Precursor Observations of the Roman GBTDS with Hubble and Euclid

Sean K. Terry

Sagan Summer Workshop 2026

Footprints

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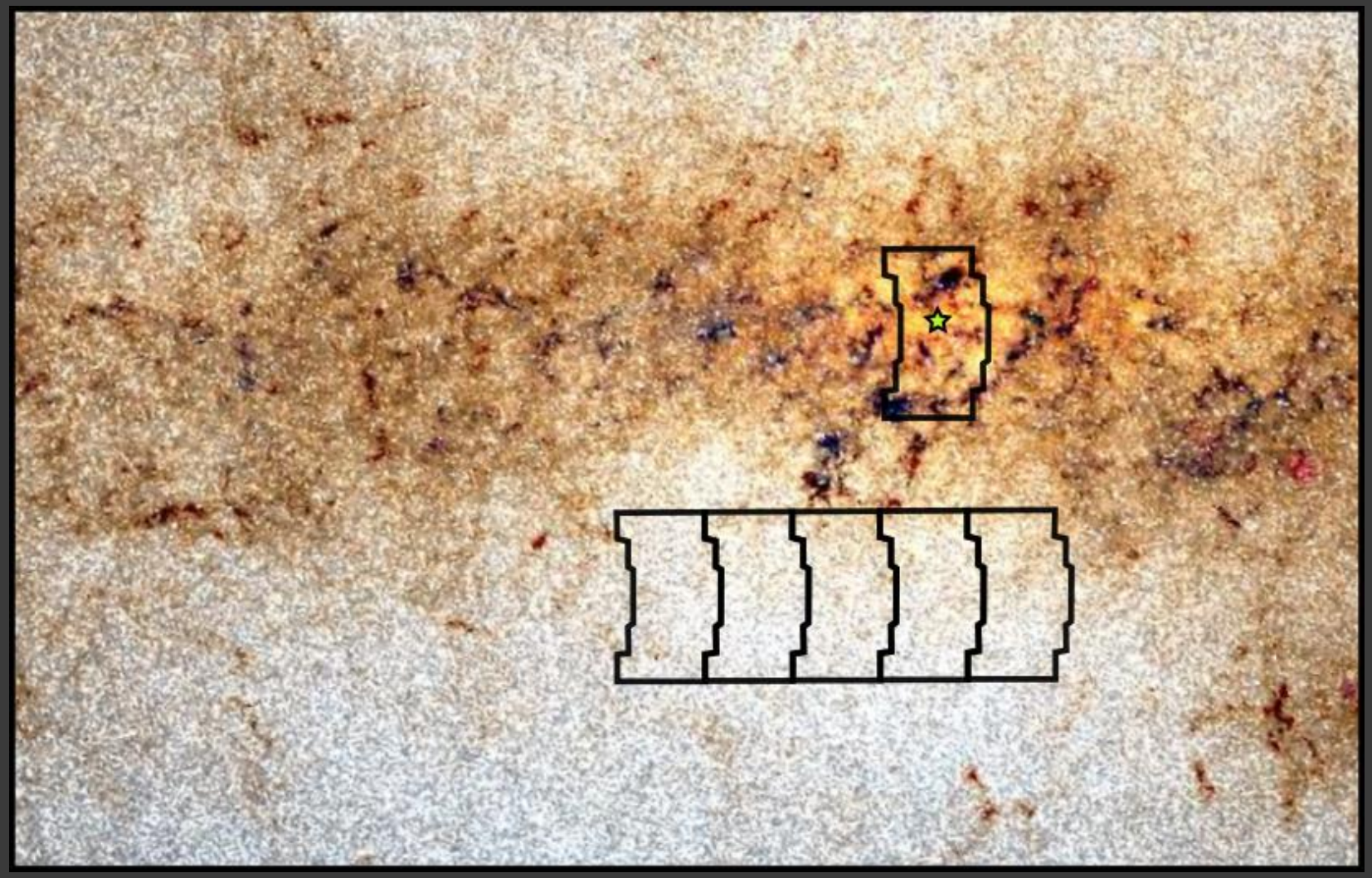

Roman GBTDS

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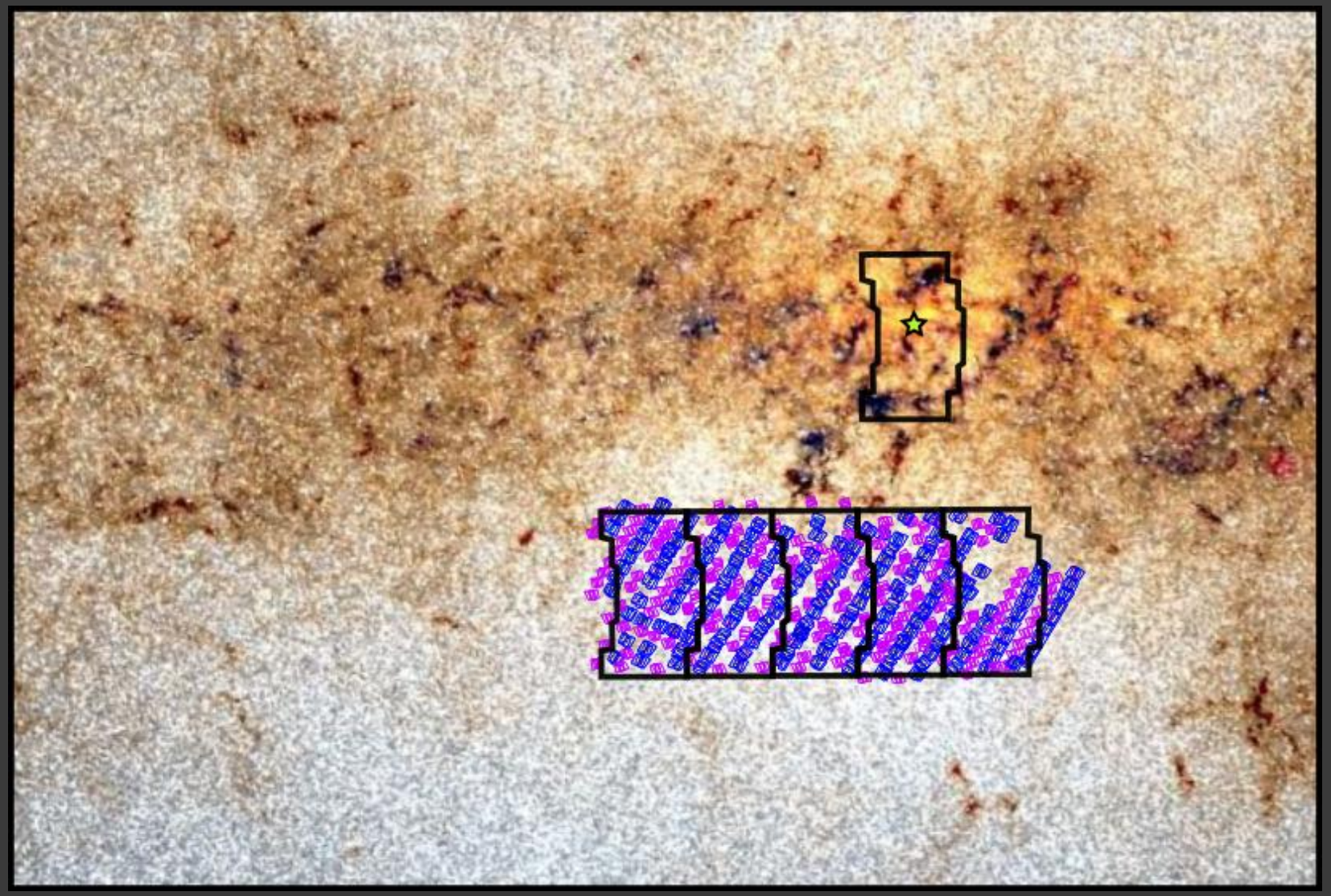

