

KIC 005374854

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})
005374854-01	OBS	0645.02	23.783203	132.183168	252.1	8.334	28.8	31.1	1.26	5877	2.30	65.35
005374854-02	OBS	0645.01	8.503412	136.853465	181.1	2.980	22.3	25.0	1.26	5877	1.93	257.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005374854-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005374854-02	OBS	PC	0.89	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.

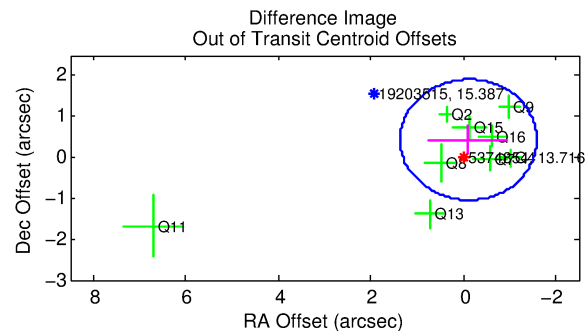
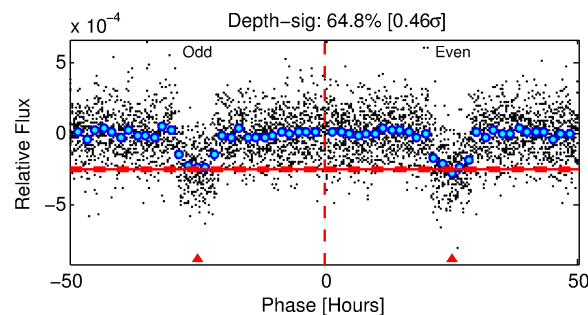
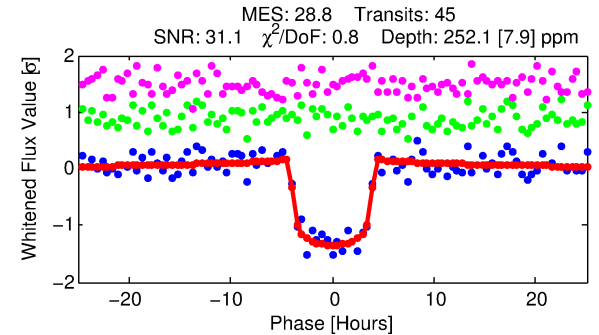
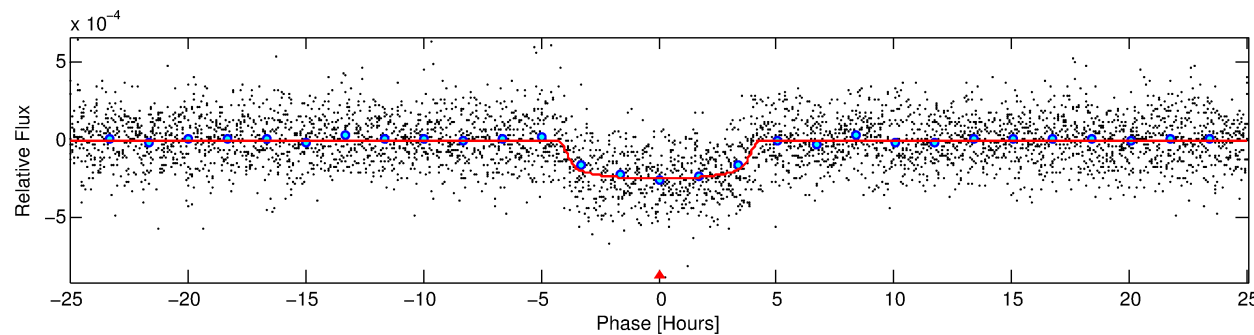
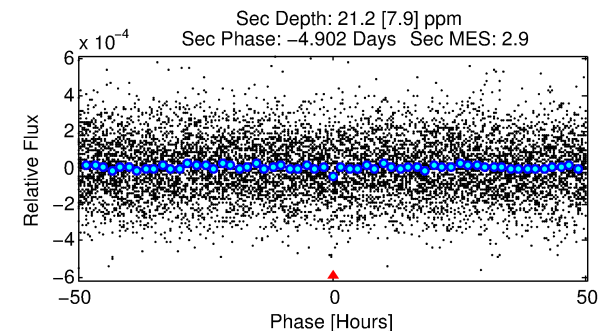
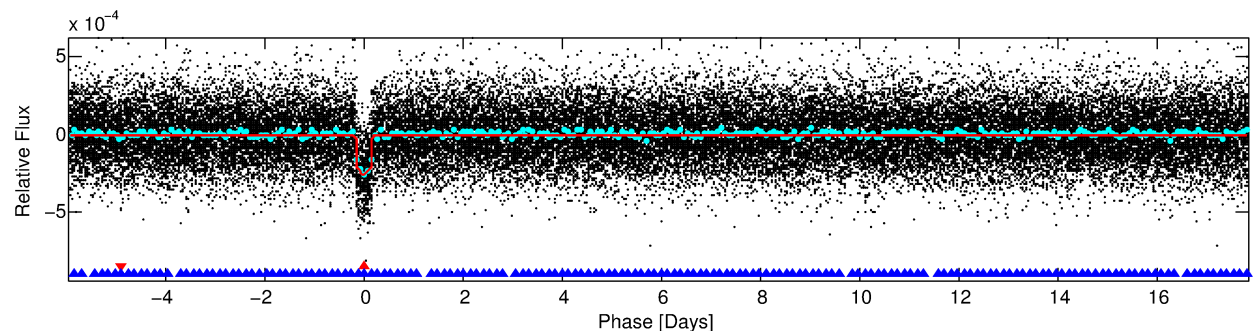
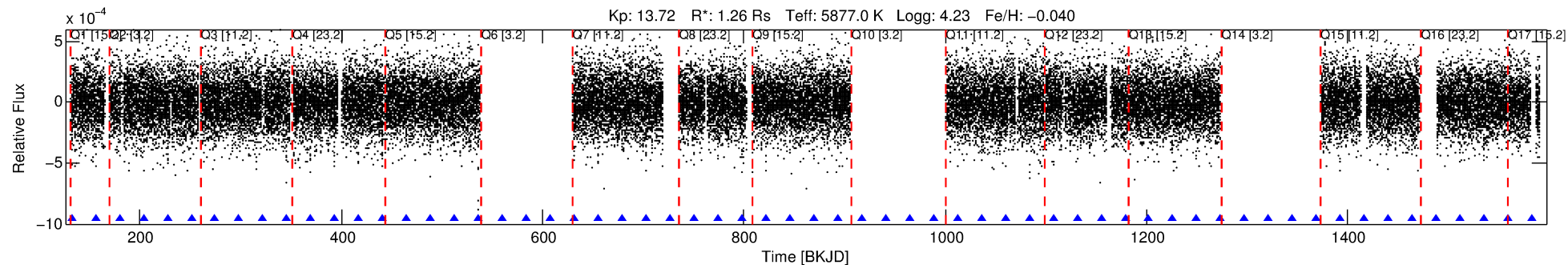
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005374854-01

No Significant Match Found

DV One-Page Summary

KIC: 5374854 Candidate: 1 of 2 Period: 23.783 d
KOI: K00645.02 Corr: 0.970



DV Fit Results:

Period = 23.78320 [0.00013] d
Epoch = 132.1832 [0.0042] BKJD
Rp/R* = 0.0166 [0.0015]
a/R* = 12.00 [5.17]
b = 0.86 [0.14]
Seff = 65.35 [19.16]
Teq = 725 [53] K
Rp = 2.30 [0.49] Re
a = 0.1618 [0.0289] AU
Ag = 57.95 [29.02] [1.96σ]
Teffp = 3093 [328] K [7.12σ]

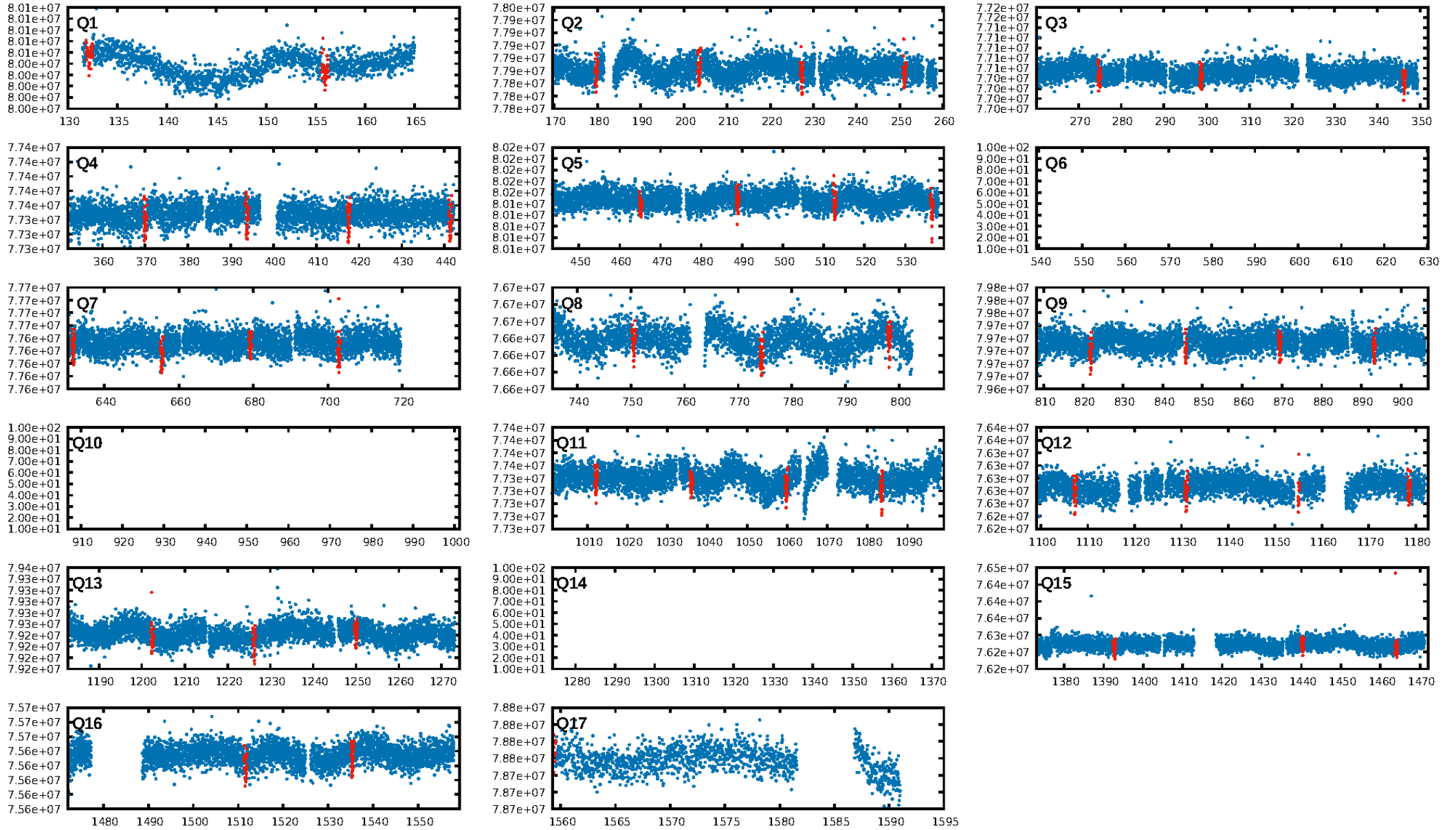
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [41.43σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 92.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.94e-173
RollingBand-fgt: 1.00 [42/42]
GhostDiagnostic-chr: -28.37
Centroid-sig: 3.0%
Centroid-so: 0.502 arcsec [1.22σ]
OotOffset-rm: 0.448 arcsec [0.91σ]
KicOffset-rm: 0.373 arcsec [0.58σ]
OotOffset-st: 1/3/3/2 [9]
KicOffset-st: 1/3/3/2 [9]
DiffImageQuality-fgm: 0.89 [8/9]
DiffImageOverlap-fno: 1.00 [13/13]

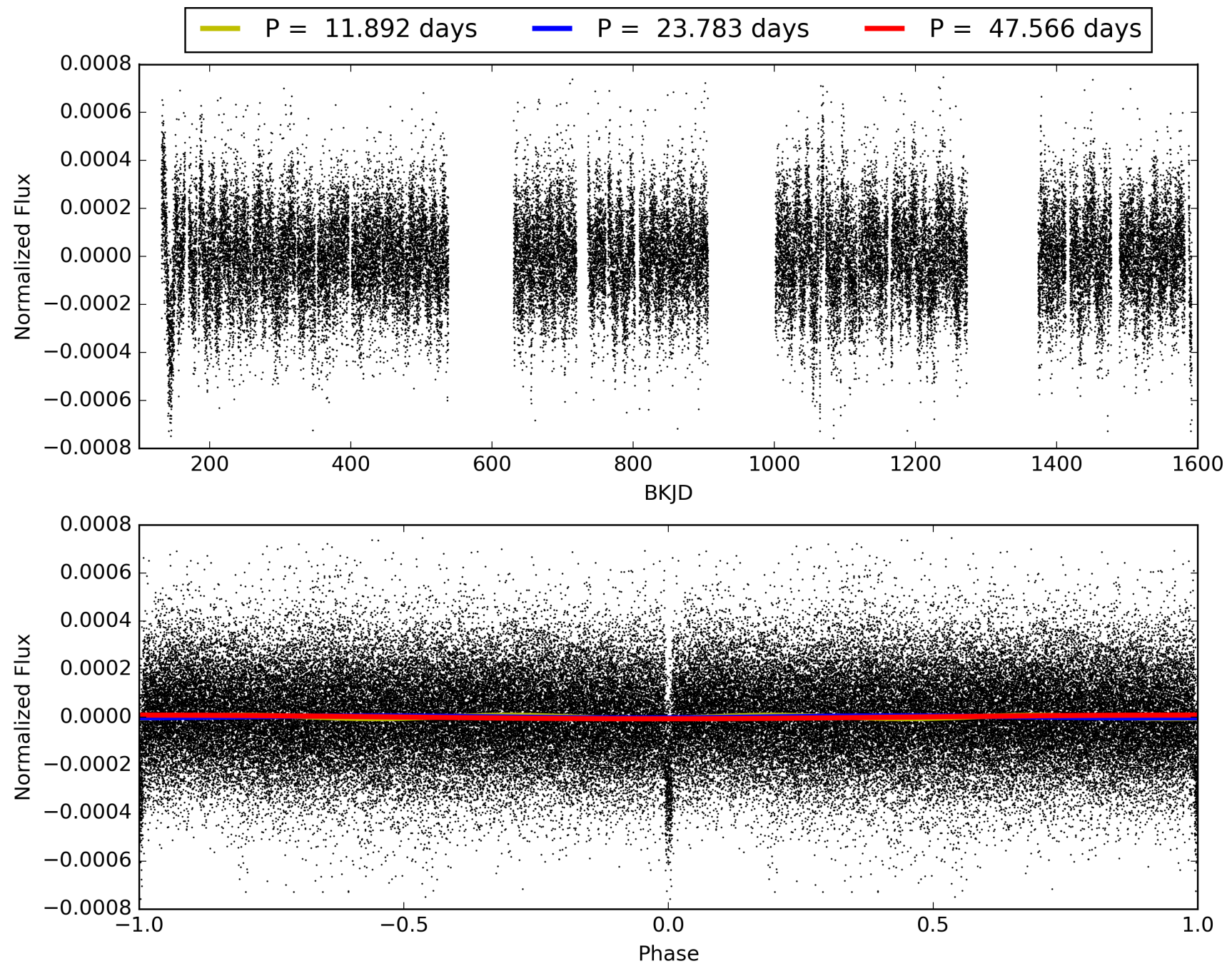
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:24:13 Z

