

KIC 004489844

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})
004489844-01	OBS	6421.01	0.822291	131.732038	28.5	3.538	11.3	11.1	0.94	5709	0.59	3230.24
004489844-02	OBS	No	326.453366	238.252506	473.8	12.000	17.7	-1.0	0.94	5709	2.03	1.11
004489844-03	OBS	No	92.773788	170.666306	1504.7	47.708	17.7	8.8	0.94	5709	4.62	5.92
004489844-04	OBS	No	201.064179	282.605053	418.3	17.182	16.1	4.6	0.94	5709	1.92	2.11
004489844-05	OBS	No	114.235574	239.089238	306.8	4.261	15.0	4.9	0.94	5709	1.92	4.49
004489844-06	OBS	No	441.742687	139.379888	589.7	9.347	12.4	6.1	0.94	5709	2.33	0.74
004489844-07	OBS	No	273.142187	163.045997	263.7	4.411	13.5	3.6	0.94	5709	1.66	1.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004489844-01	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET—HALO_GHOST
004489844-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
004489844-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQU_DV—MOD_TER_DV—MOD_NONUNIQU_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004489844-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQU_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004489844-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES
004489844-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004489844-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQU_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

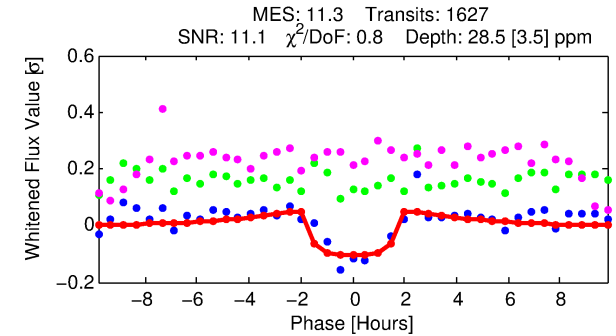
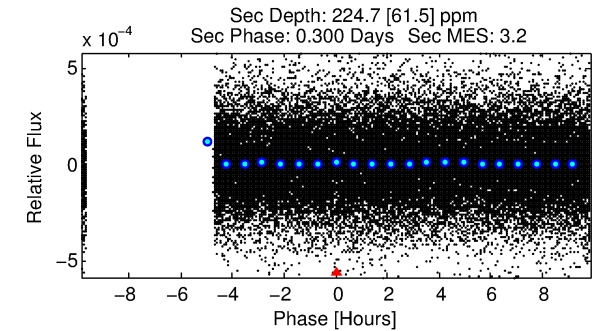
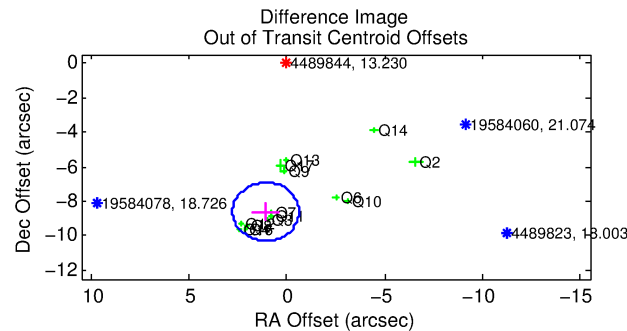
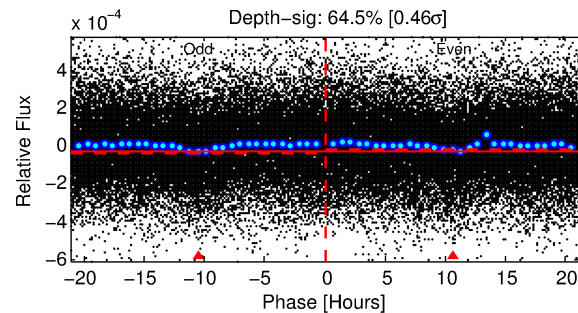
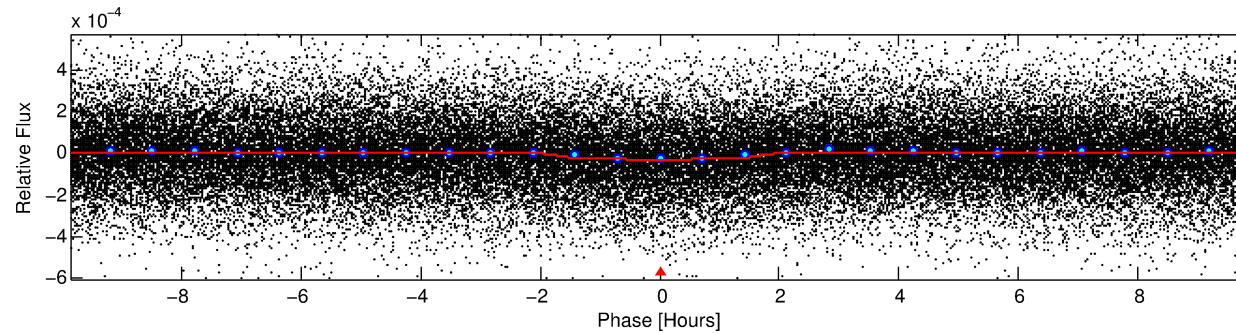
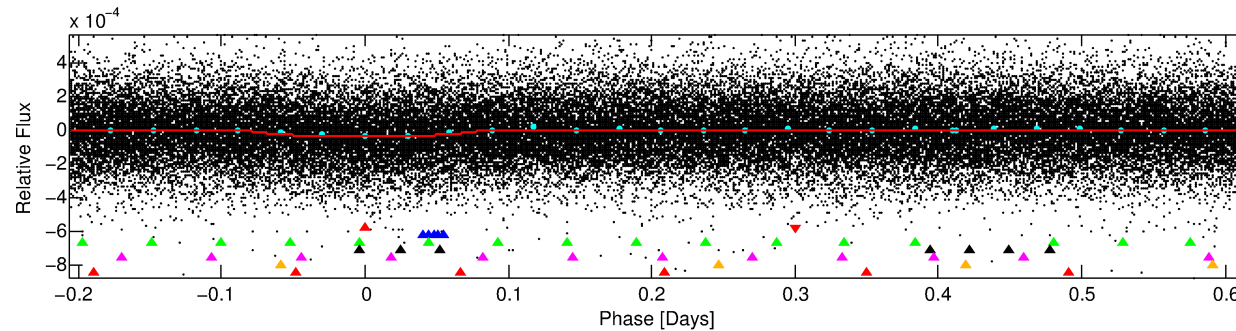
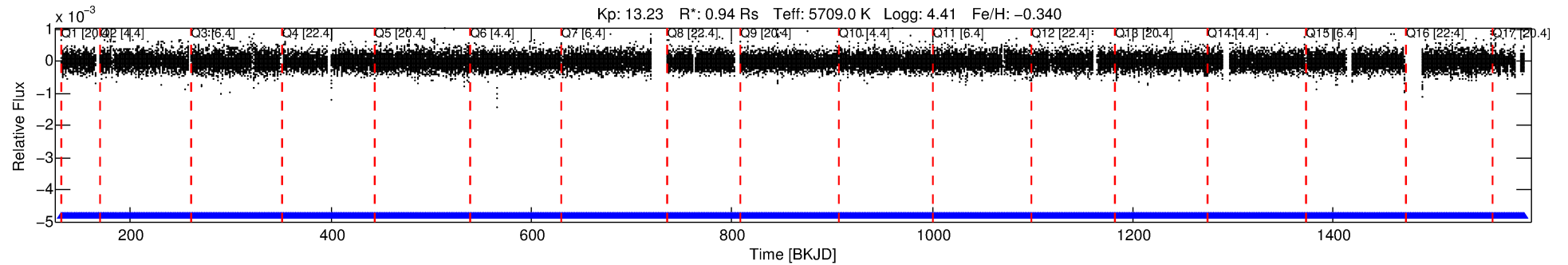
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004489844-01

No Significant Match Found

DV One-Page Summary

KIC: 4489844 Candidate: 1 of 7 Period: 0.822 d
KOI: K06421.01 Corr: 0.851



DV Fit Results:

Period = 0.82229 [0.00001] d
Epoch = 131.7320 [0.0027] BKJD
Rp/R* = 0.0058 [0.0023]
a/R* = 1.23 [0.85]
b = 0.90 [0.44]
Seff = 3230.24 [1104.76]
Teq = 1922 [164] K
Rp = 0.59 [0.29] Re
a = 0.0161 [0.0036] AU
Ag = 91.07 [83.25] [1.08 σ]
Teff = 9182 [1977] K [3.66 σ]

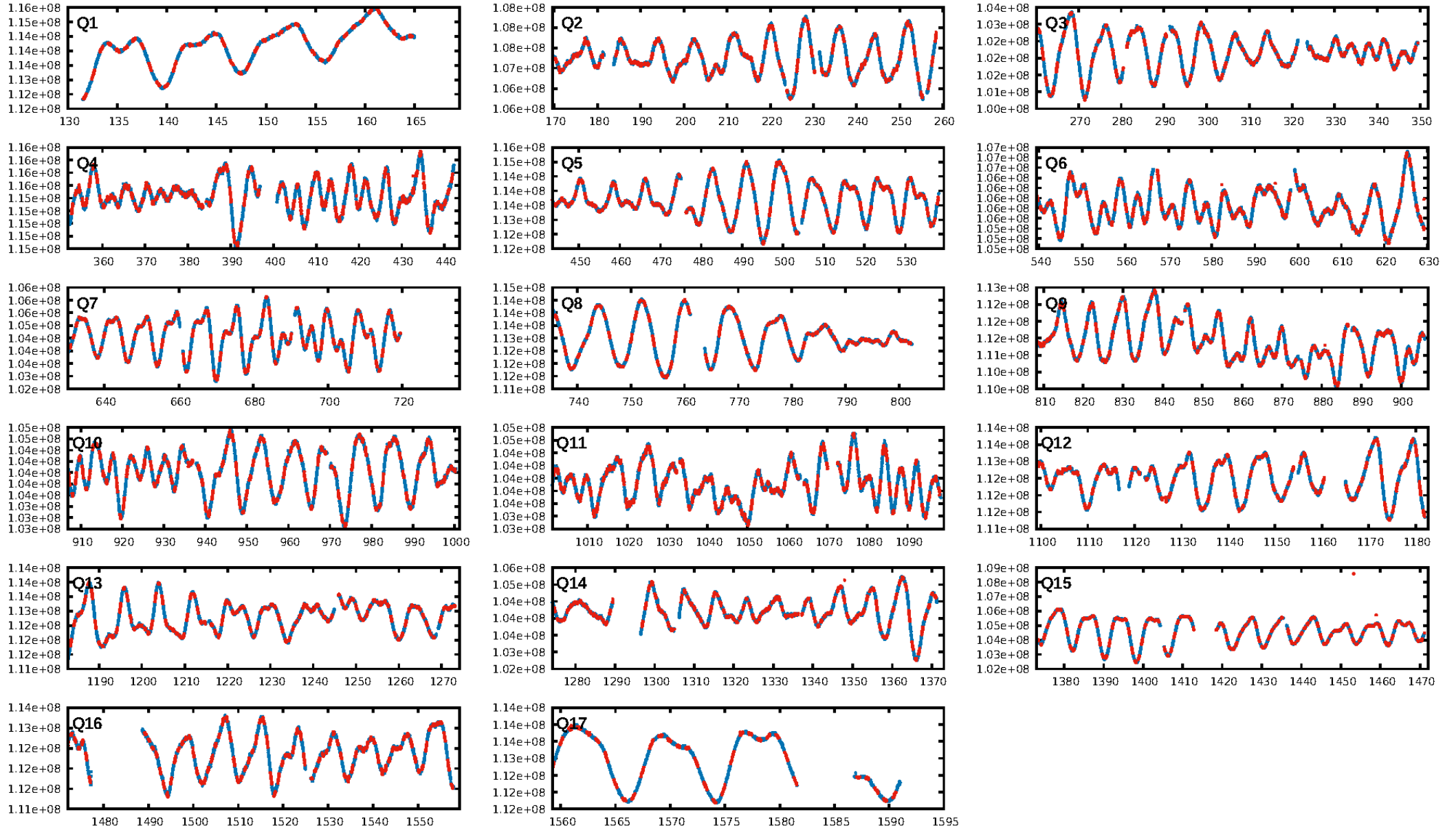
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [46.13 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 1.93e-26
RollingBand-fgt: 1.00 [1553/1553]
GhostDiagnostic-chr: -0.1647
Centroid-sig: 0.0%
Centroid-so: 6.398 arcsec [7.30 σ]
OotOffset-rm: 8.682 arcsec [15.40 σ]
KicOffset-rm: 8.645 arcsec [16.11 σ]
OotOffset-st: 4/3/4/3 [14]
KicOffset-st: 4/3/4/3 [14]
DiffImageQuality-fgm: 0.79 [11/14]
DiffImageOverlap-fno: 1.00 [17/17]

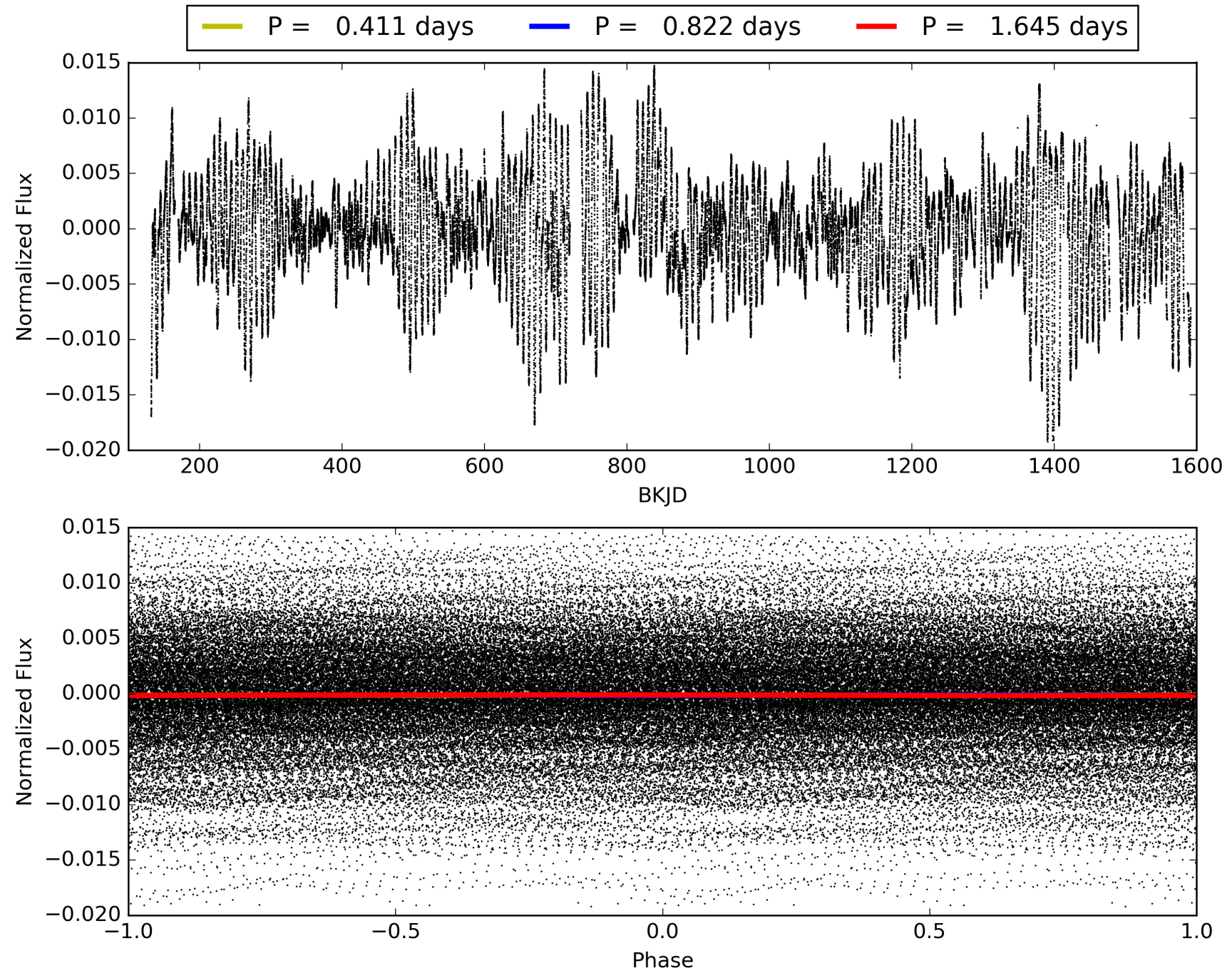
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004489844-01, PDC Light Curves

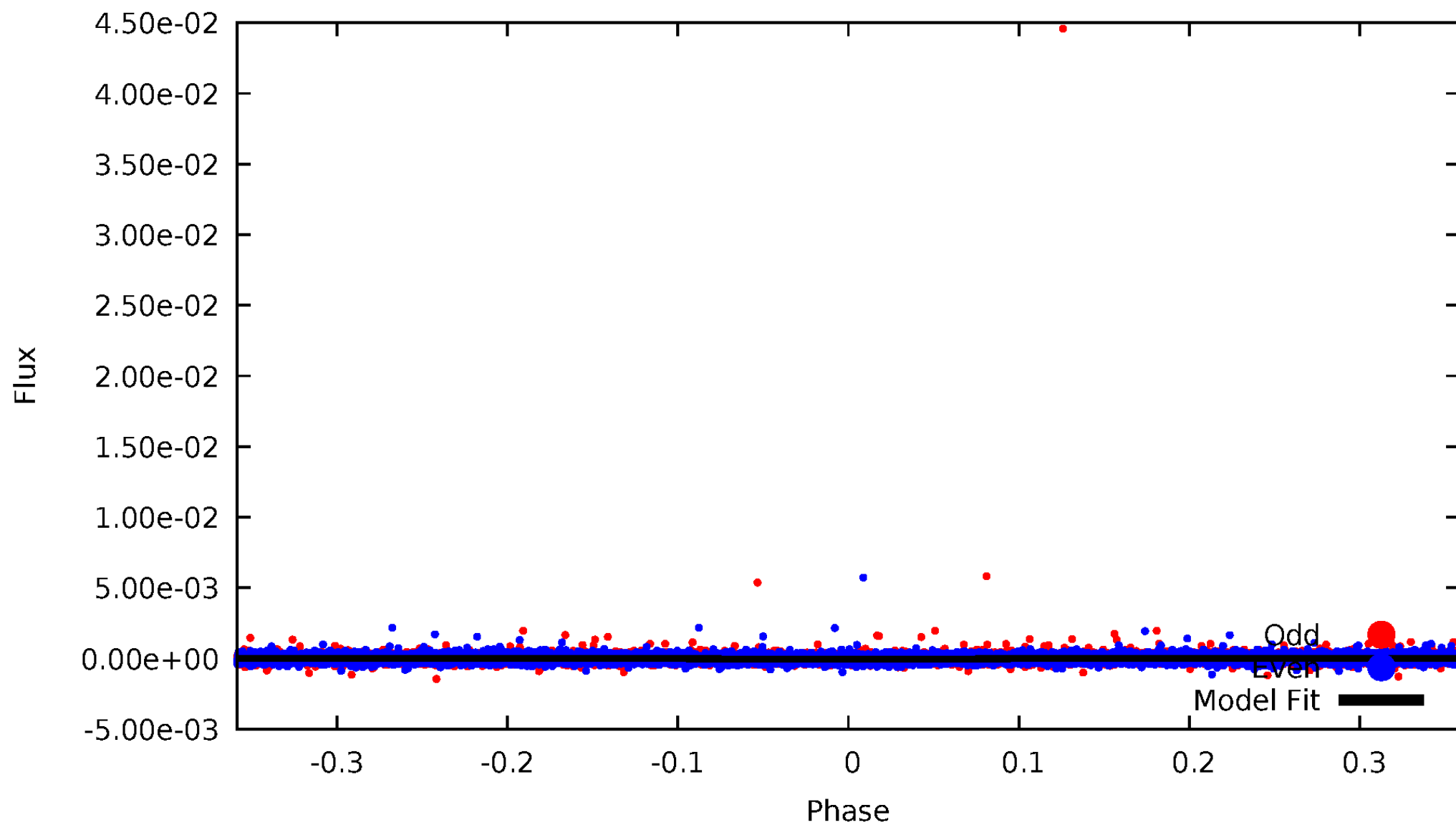


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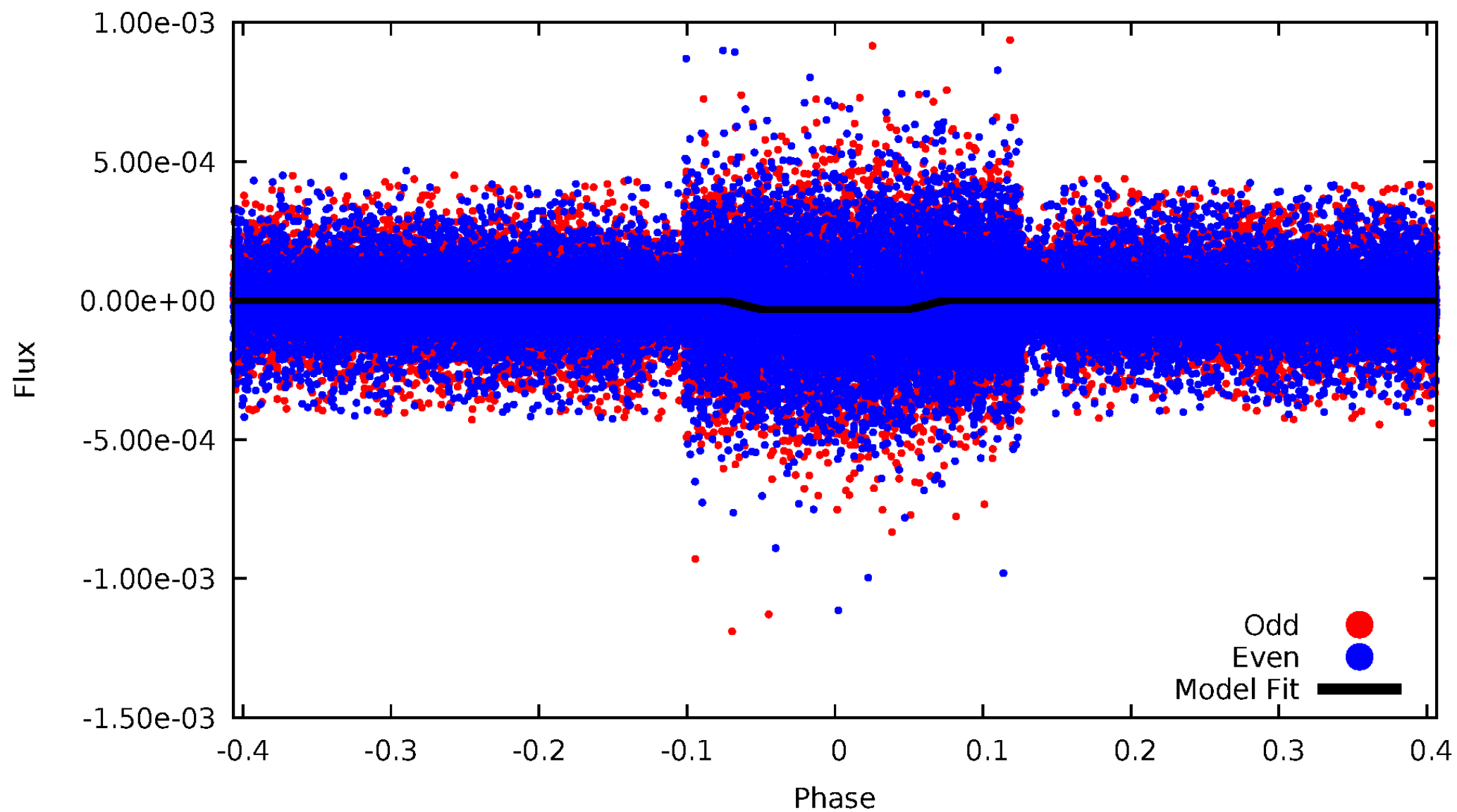
DV Odd/Even

TCE 004489844-01

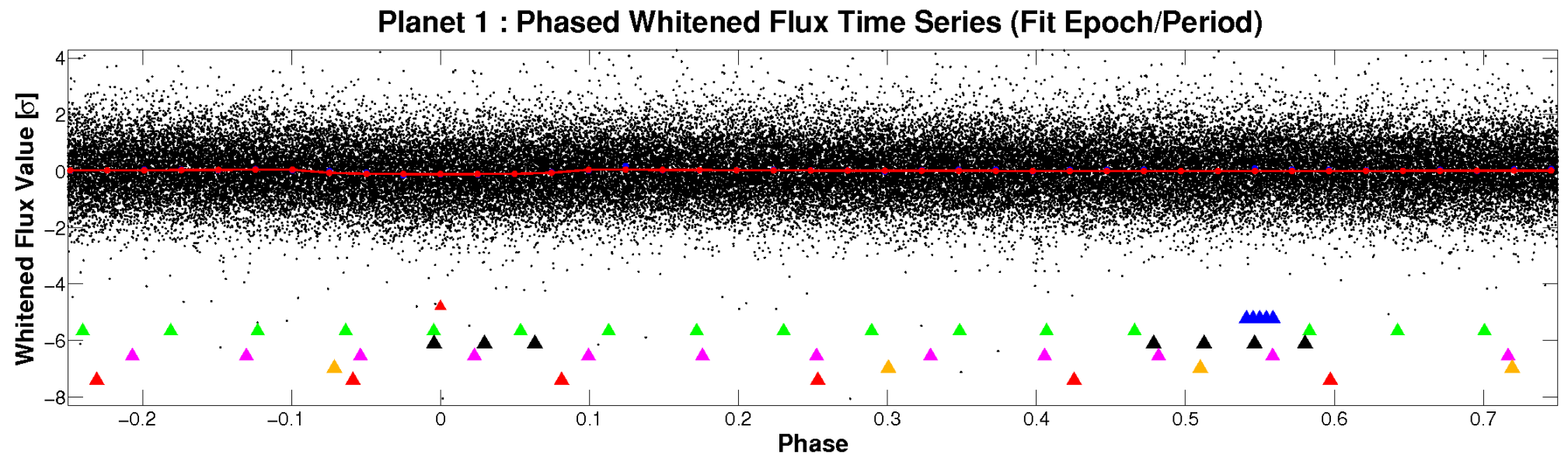
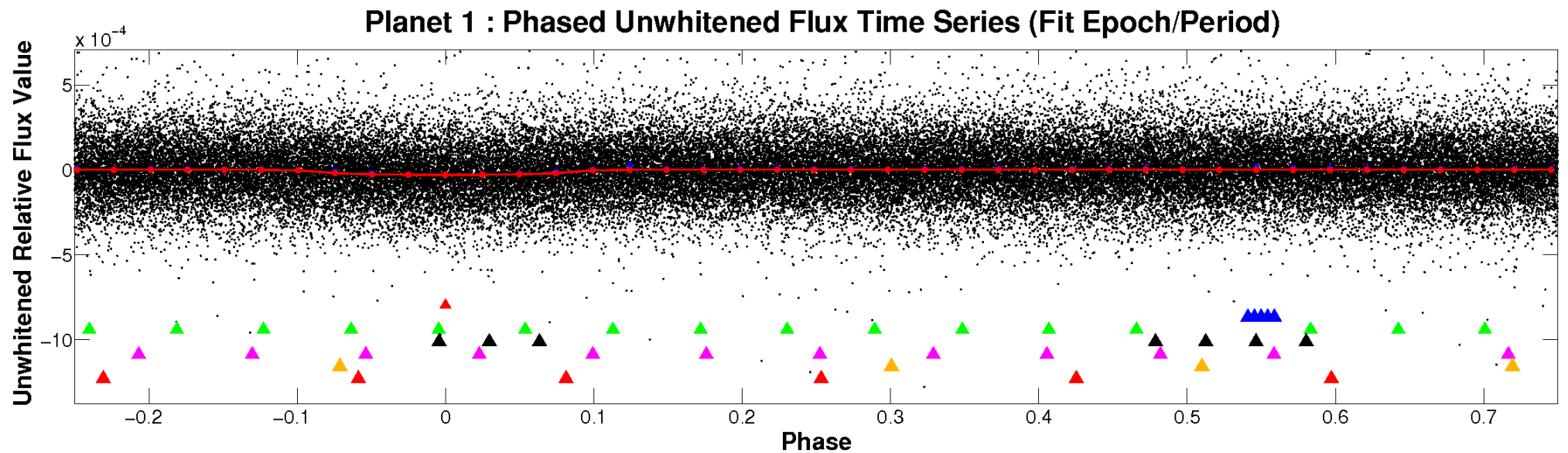


ALT Odd/Even

TCE 004489844-01

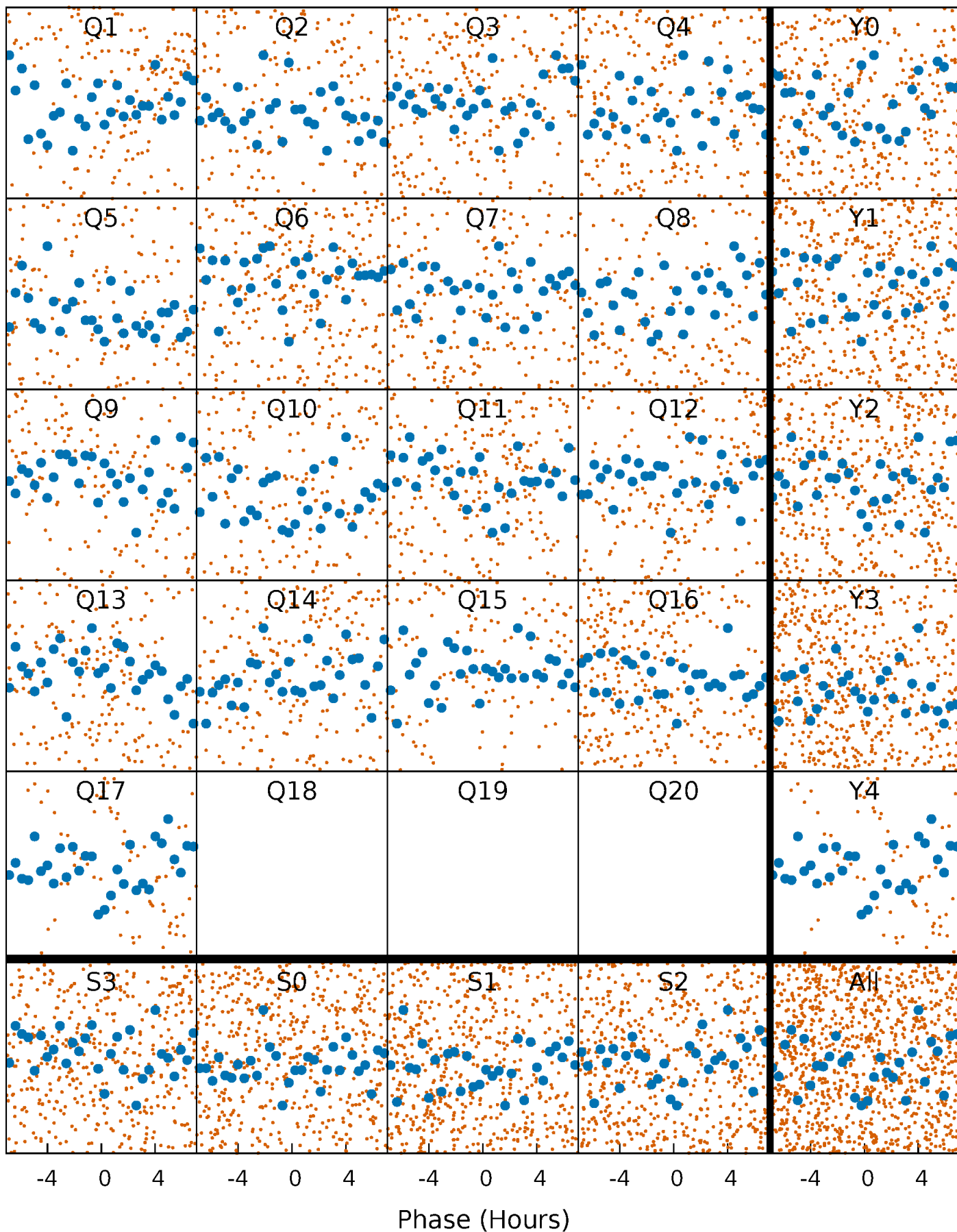


Non-Whitened Vs. Whitened Light Curve



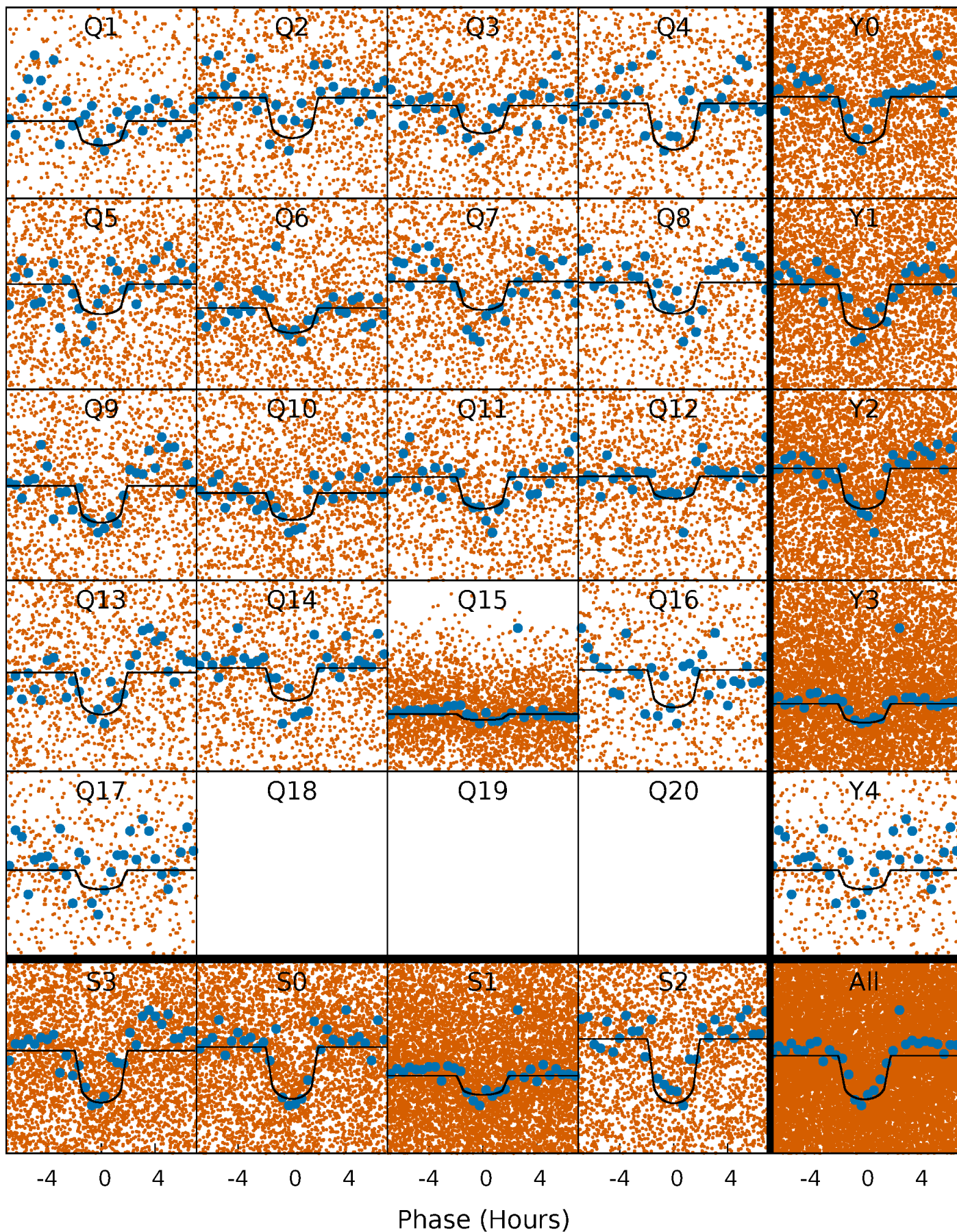
PDC Quarter-Phased Transit Curves

TCE 004489844-01 P= 0.822291 Days $T_0=131.732038$ (BKJD)



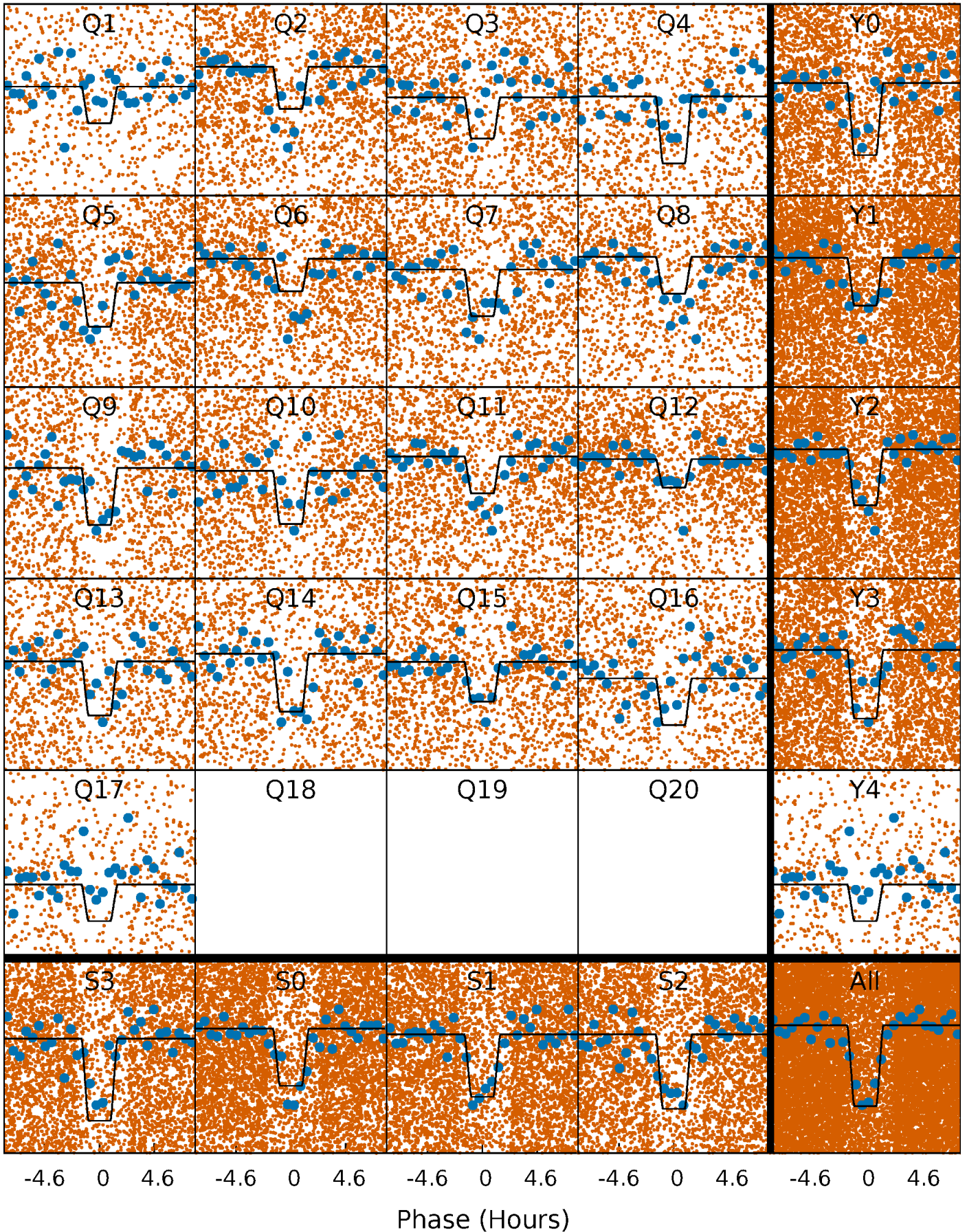
DV Quarter-Phased Transit Curves

TCE 004489844-01 P= 0.822291 Days $T_0=131.732038$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

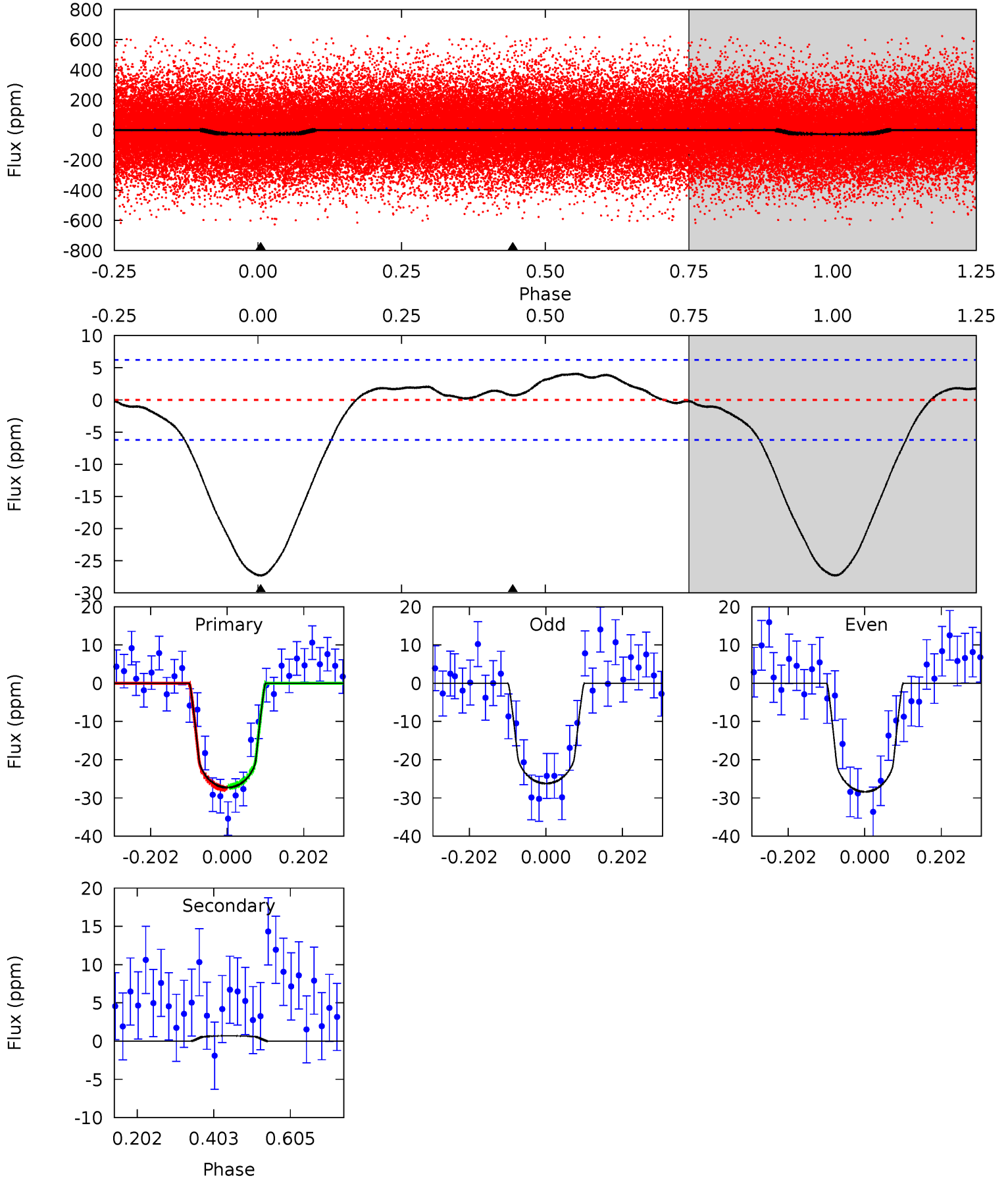
TCE 004489844-01 P= 0.822293 Days $T_0=131.726967$ (BKJD)



DV Model-Shift Uniqueness Test

004489844-01, P = 0.822291 Days, E = 130.909747 Days

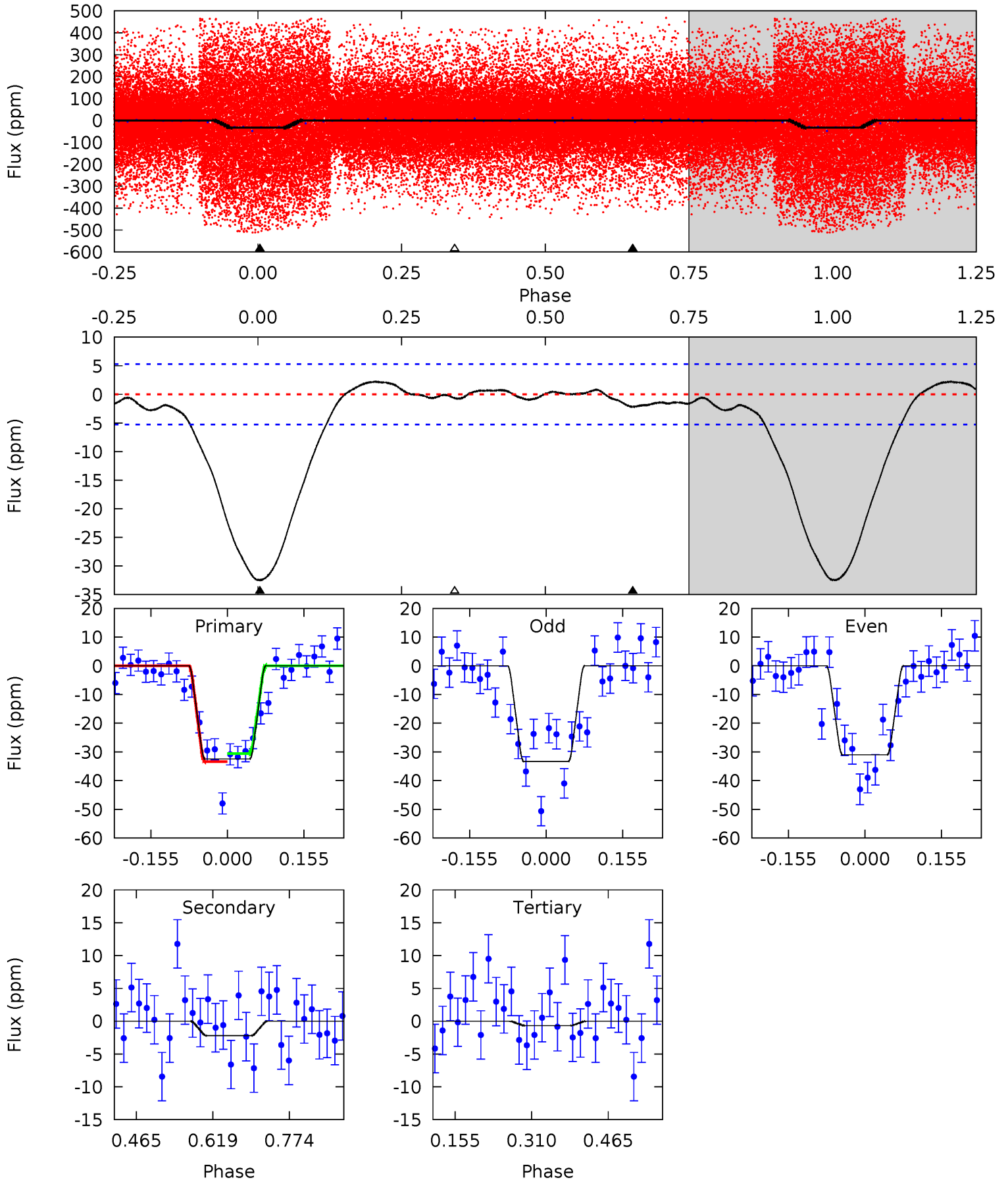
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	-0.49	0	0	4.42	1.28	0.80	19.3	19.3	-0.49	-0.49	0.77	0.90	0.13	0.19



Alt Model-Shift Uniqueness Test

004489844-01, P = 0.822293 Days, E = 130.904674 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.5	1.86	0.57	0	4.47	1.42	1.05	26.9	27.5	1.29	1.86	0.99	0.99	0.06	1.16



Stellar Parameters For KIC 004489844

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5709^{+154}_{-154}	$4.409^{+0.144}_{-0.176}$	$-0.340^{+0.300}_{-0.300}$	$0.938^{+0.253}_{-0.156}$	$0.824^{+0.116}_{-0.062}$	$1.405^{+0.844}_{-0.670}$
	+3%/-3%	+3%/-4%	+88%/-88%	+27%/-17%	+14%/-8%	+60%/-48%
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 004489844-01 / KOI 6421.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	1 ± 1	$0.60^{+0.25}_{-0.23}$	2689^{+188}_{-150}	-3198^{+899}_{-503}	$-0.248^{+0.509}_{-0.909}$
Alt.	-2 ± 1	$0.60^{+0.26}_{-0.25}$	2695^{+192}_{-153}	3177^{+864}_{-5329}	$0.845^{+1.912}_{-0.570}$

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 $A_{obs} \gg 1.0$

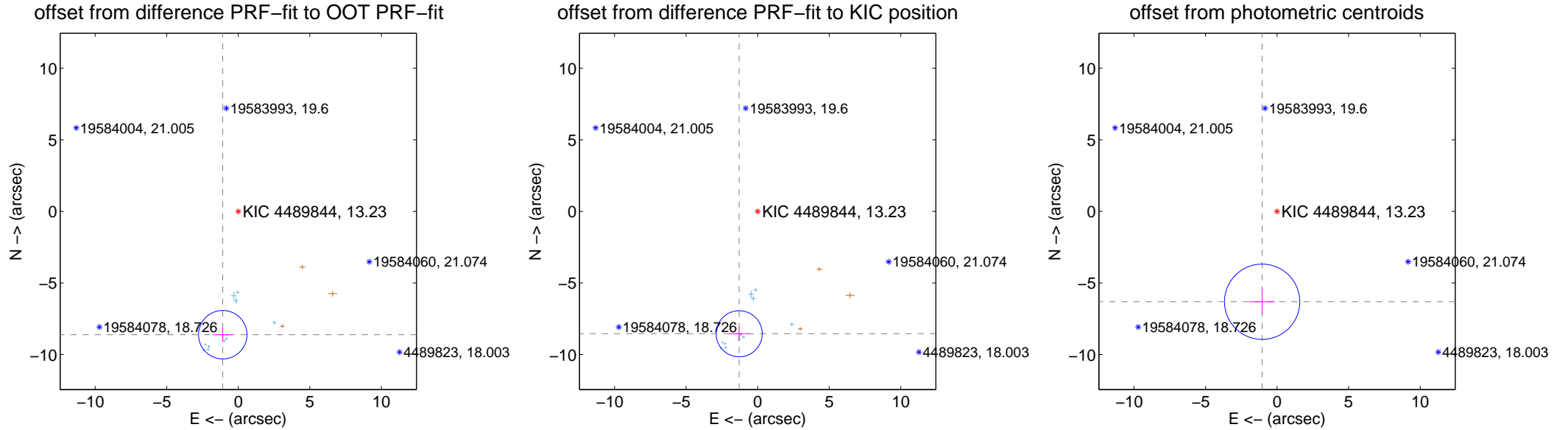
DV Centroid Data

Supplemental centroid analysis for 004489844-01. Kepler magnitude: 13.23. Transit SNR 11.06

There are 11 quarters with good PRF difference image offsets

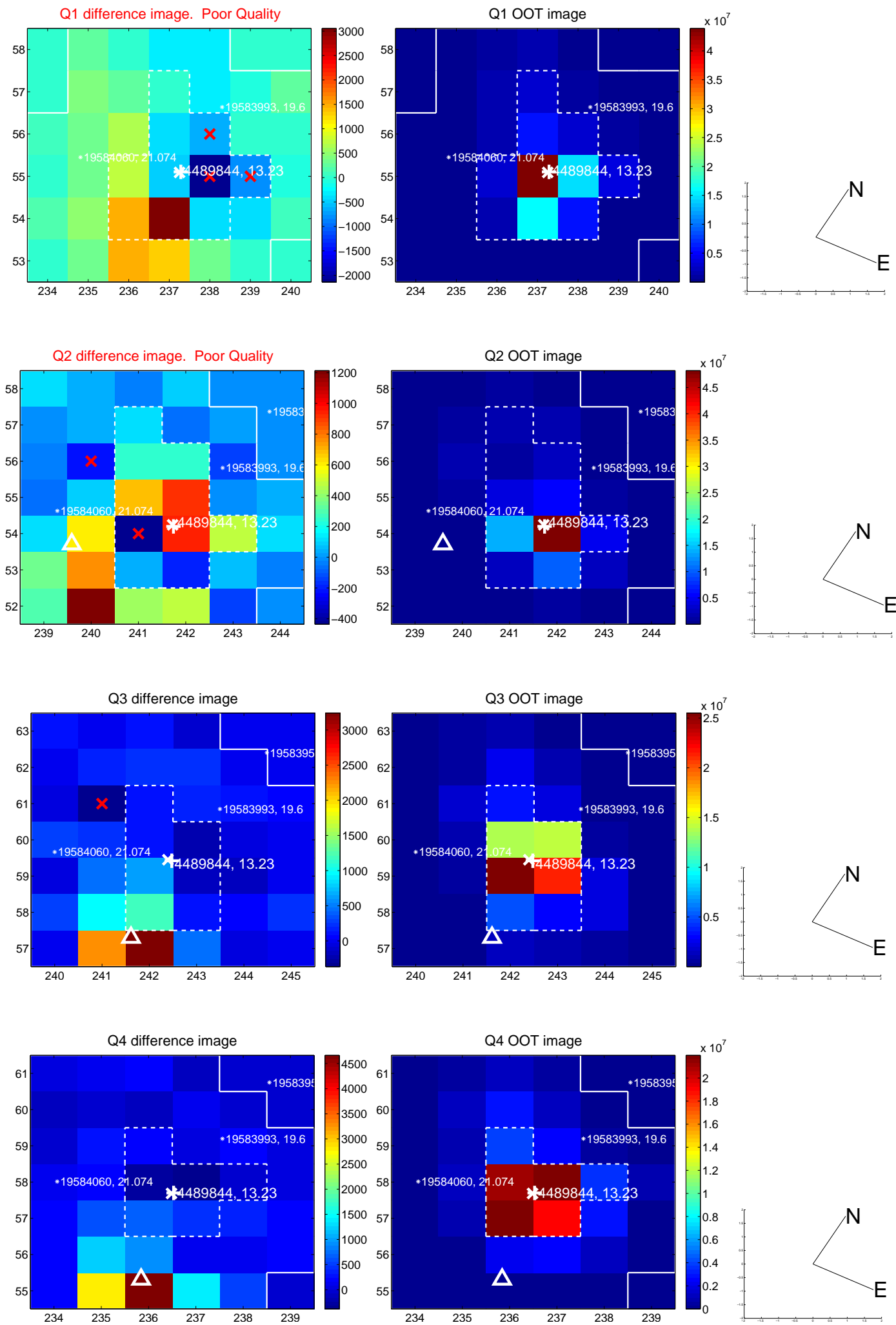
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.682 \pm 0.564	15.40	1.084 \pm 0.709	-8.614 \pm 0.502
PRF-fit source offset from KIC position	8.645 \pm 0.537	16.11	1.292 \pm 0.706	-8.548 \pm 0.466
photometric centroid source offset	6.40 \pm 0.88	7.30	1.04 \pm 0.89	-6.31 \pm 0.88

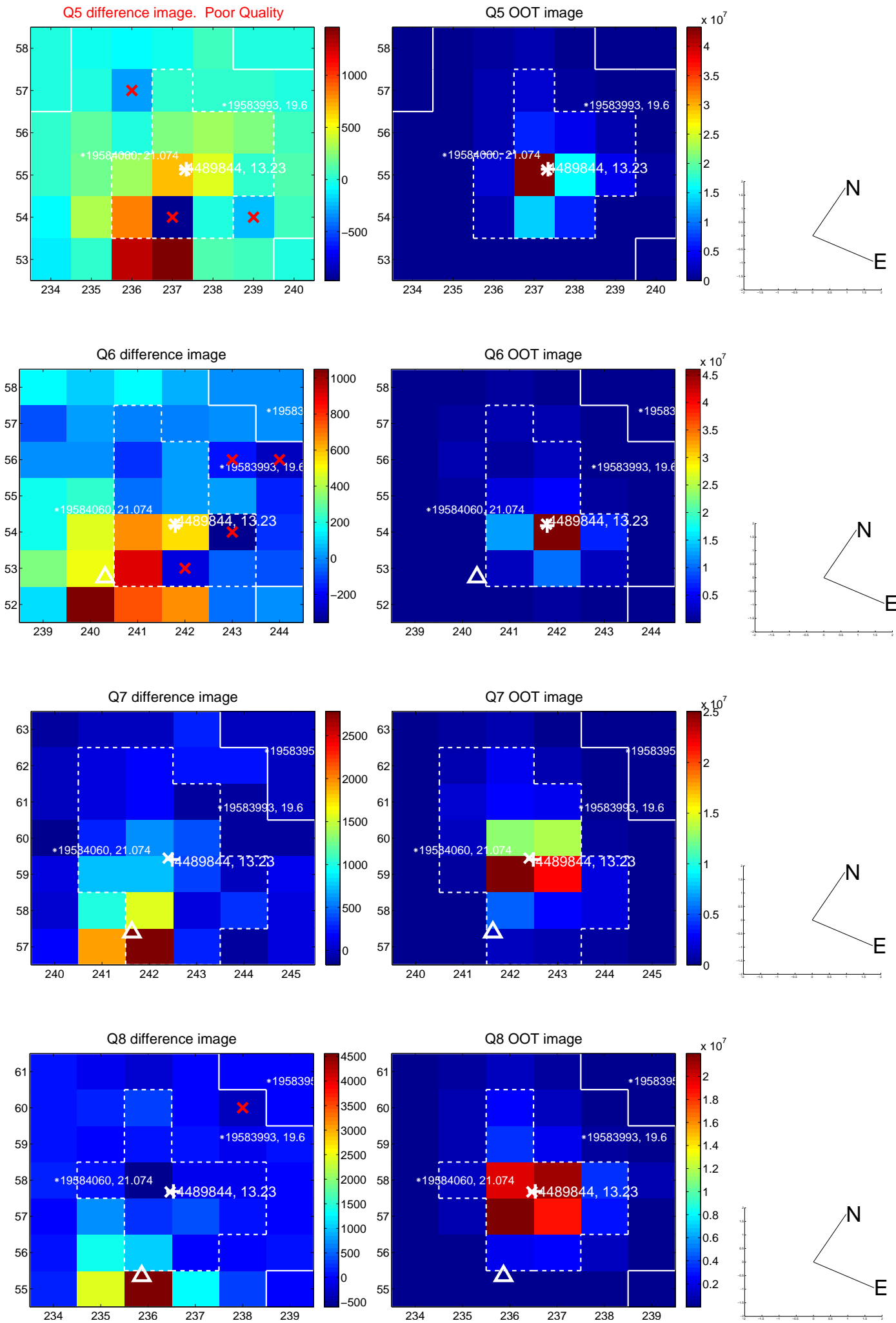


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

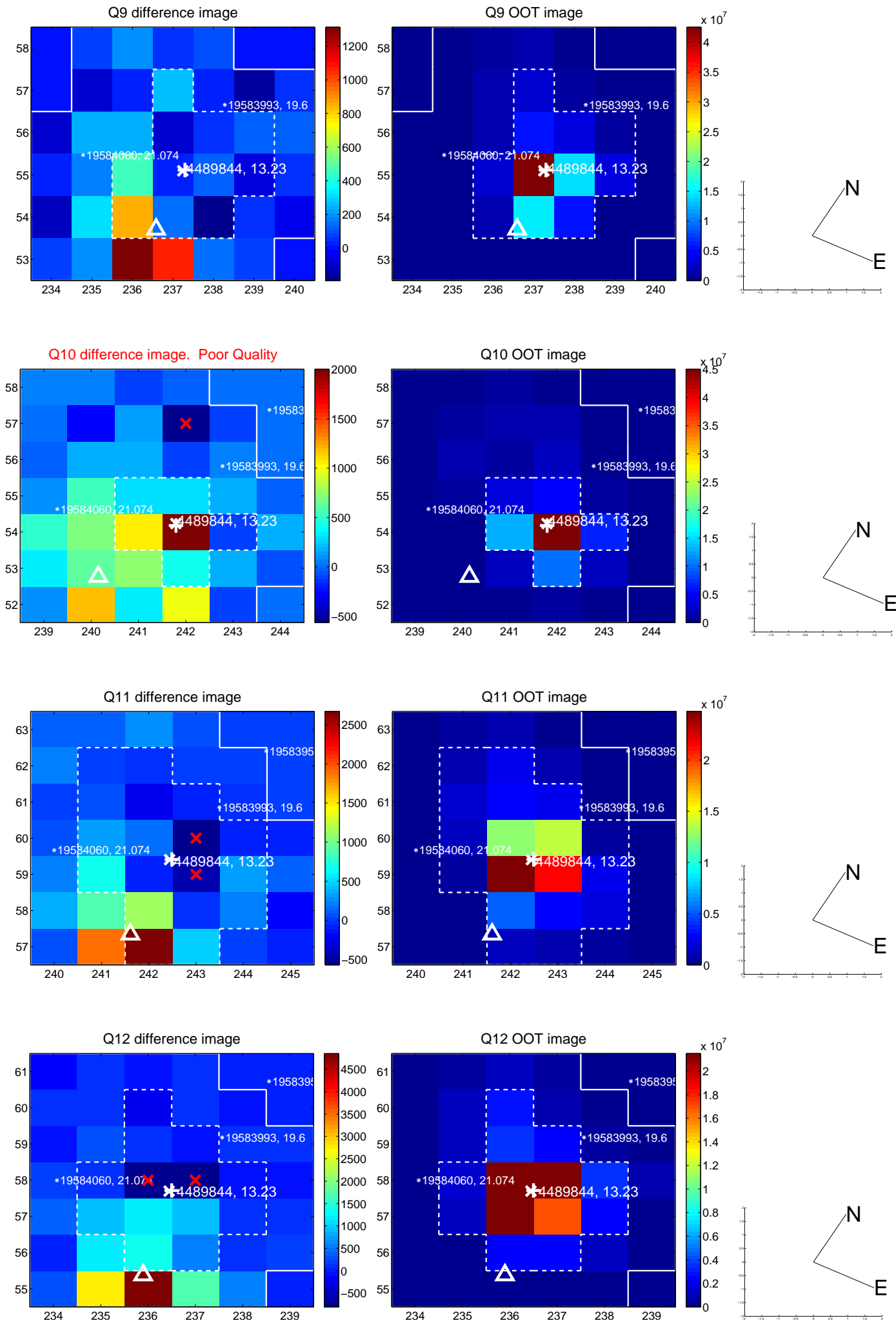
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



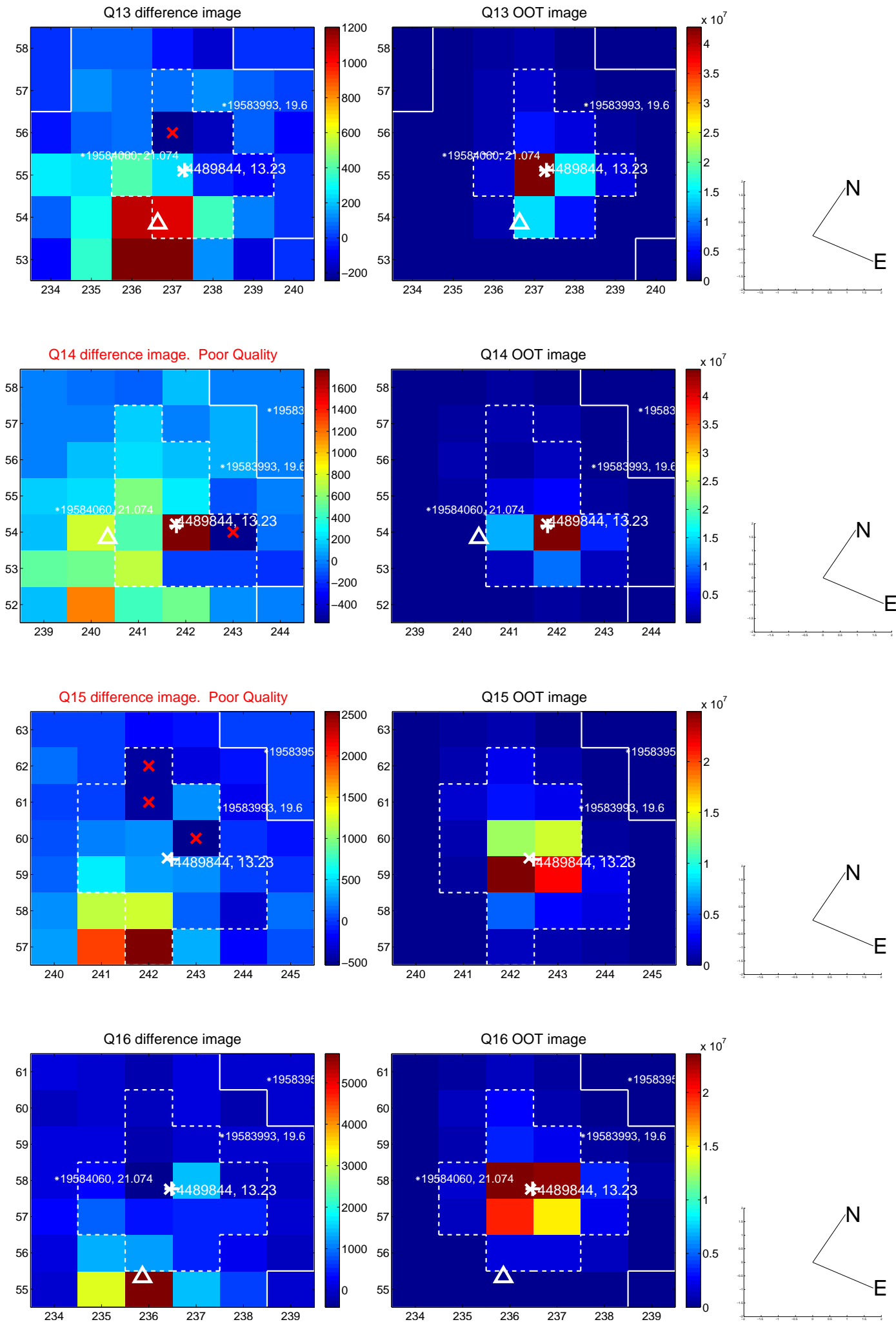
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



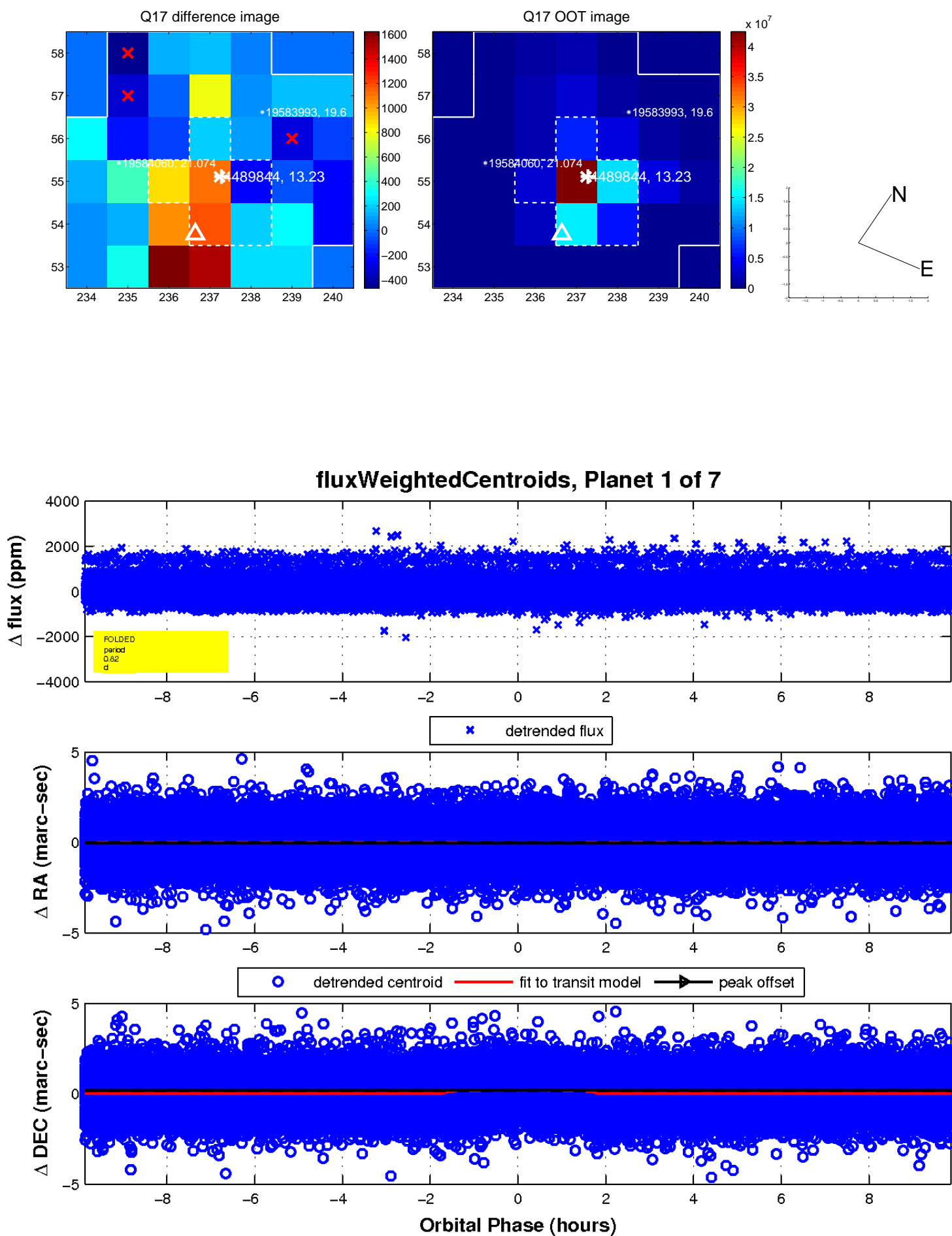
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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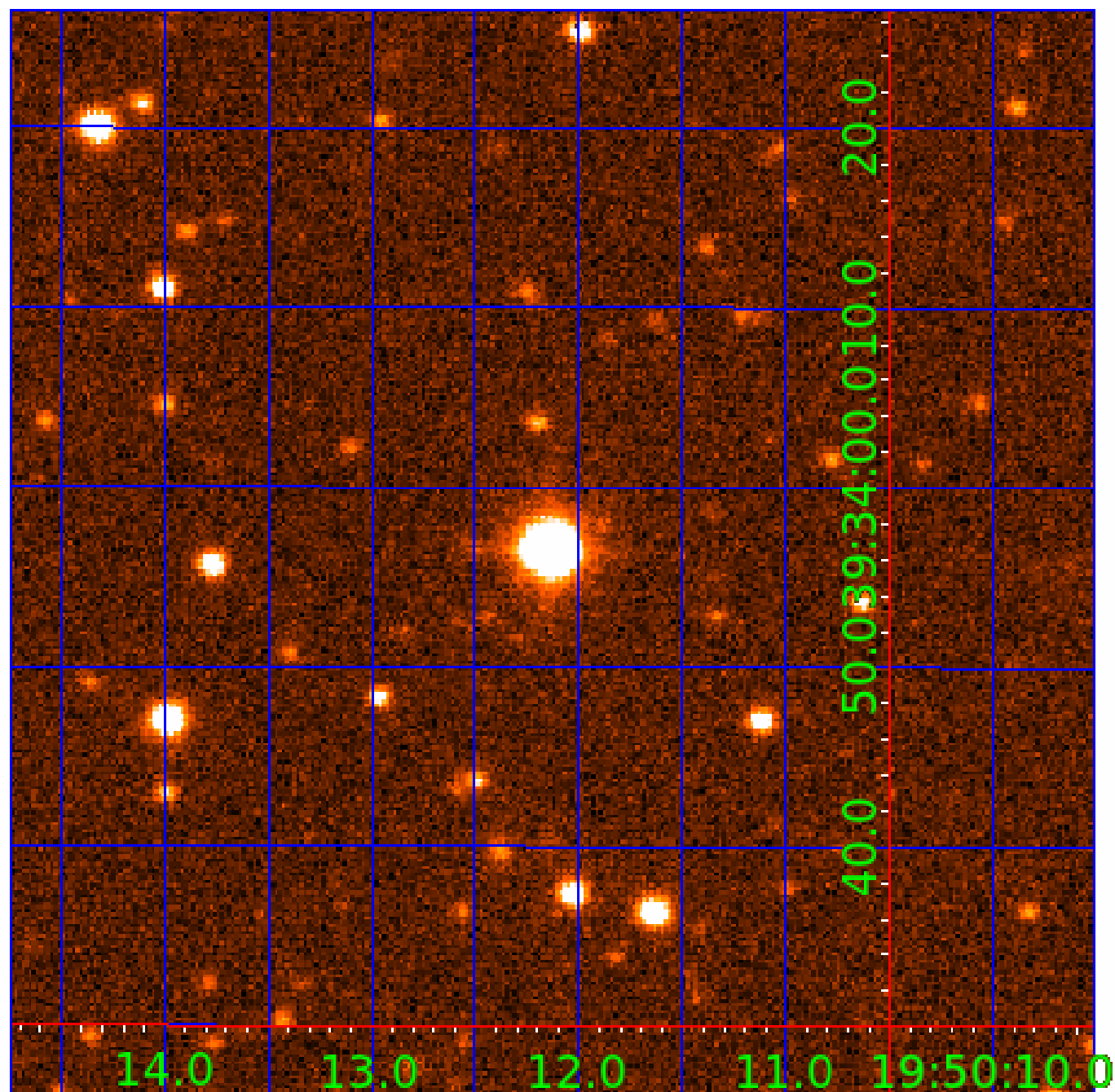


