

KIC 006957044

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})
006957044-01	OBS	No	1.619831	132.964270	9.3	7.652	11.8	8.5	1.88	7508	0.80	9535.45
006957044-02	OBS	No	180.926822	253.961184	136.1	2.188	7.5	7.9	1.88	7508	2.48	17.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006957044-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006957044-02	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQU_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

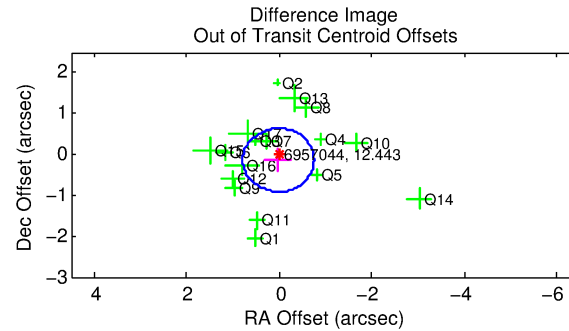
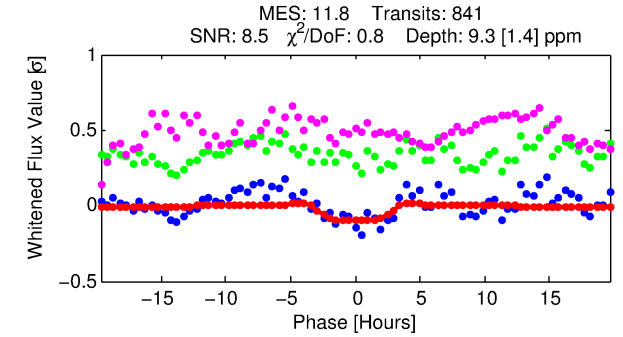
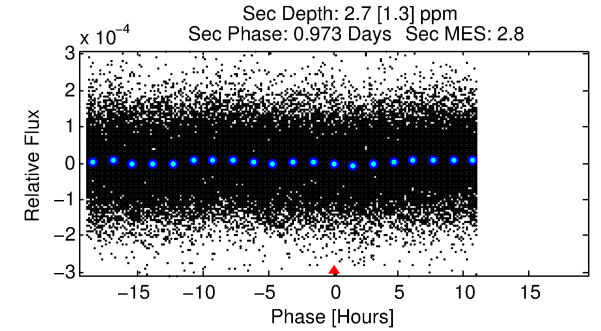
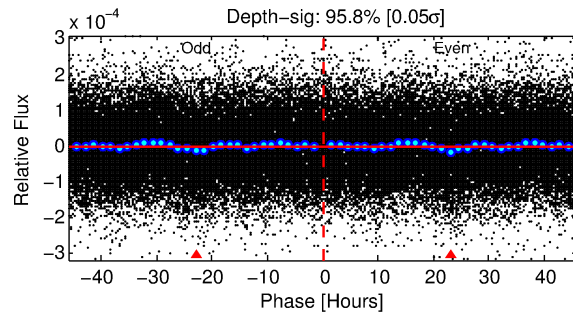
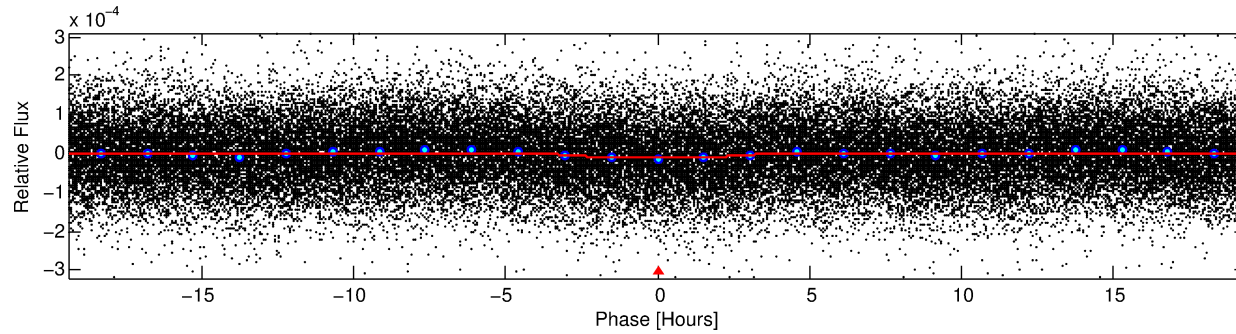
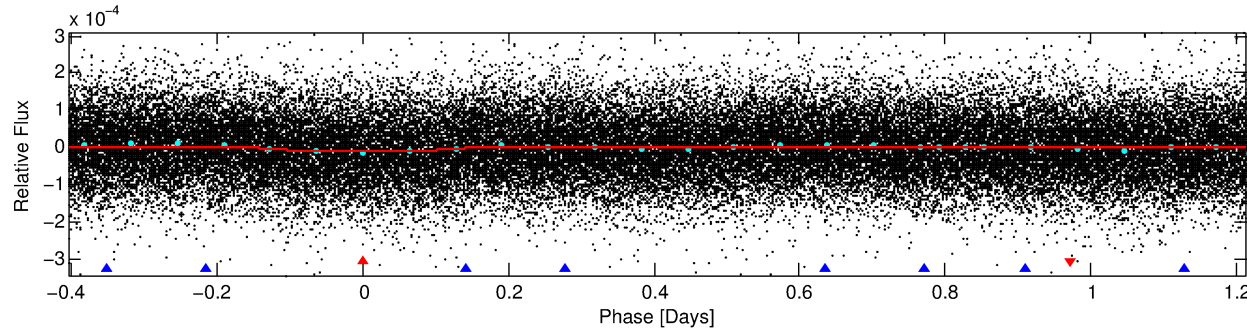
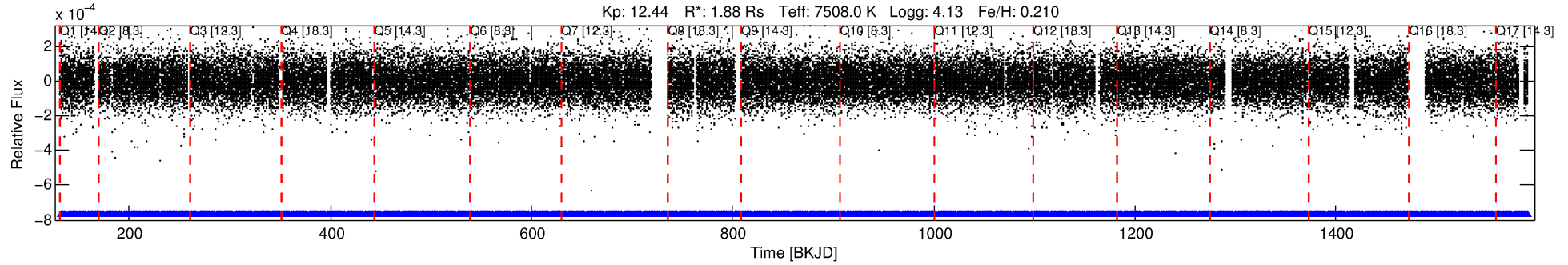
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006957044-01

No Significant Match Found

DV One-Page Summary

KIC: 6957044 Candidate: 1 of 2 Period: 1.620 d



DV Fit Results:

Period = 1.61983 [0.00003] d
Epoch = 132.9643 [0.0138] BKJD
Rp/R* = 0.0039 [0.0003]
a/R* = 1.02 [0.01]
b = 0.99 [0.00]
Seff = 9535.45 [3634.99]
Teq = 2520 [240] K
Rp = 0.80 [0.24] Re
a = 0.0324 [0.0077] AU
Ag = 2.42 [1.54] [0.92 σ]
Teff = 4861 [687] K [3.22 σ]

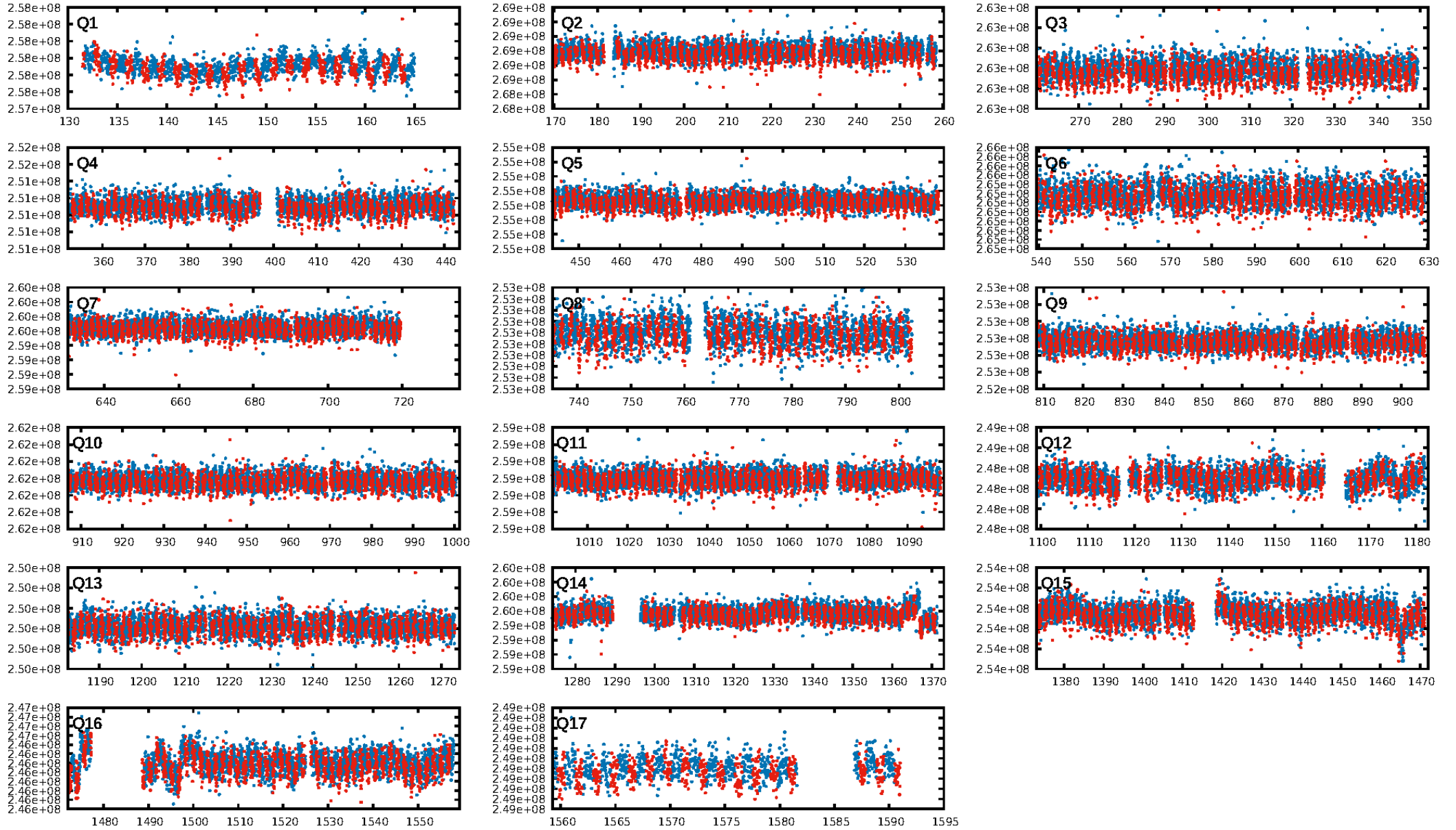
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [540.67 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.01e-25
RollingBand-fgt: 1.00 [803/803]
GhostDiagnostic-chr: 5.059
Centroid-sig: N/A
Centroid-so: 1.958 arcsec [1.59 σ]
OotOffset-rm: 0.138 arcsec [0.54 σ]
KicOffset-rm: 0.065 arcsec [0.22 σ]
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]

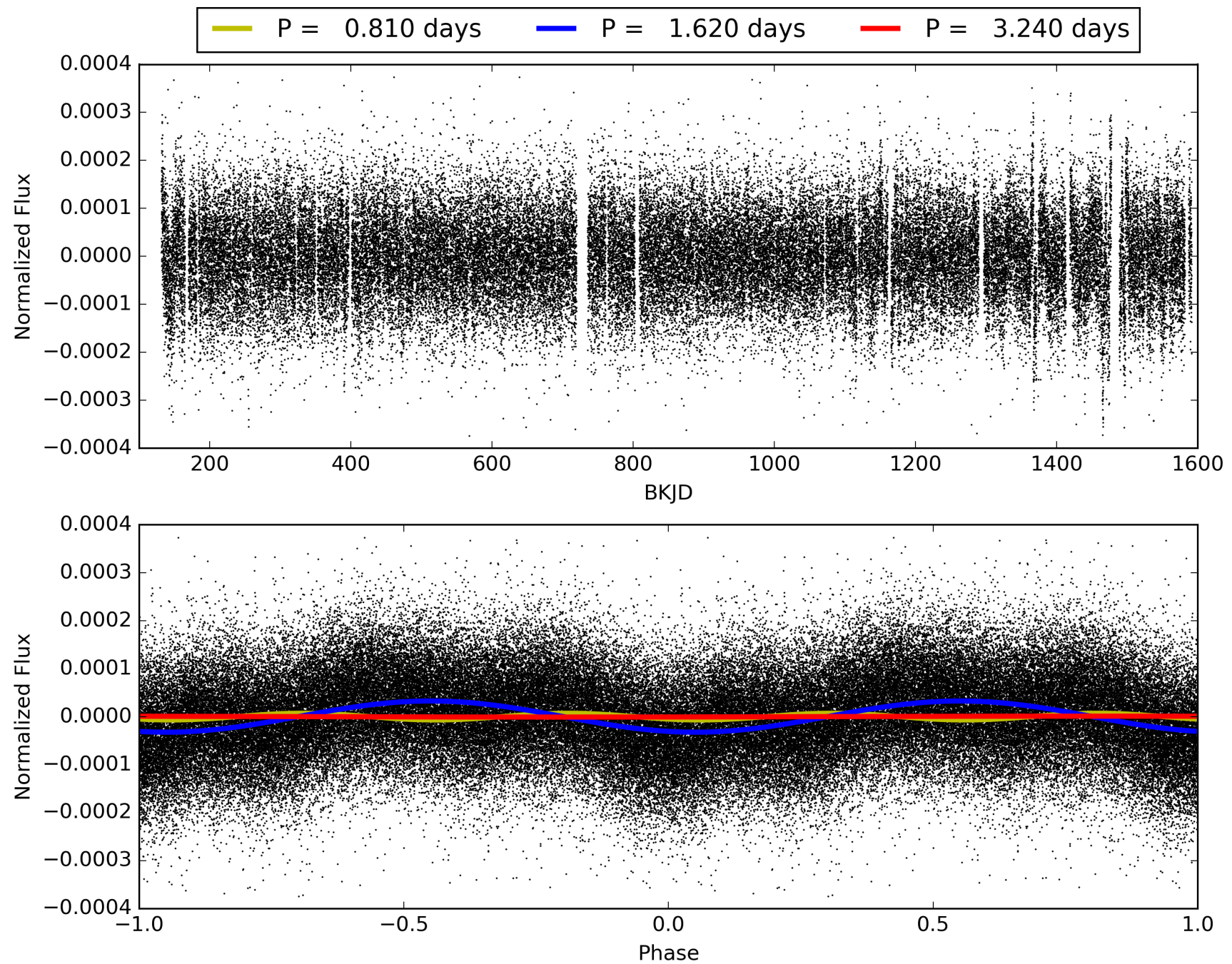
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 21:37:36 Z

