Subaru Users' Meeting 2025, presentation [S02]
2025/10/30, NAOJ

TAC Report S25B and Discussion on Review Methods

Takayuki Muto
(Kogakuin University / TAC14 Chair)

TAC13 → TAC14

- TAC13 <July 2025 (S25B) → TAC14 August 2025 (S26A) --- July 2027 (S27B)

- TAC13
  - Makoto Uemura (Chair; Hiroshima University)
  - Fumi Egusa (University of Tokyo)
  - Hironao Miyatake (Nagoya University)
  - Keiichi Maeda (Kyoto University)
  - Kohei Ichikawa (Waseda University)
  - Miho Ishigaki (NAOJ)
  - Noriyuki Matsunaga (University of Tokyo)
  - Ryou Ohsawa (NAOJ)
  - Takayuki Muto (Kogakuin University)
  - Teruyuki Hirano (ABC)
  - Yoshiaki Ono (University of Tokyo)

- TAC14
  - Takafumi Otsubo (University of Occupational and Environmental Health)
  - Yui Kawashima (Kyoto University)
  - Takafumi Kamizuka (University of Tokyo)
  - Takashi Moriya (NAOJ)
  - Kimihiko Nakajima (Kanazawa University)
  - Yuichi Harikane (University of Tokyo)
  - Hironao Miyatake (Nagoya University)
  - Kohei Ichikawa (Waseda University)
  - Miho Ishigaki (NAOJ)
  - Takayuki Muto (Chair; Kogakuin University)
  - Teruyuki Hirano (ABC)

S25B Summary

Proposal-Based

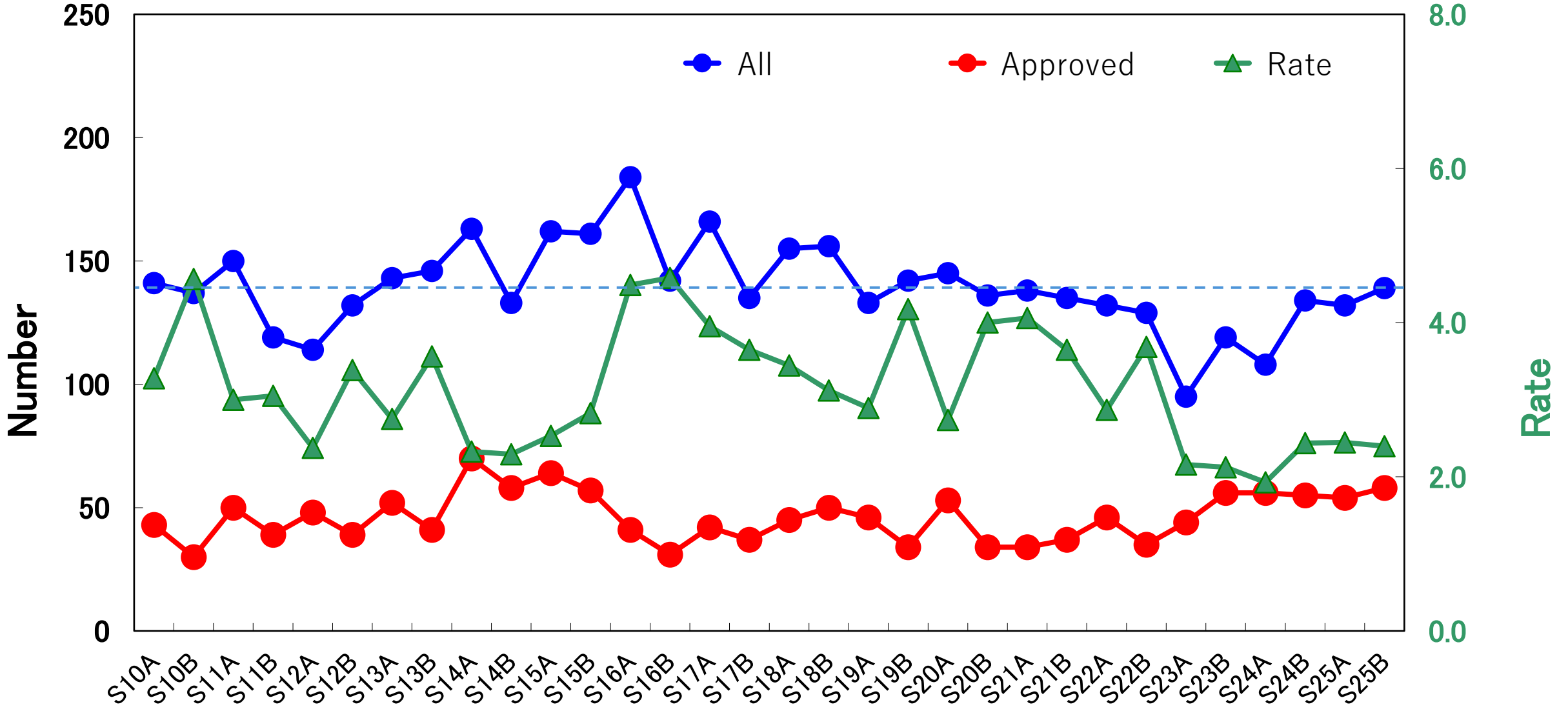
- Submitted proposals: 139
  - including 1 intensive program
- Approved proposals: 58
  - including 1 intensive program
- **Oversubscription rate: 2.4**

Night-Based

- Night requested: 319.96 n.
- Night approved: 112 n.
  - New intensive: 2 n.
  - Continuing intensive: 9.7 n.
- **Oversubscription rate: 2.9**

