

KIC 009818381

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
009818381-01	OBS	0135.01	3.024093	132.416730	7775.5	2.912	1389.0	1346.8	1.36	6063	12.67	1162.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009818381-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

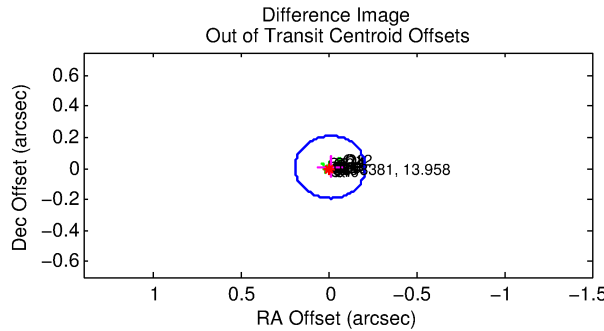
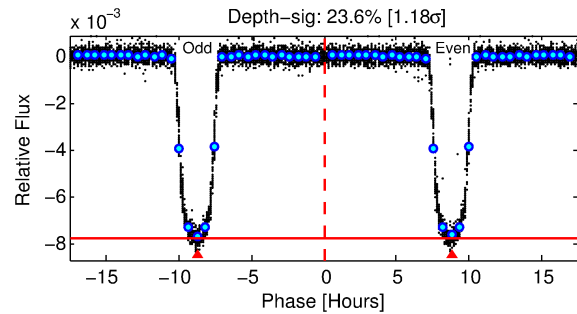
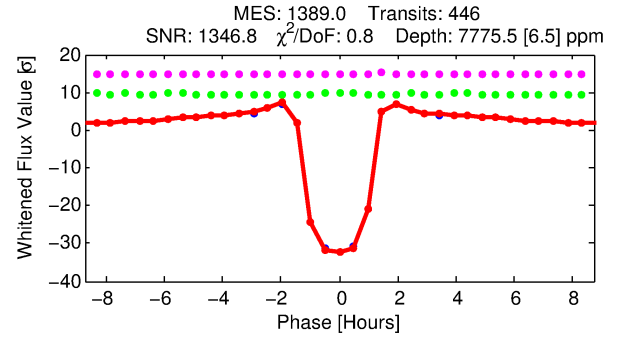
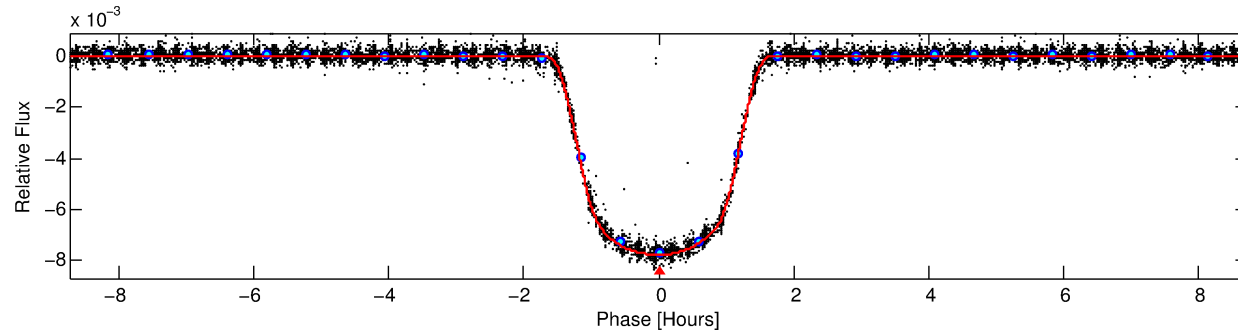
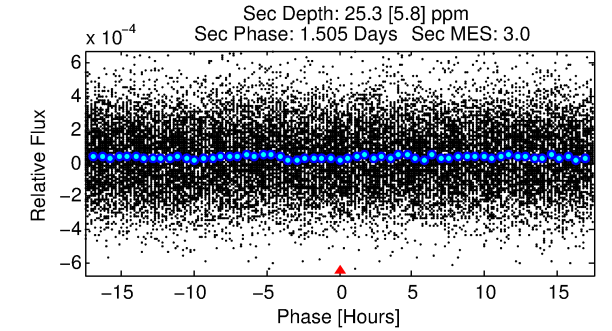
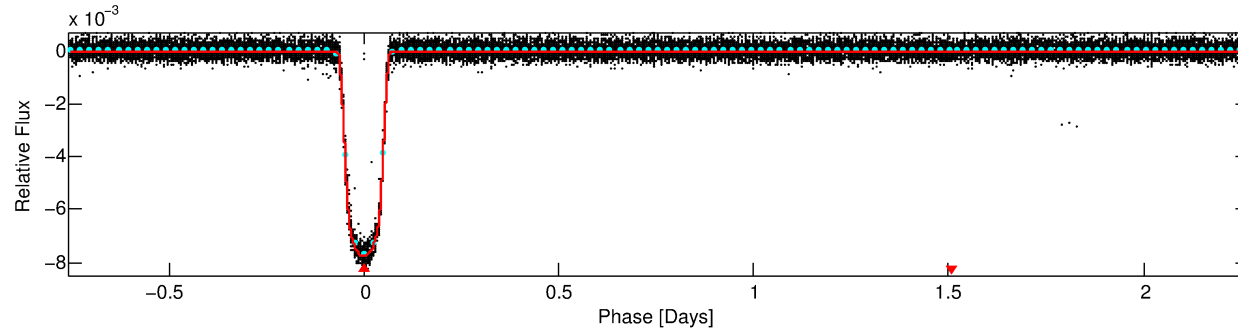
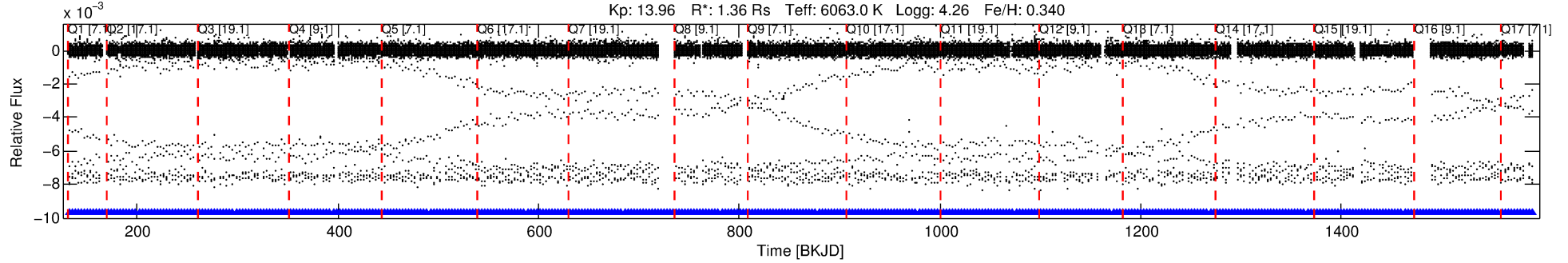
Ephemeris Match Information For 009818381-01

No Significant Match Found

DV One-Page Summary

KIC: 9818381 Candidate: 1 of 1 Period: 3.024 d
KOI: K00135.01 Name: Kepler-43b Corr: 0.969

Kp: 13.96 R*: 1.36 Rs Teff: 6063.0 K Logg: 4.26 Fe/H: 0.340



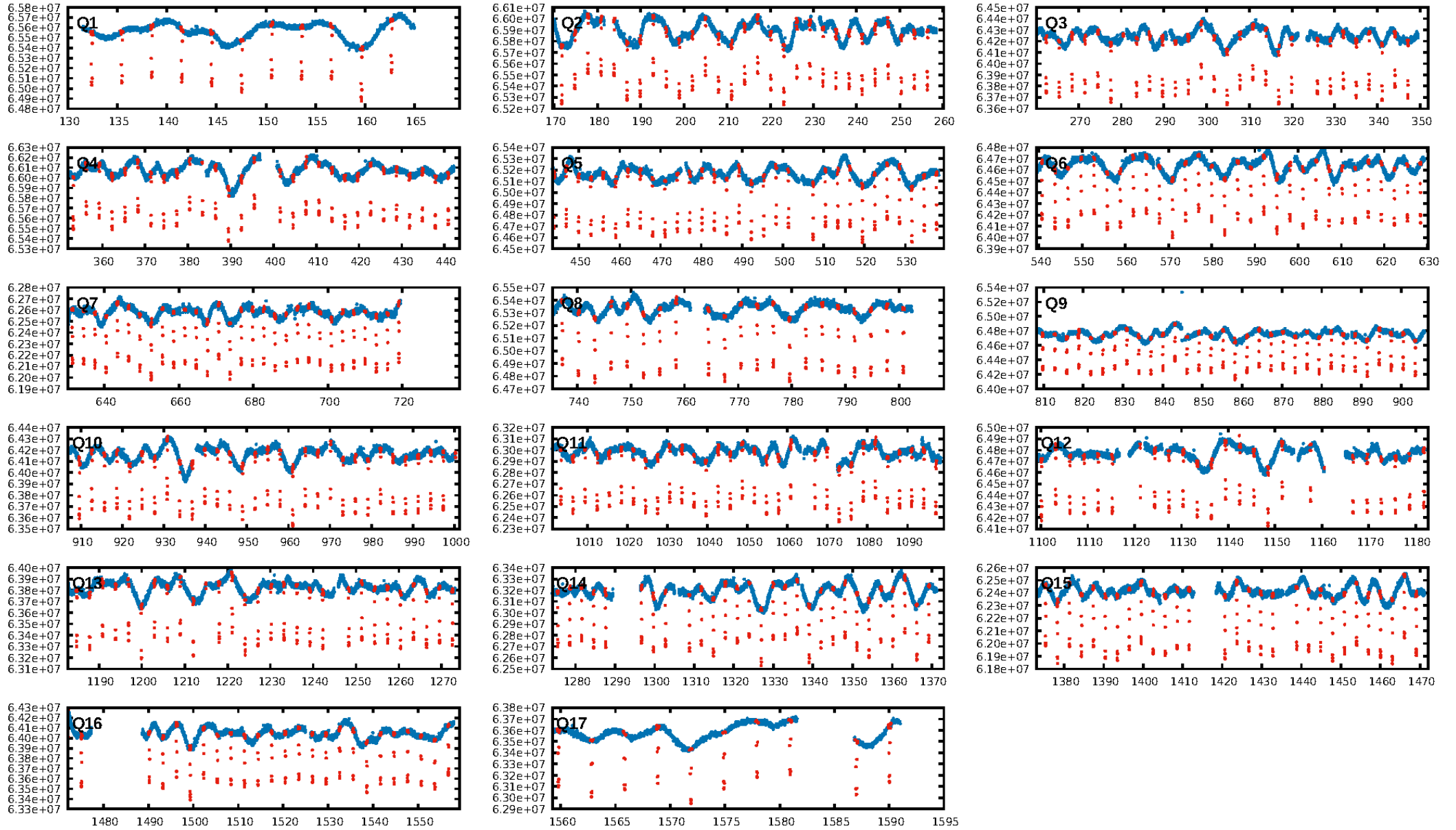
DV Fit Results:

Period = 3.02409 [0.00000] d
Epoch = 132.4167 [0.0000] BKJD
Rp/R* = 0.0855 [0.0002]
a/R* = 6.90 [0.05]
b = 0.66 [0.01]
Seff = 1162.66 [160.42]
Teff = 1489 [51] K
Rp = 12.67 [1.00] Re
a = 0.0438 [0.0030] AU
Ag = 0.17 [0.04] [-20.09σ]
Teffp = 1471 [91] K [-0.17σ]

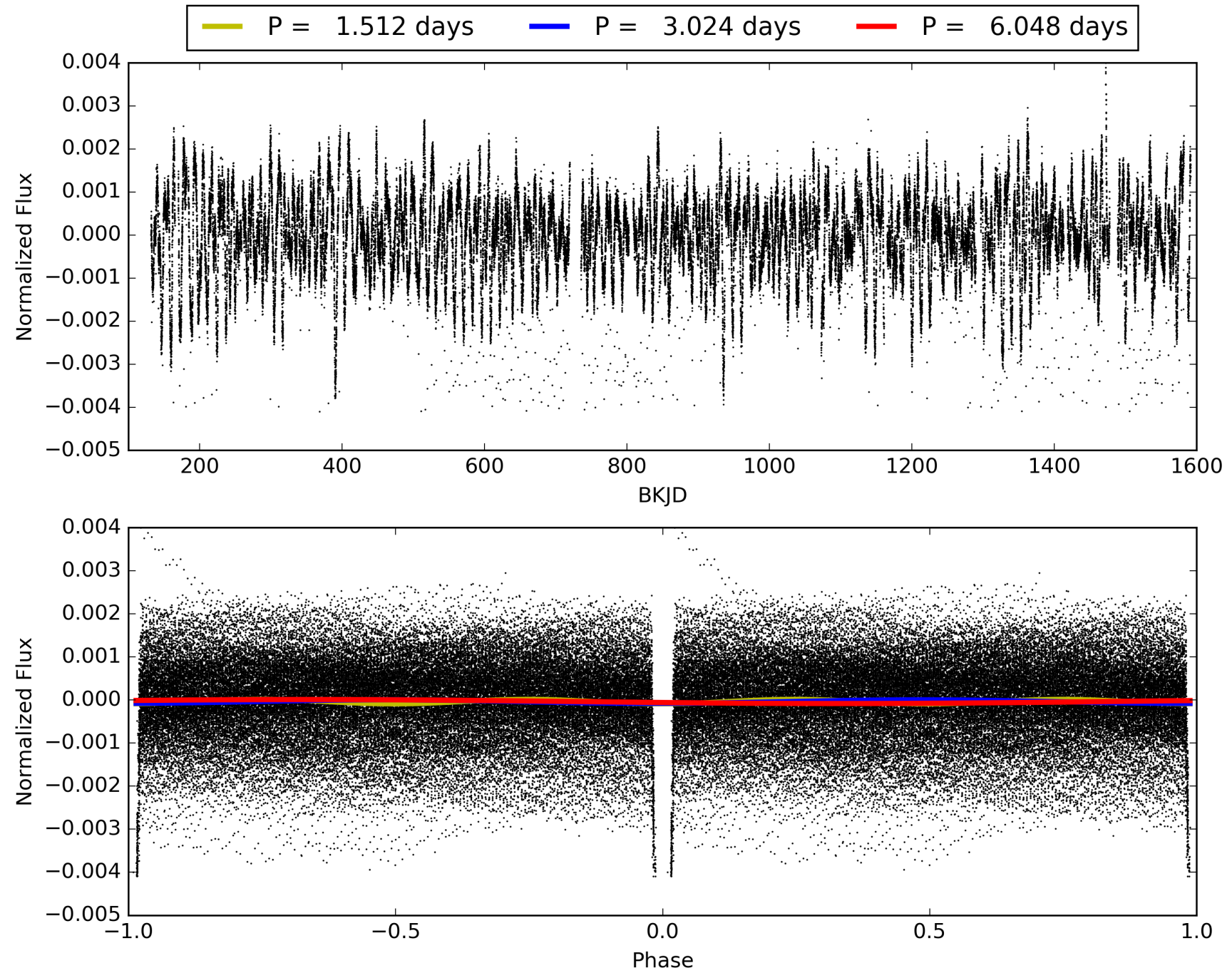
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [425/425]
GhostDiagnostic-chr: 6.526
Centroid-sig: 0.0%
Centroid-so: 0.049 arcsec [6.96σ]
OotOffset-rm: 0.011 arcsec [0.17σ]
KicOffset-rm: 0.015 arcsec [0.21σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009818381-01, PDC Light Curves

