

KIC 012416661

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})
012416661-01	OBS	3122.01	8.053349	134.961407	35.6	5.699	10.7	10.5	2.06	6231	1.45	718.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012416661-01	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 012416661-01

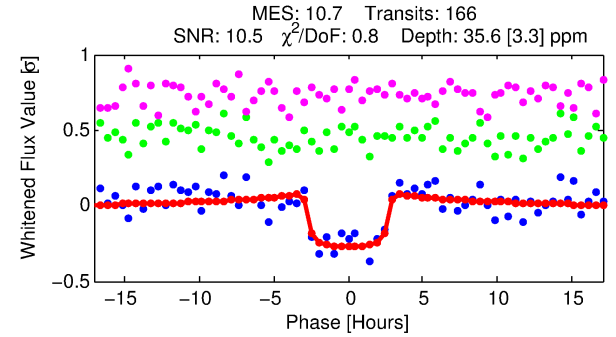
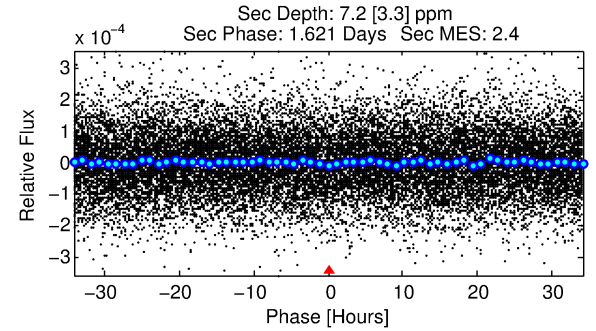
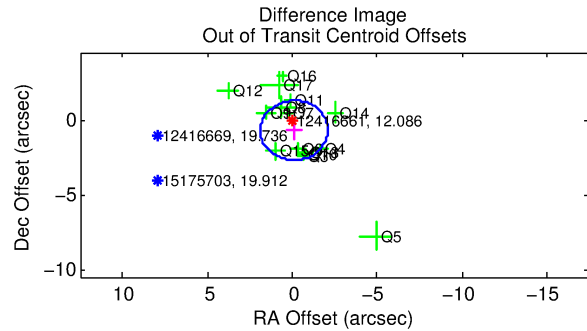
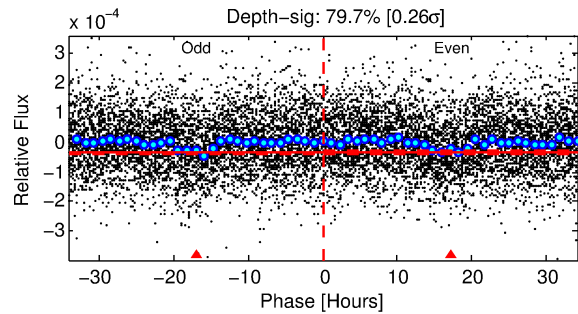
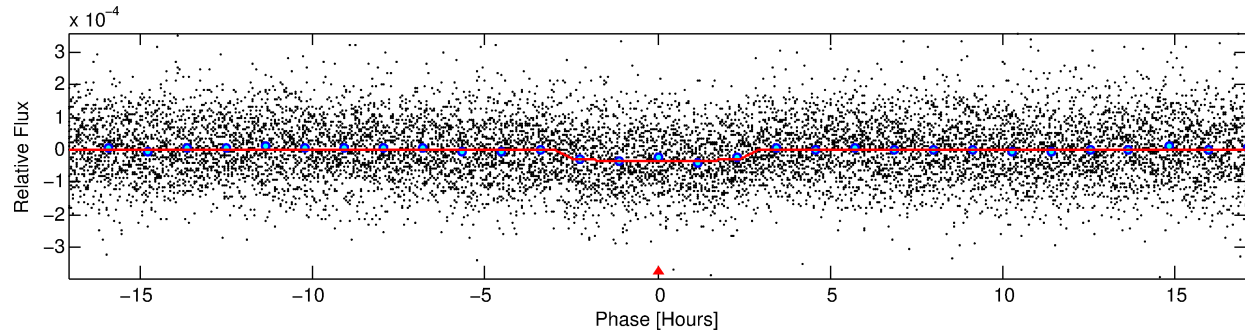
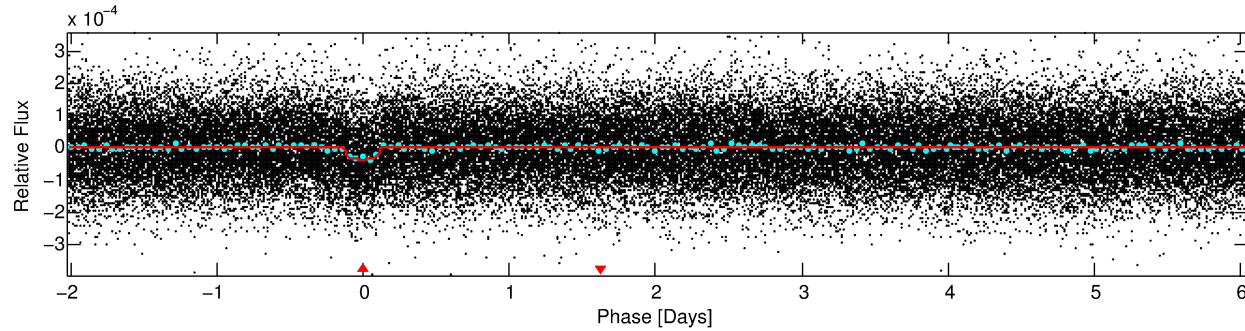
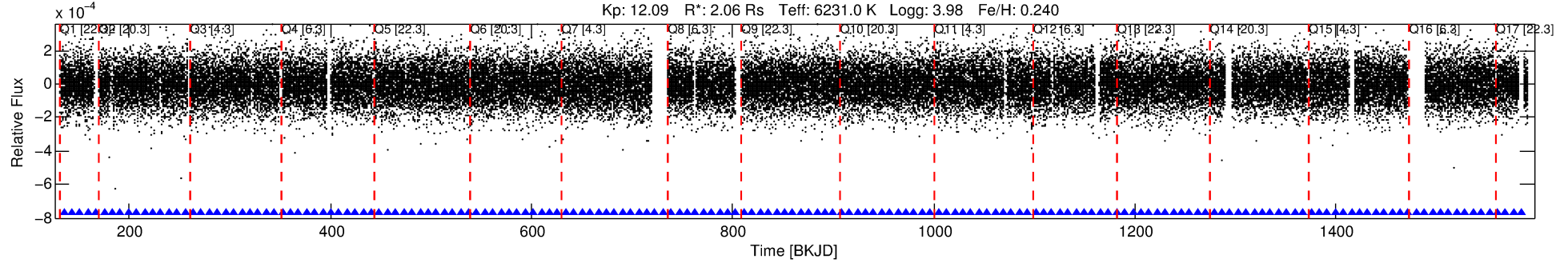
No Significant Match Found

DV One-Page Summary

KIC: 12416661 Candidate: 1 of 1 Period: 8.053 d

KOI: K03122.01 Corr: 0.962

Kp: 12.09 R*: 2.06 Rs Teff: 6231.0 K Logg: 3.98 Fe/H: 0.240



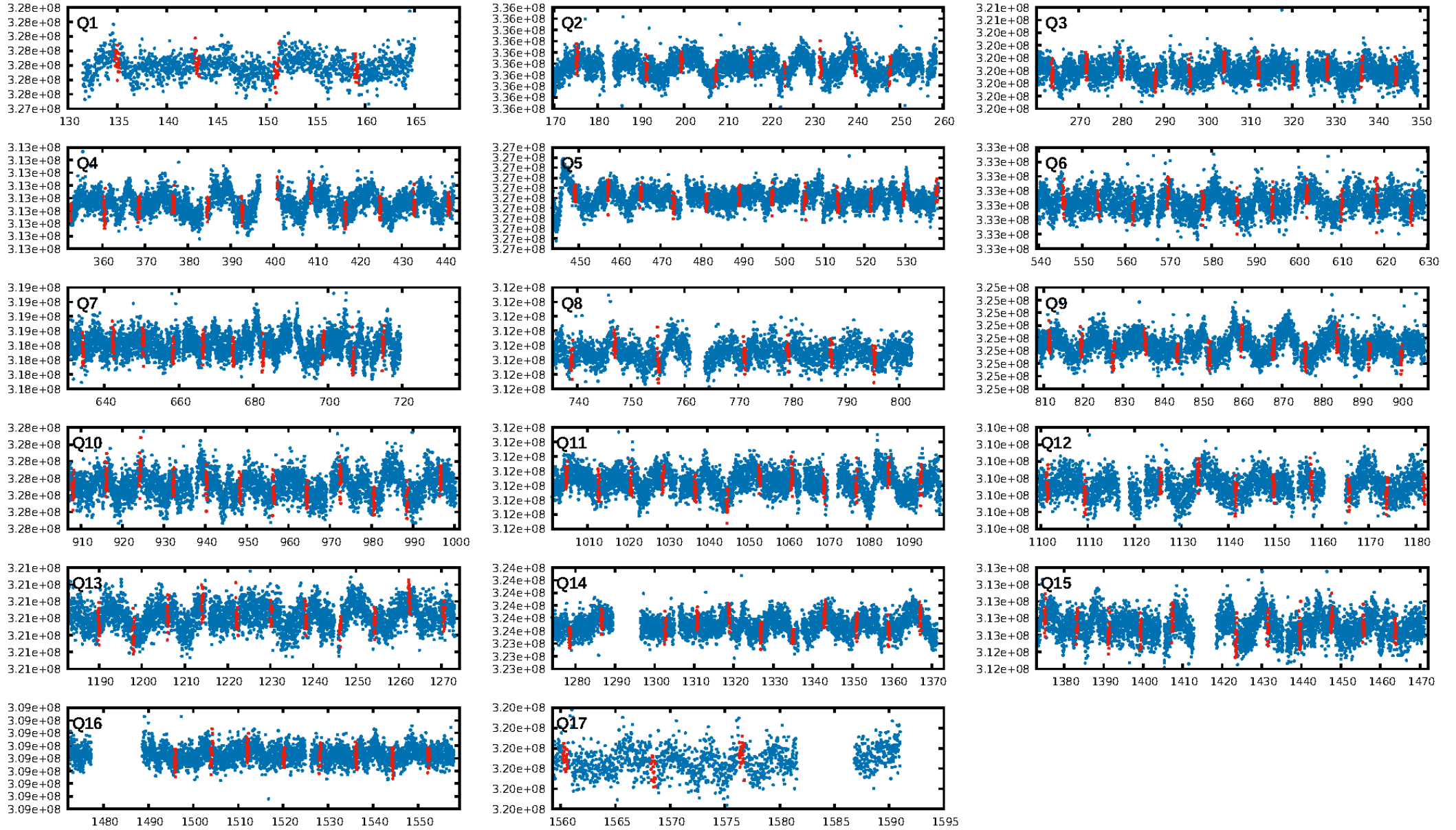
DV Fit Results:

