

KIC 004540632

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})
004540632-01	OBS	6422.01	31.005408	150.857873	547467.0	1.500	9099.9	-1.0	1.78	5023	97.34	51.34
004540632-02	OBS	No	31.005368	132.972973	165403.9	15.120	2069.4	1703.9	1.78	5023	99.83	51.34
004540632-03	OBS	No	4.427308	133.576226	41.6	2.926	701.6	1.8	1.78	5023	1.22	687.85
004540632-04	OBS	No	309.251946	273.814657	5628.3	25.150	275.6	19.0	1.78	5023	25.40	2.39
004540632-05	OBS	No	242.084340	337.152057	648.4	4.419	268.9	2.0	1.78	5023	9.38	3.31
004540632-06	OBS	No	4.428953	132.507126	0.1	0.713	191.7	0.0	1.78	5023	0.11	687.50
004540632-07	OBS	No	4.429920	132.934246	114.2	17.263	191.7	4.1	1.78	5023	1.85	687.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004540632-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_NOFITS
004540632-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004540632-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV
004540632-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
004540632-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004540632-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
004540632-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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.

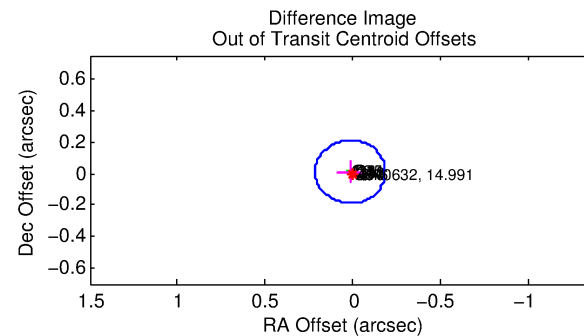
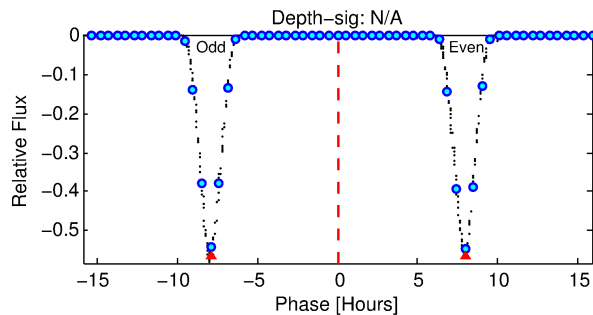
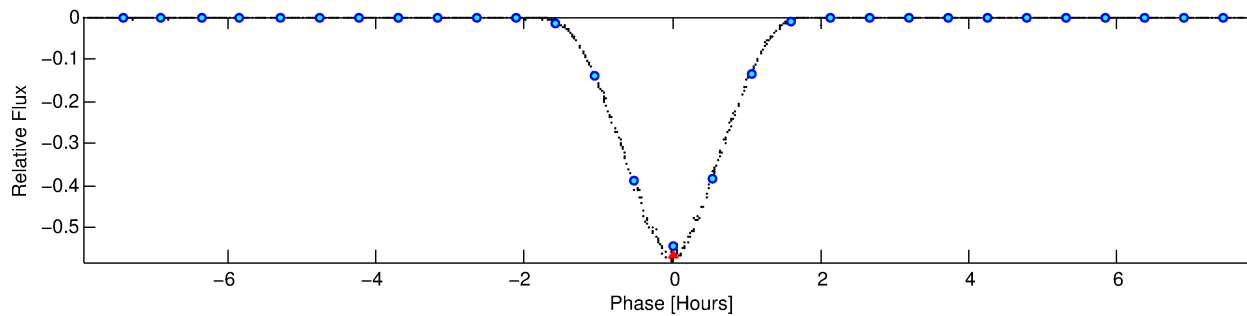
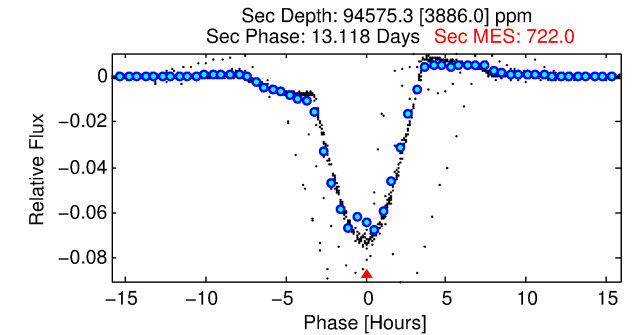
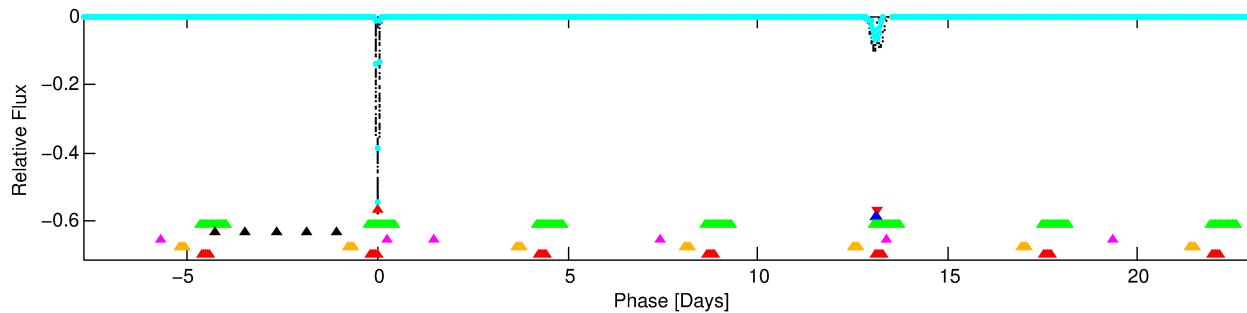
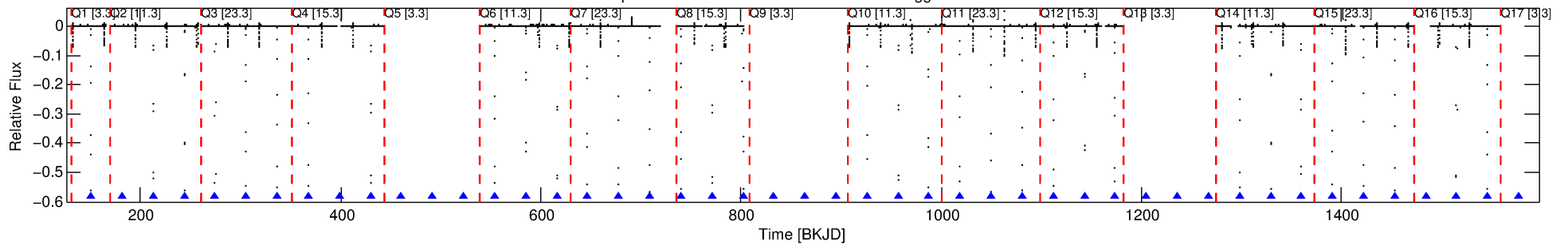
Ephemeris Match Information For 004540632-01

No Significant Match Found

DV One-Page Summary

KIC: 4540632 Candidate: 1 of 7 Period: 31.005 d
KOI: K06422 Corr: No Ephemeris Match

Kp: 14.99 R*: 1.78 Rs Teff: 5023.0 K Logg: 3.90 Fe/H: 0.040



TPS TCE Results:

Period = 31.00541 d
Epoch = 150.8579 BKJD

DV fit results are unavailable

DV Diagnostic Results:

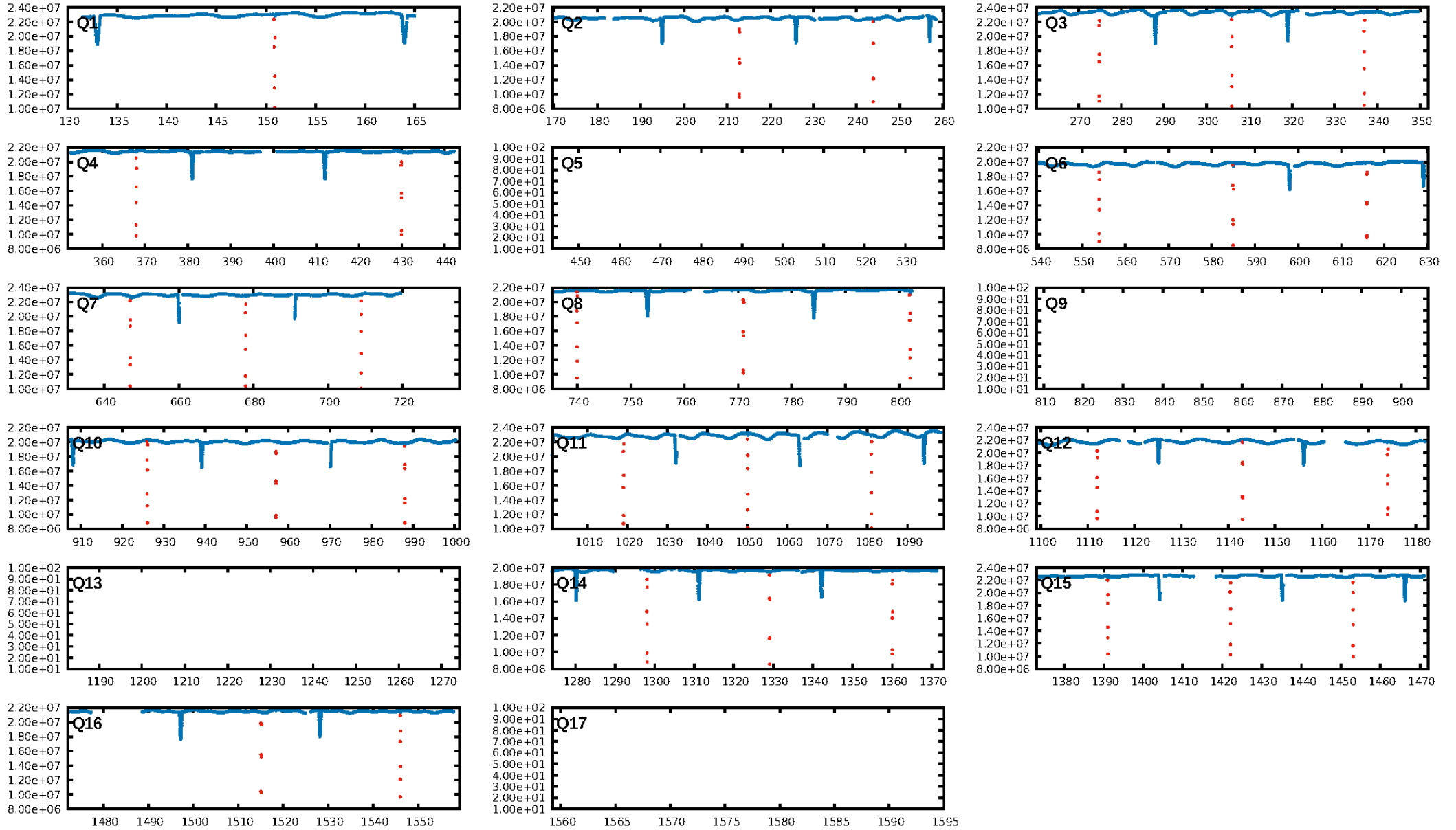
ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 100.0% [1085.46 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [33/33]
GhostDiagnostic-chr: 1.319

Centroid-sig: 0.0%
Centroid-so: 0.609 arcsec [436.07 σ]
OotOffset-rm: 0.020 arcsec [0.31 σ]
KicOffset-rm: 0.188 arcsec [2.68 σ]
OotOffset-st: 4/4/4/1 [13]
KicOffset-st: 4/4/4/1 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 0.00 [0/13]

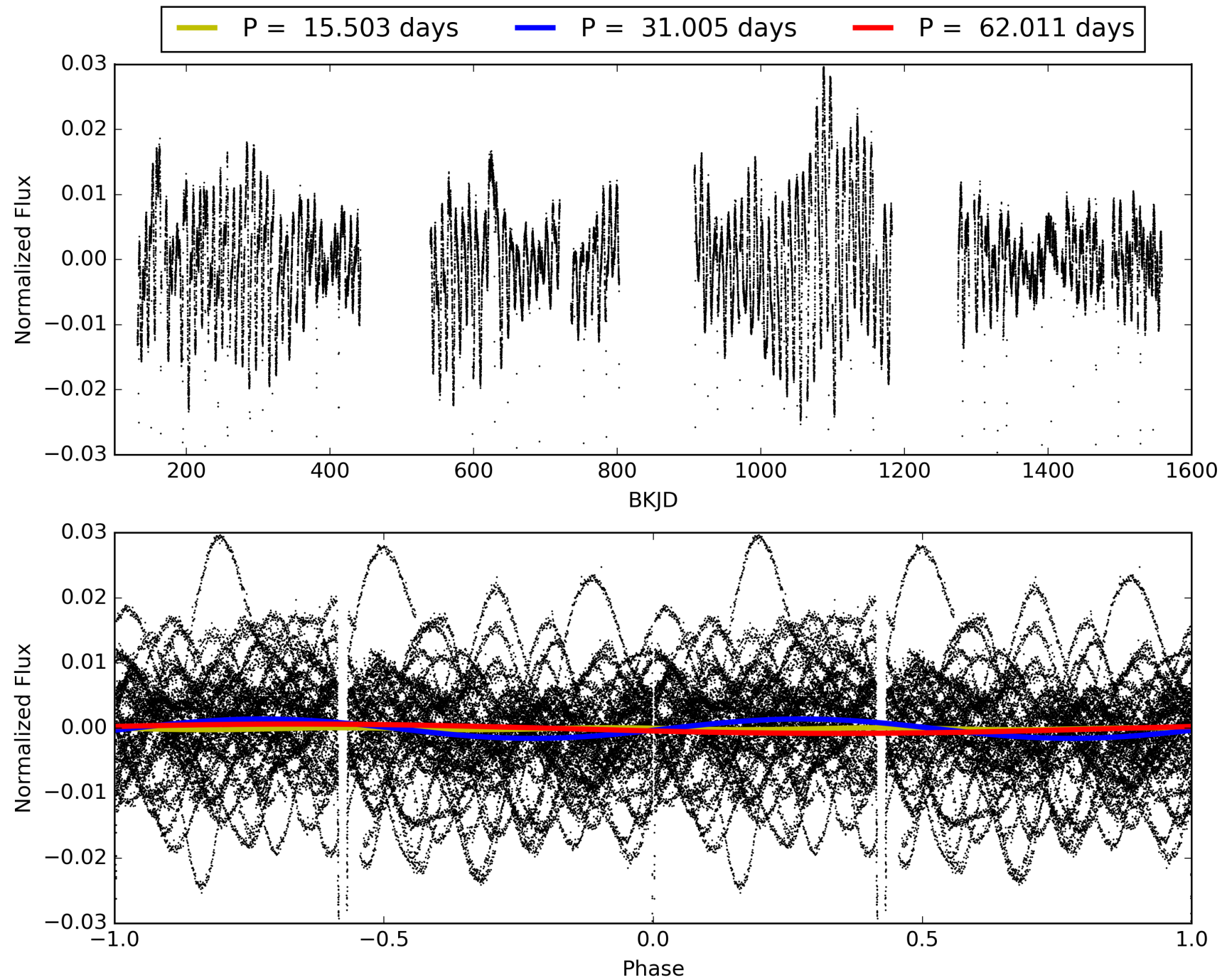
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 04:53:49 Z

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

TCE 004540632-01, PDC Light Curves

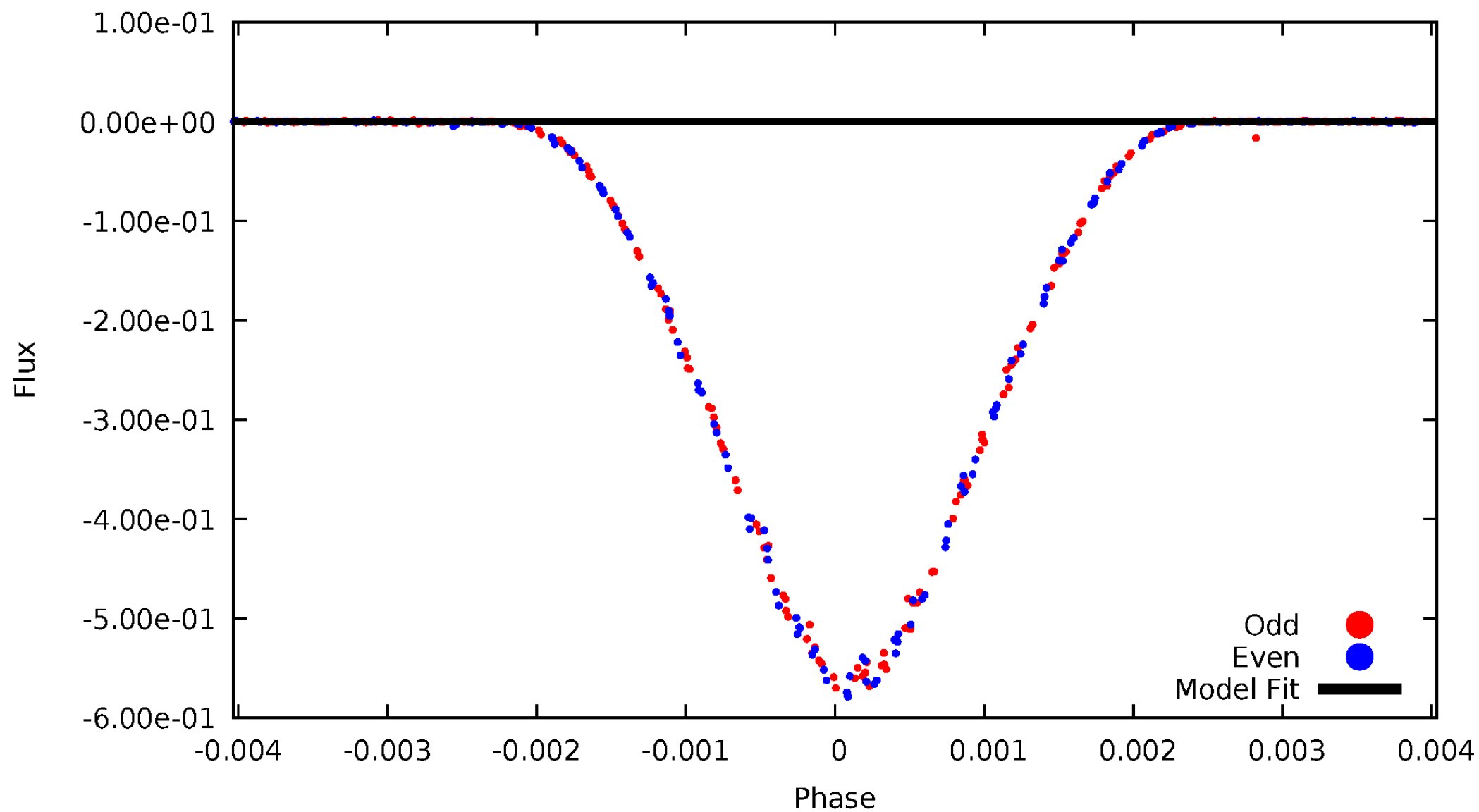


TCE 004540632-01



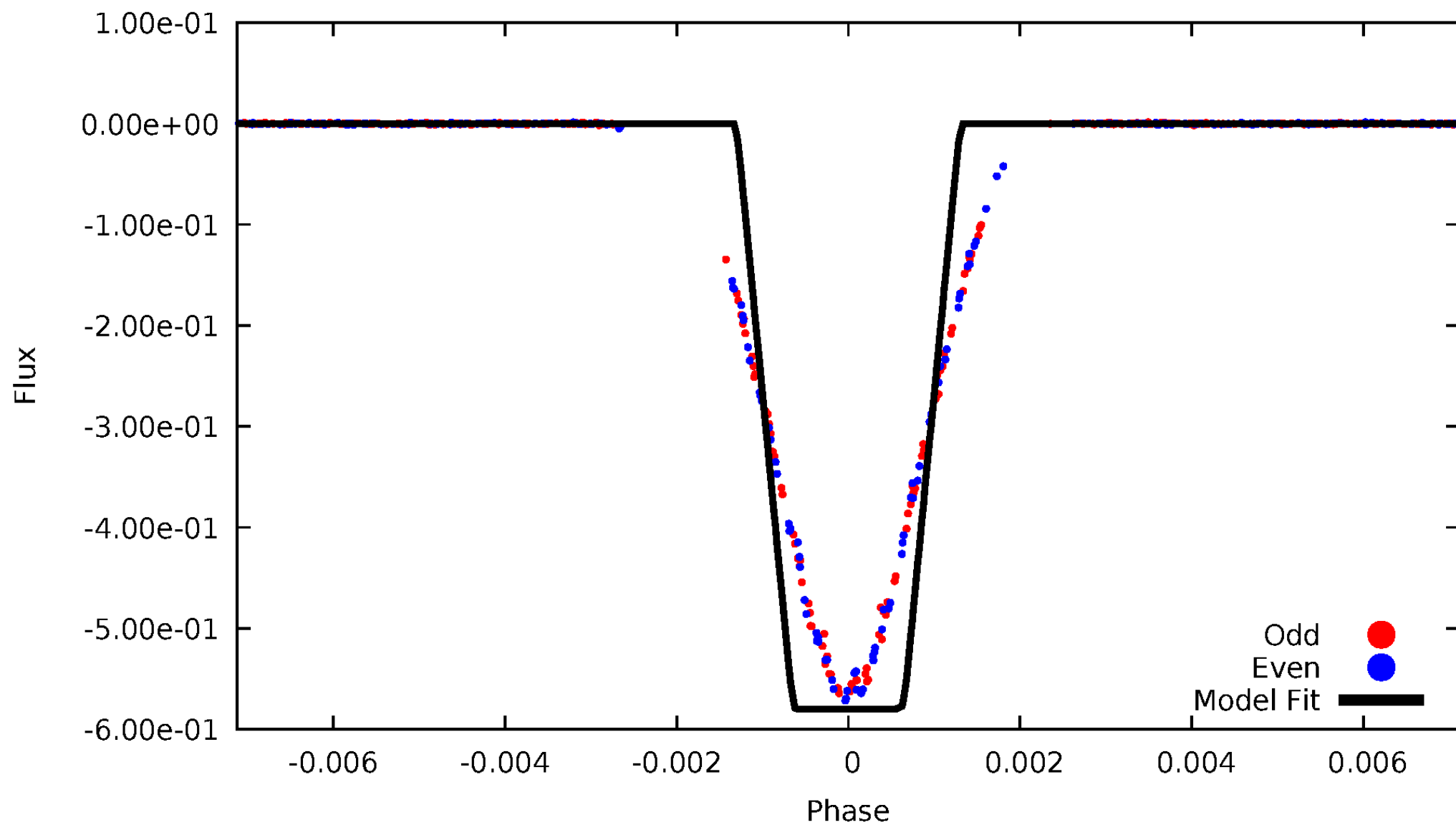
DV Odd/Even

TCE 004540632-01



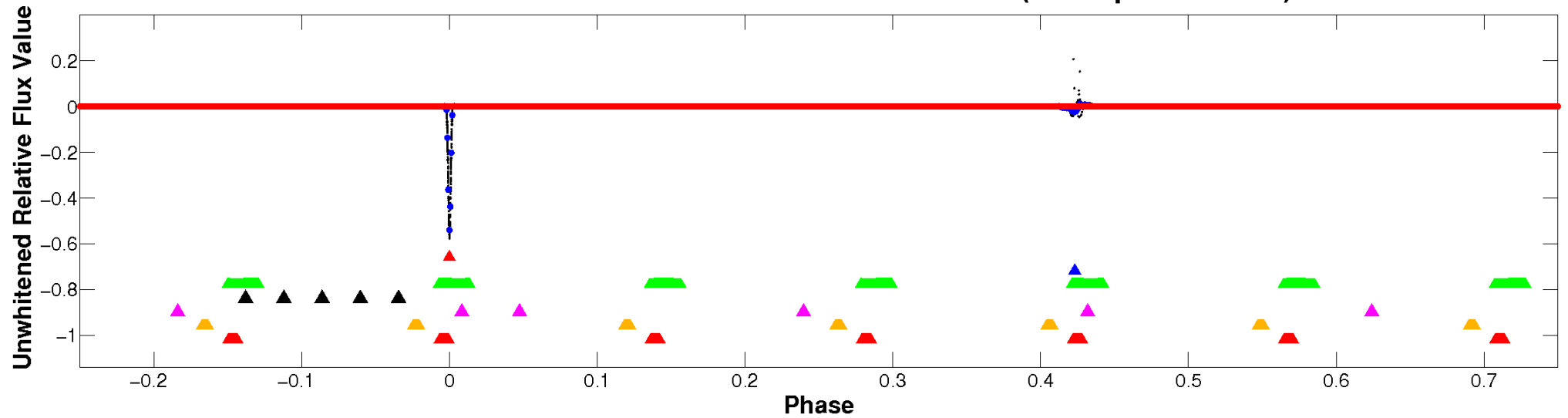
ALT Odd/Even

TCE 004540632-01



Non-Whitened Vs. Whitened Light Curve

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

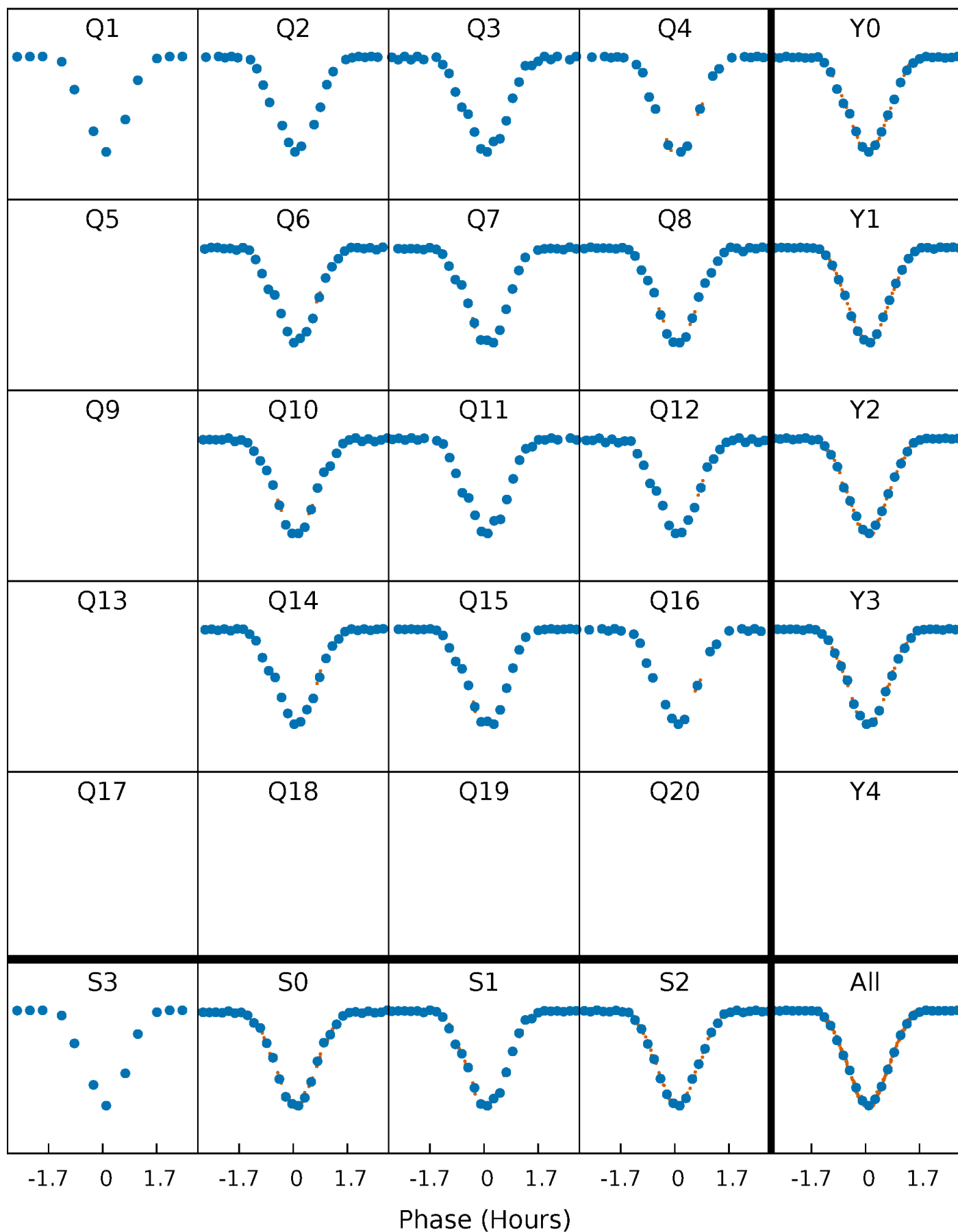


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



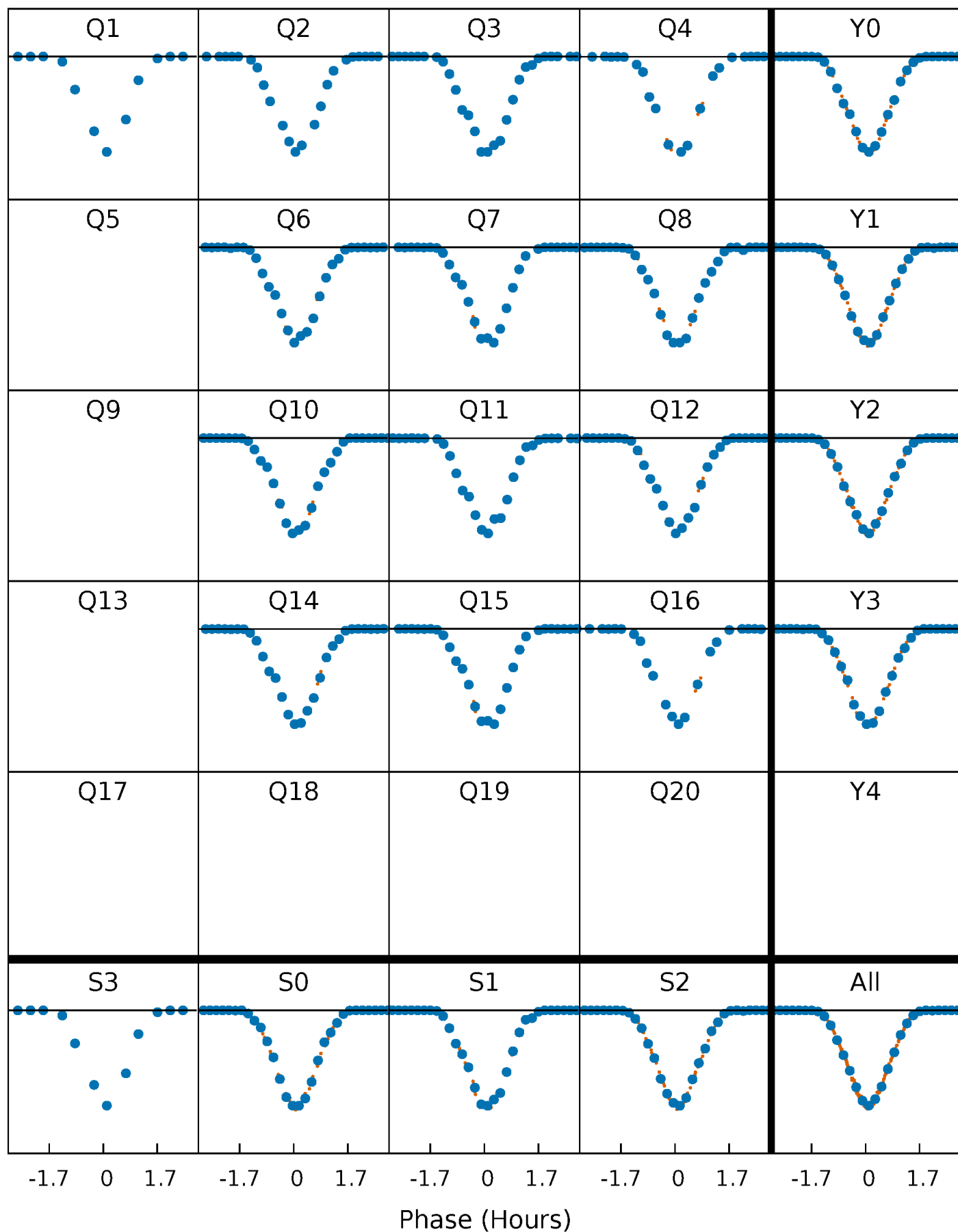
PDC Quarter-Phased Transit Curves

TCE 004540632-01 P= 31.005408 Days $T_0=150.857873$ (BKJD)



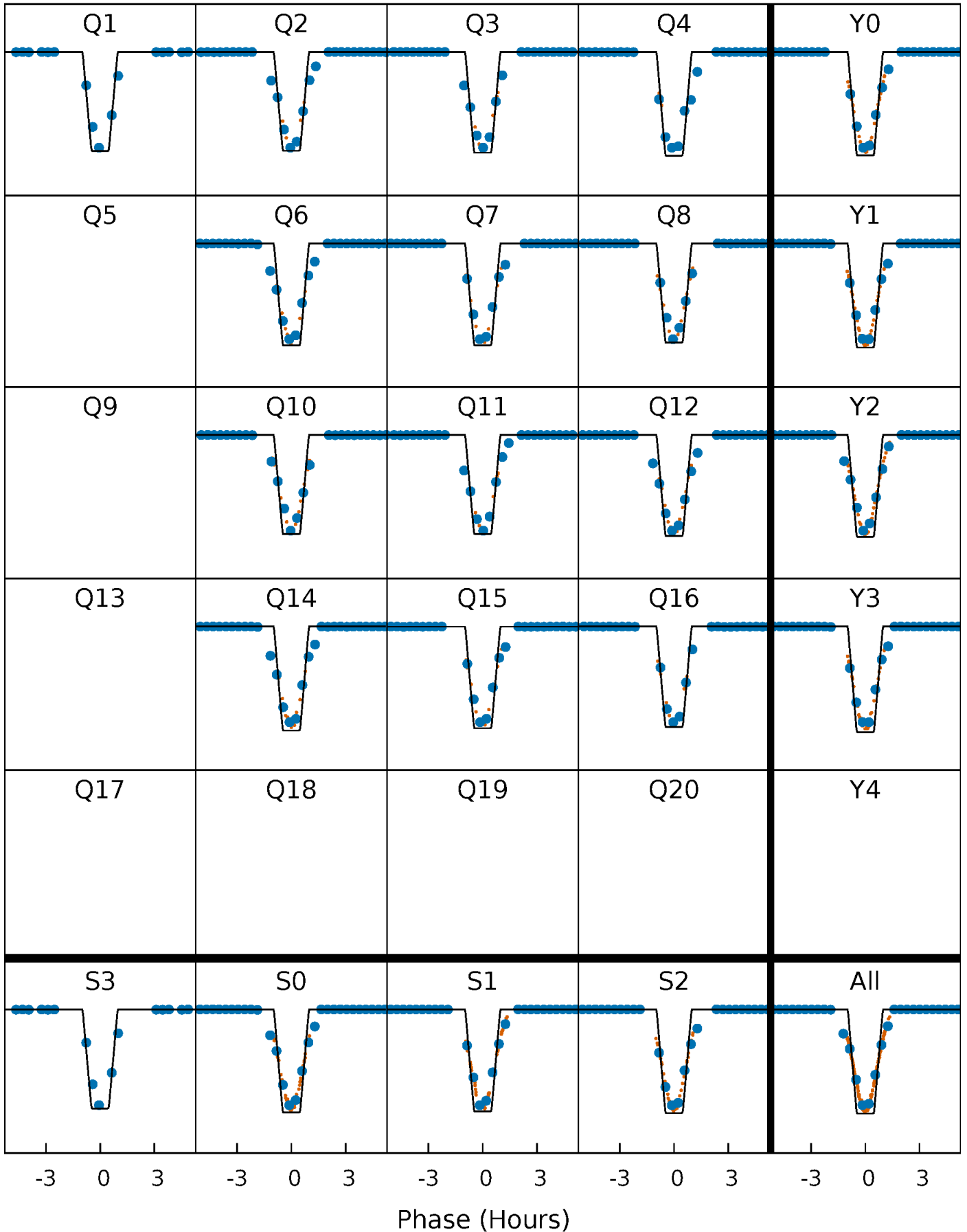
DV Quarter-Phased Transit Curves

TCE 004540632-01 P= 31.005408 Days $T_0=150.857873$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

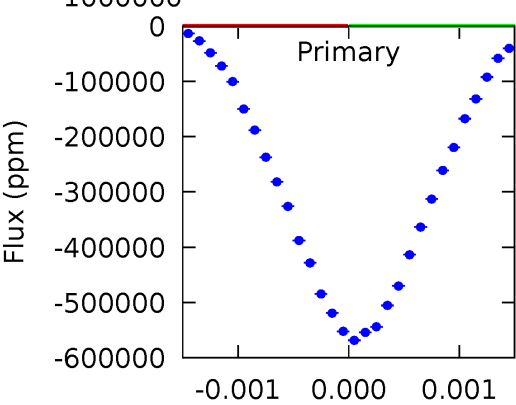
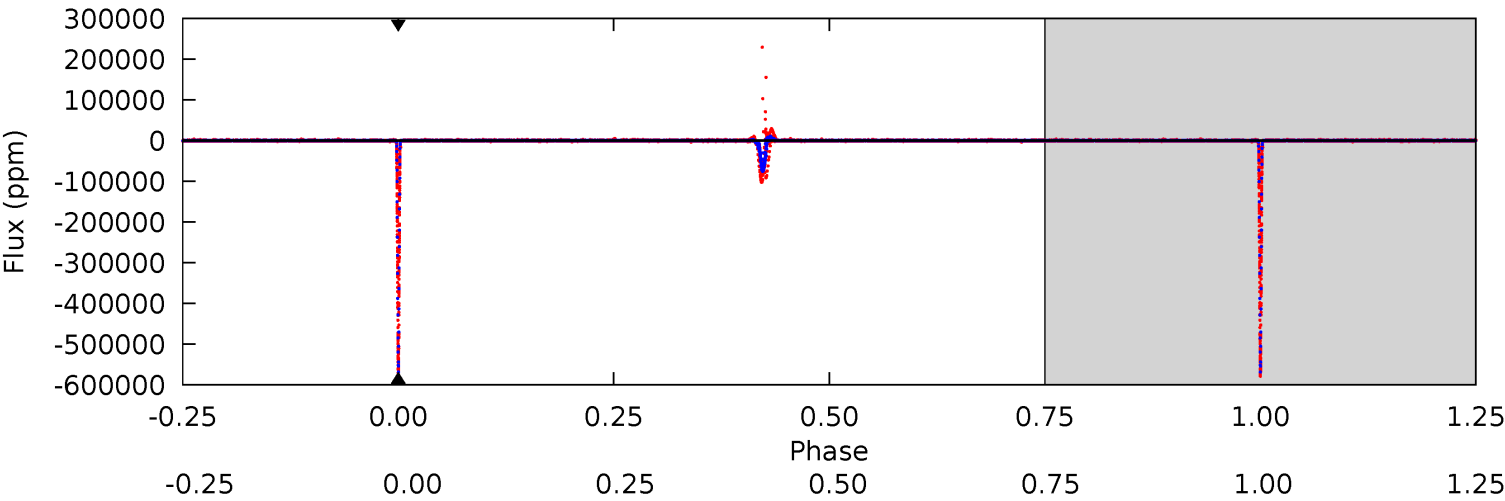
TCE 004540632-01 P= 31.005408 Days $T_0=150.861388$ (BKJD)



DV Model-Shift Uniqueness Test

004540632-01, P = 31.005408 Days, E = 119.852465 Days

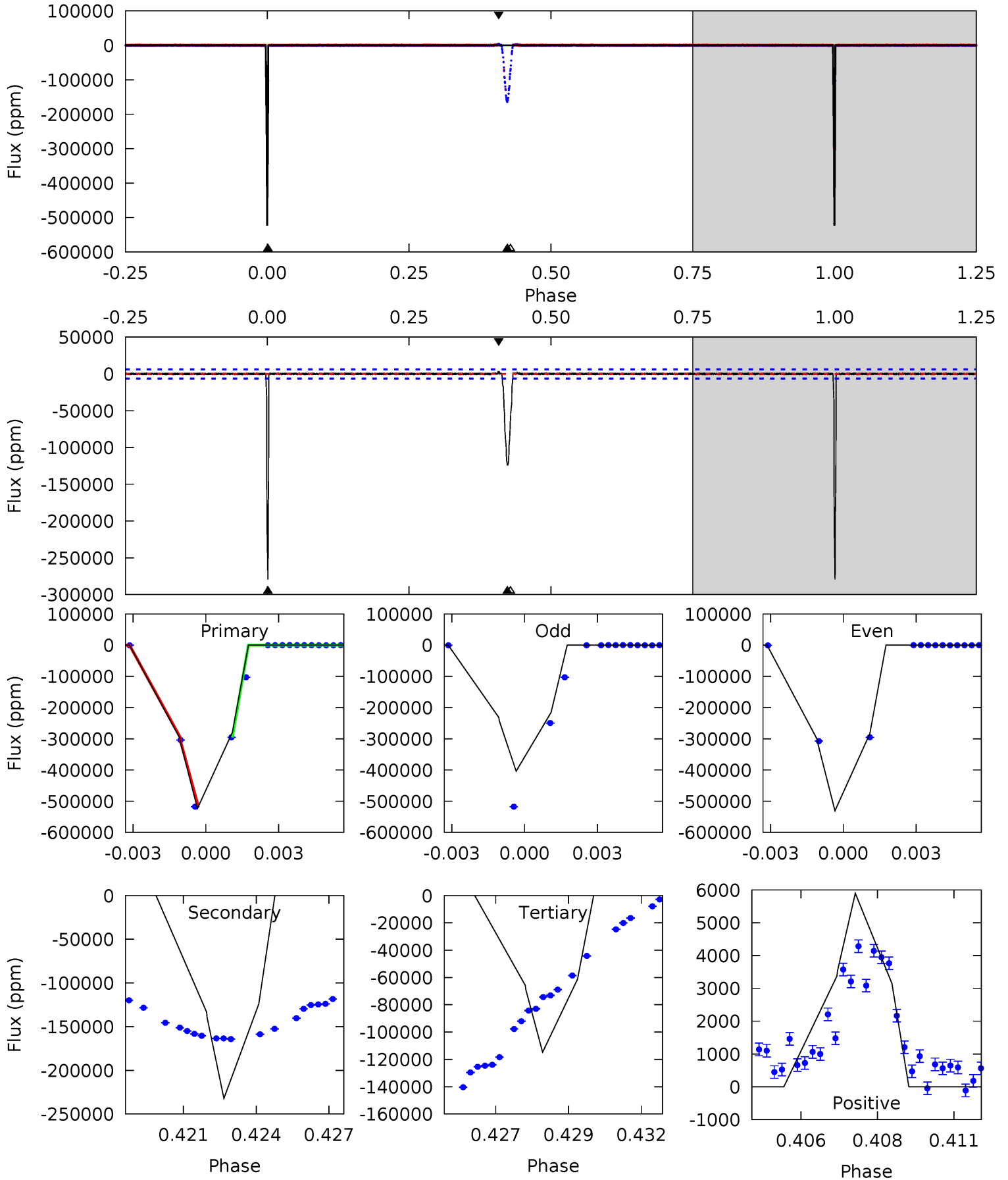
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004540632-01, P = 31.005408 Days, E = 119.855980 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
233.2	103.5	51.1	2.63	5.28	3.01	1.69	182.1	230.6	52.4	100.9	26.1	0.98	0.01	0



Stellar Parameters For KIC 004540632

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5023^{+151}_{-151}	$3.900^{+0.700}_{-0.300}$	$0.040^{+0.250}_{-0.250}$	$1.784^{+1.027}_{-1.129}$	$0.921^{+0.185}_{-0.151}$	$0.228^{+2.252}_{-0.171}$
	+3%/-3%	+18%/-8%	+625%/-625%	+58%/-63%	+20%/-16%	+986%/-75%
Source	PHO1	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 004540632-01 / KOI 6422.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$93.96^{+40.22}_{-32.15}$	943^{+134}_{-159}	2640^{+1677}_{-6775}	$8.923^{+276.522}_{-225.724}$
Alt.	-124023 ± 1198	$141.56^{+55.37}_{-45.15}$	936^{+143}_{-151}	3845^{+214}_{-182}	138^{+149}_{-63}

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 $A_{obs} \gg 1.0$

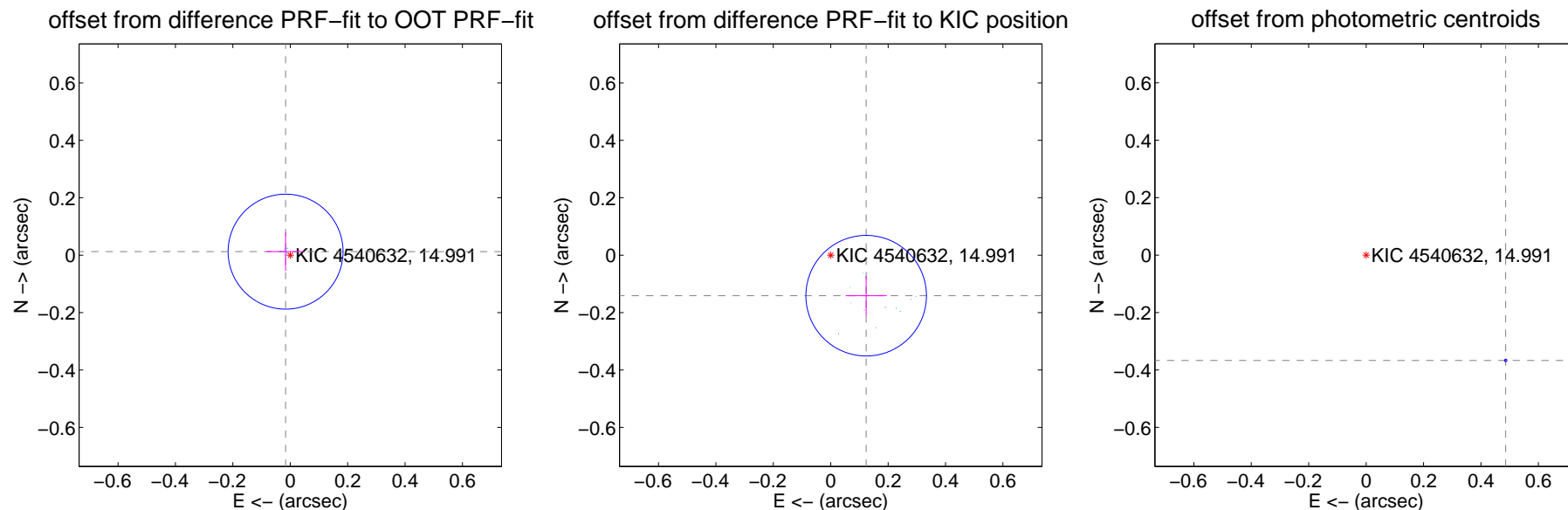
DV Centroid Data

Supplemental centroid analysis for 004540632-01. Kepler magnitude: 14.99. Transit SNR -1.00

There are 13 quarters with good PRF difference image offsets

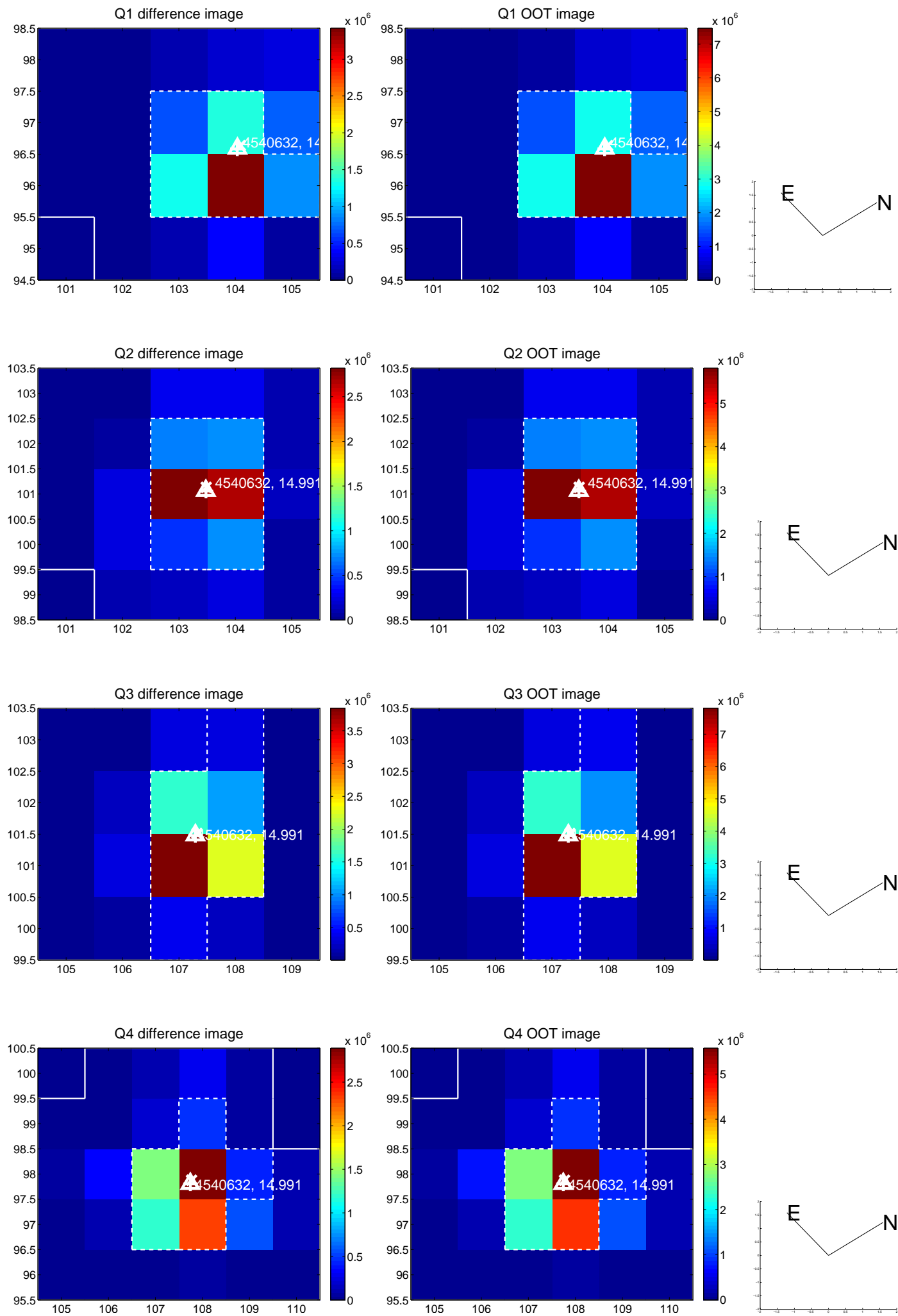
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.020 ± 0.067	0.31	0.016 ± 0.067	0.012 ± 0.067
PRF-fit source offset from KIC position	0.188 ± 0.070	2.68	-0.124 ± 0.071	-0.141 ± 0.069
photometric centroid source offset	0.61 ± 0.00	436.07	-0.49 ± 0.00	-0.37 ± 0.00

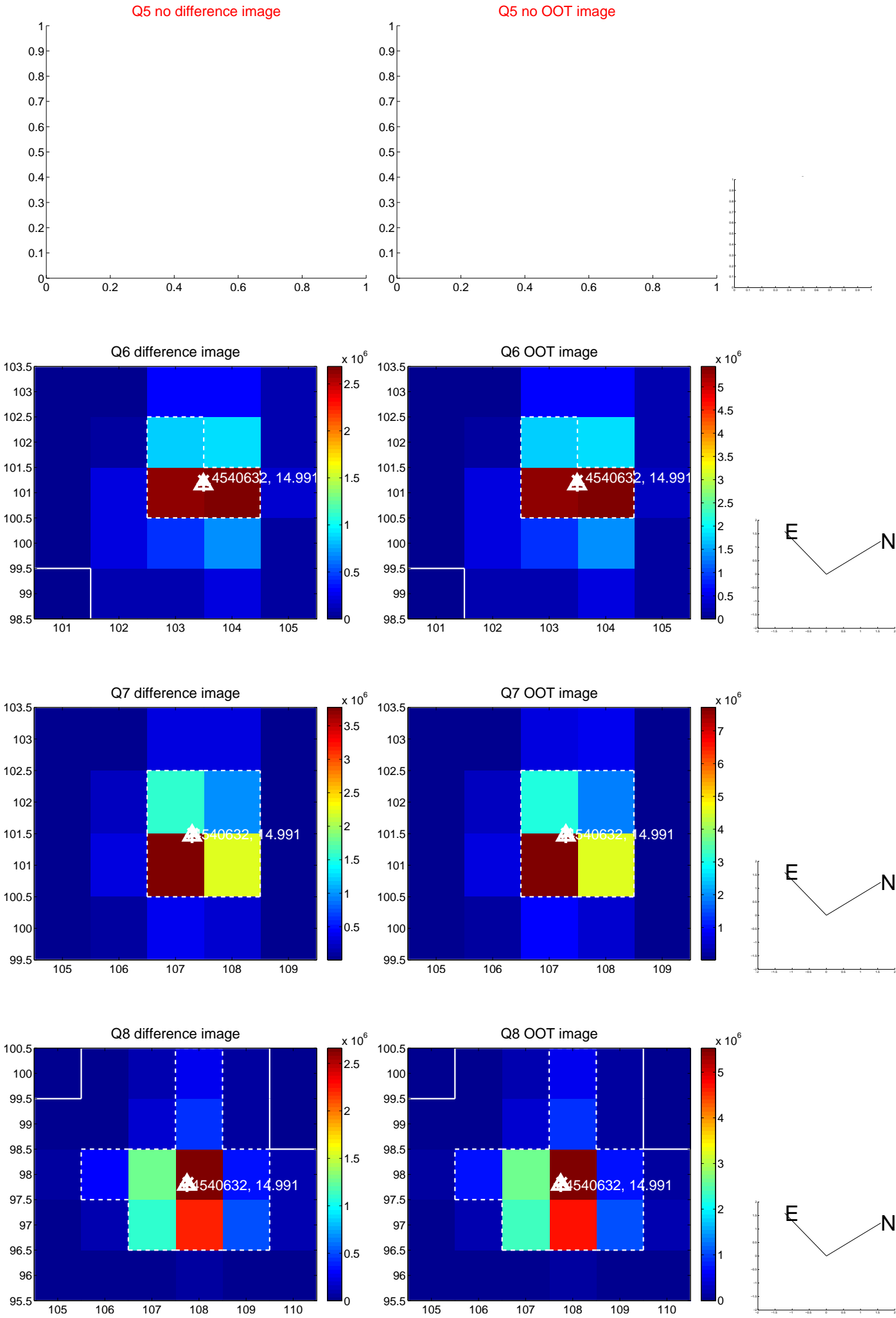


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

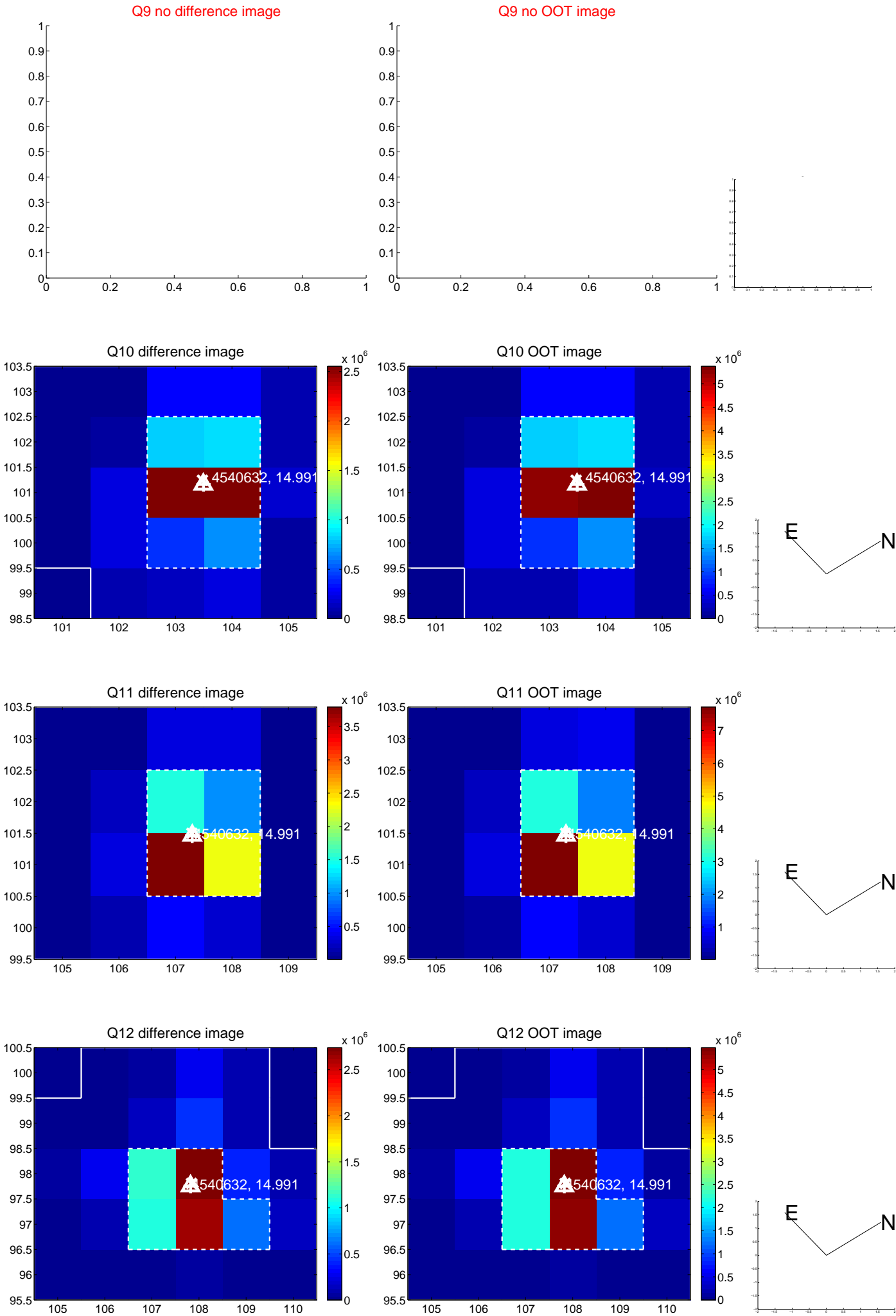
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



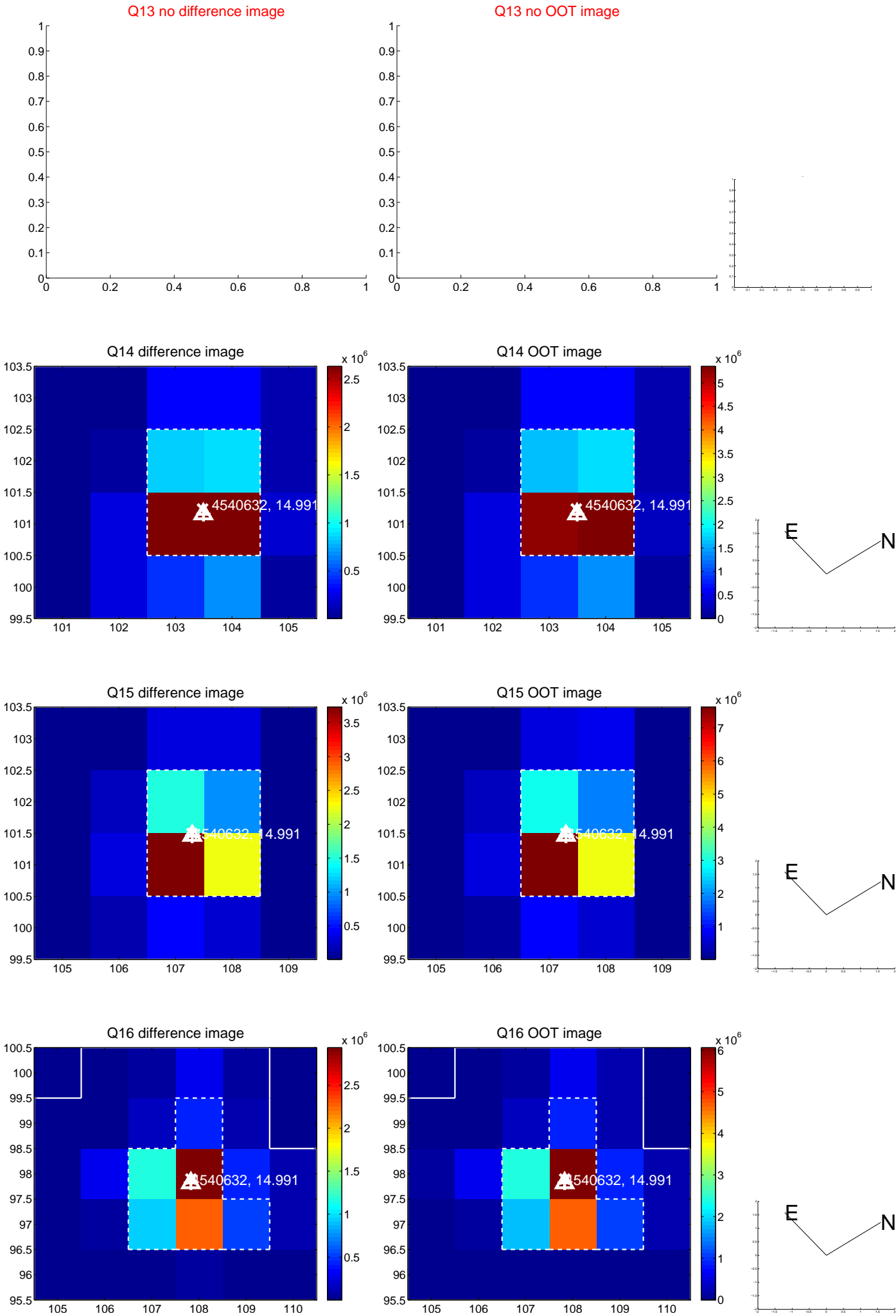
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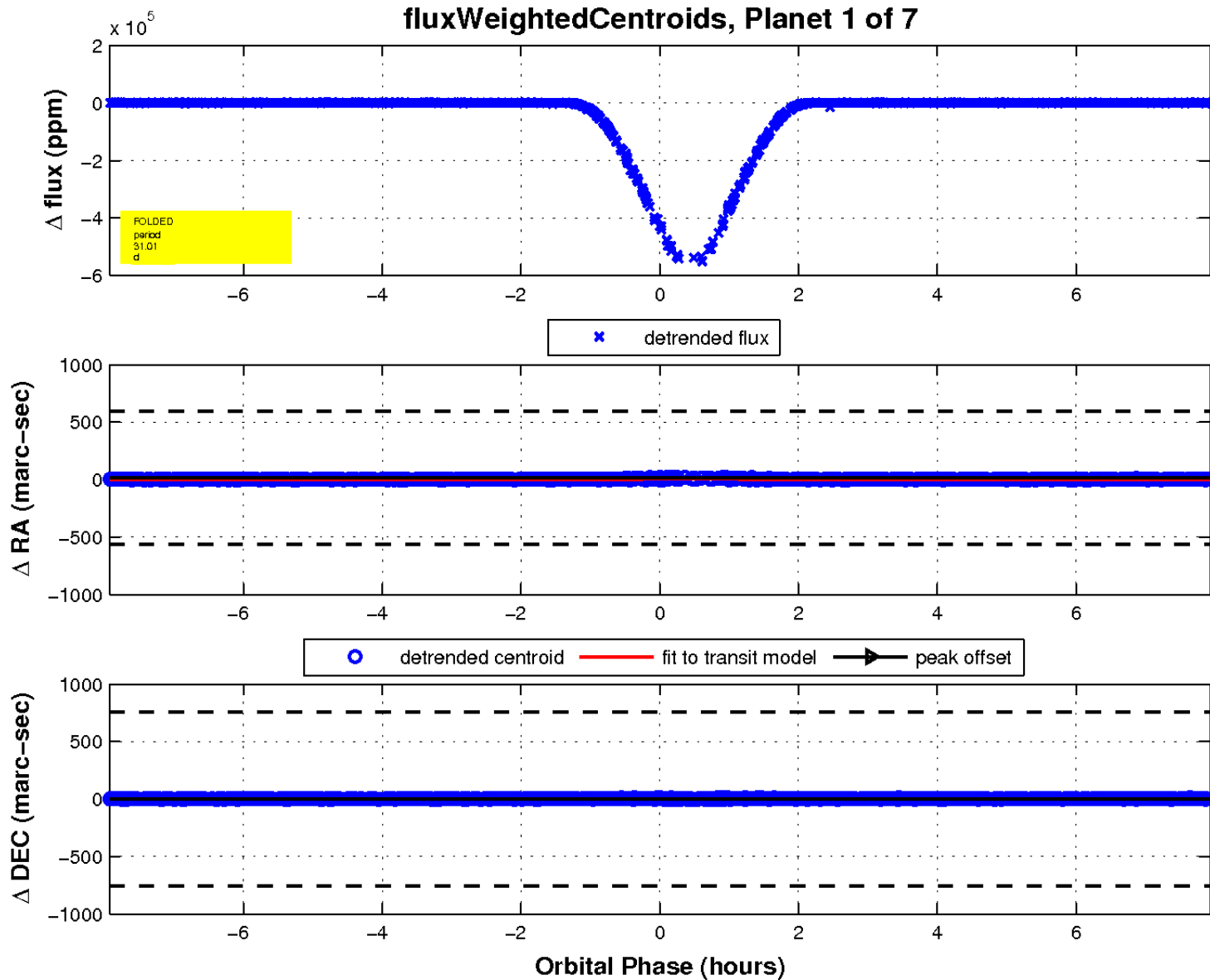
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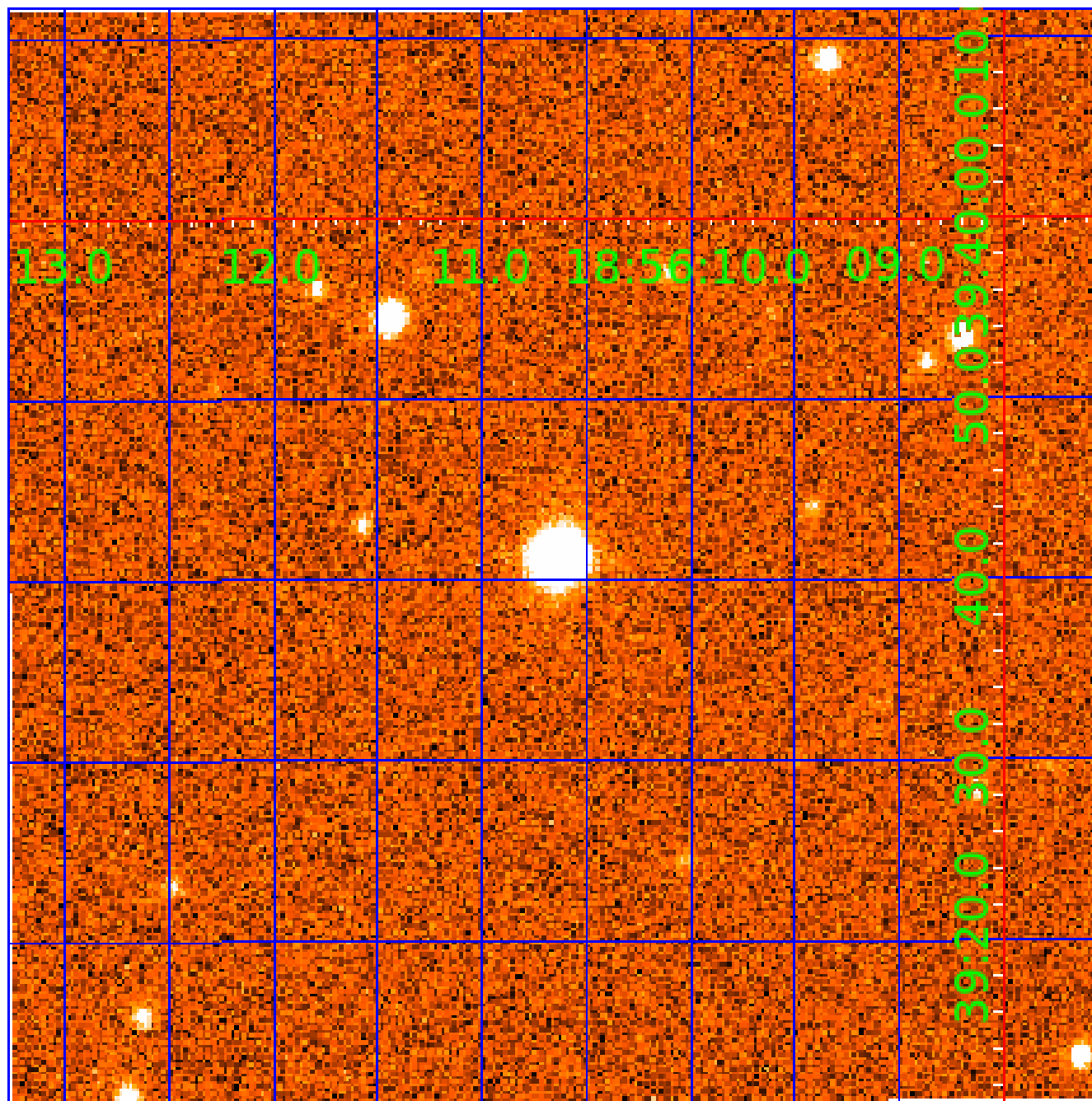


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004540632

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})
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Robovetter Results

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004540632-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004540632-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV
004540632-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
004540632-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004540632-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
004540632-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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.

