

KIC 005471415

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})
005471415-01	OBS	6586.01	12.425726	141.503510	382.0	22.478	19.8	26.2	2.19	8691	5.22	1372.26
005471415-02	OBS	No	12.425723	133.948897	325.9	26.609	17.3	25.6	2.19	8691	4.88	1372.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471415-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005471415-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET—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 005471415-01

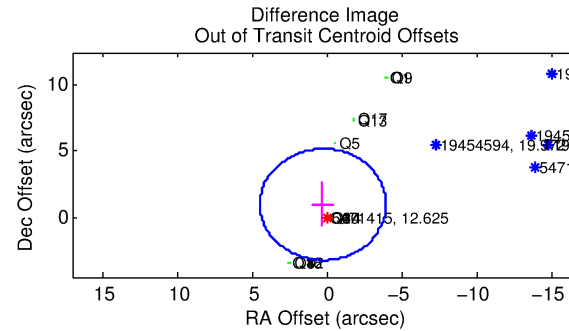
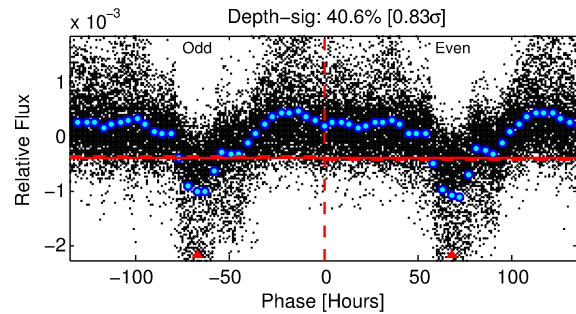
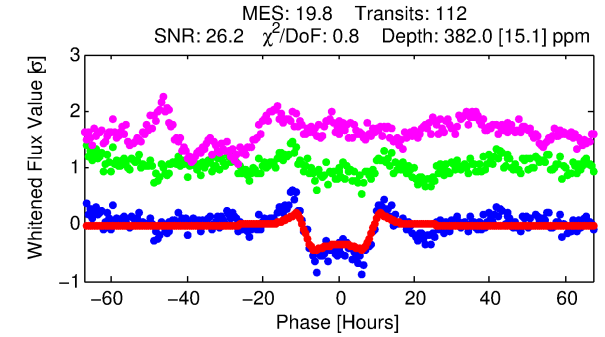
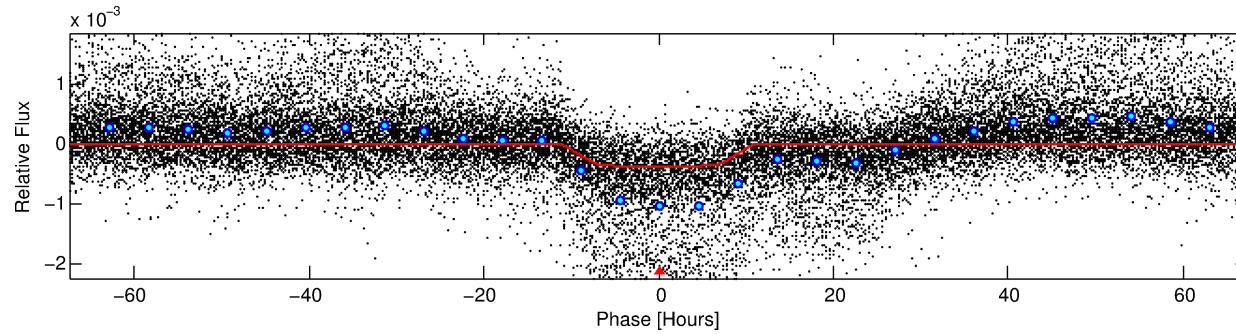
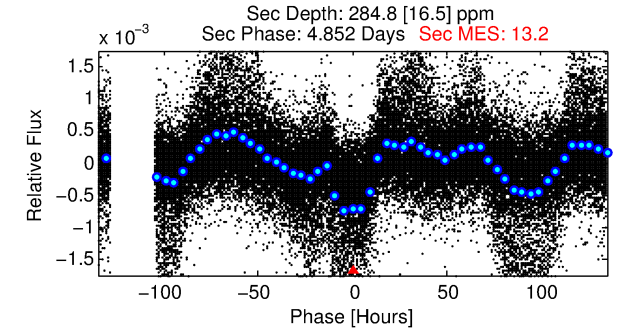
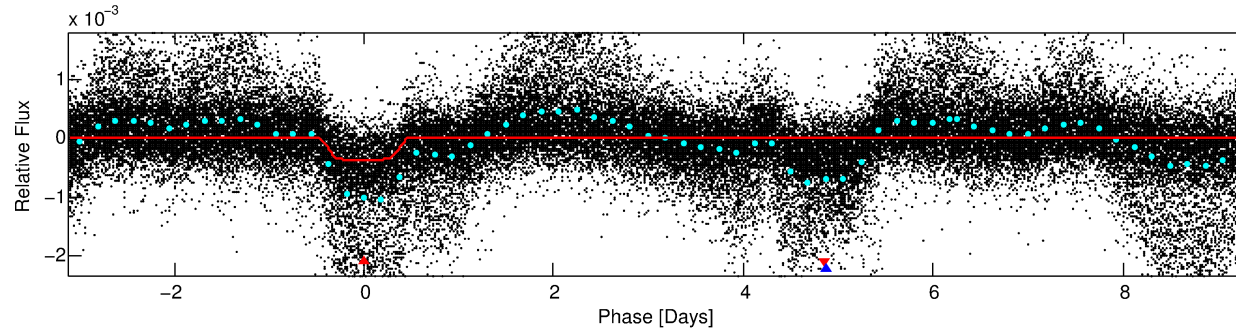
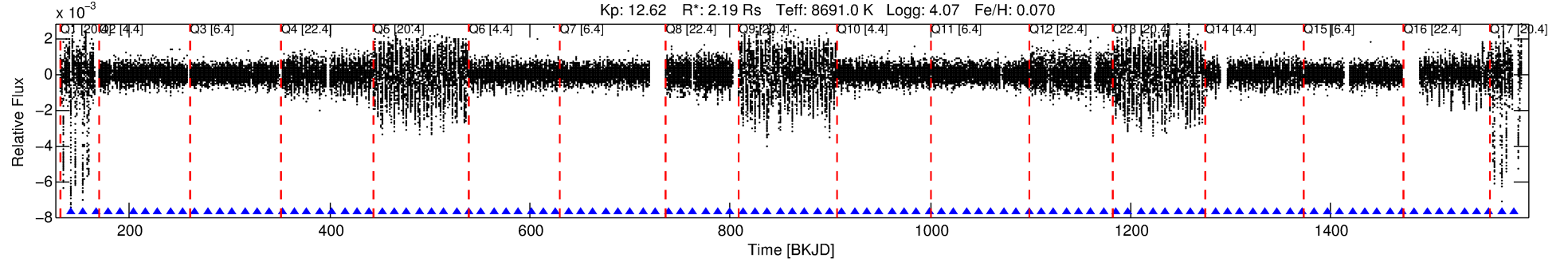
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005471415-01	5471415	V380-Cyg-pri	5385723	1:1	88.4	22	3	5.77	12.62	379.41	Direct-PRF	0	0.02	1.16

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: 5471415 Candidate: 1 of 2 Period: 12.426 d
KOI: K06586.01 Corr: 0.949

Kp: 12.62 R*: 2.19 Rs Teff: 8691.0 K Logg: 4.07 Fe/H: 0.070



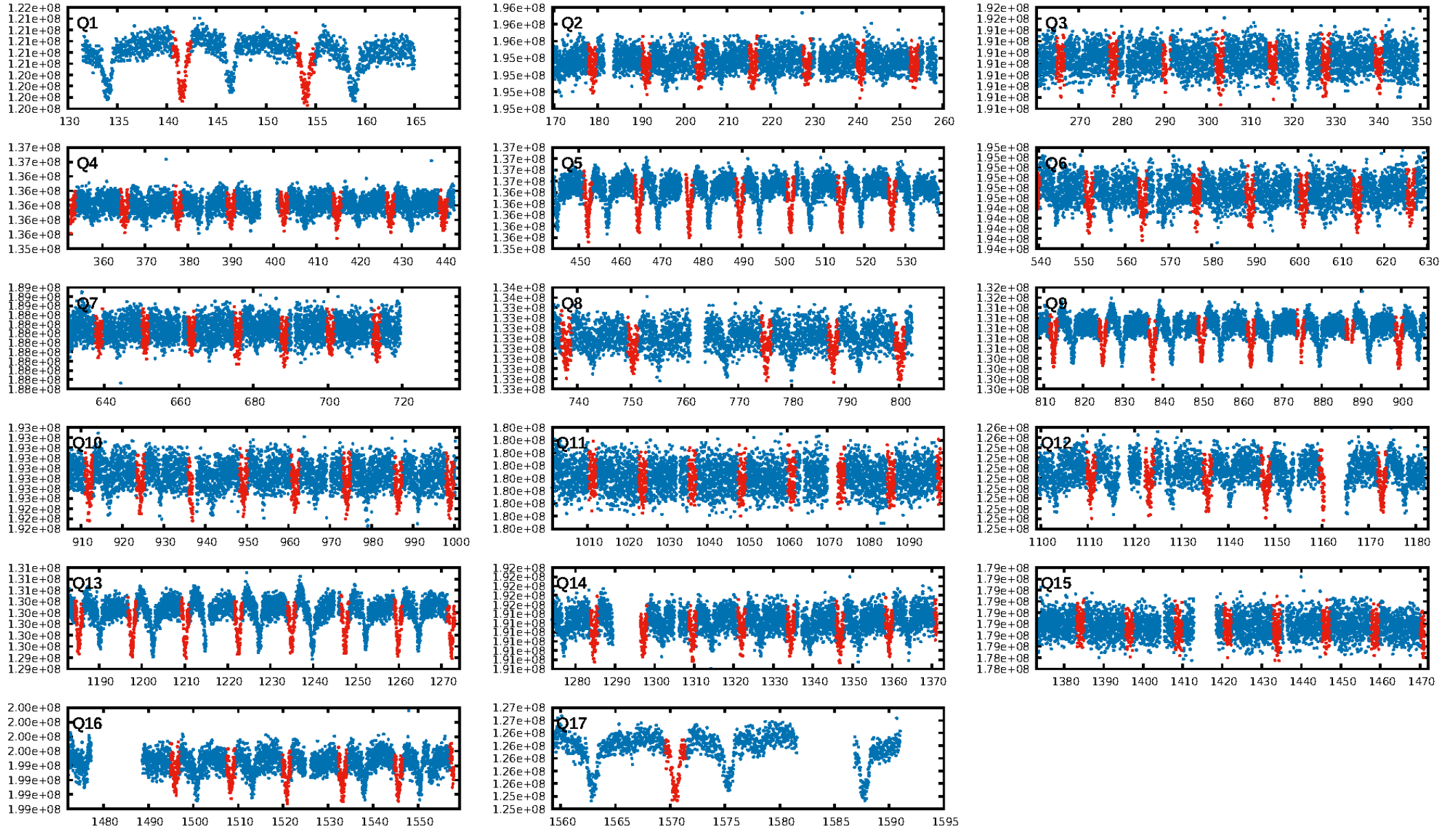
DV Fit Results:

Period = 12.42573 [0.00017] d
Epoch = 141.5035 [0.0112] BKJD
Rp/R* = 0.0218 [0.0005]
a/R* = 1.83 [0.07]
b = 0.95 [0.01]
Seff = 1372.26 [507.33]
Teq = 1552 [143] K
Rp = 5.22 [1.41] Re
a = 0.1338 [0.0297] AU
Ag = 102.85 [33.56] [3.03σ]
Teff = 7641 [387] K [14.76σ]

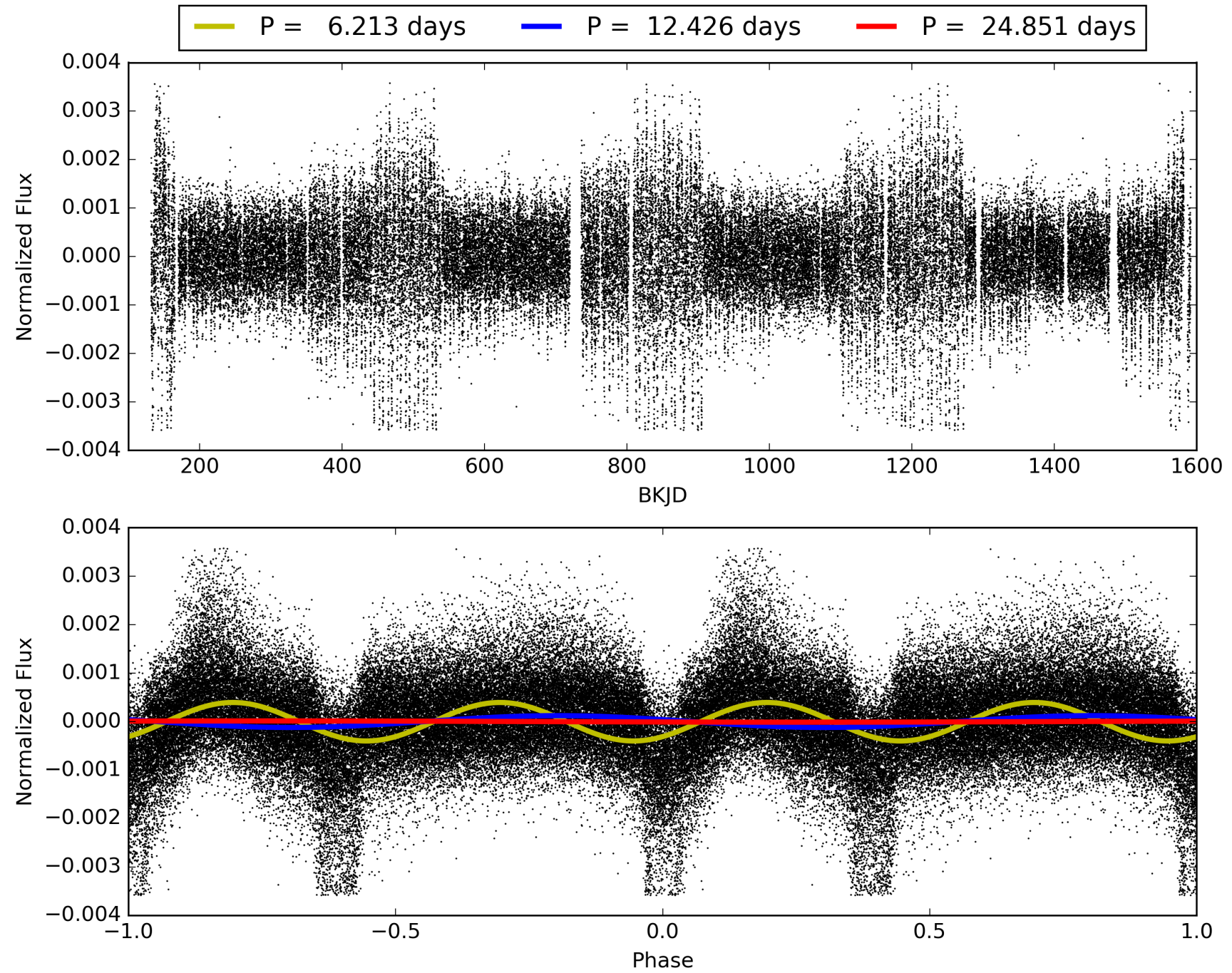
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.15e-84
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: -1.071
Centroid-sig: N/A
Centroid-so: 3.207 arcsec [20.53σ]
OotOffset-rm: 1.011 arcsec [0.72σ]
KicOffset-rm: 10.166 arcsec [26.63σ]
OotOffset-st: 4/0/4/5 [13]
KicOffset-st: 4/0/4/5 [13]
DiffImageQuality-fgm: 0.00 [0/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 005471415-01, PDC Light Curves