Roman GBTDS

Hubble Telescope

(Terry, Nataf)

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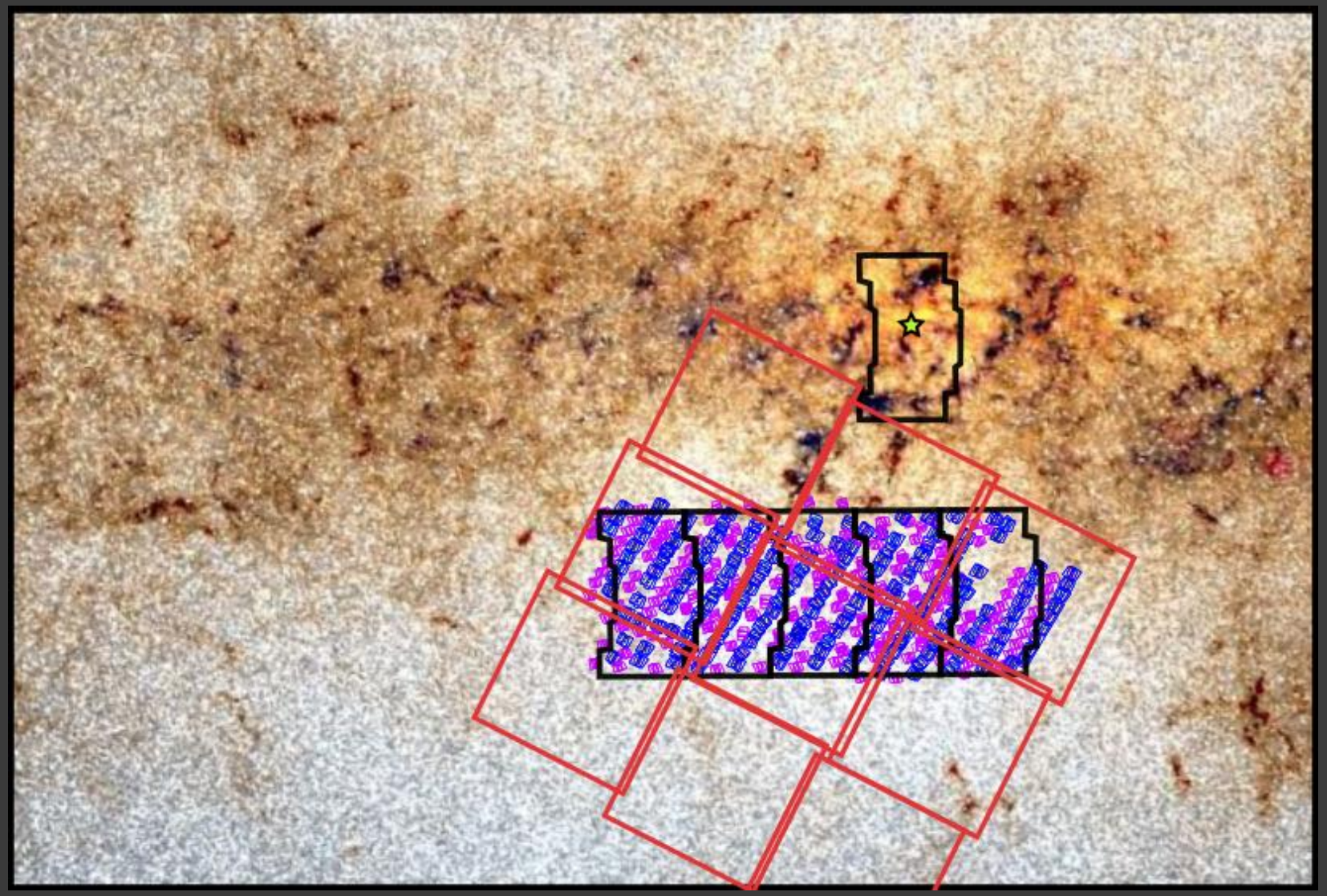

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Euclid Telescope

(Euclid Consortium)

