infrared colours of stars (J<16) in the WTS fields

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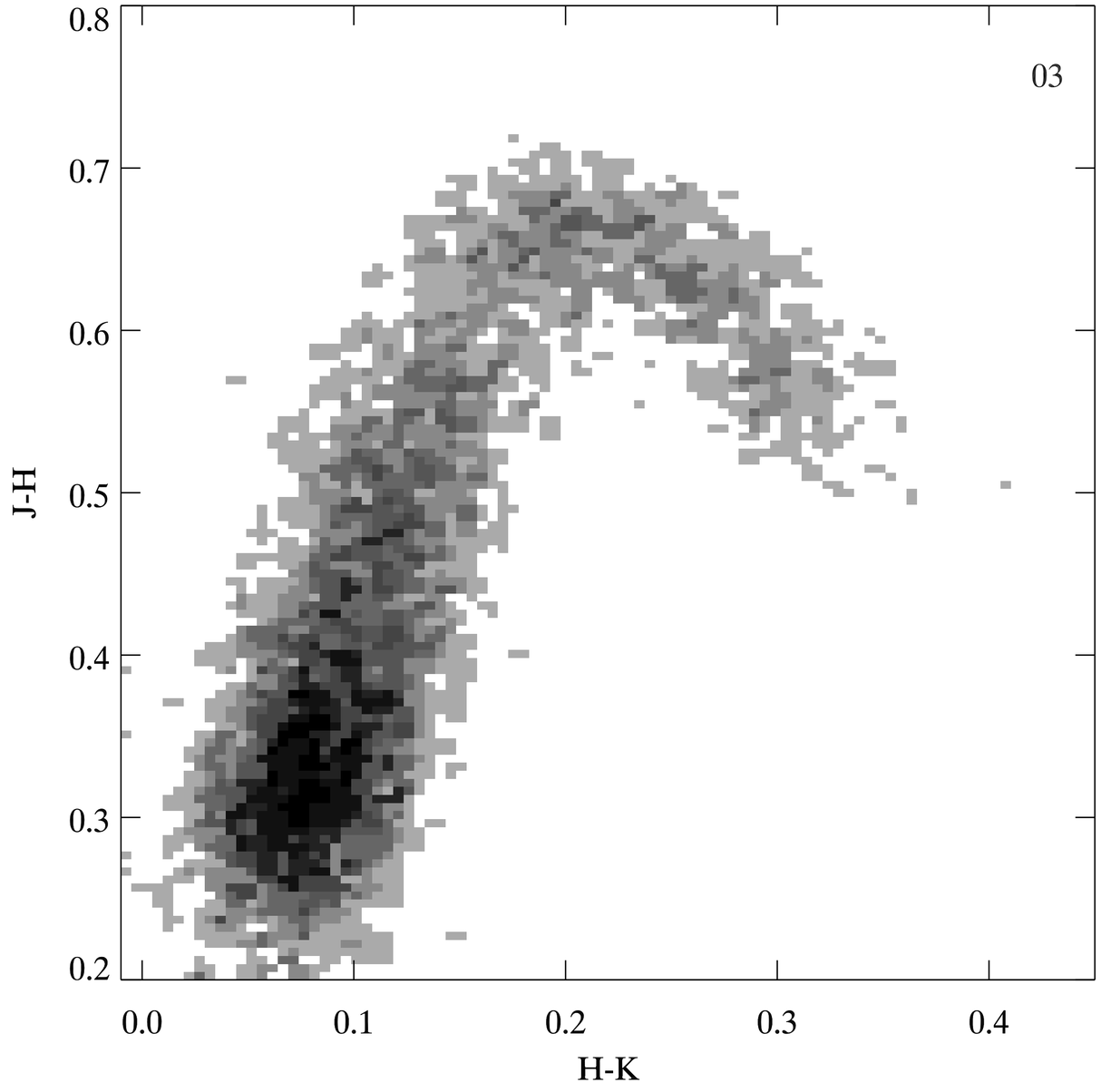
