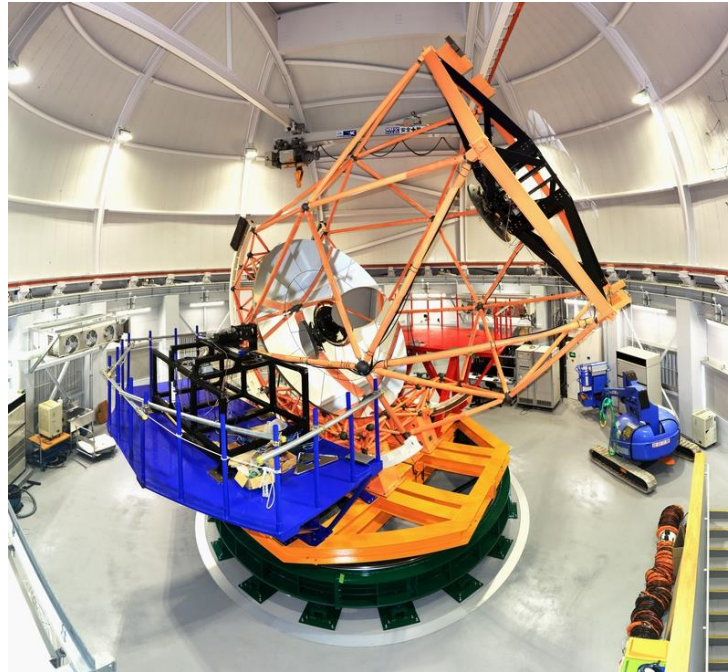
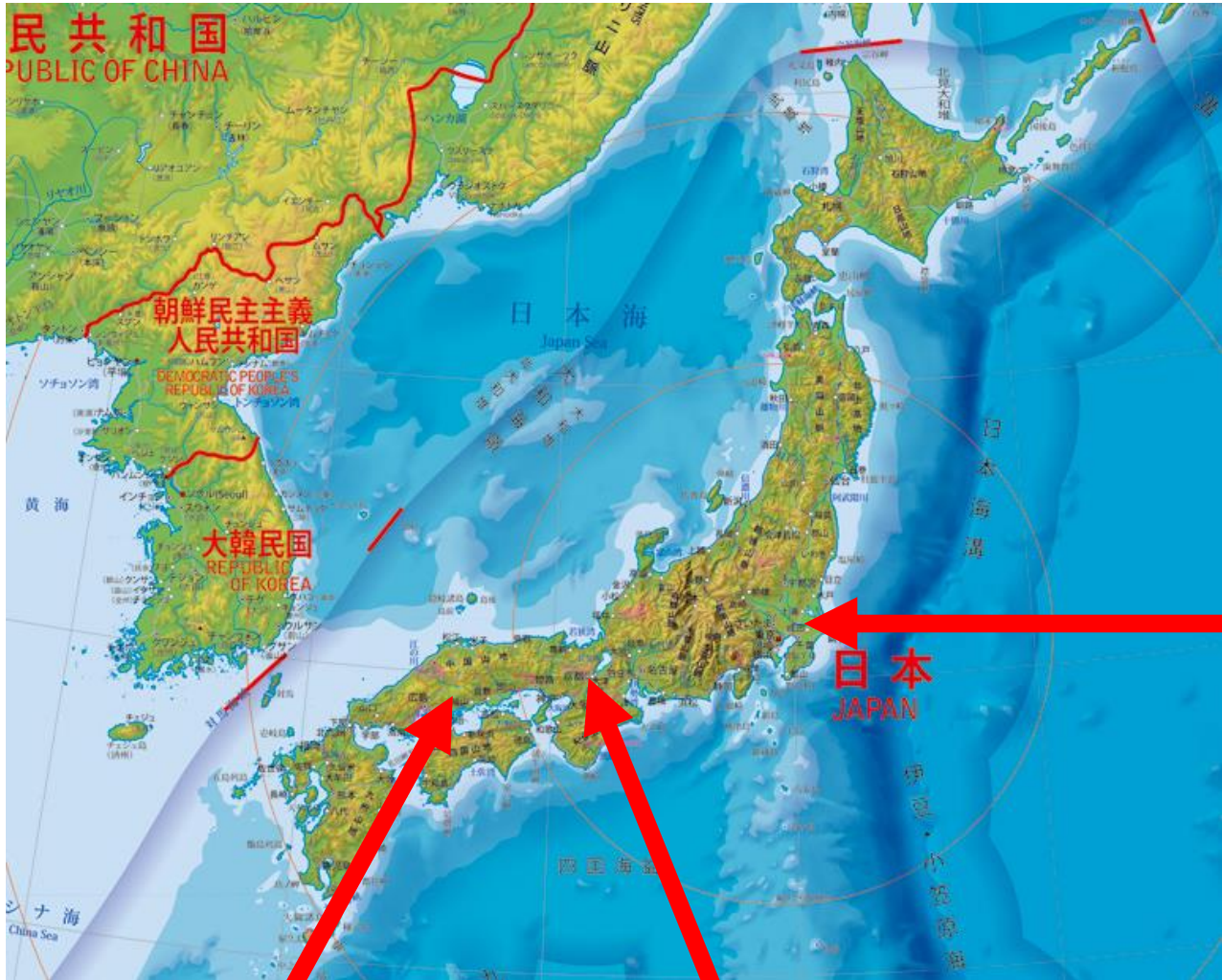


