

KIC 005471792

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})
005471792-01	OBS	4110.01	12.425648	141.513826	85.4	22.047	13.9	17.8	1.63	5611	2.00	242.35
005471792-02	OBS	No	12.426056	133.928666	70.0	25.006	10.3	15.6	1.63	5611	1.42	242.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471792-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_KIC_POS—HALO_GHOST—EPHEM_MATCH
005471792-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH

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.

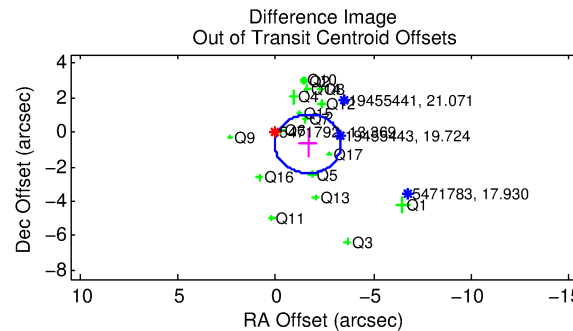
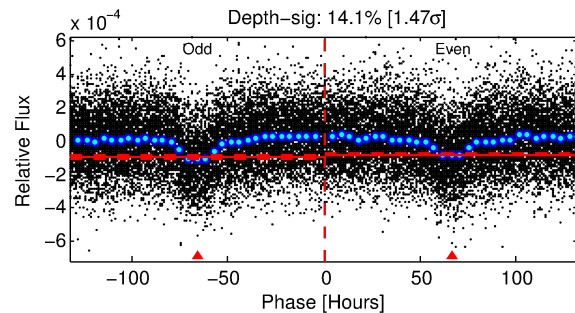
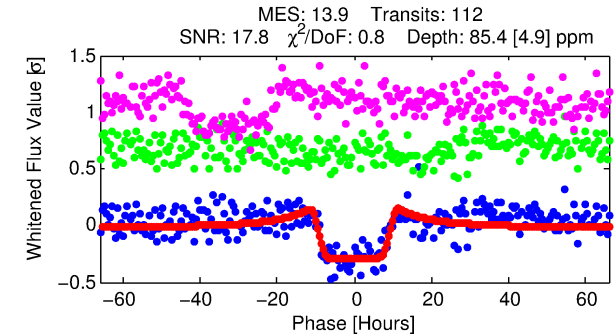
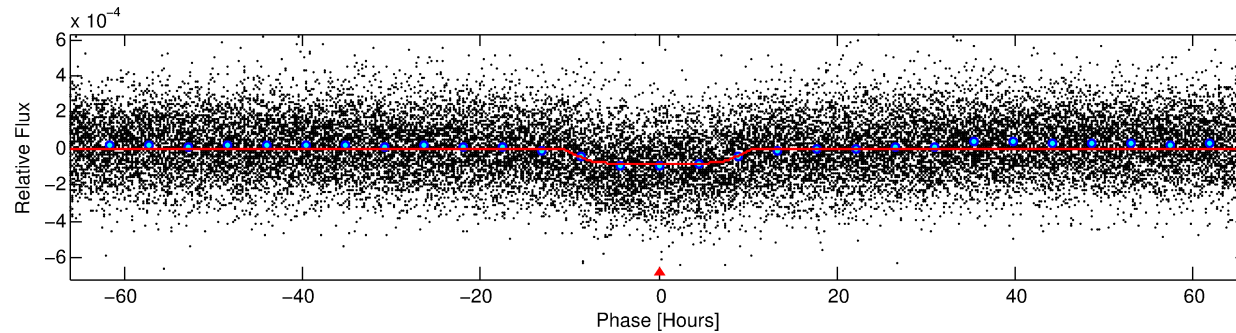
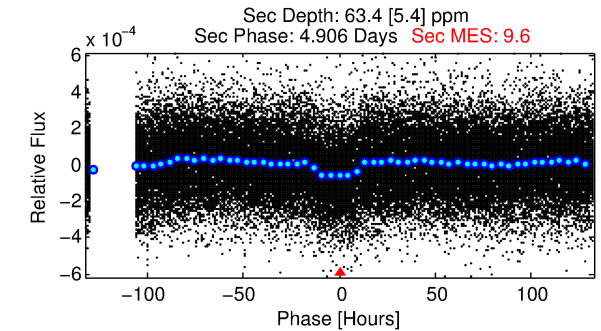
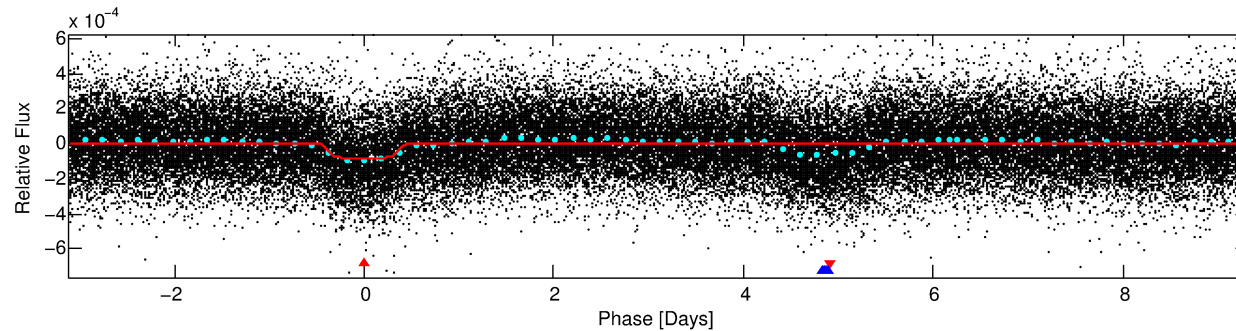
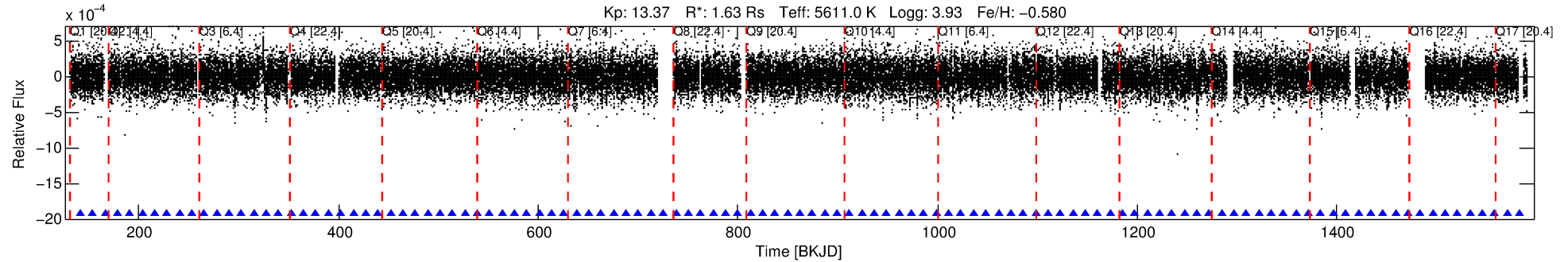
Ephemeris Match Information For 005471792-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005471792-01	5471792	V380-Cyg-pri	5385723	1:1	312.8	7	79	5.77	13.37	1705.10	Direct-PRF	0	0.21	0.85

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 5471792 Candidate: 1 of 2 Period: 12.426 d
KOI: K04110.01 Corr: 0.935



DV Fit Results:

Period = 12.42565 [0.00027] d
Epoch = 141.5138 [0.0177] BKJD
Rp/R* = 0.0112 [0.0004]
a/R* = 1.55 [0.11]
b = 0.97 [0.01]
Seff = 242.35 [262.88]
Teq = 1006 [273] K
Rp = 2.00 [1.09] Re
a = 0.0988 [0.0615] AU
Ag = 84.88 [91.80] [0.91σ]
Teffp = 4721 [213] K [10.73σ]

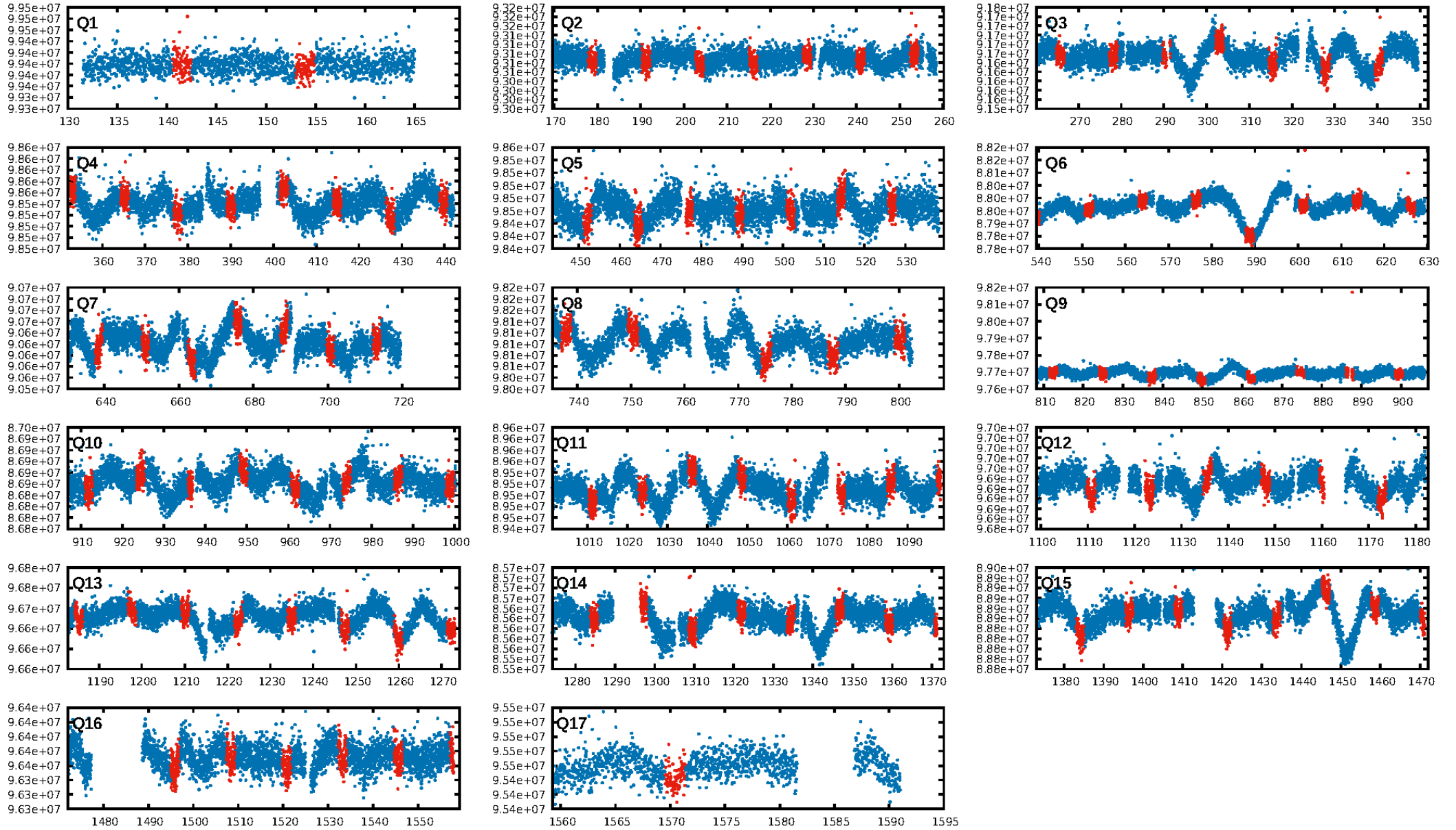
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 52.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.46e-49
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: 0.1415
Centroid-sig: 0.0%
Centroid-so: 2.124 arcsec [3.24σ]
OotOffset-rm: 1.783 arcsec [3.14σ]
KicOffset-rm: 1.448 arcsec [2.38σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
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DiffImageOverlap-fno: 1.00 [17/17]

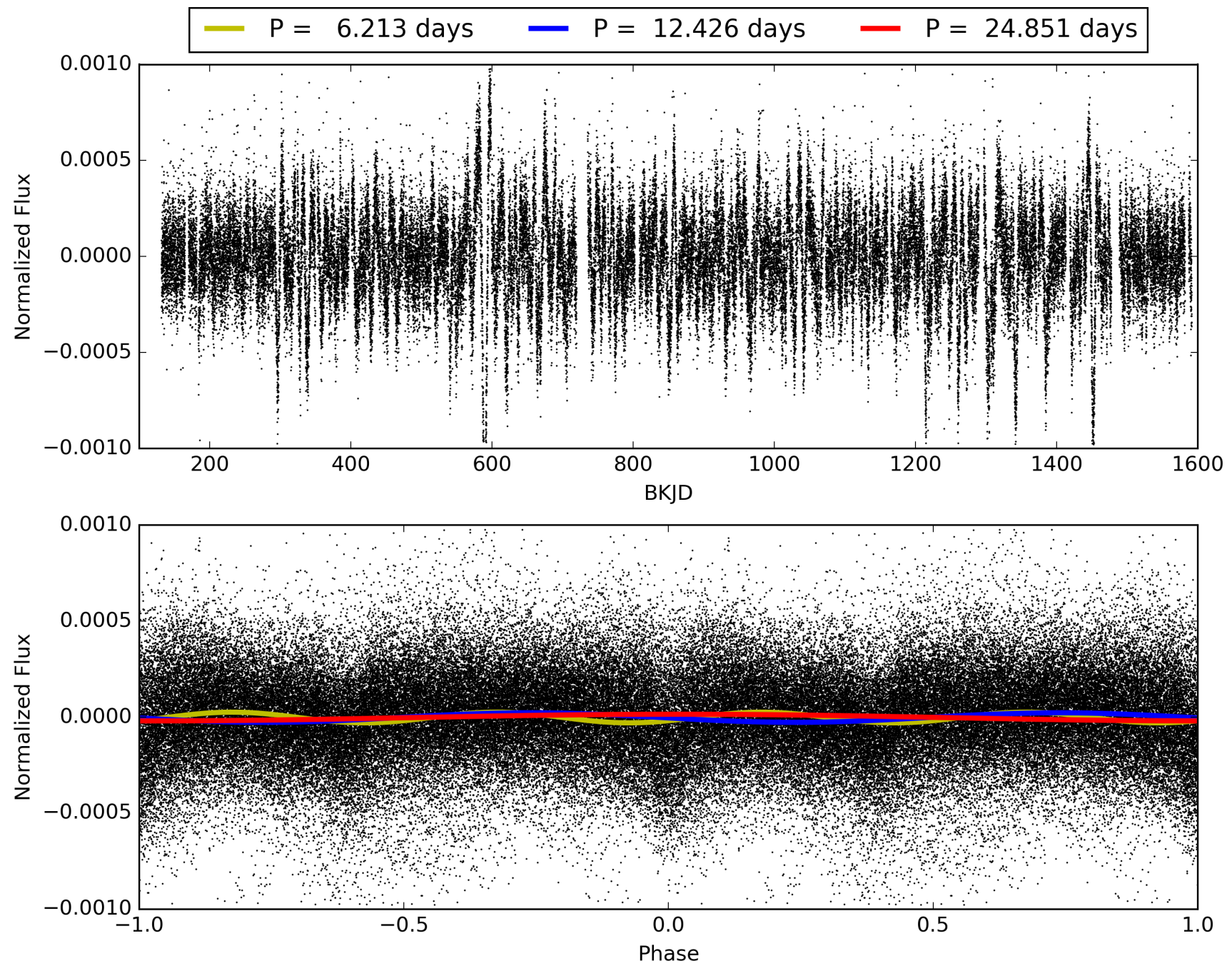
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005471792-01, PDC Light Curves

