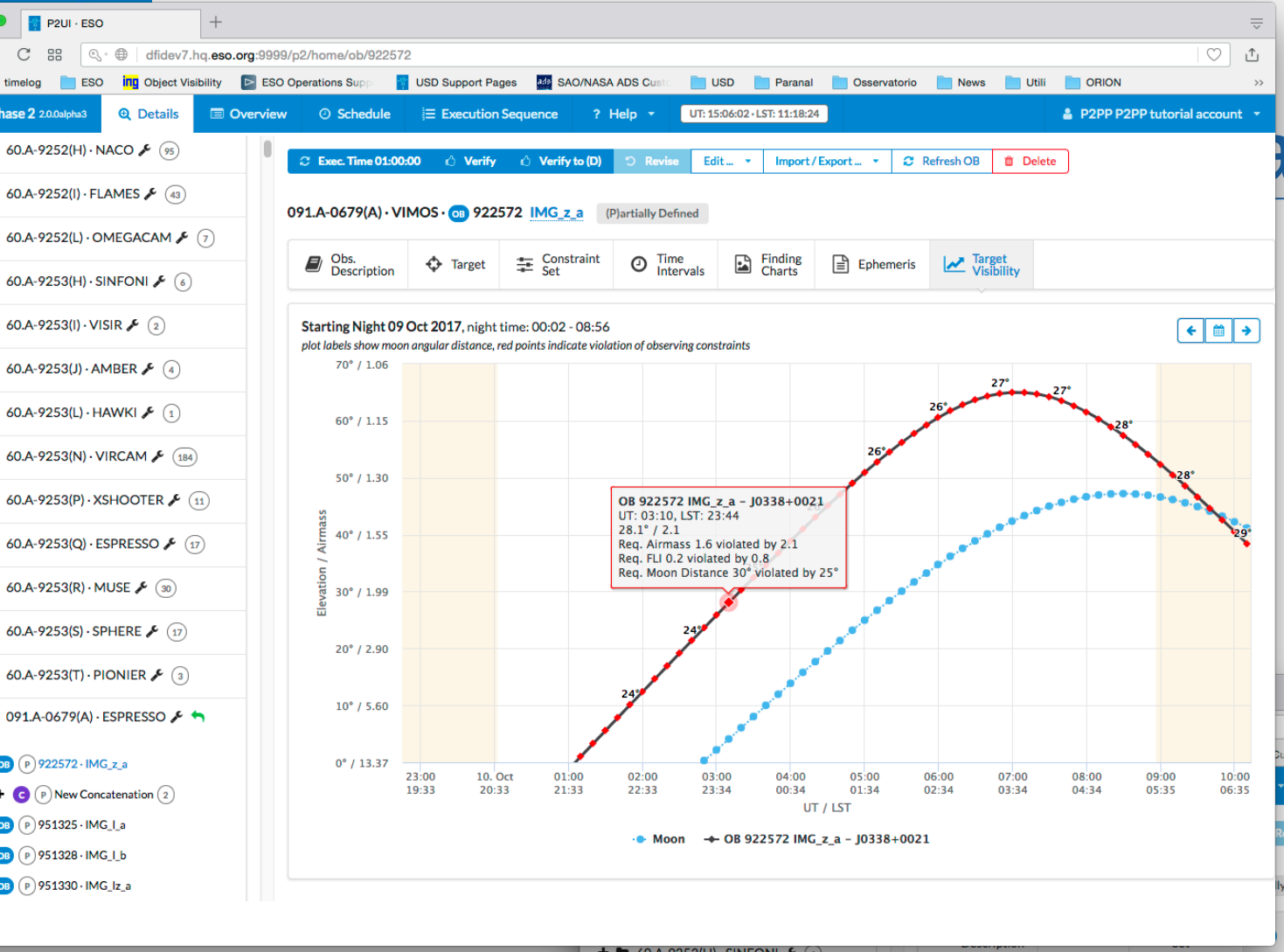
p2
Observation preparation on the web