HST Images

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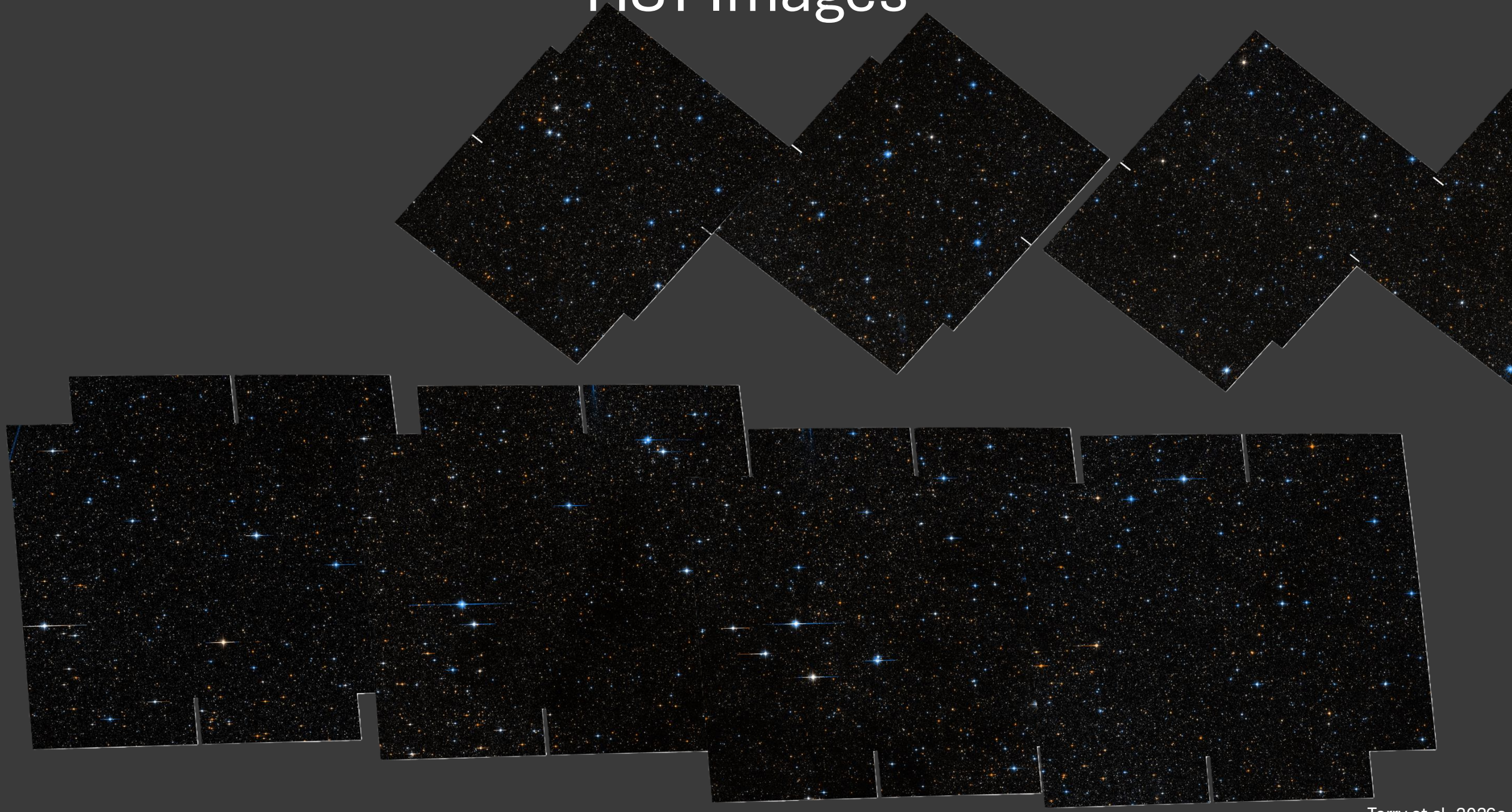