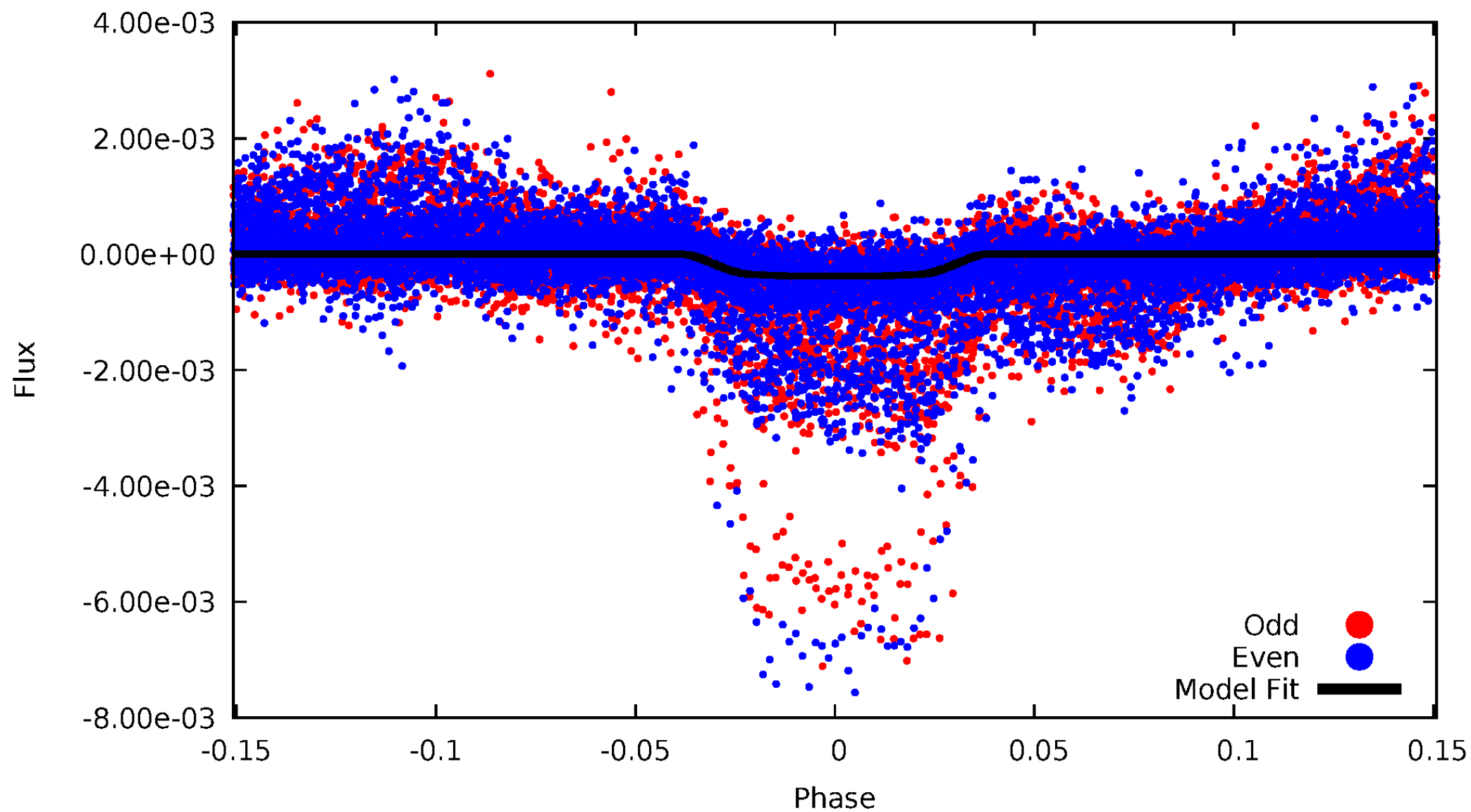


TCE 005471415-01



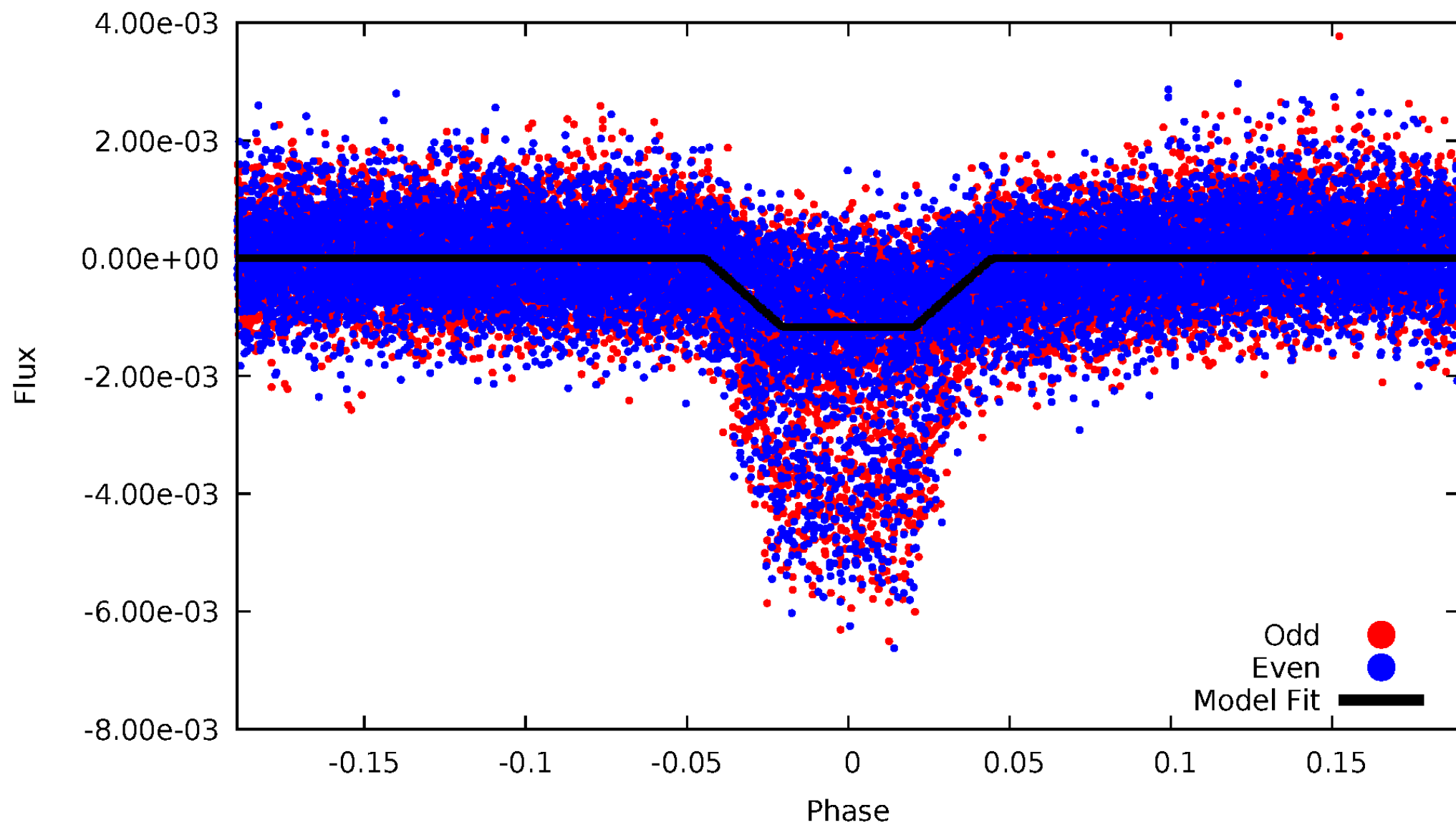
DV Odd/Even

TCE 005471415-01

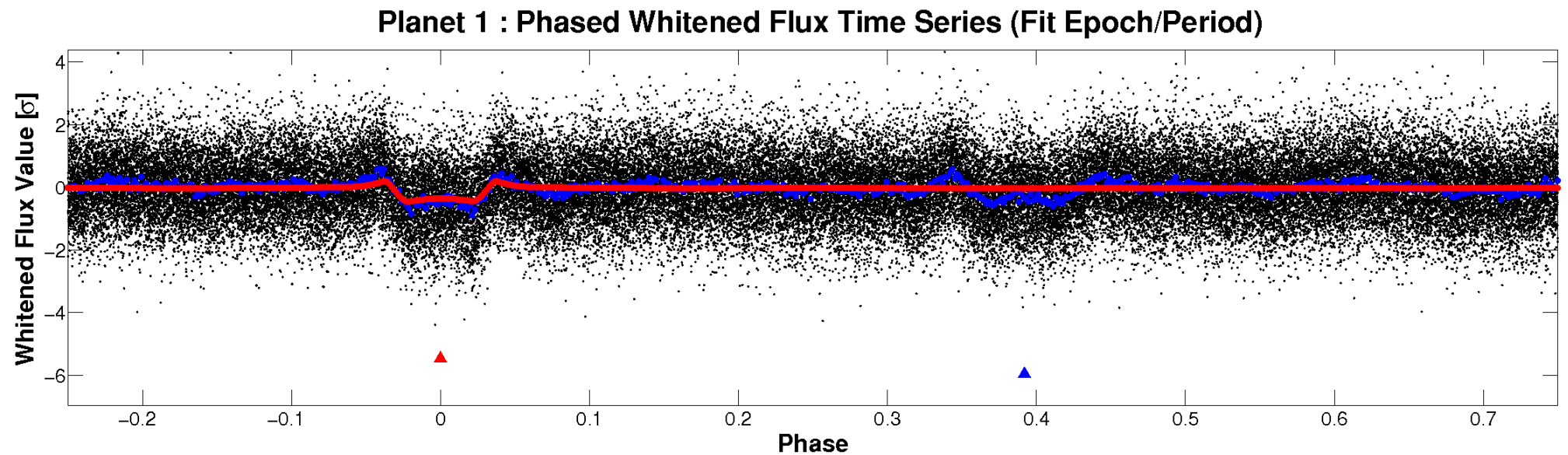
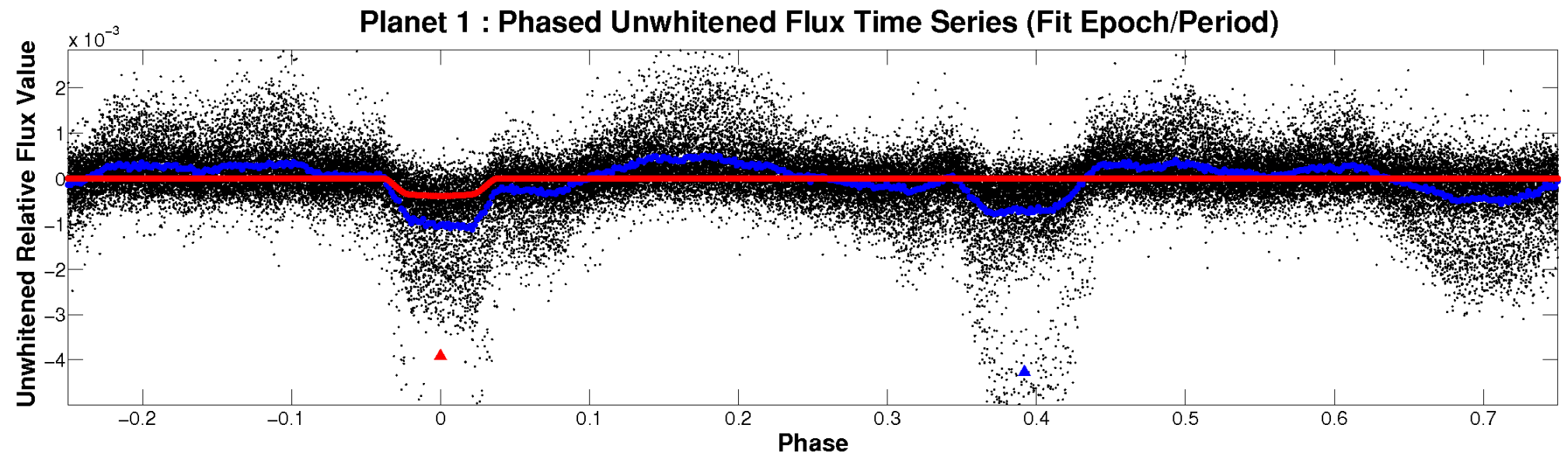


ALT Odd/Even

TCE 005471415-01

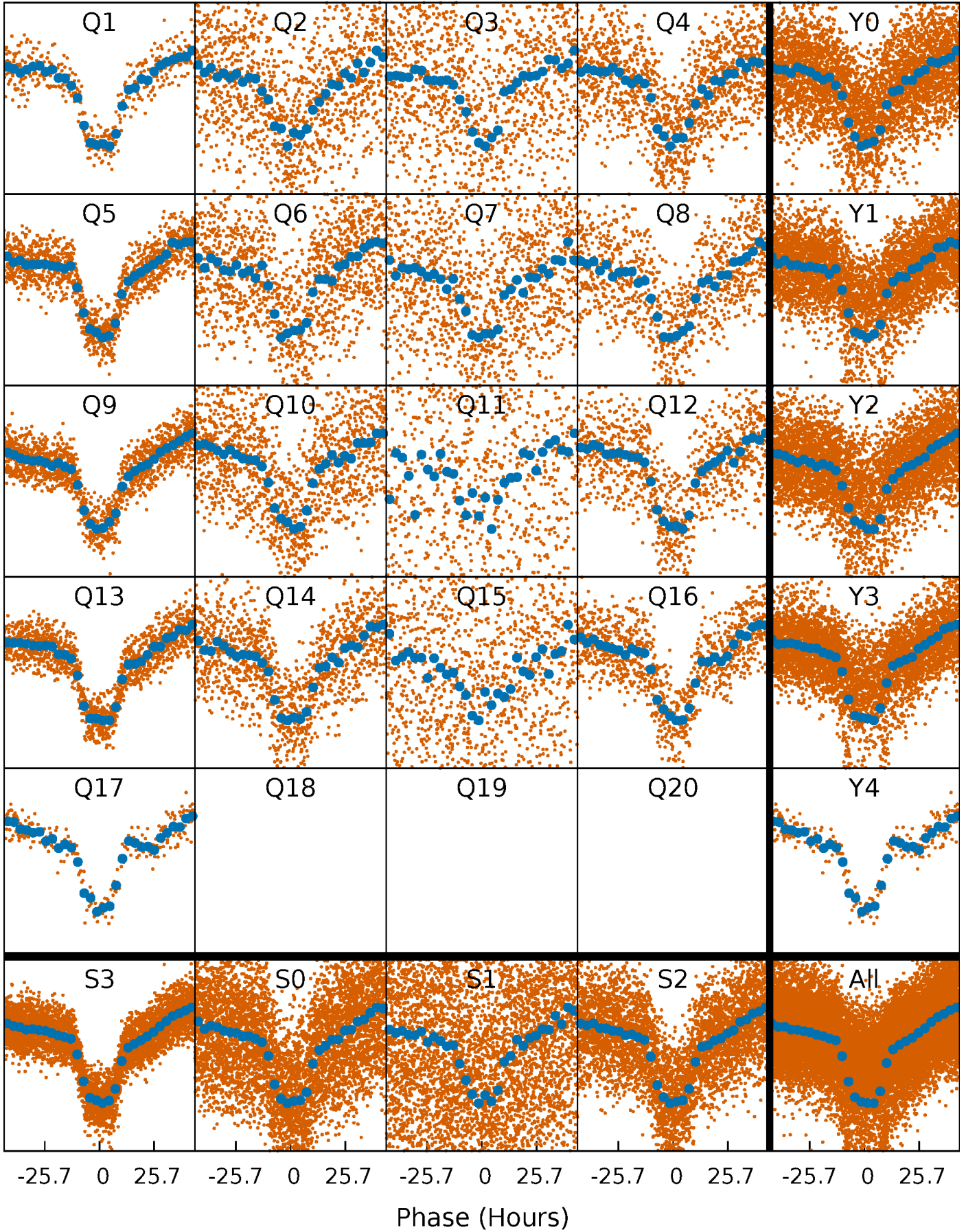


Non-Whitened Vs. Whitened Light Curve



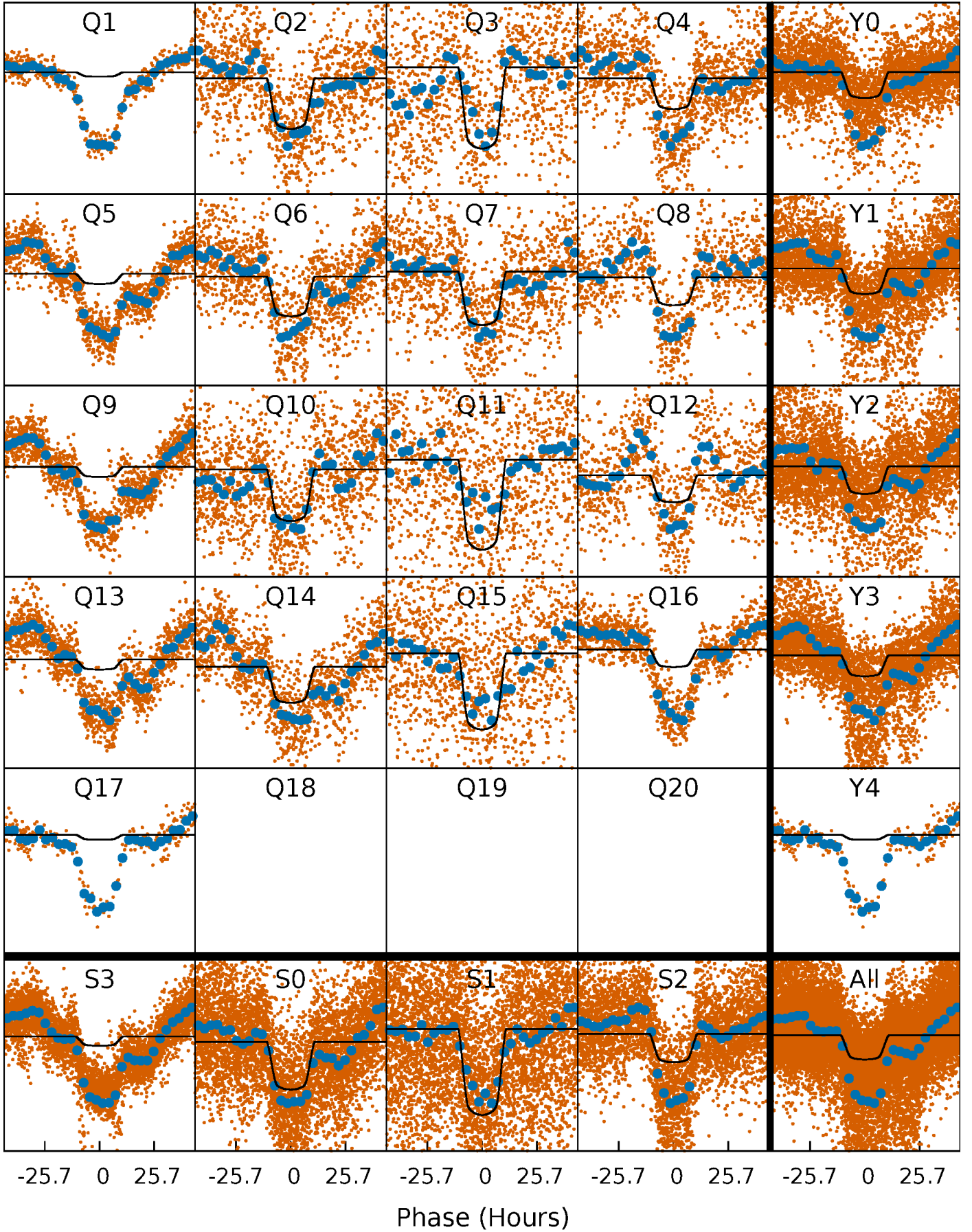
PDC Quarter-Phased Transit Curves

TCE 005471415-01 P= 12.425726 Days $T_0=141.503510$ (BKJD)



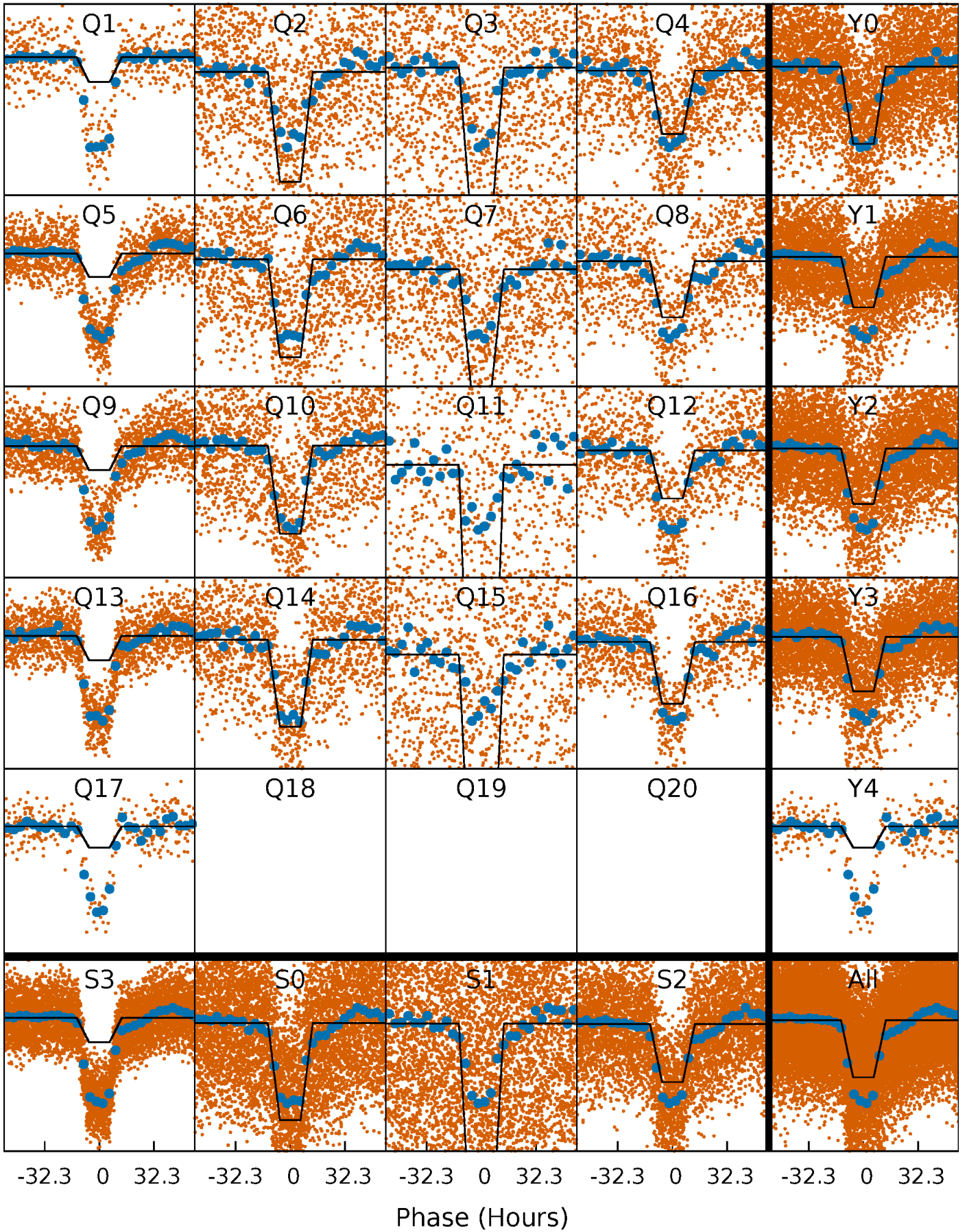
DV Quarter-Phased Transit Curves

TCE 005471415-01 P= 12.425726 Days $T_0=141.503510$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

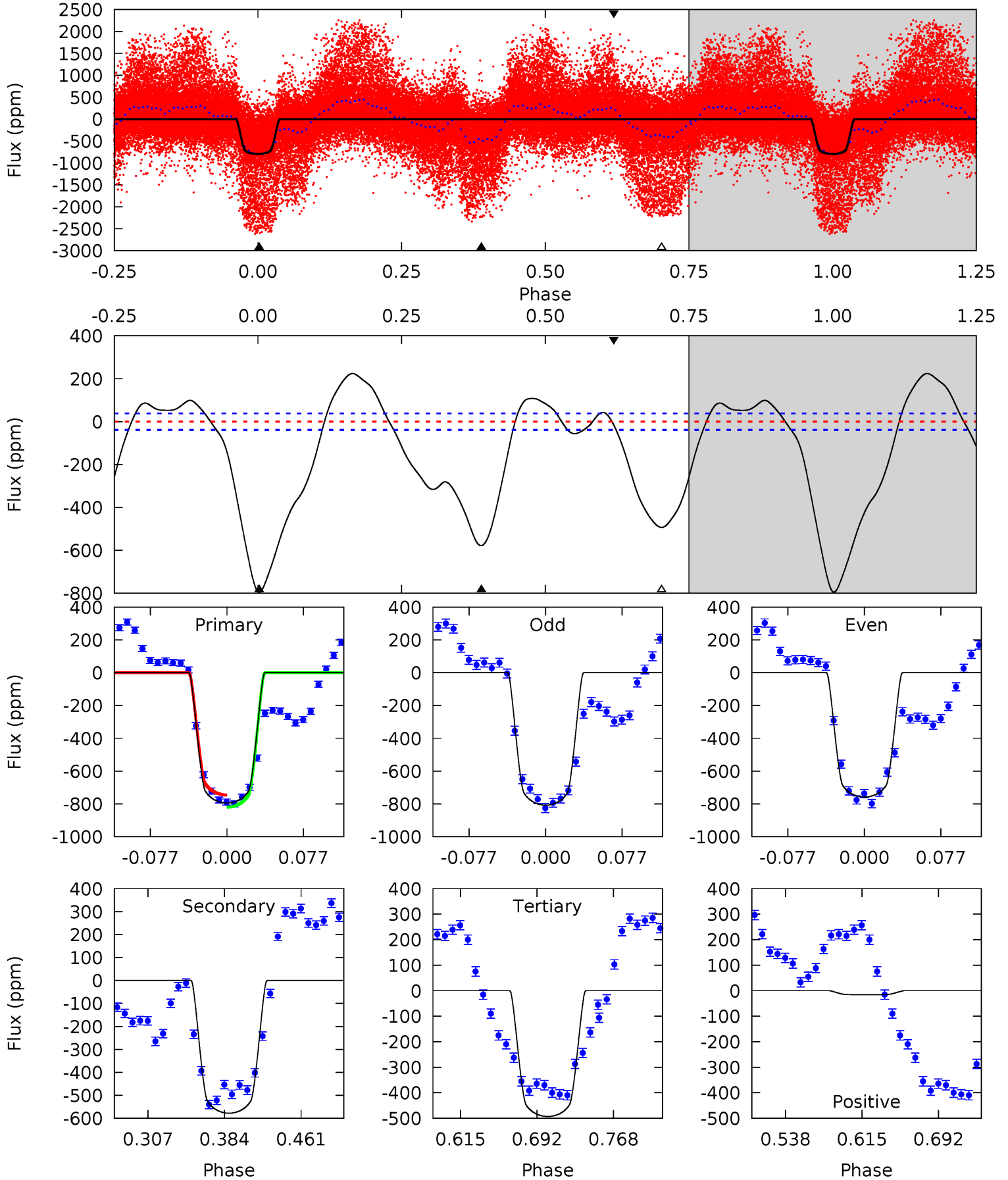
TCE 005471415-01 P= 12.425672 Days $T_0=141.538641$ (BKJD)



DV Model-Shift Uniqueness Test

005471415-01, P = 12.425726 Days, E = 129.077784 Days

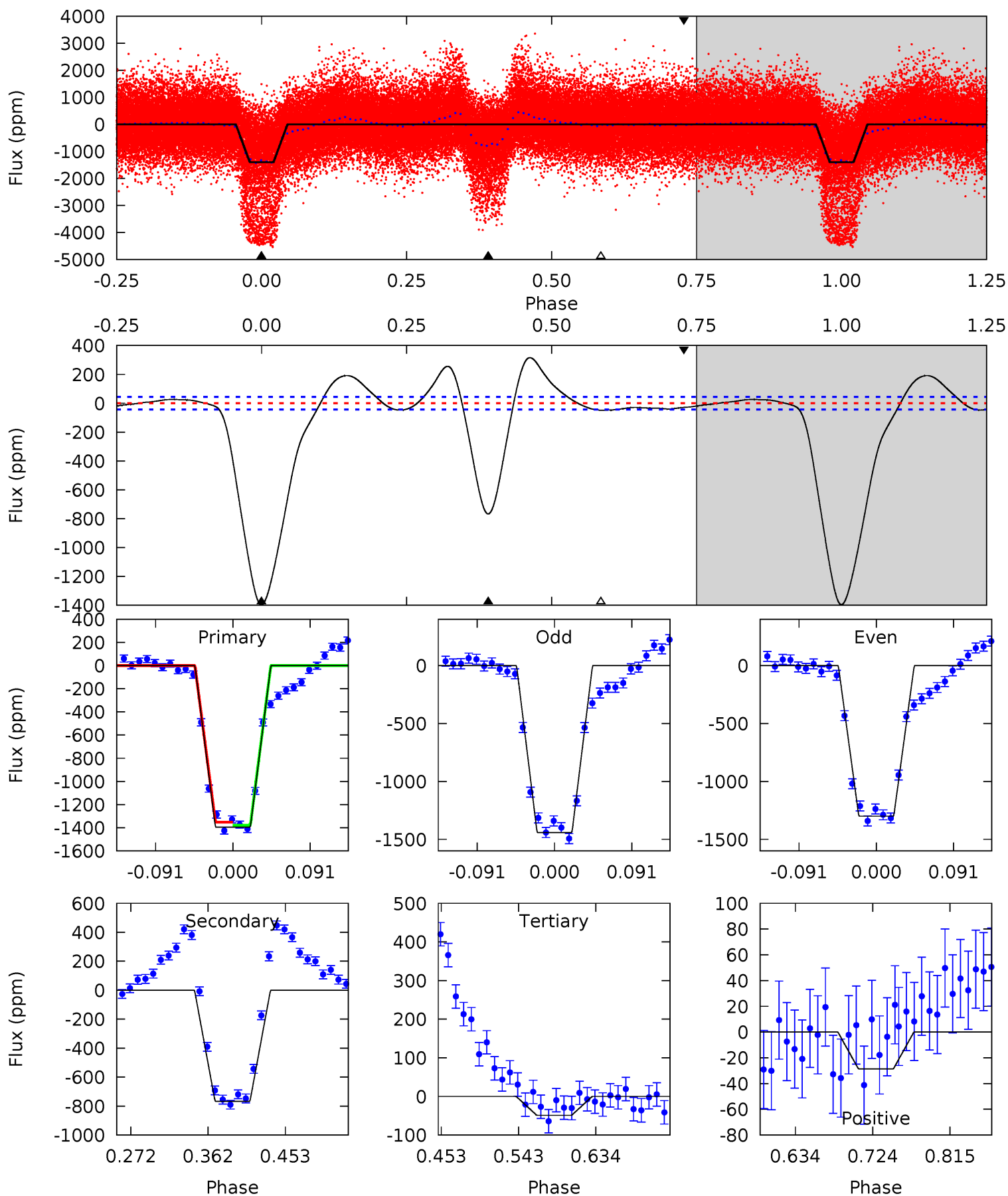
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
95.4	69.4	59.2	-1.90	4.62	1.77	22.8	36.2	97.3	10.2	71.3	3.00	1.92	0.22	4.36