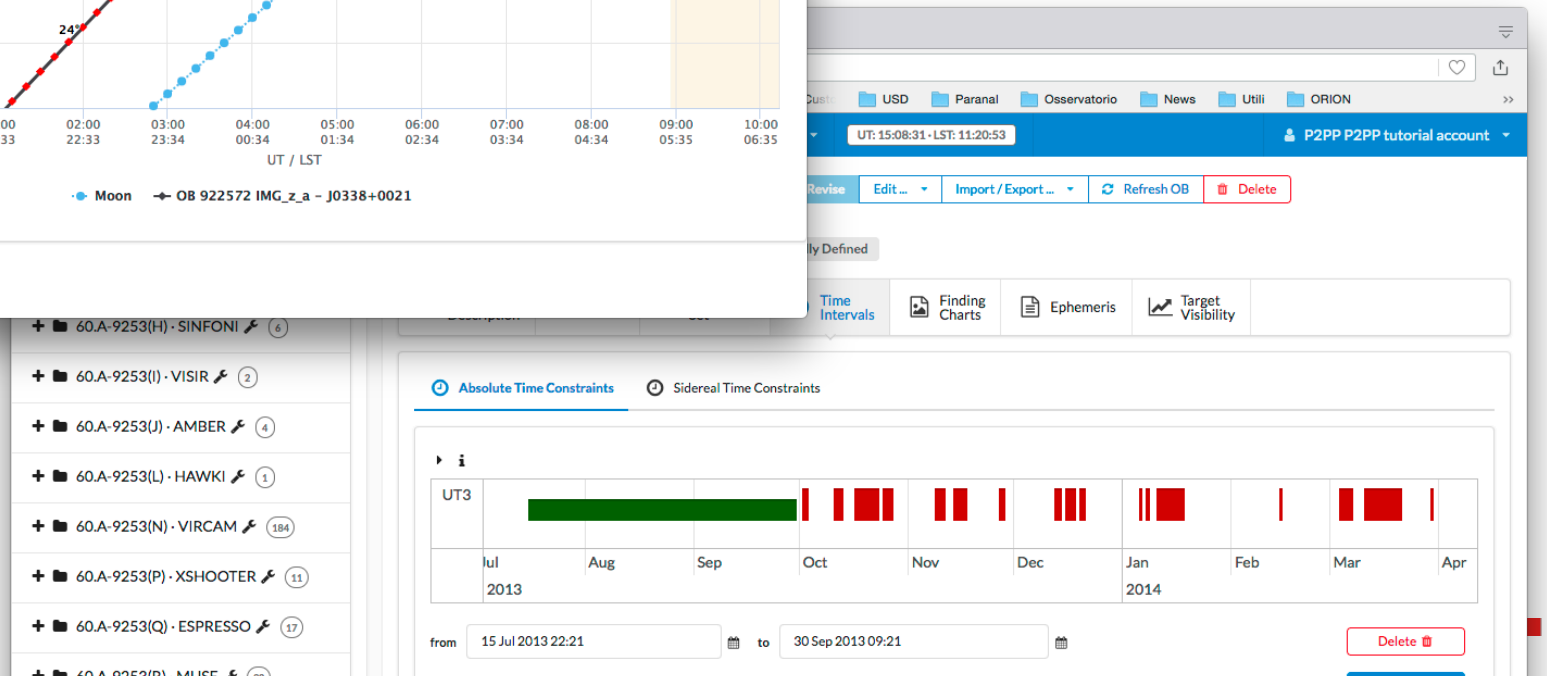
API + bi-directional database replication