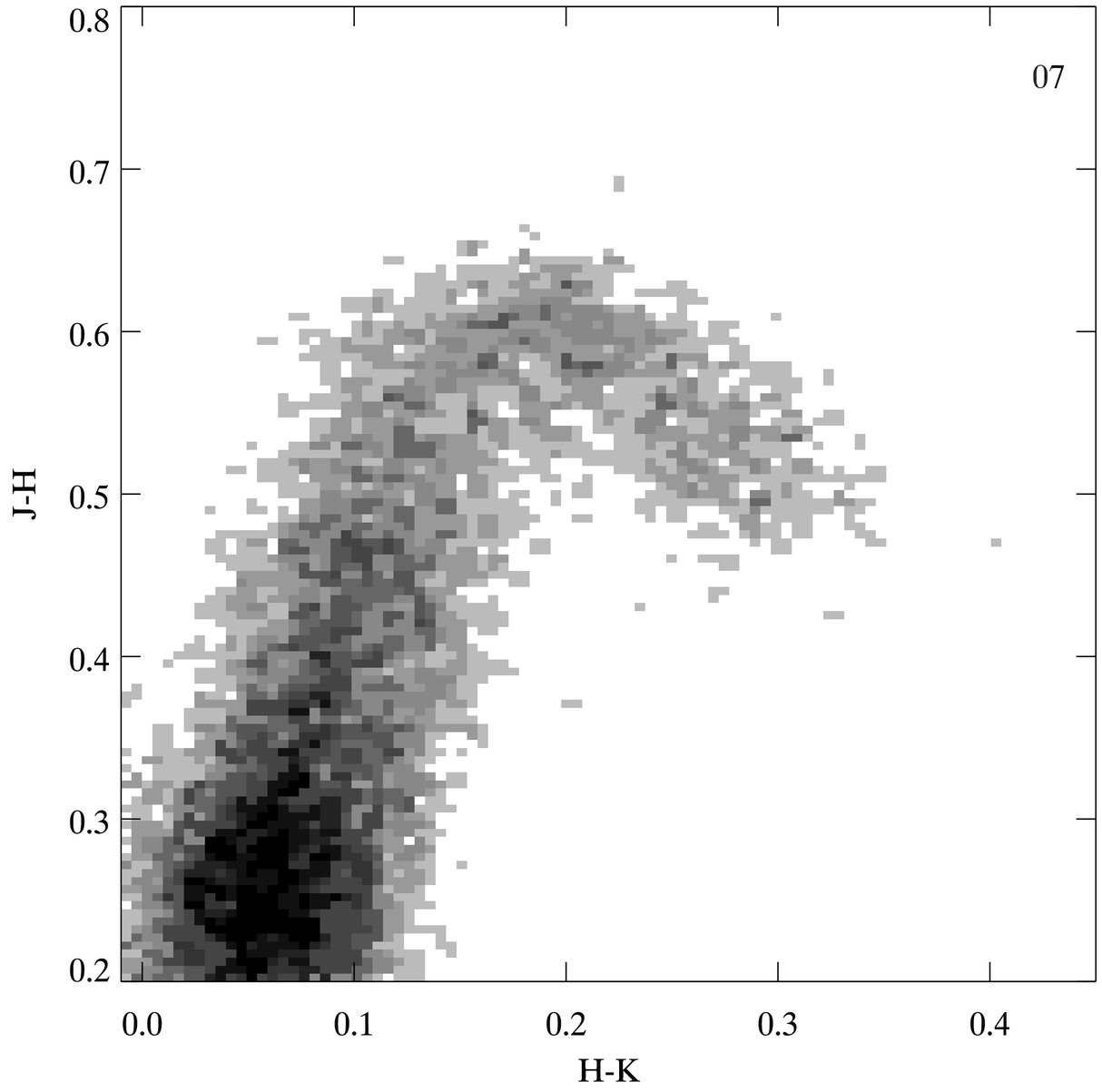
- For all four fields we now have additional ZYHK photometry from WFCAM (plus SDSS ugriz for the 19h and 7h fields, and some INT follow-up