Period = 8.05335 [0.00007] d
Epoch = 134.9614 [0.0072] BKJD
Rp/R* = 0.0064 [0.0020]
a/R* = 4.95 [7.60]
b = 0.90 [0.34]
Seff = 718.92 [240.16]
Teq = 1320 [110] K
Rp = 1.45 [0.57] Re
a = 0.0894 [0.0196] AU
Ag = 15.09 [12.49] [1.13σ]
Teff = 4023 [770] K [3.47σ]

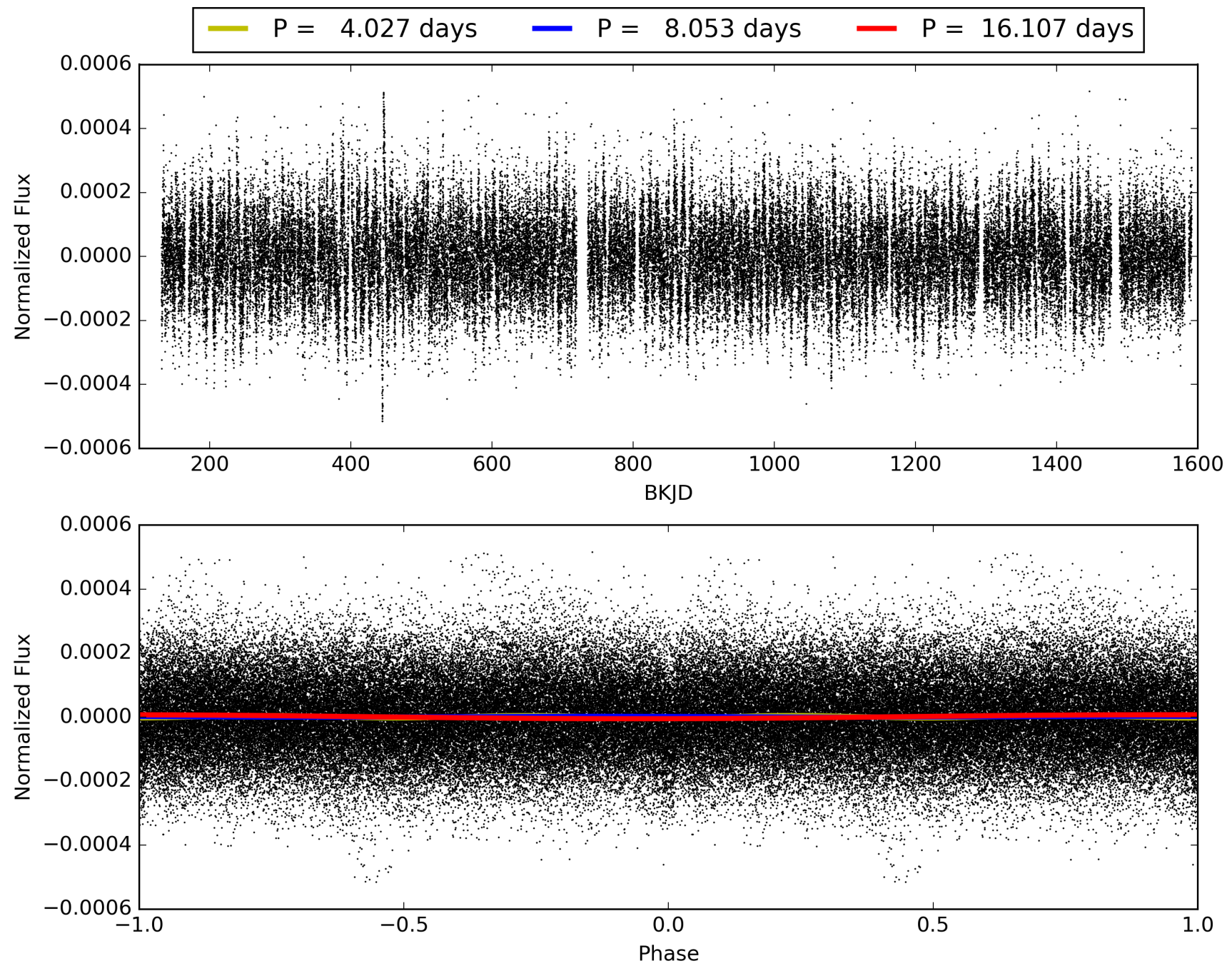
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.44e-26
RollingBand-fgt: 1.00 [159/159]
GhostDiagnostic-chr: 5.064
Centroid-sig: 20.6%
Centroid-so: 1.143 arcsec [0.99σ]
OotOffset-rm: 0.714 arcsec [1.08σ]
KicOffset-rm: 0.575 arcsec [0.94σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.75 [12/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 012416661-01, PDC Light Curves