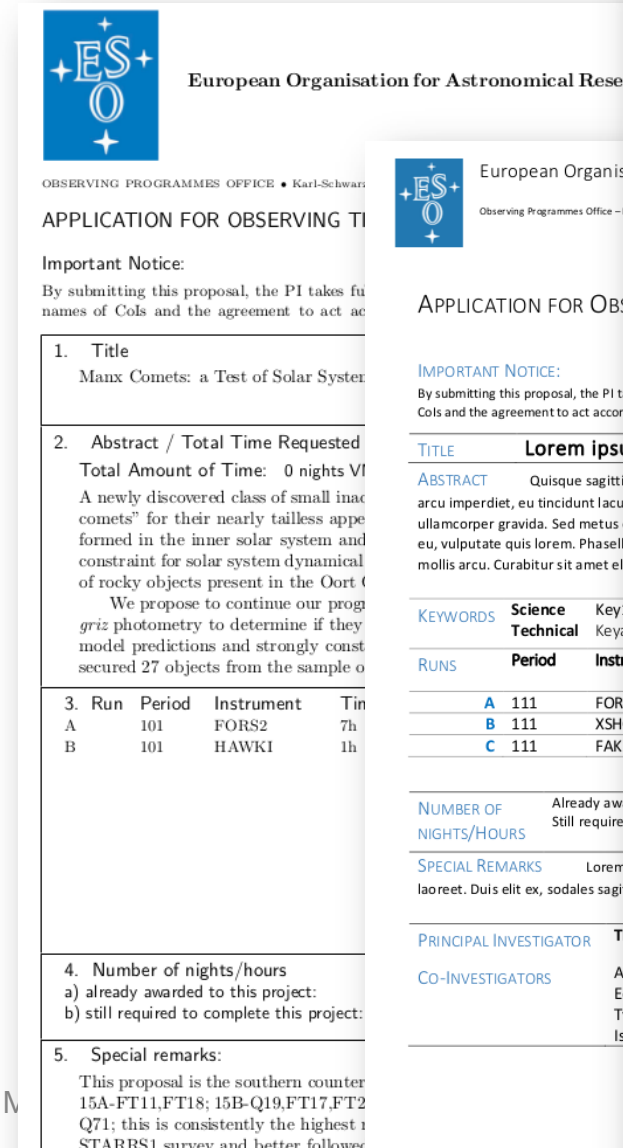
ation on the web

- Visitor Mode:
  in production
- Service Mode:
  end 2017





P1
Proposal preparation + handling



European Organisation for Astronomical Rese

OBSERVING PROGRAMMES OFFICE • Karl-Schwar

APPLICATION FOR OBSERVING TI

Important Notice:

By submitting this proposal, the PI takes fu
names of CoIs and the agreement to act ac

1. Title

Manx Comets: a Test of Solar Syster

2. Abstract / Total Time Requested

Total Amount of Time: 0 nights VI

A newly discovered class of small inac
comets" for their nearly tailless appe
formed in the inner solar system and
constraint for solar system dynamical
of rocky objects present in the Oort C

We propose to continue our progr
griz photometry to determine if they
model predictions and strongly const
secured 27 objects from the sample o

3. Run	Period	Instrument	Tin
A	101	FORS2	7h
B	101	HAWKI	1h

4. Number of nights/hours
a) already awarded to this project:
b) still required to complete this project:

5. Special remarks:

This proposal is the southern counter
15A-FT11,FT18; 15B-Q19,FT17,FT2
Q71; this is consistently the highest
STARRS1 survey and better followe

European Organis

Observing Programmes Office –

APPLICATION FOR OBS

IMPORTANT NOTICE:

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CoIs and the agreement to act accor

TITLE **Lorem ipsu**

ABSTRACT Quisque sagitti
arcu imperdiet, eu tincidunt lacu
ullamcorper gravida. Sed metus
eu, vulputate quis lorem. Phasell
mollis arcu. Curabitur sit amet el