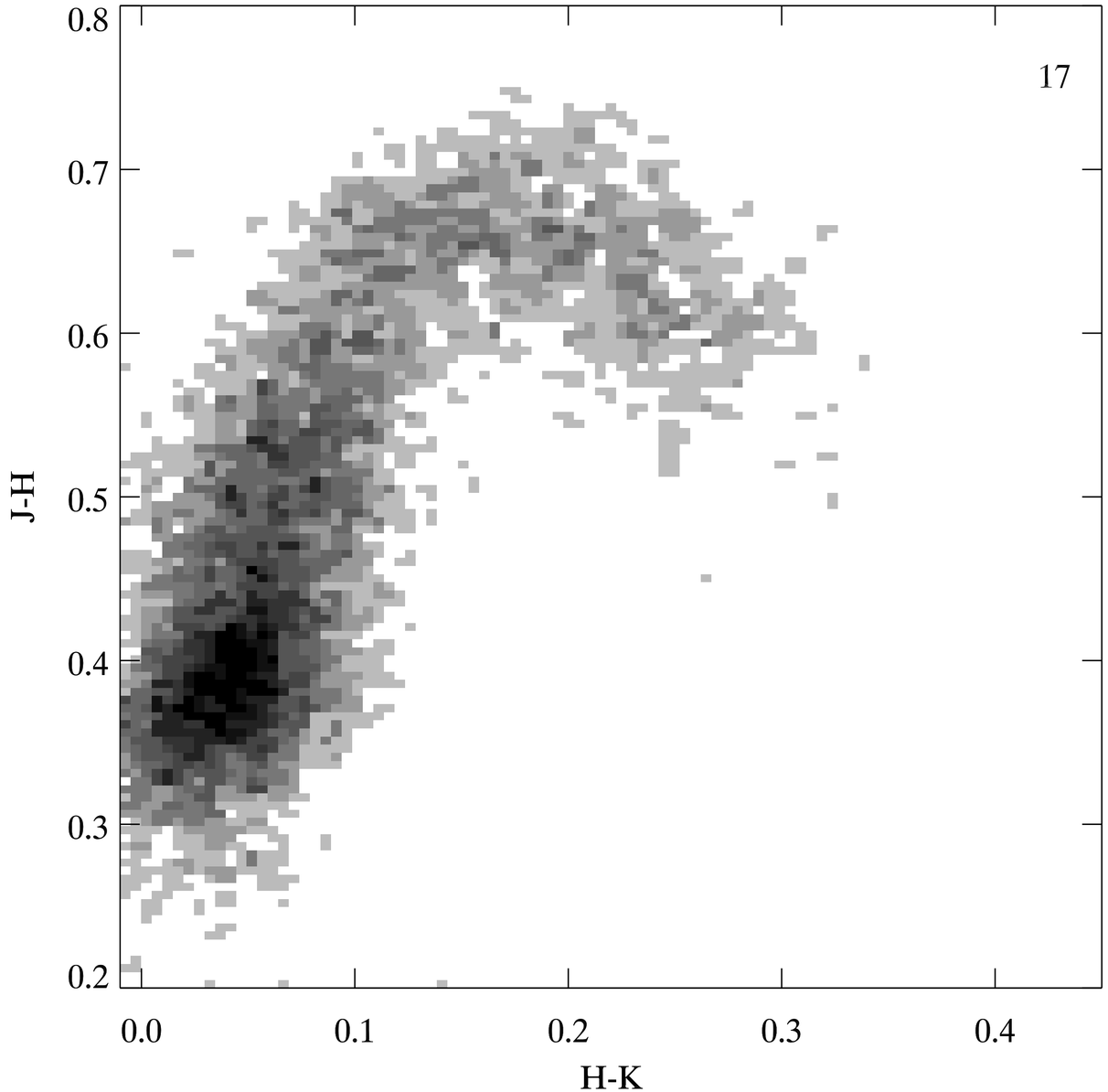
- The 4 fields show significantly offset locations in infrared colour-colour space and colour-magnitude space