Alt Model-Shift Uniqueness Test

005471415-01, P = 12.425672 Days, E = 129.112969 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
145.6	80.0	5.09	-2.99	4.59	1.69	7.32	140.5	148.6	74.9	83.0	7.31	1.45	0.18	1.34



Stellar Parameters For KIC 005471415

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8691^{+205}_{-410}	$4.072^{+0.171}_{-0.140}$	$0.070^{+0.200}_{-0.600}$	$2.193^{+0.482}_{-0.590}$	$2.069^{+0.341}_{-0.512}$	$0.276^{+0.276}_{-0.101}$
	+2%/-5%	+4%/-3%	+286%/-857%	+22%/-27%	+16%/-25%	+100%/-37%
Source	KIC0	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 005471415-01 / KOI 6586.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-578 ± 8	$5.24^{+0.69}_{-0.74}$	2155^{+136}_{-149}	9235^{+302}_{-442}	208^{+54}_{-42}
Alt.	-767 ± 10	$8.17^{+1.07}_{-1.24}$	2140^{+138}_{-153}	7566^{+206}_{-325}	114^{+30}_{-23}

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

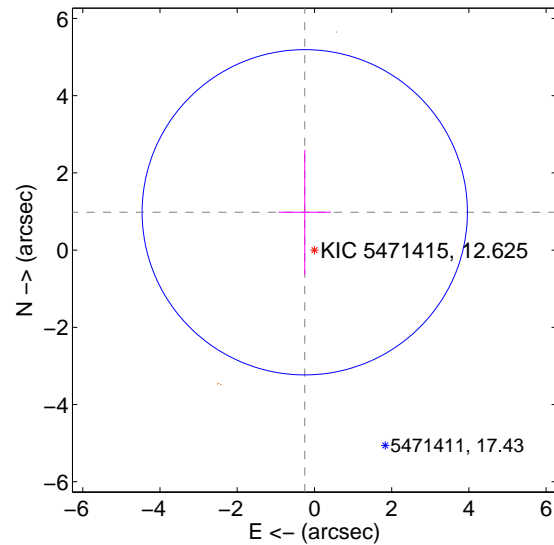
Supplemental centroid analysis for 005471415-01. Kepler magnitude: 12.62. Transit SNR 26.21

There are 0 quarters with good PRF difference image offsets

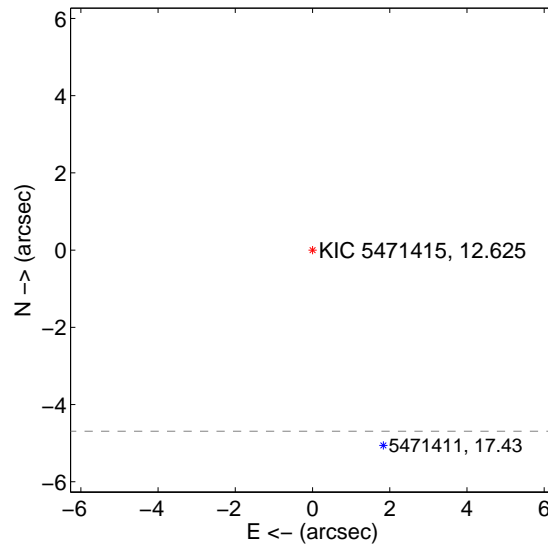
The OOT PRF centroid is offset from the target star catalog position by about 9.80 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.011 ± 1.404	0.72	0.250 ± 0.678	0.980 ± 1.616
PRF-fit source offset from KIC position	10.166 ± 0.382	26.63	-9.018 ± 0.418	-4.693 ± 1.559
photometric centroid source offset	3.21 ± 0.16	20.53	-2.98 ± 0.16	-1.18 ± 0.09

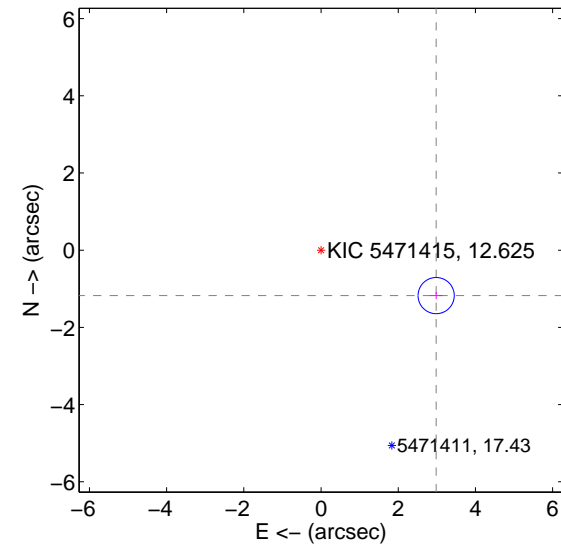
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

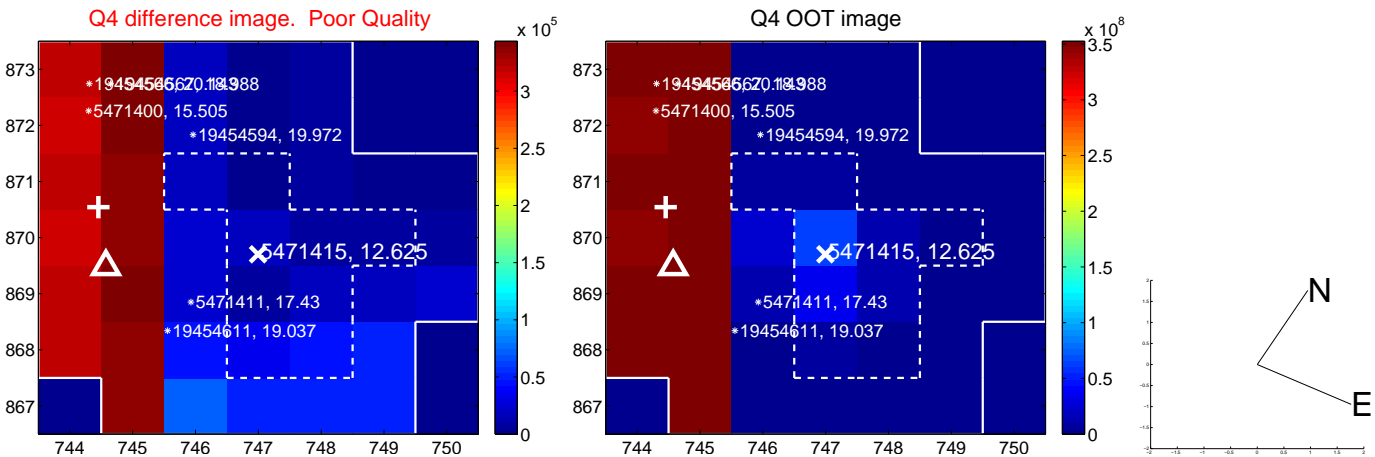
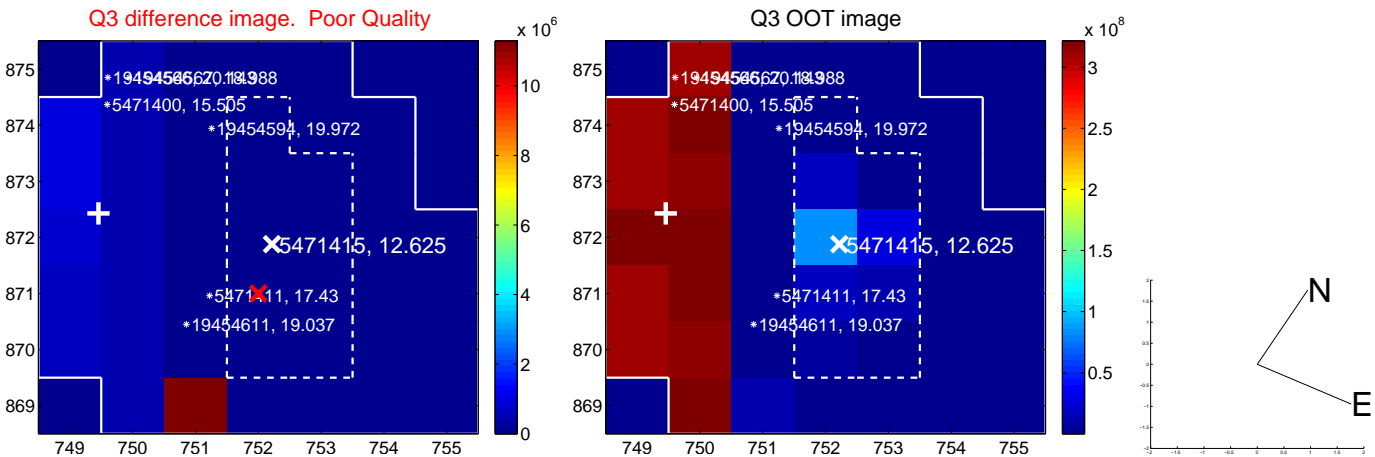
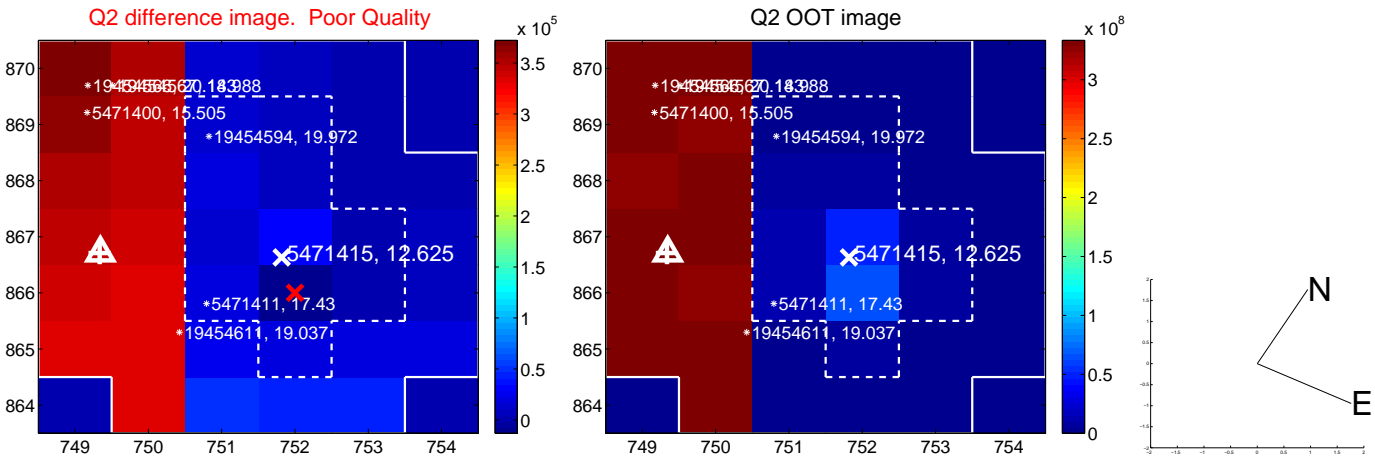
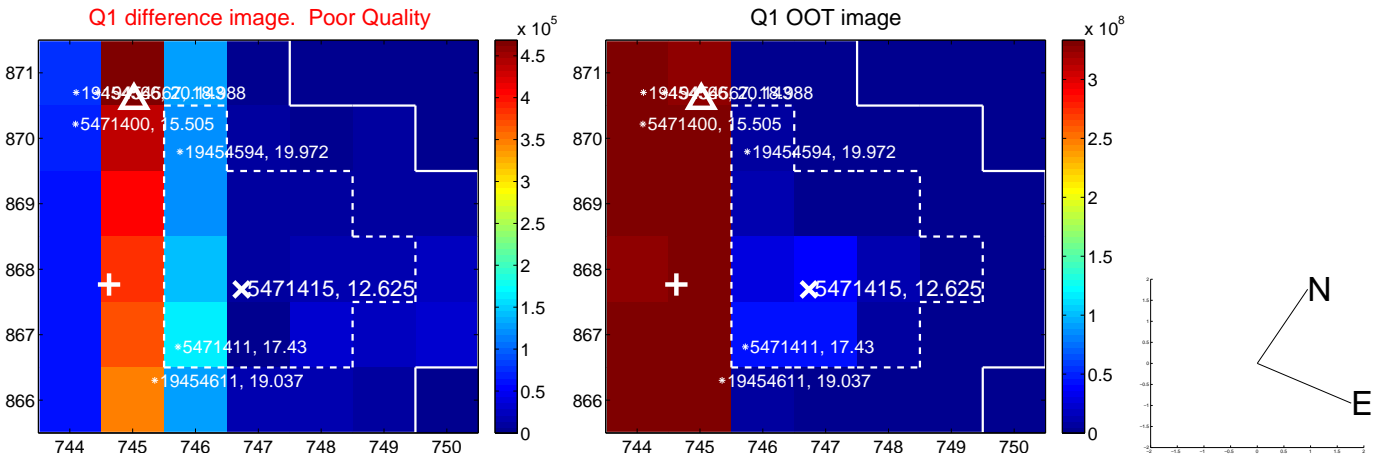


offset from photometric centroids

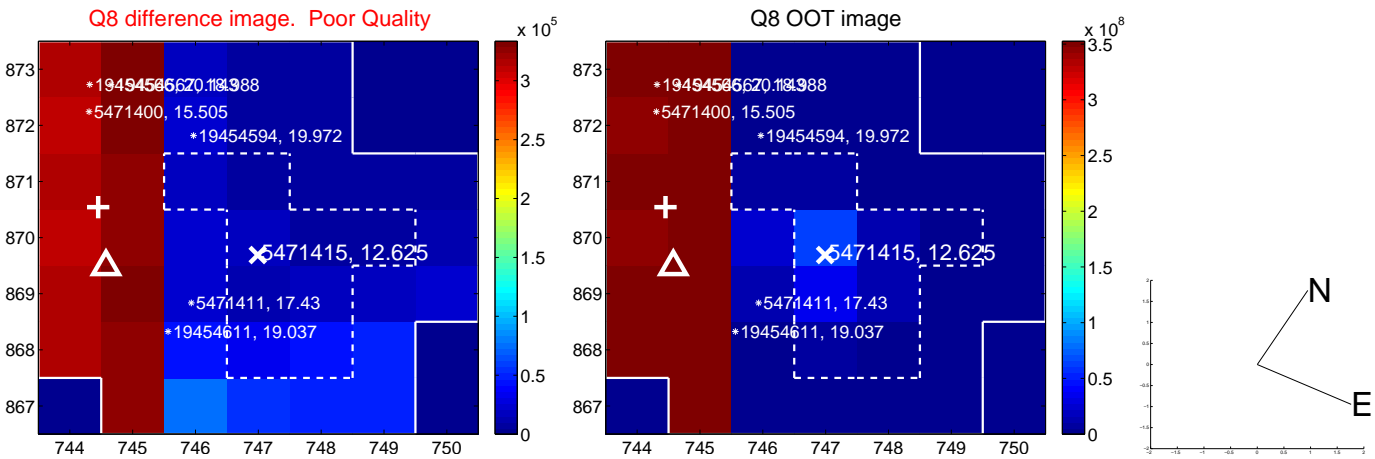
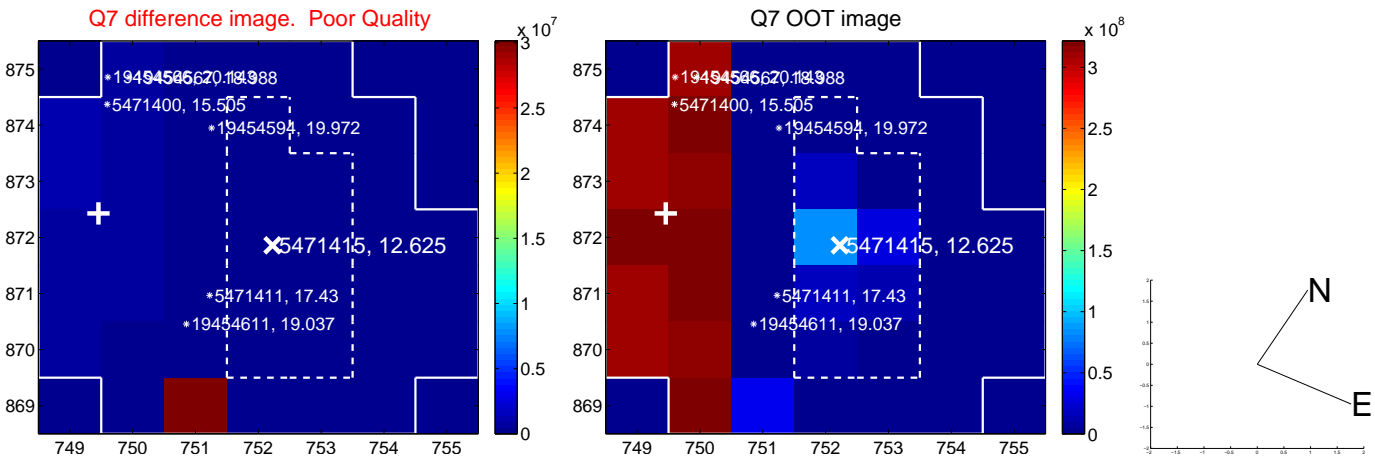
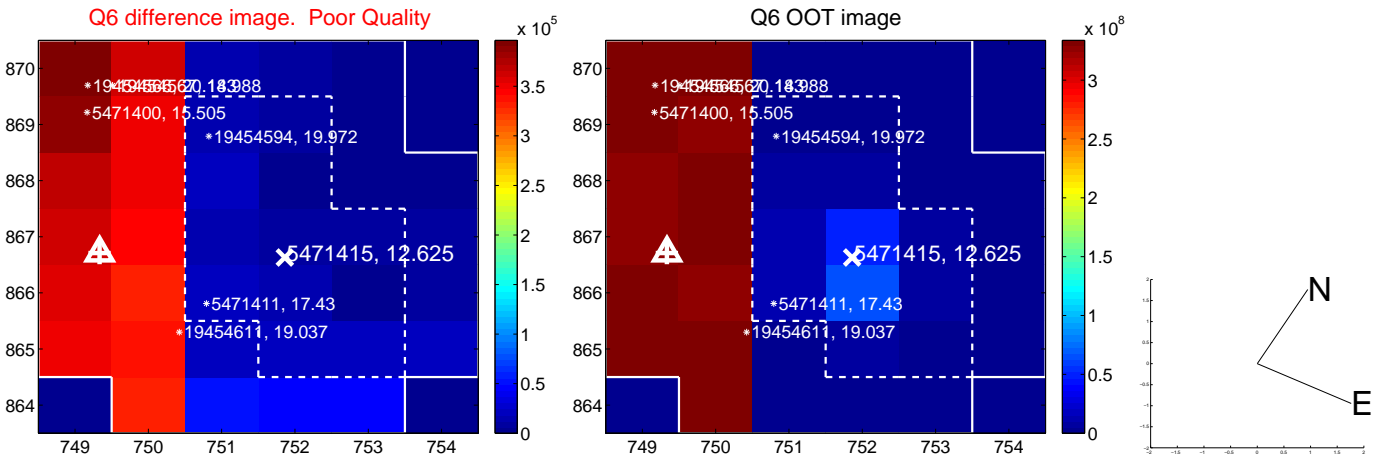
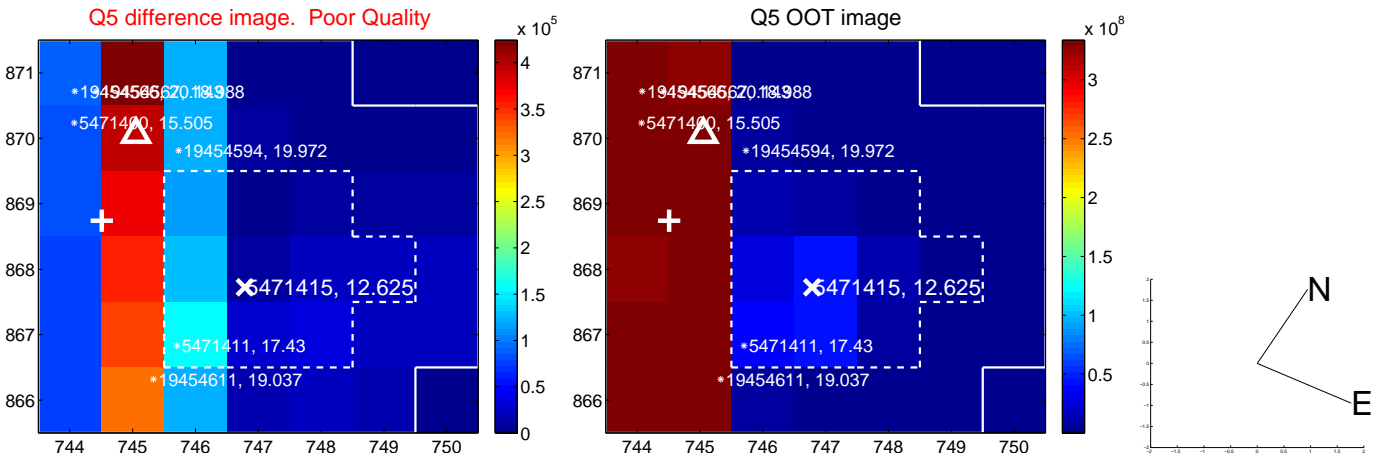


