

KIC 008360304

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})
008360304-01	OBS	No	376.857775	220.584093	143.4	21.226	7.4	8.3	0.81	5546	1.04	0.57
008360304-02	OBS	No	446.018967	155.509293	138.4	17.923	8.3	7.5	0.81	5546	1.03	0.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008360304-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS—HALO_GHOST
008360304-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

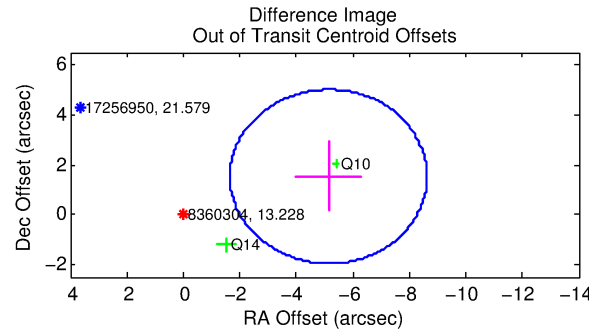
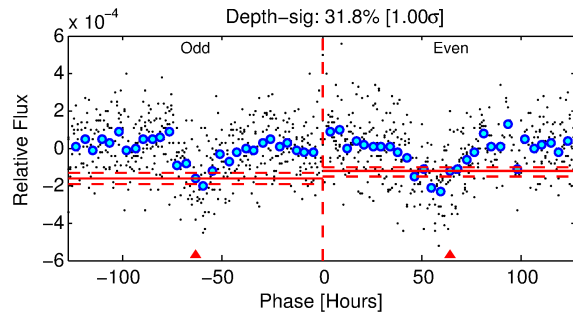
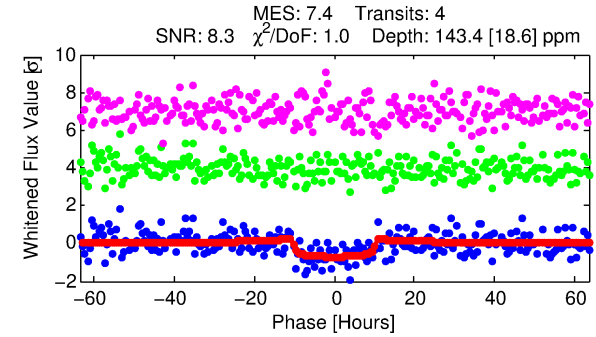
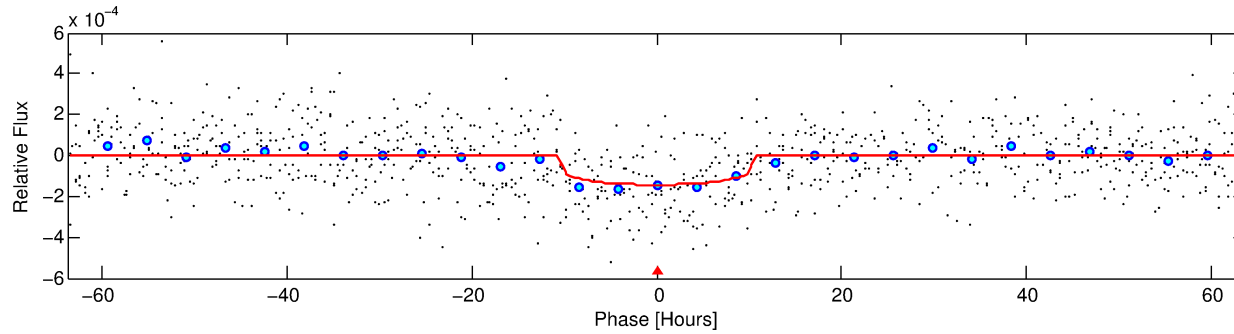
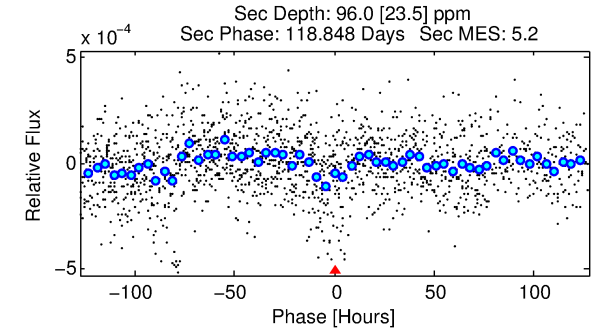
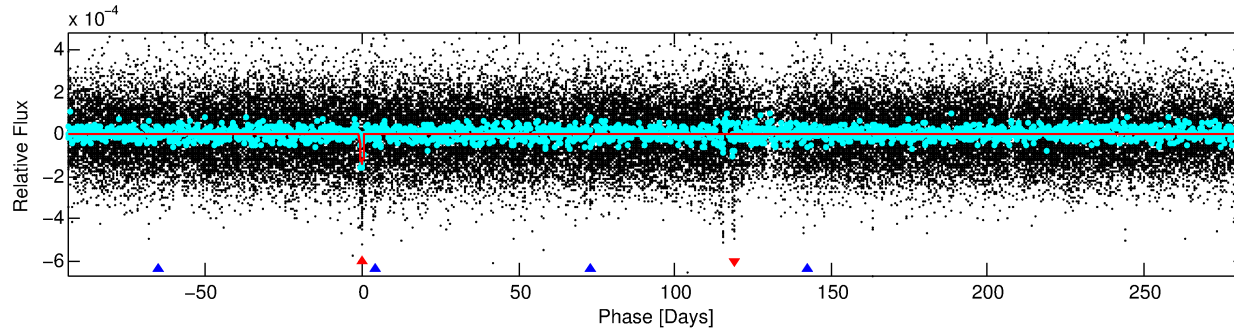
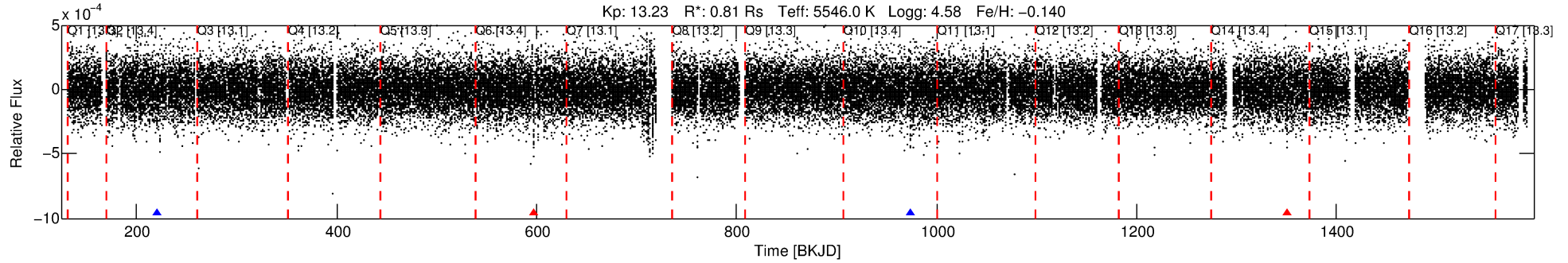
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008360304-01

No Significant Match Found

DV One-Page Summary

KIC: 8360304 Candidate: 1 of 2 Period: 376.858 d



DV Fit Results:

Period = 376.85778 [0.01227] d
Epoch = 220.5841 [0.0229] BKJD
Rp/R* = 0.0118 [0.0067]
a/R* = 95.02 [231.15]
b = 0.73 [1.56]
Seff = 0.57 [0.15]
Teff = 222 [15] K
Rp = 1.05 [0.63] Re
a = 0.9858 [0.1682] AU
Ag = 46978.57 [55824.14] [0.84σ]
Teffp = 5048 [1473] K [3.28σ]

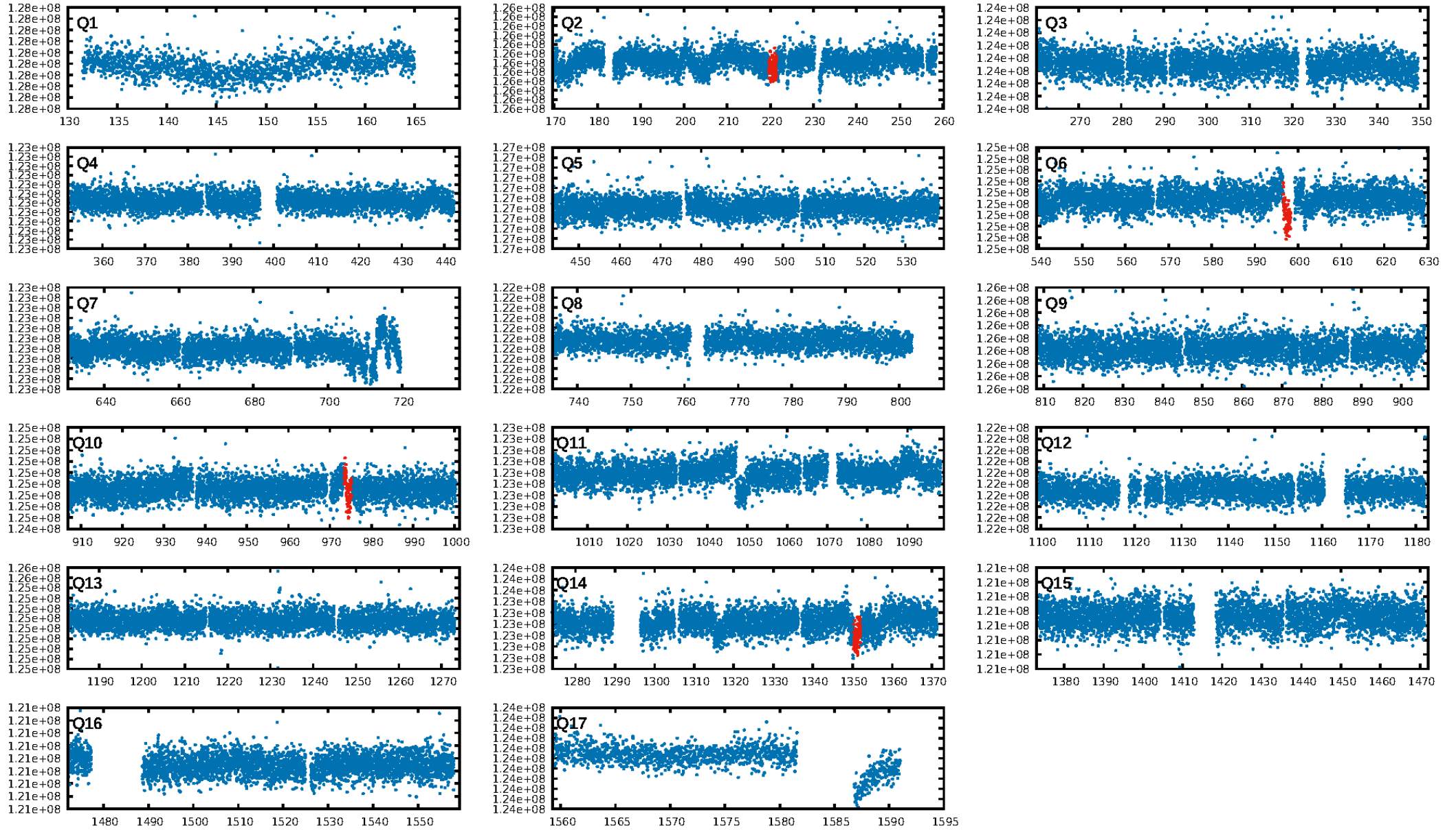
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [59.75σ]
ModelChiSquare2-sig: 59.4%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 3.68e-09
RollingBand-fgt: 0.50 [2/4]
GhostDiagnostic-chr: -0.1417
Centroid-sig: 0.0%
Centroid-so: 6.802 arcsec [3.23σ]
OotOffset-rm: 5.358 arcsec [4.61σ]
KicOffset-rm: 5.196 arcsec [4.44σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

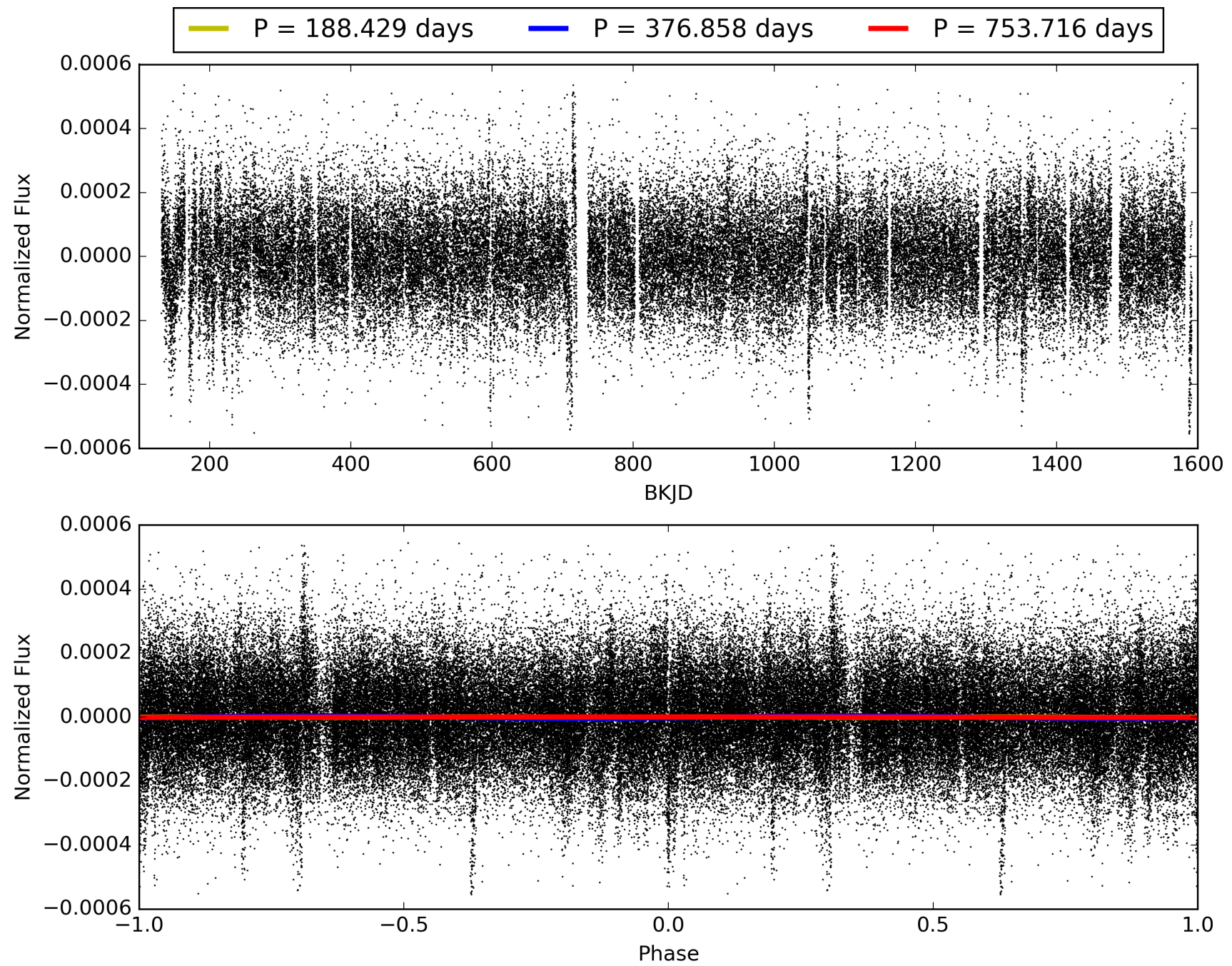
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:26:00 Z