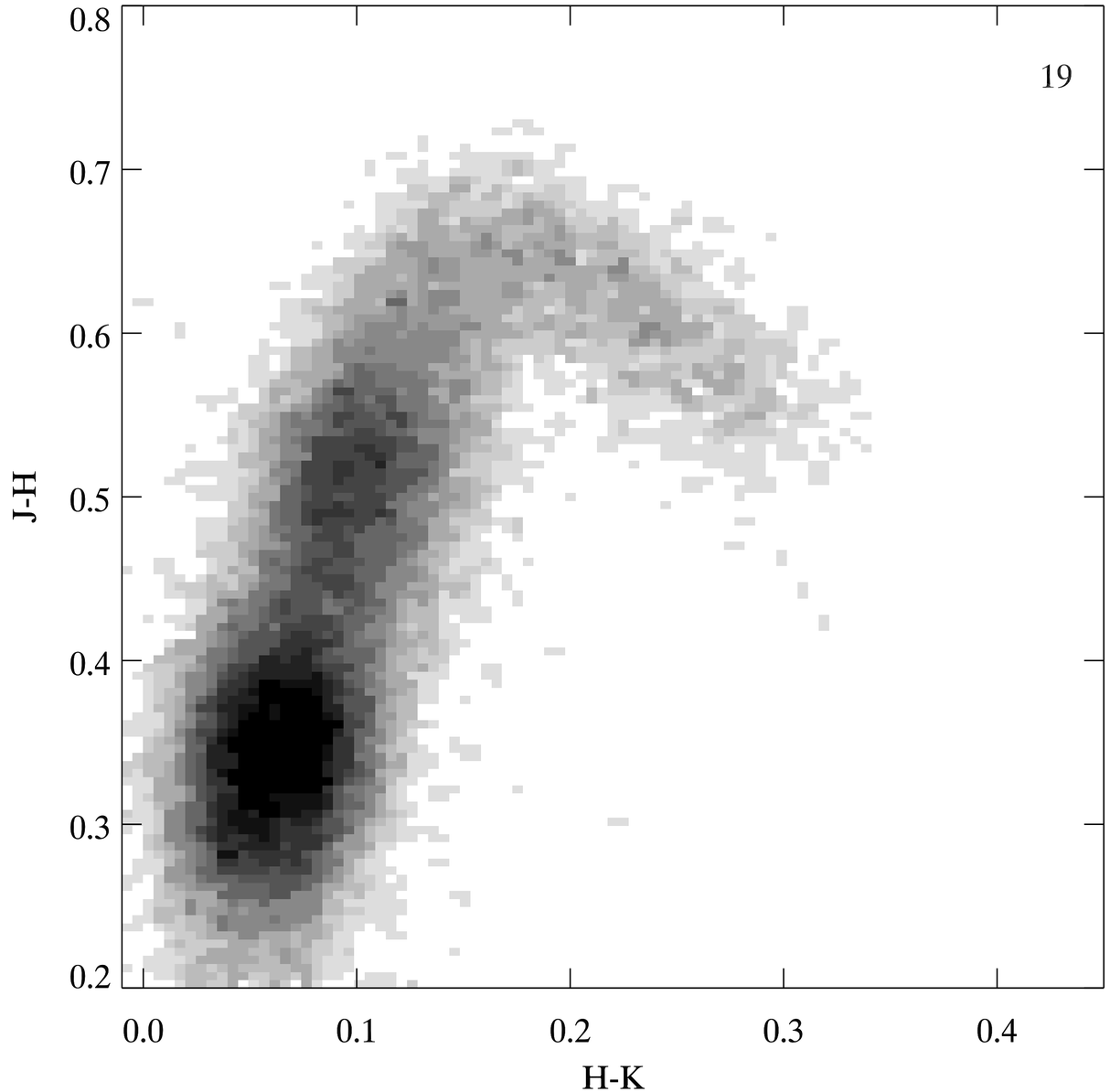
- The Hess diagrams and all subsequent discussion is for objects classified as stellar with J<=16