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Euclid Images

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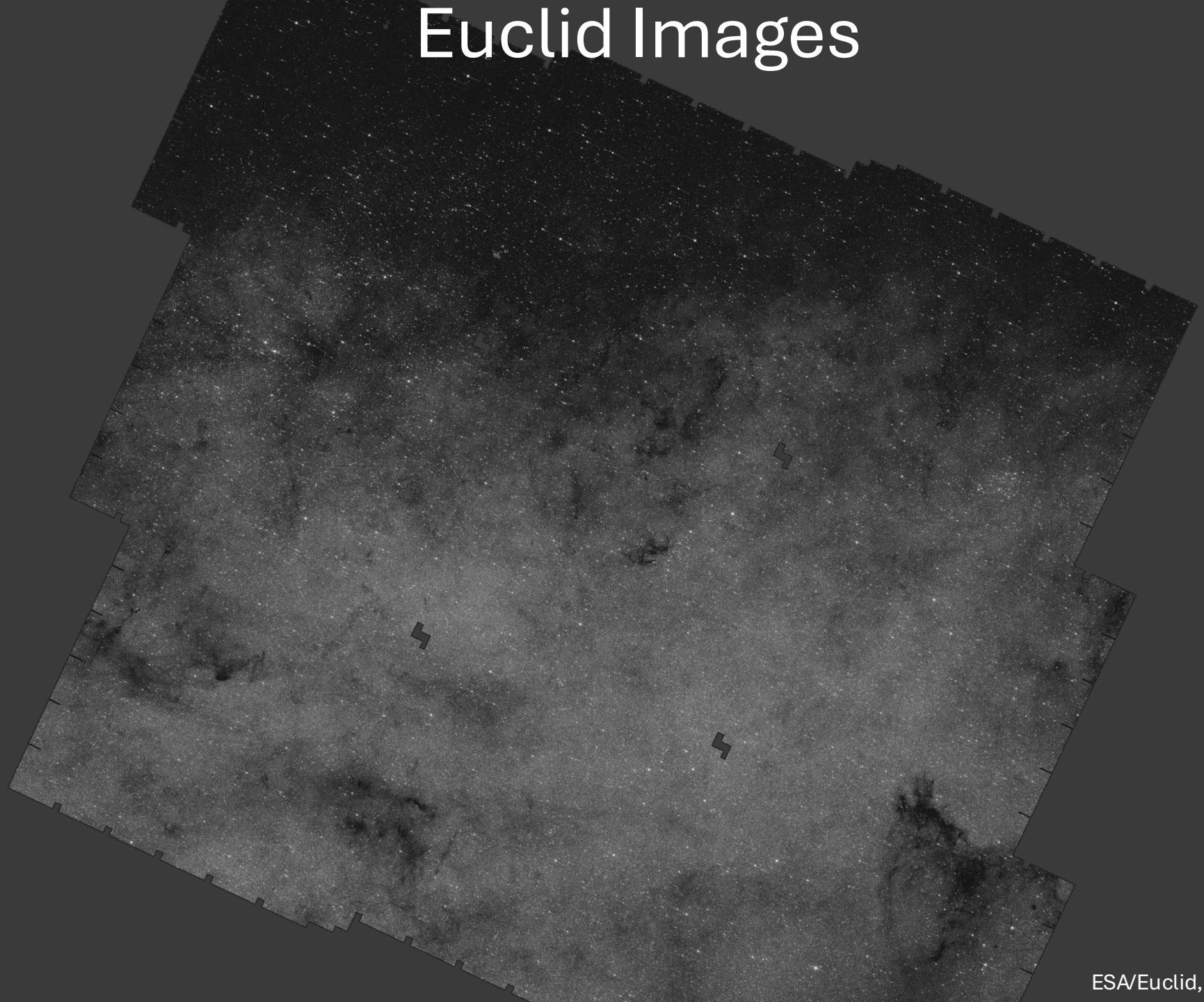
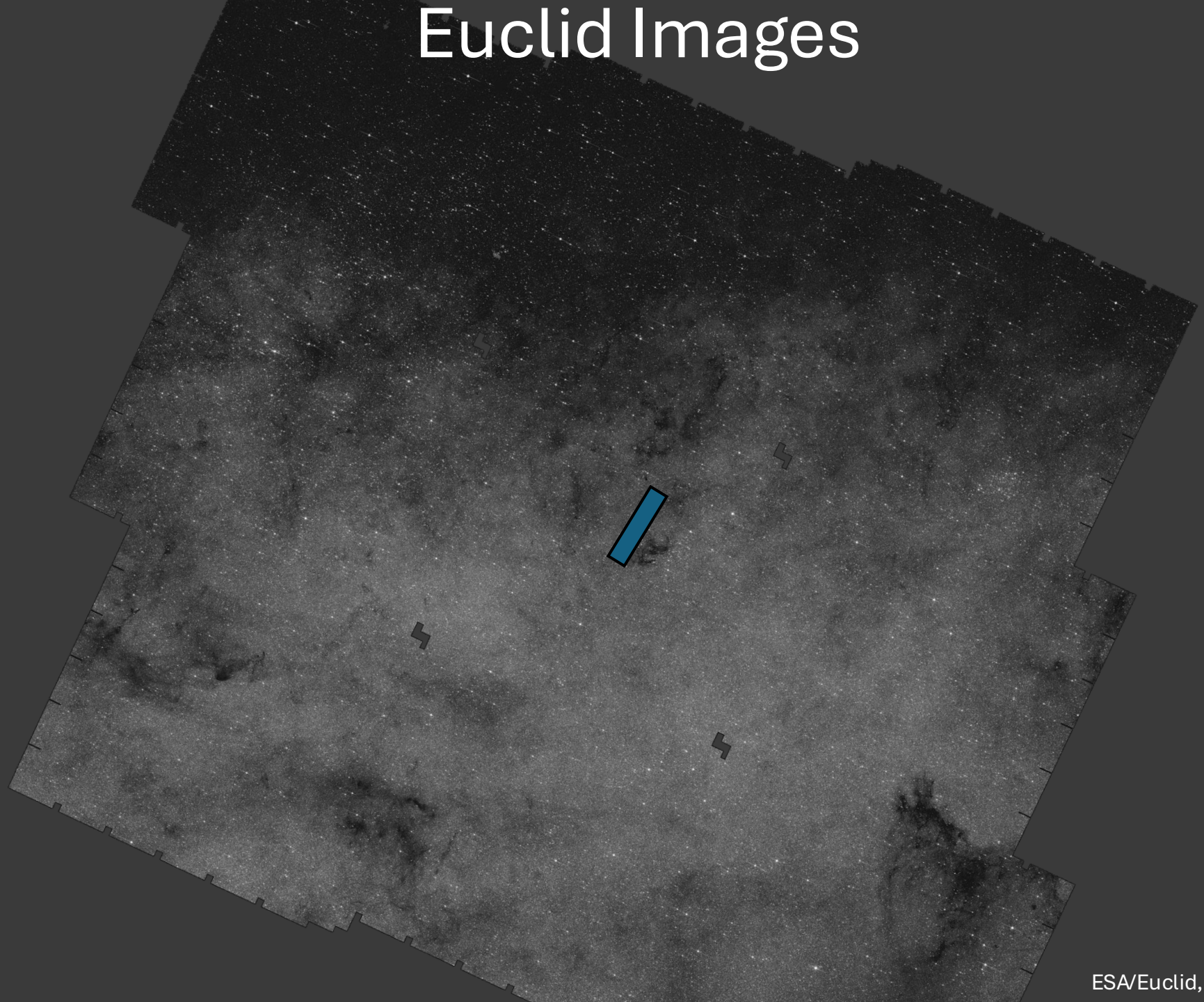


ESA/Euclid, Euclid Science Ground Segment

Euclid Images



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Roman GBTDS will be the *gold standard*. HST/Euclid precursor observations largely *ENHANCE* the science that will be done with GBTDS data.