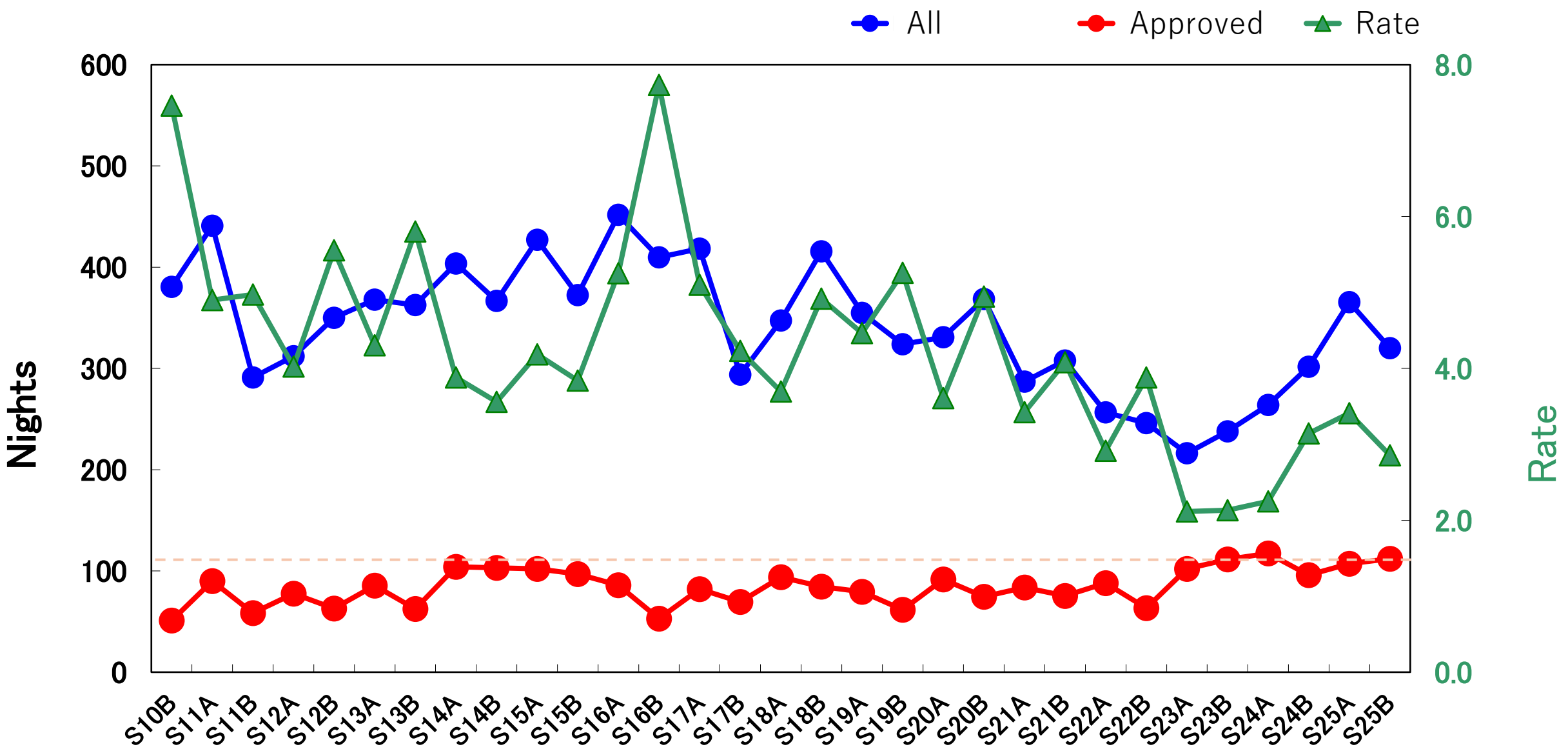
Proposal-Based

Submitted and Accepted Proposals S10A–S25B



Night-Based

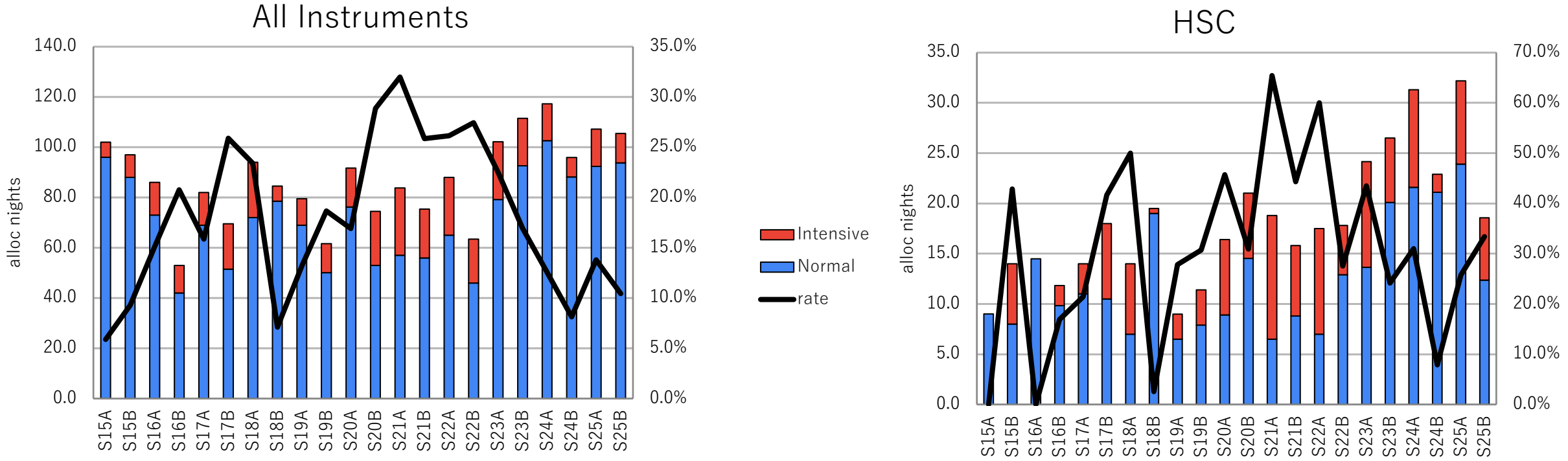
Submitted and Accepted Nights S10A–S25B



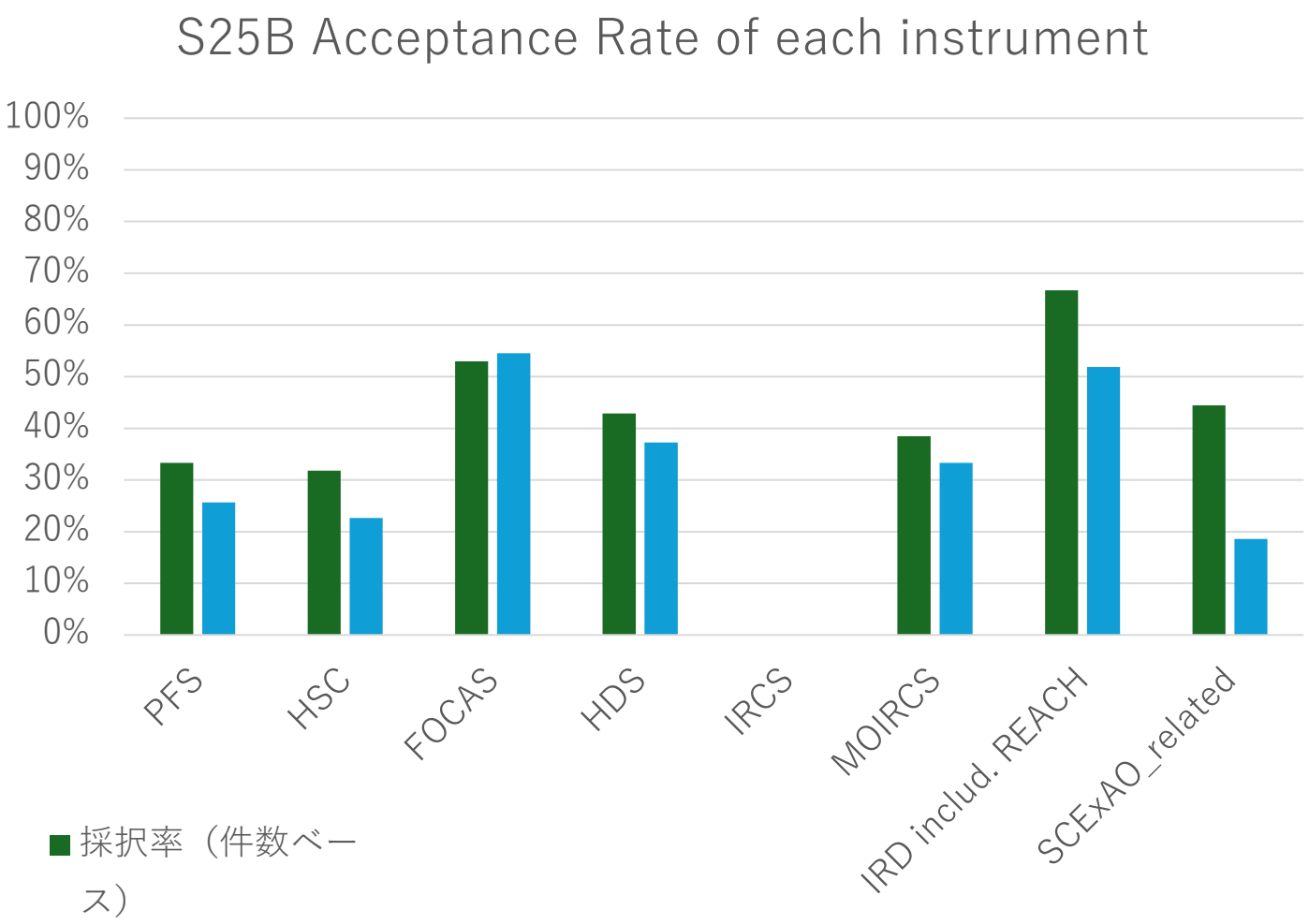
Intensive programs

- Continuing：S24A-023I (3.5n), S24B-080QI (1.7n), S25A-047QI (4.5n)
- **New：S25B-065I (Hashimoto) / 2n (total 10.6n)**

Balance between Normal and Intensive programs



Success rate: Instrument basis

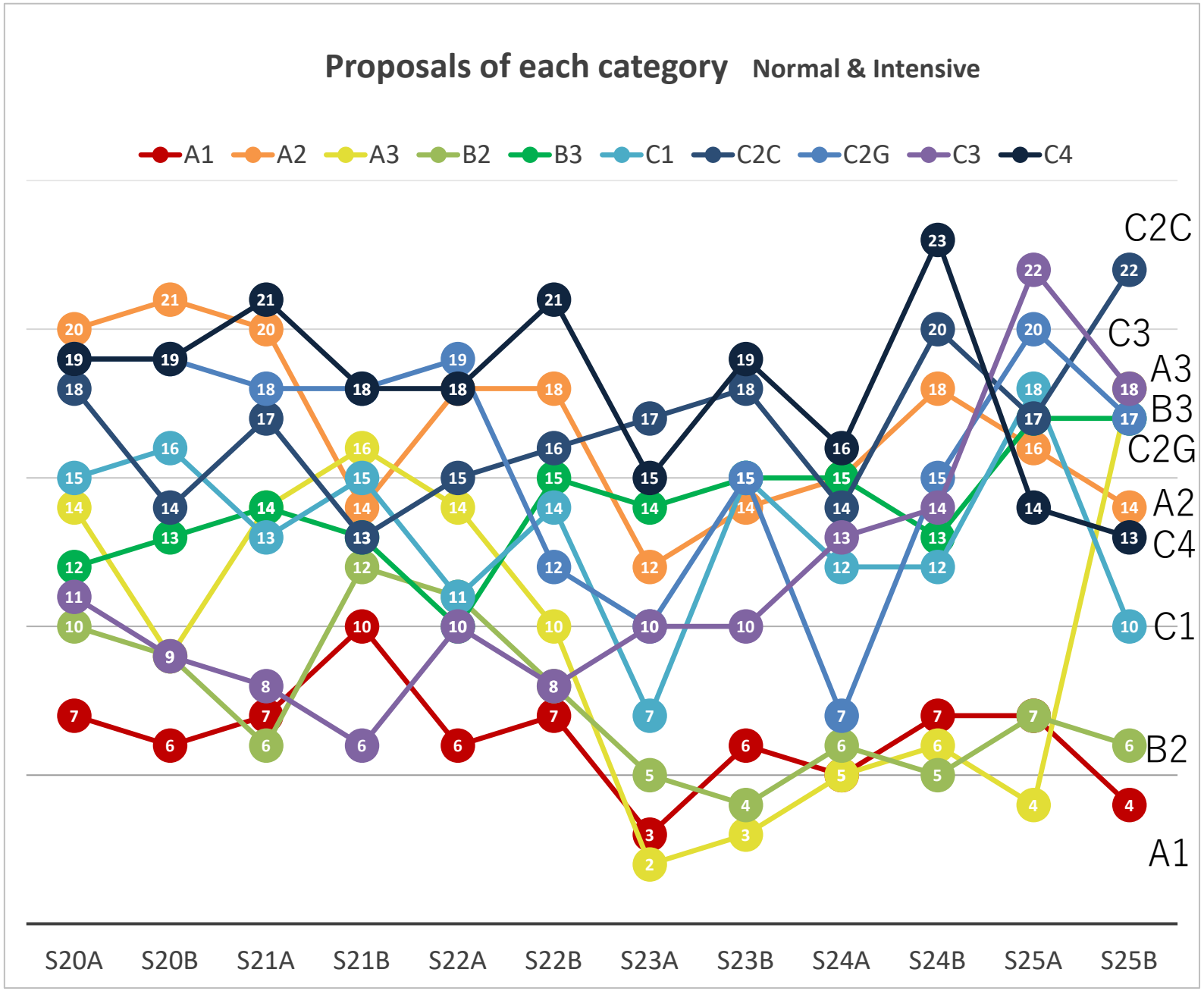


- Originally, the plan was to have 6 runs at the prime focus: 3 HSC runs + 3 PFS runs.
  - However, **only a few HSC proposals exceeded the selection threshold**, so **HSC runs were reduced** to 2.
  - Although many PFS proposals exceeded the threshold, **operational challenges limited PFS runs** to 3 instead of 4.
    - **Some proposals that passed the threshold were not accepted** due to night allocation limits for PFS.
  - The resulting free time was allocated to non-prime-focus instruments.

- **SCExAO was limited** to 12 nights **due to a temporary reduction in operational personnel**.
  - Addressed by temporarily reducing the number of intensive proposals.

