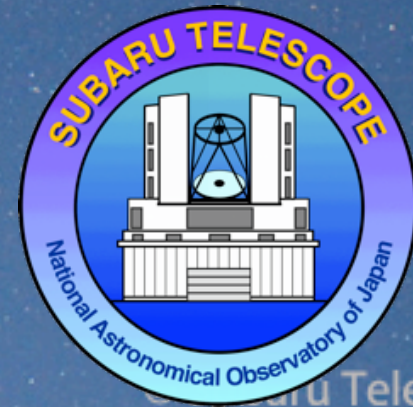


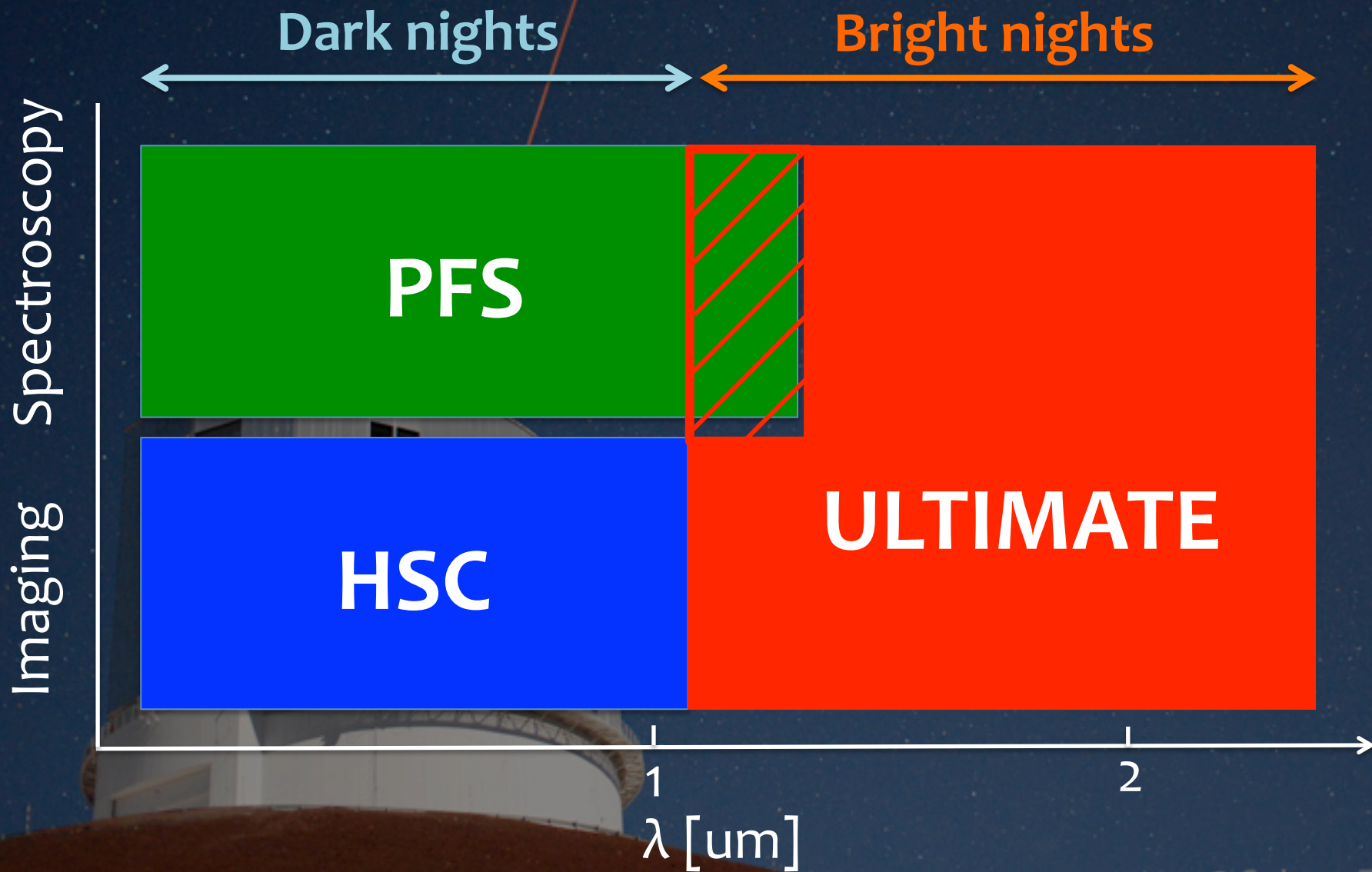
ULTIMATE-Subaru Science Workshop 2016

Scope of the workshop

Yusei Koyama
(Subaru Telescope)