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

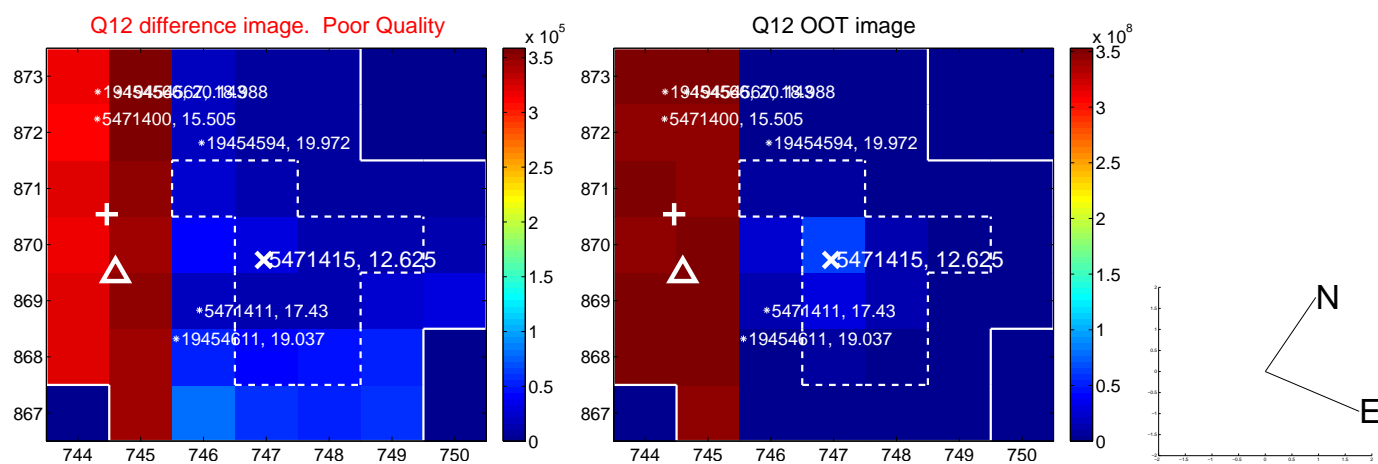
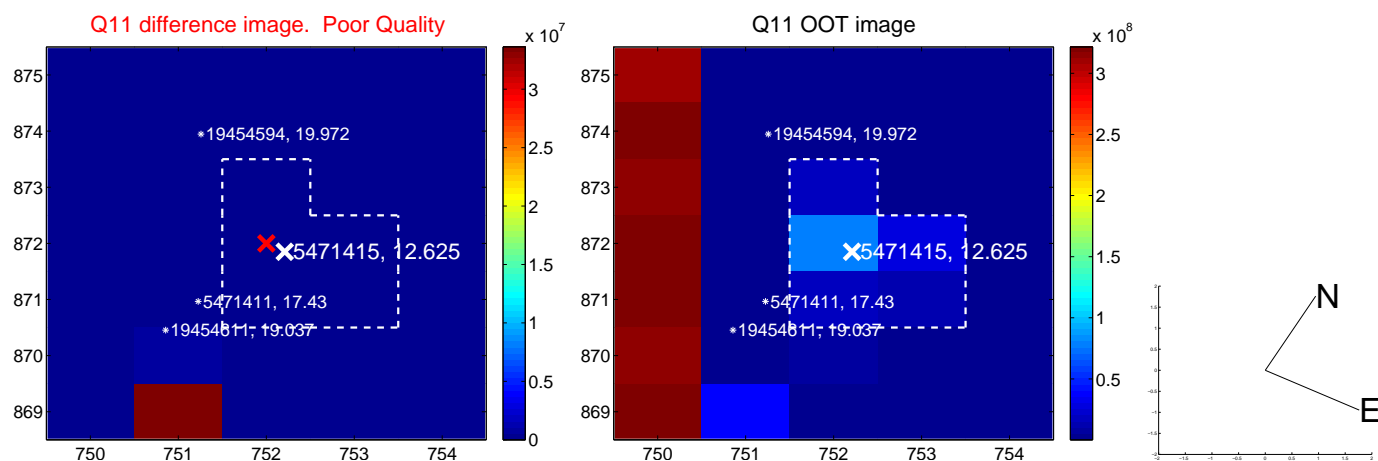
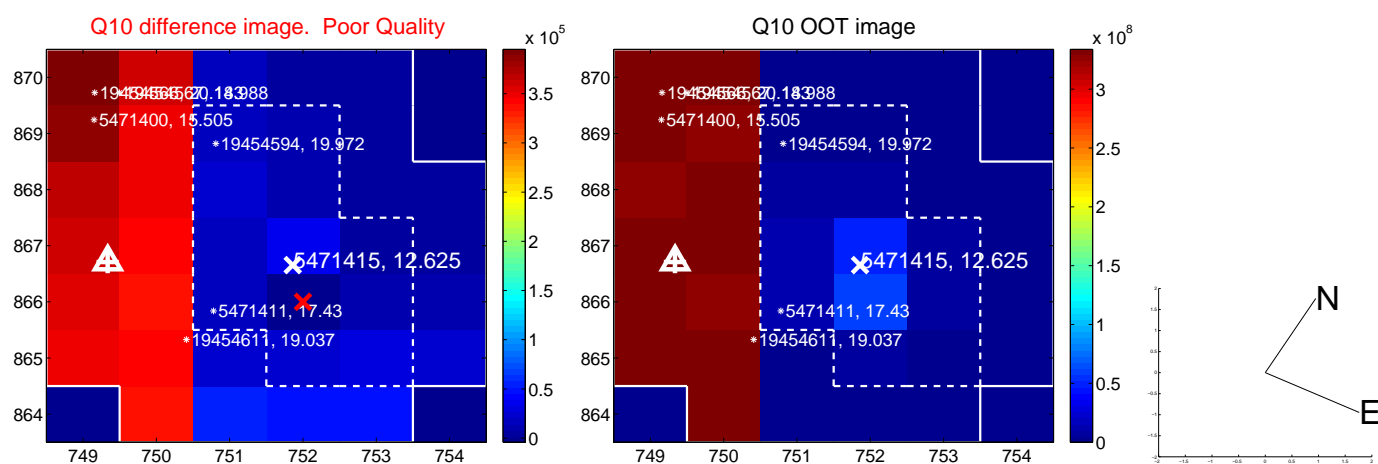
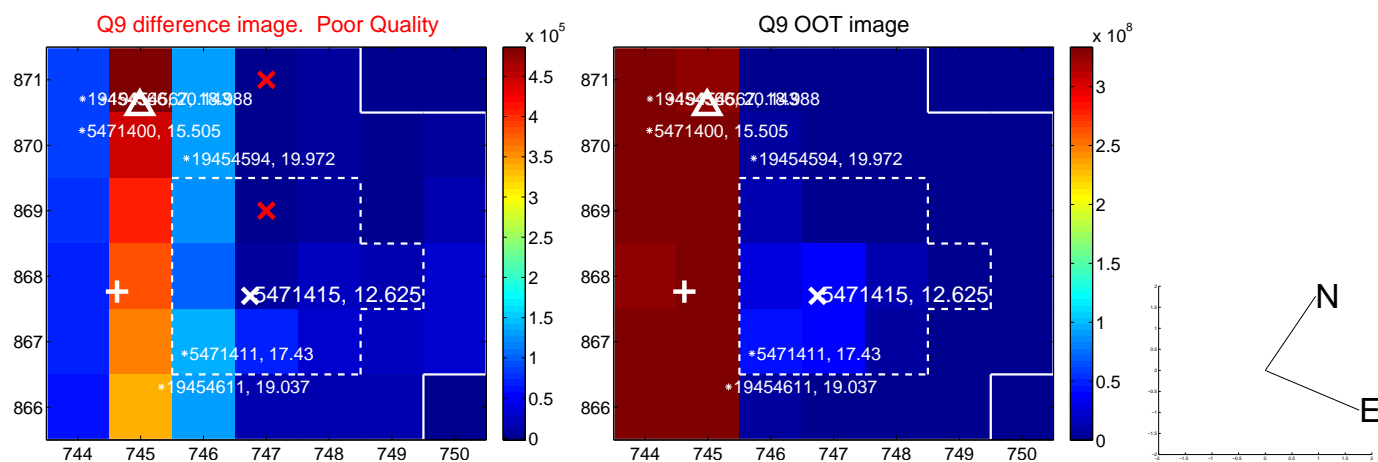
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



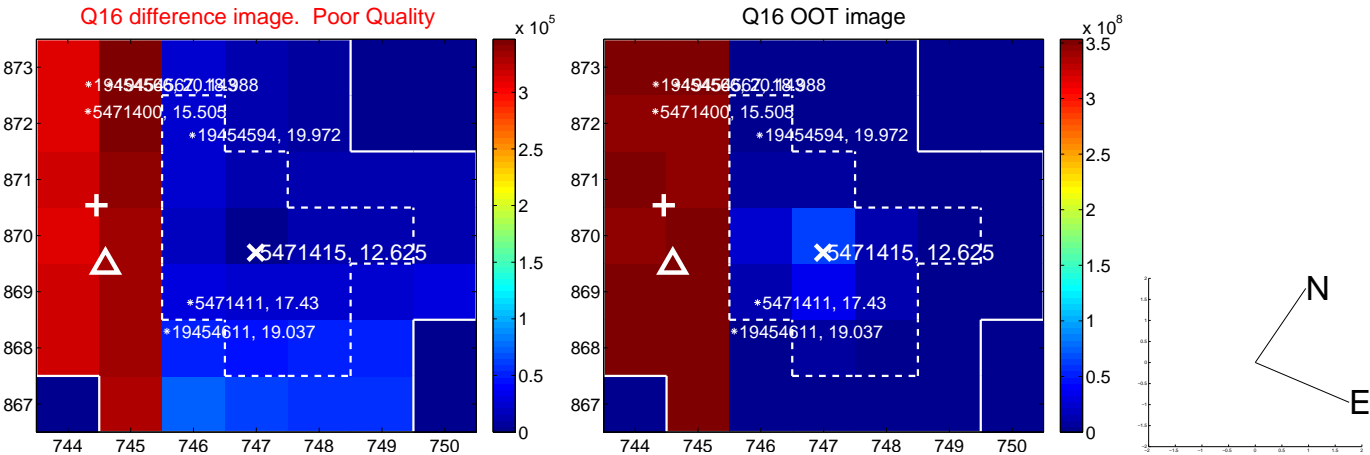
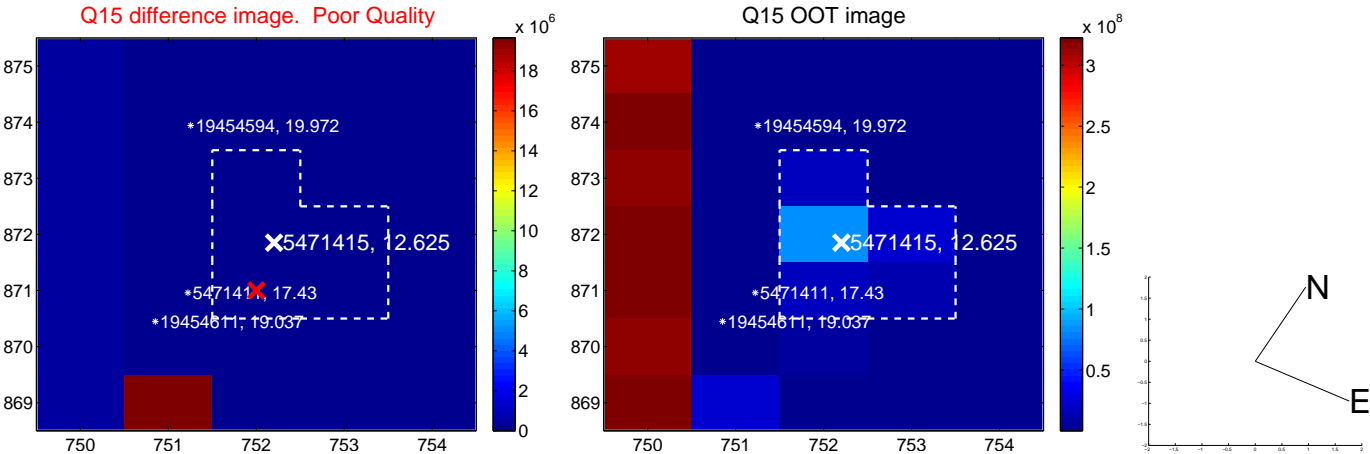
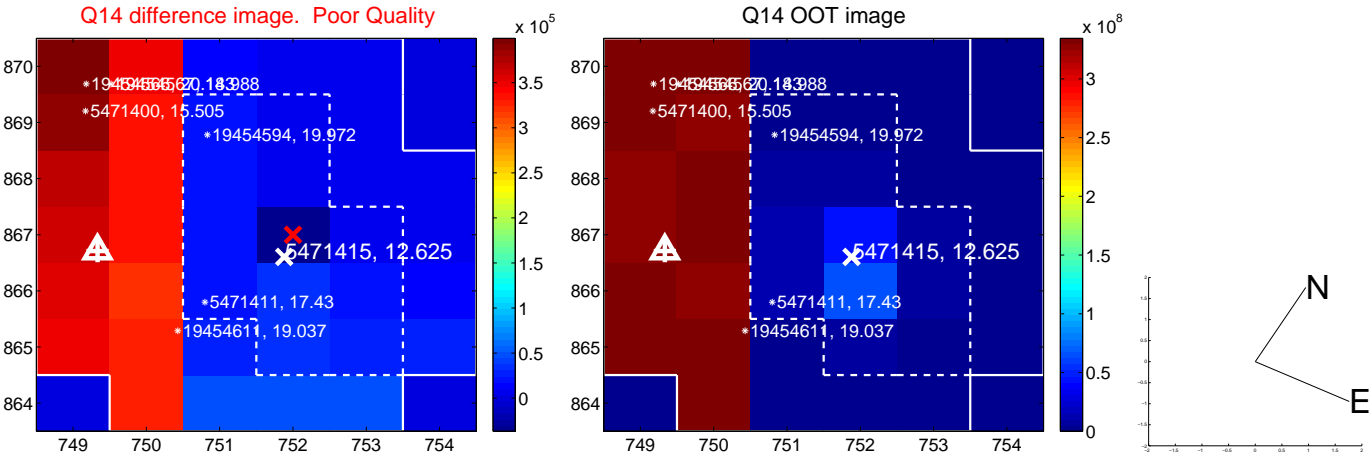
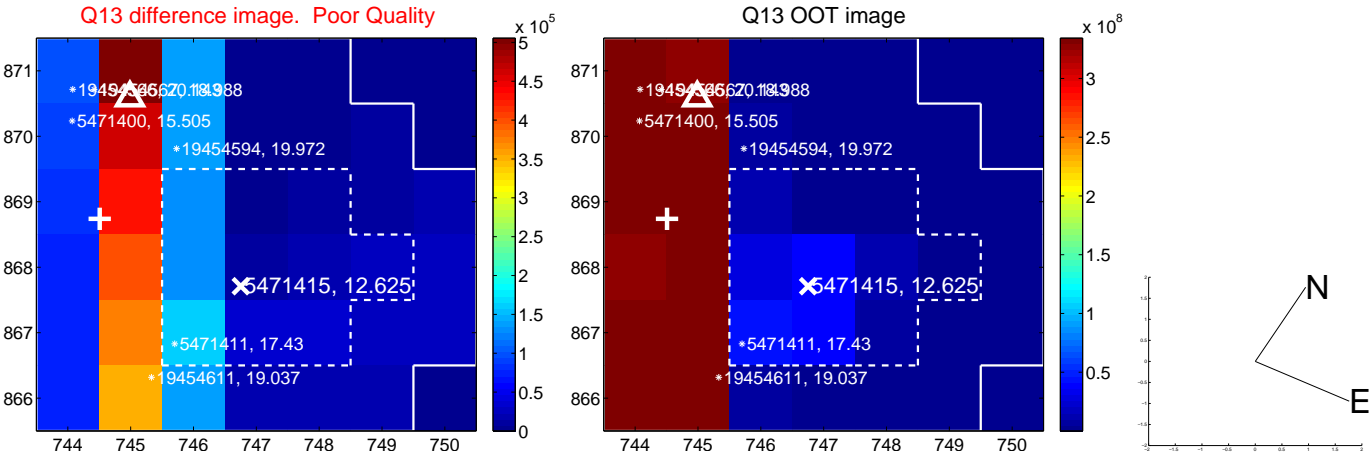
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



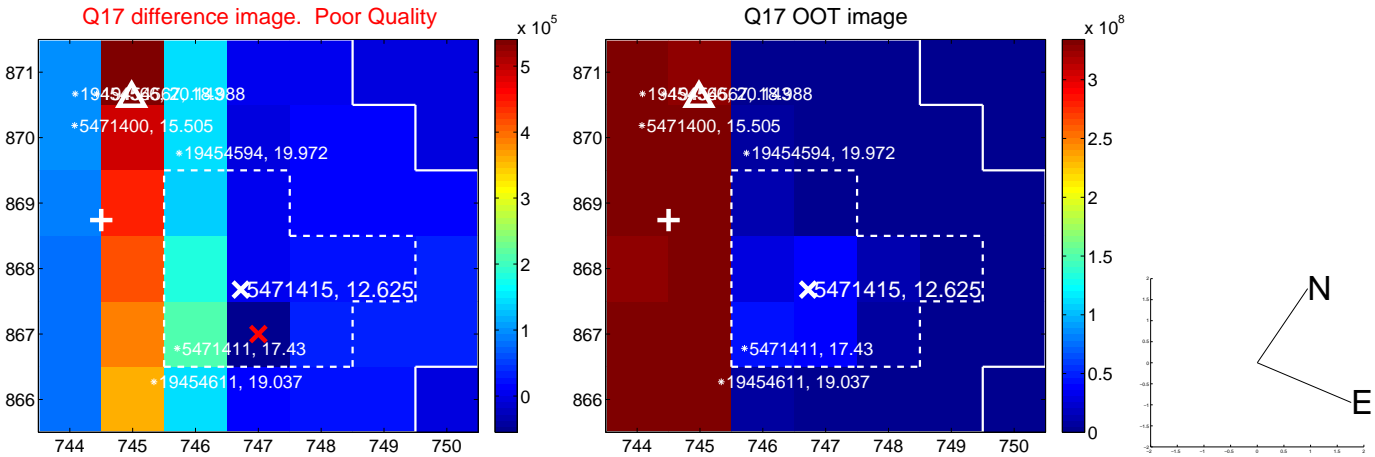
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



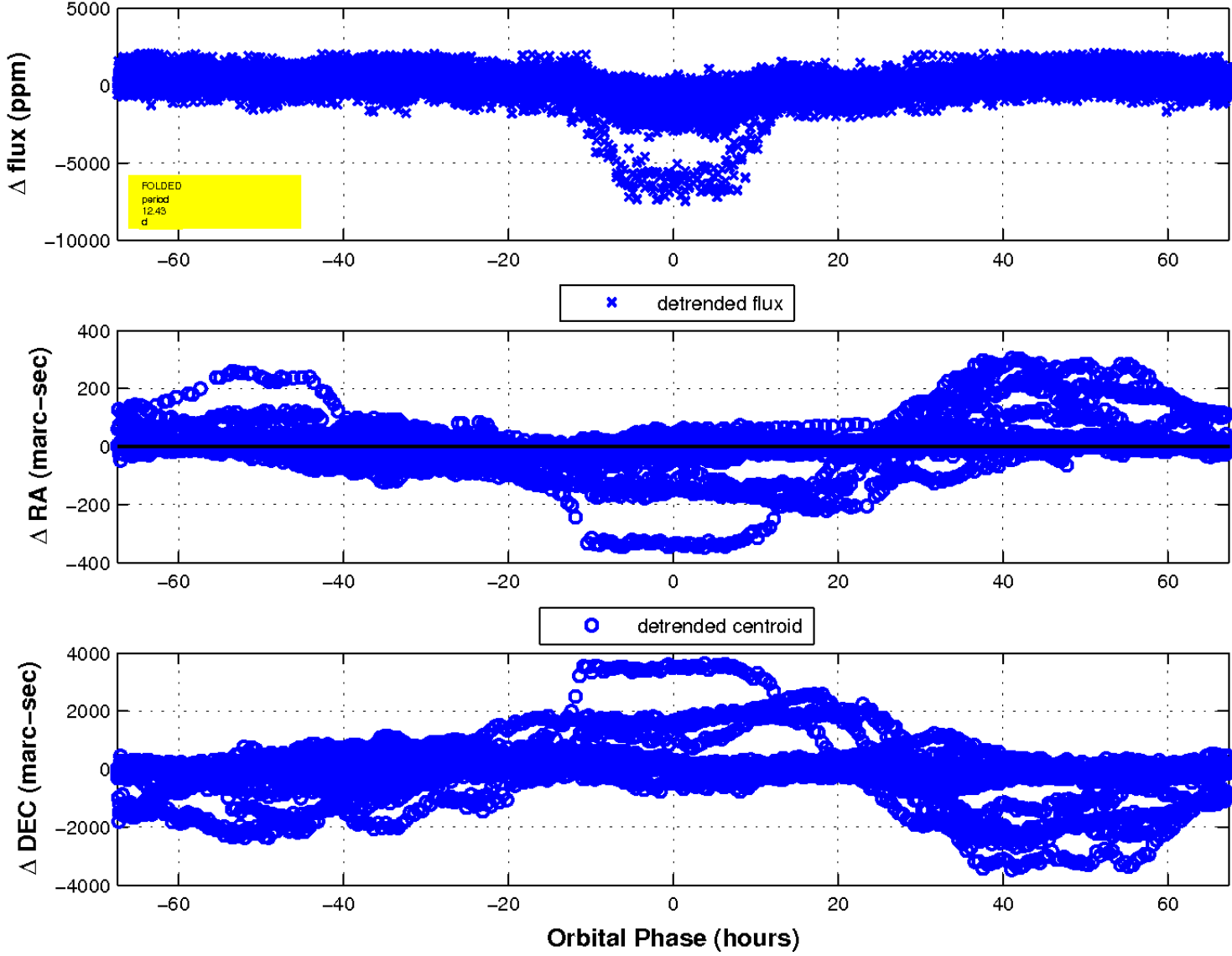
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