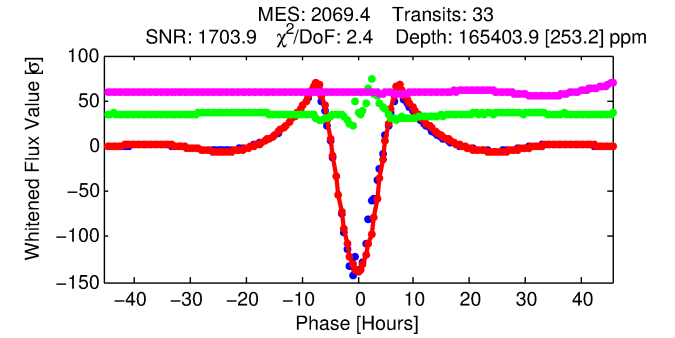
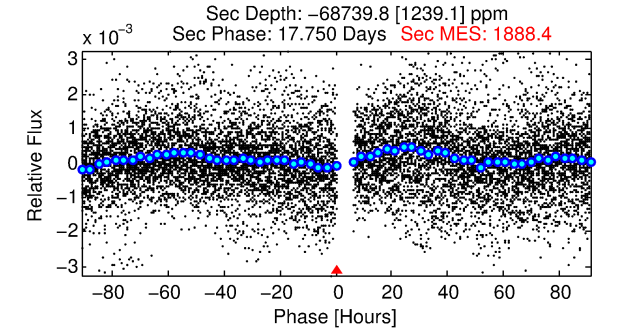
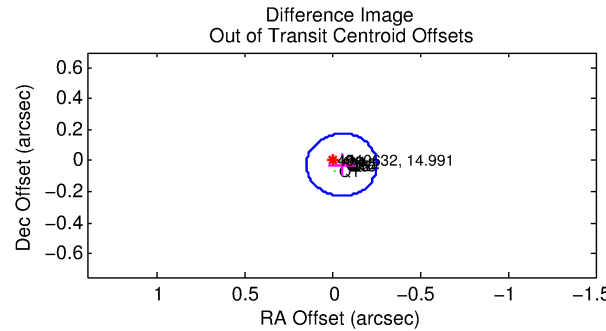
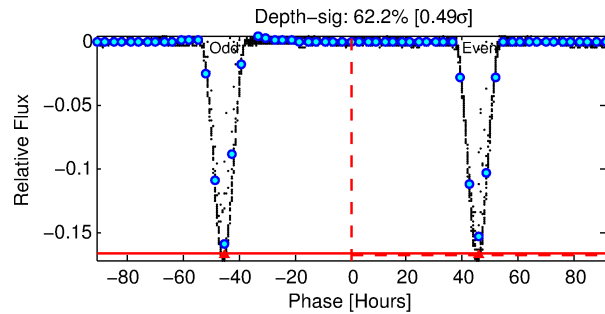
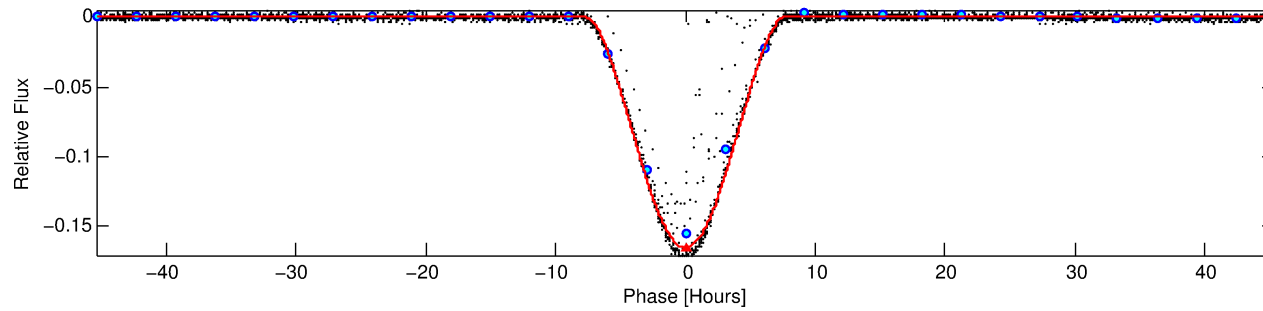
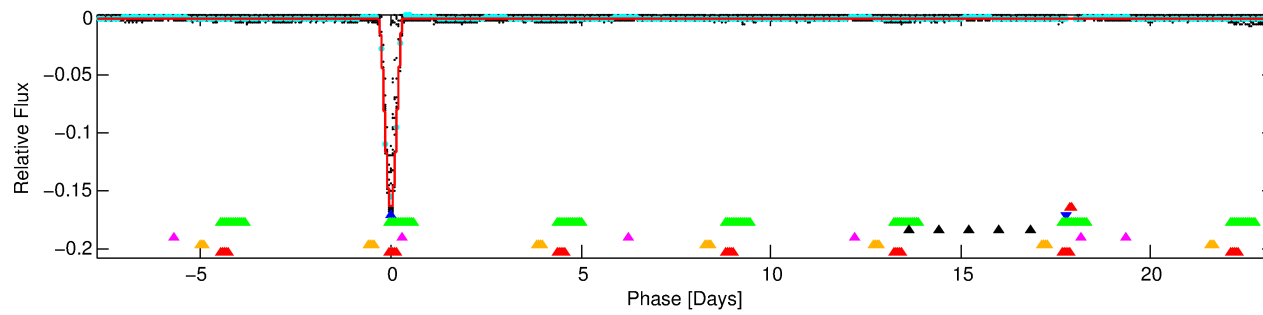
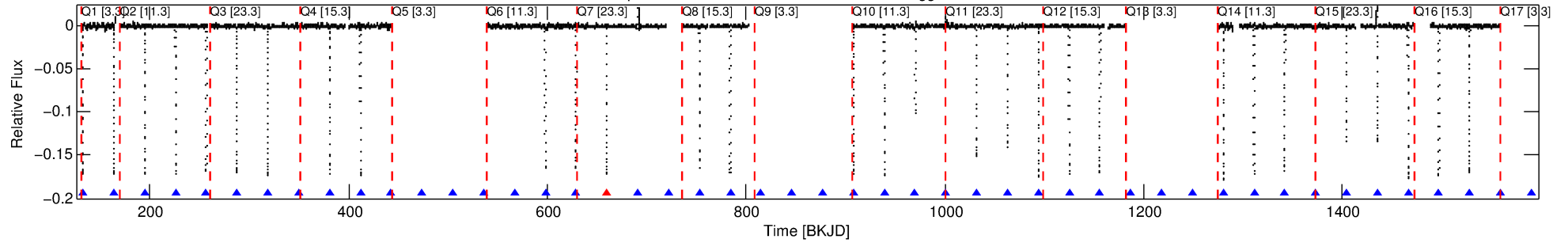
Ephemeris Match Information For 004540632-02

No Significant Match Found

DV One-Page Summary

KIC: 4540632 Candidate: 2 of 7 Period: 31.005 d
KOI: K06422 Corr: No Ephemeris Match

Kp: 14.99 R*: 1.78 Rs Teff: 5023.0 K Logg: 3.90 Fe/H: 0.040



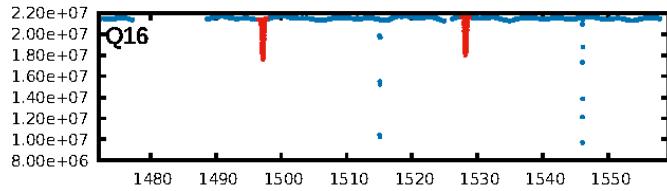
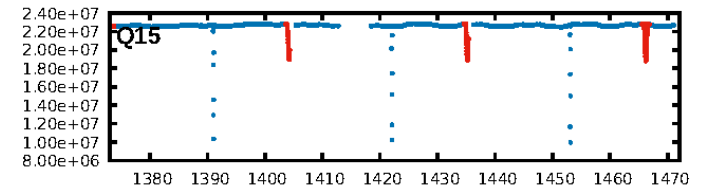
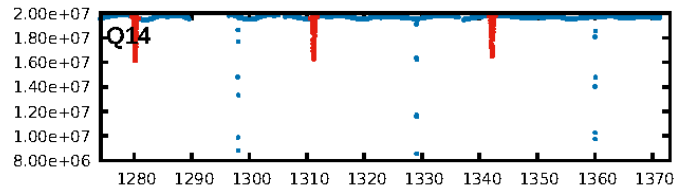
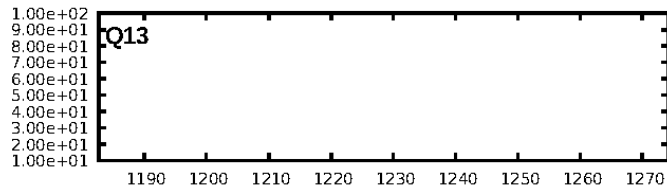
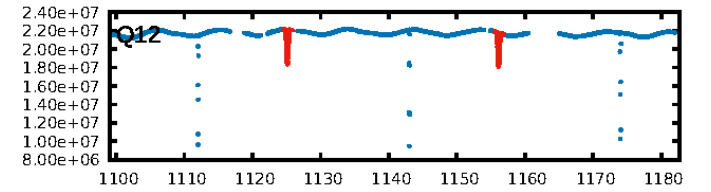
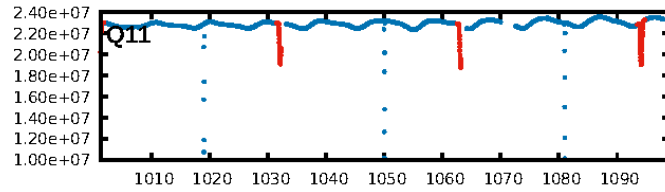
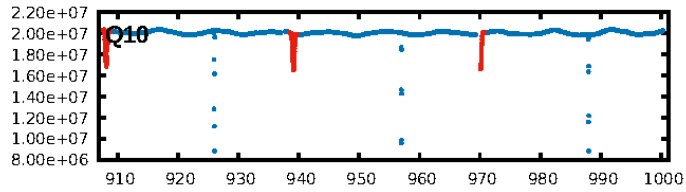
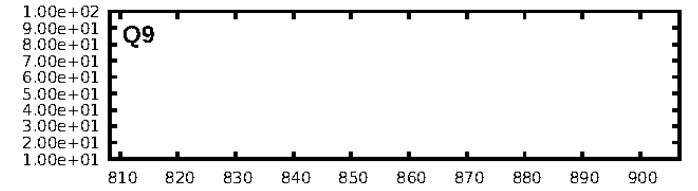
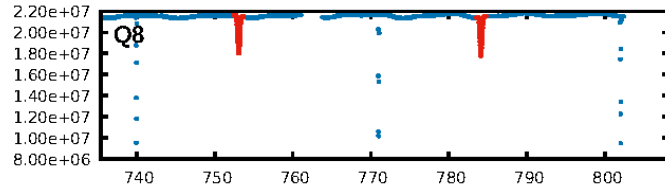
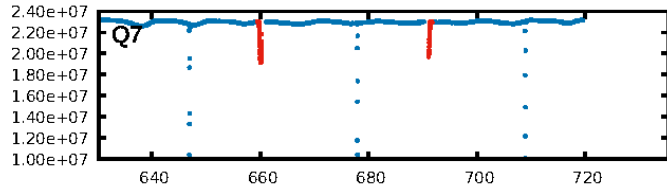
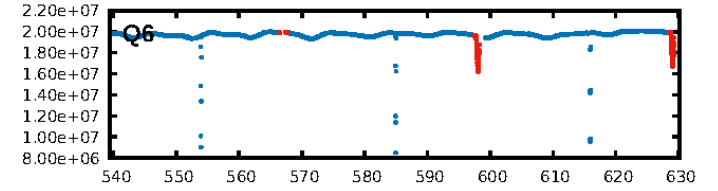
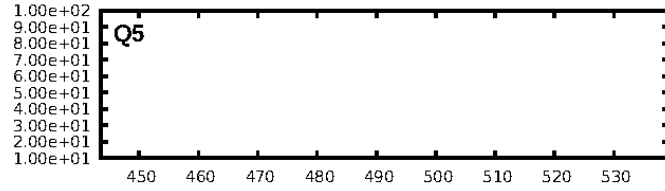
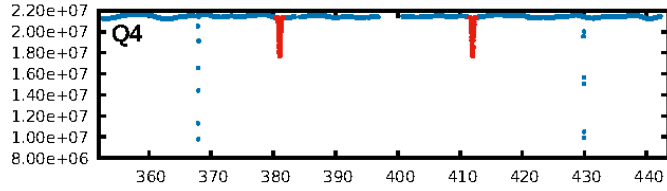
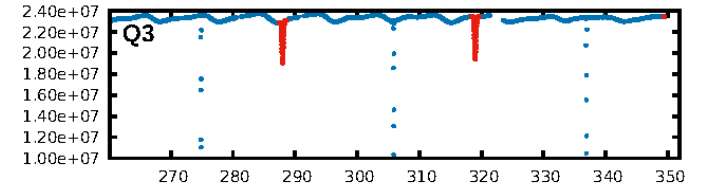
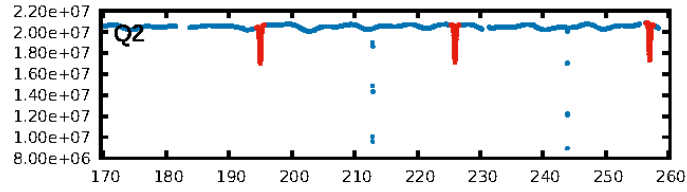
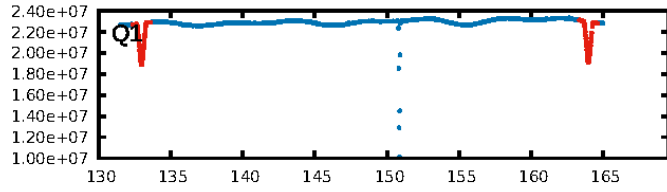
DV Fit Results:

Period = 31.00537 [0.00001] d
Epoch = 132.9730 [0.0002] BKJD
Rp/R* = 0.5128 [0.0887]
a/R* = 19.80 [0.33]
b = 0.83 [0.13]
Seff = 51.34 [59.58]
Teff = 683 [198] K
Rp = 99.83 [65.49] Re
a = 0.1880 [0.1285] AU
Ag = N/A
Teffp = N/A

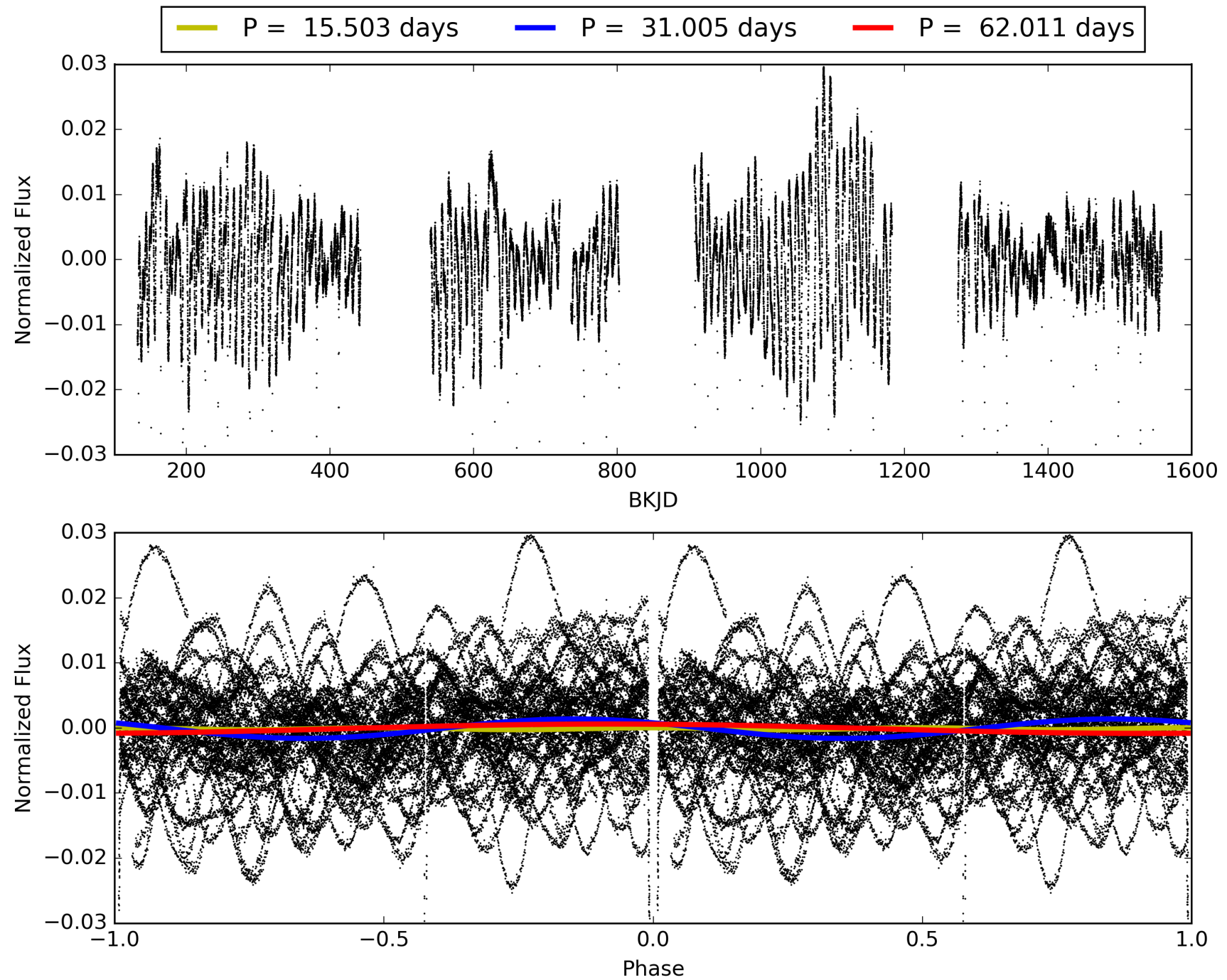
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.79σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.97 [30/31]
GhostDiagnostic-chr: 1.48
Centroid-sig: 0.0%
Centroid-so: 0.642 arcsec [217.64σ]
OotOffset-rm: 0.058 arcsec [0.87σ]
KicOffset-rm: 0.295 arcsec [4.07σ]
OotOffset-st: 2/2/3/1 [8]
KicOffset-st: 2/2/3/1 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 0.00 [0/8]

TCE 004540632-02, PDC Light Curves

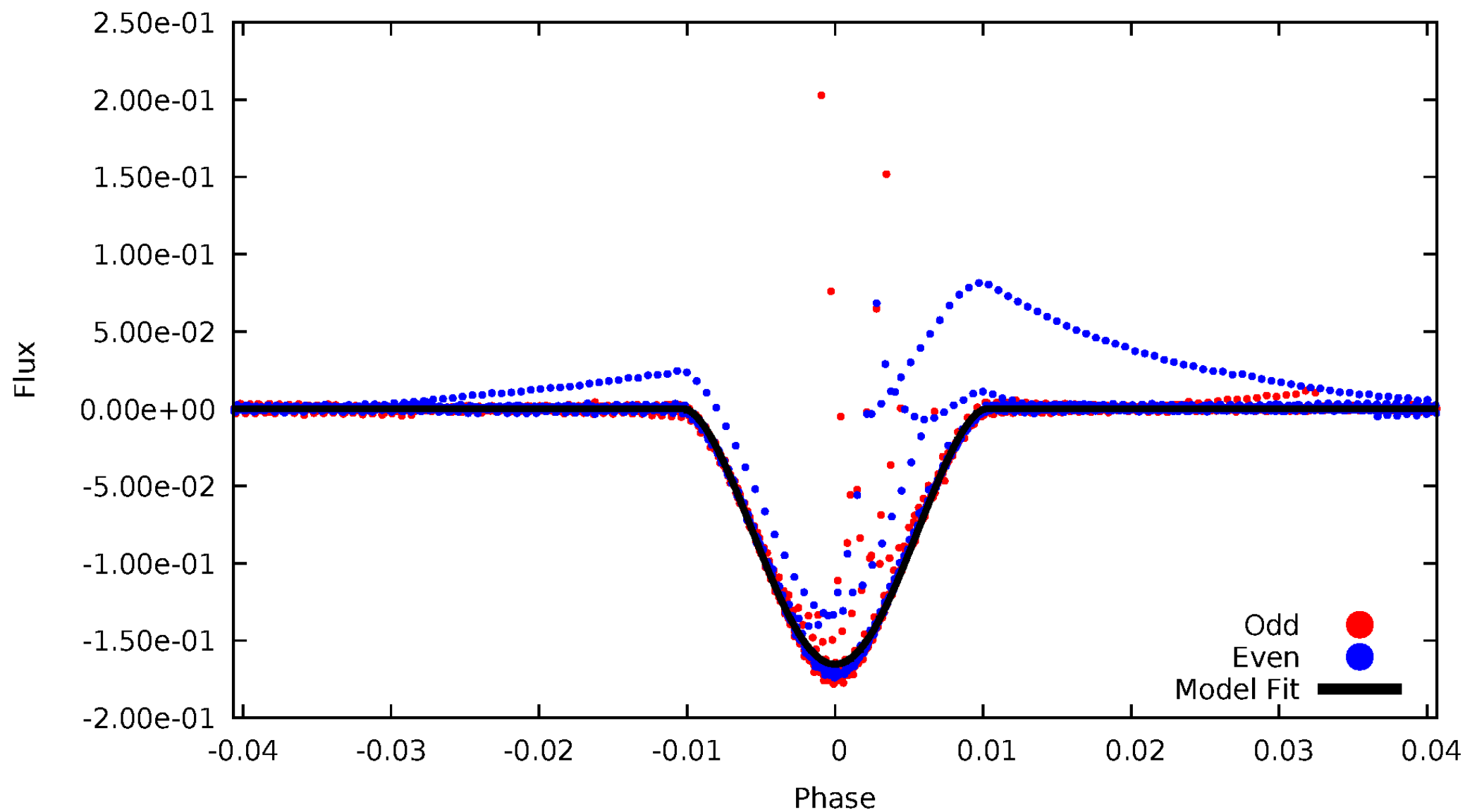


TCE 004540632-02



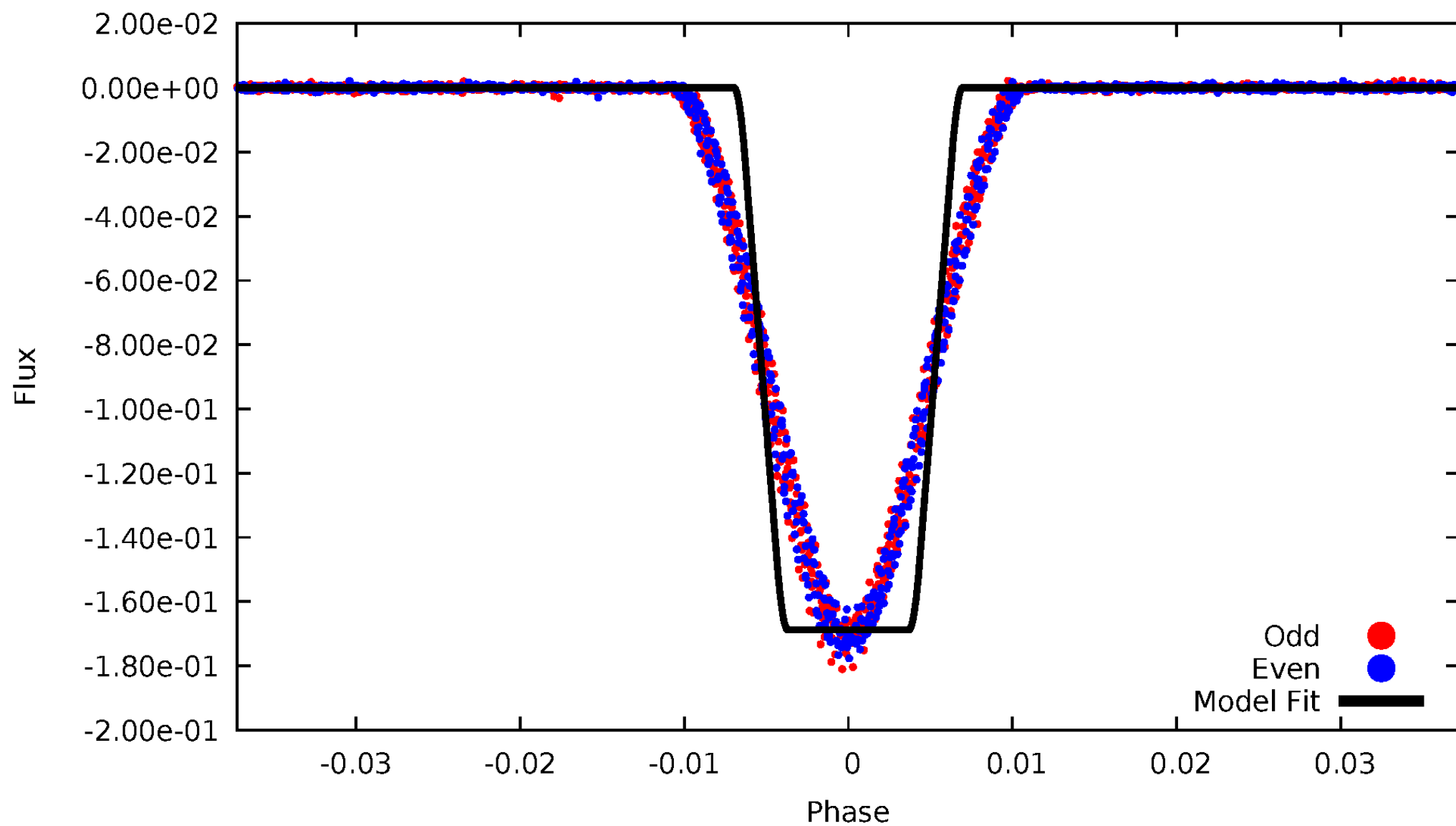
DV Odd/Even

TCE 004540632-02



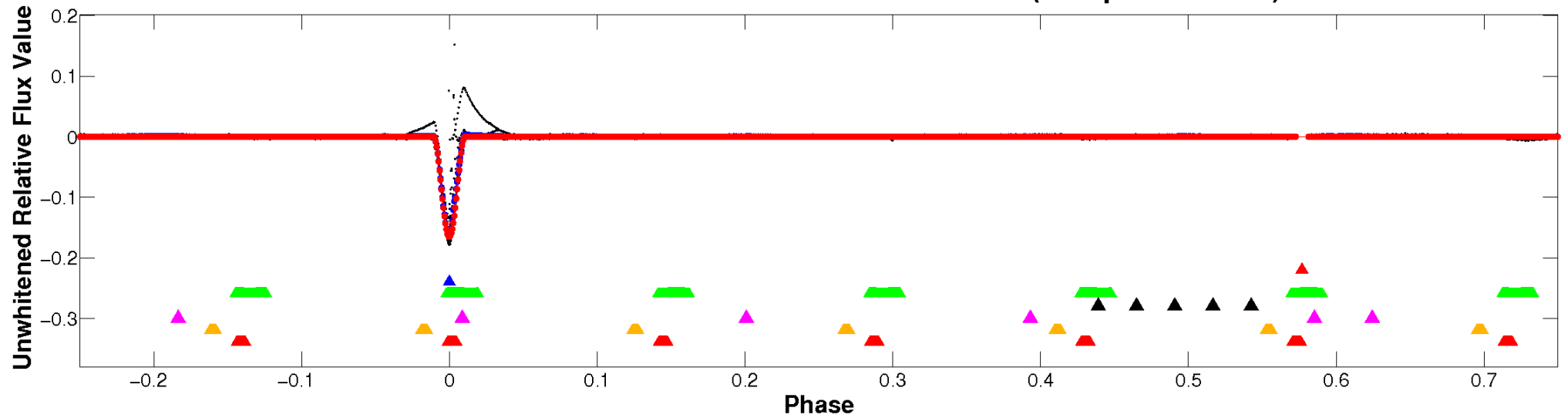
ALT Odd/Even

TCE 004540632-02

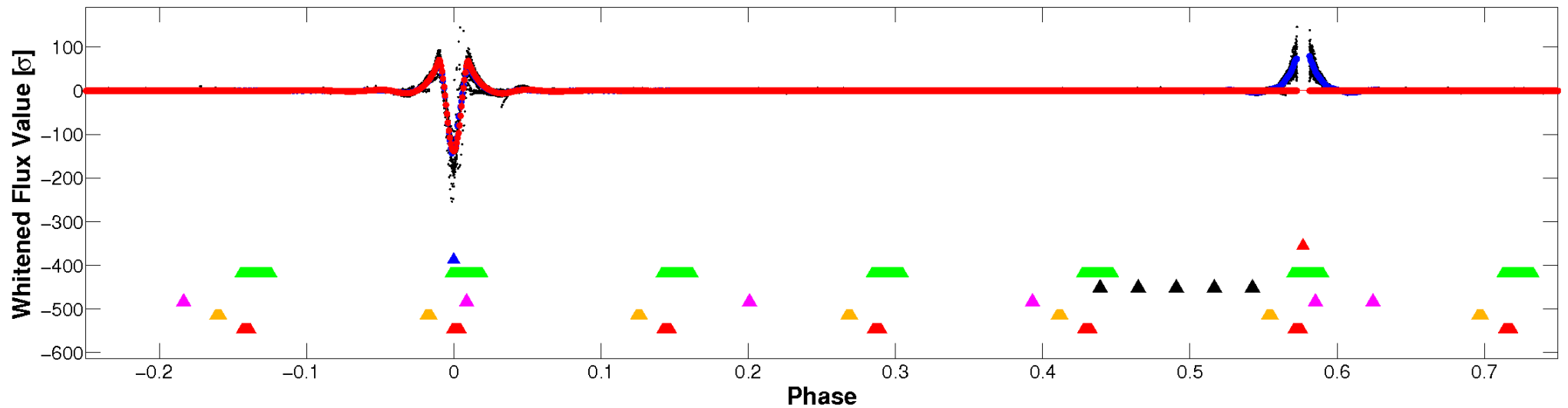


Non-Whitened Vs. Whitened Light Curve

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

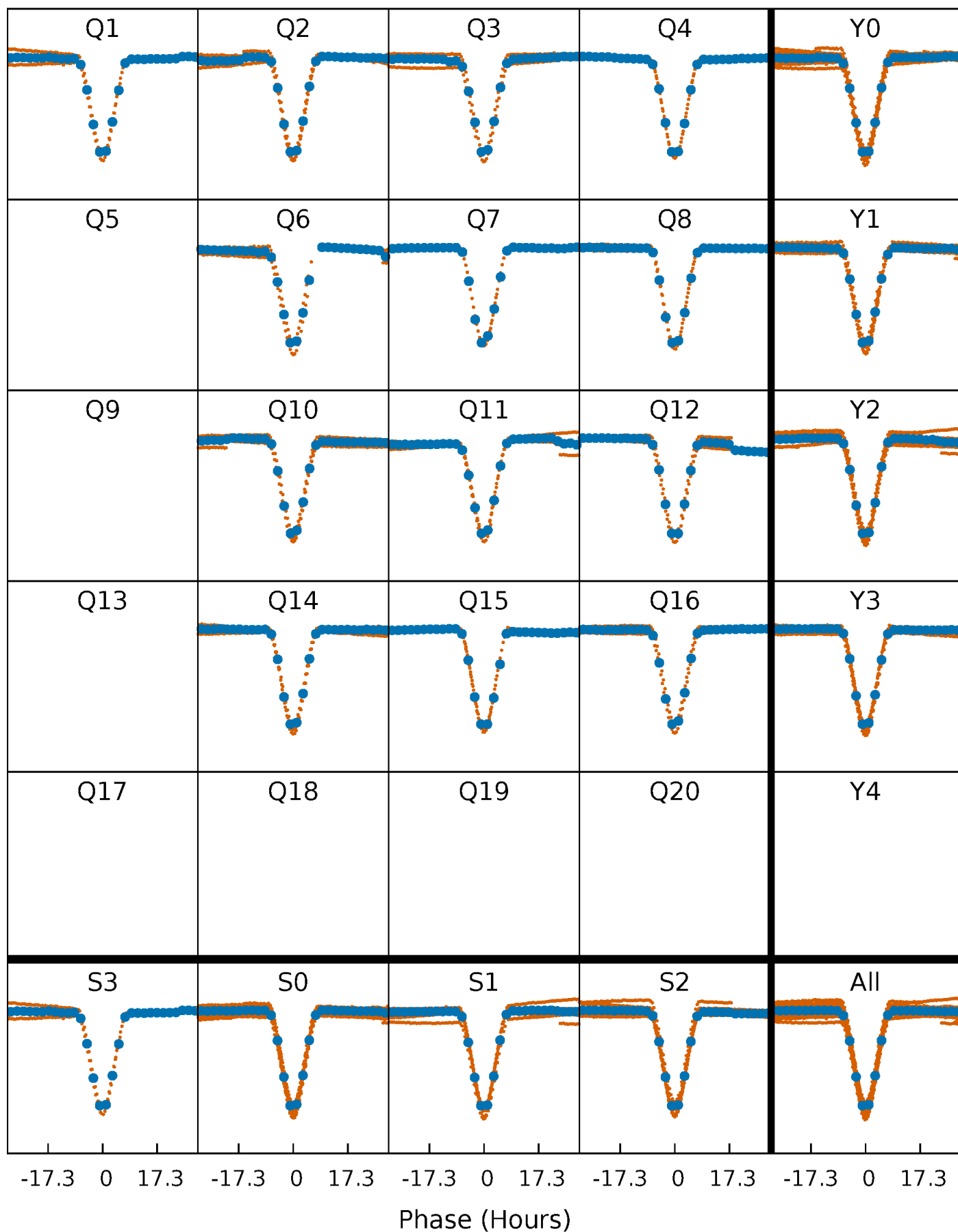


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



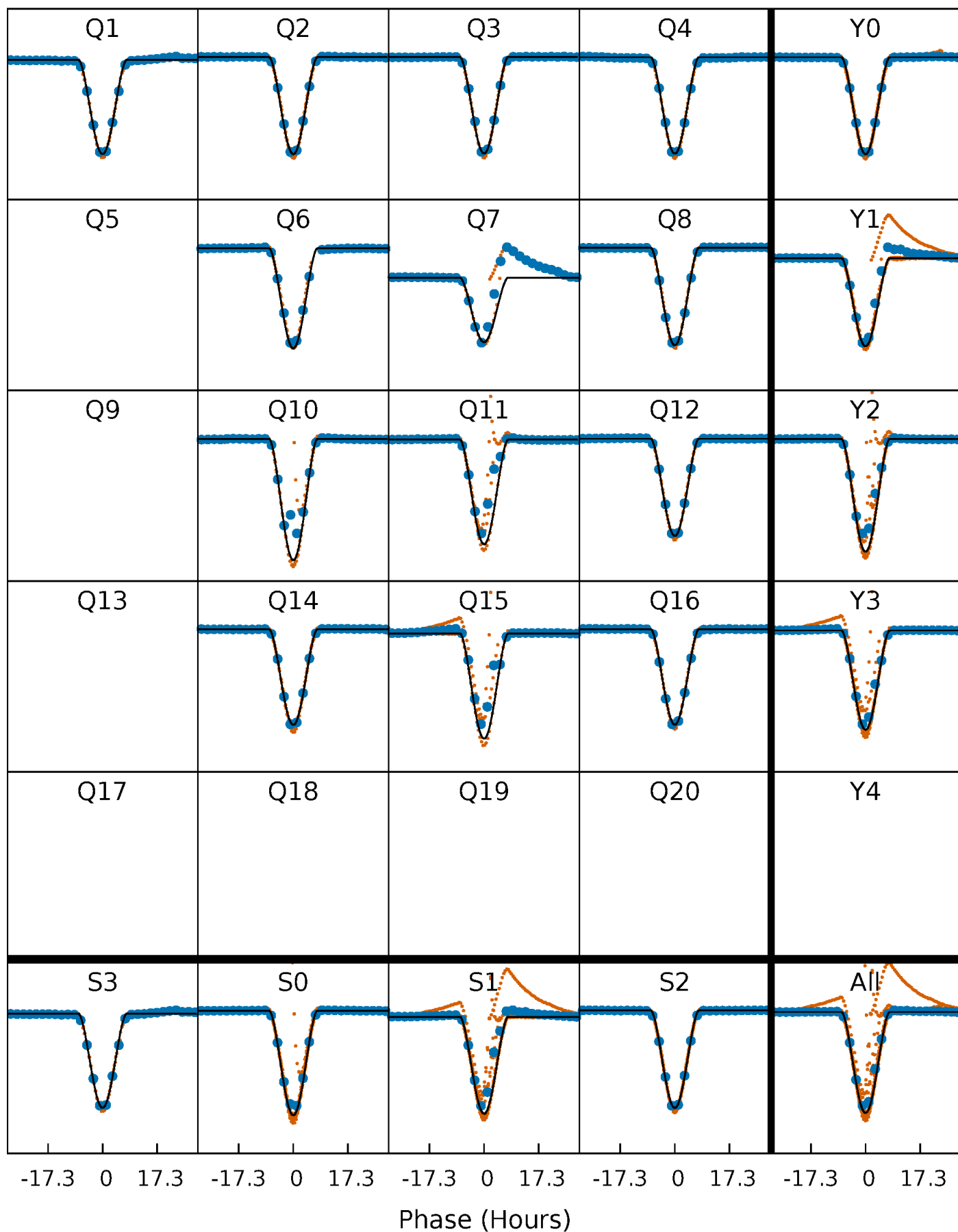
PDC Quarter-Phased Transit Curves

TCE 004540632-02 P= 31.005368 Days $T_0=132.972973$ (BKJD)



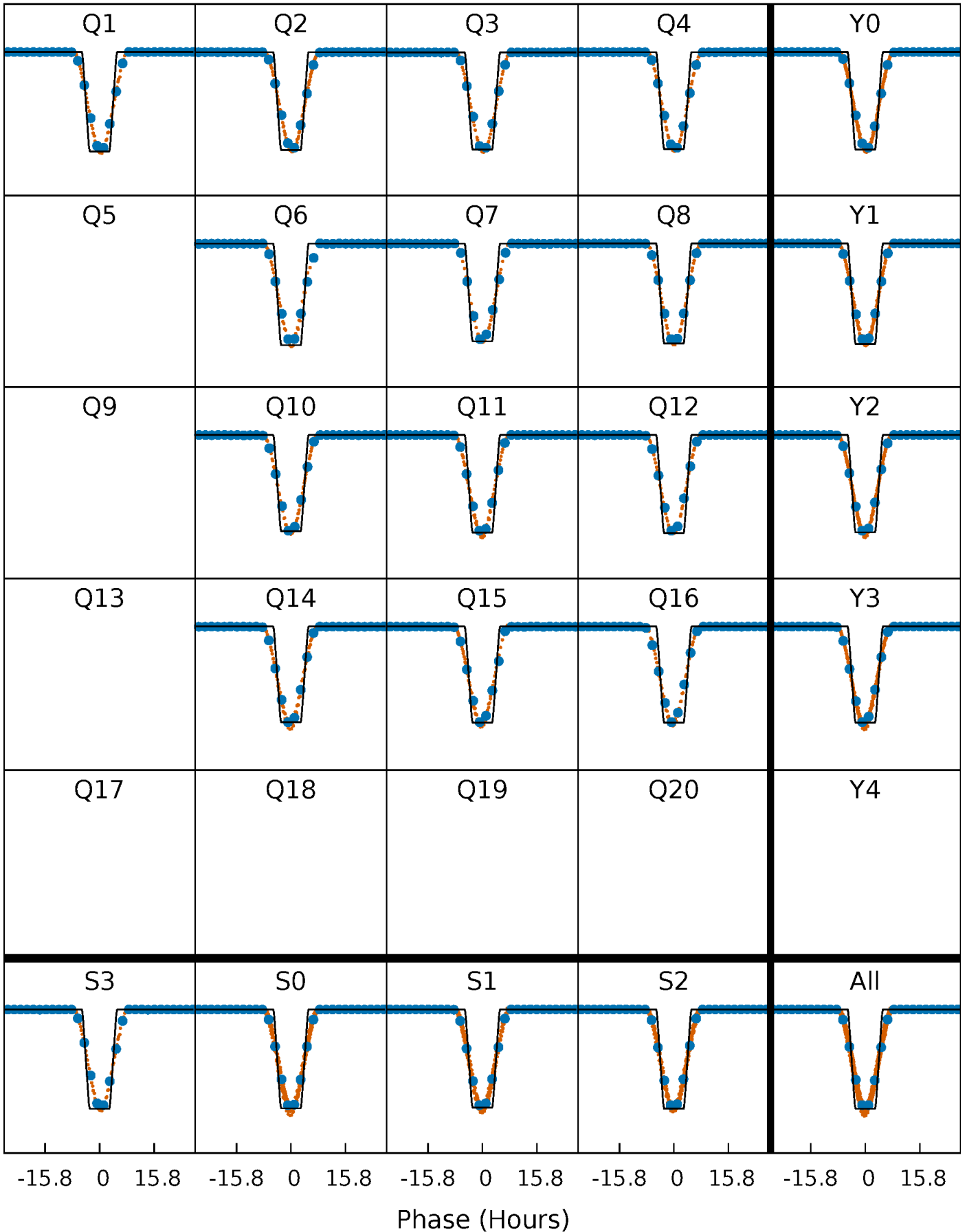
DV Quarter-Phased Transit Curves

TCE 004540632-02 P= 31.005368 Days $T_0=132.972973$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

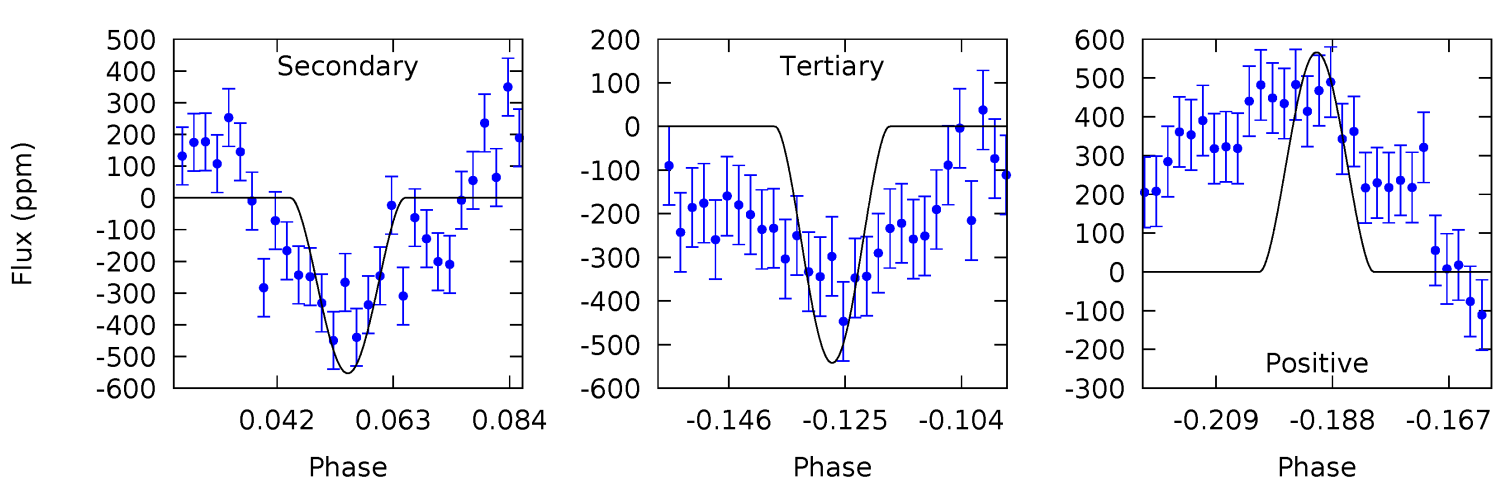
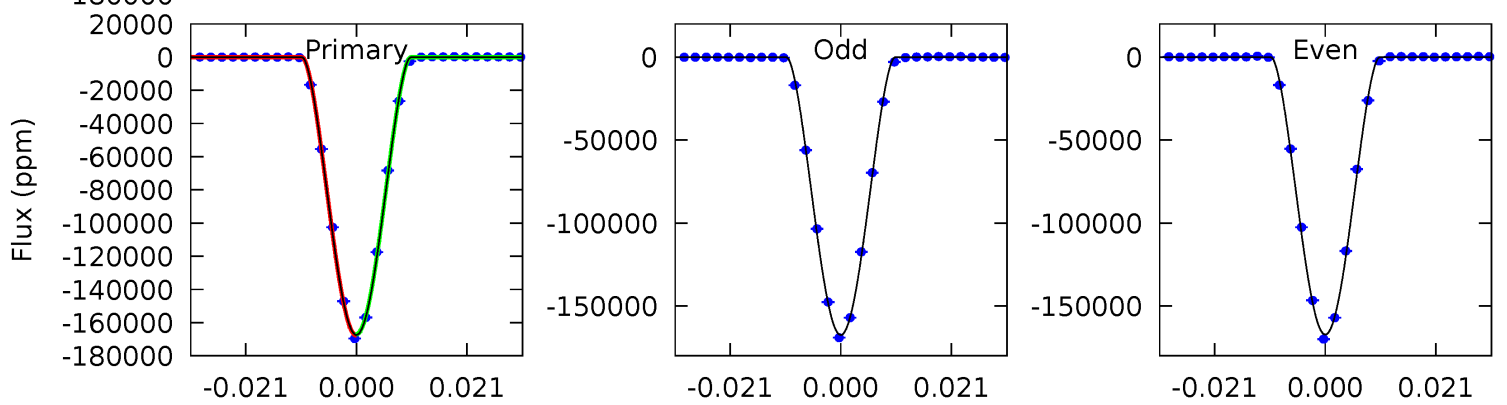
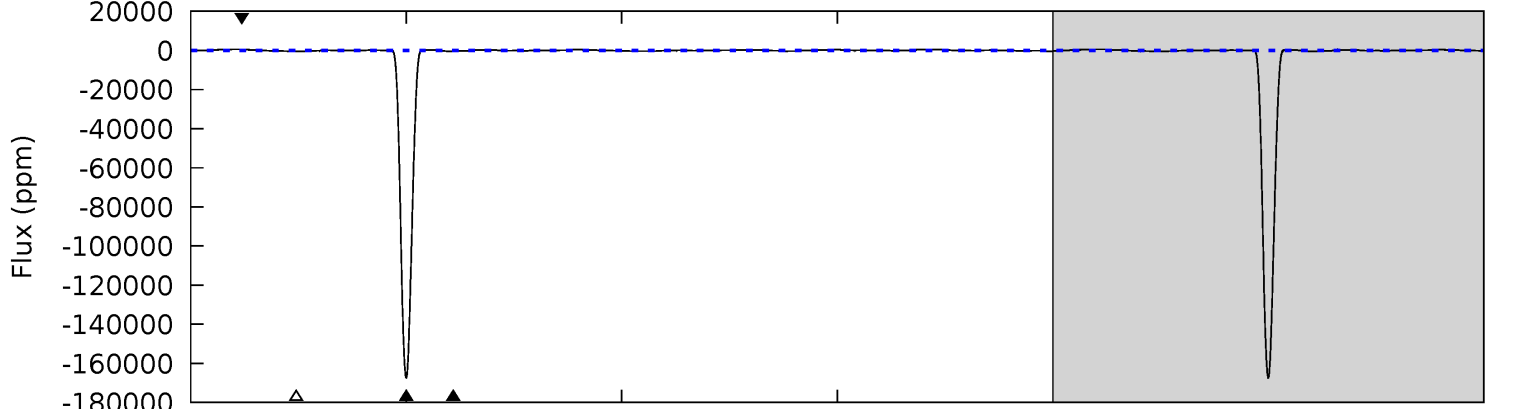
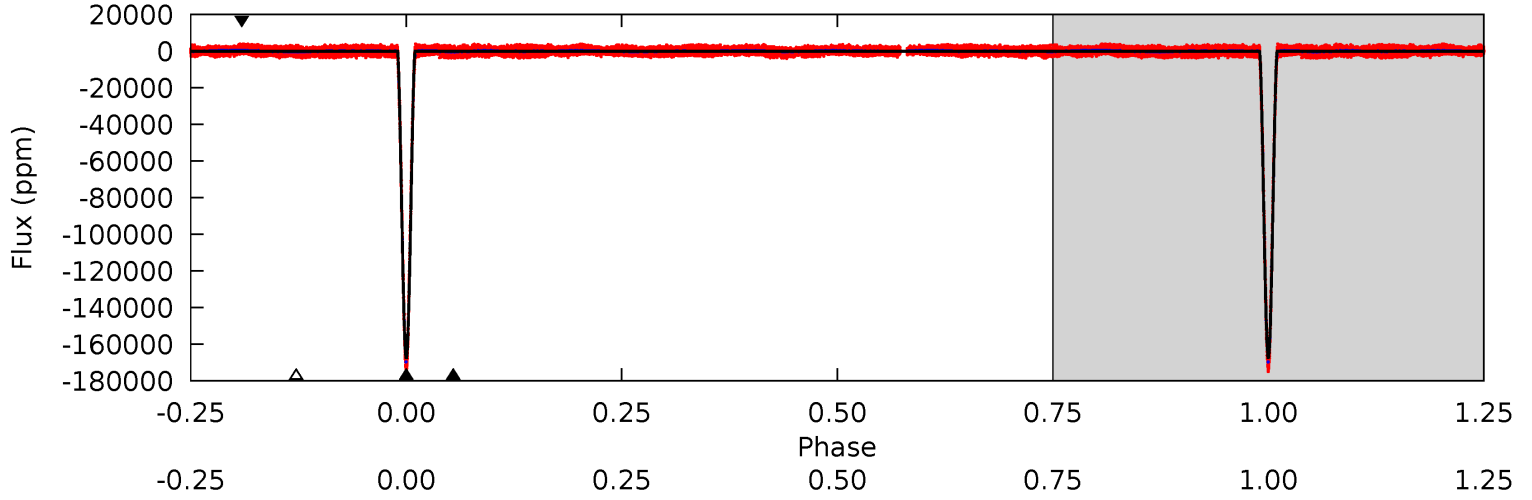
TCE 004540632-02 P= 31.006006 Days $T_0=132.957888$ (BKJD)



DV Model-Shift Uniqueness Test

004540632-02, P = 31.005368 Days, E = 101.967605 Days

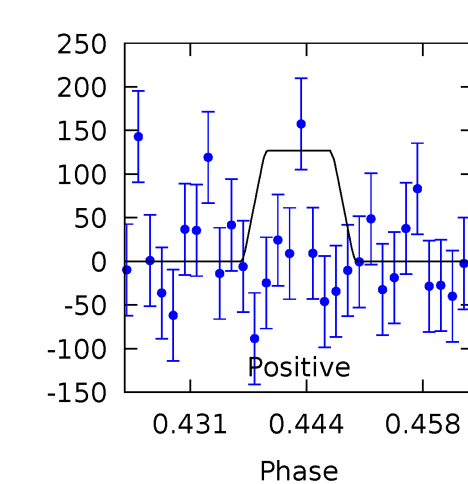
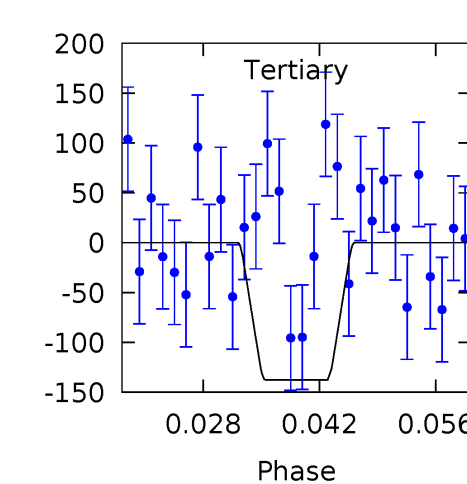
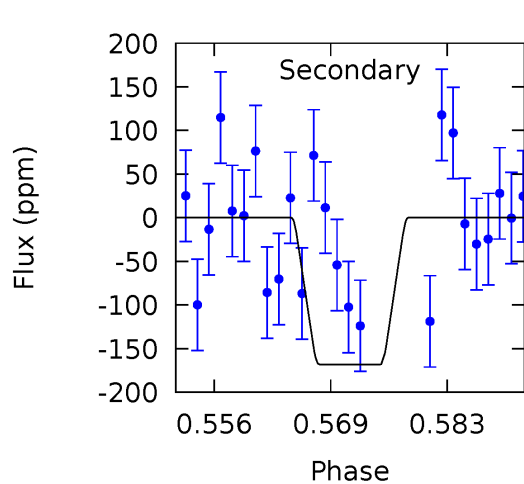
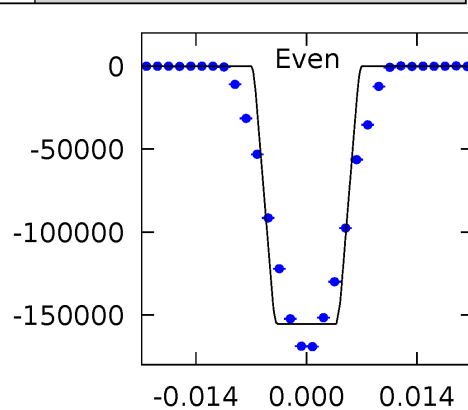
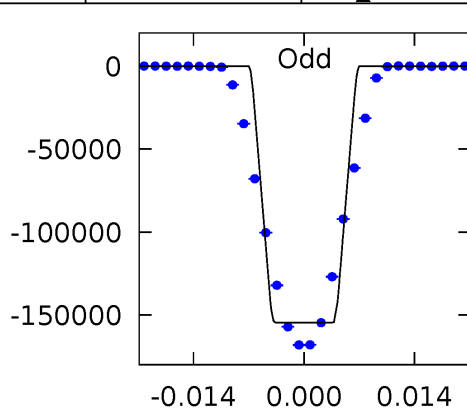
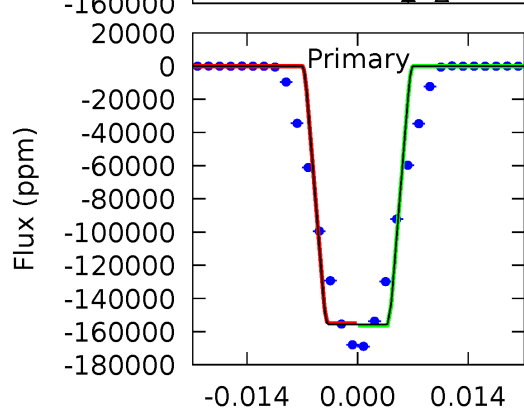
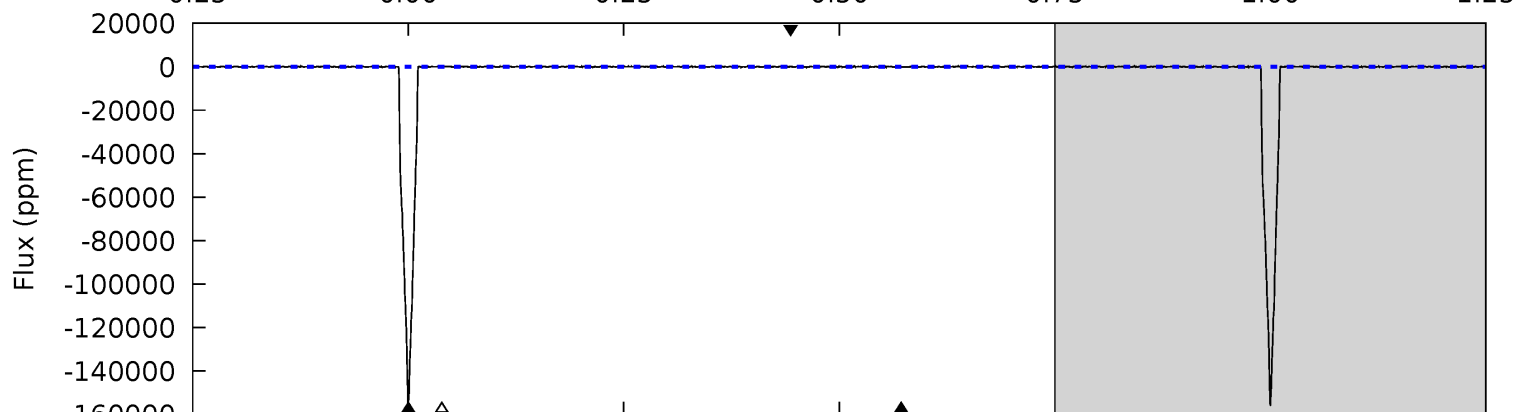
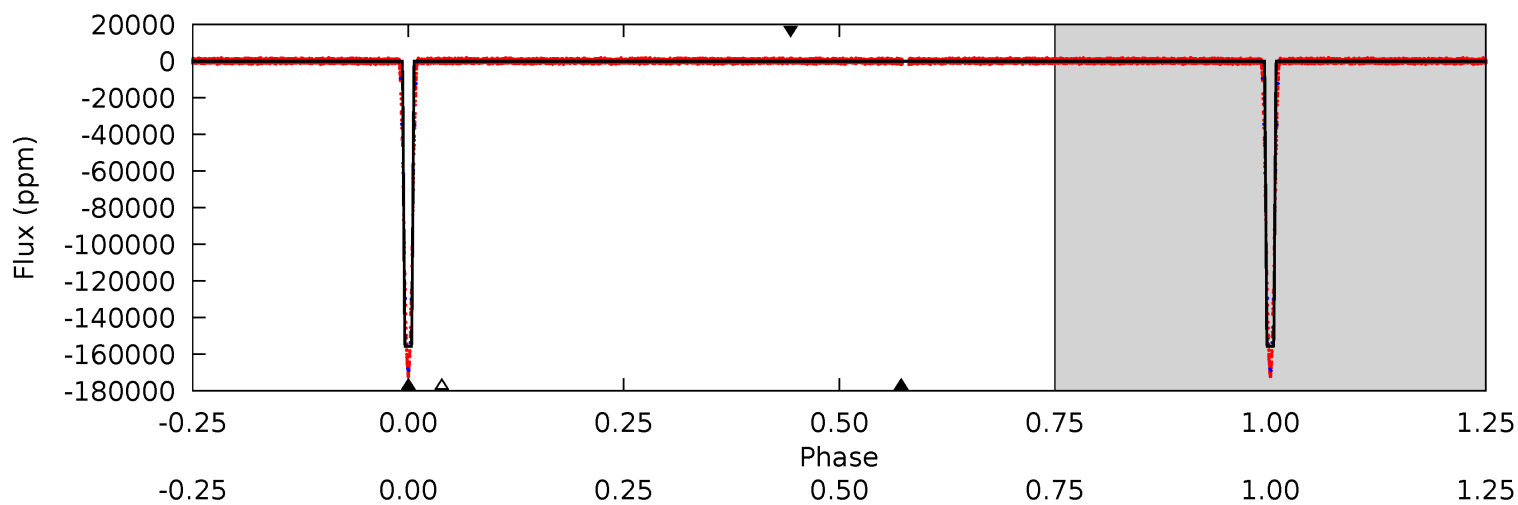
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4500	14.9	14.6	15.2	4.88	2.31	6.43	4486	4485	0.30	-0.35	2.63	0.86	0.00	10.7



Alt Model-Shift Uniqueness Test

004540632-02, P = 31.006006 Days, E = 101.951882 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3905	4.22	3.46	3.19	4.96	2.46	0.99	3902	3902	0.76	1.03	10.9	0.99	0.00	0



Stellar Parameters For KIC 004540632

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5023^{+151}_{-151}	$3.900^{+0.700}_{-0.300}$	$0.040^{+0.250}_{-0.250}$	$1.784^{+1.027}_{-1.129}$	$0.921^{+0.185}_{-0.151}$	$0.228^{+2.252}_{-0.171}$
	+3%/-3%	+18%/-8%	+625%/-625%	+58%/-63%	+20%/-16%	+986%/-75%
Source	PHO1	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 004540632-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-553 ± 37	$95.30^{+38.62}_{-32.09}$	940^{+133}_{-160}	1979^{+119}_{-124}	$1.209^{+1.383}_{-0.596}$
Alt.	-168 ± 40	$74.93^{+31.71}_{-26.79}$	937^{+129}_{-167}	1759^{+168}_{-3275}	$0.571^{+0.885}_{-0.305}$

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

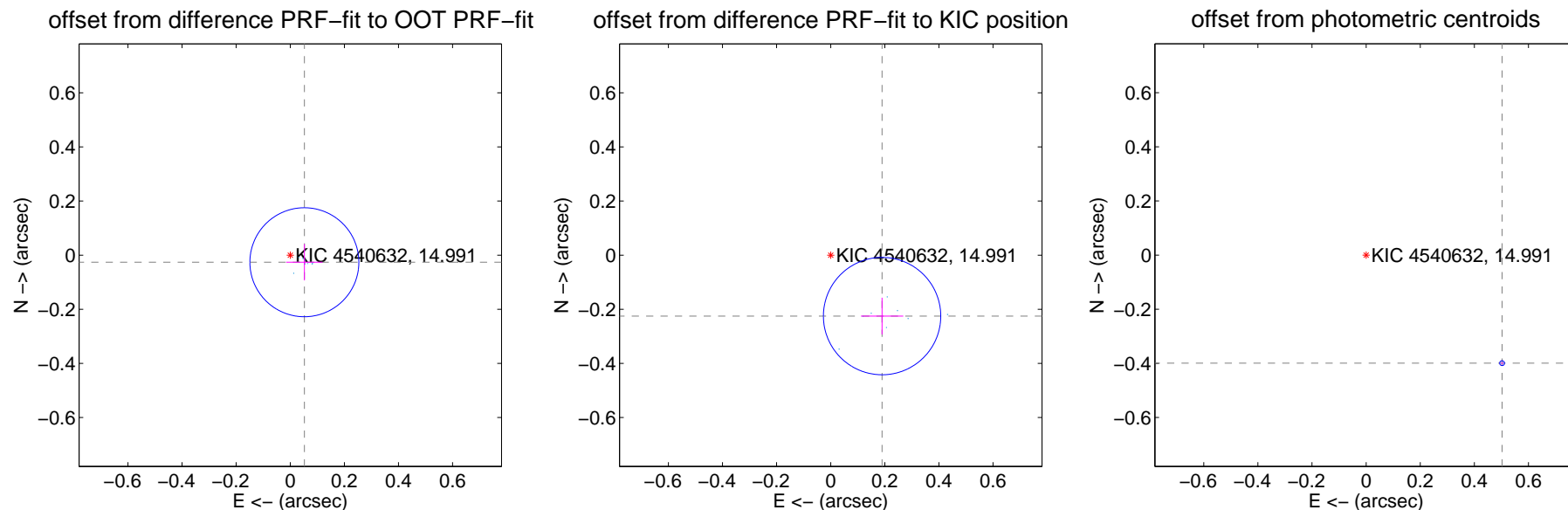
DV Centroid Data

Supplemental centroid analysis for 004540632-02. Kepler magnitude: 14.99. Transit SNR 1703.86

There are 8 quarters with good PRF difference image offsets

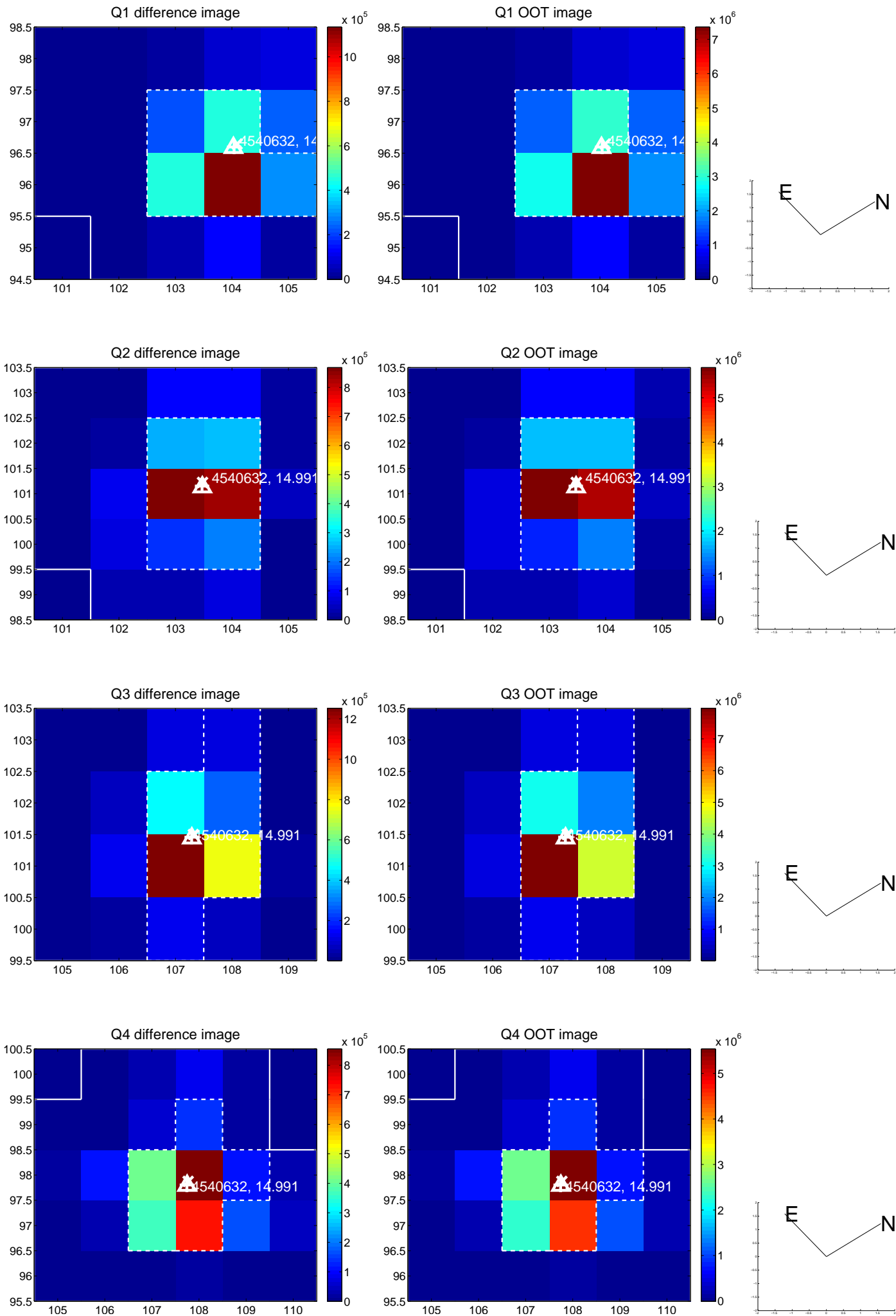
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.058 ± 0.067	0.87	-0.052 ± 0.067	-0.026 ± 0.067
PRF-fit source offset from KIC position	0.295 ± 0.072	4.07	-0.190 ± 0.078	-0.225 ± 0.068
photometric centroid source offset	0.64 ± 0.00	217.64	-0.50 ± 0.00	-0.40 ± 0.00



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.

