

東京大学・木曾観測所

<http://www.ioa.s.u-tokyo.ac.jp/kisohp/>



諸隈 智貴

(東京大学・天文学教育研究センター)

特任助教: 大澤亮

協議会: 土居守(センター長)

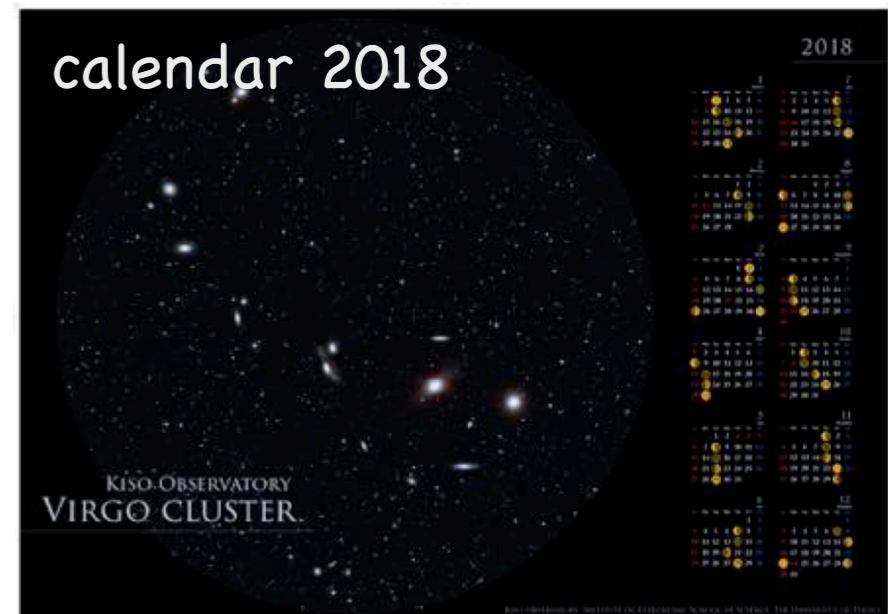
所長: 小林尚人

Tomo-e Gozen PI: 酒向重行

その他たくさんのみなさま

UT/IoA/Kiso Observatory

calendar 2018

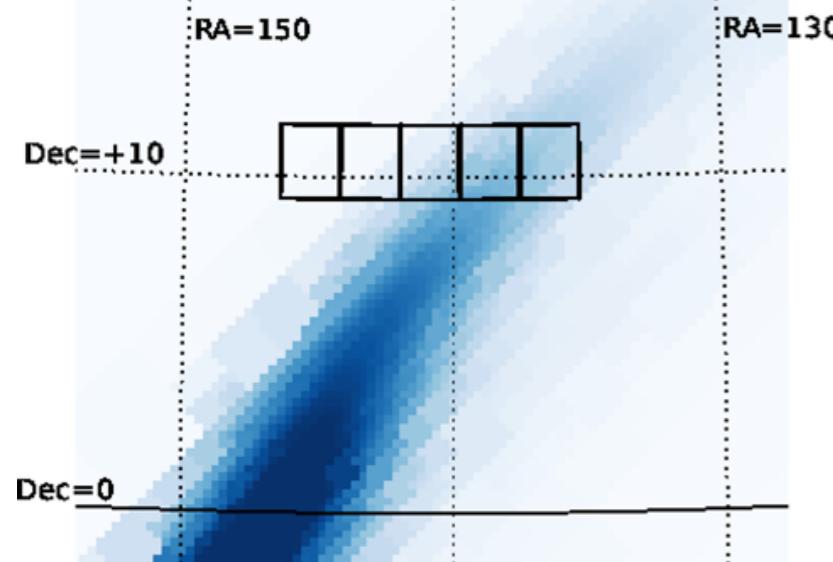


- 105cm Schmidt telescope
 - first light: 1974
 - open-use program (ended in FY2016)
- 6 people on site + 4@Mitaka (R. Ohsawa)
- wide-field cameras: photographic plate, 1kCCD, ...
 - mosaic CCD: Kiso Wide Field Camera (KWFC; 2012/4-)
 - survey observations incl. KISS, KISOGP + GW, neutrino follow-up
 - remote/automatic observation system
- ultra-wide-field CMOS camera: Tomo-e Gozen
- regular events
 - Kiso Schmidt symposium@July
 - open facility@August
- facility for long-term stay
 - education programs in 6 universities (incl. UT)
- publication: 7 refereed papers & 5 theses per year
- outreach: 「銀河学校」, 「星の教室」, 「長野県は宇宙県」, 「木曾星の里づくり推進協議会」(2017/5-)