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004489844

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

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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004489844-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
004489844-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004489844-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004489844-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES
004489844-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004489844-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

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

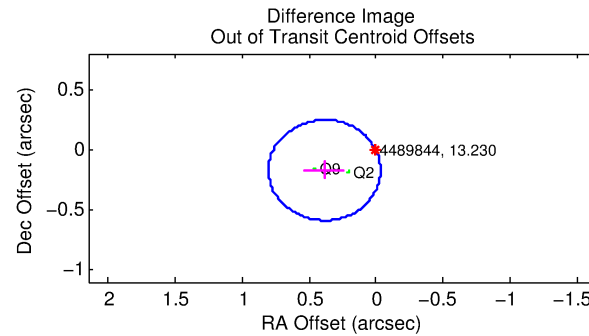
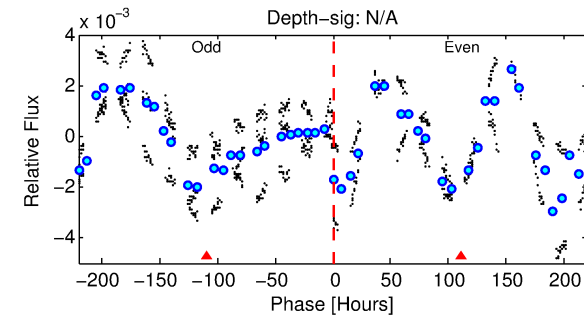
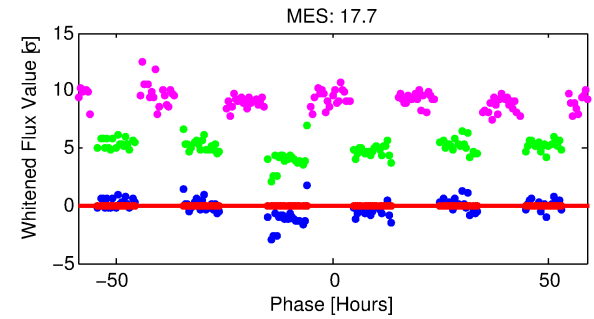
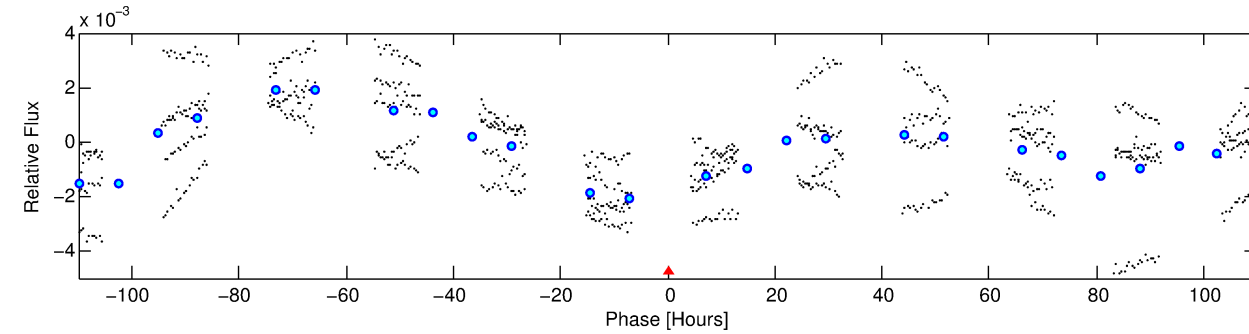
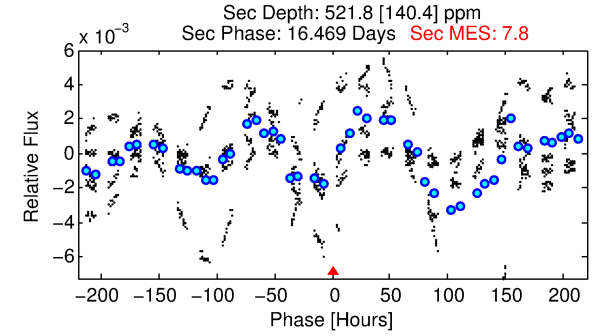
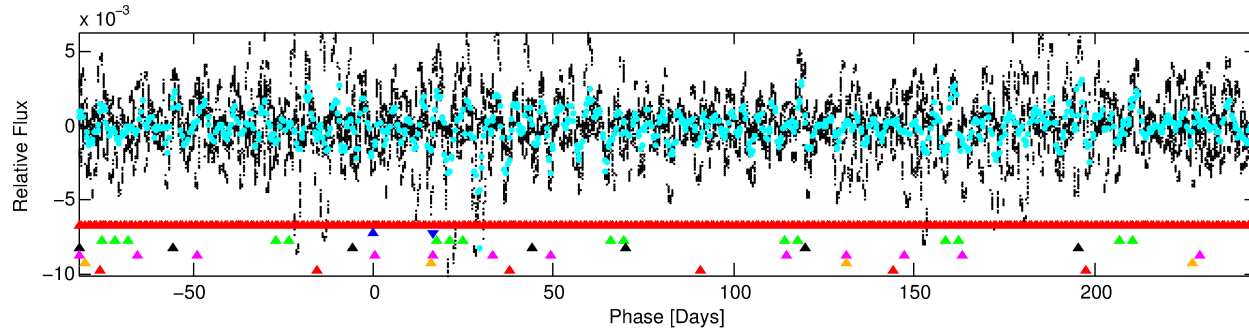
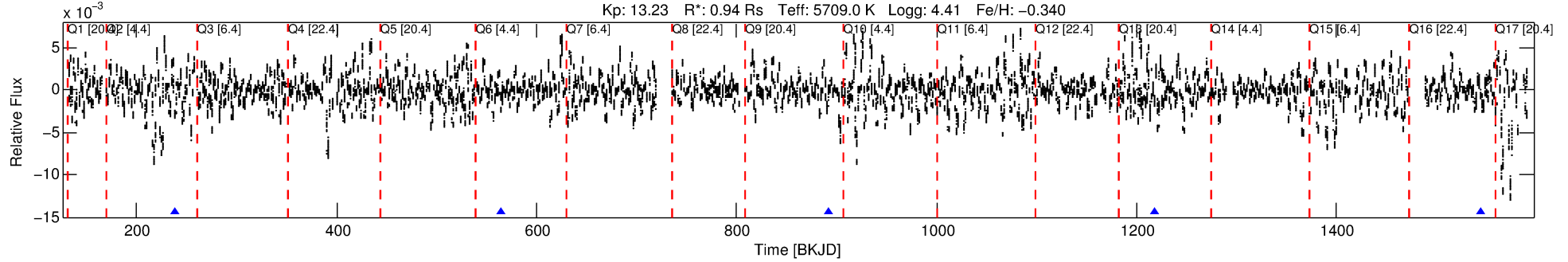
Ephemeris Match Information For 004489844-02

No Significant Match Found

DV One-Page Summary

KIC: 4489844 Candidate: 2 of 7 Period: 326.453 d
KOI: K06421 Corr: No Ephemeris Match

Kp: 13.23 R*: 0.94 Rs Teff: 5709.0 K Logg: 4.41 Fe/H: -0.340



TPS TCE Results:

Period = 326.45337 d
Epoch = 238.2525 BKJD

DV fit results are unavailable

DV Diagnostic Results:

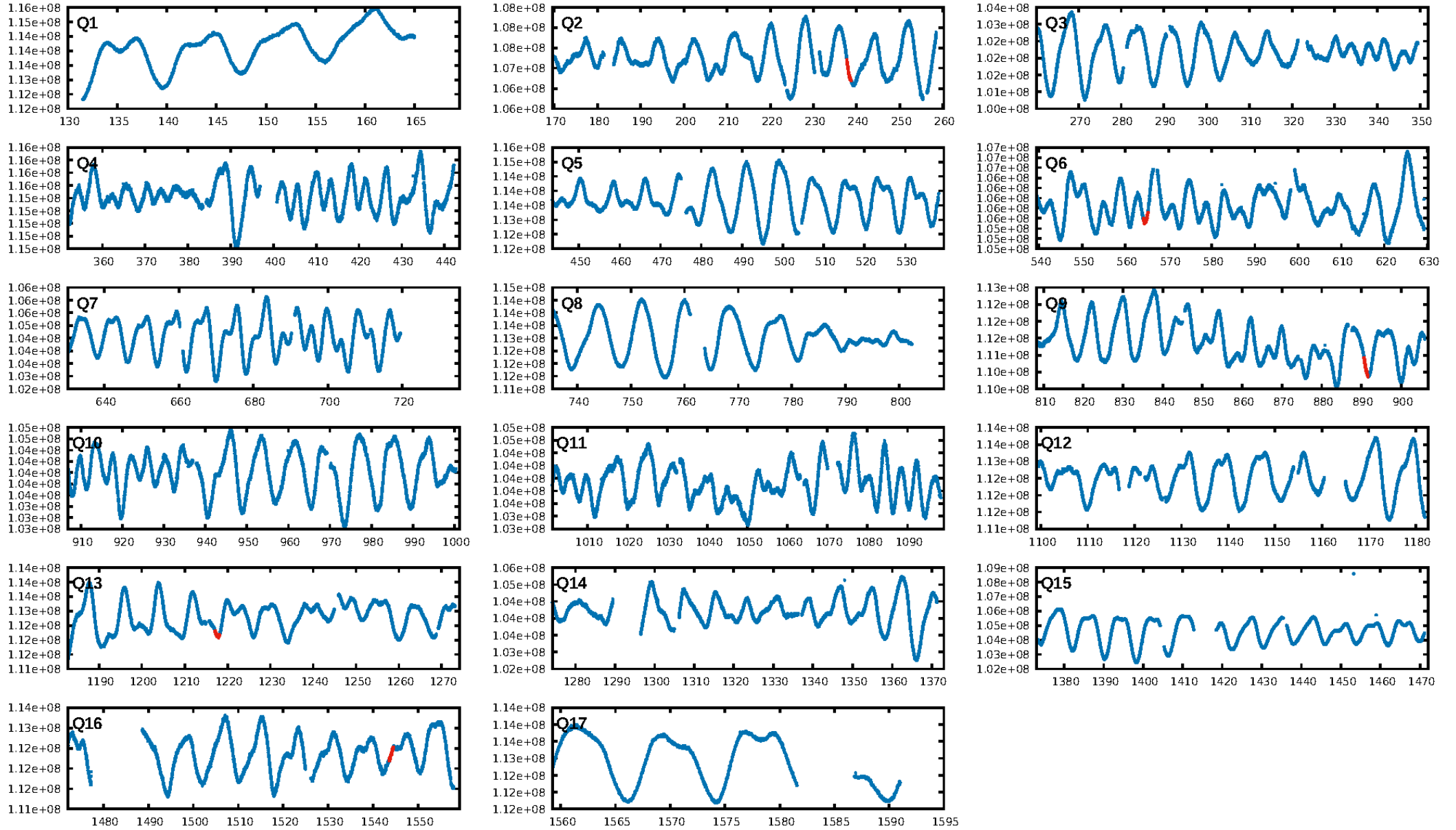
ShortPeriod-sig: 100.0% [100.07σ]
LongPeriod-sig: 100.0% [181.91σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.30e-13
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.9328

Centroid-sig: 1.3%
Centroid-so: 0.567 arcsec [1.89σ]
OotOffset-rm: 0.421 arcsec [3.03σ]
KicOffset-rm: 0.512 arcsec [3.54σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
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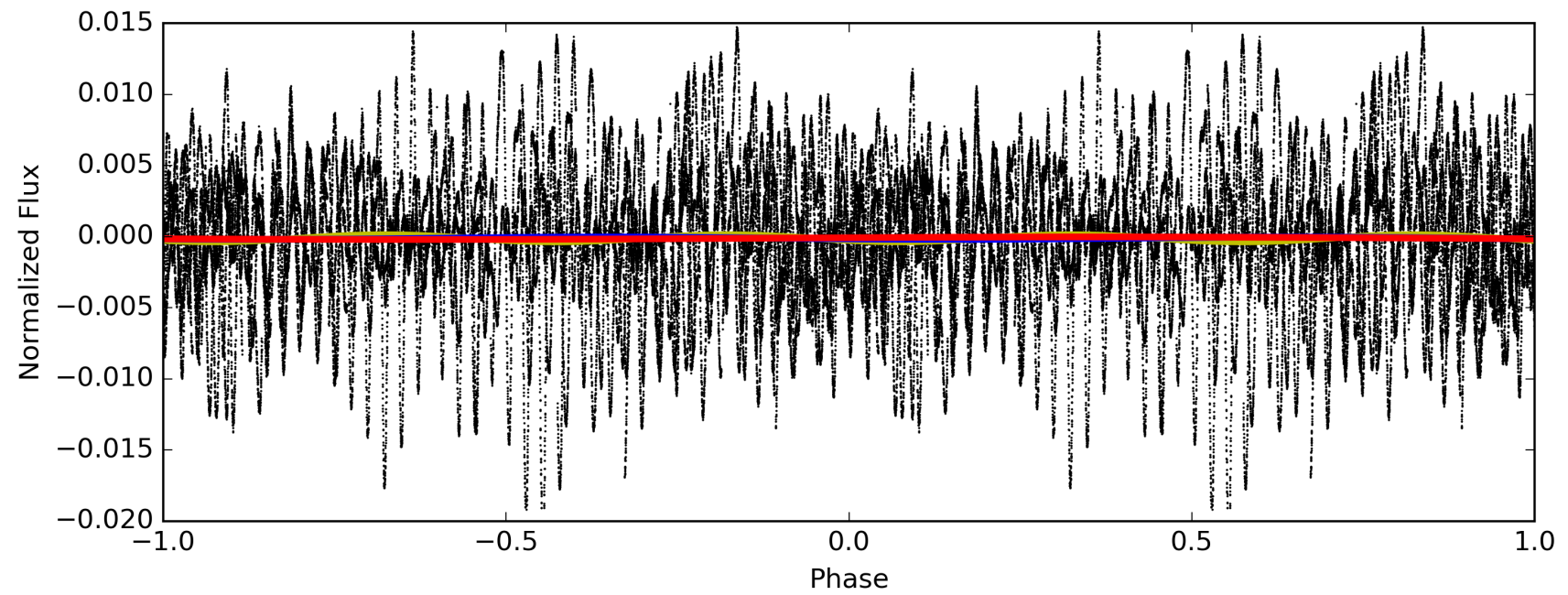
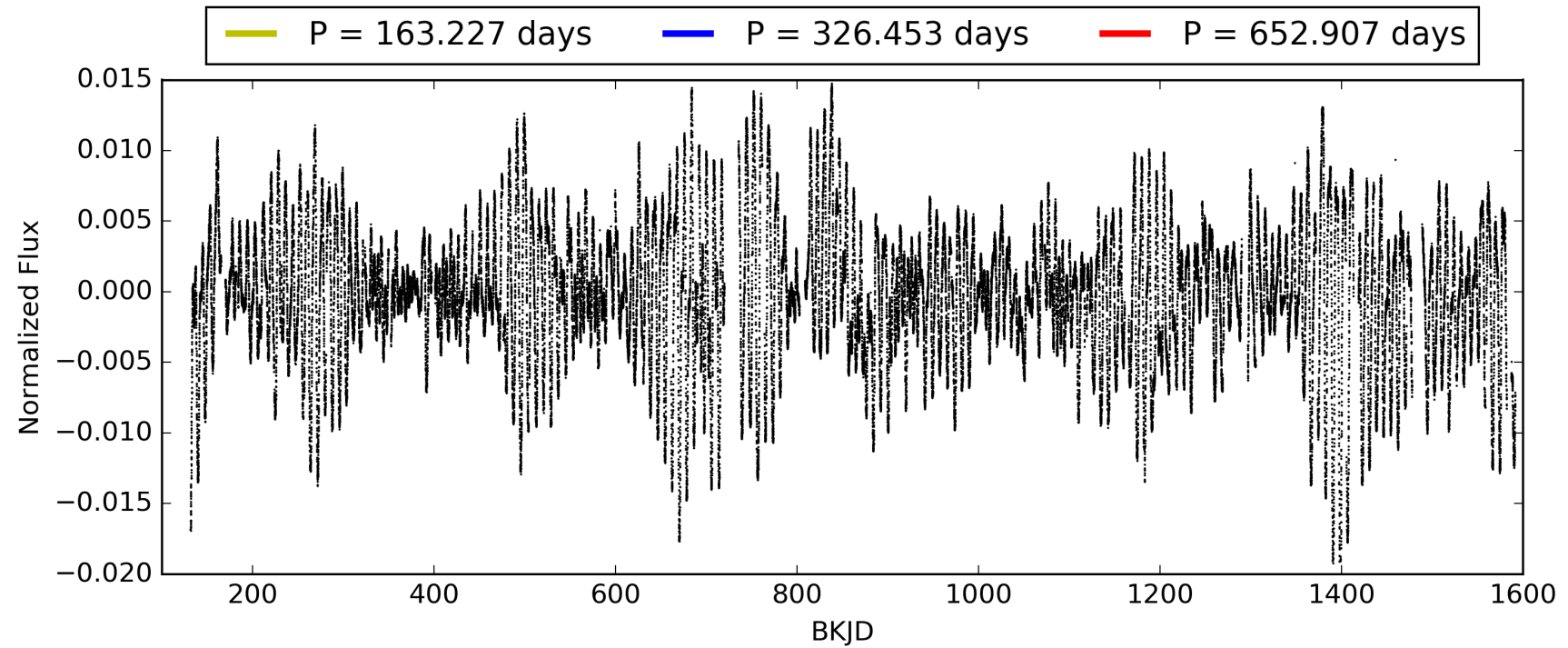
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TCE 004489844-02, PDC Light Curves

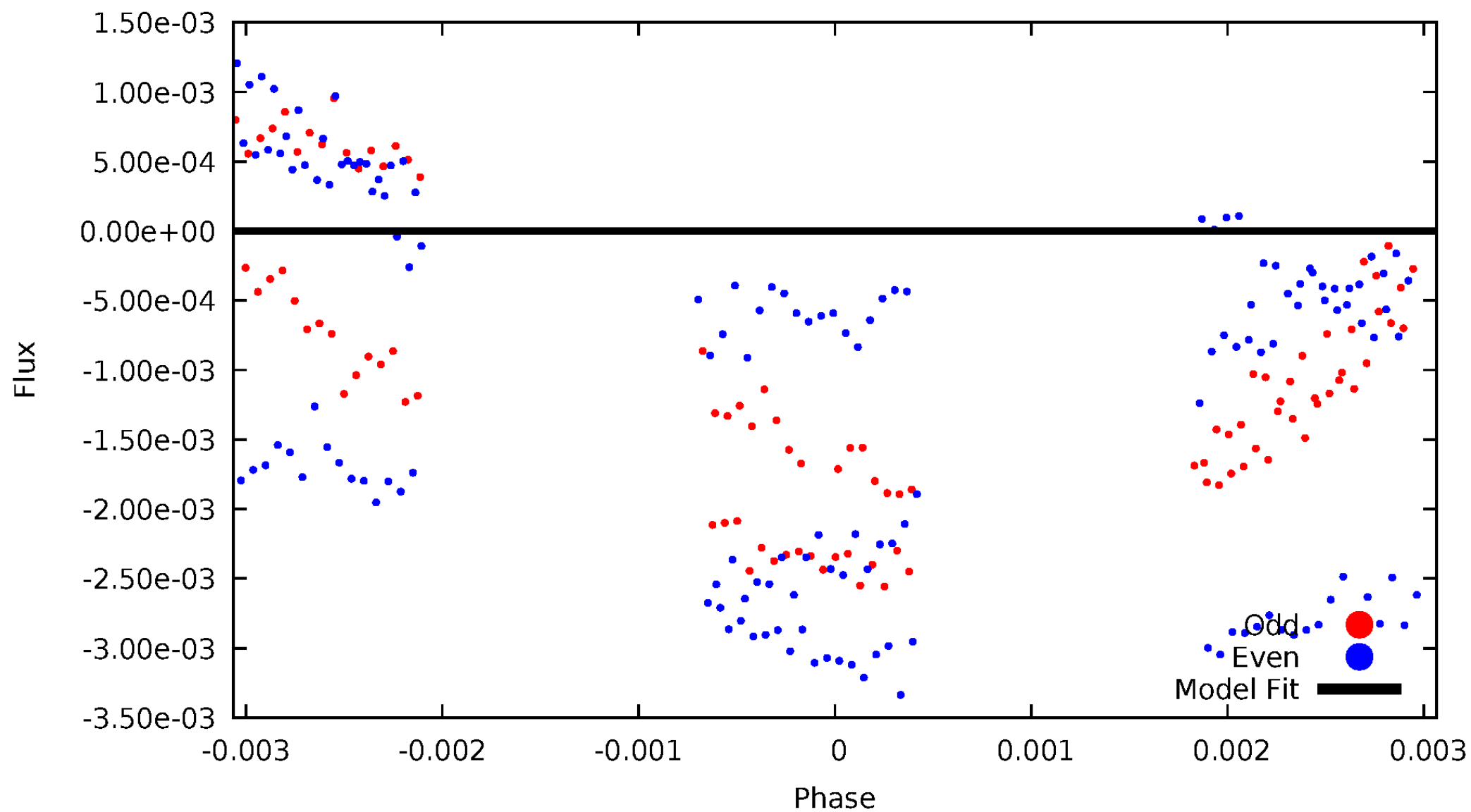


TCE 004489844-02



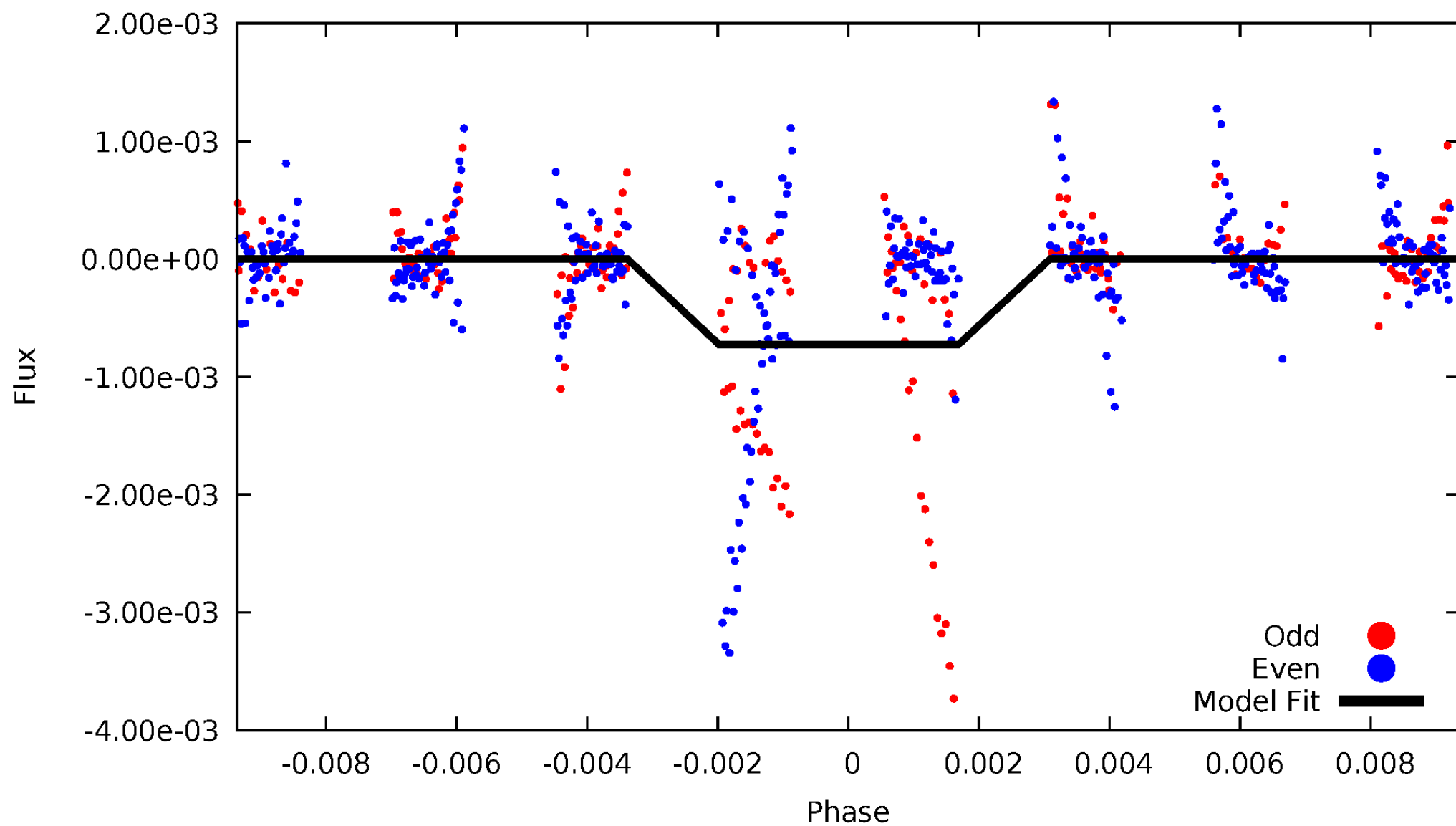
DV Odd/Even

TCE 004489844-02



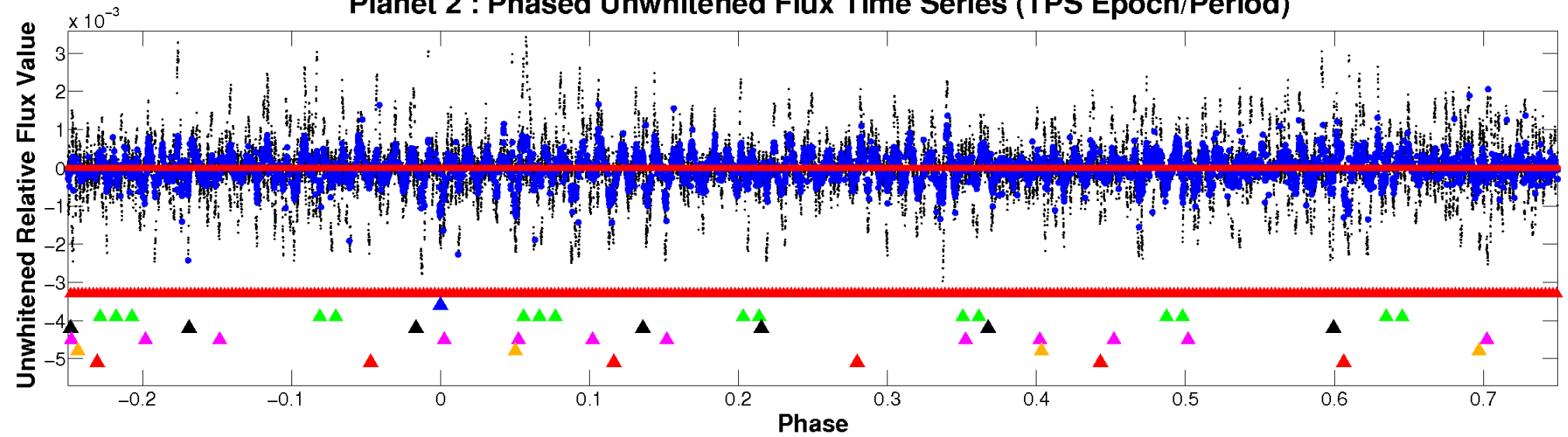
ALT Odd/Even

TCE 004489844-02



Non-Whitened Vs. Whitened Light Curve

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

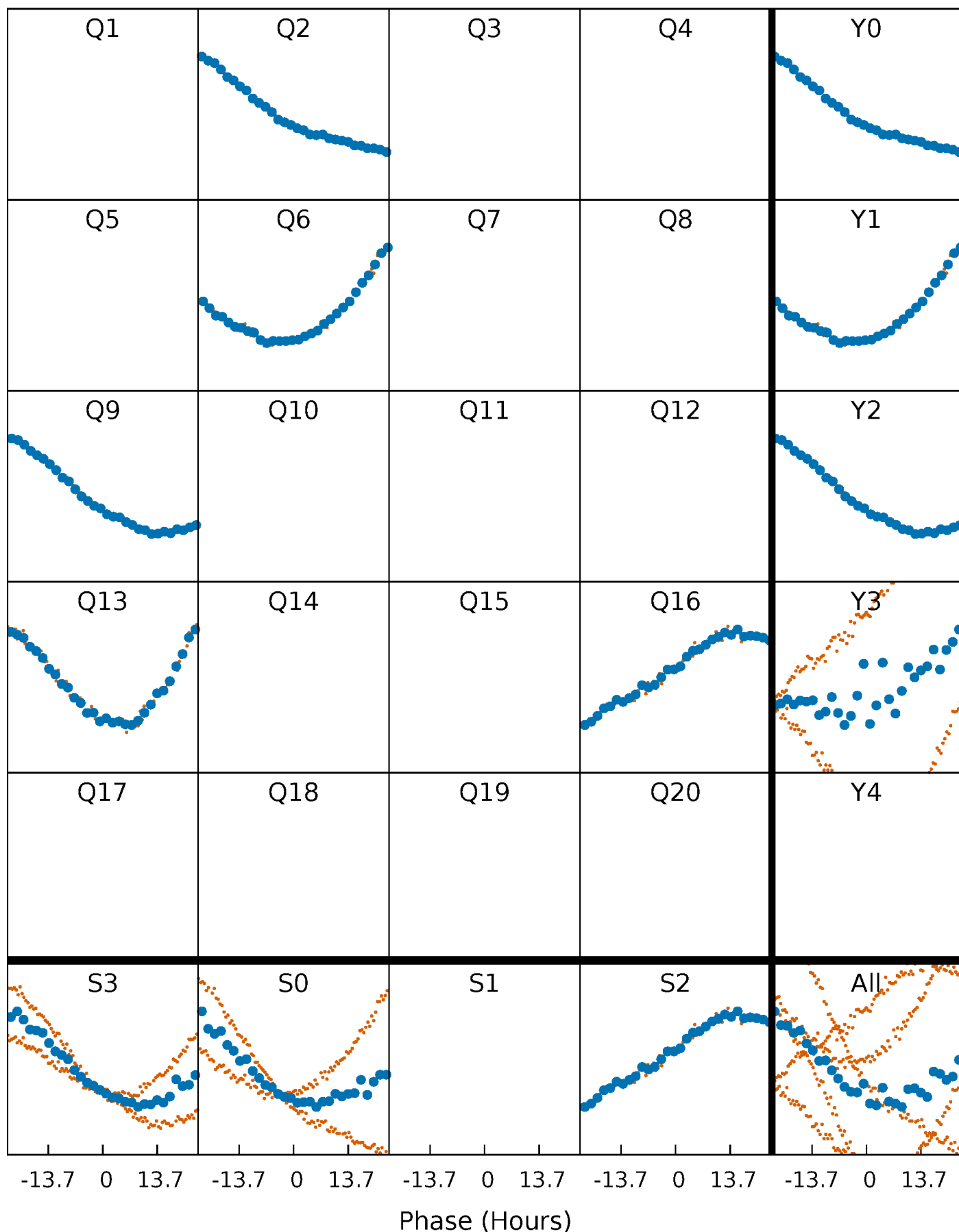


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



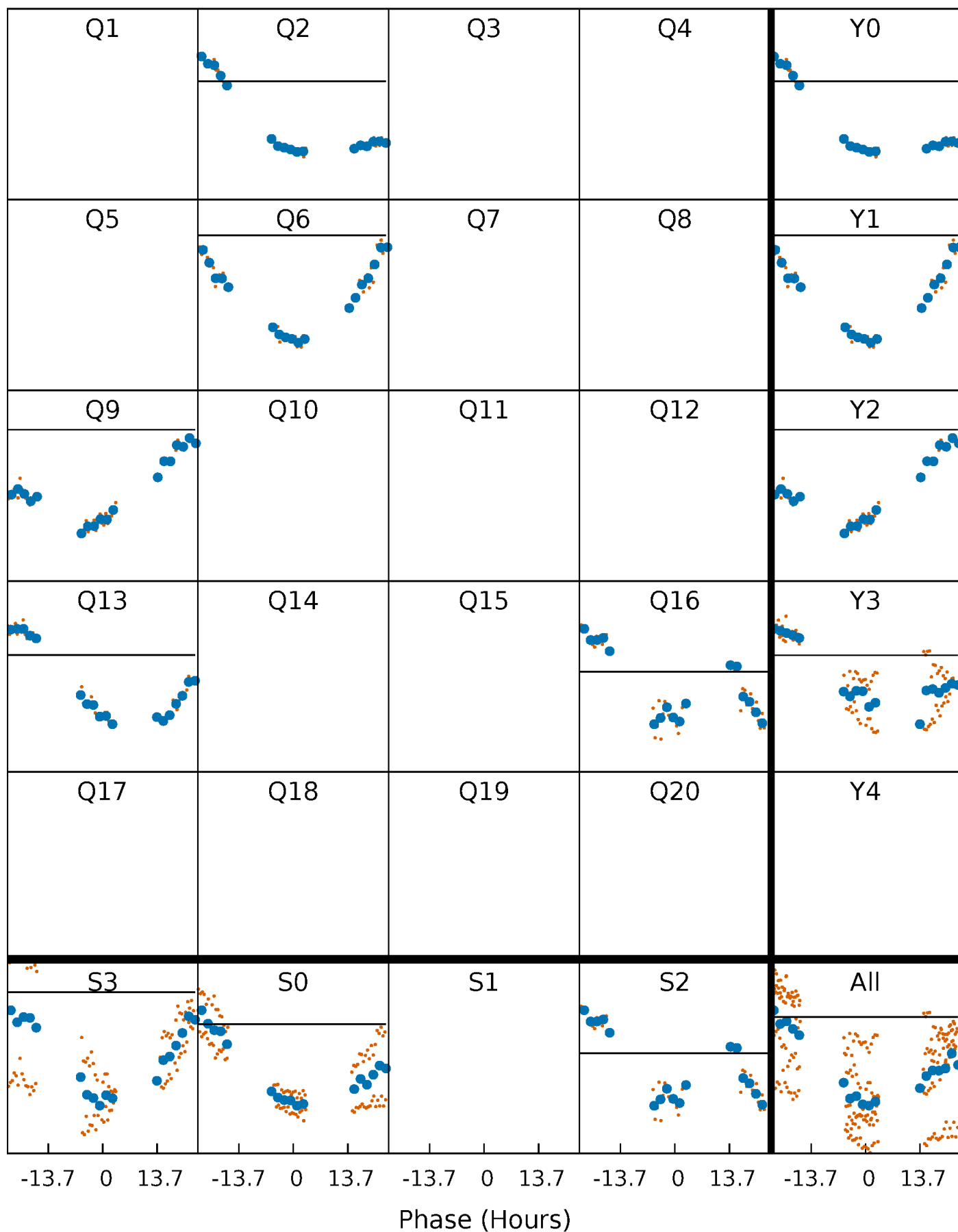
PDC Quarter-Phased Transit Curves

TCE 004489844-02 P=326.453366 Days $T_0=238.252506$ (BKJD)



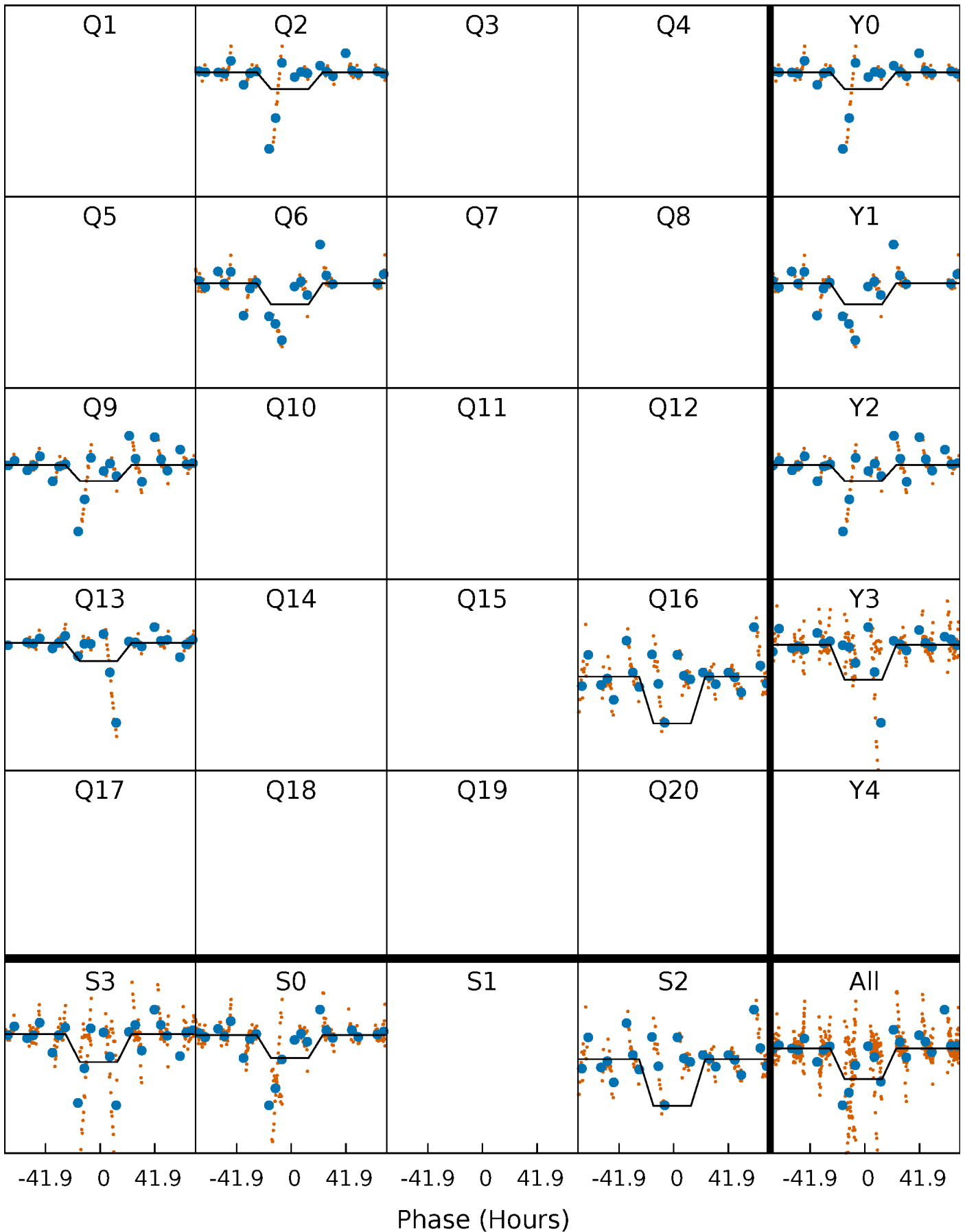
DV Quarter-Phased Transit Curves

TCE 004489844-02 $P=326.453366$ Days $T_0=238.252506$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

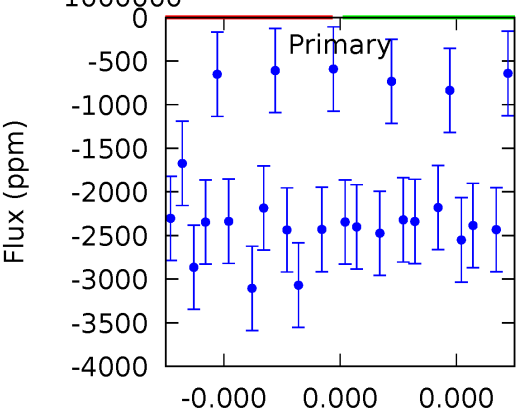
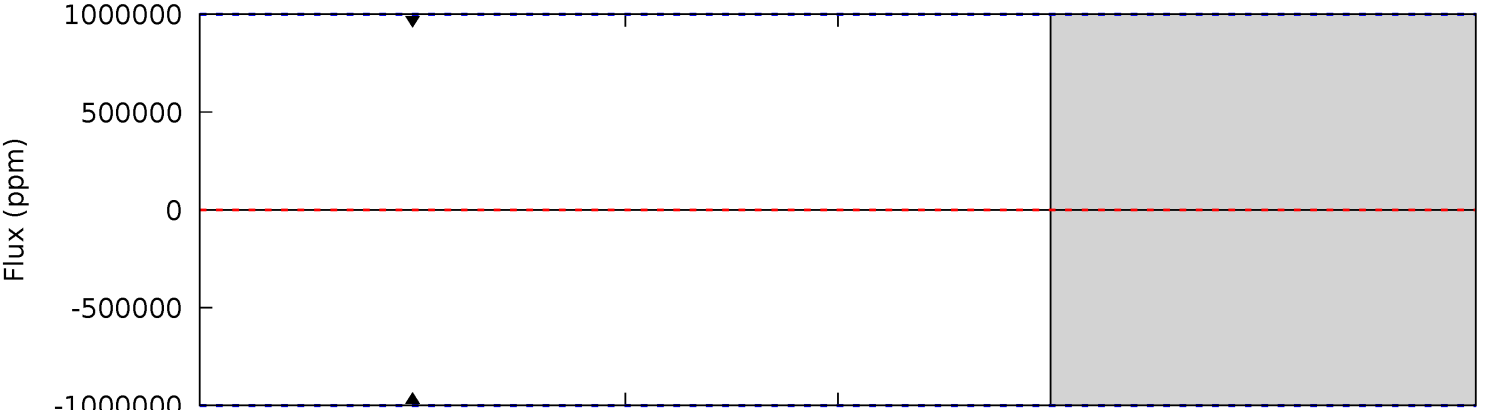
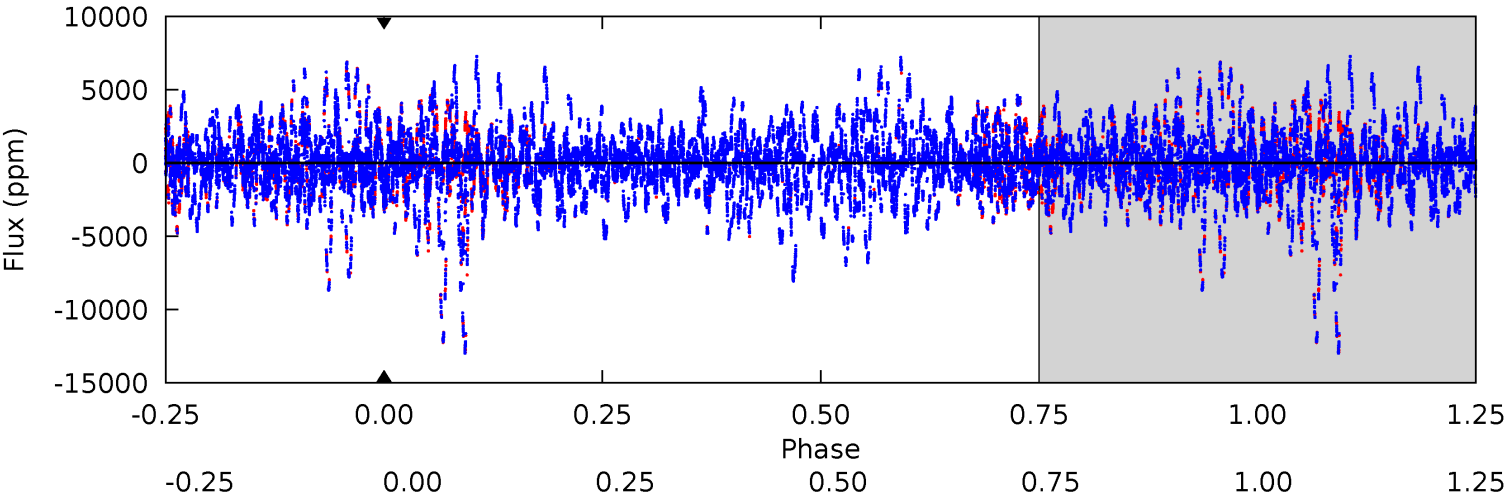
TCE 004489844-02 P=326.453366 Days $T_0=238.670464$ (BKJD)



DV Model-Shift Uniqueness Test

004489844-02, P = 326.453366 Days, E = 238.252506 Days

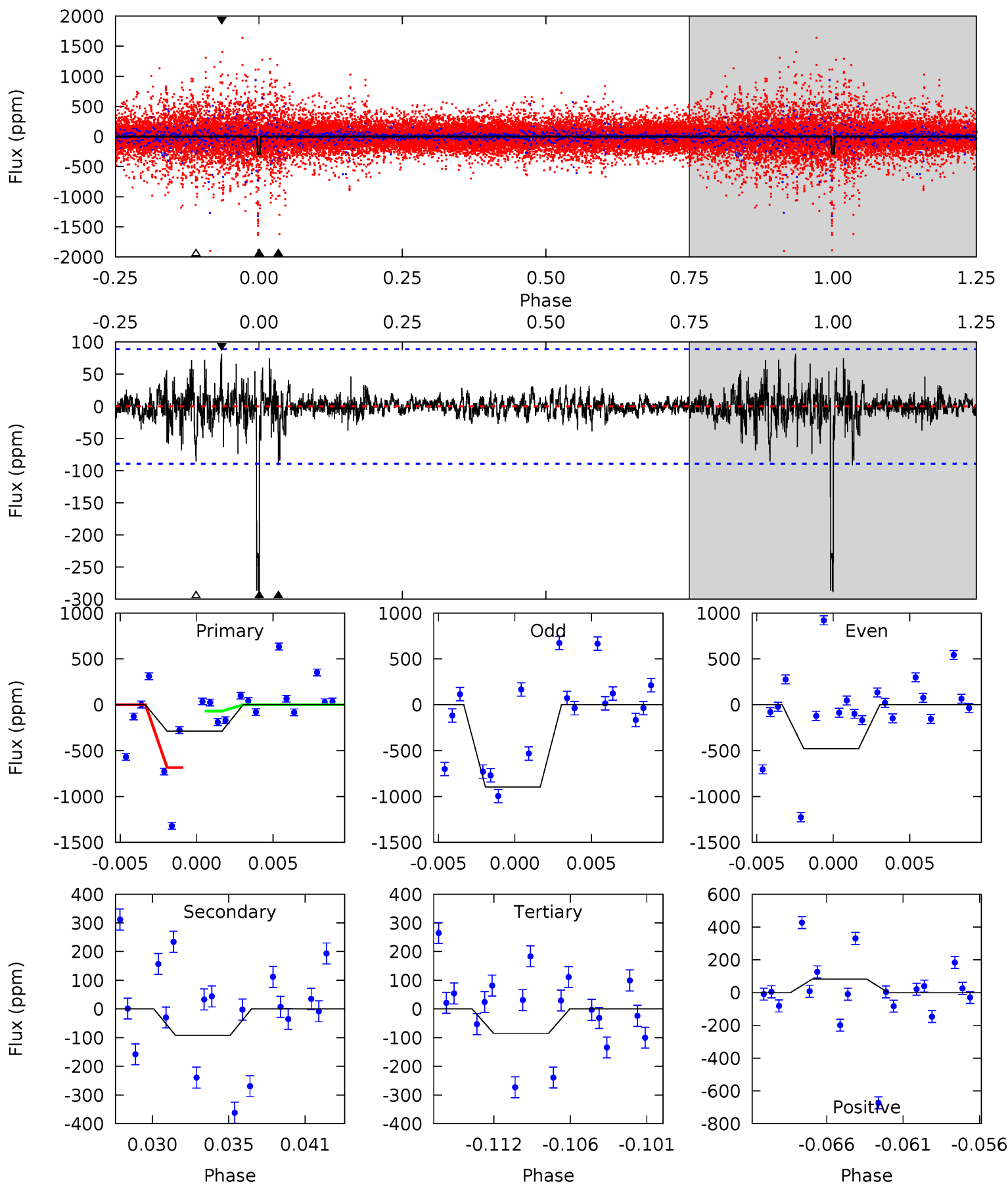
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004489844-02, P = 326.453366 Days, E = 238.670464 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.7	5.30	4.94	4.72	5.16	2.80	0.99	11.8	12.0	0.36	0.58	12.3	0.96	0.22	0



Stellar Parameters For KIC 004489844

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5709^{+154}_{-154}	$4.409^{+0.144}_{-0.176}$	$-0.340^{+0.300}_{-0.300}$	$0.938^{+0.253}_{-0.156}$	$0.824^{+0.116}_{-0.062}$	$1.405^{+0.844}_{-0.670}$
	+3%/-3%	+3%/-4%	+88%/-88%	+27%/-17%	+14%/-8%	+60%/-48%
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 004489844-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$7.71^{+8.10}_{-5.10}$	367^{+23}_{-20}	4659^{+18403}_{-22813}	$14716^{+1512583}_{-948412}$
Alt.	-92 ± 17	$8.43^{+8.72}_{-5.83}$	366^{+26}_{-20}	2743^{+1077}_{-453}	547^{+4719}_{-418}

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

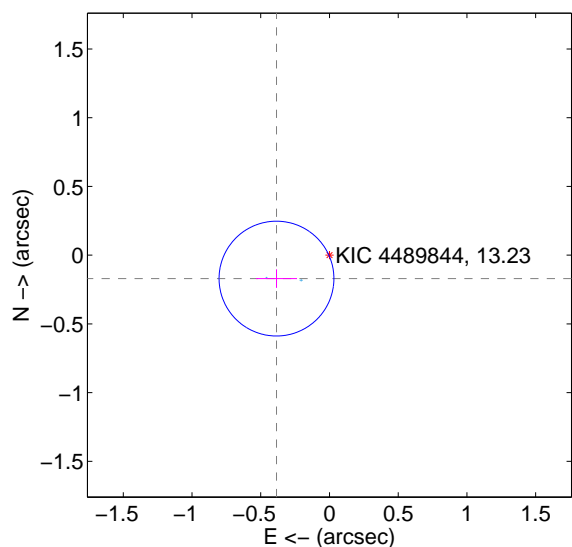
Supplemental centroid analysis for 004489844-02. Kepler magnitude: 13.23. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

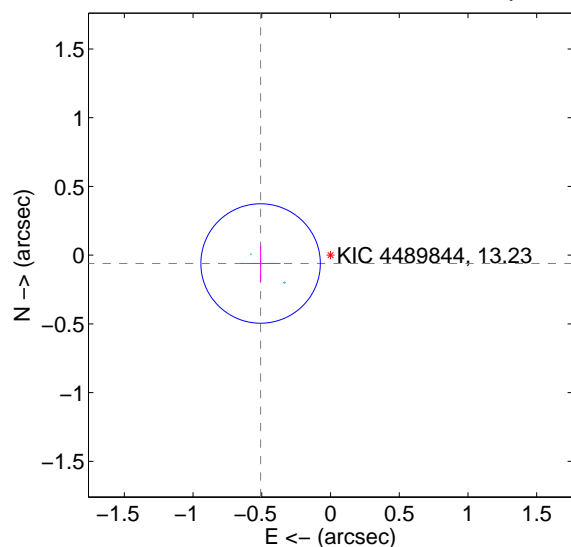
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.421 ± 0.139	3.03	0.385 ± 0.149	-0.170 ± 0.067
PRF-fit source offset from KIC position	0.512 ± 0.145	3.54	0.509 ± 0.145	-0.060 ± 0.132
photometric centroid source offset	0.57 ± 0.30	1.89	0.33 ± 0.29	0.46 ± 0.30

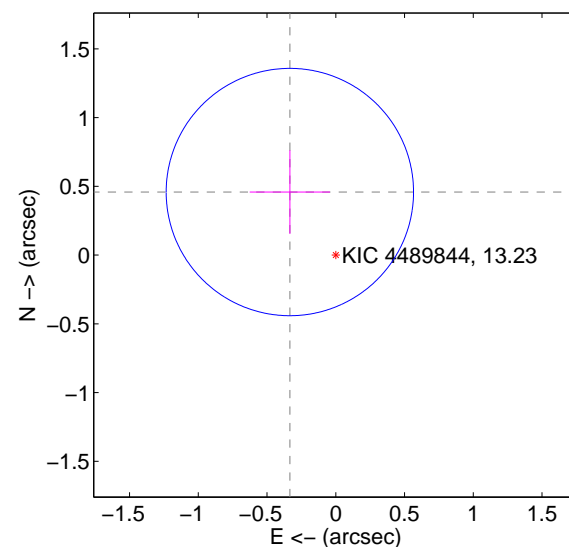
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

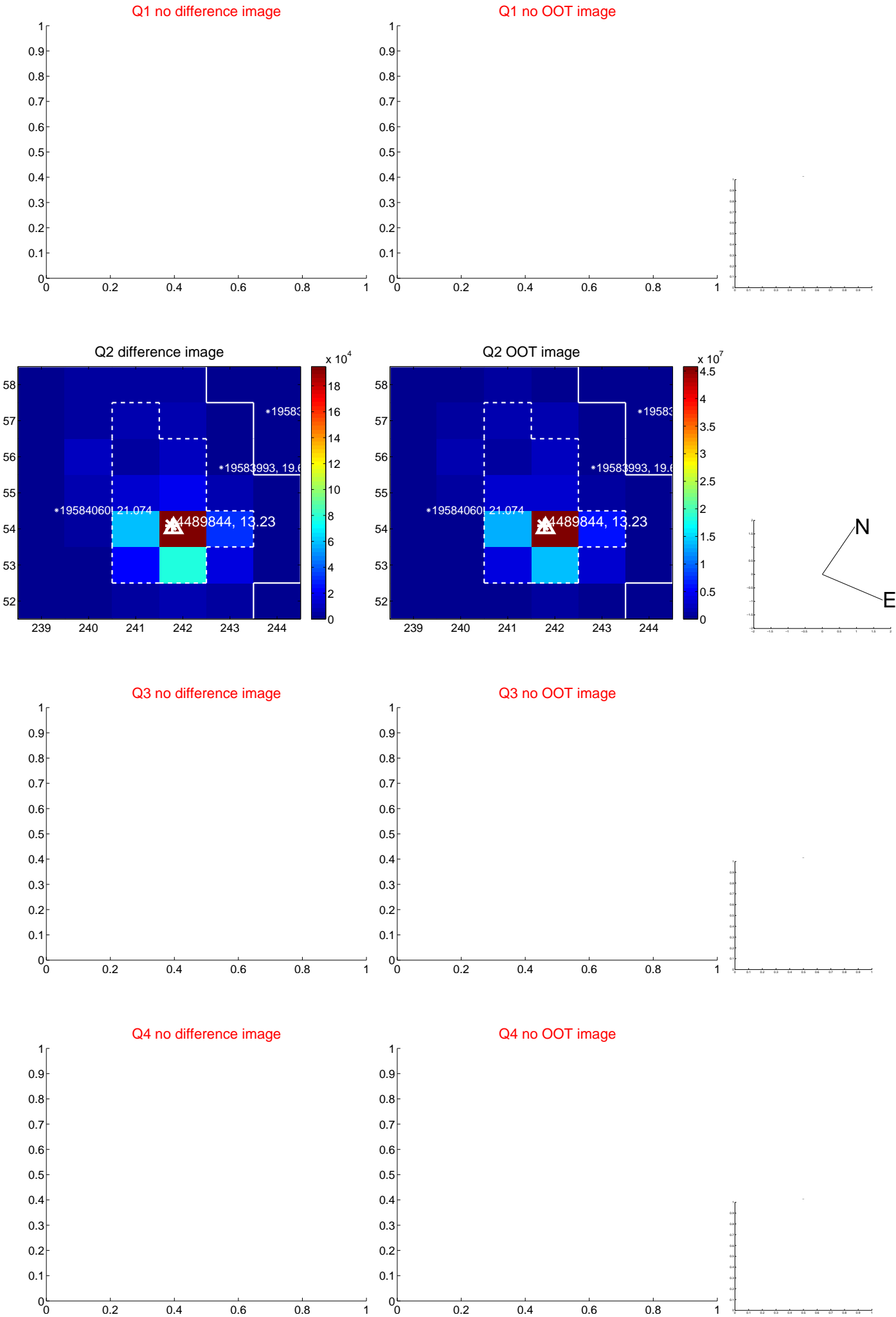


offset from photometric centroids



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

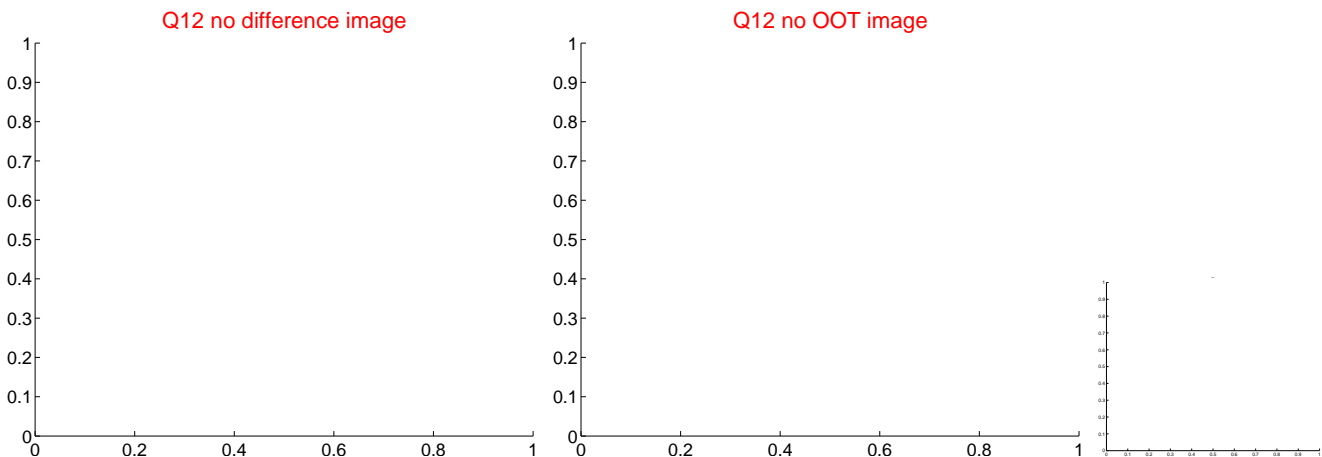
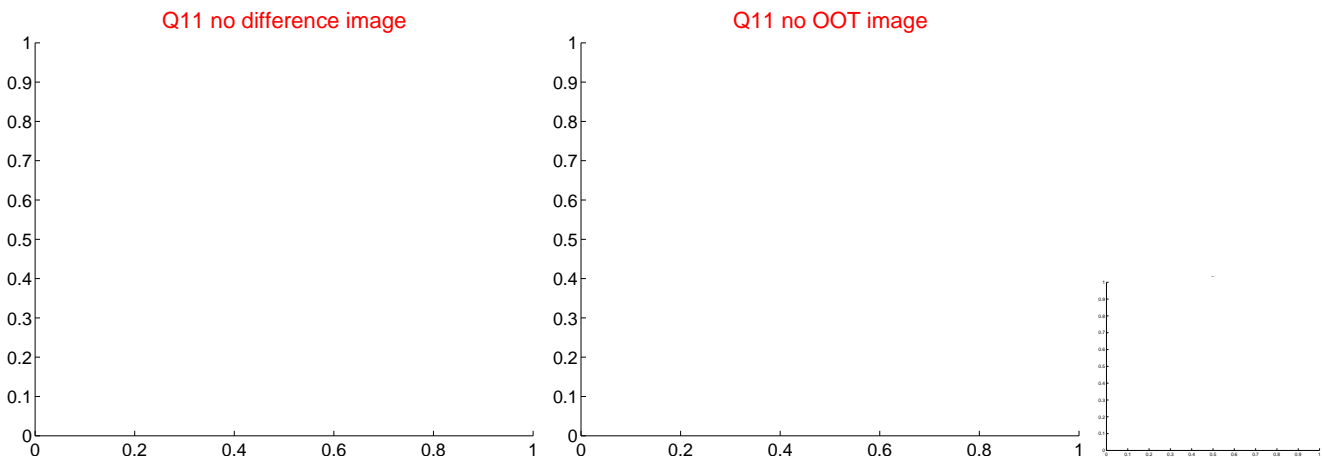
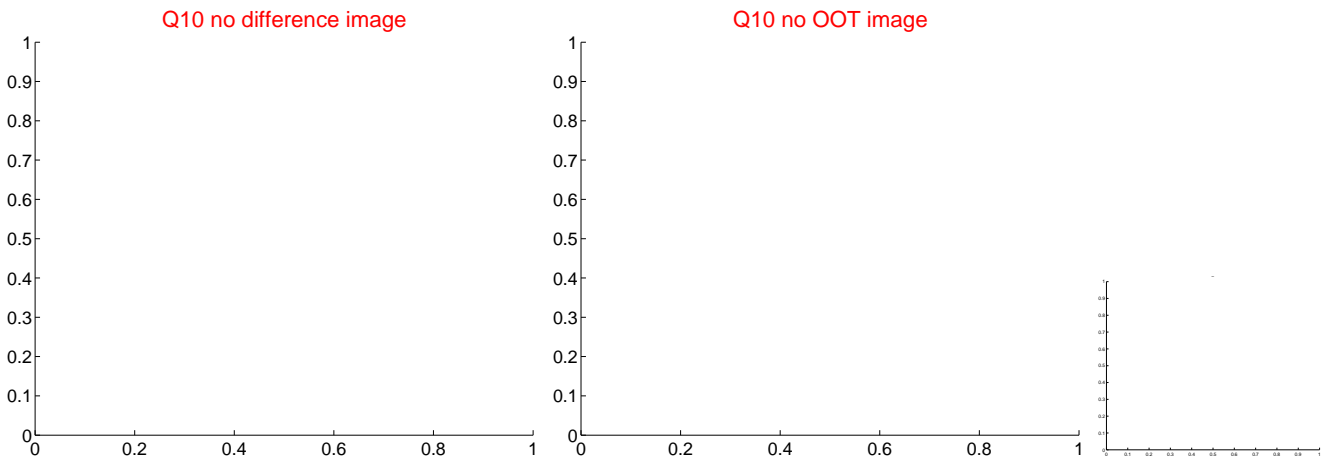
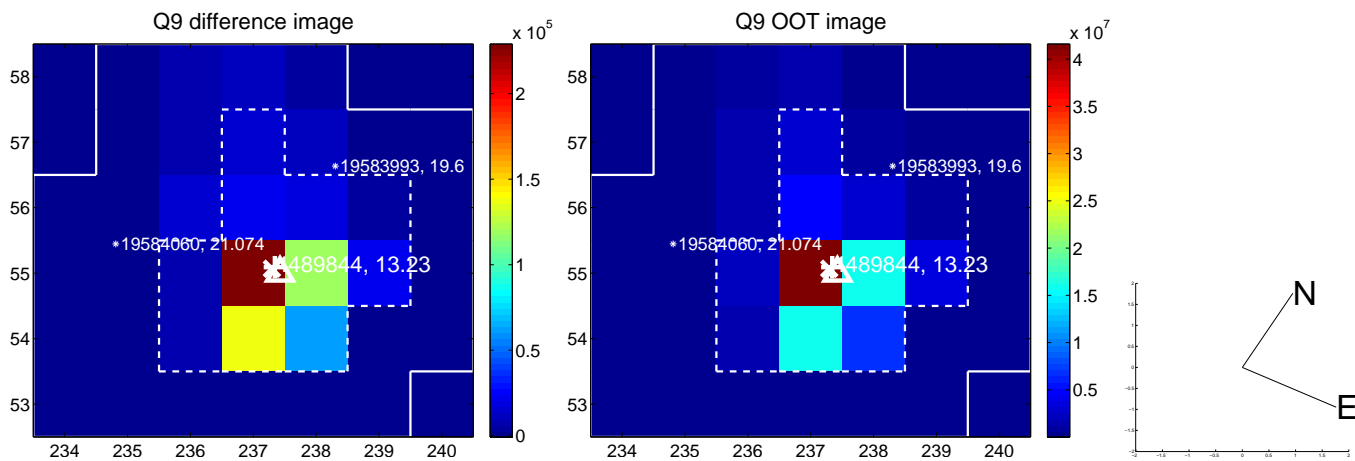
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



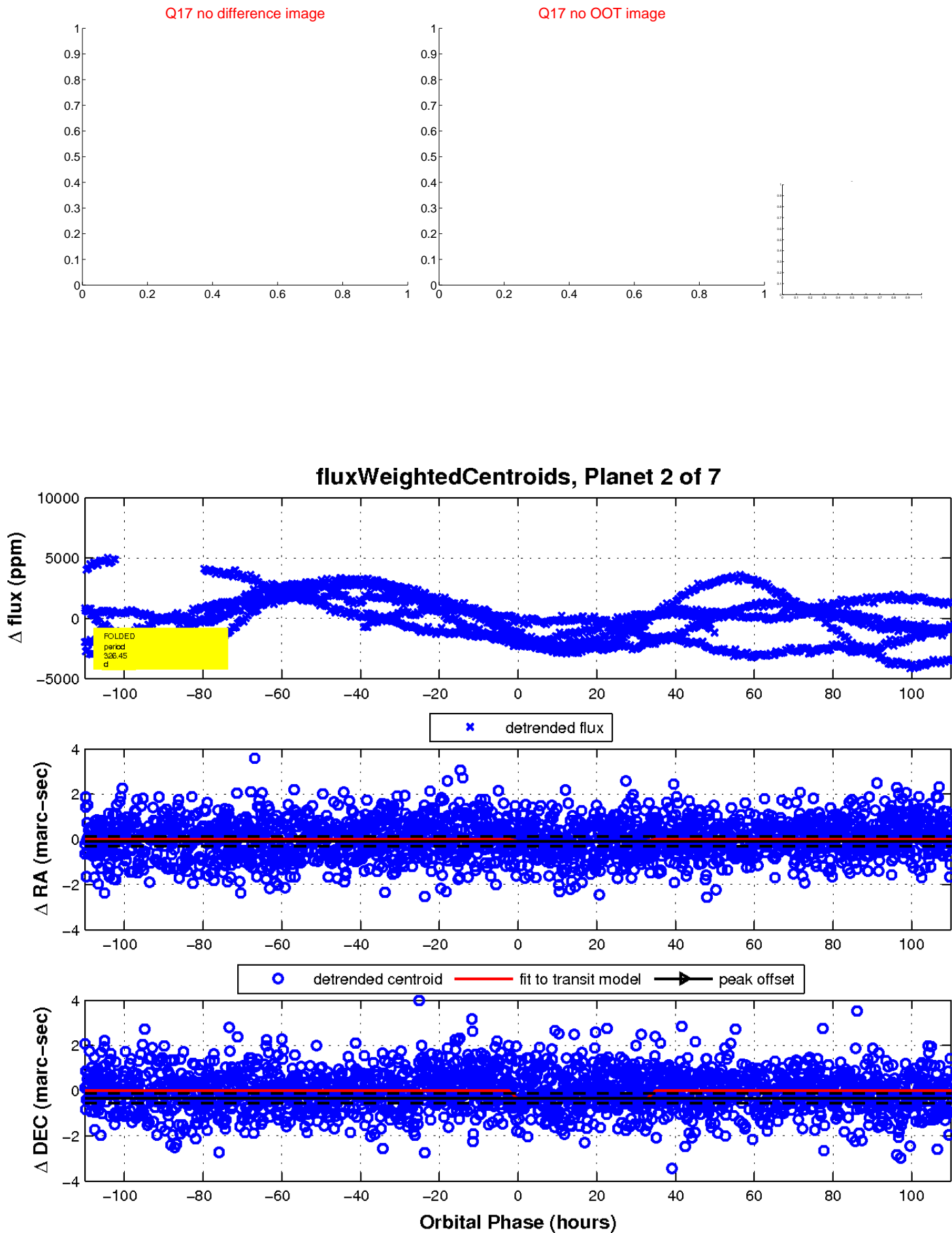
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

