



DD ERS Status and Cycle 1 GO Call

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Program Categories



- Guest Observer (GO programs)
 - Open access for the community
 - ~80% of time in Cycles 1 through 5
 - ~6000 hours likely to be scheduled in Cycle 1
- Guaranteed Time Observer (GTO) programs
 - 4020 hours allocated over first 30 months (Cycles 1 through 3)
 - 3820 hours proposed for Cycle 1
- Director's Discretionary Time (DD) programs
 - Up to 10%/cycle i.e. ≤ 877 hours
 - Rapid response observations & targeted science programs (e.g. DD ERS program)



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DD ERS Status



Early Release Science Program Goals



- 500 hours of Director's Discretionary Time.
- Zero exclusive access period
- Anticipate selecting up to 15 proposals
- Goals:
 - Inform the astronomical community about **JWST's capabilities** through early access to **representative datasets and science enabling products**. Initial set of products to be released at the time of the Cycle 2 GO call (when very limited public data will be available).
 - APT files will also help Cycle 1 GO proposal preparation.
 - **Legacy value**: enrich the overall scientific return of the mission in the JWST major science themes.



ERS Proposal Support



- **Other benefits:** working test of Cycle 1
 - Help Desk and Documentation systems
 - Exposure Time Calculator
 - Astronomer's Proposal Tool
 - Proposal technical reviews (accepted programs)
 - Program support (accepted proposals).
- ERS Support Scientist: Patrick Ogle
- Project Scientist for User Support: Bill Blair

