In-kind Program: Telescope Time Opportunities

LSST Solar System
Readiness Sprint 2023
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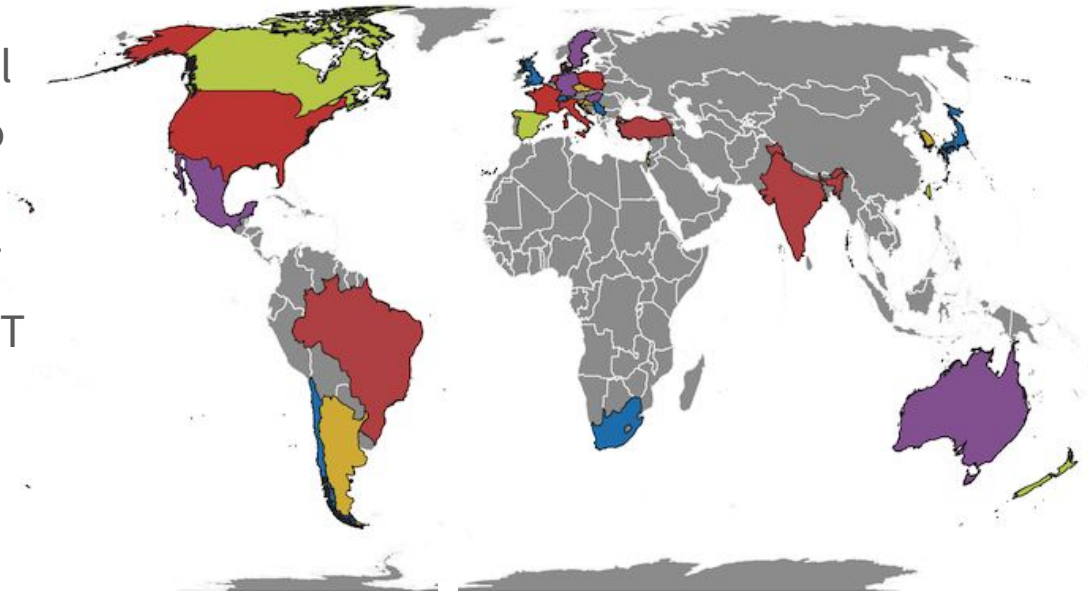
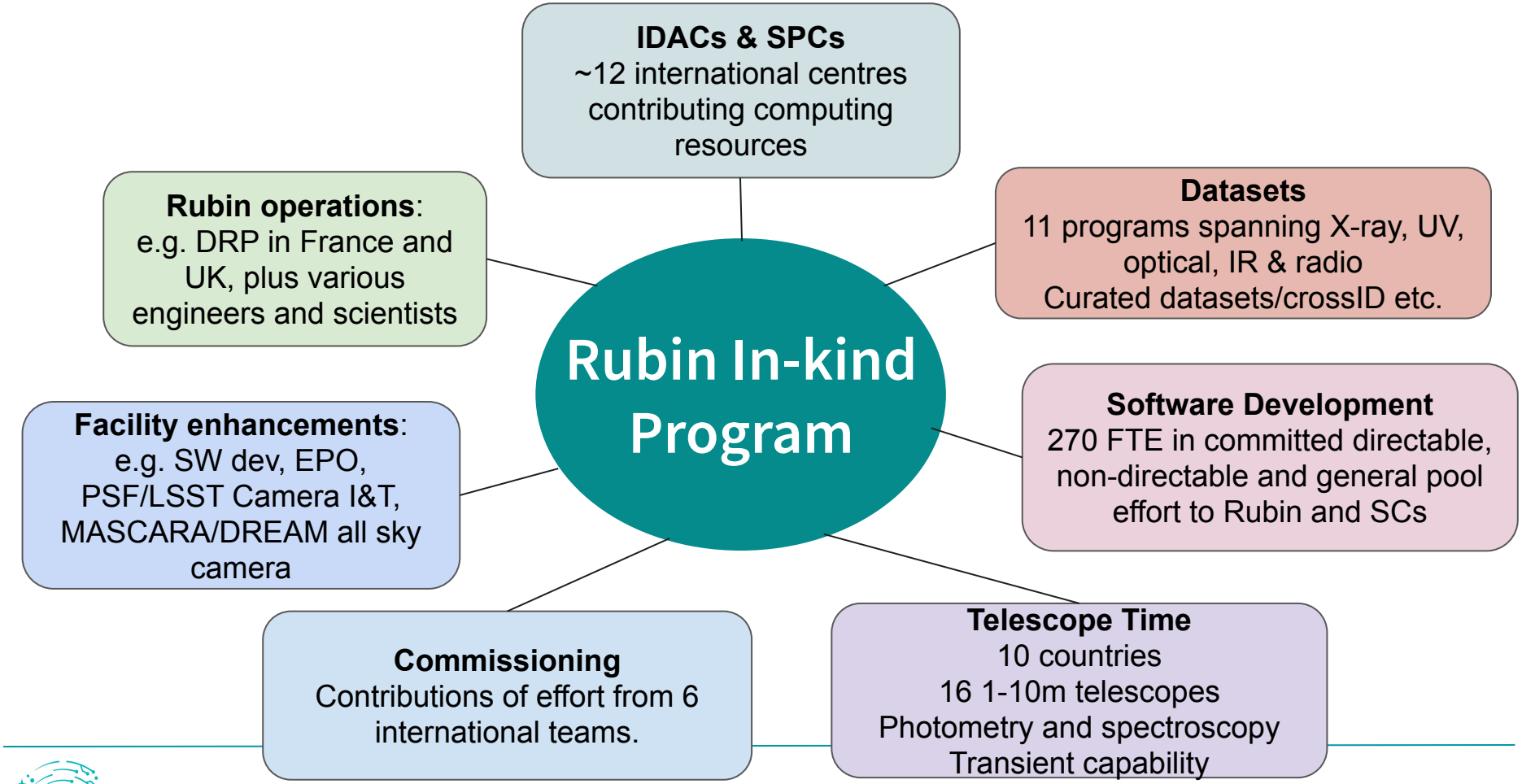
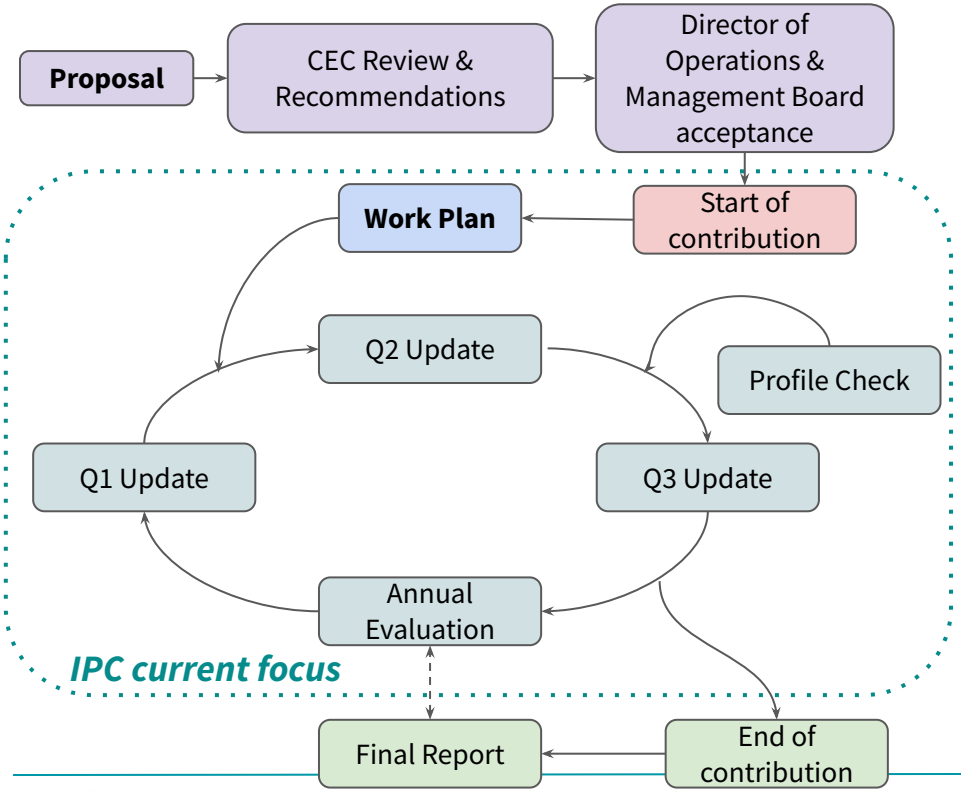
Rubin In-kind Program Overview

