

KIC 005471574

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})
005471574-01	OBS	2505.01	0.962809	132.217277	58.8	3.126	23.2	25.0	3.03	6534	2.72	31598.11
005471574-02	OBS	No	370.964907	233.898860	472.5	23.585	9.5	6.9	3.03	6534	7.64	11.27

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471574-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005471574-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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.

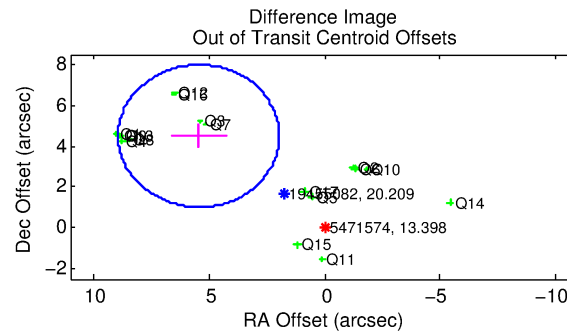
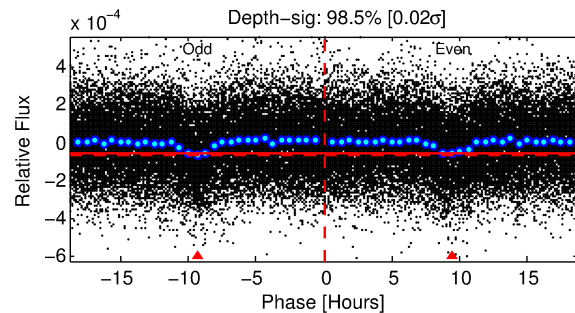
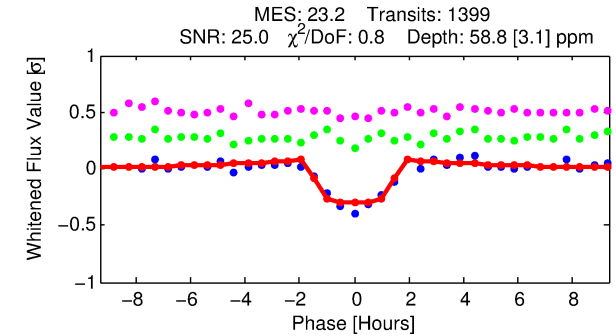
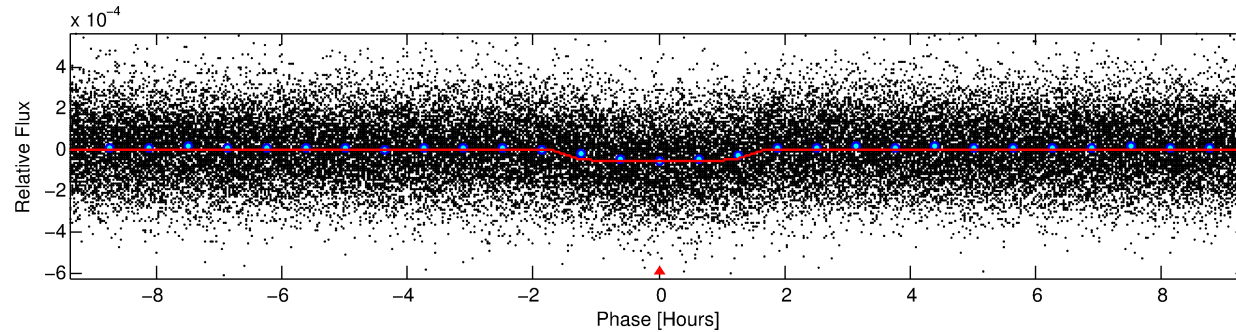
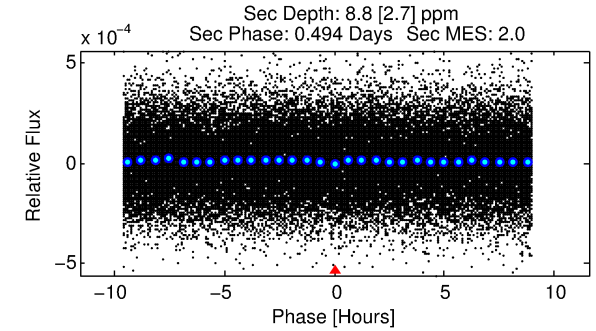
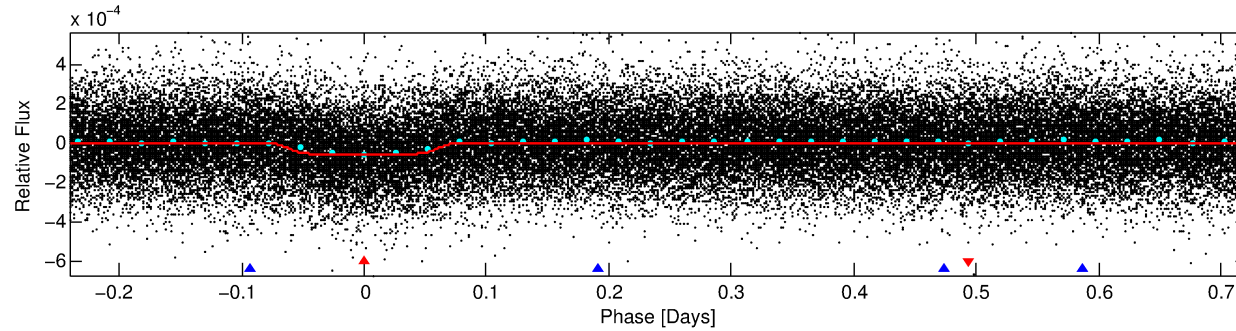
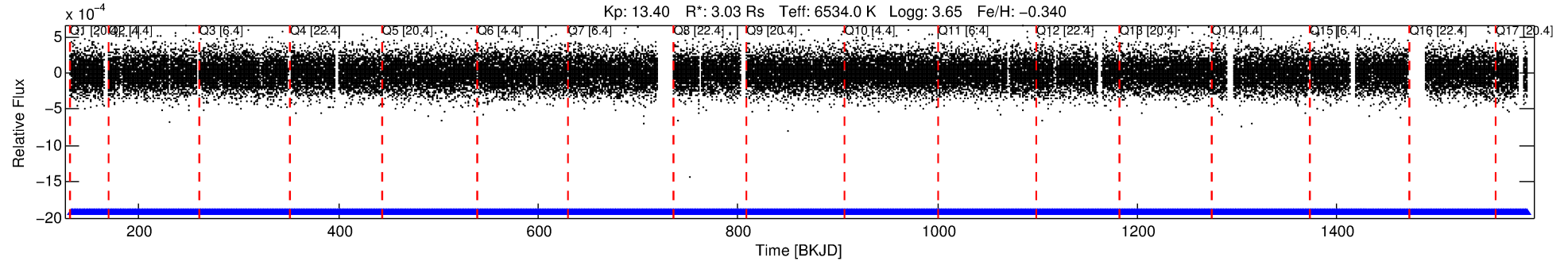
Ephemeris Match Information For 005471574-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005471574-01	5471574	005471619-pri	5471619	1:1	40.6	6	-9	12.37	13.40	7449.20	Direct-PRF	0	2.54	1.41

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 5471574 Candidate: 1 of 2 Period: 0.963 d
KOI: K02505.01 Corr: 0.913



DV Fit Results:

Period = 0.96281 [0.00000] d
Epoch = 132.2173 [0.0013] BKJD
Rp/R* = 0.0082 [0.0016]
a/R* = 1.41 [0.77]
b = 0.91 [0.22]
Seff = 31598.11 [18887.94]
Teq = 3400 [508] K
Rp = 2.72 [1.15] Re
a = 0.0218 [0.0080] AU
Ag = 0.31 [0.24] [-2.92σ]
Teffp = 3925 [488] K [0.75σ]

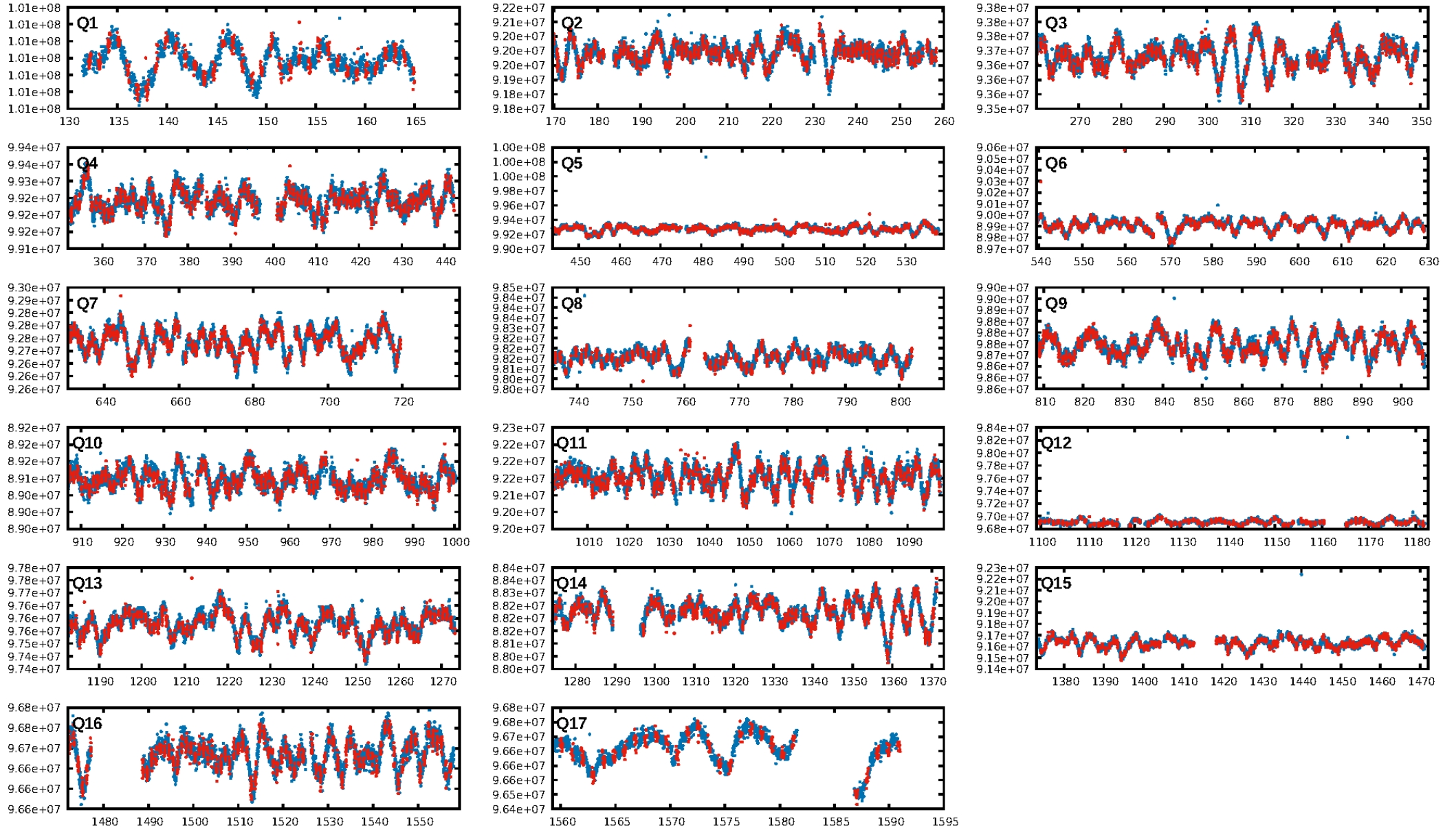
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [373.25σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.32e-107
RollingBand-fgt: 1.00 [1336/1336]
GhostDiagnostic-chr: -0.2743
Centroid-sig: 0.0%
Centroid-so: 3.401 arcsec [8.12σ]
OotOffset-rm: 7.064 arcsec [6.08σ]
KicOffset-rm: 7.072 arcsec [6.51σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.24 [4/17]
DiffImageOverlap-fno: 1.00 [17/17]

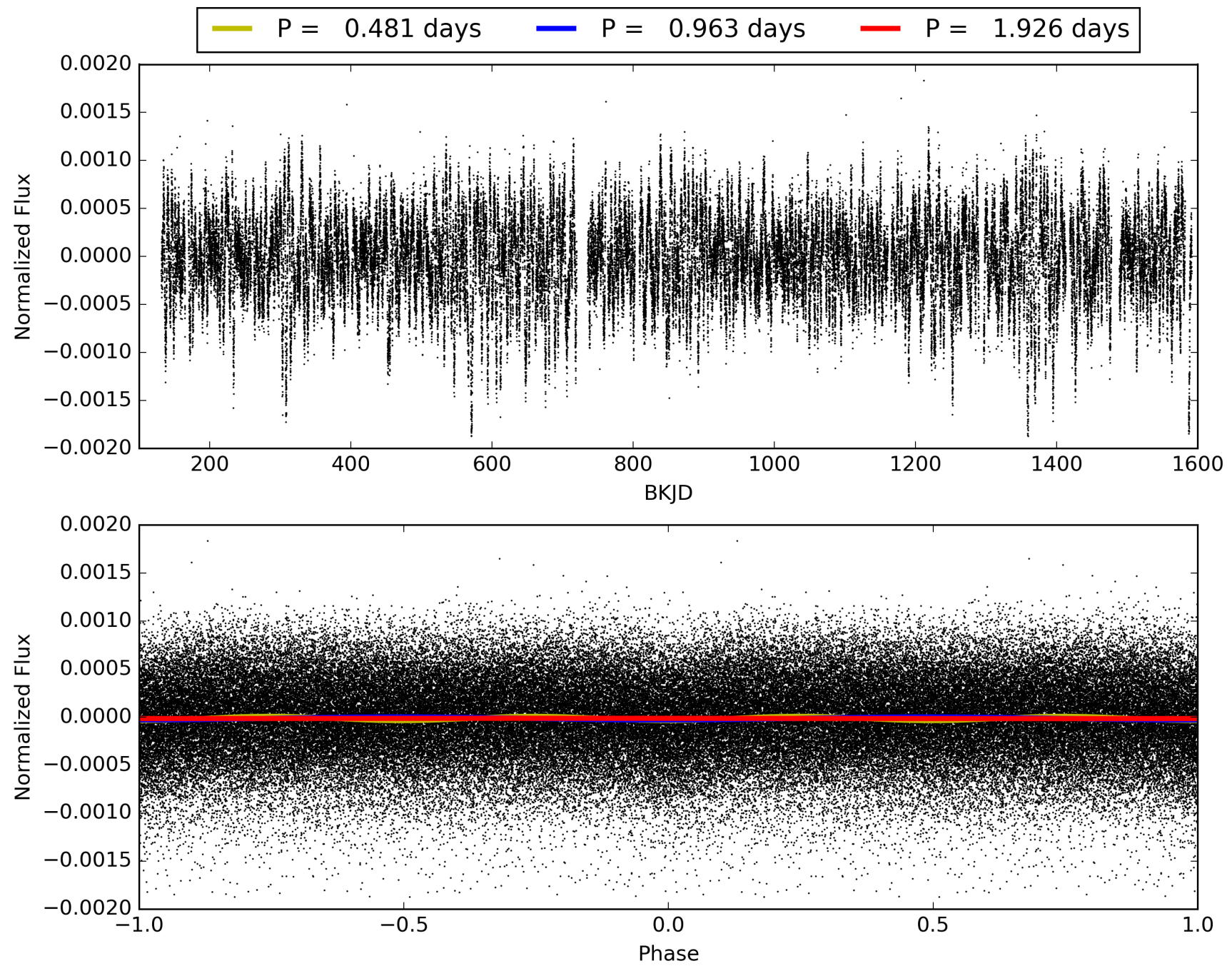
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:07:05 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005471574-01, PDC Light Curves

