

KIC 004556888

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})
004556888-01	OBS	No	1.004851	132.415850	46.9	5.997	7.5	8.3	0.81	5341	0.54	1416.16
004556888-02	OBS	No	122.029050	205.453745	650.2	4.864	8.6	7.4	0.81	5341	2.28	2.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004556888-01	OBS	FP	0.00	1	0	0	0	LPP_DV
004556888-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

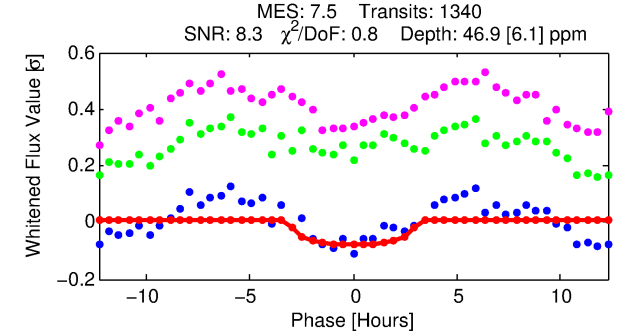
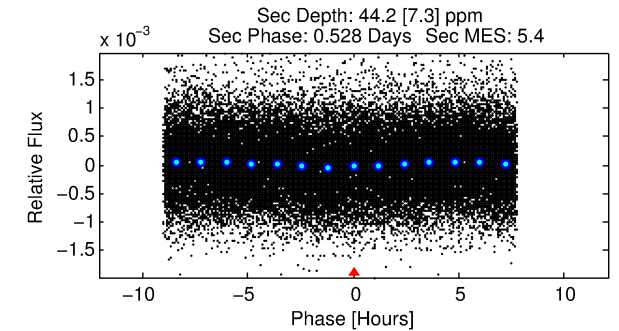
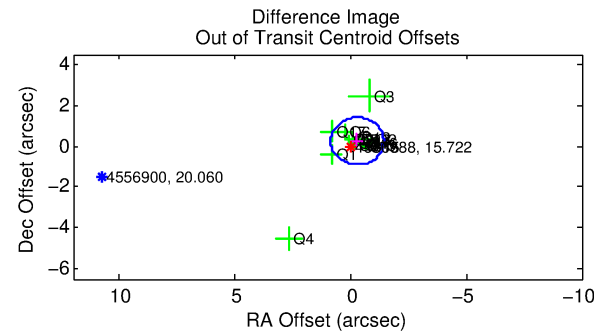
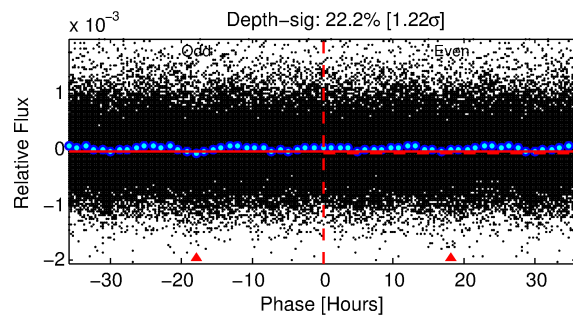
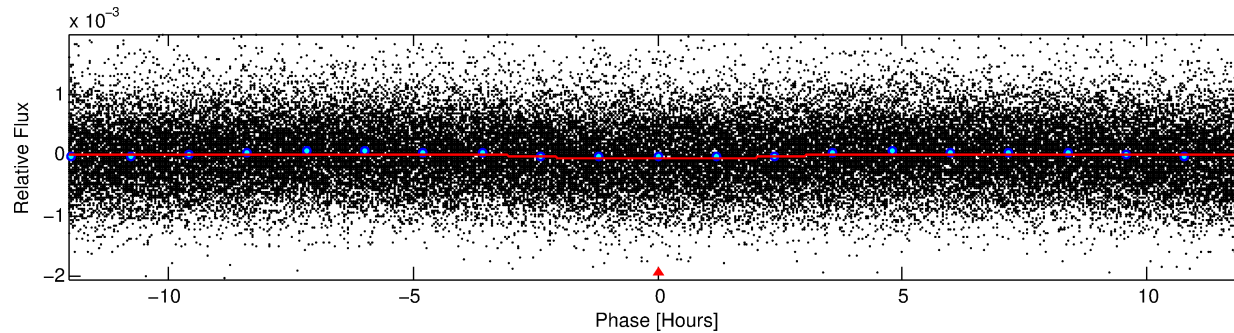
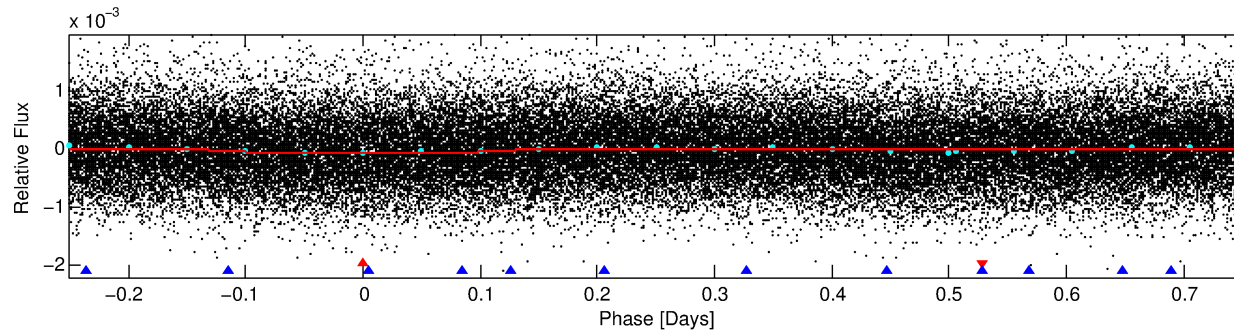
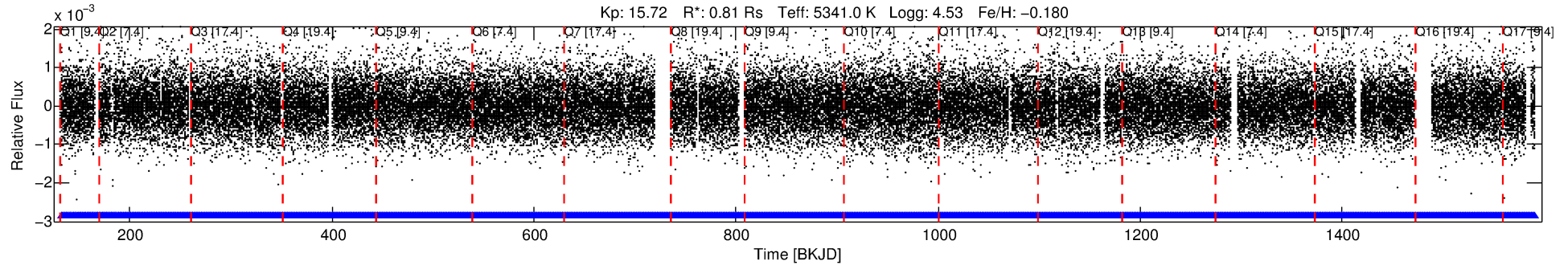
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004556888-01

No Significant Match Found

DV One-Page Summary

KIC: 4556888 Candidate: 1 of 2 Period: 1.005 d



DV Fit Results:

Period = 1.00485 [0.00002] d
Epoch = 132.4159 [0.0077] BKJD
Rp/R* = 0.0062 [0.0113]
a/R* = 1.42 [5.10]
b = 0.18 [39.12]
Seff = 1416.16 [319.27]
Teq = 1564 [88] K
Rp = 0.54 [1.00] Re
a = 0.0183 [0.0025] AU
Ag = 27.60 [101.69] [0.26 σ]
Teffp = 5543 [5101] K [0.78 σ]

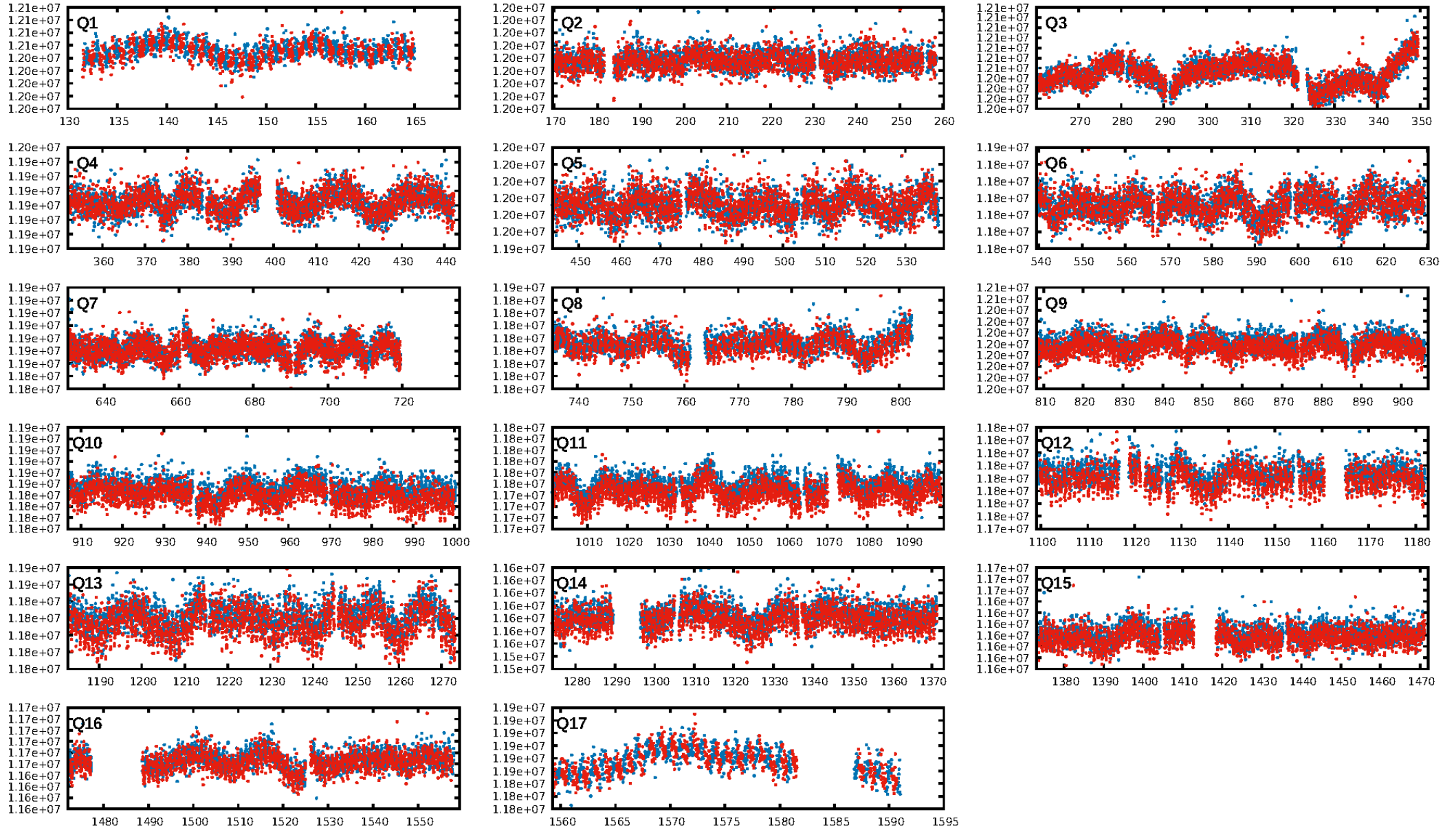
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [376.17 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.12e-10
RollingBand-fgt: 1.00 [1279/1279]
GhostDiagnostic-chr: 1.799
Centroid-sig: 29.6%
Centroid-so: 1.594 arcsec [1.06 σ]
OotOffset-rm: 0.374 arcsec [0.97 σ]
KicOffset-rm: 0.440 arcsec [1.29 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 1.00 [17/17]

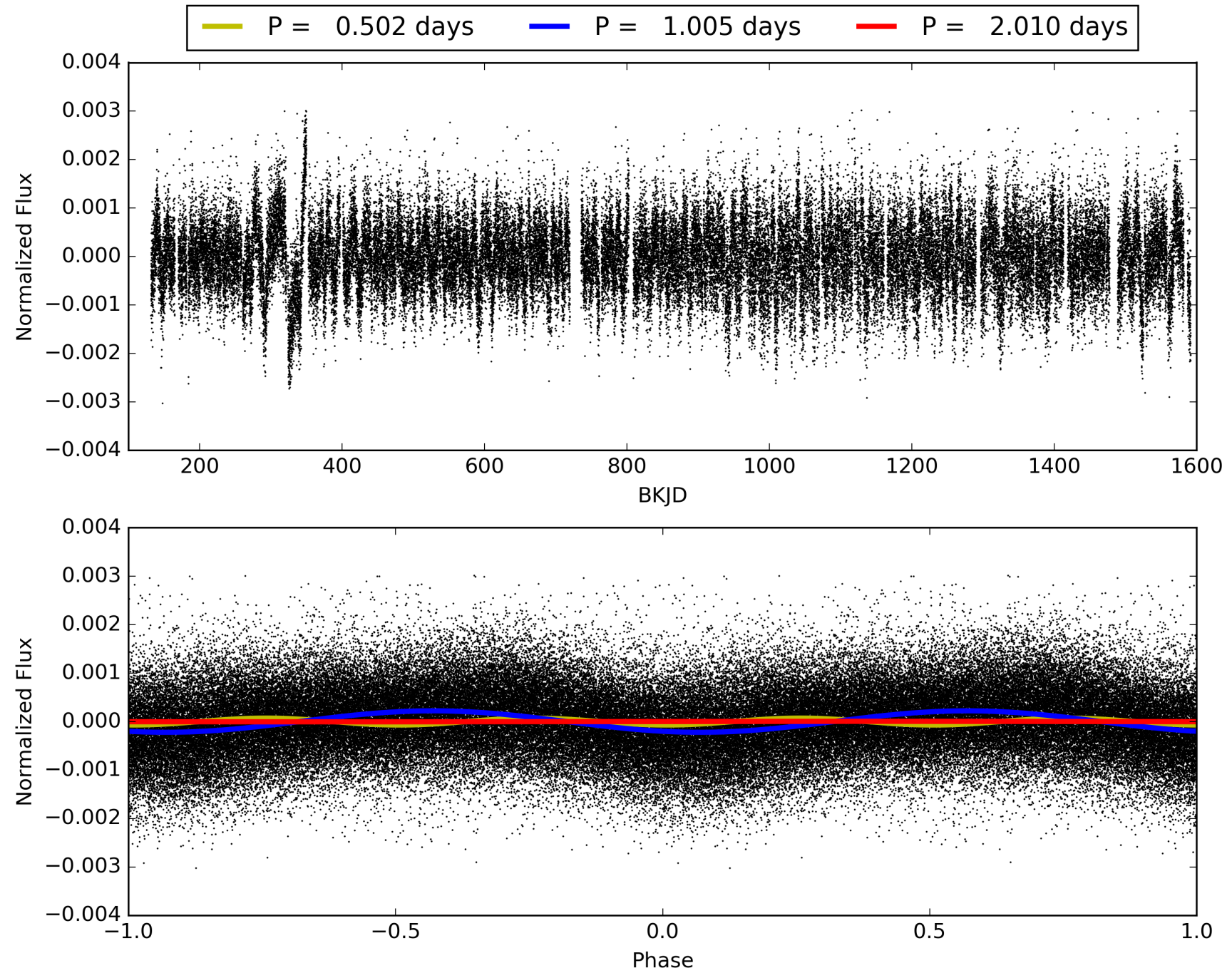
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:15:18 Z