There are **43** individual international teams (**28** countries + US/Chile) who are providing **153** in-kind contributions to Rubin and the LSST science community in return for LSST data rights.




IDACs & SPCs
~12 international centres contributing computing resources
Rubin operations:
e.g. DRP in France and UK, plus various engineers and scientists
Datasets
11 programs spanning X-ray, UV, optical, IR & radio
Curated datasets/crossID etc.
Rubin In-kind Program
Facility enhancements:
e.g. SW dev, EPO, PSF/LSST Camera I&T, MASCARA/DREAM all sky camera
Software Development
270 FTE in committed directable, non-directable and general pool effort to Rubin and SCs
Commissioning
Contributions of effort from 6 international teams.
Telescope Time
10 countries
16 1-10m telescopes
Photometry and spectroscopy
Transient capability

Contribution Cycle



Quarter	Due by	Covers work done	Plan of work for
Q1	Dec week 2	Sep week 2 / Dec week 2	Jan - Mar
Q2	Mar week 2	Dec week 2 / Mar Week 2	Apr - Jun
Q3	Jun week 2	Mar week 2 / Jun week 2	Jul - Sep
Q4 / Annual Evaluation	Sep week 2	October preceding year to current September week 2	Oct - Dec

Quarterly Updates (**Contribution Lead**)

- Follows Rubin's FY (e.g. FY23: Oct 22 - Sep 23)
- Record progress/achievements and possible changes
- Contains detailed plan of work for the next quarter

Program Managers are responsible for coordinating their CLs to complete the various elements

Success of in-kind

- In-kind contributions are only successful if they provide value to the the Rubin community.

- Quality, meaningful feedback and communication between contributors and recipient's is a crucial part of a successful contribution.

- **Thank you for your efforts to provide quality feedback to the IPC team.**

Telescope-Time Contributions

- ***No contribution is yet final***. Data Rights Agreements still not signed.

- In most instances, time will be allocated via the NOIRLab TAC process.

- Most contributions are expected to be available for 10 year survey period. Confirming first semester of available with programs now. Want to align with survey!

8 - 10m Telescopes

- **Subaru Telescope, Maunakea, Hawaii**
  - 8.2 m telescope
  - Full suite of OIR imaging and spectroscopic capabilities
  - 5 nights per year: 2 dark / 3 grey
- **Gran Telescopio CANARIAS (GTC), Obs. del Roque de los Muchachos, La Palma**
  - 10.4 m telescope
  - Full suite of OIR imaging and spectroscopic capabilities
  - Target of Opportunity mode / AEON
  - ~4 nights equivalent per year
- **South African Large Telescope (SALT), SAAO, South Africa**
  - 9.3m telescope
  - OIR imaging and spectroscopic capabilities
  - ~50 hours per year

KOREA MICROLENSING TELESCOPE NETWORK (KMTNET)

- 3 x 1.6m telescopes
  - CTIO - Chile
  - SSO - Australia
  - SSAO - South Africa
- Wide-Field imaging:
  - FOV ~4 deg^2
  - 340 M pixel CCD
  - Johnson-Cousins BVRI
- ~300 hours per year for 5 years
- ToO availability in first or last 30 minutes of each night (or during prescheduled nights
- AEON

Trans-Pacific 2mT (tentative)

- 2m telescope located in San Pedro Martir, Mexico (under construction) by National Central University, Taiwan and partners
- Instrument Suite: 4-band simultaneous imager (first-light); JHK imager and low-R spectrograph or IFU (to be added)
- ~40 nights per year
- ToO capabilities/AEON

Other facilities

- University of Canterbury Mount John Observatory , New Zealand
  - 1.8m and 1.0m imaging
  - 10 dark nights on 1.8m per year
  - ~200 hours during Nov-Feb on 1.0m
  - ToO/AEON
- Telescope Milanković, Vidojevica, Serbia
  - 1.4m
  - CCD imaging with Johnson B, V, R, I, L, filters and Hα , Hα continuum and SII
  - EMCCD imaging
  - 25 nights per year
  - ToO/AEON

Other facilities

- SAAO telescope network
  - 1 - 1.9 m telescope, primarily imaging
  - ~52 hours per year
  - ToO/AEON
  - Hosted facilities may also become available
- TÜBİTAK NATIONAL OBSERVATORY, Bakyrlytepe, Türkiye
  - RTT150 1.5m telescope; imaging and spectroscopy
  - T100 1.0m telescope; imaging
  - 22 nights per year
  - ToO/AEON
- Argentina Program
  - 0.4 m and 0.6 m facilities
  - ~1600 hours available per year
  - ToO/AEON

Proposal Process

- Time will be available through the NOIRLab Time Allocation Process
  - Legacy of offering time on other facilities via TSIP, time-exchange, etc
  - Dual Anonymous Two-stage review

- Time is open access. No requirement for Rubin follow-up.

- Survey / Large Program allocation?

- Some accommodations will be made to match scheduled of other facilities

Access to Data

- Data access is the responsibility of contributing facility
- Working towards standard of 24 hour availability
- Processed data will be available from most facilities

Astronomical Event Observatory Network (AEON)

- AEON is a facility ecosystem for accessible and efficient follow up of astronomical transients and time-domain astronomy
- Most facilities have promised AEON integration
- AEON workshop to be help alongside LSST@Europe5 in Sept to assist teams

What's Next?

- Look for telescope time page on the Rubin In-Kind Program web pages
  - Details on facilities, timelines, information links

- Announcement of Opportunity as part of NOIRLab Call for Proposals

QUESTIONS?

JIKH@lsst.org

Best place to reach in-kind team about any aspect of the program.

Thank You!
QUESTIONS?