

KIC 010384298

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})
010384298-01	OBS	3224.01	3.438641	132.682799	42.5	1.316	10.7	11.9	1.40	5383	1.10	781.21
010384298-02	OBS	No	429.055425	252.063804	236.6	4.614	8.3	5.8	1.40	5383	2.51	1.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010384298-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
010384298-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_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.

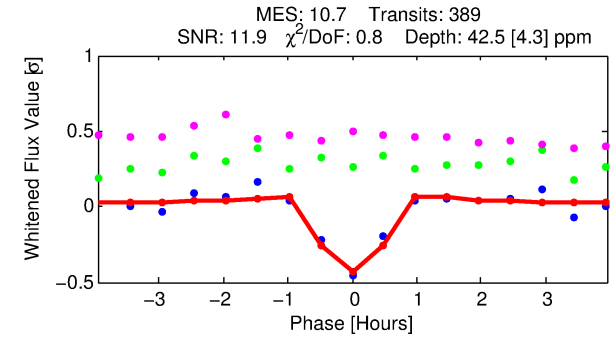
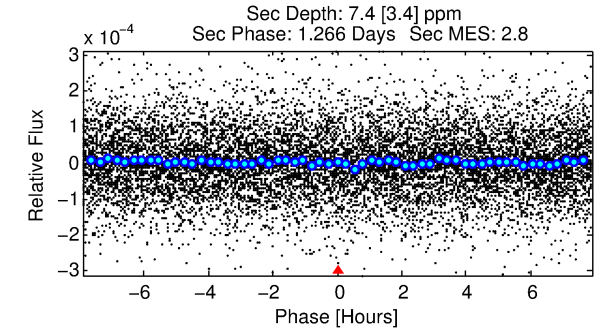
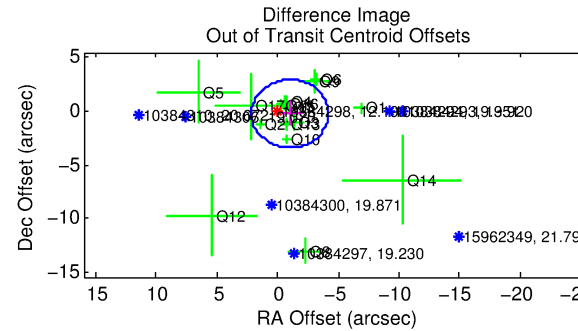
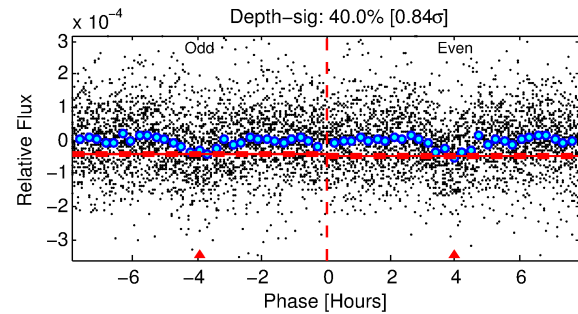
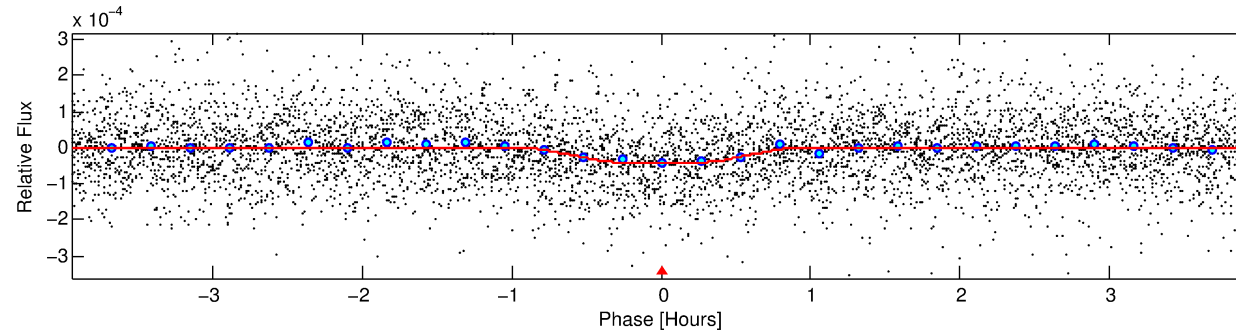
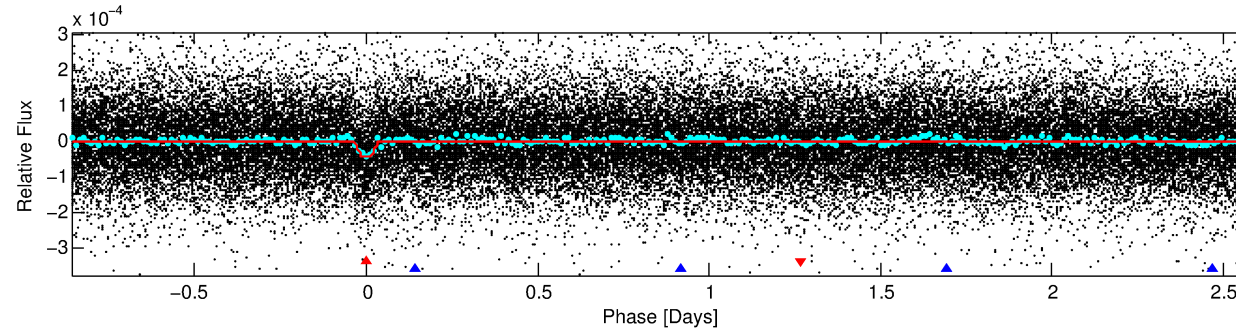
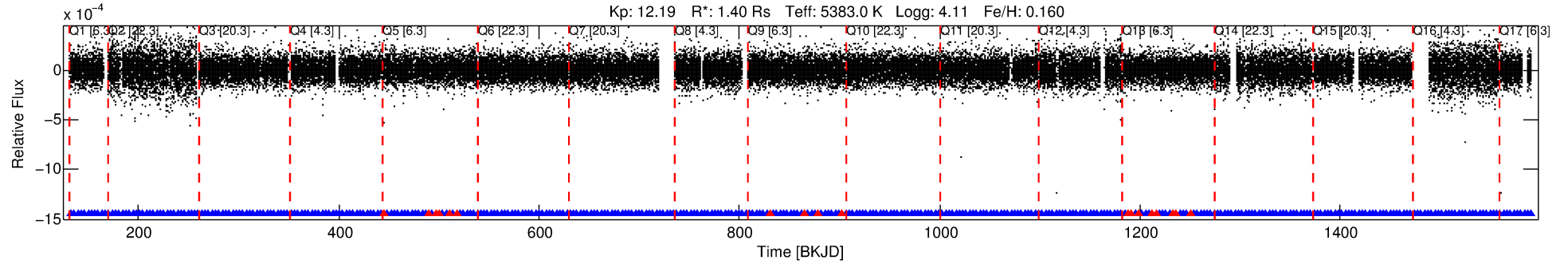
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010384298-01

No Significant Match Found

DV One-Page Summary

KIC: 10384298 Candidate: 1 of 2 Period: 3.439 d
KOI: K03224.01 Corr: 0.900



DV Fit Results:

Period = 3.43864 [0.00001] d
Epoch = 132.6828 [0.0020] BKJD
Rp/R* = 0.0072 [0.0022]
a/R* = 9.40 [12.07]
b = 0.89 [0.31]
Seff = 781.21 [432.59]
Teq = 1348 [187] K
Rp = 1.10 [0.49] Re
a = 0.0435 [0.0145] AU
Ag = 6.36 [6.01] [0.89σ]
Teffp = 3310 [637] K [2.95σ]

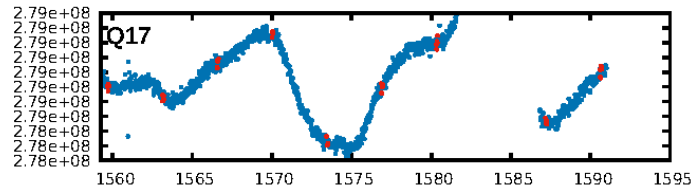
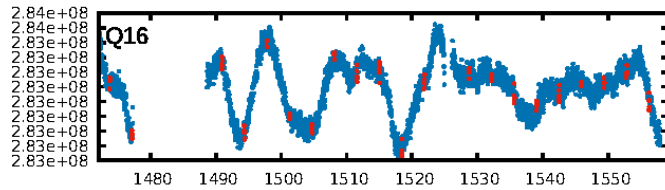
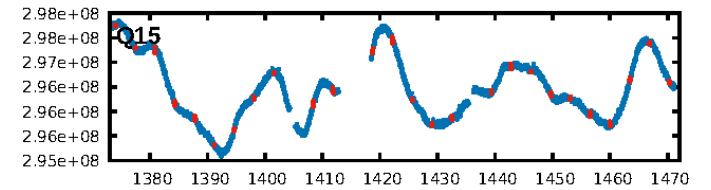
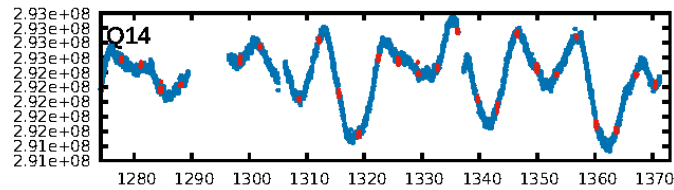
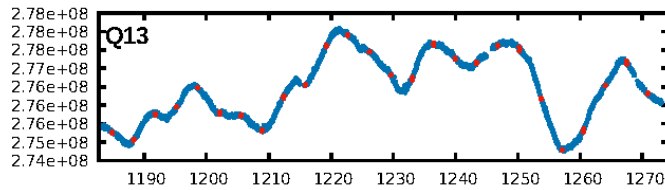
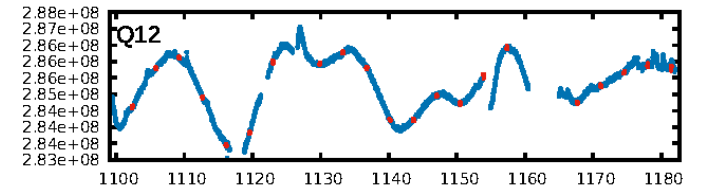
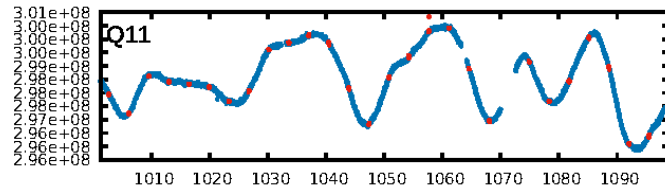
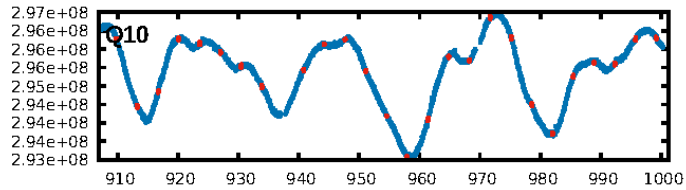
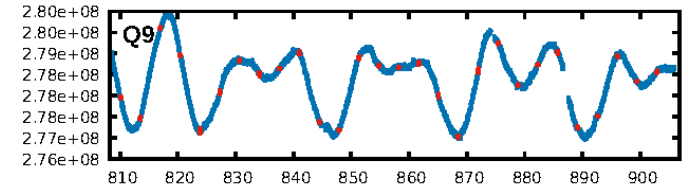
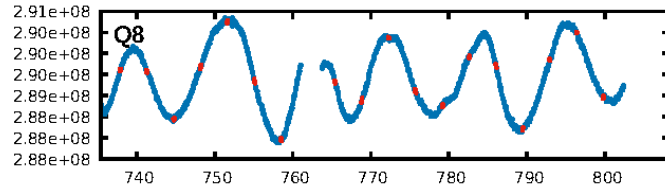
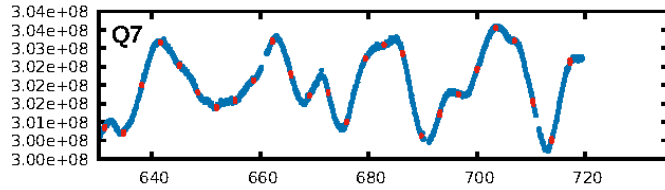
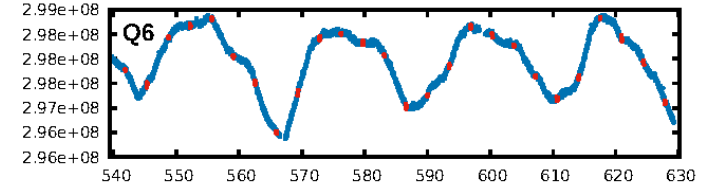
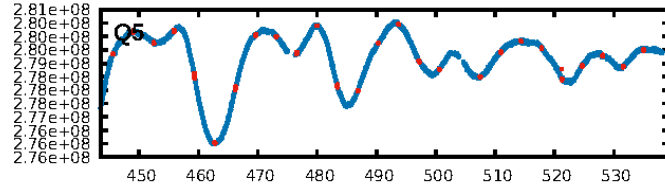
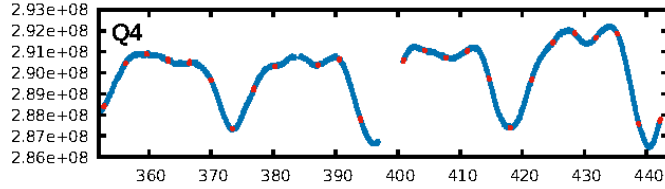
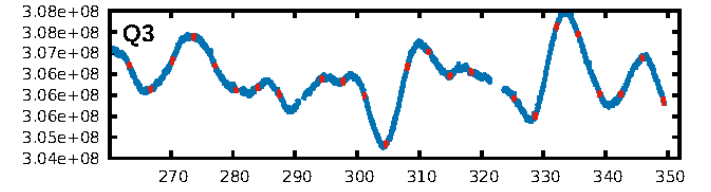
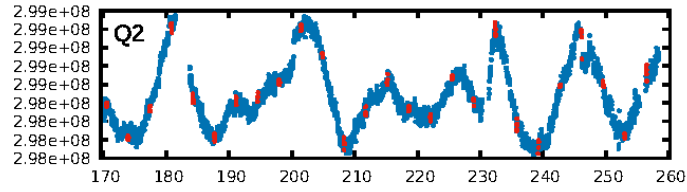
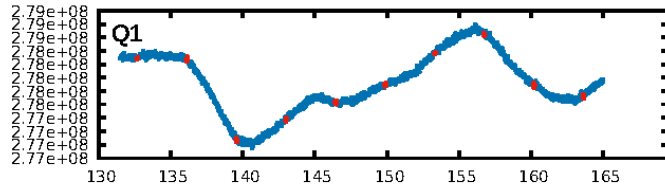
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [2128.84σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.23e-25
RollingBand-fgt: 0.95 [352/370]
GhostDiagnostic-chr: -14.85
Centroid-sig: 0.0%
Centroid-so: 2.749 arcsec [2.75σ]
OotOffset-rm: 1.032 arcsec [0.98σ]
KicOffset-rm: 1.160 arcsec [1.14σ]
OotOffset-st: 4/3/4/5 [16]
KicOffset-st: 4/3/4/5 [16]
DiffImageQuality-fgm: 0.50 [8/16]
DiffImageOverlap-fno: 1.00 [17/17]

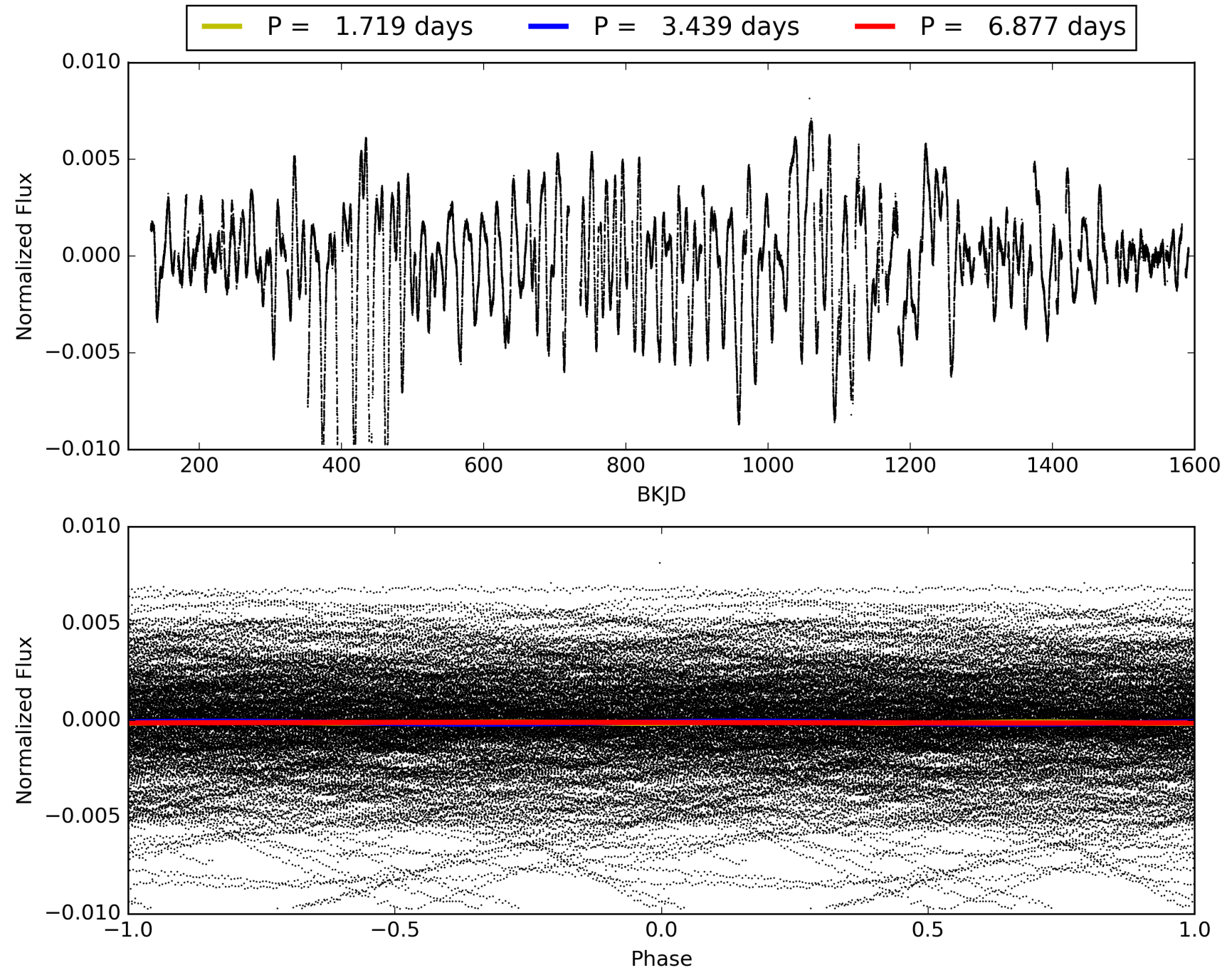
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010384298-01, PDC Light Curves

