

KIC 008453324

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})
008453324-01	OBS	7044.01	1.262271	132.041826	7093.8	3.223	895.2	924.8	9.36	4927	130.83	0.00
008453324-02	OBS	No	368.662363	274.176918	538.3	14.975	7.1	7.2	9.36	4927	24.44	25.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008453324-01	OBS	FP	0.00	0	1	0	0	PLANET_IN_STAR—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED
008453324-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—CENT_FEW_DIFFS

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

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

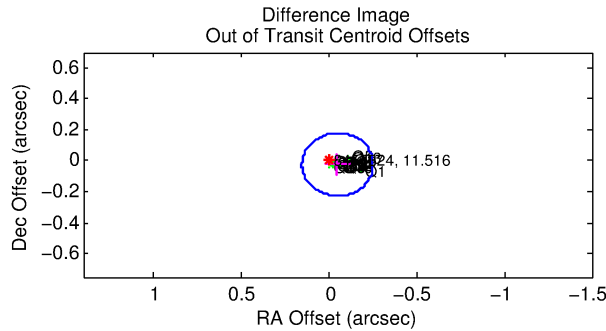
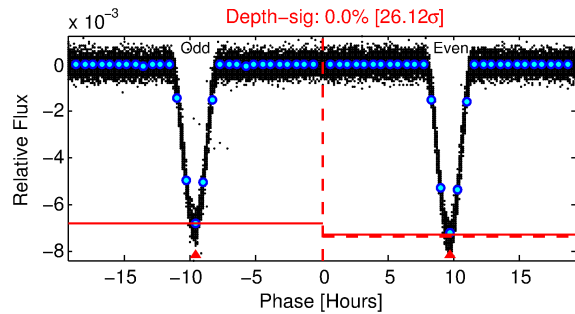
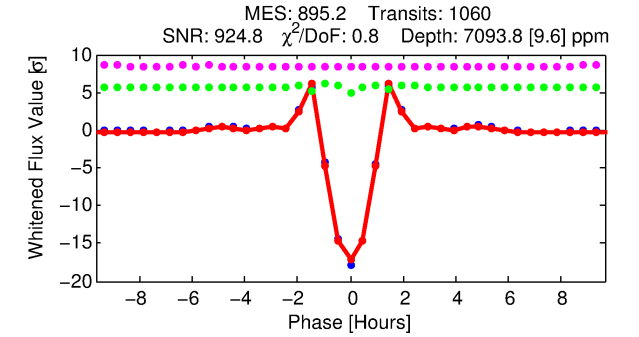
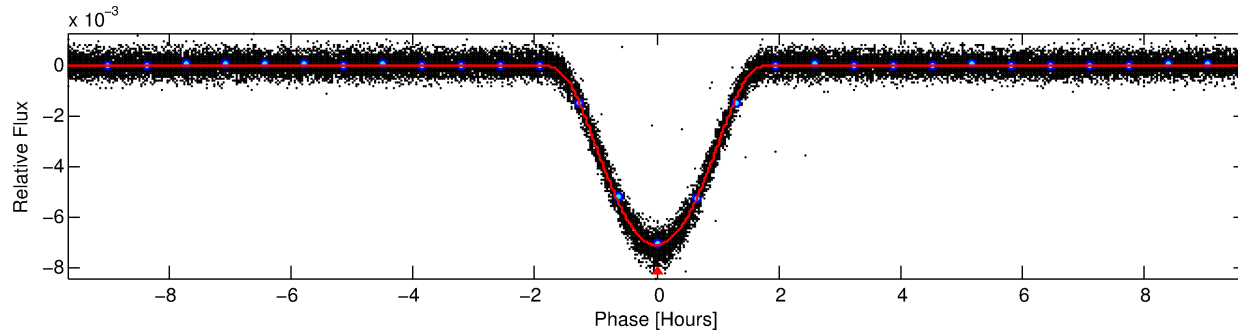
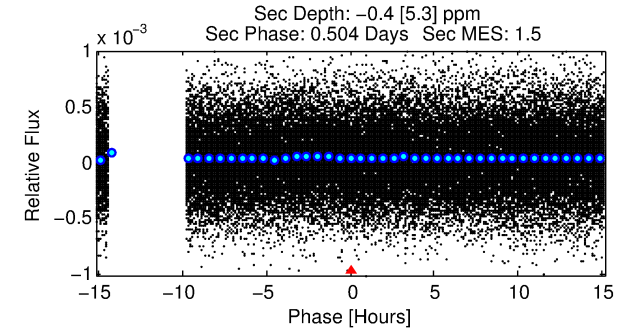
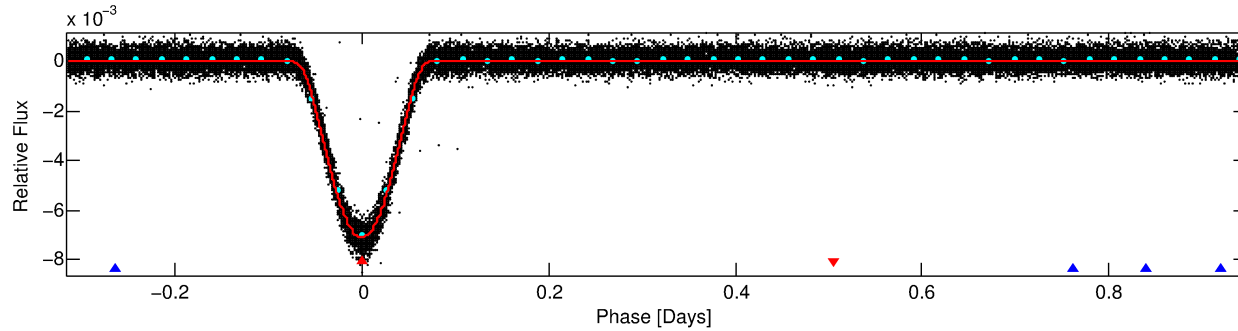
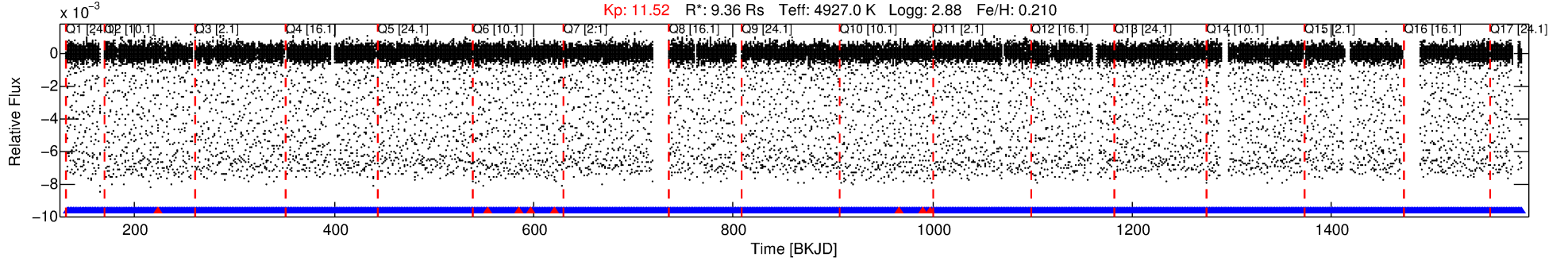
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008453324-01

No Significant Match Found

DV One-Page Summary

KIC: 8453324 Candidate: 1 of 2 Period: 1.262 d
KOI: K07044.01 Corr: 0.990



DV Fit Results:

Period = 1.26227 [0.00000] d
Epoch = 132.0418 [0.0000] BKJD
Rp/R* = 0.1281 [0.0011]
a/R* = 2.00 [0.00]
b = 0.97 [0.00]
Seff = N/A
Teq = N/A
Rp = 130.83 [49.35] Re
a = N/A
Ag = N/A
Teffp = N/A

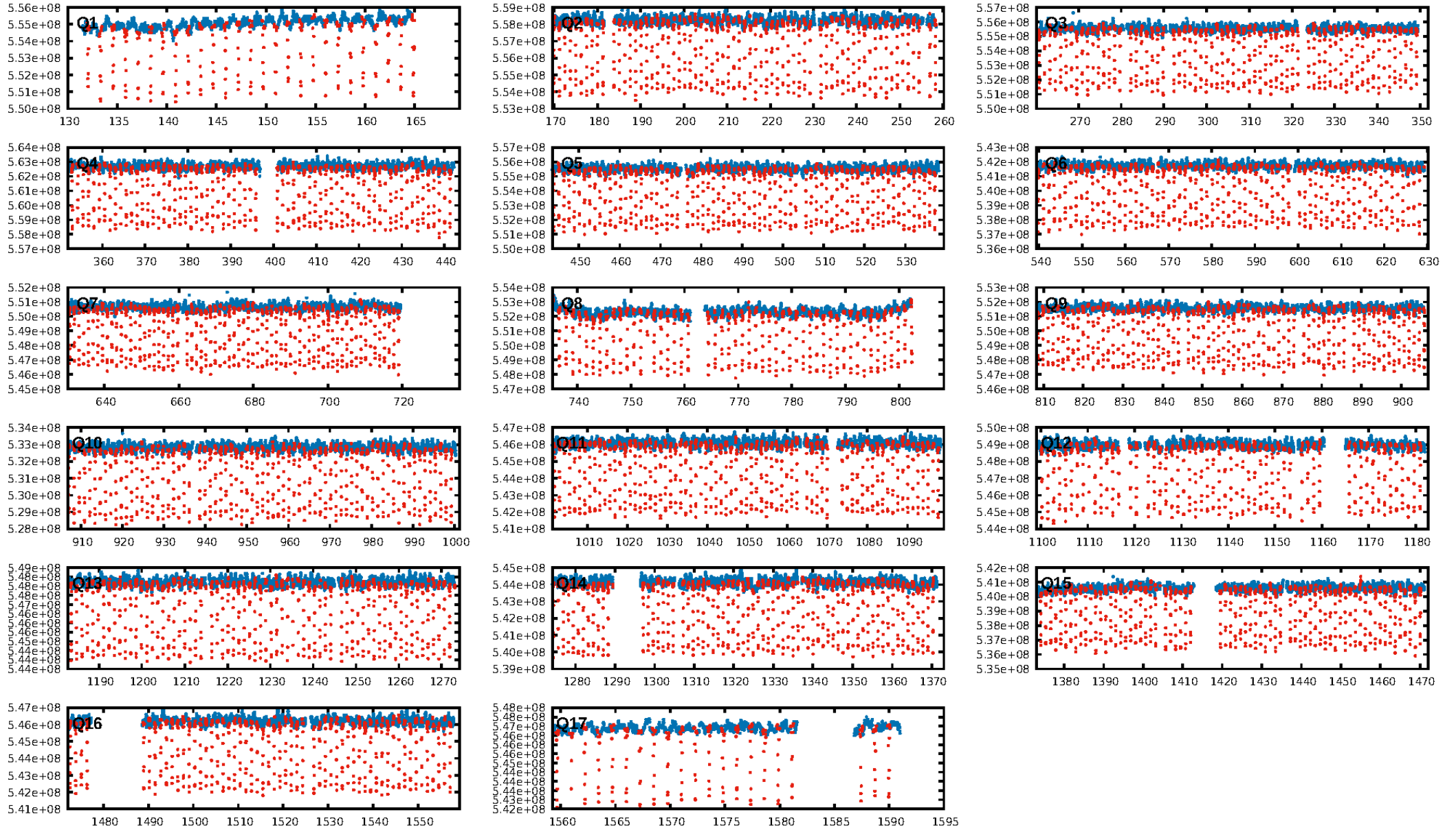
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [575.65 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [1004/1012]
GhostDiagnostic-chr: 2.612
Centroid-sig: 0.0%
Centroid-so: 0.115 arcsec [55.58 σ]
OotOffset-rm: 0.055 arcsec [0.81 σ]
KicOffset-rm: 0.105 arcsec [1.55 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

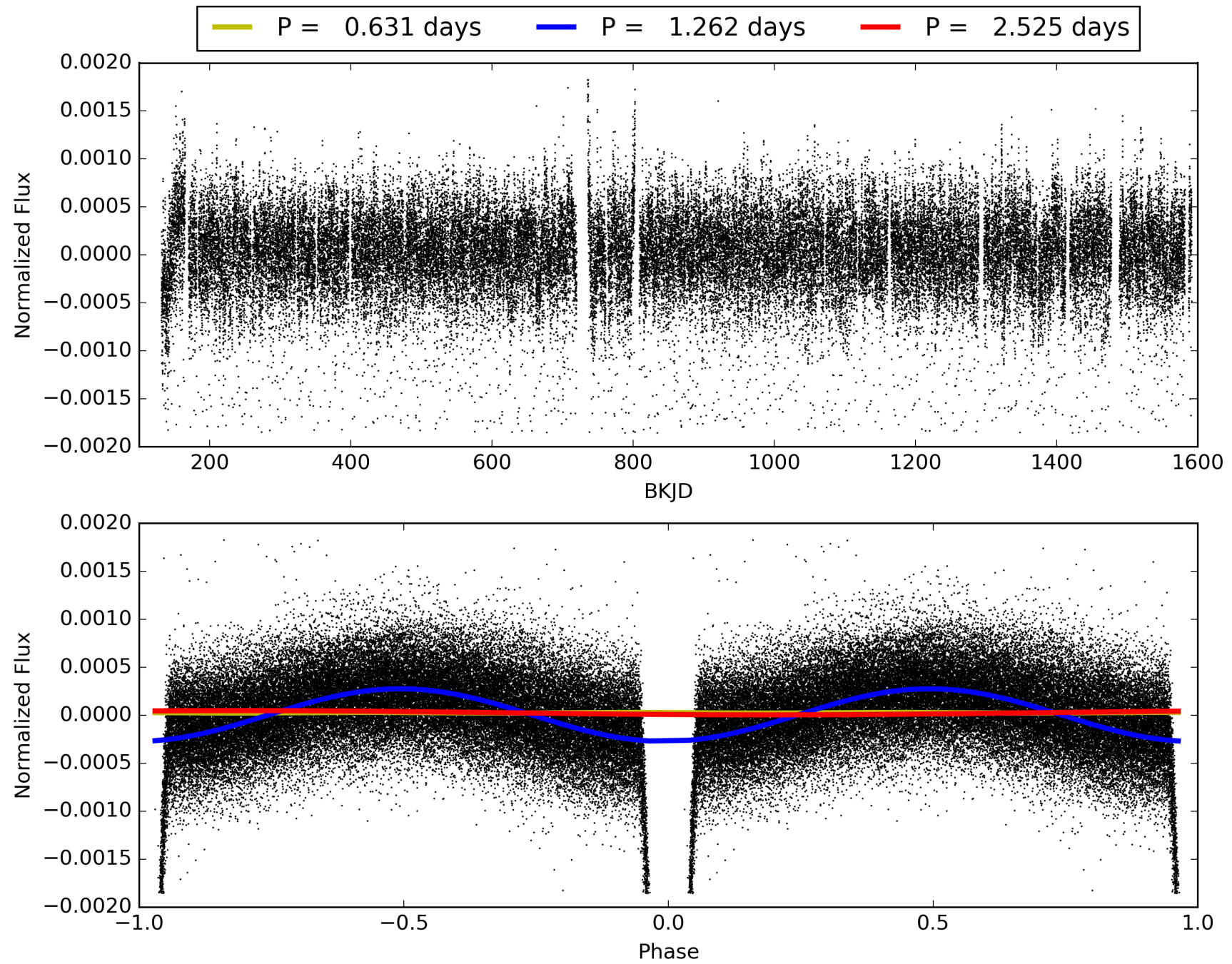
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008453324-01, PDC Light Curves

