

KIC 005308663

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})
005308663-01	OBS	1562.01	0.784502	131.993896	204.2	1.445	15.4	15.9	0.90	5997	1.53	3435.19
005308663-02	OBS	1562.02	20.068111	150.762359	414.3	5.279	8.2	10.3	0.90	5997	2.10	45.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005308663-01	OBS	FP	0.00	0	0	0	1	CENT_FEW_MEAS—EPHEM_MATCH
005308663-02	OBS	PC	0.78	0	0	0	0	NO_COMMENT

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 005308663-01

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
005308663-01	5308663	2718.01	5308666	1:1	13.5	-3	1	13.82	15.59	2.18	Direct-PRF	0	1.46	0.51

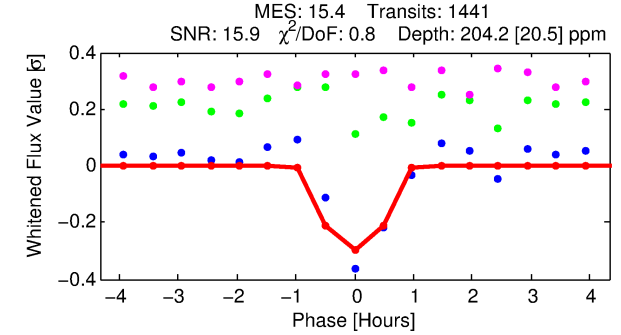
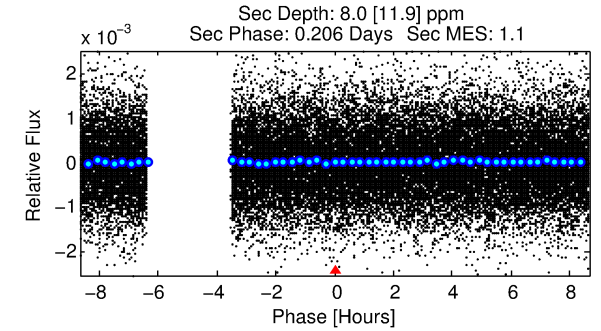
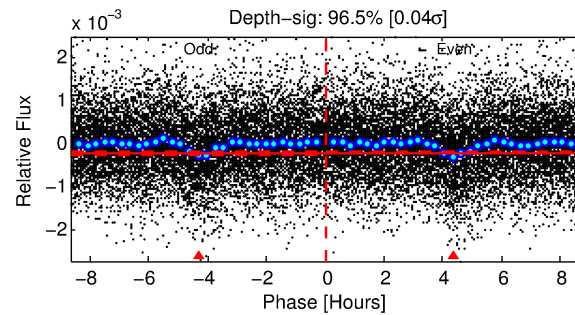
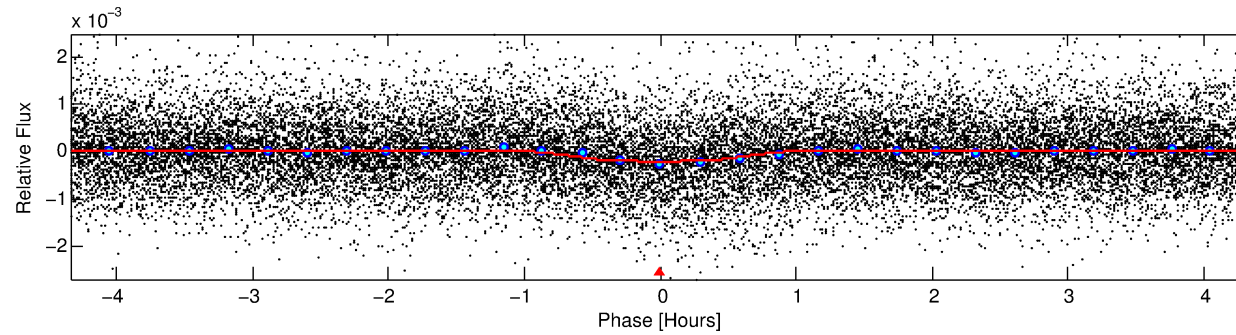
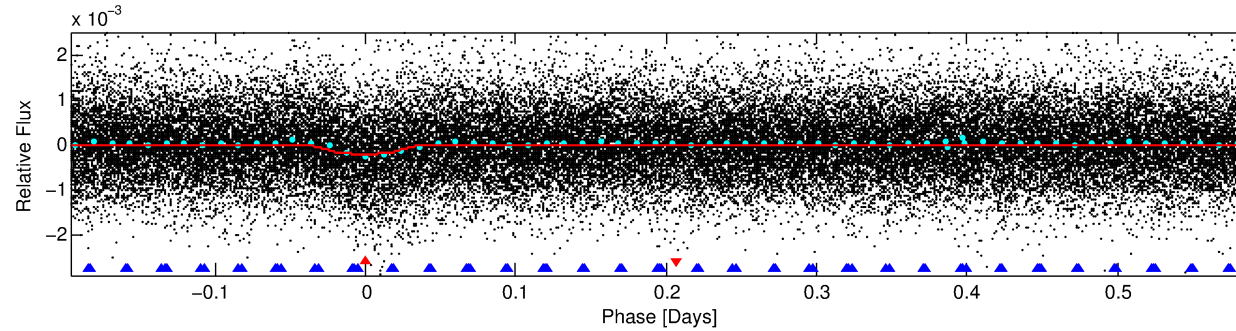
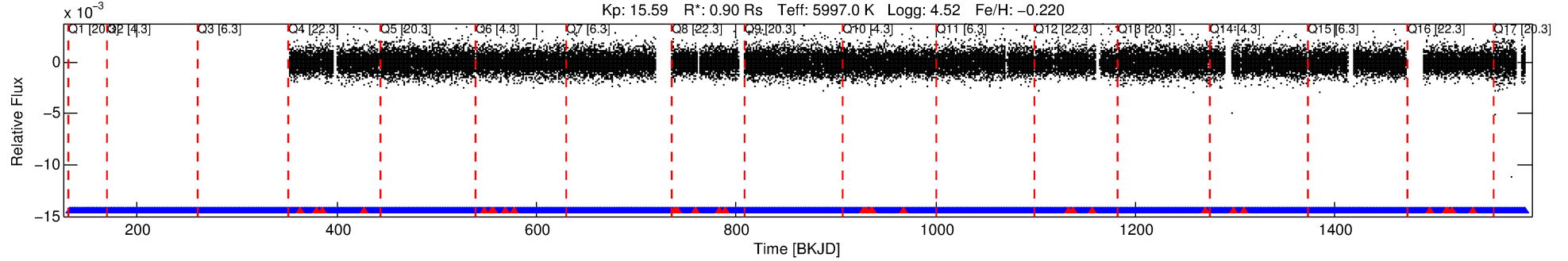
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 5308663 Candidate: 1 of 2 Period: 0.785 d

KOI: K01562.01 Corr: 0.762

Kp: 15.59 R*: 0.90 Rs Teff: 5997.0 K Logg: 4.52 Fe/H: -0.220



DV Fit Results:

Period = 0.78450 [0.00001] d
Epoch = 131.9939 [0.0014] BKJD
Rp/R* = 0.0155 [0.0082]
a/R* = 2.14 [4.53]
b = 0.90 [0.56]
Seff = 3435.19 [1356.36]
Teq = 1952 [193] K
Rp = 1.53 [0.92] Re
a = 0.0166 [0.0041] AU
Ag = 0.52 [0.96] [-0.50σ]
Teffp = 2558 [1169] K [0.51σ]

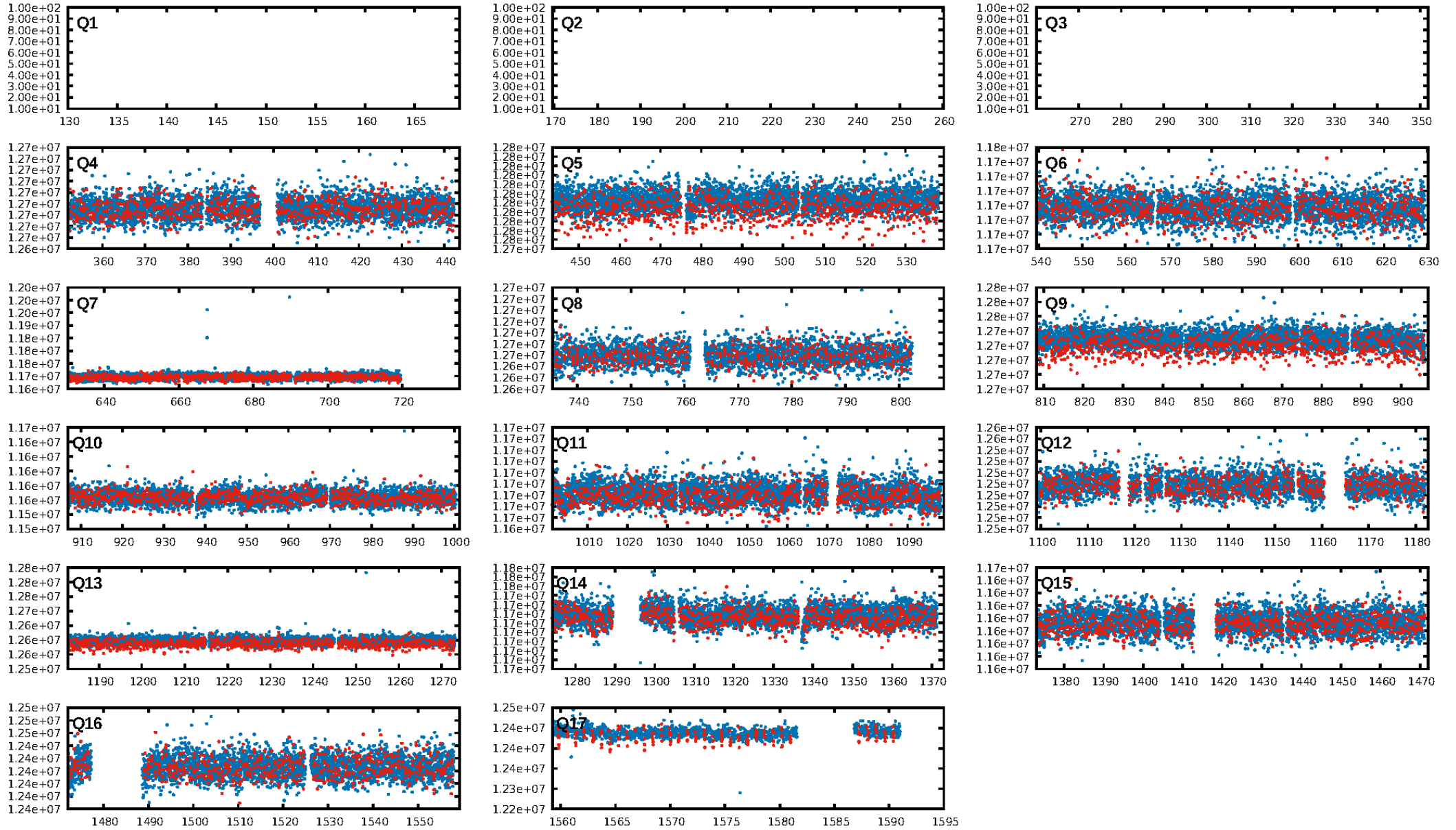
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [84.55σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.35e-52
RollingBand-fgt: 0.98 [1378/1408]
GhostDiagnostic-chr: -0.8502
Centroid-sig: 0.0%
Centroid-so: 10.652 arcsec [12.82σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [14/14]

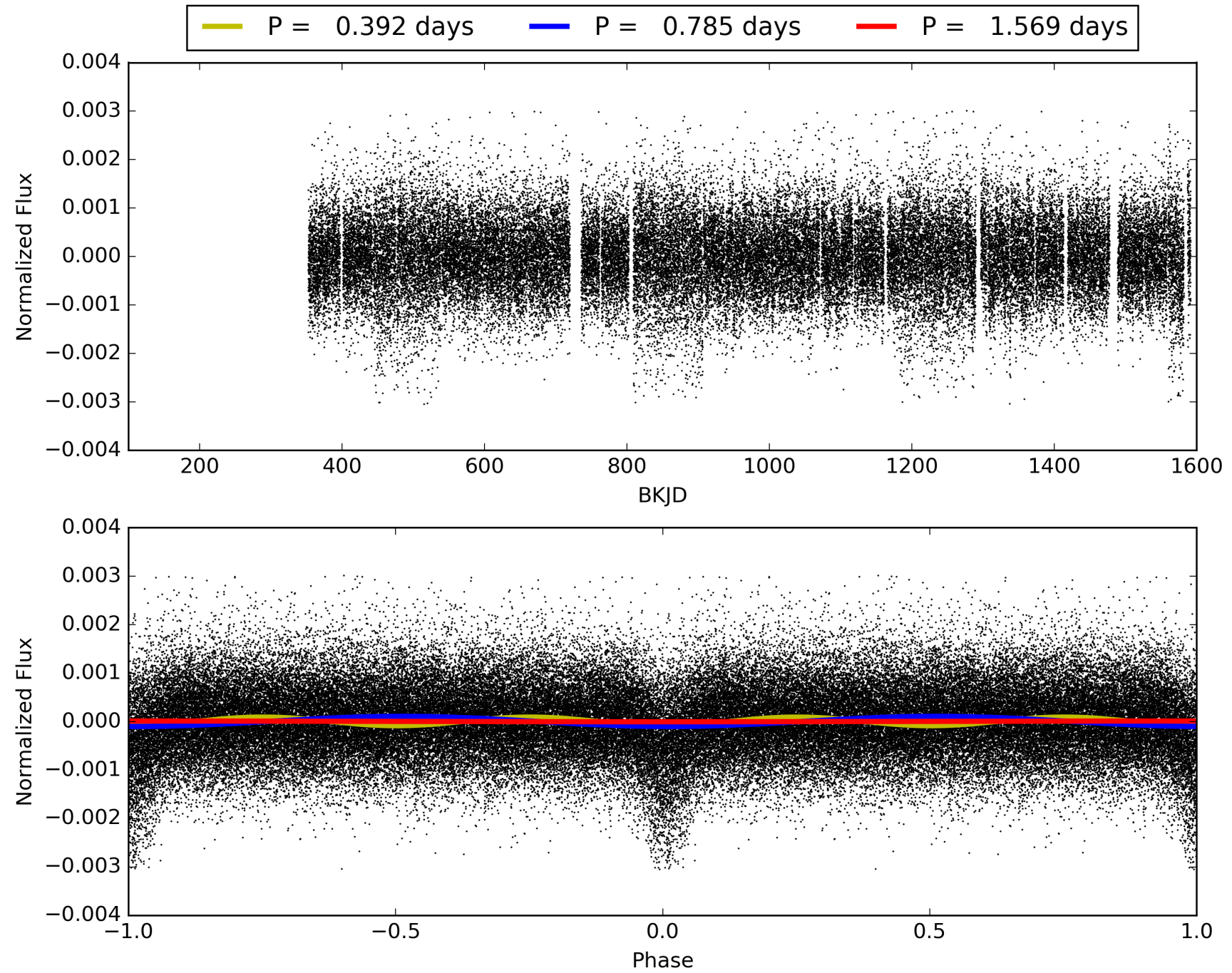
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:48:56 Z