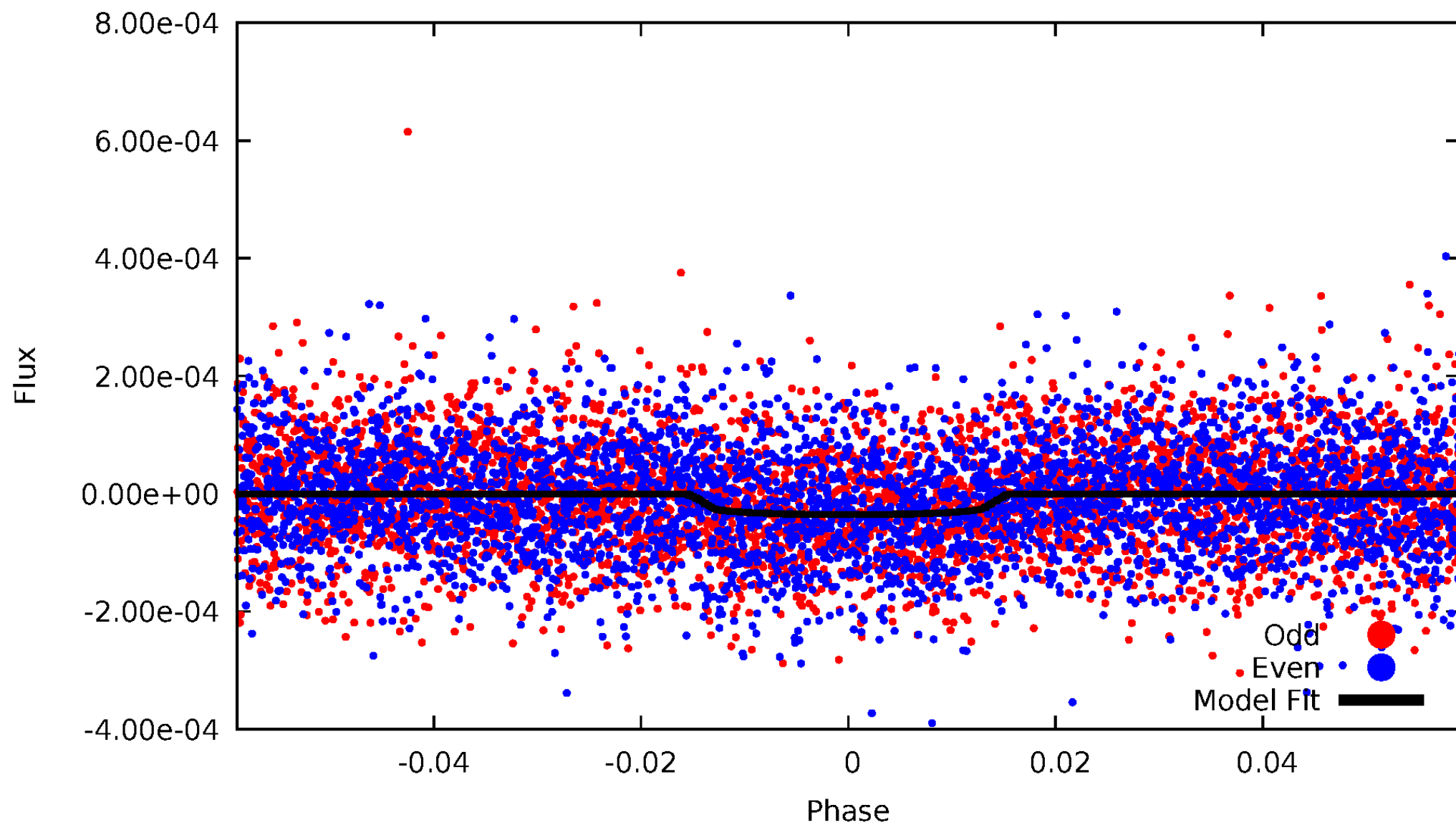


TCE 012416661-01



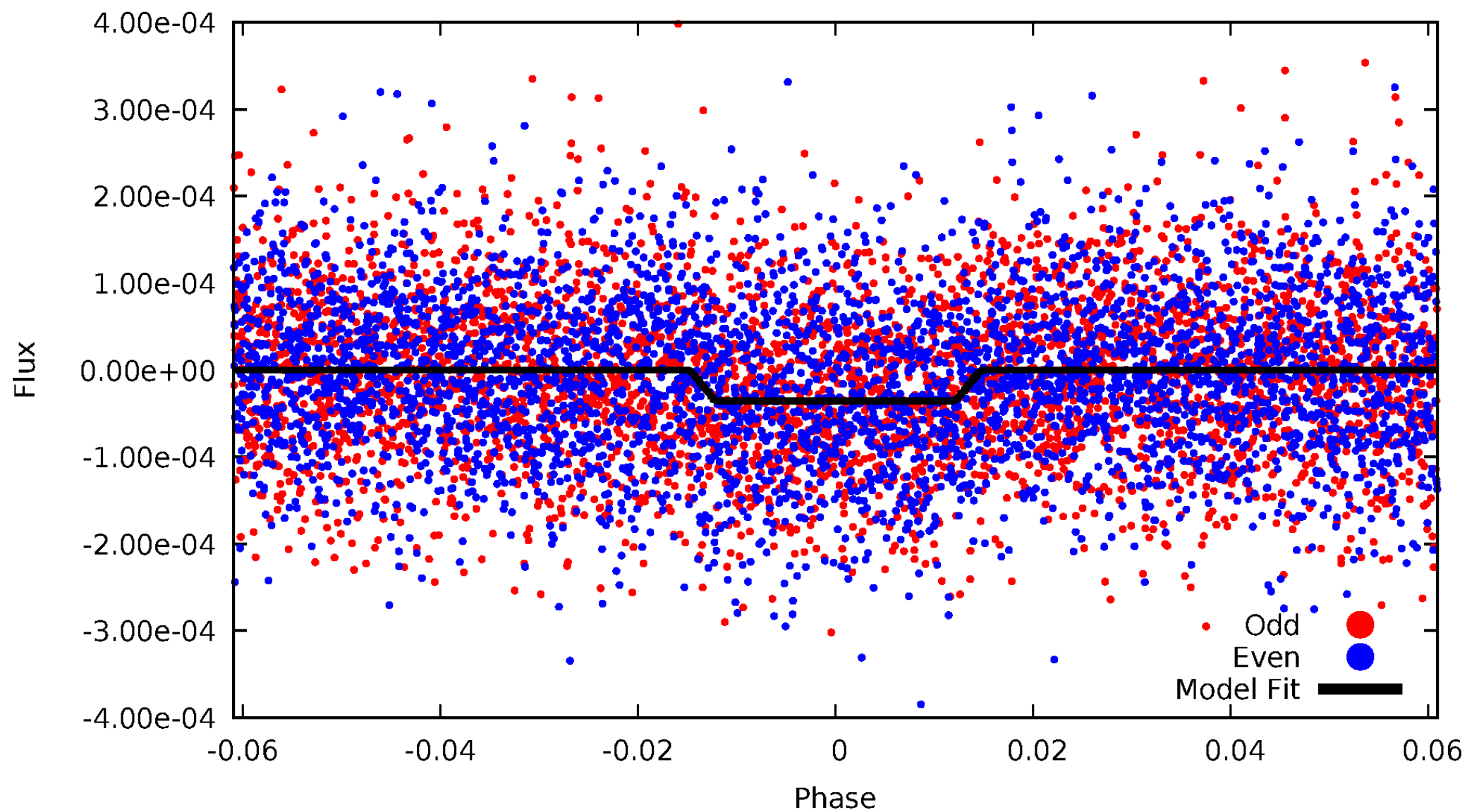
DV Odd/Even

TCE 012416661-01



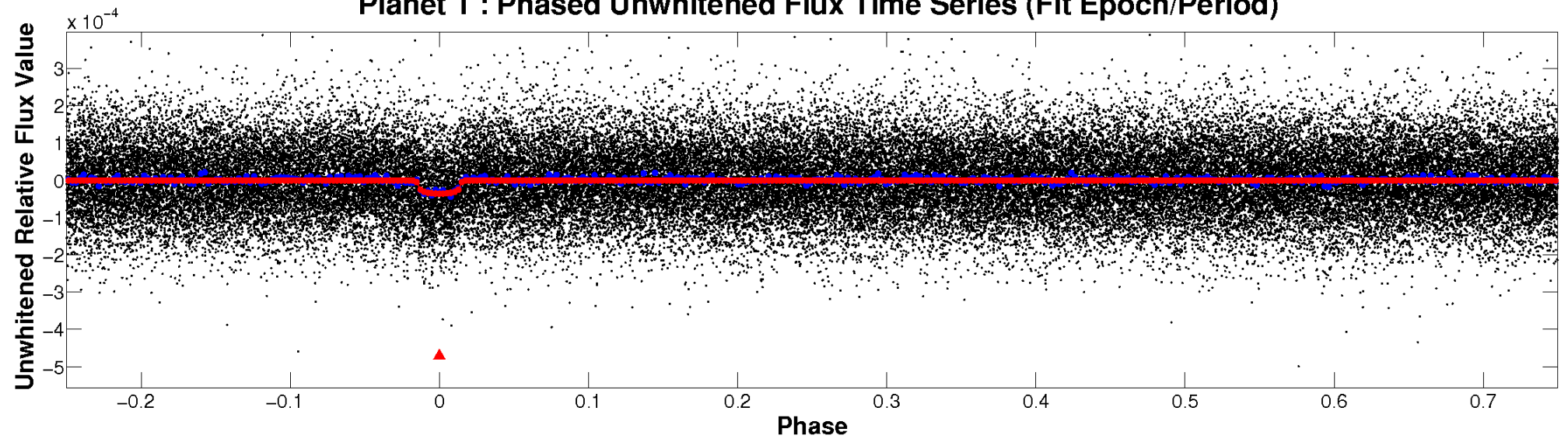
ALT Odd/Even

TCE 012416661-01

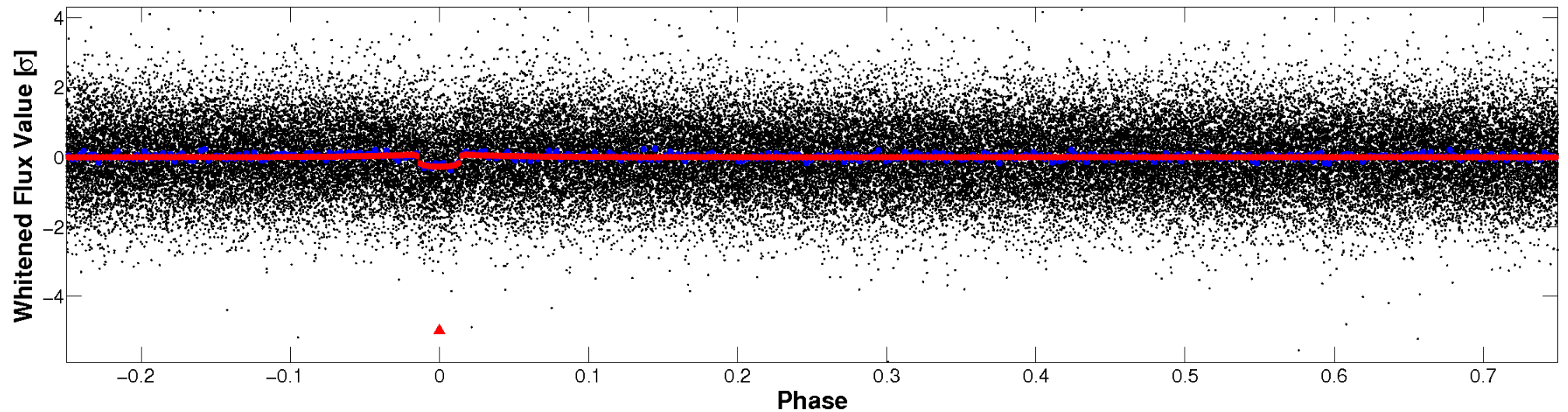


Non-Whitened Vs. Whitened Light Curve

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

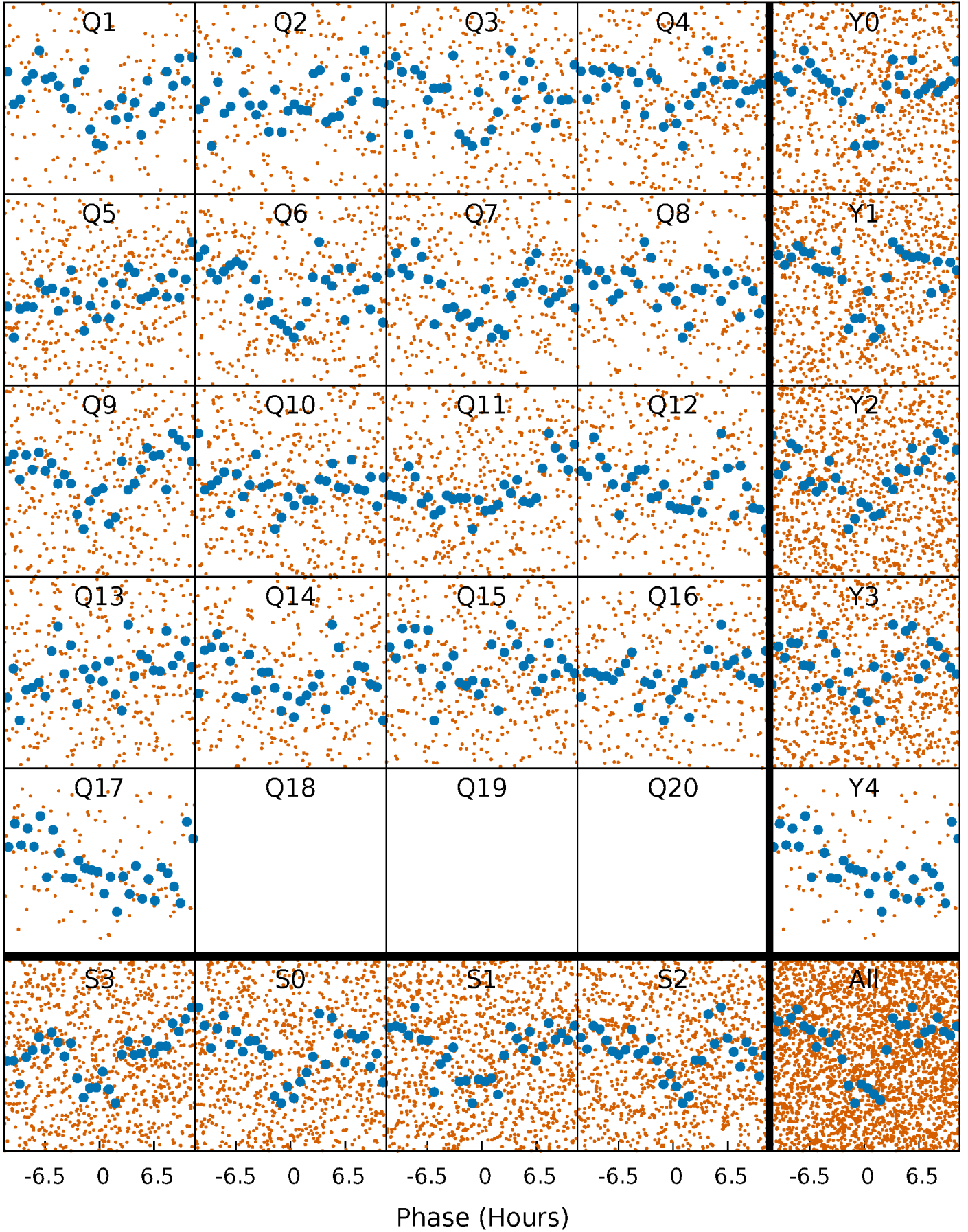