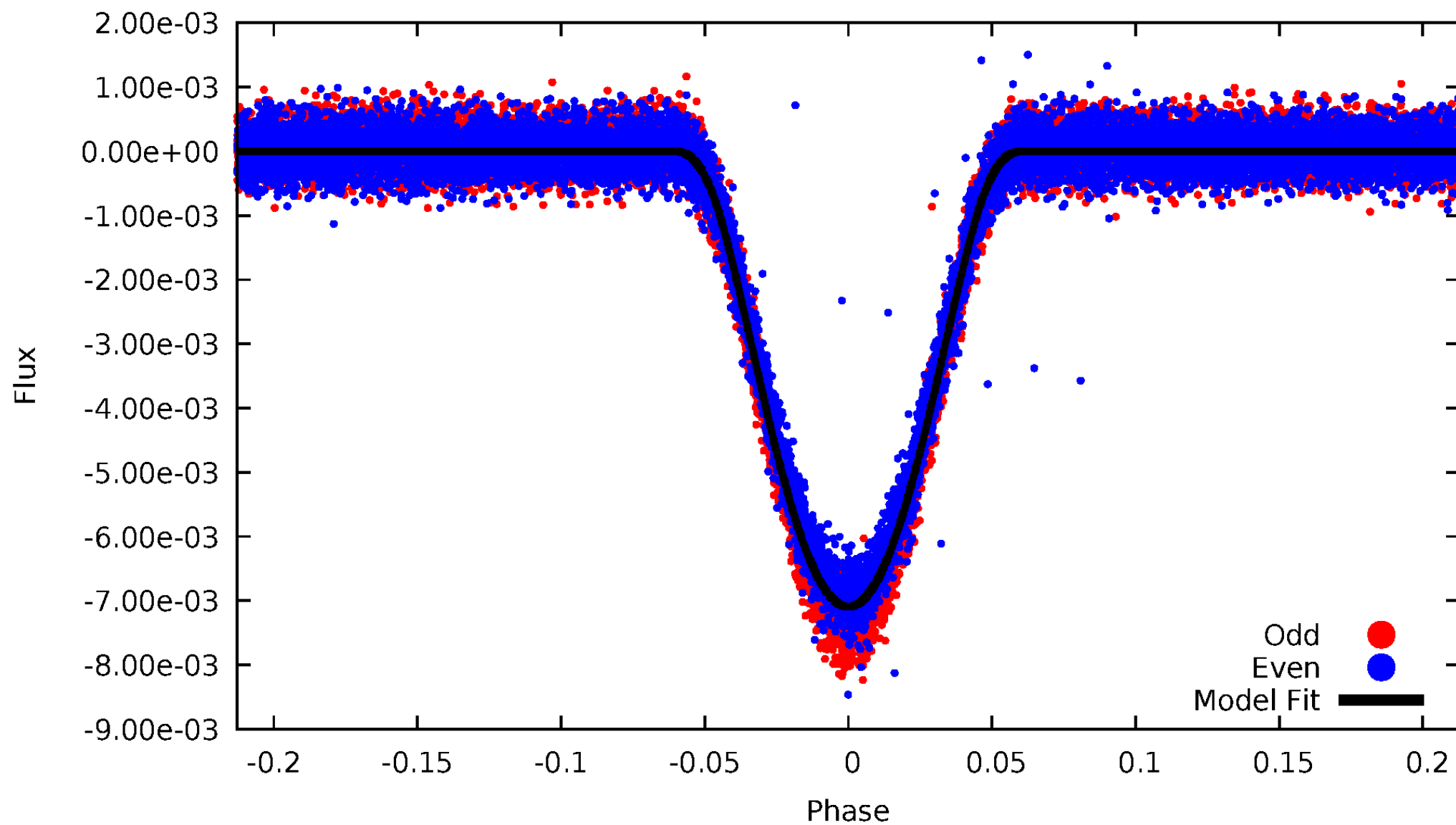


TCE 008453324-01



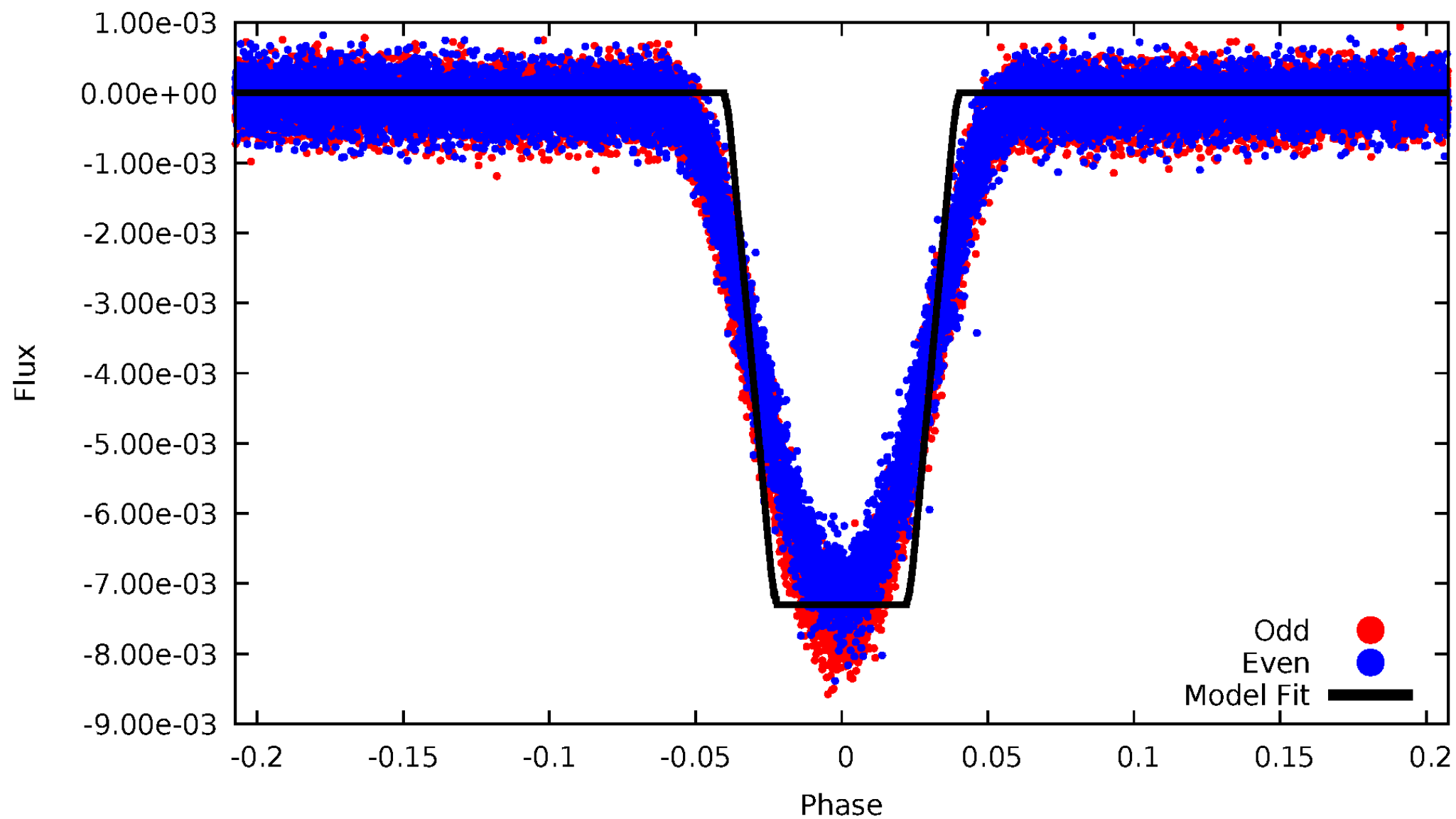
DV Odd/Even

TCE 008453324-01

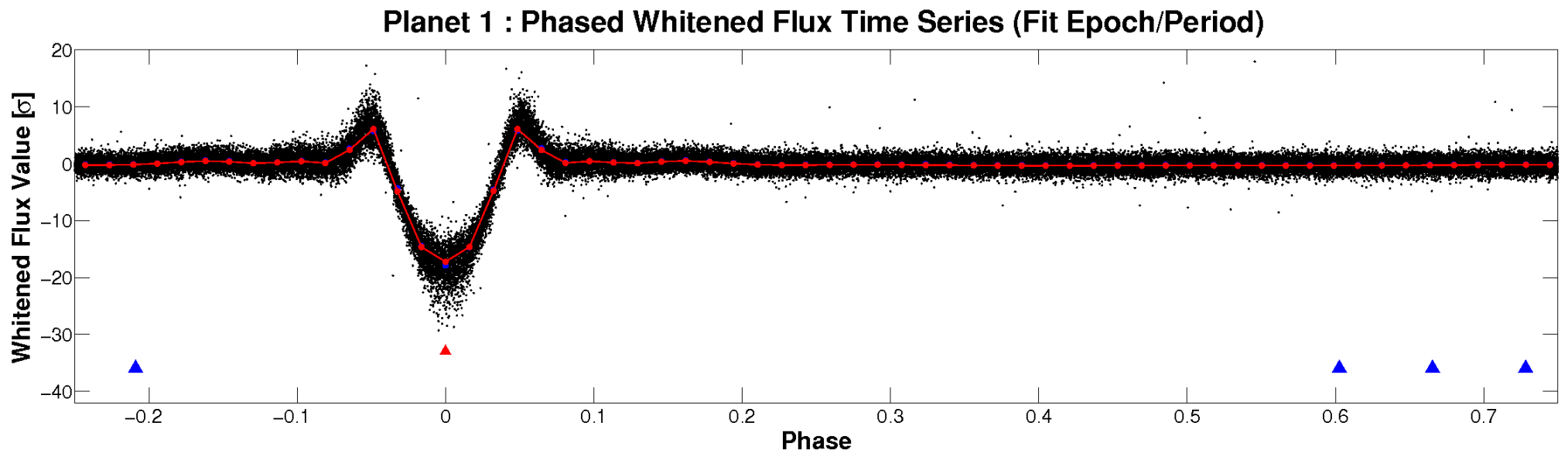
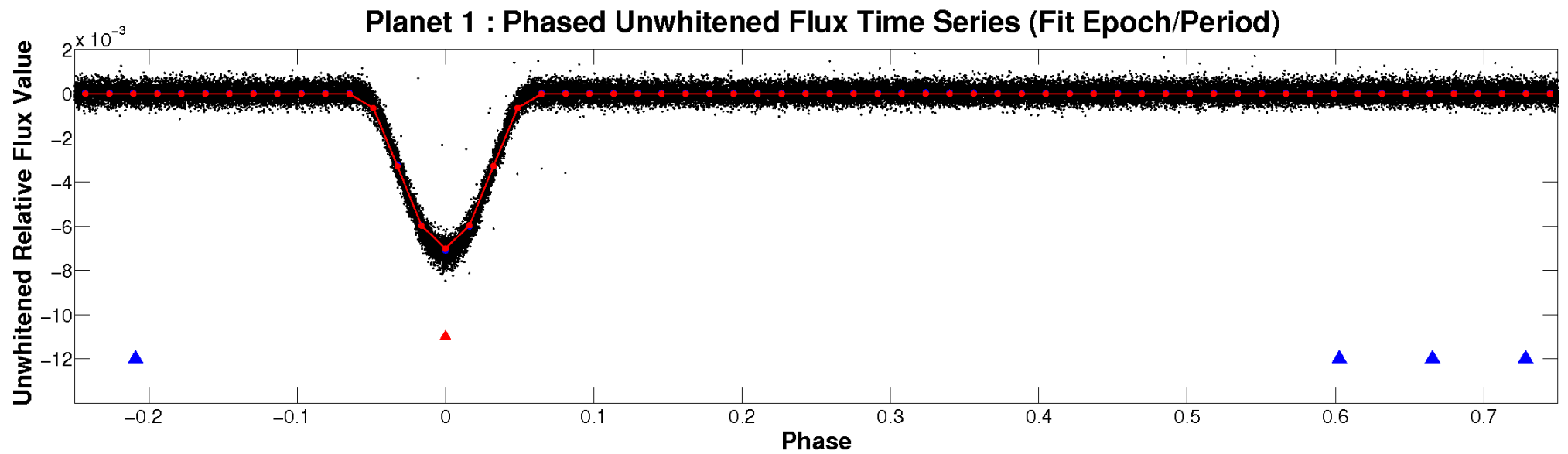


ALT Odd/Even

TCE 008453324-01

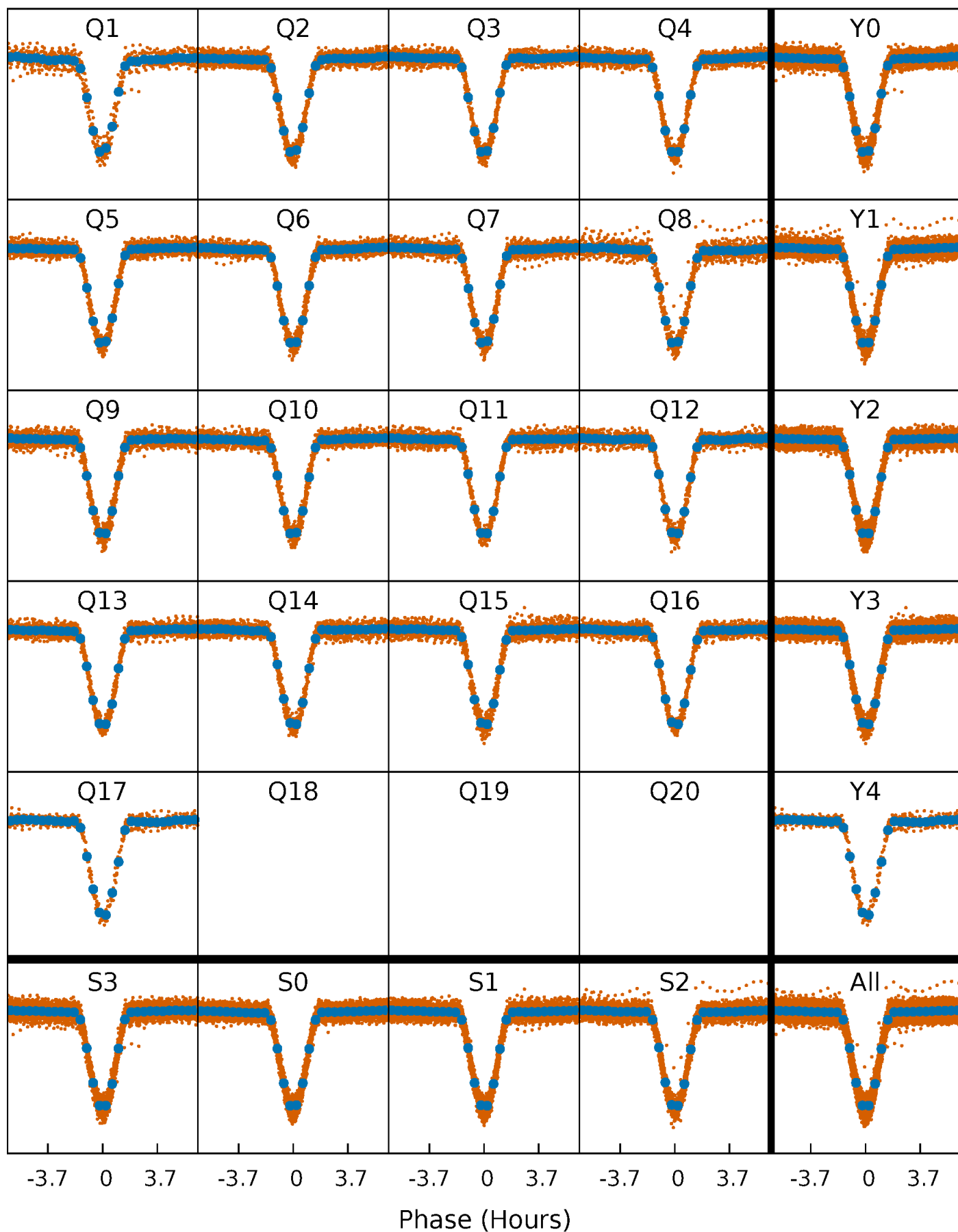


Non-Whitened Vs. Whitened Light Curve



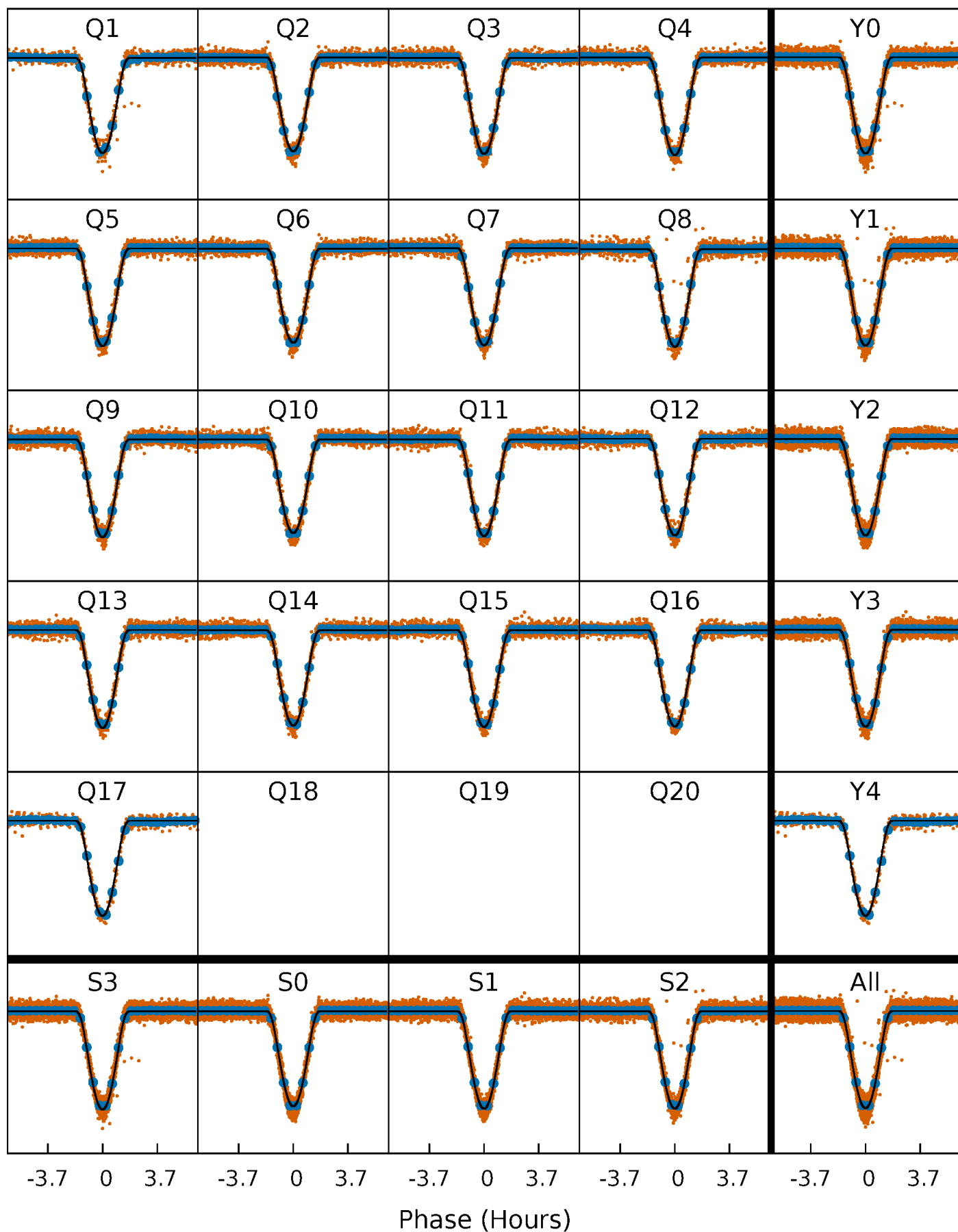
PDC Quarter-Phased Transit Curves

TCE 008453324-01 P= 1.262271 Days $T_0=132.041826$ (BKJD)



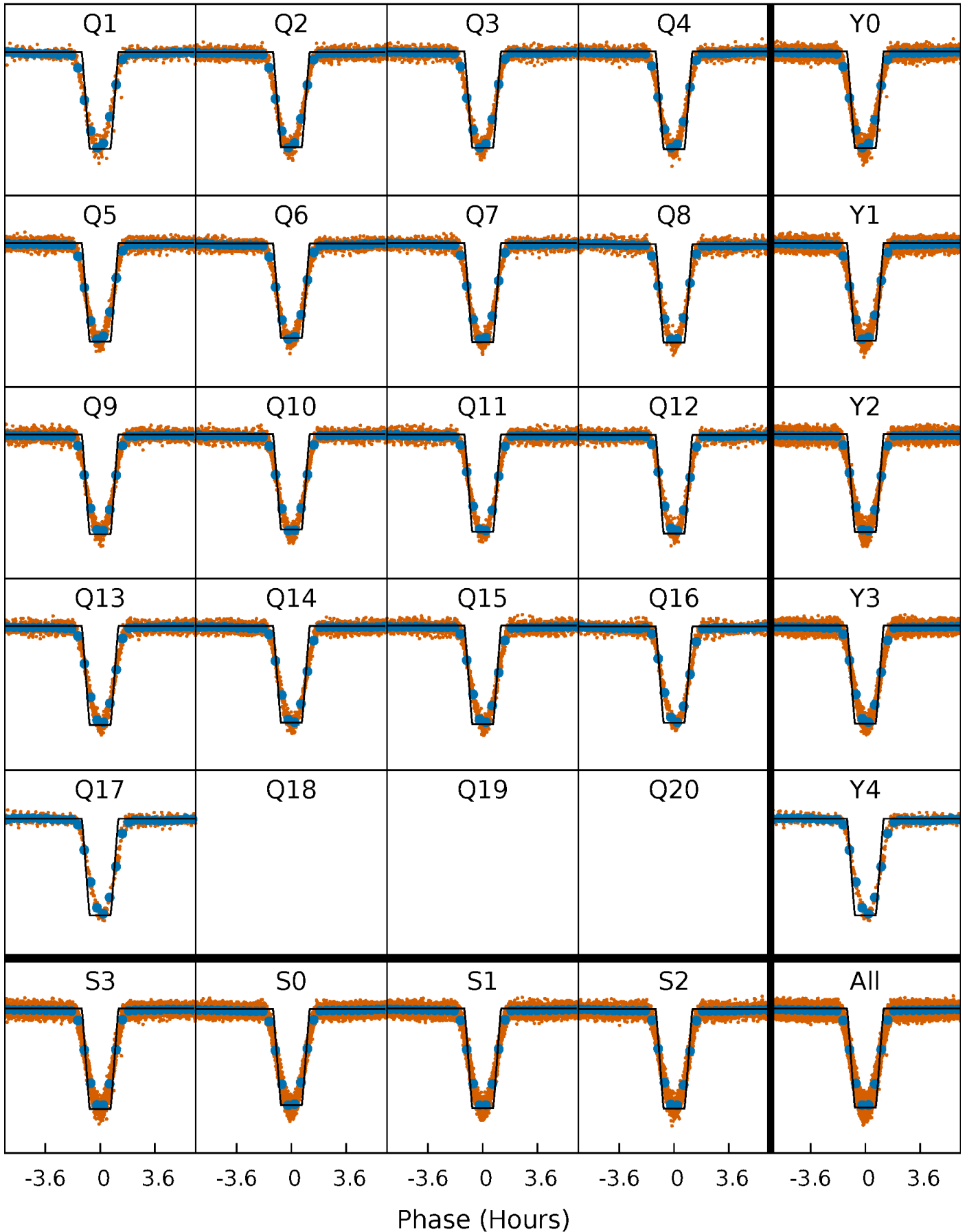
DV Quarter-Phased Transit Curves

TCE 008453324-01 P= 1.262271 Days $T_0=132.041826$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