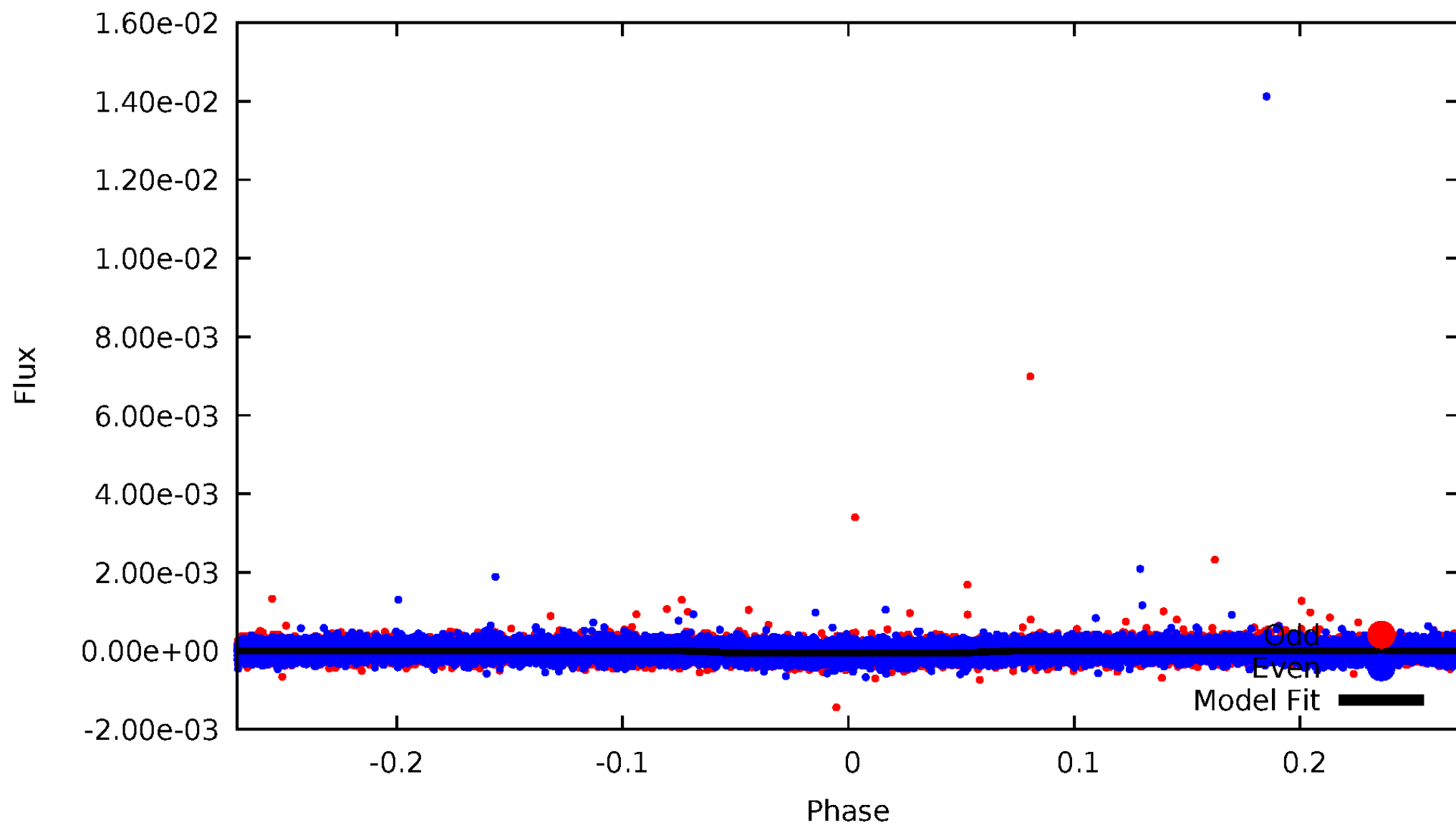


TCE 005471574-01



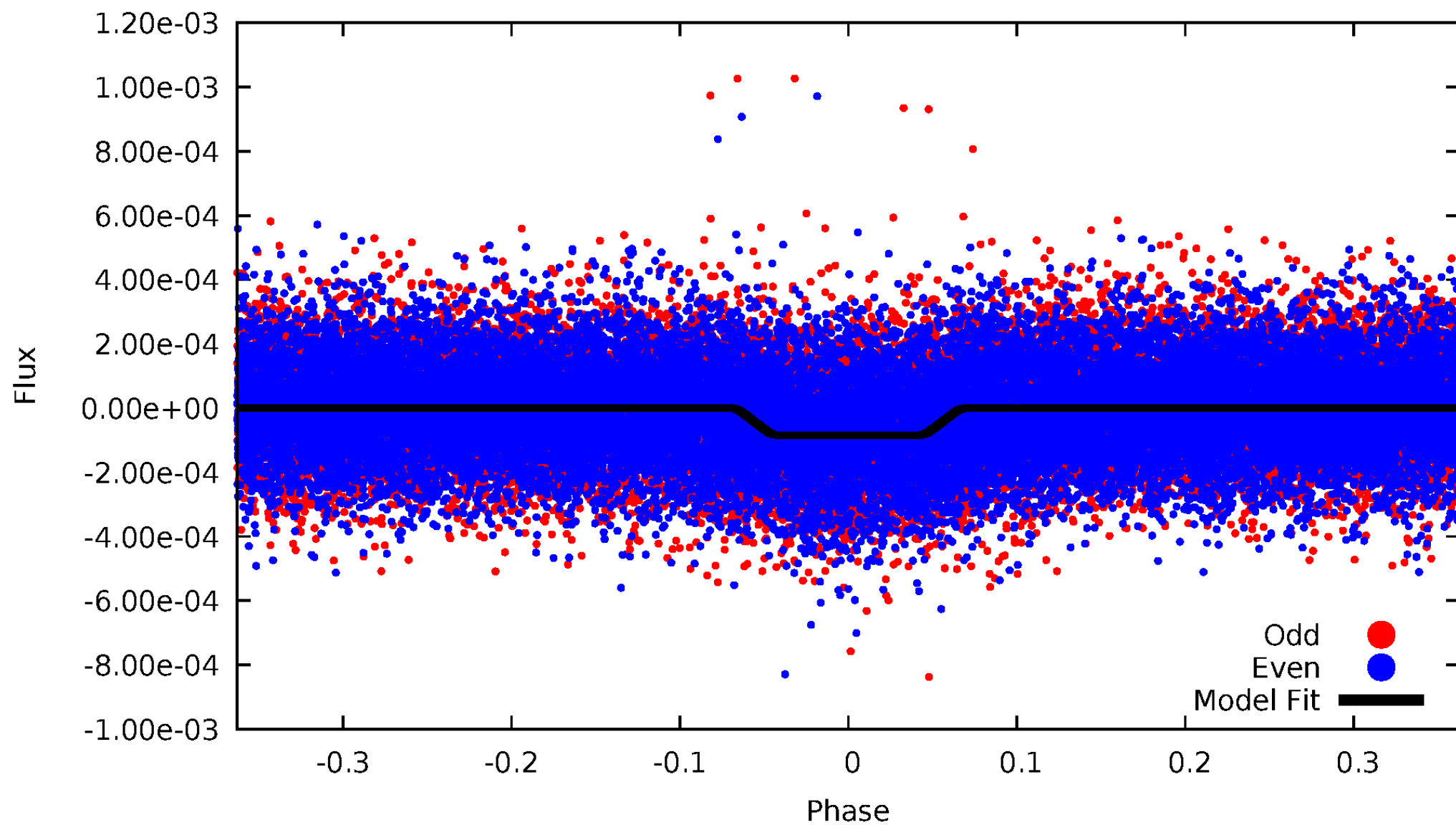
DV Odd/Even

TCE 005471574-01



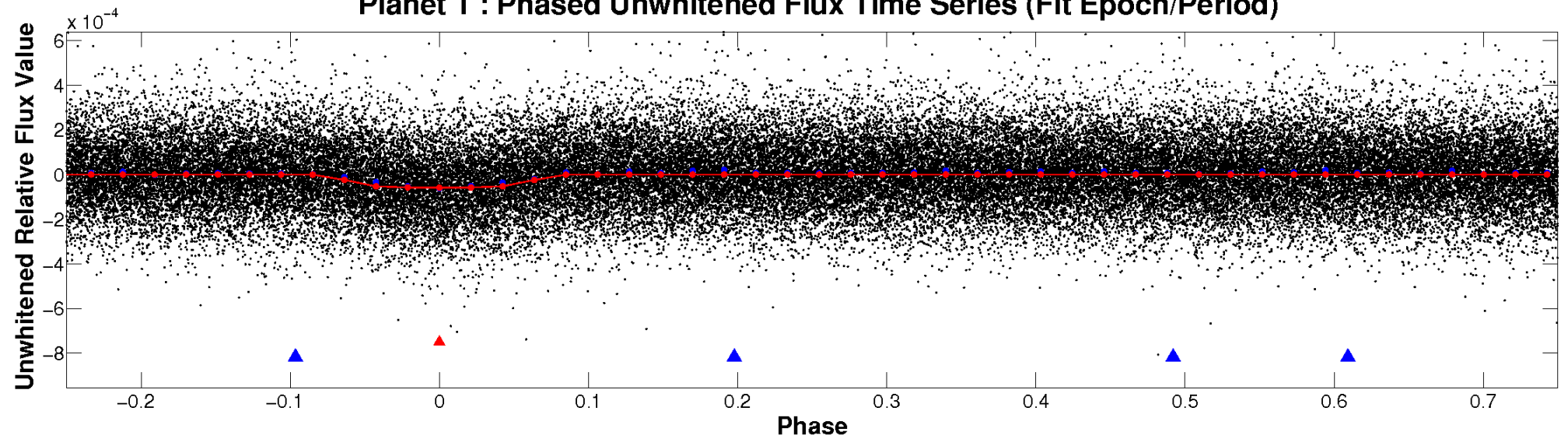
ALT Odd/Even

TCE 005471574-01

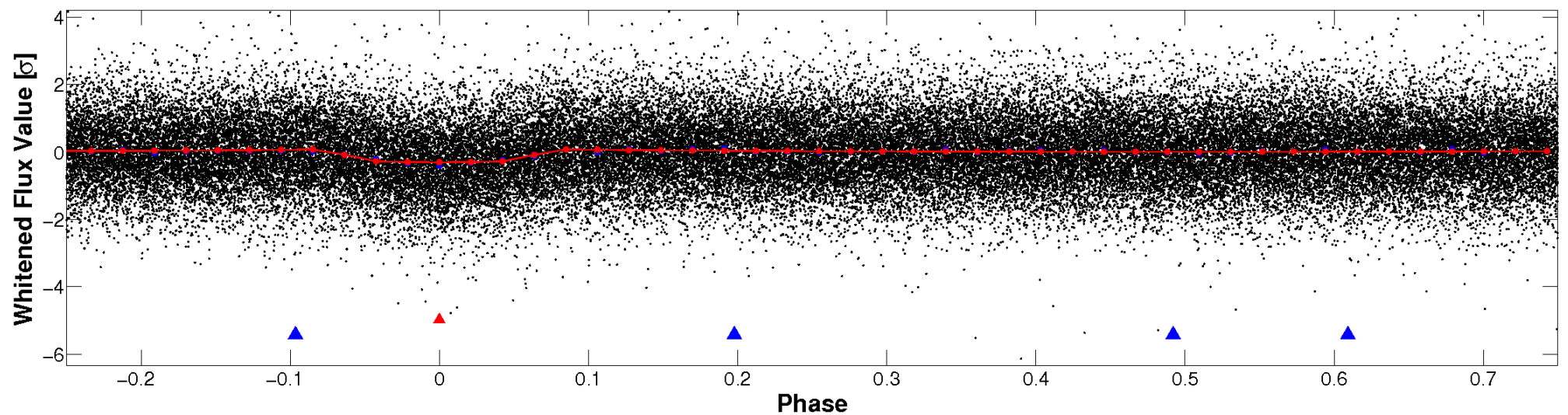


Non-Whitened Vs. Whitened Light Curve

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

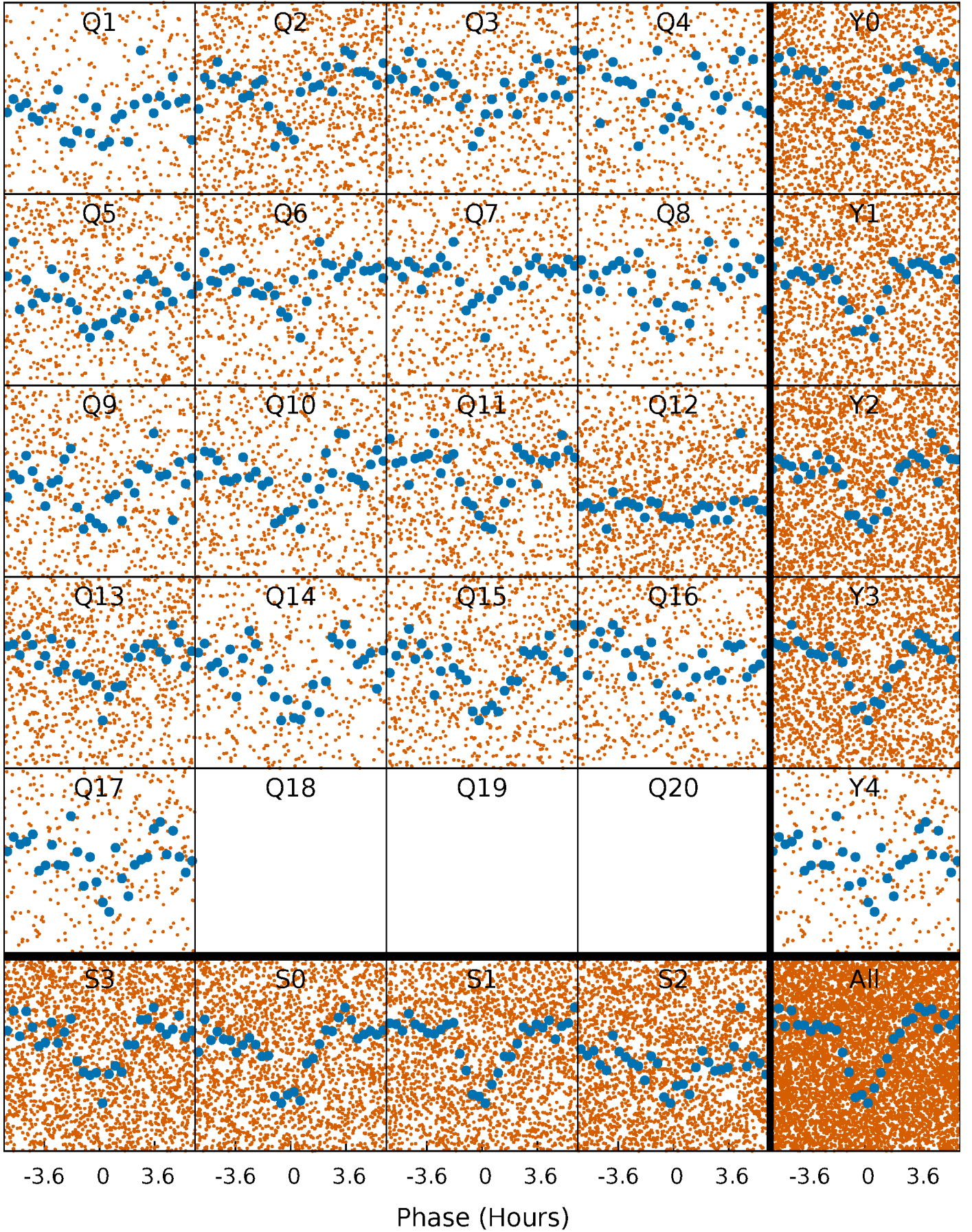


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



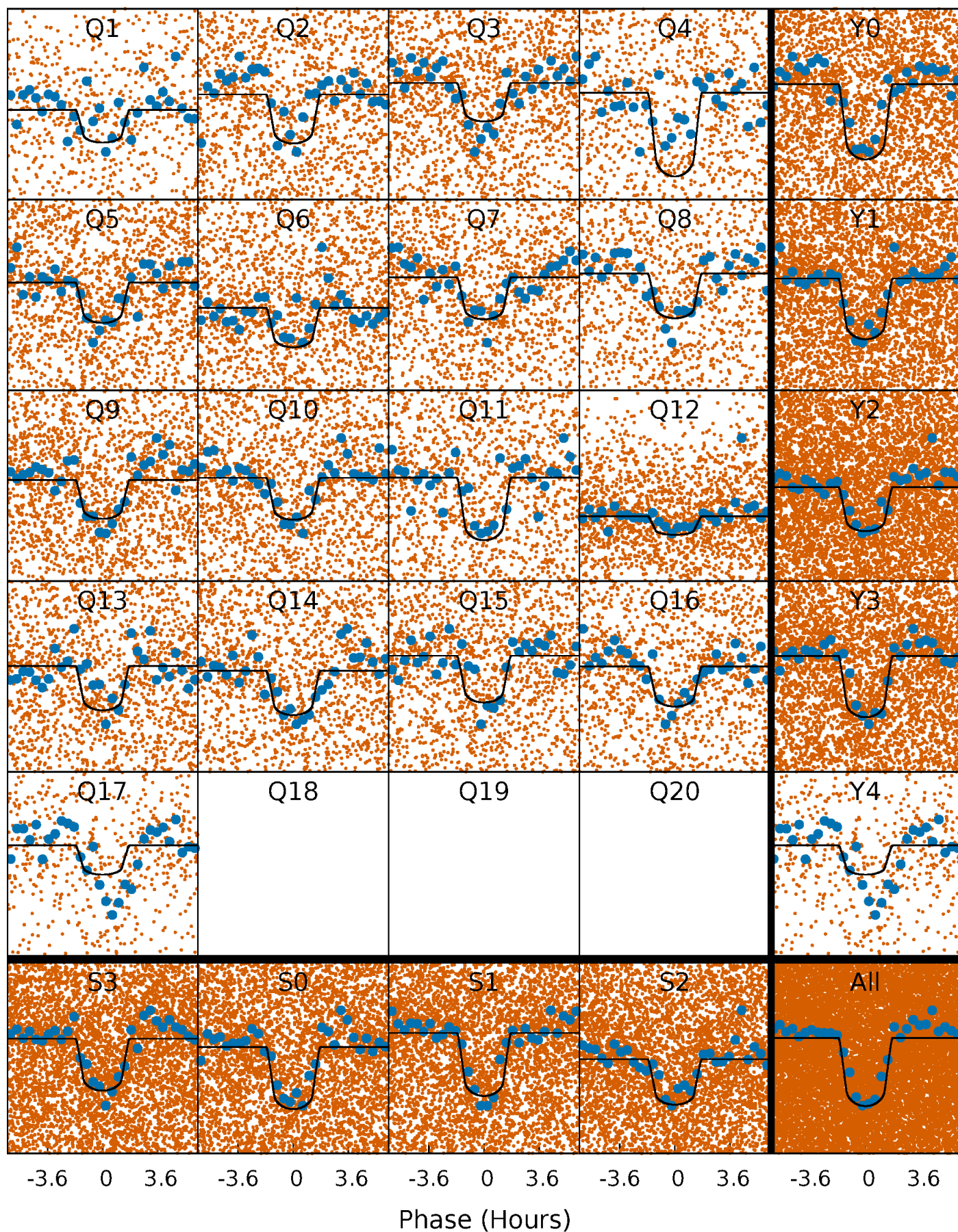
PDC Quarter-Phased Transit Curves

TCE 005471574-01 P= 0.962809 Days $T_0=132.217277$ (BKJD)



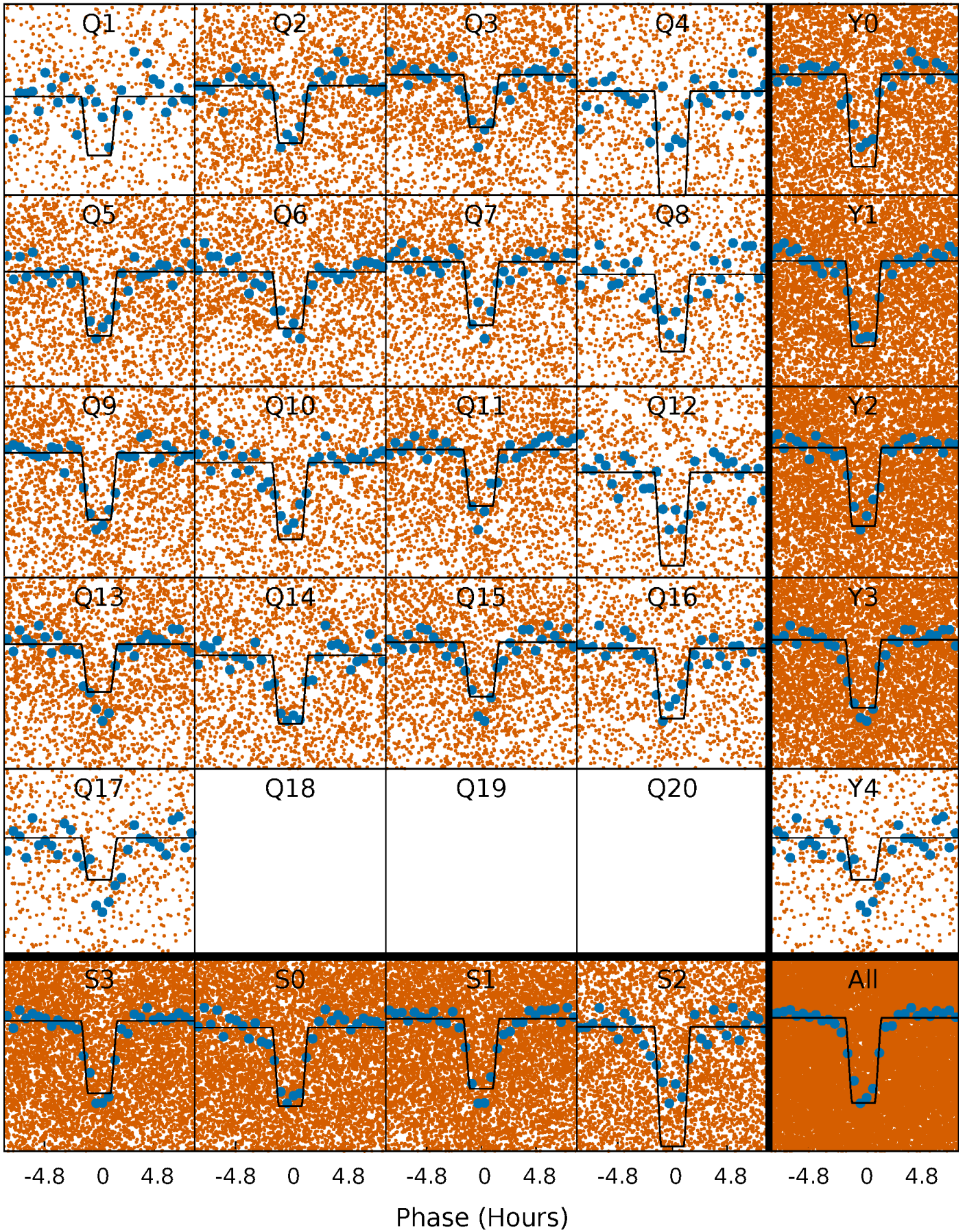
DV Quarter-Phased Transit Curves

TCE 005471574-01 P= 0.962809 Days $T_0=132.217277$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

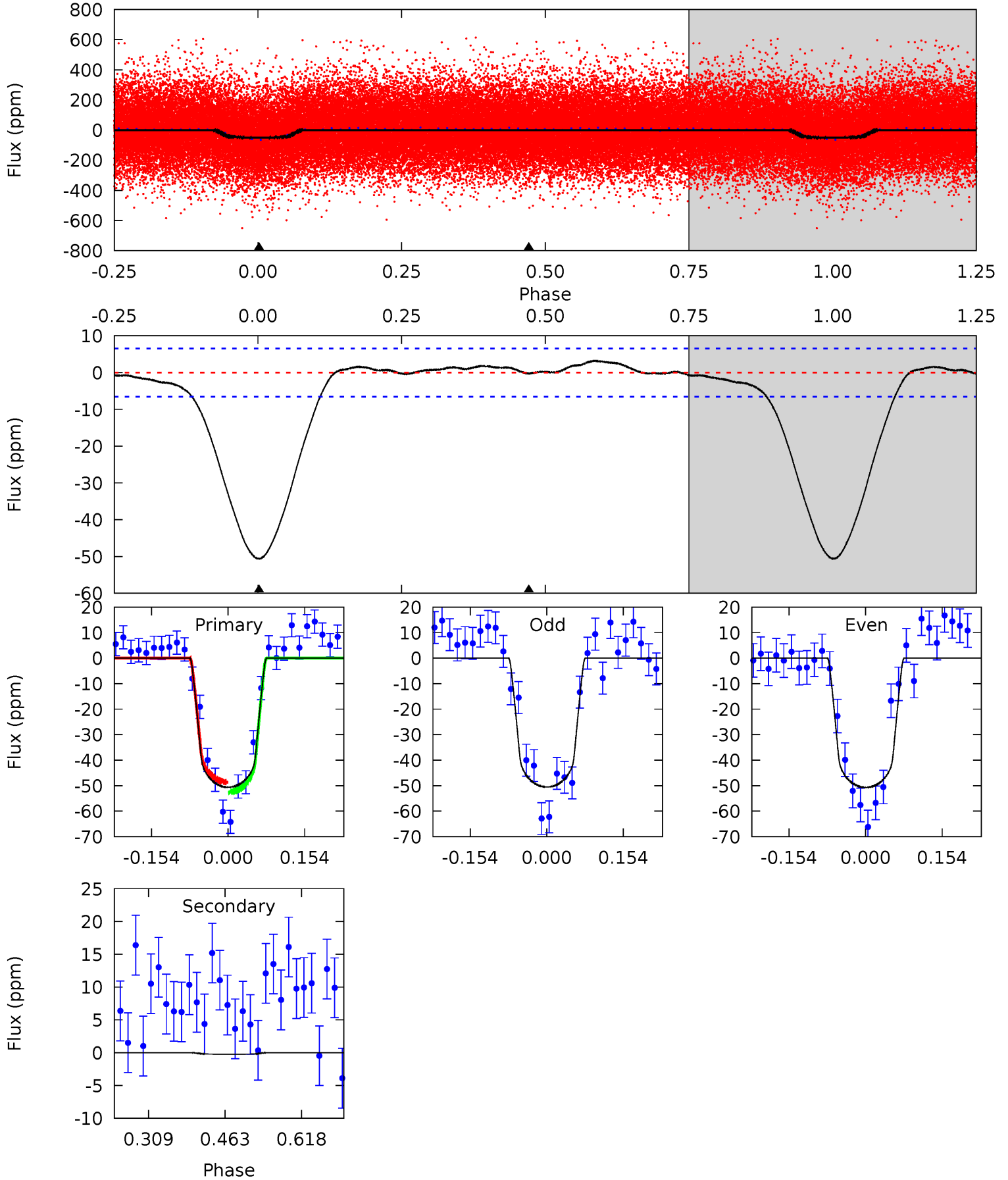
TCE 005471574-01 P= 0.962828 Days $T_0=132.205038$ (BKJD)



DV Model-Shift Uniqueness Test

005471574-01, P = 0.962809 Days, E = 131.254468 Days

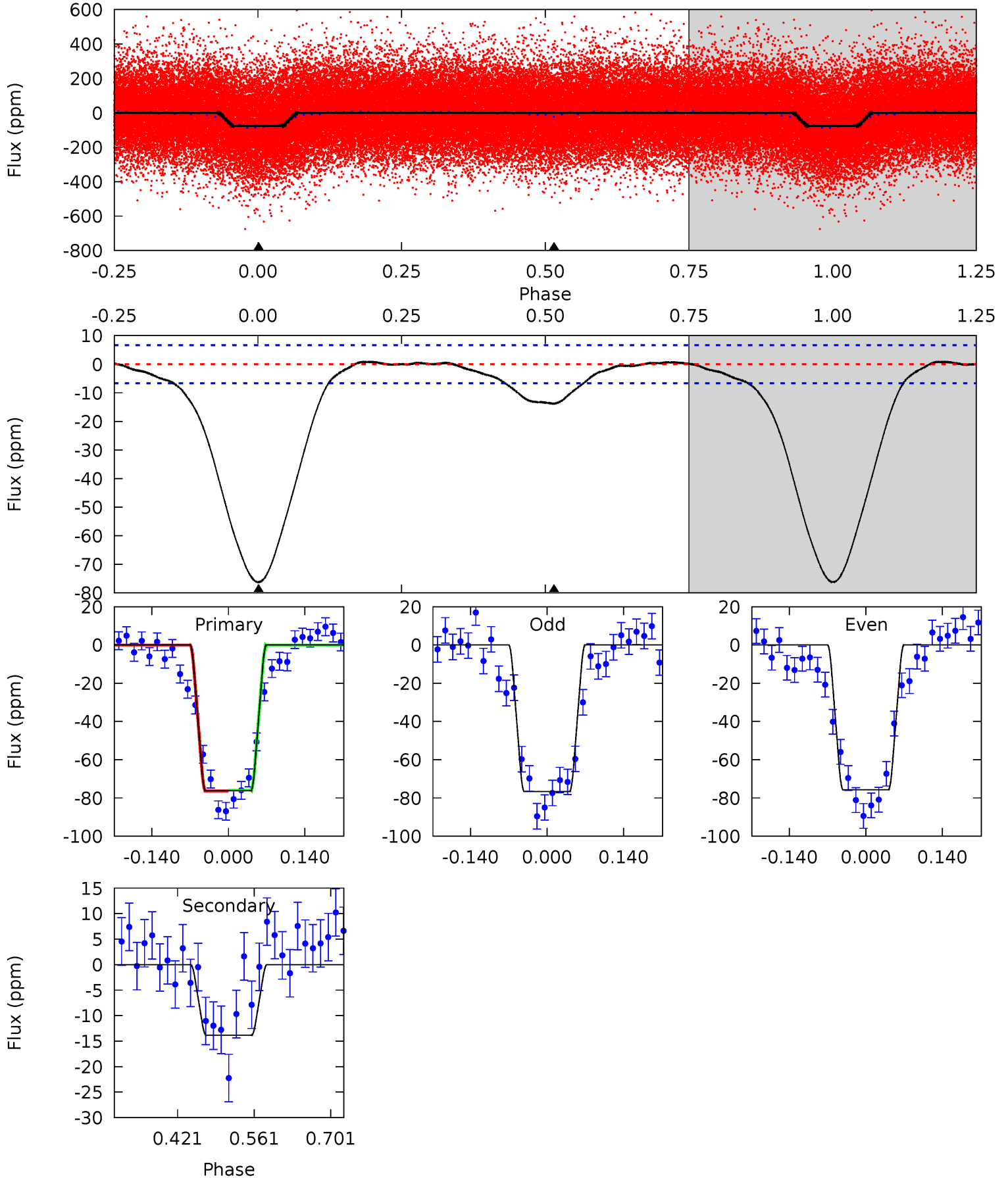
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.5	0.16	0	0	4.47	1.42	0.80	34.5	34.5	0.16	0.16	0.06	1.00	0.06	1.32