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

TCE 005308663-01, PDC Light Curves

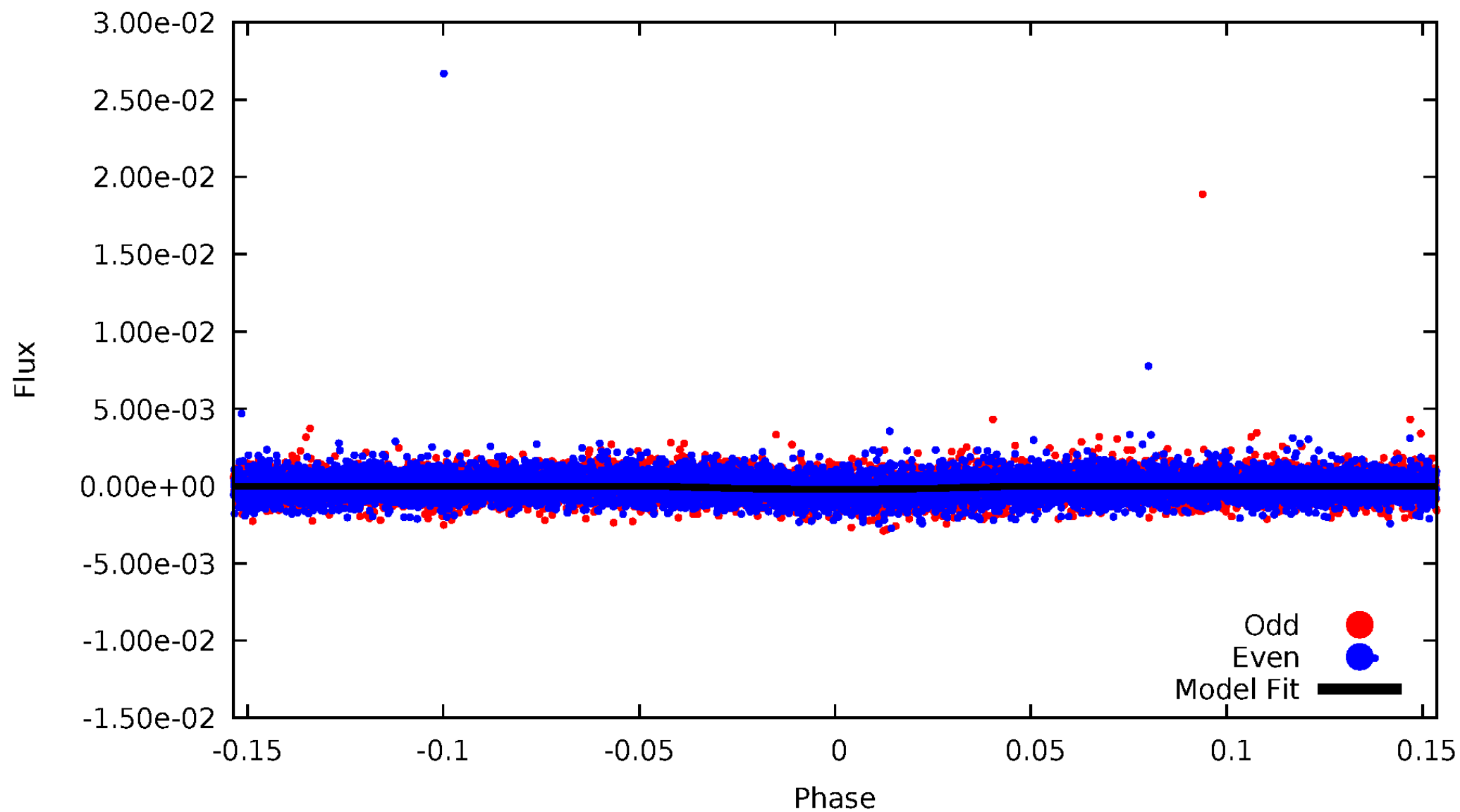


TCE 005308663-01



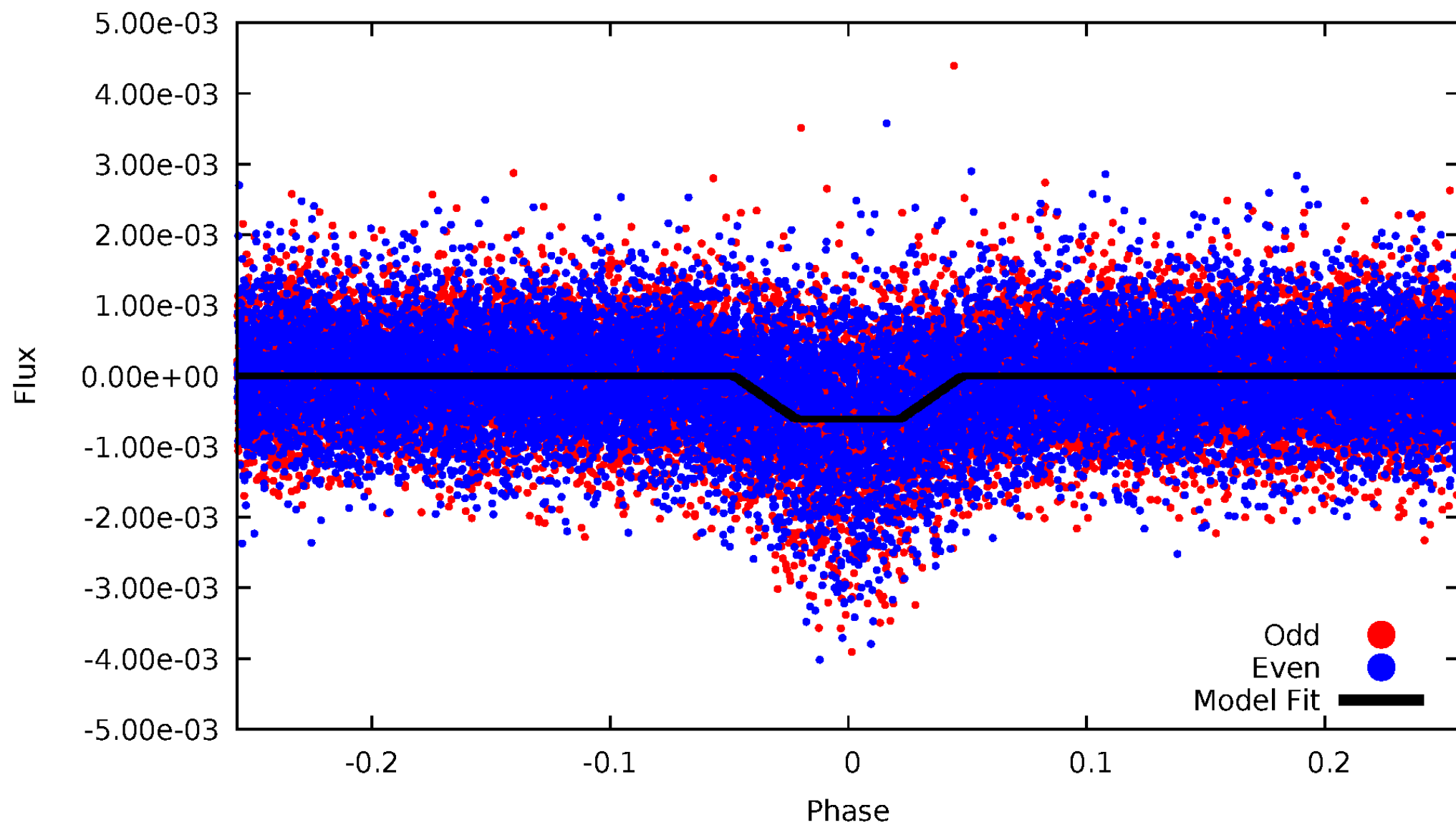
DV Odd/Even

TCE 005308663-01

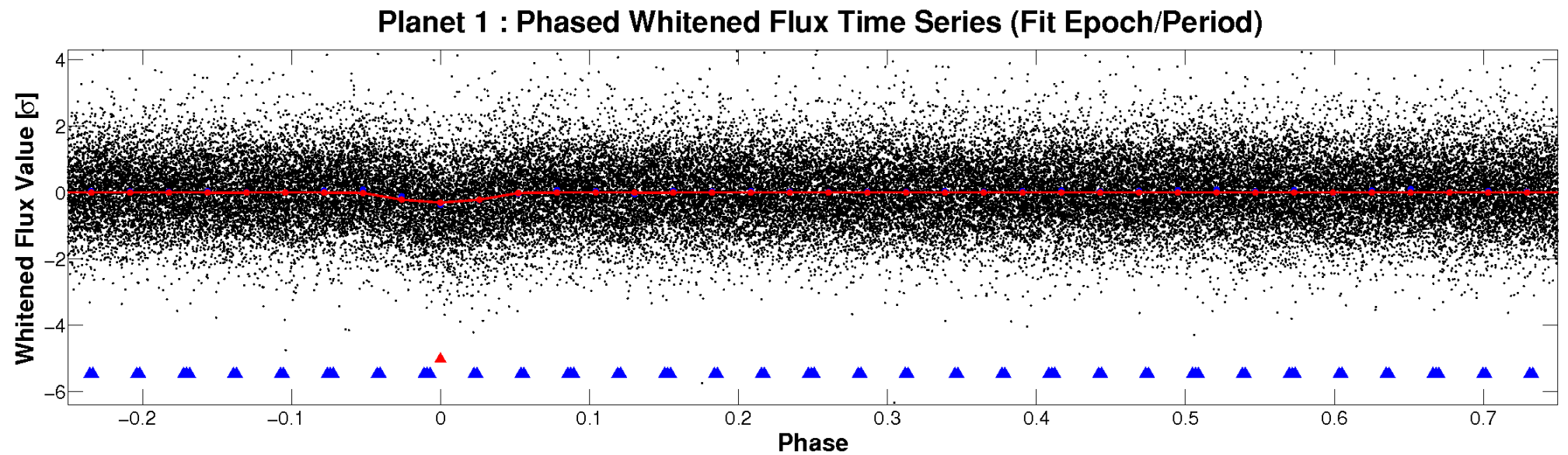
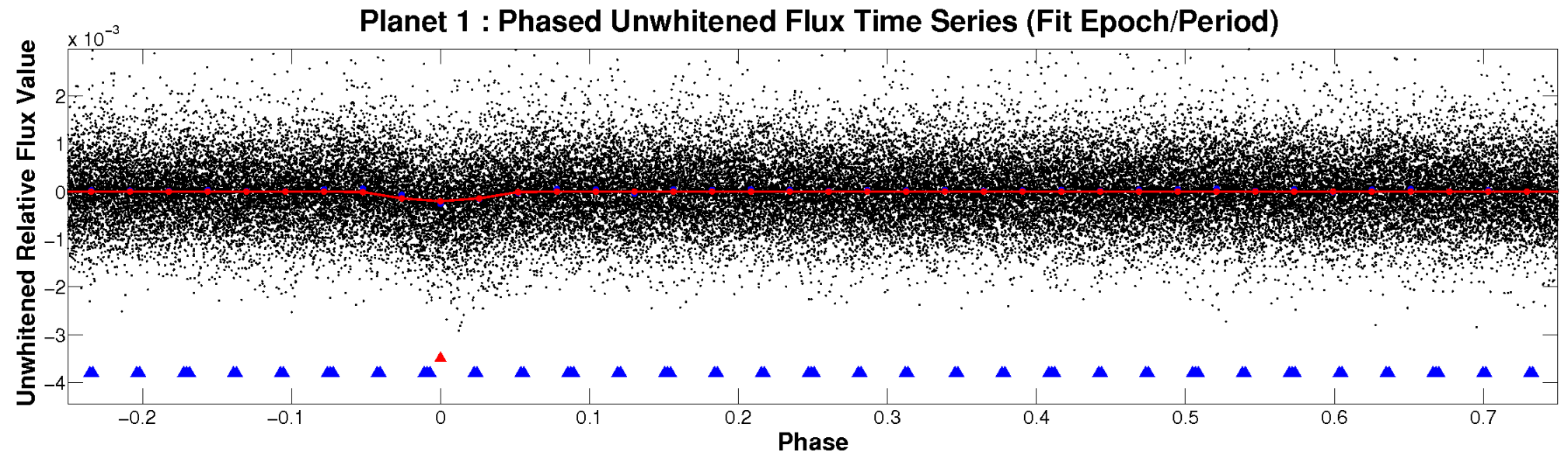


ALT Odd/Even

TCE 005308663-01

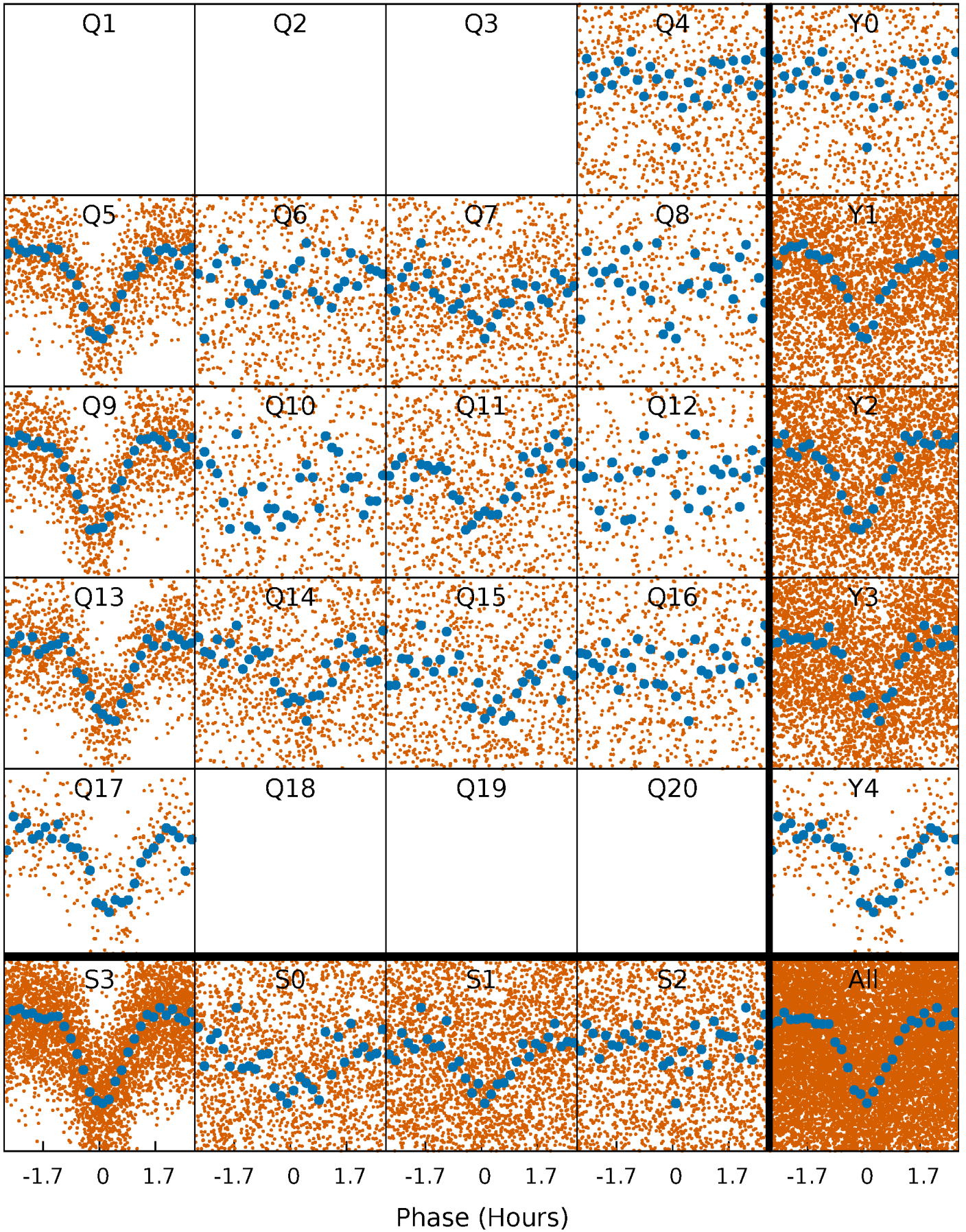


Non-Whitened Vs. Whitened Light Curve



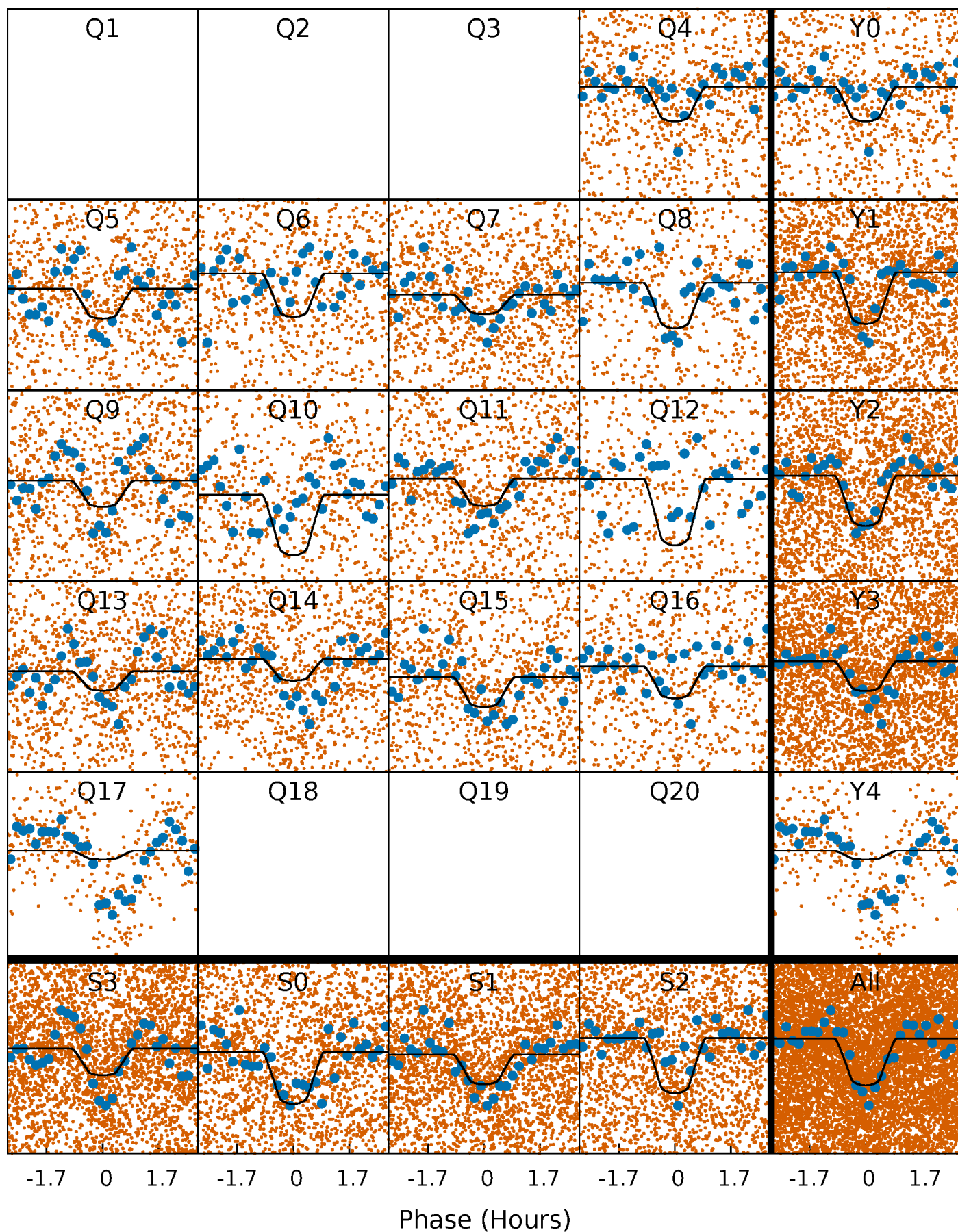
PDC Quarter-Phased Transit Curves

TCE 005308663-01 P= 0.784502 Days $T_0=131.993896$ (BKJD)



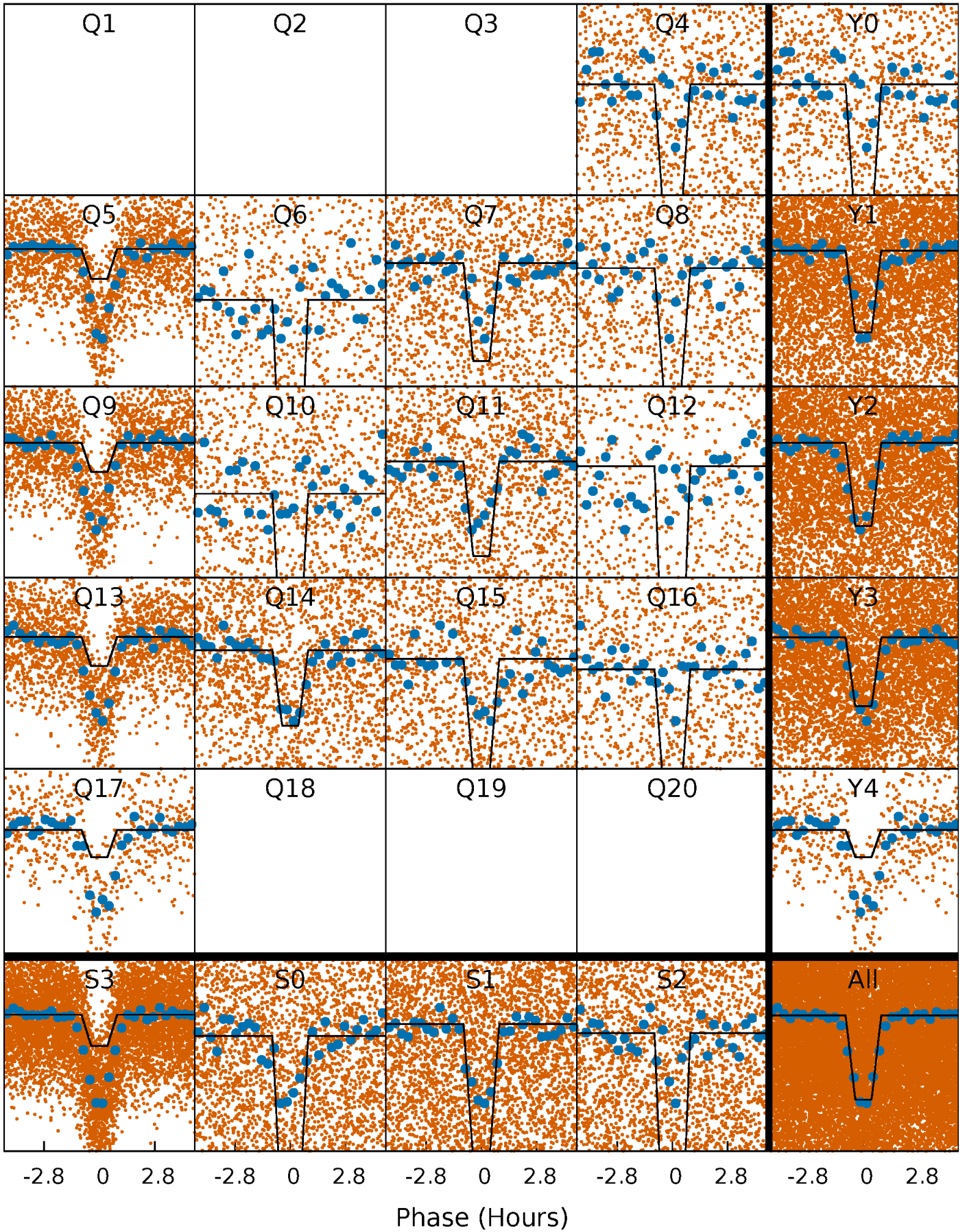
DV Quarter-Phased Transit Curves

TCE 005308663-01 P= 0.784502 Days $T_0=131.993896$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

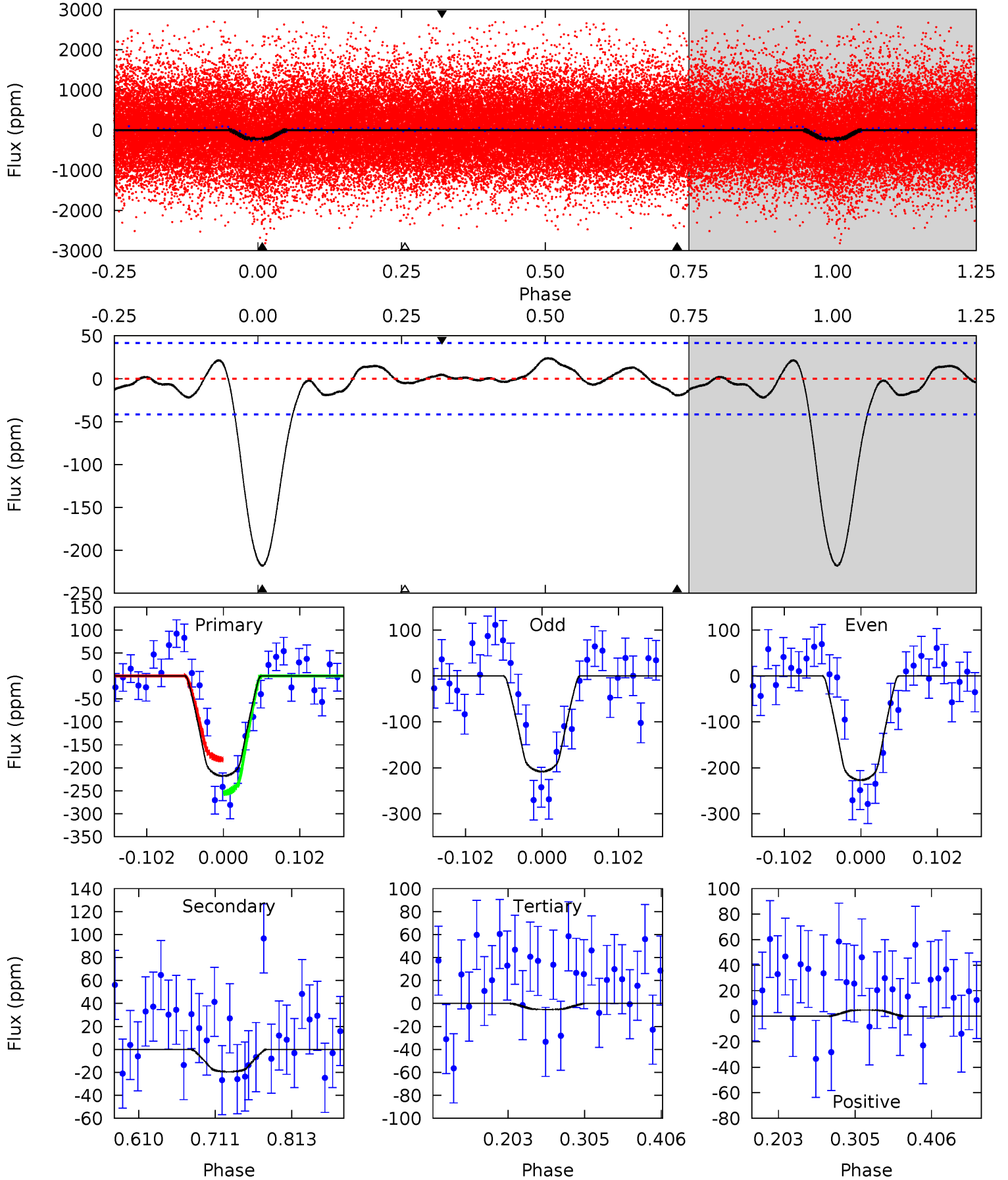
TCE 005308663-01 P= 0.784513 Days $T_0=131.986327$ (BKJD)