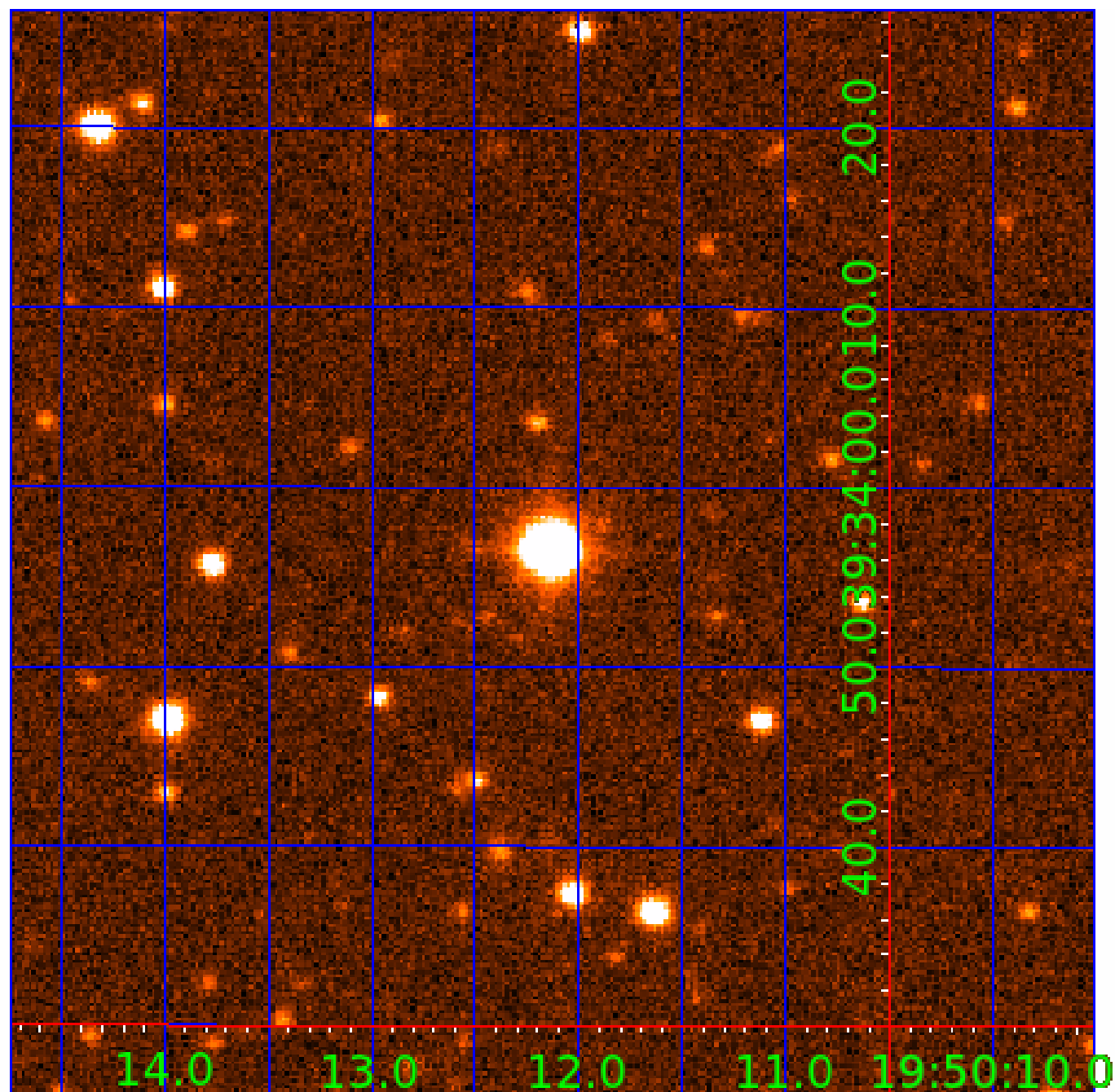


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004489844

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})
004489844-01	OBS	6421.01	0.822291	131.732038	28.5	3.538	11.3	11.1	0.94	5709	0.59	3230.24
004489844-02	OBS	No	326.453366	238.252506	473.8	12.000	17.7	-1.0	0.94	5709	2.03	1.11
004489844-03	OBS	No	92.773788	170.666306	1504.7	47.708	17.7	8.8	0.94	5709	4.62	5.92
004489844-04	OBS	No	201.064179	282.605053	418.3	17.182	16.1	4.6	0.94	5709	1.92	2.11
004489844-05	OBS	No	114.235574	239.089238	306.8	4.261	15.0	4.9	0.94	5709	1.92	4.49
004489844-06	OBS	No	441.742687	139.379888	589.7	9.347	12.4	6.1	0.94	5709	2.33	0.74
004489844-07	OBS	No	273.142187	163.045997	263.7	4.411	13.5	3.6	0.94	5709	1.66	1.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004489844-01	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET—HALO_GHOST
004489844-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
004489844-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004489844-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004489844-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES
004489844-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004489844-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

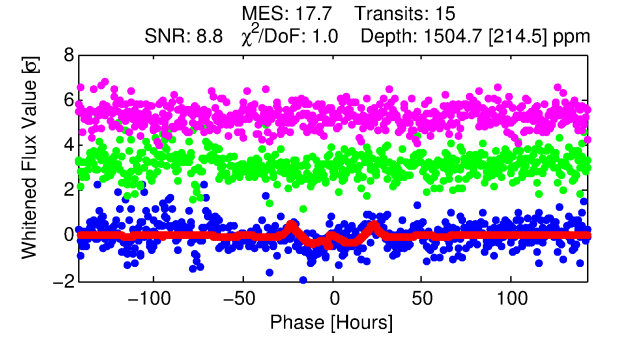
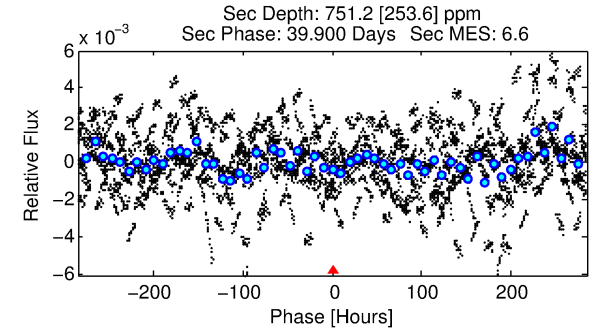
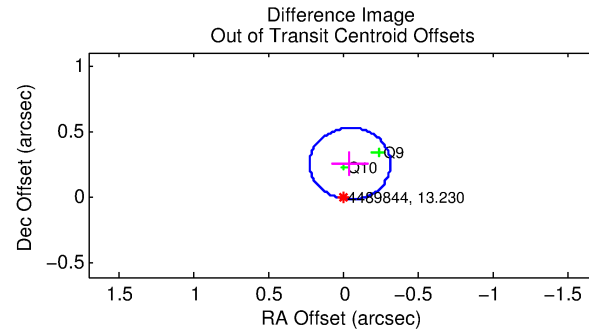
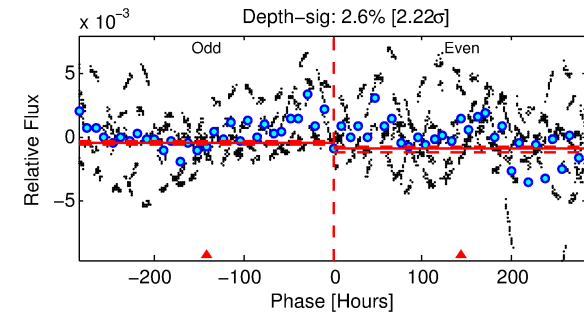
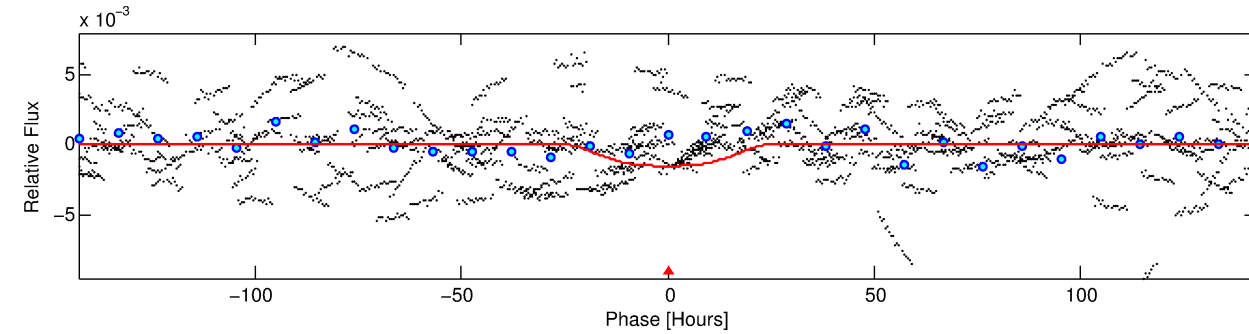
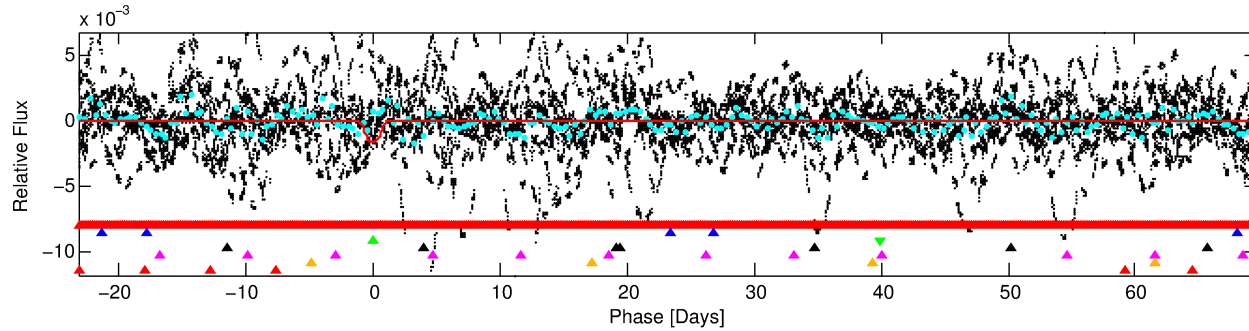
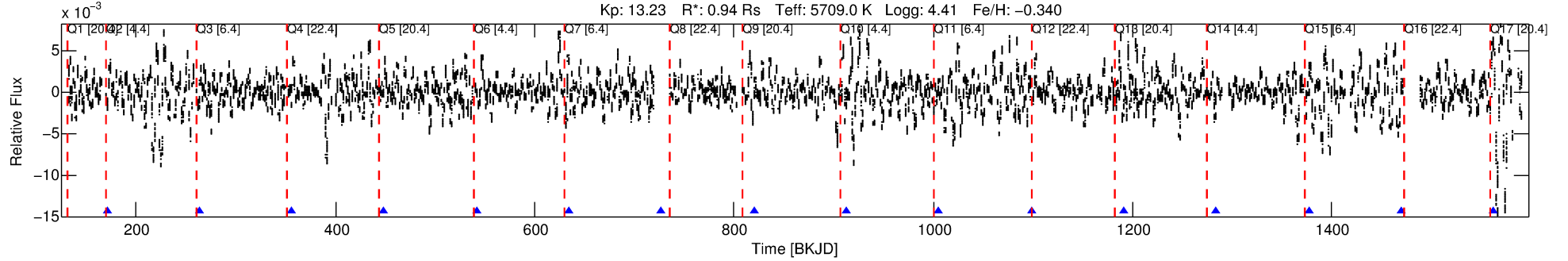
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004489844-03

No Significant Match Found

DV One-Page Summary

KIC: 4489844 Candidate: 3 of 7 Period: 92.774 d
KOI: K06421 Corr: No Ephemeris Match



DV Fit Results:

Period = 92.77379 [0.00488] d
Epoch = 170.6663 [0.0458] BKJD
Rp/R* = 0.0452 [0.0033]
a/R* = 6.57 [0.27]
b = 0.95 [0.01]
Seff = 5.93 [2.03]
Teq = 398 [34] K
Rp = 4.63 [1.29] Re
a = 0.3759 [0.0845] AU
Ag = 2729.84 [1340.35] [2.04σ]
Teffp = 4446 [427] K [9.46σ]

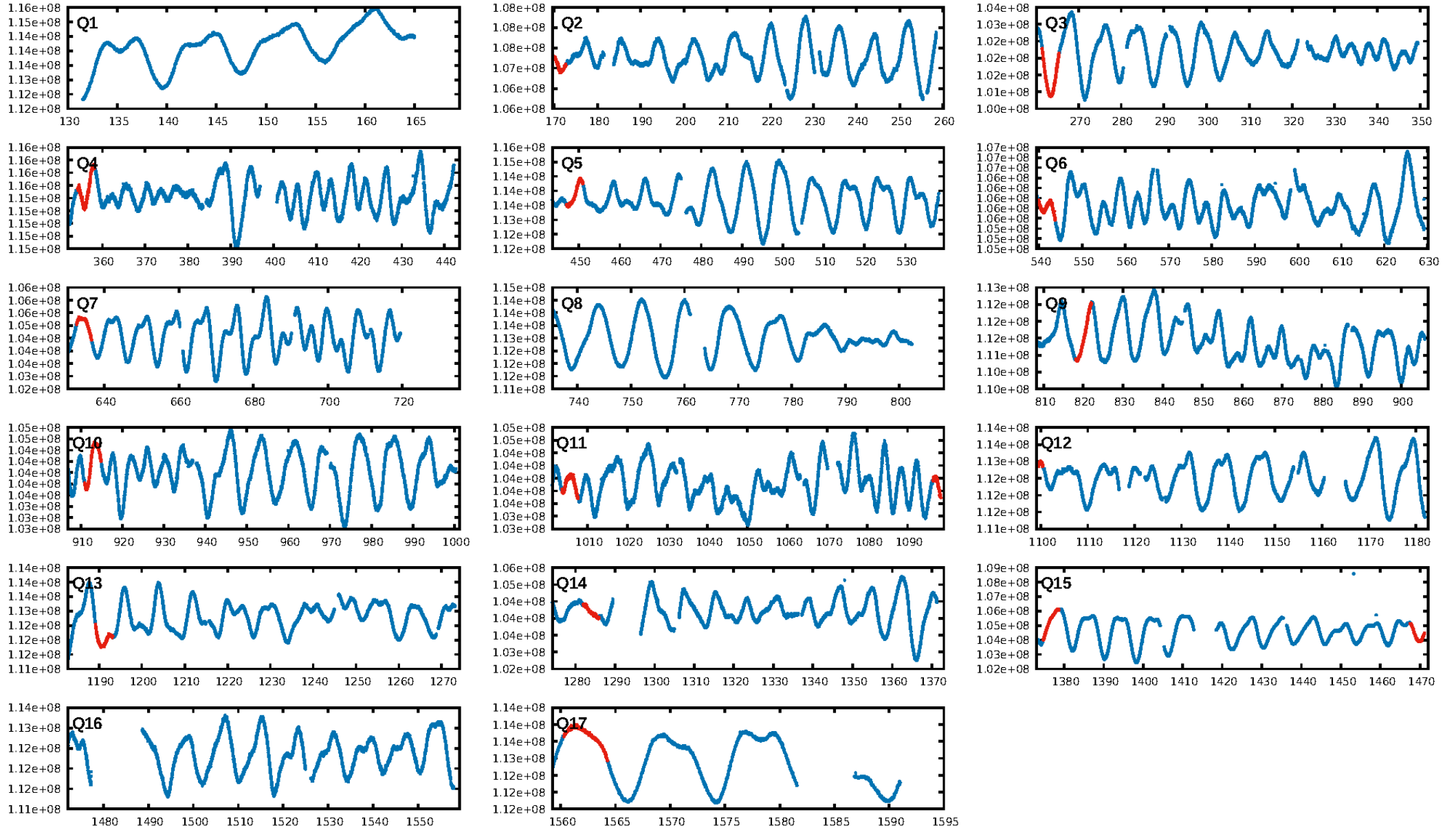
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [46.13σ]
LongPeriod-sig: 100.0% [10.75σ]
ModelChiSquare2-sig: 13.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.36e-23
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: -2.694
Centroid-sig: 18.3%
Centroid-so: 0.179 arcsec [2.10σ]
OotOffset-rm: 0.261 arcsec [2.89σ]
KicOffset-rm: 0.339 arcsec [2.48σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/3]

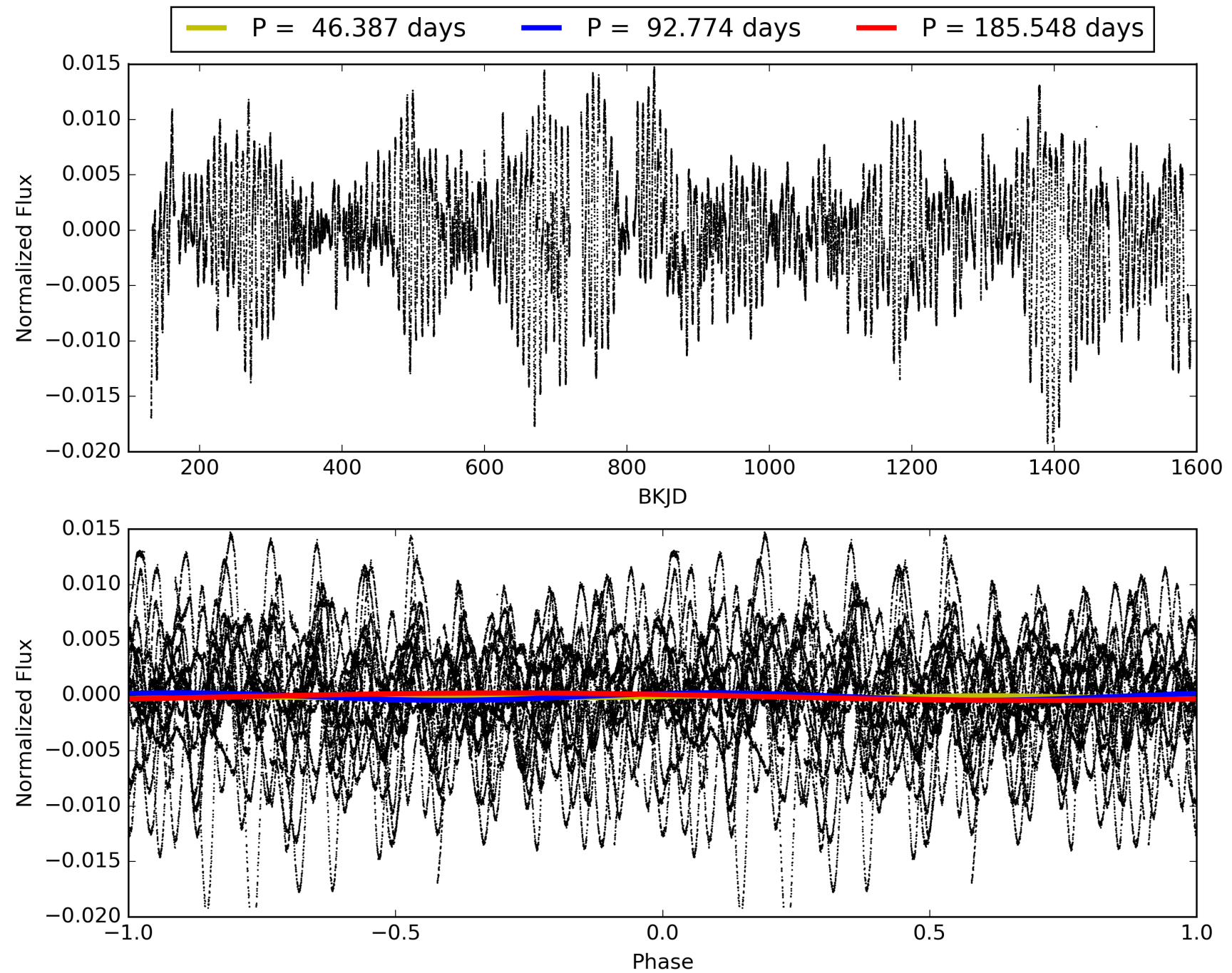
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:37:46 Z

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

TCE 004489844-03, PDC Light Curves

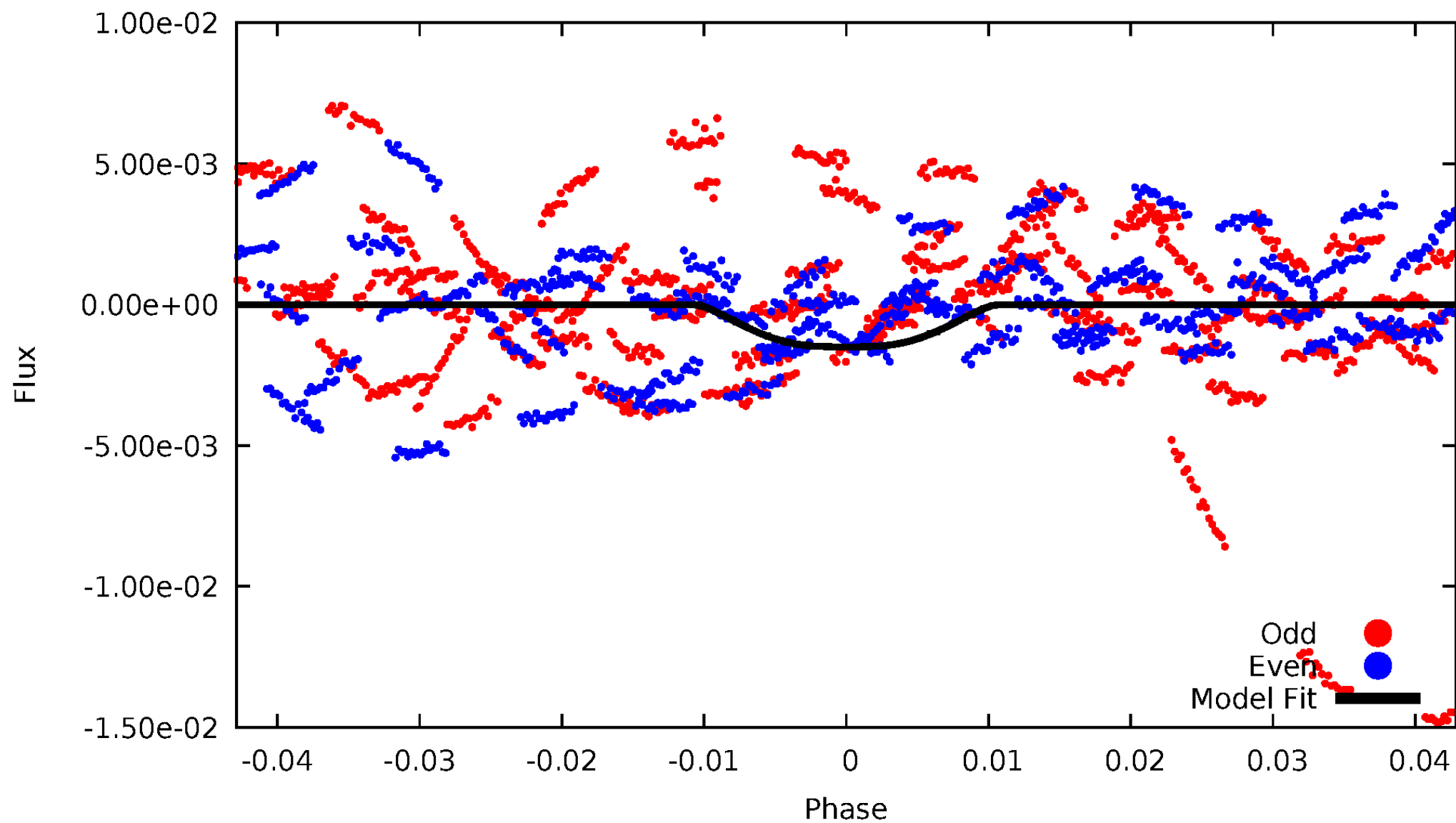


TCE 004489844-03



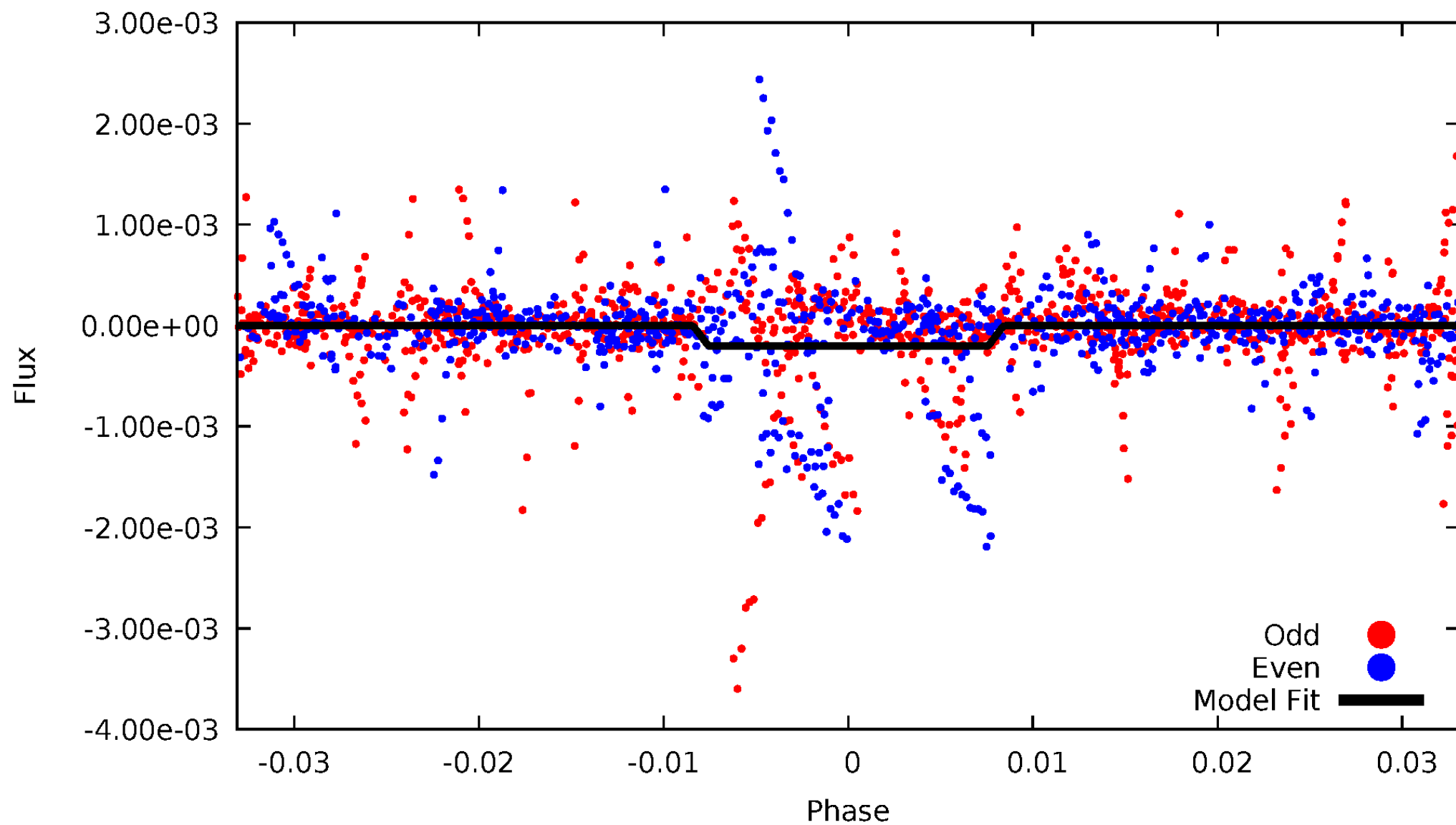
DV Odd/Even

TCE 004489844-03



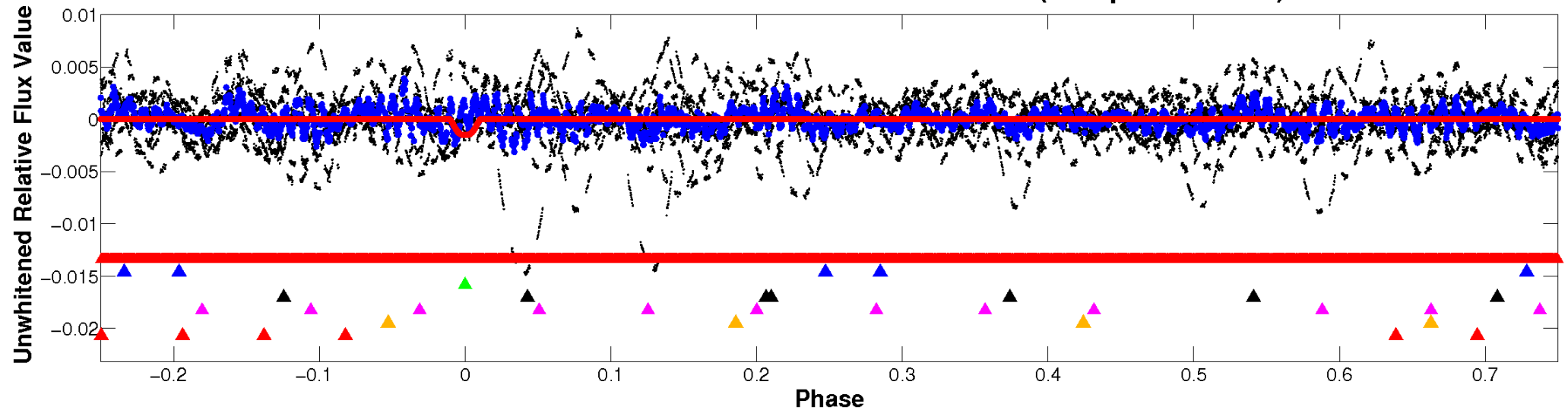
ALT Odd/Even

TCE 004489844-03

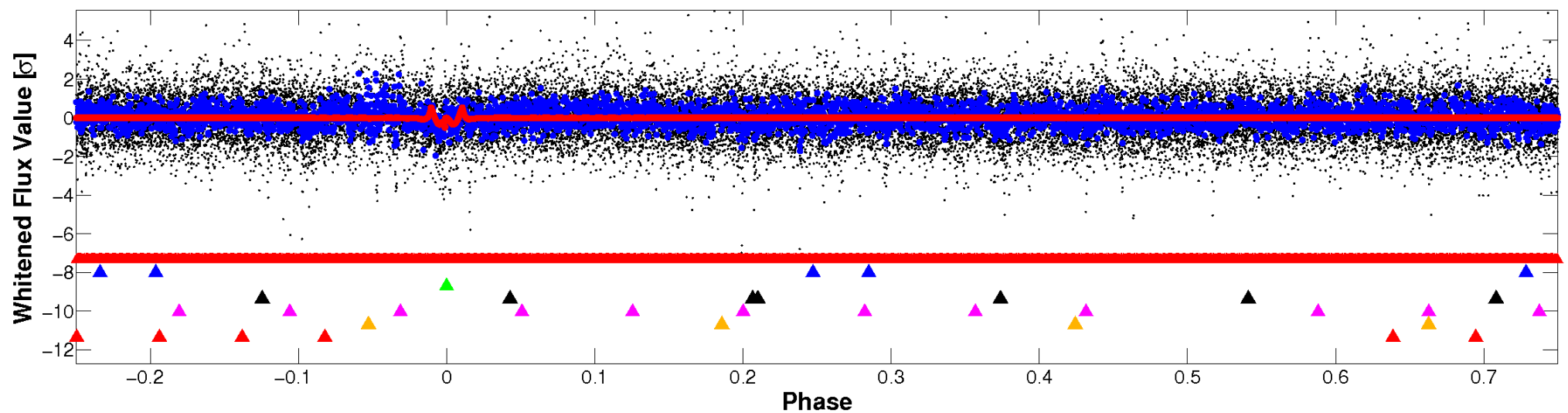


Non-Whitened Vs. Whitened Light Curve

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

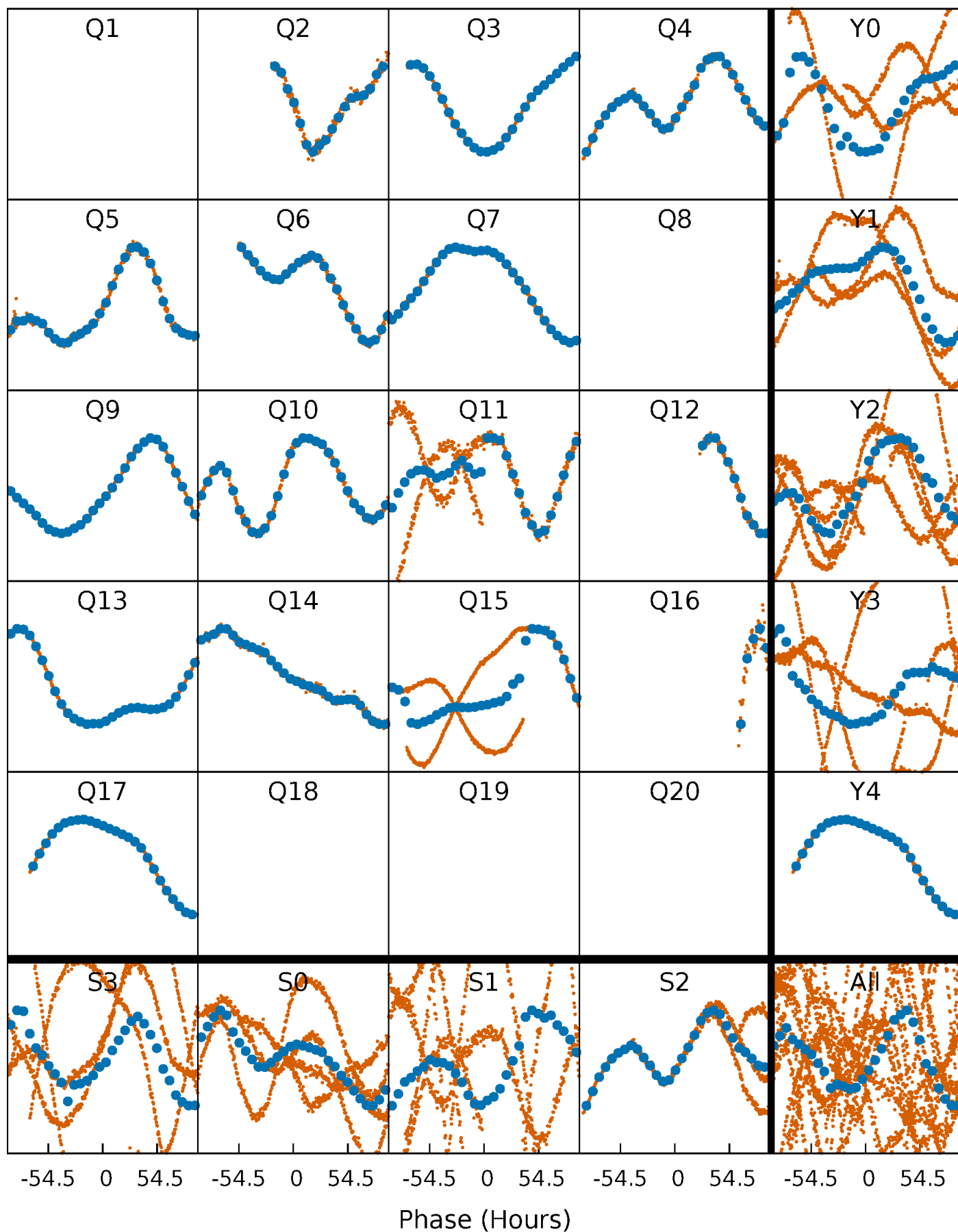


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



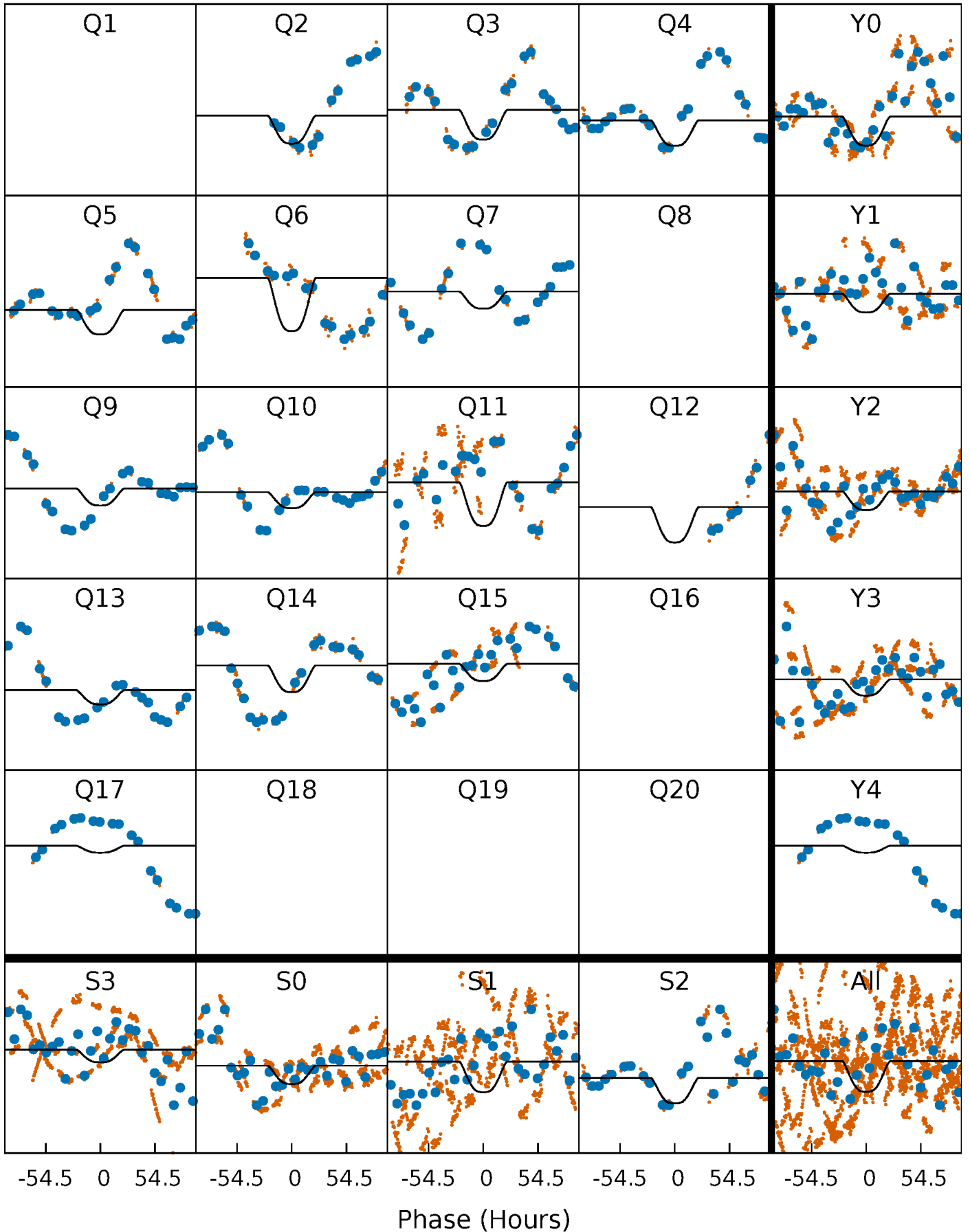
PDC Quarter-Phased Transit Curves

TCE 004489844-03 P= 92.773788 Days $T_0=170.666306$ (BKJD)



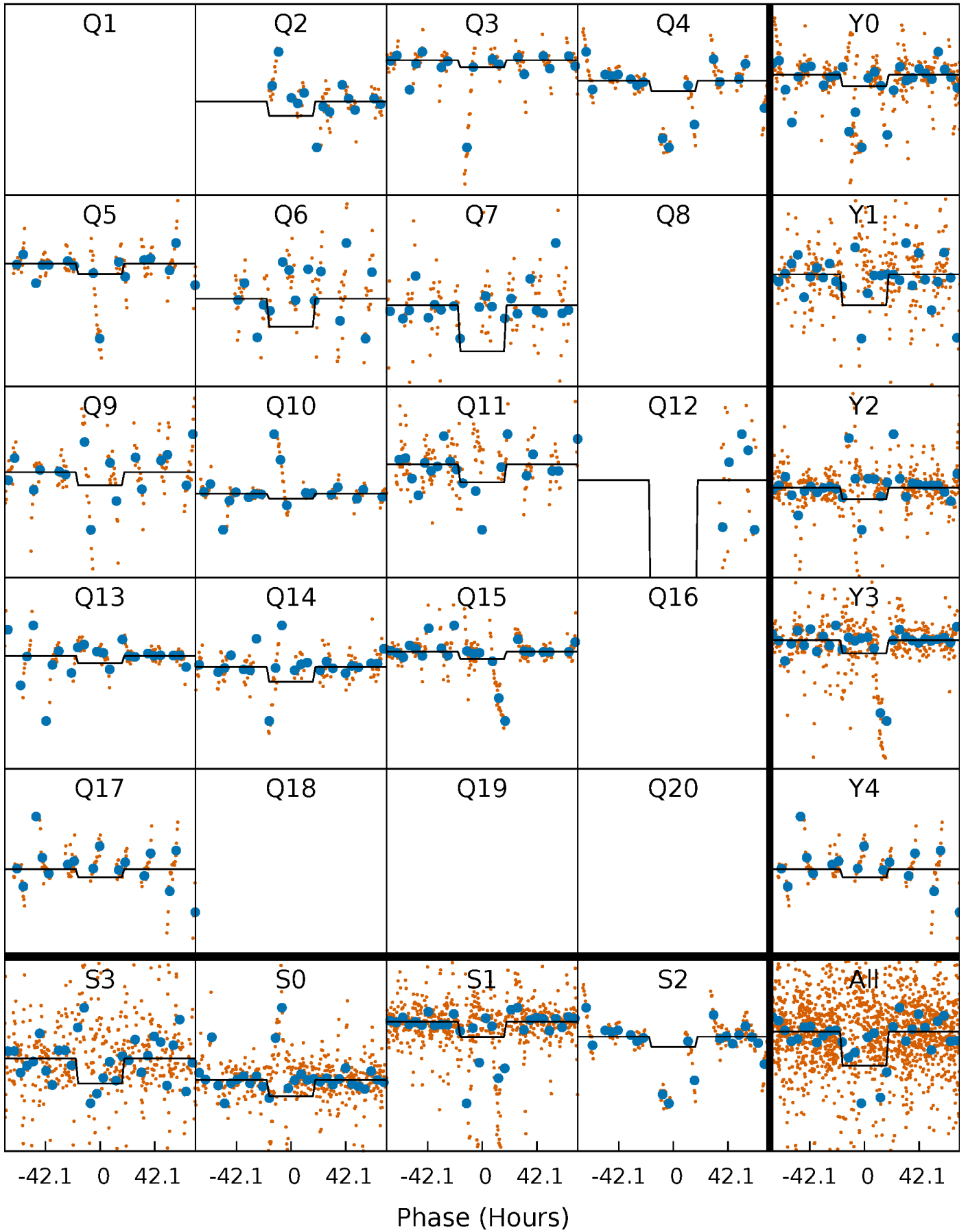
DV Quarter-Phased Transit Curves

TCE 004489844-03 P= 92.773788 Days $T_0=170.666306$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

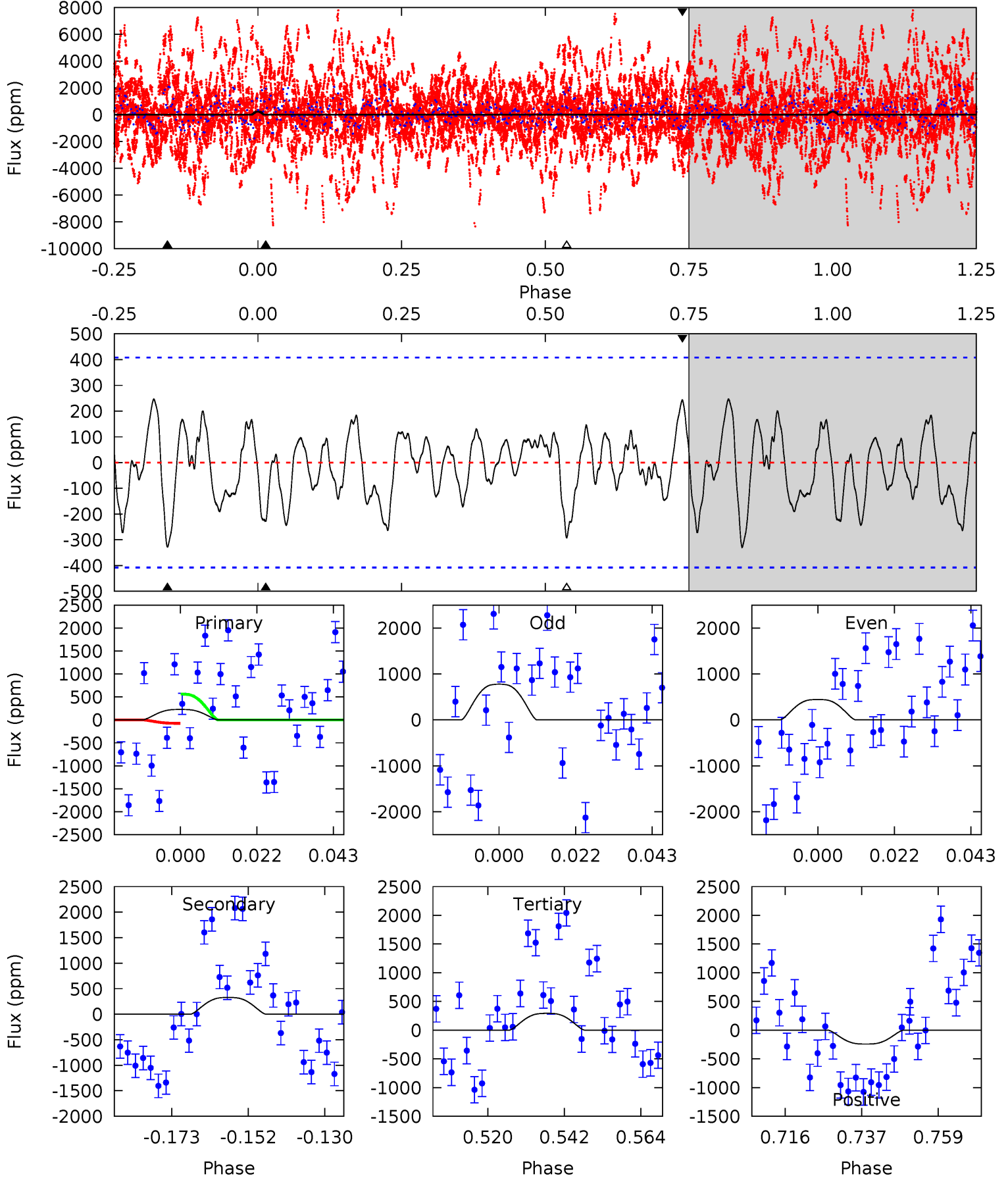
TCE 004489844-03 P= 92.781985 Days $T_0=170.513491$ (BKJD)



DV Model-Shift Uniqueness Test

004489844-03, P = 92.773788 Days, E = 77.892518 Days

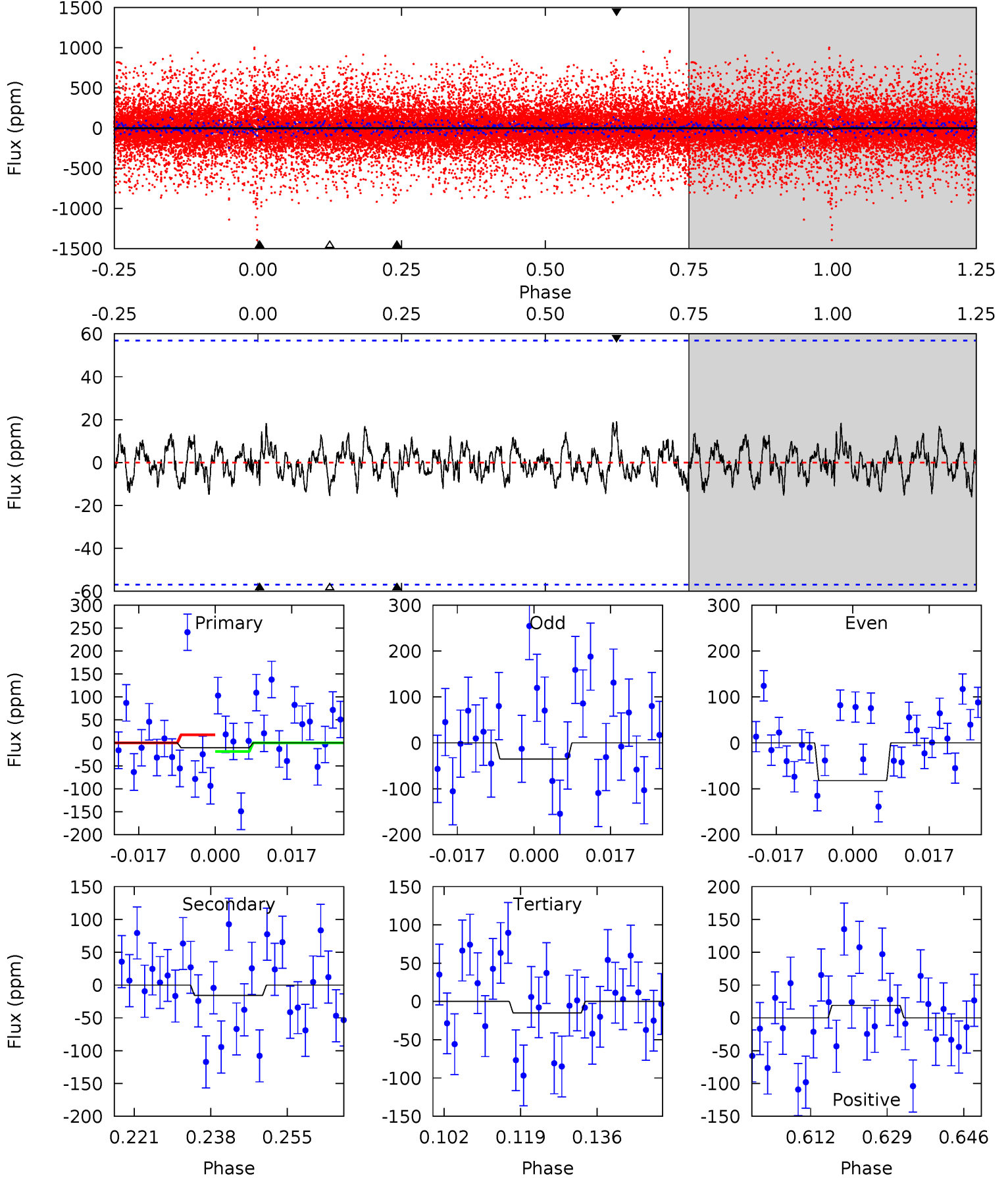
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.73	3.92	3.50	2.89	4.88	2.30	1.32	-0.78	-0.17	0.42	1.03	1.96	-0.54	0.43	3.00



Alt Model-Shift Uniqueness Test

004489844-03, P = 92.781985 Days, E = 77.731506 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.93	1.37	1.31	1.66	4.92	2.39	0.53	-0.38	-0.73	0.06	-0.29	1.96	1.86	0.55	0.04



Stellar Parameters For KIC 004489844

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5709^{+154}_{-154}	$4.409^{+0.144}_{-0.176}$	$-0.340^{+0.300}_{-0.300}$	$0.938^{+0.253}_{-0.156}$	$0.824^{+0.116}_{-0.062}$	$1.405^{+0.844}_{-0.670}$
	+3%/-3%	+3%/-4%	+88%/-88%	+27%/-17%	+14%/-8%	+60%/-48%
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 004489844-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-328 ± 84	$4.68^{+0.73}_{-0.64}$	556^{+37}_{-32}	3946^{+213}_{-227}	1189^{+490}_{-386}
Alt.	-16 ± 12	$1.48^{+0.41}_{-0.39}$	557^{+38}_{-32}	3494^{+469}_{-640}	552^{+649}_{-421}

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 $A_{obs} \gg 1.0$

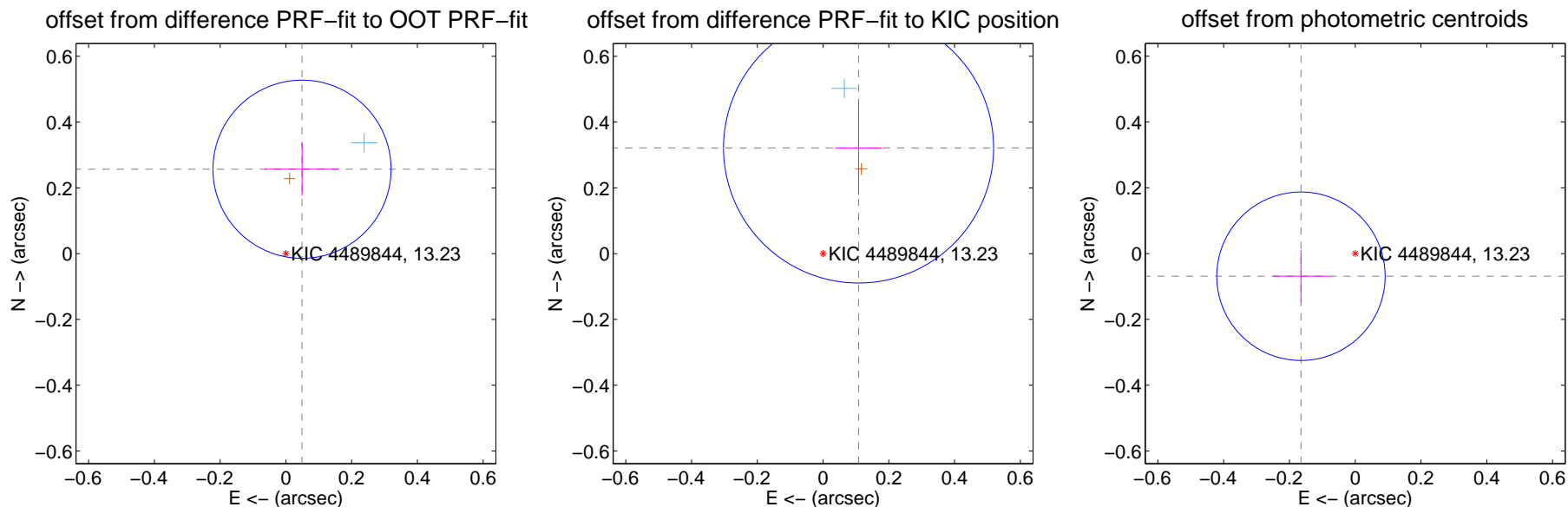
DV Centroid Data

Supplemental centroid analysis for 004489844-03. Kepler magnitude: 13.23. Transit SNR 8.76

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.261 ± 0.090	2.89	-0.049 ± 0.114	0.257 ± 0.080
PRF-fit source offset from KIC position	0.339 ± 0.137	2.48	-0.108 ± 0.070	0.321 ± 0.142
photometric centroid source offset	0.18 ± 0.09	2.10	0.16 ± 0.09	-0.07 ± 0.08

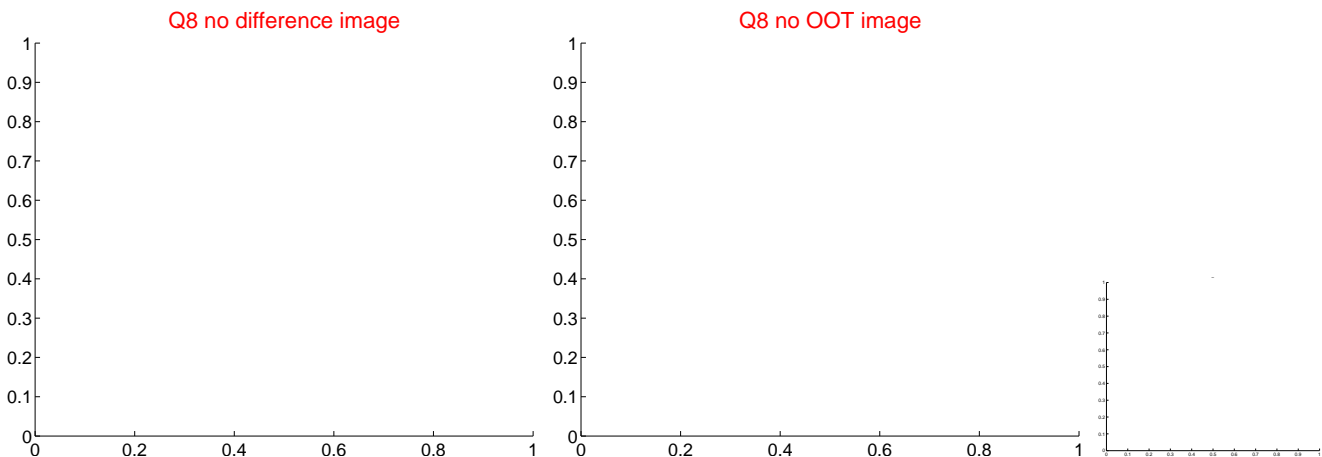
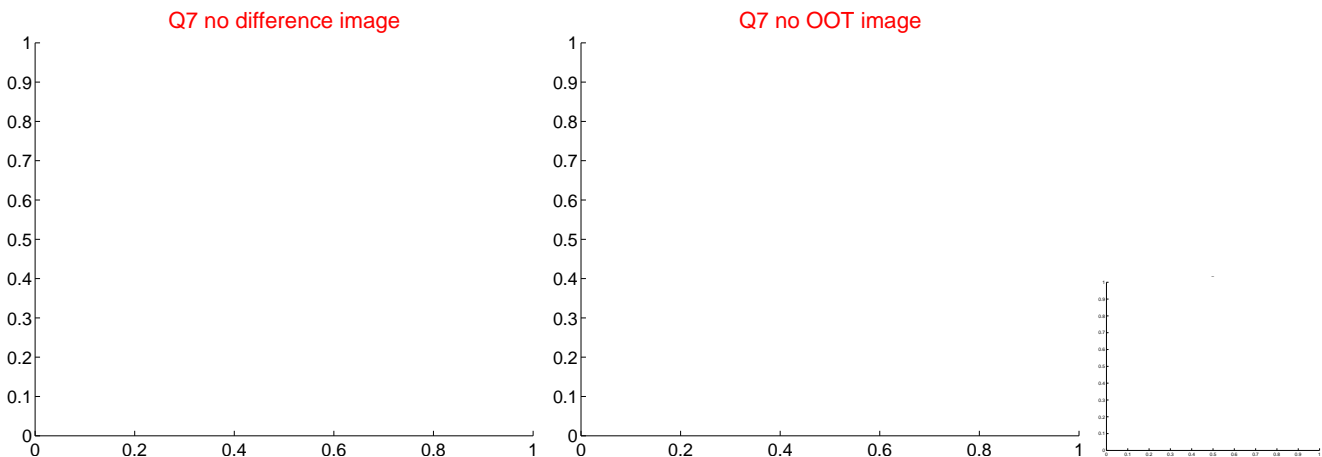
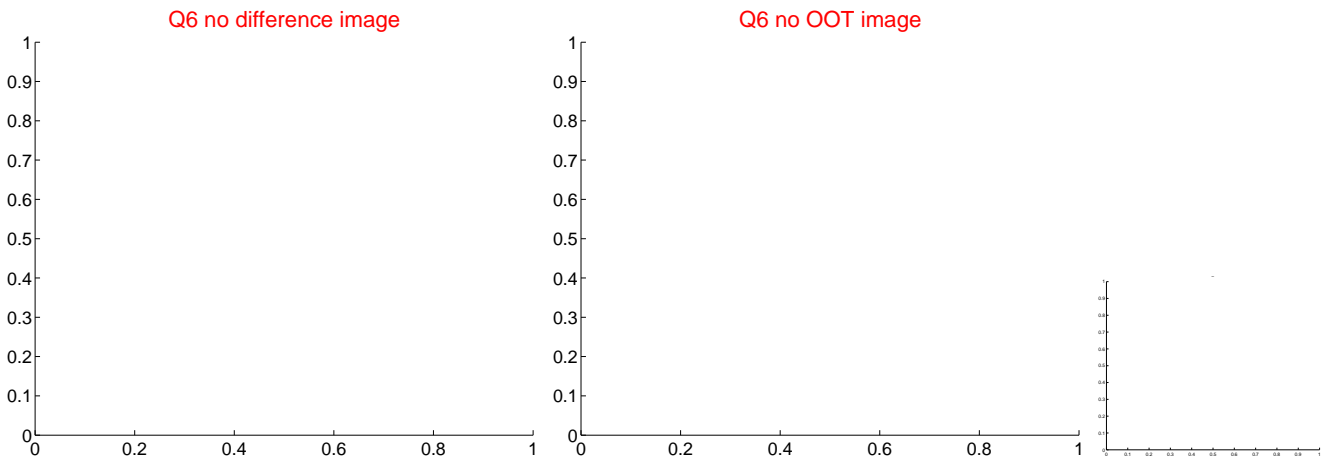
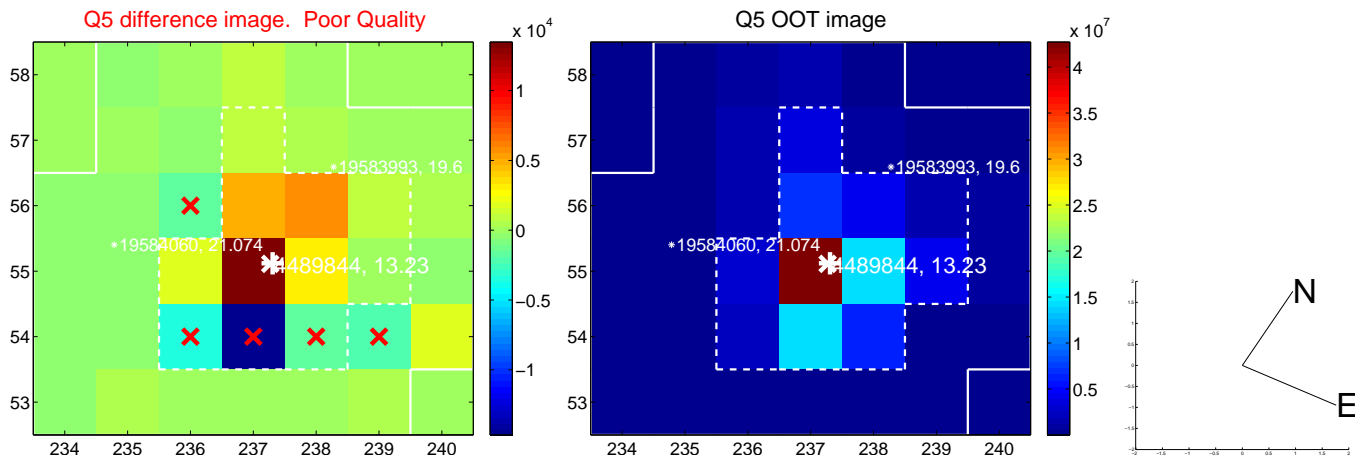


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

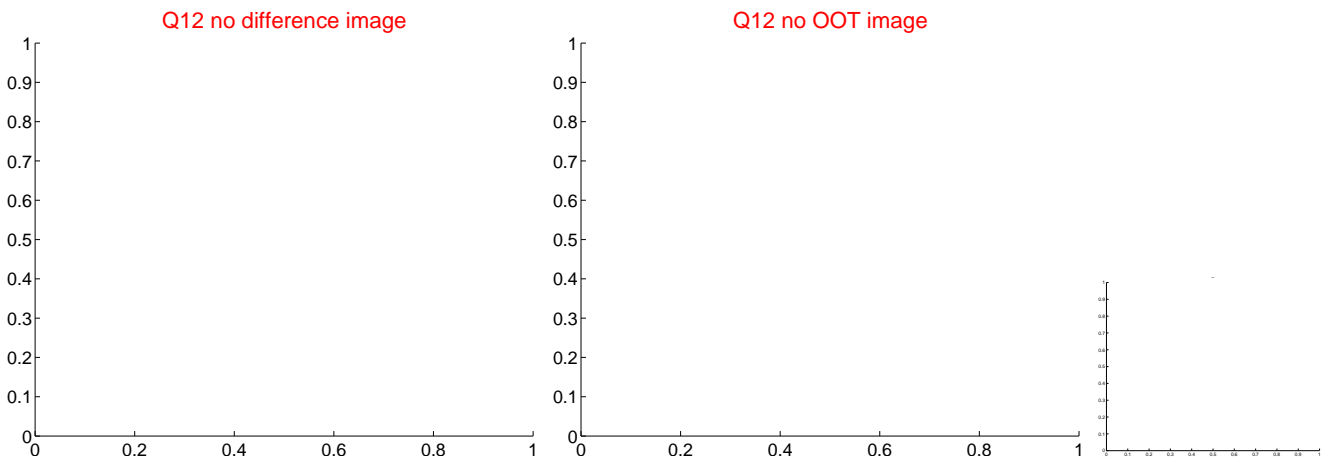
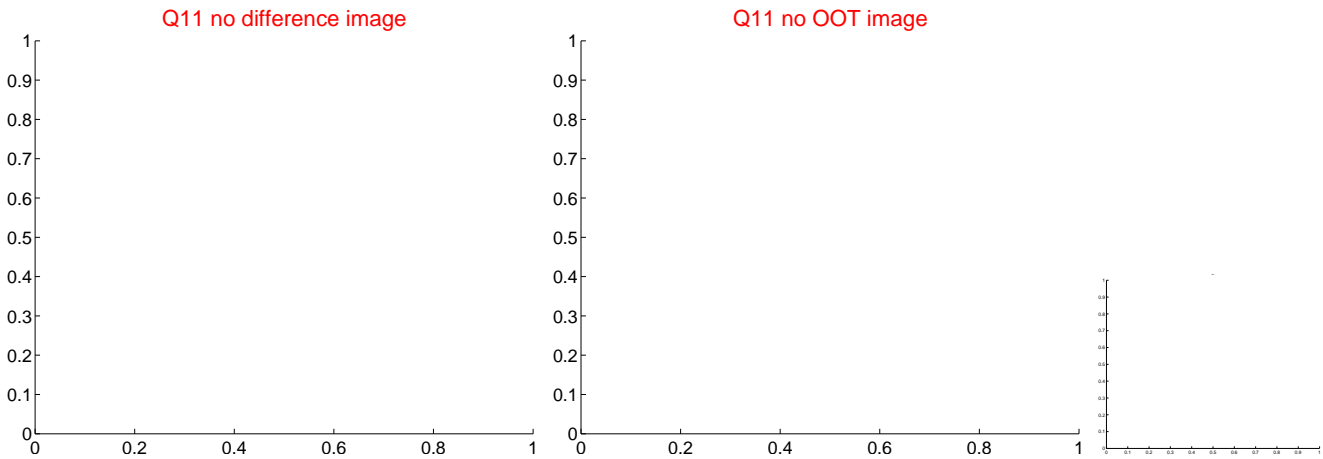
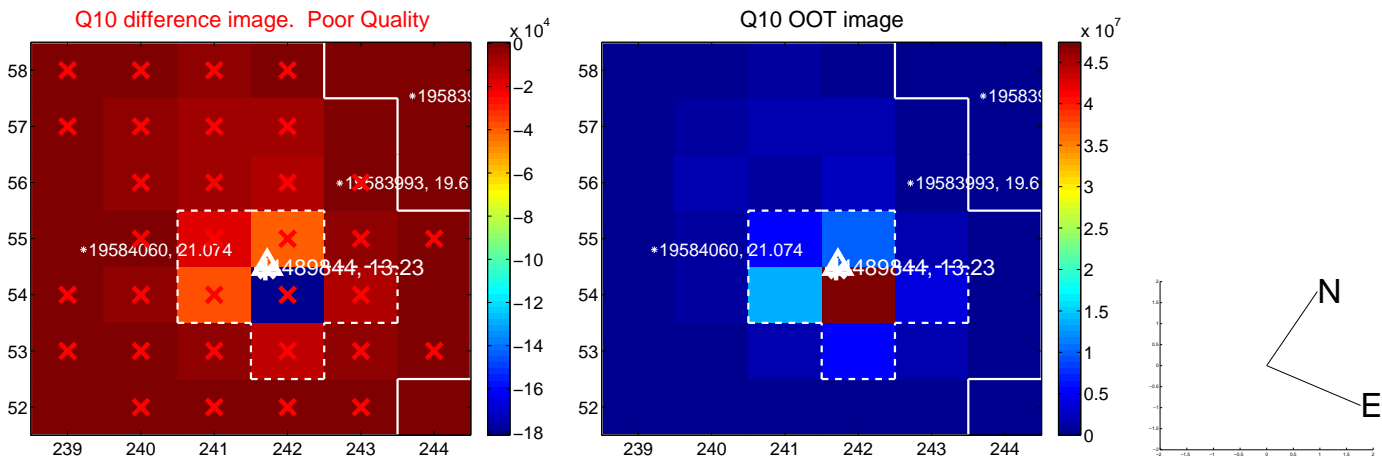
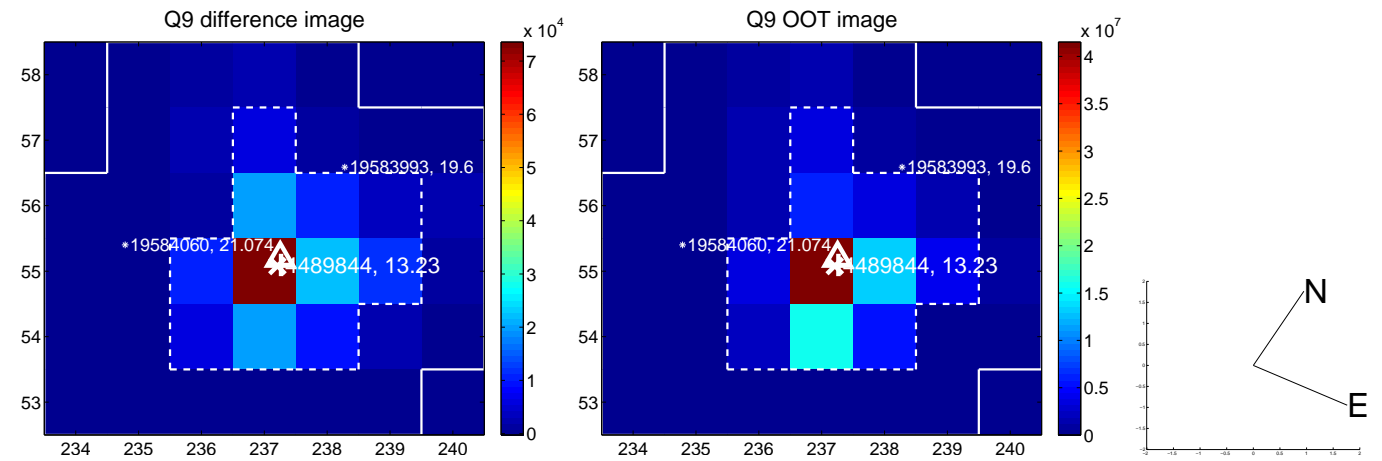
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



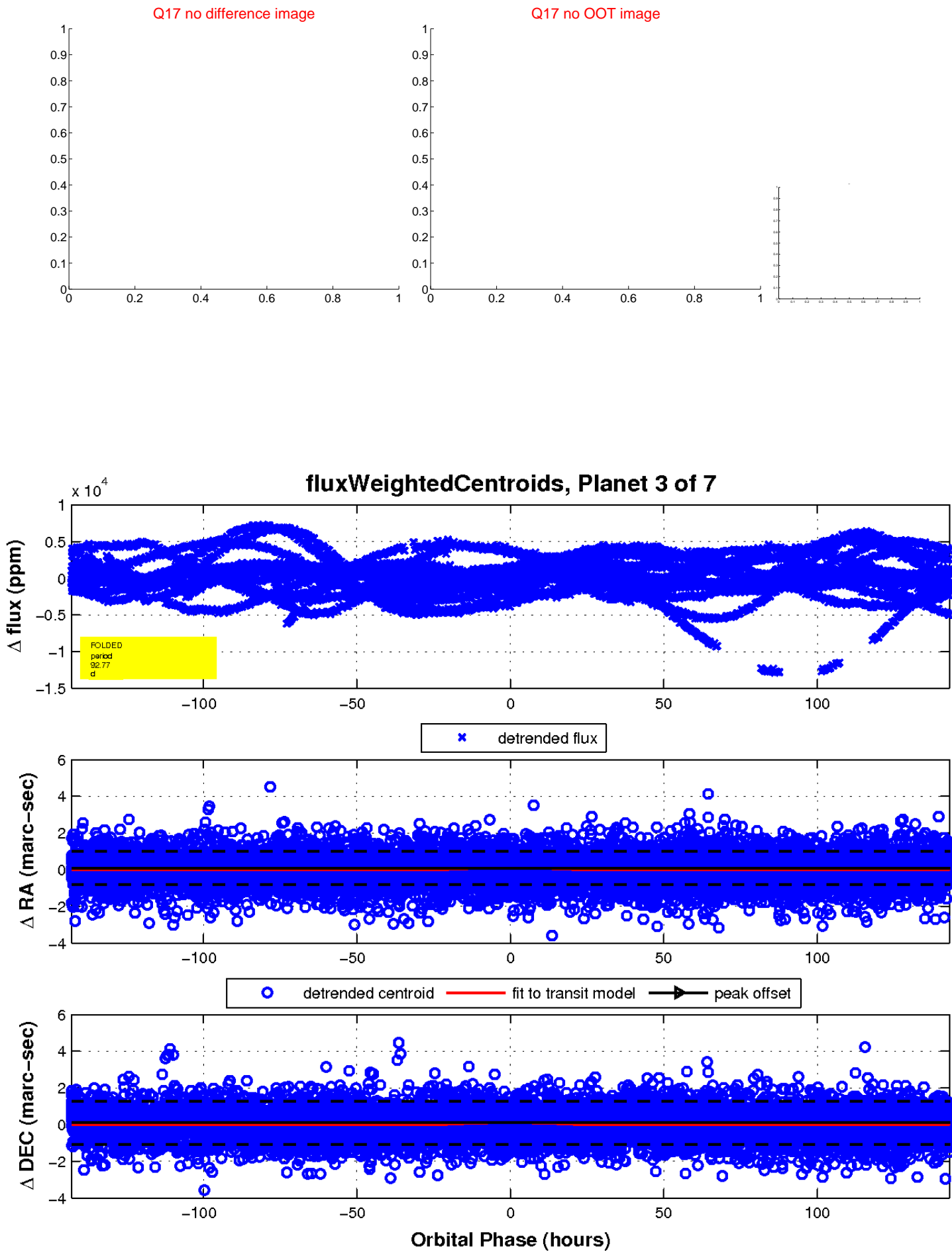
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

