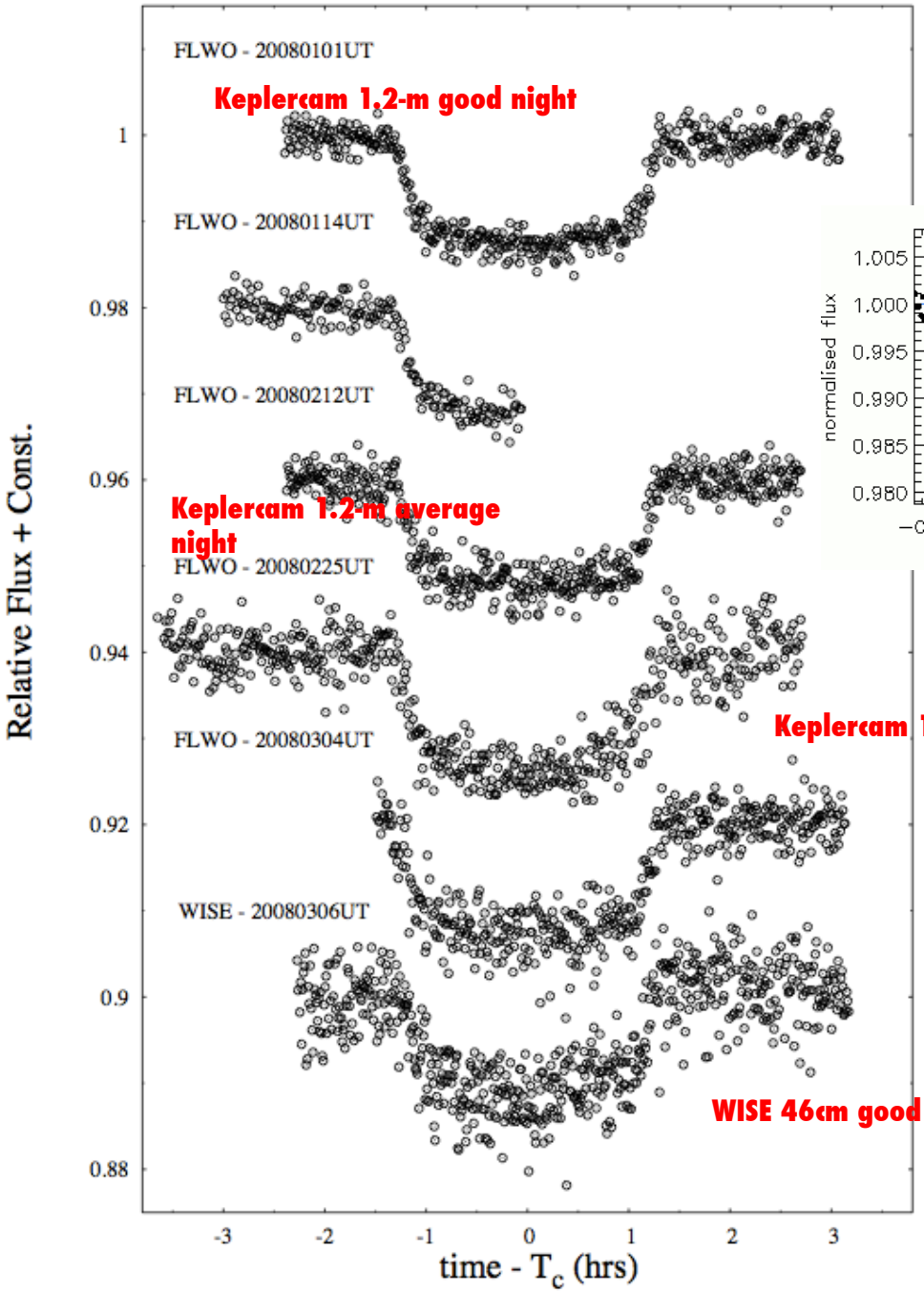
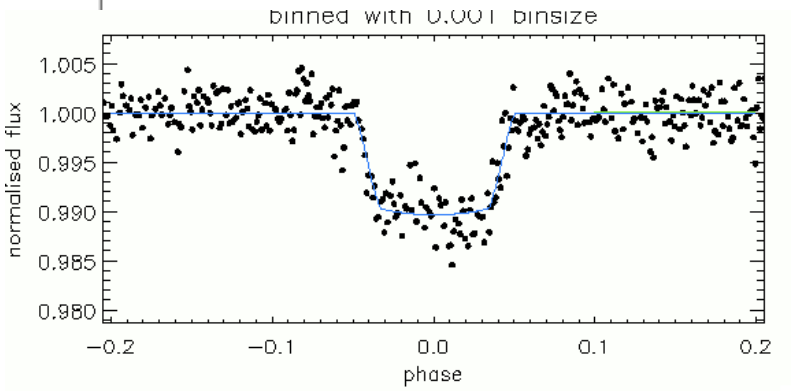
WASP-18 & 19 and photometric quality of ASTEP 400 data