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

TCE 005374854-01, PDC Light Curves

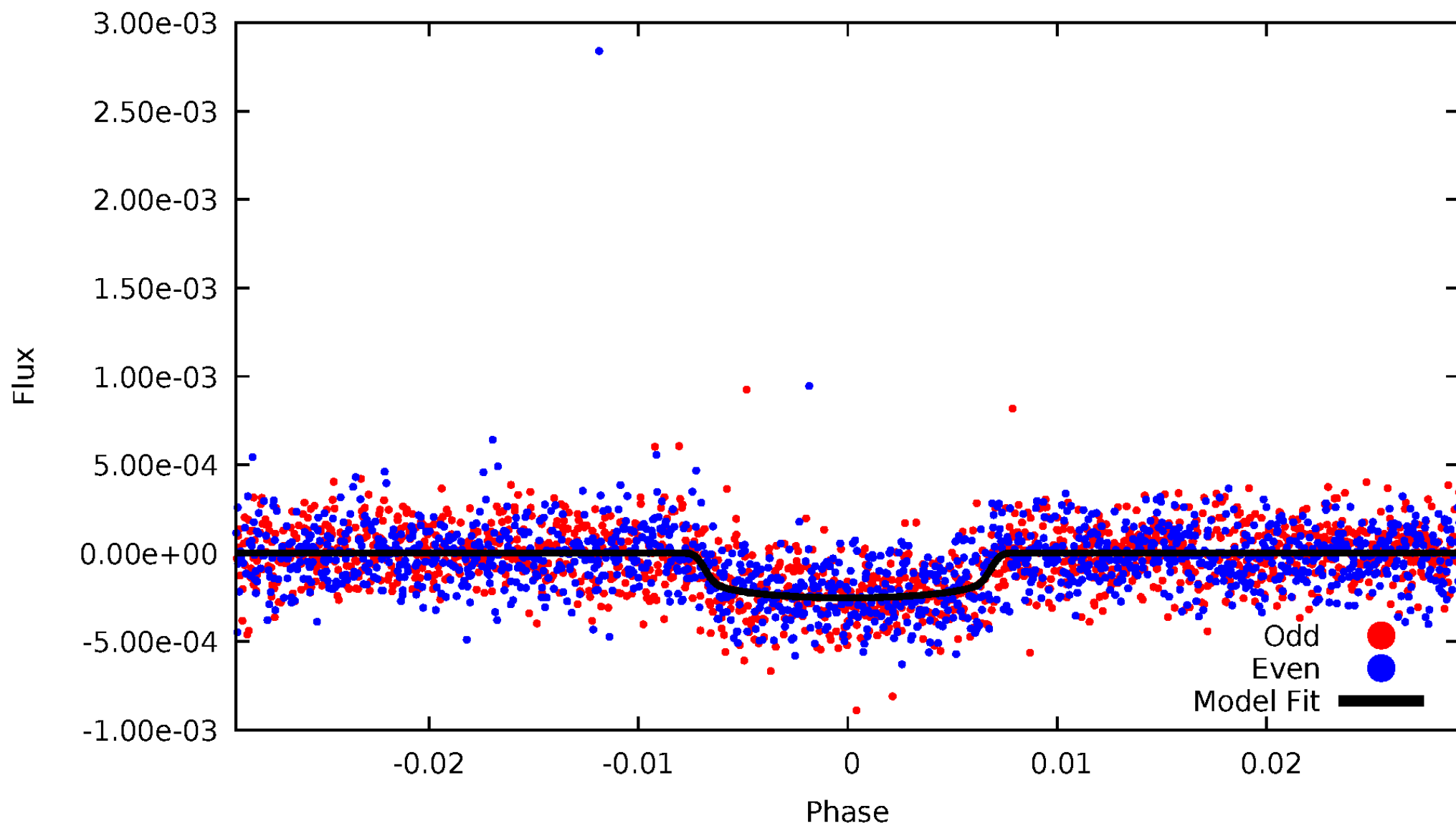


TCE 005374854-01



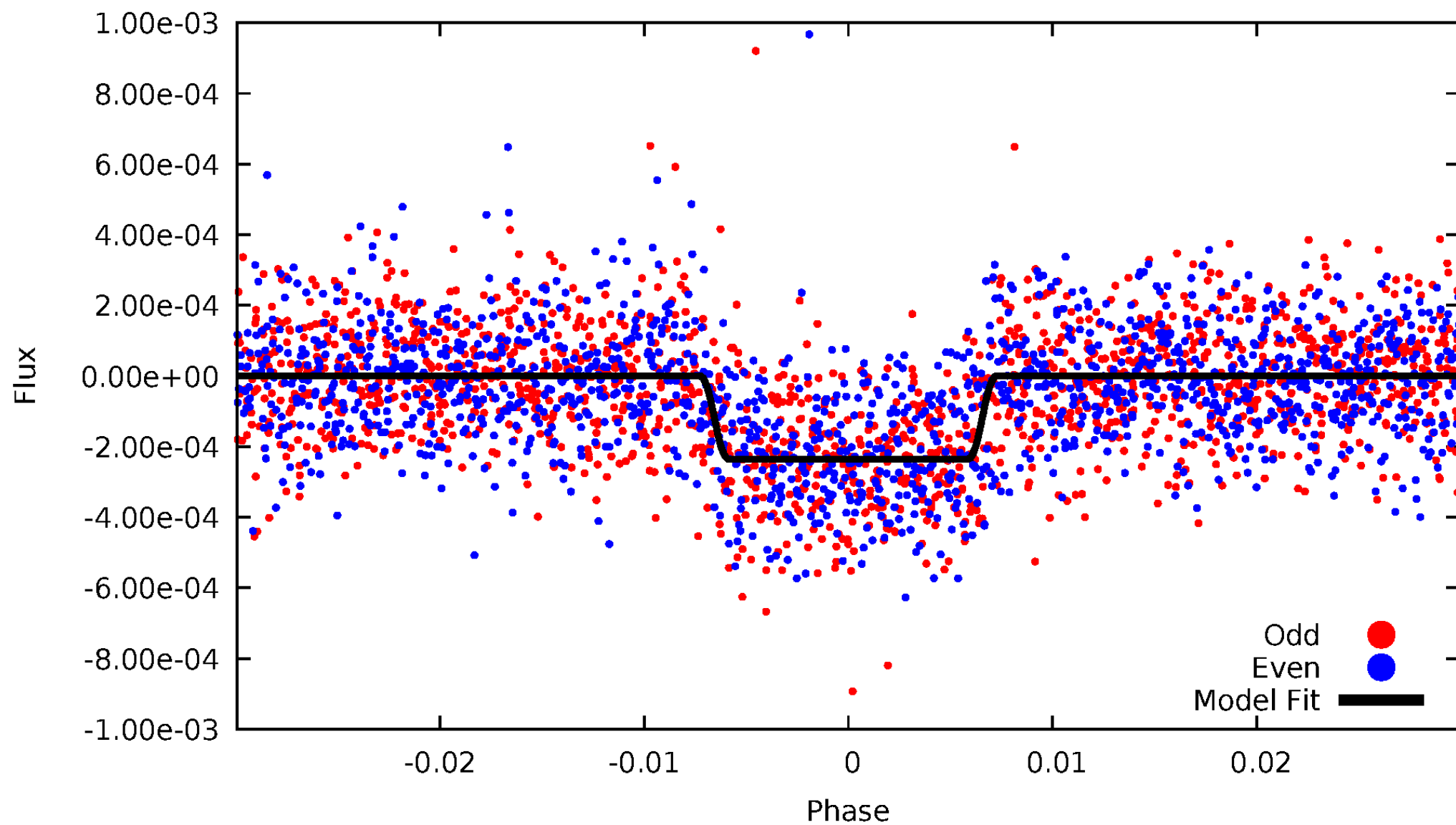
DV Odd/Even

TCE 005374854-01

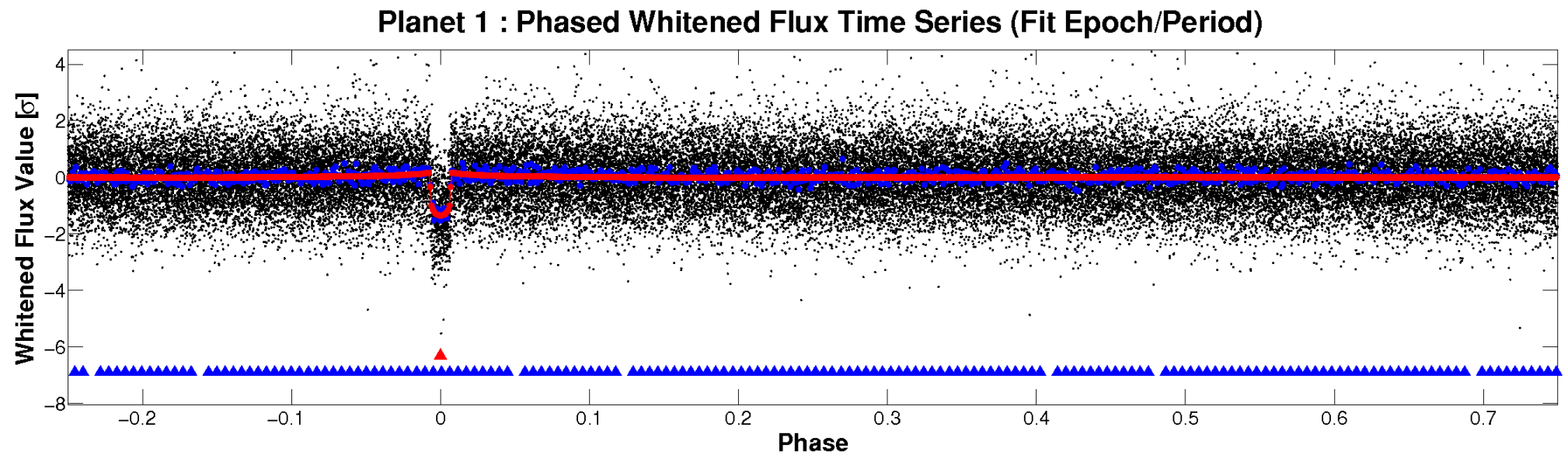
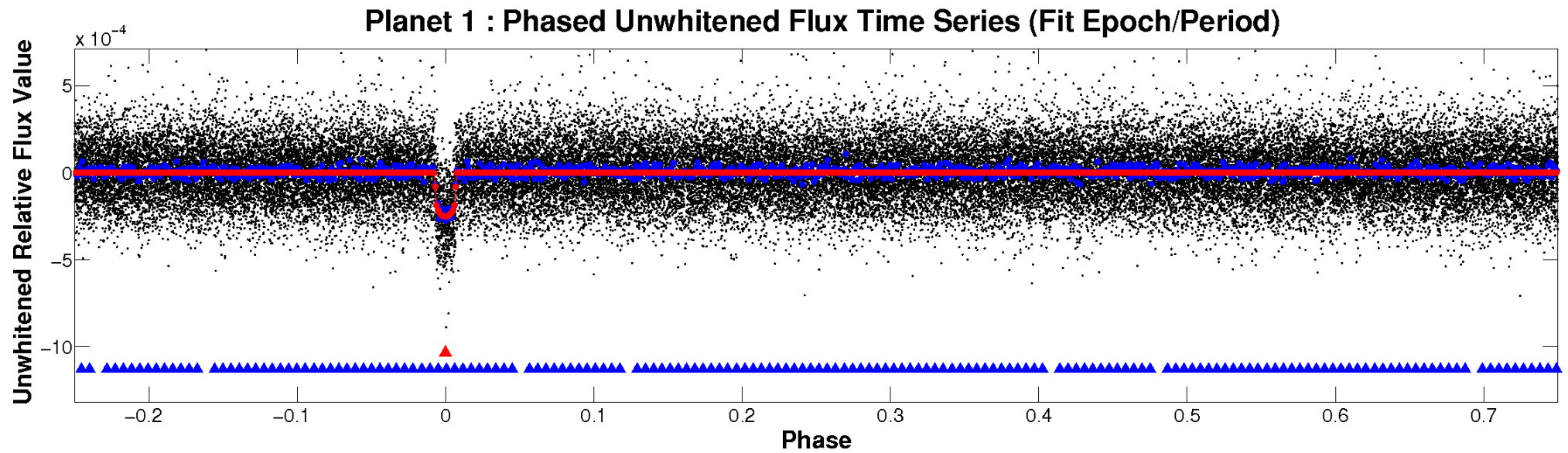


ALT Odd/Even

TCE 005374854-01



Non-Whitened Vs. Whitened Light Curve



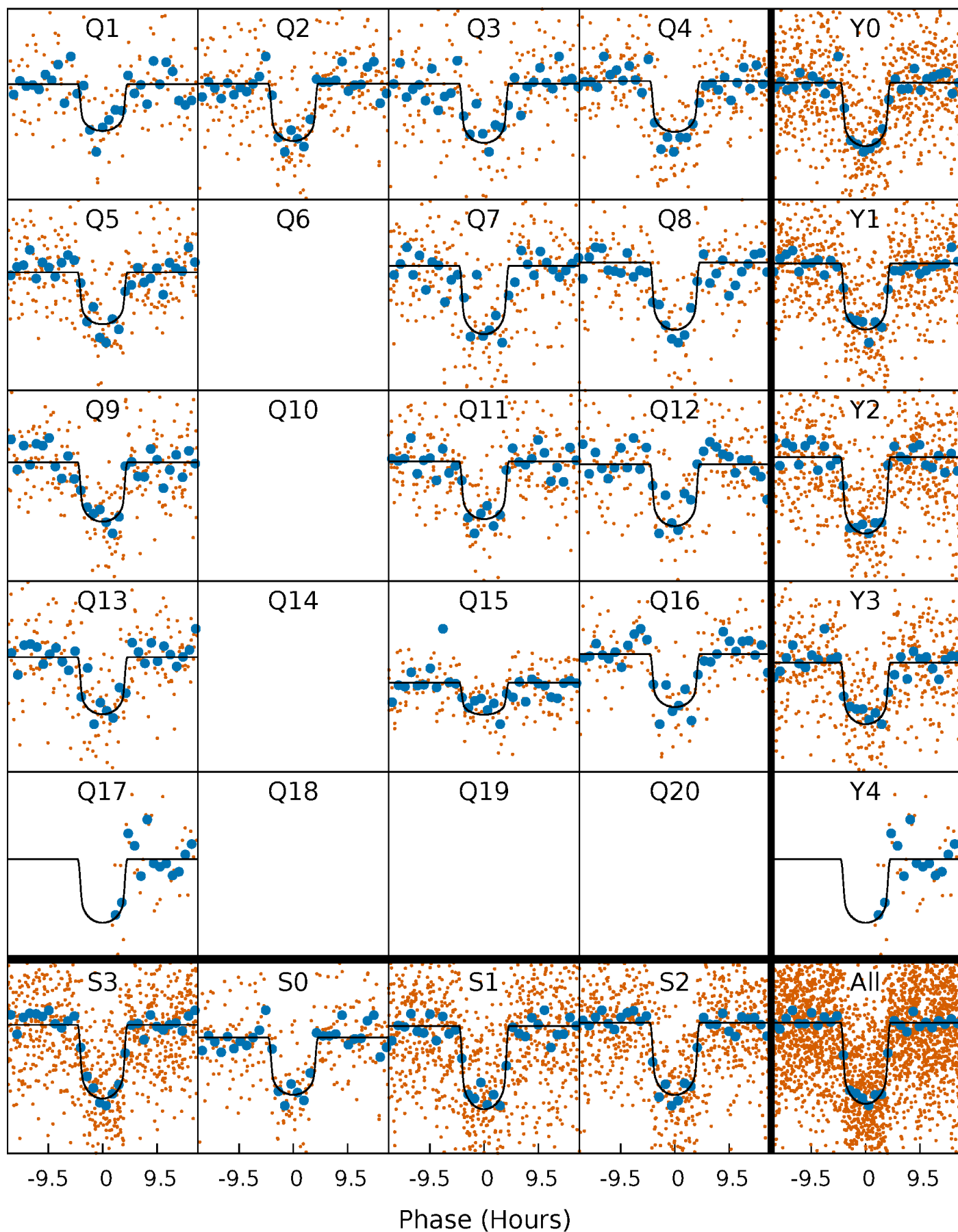
PDC Quarter-Phased Transit Curves

TCE 005374854-01 P= 23.783203 Days $T_0=132.183168$ (BKJD)



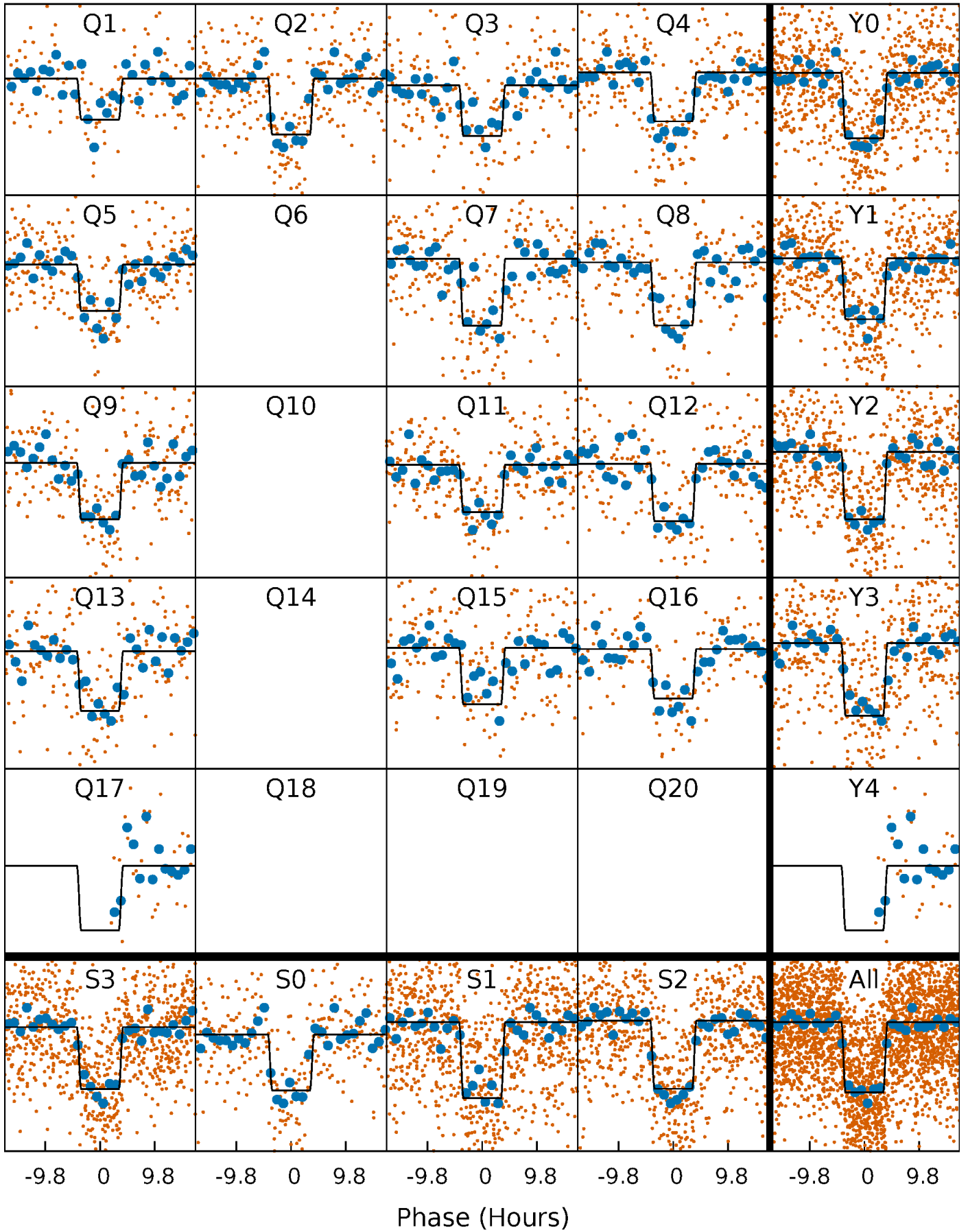
DV Quarter-Phased Transit Curves

TCE 005374854-01 P= 23.783203 Days $T_0=132.183168$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

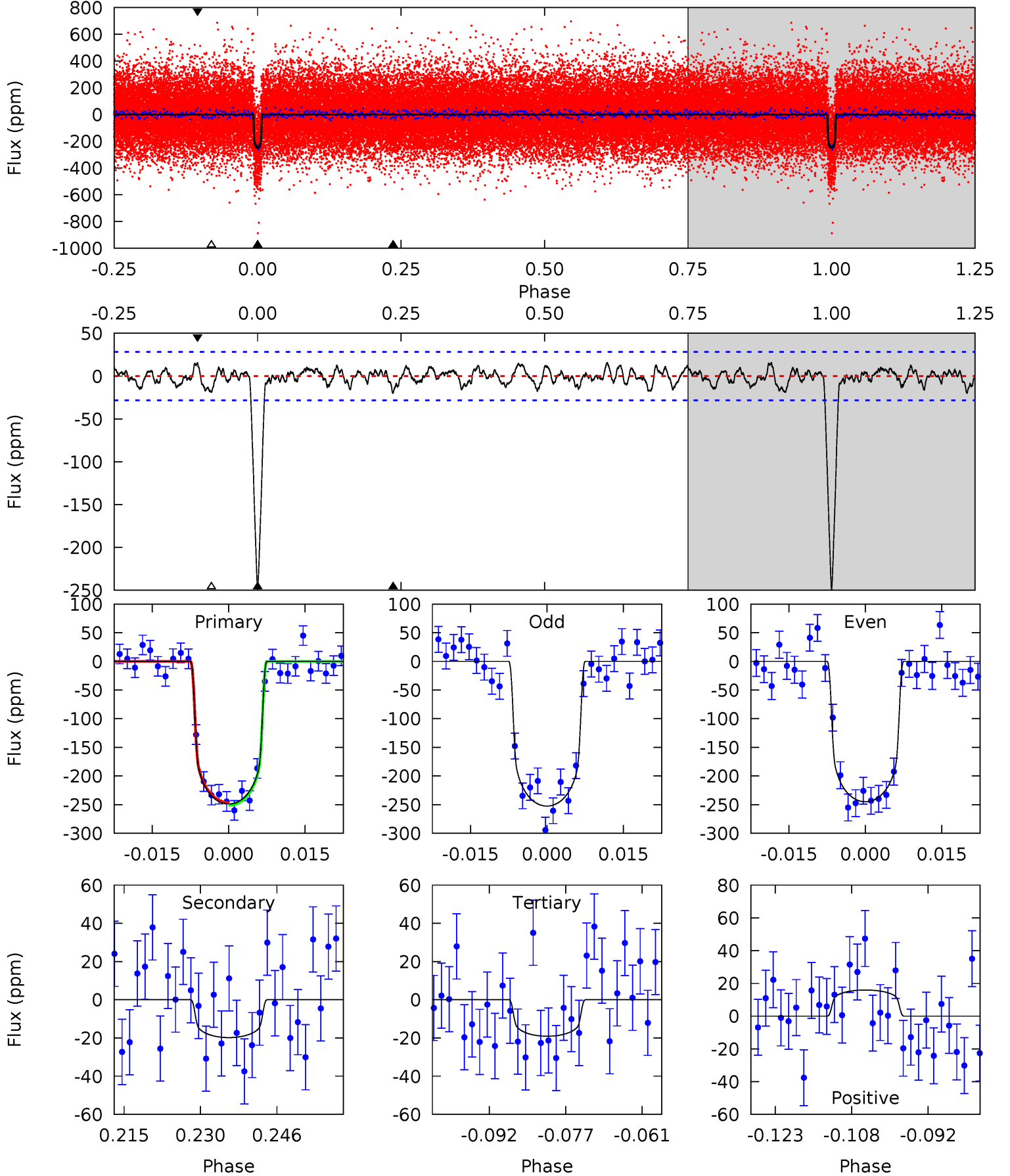
TCE 005374854-01 P= 23.782775 Days $T_0=132.195392$ (BKJD)



DV Model-Shift Uniqueness Test

005374854-01, P = 23.783203 Days, E = 108.399965 Days

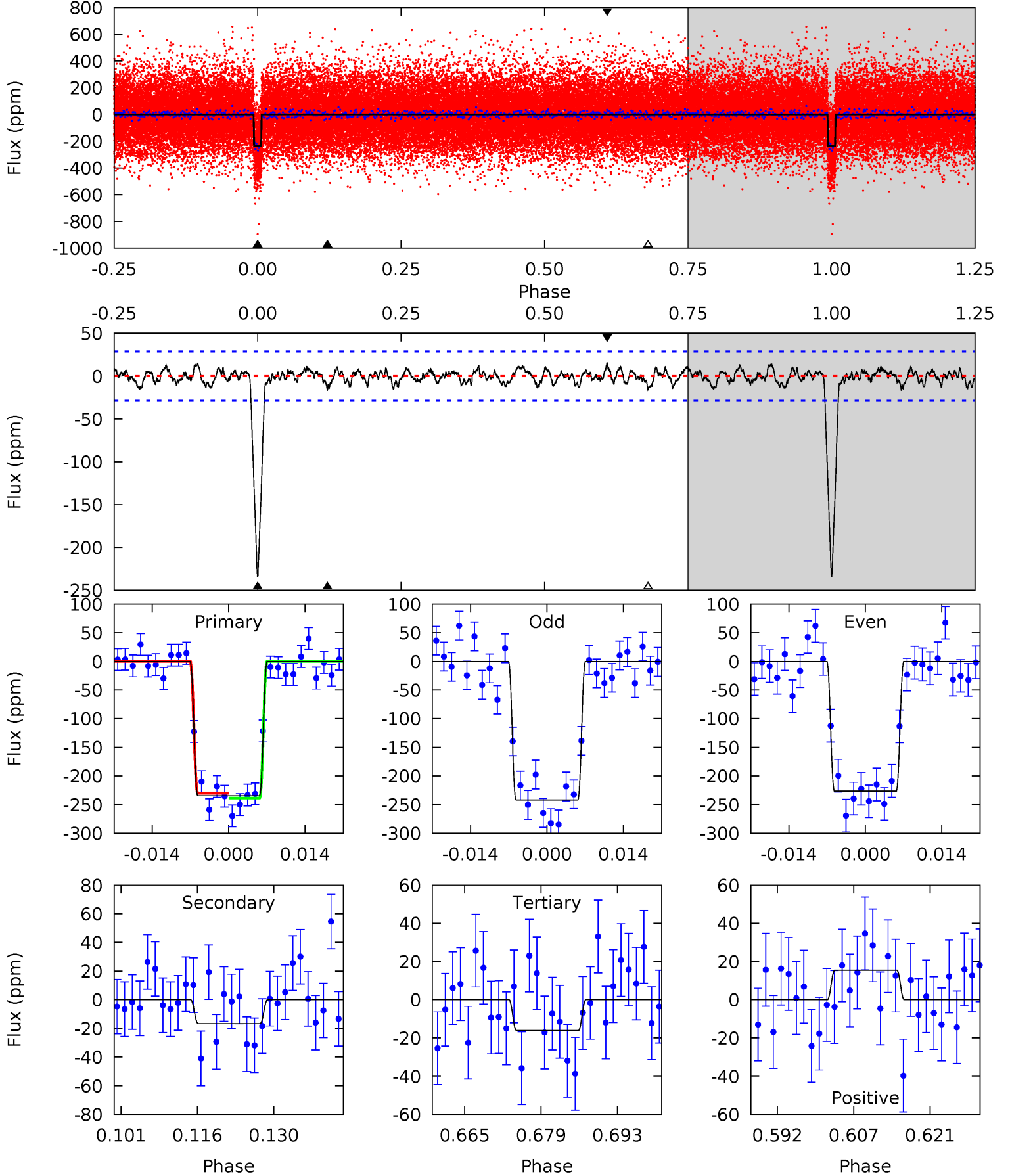
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
43.5	3.46	3.33	2.79	4.94	2.42	1.23	40.1	40.7	0.12	0.67	0.66	0.99	0.06	0.40