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



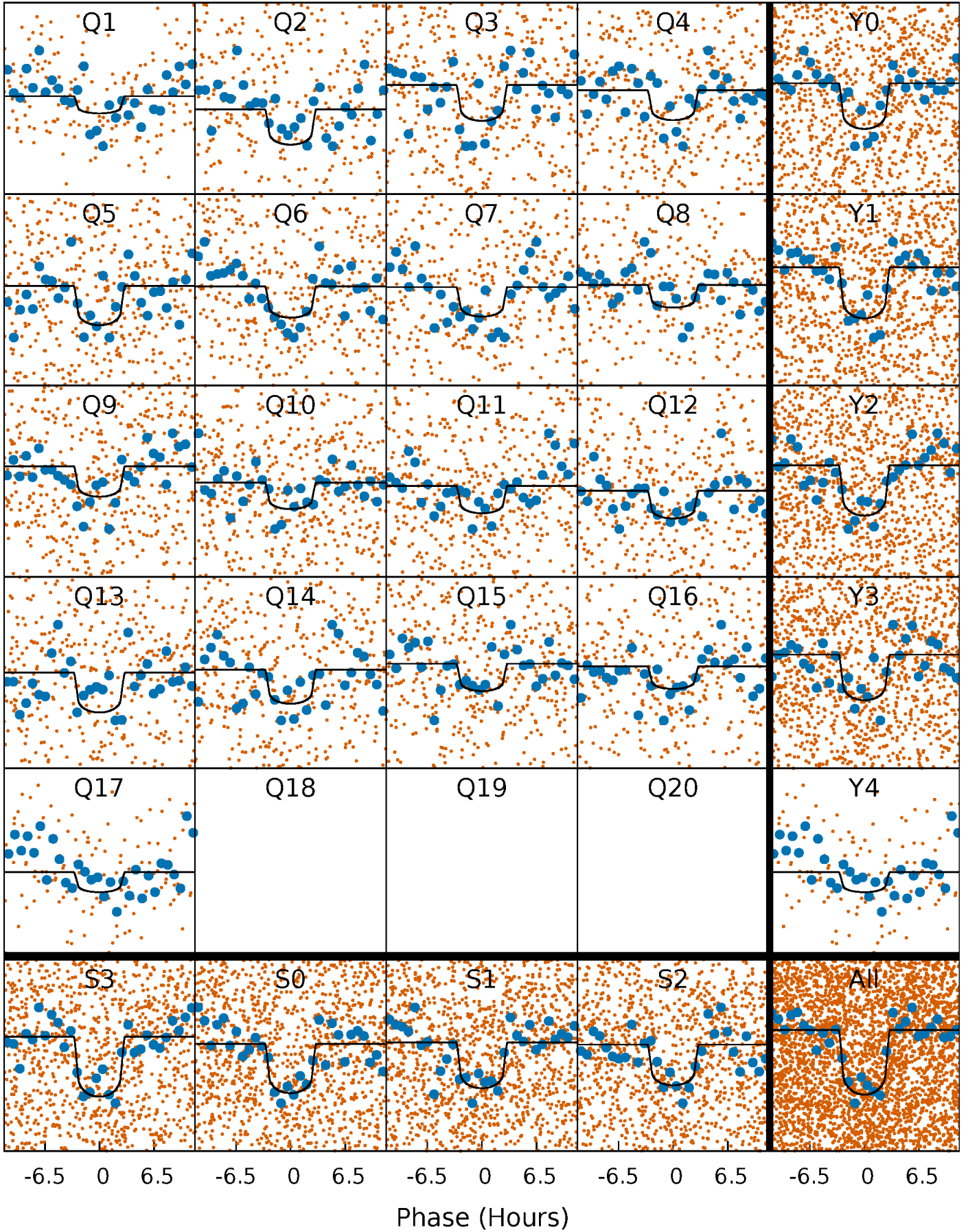
PDC Quarter-Phased Transit Curves

TCE 012416661-01 P= 8.053349 Days $T_0=134.961407$ (BKJD)



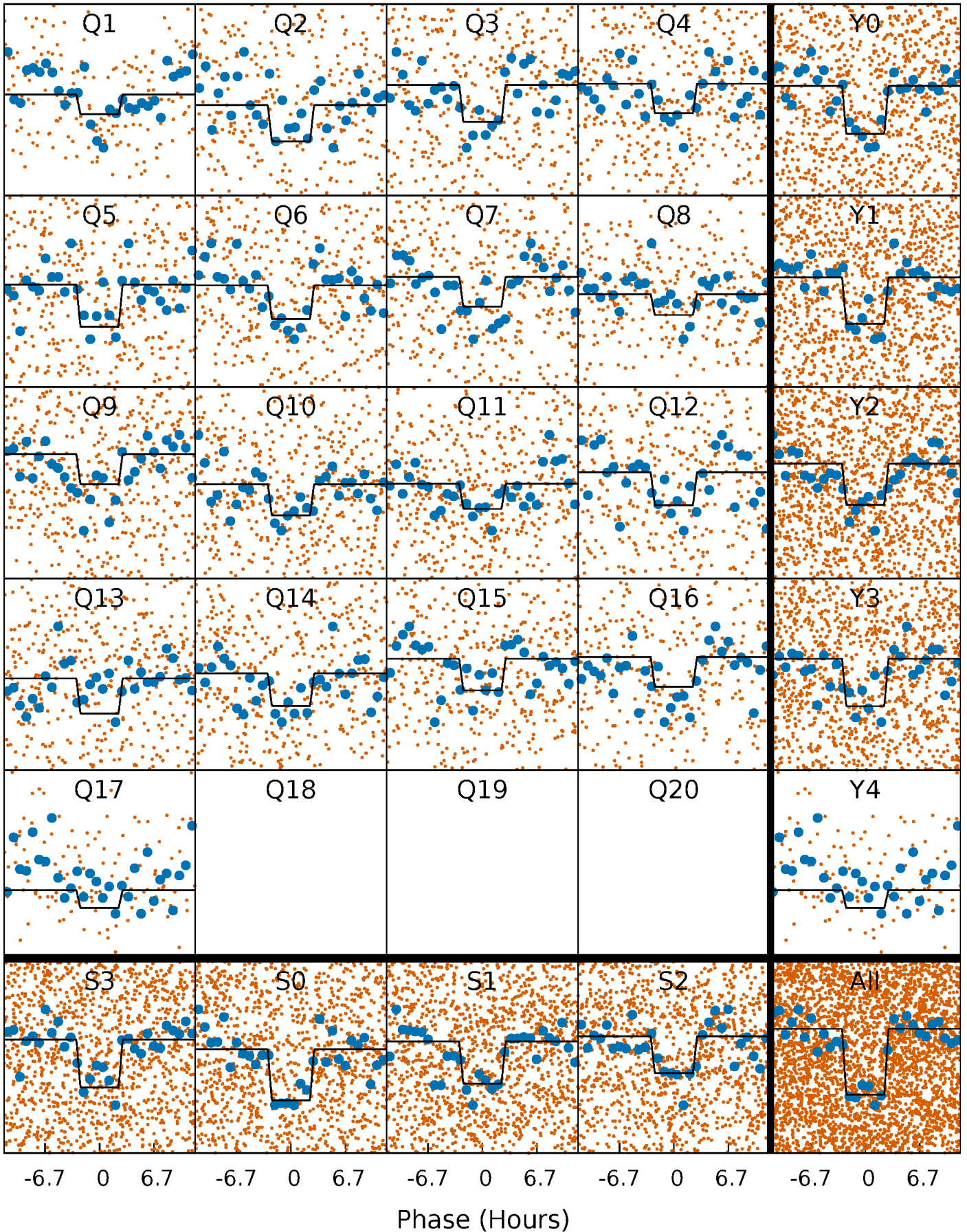
DV Quarter-Phased Transit Curves

TCE 012416661-01 P= 8.053349 Days $T_0=134.961407$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