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

TCE 008360304-01, PDC Light Curves

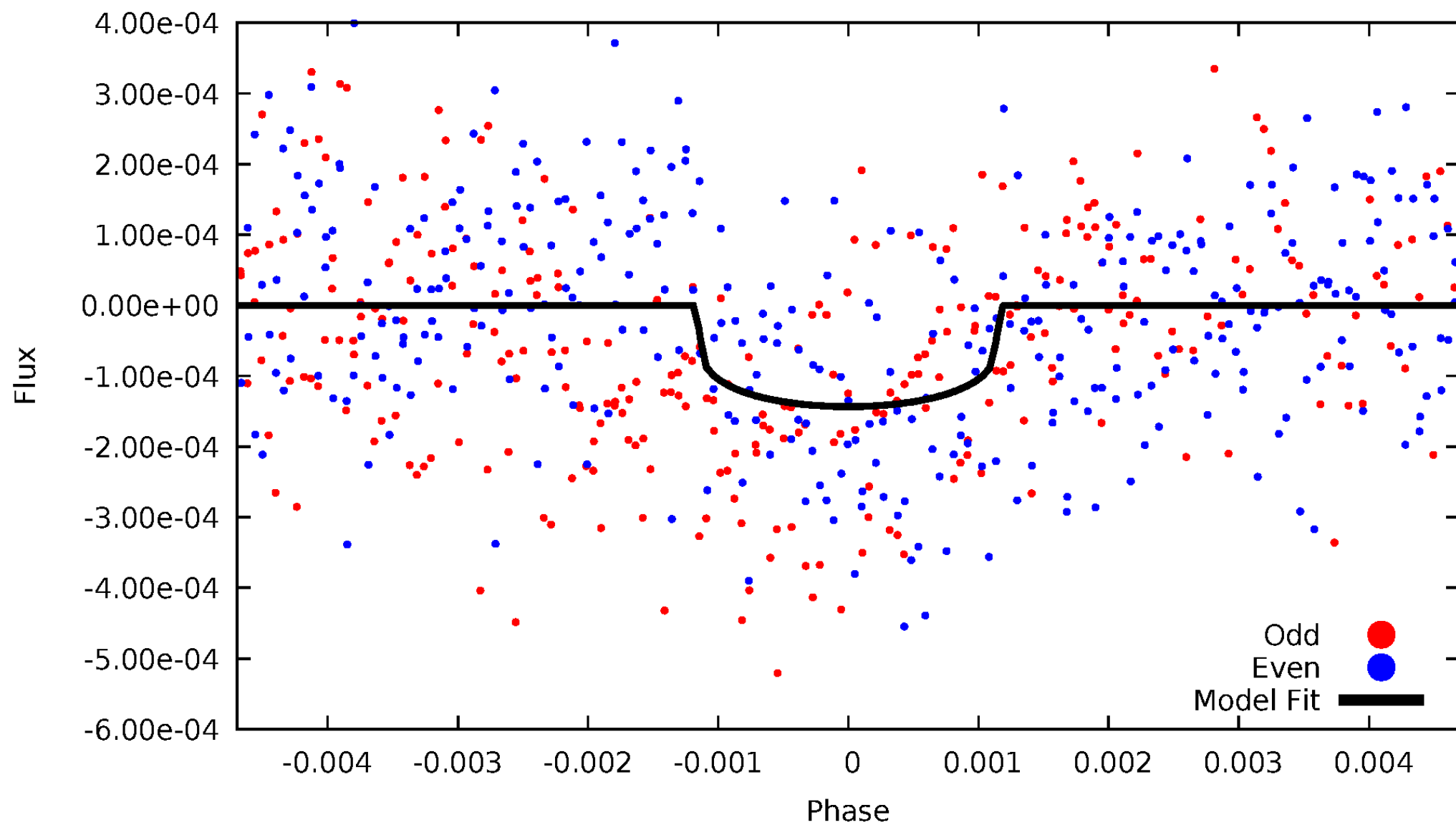


TCE 008360304-01



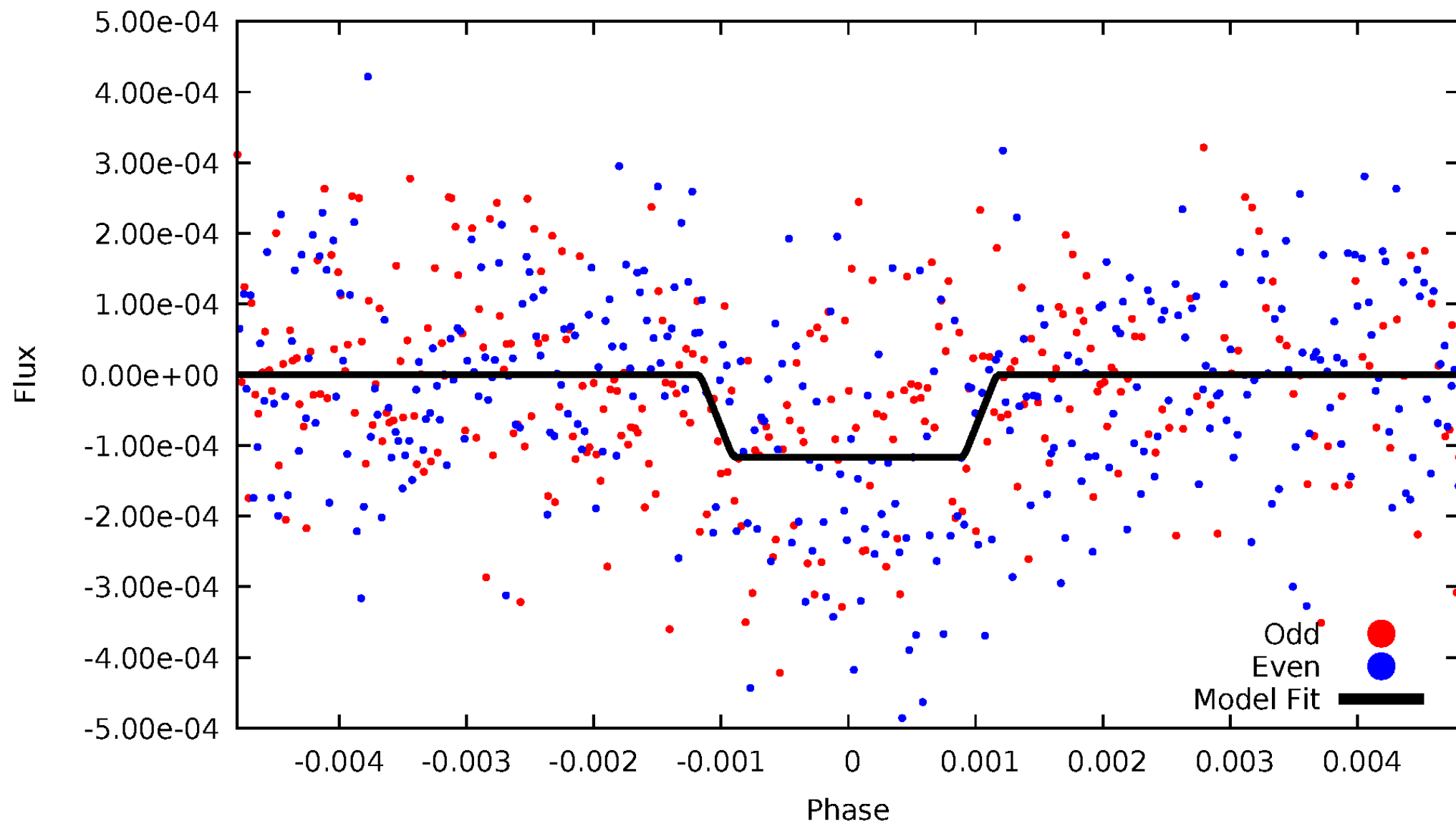
DV Odd/Even

TCE 008360304-01

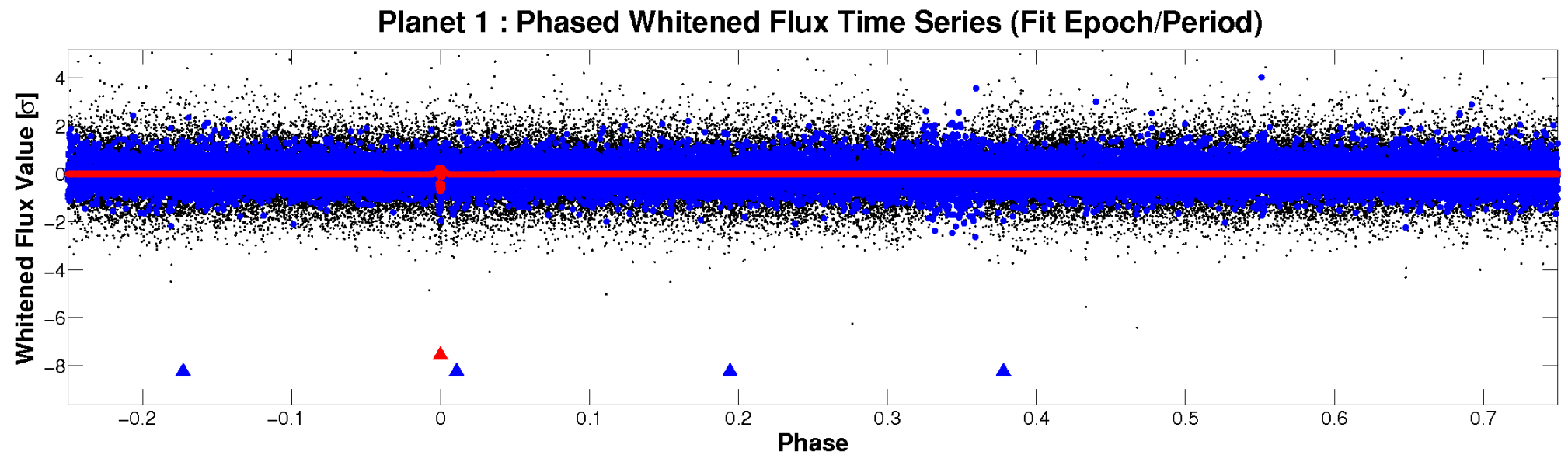
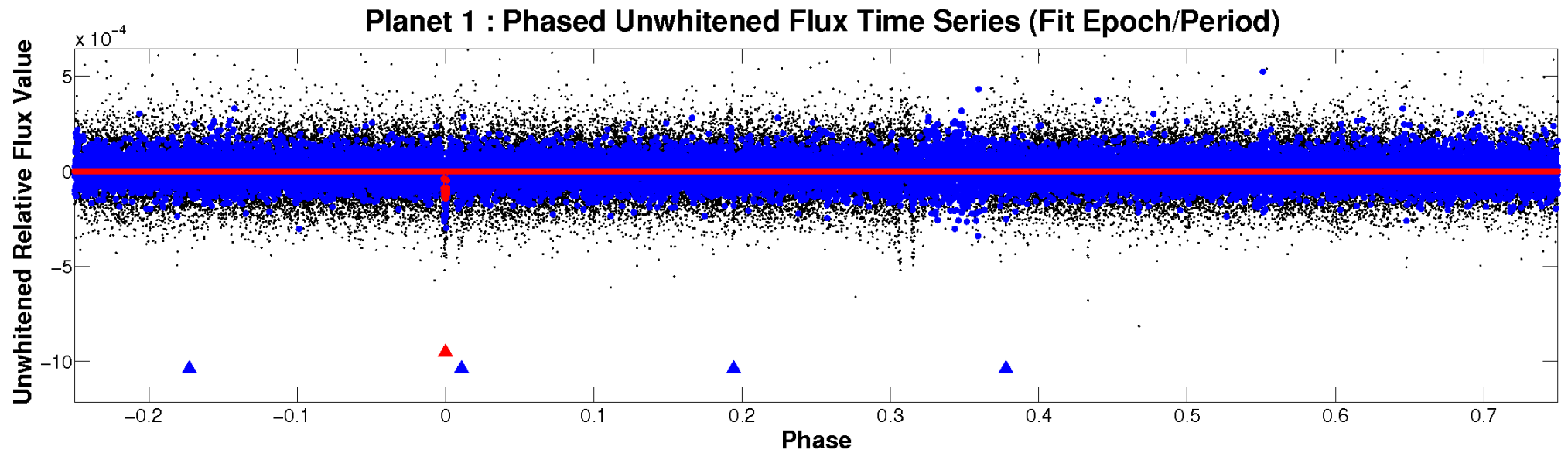


ALT Odd/Even

TCE 008360304-01

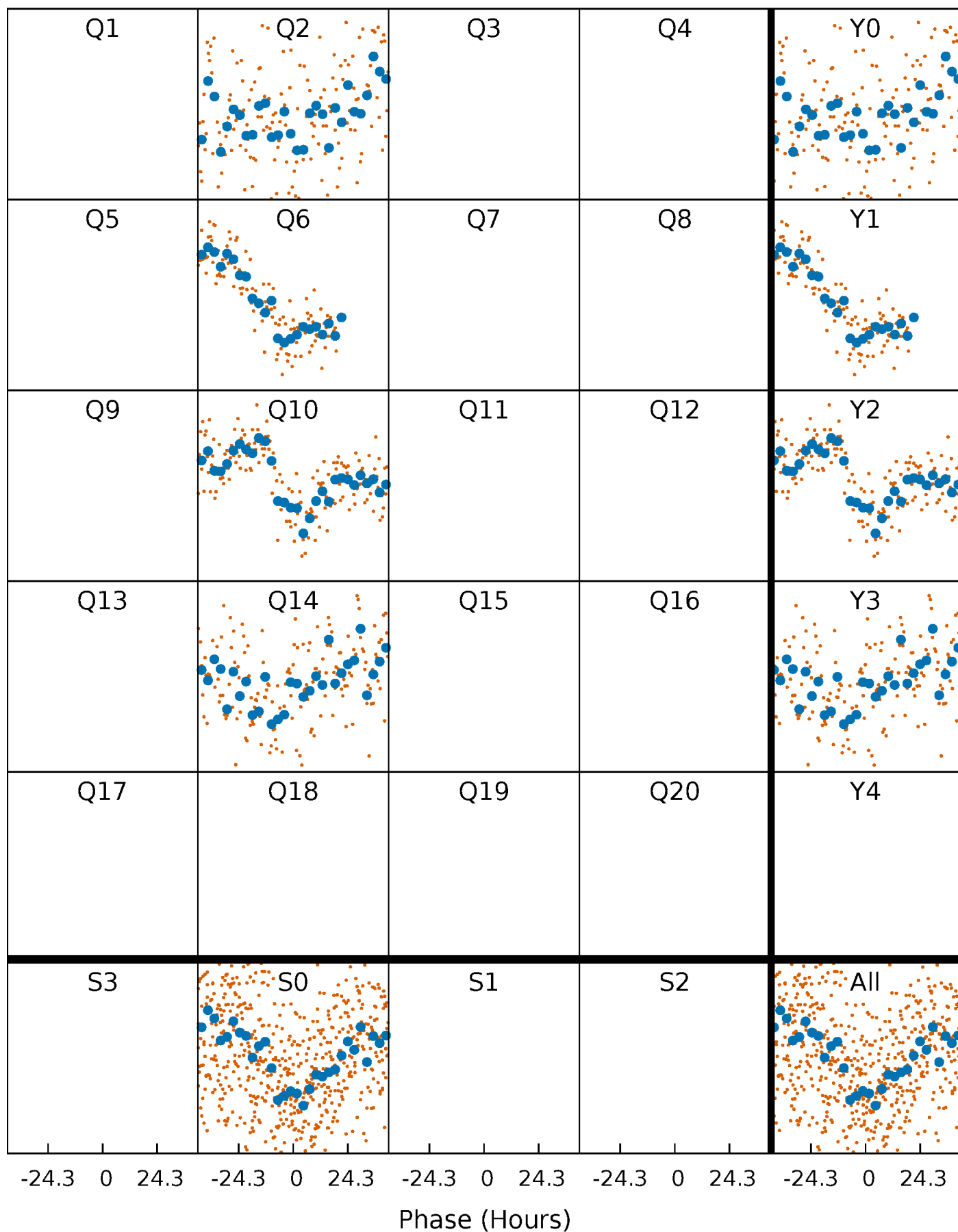


Non-Whitened Vs. Whitened Light Curve



PDC Quarter-Phased Transit Curves

TCE 008360304-01 P=376.857775 Days $T_0=220.584093$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 008360304-01 P=376.857775 Days $T_0=220.584093$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

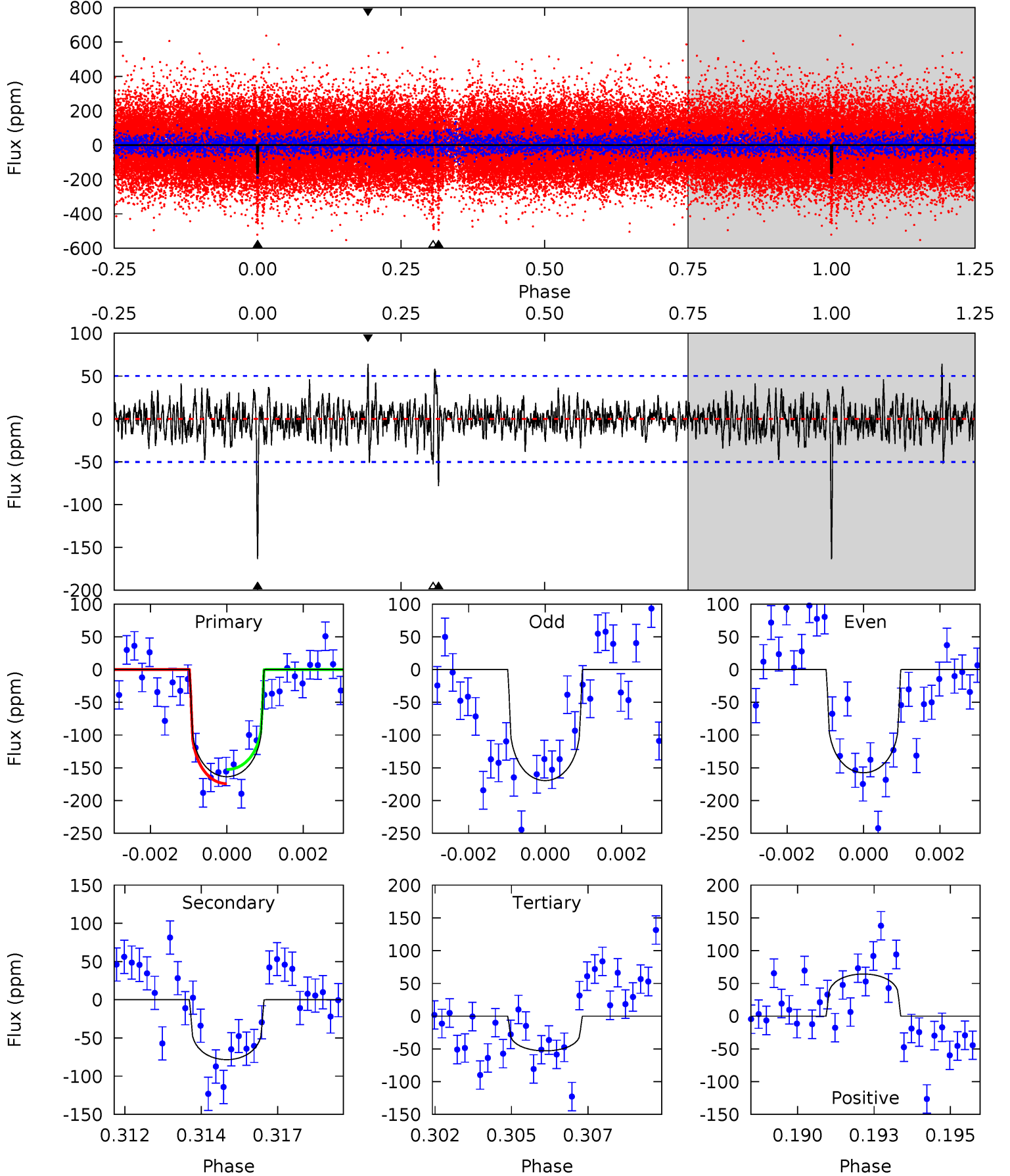
TCE 008360304-01 P=376.862958 Days $T_0=220.576090$ (BKJD)