DV Model-Shift Uniqueness Test

005308663-01, P = 0.784502 Days, E = 131.993896 Days

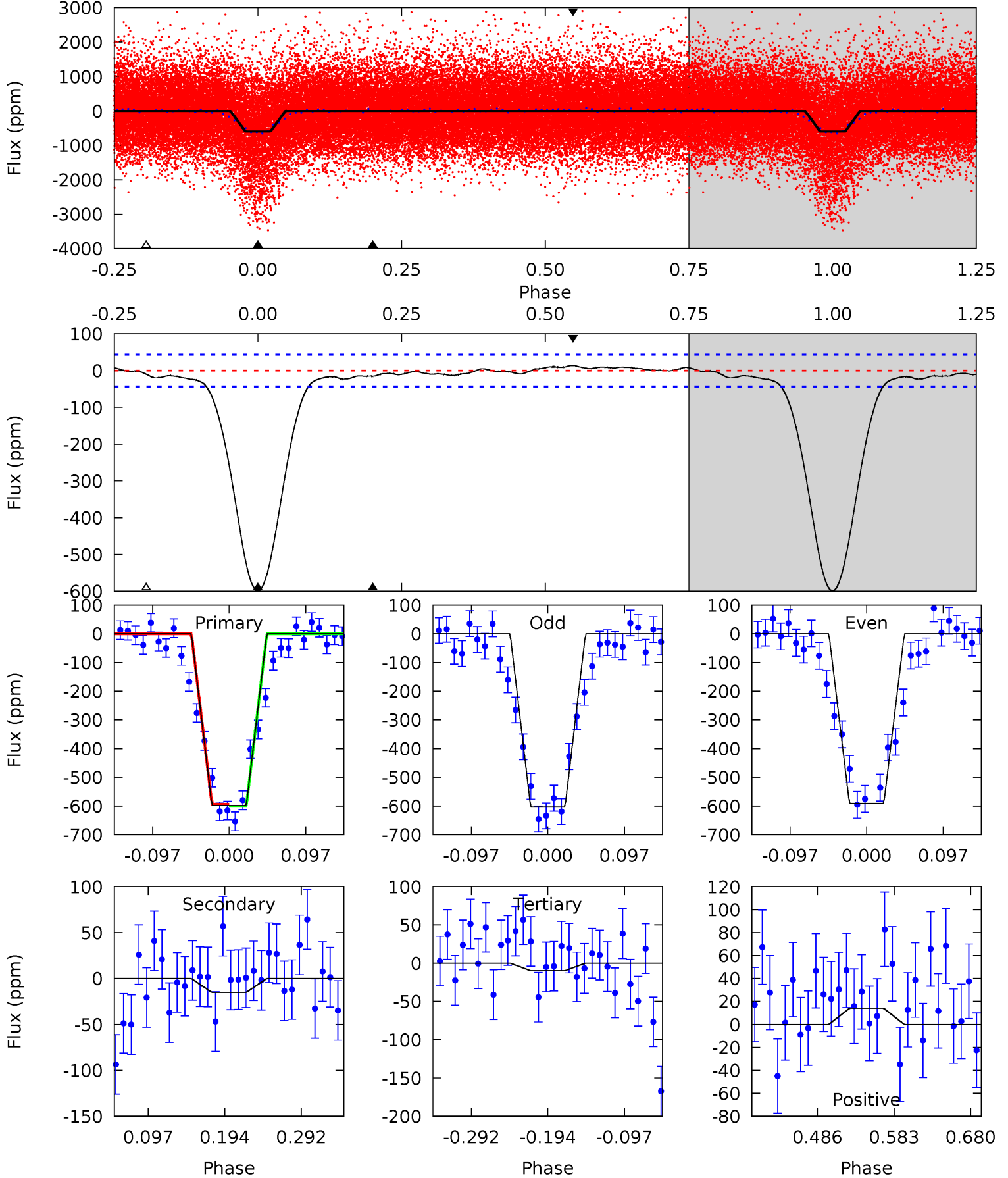
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.9	2.14	0.58	0.53	4.56	1.64	1.14	23.3	23.3	1.56	1.60	1.03	1.06	0.10	4.01



Alt Model-Shift Uniqueness Test

005308663-01, P = 0.784513 Days, E = 131.986327 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
63.5	1.61	1.04	1.48	4.57	1.66	1.10	62.4	62.0	0.57	0.13	0.66	1.37	0.02	0.36



Stellar Parameters For KIC 005308663

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5997^{+189}_{-231}	$4.522^{+0.050}_{-0.200}$	$-0.220^{+0.300}_{-0.300}$	$0.904^{+0.264}_{-0.088}$	$0.991^{+0.118}_{-0.131}$	$1.890^{+0.390}_{-1.005}$
	+3%/-4%	+1%/-4%	+136%/-136%	+29%/-10%	+12%/-13%	+21%/-53%
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 005308663-01 / KOI 1562.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-19 ± 9	$1.67^{+0.78}_{-0.81}$	2785^{+215}_{-134}	3358^{+1090}_{-997}	$1.018^{+2.657}_{-0.669}$
Alt.	-15 ± 9	$2.58^{+0.84}_{-0.87}$	2804^{+183}_{-162}	2199^{+1046}_{-4995}	$0.325^{+0.558}_{-0.221}$

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 $A_{obs} \gg 1.0$

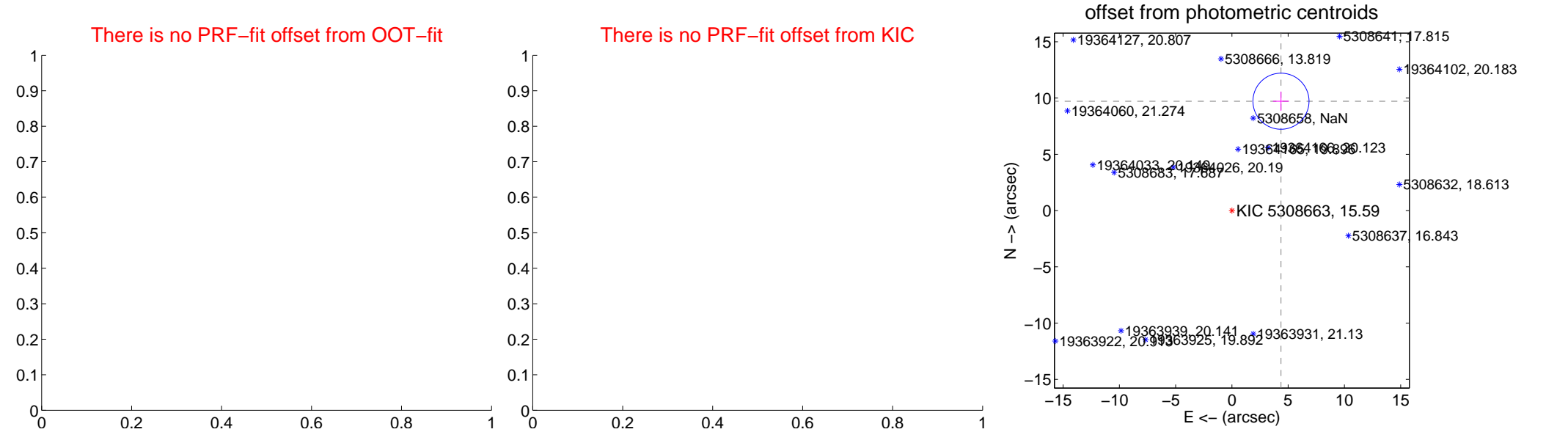
DV Centroid Data

Supplemental centroid analysis for 005308663-01. Kepler magnitude: 15.59. Transit SNR 15.92

There are 0 quarters with good PRF difference image offsets

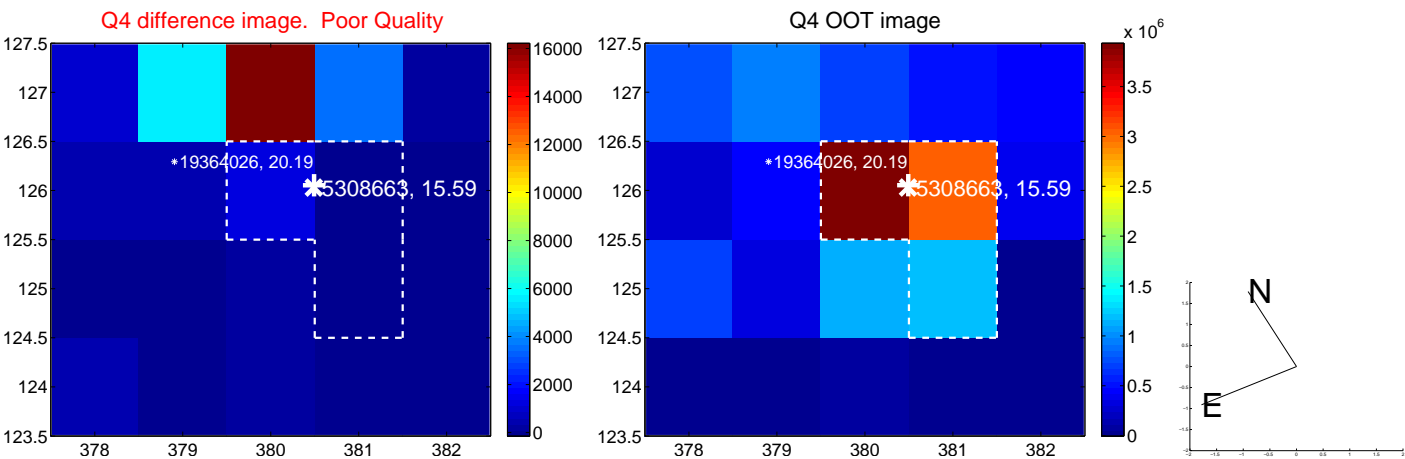
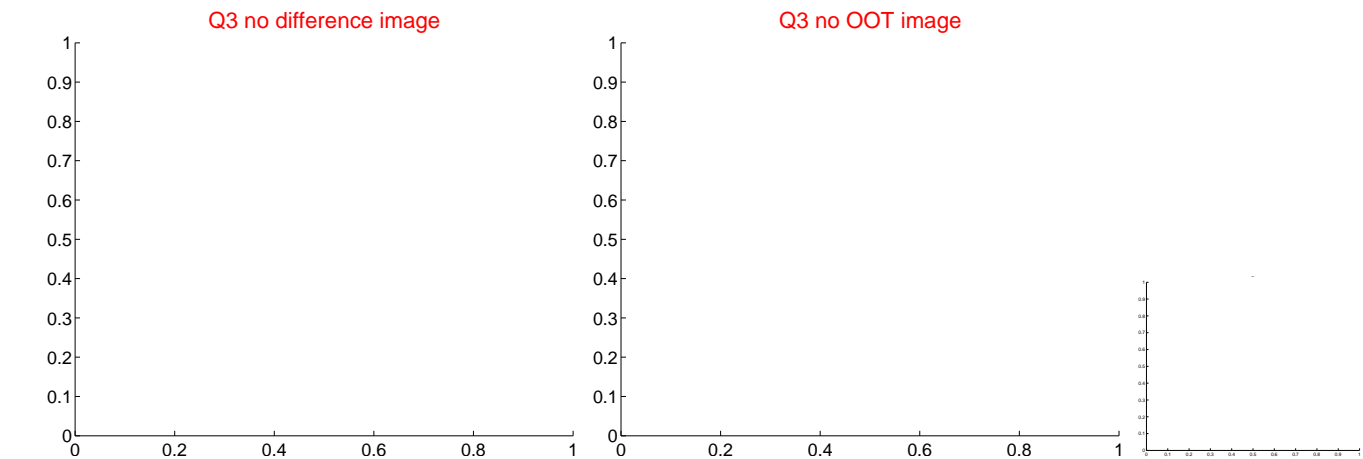
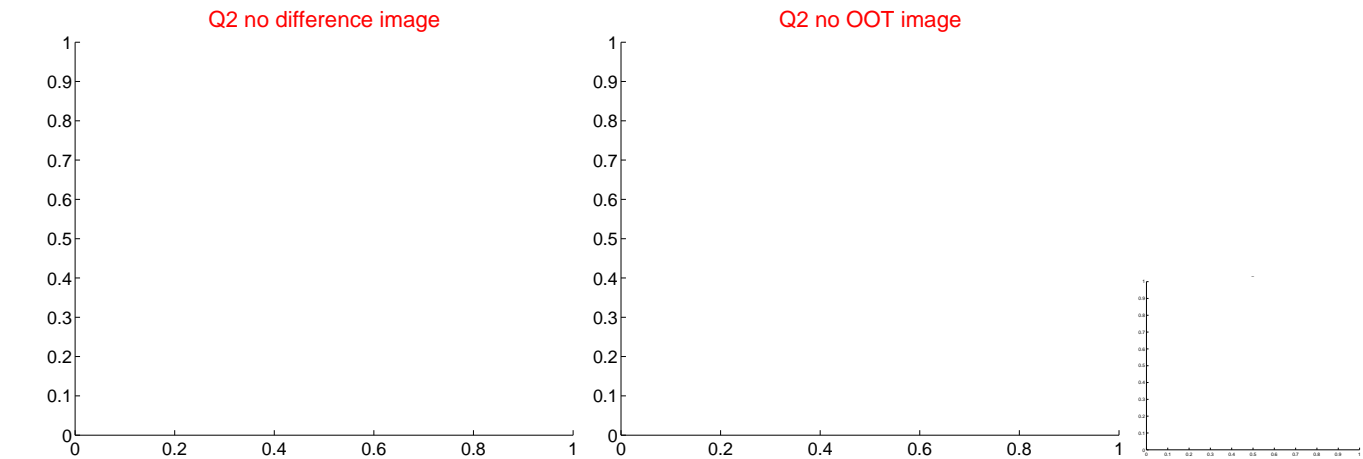
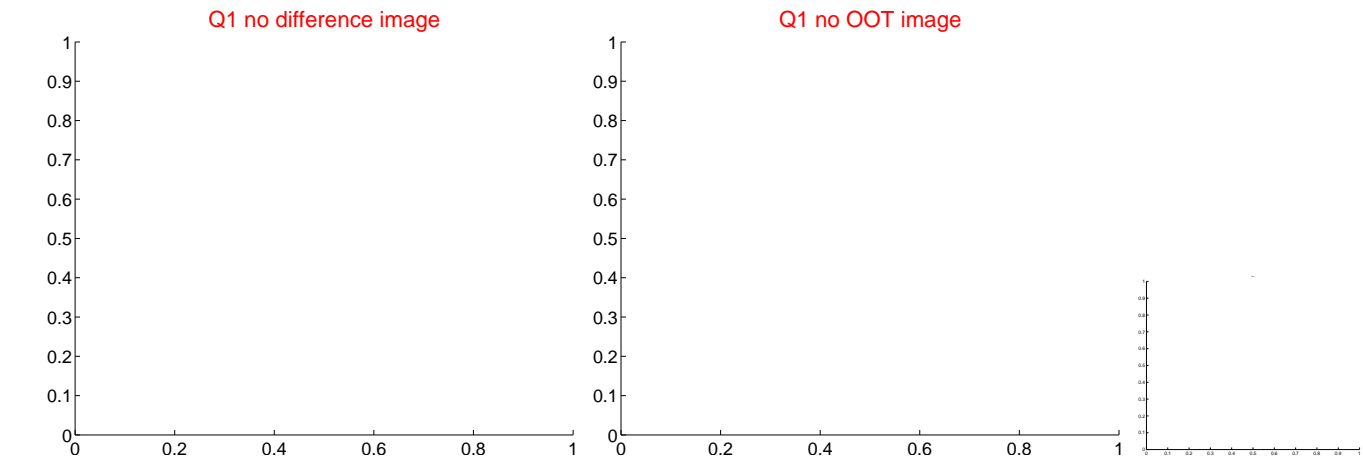
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	10.65 ± 0.83	12.82	-4.36 ± 0.71	9.72 ± 0.85

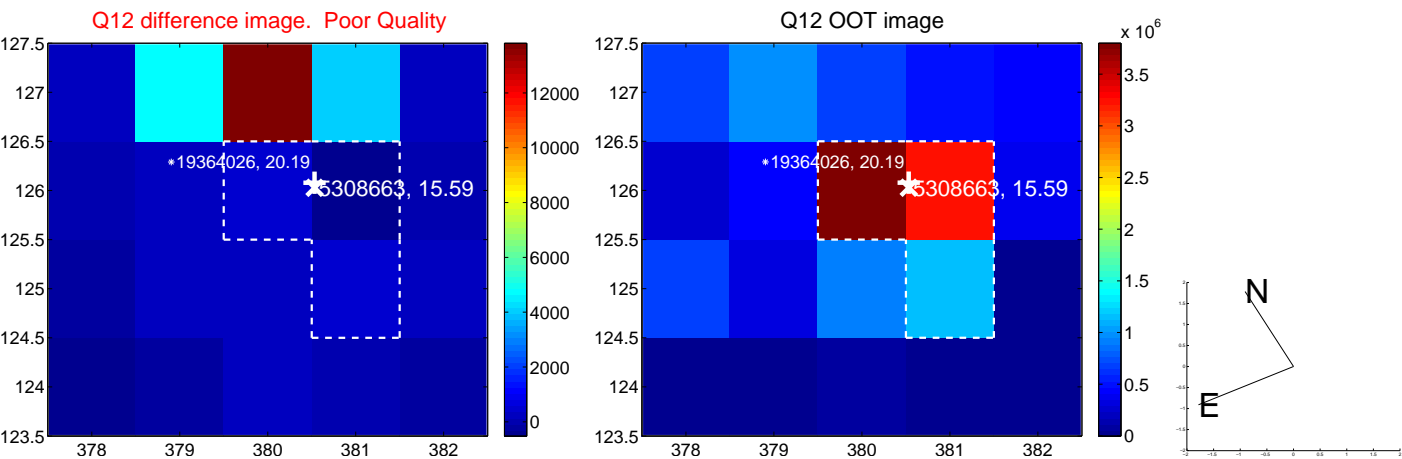
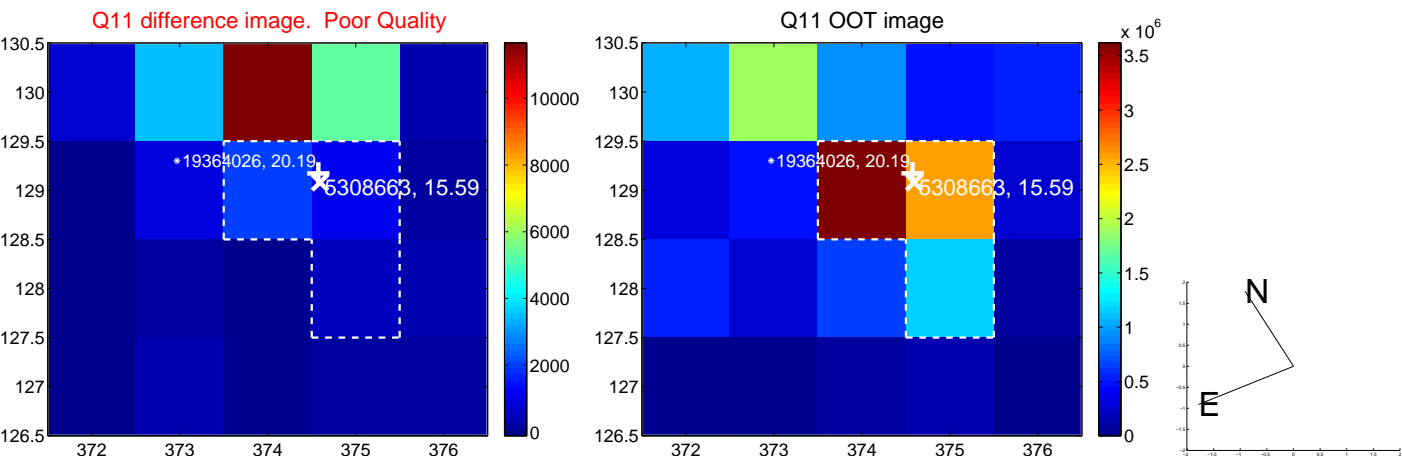
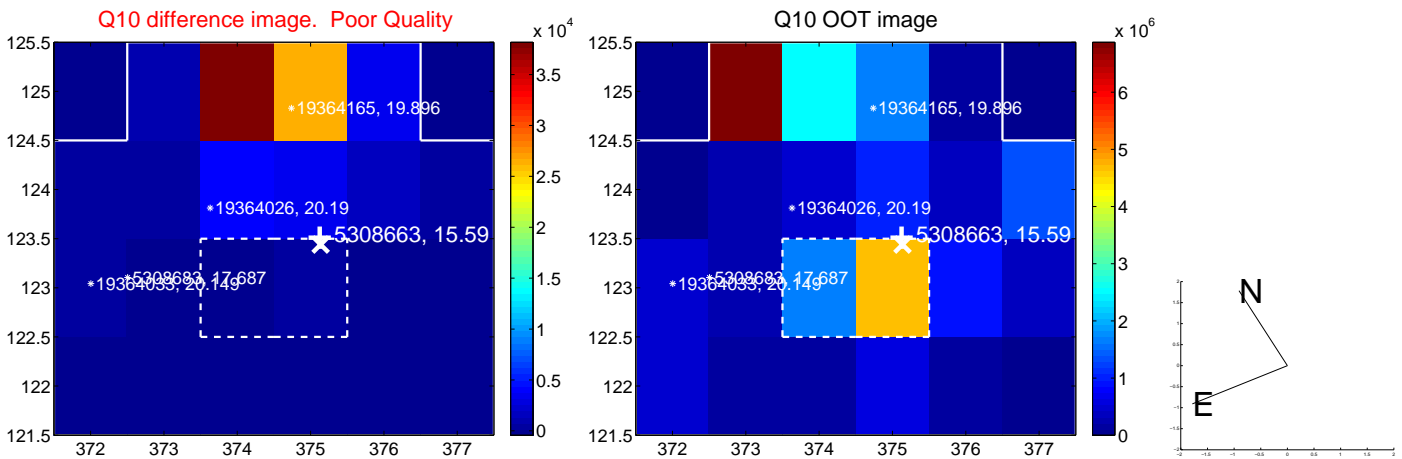
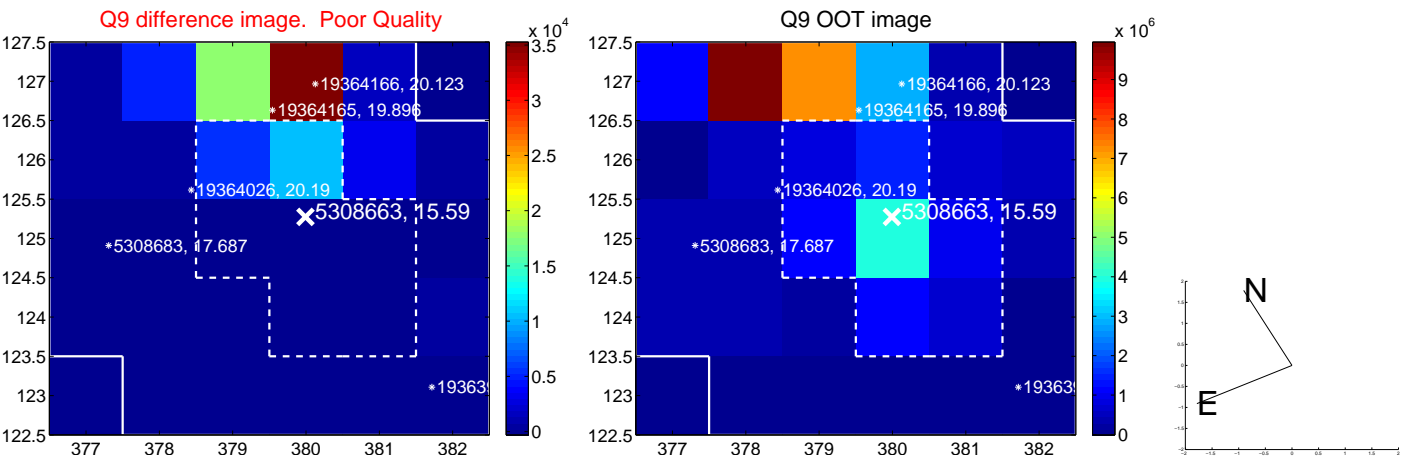