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Much more → Updating Galactic models, proper motions, distinguishing disk/bulge populations (M. Huston, M. Lastovka, etc)

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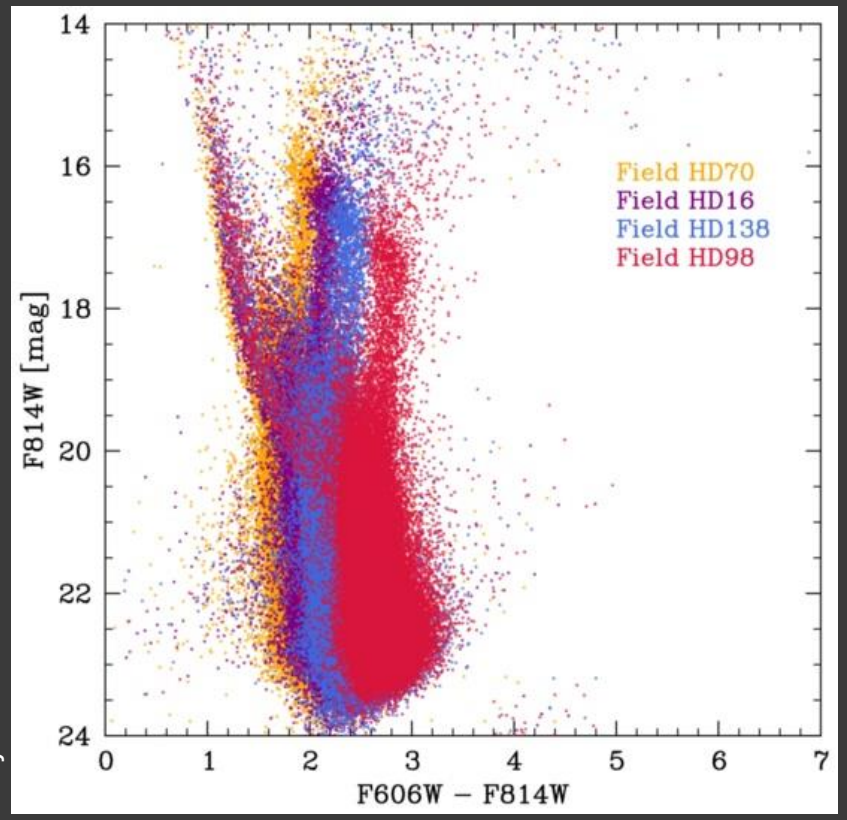

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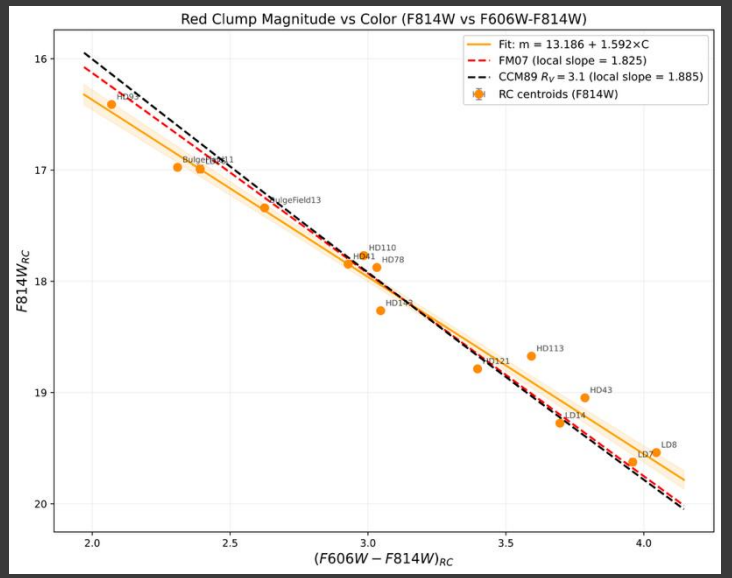
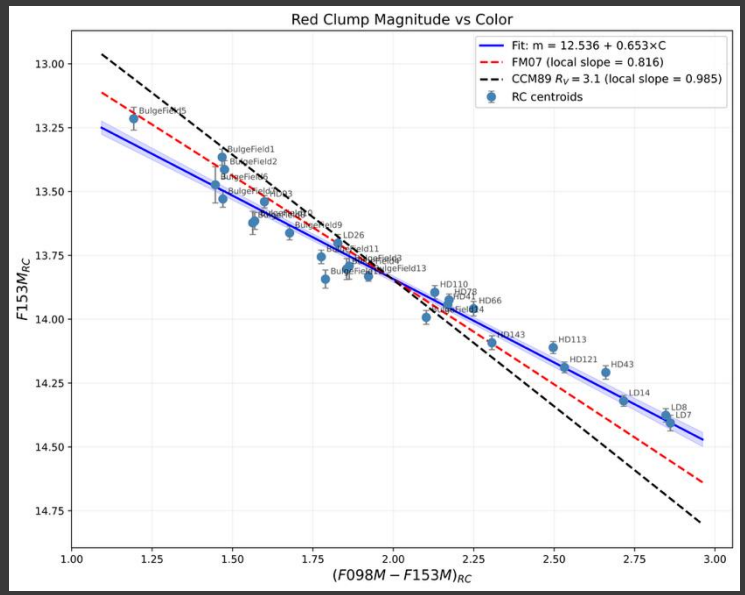
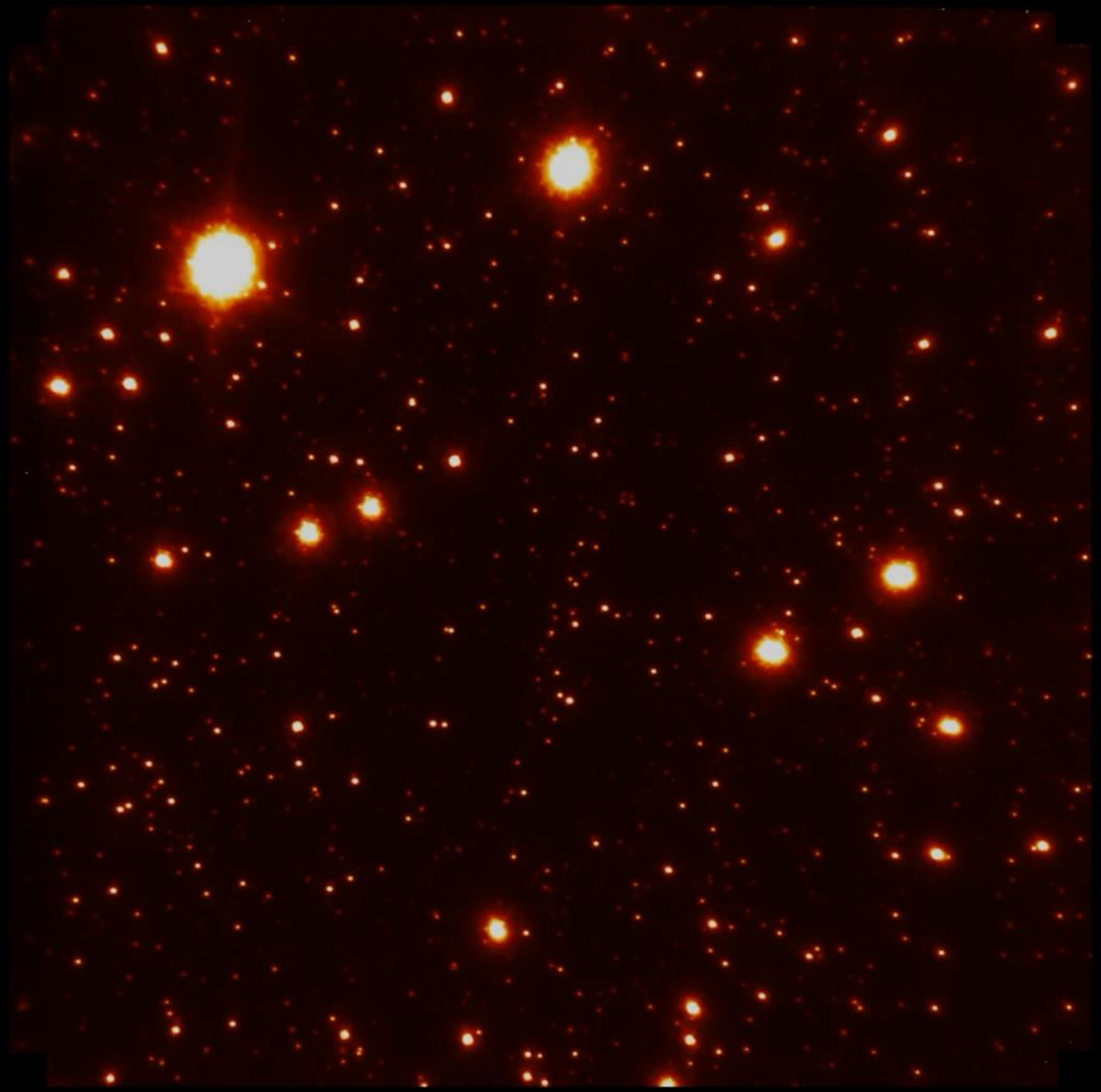