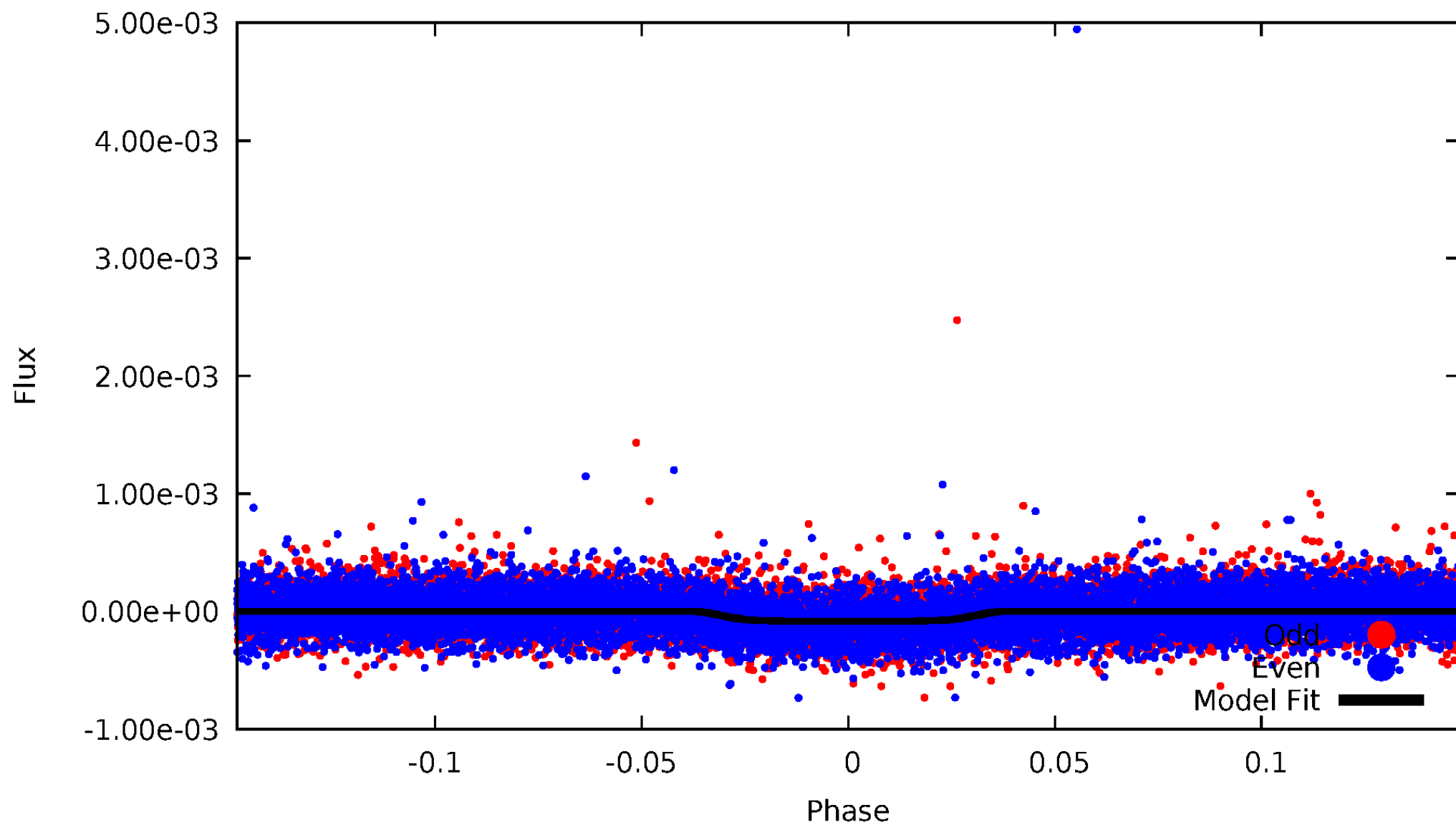


TCE 005471792-01



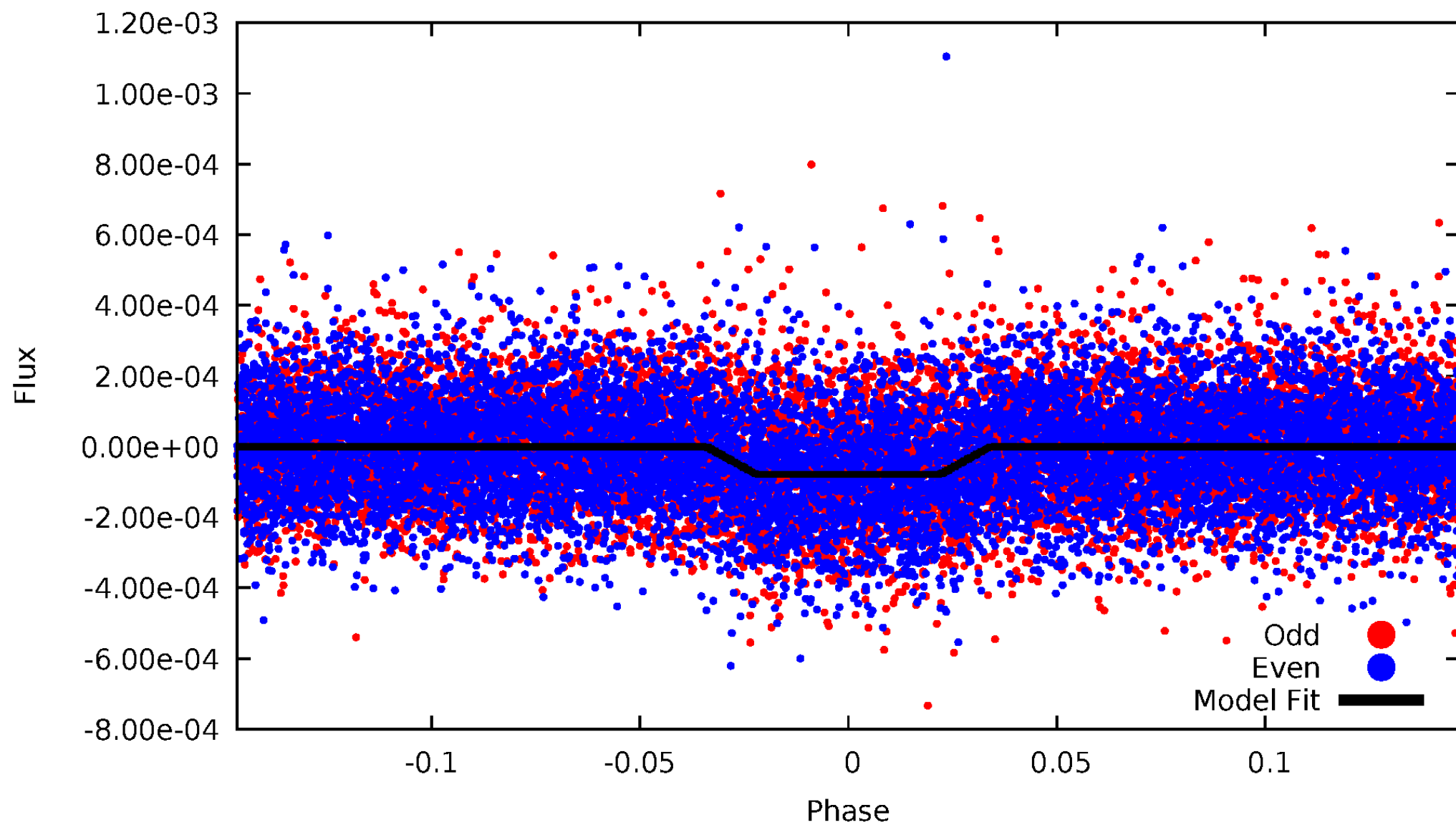
DV Odd/Even

TCE 005471792-01

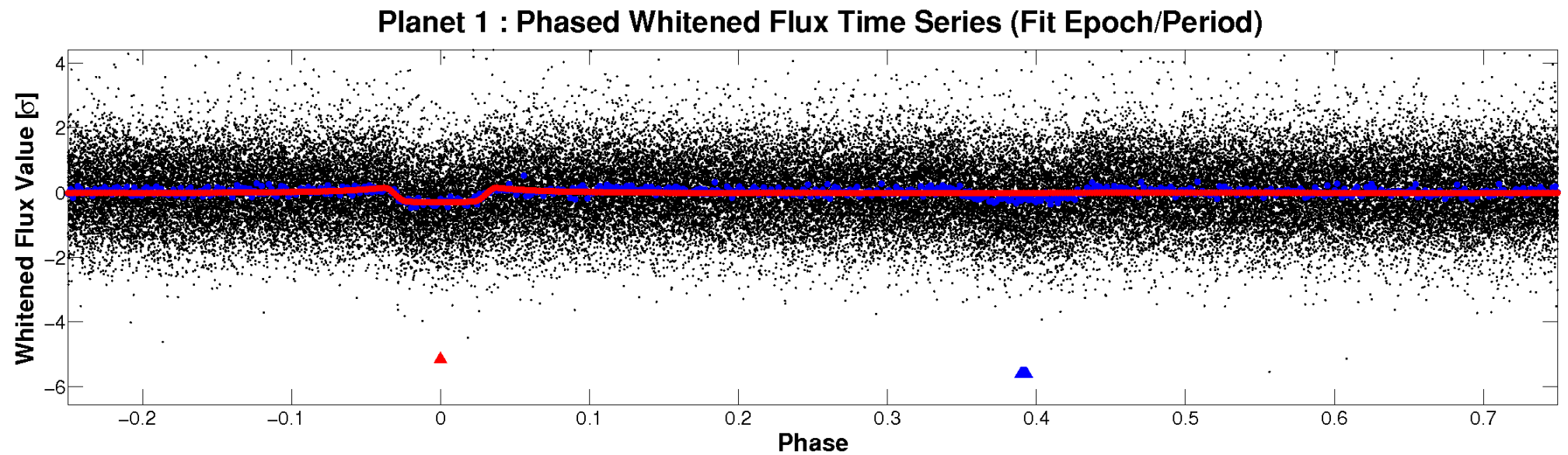
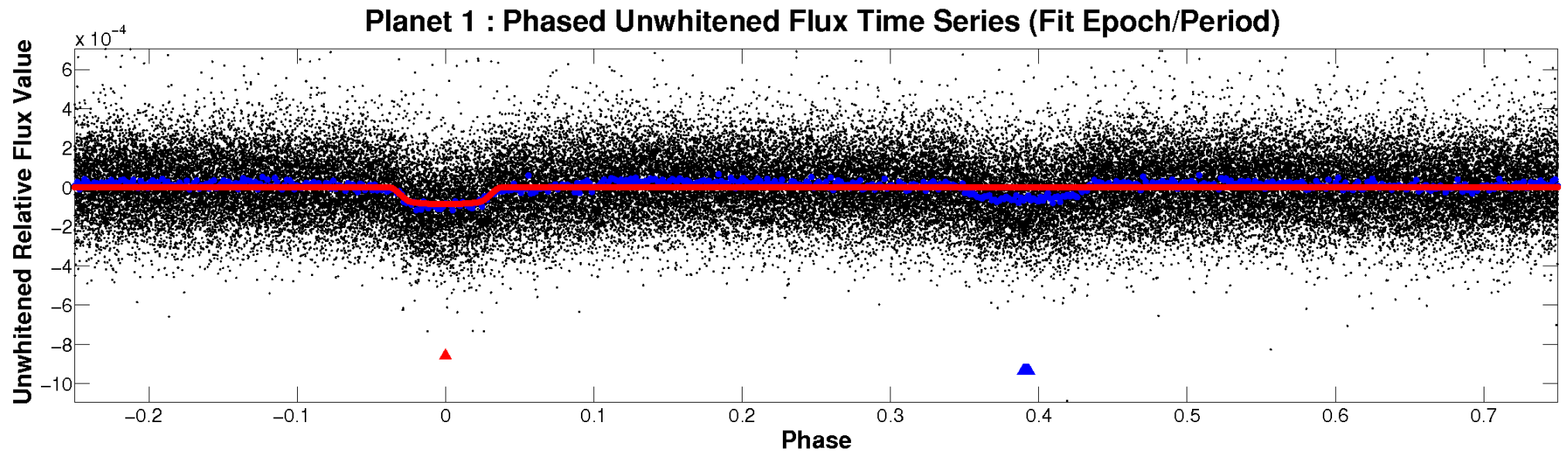


ALT Odd/Even

TCE 005471792-01

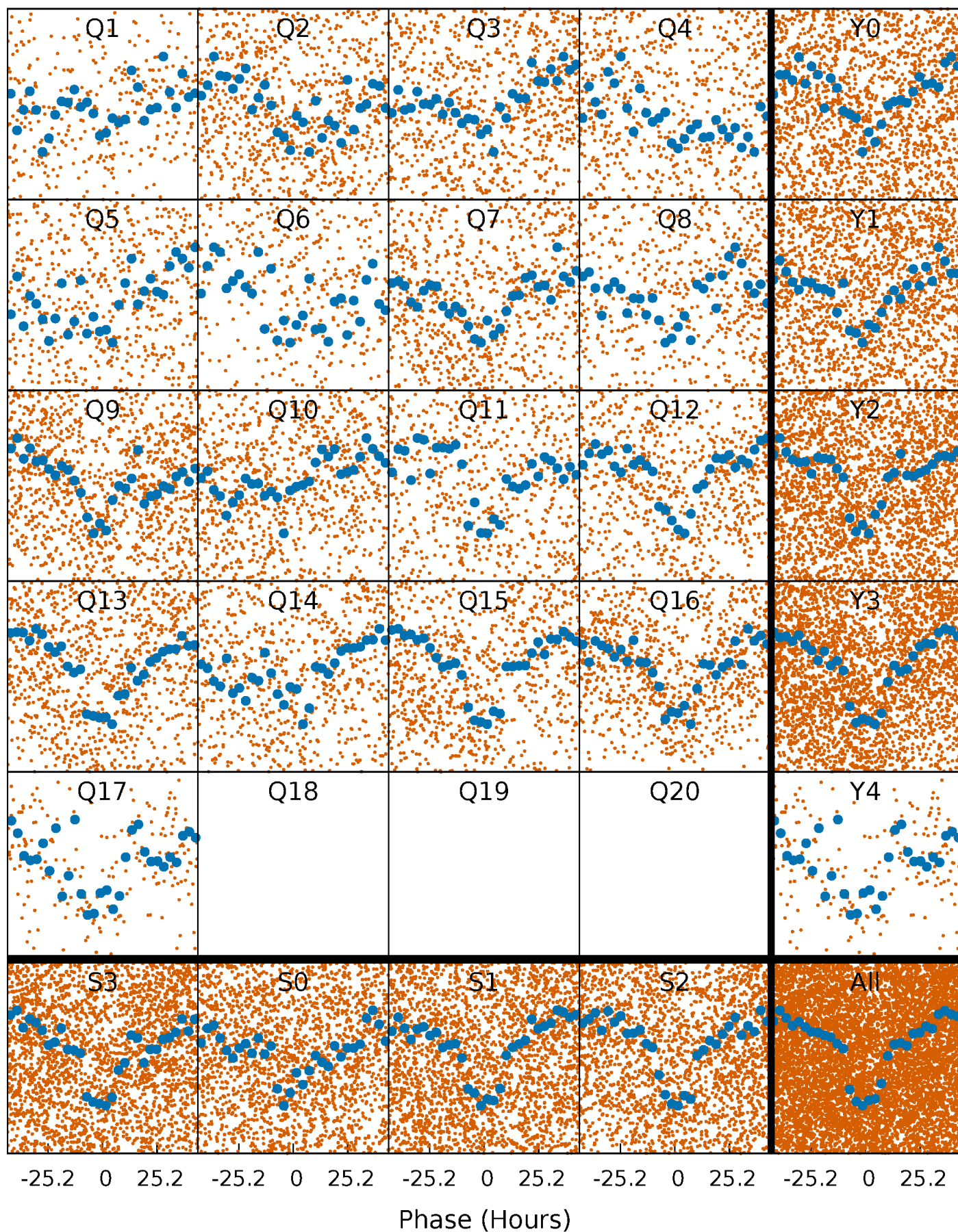


Non-Whitened Vs. Whitened Light Curve



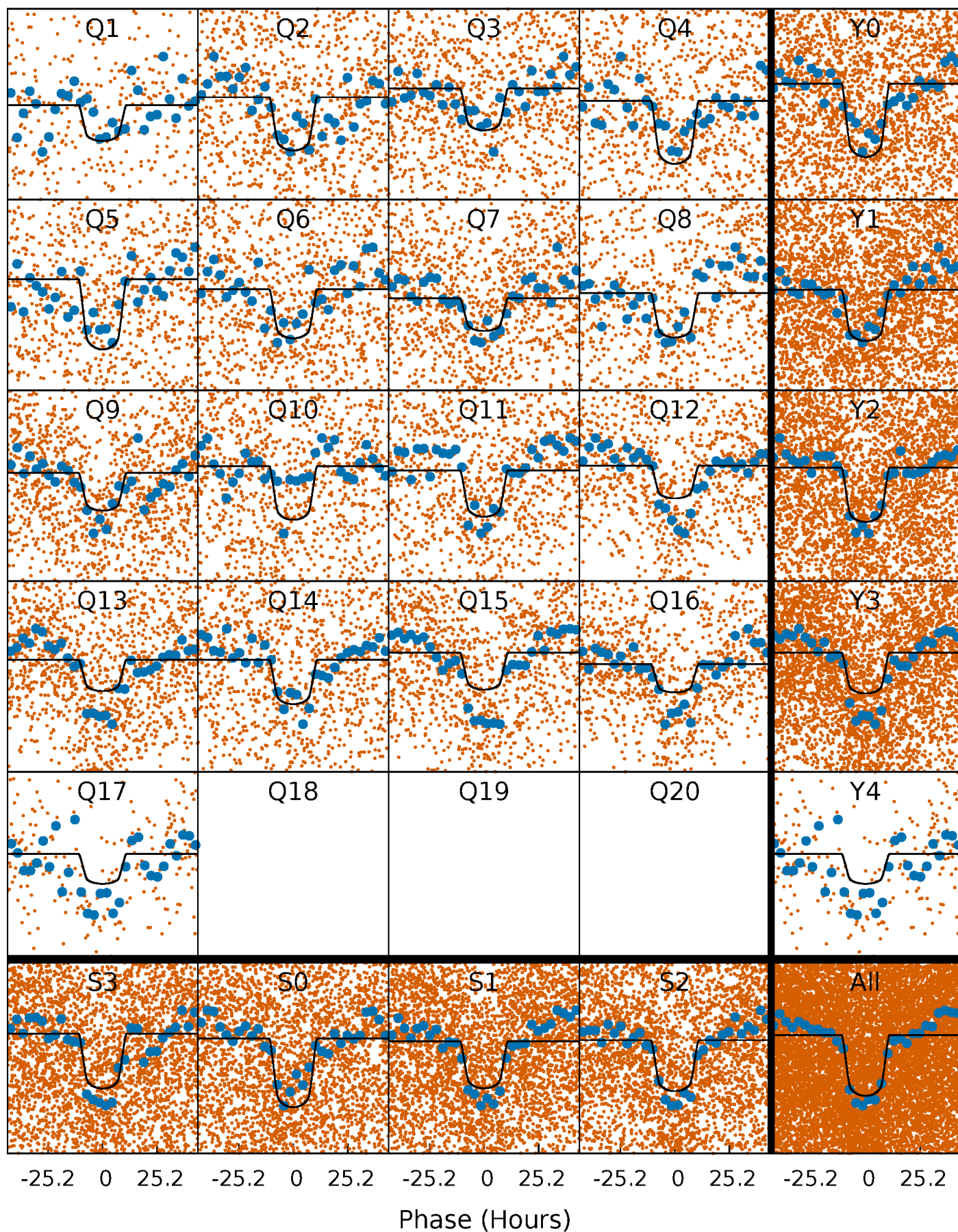
PDC Quarter-Phased Transit Curves

TCE 005471792-01 P= 12.425648 Days $T_0=141.513826$ (BKJD)



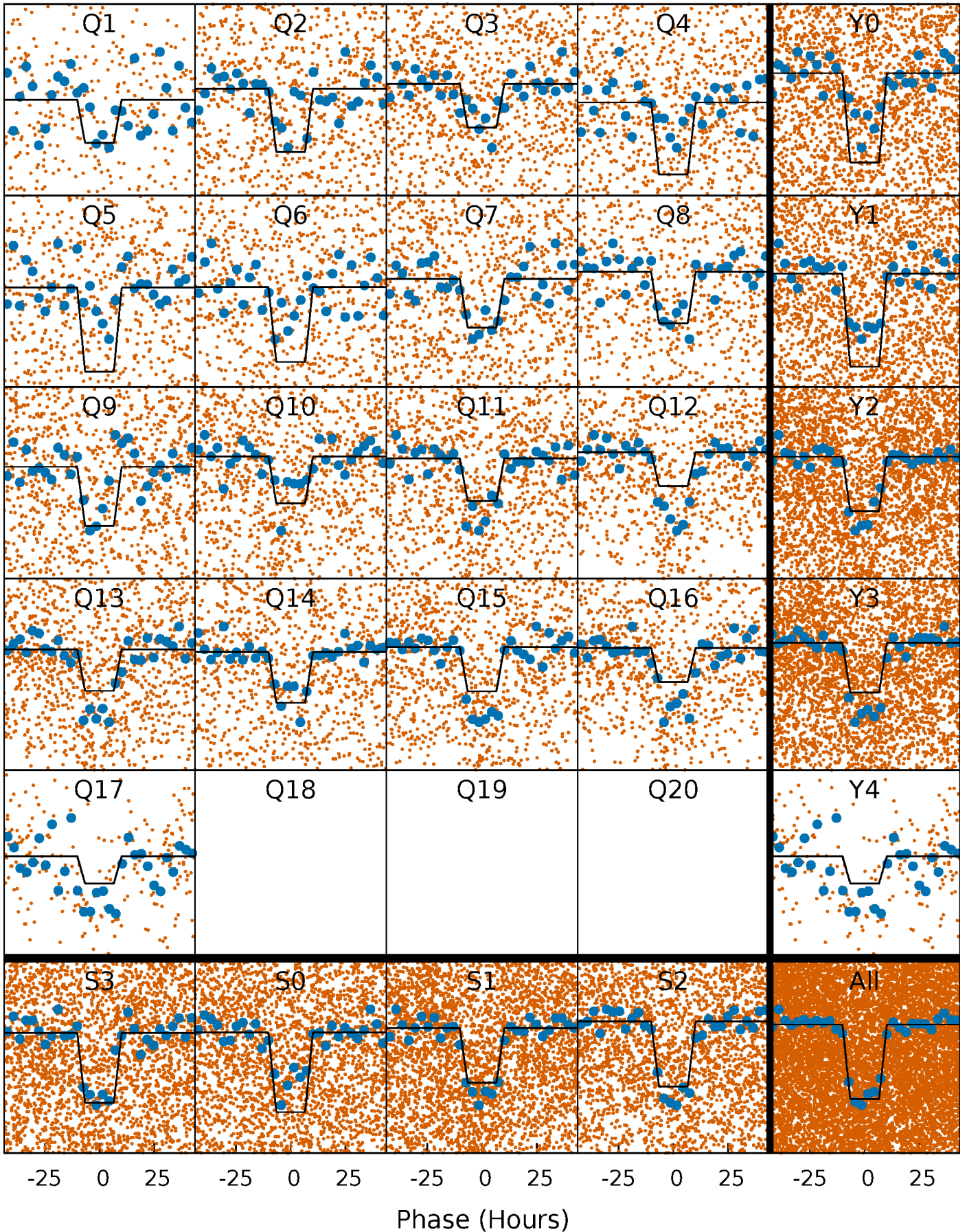
DV Quarter-Phased Transit Curves

TCE 005471792-01 P= 12.425648 Days $T_0=141.513826$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

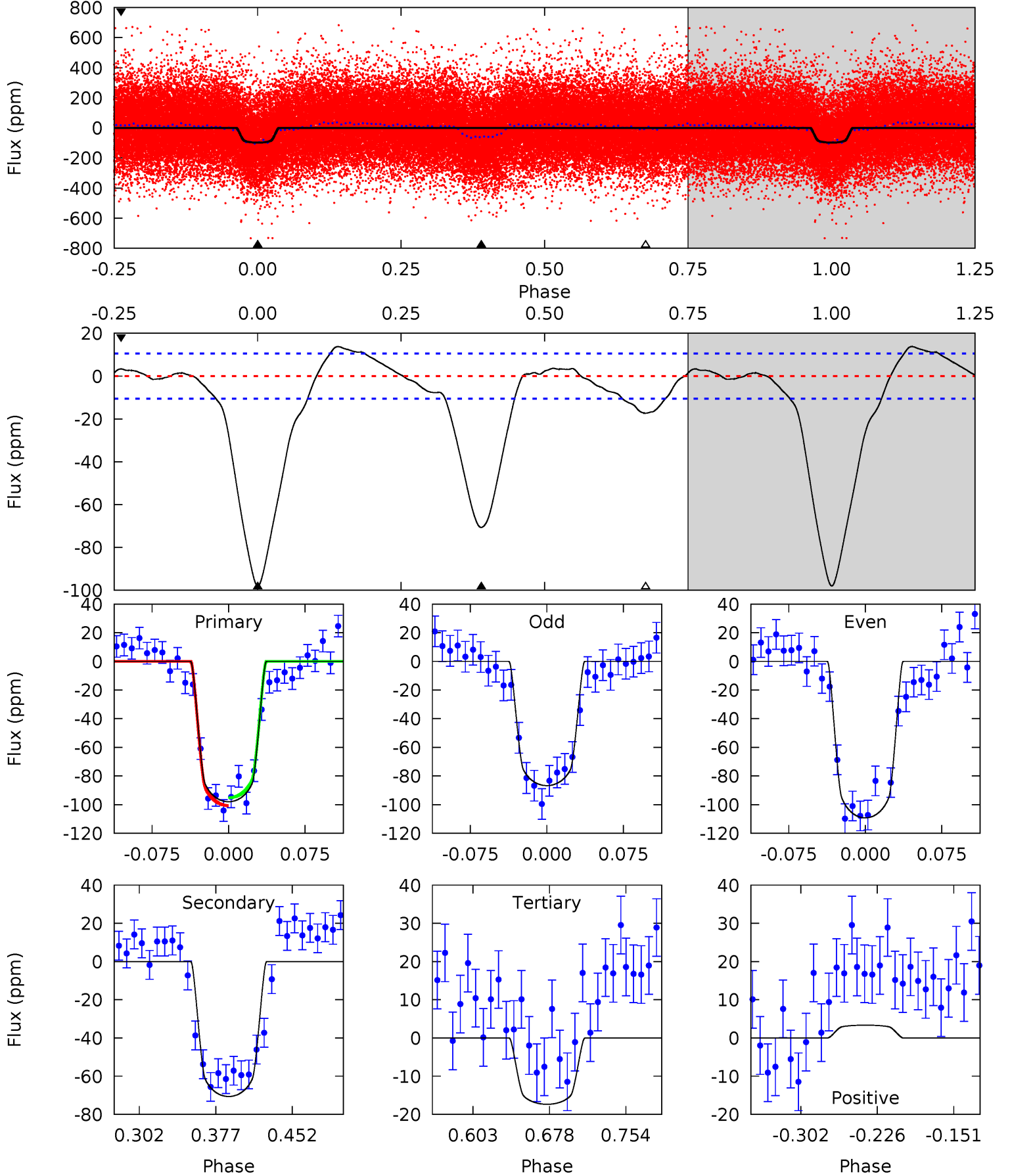
TCE 005471792-01 P= 12.425672 Days $T_0=141.504819$ (BKJD)