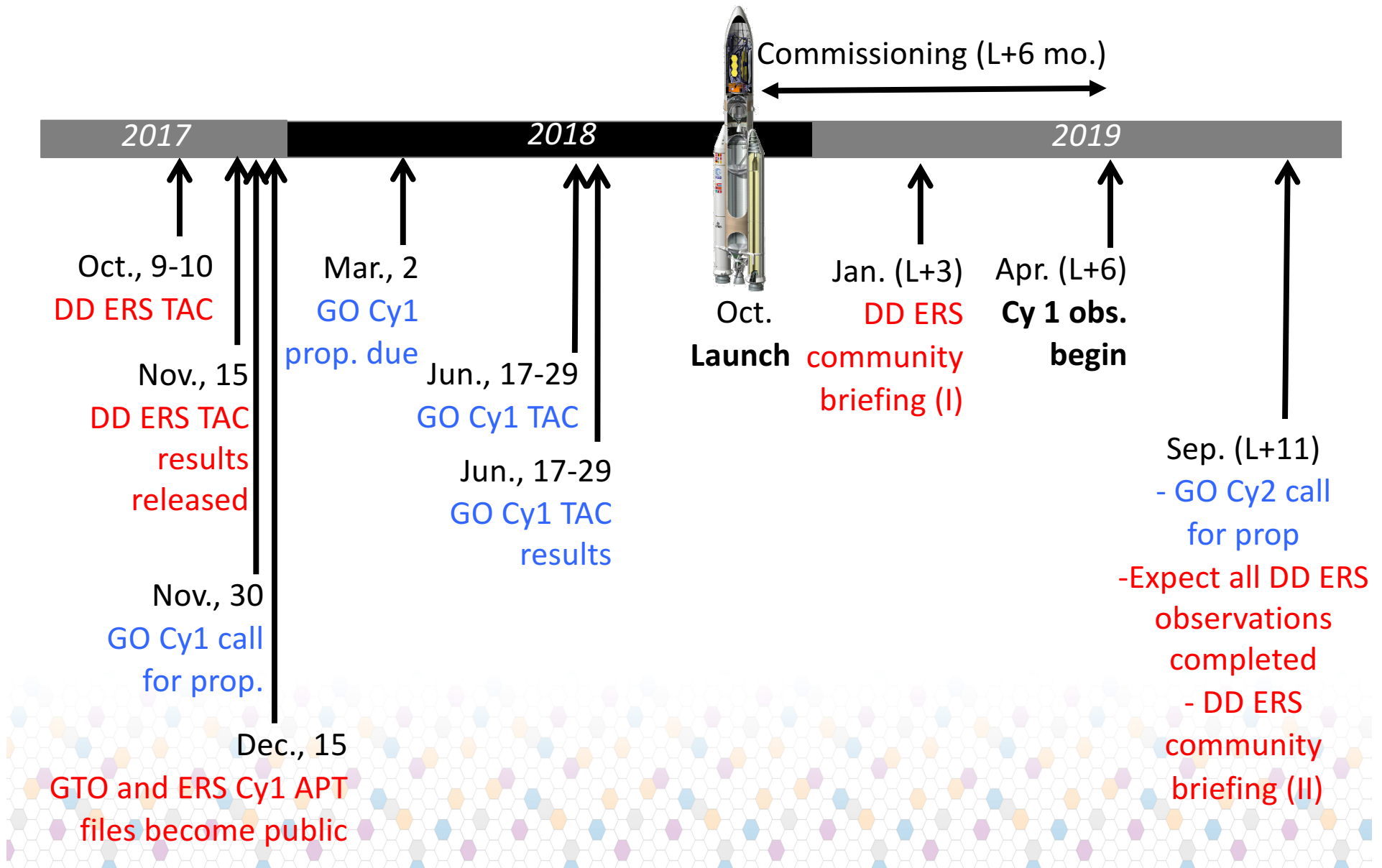


ERS Submission Results



- 106 ERS proposals submitted (out of 200 Notices of Intend letters).
- Time requested: 3683.4 hours (average of ~30 hours per proposal). Oversubscription factor of 7.4.