Nataf et al. in prep



Finding Microlensing Planet Host Stars



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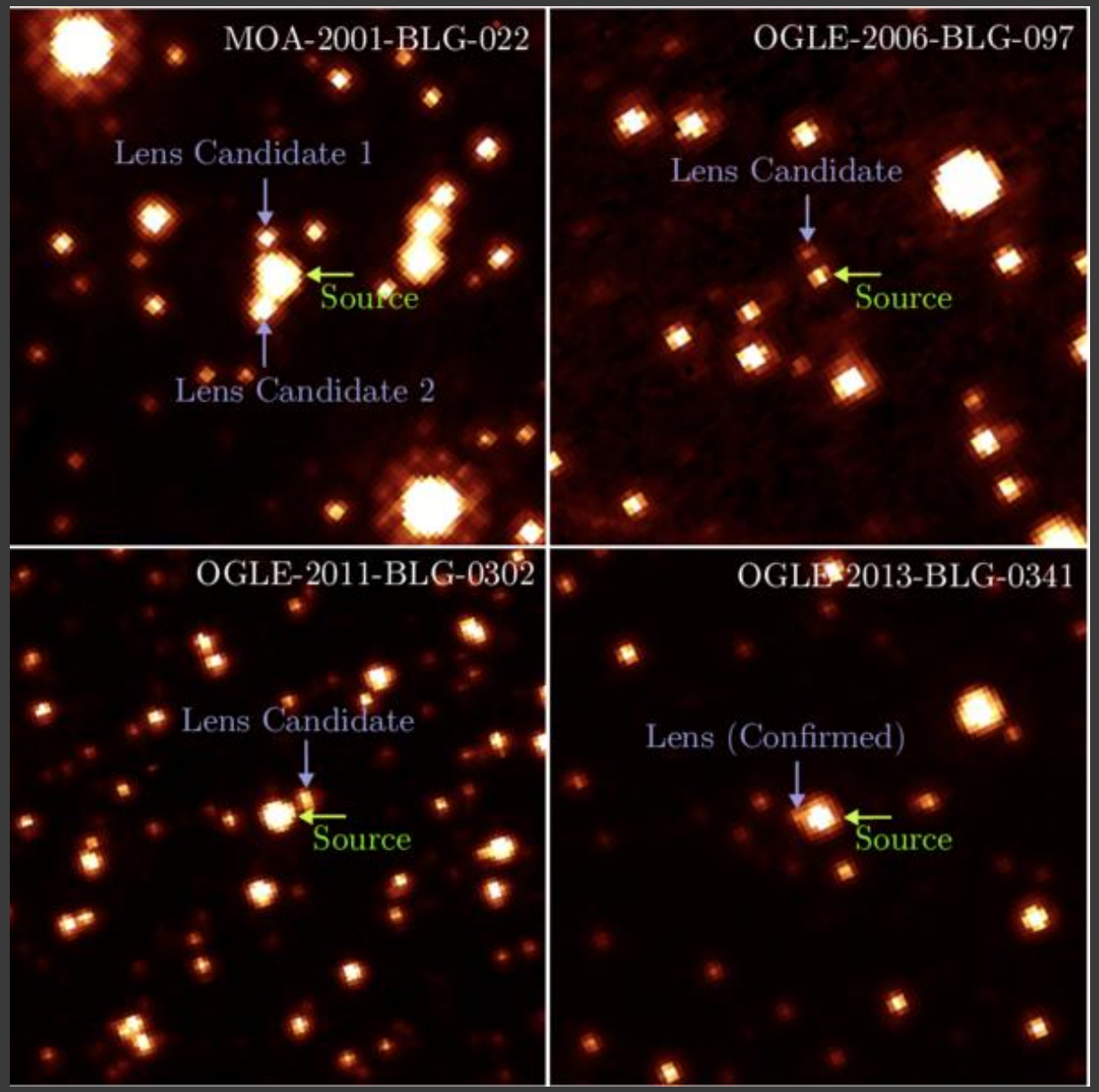