DV Model-Shift Uniqueness Test

005471792-01, P = 12.425648 Days, E = 129.088178 Days

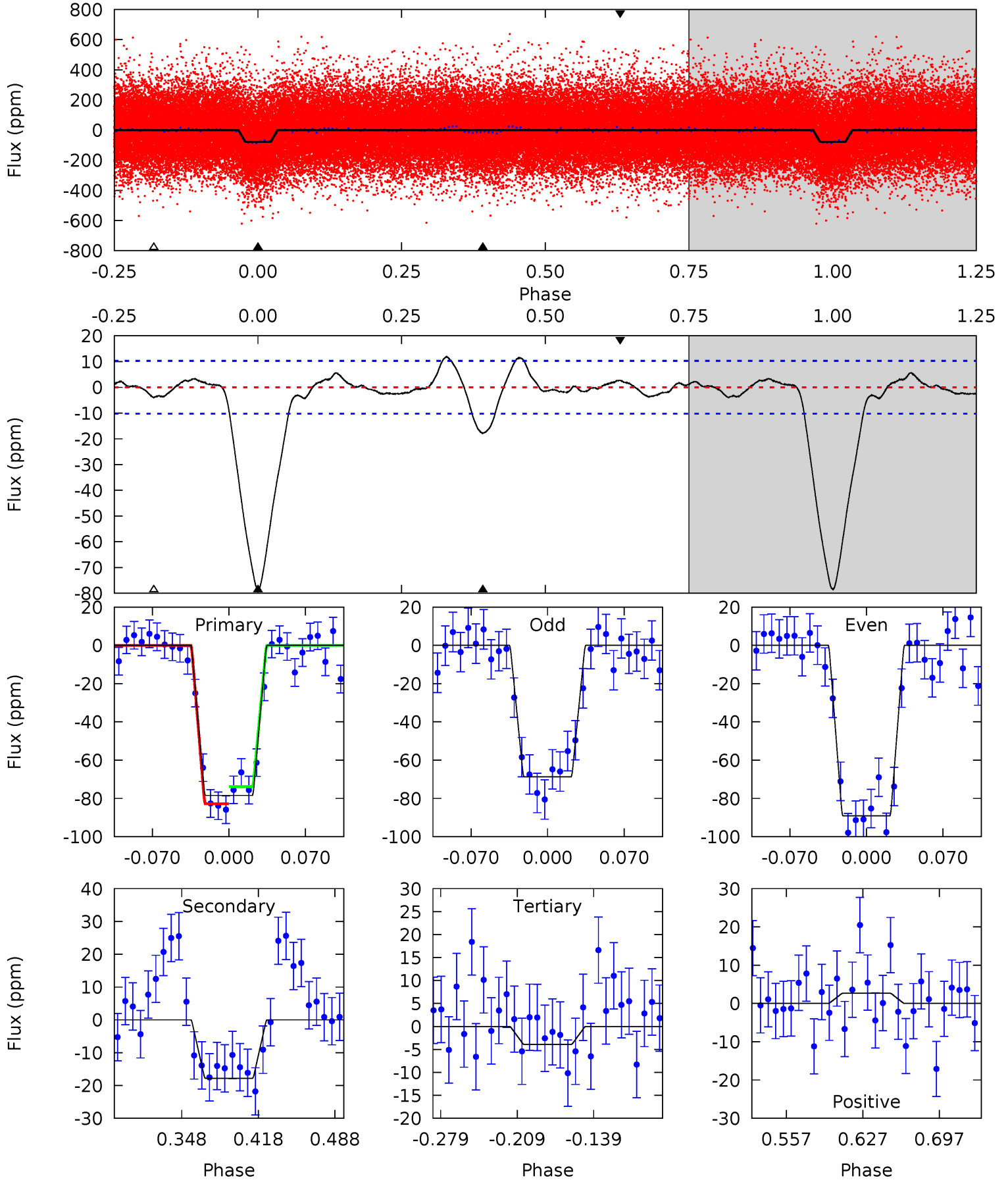
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
43.0	31.0	7.62	1.47	4.62	1.78	3.23	35.4	41.5	23.4	29.5	4.95	0.97	0.12	1.19



Alt Model-Shift Uniqueness Test

005471792-01, $P = 12.425672$ Days, $E = 129.079147$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.5	8.05	1.77	1.21	4.64	1.81	1.16	33.7	34.3	6.28	6.84	4.61	0.89	0.13	2.03



Stellar Parameters For KIC 005471792

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5611^{+197}_{-157}	$3.933^{+0.660}_{-0.264}$	$-0.580^{+0.350}_{-0.250}$	$1.632^{+0.724}_{-0.884}$	$0.832^{+0.113}_{-0.093}$	$0.270^{+2.145}_{-0.164}$
	+4%/-3%	+17%/-7%	+60%/-43%	+44%/-54%	+14%/-11%	+795%/-61%
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 005471792-01 / KOI 4110.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-71 ± 2	$1.94^{+0.52}_{-0.54}$	1379^{+179}_{-212}	4933^{+168}_{-152}	102^{+99}_{-39}
Alt.	-18 ± 2	$1.52^{+0.37}_{-0.43}$	1385^{+158}_{-212}	4136^{+166}_{-153}	42^{+38}_{-16}

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

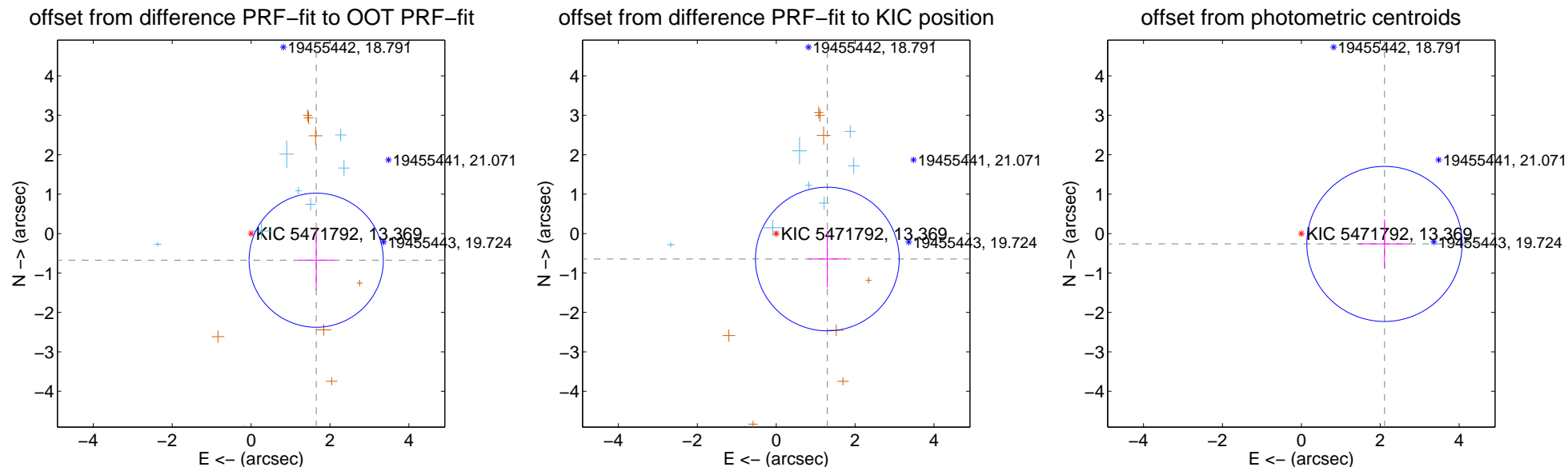
DV Centroid Data

Supplemental centroid analysis for 005471792-01. Kepler magnitude: 13.37. Transit SNR 17.82

There are 7 quarters with good PRF difference image offsets

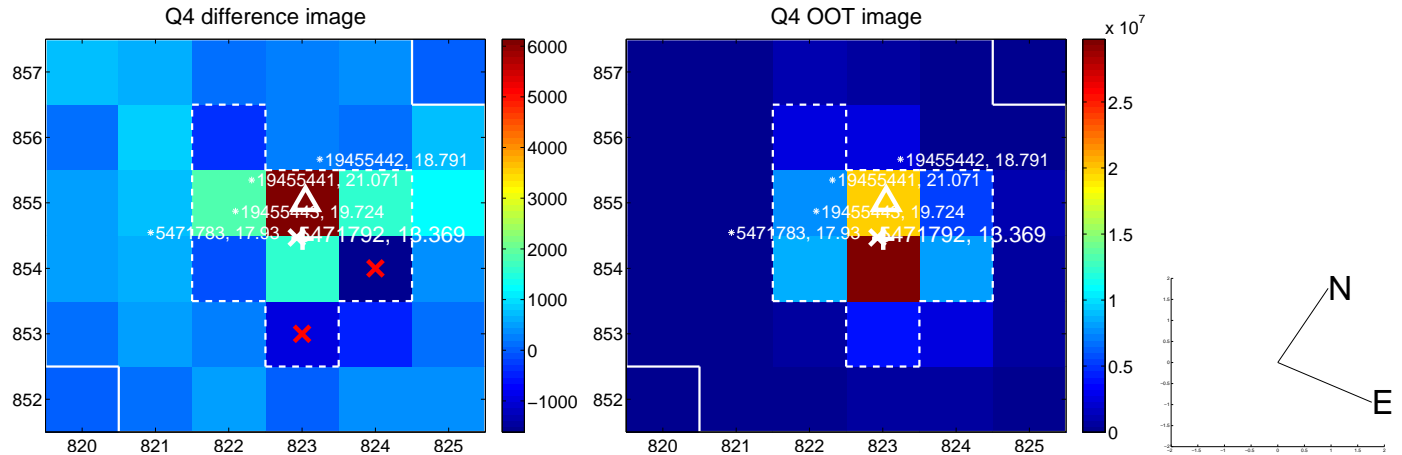
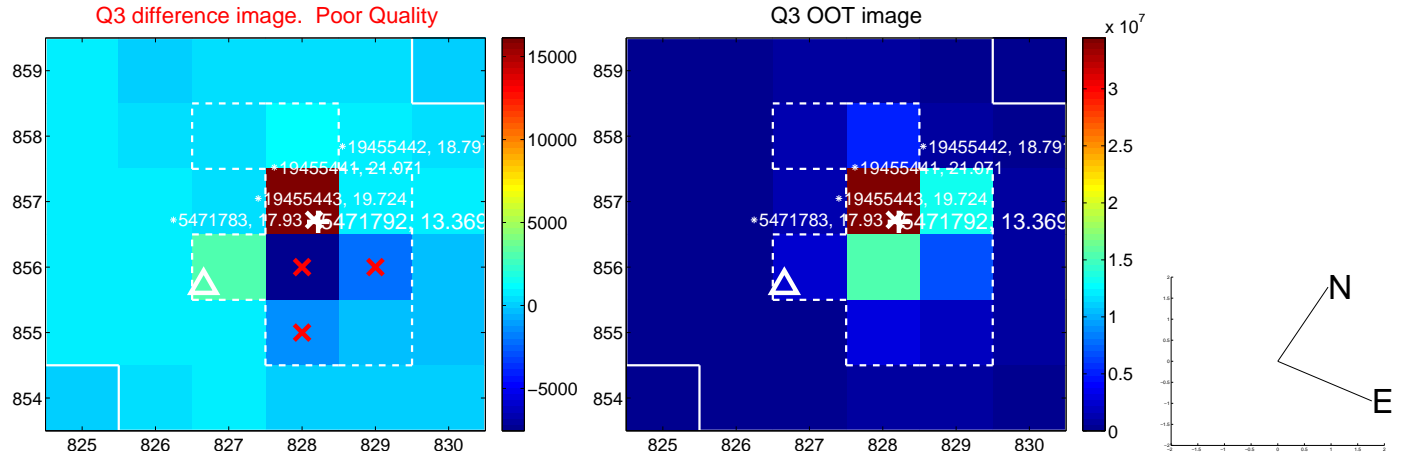
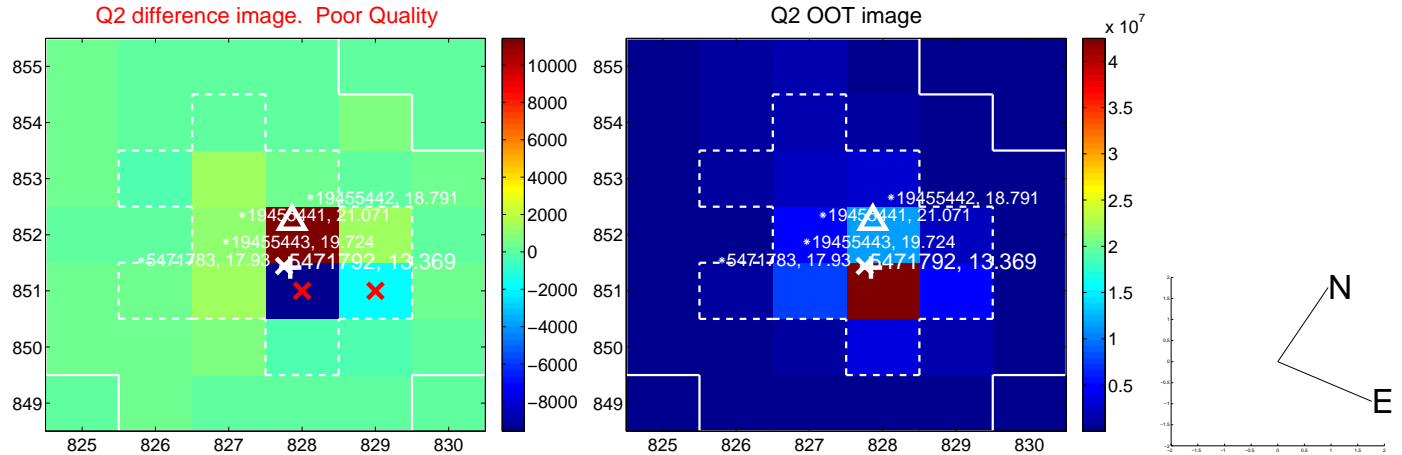
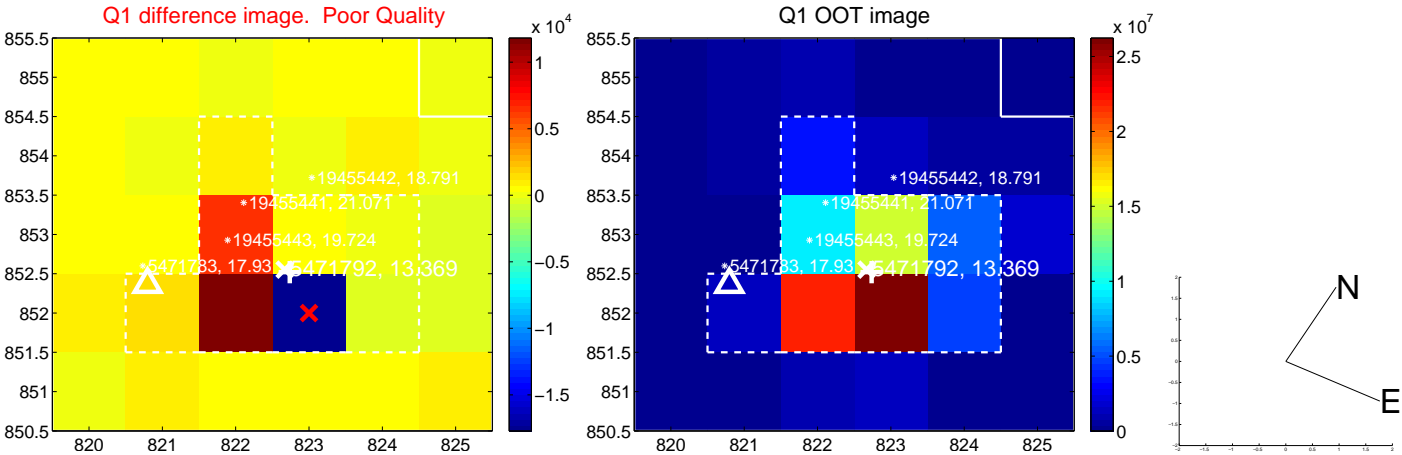
The direct PRF centroid is offset from the target star catalog position by about 0.41 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.783 ± 0.567	3.14	-1.650 ± 0.450	-0.676 ± 0.755
PRF-fit source offset from KIC position	1.448 ± 0.607	2.38	-1.296 ± 0.476	-0.646 ± 0.720
photometric centroid source offset	2.12 ± 0.66	3.24	-2.11 ± 0.66	-0.26 ± 0.62

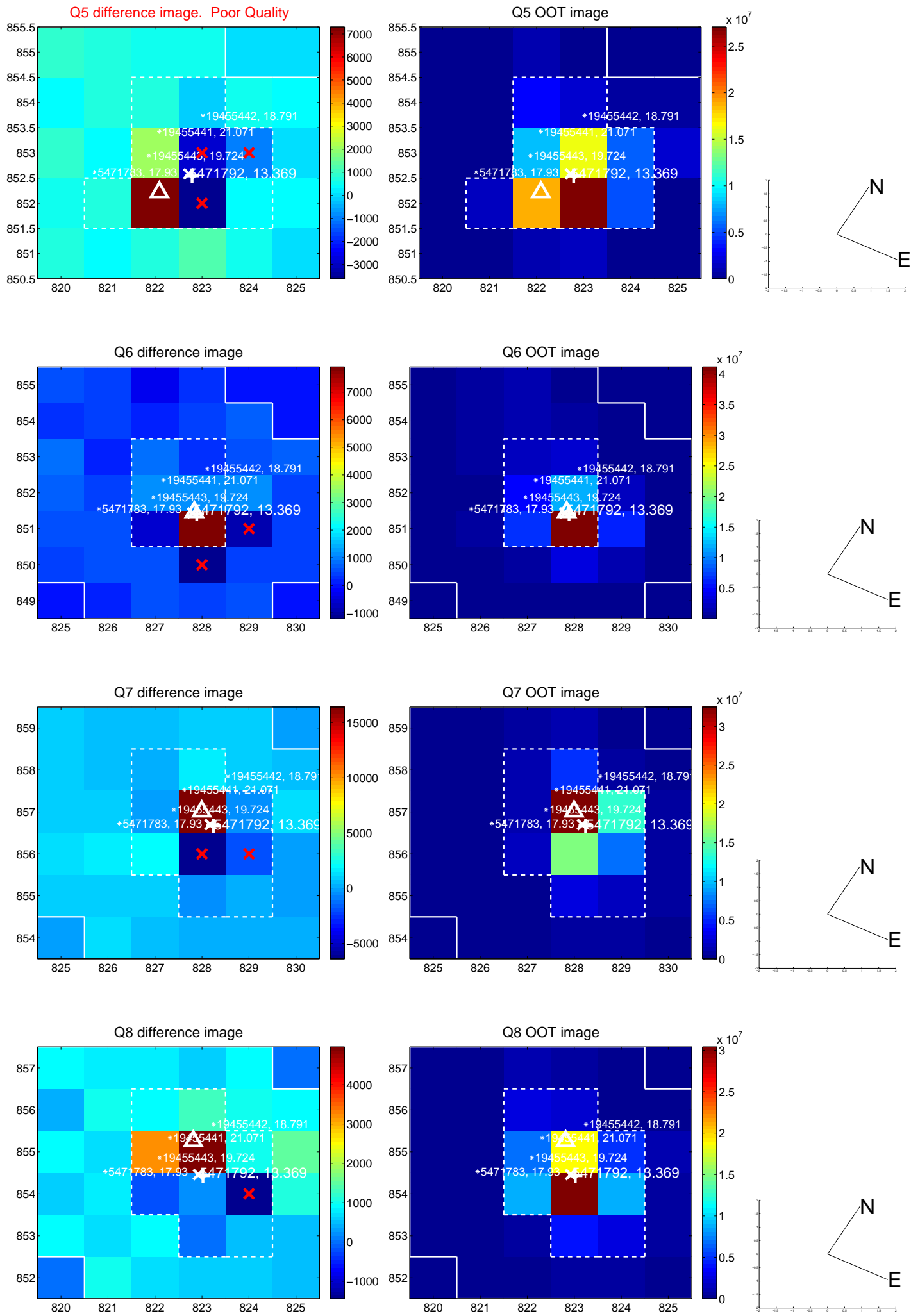


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

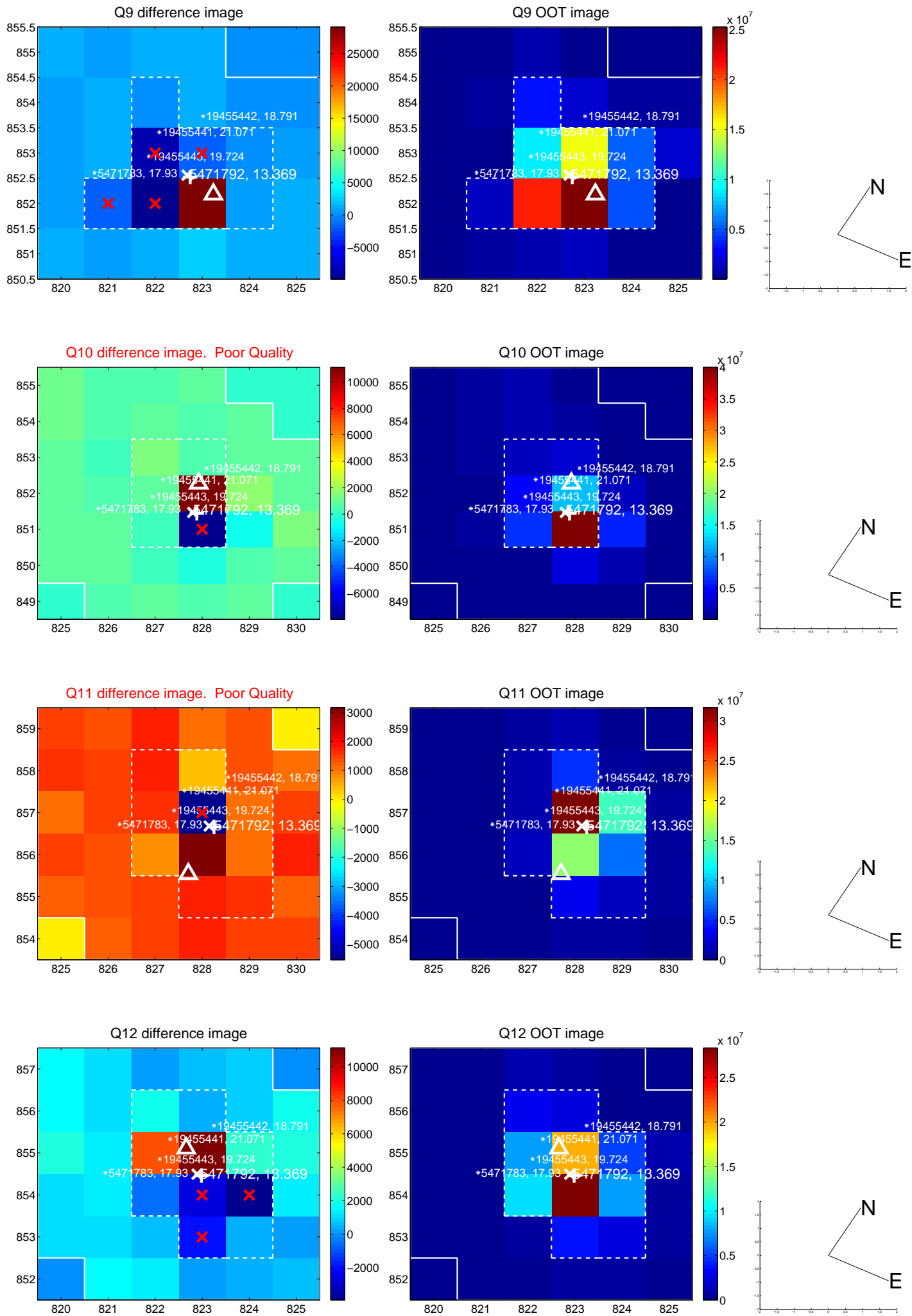
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