DV Model-Shift Uniqueness Test

008360304-01, $P = 376.857775$ Days, $E = 220.584093$ Days

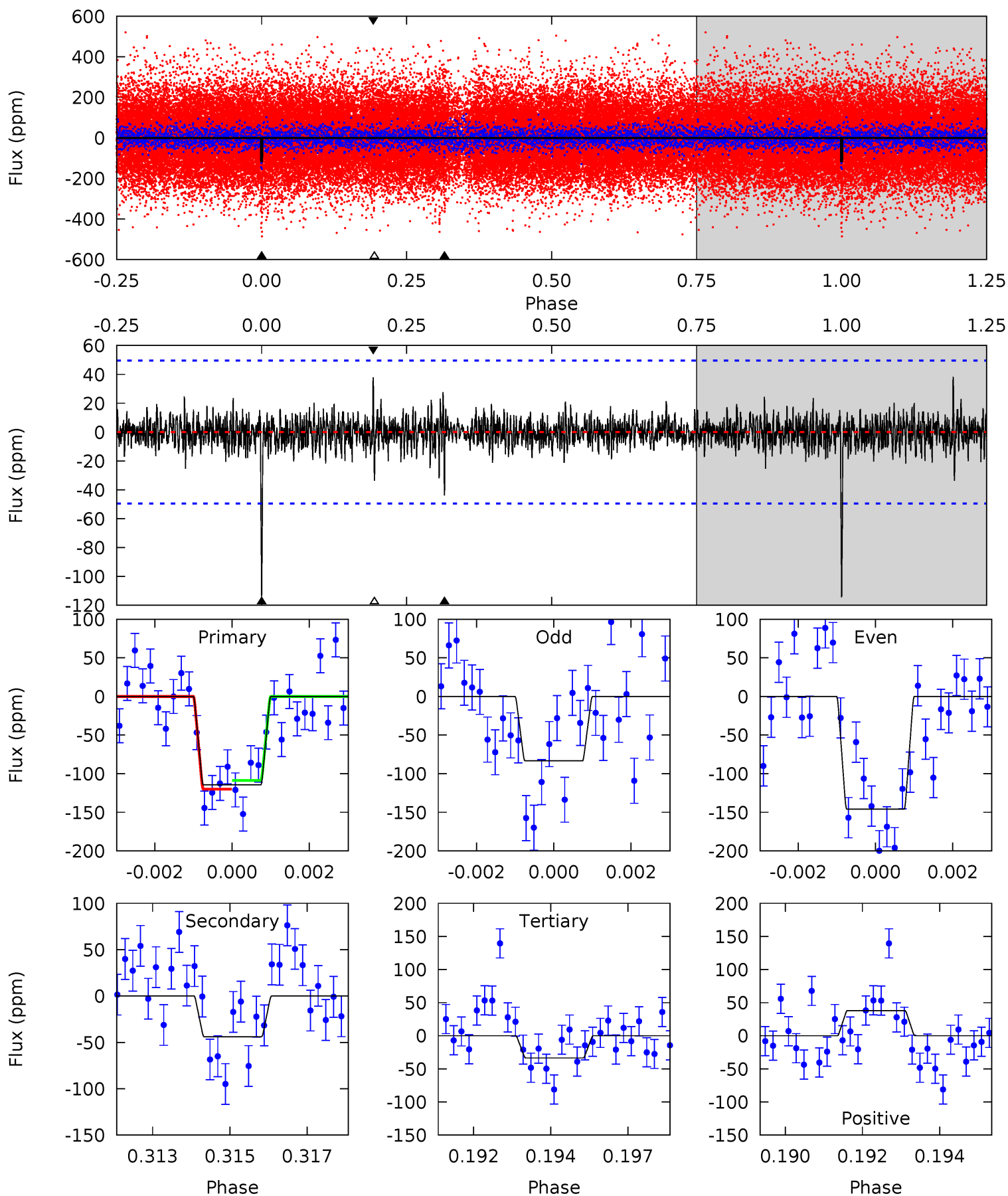
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.3	8.26	5.59	6.78	5.29	3.03	1.50	11.7	10.5	2.67	1.49	0.63	0.97	0.28	1.14



Alt Model-Shift Uniqueness Test

008360304-01, P = 376.862958 Days, E = 220.576090 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	4.69	3.59	4.06	5.30	3.04	0.80	8.64	8.18	1.10	0.64	3.34	1.38	0.25	0.61



Stellar Parameters For KIC 008360304

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5546^{+149}_{-149}	$4.575^{+0.034}_{-0.136}$	$-0.140^{+0.300}_{-0.300}$	$0.810^{+0.164}_{-0.070}$	$0.907^{+0.074}_{-0.111}$	$2.404^{+0.440}_{-0.954}$
	+3%/-3%	+1%/-3%	+214%/-214%	+20%/-9%	+8%/-12%	+18%/-40%
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 008360304-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-78 ± 9	$1.11^{+0.61}_{-0.55}$	315^{+16}_{-13}	4796^{+1820}_{-702}	$32177^{+101768}_{-18331}$
Alt.	-44 ± 9	$1.06^{+0.58}_{-0.56}$	315^{+16}_{-10}	4406^{+1562}_{-680}	20574^{+66935}_{-12470}

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

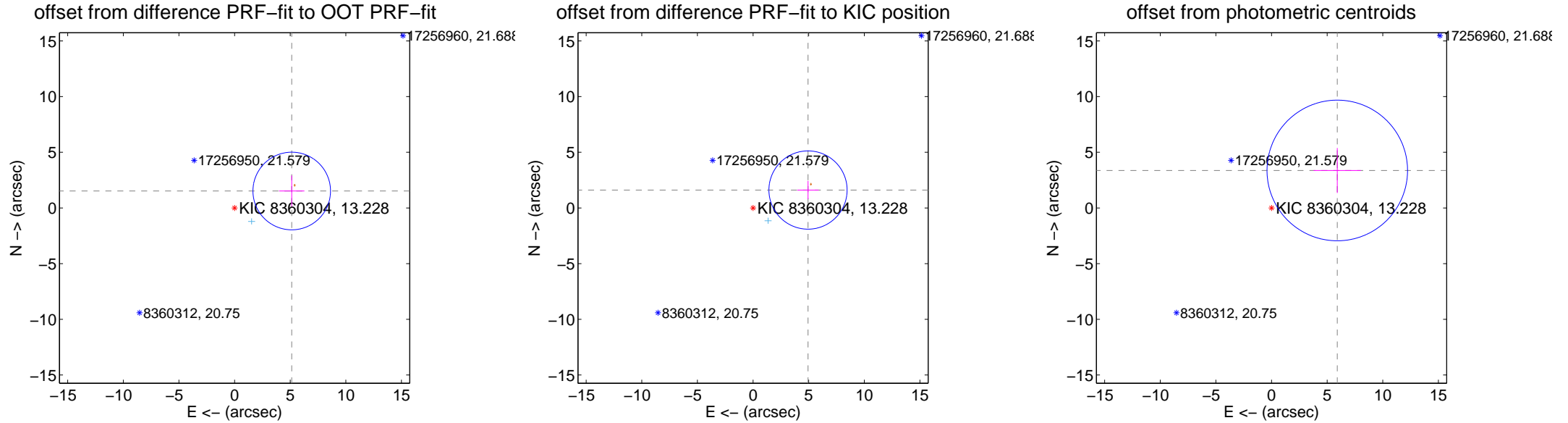
DV Centroid Data

Supplemental centroid analysis for 008360304-01. Kepler magnitude: 13.23. Transit SNR 8.27

There are 1 quarters with good PRF difference image offsets

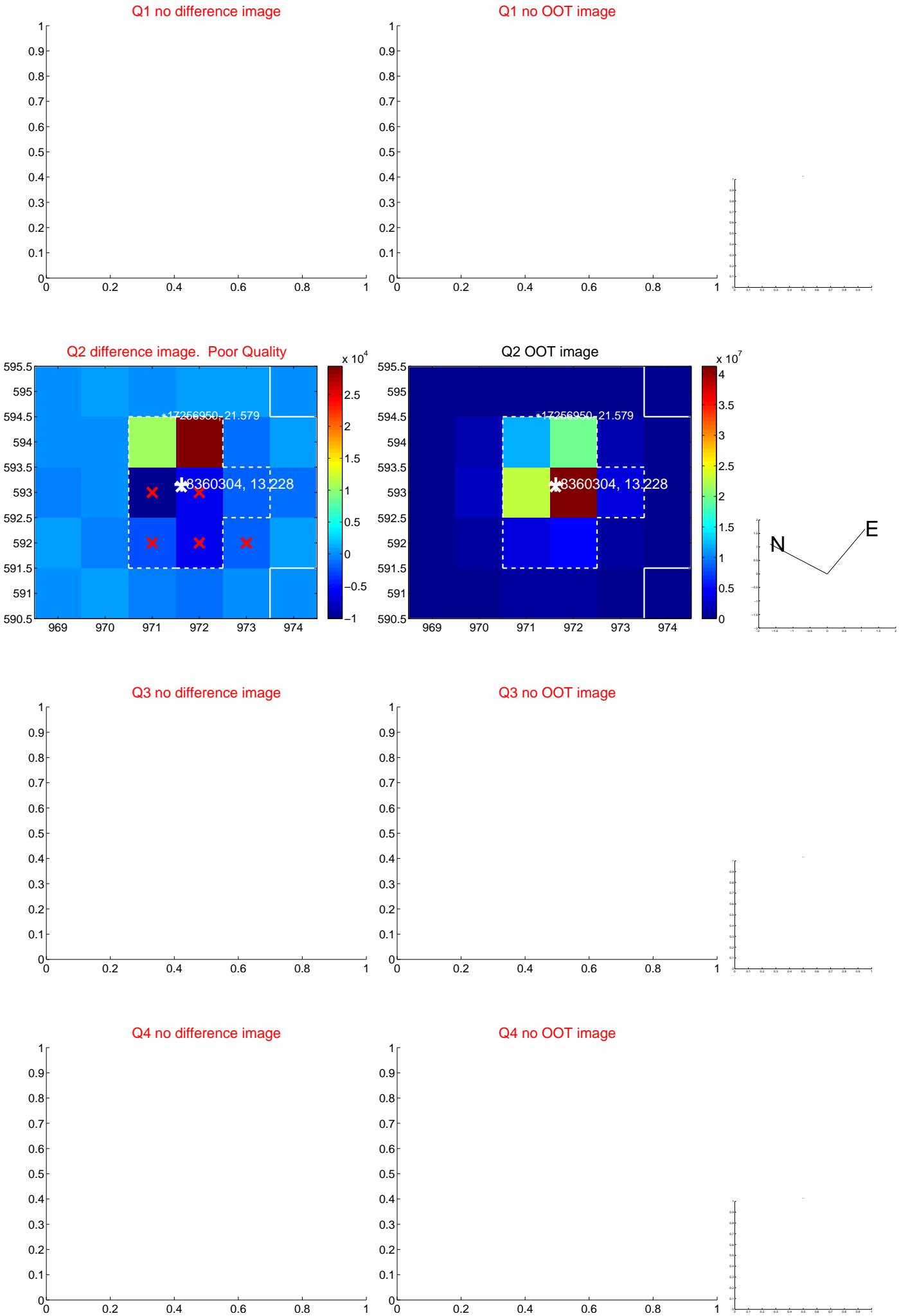
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.358 ± 1.162	4.61	-5.137 ± 1.140	1.522 ± 1.390
PRF-fit source offset from KIC position	5.196 ± 1.171	4.44	-4.941 ± 0.965	1.609 ± 0.823
photometric centroid source offset	6.80 ± 2.10	3.23	-5.91 ± 2.13	3.37 ± 2.02



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.

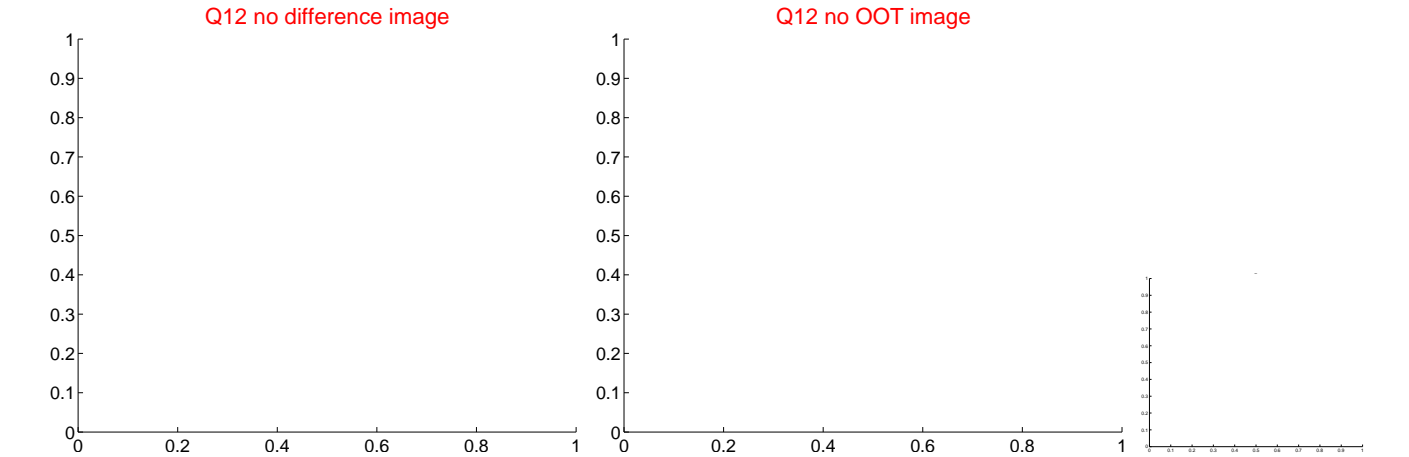
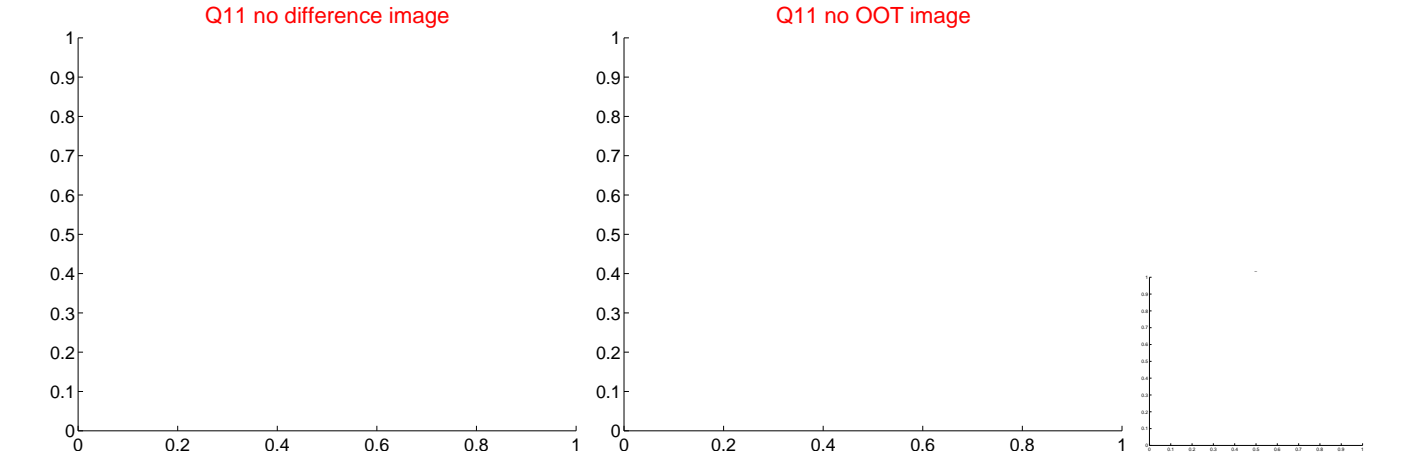
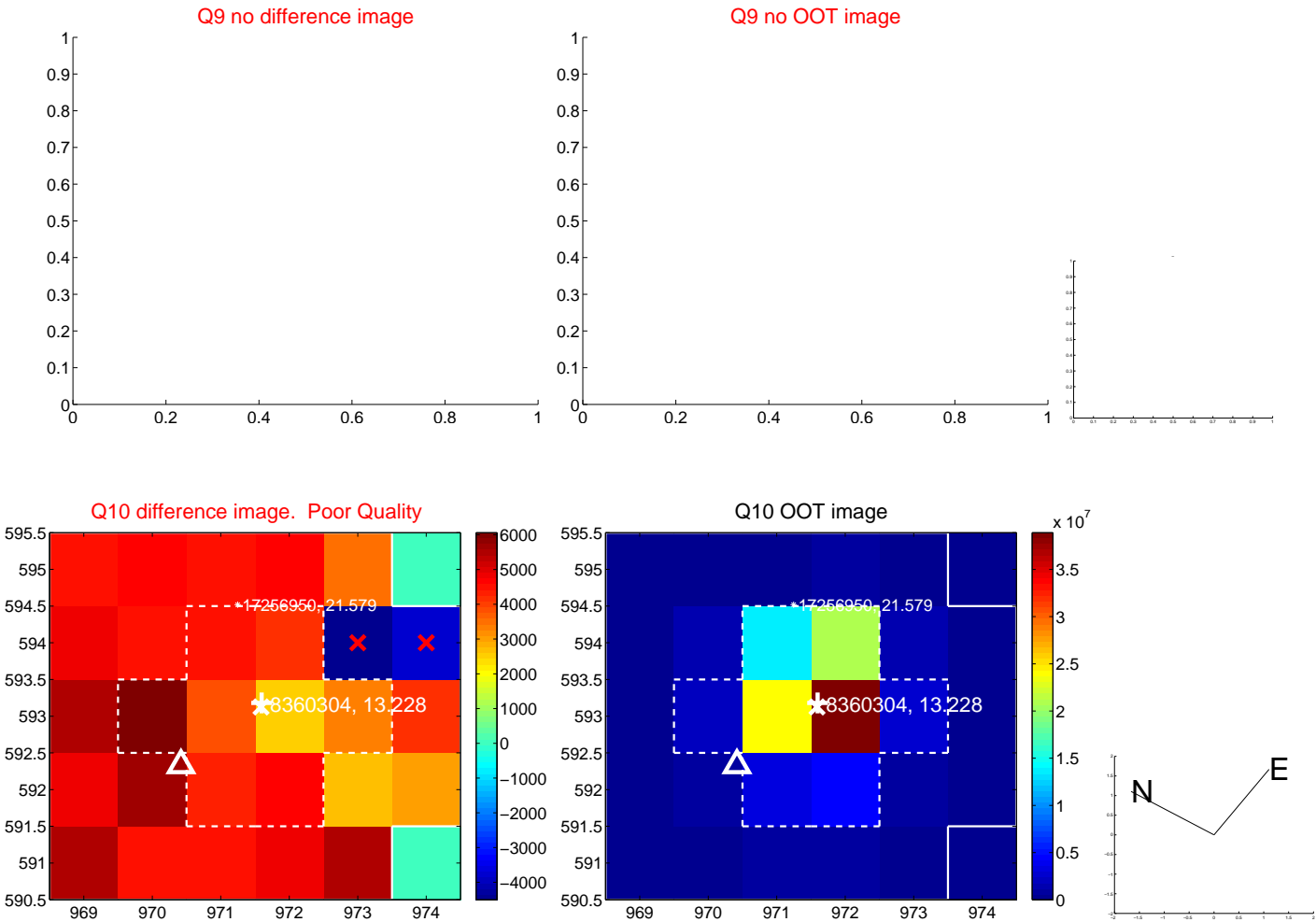
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