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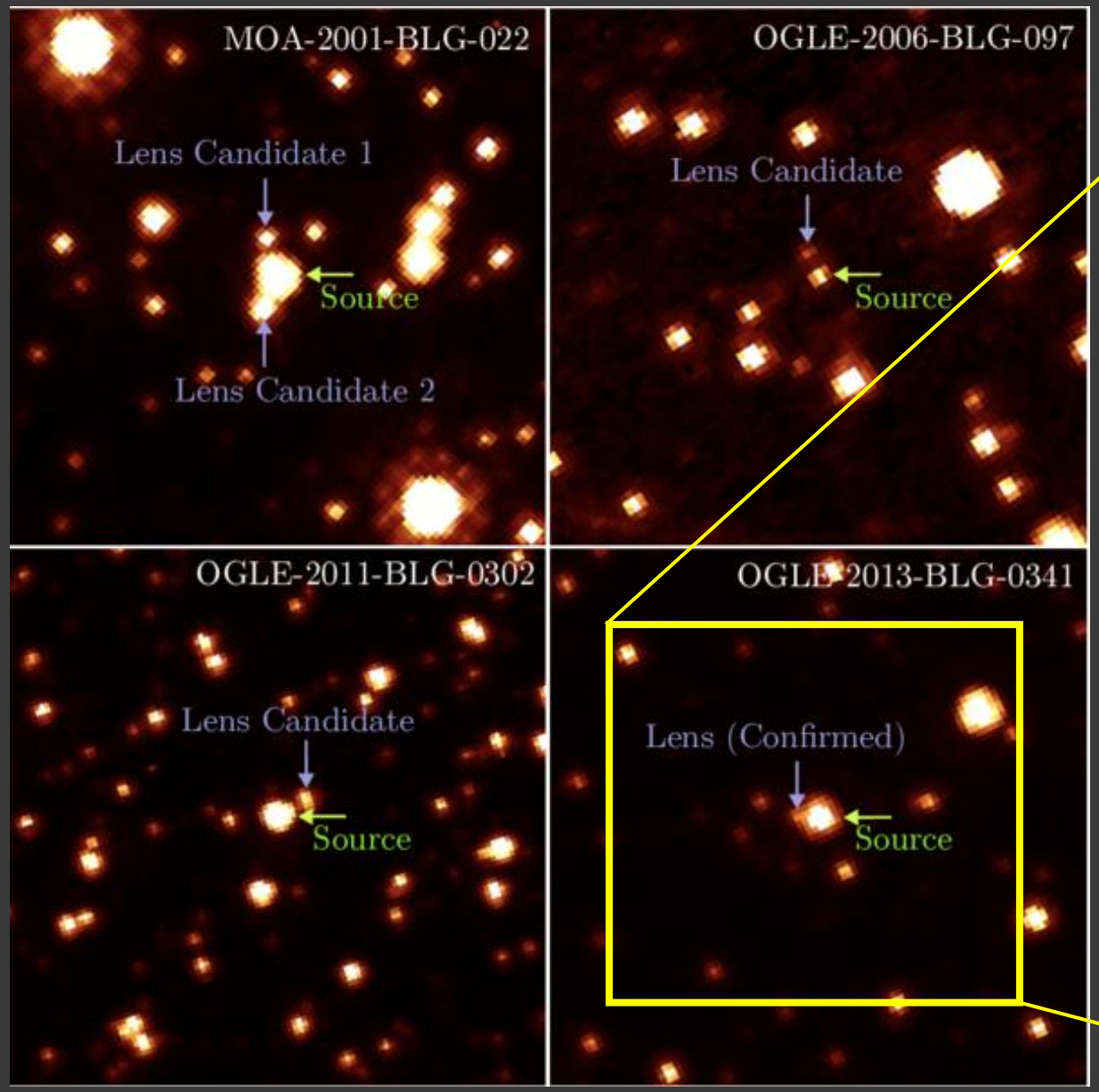
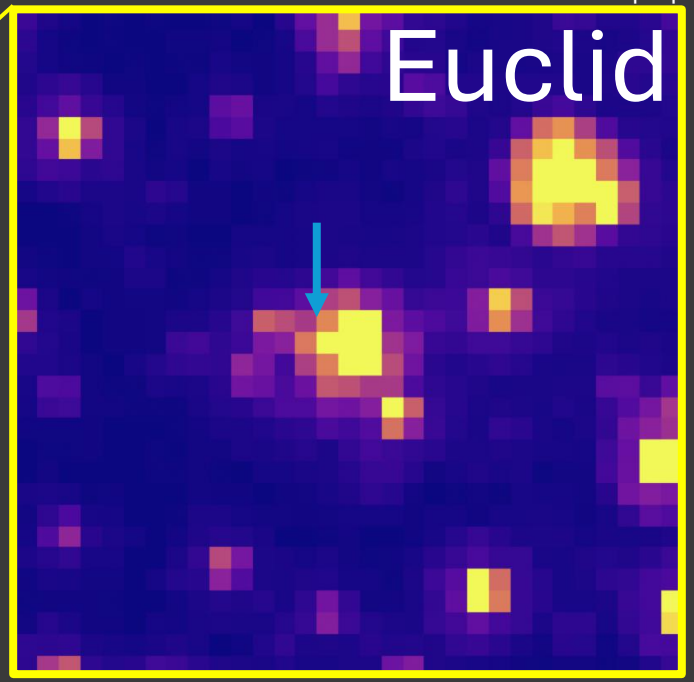
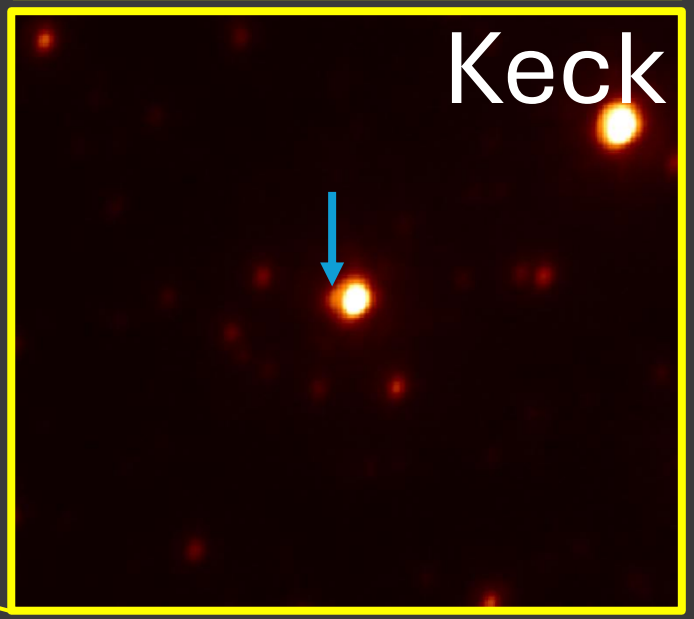