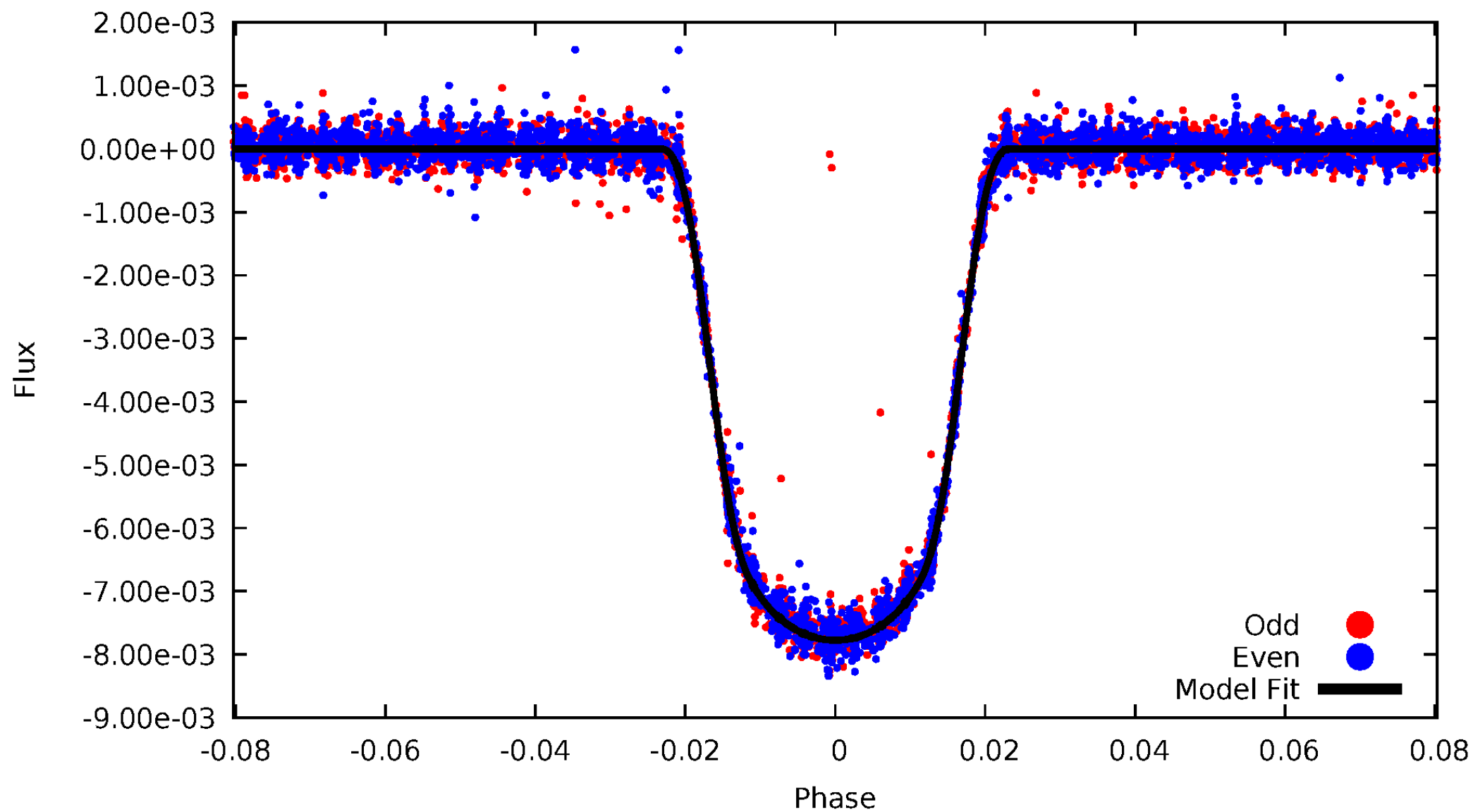


TCE 009818381-01



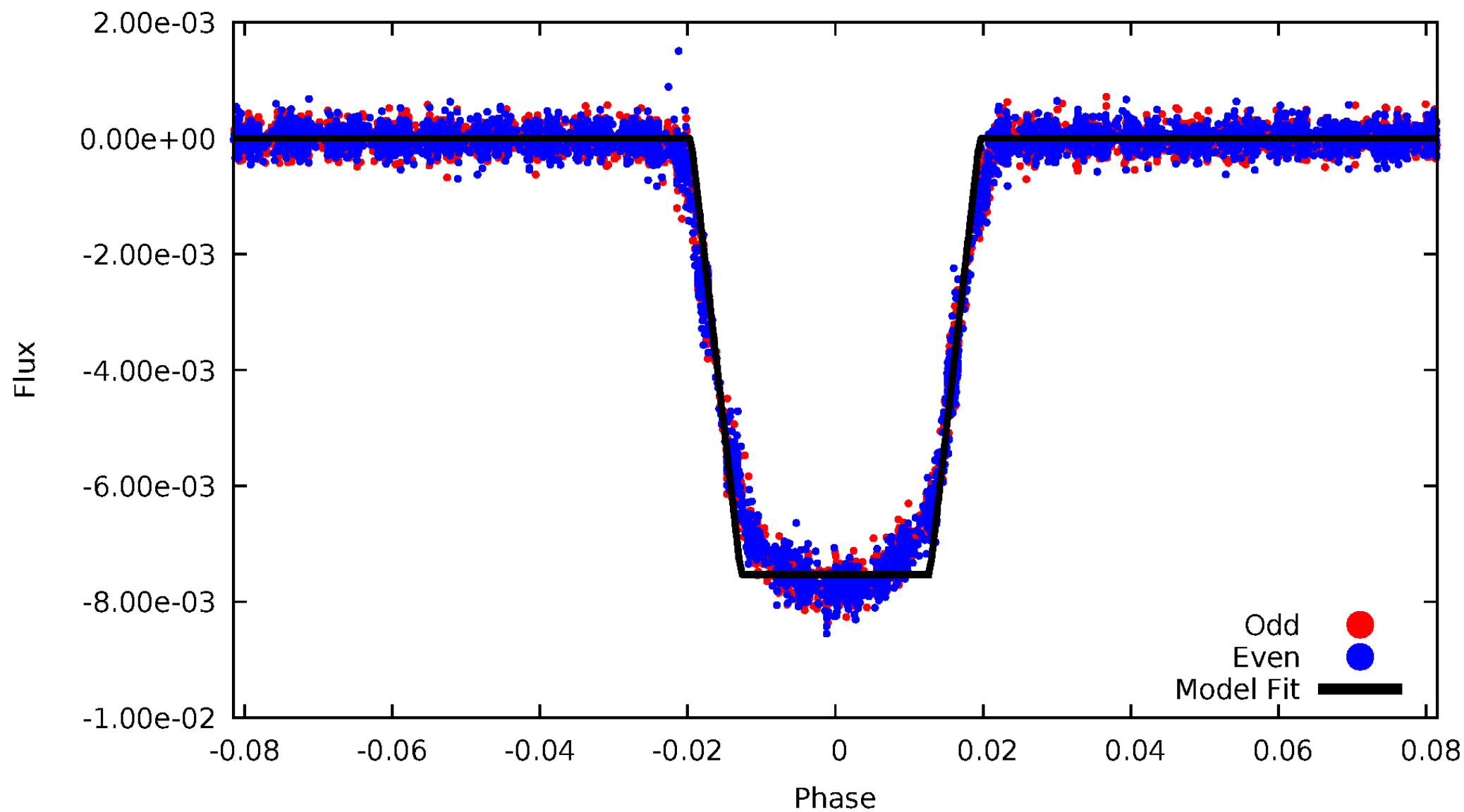
DV Odd/Even

TCE 009818381-01



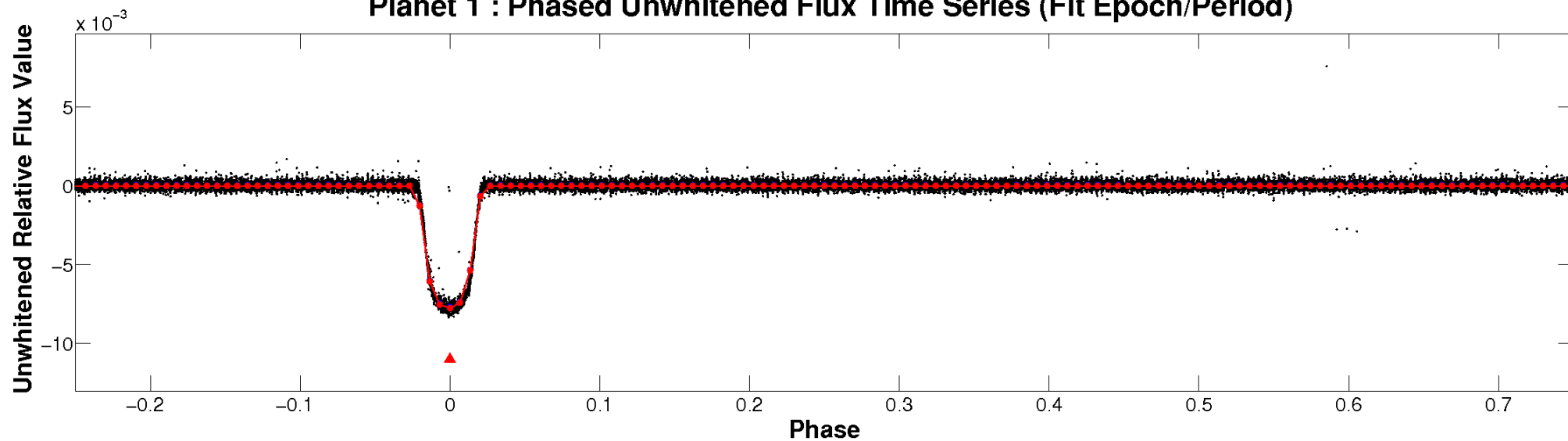
ALT Odd/Even

TCE 009818381-01

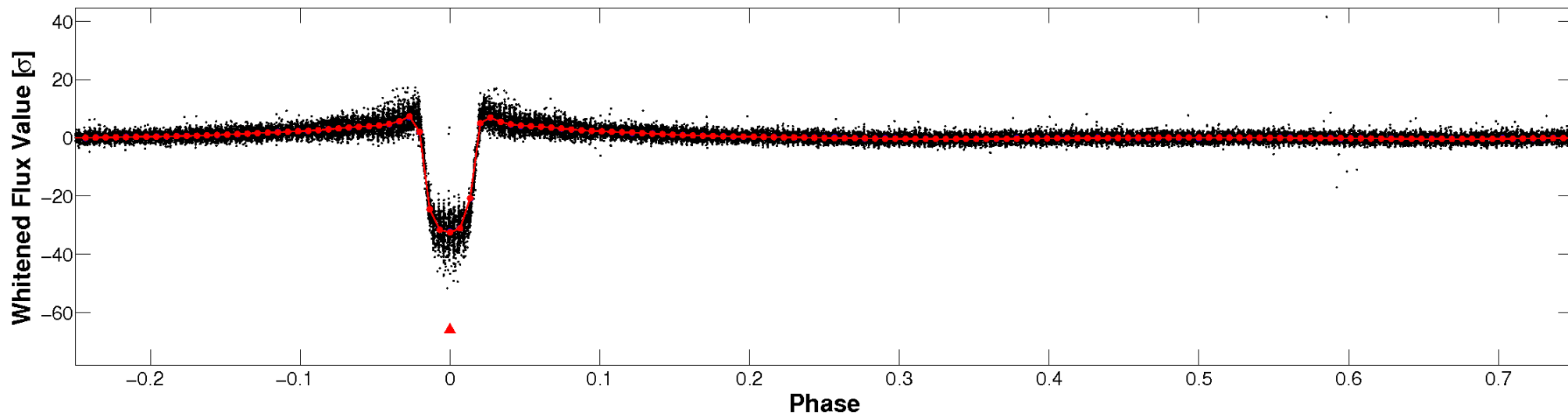


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

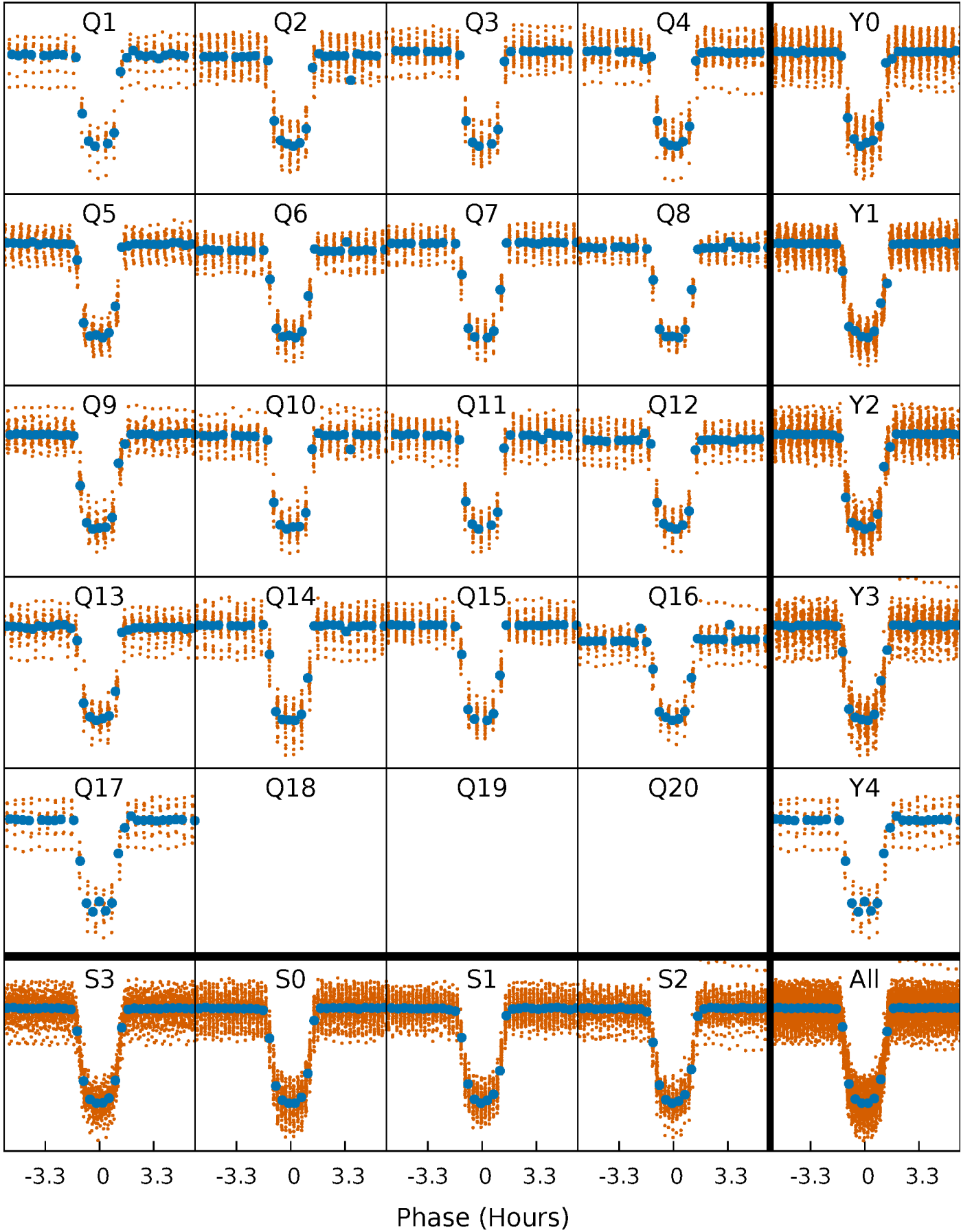


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