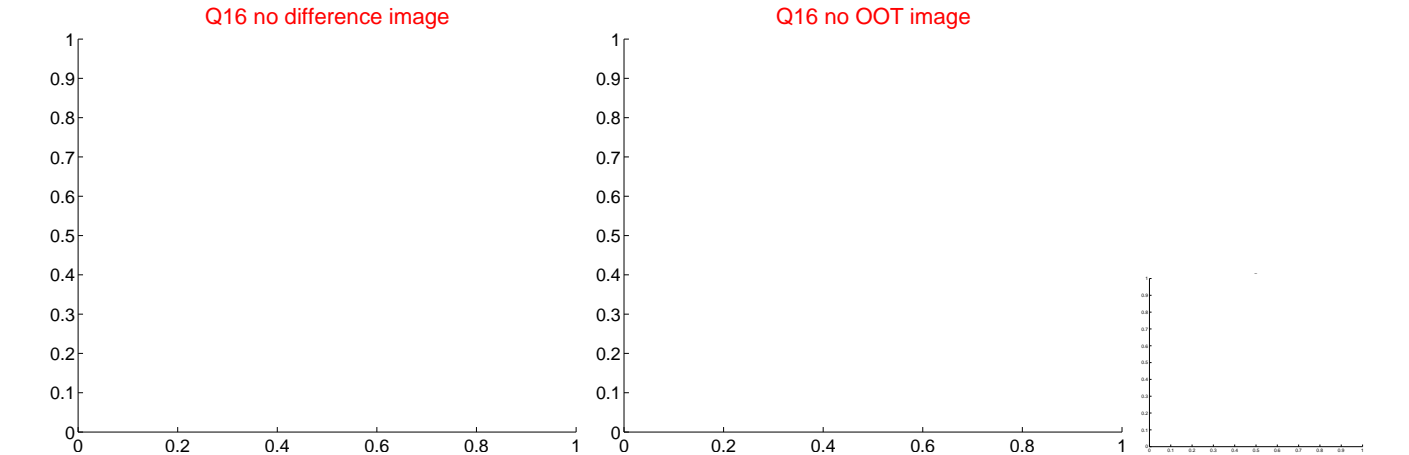
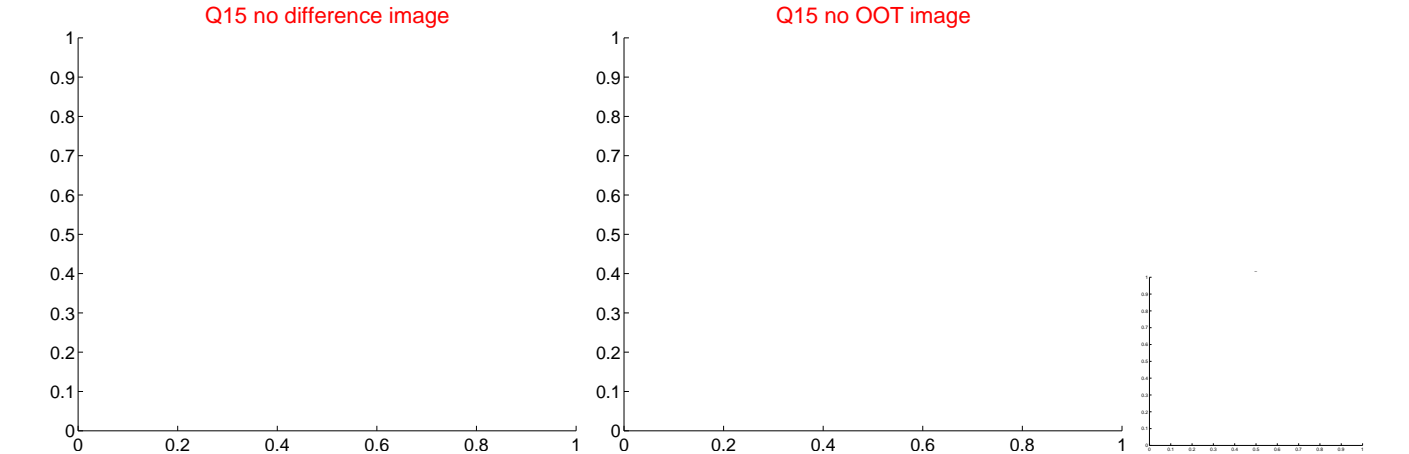
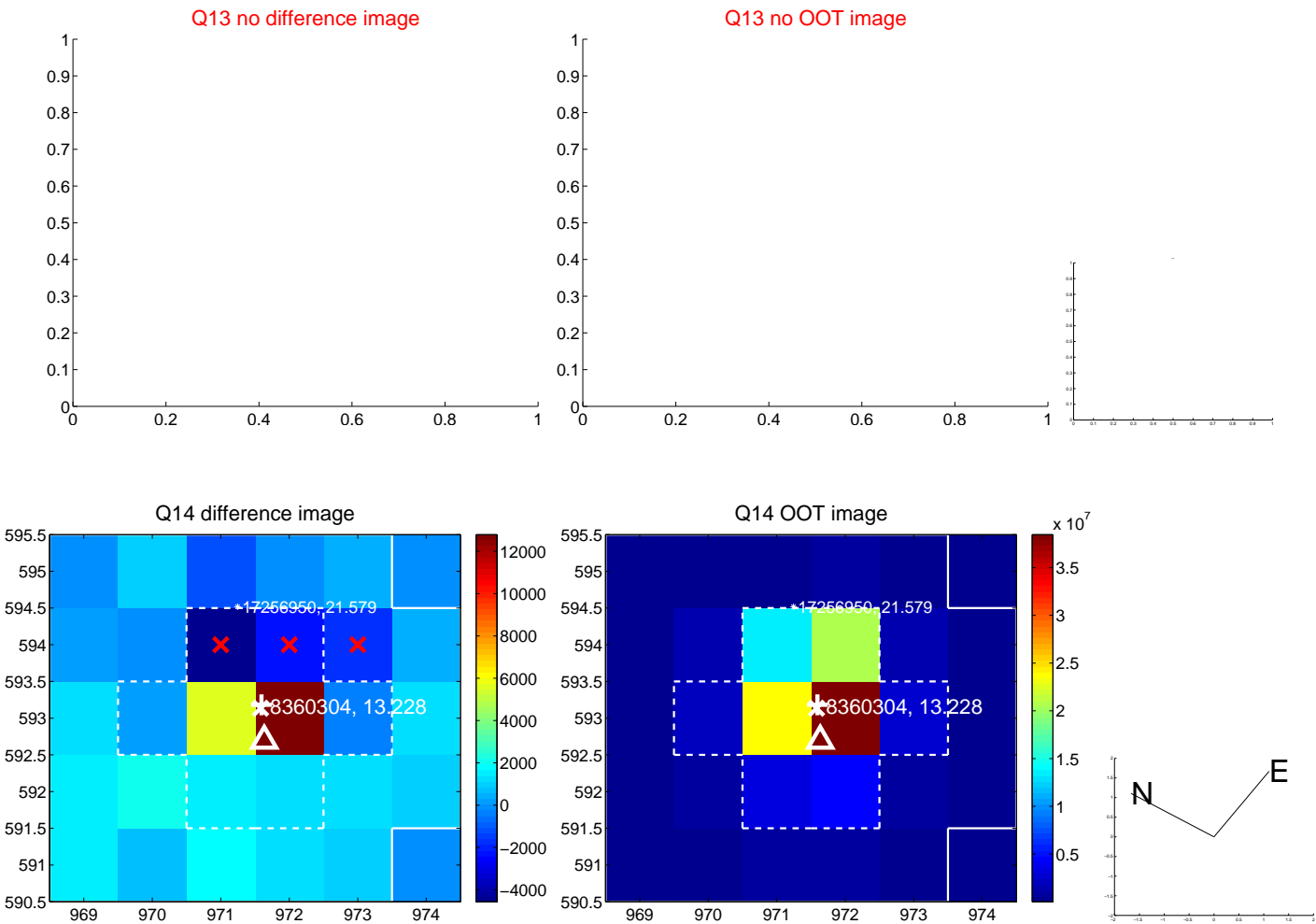
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



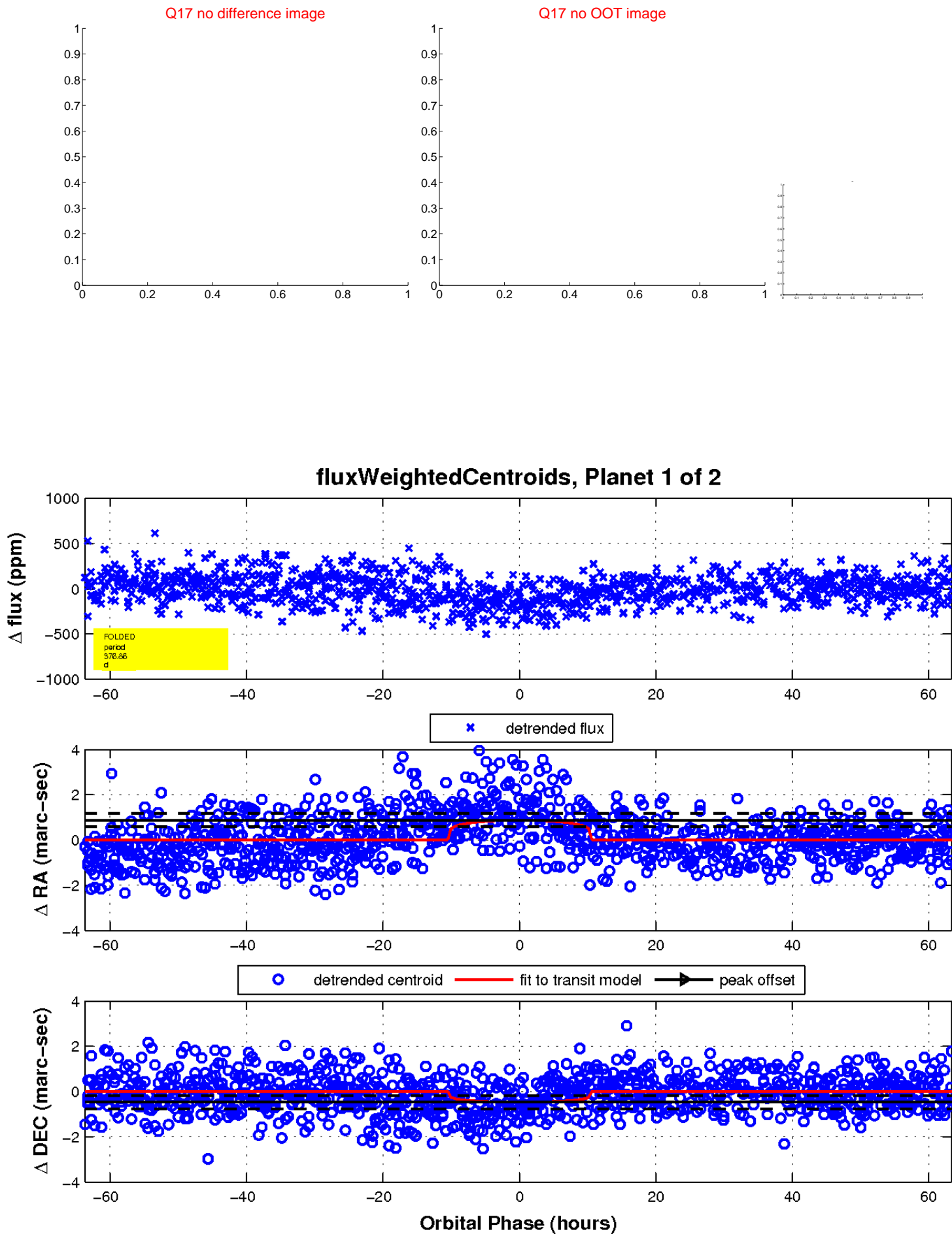
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