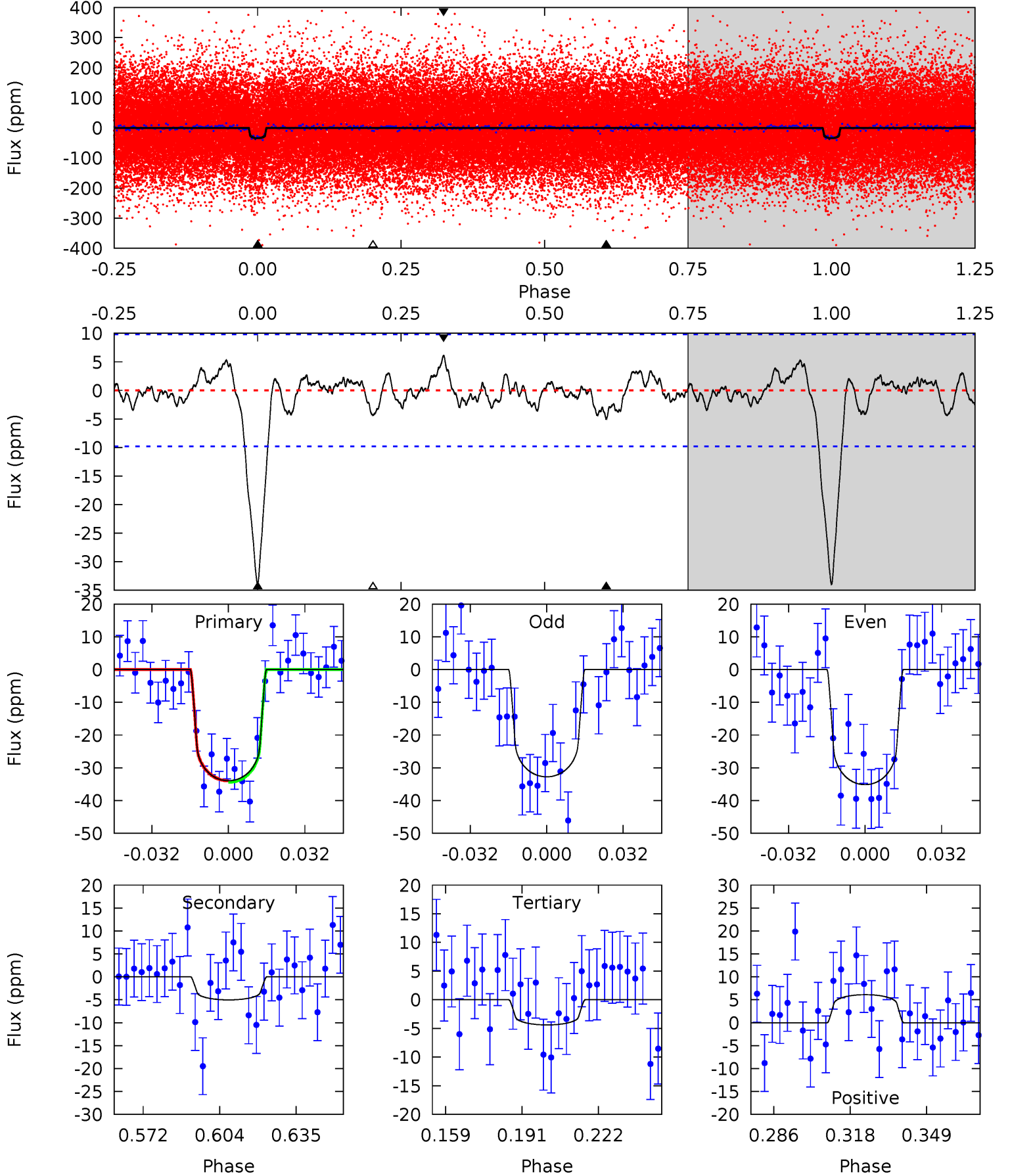
TCE 012416661-01 P= 8.053412 Days $T_0=134.954476$ (BKJD)



DV Model-Shift Uniqueness Test

012416661-01, P = 8.053349 Days, E = 126.908058 Days

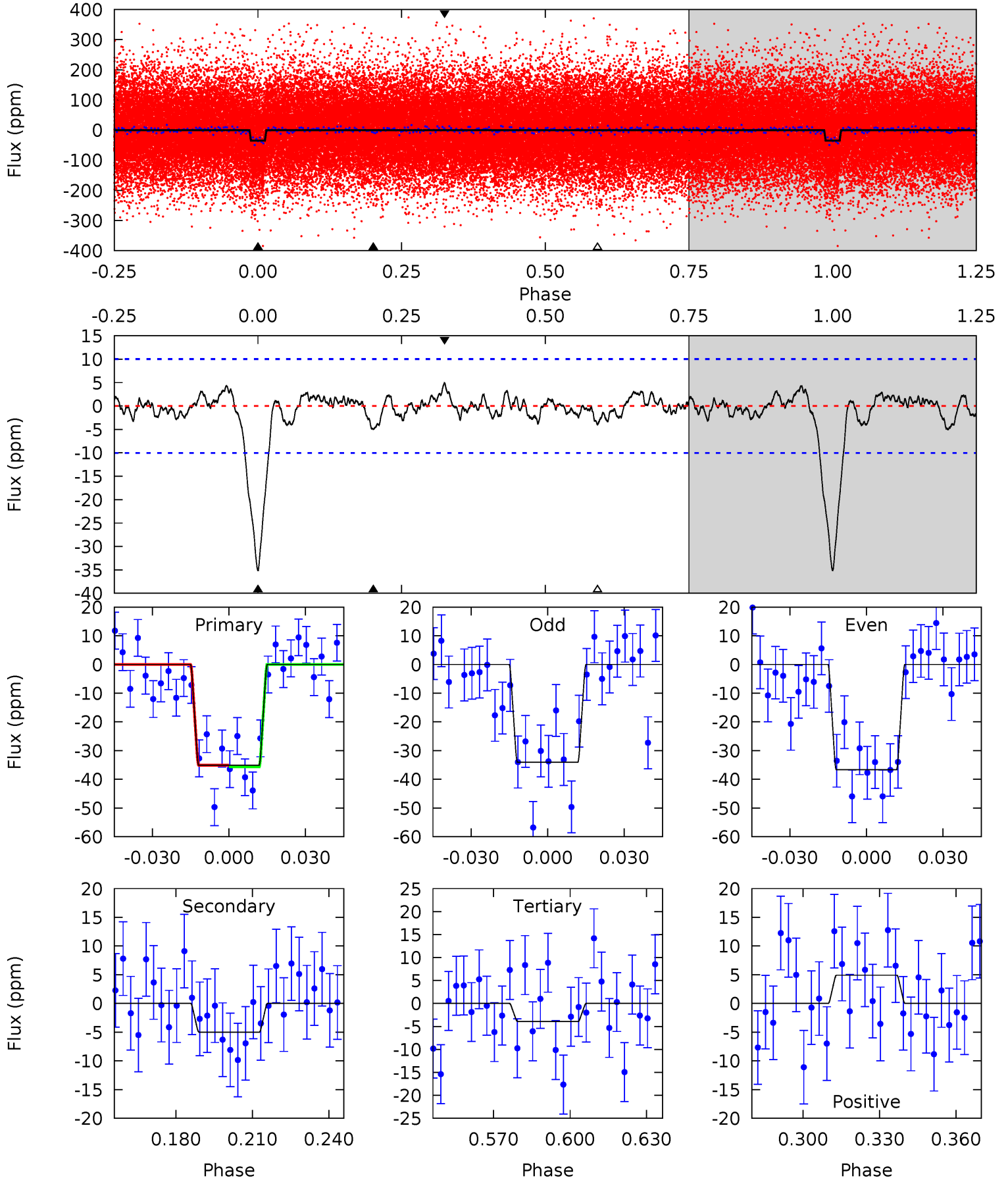
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.6	2.46	2.15	2.99	4.80	2.15	0.96	14.5	13.6	0.31	-0.53	0.58	0.98	0.15	0.11



Alt Model-Shift Uniqueness Test

012416661-01, P = 8.053412 Days, E = 126.901064 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.9	2.40	1.89	2.37	4.81	2.17	0.83	15.0	14.5	0.50	0.03	0.61	0.93	0.12	0.13



Stellar Parameters For KIC 012416661

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6231^{+125}_{-125}	$3.976^{+0.180}_{-0.105}$	$0.240^{+0.150}_{-0.150}$	$2.062^{+0.394}_{-0.525}$	$1.466^{+0.133}_{-0.199}$	$0.236^{+0.234}_{-0.088}$
	+2%/-2%	+5%/-3%	+62%/-62%	+19%/-25%	+9%/-14%	+99%/-37%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 012416661-01 / KOI 3122.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-5 ± 2	$1.41^{+0.49}_{-0.47}$	1832^{+83}_{-114}	3909^{+673}_{-451}	10^{+15}_{-6}
Alt.	-5 ± 2	$1.30^{+0.49}_{-0.43}$	1834^{+87}_{-121}	4044^{+759}_{-501}	12^{+18}_{-7}

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 $A_{\text{obs}} \gg 1.0$

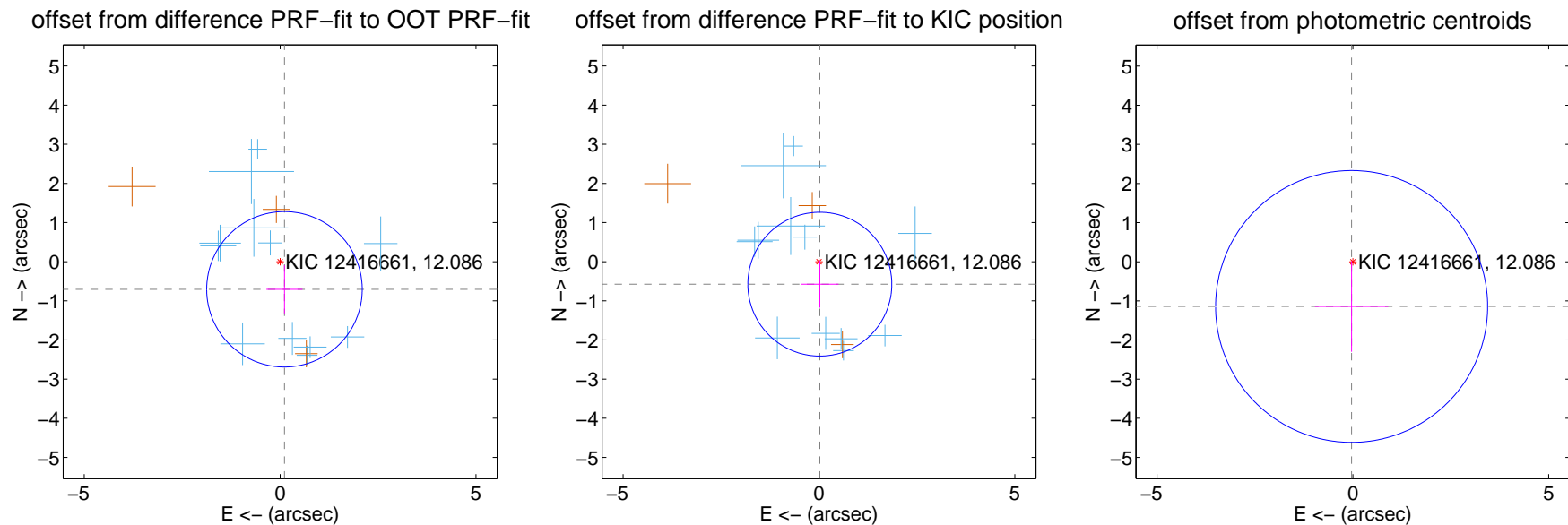
DV Centroid Data

Supplemental centroid analysis for 012416661-01. Kepler magnitude: 12.09. Transit SNR 10.53