Aude Alapini & Frédéric Pont
University of Exeter

ATEP-40cm Photometric quality

Comparison with other sites/instruments



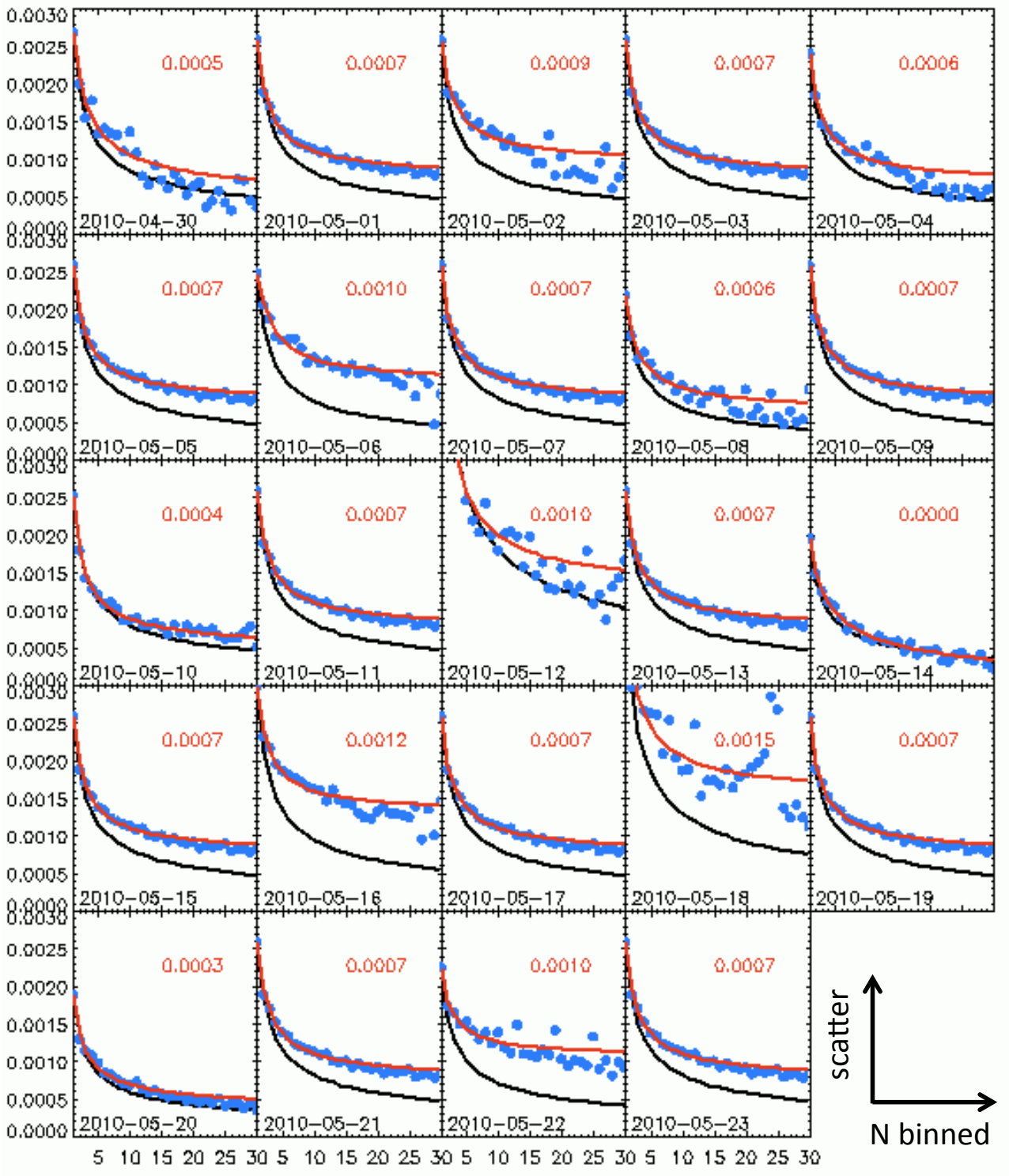


ASTEP 40cm average night

Keplercam 1.2-m bad night