Science categories

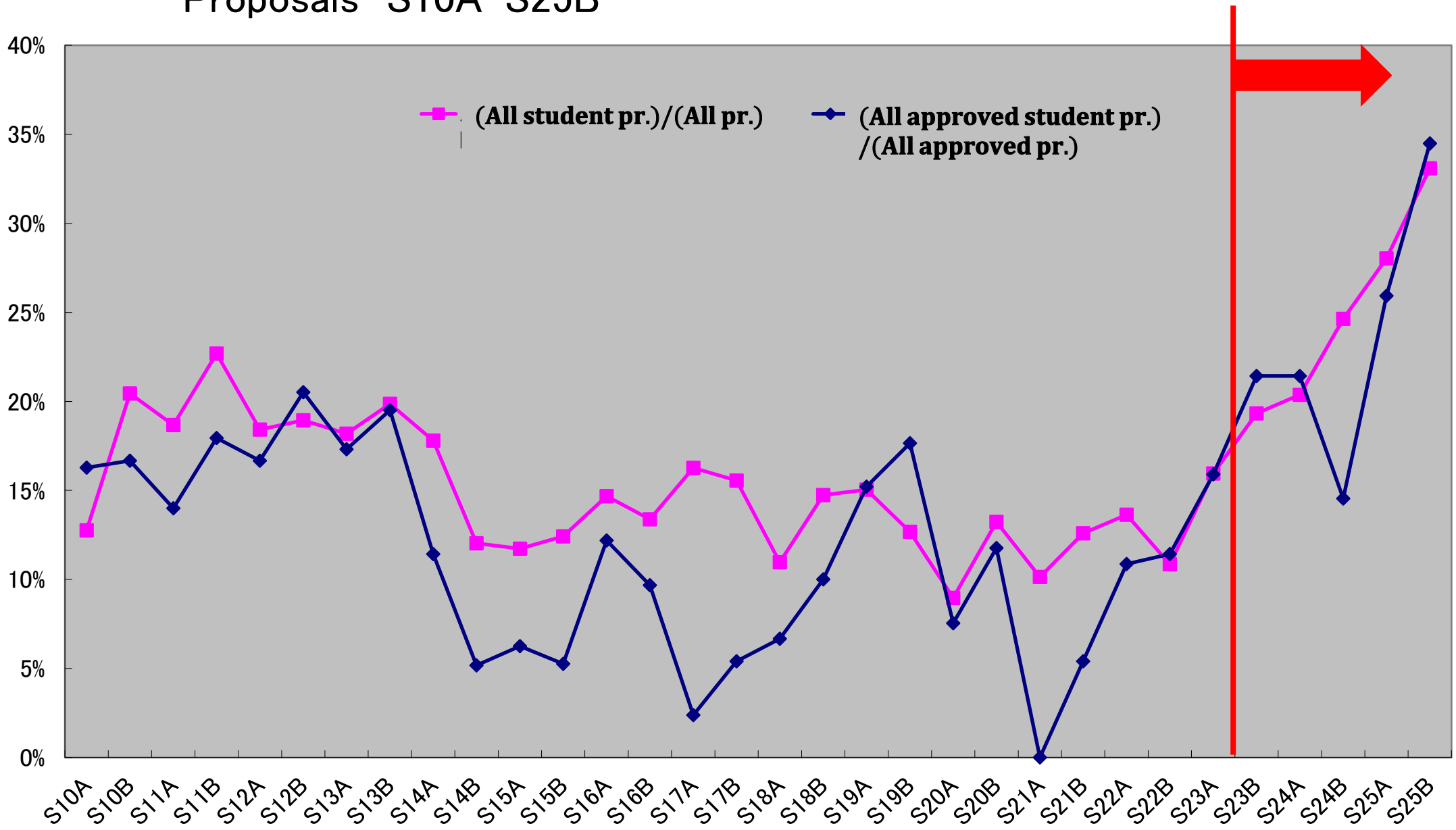
- A1: Solar system
- A2: Evolved Extrasolar Planets
- A3: Young Extrasolar Planets, Planet Formation, Star Formation, ISM
- B2: Stars and Brown Dwarfs, Stellar Envelope and Activity
- B3: Compact Objects and SNe
- C1: IGM and Abs. Line Systems, Cosmology, Gravitational Lenses, Circumglactic Medium
- C2C: Clusters and Proto-Clusters, Environmental effect on galaxies
- C2G: High-z Galaxies (LAEs. LBGs), High-z Galaxies (others), Nearby Galaxies
- C3: Milky Way, Local Group, Galactic Archaeology
- C4: AGN and QSO Activity



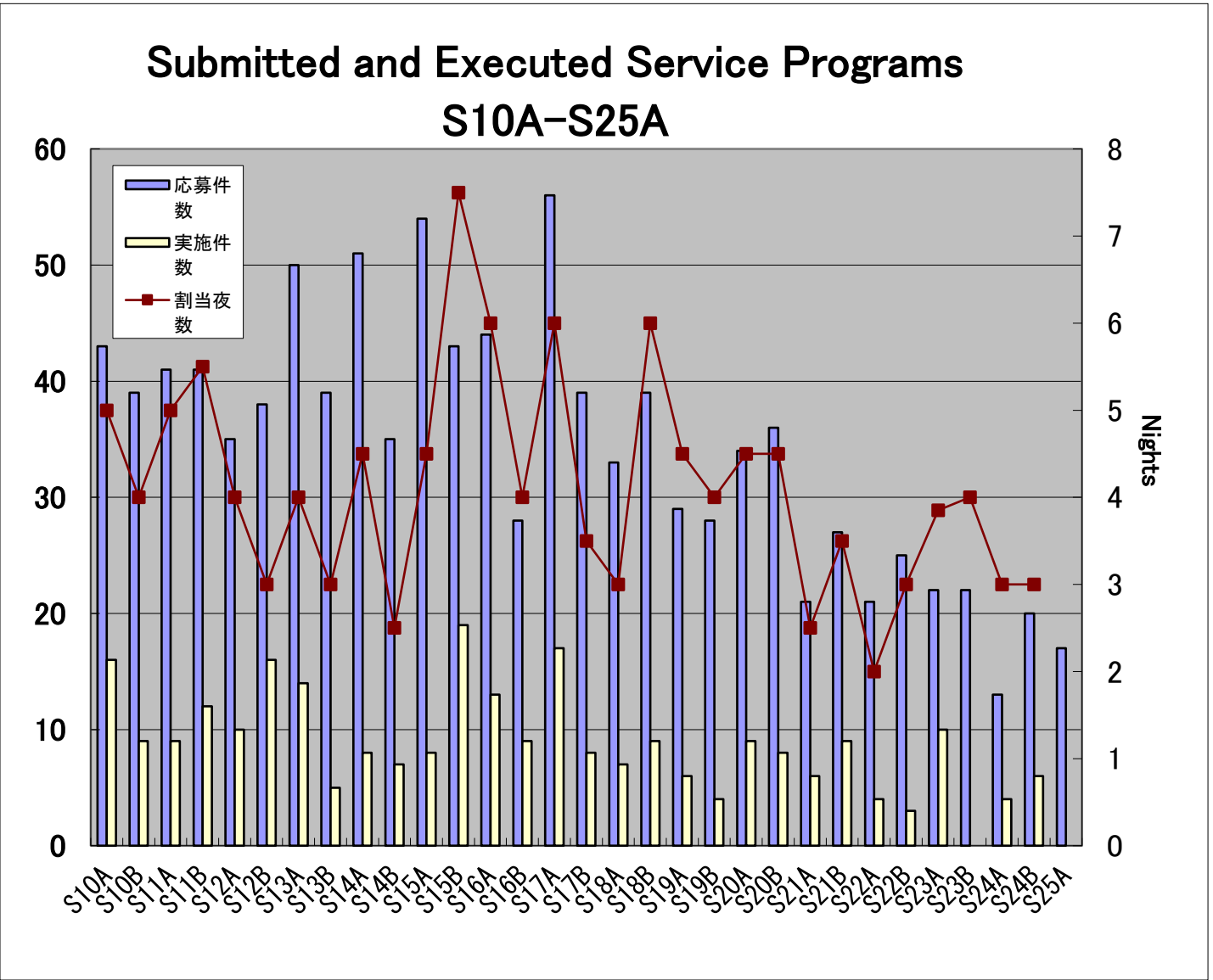
Submitted and Accepted Fraction of Student PI Proposals S10A–S25B