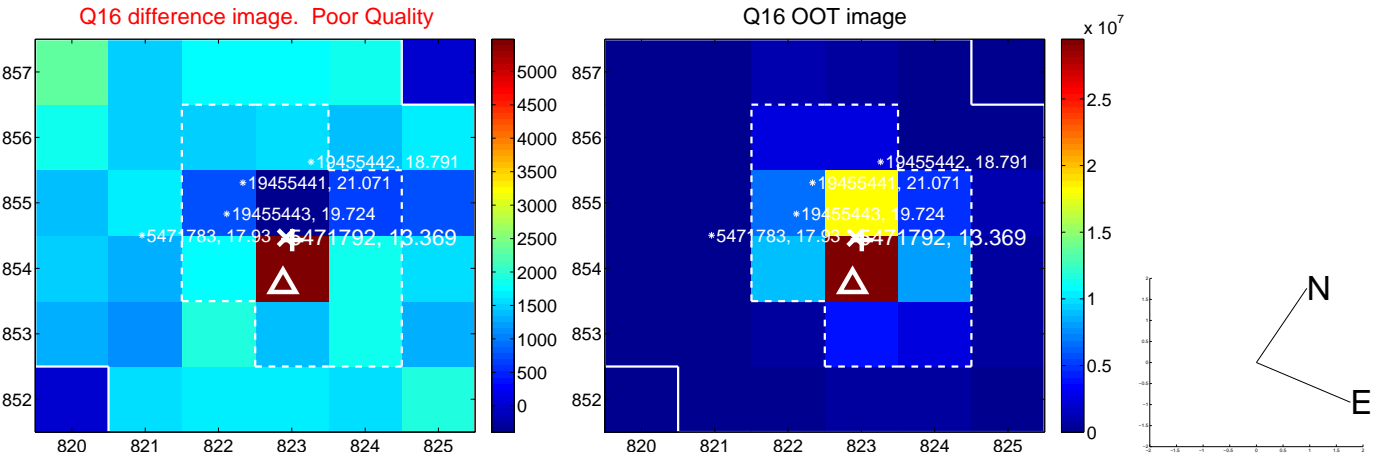
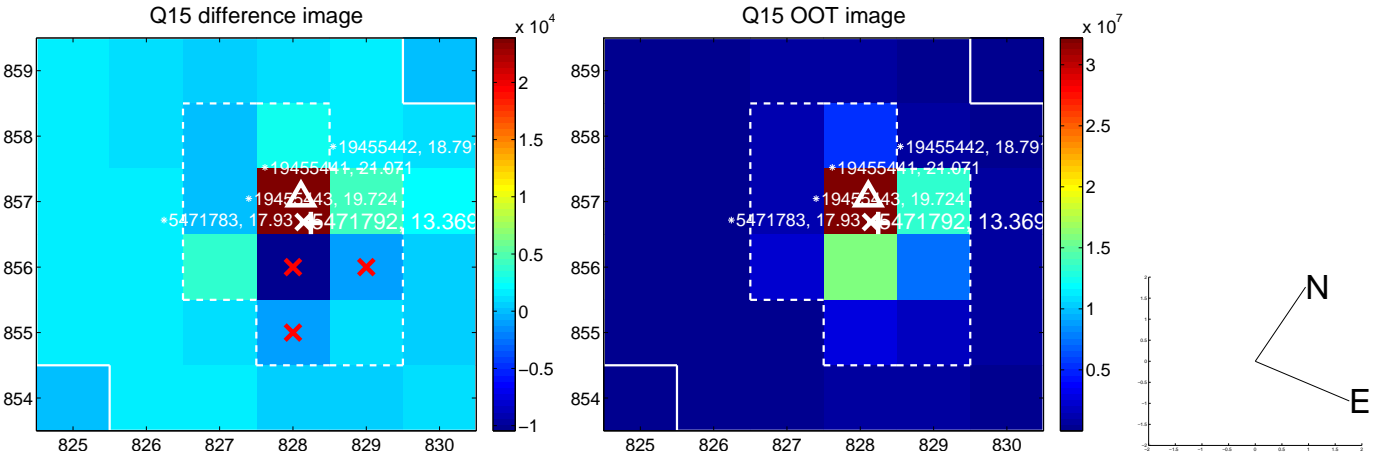
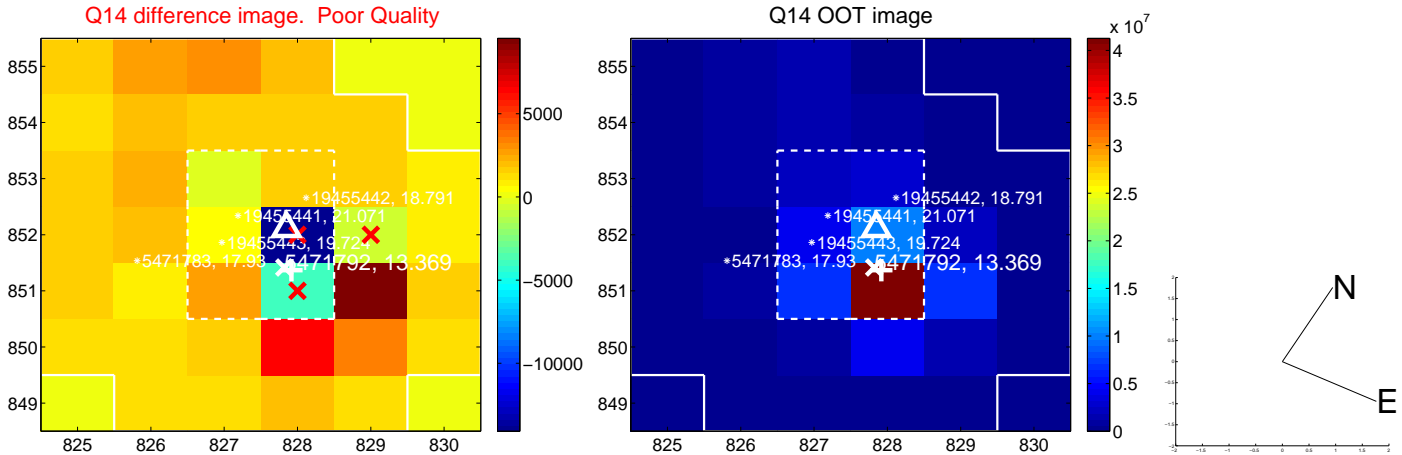
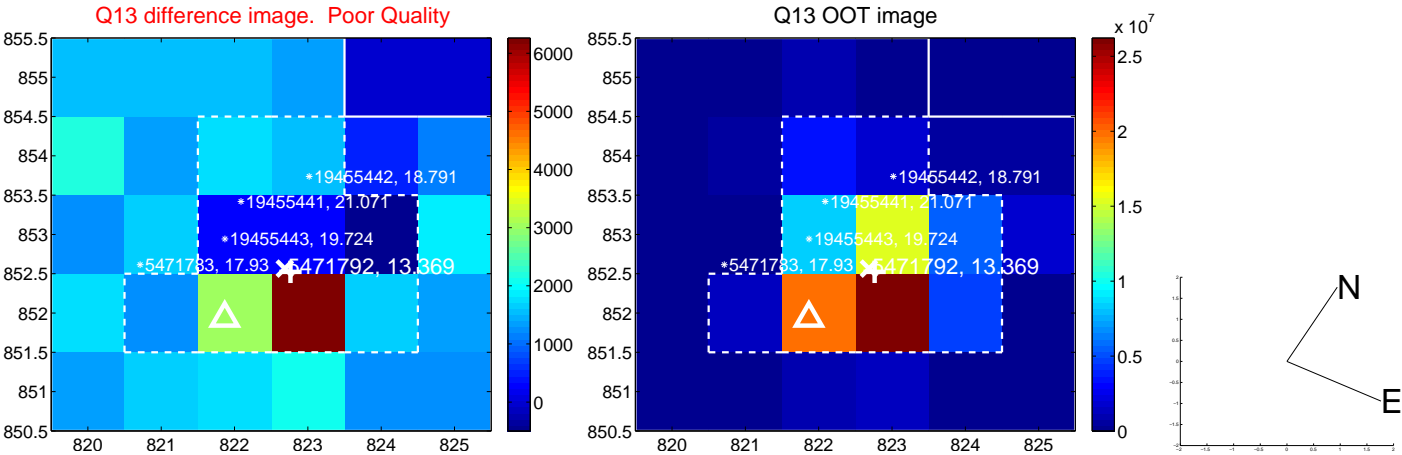
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



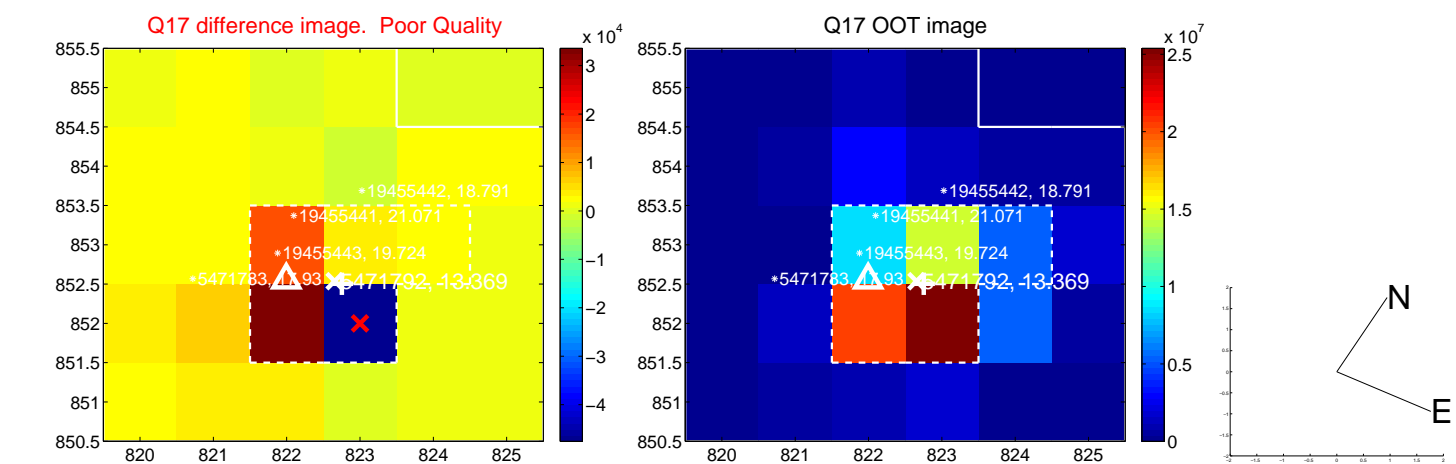
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



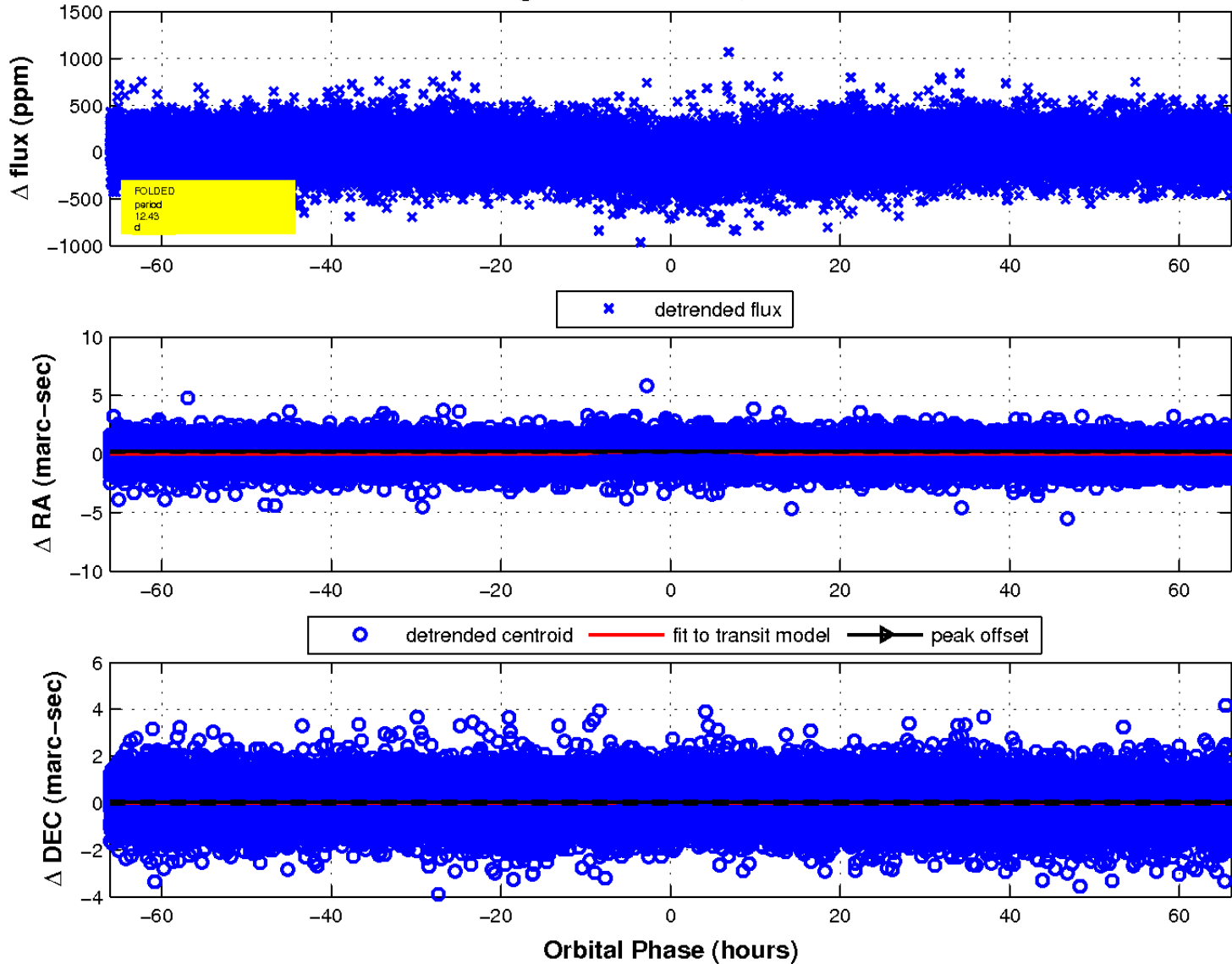
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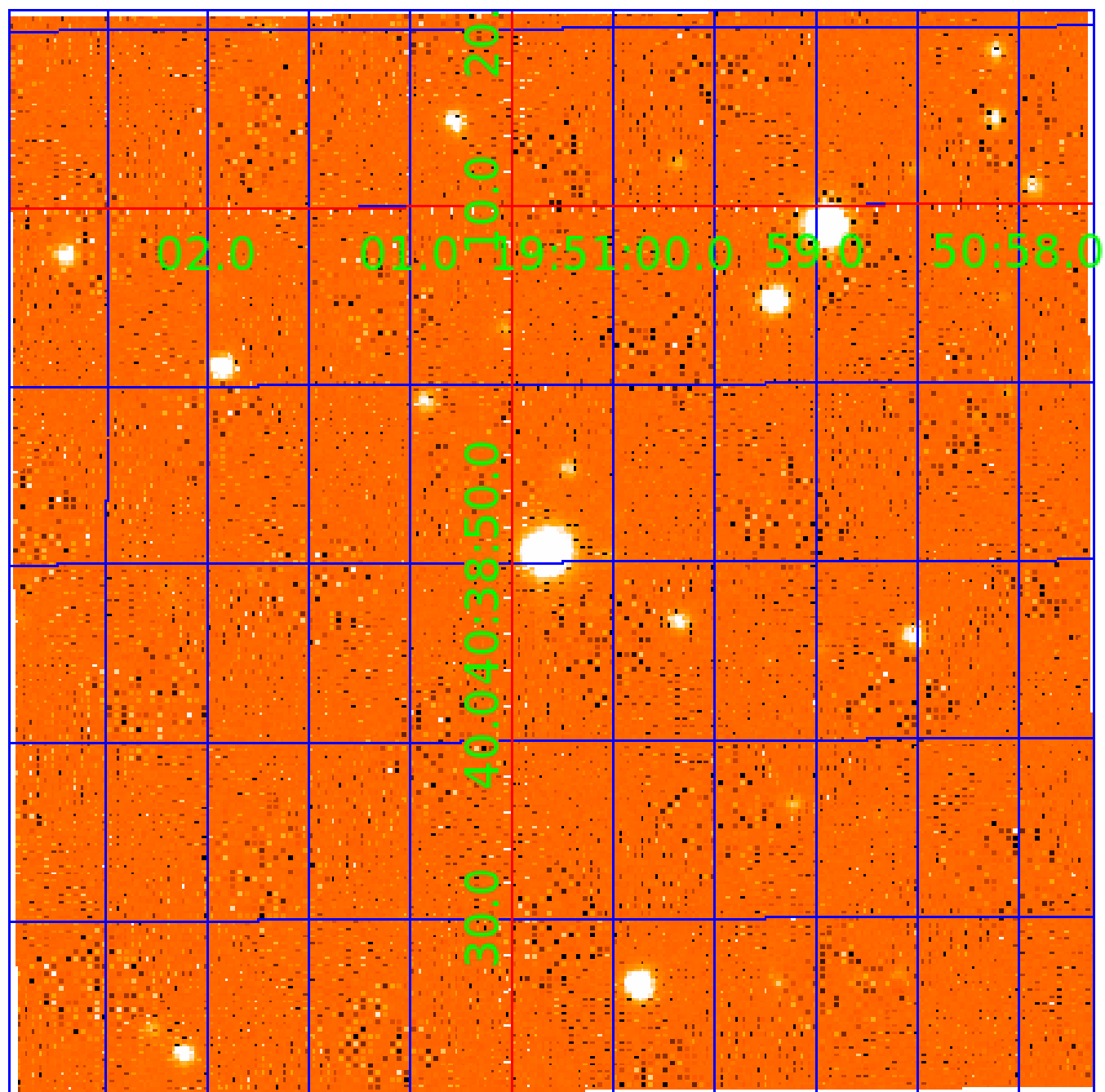


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005471792

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})
005471792-01	OBS	4110.01	12.425648	141.513826	85.4	22.047	13.9	17.8	1.63	5611	2.00	242.35
005471792-02	OBS	No	12.426056	133.928666	70.0	25.006	10.3	15.6	1.63	5611	1.42	242.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471792-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_KIC_POS—HALO_GHOST—EPHEM_MATCH
005471792-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH

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 005471792-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005471792-02	5471792	V380-Cyg-sec	5385723	1:1	312.8	7	79	5.77	13.37	1843.40	Direct-PRF	0	1.64	0.53

