

ULTRACOOOL DWARFS IN THE KEPLER FOV

Cygnus, the Swan

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Google earth

RA 19h24m02.25s Dec 44°21'53.93"

25°32'50.78" arcdegrees

Why ultracool dwarfs in Kepler FoV?

1. Variability:

- Flares
- Spots – Rotation (fast Rotators)
- Dust Clouds

2. Eclipsing Binaries

3. Planets (particularly terrestrial planets in the habitable zone)

{RoPACS/RoPAUDs with Kepler !!}

Candidate Selection

From the Kepler Input Catalog :

- $J-H > 0.5$; $H-K > 0.2$; $J-K > 0.9$ –preliminary cuts
- If sloan i magnitude available $i-J > 3.8$
- Proper motion > 0.05 arcsec/year

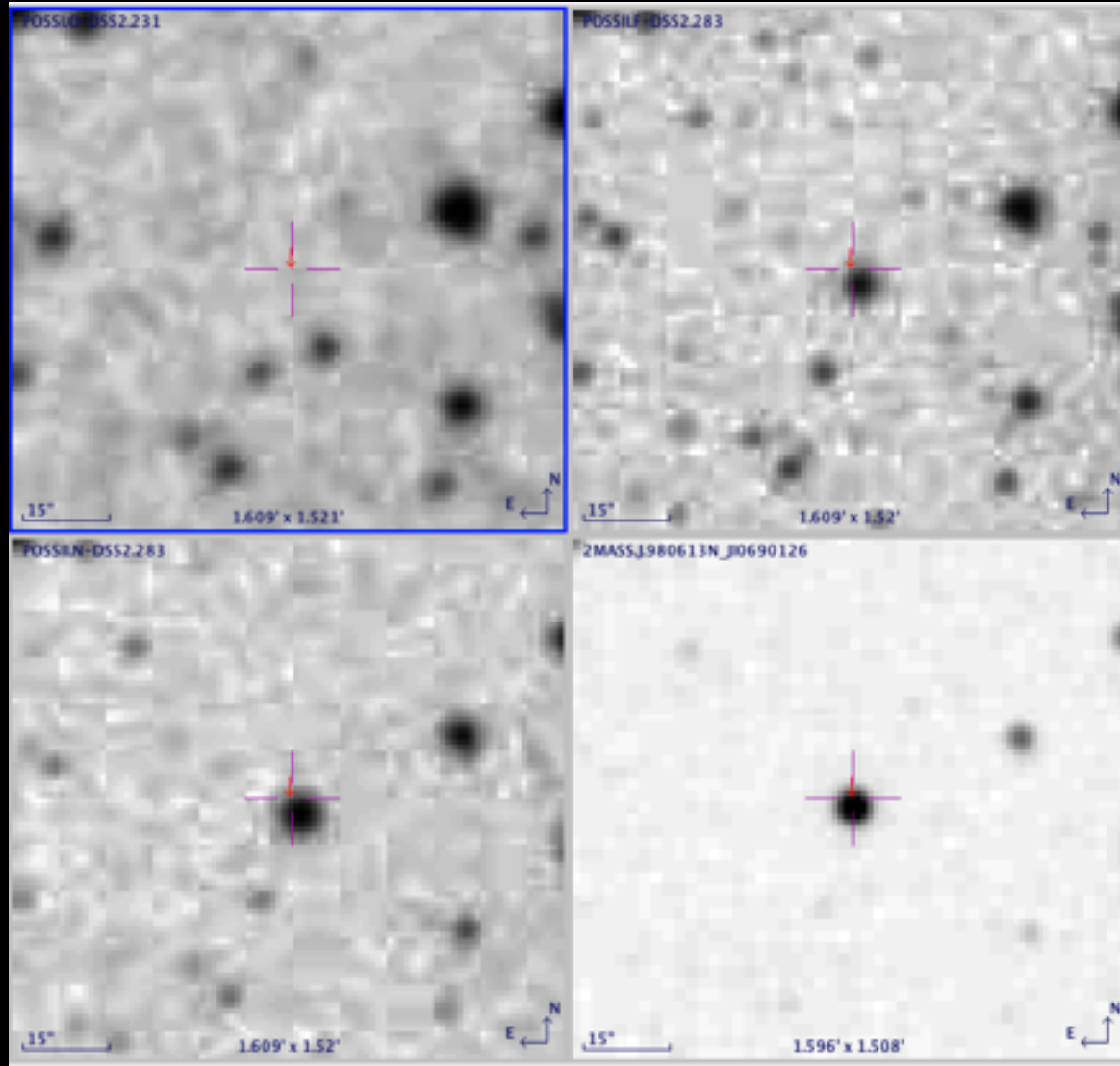
Candidates i magnitudes range from 13-21

Candidate Selection

Kepler Input Catalog is ~50% complete for kepler magnitude of 20 :