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

TCE 006957044-01, PDC Light Curves

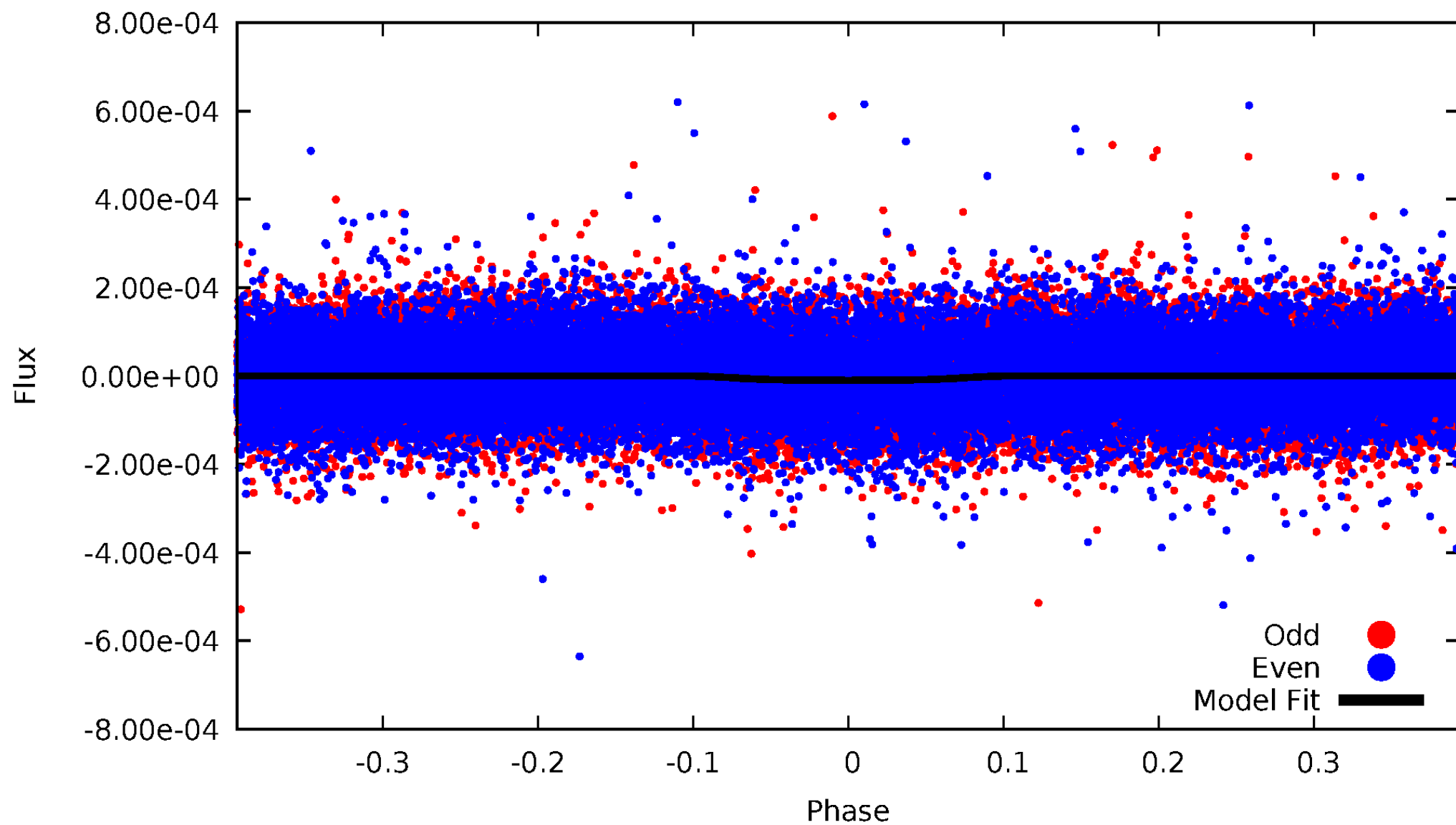


TCE 006957044-01



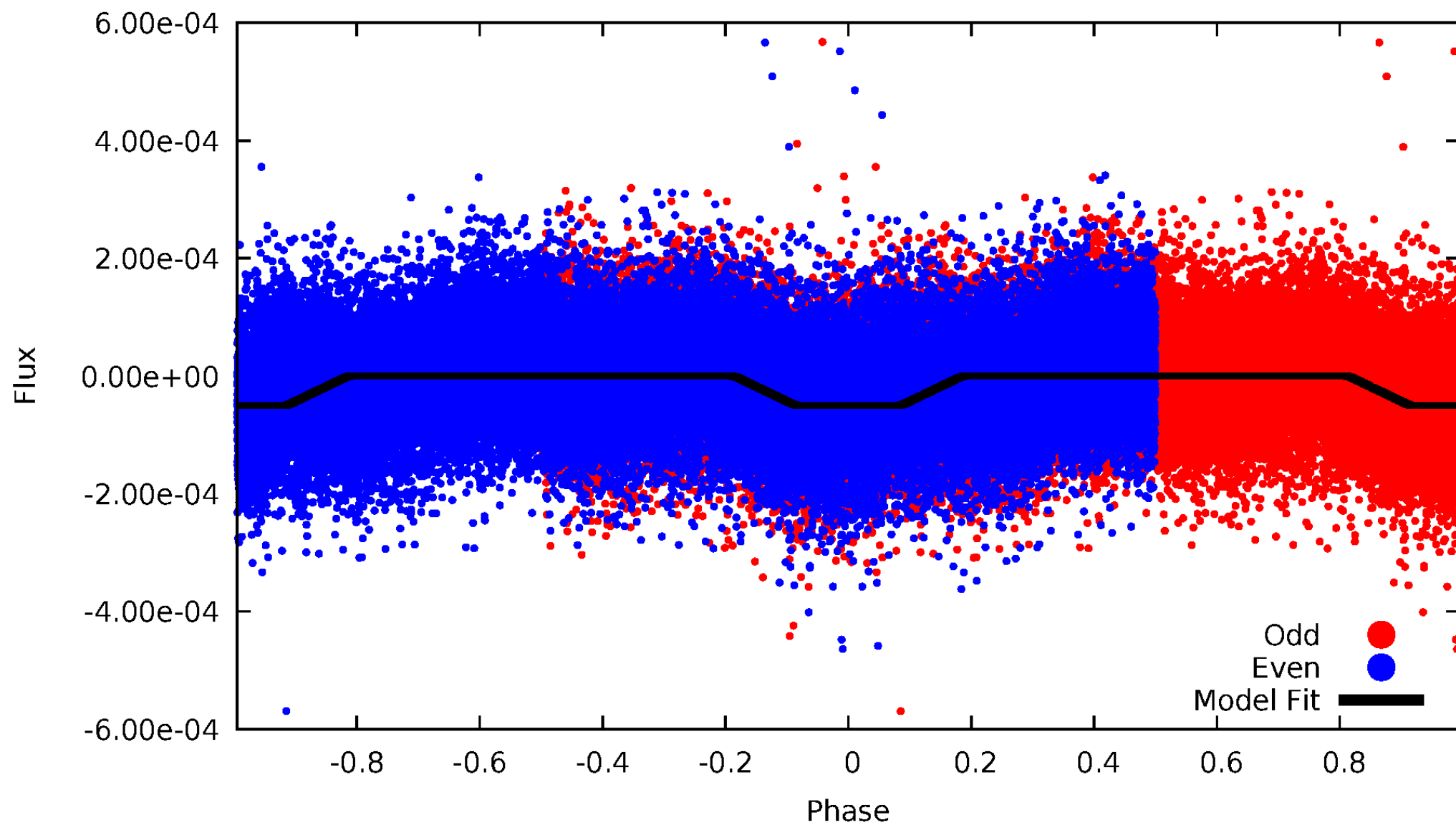
DV Odd/Even

TCE 006957044-01



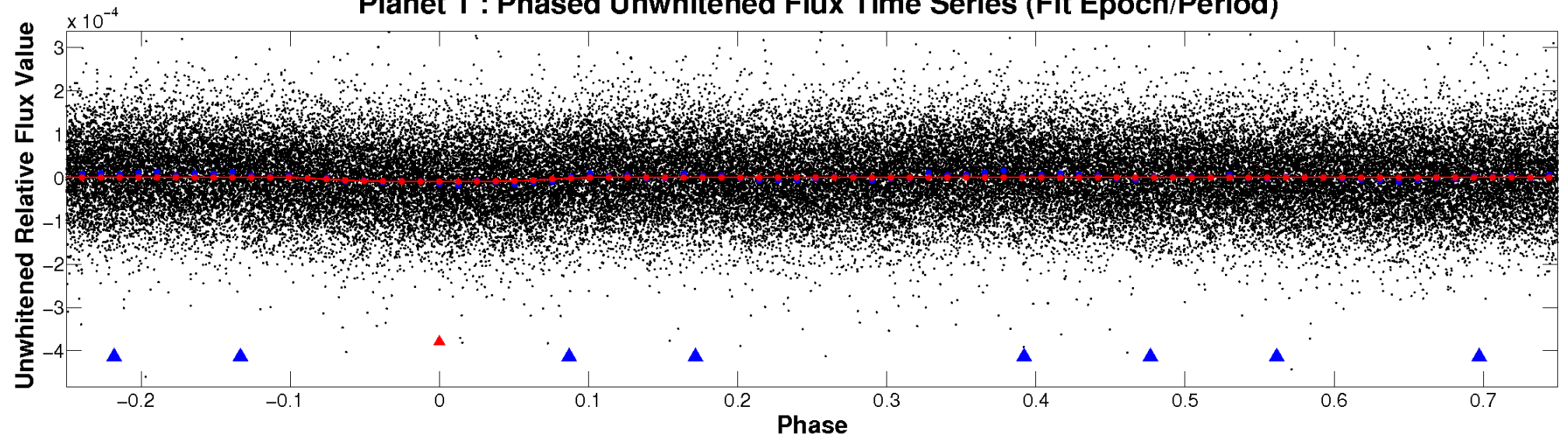
ALT Odd/Even

TCE 006957044-01

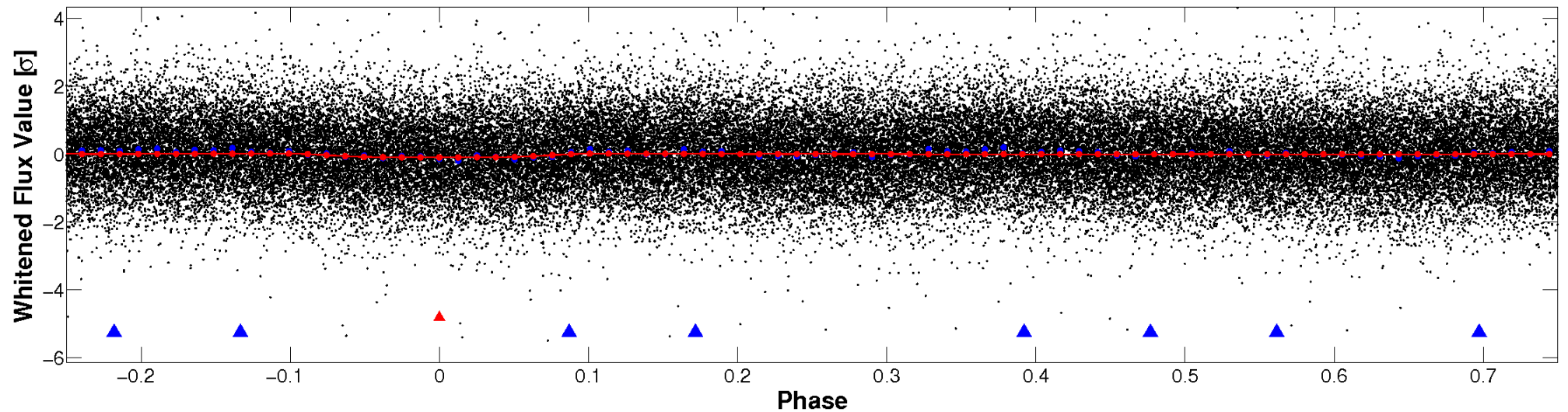


Non-Whitened Vs. Whitened Light Curve

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

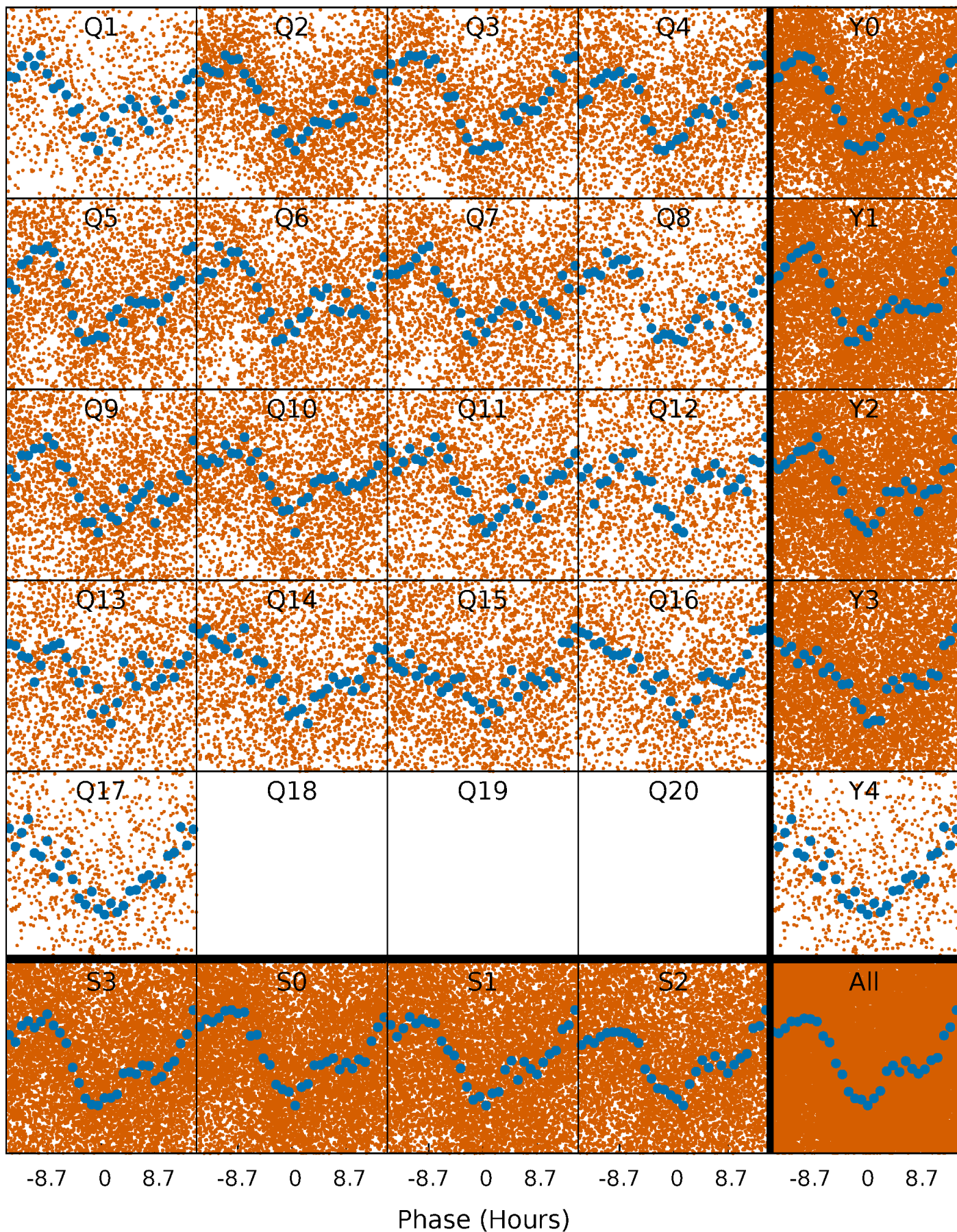


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



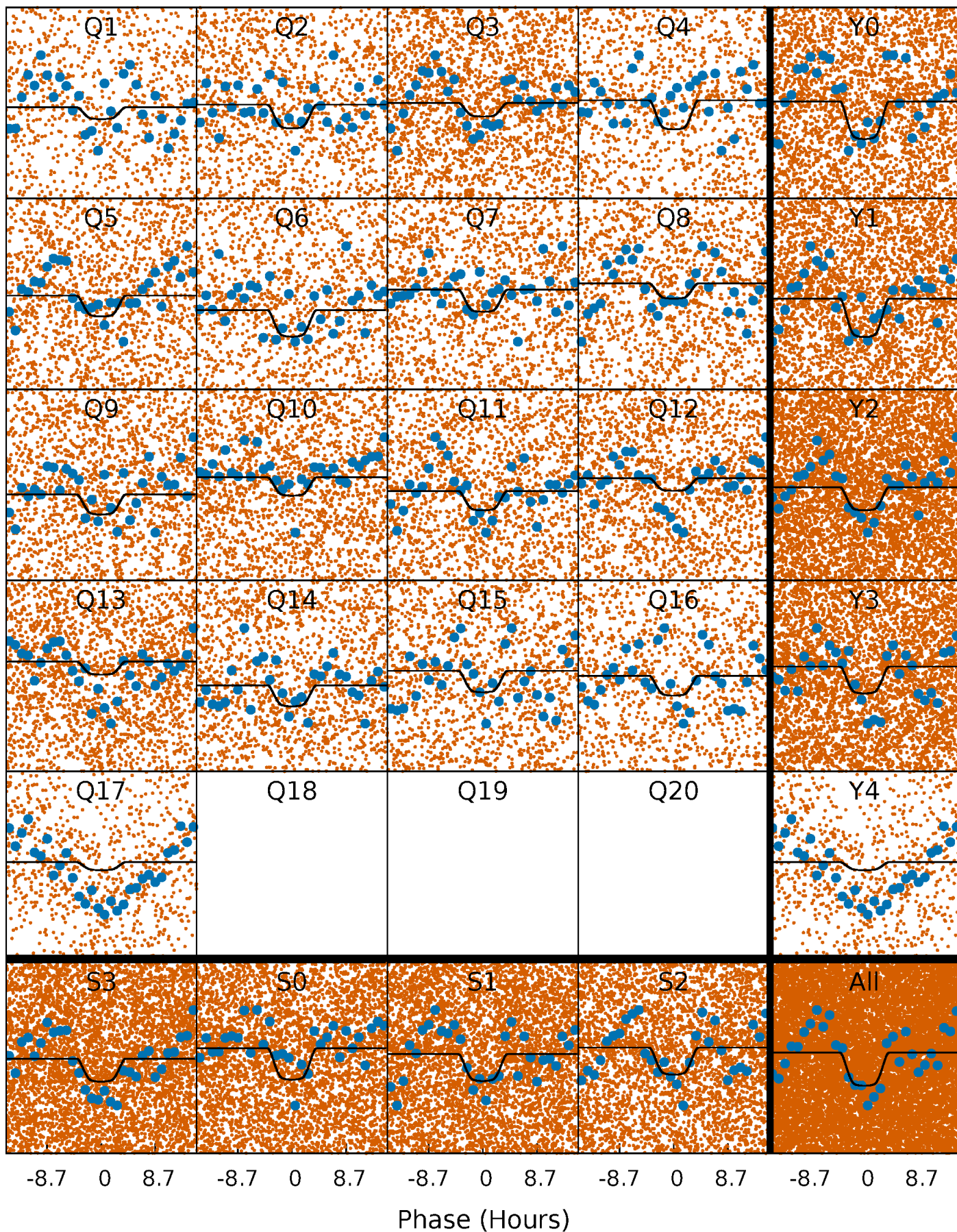
PDC Quarter-Phased Transit Curves

TCE 006957044-01 P= 1.619831 Days $T_0=132.964270$ (BKJD)



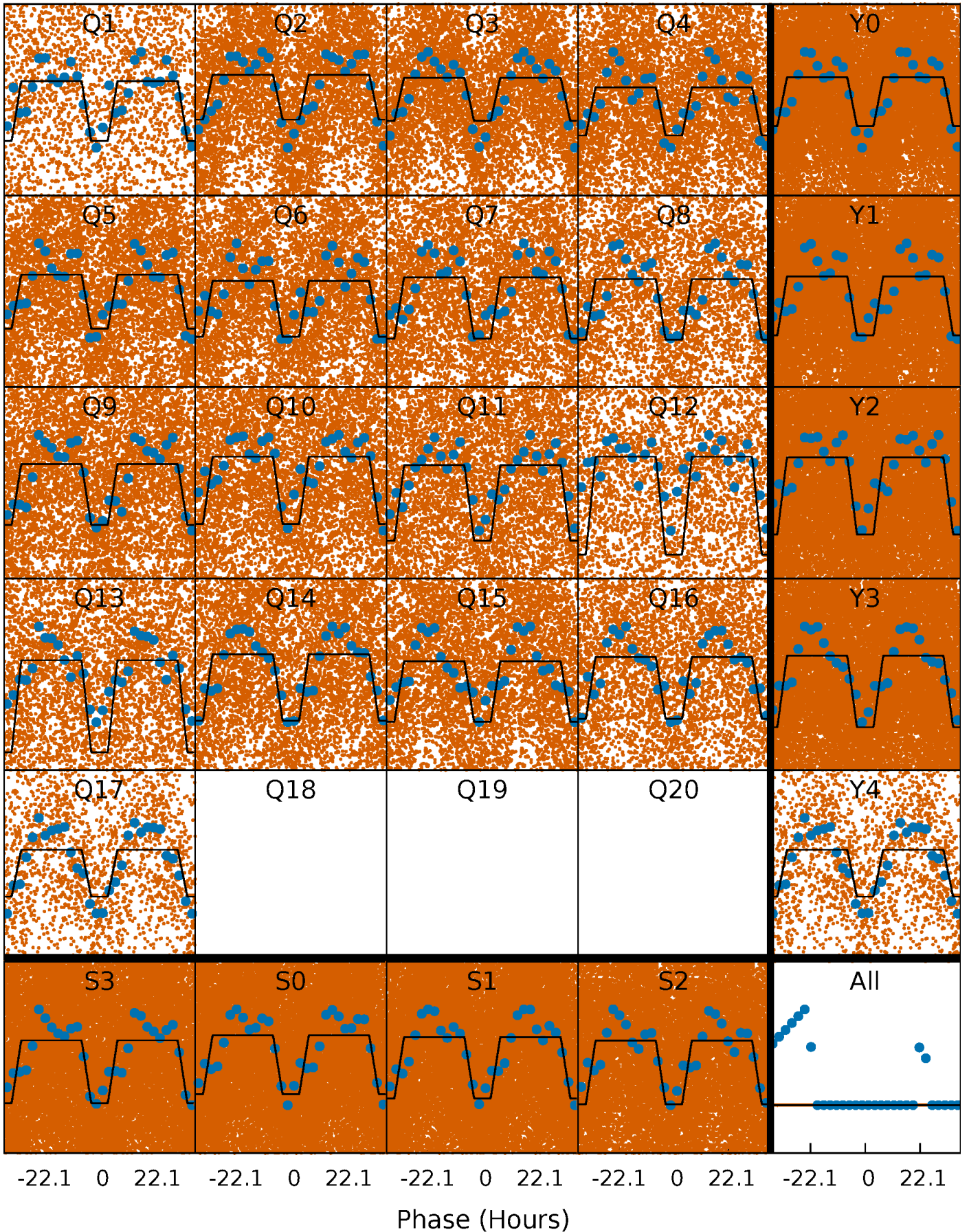
DV Quarter-Phased Transit Curves

TCE 006957044-01 P= 1.619831 Days $T_0=132.964270$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

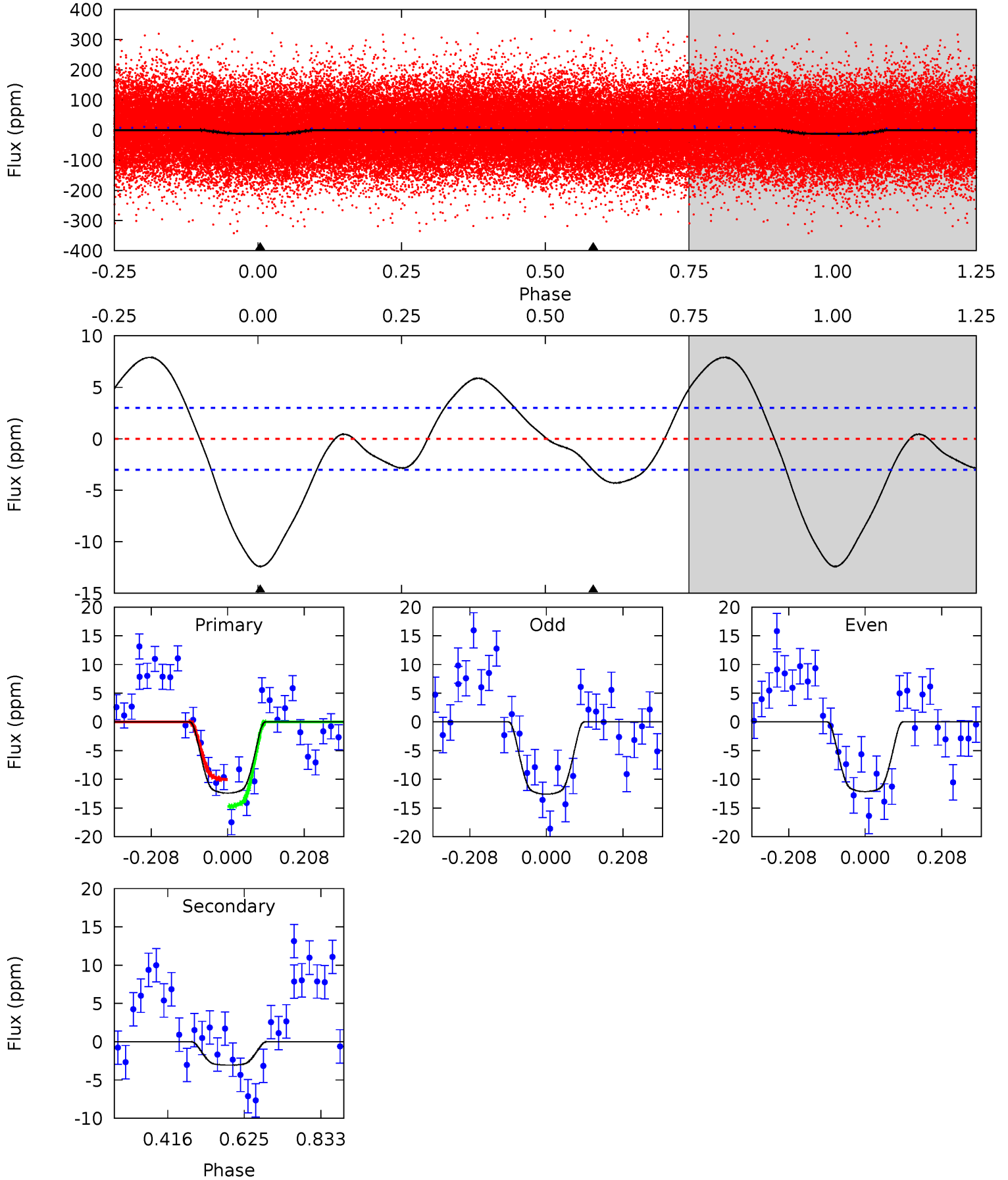
TCE 006957044-01 P= 1.619862 Days $T_0=133.002305$ (BKJD)