ASTEP-40cm performance comparable with KeplerCam-1.2m

better than WISE-46cm



WASP-19b

night quality

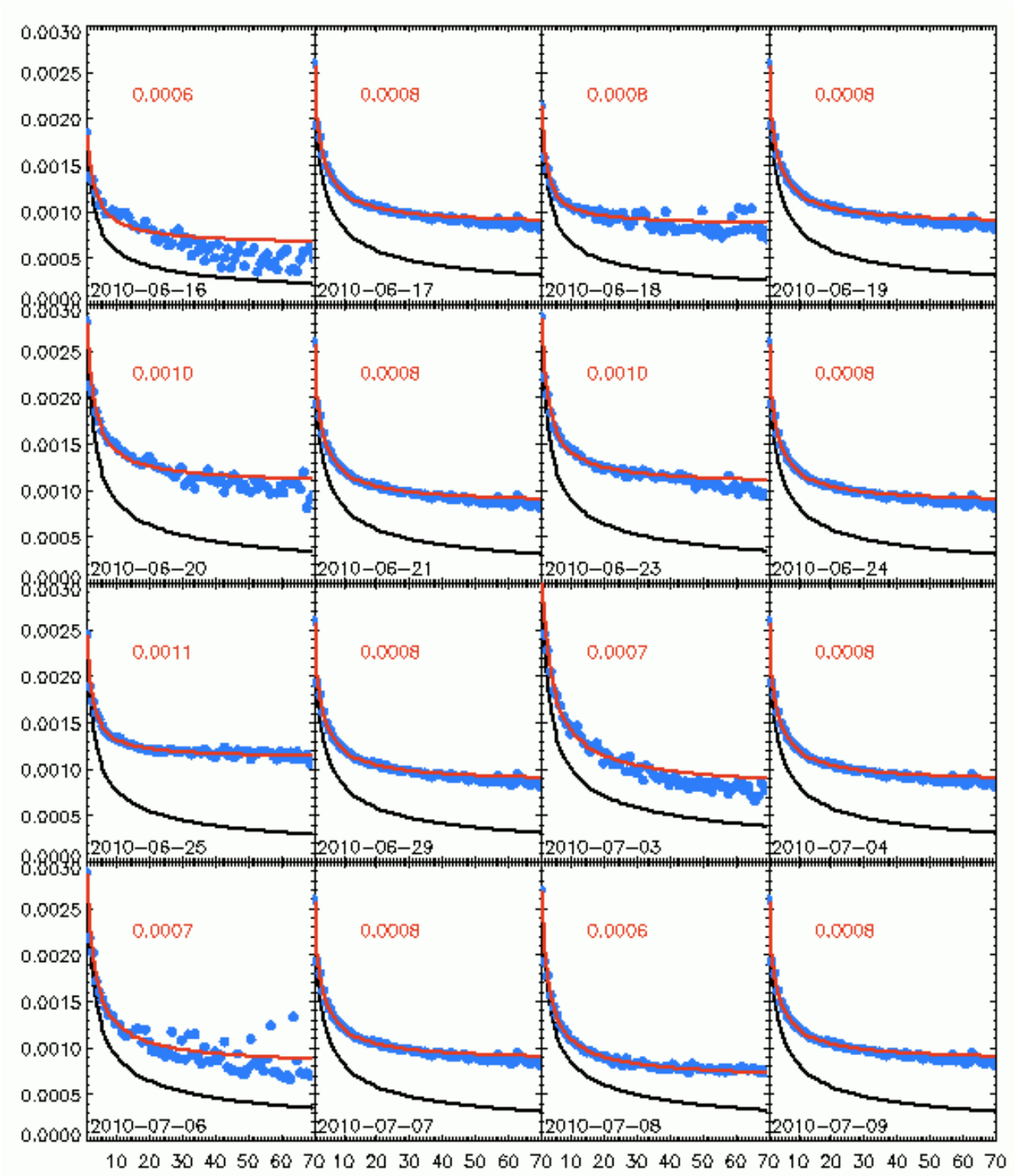
Pont & Zucker 2006 noise analysis (white + correlated)