Alt Model-Shift Uniqueness Test

005374854-01, P = 23.782775 Days, E = 108.412617 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.4	2.86	2.78	2.67	4.96	2.45	1.03	37.6	37.7	0.09	0.19	1.31	1.03	0.06	0.75



Stellar Parameters For KIC 005374854

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5877^{+105}_{-129}	$4.233^{+0.162}_{-0.108}$	$-0.040^{+0.150}_{-0.150}$	$1.265^{+0.199}_{-0.243}$	$0.997^{+0.089}_{-0.073}$	$0.694^{+0.556}_{-0.227}$
	+2%/-2%	+4%/-3%	+375%/-375%	+16%/-19%	+9%/-7%	+80%/-33%
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 005374854-01 / KOI 0645.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-20 ± 6	$2.27^{+0.31}_{-0.30}$	1007^{+51}_{-56}	3516^{+193}_{-210}	55^{+25}_{-19}
Alt.	-17 ± 6	$2.10^{+0.29}_{-0.27}$	1009^{+46}_{-53}	3493^{+244}_{-251}	55^{+29}_{-22}

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 $A_{obs} \gg 1.0$

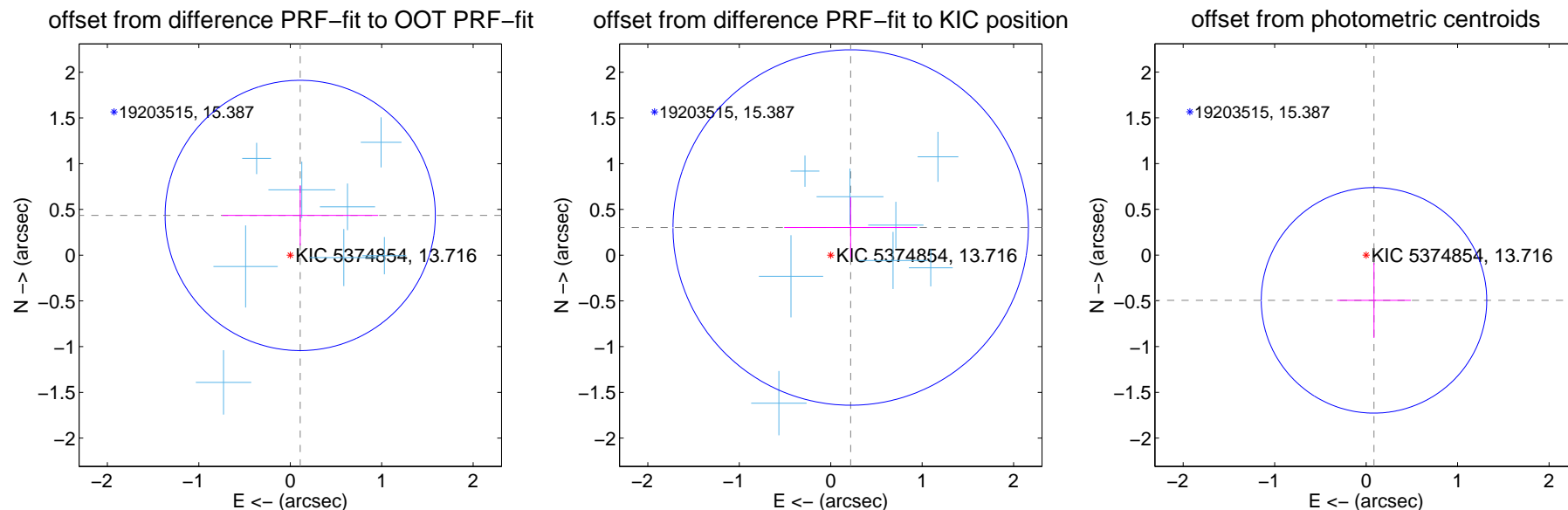
DV Centroid Data

Supplemental centroid analysis for 005374854-01. Kepler magnitude: 13.72. Transit SNR 31.05

There are 8 quarters with good PRF difference image offsets

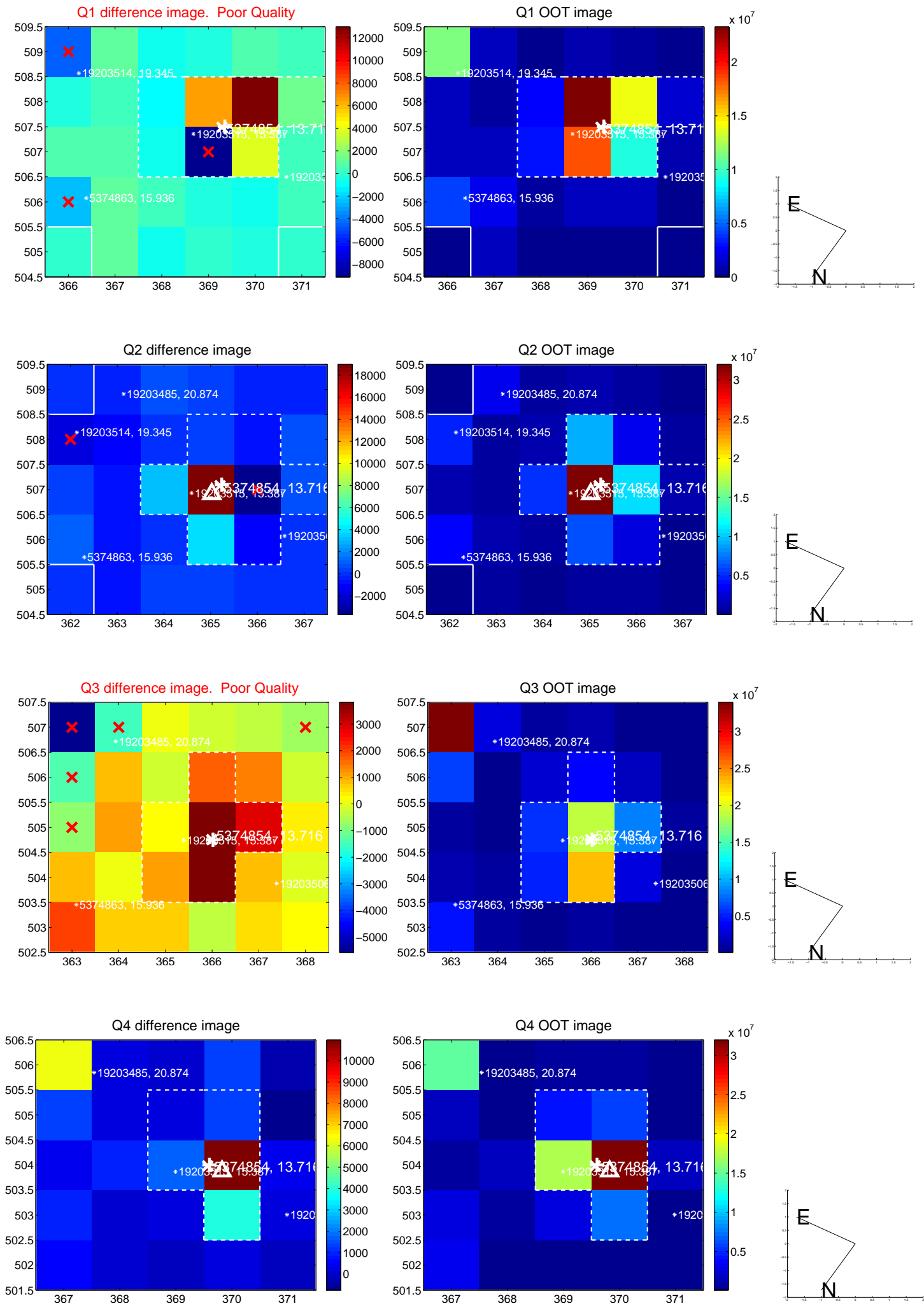
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.448 ± 0.492	0.91	-0.109 ± 0.853	0.434 ± 0.329
PRF-fit source offset from KIC position	0.373 ± 0.648	0.58	-0.218 ± 0.728	0.302 ± 0.331
photometric centroid source offset	0.50 ± 0.41	1.22	-0.09 ± 0.40	-0.49 ± 0.41

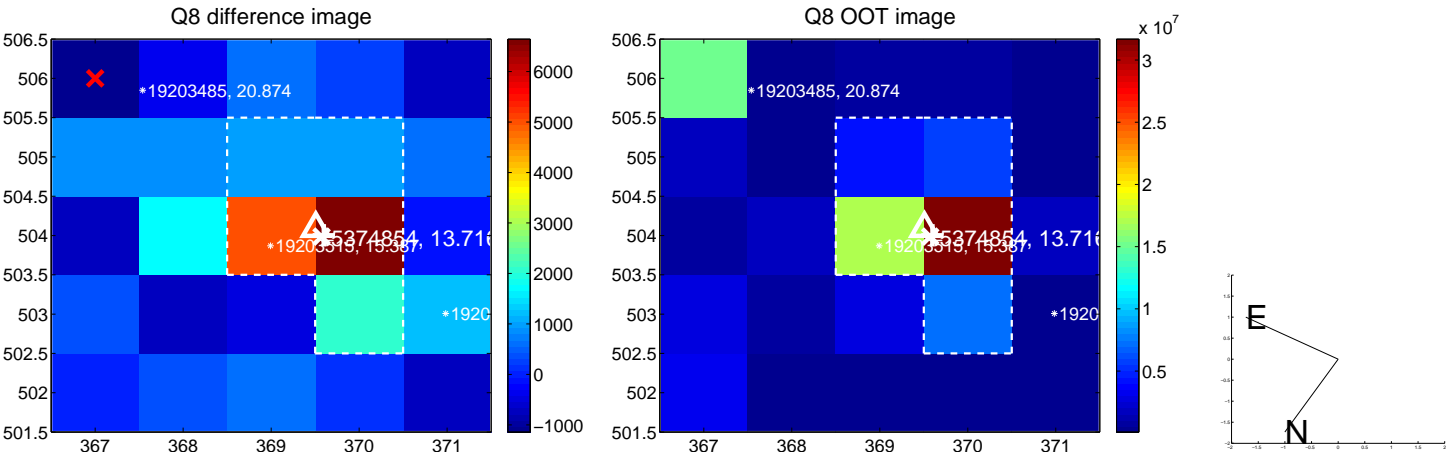
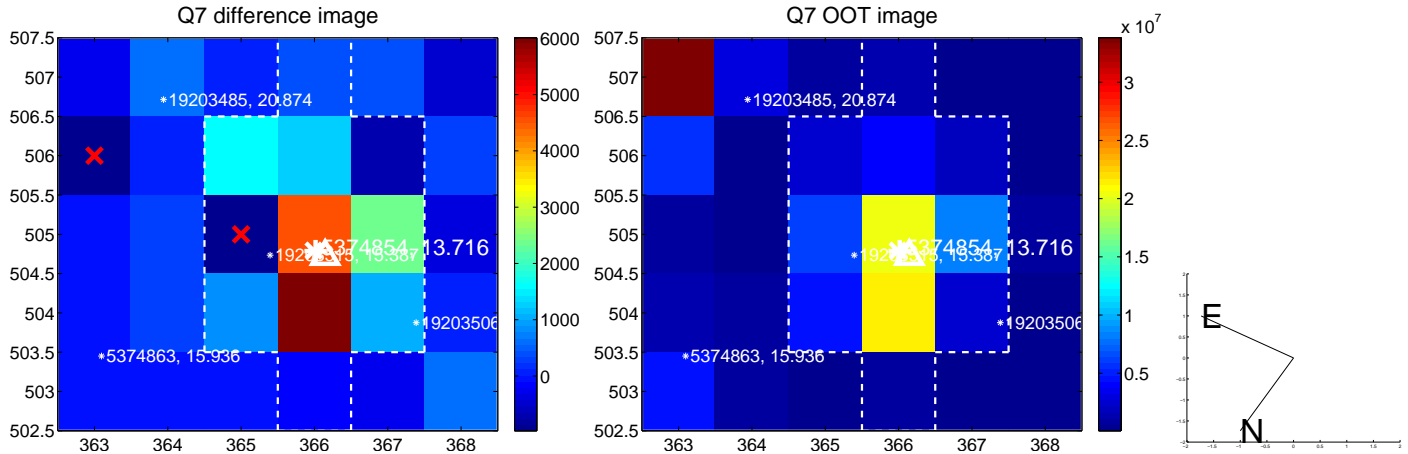
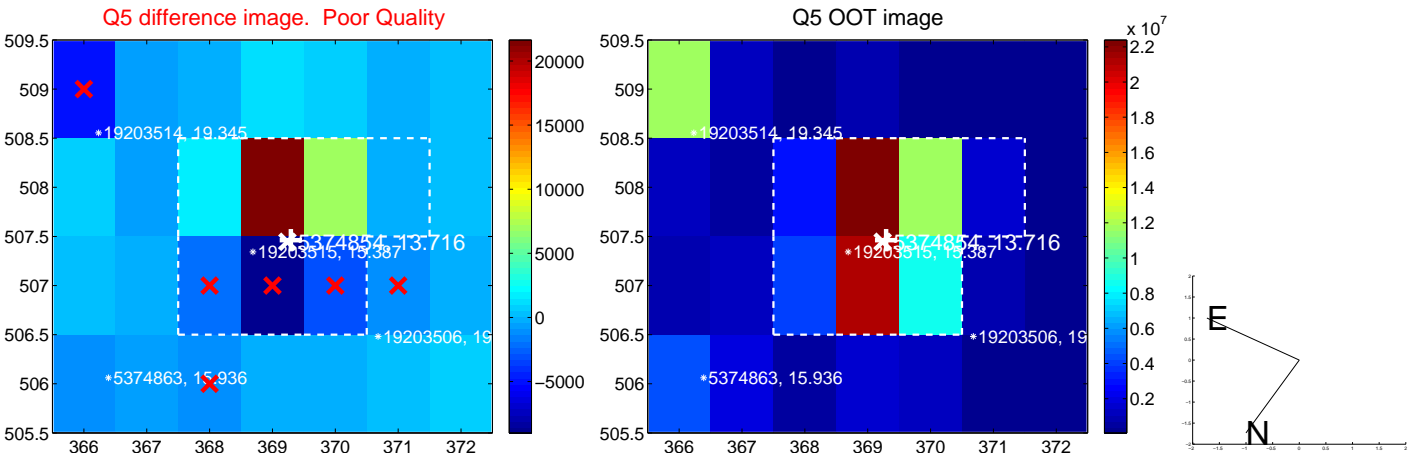


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

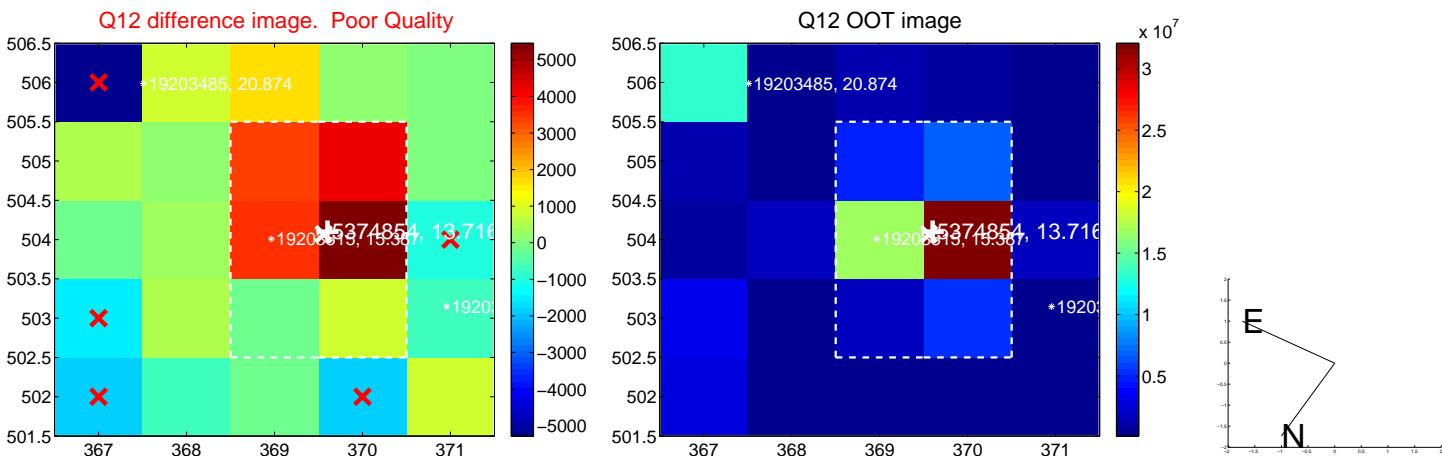
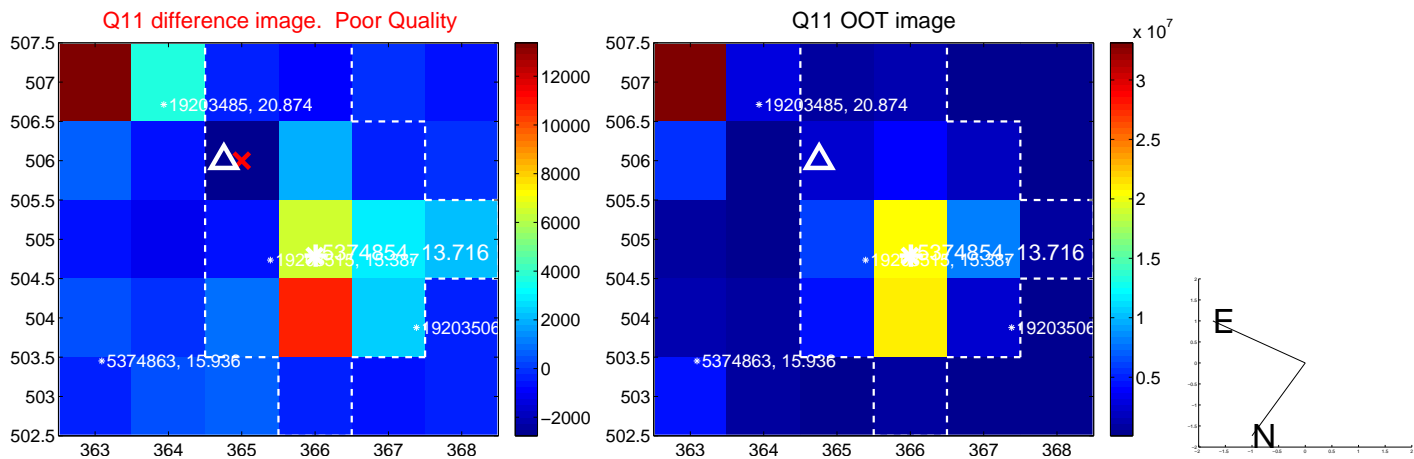
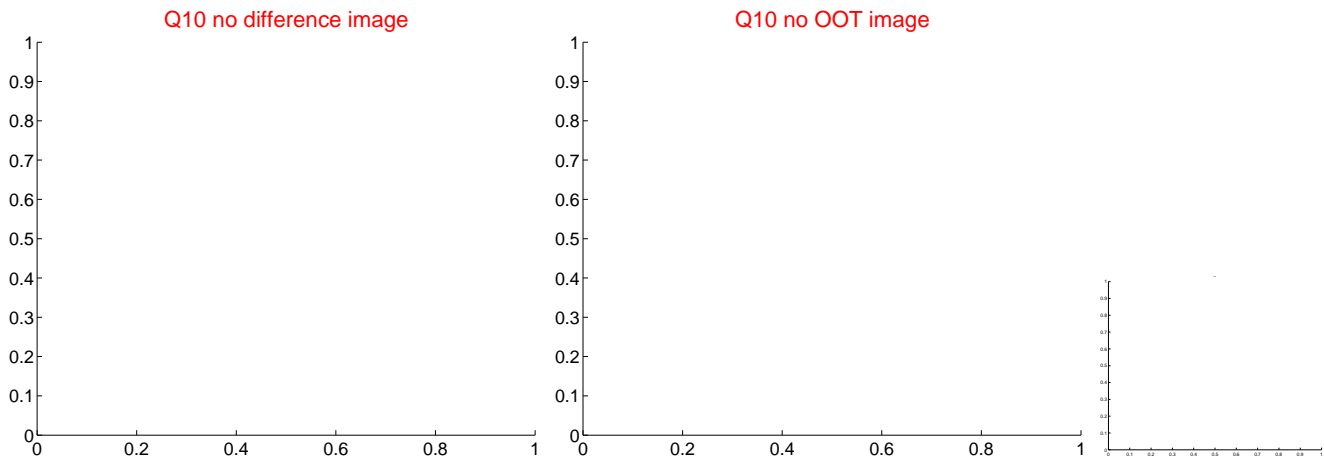
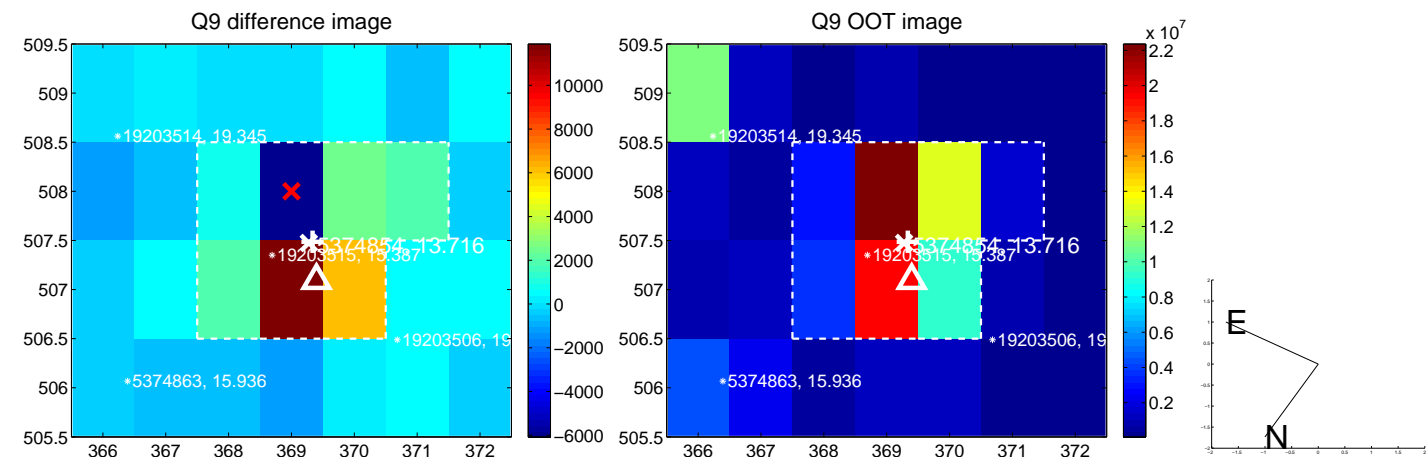
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