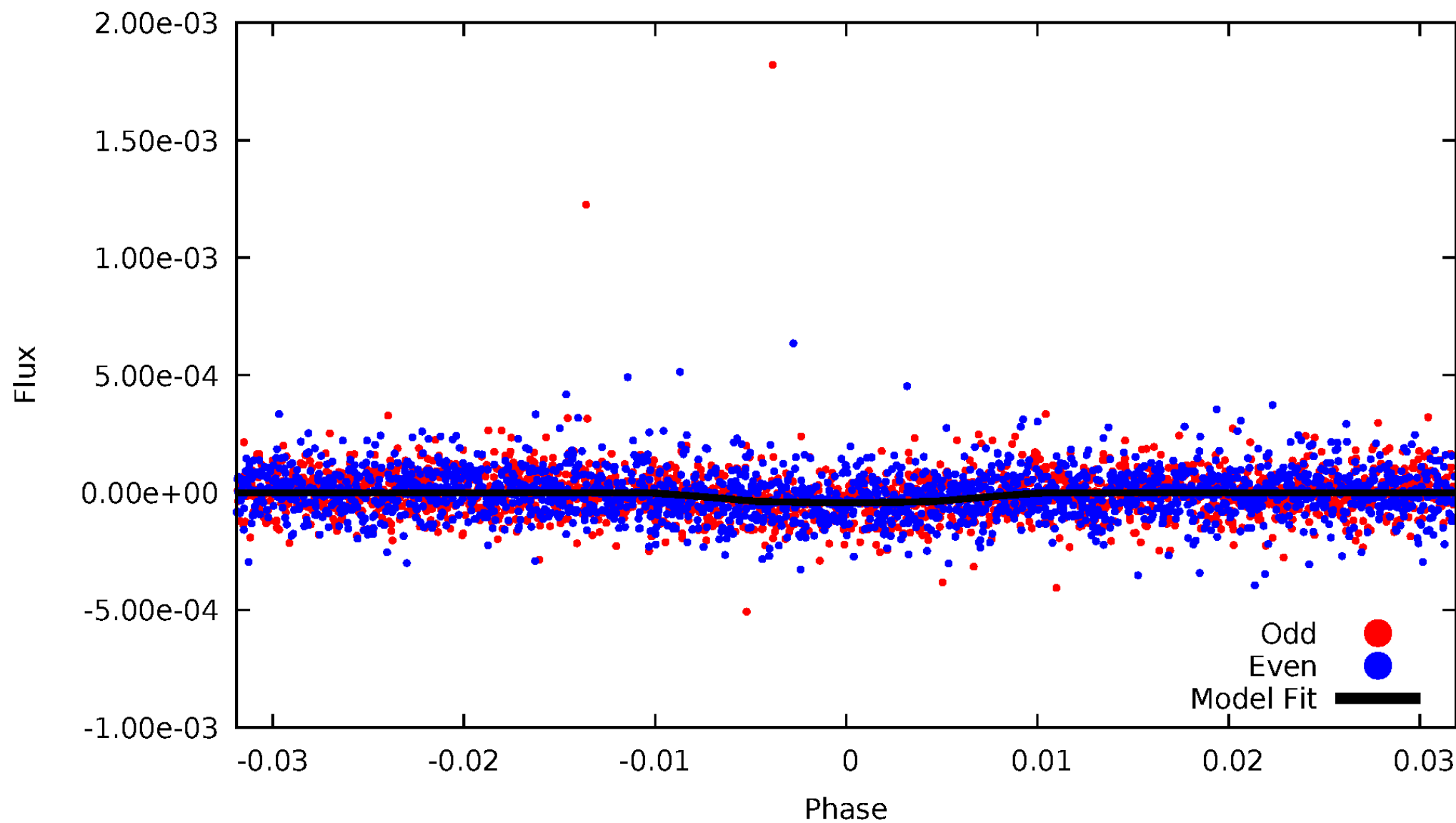


TCE 010384298-01



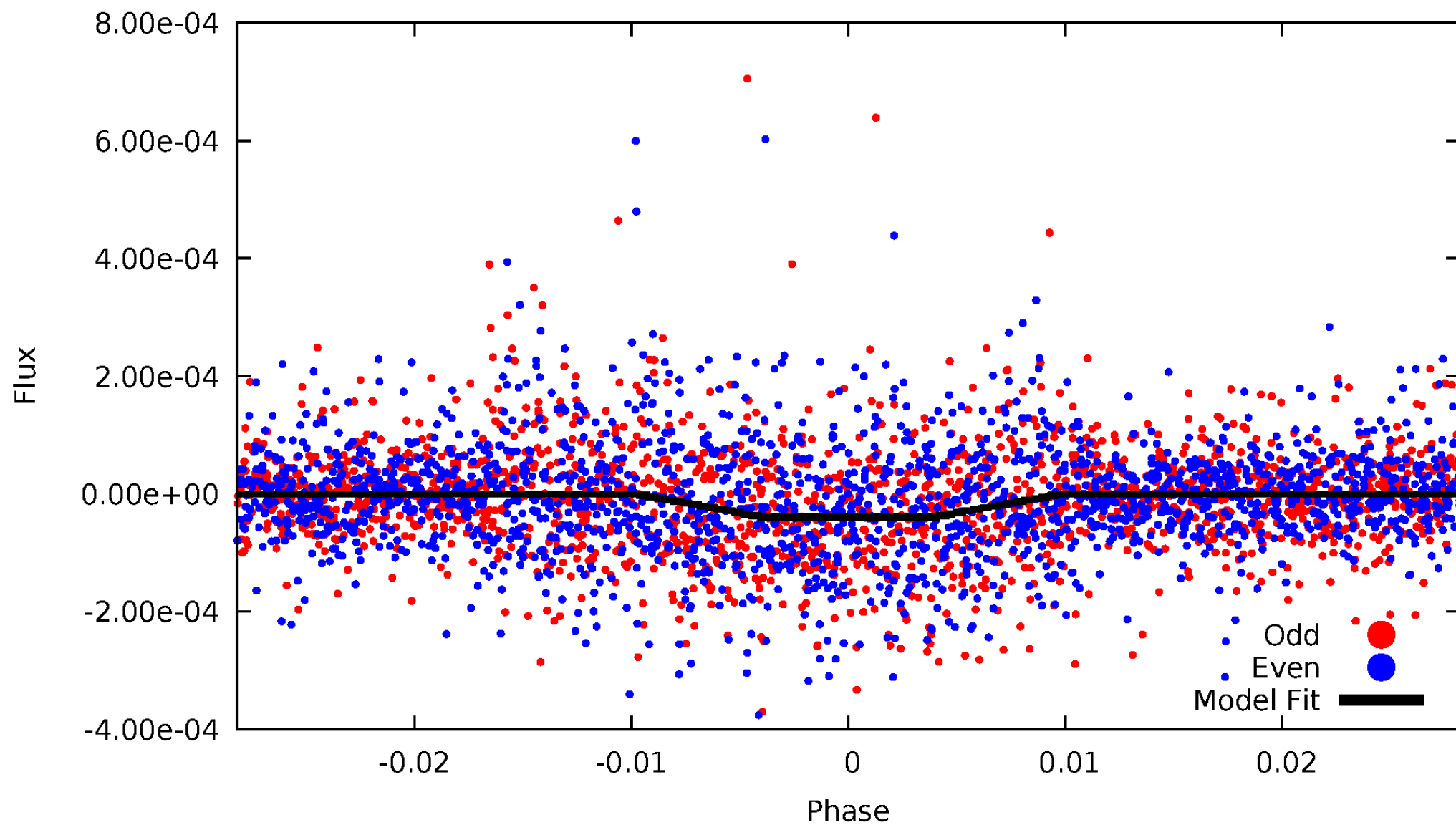
DV Odd/Even

TCE 010384298-01



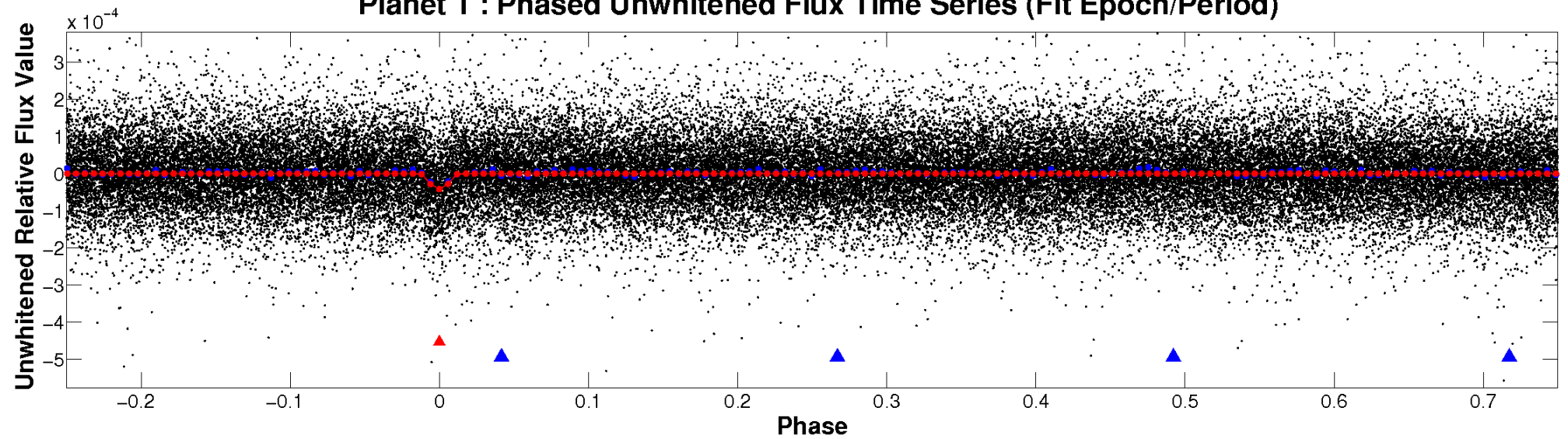
ALT Odd/Even

TCE 010384298-01

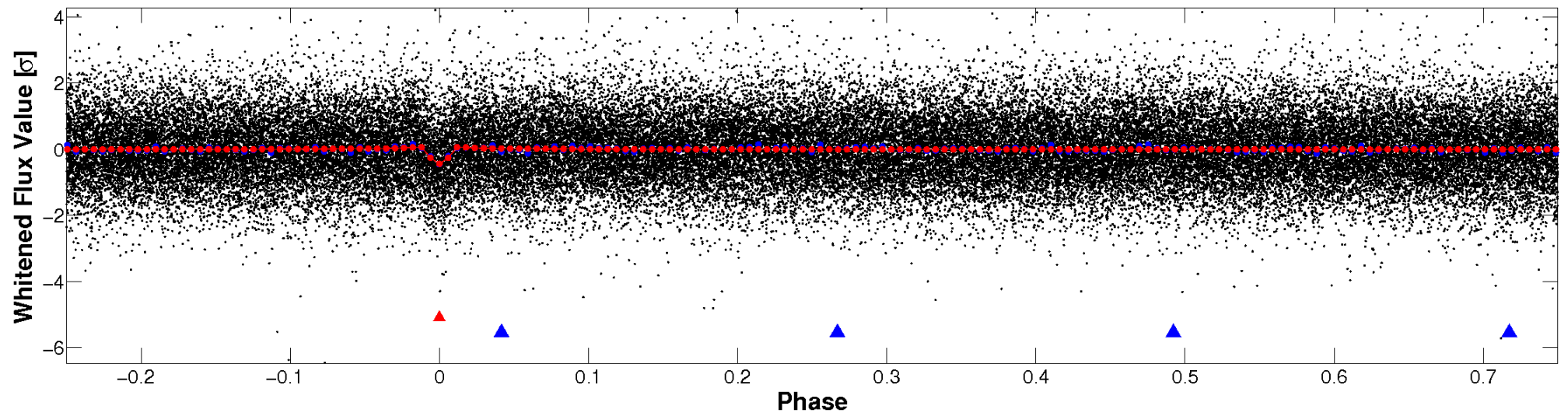


Non-Whitened Vs. Whitened Light Curve

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

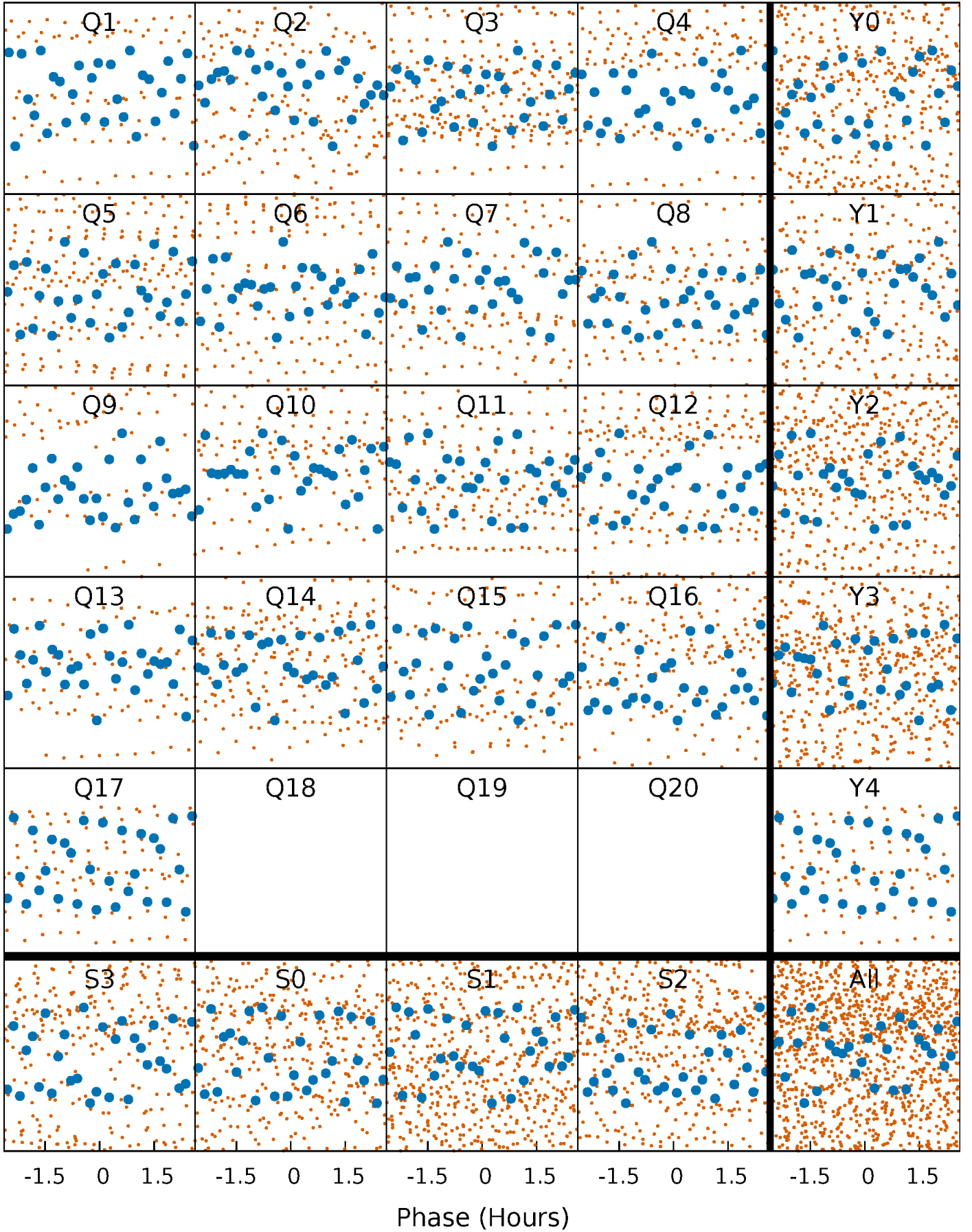


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



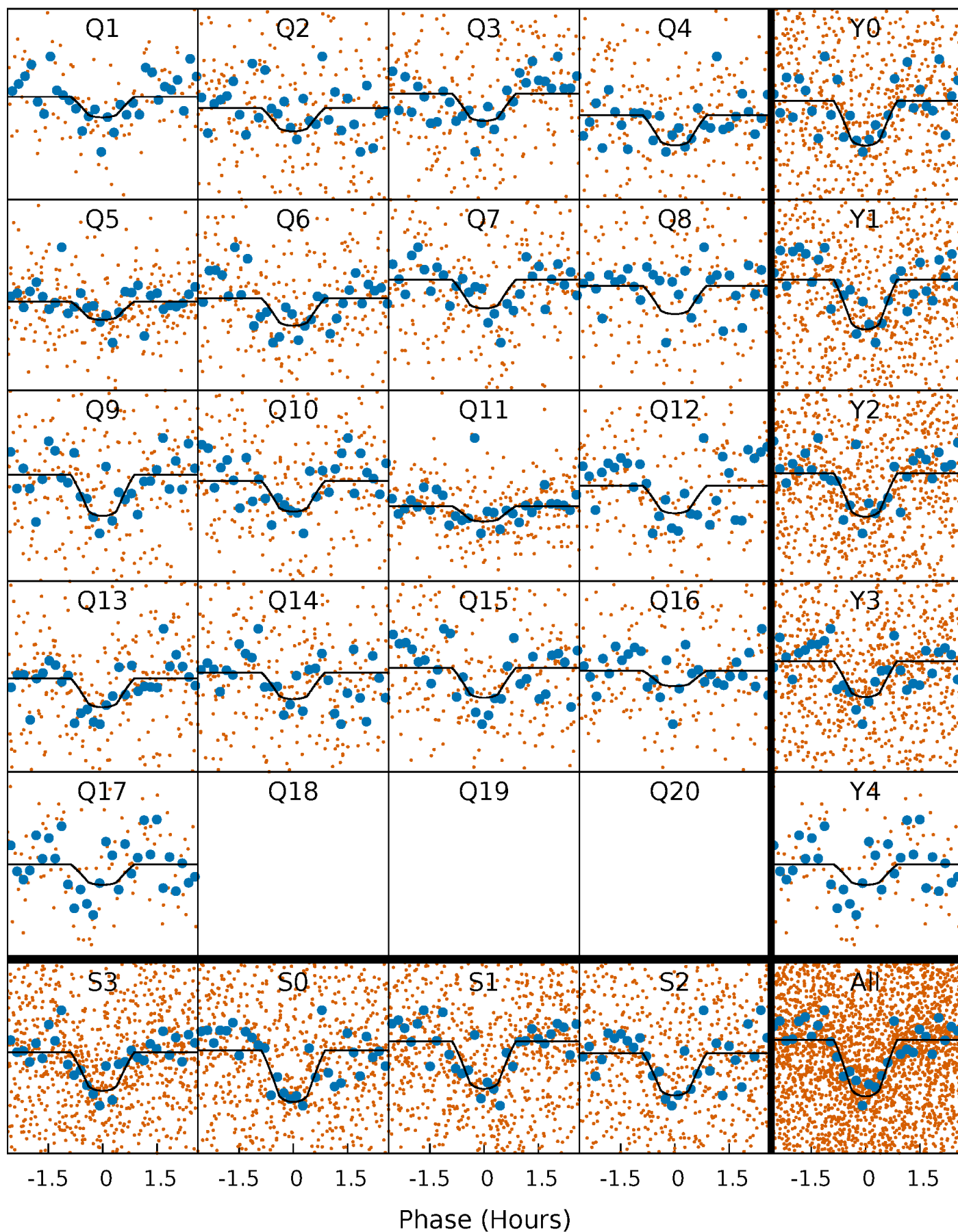
PDC Quarter-Phased Transit Curves

TCE 010384298-01 P= 3.438641 Days $T_0=132.682799$ (BKJD)