correlated noise < 0.8mmag on 75% of nights

Mainly correlated noise limited

down to photon noise on 8% of nights
--> space quality

- photon noise limit
- observations



WASP-18b

night quality

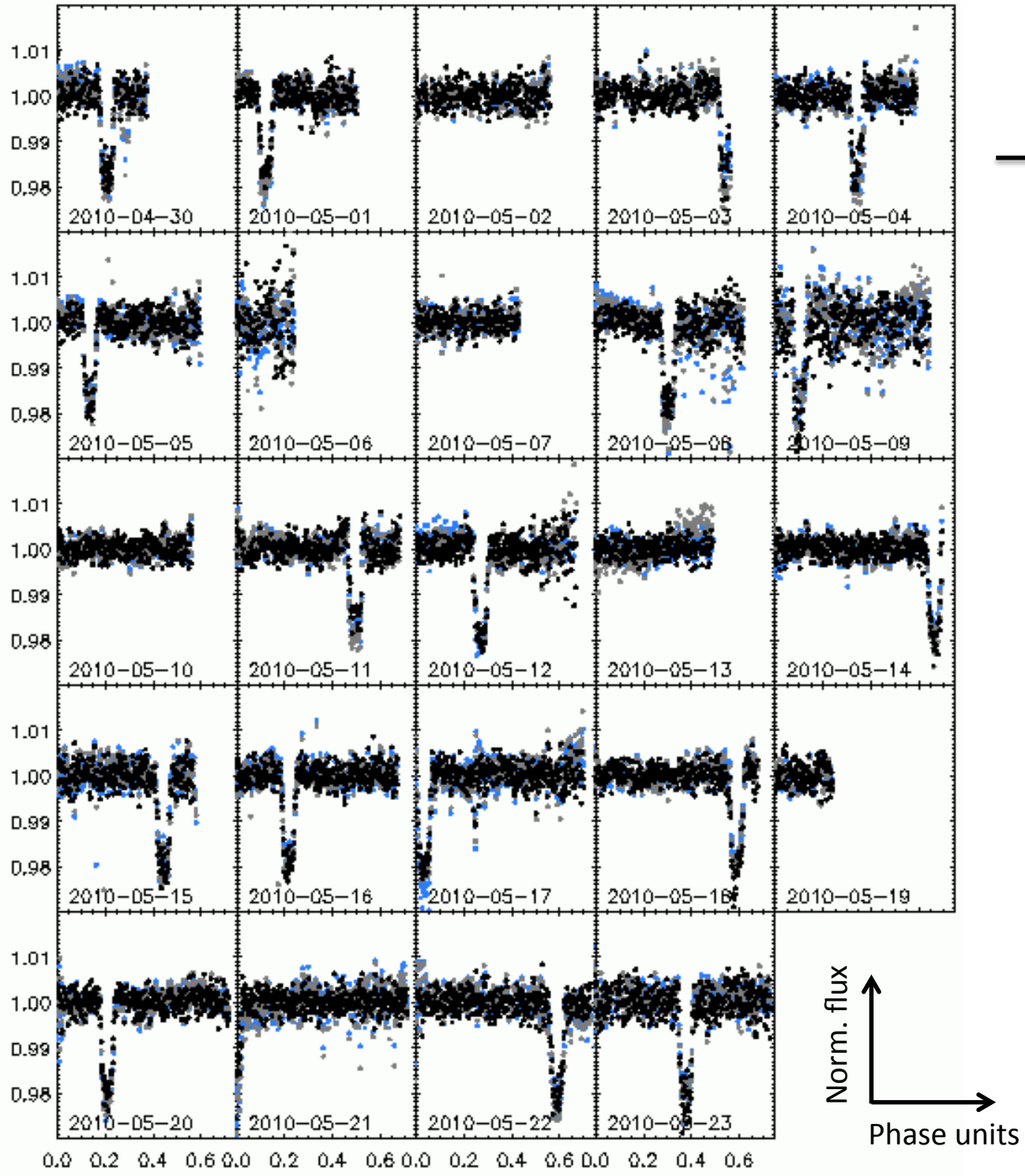
correlated noise limited

correlated noise < 0.9mmag
on 81% of nights

scatter

N binned