JWST Science Planning Timeline

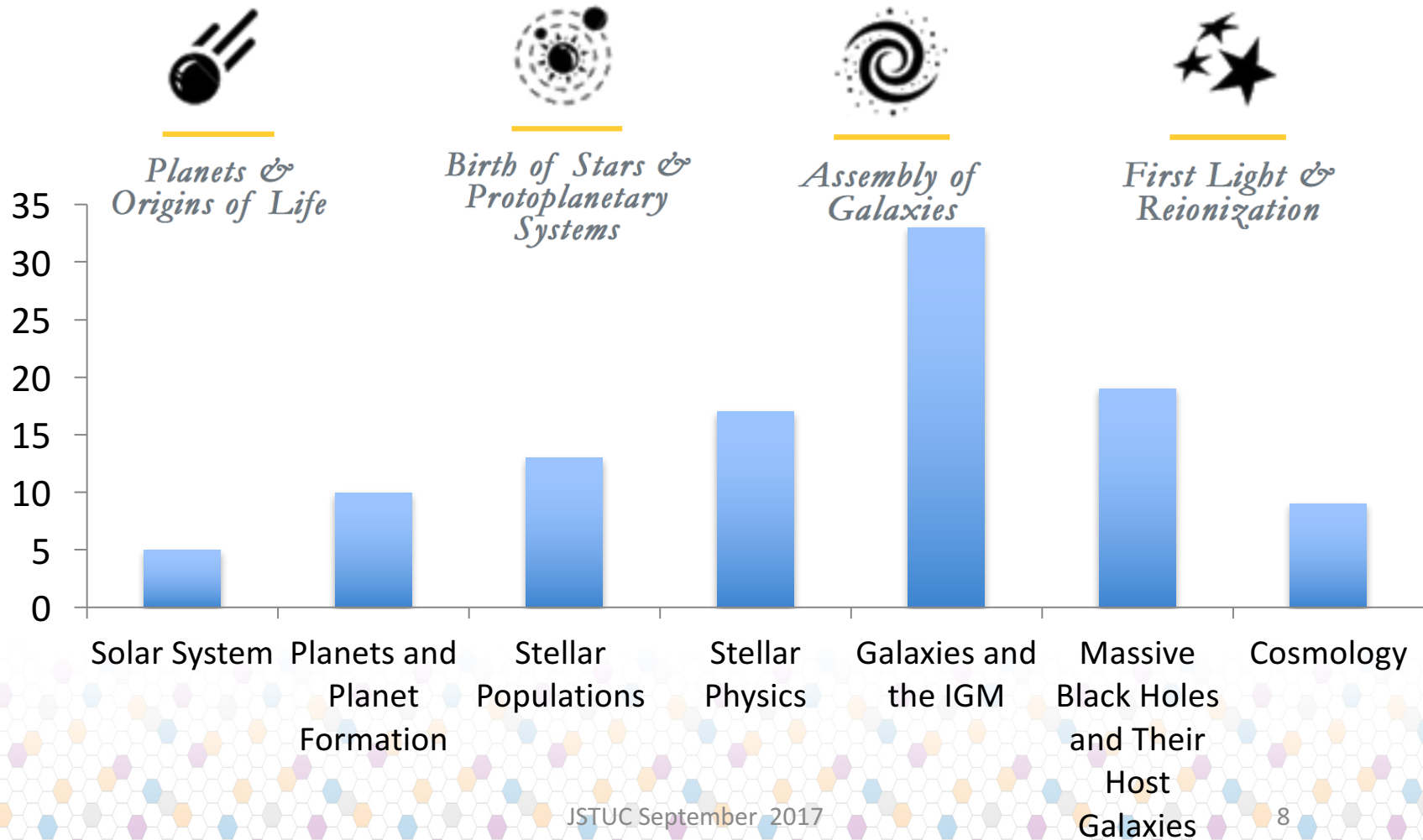




Distribution of Science Categories



- Proposals cover all four JWST science themes





Distribution of Instrument Modes



- Wide range of observing modes requested

Instrument	Instrument Prime Usage	Instrument Prime + Coordinated Parallel Usage
MIRI	31.3%	30.0%
NirCam	29.8%	33.2%
NIRISS	3.8%	5.4%
NIRSpec	35.1%	31.4%
	100%	100%

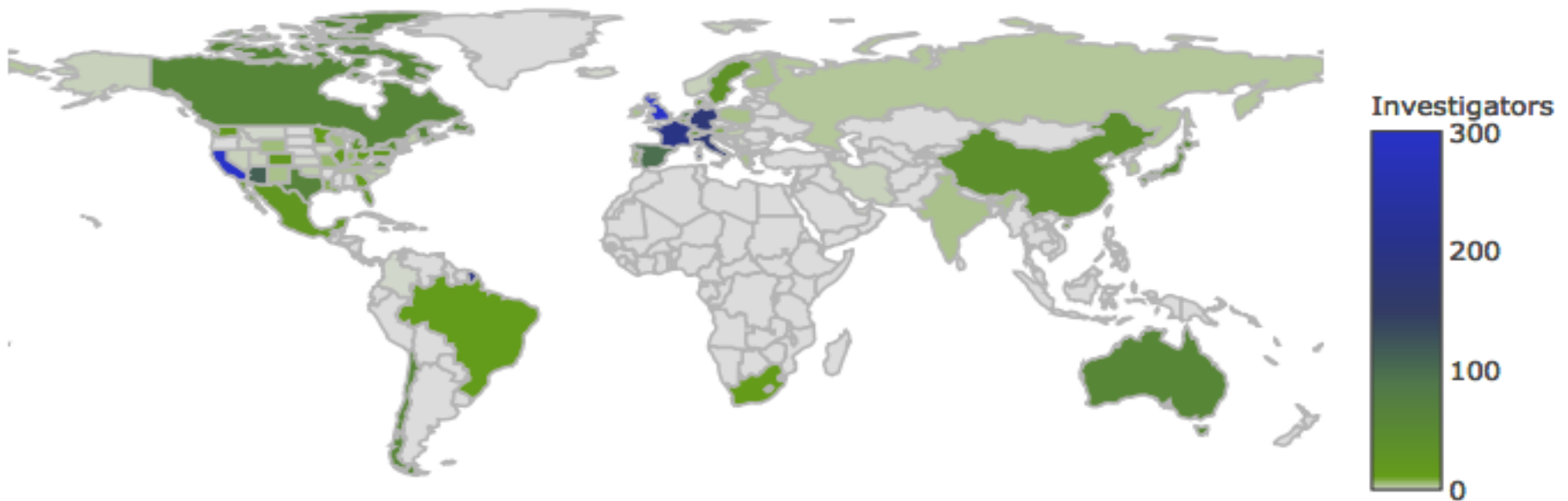


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Geographic Distribution



- Principal Investigators and Co-Principal Investigators are based in 15 countries, with representation including CoIs and Collaborators from 38 countries, 43 U.S. states, and 1 U.S. territory.