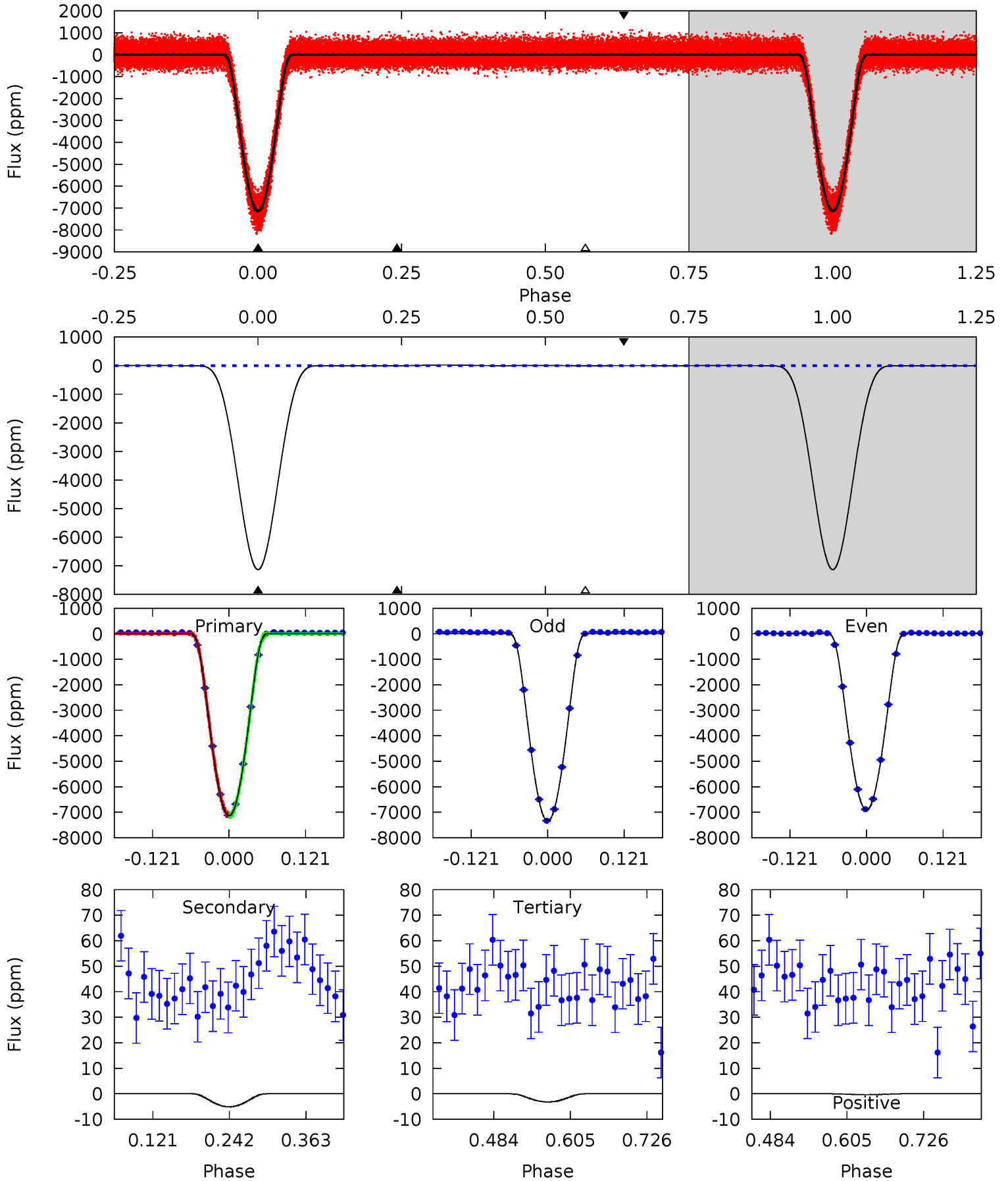
TCE 008453324-01 P= 1.262266 Days $T_0=132.044822$ (BKJD)



DV Model-Shift Uniqueness Test

008453324-01, P = 1.262271 Days, E = 130.779555 Days

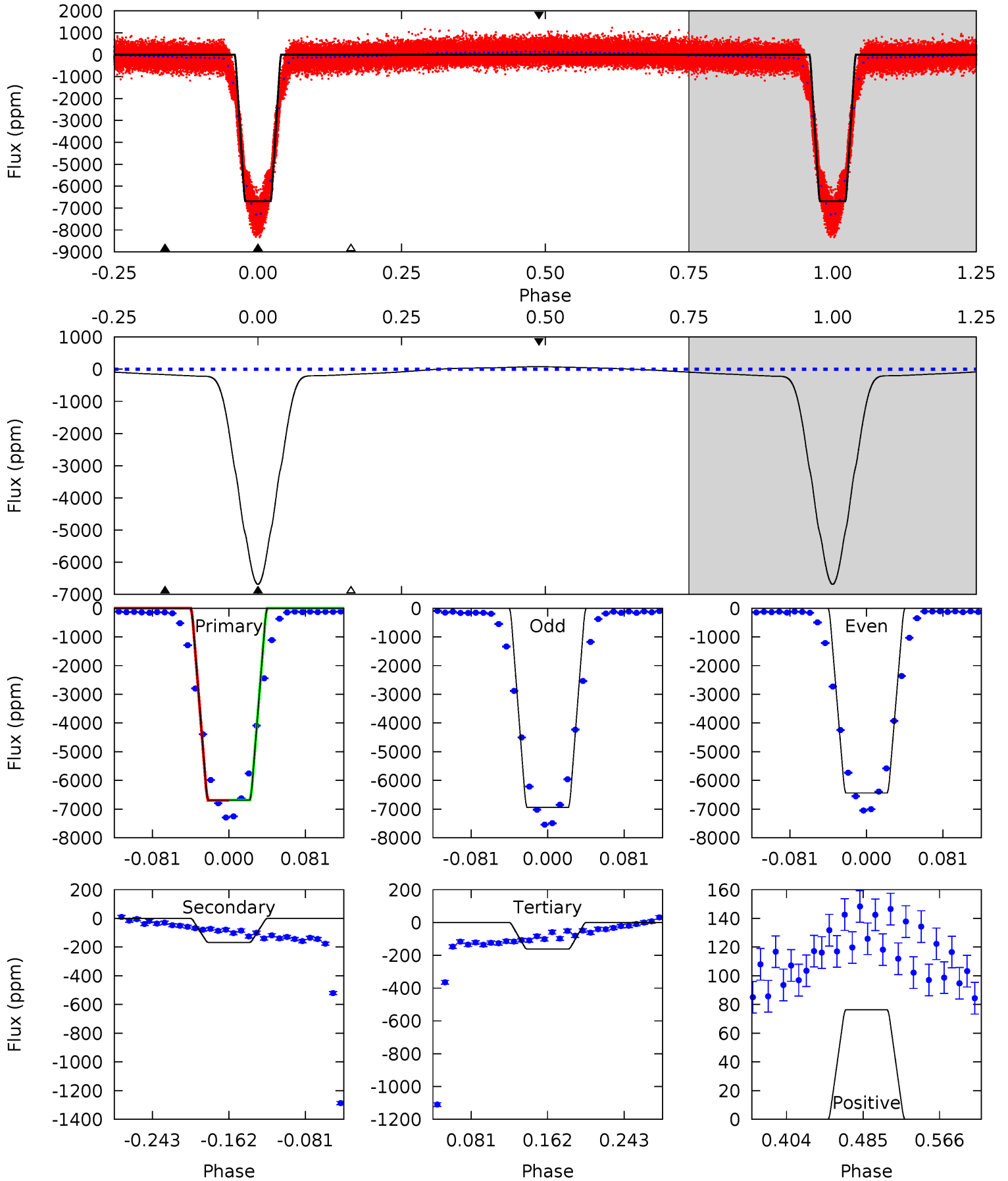
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2299	1.65	1.03	-0.11	4.52	1.55	1.15	2298	2299	0.62	1.76	69.9	1.00	0.00	9.81



Alt Model-Shift Uniqueness Test

008453324-01, P = 1.262266 Days, E = 130.782556 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1654	41.4	40.0	18.9	4.61	1.75	21.6	1614	1635	1.36	22.5	61.7	1.00	0.01	0.99



Stellar Parameters For KIC 008453324

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4927^{+44}_{-118}	$2.882^{+0.234}_{-0.126}$	$0.210^{+0.150}_{-0.200}$	$9.356^{+2.566}_{-3.528}$	$2.434^{+0.292}_{-1.094}$	$0.004^{+0.007}_{-0.002}$
	+1%/-2%	+8%/-4%	+71%/-95%	+27%/-38%	+12%/-45%	+163%/-44%
Source	SPE74	SPE74	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 008453324-01 / KOI 7044.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-5 ± 3	$127.94^{+17.72}_{-24.52}$	5207^{+328}_{-431}	-4382^{+277}_{-220}	$0.000^{+0.000}_{-0.000}$
Alt.	-167 ± 4	$84.83^{+12.51}_{-17.24}$	5189^{+342}_{-404}	-4338^{+263}_{-234}	$0.012^{+0.005}_{-0.003}$

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 $A_{obs} \gg 1.0$

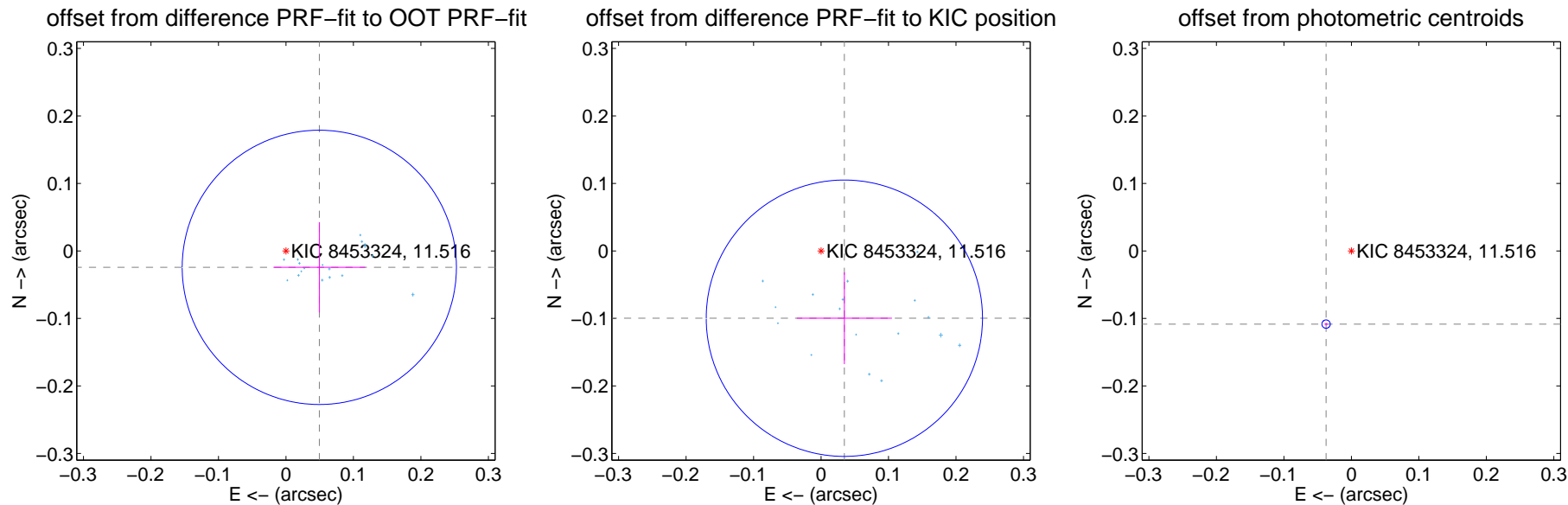
DV Centroid Data

Supplemental centroid analysis for 008453324-01. **Kepler magnitude: 11.52.** Transit SNR 924.84

There are 17 quarters with good PRF difference image offsets

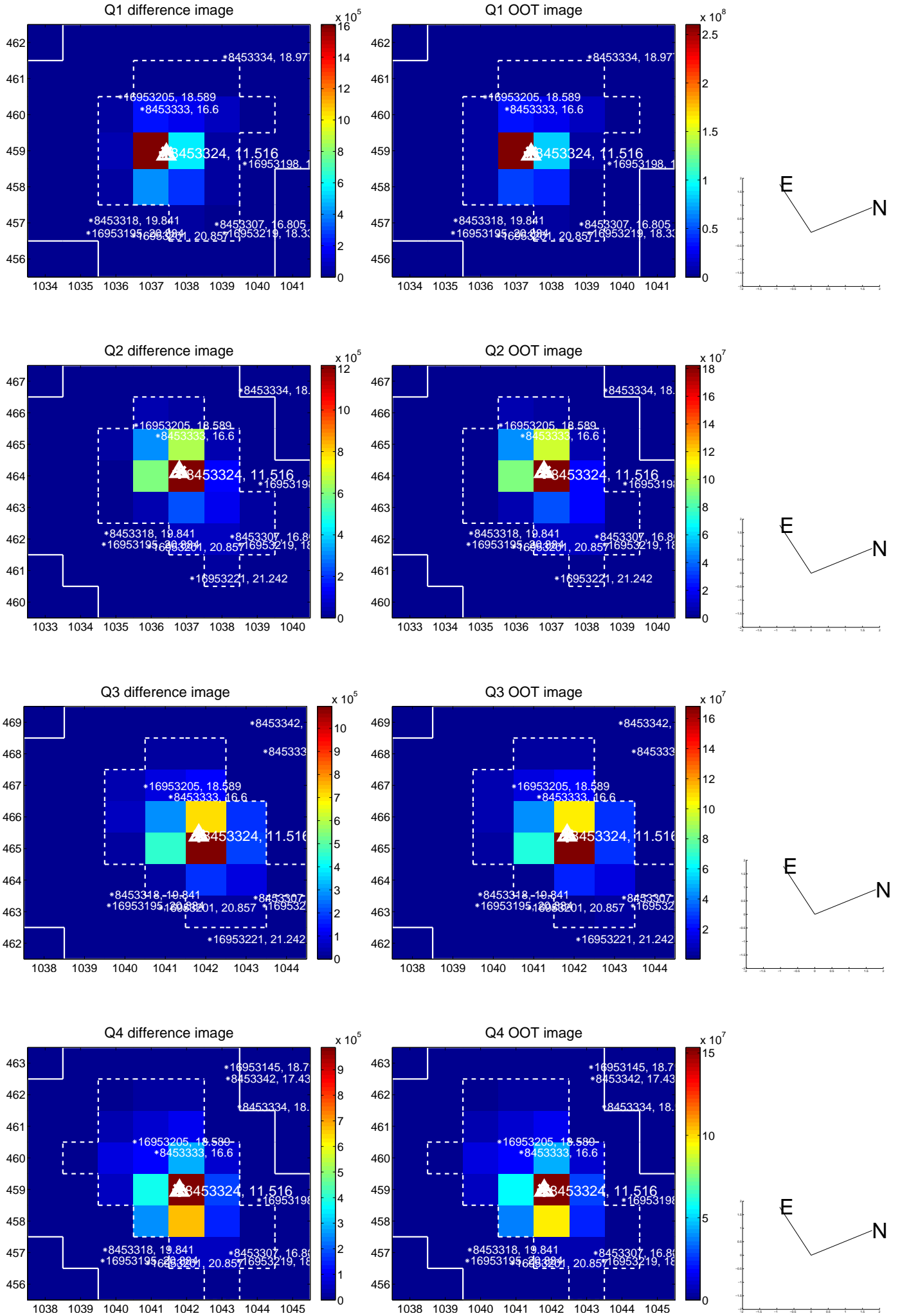
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.055 ± 0.068	0.81	-0.049 ± 0.068	-0.024 ± 0.067
PRF-fit source offset from KIC position	0.105 ± 0.068	1.55	-0.035 ± 0.070	-0.100 ± 0.068
photometric centroid source offset	0.11 ± 0.00	55.58	0.04 ± 0.00	-0.11 ± 0.00