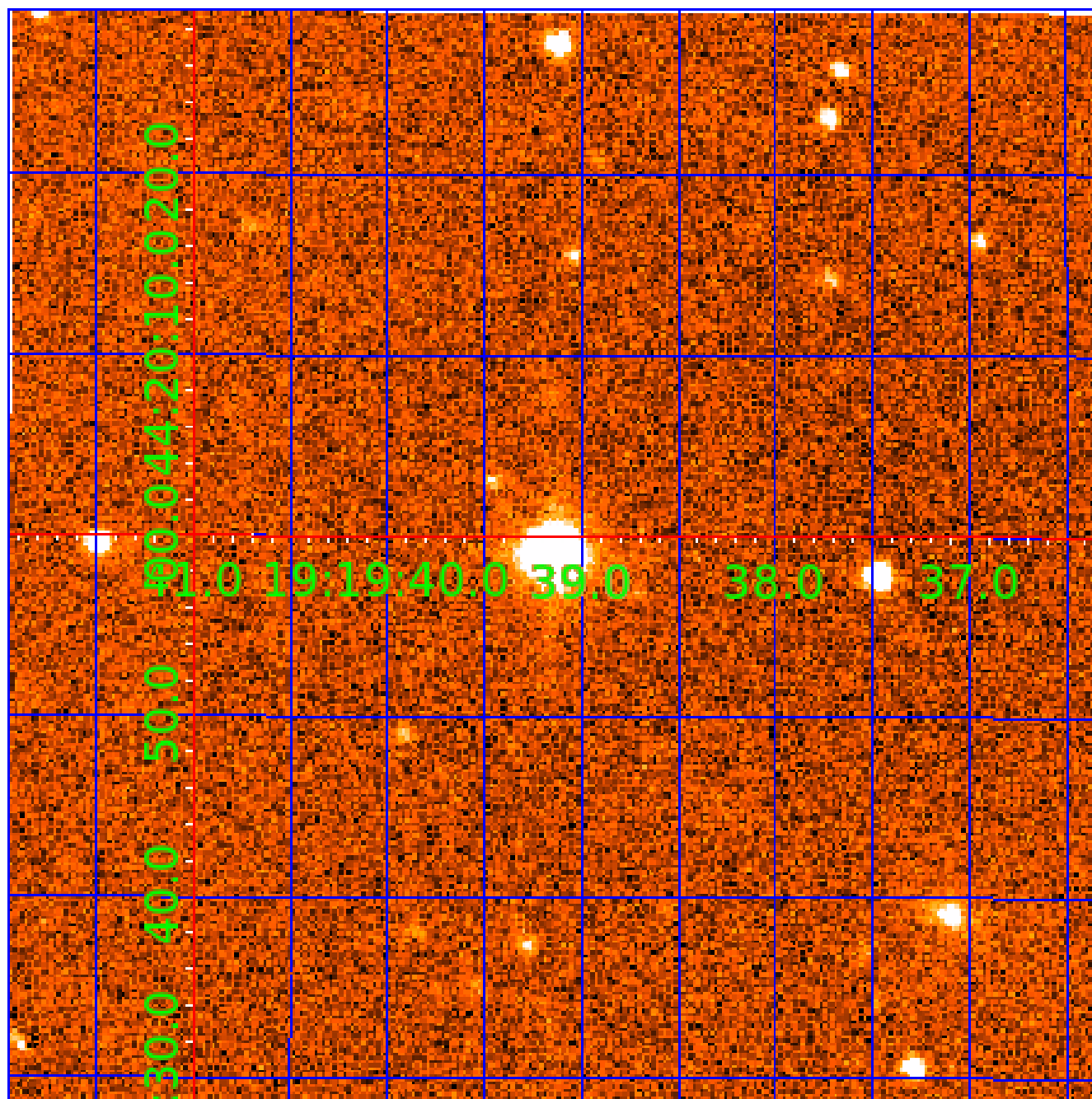


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008360304

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})
008360304-01	OBS	No	376.857775	220.584093	143.4	21.226	7.4	8.3	0.81	5546	1.04	0.57
008360304-02	OBS	No	446.018967	155.509293	138.4	17.923	8.3	7.5	0.81	5546	1.03	0.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008360304-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS—HALO_GHOST
008360304-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

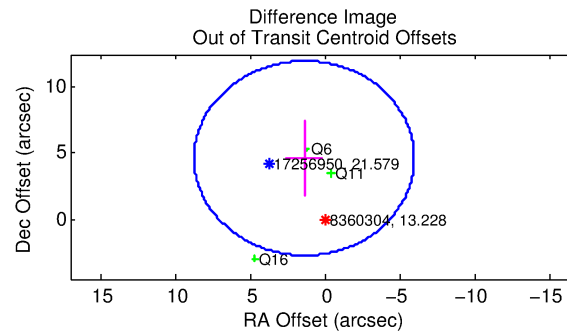
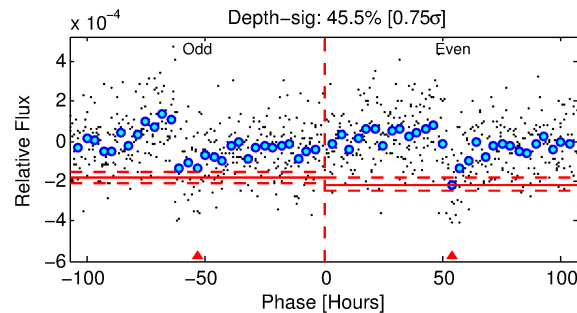
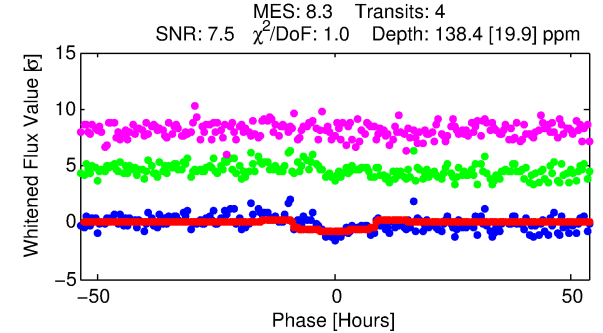
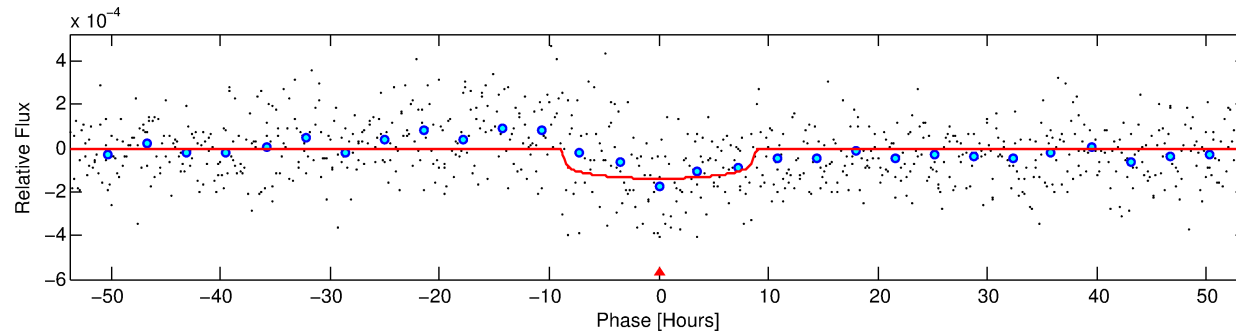
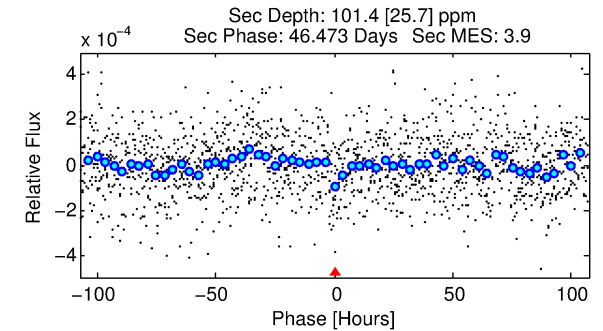
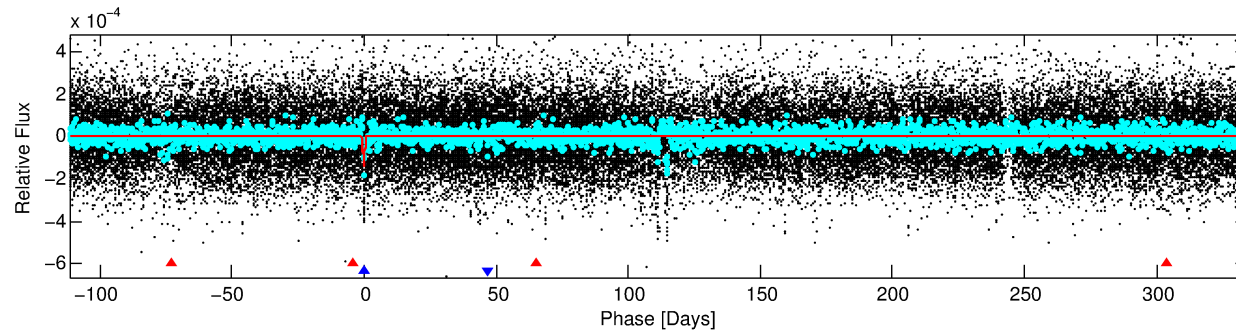
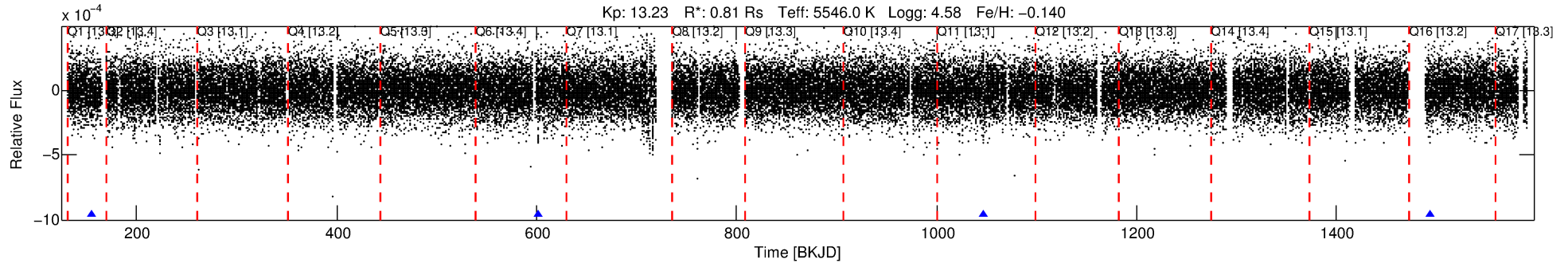
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008360304-02

No Significant Match Found

DV One-Page Summary

KIC: 8360304 Candidate: 2 of 2 Period: 446.019 d



DV Fit Results:

Period = 446.01897 [0.01295] d
Epoch = 155.5093 [0.0229] BKJD
Rp/R* = 0.0117 [0.0053]
a/R* = 129.50 [248.30]
b = 0.75 [1.14]
Seff = 0.46 [0.12]
Teq = 210 [14] K
Rp = 1.03 [0.52] Re
a = 1.1030 [0.1882] AU
Ag = 63406.92 [62083.15] [1.02σ]
Teffp = 5144 [1226] K [4.03σ]

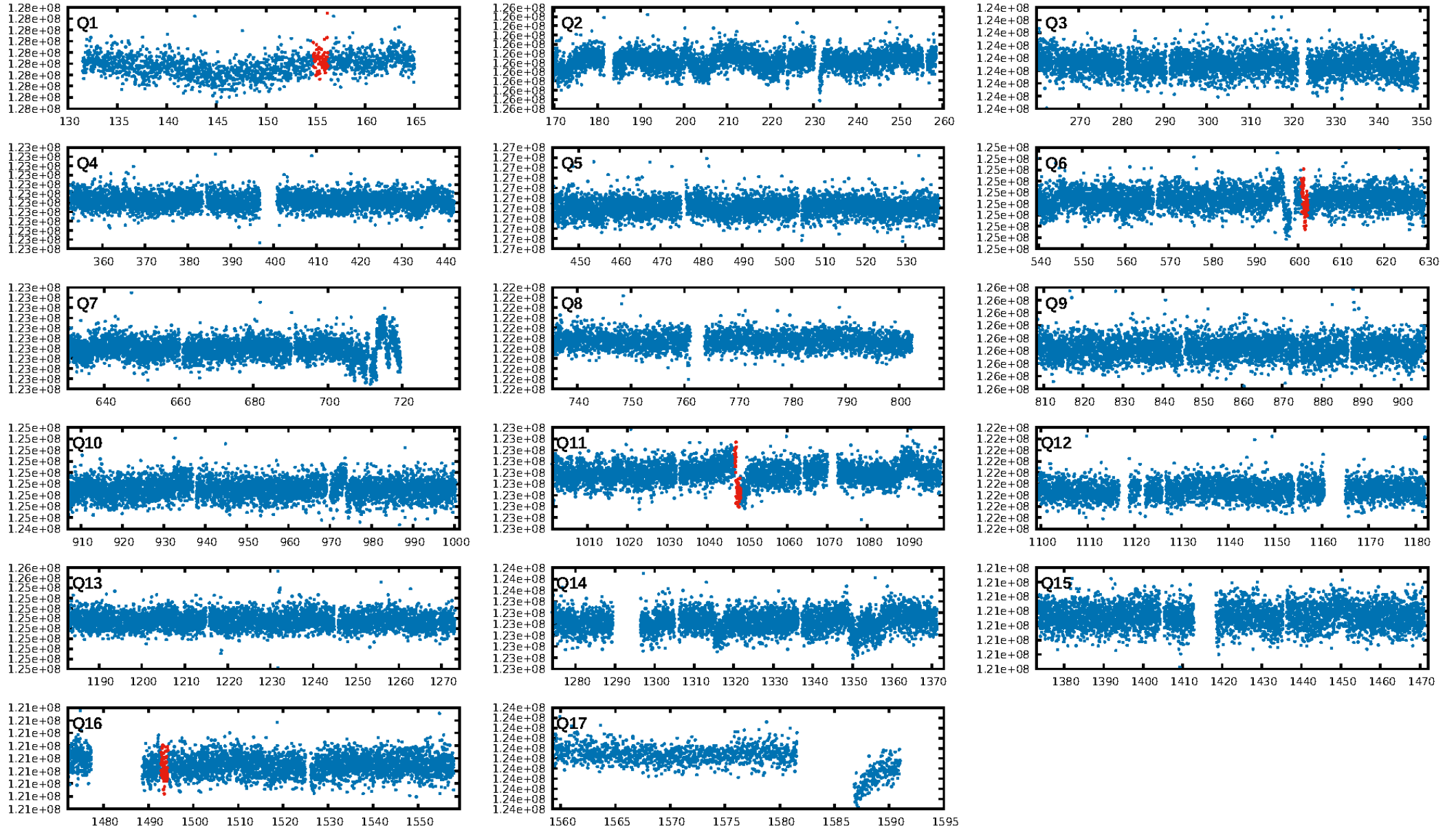
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [59.75σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 94.3%
Bootstrap-pfa: 1.40e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.858
Centroid-sig: 33.9%
Centroid-so: 1.716 arcsec [1.19σ]
OotOffset-rm: 4.831 arcsec [1.97σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-rm: 4.965 arcsec [3.04σ]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [4/4]

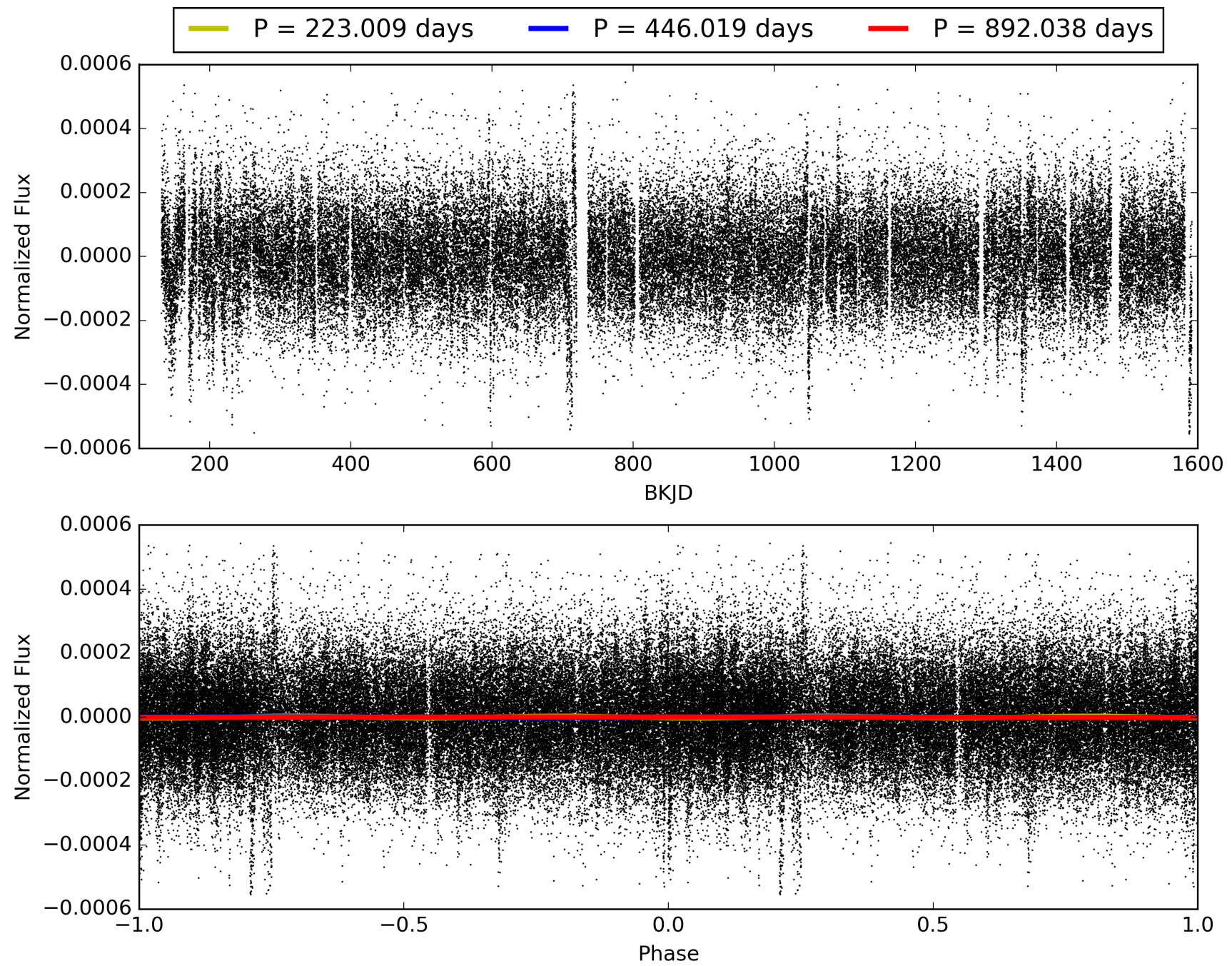
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008360304-02, PDC Light Curves