Alt Model-Shift Uniqueness Test

005471574-01, P = 0.962828 Days, E = 131.242210 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.5	9.34	0	0	4.49	1.47	1.28	51.5	51.5	9.34	9.34	0.31	0.99	0.01	0.11



Stellar Parameters For KIC 005471574

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6534^{+198}_{-198}	$3.647^{+0.344}_{-0.086}$	$-0.340^{+0.350}_{-0.250}$	$3.028^{+0.410}_{-1.147}$	$1.484^{+0.225}_{-0.338}$	$0.075^{+0.194}_{-0.020}$
	+3%/-3%	+9%/-2%	+103%/-74%	+14%/-38%	+15%/-23%	+257%/-27%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005471574-01 / KOI 2505.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-0 ± 1	$2.53^{+0.67}_{-0.63}$	4634^{+295}_{-416}	-4055^{+306}_{-240}	$0.009^{+0.068}_{-0.060}$
Alt.	-14 ± 1	$2.86^{+0.72}_{-0.71}$	4631^{+307}_{-453}	3559^{+653}_{-6214}	$0.441^{+0.319}_{-0.158}$

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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

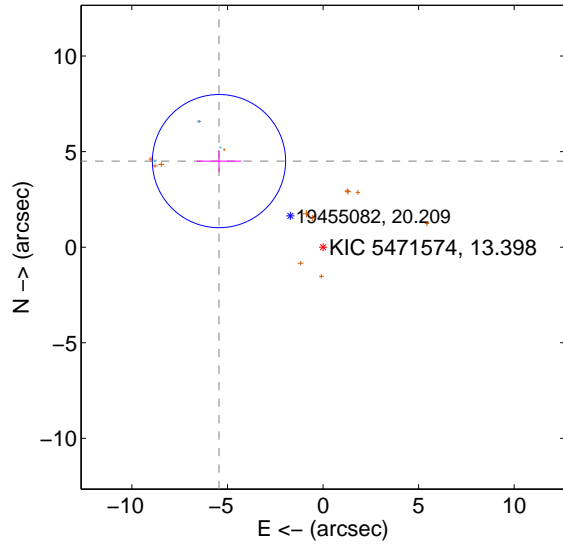
Supplemental centroid analysis for 005471574-01. Kepler magnitude: 13.40. Transit SNR 24.99

There are 4 quarters with good PRF difference image offsets

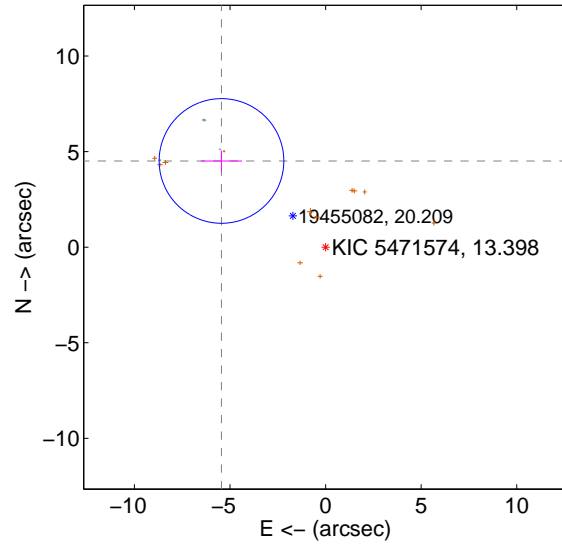
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.064 ± 1.162	6.08	5.443 ± 1.166	4.503 ± 0.564
PRF-fit source offset from KIC position	7.072 ± 1.087	6.51	5.446 ± 1.075	4.511 ± 0.549
photometric centroid source offset	3.40 ± 0.42	8.12	2.50 ± 0.44	2.31 ± 0.39

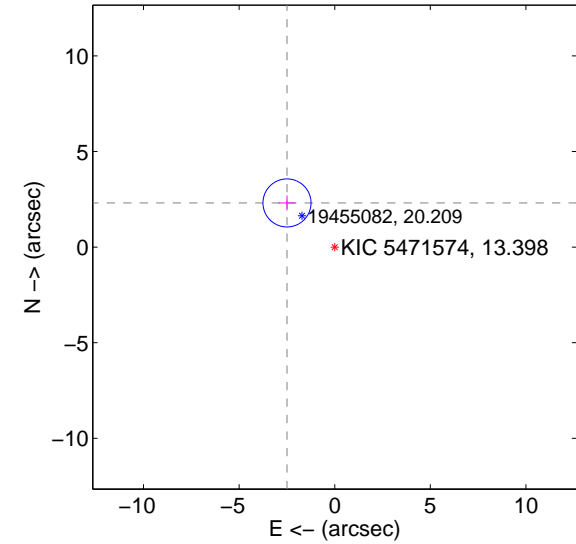
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

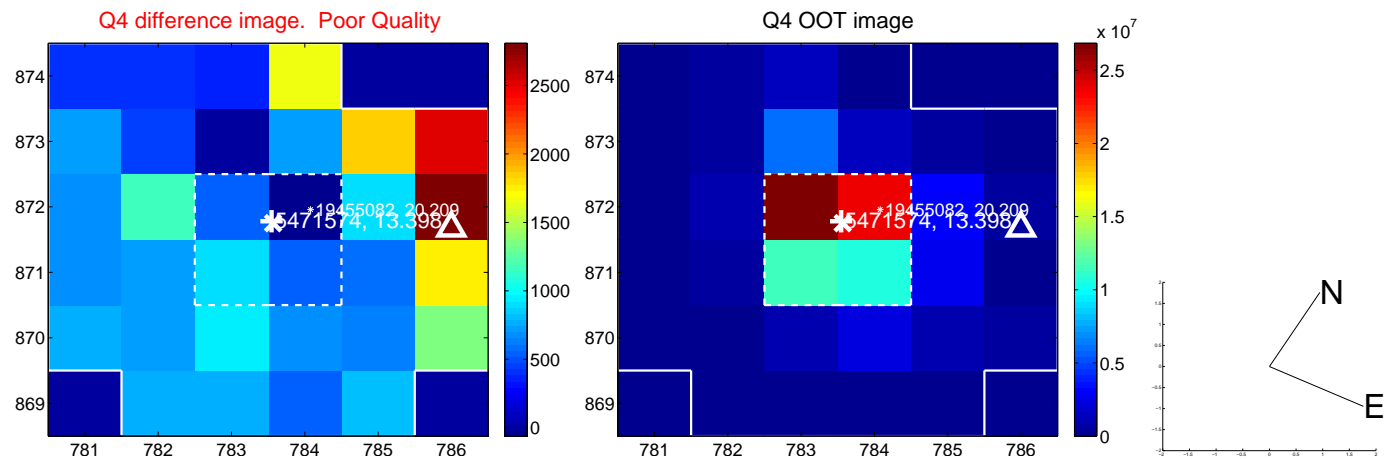
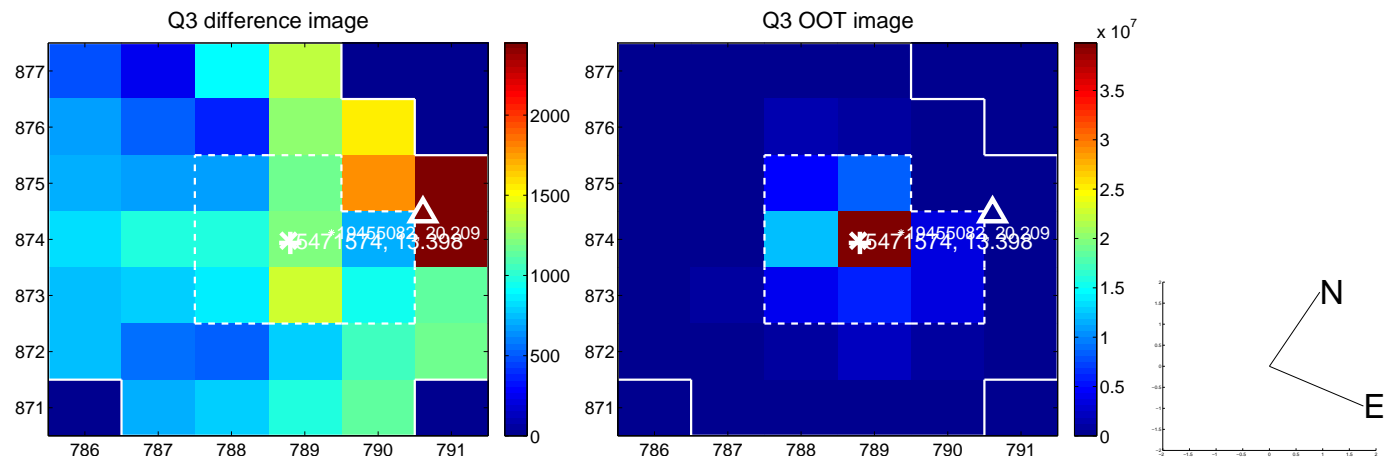
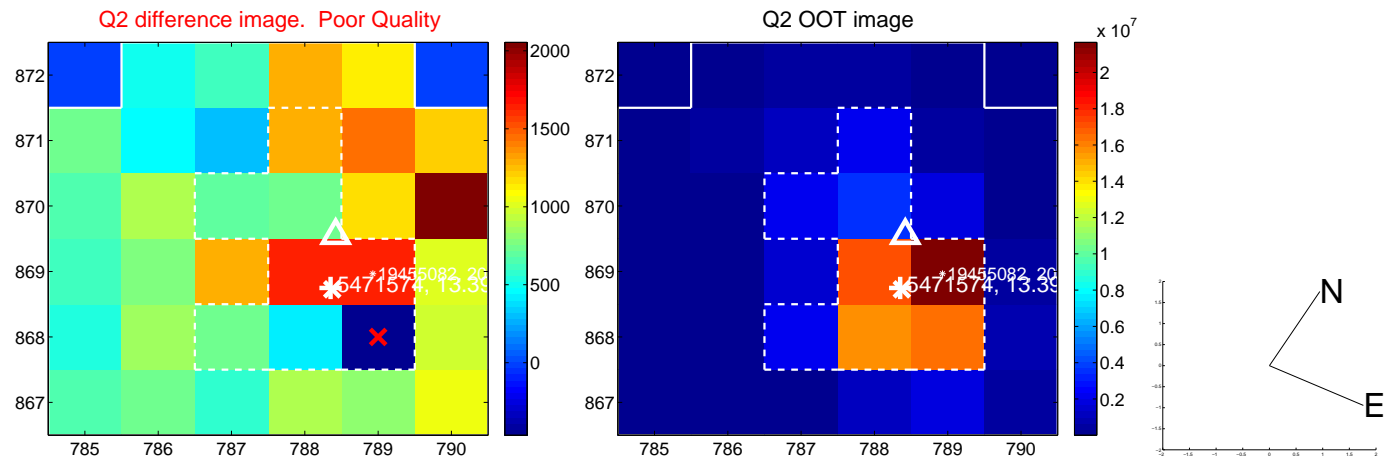
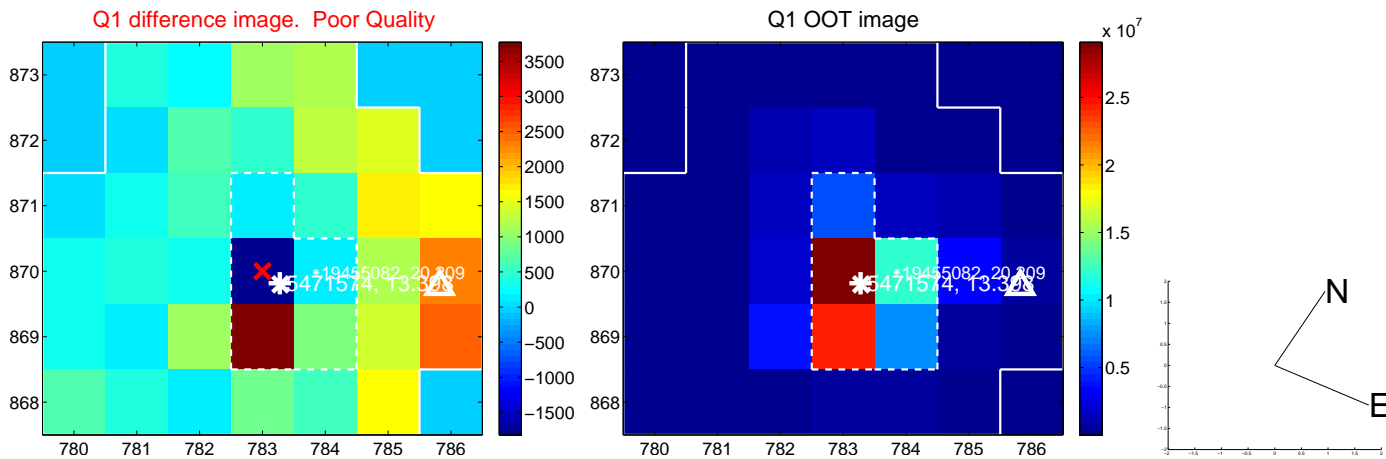


offset from photometric centroids

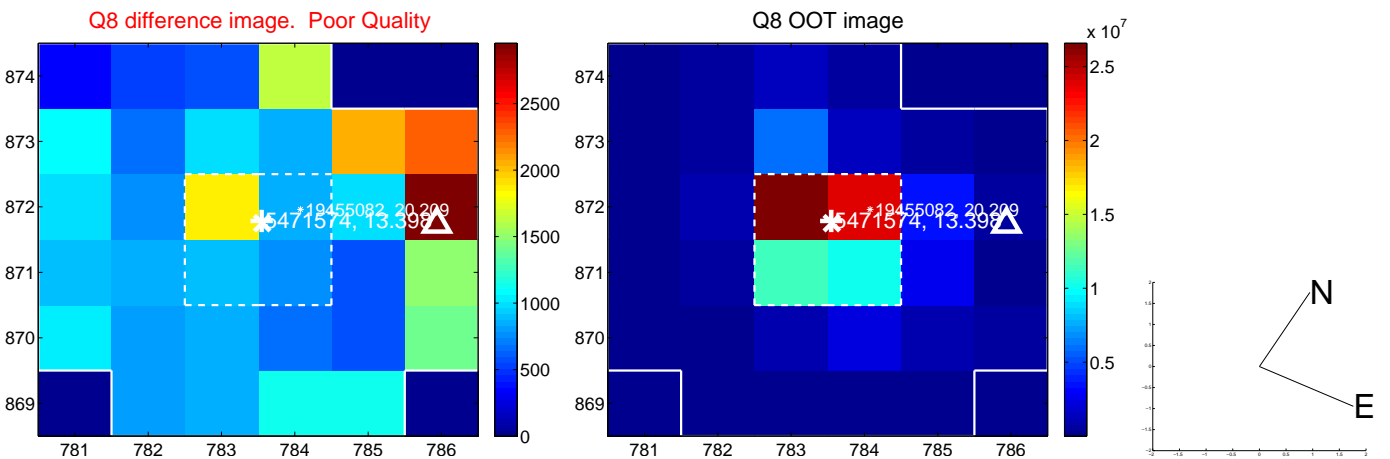
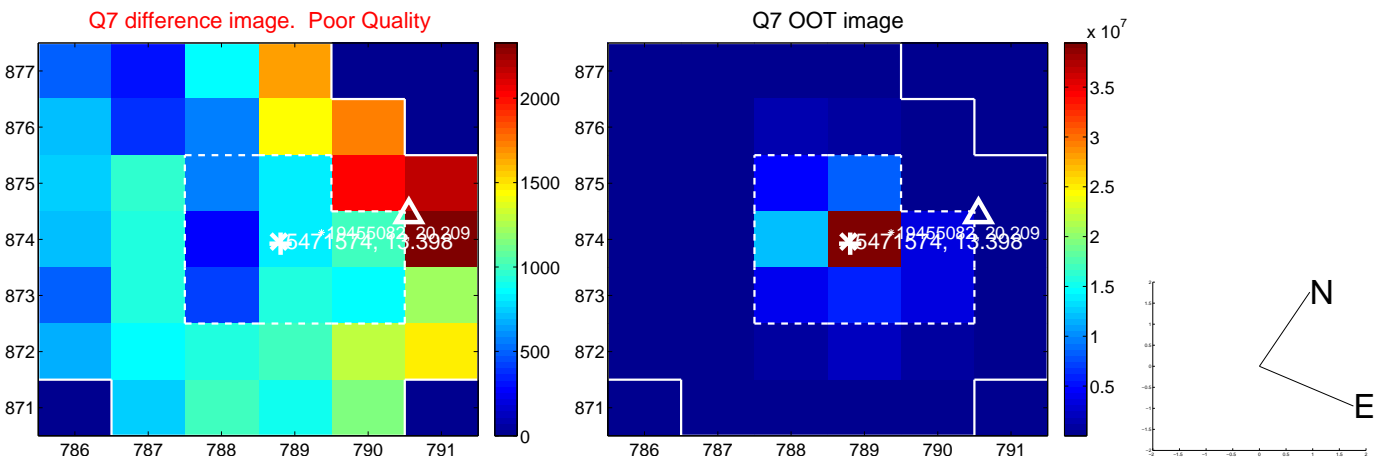
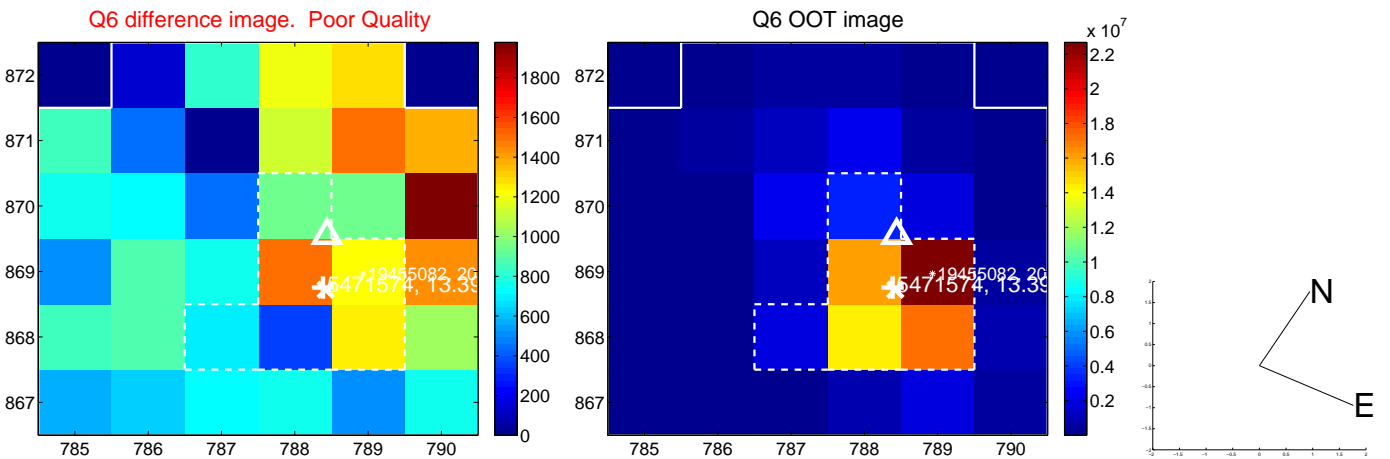
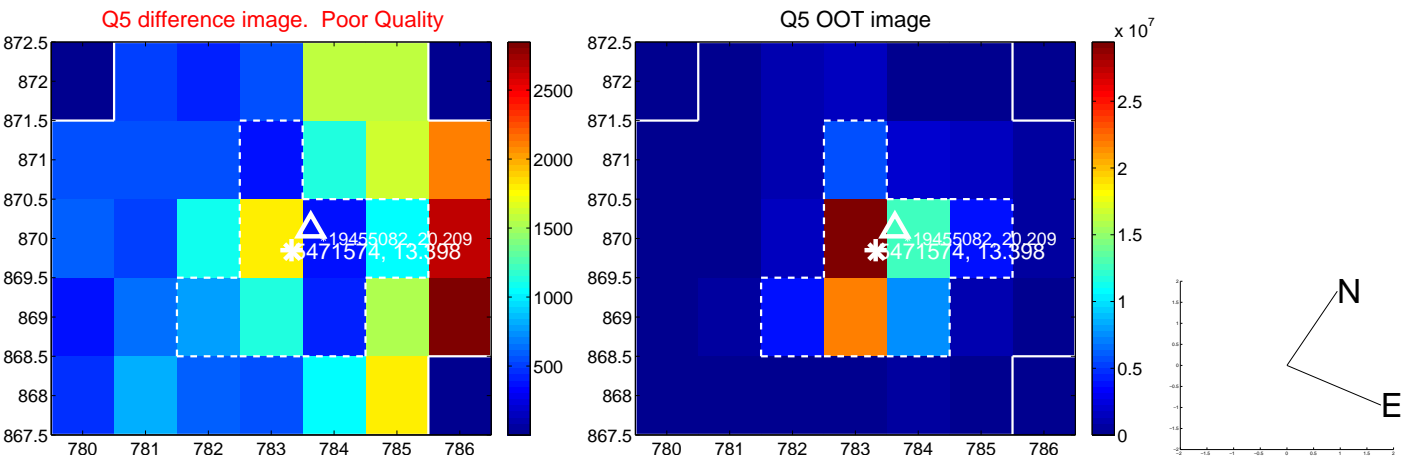