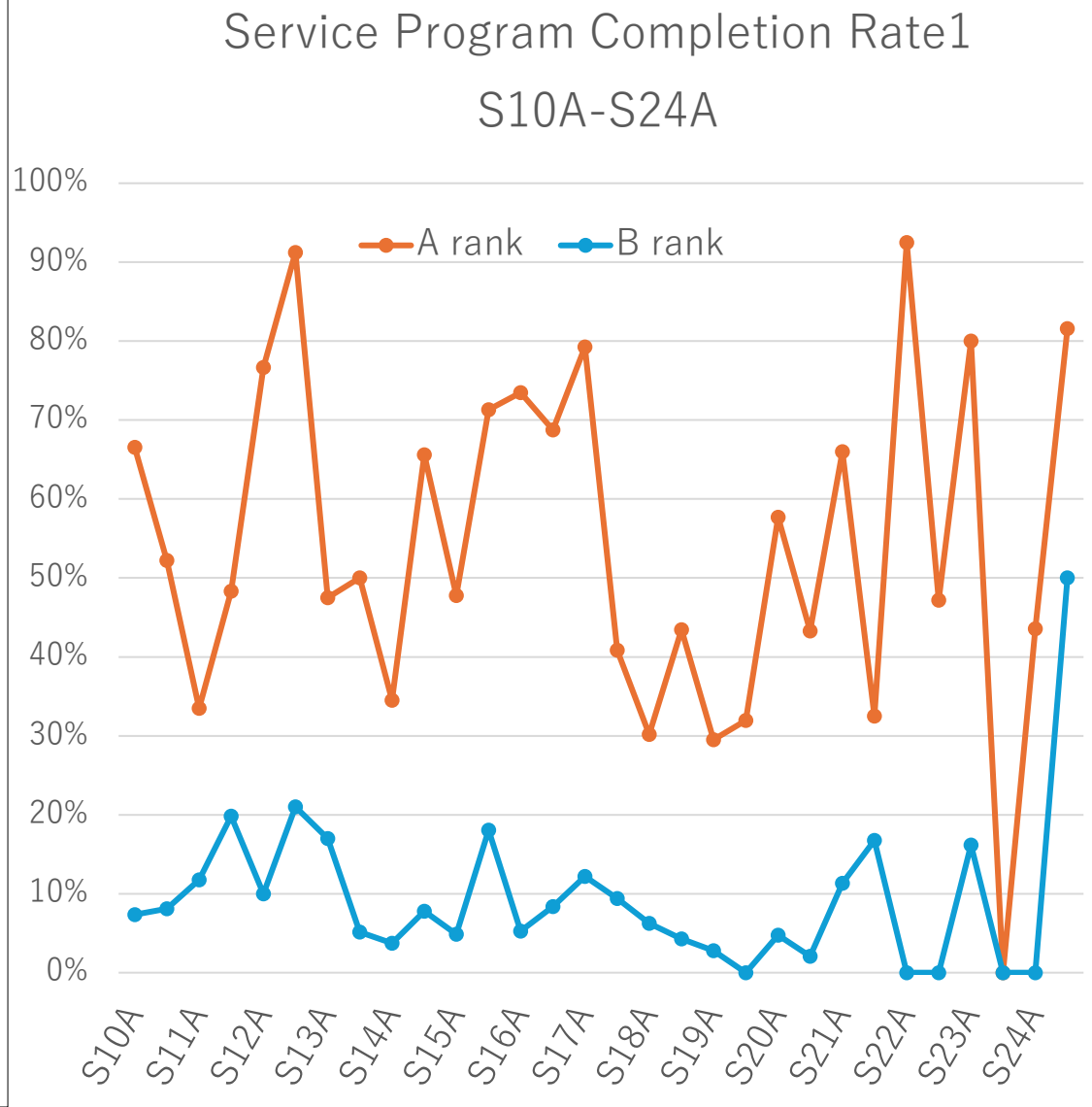
Dual anonymous review

On-site observation support for the student PI proposals



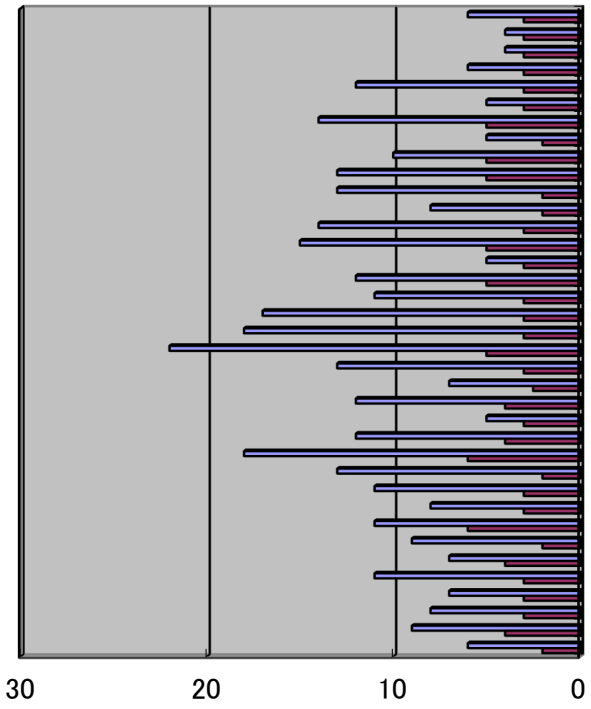
Service programs



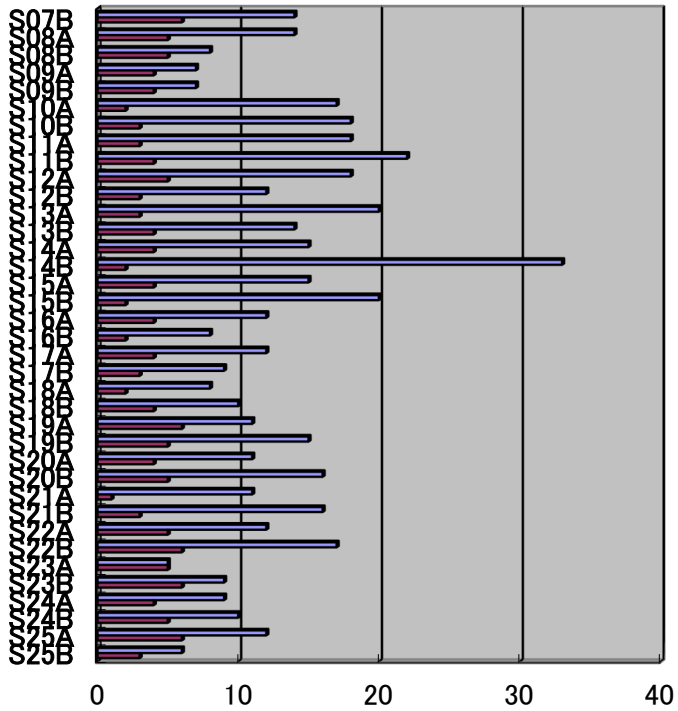


Time-Exchange programs

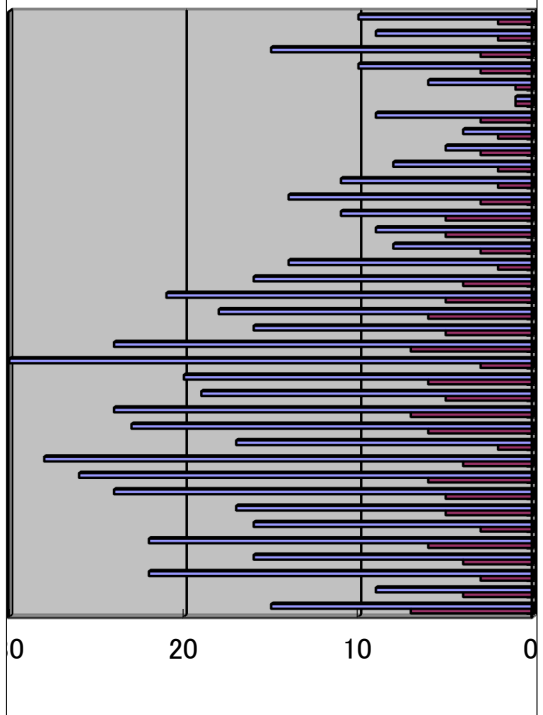
Subaru->Gemini
（申請件数・採択件数）



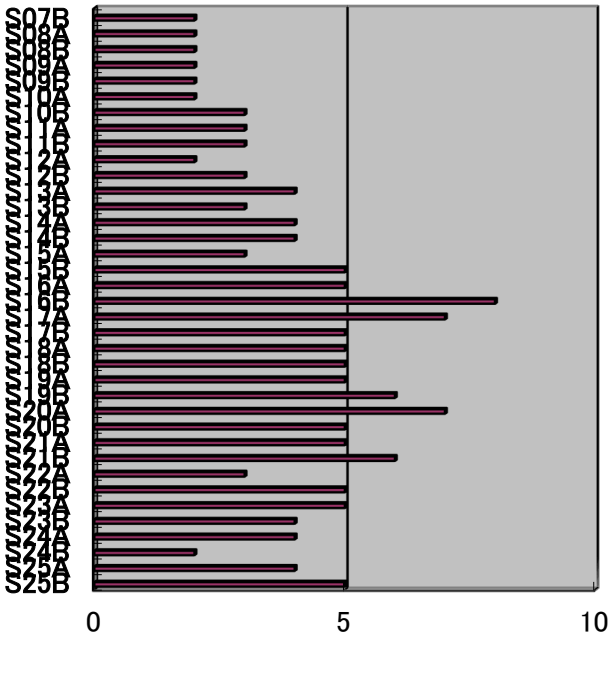
Gemini->Subaru
（申請件数・採択件数）



Subaru->Keck
（申請件数・採択件数）

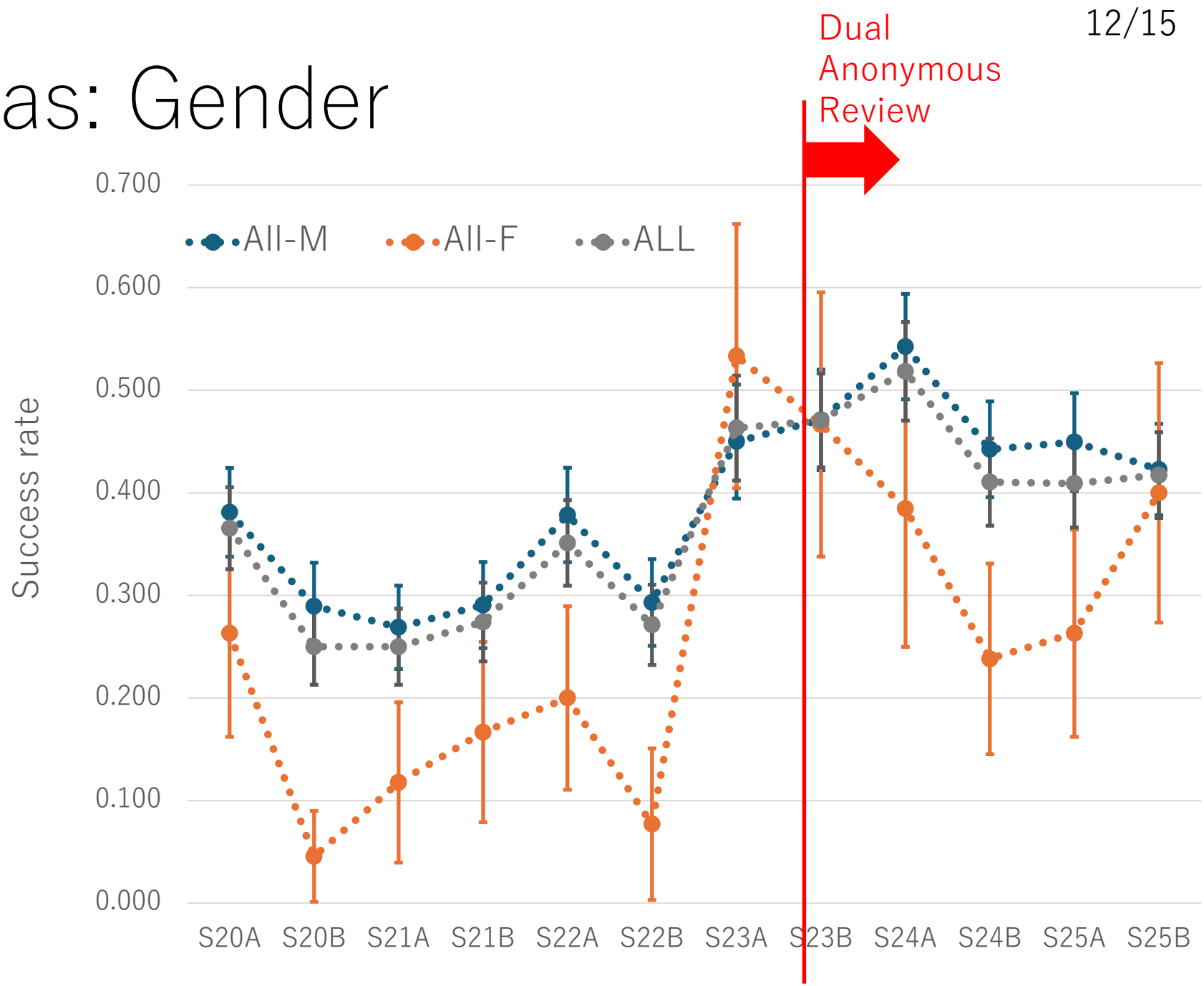


Keck->Subaru
（採択件数）



Unconscious bias: Gender

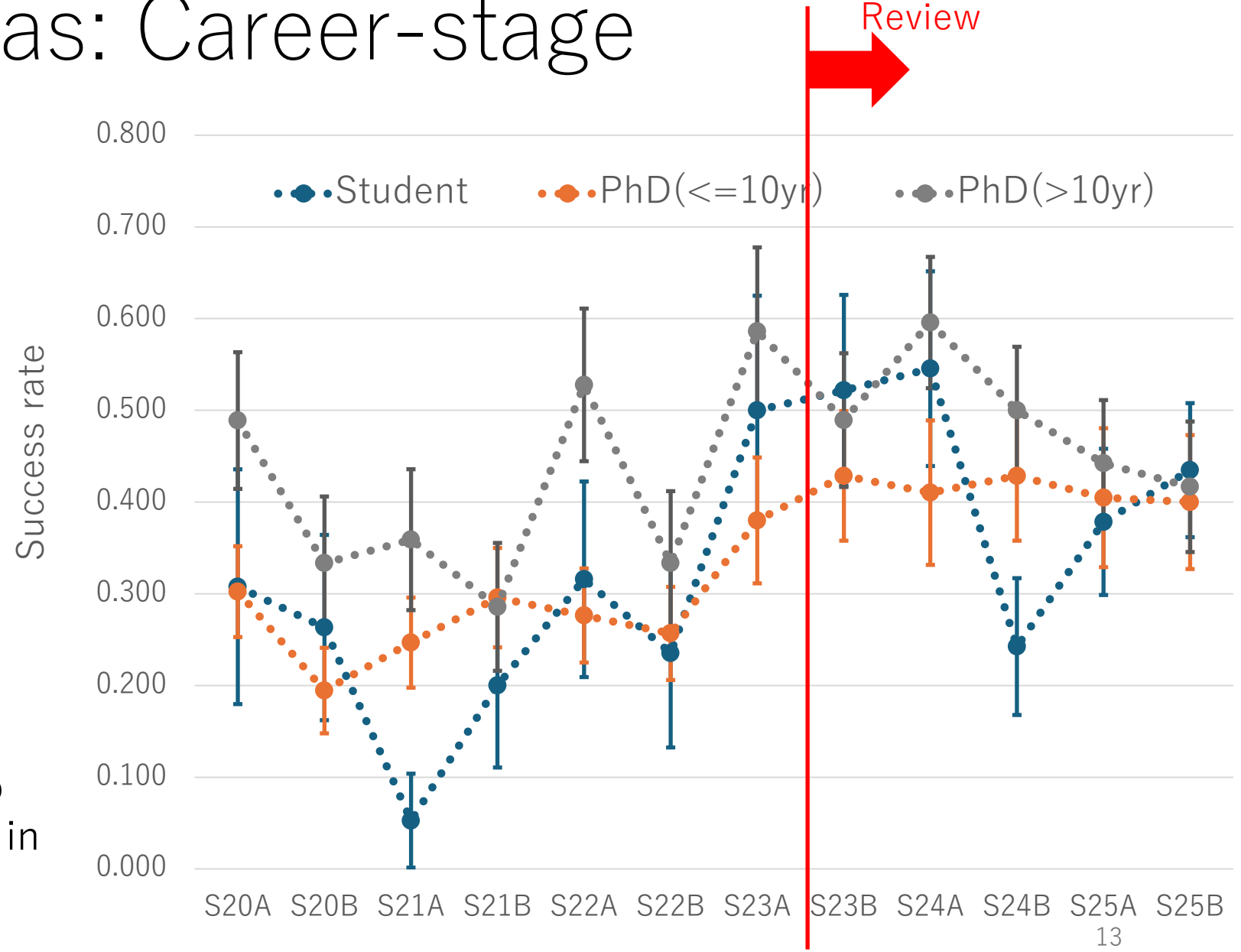
- ~S22B
  - unconscious gender-bias
- S23A
  - call for attention to referee
- S23B~
  - Dual anonymous
  - Improving?



Unconscious bias: Career-stage

- ~S22B
  - “Student” < “Senior”
  - unconscious bias?
- S23B~
  - Dual anonymous
  - Independent of career-stage?

Note: unconscious bias (gender, career stage) survey is planned to be carried out by the Observatory in future cycles



Potentially overlapping proposals

- **A note is added to CfP Document to highlight the One Proposal for One Project policy**