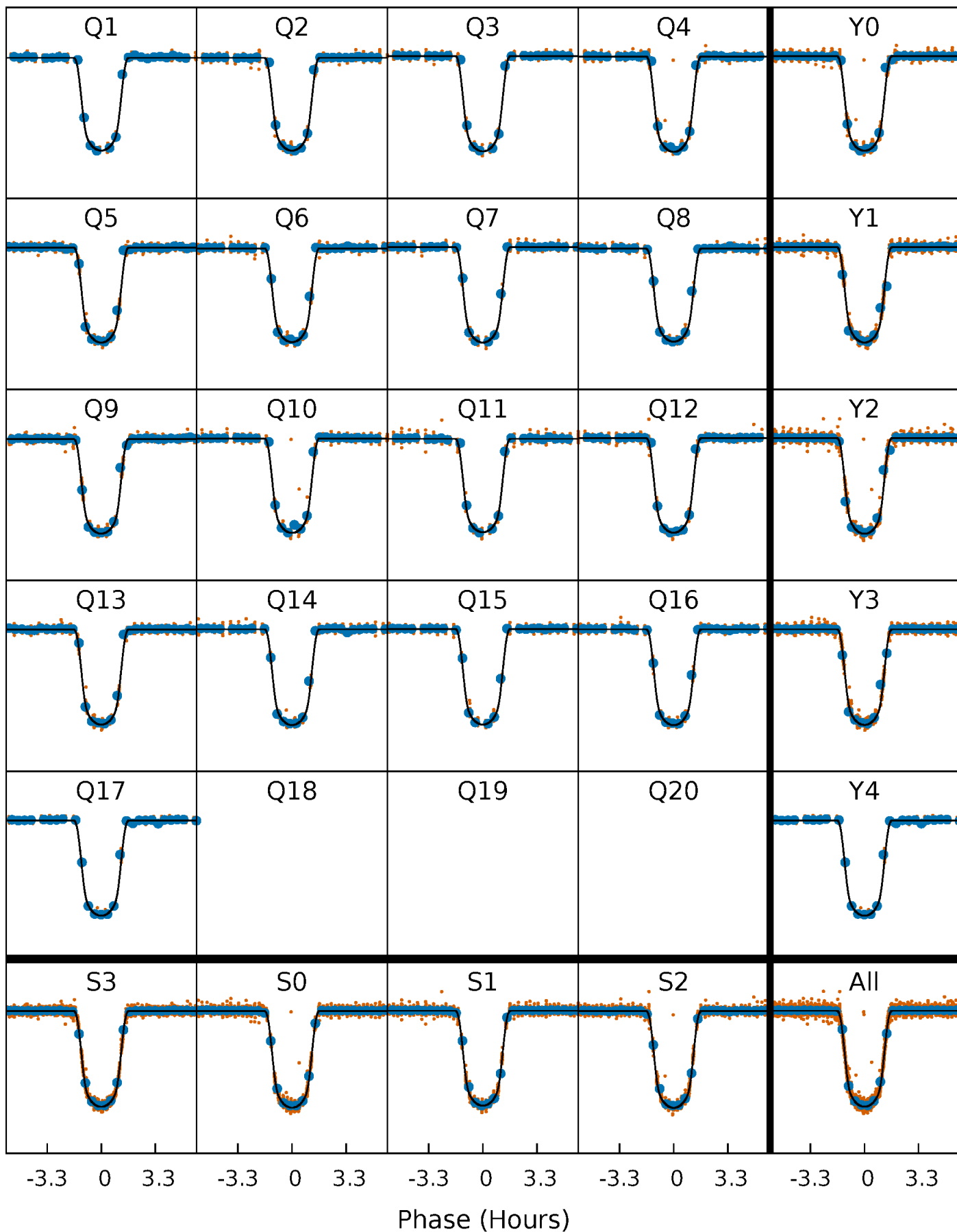
PDC Quarter-Phased Transit Curves

TCE 009818381-01 P= 3.024093 Days $T_0=132.416730$ (BKJD)



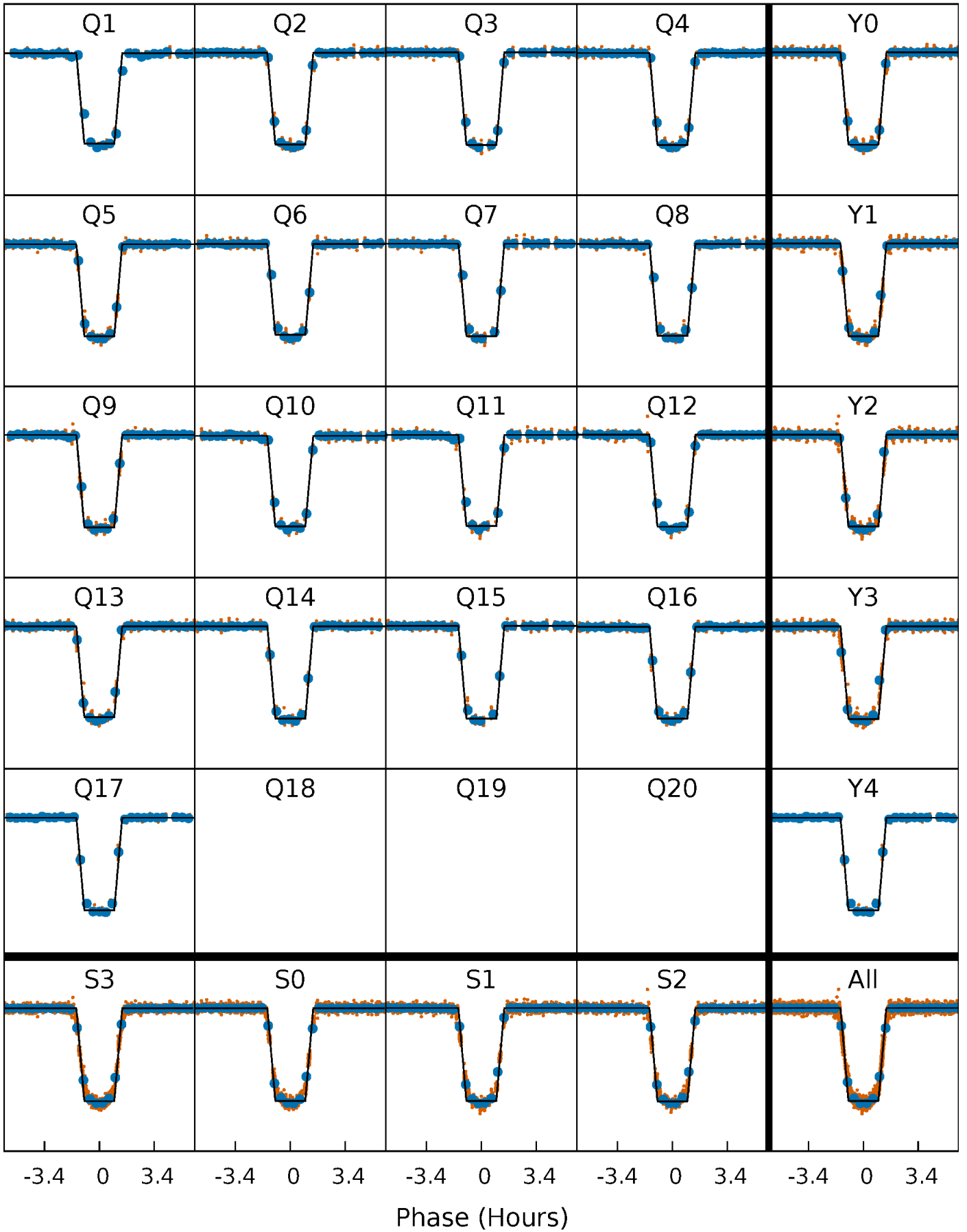
DV Quarter-Phased Transit Curves

TCE 009818381-01 P= 3.024093 Days $T_0=132.416730$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

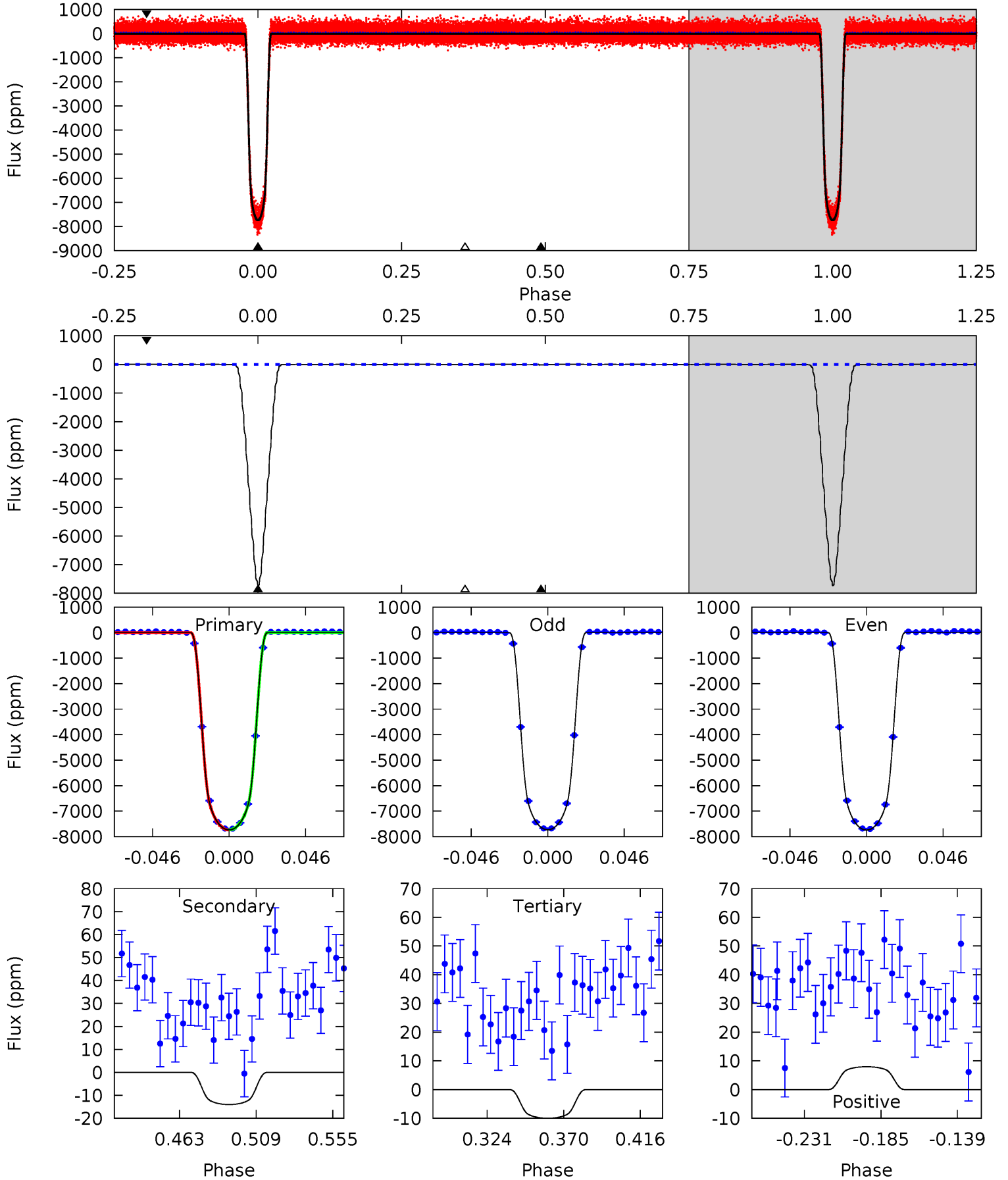
TCE 009818381-01 P= 3.024103 Days $T_0=132.414353$ (BKJD)