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

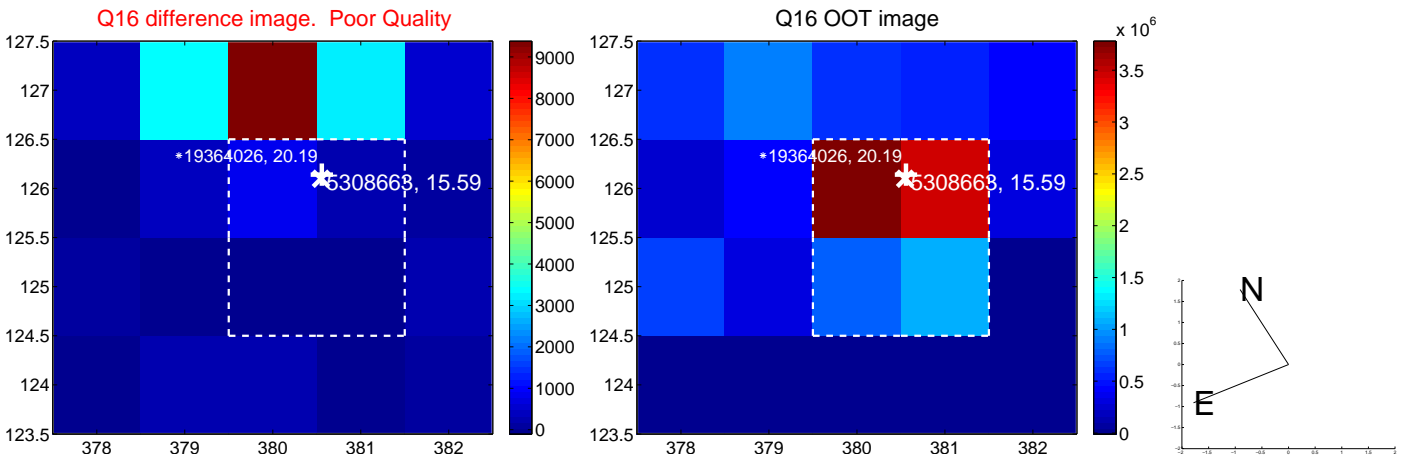
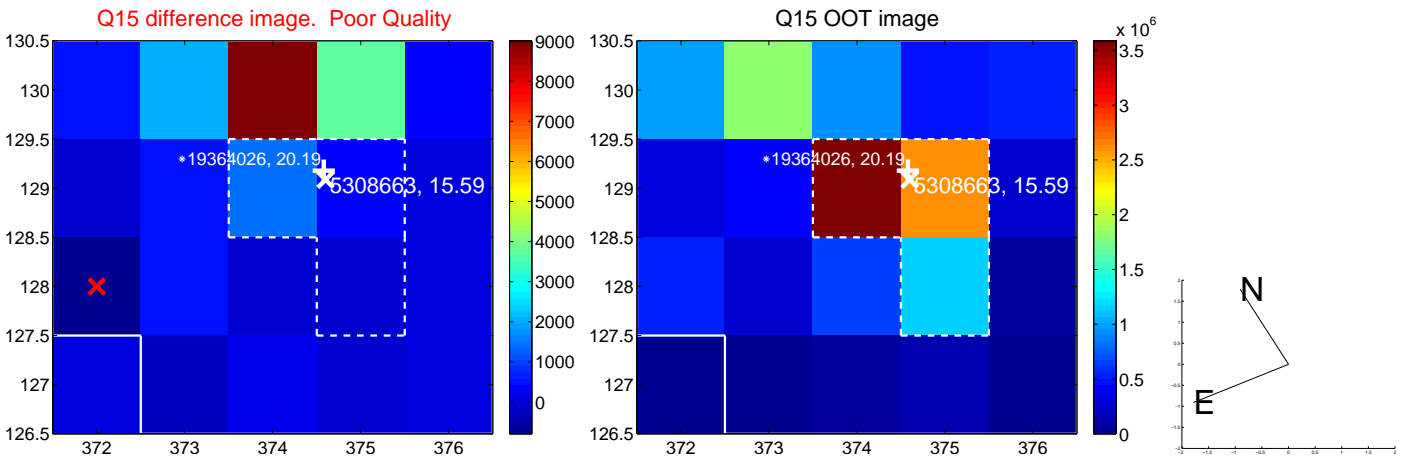
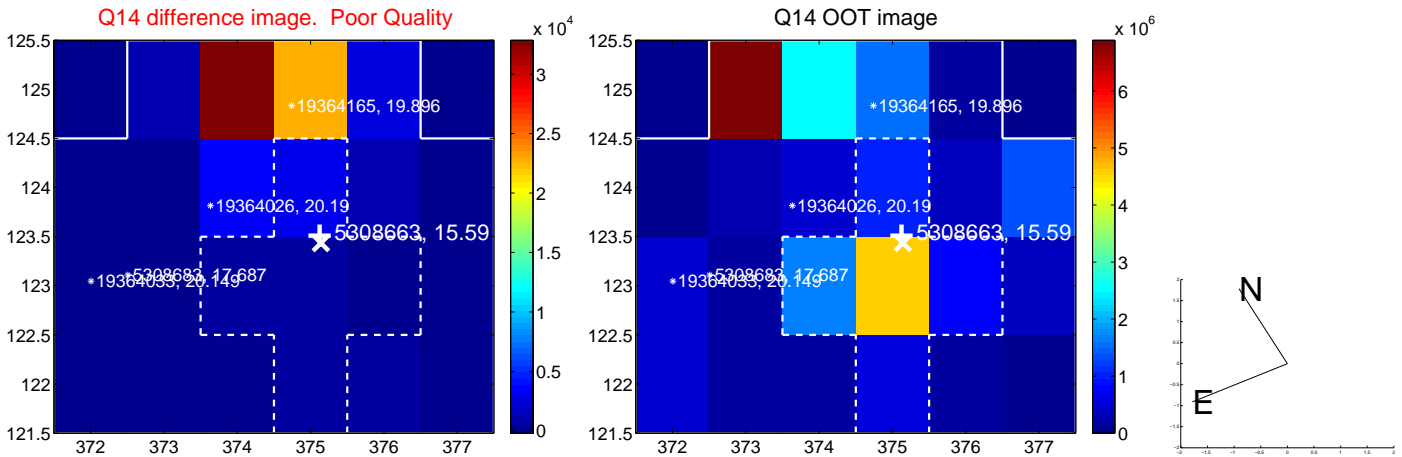
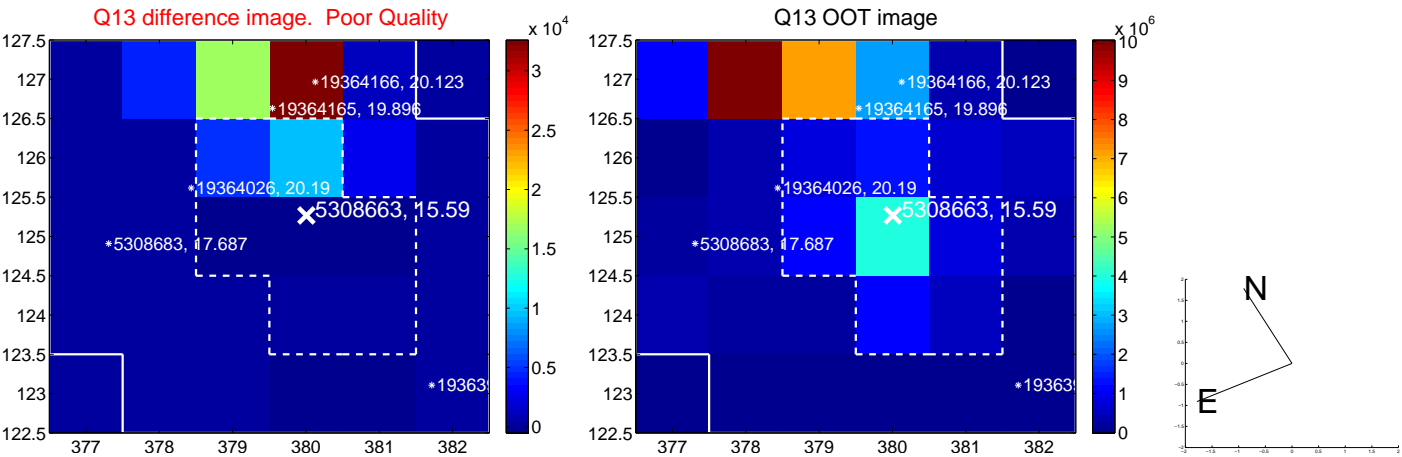
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



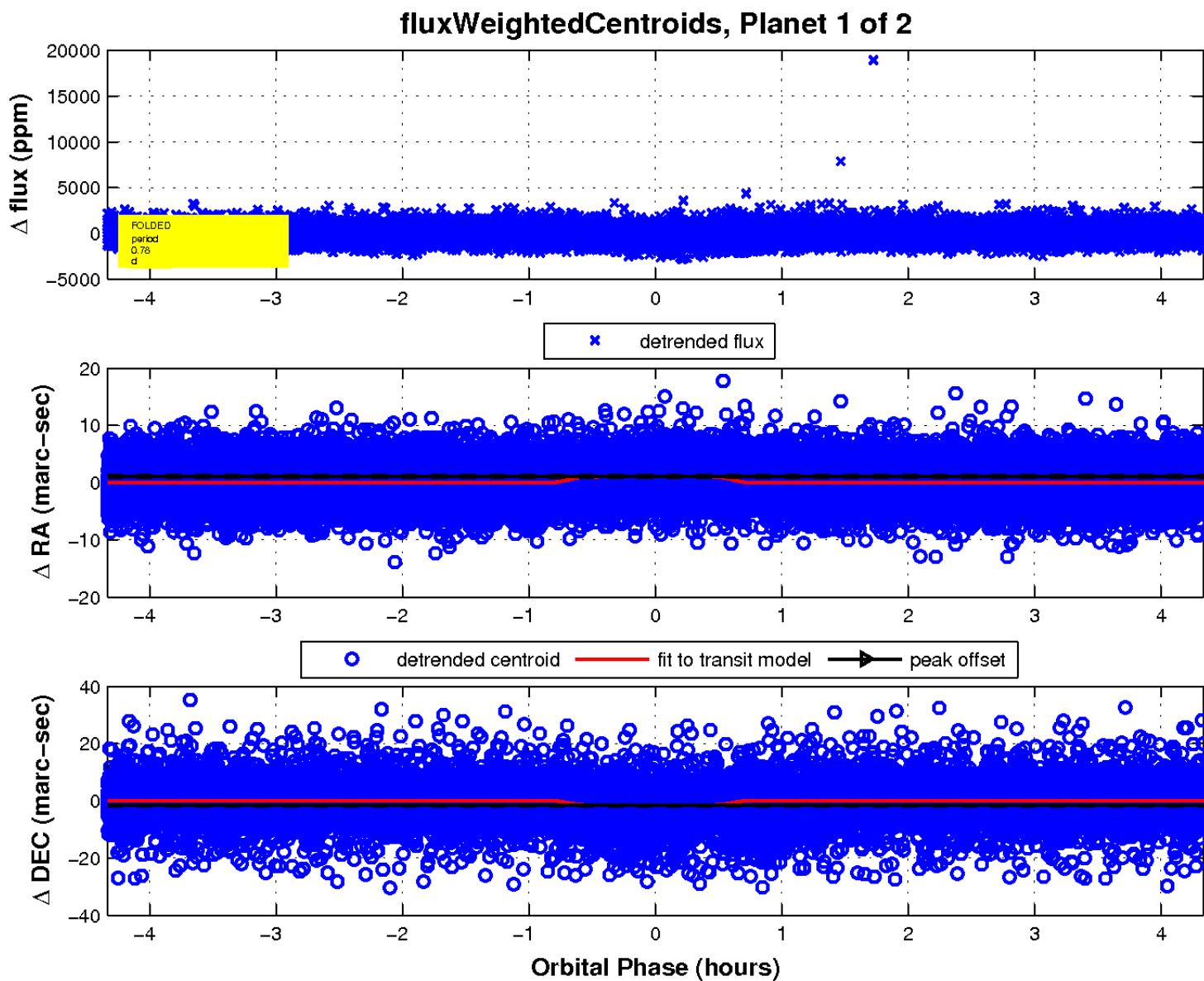
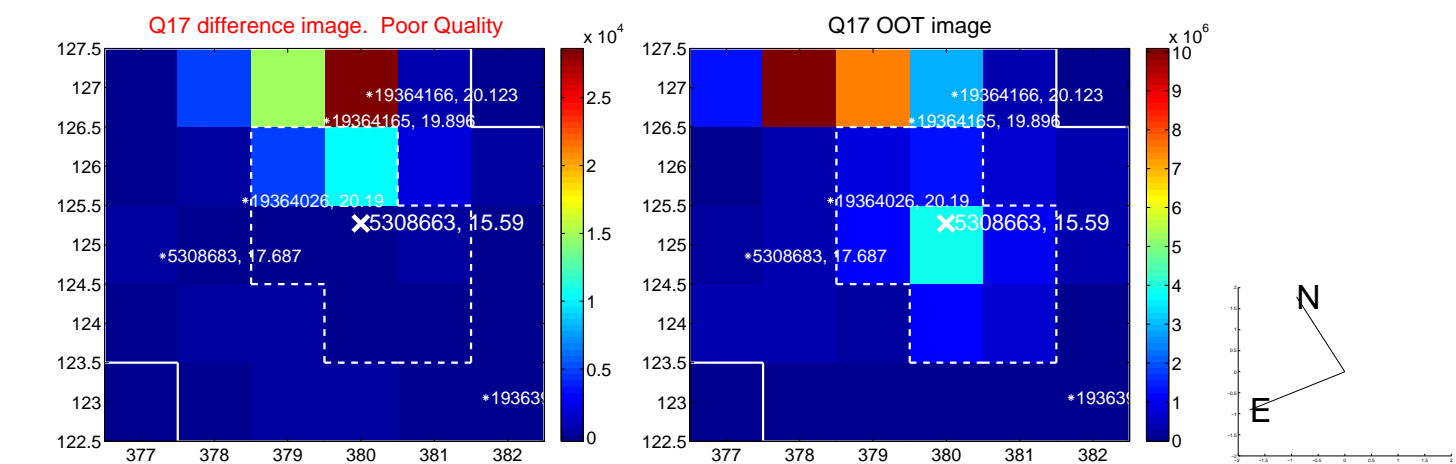
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

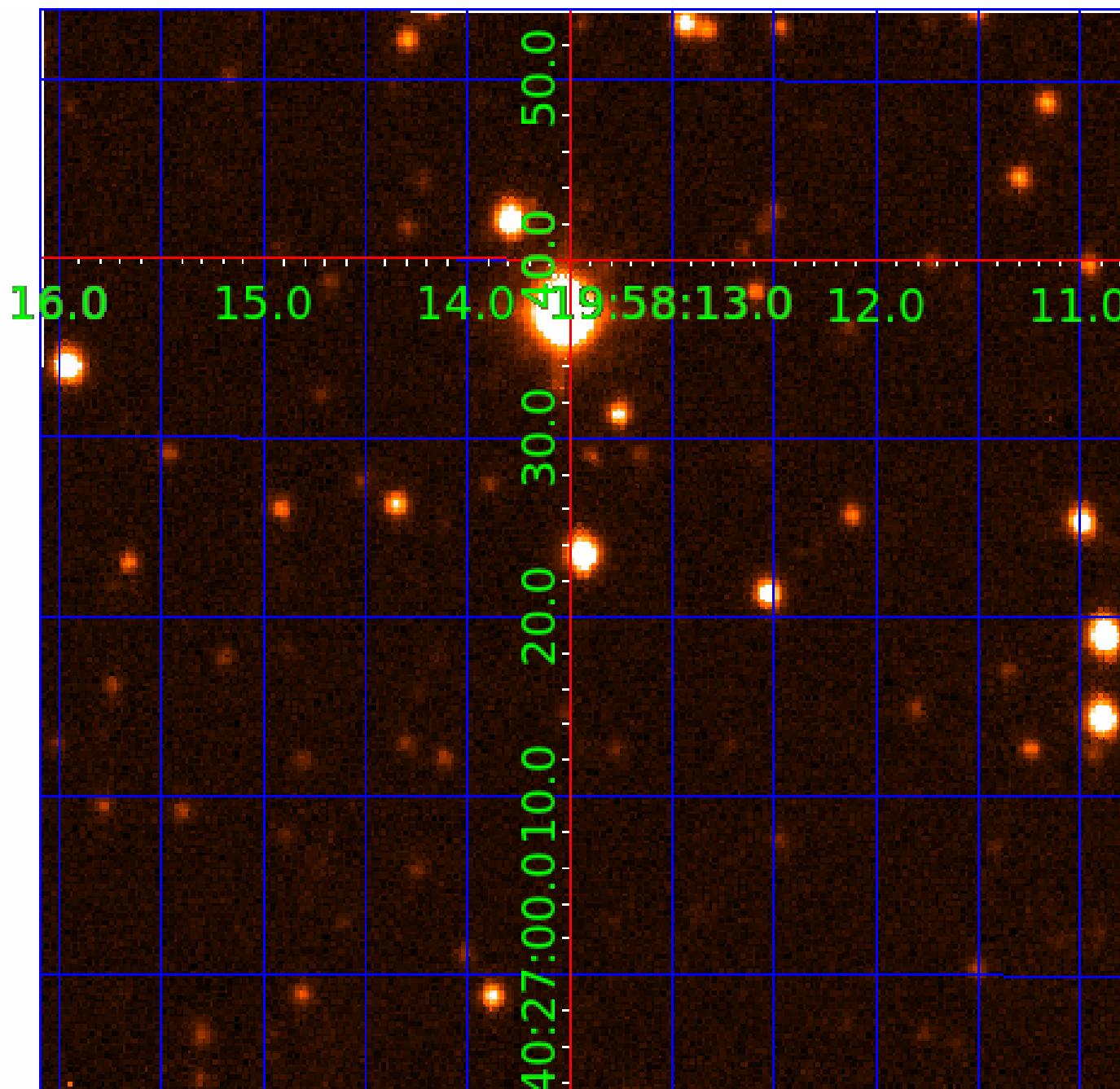


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005308663

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})
005308663-01	OBS	1562.01	0.784502	131.993896	204.2	1.445	15.4	15.9	0.90	5997	1.53	3435.19
005308663-02	OBS	1562.02	20.068111	150.762359	414.3	5.279	8.2	10.3	0.90	5997	2.10	45.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005308663-01	OBS	FP	0.00	0	0	0	1	CENT_FEW_MEAS—EPHEM_MATCH
005308663-02	OBS	PC	0.78	0	0	0	0	NO_COMMENT