There are 12 quarters with good PRF difference image offsets

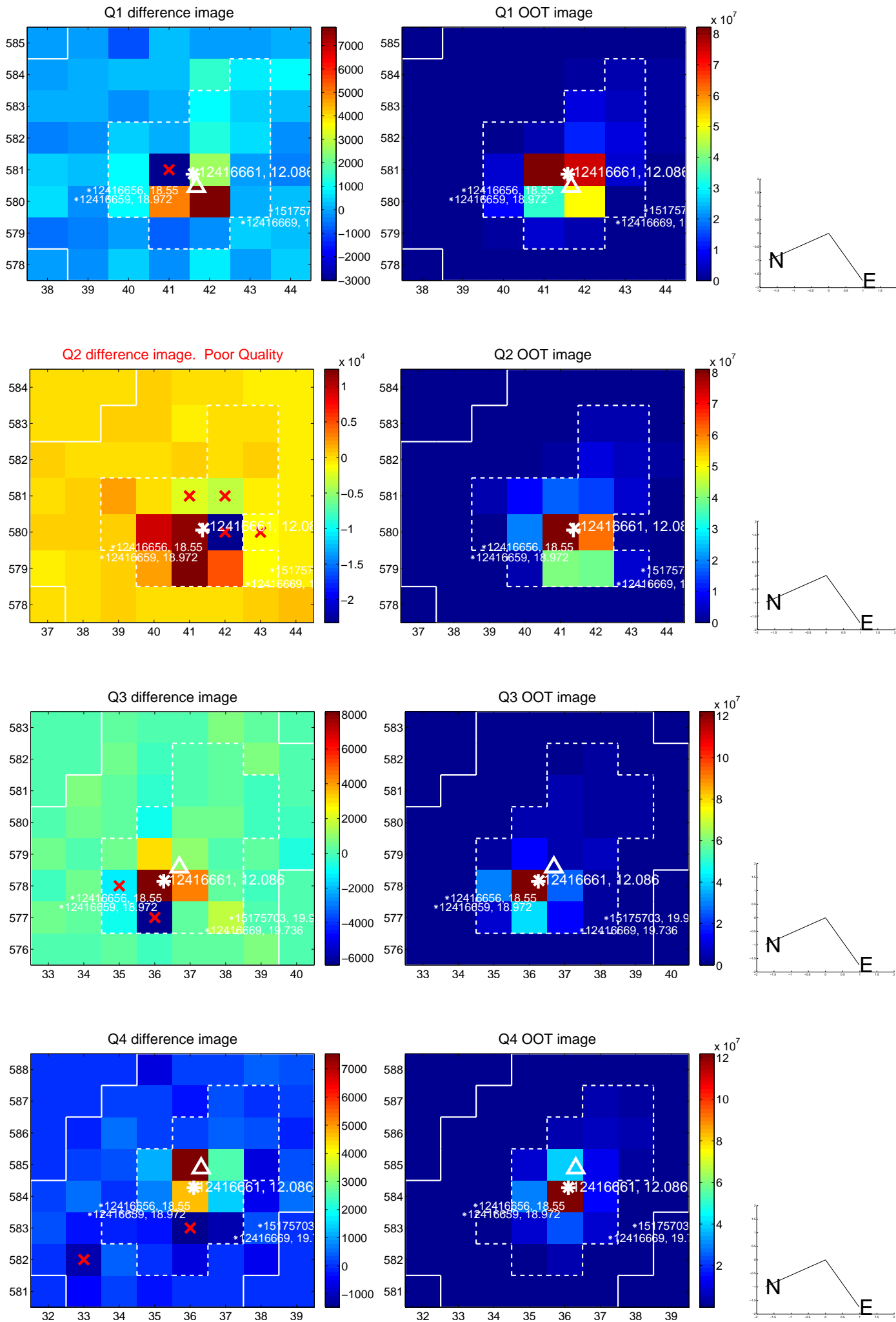
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.714 ± 0.662	1.08	-0.111 ± 0.461	-0.705 ± 0.616
PRF-fit source offset from KIC position	0.575 ± 0.613	0.94	-0.021 ± 0.477	-0.574 ± 0.601
photometric centroid source offset	1.14 ± 1.16	0.99	0.03 ± 0.94	-1.14 ± 1.16

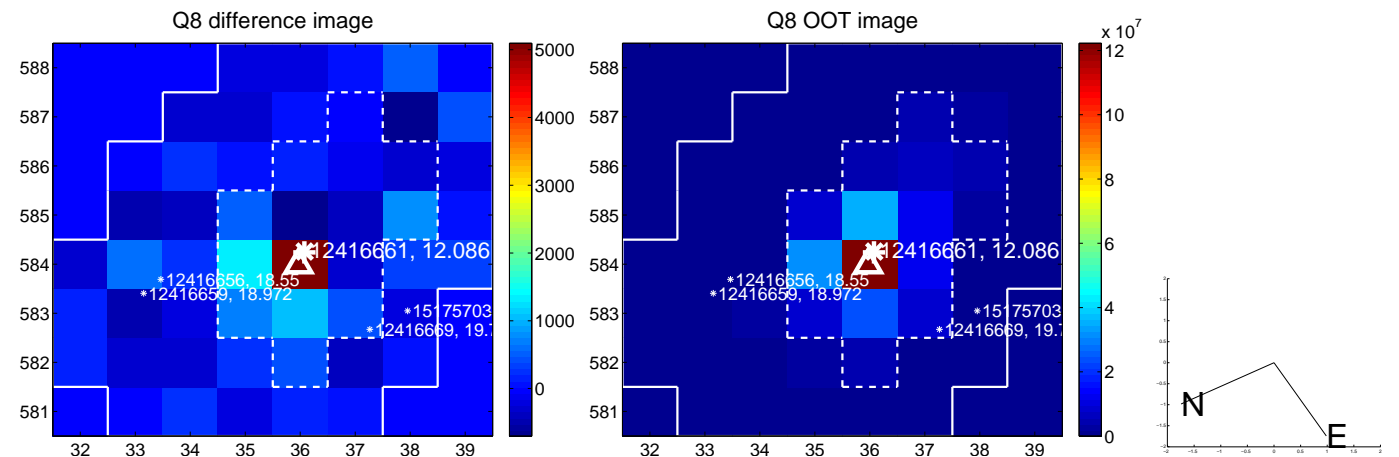
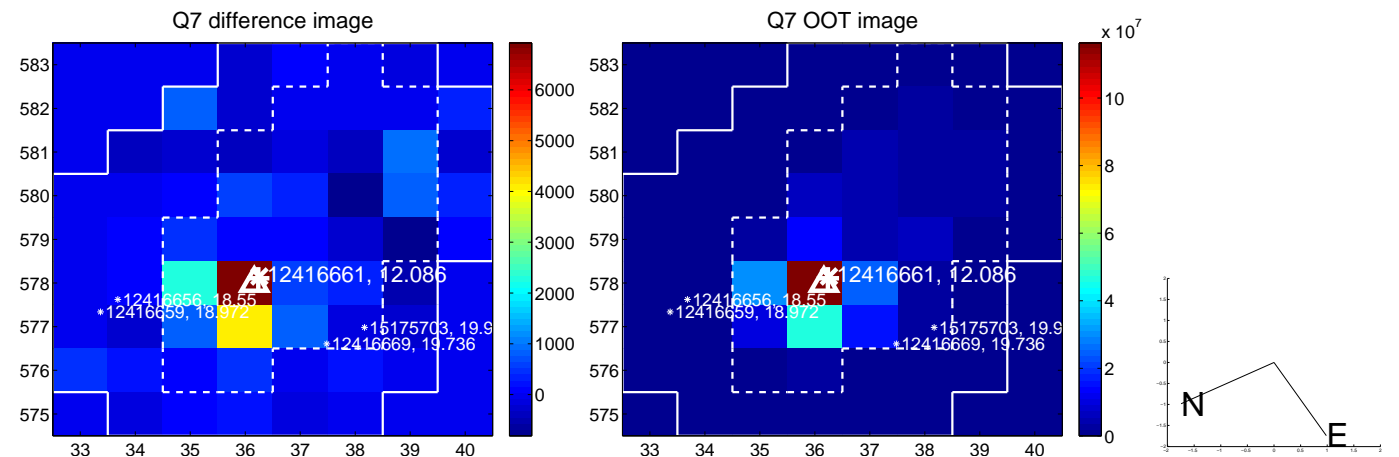
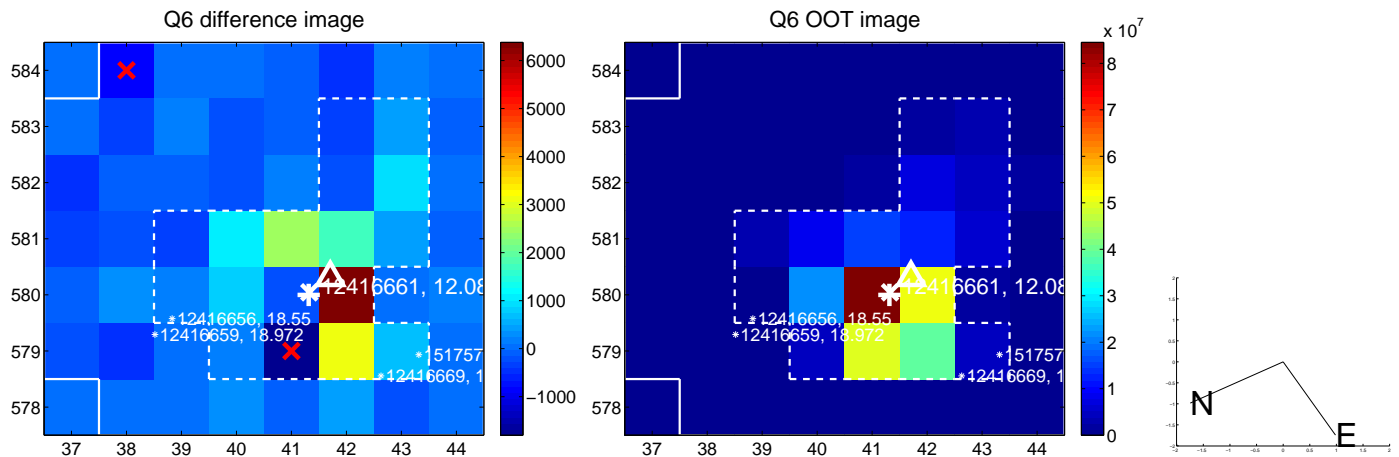
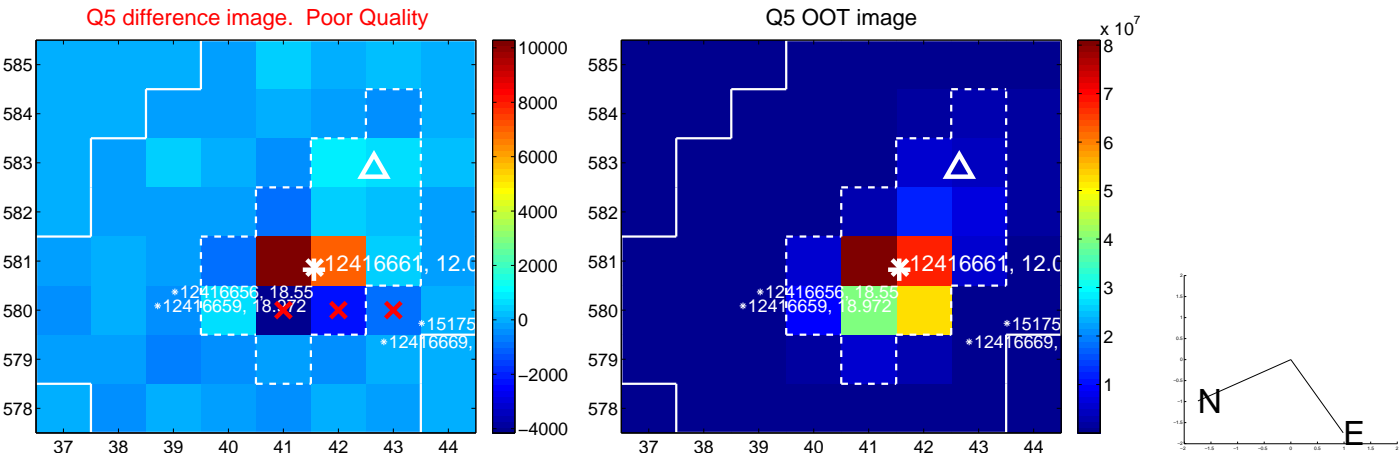