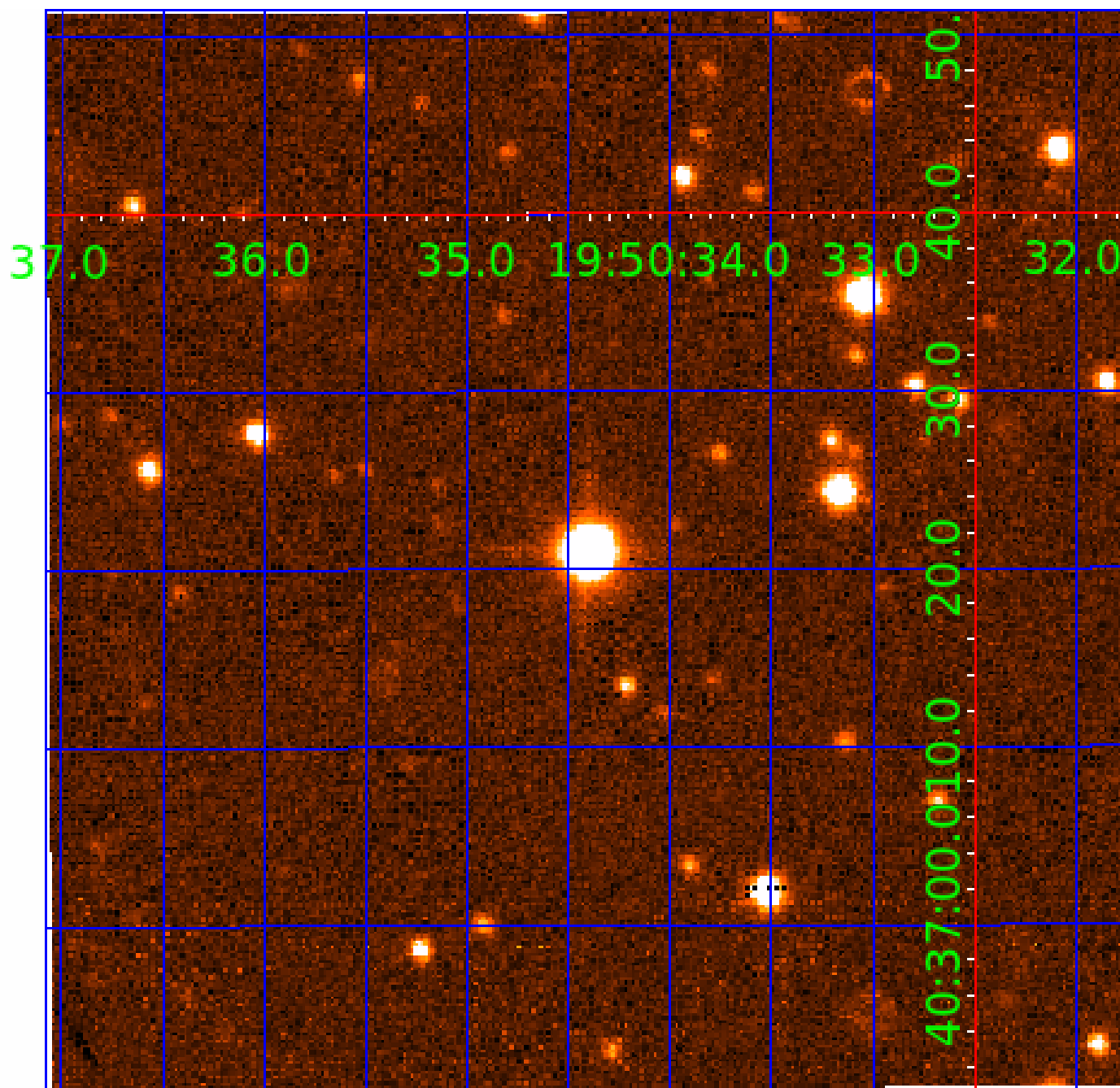


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005471415

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})
005471415-01	OBS	6586.01	12.425726	141.503510	382.0	22.478	19.8	26.2	2.19	8691	5.22	1372.26
005471415-02	OBS	No	12.425723	133.948897	325.9	26.609	17.3	25.6	2.19	8691	4.88	1372.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471415-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005471415-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET—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 005471415-02

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
005471415-02	5471415	V380-Cyg-sec	5385723	1:1	88.4	22	3	5.77	12.62	395.82	Direct-PRF	0	0.69	0.06

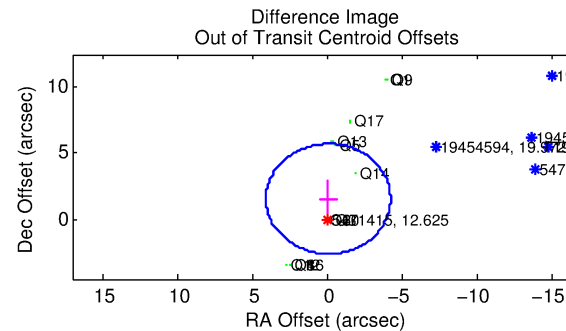
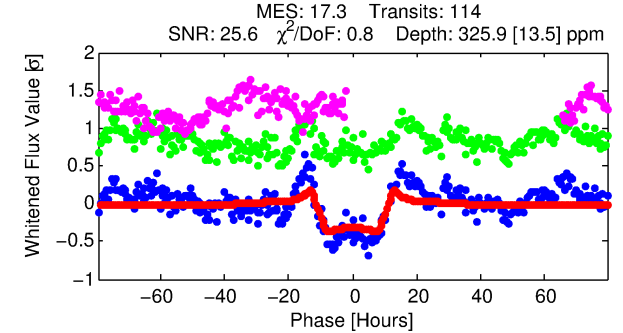
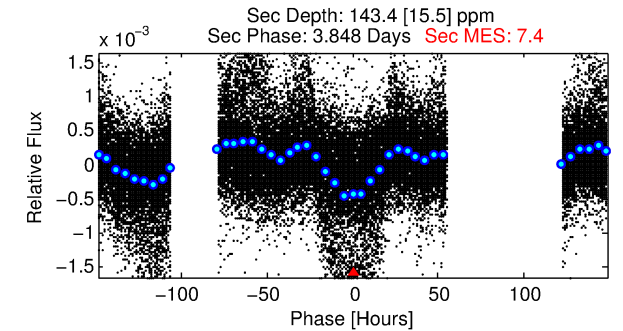
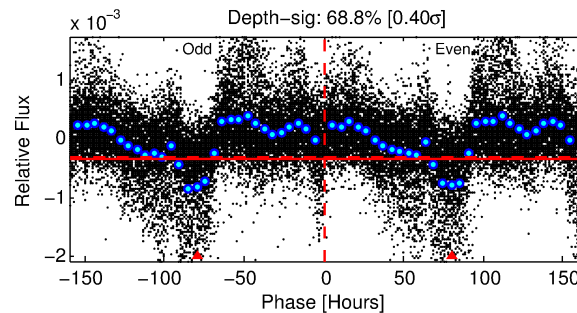
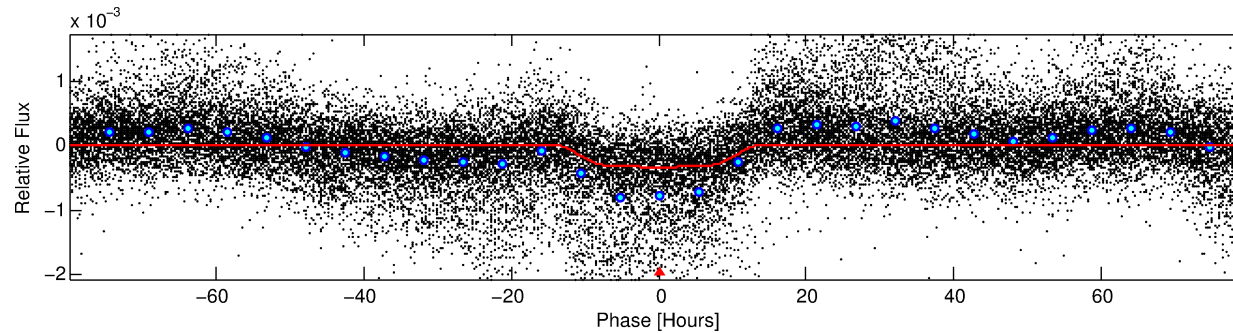
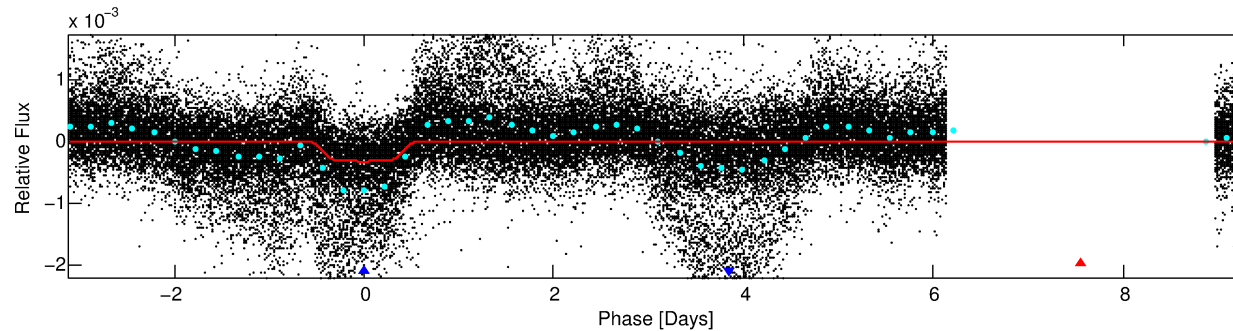
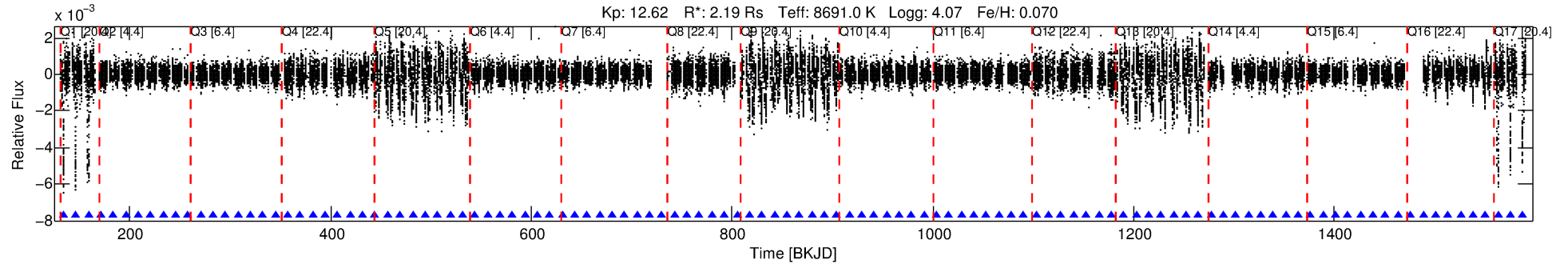
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 5471415 Candidate: 2 of 2 Period: 12.426 d

KOI: K06586 Corr: No Ephemeris Match

Kp: 12.62 R*: 2.19 Rs Teff: 8691.0 K Logg: 4.07 Fe/H: 0.070



DV Fit Results:

Period = 12.42572 [0.00023] d
Epoch = 133.9489 [0.0153] BKJD
Rp/R* = 0.0204 [0.0005]
a/R* = 1.57 [0.05]
b = 0.96 [0.00]
Seff = 1372.26 [507.33]
Teq = 1552 [143] K
Rp = 4.88 [1.32] Re
a = 0.1338 [0.0297] AU
Ag = 59.39 [20.14] [2.90σ]
Teffp = 6661 [371] K [12.85σ]

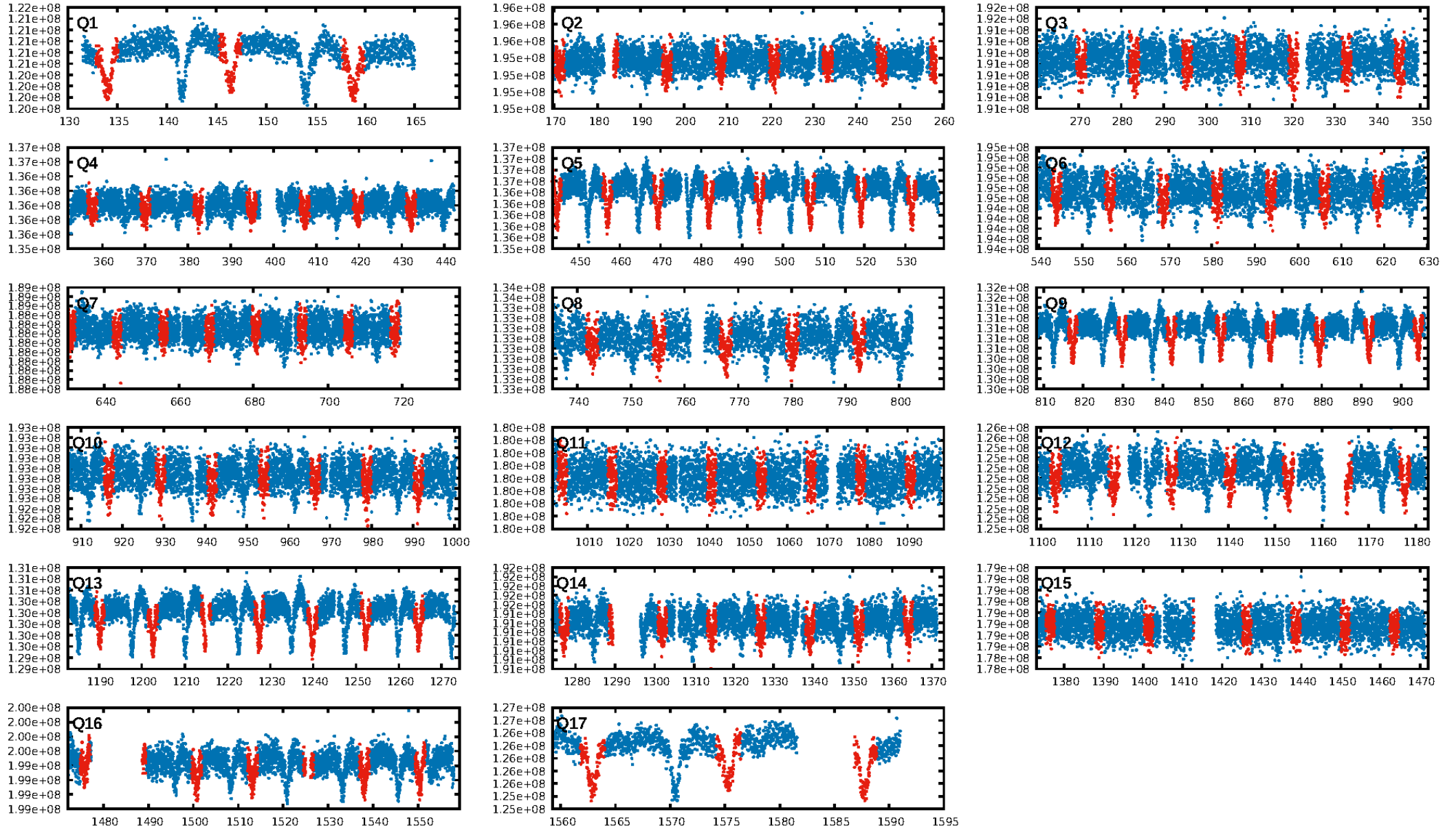
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.41e-65
RollingBand-fgt: 1.00 [108/108]
GhostDiagnostic-chr: -1.477
Centroid-sig: N/A
Centroid-so: 3.091 arcsec [16.30σ]
OotOffset-rm: 1.562 arcsec [1.13σ]
KicOffset-rm: 9.792 arcsec [21.24σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
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DiffImageOverlap-fno: 1.00 [17/17]

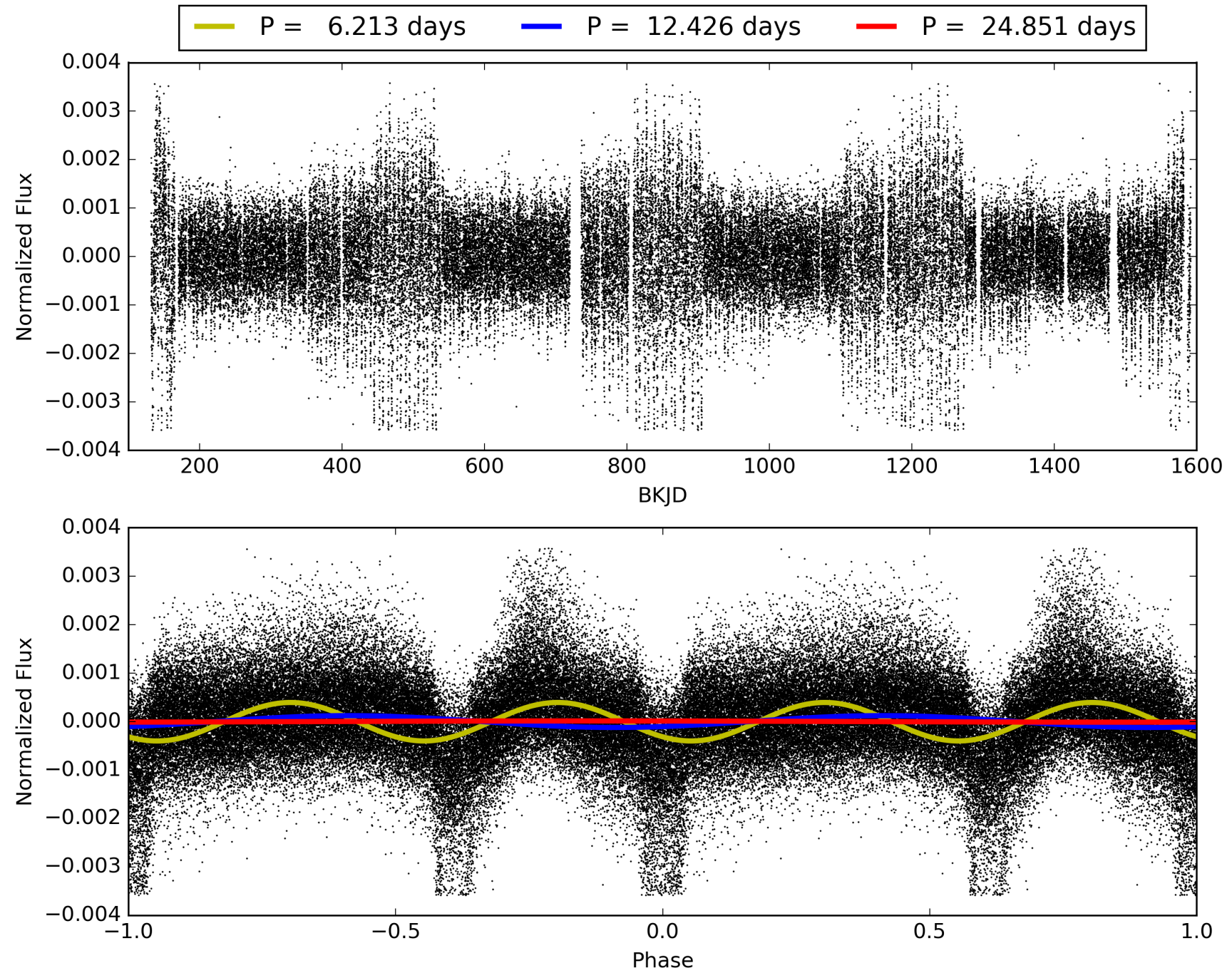
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005471415-02, PDC Light Curves