Q5 no difference image



Q5 no OOT image



Q6 no difference image



Q6 no OOT image



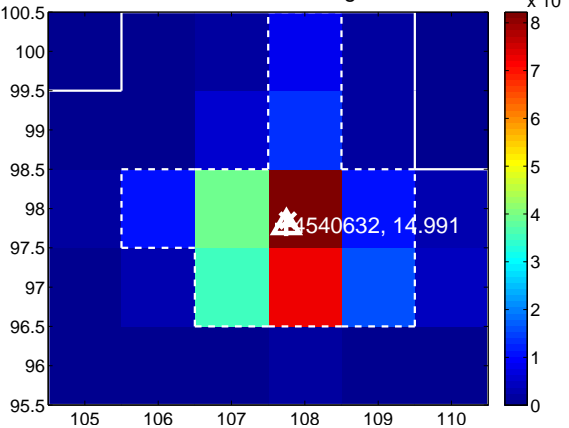
Q7 no difference image



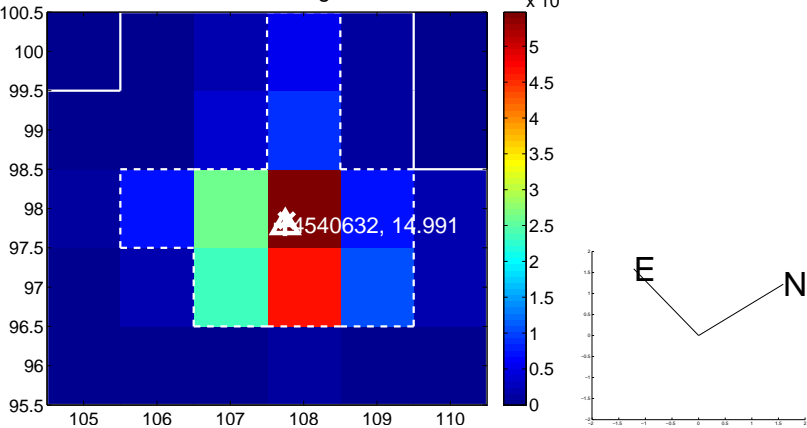
Q7 no OOT image



Q8 difference image



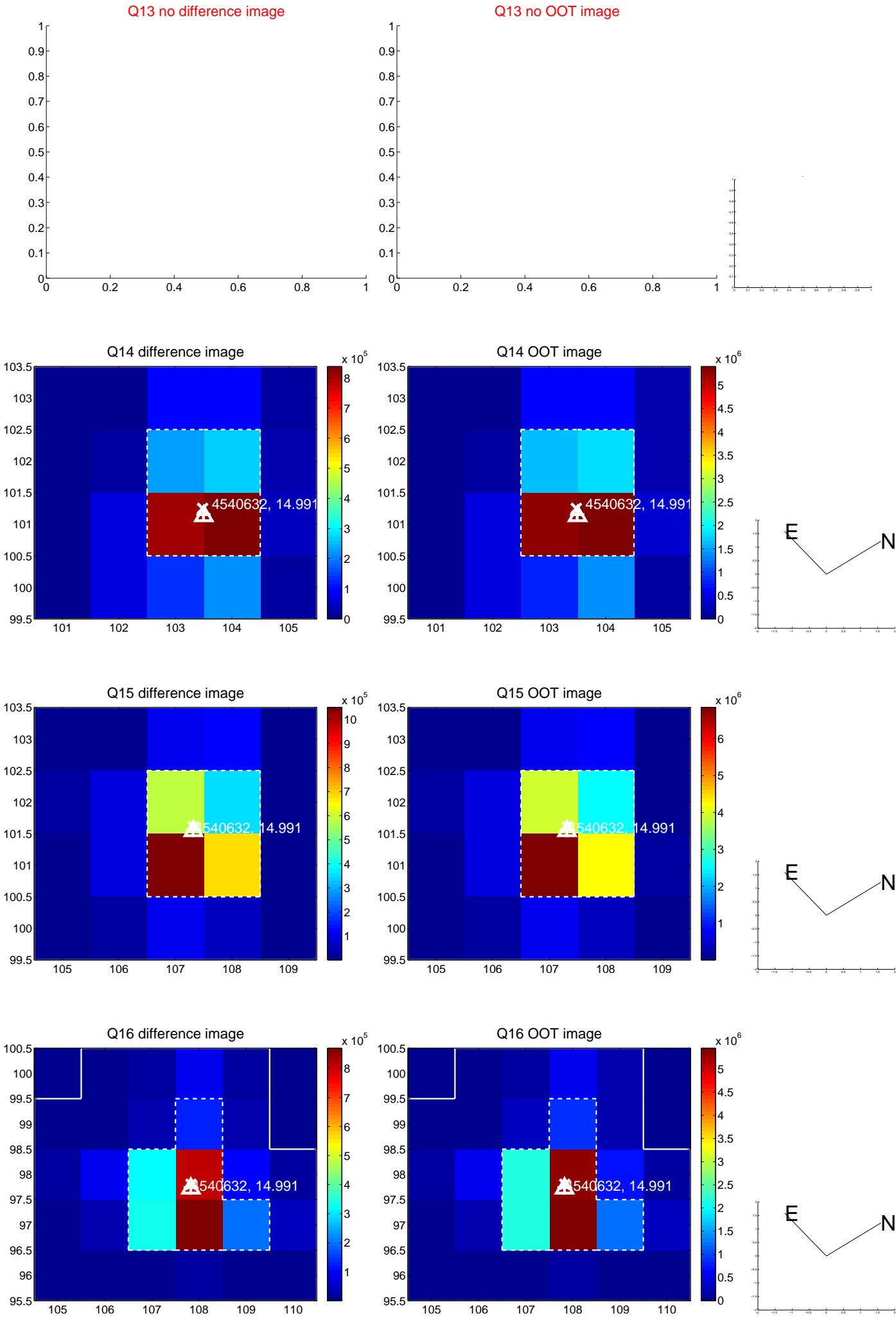
Q8 OOT image



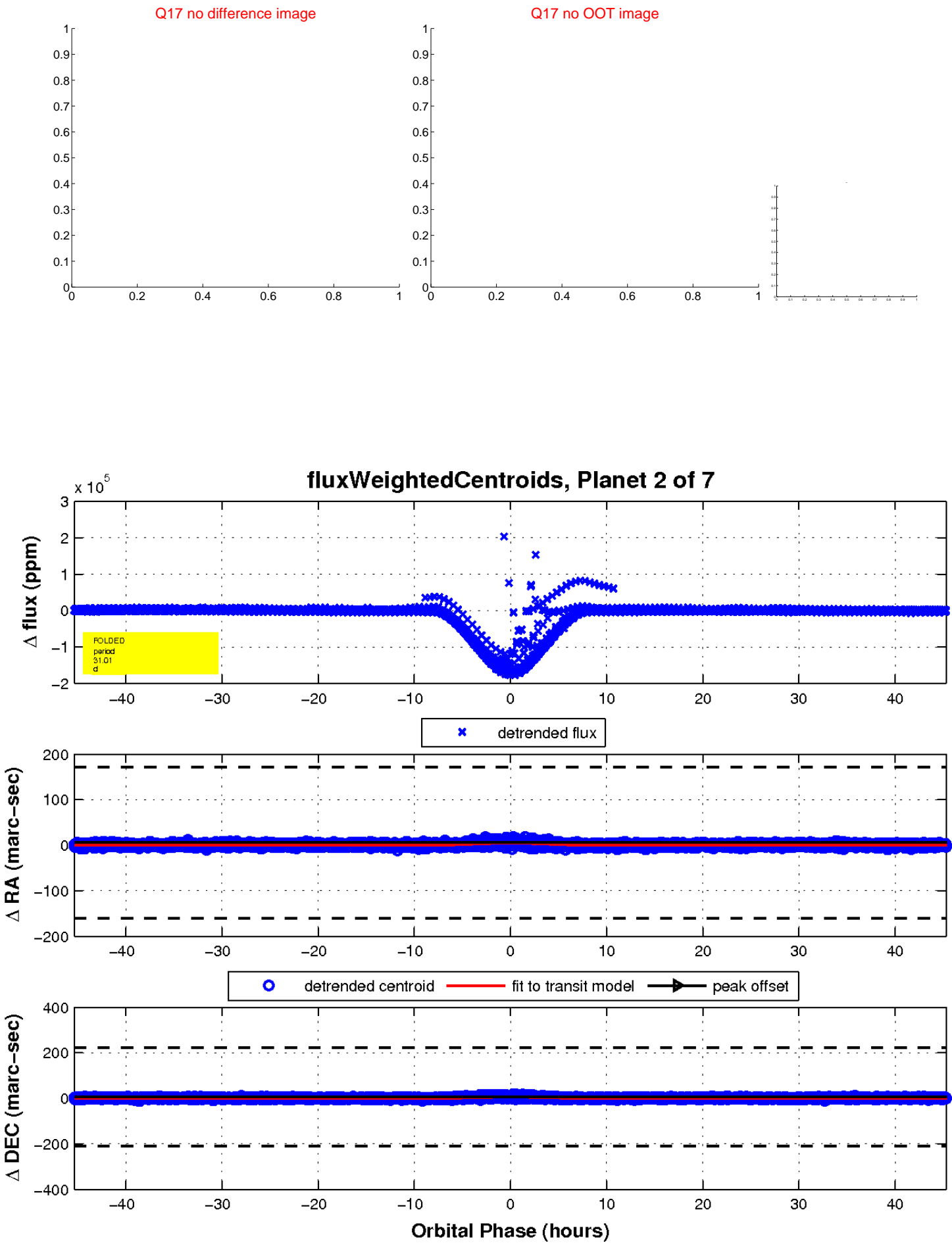
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

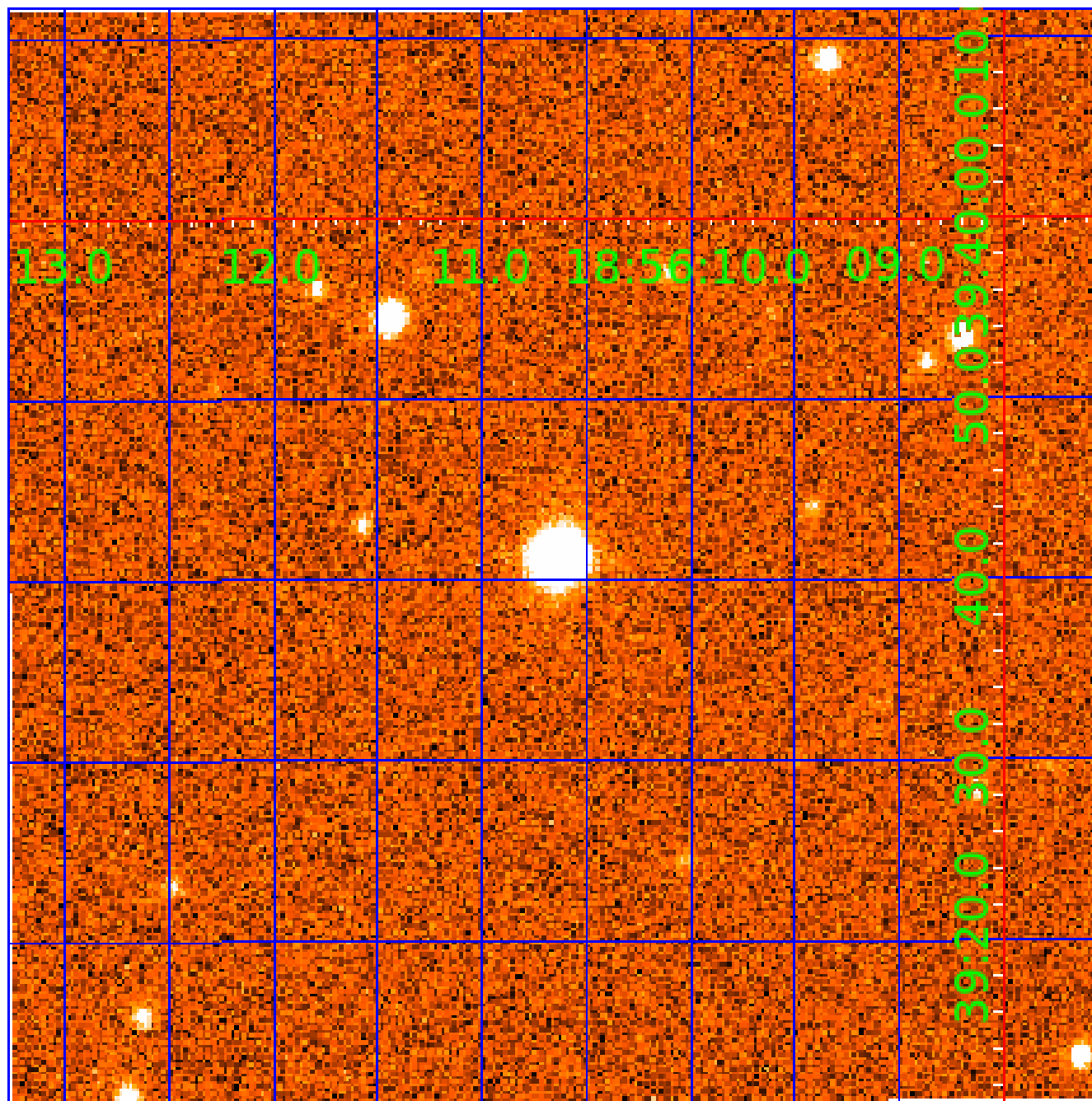


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004540632

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})
004540632-01	OBS	6422.01	31.005408	150.857873	547467.0	1.500	9099.9	-1.0	1.78	5023	97.34	51.34
004540632-02	OBS	No	31.005368	132.972973	165403.9	15.120	2069.4	1703.9	1.78	5023	99.83	51.34
004540632-03	OBS	No	4.427308	133.576226	41.6	2.926	701.6	1.8	1.78	5023	1.22	687.85
004540632-04	OBS	No	309.251946	273.814657	5628.3	25.150	275.6	19.0	1.78	5023	25.40	2.39
004540632-05	OBS	No	242.084340	337.152057	648.4	4.419	268.9	2.0	1.78	5023	9.38	3.31
004540632-06	OBS	No	4.428953	132.507126	0.1	0.713	191.7	0.0	1.78	5023	0.11	687.50
004540632-07	OBS	No	4.429920	132.934246	114.2	17.263	191.7	4.1	1.78	5023	1.85	687.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004540632-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_NOFITS
004540632-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004540632-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV
004540632-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
004540632-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004540632-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
004540632-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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.

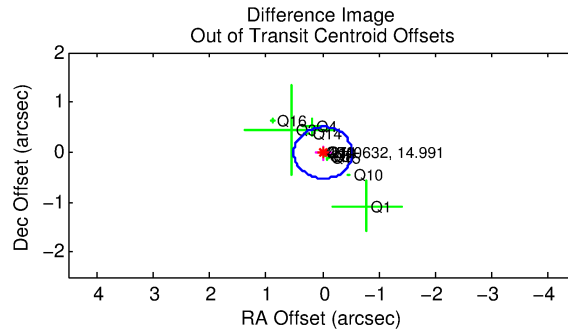
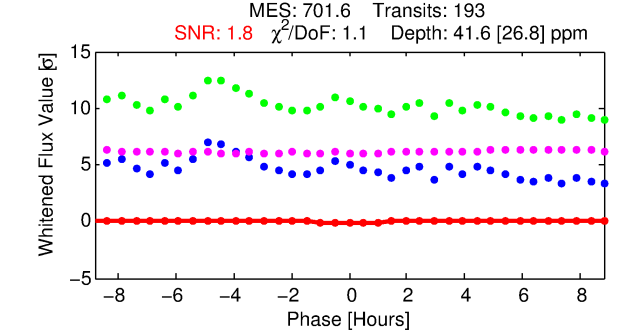
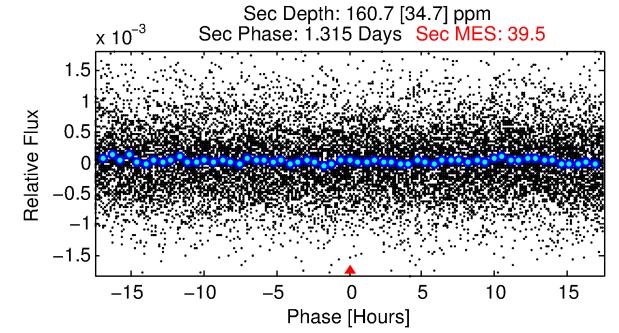
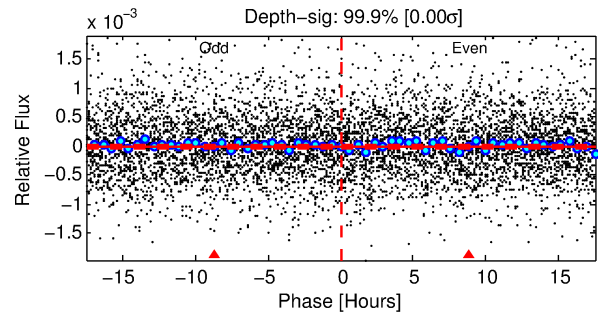
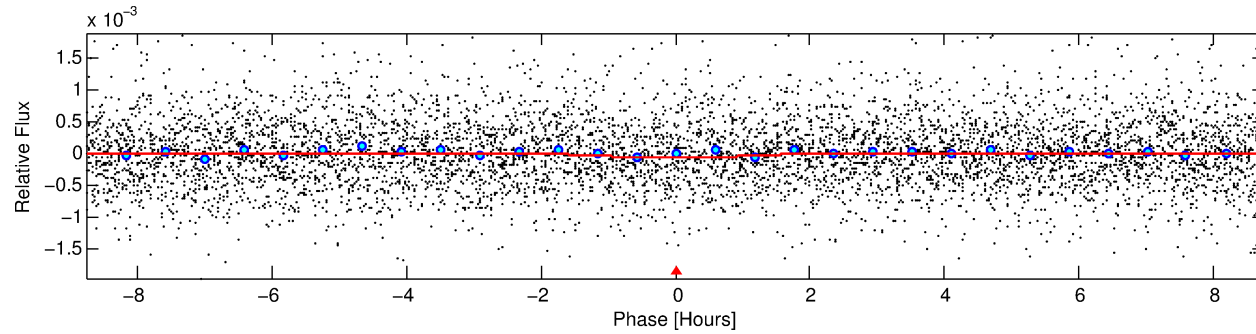
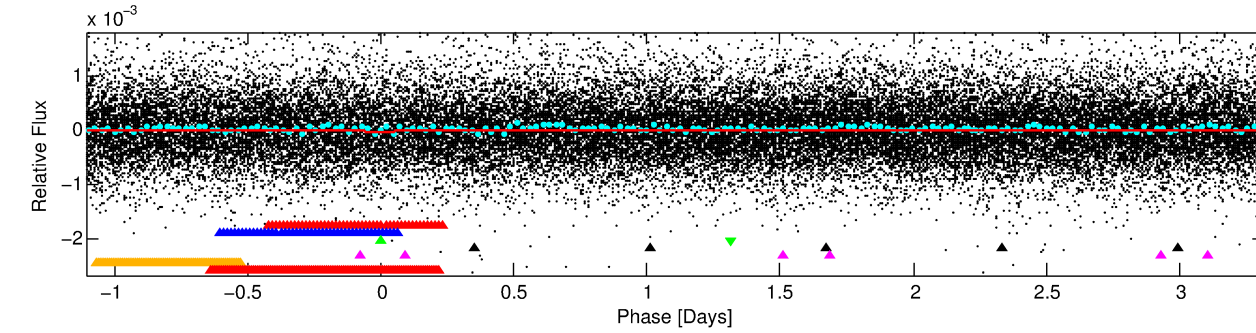
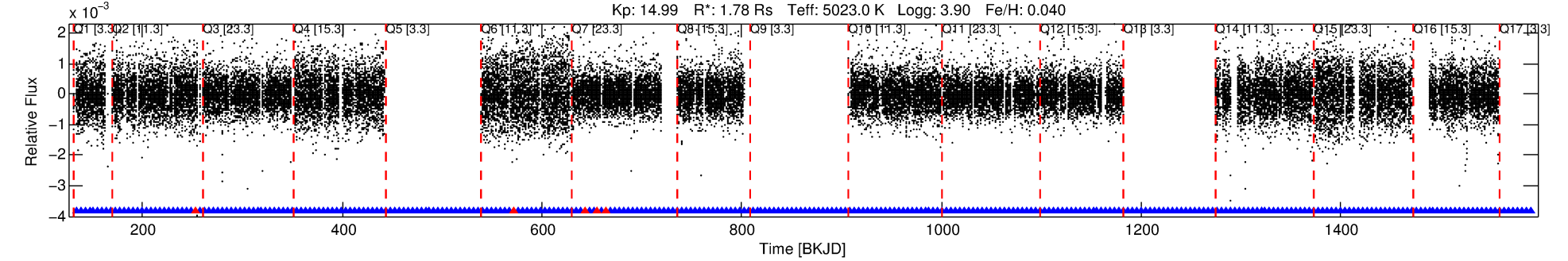
Ephemeris Match Information For 004540632-03

No Significant Match Found

DV One-Page Summary

KIC: 4540632 Candidate: 3 of 7 Period: 4.427 d
KOI: K06422 Corr: No Ephemeris Match

Kp: 14.99 R*: 1.78 Rs Teff: 5023.0 K Logg: 3.90 Fe/H: 0.040



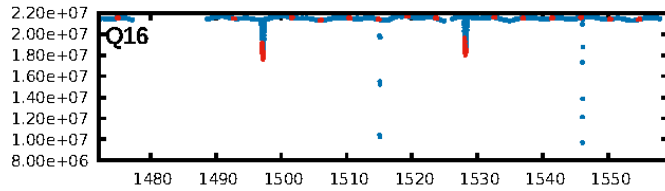
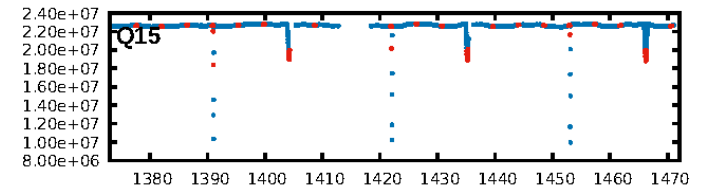
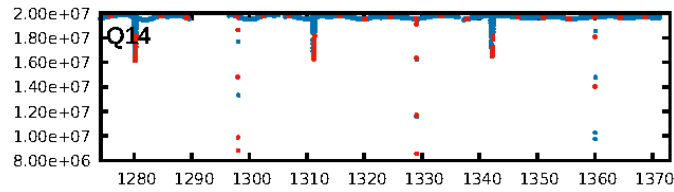
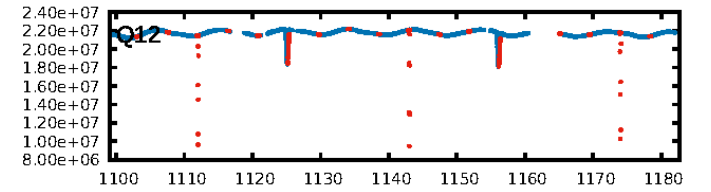
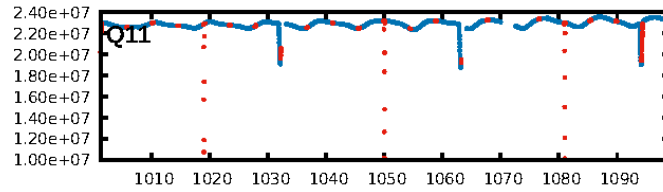
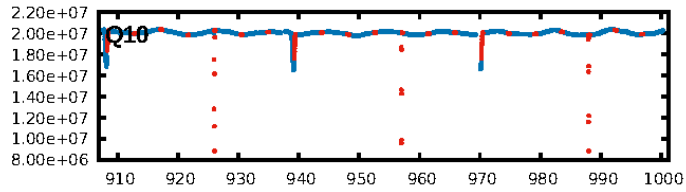
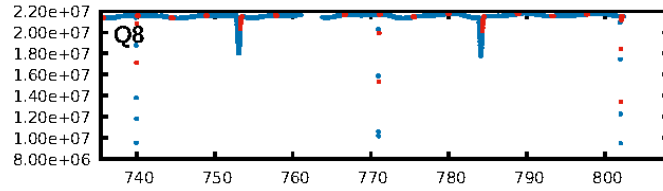
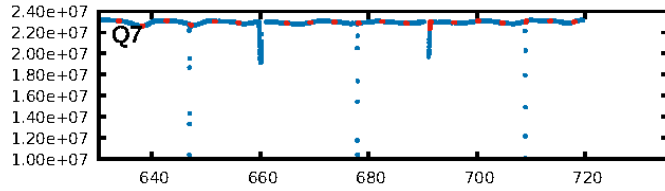
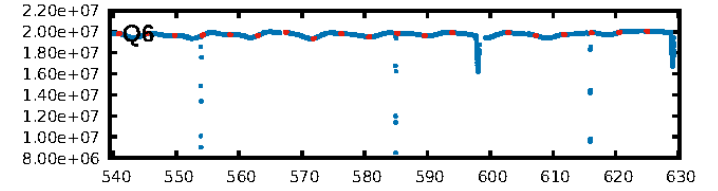
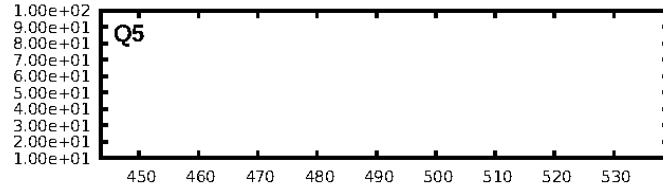
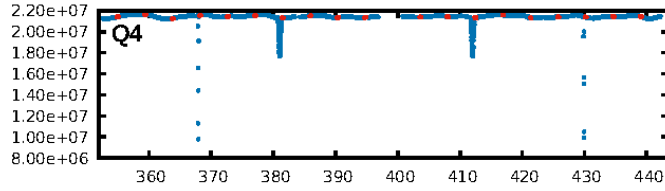
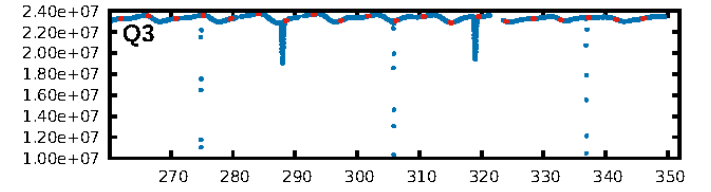
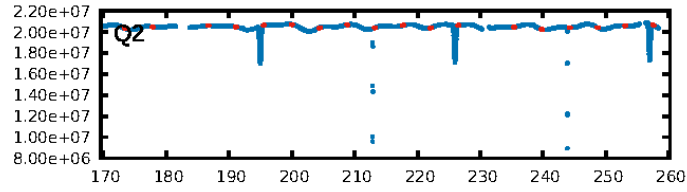
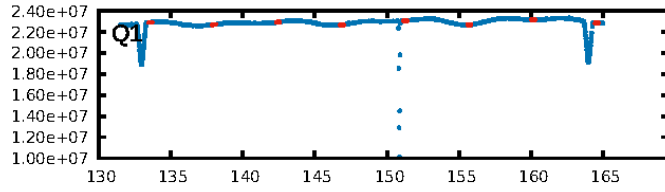
DV Fit Results:

Period = 4.42731 [0.00019] d
Epoch = 133.5762 [0.0283] BKJD
Rp/R* = 0.0063 [0.0152]
a/R* = 8.62 [71.91]
b = 0.68 [6.85]
Seff = 687.85 [798.34]
Teff = 1306 [379] K
Rp = 1.22 [3.07] Re
a = 0.0514 [0.0351] AU
Ag = 157.09 [786.95] [0.20σ]
Teffp = 7148 [8714] K [0.67σ]

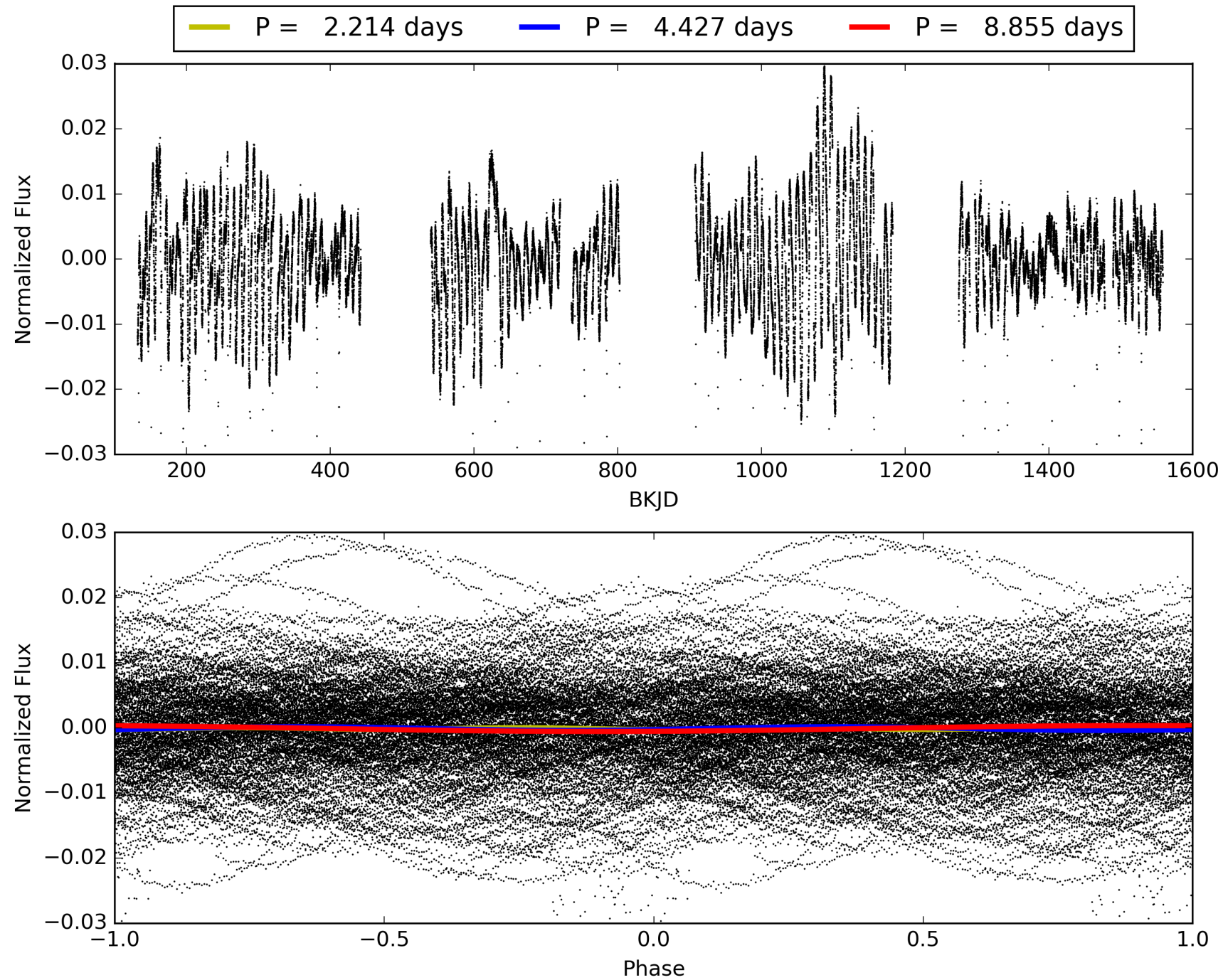
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 1.0% [0.01σ]
ModelChiSquare2-sig: 98.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.97 [182/187]
GhostDiagnostic-chr: -3.992
Centroid-sig: 72.9%
Centroid-so: 2.278 arcsec [0.43σ]
OotOffset-rm: 0.015 arcsec [0.09σ]
KicOffset-rm: 0.249 arcsec [1.40σ]
OotOffset-st: 3/4/4/1 [12]
KicOffset-st: 3/4/4/1 [12]
DiffImageQuality-fgm: 0.42 [5/12]
DiffImageOverlap-fno: 0.00 [0/13]

TCE 004540632-03, PDC Light Curves

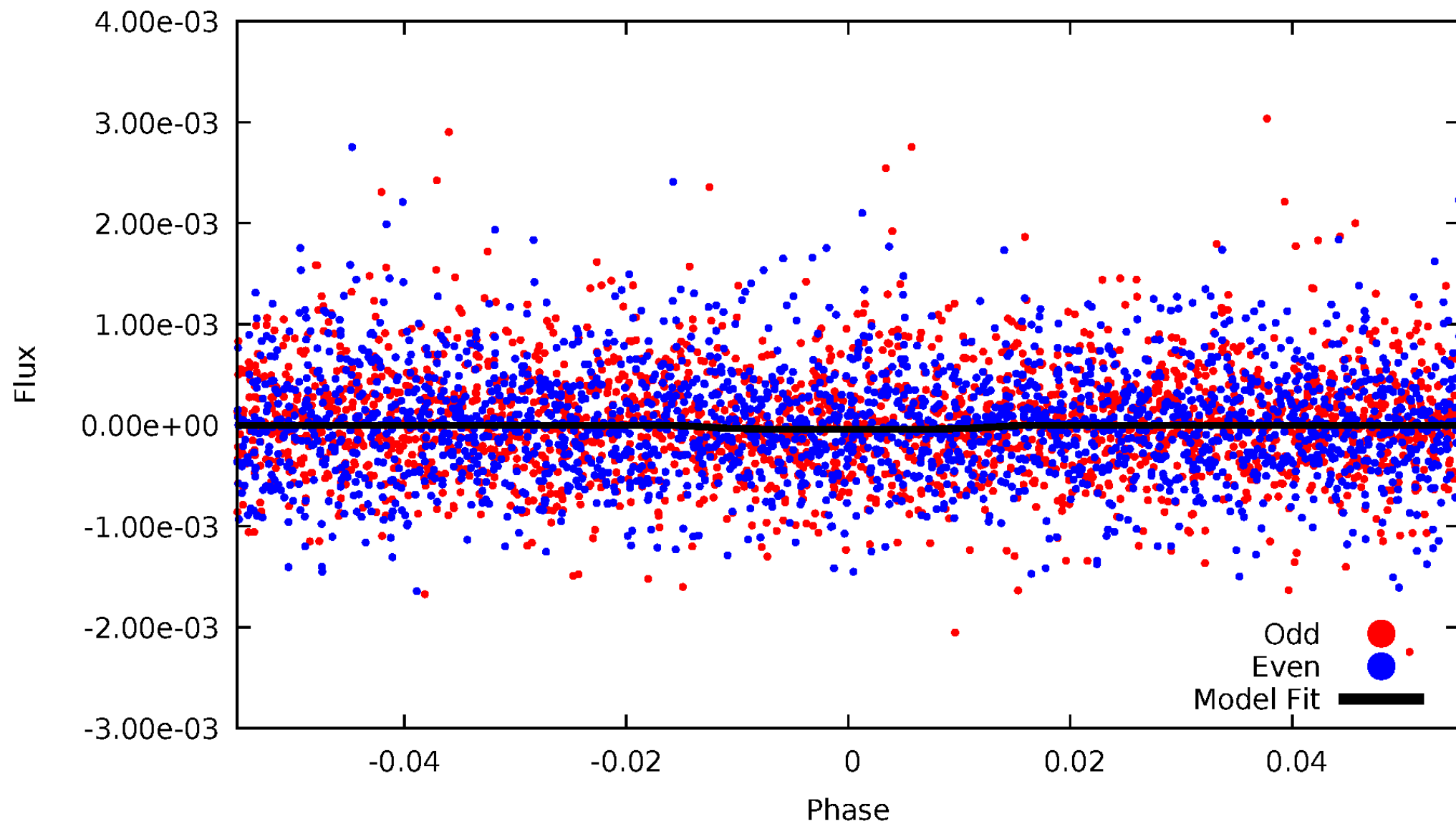


TCE 004540632-03



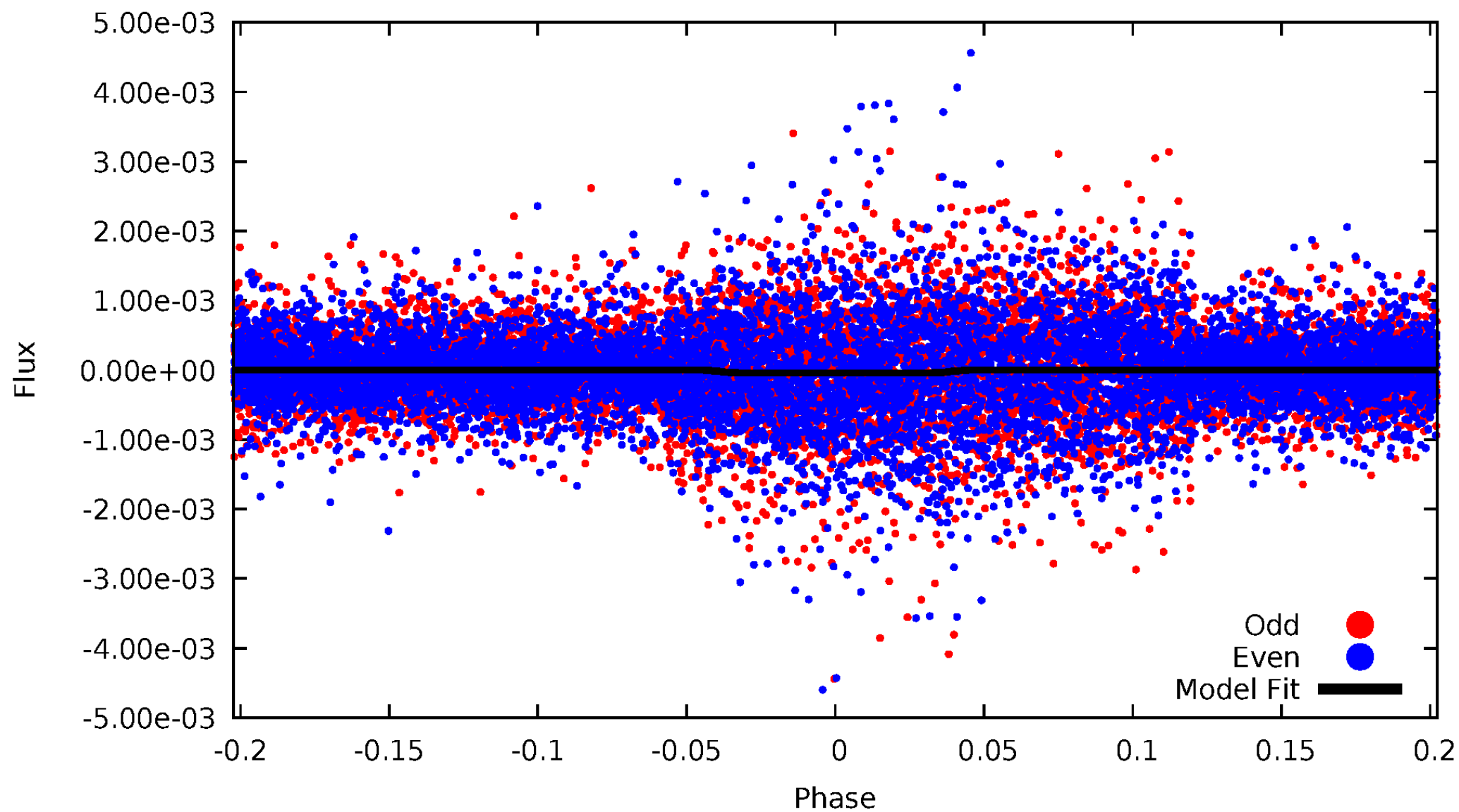
DV Odd/Even

TCE 004540632-03



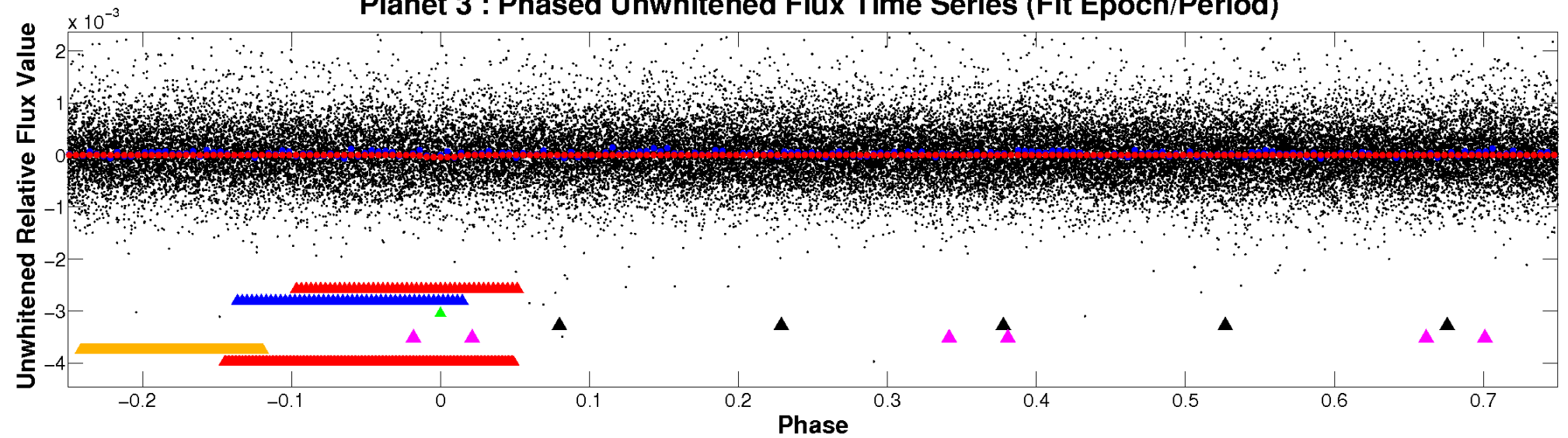
ALT Odd/Even

TCE 004540632-03

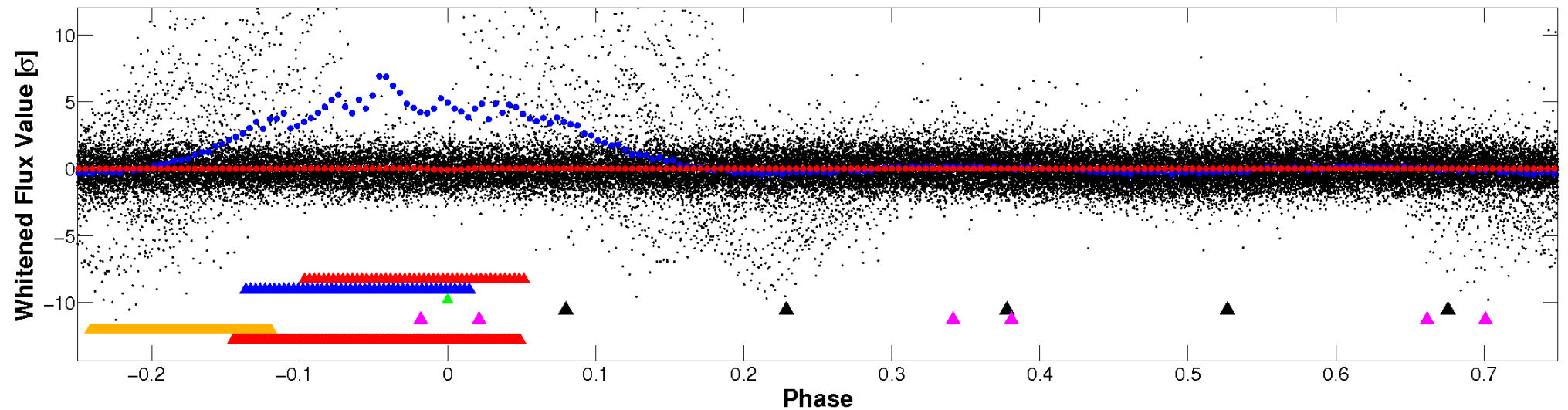


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

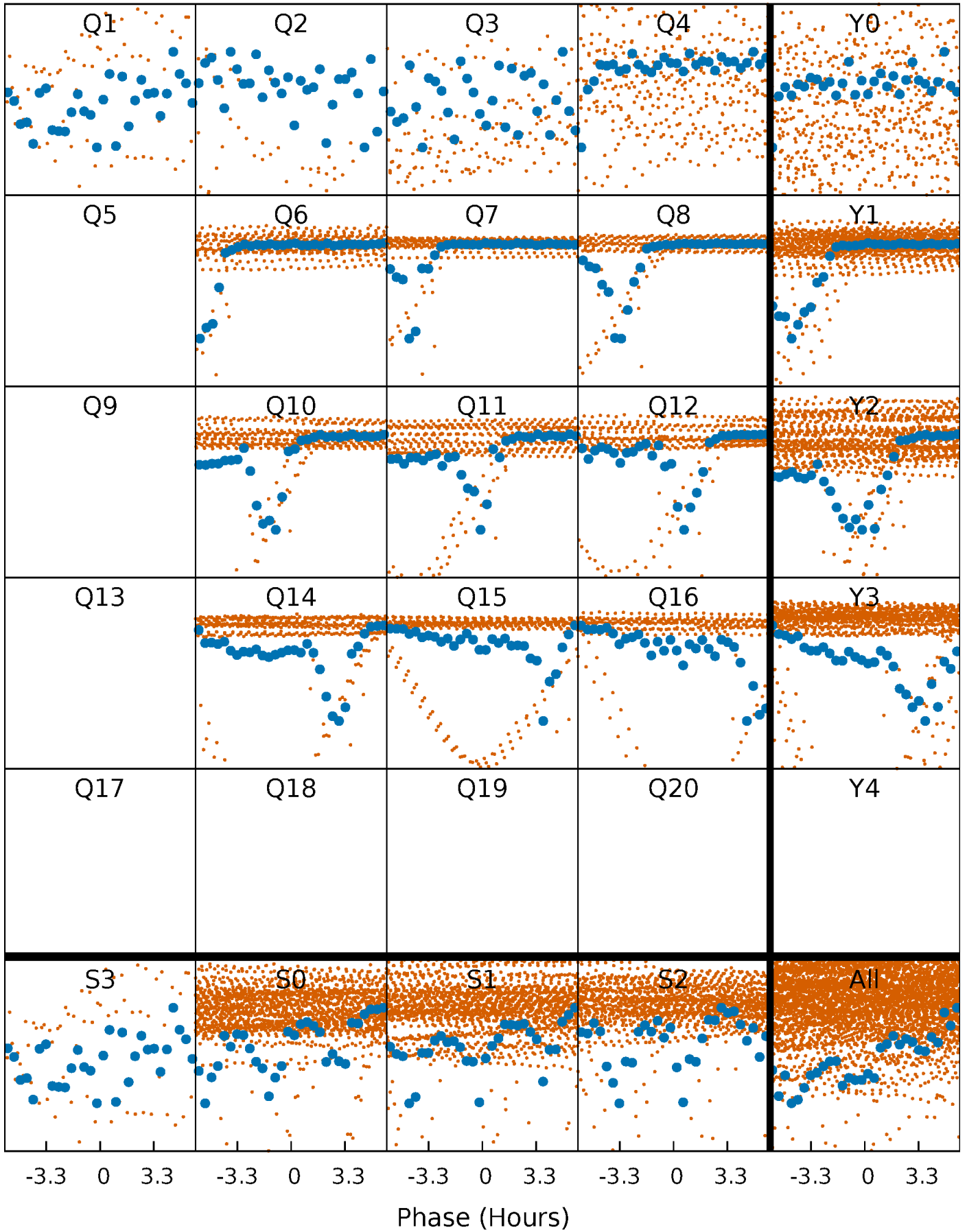


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



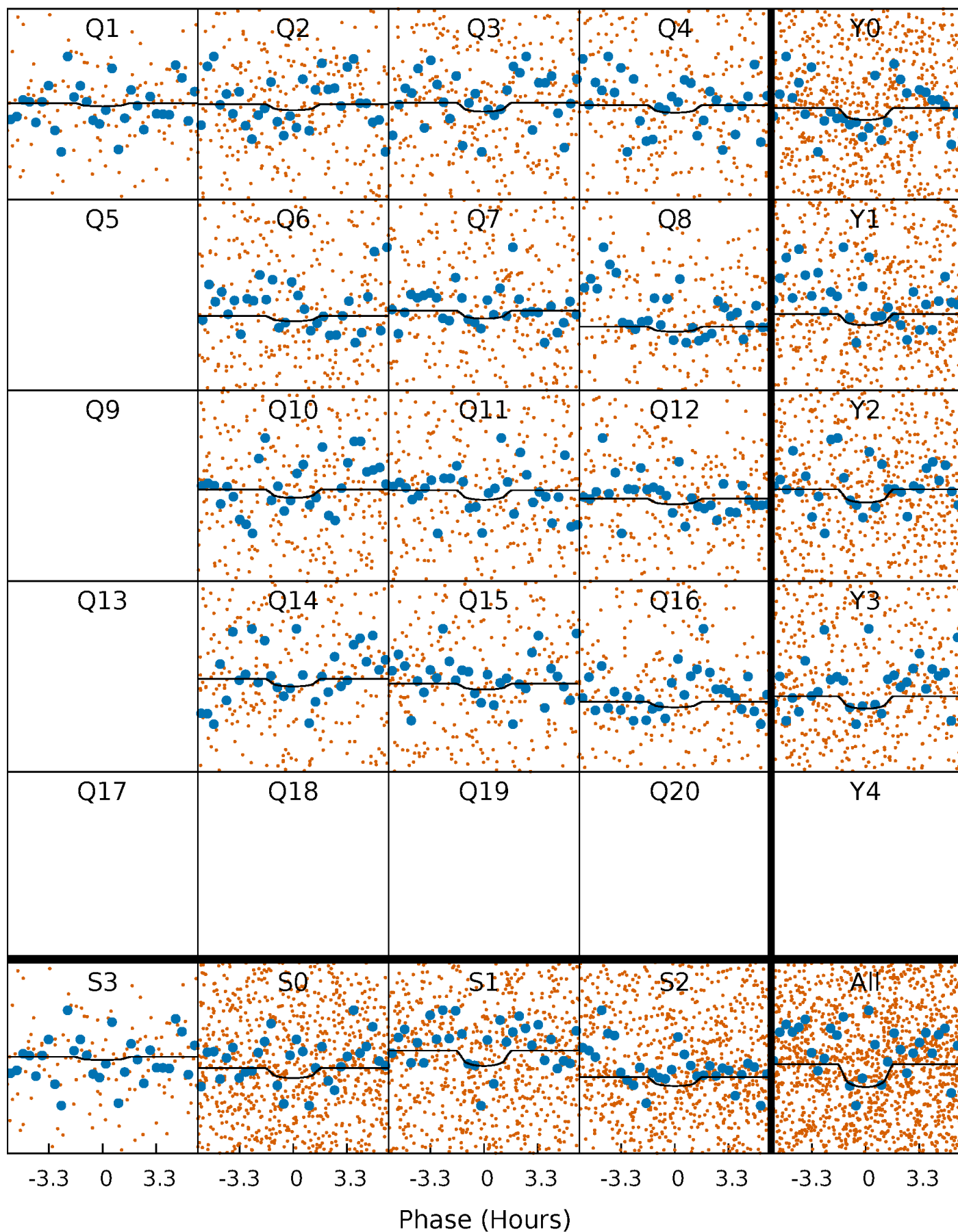
PDC Quarter-Phased Transit Curves

TCE 004540632-03 P= 4.427308 Days $T_0=133.576226$ (BKJD)



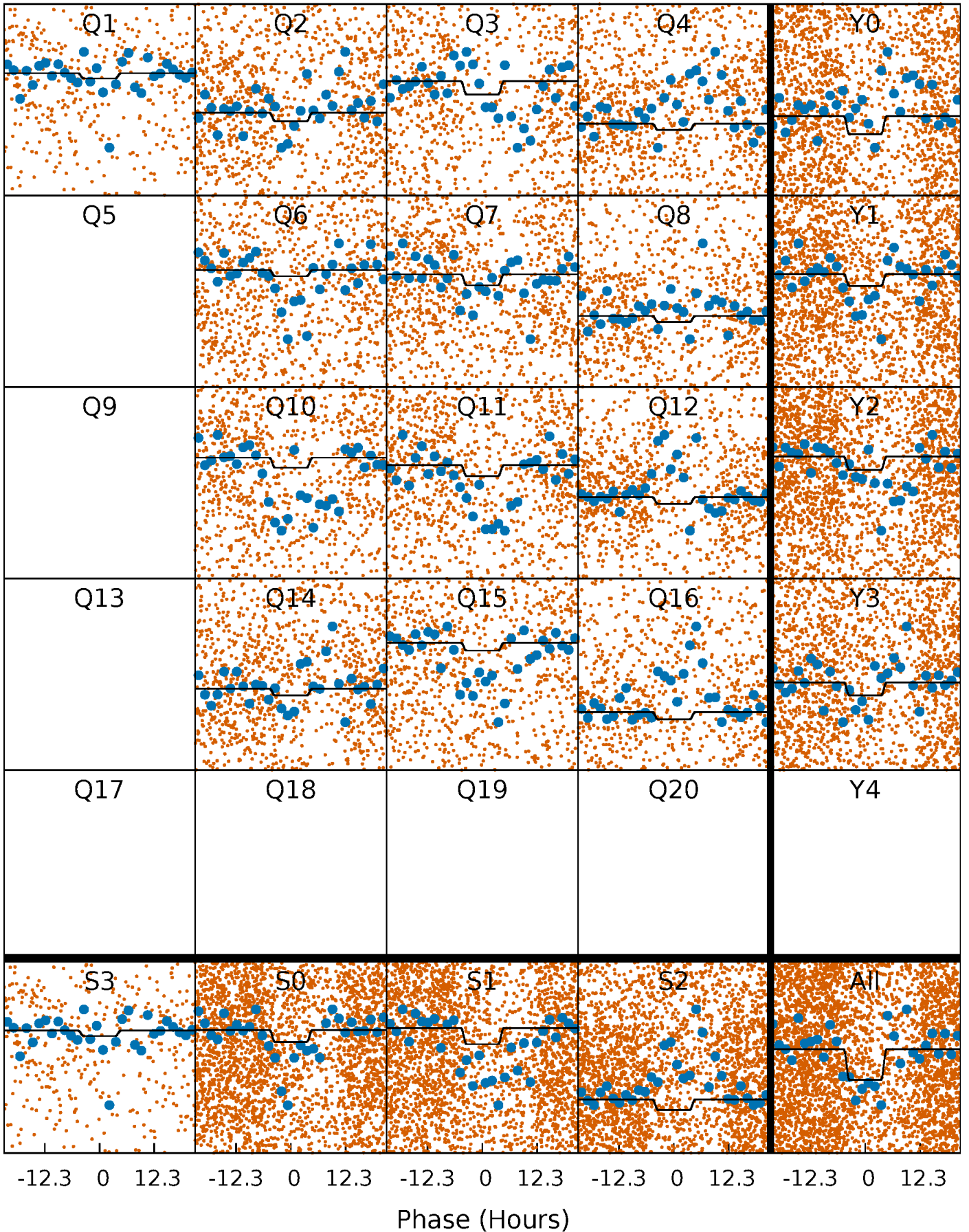
DV Quarter-Phased Transit Curves

TCE 004540632-03 P= 4.427308 Days $T_0=133.576226$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

