GEMINI PARTNER PERSPECTIVE: UNIV. OF HAWAI'I

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SCIENCE PROGRAMS

- Comet characterization
- Exoplanet atmospheres
- PanSTARRS followup:
- z~6 QSOs. massive clusters. brown dwarfs
- Binary black holes
- Lyα regions
- YSOs

INSTRUMENT & TIME USAGE

- All GN instruments used; GMOS, GNIRS heaviest
- Typically oversubscription ~1-1.2
- Due to IfA "culture" where people know how much time they are likely to get
- Many scheduling challenges
- FT has been popular
  - used for new discoveries but also to push against excluded RA ranges in normal CfP

DESIRES

- # 1 most requested: Improved AO
- currently "not well executed" and "not competitive with Keck and Subaru"
- disadvantage will get worse in the coming years as both Keck and Subaru are actively working on upgrades to their AO systems.
- Need better correction to allow pushing to denser fields

DESIRES

- GPI move/visit to Gemini North. Scientifically there's an advantage with VLT-SPHERE in the South and many Northern stars not observed at high contrast for exoplanets.

- Gemini should implement something like the laser ToO clearances being enabled at Keck

- Avoid exclusion of RA ranges by LLPs, rollover, etc.

DESIRES

- Better integration of programs with complex or tight timing windows esp. those in Band 2/3

- Advance notice (prior to proposal submission) of instrument availability and especially "blackout" dates due to FT, engineering, etc.

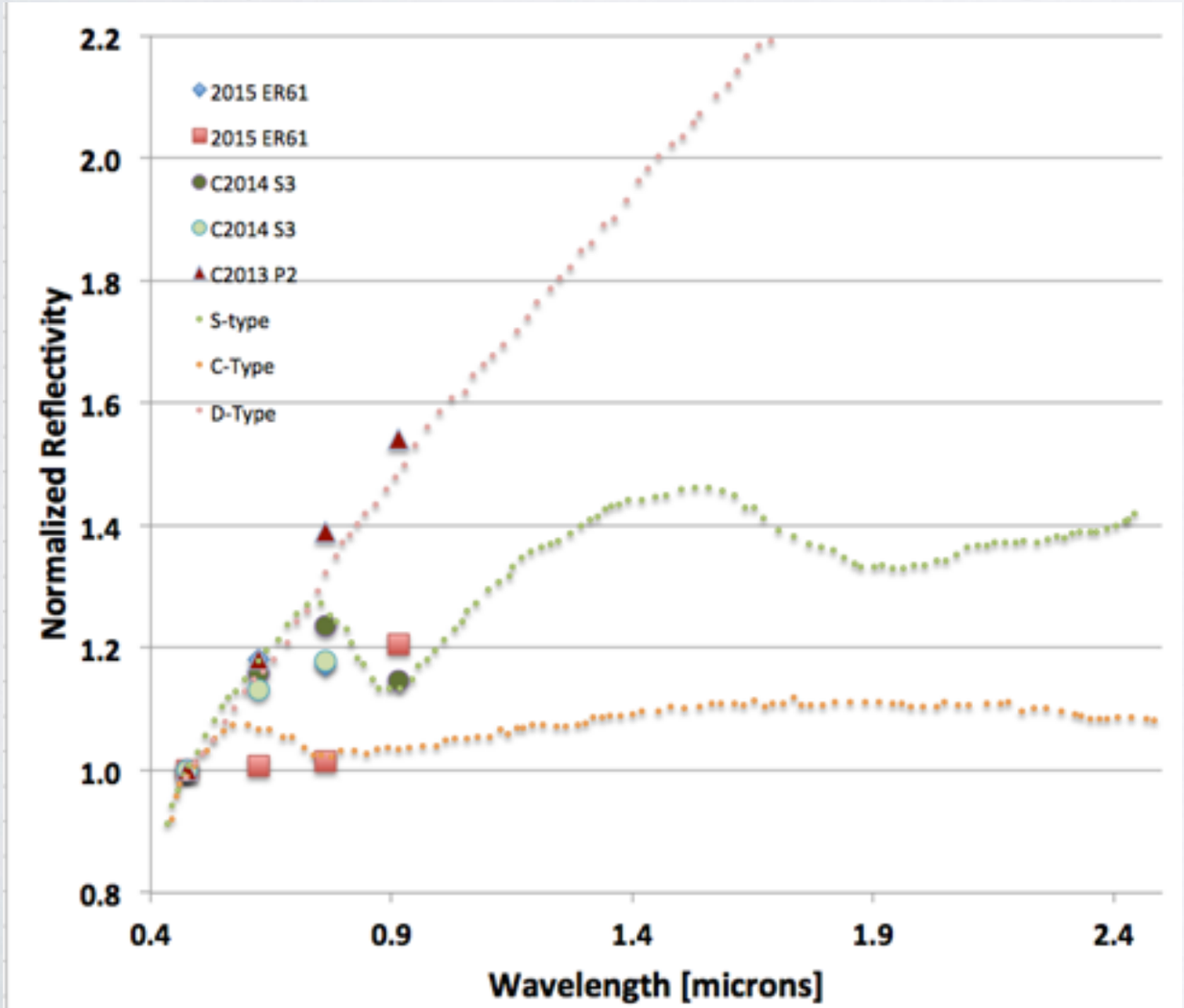
- Clearer understanding of interplay b/t TAC ranking, bands, observing constraints, etc. in likelihood of observation