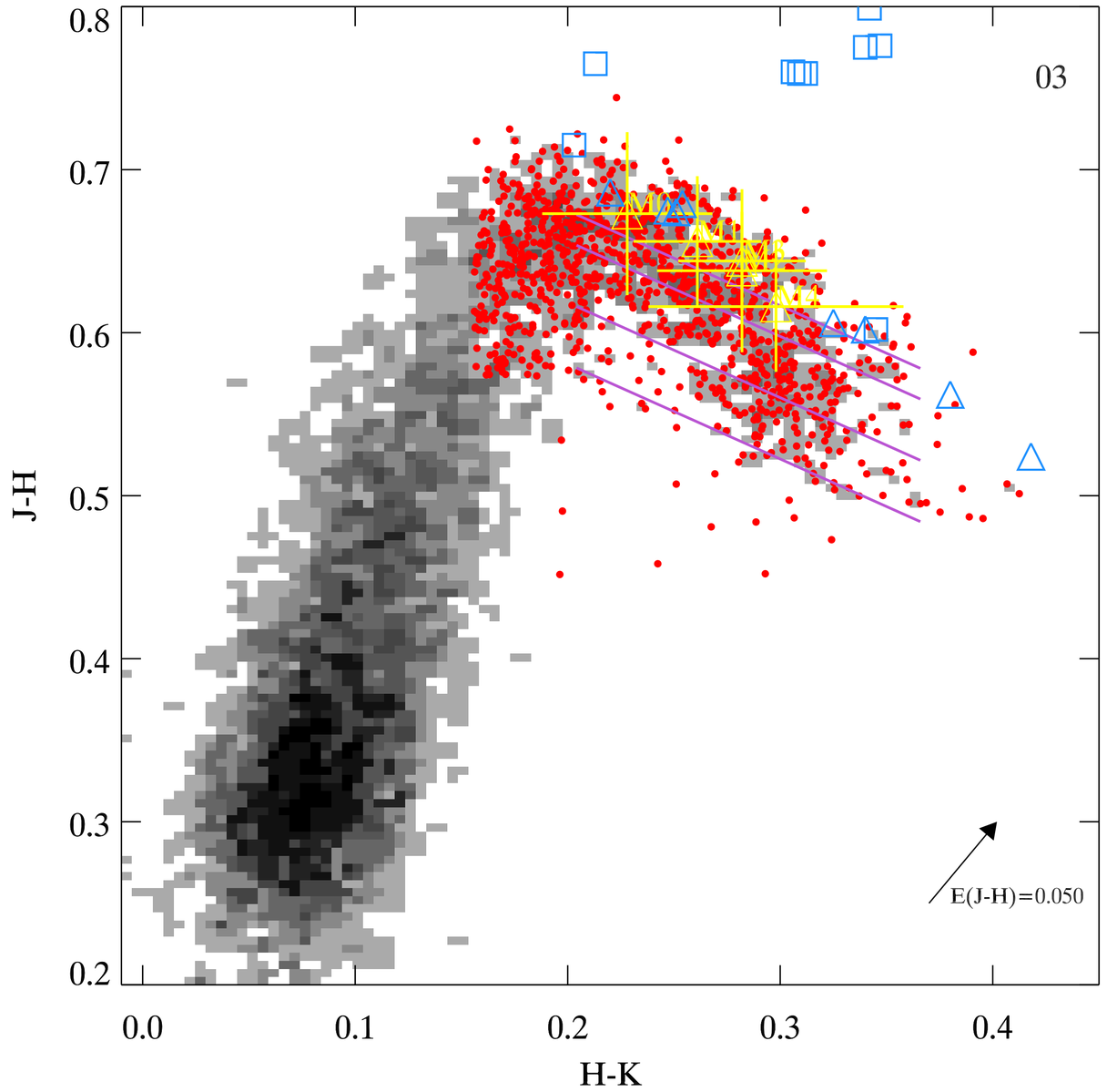
- Cycling through the four fields illustrates the offsets