KEYWORDS **Science** Key
Technical Key

RUNS **Period** **Instr**

A	111	FOR
B	111	XSH
C	111	FAK

NUMBER OF NIGHTS/HOURS Already aw
Still require

SPECIAL REMARKS Lorem
laoreet. Duis elit ex, sodales sagi

PRINCIPAL INVESTIGATOR T

CO-INVESTIGATORS A
E
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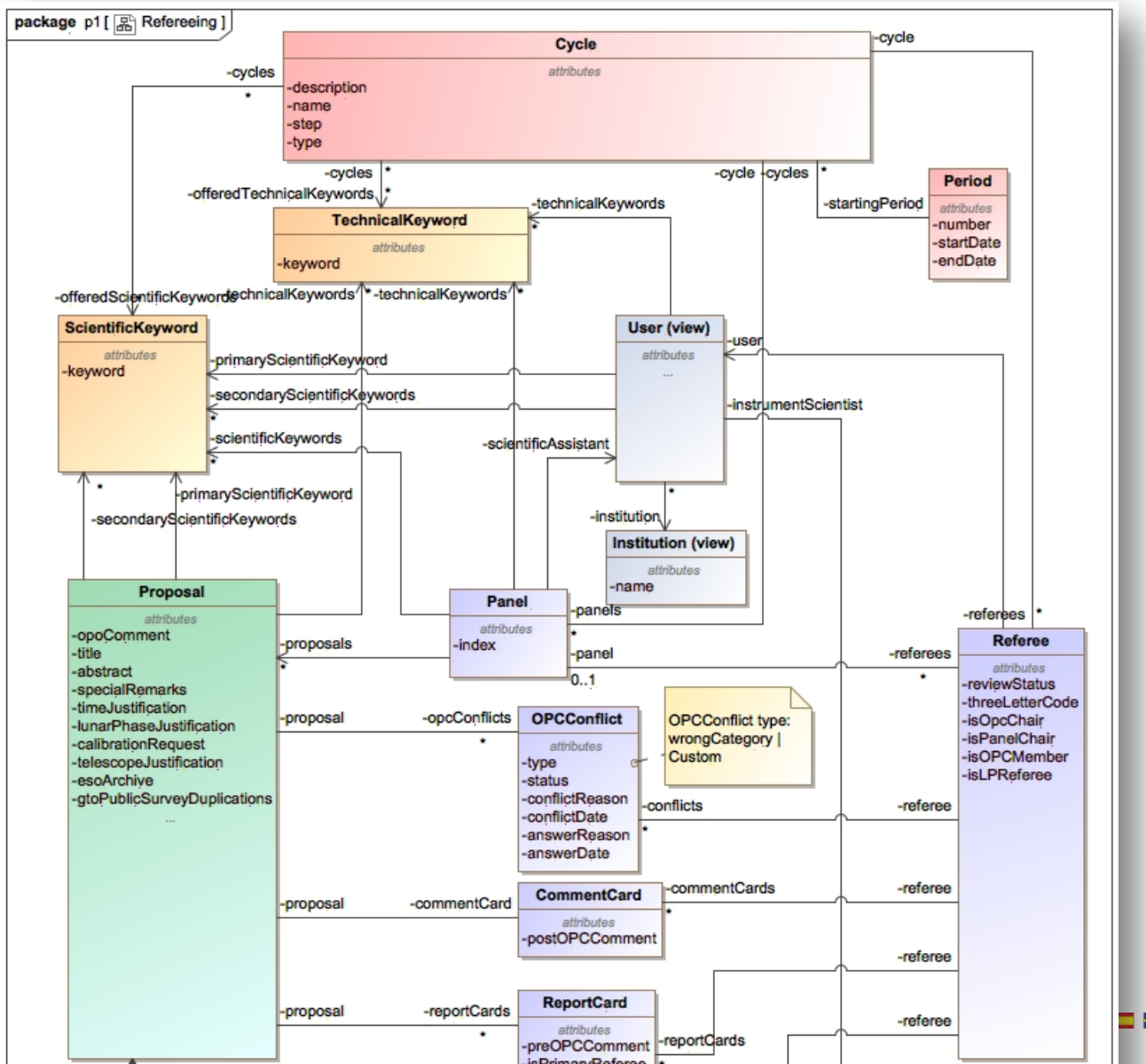
Is



ETC
Instrument simulators

Target Input Flux Distribution

Template Spectrum	A0V (Pickles)	Redshift z = 0.00
MARCS Stellar Model	Teff=4000 log(g)=-0.5 [Fe/H]= 0 M= 1	
Upload Spectrum	Select...	
Blackbody	Temperature: K	
Power Law	Index: $F(\lambda) \propto \lambda^{index}$	
Emission Line	Lambda: nm Flux: 10^{-16} ergs/s/cm^2 *(per arcsec^2 for exte*	
	FWHM: nm	