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

TCE 004556888-01, PDC Light Curves

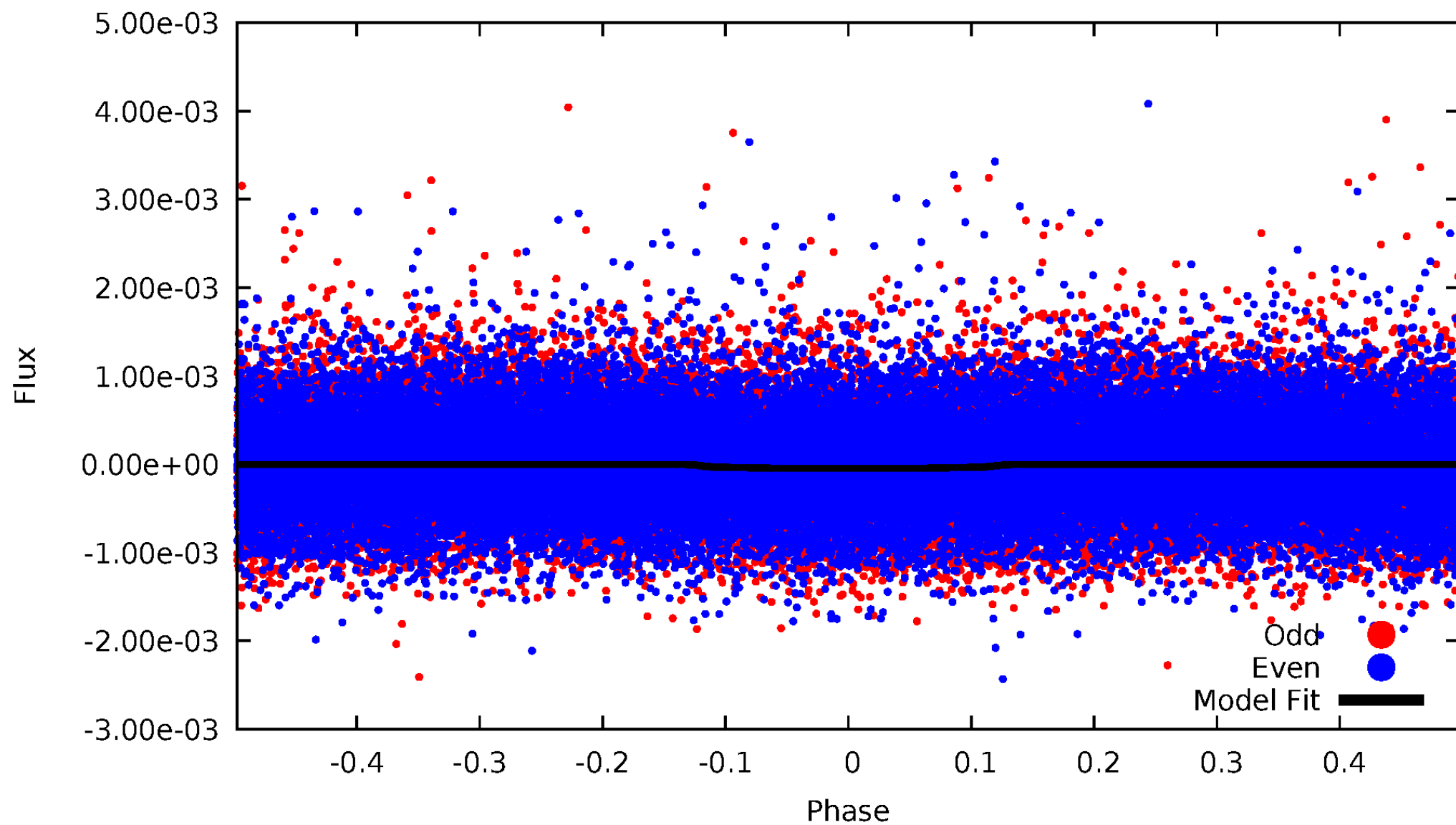


TCE 004556888-01



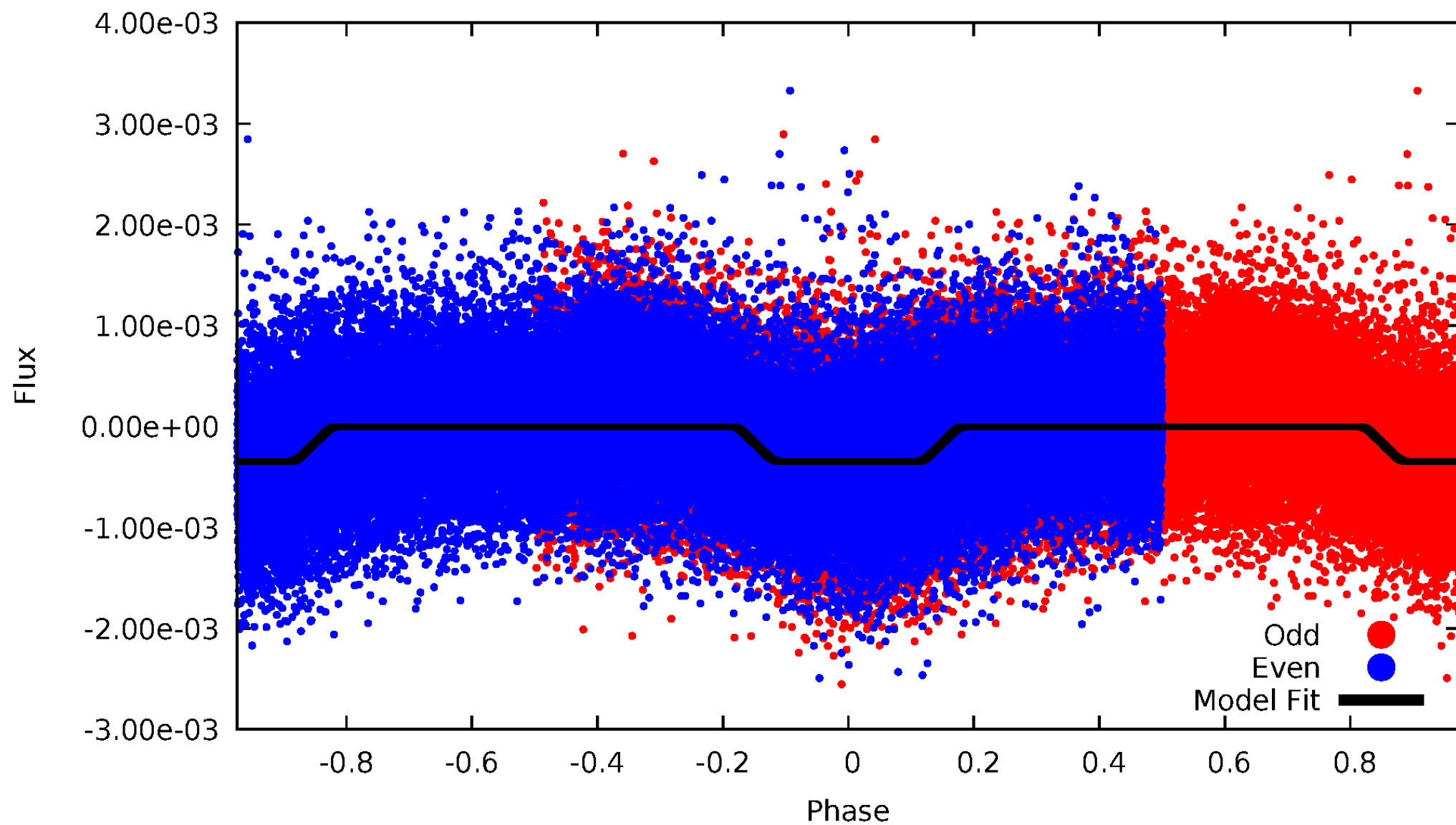
DV Odd/Even

TCE 004556888-01

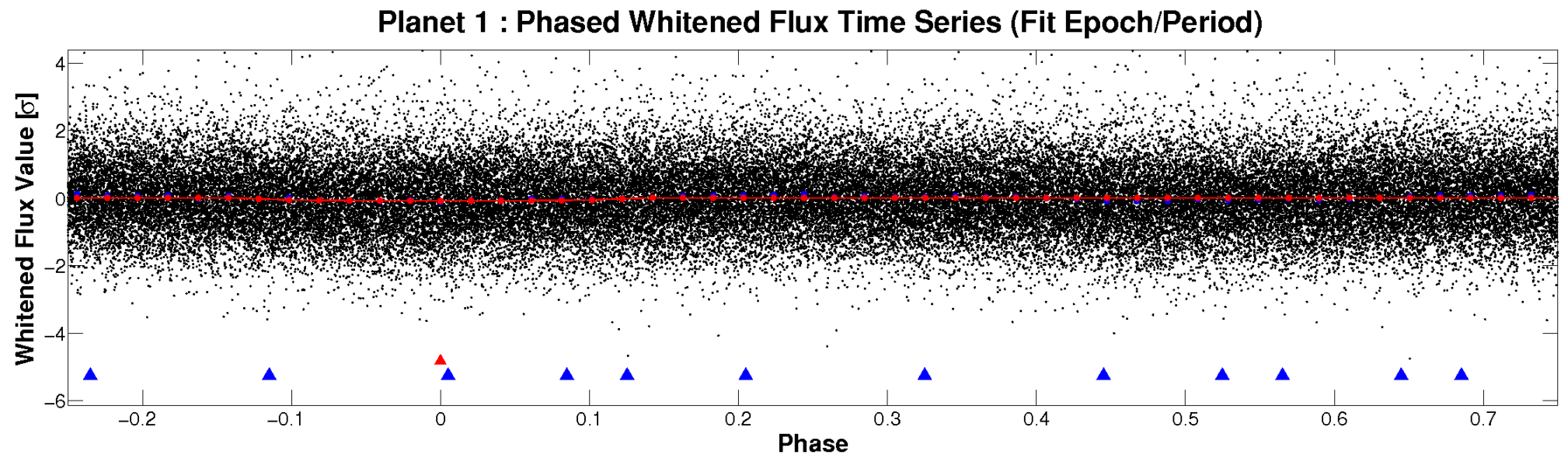
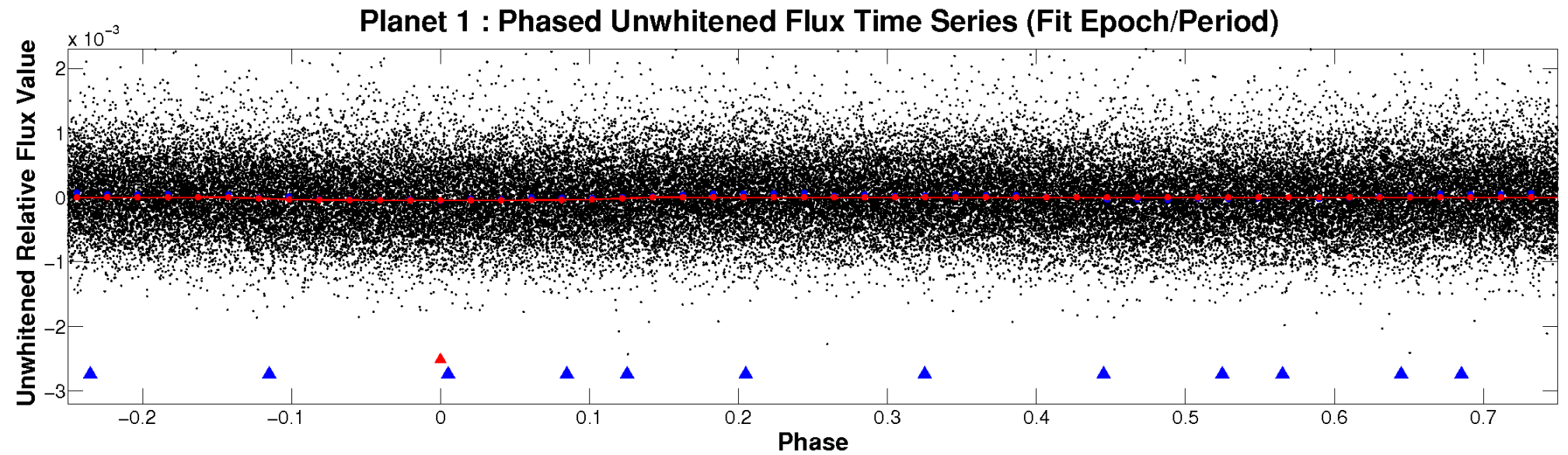


ALT Odd/Even

TCE 004556888-01

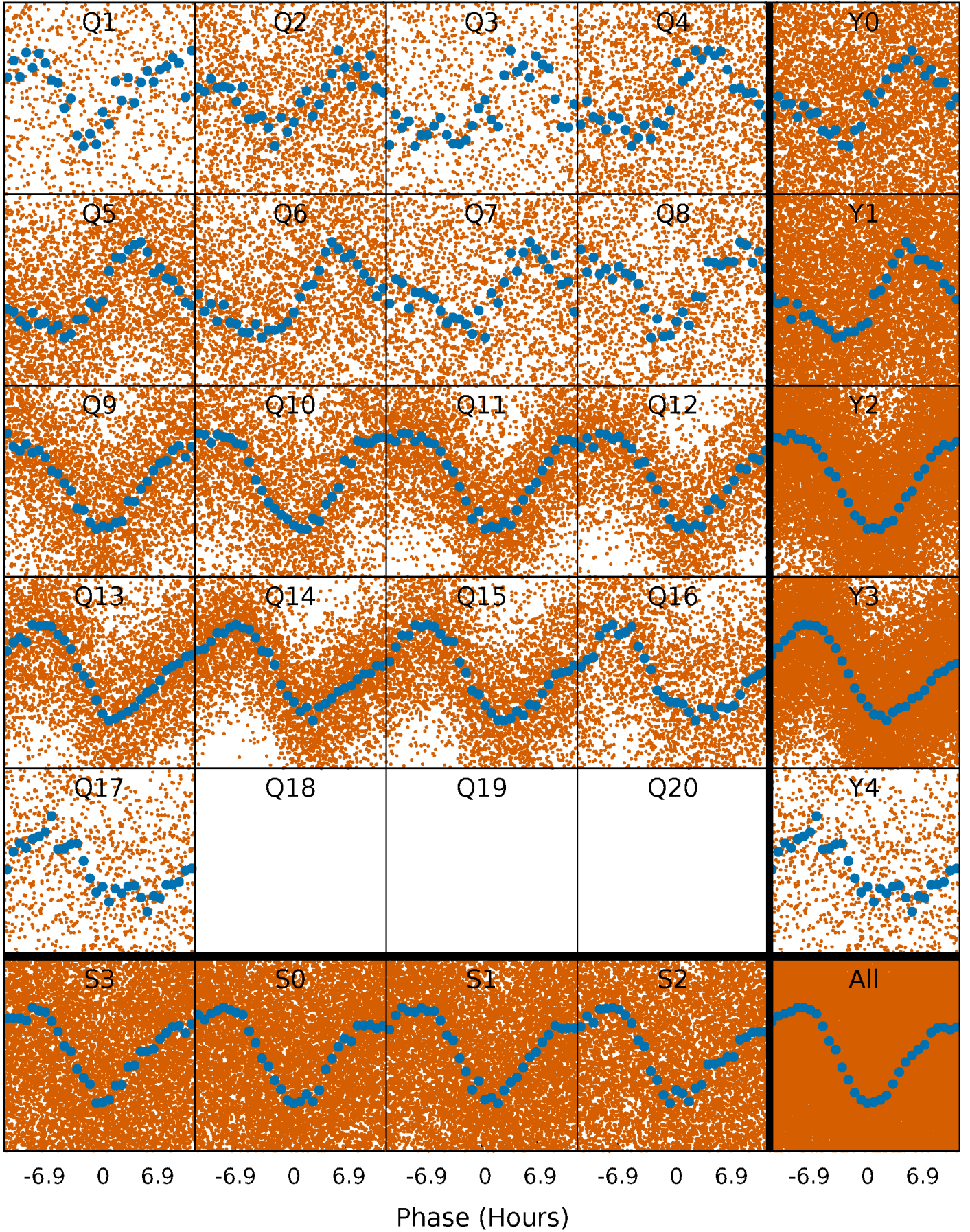


Non-Whitened Vs. Whitened Light Curve



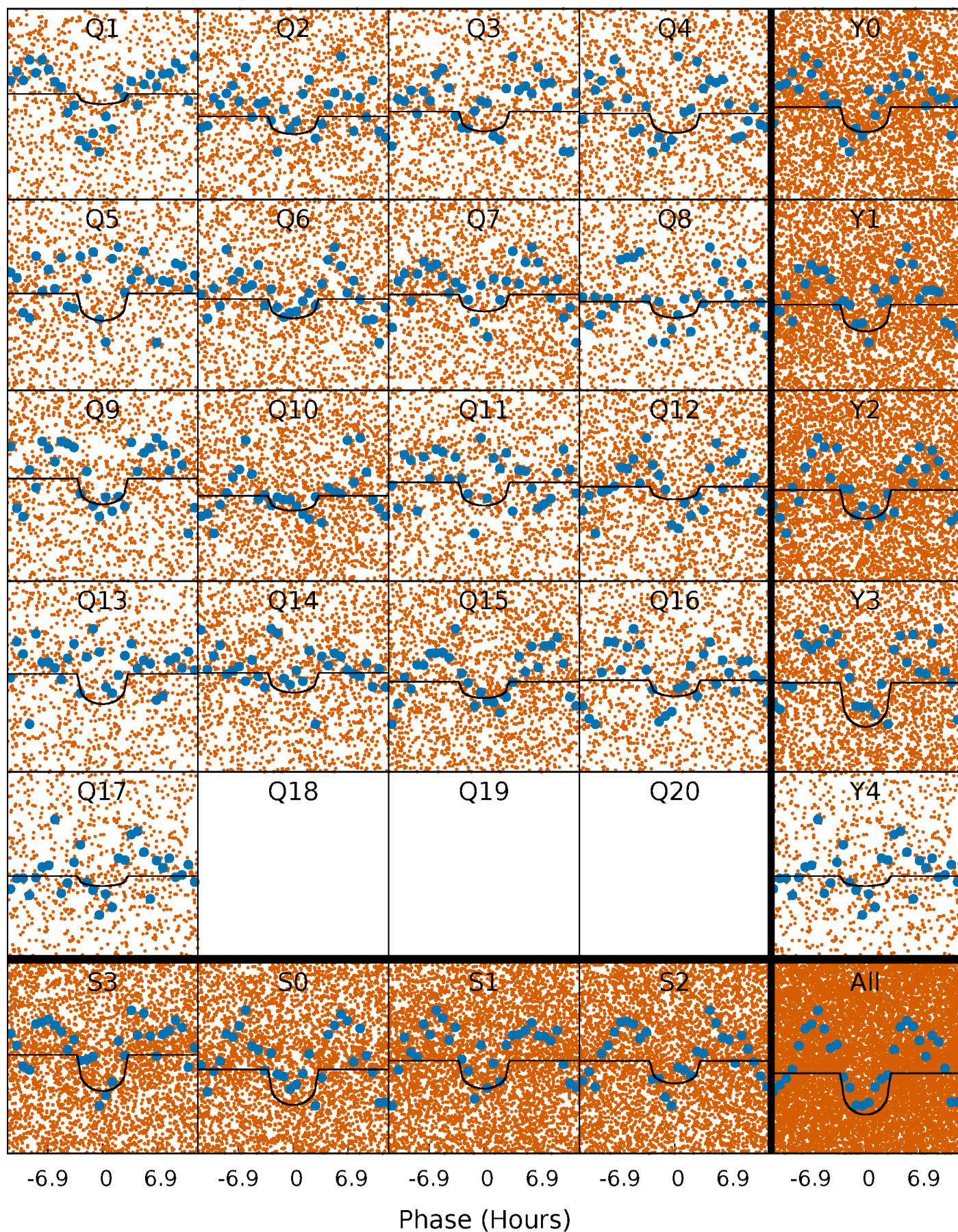
PDC Quarter-Phased Transit Curves

TCE 004556888-01 P= 1.004851 Days $T_0=132.415850$ (BKJD)