- photon noise limit
- observations



WASP-19b

light curve

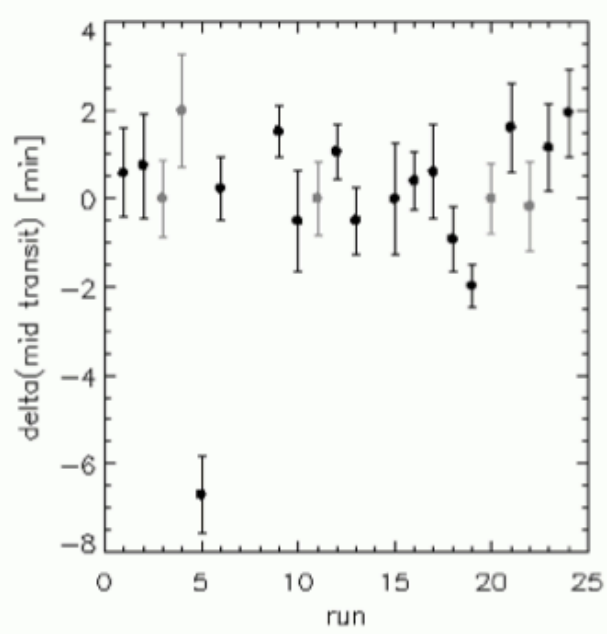
up to 74% continuous orbit coverage

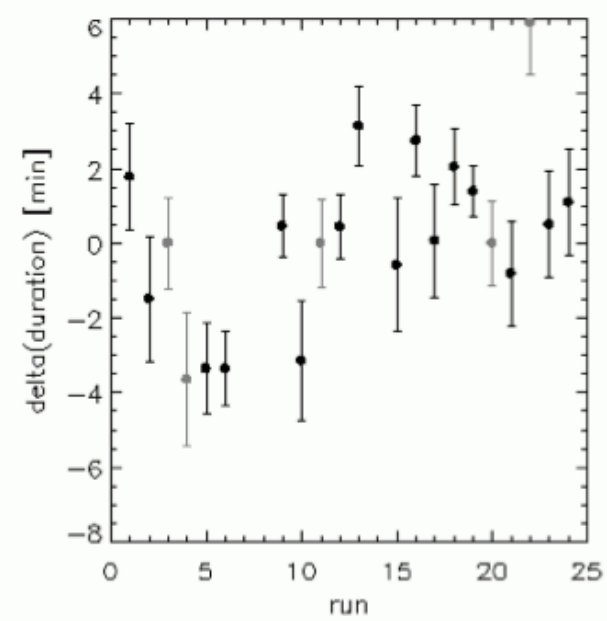
improvement from processing and detrending ?

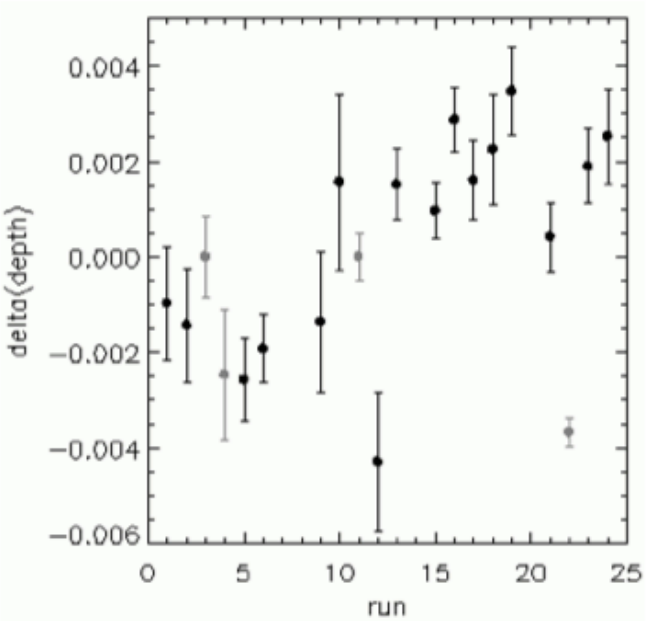
- First reduction
- New reduction
- Target-ref (test)