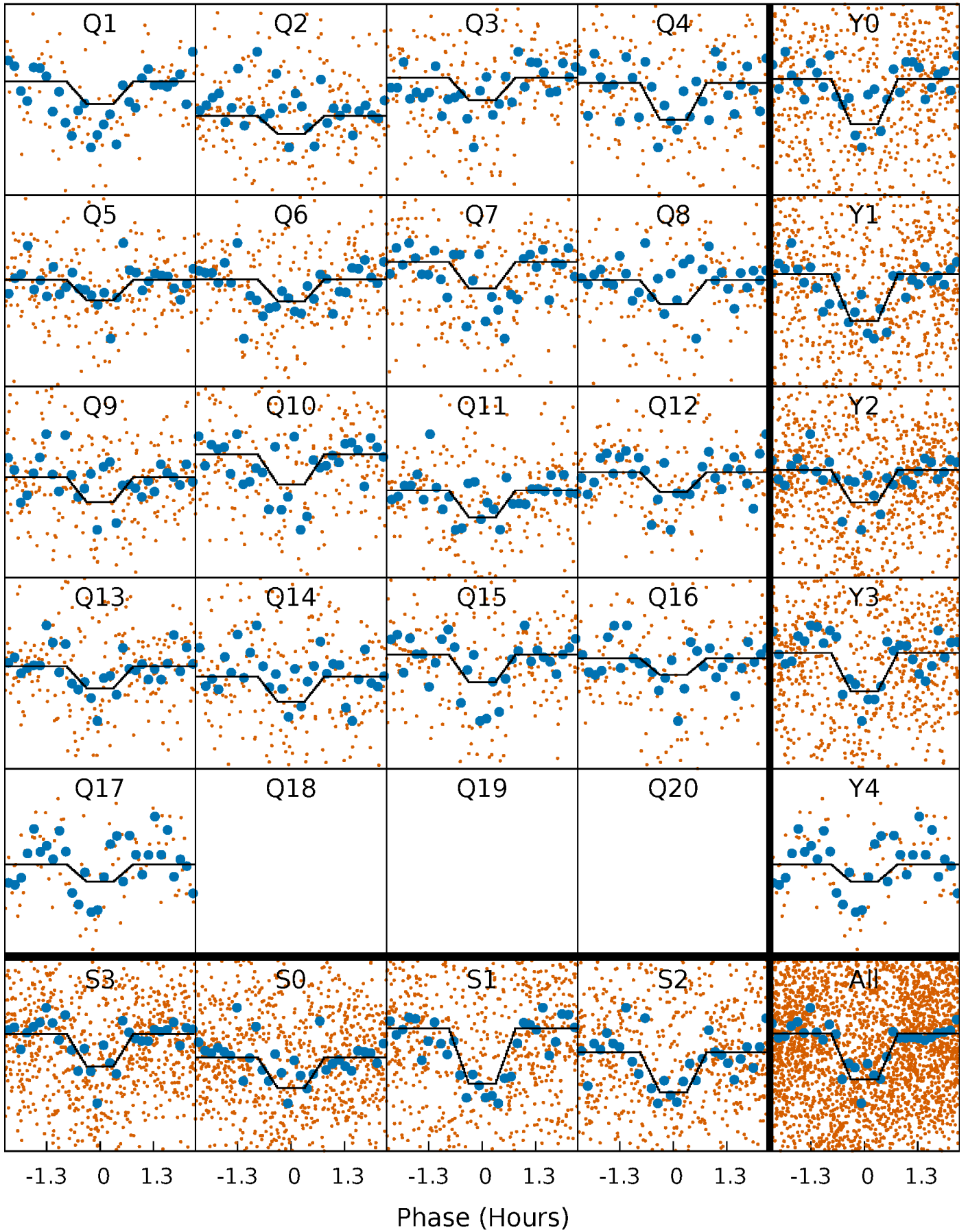
DV Quarter-Phased Transit Curves

TCE 010384298-01 P= 3.438641 Days $T_0=132.682799$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

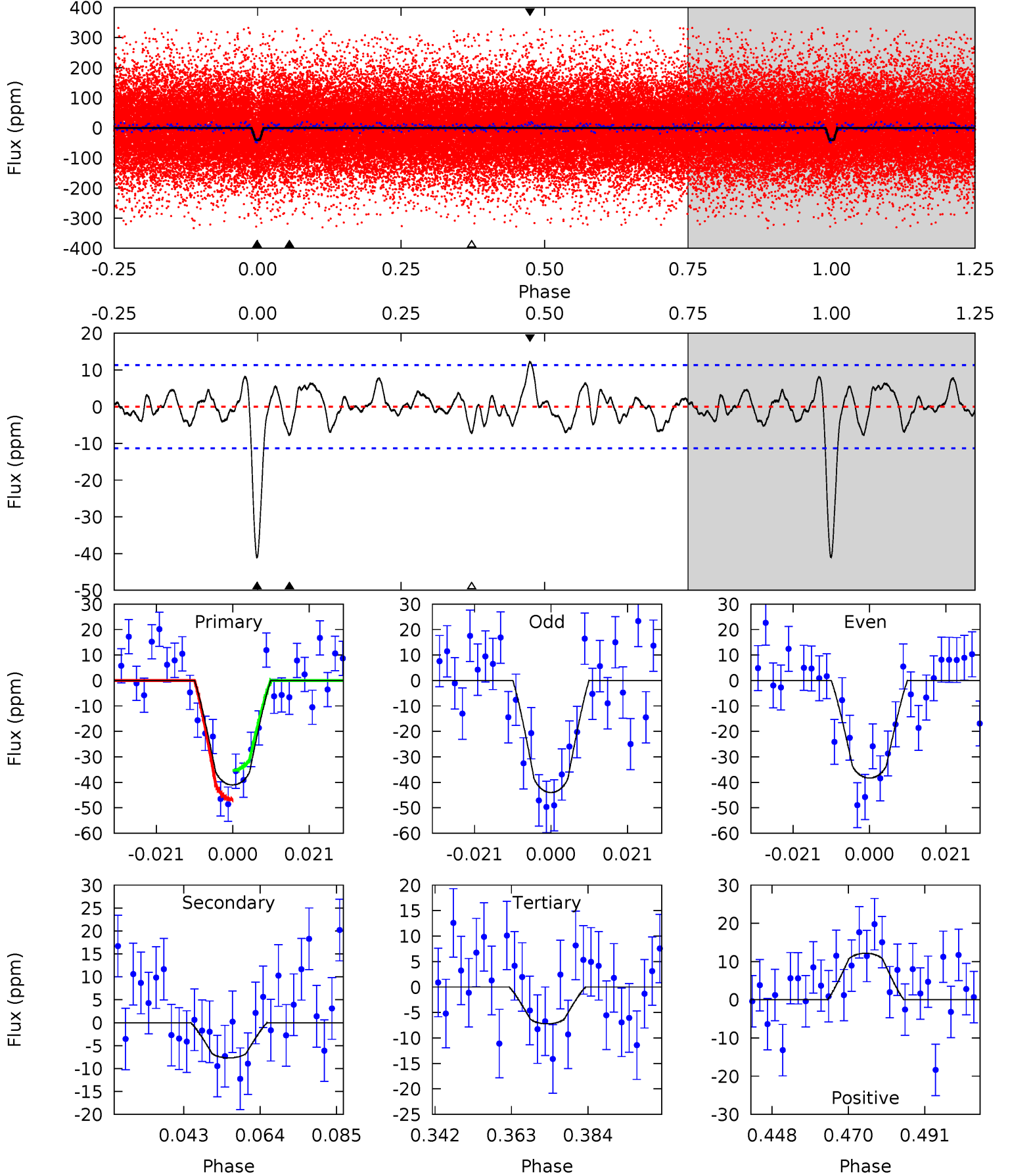
TCE 010384298-01 P= 3.438611 Days $T_0=132.687566$ (BKJD)



DV Model-Shift Uniqueness Test

010384298-01, P = 3.438641 Days, E = 129.244158 Days

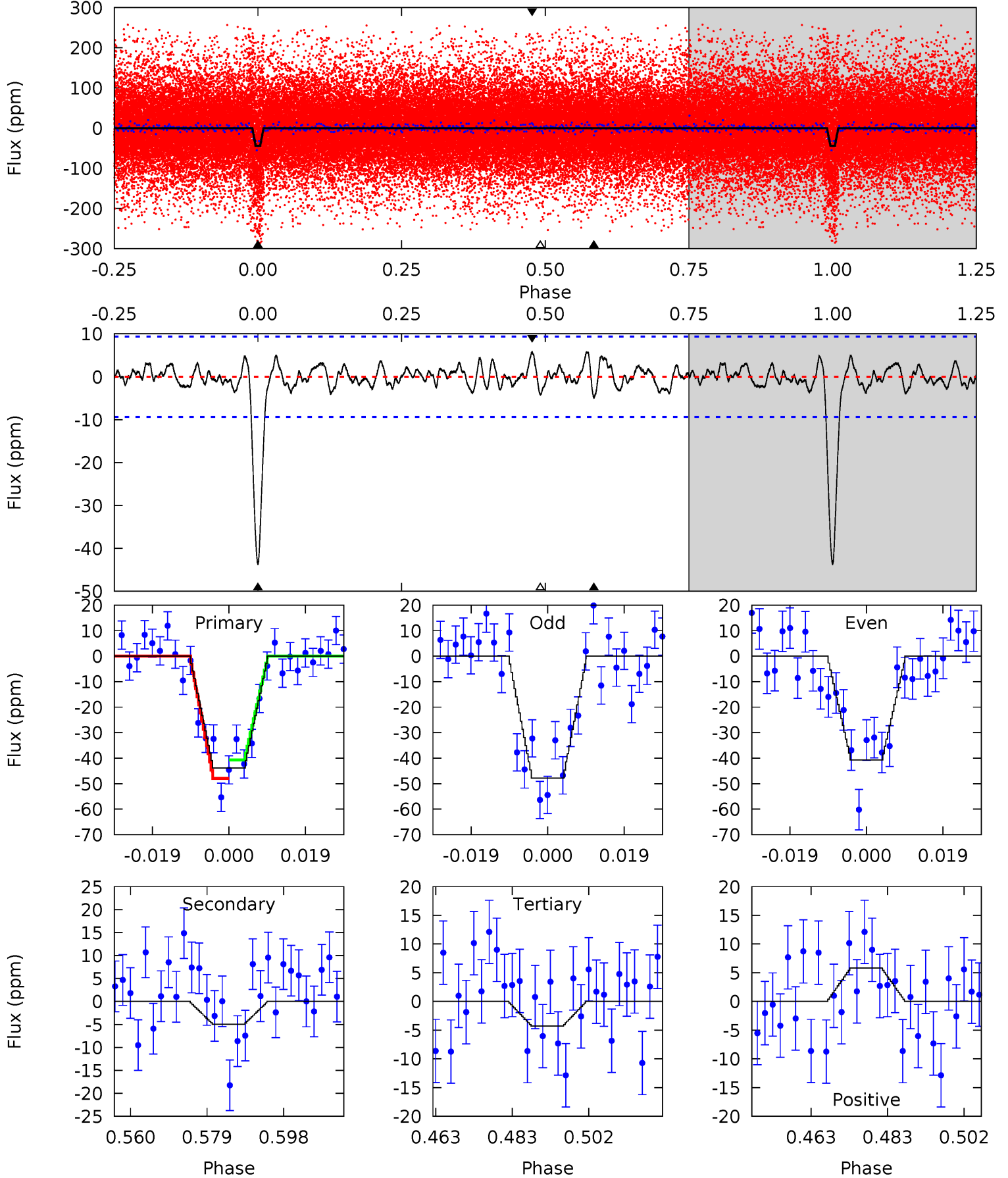
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	3.32	3.11	5.25	4.88	2.30	1.46	14.6	12.4	0.21	-1.93	1.23	0.80	0.23	2.46



Alt Model-Shift Uniqueness Test

010384298-01, P = 3.438611 Days, E = 129.248955 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.9	2.61	2.24	3.05	4.90	2.34	0.99	20.7	19.9	0.37	-0.44	1.86	0.91	0.12	1.89



Stellar Parameters For KIC 010384298

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5383^{+88}_{-72}	$4.112^{+0.329}_{-0.141}$	$0.160^{+0.150}_{-0.100}$	$1.401^{+0.305}_{-0.457}$	$0.926^{+0.053}_{-0.053}$	$0.474^{+1.055}_{-0.186}$
	+2%/-1%	+8%/-3%	+94%/-62%	+22%/-33%	+6%/-6%	+222%/-39%
Source	SPE90	FLK73	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 010384298-01 / KOI 3224.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-8 ± 2	$1.02^{+0.38}_{-0.34}$	1859^{+123}_{-161}	3705^{+592}_{-388}	$7.288^{+11.130}_{-3.778}$
Alt.	-5 ± 2	$0.93^{+0.40}_{-0.37}$	1867^{+128}_{-160}	3584^{+646}_{-442}	$5.914^{+10.851}_{-3.400}$

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 $A_{obs} \gg 1.0$

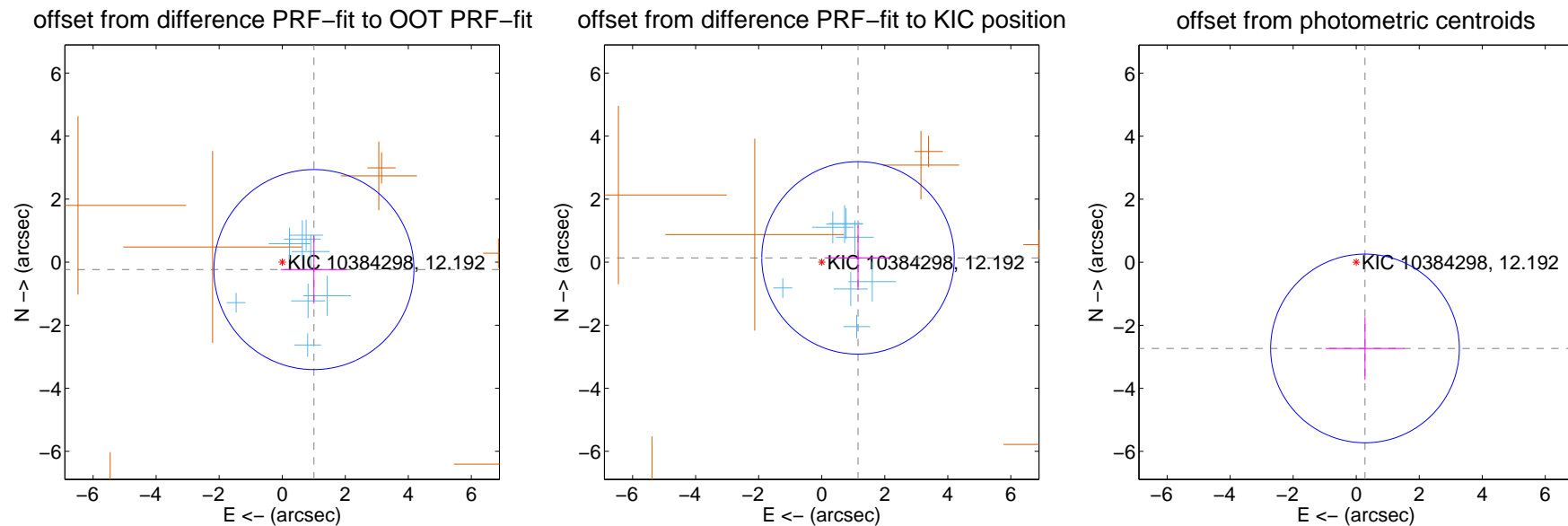
DV Centroid Data

Supplemental centroid analysis for 010384298-01. Kepler magnitude: 12.19. Transit SNR 11.89

There are 8 quarters with good PRF difference image offsets

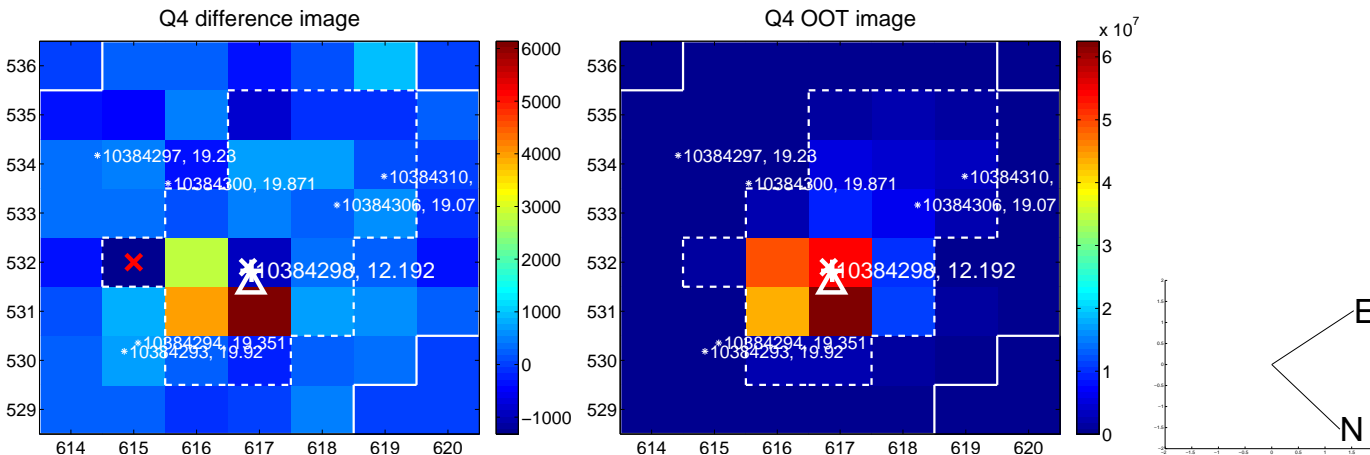
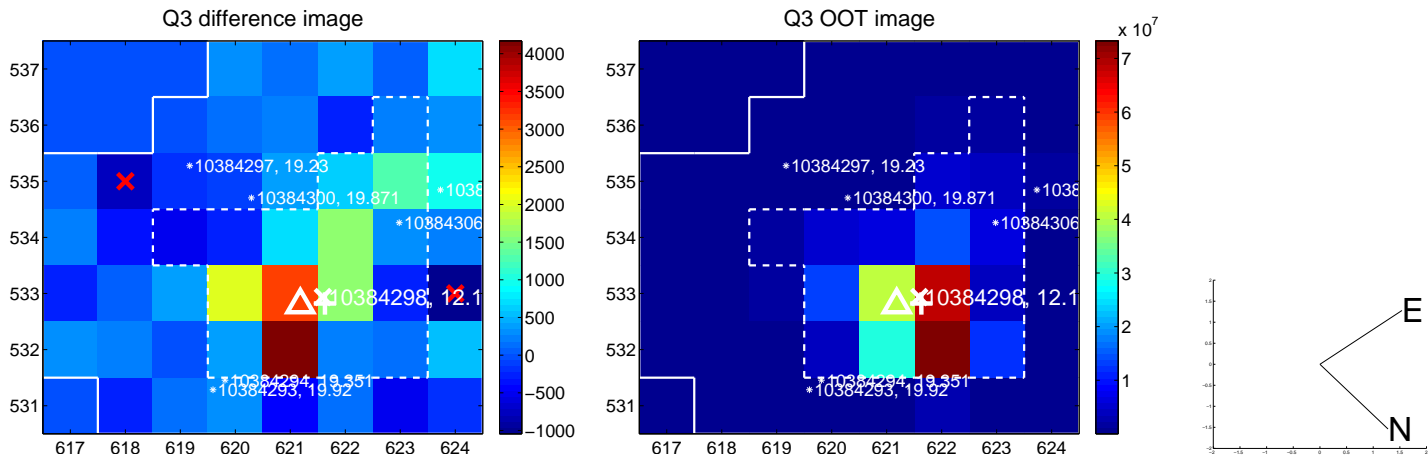
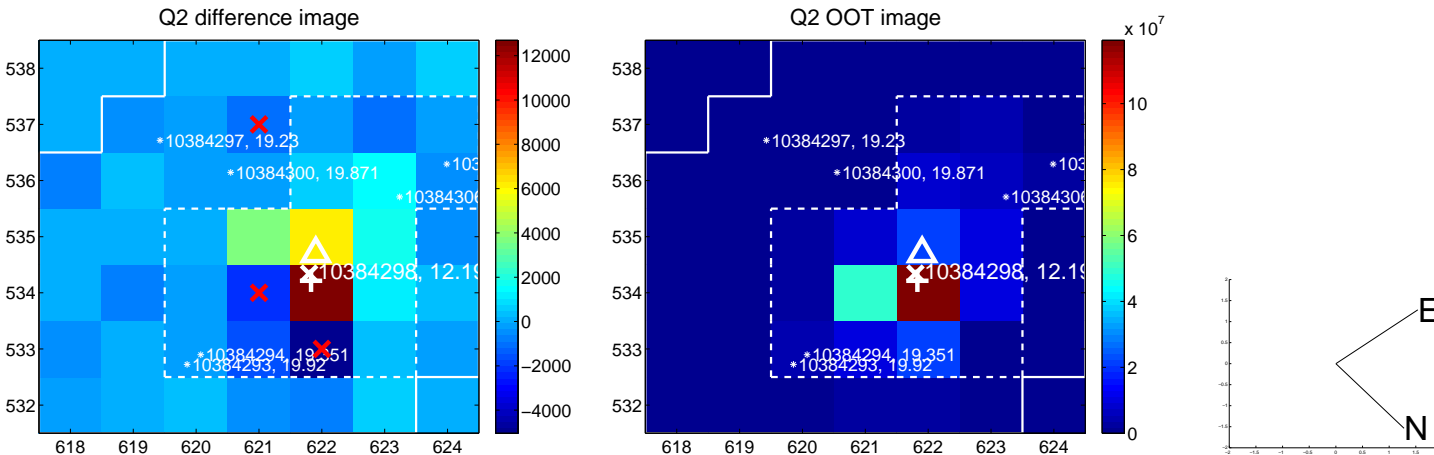
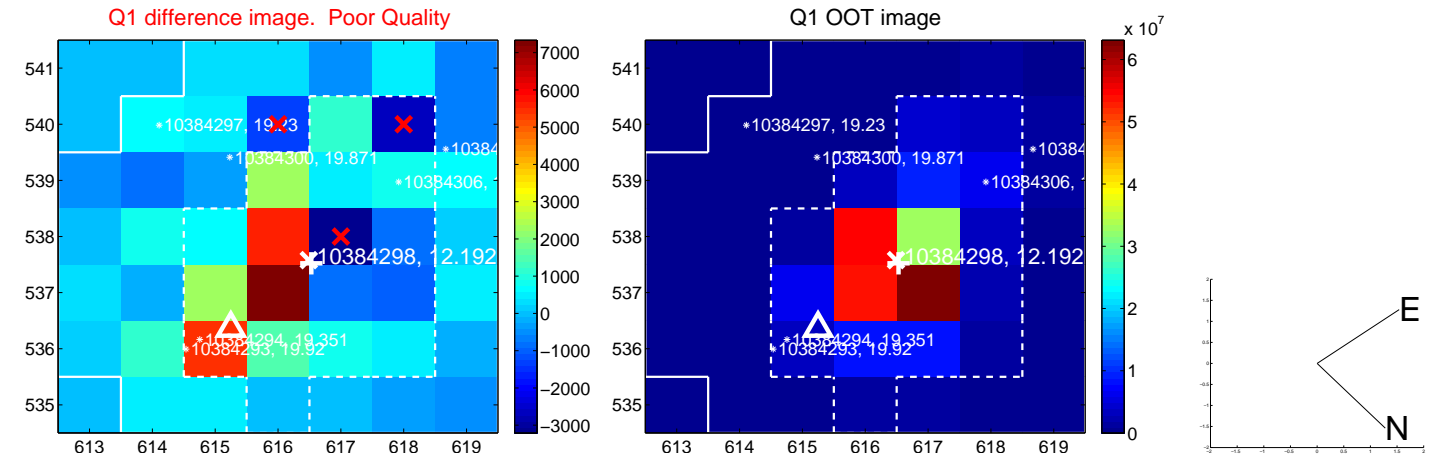
The direct PRF centroid is offset from the target star catalog position by about 0.40 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.032 ± 1.058	0.98	-1.006 ± 1.051	-0.234 ± 1.076
PRF-fit source offset from KIC position	1.160 ± 1.018	1.14	-1.152 ± 1.015	0.137 ± 1.018
photometric centroid source offset	2.75 ± 1.00	2.75	-0.28 ± 1.25	-2.74 ± 1.00