ULTIMATE in Subaru 2020s



ULTIMATE-Subaru (~2023-)

→ *See for project overview by Y. Minowa*

- **Wide-field adaptive optics (GLAO)**
 - 0.2'' at K-band (0.2''-0.3'' at J/H) over 15' FoV
 - available almost everywhere on sky
 - *See AO overview by C. Clergeon*
- **Powerful wide-field NIR instruments**
 - Wide-field imager, multi-IFU spec., MOS spec.
 - *See instrument overview by T.Hattori / Y.Minowa*
- **Strong science case is needed !**

Science Brainstorming (History)

Subaru next generation AO workshop
(2011/9/8-9, Osaka Univ. Nakanoshima Center)
More general, including MOAO



Study Report 2012

Subaru GLAO Science Workshop 2012
(2012/10/17-18, Subaru Hilo Office)
Kick-off meeting (invitation only)



Subaru GLAO Science Workshop 2013
(2013/6/13-14, Hokkaido University)
wider community including Canadians, key science, imager/MOS



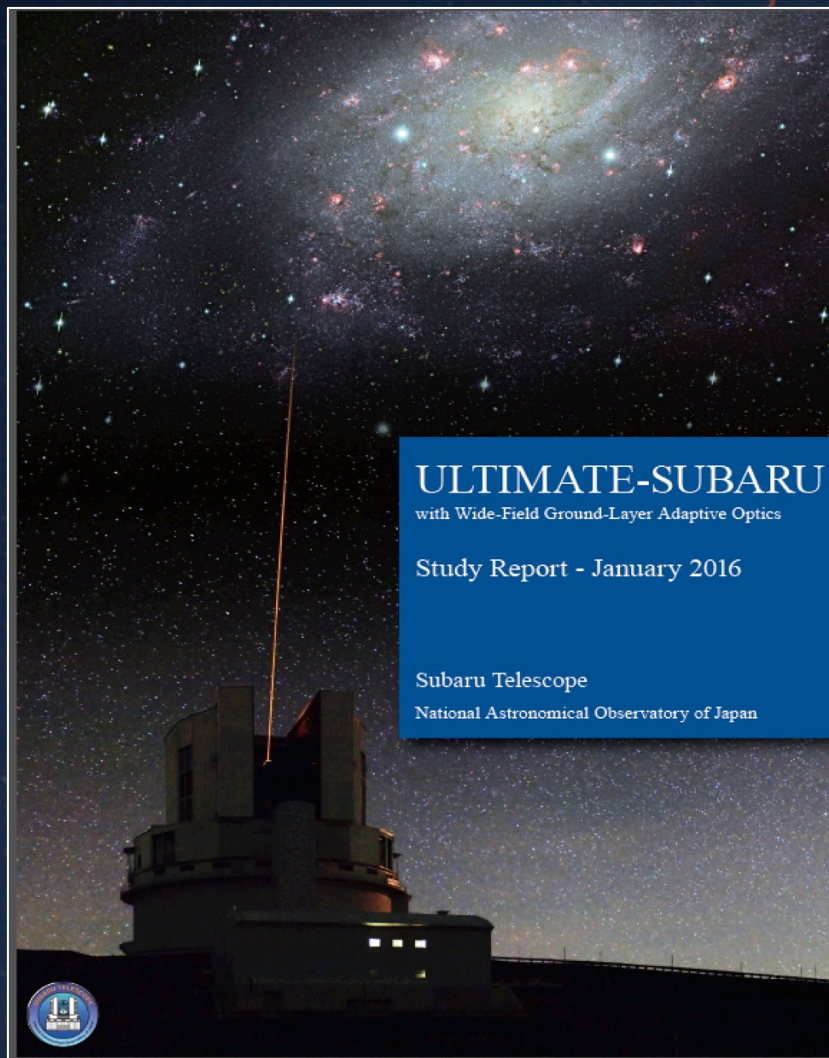
ULTIMATE-Subaru Science Workshop 2014
(2014/7/28-29, NAOJ Mitaka)
wider community including Australians, starbug&IFU system