WASP-19b

transit timing





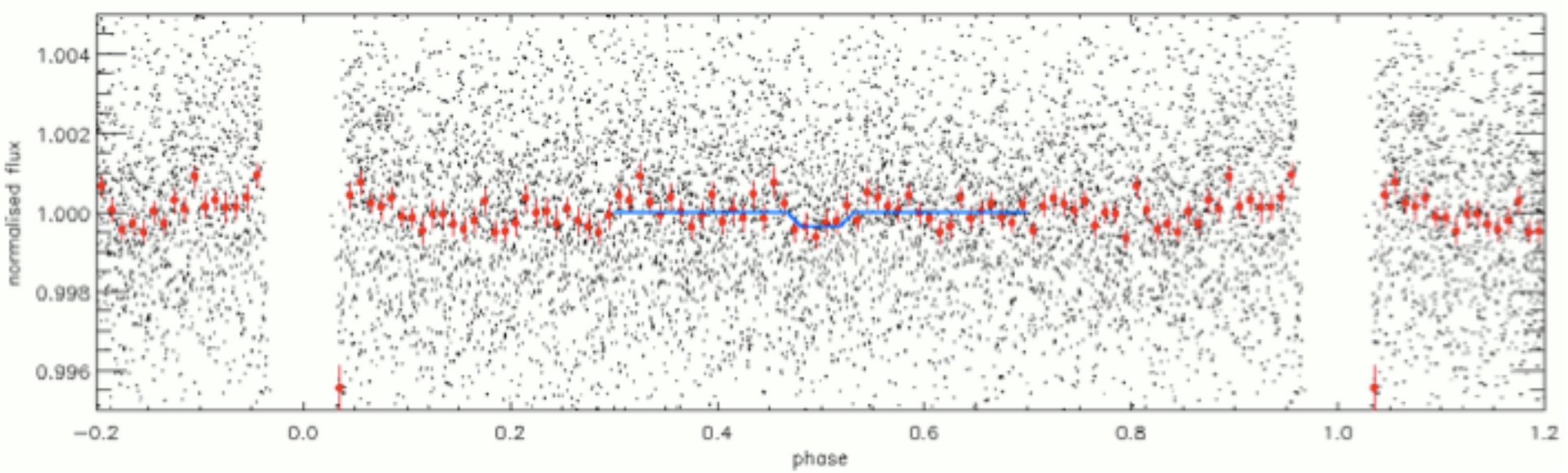


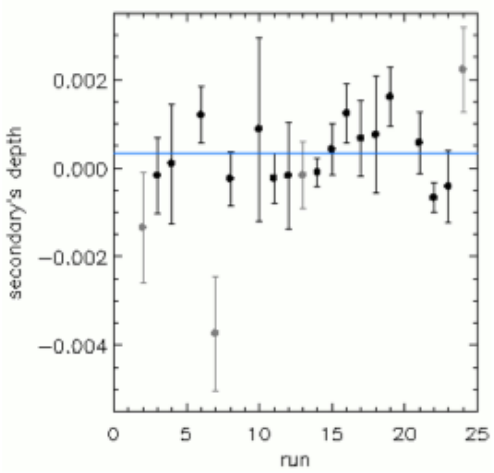
no transit timing within uncertainties

Sun-induced photometric fluctuations on transit depth ?