DV Model-Shift Uniqueness Test

009818381-01, P = 3.024093 Days, E = 129.392637 Days

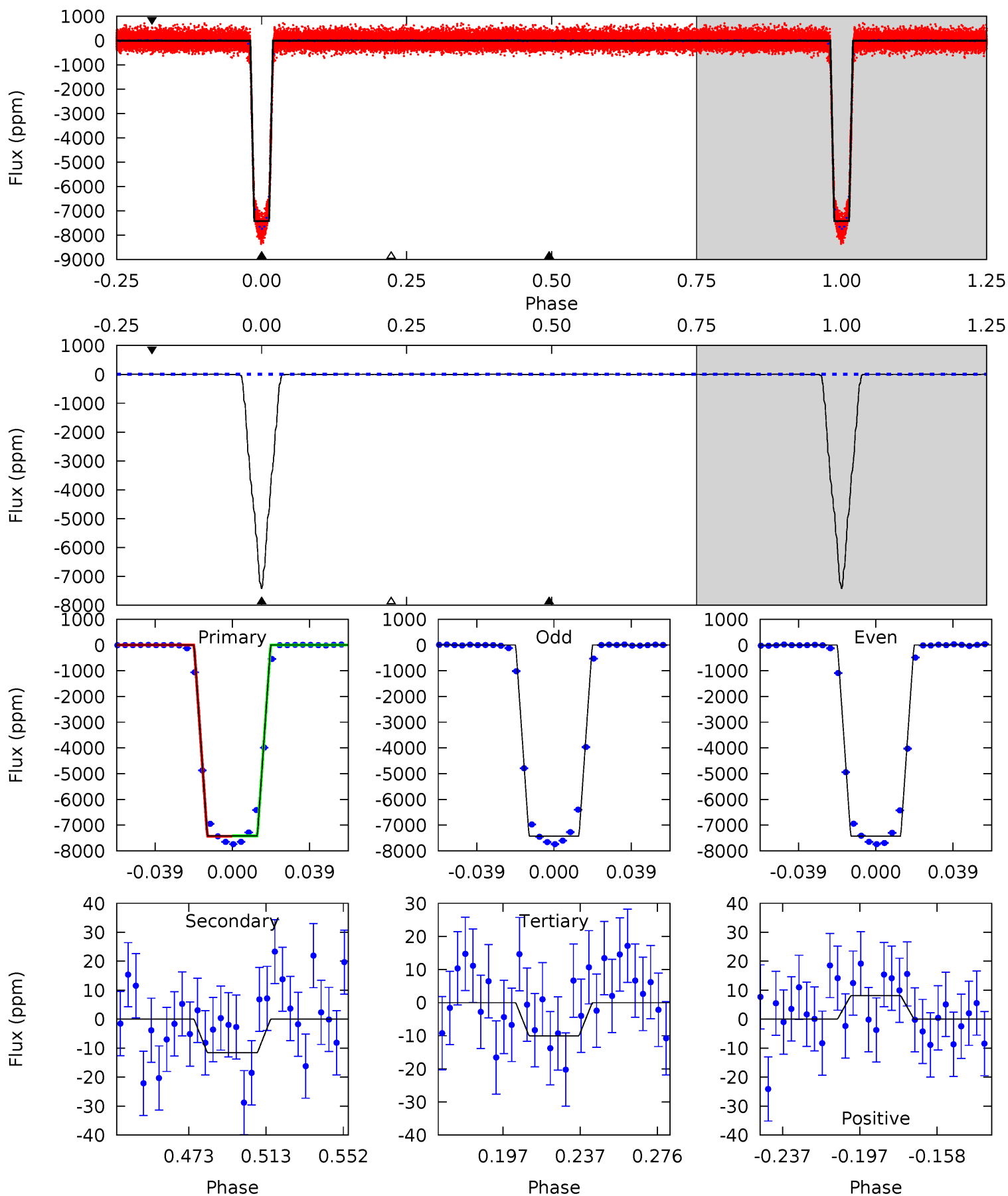
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2325	4.21	3.00	2.39	4.72	1.99	1.40	2322	2322	1.21	1.82	1.35	1.00	0.00	0.91



Alt Model-Shift Uniqueness Test

009818381-01, P = 3.024103 Days, E = 129.390250 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2031	3.17	2.74	2.21	4.76	2.06	1.06	2028	2029	0.43	0.96	0.61	1.00	0.00	1.60



Stellar Parameters For KIC 009818381

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6063^{+108}_{-145}	$4.261^{+0.055}_{-0.045}$	$0.340^{+0.100}_{-0.150}$	$1.358^{+0.088}_{-0.107}$	$1.227^{+0.050}_{-0.082}$	$0.691^{+0.155}_{-0.106}$
	+2%/-2%	+1%/-1%	+29%/-44%	+6%/-8%	+4%/-7%	+22%/-15%
Source	SPE42	TRA42	SPE42	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009818381-01 / KOI 0135.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-14 ± 3	$12.68^{+0.48}_{-0.59}$	2073^{+60}_{-59}	-2430^{+52}_{-48}	$0.092^{+0.023}_{-0.023}$
Alt.	-12 ± 4	$12.85^{+0.47}_{-0.53}$	2077^{+52}_{-61}	-2454^{+50}_{-49}	$0.074^{+0.025}_{-0.025}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

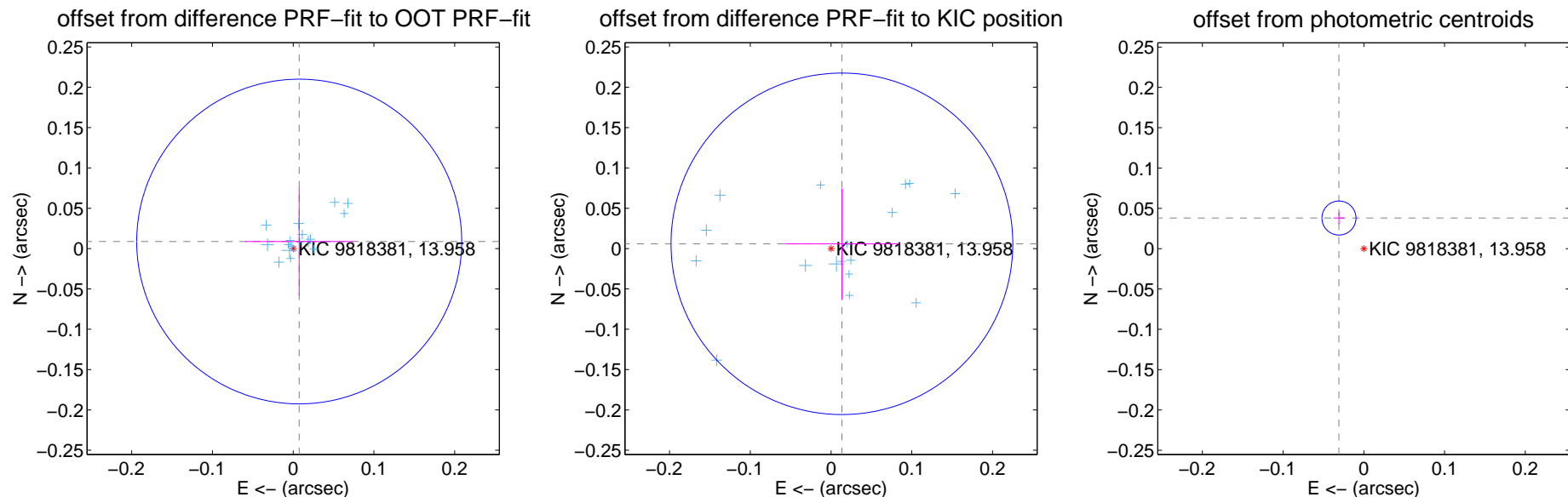
DV Centroid Data

Supplemental centroid analysis for 009818381-01. Kepler magnitude: 13.96. Transit SNR 1346.85

There are 17 quarters with good PRF difference image offsets

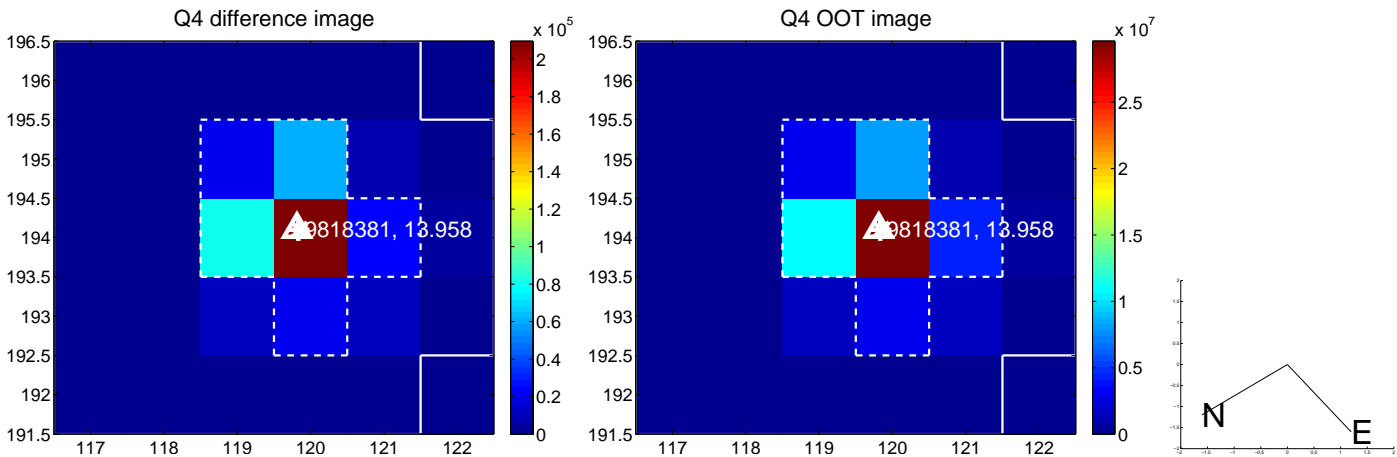
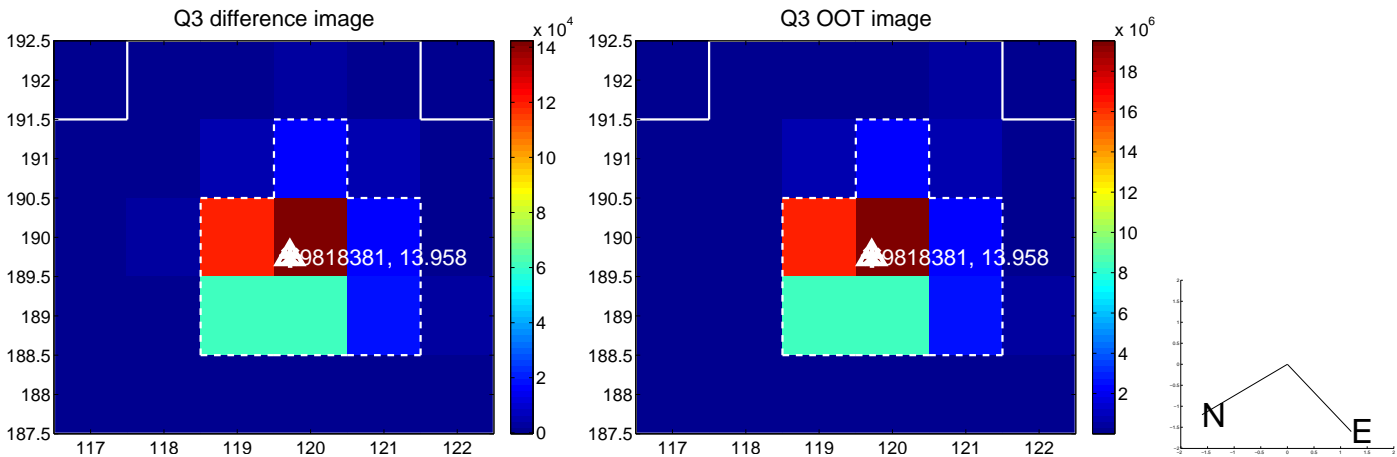
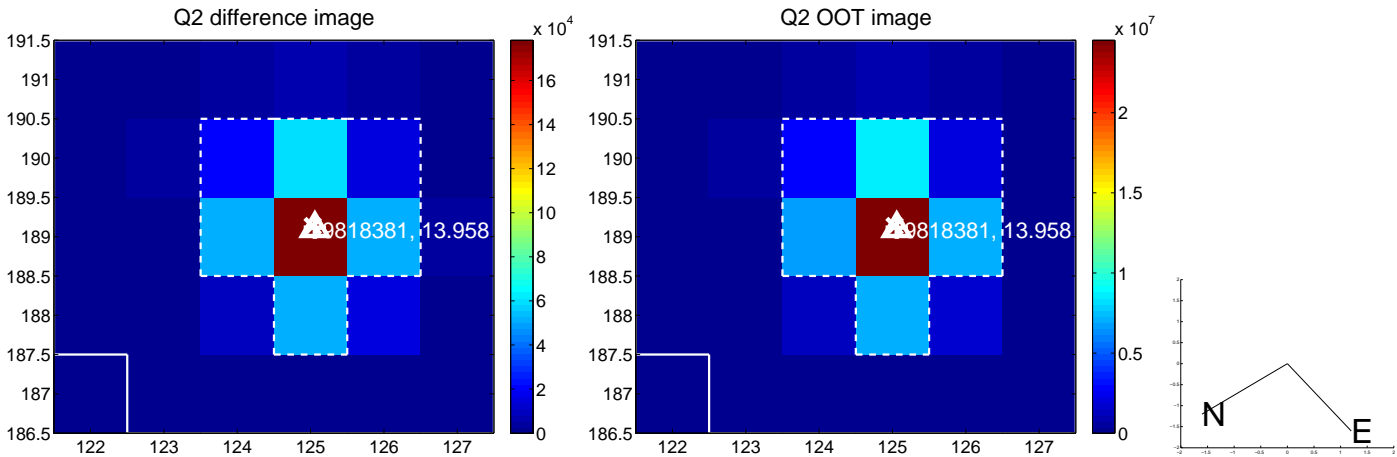
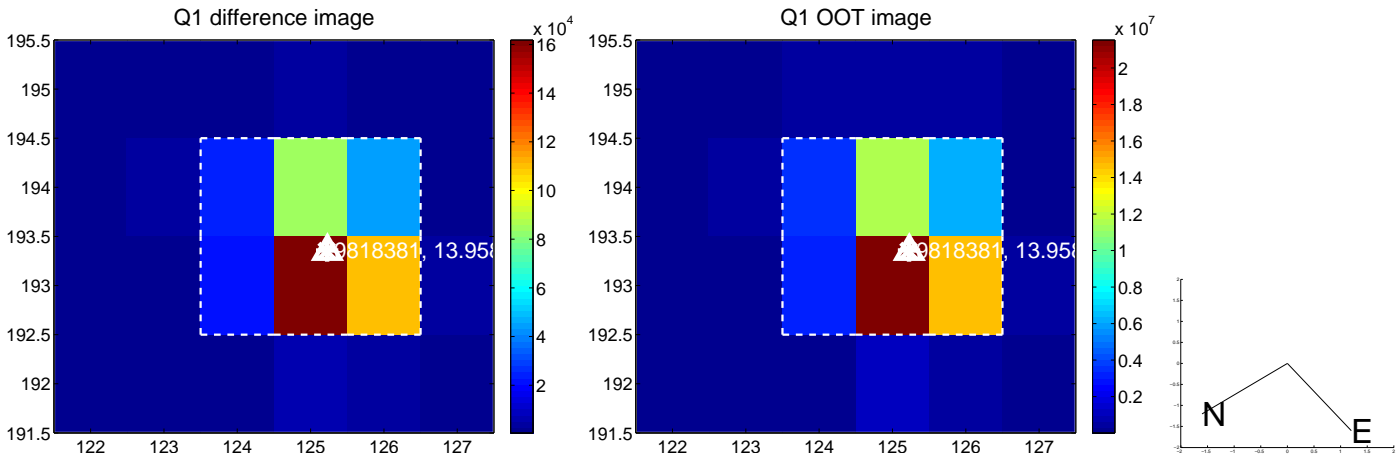
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.011 ± 0.067	0.17	-0.007 ± 0.067	0.009 ± 0.067
PRF-fit source offset from KIC position	0.015 ± 0.071	0.21	-0.013 ± 0.071	0.006 ± 0.068
photometric centroid source offset	0.05 ± 0.01	6.96	0.03 ± 0.01	0.04 ± 0.01