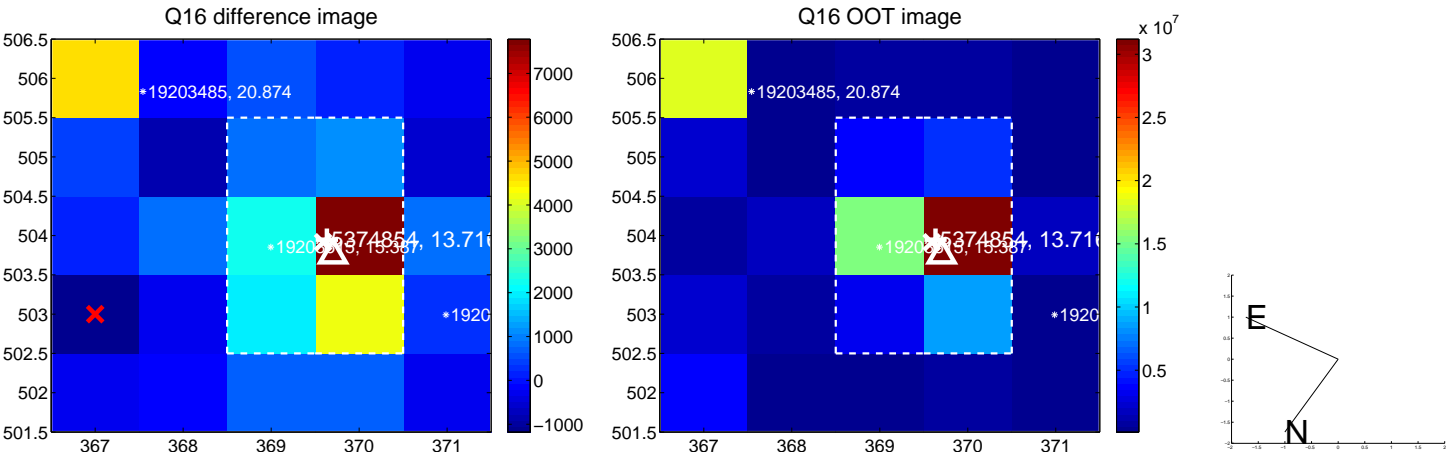
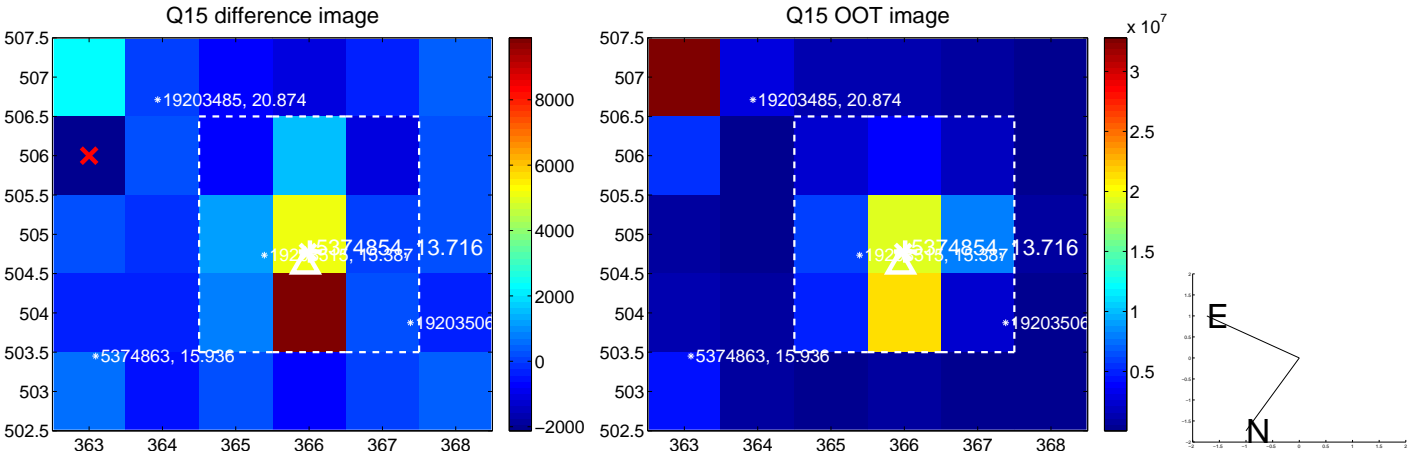
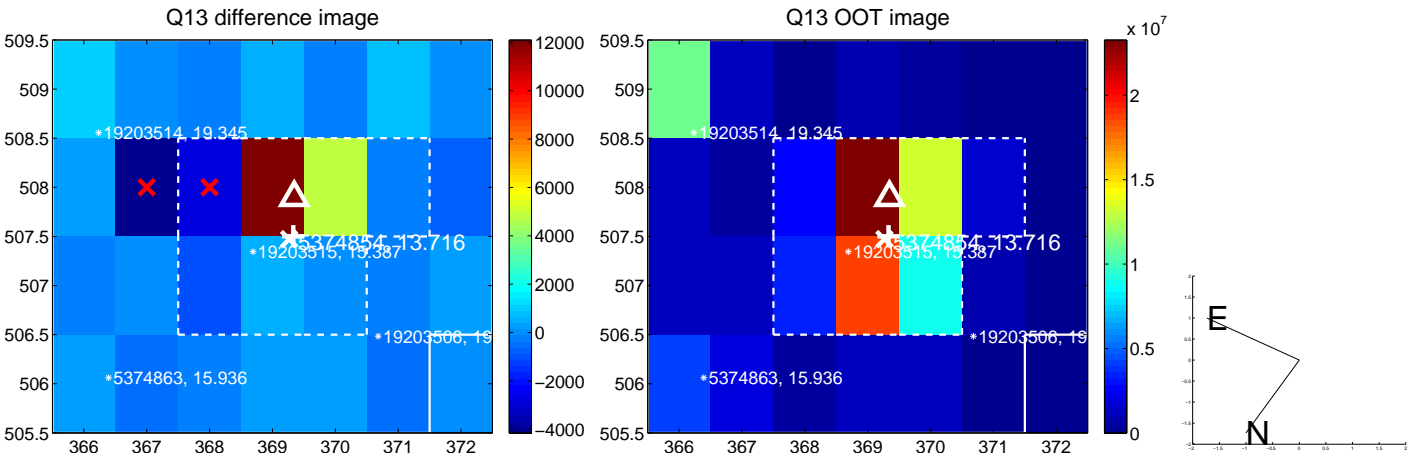
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



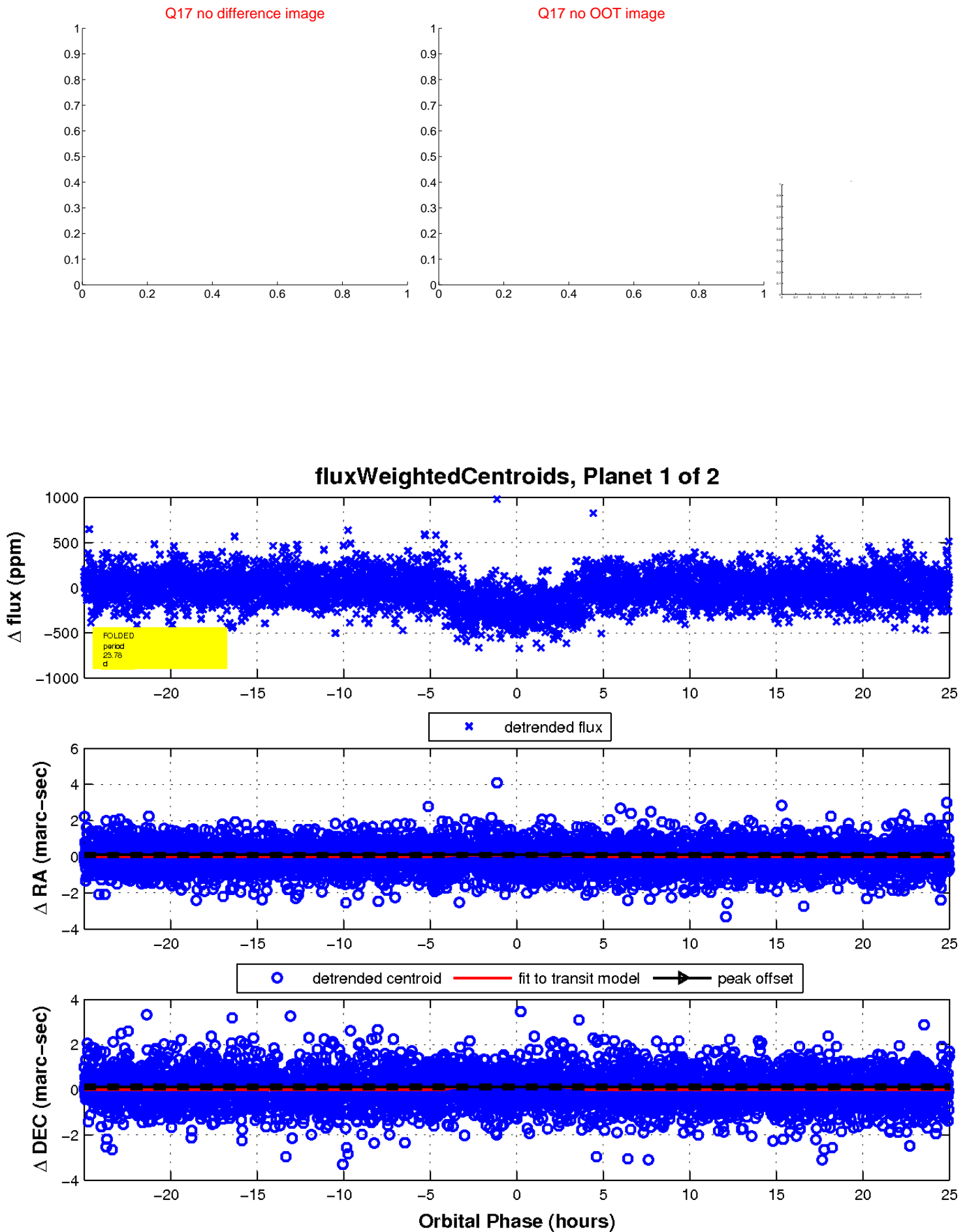
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



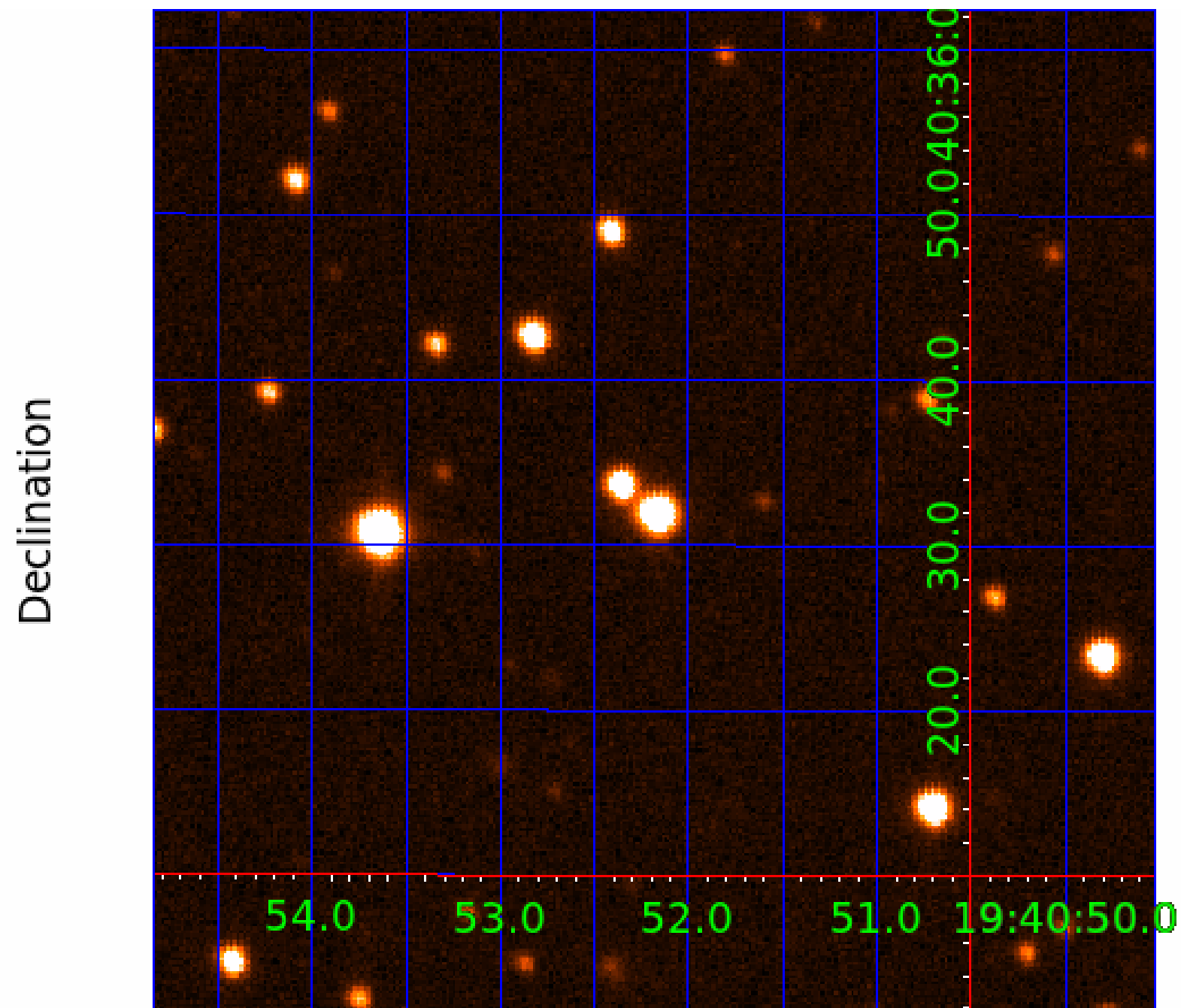
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005374854

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})
005374854-01	OBS	0645.02	23.783203	132.183168	252.1	8.334	28.8	31.1	1.26	5877	2.30	65.35
005374854-02	OBS	0645.01	8.503412	136.853465	181.1	2.980	22.3	25.0	1.26	5877	1.93	257.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005374854-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005374854-02	OBS	PC	0.89	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.

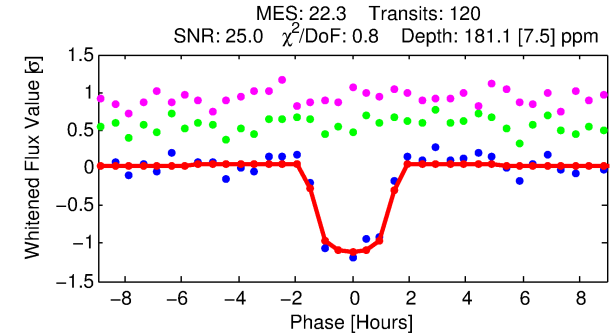
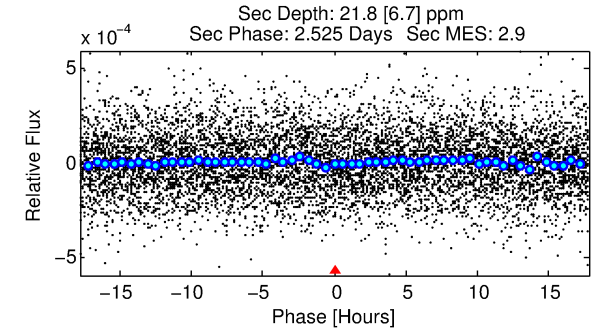
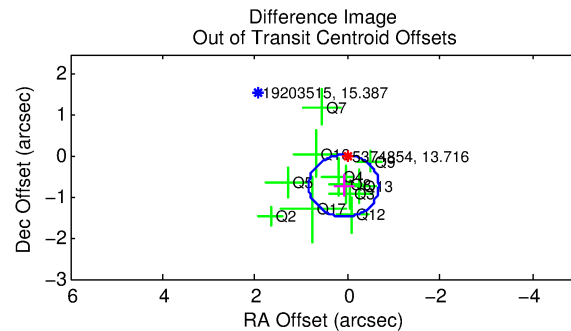
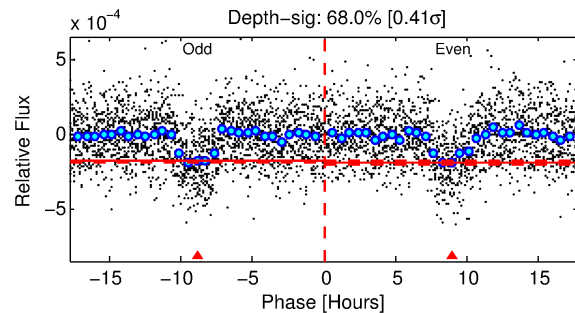
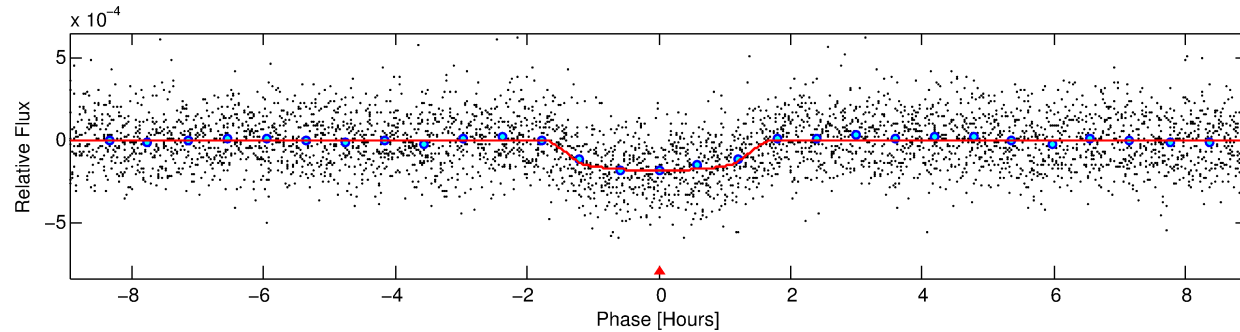
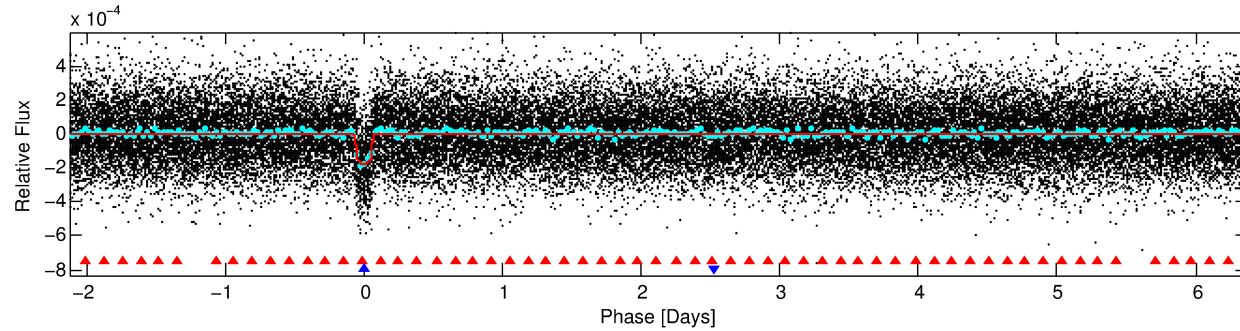
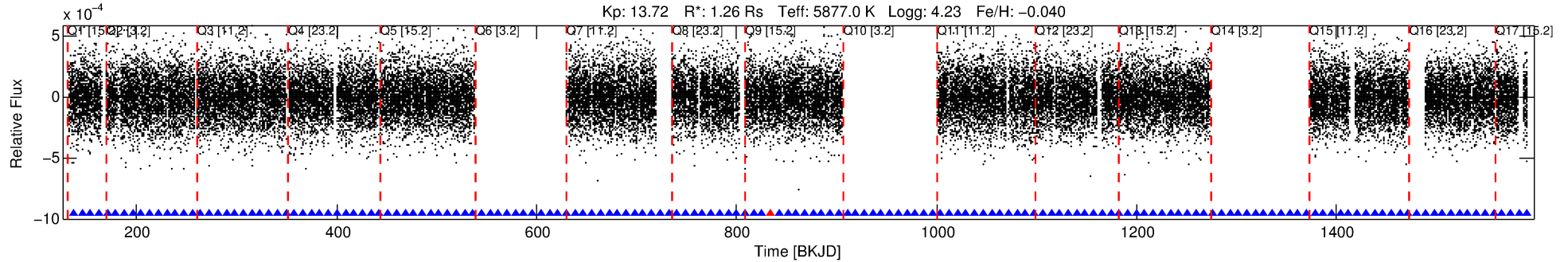
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005374854-02