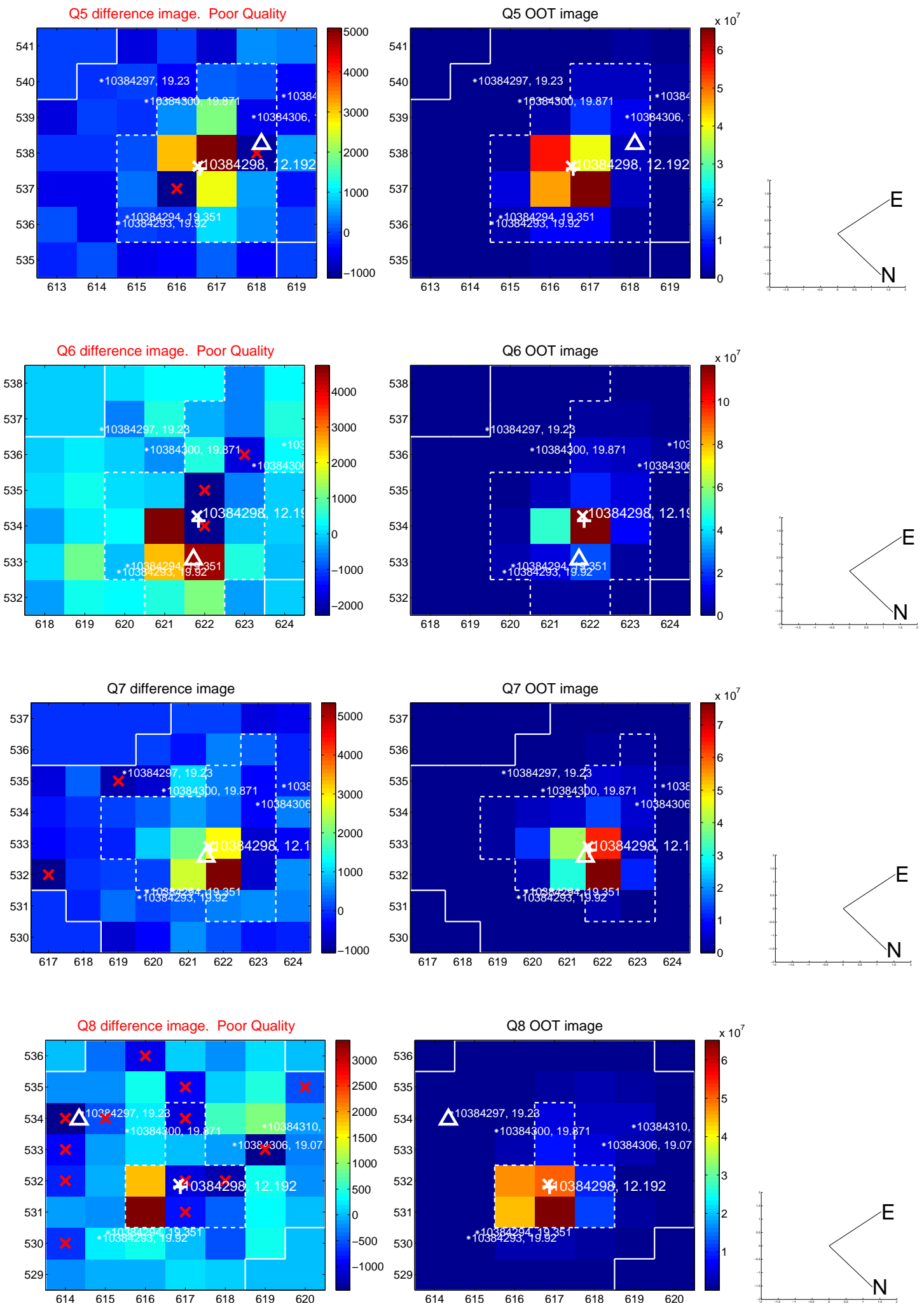


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

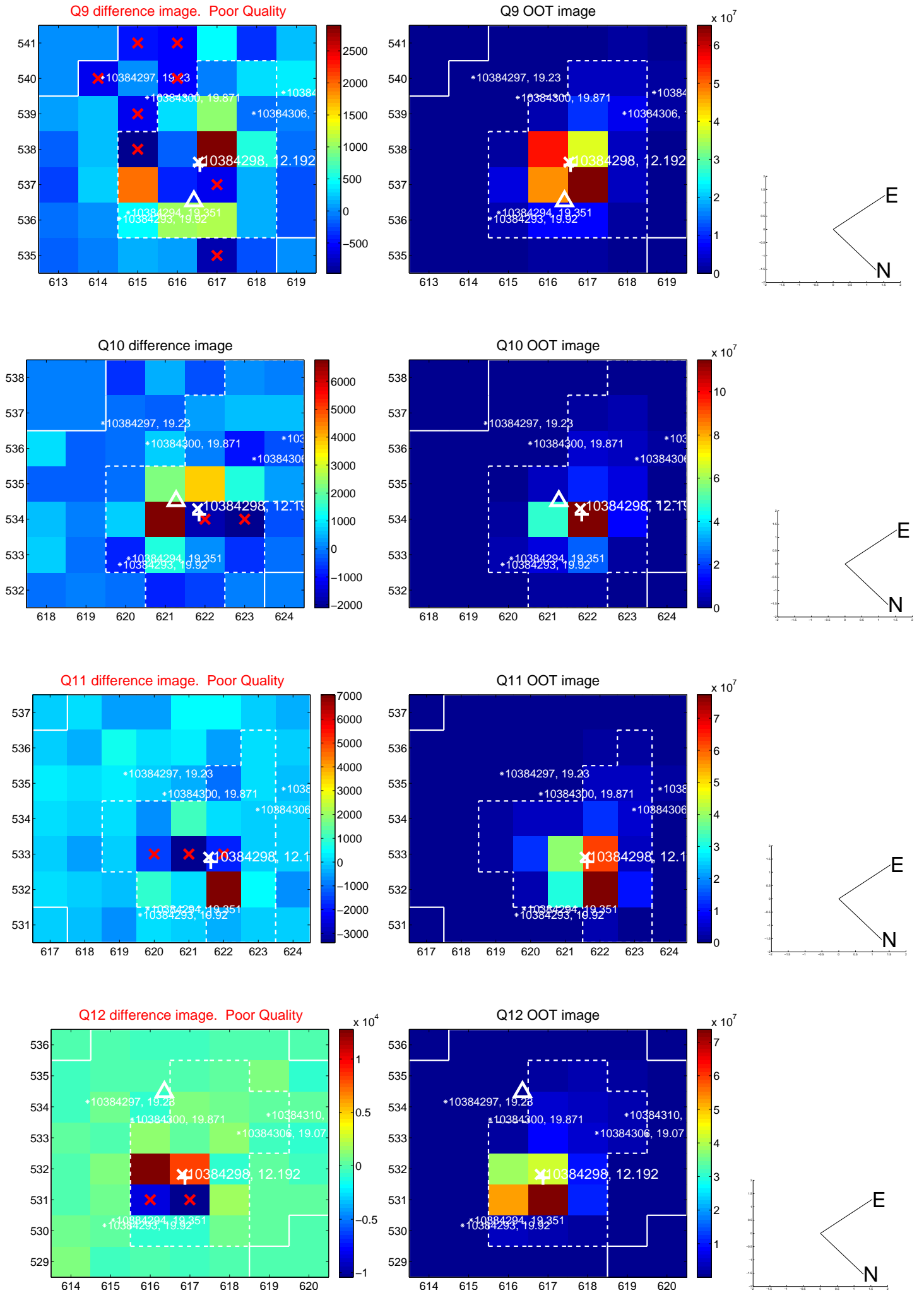
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



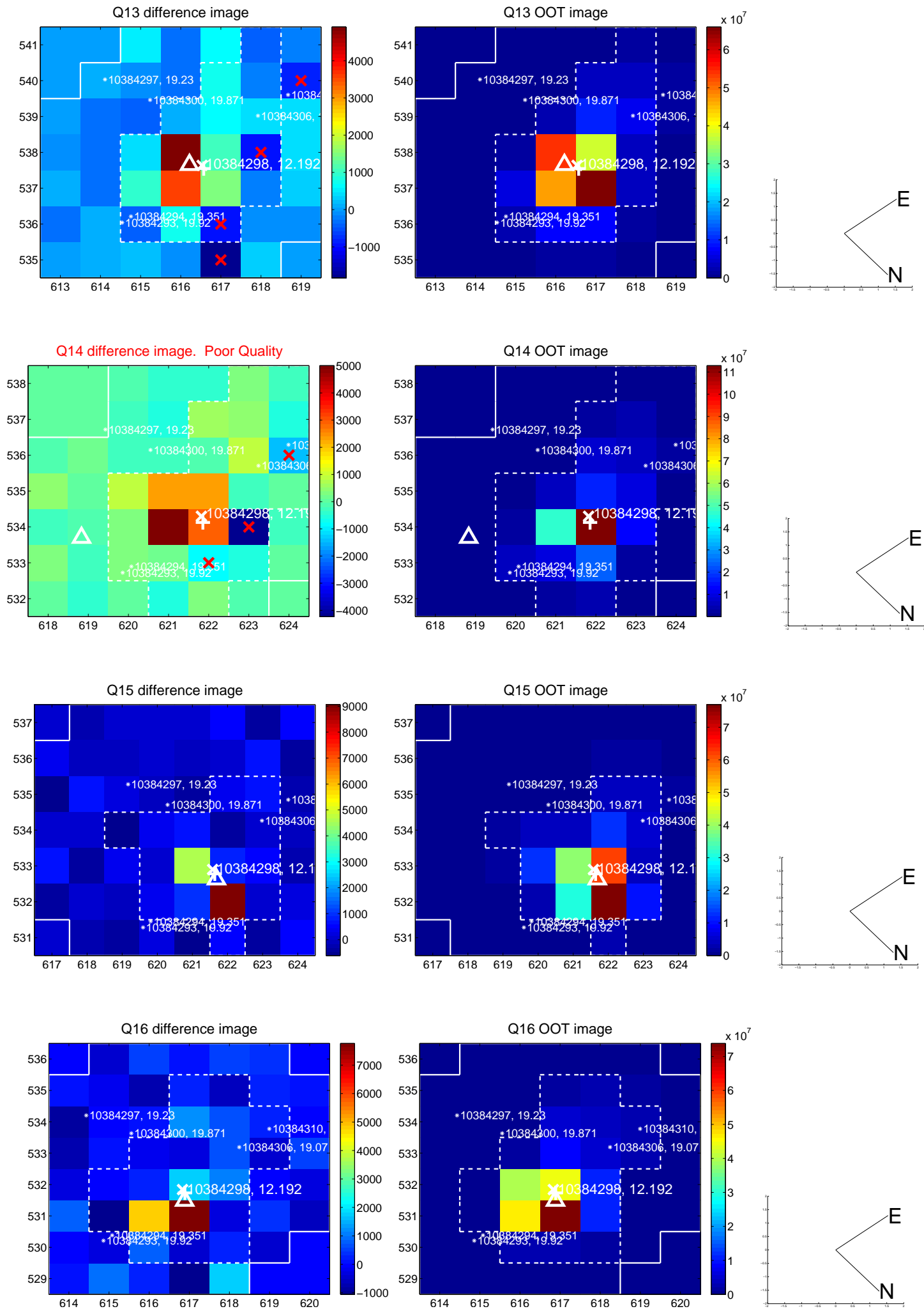
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



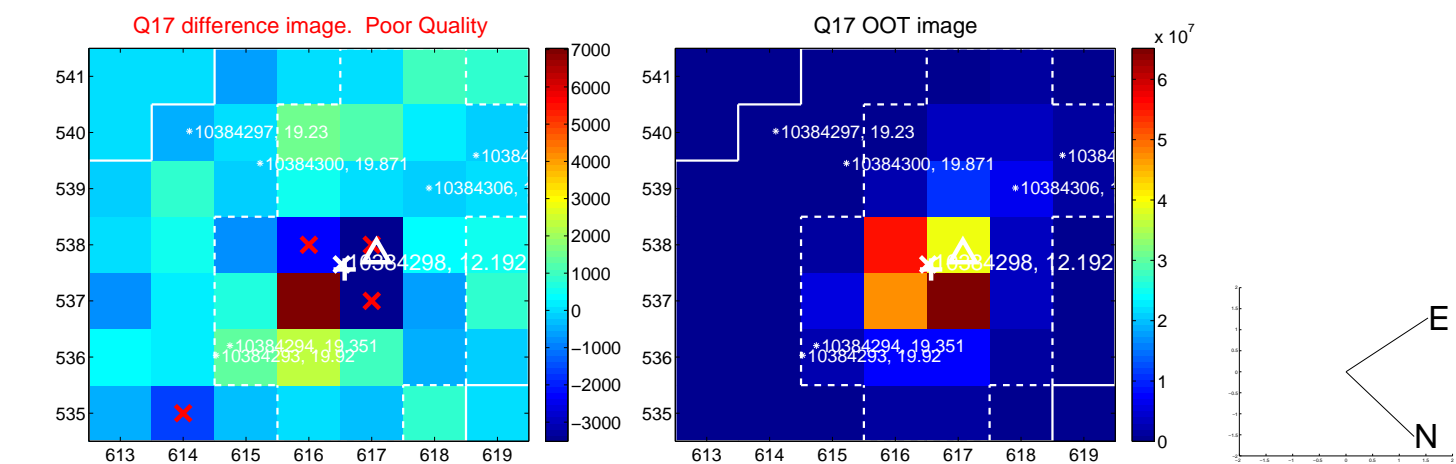
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



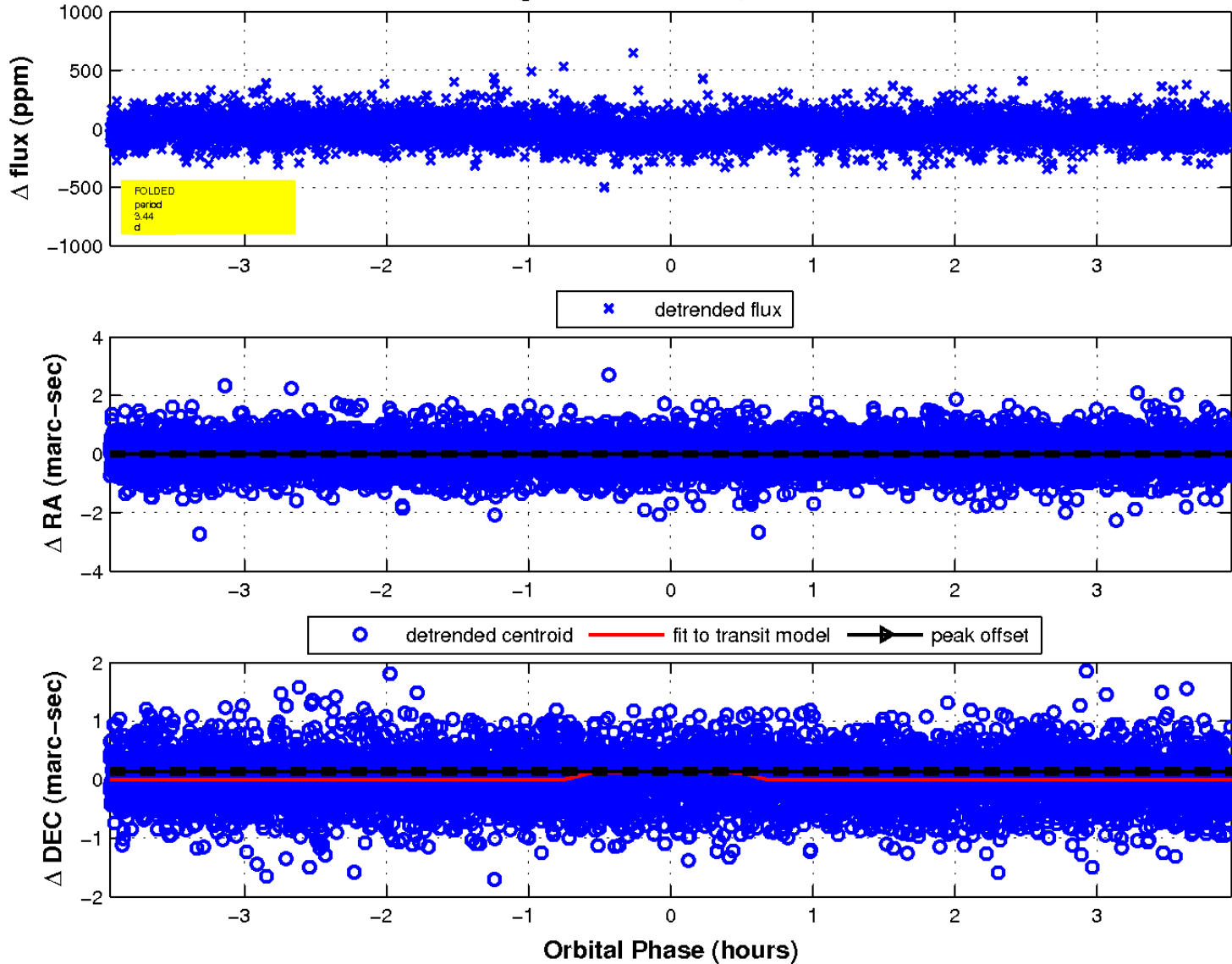
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