DV Model-Shift Uniqueness Test

006957044-01, P = 1.619831 Days, E = 131.344439 Days

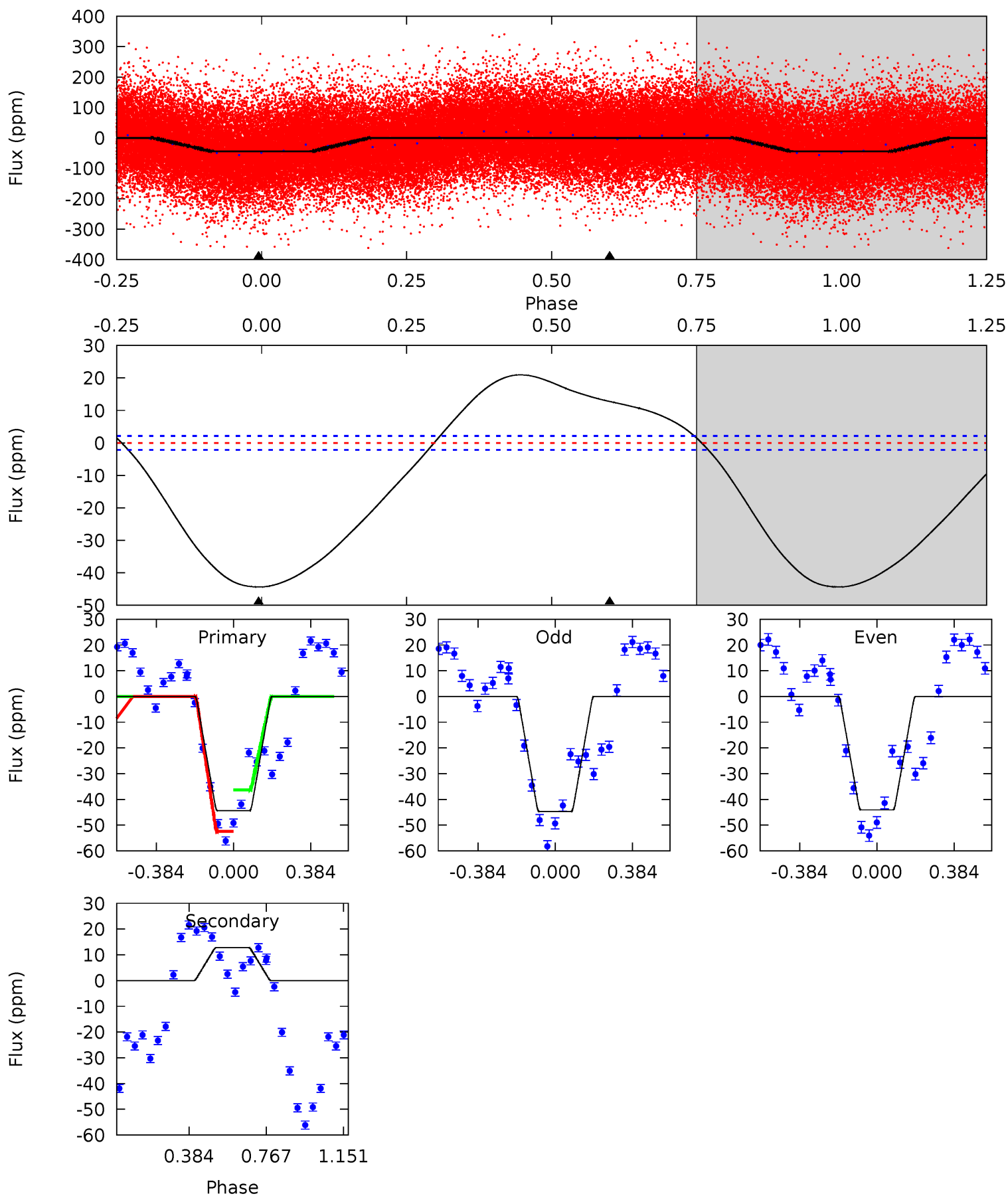
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.2	4.48	0	0	4.41	1.26	4.77	18.2	18.2	4.48	4.48	0.33	1.12	0.39	3.43



Alt Model-Shift Uniqueness Test

006957044-01, P = 1.619862 Days, E = 131.382443 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
88.5	-25.5	0	0	4.27	0.87	12.0	88.5	88.5	-25.5	-25.5	0.63	1.03	0.32	15.9



Stellar Parameters For KIC 006957044

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7508^{+206}_{-324}	$4.130^{+0.098}_{-0.182}$	$0.210^{+0.150}_{-0.350}$	$1.877^{+0.545}_{-0.294}$	$1.734^{+0.193}_{-0.257}$	$0.369^{+0.195}_{-0.172}$
	+3%/-4%	+2%/-4%	+71%/-167%	+29%/-16%	+11%/-15%	+53%/-47%
Source	KIC0	KIC0	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 006957044-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-3 ± 1	$0.80^{+0.14}_{-0.10}$	3525^{+268}_{-198}	4871^{+325}_{-361}	$2.631^{+1.061}_{-0.884}$
Alt.	13 ± 1	$1.45^{+0.21}_{-0.15}$	3536^{+240}_{-205}	-5384^{+190}_{-193}	$-3.412^{+0.739}_{-0.822}$

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 $A_{obs} \gg 1.0$

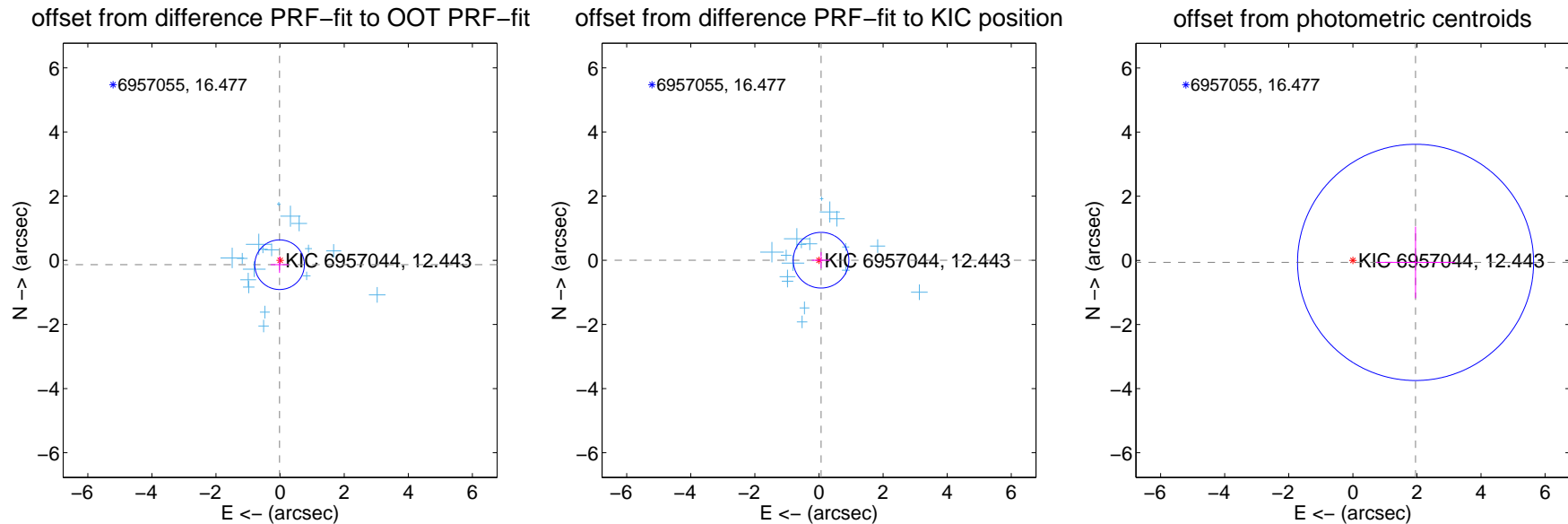
DV Centroid Data

Supplemental centroid analysis for 006957044-01. Kepler magnitude: 12.44. Transit SNR 8.51

There are 17 quarters with good PRF difference image offsets

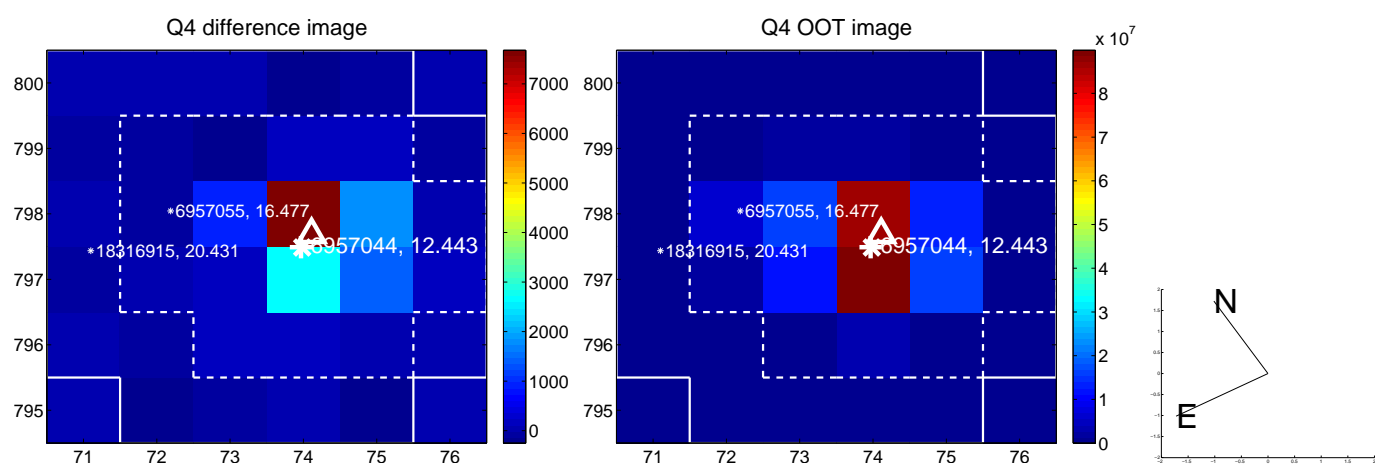
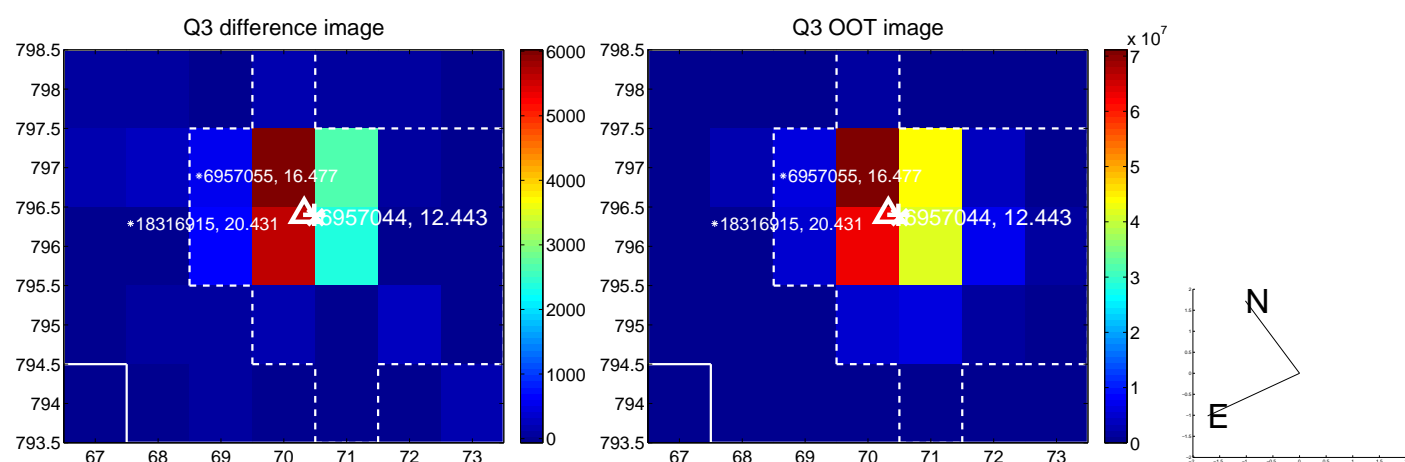
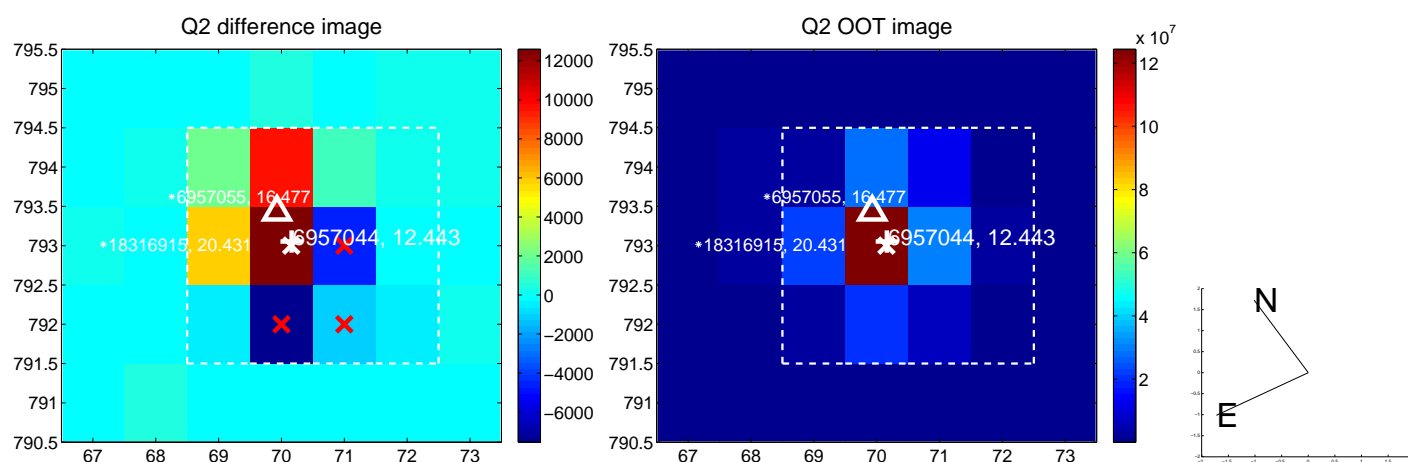
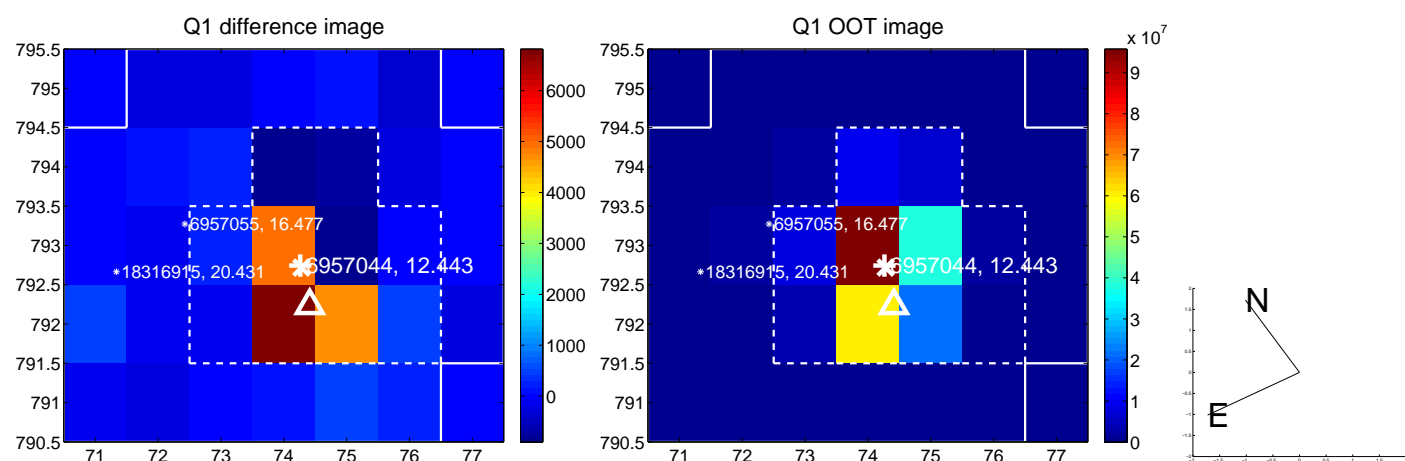
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.138 ± 0.258	0.54	0.016 ± 0.281	-0.137 ± 0.254
PRF-fit source offset from KIC position	0.065 ± 0.289	0.22	-0.065 ± 0.290	0.003 ± 0.253
photometric centroid source offset	1.96 ± 1.23	1.59	-1.96 ± 1.23	-0.06 ± 1.12