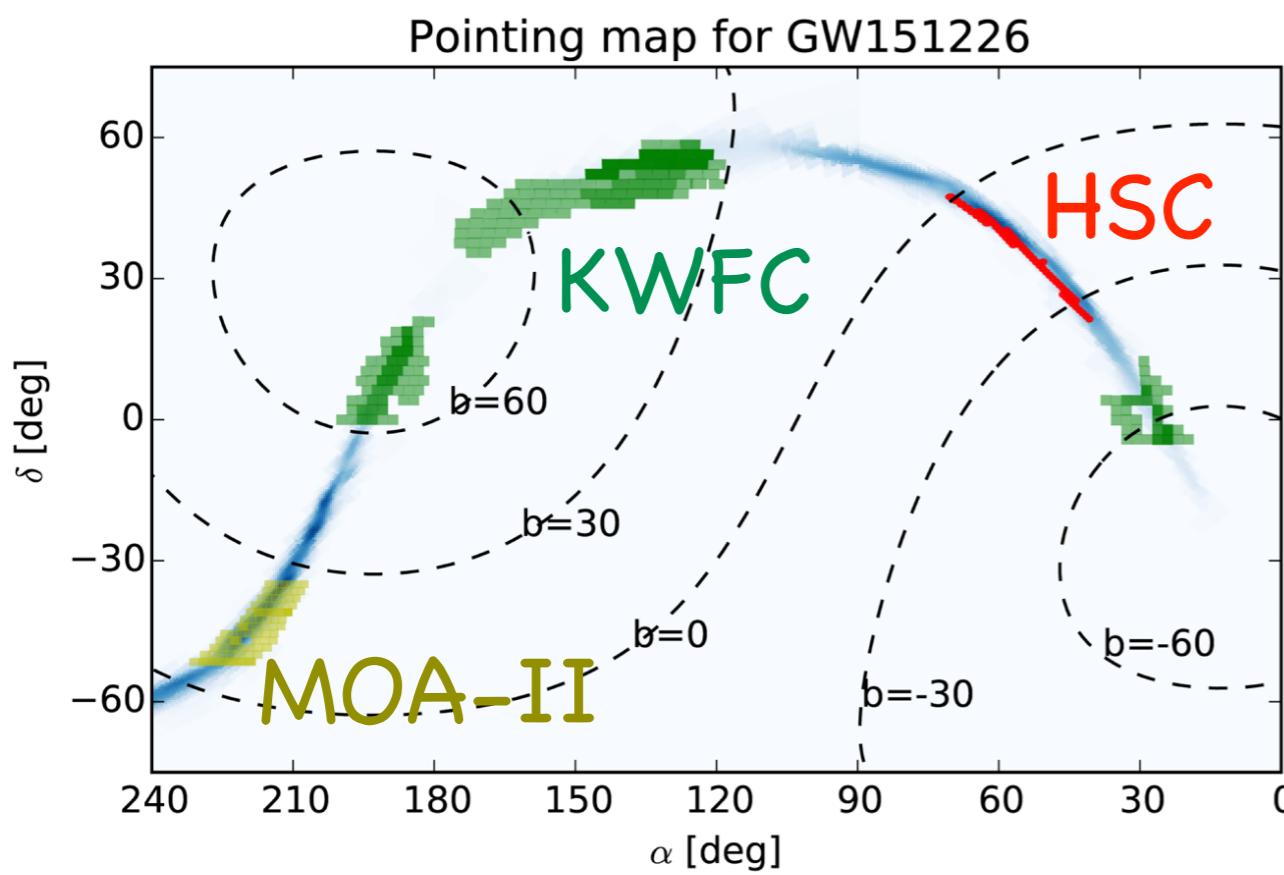
