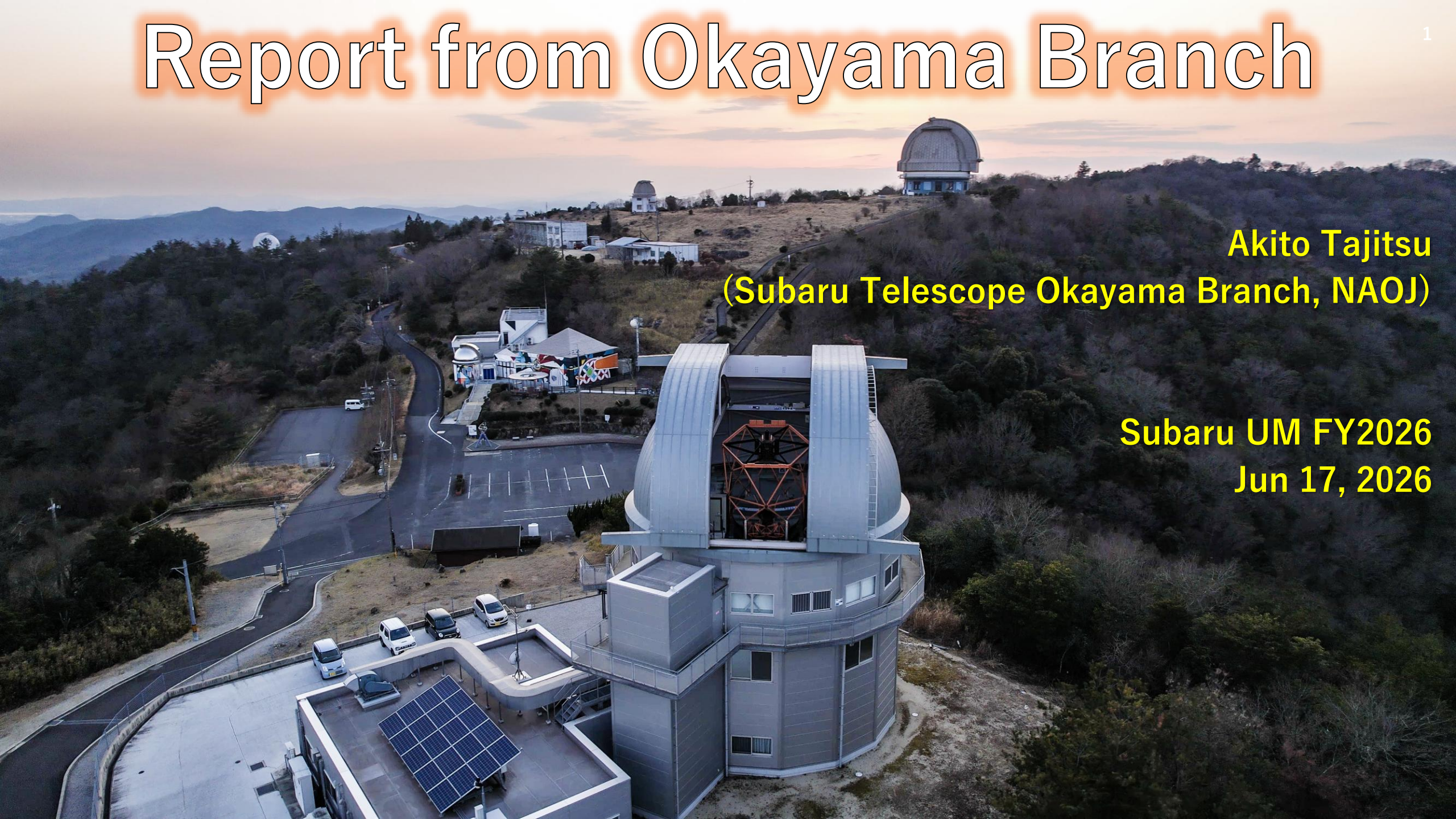
Report from Okayama Branch



Akito Tajitsu
(Subaru Telescope Okayama Branch, NAOJ)

Subaru UM FY2026
Jun 17, 2026

Overview

Okayama Branch hosts the largest optical/IR telescope site in Japan, hosting **3.8-m Seimei Telescope** (Kyoto Univ.), and **188-cm telescope** etc.