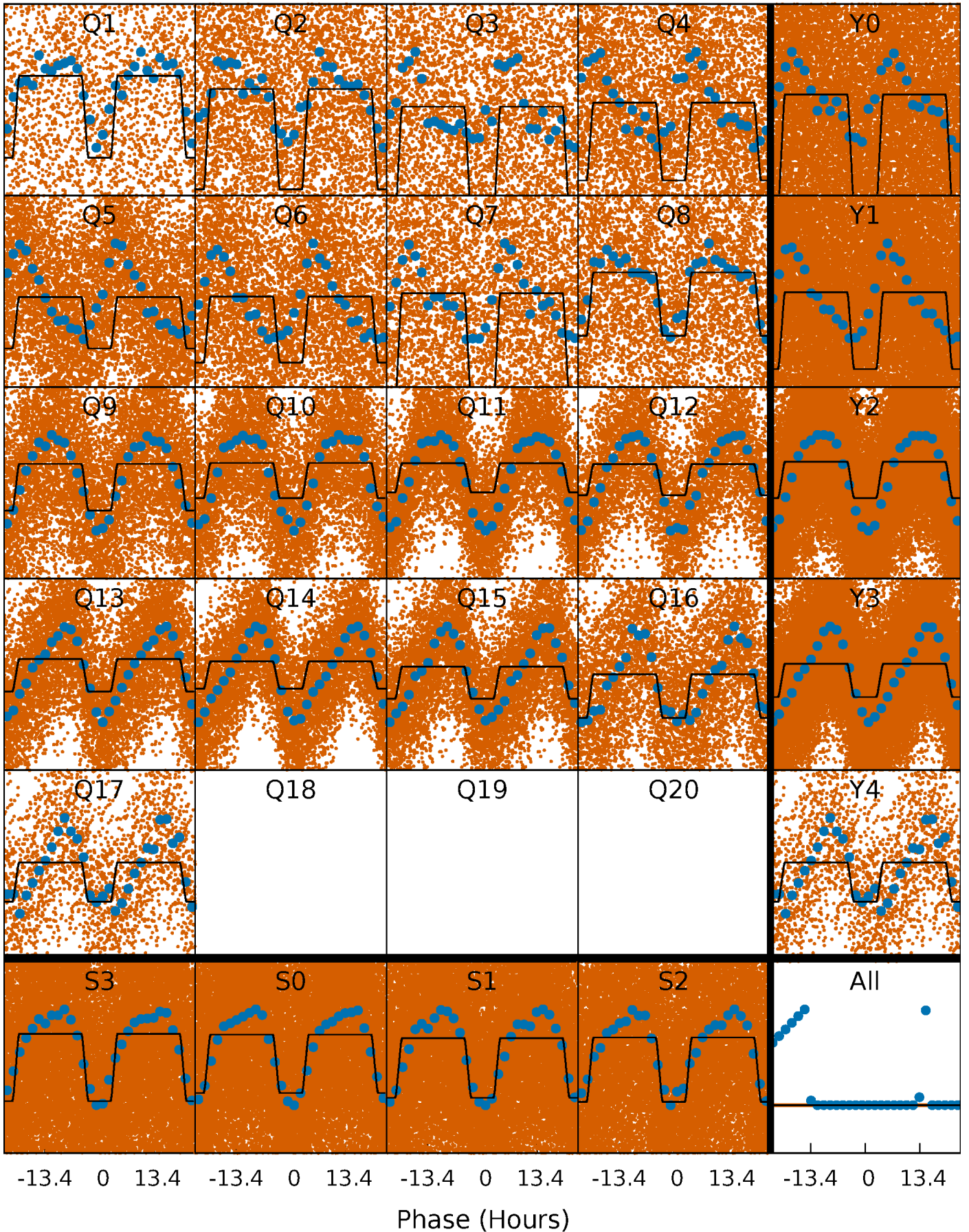
DV Quarter-Phased Transit Curves

TCE 004556888-01 P= 1.004851 Days $T_0=132.415850$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

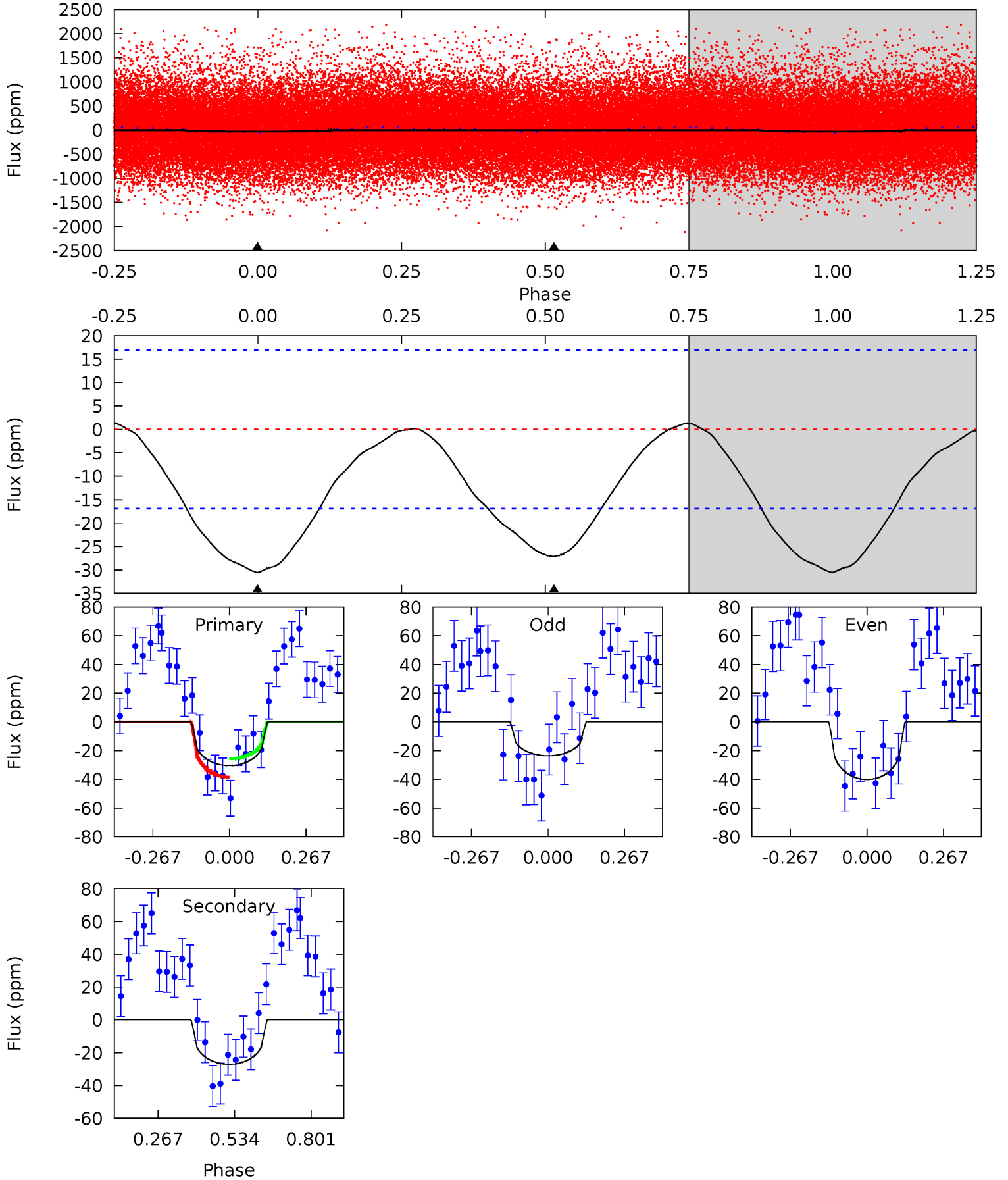
TCE 004556888-01 P= 1.004931 Days $T_0=132.375039$ (BKJD)



DV Model-Shift Uniqueness Test

004556888-01, P = 1.004851 Days, E = 131.410999 Days

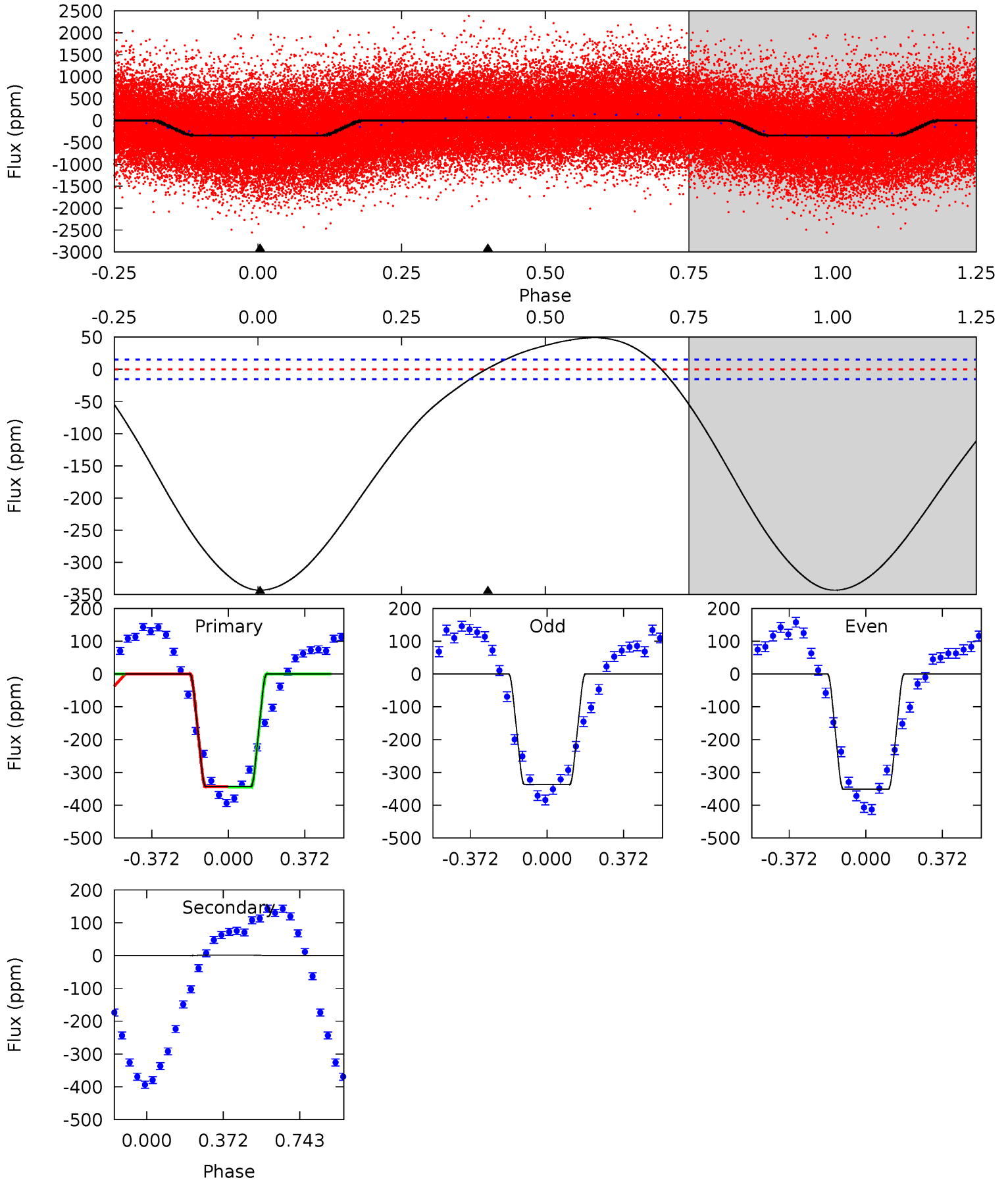
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.84	6.97	0	0	4.35	1.11	0.21	7.84	7.84	6.97	6.97	2.13	0.94	0.04	1.62



Alt Model-Shift Uniqueness Test

004556888-01, P = 1.004931 Days, E = 131.370108 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
96.5	-0.39	0	0	4.28	0.89	7.74	96.5	96.5	-0.39	-0.39	2.04	1.02	0.12	0.23



Stellar Parameters For KIC 004556888

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5341^{+159}_{-159}	$4.532^{+0.059}_{-0.102}$	$-0.180^{+0.300}_{-0.300}$	$0.805^{+0.133}_{-0.082}$	$0.804^{+0.096}_{-0.070}$	$2.172^{+0.616}_{-0.680}$
	+3%/-3%	+1%/-2%	+167%/-167%	+17%/-10%	+12%/-9%	+28%/-31%
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 004556888-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-27 ± 4	$0.96^{+0.92}_{-0.63}$	2207^{+93}_{-91}	3975^{+2344}_{-852}	$5.377^{+40.491}_{-3.968}$
Alt.	1 ± 4	$1.77^{+1.00}_{-0.90}$	2201^{+109}_{-91}	-2666^{+267}_{-296}	$-0.054^{+0.198}_{-0.403}$

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

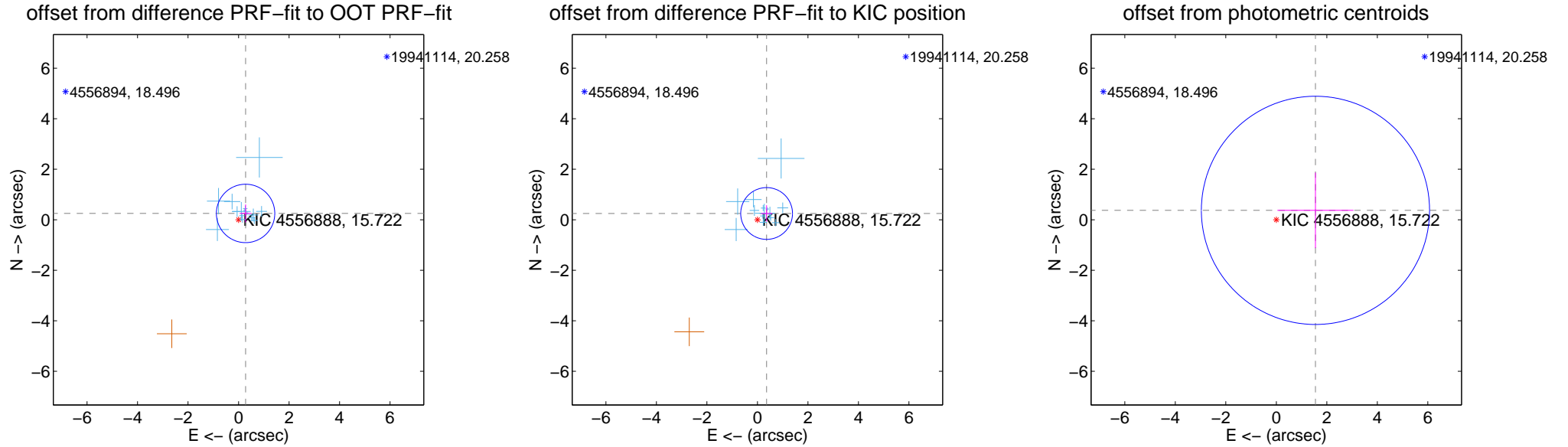
DV Centroid Data

Supplemental centroid analysis for 004556888-01. Kepler magnitude: 15.72. Transit SNR 8.32