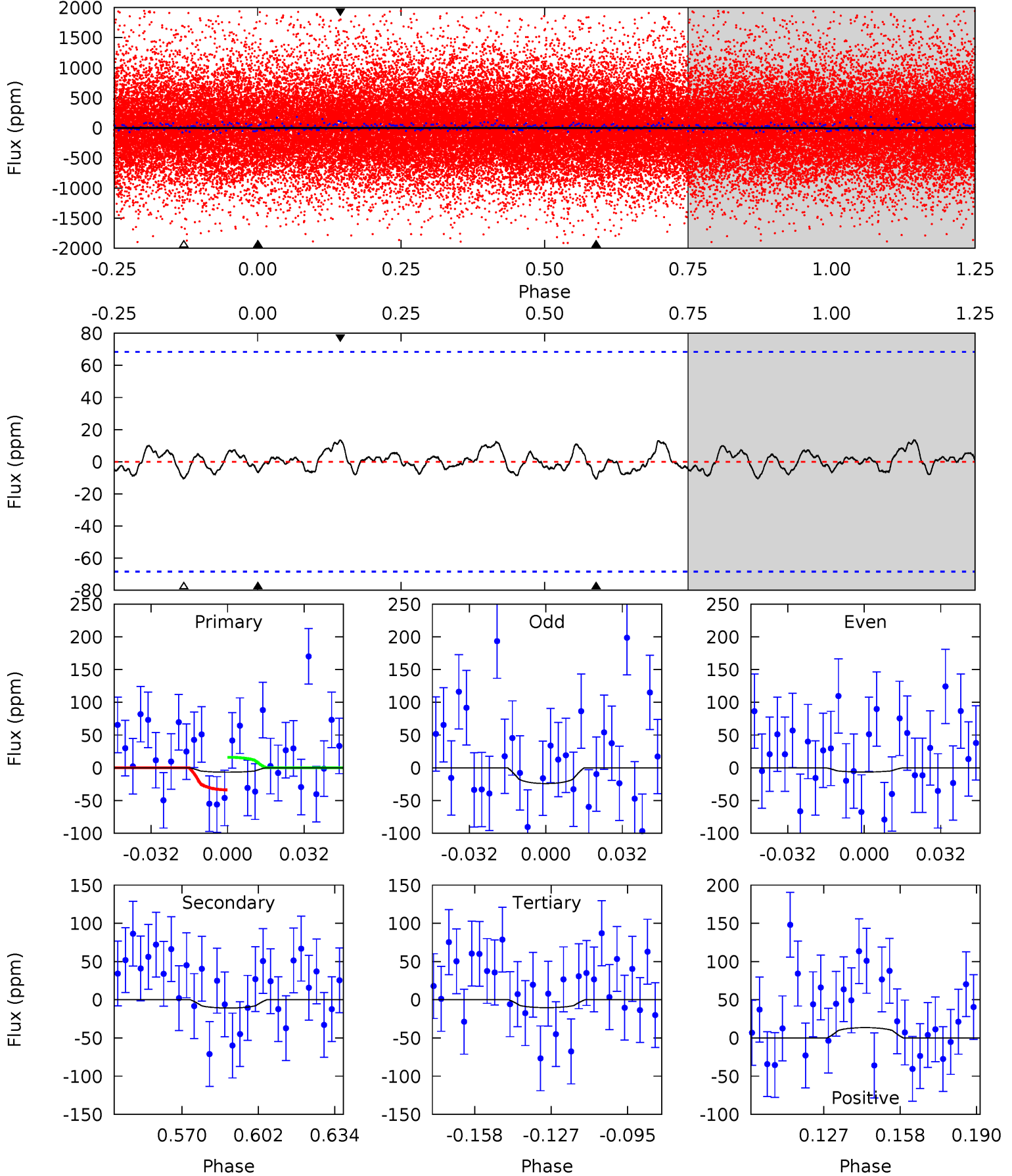
TCE 004540632-03 P= 4.429283 Days $T_0=132.844513$ (BKJD)



DV Model-Shift Uniqueness Test

004540632-03, P = 4.427308 Days, E = 129.148918 Days

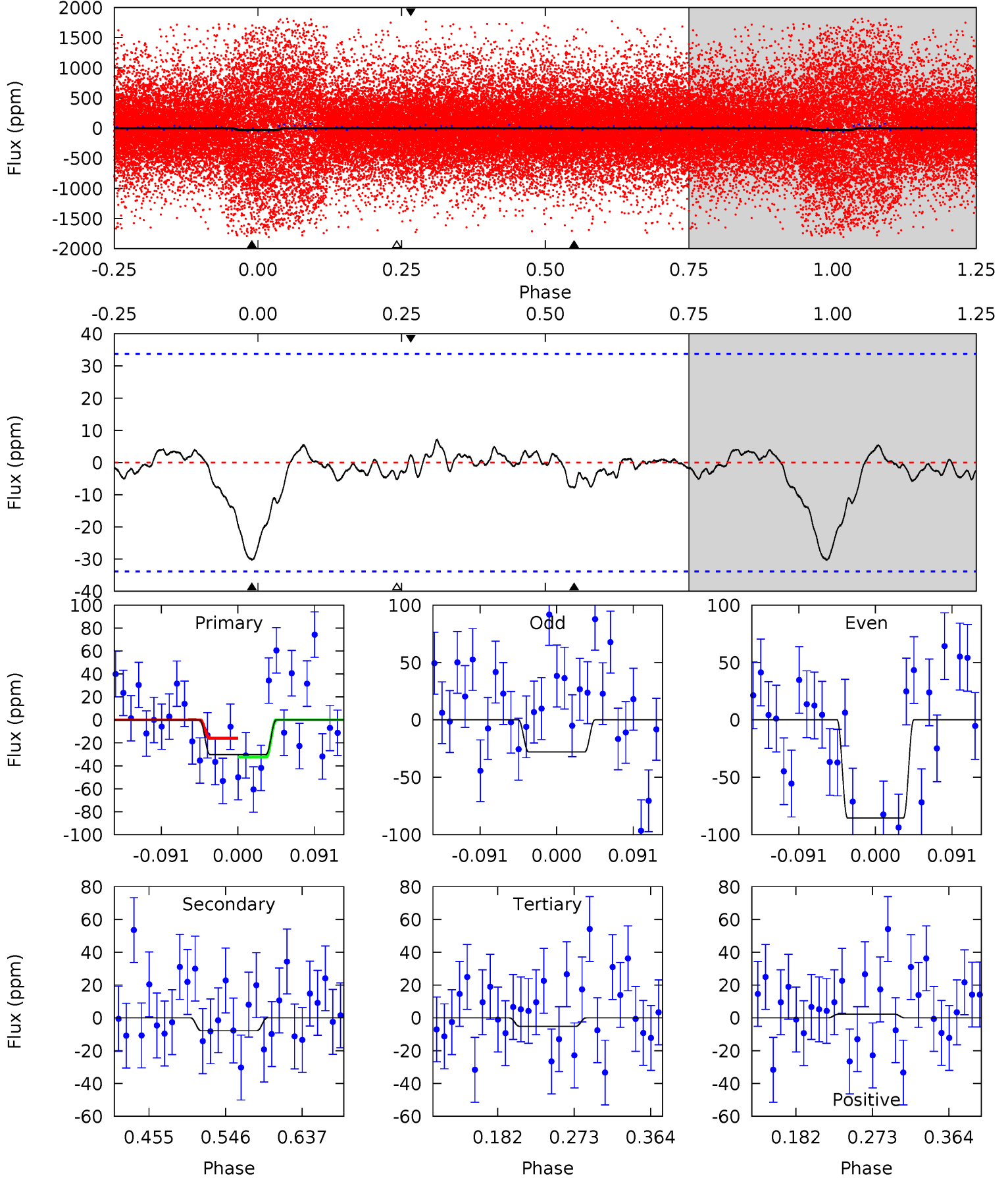
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.47	0.76	0.73	0.95	4.80	2.15	0.38	-0.26	-0.48	0.03	-0.19	0.63	-0.76	0.56	0.63



Alt Model-Shift Uniqueness Test

004540632-03, P = 4.429283 Days, E = 128.415230 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.09	1.06	0.71	0.31	4.58	1.69	0.34	3.38	3.78	0.35	0.75	3.97	1.97	0.19	1.13



Stellar Parameters For KIC 004540632

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5023^{+151}_{-151}	$3.900^{+0.700}_{-0.300}$	$0.040^{+0.250}_{-0.250}$	$1.784^{+1.027}_{-1.129}$	$0.921^{+0.185}_{-0.151}$	$0.228^{+2.252}_{-0.171}$
	+3%/-3%	+18%/-8%	+625%/-625%	+58%/-63%	+20%/-16%	+986%/-75%
Source	PHO1	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 004540632-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-11 ± 14	$2.32^{+2.63}_{-1.60}$	1795^{+254}_{-286}	2796^{+1571}_{-5521}	$1.657^{+19.940}_{-2.418}$
Alt.	-8 ± 7	$2.36^{+2.65}_{-1.74}$	1798^{+257}_{-302}	2705^{+1291}_{-5100}	$1.345^{+16.785}_{-1.341}$

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

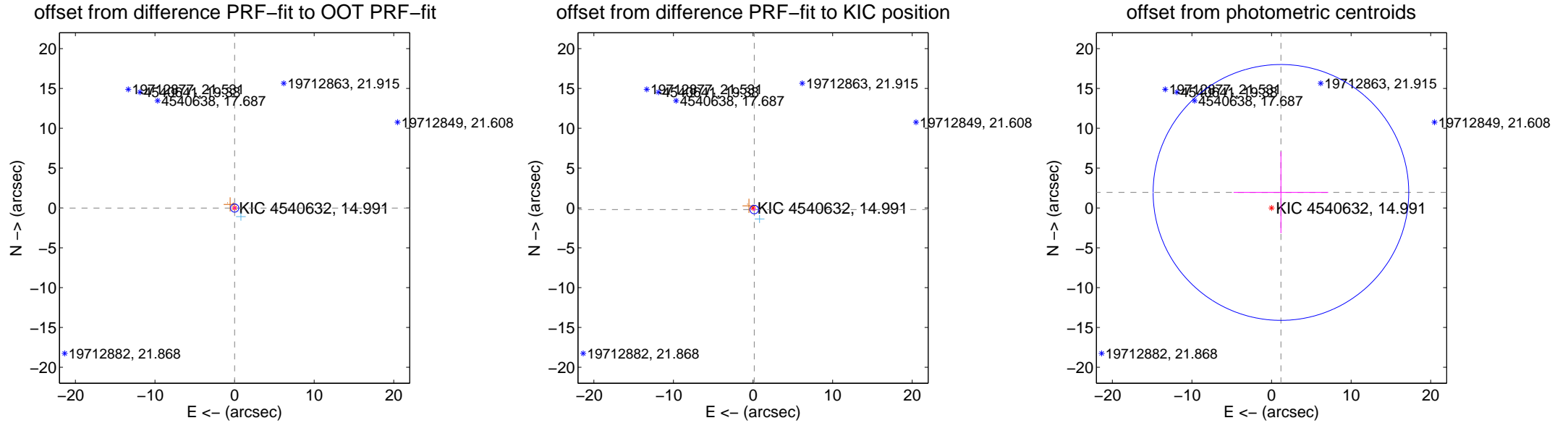
DV Centroid Data

Supplemental centroid analysis for 004540632-03. Kepler magnitude: 14.99. Transit SNR 1.80

There are 5 quarters with good PRF difference image offsets

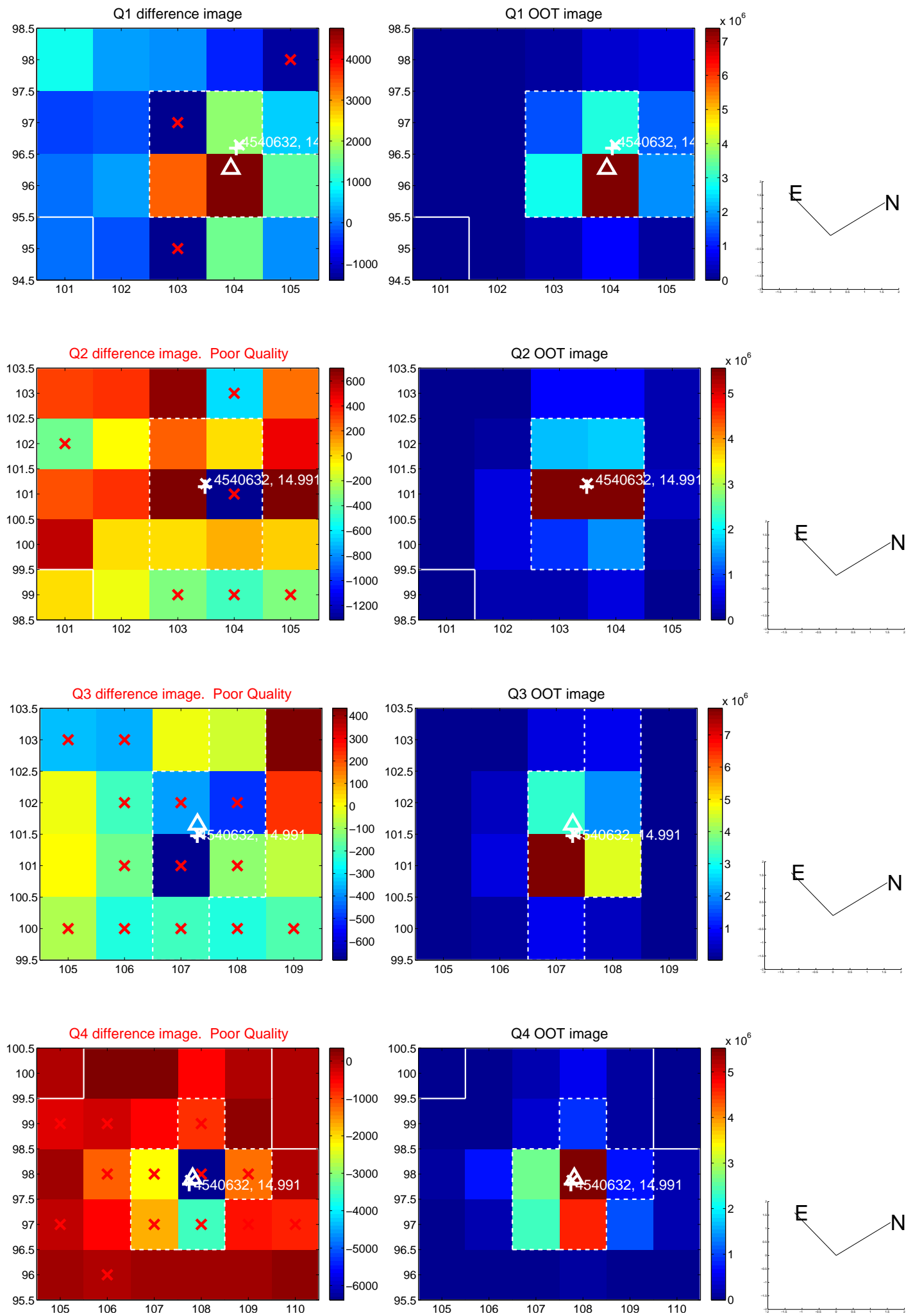
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.015 ± 0.172	0.09	-0.009 ± 0.128	-0.012 ± 0.136
PRF-fit source offset from KIC position	0.249 ± 0.179	1.40	-0.150 ± 0.132	-0.199 ± 0.144
photometric centroid source offset	2.28 ± 5.35	0.43	-1.18 ± 5.94	1.95 ± 5.12

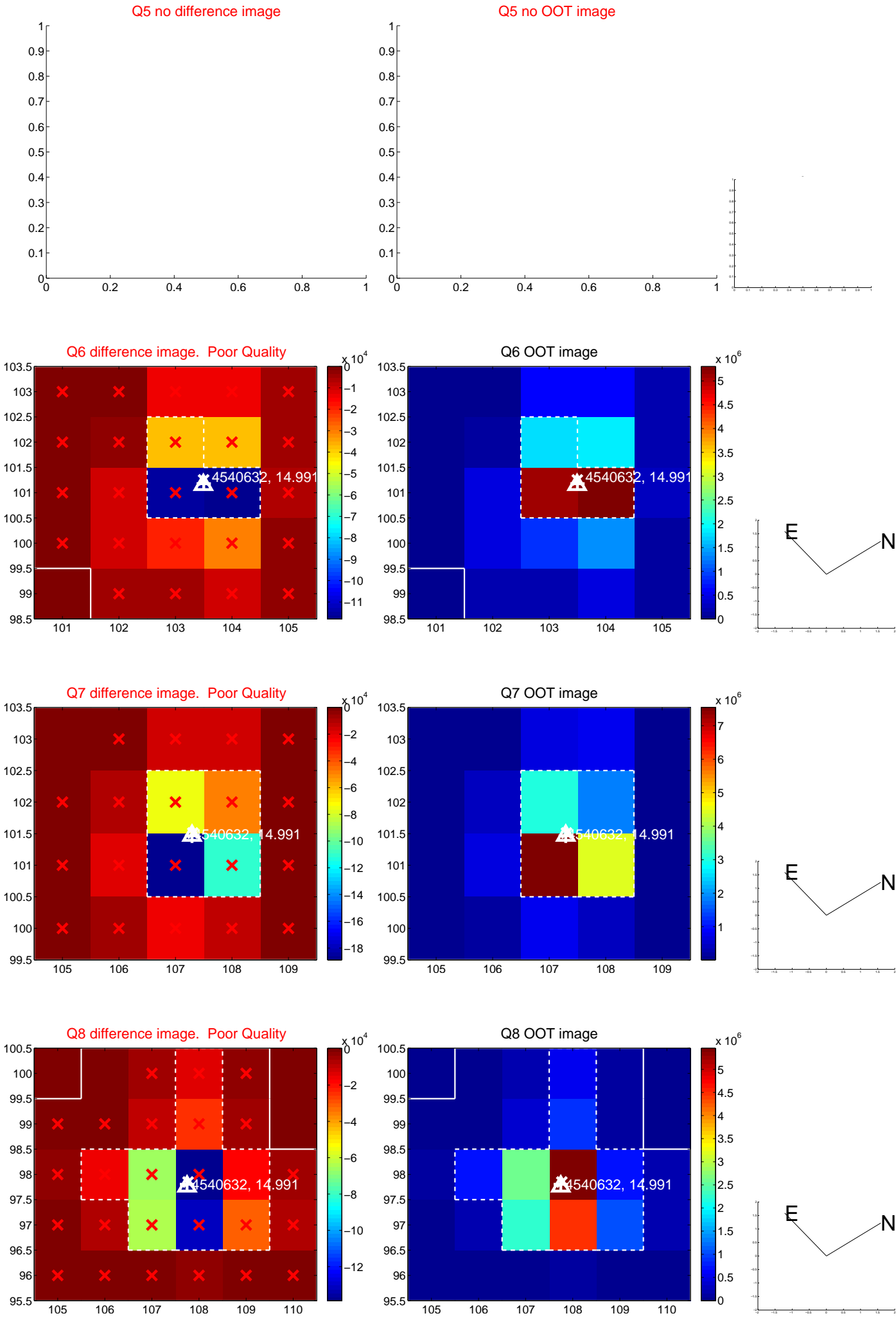


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

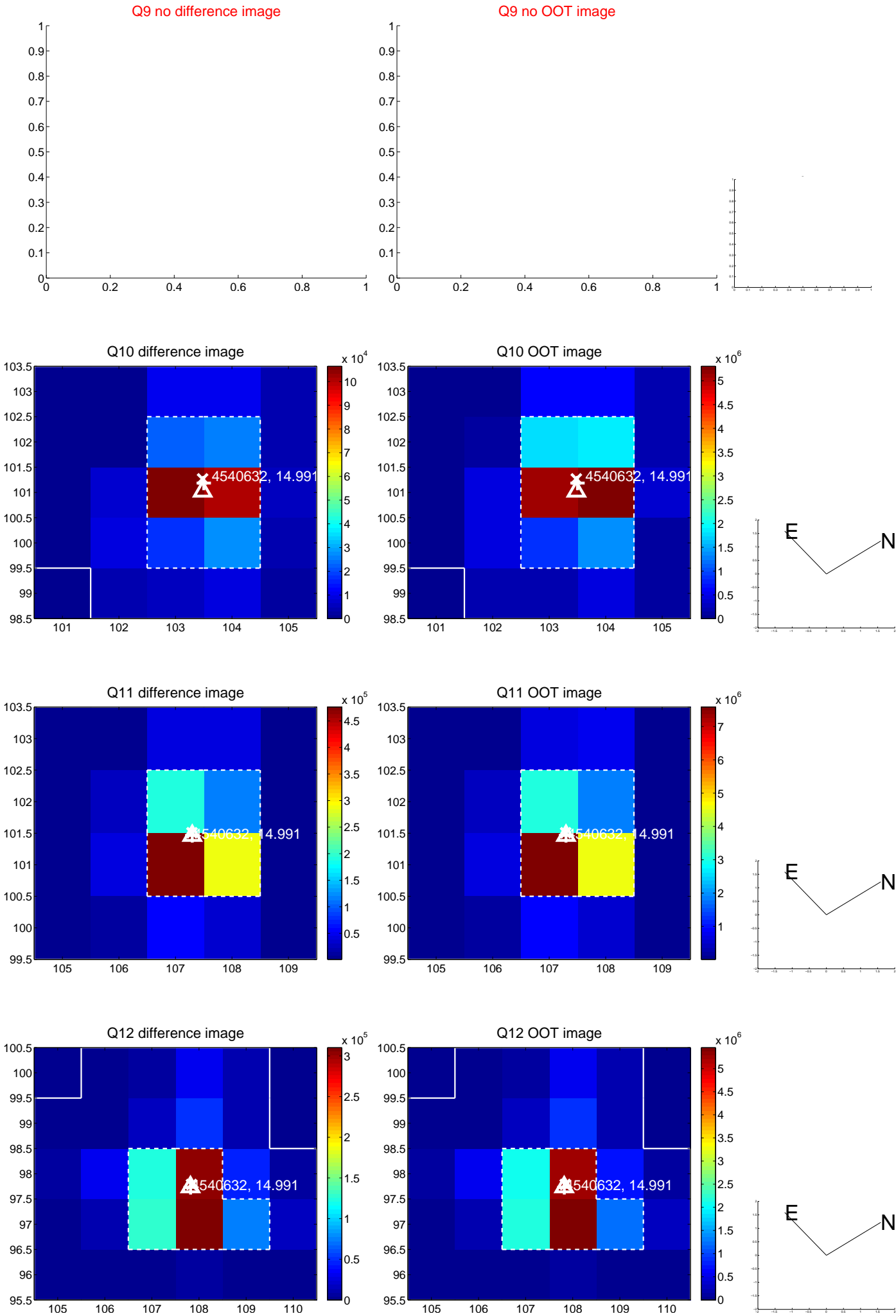
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



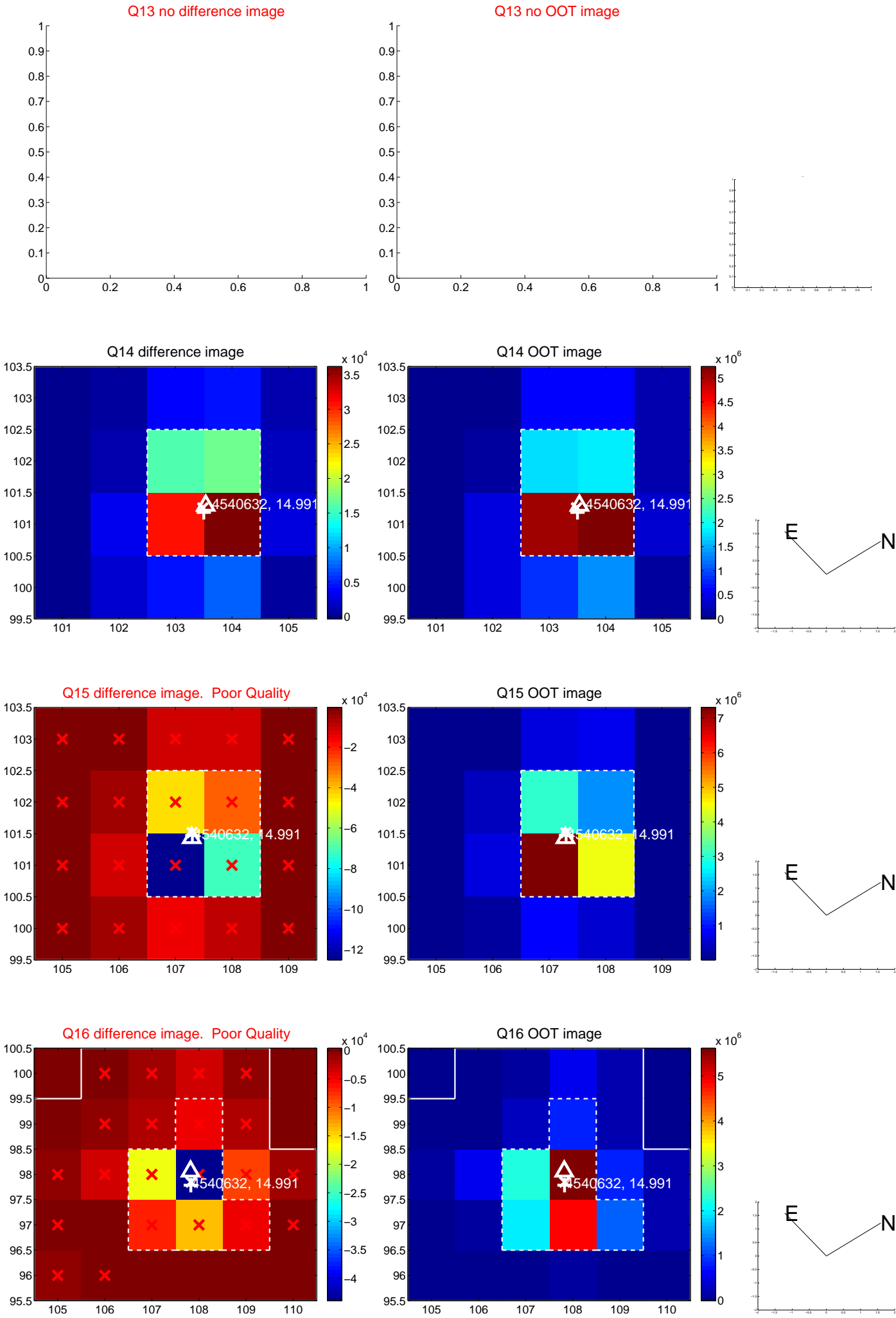
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



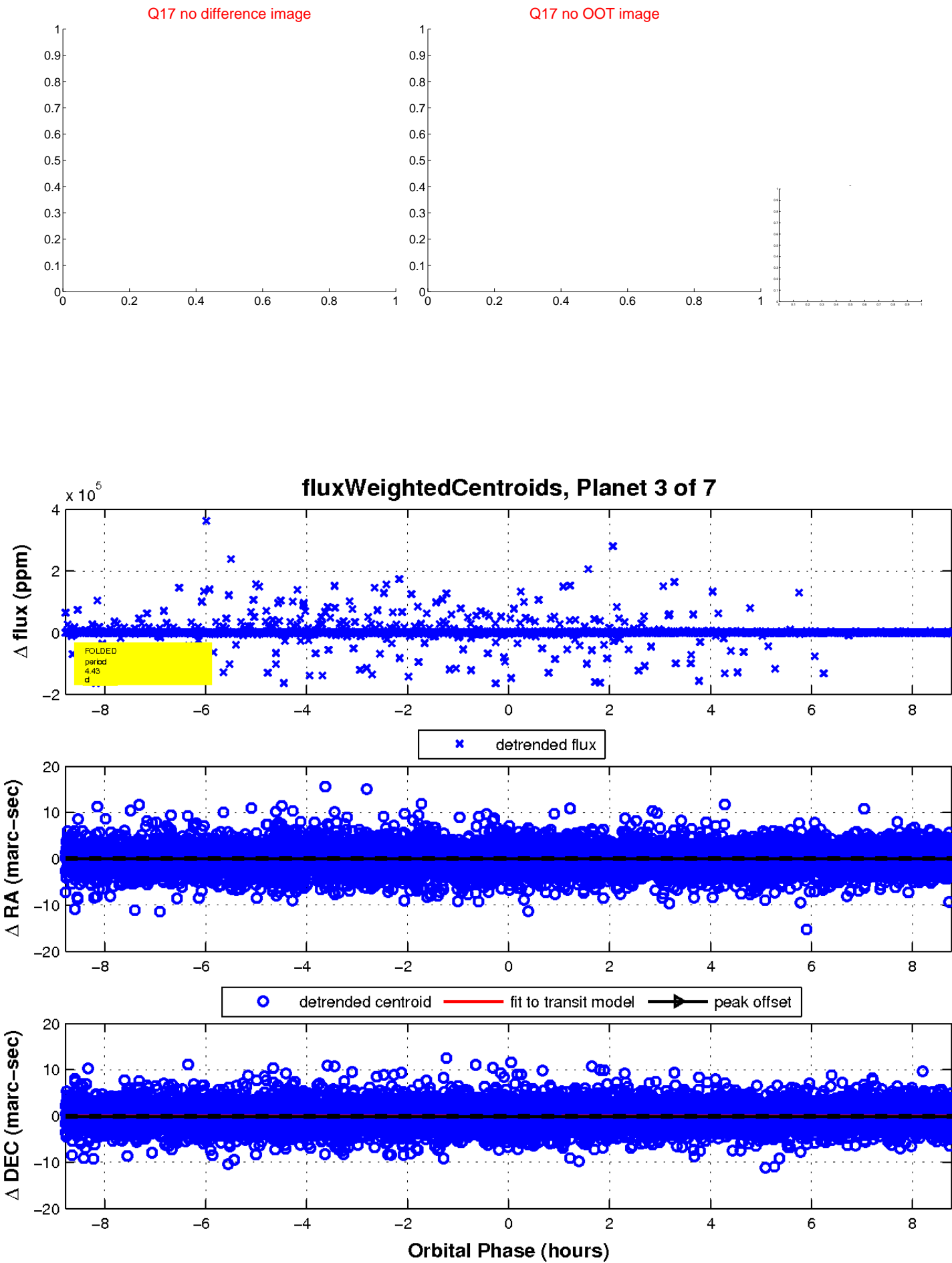
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

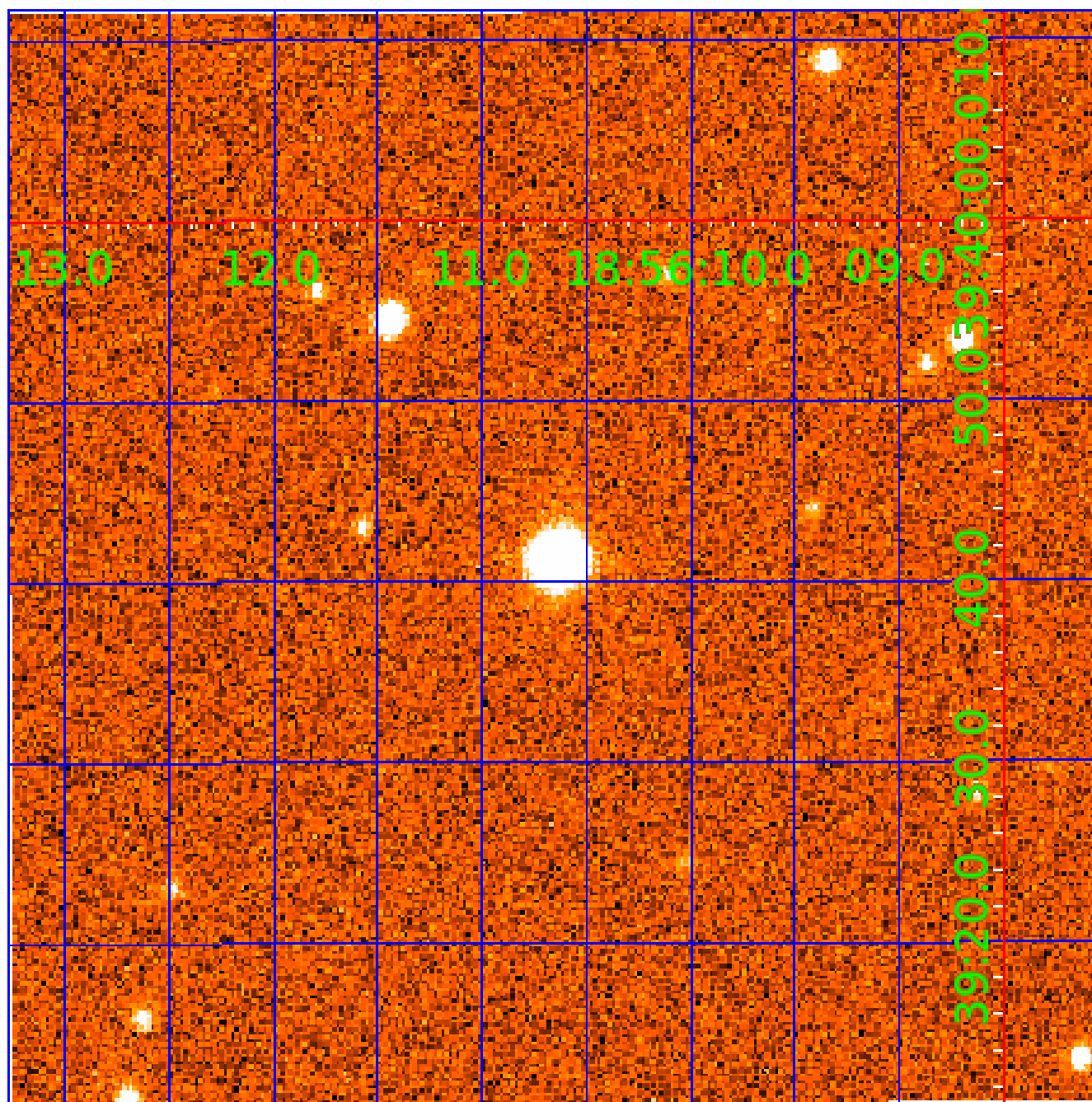


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004540632

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})
004540632-01	OBS	6422.01	31.005408	150.857873	547467.0	1.500	9099.9	-1.0	1.78	5023	97.34	51.34
004540632-02	OBS	No	31.005368	132.972973	165403.9	15.120	2069.4	1703.9	1.78	5023	99.83	51.34
004540632-03	OBS	No	4.427308	133.576226	41.6	2.926	701.6	1.8	1.78	5023	1.22	687.85
004540632-04	OBS	No	309.251946	273.814657	5628.3	25.150	275.6	19.0	1.78	5023	25.40	2.39
004540632-05	OBS	No	242.084340	337.152057	648.4	4.419	268.9	2.0	1.78	5023	9.38	3.31
004540632-06	OBS	No	4.428953	132.507126	0.1	0.713	191.7	0.0	1.78	5023	0.11	687.50
004540632-07	OBS	No	4.429920	132.934246	114.2	17.263	191.7	4.1	1.78	5023	1.85	687.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004540632-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_NOFITS
004540632-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004540632-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV
004540632-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
004540632-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004540632-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
004540632-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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.

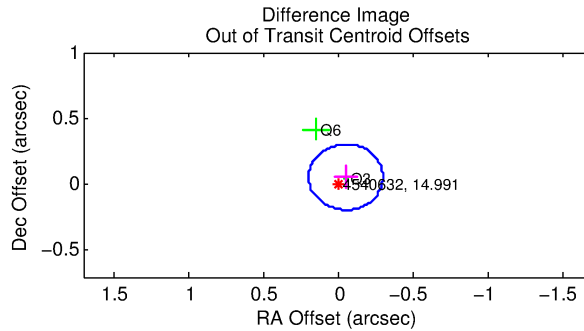
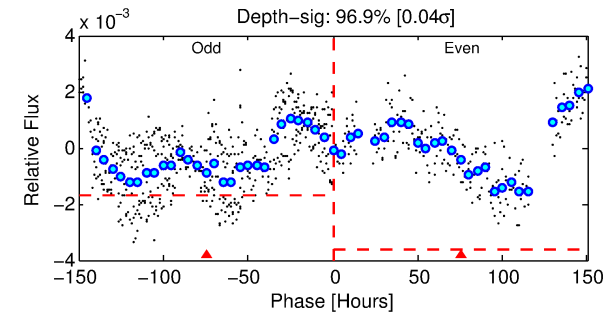
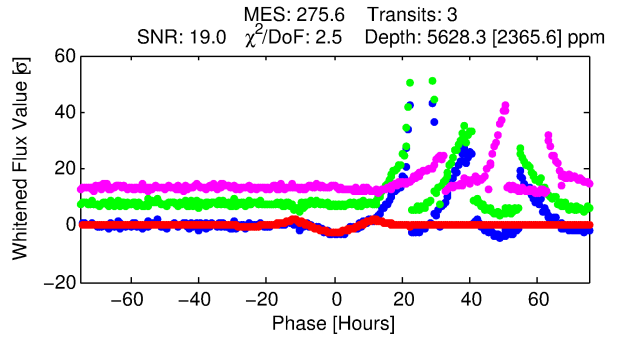
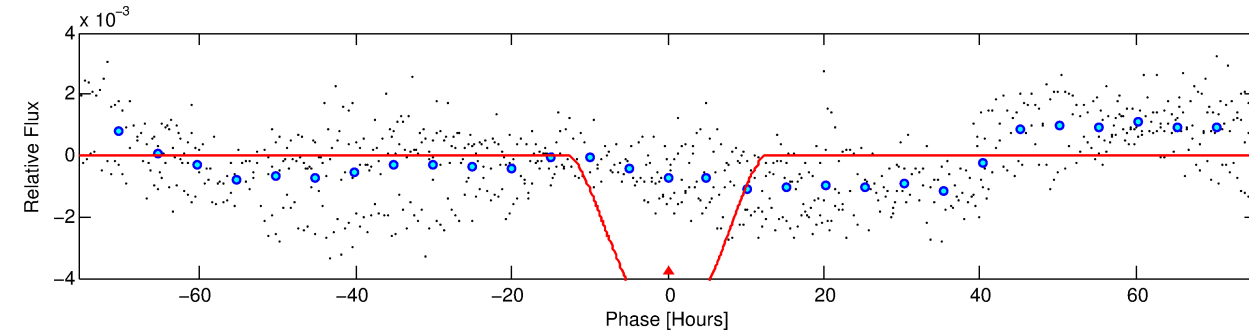
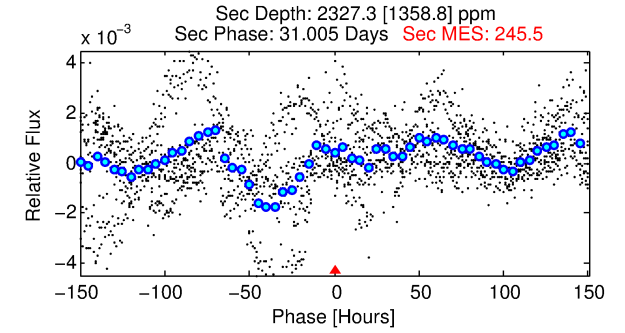
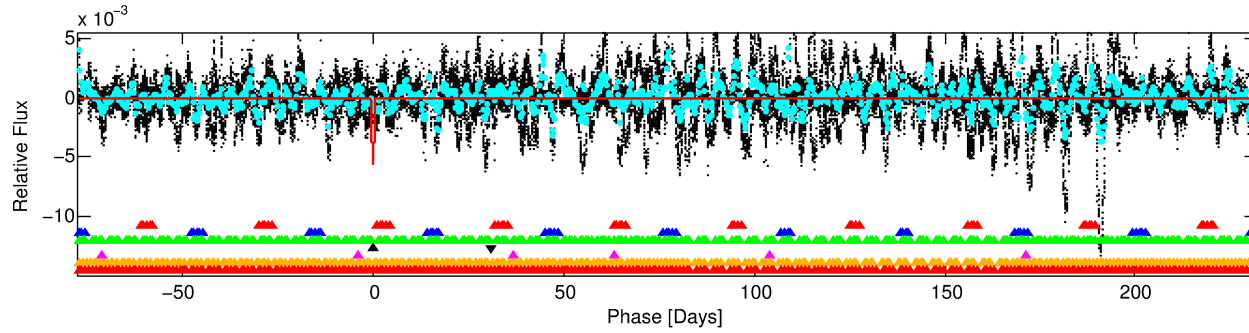
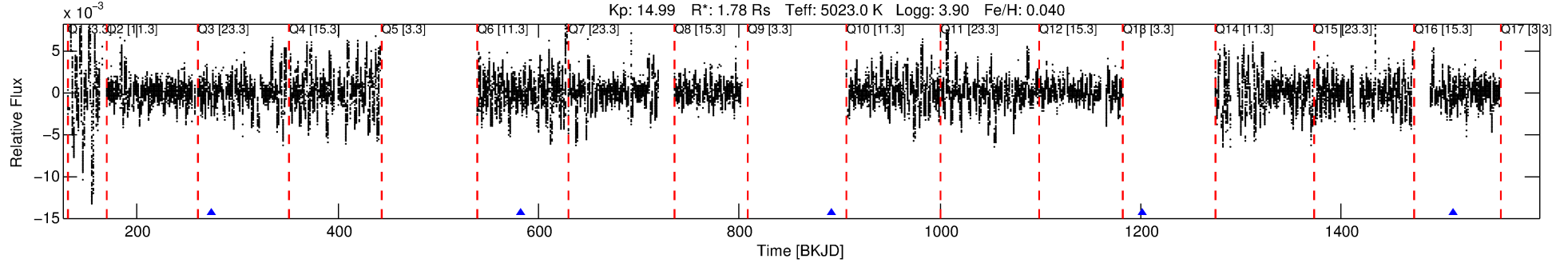
Ephemeris Match Information For 004540632-04

No Significant Match Found

DV One-Page Summary

KIC: 4540632 Candidate: 4 of 7 Period: 309.252 d
KOI: K06422 Corr: No Ephemeris Match

Kp: 14.99 R*: 1.78 Rs Teff: 5023.0 K Logg: 3.90 Fe/H: 0.040



DV Fit Results:

Period = 309.25195 [0.01783] d
Epoch = 273.8147 [0.0306] BKJD
Rp/R* = 0.1305 [0.3380]
a/R* = 49.55 [21.17]
b = 1.00 [0.44]
Seff = 2.39 [2.78]
Teq = 317 [92] K
Rp = 25.40 [67.74] Re
a = 0.8713 [0.5952] AU
Ag = 1506.45 [8044.57] [0.19 sigma]
Teffp = 3054 [3982] K [0.69 sigma]

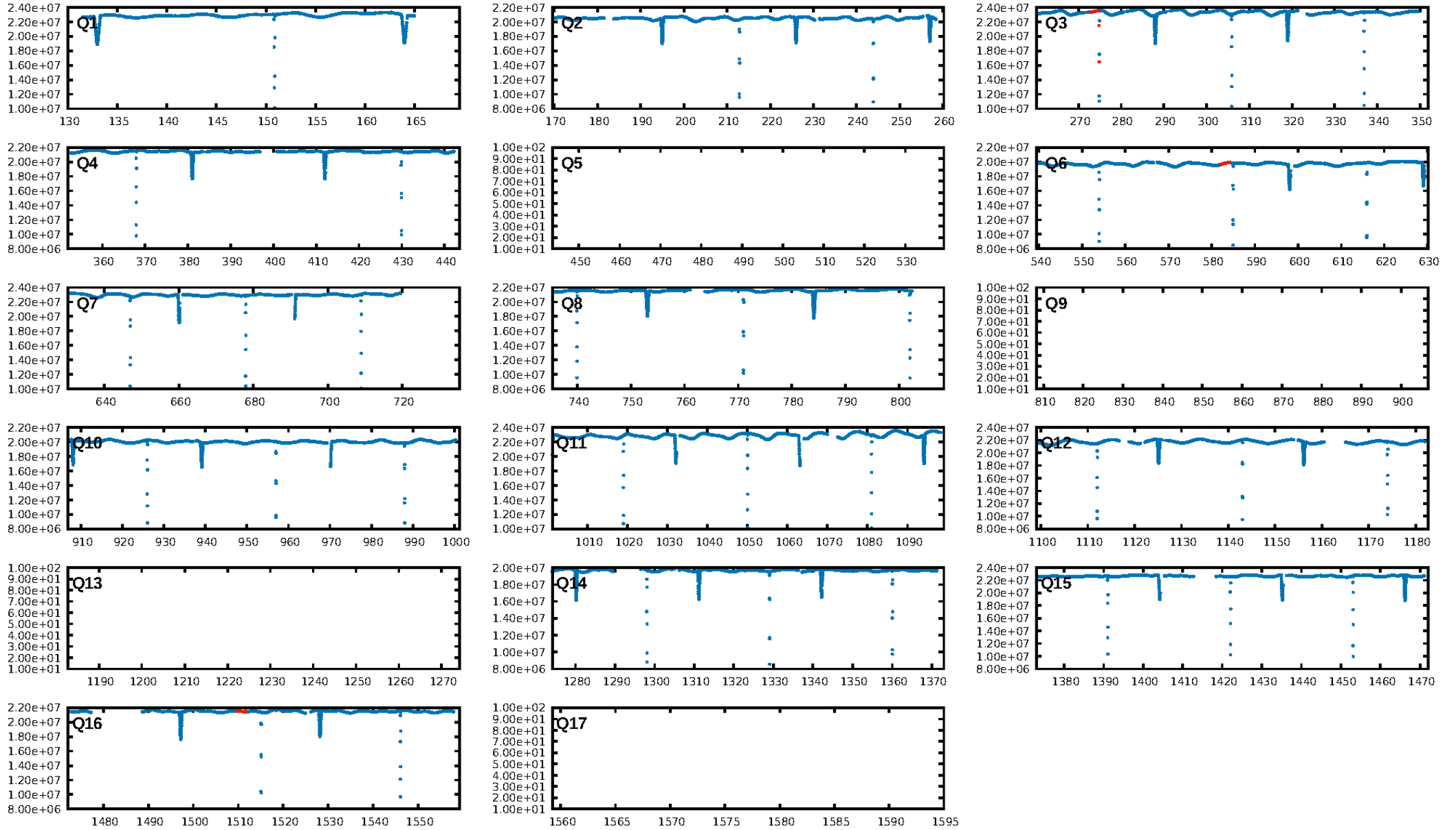
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [63.13 sigma]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.2316
Centroid-sig: 31.7%
Centroid-so: 0.713 arcsec [3.71 sigma]
OotOffset-rm: 0.077 arcsec [0.93 sigma]
KicOffset-rm: 0.158 arcsec [1.78 sigma]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/2]

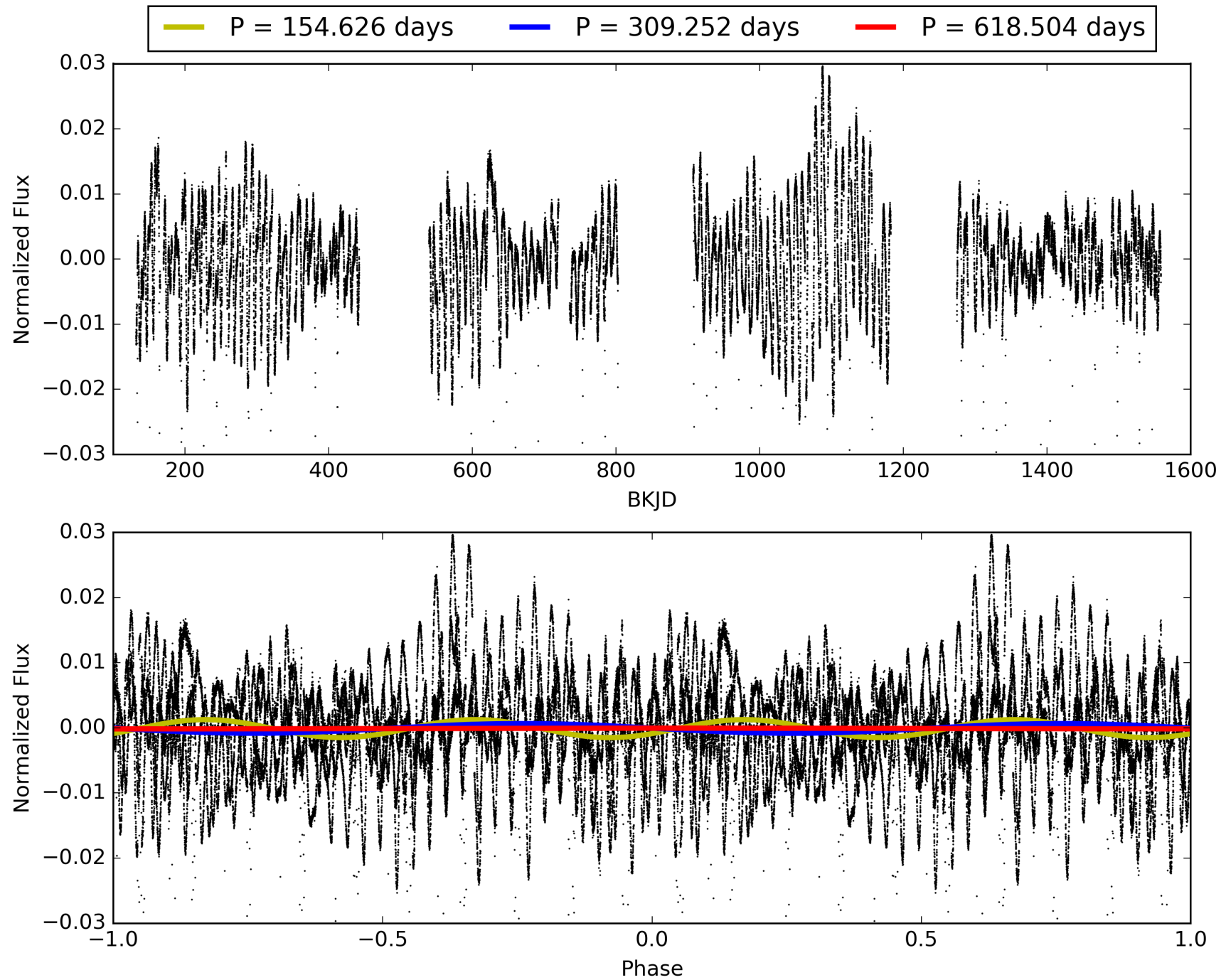
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 04:54:06 Z

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

TCE 004540632-04, PDC Light Curves

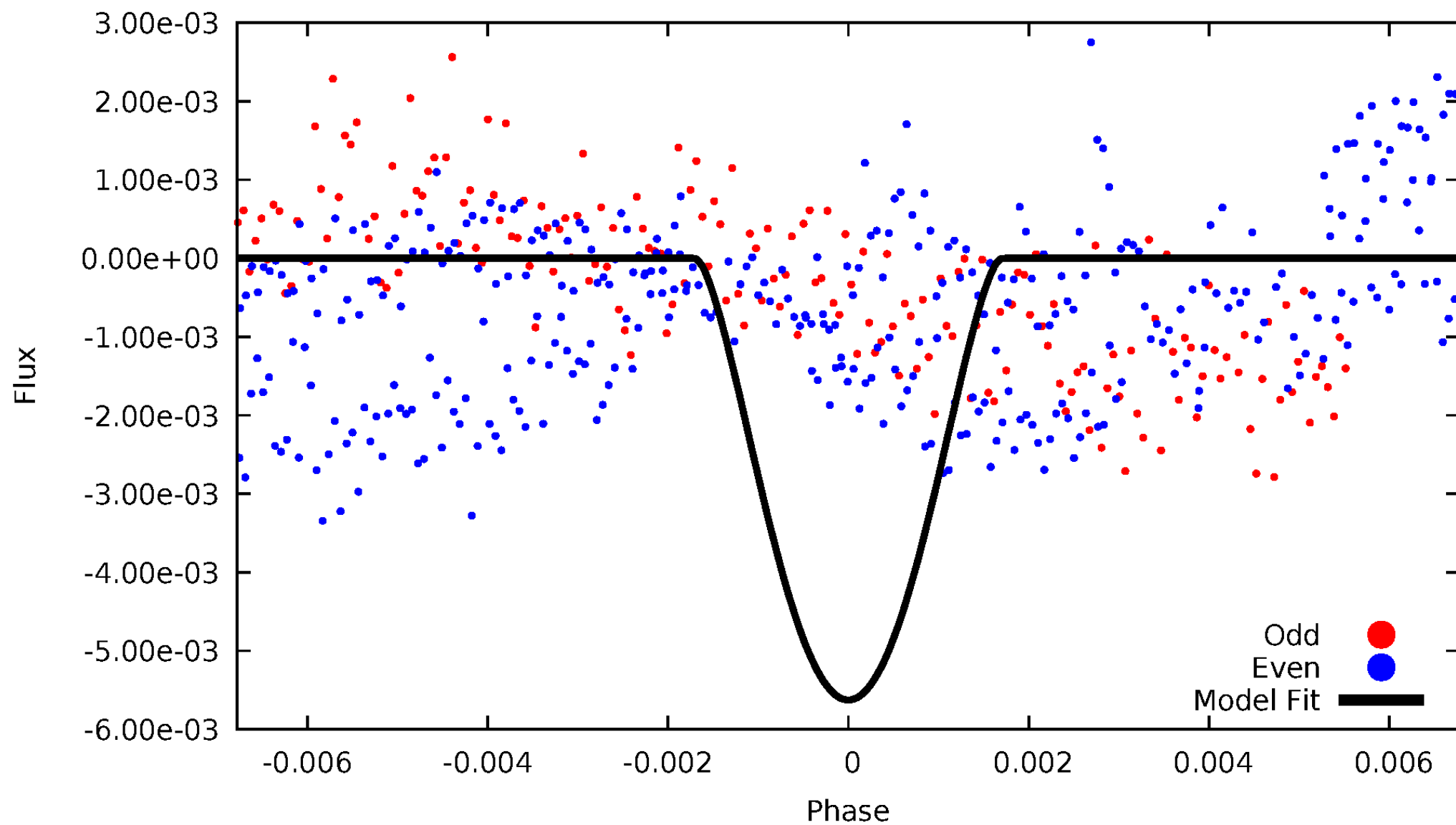


TCE 004540632-04



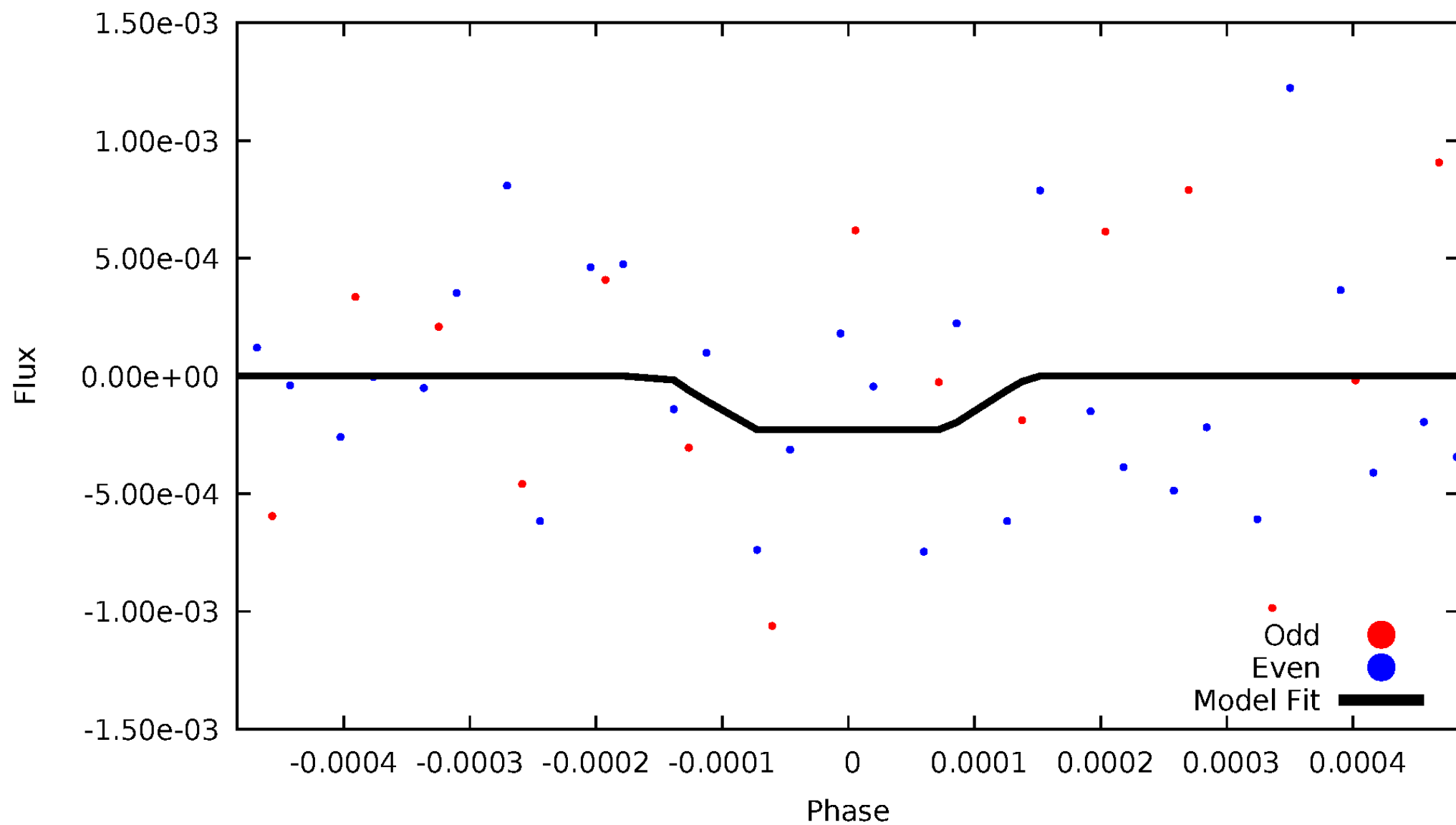
DV Odd/Even

TCE 004540632-04



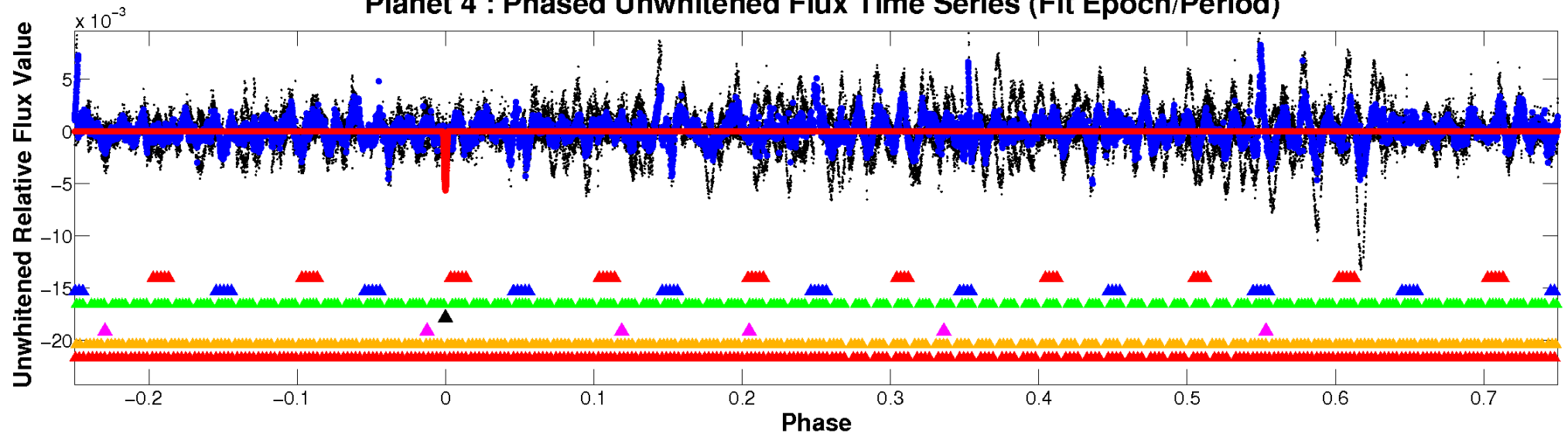
ALT Odd/Even

TCE 004540632-04

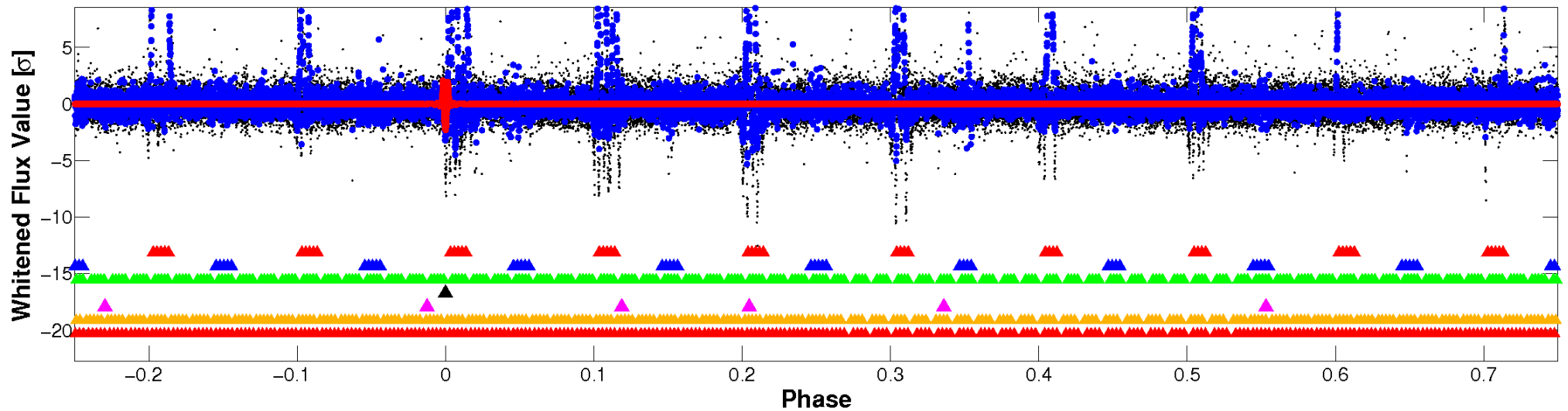


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

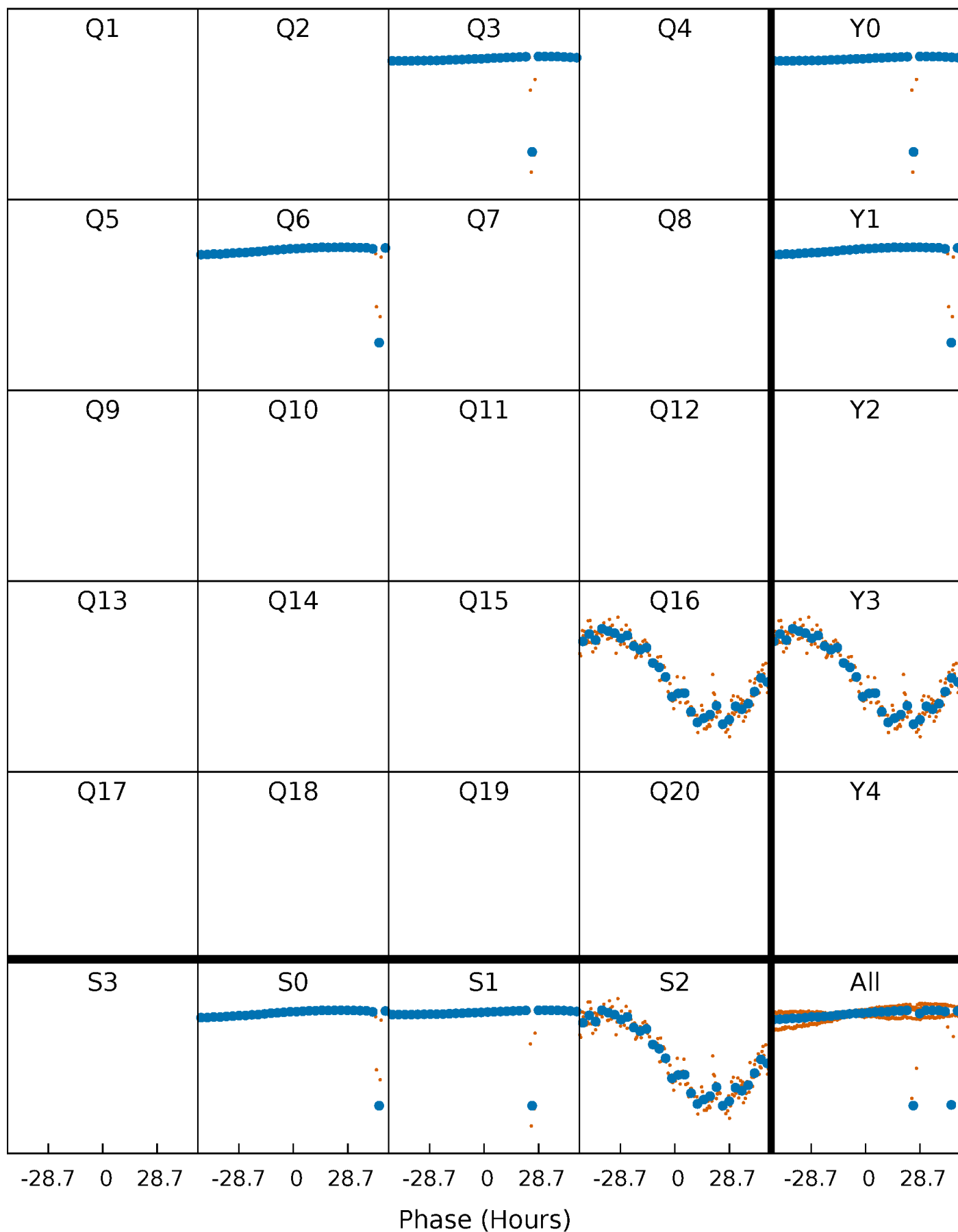


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



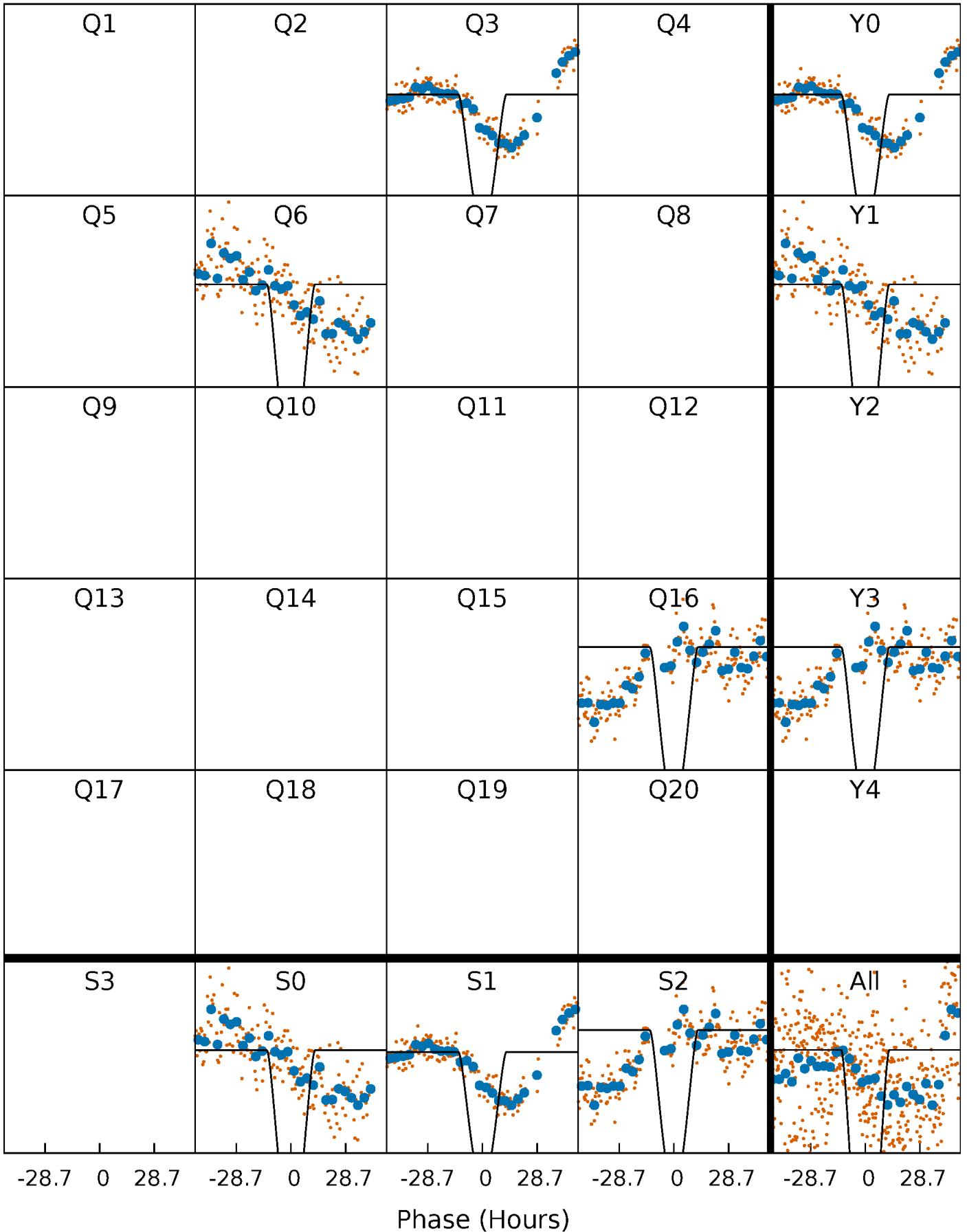
PDC Quarter-Phased Transit Curves

TCE 004540632-04 P=309.251946 Days $T_0=273.814657$ (BKJD)