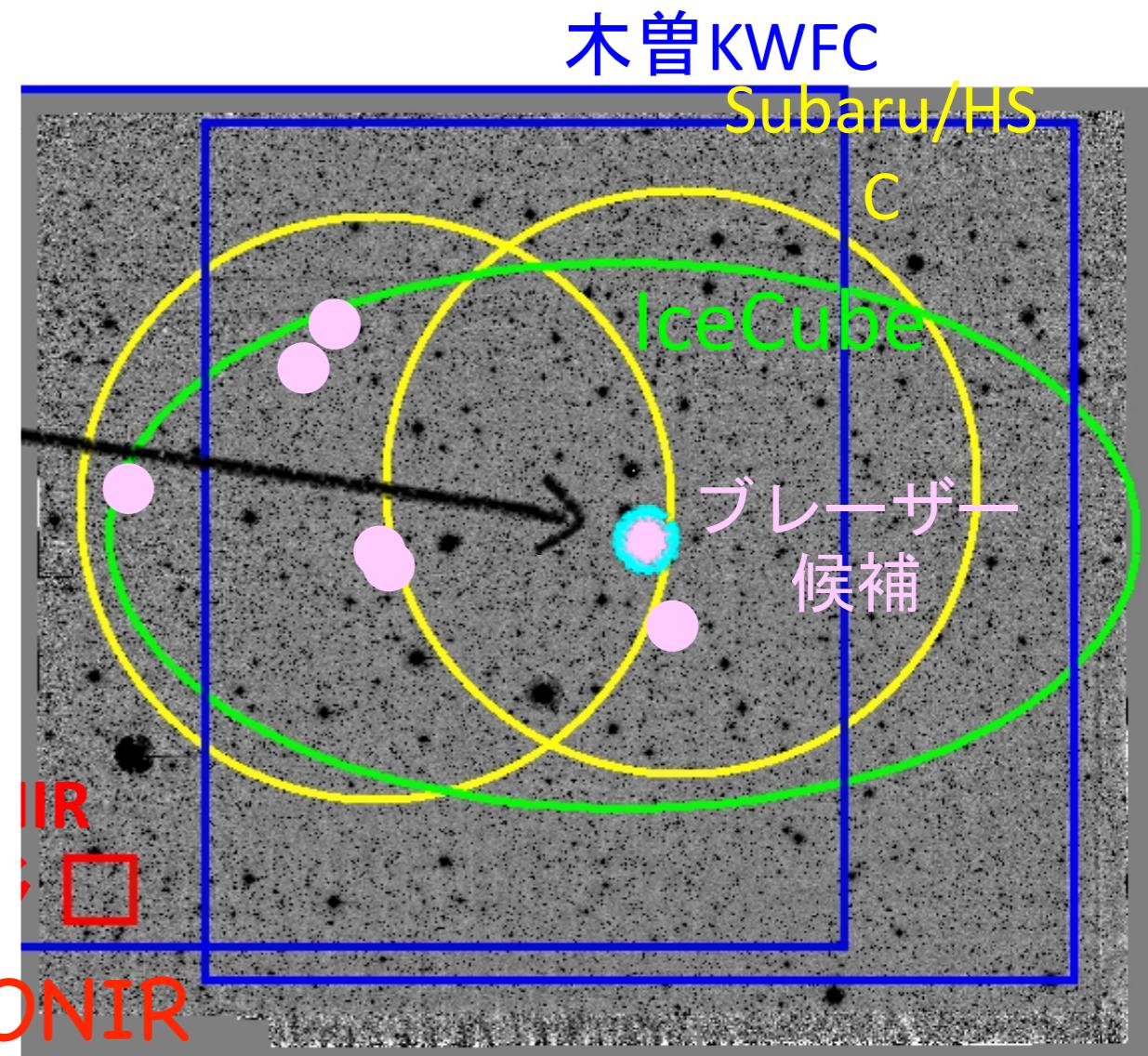