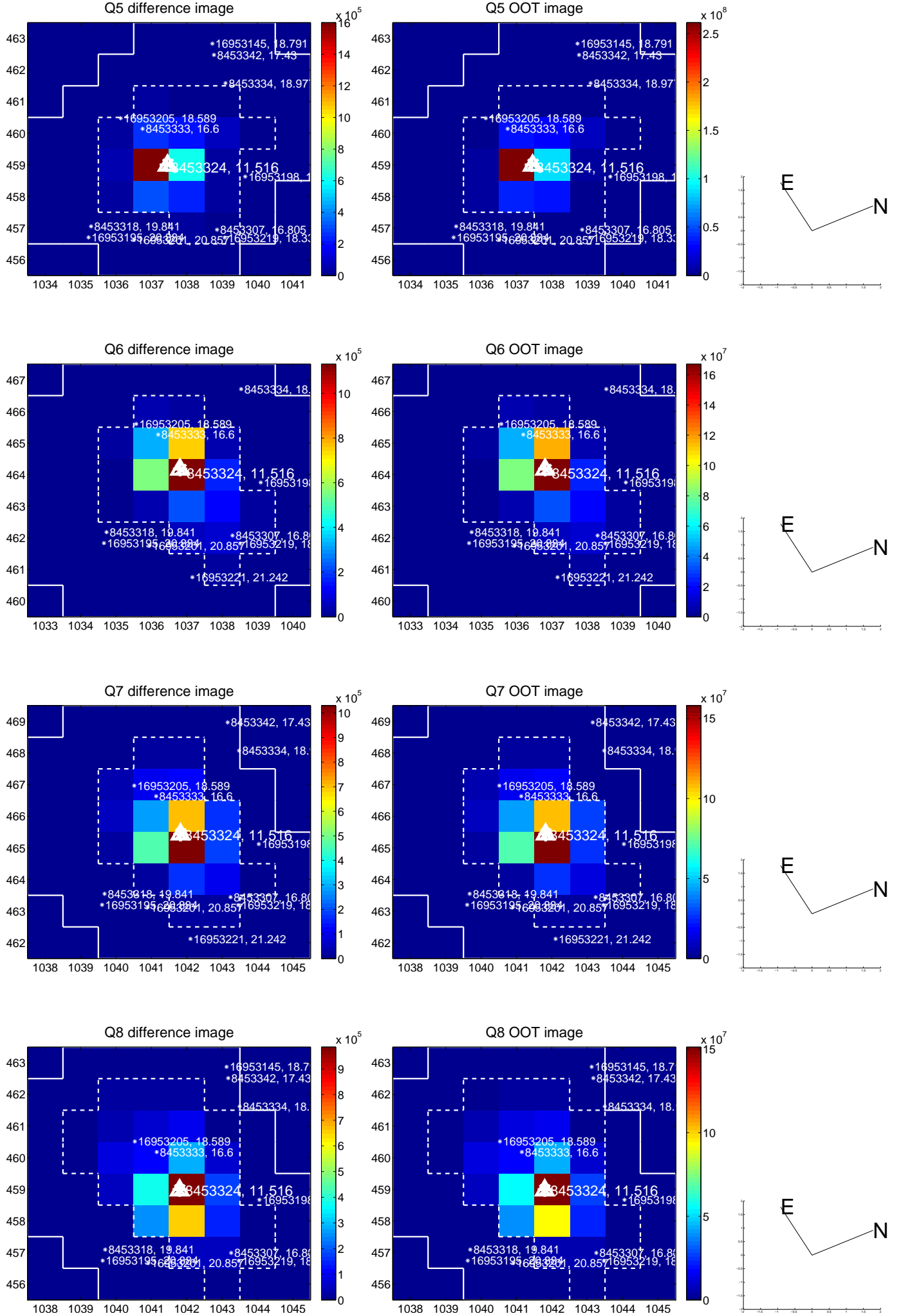


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

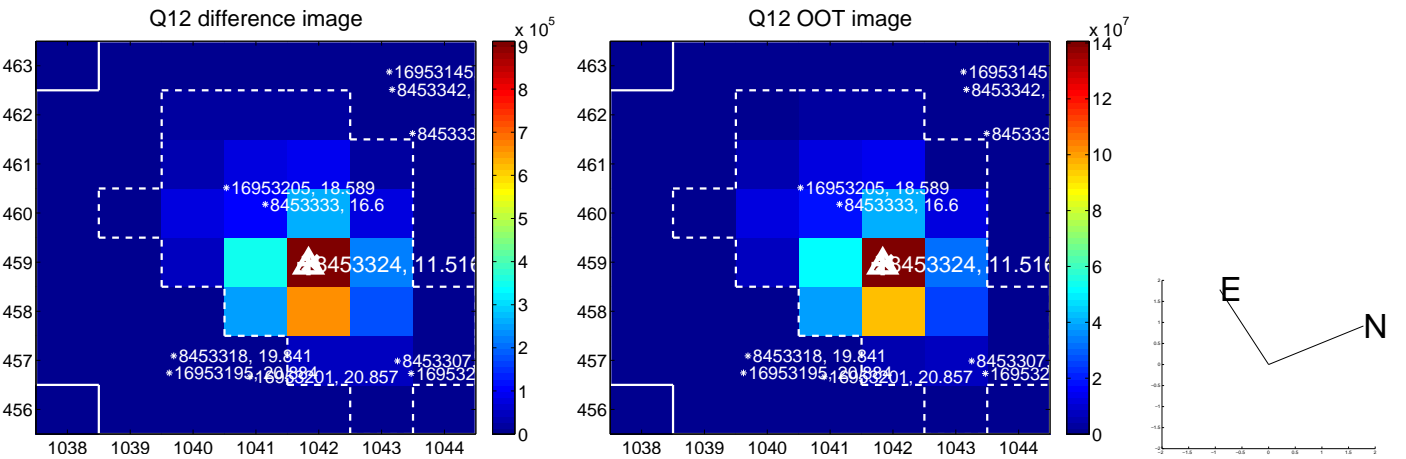
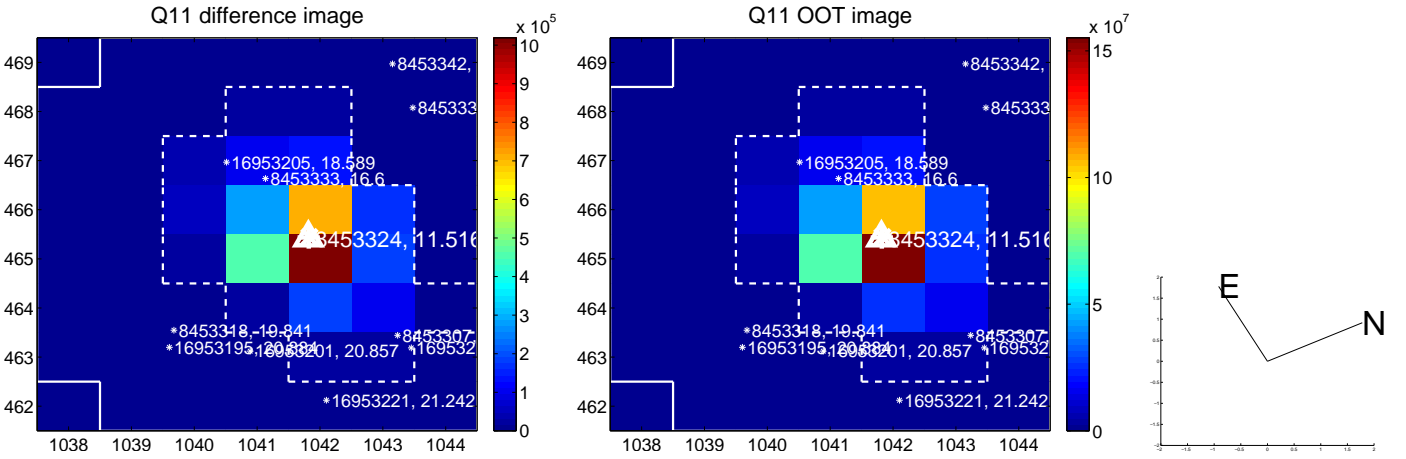
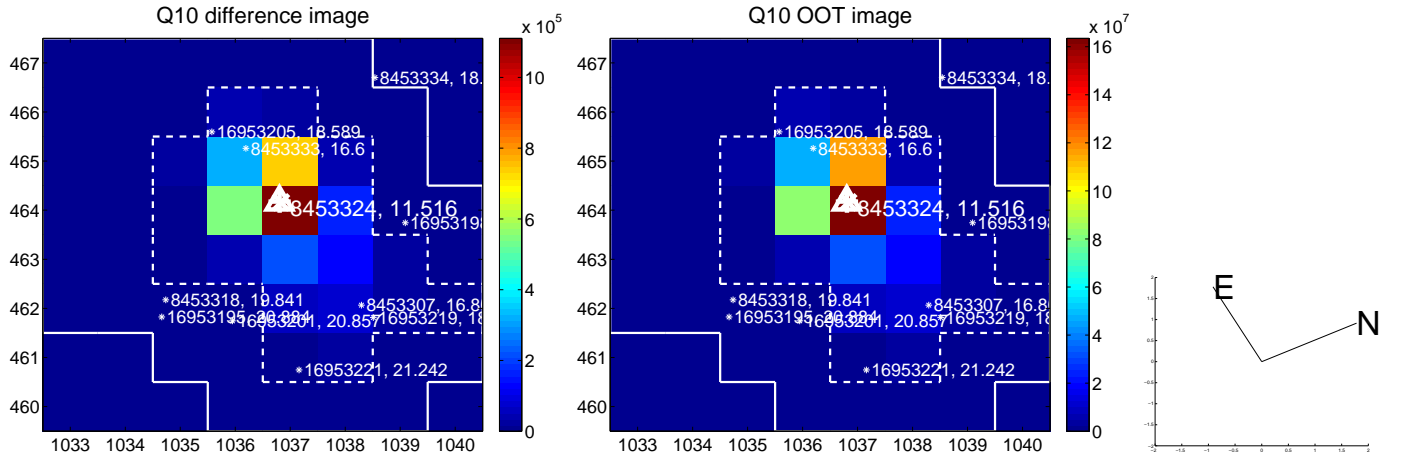
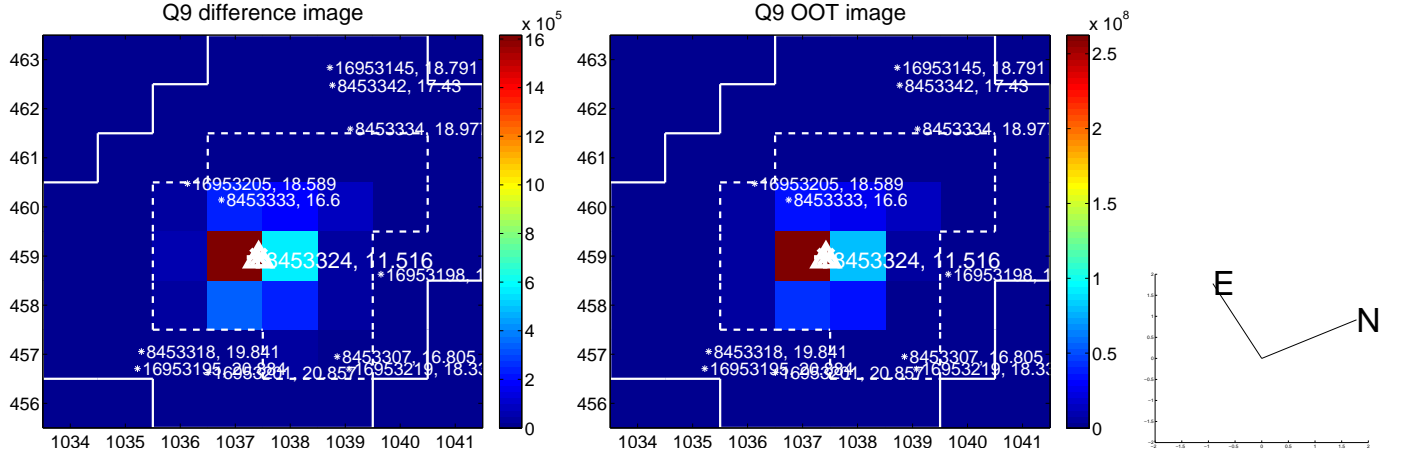
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



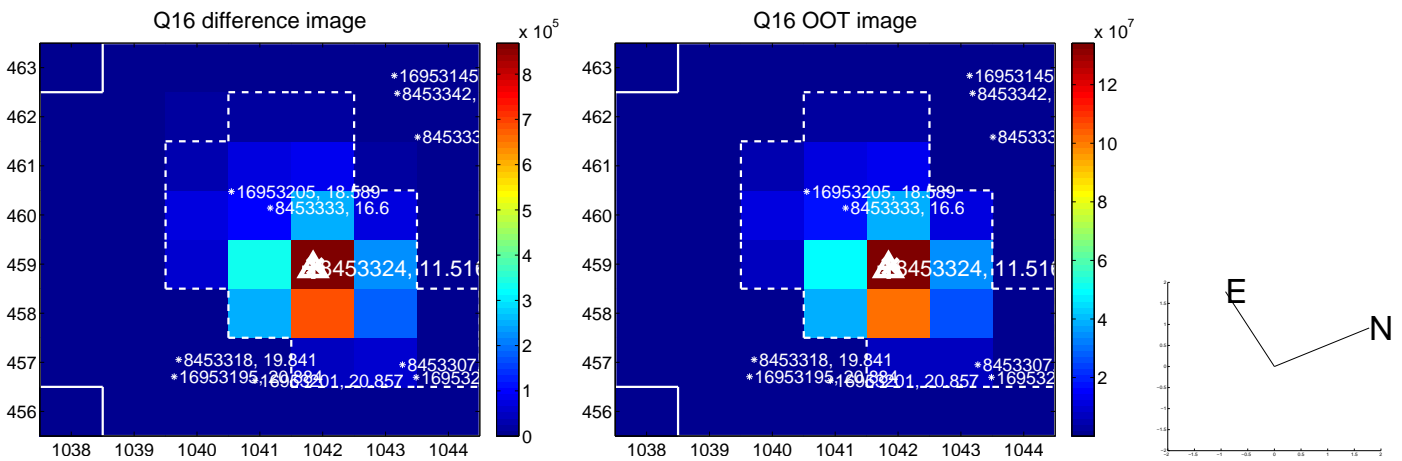
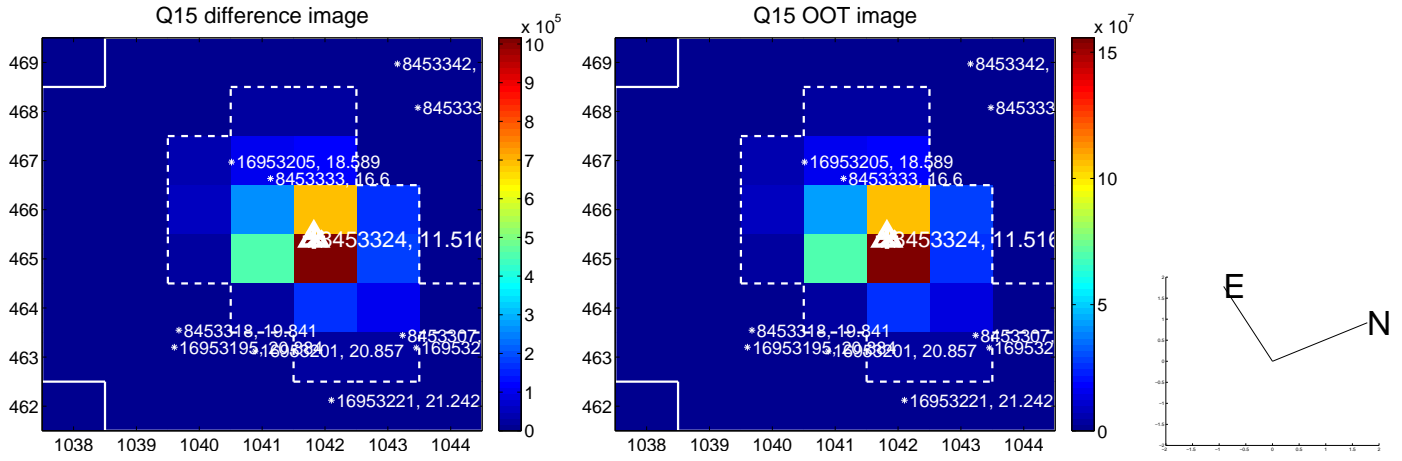
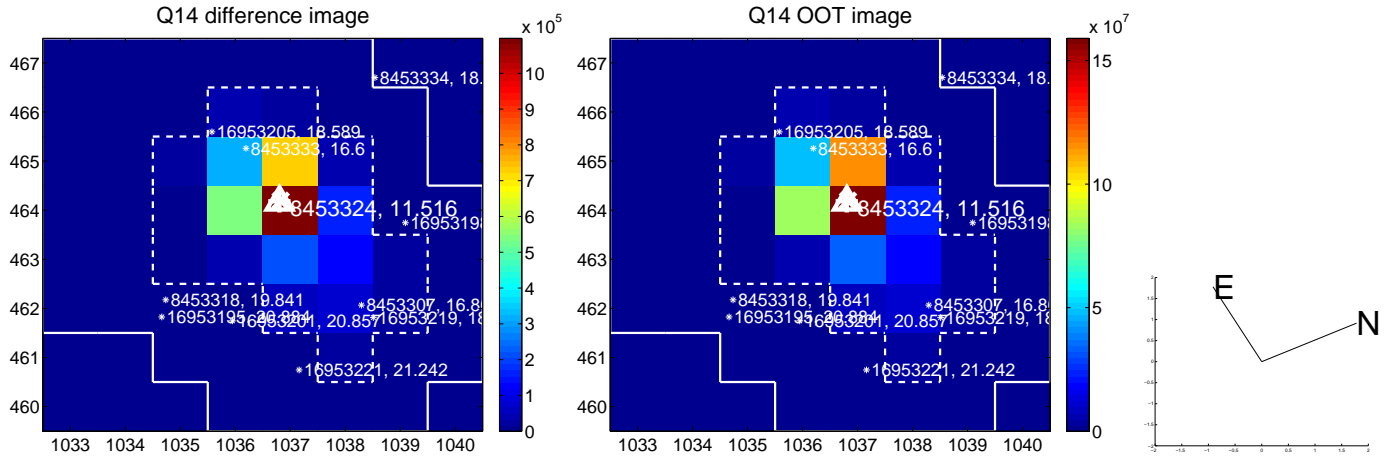
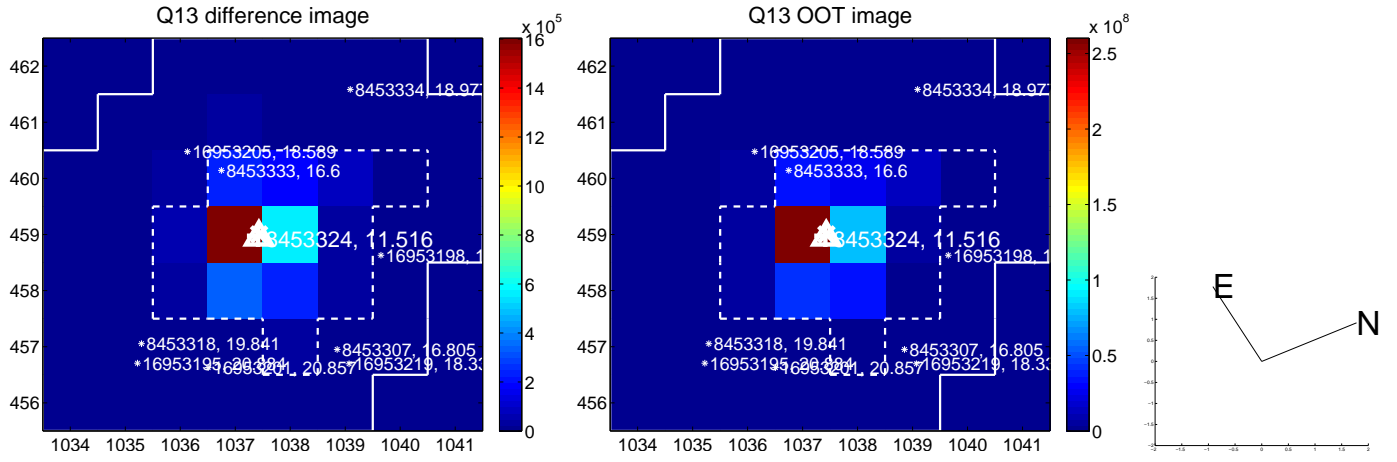
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



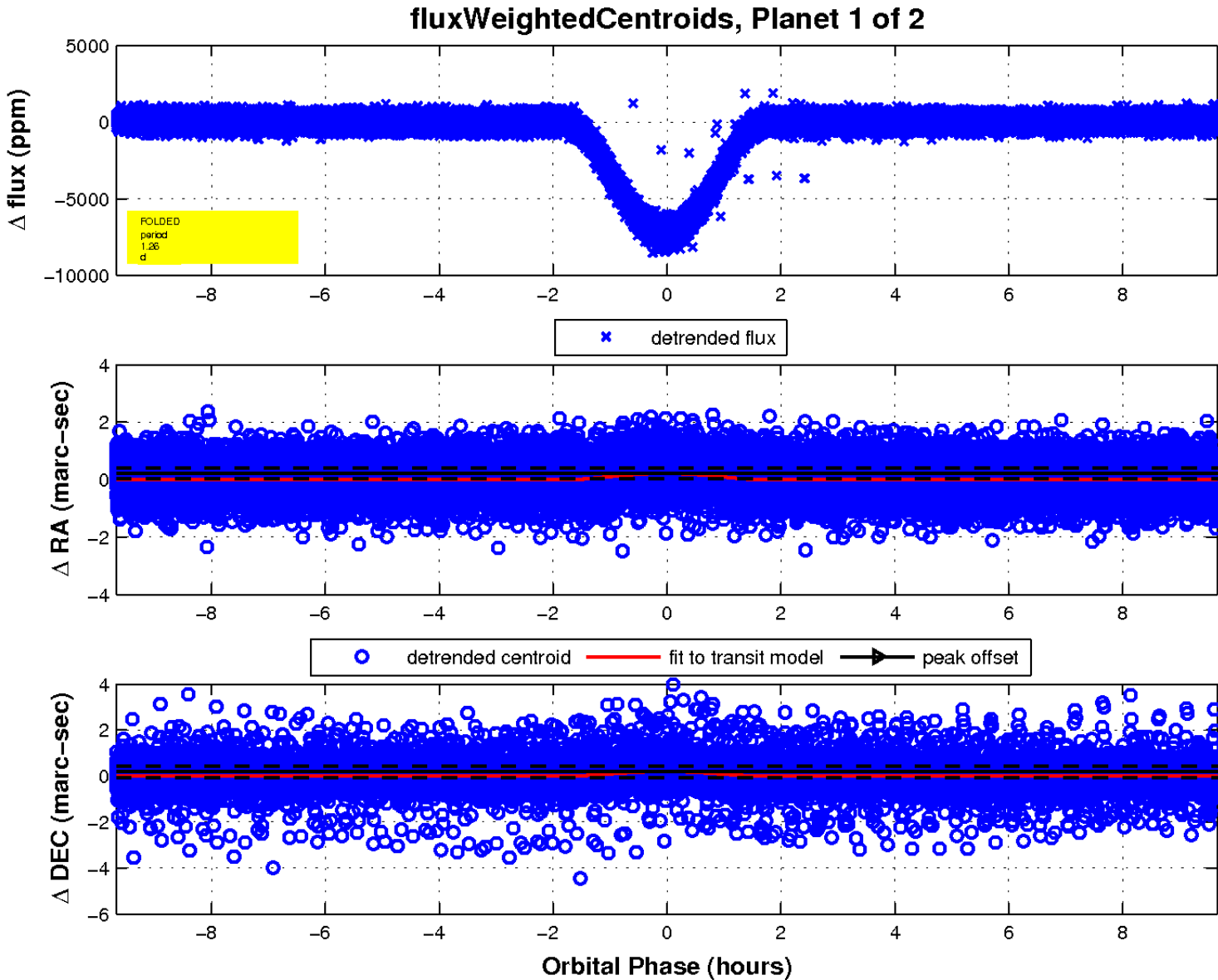
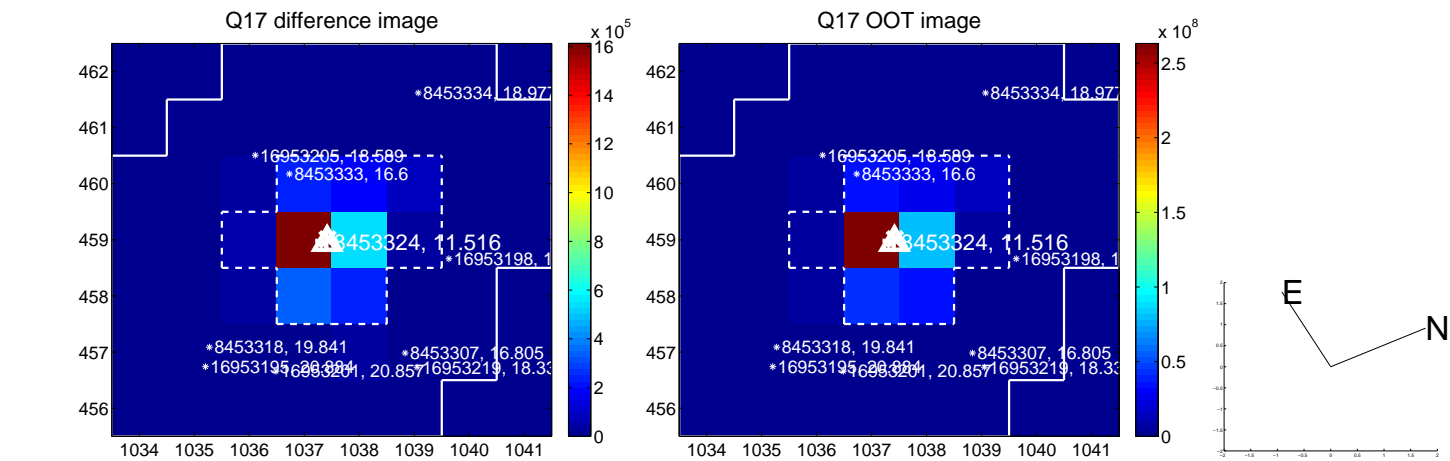
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