5 researchers + 2 admin. staffs + 1 student (+8 reseachers for Seimei [Kyoto univ.])

New!! **Eiji Kambe** (Sr. Specialist, 2026.3-), **Kazuko Ando** (Project Researcher, 2026.6-)

Advantage

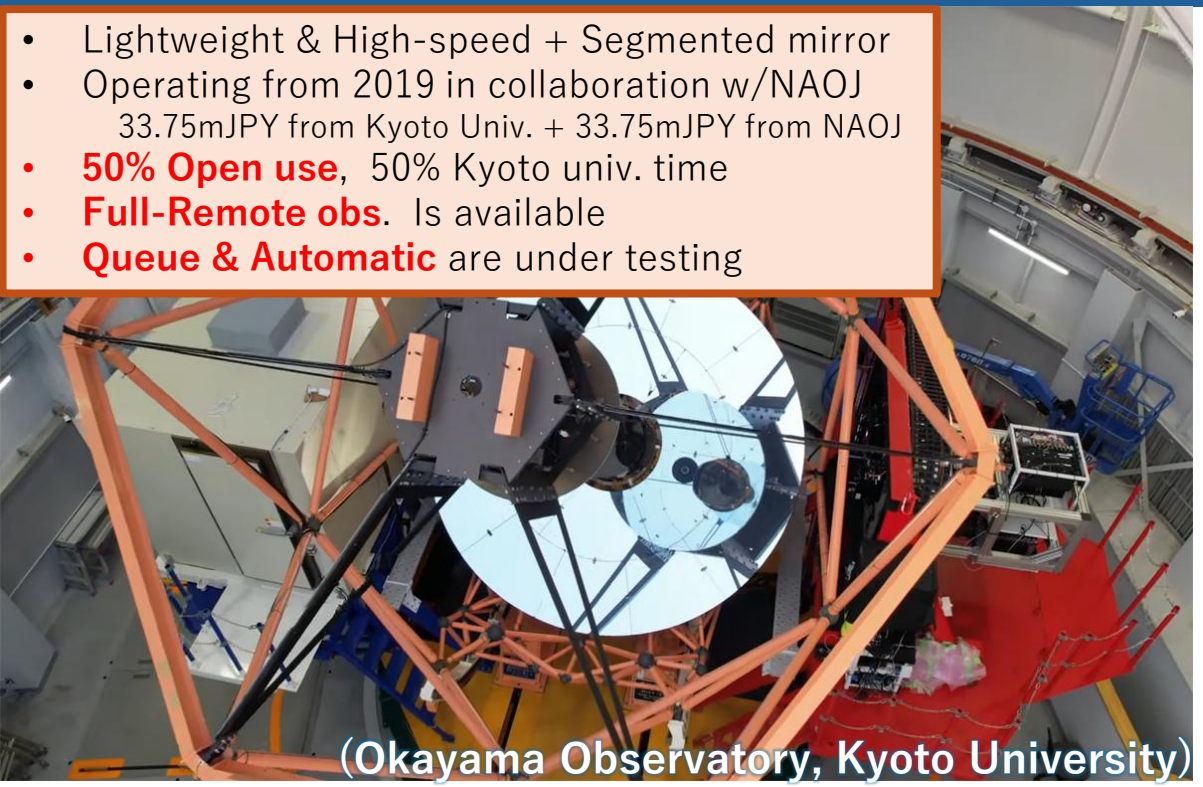
- Abundant observation time
  ○188cm, △Seimei
- Location
  Domestic access, Longitude on earth
- Optimization for ToO (○Seimei)
  Fast telescope, Quick instrument change

Main science **Time-domain astronomy**

- Rapid response obs. of transient events
- High-cadence and long-term monitoring
  exoplanets
  various explosive events….