DESIRES

- a mechanism in the Phase 2 tool to ingest/upload timing windows in to the Observing Conditions. These windows denote when a non-sidereal target is not near/does not pass in front of star.

MANX COMETS

- Meech, Keane et al. : On comet orbits but no activity/coma. Devoid entirely of icy material, having either lost all their material on previous passages, or were formed in the inner solar system where it was too warm for ices to be incorporated and were flung out to the Oort cloud.



Manx comets vs. ice-free asteroids from DDT, Queue & FT time

Mahalo for all the help with these complex observations!

YOUNG STARS IN MW CENTER

- AO-fed IFU spectroscopy study of the young stars at the center of the Galaxy (Stostad et al., in press)

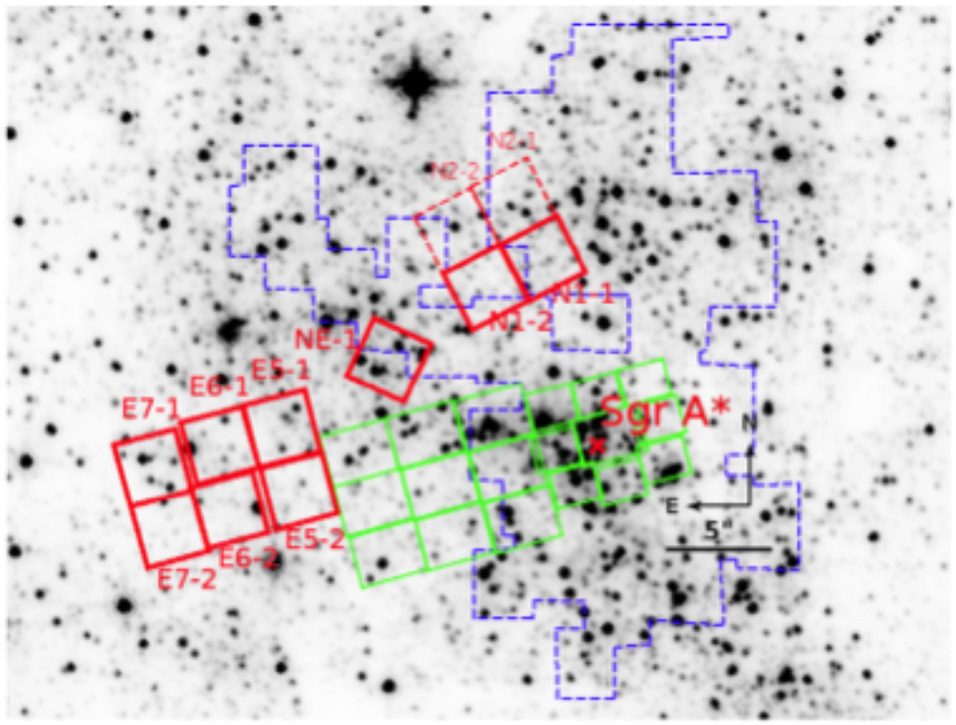


Fig. 1.—: The red regions are the new Gemini NIFS regions observed in this paper, while the green regions closer to Sgr A* is the data from Do et al. (2013A). **The blue regions are ones observed by Bartko et al. (2010), while the photometric Buchholz et al. (2009) observations used a** $40''$**x**$40''$ **region centered roughly on Sgr A*.** The background image is from HST observations of the nuclear star cluster (GO-12182, PI Do).

NIFS spectra better than Keck OSIRIS! But cannot push to crowded regions since Gemini AO correction not as good

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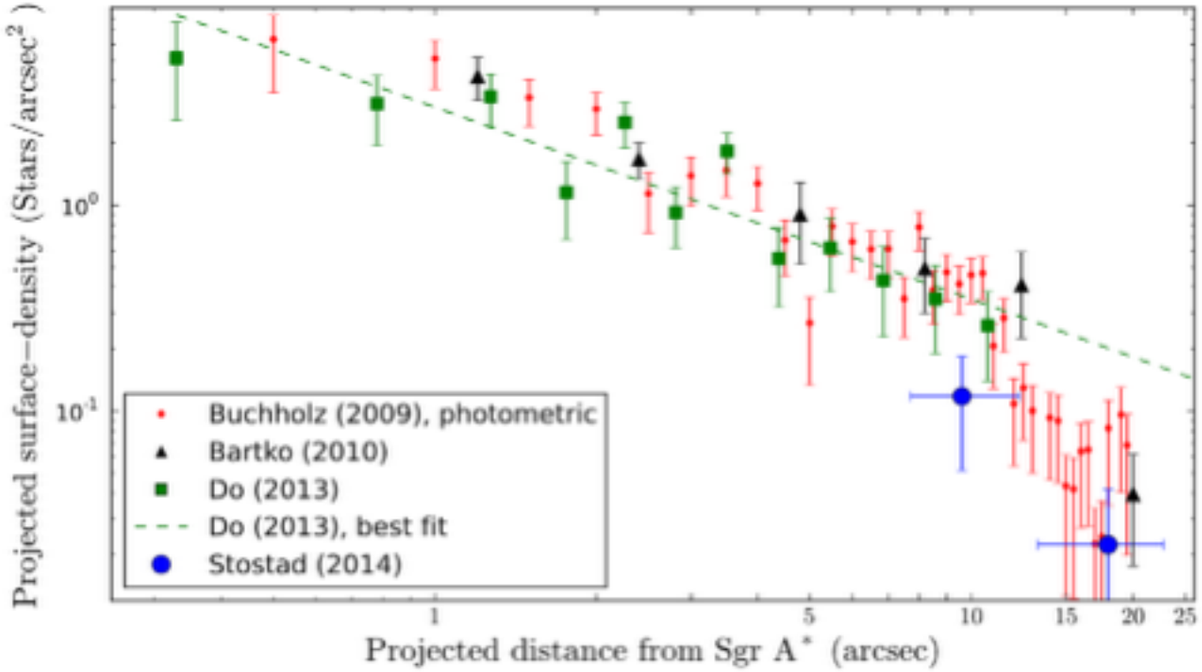