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

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

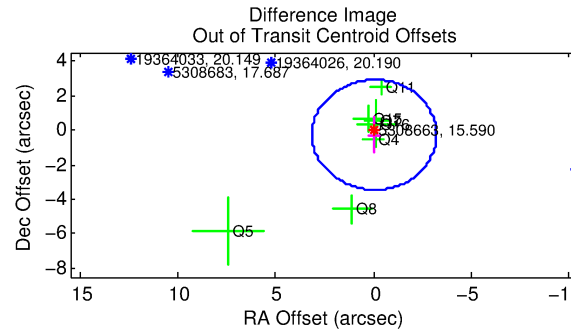
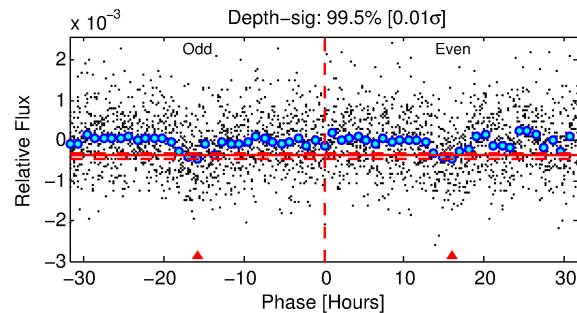
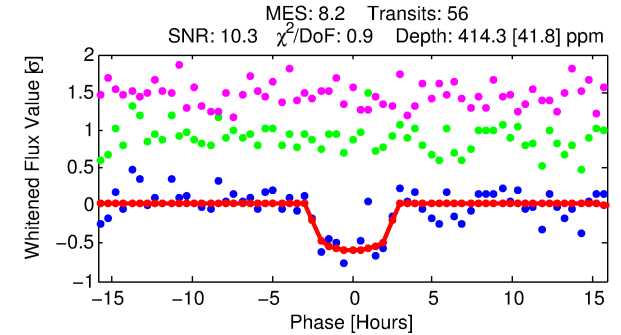
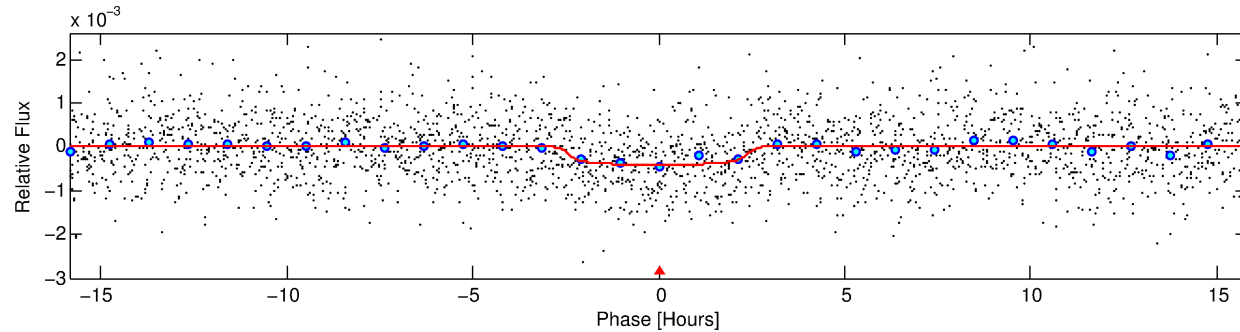
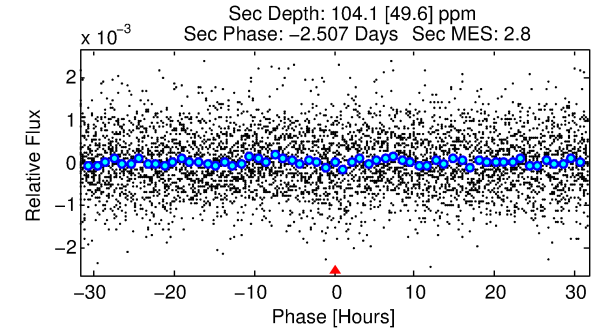
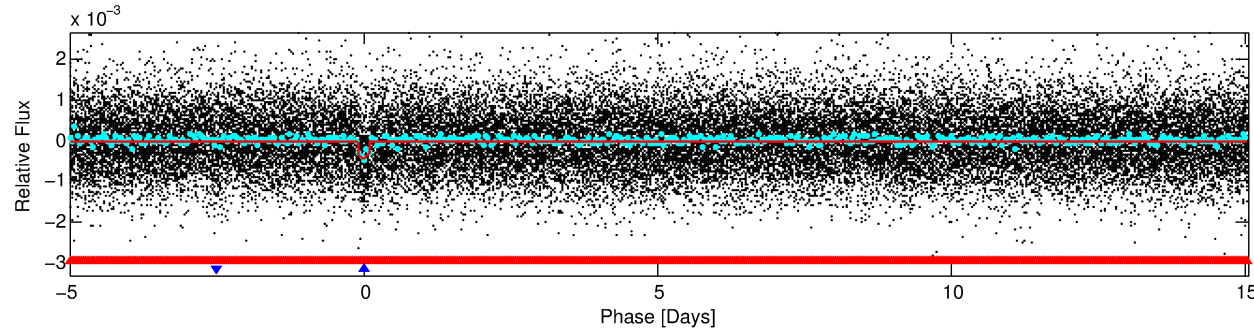
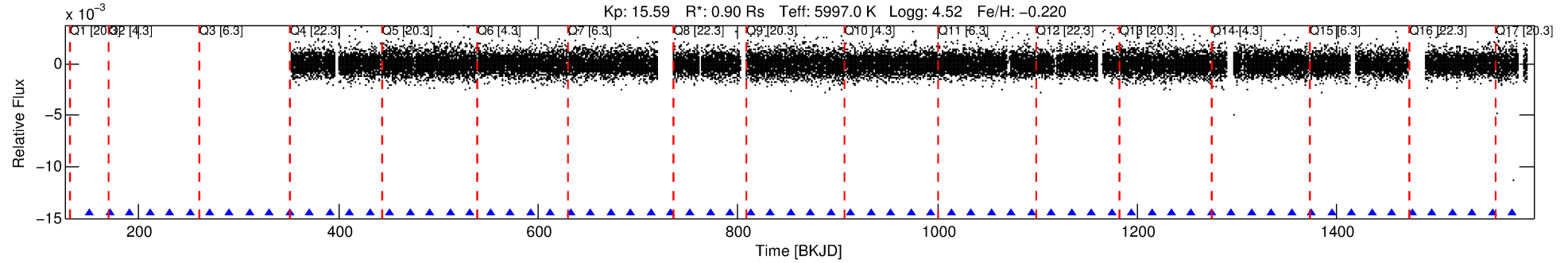
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005308663-02

No Significant Match Found

DV One-Page Summary

KIC: 5308663 Candidate: 2 of 2 Period: 20.068 d
KOI: K01562.02 Corr: 0.950



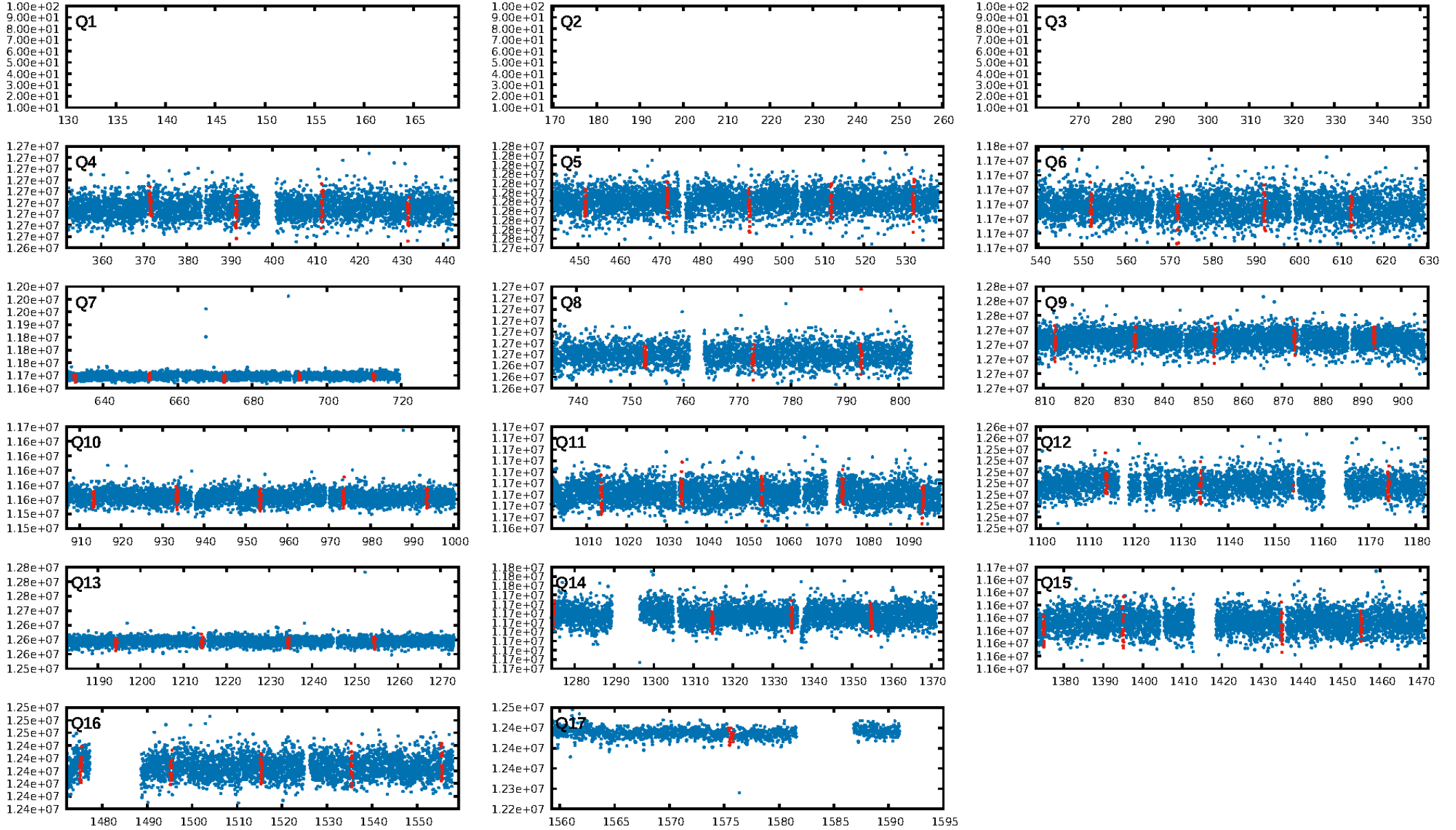
DV Fit Results:

Period = 20.06811 [0.00031] d
Epoch = 150.7624 [0.0132] BKJD
Rp/R* = 0.0213 [0.0071]
a/R* = 16.26 [26.65]
b = 0.85 [0.53]
Seff = 45.58 [18.00]
Teq = 663 [65] K
Rp = 2.10 [0.93] Re
a = 0.1441 [0.0357] AU
Ag = 270.65 [242.52] [1.11σ]
Teffp = 4155 [866] K [4.02σ]

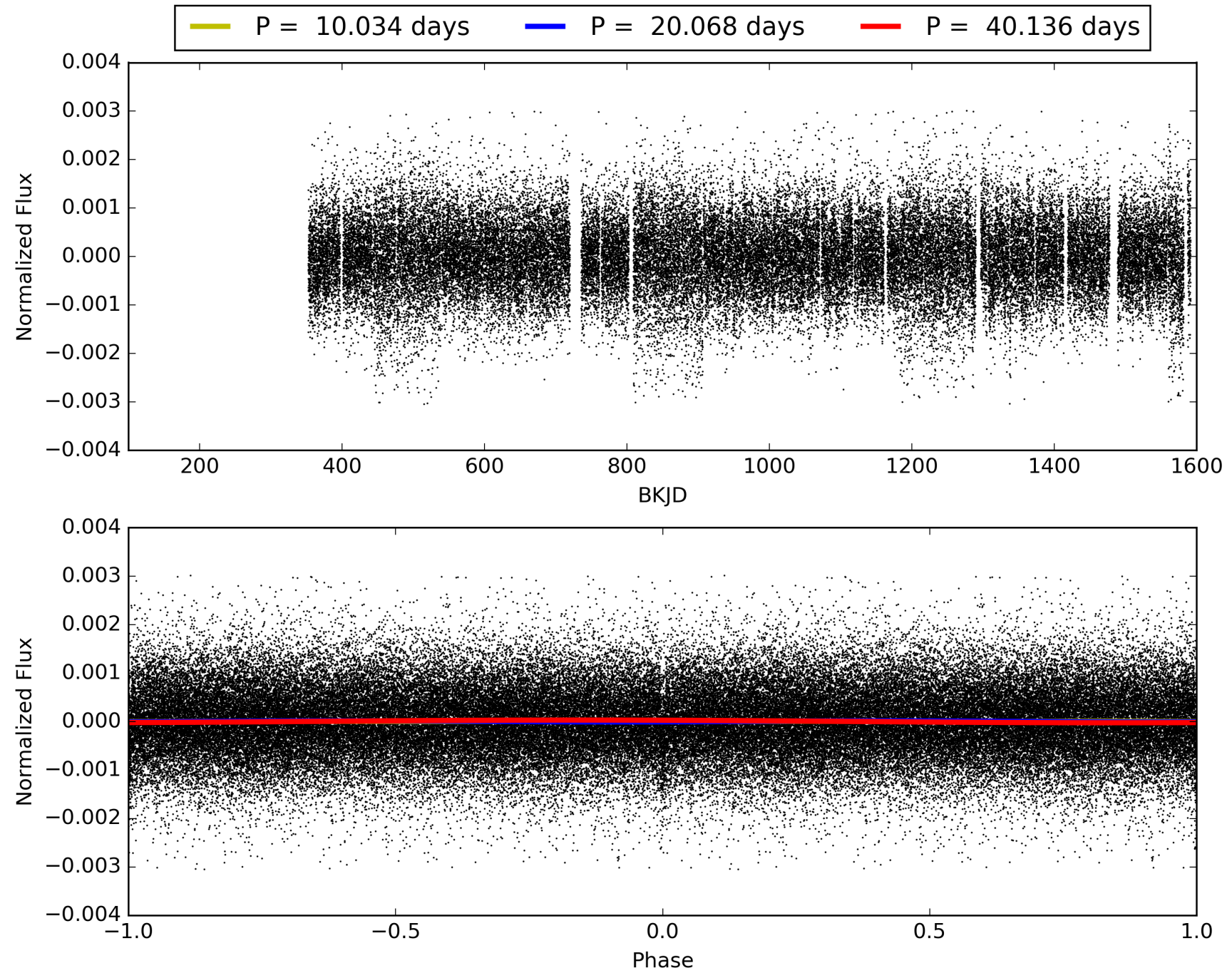
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [84.55σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 85.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.58e-16
RollingBand-fgt: 1.00 [55/55]
GhostDiagnostic-chr: 4.232
Centroid-sig: 14.7%
Centroid-so: 0.484 arcsec [0.39σ]
OotOffset-rm: 0.275 arcsec [0.26σ]
OotOffset-st: 0/3/3/1 [7]
KicOffset-rm: 0.096 arcsec [0.14σ]
KicOffset-st: 0/3/3/2 [8]
DiffImageQuality-fgm: 0.38 [3/8]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 005308663-02, PDC Light Curves