- $J-H > 0.5$; $H-K > .2$; $J-K > 0.9$ –priliminary cuts
- Cross-match with UKIRT J band data to find faint and high proper motion sources

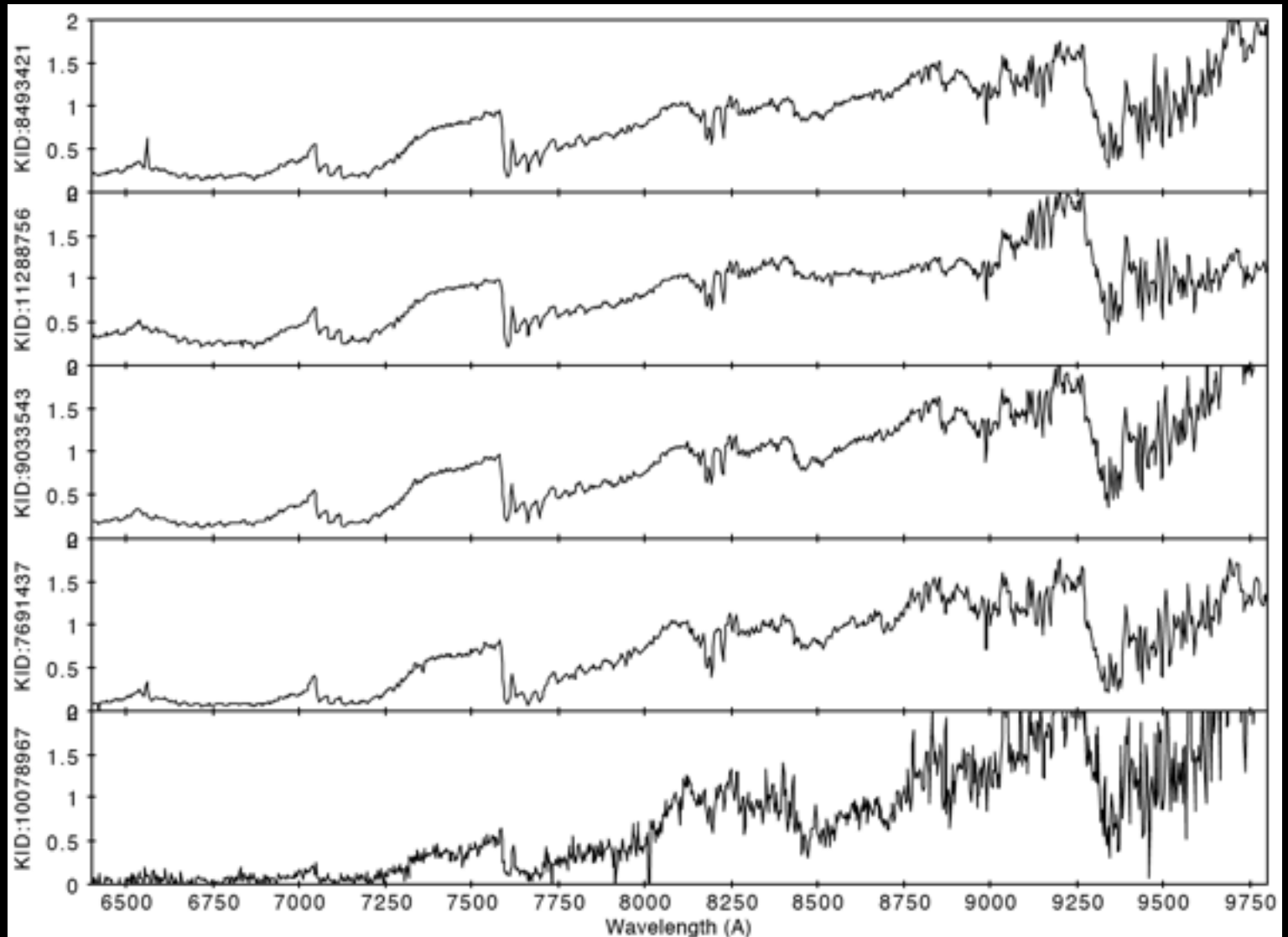
Candidate Selection (example)



Current Status

- A total of ~50 candidates selected
- Follow-up optical spectroscopy for 16 candidates. (KPNO 4m, NOT, TNG)
- 6 M5-6 ; 4 M7-8 ; 1 M8-9; 2 L0-1 dwarfs confirmed.
- Contamination $3/16 = 18\%$.

Current Status



Future work

- Kepler GO proposal to monitor the UDs (deadline Jan-20)
- Follow-up optical and NIR spectroscopy for the rest of the candidates (awaiting TAC decision)
- Deep Multi-color CCD Catalogue of the Kepler Field with INT/WFC.

VO Tools

- Aladin and Topcat were used extensively
- Hope to learn more tools and features in this meeting.

Thank You