Terry et al. 2026b

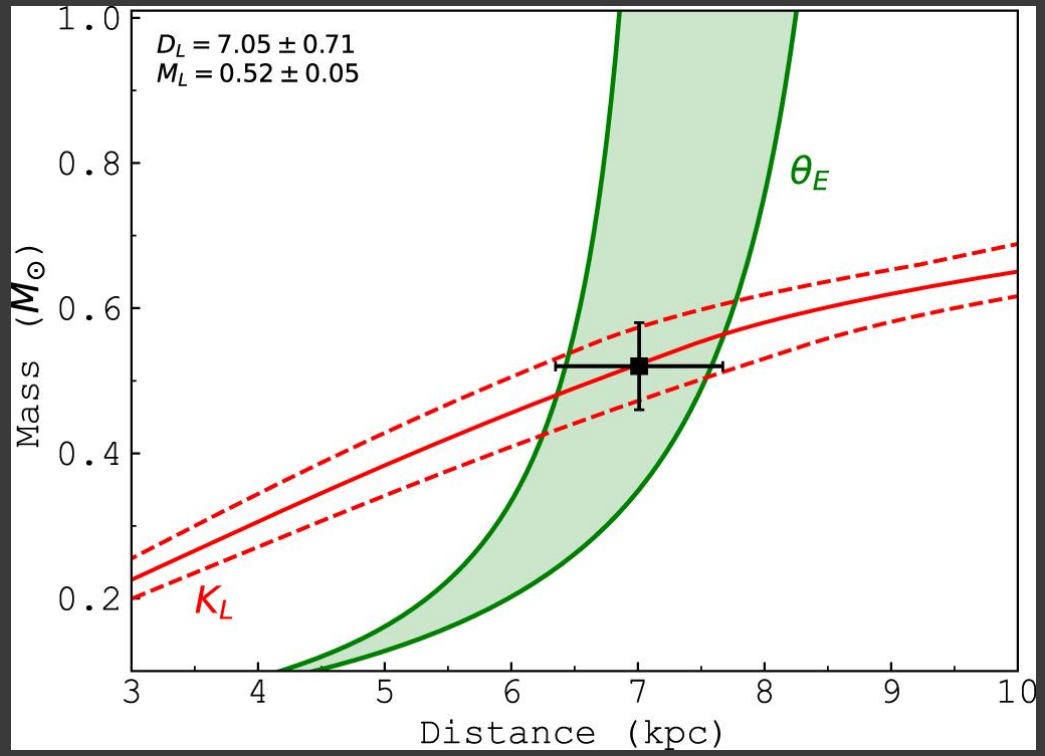
Rektsini et al. in prep



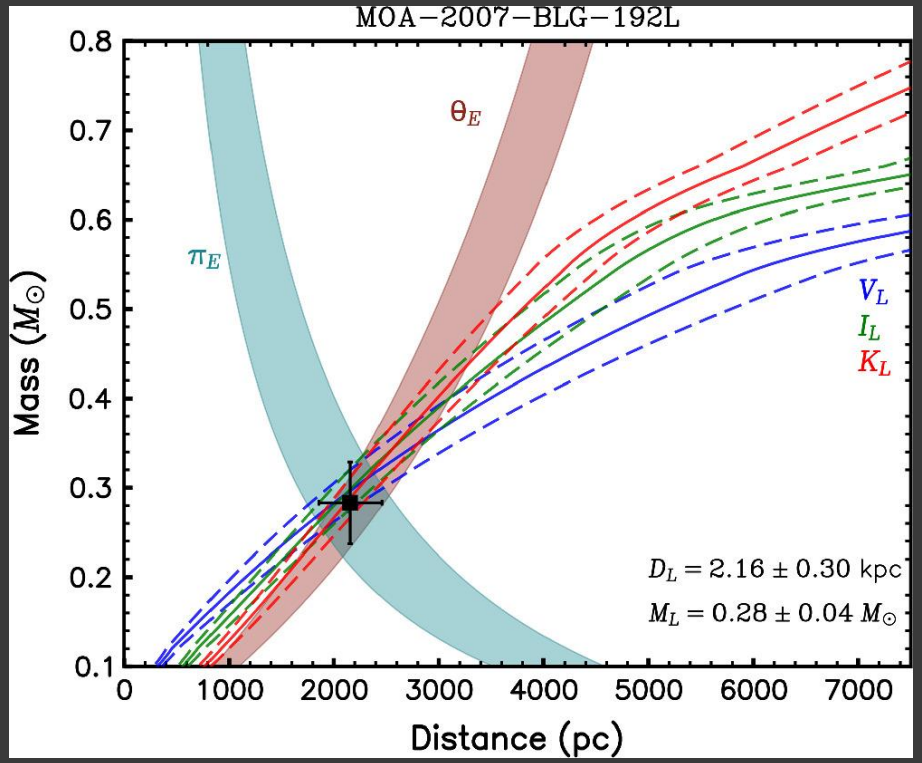


Finding Microlensing Planet Host Stars

Lens (host) detections give you an additional mass-distance relation



Terry et al. 2021



Terry et al. 2024

Summary

HST/Euclid precursor observations *enhance* the scientific return of the GBTDS.

Stellar characterization, extinction, host/planet properties are all equally important and LINKED.

High-resolution legacy datasets in the galactic bulge will serve many science cases far into the future (beyond Roman).

Bonus Slide: Hidden gems in a sea of stars

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Euclid

ESA/Euclid

Hubble