<https://jwst.stsci.edu/news-events/news/News%20items/dd-ers-proposal-submission-statistics-are-now-available>

ESA Investigators	
PI	35
CoPI	26
Cols	586
Collaborators	573
	1220

CSA Investigators	
PI	0
CoPI	6
Cols	41
Collaborators	14

STScl Investigators	
PI	0
CoPI	3
Cols	119
Collaborators	59

- Average of 28 scientists per team (largest team of 138 investigators/collaborators).



ERS Selection Process



- TAC meeting: Oct. 9-10, 2017.
- Four panels:
 - Exgal1 – distance scale, galaxy assembly & evolution, high redshift universe, lensing and galaxy clusters
 - Exgal2 – AGNs, QSOs, black holes, GRBs
 - Gal1 – solar system, exoplanets, debris disks, cool stars, and hot stars, including supernovae
 - Gal2 – stellar populations, galactic structure, nearby galaxies, star formation and the interstellar medium



ERS Selection Process



- **Three preliminary grades** (due Sep. 28, 2017):
 1. The effectiveness of the proposed observations in preparing the community for Cycle 2 JWST observations.
 2. The utility of the science-enabling products and the strength of the data analysis plan.
 3. The overall scientific merit of the program.
- **Triage:**
 - based mainly on preliminary grade #1, but will also consider the range of science topics and the use of different instrument modes.
 - 12-15 proposals per panel will be selected for discussion at the face-to-face meeting.
 - Panelists will have an opportunity to raise a limited number of proposals from triage.



ERS Selection Process



- **Panel Discussion** (Oct. 9-10, 2017).
 - Panelists will assign a **single score** to each proposal.
 - The top-ranked 4-5 proposals per panel will be brought forward by the panel chair for discussion with the Director.

- **Final selection:**
 - To be made by the Director, who will take into account several factors, including the range of science topics and instrument modes.
 - No fixed quota for the proposal selection from individual panels.



ERS Schedule for Accepted Proposals



- **Technical Reviews:** Oct. 11-16, 2017.
- **Notifications** of accepted proposals: late October.
- **APT submission deadline:** Nov. 30, 2017.
- **APT file public release:** Nov. 30, 2017.
- **Observations begin** after Commissioning (L+6), expected to be completed by L+11.
- **ERS debriefings** to the community:
 - L+3: TBD (proposal process, preliminary work).
 - L+11: TBD (initial results, science enabling products).