No Significant Match Found

DV One-Page Summary

KIC: 5374854 Candidate: 2 of 2 Period: 8.503 d
KOI: K00645.01 Corr: 0.976



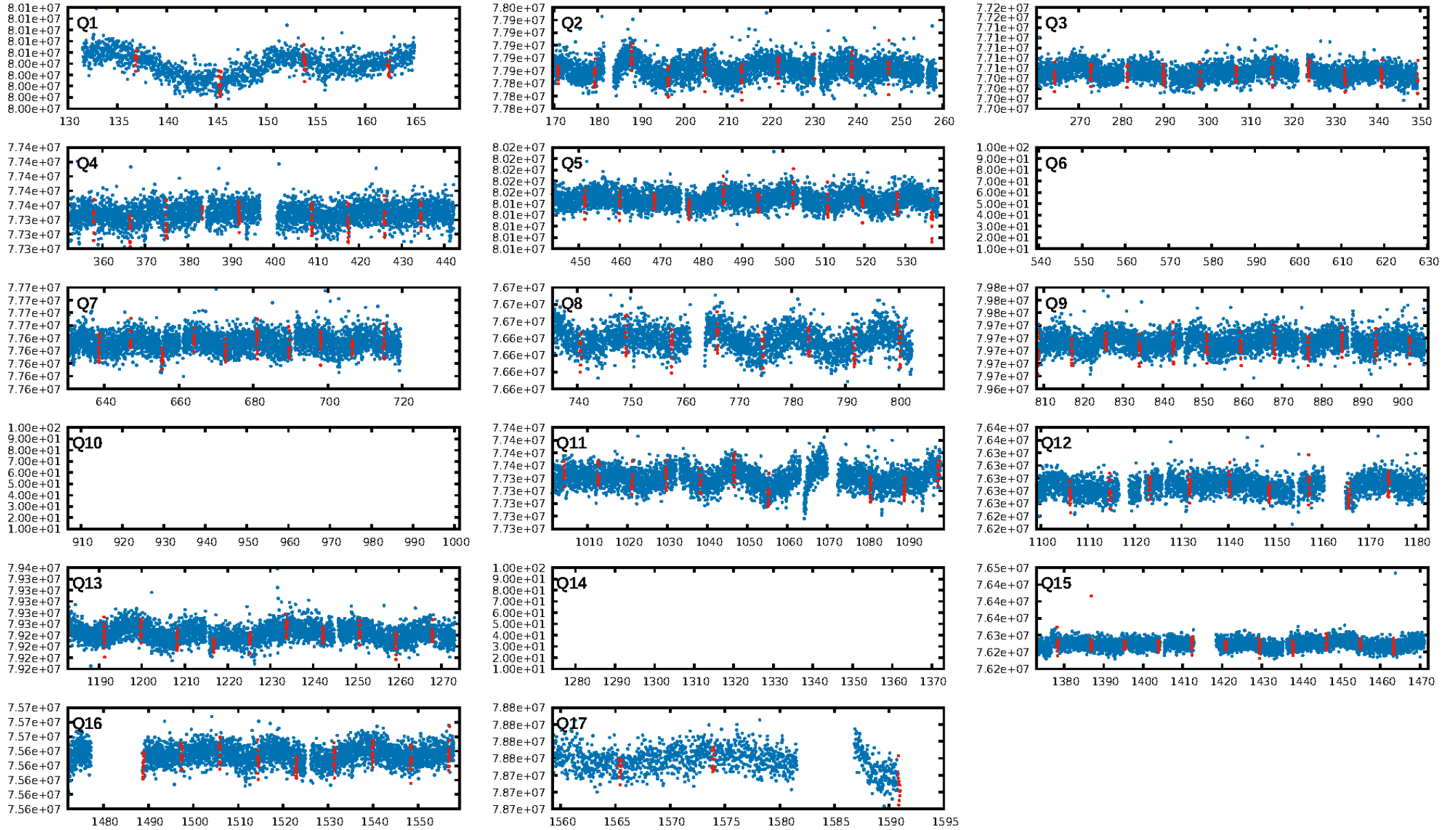
DV Fit Results:

Period = 8.50341 [0.00003] d
Epoch = 136.8535 [0.0024] BKJD
Rp/R* = 0.0140 [0.0043]
a/R* = 12.51 [18.11]
b = 0.84 [0.53]
Seff = 257.51 [75.49]
Teq = 1021 [75] K
Rp = 1.93 [0.69] Re
a = 0.0815 [0.0145] AU
Ag = 21.50 [15.86] [1.29 σ]
Teffp = 3401 [585] K [4.03 σ]

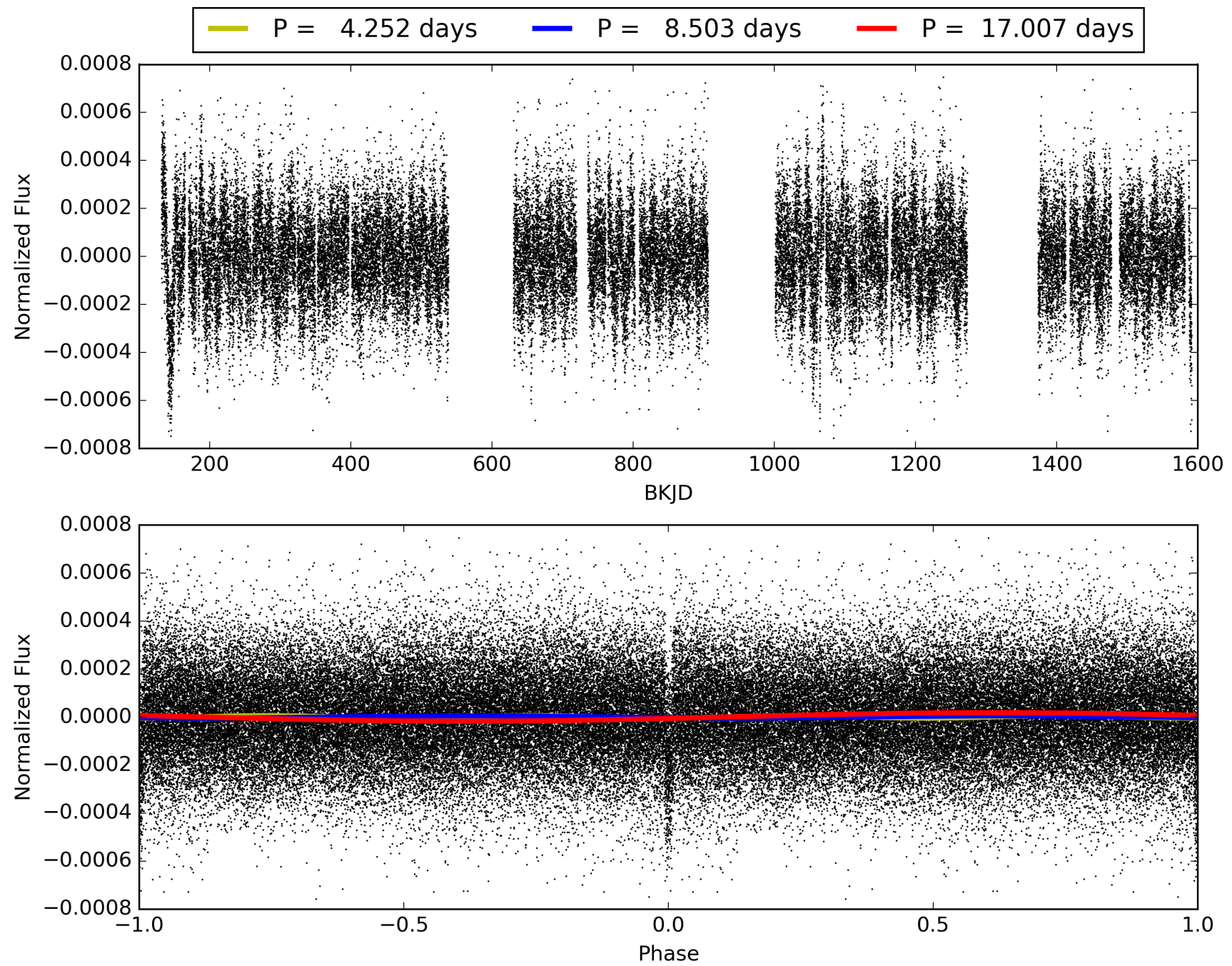
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [41.43 σ]
ModelChiSquare2-sig: 99.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.62e-106
RollingBand-fgt: 0.99 [112/113]
GhostDiagnostic-chr: 17.08
Centroid-sig: 29.8%
Centroid-so: 0.297 arcsec [0.58 σ]
OotOffset-rm: 0.723 arcsec [2.86 σ]
KicOffset-rm: 0.859 arcsec [3.67 σ]
OotOffset-st: 1/2/4/4 [11]
KicOffset-st: 1/2/4/4 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 005374854-02, PDC Light Curves