There are 15 quarters with good PRF difference image offsets

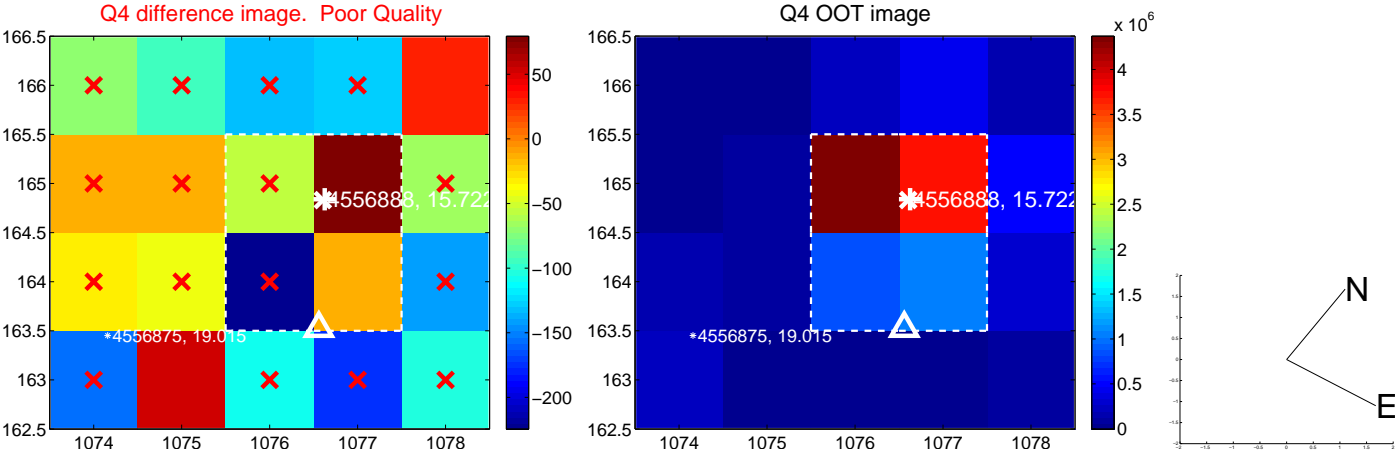
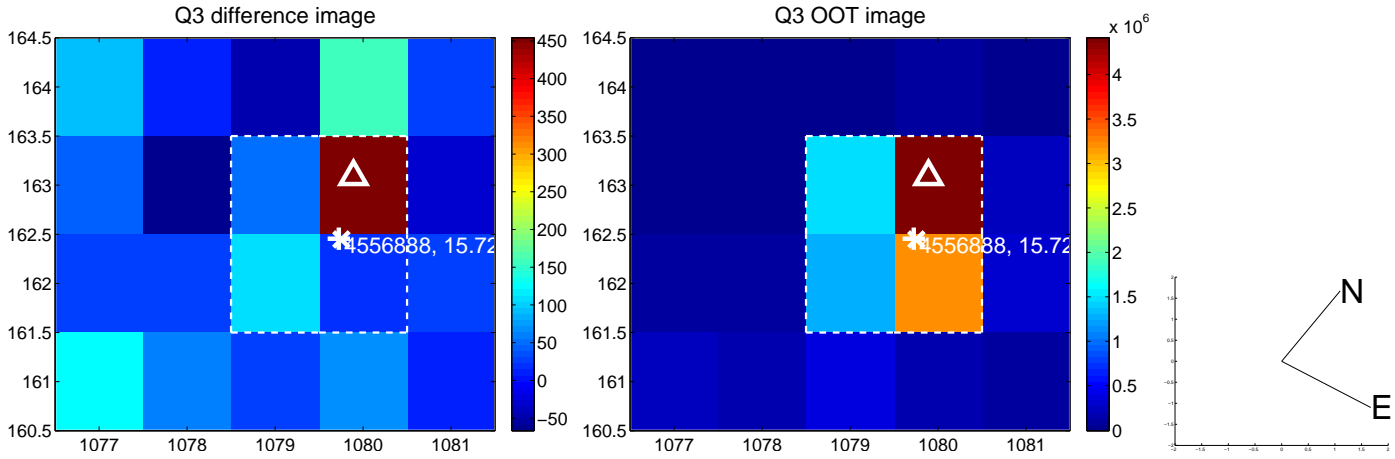
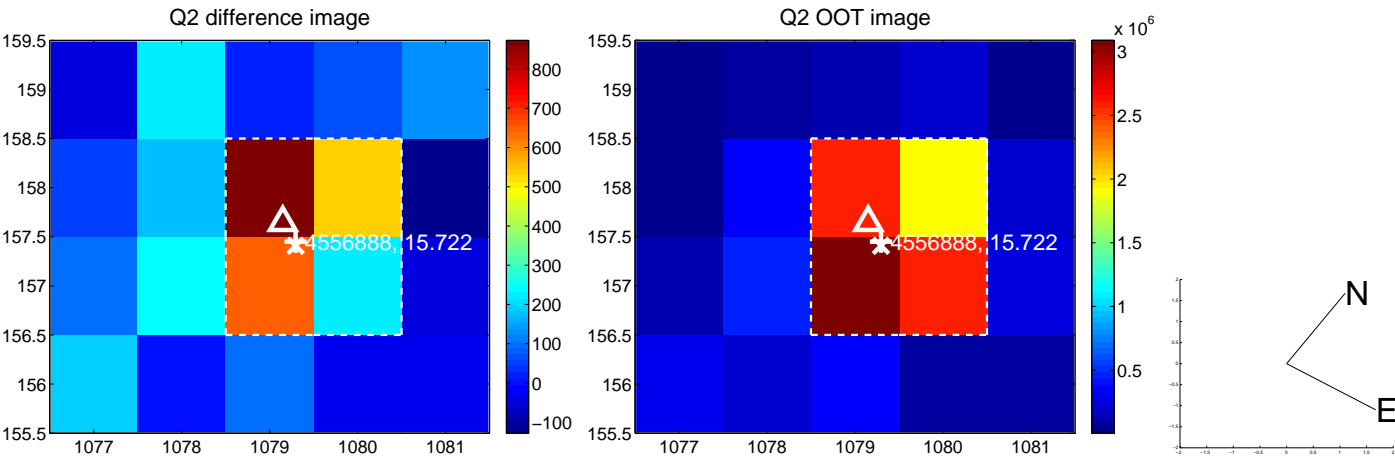
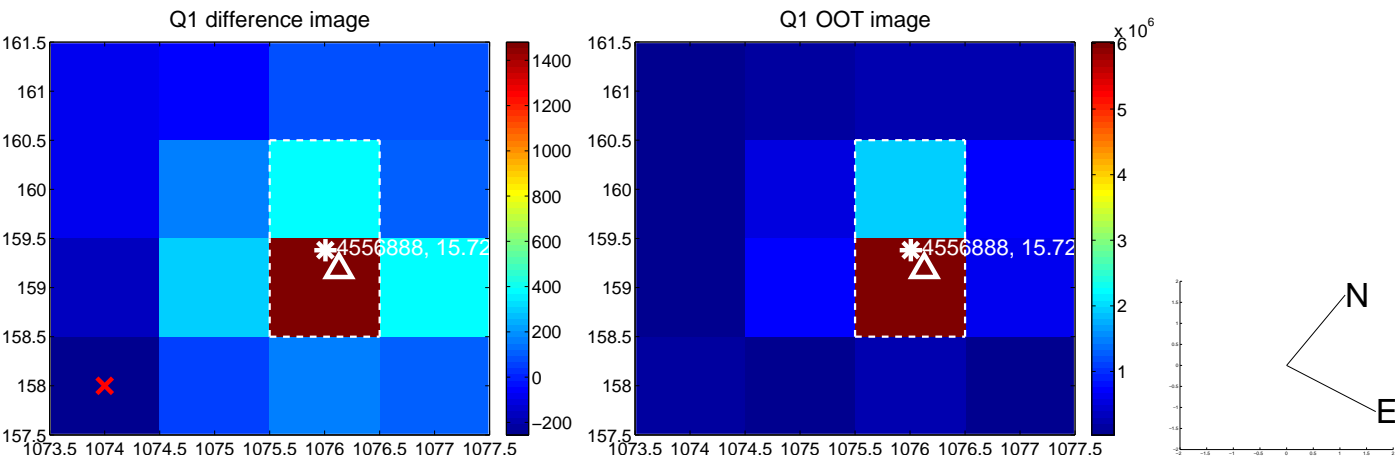
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.374 ± 0.385	0.97	-0.278 ± 0.230	0.250 ± 0.354
PRF-fit source offset from KIC position	0.440 ± 0.342	1.29	-0.363 ± 0.222	0.248 ± 0.326
photometric centroid source offset	1.59 ± 1.51	1.06	-1.55 ± 1.51	0.37 ± 1.49

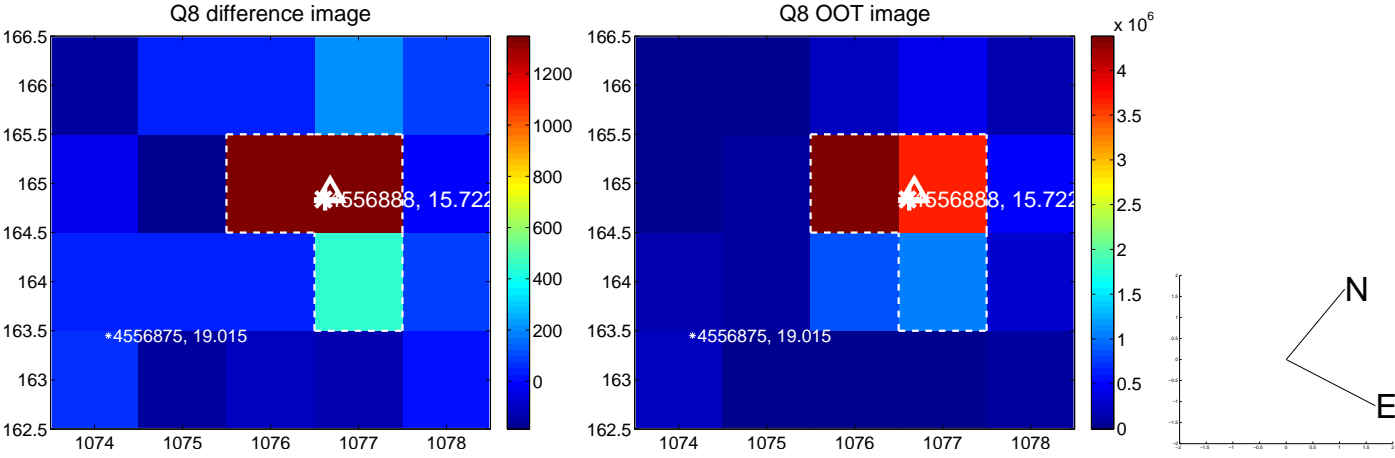
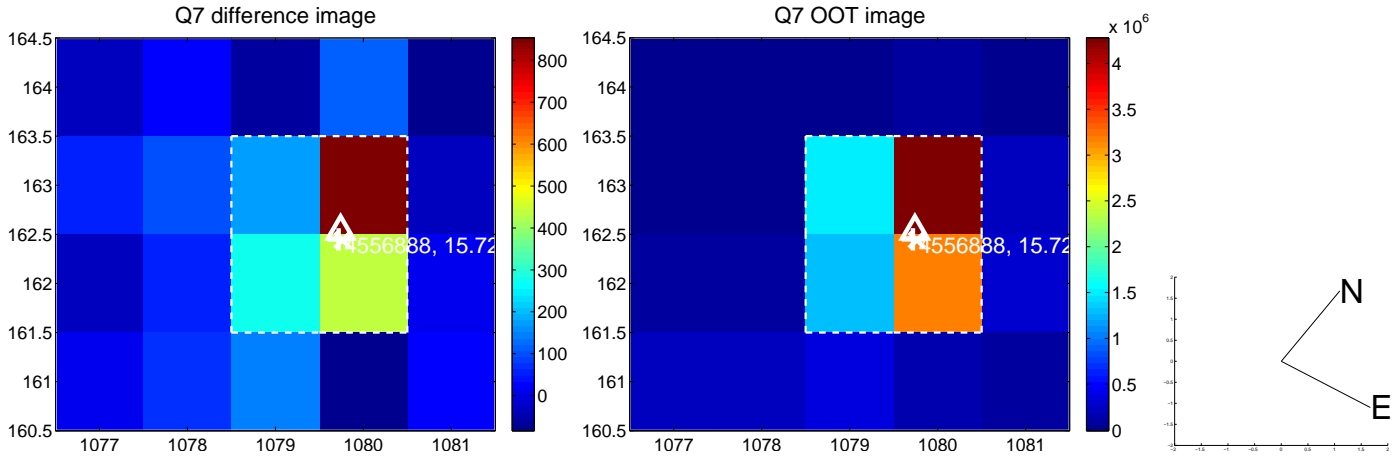
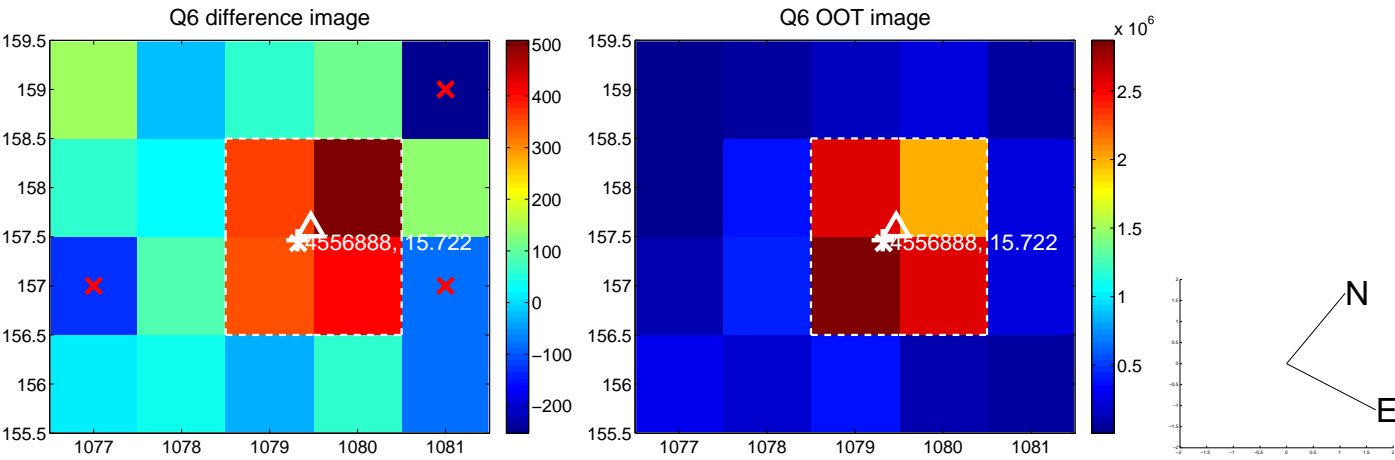
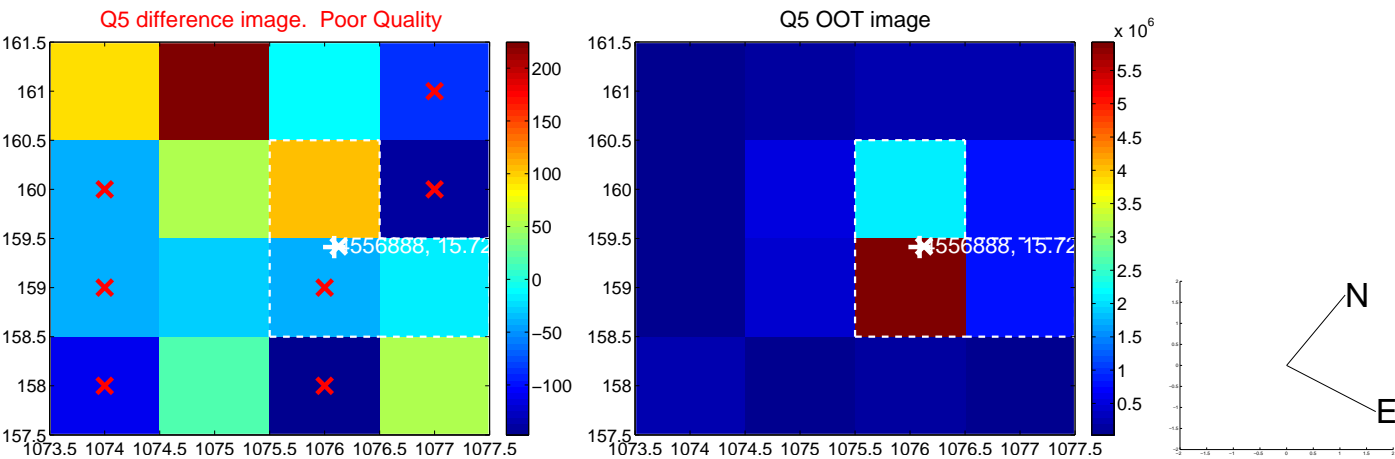