Okayama-3.8m optical - near infrared telescope



Kouji OHTA (Kyoto Univ.)

May 22, 2019 AMON WS@Chiba



Chiba
(you are here)

Okayama

Kyoto

Okayama site

Our observatory site



Observable nights ~60%
Seeing ~ 1.5"-2"
Weather condition
is almost the best
in Japan
Night sky is not very dark



188cm
telescope

Site as of 2012

Okayama Astrophysical
Observatory,
National Astronomical
Observatory, Japan
(picture taken in 2012)

Okayama 3.8m telescope

nickname: Seimei (晴明※) telescope

Kyoto University

Opening ceremony

Feb, 2019

(still under development)

※named after famous ancient astrologer

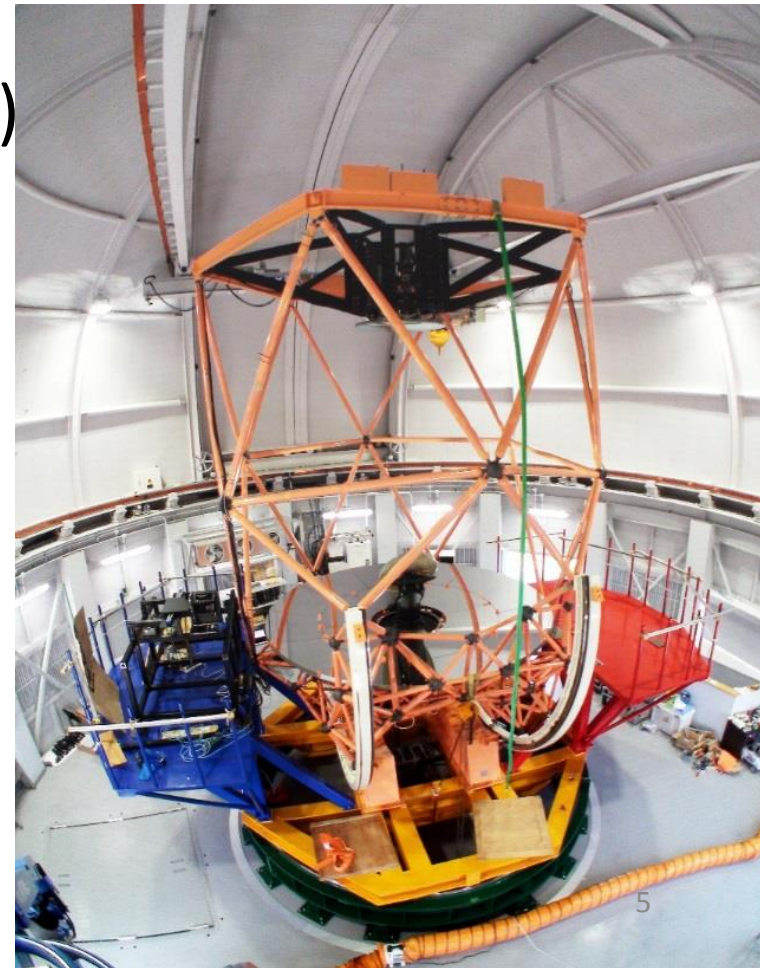


As of Sep, 2018

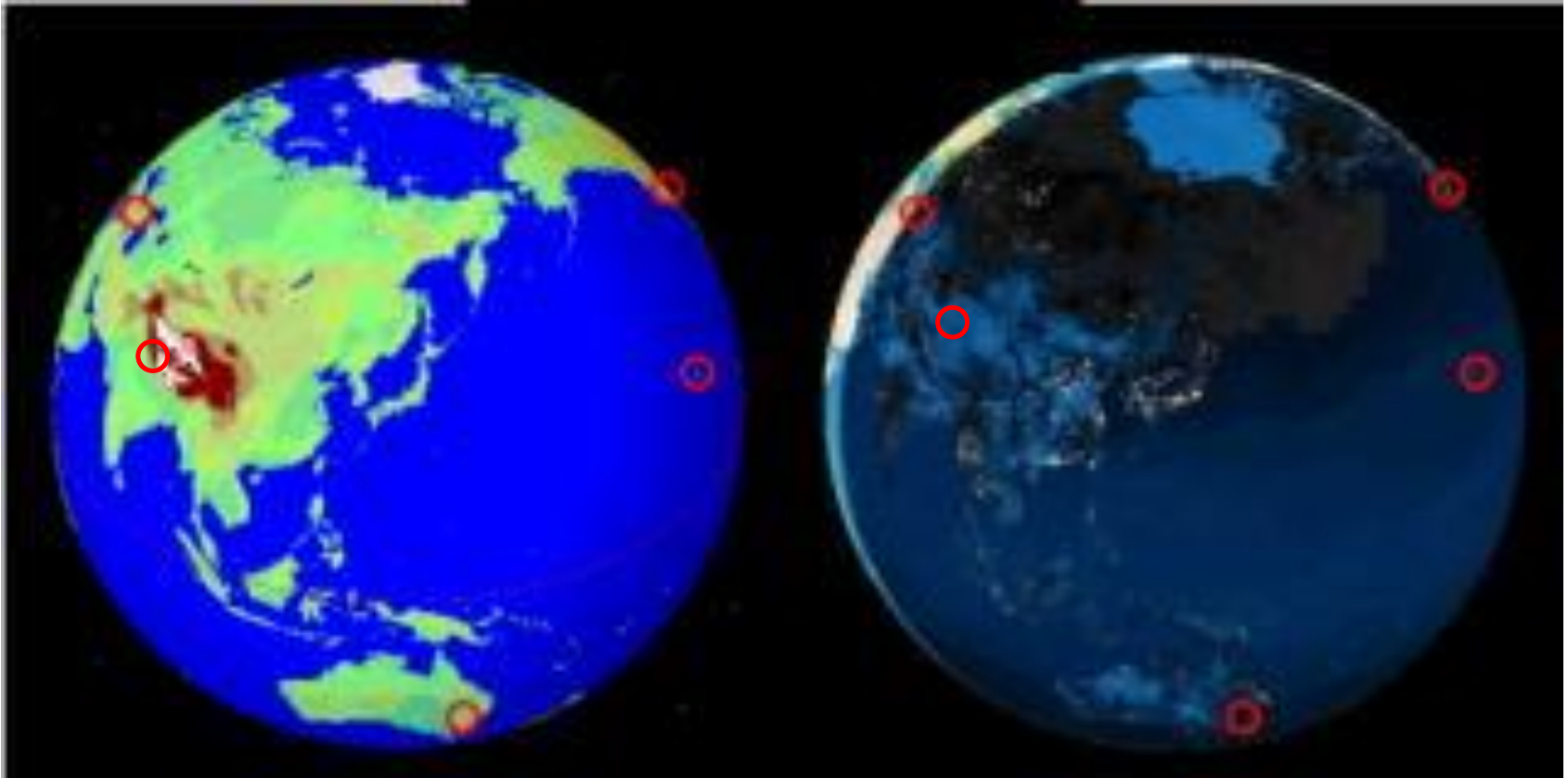
Unique Features of the 3.8m

1. Segmented mirrors (petal type)
inner 6 segments + outer 12 segments
 2. Mirror fabrication by
mainly grinding (and polishing)
 3. Light weight torus structure
=> rapid slewing
slew speed 3-4 deg/sec
- Pointing accuracy $\sim 3''$ rms
=> $\sim 5''$ rms
 - Two Nathmyth foci available