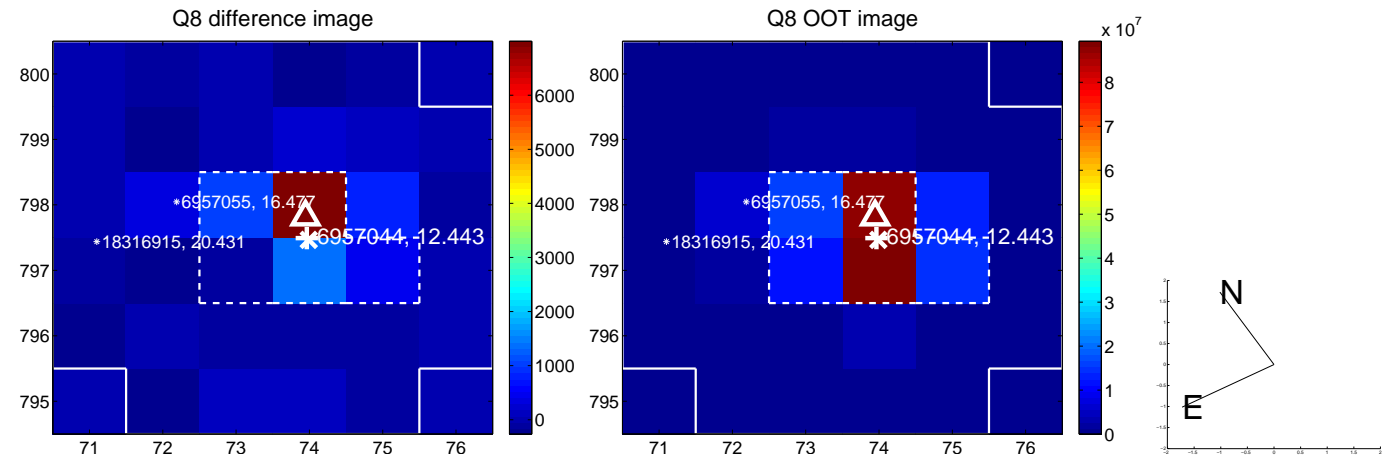
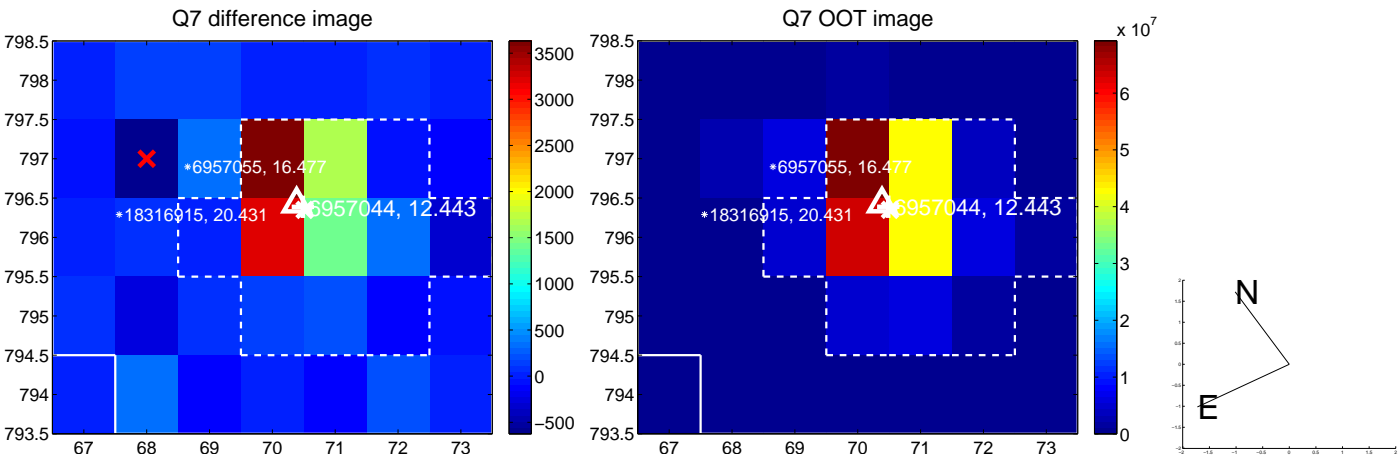
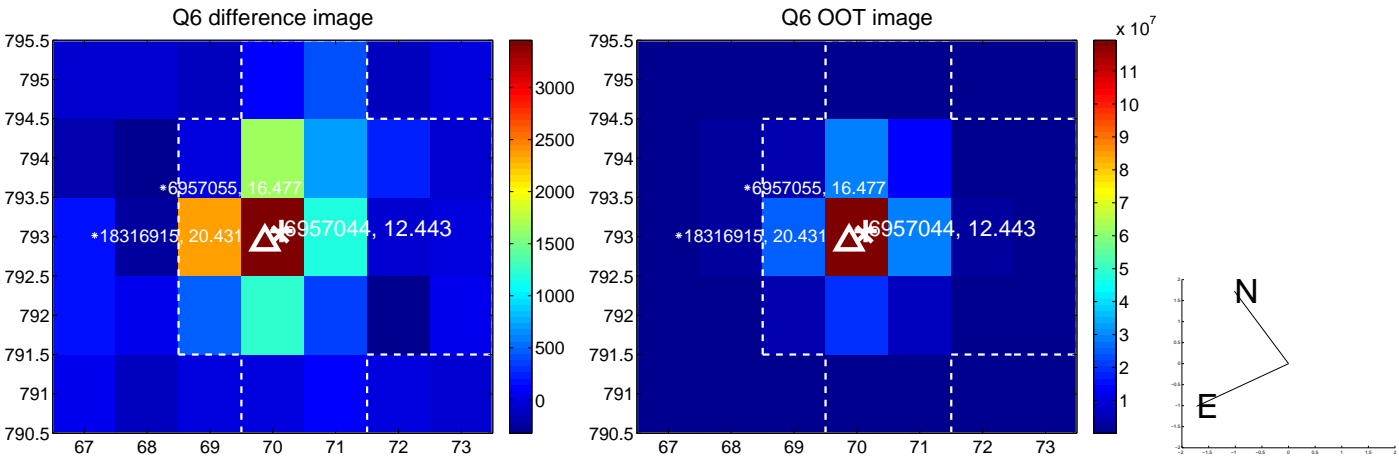
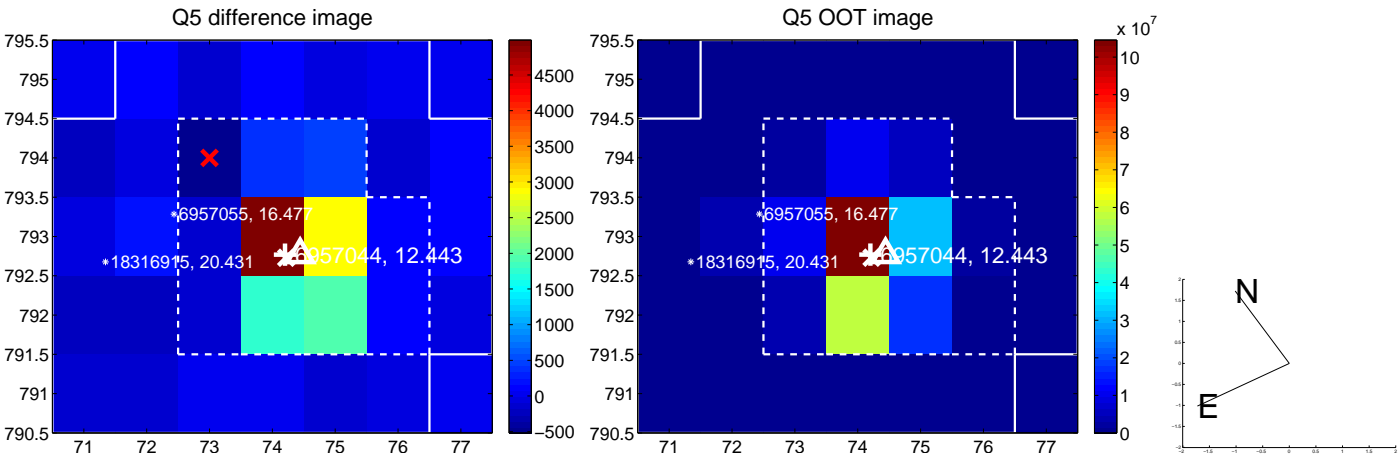


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

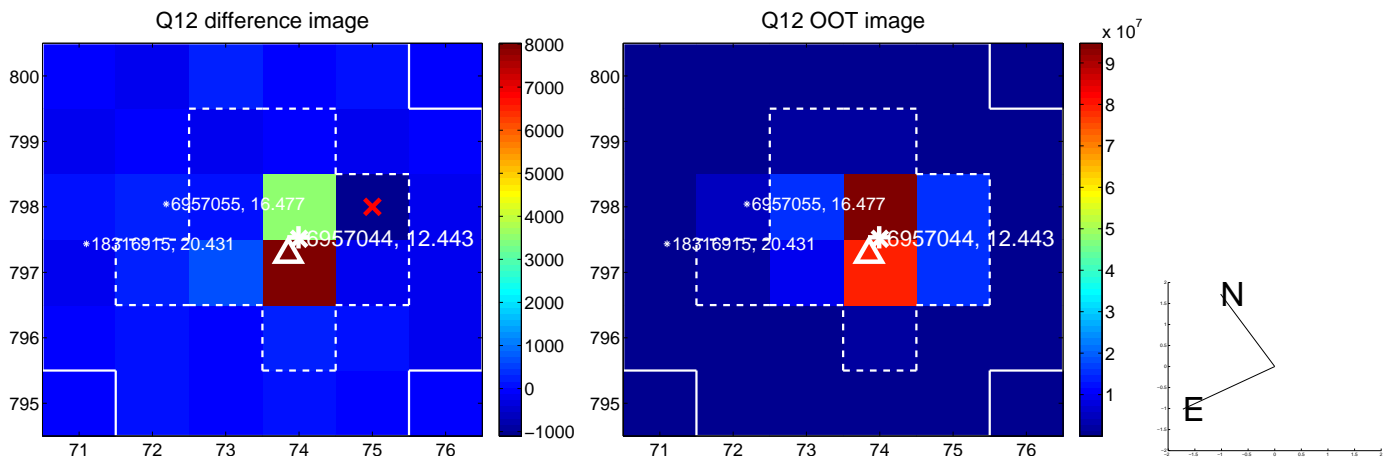
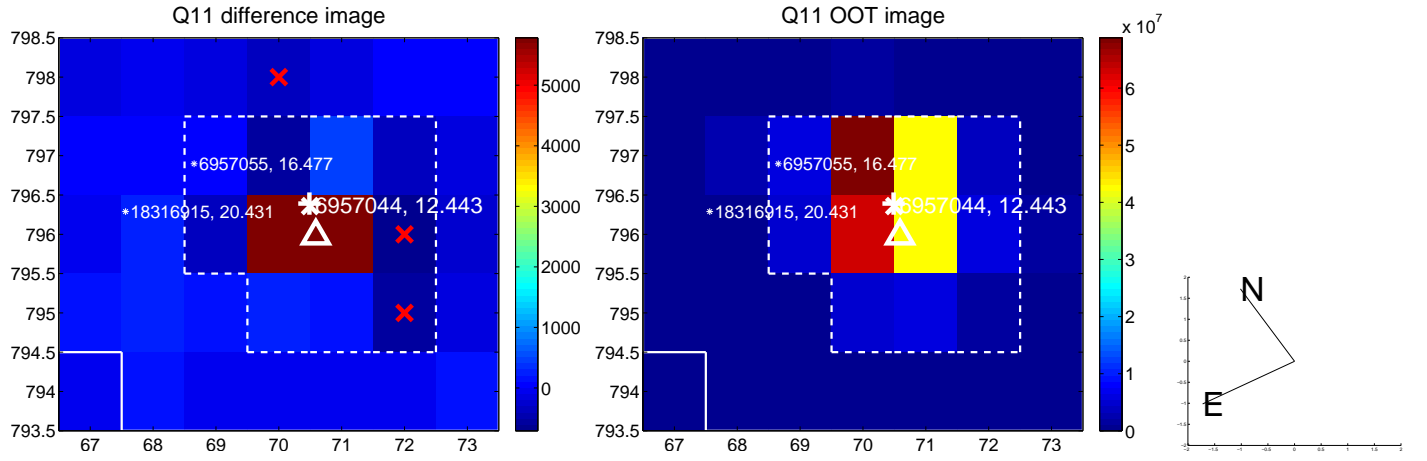
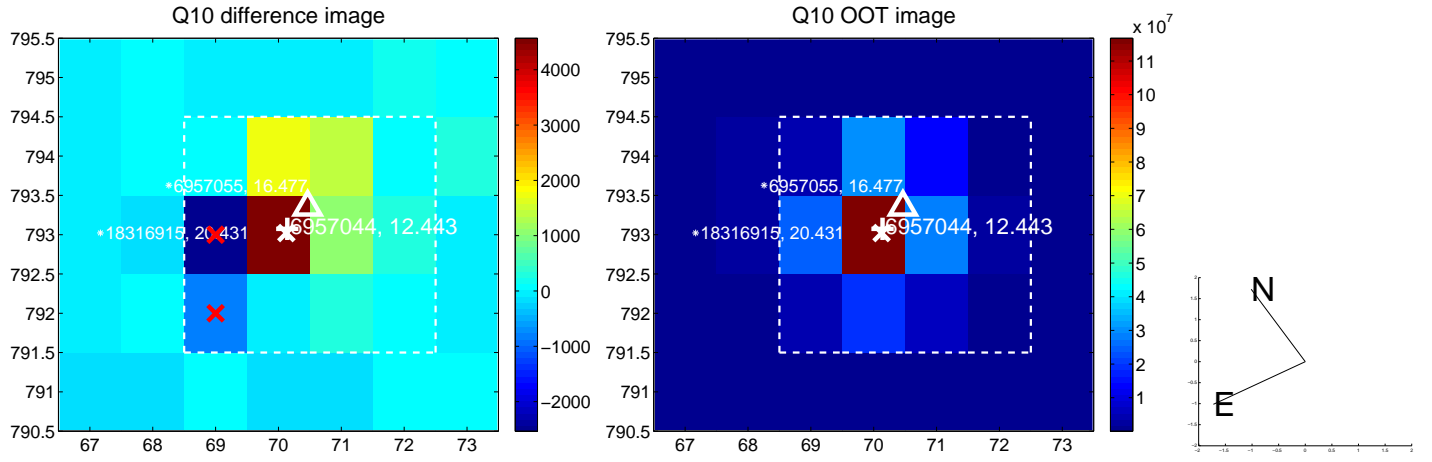
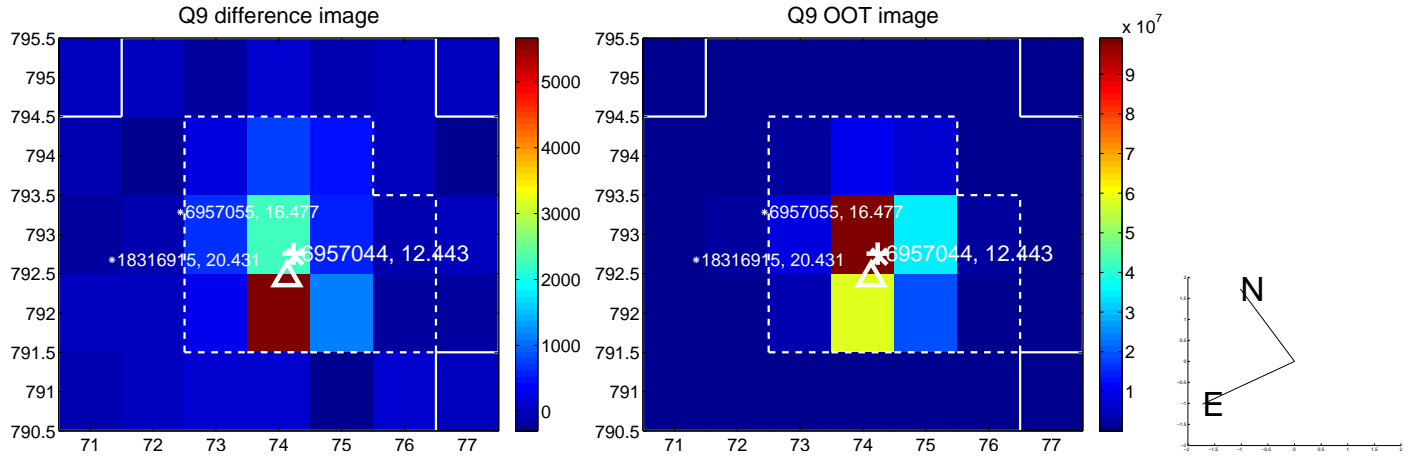
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



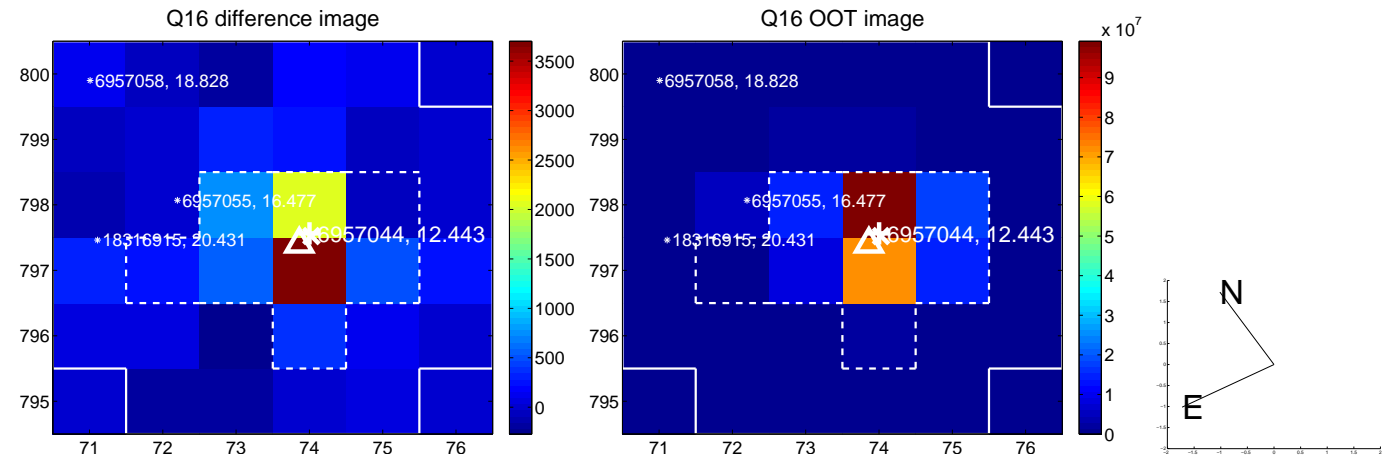
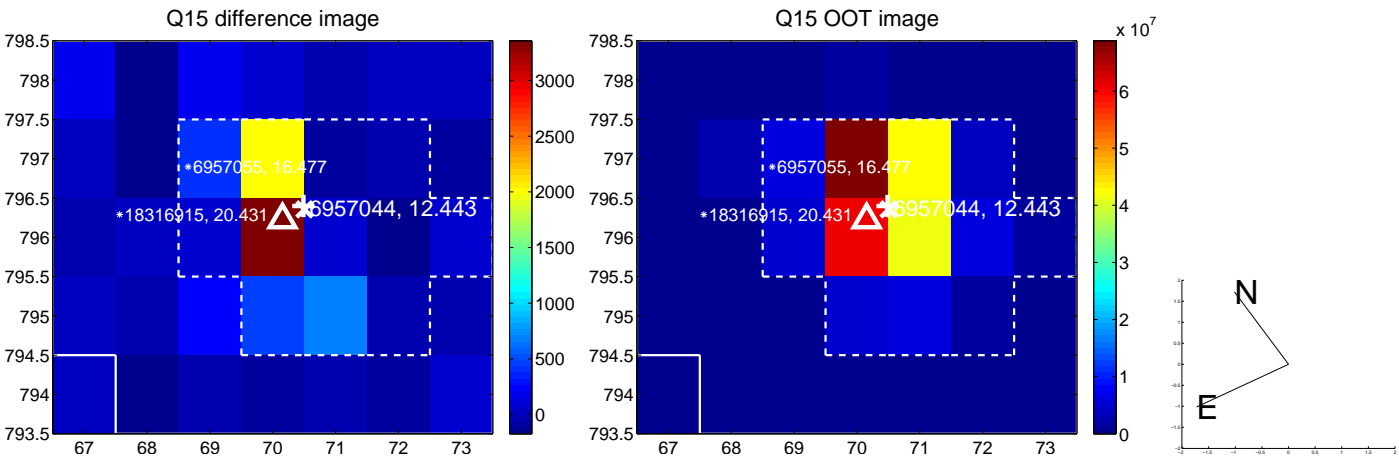
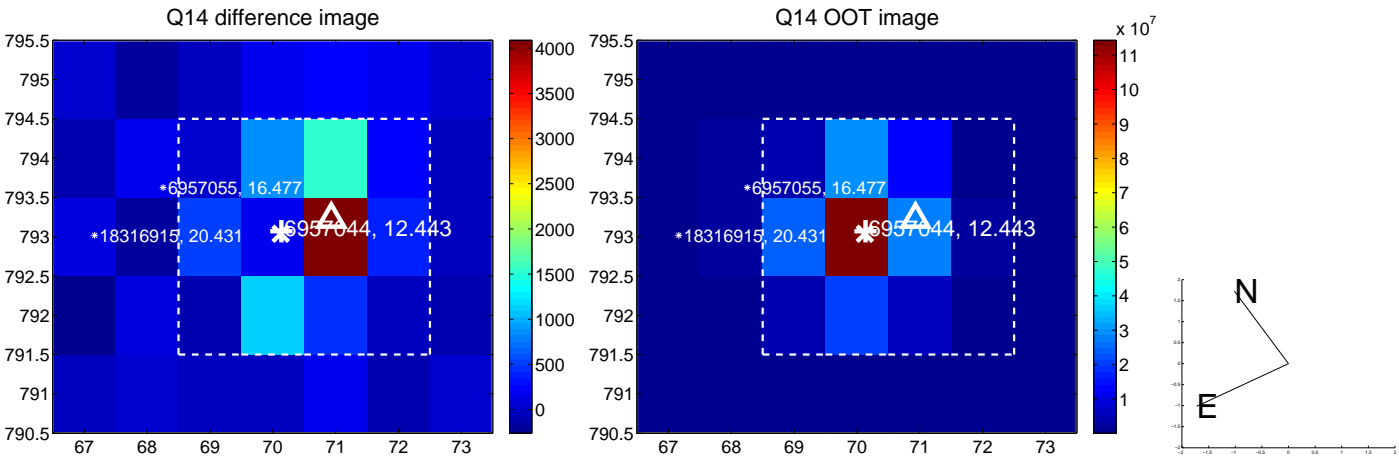
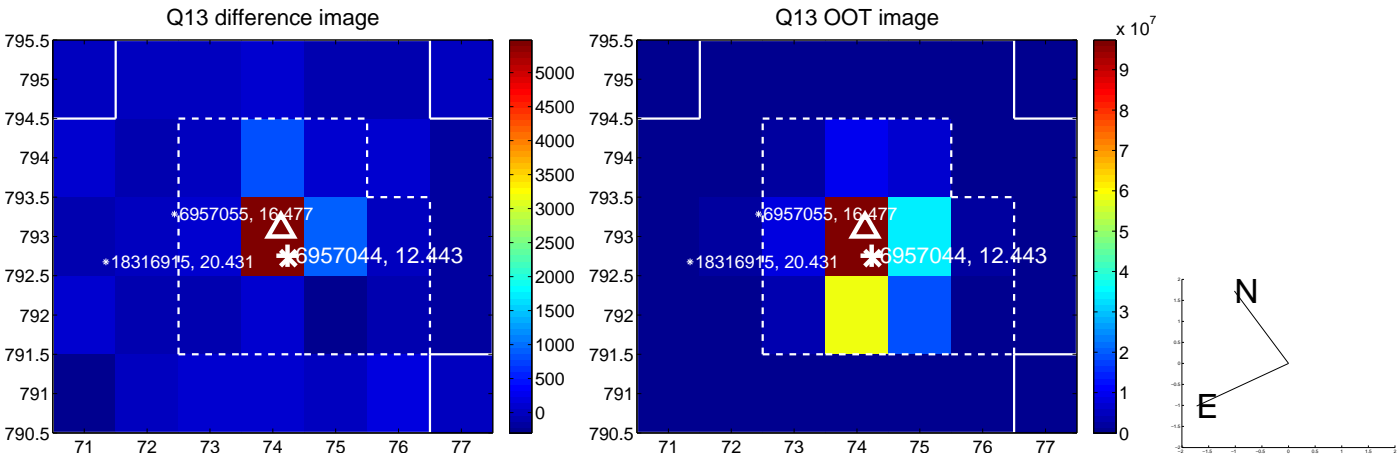
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