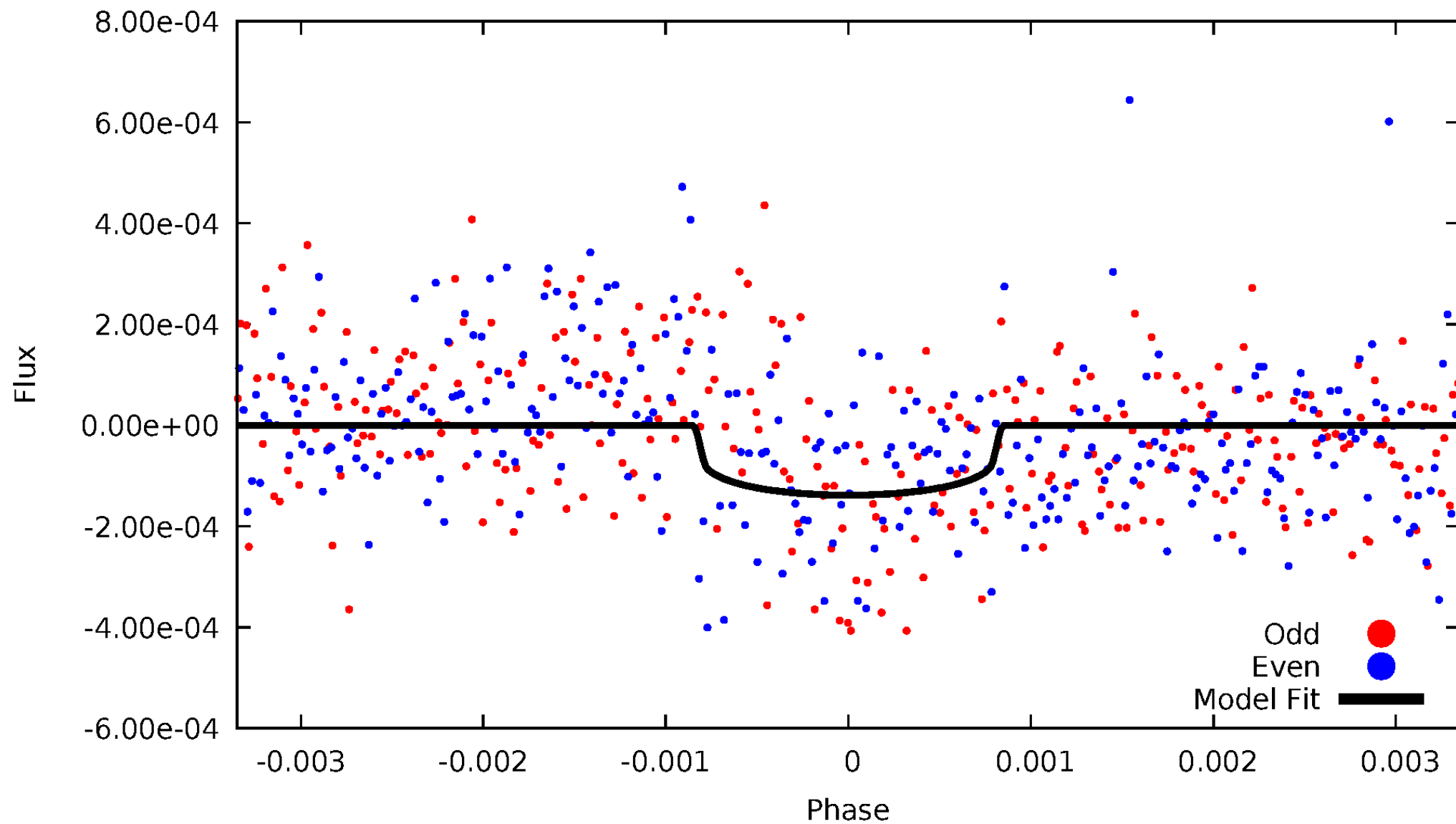


TCE 008360304-02



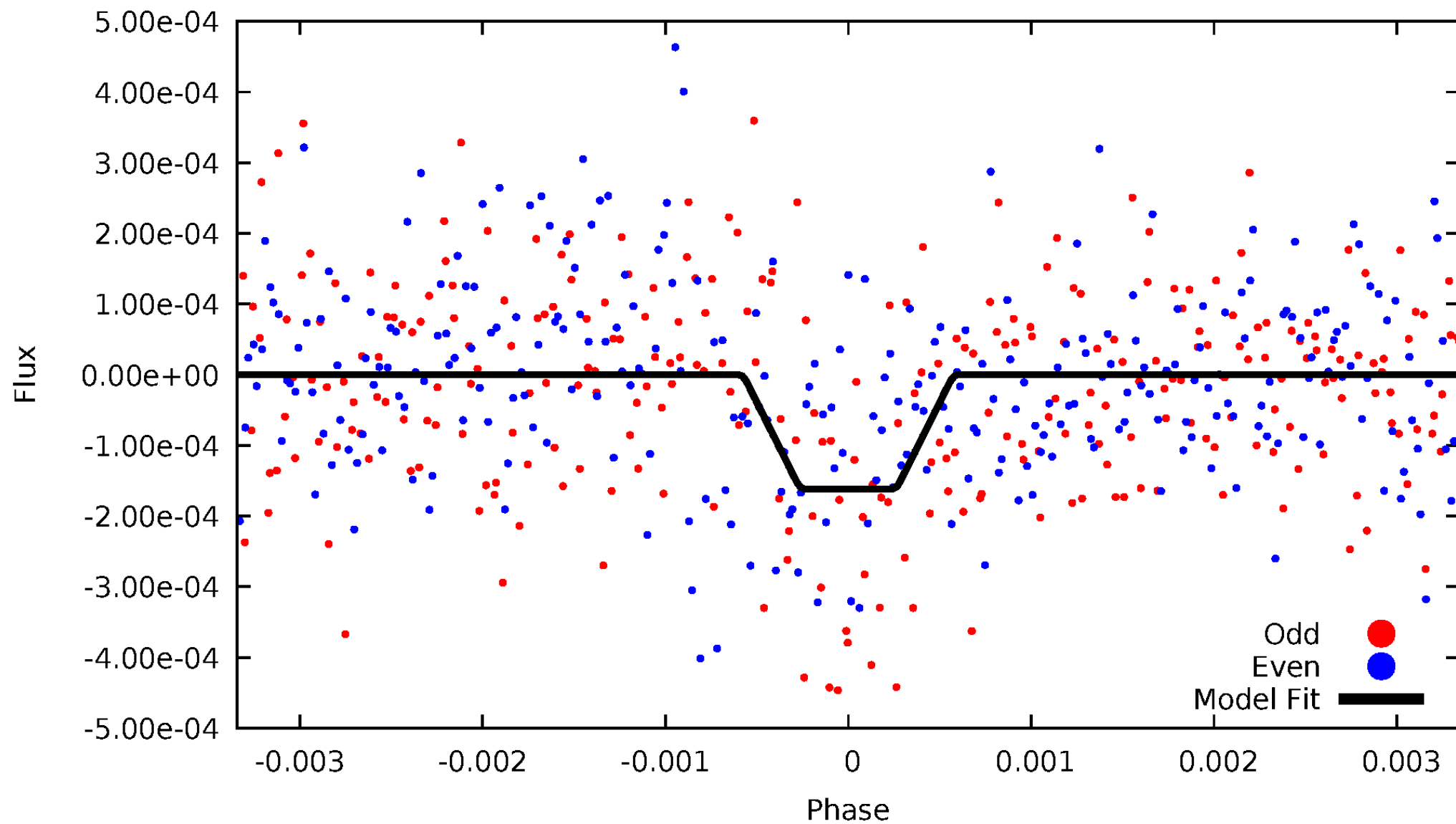
DV Odd/Even

TCE 008360304-02



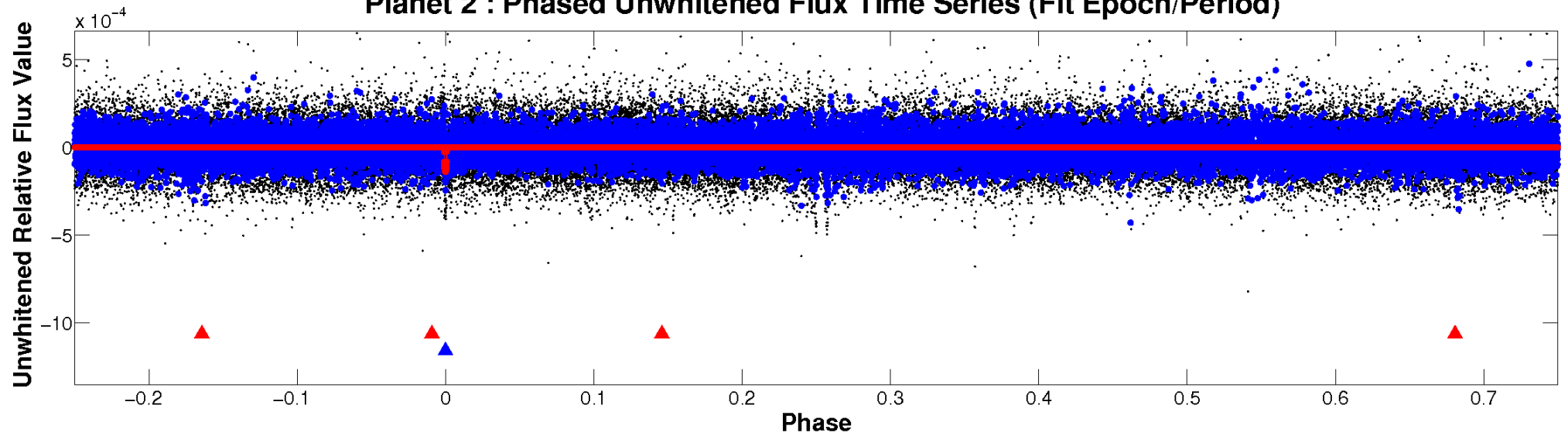
ALT Odd/Even

TCE 008360304-02

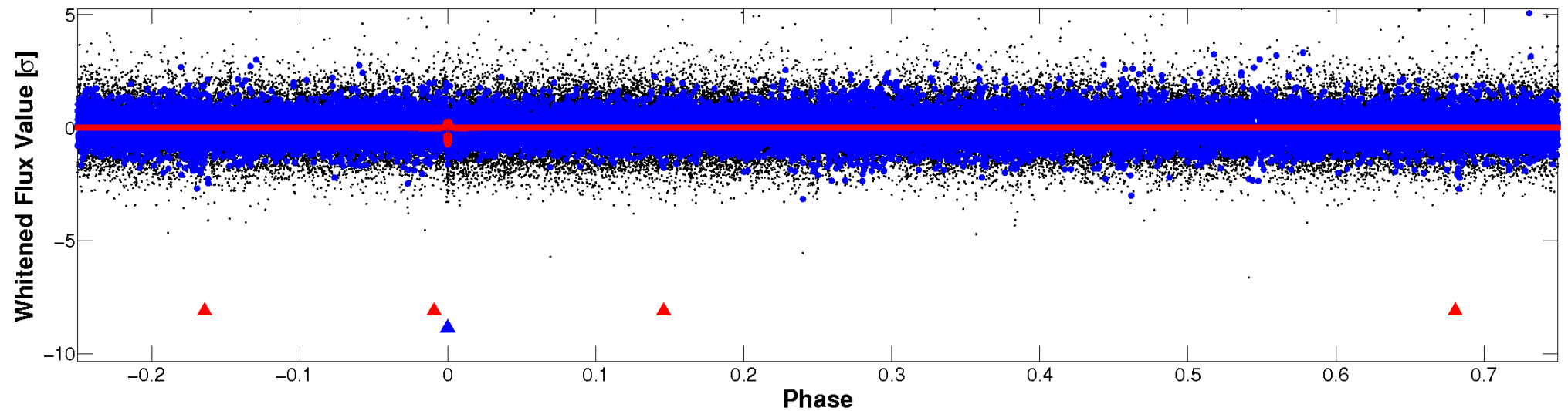


Non-Whitened Vs. Whitened Light Curve

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

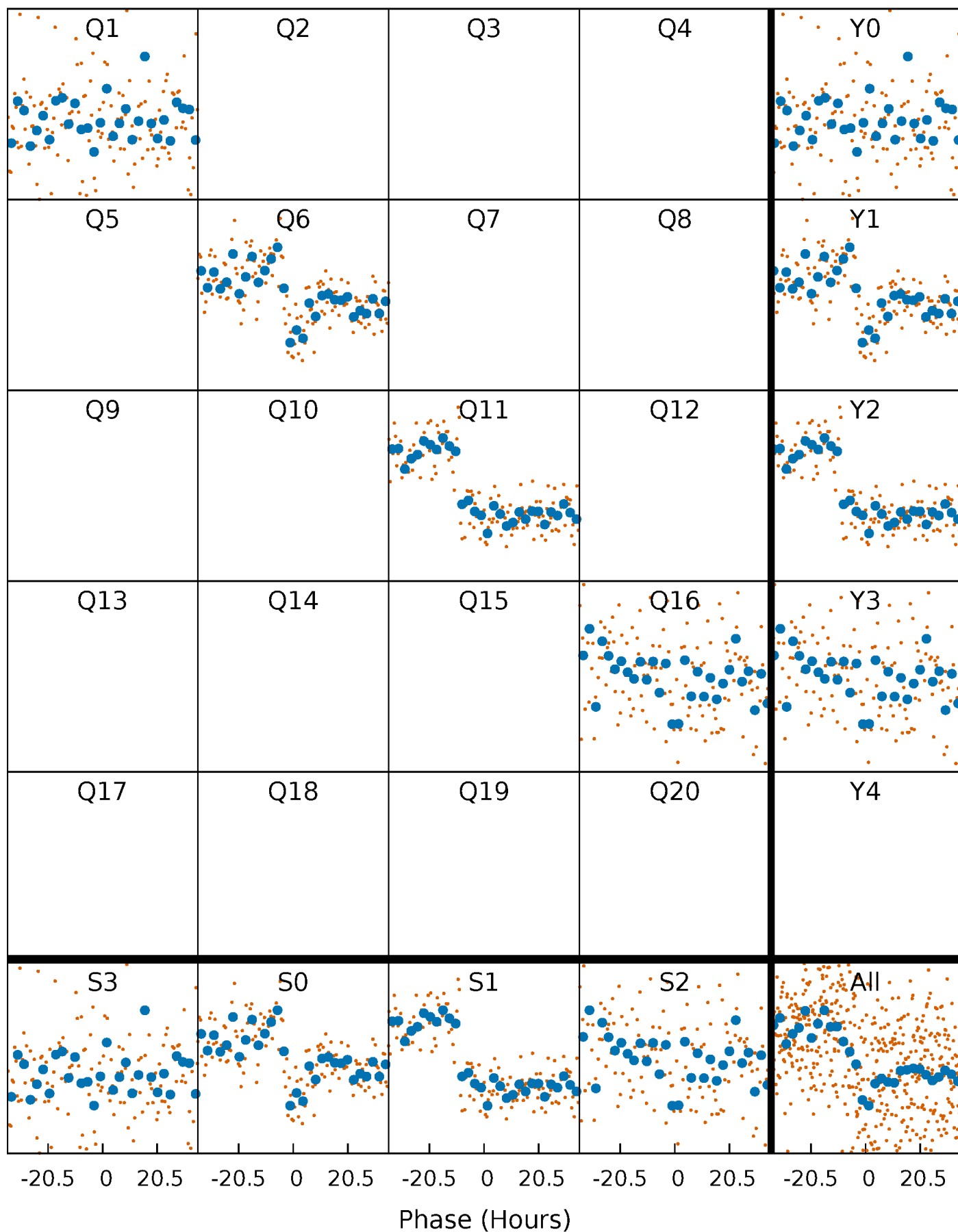


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



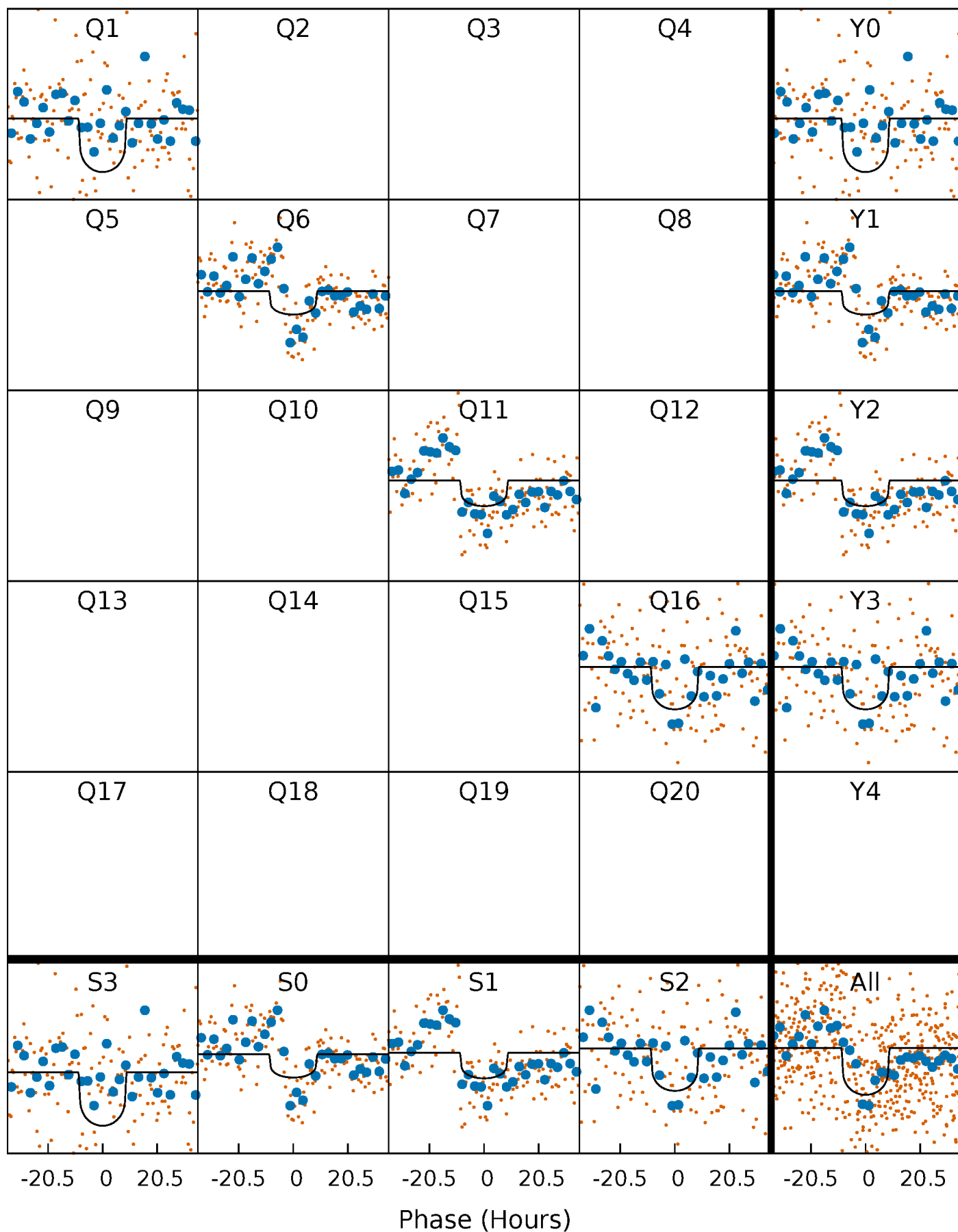
PDC Quarter-Phased Transit Curves

TCE 008360304-02 P=446.018967 Days $T_0=155.509293$ (BKJD)