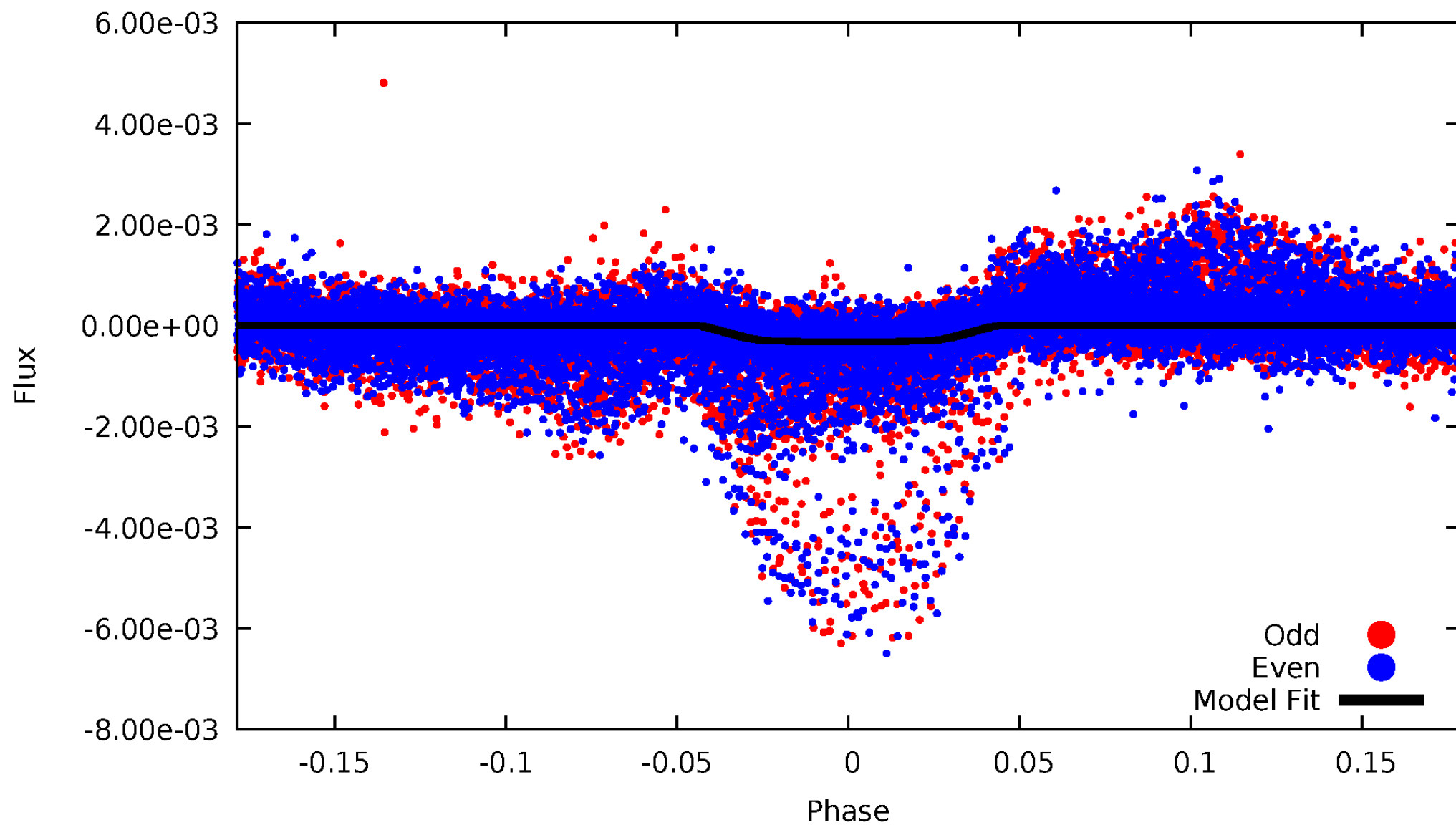


TCE 005471415-02



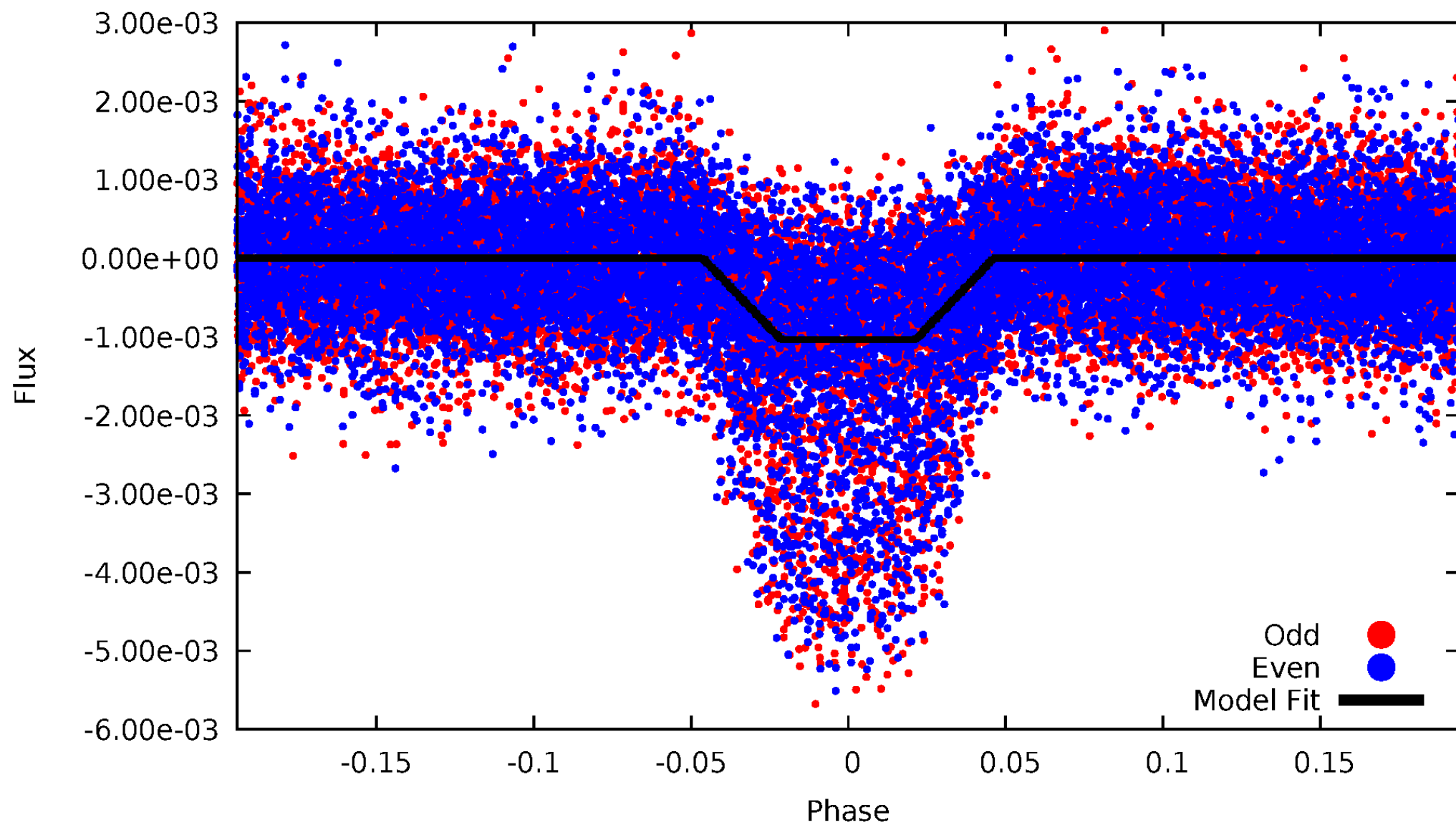
DV Odd/Even

TCE 005471415-02



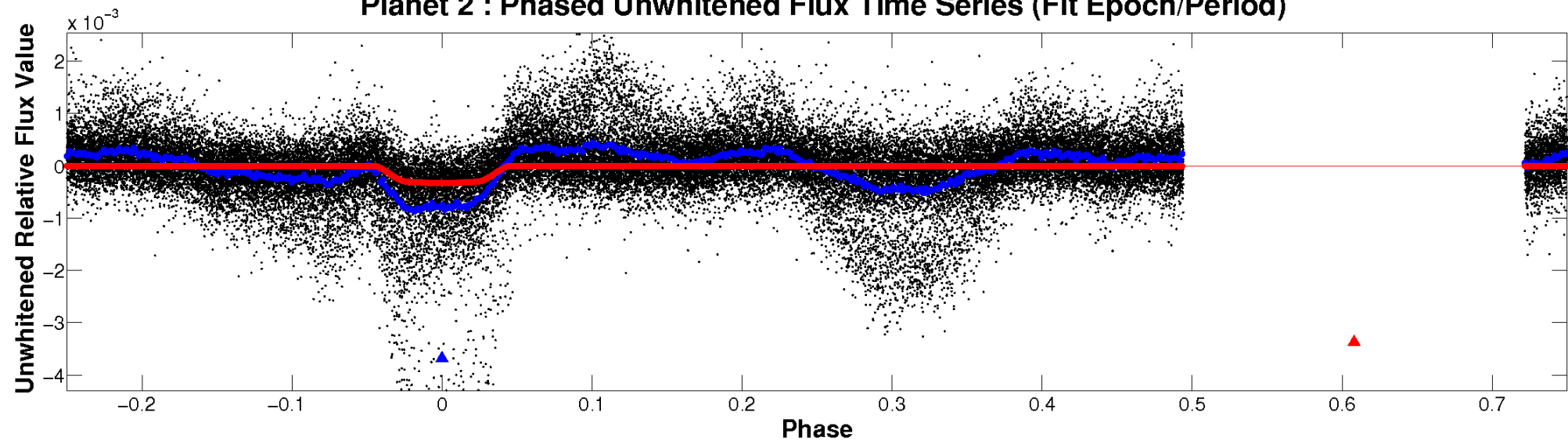
ALT Odd/Even

TCE 005471415-02

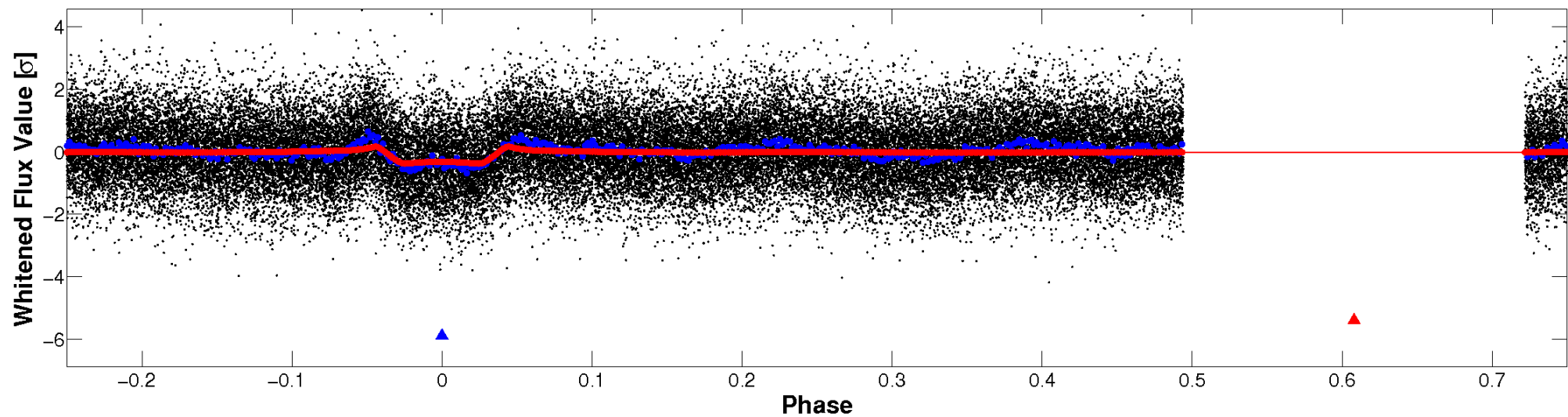


Non-Whitened Vs. Whitened Light Curve

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

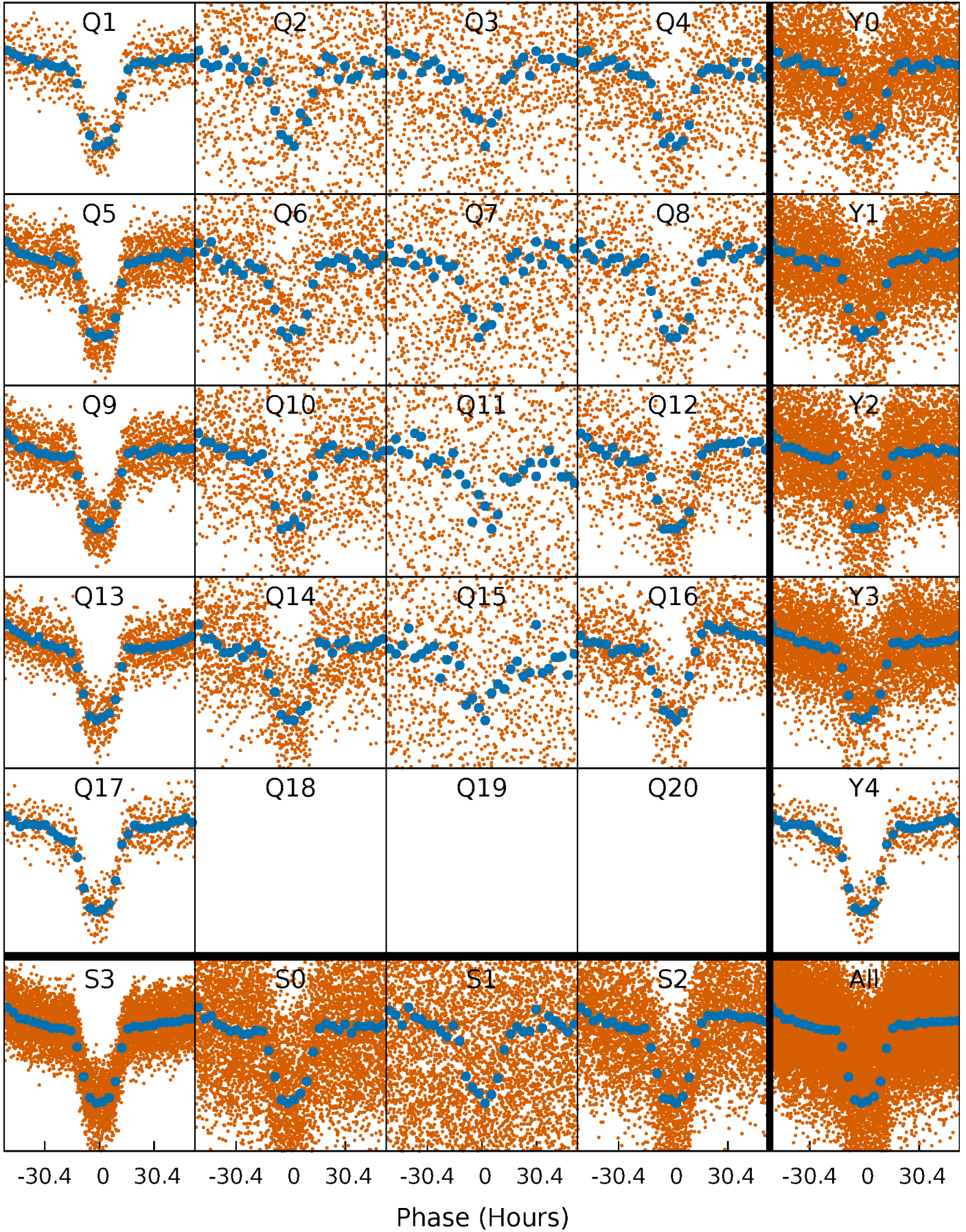


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



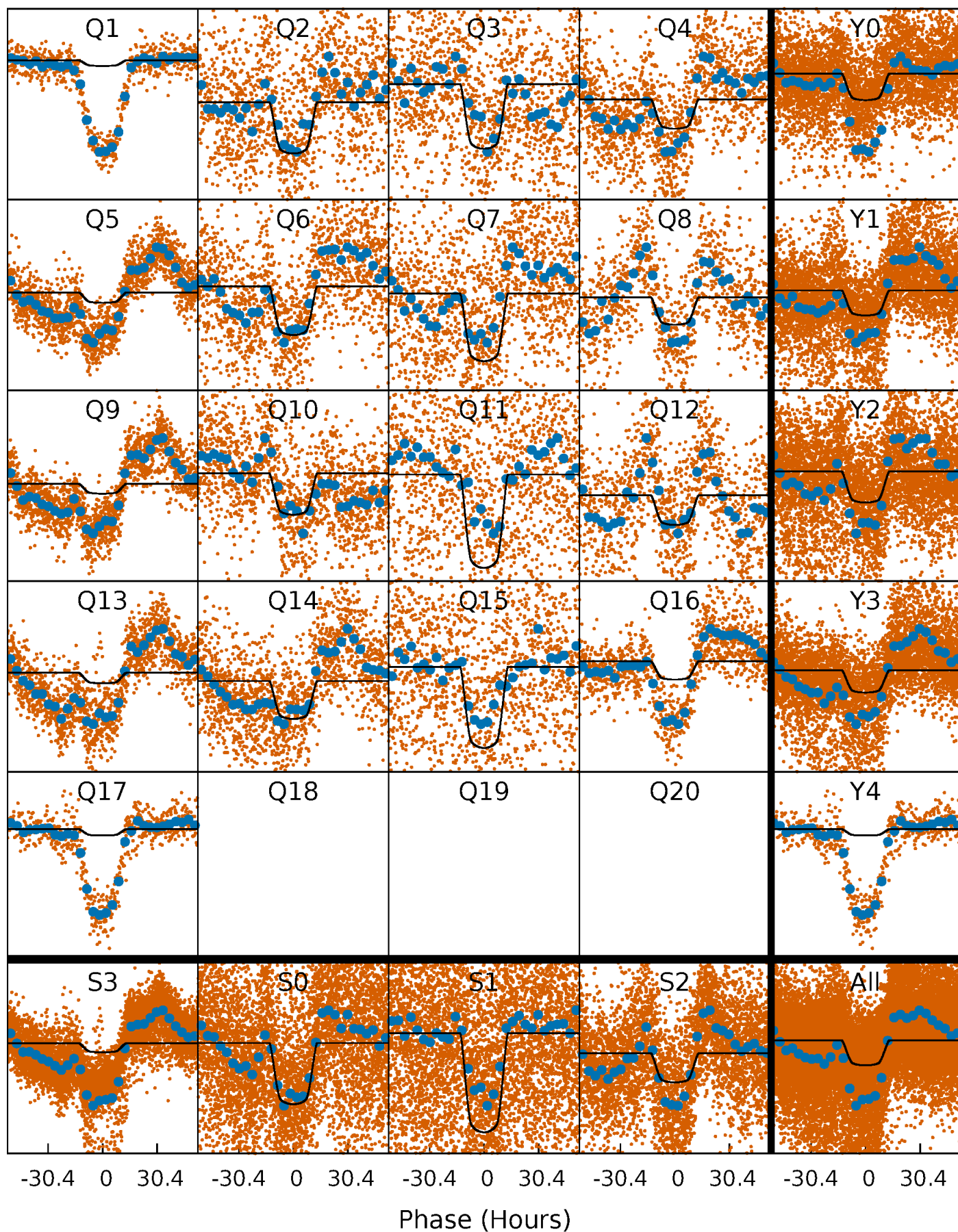
PDC Quarter-Phased Transit Curves

TCE 005471415-02 P= 12.425723 Days $T_0=133.948897$ (BKJD)



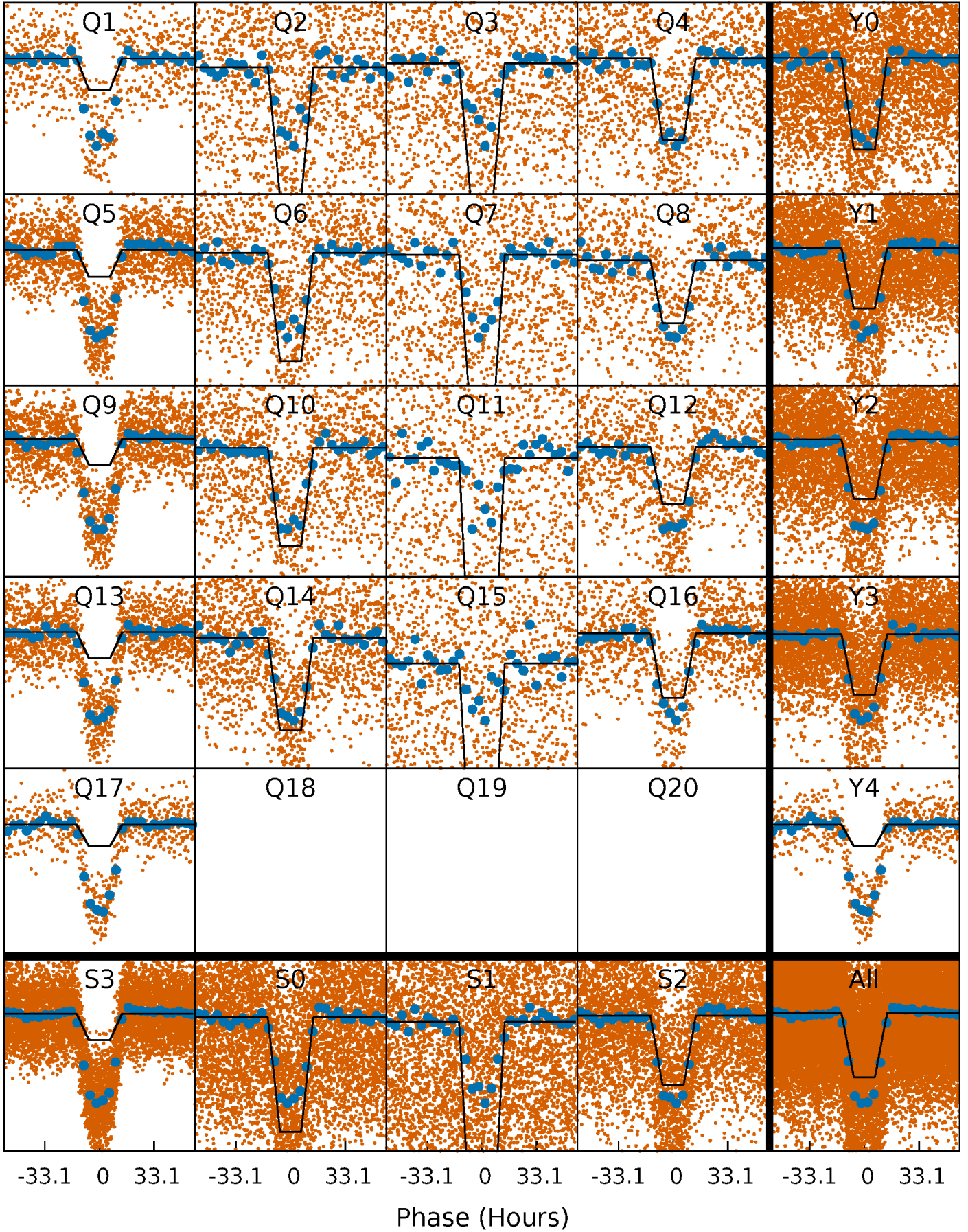
DV Quarter-Phased Transit Curves

TCE 005471415-02 P= 12.425723 Days $T_0=133.948897$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

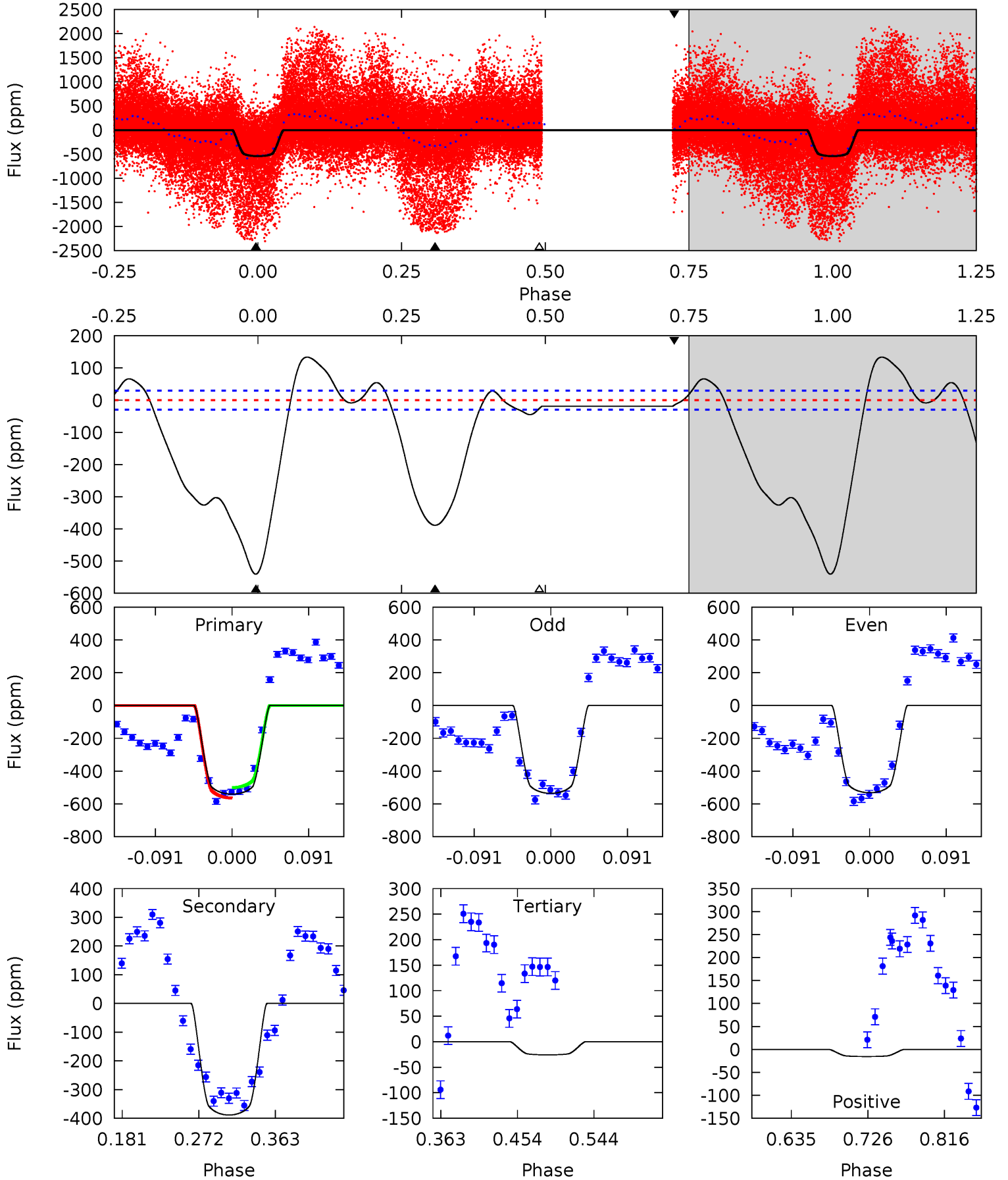
TCE 005471415-02 P= 12.425672 Days $T_0=133.958389$ (BKJD)