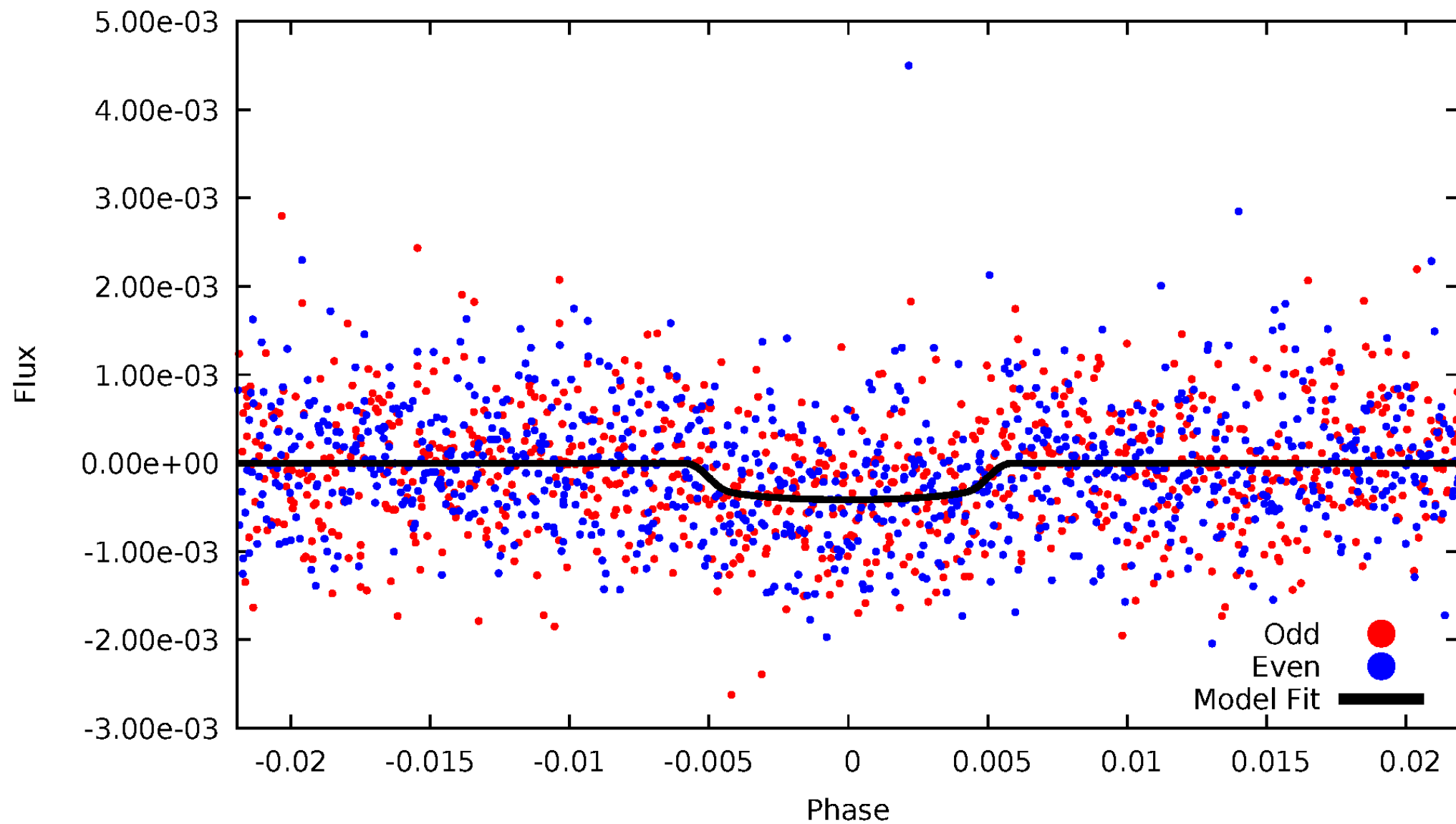


TCE 005308663-02



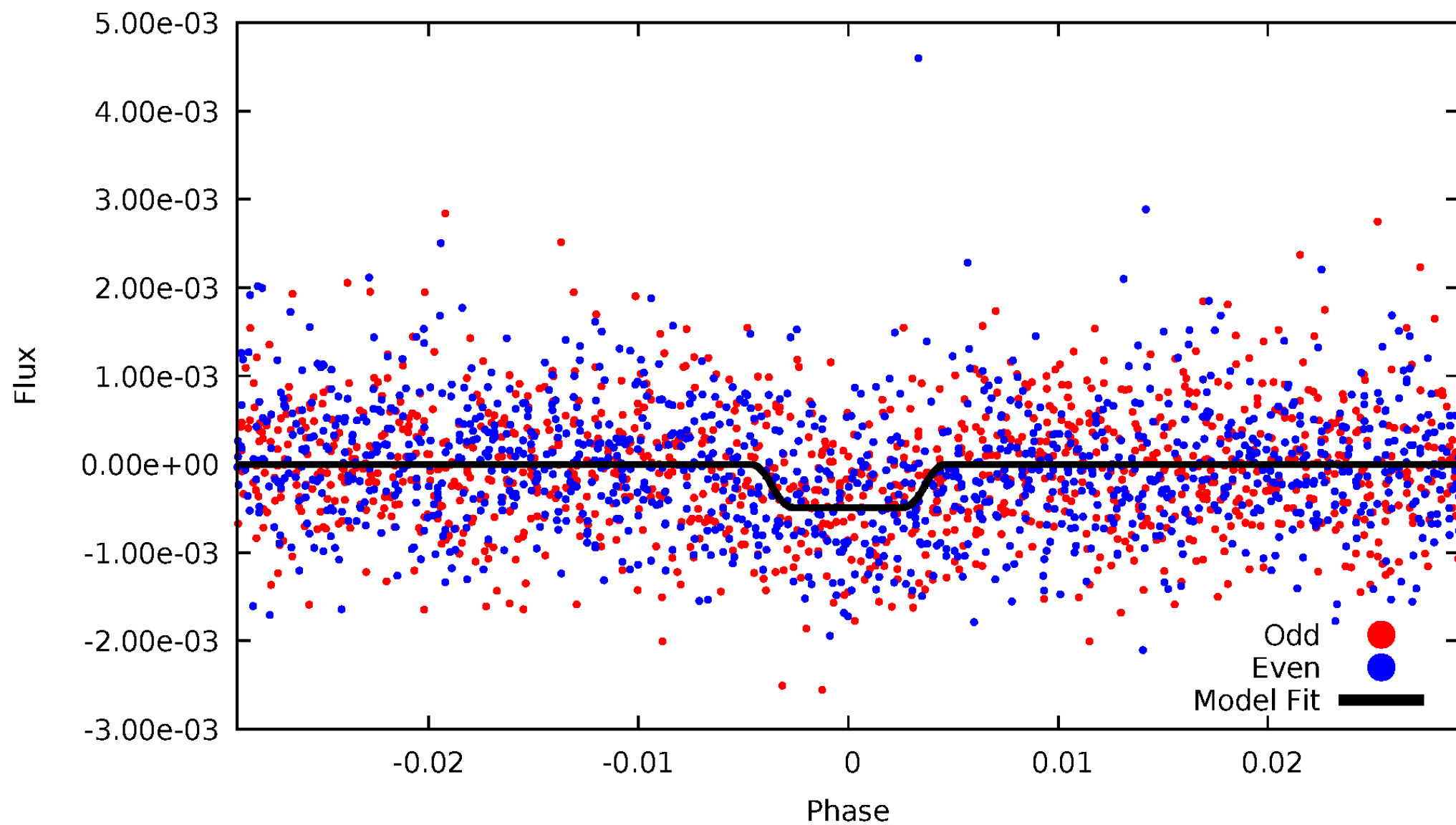
DV Odd/Even

TCE 005308663-02



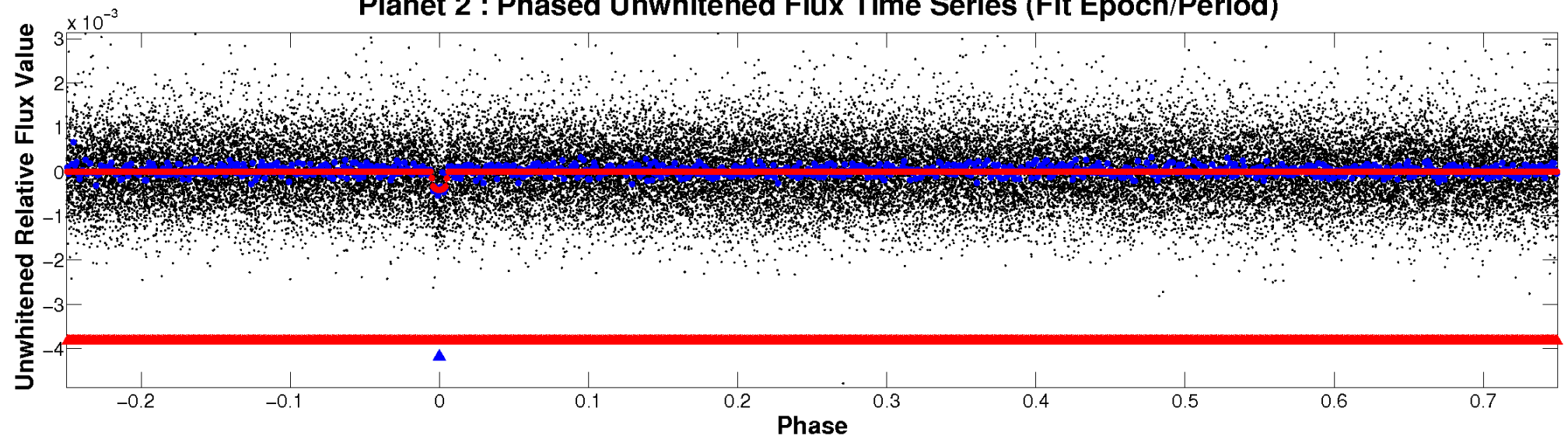
ALT Odd/Even

TCE 005308663-02

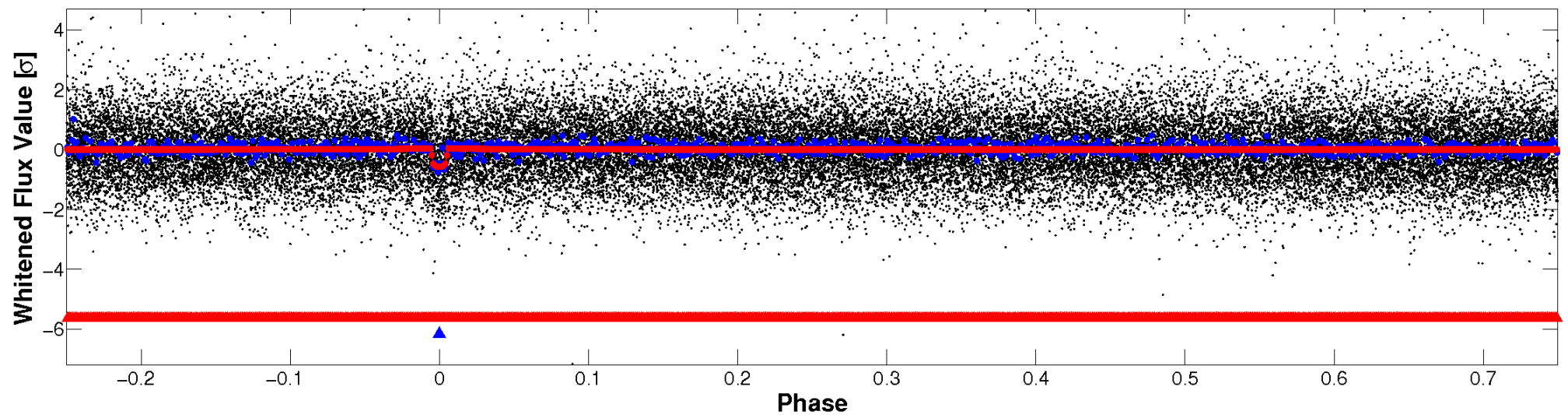


Non-Whitened Vs. Whitened Light Curve

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

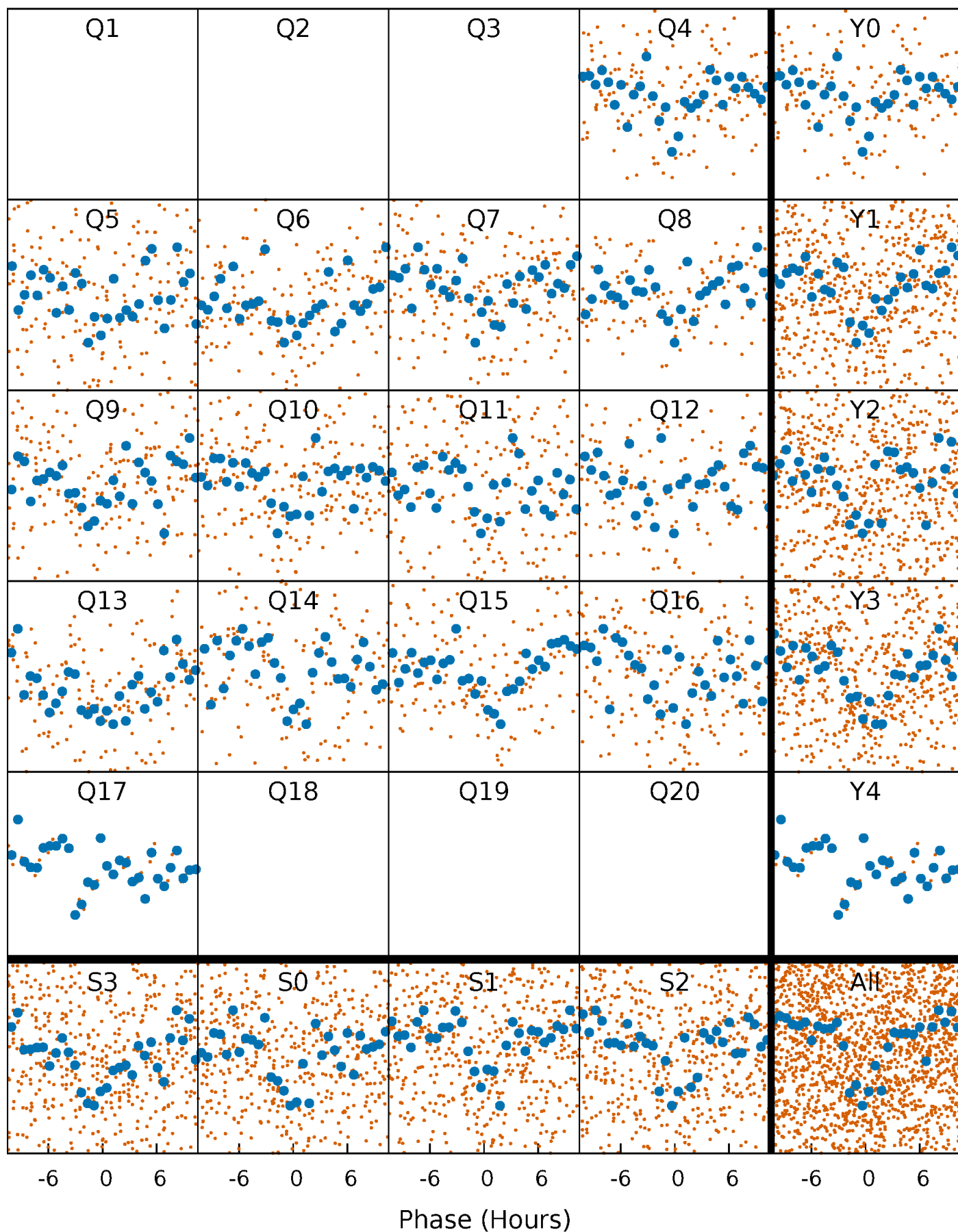


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



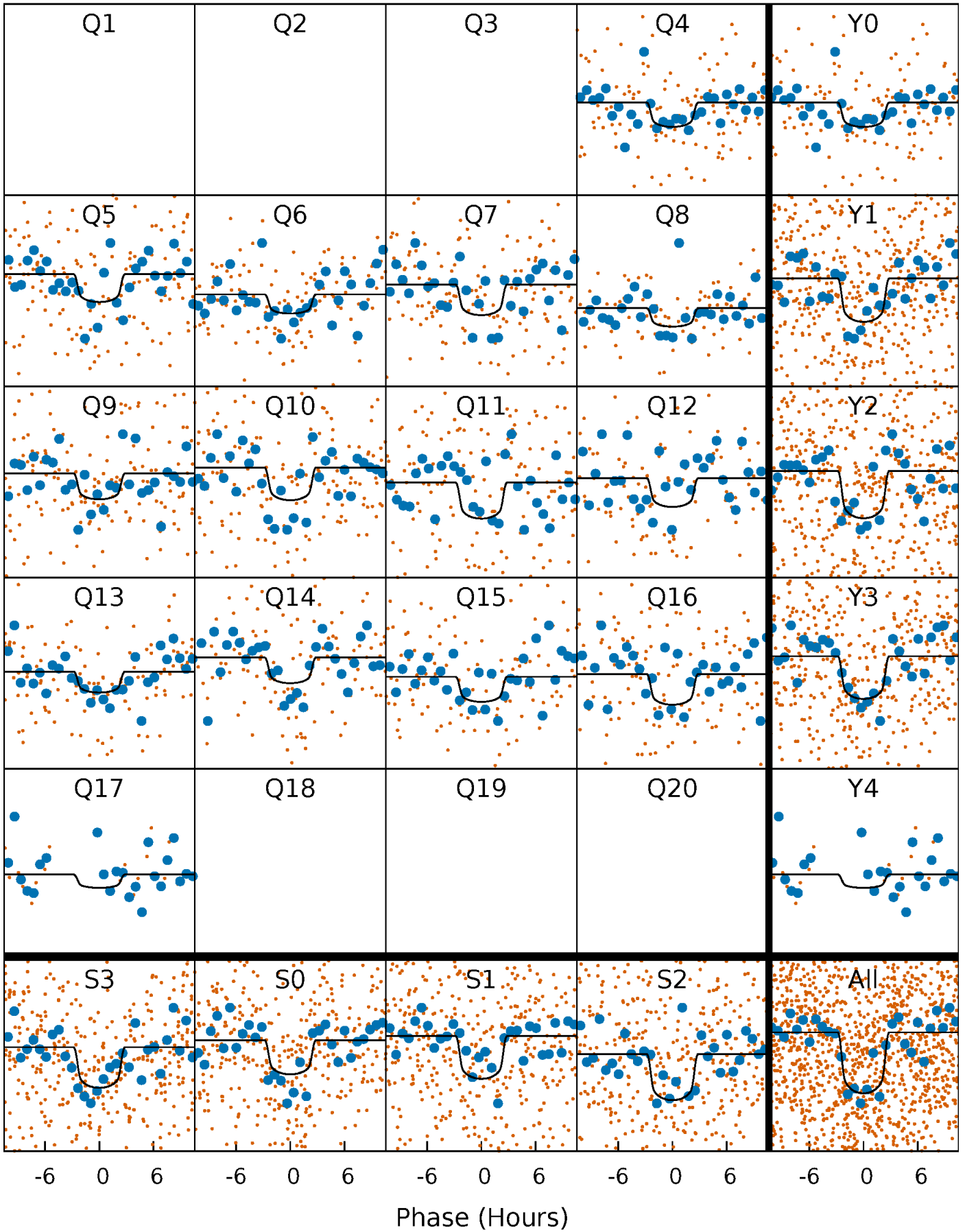
PDC Quarter-Phased Transit Curves

TCE 005308663-02 P= 20.068111 Days $T_0=150.762359$ (BKJD)



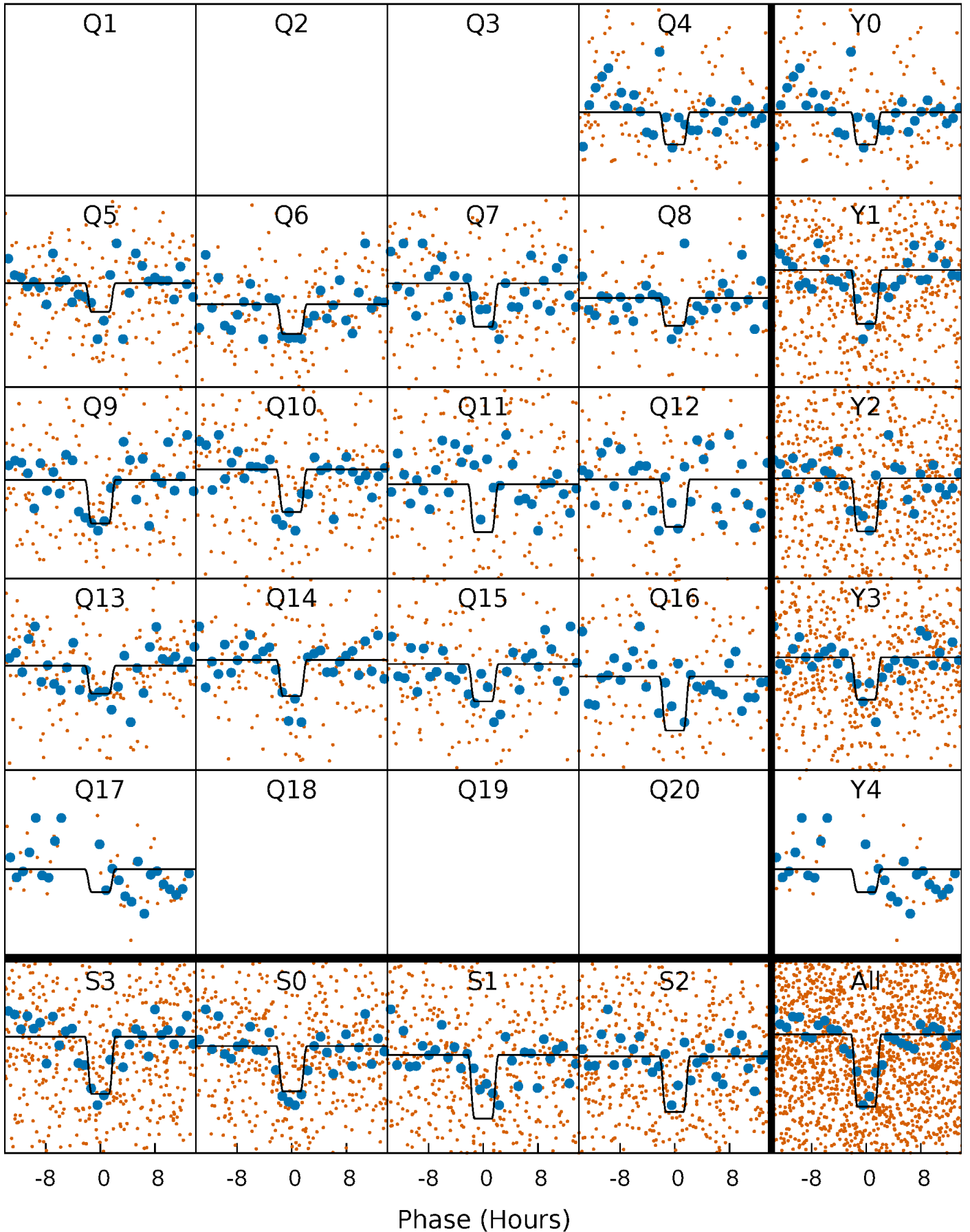
DV Quarter-Phased Transit Curves

TCE 005308663-02 P= 20.068111 Days $T_0=150.762359$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

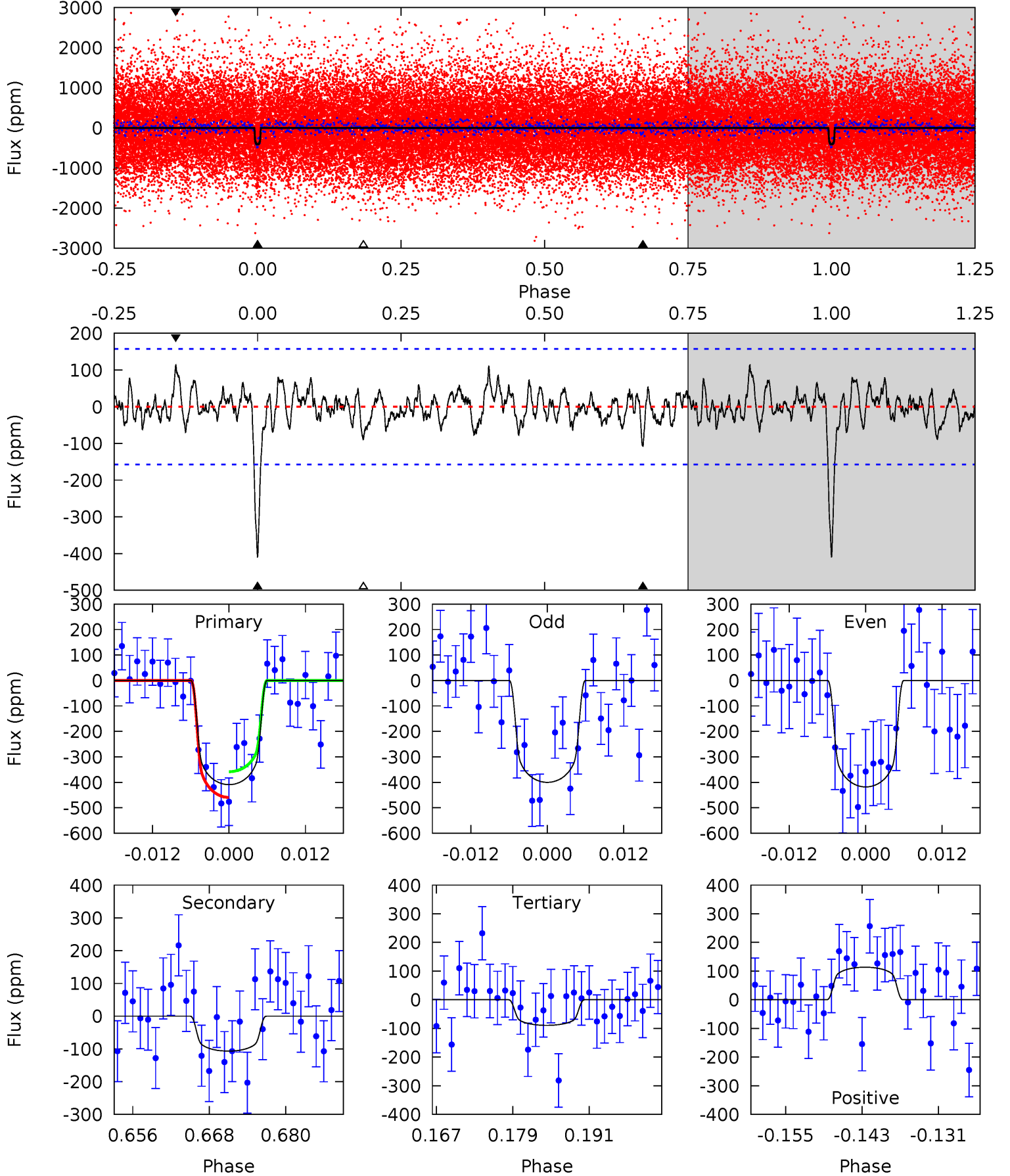
TCE 005308663-02 P= 20.069021 Days $T_0=150.709672$ (BKJD)



DV Model-Shift Uniqueness Test

005308663-02, P = 20.068111 Days, E = 150.762359 Days

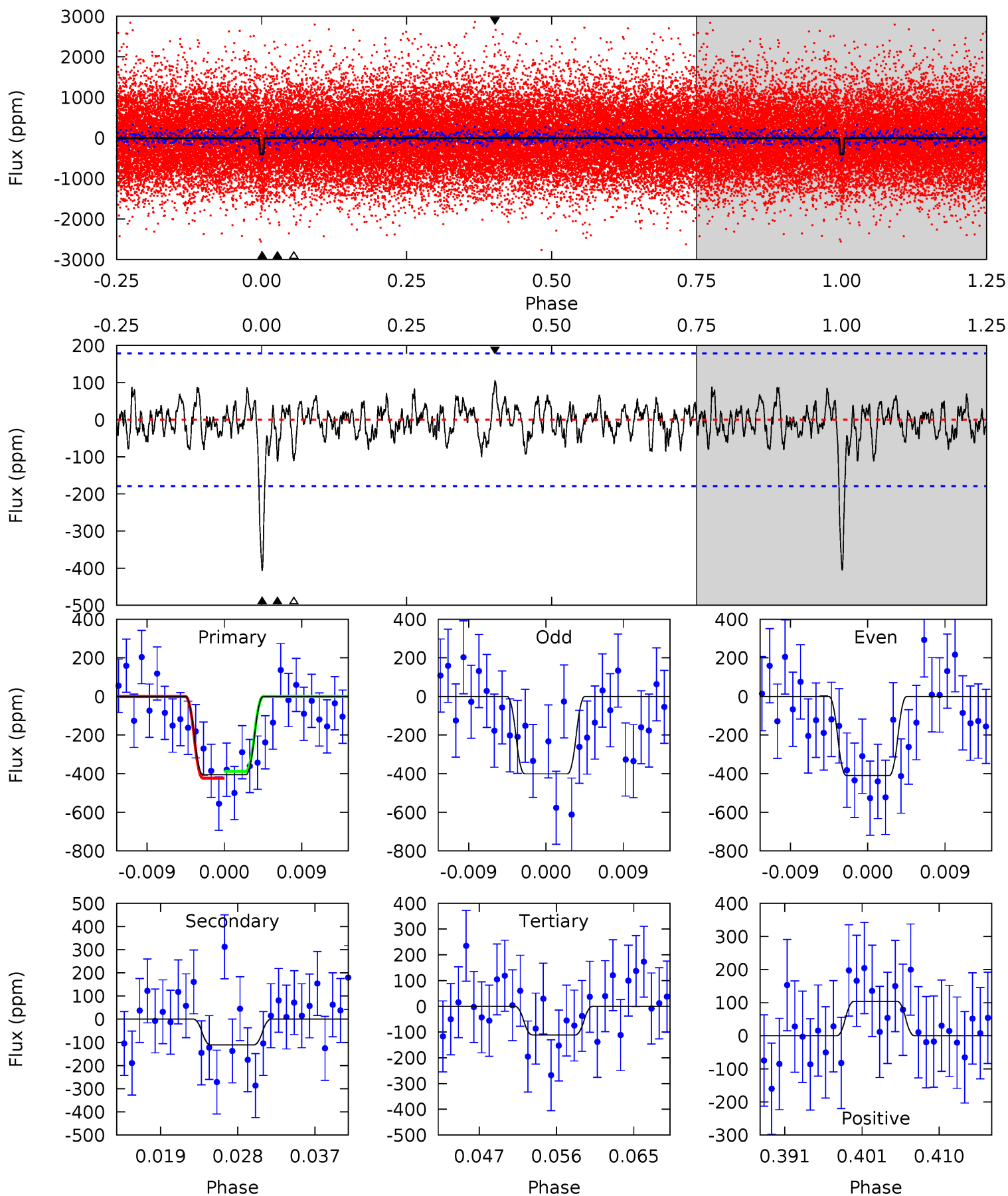
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	3.39	2.83	3.60	4.99	2.51	1.09	10.1	9.37	0.56	-0.22	0.29	1.21	0.22	1.61