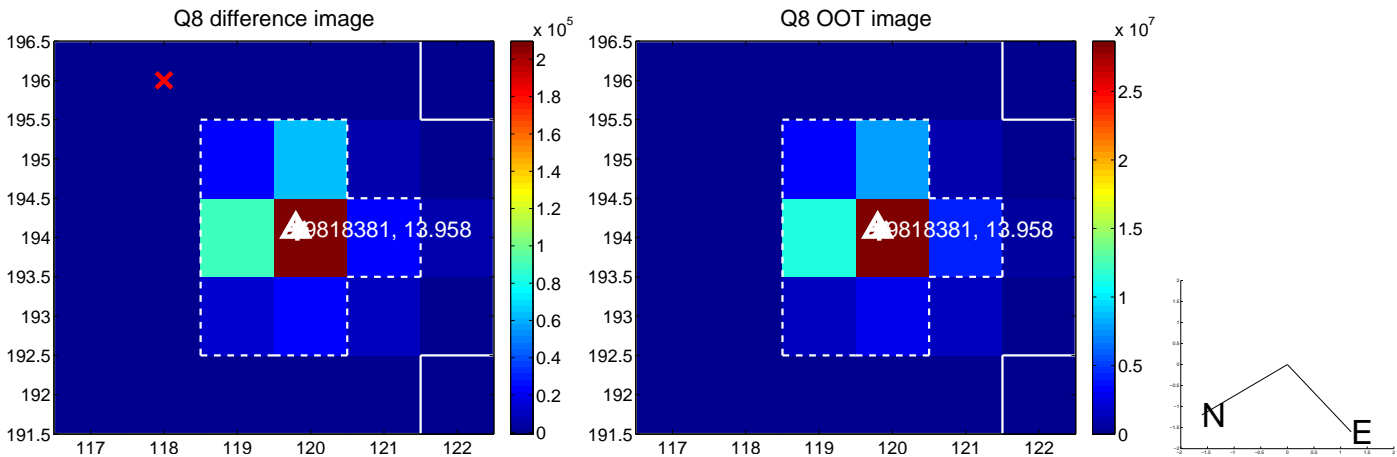
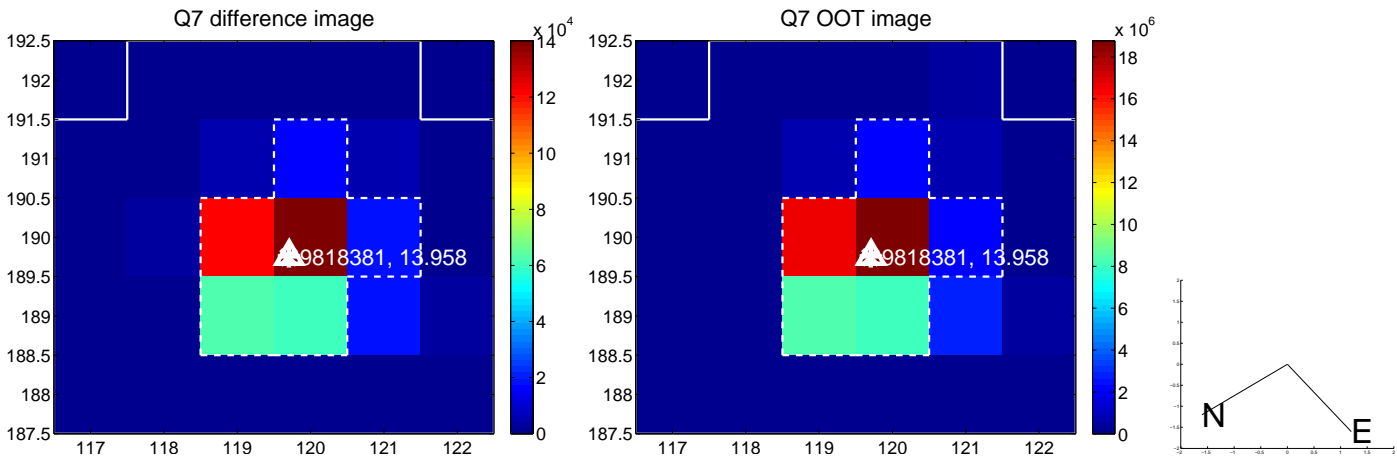
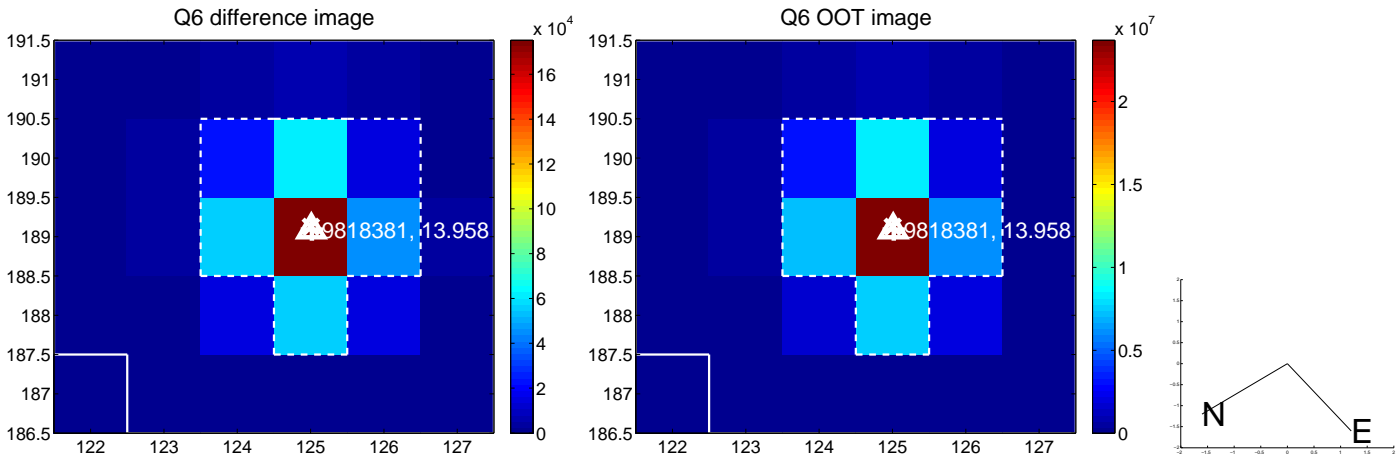
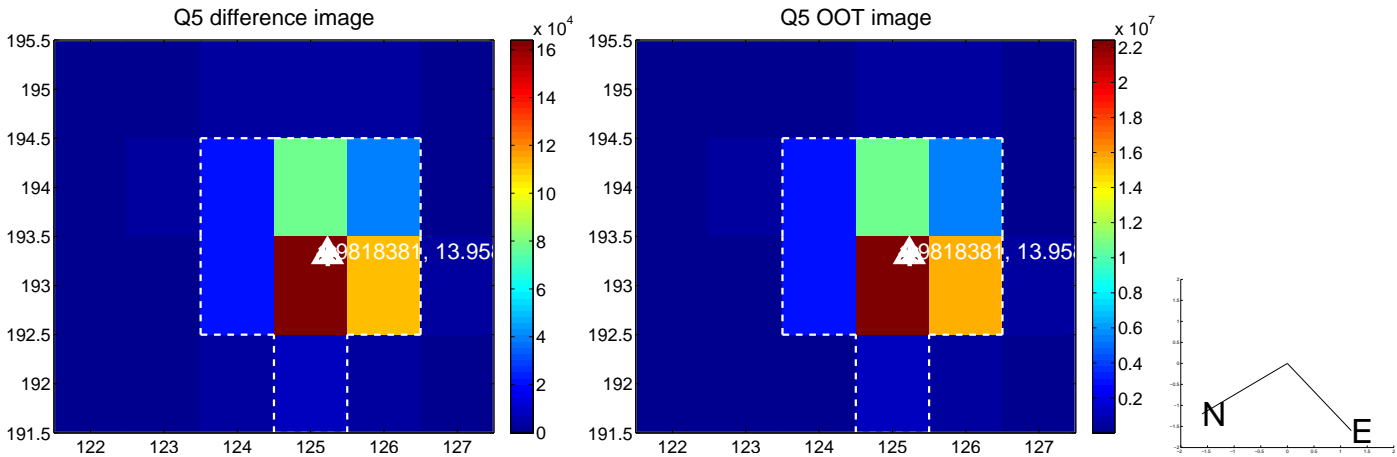