WASP-19b

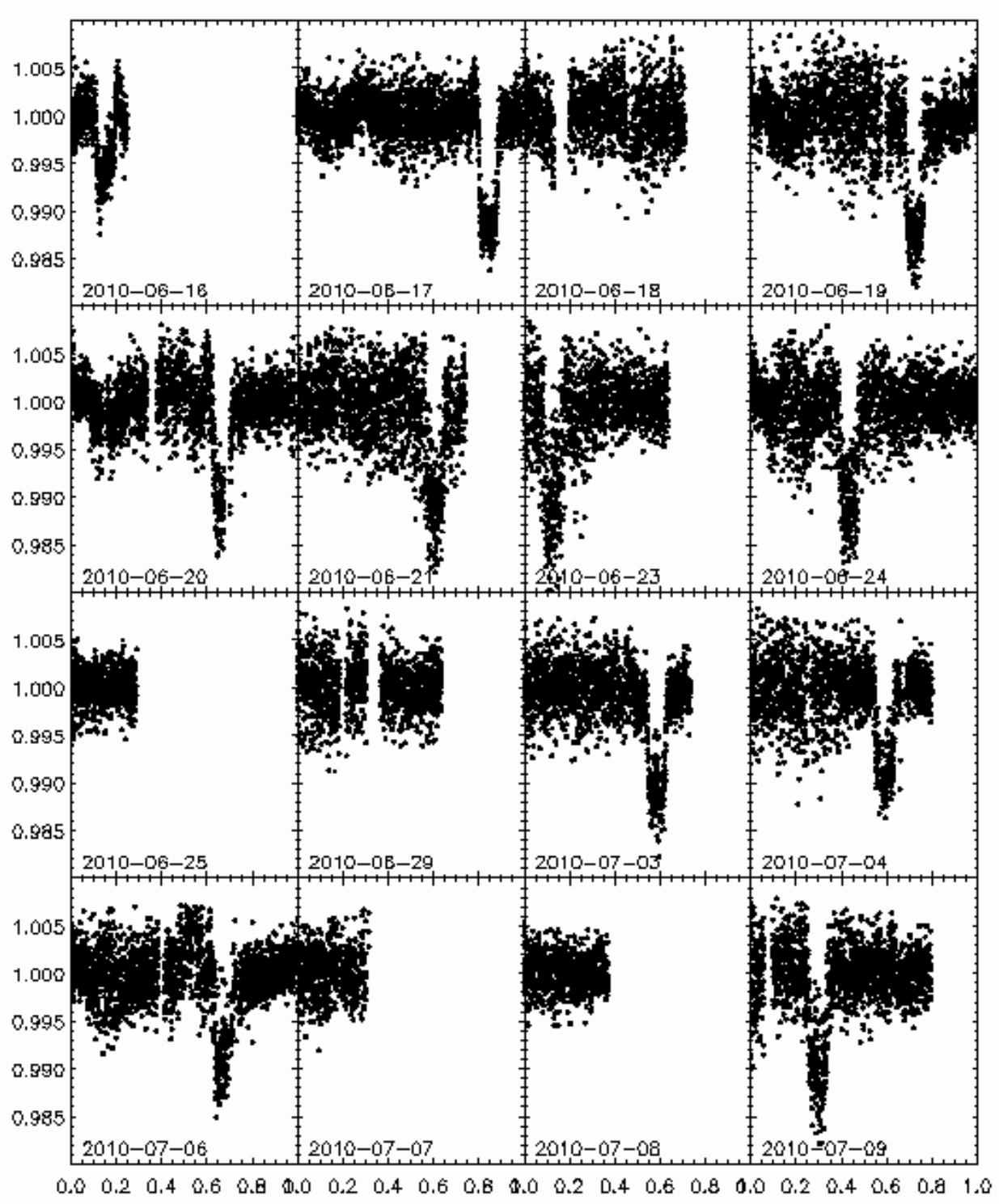
Secondary eclipse





secondary eclipse visible in phase folded light curve
d = 0.33 ± 0.17 mmag

eclipse not visible in individual visits, but 66% have consistent secondary depth