EM counterpart Searches w/ KWFC: GW, high-E neutrinos

GW150914 (TM+2016), 24 deg²



IceCube Collaboration 2018, Science
IceCube-170922A



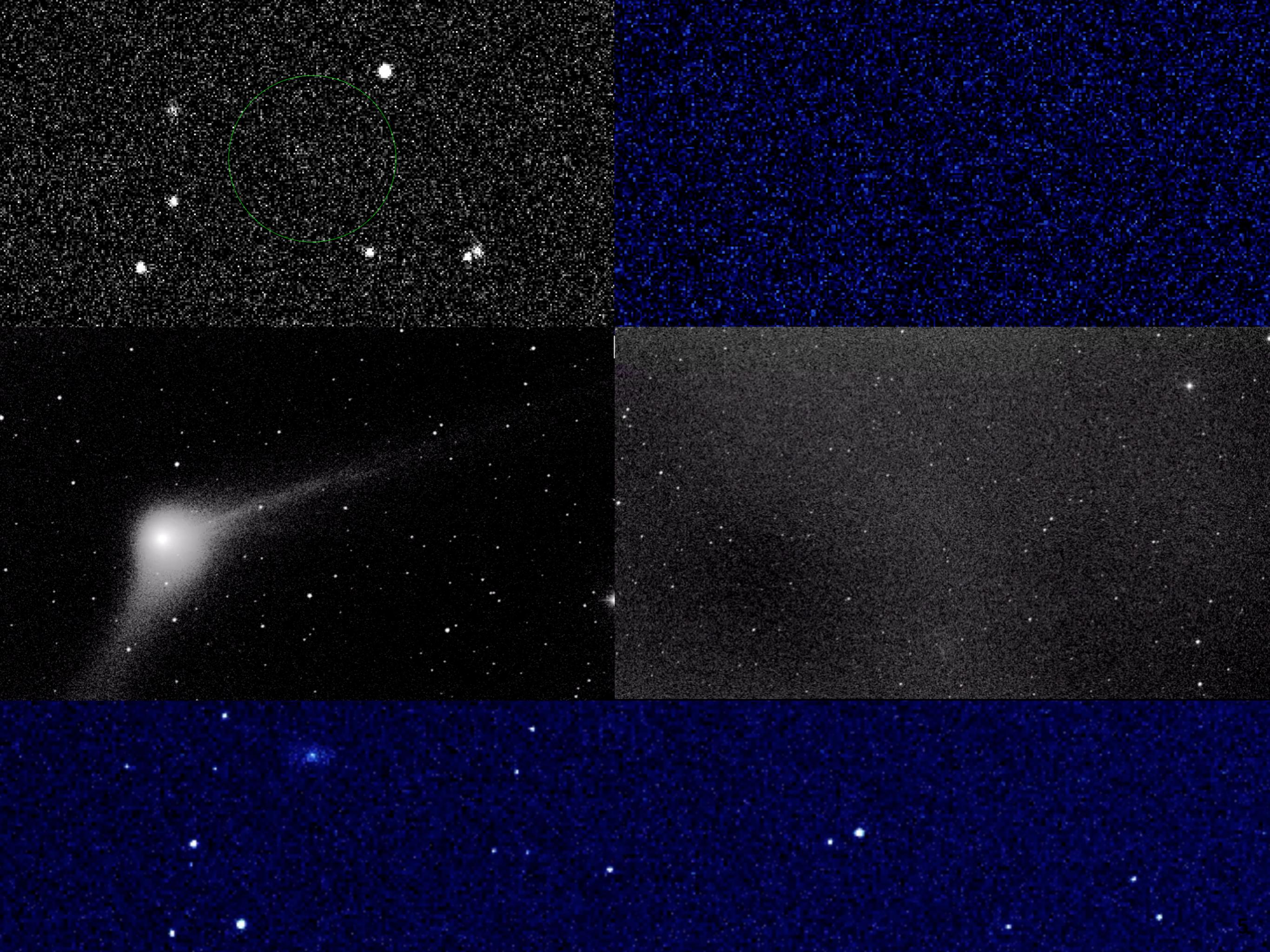
GW151226 (Yoshida+2017), 778 deg²

Tomo-e Gozen (巴御前)

- 84 (=21x4) CMOS sensors
- 20 deg², 9 deg in diameter
- 2 Hz(-200 Hz) readout
- raw data: 30 TB / night
- transient phenomena in seconds-hours scale
- commissioning
 - PM: 2015-, Q0: 2017-, Q1: 2018-