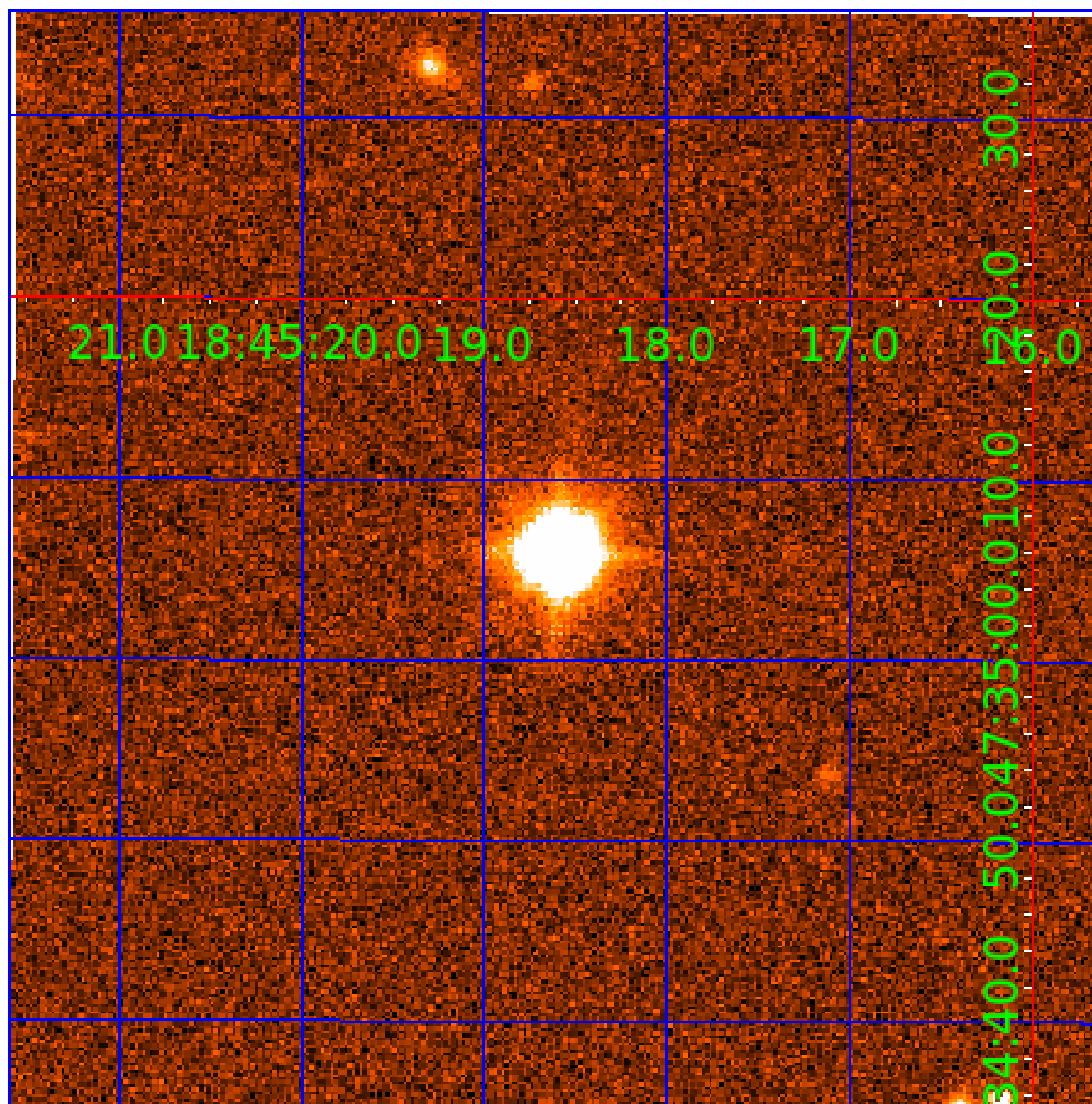


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 010384298

Q1-17 DR25 TCE Parameters

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010384298-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

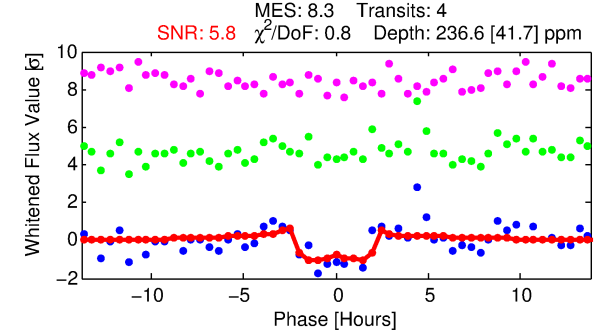
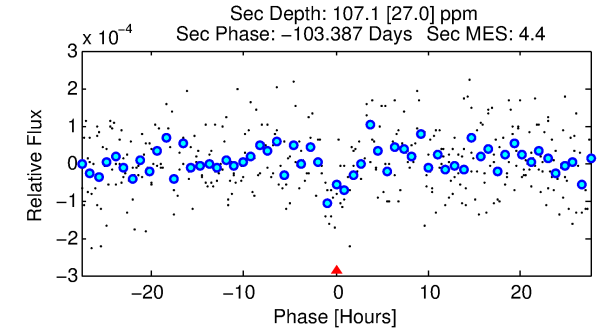
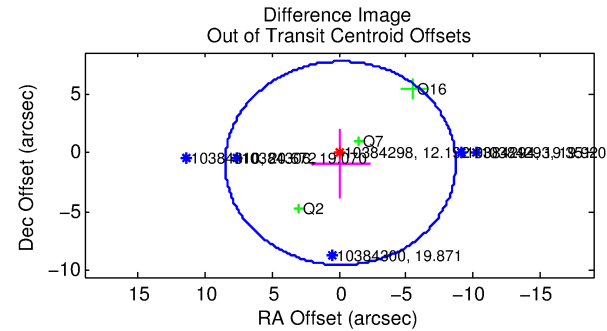
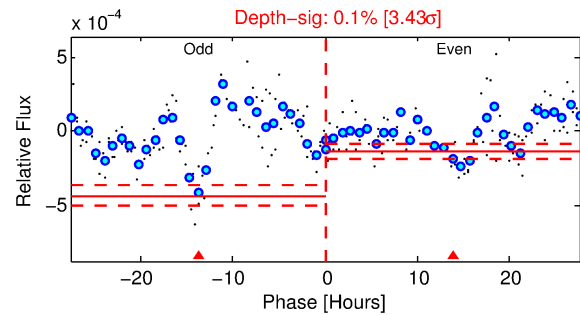
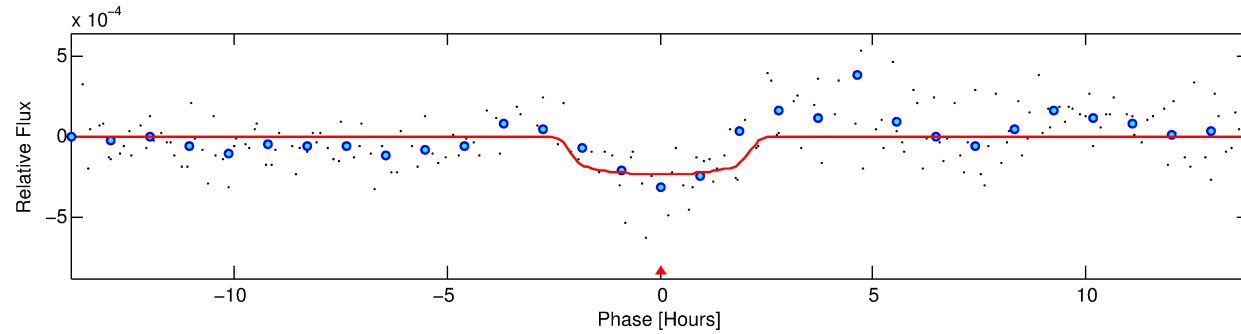
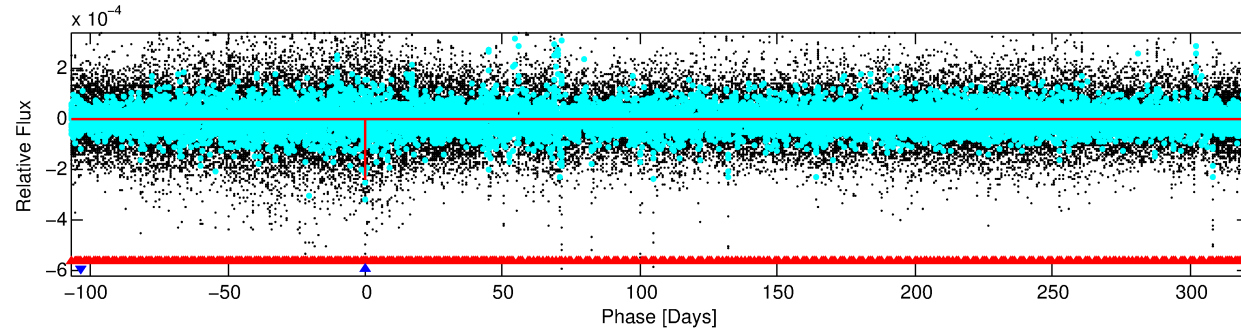
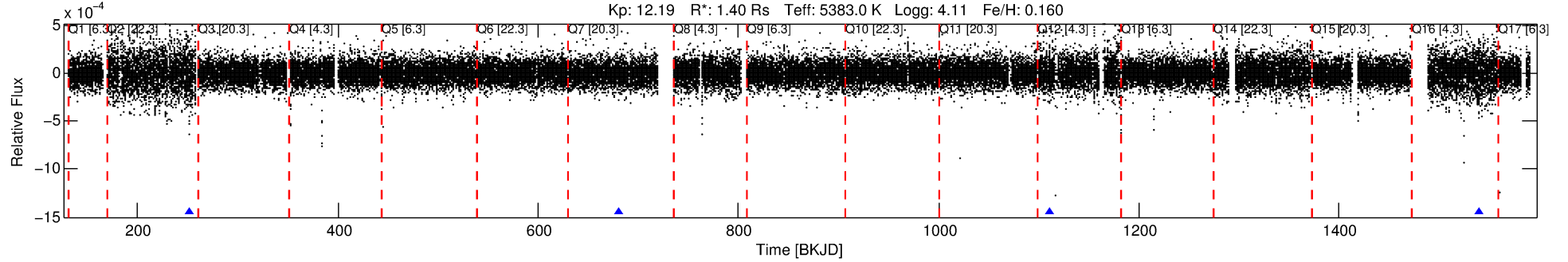
Ephemeris Match Information For 010384298-02

No Significant Match Found

DV One-Page Summary

KIC: 10384298 Candidate: 2 of 2 Period: 429.055 d
KOI: K03224 Corr: No Ephemeris Match

Kp: 12.19 R*: 1.40 Rs Teff: 5383.0 K Logg: 4.11 Fe/H: 0.160



DV Fit Results:

Period = 429.05542 [0.00572] d
Epoch = 252.0638 [0.0088] BKJD
Rp/R* = 0.0164 [0.0104]
a/R* = 379.30 [983.75]
b = 0.86 [0.77]
Seff = 1.25 [0.69]
Teq = 270 [37] K
Rp = 2.51 [1.79] Re
a = 1.0856 [0.3618] AU
Ag = 11011.55 [15438.17] [0.71σ]
Teffp = 4273 [1379] K [2.90σ]

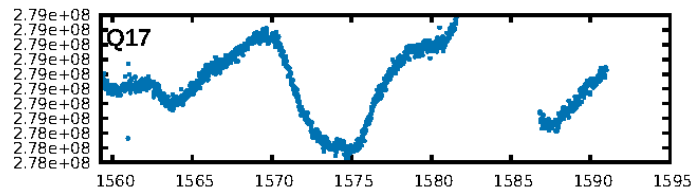
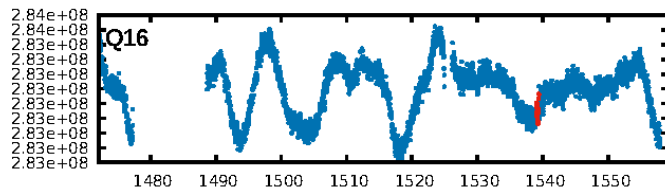
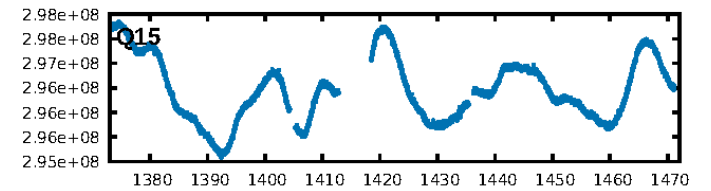
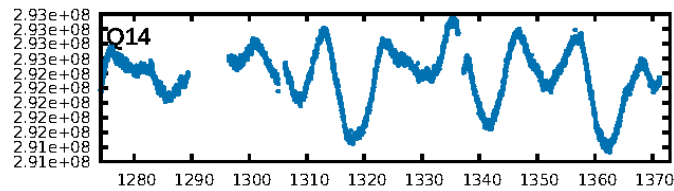
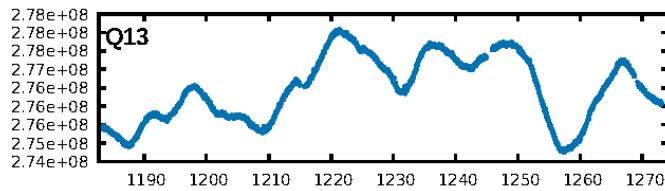
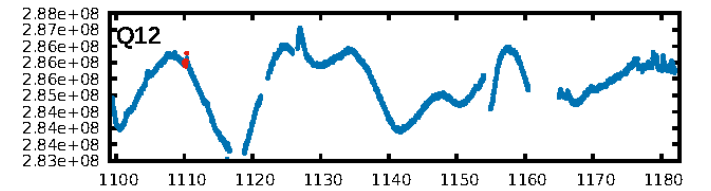
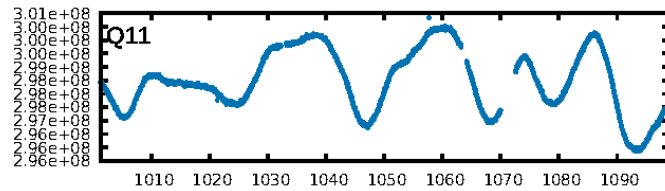
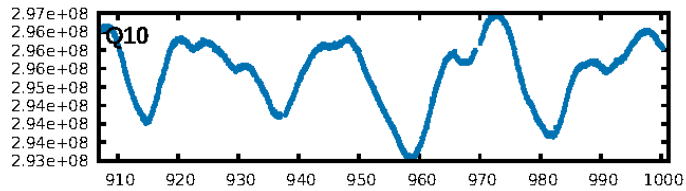
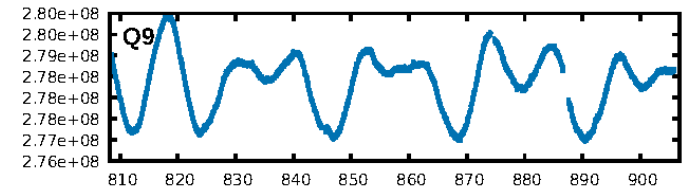
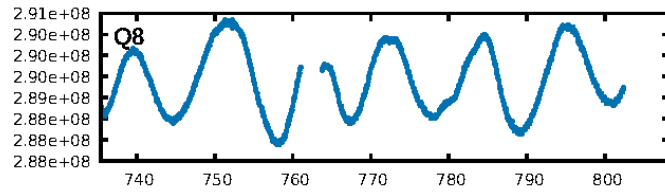
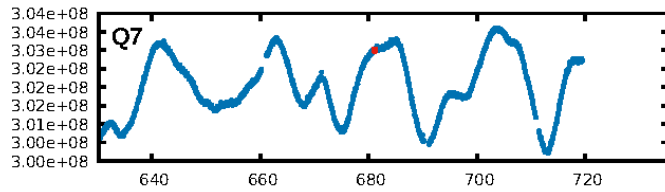
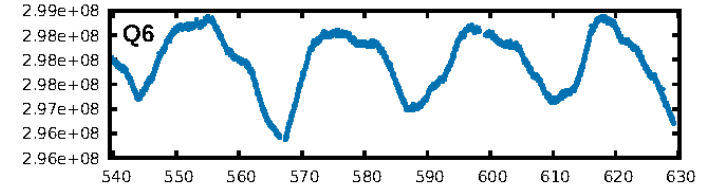
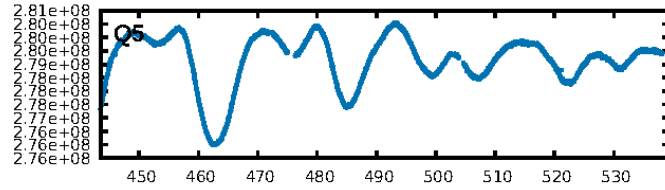
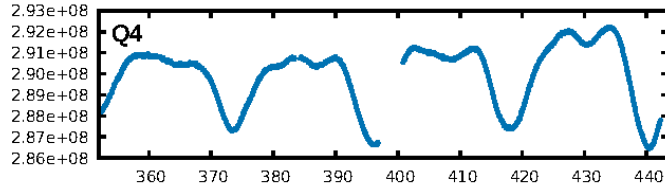
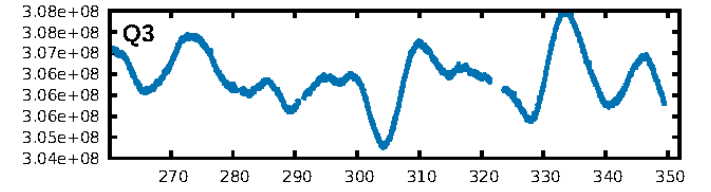
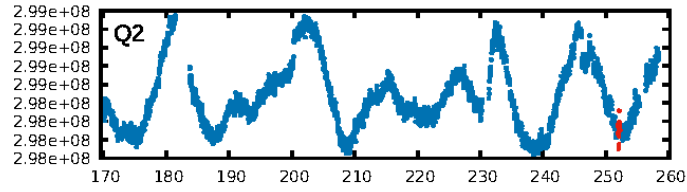
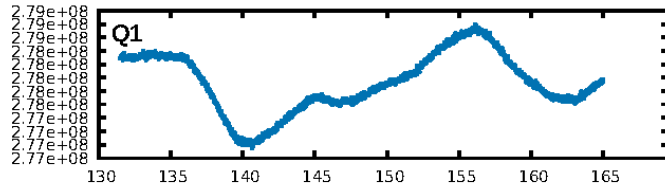
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [2128.84σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.1%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: 1.10e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -2.44
Centroid-sig: 30.3%
Centroid-so: 1.033 arcsec [0.70σ]
OotOffset-rm: 0.882 arcsec [0.31σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-rm: 0.519 arcsec [0.20σ]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.67 [2/3]