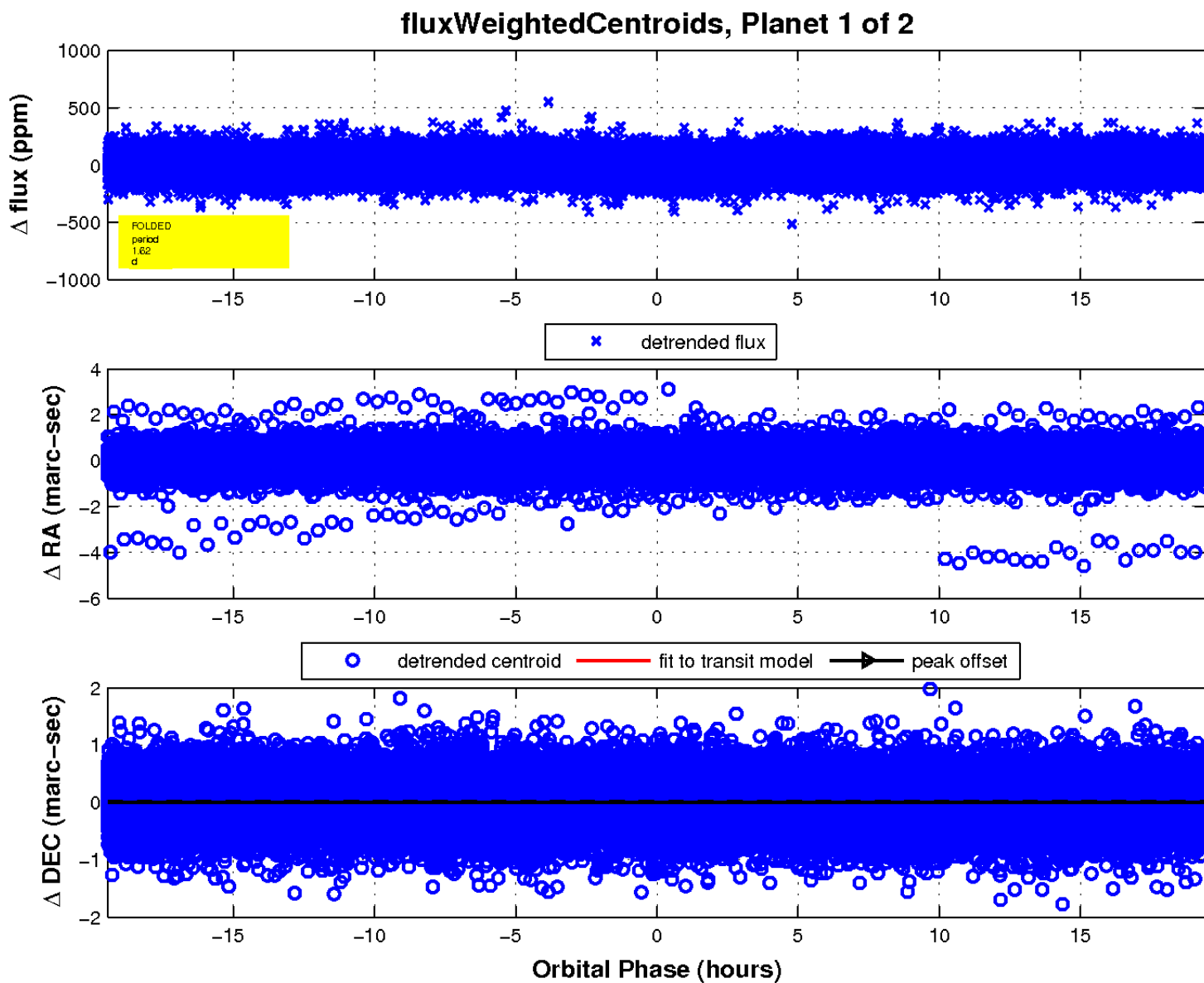
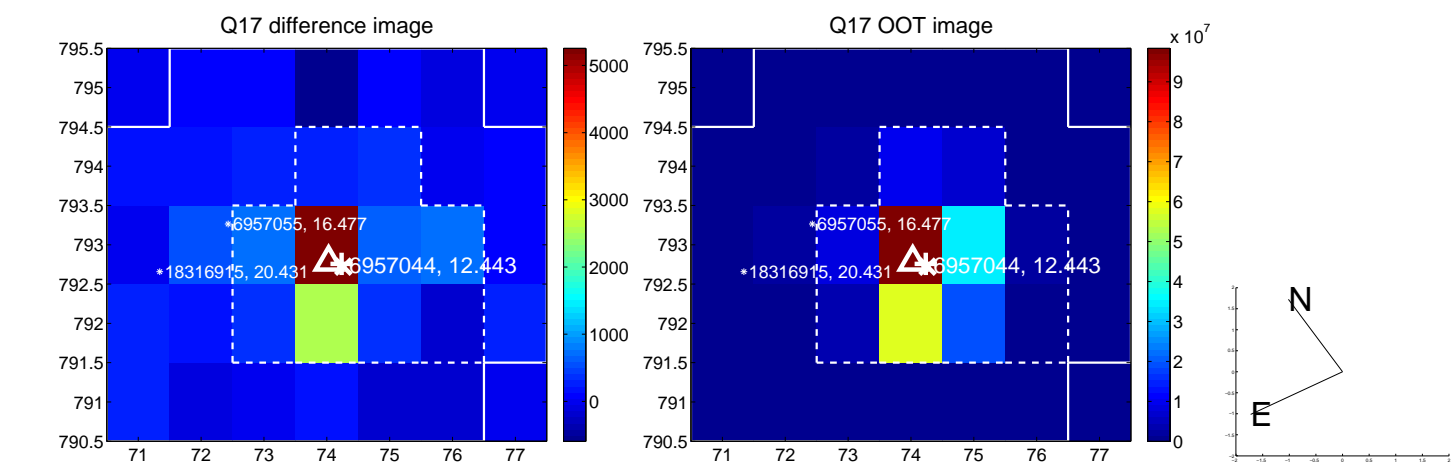
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



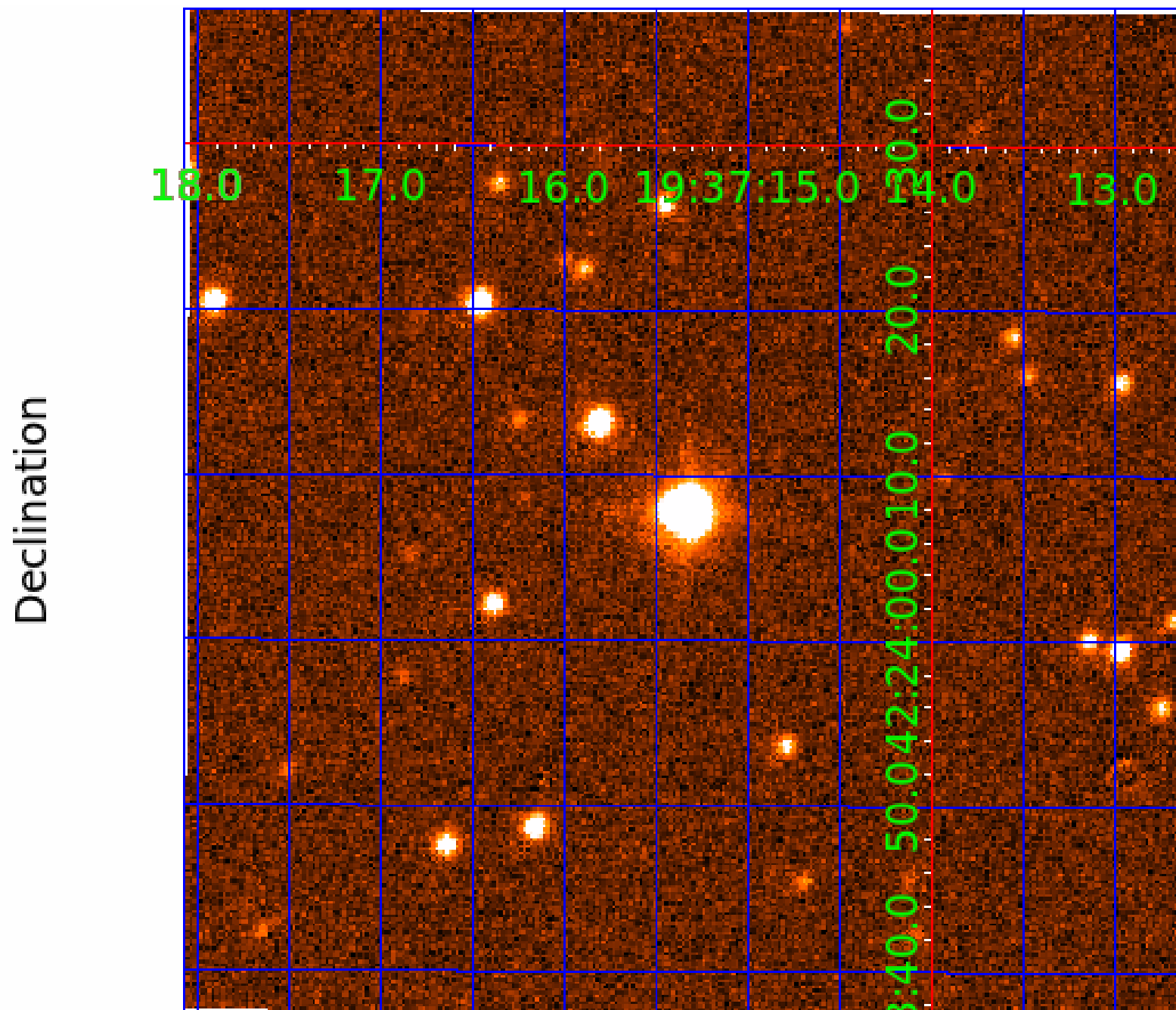
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 006957044

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})
006957044-01	OBS	No	1.619831	132.964270	9.3	7.652	11.8	8.5	1.88	7508	0.80	9535.45
006957044-02	OBS	No	180.926822	253.961184	136.1	2.188	7.5	7.9	1.88	7508	2.48	17.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006957044-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006957044-02	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

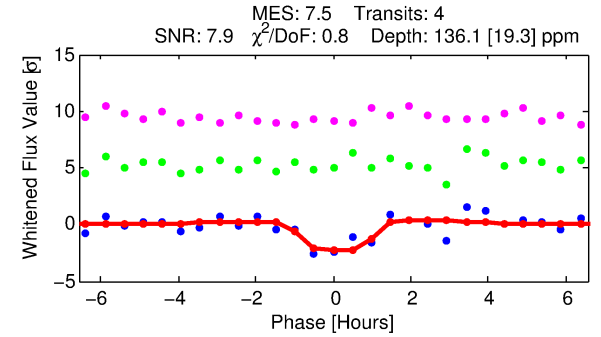
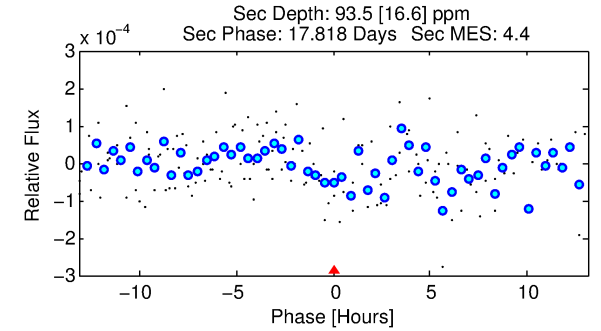
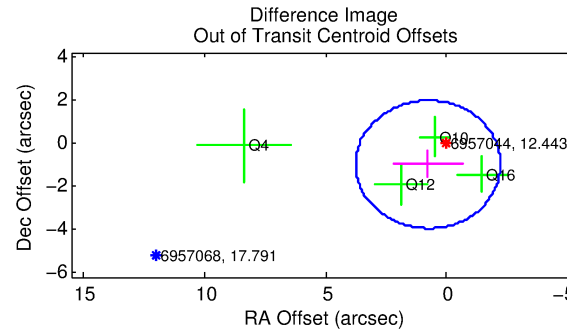
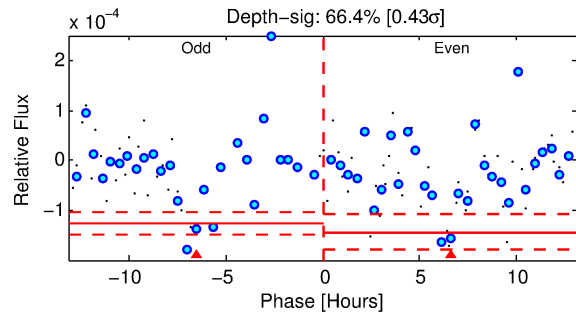
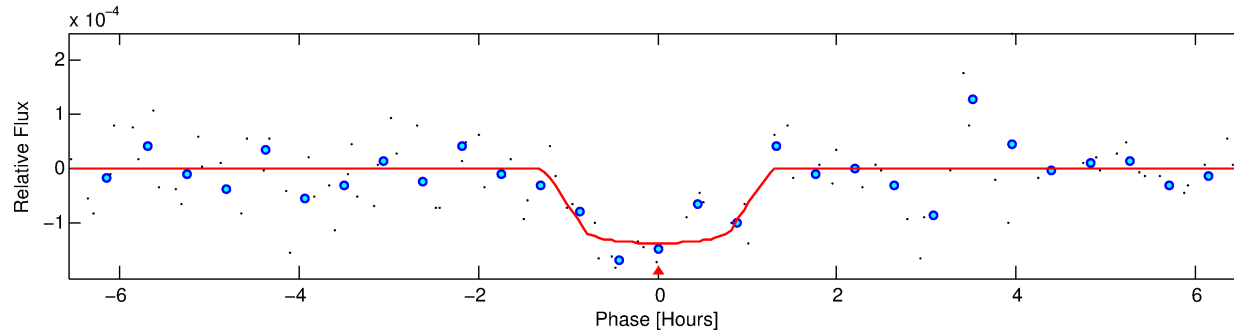
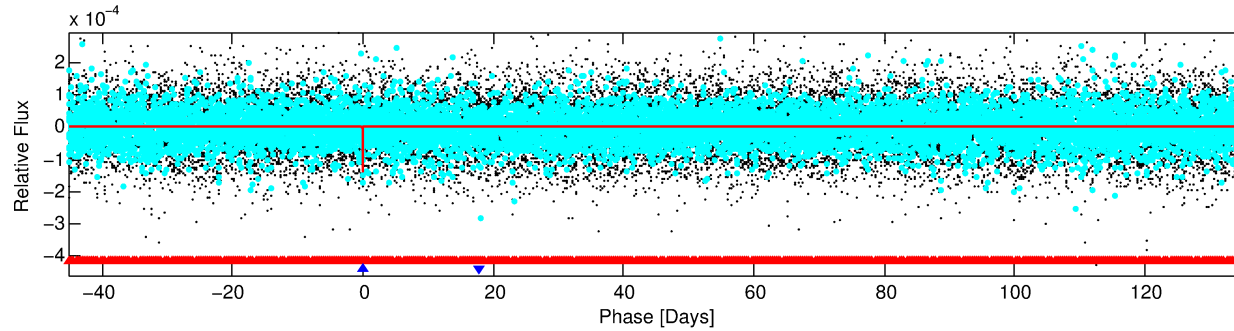
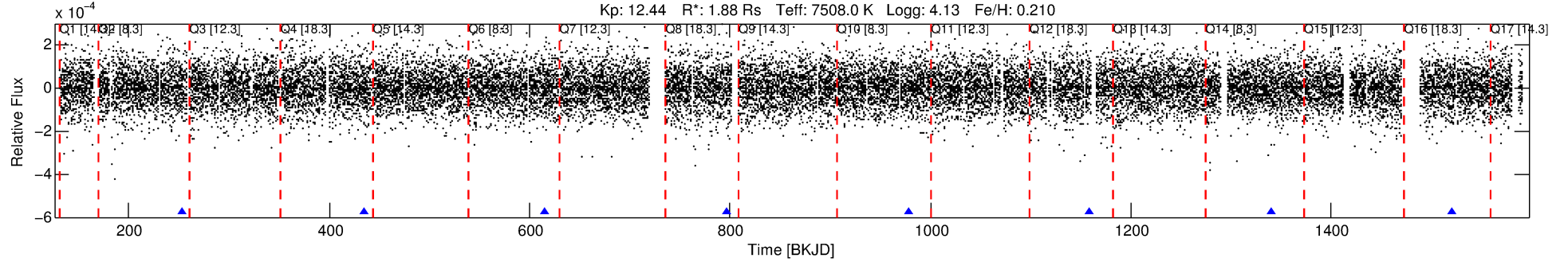
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006957044-02

No Significant Match Found

DV One-Page Summary

KIC: 6957044 Candidate: 2 of 2 Period: 180.927 d



DV Fit Results:

Period = 180.92682 [0.00153] d
Epoch = 253.9612 [0.0066] BKJD
Rp/R* = 0.0121 [0.0088]
a/R* = 331.05 [1594.56]
b = 0.87 [1.39]
Seff = 17.73 [6.76]
Teq = 523 [50] K
Rp = 2.48 [1.94] Re
a = 0.7522 [0.1796] AU
Ag = 4720.41 [7089.73] [0.67 σ]
Teffp = 6705 [2469] K [2.50 σ]