Study Report 2016

ULTIMATE-Subaru Science Workshop 2016
(2016/6/16-17, NAOJ Mitaka)

Study Report 2016 & external review



- Contributed by ~35 scientists.
 - In English, ~150 pages
- External review in Feb. 2016 by :
 - M. Yoshida (Chair)
 - M. Doi
 - K. Shimasaku
 - A. Renzini
 - M. Kissler-Patig

→ See talk by Doi-san for review summary
- Study report & reviewers' recommendation are available:
<http://www.naoj.org/Projects/newdev/ngao/>

This workshop

1. “Key science” with ULTIMATE in mid-2020s
2. Establish strong science team
3. Discuss our instrument plans
4. Community’s input on survey design
5. Accelerate collaboration with our partners
6. Synergy with other future missions

Questions to speakers

All speakers: please include your answer to Q1-Q4 in your talk.

Q1: What do you think is the “KEY” science/observations for ULTIMATE in your research field? We hope to establish the very best science cases which are unique enough even in mid-late 2020s (i.e. post-JWST or WFIRST era!).

Q2: Which instrument (WFC/MOS/IFU) do you think is 1st priority for ULTIMATE? We currently consider the wide-field imager (WFC) is 1st priority, but we want to have your opinion.

Q3: Our current plan is to (1) build GLAO first, and then to (2) build new NIR instrument(s). This means that we will start our ULTIMATE science with GLAO + MOIRCS at the first stage. Do you have good science cases to be done with GLAO+MOIRCS during the period of ~2020-2023?

Q4: Which survey design sounds best for you (see [survey_design.pdf](#))? Your comments/suggestions on the ULTIMATE survey design are very welcome.

Additional discussion items

Q5-Q8 are optional, but your suggestions on these items are very welcome.

Q5: For those who are interested in wide-field imager (WFC): Are there any special requirements for the instrument specification (FoV, pixel scale, N. of NB filters)? Please note that FoV and pixel scale are trade-off (i.e. pix scale gets larger if we choose wider FoV).

Q6: Also, are you interested in tunable filter on WFC if technically feasible? With tunable filter we can flexibly change central wavelength of the filter, but the tunable filter is expected to be ~25% less sensitive than NBs.

Q7: For those who are interested in spectrographs (IFUs or MOS): are you happy with our current specifications? We hope to have your comments.

Q8: Are you interested in using adaptive secondary mirror (ASM) with non-GLAO mode? We stress that the performance of existing Subaru instruments (e.g. IRCS, HDS, SCExAO) will be significantly improved once we install ASM.

Let's get excited about Subaru "bright" future

We are here !



HSC

PFS

ULTIMATE

2013

2019

2023



Announcement (1)

- For speakers:
 - Please keep time – the schedule is very tight.
 - We will collect your talk slides for proceedings.
 - Please remove unpublished items if necessary.

Announcement (2)

- Banquet this evening:
 - 18:30- in THIS ROOM.
 - 3000JPY for staff/postdoc, 2000JPY for student
 - Complete payment during the lunch break at the reception desk.
 - For those who didn't register - let us know if you want to join the banquet.

Reference URLs

- Workshop website:
 - http://www.naoj.org/Projects/newdev/ngao/201606_ULTIMATE_WS/index.html
- ULTIMATE-Subaru fact sheets:
 - http://www.naoj.org/Projects/newdev/ngao/201606_ULTIMATE_WS/materials/fact_sheet.pdf
- ULTIMATE-Subaru preliminary survey design:
 - http://www.naoj.org/Projects/newdev/ngao/201606_ULTIMATE_WS/materials/survey_design.pdf
- Study Report 2016 (& reviewers' recommendation):
 - <http://www.naoj.org/Projects/newdev/ngao/20160113/index.html>