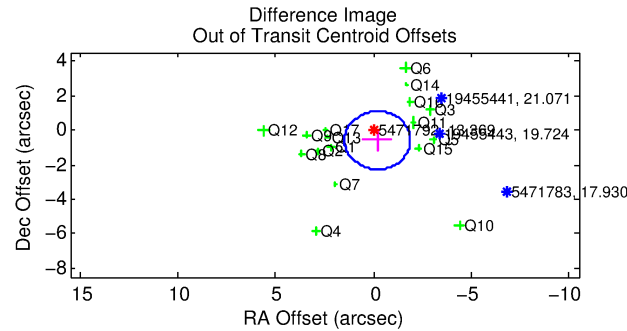
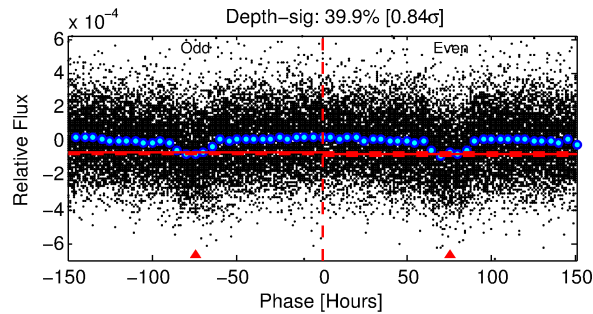
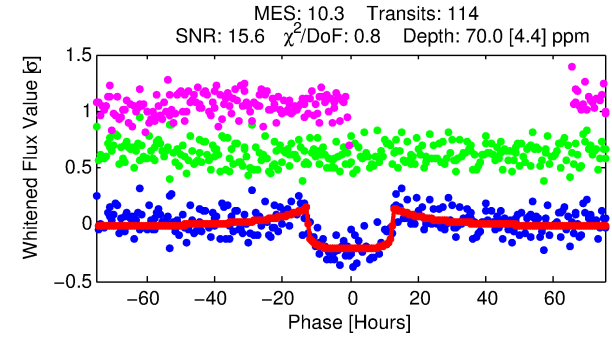
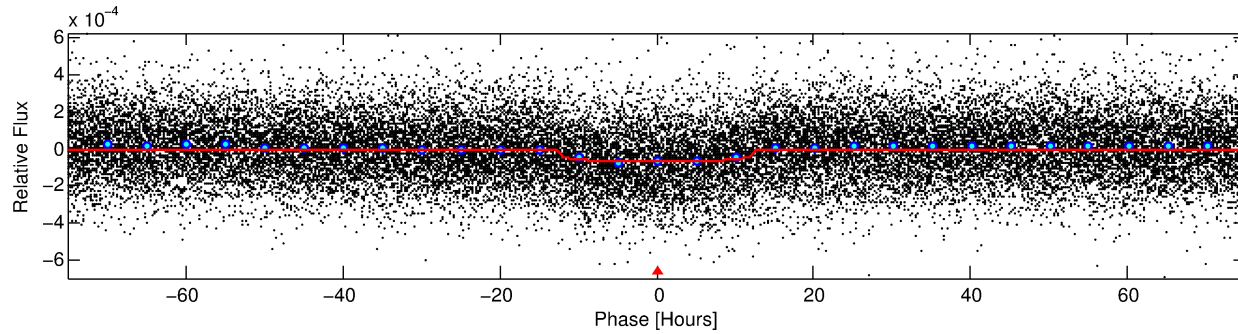
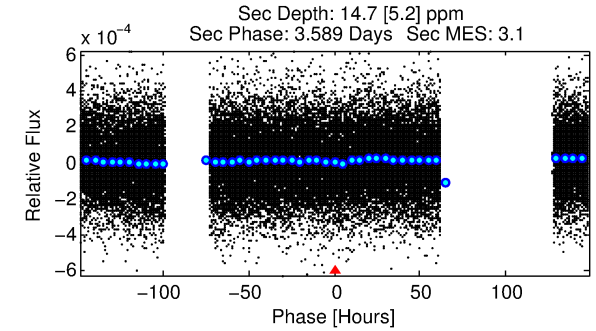
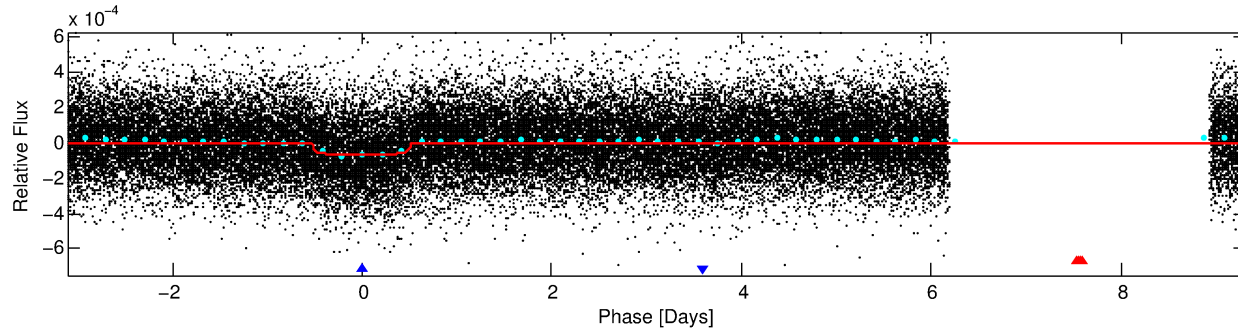
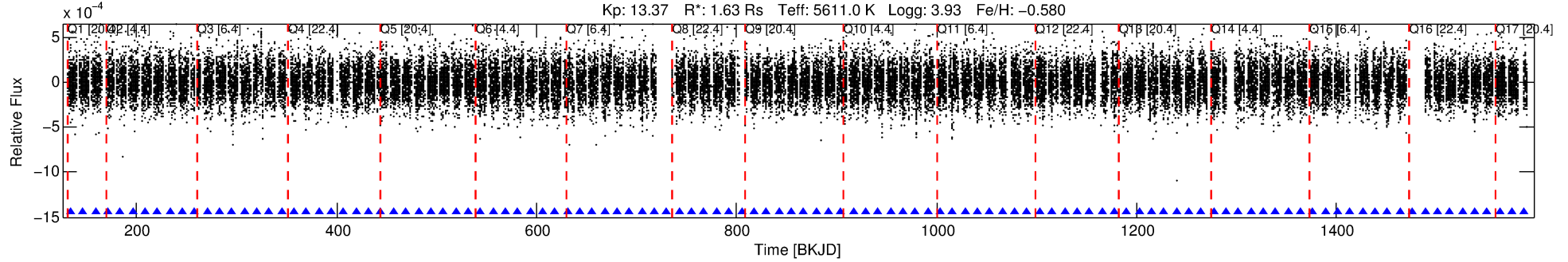
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 5471792 Candidate: 2 of 2 Period: 12.426 d

KOI: K04110 Corr: No Ephemeris Match

Kp: 13.37 R*: 1.63 Rs Teff: 5611.0 K Logg: 3.93 Fe/H: -0.580



DV Fit Results:

Period = 12.42606 [0.00017] d
Epoch = 133.9287 [0.0114] BKJD
Rp/R* = 0.0080 [0.0014]
a/R* = 3.21 [2.39]
b = 0.58 [0.94]
Seff = 242.34 [262.87]
Teq = 1006 [273] K
Rp = 1.42 [0.81] Re
a = 0.0988 [0.0615] AU
Ag = 39.12 [46.56] [0.82σ]
Teffp = 3890 [514] K [4.96σ]

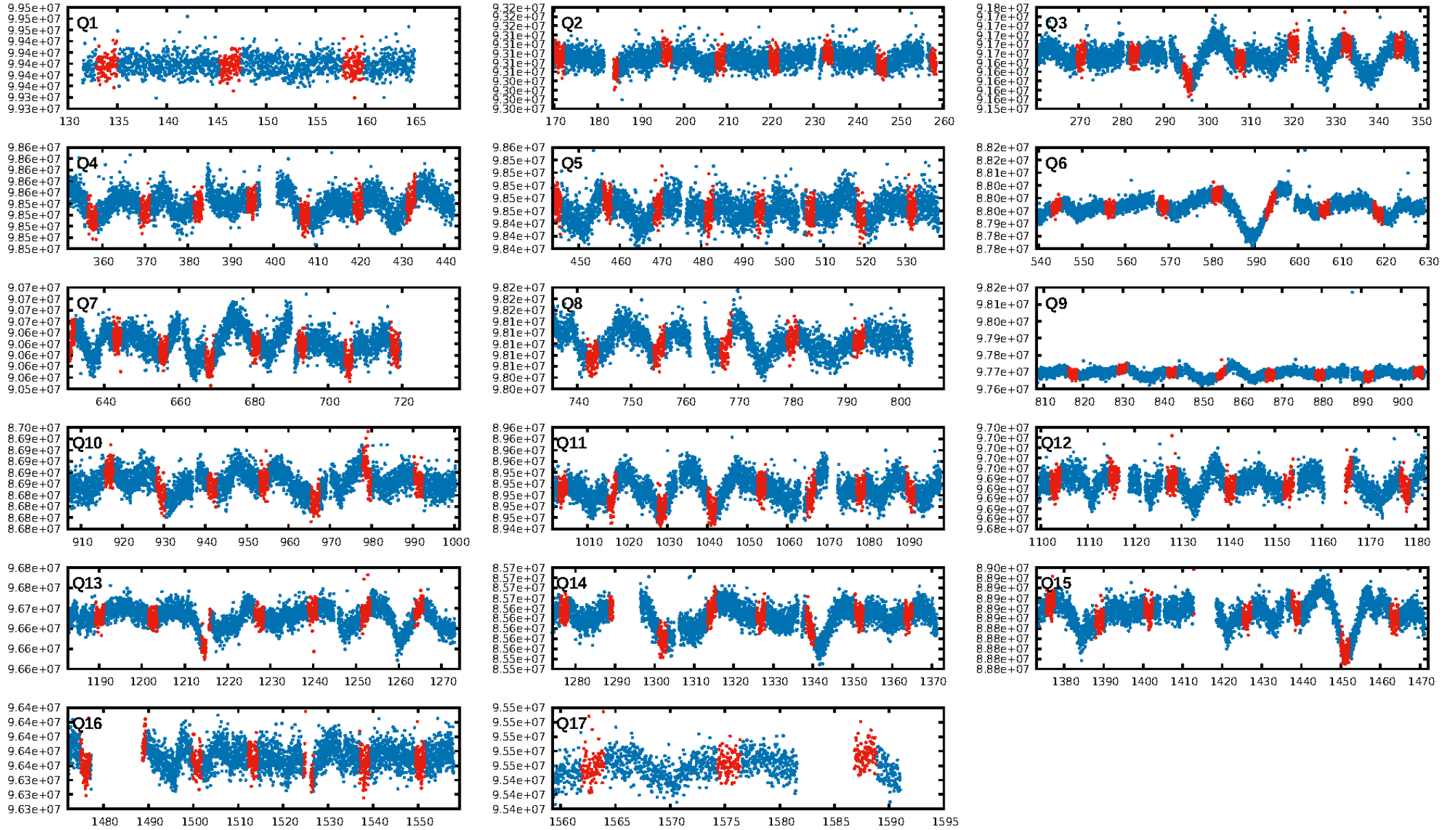
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 81.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.89e-28
RollingBand-fgt: 1.00 [108/108]
GhostDiagnostic-chr: 0.1622
Centroid-sig: 0.0%
Centroid-so: 4.158 arcsec [5.92σ]
OotOffset-rm: 0.625 arcsec [1.11σ]
KicOffset-rm: 0.576 arcsec [0.90σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.29 [5/17]
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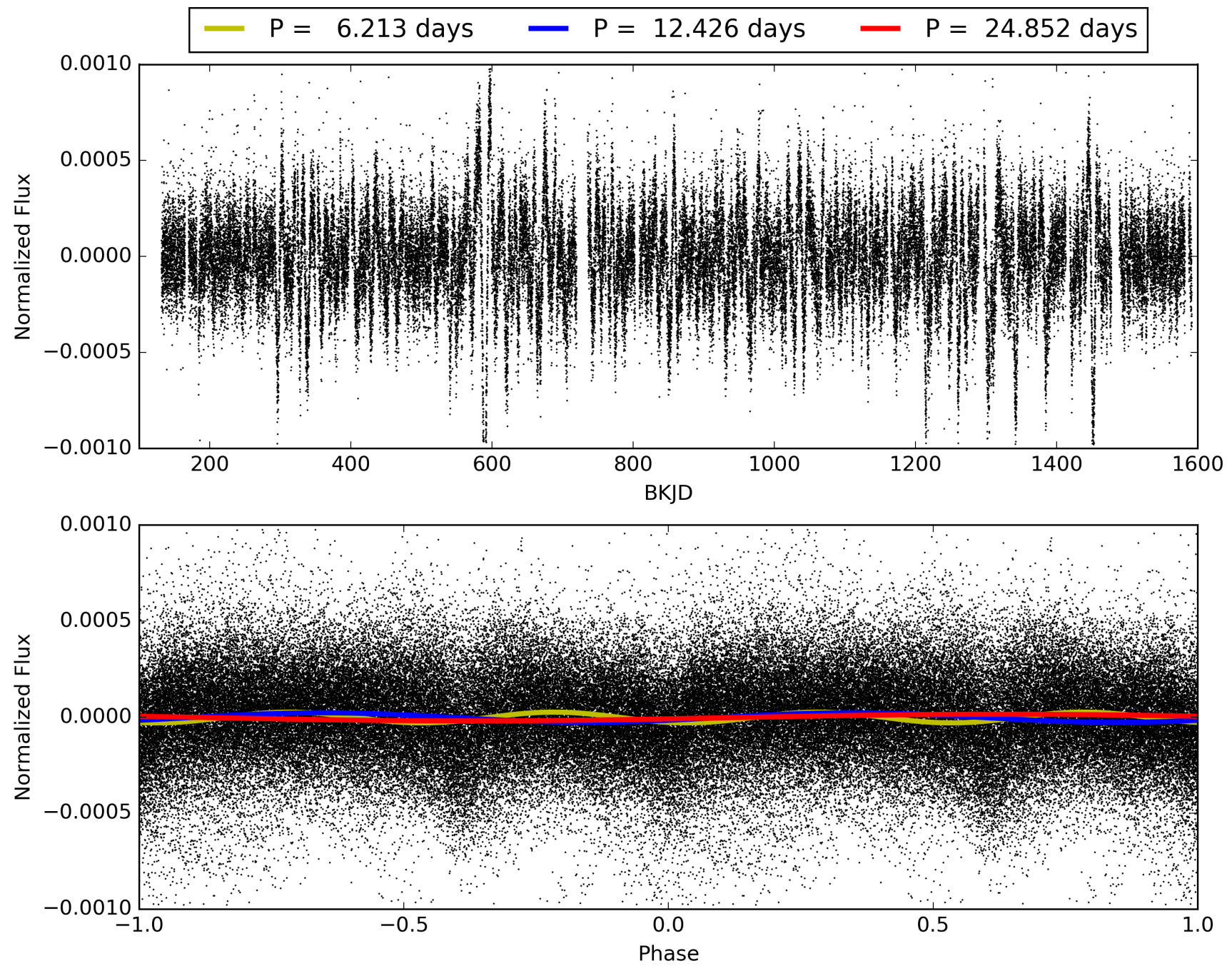
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005471792-02, PDC Light Curves