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

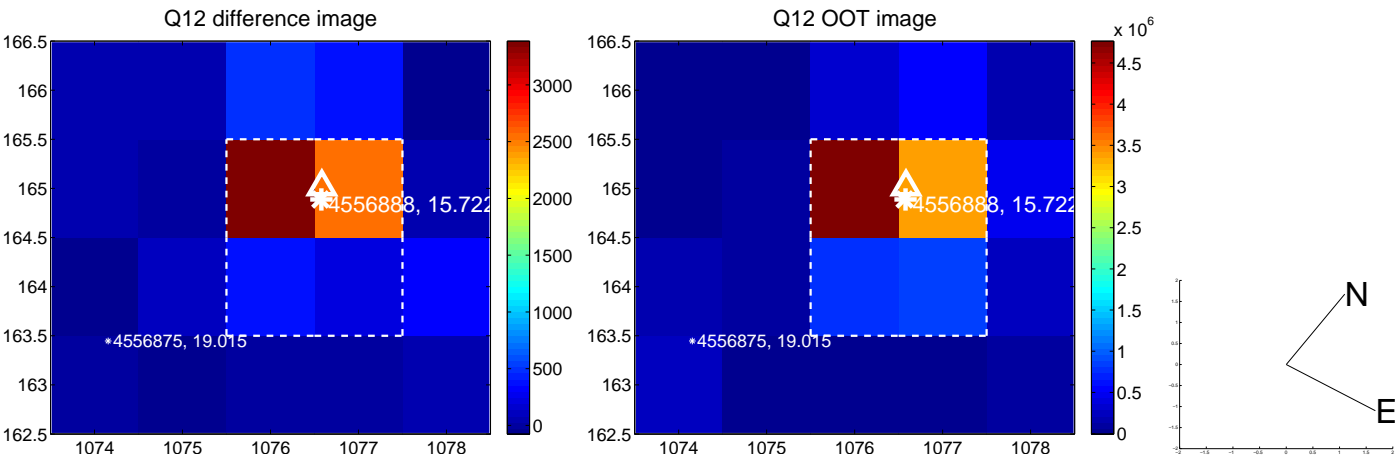
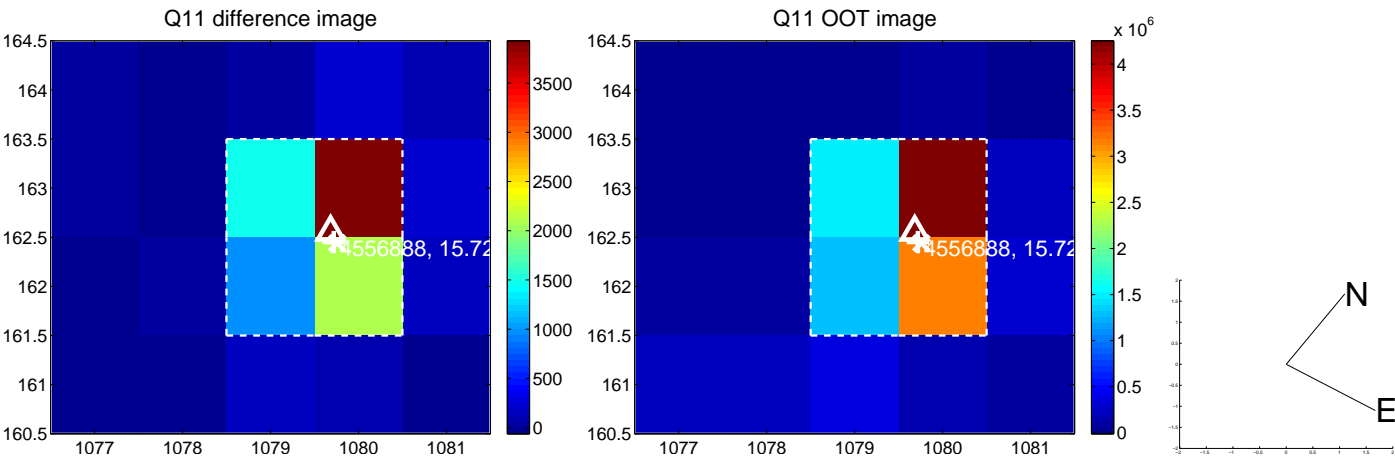
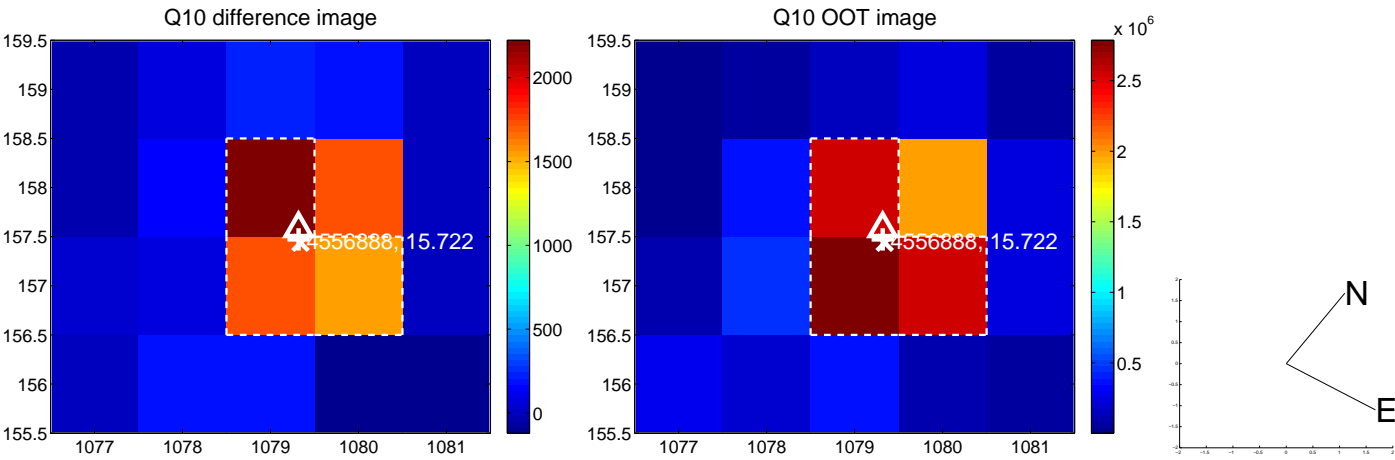
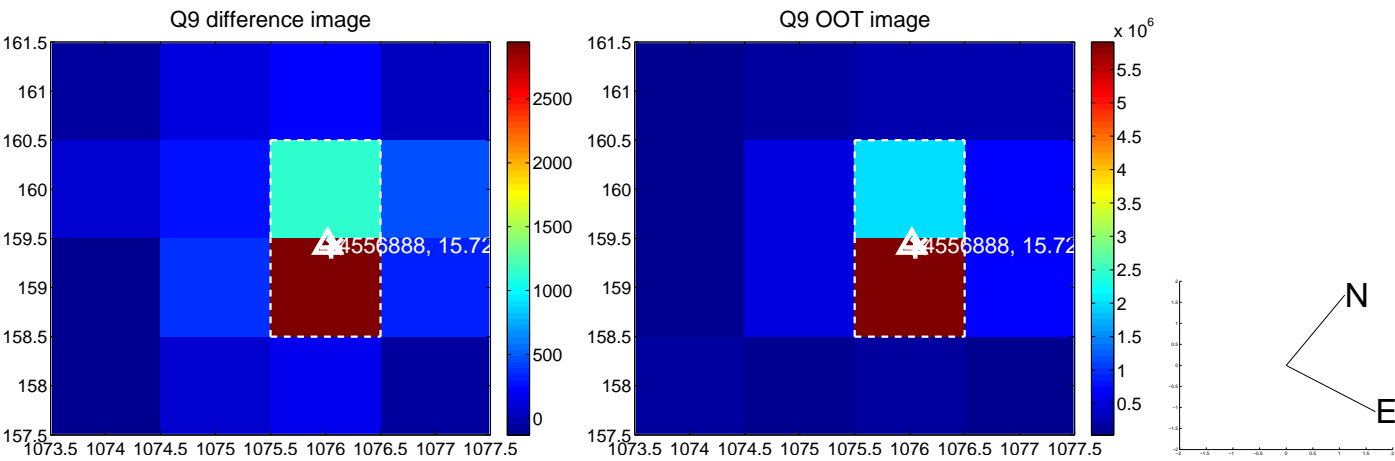
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



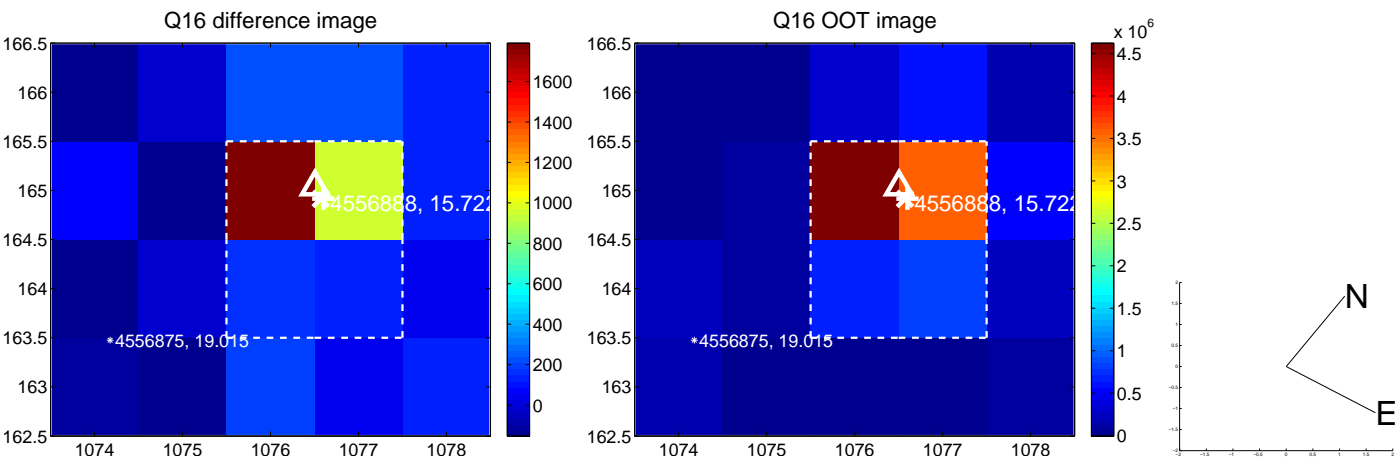
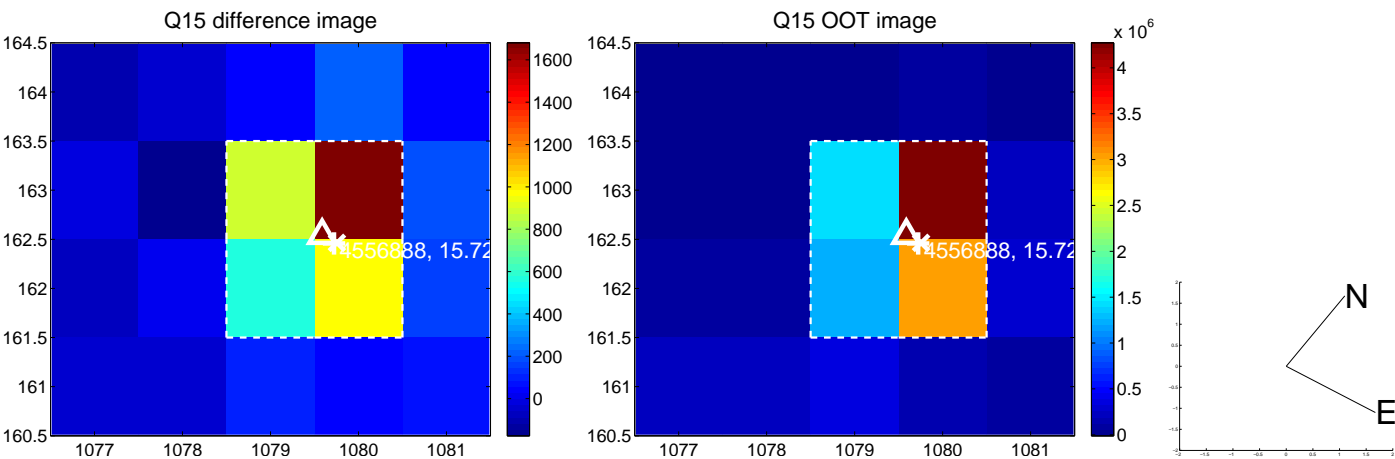
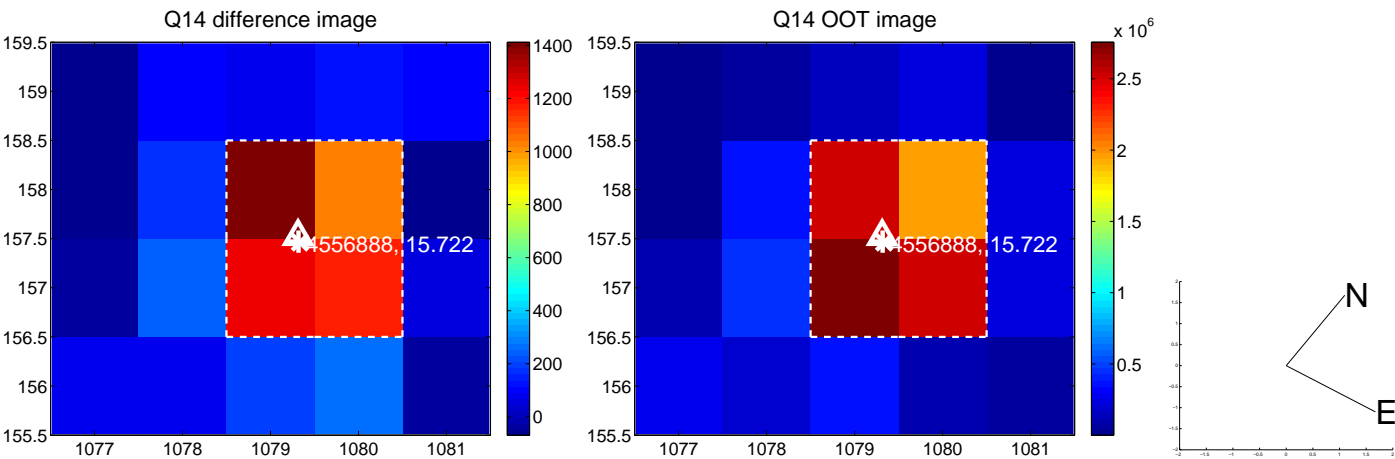
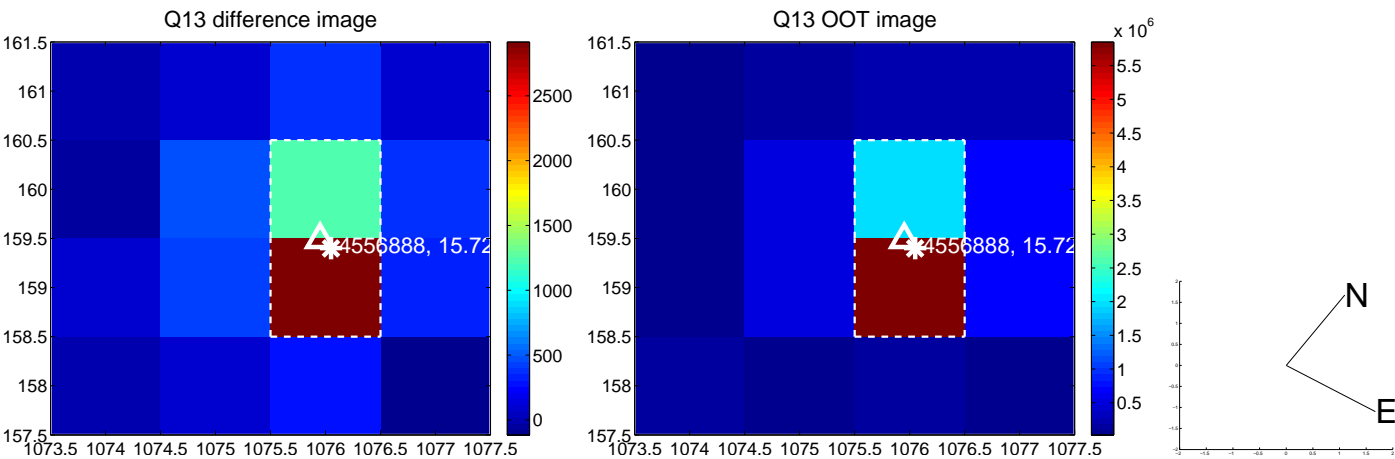
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



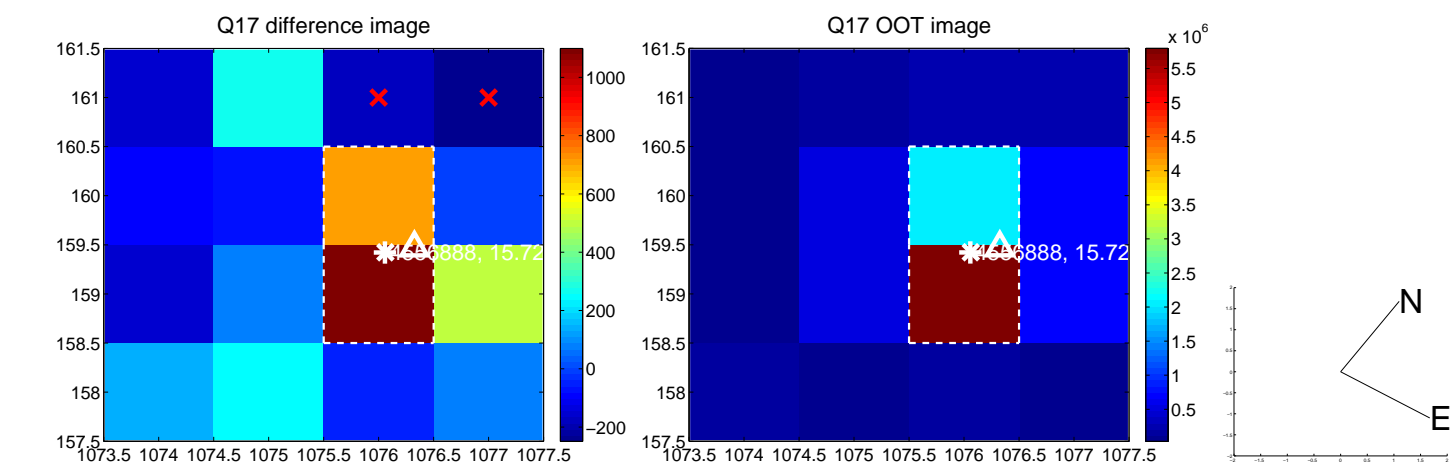
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



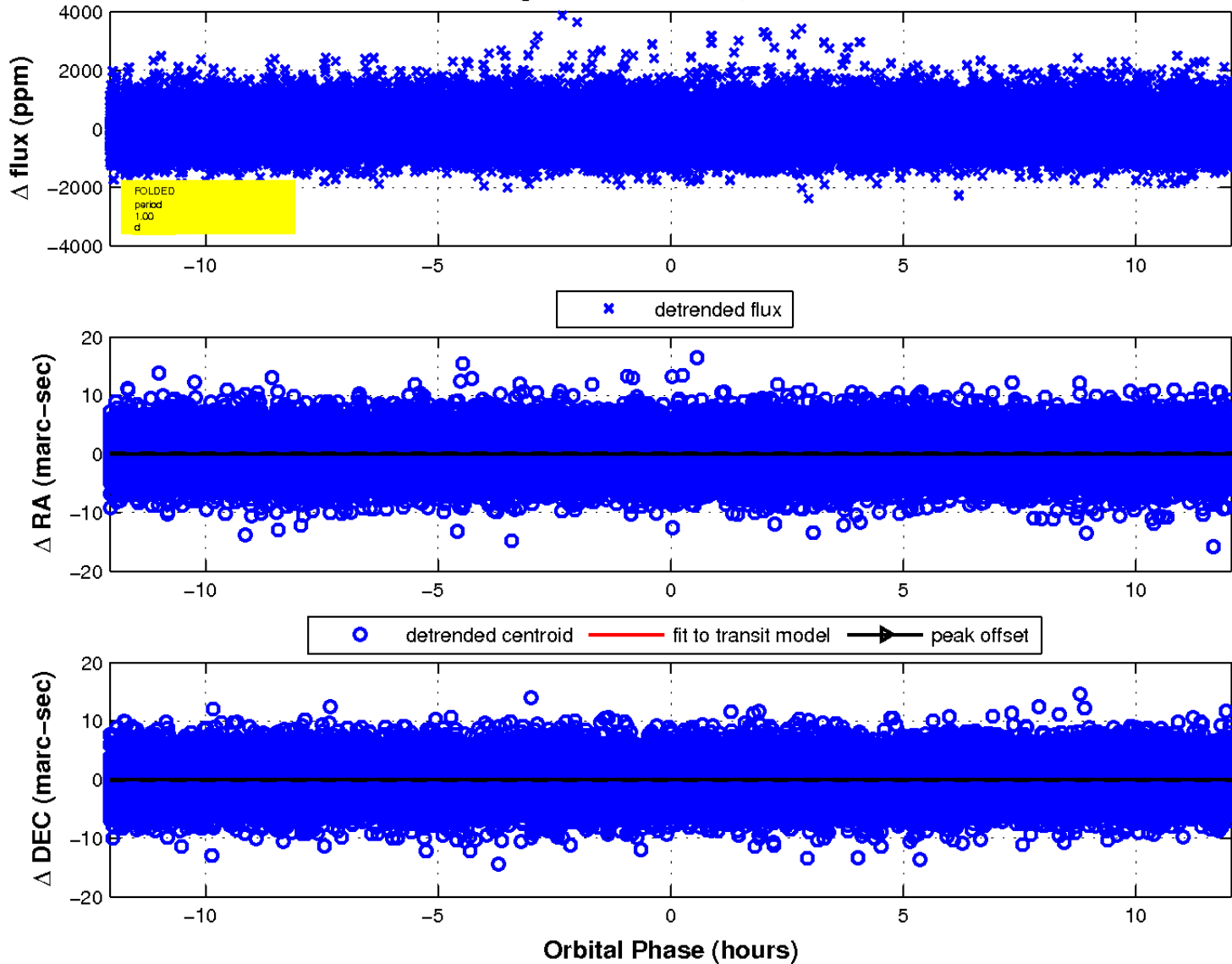
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