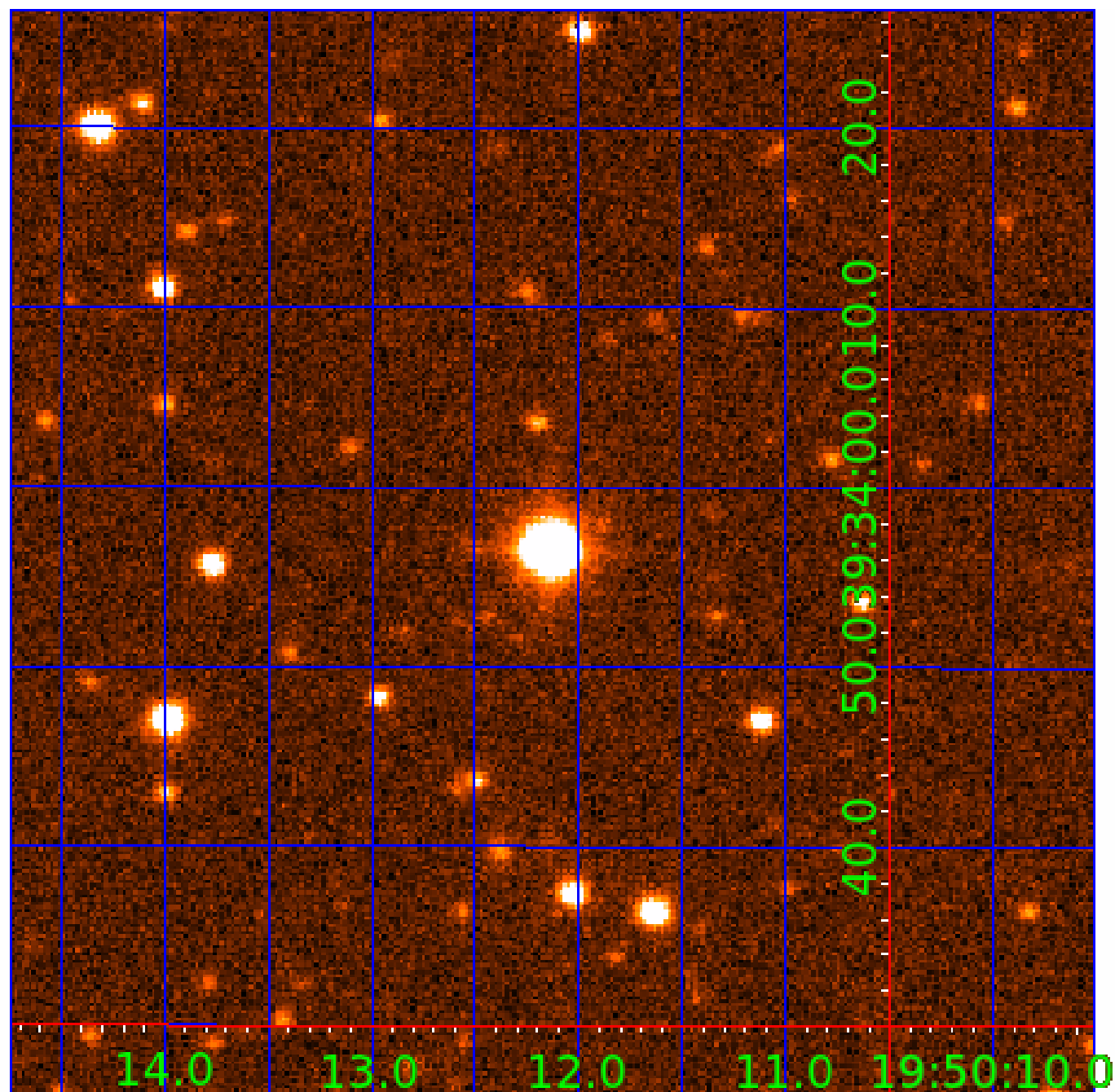


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004489844

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})
004489844-01	OBS	6421.01	0.822291	131.732038	28.5	3.538	11.3	11.1	0.94	5709	0.59	3230.24
004489844-02	OBS	No	326.453366	238.252506	473.8	12.000	17.7	-1.0	0.94	5709	2.03	1.11
004489844-03	OBS	No	92.773788	170.666306	1504.7	47.708	17.7	8.8	0.94	5709	4.62	5.92
004489844-04	OBS	No	201.064179	282.605053	418.3	17.182	16.1	4.6	0.94	5709	1.92	2.11
004489844-05	OBS	No	114.235574	239.089238	306.8	4.261	15.0	4.9	0.94	5709	1.92	4.49
004489844-06	OBS	No	441.742687	139.379888	589.7	9.347	12.4	6.1	0.94	5709	2.33	0.74
004489844-07	OBS	No	273.142187	163.045997	263.7	4.411	13.5	3.6	0.94	5709	1.66	1.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004489844-01	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET—HALO_GHOST
004489844-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
004489844-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004489844-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004489844-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES
004489844-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004489844-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

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

Ephemeris Match Information For 004489844-04

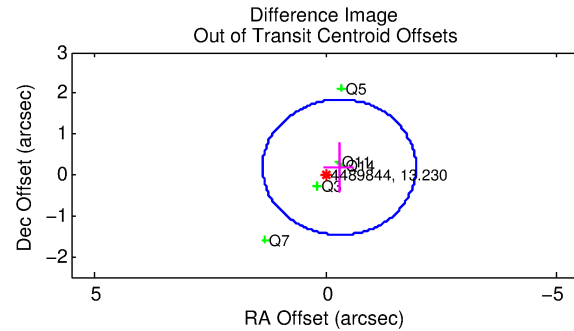
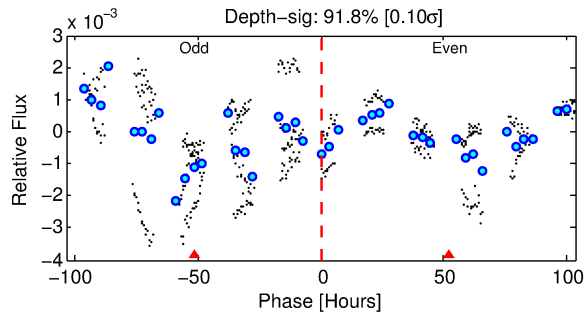
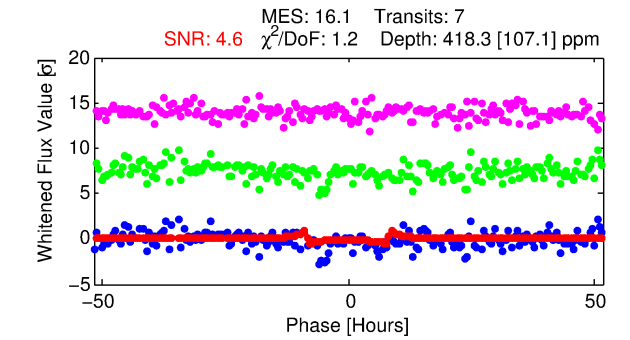
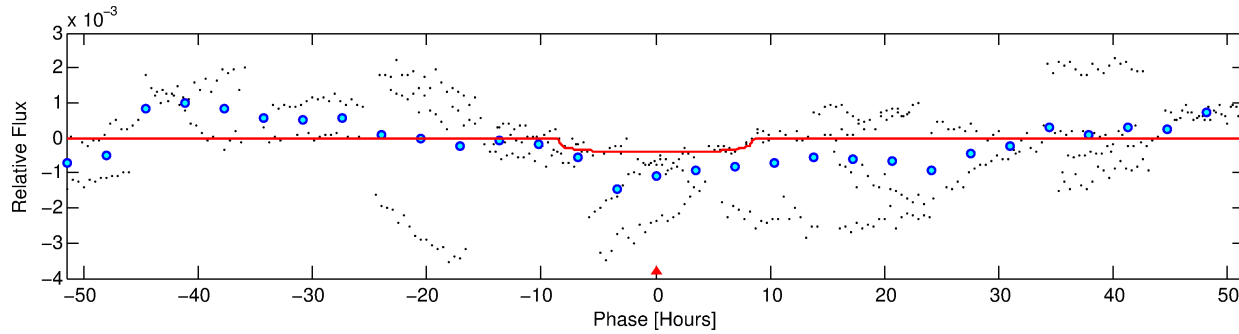
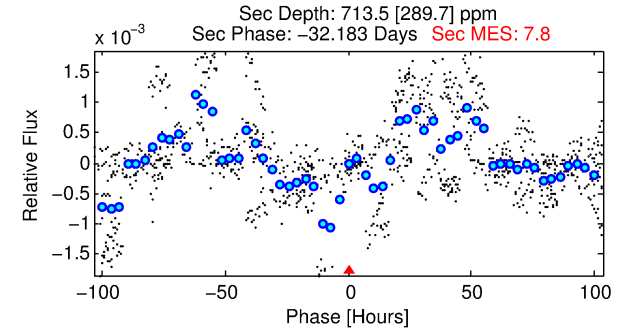
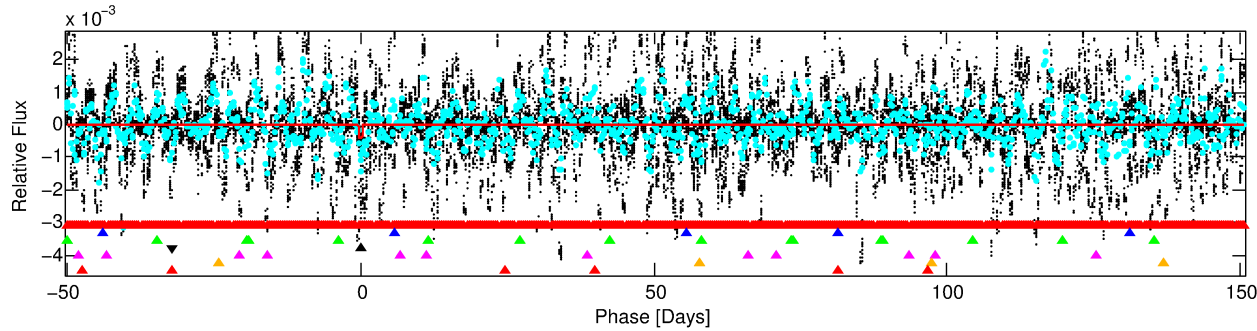
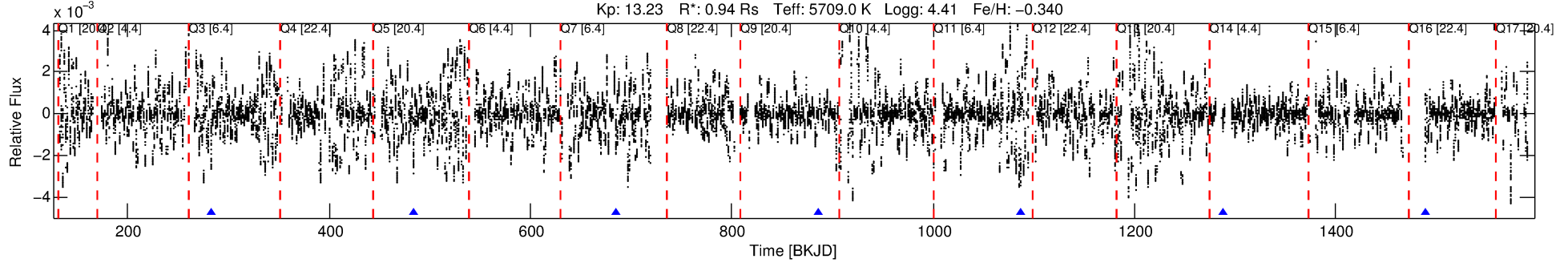
No Significant Match Found

DV One-Page Summary

KIC: 4489844 Candidate: 4 of 7 Period: 201.064 d

KOI: K06421 Corr: No Ephemeris Match

Kp: 13.23 R*: 0.94 Rs Teff: 5709.0 K Logg: 4.41 Fe/H: -0.340



DV Fit Results:

Period = 201.06418 [0.00562] d
Epoch = 282.6051 [0.0193] BKJD
Rp/R* = 0.0188 [0.0104]
a/R* = 87.22 [211.33]
b = 0.29 [7.57]
Seff = 2.11 [0.72]
Teq = 307 [26] K
Rp = 1.92 [1.18] Re
a = 0.6296 [0.1416] AU
Ag = 42136.21 [51423.71] [0.82σ]
Teffp = 6810 [2011] K [3.23σ]

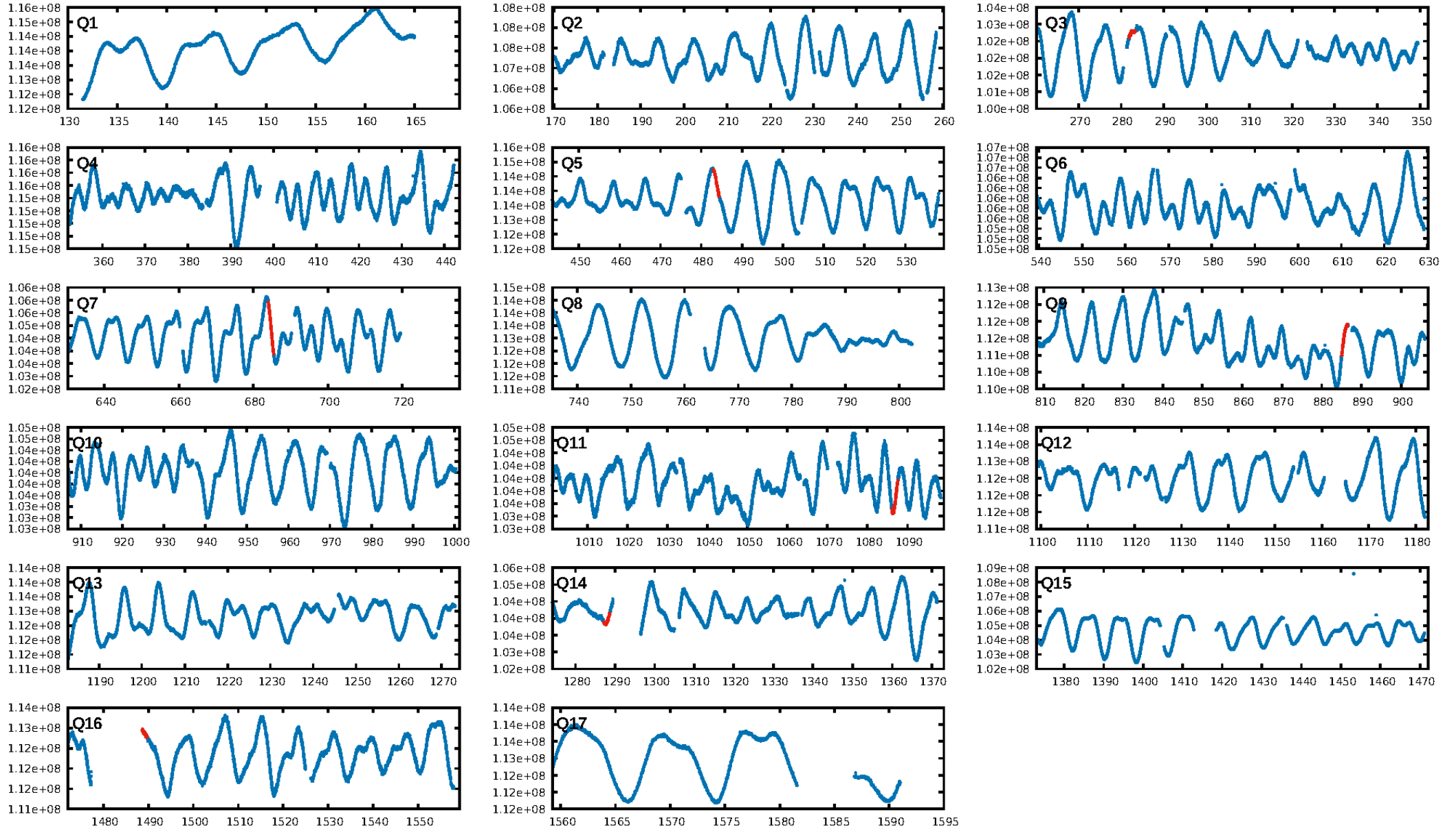
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [117.72σ]
LongPeriod-sig: 100.0% [97.52σ]
ModelChiSquare2-sig: 3.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.42e-15
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 89.75
Centroid-sig: 16.2%
Centroid-so: 0.563 arcsec [0.97σ]
OotOffset-rm: 0.352 arcsec [0.64σ]
OotOffset-st: 1/3/0/1 [5]
KicOffset-rm: 0.235 arcsec [0.32σ]
KicOffset-st: 1/3/0/1 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 0.00 [0/5]

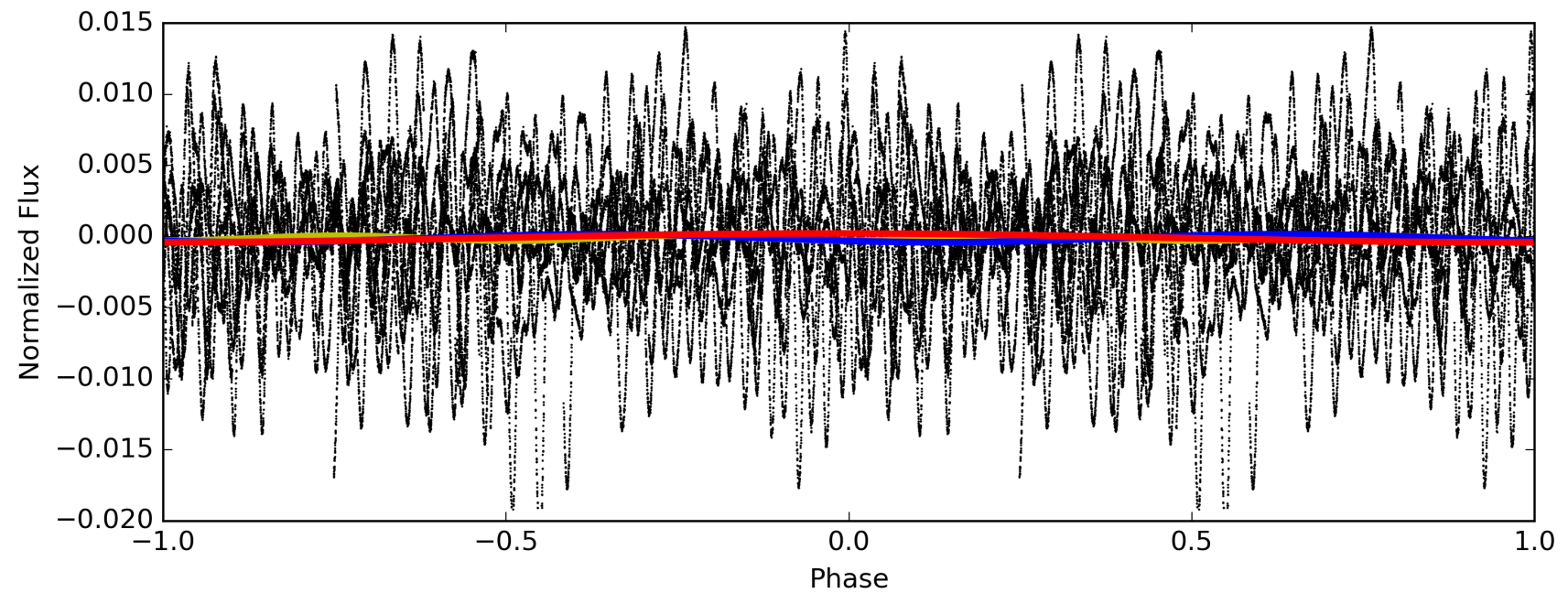
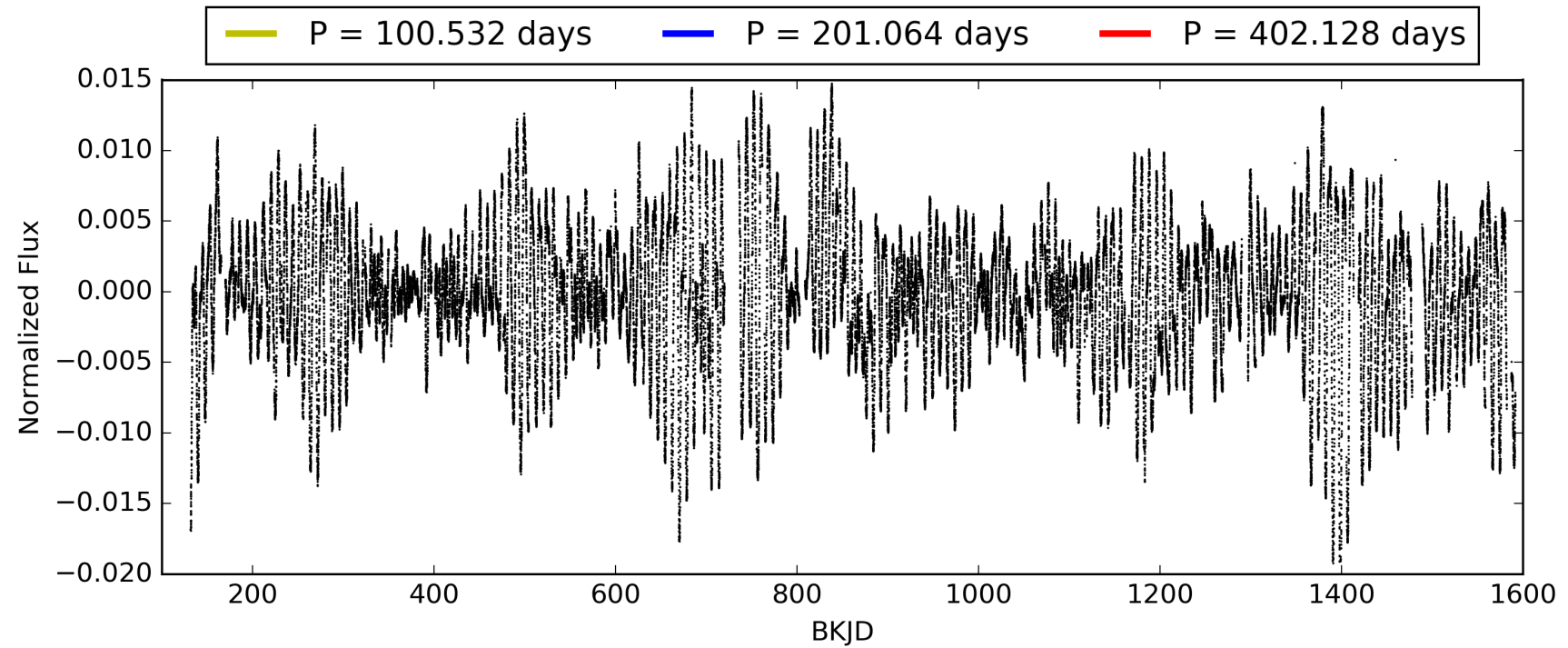
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:37:51 Z

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

TCE 004489844-04, PDC Light Curves

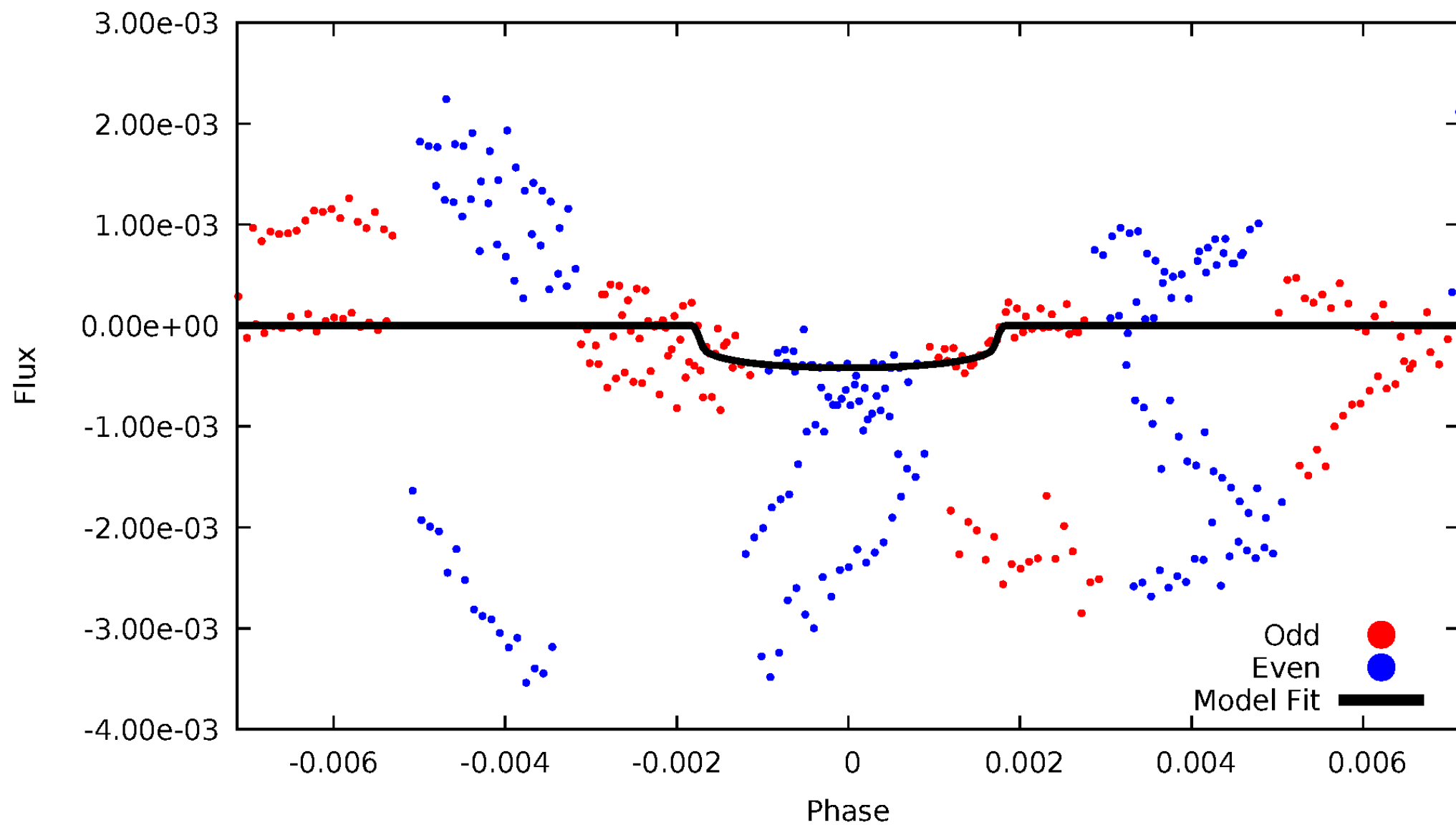


TCE 004489844-04



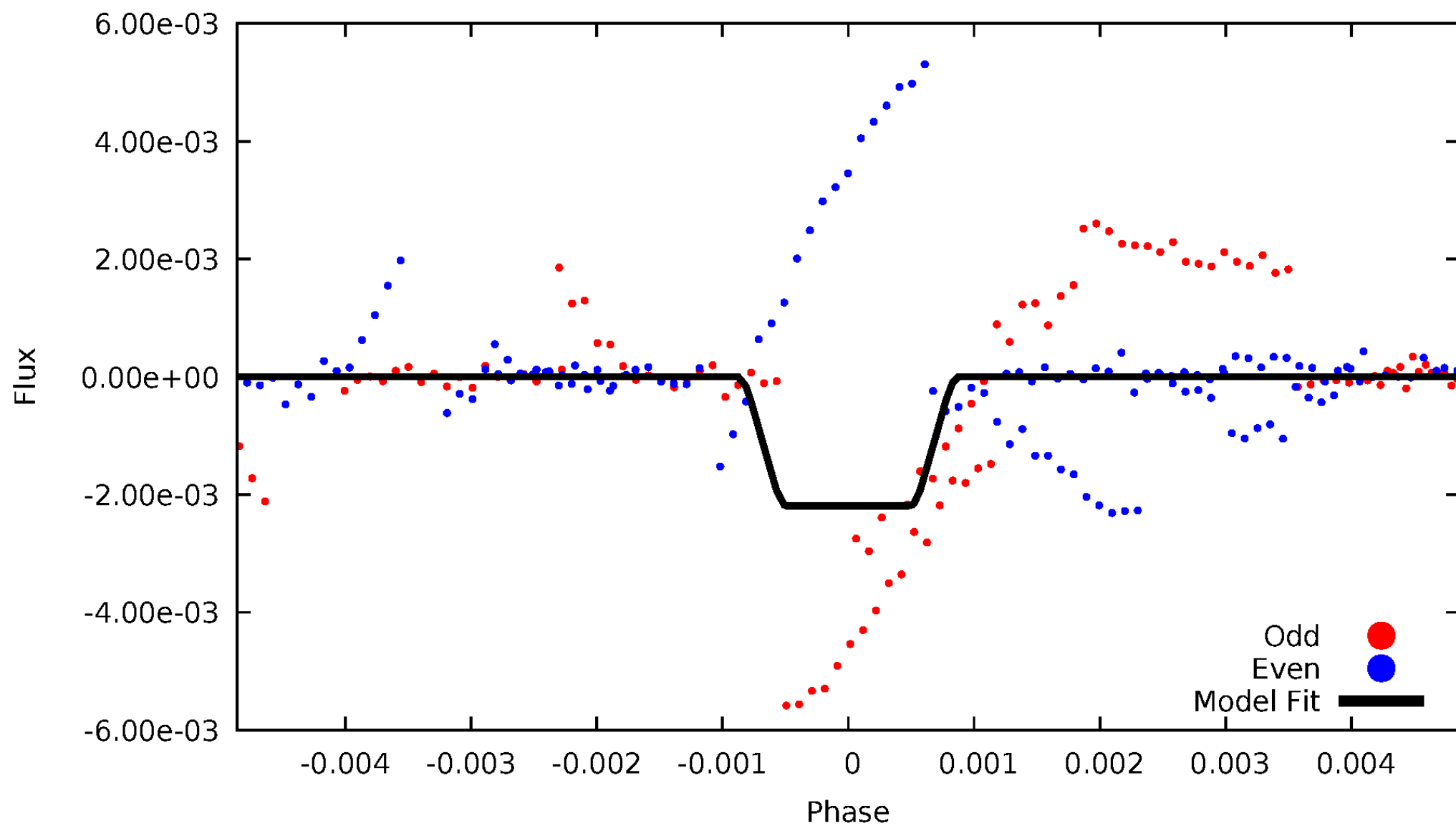
DV Odd/Even

TCE 004489844-04



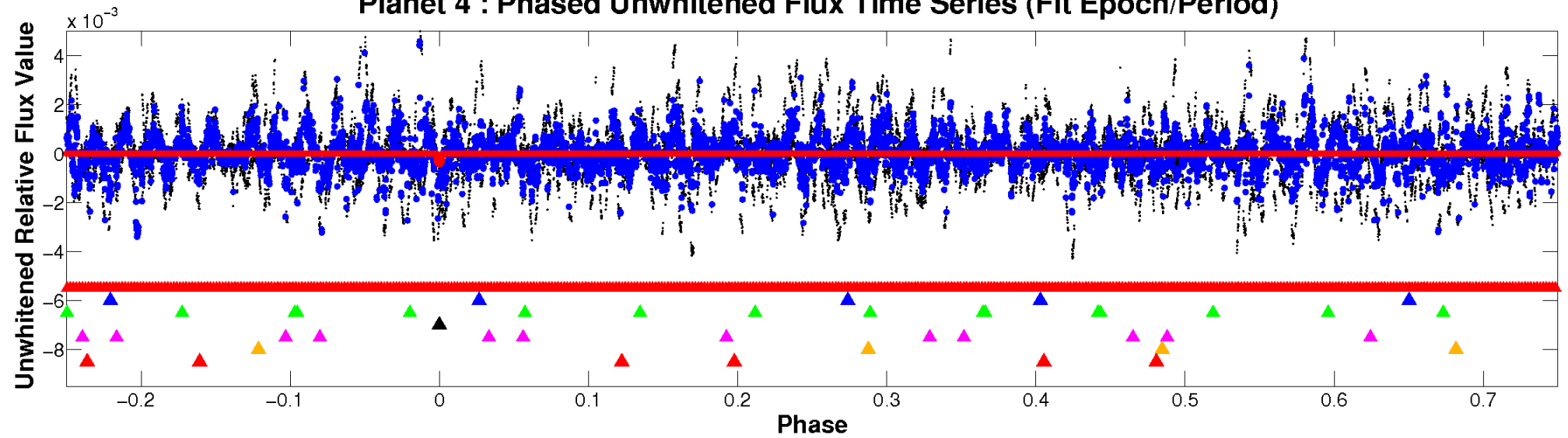
ALT Odd/Even

TCE 004489844-04

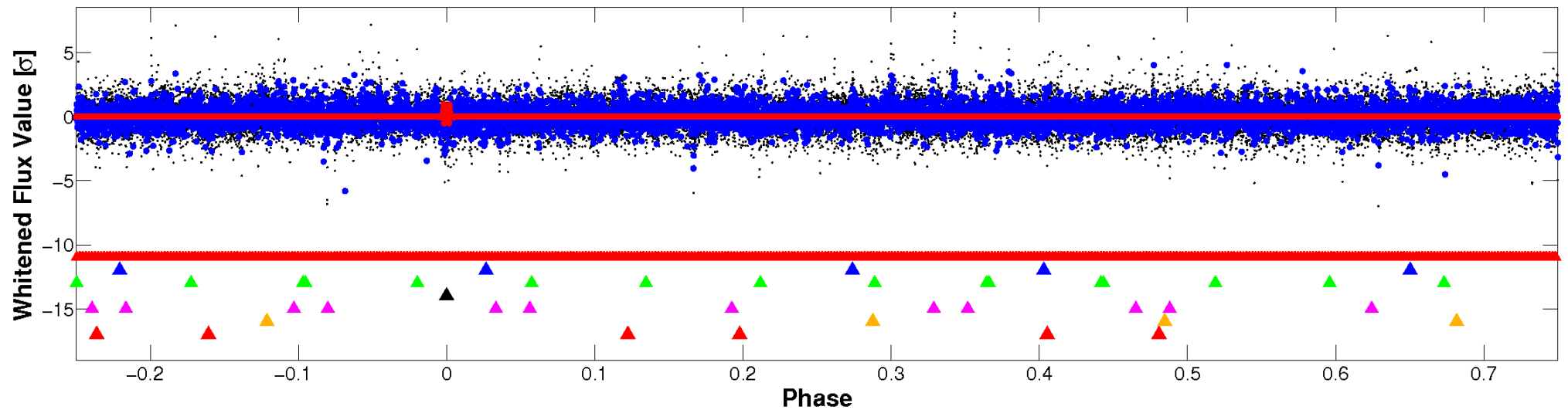


Non-Whitened Vs. Whitened Light Curve

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

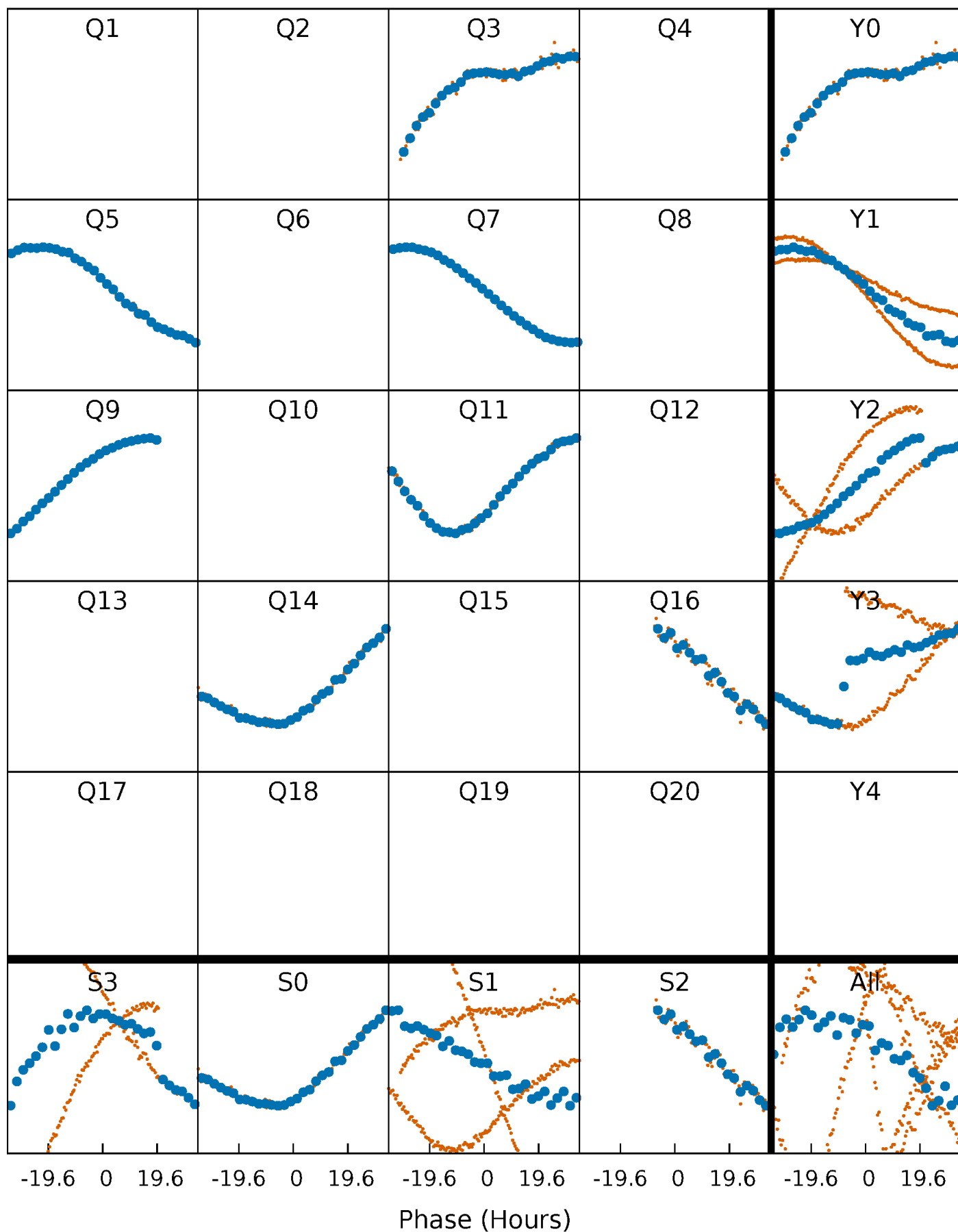


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



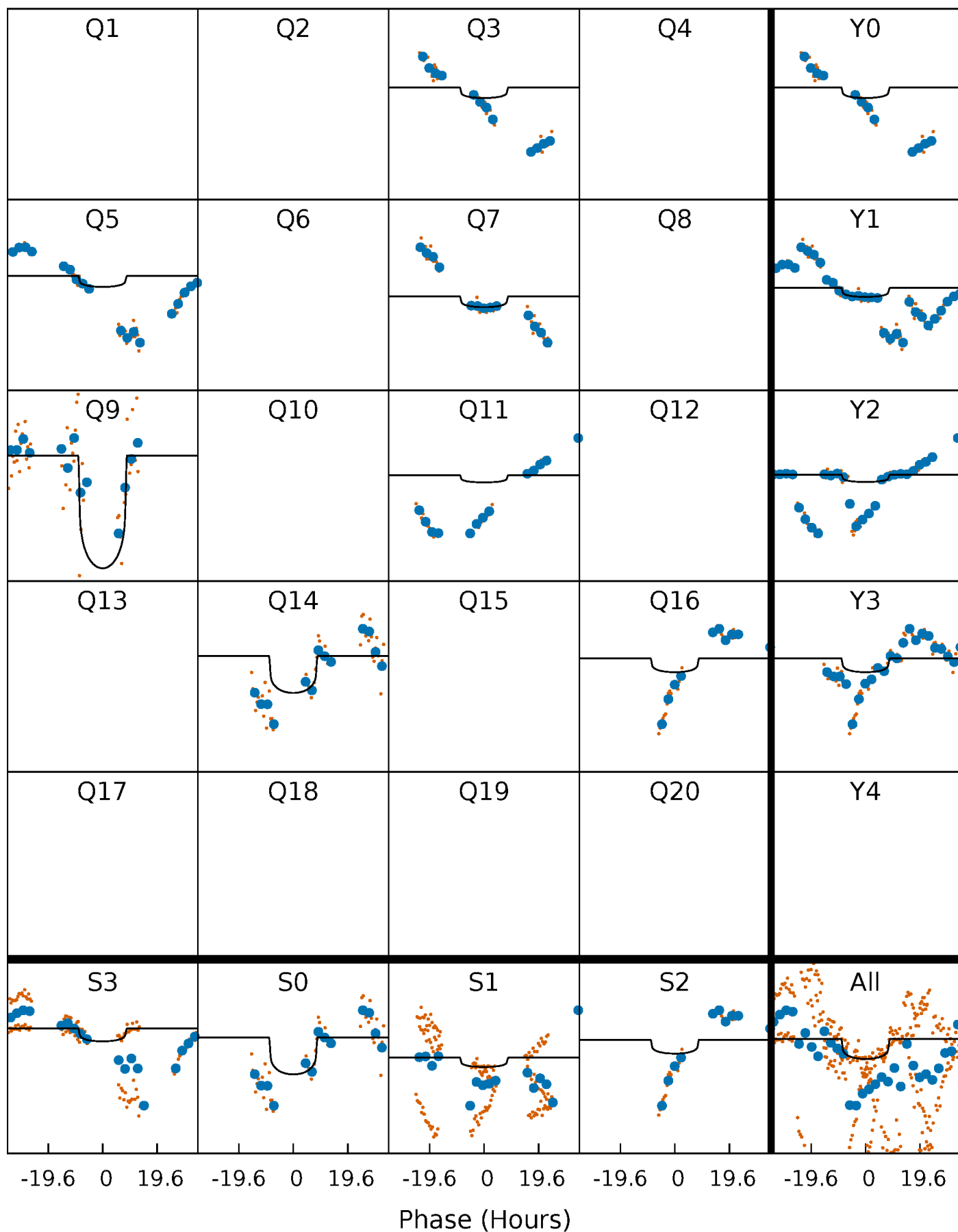
PDC Quarter-Phased Transit Curves

TCE 004489844-04 $P=201.064179$ Days $T_0=282.605053$ (BKJD)



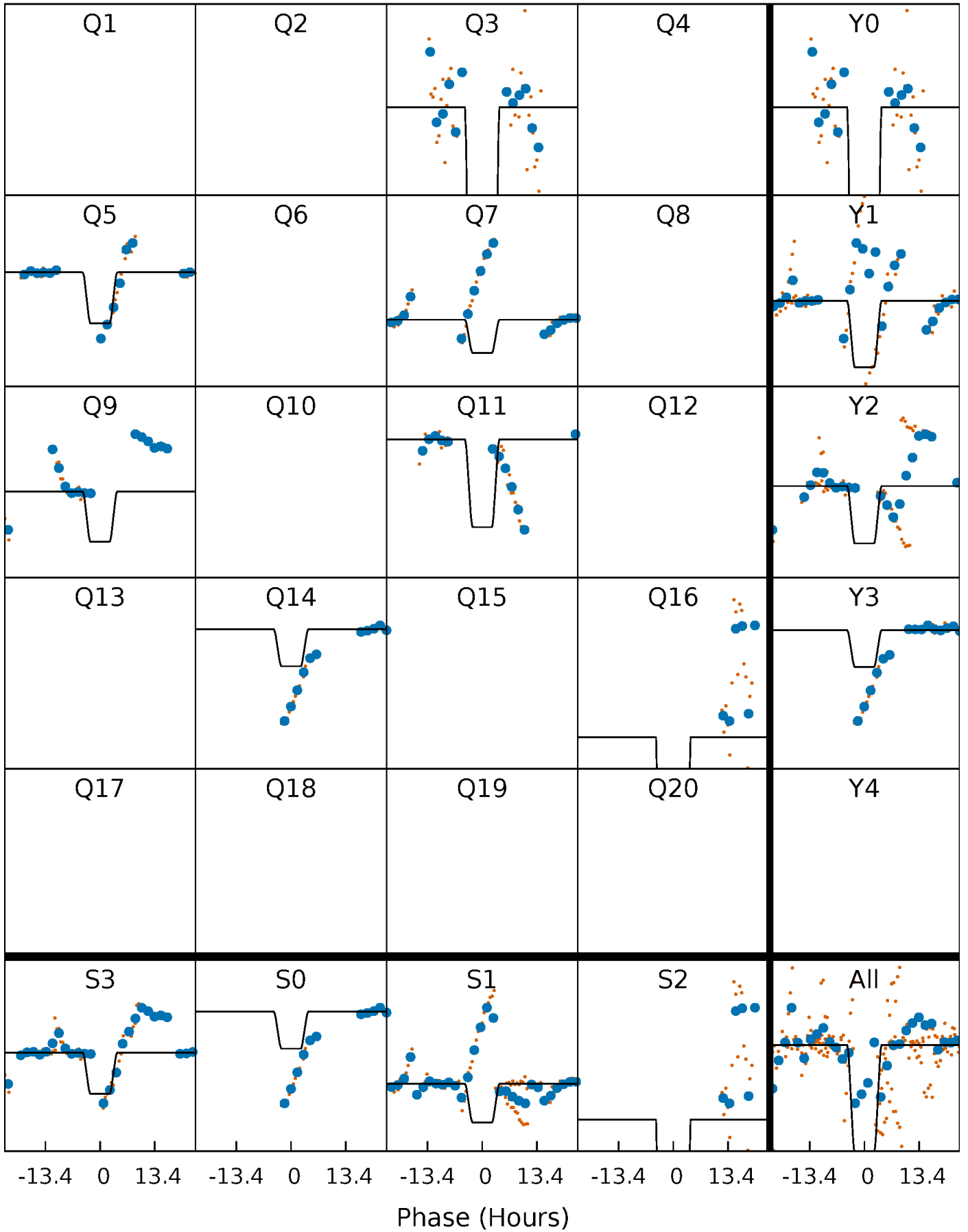
DV Quarter-Phased Transit Curves

TCE 004489844-04 $P=201.064179$ Days $T_0=282.605053$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

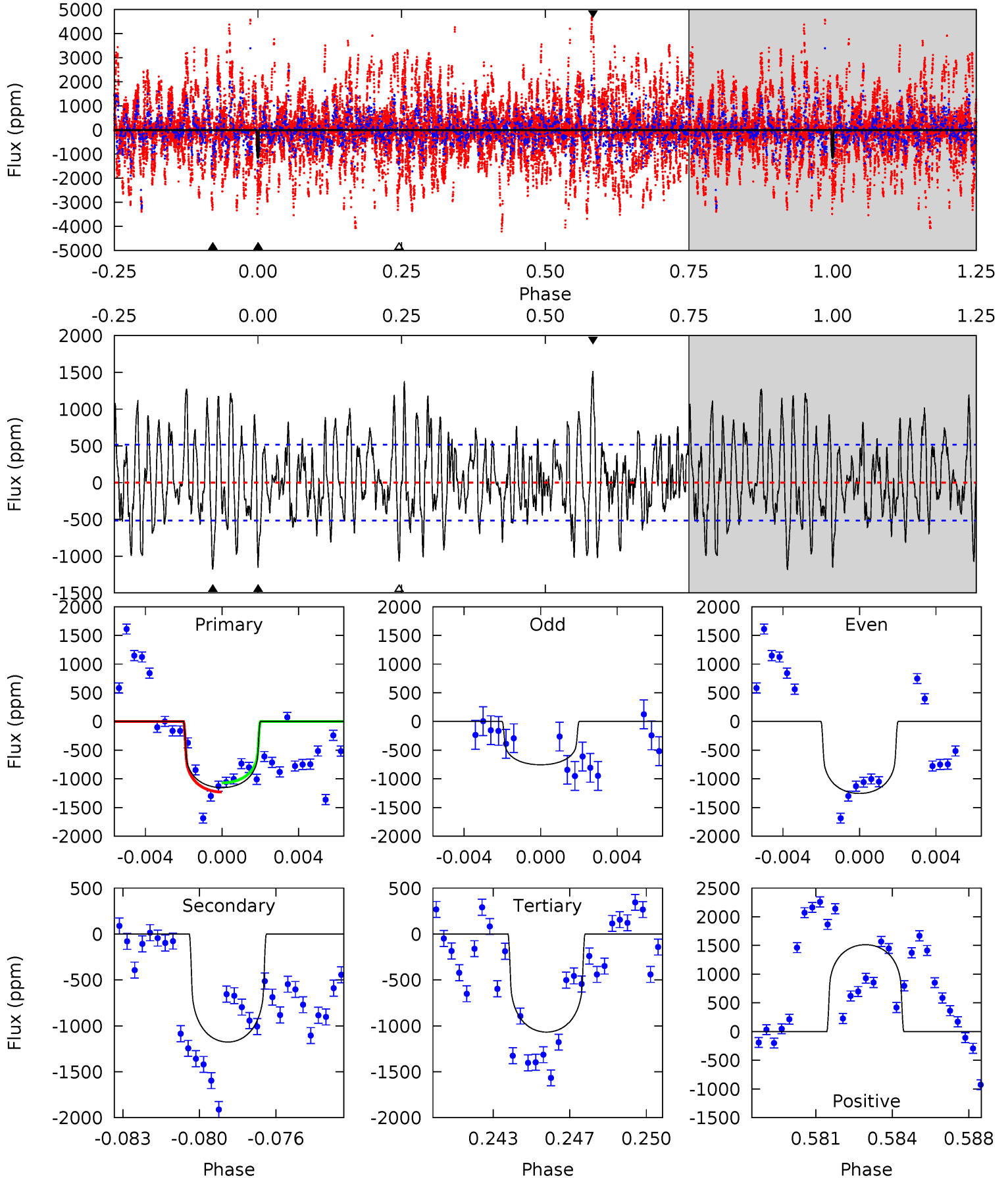
TCE 004489844-04 P=200.875517 Days $T_0=283.021046$ (BKJD)



DV Model-Shift Uniqueness Test

004489844-04, P = 201.064179 Days, E = 81.540874 Days

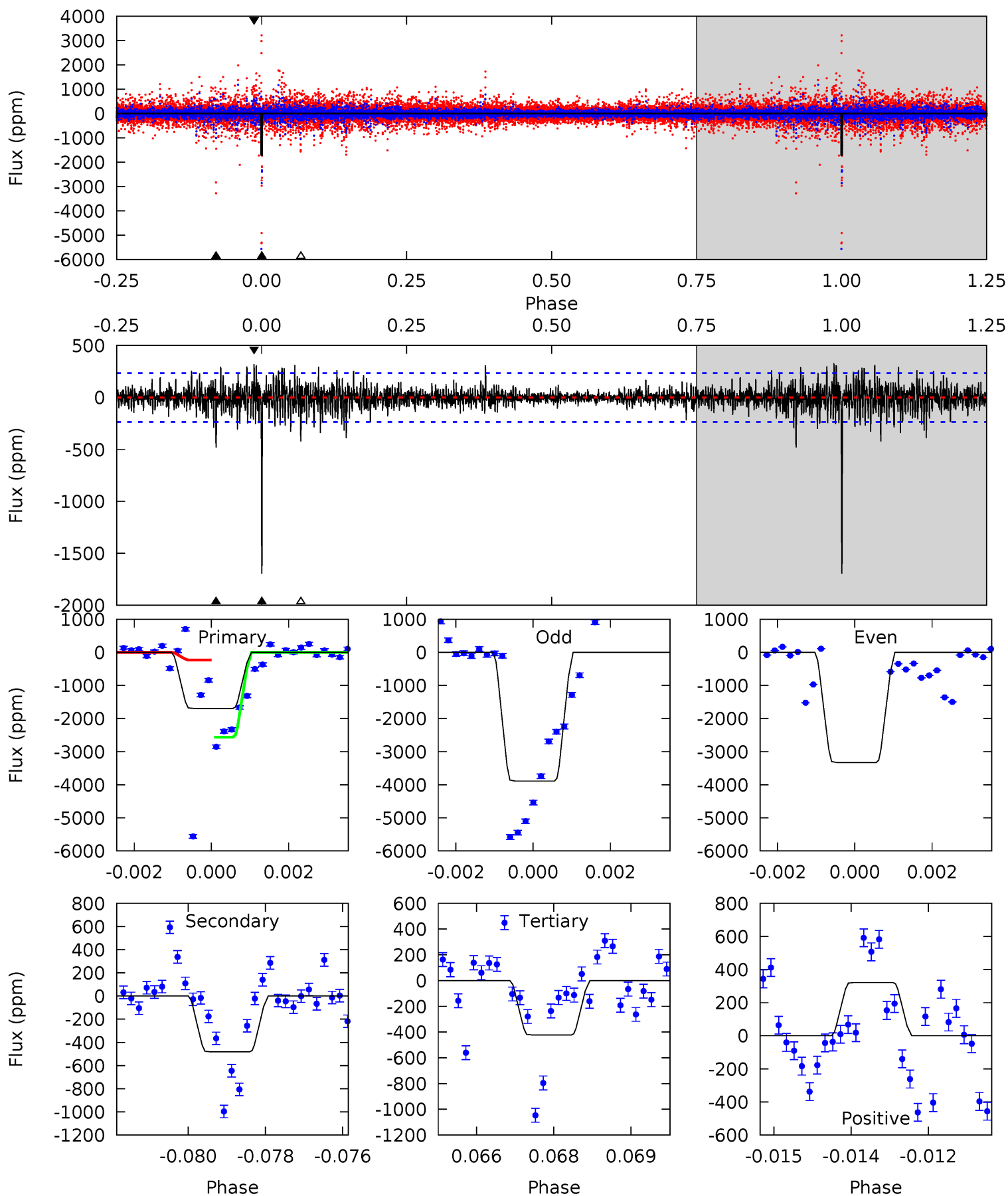
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	11.9	10.8	15.3	5.22	2.91	4.62	0.86	-3.64	1.09	-3.41	2.37	1.31	0.56	0.81



Alt Model-Shift Uniqueness Test

004489844-04, P = 200.875517 Days, E = 82.145529 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.6	11.0	9.61	7.31	5.36	3.14	1.54	28.9	31.2	1.34	3.64	5.64	1.15	0.16	26.4



Stellar Parameters For KIC 004489844

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5709^{+154}_{-154}	$4.409^{+0.144}_{-0.176}$	$-0.340^{+0.300}_{-0.300}$	$0.938^{+0.253}_{-0.156}$	$0.824^{+0.116}_{-0.062}$	$1.405^{+0.844}_{-0.670}$
	+3%/-3%	+3%/-4%	+88%/-88%	+27%/-17%	+14%/-8%	+60%/-48%
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 004489844-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1177 ± 99	$2.12^{+1.09}_{-1.04}$	431^{+29}_{-24}	7596^{+4311}_{-1543}	$59093^{+164043}_{-33826}$
Alt.	-481 ± 44	$4.77^{+1.41}_{-1.13}$	430^{+30}_{-24}	4179^{+412}_{-289}	4678^{+3363}_{-1843}

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 $A_{obs} \gg 1.0$

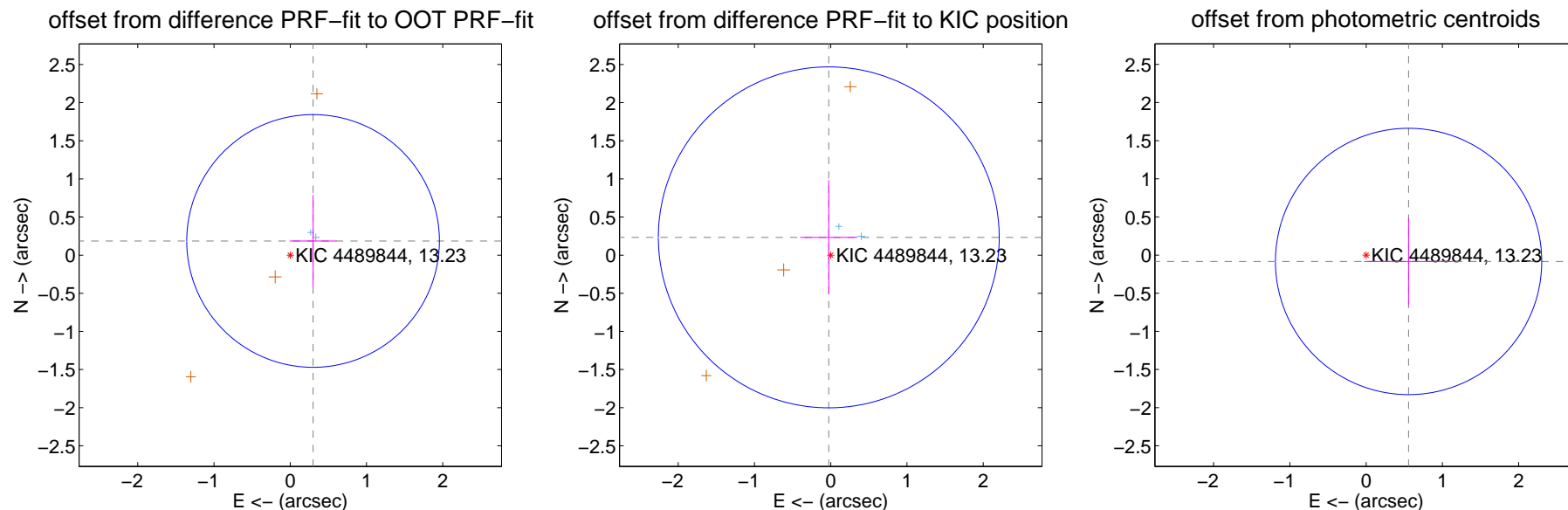
DV Centroid Data

Supplemental centroid analysis for 004489844-04. Kepler magnitude: 13.23. Transit SNR 4.64

There are 2 quarters with good PRF difference image offsets

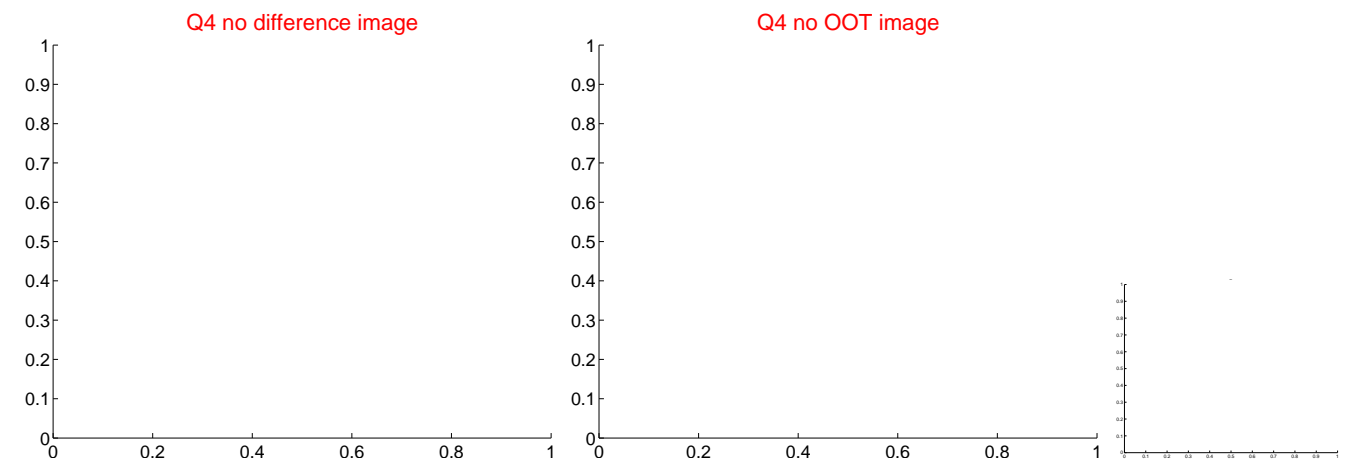
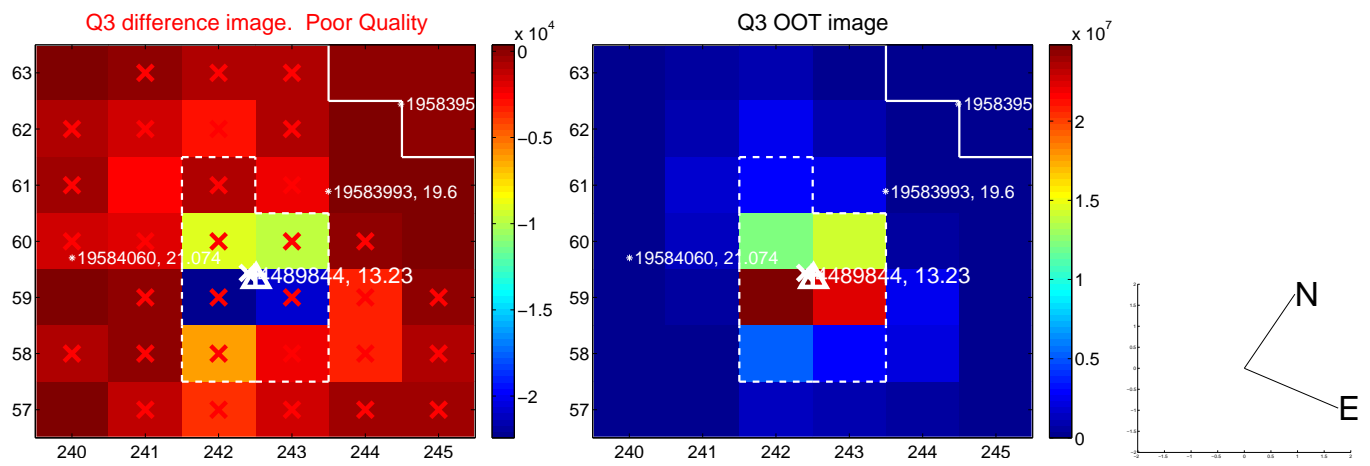
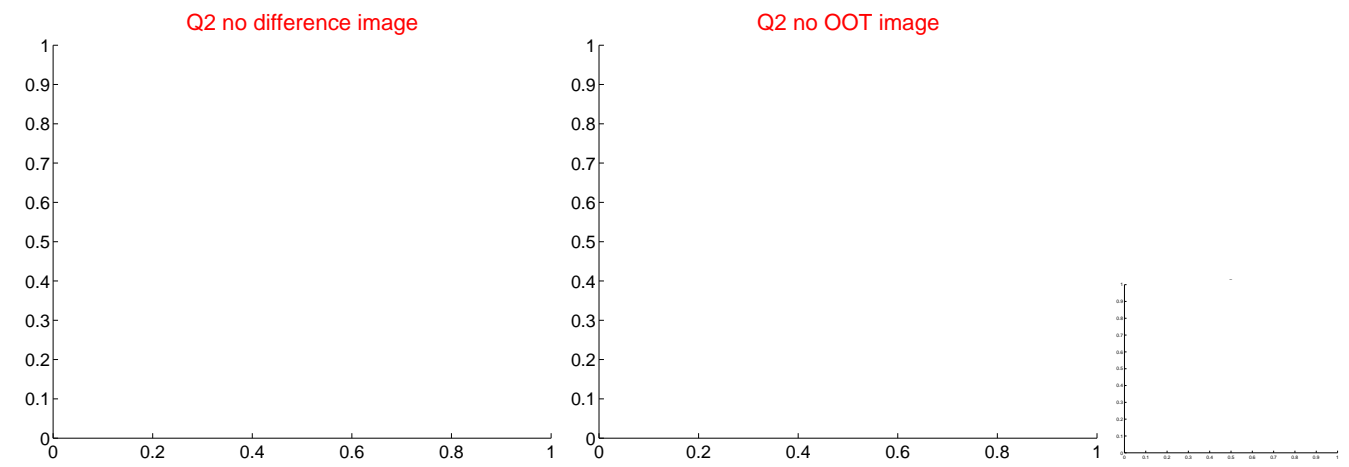
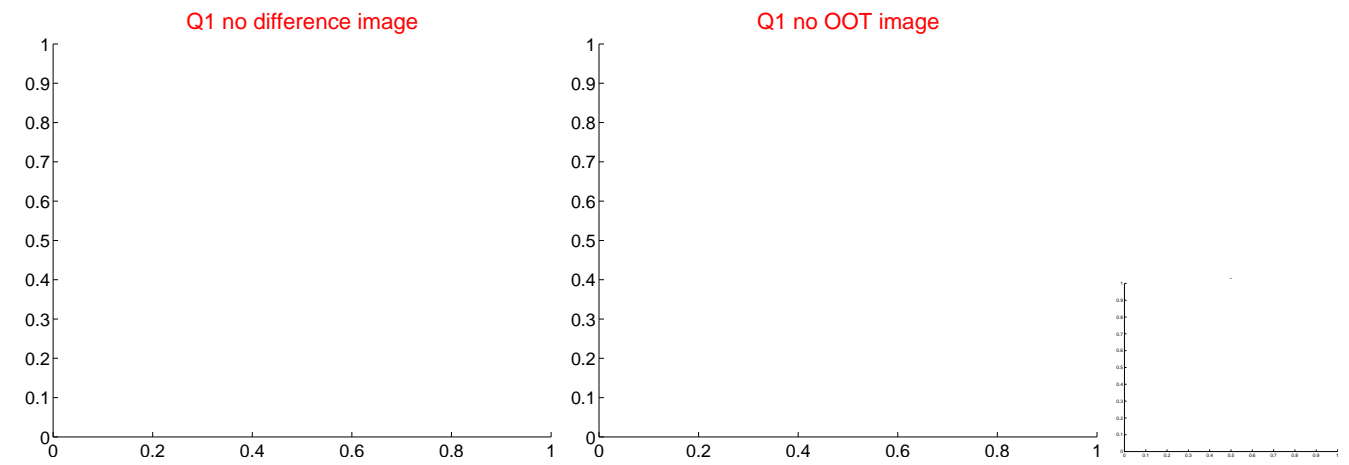
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.352 ± 0.552	0.64	-0.299 ± 0.307	0.186 ± 0.601
PRF-fit source offset from KIC position	0.235 ± 0.745	0.32	0.026 ± 0.375	0.233 ± 0.749
photometric centroid source offset	0.56 ± 0.58	0.97	-0.56 ± 0.58	-0.08 ± 0.57

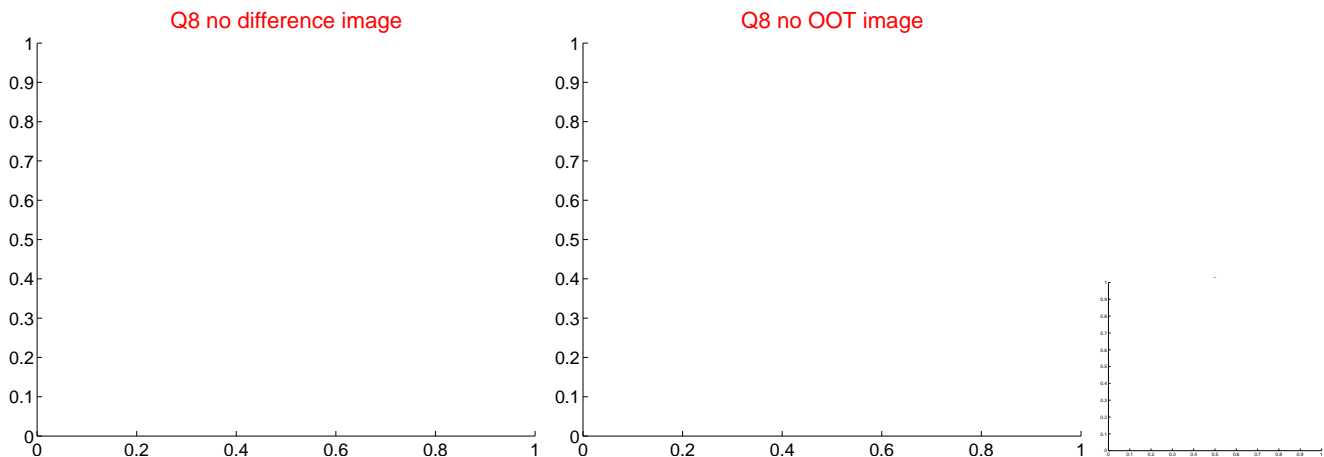
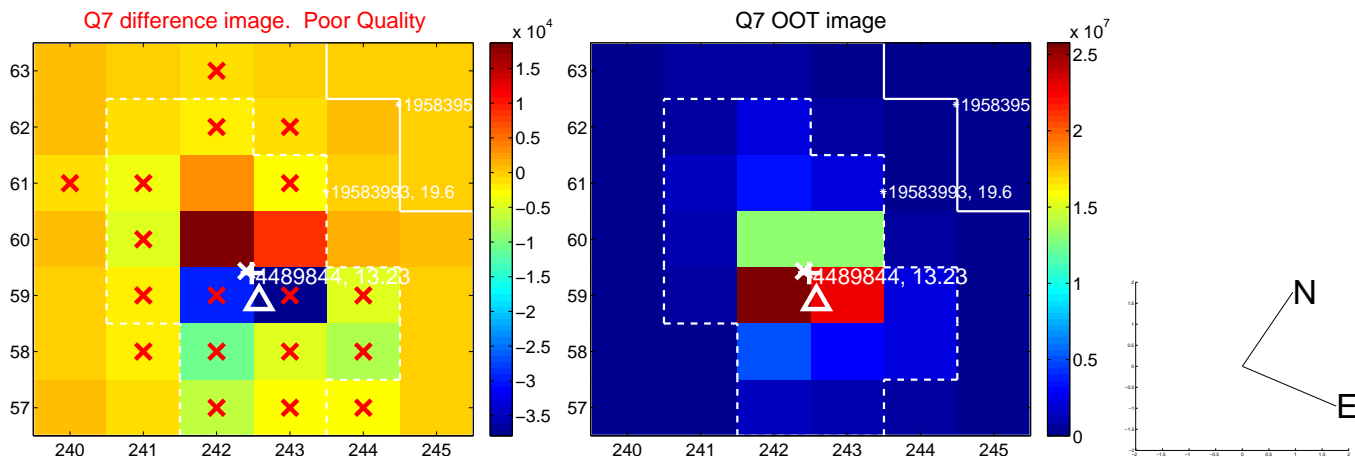
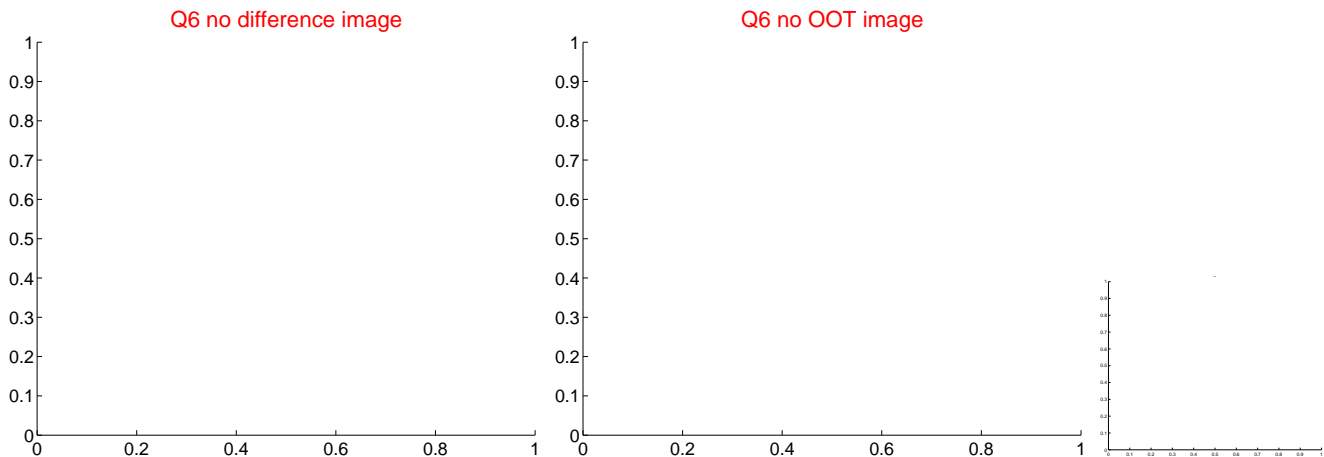
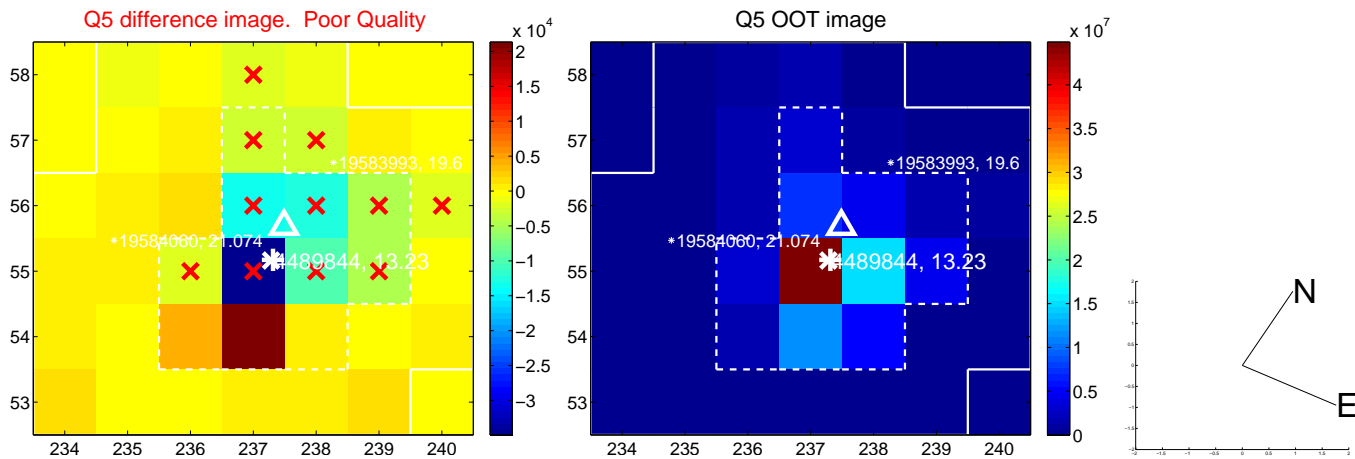