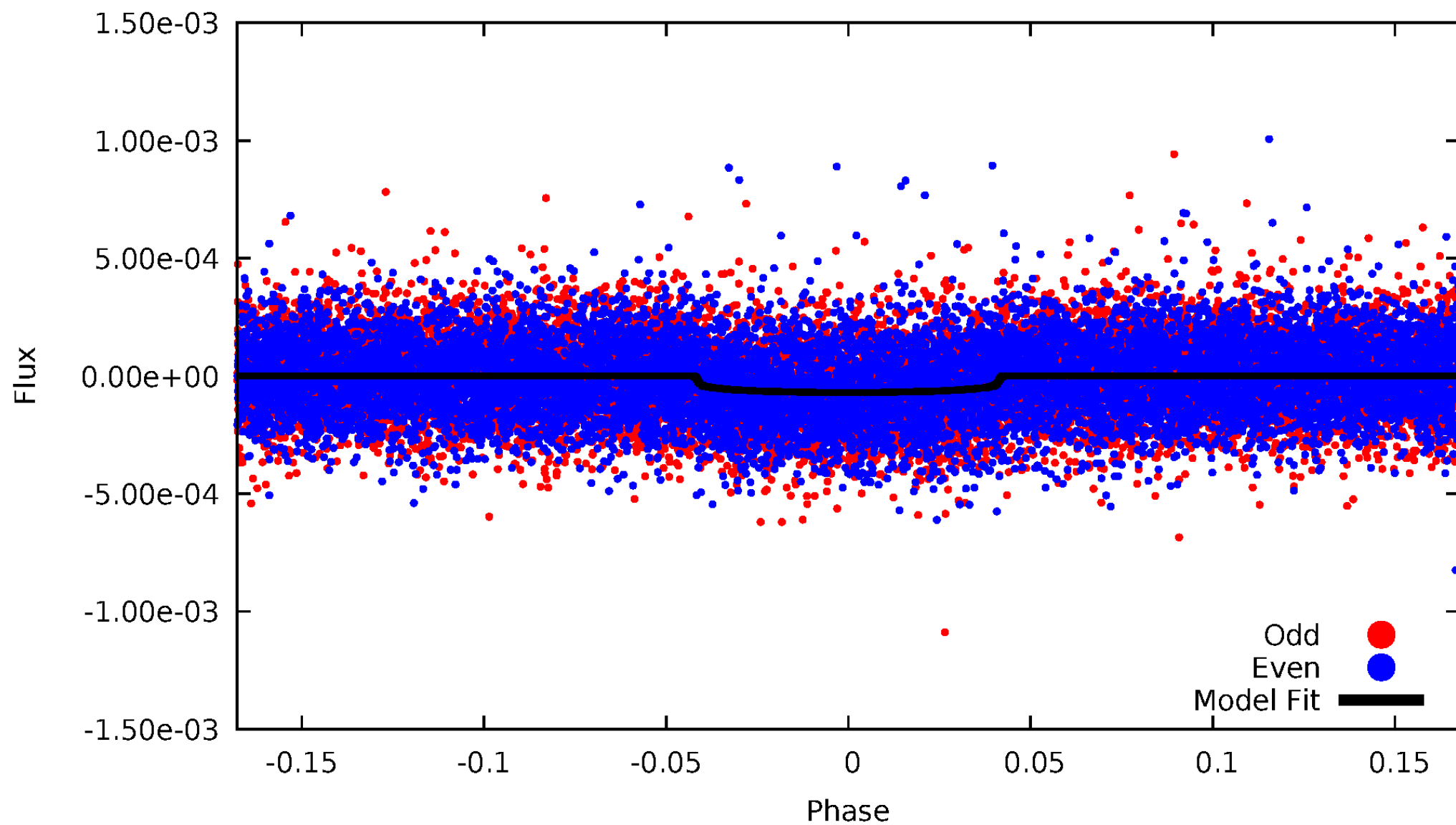


TCE 005471792-02



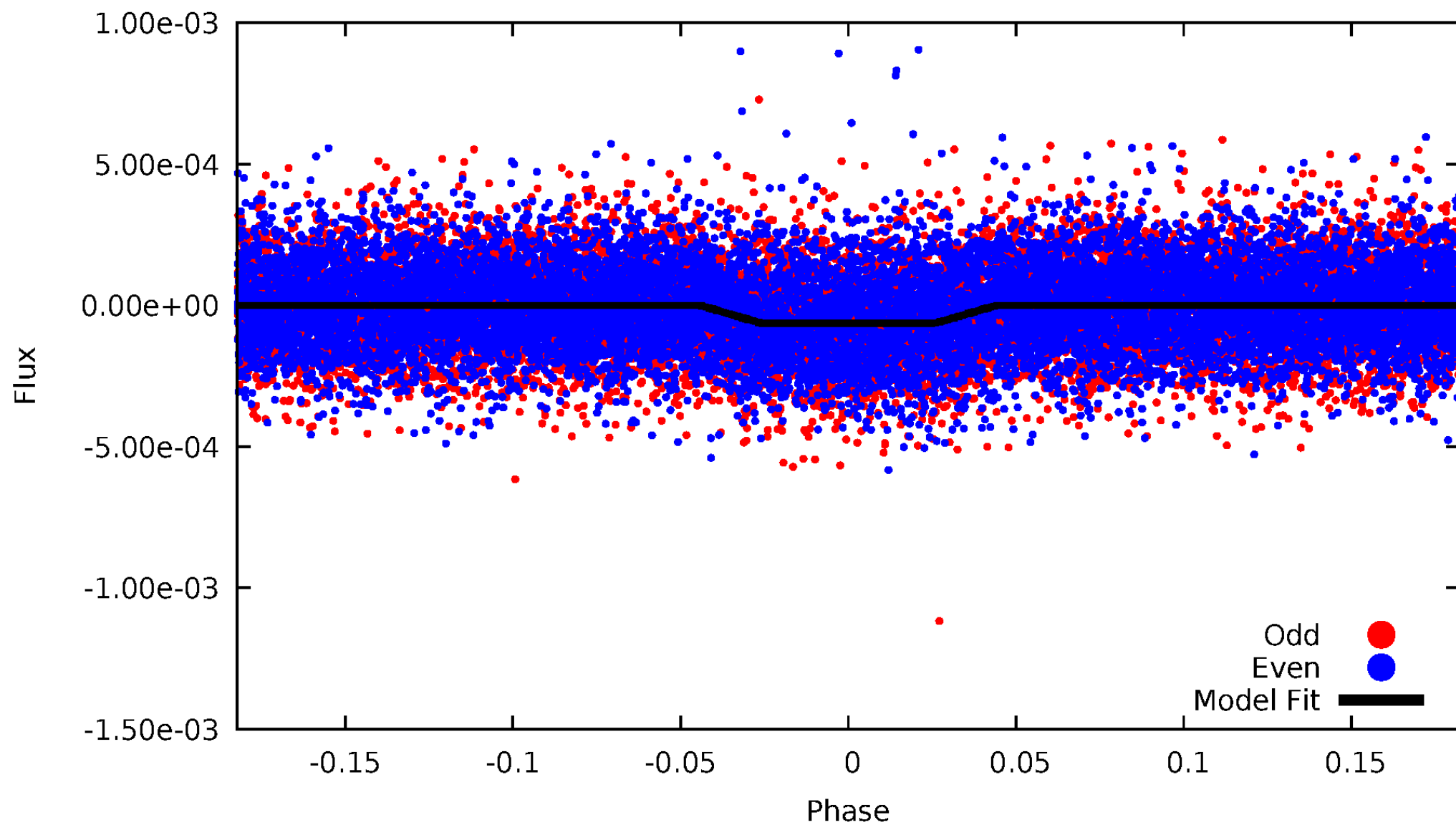
DV Odd/Even

TCE 005471792-02



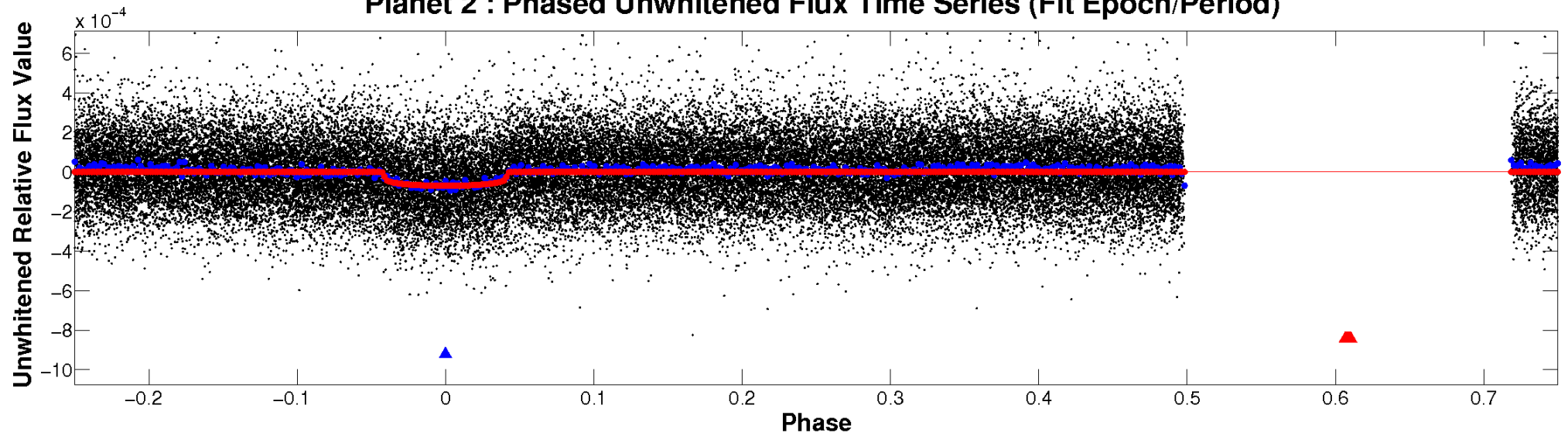
ALT Odd/Even

TCE 005471792-02

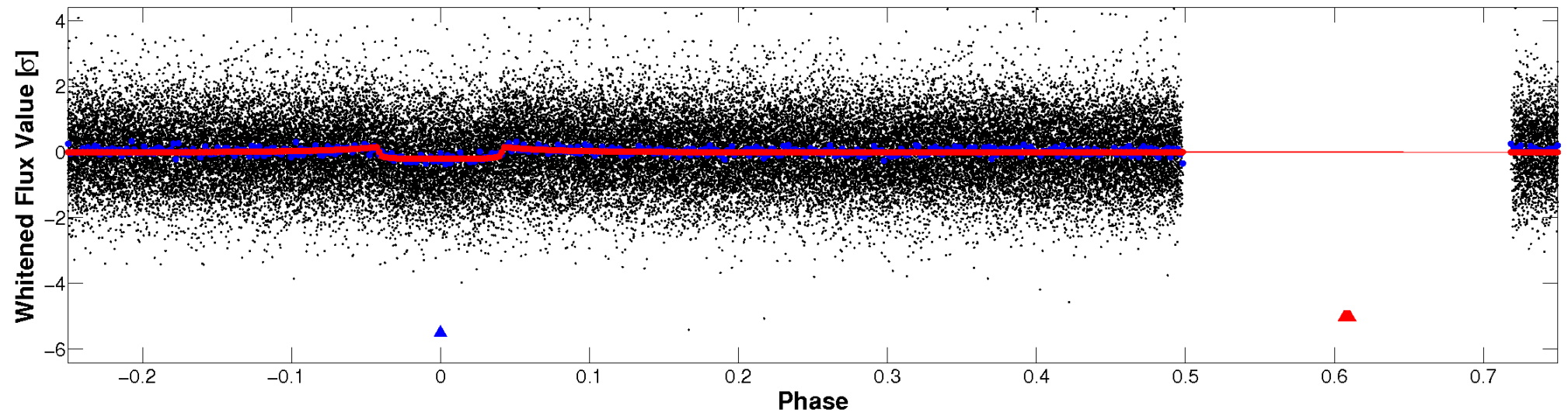


Non-Whitened Vs. Whitened Light Curve

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

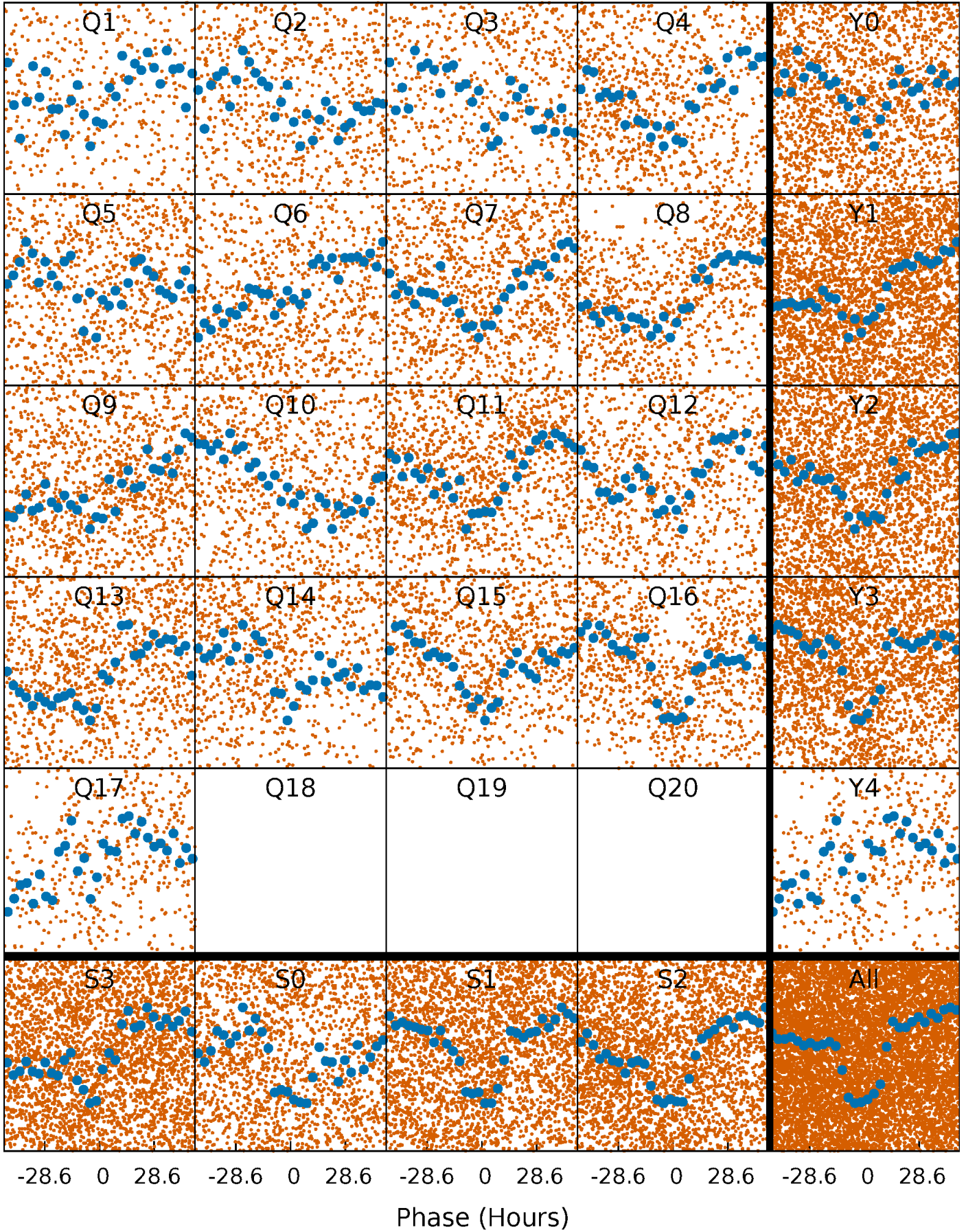


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



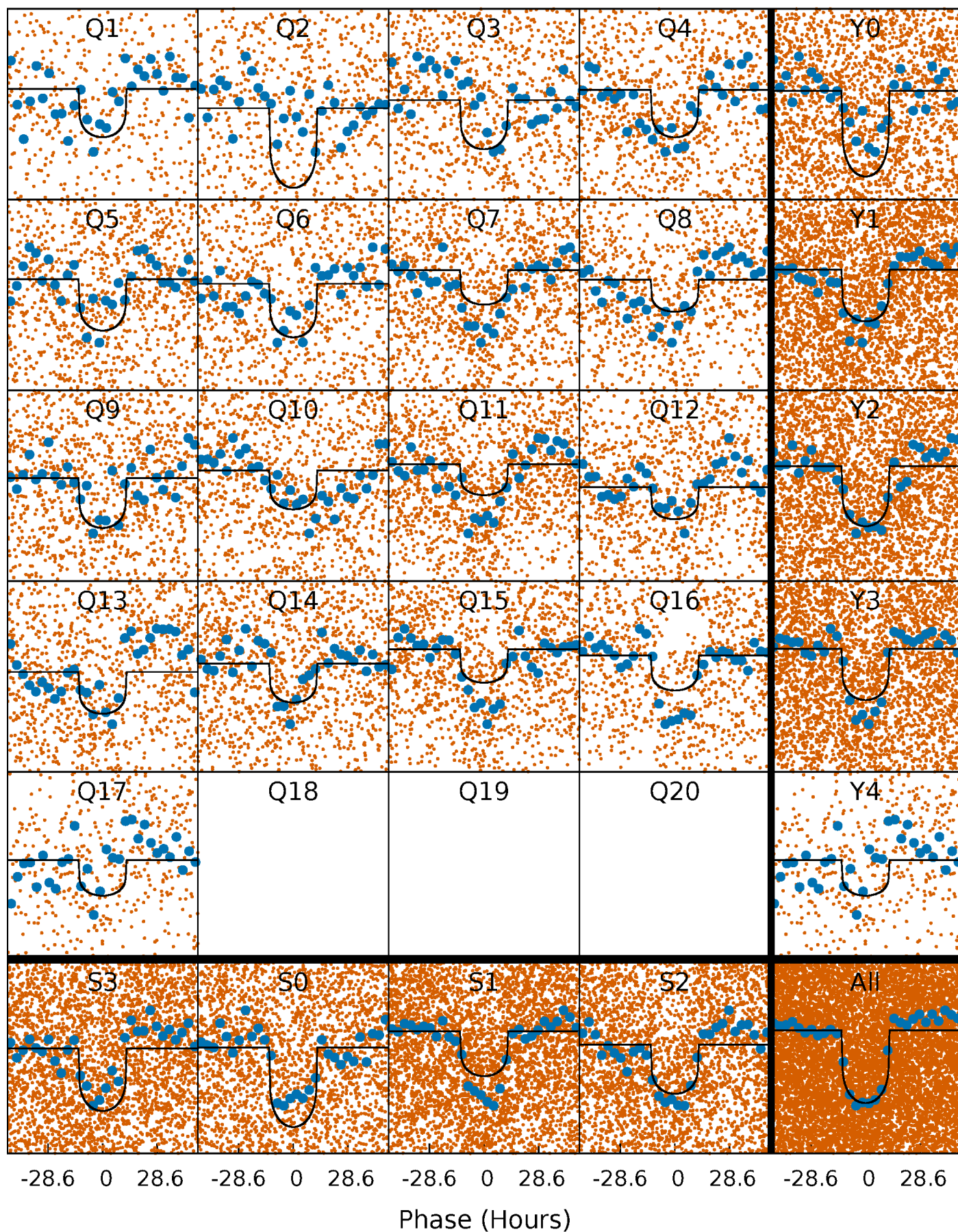
PDC Quarter-Phased Transit Curves

TCE 005471792-02 P= 12.426056 Days $T_0=133.928666$ (BKJD)



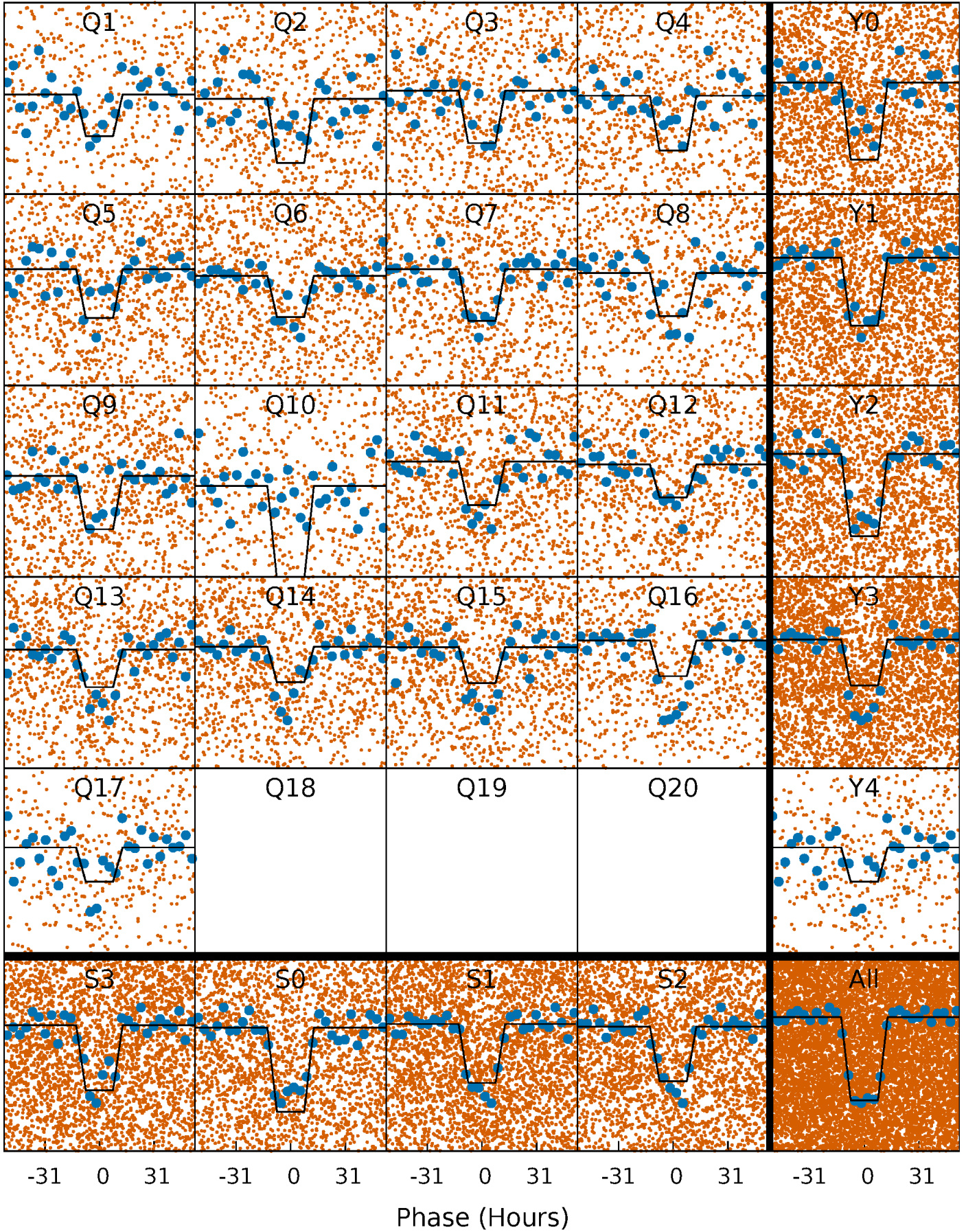
DV Quarter-Phased Transit Curves

TCE 005471792-02 P= 12.426056 Days $T_0=133.928666$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

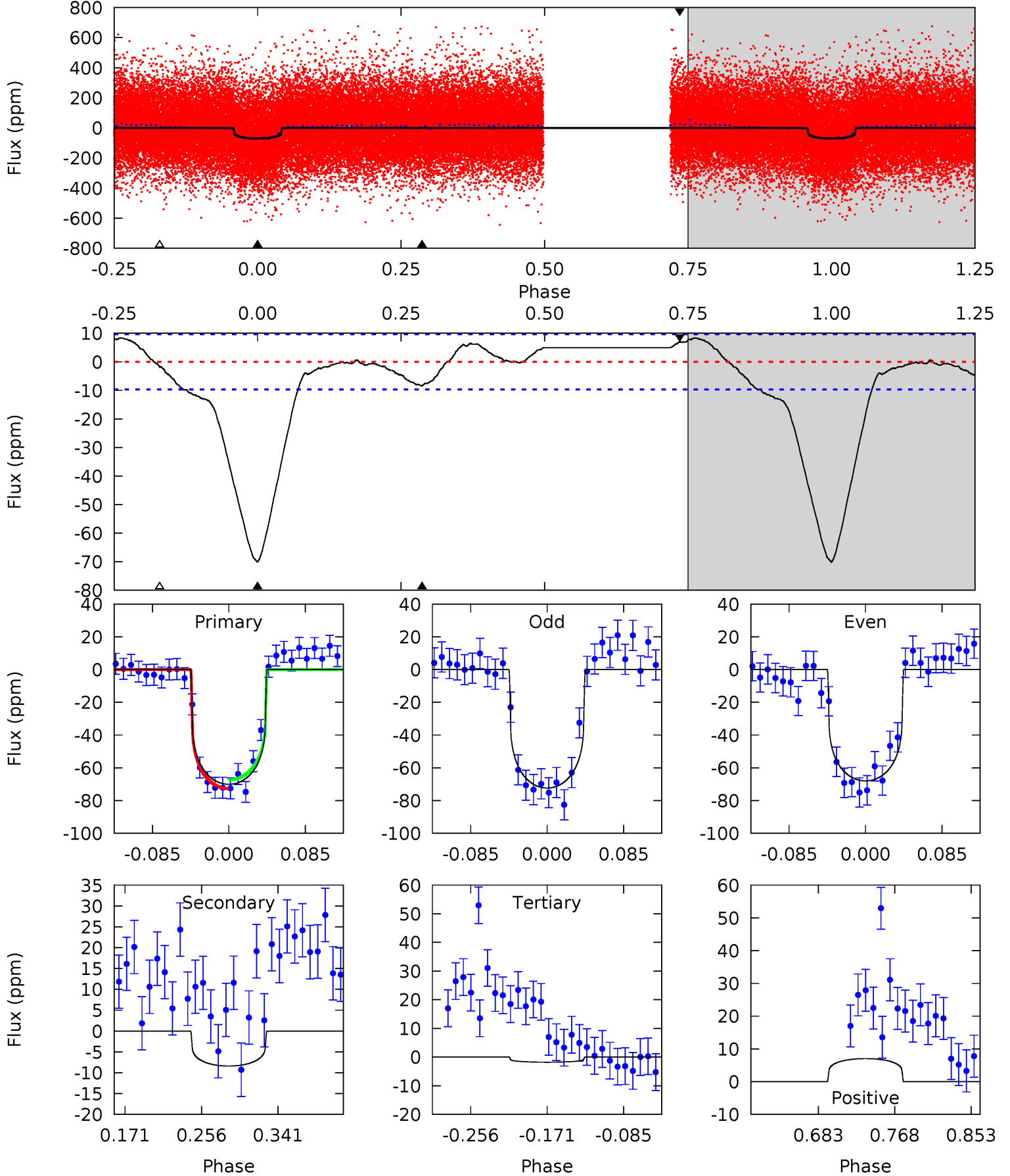
TCE 005471792-02 P= 12.425672 Days $T_0=133.955562$ (BKJD)



DV Model-Shift Uniqueness Test

005471792-02, P = 12.426056 Days, E = 121.502610 Days

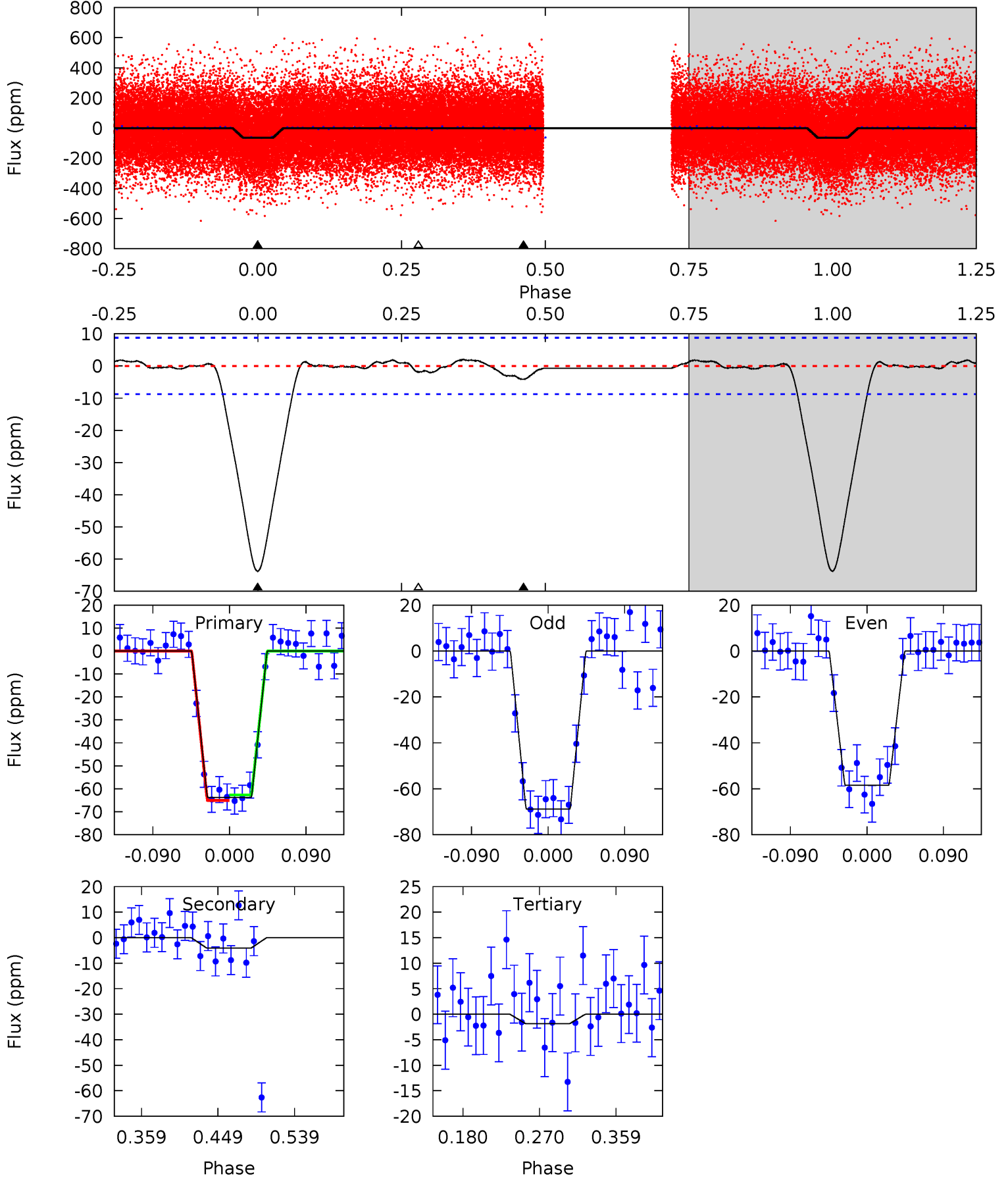
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.3	4.00	0.85	3.34	4.60	1.72	2.64	32.5	30.0	3.15	0.65	1.04	1.00	0.11	1.31



Alt Model-Shift Uniqueness Test

005471792-02, P = 12.425672 Days, E = 121.529890 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.4	2.16	0.96	0	4.59	1.70	0.52	32.4	33.4	1.19	2.16	2.73	0.98	0.03	0.64