03
0.8
0.7
0.6
0.5
0.4
0.3
0.2
J-H
0.0
0.1
0.2
0.3
0.4
H-K


07
0.8
0.7
0.6
0.5
0.4
0.3
0.2
J-H
0.0
0.1
0.2
0.3
0.4
H-K

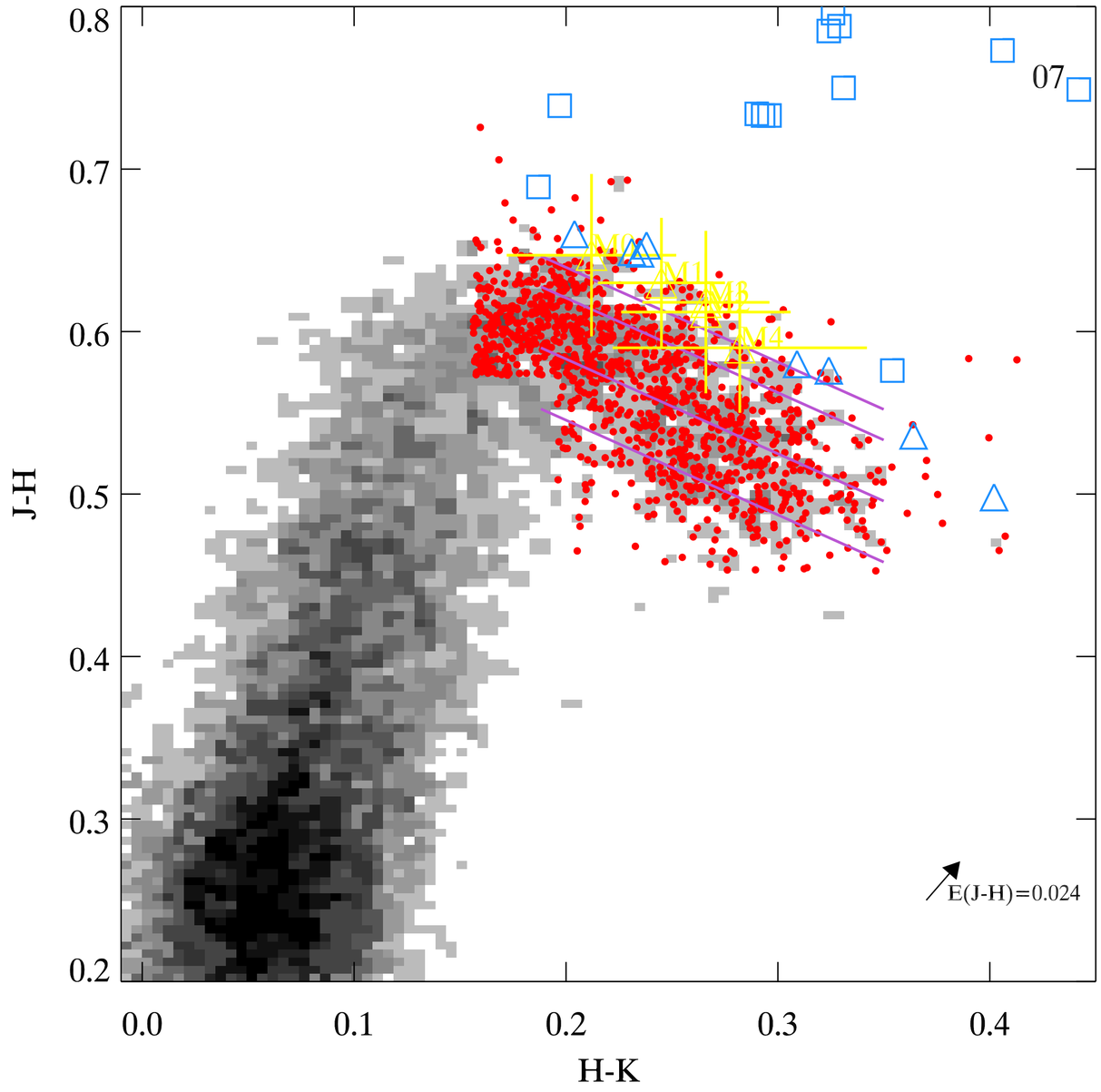

17
0.8
0.7
0.6
0.5
0.4
0.3
0.2
J-H
0.0
0.1
0.2
0.3
0.4
H-K

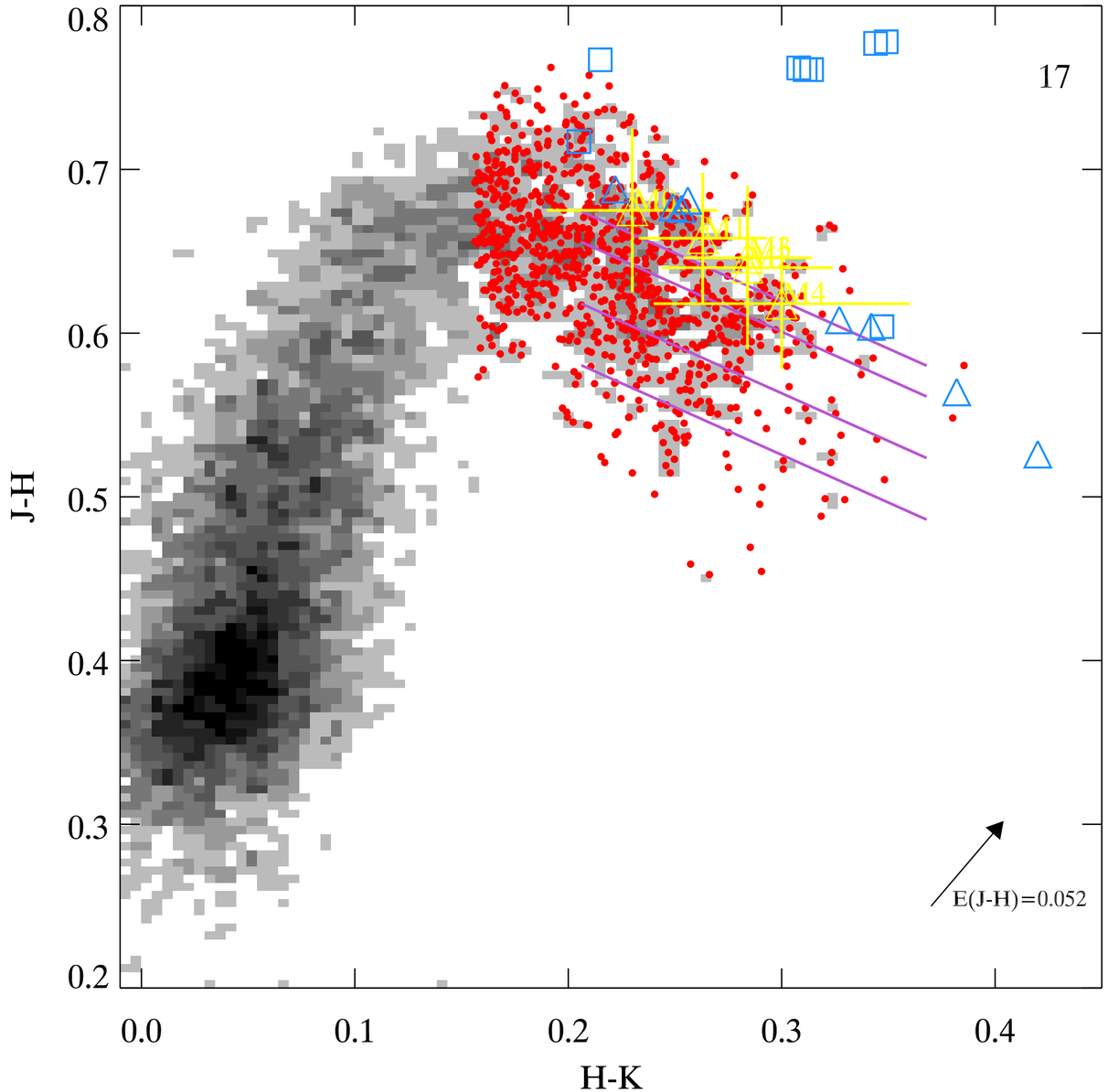

19
0.8
0.7
0.6
0.5
0.4
0.3
0.2
J-H
0.0
0.1
0.2
0.3
0.4
H-K

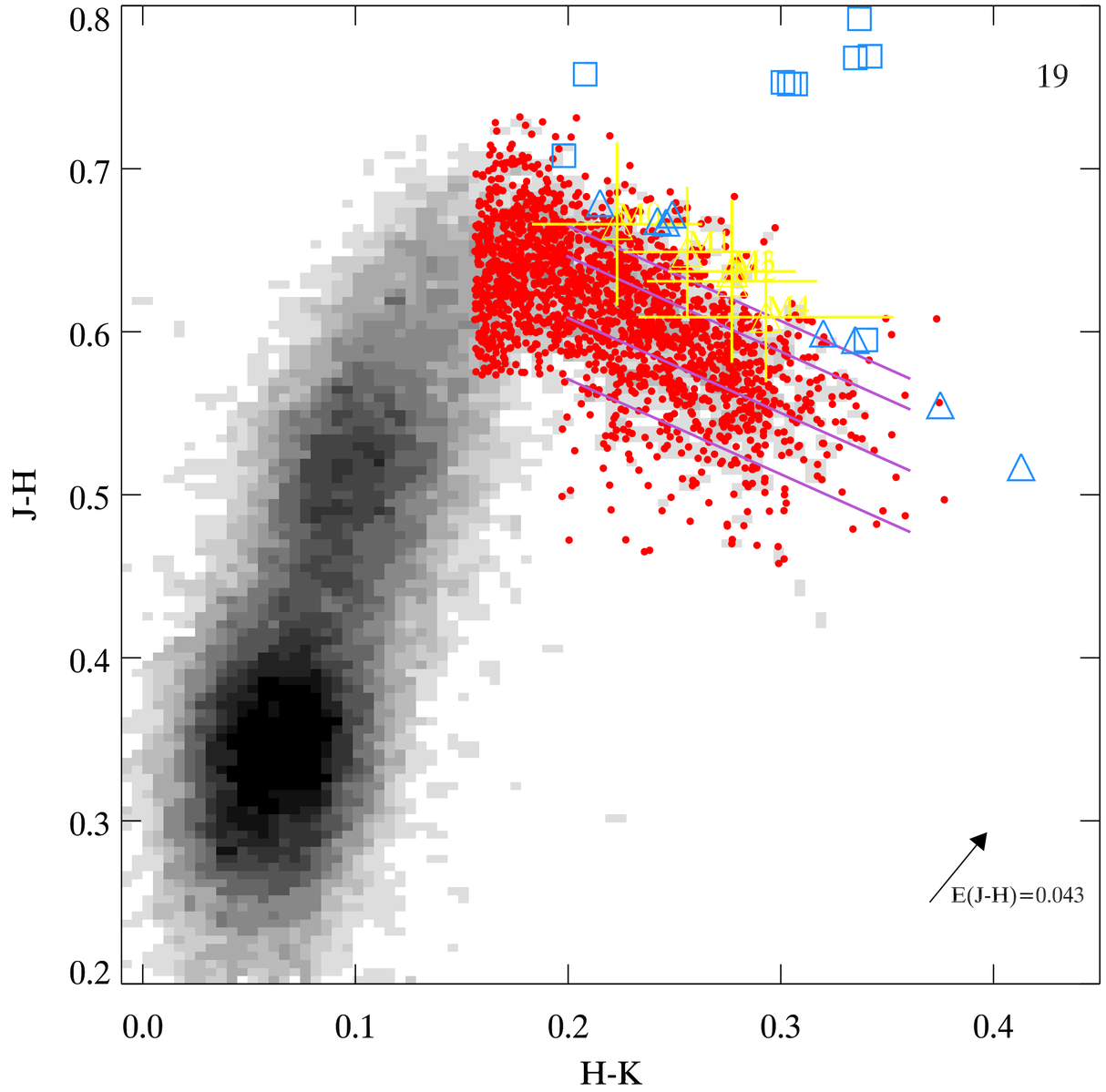

03
J-H
H-K
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.0
0.1
0.2
0.3
0.4
E(J-H)=0.050

M dwarfs

- Field M dwarfs from:
    - The Palomar/Michigan State University (PMSU) Survey median +/- 1-sigma errors for 2MASS colours (converted to WFCAM) (reddening applied)