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

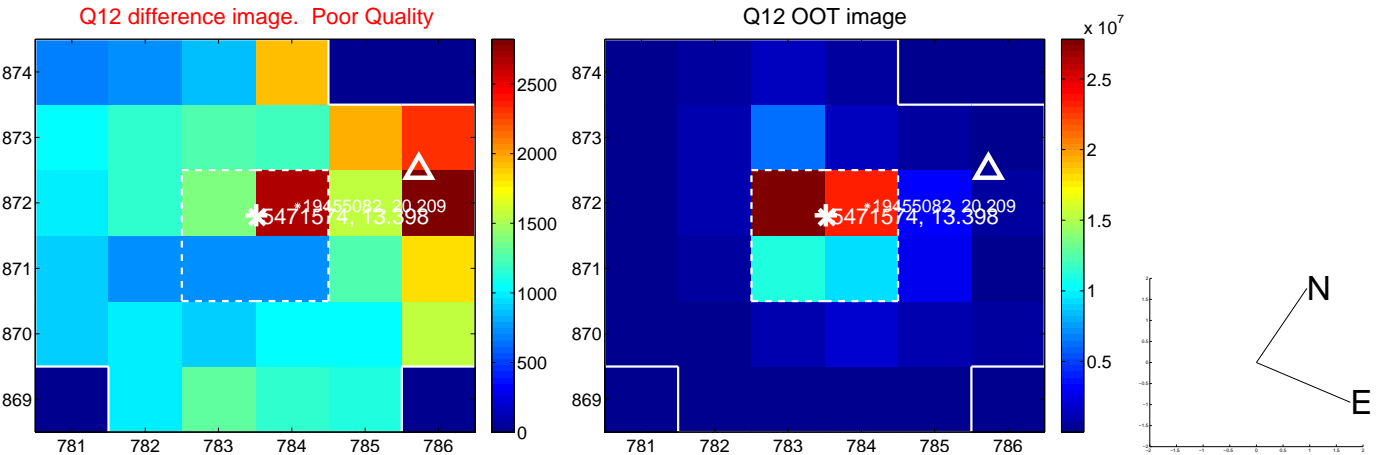
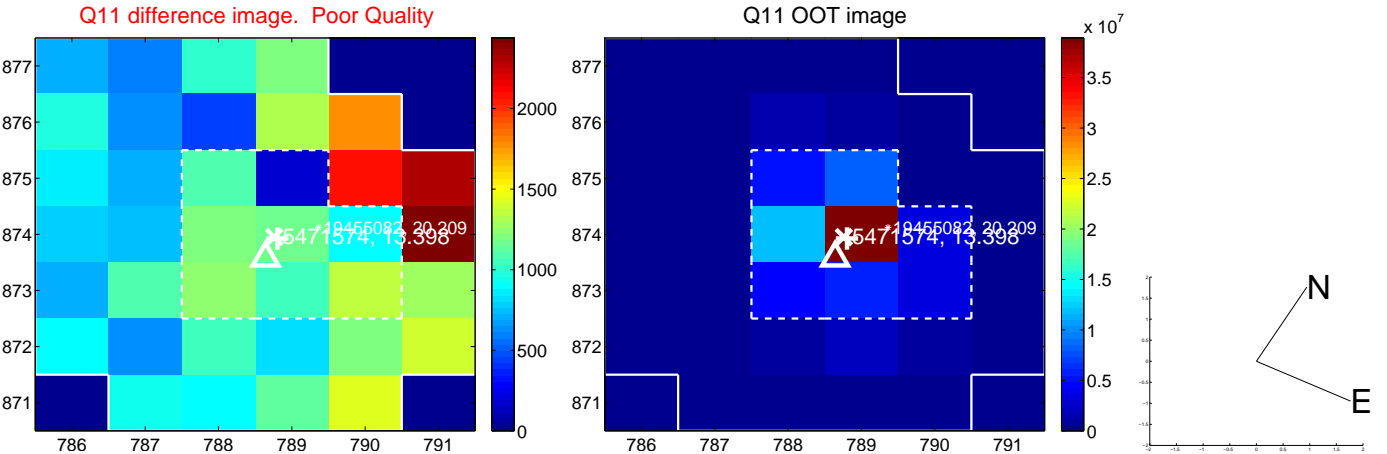
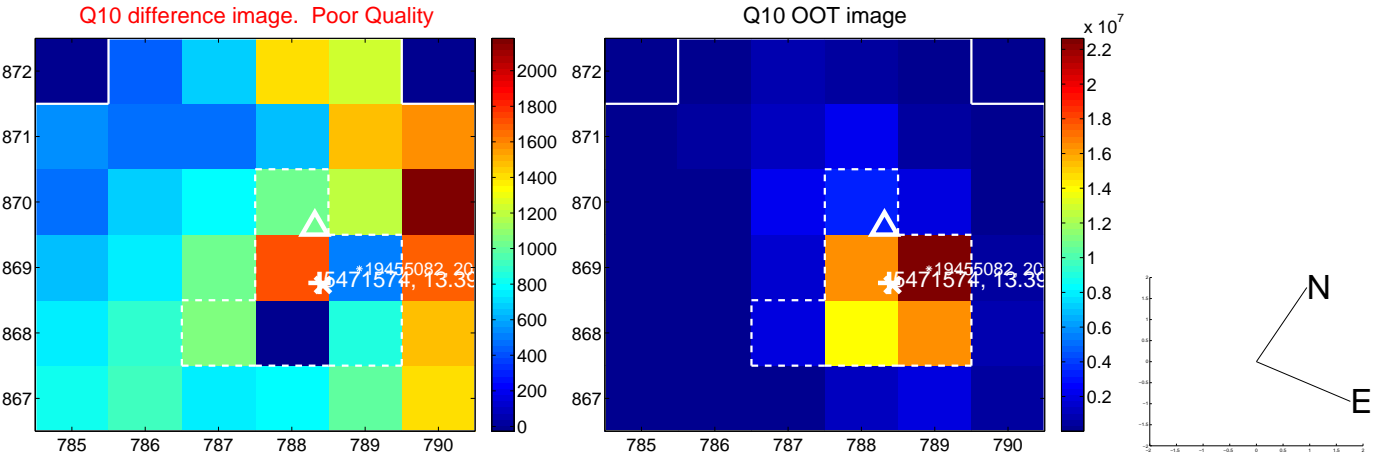
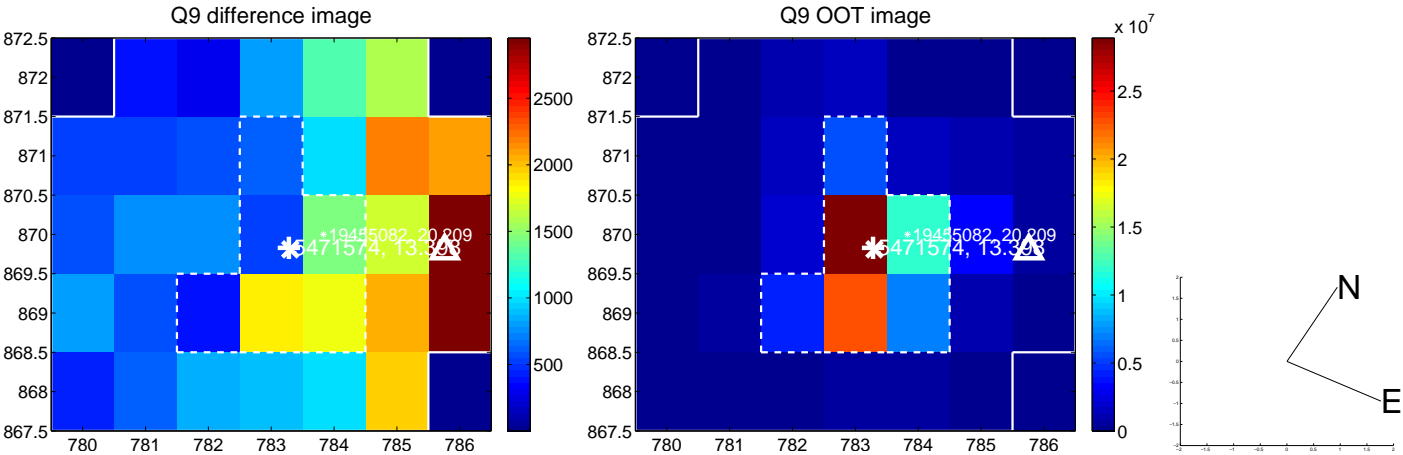
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



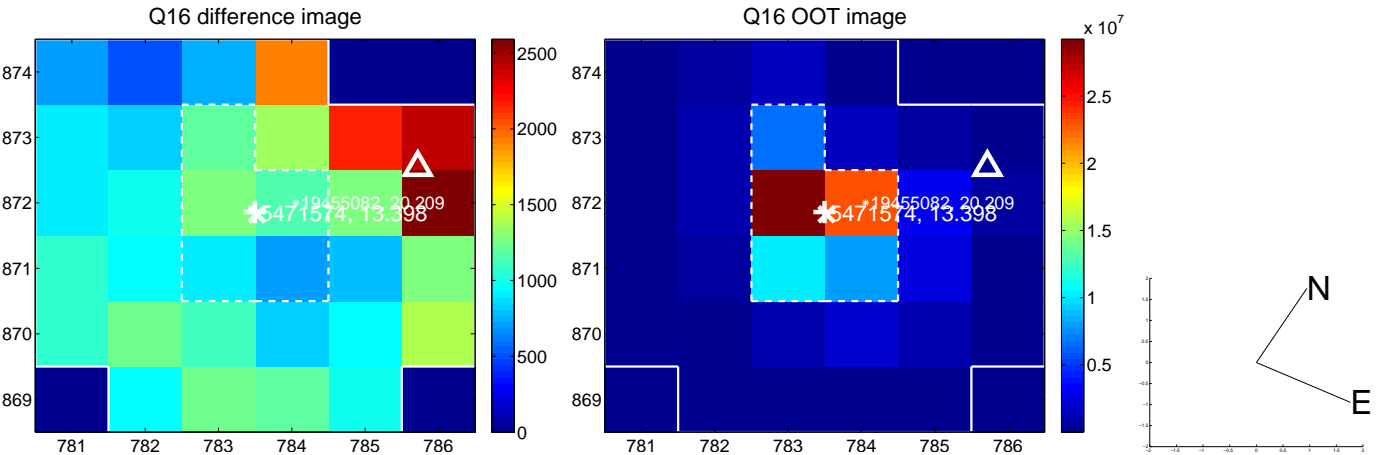
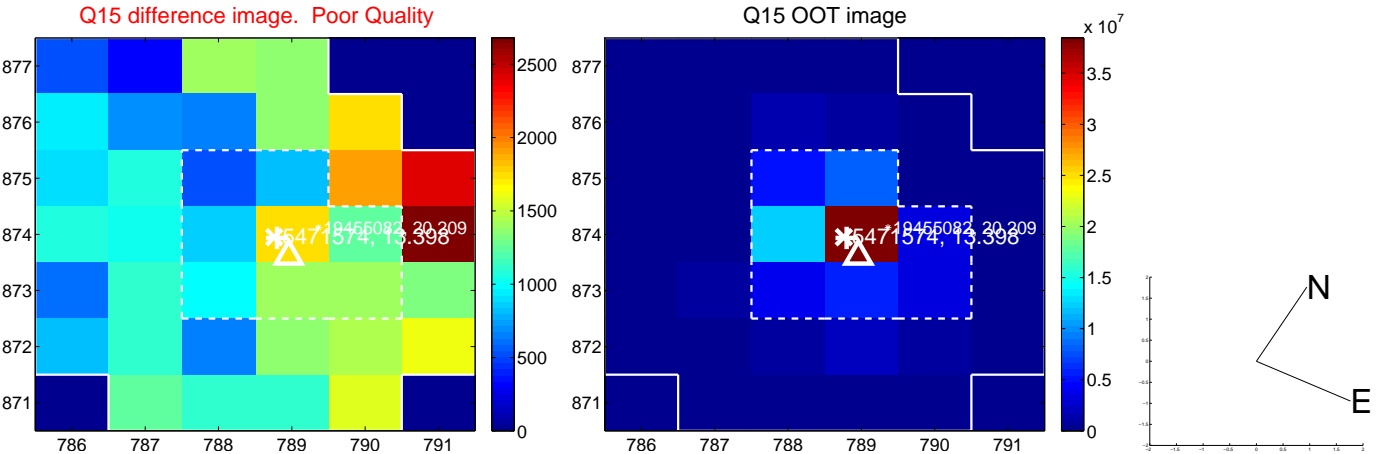
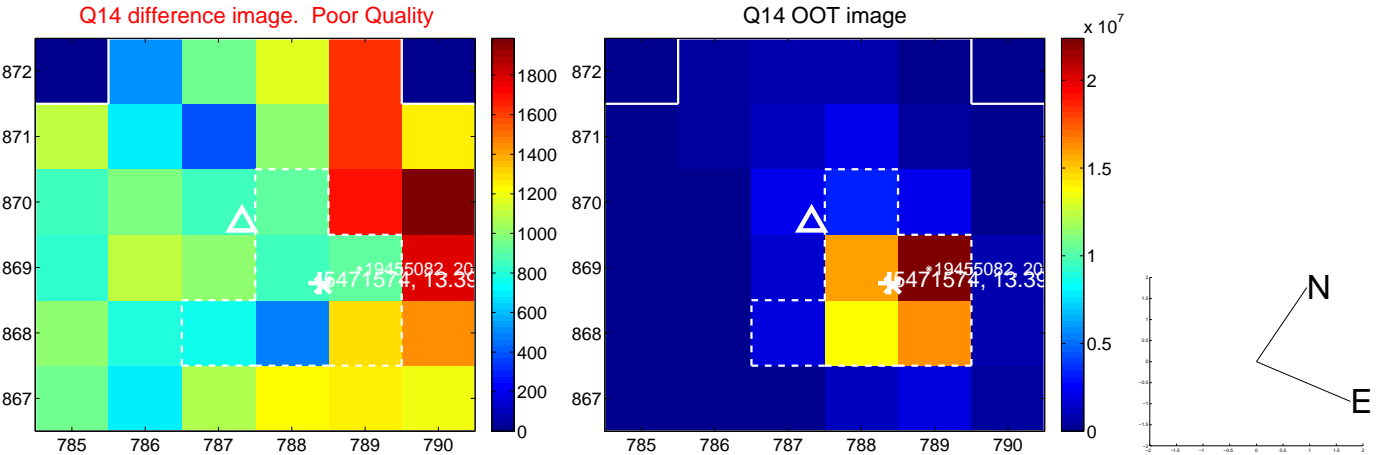
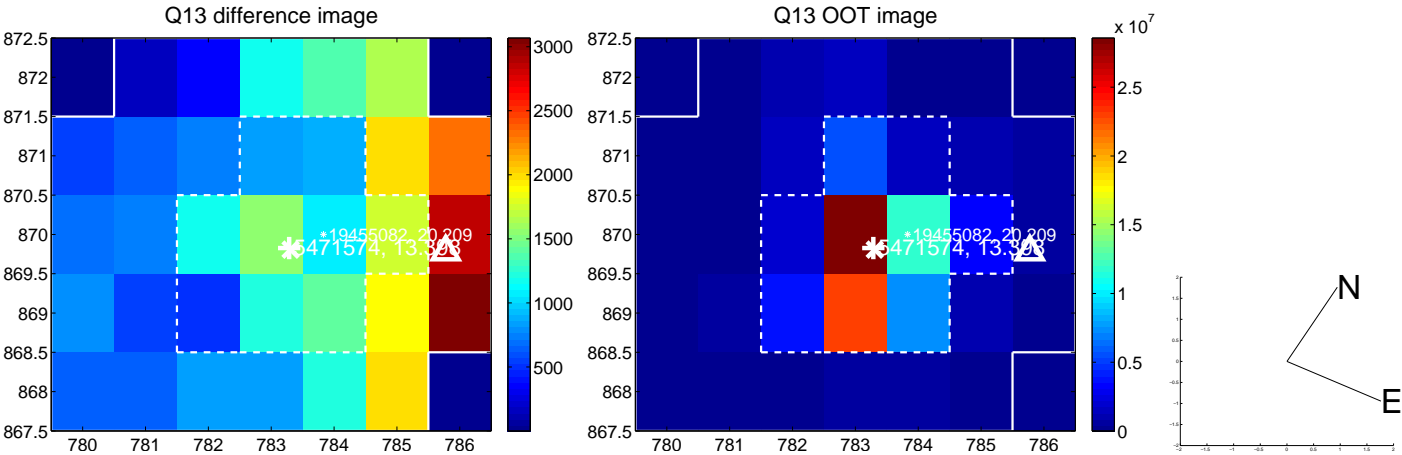
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



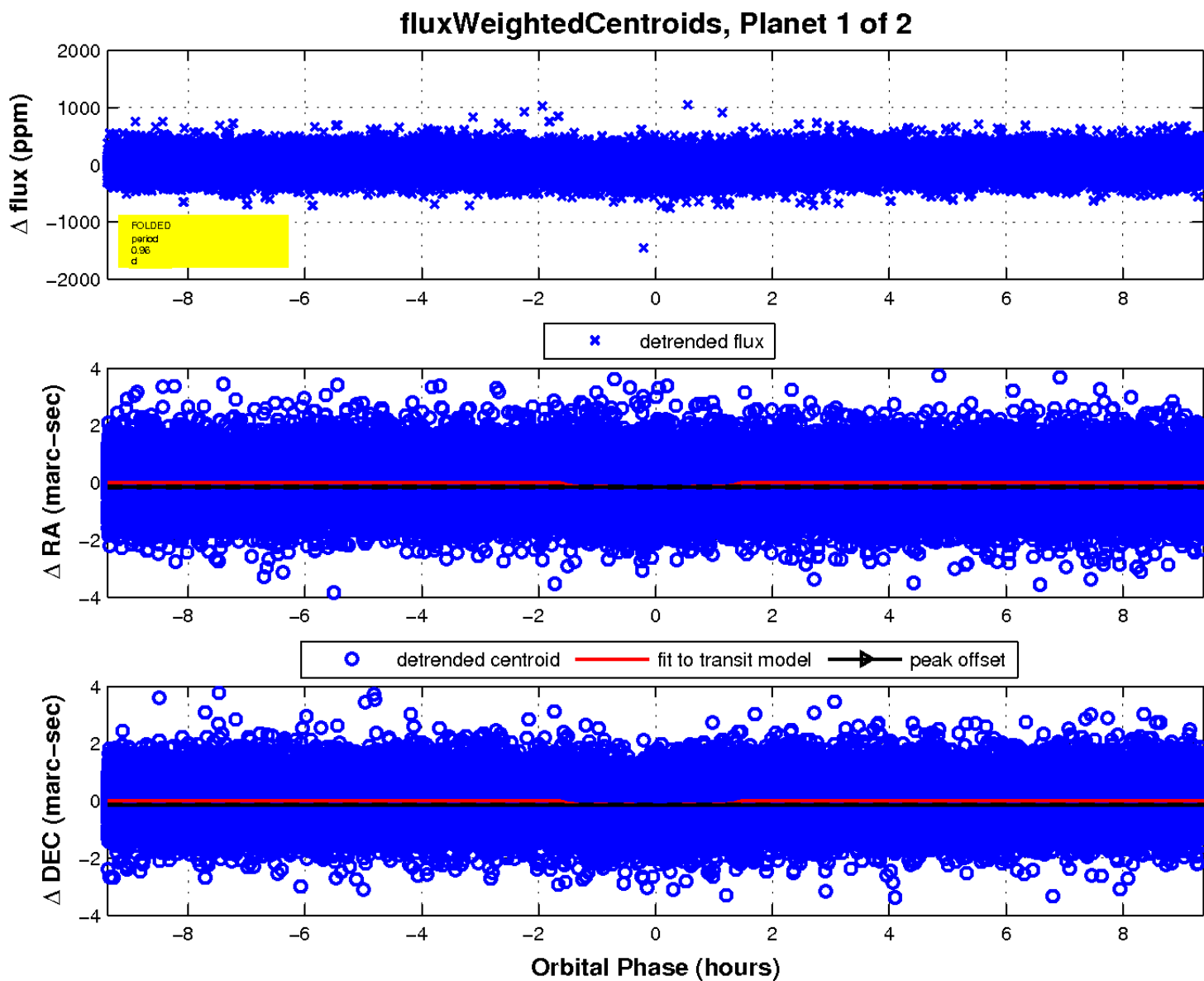
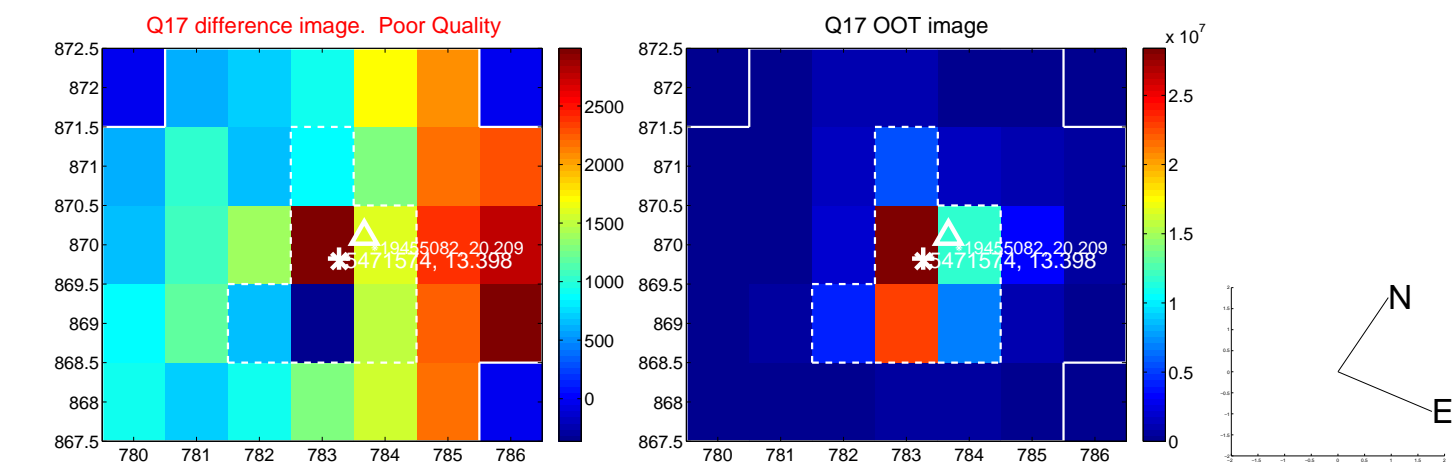
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