Spatial Distribution: Point Source Extended Source

Sky Conditions

Almanac

Time

UT 16/10/2017 06:47:28

MJD 58042.28296295

Time step forward/back 1 hour + −

Paranal Local Civil Time LCT = 03:47:28

Paranal Local Sidereal Time LST = 03:45:47

Last third of night

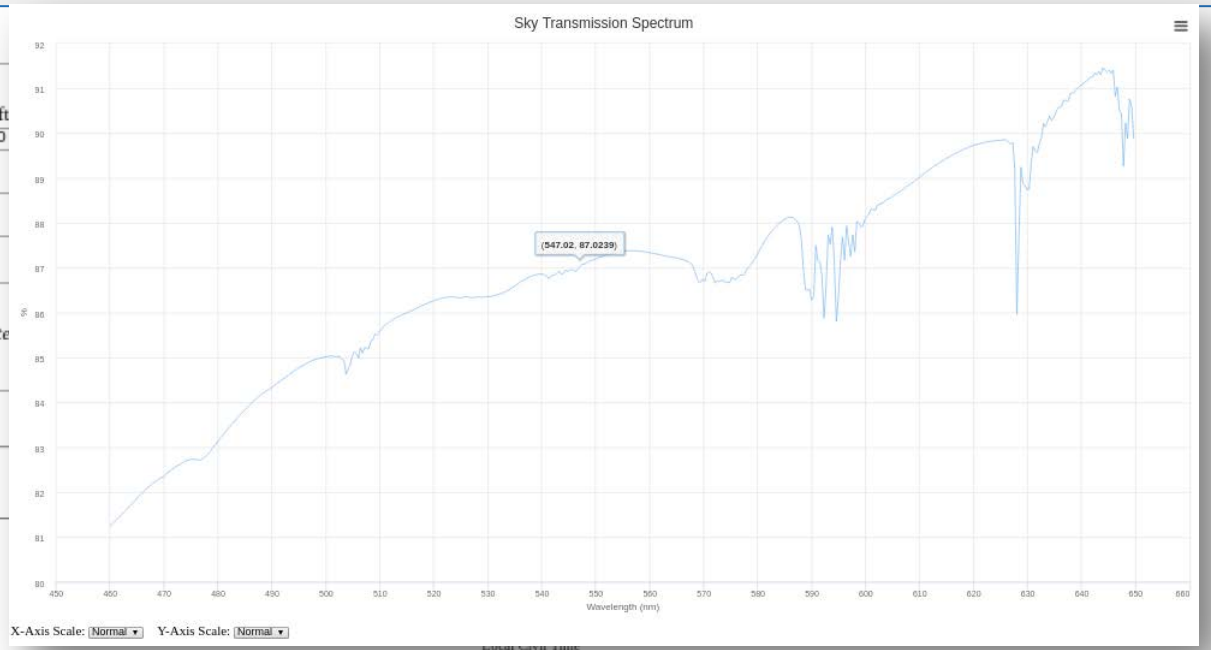
Target

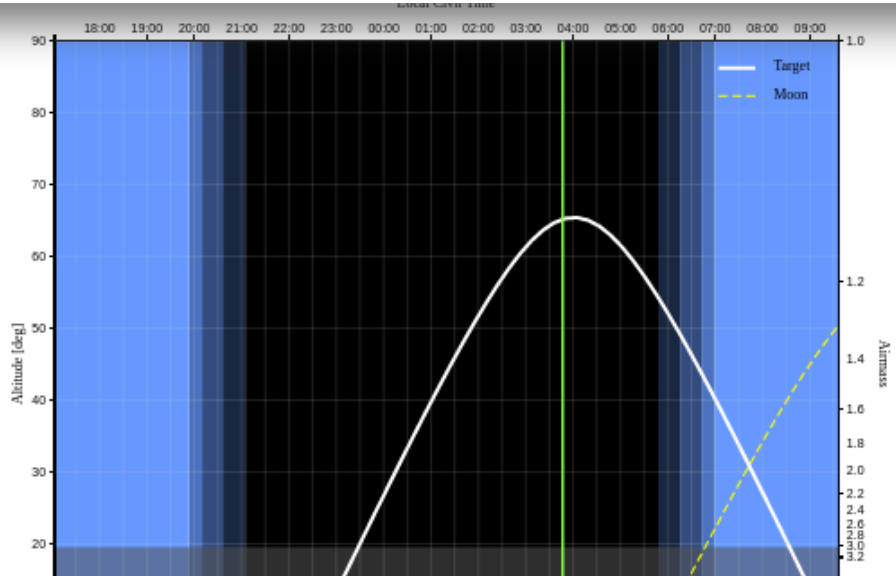
Target coordinates Name or ID: Aldebaran / HIP20109 / M33 ... search