- Multiple referees pointed out possible overlaps among proposals targeting the same object and sharing similar scientific objectives but using different instruments.
- After confirming the existing principle of “One Proposal for One Project” (https://subarutelescope.org/Proposals/normal.html), TAC decided not to set explicit criteria, but instead to include a cautionary note in the guidelines:
- *Please note that dividing a single scientific project into multiple proposals with slightly different stated objectives, in order to circumvent the “one proposal per project” rule, is not allowed. If the proposed observations are substantially part of the same overarching scientific goal, they must be included in a single proposal, even if the instrumentation, observational strategy, or specific targets differ. Proposals that appear artificially split may be subject to review by TAC and at risk of being rejected or deprioritized.*

S25B Summary

- **Proposal success rates: 2.4**
  - The downward trend has stopped, but there’s no dramatic rise.
- **One intensive program was accepted; a total of 4 are currently ongoing.**
  - They account for 10% of all scheduled nights.
- **The number of applications and accepted proposals by graduate student PIs continues to increase.**
  - Differences in success rates by career stage are diminishing.
- **Systematic gender differences in success rates appear to be decreasing since the introduction of dual anonymous (DA) review.**

Discussions on Review Methods

Background: Subaru Proposal Review

- TAC-selected reviewers evaluate ~10-20 proposals and make their own ranking
- 5-6 reviewers per category, incl. ~2 international reviewers
  - ~40% of international reviewers
- Final ranking is determined at a TAC meeting
- Final score and each reviewer's comments are sent to proposers

Background: Claims by Reviewers

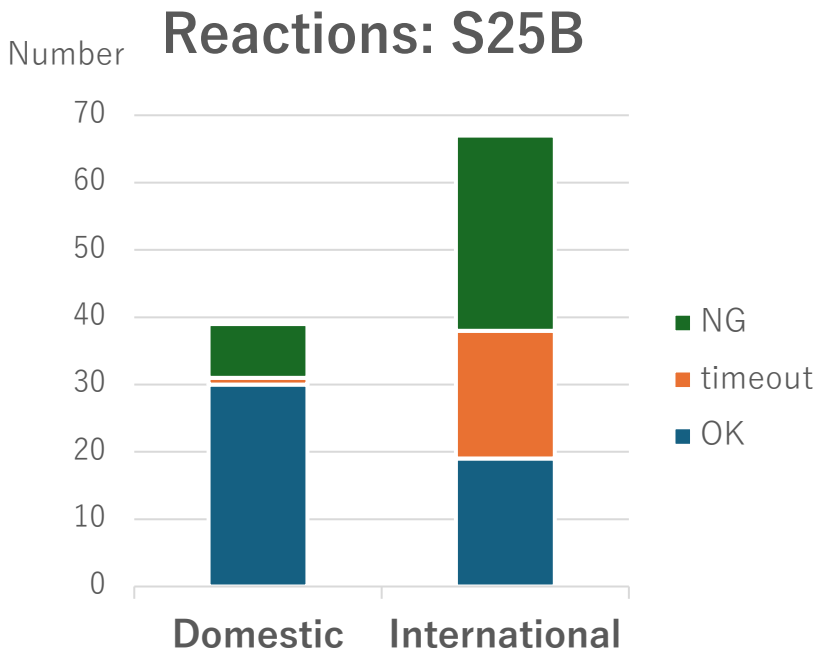
- Similar claims by multiple reviewers at S25B
  - The amount of proposal is a lot – *two reviewers* suggested **distributed peer review (DPR)** to reduce the burden of reviewing processes
  - “The Subaru review process is memorably onerous” by one person who *declined* the review request