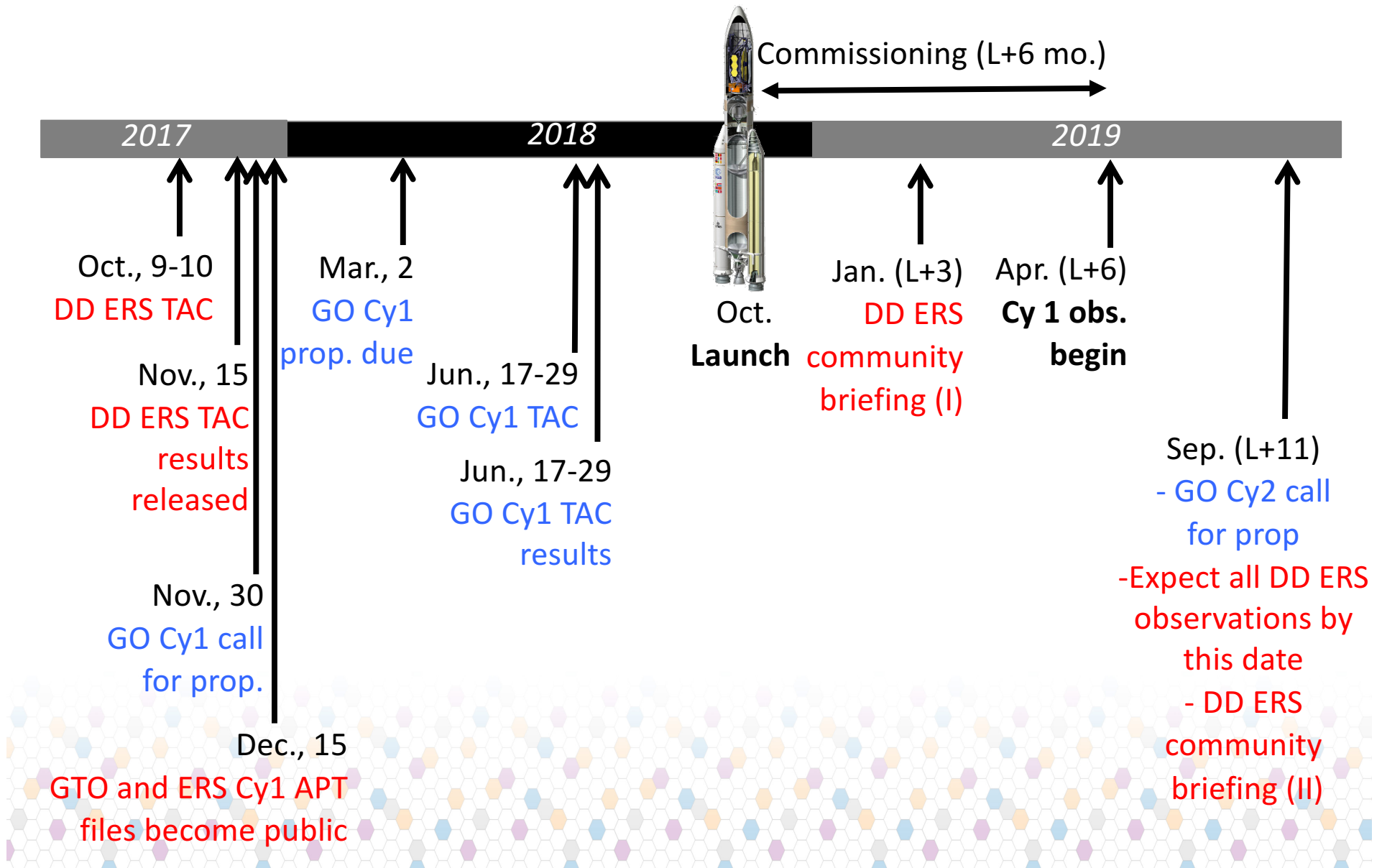


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Cycle 1 GO Call

JWST Science Planning Timeline





Cycle 1 GO Program Categories



General Observer Proposals

- **Small** (<25 hr.; 12 month exclusive access period by default).
- **Medium** (25-75 hr.; 12 month exclusive access period by default)
- **Large** (>75 hr.); no exclusive access period by default).
 - Balanced distribution in program sizes over all JWST cycles but small programs would likely dominate in Cycle 1, even though there will be no cap on program size.
- **Calibration** (to perform calibrations for certain uncalibrated or poorly calibrated modes, or to develop specialized software for certain JWST calibration and data reduction tasks; not linked to specific science programs).
- **Long-term:** programs whose science requires multiple cycles (astrometry, variability); can be small, medium or large.



Cycle 1 GO Program Types



General Observer Proposals

- **Treasury:** focused on providing higher-level data products for the community; should enable a variety of compelling scientific investigations; no exclusive access period by default
- **Survey:** designed to increase the observing efficiency of the telescope by allowing for short "filler" observations when gaps exist in the schedule (allocated a fixed number of hours; provide observations of a specified number of sources drawn from a larger target list).