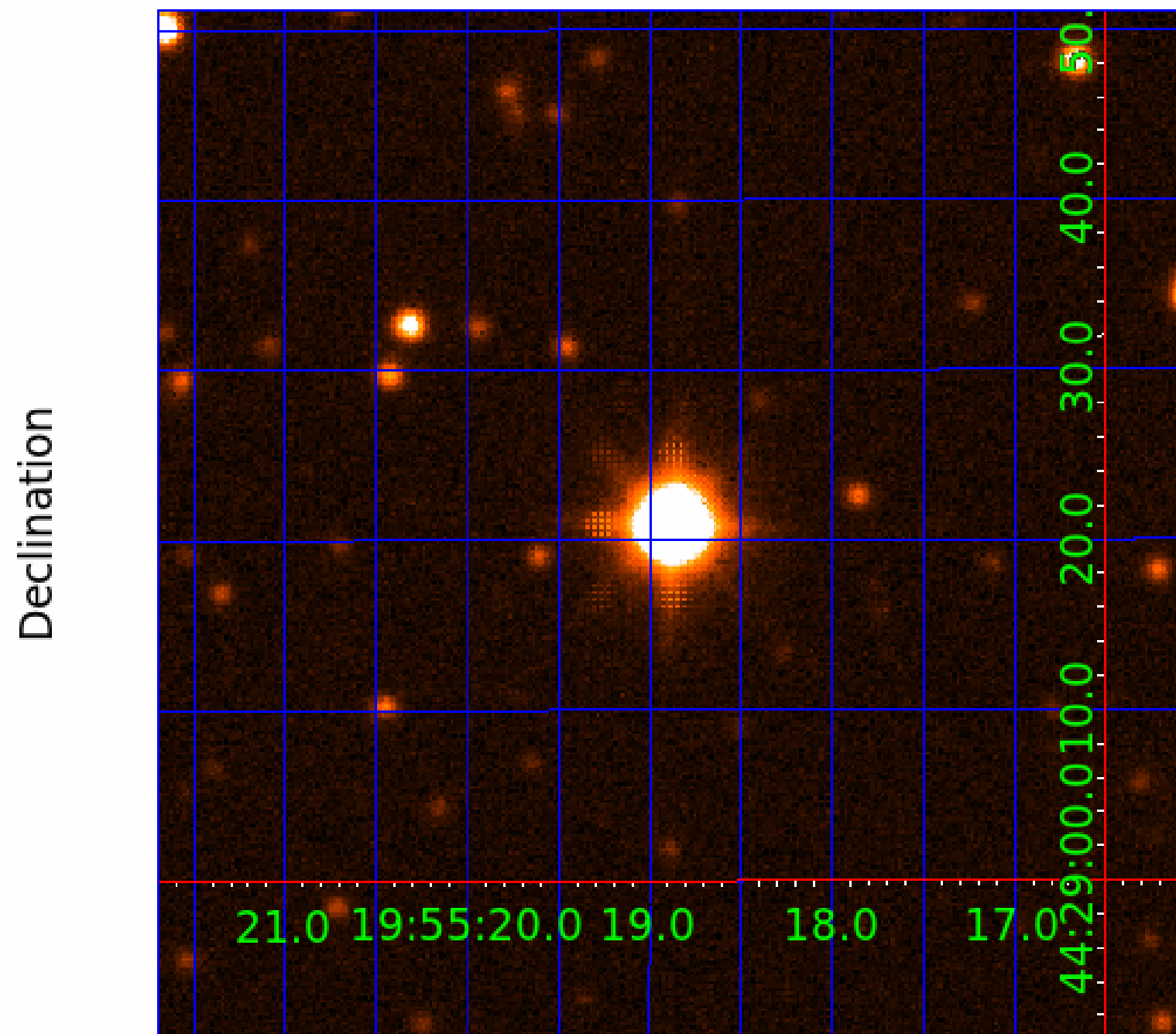
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008453324

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})
008453324-01	OBS	7044.01	1.262271	132.041826	7093.8	3.223	895.2	924.8	9.36	4927	130.83	0.00
008453324-02	OBS	No	368.662363	274.176918	538.3	14.975	7.1	7.2	9.36	4927	24.44	25.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008453324-01	OBS	FP	0.00	0	1	0	0	PLANET_IN_STAR—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED
008453324-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—CENT_FEW_DIFFS

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

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

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

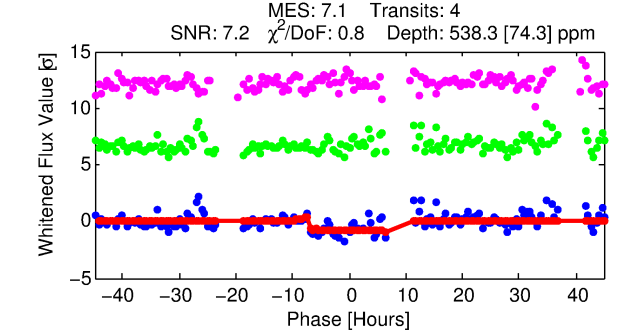
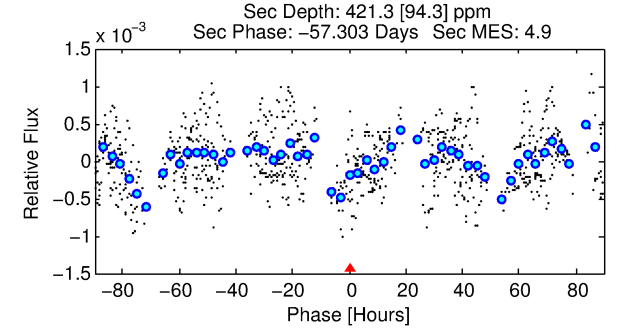
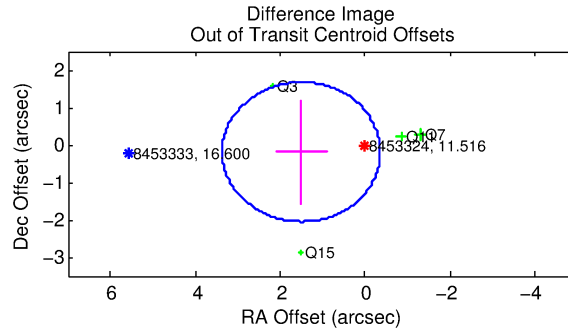
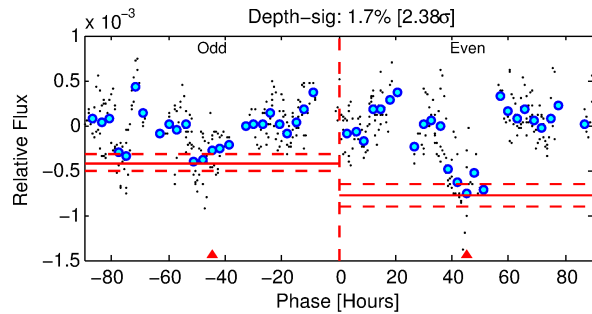
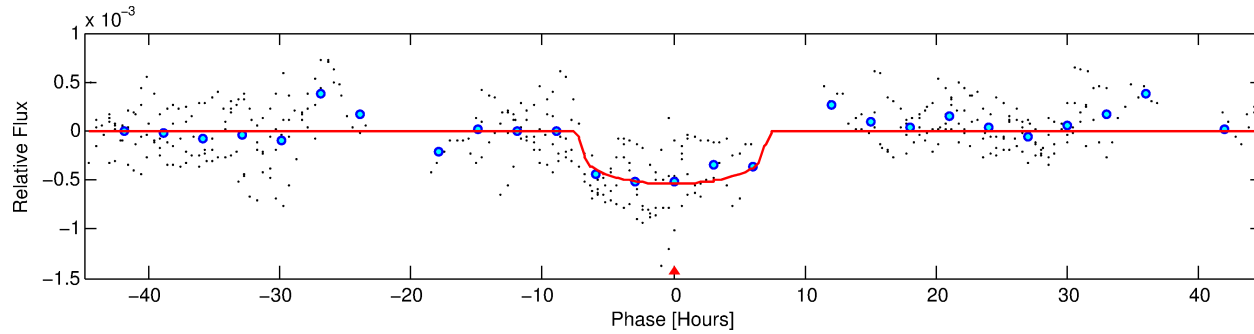
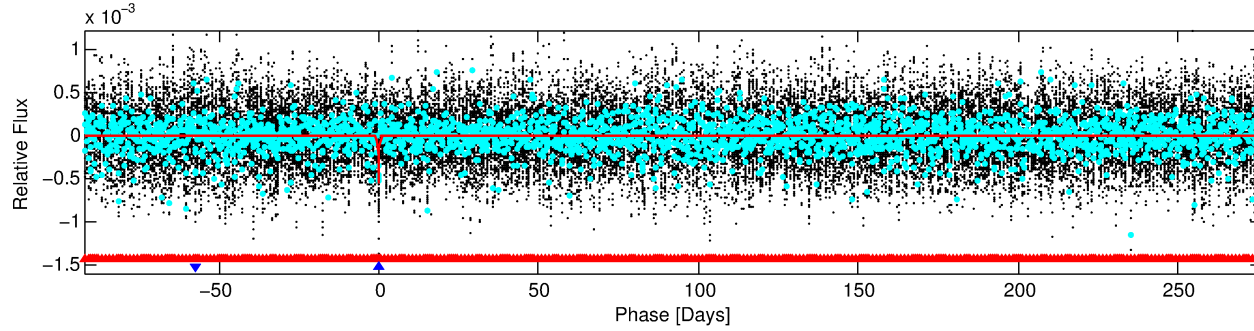
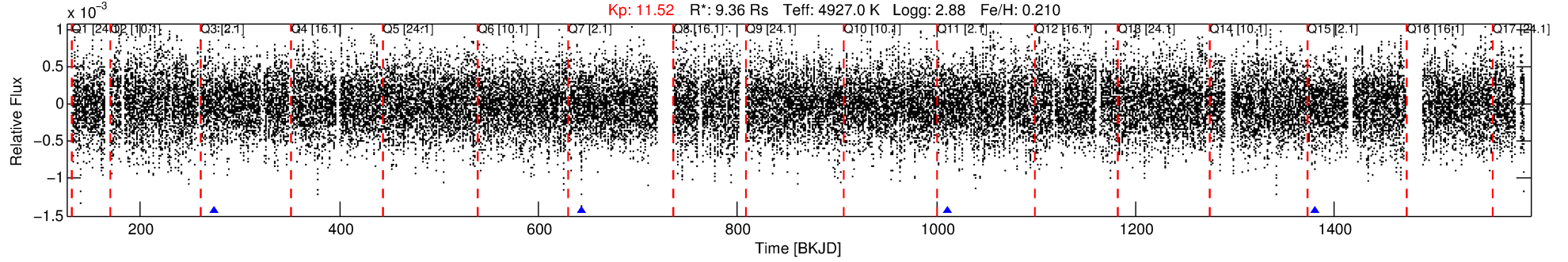
Ephemeris Match Information For 008453324-02

No Significant Match Found

DV One-Page Summary

KIC: 8453324 Candidate: 2 of 2 Period: 368.662 d
KOI: K07044 Corr: No Ephemeris Match

Kp: 11.52 R*: 9.36 Rs Teff: 4927.0 K Logg: 2.88 Fe/H: 0.210



DV Fit Results:

Period = 368.66236 [0.00744] d
Epoch = 274.1769 [0.0625] BKJD
Rp/R* = 0.0239 [0.0030]
a/R* = 118.42 [35.30]
b = 0.81 [0.19]
Seff = 25.22 [11.32]
Teff = 571 [64] K
Rp = 24.44 [9.71] Re
a = 1.3537 [0.4182] AU
Ag = 710.72 [392.11] [1.81σ]
Teffp = 4562 [397] K [9.92σ]

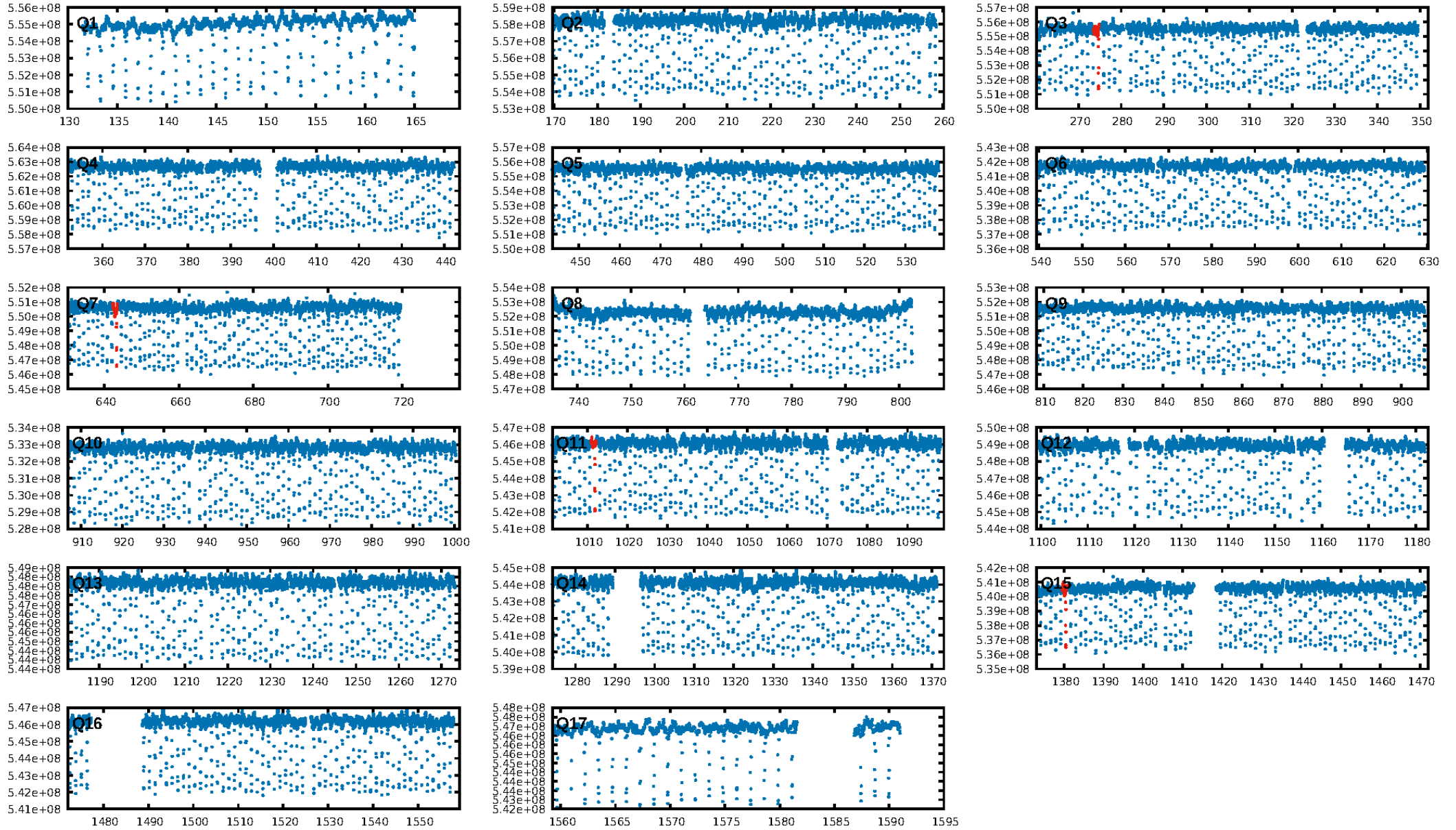
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [575.65σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 42.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.52e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.934
Centroid-sig: 25.4%
Centroid-so: 0.220 arcsec [0.72σ]
OotOffset-rm: 1.512 arcsec [2.43σ]
KicOffset-rm: 1.629 arcsec [2.58σ]
OotOffset-st: 0/4/0/0 [4]
KicOffset-st: 0/4/0/0 [4]
DiffImageQuality-fgm: 0.00 [0/4]
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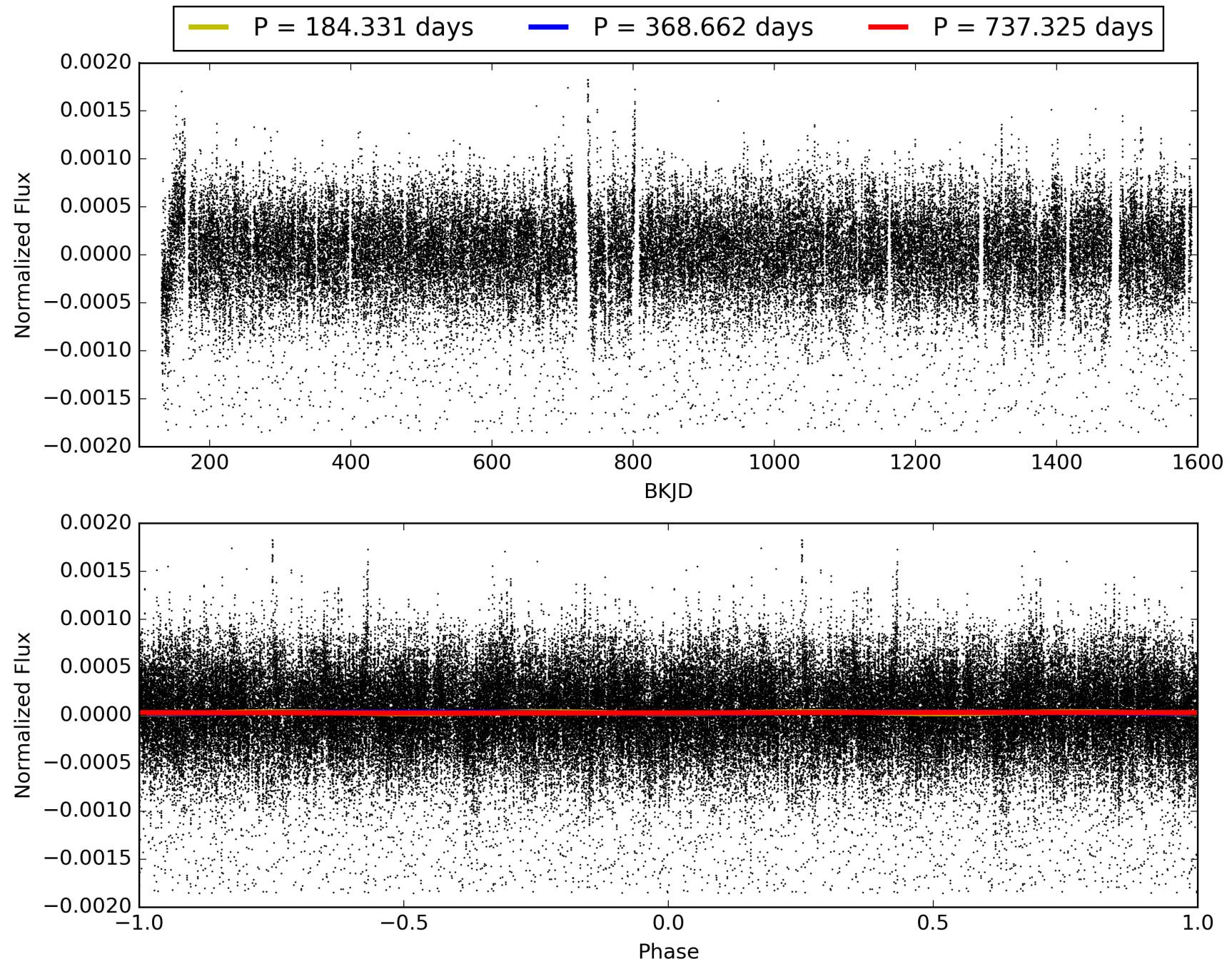
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:08:56 Z