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- 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.

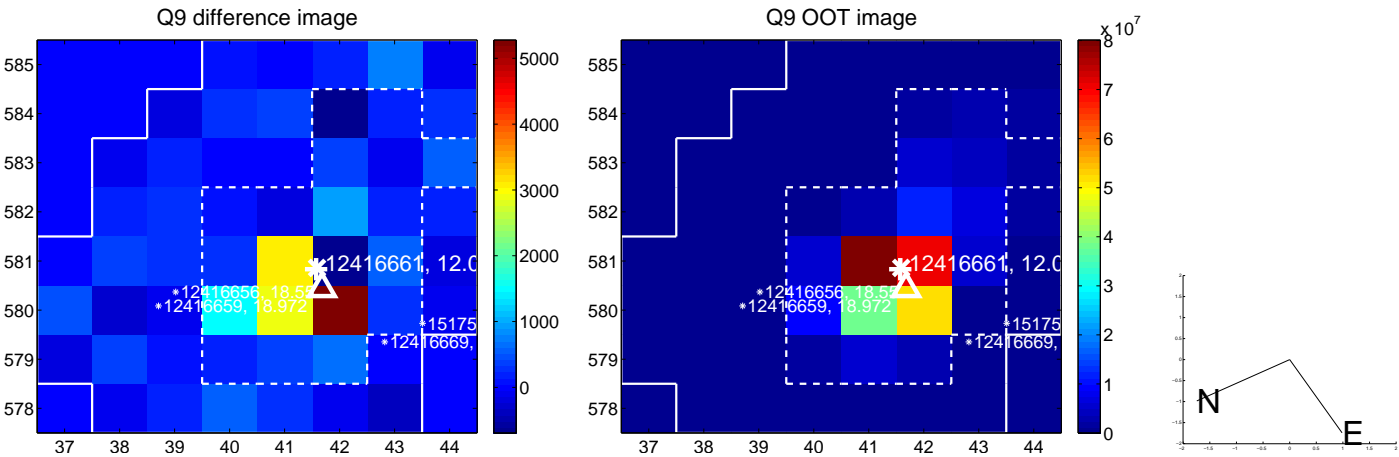
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



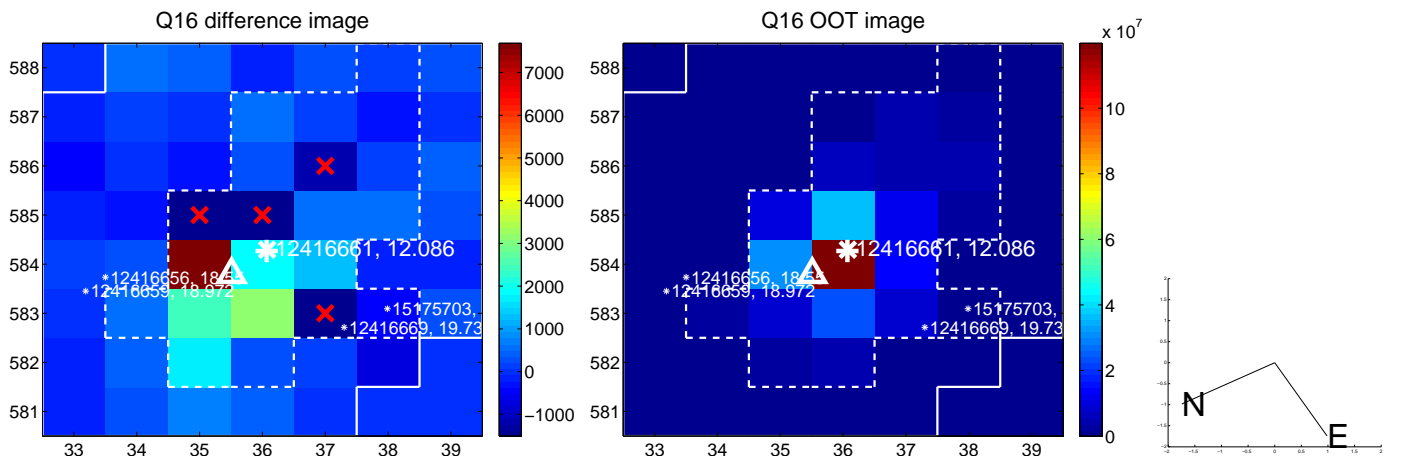
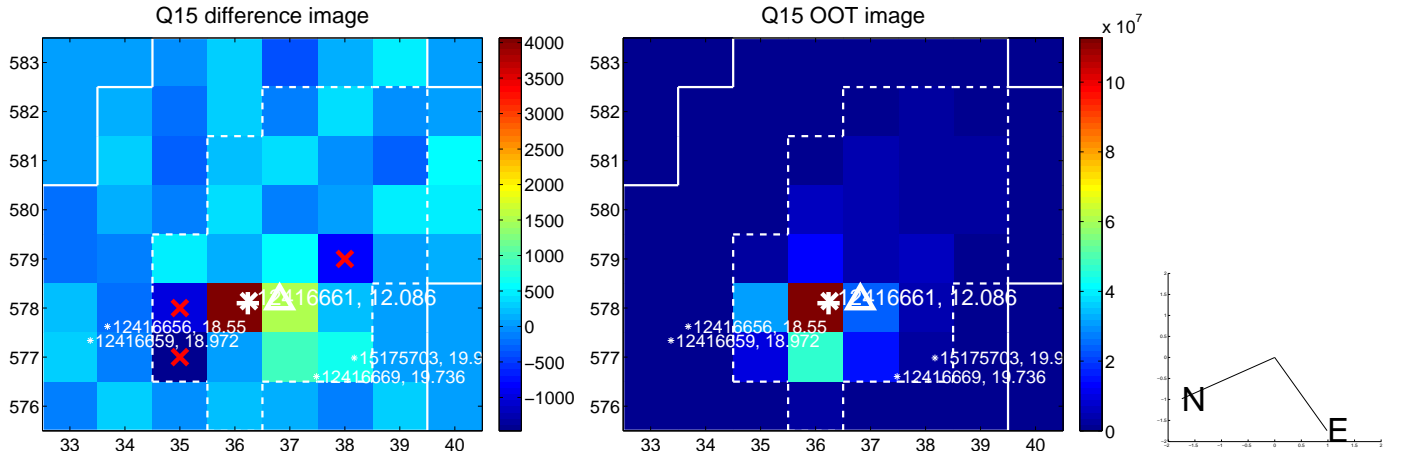
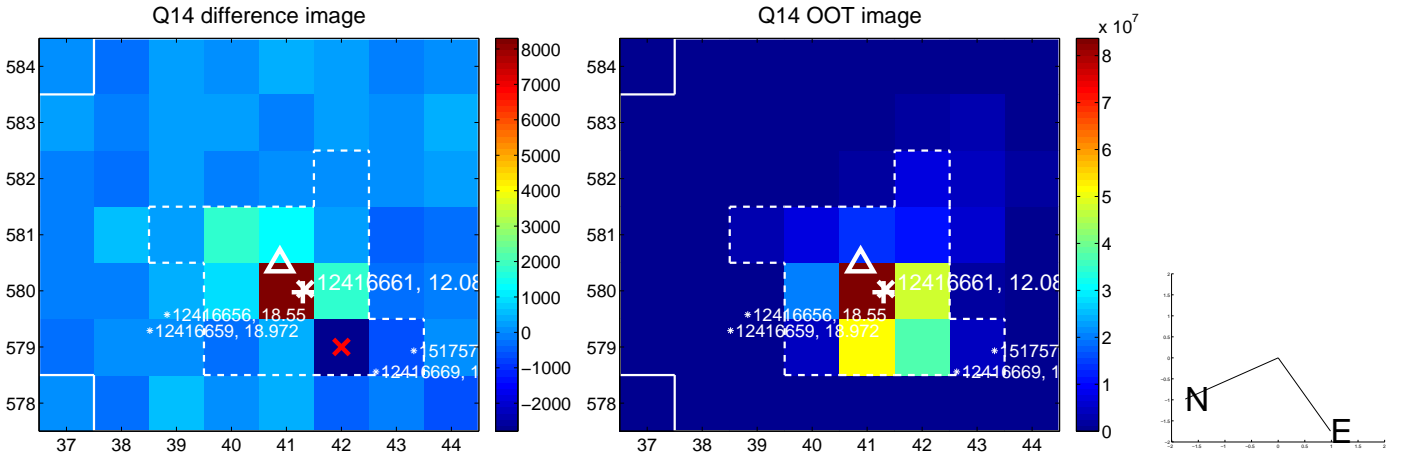
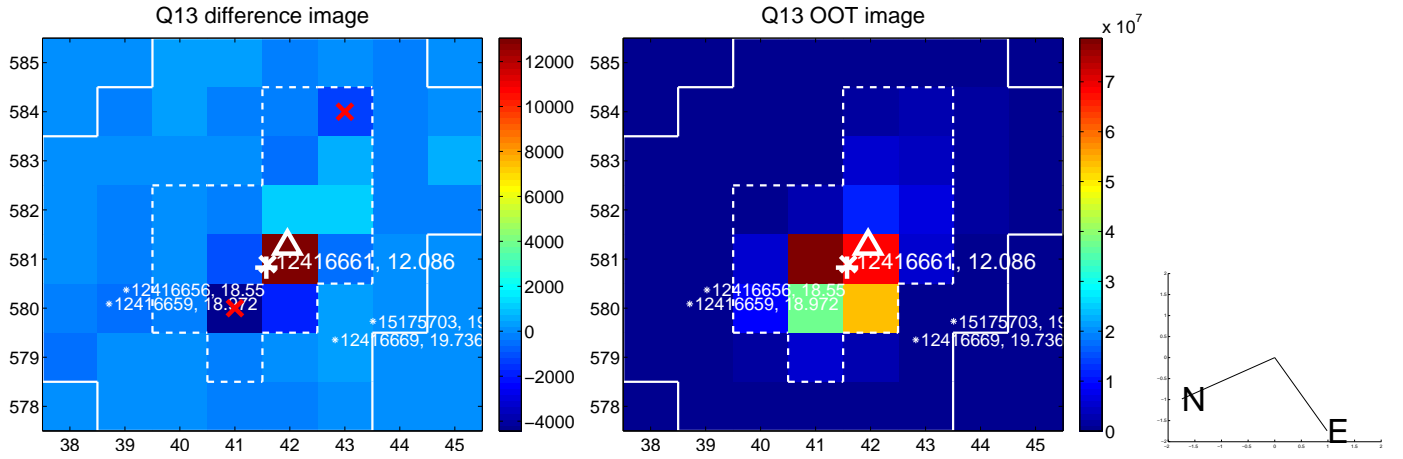
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