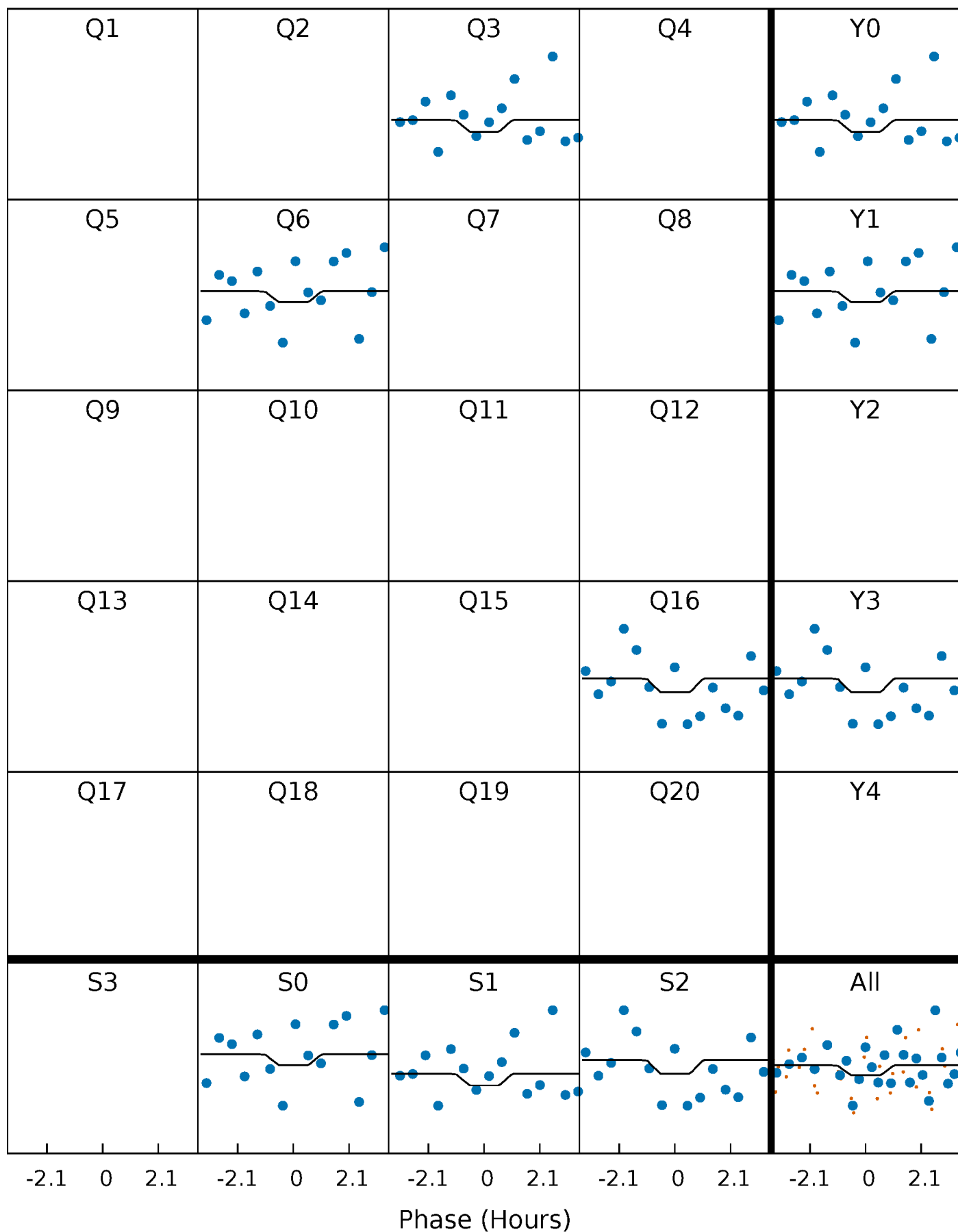
DV Quarter-Phased Transit Curves

TCE 004540632-04 $P=309.251946$ Days $T_0=273.814657$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

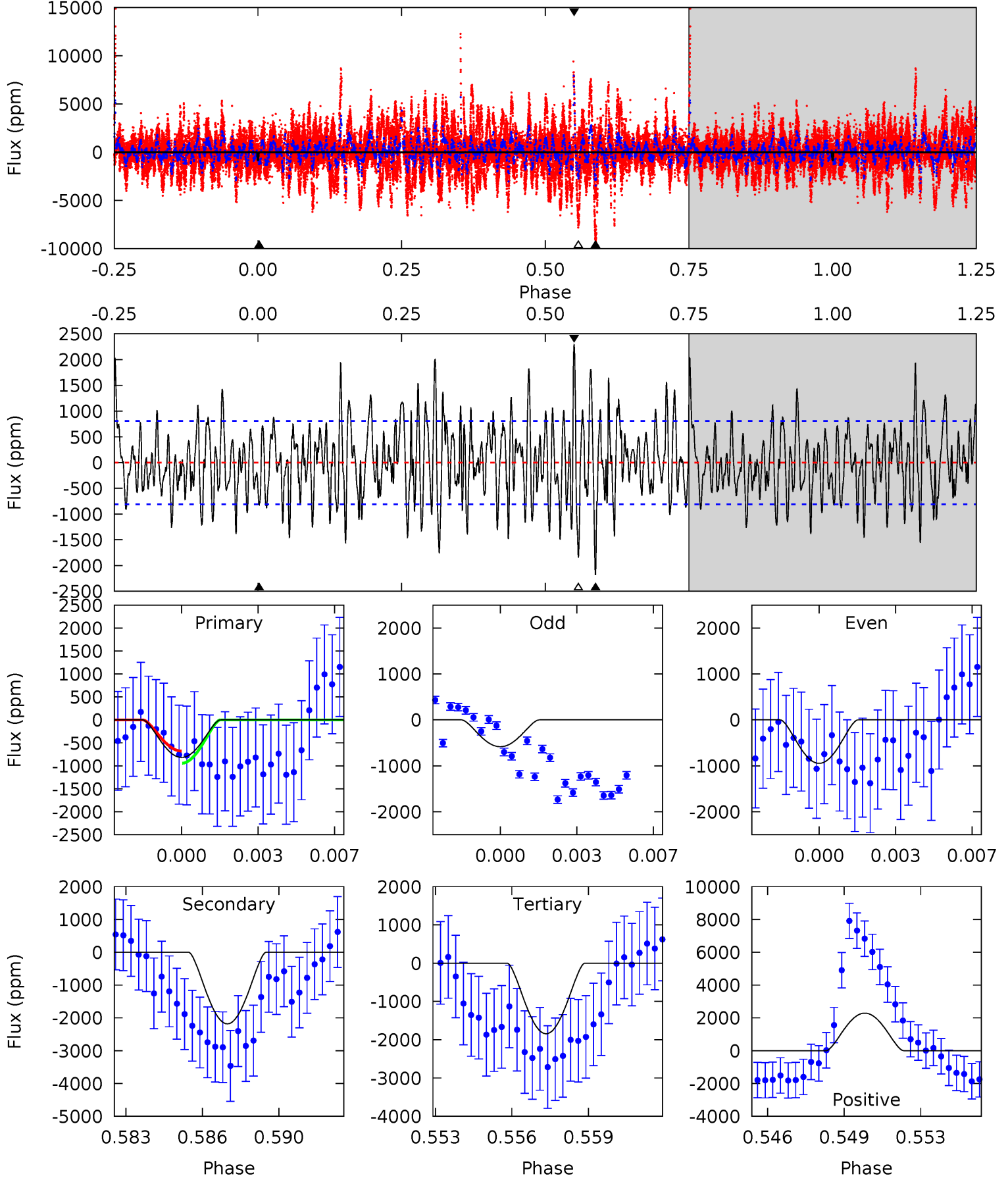
TCE 004540632-04 P=309.370910 Days $T_0=274.010455$ (BKJD)



DV Model-Shift Uniqueness Test

004540632-04, P = 309.251946 Days, E = 273.814657 Days

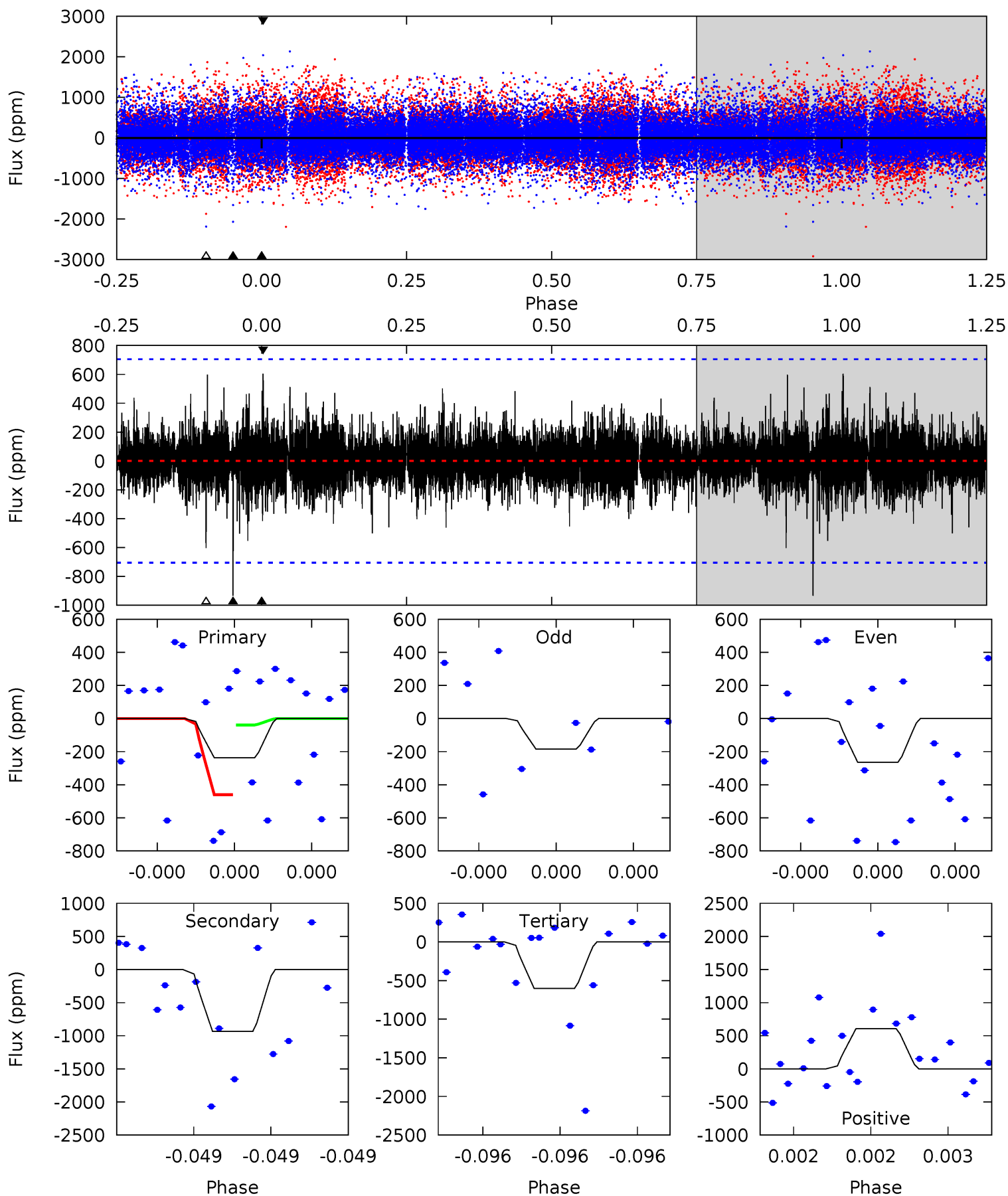
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.28	14.1	11.9	14.8	5.23	2.93	4.17	-6.63	-9.49	2.19	-0.68	1.12	1.31	0.51	0.86



Alt Model-Shift Uniqueness Test

004540632-04, P = 309.370910 Days, E = 274.010455 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.91	7.53	4.86	4.87	5.68	3.64	0.90	-2.94	-2.96	2.67	2.66	0.30	1.27	0.39	1.71



Stellar Parameters For KIC 004540632

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5023^{+151}_{-151}	$3.900^{+0.700}_{-0.300}$	$0.040^{+0.250}_{-0.250}$	$1.784^{+1.027}_{-1.129}$	$0.921^{+0.185}_{-0.151}$	$0.228^{+2.252}_{-0.171}$
	+3%/-3%	+18%/-8%	+625%/-625%	+58%/-63%	+20%/-16%	+986%/-75%
Source	PHO1	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 004540632-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2182±155	$50.66^{+59.42}_{-36.13}$	437^{+68}_{-74}	2758^{+1202}_{-426}	372^{+4082}_{-296}
Alt.	-934±124	$43.18^{+54.40}_{-30.55}$	439^{+64}_{-72}	2580^{+990}_{-414}	204^{+2223}_{-163}

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

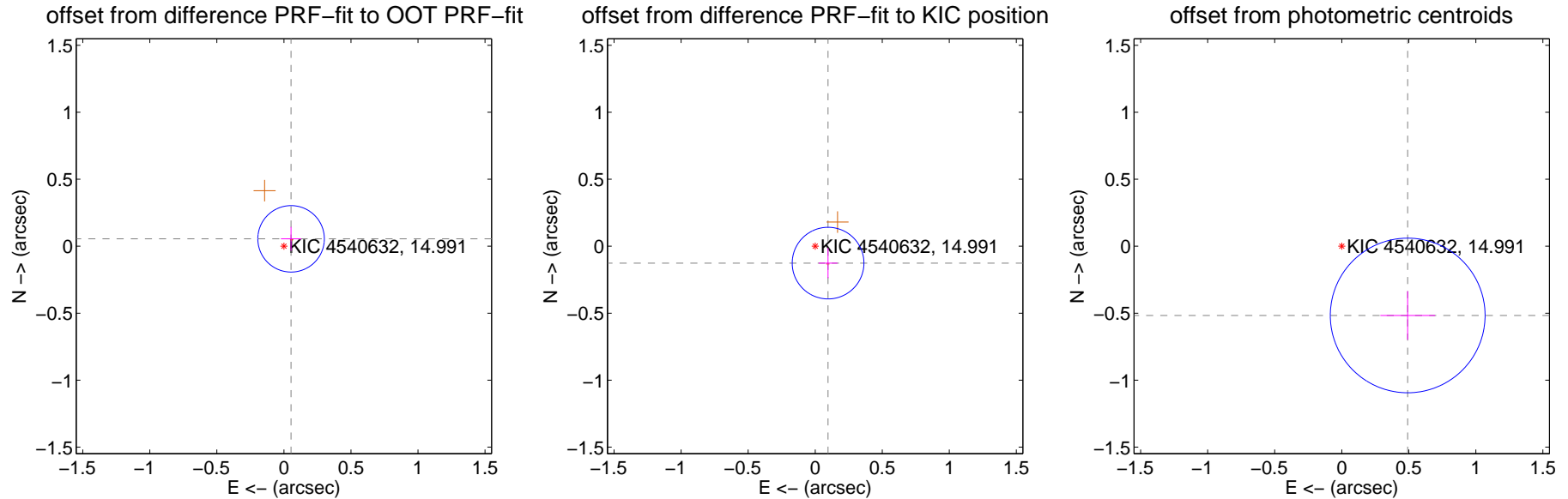
DV Centroid Data

Supplemental centroid analysis for 004540632-04. Kepler magnitude: 14.99. Transit SNR 19.01

There are 0 quarters with good PRF difference image offsets

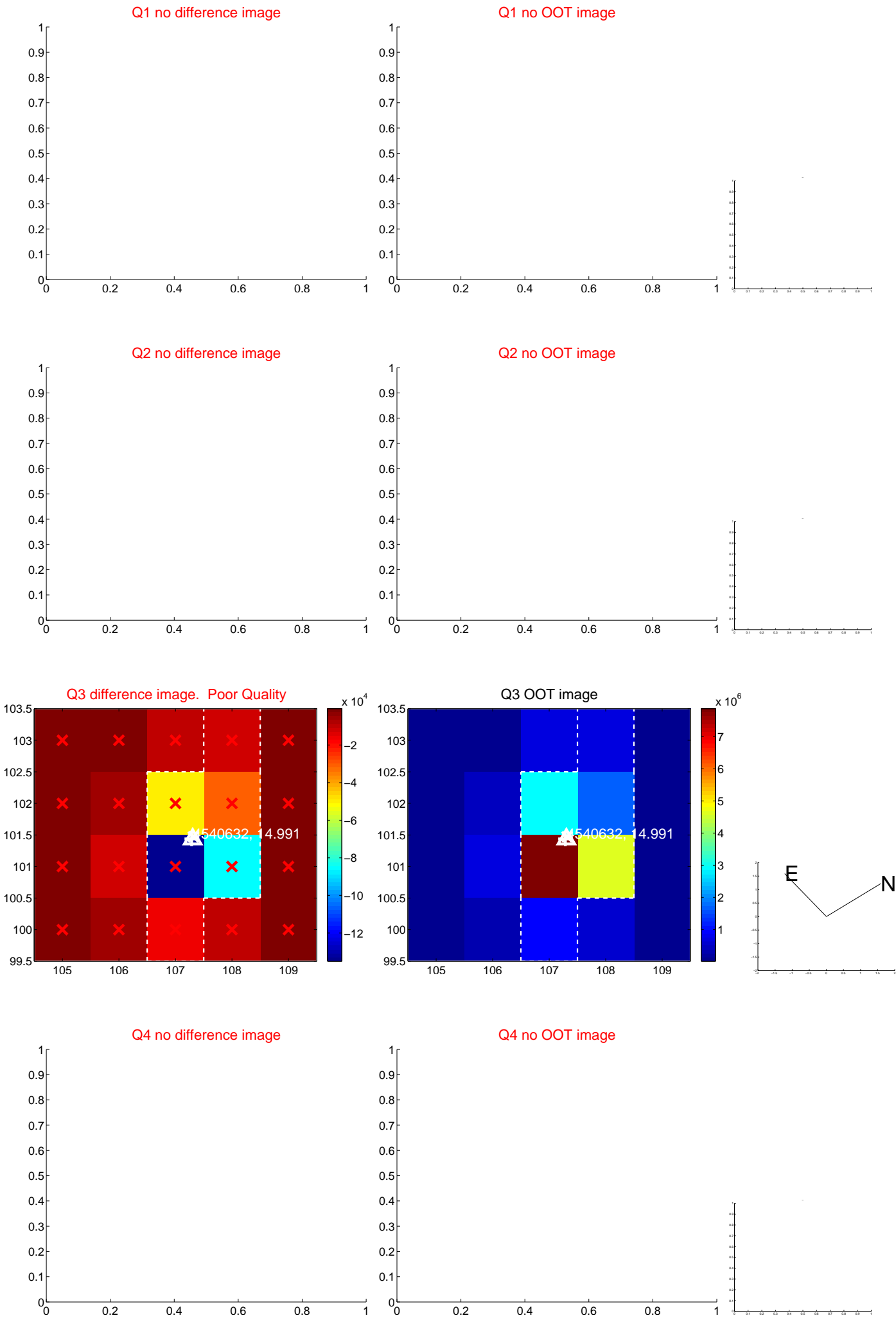
The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.077 ± 0.083	0.93	-0.053 ± 0.076	0.055 ± 0.089
PRF-fit source offset from KIC position	0.158 ± 0.089	1.78	-0.096 ± 0.070	-0.126 ± 0.112
photometric centroid source offset	0.71 ± 0.19	3.71	-0.49 ± 0.20	-0.52 ± 0.18

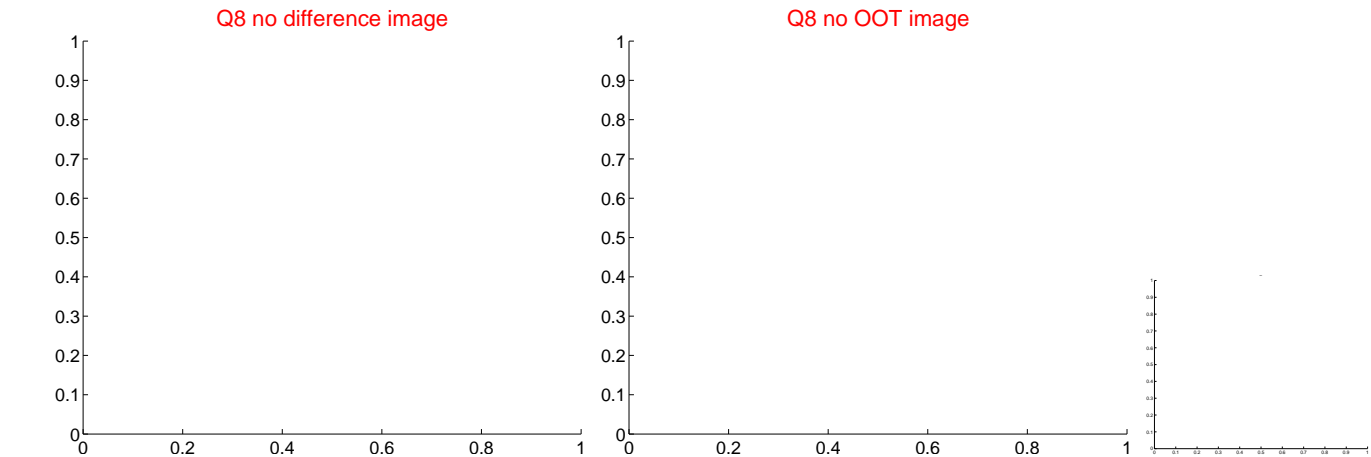
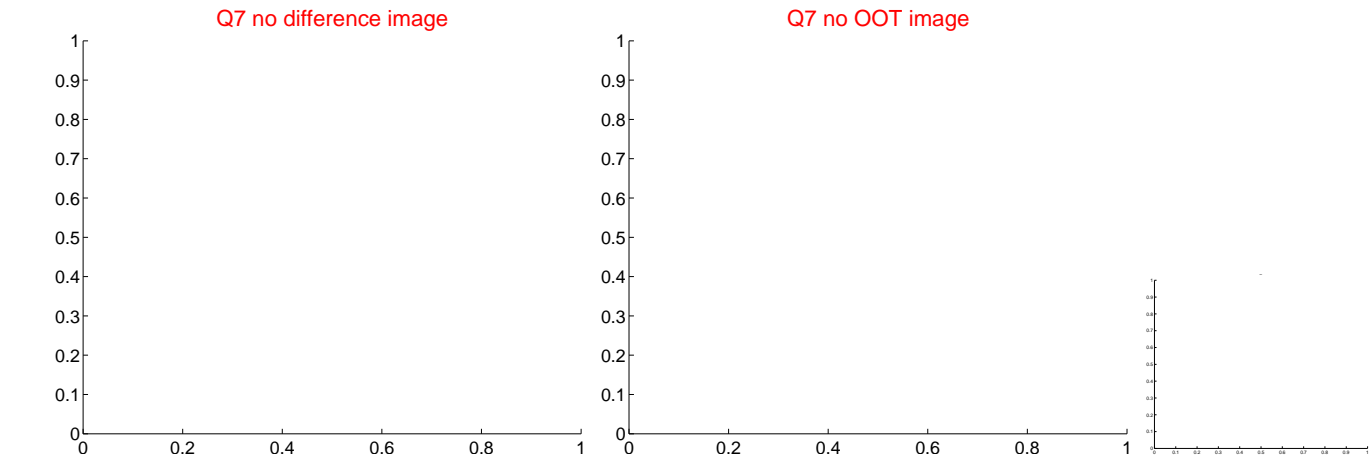
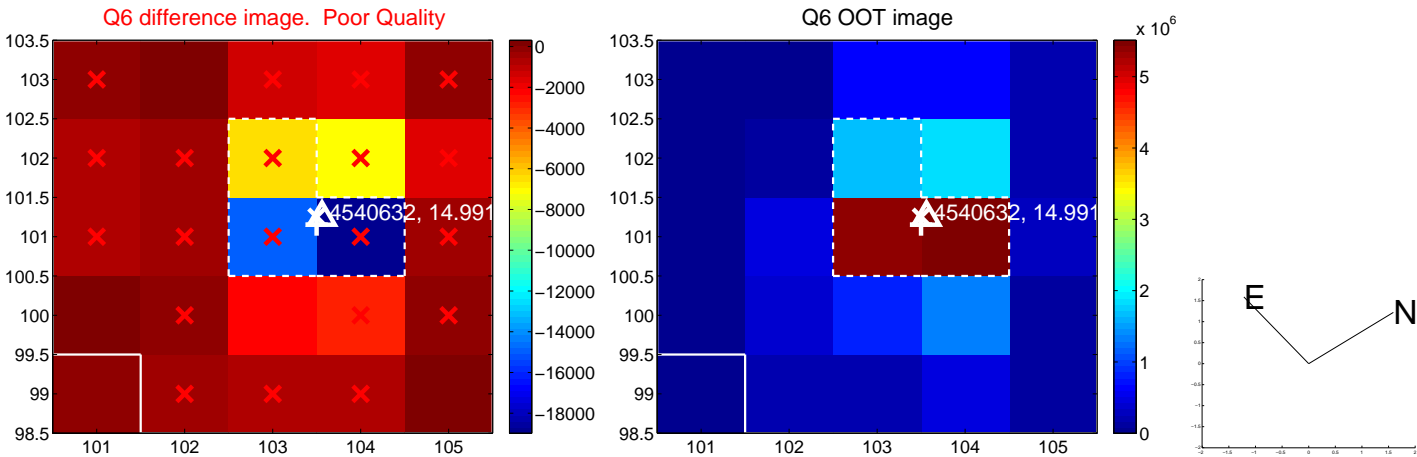
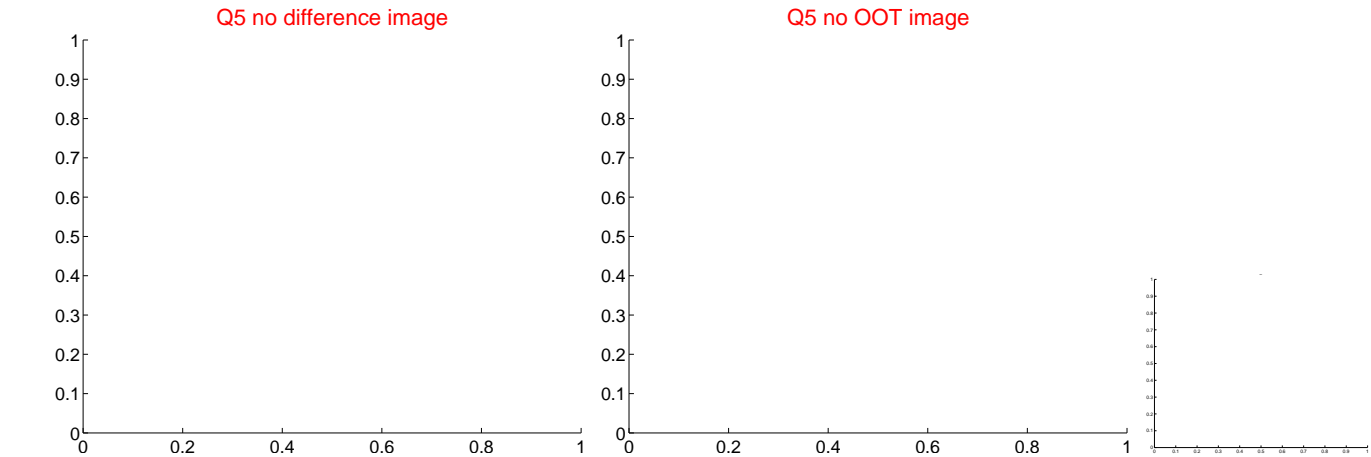


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



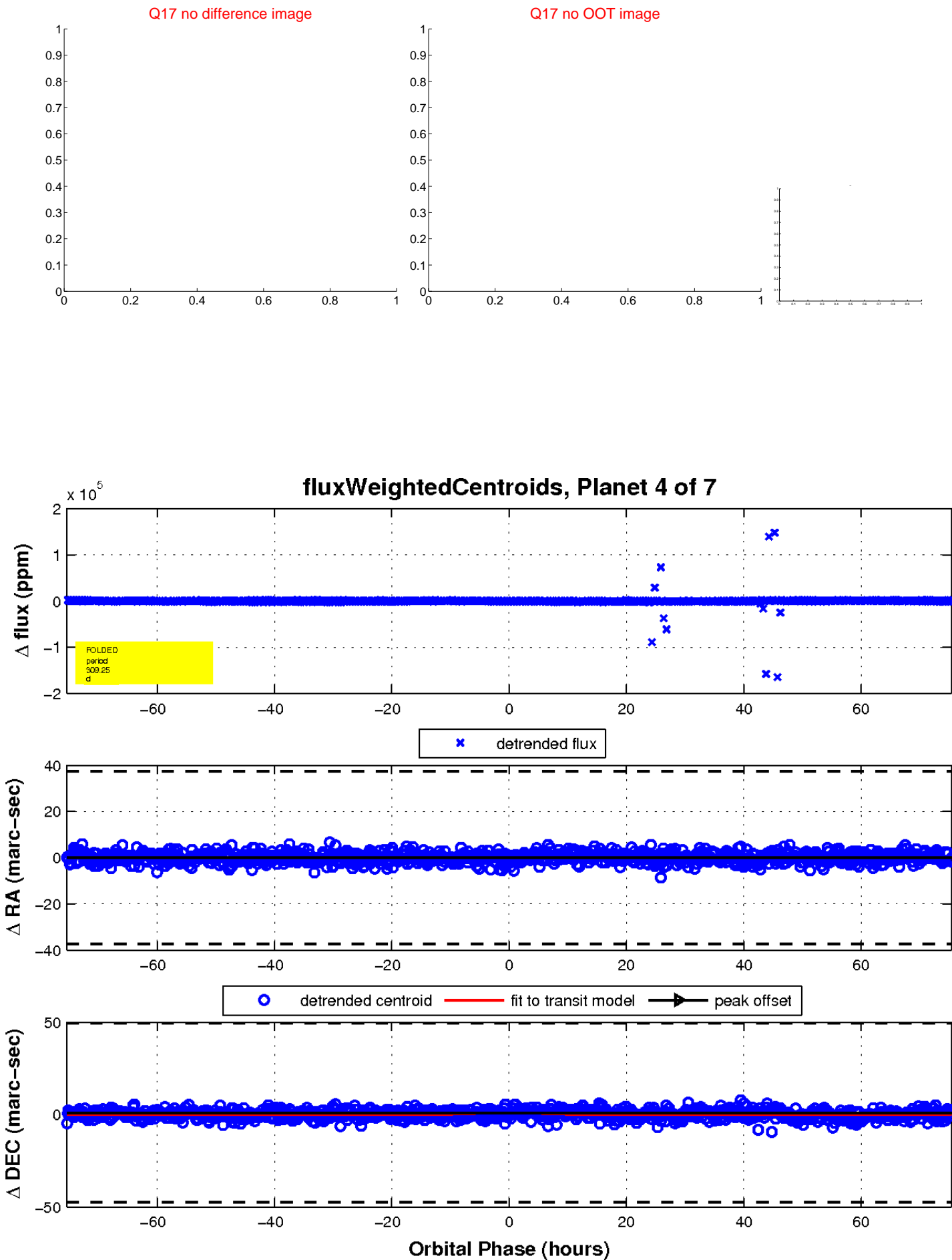
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

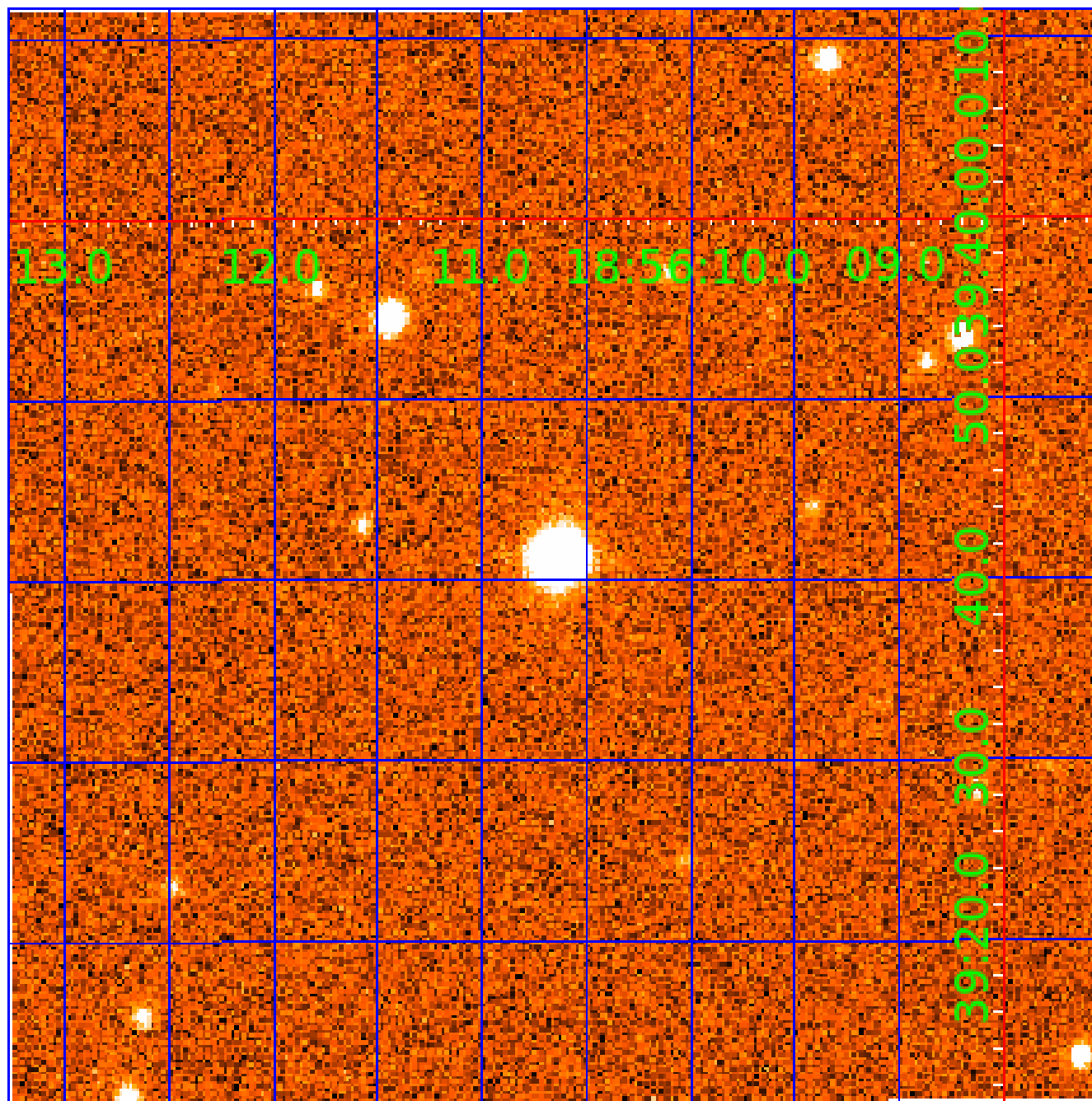


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004540632

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})
004540632-01	OBS	6422.01	31.005408	150.857873	547467.0	1.500	9099.9	-1.0	1.78	5023	97.34	51.34
004540632-02	OBS	No	31.005368	132.972973	165403.9	15.120	2069.4	1703.9	1.78	5023	99.83	51.34
004540632-03	OBS	No	4.427308	133.576226	41.6	2.926	701.6	1.8	1.78	5023	1.22	687.85
004540632-04	OBS	No	309.251946	273.814657	5628.3	25.150	275.6	19.0	1.78	5023	25.40	2.39
004540632-05	OBS	No	242.084340	337.152057	648.4	4.419	268.9	2.0	1.78	5023	9.38	3.31
004540632-06	OBS	No	4.428953	132.507126	0.1	0.713	191.7	0.0	1.78	5023	0.11	687.50
004540632-07	OBS	No	4.429920	132.934246	114.2	17.263	191.7	4.1	1.78	5023	1.85	687.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004540632-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_NOFITS
004540632-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004540632-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV
004540632-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
004540632-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004540632-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
004540632-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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.

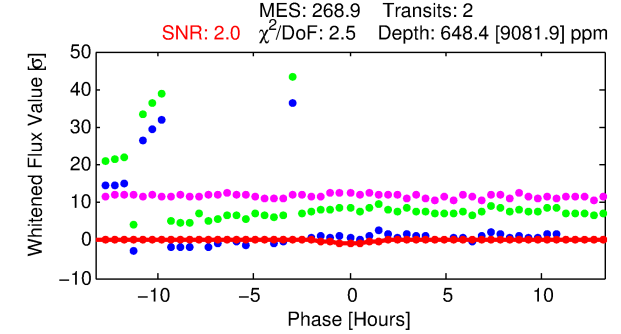
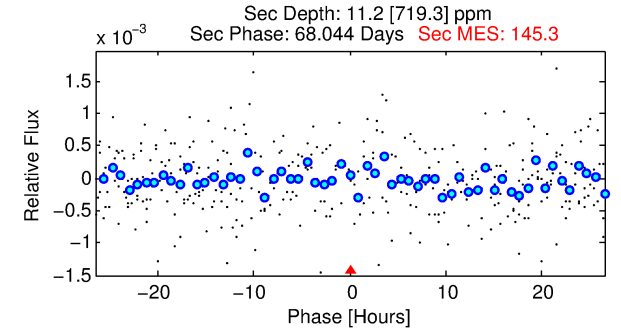
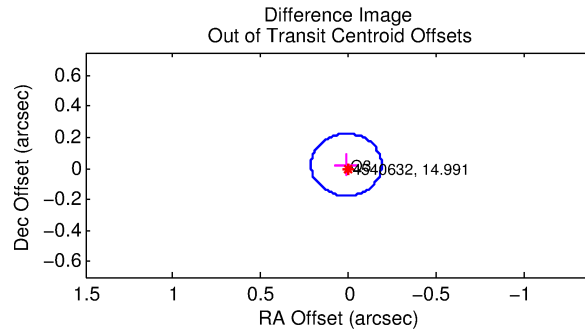
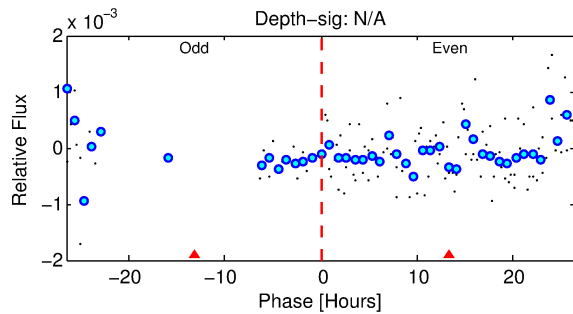
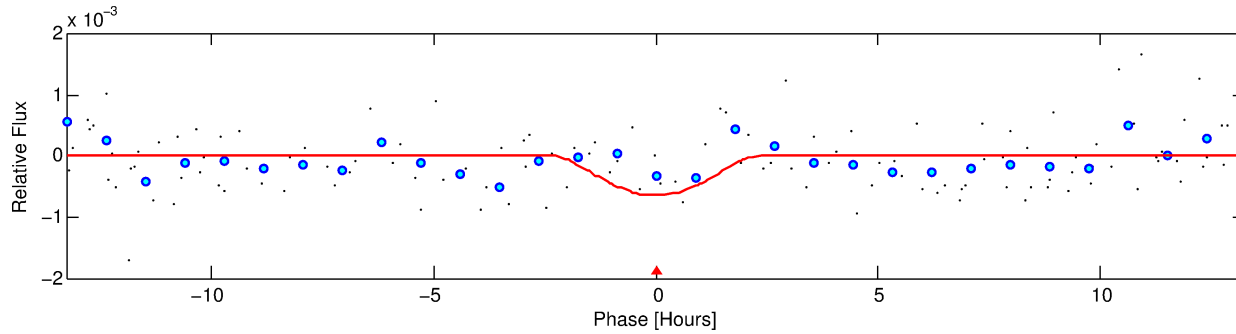
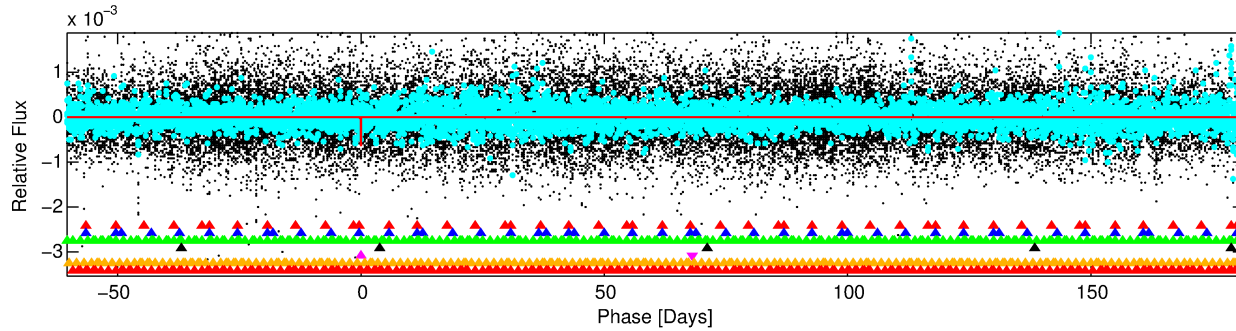
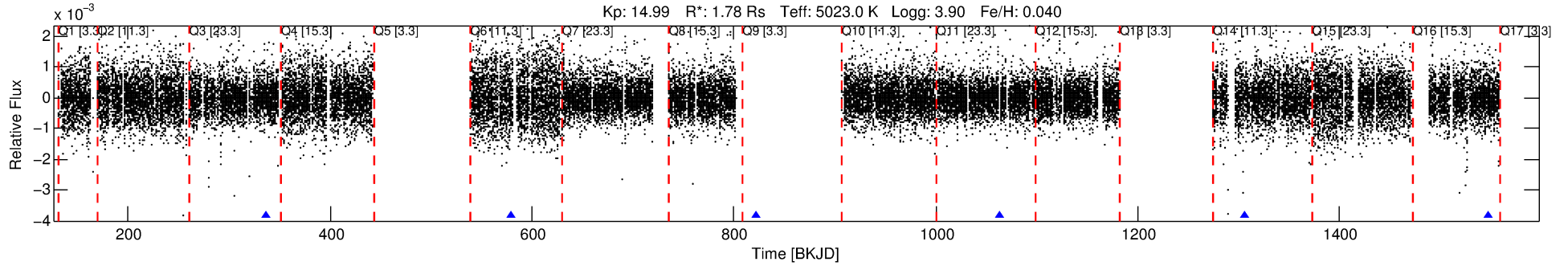
Ephemeris Match Information For 004540632-05

No Significant Match Found

DV One-Page Summary

KIC: 4540632 Candidate: 5 of 7 Period: 242.084 d
KOI: K06422 Corr: No Ephemeris Match

Kp: 14.99 R*: 1.78 Rs Teff: 5023.0 K Logg: 3.90 Fe/H: 0.040



DV Fit Results:

Period = 242.08434 [0.06722] d
Epoch = 337.1521 [0.2694] BKJD
Rp/R* = 0.0482 [4.6640]
a/R* = 131.68 [3083.36]
b = 1.00 [7.08]
Seff = 3.31 [3.85]
Teq = 344 [100] K
Rp = 9.38 [907.98] Re
a = 0.7401 [0.5056] AU
Ag = 38.22 [7799.85] [0.00σ]
Teff = 1323 [67475] K [0.01σ]

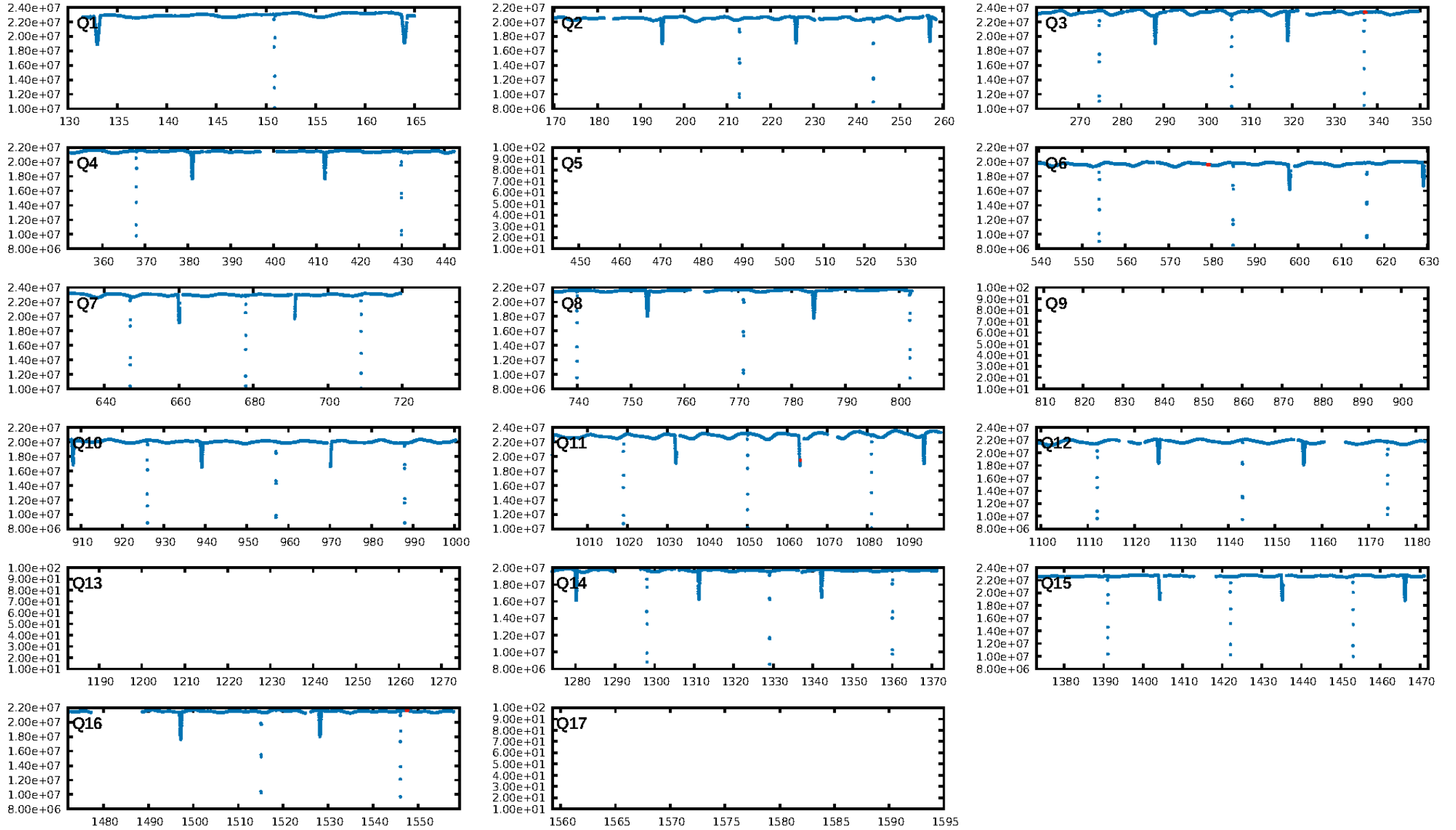
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1085.46σ]
LongPeriod-sig: 100.0% [63.13σ]
ModelChiSquare2-sig: 18.1%
ModelChiSquareGof-sig: 53.5%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -1.17
Centroid-sig: 1.9%
Centroid-so: 3.903 arcsec [1.39σ]
OotOffset-rm: 0.027 arcsec [0.40σ]
KicOffset-rm: 0.170 arcsec [2.54σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.67 [2/3]

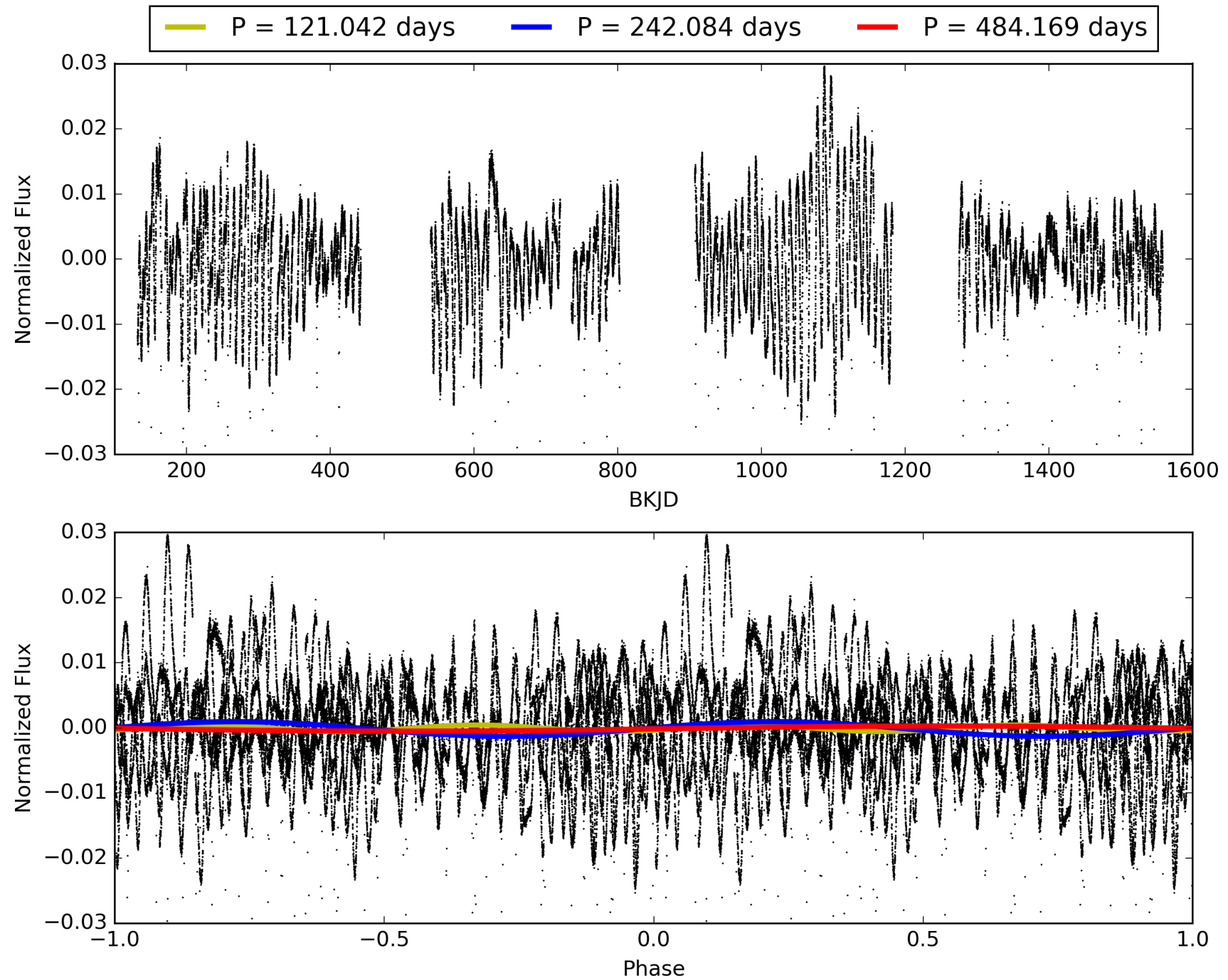
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 04:54:14 Z

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

TCE 004540632-05, PDC Light Curves

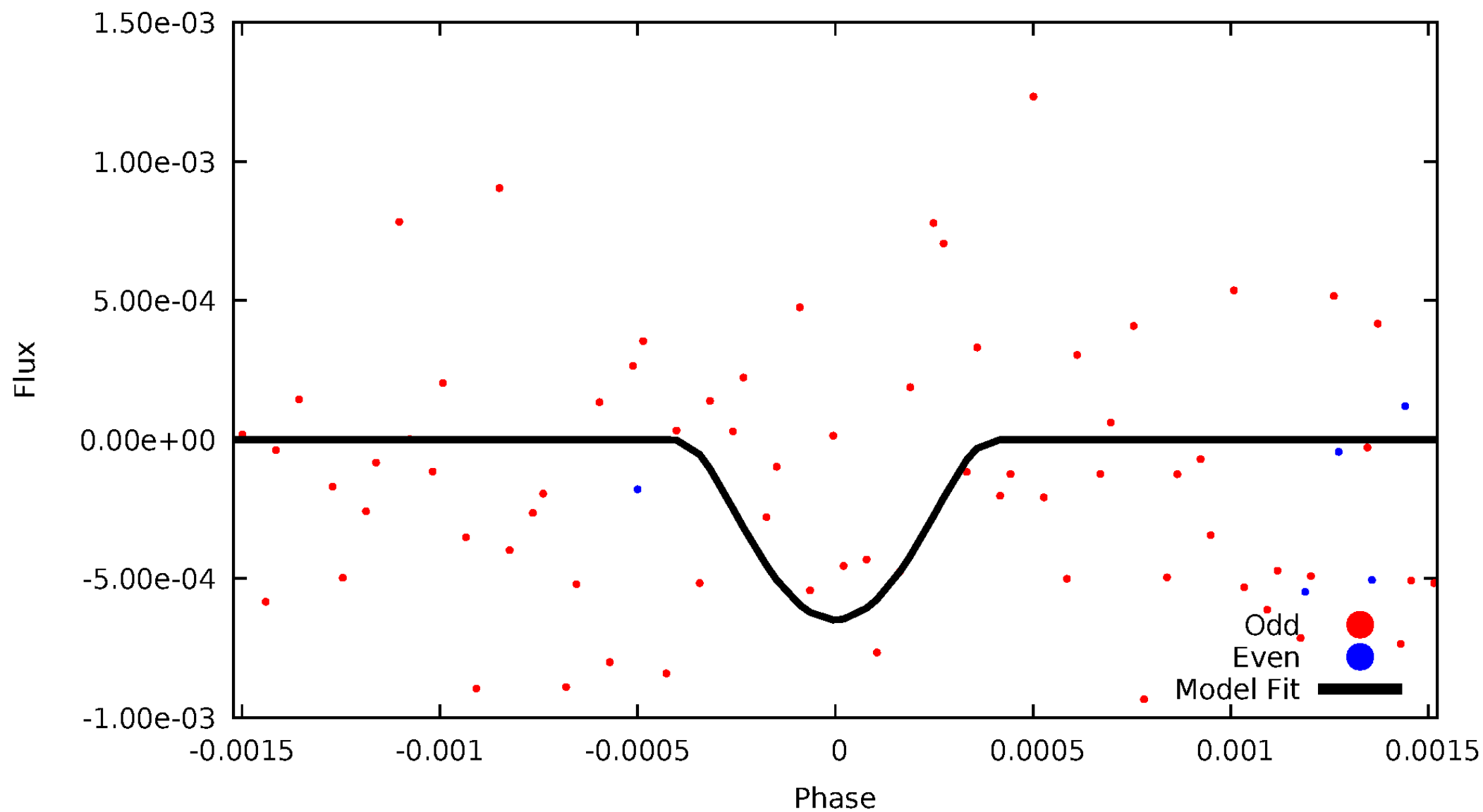


TCE 004540632-05



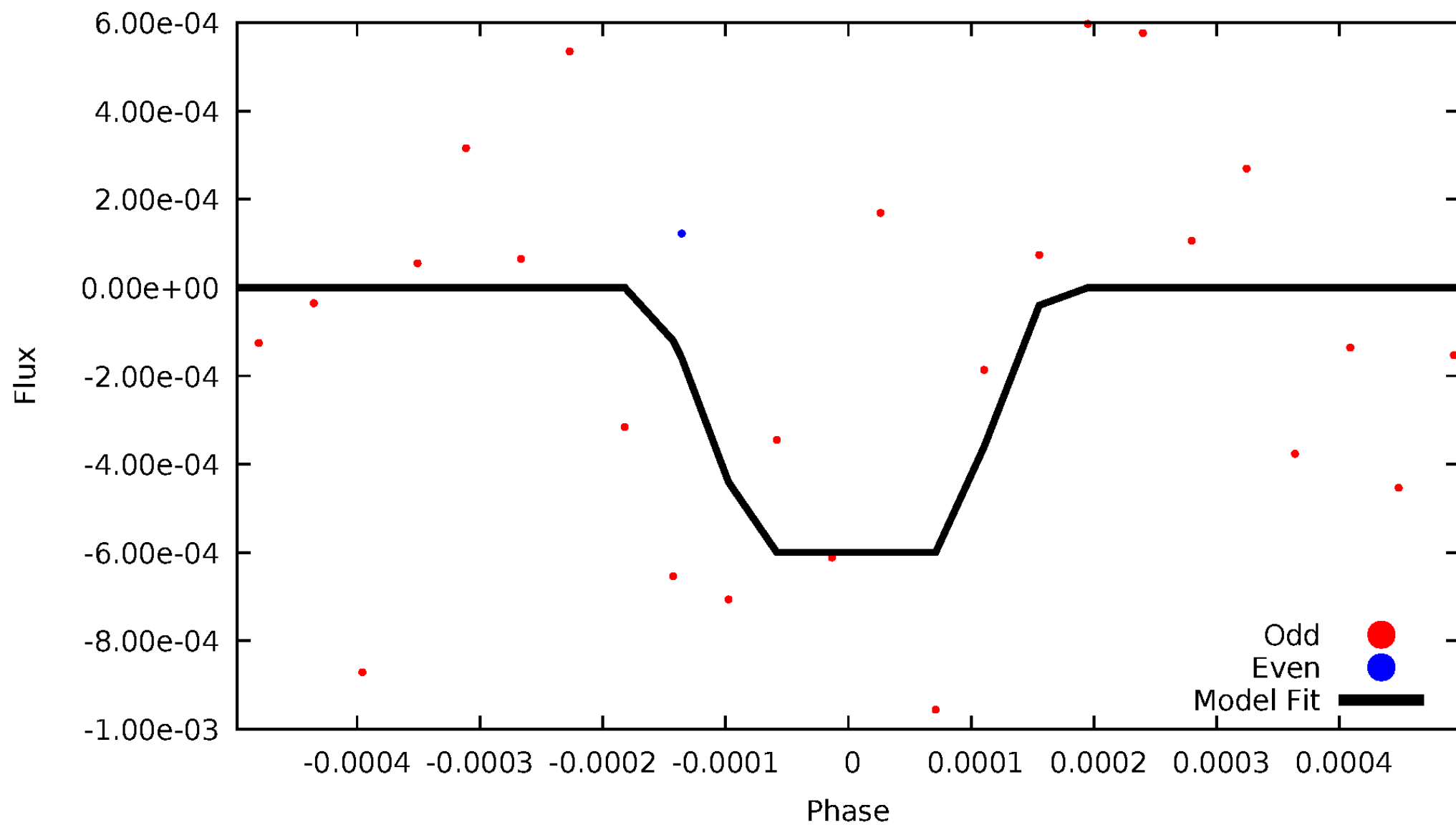
DV Odd/Even

TCE 004540632-05



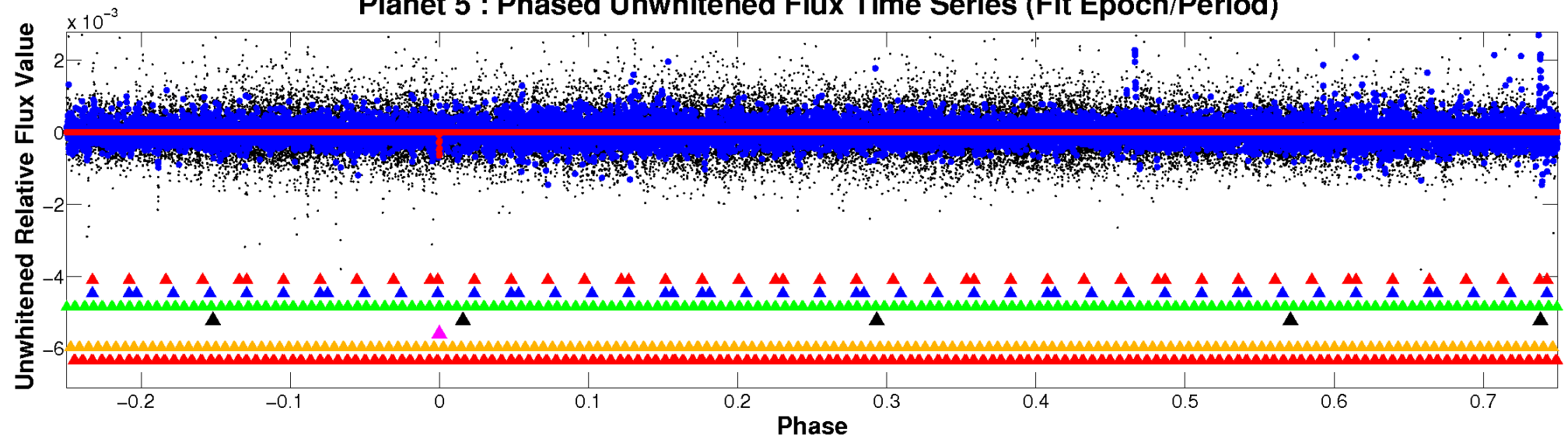
ALT Odd/Even

TCE 004540632-05

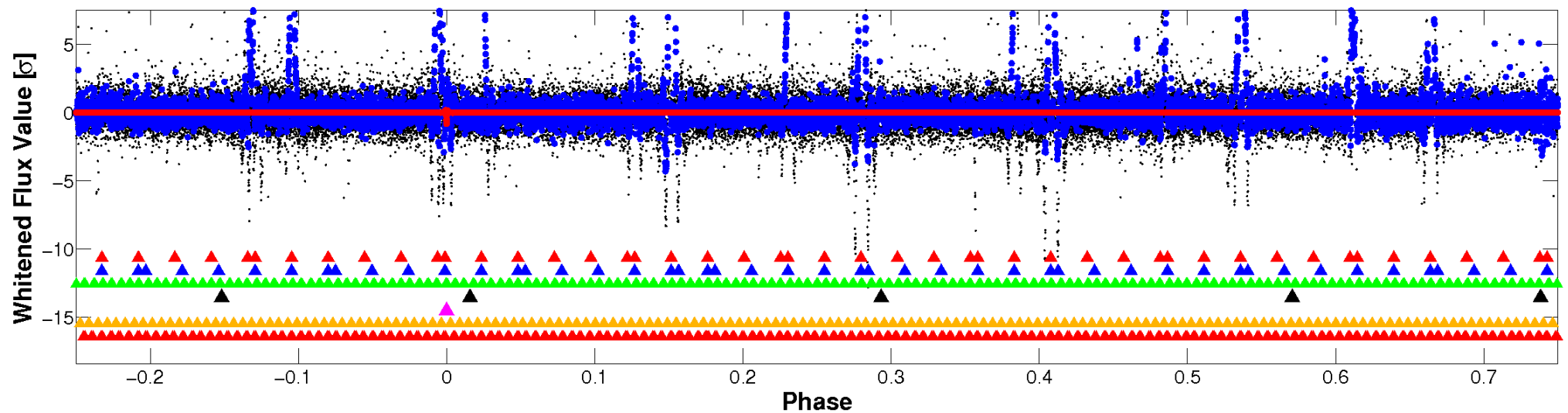


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

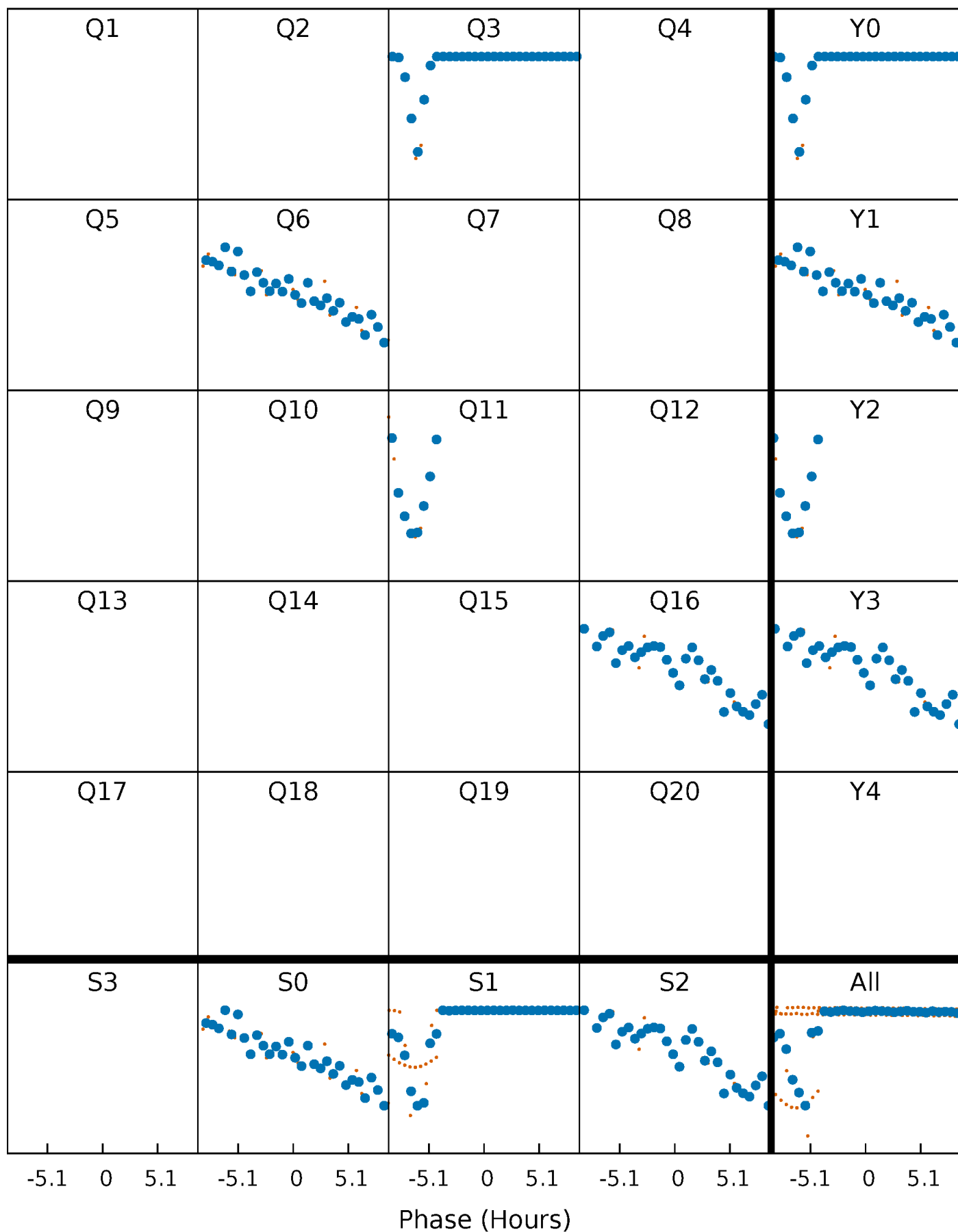


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



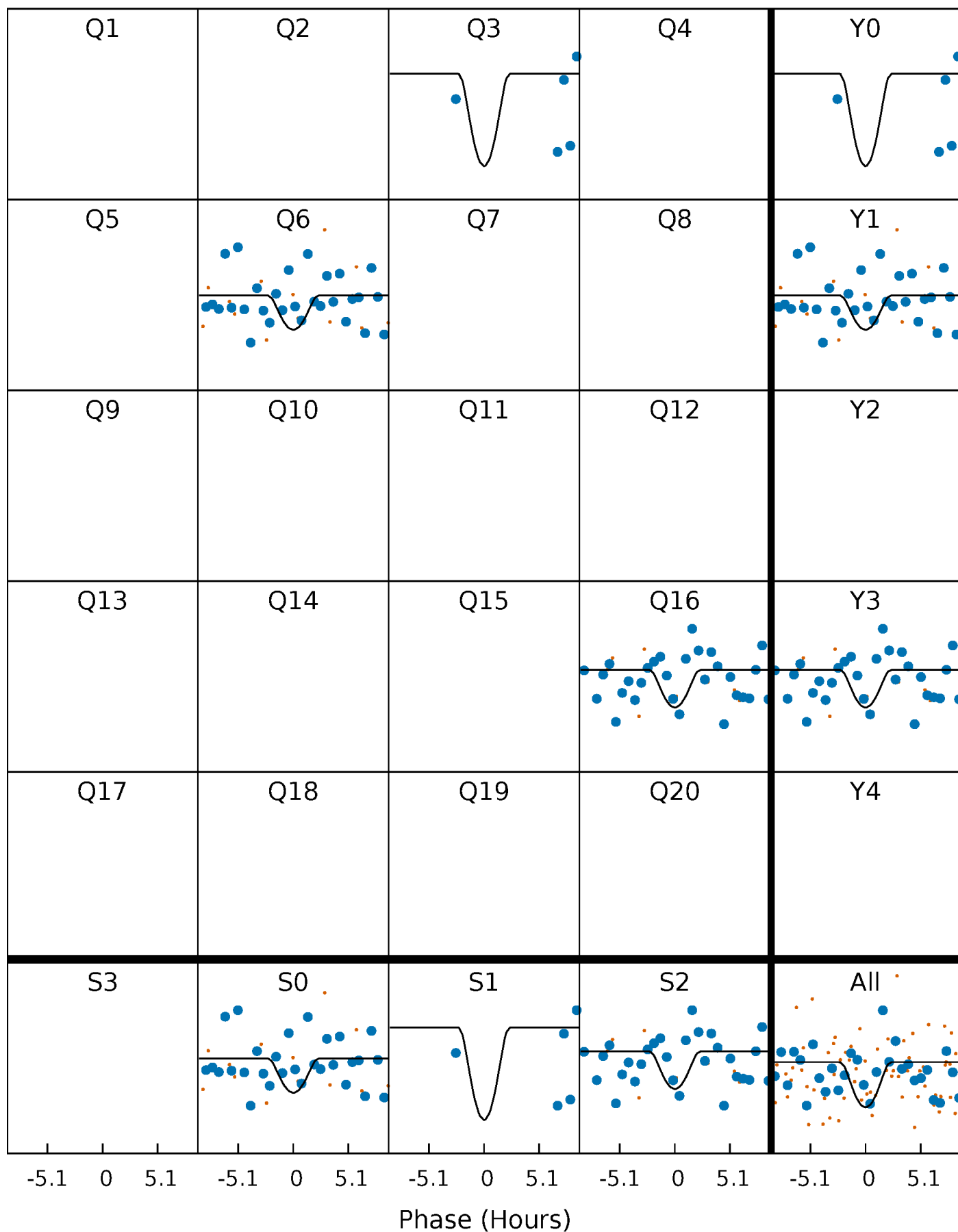
PDC Quarter-Phased Transit Curves

TCE 004540632-05 $P=242.084340$ Days $T_0=337.152057$ (BKJD)