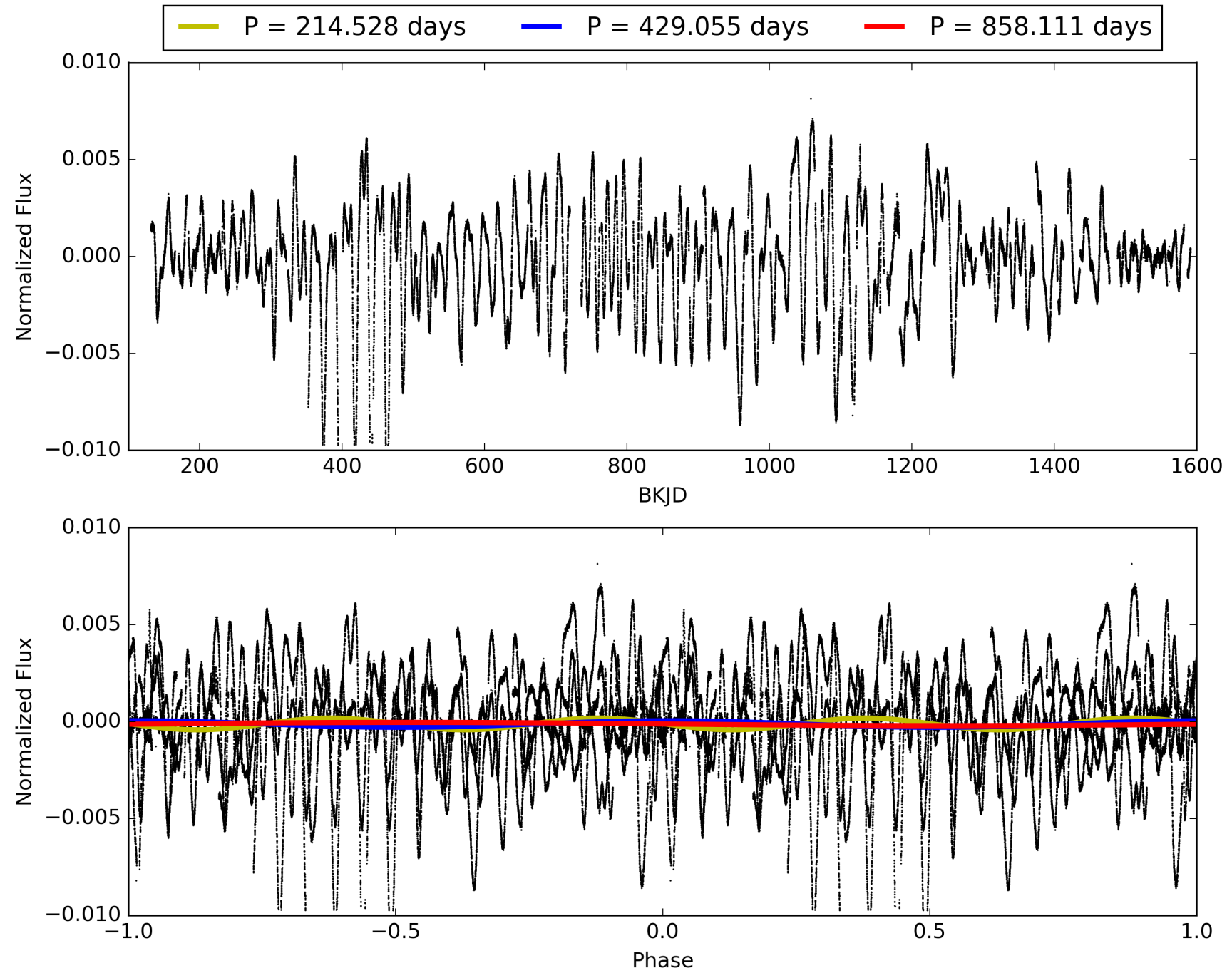
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:20:08 Z