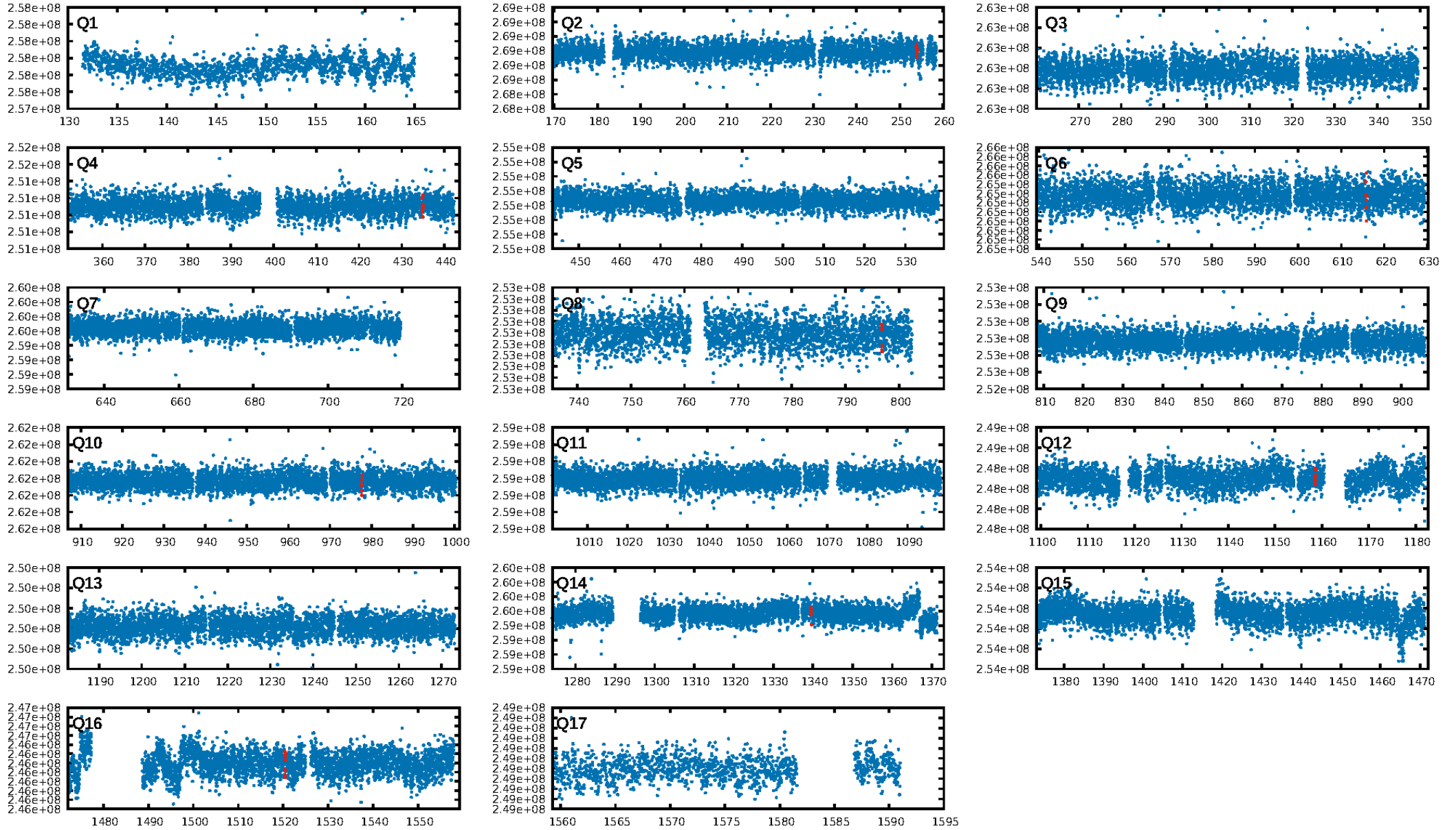
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [540.67 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 97.4%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 1.64e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.06673
Centroid-sig: N/A
Centroid-so: 1.509 arcsec [1.14 σ]
OotOffset-rm: 1.255 arcsec [1.26 σ]
KicOffset-rm: 1.078 arcsec [1.04 σ]
OotOffset-st: 1/0/3/0 [4]
KicOffset-st: 1/0/3/0 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.50 [4/8]

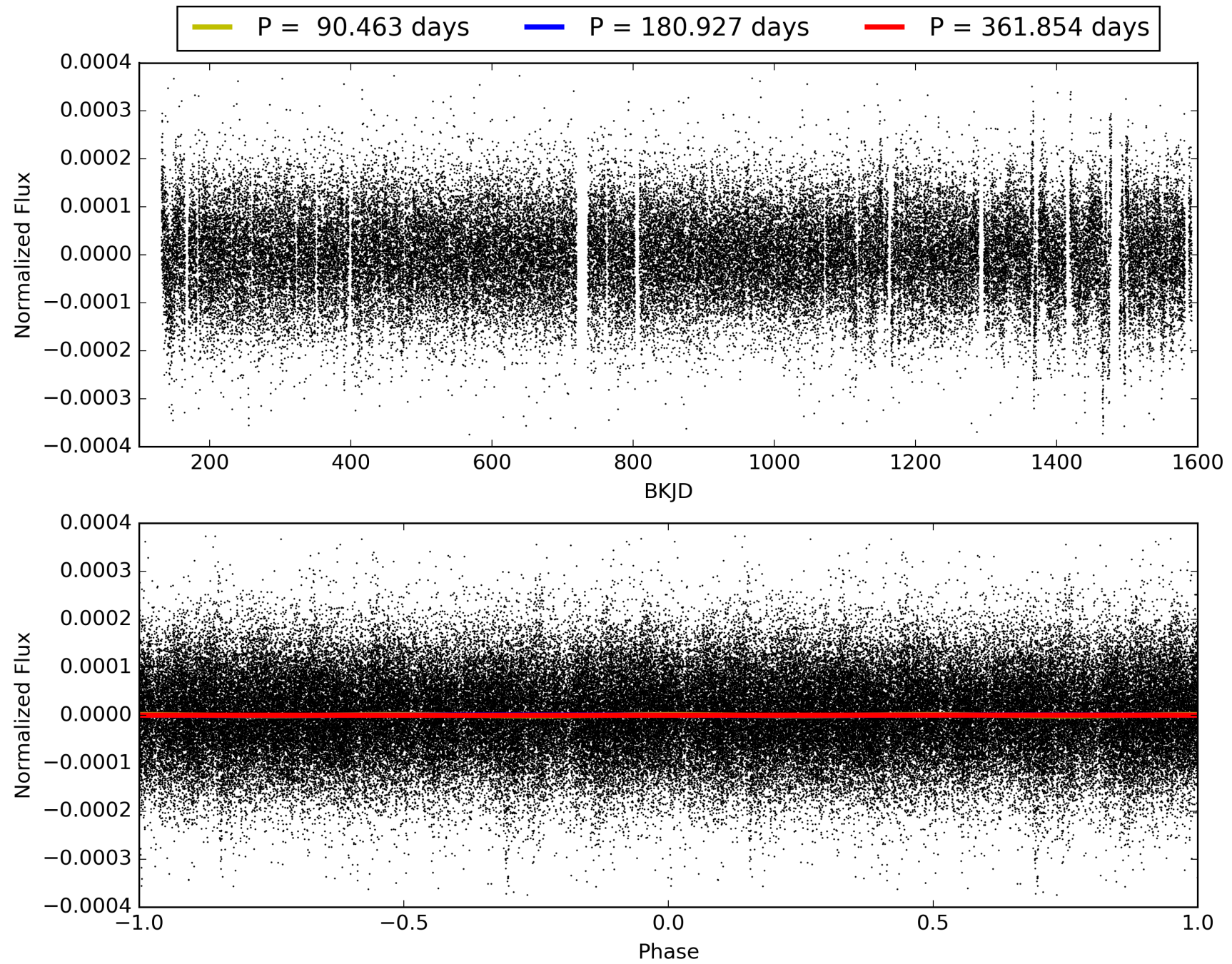
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 21:38:02 Z