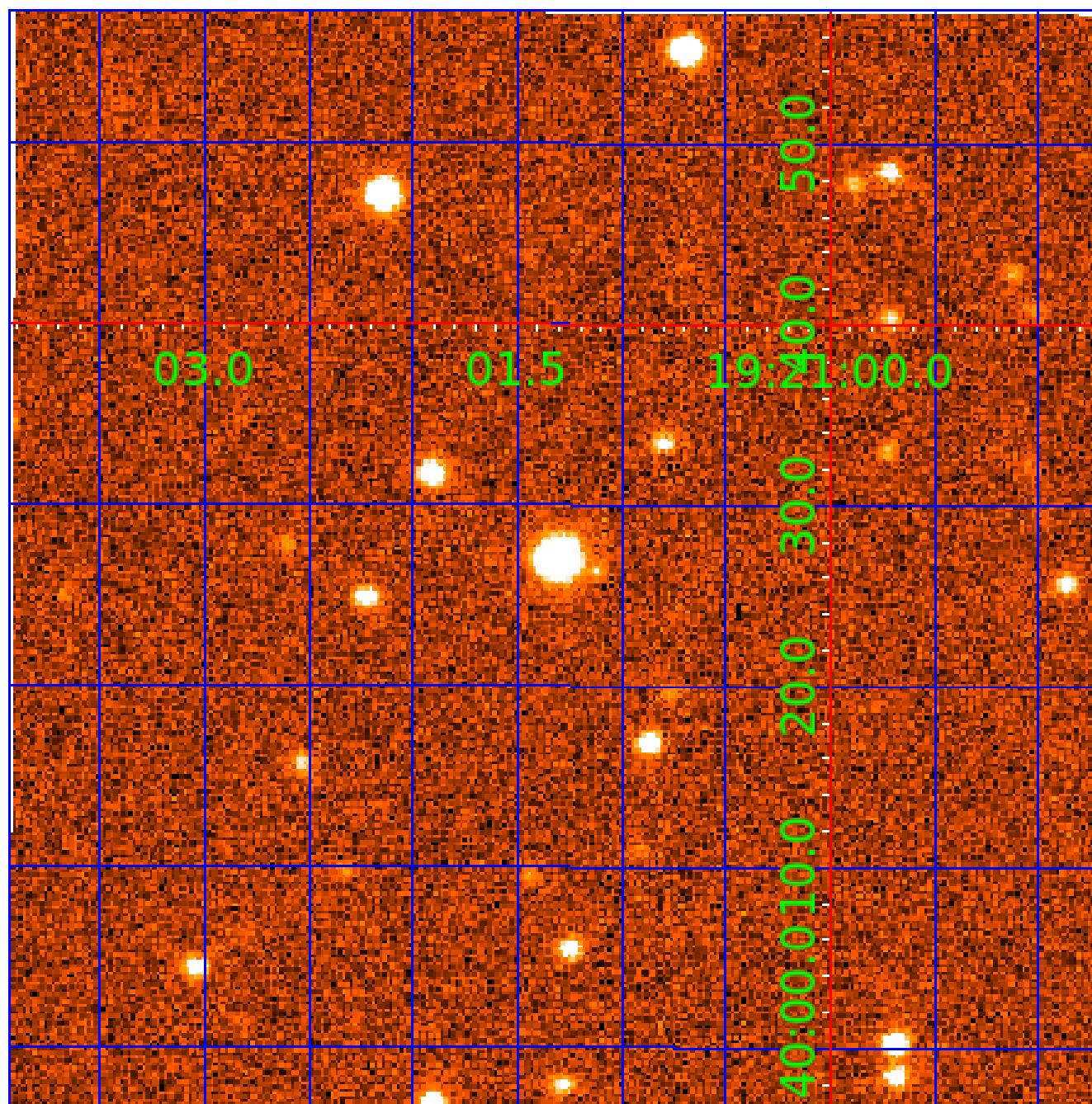


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 004556888

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})
004556888-01	OBS	No	1.004851	132.415850	46.9	5.997	7.5	8.3	0.81	5341	0.54	1416.16
004556888-02	OBS	No	122.029050	205.453745	650.2	4.864	8.6	7.4	0.81	5341	2.28	2.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004556888-01	OBS	FP	0.00	1	0	0	0	LPP_DV
004556888-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

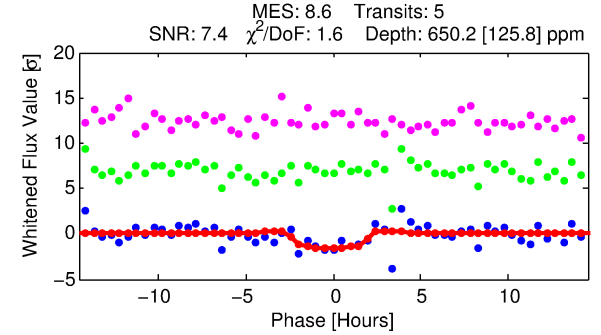
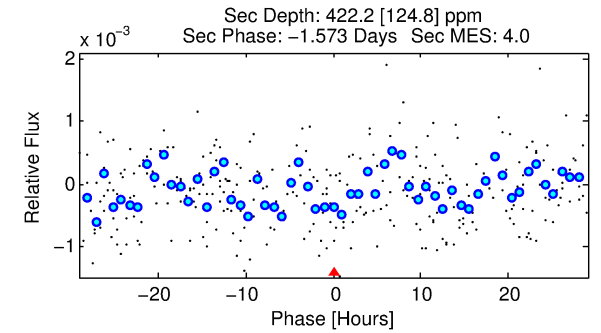
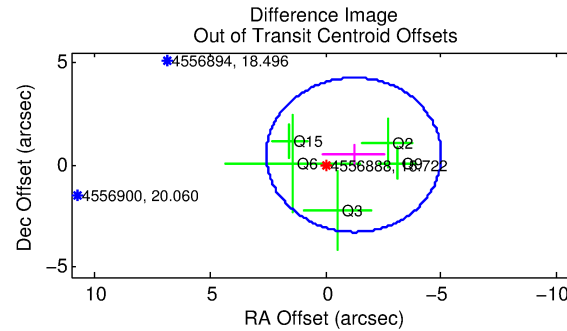
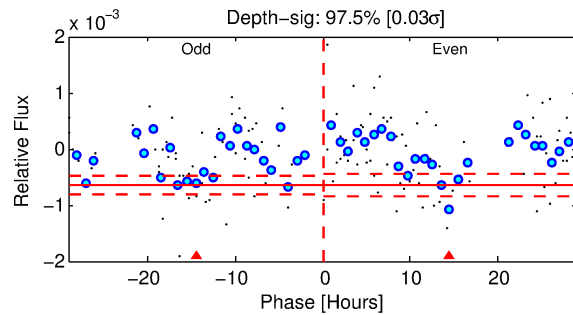
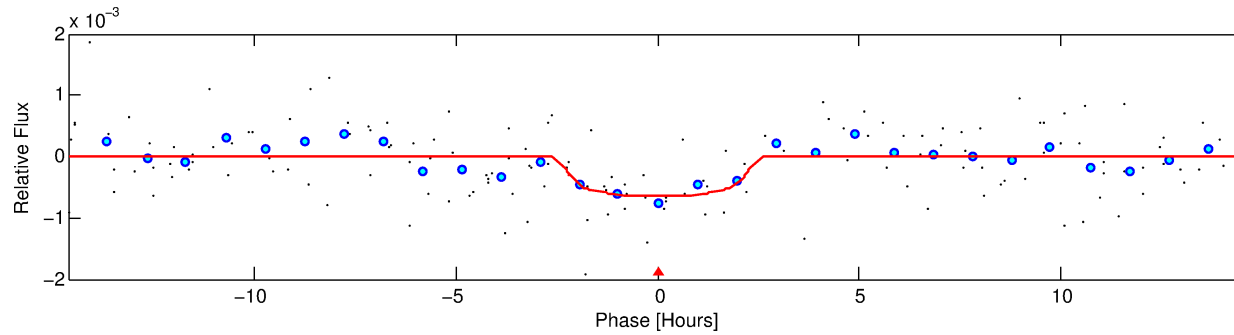
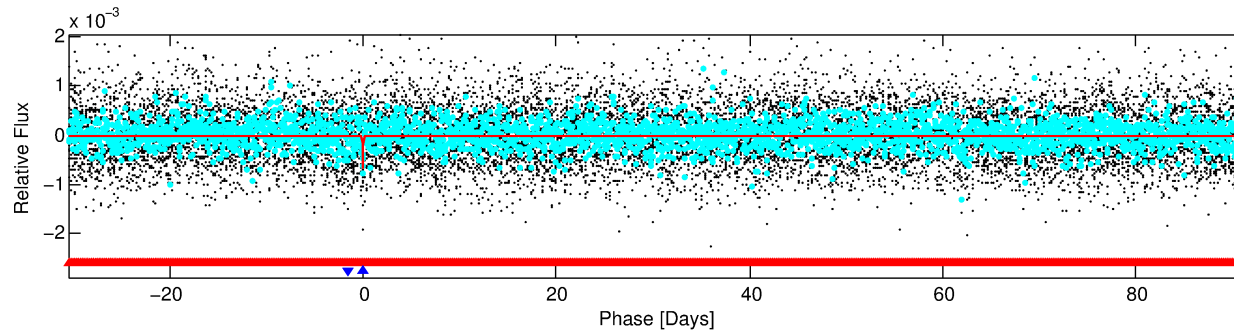
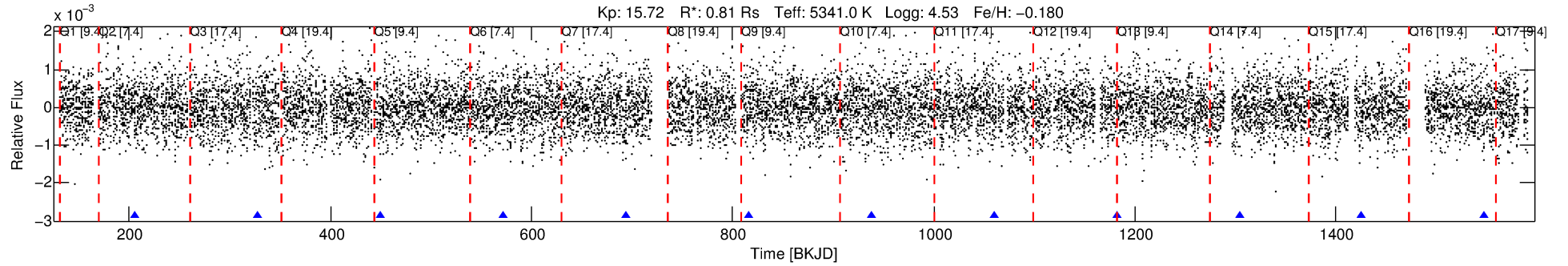
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004556888-02

No Significant Match Found

DV One-Page Summary

KIC: 4556888 Candidate: 2 of 2 Period: 122.029 d



DV Fit Results:

Period = 122.02905 [0.00219] d
Epoch = 205.4537 [0.0174] BKJD
Rp/R* = 0.0259 [0.0580]
a/R* = 125.15 [1134.41]
b = 0.79 [4.36]
Seff = 2.35 [0.53]
Teq = 316 [18] K
Rp = 2.28 [5.11] Re
a = 0.4479 [0.0605] AU
Ag = 8982.27 [40279.95] [0.22 σ]
Teffp = 4754 [5327] K [0.83 σ]

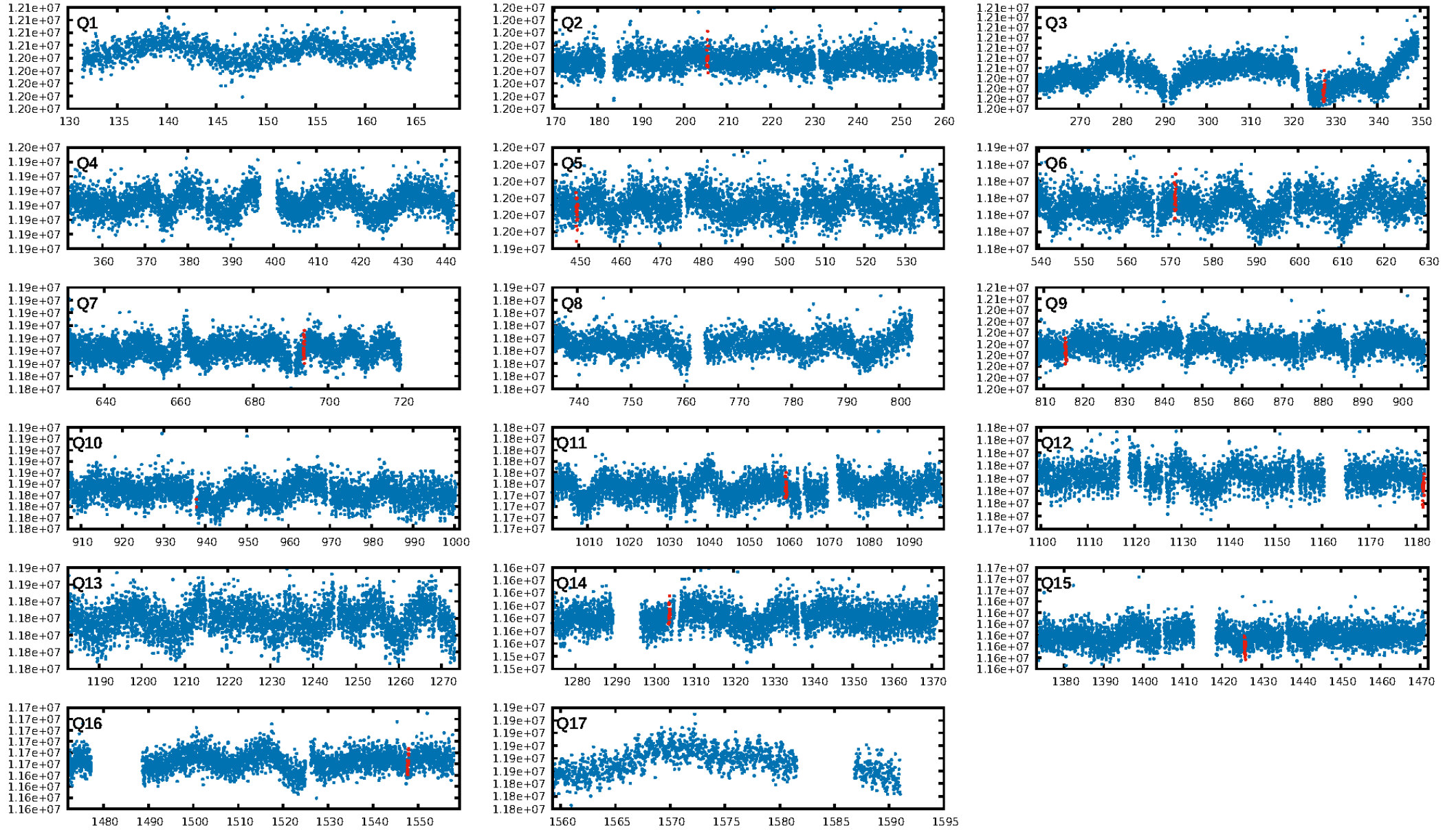
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [376.17 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 18.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.22e-11
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 4.379
Centroid-sig: 4.7%
Centroid-so: 2.171 arcsec [1.60 σ]
OotOffset-rm: 1.311 arcsec [1.04 σ]
KicOffset-rm: 1.383 arcsec [1.08 σ]
OotOffset-st: 2/2/0/1 [5]
KicOffset-st: 2/2/0/1 [5]
DiffImageQuality-fgm: 0.00 [0/5]
DiffImageOverlap-fno: 0.00 [0/10]