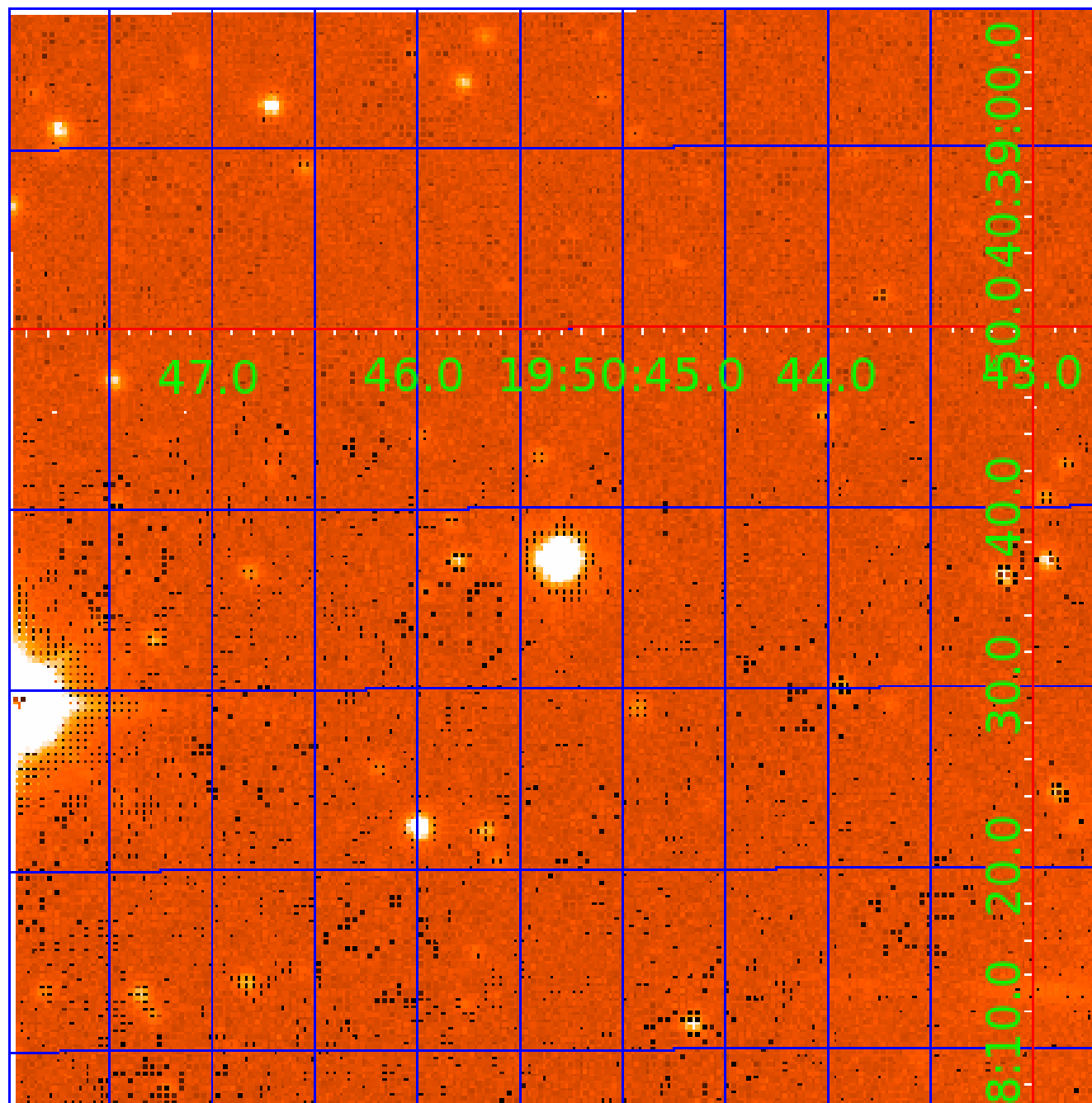


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005471574

Q1-17 DR25 TCE Parameters

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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471574-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005471574-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

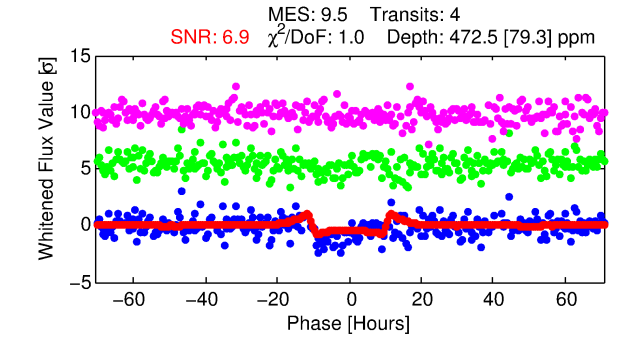
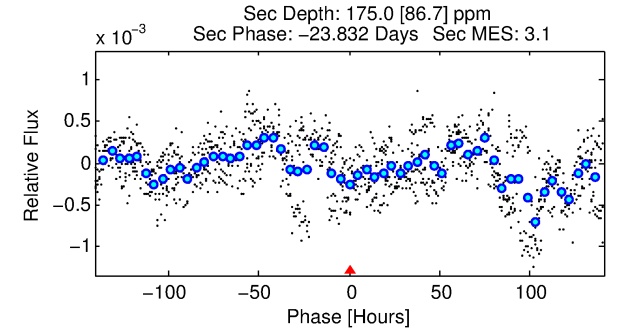
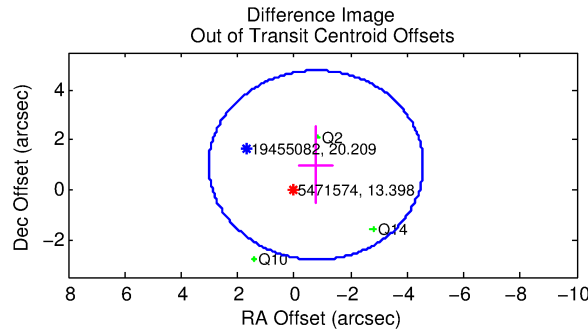
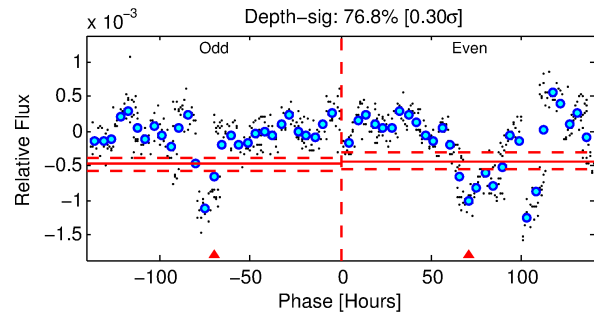
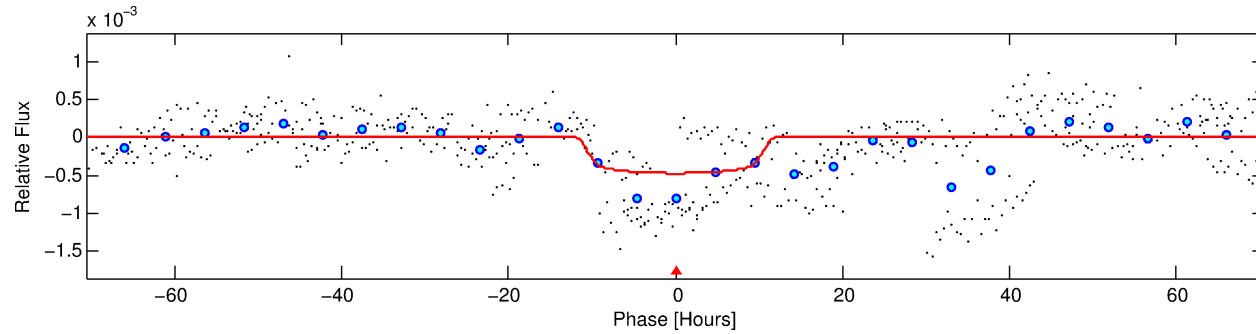
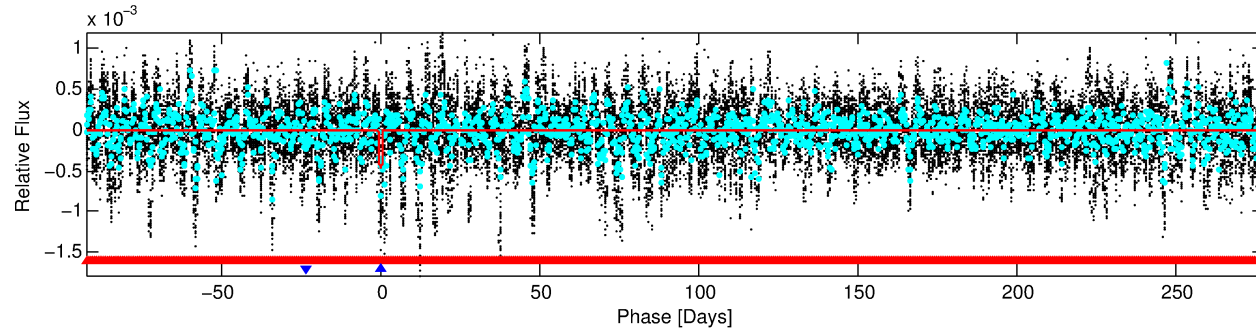
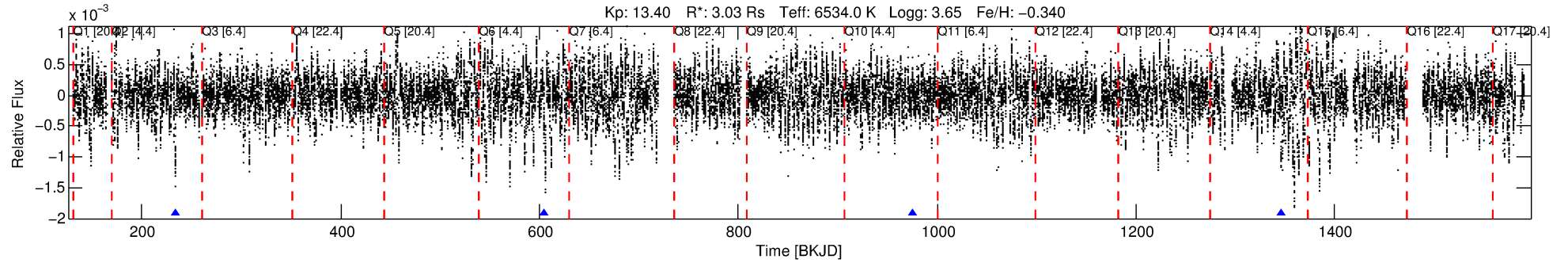
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005471574-02

No Significant Match Found

DV One-Page Summary

KIC: 5471574 Candidate: 2 of 2 Period: 370.965 d
KOI: K02505 Corr: No Ephemeris Match



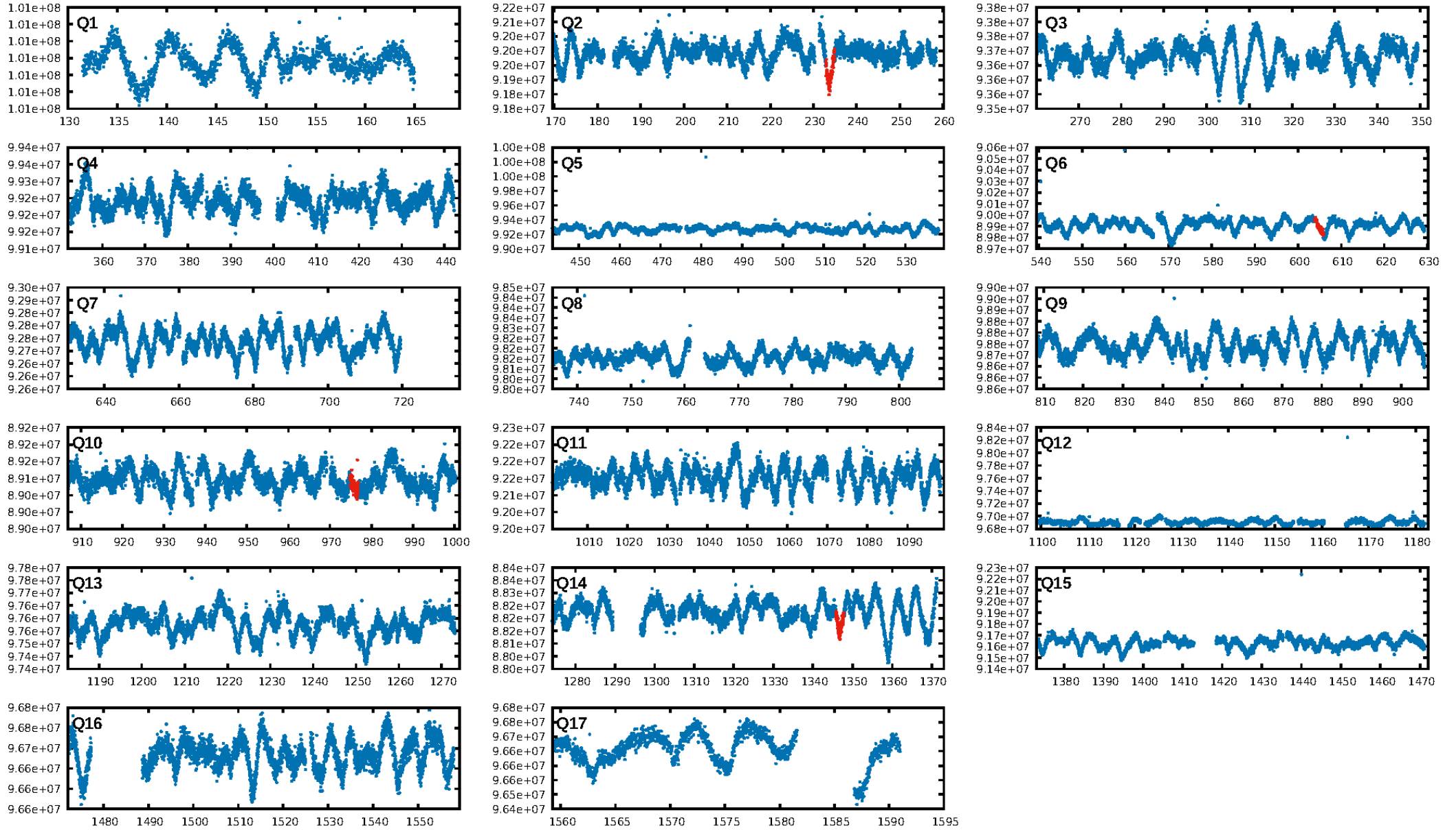
DV Fit Results:

Period = 370.96491 [0.02357] d
Epoch = 233.8989 [0.0382] BKJD
Rp/R* = 0.0231 [0.0023]
a/R* = 59.98 [14.10]
b = 0.89 [0.05]
Seff = 11.27 [6.74]
Teq = 467 [70] K
Rp = 7.64 [2.99] Re
a = 1.1526 [0.4211] AU
Ag = 2192.89 [1738.69] [1.26 σ]
Teffp = 4943 [678] K [6.57 σ]

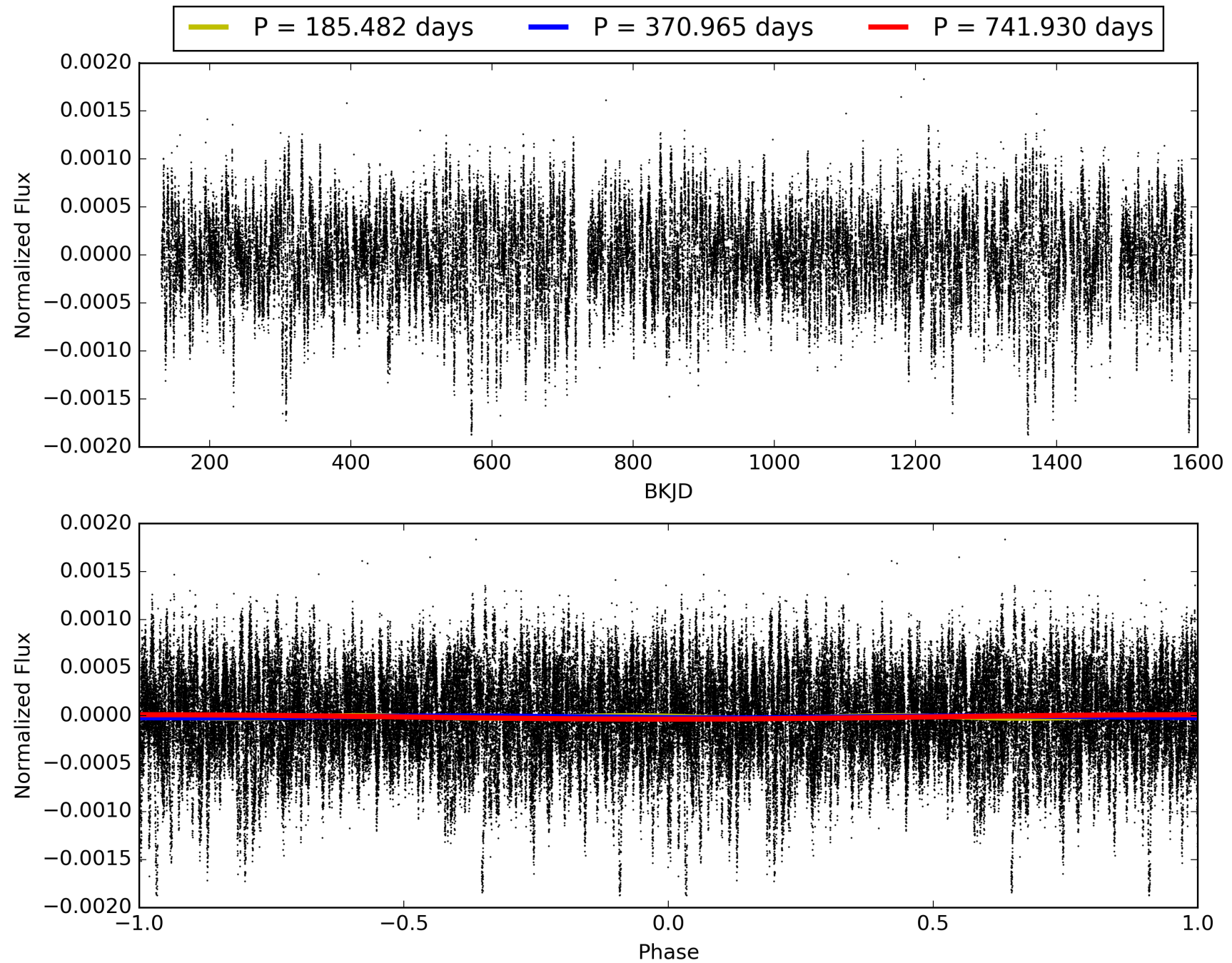
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [373.25 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.81e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.9984
Centroid-sig: 18.4%
Centroid-so: 0.945 arcsec [1.18 σ]
OotOffset-rm: 1.251 arcsec [0.99 σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-rm: 1.392 arcsec [0.81 σ]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/4]