- papers
 - SPIE: Sako+2016, Sako+2018, Ohsawa+2016, Kojima+2018
 - data compression: Morii+2017
 - meteor: Ohsawa+2018
 - master thesis: Kikuchi (2016), Ichiki (2018), Inooka (2018), Kojima (2019, in prep.)
- Tomo-e Gozen Transient Survey
 - 10,000 deg² - 2 hr cadence - 18 mag depth
 - details in TM's talk tomorrow

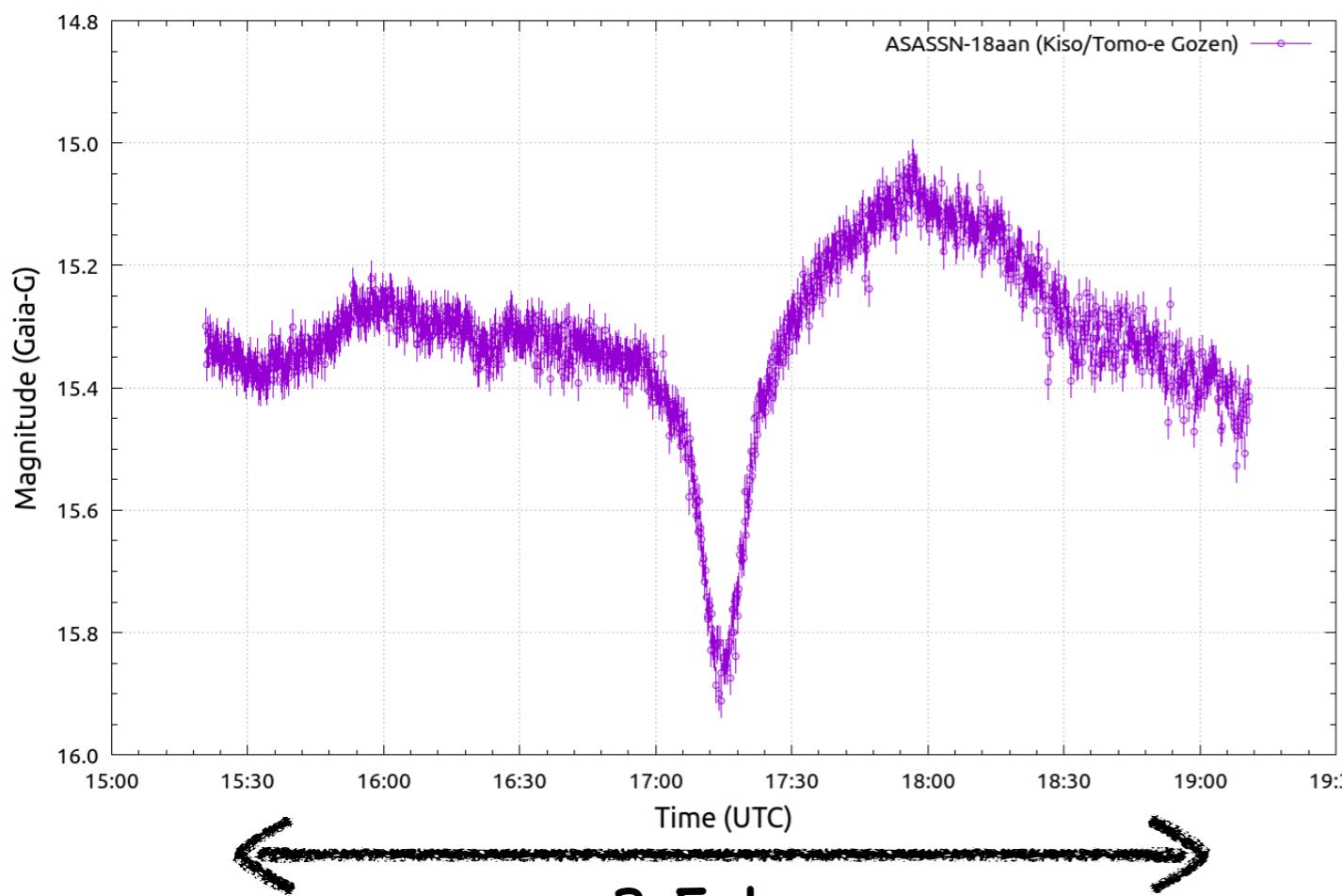
葛関月作, 「巴御前出陣図」,
東京国立博物館,
©Image: TNM Image Archives