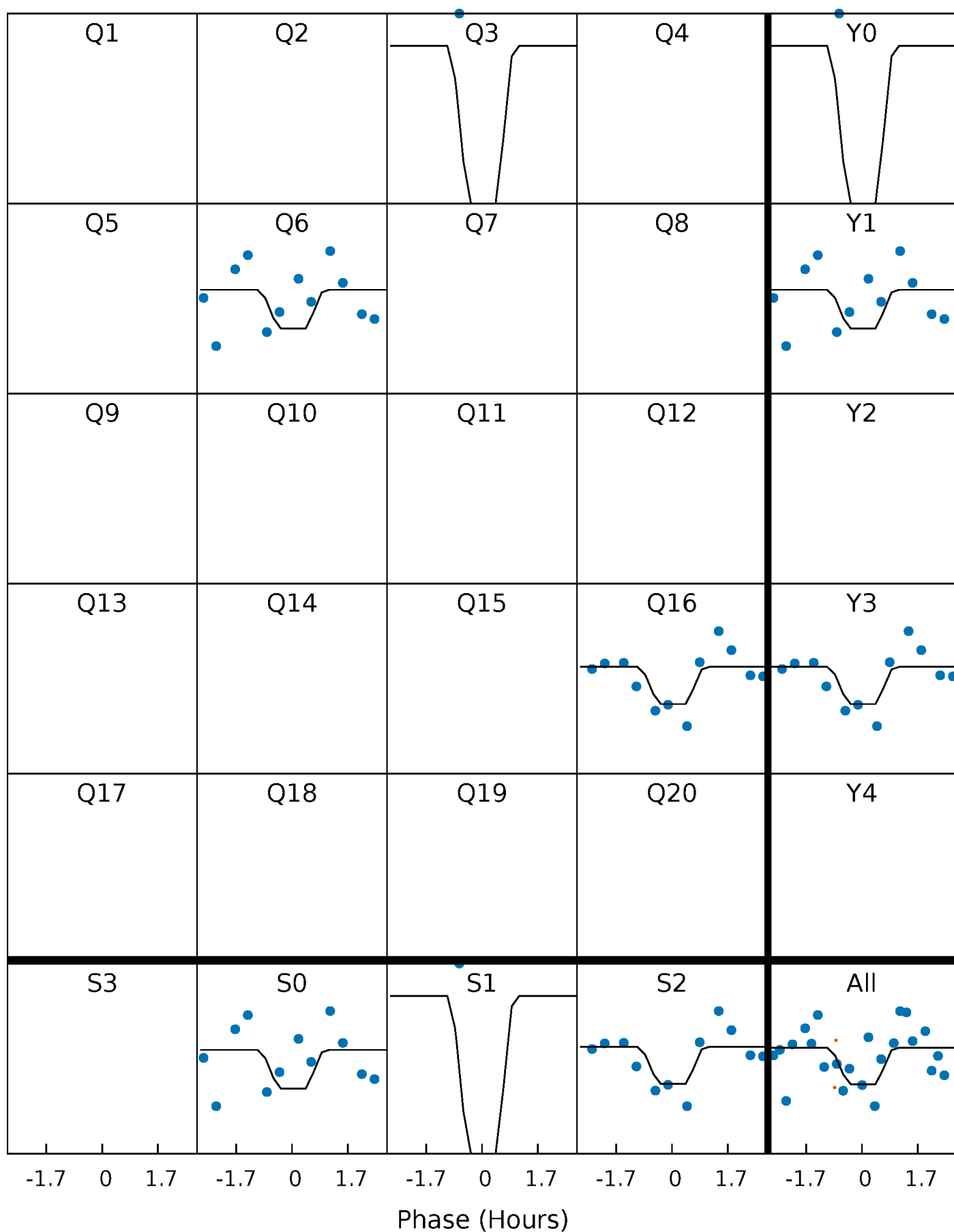
DV Quarter-Phased Transit Curves

TCE 004540632-05 $P=242.084340$ Days $T_0=337.152057$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

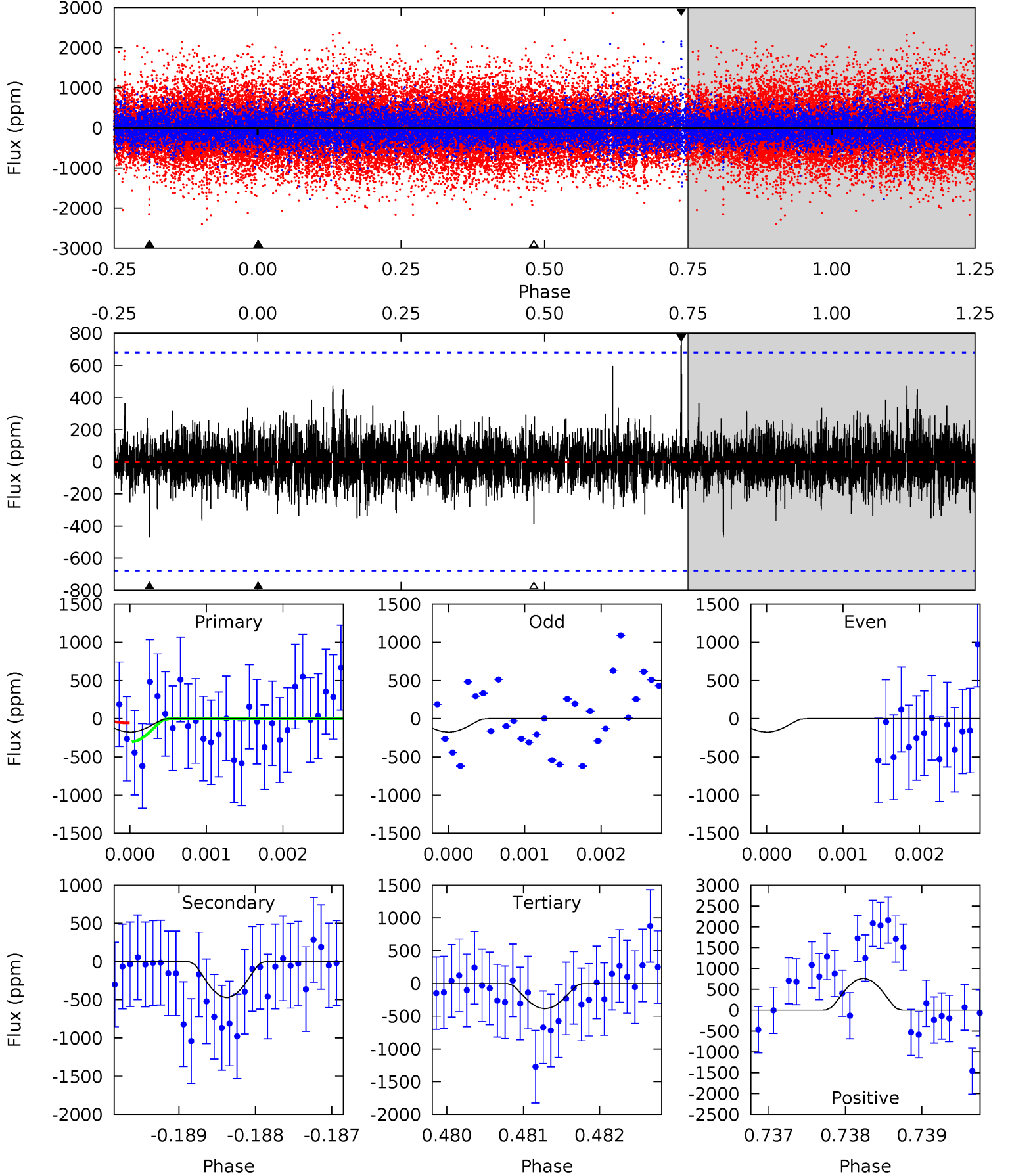
TCE 004540632-05 P=242.103630 Days $T_0=337.063855$ (BKJD)



DV Model-Shift Uniqueness Test

004540632-05, $P = 242.084340$ Days, $E = 95.067717$ Days

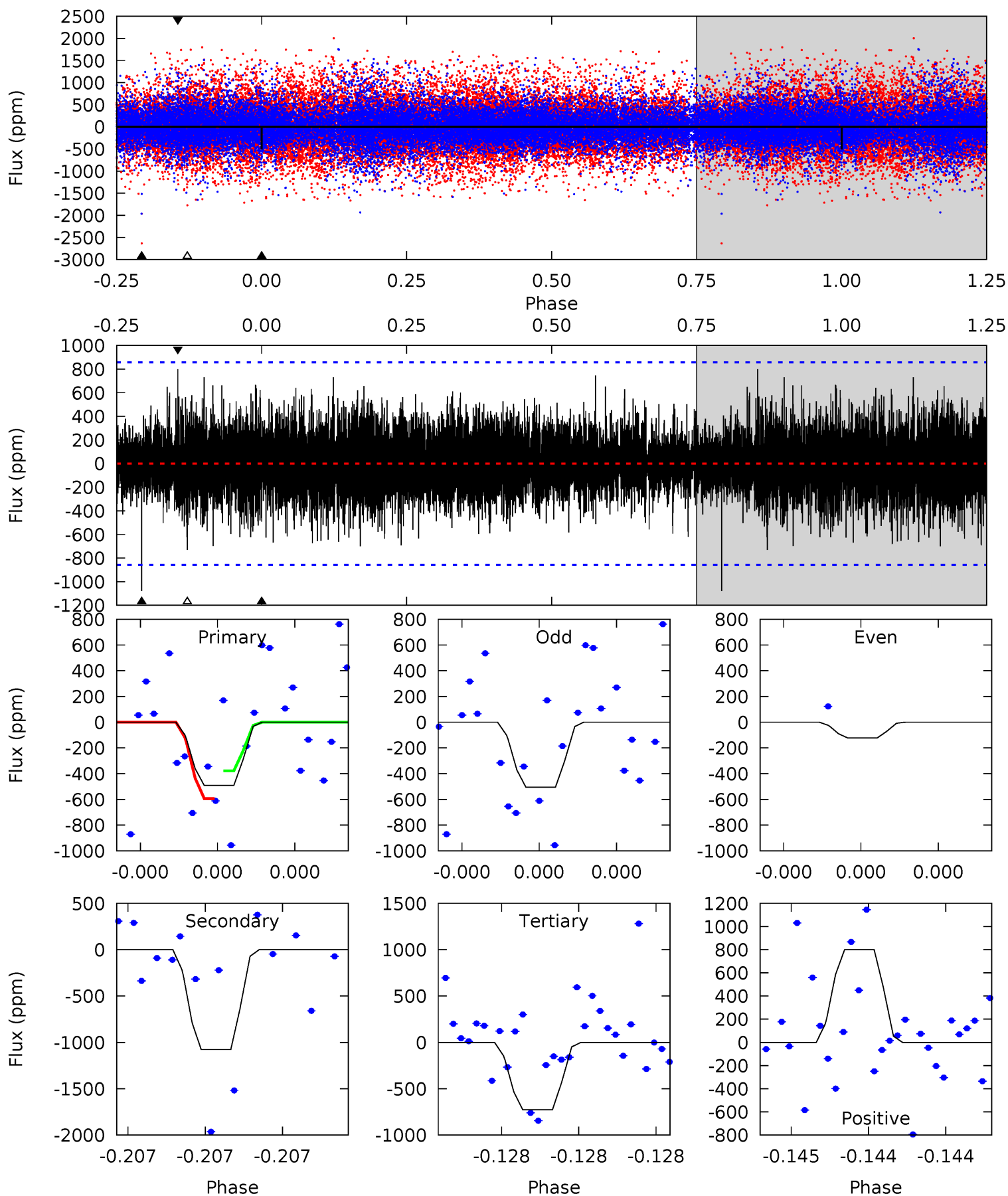
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.42	3.82	3.13	6.18	5.49	3.35	0.79	-1.71	-4.76	0.68	-2.36	0	1.00	0.62	1.02



Alt Model-Shift Uniqueness Test

004540632-05, P = 242.103630 Days, E = 94.960225 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.24	7.09	4.79	5.26	5.64	3.58	1.16	-1.56	-2.02	2.30	1.83	0.82	1.00	0.43	0.72



Stellar Parameters For KIC 004540632

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5023^{+151}_{-151}	$3.900^{+0.700}_{-0.300}$	$0.040^{+0.250}_{-0.250}$	$1.784^{+1.027}_{-1.129}$	$0.921^{+0.185}_{-0.151}$	$0.228^{+2.252}_{-0.171}$
	+3%/-3%	+18%/-8%	+625%/-625%	+58%/-63%	+20%/-16%	+986%/-75%
Source	PHO1	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 004540632-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-471 ± 123	$585.59^{+698.13}_{-423.07}$	475^{+65}_{-78}	1295^{+448}_{-2703}	$0.421^{+4.521}_{-0.343}$
Alt.	-1078 ± 152	$552.74^{+774.54}_{-401.75}$	477^{+66}_{-79}	1511^{+420}_{-2843}	$1.075^{+13.229}_{-0.891}$

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

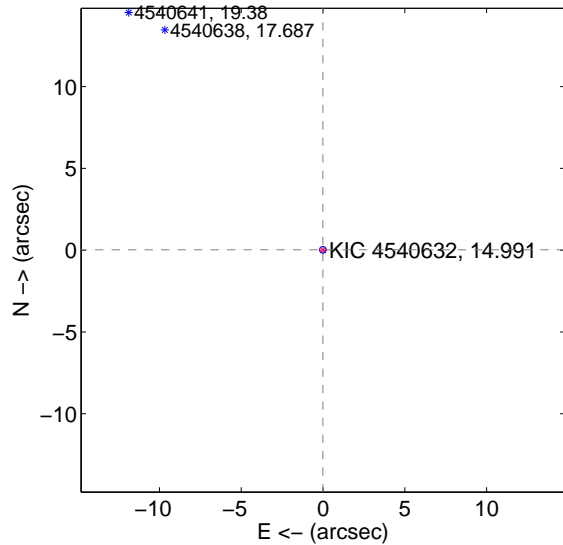
Supplemental centroid analysis for 004540632-05. Kepler magnitude: 14.99. Transit SNR 2.00

There are 0 quarters with good PRF difference image offsets

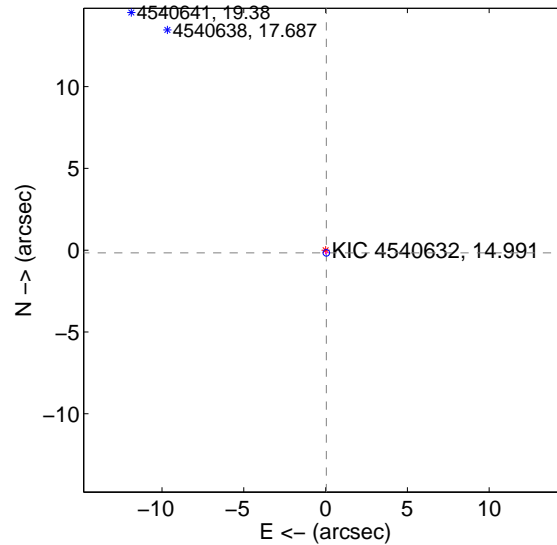
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.027 ± 0.067	0.40	0.013 ± 0.067	0.023 ± 0.067
PRF-fit source offset from KIC position	0.170 ± 0.067	2.54	-0.045 ± 0.067	-0.164 ± 0.067
photometric centroid source offset	3.90 ± 2.81	1.39	-0.86 ± 3.19	3.81 ± 2.79

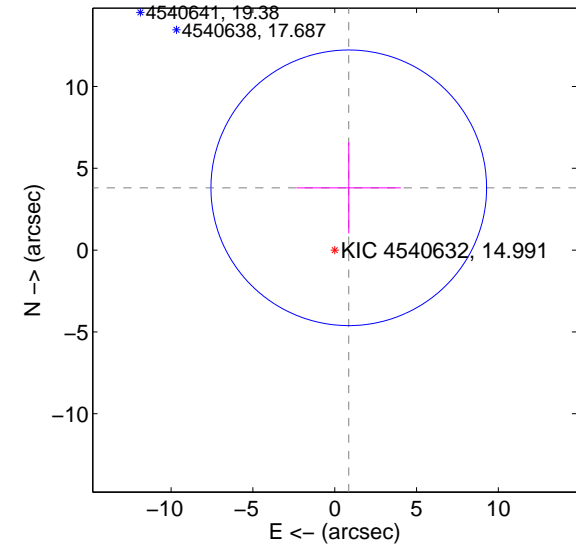
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

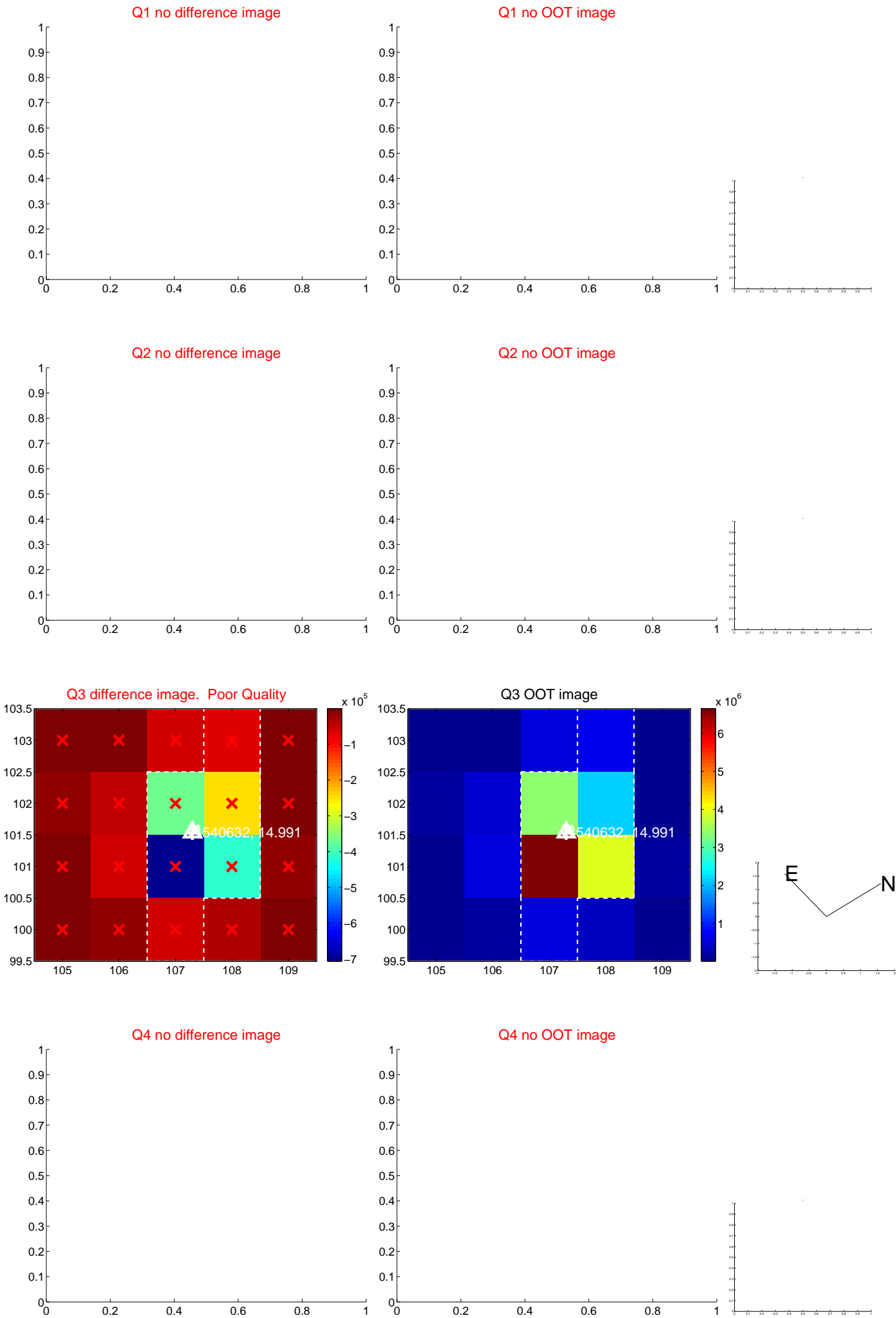


offset from photometric centroids

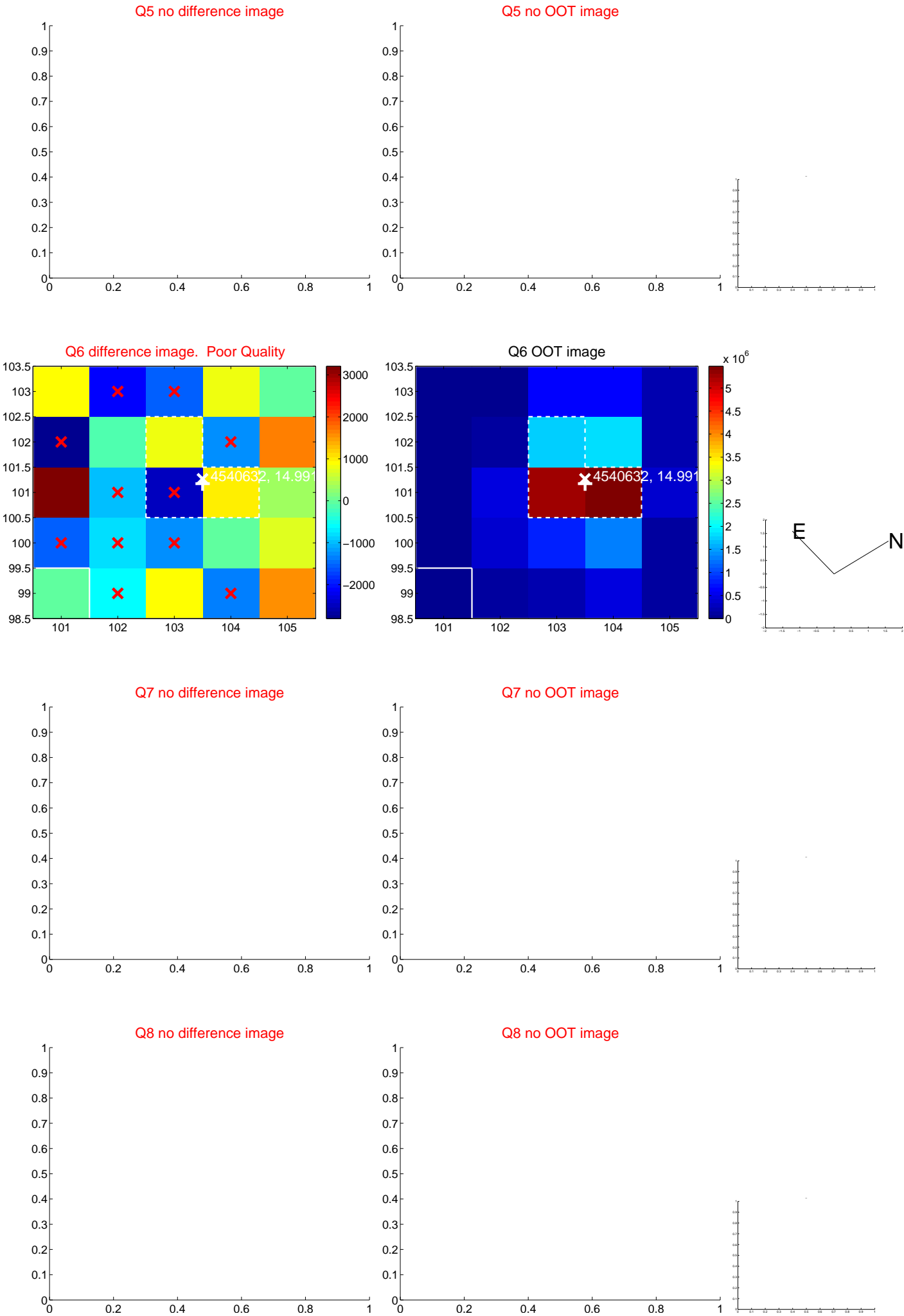


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



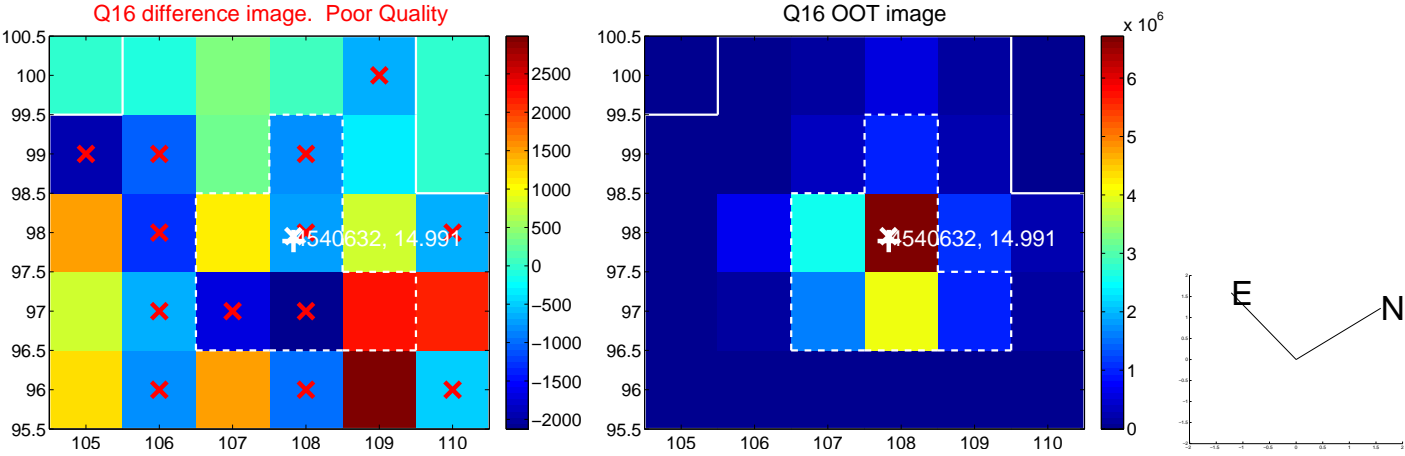
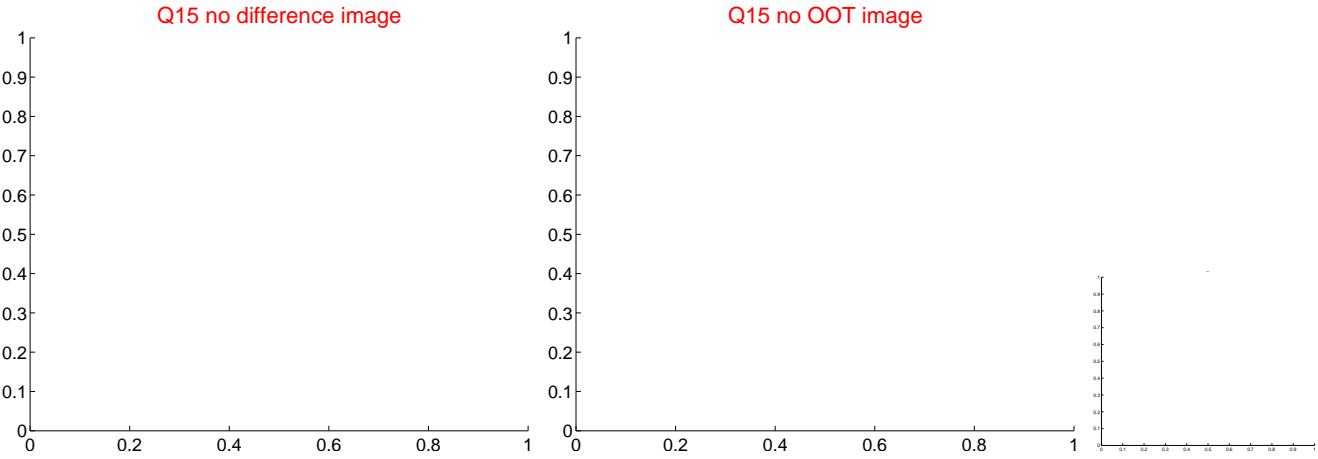
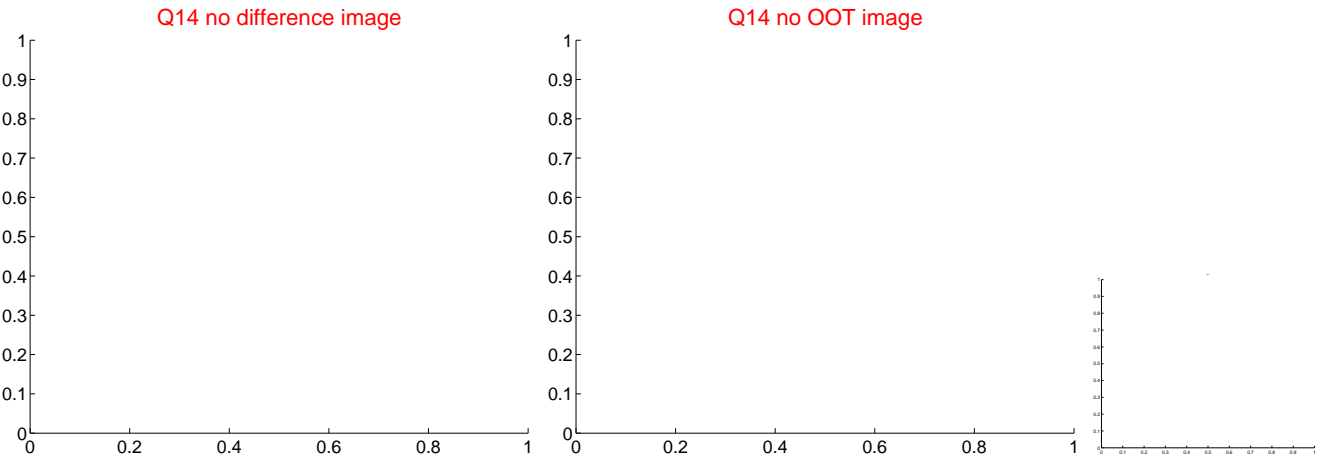
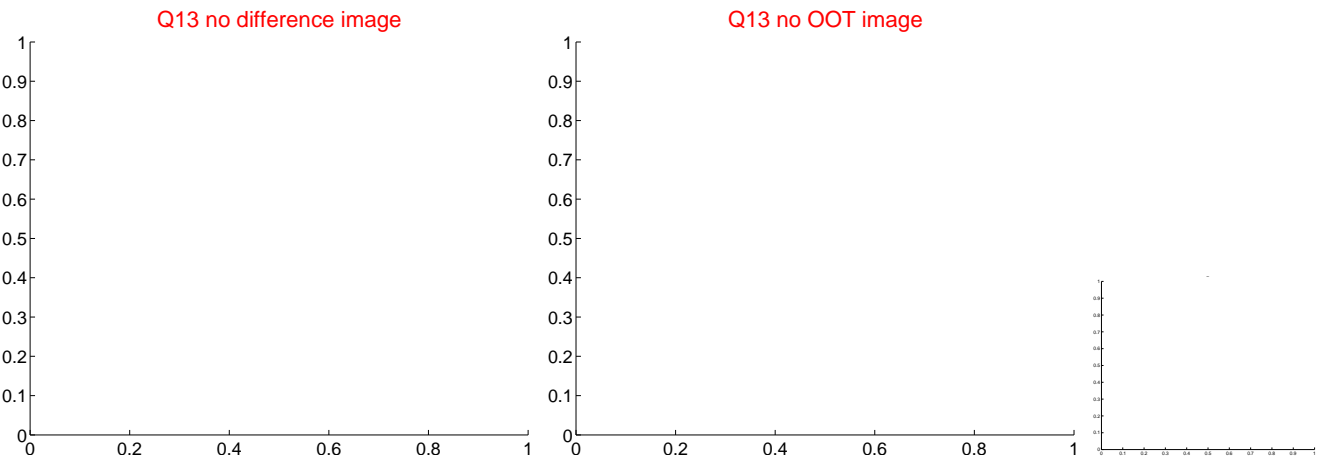
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



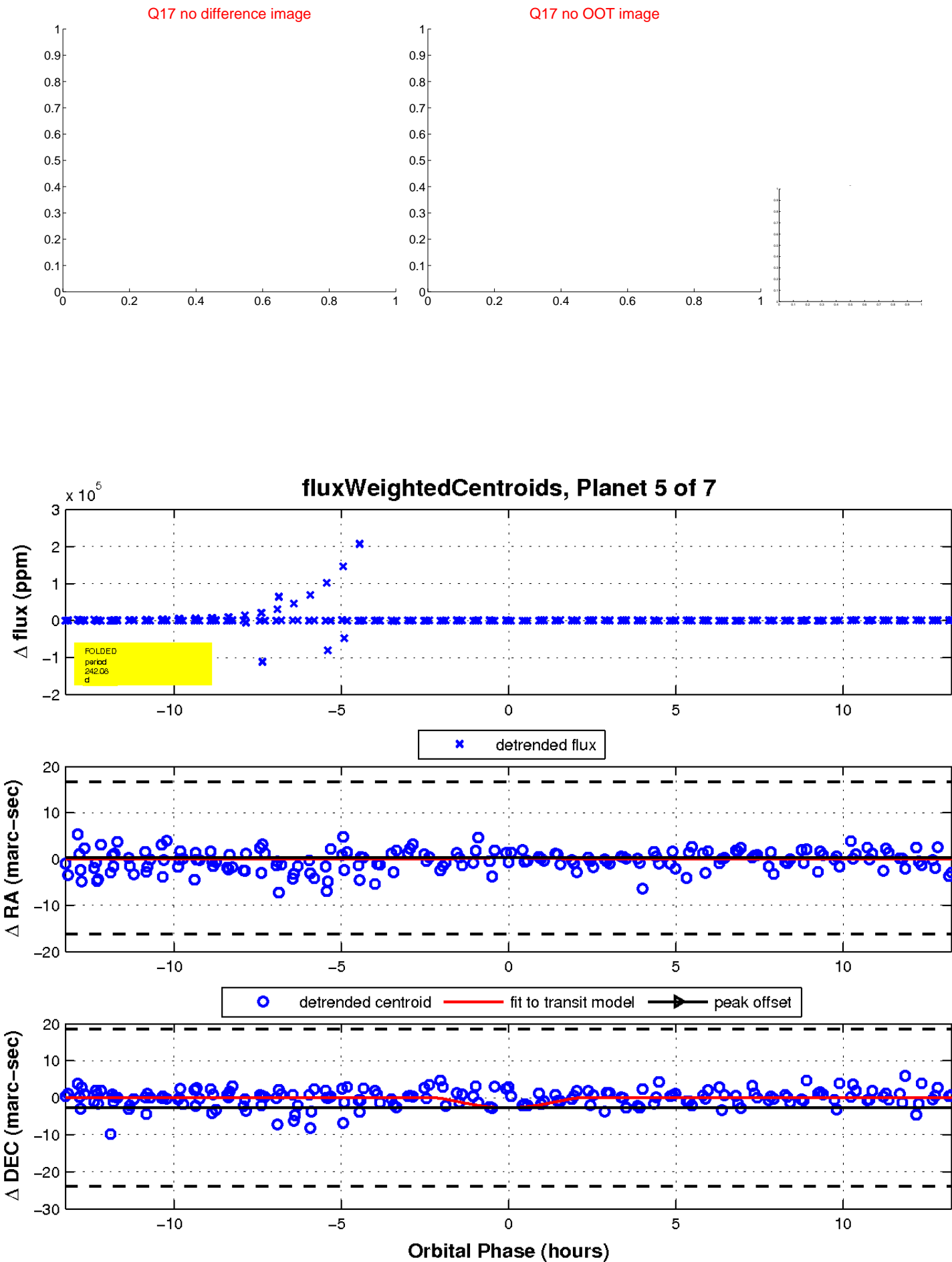
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

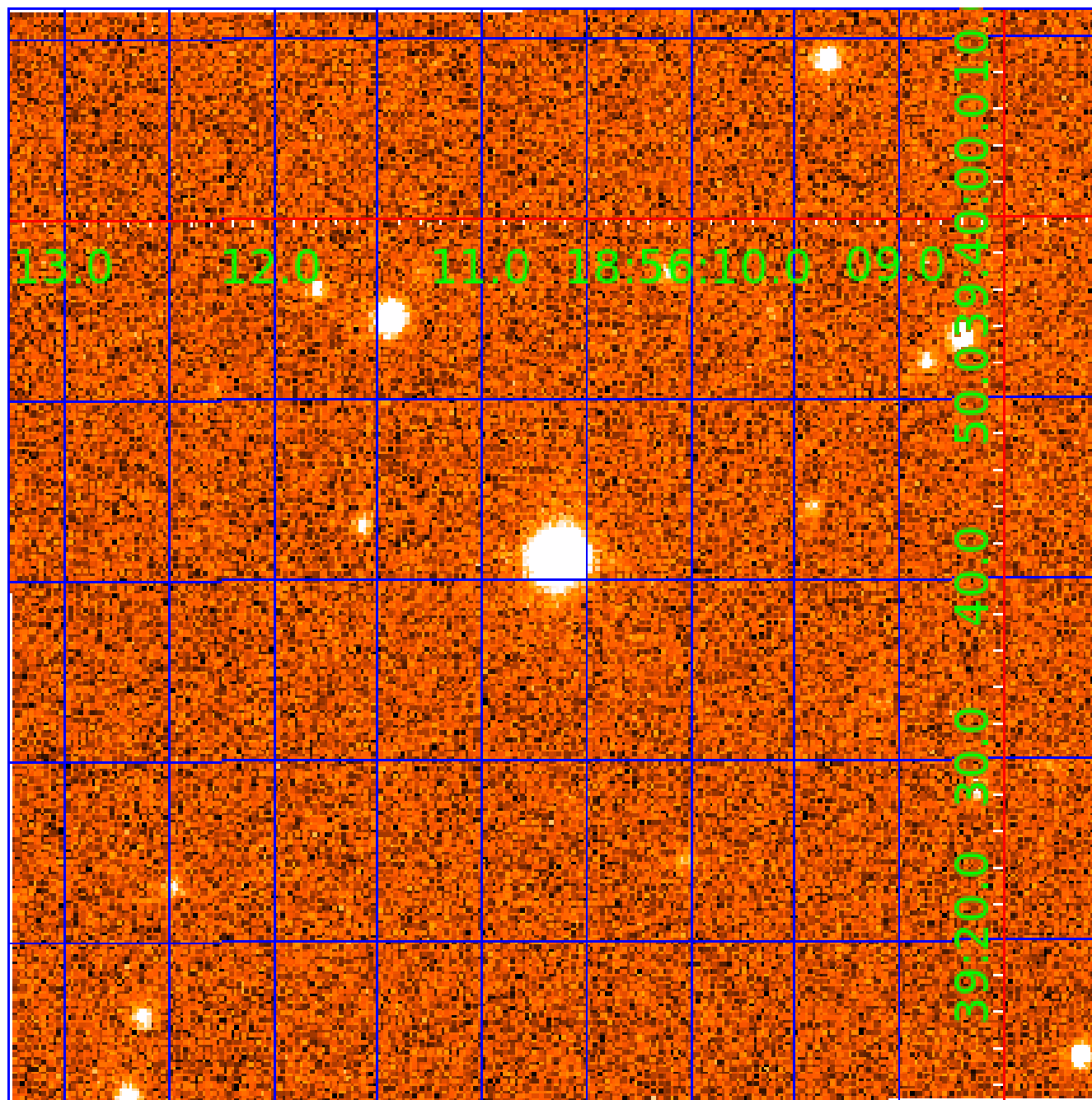


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004540632

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})
004540632-01	OBS	6422.01	31.005408	150.857873	547467.0	1.500	9099.9	-1.0	1.78	5023	97.34	51.34
004540632-02	OBS	No	31.005368	132.972973	165403.9	15.120	2069.4	1703.9	1.78	5023	99.83	51.34
004540632-03	OBS	No	4.427308	133.576226	41.6	2.926	701.6	1.8	1.78	5023	1.22	687.85
004540632-04	OBS	No	309.251946	273.814657	5628.3	25.150	275.6	19.0	1.78	5023	25.40	2.39
004540632-05	OBS	No	242.084340	337.152057	648.4	4.419	268.9	2.0	1.78	5023	9.38	3.31
004540632-06	OBS	No	4.428953	132.507126	0.1	0.713	191.7	0.0	1.78	5023	0.11	687.50
004540632-07	OBS	No	4.429920	132.934246	114.2	17.263	191.7	4.1	1.78	5023	1.85	687.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004540632-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_NOFITS
004540632-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004540632-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV
004540632-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
004540632-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004540632-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
004540632-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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 004540632-06

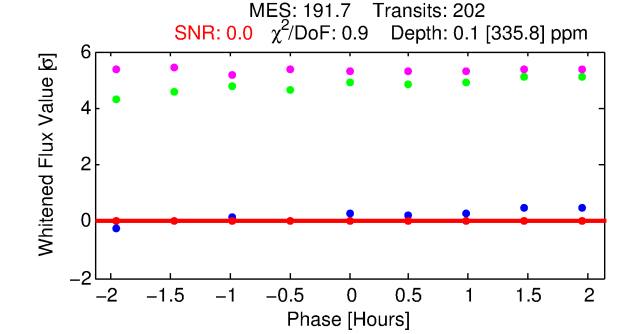
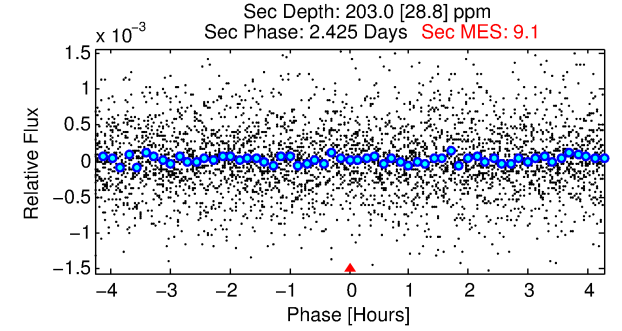
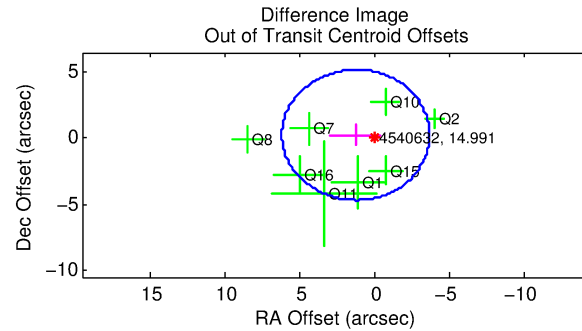
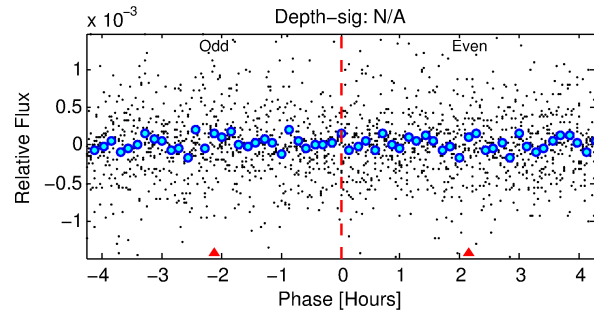
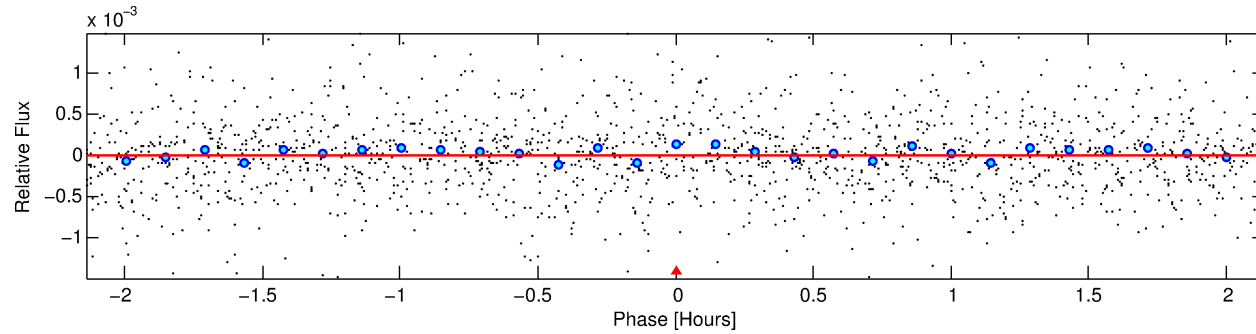
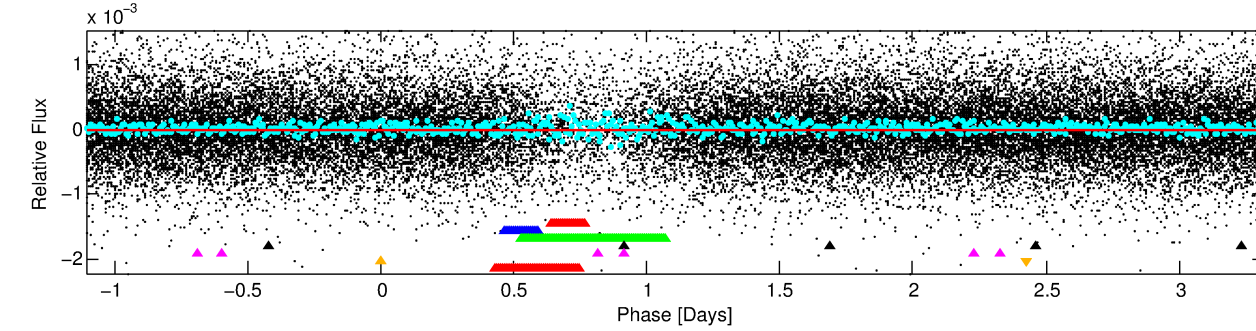
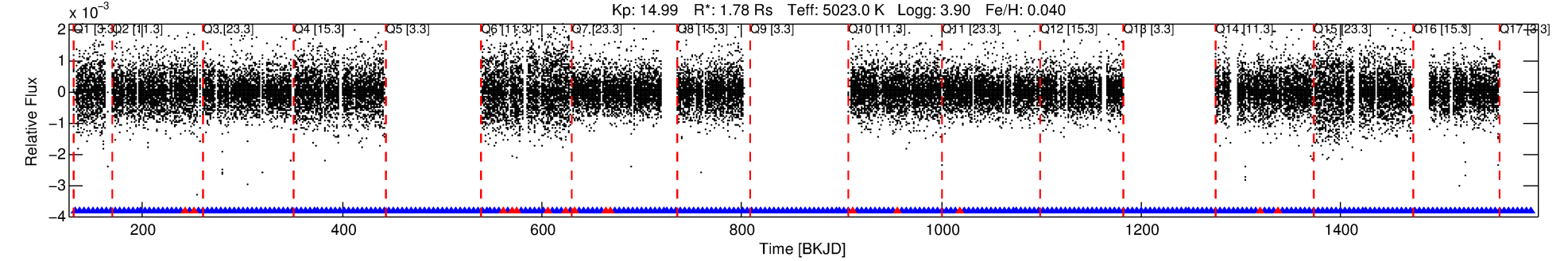
No Significant Match Found

DV One-Page Summary

KIC: 4540632 Candidate: 6 of 7 Period: 4.429 d

KOI: K06422 Corr: No Ephemeris Match

Kp: 14.99 R*: 1.78 Rs Teff: 5023.0 K Logg: 3.90 Fe/H: 0.040



DV Fit Results:

Period = 4.42895 [0.05312] d
Epoch = 132.5071 [5.9304] BKJD
Rp/R* = 0.0005 [0.6406]
a/R* = 2.82 [13536.87]
b = 1.00 [12.50]
Seff = 687.50 [798.02]
Teq = 1306 [379] K
Rp = 0.11 [124.72] Re
a = 0.0514 [0.0351] AU
Ag = 25894.97 [60530795.48] [0.00σ]
Teffp = 25609 [14965488] K [0.00σ]

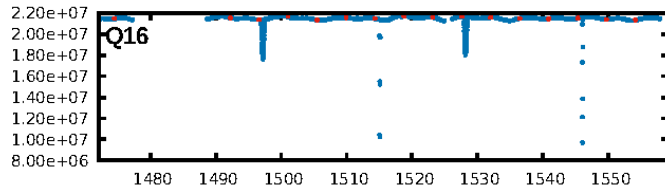
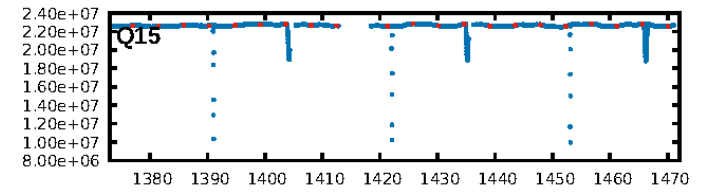
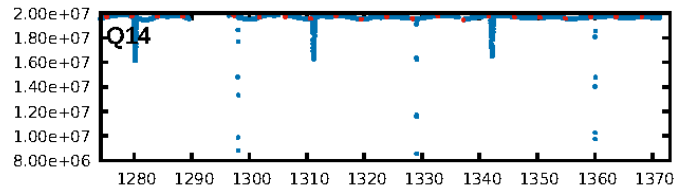
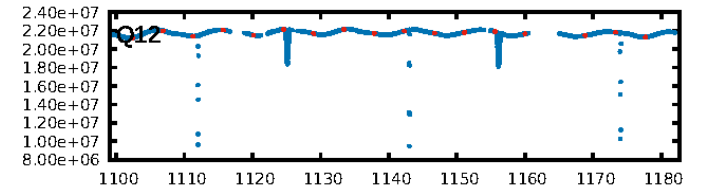
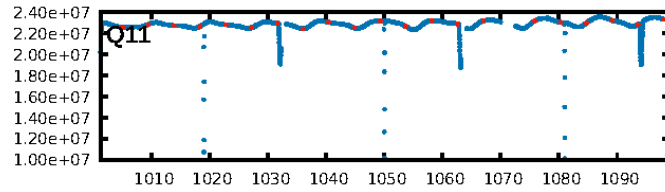
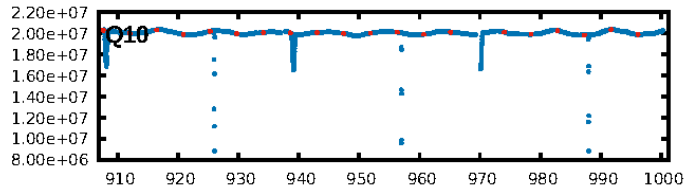
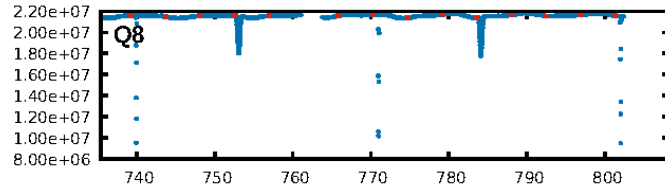
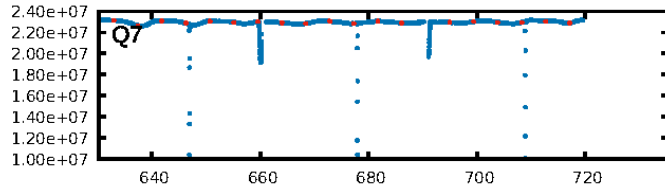
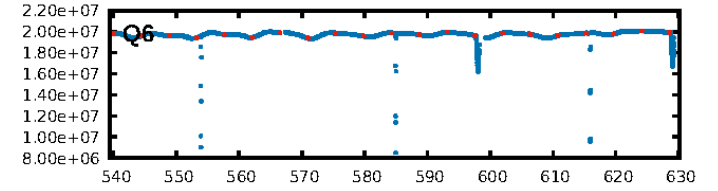
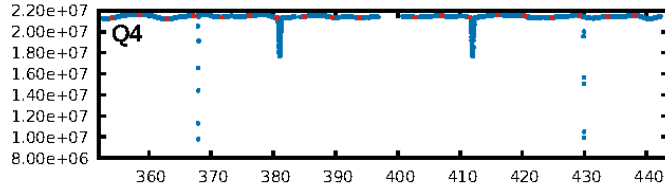
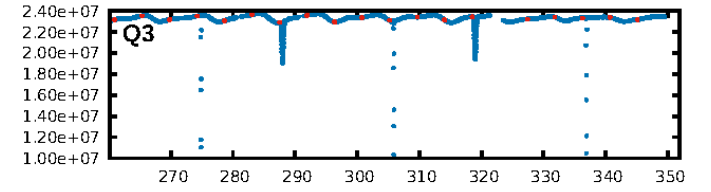
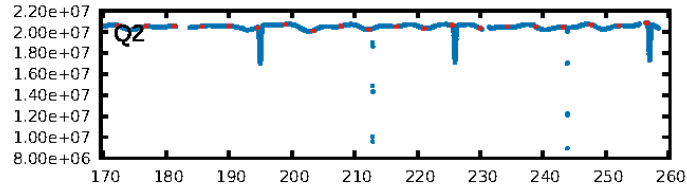
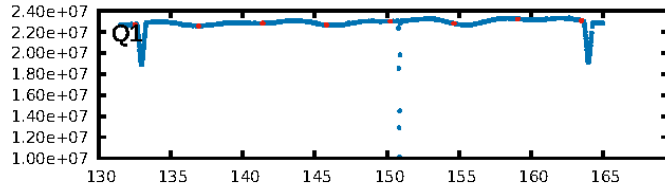
DV Diagnostic Results:

ShortPeriod-sig: 1.0% [0.01σ]
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: 44.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.92 [181/196]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 1.233 arcsec [0.75σ]
KicOffset-rm: 0.871 arcsec [0.51σ]
OotOffset-st: 2/3/2/1 [8]
KicOffset-st: 2/3/2/1 [8]
DiffImageQuality-fgm: 0.12 [1/8]
DiffImageOverlap-fno: 0.46 [6/13]