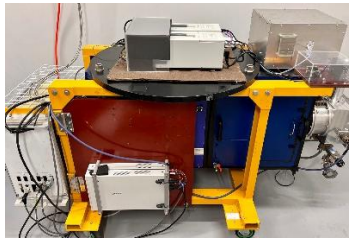
3.8-m SEIMEI Telescope

- Lightweight & High-speed + Segmented mirror
- Operating from 2019 in collaboration w/NAOJ
  33.75mJPY from Kyoto Univ. + 33.75mJPY from NAOJ
- **50% Open use**, 50% Kyoto univ. time
- **Full-Remote obs**. Is available
- **Queue & Automatic** are under testing



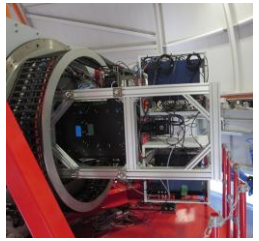
KOOLS-IFU

Optical Low-dispersion Spectrograph with Integral Field Unit



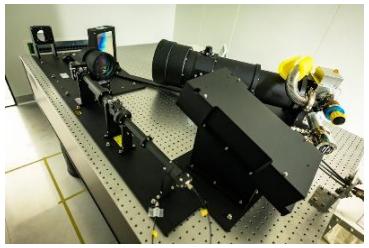
TriCCS

High-speed Tricolor CMOS Camera and Spectrograph

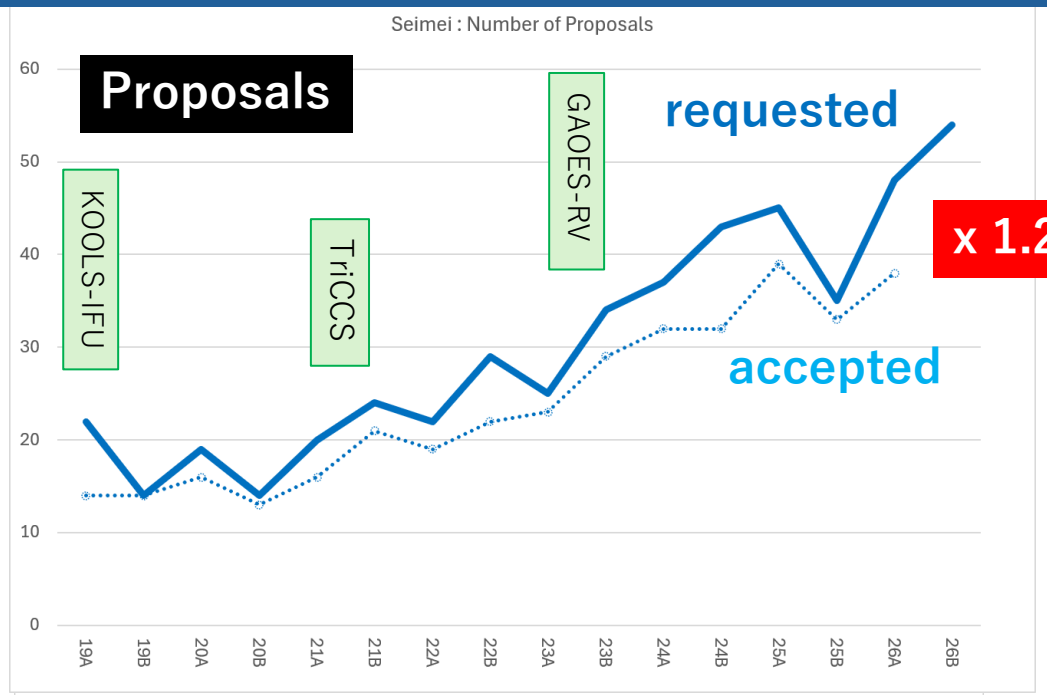


GAOES-RV

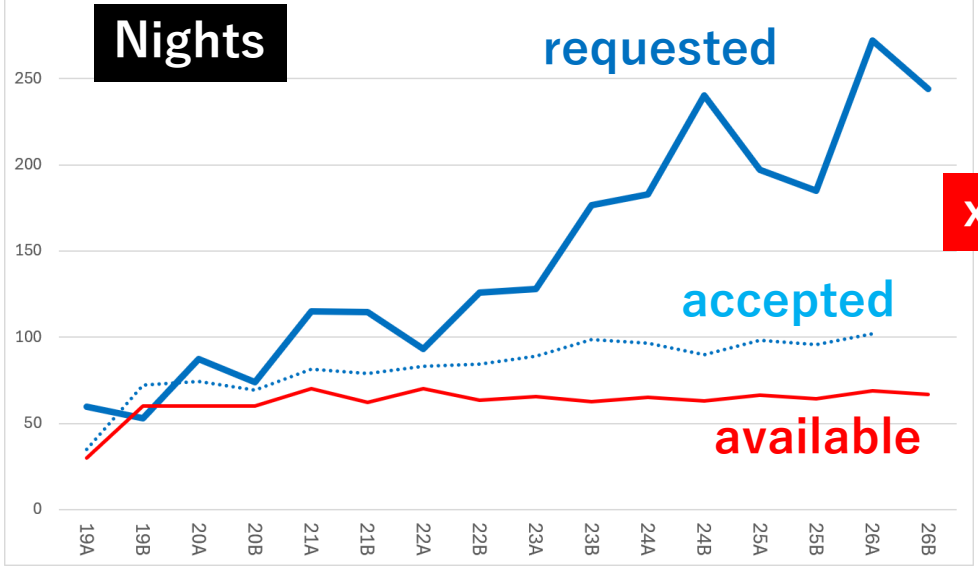
High-dispersion Echelle Spectrograph for RV measurement



Changes to each instrument can be completed within a minute.



x 1.26 (26A)



x 2.66 (26A)

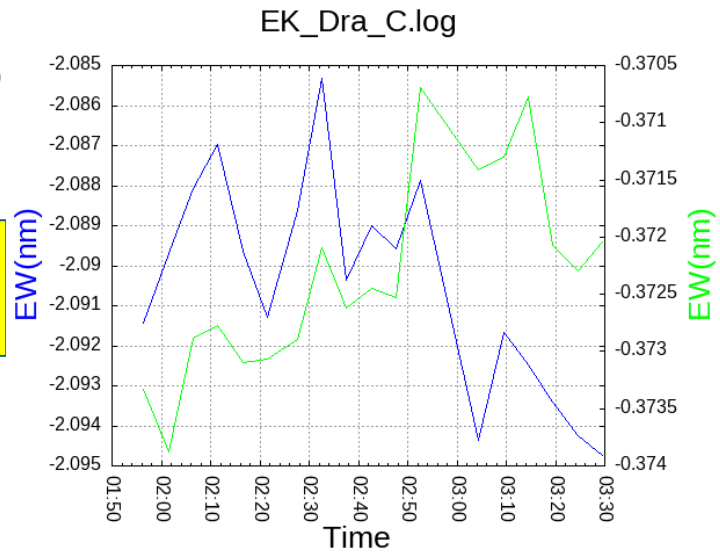
MIDSSAR (SEIMEI Telesocope)