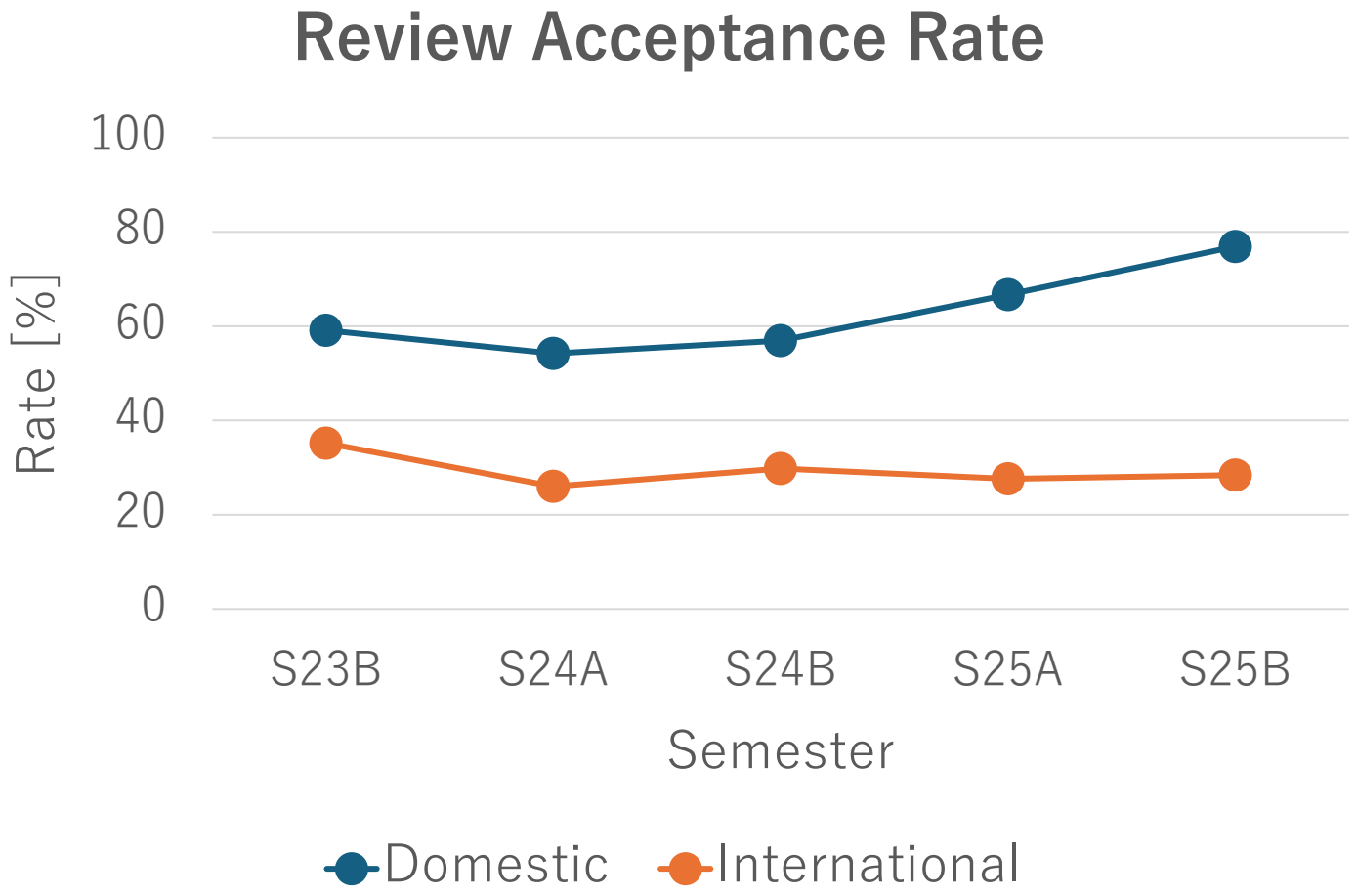
- The amount of reading is comparable with ALMA but more than ESO
  - Subaru: 2-page SJ * 20 proposals = 40 pages
  - ALMA (DPR): 4-page SJ * 10 proposals = 40 pages
  - ESO Normal (DPR): 2-page SJ * 10 proposals = 20 pages

- People may feel burdened if they need to review proposals of unfamiliar field / telescopes
  - e.g., Subaru time is limited to 5-10% for international observers

Review Request Acceptance Rate

- Significant number of international researchers did not accept review requests





Distributed Peer Review (DPR)

- Key concept: **proposers review proposals**
  - Each PI (or a delegated person) is assigned a certain number of proposals to review per one submitted proposal
  - Already introduced in some proposal reviews:
    - ESO short proposals (10 proposals to review)
    - Gemini Fast Turnaround (7-8 proposals to review)
    - ALMA Normal proposals (10 proposals to review)
- **PIs are responsible for reviewing – no burden for those not involved in proposals**

Key Discussion Question:
Does DPR Work for Subaru Proposal Review?

DPR Survey using S26A Proposal Submission

- **Minimum** requirement: **DPR needs enough number of proposals.**

- Question: **How many proposals can one PI potentially review?**
  - Use S26A submission data to count the number of proposals that each PI can review
  - The number must be much greater than the number of proposals that each PI is required to review.
- Two conditions of “conflict”:
  - Weak: PI is involved in other proposals
  - Strong: One of team members is involved in other proposals
- Three conditions of the “range of DPR”:
  - DPR within small categories, e.g., A1, A2…
  - DPR within large categories – A, B, C
  - DPR using all the proposals

DPR Survey Results

- **DPR range may need to be larger than “A&B” and “C”**
  - Any science with scales smaller than Milky Way is grouped
  - Any science involving galaxy is grouped
- **Reviewers need to have relatively broad perspectives**
  - Good opportunity to understand hot topics in other fields?
  - Concern on review quality?

DPR Range	# of submitted Props.	# of props. that one PI can review			
		Weak Conflict Condition		Strong Conflict Condition	
		Median	Min	Median	Min
ALL	157	153	142	135	87
A	36	33	29	28	19
B	35	32	24	22	9
C	86	82.5	72	67	37
A1	11	8	7	8	6
A2	7	5	2	0	0
A3	18	16	15	11.5	7
B2	19	17	9	9	5
B3	16	13	7	4	2
C1	12	11	9	7.5	5
C2C	17	15	8	7	5
C2G	16	14	11	11	7
C3	19	12	8	5	4
C4	22	21	18	16.5	11

Short Summary

- Issue:
  - Subaru proposal reviews may be a burden for reviewers, especially for international reviewers and/or those who are not directly involved in proposals

- One solution: **Distributed Peer Review (DPR)**
  - **Pro:** There is no burden for those outside the Subaru User Community and it requires the same workload for all proposers
  - **Con:** Less diversity on reviewers – theorists may not be involved
  - **Fact:** In the case of Subaru, proposers (= reviewers) need to have broad perspectives on astronomy – they are likely to review proposals submitted to different science (sub-)categories.

Input from ALMA by Izumi-san

User Opinion Survey

- **We would like to collect your opinions** on following points:
  - Is the number of international reviewers too many / reasonable / too few?
  - Do you think Subaru should introduce DPR?
  - Any comments on review systems?

- Submit your views **through the form by 4th Dec. 2025.**
  - https://forms.gle/zGa8SuJ34mrimFGr7

Appendix: ESO Survey on DPR

- ESO's surveys at the introduction of DPR are summarized in some *The Messenger* articles
  - Patat (2018) "The Time Allocation Working Group Report"
    - https://www.eso.org/sci/publications/messenger/archive/no.173-sep18/messenger-no173-7-11.pdf
  - Patat et al. (2019) "The Distributed Peer Review Experiment"
    - https://www.eso.org/sci/publications/messenger/archive/no.177-sep19/messenger-no177-3-13.pdf
  - Jerabkova et al. (2023) "The First Results of Distributed Peer Review at ESO Show Promising Outcomes"
    - https://www.eso.org/sci/publications/messenger/archive/no.190-mar23/messenger-no190-63-66.pdf