TCE 005471574-02, PDC Light Curves

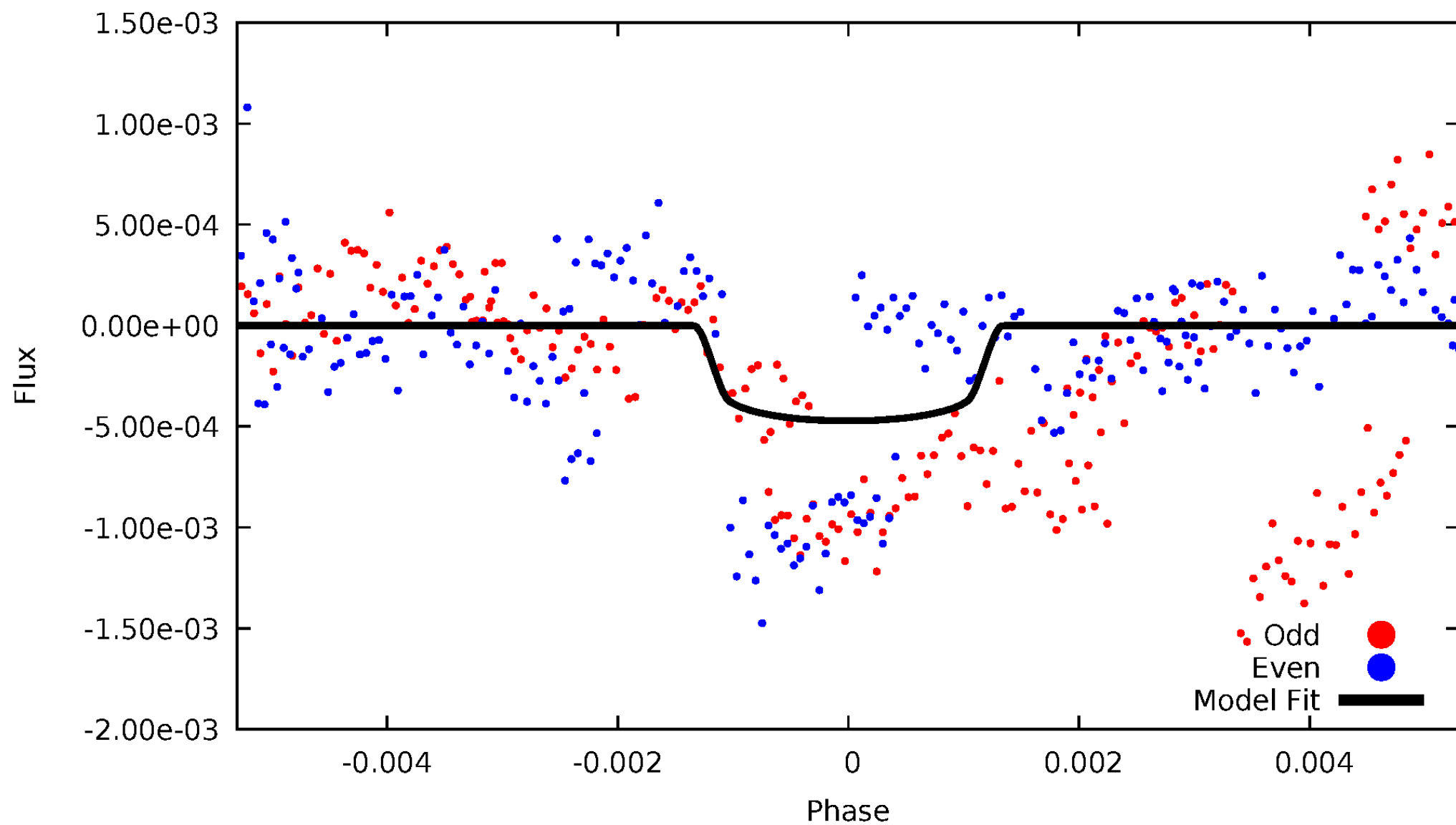


TCE 005471574-02



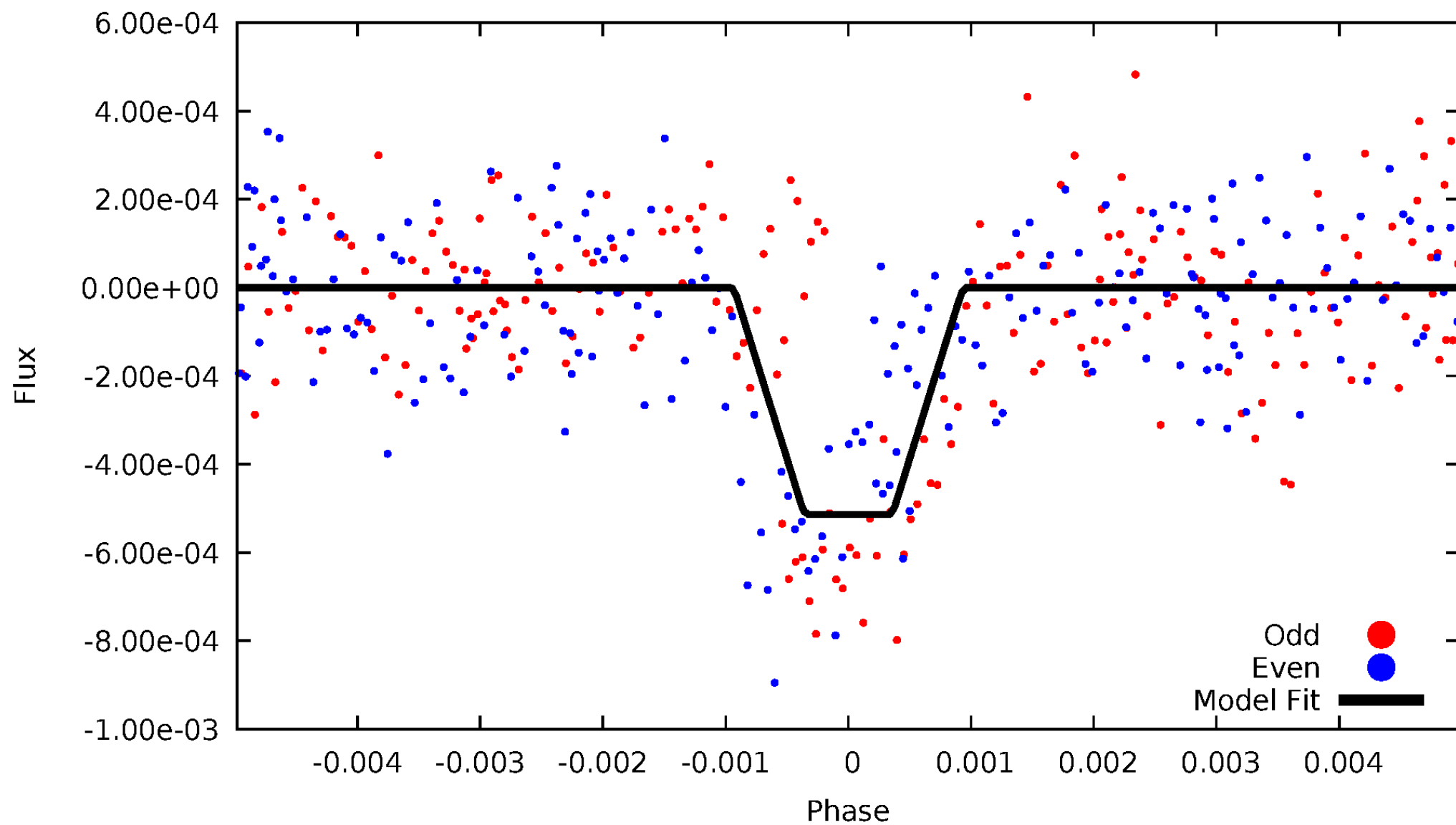
DV Odd/Even

TCE 005471574-02



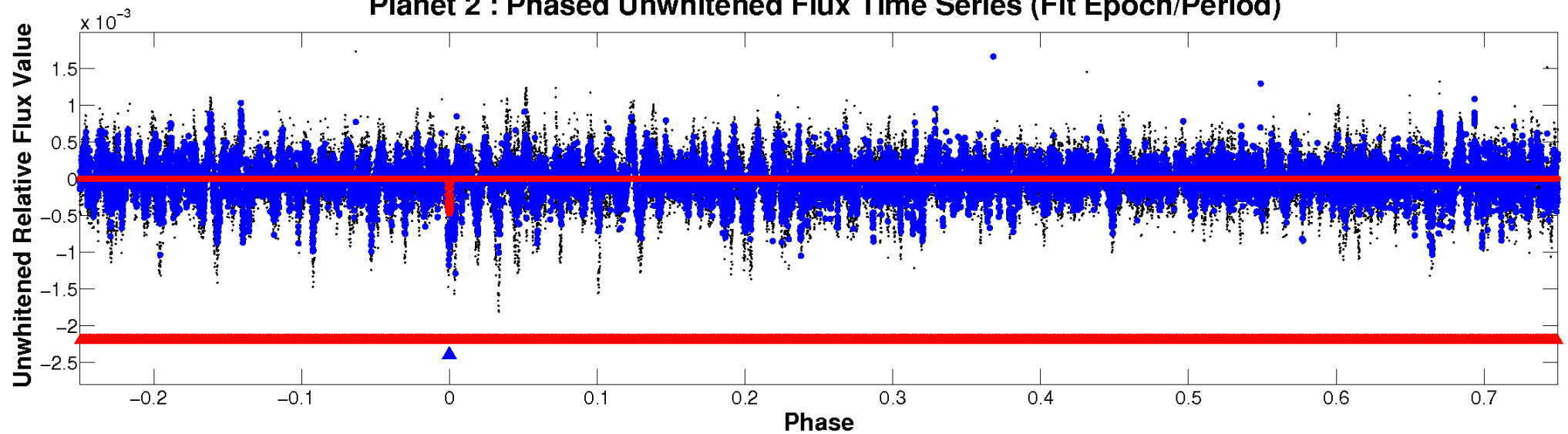
ALT Odd/Even

TCE 005471574-02

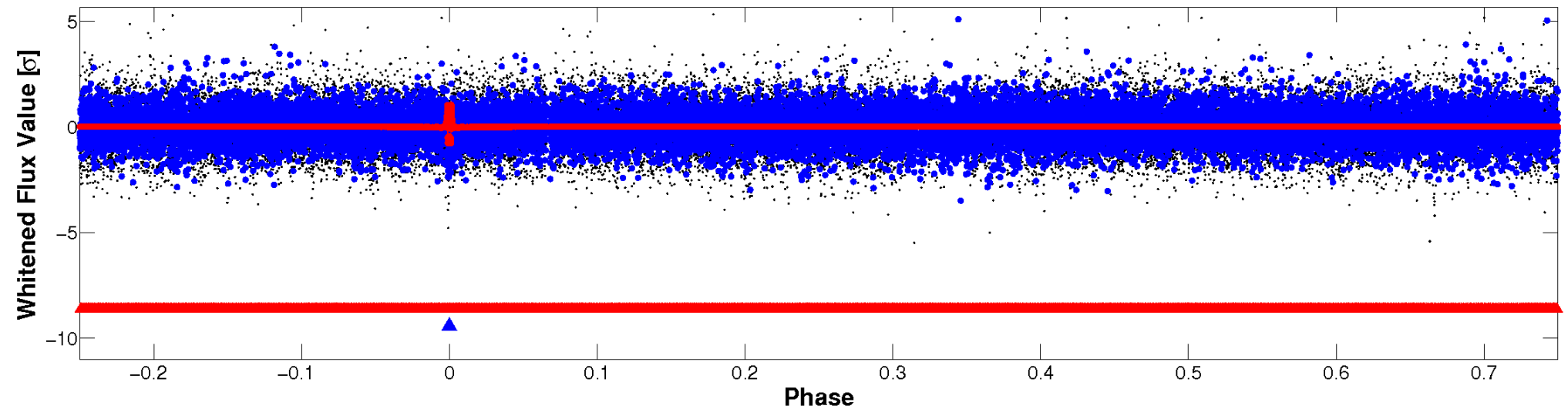


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

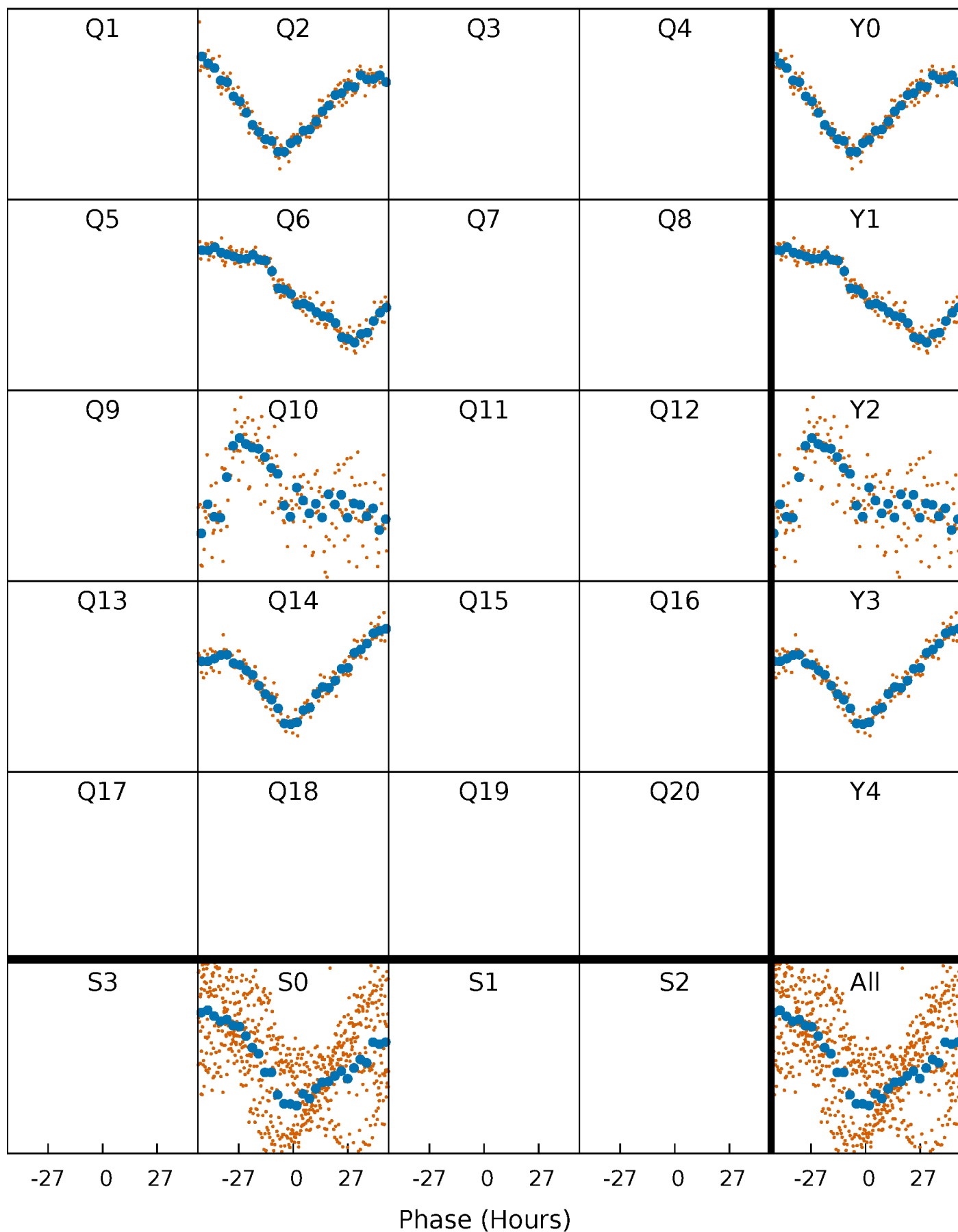


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



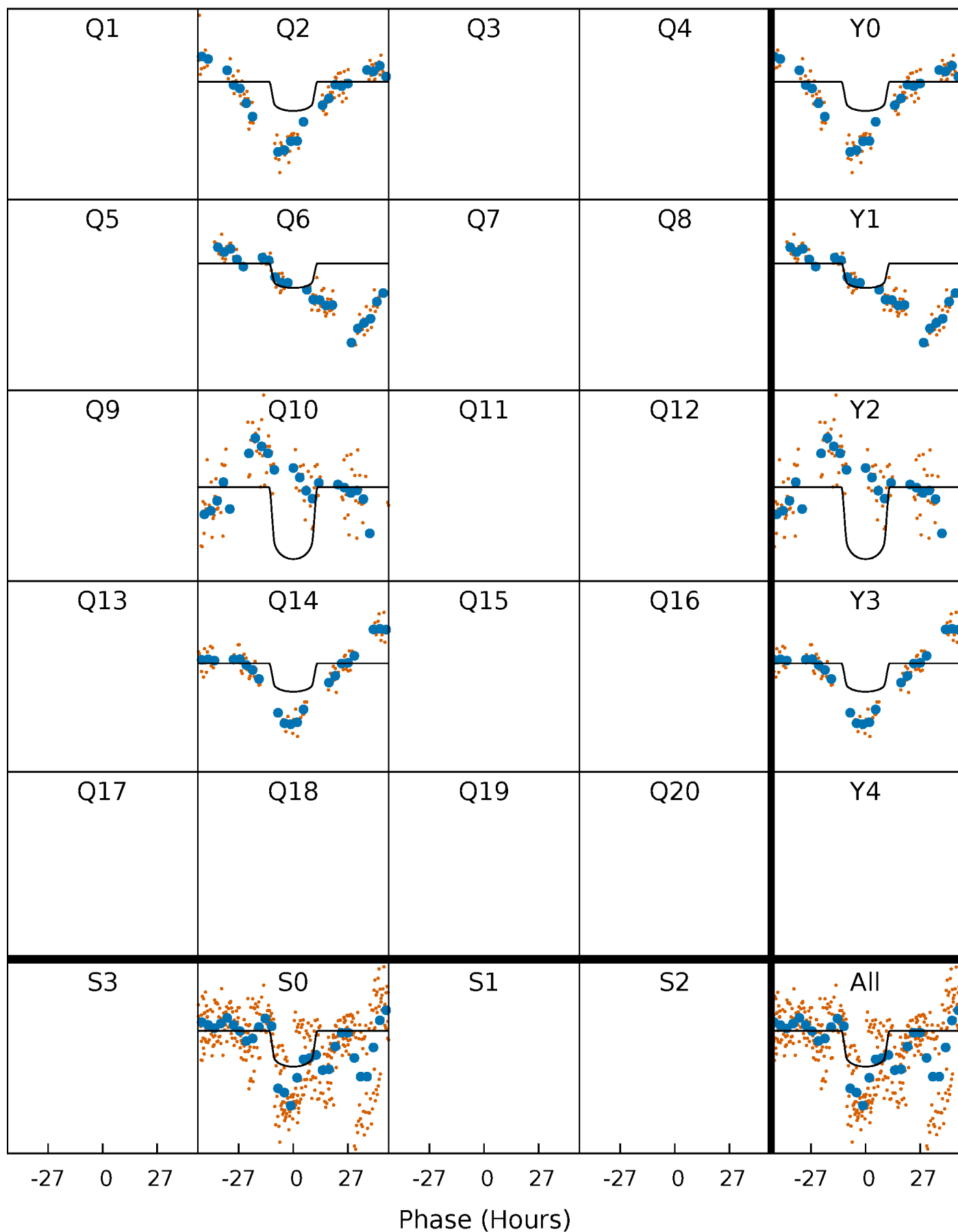
PDC Quarter-Phased Transit Curves

TCE 005471574-02 P=370.964907 Days $T_0=233.898860$ (BKJD)



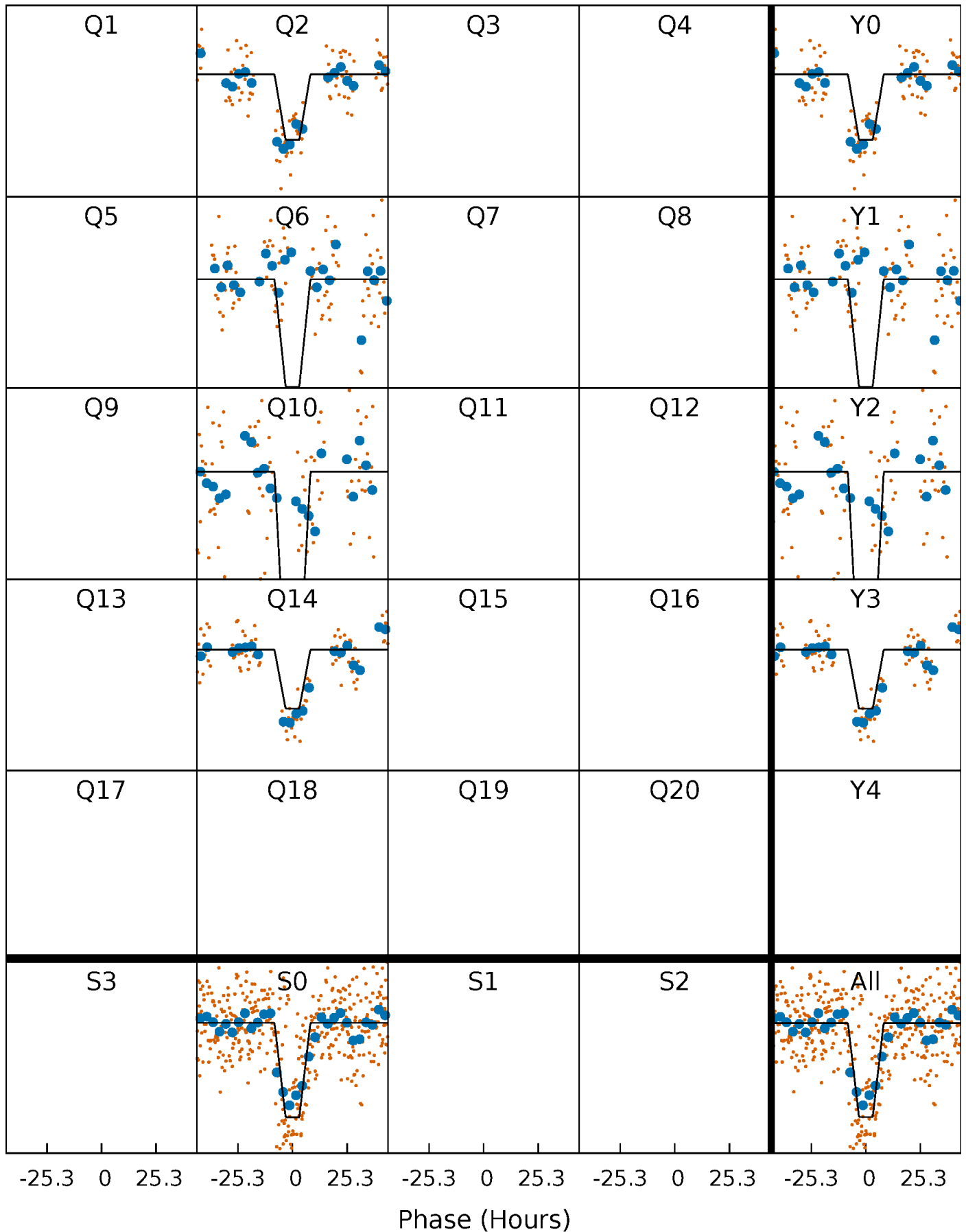
DV Quarter-Phased Transit Curves

TCE 005471574-02 P=370.964907 Days $T_0=233.898860$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

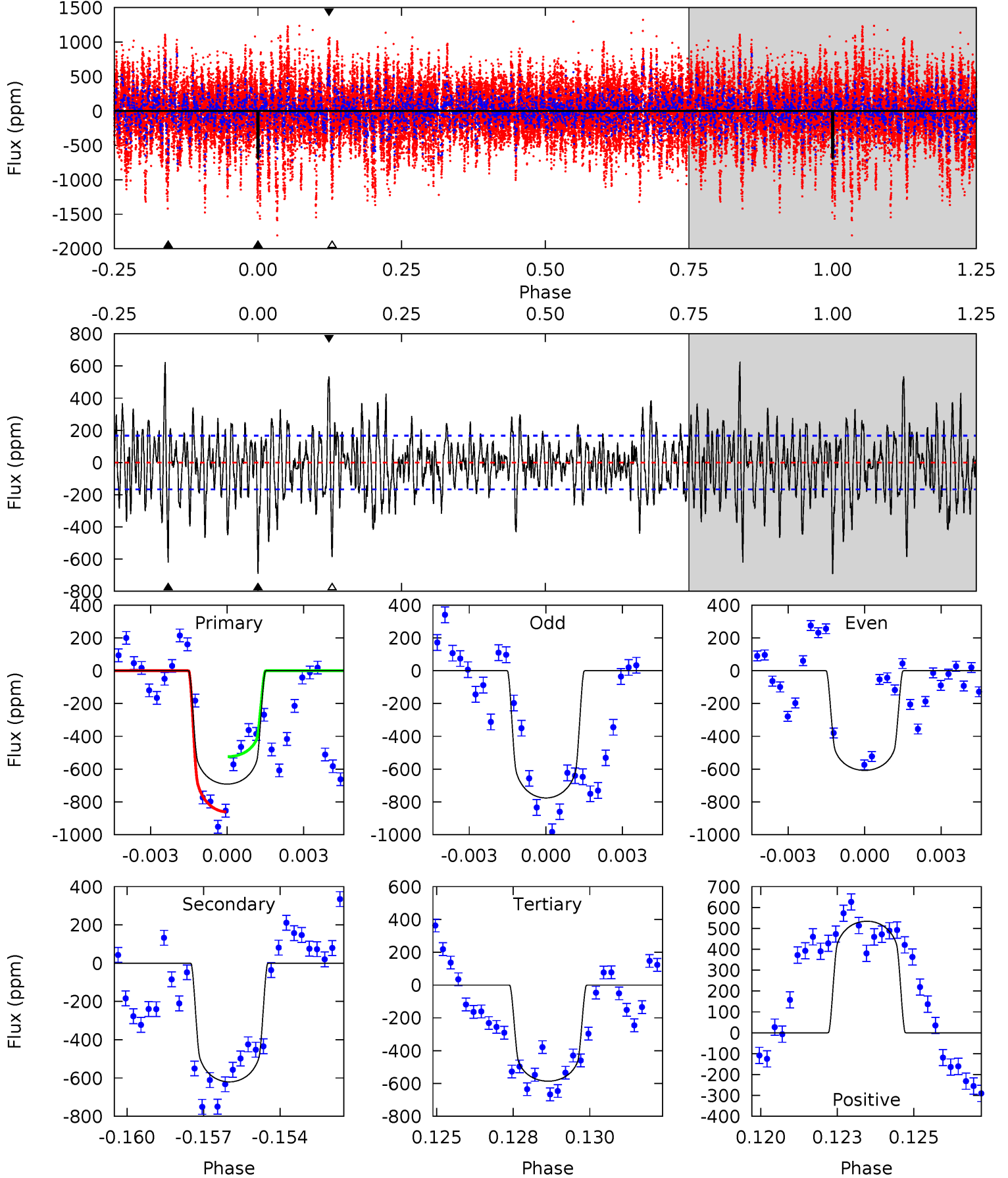
TCE 005471574-02 P=370.964471 Days $T_0=233.844125$ (BKJD)