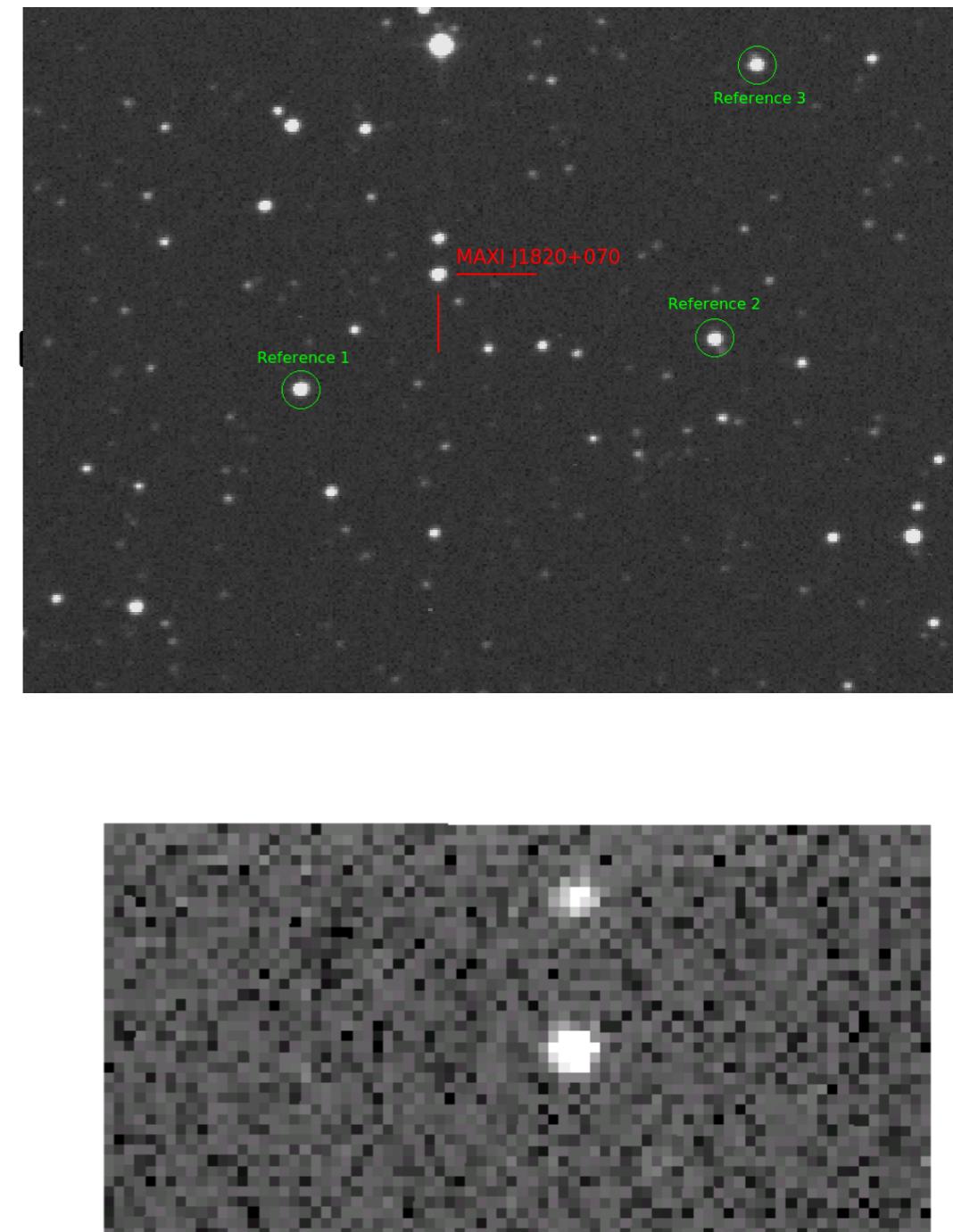
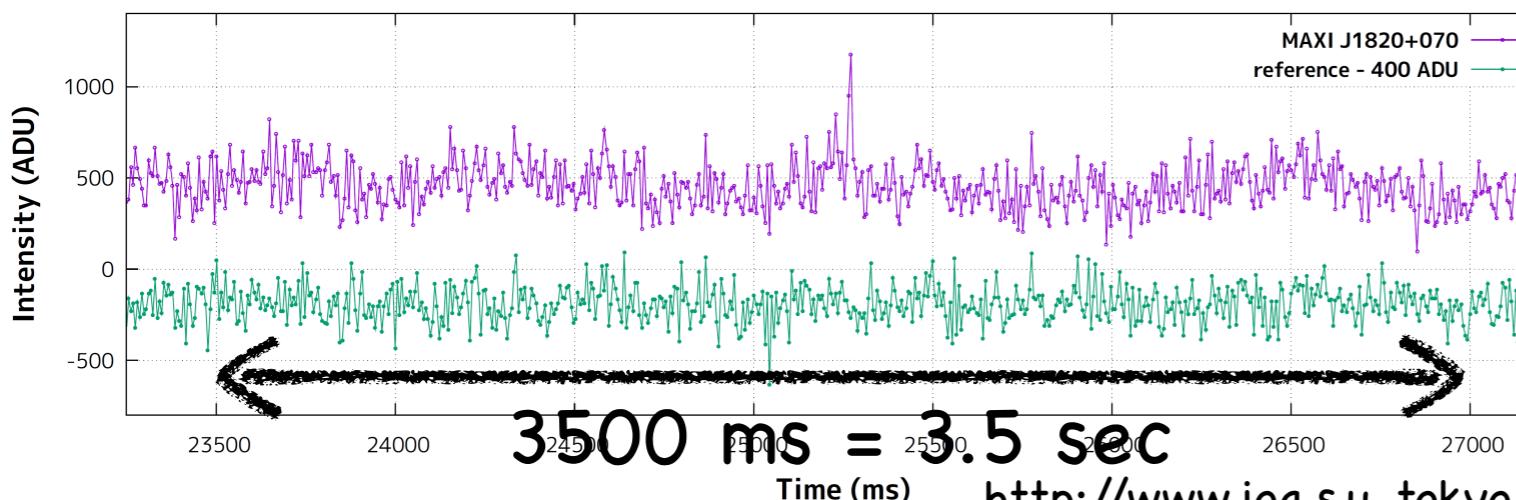