DV Model-Shift Uniqueness Test

005471415-02, P = 12.425723 Days, E = 121.523174 Days

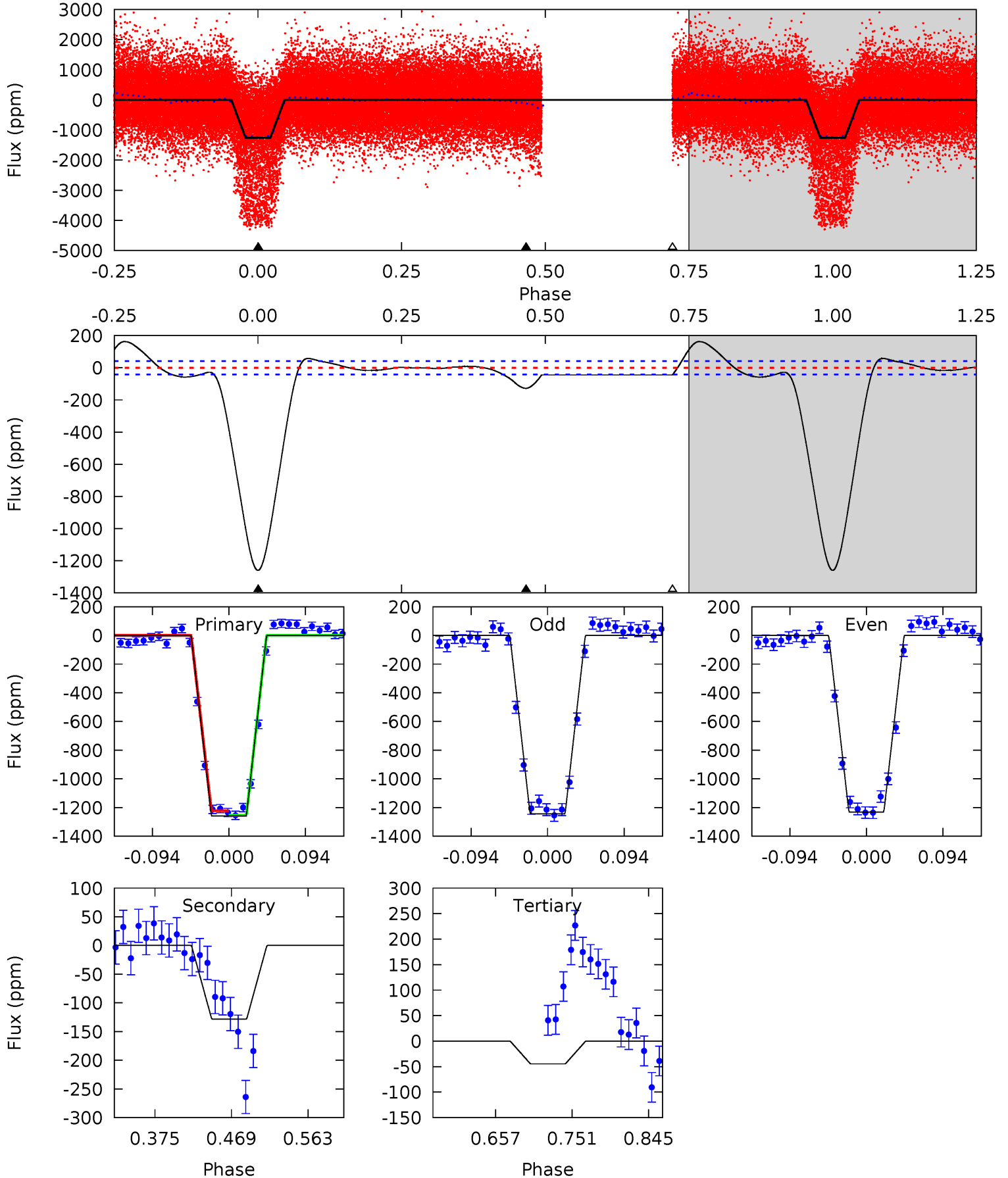
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
83.2	59.8	3.98	-2.39	4.59	1.69	17.2	79.2	85.6	55.9	62.2	0.29	2.30	0.20	4.63



Alt Model-Shift Uniqueness Test

005471415-02, P = 12.425672 Days, E = 121.532717 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
137.4	14.0	4.86	0	4.58	1.68	5.80	132.6	137.4	9.12	14.0	0.76	1.53	0.11	1.72



Stellar Parameters For KIC 005471415

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8691^{+205}_{-410}	$4.072^{+0.171}_{-0.140}$	$0.070^{+0.200}_{-0.600}$	$2.193^{+0.482}_{-0.590}$	$2.069^{+0.341}_{-0.512}$	$0.276^{+0.276}_{-0.101}$
	+2%/-5%	+4%/-3%	+286%/-857%	+22%/-27%	+16%/-25%	+100%/-37%
Source	KIC0	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 005471415-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-389 ± 6	$4.90^{+0.64}_{-0.74}$	2148^{+139}_{-158}	8445^{+303}_{-350}	162^{+45}_{-32}
Alt.	-128 ± 9	$7.73^{+0.99}_{-1.05}$	2155^{+133}_{-149}	4985^{+135}_{-146}	21^{+6}_{-4}

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

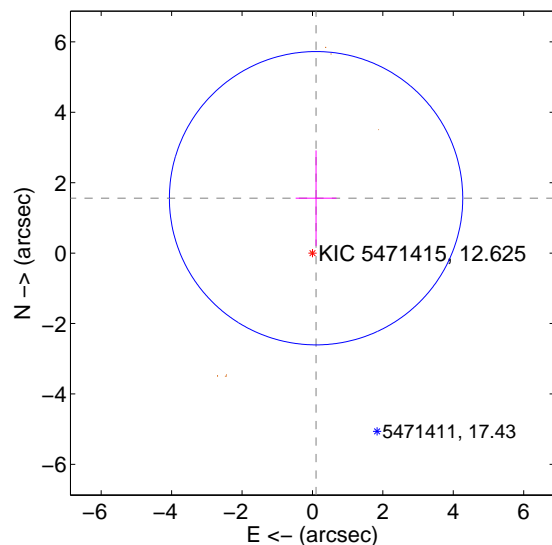
Supplemental centroid analysis for 005471415-02. Kepler magnitude: 12.62. Transit SNR 25.61

There are 0 quarters with good PRF difference image offsets

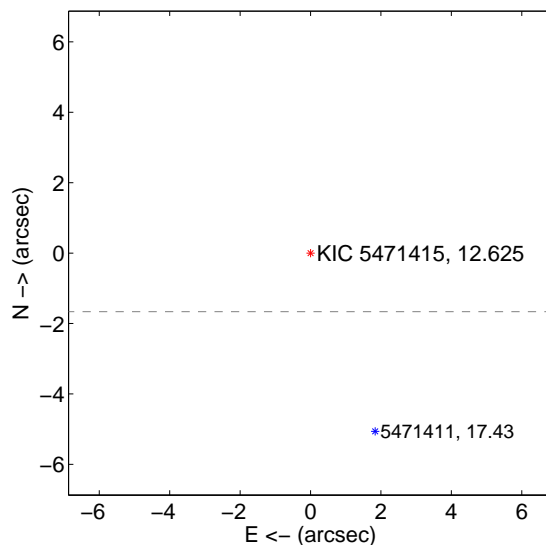
The OOT PRF centroid is offset from the target star catalog position by about 9.98 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.562 ± 1.388	1.13	-0.103 ± 0.580	1.559 ± 1.356
PRF-fit source offset from KIC position	9.792 ± 0.461	21.24	-9.650 ± 0.402	-1.663 ± 1.384
photometric centroid source offset	3.09 ± 0.19	16.30	-2.96 ± 0.19	-0.88 ± 0.12

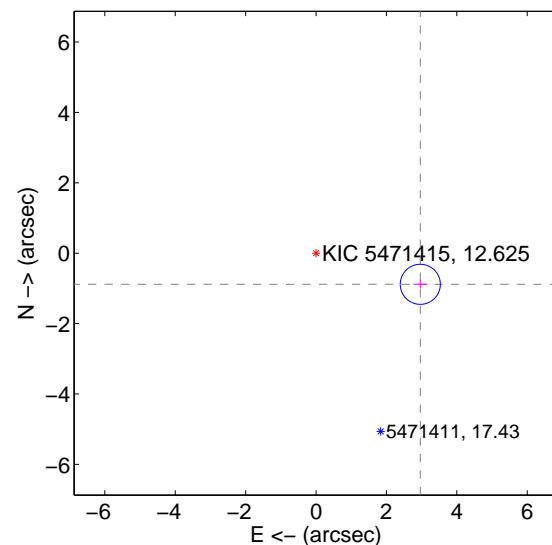
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

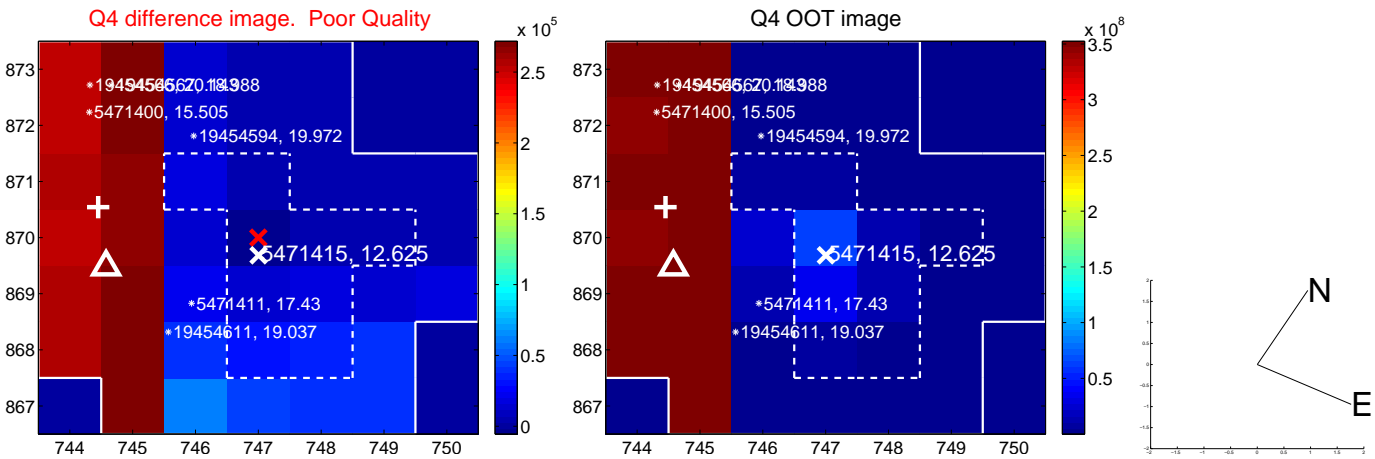
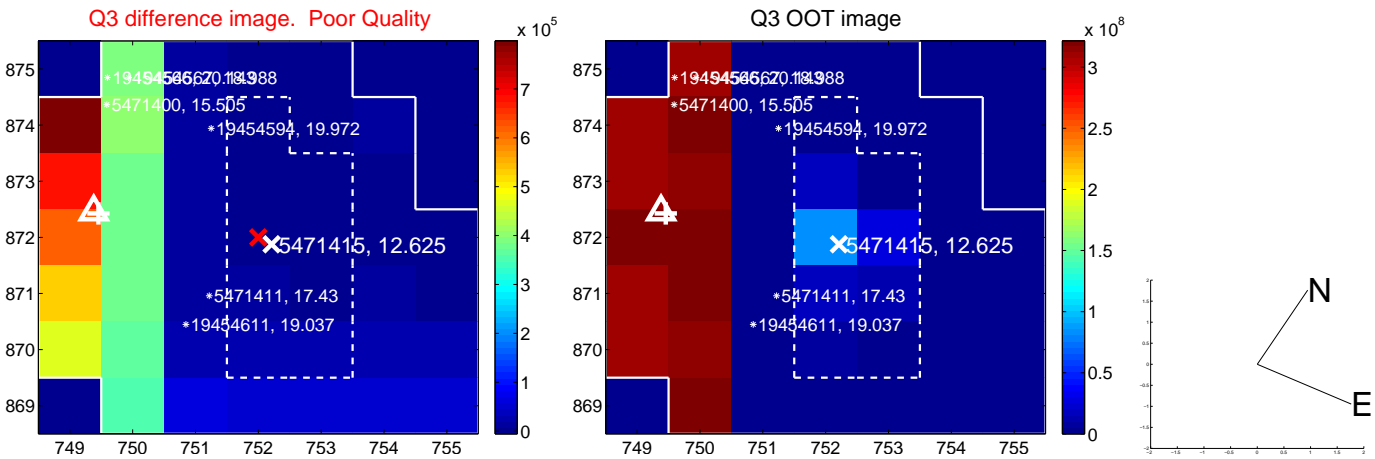
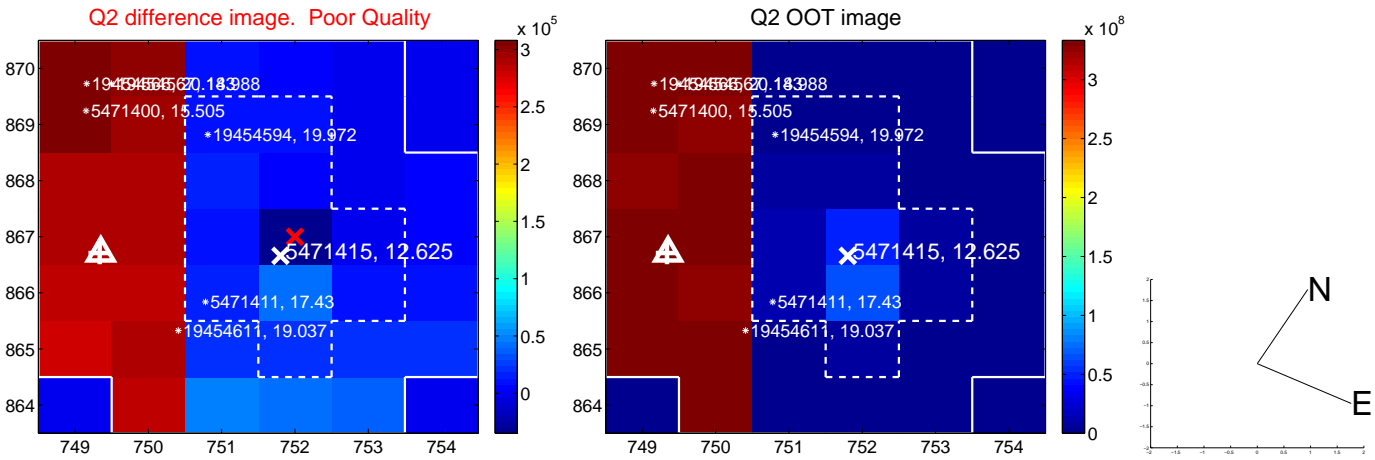
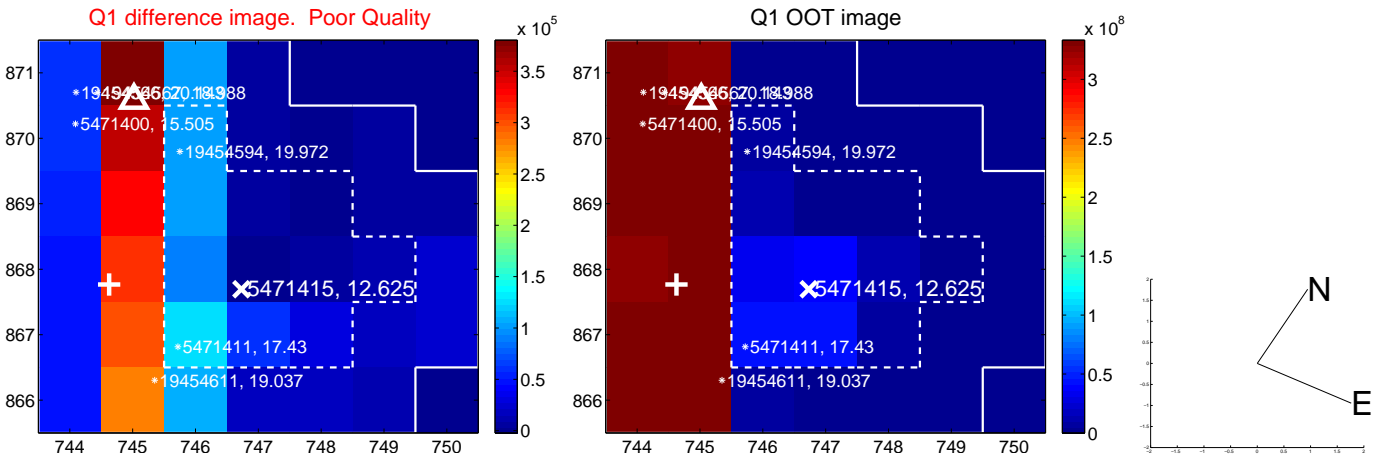


offset from photometric centroids

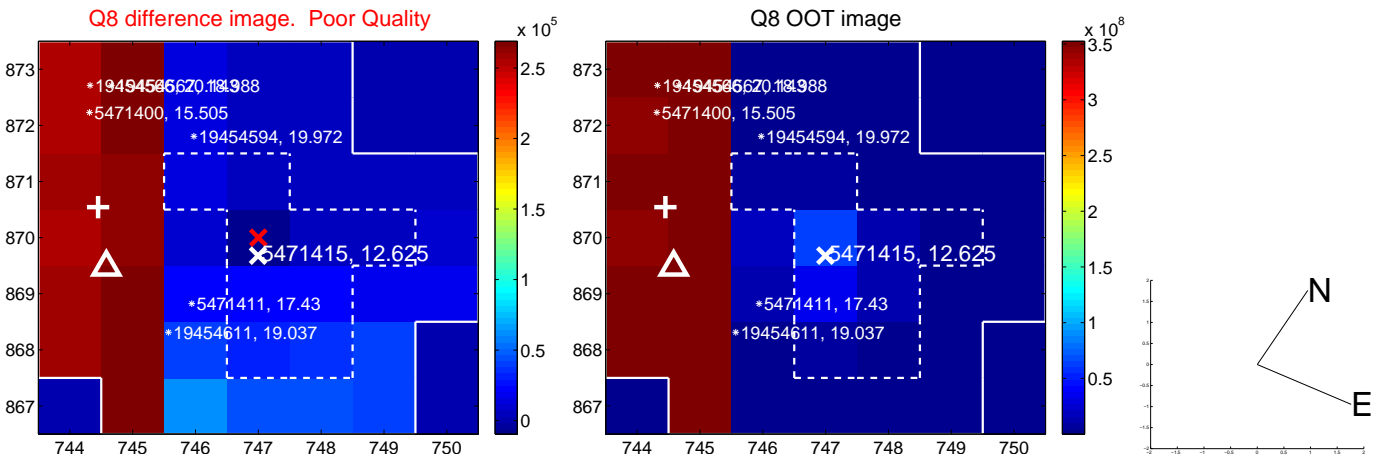
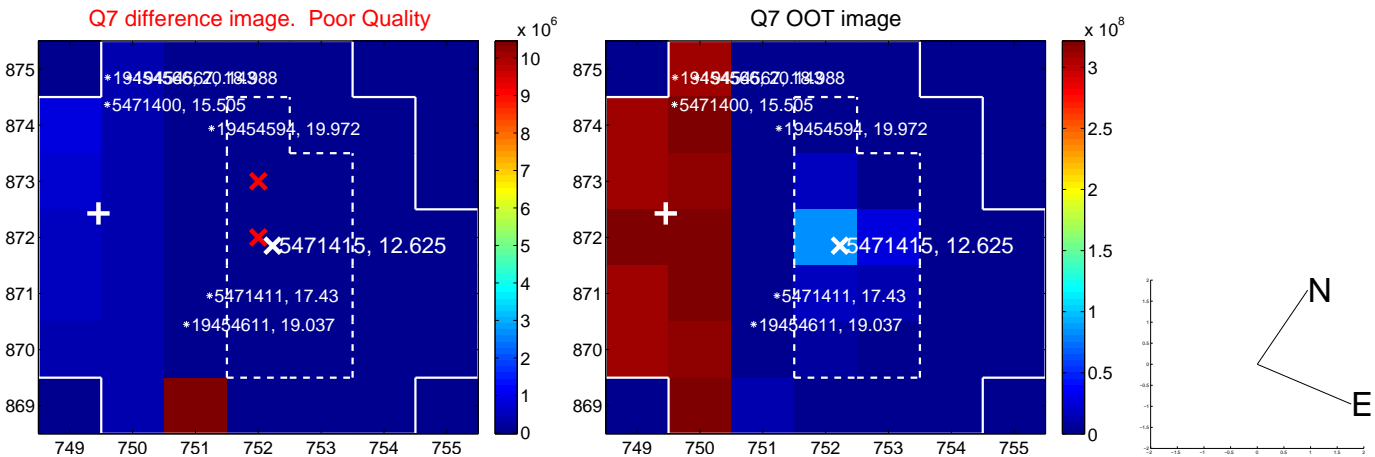
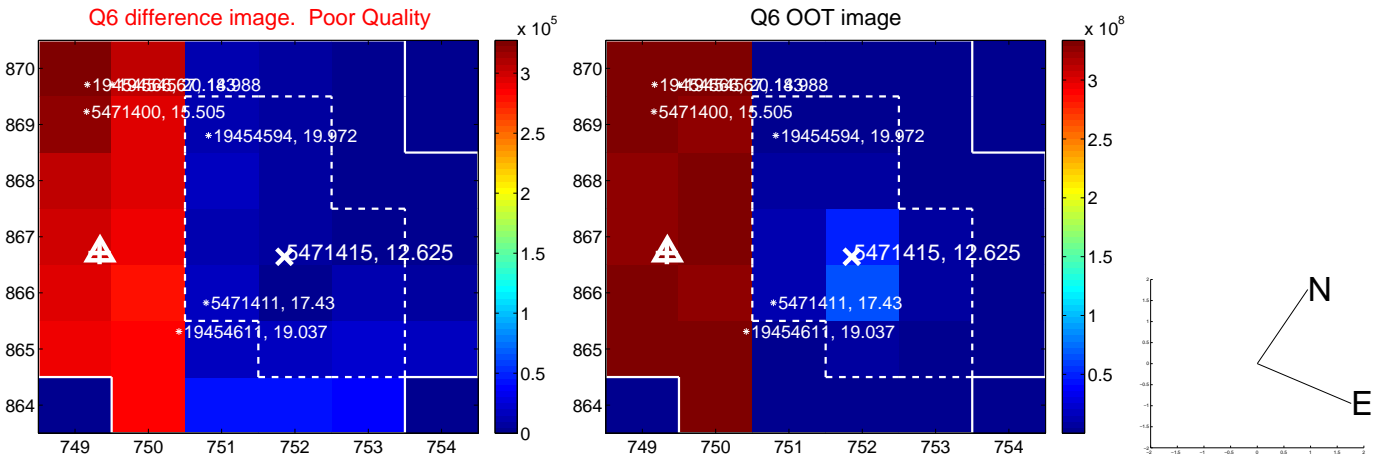
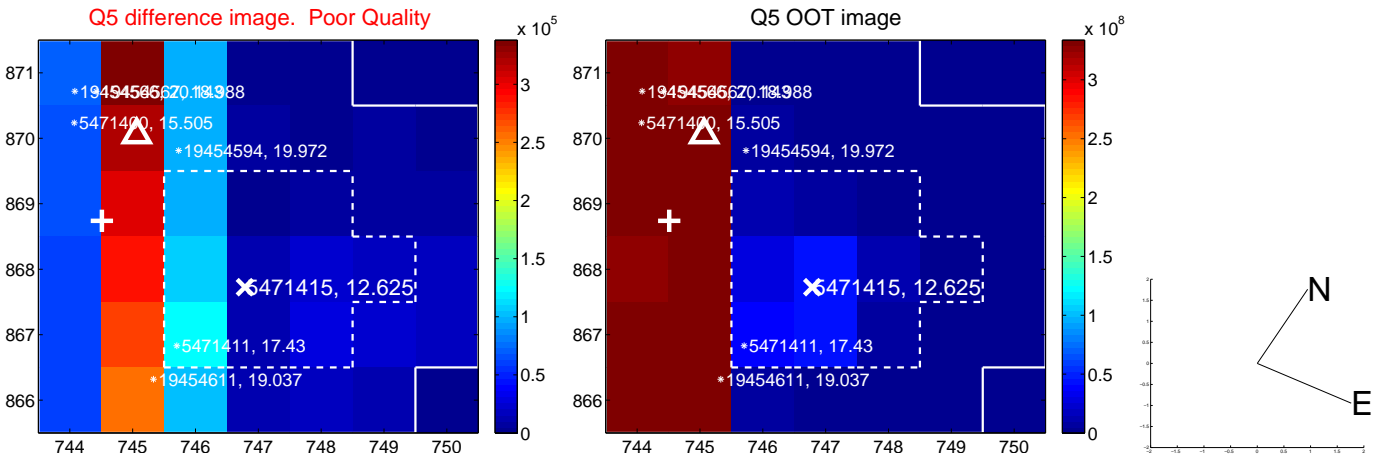