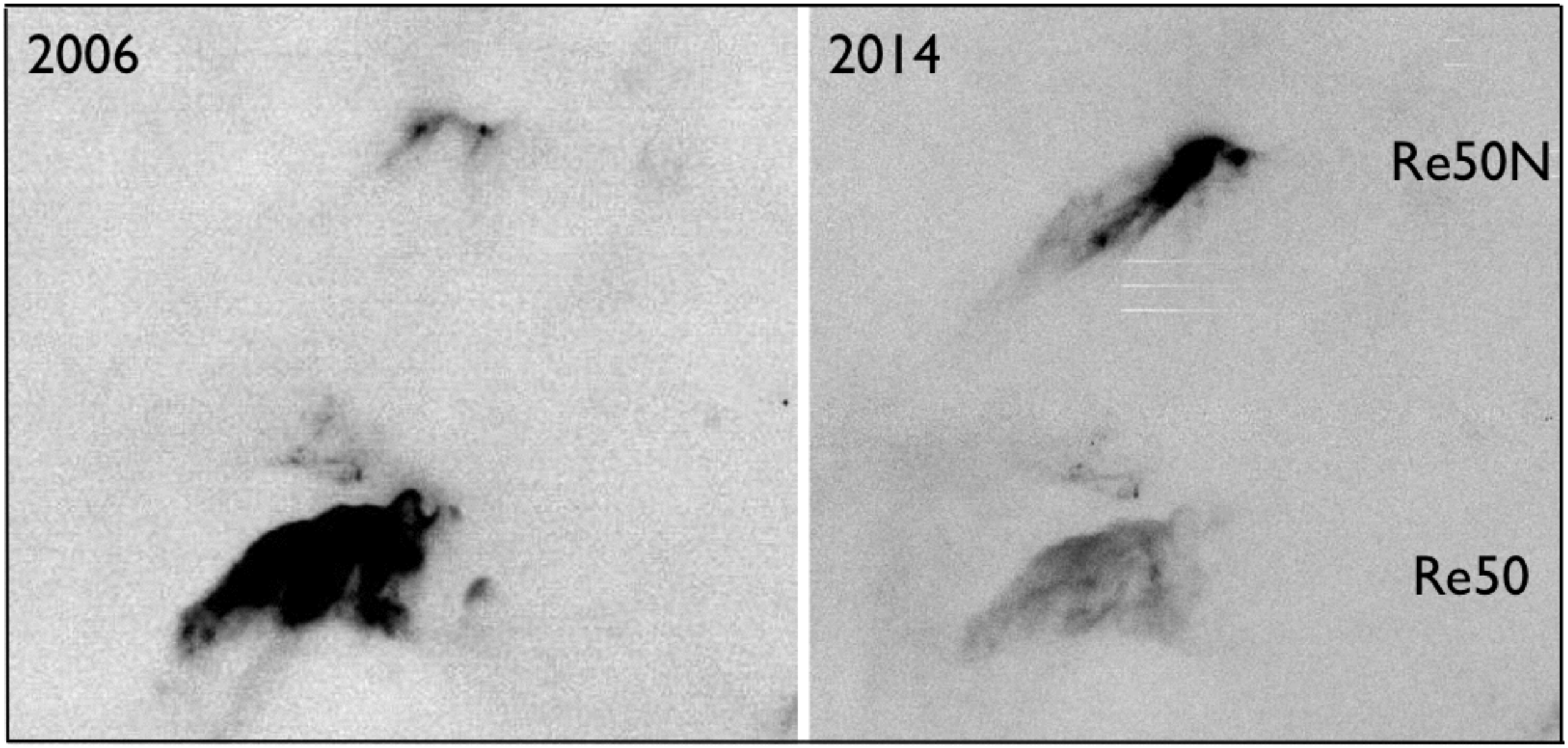
Fig. 10.—: Extinction- and completeness-corrected projected surface-density of early-type stars from this paper (blue circles), Do et al. (2013A) (green squares), Bartko et al. (2010) (black triangles), **and the photometric results of Buchholz et al. (2009) (red stars). Note that it is unclear what effects false positives and other photometric biases could have had on the points from Buchholz et al. (2009).** The most probable fit from Do et al. (2013A) is also plotted, with $\Gamma = 0.93$. The two data points from this publication are measured separately, one from the northern fields (9.″6) and one from the eastern fields (18.″0). The two bins have ranges of (7.″7–12.″3) and (13.″3–22.″8) – **these ranges are shown as x-errorbars**. The

radial profile of young star distribution around Sgr A* shows break at edge of young cluster - formed in situ