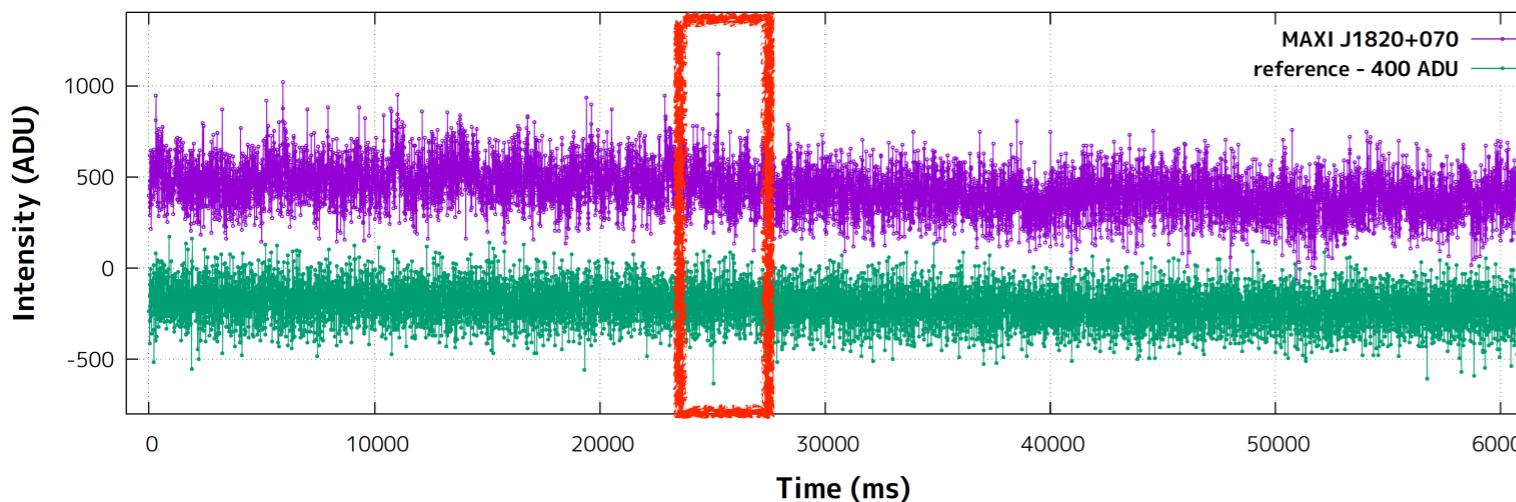
Kiso/KWFC, Tomo-e Gozen observations for OISTER