α 04:00:00 δ 00:00:00 toggle units

	UT rise culm. set	Hour Angle	azimuth	altitude	zenith distance	airmass	FLI	moon/sun phase angle	moon/target separation
Target	01:02 07:01 13:00	23:45:47	8°.5	65°.1	24°.9	**1.1**			**103°.6**
Moon	08:06 14:10 20:13		88°.5	-19°.6			**0.13** "dark"	318°.4	
Sun	10:00 16:24 22:53		130°.1	-42°.1					

An advanced almanac is available in the ESO SkyCalc sky model calculator



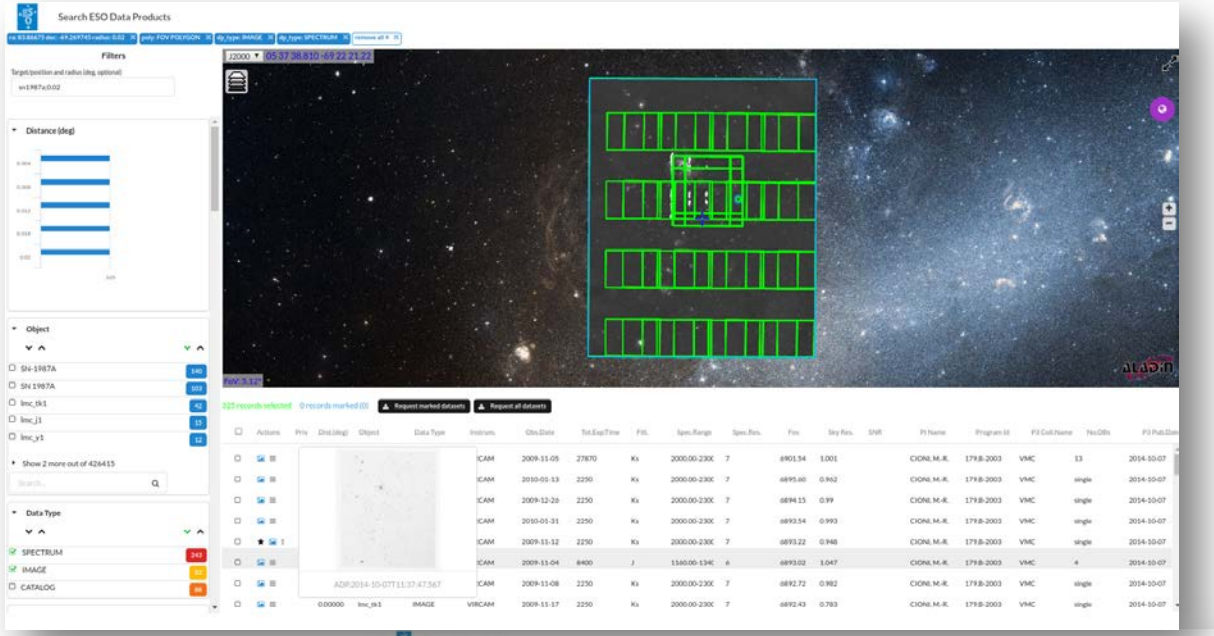


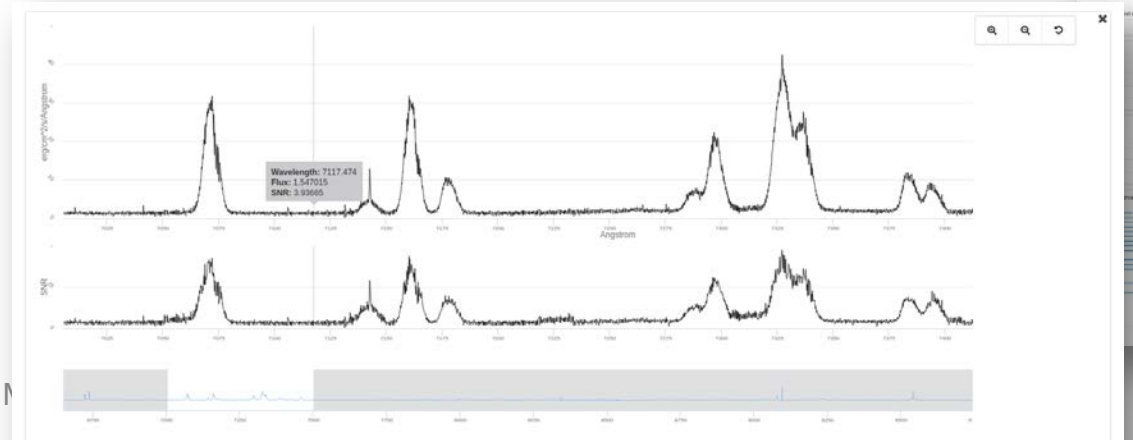
Archive Services

- API + Web UI
  - Full spherical
  - Elastic
- VO compliant

➔ Early ‘18

Prototype demo by J.Retzlaff yesterday





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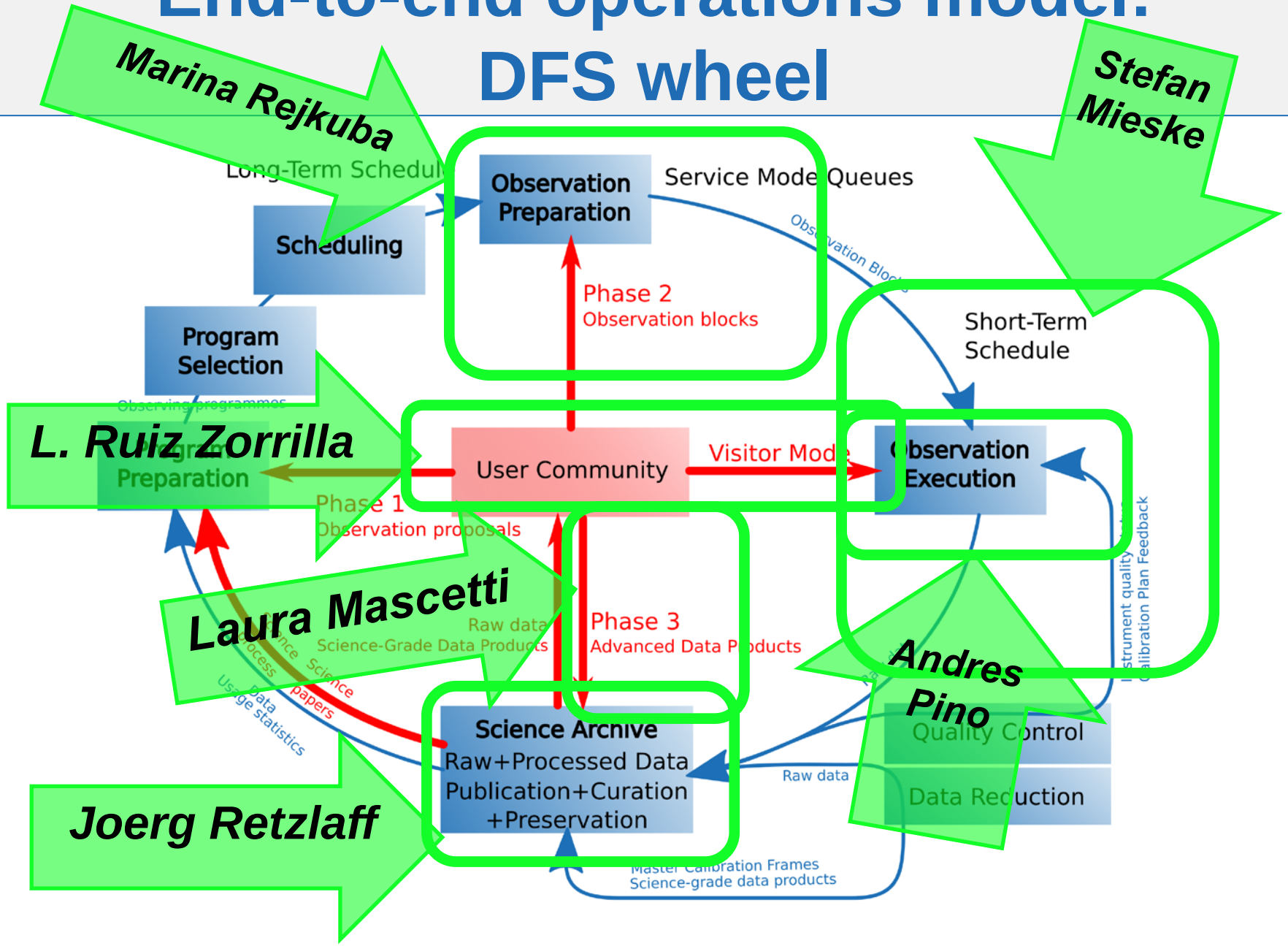