DV Model-Shift Uniqueness Test

005471574-02, P = 370.964907 Days, E = 233.898860 Days

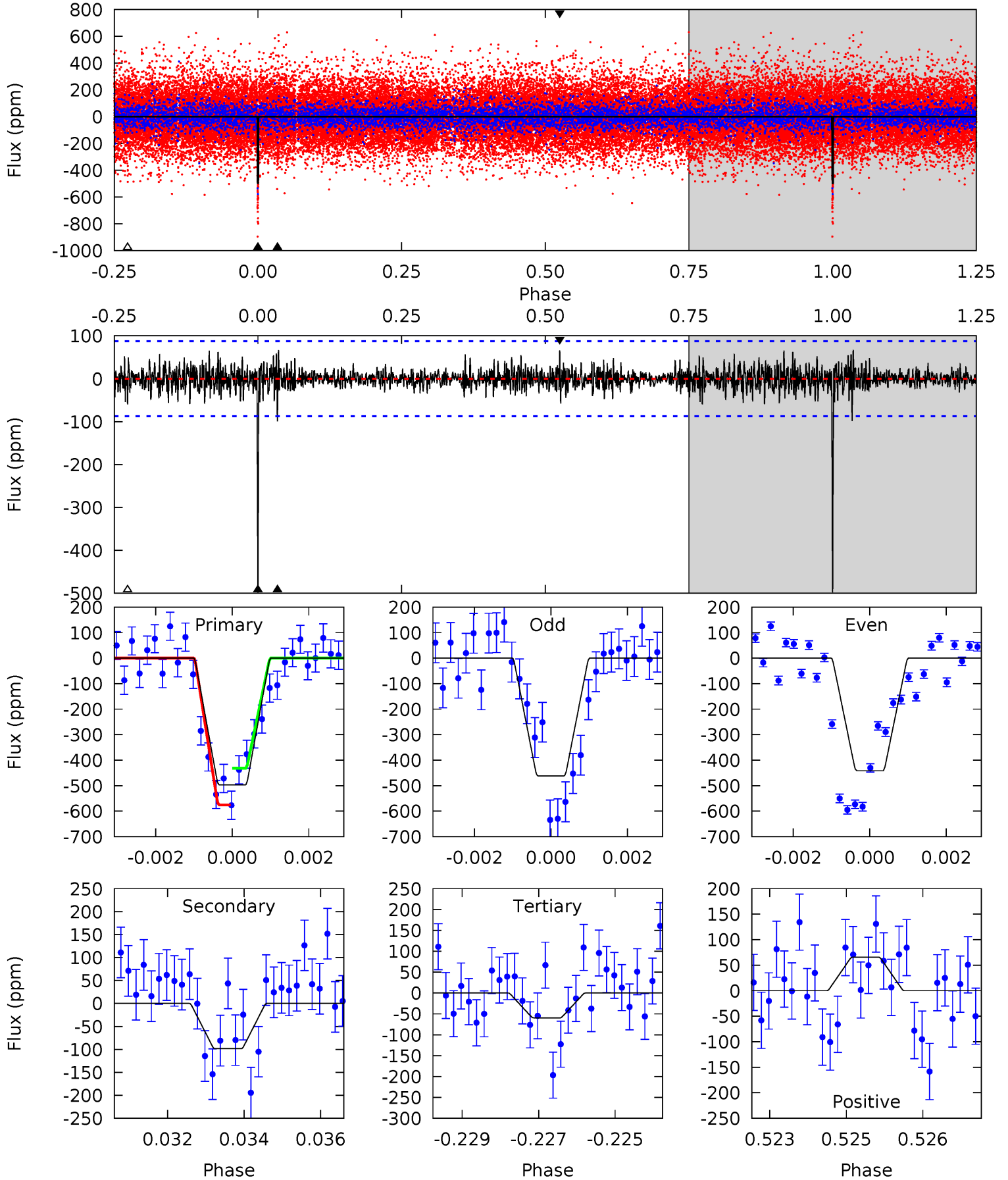
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.8	19.6	18.5	16.9	5.27	3.00	4.91	3.34	4.97	1.08	2.71	2.66	0.86	0.47	5.31



Alt Model-Shift Uniqueness Test

005471574-02, P = 370.964471 Days, E = 233.844125 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.3	6.01	3.63	4.00	5.34	3.10	1.03	26.7	26.3	2.38	2.01	0.62	0.93	0.12	4.37



Stellar Parameters For KIC 005471574

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6534^{+198}_{-198}	$3.647^{+0.344}_{-0.086}$	$-0.340^{+0.350}_{-0.250}$	$3.028^{+0.410}_{-1.147}$	$1.484^{+0.225}_{-0.338}$	$0.075^{+0.194}_{-0.020}$
	+3%/-3%	+9%/-2%	+103%/-74%	+14%/-38%	+15%/-23%	+257%/-27%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005471574-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-620 ± 32	$7.34^{+1.23}_{-1.63}$	641^{+33}_{-62}	6800^{+411}_{-397}	8561^{+4638}_{-2216}
Alt.	-99 ± 16	$7.13^{+1.26}_{-1.62}$	642^{+35}_{-63}	4514^{+267}_{-253}	1441^{+846}_{-430}

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

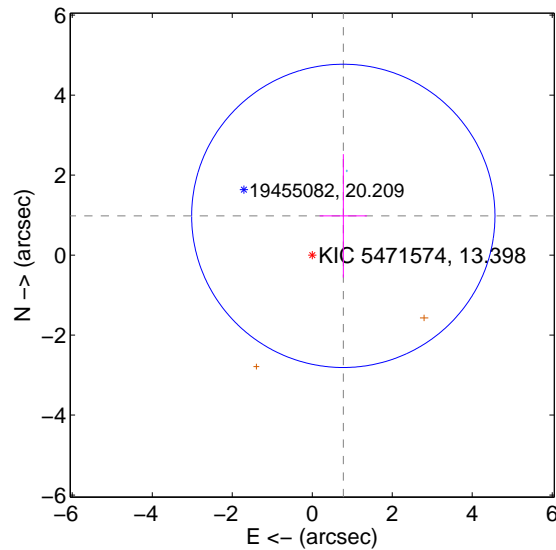
Supplemental centroid analysis for 005471574-02. Kepler magnitude: 13.40. Transit SNR 6.88

There are 1 quarters with good PRF difference image offsets

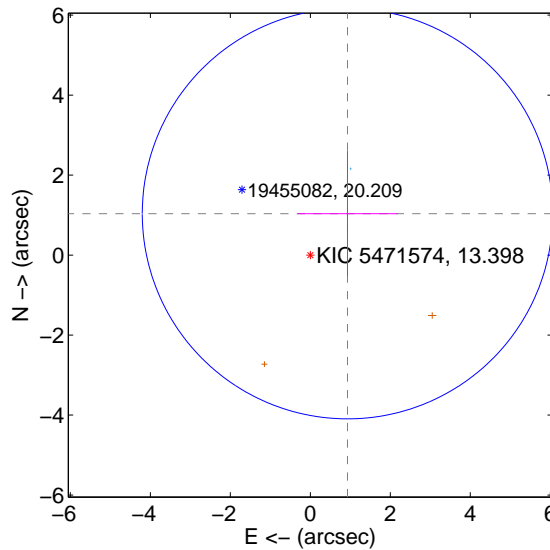
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.251 ± 1.264	0.99	-0.777 ± 0.591	0.981 ± 1.543
PRF-fit source offset from KIC position	1.392 ± 1.710	0.81	-0.929 ± 1.256	1.036 ± 1.565
photometric centroid source offset	0.95 ± 0.80	1.18	-0.85 ± 0.84	-0.41 ± 0.63

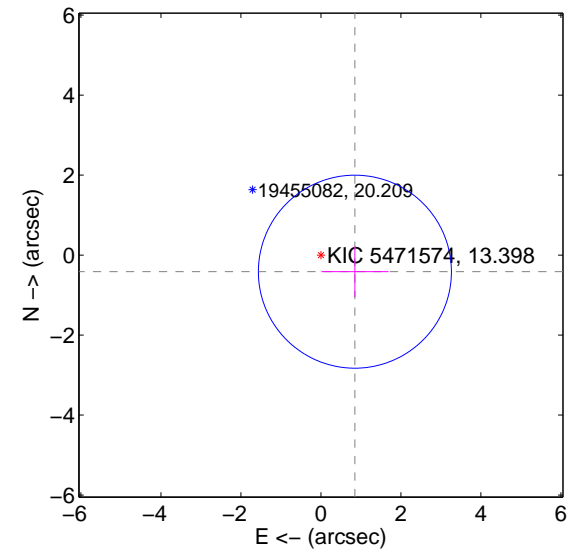
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

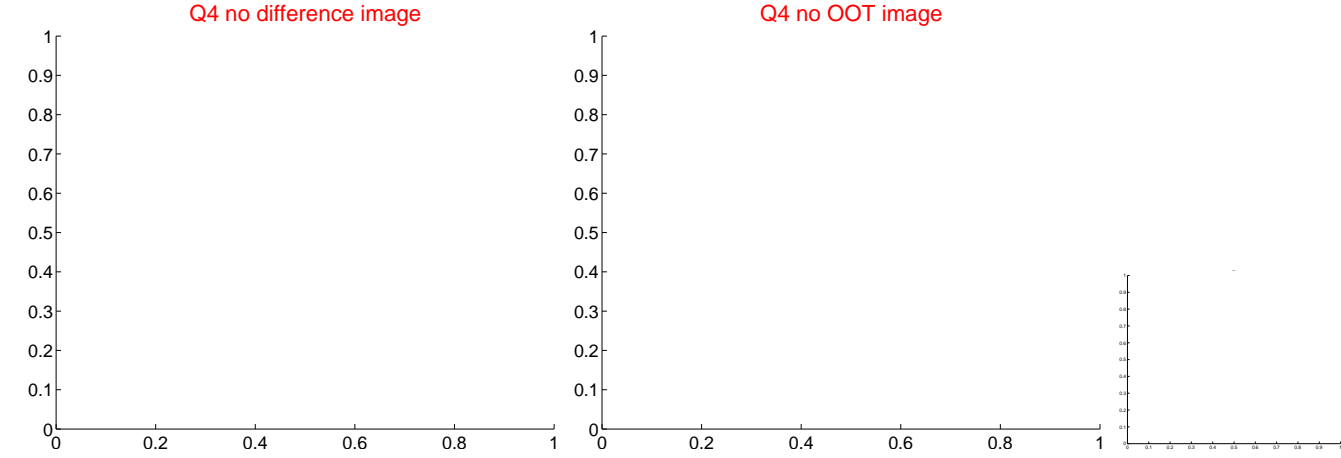
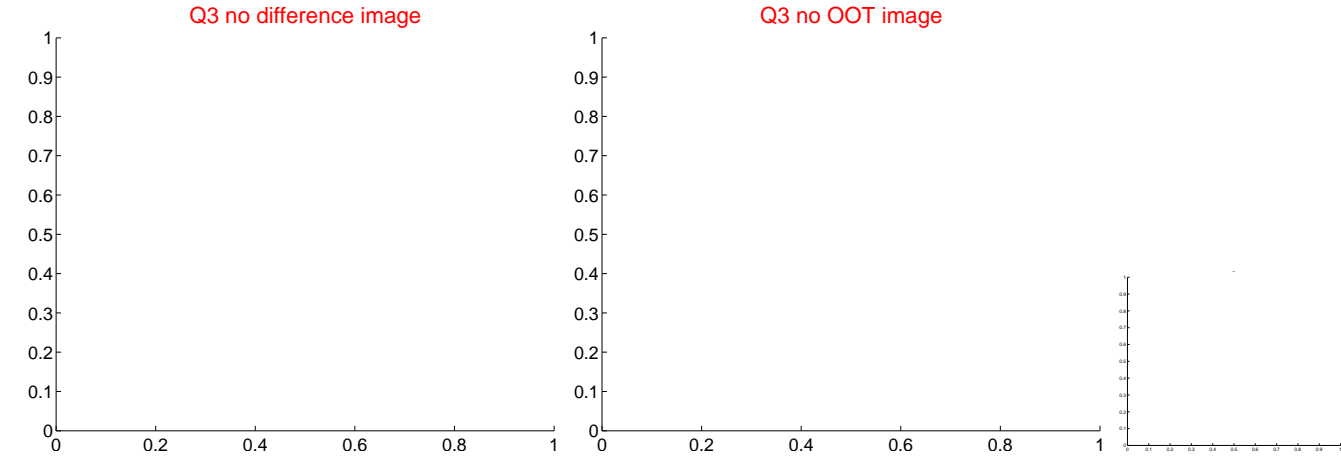
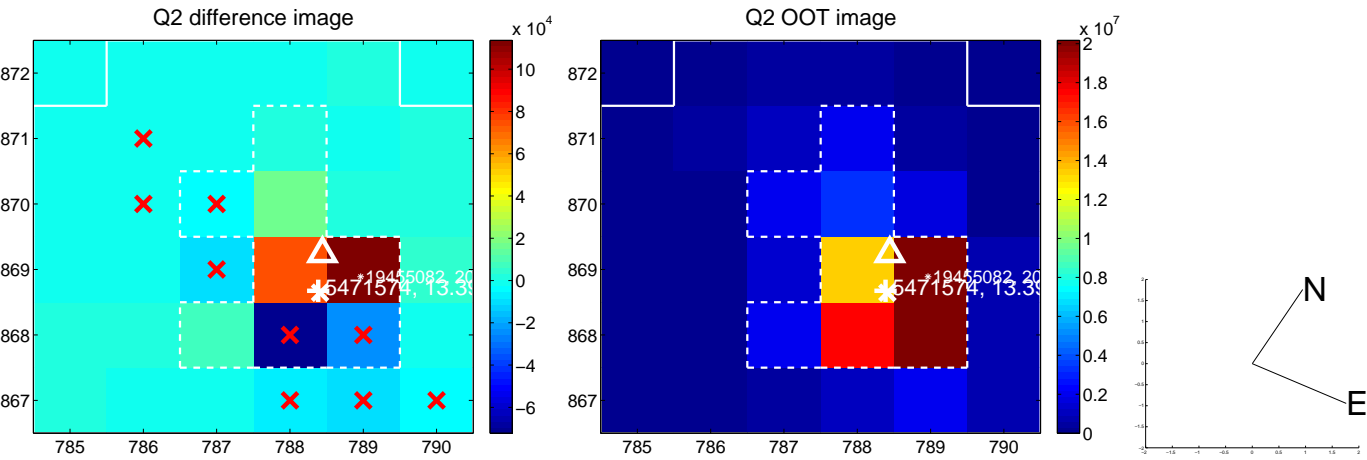
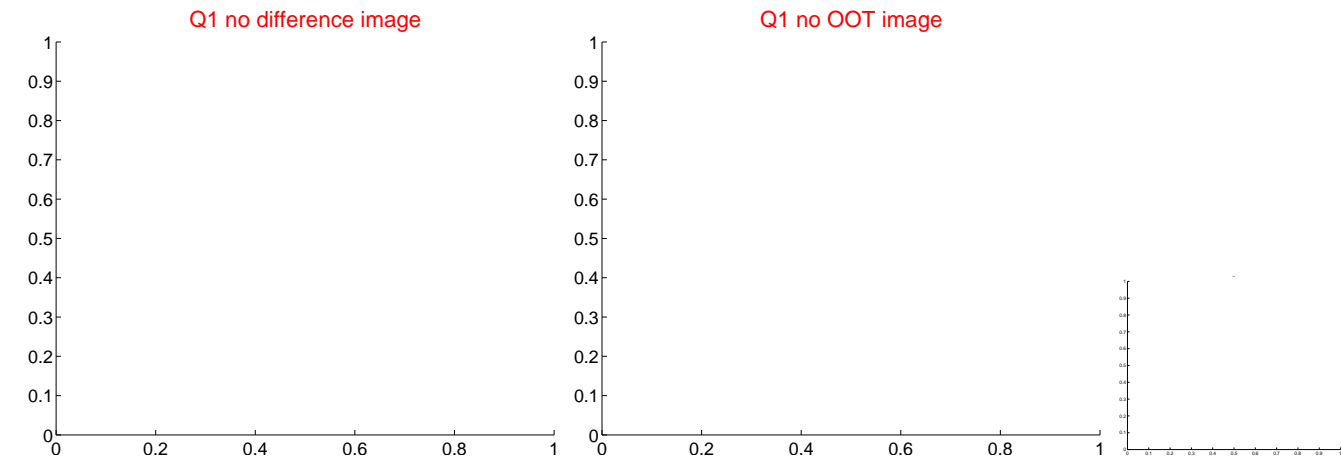


offset from photometric centroids

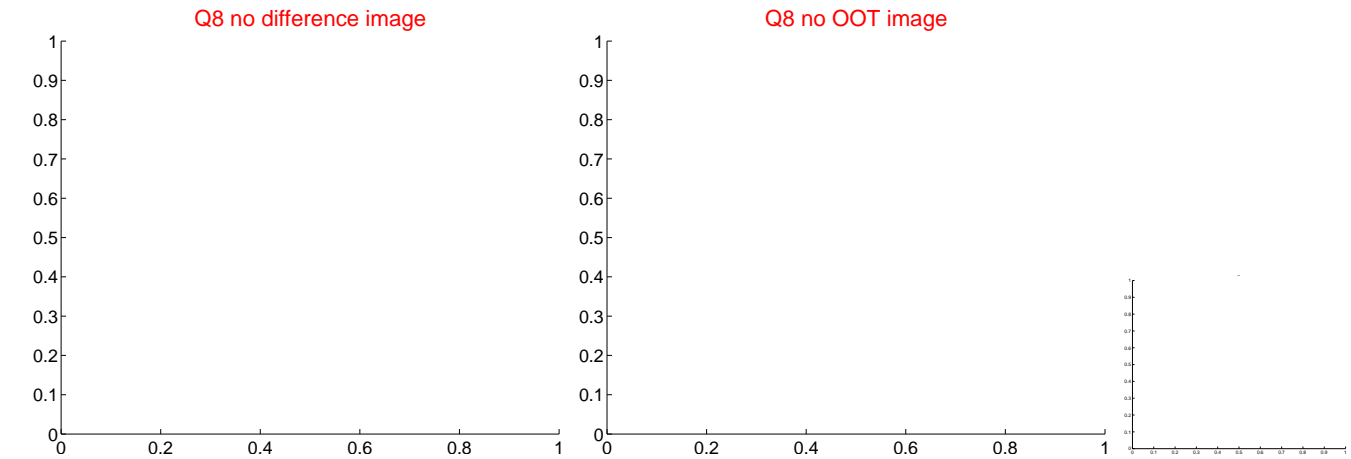
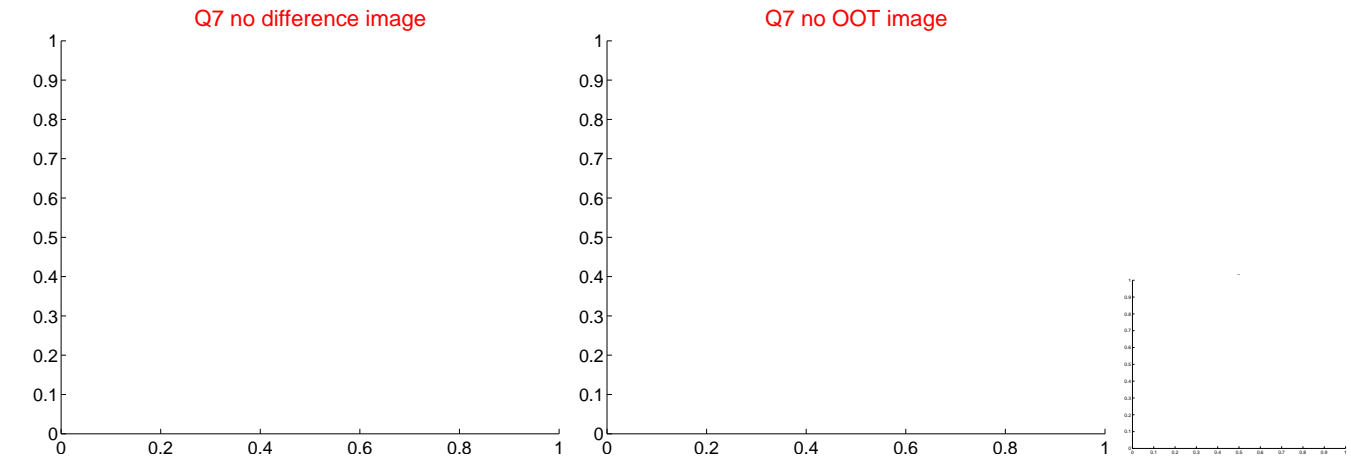
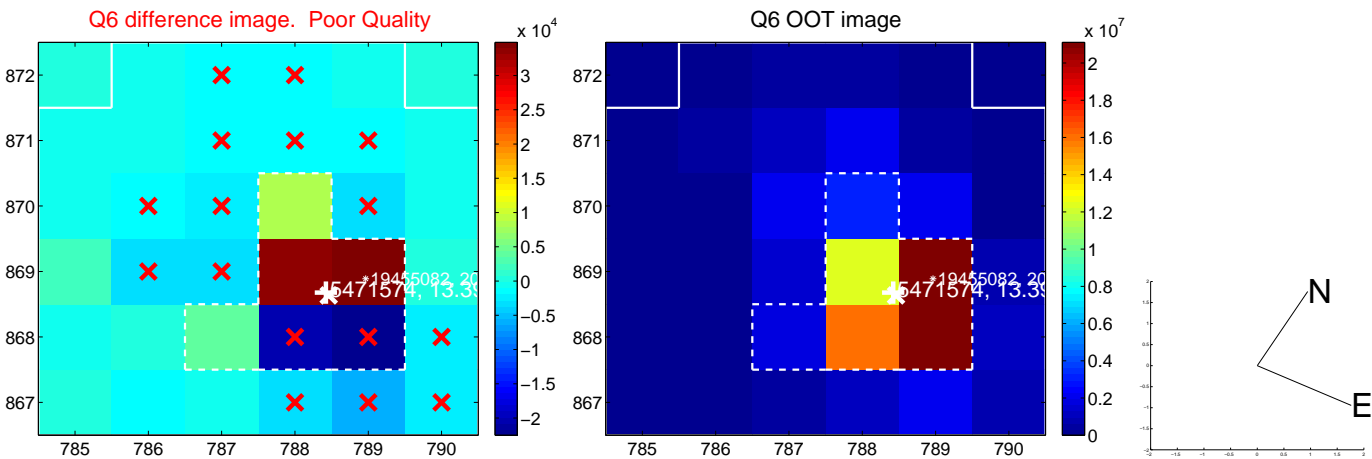
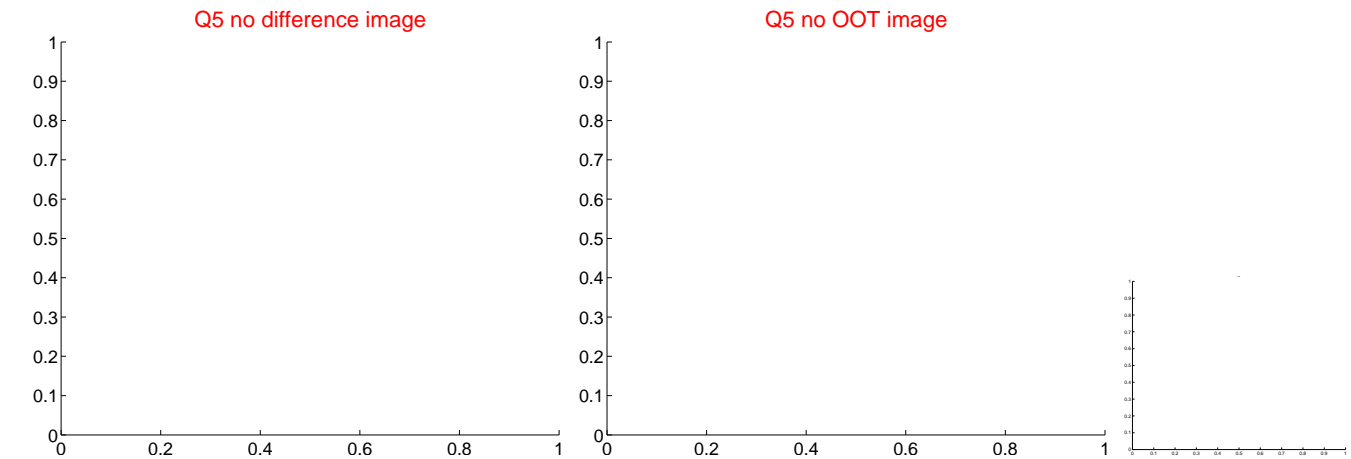