Stellar Parameters For KIC 005471792

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5611^{+197}_{-157}	$3.933^{+0.660}_{-0.264}$	$-0.580^{+0.350}_{-0.250}$	$1.632^{+0.724}_{-0.884}$	$0.832^{+0.113}_{-0.093}$	$0.270^{+2.145}_{-0.164}$
	+4%/-3%	+17%/-7%	+60%/-43%	+44%/-54%	+14%/-11%	+795%/-61%
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 005471792-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-8 ± 2	$1.32^{+0.47}_{-0.42}$	1371^{+179}_{-211}	3748^{+350}_{-274}	25^{+31}_{-12}
Alt.	-4 ± 2	$1.37^{+0.49}_{-0.47}$	1409^{+164}_{-235}	3337^{+321}_{-351}	11^{+17}_{-7}

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

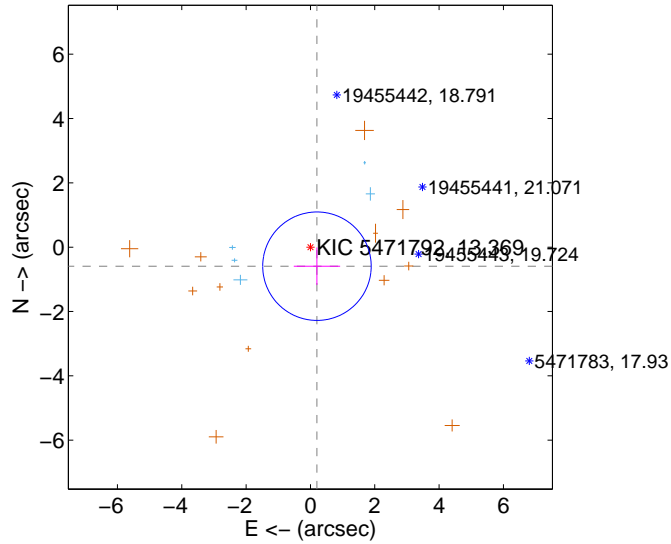
Supplemental centroid analysis for 005471792-02. Kepler magnitude: 13.37. Transit SNR 15.59

There are 5 quarters with good PRF difference image offsets

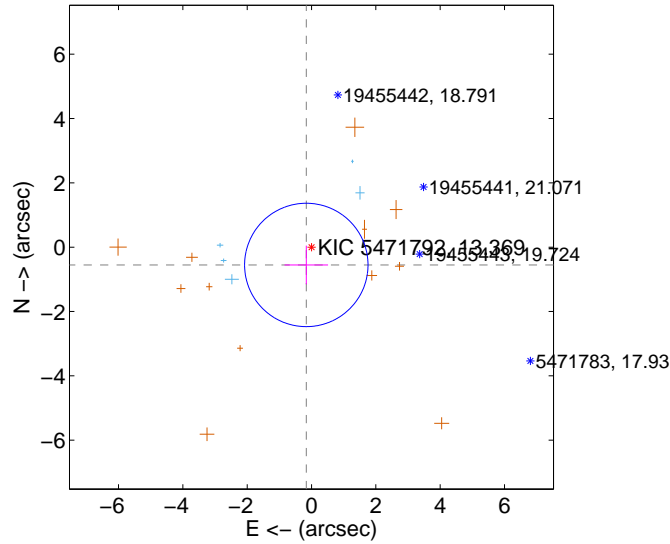
The direct PRF centroid is offset from the target star catalog position by about 0.42 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.625 ± 0.562	1.11	-0.203 ± 0.722	-0.591 ± 0.582
PRF-fit source offset from KIC position	0.576 ± 0.639	0.90	0.162 ± 0.677	-0.552 ± 0.602
photometric centroid source offset	4.16 ± 0.70	5.92	-4.13 ± 0.70	0.50 ± 0.64

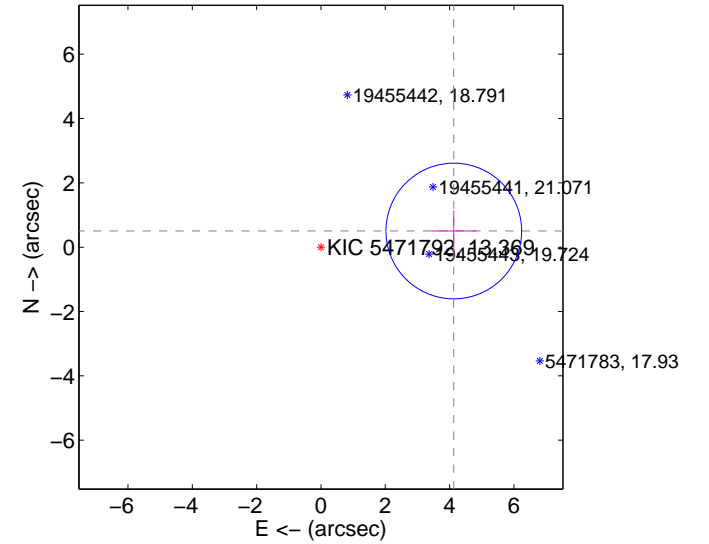
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

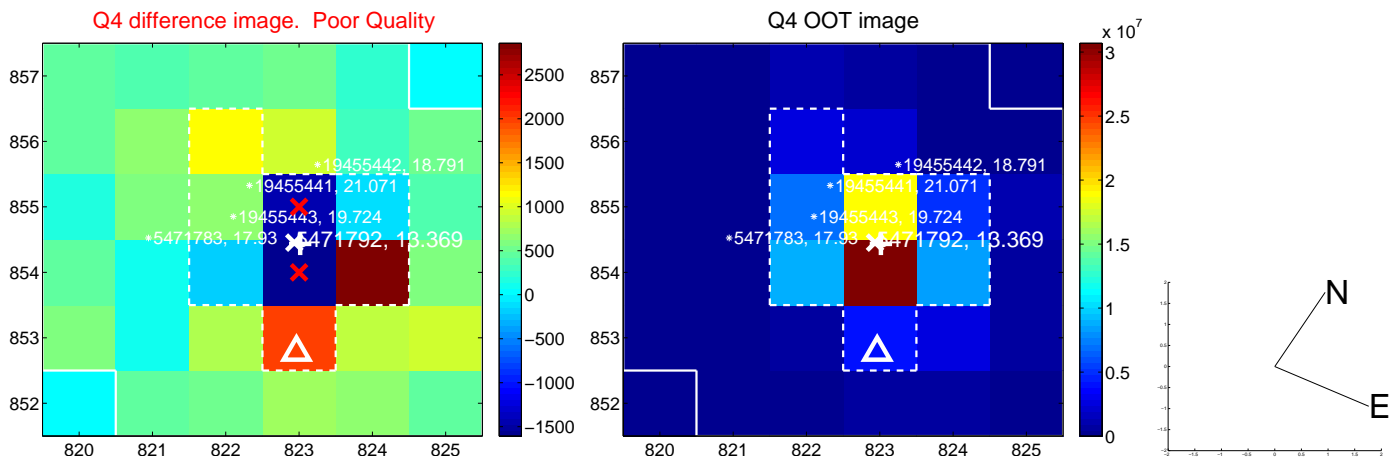
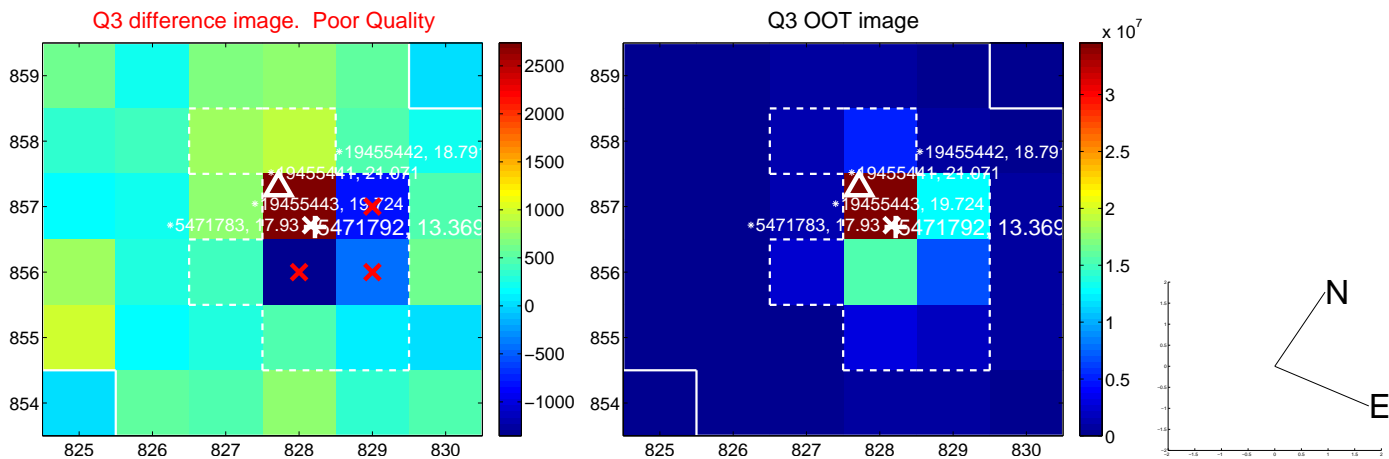
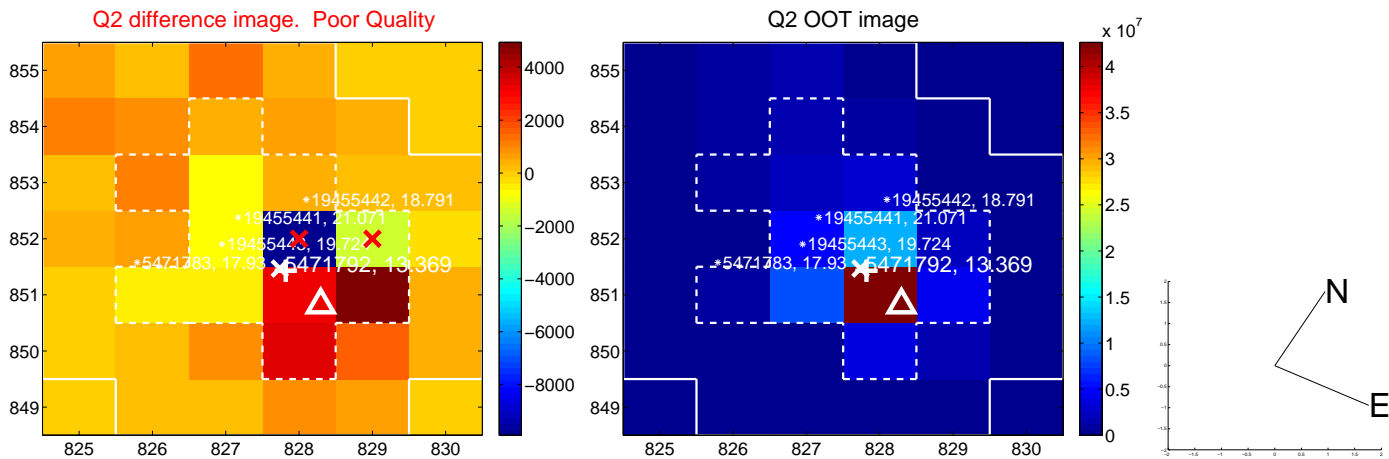
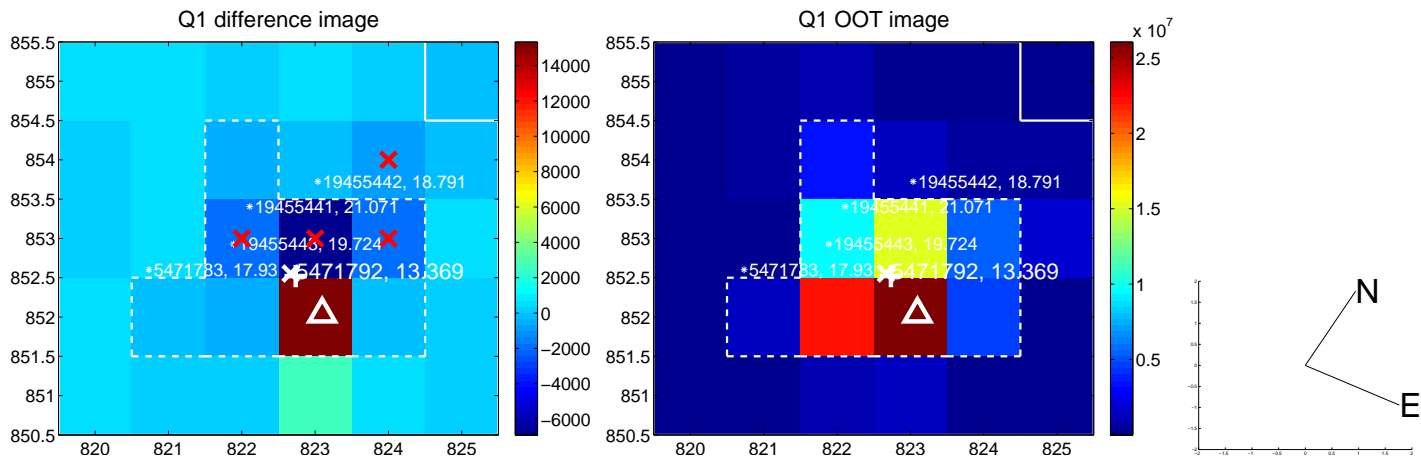


offset from photometric centroids

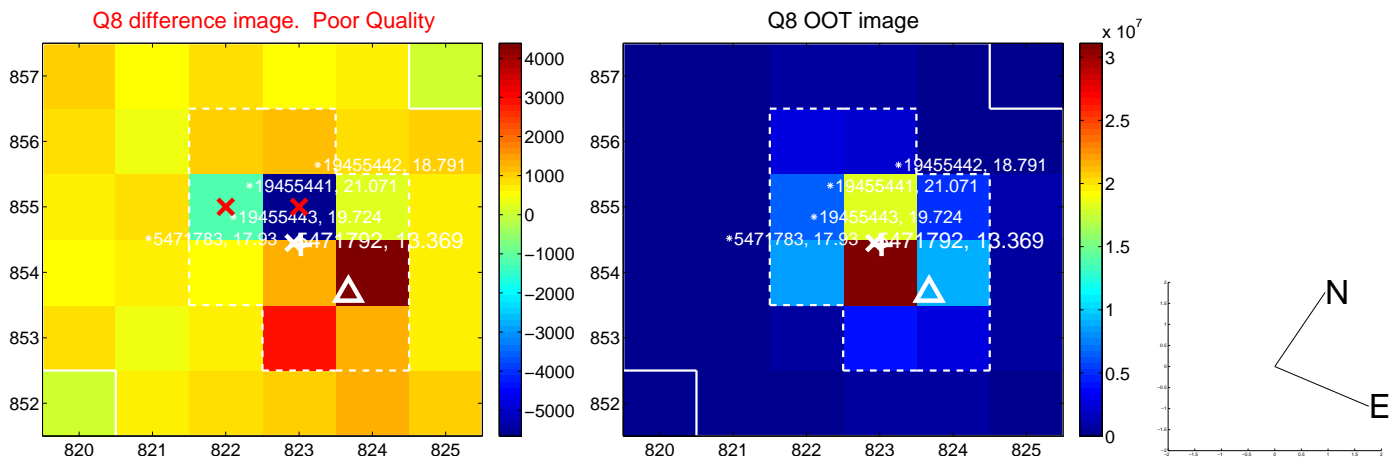
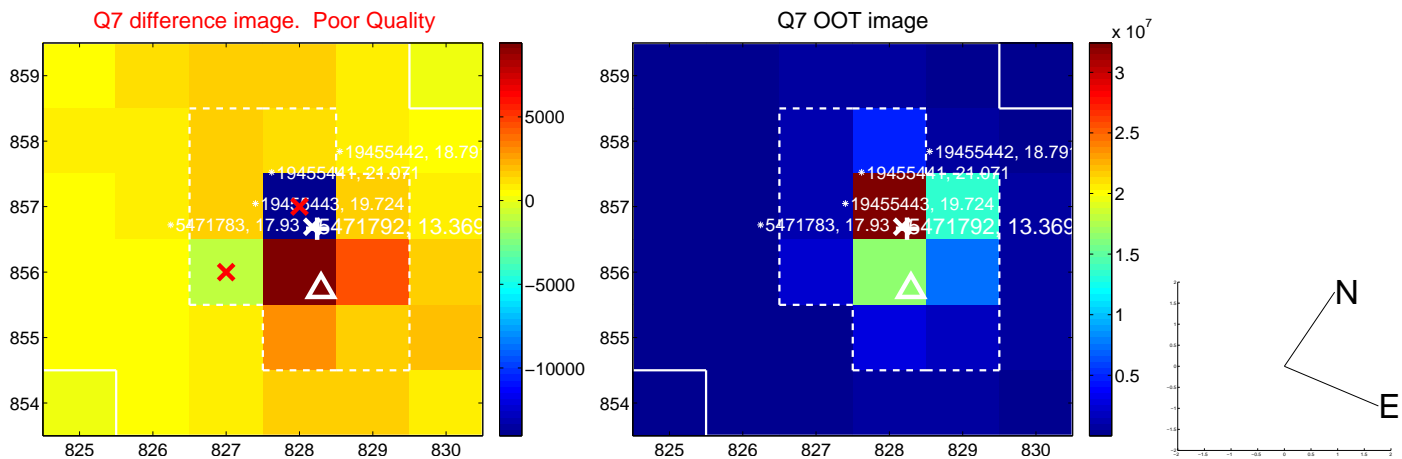
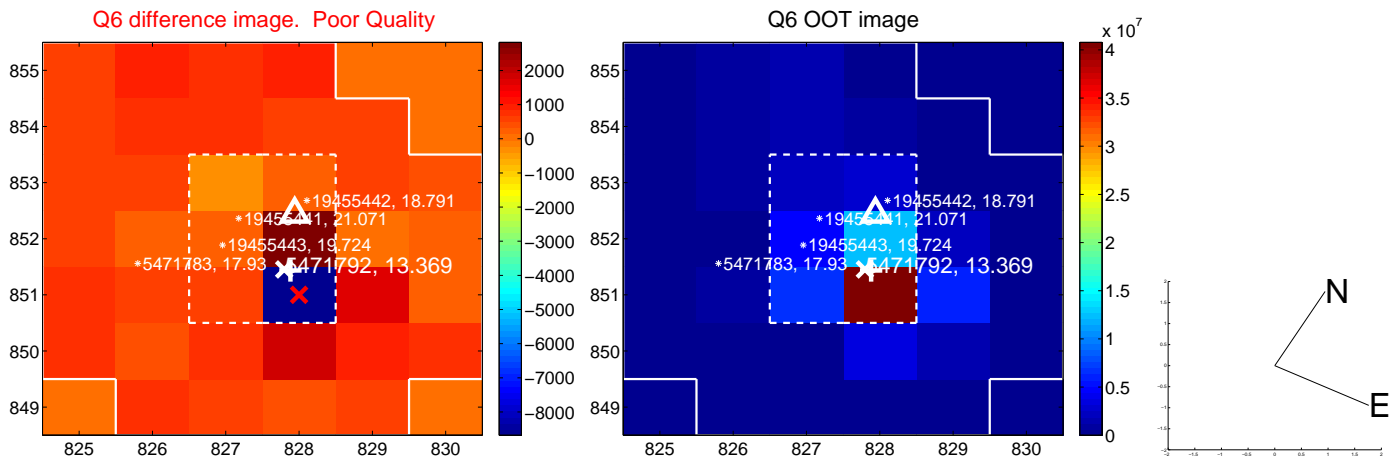
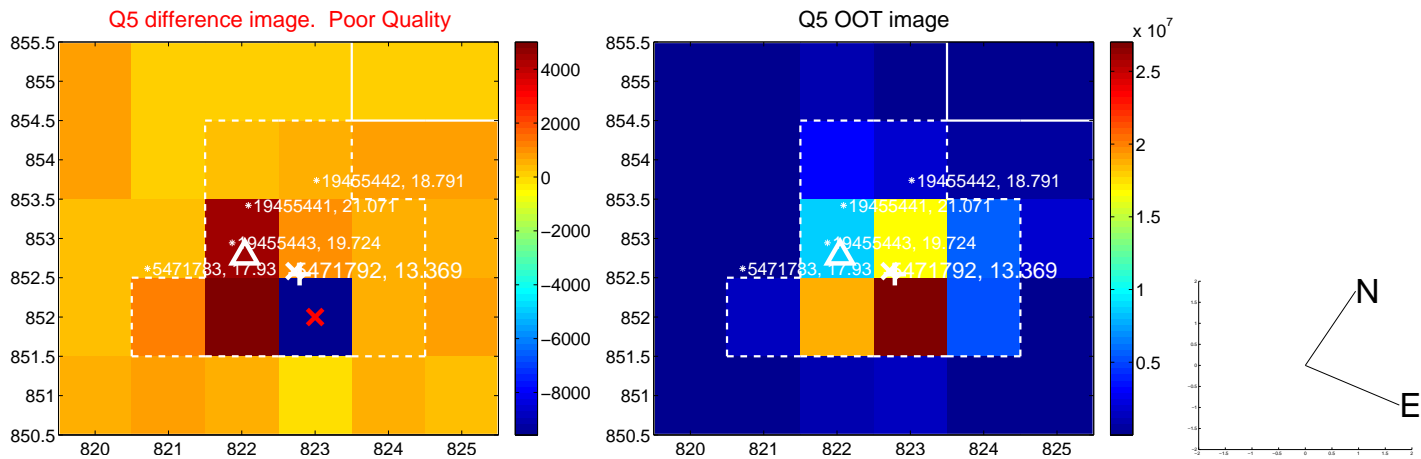