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

TCE 006957044-02, PDC Light Curves

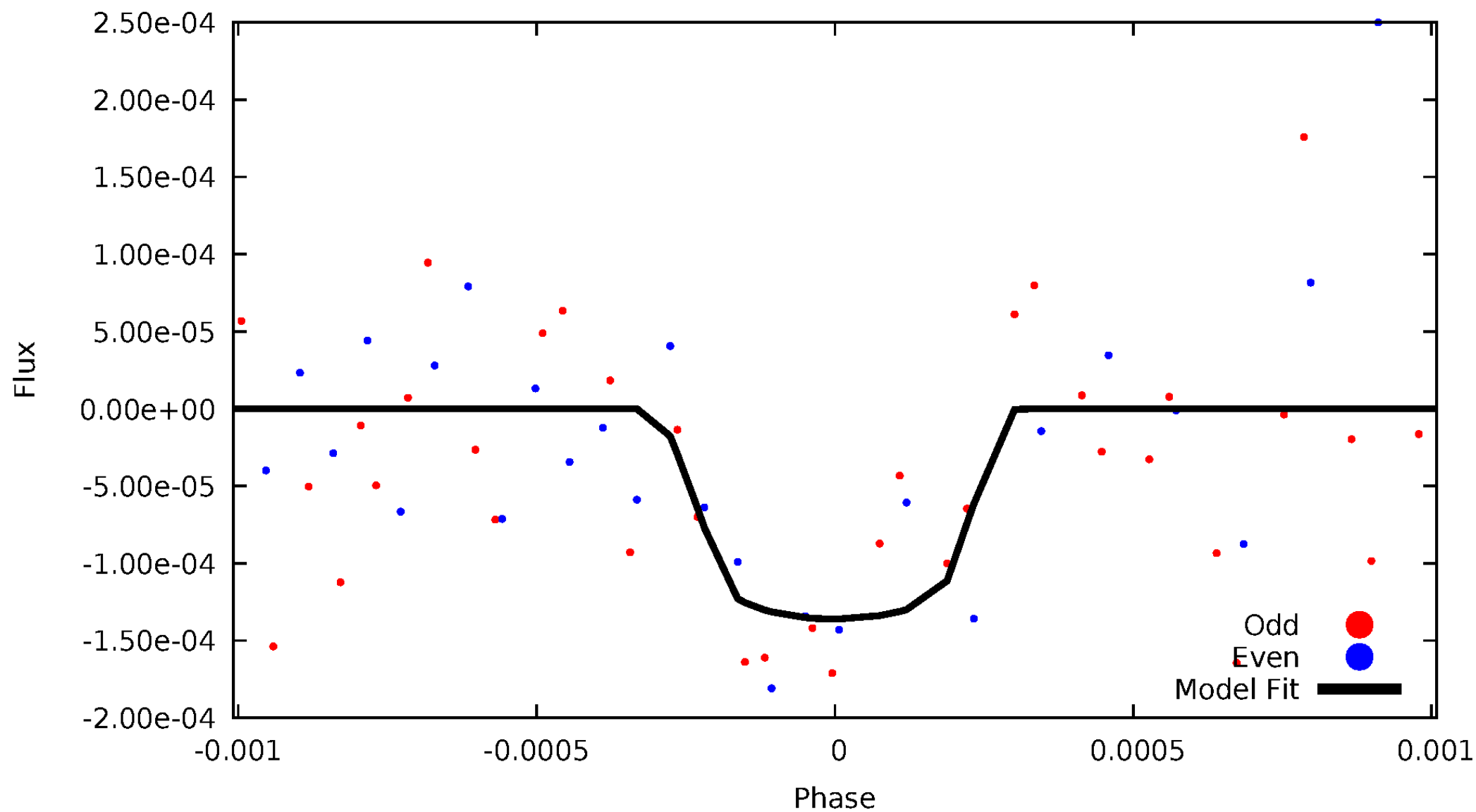


TCE 006957044-02



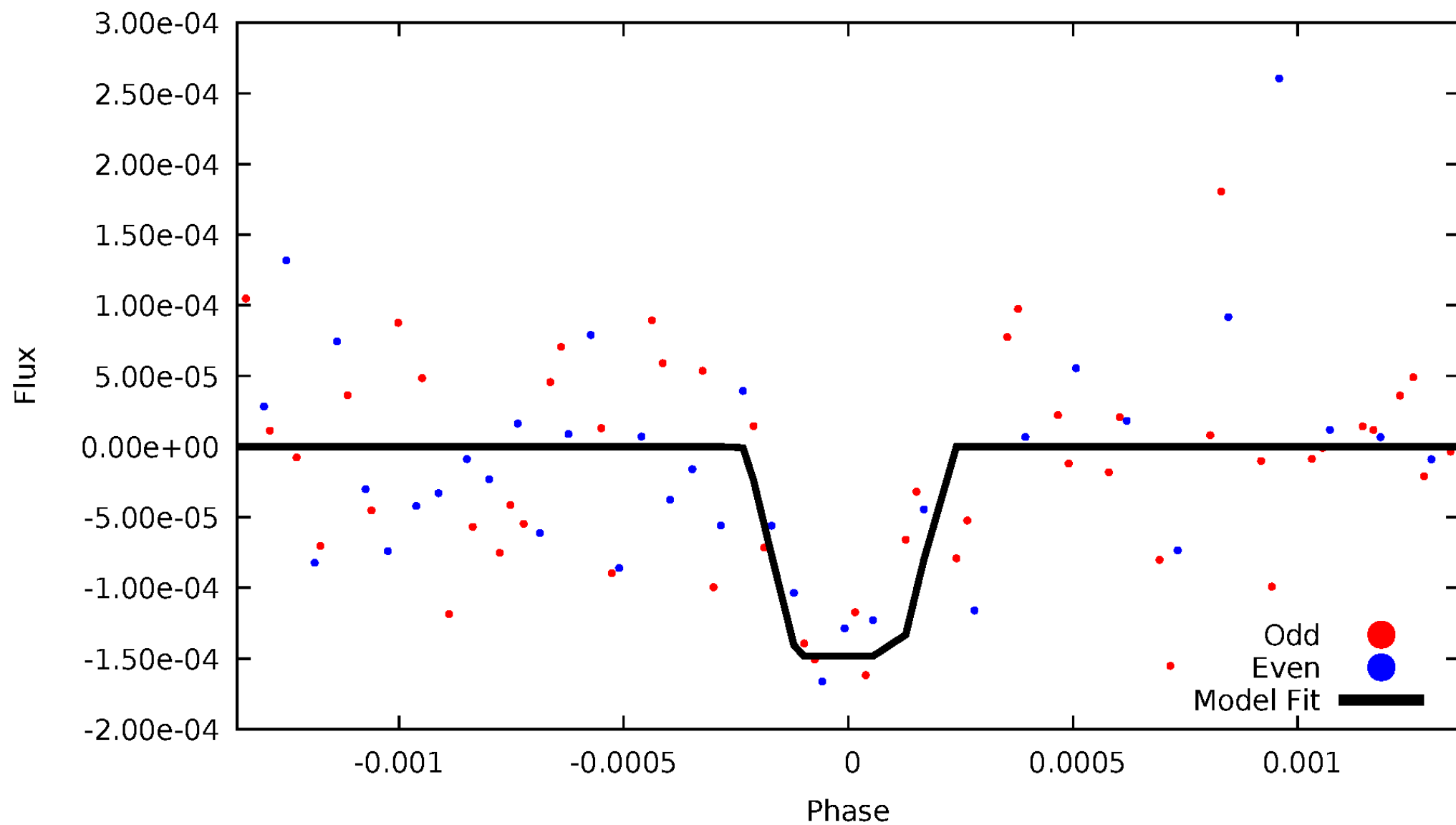
DV Odd/Even

TCE 006957044-02



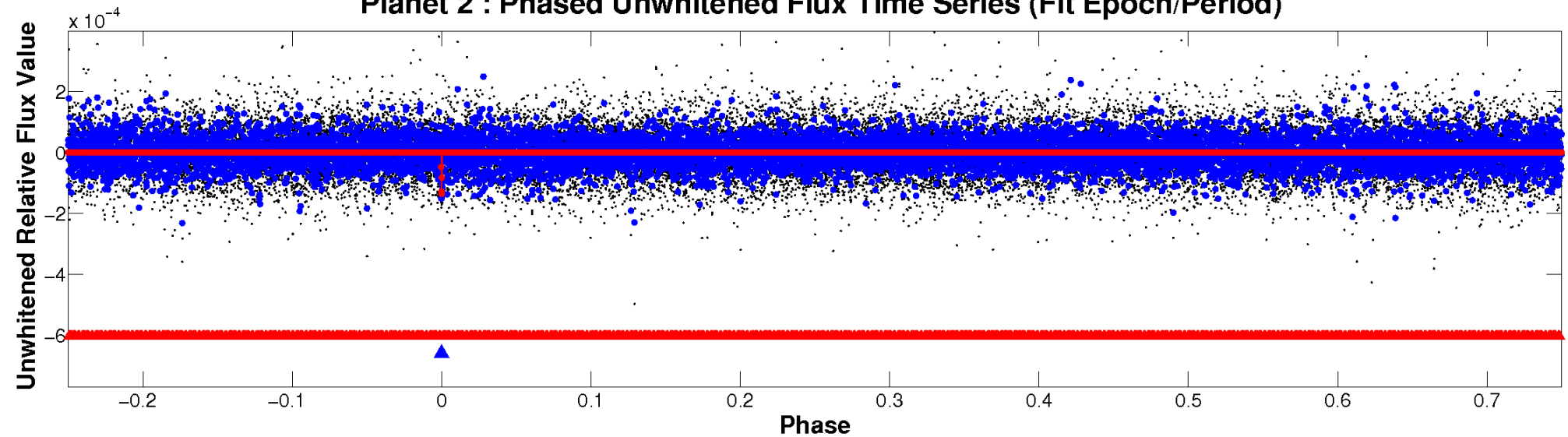
ALT Odd/Even

TCE 006957044-02

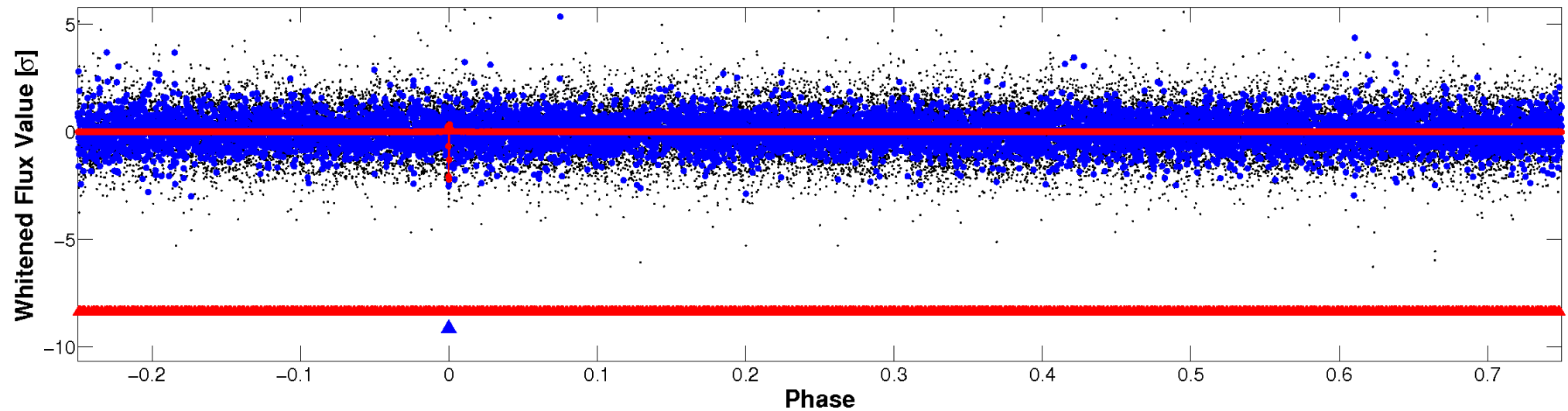


Non-Whitened Vs. Whitened Light Curve

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

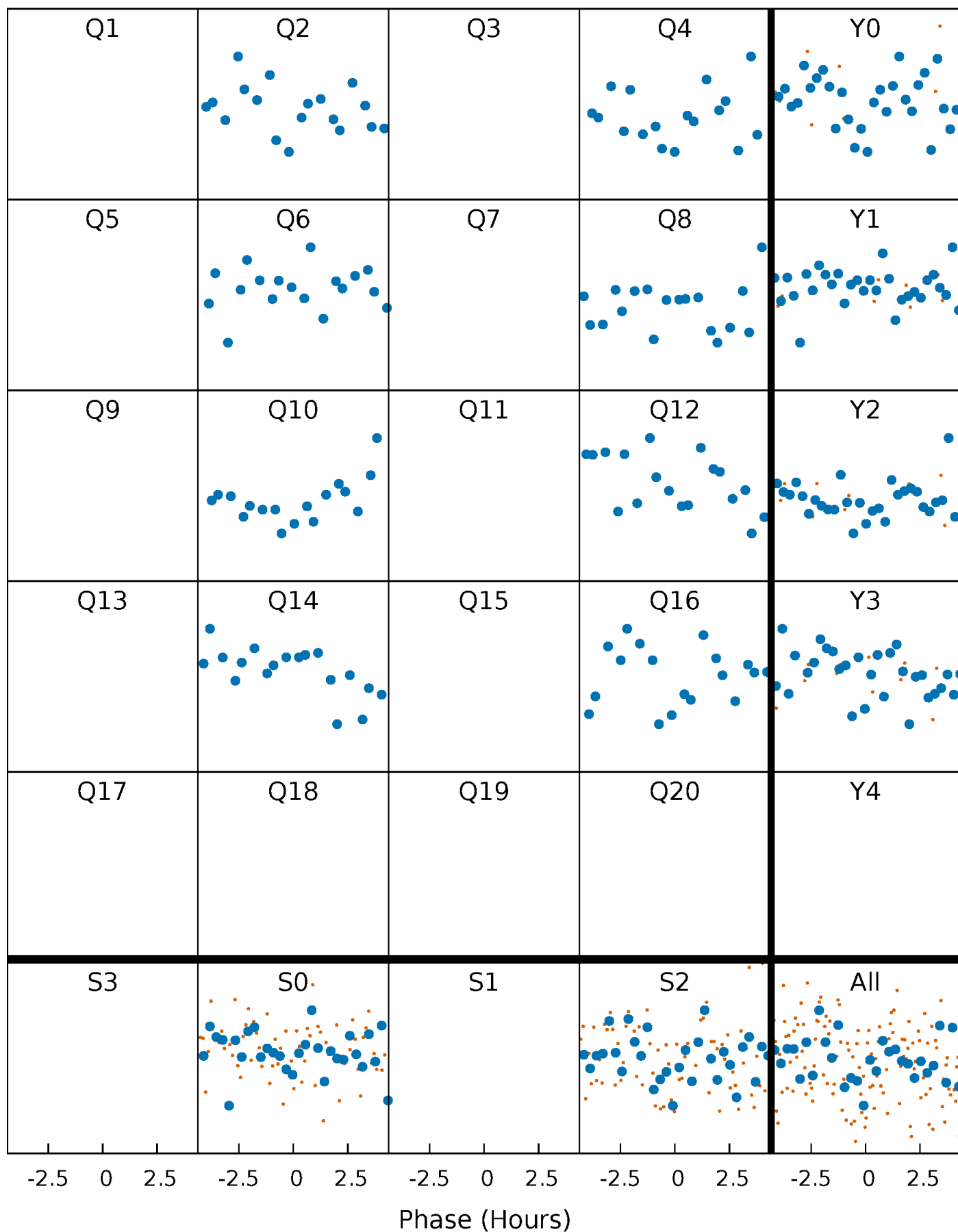


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



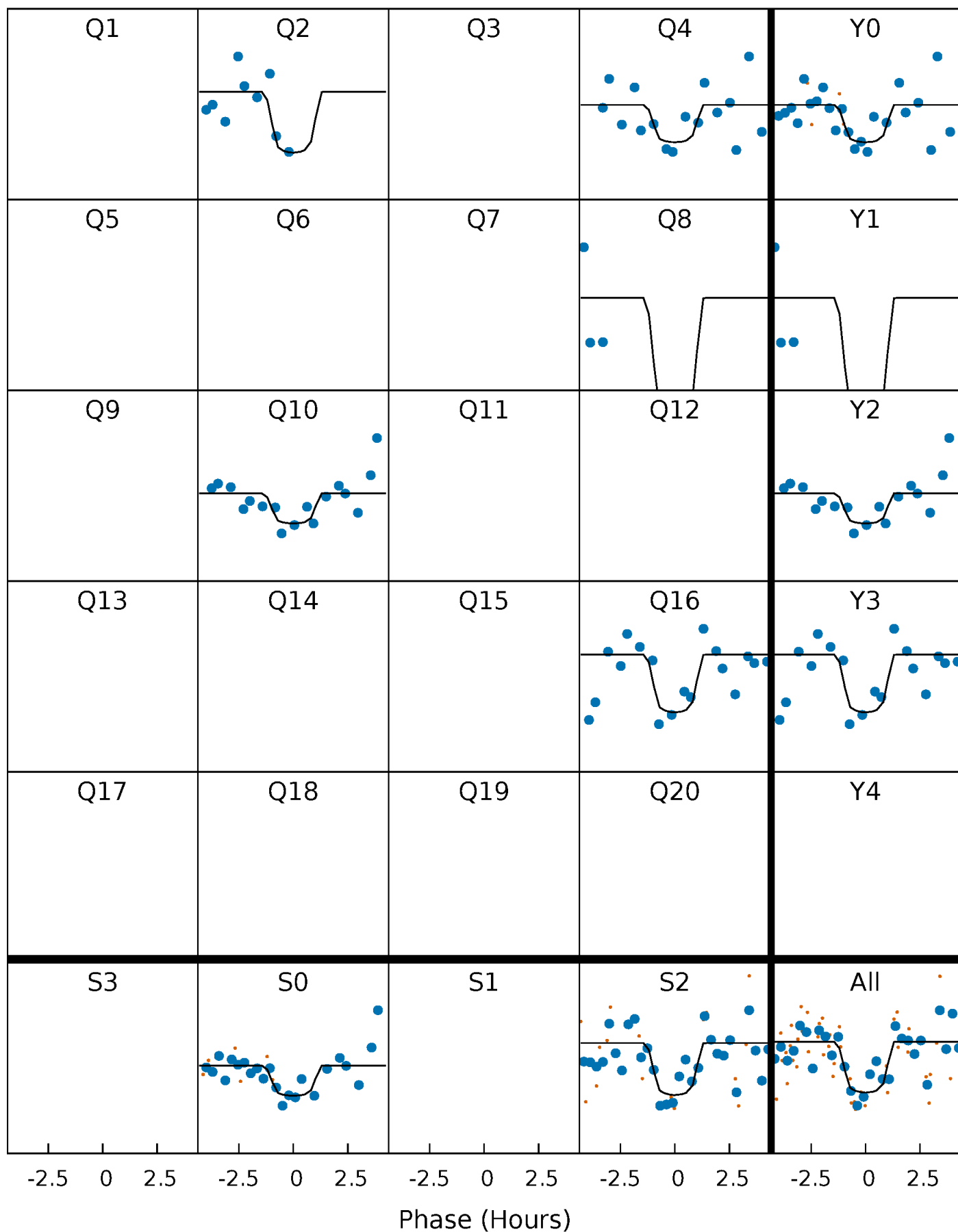
PDC Quarter-Phased Transit Curves

TCE 006957044-02 P=180.926822 Days $T_0=253.961184$ (BKJD)



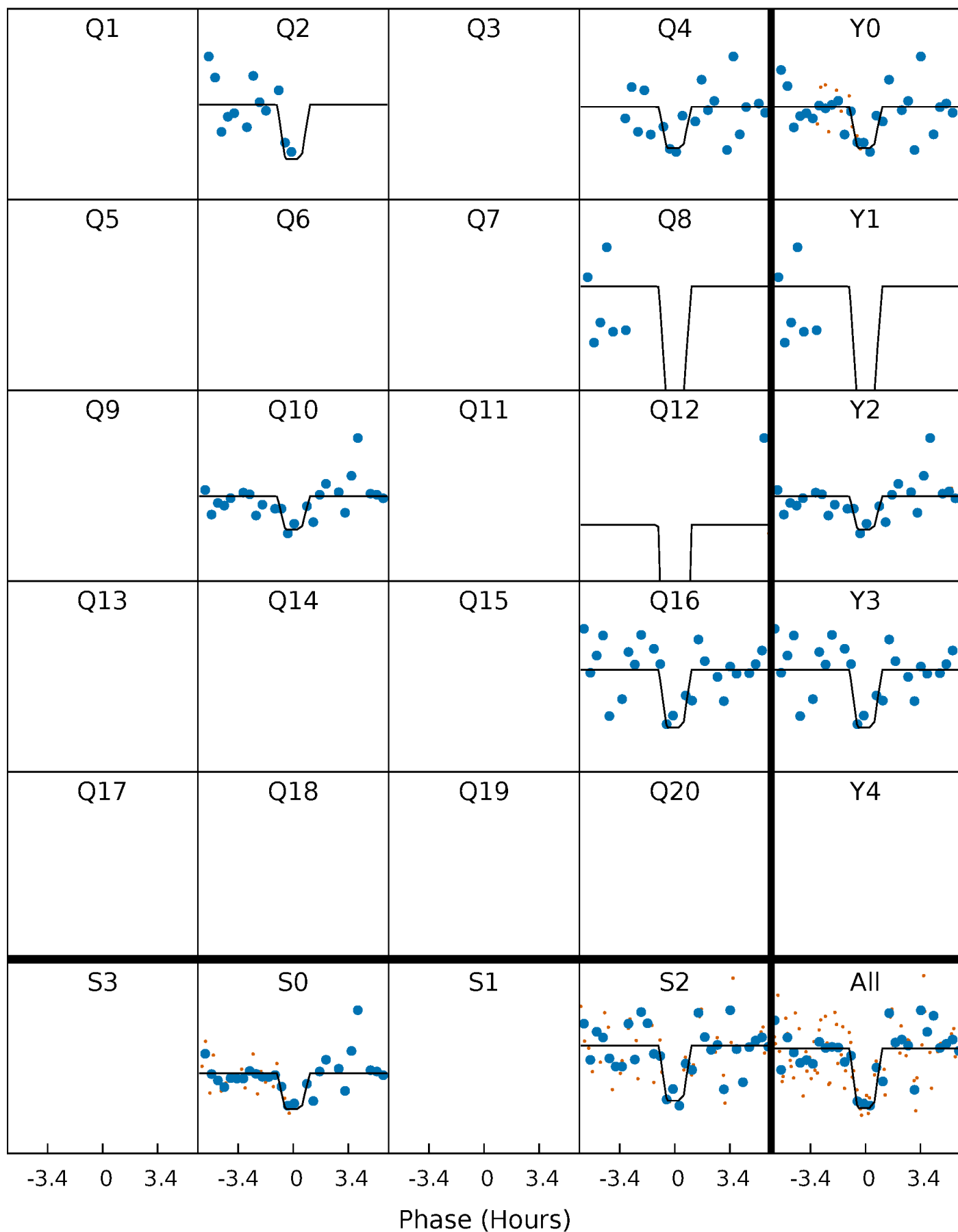
DV Quarter-Phased Transit Curves

TCE 006957044-02 P=180.926822 Days $T_0=253.961184$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

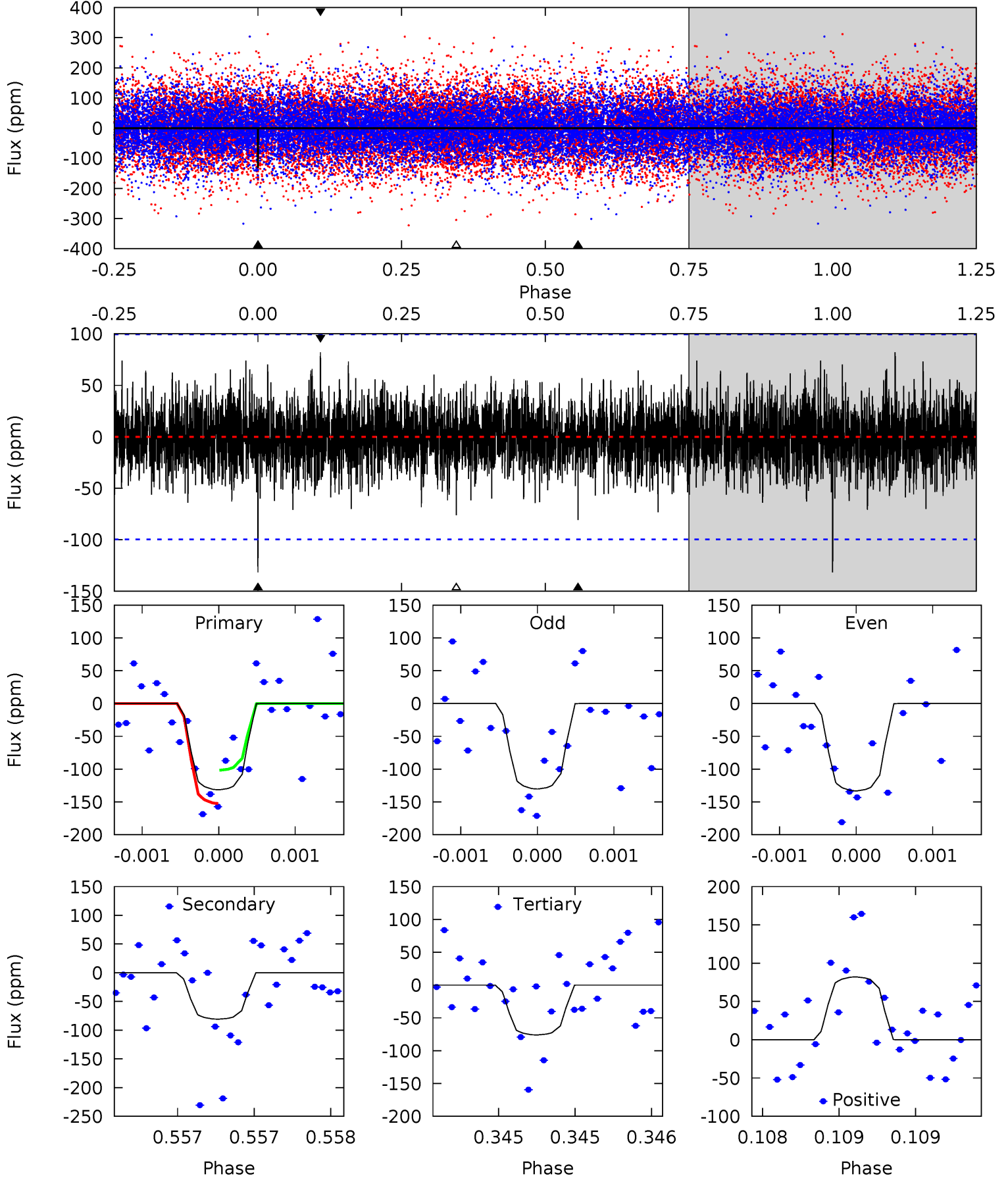
TCE 006957044-02 P=180.926536 Days $T_0=253.953647$ (BKJD)



DV Model-Shift Uniqueness Test

006957044-02, P = 180.926822 Days, E = 73.034362 Days

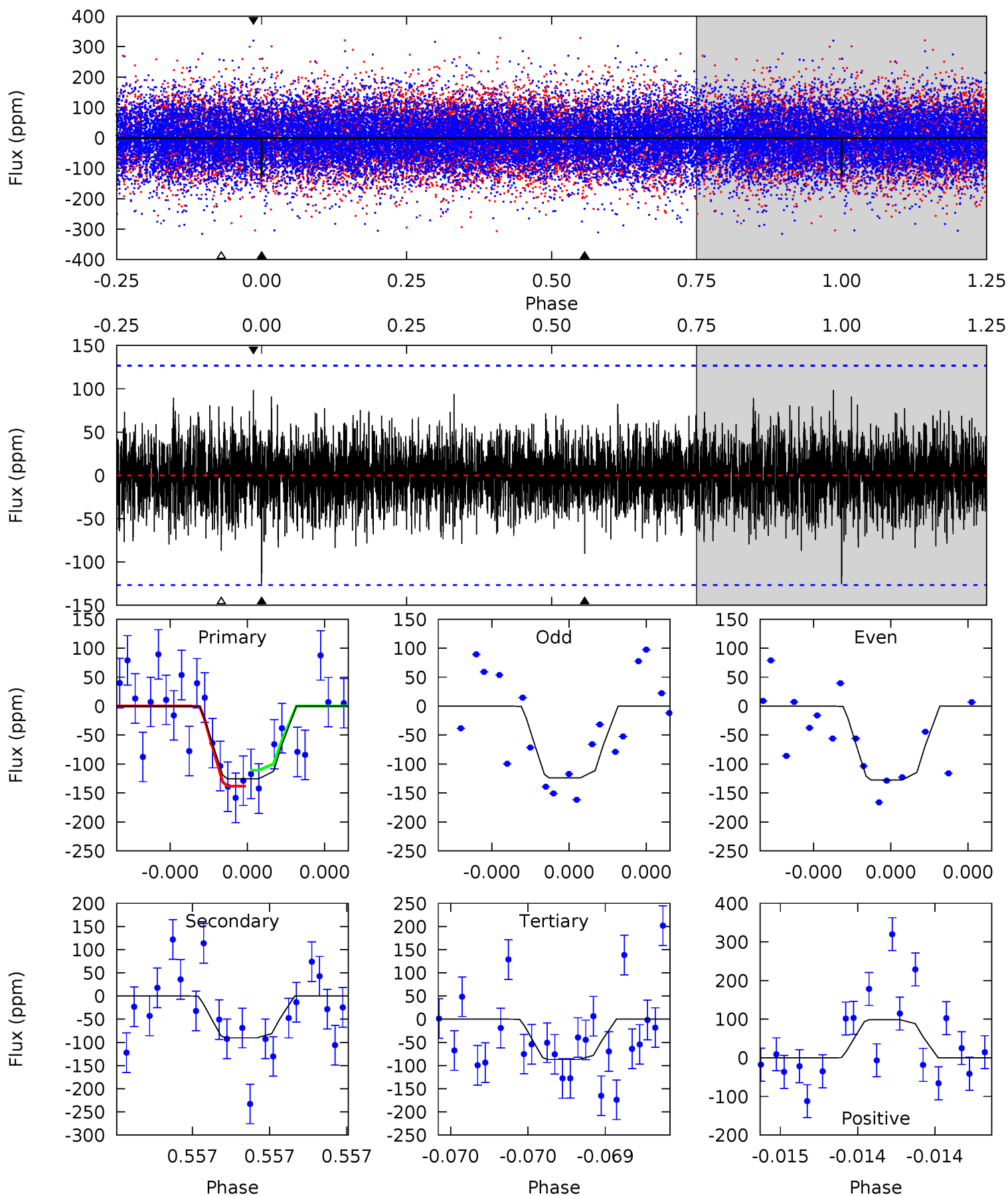
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.32	4.49	4.23	4.56	5.54	3.43	1.18	3.09	2.76	0.26	-0.07	0.08	1.00	0.38	1.40



Alt Model-Shift Uniqueness Test

006957044-02, P = 180.926536 Days, E = 73.027111 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.57	4.01	3.86	4.37	5.62	3.55	1.14	1.71	1.20	0.15	-0.36	0.08	0.99	0.44	0.60



Stellar Parameters For KIC 006957044

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7508^{+206}_{-324}	$4.130^{+0.098}_{-0.182}$	$0.210^{+0.150}_{-0.350}$	$1.877^{+0.545}_{-0.294}$	$1.734^{+0.193}_{-0.257}$	$0.369^{+0.195}_{-0.172}$
	+3%/-4%	+2%/-4%	+71%/-167%	+29%/-16%	+11%/-15%	+53%/-47%
Source	KIC0	KIC0	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 006957044-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-81±18	$2.68^{+1.68}_{-1.46}$	737^{+51}_{-44}	6199^{+3420}_{-1342}	3436^{+13159}_{-2213}
Alt.	-90±23	$2.78^{+1.80}_{-1.51}$	737^{+56}_{-45}	6210^{+3939}_{-1353}	3398^{+13545}_{-2162}

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

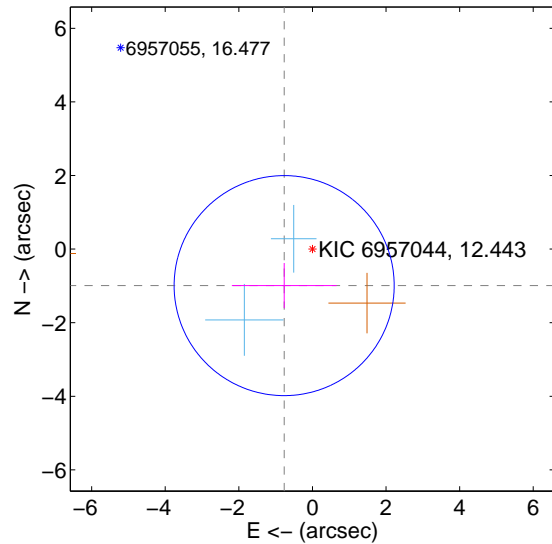
Supplemental centroid analysis for 006957044-02. Kepler magnitude: 12.44. Transit SNR 7.90

There are 2 quarters with good PRF difference image offsets

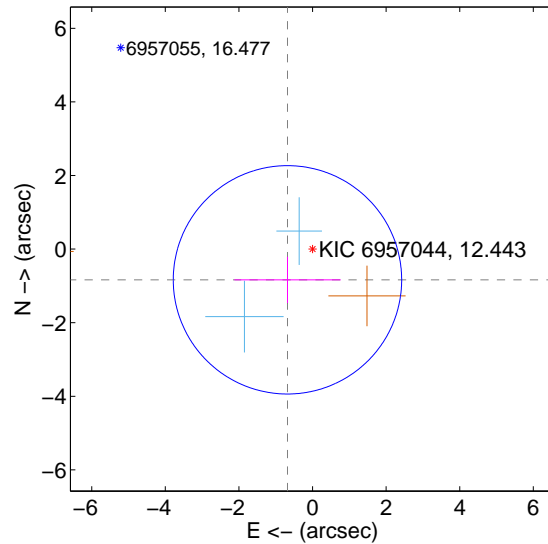
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.255 ± 0.997	1.26	0.769 ± 1.422	-0.992 ± 0.613
PRF-fit source offset from KIC position	1.078 ± 1.034	1.04	0.681 ± 1.444	-0.835 ± 0.628
photometric centroid source offset	1.51 ± 1.32	1.14	1.32 ± 1.36	0.72 ± 1.20