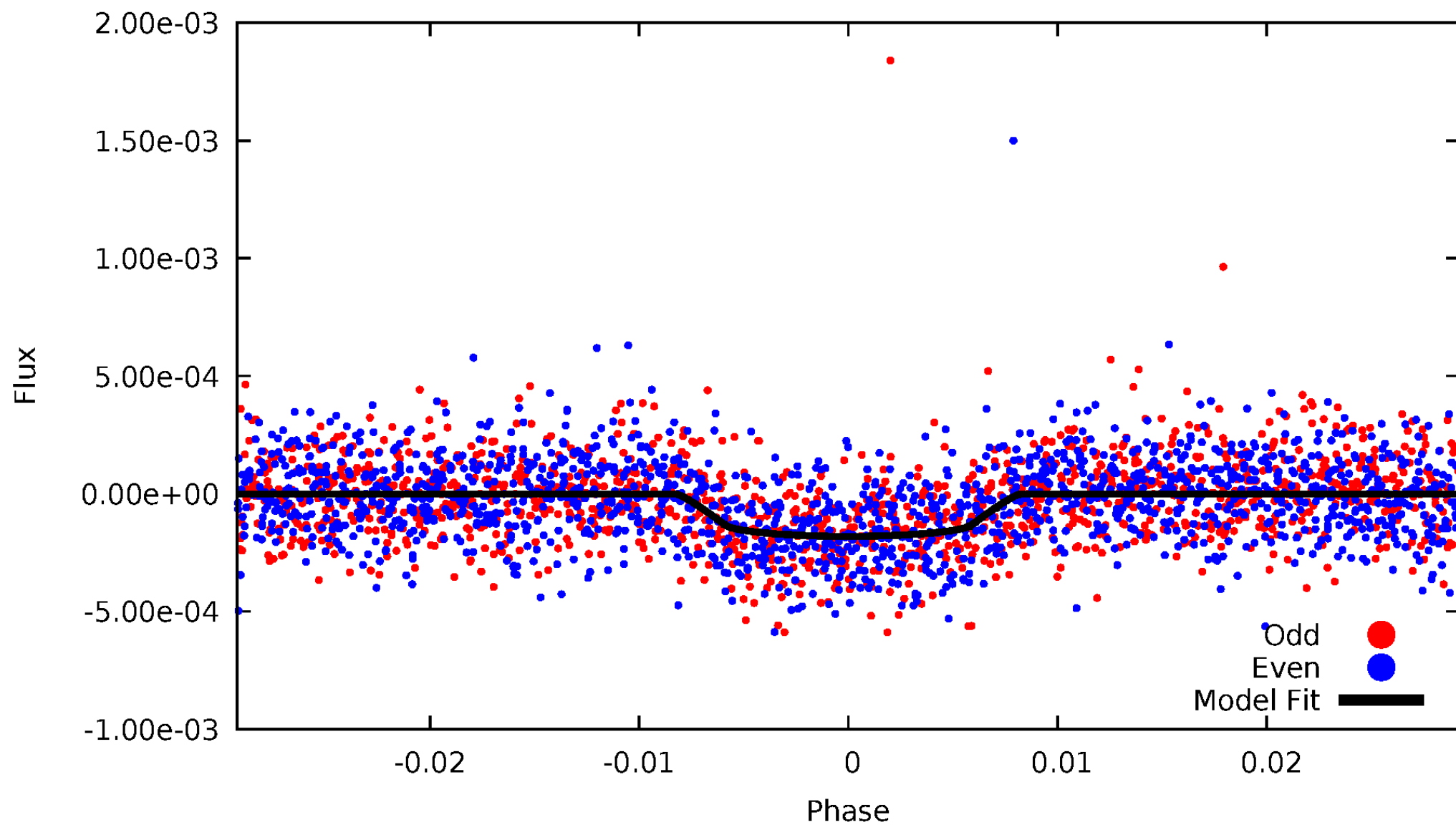


TCE 005374854-02



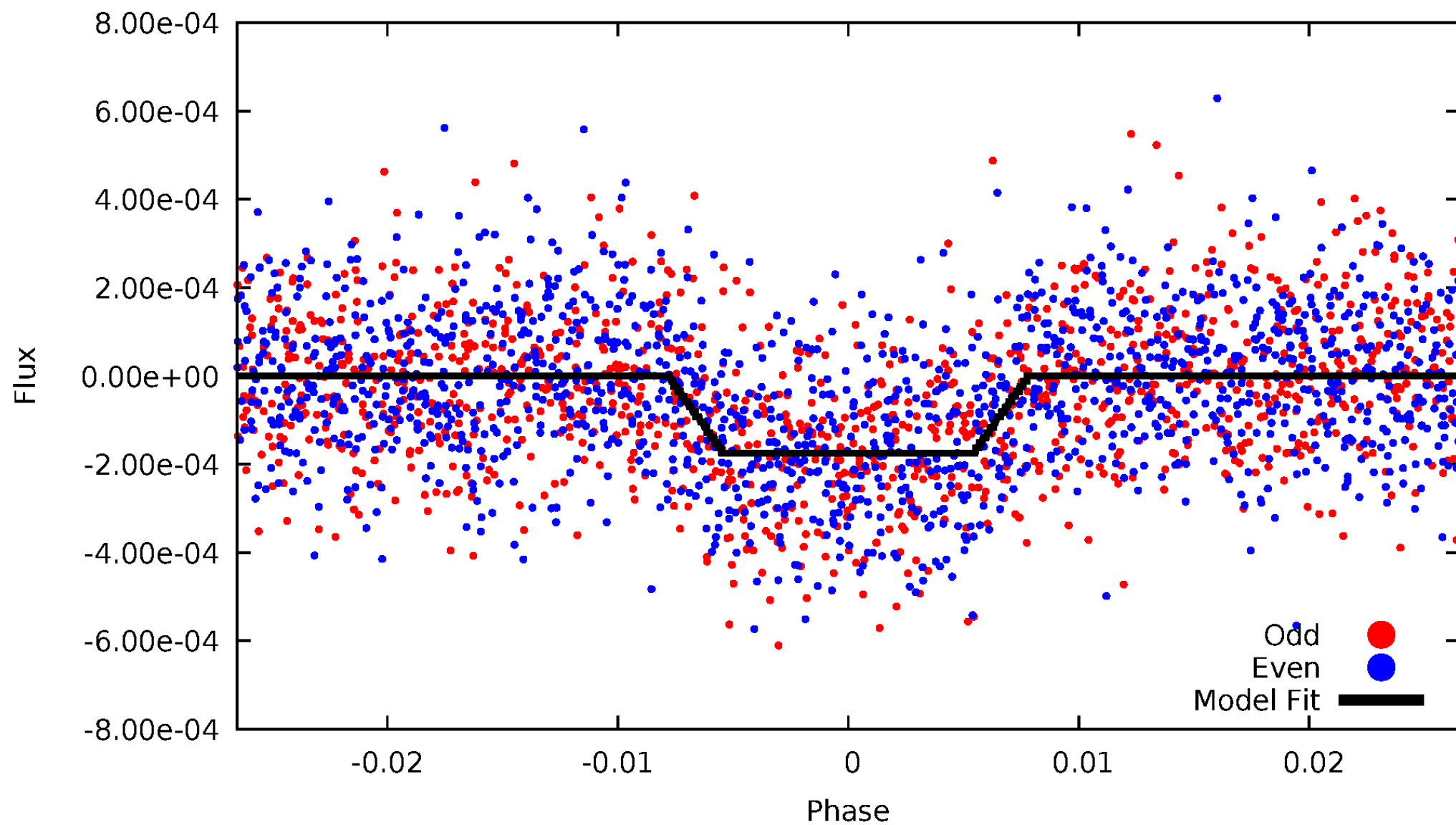
DV Odd/Even

TCE 005374854-02



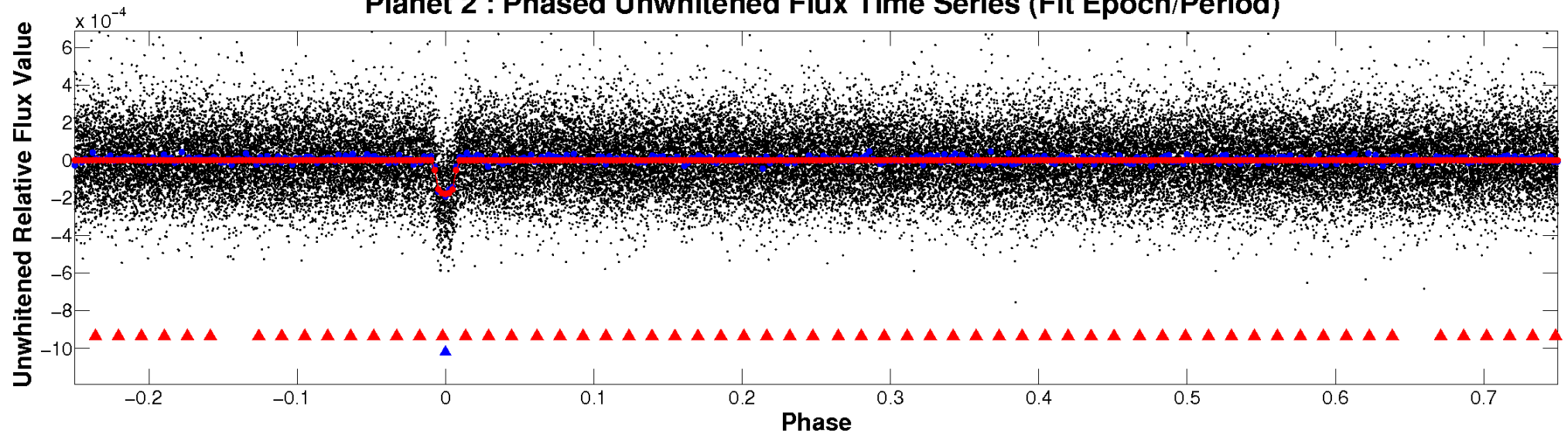
ALT Odd/Even

TCE 005374854-02

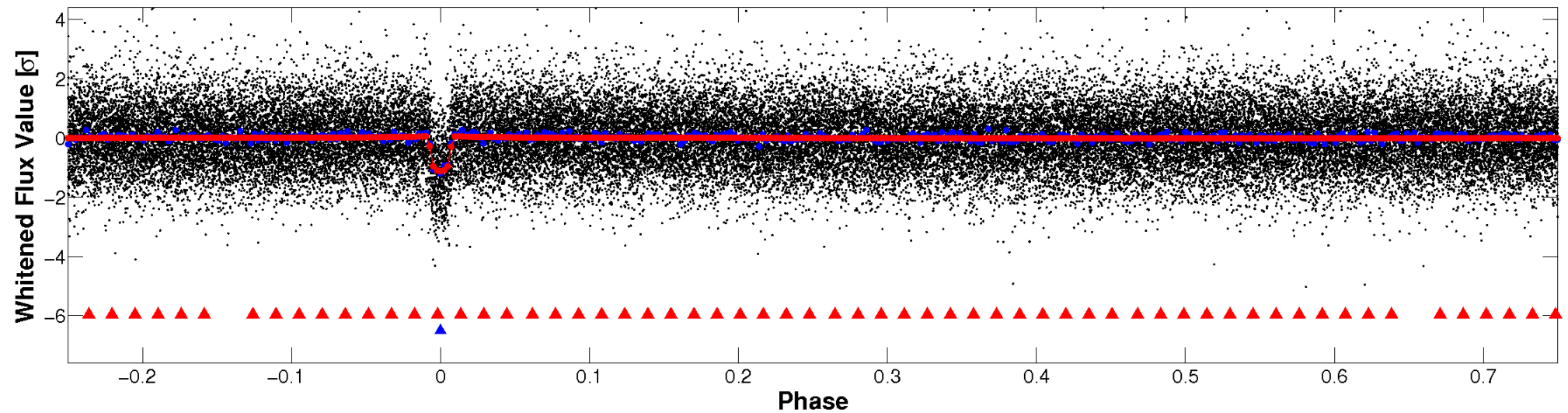


Non-Whitened Vs. Whitened Light Curve

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

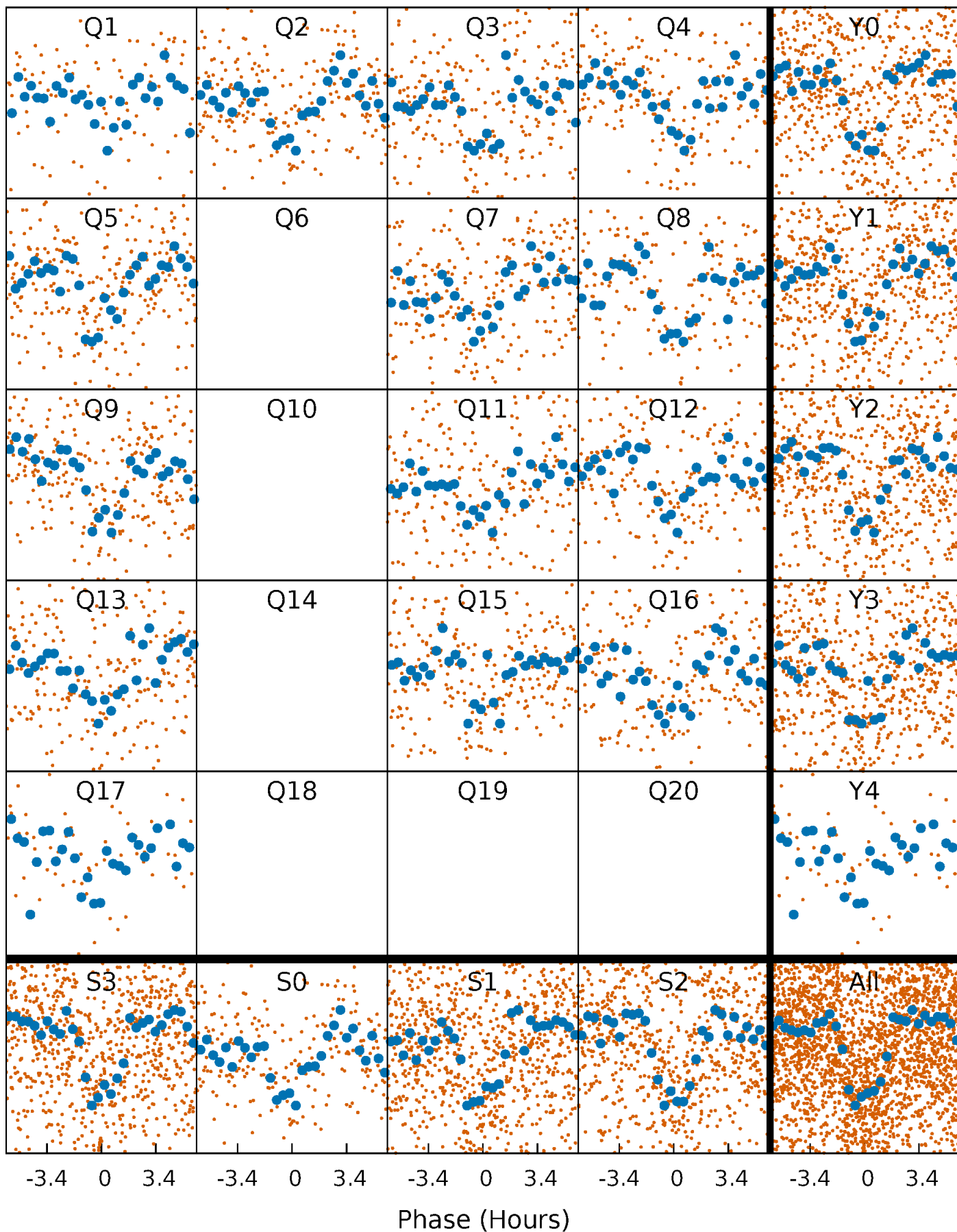


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



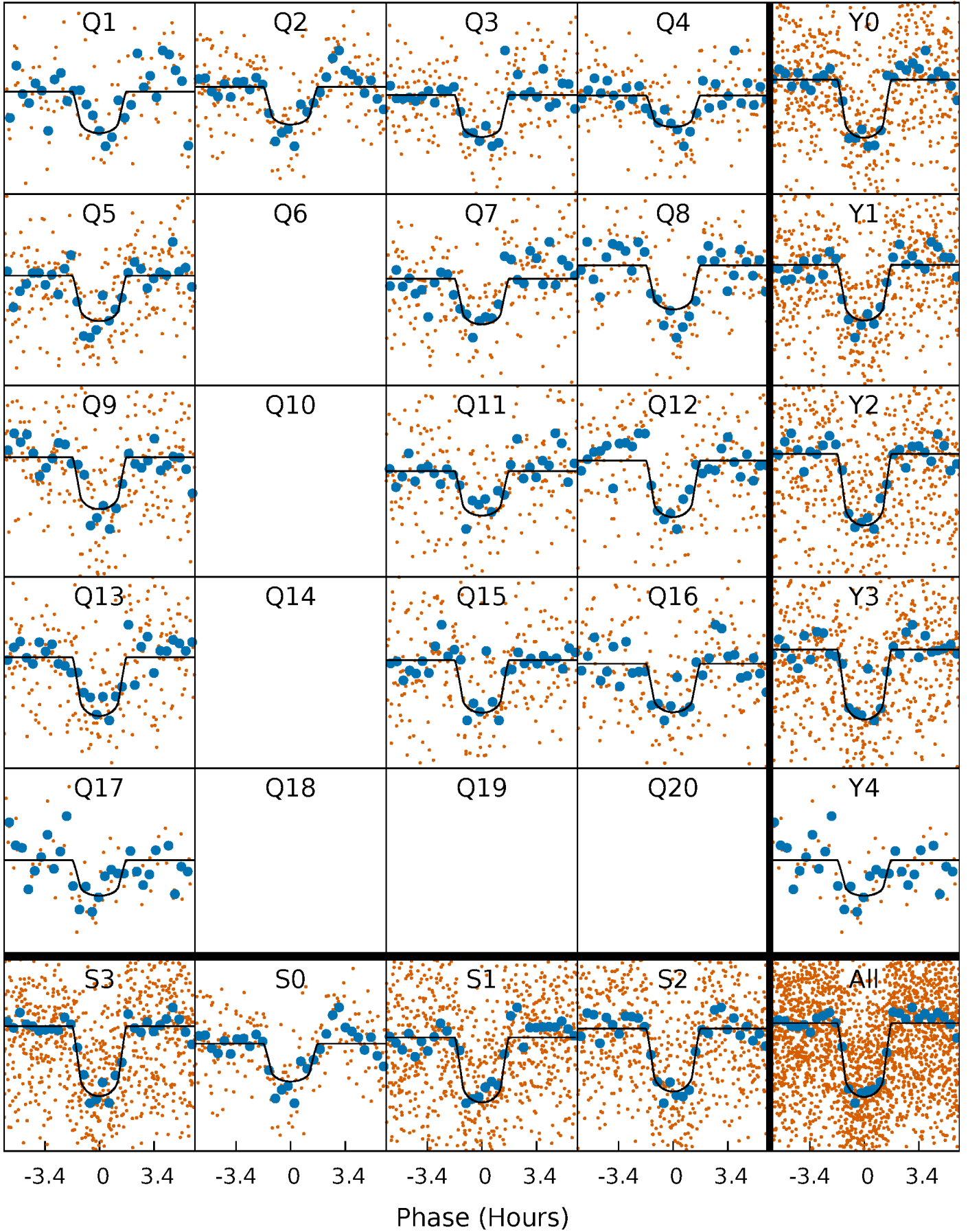
PDC Quarter-Phased Transit Curves

TCE 005374854-02 P= 8.503412 Days $T_0=136.853465$ (BKJD)



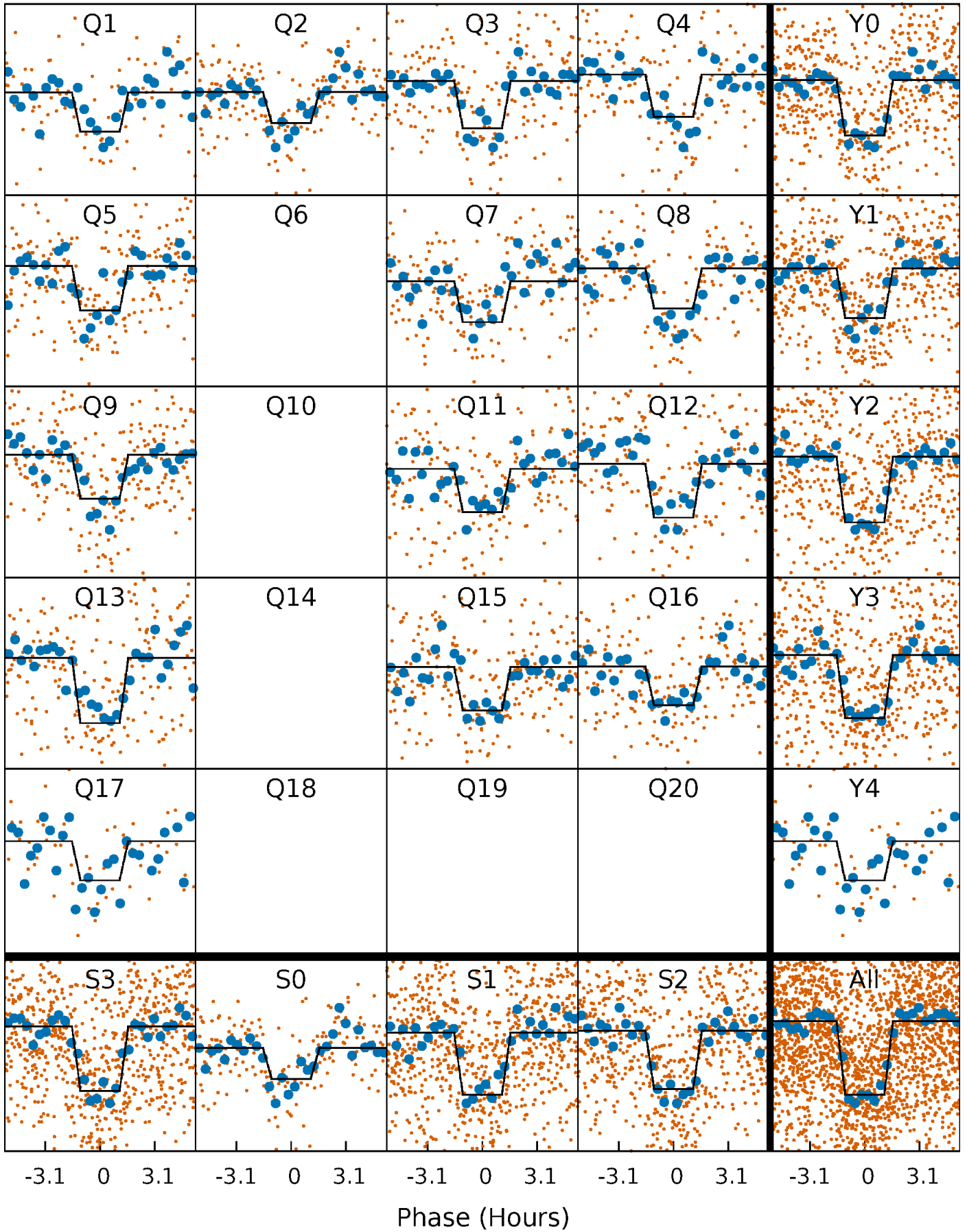
DV Quarter-Phased Transit Curves

TCE 005374854-02 P= 8.503412 Days $T_0=136.853465$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

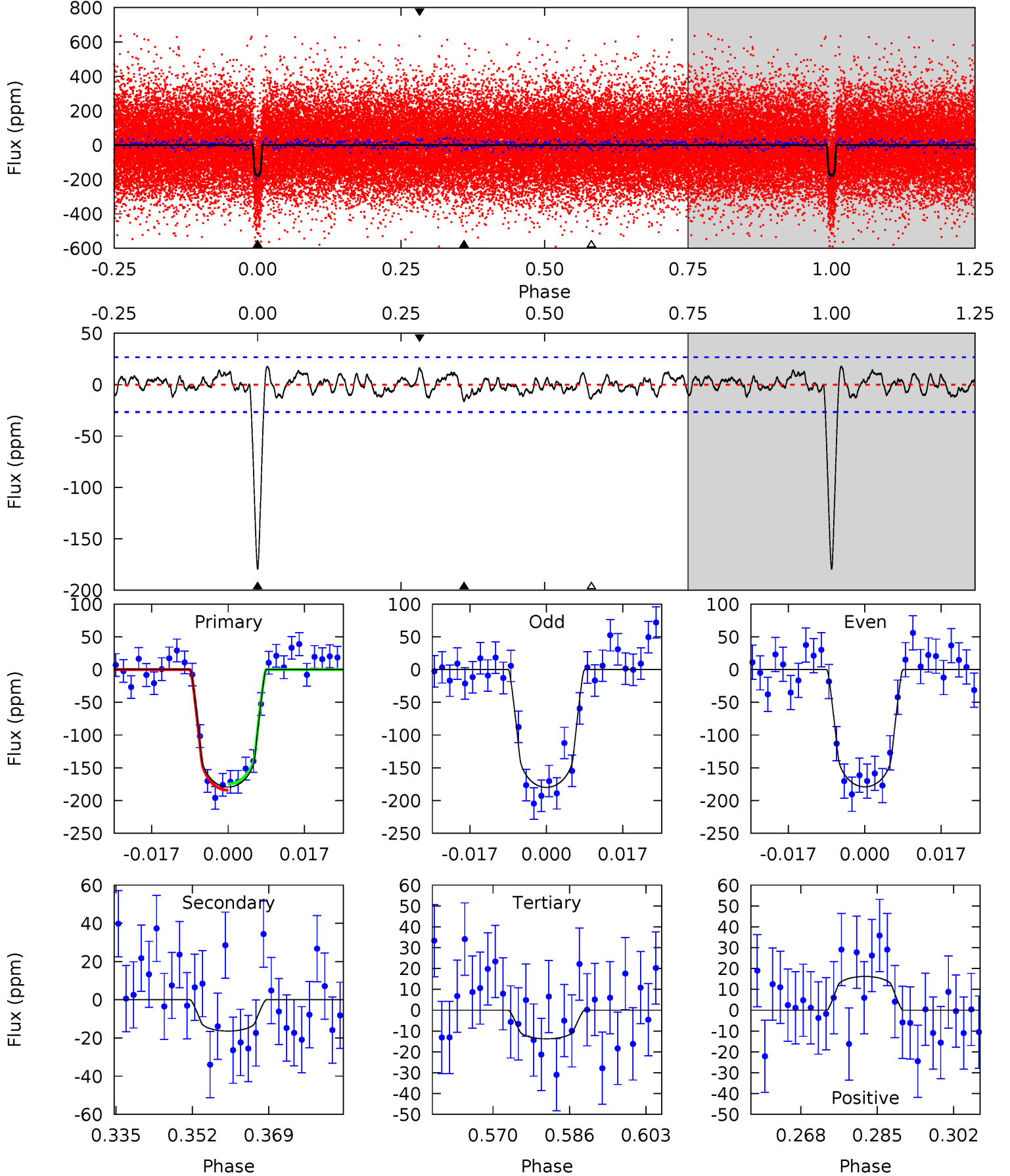
TCE 005374854-02 P= 8.503345 Days $T_0=136.858669$ (BKJD)



DV Model-Shift Uniqueness Test

005374854-02, P = 8.503412 Days, E = 128.350053 Days

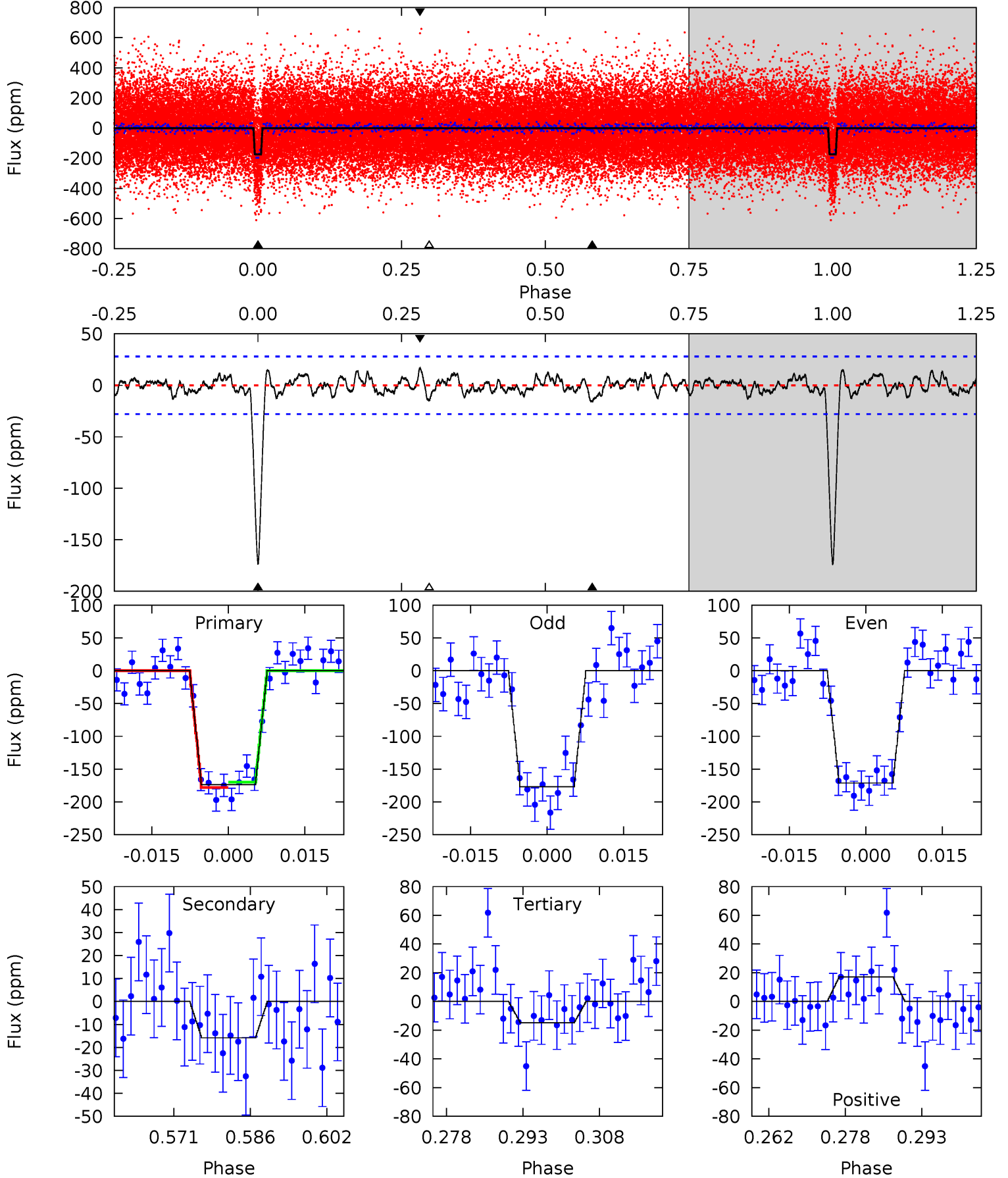
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.1	3.02	2.53	2.99	4.93	2.39	1.16	30.6	30.1	0.49	0.04	0.07	1.00	0.09	0.89



Alt Model-Shift Uniqueness Test

005374854-02, P = 8.503345 Days, E = 128.355324 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.7	2.80	2.63	3.01	4.94	2.42	1.05	28.1	27.7	0.17	-0.21	0.51	1.04	0.09	0.73



Stellar Parameters For KIC 005374854

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5877^{+105}_{-129}	$4.233^{+0.162}_{-0.108}$	$-0.040^{+0.150}_{-0.150}$	$1.265^{+0.199}_{-0.243}$	$0.997^{+0.089}_{-0.073}$	$0.694^{+0.556}_{-0.227}$
	+2%/-2%	+4%/-3%	+375%/-375%	+16%/-19%	+9%/-7%	+80%/-33%
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 005374854-02 / KOI 0645.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-16 ± 5	$1.92^{+0.60}_{-0.60}$	1424^{+70}_{-81}	3555^{+511}_{-336}	16^{+19}_{-8}
Alt.	-16 ± 6	$1.79^{+0.63}_{-0.61}$	1418^{+68}_{-76}	3649^{+583}_{-451}	18^{+24}_{-10}