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

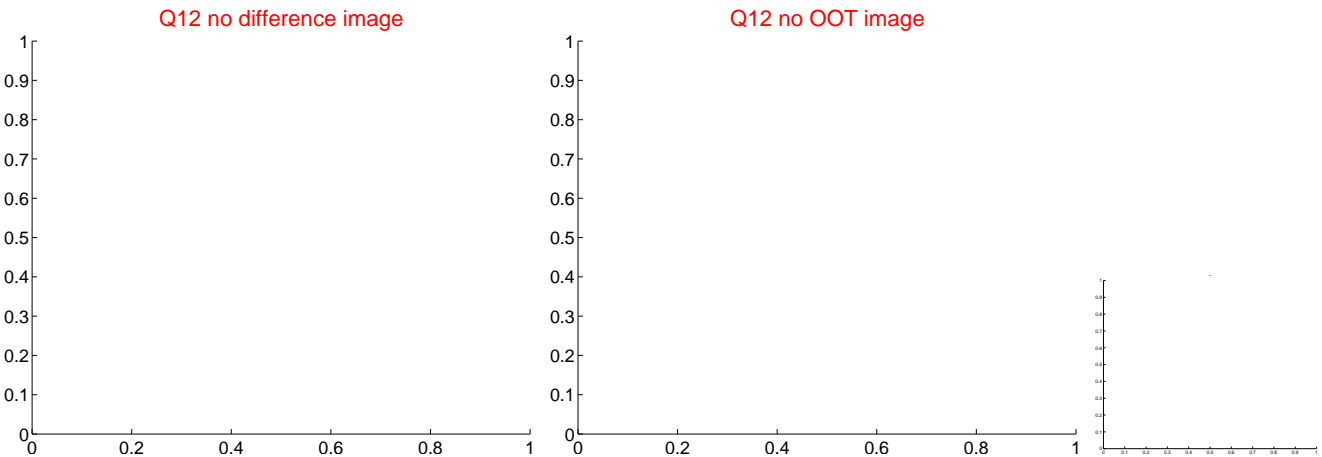
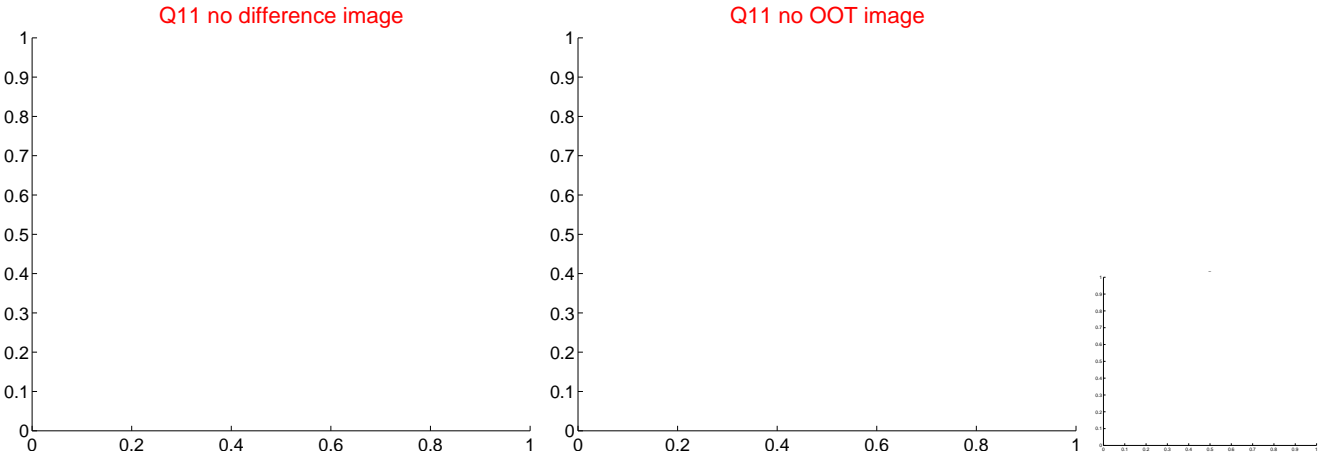
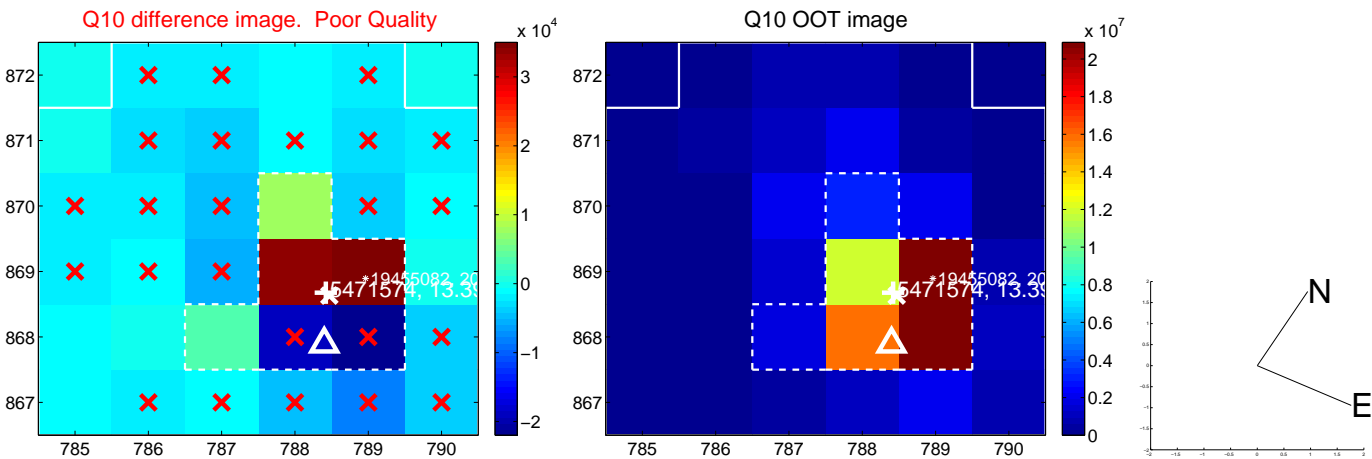
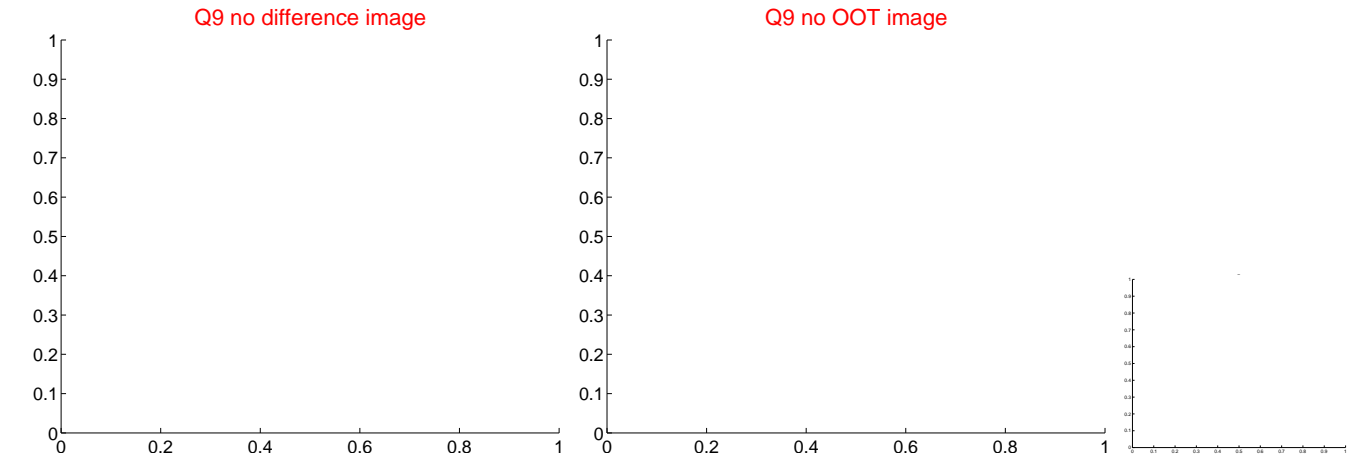
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



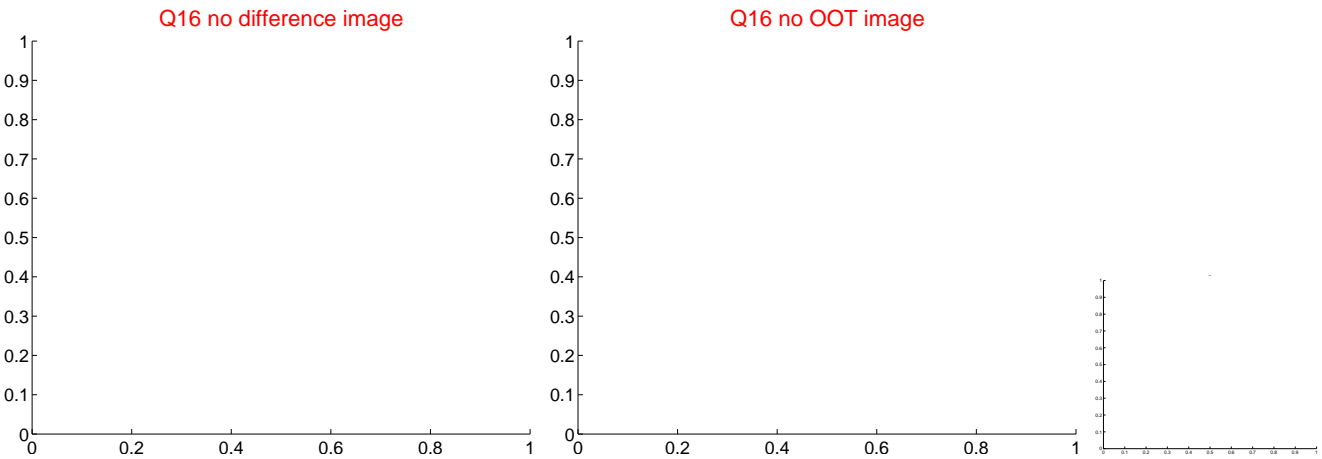
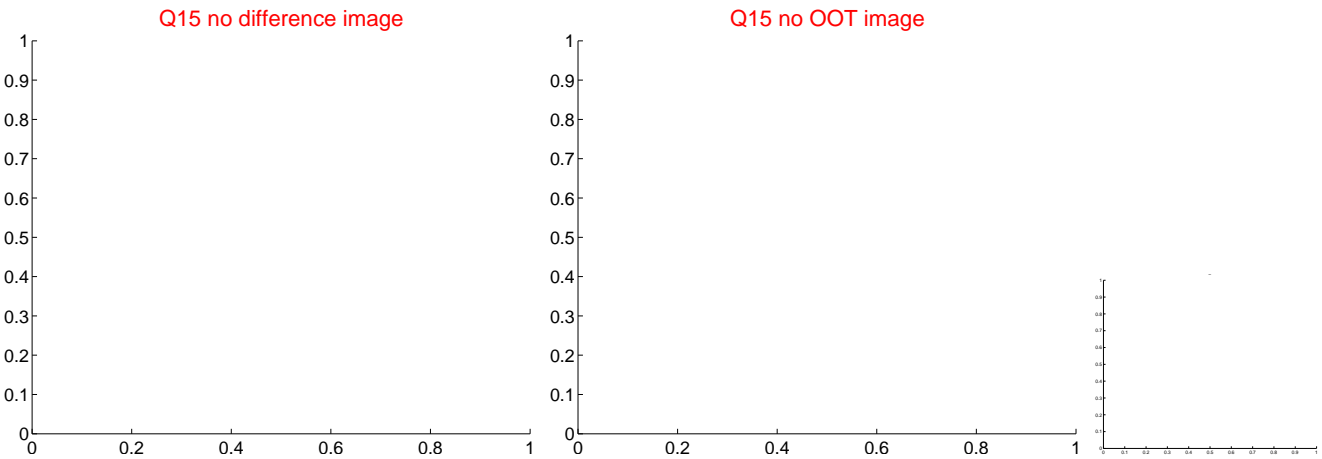
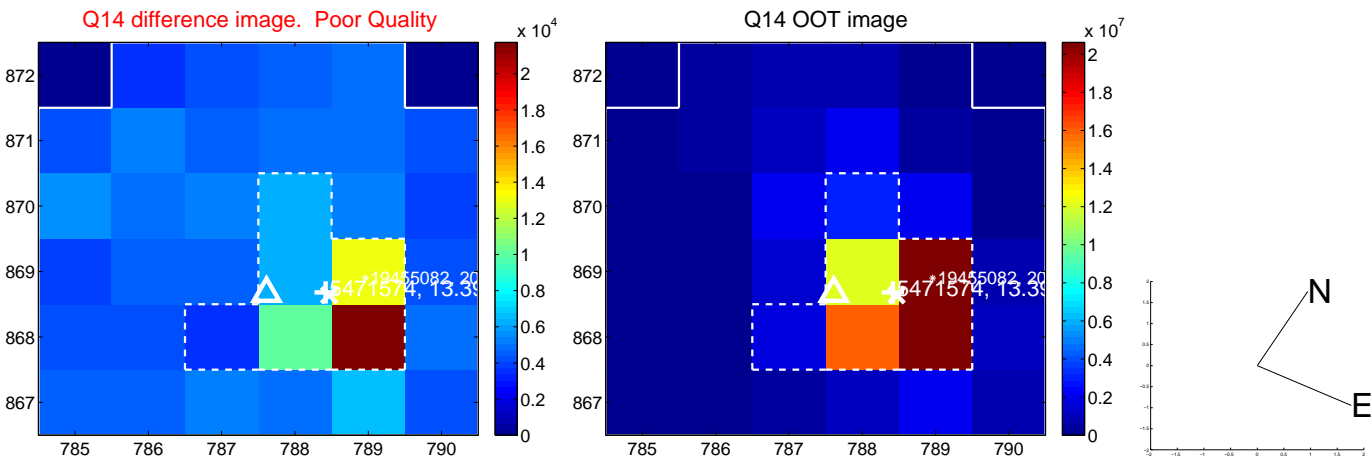
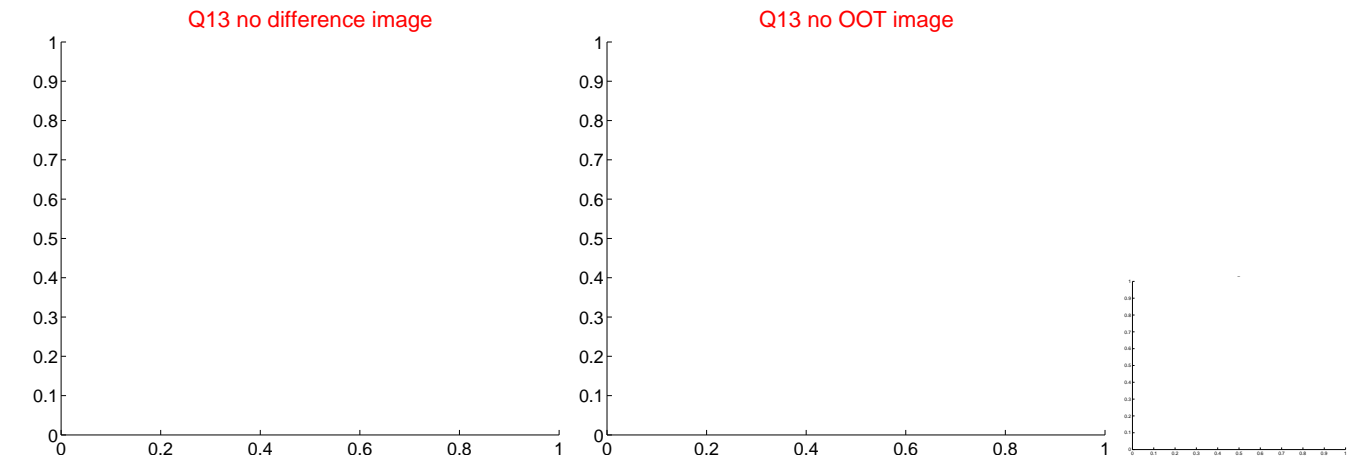
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



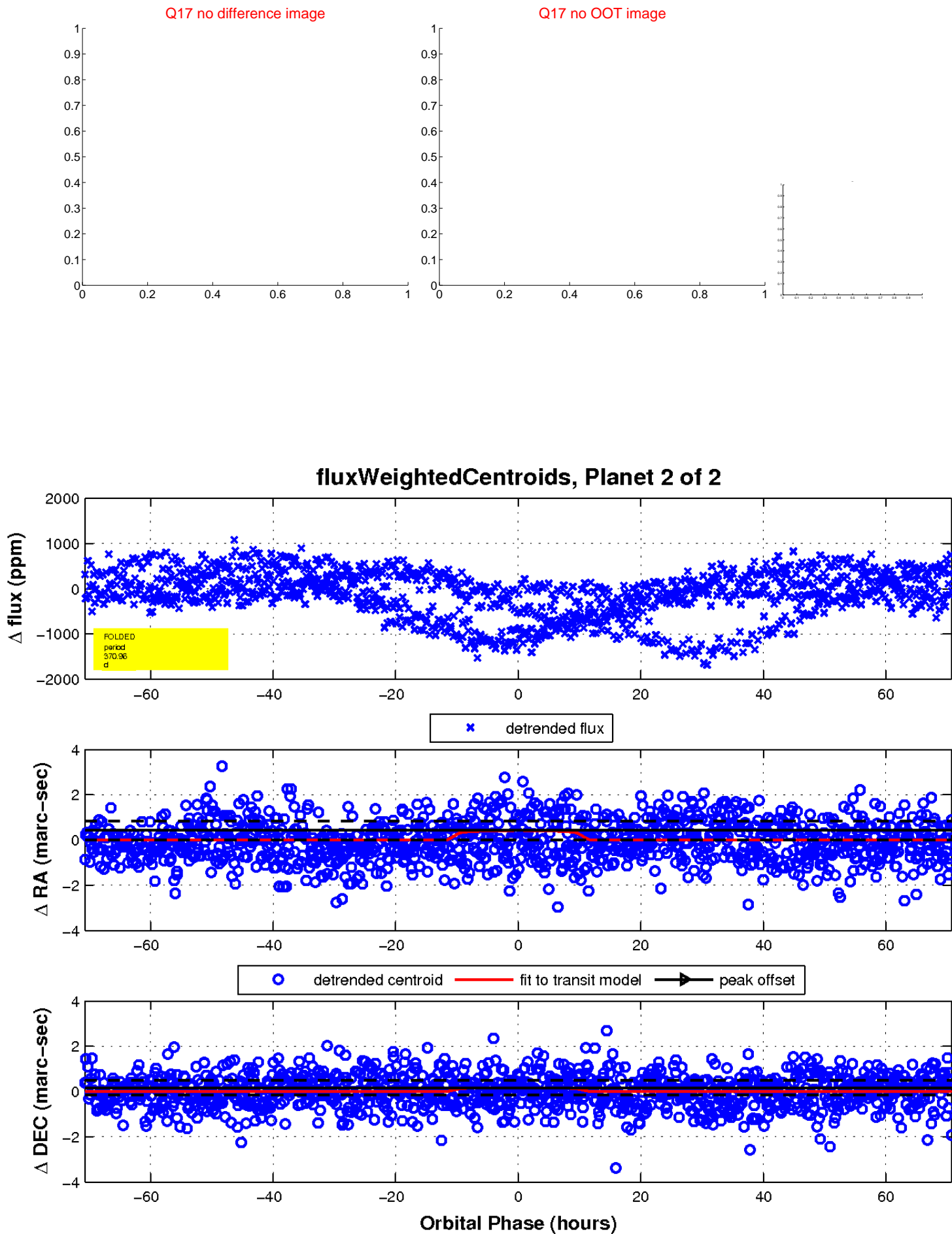
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