Cycle 1 GO Program Types

Archival Proposals



- Regular Archival Proposals
 - Legacy Archival Proposals
 - Calibration Archival Proposals
 - Theory Proposals
 - Community Data Science Software Proposals
-
- Laboratory astrophysics relevant to JWST observations is an acceptable component of an archival proposal.
 - ERS programs available for Archival proposals in Cycle 1



Cycle 1 GO Program Types

Director Discretionary Time



- Up to 10%/cycle i.e. ≤ 877 hours
- Rapid response observations.
- Targeted science programs (e.g. DD ERS program).
- Timely follow-up of new discoveries if the proposers demonstrate that the observations will provide a critical link in the understanding of the phenomena and that carrying them out quickly is particularly important for planning future observations with major facilities.
- No exclusive access period by default.



Cycle 1 GO Program Types



- Joint programs with other facilities (e.g. Hubble, Chandra, ALMA/NRAO, ground-based OIR facilities) will *not* be available in Cycle 1



Cycle 1 GO Program Types and Restrictions



Parallel Observations

- JWST was conceived as a prime-only telescope, but operating instruments in parallel increases the science return.
 - **Coordinated parallels**
 - Single program, complementary obs., same exclusive access period.
 - Cycle 1 available combinations (additional maybe available in the future):
 - NIRCam Imaging + MIRI Imaging
 - NIRCam Imaging + NIRISS WFSS
 - MIRI Imaging + NIRISS WFSS
 - NIRCam Imaging + NIRISS Imaging (NIRCam must be prime)
 - NIRSpec MOS + NIRCam imaging (NIRSpec must be prime)
 - Only direct imaging with standard narrow, medium, or broad band filters is allowed for NIRCam and MIRI observations.



Cycle 1 GO Program Types and Restrictions



Parallel Observations

- Pure parallels

- Separate proposals, distinct program, no exclusive access period
 - Parallel observations may not drive program parameters
 - Most two-instrument combinations will be available for pure parallel observations
-
- No parallel observations will be allowed for prime programs that require high stability (e.g exoplanet transits, coronagraphy).



Cycle 1 GO Program Types and Restrictions



Time Constrained Observations

- Must be executed within a given absolute time period, within a window less than 24 hours (TBR). Examples include specific phases of variable stars, exoplanet transit observations, some solar system phenomena. Other possible time constrained observations are:
 - observations that require a particular telescope orientation (or position angle).
 - Coordinated JWST observations with other observatories.
 - Linked observations.
- Some may also be time critical.
- Will carry an additional overhead of 60 minutes/activation to account for the scheduling impact (JWST needs to arrive at the target at or before the observation start time and will likely have to wait).



Cycle 1 GO Program Types and Restrictions



Target of Opportunity Observations

- Targets are expected transient phenomena that occur at an unpredicted location and time (e.g. comets, planetary atmospheric features, novae, supernovae, GRBs).
- Once triggered, observations are added to the JWST schedule.
- ToOs that require turnaround times...
 - >14 days can be accommodated in the standard scheduling process
 - <14 days are disruptive (limited to approx. 2 for GTOs, 6 for GOs).
 - < 3 days will carry an additional overhead of 45 minutes/activation (allows for impact on observing efficiency).



Proposal Process for Cycle 1 GO and beyond



- Like **Spitzer** and **Chandra**, proposals should be essentially complete at the time of submission.
- Benefits:
 - **Identifies overheads:** required because **visits are scheduled in an event-driven continuous process** (not orbits).
 - **Accelerates the intellectual cycle:** proposals flow directly into the scheduling system, maximizing the amount of data available at the next Call.
 - **More time to provide user support.**
 - **Rapid construction of the long range plan allows to quickly assign execution position angles to observations that need these constraints** (e.g. all NIRSpec MSA-based observations).