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

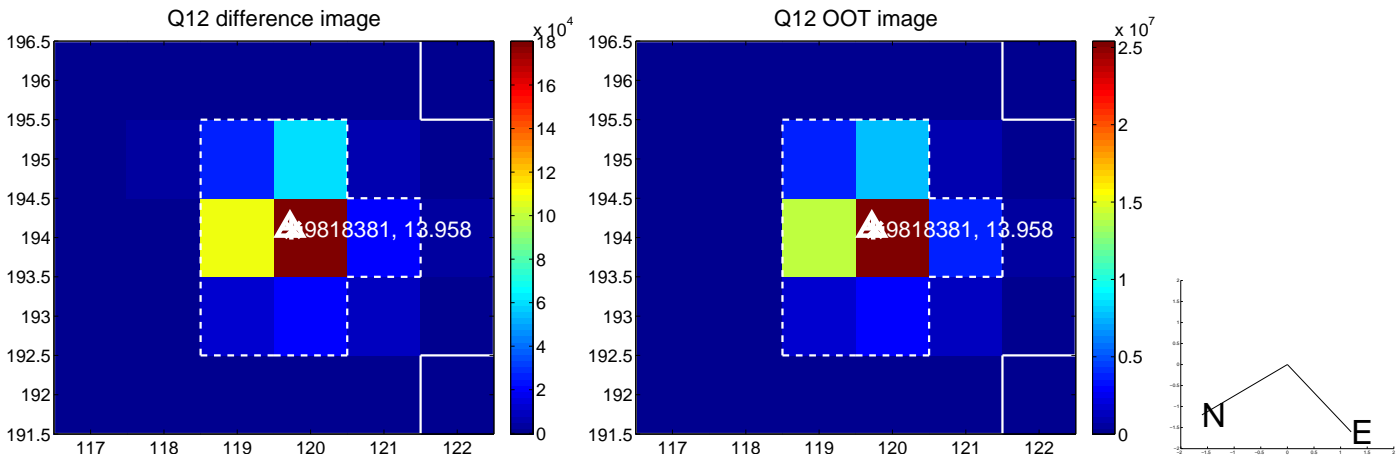
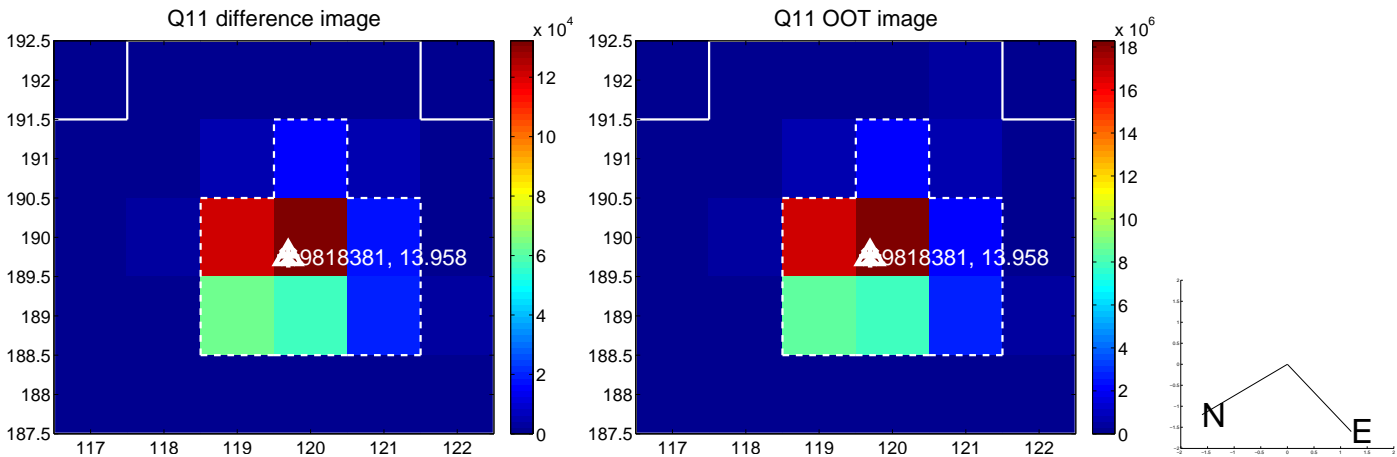
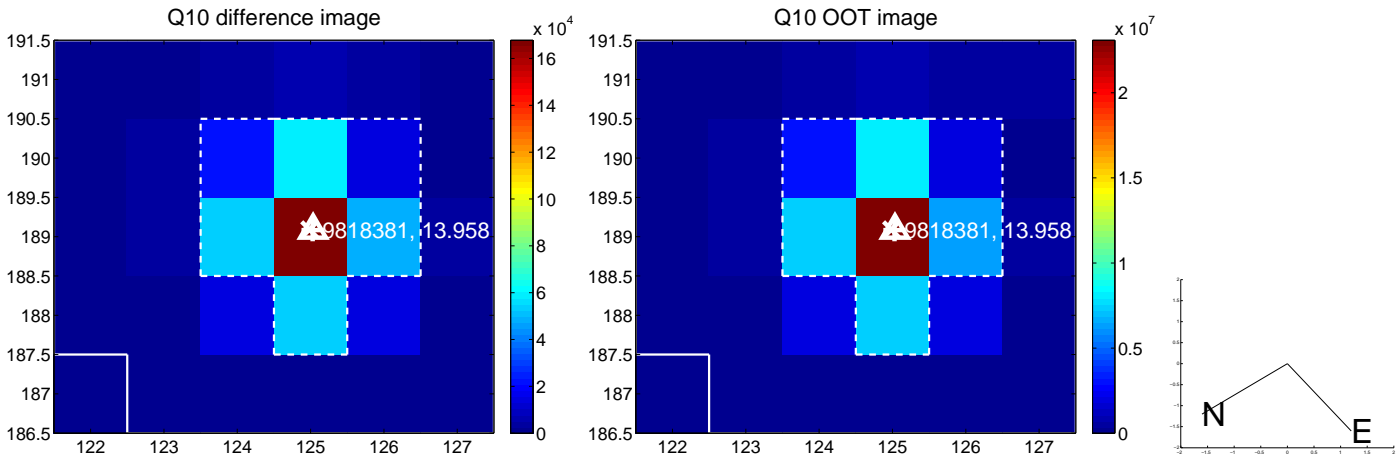
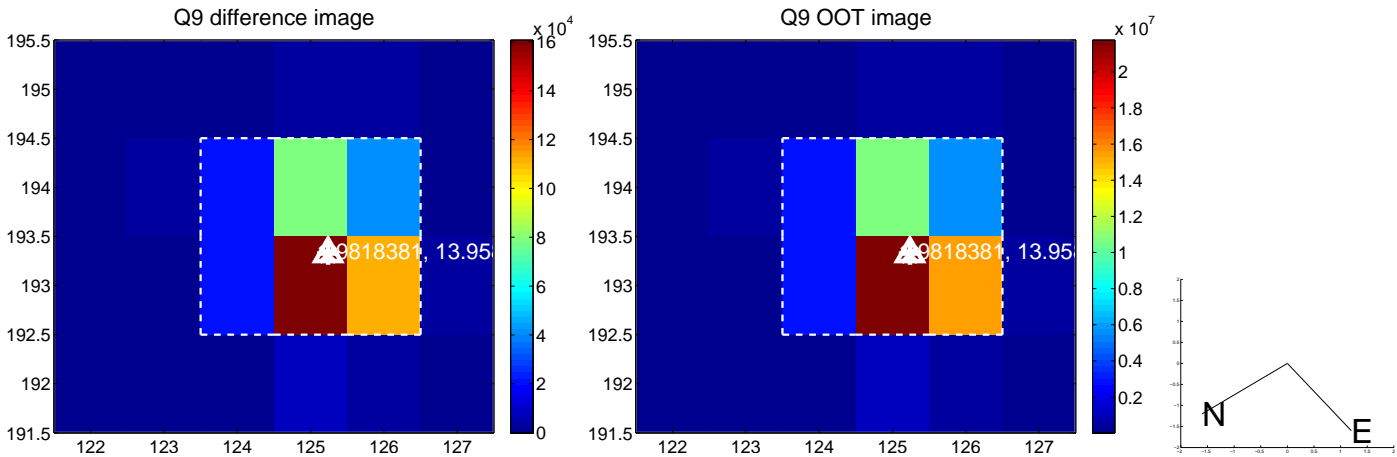
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