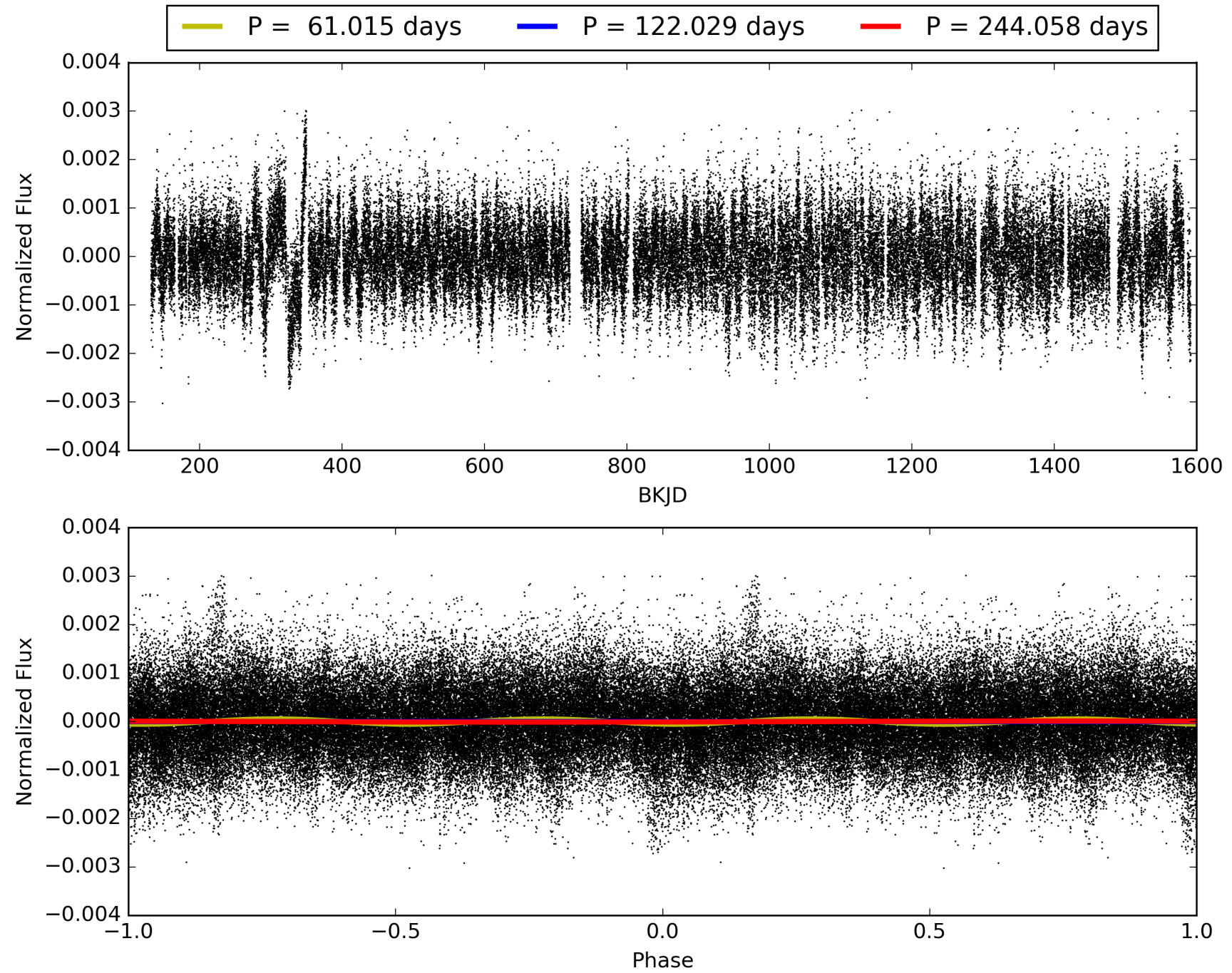
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004556888-02, PDC Light Curves