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

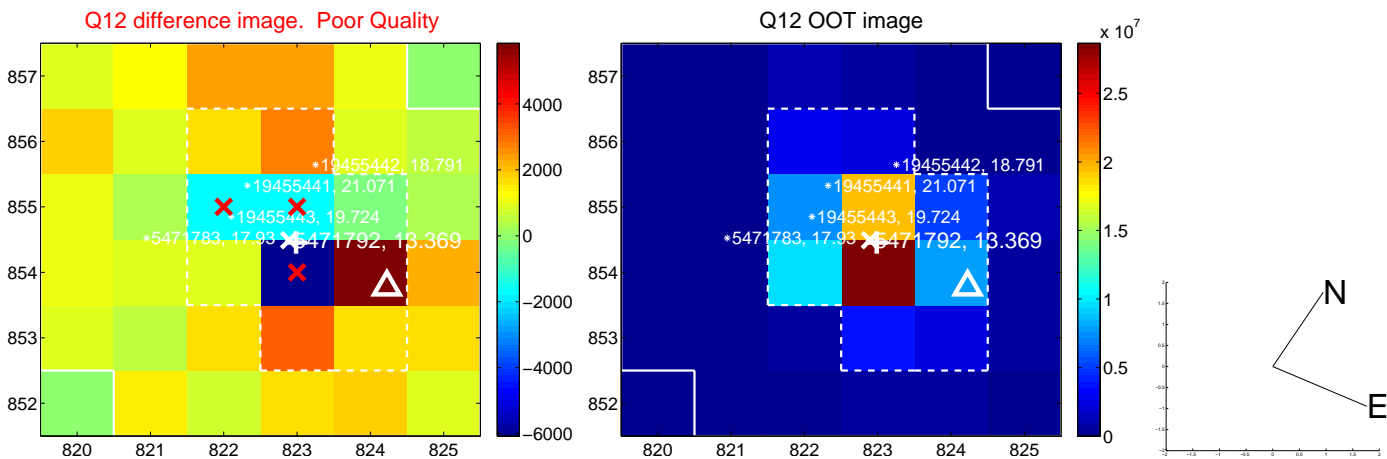
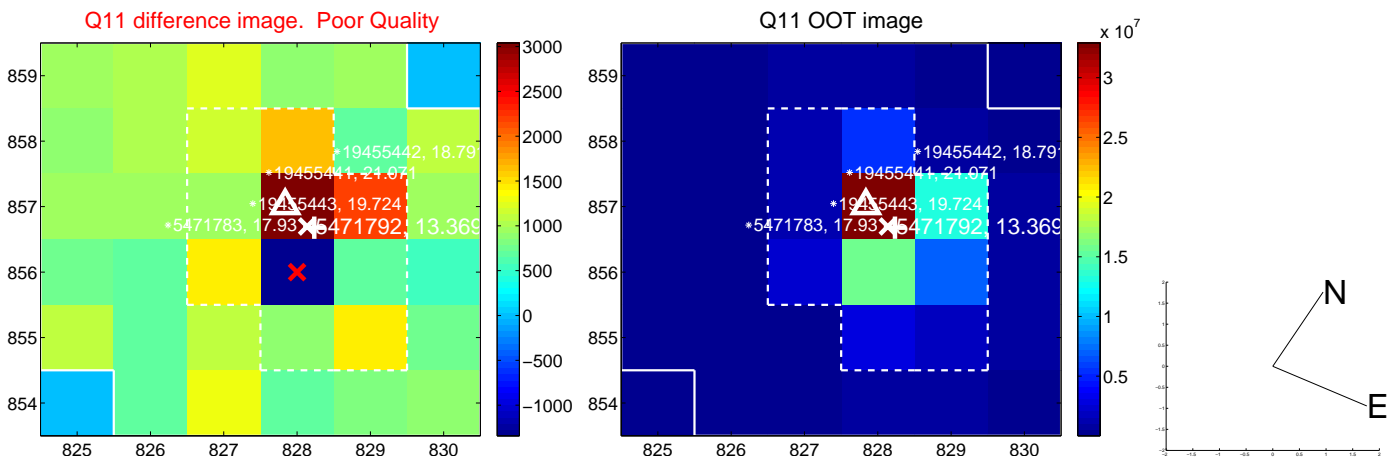
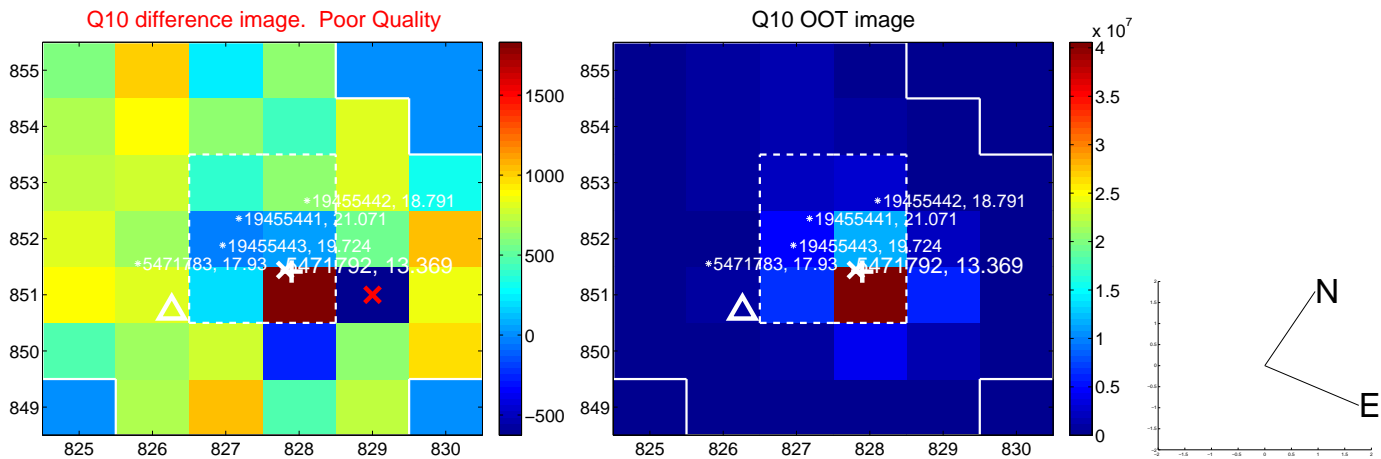
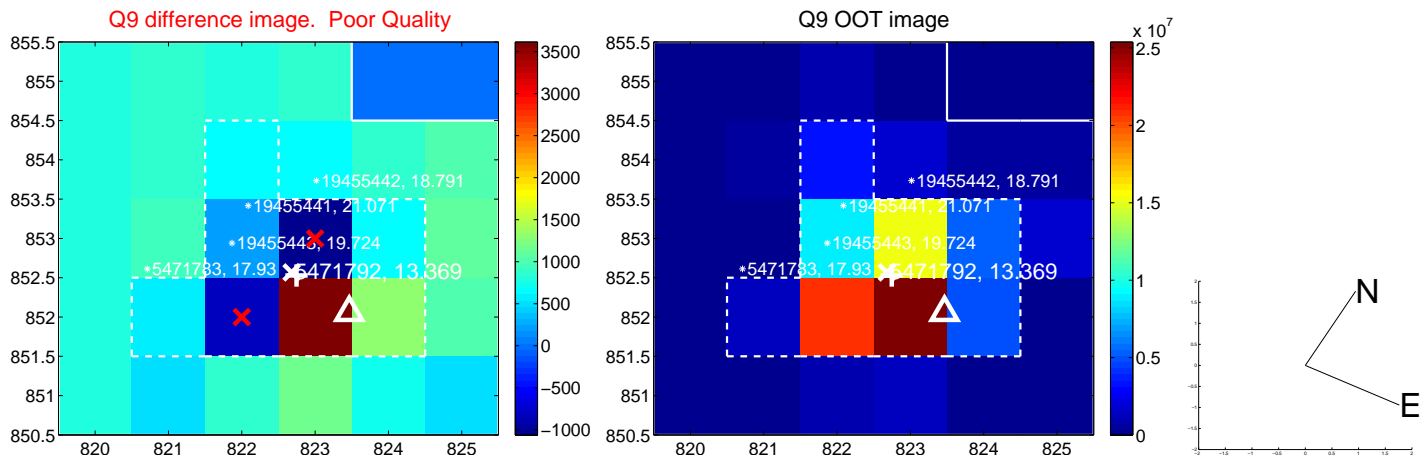
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



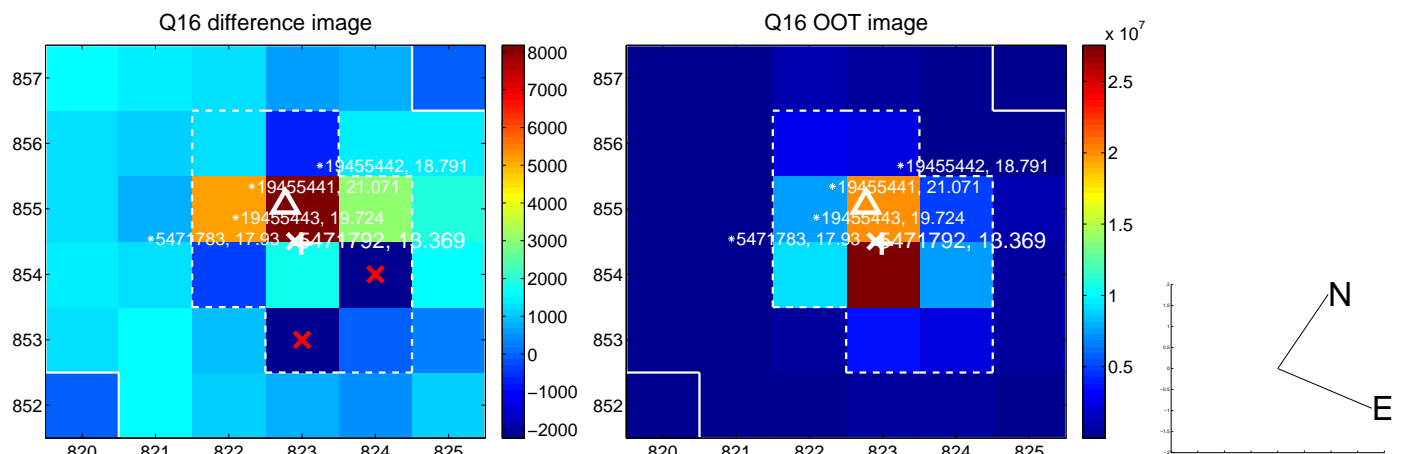
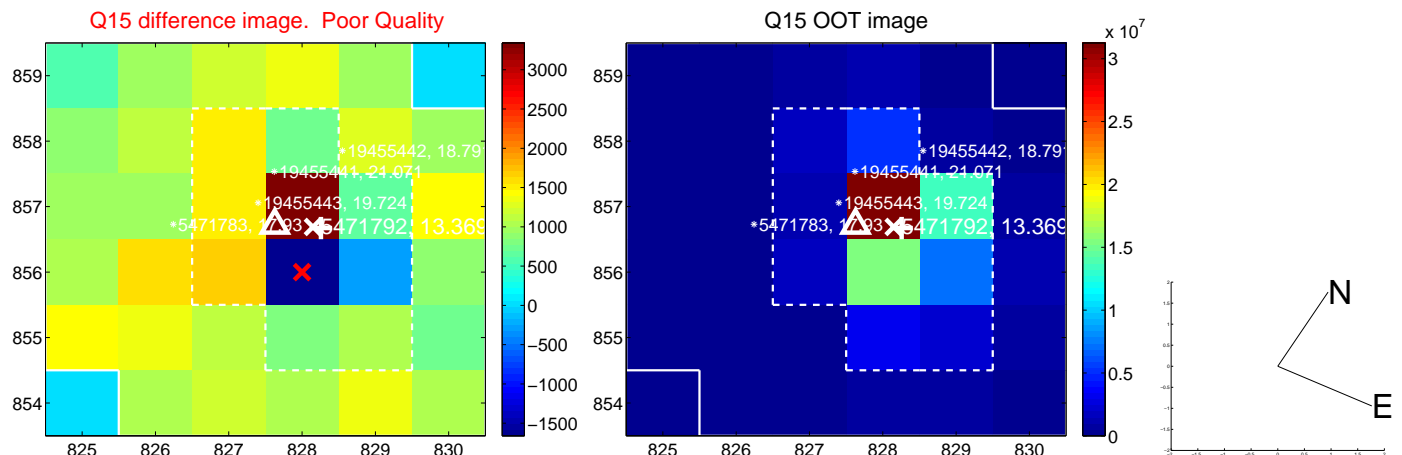
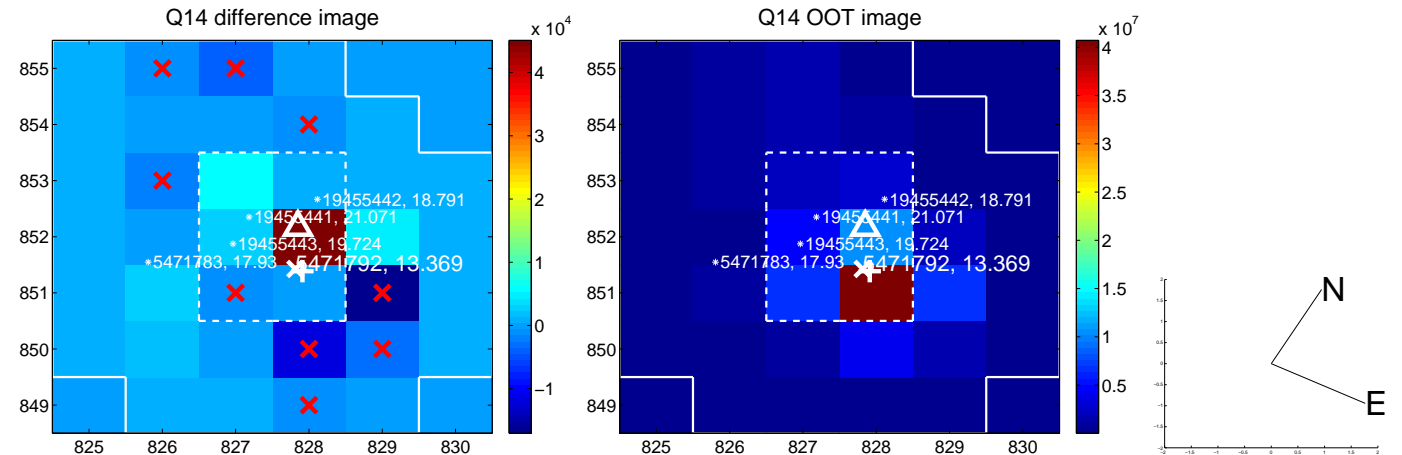
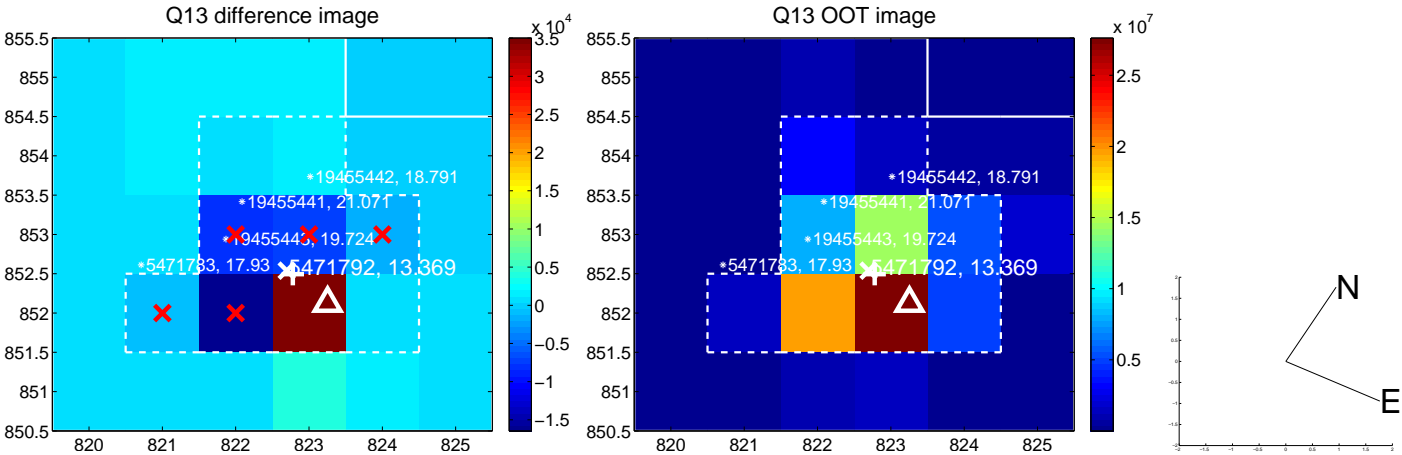
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



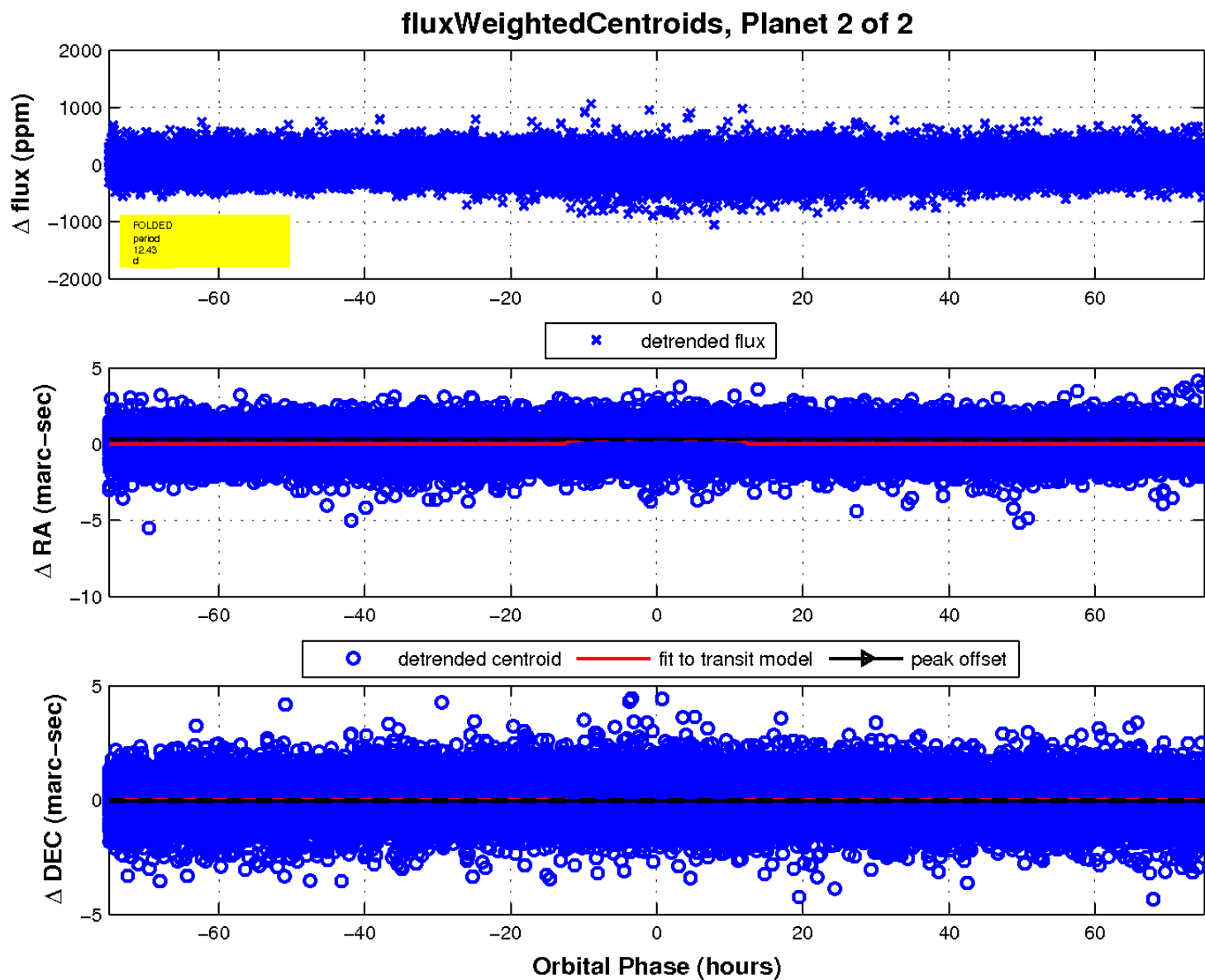
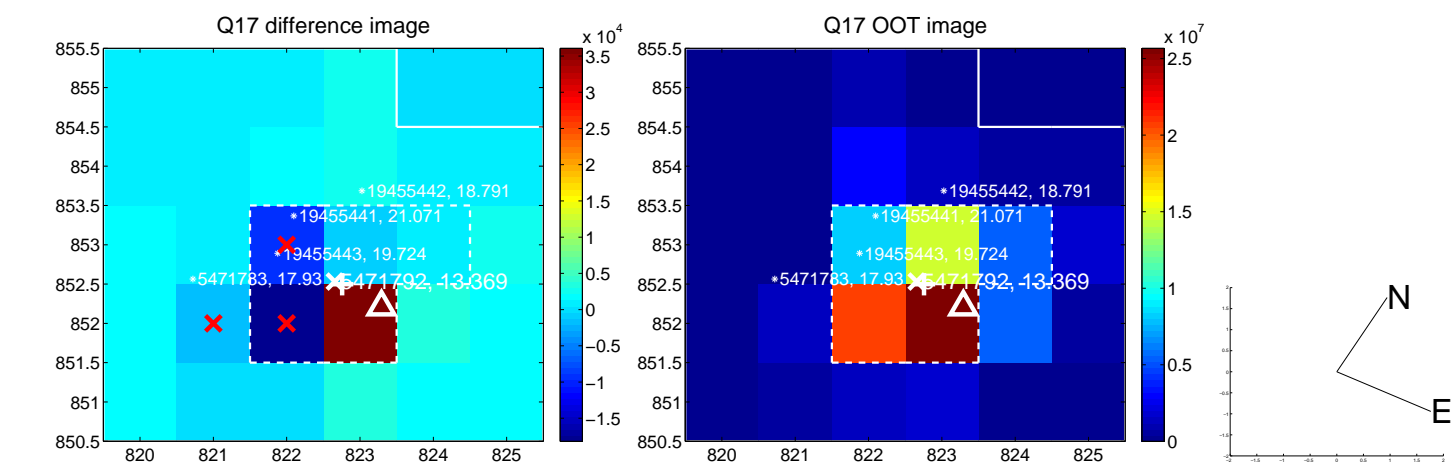
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