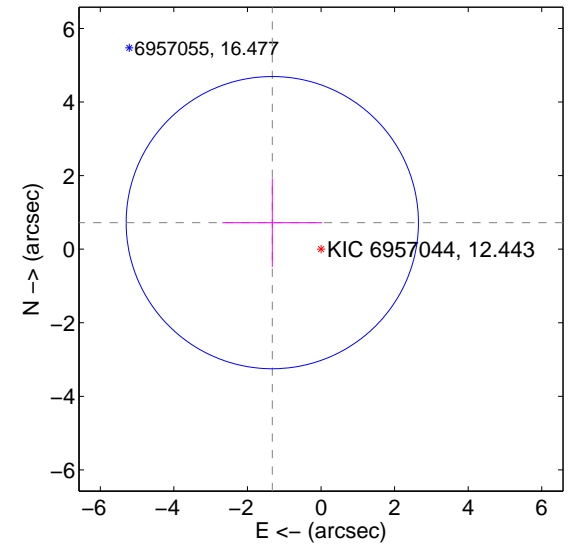
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

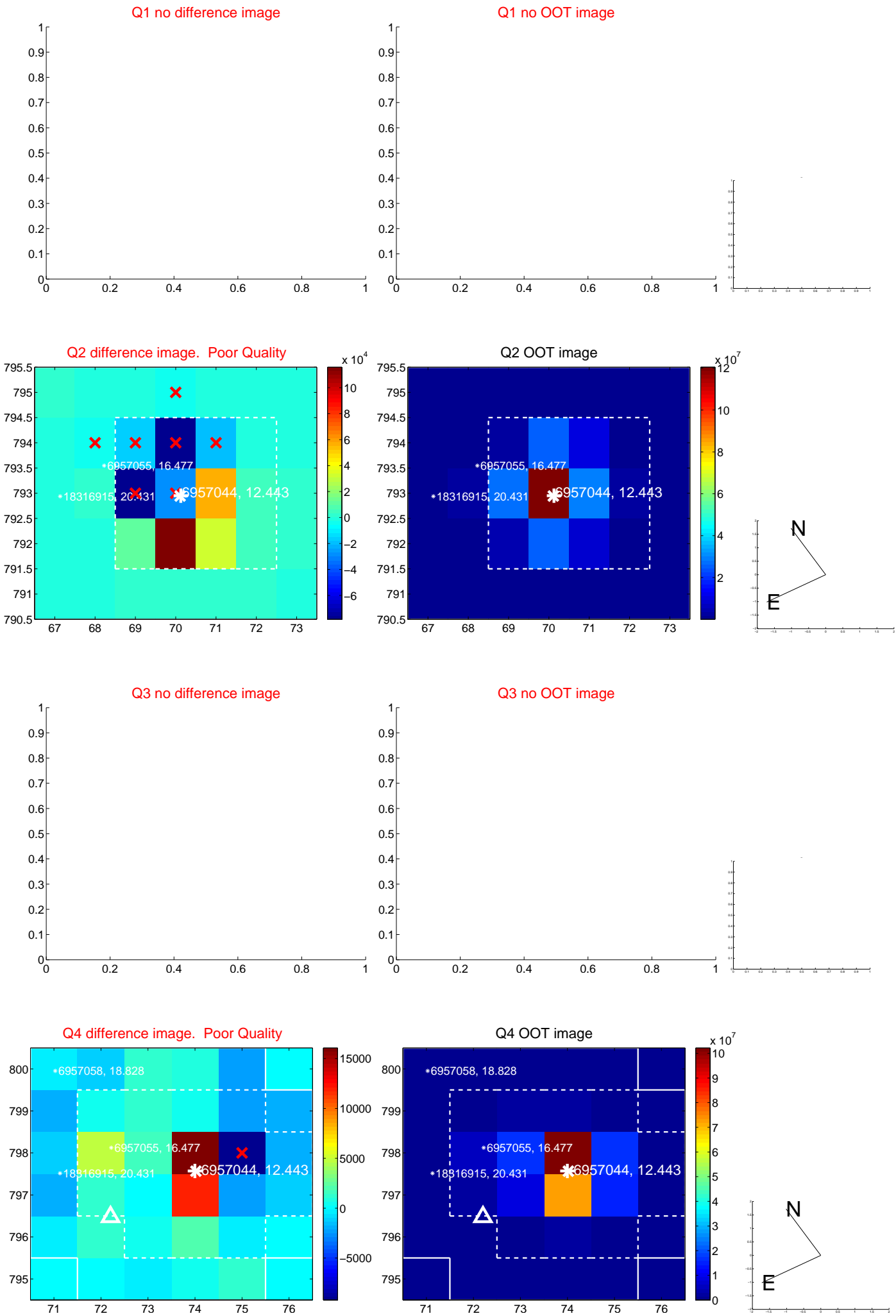


offset from photometric centroids

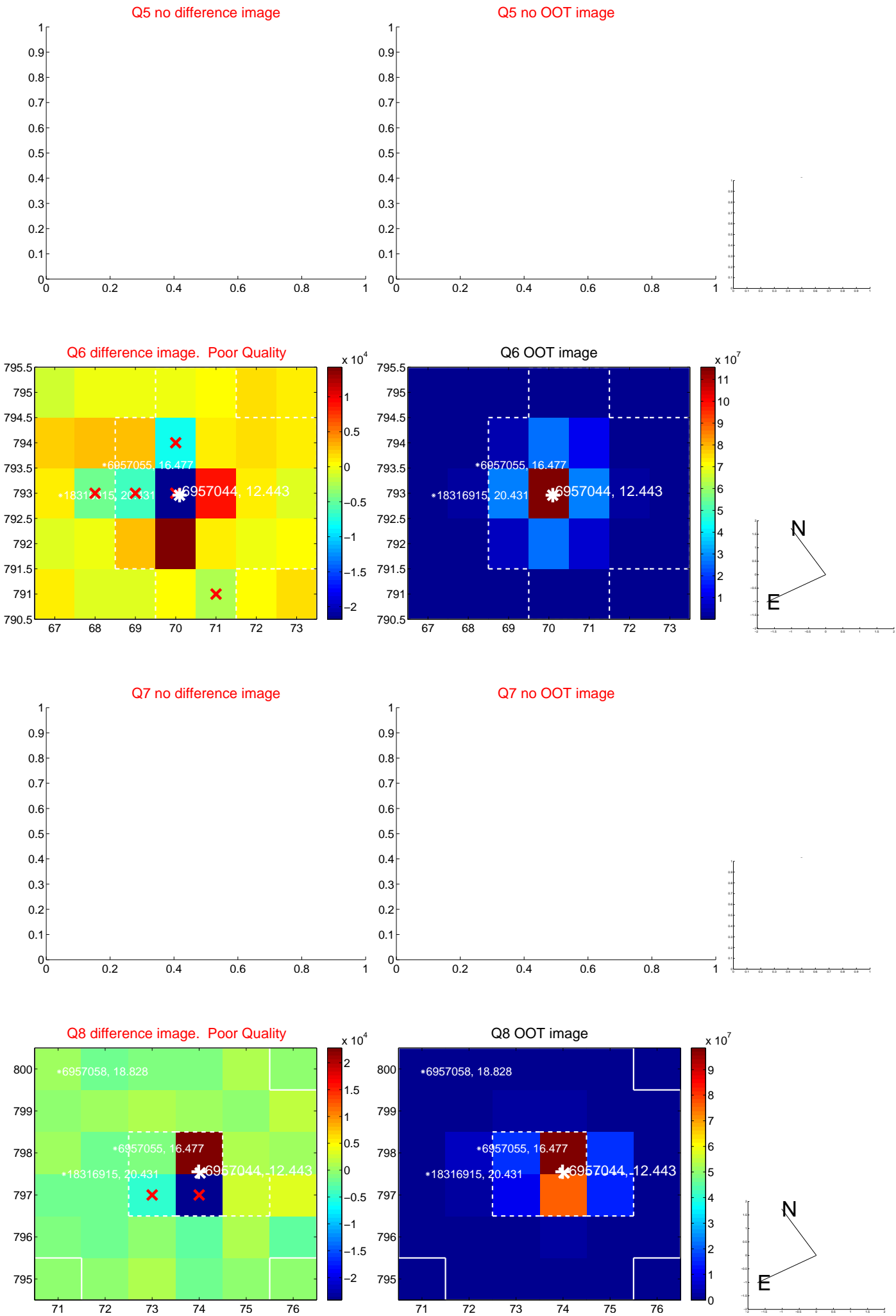


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

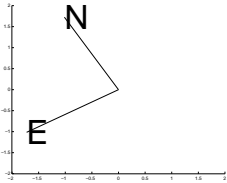
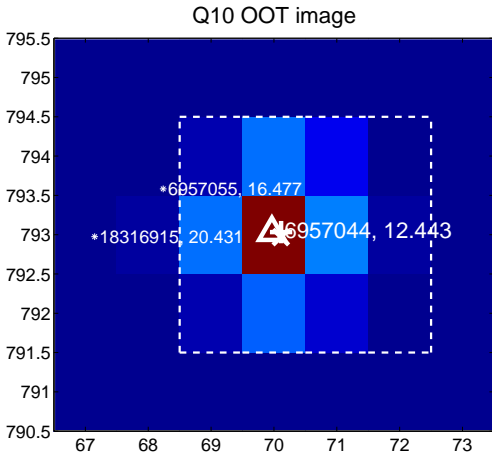
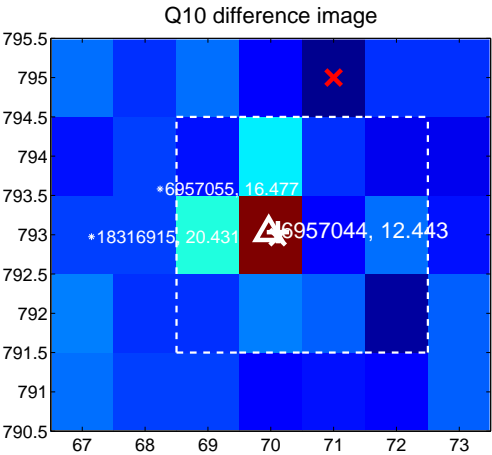


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

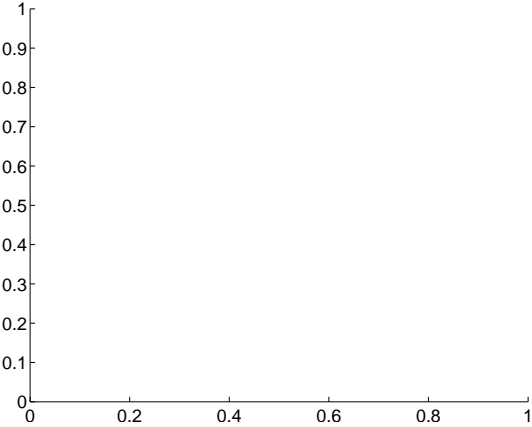
Q9 no difference image



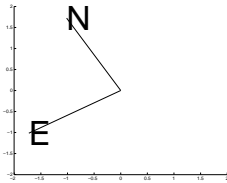
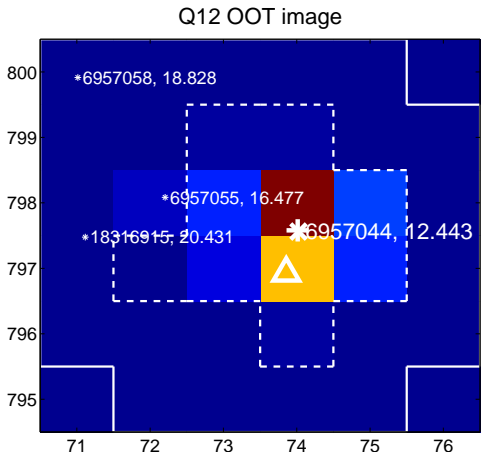
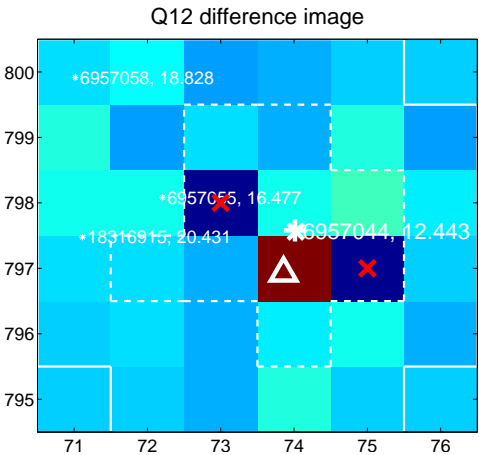
Q9 no OOT image



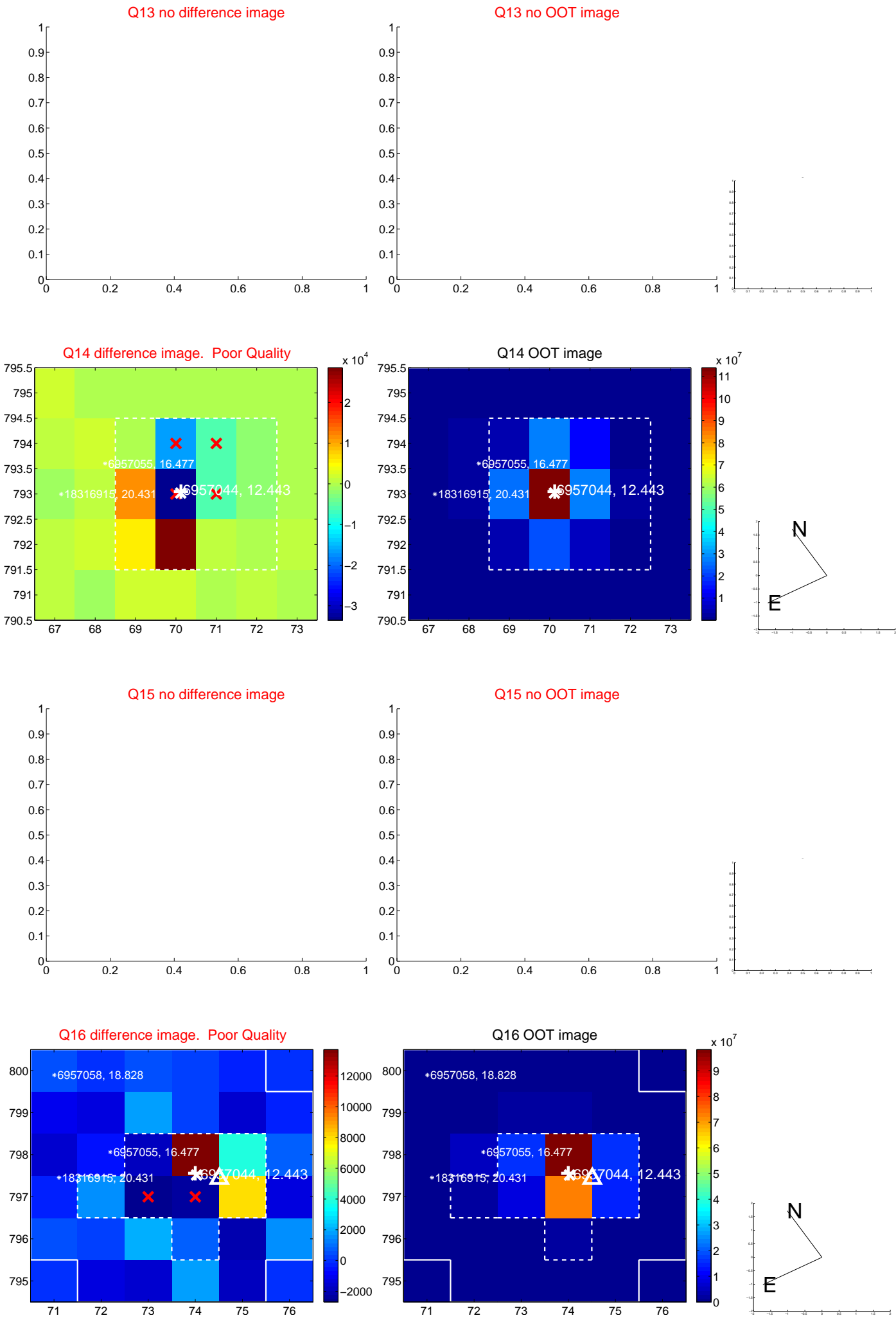
Q11 no difference image



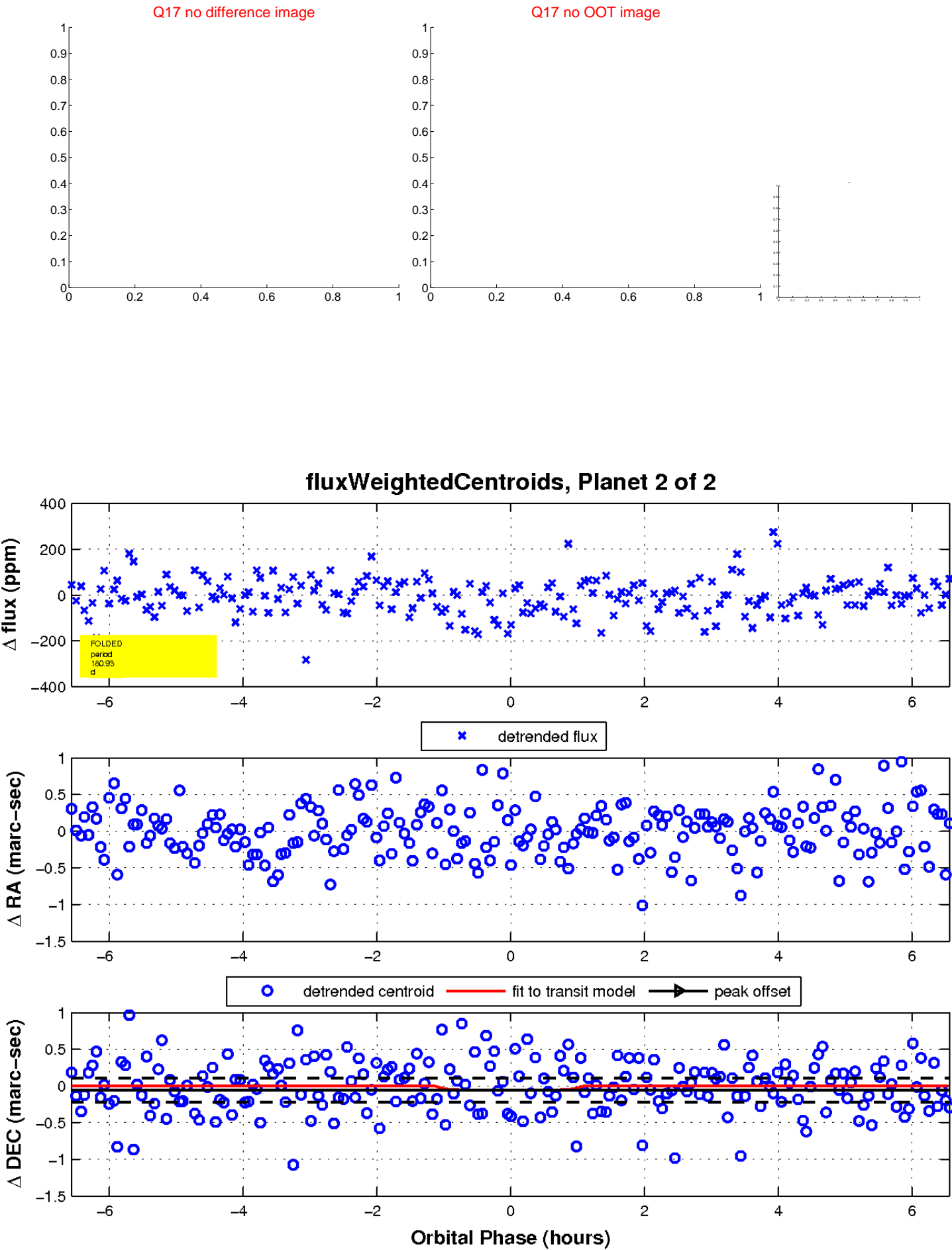
Q11 no OOT image



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