WASP-18b

light curve

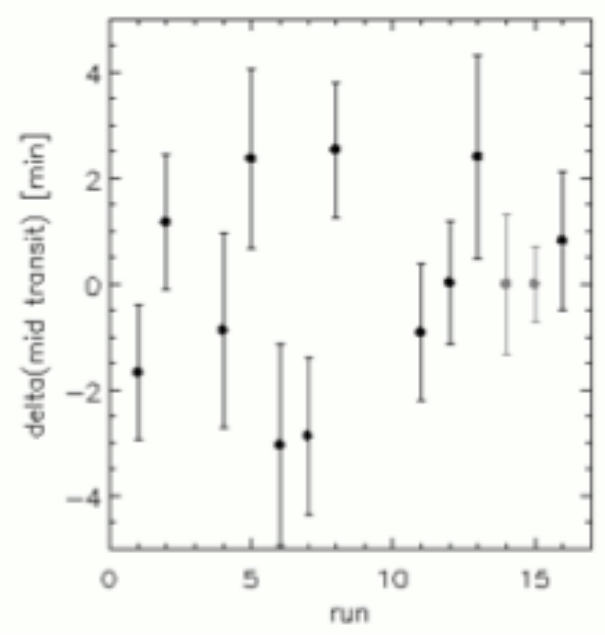
up to 100% continuous orbit coverage

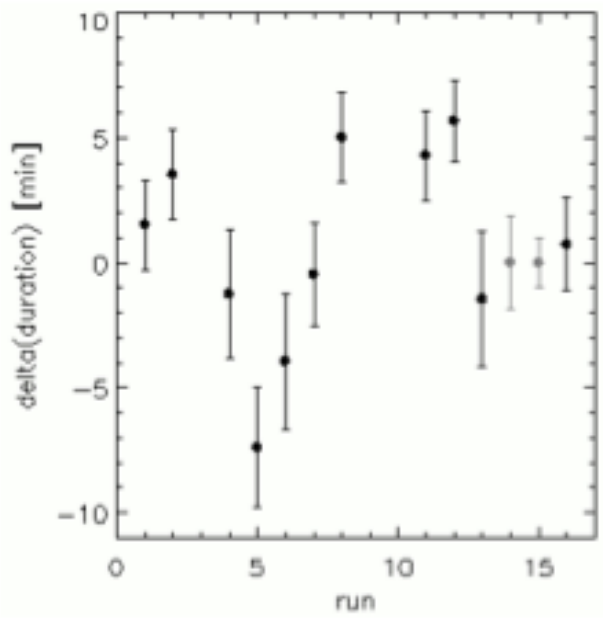
Norm. flux

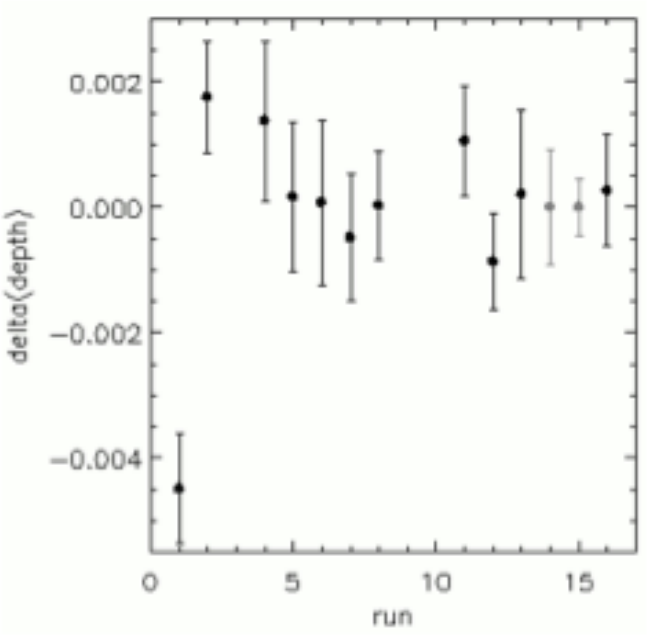
Phase units

WASP-18b

Transit timing



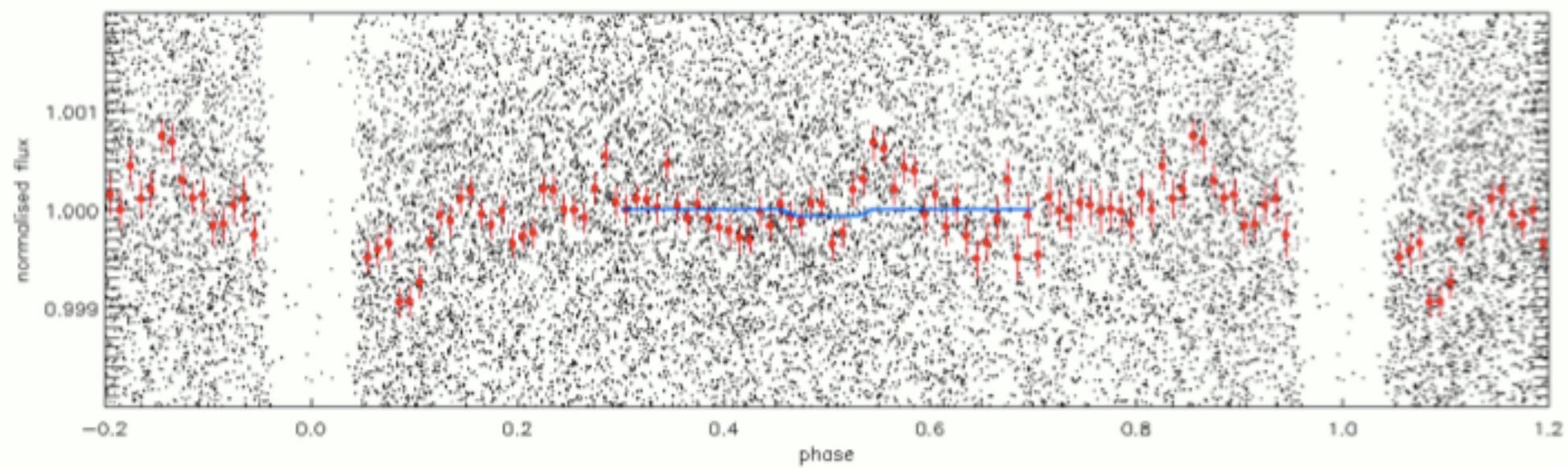


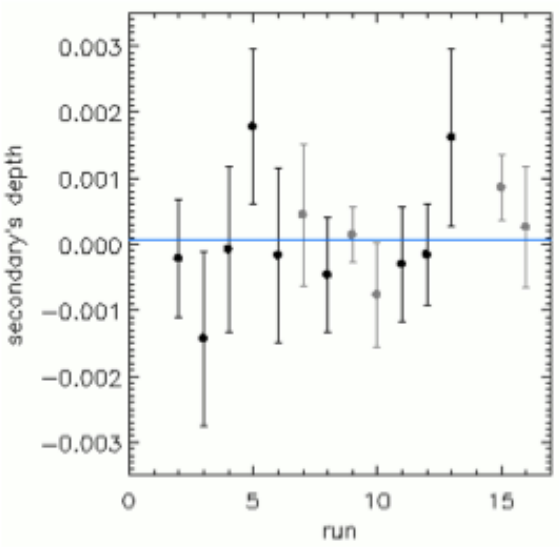


no transit timing within uncertainties

WASP-18b

Secondary eclipse





no visible secondary eclipse

Conclusions

Sub-mmag photometric precision on 80% of the nights

Transit timing: none within uncertainties

Secondary eclipse: detection for WASP-19b (0.33± 0.17 mmag)
no detection for WASP-18b

Phase curve: need better S/N

Future work

Photometric improvement from light curve processing / detrending ?