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

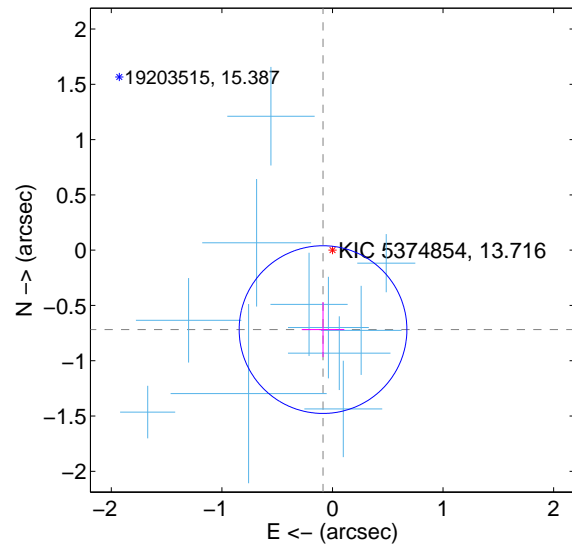
Supplemental centroid analysis for 005374854-02. Kepler magnitude: 13.72. Transit SNR 25.02

There are 11 quarters with good PRF difference image offsets

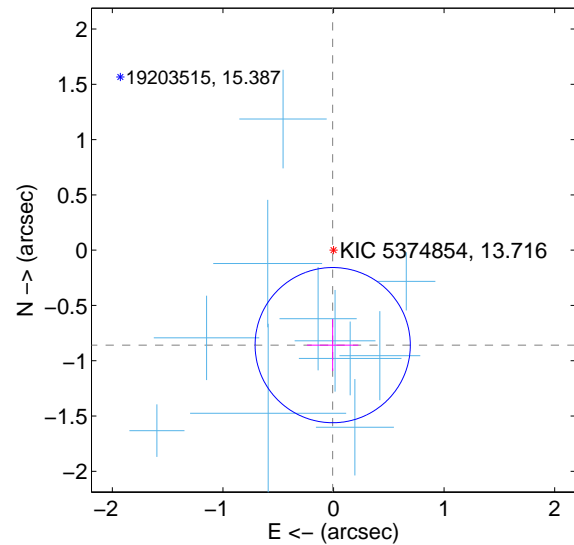
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.723 ± 0.253	2.86	0.085 ± 0.193	-0.718 ± 0.249
PRF-fit source offset from KIC position	0.859 ± 0.234	3.67	0.007 ± 0.232	-0.859 ± 0.234
photometric centroid source offset	0.30 ± 0.51	0.58	-0.20 ± 0.51	-0.22 ± 0.51

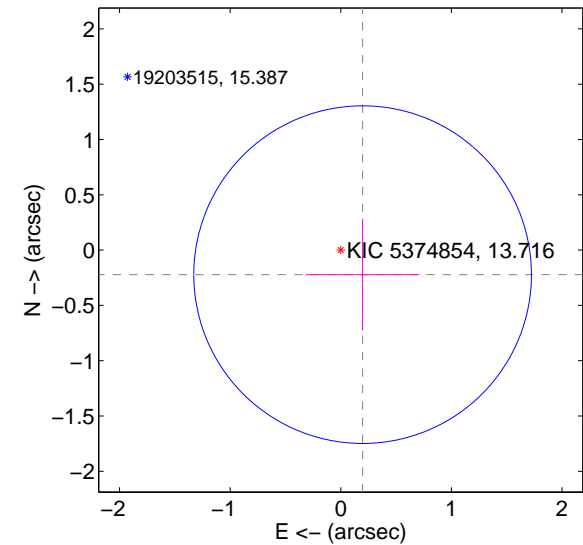
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

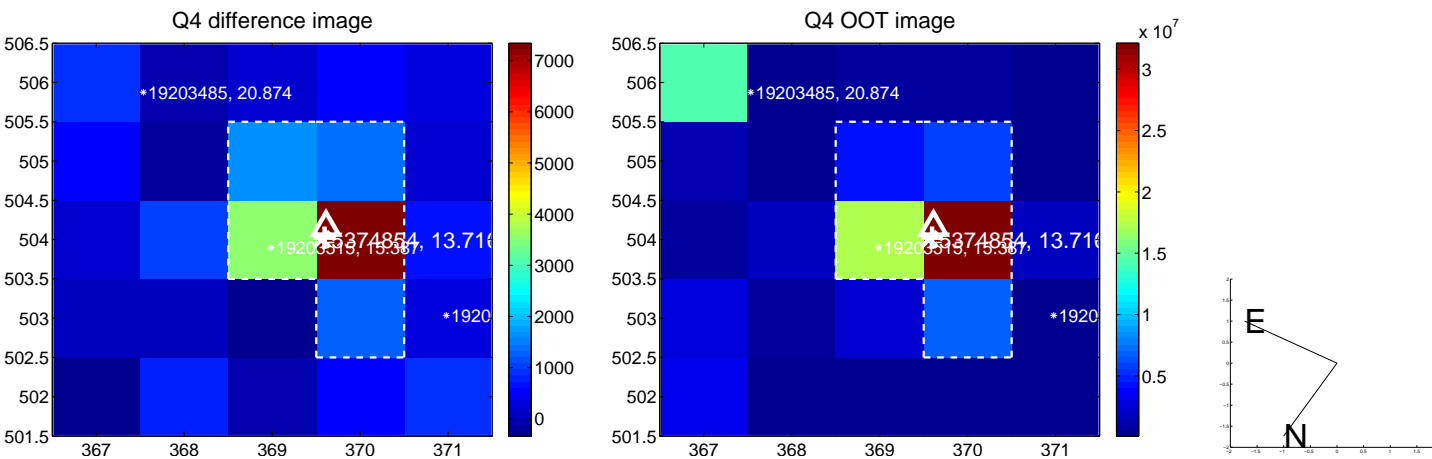
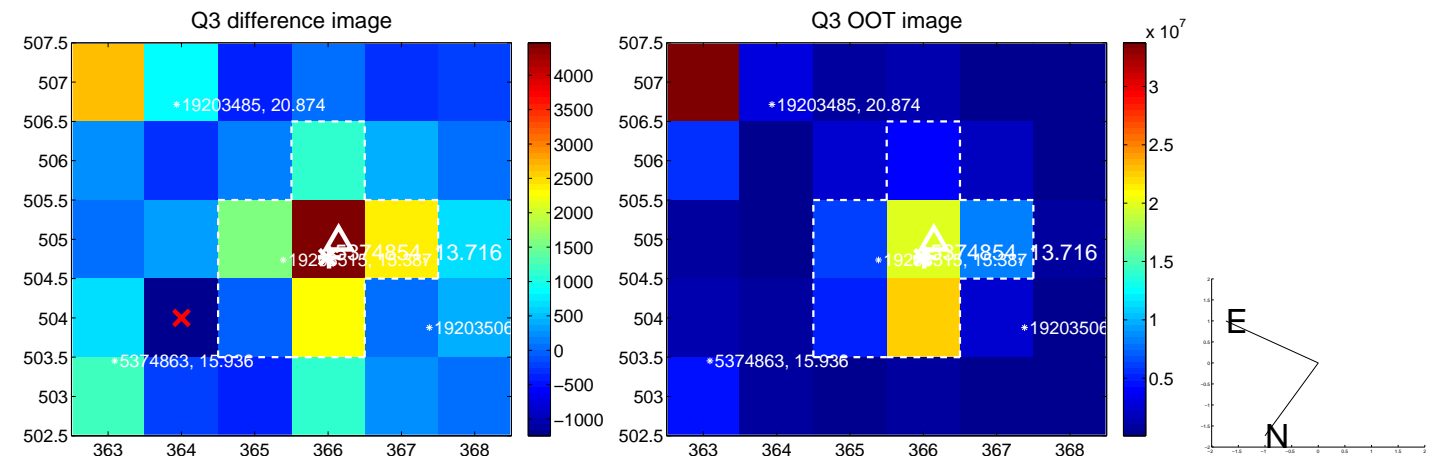
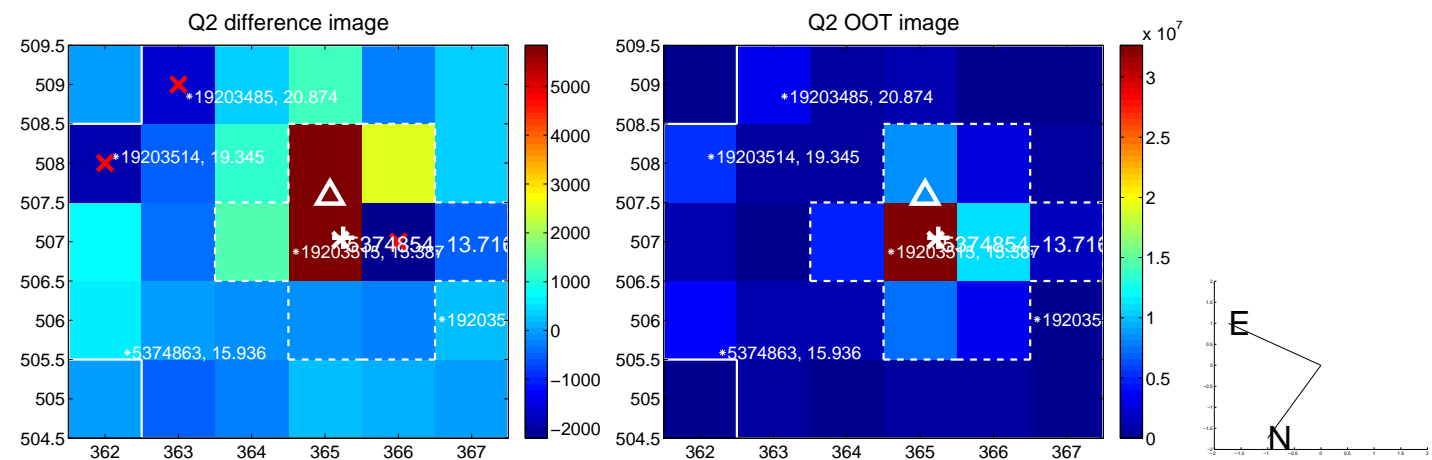
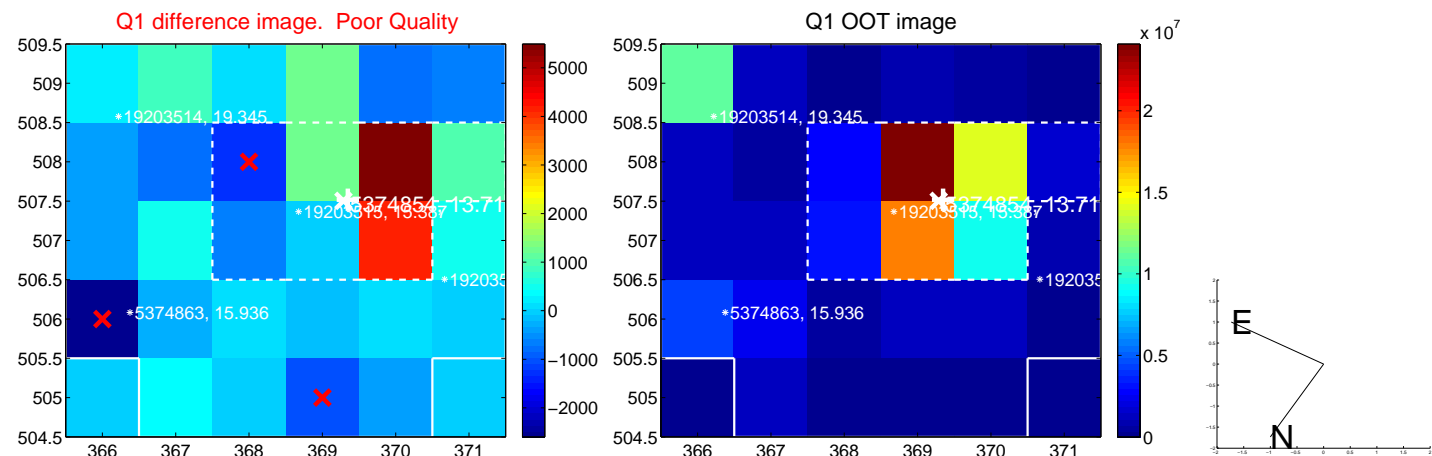


offset from photometric centroids

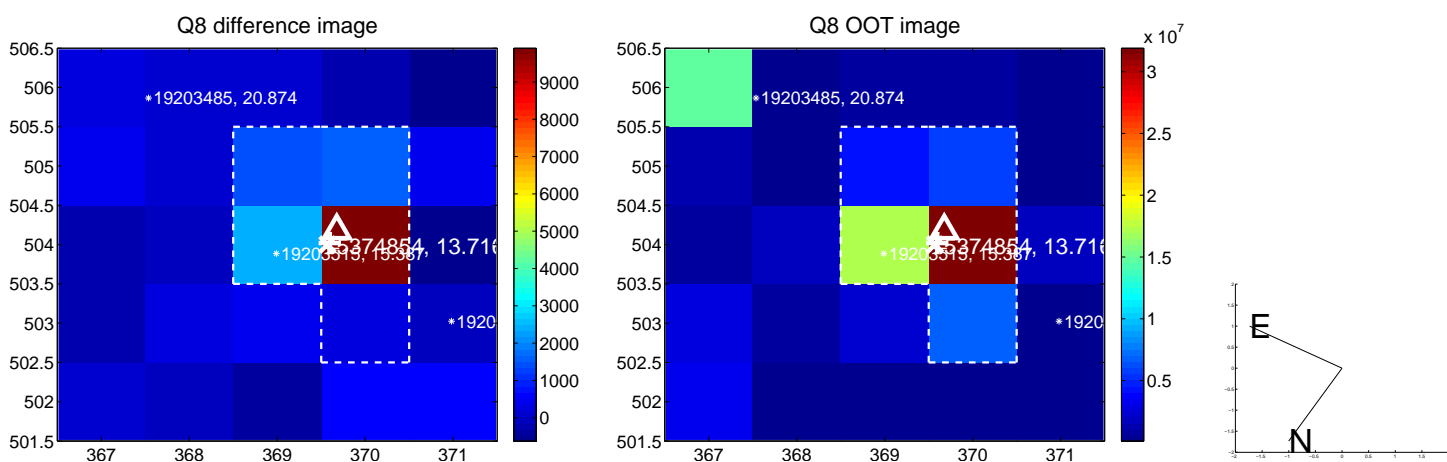
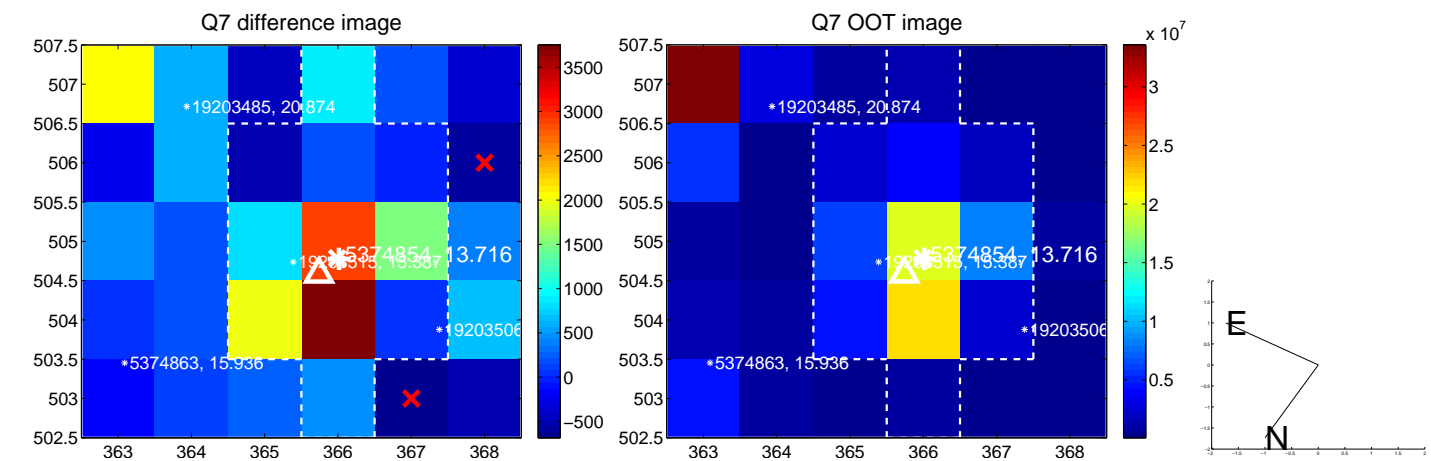
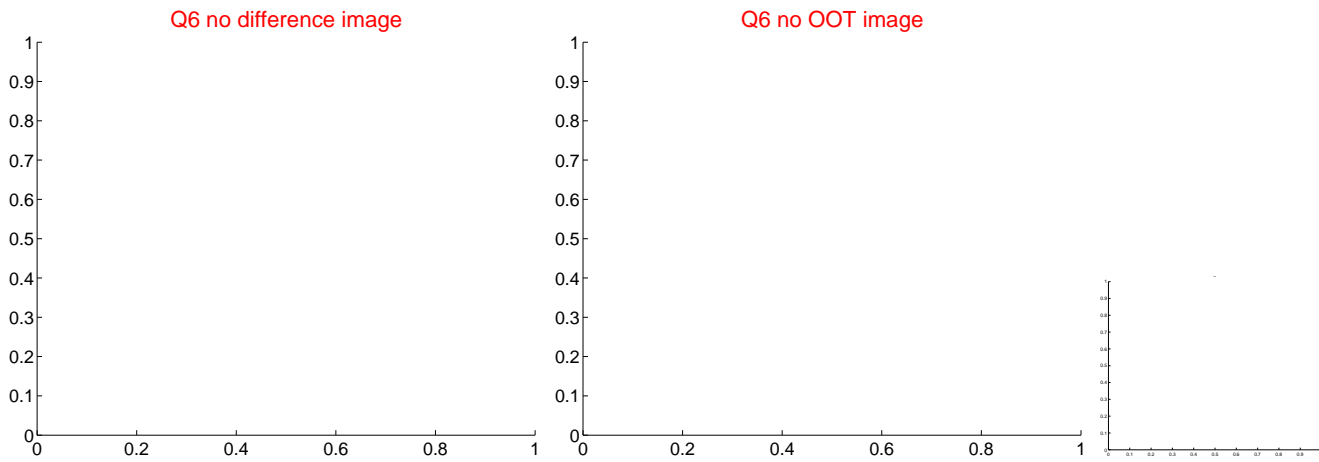
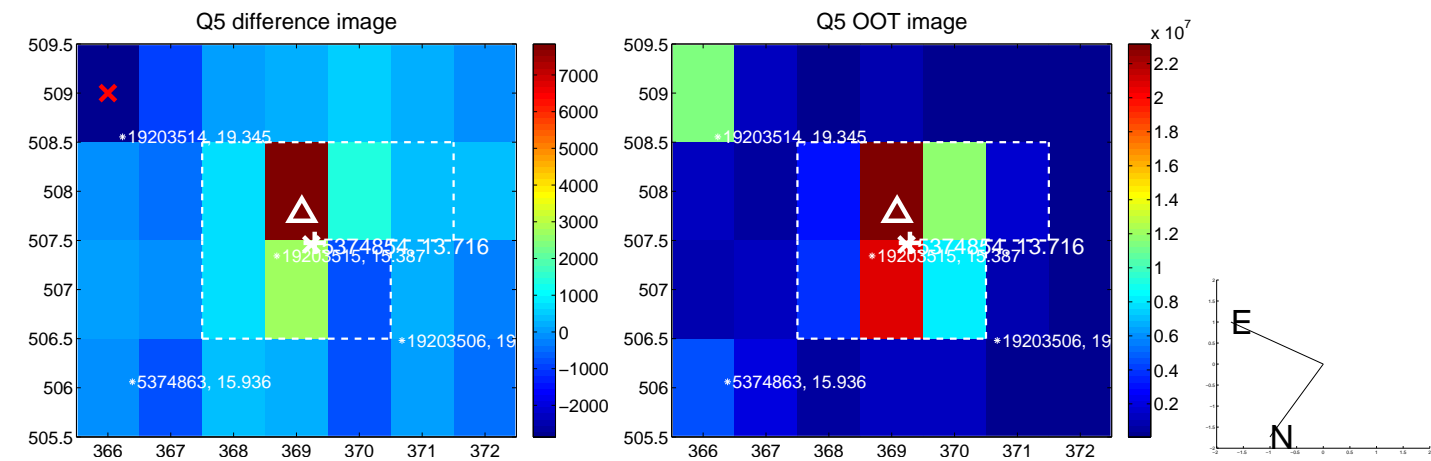