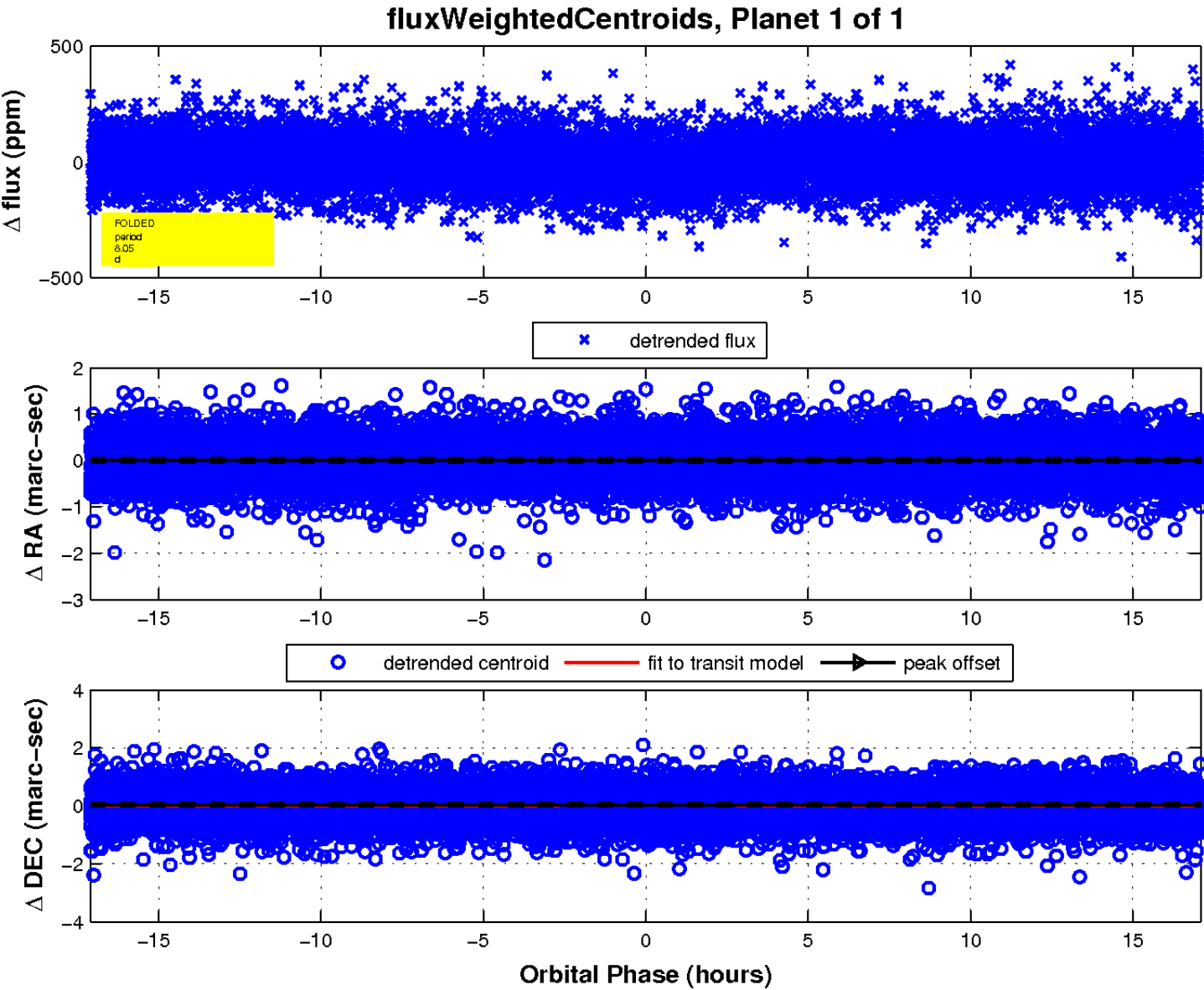
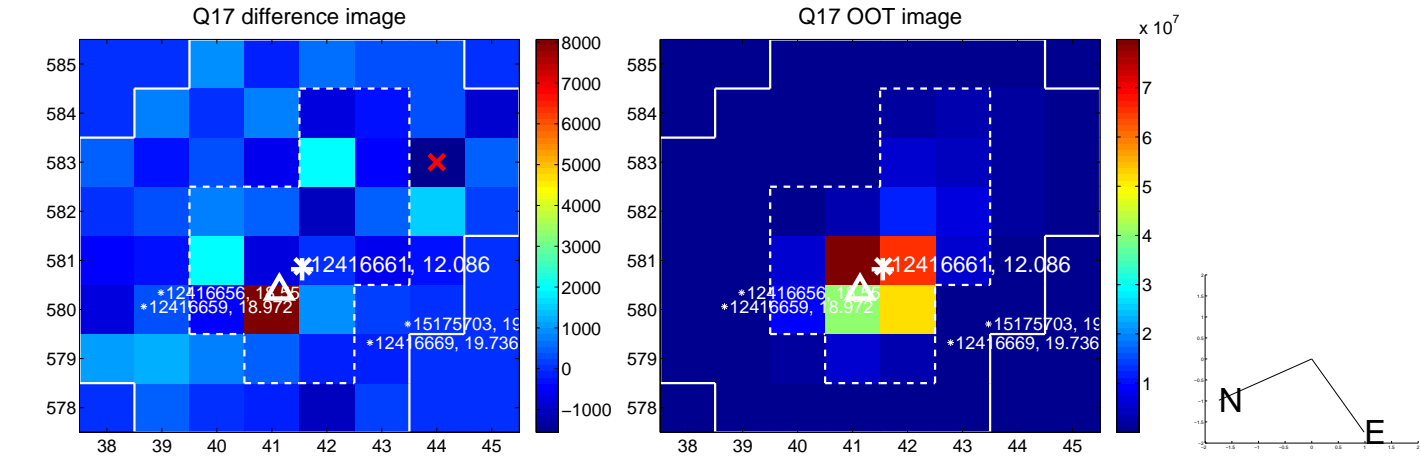
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UKIRT Image

Declination