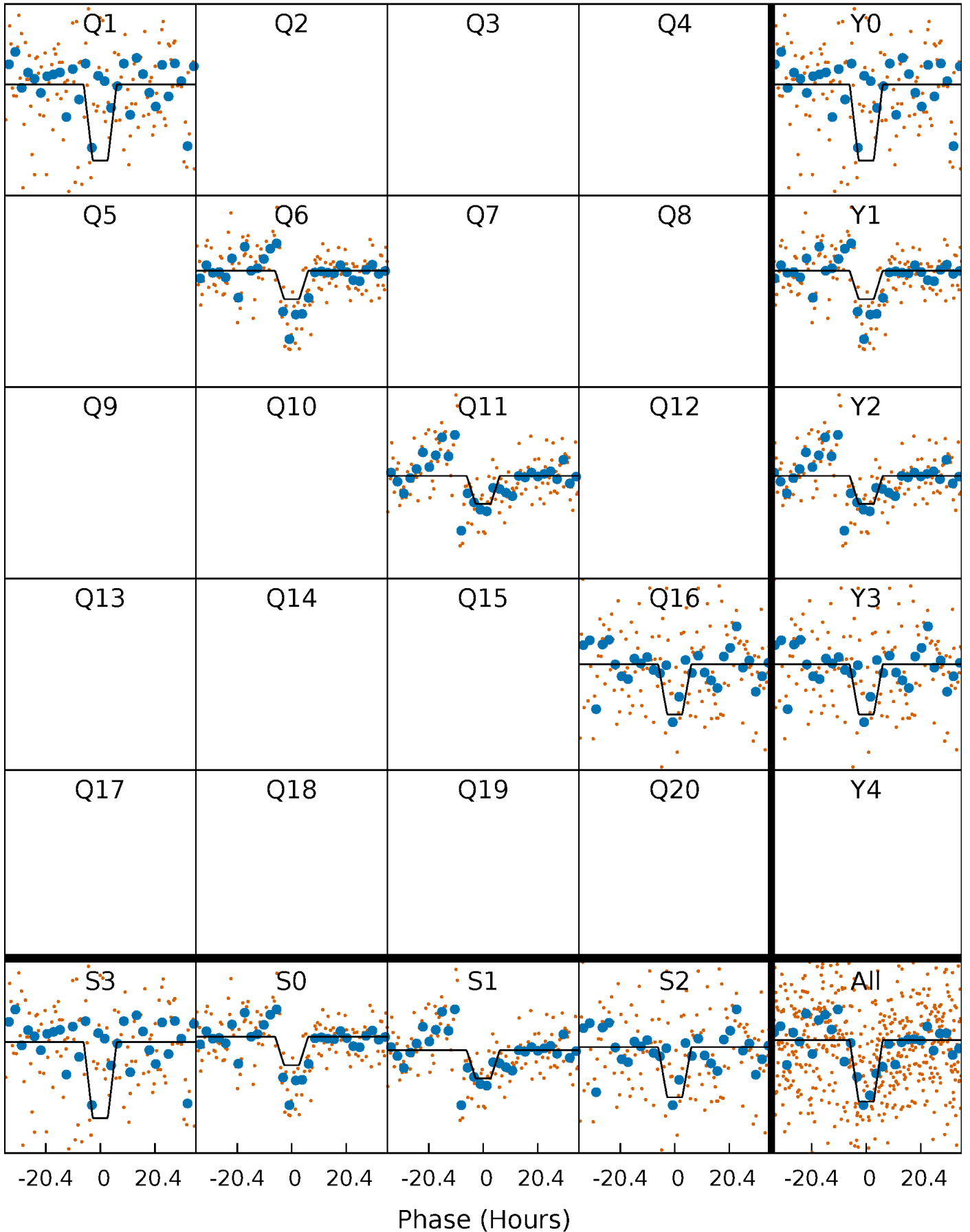
DV Quarter-Phased Transit Curves

TCE 008360304-02 $P=446.018967$ Days $T_0=155.509293$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

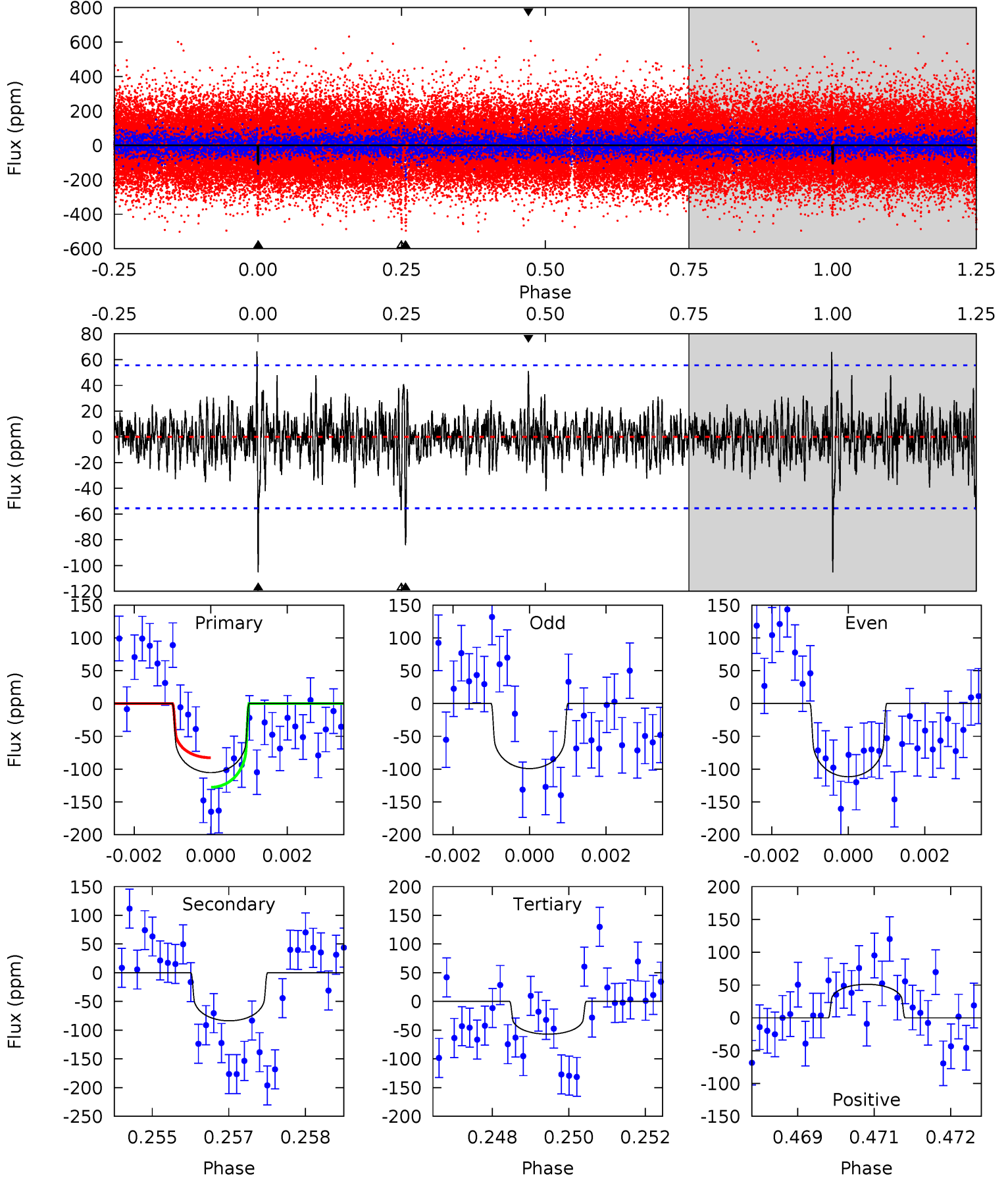
TCE 008360304-02 $P=446.010125$ Days $T_0=155.543433$ (BKJD)



DV Model-Shift Uniqueness Test

008360304-02, P = 446.018967 Days, E = 155.509293 Days

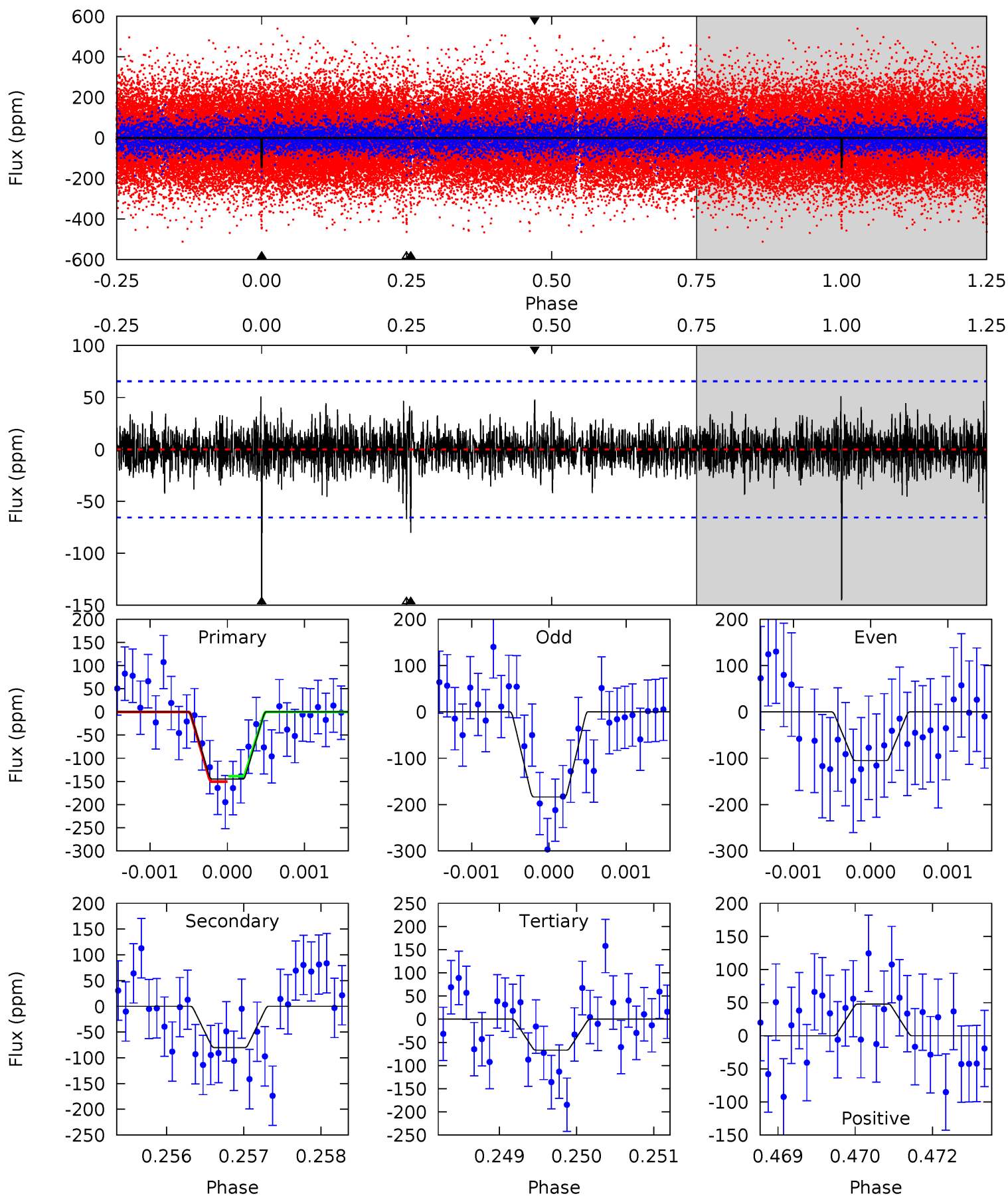
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	8.06	5.49	4.92	5.35	3.14	1.28	4.66	5.23	2.58	3.14	0.60	1.05	0.38	2.17



Alt Model-Shift Uniqueness Test

008360304-02, P = 446.010125 Days, E = 155.543433 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	6.63	5.53	3.96	5.42	3.24	1.07	6.47	8.05	1.10	2.67	3.24	1.15	0.26	0.49



Stellar Parameters For KIC 008360304

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5546^{+149}_{-149}	$4.575^{+0.034}_{-0.136}$	$-0.140^{+0.300}_{-0.300}$	$0.810^{+0.164}_{-0.070}$	$0.907^{+0.074}_{-0.111}$	$2.404^{+0.440}_{-0.954}$
	+3%/-3%	+1%/-3%	+214%/-214%	+20%/-9%	+8%/-12%	+18%/-40%
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 008360304-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-84 ± 10	$1.07^{+0.51}_{-0.47}$	298^{+15}_{-11}	4966^{+1594}_{-718}	$47700^{+105184}_{-26741}$
Alt.	-80 ± 12	$1.16^{+0.51}_{-0.51}$	298^{+14}_{-11}	4735^{+1414}_{-614}	38757^{+82836}_{-20390}

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

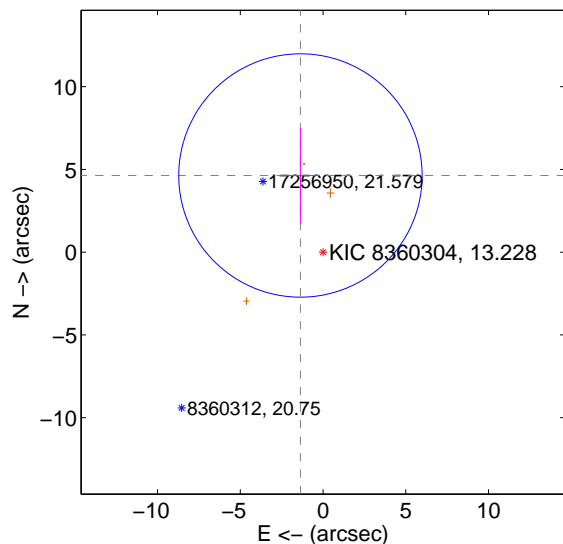
Supplemental centroid analysis for 008360304-02. Kepler magnitude: 13.23. Transit SNR 7.47

There are 0 quarters with good PRF difference image offsets

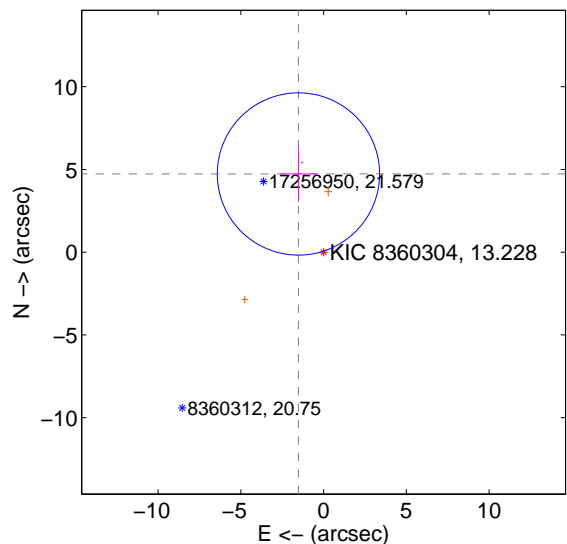
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.831 ± 2.451	1.97	1.366 ± 1.142	4.634 ± 2.876
PRF-fit source offset from KIC position	4.965 ± 1.635	3.04	1.519 ± 1.116	4.727 ± 1.679
photometric centroid source offset	1.72 ± 1.44	1.19	1.58 ± 1.45	-0.66 ± 1.39