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

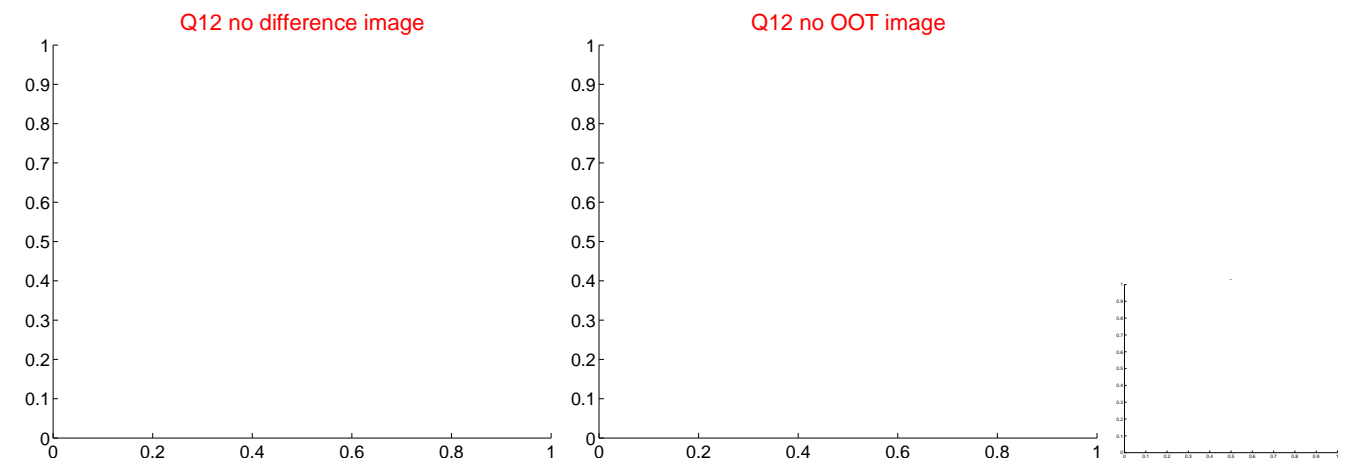
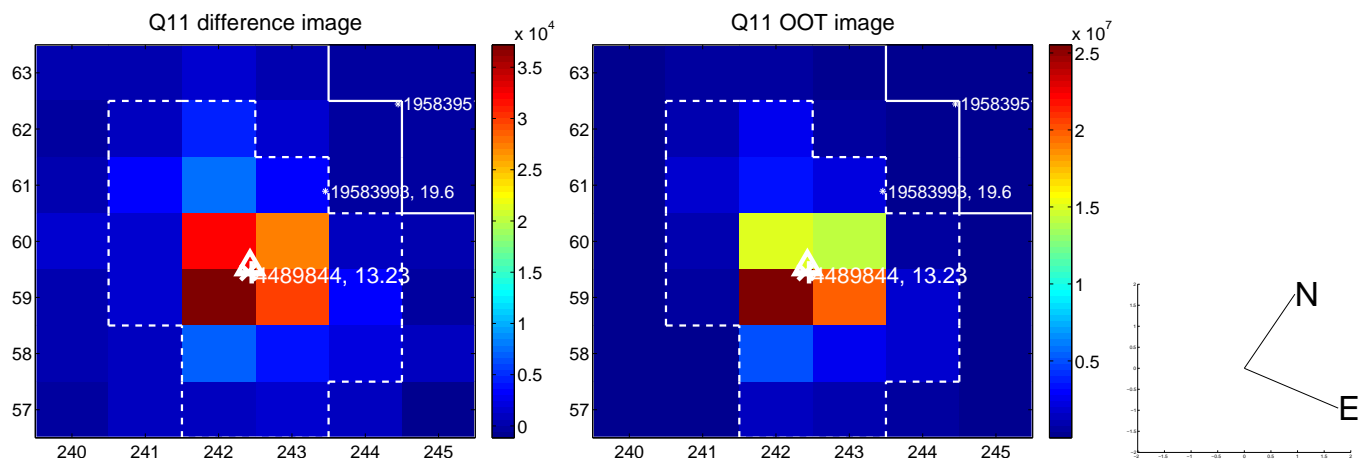
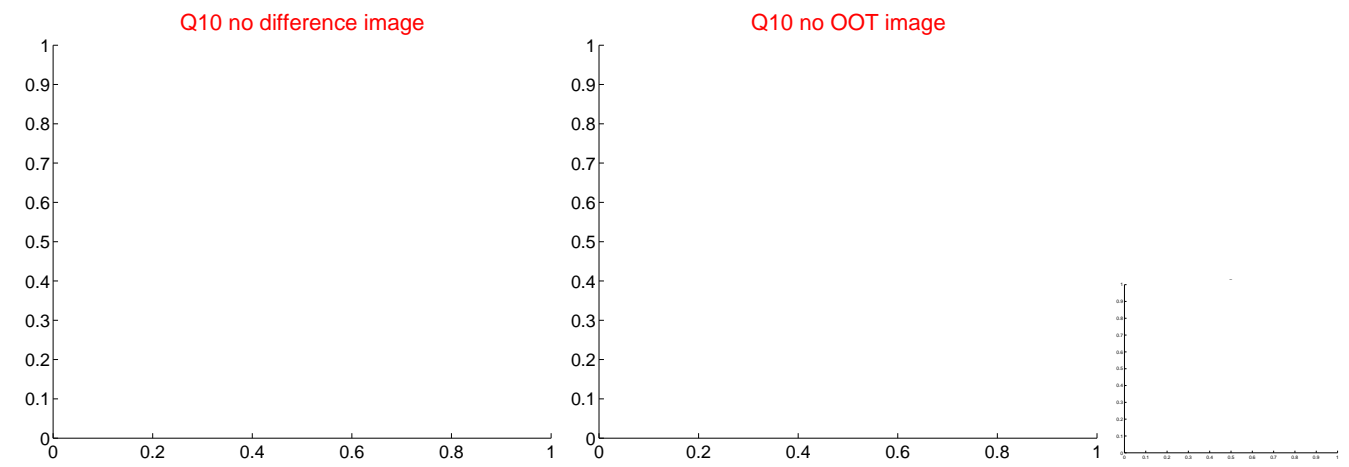
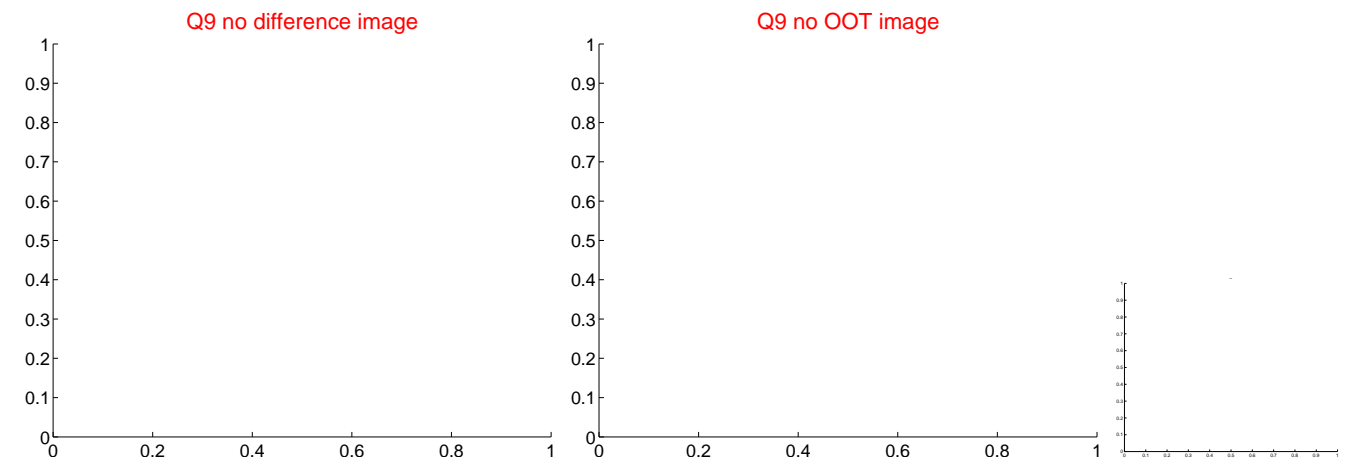
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

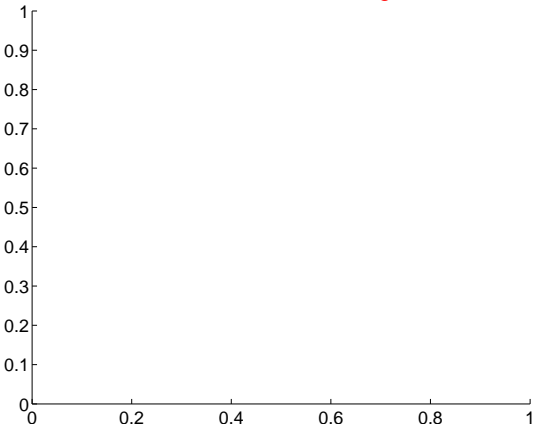


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

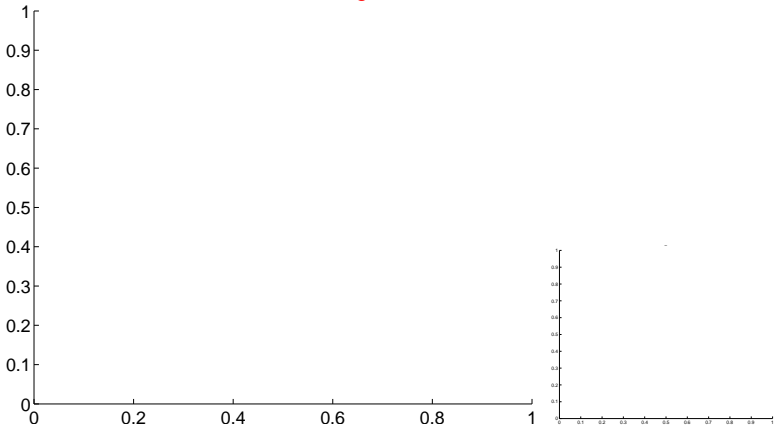


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

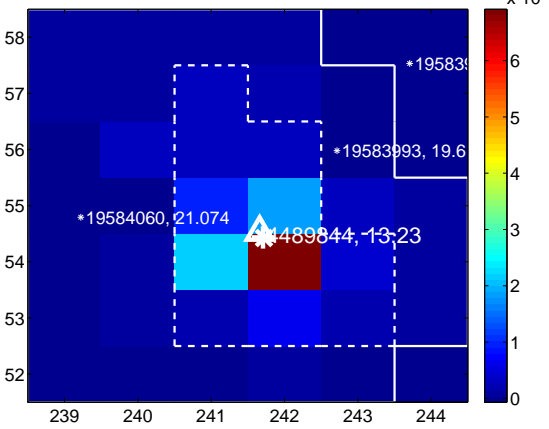
Q13 no difference image



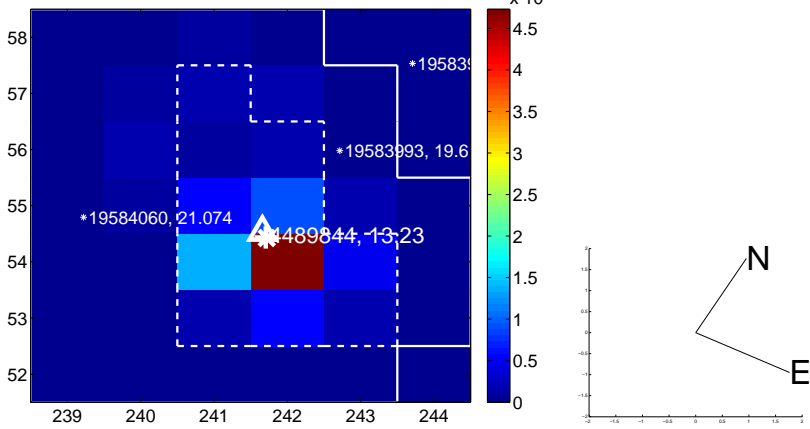
Q13 no OOT image



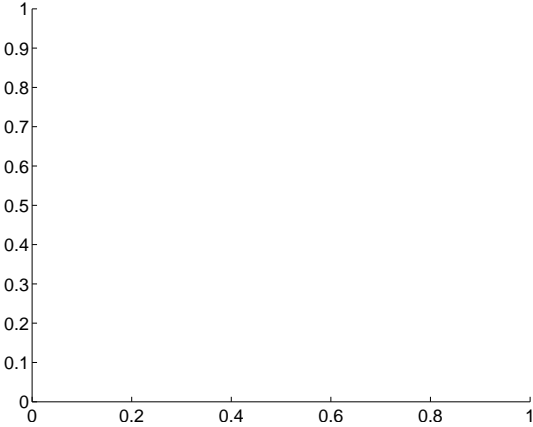
Q14 difference image



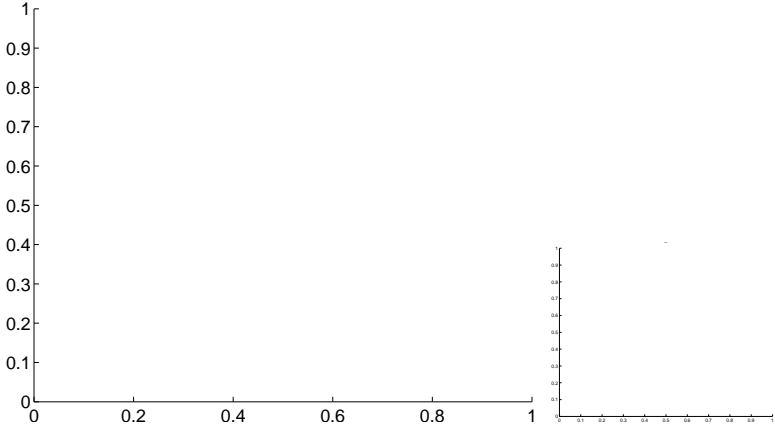
Q14 OOT image



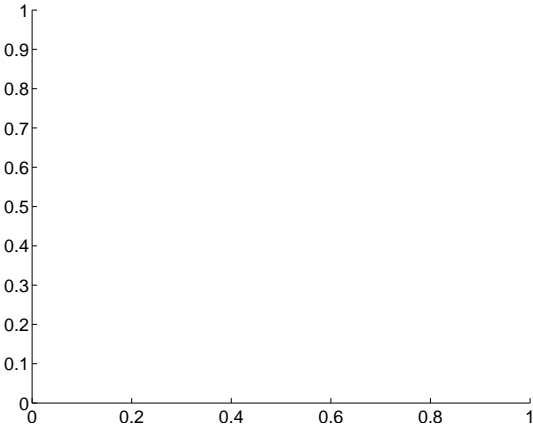
Q15 no difference image



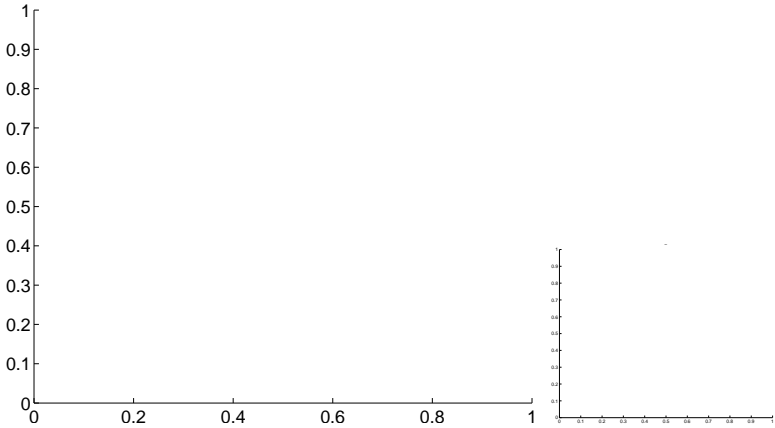
Q15 no OOT image



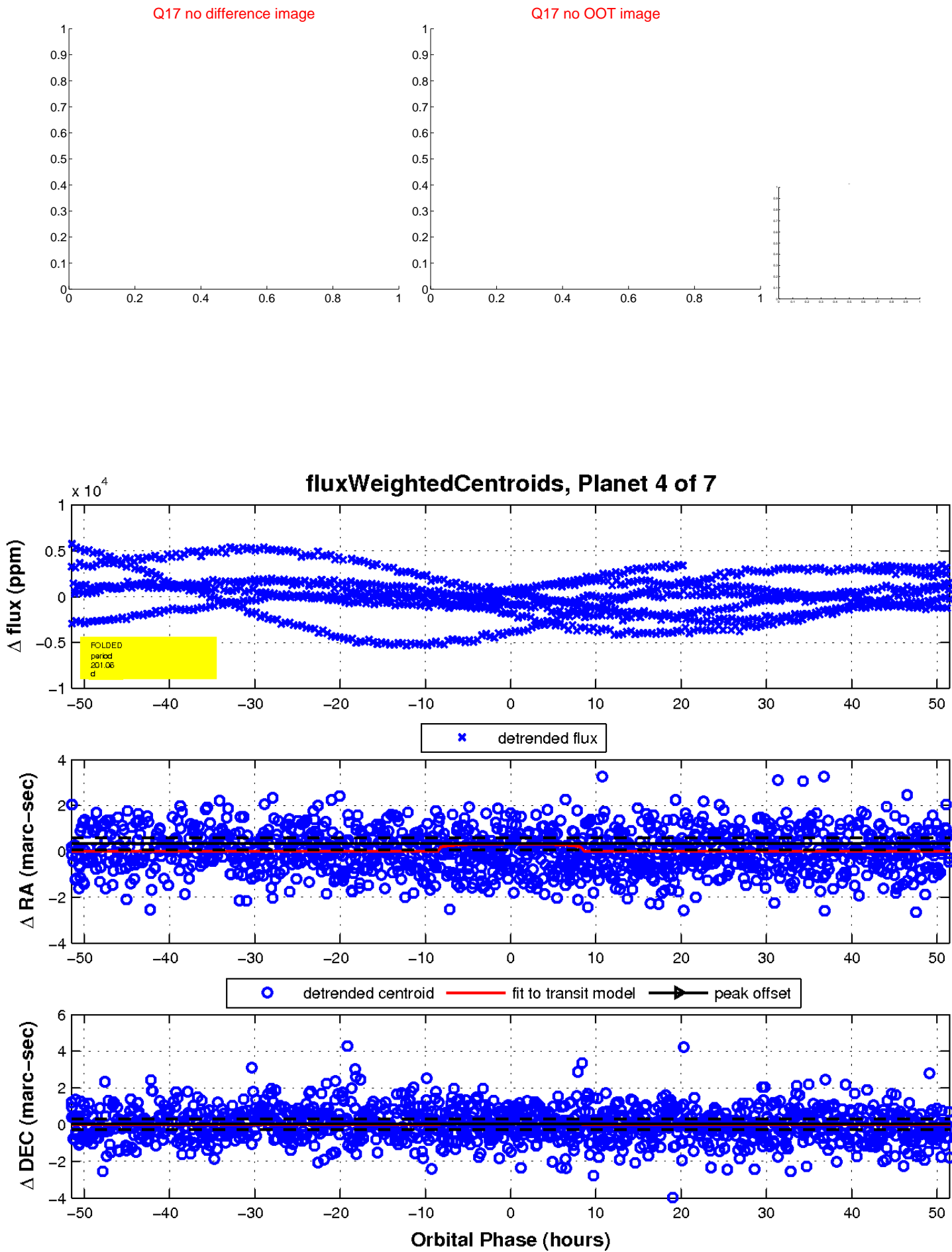
Q16 no difference image



Q16 no OOT image

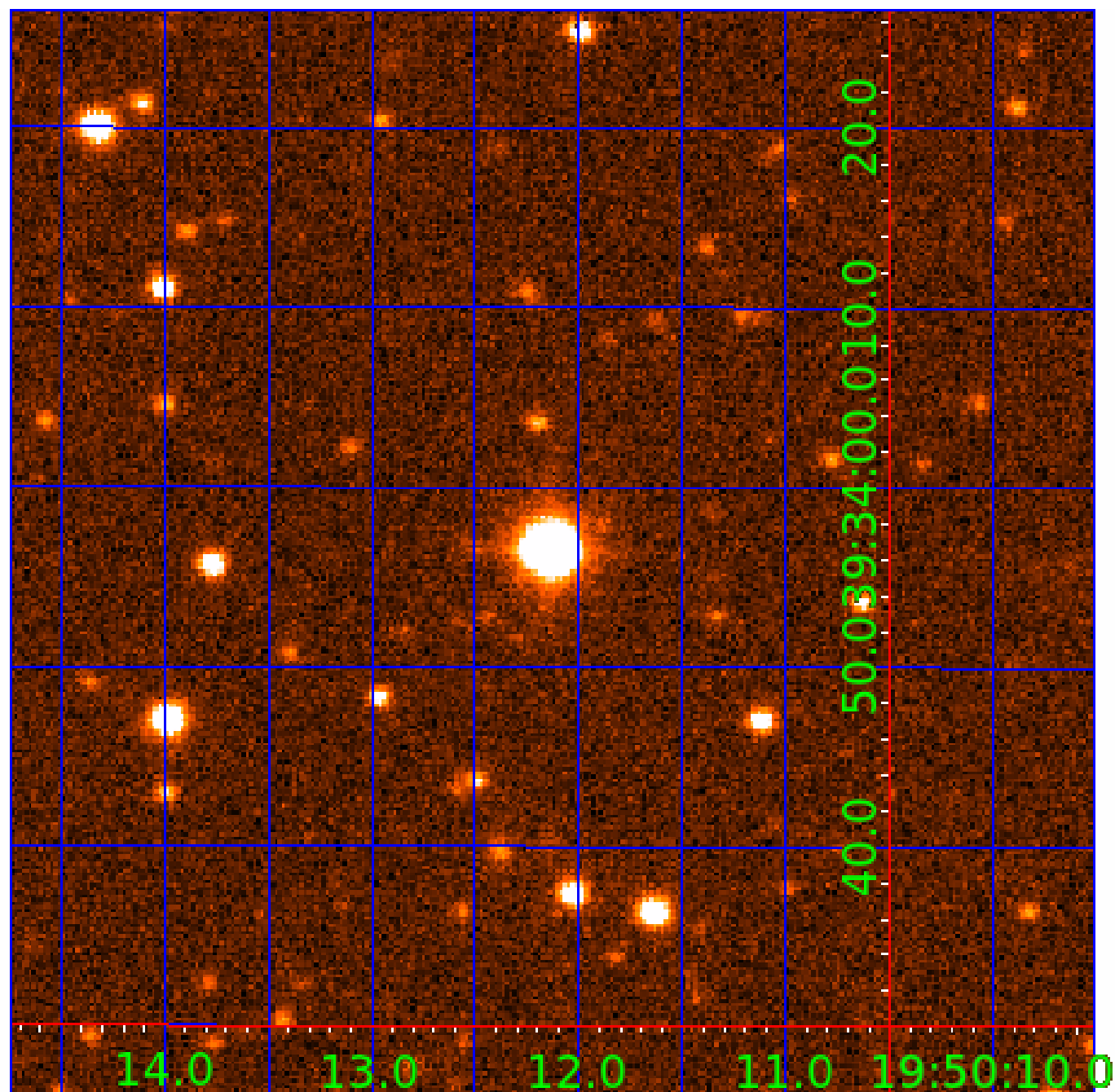


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004489844

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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004489844-03	OBS	No	92.773788	170.666306	1504.7	47.708	17.7	8.8	0.94	5709	4.62	5.92
004489844-04	OBS	No	201.064179	282.605053	418.3	17.182	16.1	4.6	0.94	5709	1.92	2.11
004489844-05	OBS	No	114.235574	239.089238	306.8	4.261	15.0	4.9	0.94	5709	1.92	4.49
004489844-06	OBS	No	441.742687	139.379888	589.7	9.347	12.4	6.1	0.94	5709	2.33	0.74
004489844-07	OBS	No	273.142187	163.045997	263.7	4.411	13.5	3.6	0.94	5709	1.66	1.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004489844-01	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET—HALO_GHOST
004489844-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
004489844-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004489844-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004489844-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES
004489844-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004489844-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

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

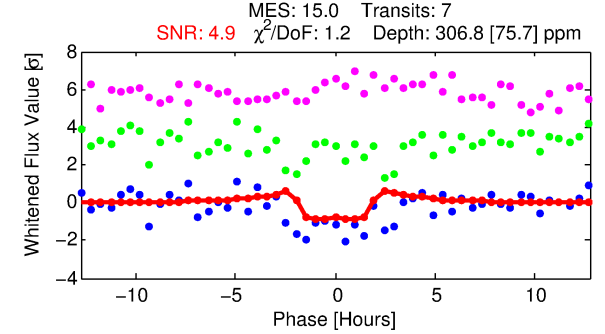
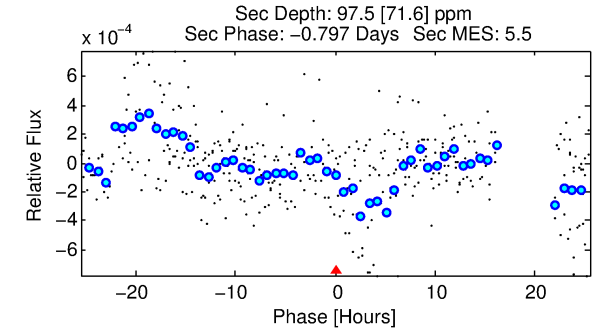
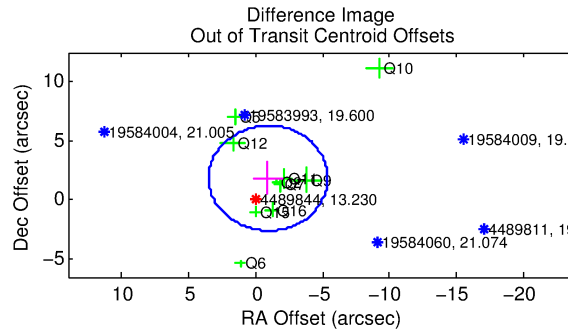
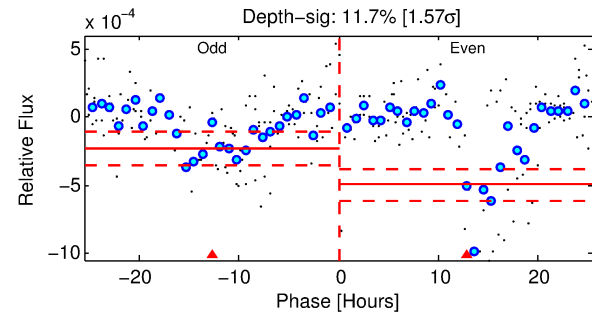
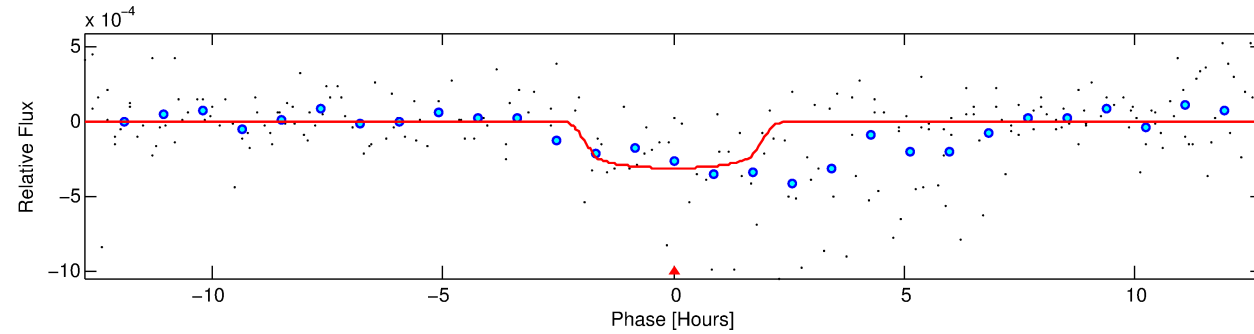
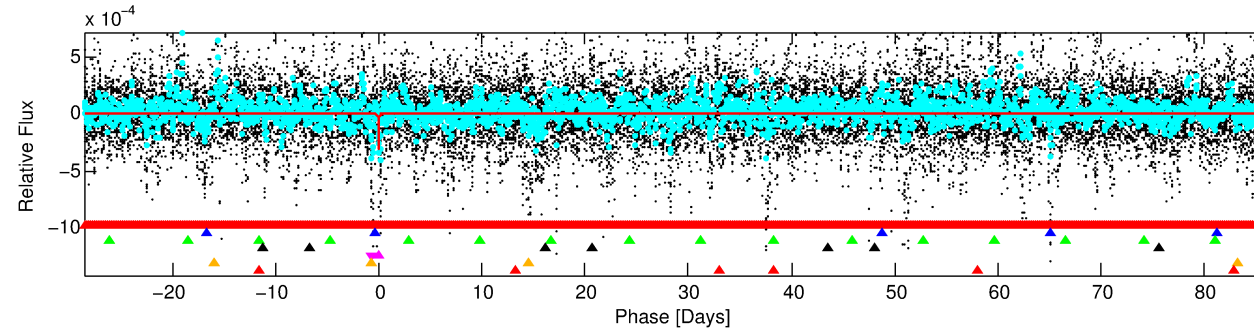
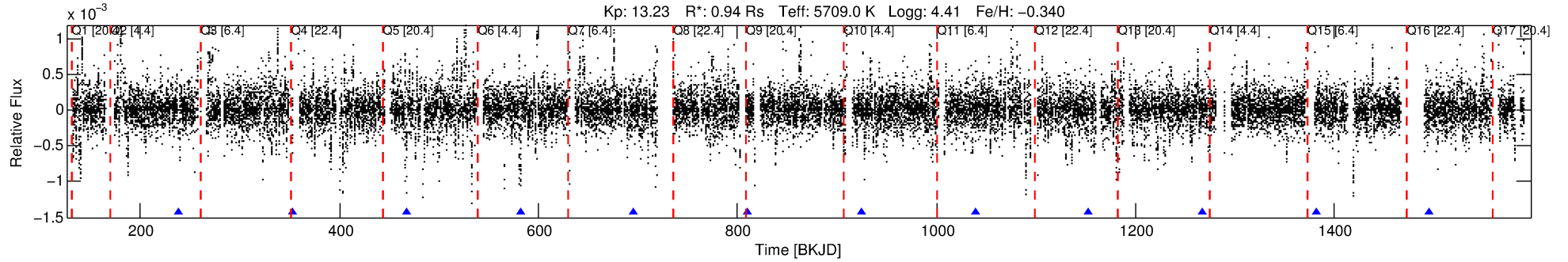
Ephemeris Match Information For 004489844-05

No Significant Match Found

DV One-Page Summary

KIC: 4489844 Candidate: 5 of 7 Period: 114.236 d
KOI: K06421 Corr: No Ephemeris Match

Kp: 13.23 R*: 0.94 Rs Teff: 5709.0 K Logg: 4.41 Fe/H: -0.340



DV Fit Results:

Period = 114.23557 [0.00195] d
Epoch = 239.0892 [0.0114] BKJD
Rp/R* = 0.0187 [0.0112]
a/R* = 103.89 [281.22]
b = 0.88 [0.68]
Seff = 4.49 [1.54]
Teq = 371 [32] K
Rp = 1.92 [1.25] Re
a = 0.4319 [0.0971] AU
Ag = 2716.18 [3898.84] [0.70σ]
Teff = 4143 [1453] K [2.60σ]

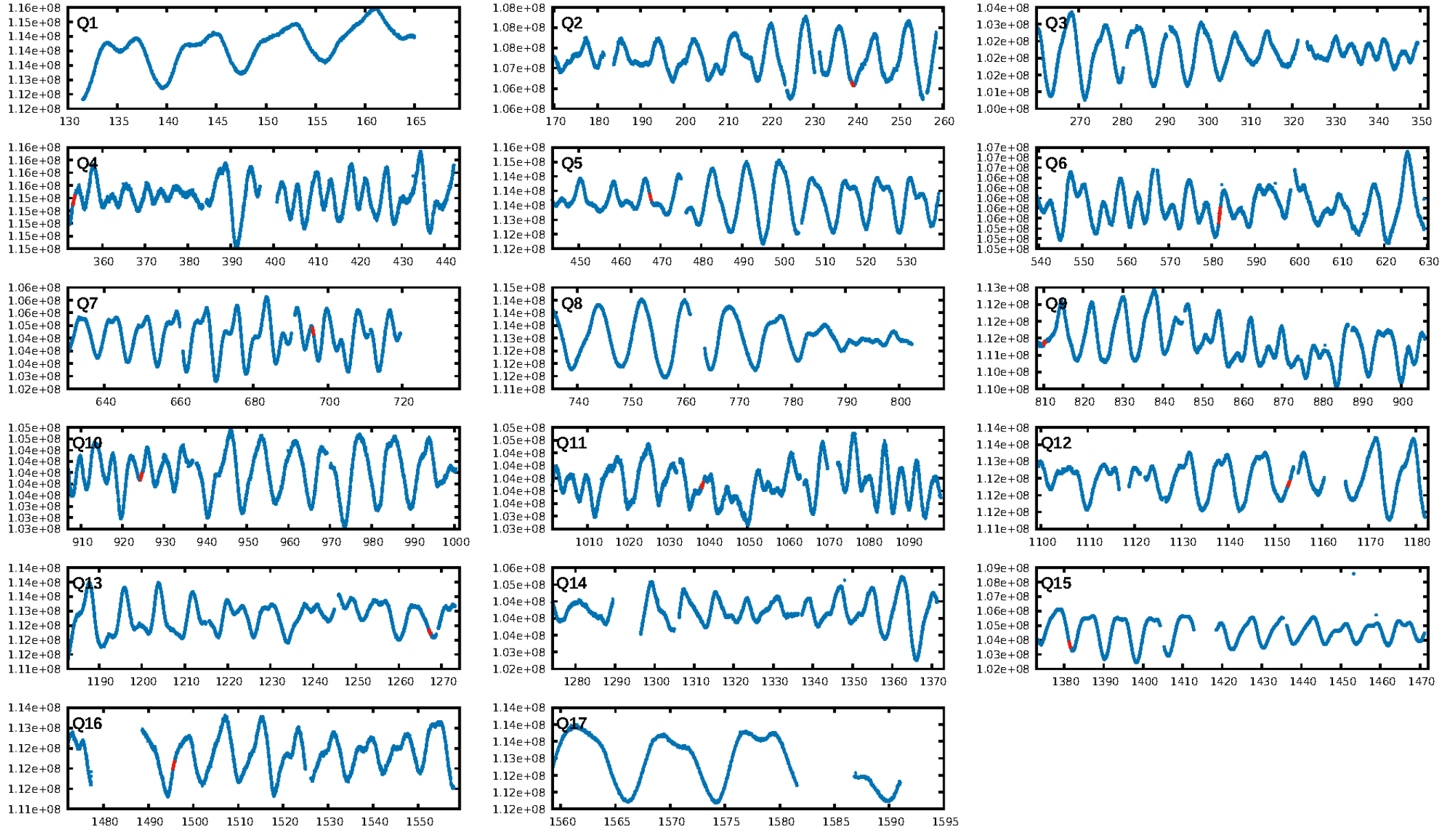
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.75σ]
LongPeriod-sig: 100.0% [117.72σ]
ModelChiSquare2-sig: 1.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.58e-20
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 2.28
Centroid-sig: 16.6%
Centroid-so: 1.069 arcsec [1.12σ]
OotOffset-rm: 2.080 arcsec [1.41σ]
KicOffset-rm: 2.032 arcsec [1.41σ]
OotOffset-st: 3/3/2/2 [10]
KicOffset-st: 3/3/2/2 [10]
DiffImageQuality-fgm: 0.30 [3/10]
DiffImageOverlap-fno: 0.00 [0/10]

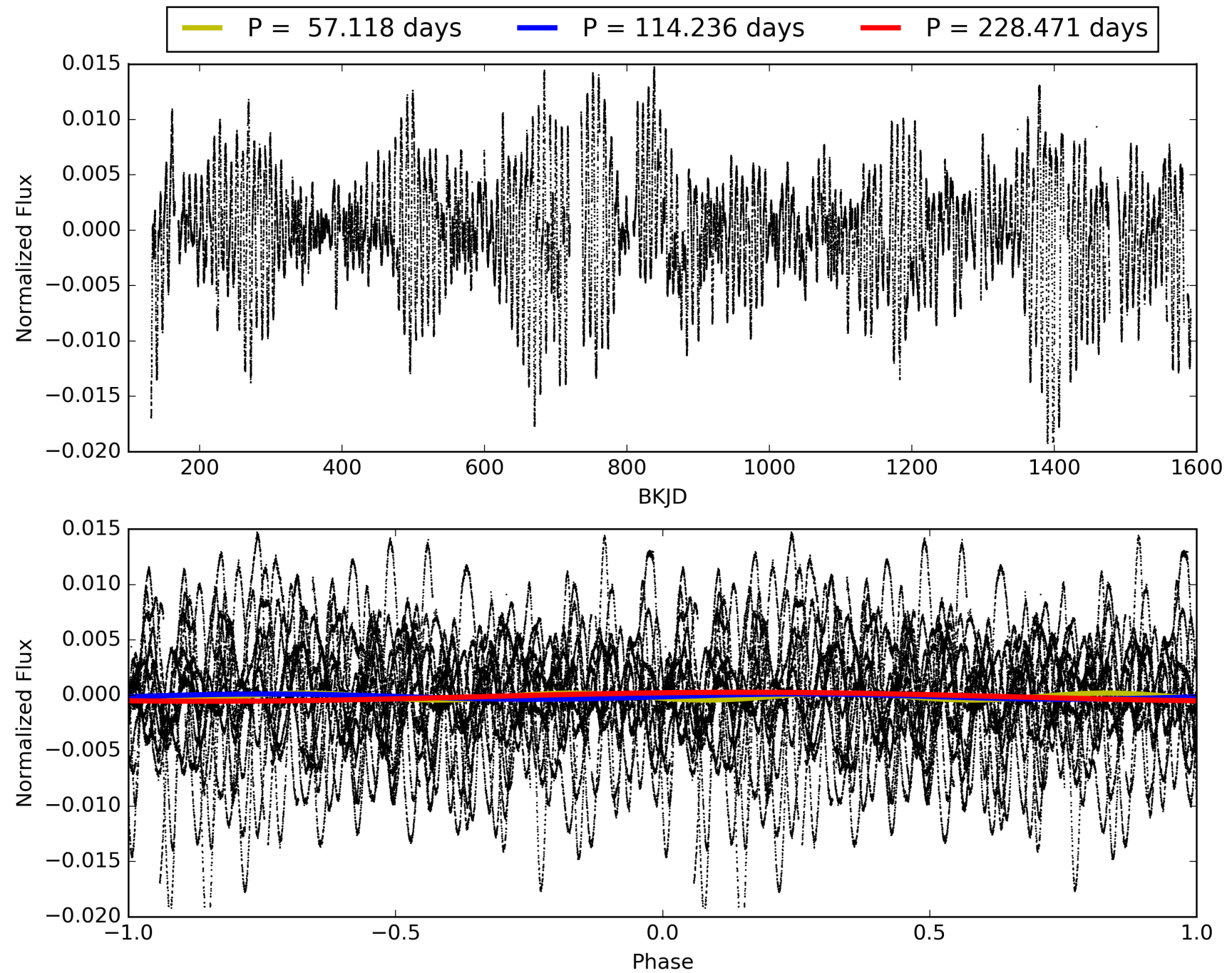
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:37:57 Z

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

TCE 004489844-05, PDC Light Curves

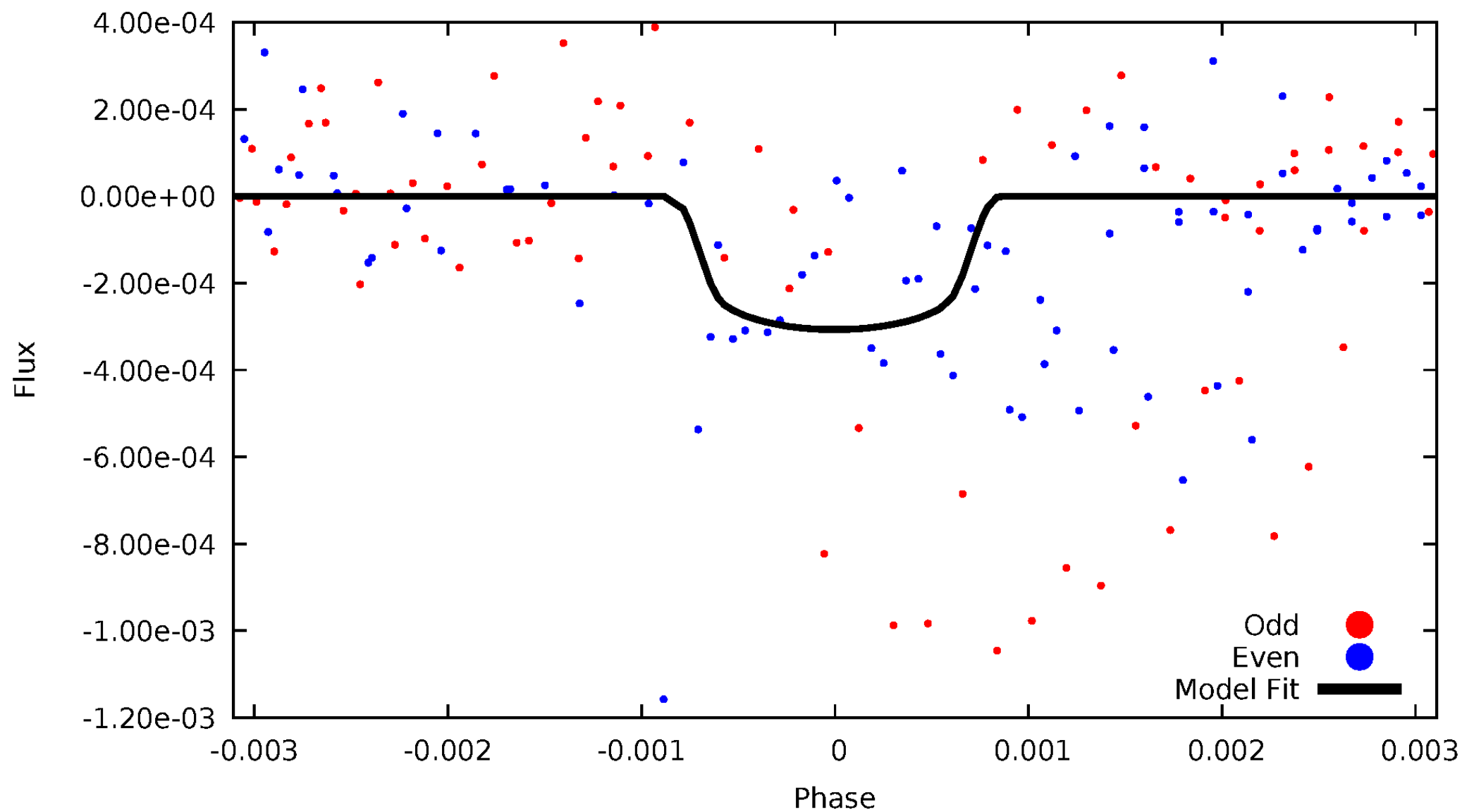


TCE 004489844-05



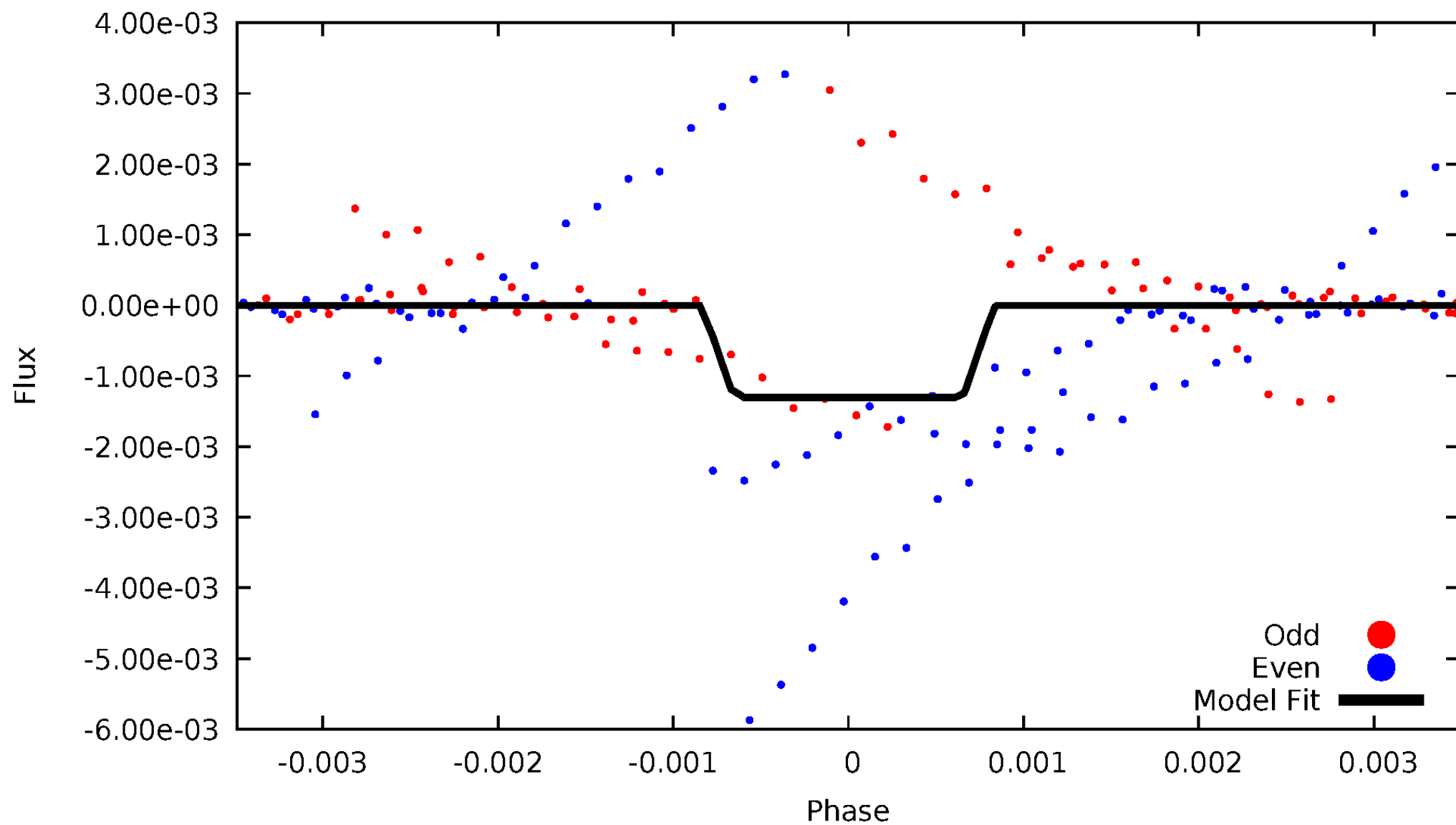
DV Odd/Even

TCE 004489844-05



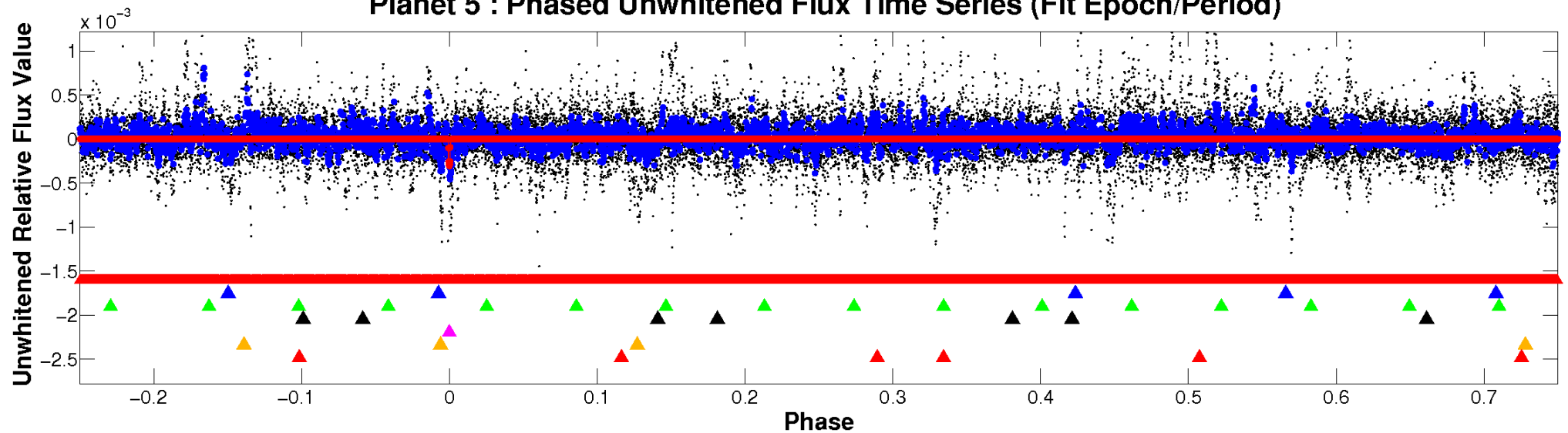
ALT Odd/Even

TCE 004489844-05

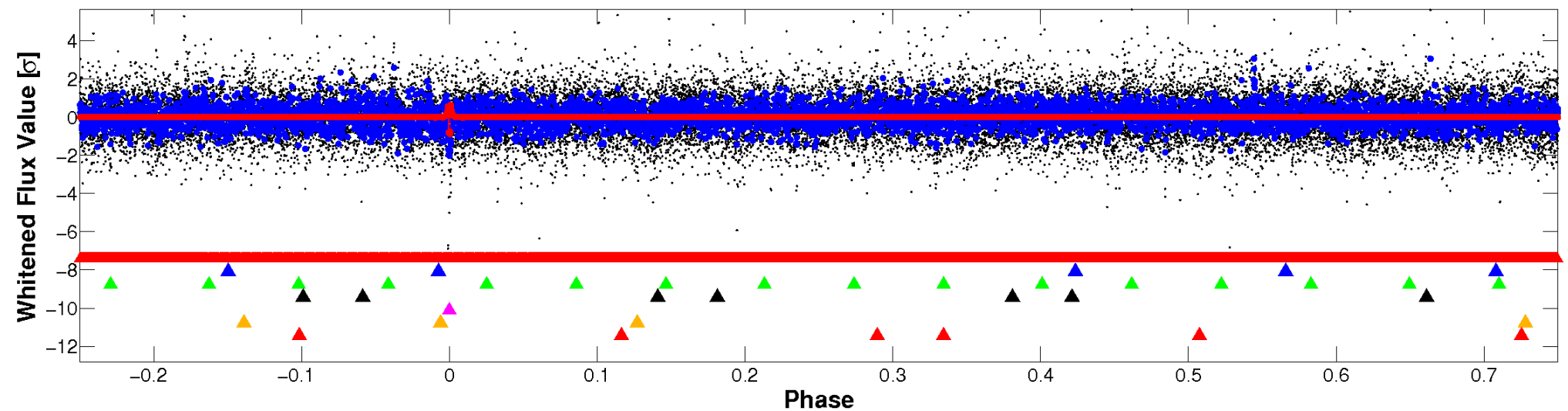


Non-Whitened Vs. Whitened Light Curve

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

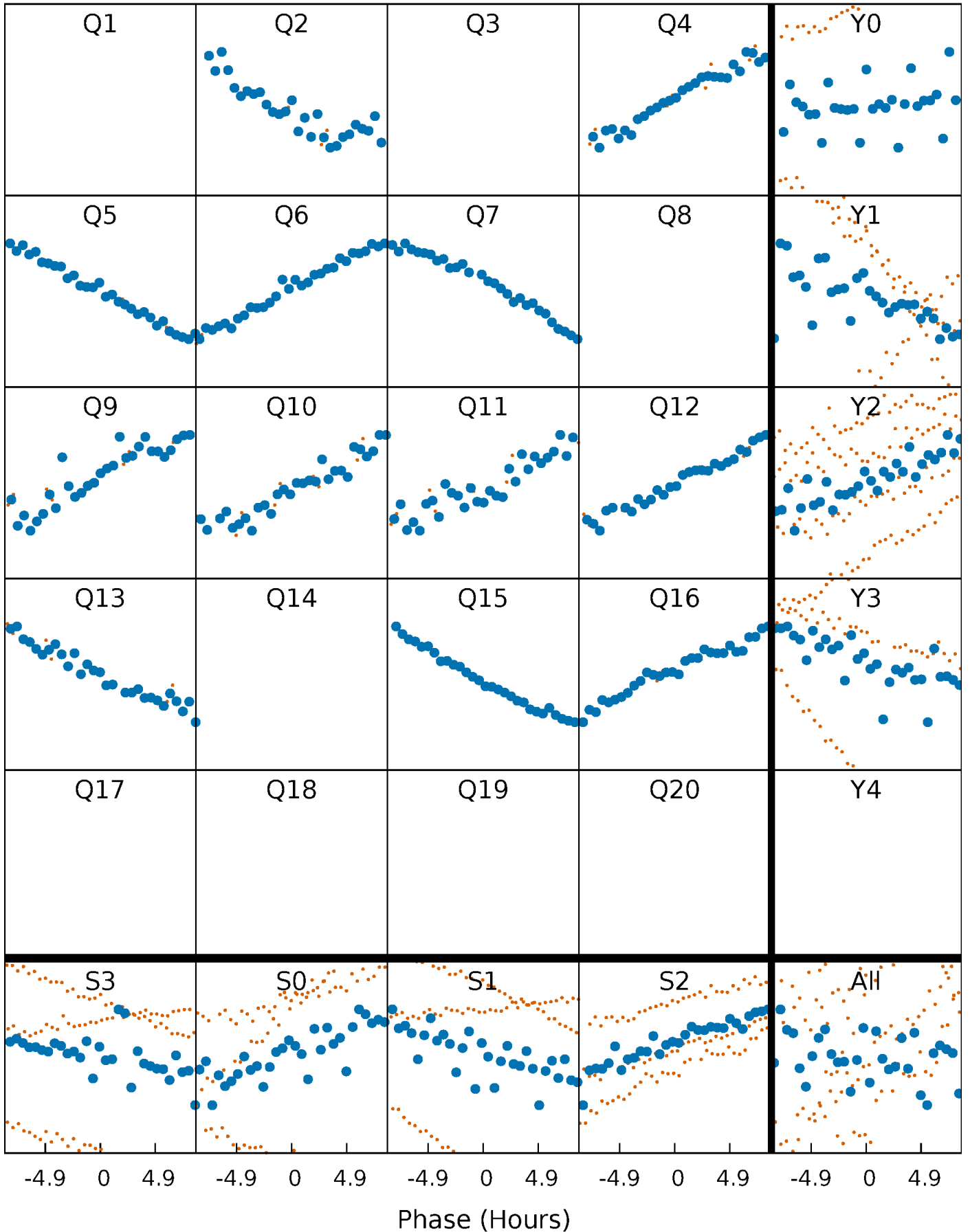


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



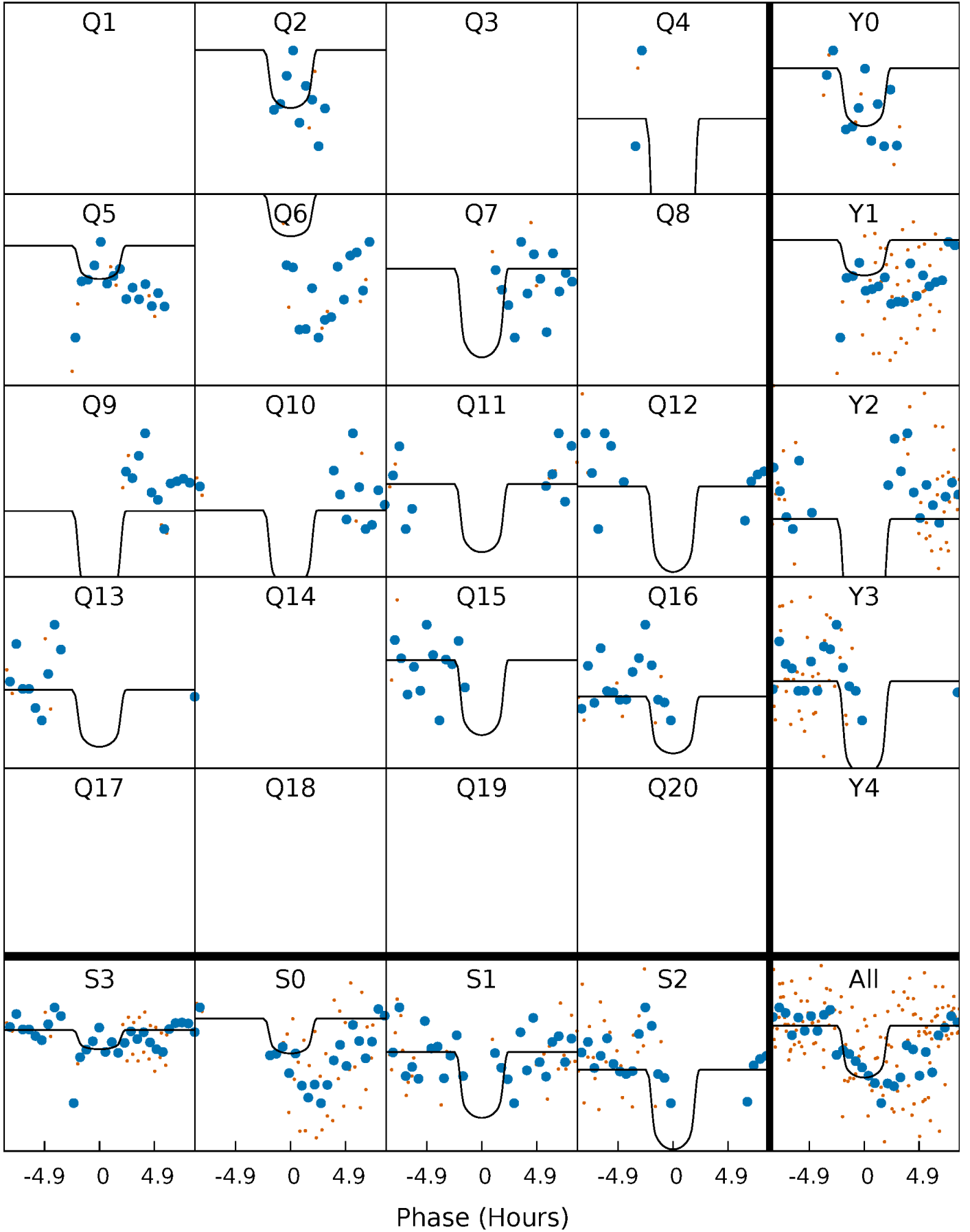
PDC Quarter-Phased Transit Curves

TCE 004489844-05 P=114.235574 Days $T_0=239.089238$ (BKJD)



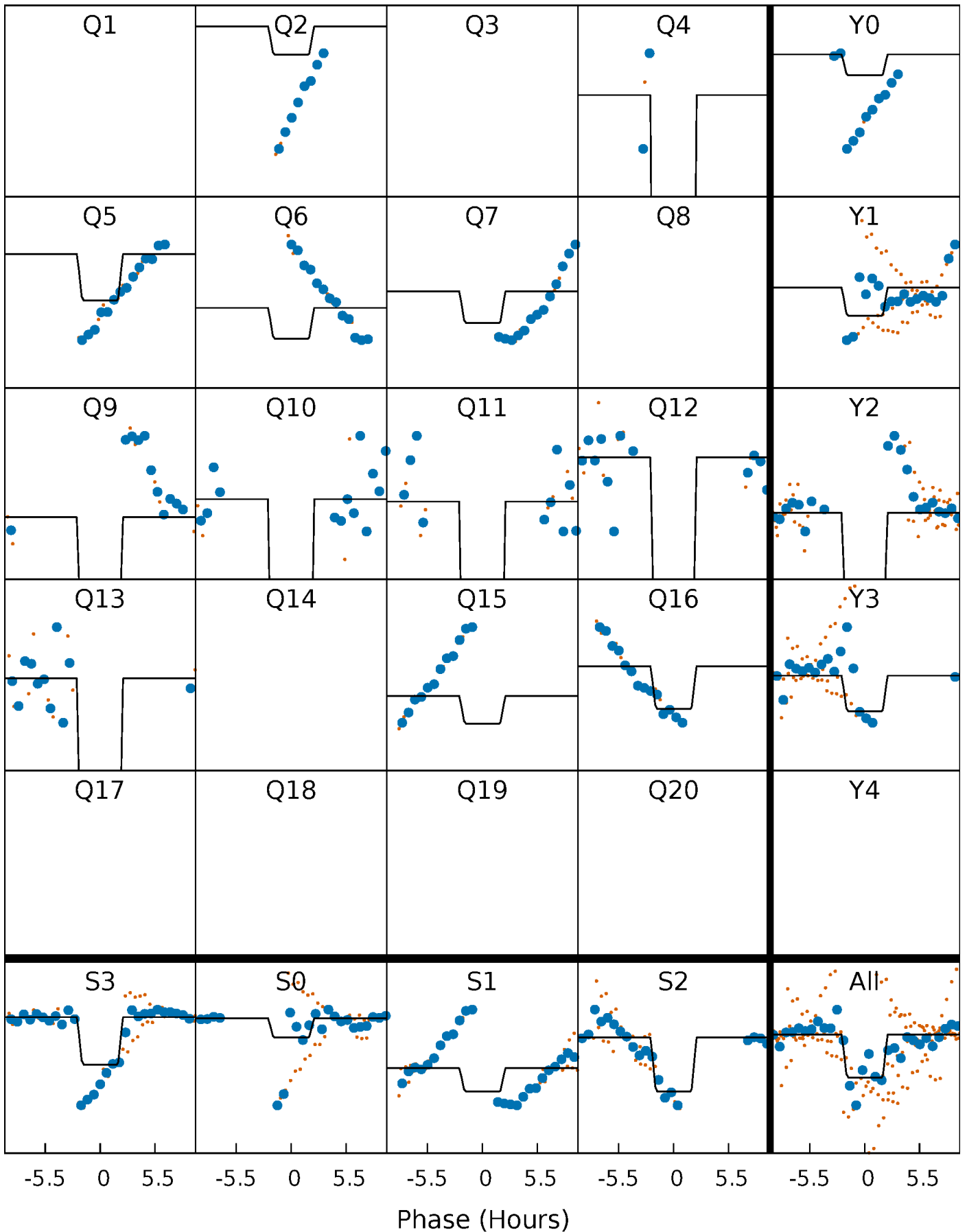
DV Quarter-Phased Transit Curves

TCE 004489844-05 $P=114.235574$ Days $T_0=239.089238$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

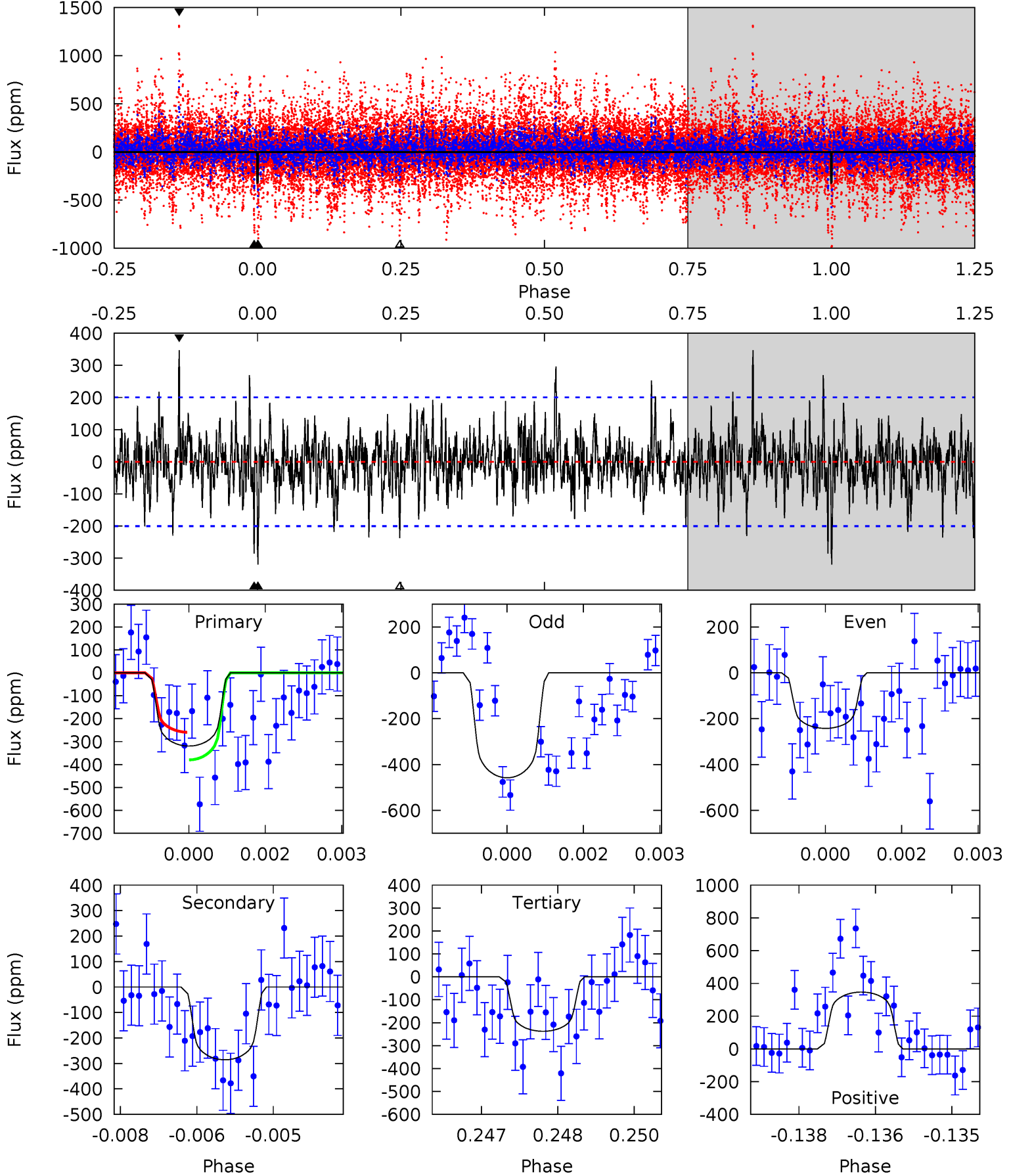
TCE 004489844-05 P=114.233704 Days $T_0=239.080087$ (BKJD)



DV Model-Shift Uniqueness Test

004489844-05, P = 114.235574 Days, E = 124.853664 Days

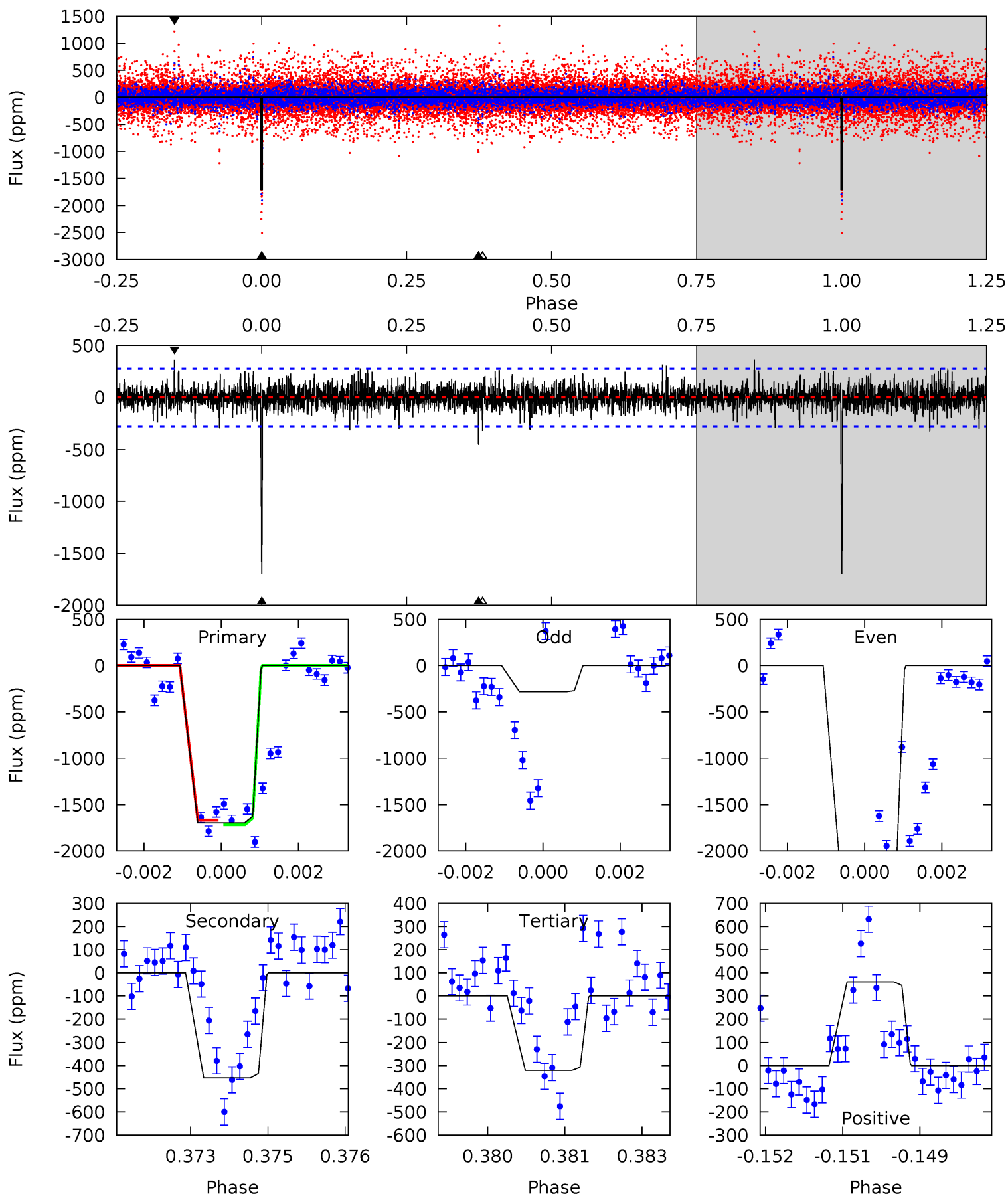
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.55	7.65	6.36	9.28	5.36	3.15	1.80	2.19	-0.73	1.29	-1.64	2.62	1.24	0.52	1.63



