Subaru Instrument Plans toward ~2020s

Discussion with Science Operation Division
(2016/11/14, 10:00 – 12:00, @ 104A)

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Subaru Direction

To keep competitiveness in 2020s, Subaru will become survey-oriented telescope taking advantage of wide-field capability – i.e. HSC/PFS/ULTIMATE – even if we lose part of functionality.

Requirements from government & NAOJ

Community's needs ⇄ Operational constraints

SUBARU TELESCOPE
National Astronomical Observatory of Japan

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- Science interests
(Survey & non-survey)
- PI instrument

- Reduce operation cost
- Instrument decommission
- International operation

Requirements from government & NAOJ

Survey !

I need more time for SSP!

No money !

No more open-use time !

Non-survey !

I want to test our (TAO) instrument at Subaru!

International operation? I don't like it !

MUST reduce the instruments

MUST start intl. operation!

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- Science interests
(Survey & non-survey)

- Reduce operation cost
- Instrument decommission

Although it is probably impossible to make everyone happy – we should (always) consider the best option to keep competitiveness of Subaru up to ~2020s.

Non-survey !

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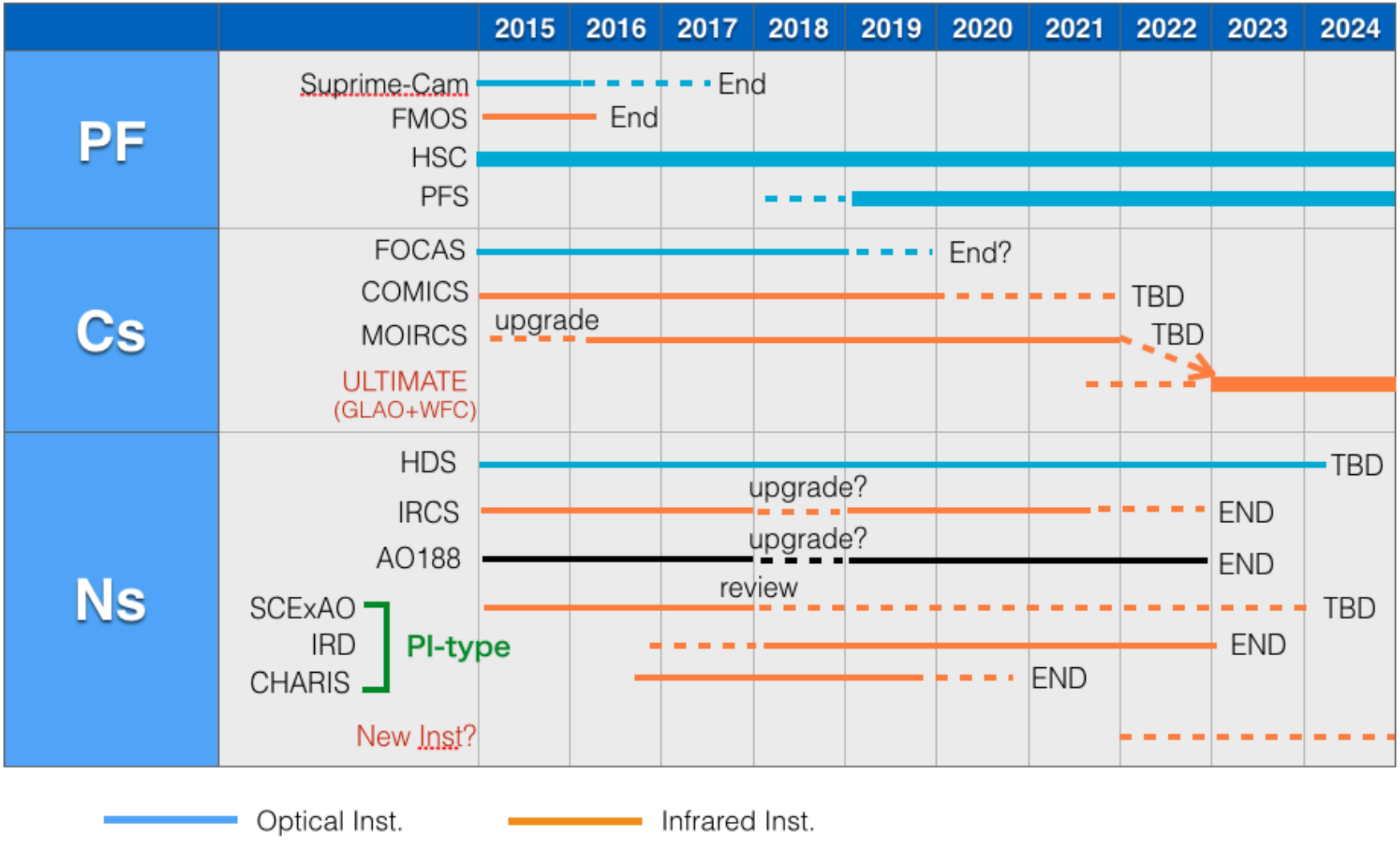
Subaru Telescope
Instrument Timeline (proposal, update 2016/09/21)



Timeline

- 2016/09/21: Kick-off meeting (Koyama/Iwata/Minowa/Hattori)
- 2016/10/21: Follow-up meeting (Koyama/Iwata/Minowa/Hattori)
- 2016/11/14: Meeting w/ SciOp Division ← TODAY
- 2016/12/XX : Meeting within Subaru
- 2016/12/XX : Discussion in SAC
- 2016/01/09: Discussion with community in Subaru UM

FOCAS

- Still we are receiving many proposals - in particular as HSC follow-up tool.
- Do we really need FOCAS in the PFS era?
  - PFS is not good at observing dense/crowded targets.
- How large fraction of FOCAS program can be done with Keck/Gemini time exchange?
  - Of course we cannot "guarantee" the time exchange is eternally available.
- Relatively stable and easy maintenance.

MOIRCS

- We plan to use MOIRCS as the 1st light instrument of ULTIMATE-Subaru – which is recommended by the reviewers. Is it really realistic?
  - If it is too hard to keep MOIRCS operation for ~10 yrs from now, it might be another option to give up at some point?
- However it is true that MOIRCS has unique capability of wide-field camera + spectrograph – still highly competitive amongst 8m-class telescopes.
- Direct comparison between FOCAS and MOIRCS is impossible in terms of operation (maintenance) costs.
- In any case, most realistic and strongest plan for Cassegrain unit is essential.

HDS & COMICS

- Considering their unique capability, we plan to continue operation as long as possible – unless any fatal problems happen (i.e. "passive" decommission). Do you agree?
- There is ongoing intensive program with HDS.
- HDS is stable and still highly competitive at least before similar instrument becomes available on TMT.
- The number of users is limited on COMICS – but there are continuous demands and they keep publishing results.

IRCS & AO188

- IRCS+AO188 should lead the Subaru AO observation (and AO activity) before ULTIMATE.
- Essential to upgrade laser and IRCS detector, and so on to keep competitiveness?
- Can you accept upgrading the the current 5um cut-off detector to 2.5um cut-off detector?
  - It becomes (temporarily) impossible to do science at 2.5um<l<5um before we can purchase new good 5um-cutoff detector.
  - Need discussion with community.

PFS

- PFS can be used on bright night as well (at J-band).
- In this case – we can fix PFS metrology camera on Cassegrain focus – making operation very simple and easy. (assuming we cannot have ULTIMATE).
- Subaru cannot do any H/K-band observation in this case.
  - We should review PFS bright-night science. Are they strong enough?