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

TCE 010384298-02, PDC Light Curves

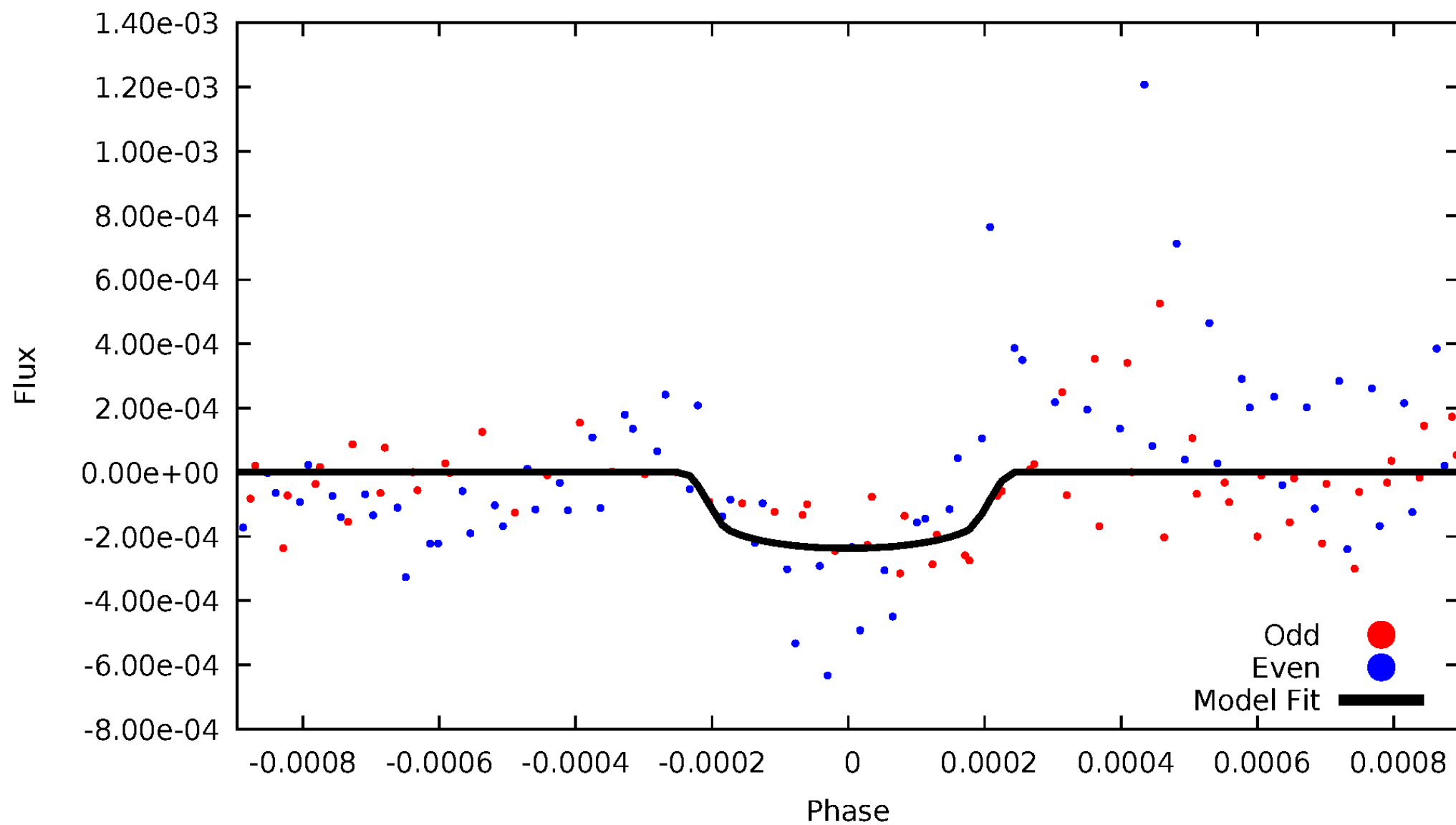


TCE 010384298-02



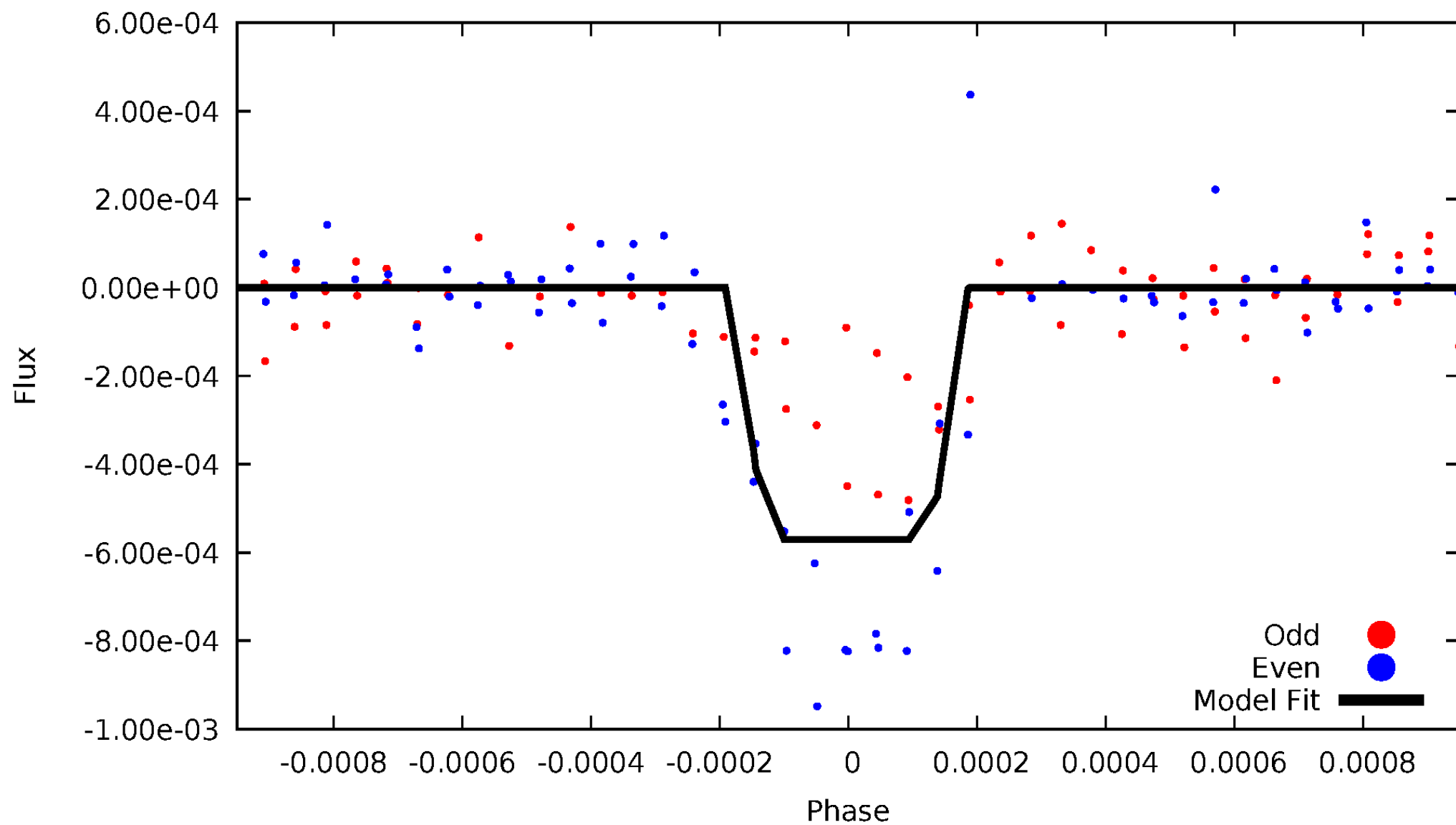
DV Odd/Even

TCE 010384298-02



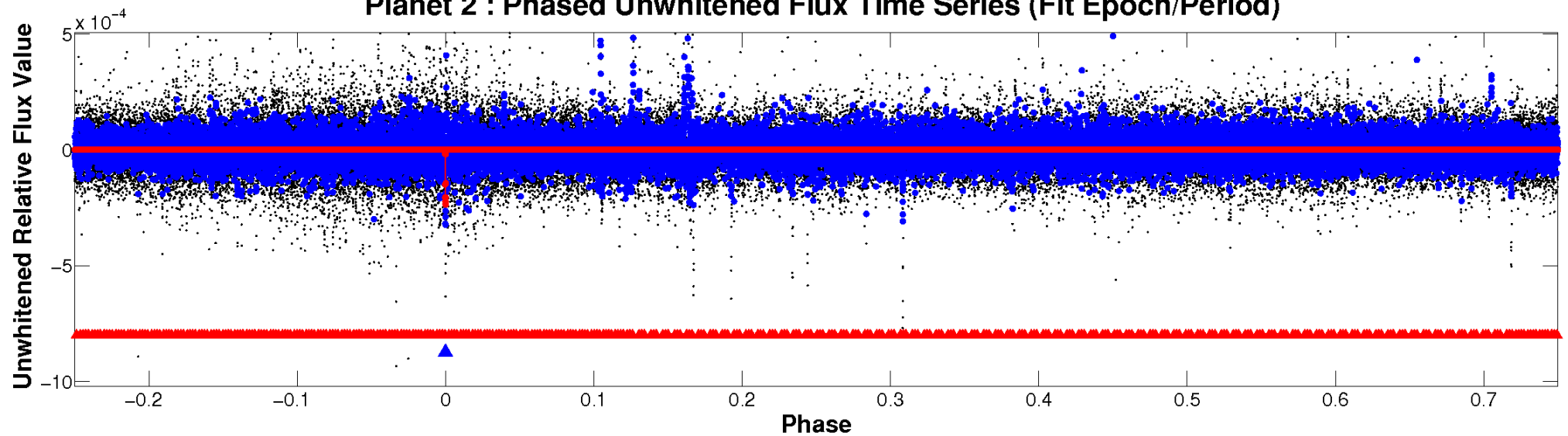
ALT Odd/Even

TCE 010384298-02

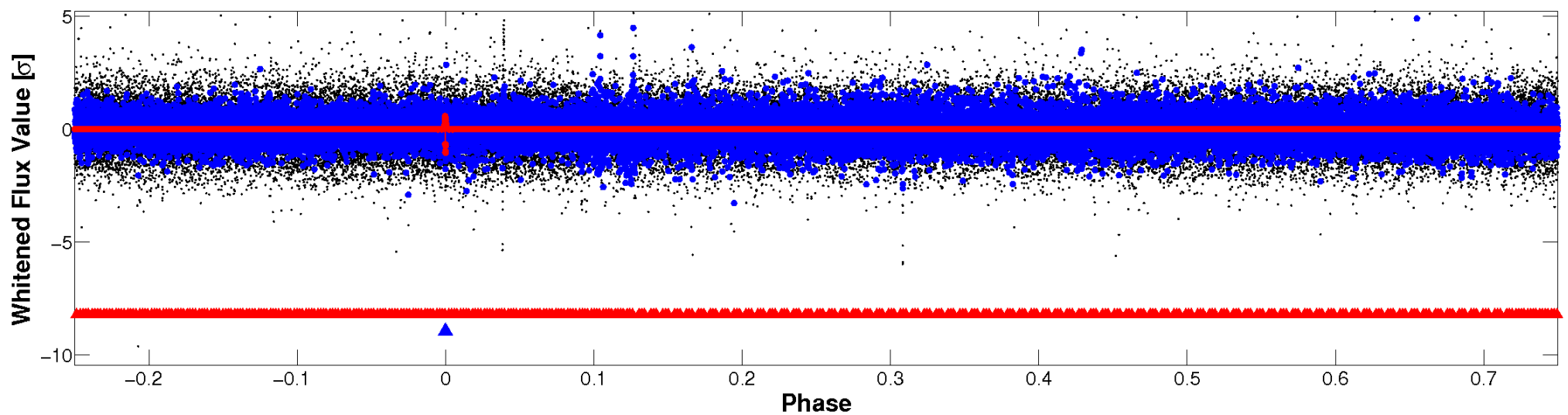


Non-Whitened Vs. Whitened Light Curve

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

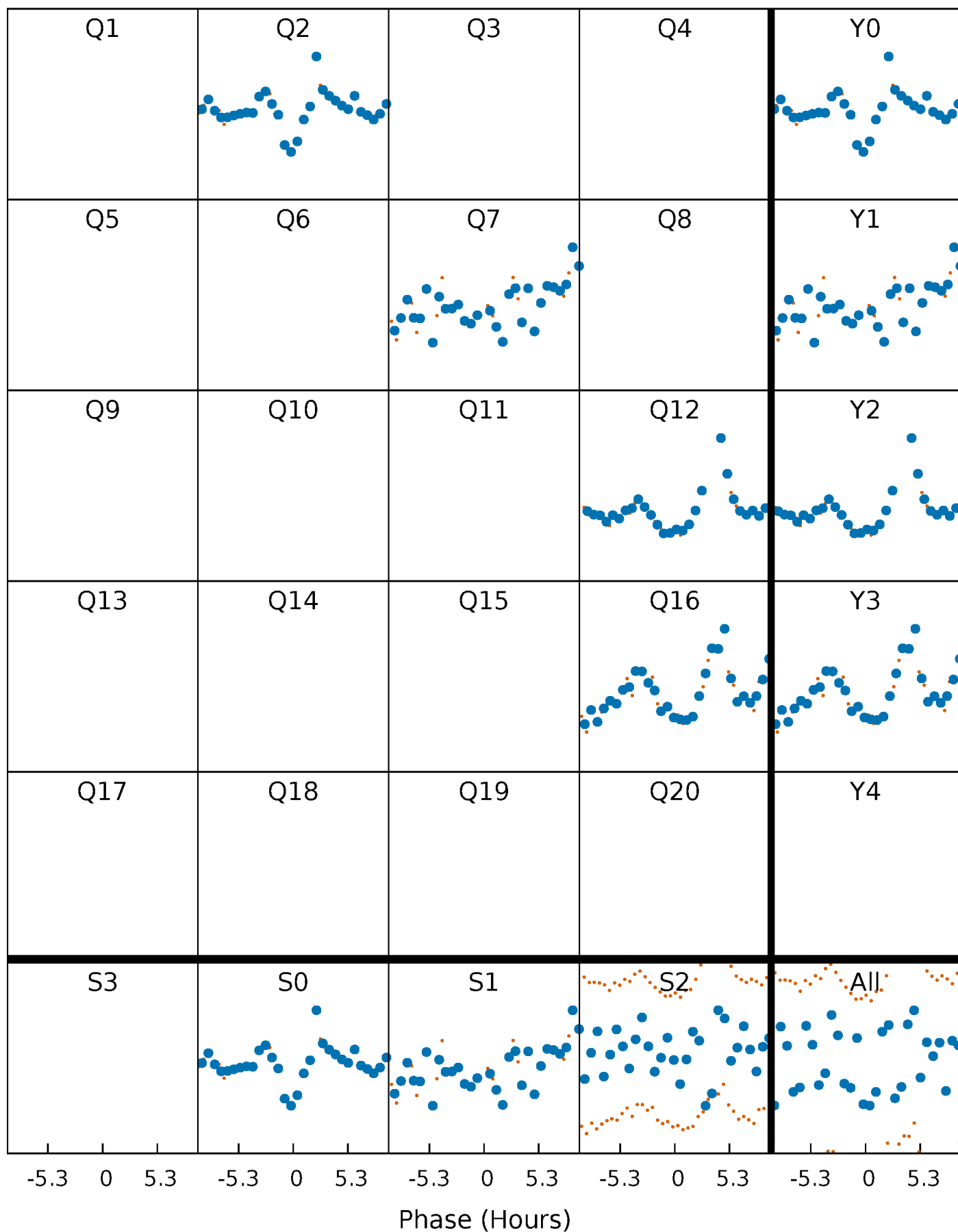


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



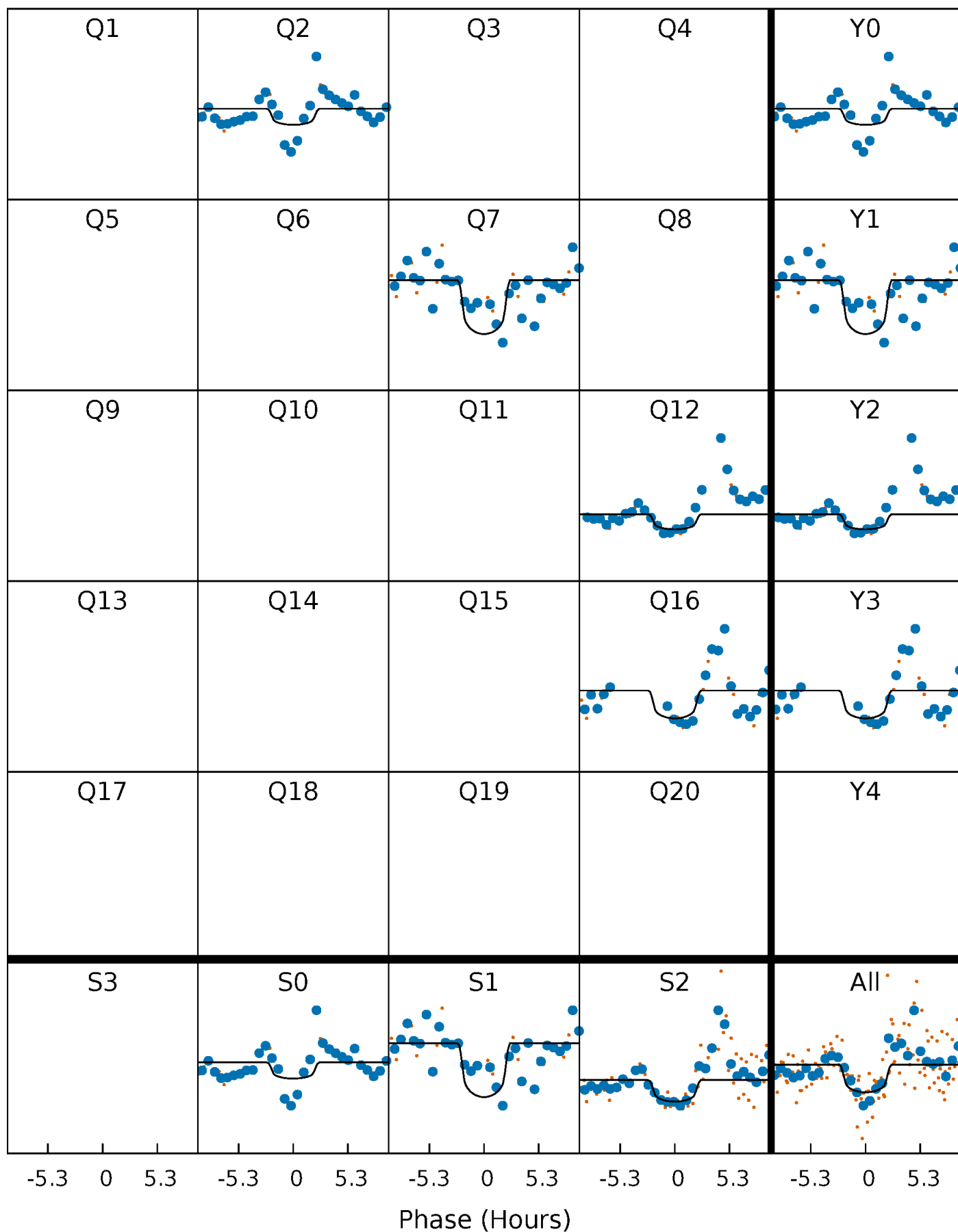
PDC Quarter-Phased Transit Curves

TCE 010384298-02 $P=429.055425$ Days $T_0=252.063804$ (BKJD)



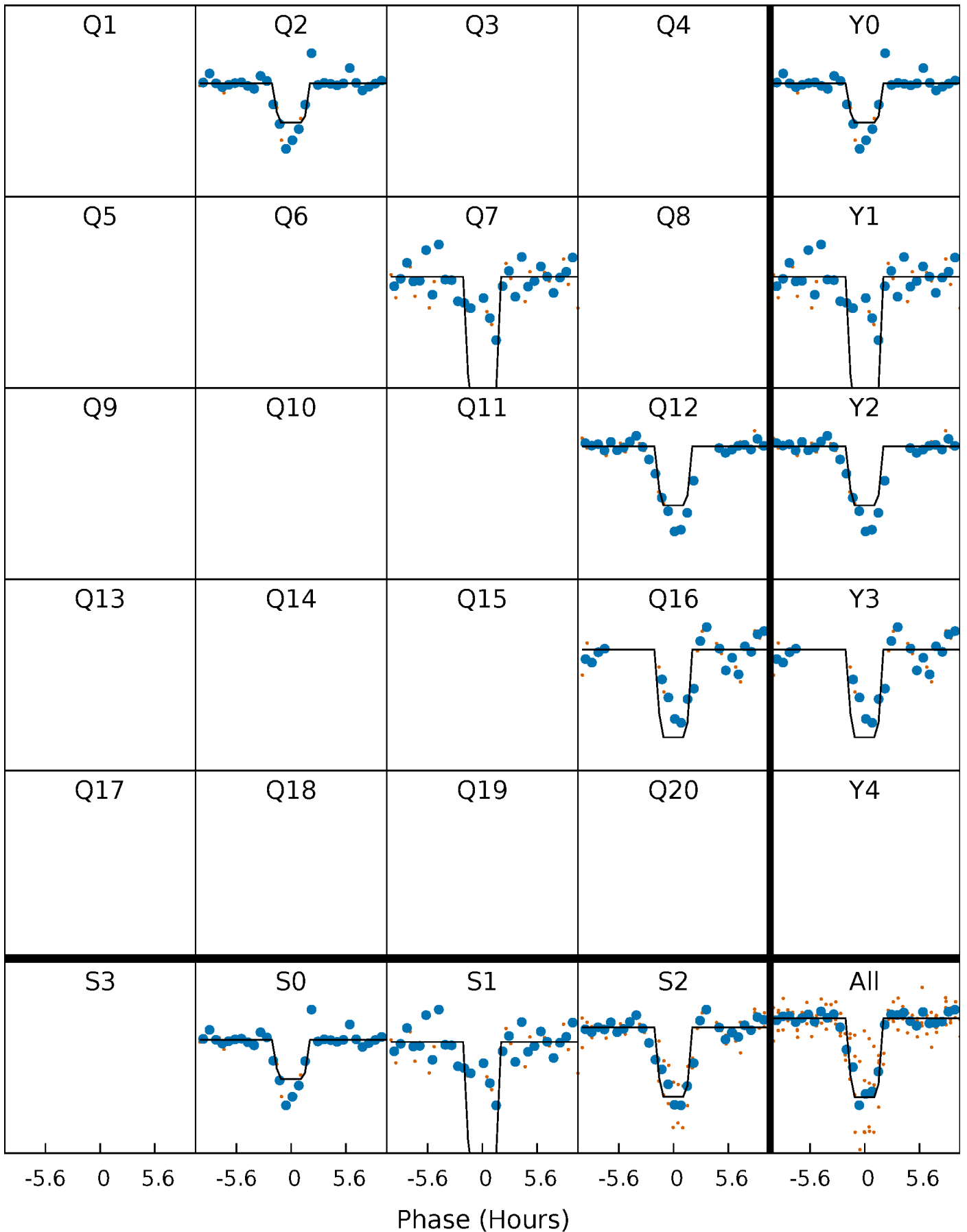
DV Quarter-Phased Transit Curves

TCE 010384298-02 $P=429.055425$ Days $T_0=252.063804$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

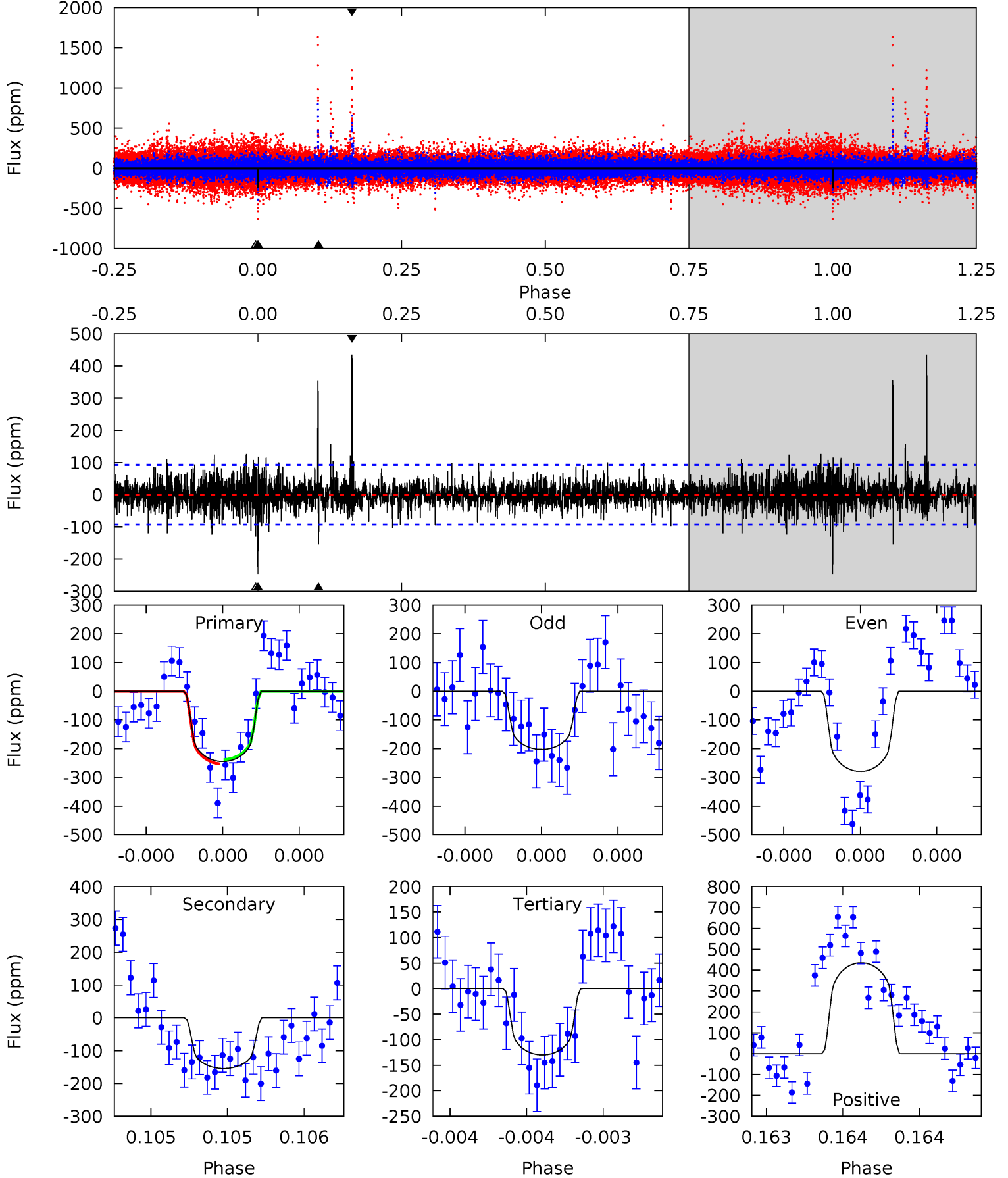
TCE 010384298-02 P=429.063893 Days $T_0=252.071629$ (BKJD)



DV Model-Shift Uniqueness Test

010384298-02, P = 429.055425 Days, E = 252.063804 Days

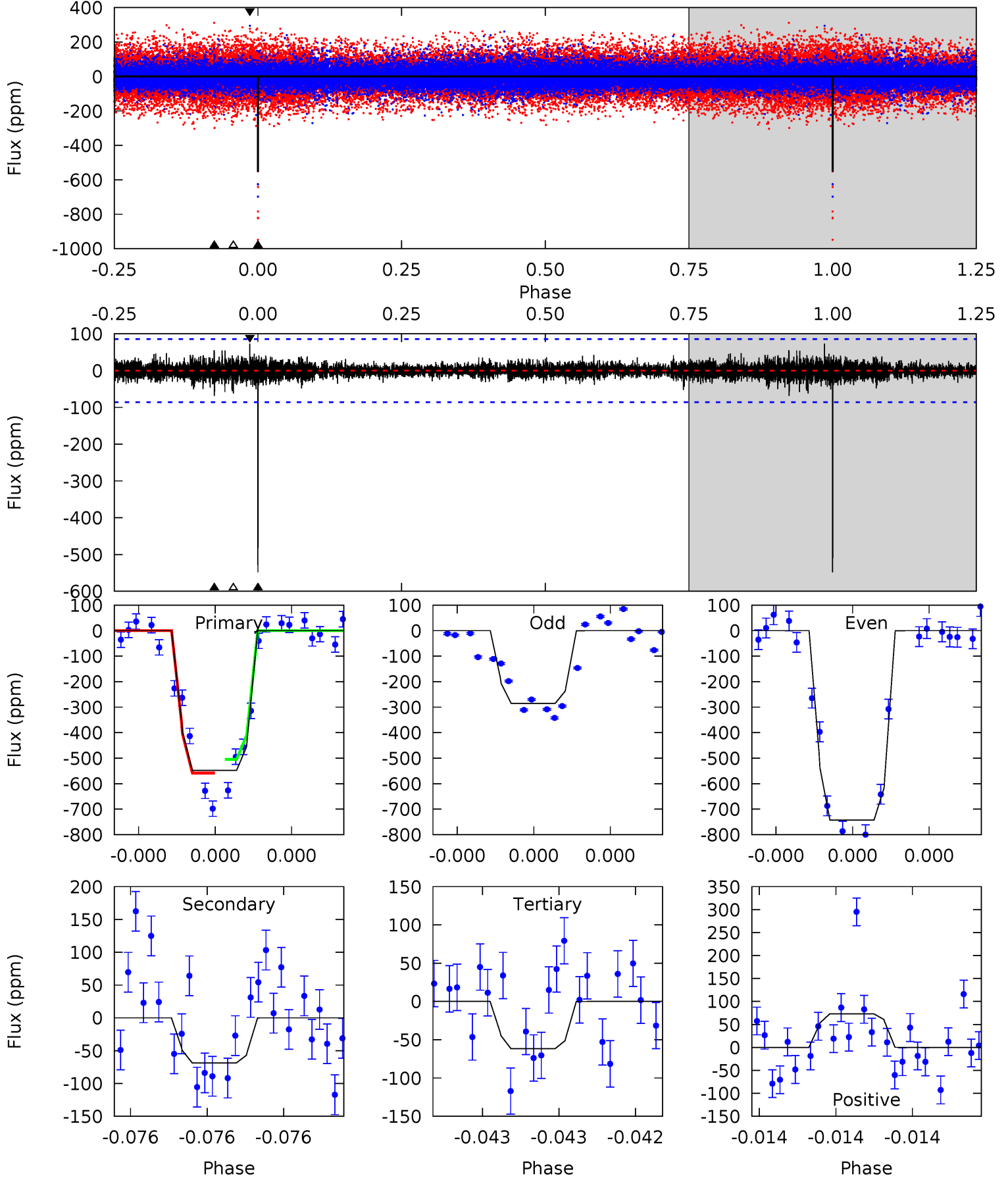
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	9.29	7.81	26.2	5.58	3.49	1.82	6.94	-11.4	1.47	-16.9	2.26	0.96	0.64	0.45



Alt Model-Shift Uniqueness Test

010384298-02, P = 429.063893 Days, E = 252.071629 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.0	4.51	4.05	4.80	5.64	3.59	0.72	32.0	31.2	0.46	-0.29	17.1	0.91	0.12	1.71



Stellar Parameters For KIC 010384298

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5383^{+88}_{-72}	$4.112^{+0.329}_{-0.141}$	$0.160^{+0.150}_{-0.100}$	$1.401^{+0.305}_{-0.457}$	$0.926^{+0.053}_{-0.053}$	$0.474^{+1.055}_{-0.186}$
	+2%/-1%	+8%/-3%	+94%/-62%	+22%/-33%	+6%/-6%	+222%/-39%
Source	SPE90	FLK73	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 010384298-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-154±17	$2.53^{+1.43}_{-1.41}$	374^{+23}_{-35}	4680^{+2202}_{-698}	15840^{+65556}_{-9531}
Alt.	-69±15	$3.48^{+1.69}_{-1.52}$	375^{+24}_{-37}	3598^{+786}_{-403}	3712^{+7747}_{-2155}

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 $A_{obs} \gg 1.0$

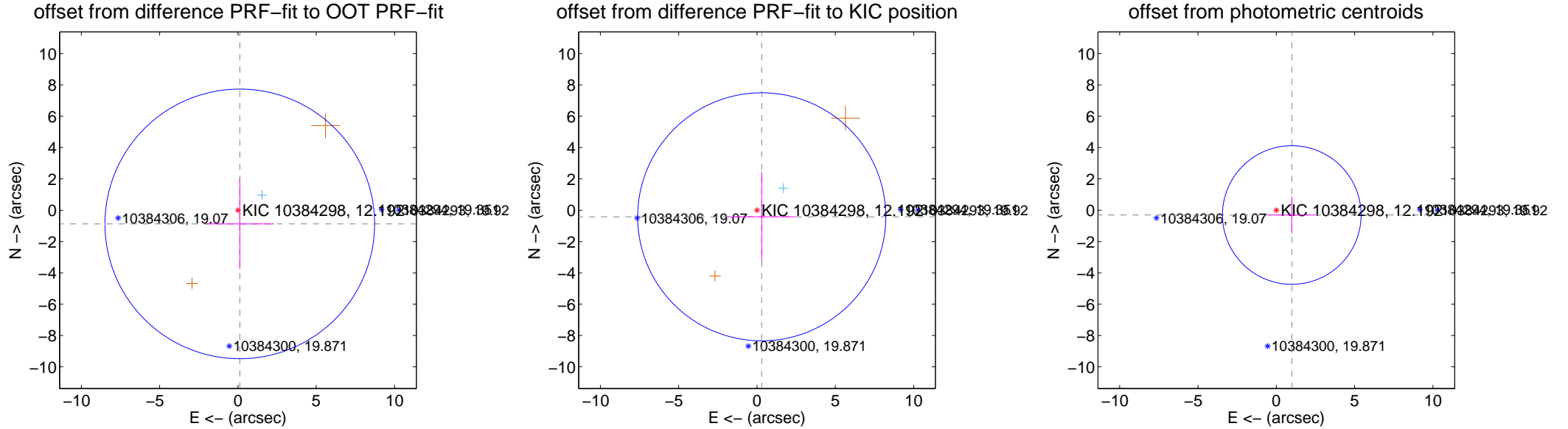
DV Centroid Data

Supplemental centroid analysis for 010384298-02. Kepler magnitude: 12.19. Transit SNR 5.78