Alt Model-Shift Uniqueness Test

004489844-05, P = 114.233704 Days, E = 124.846383 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.8	8.77	6.21	6.98	5.36	3.15	1.41	26.6	25.9	2.56	1.79	20.5	0.38	0.18	0



Stellar Parameters For KIC 004489844

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5709^{+154}_{-154}	$4.409^{+0.144}_{-0.176}$	$-0.340^{+0.300}_{-0.300}$	$0.938^{+0.253}_{-0.156}$	$0.824^{+0.116}_{-0.062}$	$1.405^{+0.844}_{-0.670}$
	+3%/-3%	+3%/-4%	+88%/-88%	+27%/-17%	+14%/-8%	+60%/-48%
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 004489844-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-286 ± 37	$1.99^{+1.15}_{-1.09}$	520^{+35}_{-30}	5373^{+2487}_{-927}	7578^{+25703}_{-4523}
Alt.	-454 ± 52	$3.70^{+1.40}_{-1.19}$	520^{+36}_{-30}	4574^{+824}_{-473}	3410^{+4030}_{-1565}

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 $A_{obs} \gg 1.0$

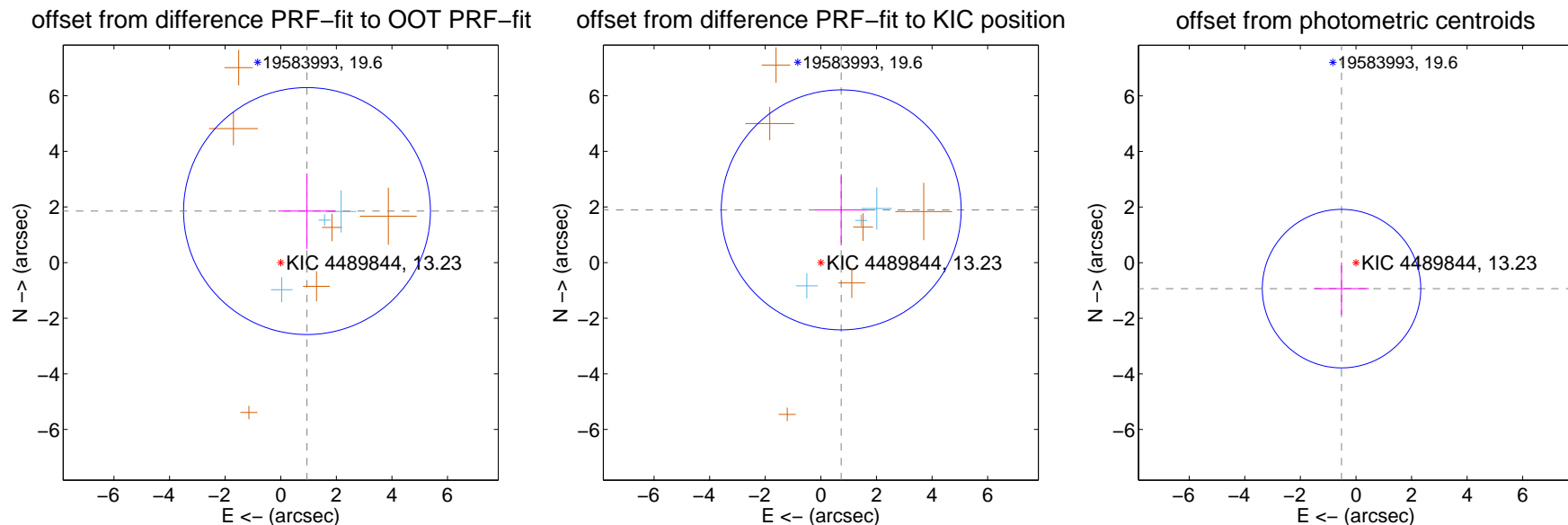
DV Centroid Data

Supplemental centroid analysis for 004489844-05. Kepler magnitude: 13.23. Transit SNR 4.87

There are 3 quarters with good PRF difference image offsets

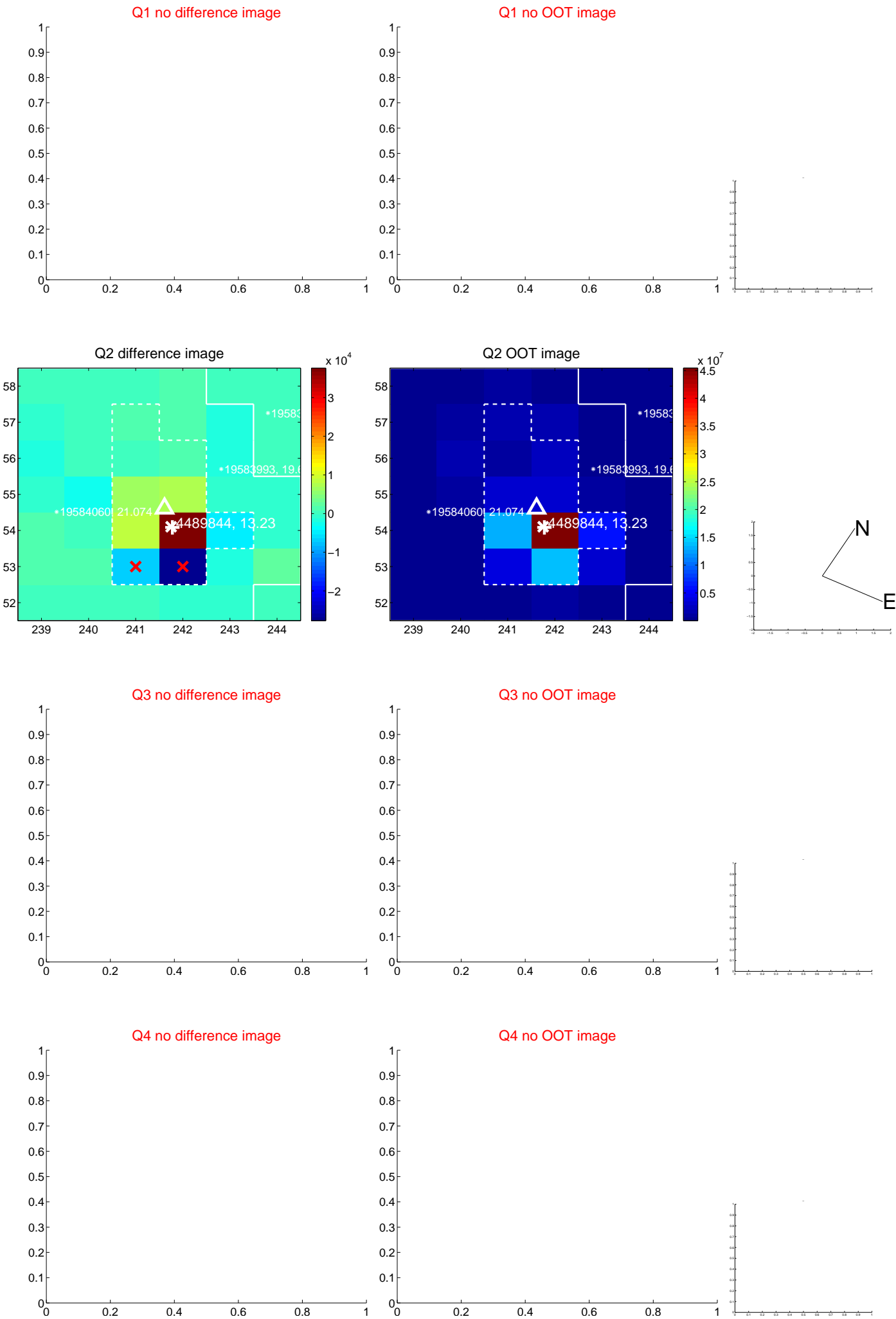
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.080 ± 1.480	1.41	-0.944 ± 1.034	1.853 ± 1.360
PRF-fit source offset from KIC position	2.032 ± 1.439	1.41	-0.732 ± 0.956	1.896 ± 1.284
photometric centroid source offset	1.07 ± 0.95	1.12	0.52 ± 0.98	-0.93 ± 0.94

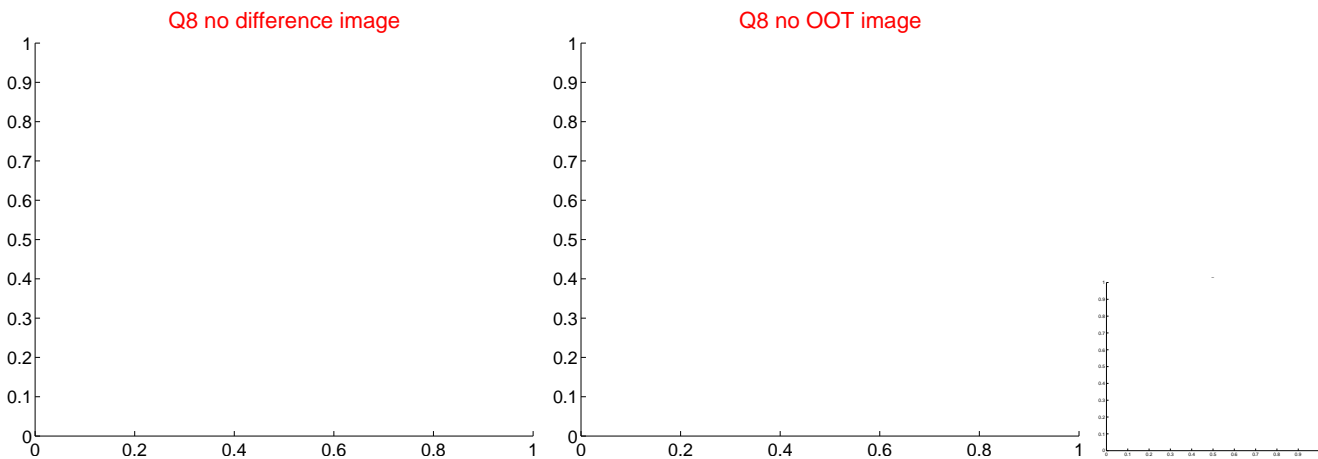
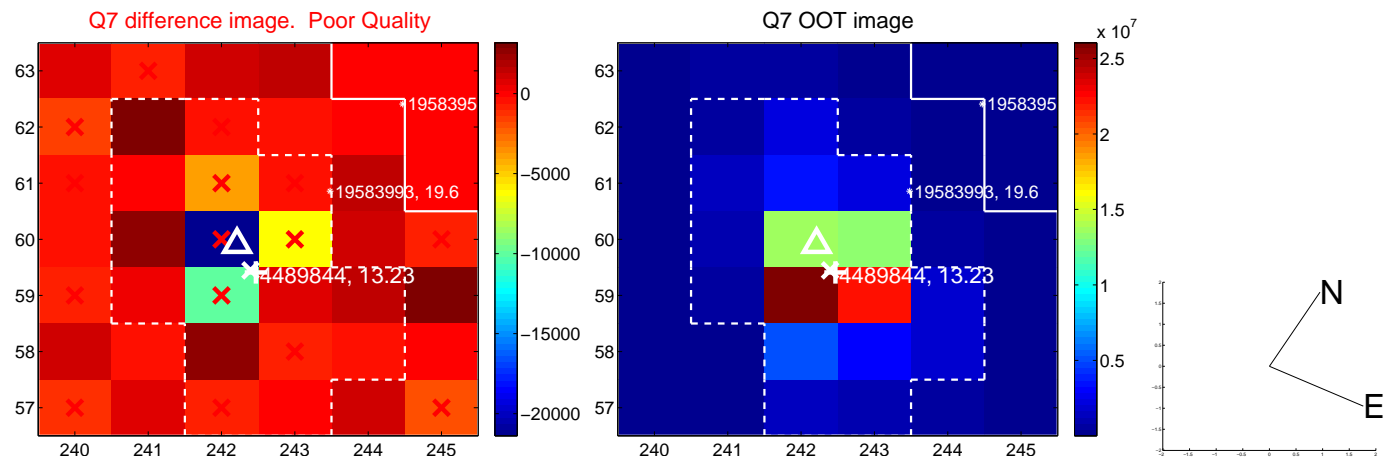
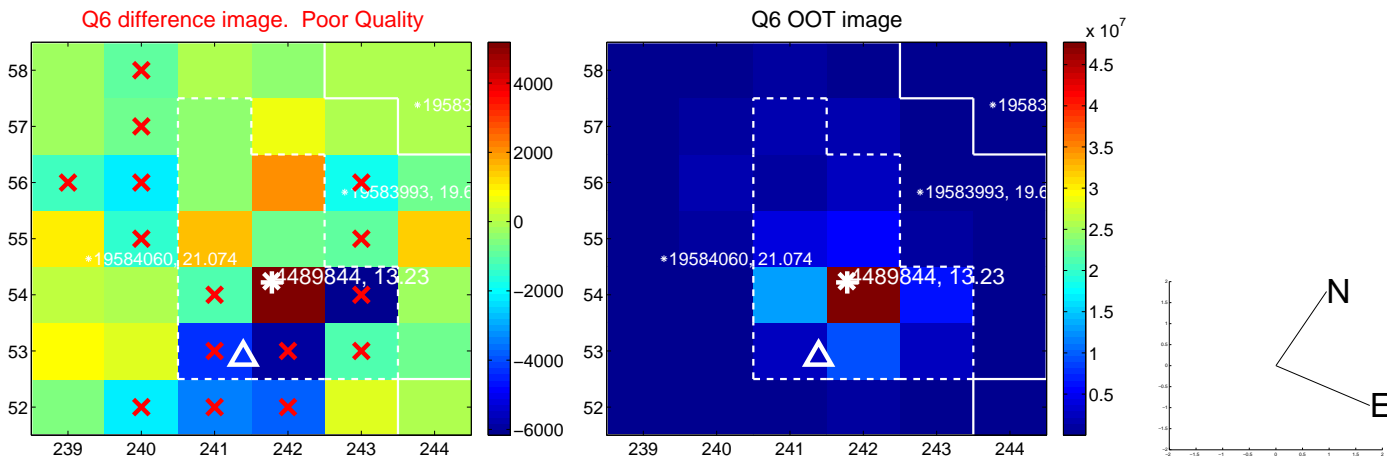
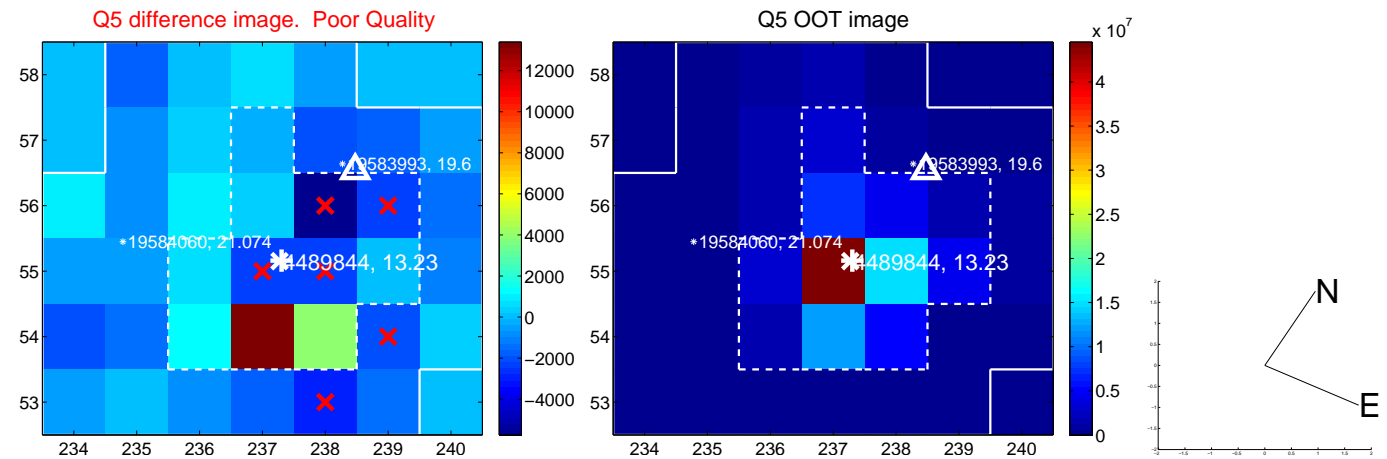


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

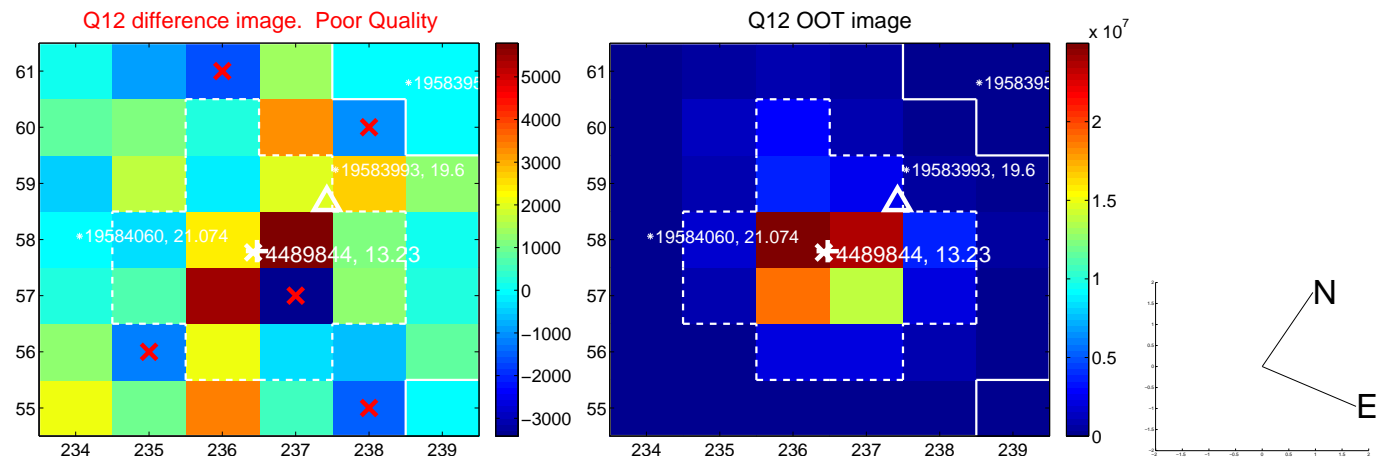
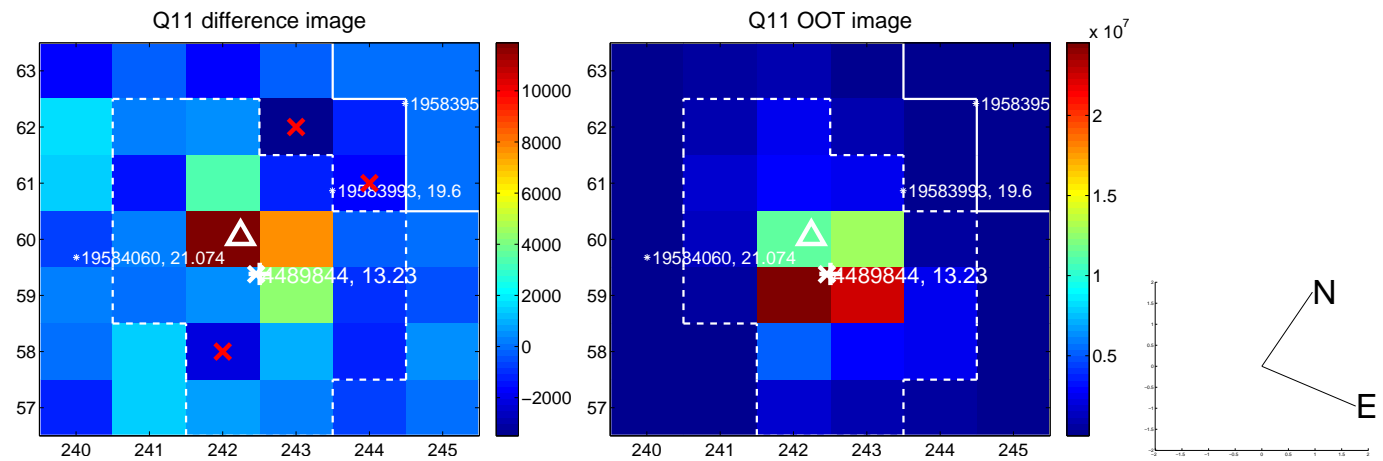
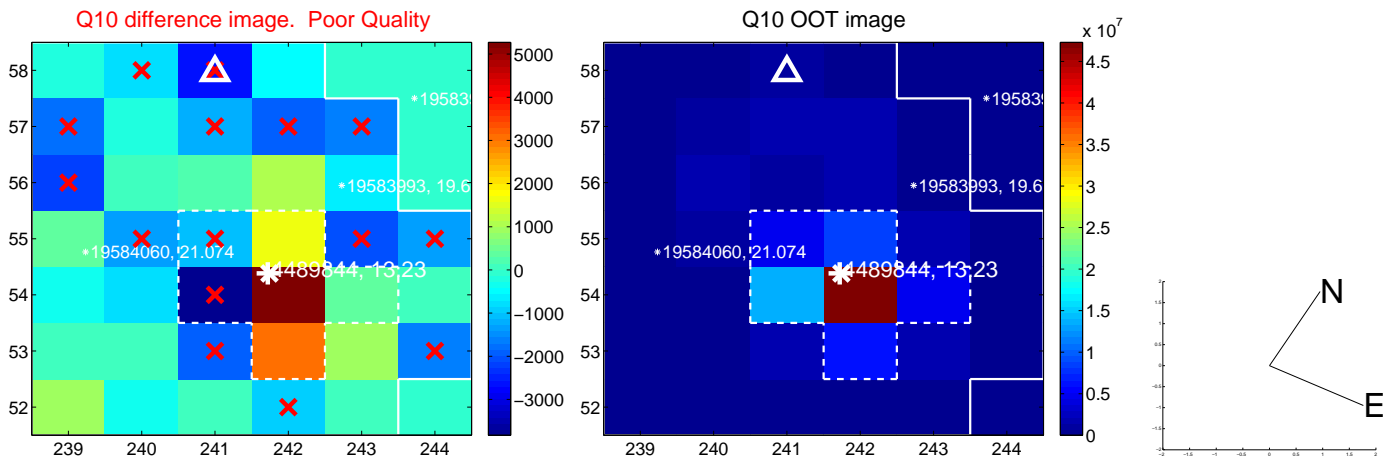
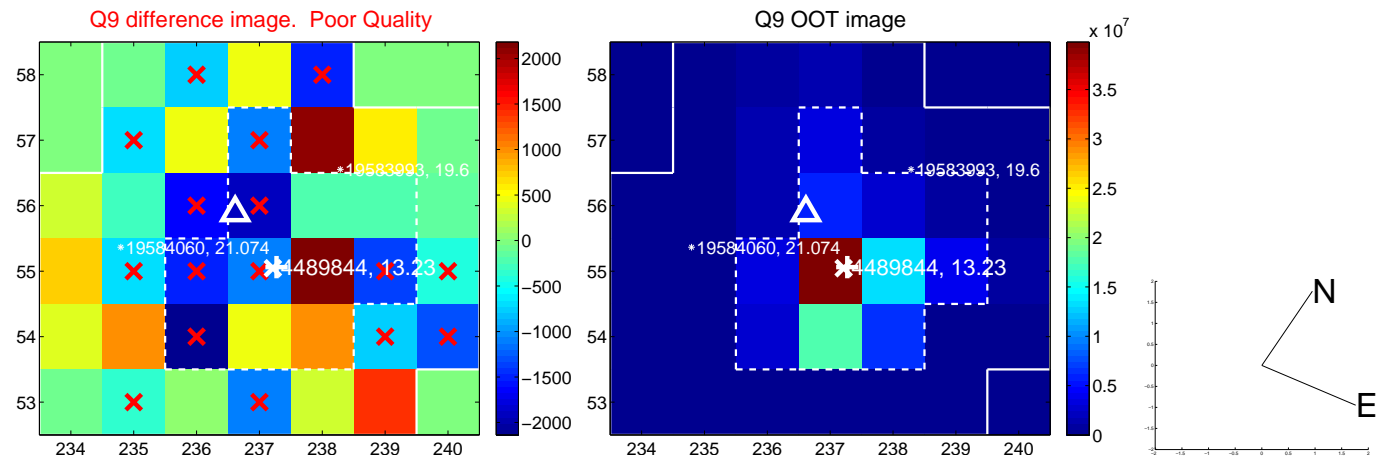
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



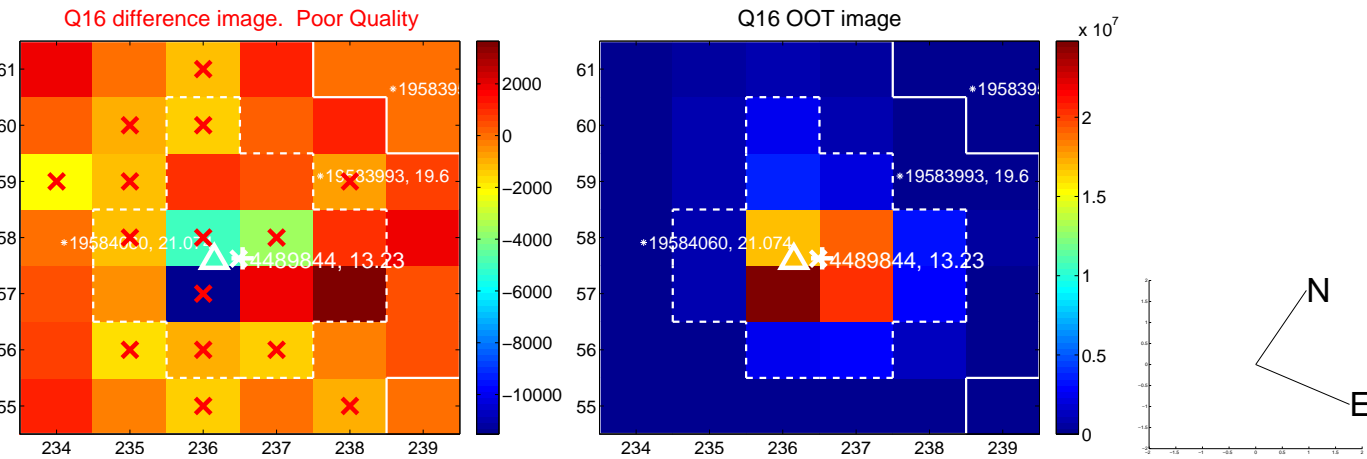
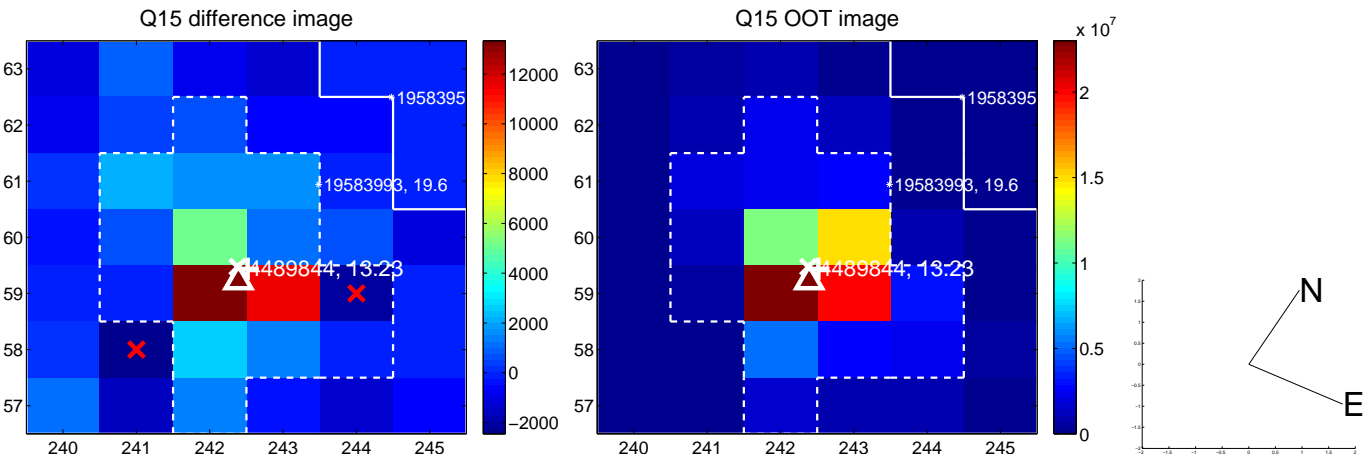
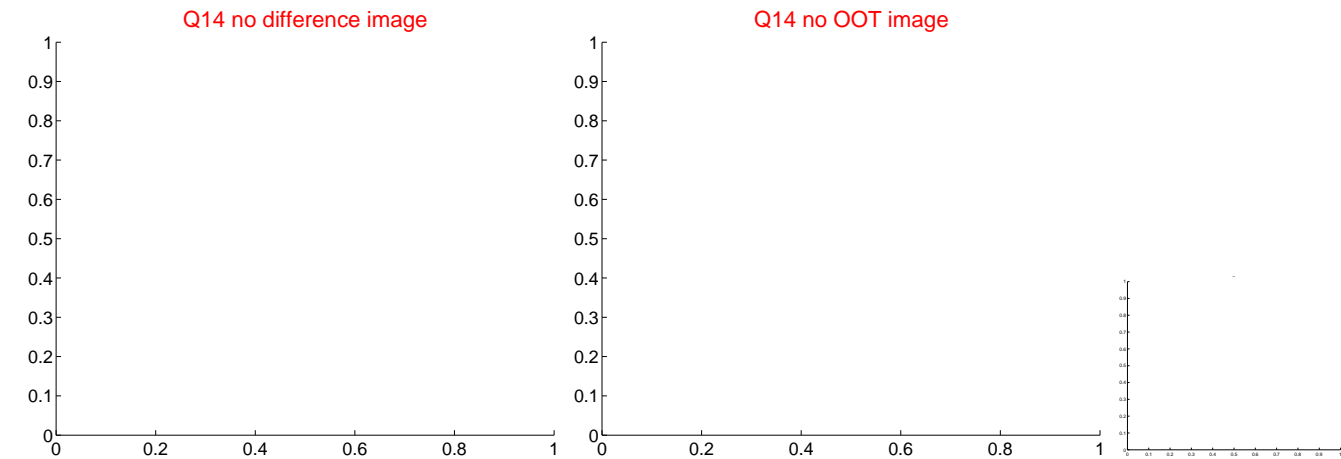
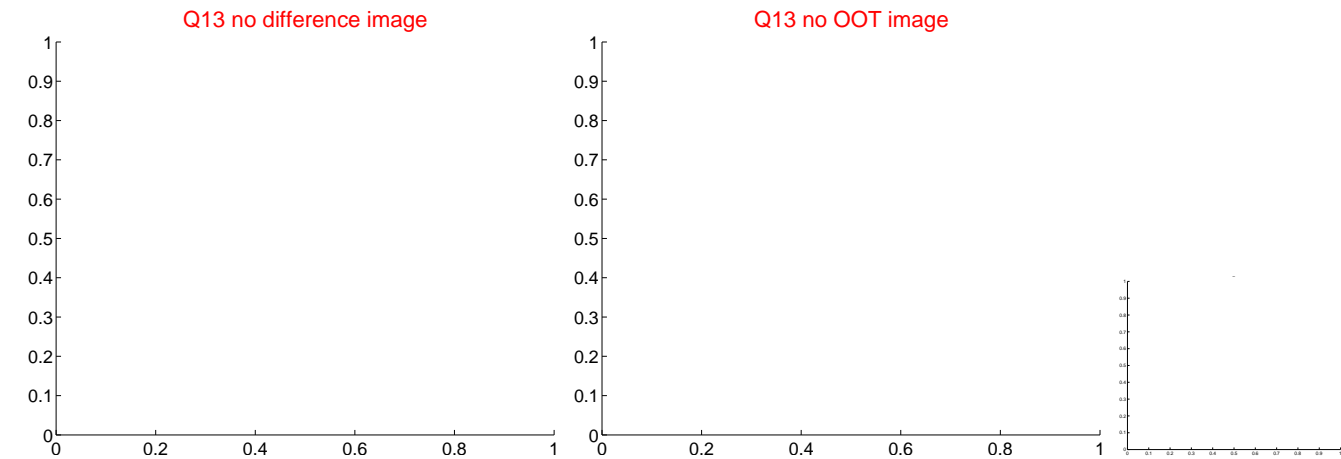
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



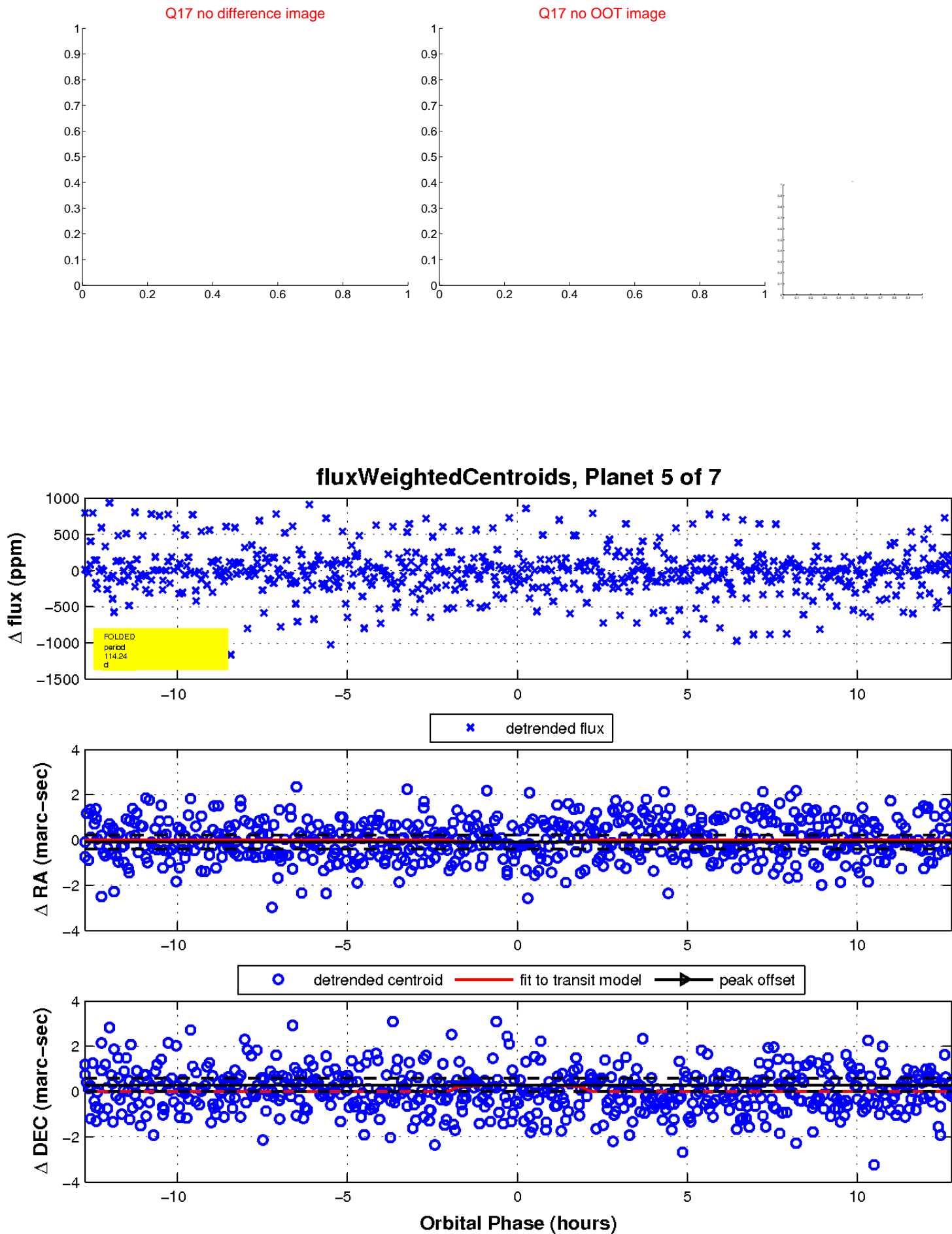
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

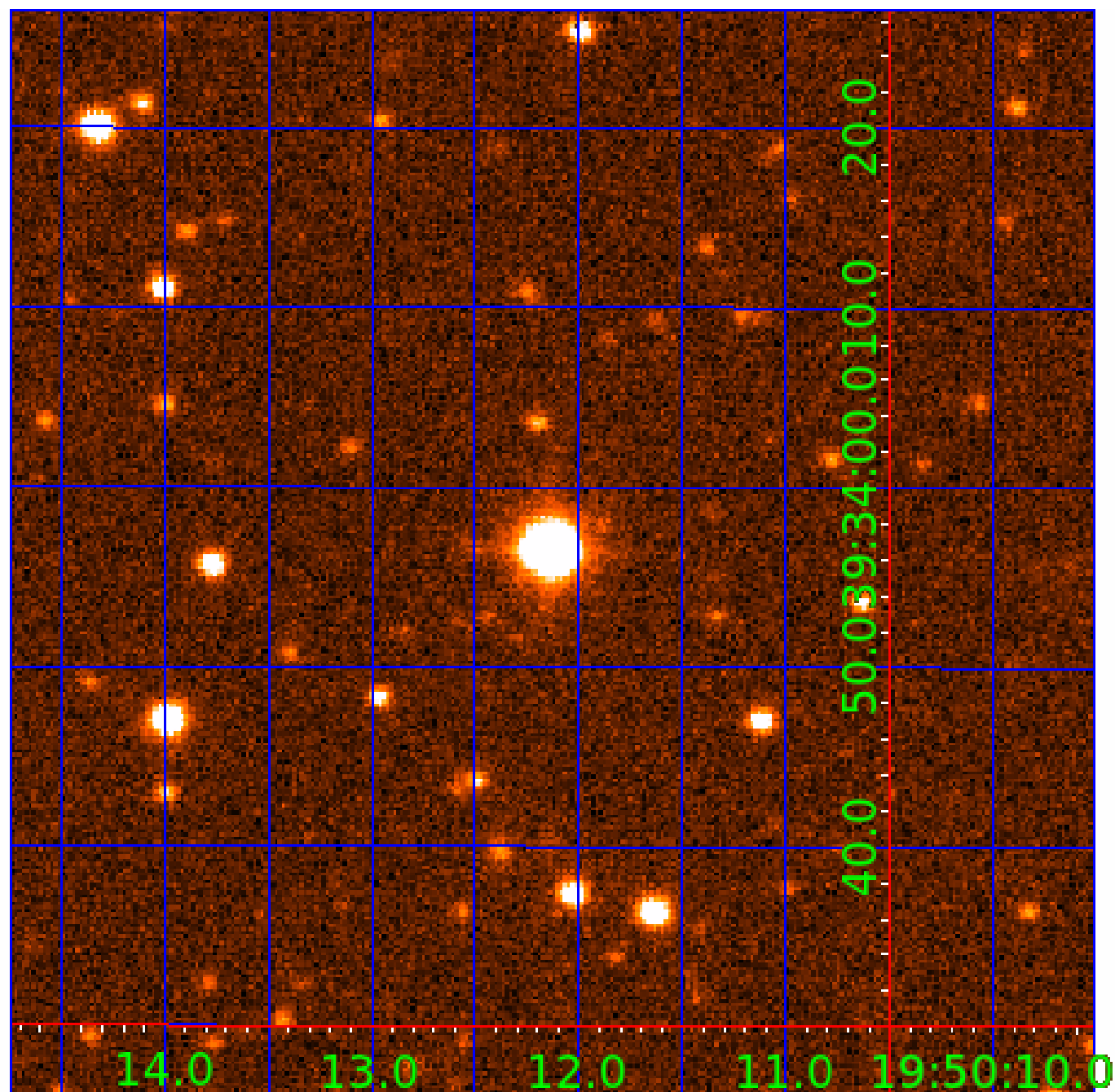


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004489844

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})
004489844-01	OBS	6421.01	0.822291	131.732038	28.5	3.538	11.3	11.1	0.94	5709	0.59	3230.24
004489844-02	OBS	No	326.453366	238.252506	473.8	12.000	17.7	-1.0	0.94	5709	2.03	1.11
004489844-03	OBS	No	92.773788	170.666306	1504.7	47.708	17.7	8.8	0.94	5709	4.62	5.92
004489844-04	OBS	No	201.064179	282.605053	418.3	17.182	16.1	4.6	0.94	5709	1.92	2.11
004489844-05	OBS	No	114.235574	239.089238	306.8	4.261	15.0	4.9	0.94	5709	1.92	4.49
004489844-06	OBS	No	441.742687	139.379888	589.7	9.347	12.4	6.1	0.94	5709	2.33	0.74
004489844-07	OBS	No	273.142187	163.045997	263.7	4.411	13.5	3.6	0.94	5709	1.66	1.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004489844-01	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET—HALO_GHOST
004489844-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
004489844-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQU_DV—MOD_TER_DV—MOD_NONUNIQU_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004489844-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQU_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004489844-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES
004489844-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004489844-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQU_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

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

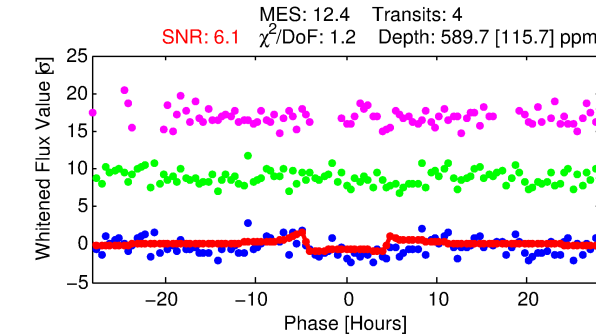
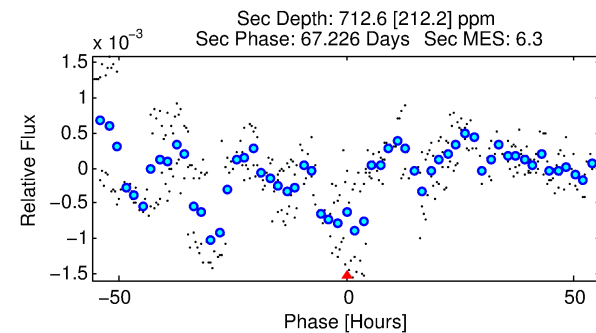
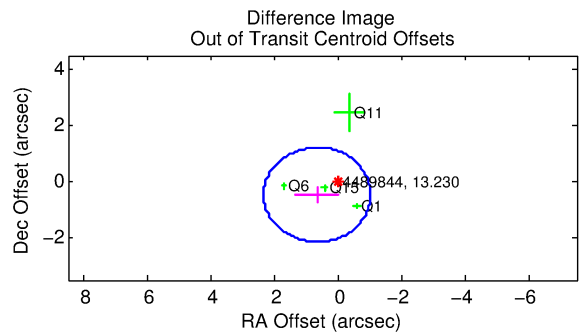
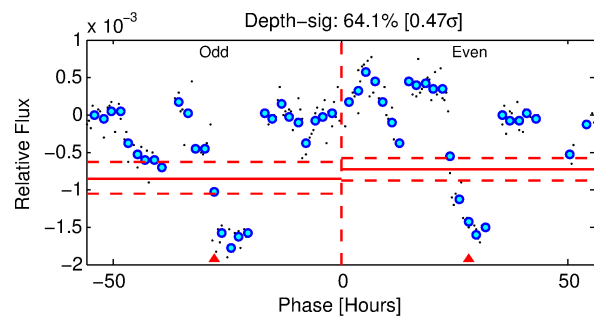
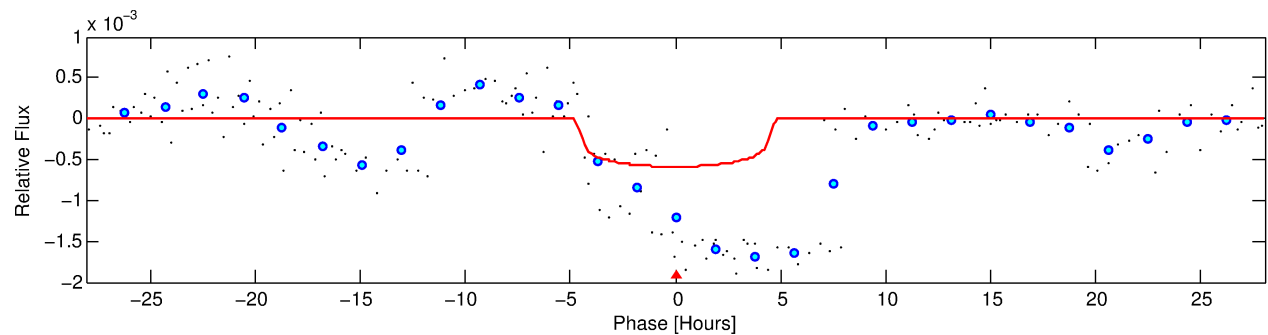
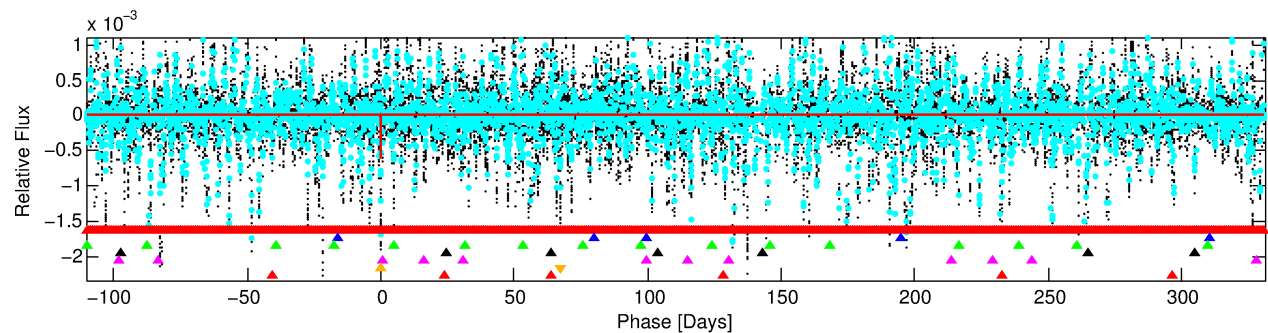
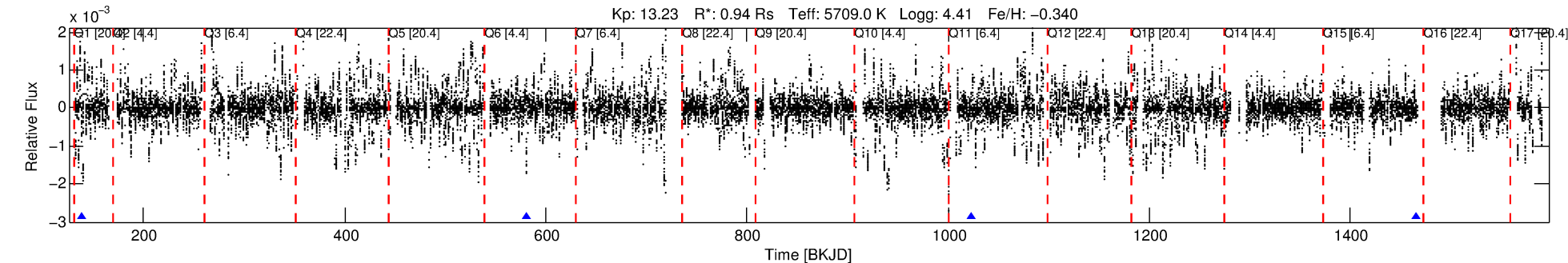
Ephemeris Match Information For 004489844-06

No Significant Match Found

DV One-Page Summary

KIC: 4489844 Candidate: 6 of 7 Period: 441.743 d
KOI: K06421 Corr: No Ephemeris Match

Kp: 13.23 R*: 0.94 Rs Teff: 5709.0 K Logg: 4.41 Fe/H: -0.340



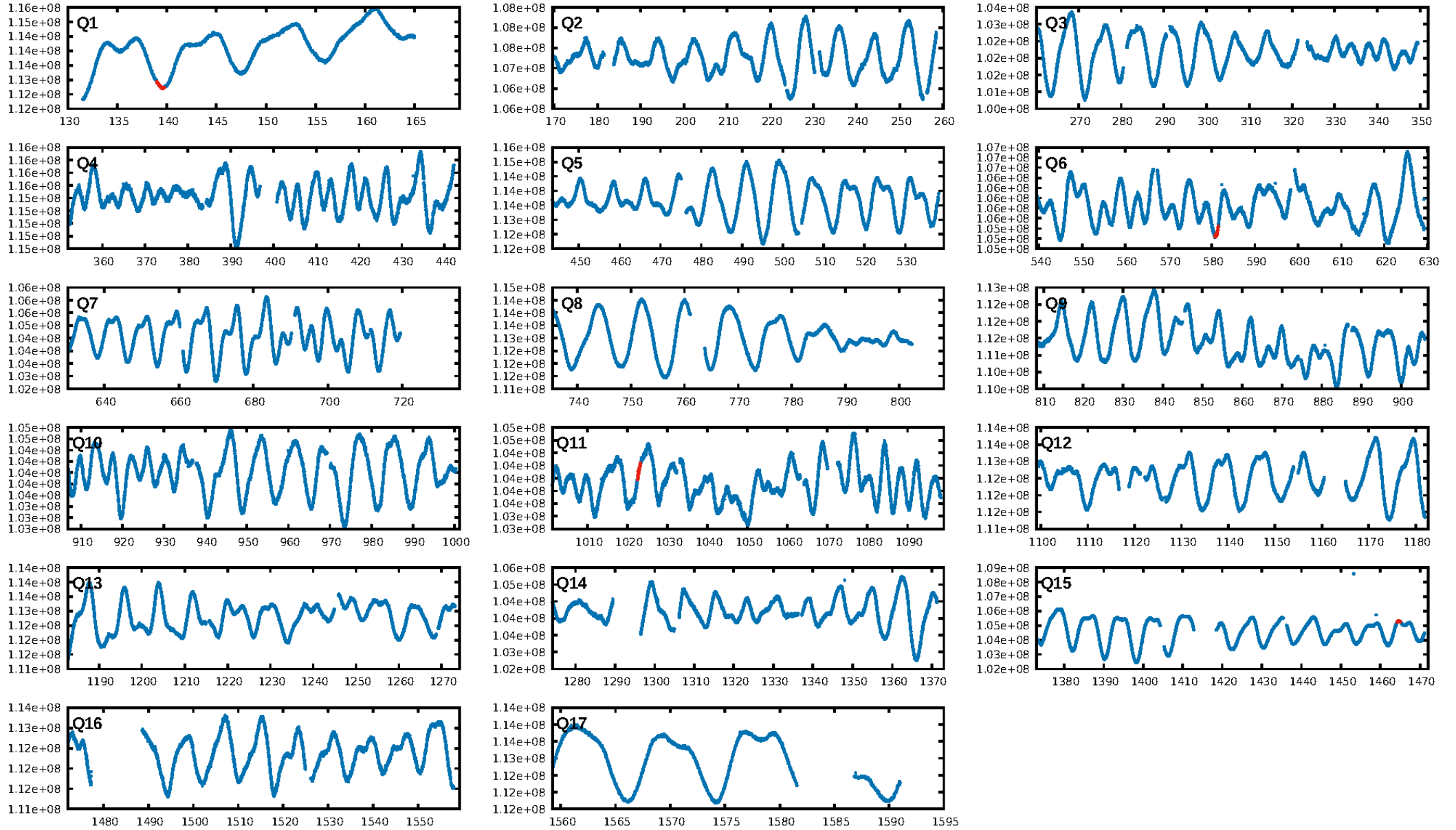
DV Fit Results:

Period = 441.74269 [0.01083] d
Epoch = 139.3799 [0.0166] BKJD
Rp/R* = 0.0227 [0.0222]
a/R* = 326.19 [1452.95]
b = 0.48 [7.16]
Seff = 0.74 [0.25]
Teq = 236 [20] K
Rp = 2.32 [2.36] Re
a = 1.0640 [0.2393] AU
Ag = 82107.58 [164468.20] [0.50σ]
Teff = 6189 [3063] K [1.94σ]

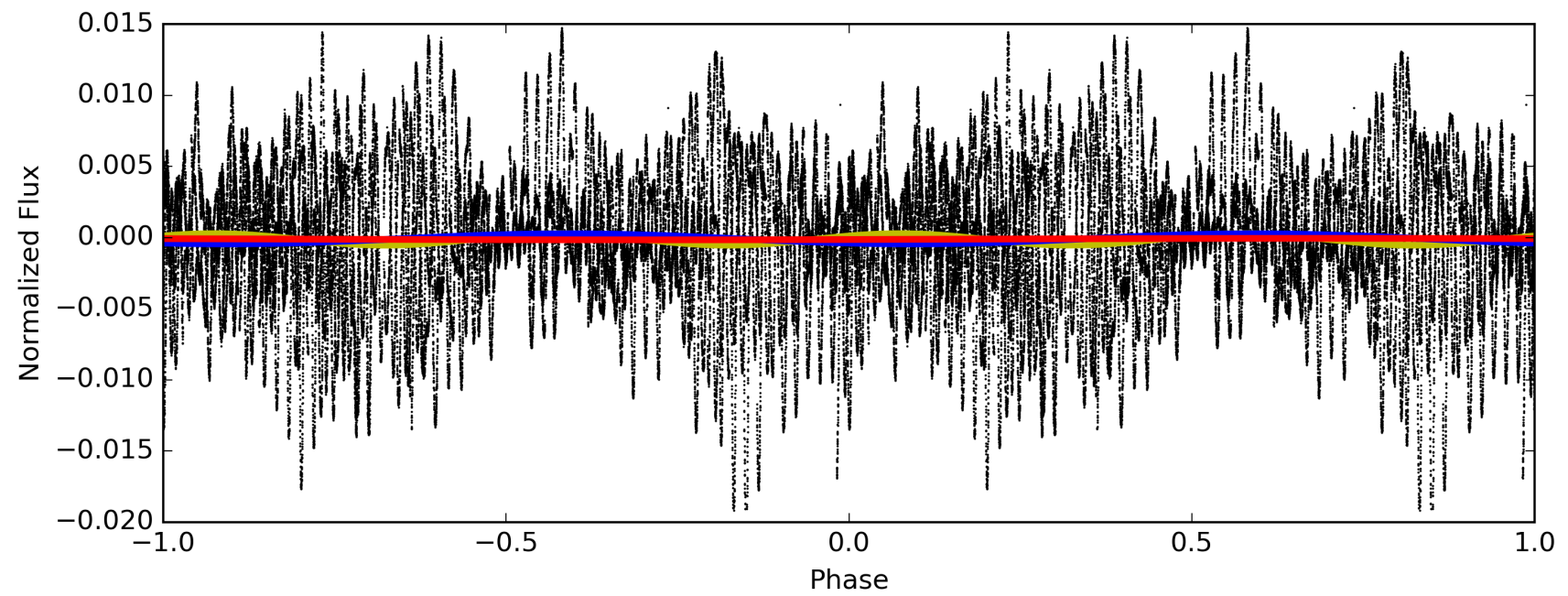
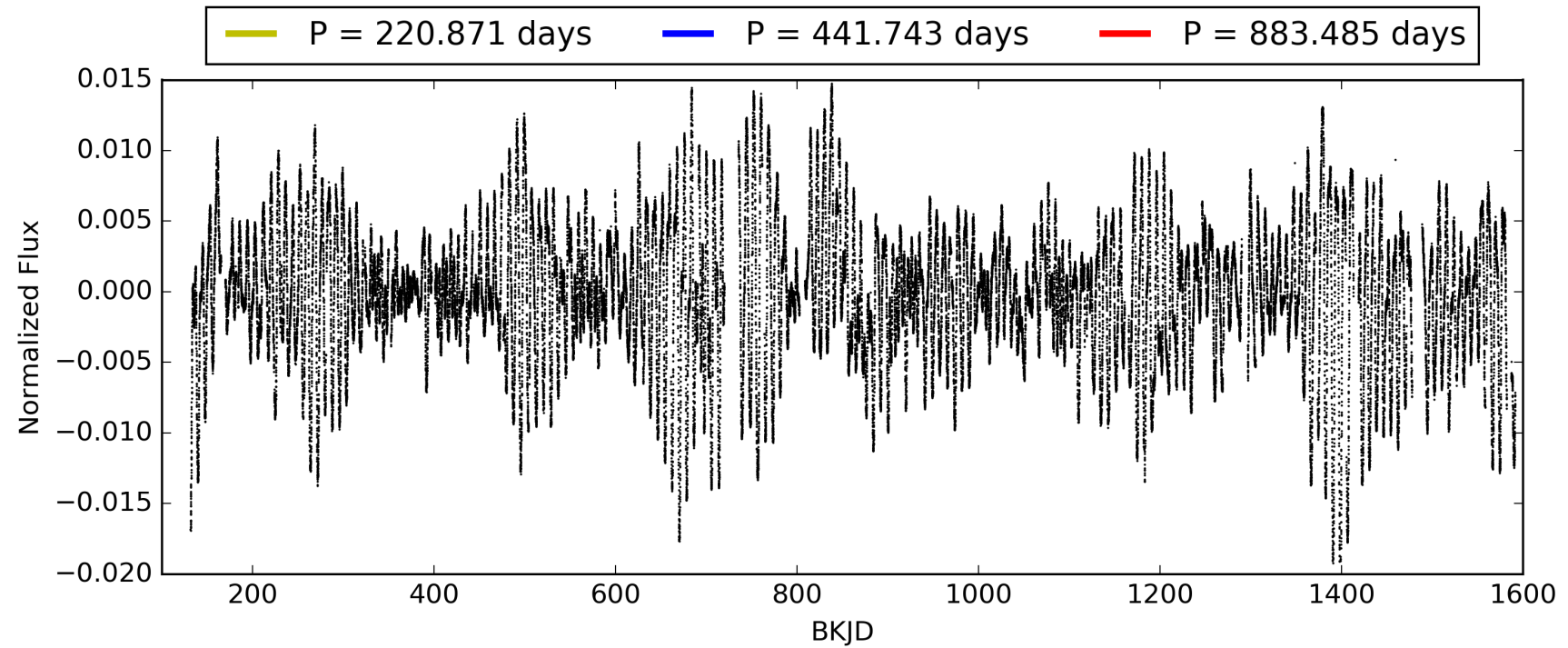
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [181.91σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 25.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.82e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.555
Centroid-sig: 32.3%
Centroid-so: 0.476 arcsec [0.73σ]
OotOffset-rm: 0.817 arcsec [1.46σ]
KicOffset-rm: 0.955 arcsec [1.69σ]
OotOffset-st: 1/2/0/1 [4]
KicOffset-st: 1/2/0/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.00 [0/4]

TCE 004489844-06, PDC Light Curves

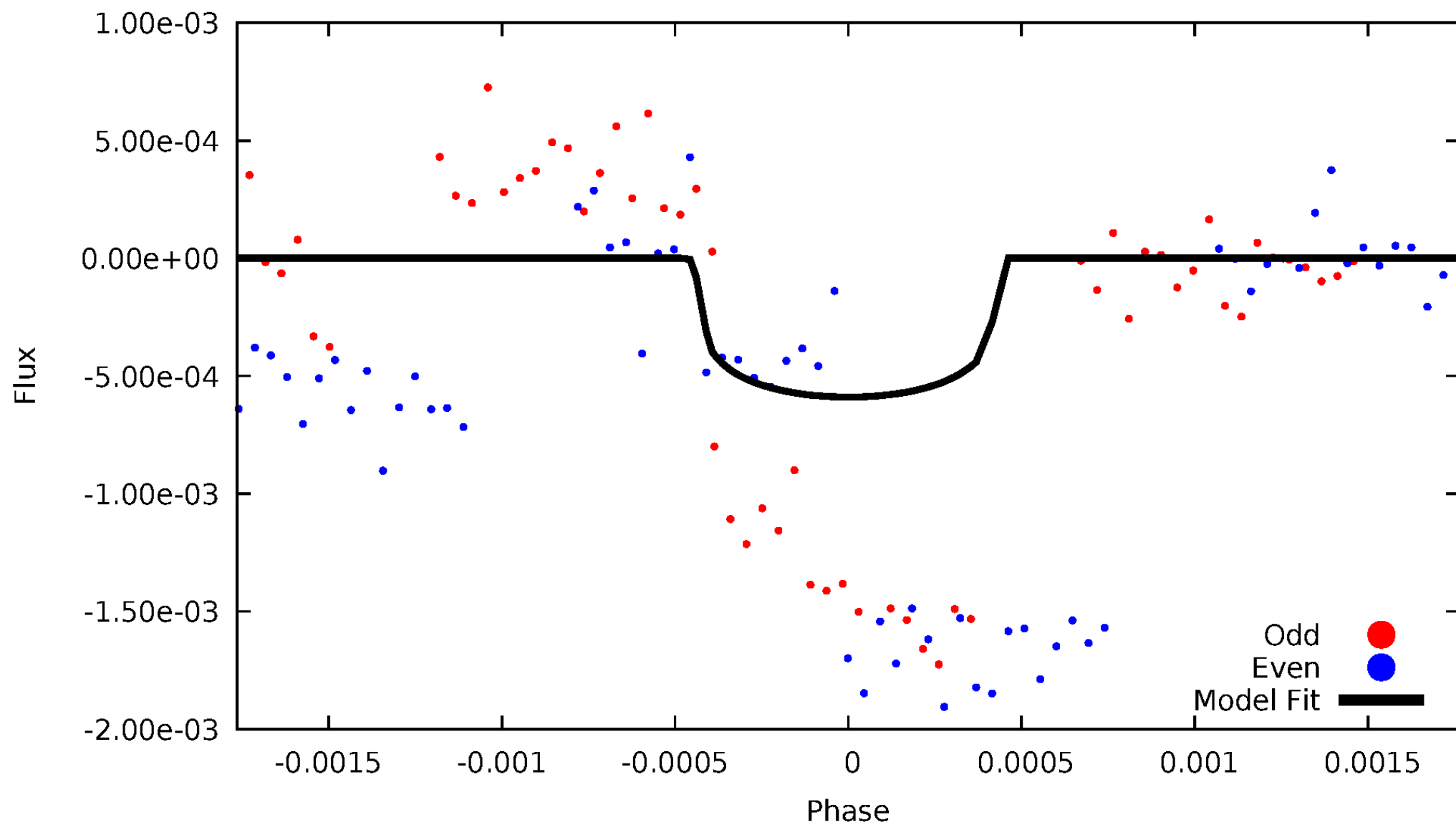


TCE 004489844-06



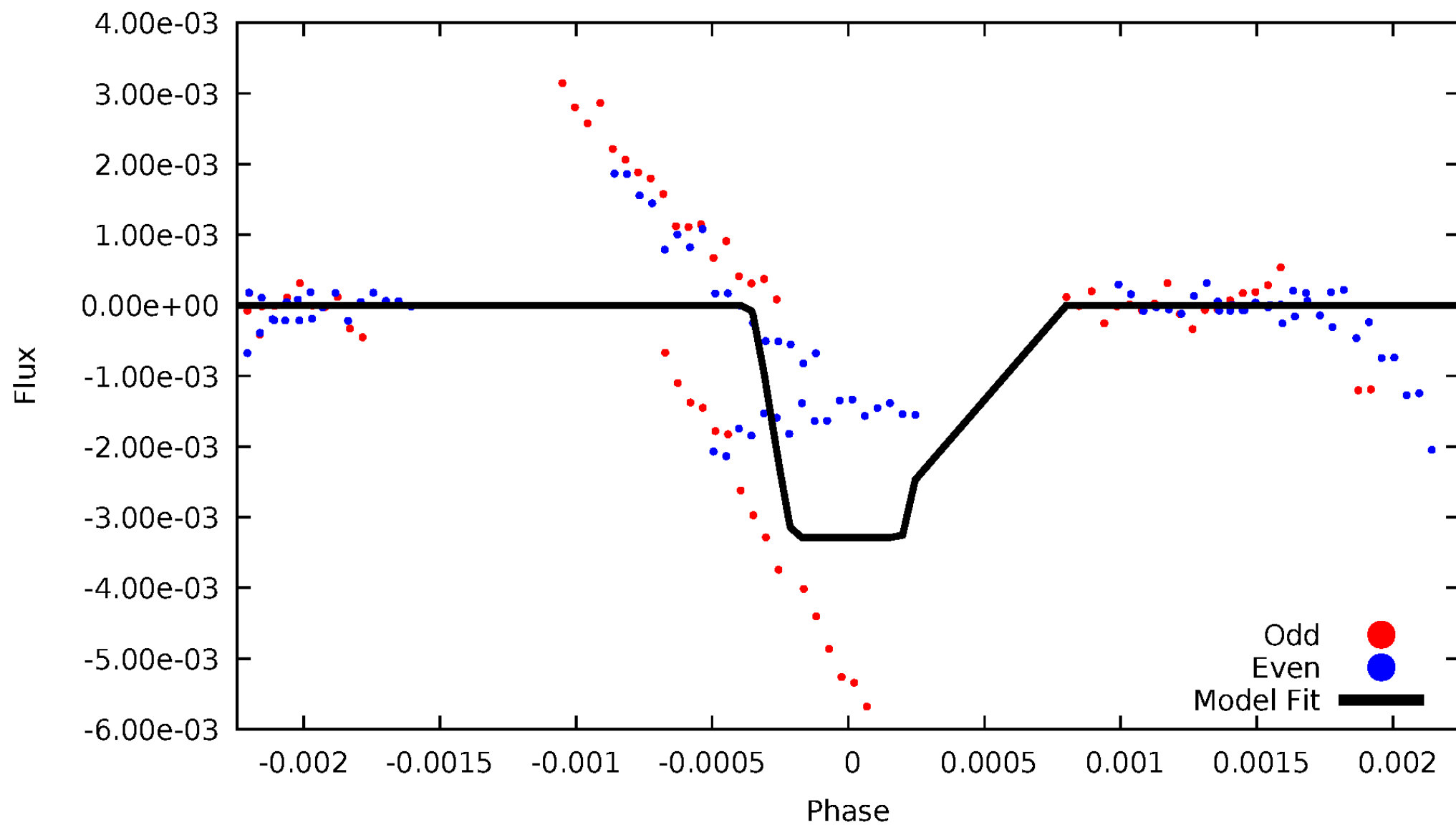
DV Odd/Even

TCE 004489844-06



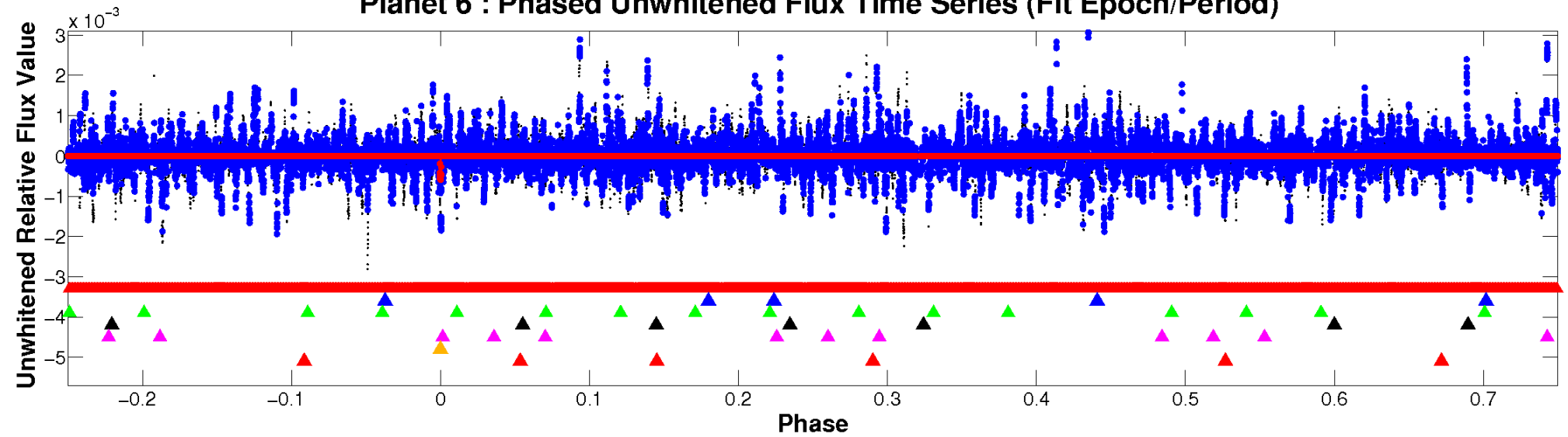
ALT Odd/Even

TCE 004489844-06

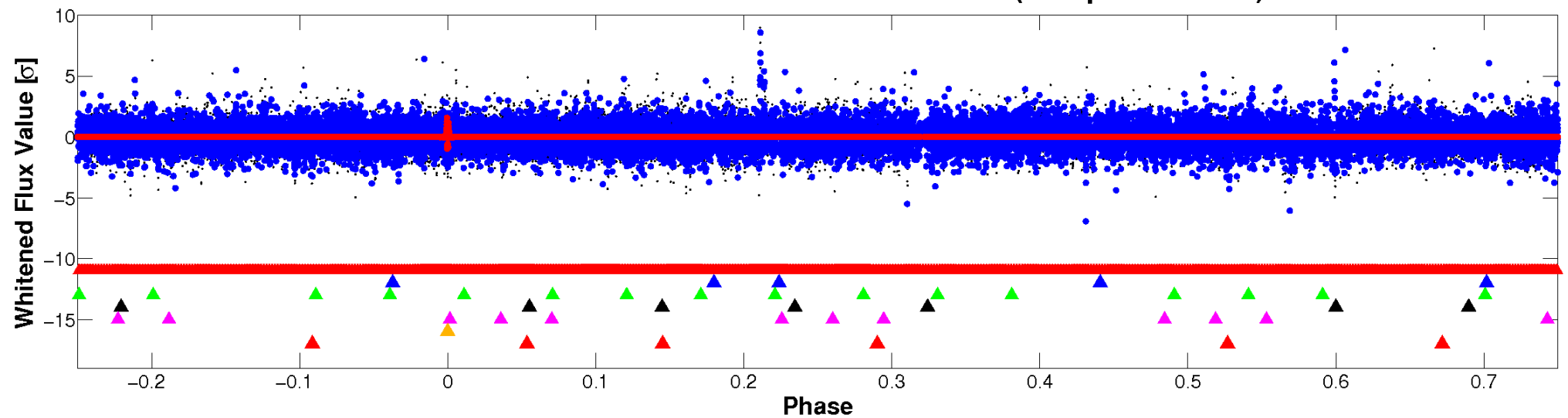


Non-Whitened Vs. Whitened Light Curve

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

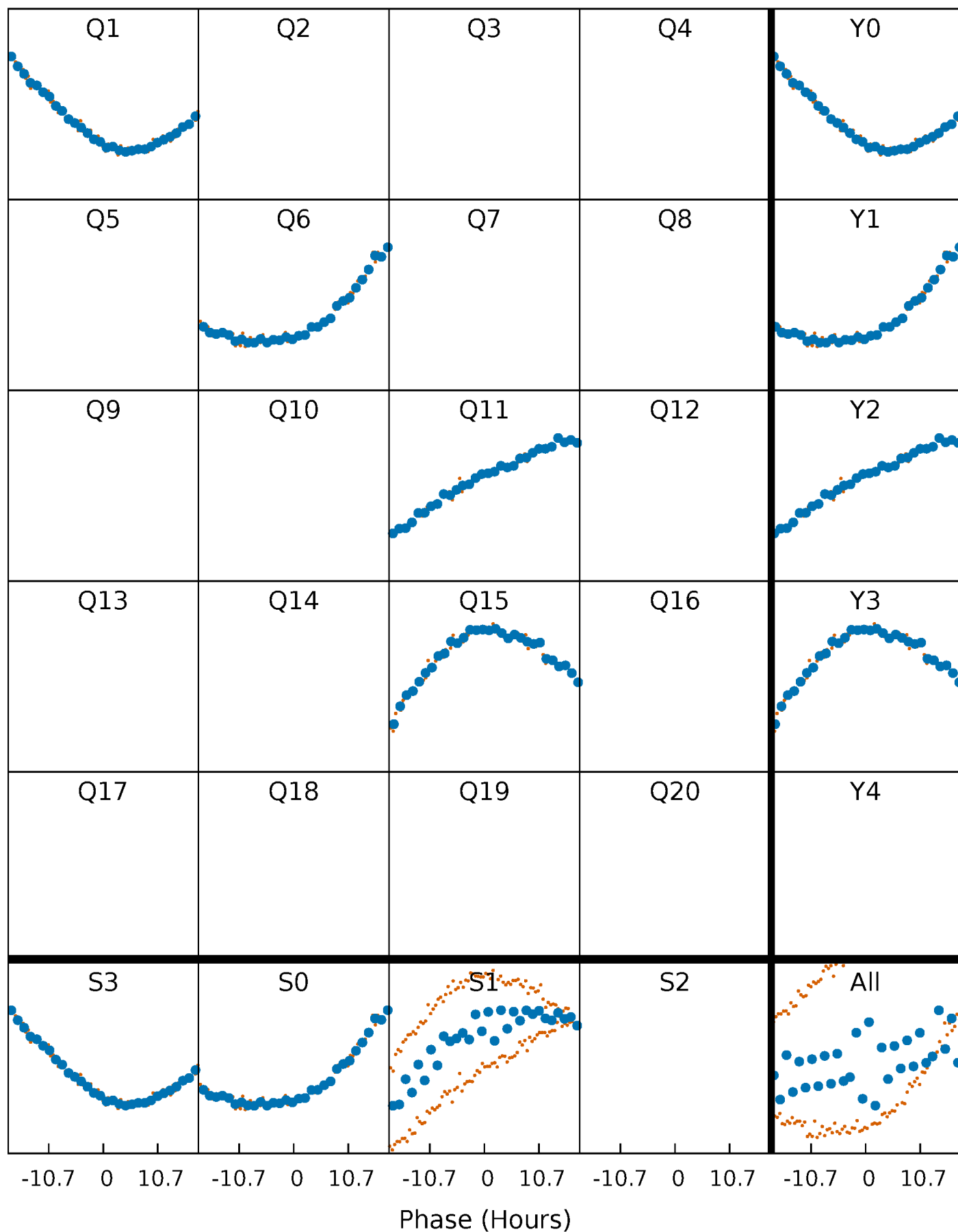


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



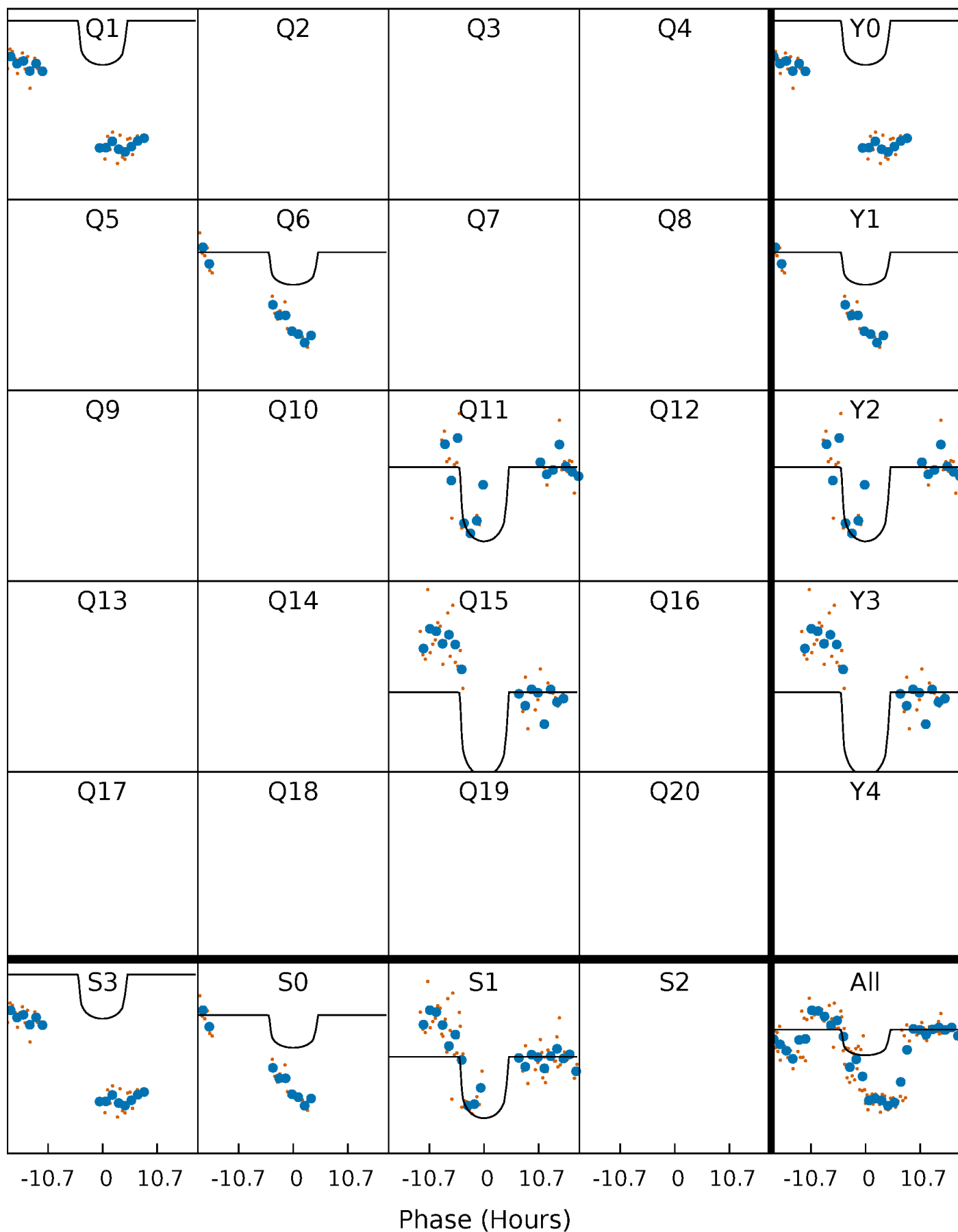
PDC Quarter-Phased Transit Curves

TCE 004489844-06 P=441.742687 Days $T_0=139.379888$ (BKJD)