Alt Model-Shift Uniqueness Test

005308663-02, P = 20.069021 Days, E = 150.709672 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	3.14	3.13	2.93	5.04	2.60	1.02	8.30	8.50	0.01	0.21	0.13	1.08	0.20	0.51



Stellar Parameters For KIC 005308663

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5997^{+189}_{-231}	$4.522^{+0.050}_{-0.200}$	$-0.220^{+0.300}_{-0.300}$	$0.904^{+0.264}_{-0.088}$	$0.991^{+0.118}_{-0.131}$	$1.890^{+0.390}_{-1.005}$
	+3%/-4%	+1%/-4%	+136%/-136%	+29%/-10%	+12%/-13%	+21%/-53%
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 005308663-02 / KOI 1562.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-107 ± 32	$2.22^{+0.71}_{-0.78}$	945^{+66}_{-48}	4378^{+834}_{-499}	246^{+350}_{-122}
Alt.	-111 ± 35	$2.31^{+0.87}_{-0.74}$	948^{+66}_{-50}	4330^{+734}_{-524}	233^{+295}_{-123}

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

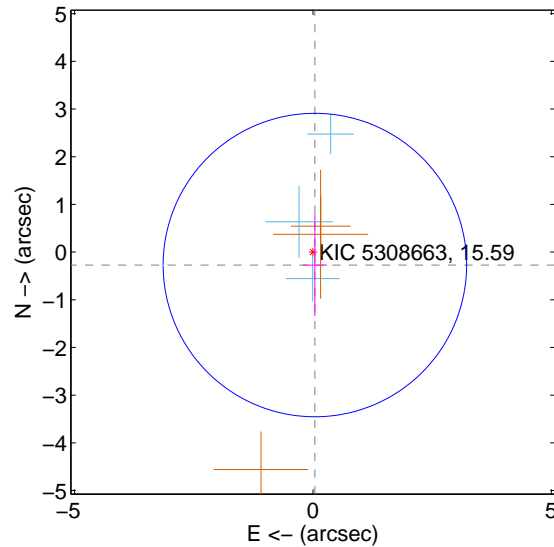
Supplemental centroid analysis for 005308663-02. Kepler magnitude: 15.59. Transit SNR 10.28

There are 3 quarters with good PRF difference image offsets

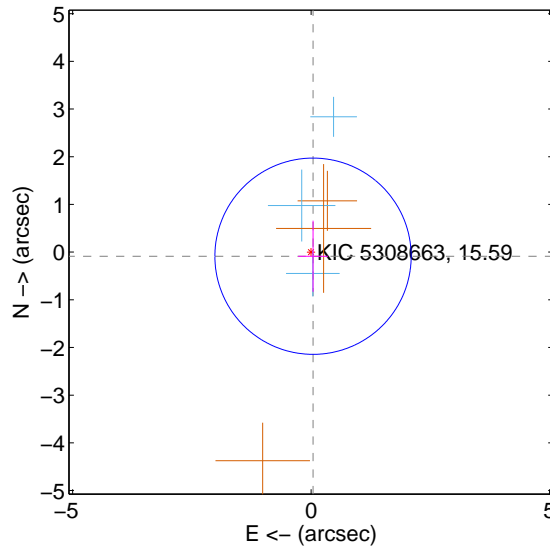
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.275 ± 1.061	0.26	-0.040 ± 0.255	-0.272 ± 1.071
PRF-fit source offset from KIC position	0.096 ± 0.686	0.14	-0.041 ± 0.312	-0.087 ± 0.745
photometric centroid source offset	0.48 ± 1.25	0.39	0.16 ± 1.01	0.46 ± 1.27

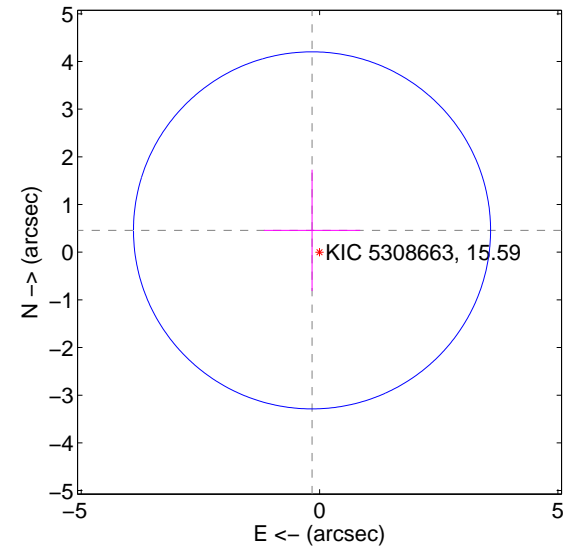
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

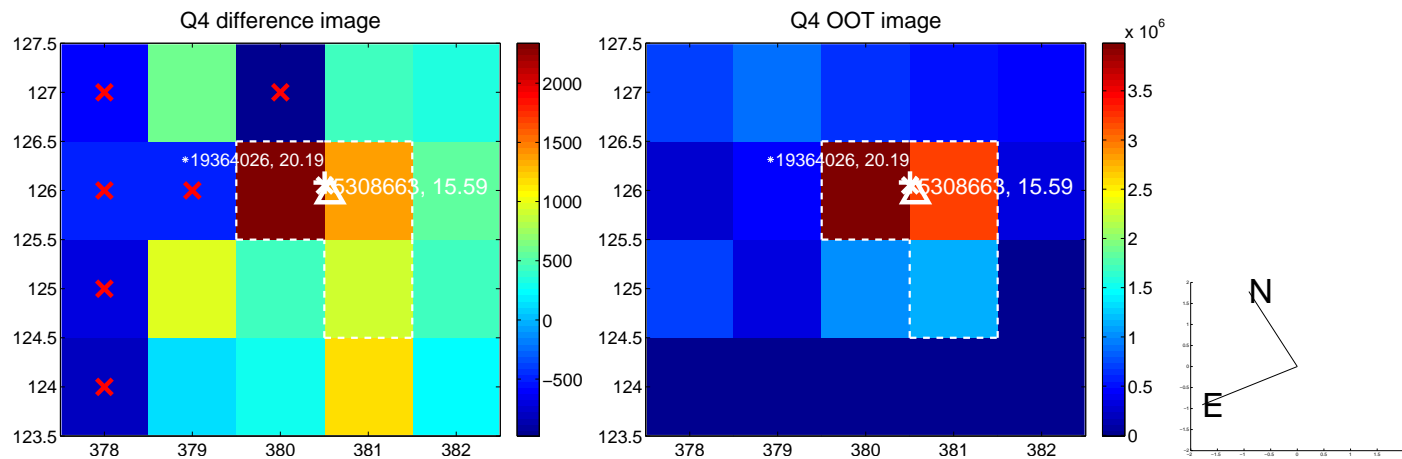
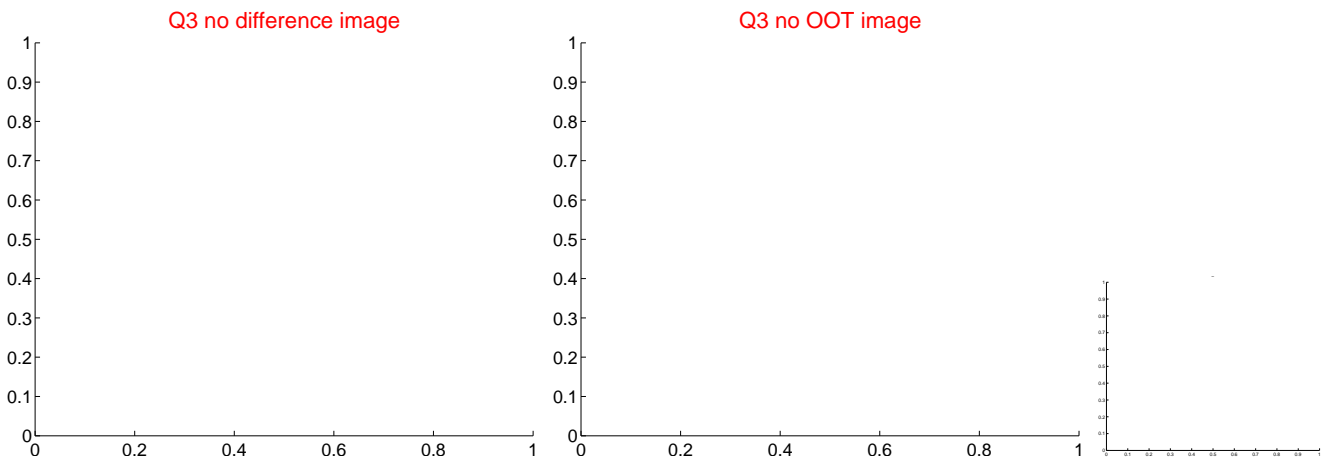
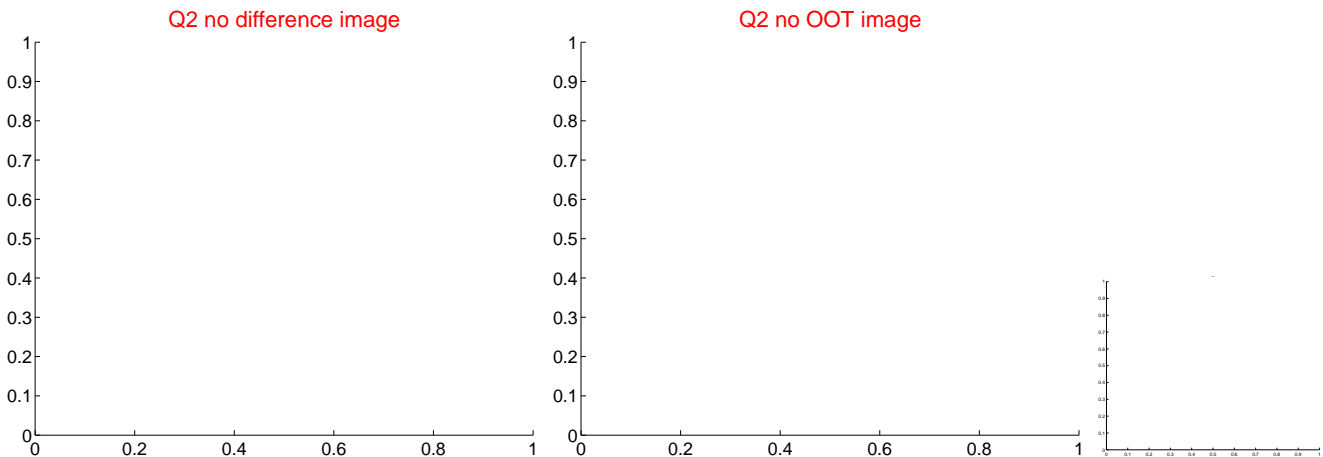
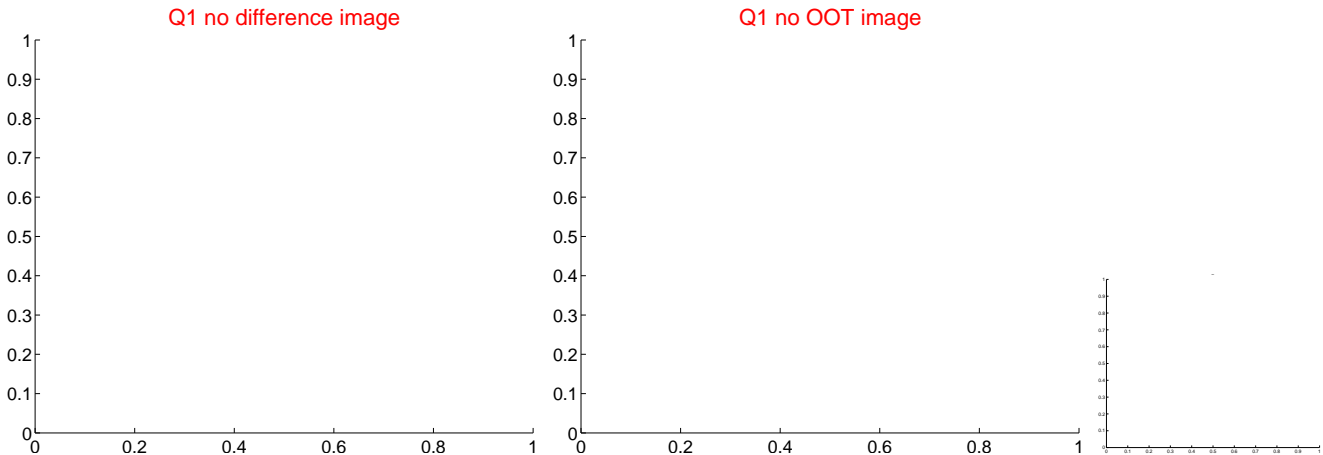


offset from photometric centroids

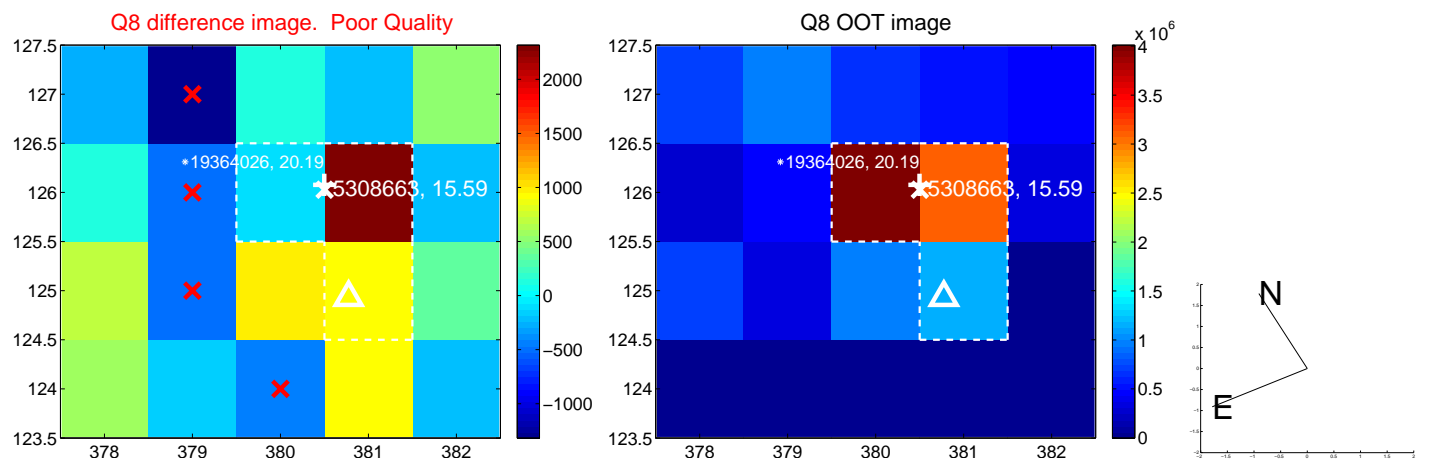
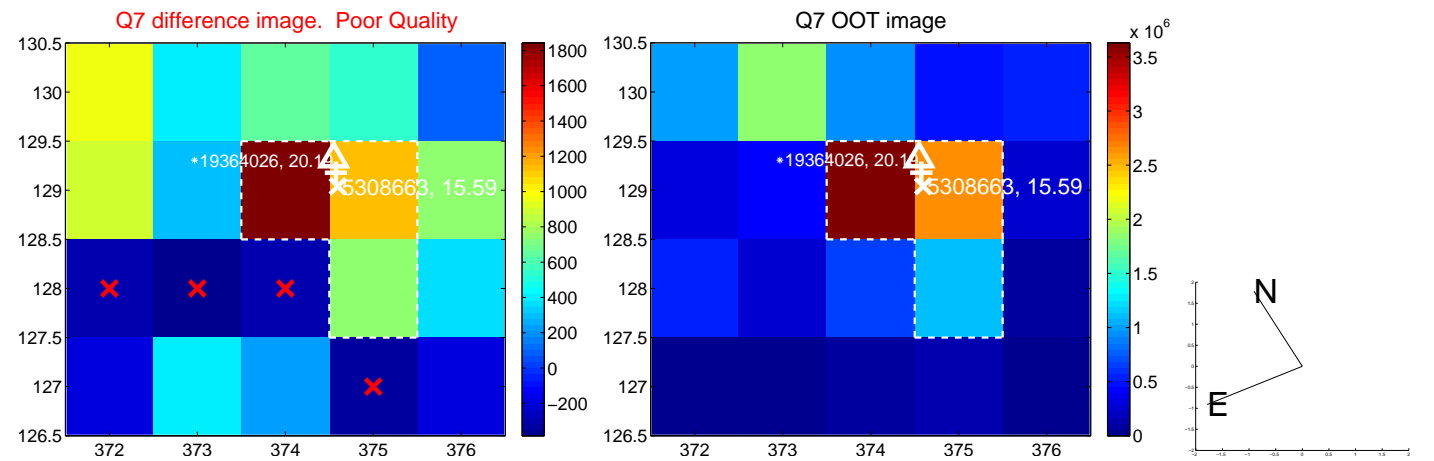
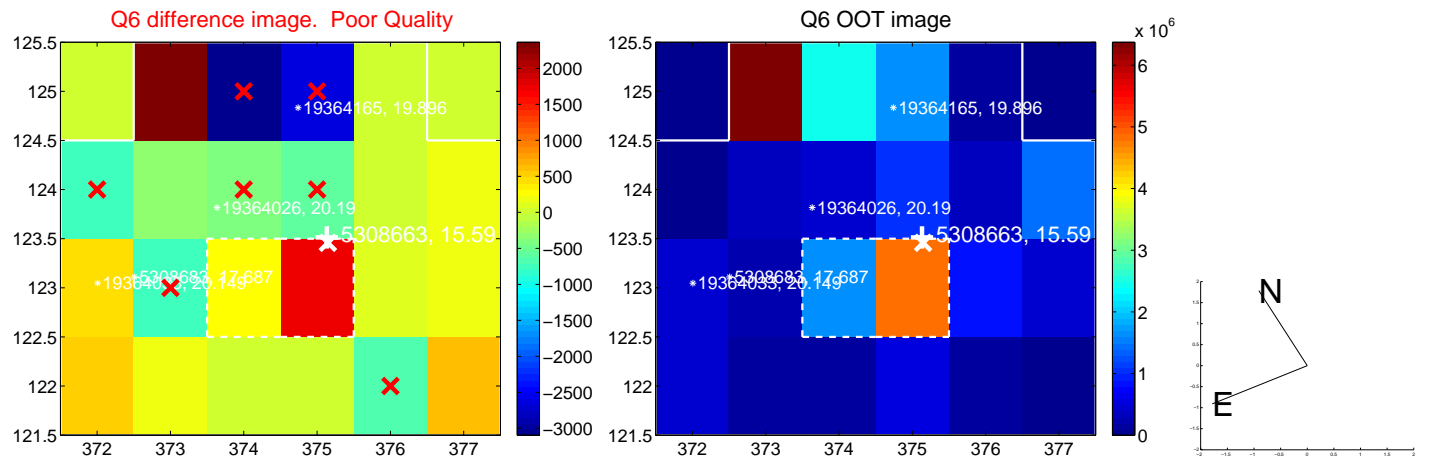
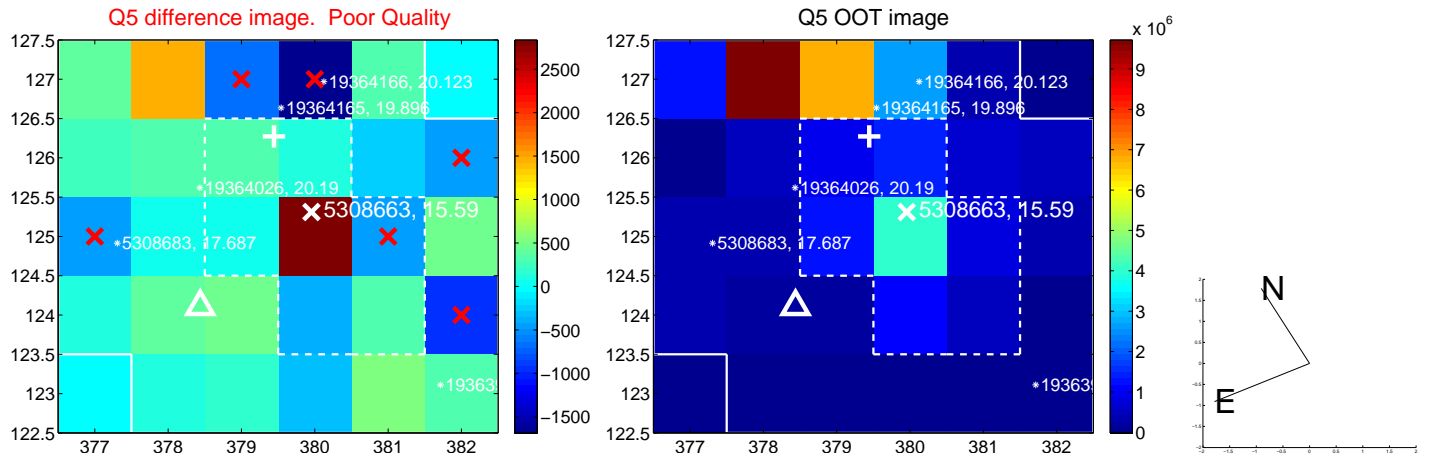