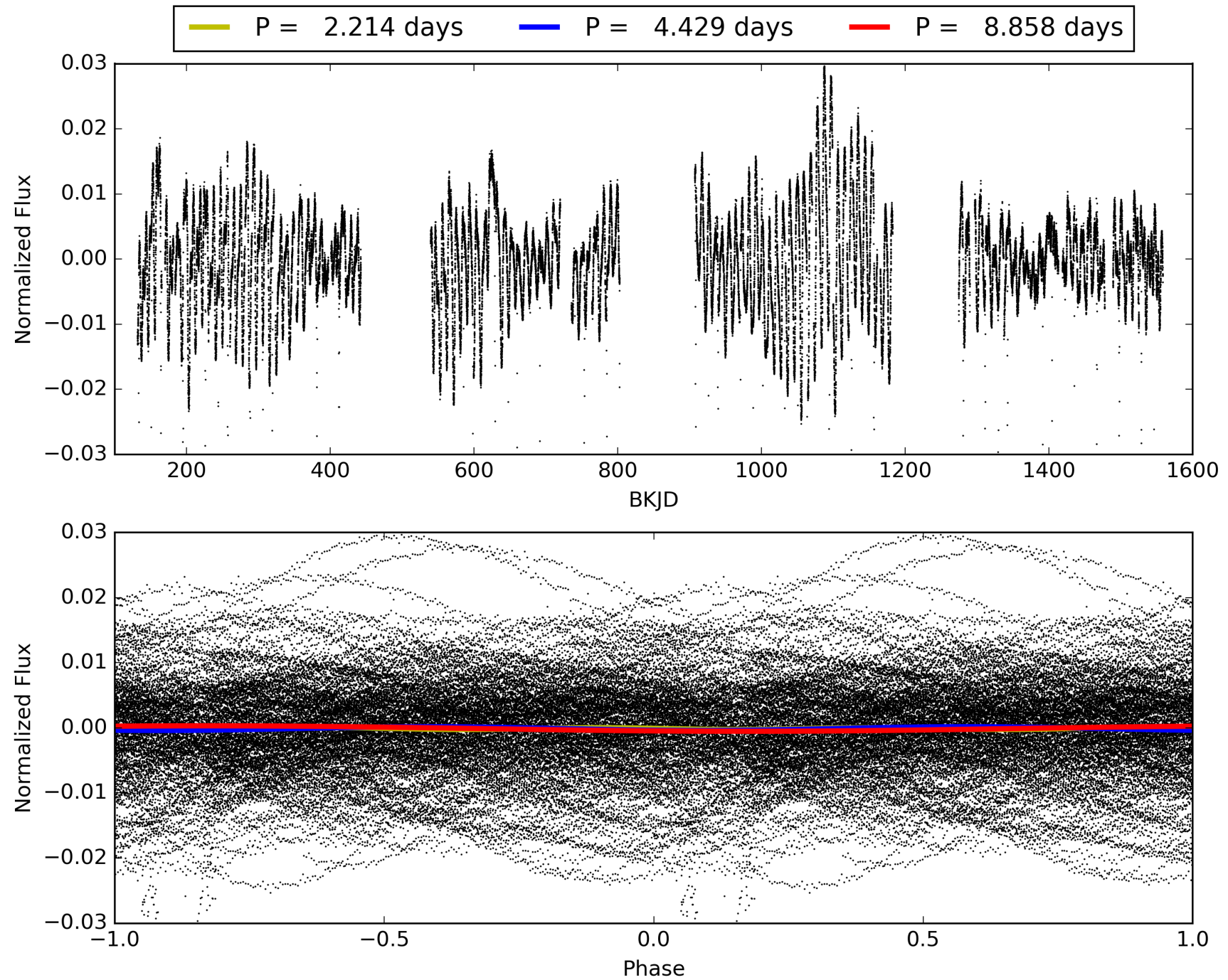
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 04:54:20 Z

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

TCE 004540632-06, PDC Light Curves

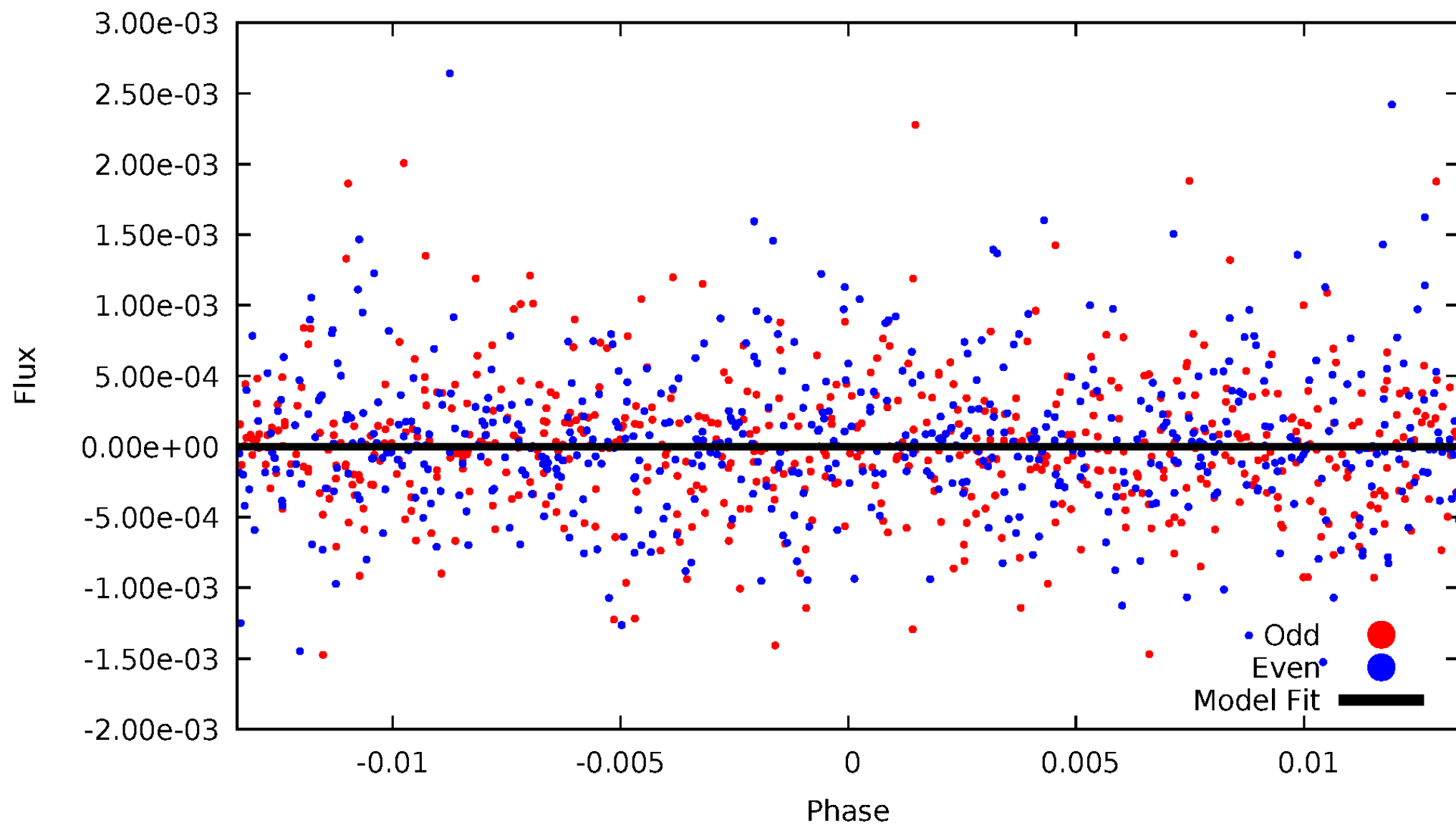


TCE 004540632-06



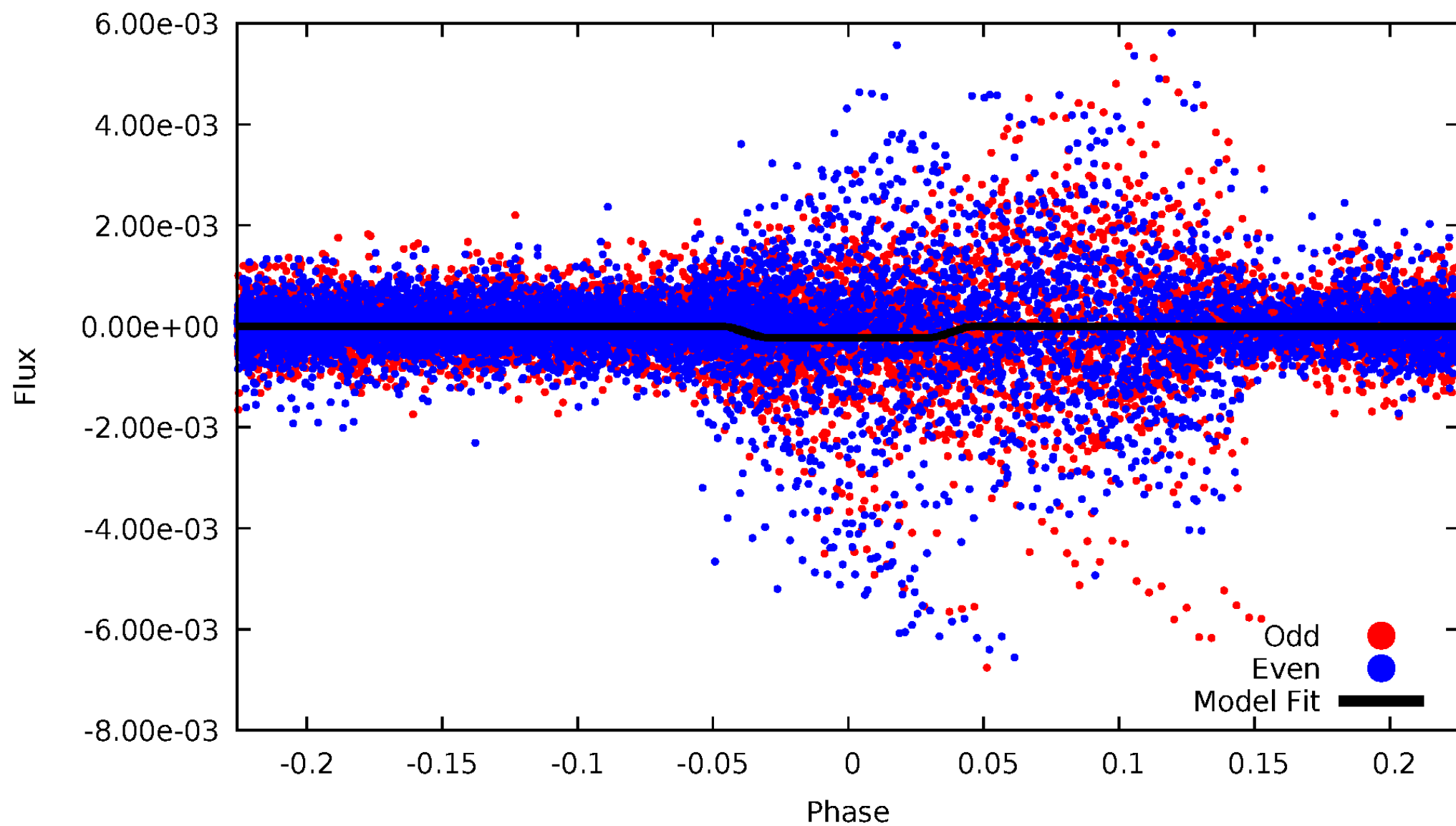
DV Odd/Even

TCE 004540632-06



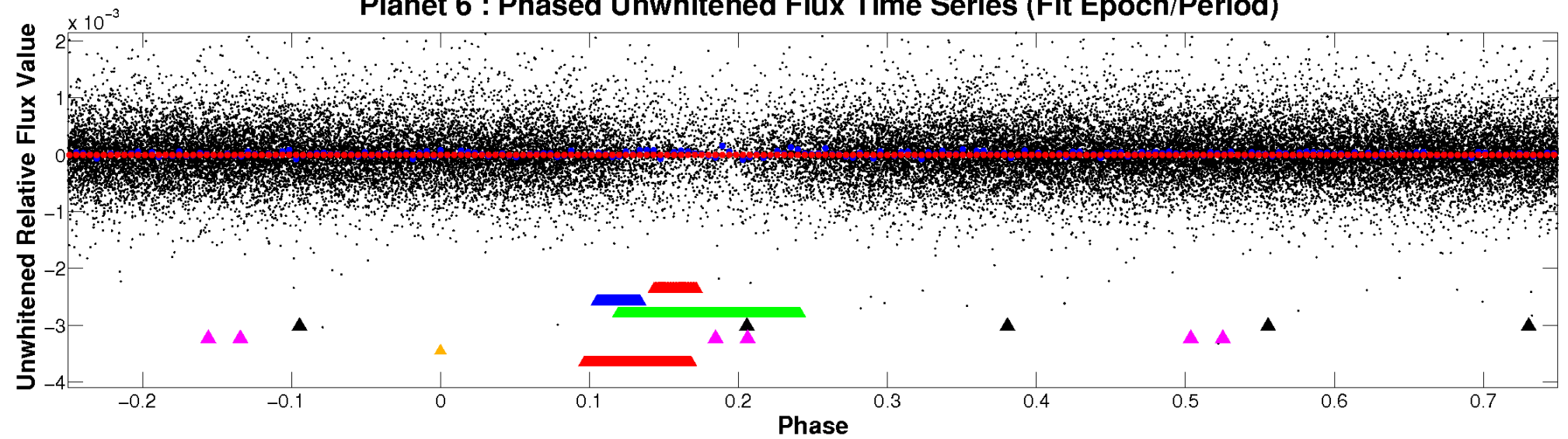
ALT Odd/Even

TCE 004540632-06

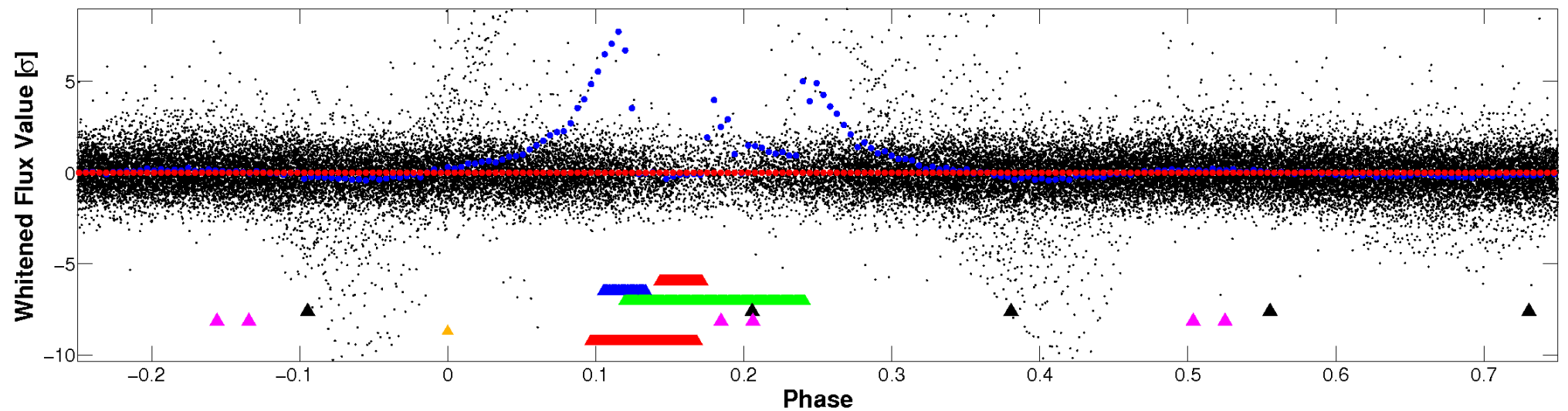


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

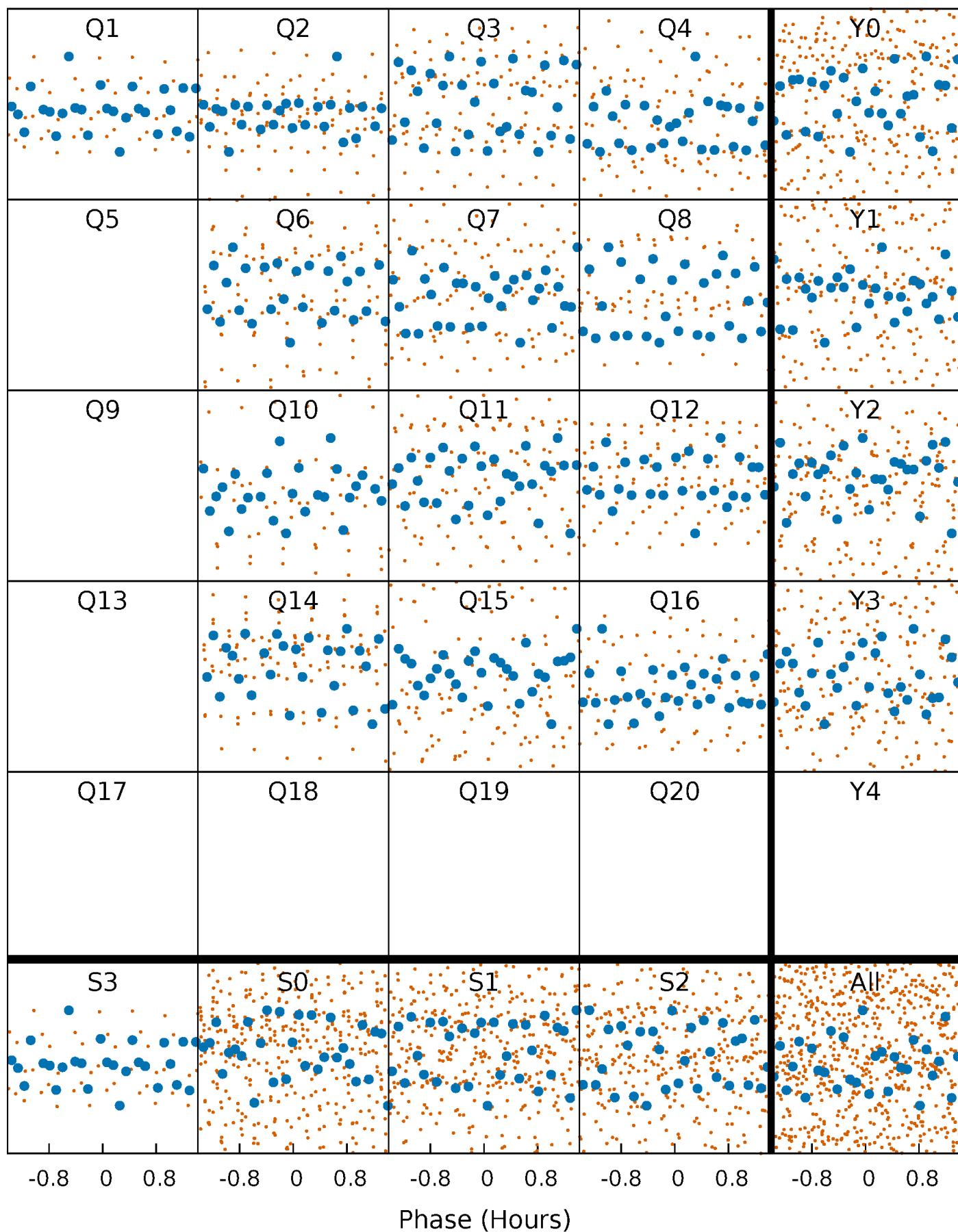


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



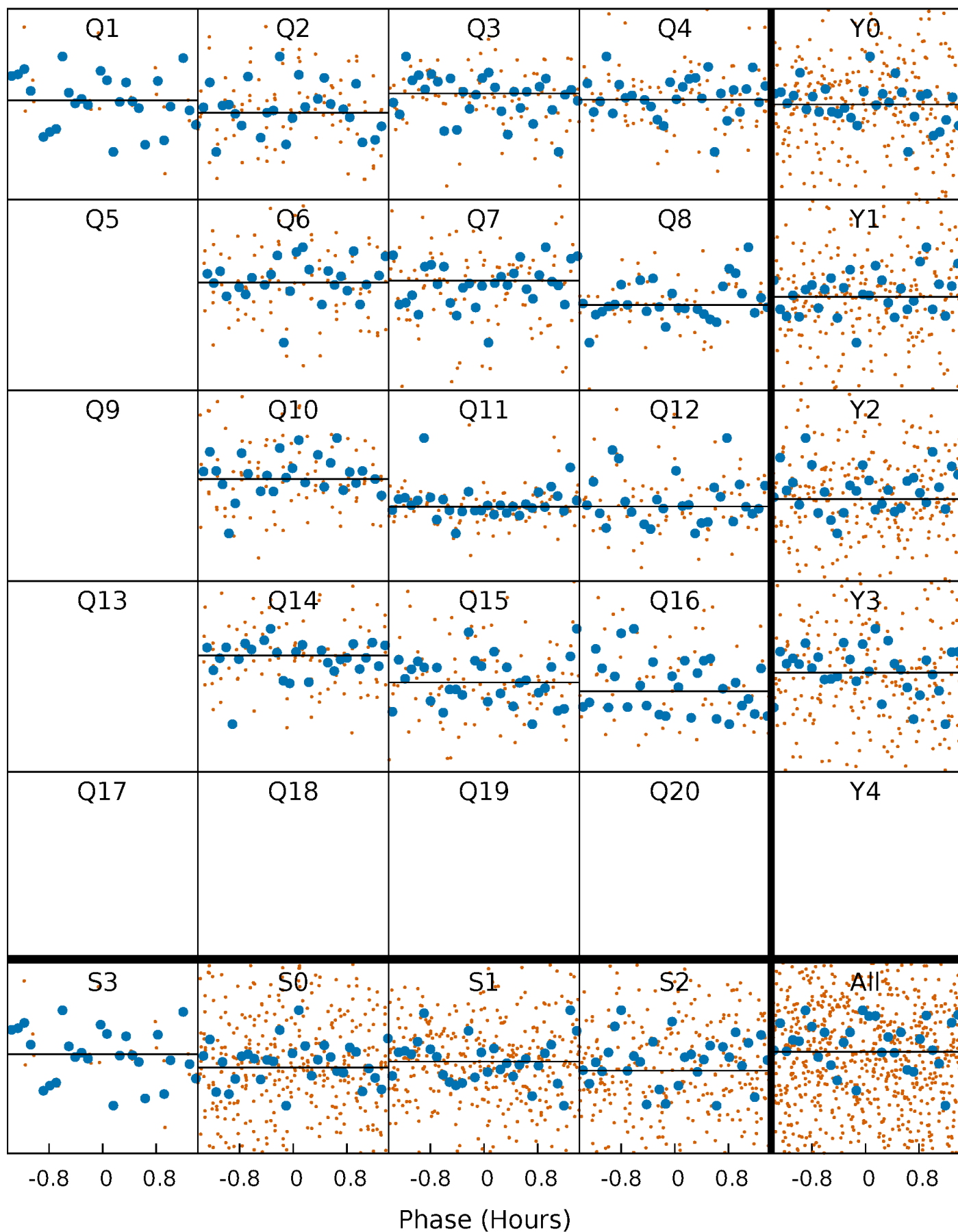
PDC Quarter-Phased Transit Curves

TCE 004540632-06 P= 4.428953 Days $T_0=132.507126$ (BKJD)



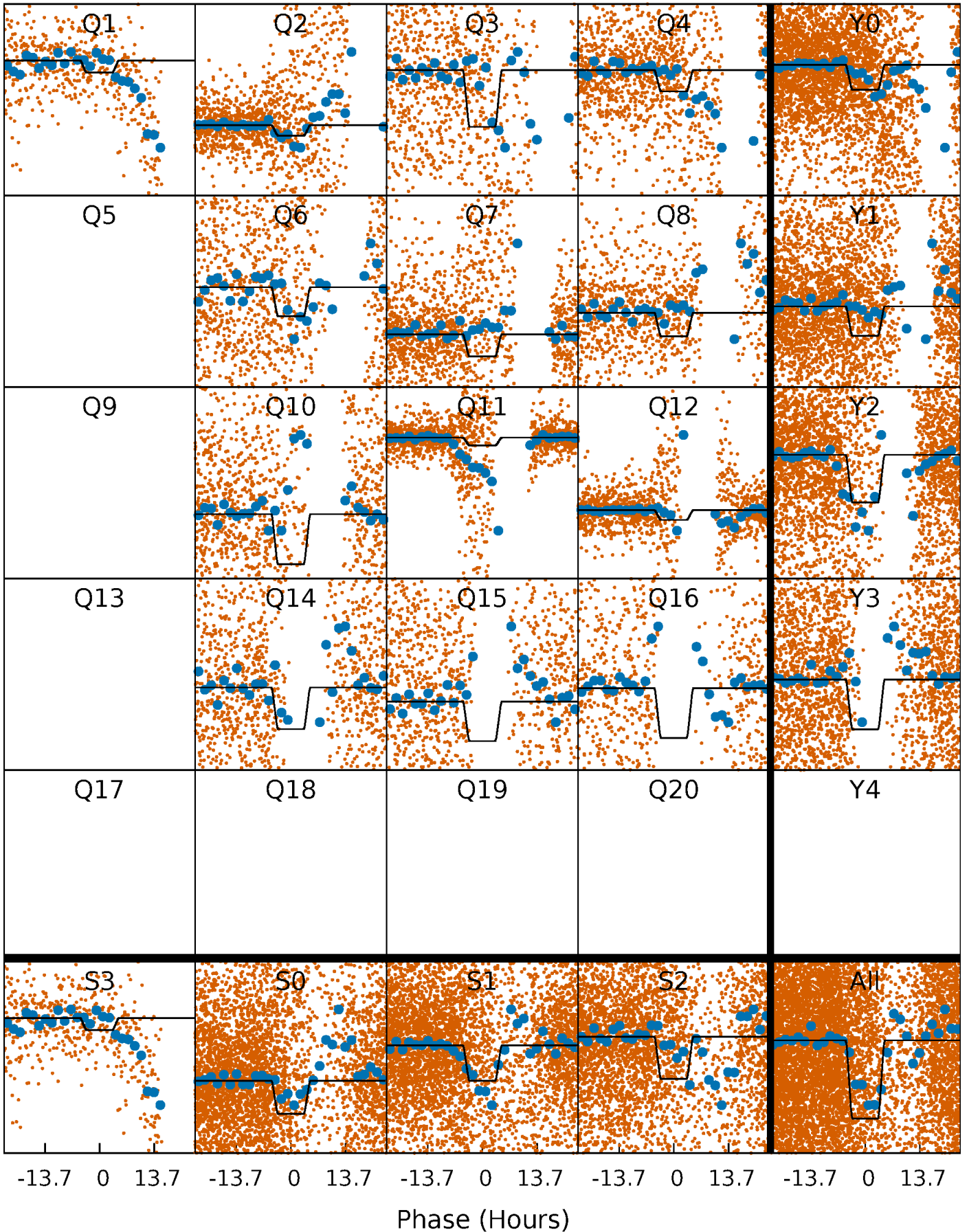
DV Quarter-Phased Transit Curves

TCE 004540632-06 $P = 4.428953$ Days $T_0 = 132.507126$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

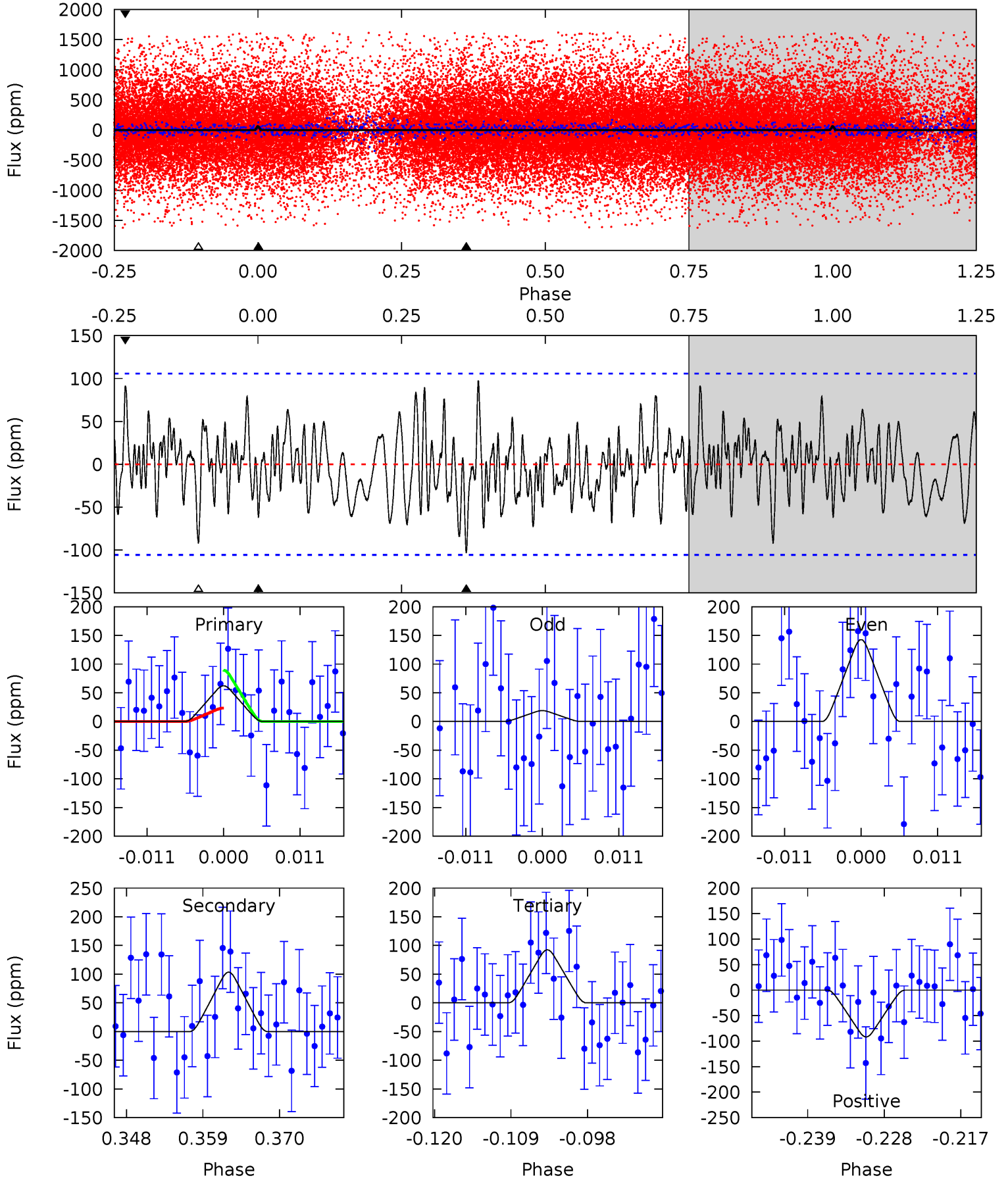
TCE 004540632-06 P= 4.429899 Days $T_0=132.728132$ (BKJD)



DV Model-Shift Uniqueness Test

004540632-06, P = 4.428953 Days, E = 128.078173 Days

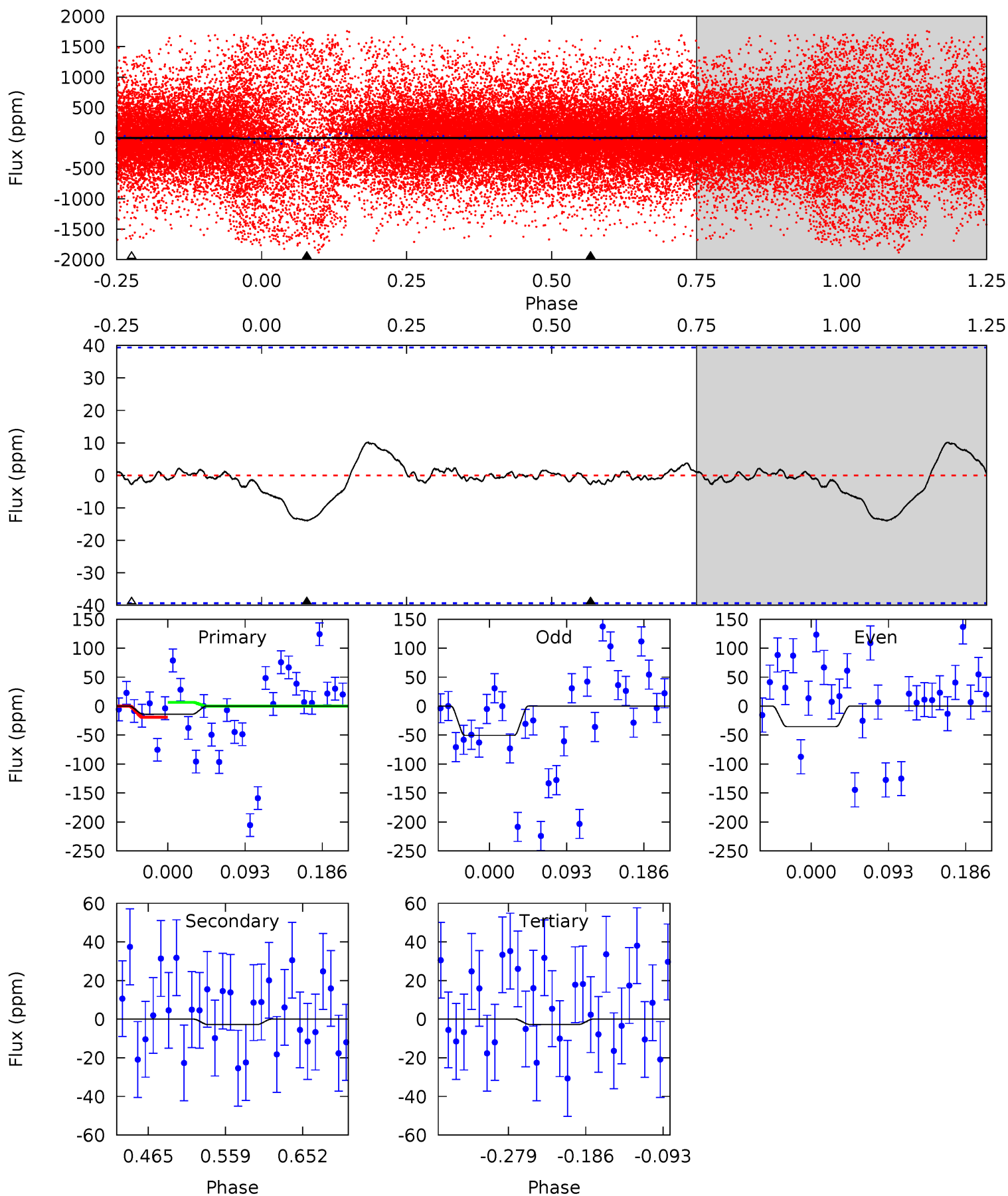
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.95	4.91	4.38	4.35	5.01	2.55	1.56	-1.43	-1.40	0.52	0.56	2.95	3.16	0.49	1.57



Alt Model-Shift Uniqueness Test

004540632-06, P = 4.429899 Days, E = 128.298233 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.62	0.32	0.31	0	4.58	1.68	0.29	1.30	1.62	0.01	0.32	0.89	3.32	0.42	0



Stellar Parameters For KIC 004540632

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5023^{+151}_{-151}	$3.900^{+0.700}_{-0.300}$	$0.040^{+0.250}_{-0.250}$	$1.784^{+1.027}_{-1.129}$	$0.921^{+0.185}_{-0.151}$	$0.228^{+2.252}_{-0.171}$
	+3%/-3%	+18%/-8%	+625%/-625%	+58%/-63%	+20%/-16%	+986%/-75%
Source	PHO1	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 004540632-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-103 ± 21	$72.70^{+98.88}_{-51.72}$	1797^{+254}_{-294}	-2267^{+4038}_{-197}	$0.027^{+0.320}_{-0.022}$
Alt.	-3 ± 9	$78.18^{+100.83}_{-55.10}$	1805^{+278}_{-310}	-2355^{+227}_{-174}	$0.000^{+0.006}_{-0.002}$

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

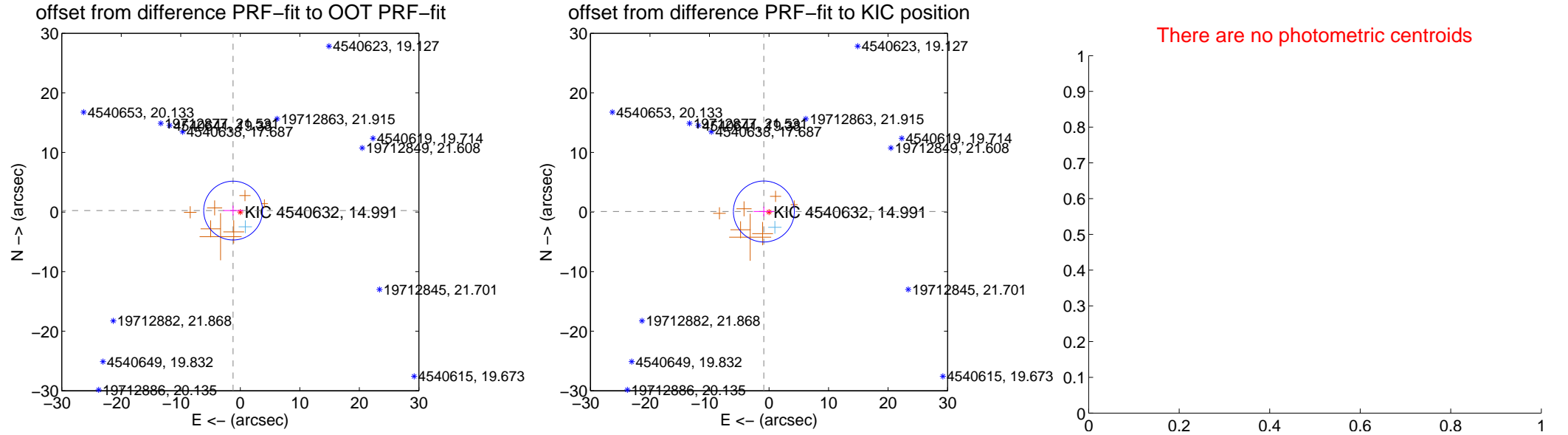
DV Centroid Data

Supplemental centroid analysis for 004540632-06. Kepler magnitude: 14.99. Transit SNR 0.00

There are 1 quarters with good PRF difference image offsets

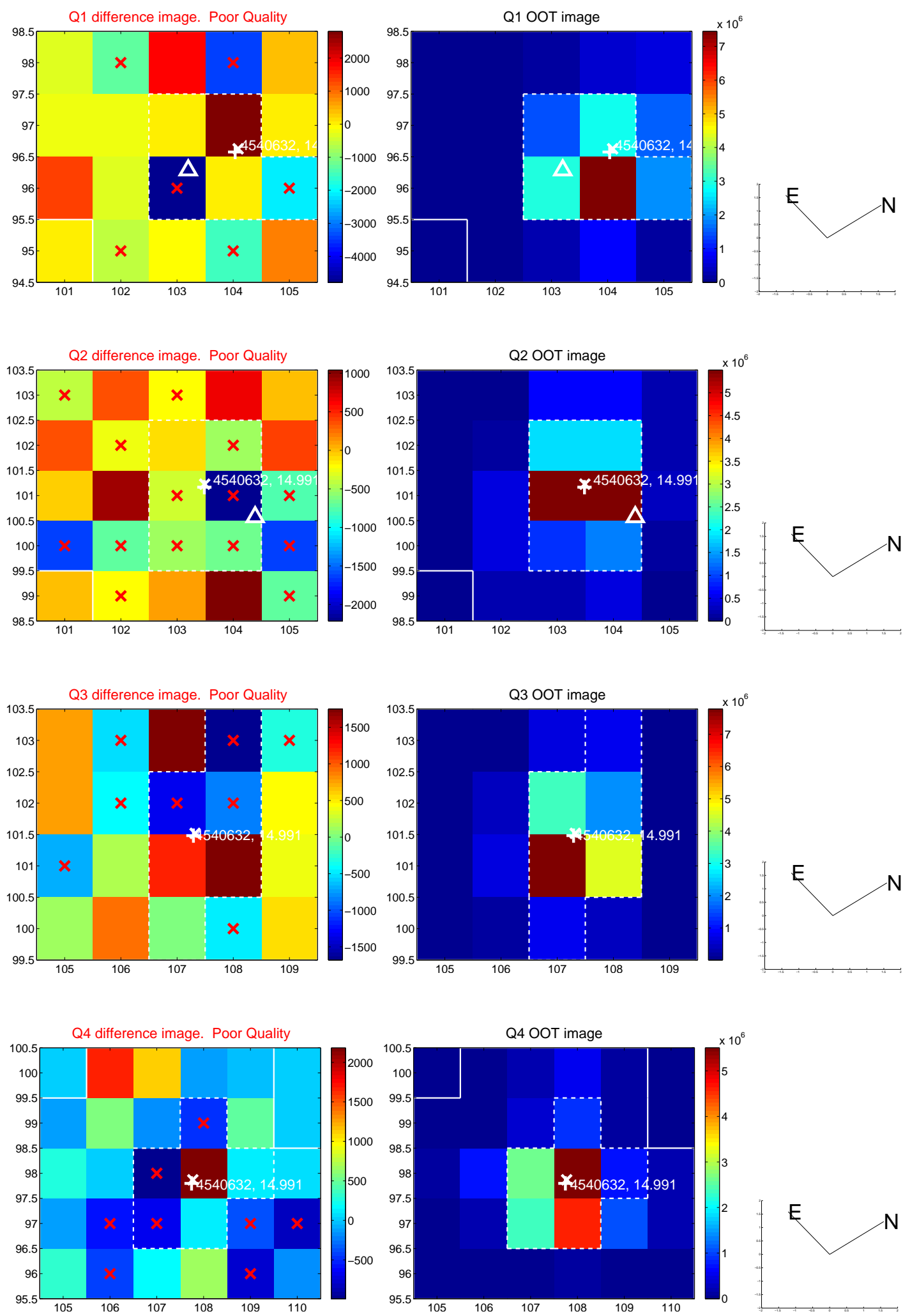
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.233 ± 1.646	0.75	1.209 ± 1.671	0.244 ± 0.822
PRF-fit source offset from KIC position	0.871 ± 1.707	0.51	0.866 ± 1.713	0.089 ± 0.822
photometric centroid source offset	—	—	—	—

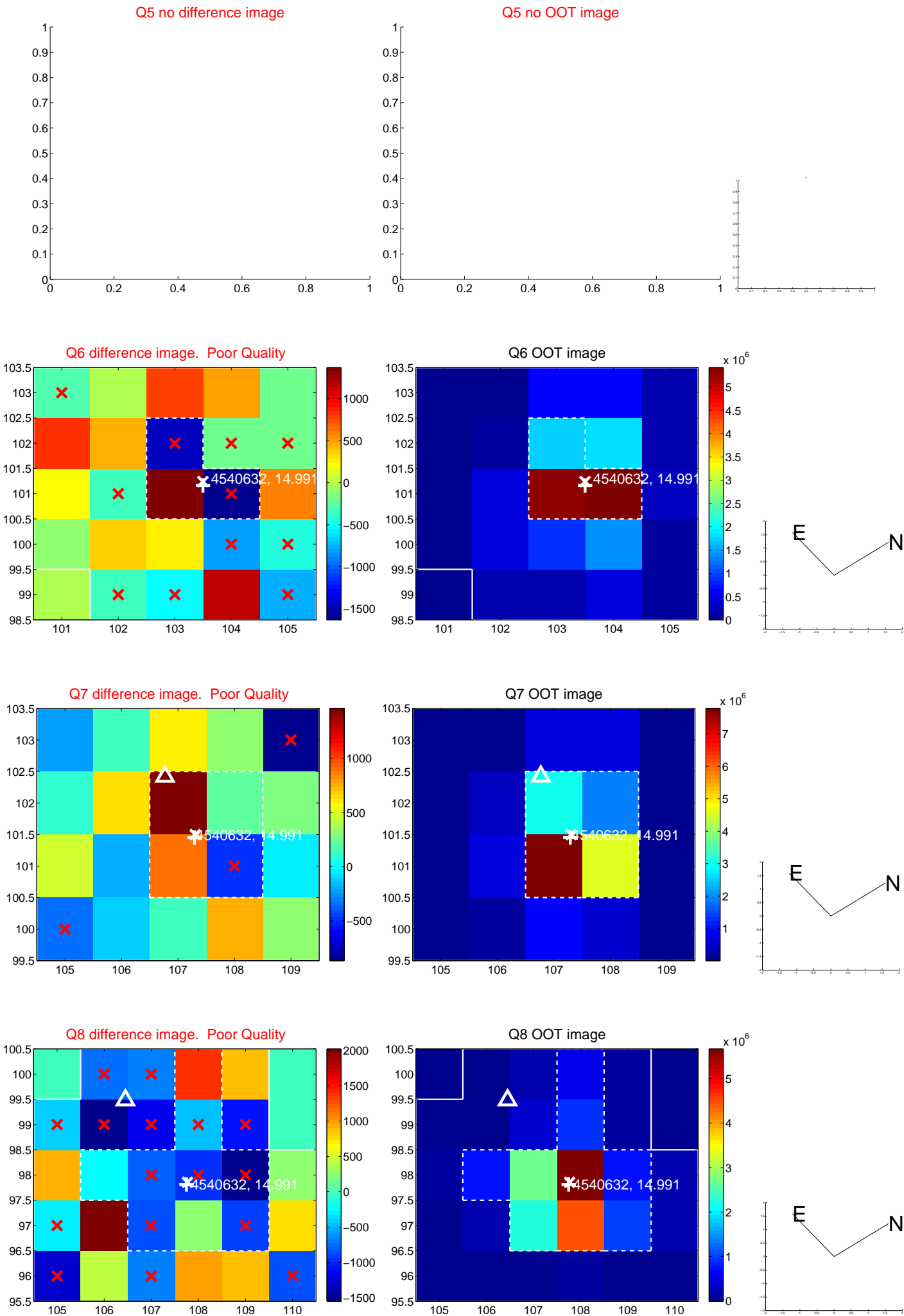


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

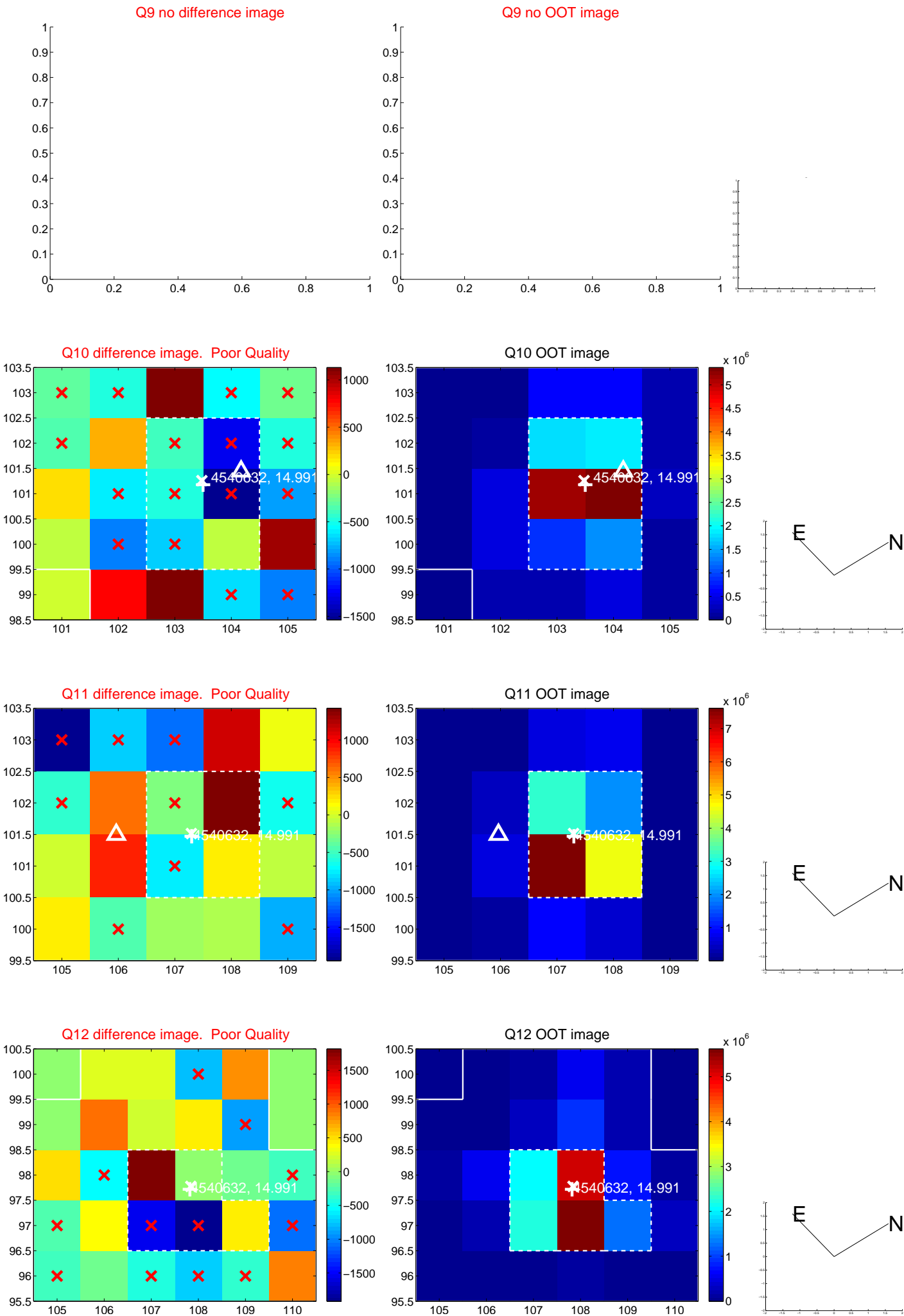
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



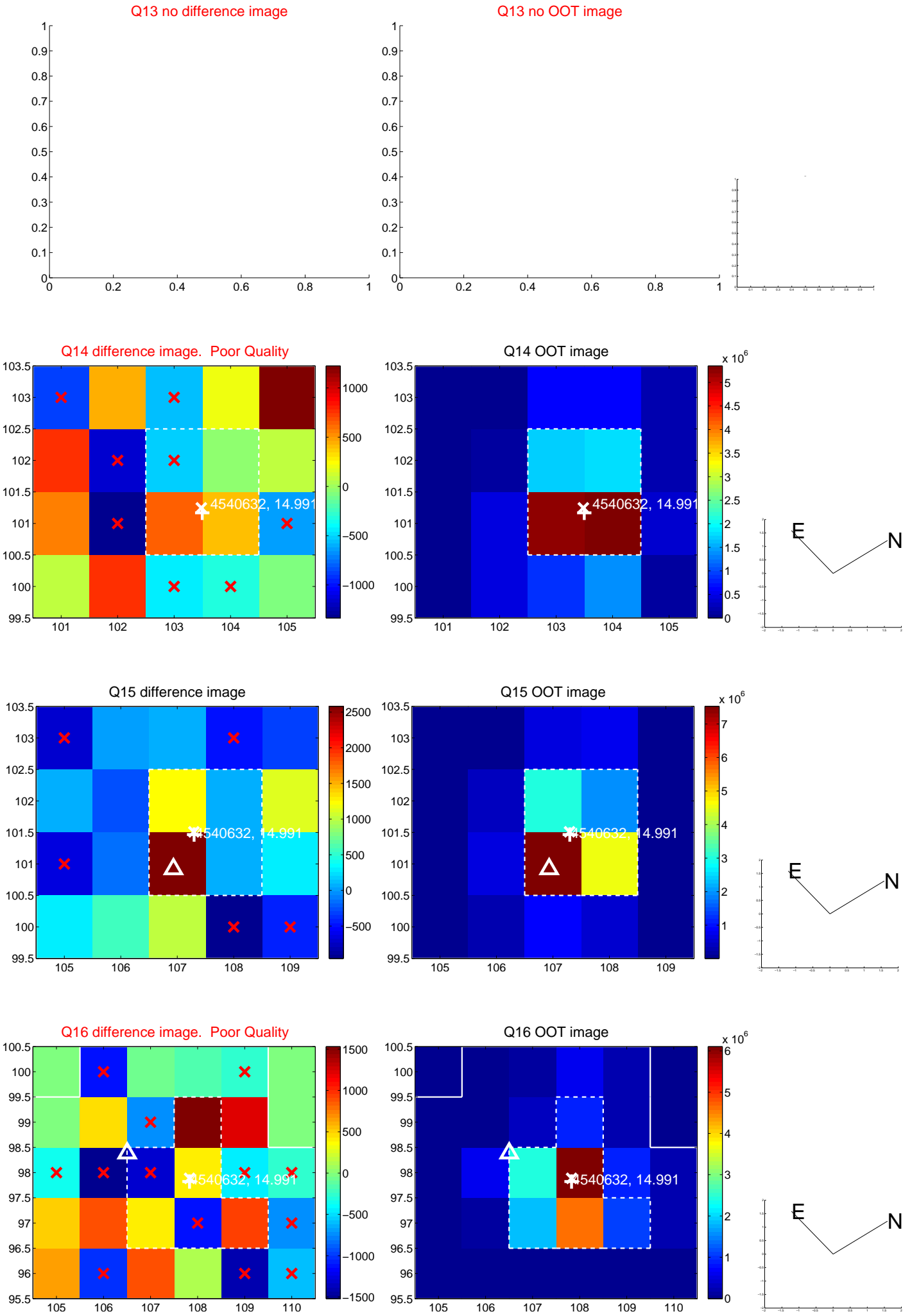
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



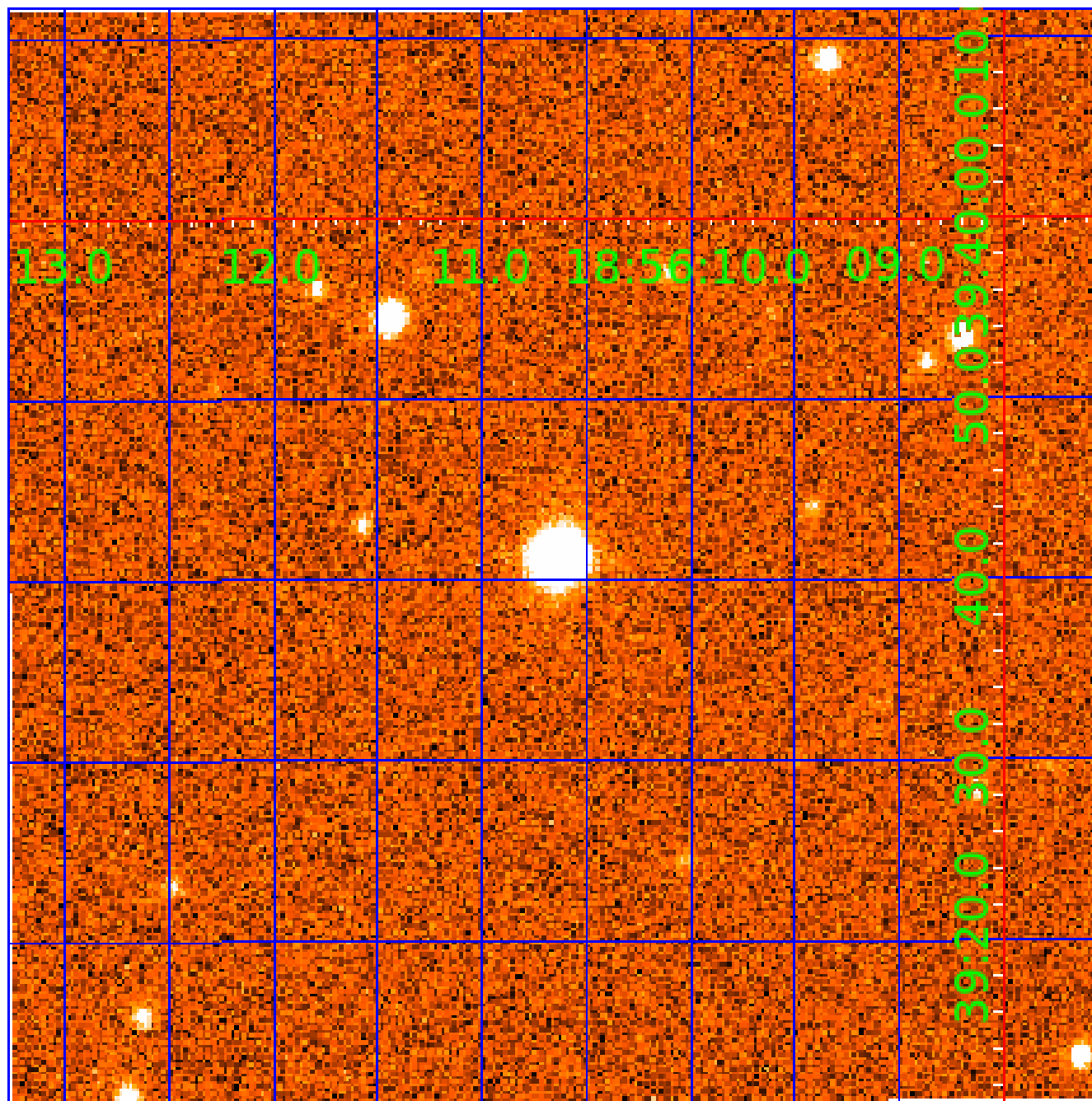
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 004540632

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})
004540632-01	OBS	6422.01	31.005408	150.857873	547467.0	1.500	9099.9	-1.0	1.78	5023	97.34	51.34
004540632-02	OBS	No	31.005368	132.972973	165403.9	15.120	2069.4	1703.9	1.78	5023	99.83	51.34
004540632-03	OBS	No	4.427308	133.576226	41.6	2.926	701.6	1.8	1.78	5023	1.22	687.85
004540632-04	OBS	No	309.251946	273.814657	5628.3	25.150	275.6	19.0	1.78	5023	25.40	2.39
004540632-05	OBS	No	242.084340	337.152057	648.4	4.419	268.9	2.0	1.78	5023	9.38	3.31
004540632-06	OBS	No	4.428953	132.507126	0.1	0.713	191.7	0.0	1.78	5023	0.11	687.50
004540632-07	OBS	No	4.429920	132.934246	114.2	17.263	191.7	4.1	1.78	5023	1.85	687.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004540632-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_NOFITS
004540632-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004540632-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV
004540632-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
004540632-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004540632-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
004540632-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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.