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

TCE 008453324-02, PDC Light Curves

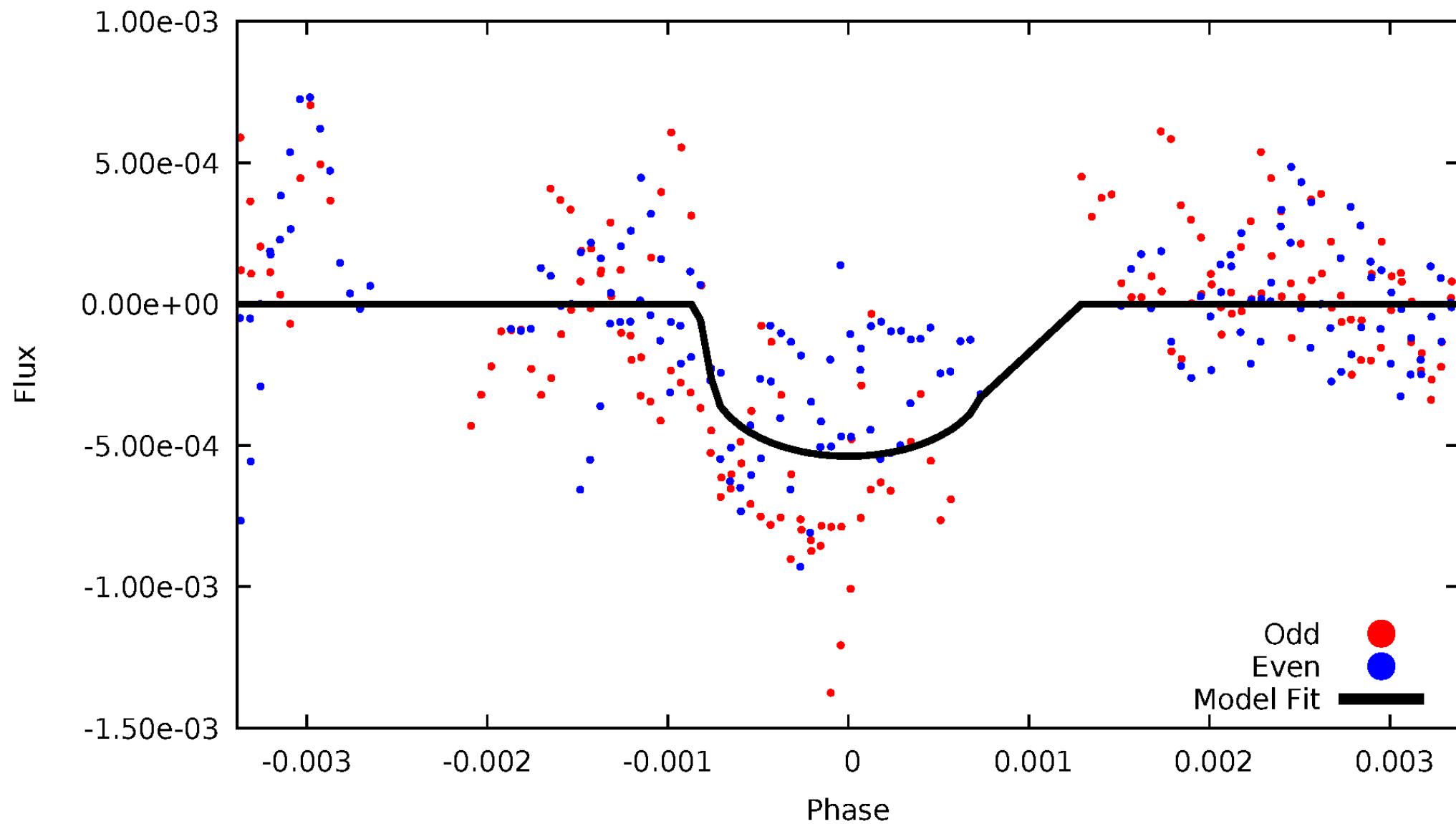


TCE 008453324-02



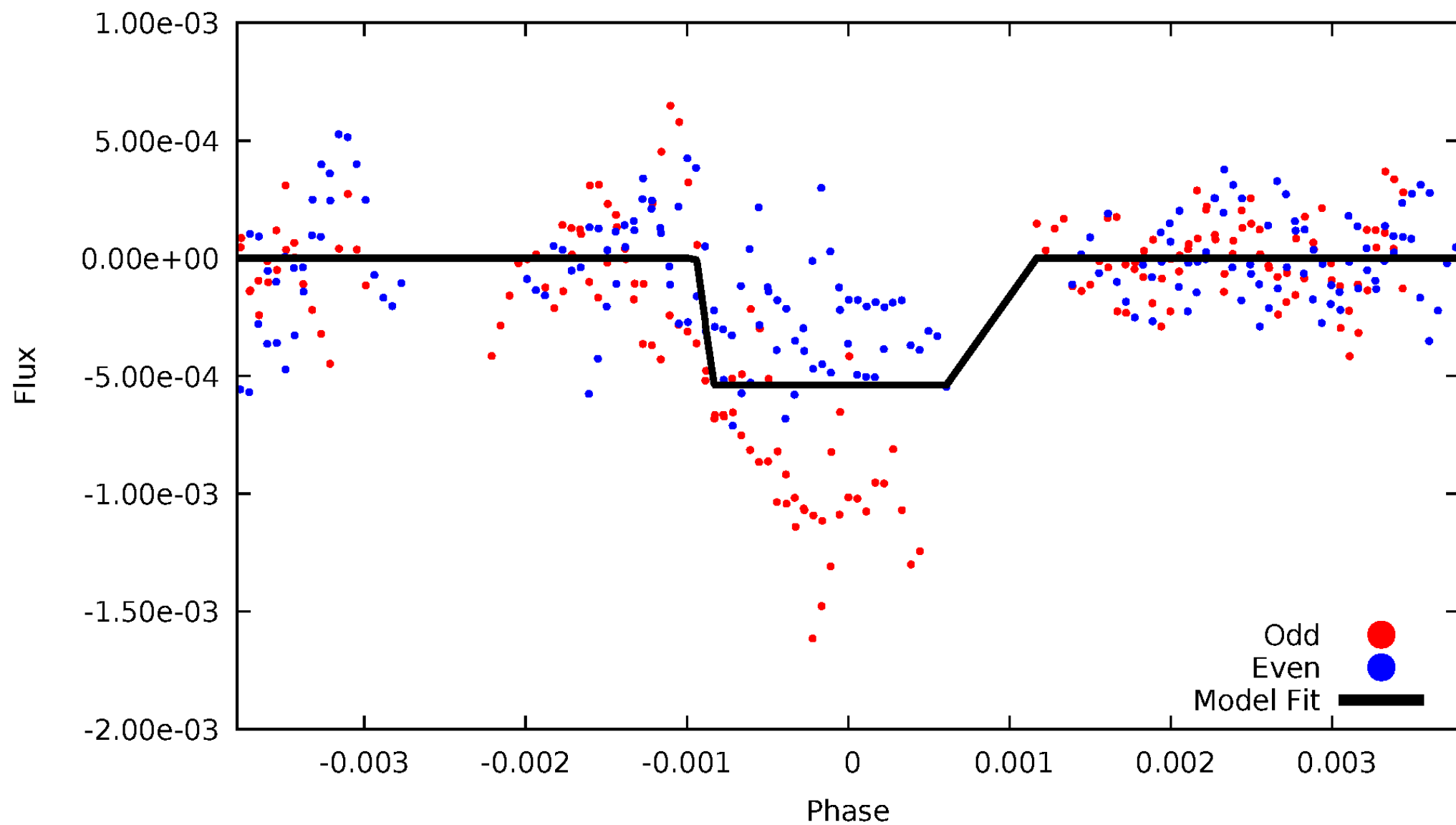
DV Odd/Even

TCE 008453324-02



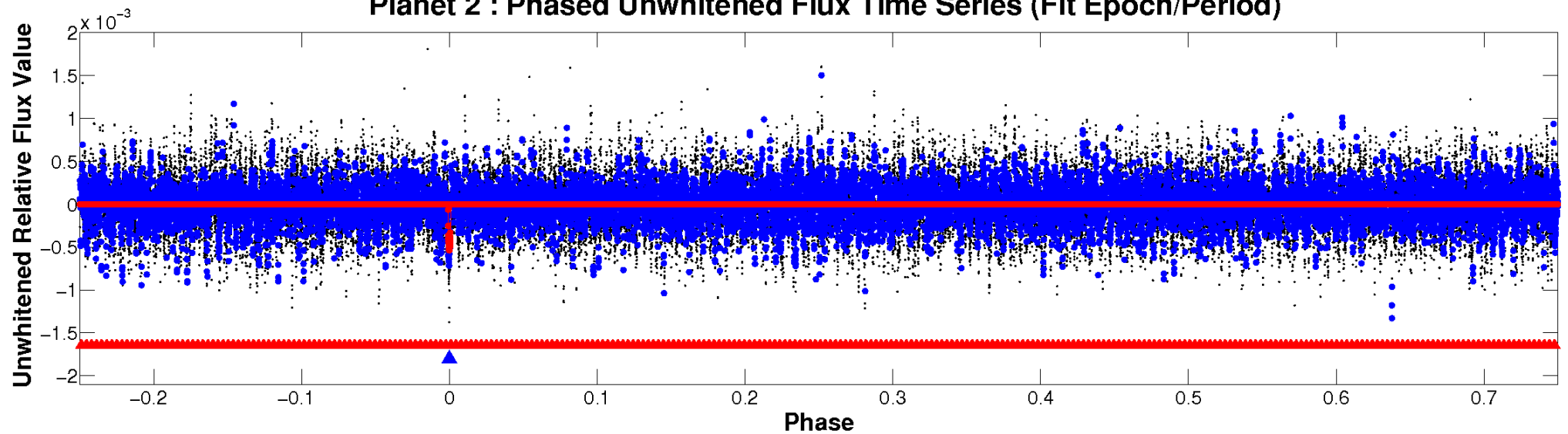
ALT Odd/Even

TCE 008453324-02

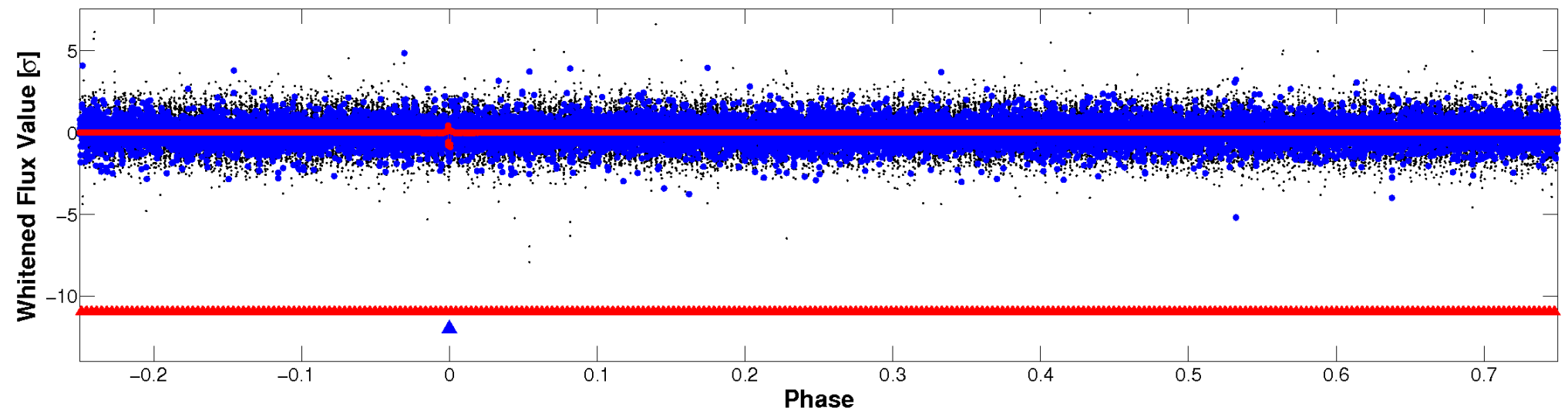


Non-Whitened Vs. Whitened Light Curve

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

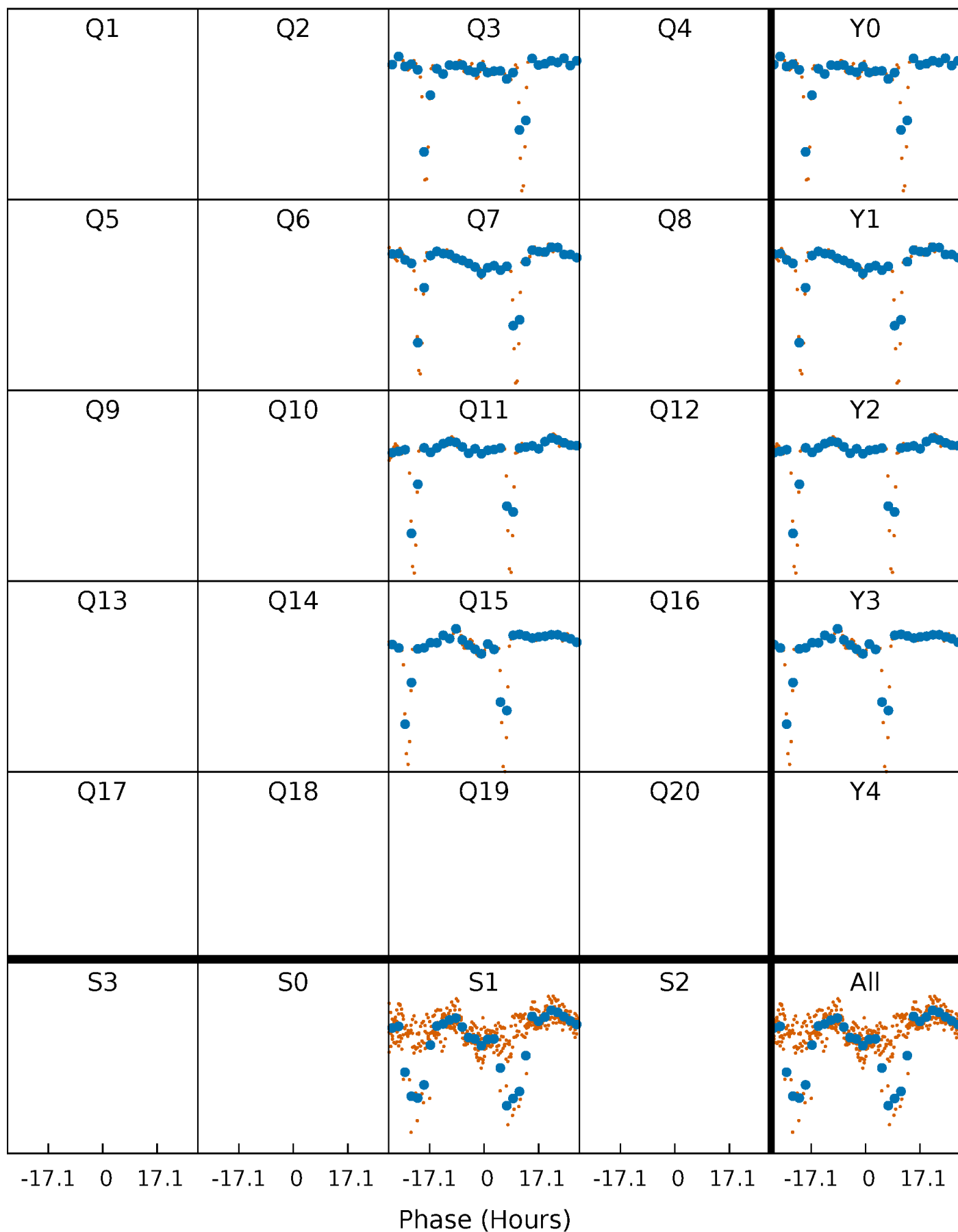


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



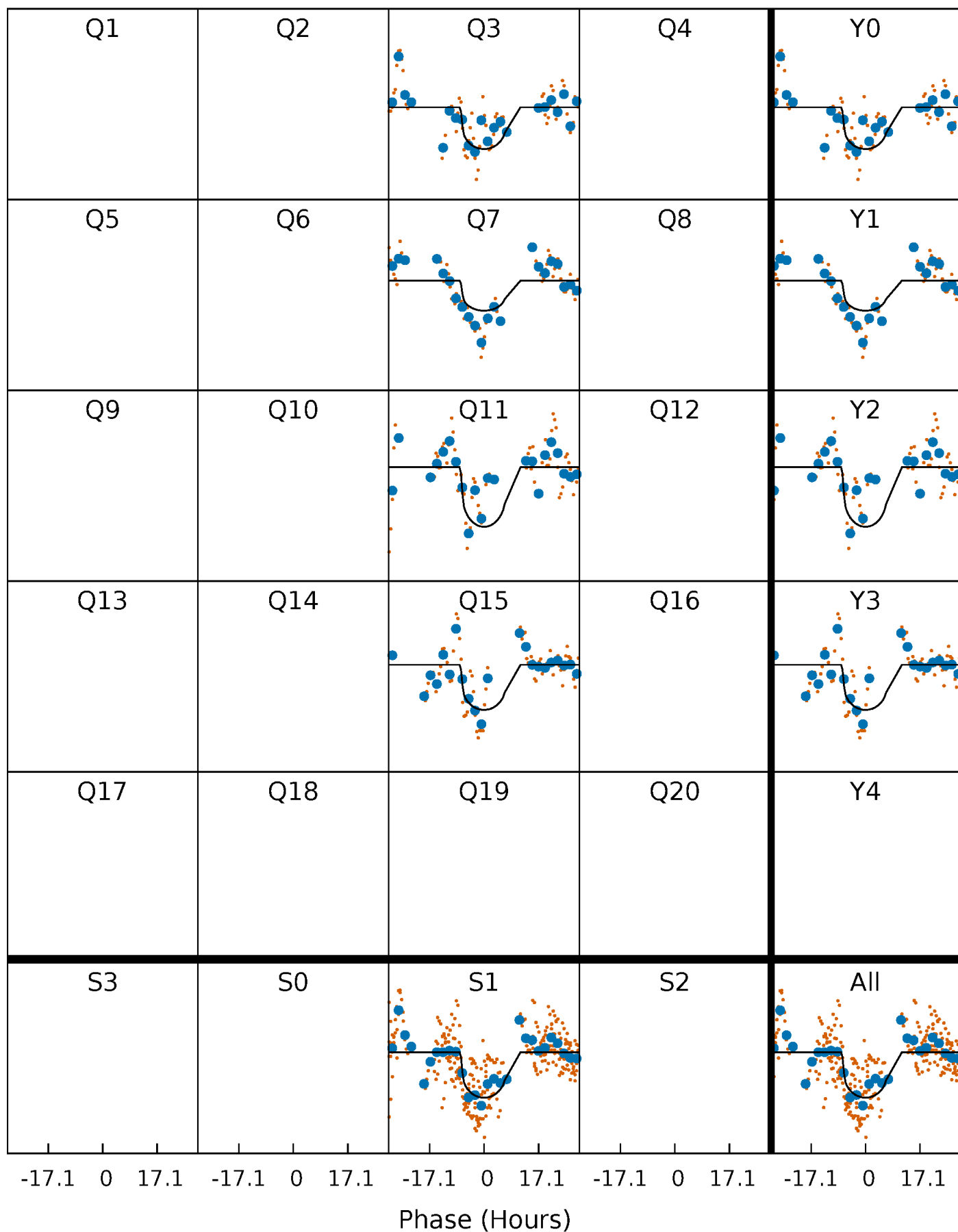
PDC Quarter-Phased Transit Curves

TCE 008453324-02 $P=368.662363$ Days $T_0=274.176918$ (BKJD)