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

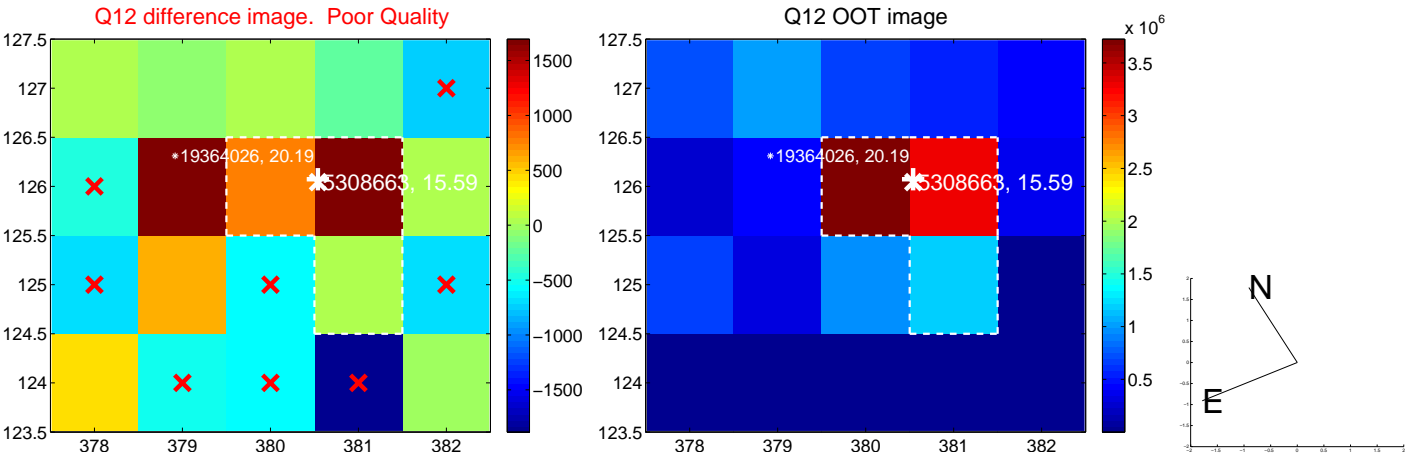
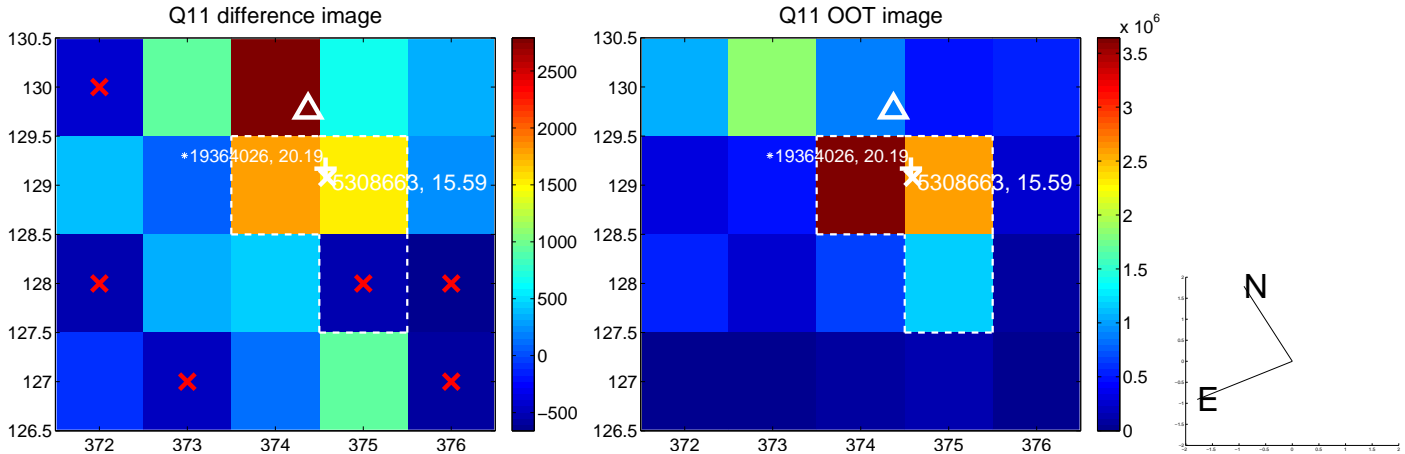
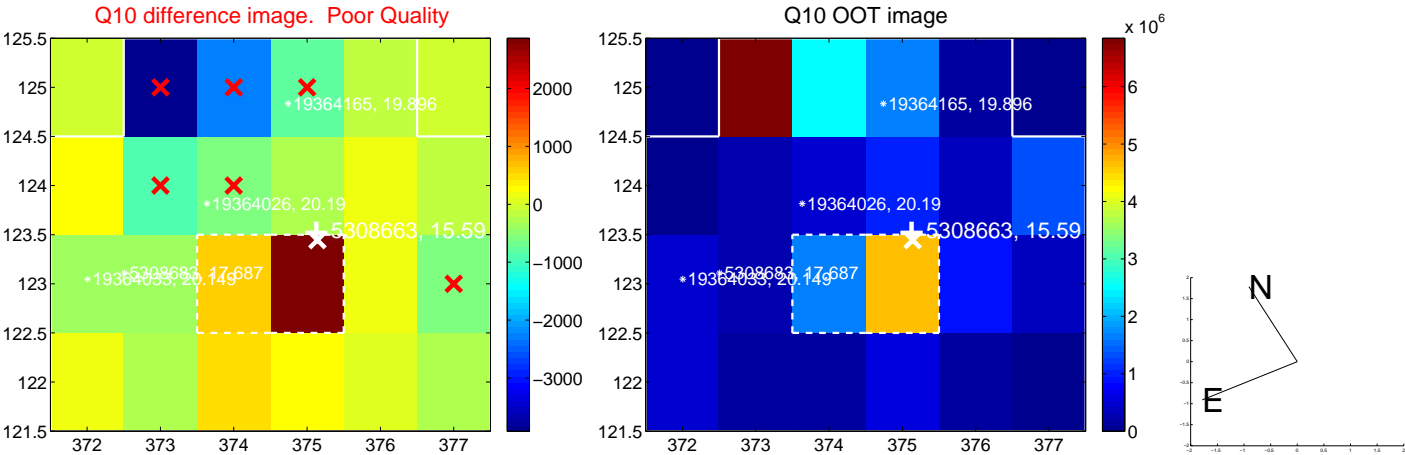
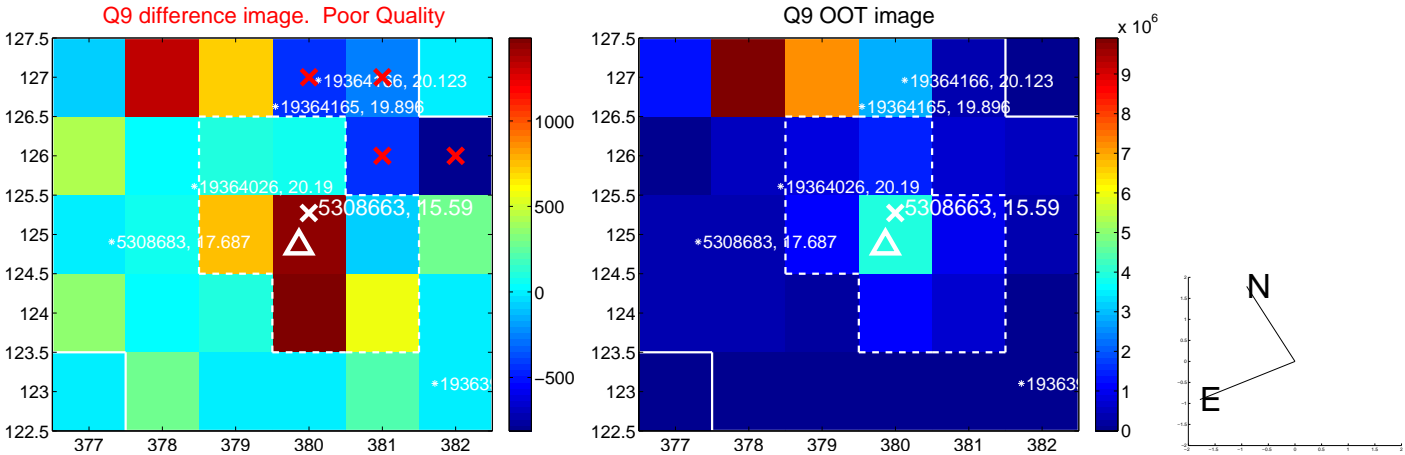
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



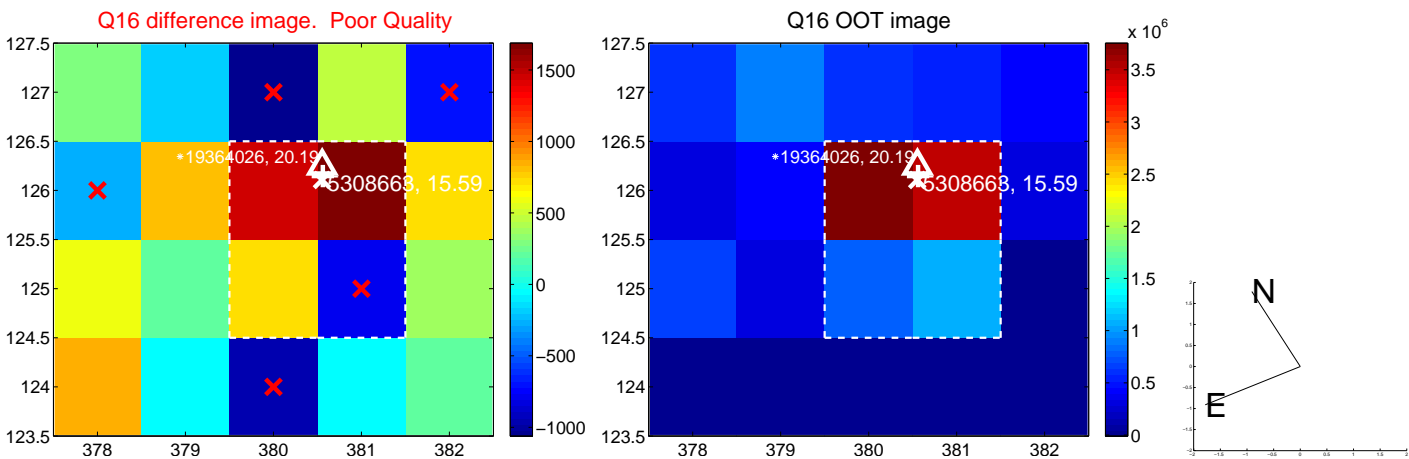
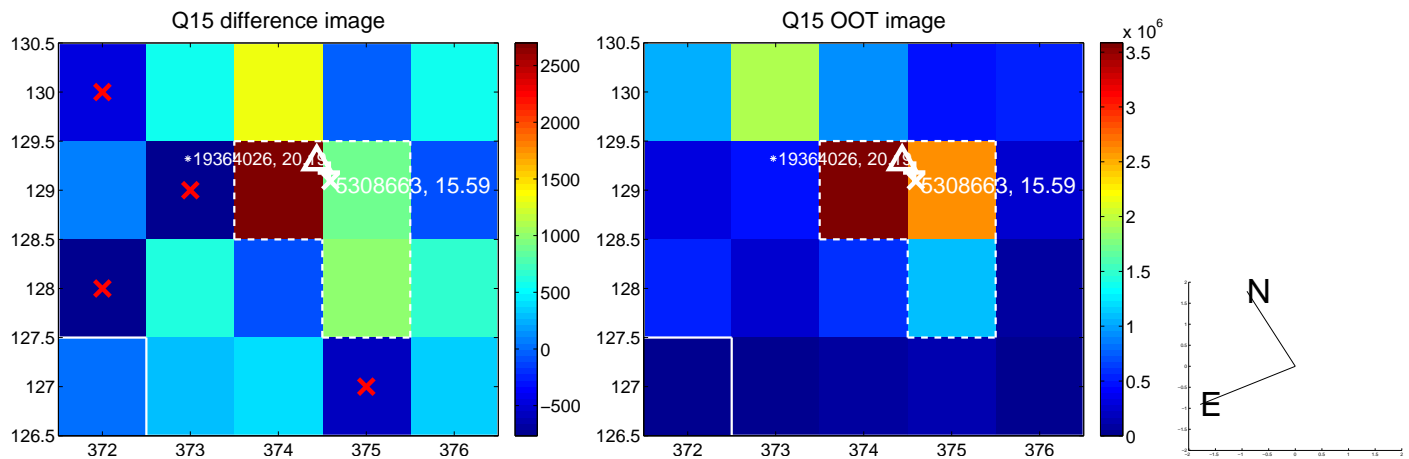
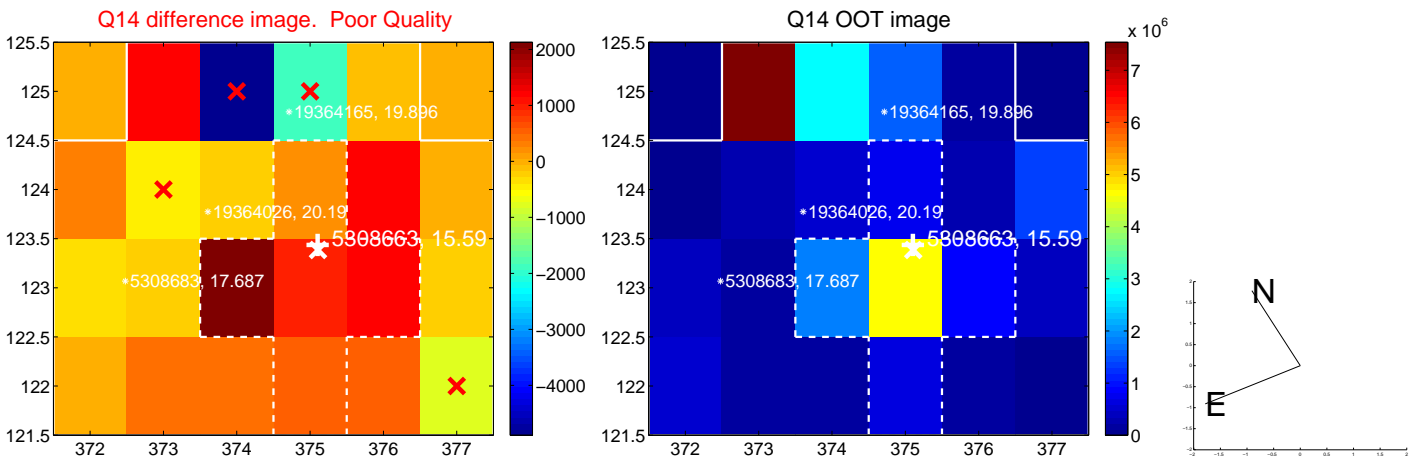
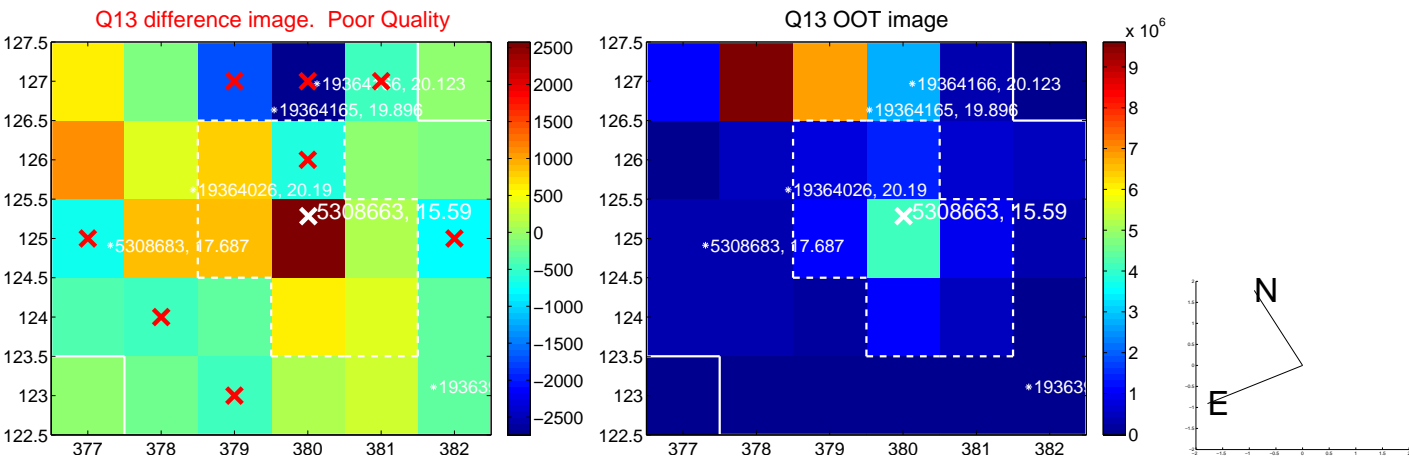
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



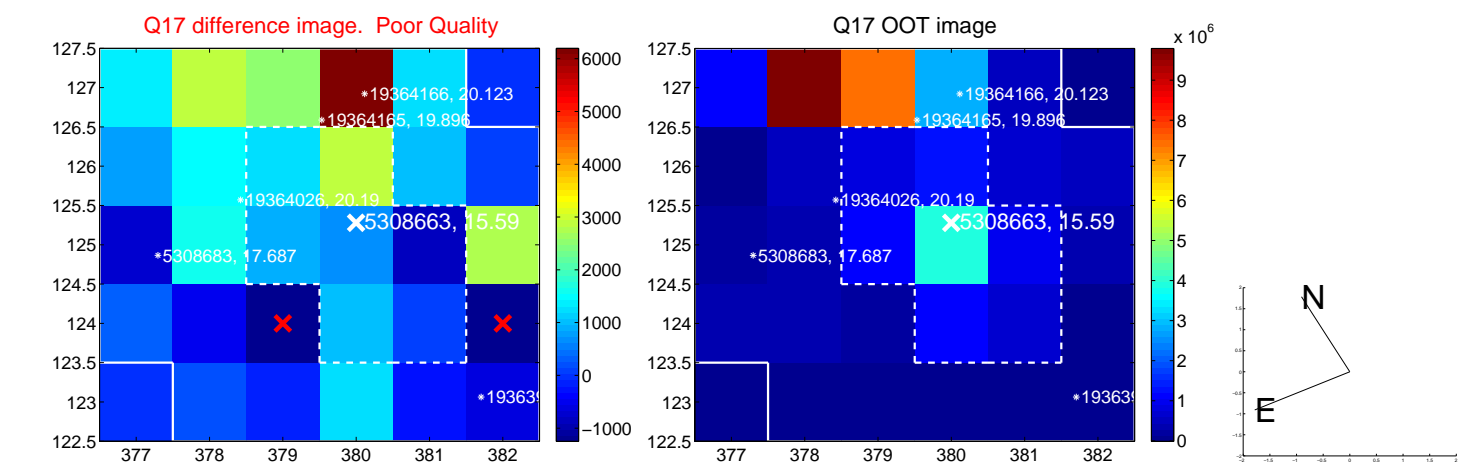
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



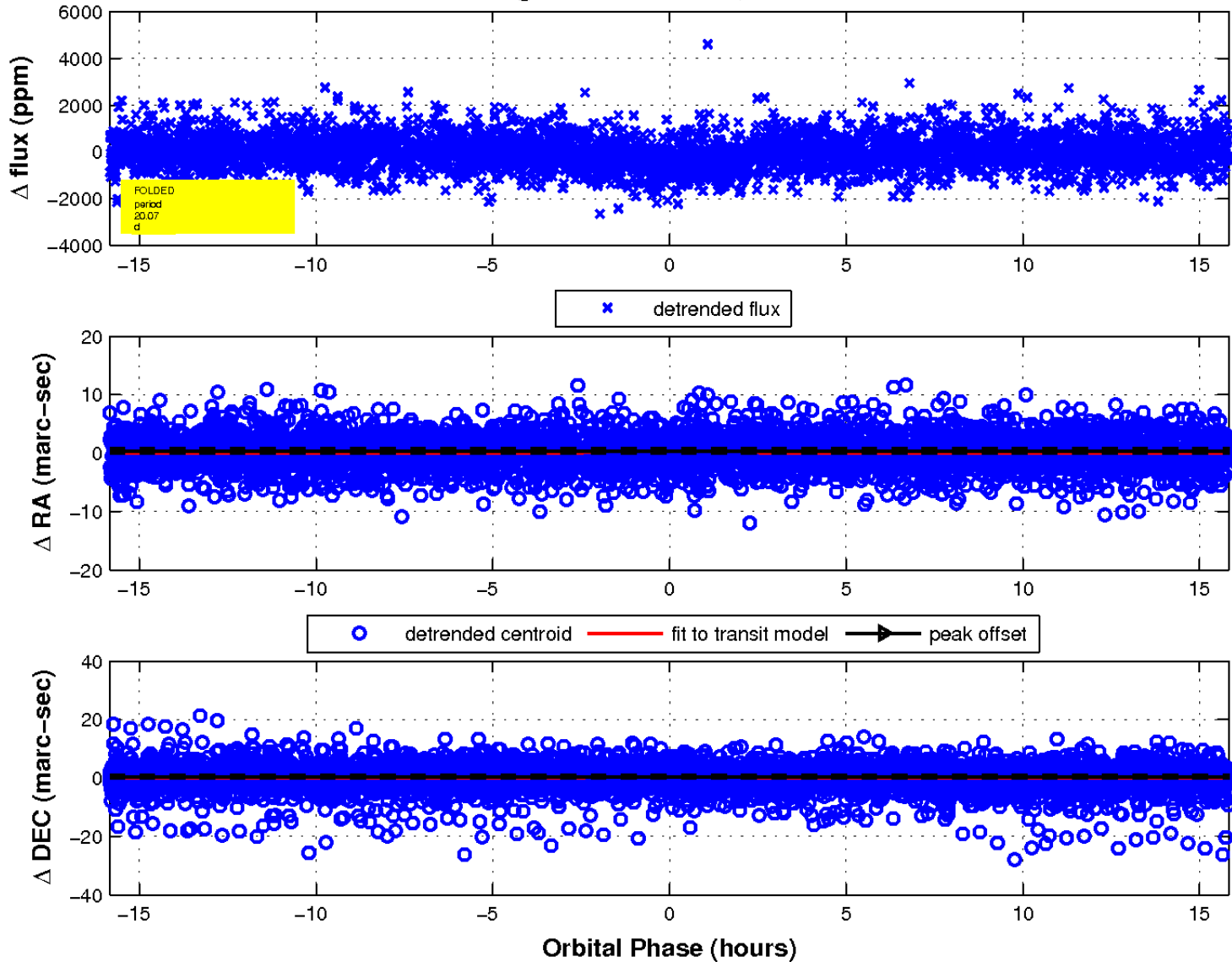
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