CaHK+Hα Mid. Dispersion Spectrograph

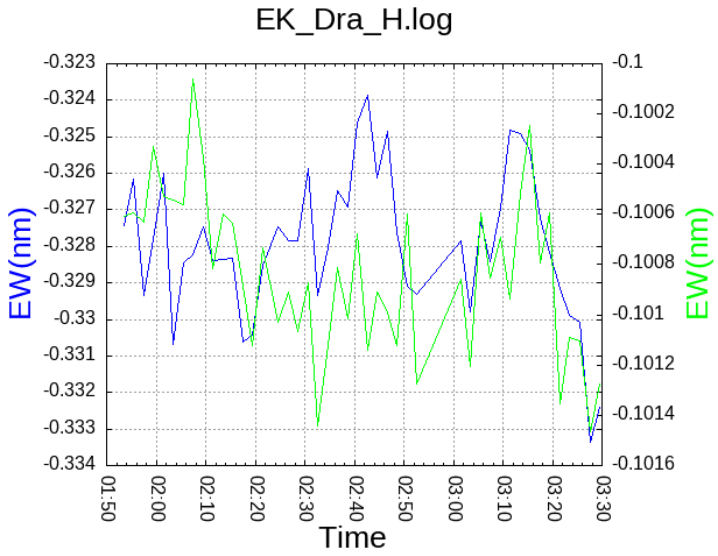
- Simultaneous obs. w/ GAOES-RV (516-593nm)
- IFU + CMOS

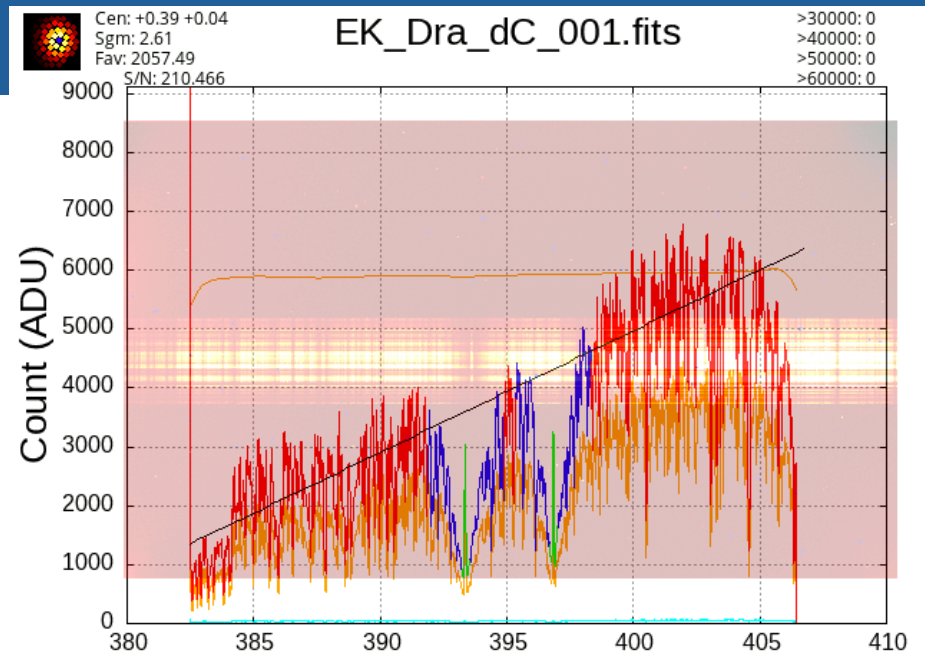
First Light achieved in spring 2026!!