Proposal Process for Cycle 1 GO and beyond



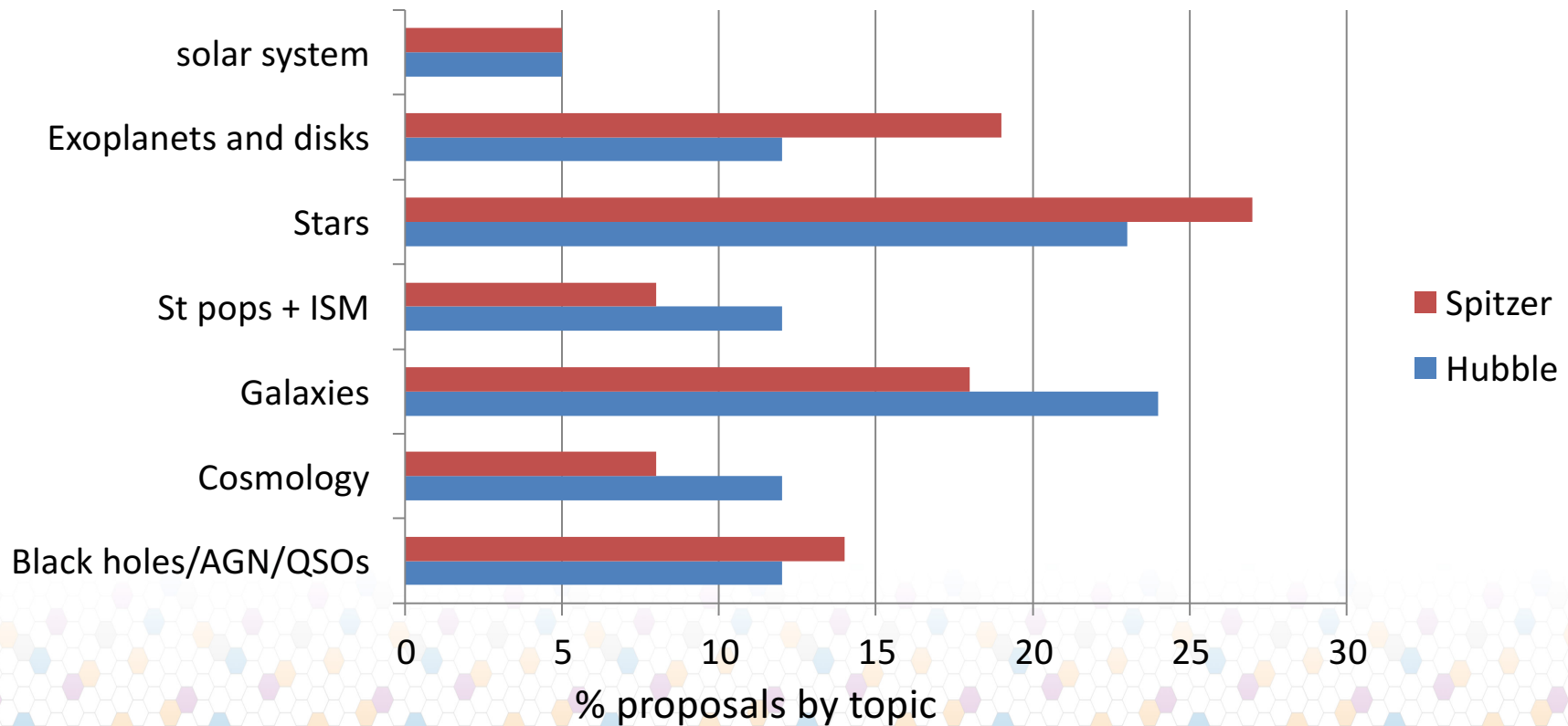
- **How are we helping?**
 - APT templates to submit observing
 - User support: Help Desk, user friendly wiki-style documentation (JDox), ERS program, proposal preparation workshops.
- **Exceptions** for proposals that cannot be fully specified at the time of submission (e.g. NIRSpec MOS, where the target selection requires to know the orientation, unknown at submission).



Cycle 1 GO Selection Process



- Distribution of **science panels** guided by proposal pressure in Spitzer Cycle 5 & HST Cycle 24





Cycle 1 GO Selection Process



- Panel workload:** Assume ALMA-like numbers of proposals submitted per cycle, and aim for HST-like proposal pressure per panel (70-80 proposals/panel).