**Almost handmade telescope
still under development**



Another unique feature : longitude



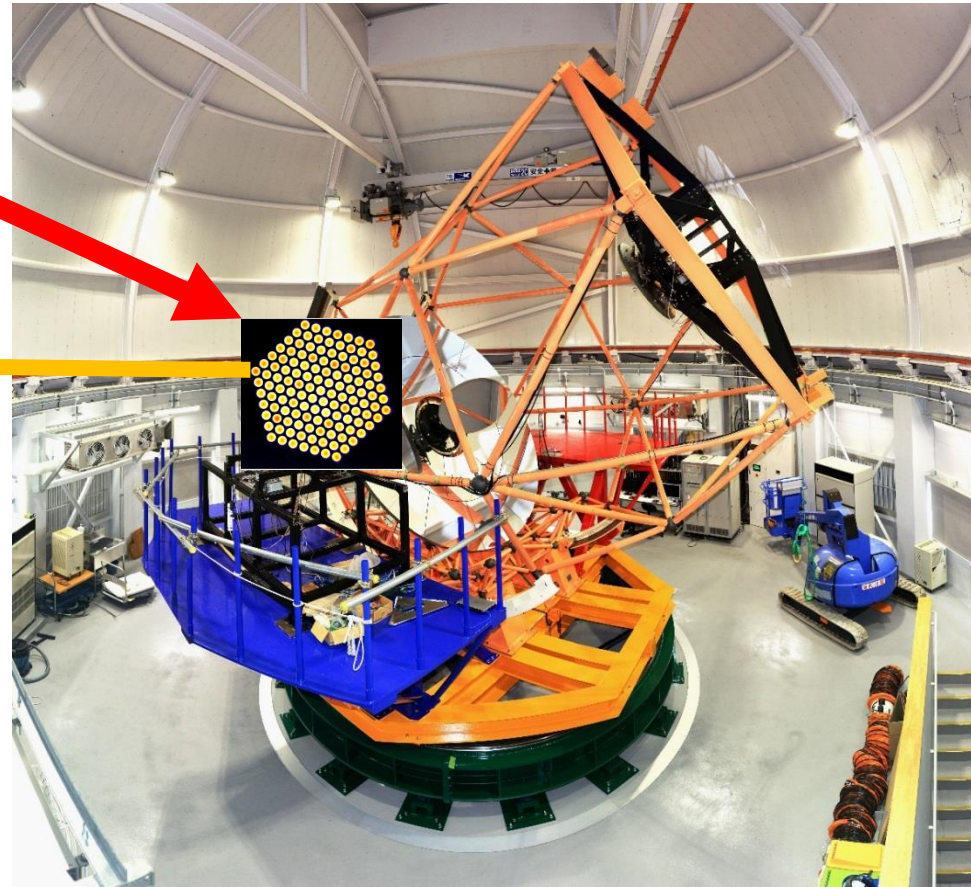
○ : >3m opt-NIR telescopes (general purpose)

Instrument currently working

- **KOOLS-IFU**
- **Low/intermediate dispersion optical spectrograph (KOOLS) fed by fiber bundle type IFU**

IFU FoV: 15" Φ
1 fiber FoV: 0.9" ϕ

KOOLS spectrograph



KOOLS-IFU: performance

- * FOV: 15" Φ
- * Wavelength coverage: 4000-10000 A
- * Spectral resolution: $\lambda/\Delta\lambda \sim 500-2000$
depending on grism
- * Limiting magnitude:
Spec: S/N ~ 10, 18—19 AB mag w/ 30min
(seeing ~ 1.5")
currently ~ 17 mag

Transient target supply (plan)

(i) GRB

GCN notice (e-mail/socket)

positional accuracy is $\sim 3''$ w/SWIFT XRT

=> automatic telescope slewing

if the pointing accuracy is $< 3''$,

the IFU can catch the target

(partly archived)