    - Synthetic WFCAM colours [Hewett et al.] (giants-squares, dwarfs-triangles) (reddening applied)
    - diagonal lines are Leggett (1992) kinematic population dividers (from young disk at top through old disk, to halo at bottom) converted to WFCAM (reddening applied)
- Candidate M dwarfs (based on PMSU sample colours with/without reddening)


0.8
0.7
0.6
0.5
0.4
0.3
0.2
J-H
0.0
0.1
0.2
0.3
0.4
H-K
07
M0
M1
M3
M4
E(J-H)=0.024


17
J-H
H-K
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.0
0.1
0.2
0.3
0.4
M1
M2
M3
M4
E(J-H)=0.052


19
0.8
0.7
0.6
0.5
0.4
0.3
0.2
J-H
0.0
0.1
0.2
0.3
0.4
H-K
M1
M2
M3
M4
E(J-H)=0.043

M dwarfs

- 4 (dominant) effects presumably at play in the locations of these sequences:
  - population
  - reddening
  - metallicity
  - calibration [we think these effects are small: the calibration is good to ~1% in each filter]
- we find ~1000 likely M dwarfs in each of the 3, 7, 17 hr fields, and 2000 in the 19hr field (huge difference is down to line of sight).

Merge files

- the ZYJHK merge files (fits binary tables) will be made available to you (driven by the same J-band master frames as for the lightcurves)
- photometry alone may well prove sufficient for solving for many stellar parameters -especially when we add in the optical
- next stop proper motions