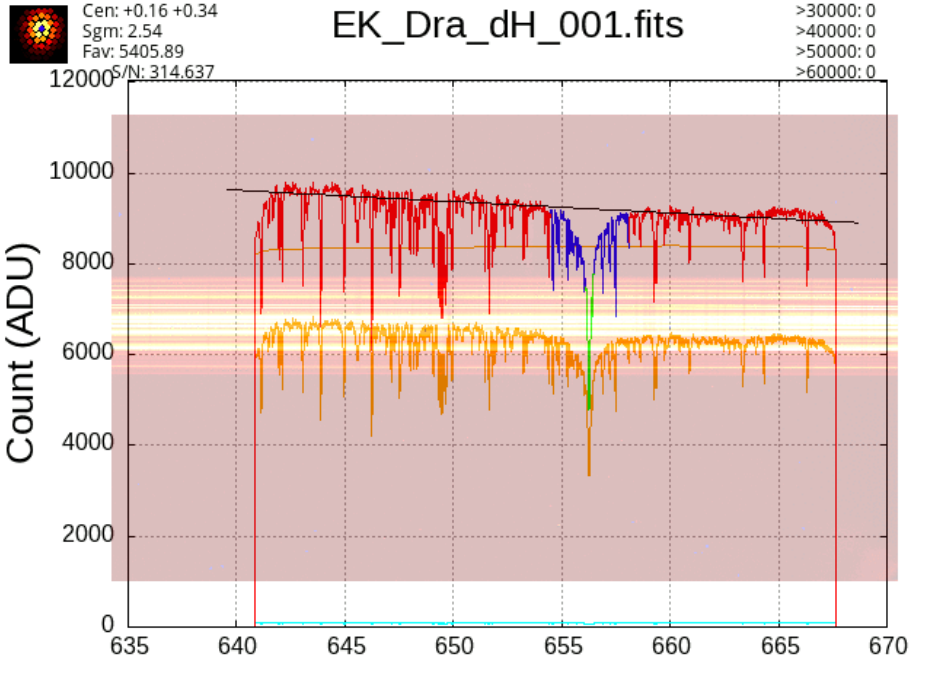
Following commissioning, it will be available for open use in 2027.



Real Time EW monitoring







188-cm Telescope

- The dome, which had been out of operation since Sep. 2022, **has been restored**. (Dec. 2024)

- **Scientific observations resumed in Mar. 2025**.
  - MuSCAT (Multicolor Simultaneous Camera)
  - HIDES-f (High Dispersion Echelle Sp.)
  - JOVIAL (Doppler Imager w/24H obs. network) : started scientific obs. in 2025

  109 (science obs.) + 6 (stargazing event) nights were used in FY2025.

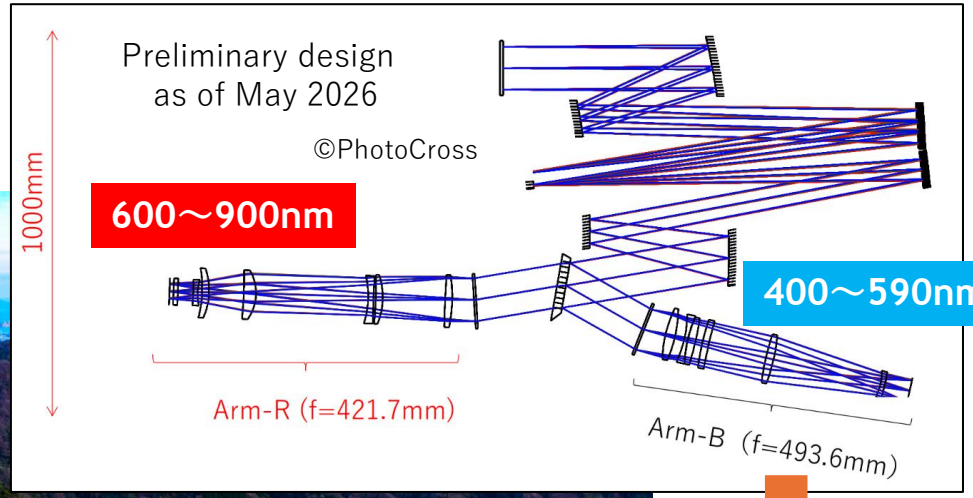
- Primary mirror re-coating (Jun. 2025)