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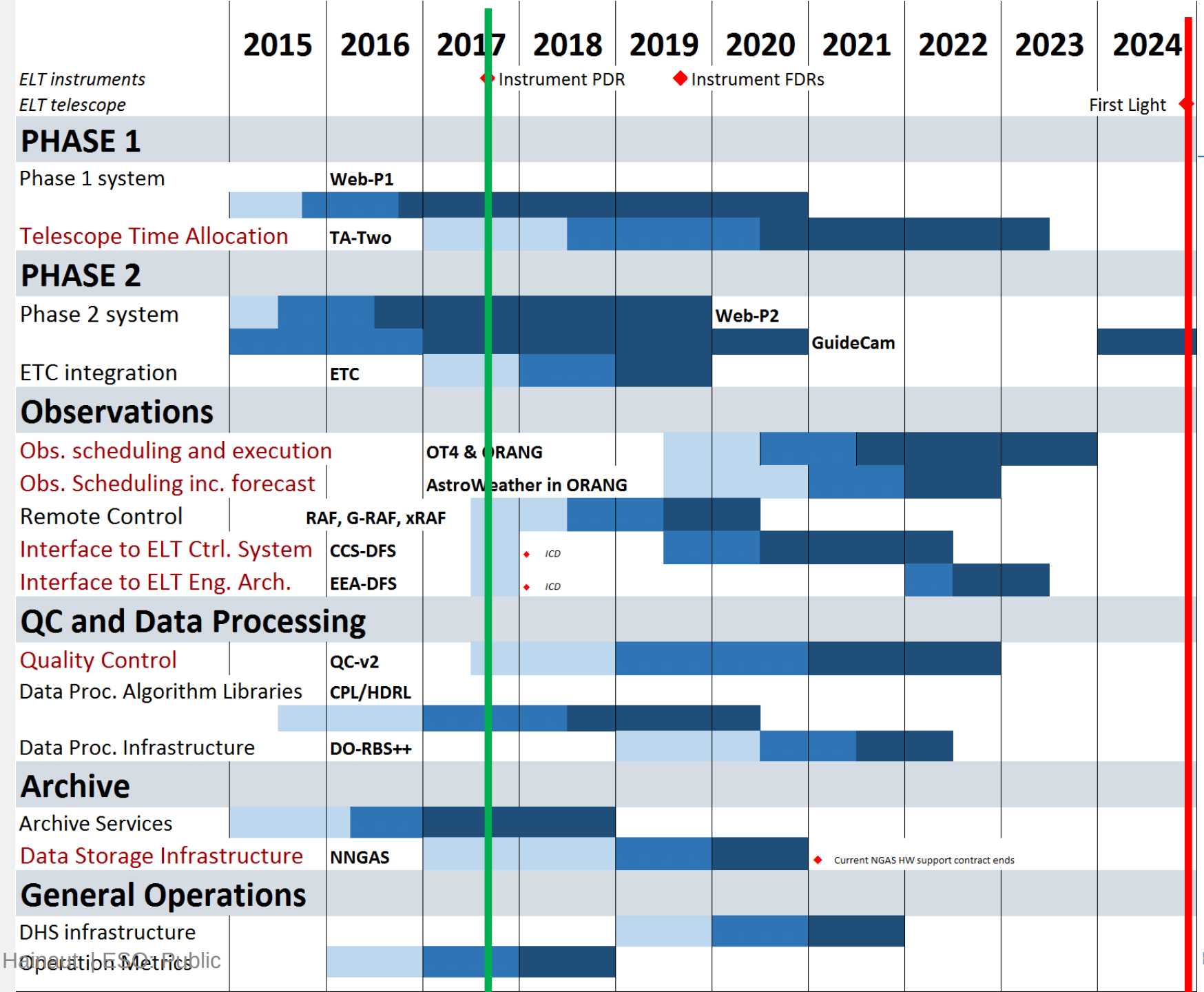

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