Lighthouse Effect as a Protostar emerges from the Orion Clouds

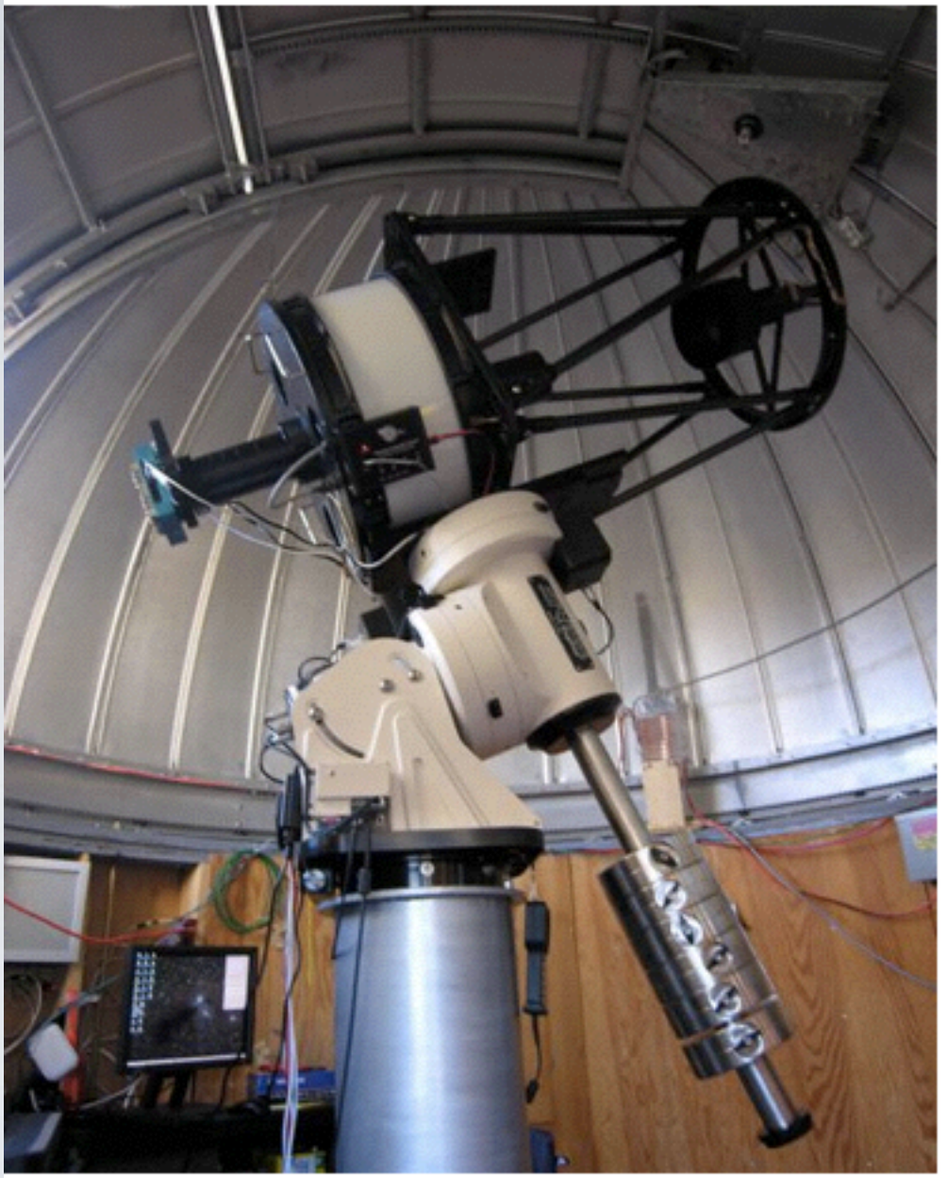
Subaru

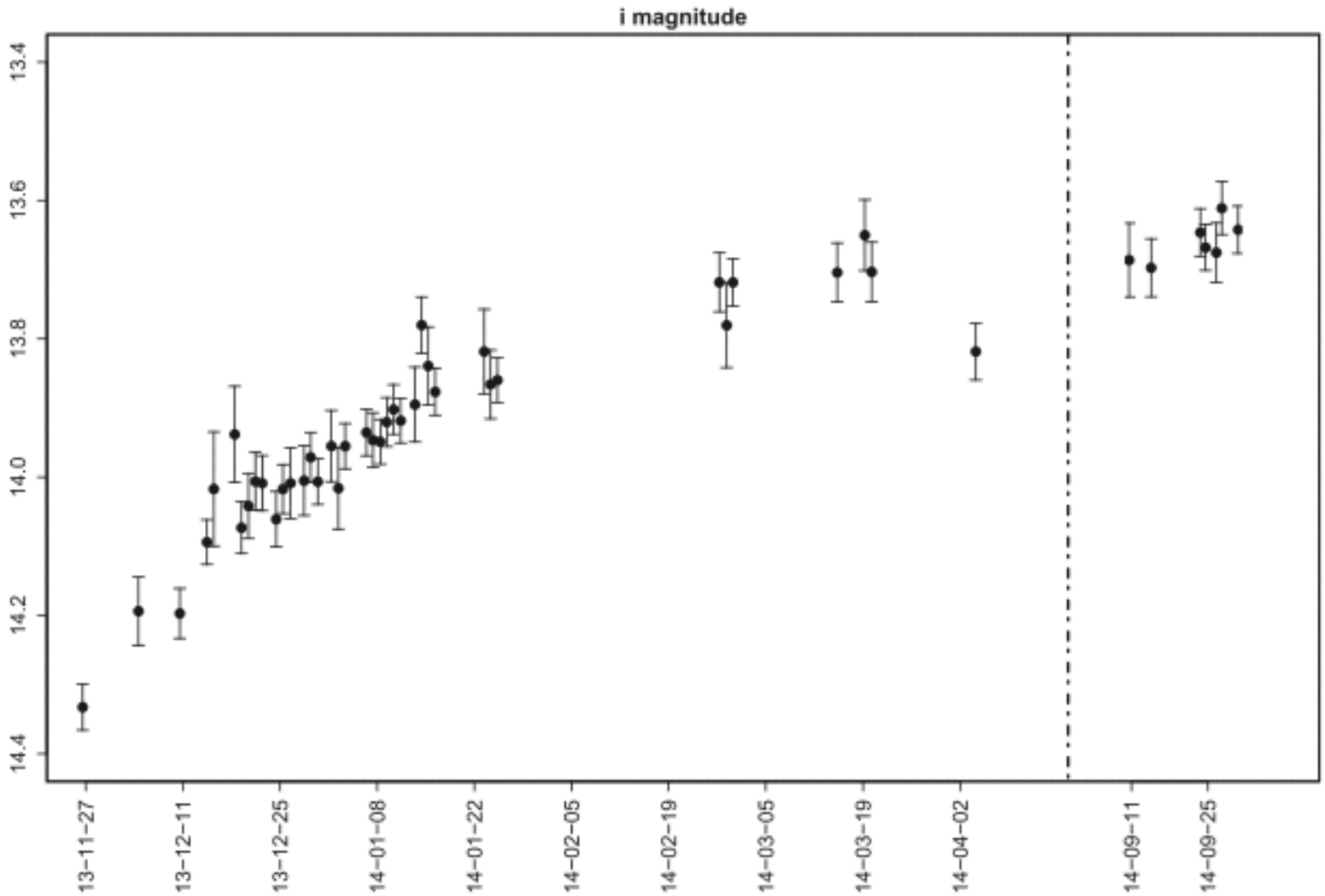
Gemini



Hsin-Fang Chiang et al.,
ApJ 805:A54, 2015

Brightening of nebulous young star discovered by the VYSOS robotic monitoring telescope





Director's Discretionary Time at Gemini allowed rapid follow-up to study this rare event

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LOC chair