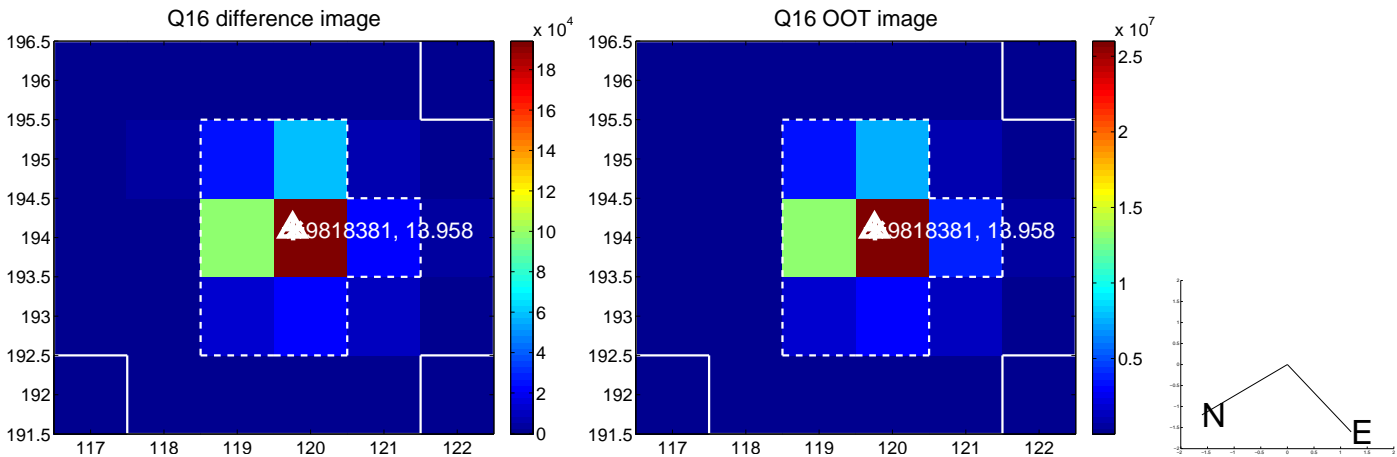
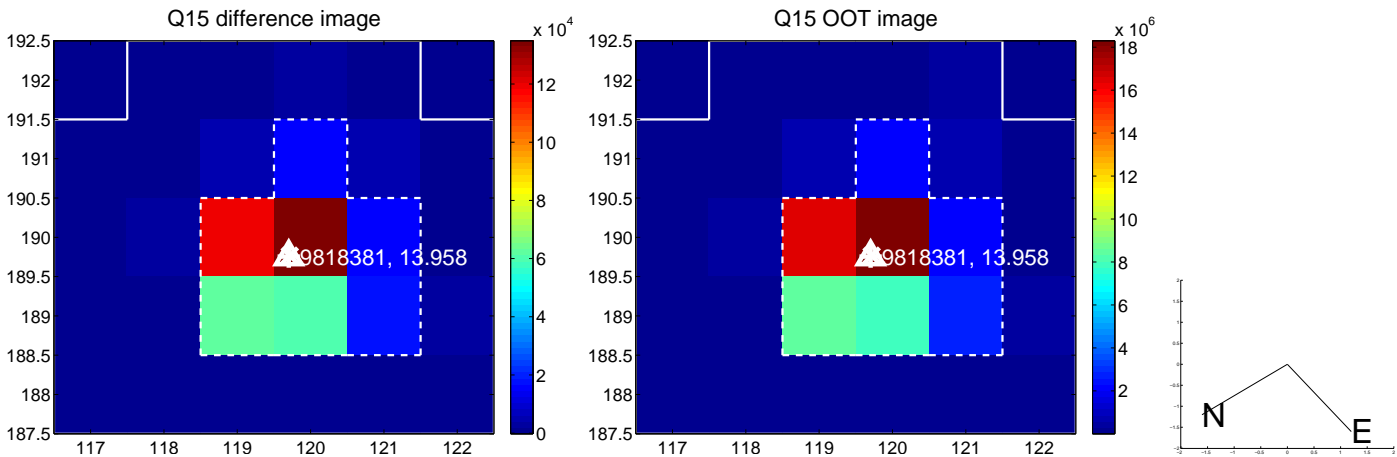
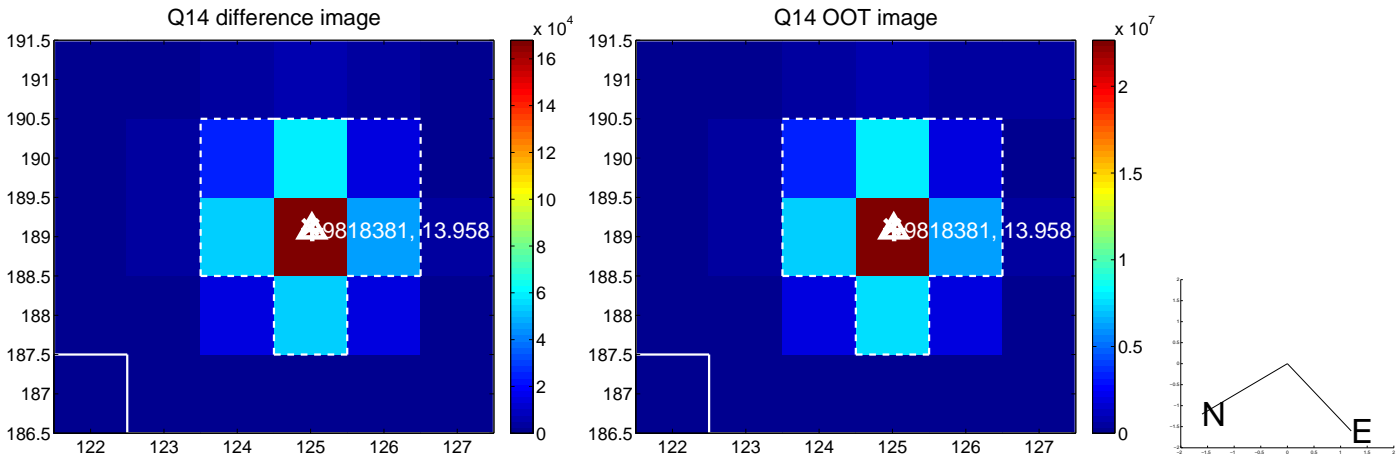
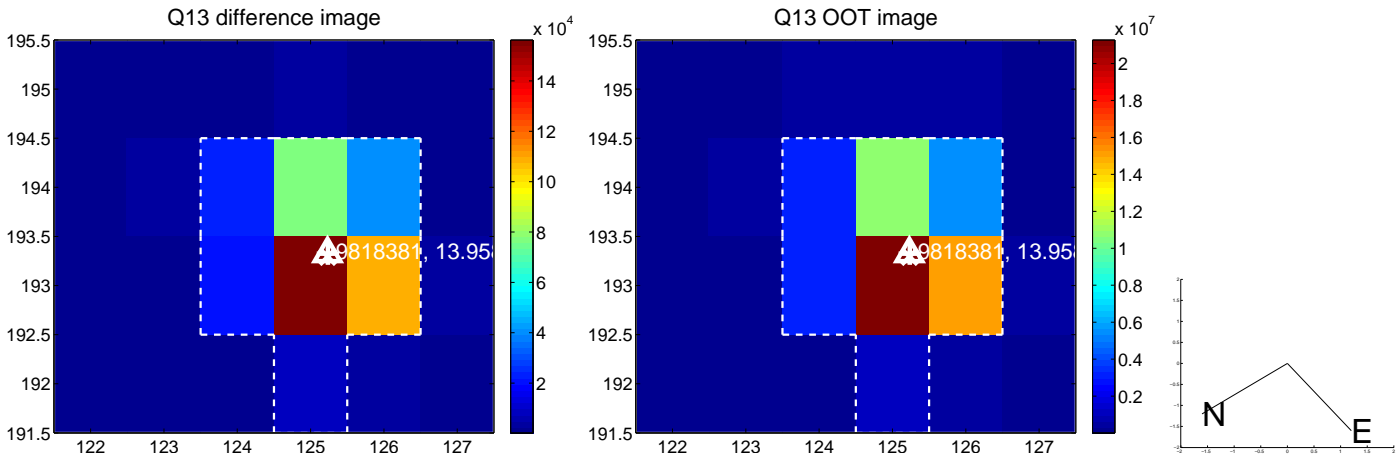
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



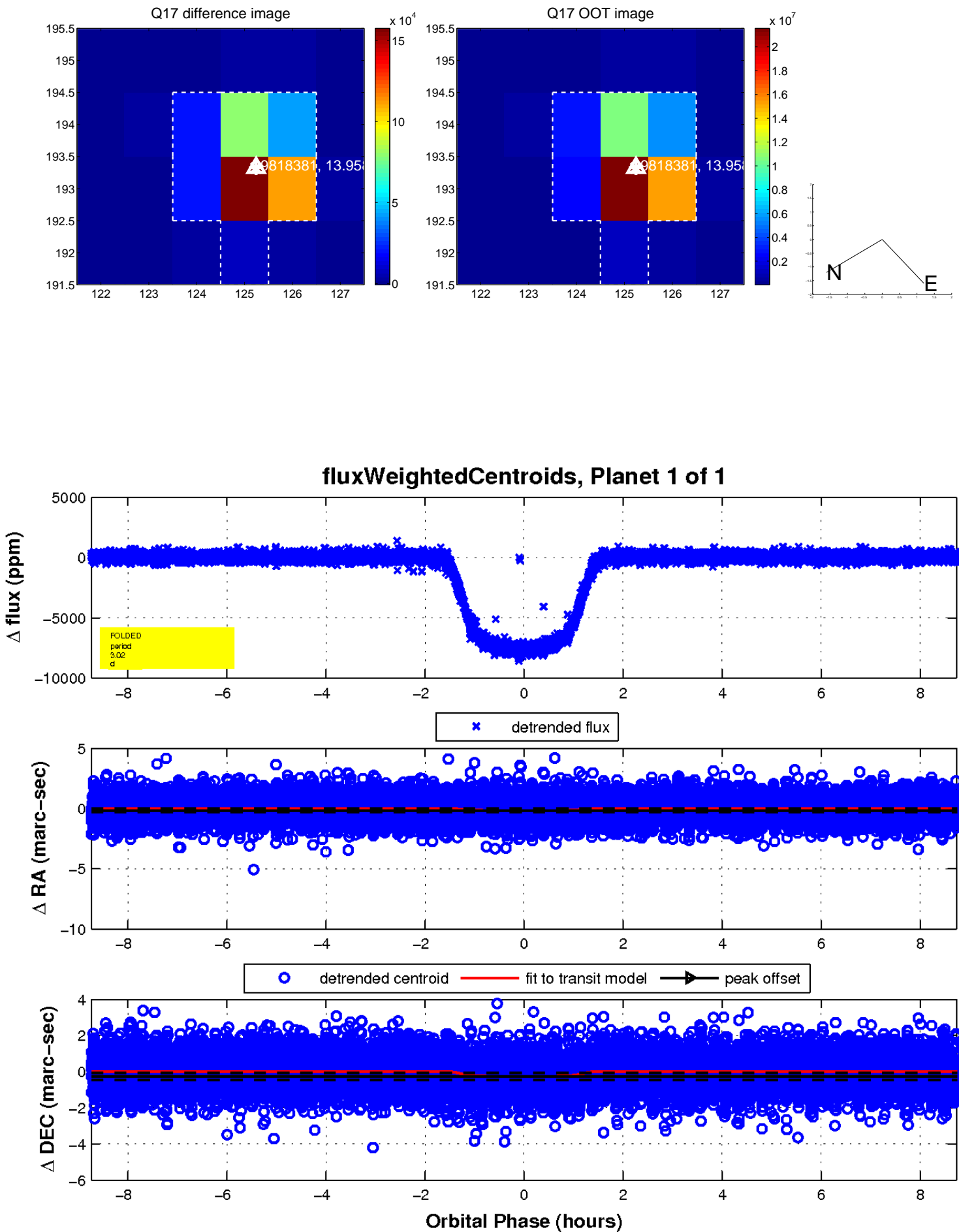
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