Topical panel		N=2000		N=1600	
	%	proposals	panels	proposals	panels
Black holes/AGN/QSOs	12	240	3	190	3
Cosmology	10	200	3	160	2
Galaxies & IGM	20	400	5	320	4
Stellar pops/ism	10	200	3	160	2
Stellar Physics	25	500	7	400	5
Exoplanets/disks	18	360	5	290	4
Solar system	5	100	2	80	1
			29		21



Cycle 1 GO Selection Process



- **For planning purposes, assume N=1600 & 21 panels**
 - HST TAC currently utilizes 15 panels dispersed throughout STScI and JHU Physics & Astronomy
 - Expanding to 21 simultaneously supported panels will strain resources
- **For JWST Cycle 1 we plan on distributing the TAC process over a 2-week period**
 - Week 1 “Galactic”, Week 2 “Extragalactic”
 - 10-11 panels meet Monday-Wednesday noon
 - Panel chairs meet to consider Large/Treasury proposals Wednesday afternoon – Friday
- **JWST Cycle 1 GO TAC is planned for June 17 – 29 2018 @STScI**



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Back-up



Cycle 1 GO Program Types and Restrictions



- **Solar System Observations**
- **Observations of Targets That Have Not Yet Been Discovered or Identified**
- **Follow-up Observations of JWST Pre-Imaging**

Instrument	Mode	# of Proposals	Prime %	Coordinated Parallel %	Total
MIRI	Medium Resolution Spectroscopy	17	18.2%	0.0%	16.3%
MIRI	Coronagraphy	3	0.5%	0.0%	0.5%
MIRI	Imaging	45	11.3%	19.0%	12.1%
MIRI	LRS	6	1.3%	0.0%	1.2%
NirCam	Coronagraphy	4	0.9%	0.0%	0.8%
NirCam	GrismTimeSeries	2	0.9%	0.0%	0.8%
NirCam	Imaging	63	23.5%	60.4%	27.4%
NirCam	TimeSeries	1	0.4%	0.0%	0.3%
NirCam	WFSS	11	4.1%	1.6%	3.8%
NIRISS	Imaging	7	0.0%	19.0%	2.0%
NIRISS	AMI	4	0.5%	0.0%	0.5%
NIRISS	SOSS	1	0.5%	0.0%	0.5%
NIRISS	WFSS	7	2.7%	0.0%	2.4%
NIRSpec	BrightObjectTimeSeries	3	1.4%	0.0%	1.3%
NIRSpec	FixedSlitSpectroscopy	8	1.7%	0.0%	1.6%
NIRSpec	IFUSpectroscopy	46	22.6%	0.0%	20.2%
NIRSpec	MOS	17	9.3%	0.0%	8.4%
			100%	100%	100%

Country	PI	CoPI	Col	Collaborator
Australia	1	4	31	23
Austria	0	0	6	3
Belguim	0	0	4	12
Brazil	0	0	8	6
Canada	0	6	41	14
Chile	2	1	44	13
China	0	0	18	24
Columbia	0	0	0	1
Croatia	0	0	0	2
Cyprus	0	0	1	0
Denmark	1	0	17	7
Finland	0	0	2	3
France	3	6	96	94
Germany	6	7	63	101
Greece	0	0	1	4
Hungary	0	0	3	0

Country	PI	CoPI	CoI	Collaborator
Iceland	0	0	1	0
India	0	0	3	2
Iran	0	0	1	1
Ireland	0	0	5	0
Israel	0	0	5	2
Italy	6	4	85	76
Japan	1	2	26	27
Korea	0	0	2	2
Mexico	2	0	17	6
Norway	0	0	0	2
Poland	0	0	3	2
Portugal	0	0	7	1
Russia	0	0	3	1
Serbia	0	0	0	1
South Africa	0	0	4	8

Country	PI	CoPI	CoI	Collaborator
Spain	2	0	50	47
Sweden	2	1	19	12
Switzerland	0	1	21	16
The Netherlands	2	2	43	42
United Arab Emirates	0	0	0	1
United Kingdom	13	5	146	137
United States	65	49	774	519

- Completion rate: higher for US-led proposals than for foreign-led proposals (65/104 vs. 39/86, or 62.5% vs. 42.3%).