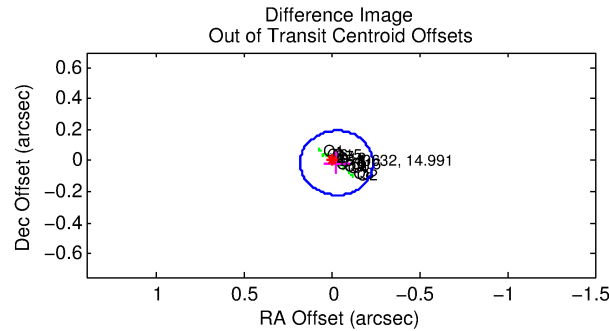
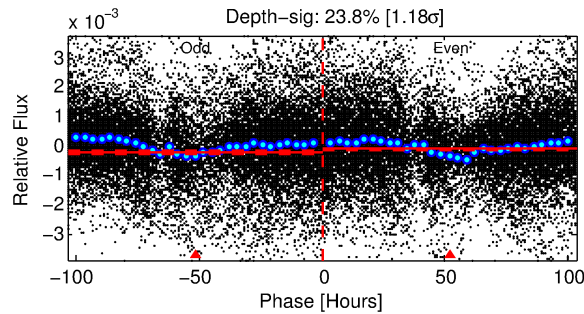
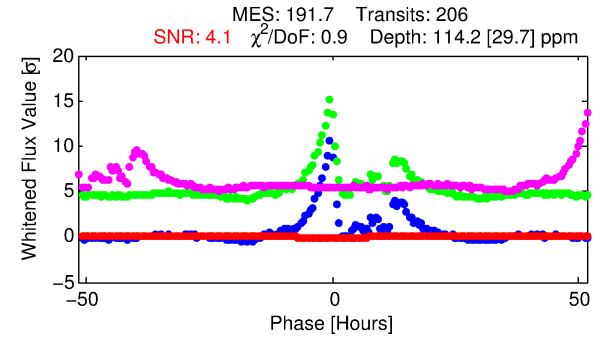
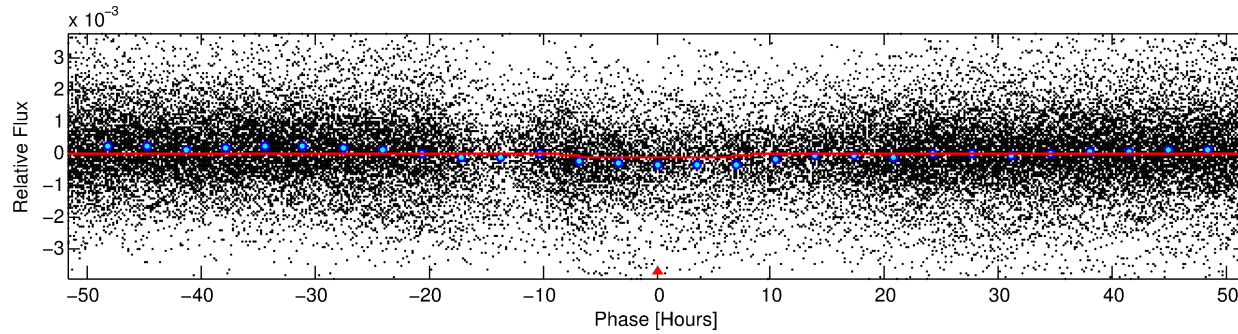
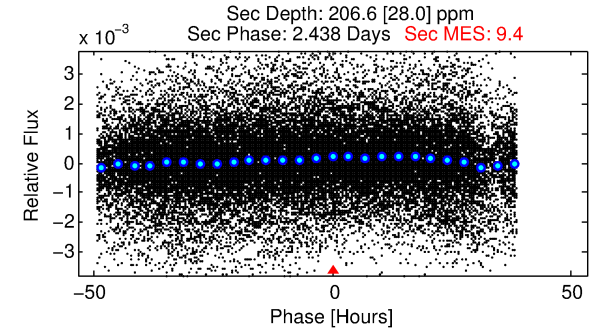
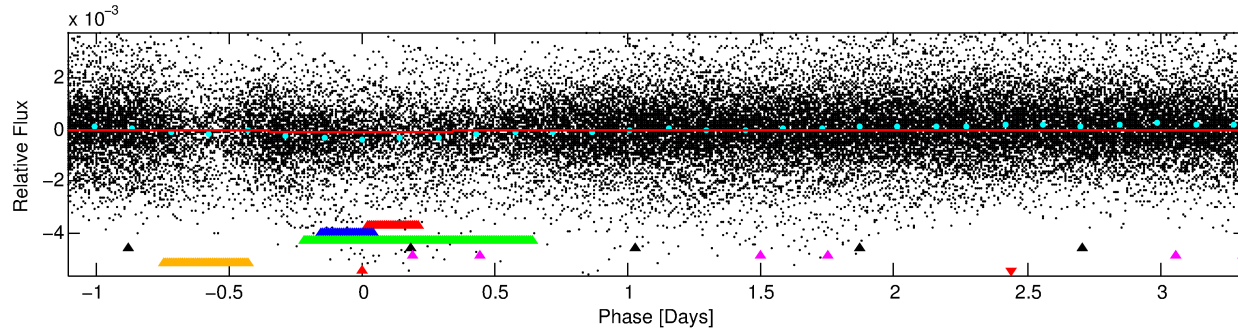
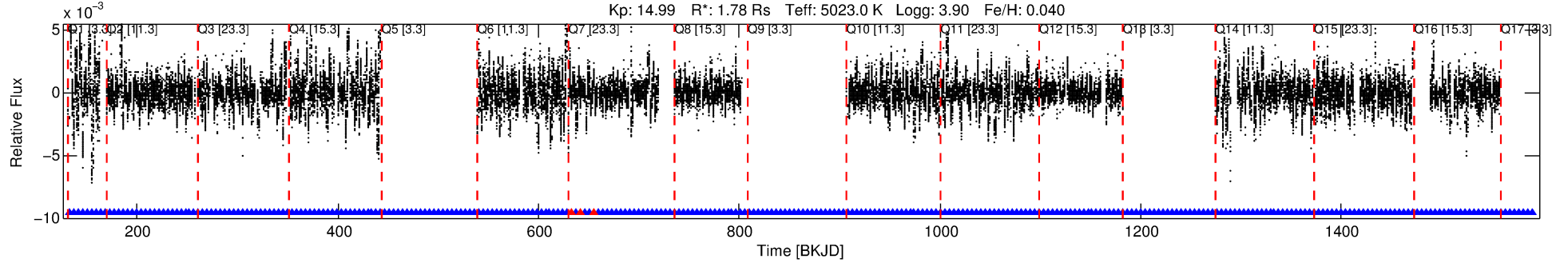
Ephemeris Match Information For 004540632-07

No Significant Match Found

DV One-Page Summary

KIC: 4540632 Candidate: 7 of 7 Period: 4.430 d
KOI: K06422 Corr: No Ephemeris Match

Kp: 14.99 R*: 1.78 Rs Teff: 5023.0 K Logg: 3.90 Fe/H: 0.040



DV Fit Results:

Period = 4.42992 [0.00011] d
Epoch = 132.9342 [0.0180] BKJD
Rp/R* = 0.0095 [0.0105]
a/R* = 2.05 [6.02]
b = 0.13 [30.00]
Seff = 687.30 [797.72]
Teff = 1306 [379] K
Rp = 1.85 [2.35] Re
a = 0.0514 [0.0351] AU
Ag = 87.89 [219.38] [0.40σ]
Teffp = 6181 [3425] K [1.41σ]

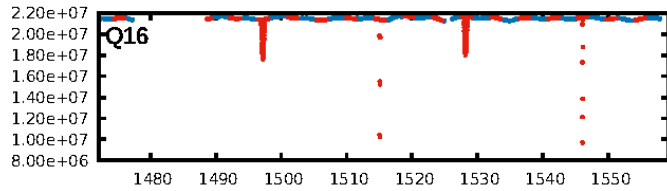
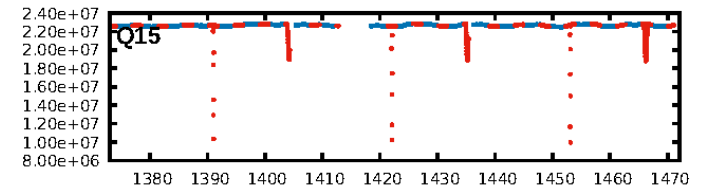
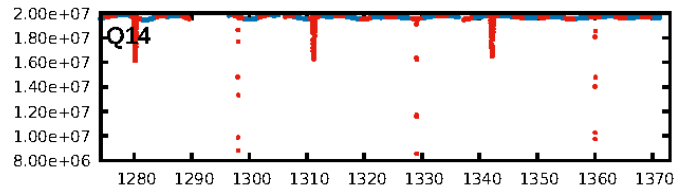
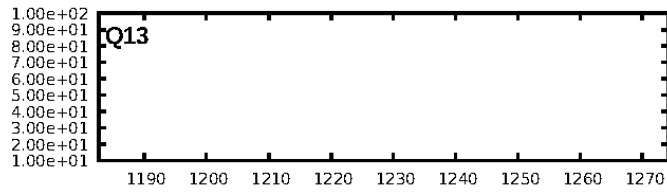
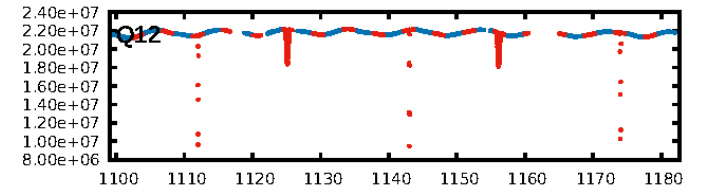
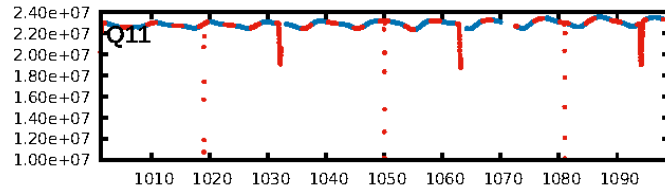
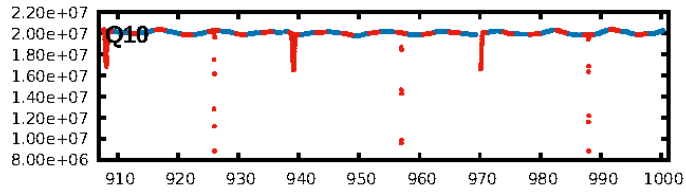
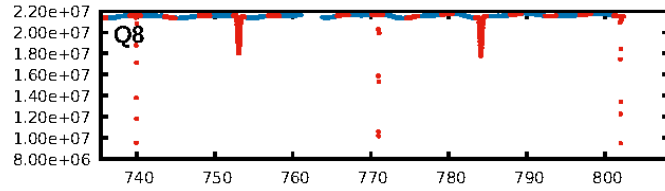
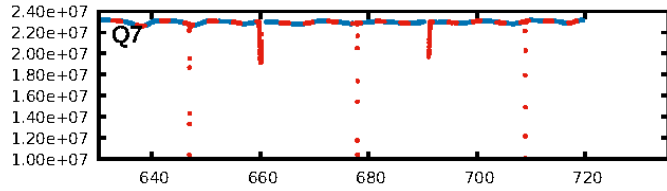
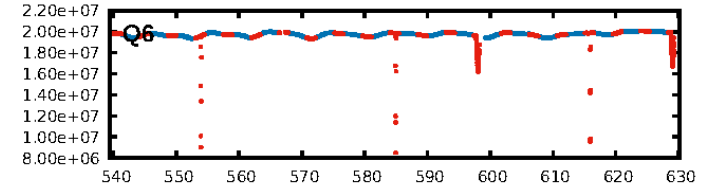
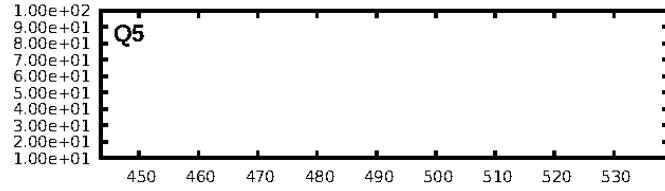
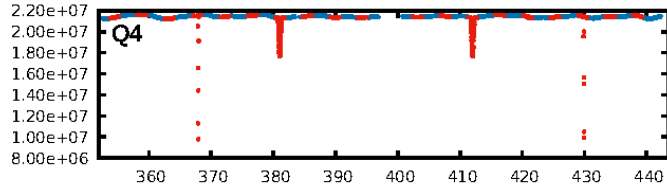
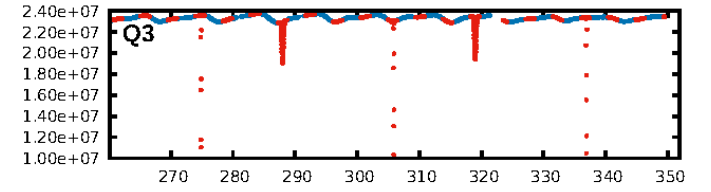
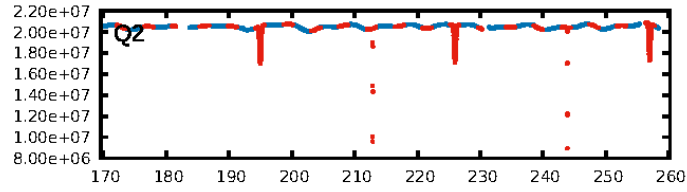
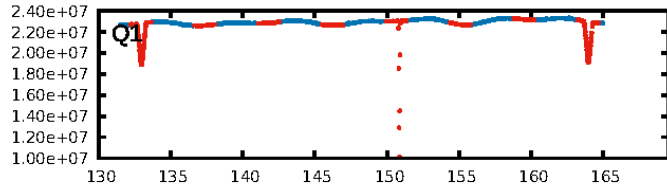
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: 100.0% [27.79σ]
ModelChiSquare2-sig: 98.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.98 [197/200]
GhostDiagnostic-chr: 2.195
Centroid-sig: 0.4%
Centroid-so: 2.546 arcsec [2.43σ]
OotOffset-rm: 0.029 arcsec [0.42σ]
KicOffset-rm: 0.250 arcsec [3.50σ]
OotOffset-st: 4/4/4/1 [13]
KicOffset-st: 4/4/4/1 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 0.00 [0/13]

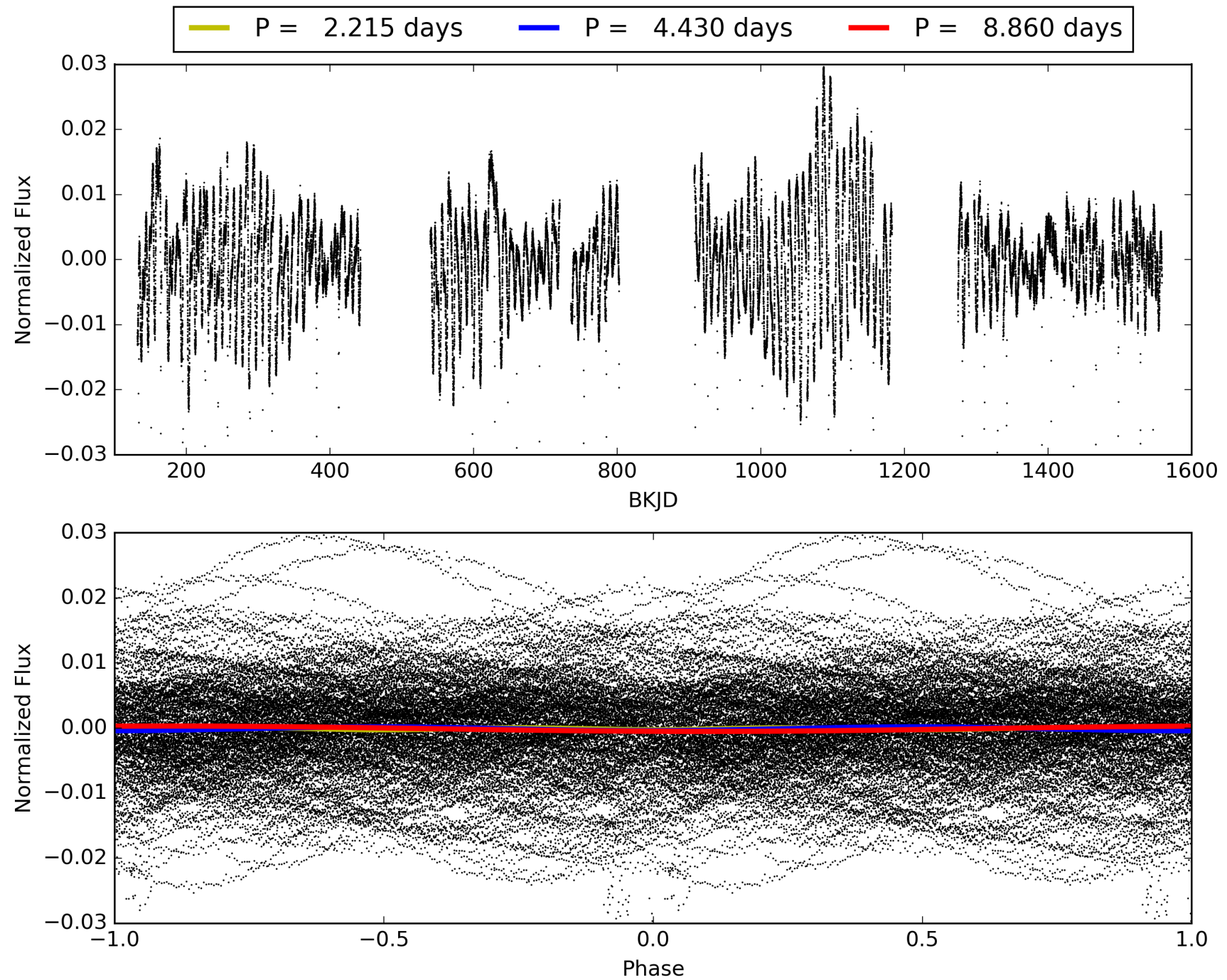
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 04:54:28 Z

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

TCE 004540632-07, PDC Light Curves

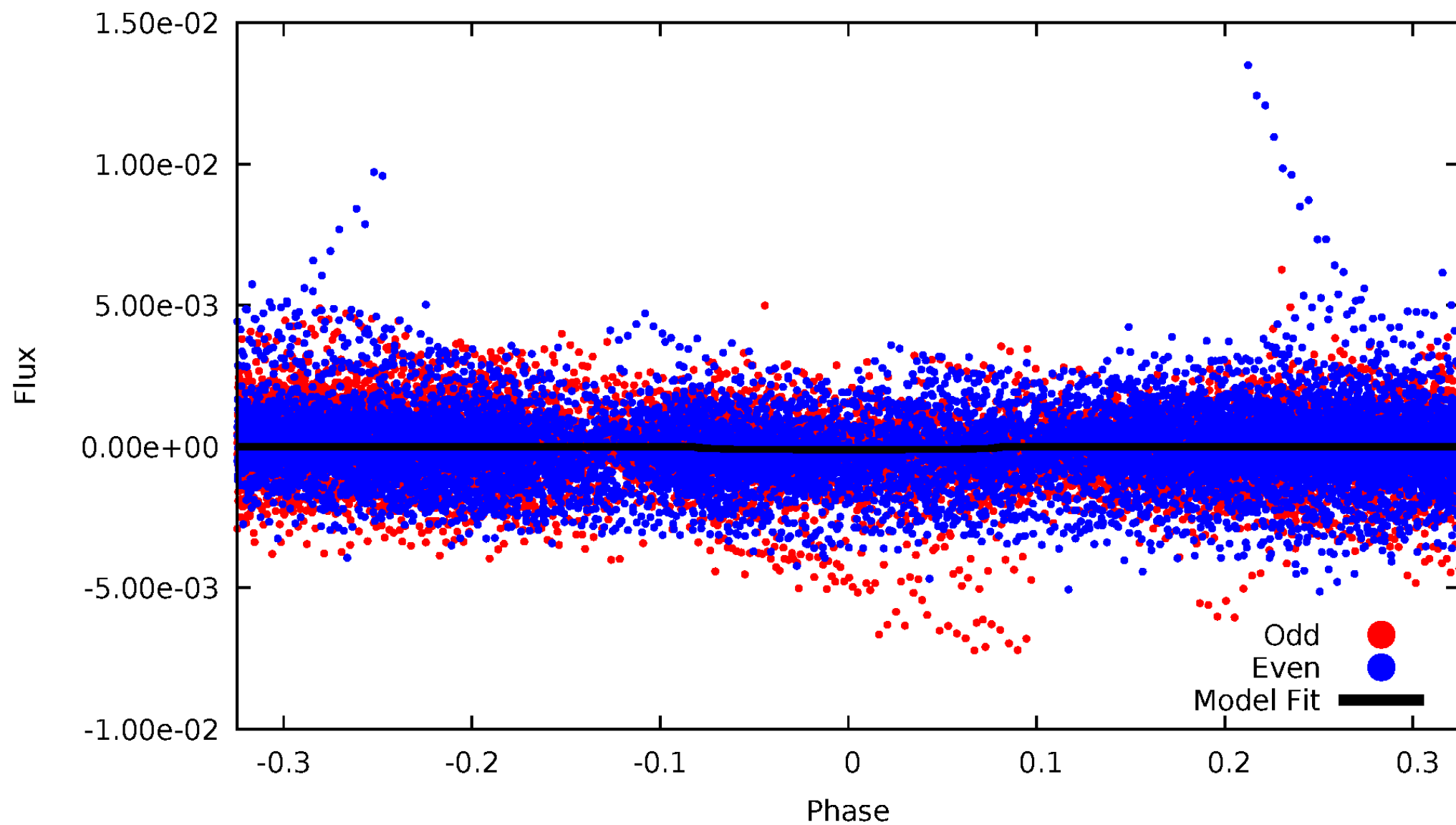


TCE 004540632-07



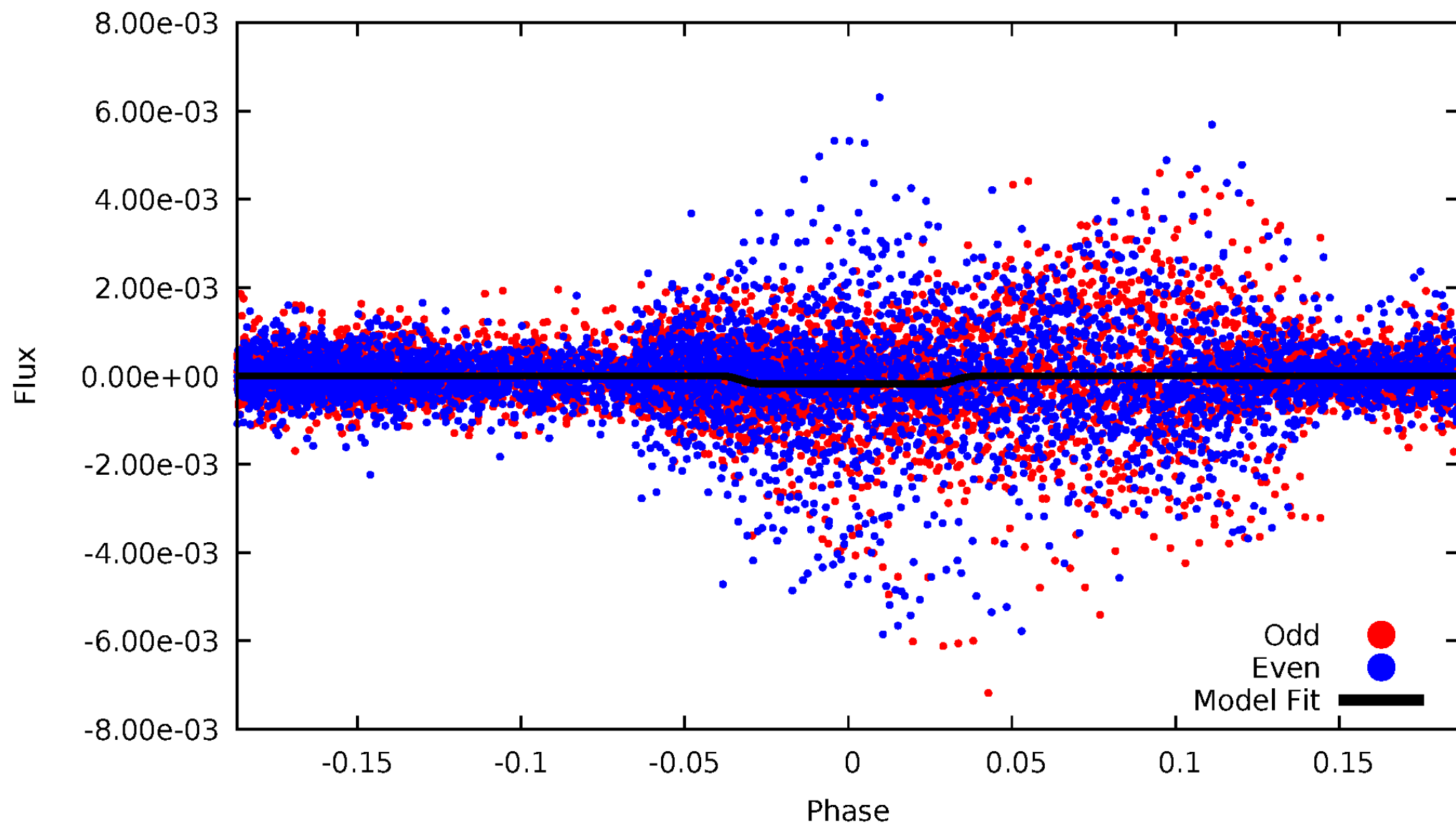
DV Odd/Even

TCE 004540632-07

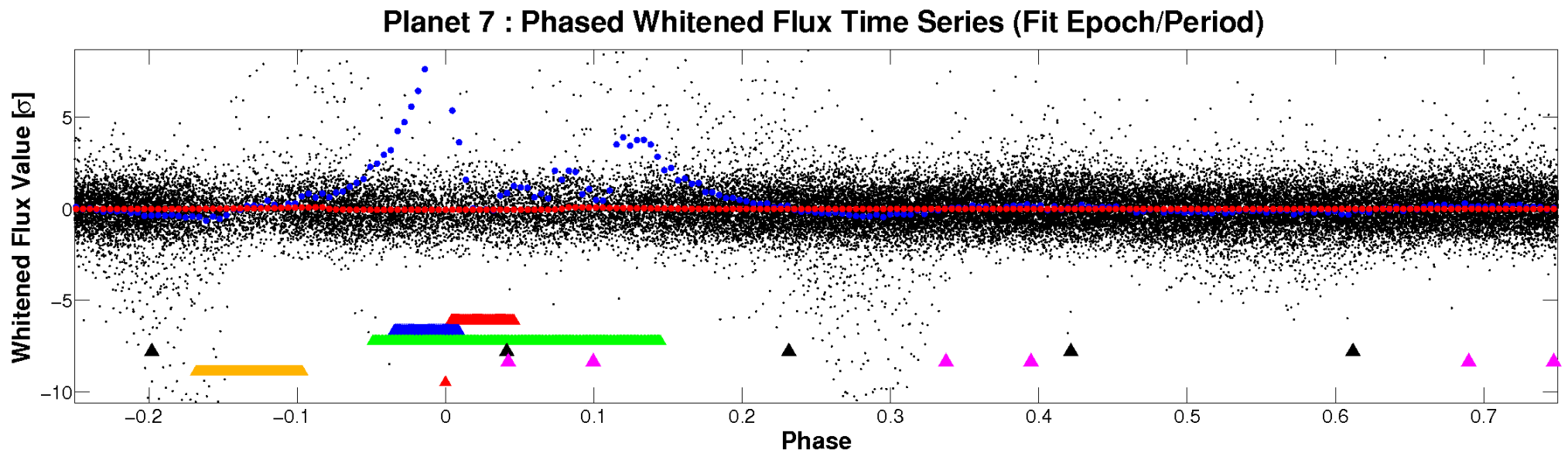
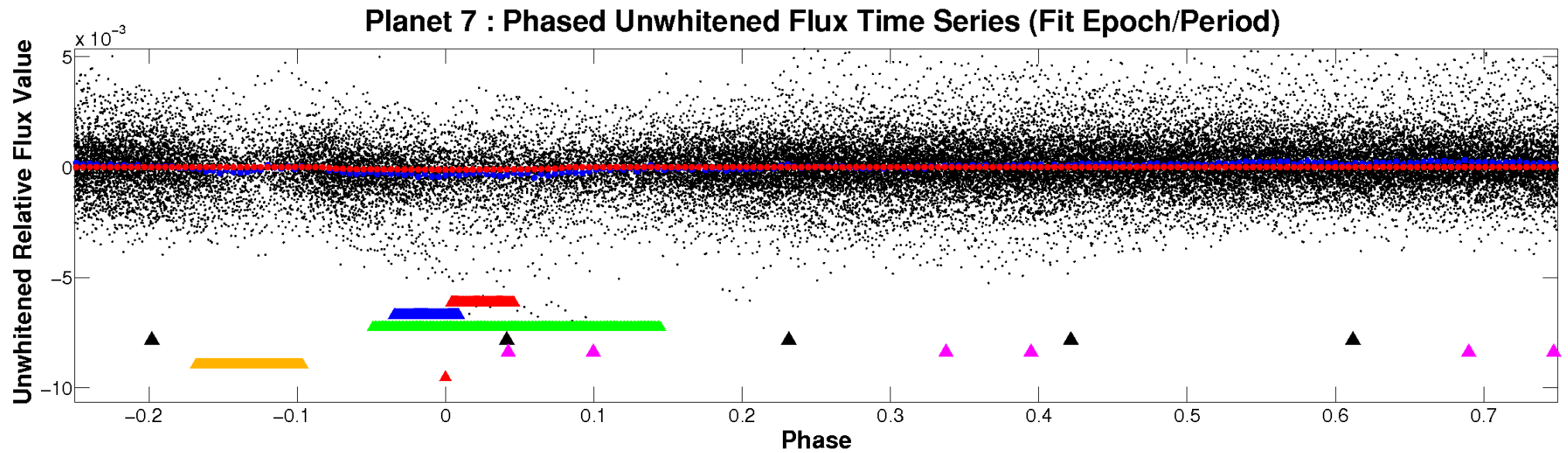


ALT Odd/Even

TCE 004540632-07

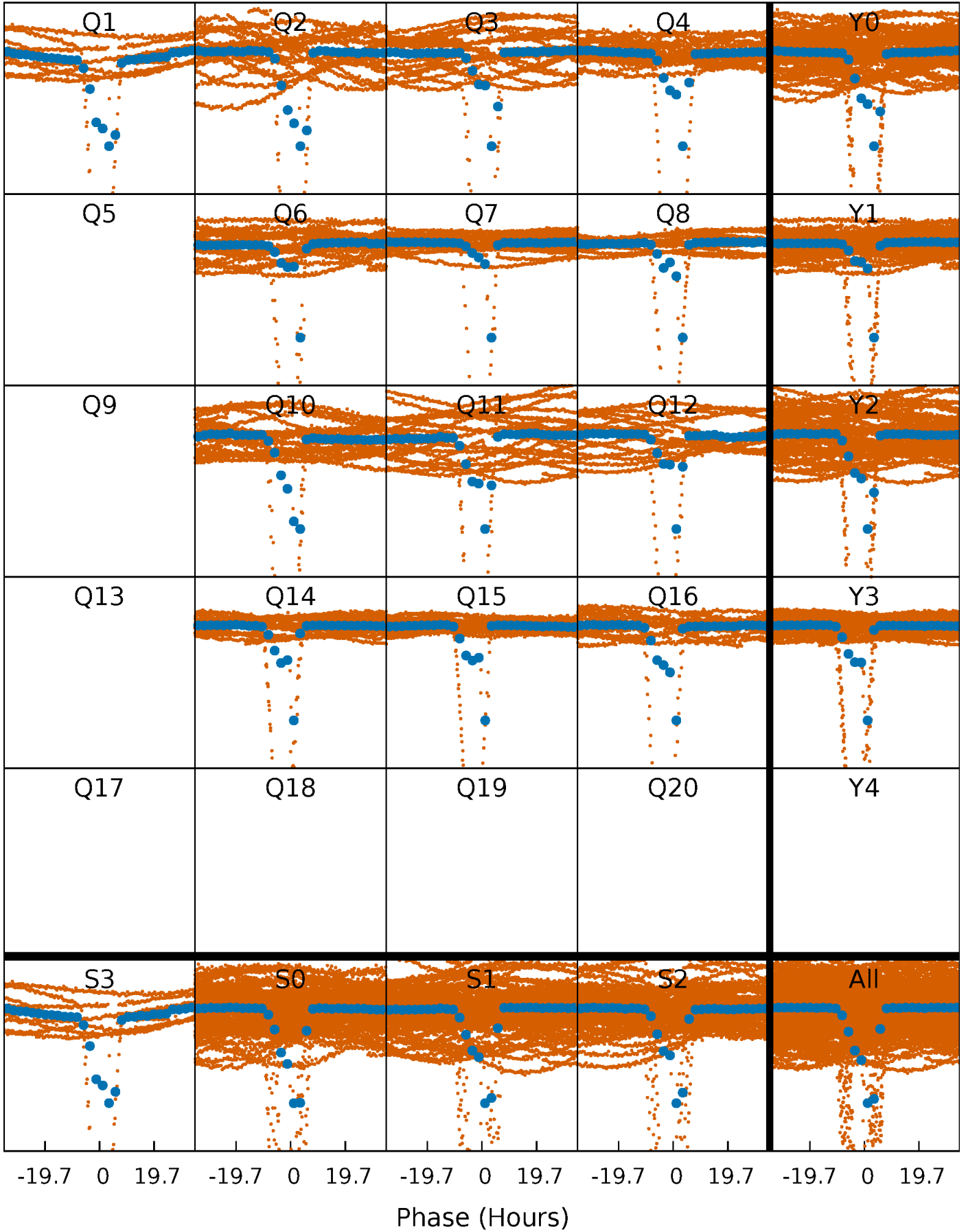


Non-Whitened Vs. Whitened Light Curve



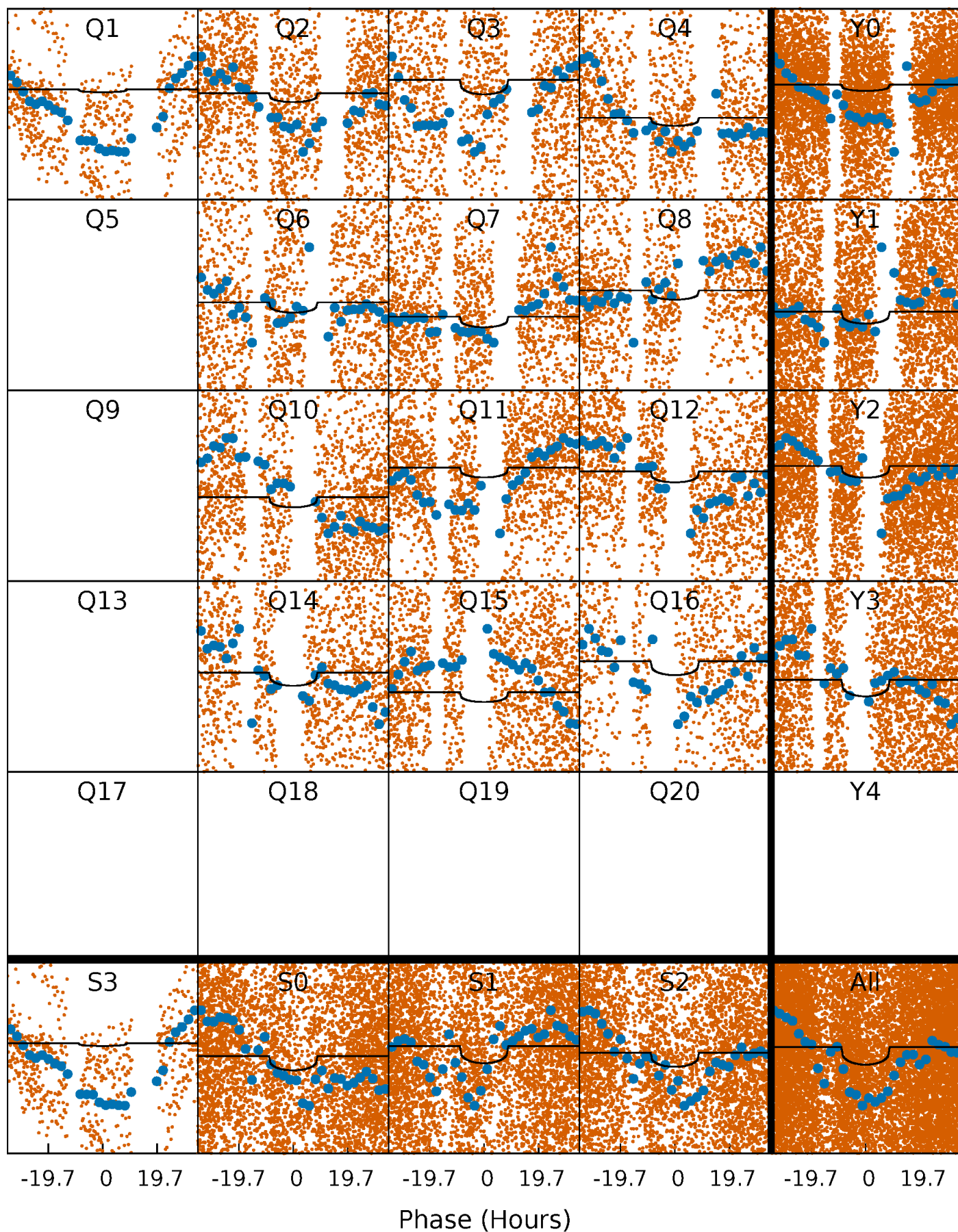
PDC Quarter-Phased Transit Curves

TCE 004540632-07 P= 4.429920 Days $T_0=132.934246$ (BKJD)



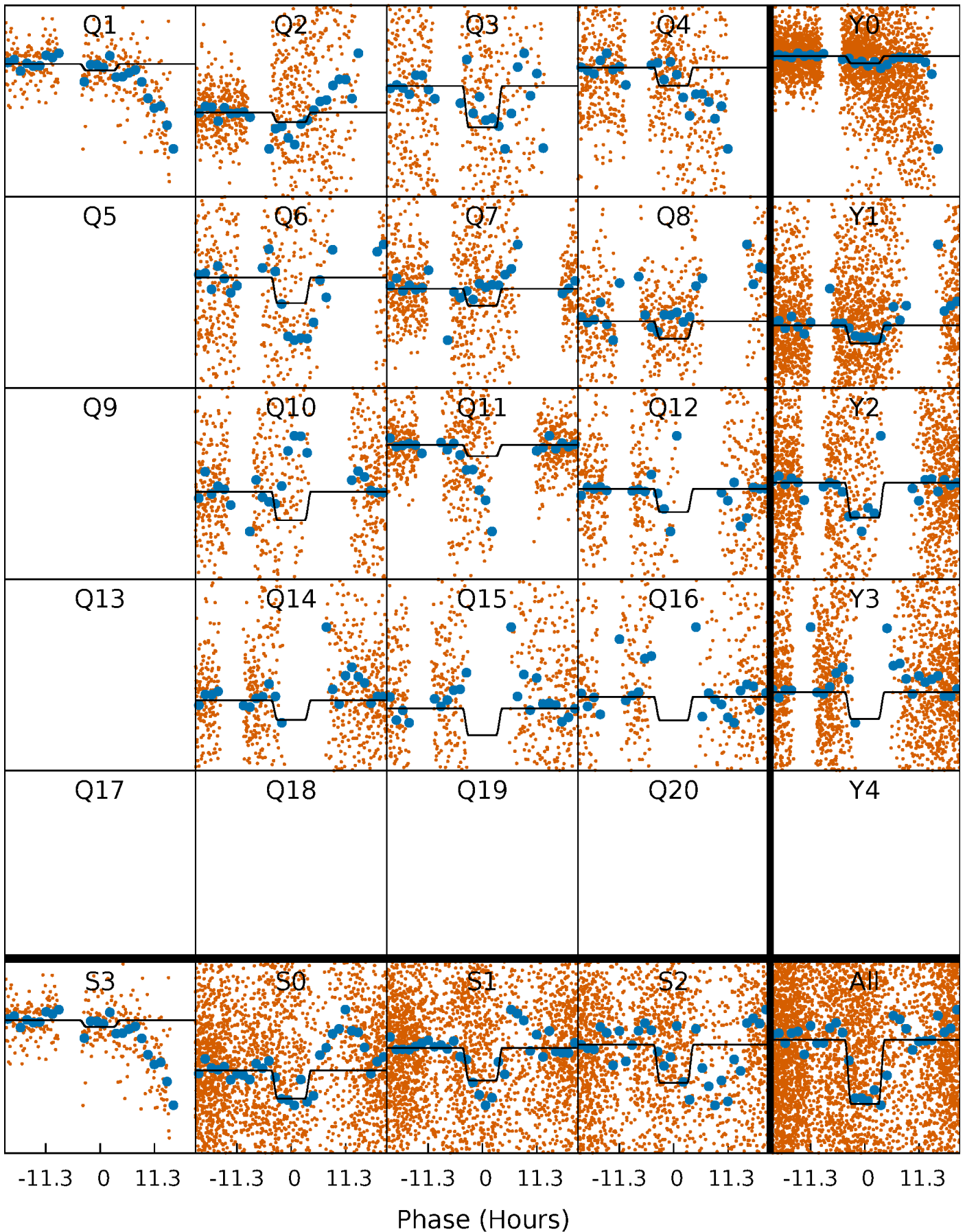
DV Quarter-Phased Transit Curves

TCE 004540632-07 $P = 4.429920$ Days $T_0 = 132.934246$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

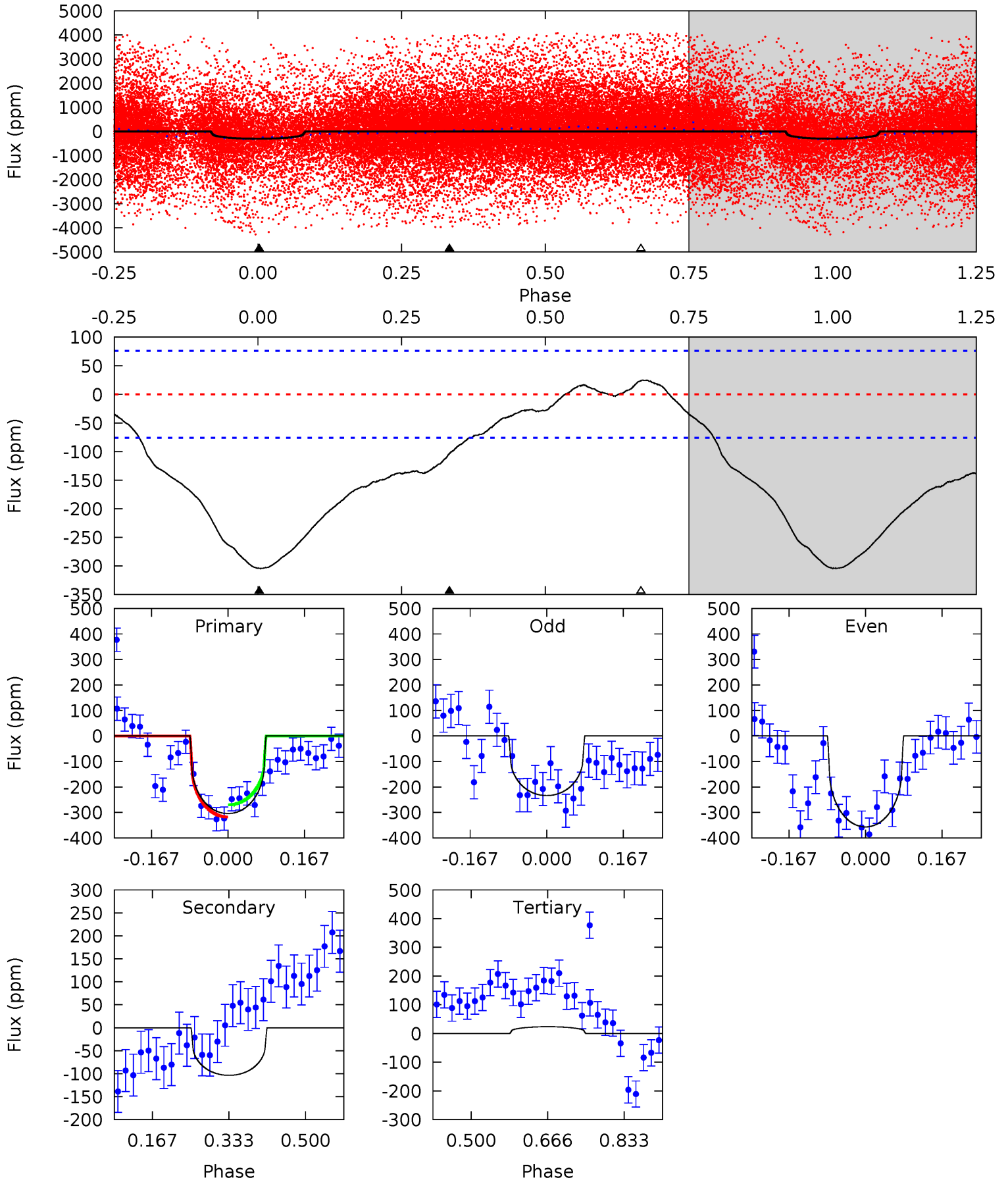
TCE 004540632-07 P= 4.429899 Days $T_0=132.765166$ (BKJD)



DV Model-Shift Uniqueness Test

004540632-07, P = 4.429920 Days, E = 128.504326 Days

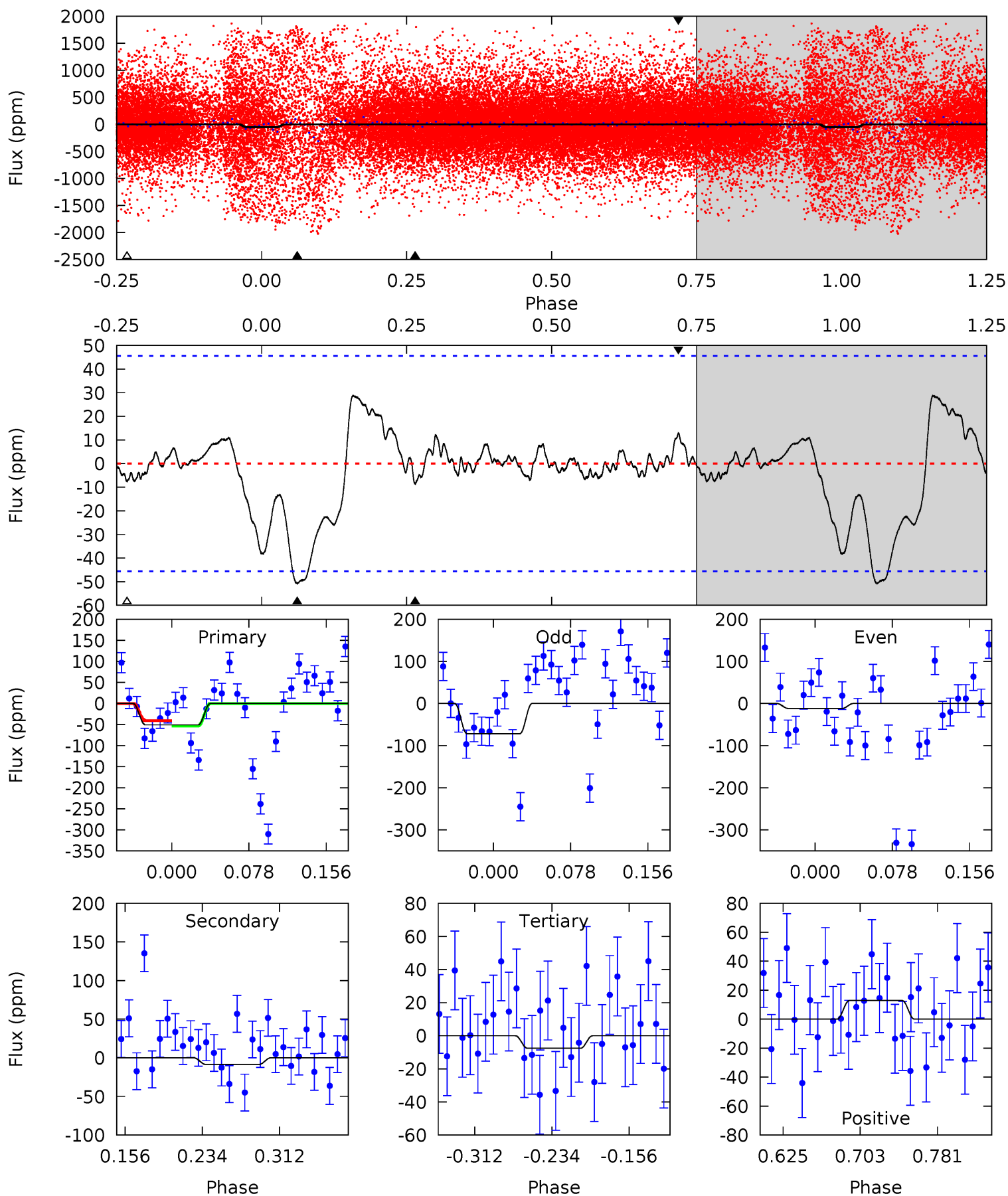
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.9	6.09	-1.38	0	4.46	1.38	2.31	19.3	17.9	7.47	6.09	3.65	1.97	0.08	1.38



Alt Model-Shift Uniqueness Test

004540632-07, P = 4.429899 Days, E = 128.335267 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.14	0.88	0.77	1.30	4.62	1.76	0.67	4.38	3.84	0.11	-0.43	2.97	2.96	0.36	0.66



Stellar Parameters For KIC 004540632

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5023^{+151}_{-151}	$3.900^{+0.700}_{-0.300}$	$0.040^{+0.250}_{-0.250}$	$1.784^{+1.027}_{-1.129}$	$0.921^{+0.185}_{-0.151}$	$0.228^{+2.252}_{-0.171}$
	+3%/-3%	+18%/-8%	+625%/-625%	+58%/-63%	+20%/-16%	+986%/-75%
Source	PHO1	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 004540632-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-104±17	$2.01^{+2.14}_{-1.38}$	1801^{+261}_{-325}	4782^{+3488}_{-1048}	35^{+341}_{-27}
Alt.	-9±10	$2.60^{+2.26}_{-1.52}$	1791^{+274}_{-296}	2755^{+1012}_{-5242}	$1.409^{+10.151}_{-1.590}$

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

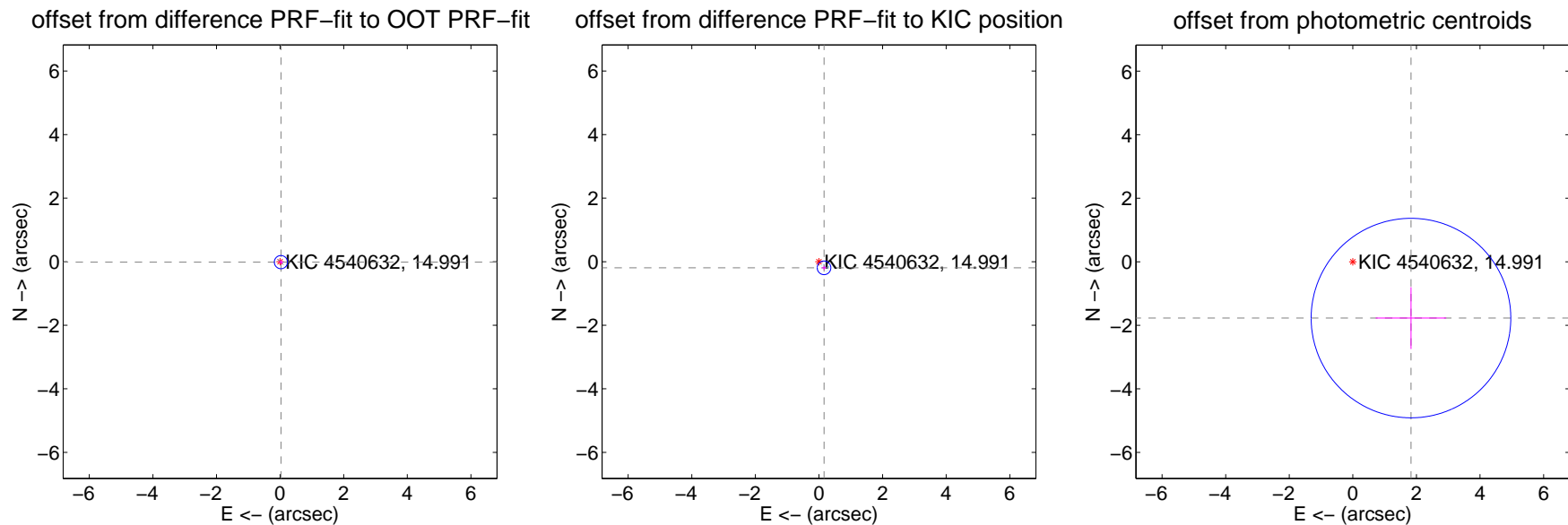
DV Centroid Data

Supplemental centroid analysis for 004540632-07. Kepler magnitude: 14.99. Transit SNR 4.06

There are 13 quarters with good PRF difference image offsets

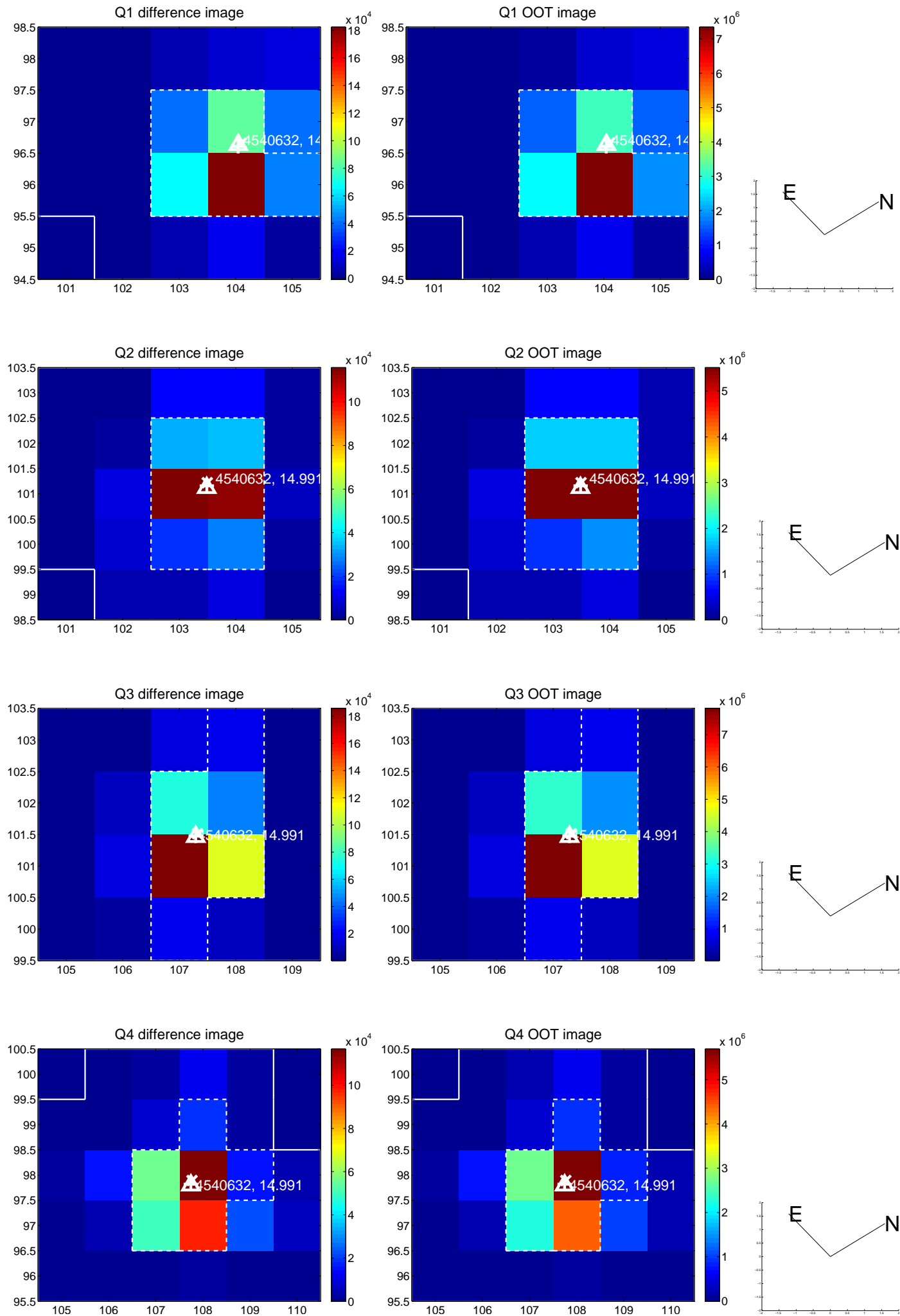
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.029 ± 0.069	0.42	-0.026 ± 0.068	-0.014 ± 0.068
PRF-fit source offset from KIC position	0.250 ± 0.071	3.50	-0.158 ± 0.073	-0.193 ± 0.070
photometric centroid source offset	2.55 ± 1.05	2.43	-1.83 ± 1.11	-1.77 ± 0.97

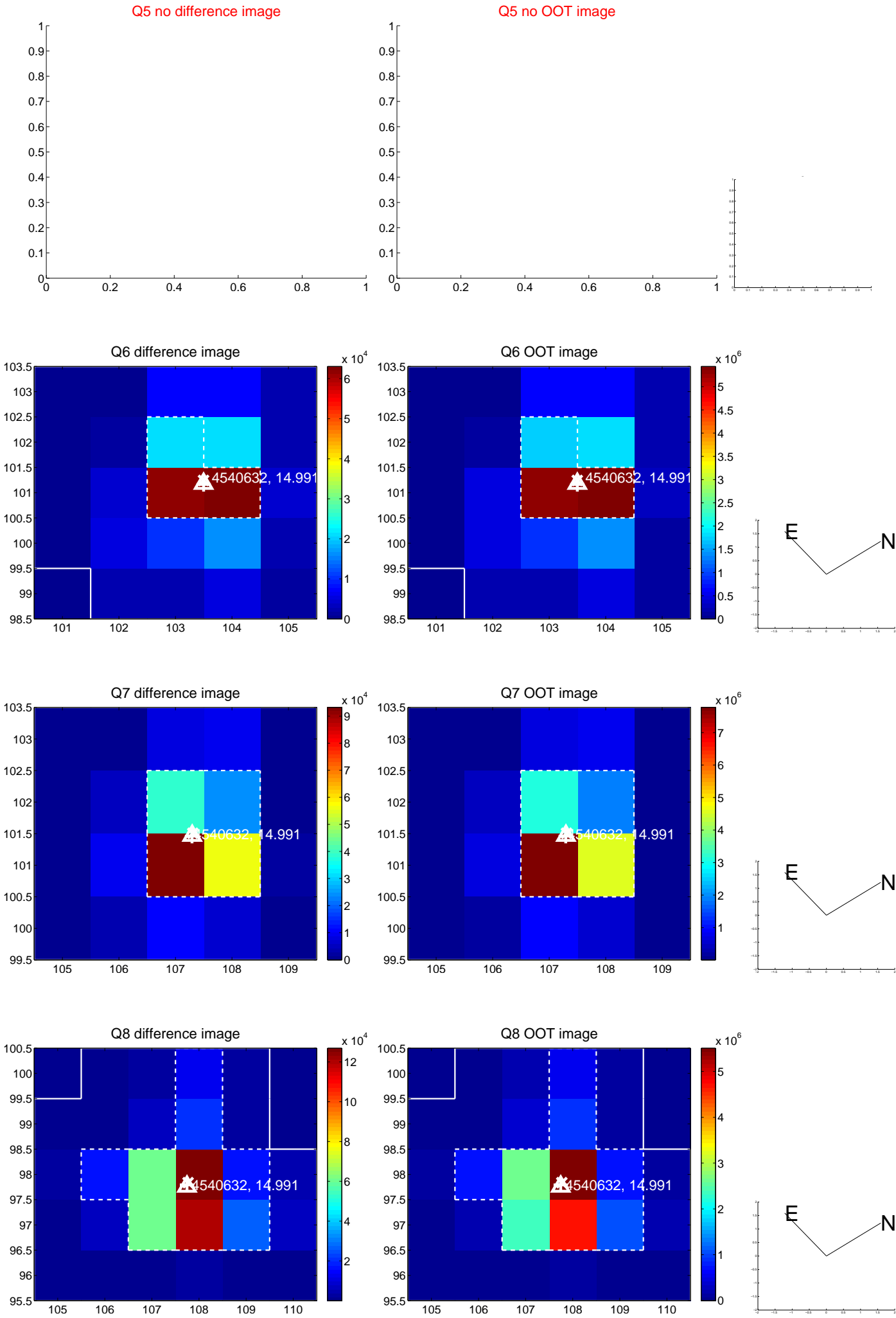


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

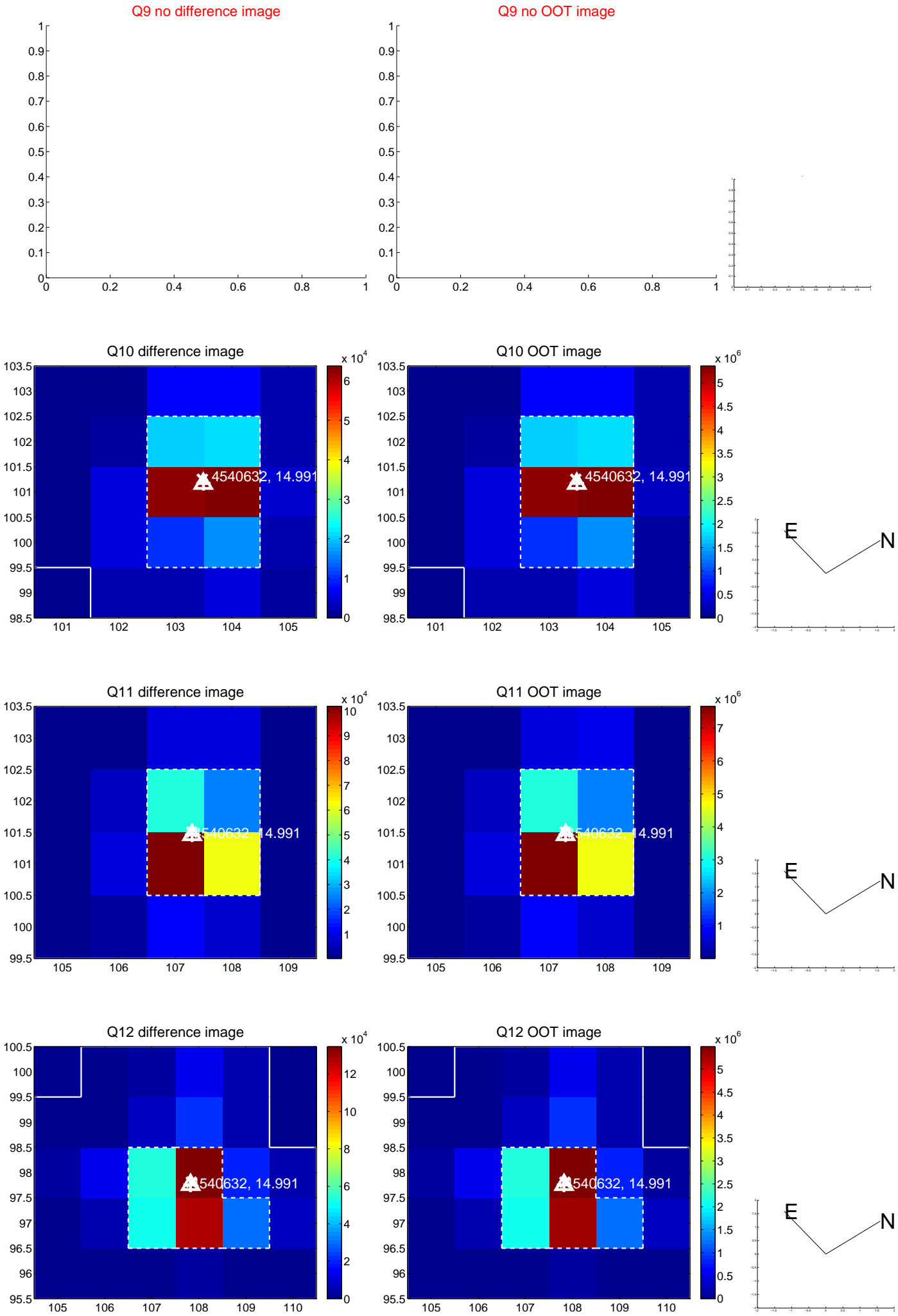
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



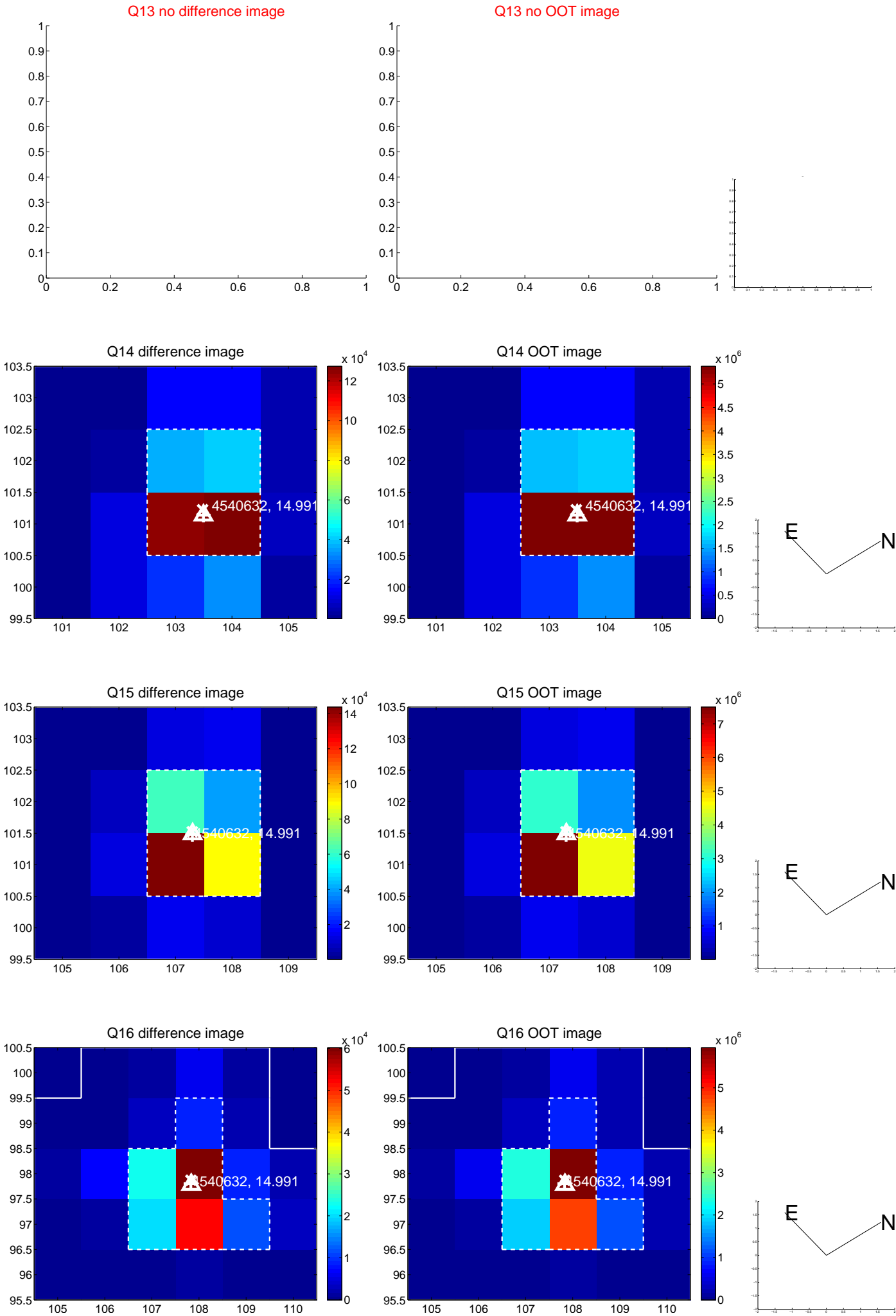
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



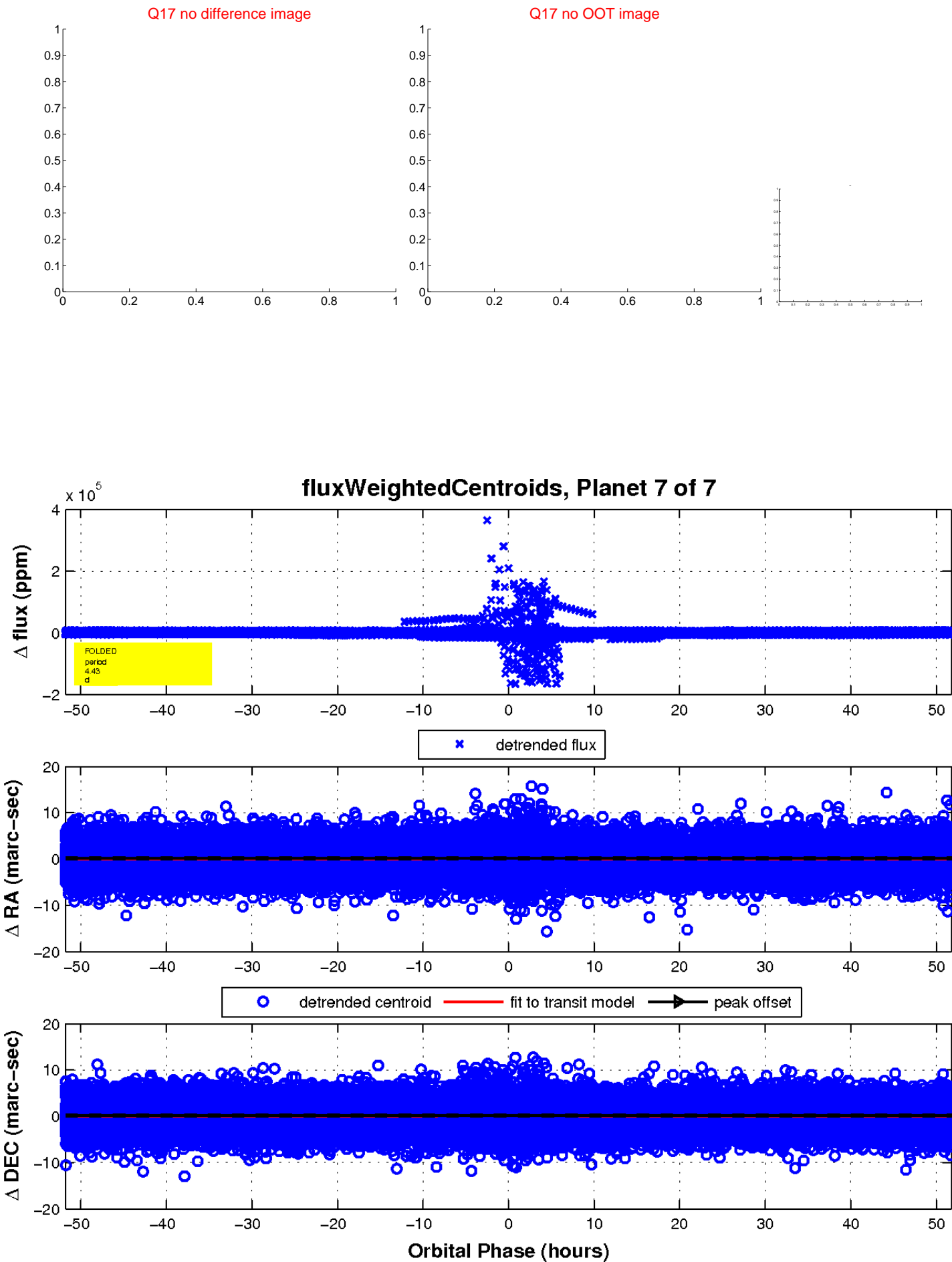
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