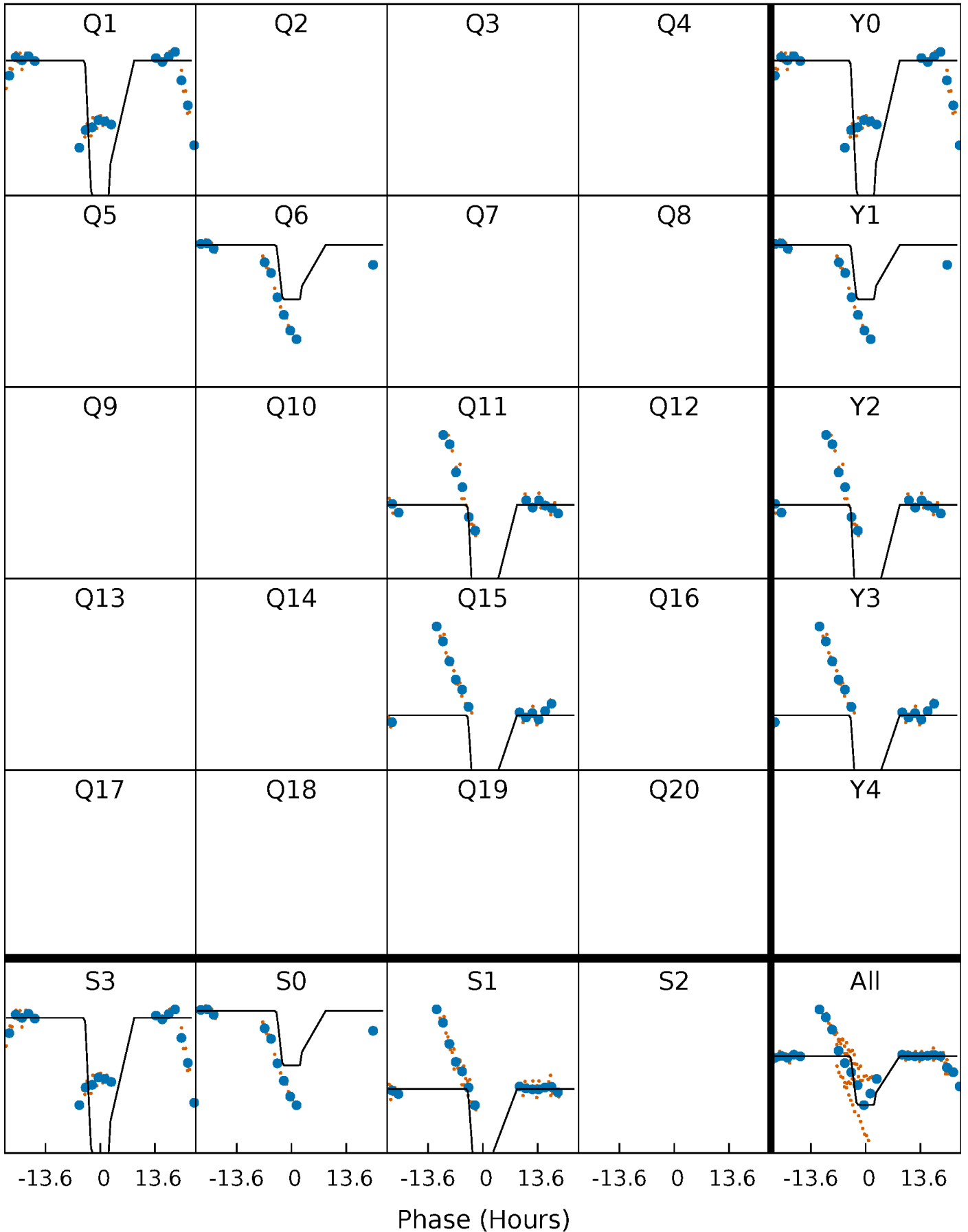
DV Quarter-Phased Transit Curves

TCE 004489844-06 $P=441.742687$ Days $T_0=139.379888$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

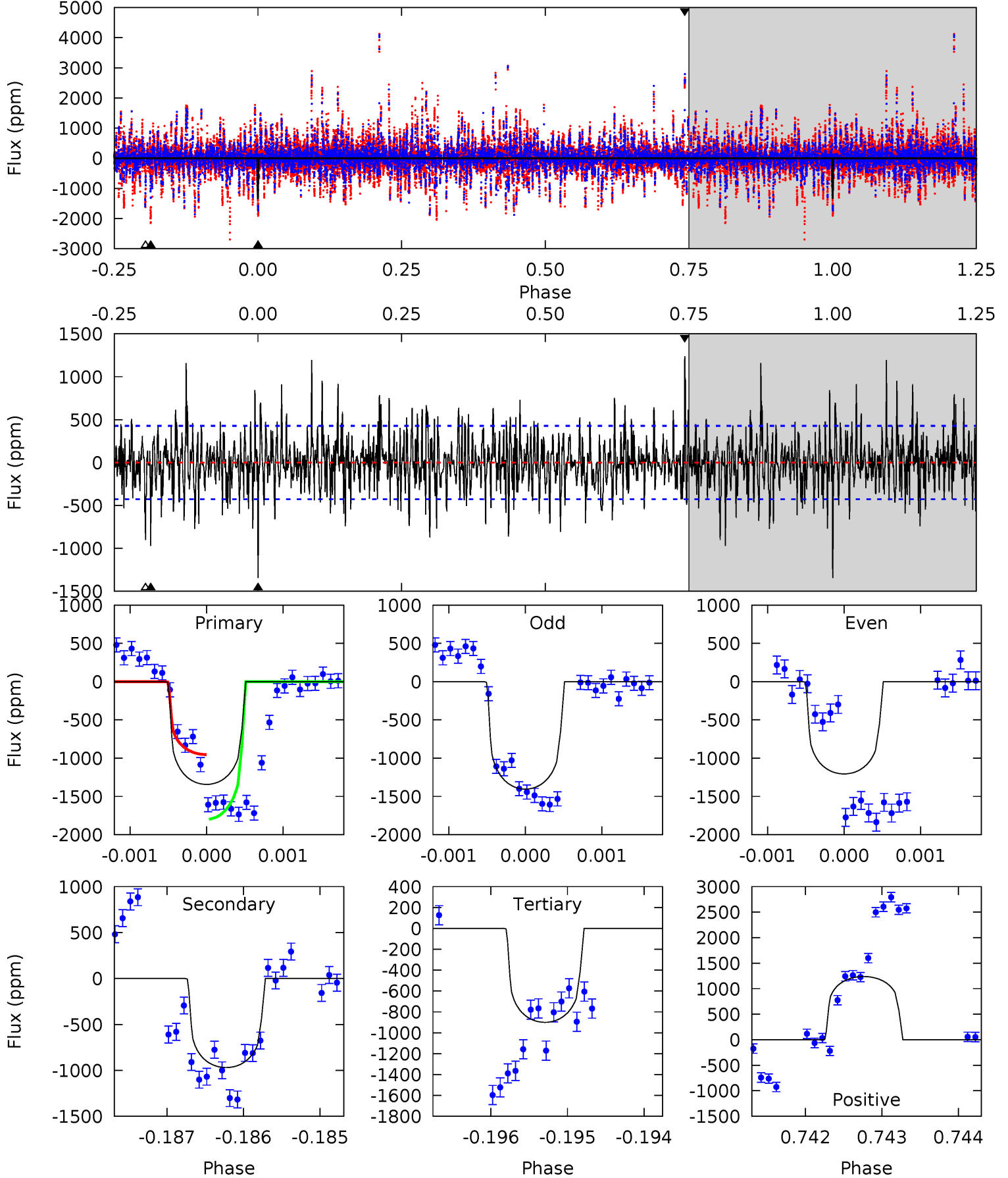
TCE 004489844-06 P=441.650966 Days $T_0=139.597904$ (BKJD)



DV Model-Shift Uniqueness Test

004489844-06, P = 441.742687 Days, E = 139.379888 Days

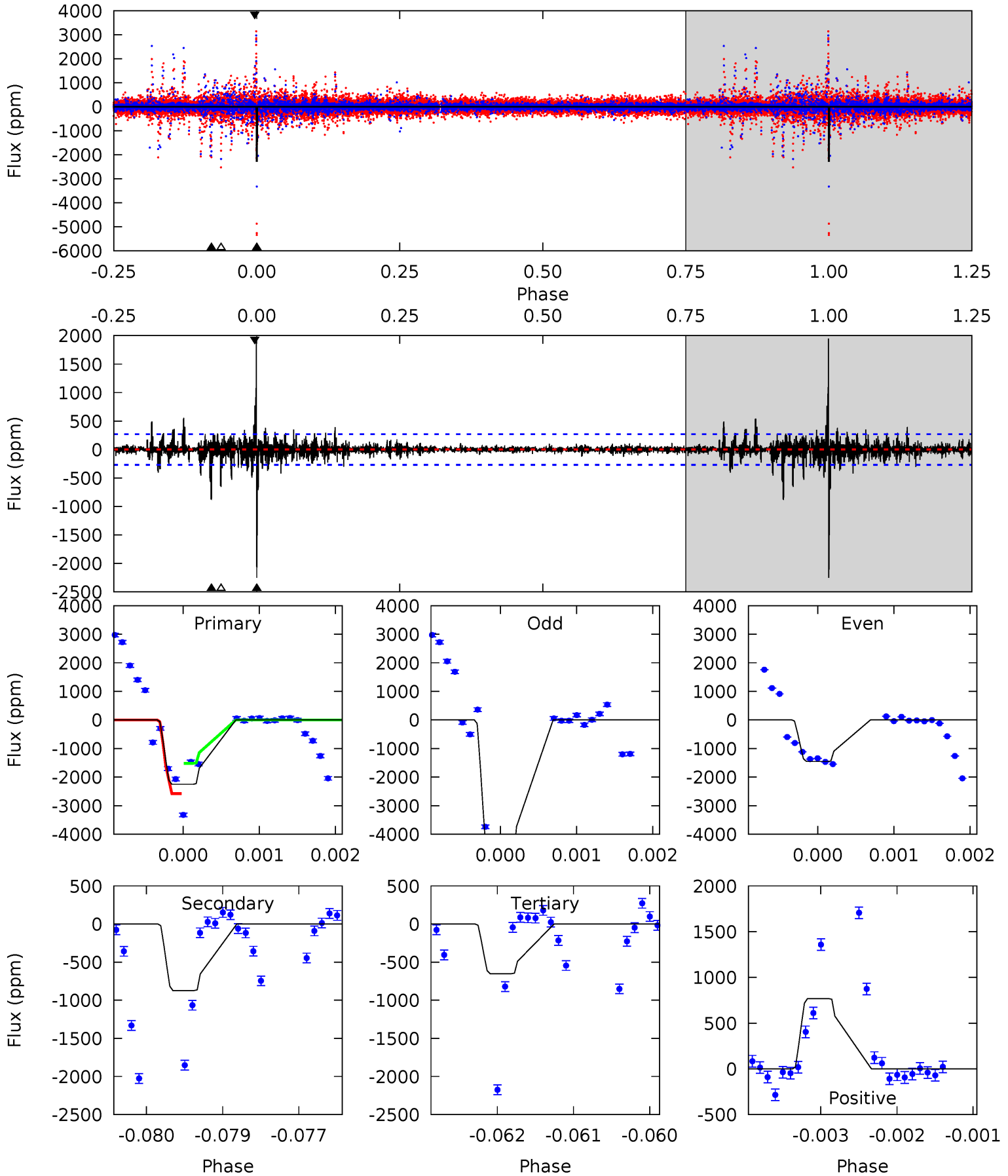
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.2	12.4	11.5	15.9	5.47	3.32	3.19	5.67	1.34	0.89	-3.44	1.29	0.95	0.48	5.38



Alt Model-Shift Uniqueness Test

004489844-06, P = 441.650966 Days, E = 139.597904 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.5	17.7	13.2	15.5	5.43	3.25	1.78	32.4	30.0	4.48	2.12	33.9	1.50	0.46	9.74



Stellar Parameters For KIC 004489844

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5709^{+154}_{-154}	$4.409^{+0.144}_{-0.176}$	$-0.340^{+0.300}_{-0.300}$	$0.938^{+0.253}_{-0.156}$	$0.824^{+0.116}_{-0.062}$	$1.405^{+0.844}_{-0.670}$
	+3%/-3%	+3%/-4%	+88%/-88%	+27%/-17%	+14%/-8%	+60%/-48%
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 004489844-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-970 ± 78	$2.90^{+2.12}_{-1.75}$	331^{+20}_{-18}	6065^{+4230}_{-1334}	$72331^{+404793}_{-47762}$
Alt.	-873 ± 49	$5.95^{+2.43}_{-2.16}$	331^{+24}_{-19}	4300^{+862}_{-465}	15454^{+23850}_{-7700}

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

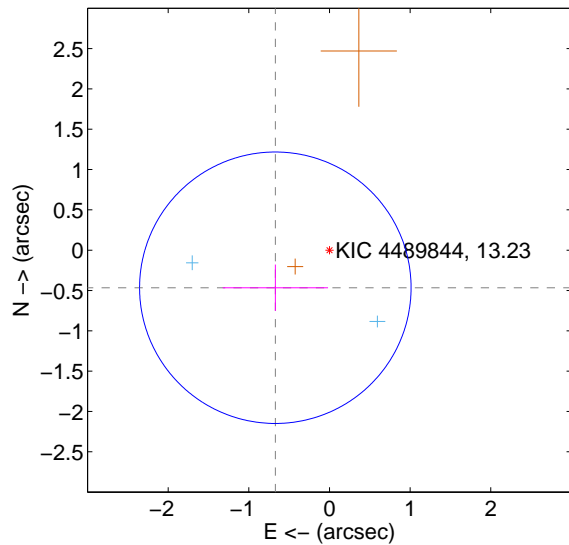
Supplemental centroid analysis for 004489844-06. Kepler magnitude: 13.23. Transit SNR 6.10

There are 2 quarters with good PRF difference image offsets

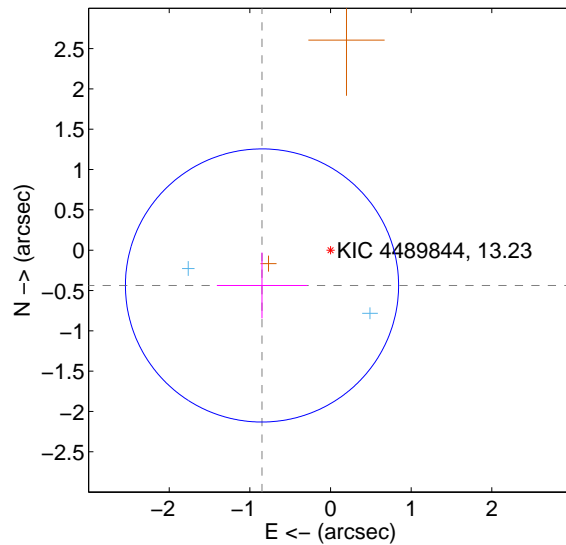
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.817 ± 0.561	1.46	0.671 ± 0.653	-0.466 ± 0.287
PRF-fit source offset from KIC position	0.955 ± 0.564	1.69	0.849 ± 0.560	-0.438 ± 0.408
photometric centroid source offset	0.48 ± 0.65	0.73	-0.39 ± 0.65	-0.28 ± 0.65

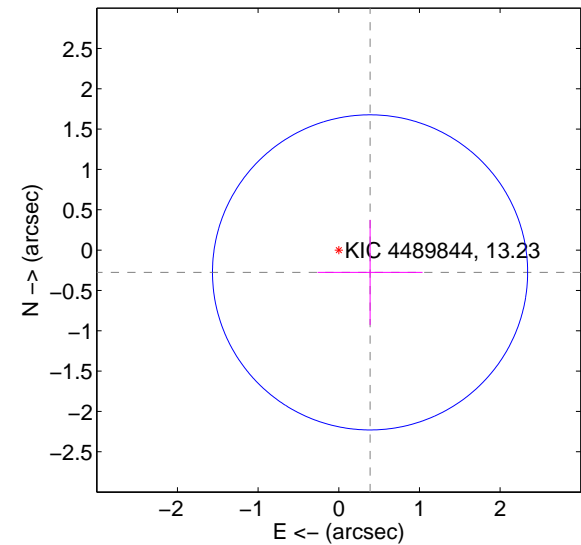
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

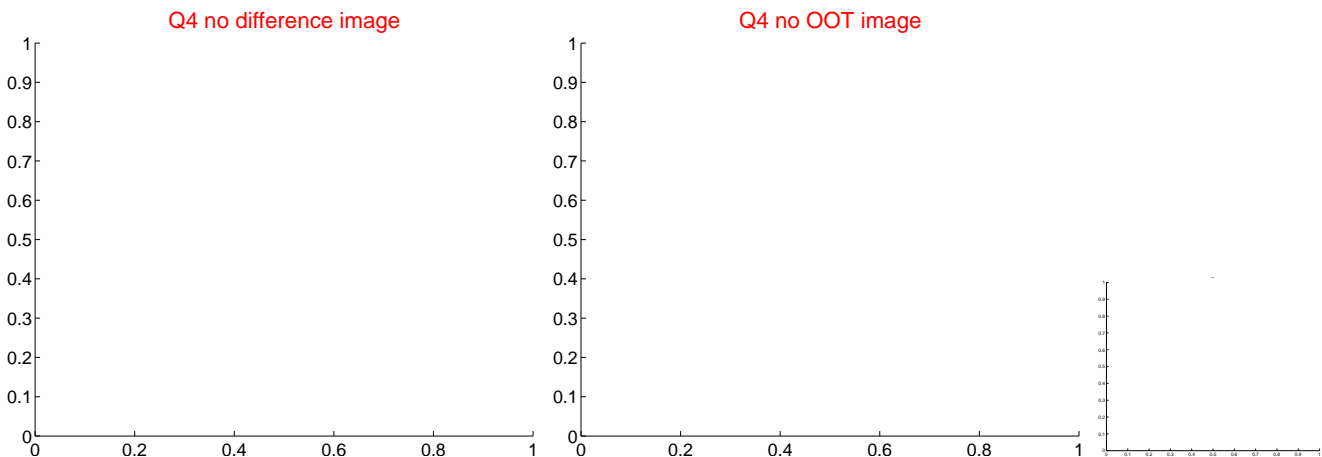
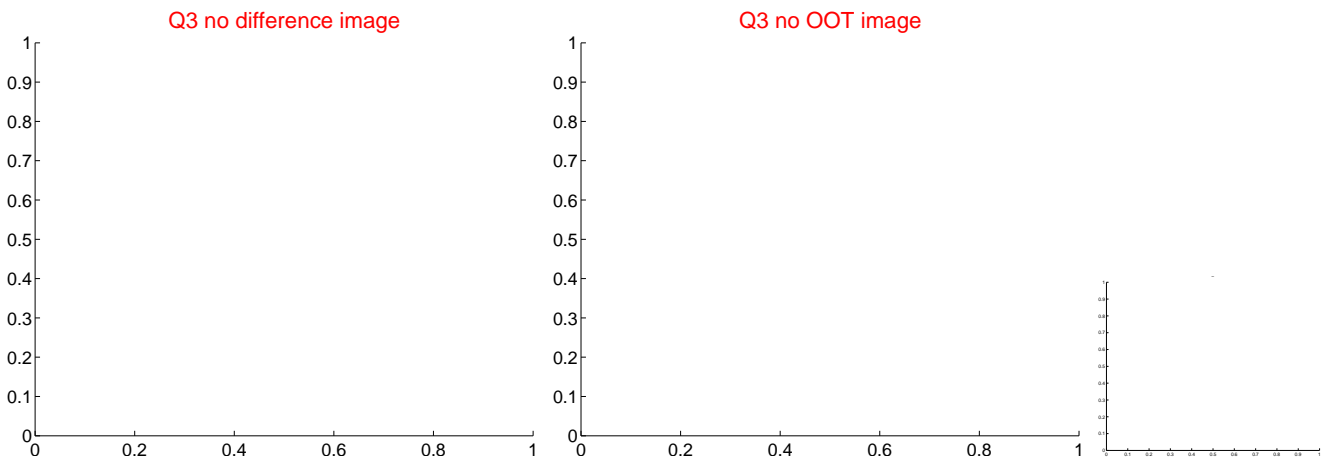
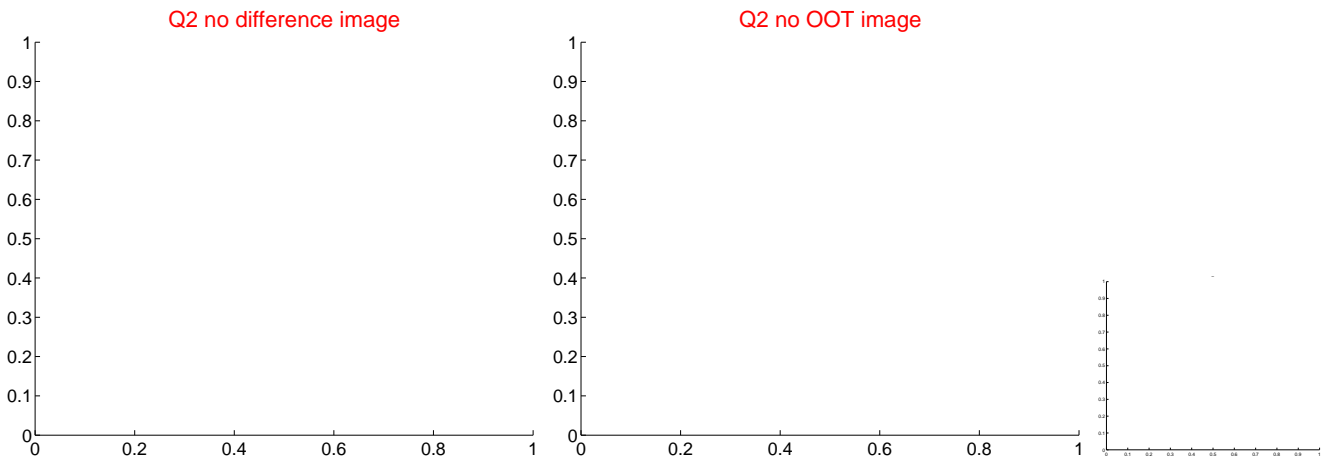
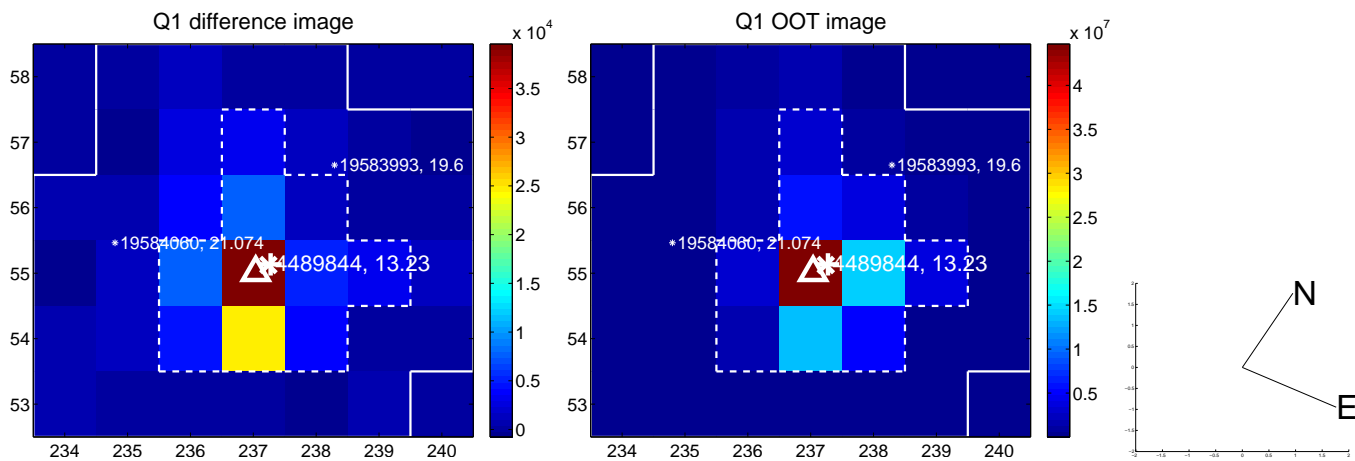


offset from photometric centroids



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

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

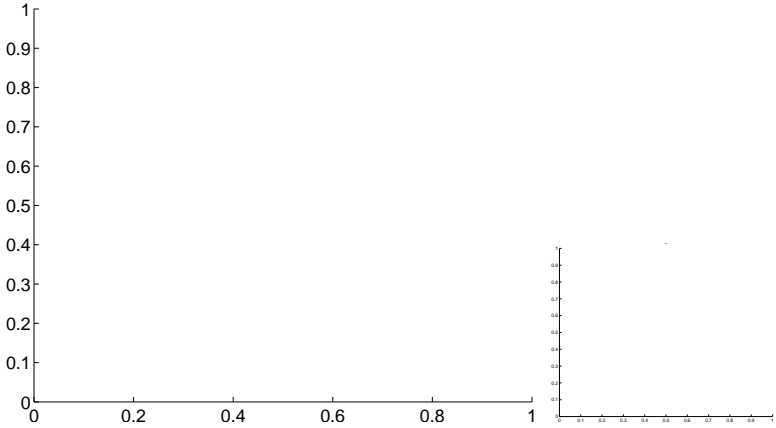


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

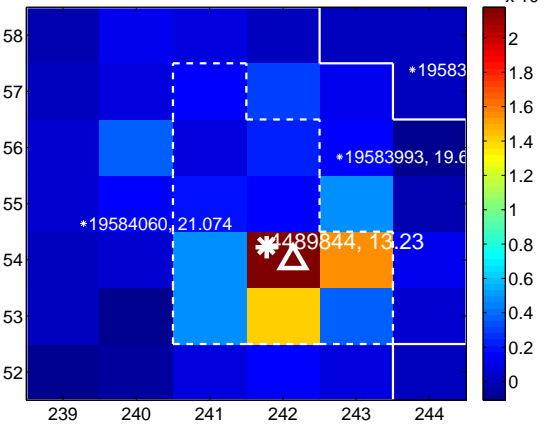
Q5 no difference image



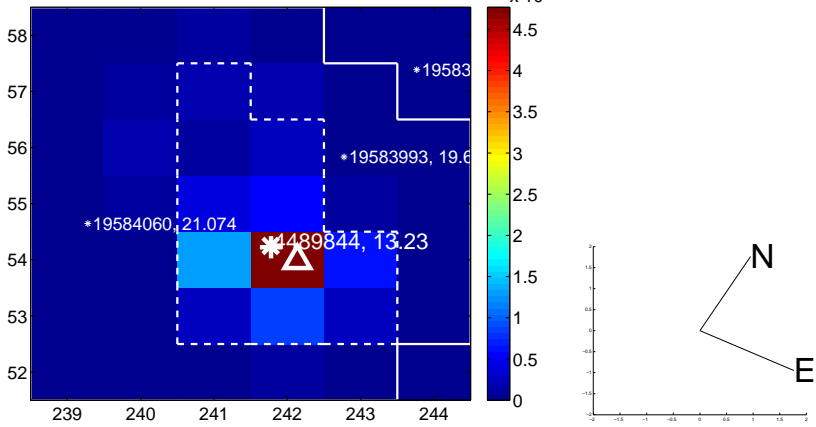
Q5 no OOT image



Q6 difference image



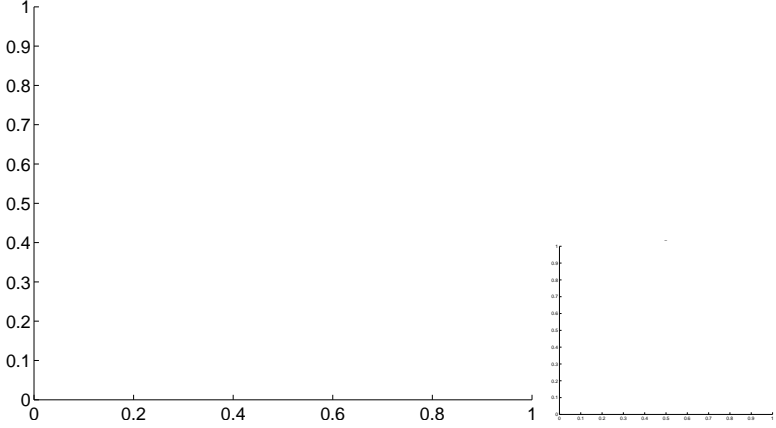
Q6 OOT image



Q7 no difference image



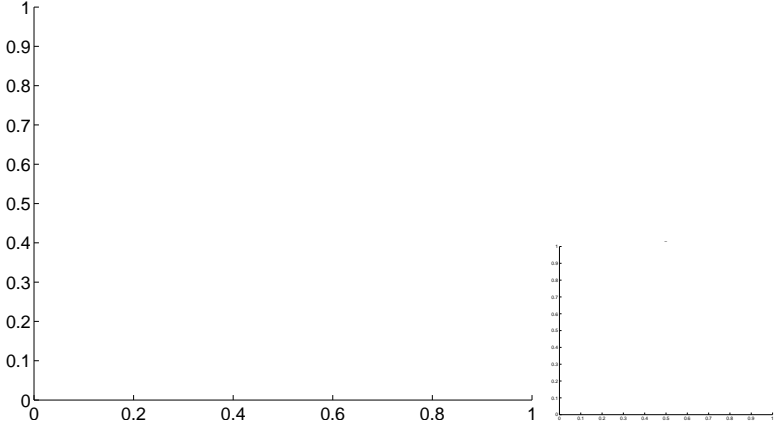
Q7 no OOT image



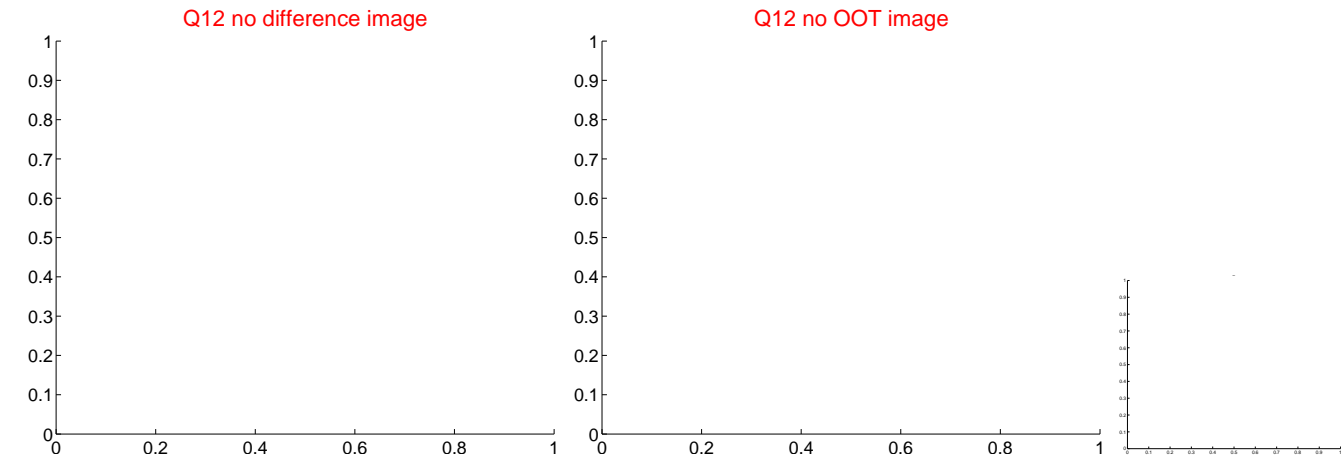
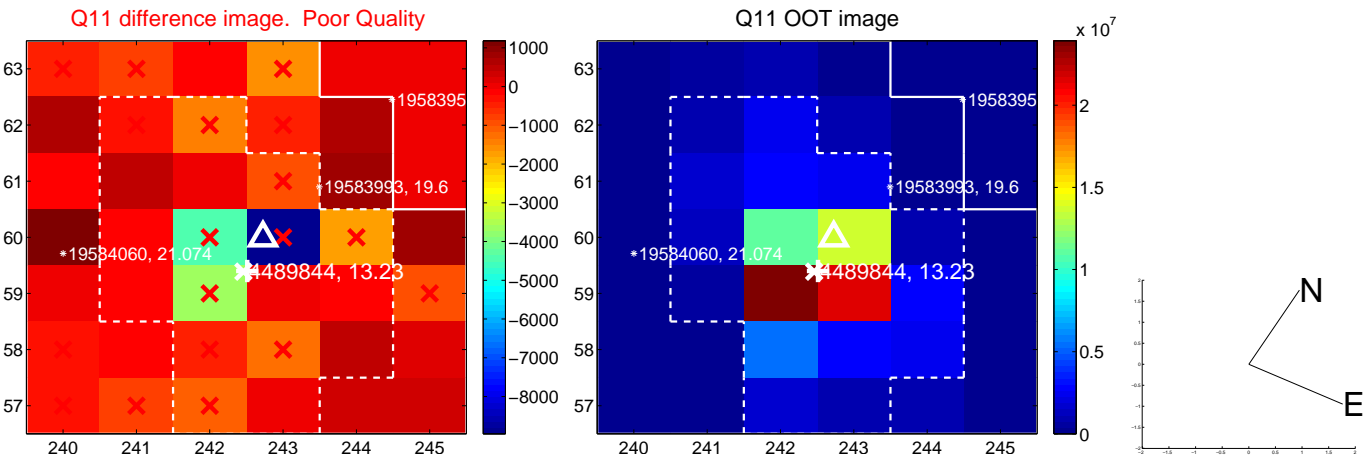
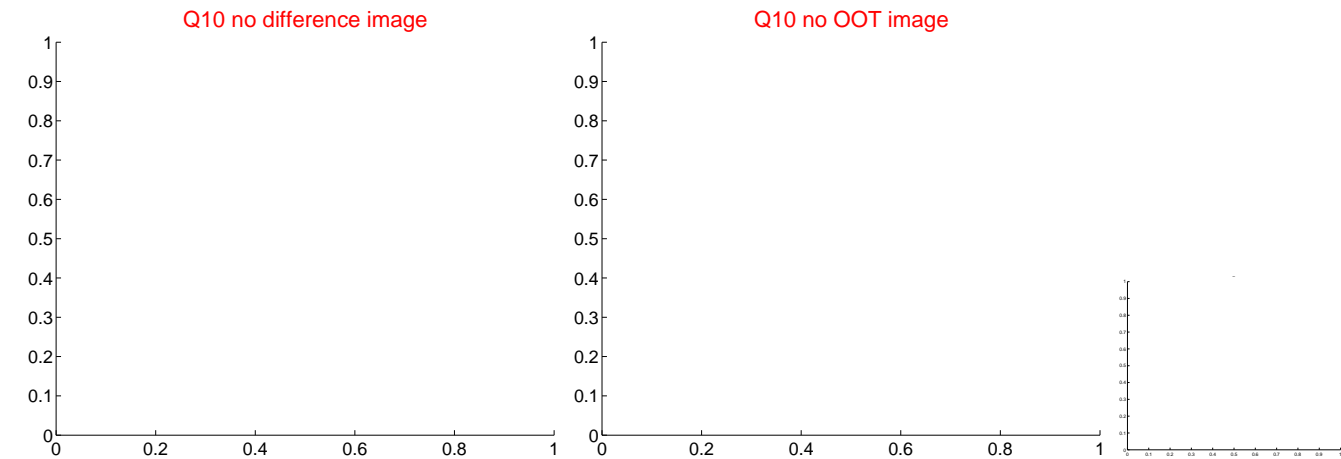
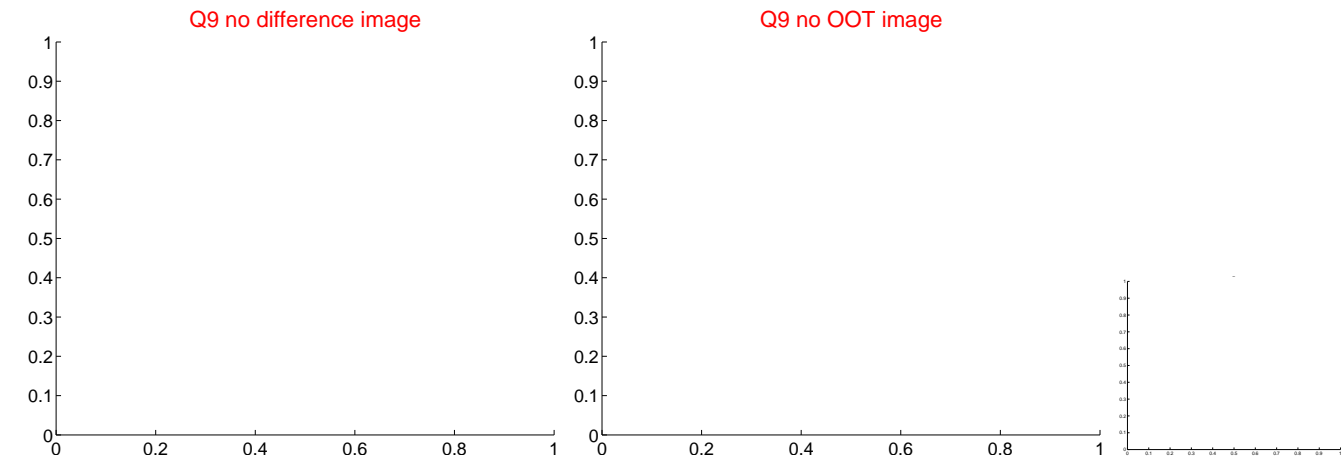
Q8 no difference image



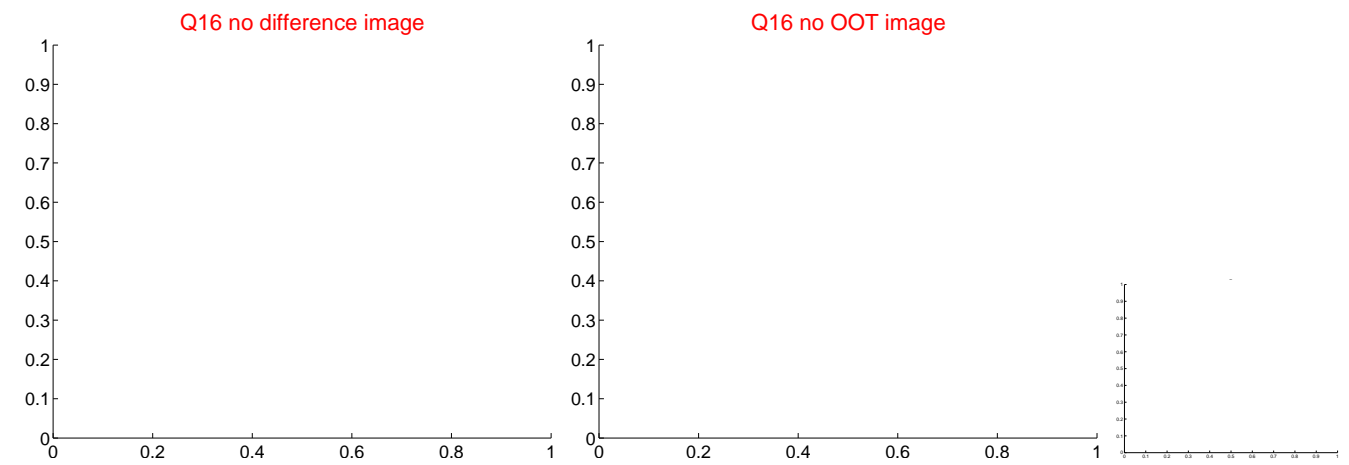
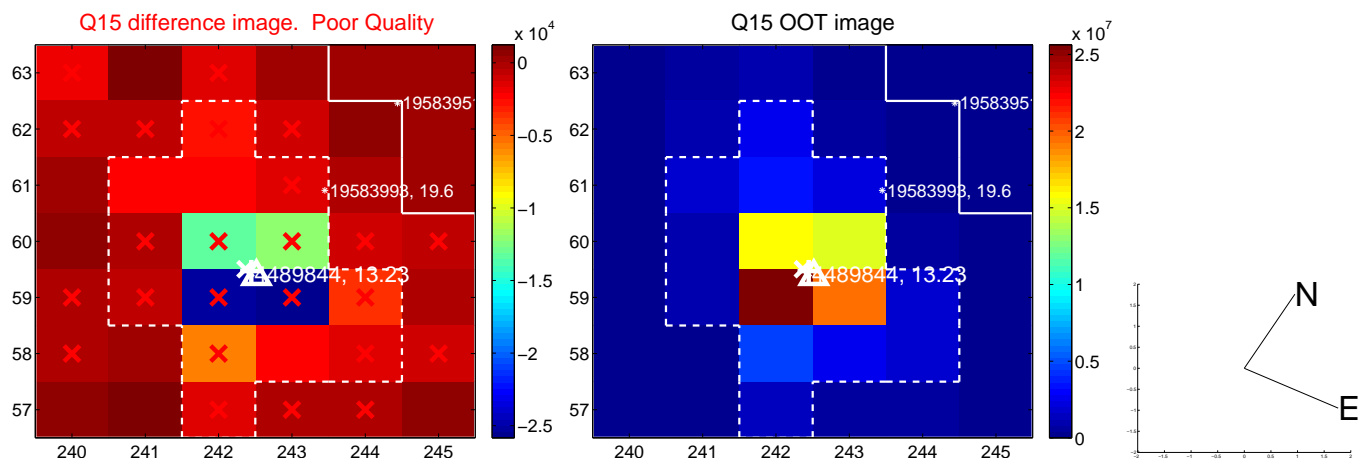
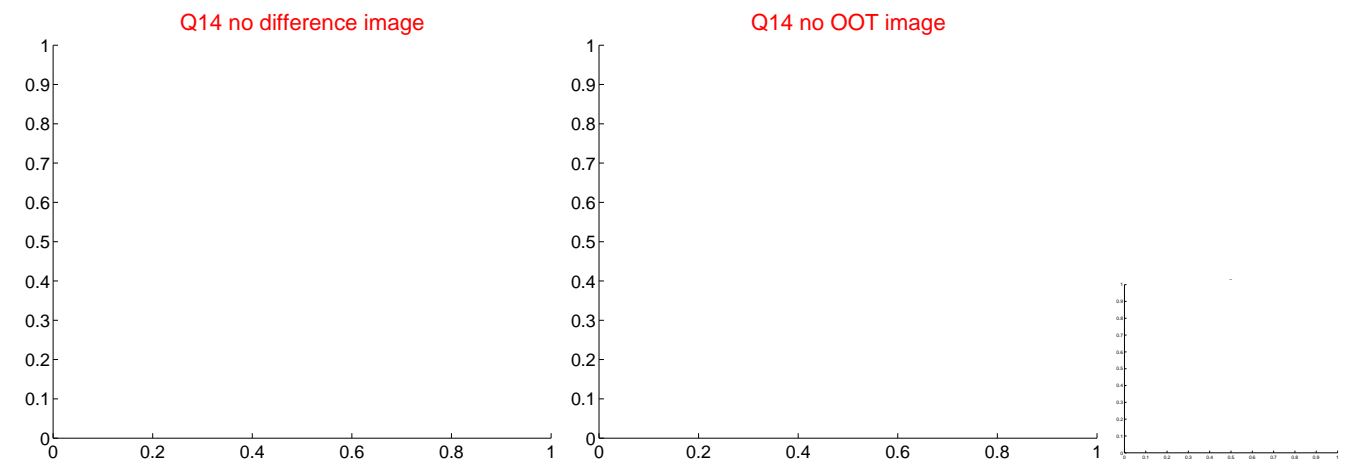
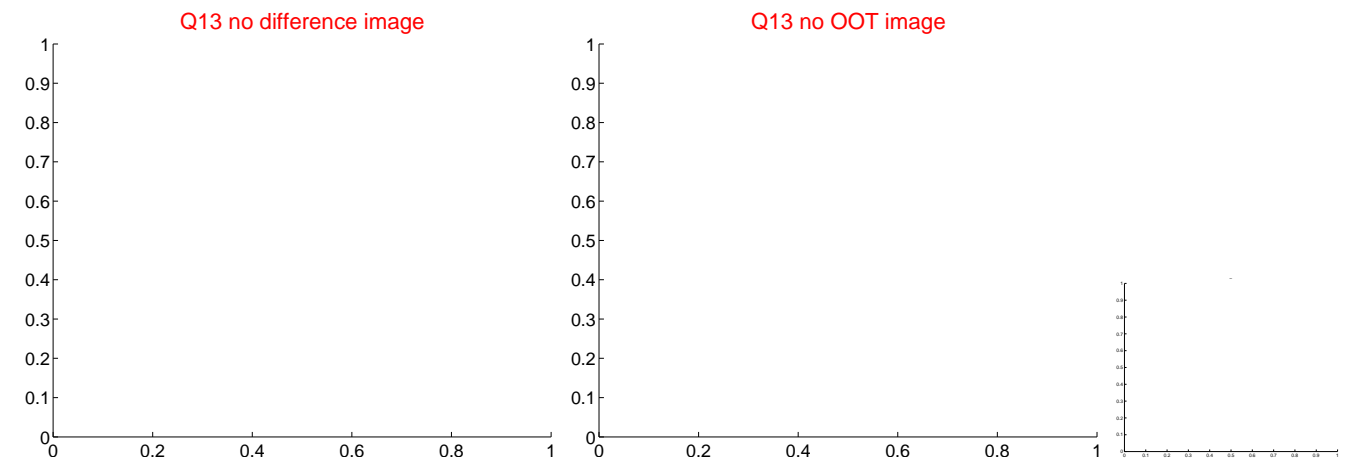
Q8 no OOT image



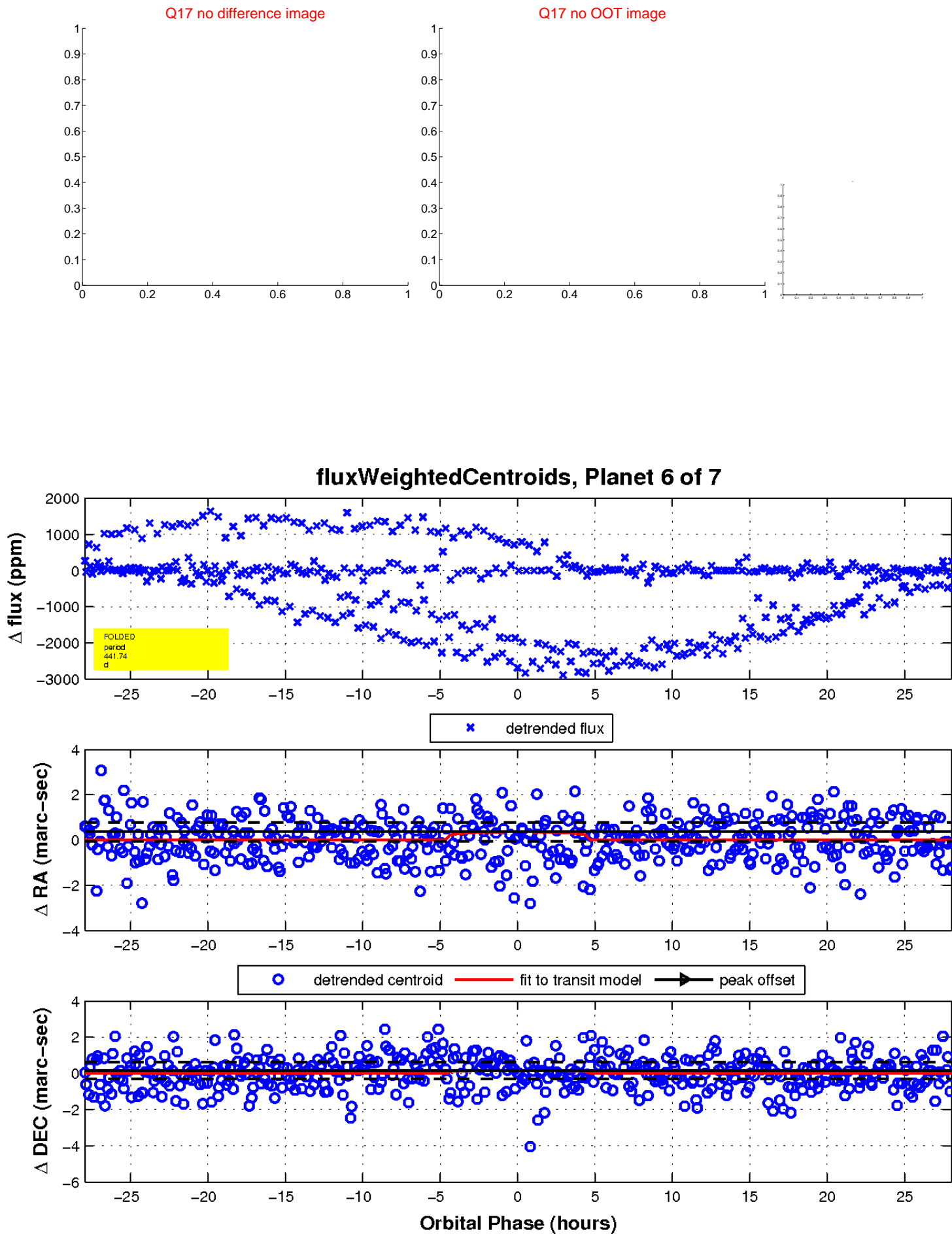
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

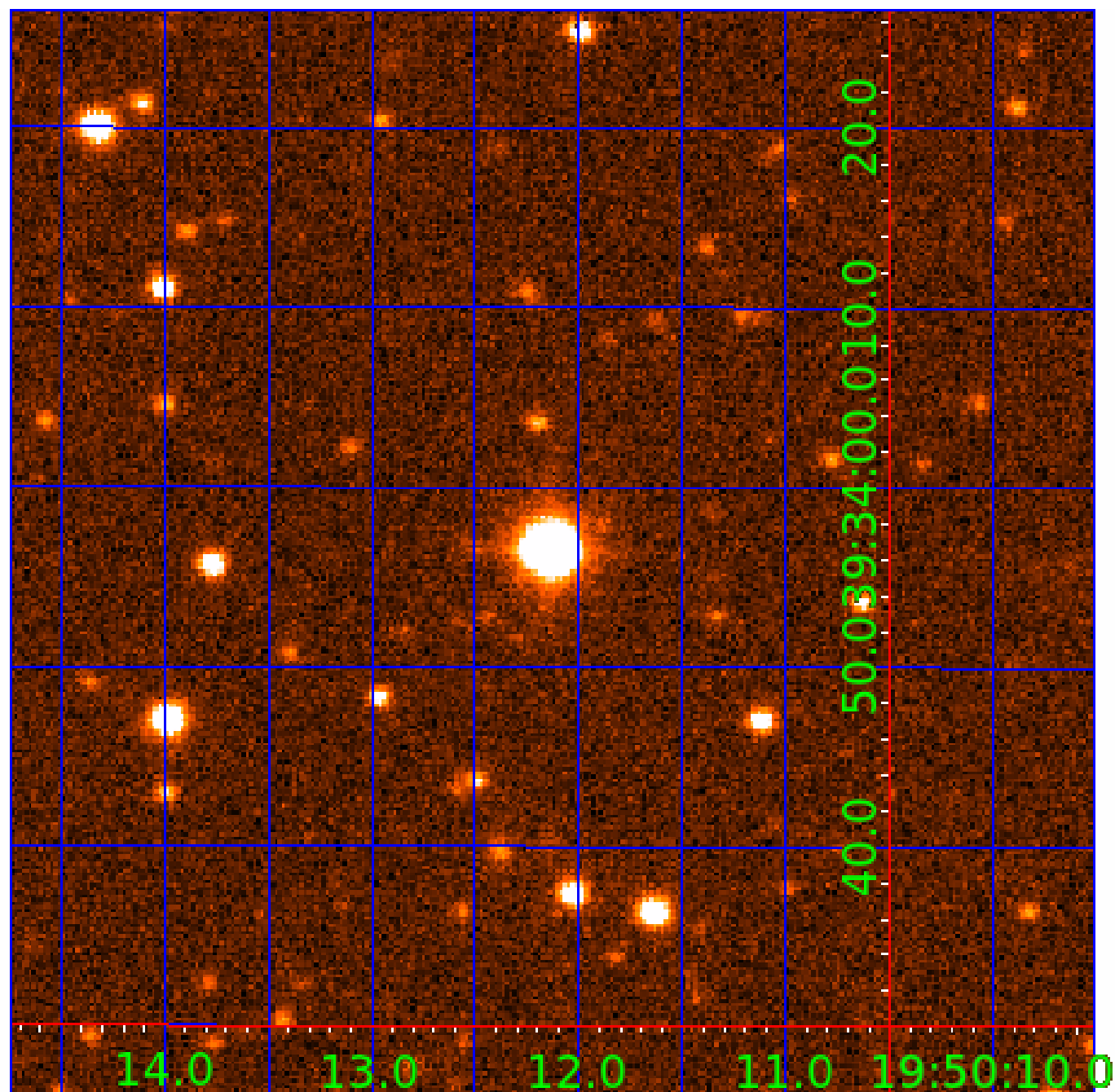


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004489844

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})
004489844-01	OBS	6421.01	0.822291	131.732038	28.5	3.538	11.3	11.1	0.94	5709	0.59	3230.24
004489844-02	OBS	No	326.453366	238.252506	473.8	12.000	17.7	-1.0	0.94	5709	2.03	1.11
004489844-03	OBS	No	92.773788	170.666306	1504.7	47.708	17.7	8.8	0.94	5709	4.62	5.92
004489844-04	OBS	No	201.064179	282.605053	418.3	17.182	16.1	4.6	0.94	5709	1.92	2.11
004489844-05	OBS	No	114.235574	239.089238	306.8	4.261	15.0	4.9	0.94	5709	1.92	4.49
004489844-06	OBS	No	441.742687	139.379888	589.7	9.347	12.4	6.1	0.94	5709	2.33	0.74
004489844-07	OBS	No	273.142187	163.045997	263.7	4.411	13.5	3.6	0.94	5709	1.66	1.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004489844-01	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET—HALO_GHOST
004489844-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
004489844-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004489844-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004489844-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES
004489844-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004489844-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

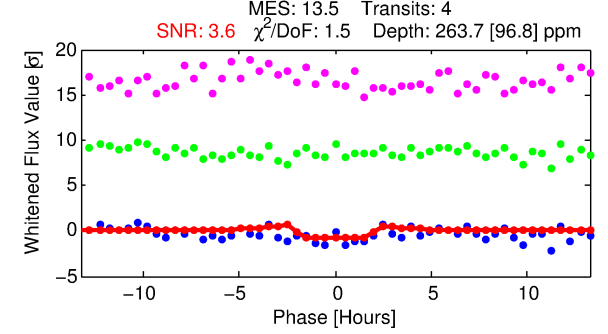
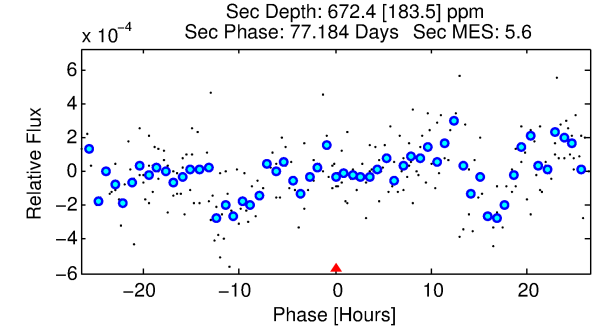
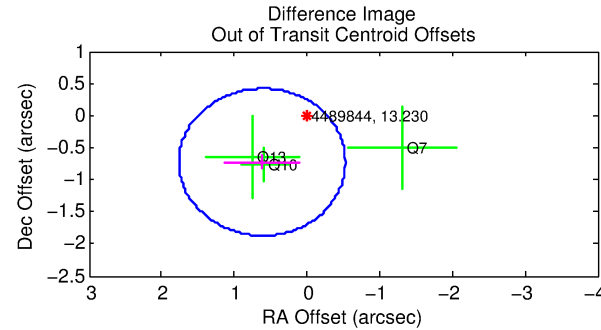
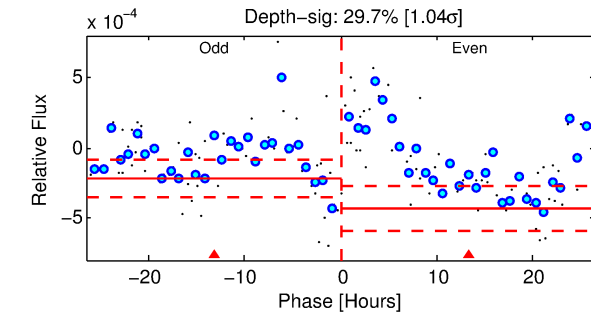
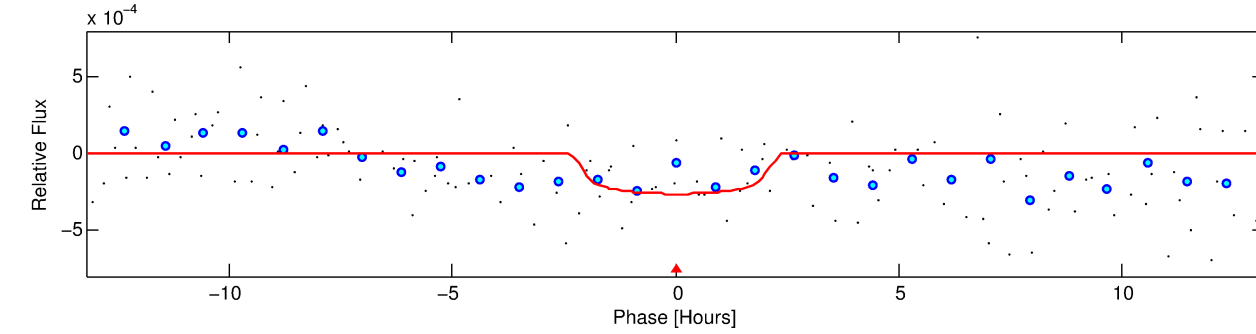
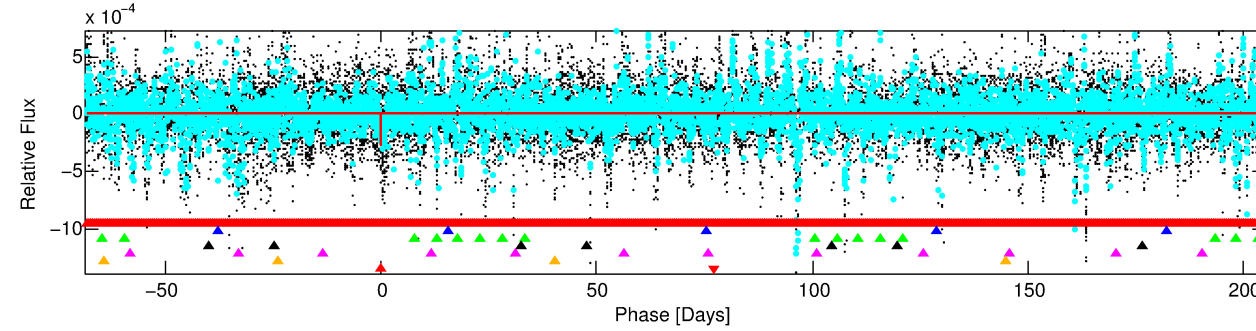
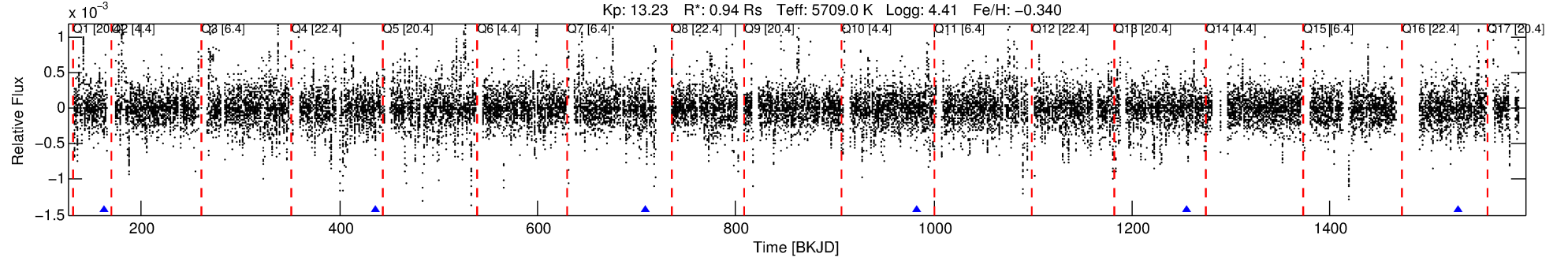
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004489844-07

No Significant Match Found

DV One-Page Summary

KIC: 4489844 Candidate: 7 of 7 Period: 273.142 d
KOI: K06421 Corr: No Ephemeris Match



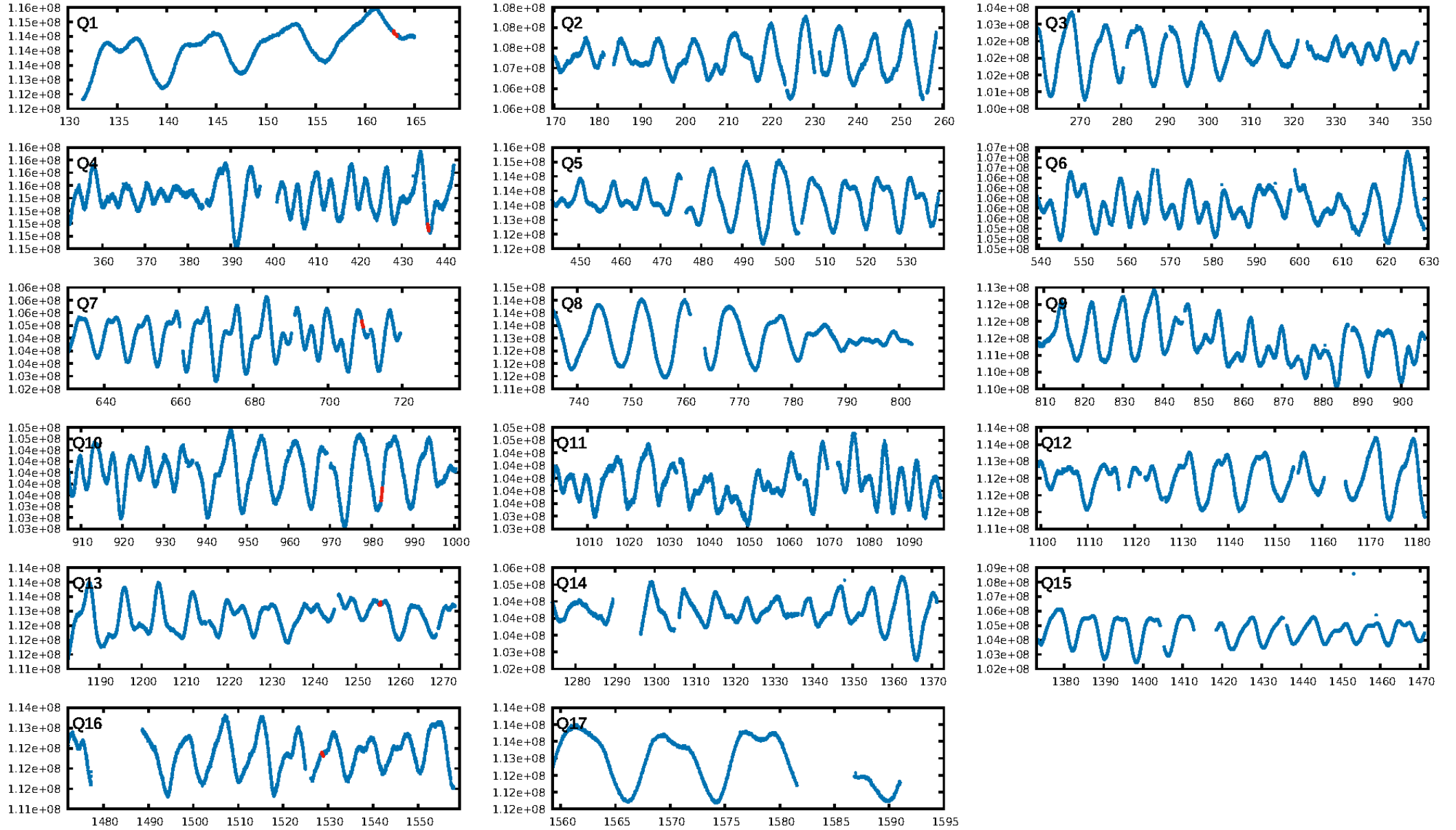
DV Fit Results:

Period = 273.14219 [0.00811] d
Epoch = 163.0460 [0.0231] BKJD
Rp/R* = 0.0162 [0.0353]
a/R* = 321.90 [3256.81]
b = 0.75 [5.84]
Seff = 1.40 [0.48]
Teq = 278 [24] K
Rp = 1.66 [3.64] Re
a = 0.7723 [0.1737] AU
Ag = 80342.66 [35199.12] [0.23 σ]
Teffp = 7225 [7895] K [0.88 σ]

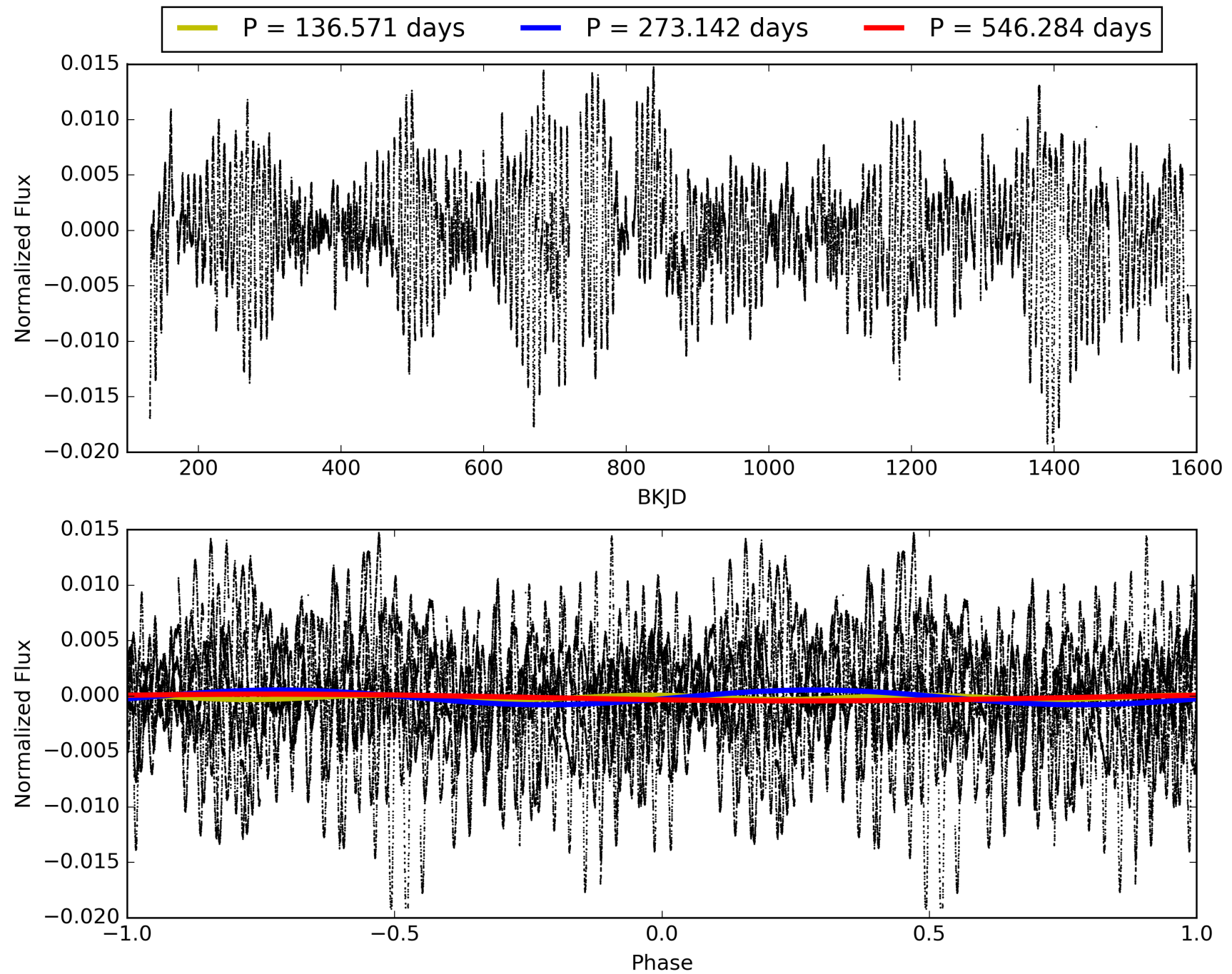
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [97.52 σ]
LongPeriod-sig: 100.0% [100.07 σ]
ModelChiSquare2-sig: 12.6%
ModelChiSquareGof-sig: 98.4%
Bootstrap-pfa: 1.25e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.8794
Centroid-sig: 3.7%
Centroid-so: 2.237 arcsec [1.64 σ]
OotOffset-rm: 0.952 arcsec [2.49 σ]
KicOffset-rm: 0.923 arcsec [2.58 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/5]

TCE 004489844-07, PDC Light Curves

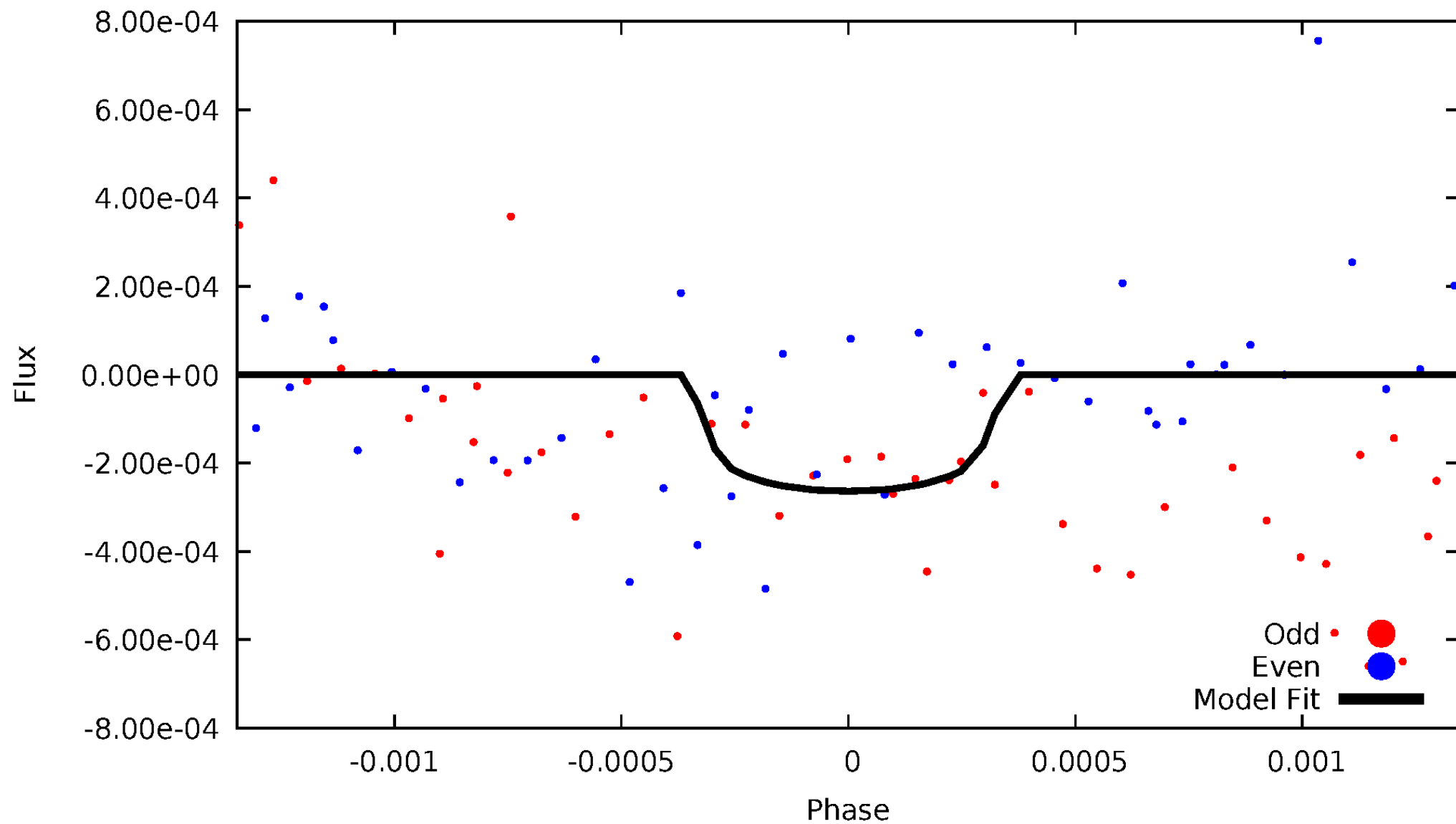


TCE 004489844-07



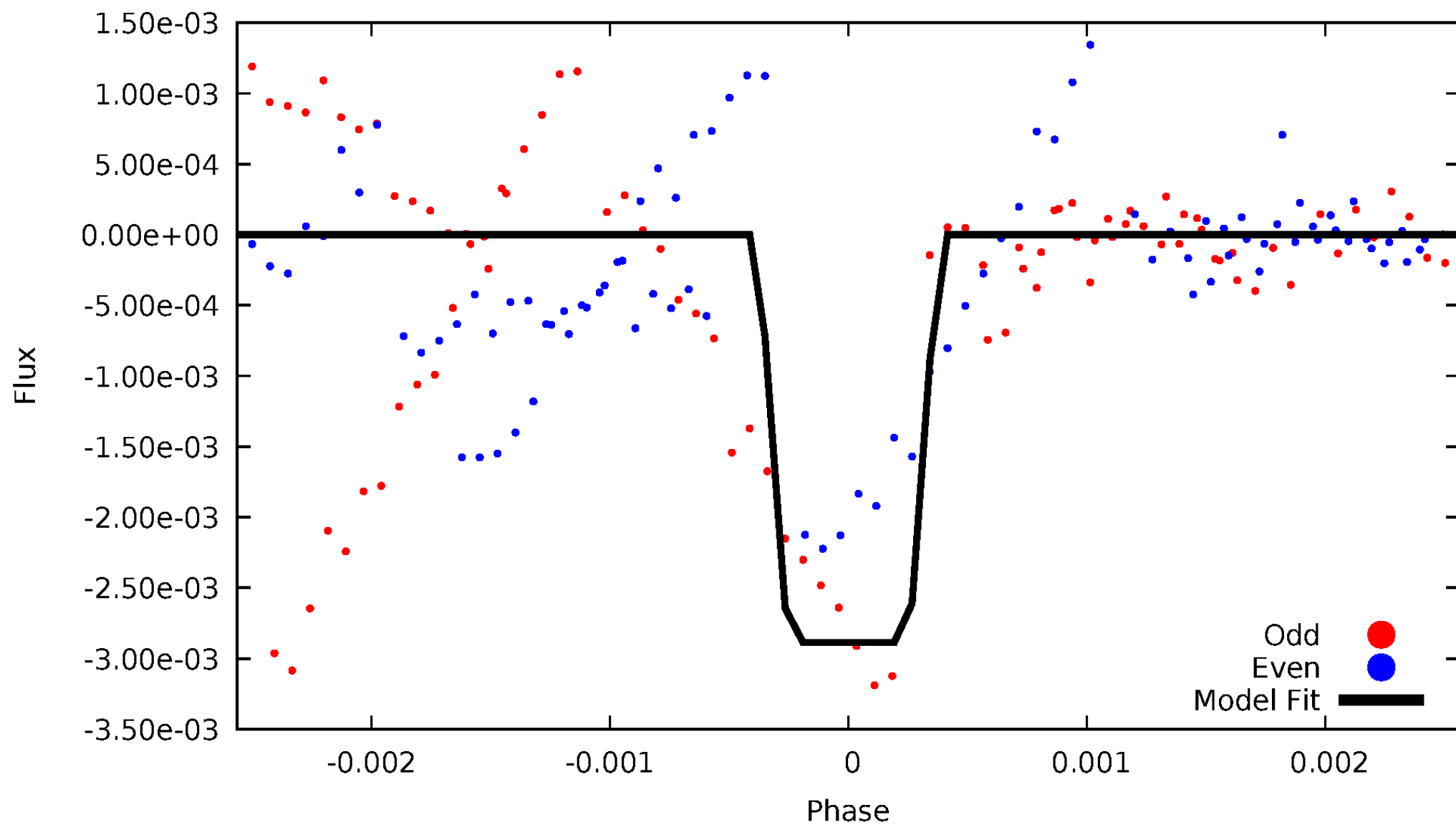
DV Odd/Even

TCE 004489844-07



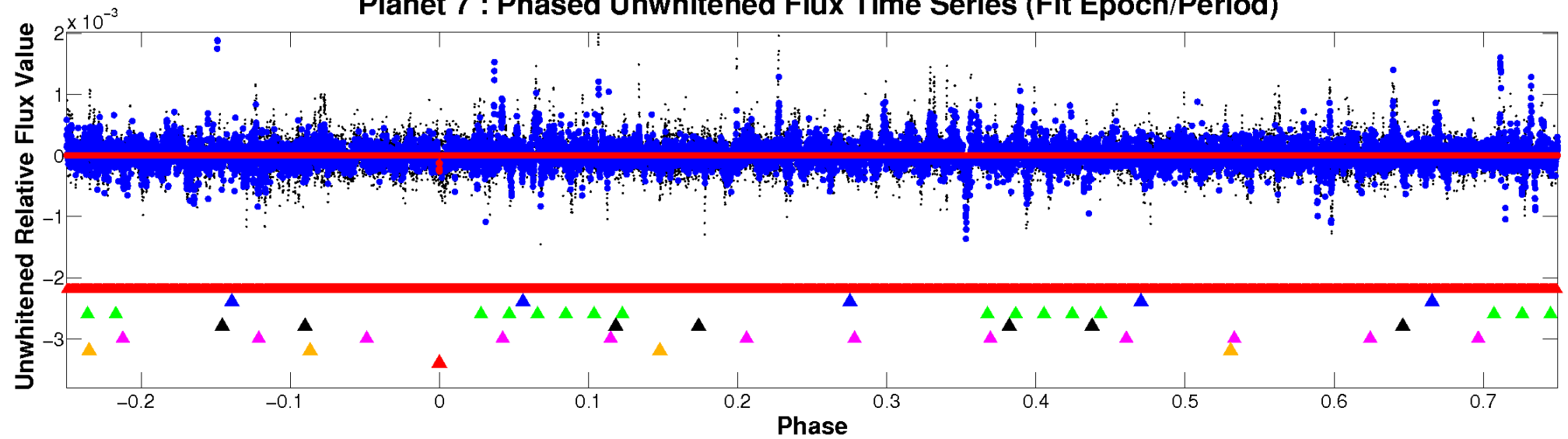
ALT Odd/Even

TCE 004489844-07

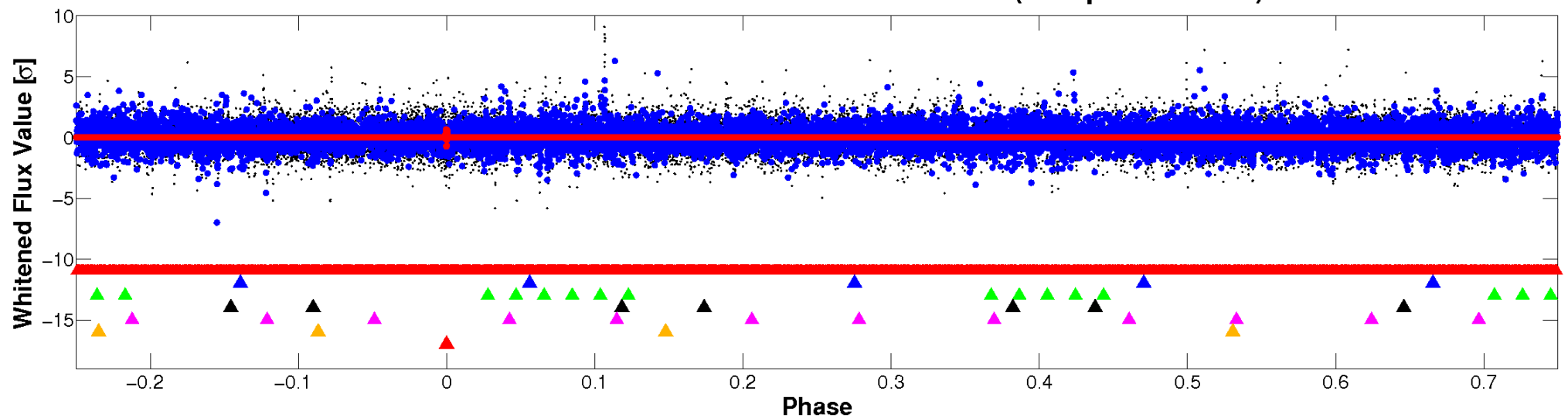


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

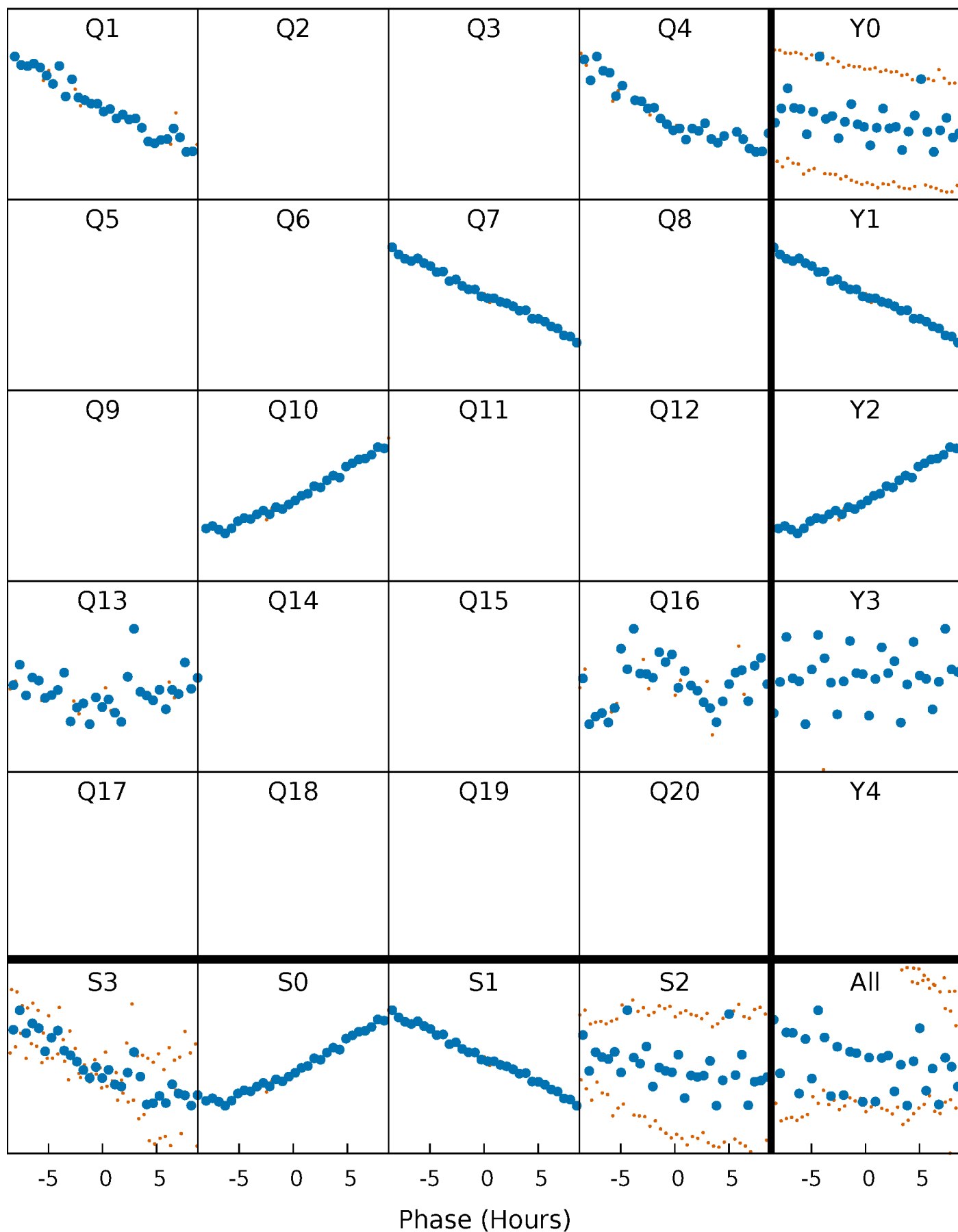


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



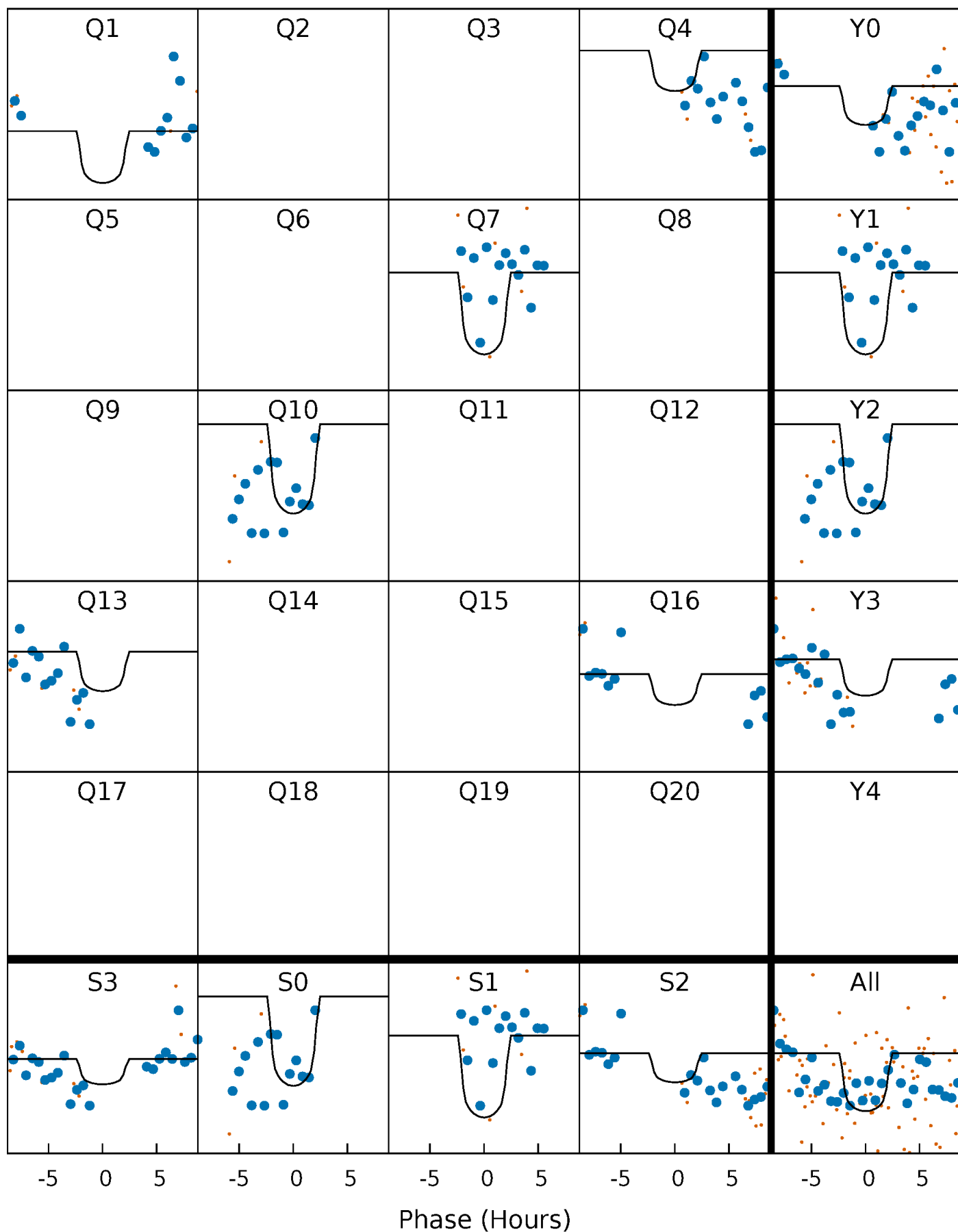
PDC Quarter-Phased Transit Curves

TCE 004489844-07 $P=273.142187$ Days $T_0=163.045997$ (BKJD)



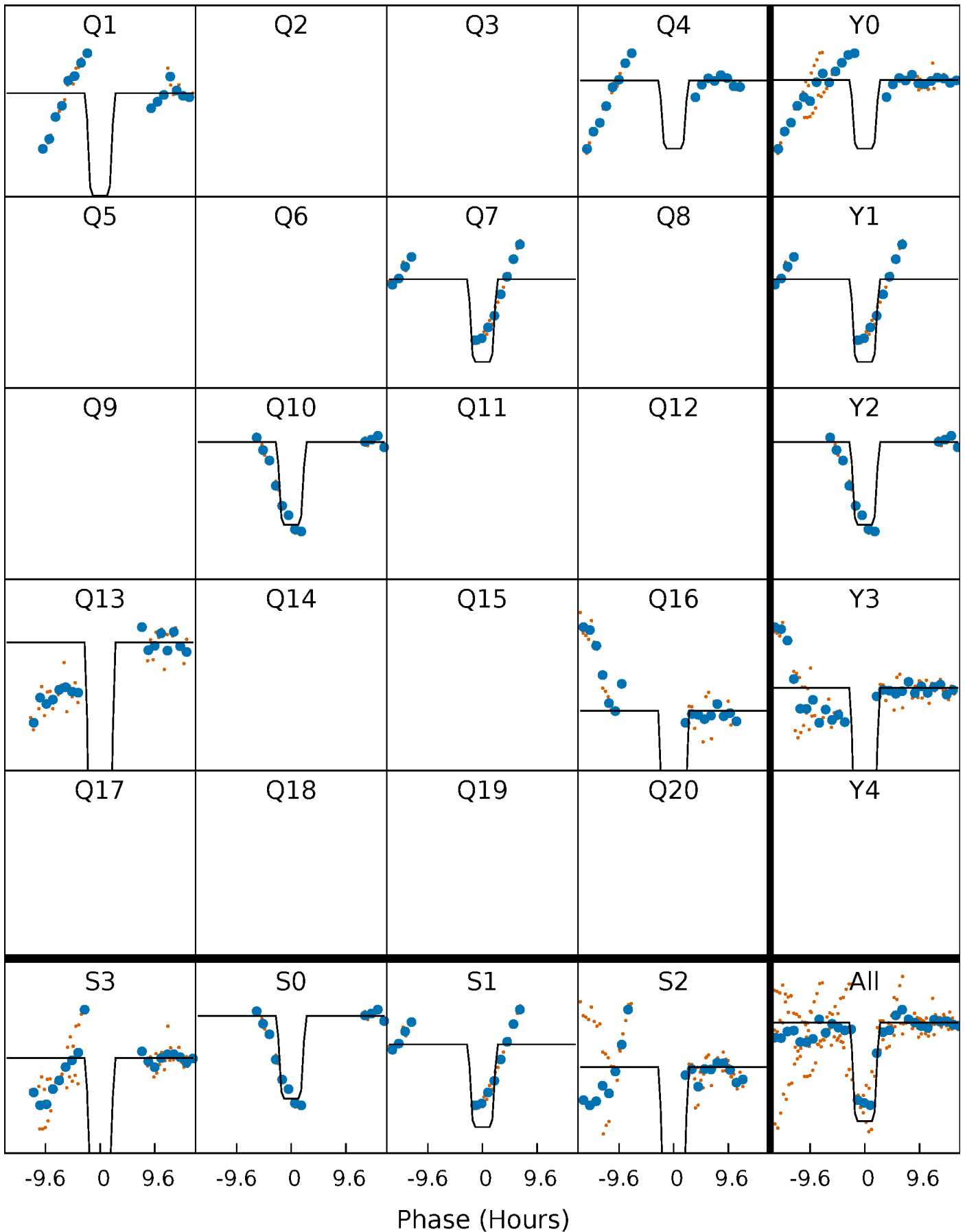
DV Quarter-Phased Transit Curves

TCE 004489844-07 $P=273.142187$ Days $T_0=163.045997$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

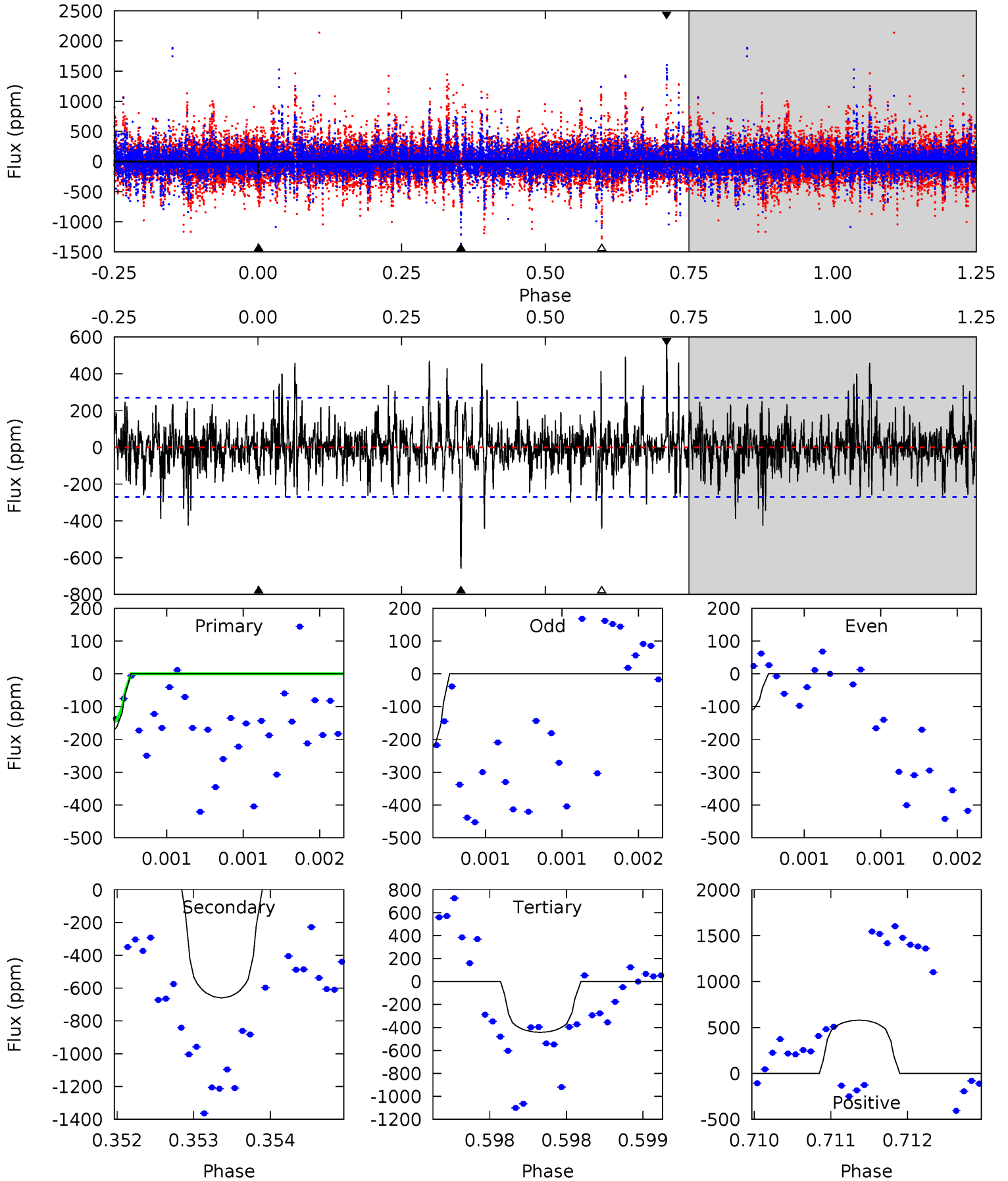
TCE 004489844-07 $P=273.223942$ Days $T_0=162.831440$ (BKJD)



DV Model-Shift Uniqueness Test

004489844-07, P = 273.142187 Days, E = 163.045997 Days

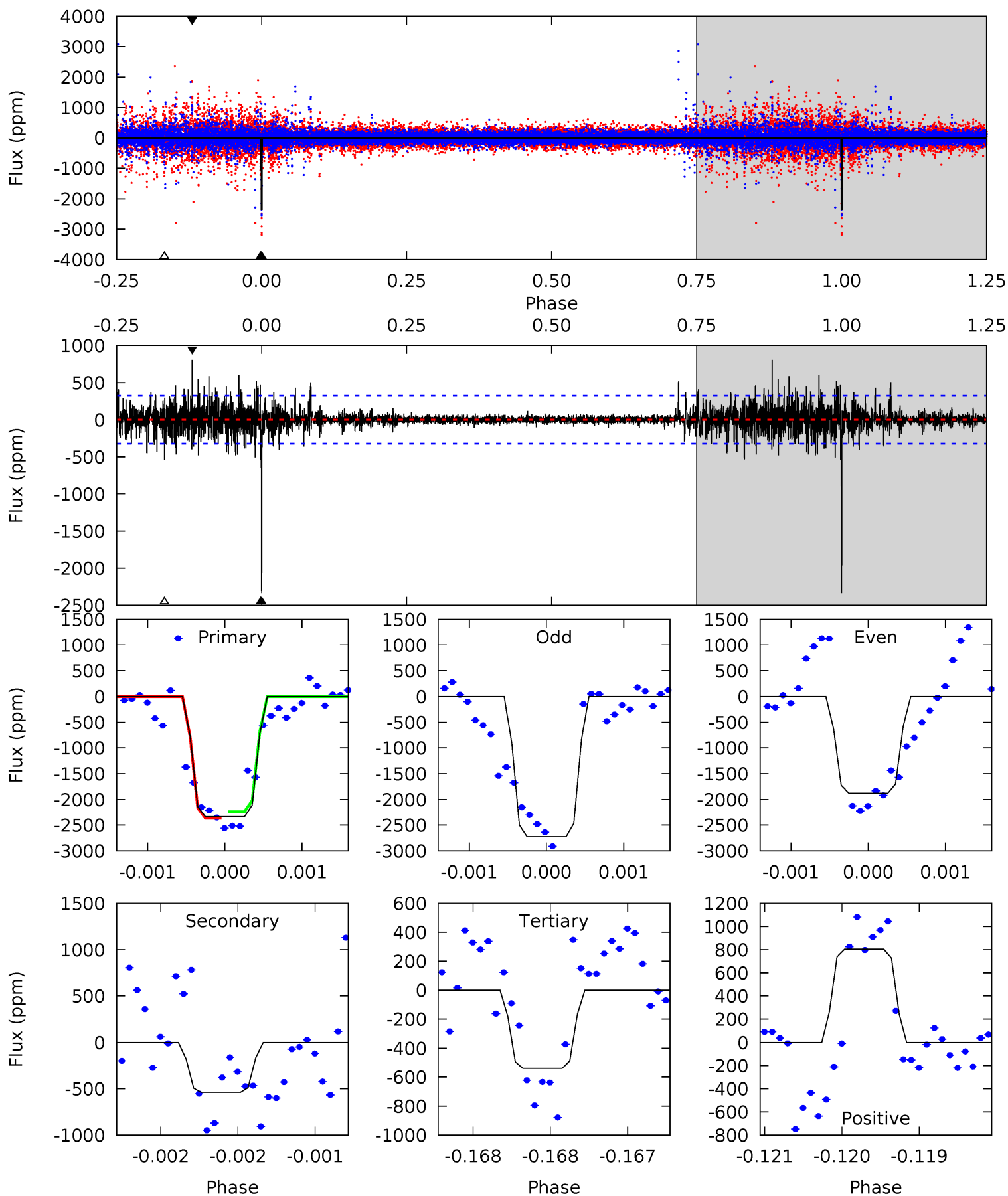
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.98	13.5	9.03	11.8	5.51	3.39	2.02	-5.05	-7.85	4.43	1.62	1.26	0.97	0.47	0.57



Alt Model-Shift Uniqueness Test

004489844-07, P = 273.223942 Days, E = 162.831440 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.0	9.25	9.24	13.8	5.50	3.37	1.60	30.7	26.2	0.01	-4.52	5.92	1.00	0.26	0.98



Stellar Parameters For KIC 004489844

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5709^{+154}_{-154}	$4.409^{+0.144}_{-0.176}$	$-0.340^{+0.300}_{-0.300}$	$0.938^{+0.253}_{-0.156}$	$0.824^{+0.116}_{-0.062}$	$1.405^{+0.844}_{-0.670}$
	+3%/-3%	+3%/-4%	+88%/-88%	+27%/-17%	+14%/-8%	+60%/-48%
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 004489844-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-659 ± 49	$3.02^{+3.38}_{-2.07}$	388^{+29}_{-23}	5335^{+5351}_{-1312}	$24162^{+213588}_{-18935}$
Alt.	-540 ± 58	$5.80^{+3.51}_{-3.20}$	388^{+26}_{-20}	3996^{+1550}_{-597}	5349^{+20998}_{-3266}

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 $A_{obs} \gg 1.0$

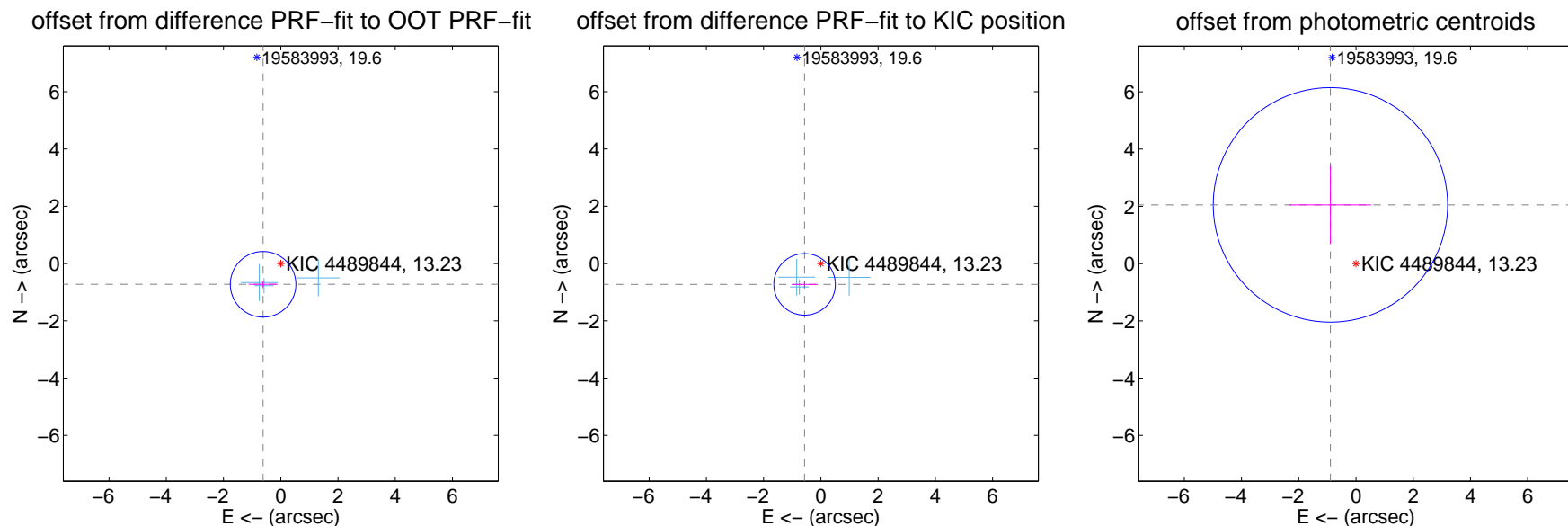
DV Centroid Data

Supplemental centroid analysis for 004489844-07. Kepler magnitude: 13.23. Transit SNR 3.60

There are 3 quarters with good PRF difference image offsets

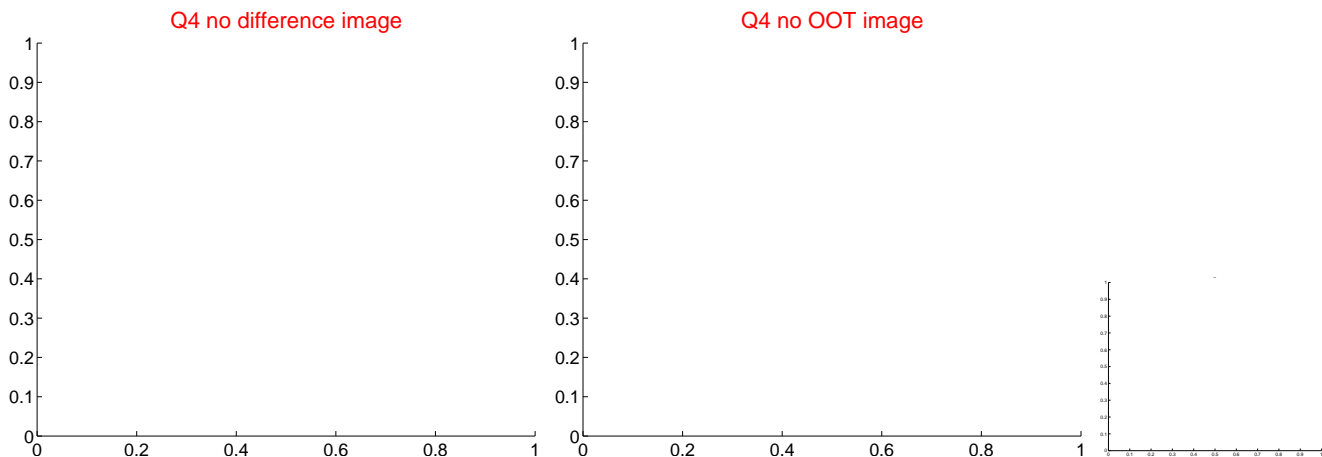
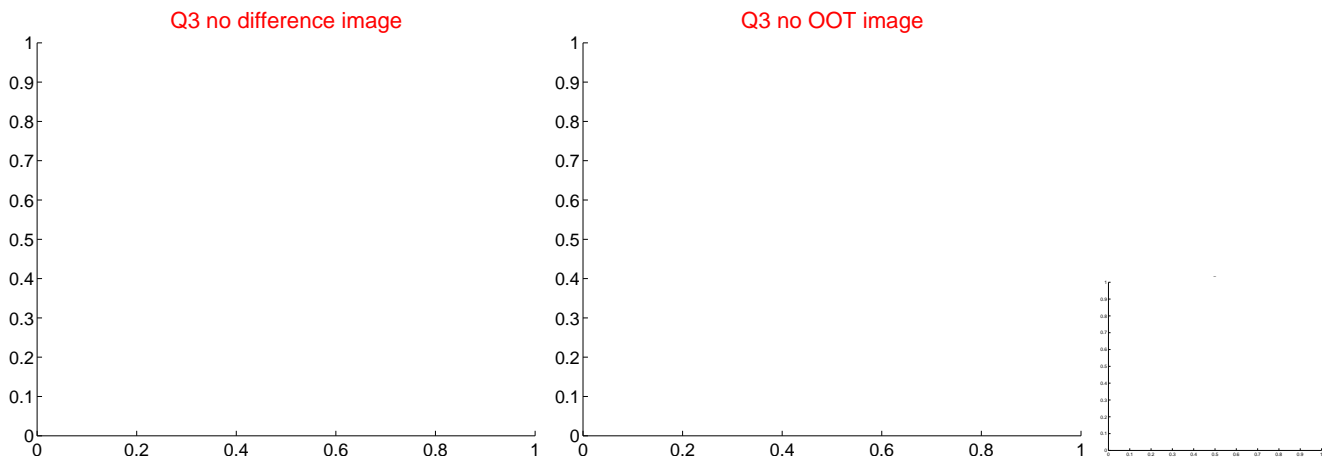
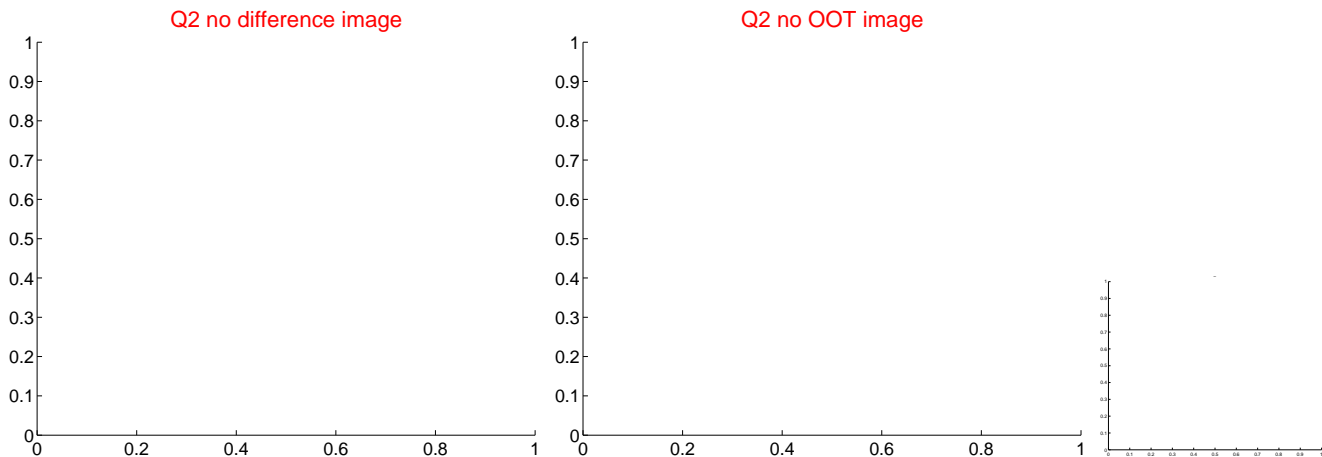
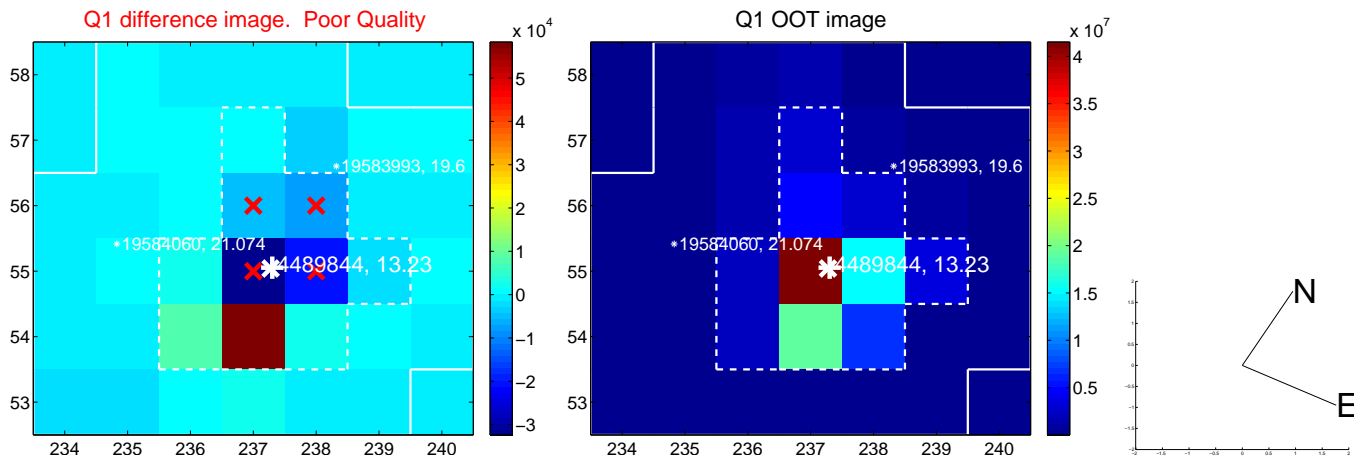
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.952 ± 0.382	2.49	0.617 ± 0.507	-0.726 ± 0.098
PRF-fit source offset from KIC position	0.923 ± 0.358	2.58	0.568 ± 0.458	-0.727 ± 0.131
photometric centroid source offset	2.24 ± 1.37	1.64	0.89 ± 1.44	2.05 ± 1.35

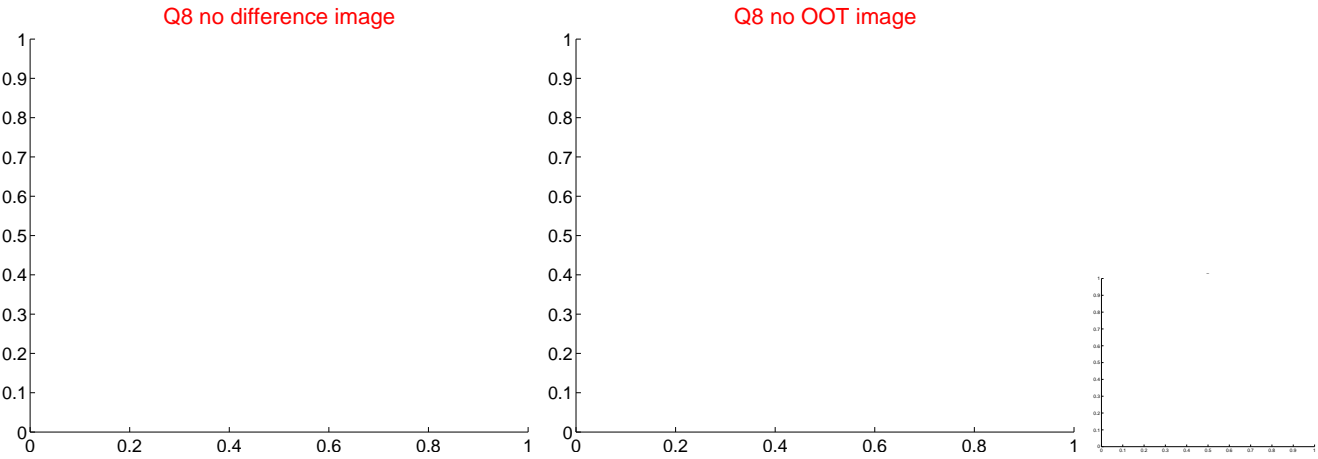
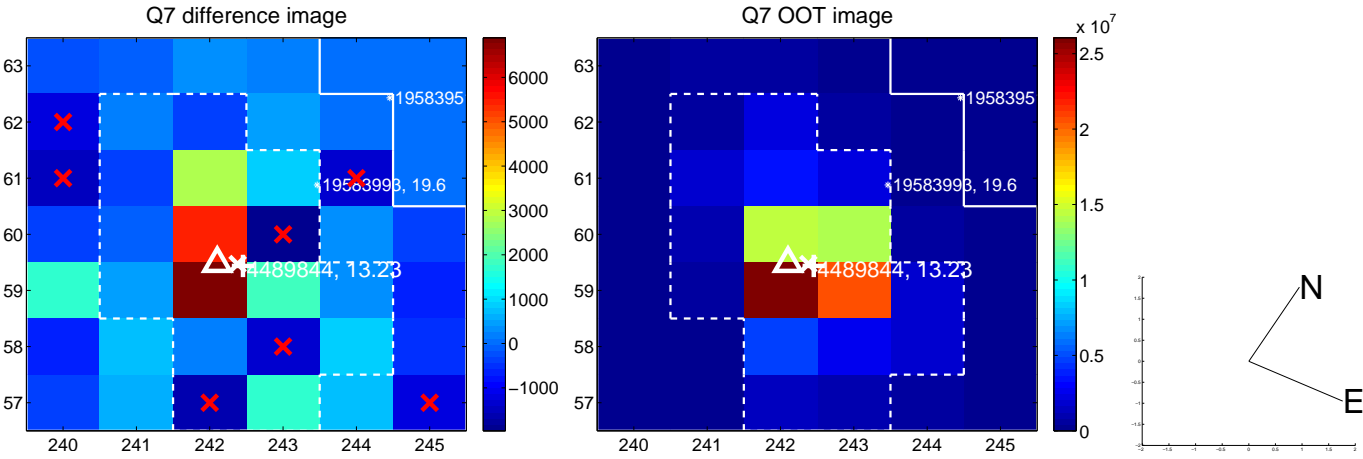
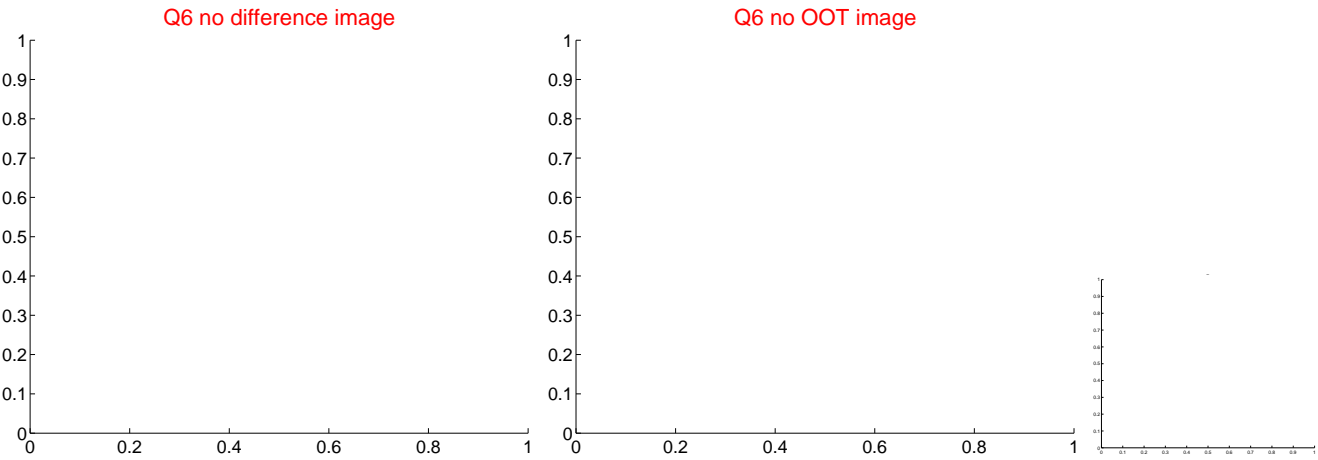
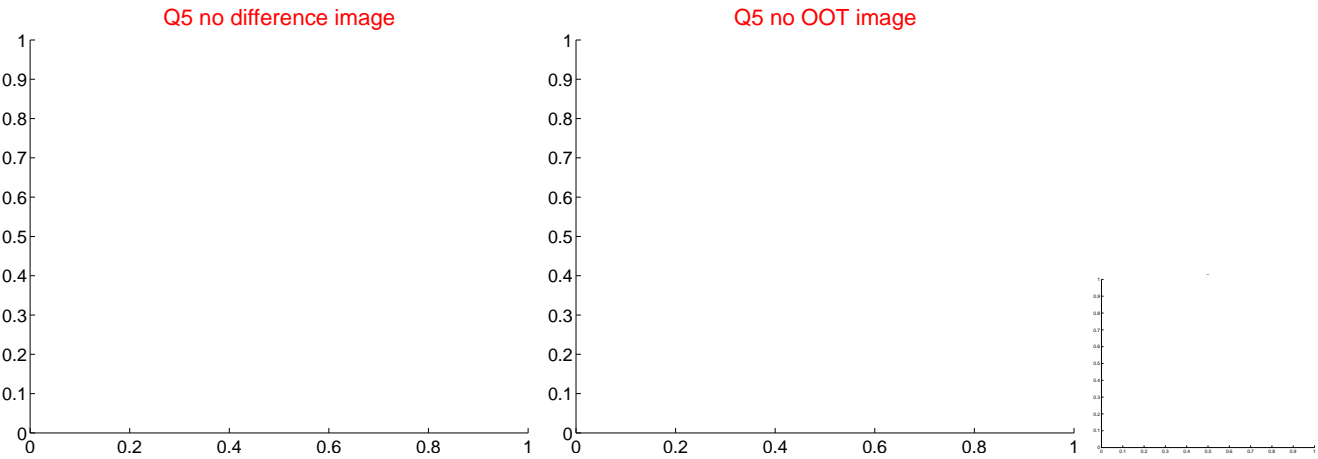


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

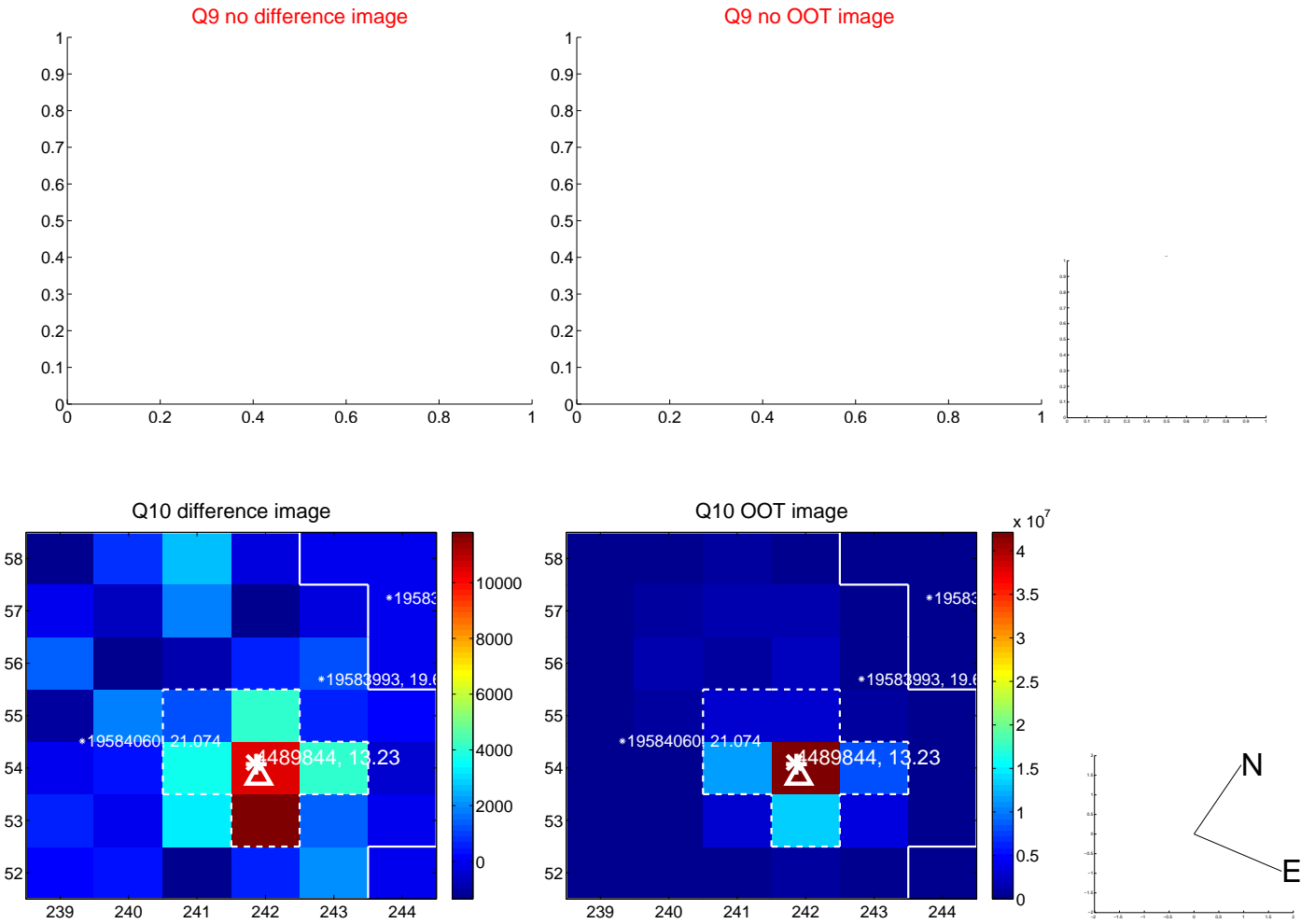
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



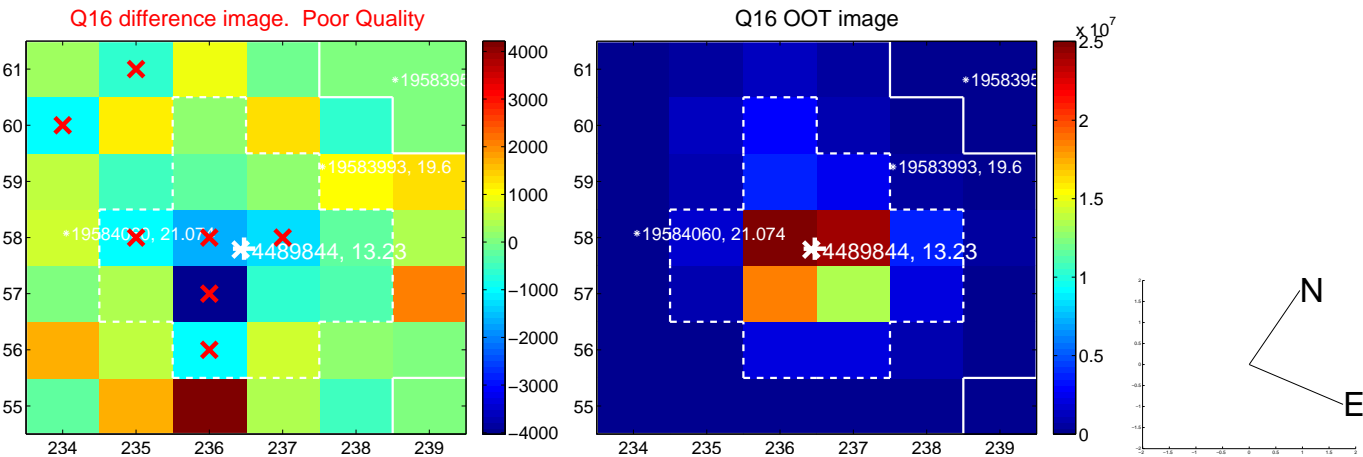
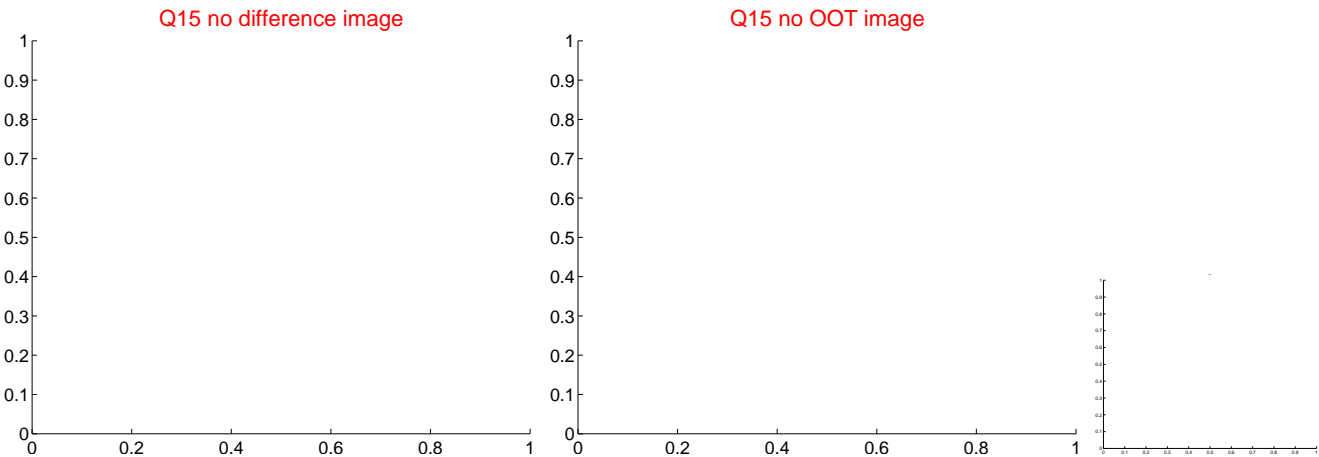
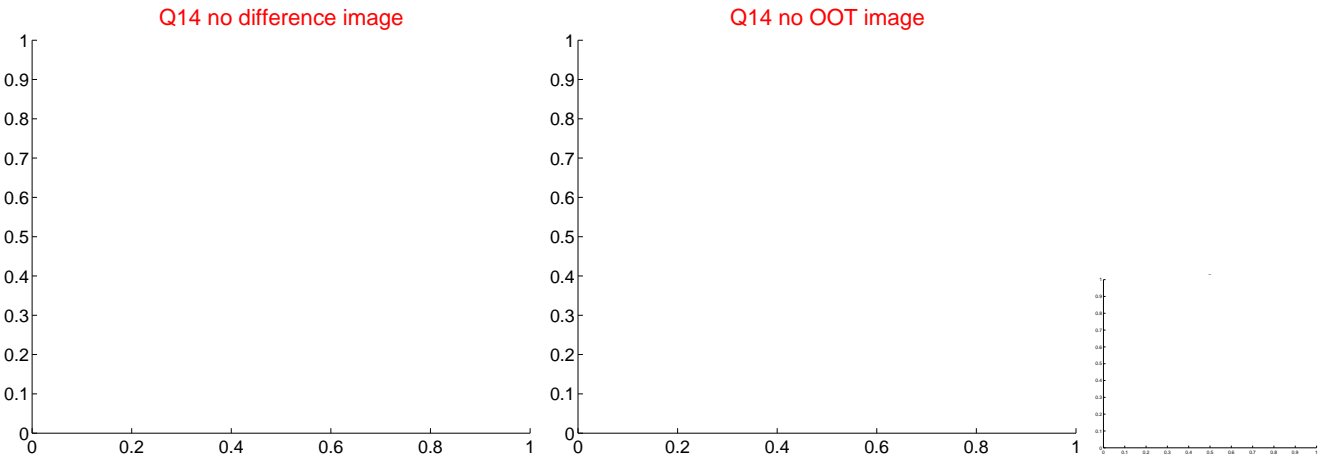
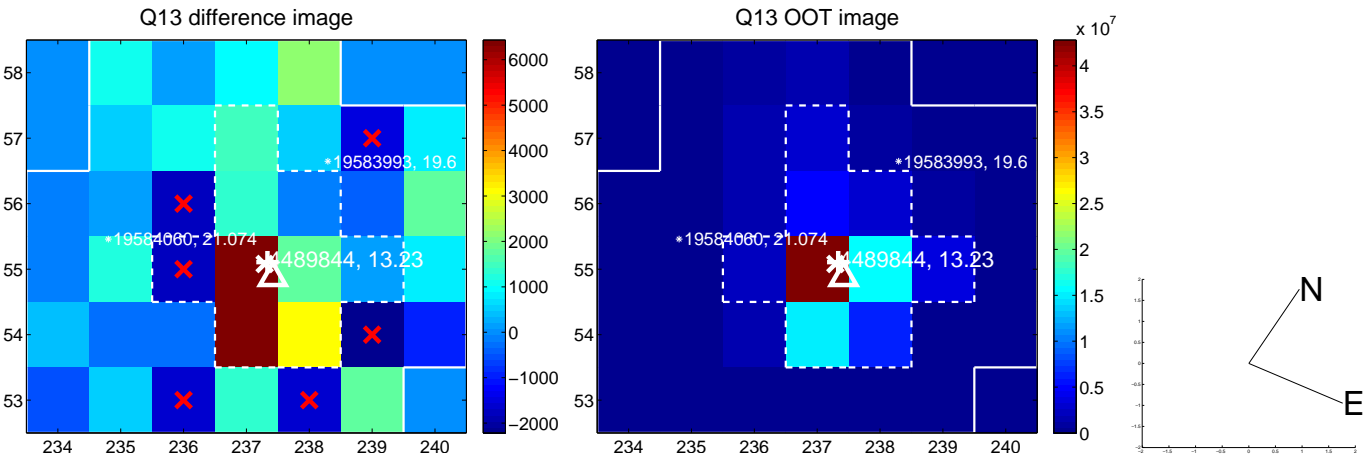
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



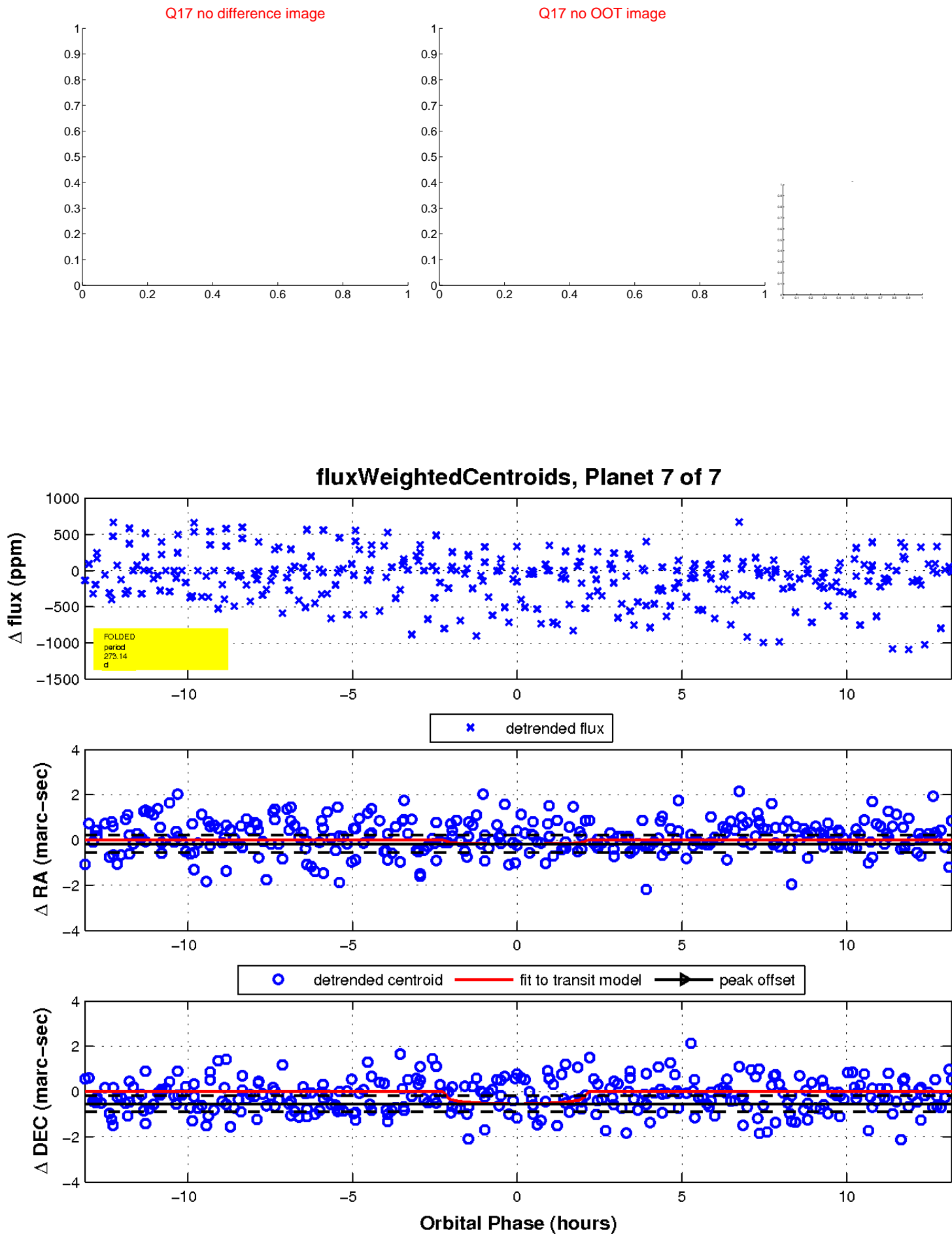
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