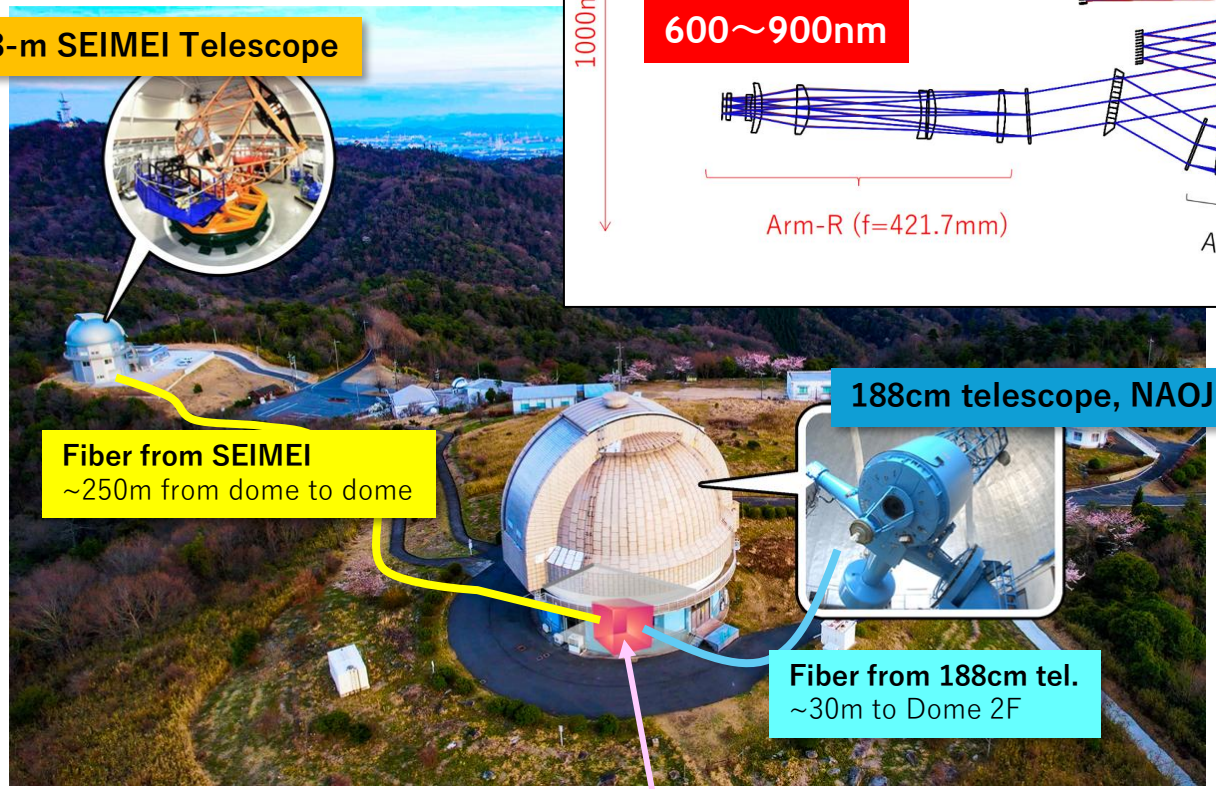
  next re-coating in Sep. 2026?

Started a new project funded by JSPS
(*Specially promoted research, PI: B. Sato)
FY2025 – FY2030

Okayama Super-HRS (*the name is tentative)

PI : Sato, B. (Science Tokyo)
FY2025-2030





New SHRS in 2F(?) of 188cm dome

HRS w/ 5 “Super”

① **Super** high wavelength resolution
R～300,000 Img. Slicer / Echelle Sp.

② **Super** precise wavelength standard
<10cm/s by Astro-comb

③ **Super** high time resolution
~sec scale by large format CMOS

④ **Super** wide wavelength region
400-900nm by large format CMOS

⑤ **Super** long-term & high cadence observation
> year by 188cm telescope + Seimei

- ✓ Understanding the **variability phenomena of solar-type stars** at the cm/s level
- ✓ Searching for **Earth-like planets** orbiting solar-type stars in the vicinity of the Sun

FY2025-27 Super-HRS development
FY2028-30 Intensive Obs.

Changed the initial plan

mount spectrograph into vacuum chamber

To suppress RV-shift caused by refractive index changes due to atmospheric pressure fluctuations