- KWFC
 - SN 2017eaw
- Tomo-e Gozen
 - ASASSN-18aan (SU UMa type dwarf nova)
 - 0.5 sec × 30 frames = 15 sec
 - (MAXI J1820-070)
 - 15 Hz + 160 Hz



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<http://www.ioa.s.u-tokyo.ac.jp/tomoe/MAXIJ1820+070/MAXIJ1820+070.html>

Summary

- 105cm Kiso Schmidt telescope (1974-)
- wide-field surveys for transients w/ KWFC (2012-2017): supernovae, variable stars, GW, neutrino, ...
- new wide-field CMOS sensor camera: **Tomo-e Gozen**
 - 84 CMOS sensors, **20 deg² FoV**
- **wide-field (all-sky) survey w/ Tomo-e Gozen (TM's talk tomorrow)**
 - 6-sec exposure, **2-hour cadence, 18 mag, 10,000 deg²**
- main role: **"surveyor"**
 - sometimes follow-up: high-frequency, wide-field, ... (but no filter)
- schedule:
 - so far: PM, Q0, Q1 test...
 - 2018/11: survey w/ (Q1, 5 deg²) started
 - remote observations from Mitaka
 - 2019/01: Q1+Q3 (10 deg²)
 - 2019/02: Q1+Q3+Q2 (15 deg²)
 - 2019/04: Q1+Q3+Q2+Q4 (20 deg²) **complete**