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.882 ± 2.870	0.31	-0.115 ± 2.192	-0.875 ± 2.880
PRF-fit source offset from KIC position	0.519 ± 2.640	0.20	-0.301 ± 2.142	-0.422 ± 2.861
photometric centroid source offset	1.03 ± 1.48	0.70	-0.99 ± 1.50	-0.31 ± 1.18



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

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

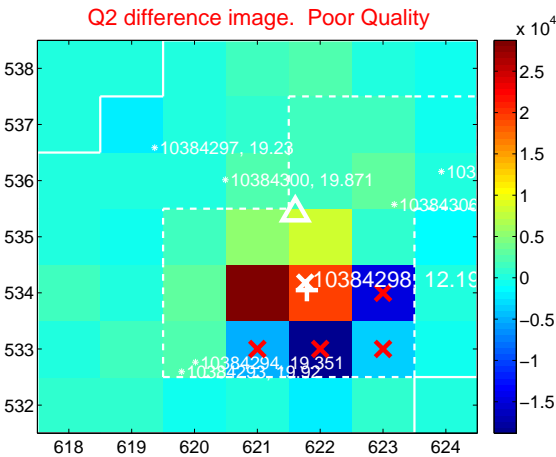
Q1 no difference image



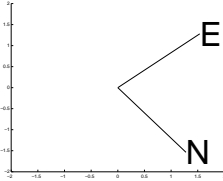
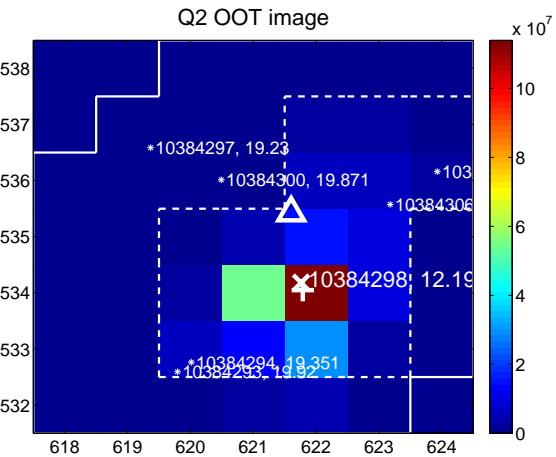
Q1 no OOT image



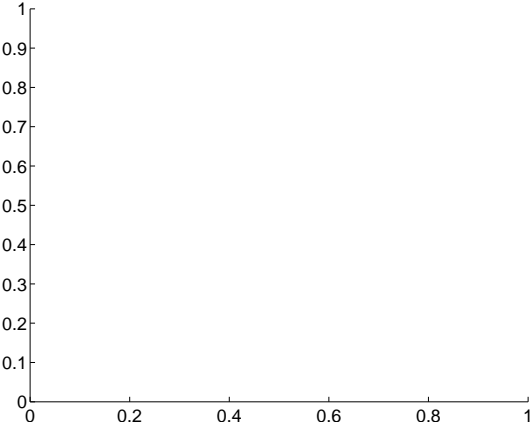
Q2 difference image. Poor Quality



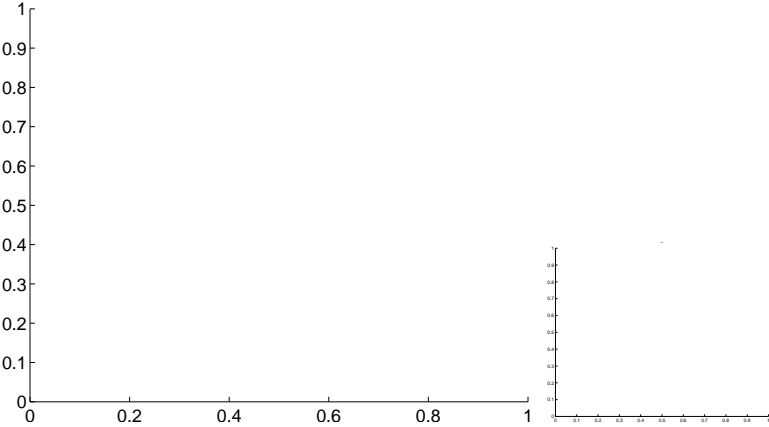
Q2 OOT image



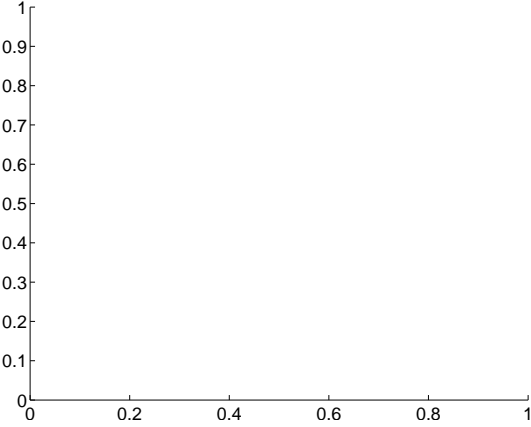
Q3 no difference image



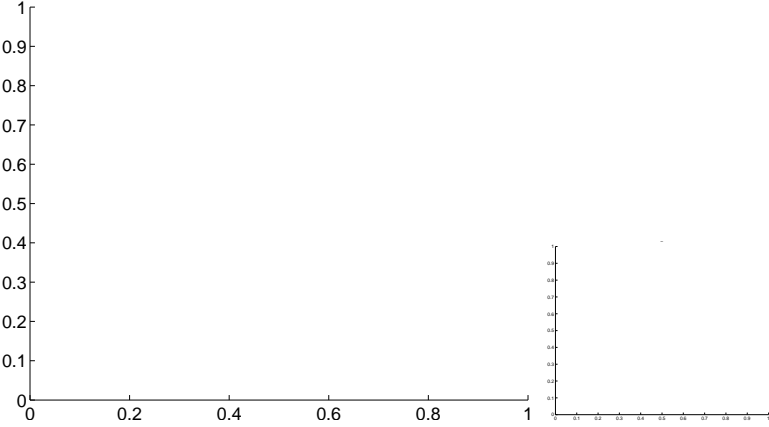
Q3 no OOT image



Q4 no difference image



Q4 no OOT image

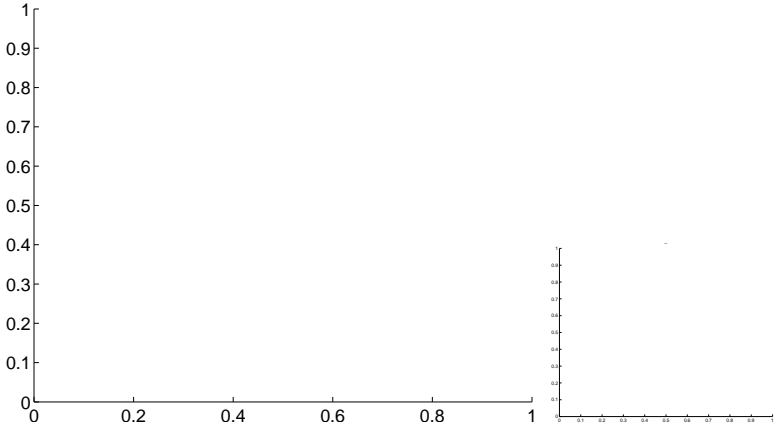


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

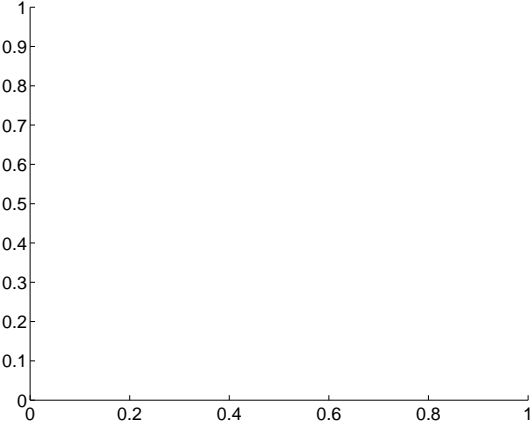
Q5 no difference image



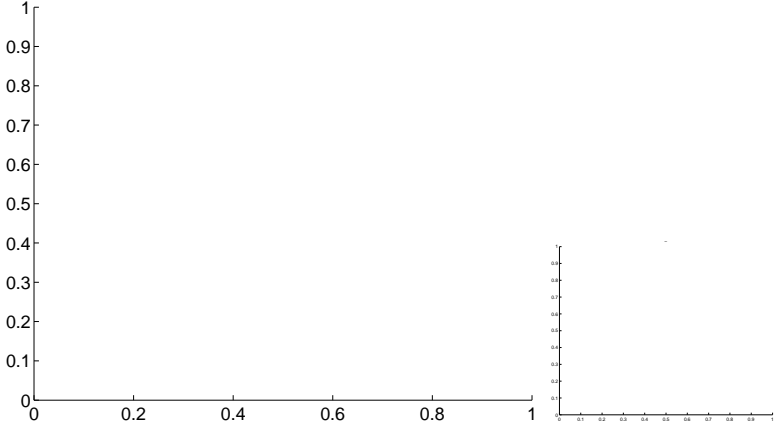
Q5 no OOT image



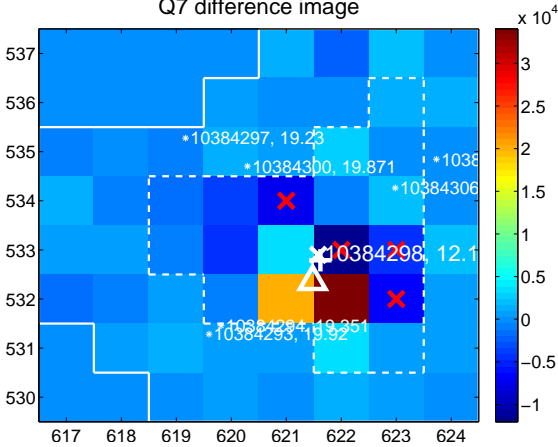
Q6 no difference image



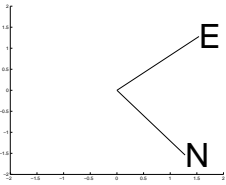
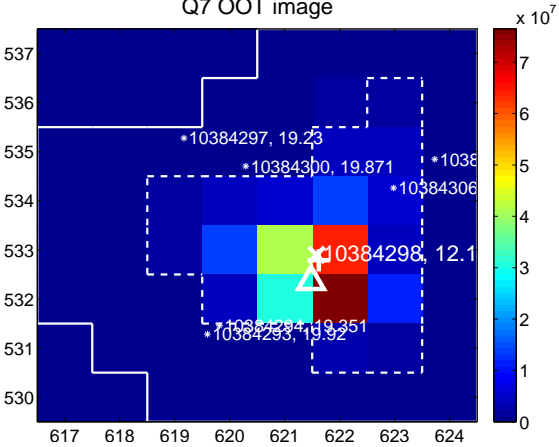
Q6 no OOT image



Q7 difference image



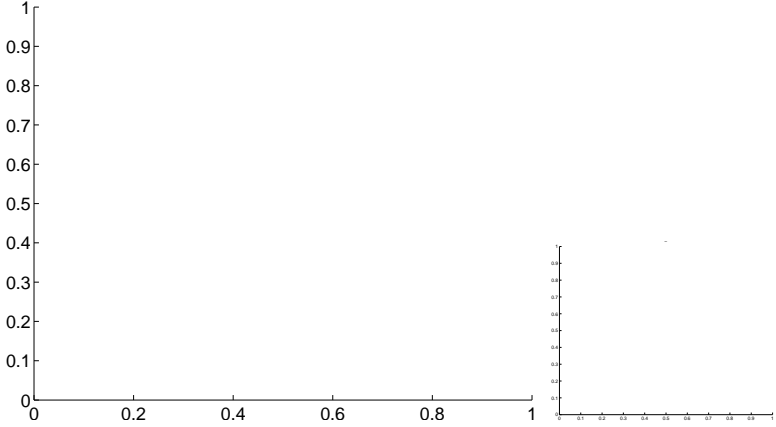
Q7 OOT image



Q8 no difference image



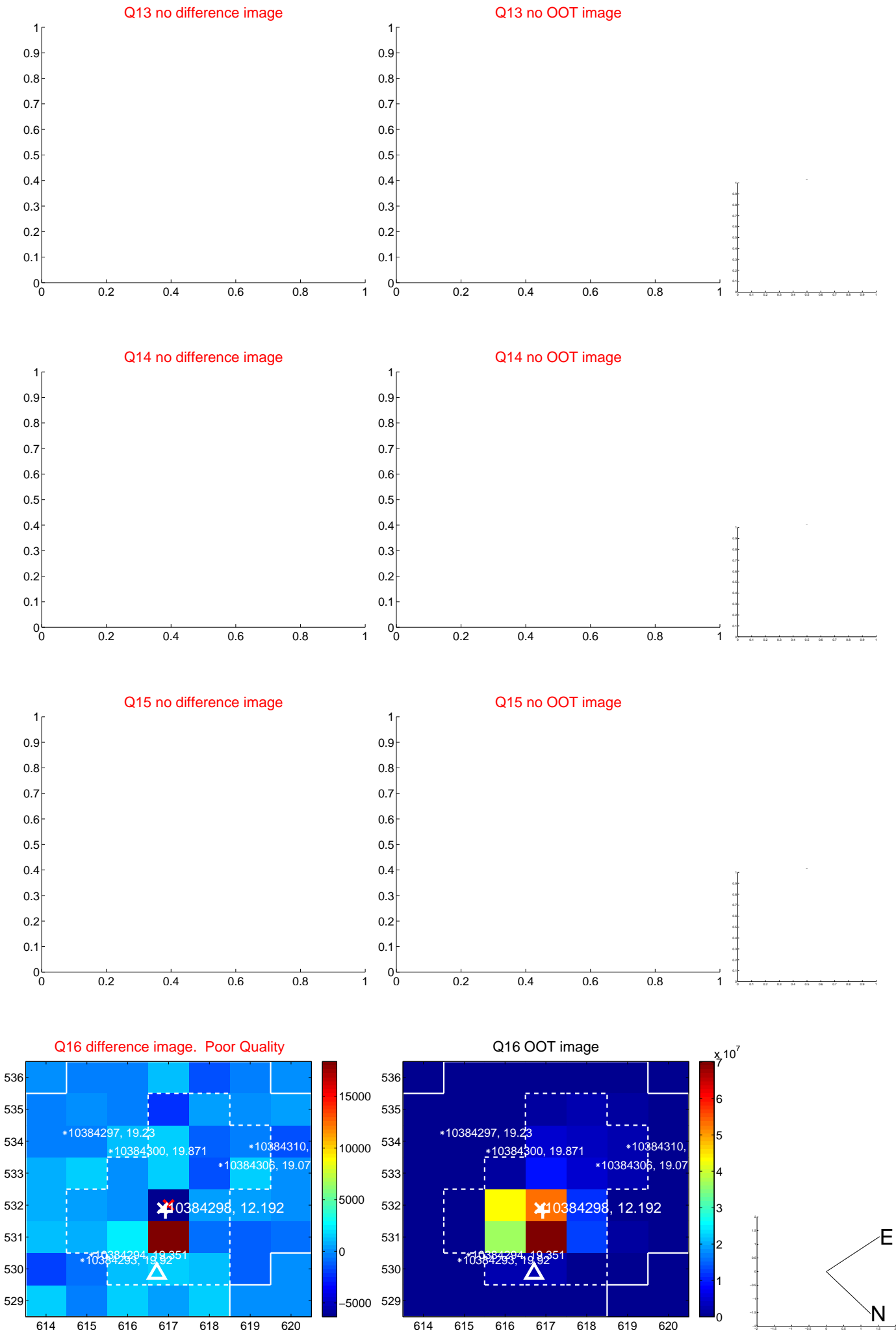
Q8 no OOT image



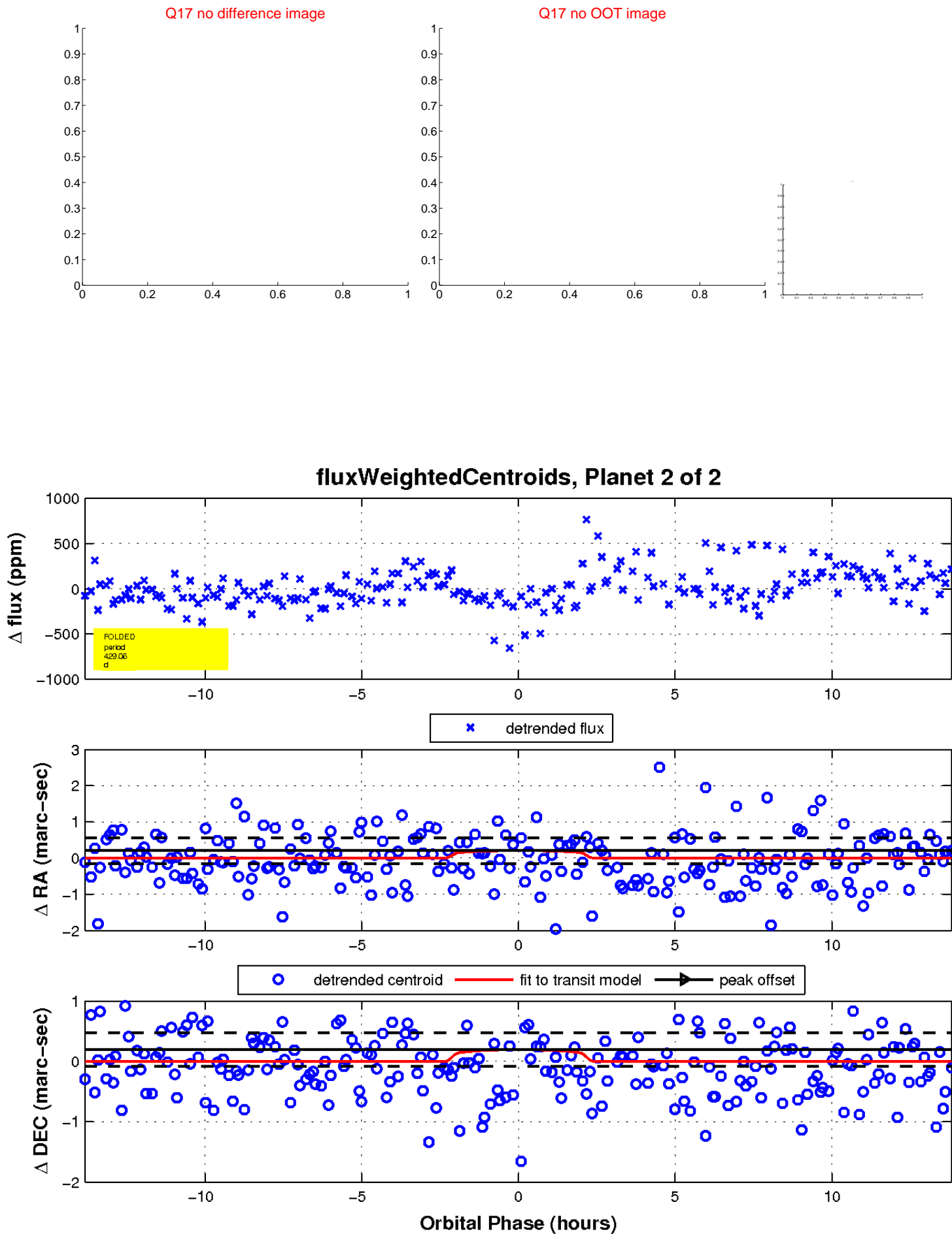
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