(ii) Neutrino, GW

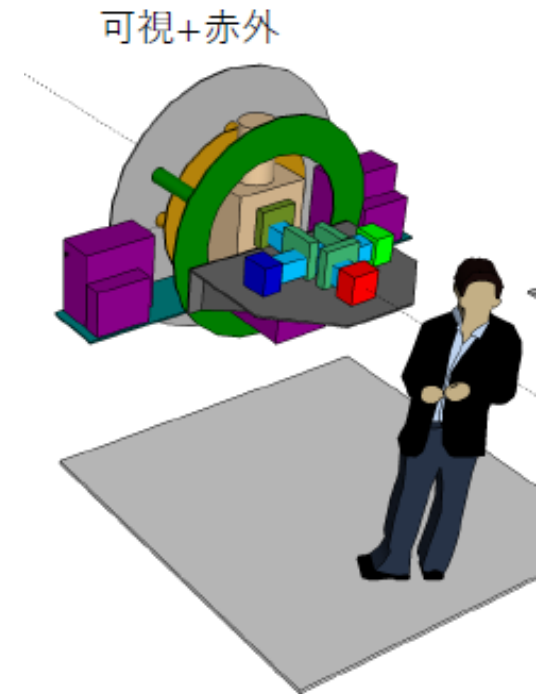
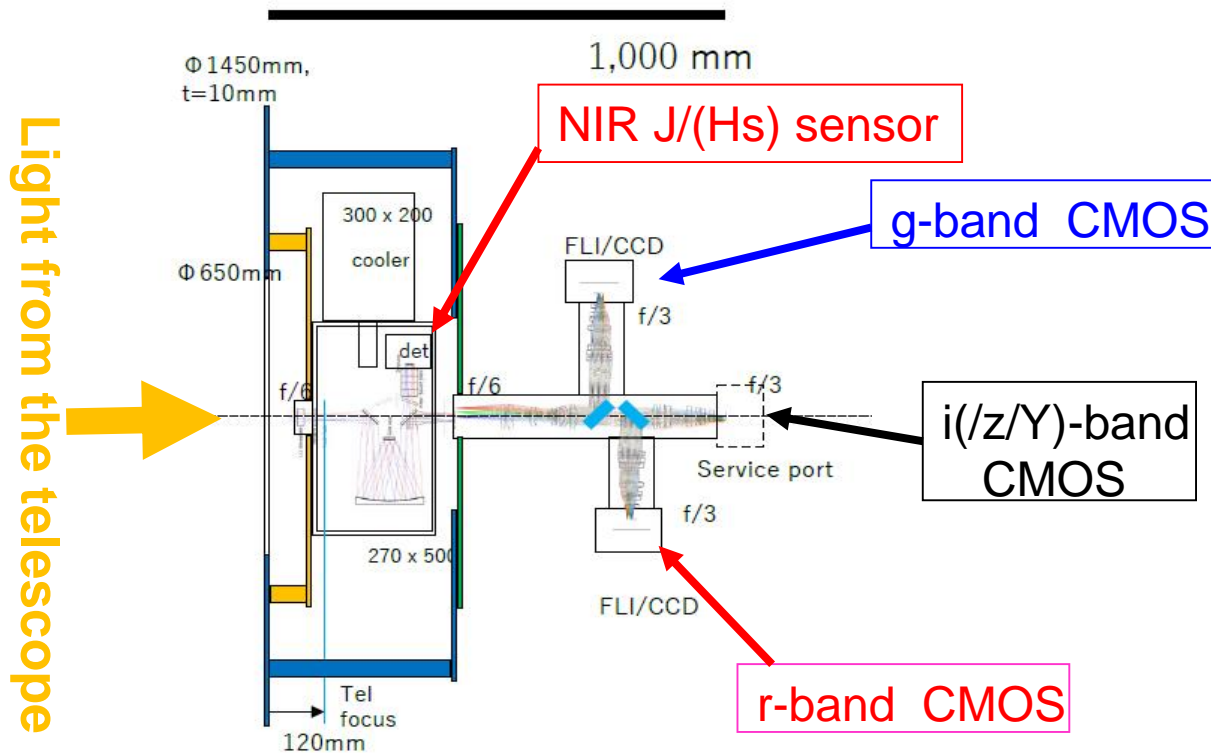
candidates by OISTER/J-GEM

(incl. Kanata/Tomoe-Gozen)

=> 3.8m telescope

Instrument under development (related to MMA)

Simultaneous multi-band optical imager
+ NIR imager



Simultaneous Opt-NIR multi-band camera: Expected performance

Opt:

FoV: 6'x11' 0.34"/pix

Band: g, r, i, (z, y) (5000-9000Å)

Sensor: CMOS

SN~10 ~23 mag (V) w/10min

NIR:

FoV: 2.9'x2.9'

Band: J-band (1.2µm), very short H-band

SN? (I don't have info...)

Simultaneous Opt-NIR multi-band camera: Schedule

Opt:

2019FY fabrication

2020FY observation (hopefully)

Future plan:

low/intermediate dispersion spectroscopy

w/ grism(s)

NIR:

2019-20FY fabrication

2021FY observation (hopefully)

Operation of 3.8m telescope

- **Observing runs started from March 2019
as a photon bucket telescope**
- **Except for engineering time,**
- **Half of the machine time is used for open use for
Japanese community**
- **The other half of the machine time is for Kyoto
Univ**
- **We accept Target of Opportunity observations
w/proposal base**
- **Two semesters: A:Jan–Jun, B:Jul–Dec**

Summary

- We have constructed a new 3.8m (Seimei) telescope.
- Once we get target candidates, we will be able to make optical spectroscopic or multi-band imaging (in future) observations quickly.
- But still under adjustment and development