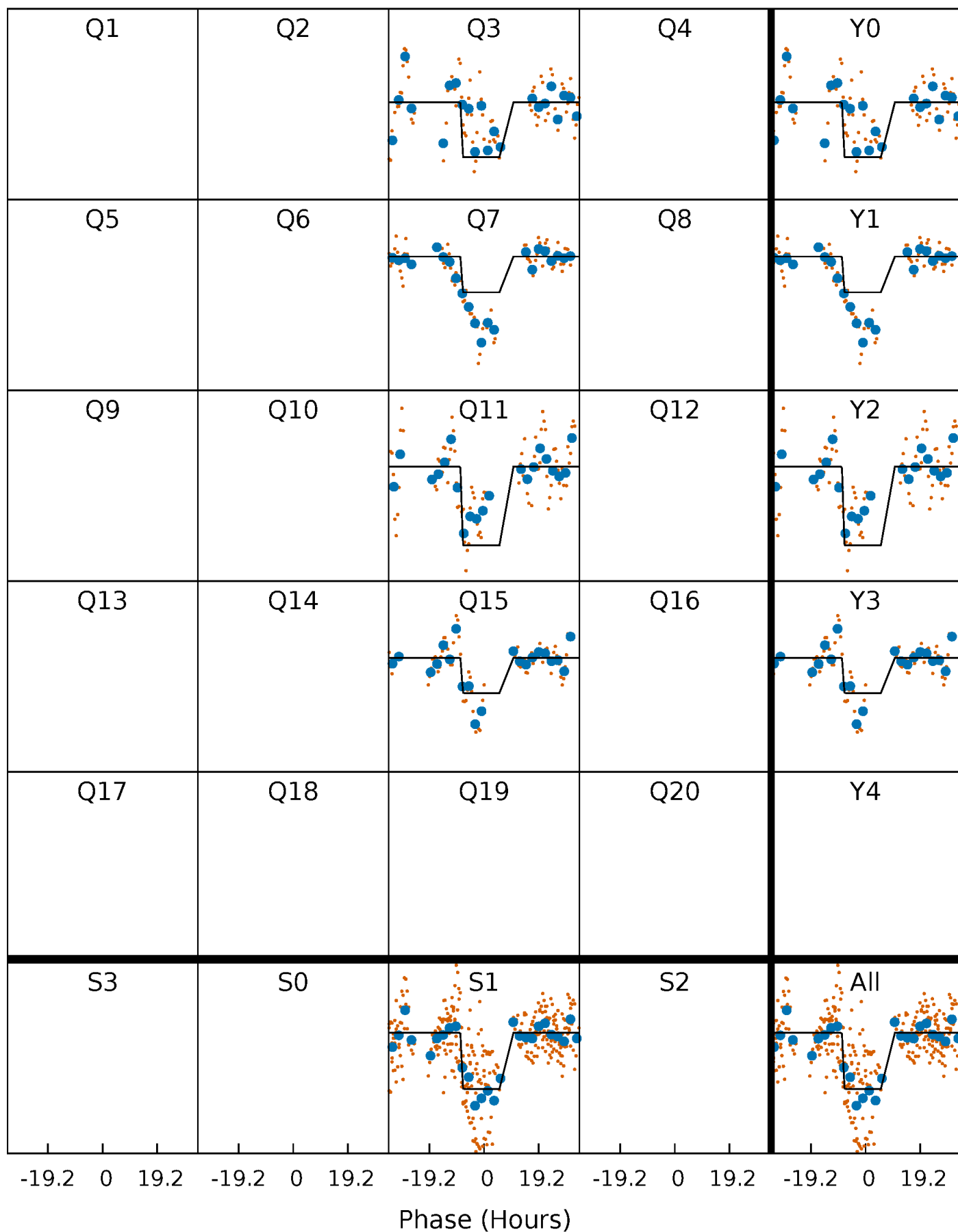
DV Quarter-Phased Transit Curves

TCE 008453324-02 $P=368.662363$ Days $T_0=274.176918$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

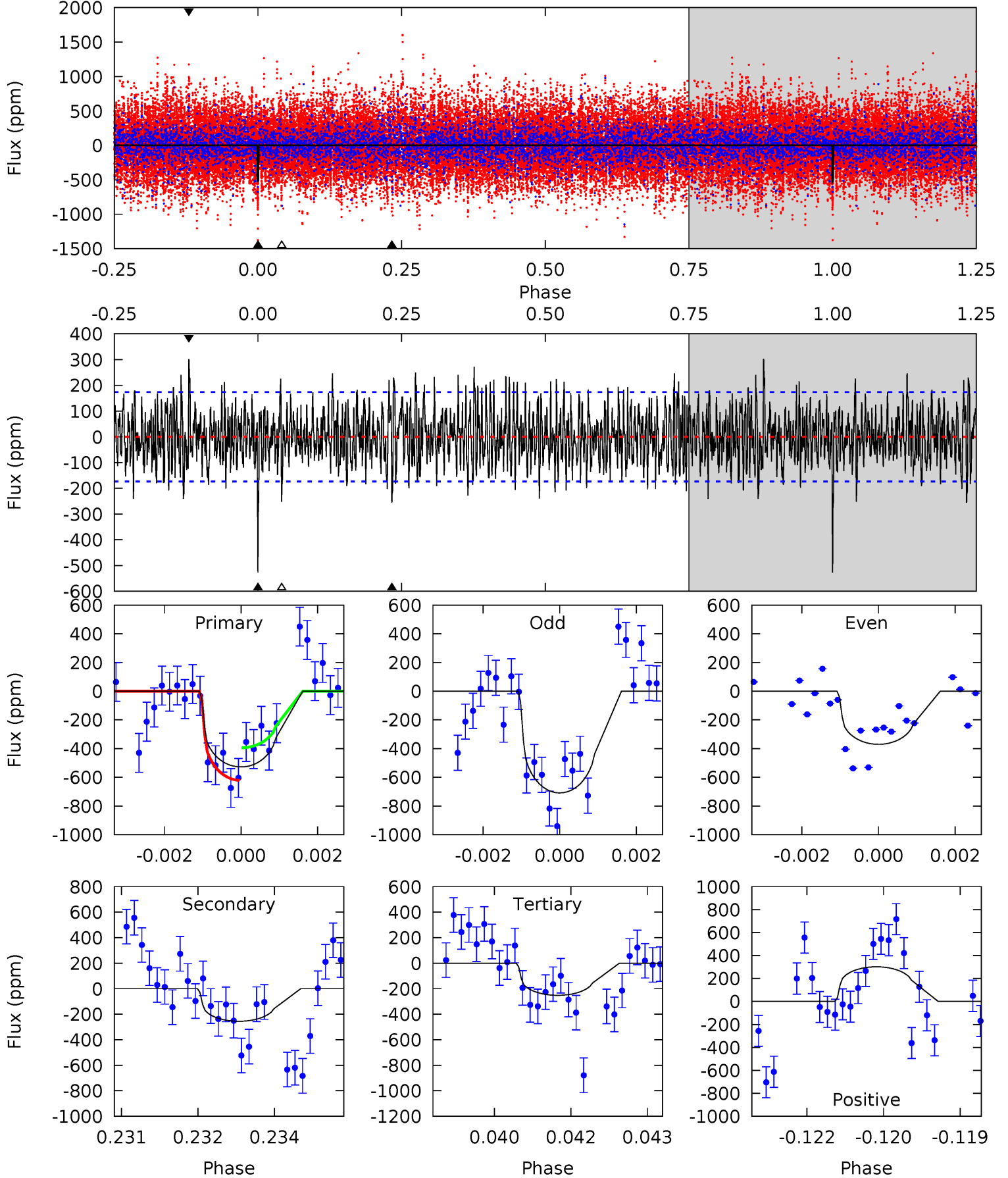
TCE 008453324-02 $P=368.662289$ Days $T_0=274.222452$ (BKJD)



DV Model-Shift Uniqueness Test

008453324-02, P = 368.662363 Days, E = 274.176918 Days

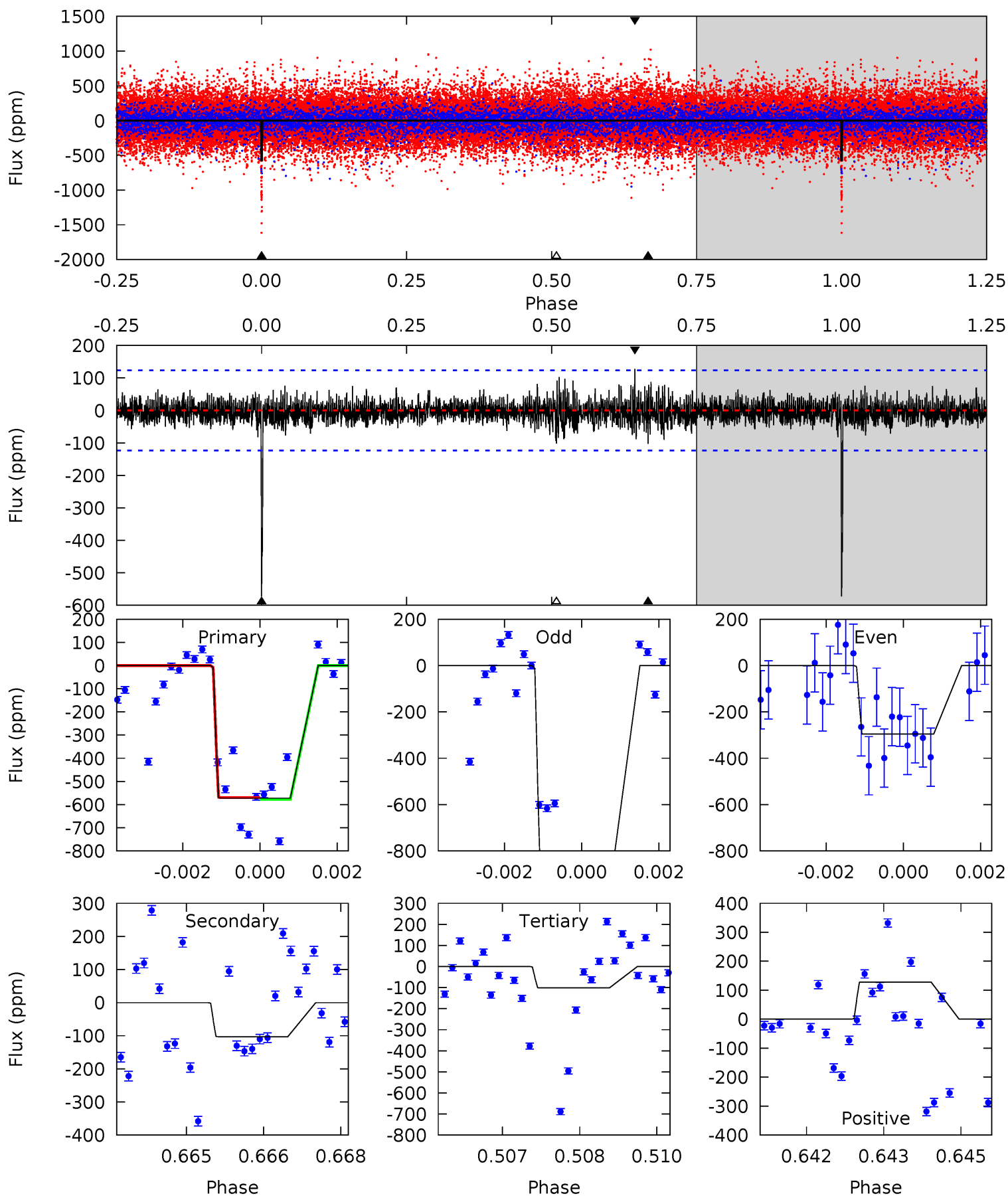
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.3	7.90	7.79	9.34	5.37	3.16	2.74	8.52	6.98	0.10	-1.44	5.23	1.09	0.36	3.38



Alt Model-Shift Uniqueness Test

008453324-02, P = 368.662289 Days, E = 274.222452 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.9	4.48	4.41	5.57	5.37	3.17	1.14	20.5	19.3	0.06	-1.09	13.1	1.09	0.18	0.15



Stellar Parameters For KIC 008453324

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4927^{+44}_{-118}	$2.882^{+0.234}_{-0.126}$	$0.210^{+0.150}_{-0.200}$	$9.356^{+2.566}_{-3.528}$	$2.434^{+0.292}_{-1.094}$	$0.004^{+0.007}_{-0.002}$
	+1%/-2%	+8%/-4%	+71%/-95%	+27%/-38%	+12%/-45%	+163%/-44%
Source	SPE74	SPE74	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 008453324-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-255 ± 32	$23.12^{+5.32}_{-5.03}$	784^{+47}_{-62}	4177^{+248}_{-210}	467^{+240}_{-148}
Alt.	-103 ± 23	$22.76^{+4.66}_{-4.94}$	785^{+47}_{-61}	3615^{+225}_{-200}	195^{+113}_{-68}

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

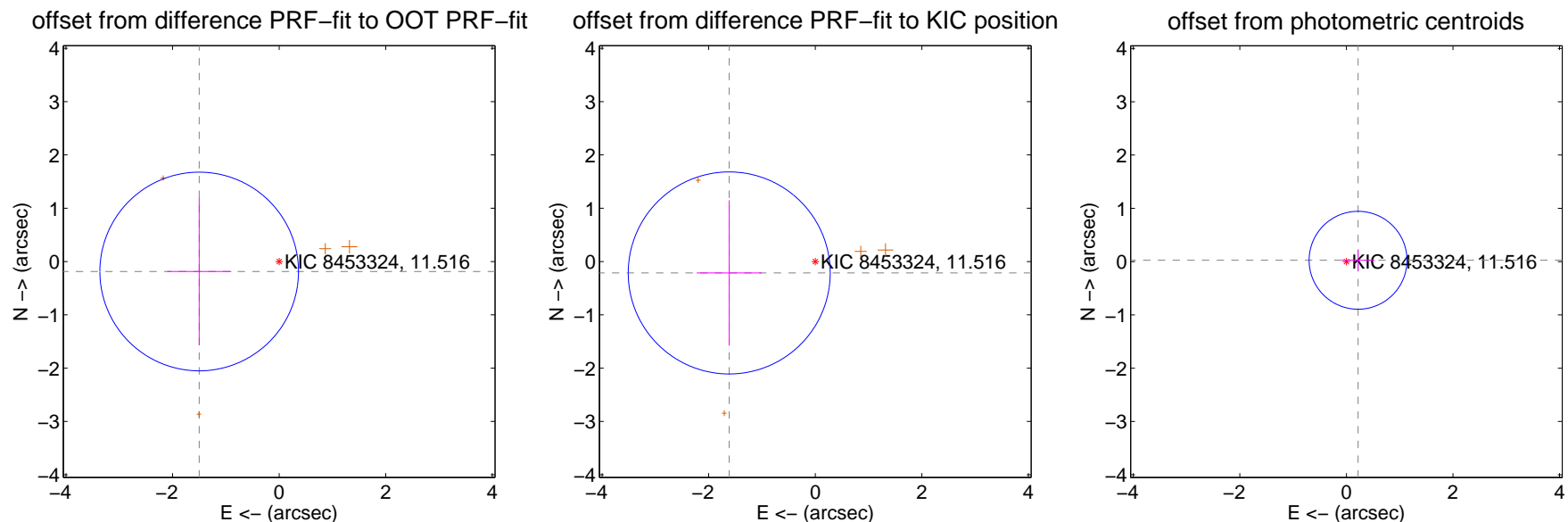
DV Centroid Data

Supplemental centroid analysis for 008453324-02. **Kepler magnitude: 11.52.** Transit SNR 7.24

There are 0 quarters with good PRF difference image offsets

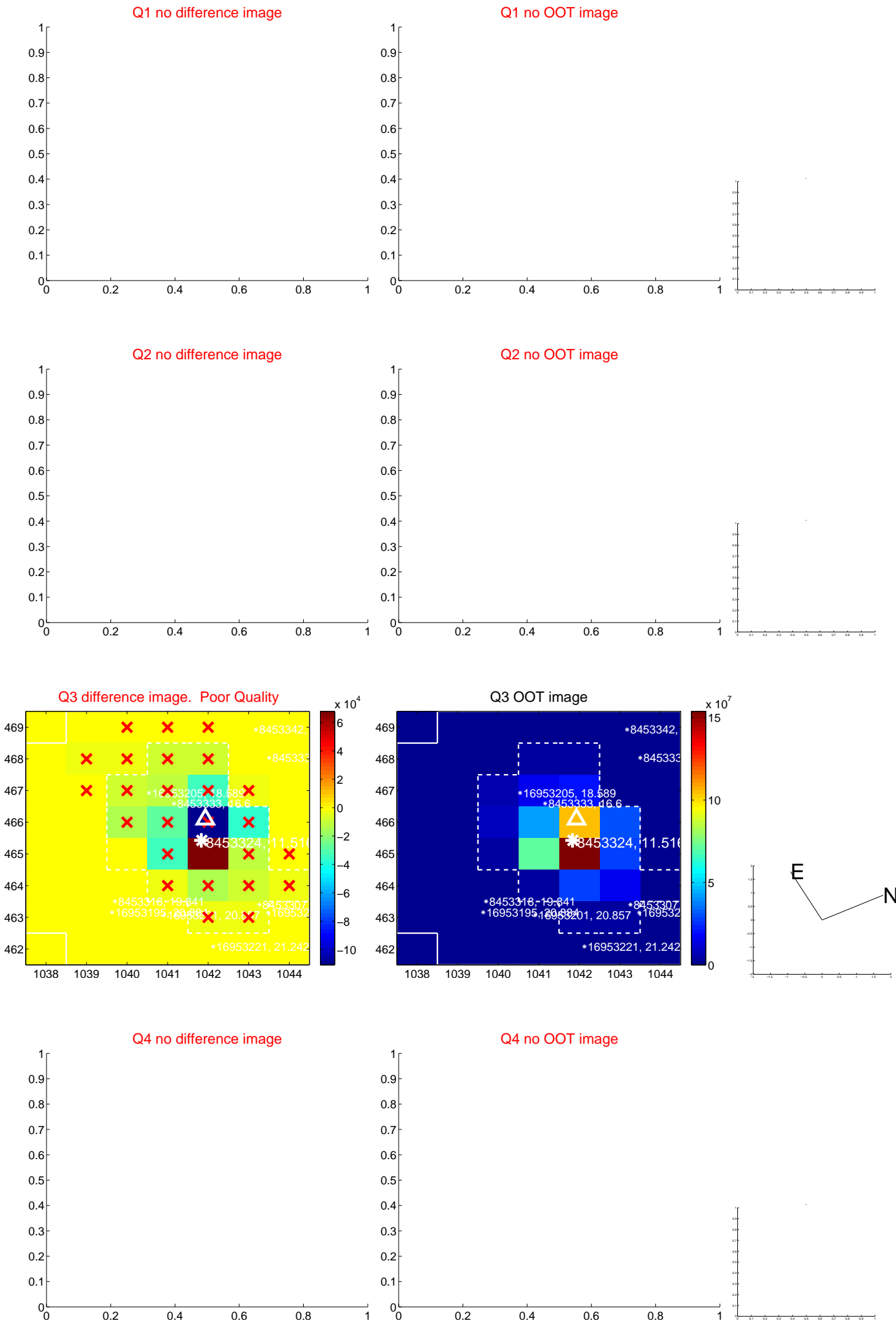
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.512 ± 0.621	2.43	1.501 ± 0.602	-0.187 ± 1.384
PRF-fit source offset from KIC position	1.629 ± 0.632	2.58	1.615 ± 0.611	-0.214 ± 1.364
photometric centroid source offset	0.22 ± 0.31	0.72	-0.22 ± 0.31	0.03 ± 0.20