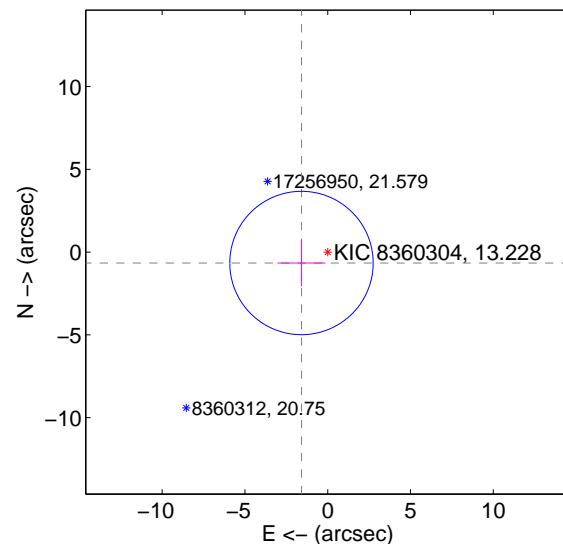
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

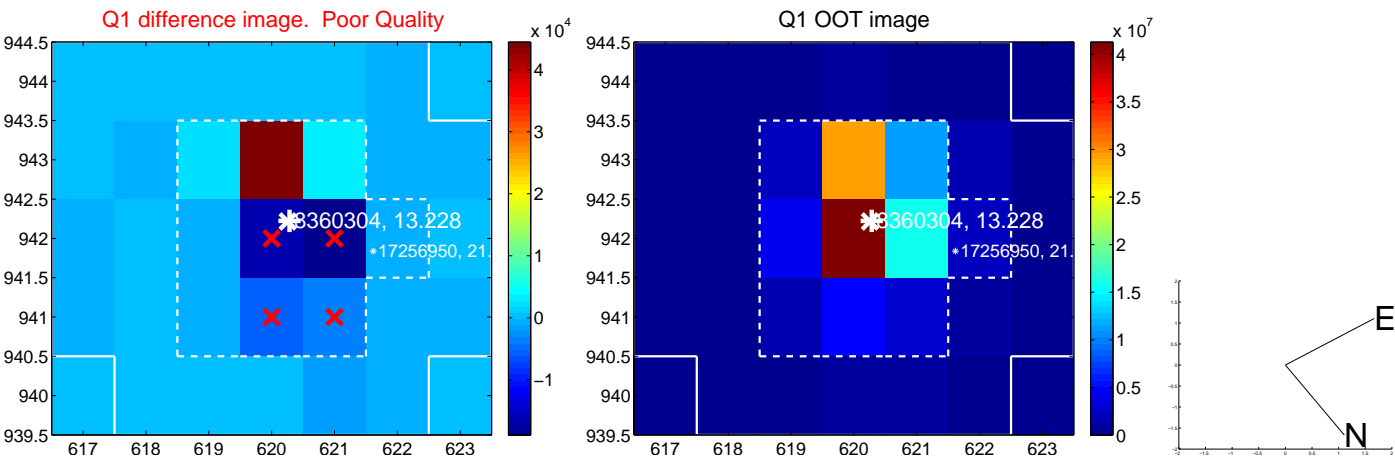


offset from photometric centroids

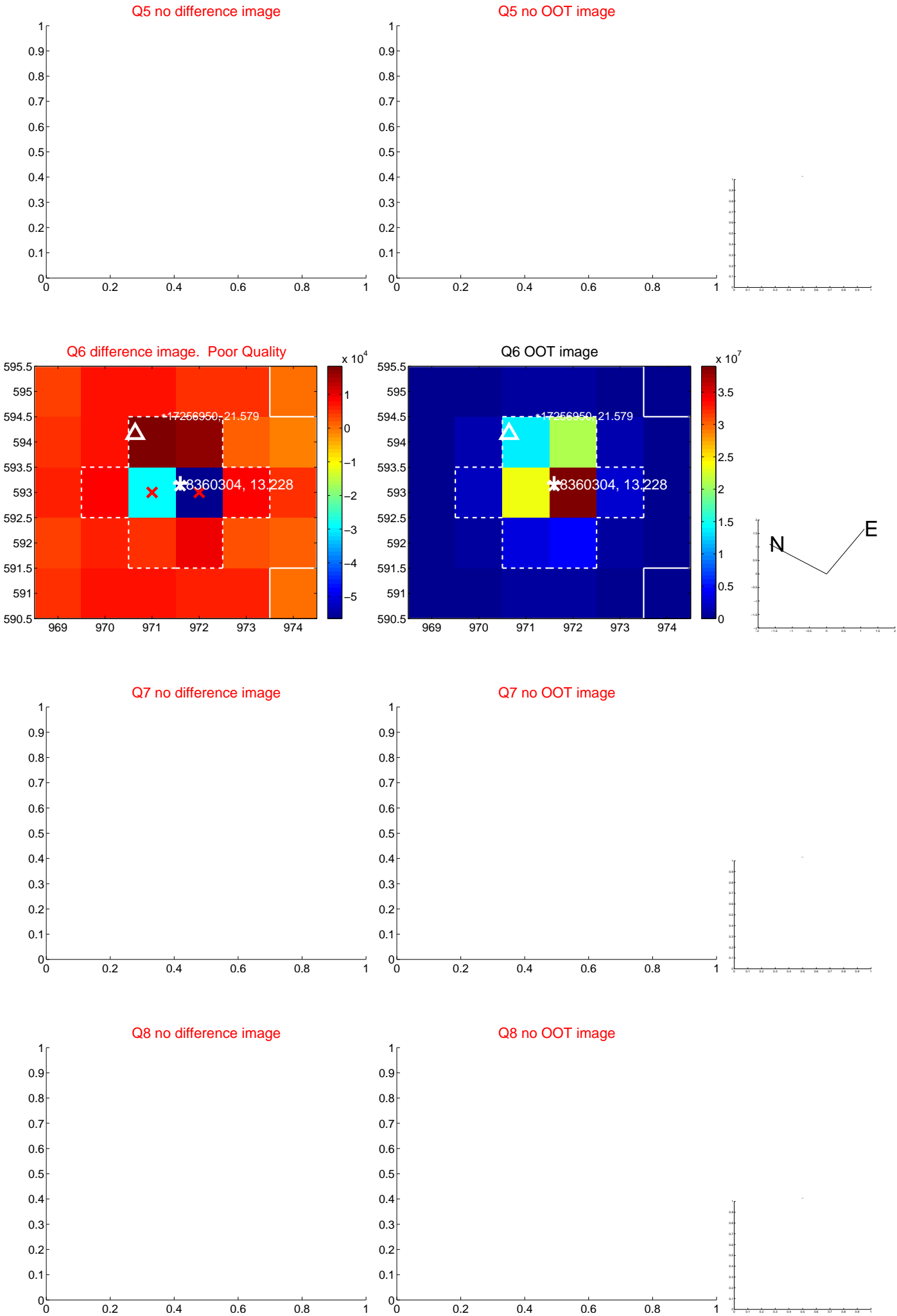


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

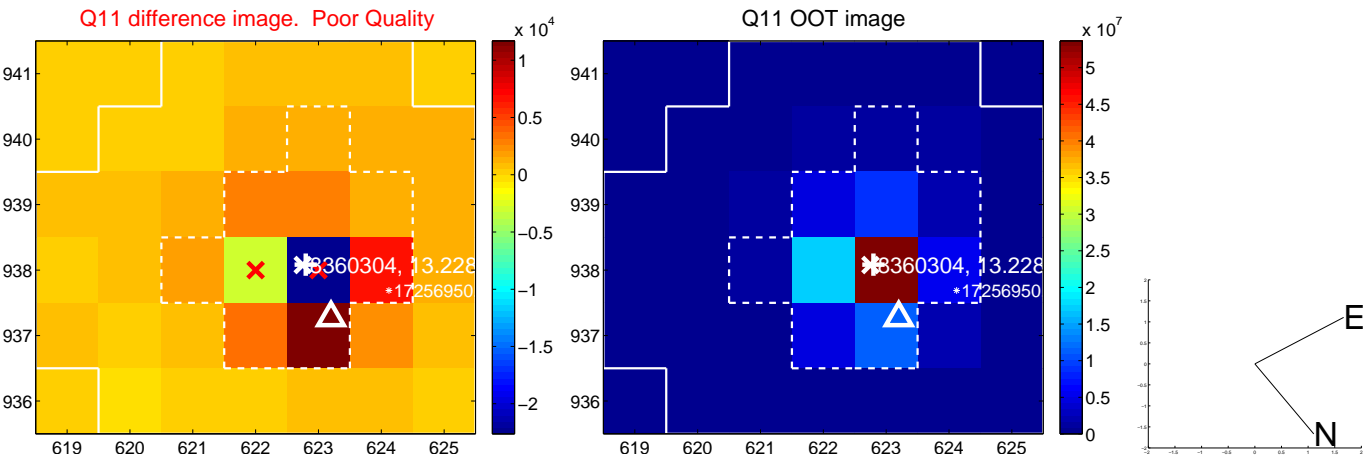
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



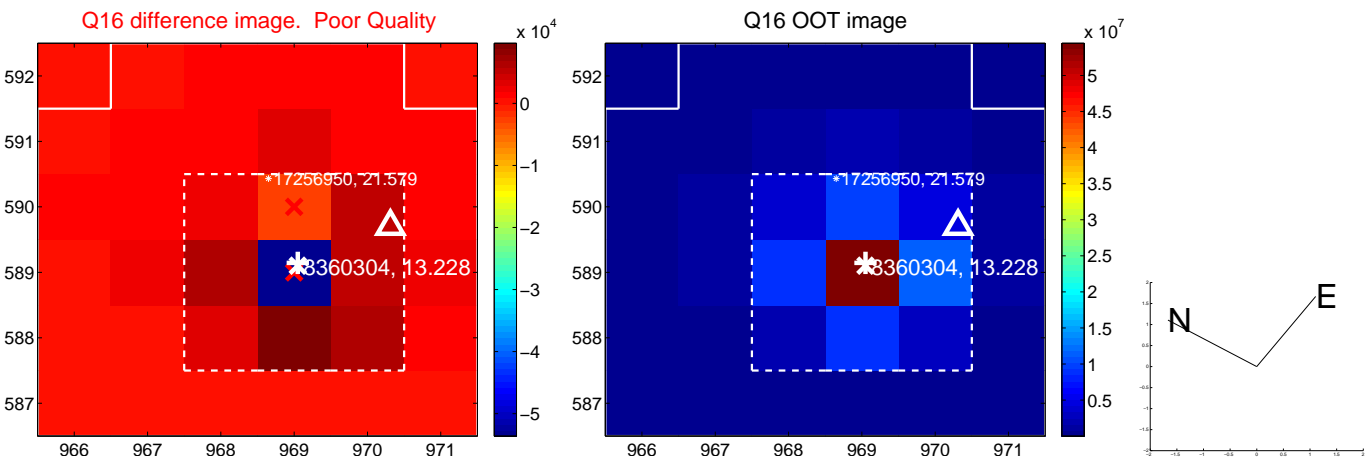
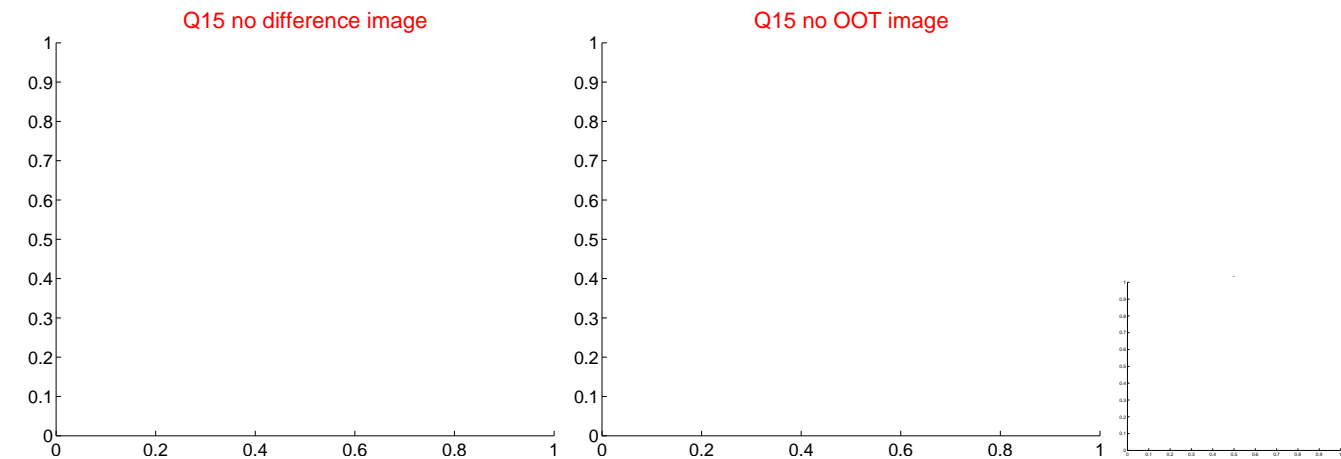
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



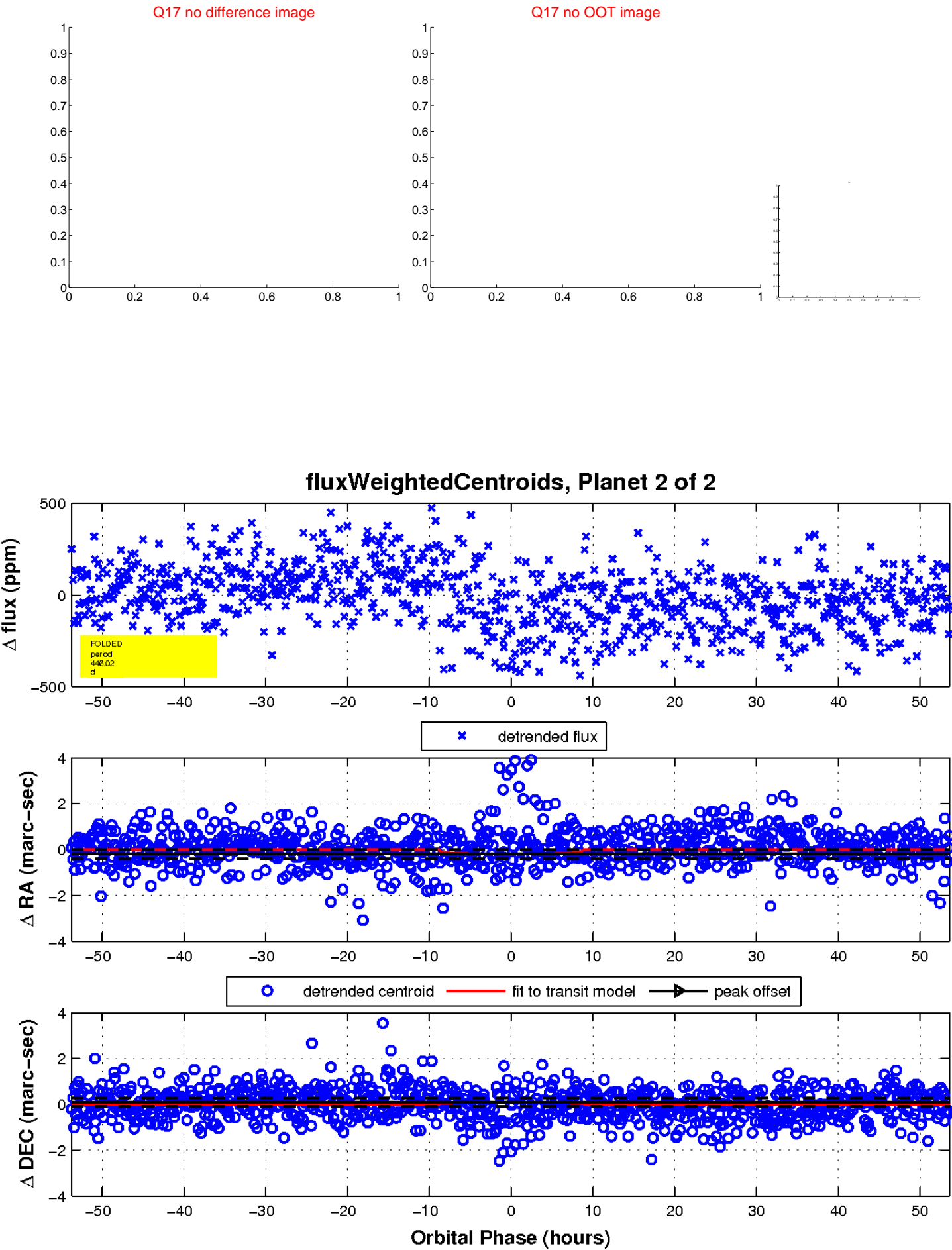
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



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



UKIRT Image

Declination