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

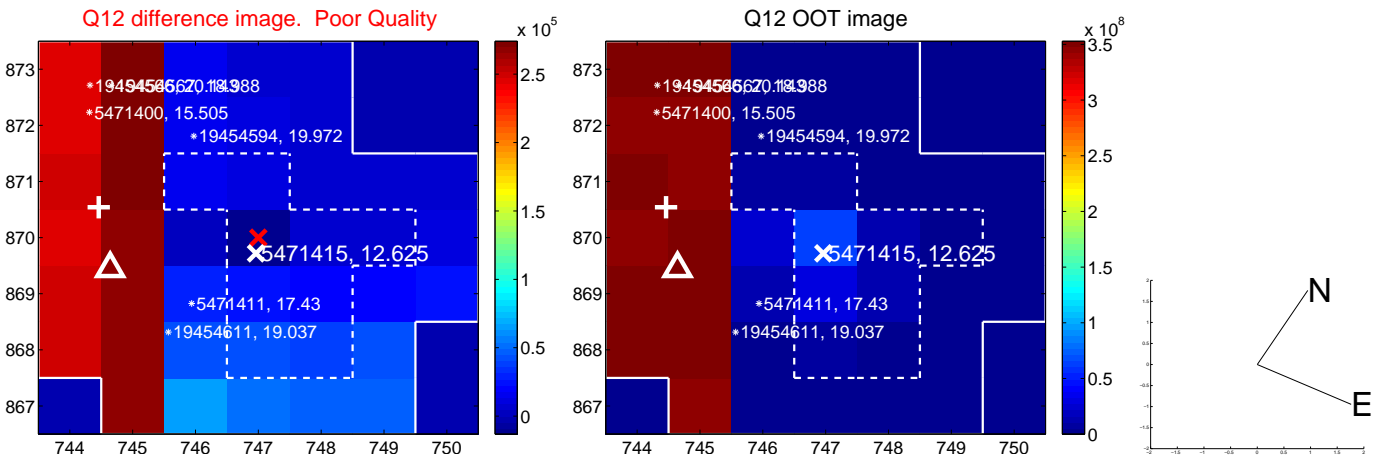
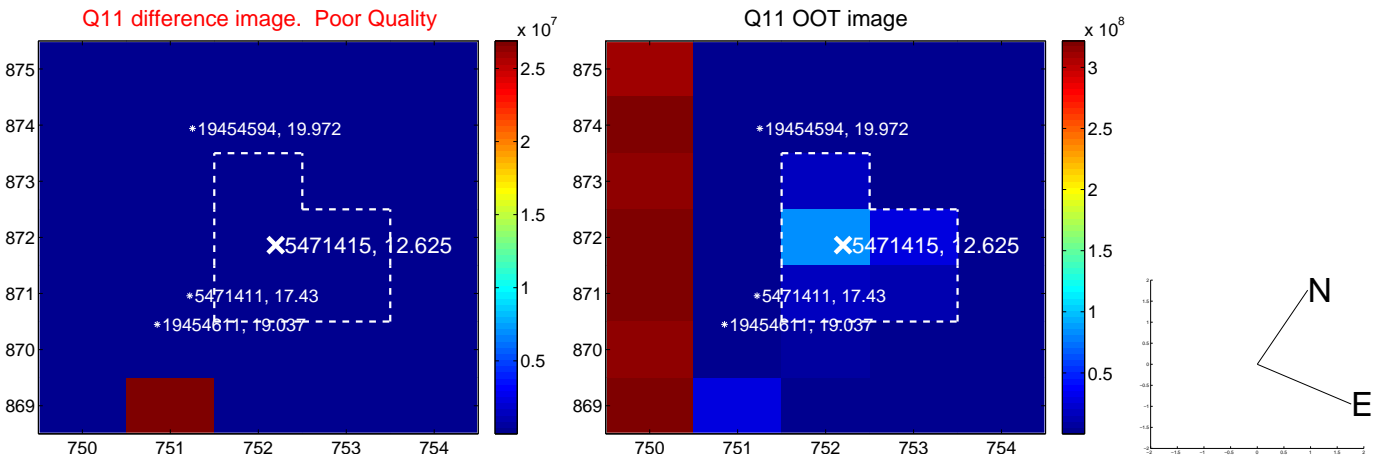
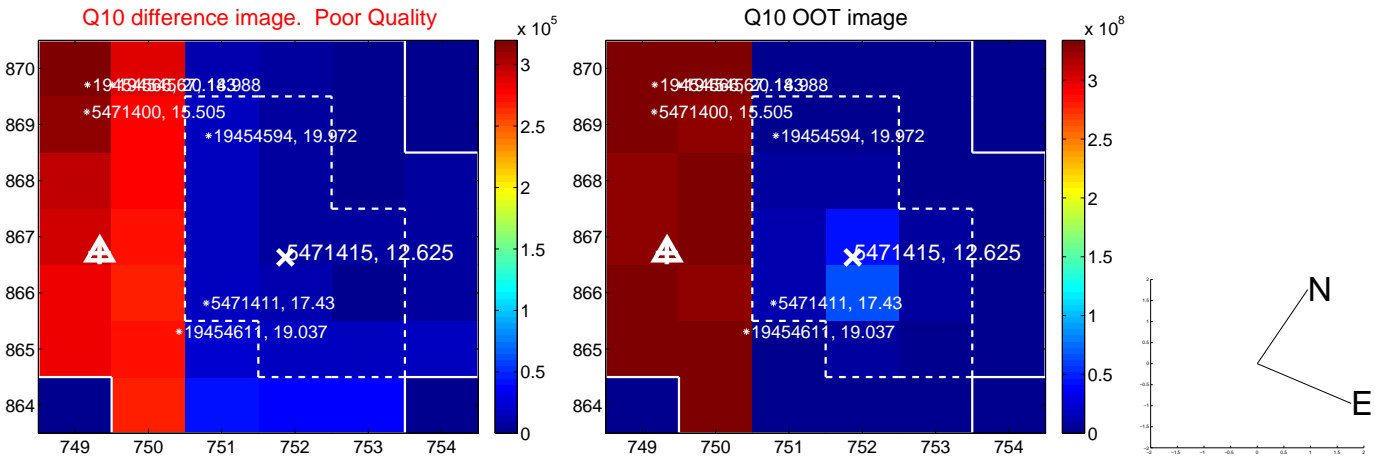
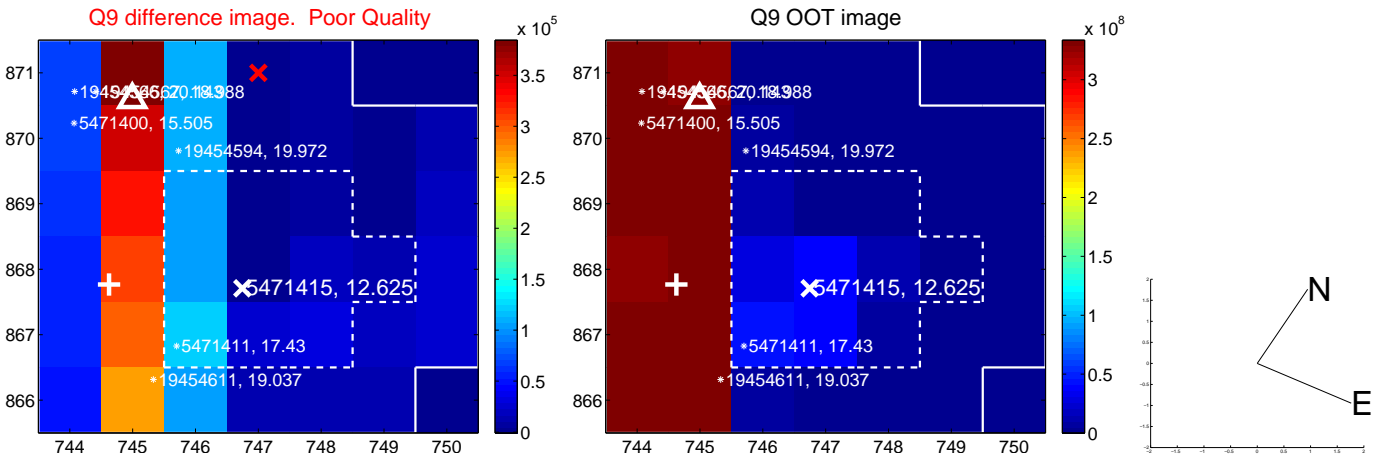
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



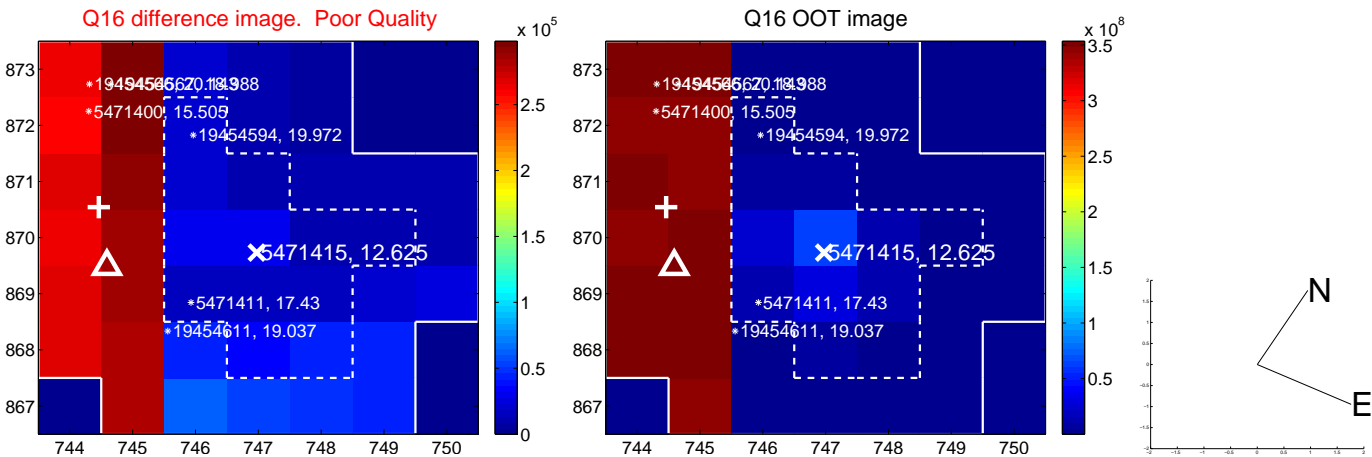
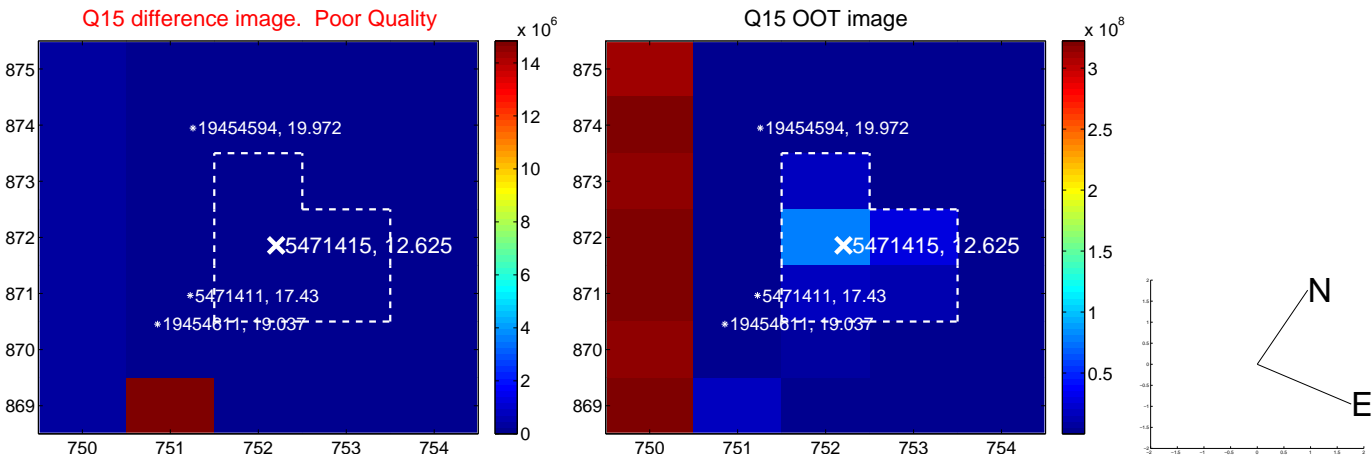
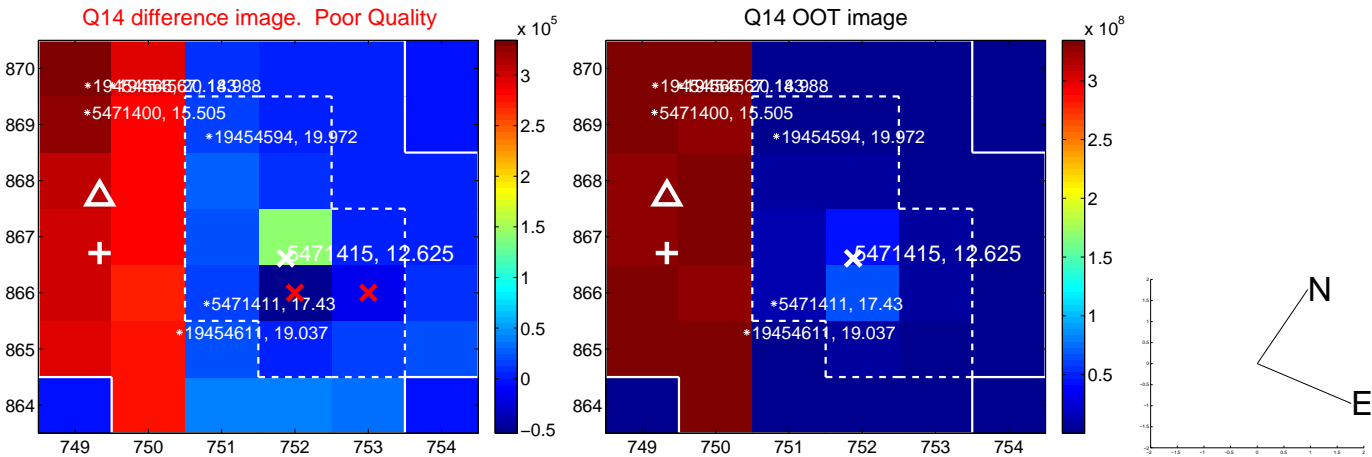
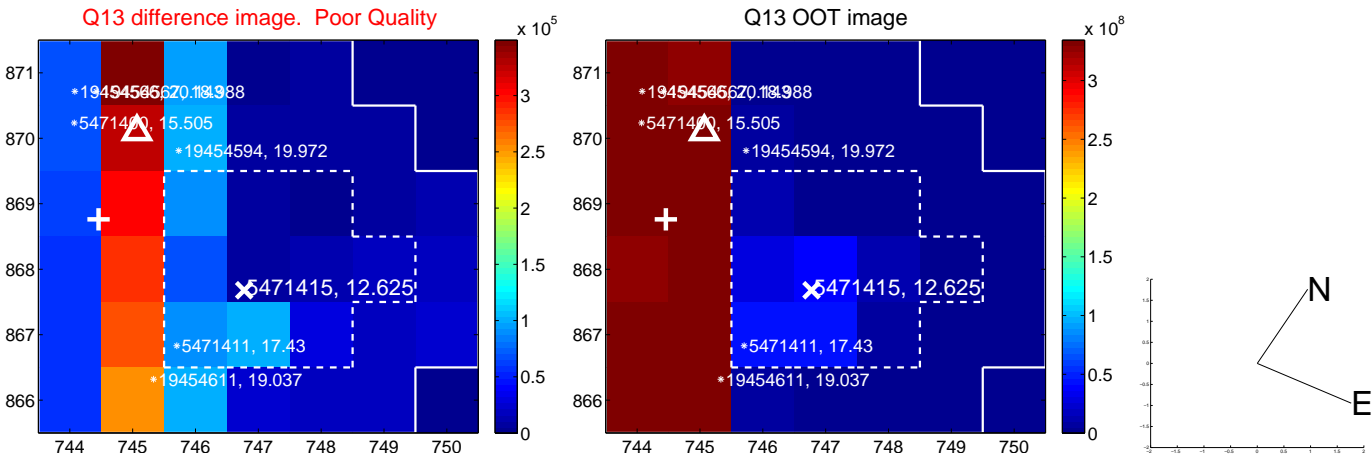
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



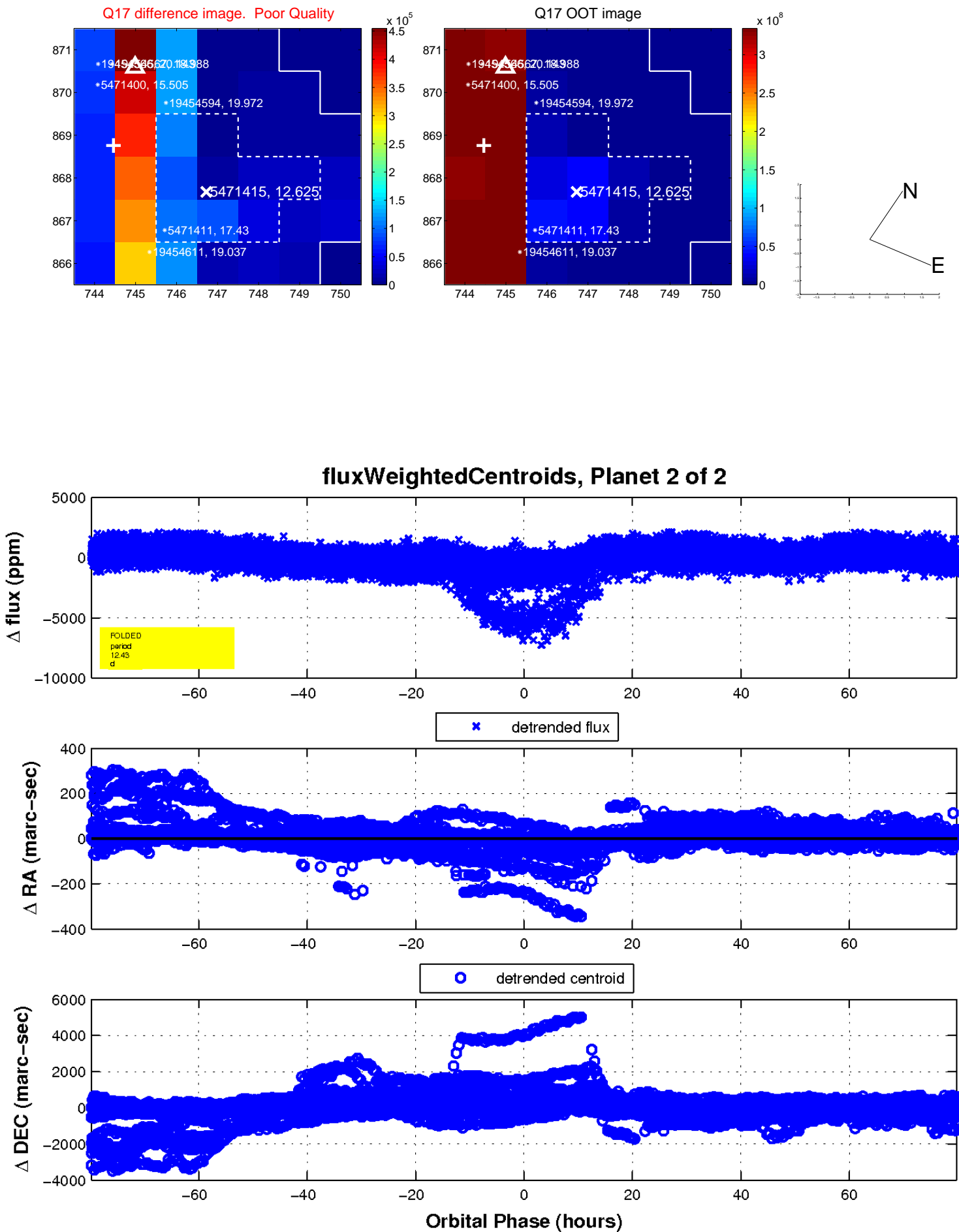
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