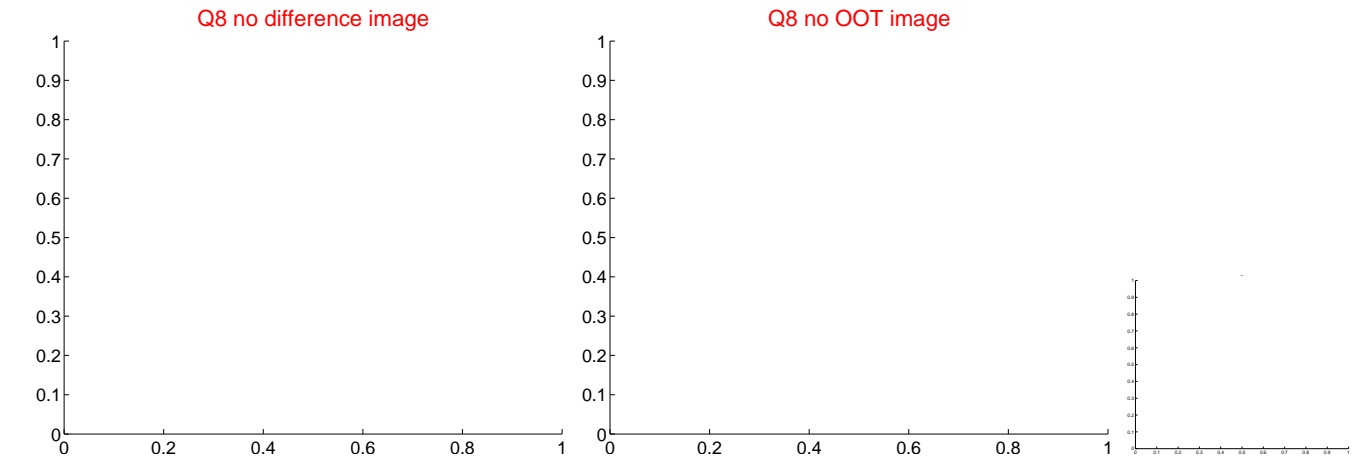
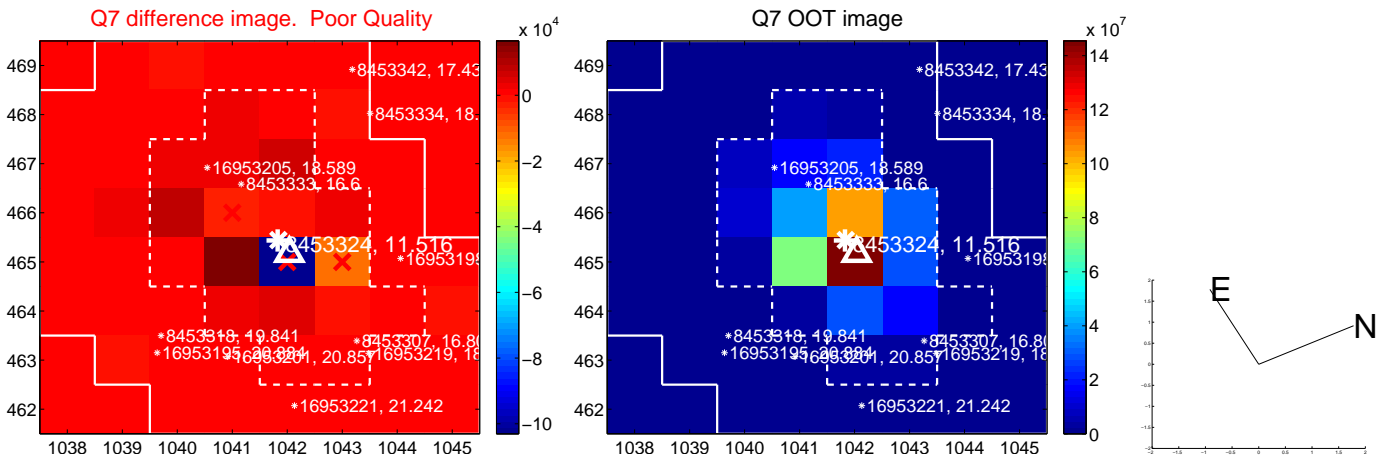
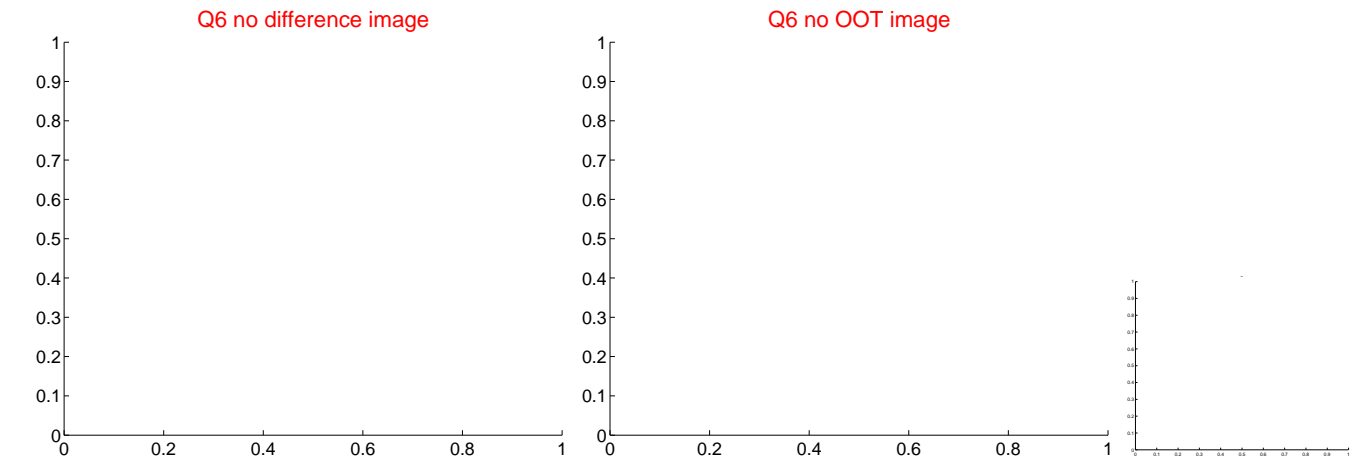
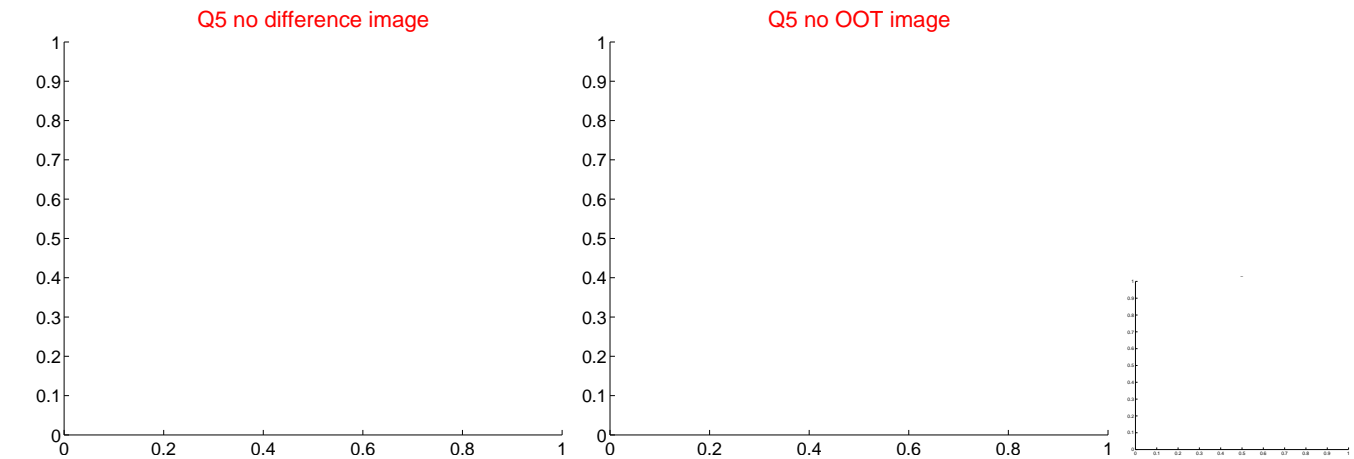


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

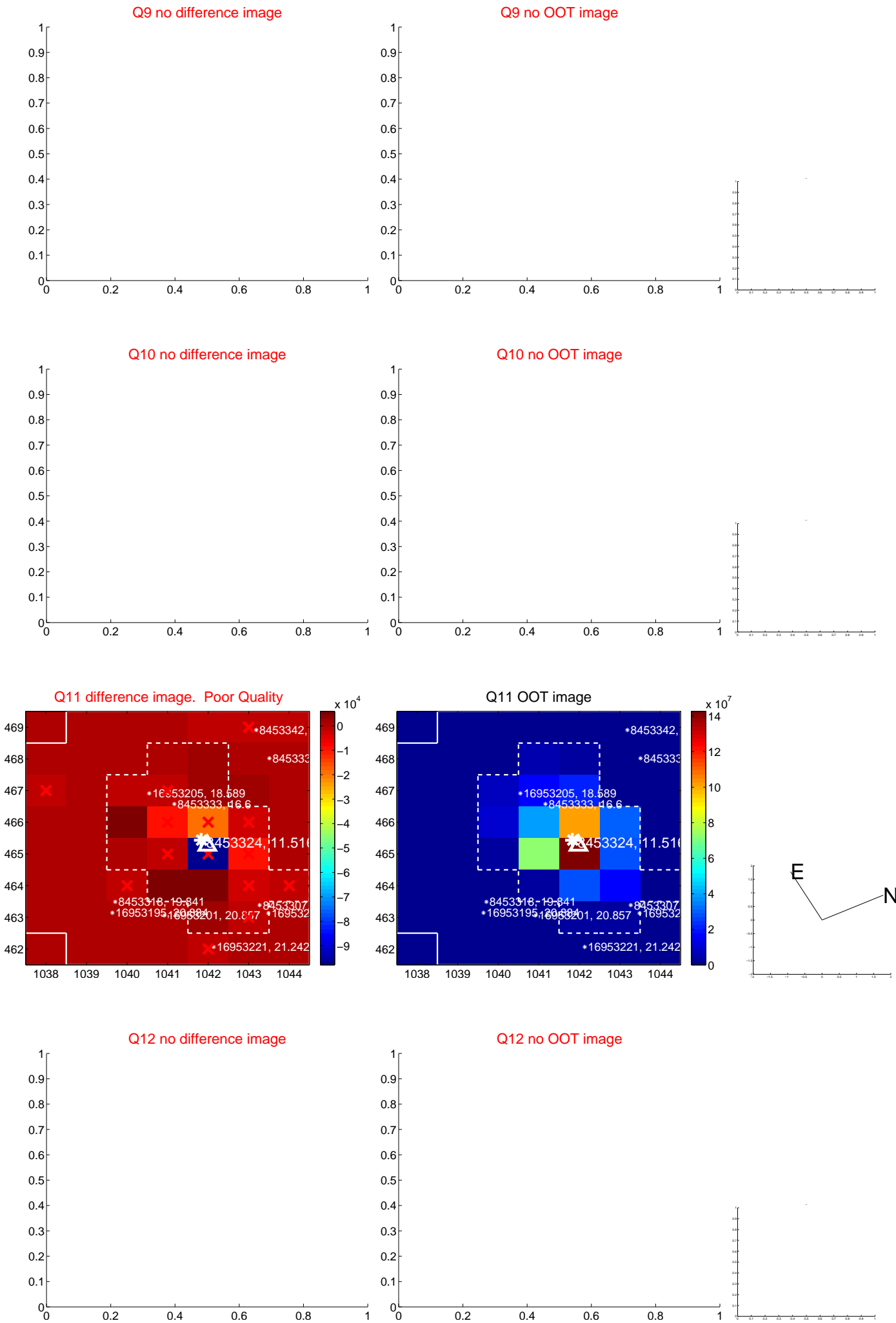
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



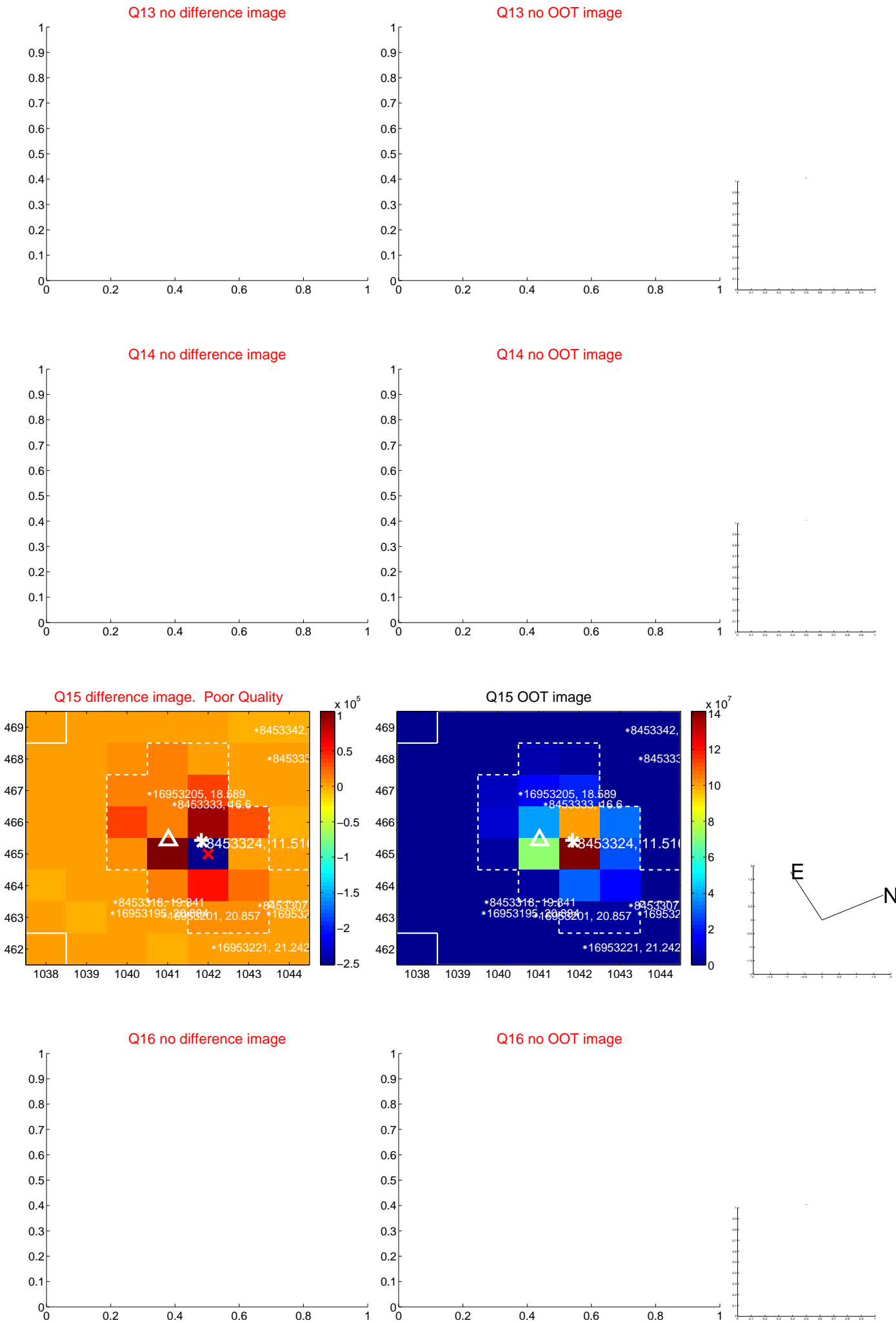
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



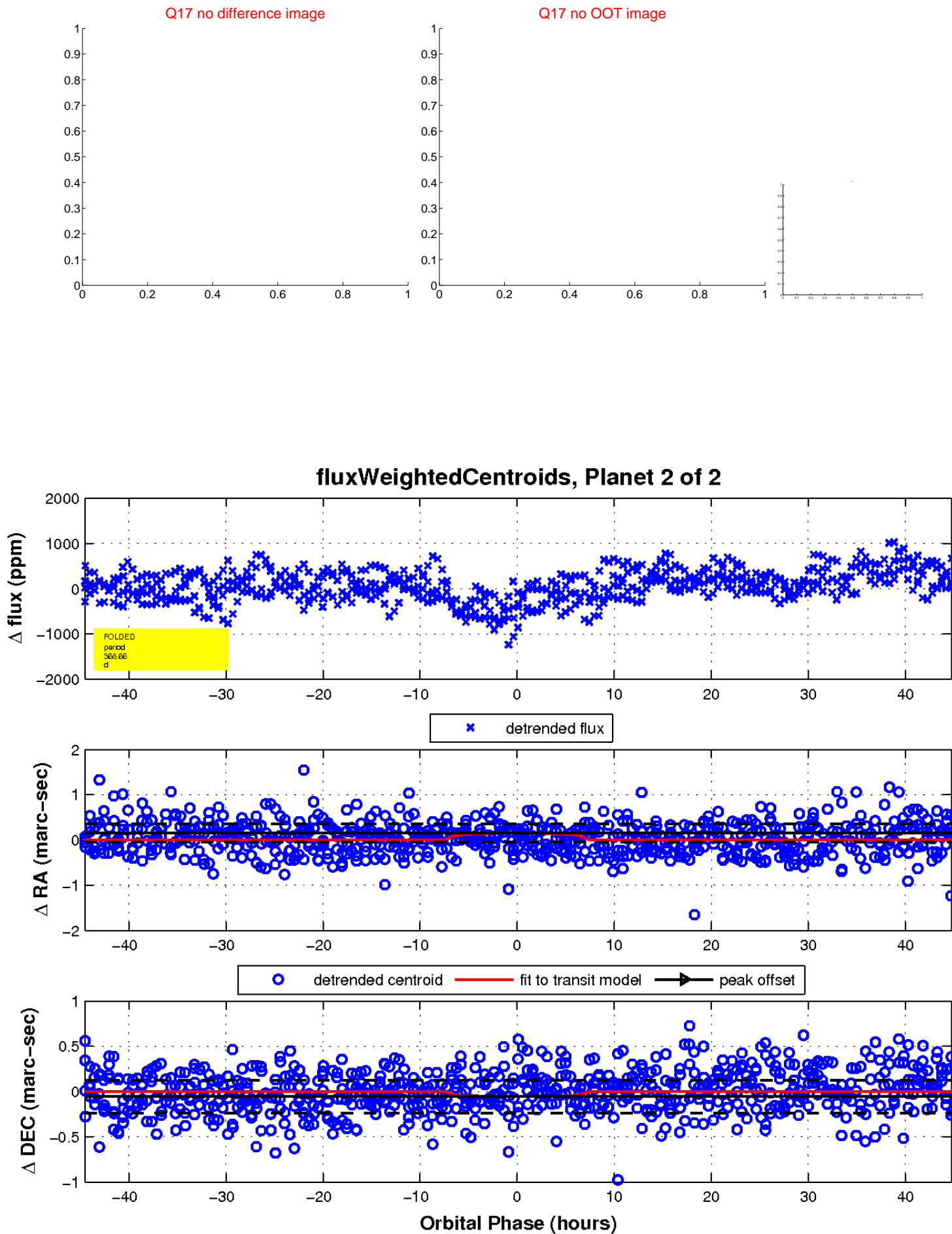
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UKIRT Image