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

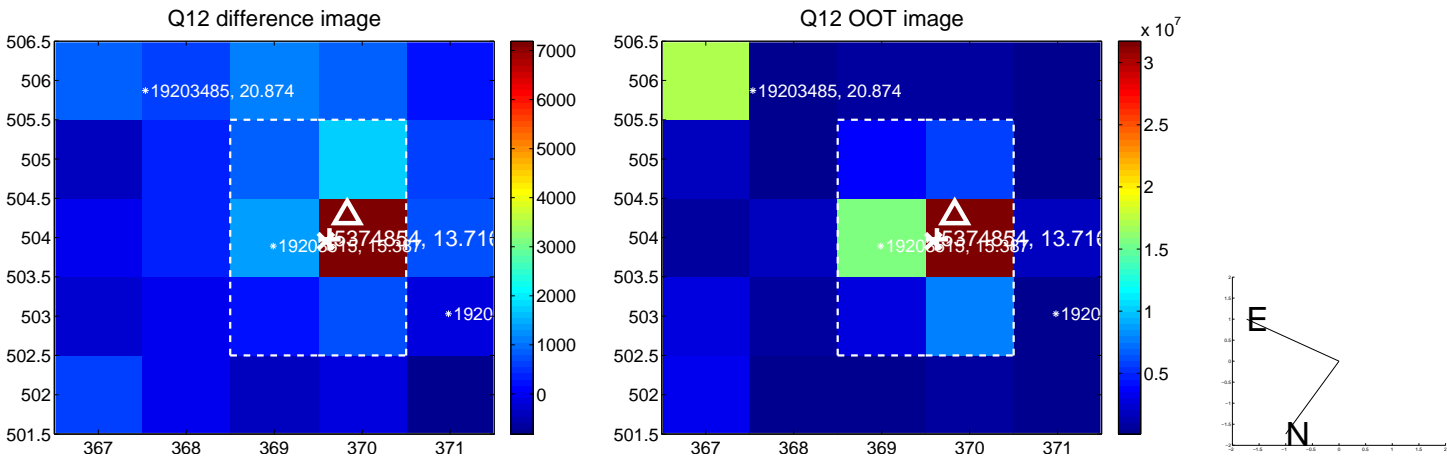
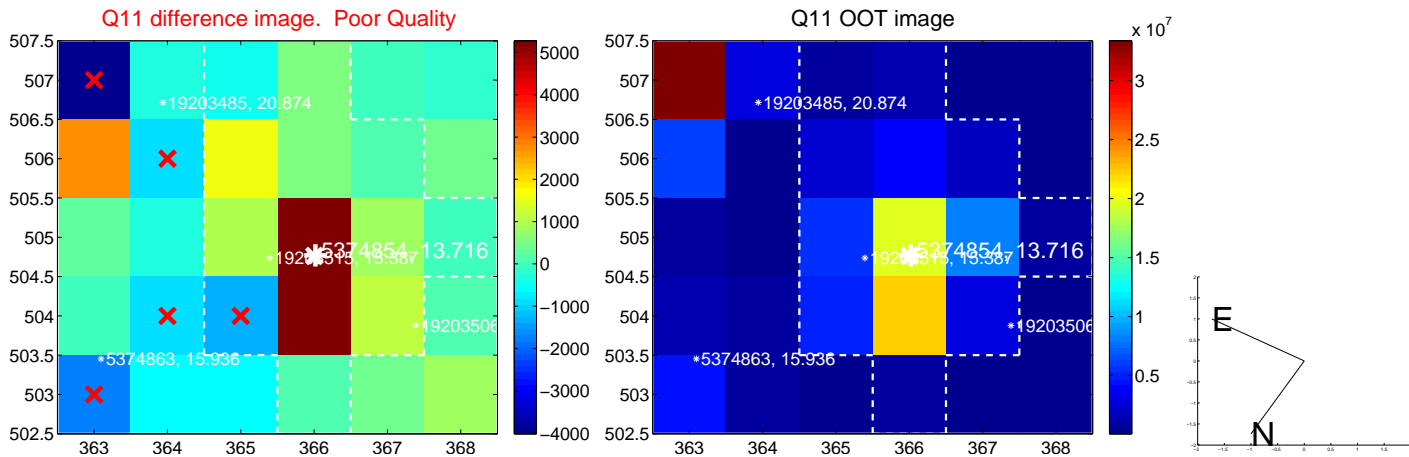
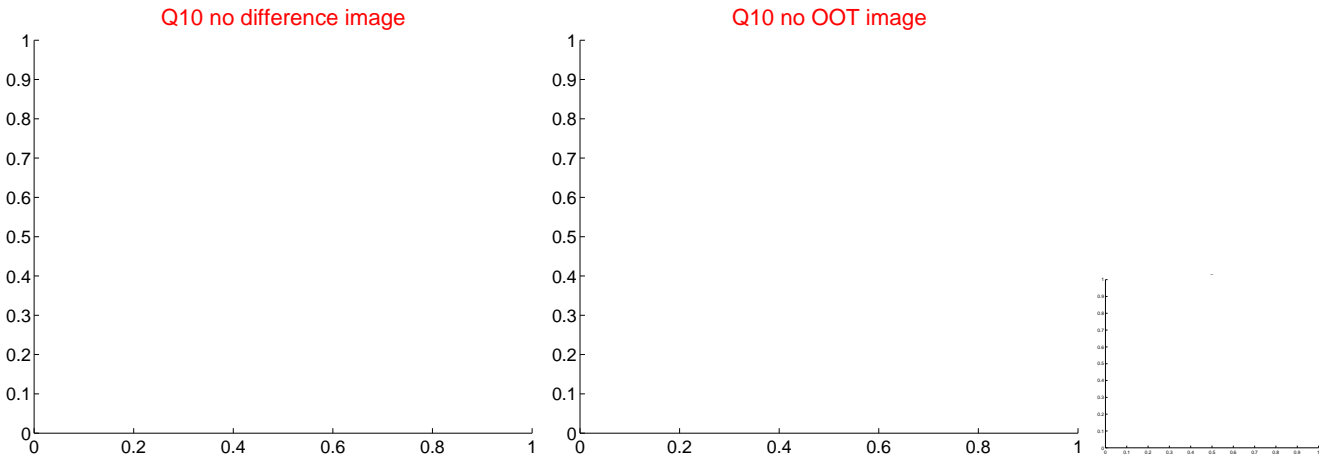
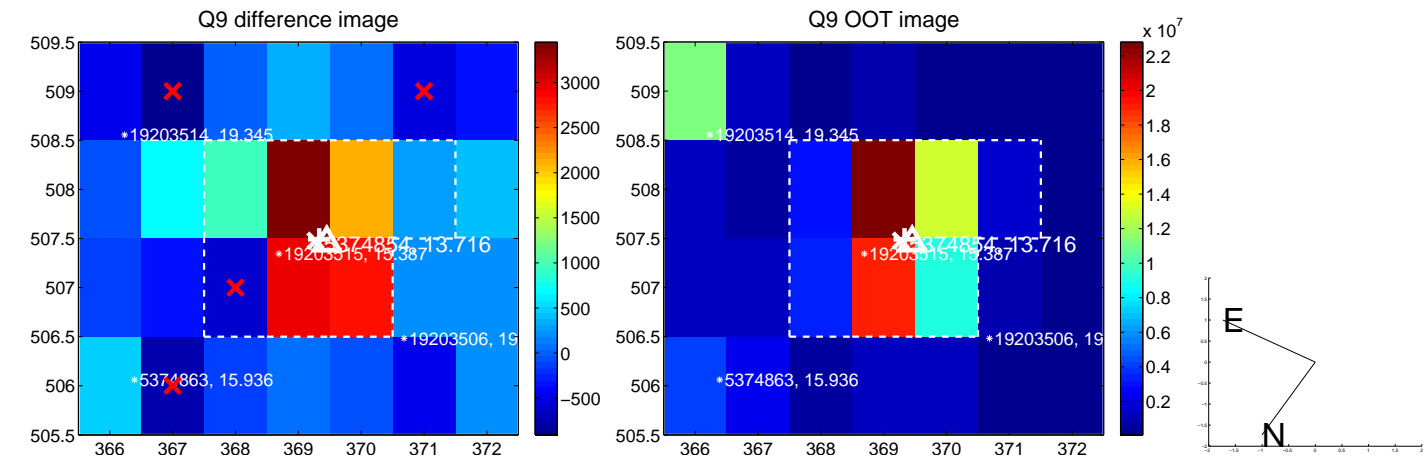
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



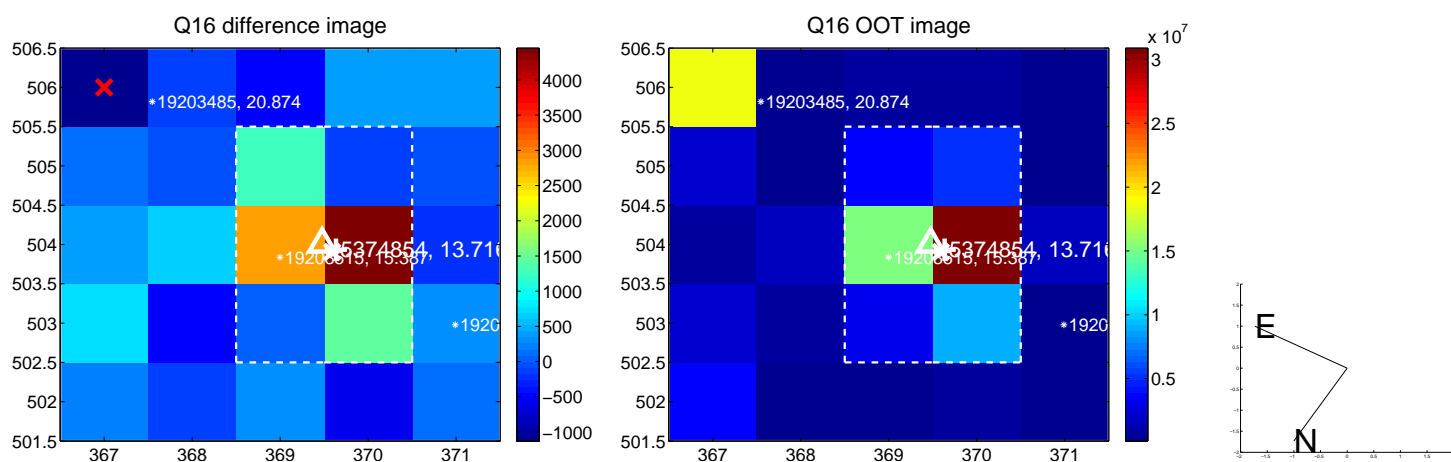
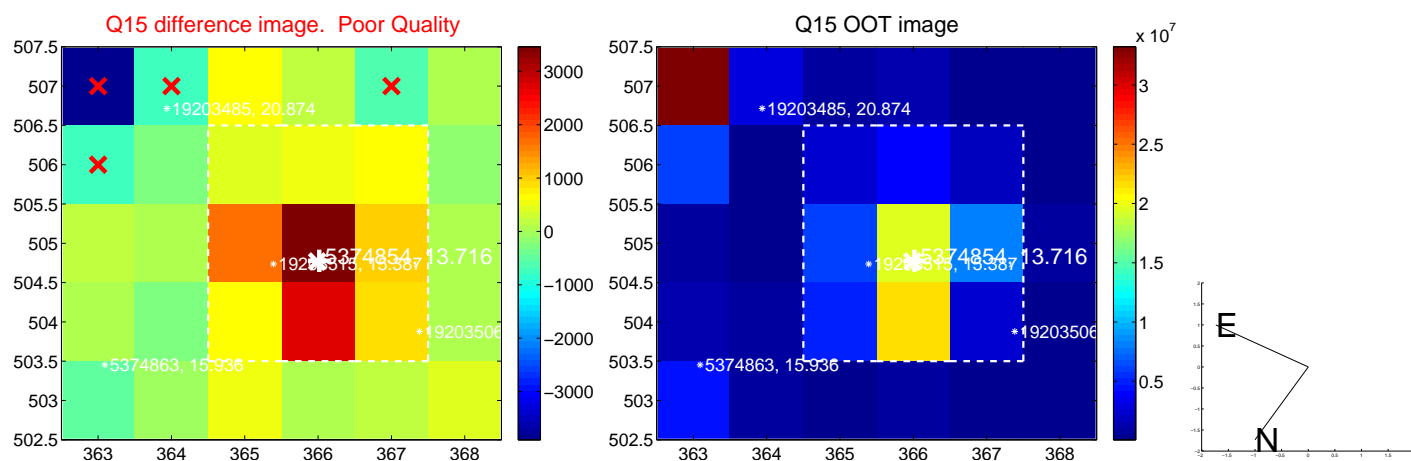
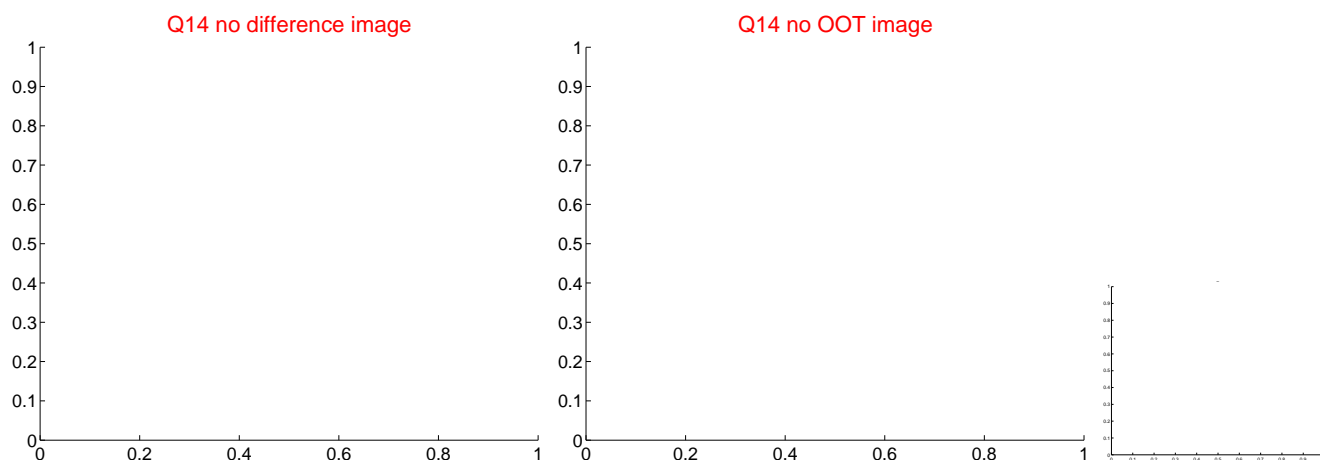
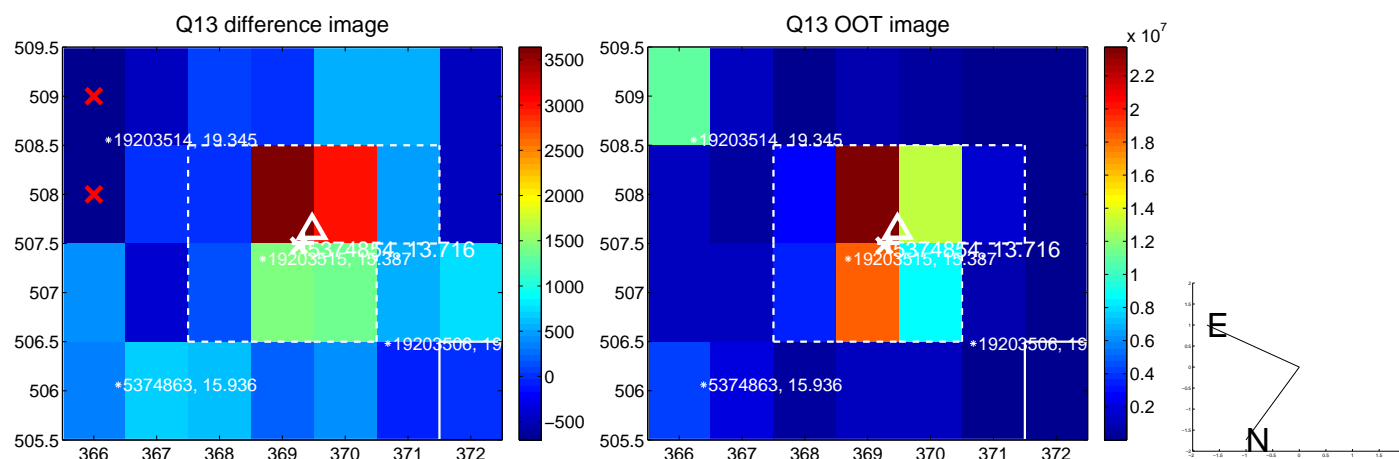
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



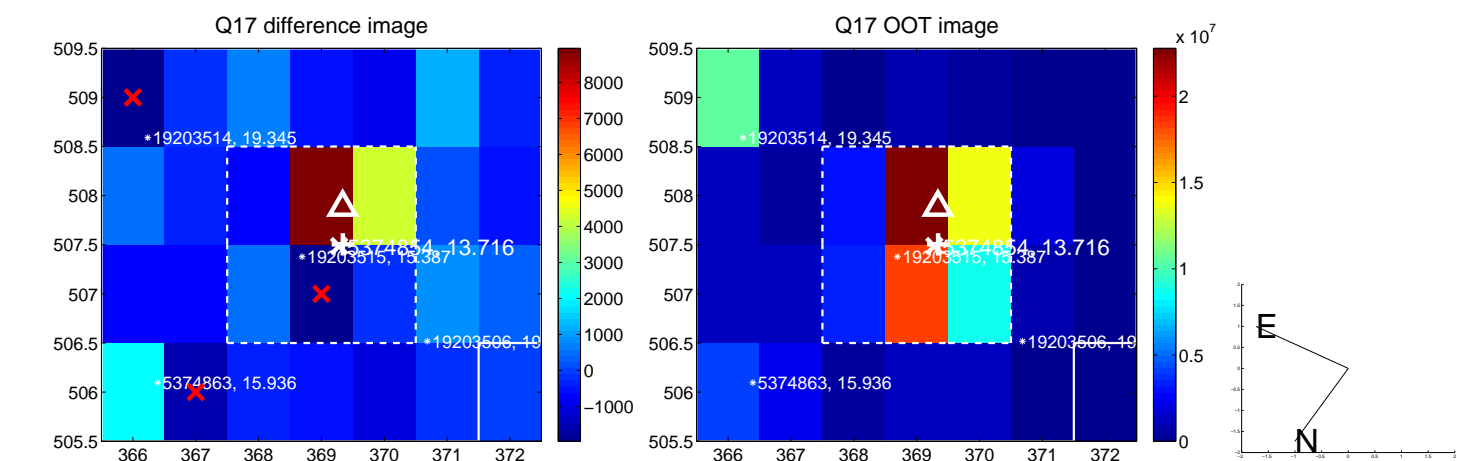
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



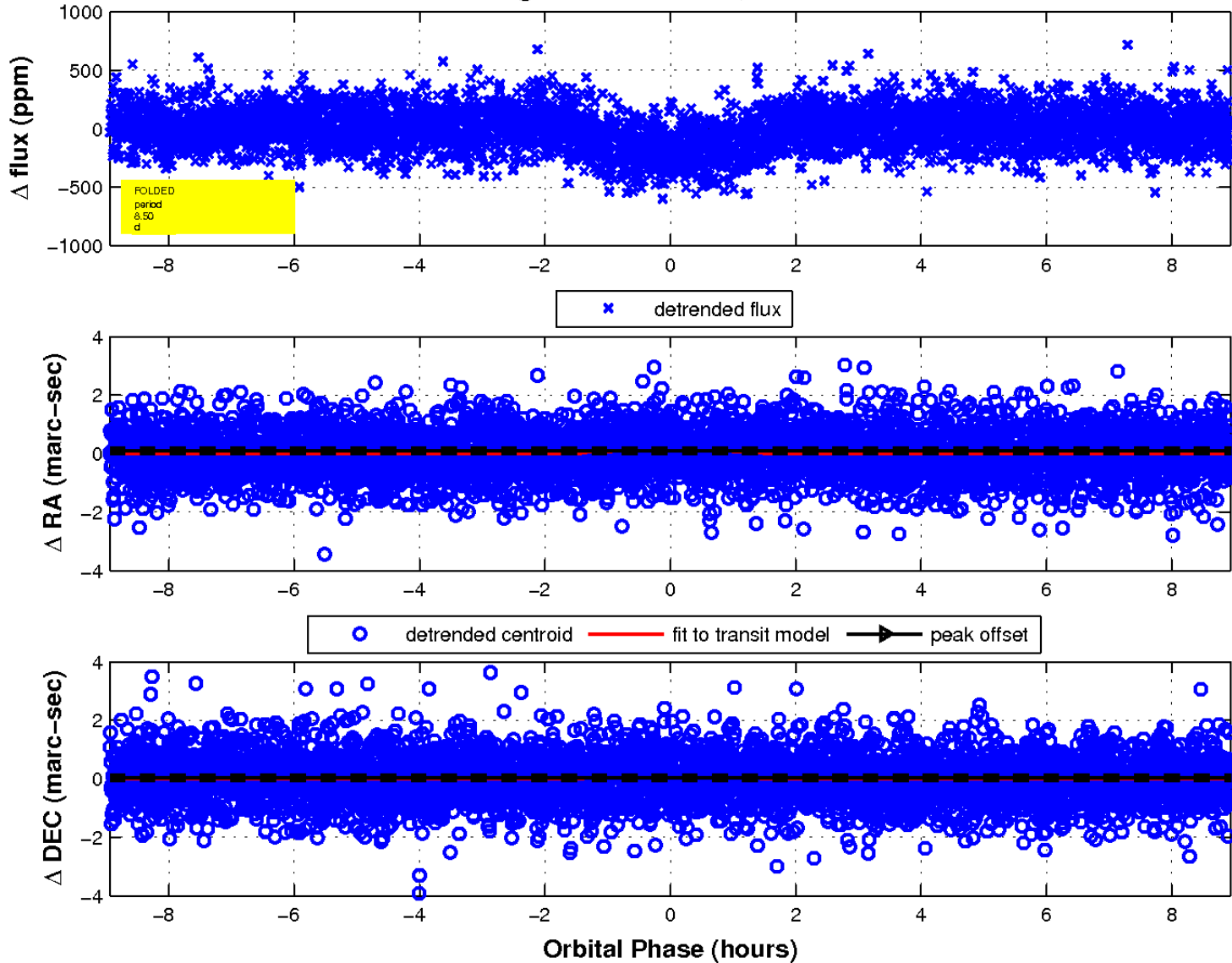
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