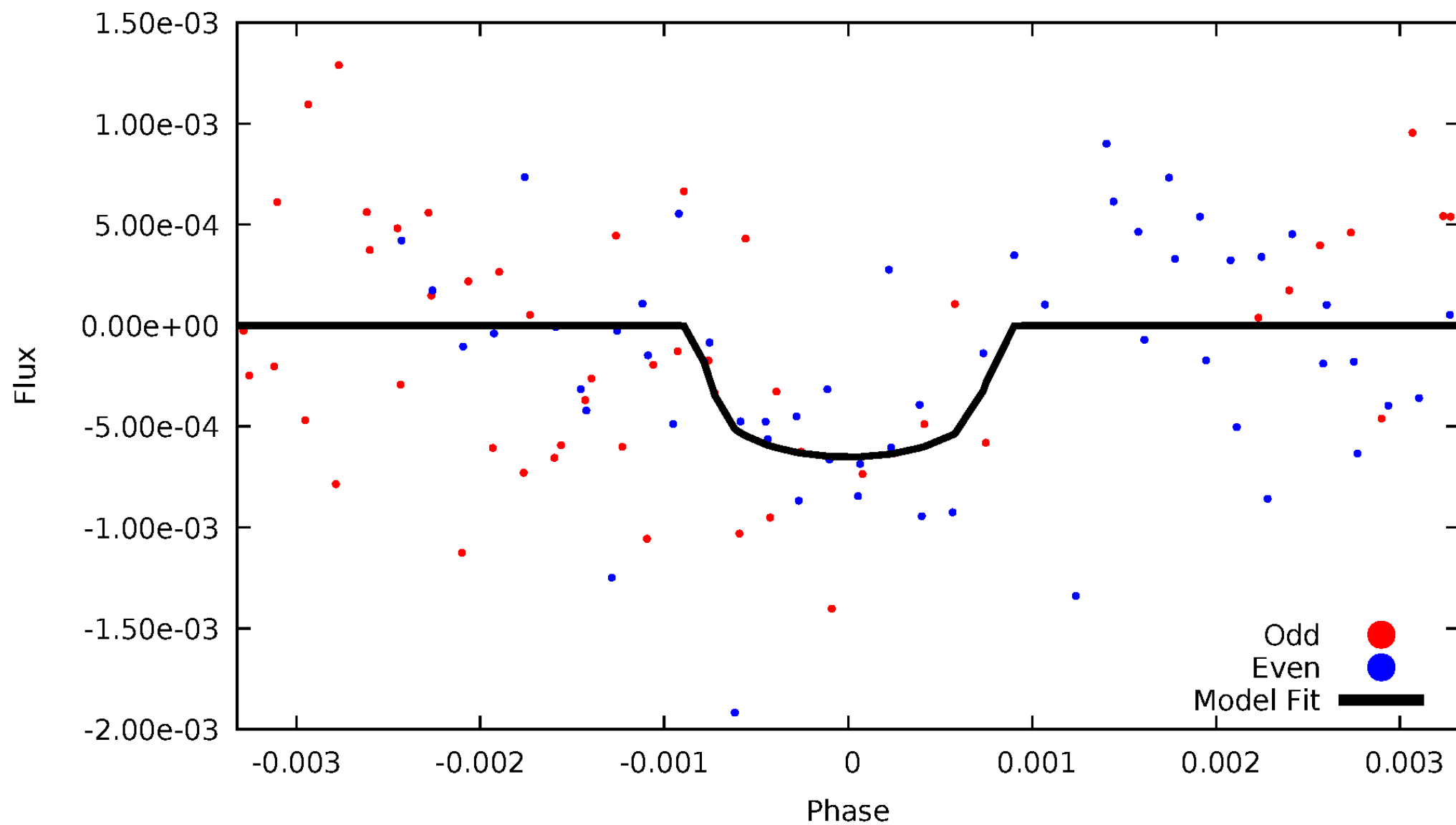


TCE 004556888-02



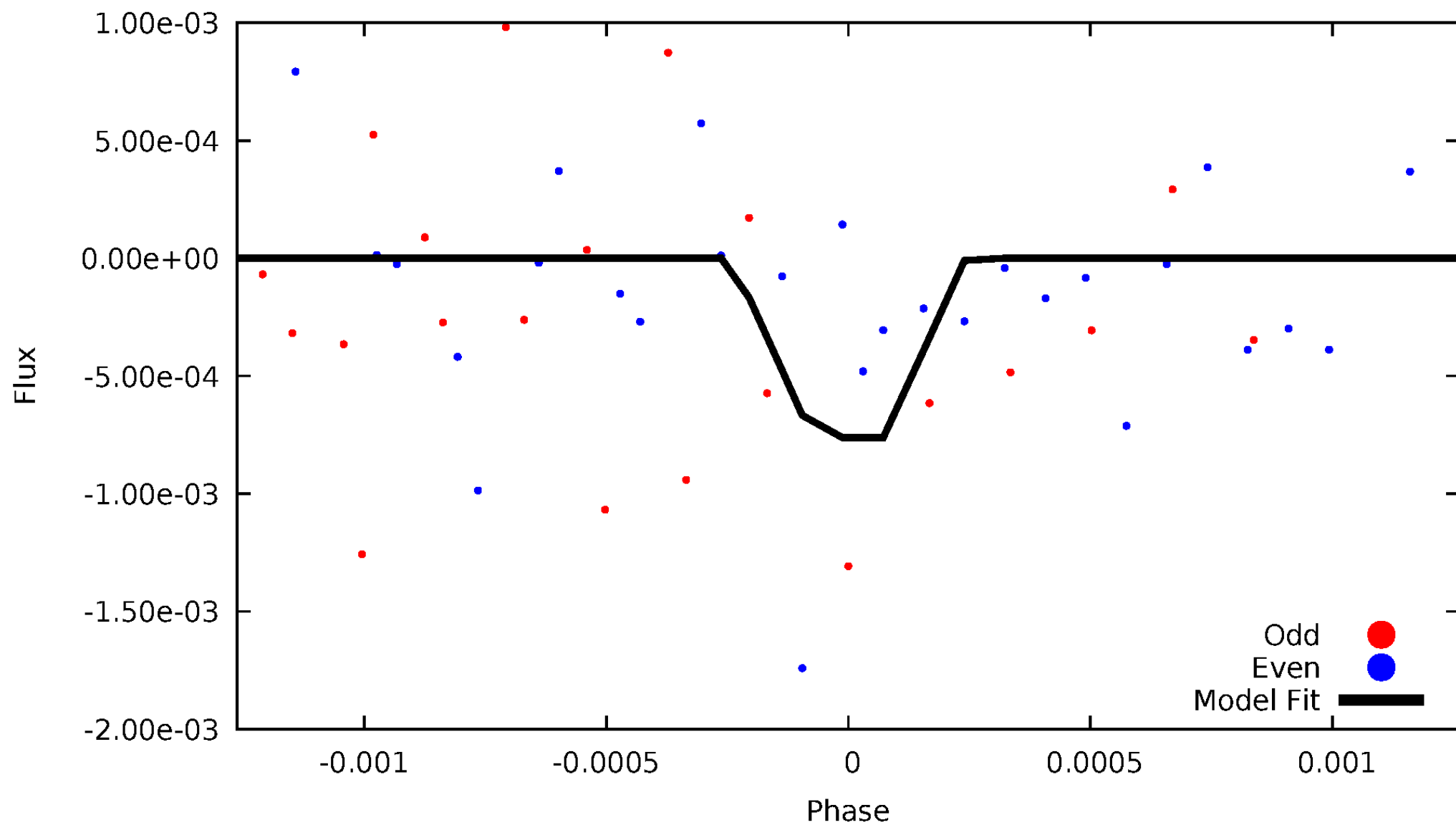
DV Odd/Even

TCE 004556888-02



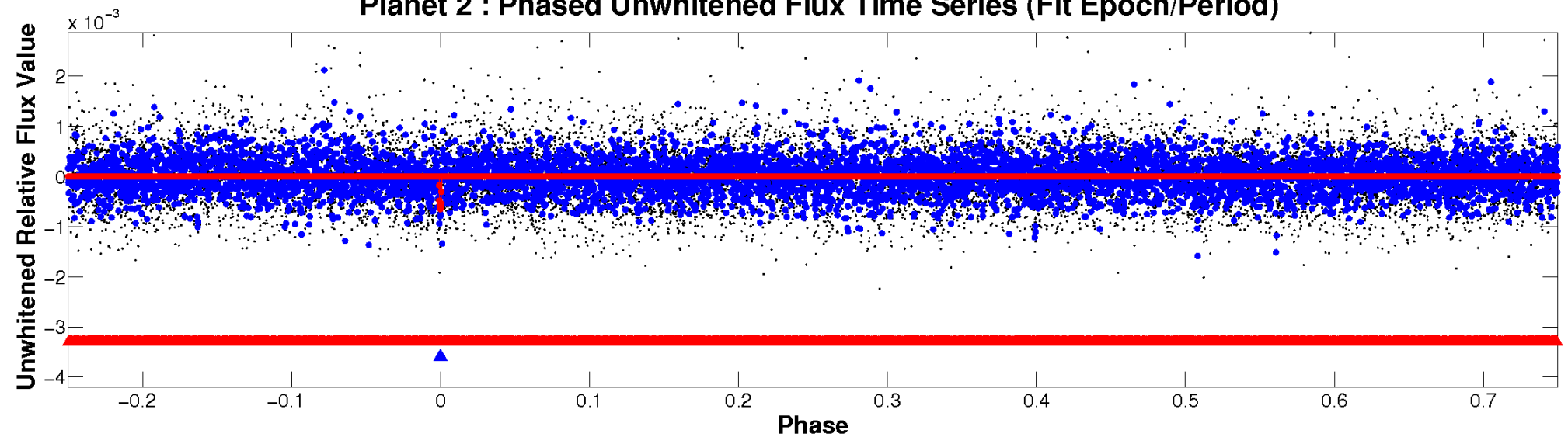
ALT Odd/Even

TCE 004556888-02

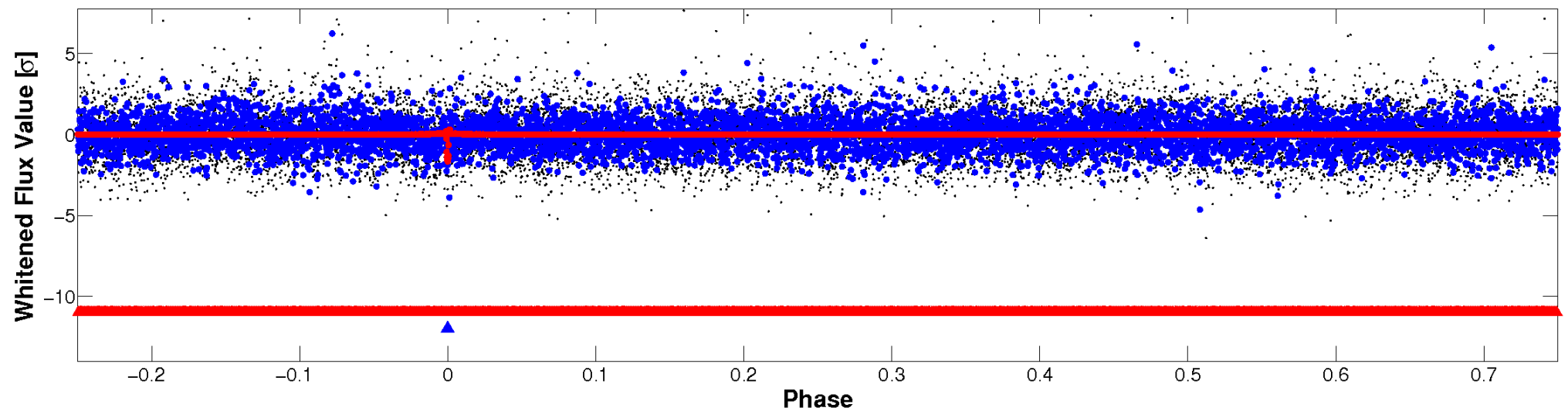


Non-Whitened Vs. Whitened Light Curve

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

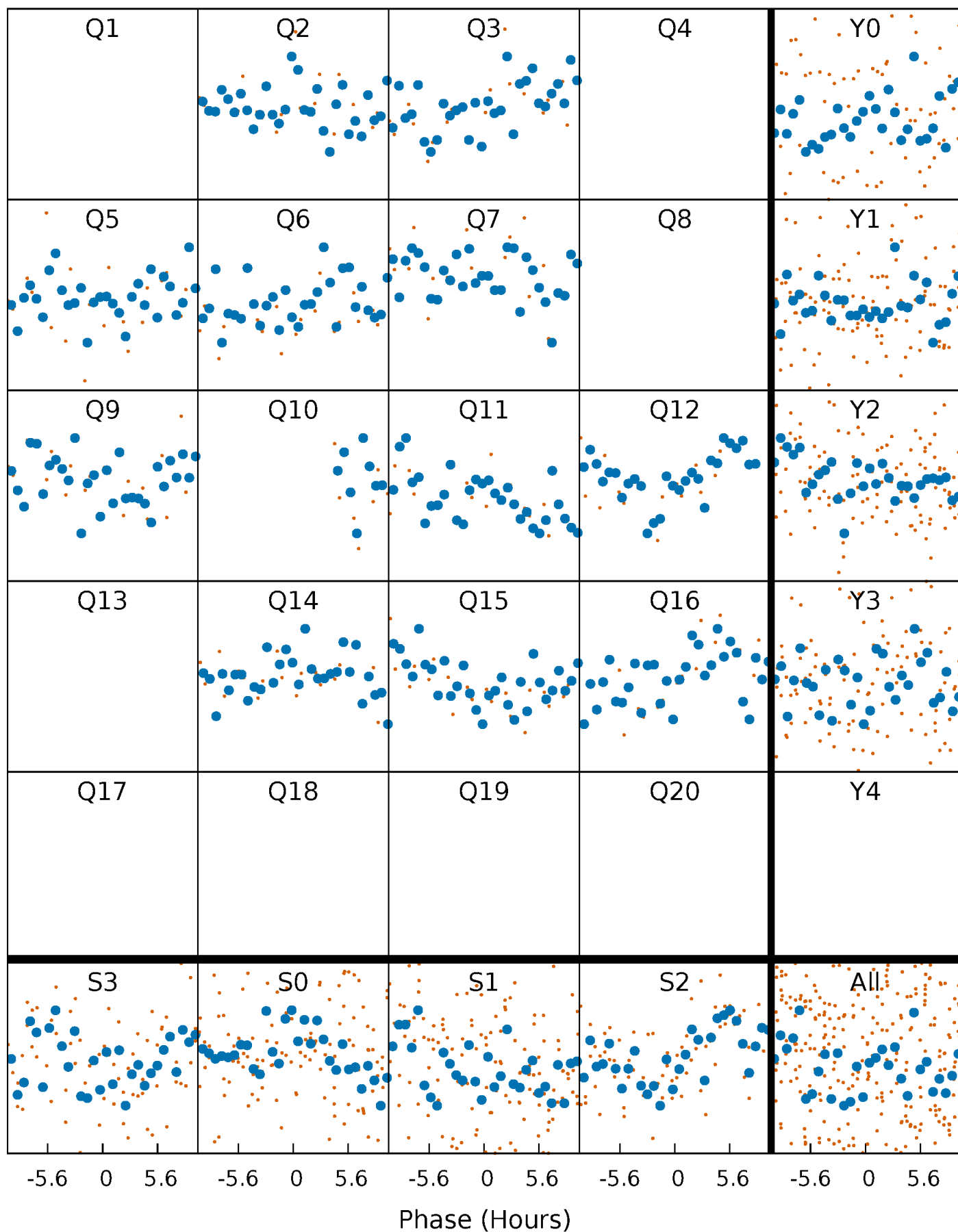


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



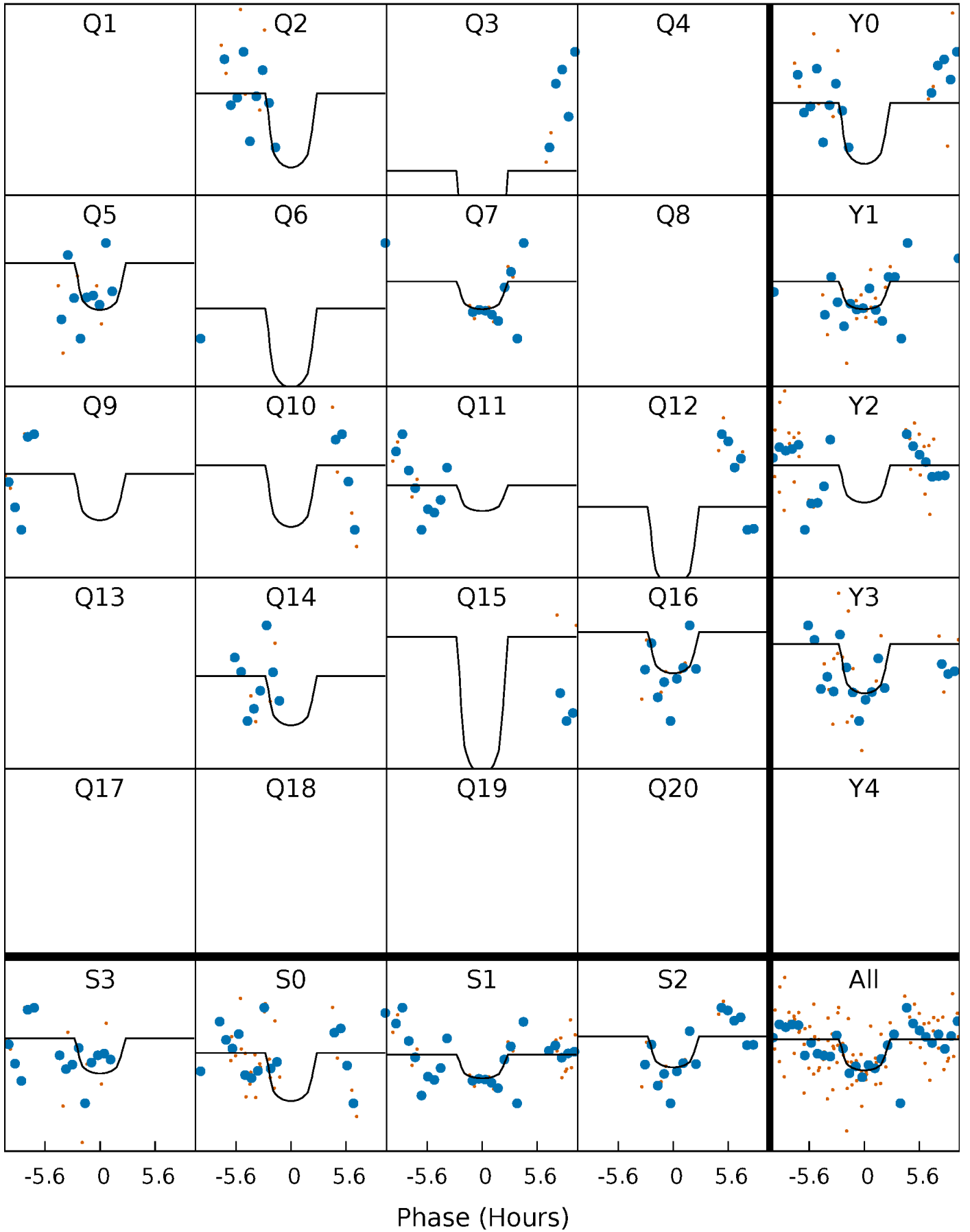
PDC Quarter-Phased Transit Curves

TCE 004556888-02 P=122.029050 Days $T_0=205.453745$ (BKJD)



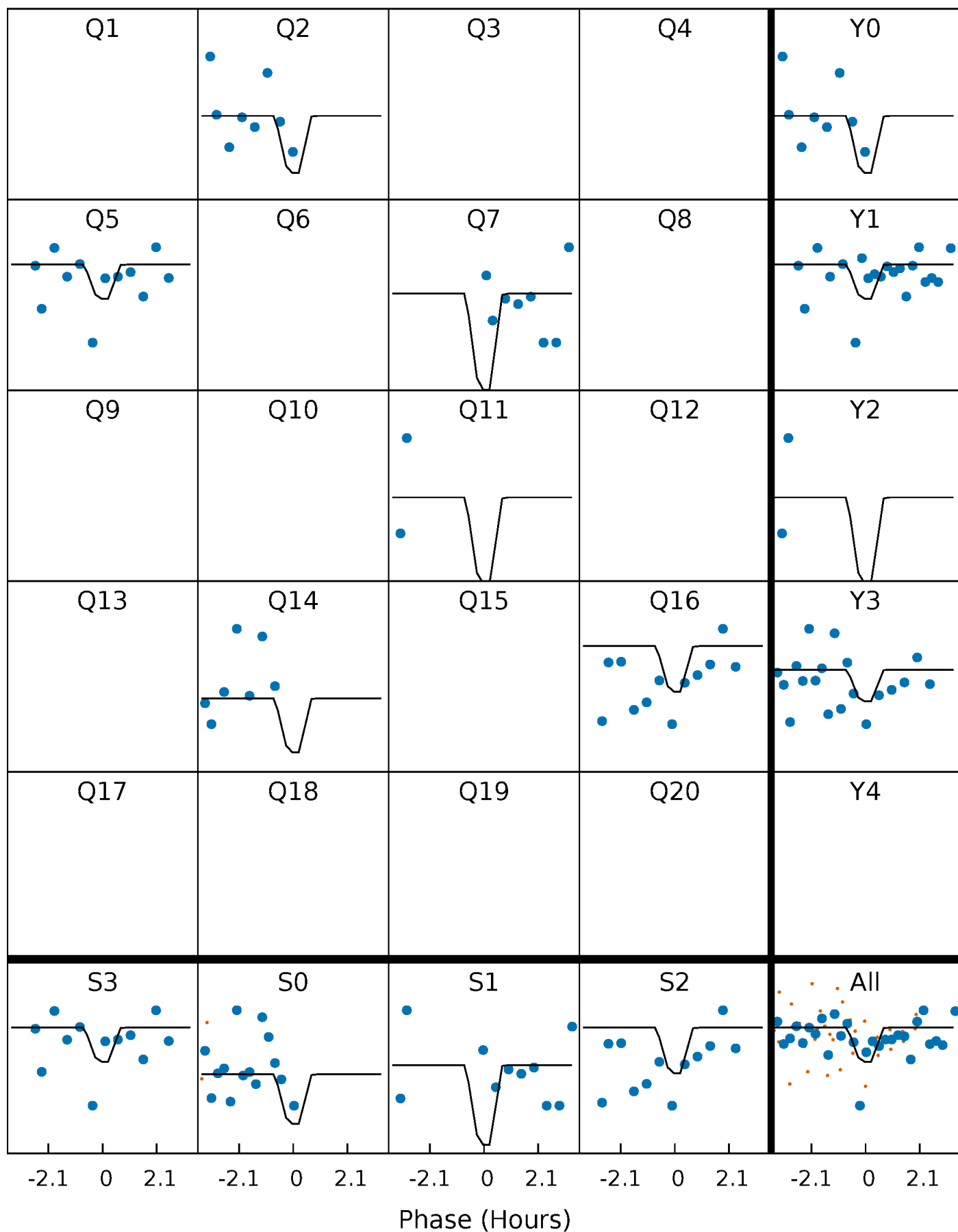
DV Quarter-Phased Transit Curves

TCE 004556888-02 $P=122.029050$ Days $T_0=205.453745$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

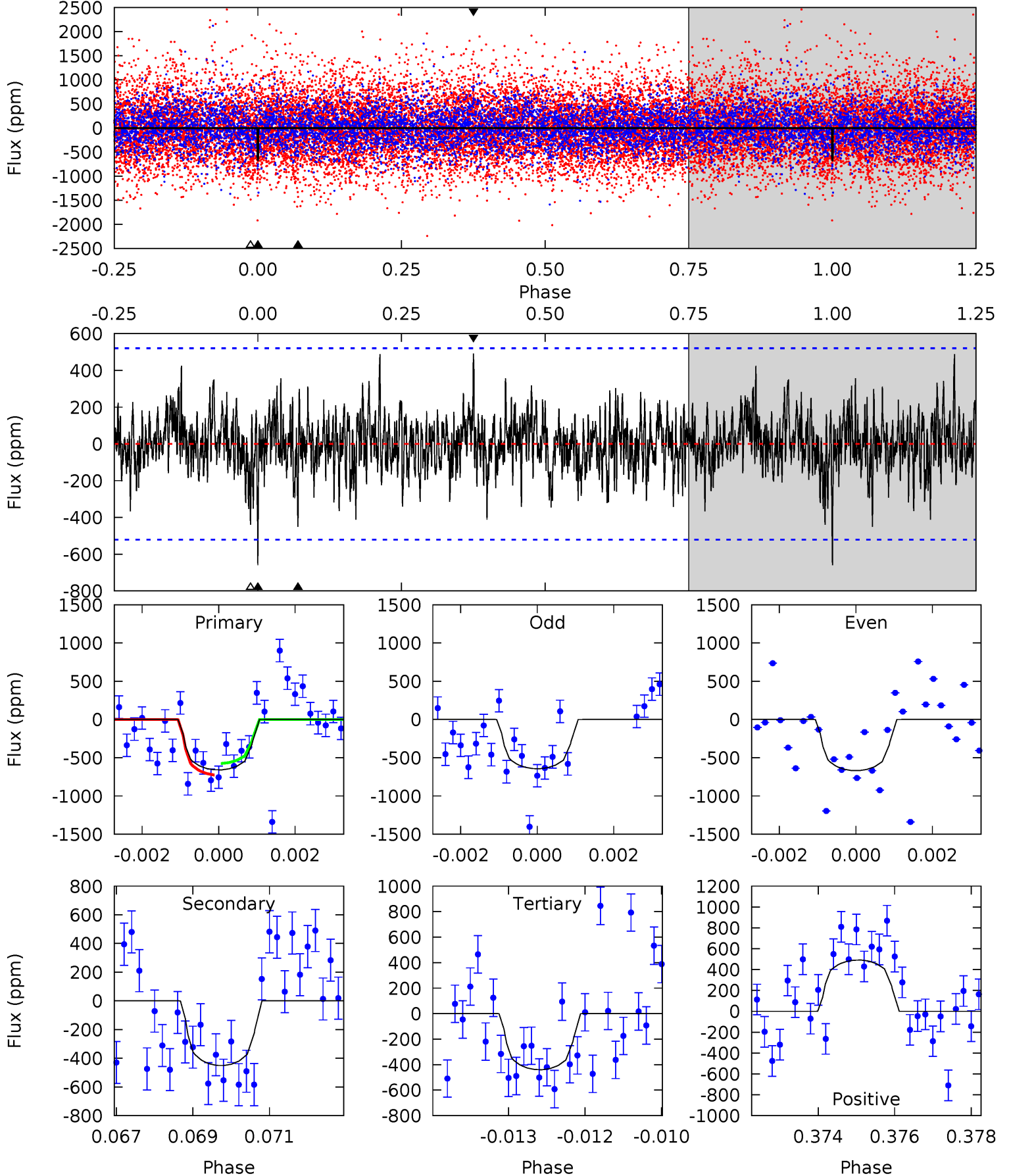
TCE 004556888-02 P=122.034899 Days $T_0=205.378399$ (BKJD)



DV Model-Shift Uniqueness Test

004556888-02, P = 122.029050 Days, E = 83.424695 Days

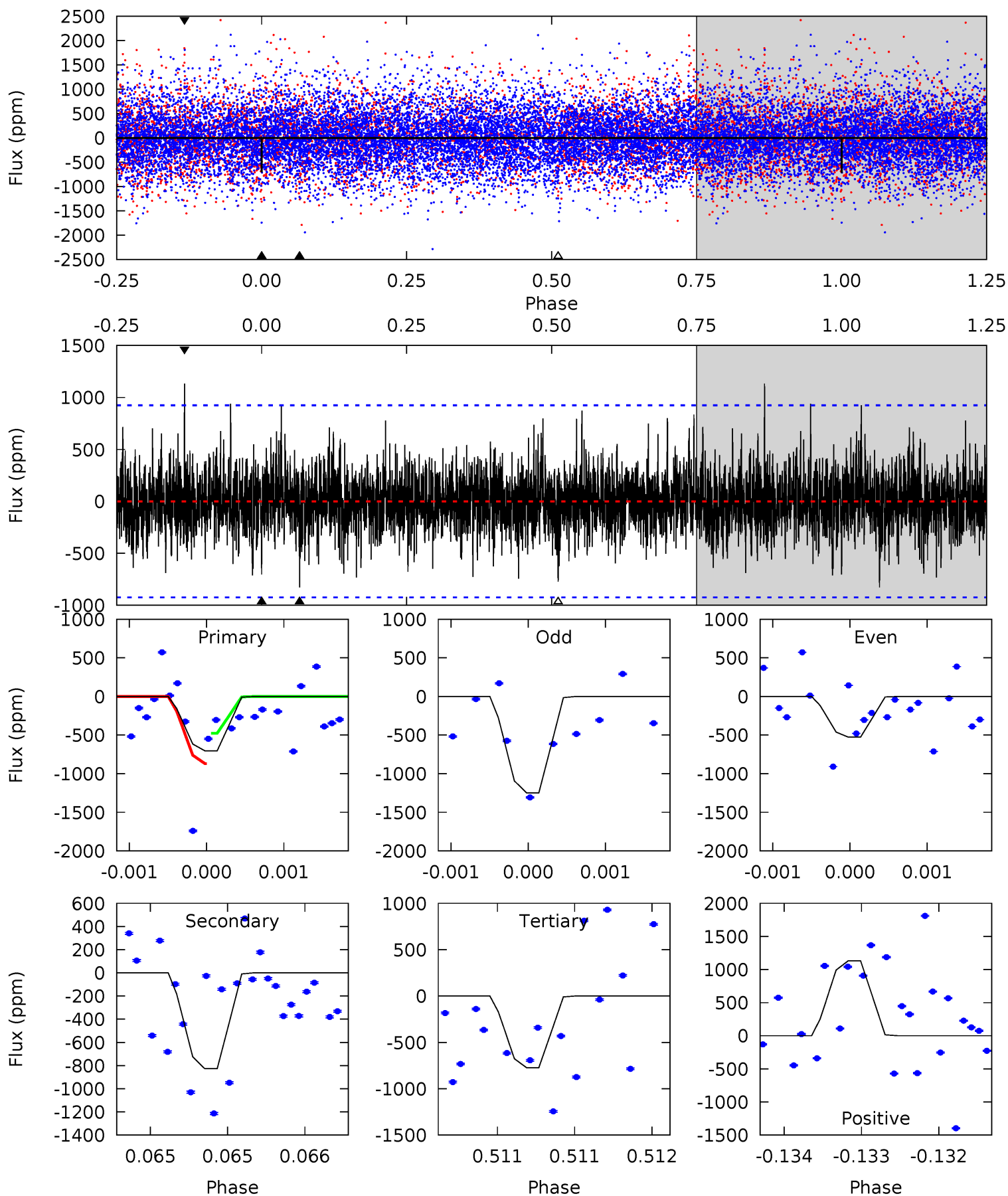
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.78	4.64	4.52	5.05	5.36	3.14	1.27	2.26	1.73	0.11	-0.42	0.13	0.93	0.43	0.77



Alt Model-Shift Uniqueness Test

004556888-02, P = 122.034899 Days, E = 83.343500 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.24	4.98	4.65	6.81	5.56	3.47	1.34	-0.41	-2.58	0.33	-1.83	1.99	0.96	0.58	1.18



Stellar Parameters For KIC 004556888

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5341^{+159}_{-159}	$4.532^{+0.059}_{-0.102}$	$-0.180^{+0.300}_{-0.300}$	$0.805^{+0.133}_{-0.082}$	$0.804^{+0.096}_{-0.070}$	$2.172^{+0.616}_{-0.680}$
	+3%/-3%	+1%/-2%	+167%/-167%	+17%/-10%	+12%/-9%	+28%/-31%
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 004556888-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-451 ± 97	$4.40^{+4.30}_{-3.07}$	444^{+21}_{-18}	3809^{+2515}_{-741}	2489^{+25984}_{-1867}
Alt.	-828 ± 166	$4.63^{+4.17}_{-3.15}$	446^{+20}_{-19}	4221^{+2773}_{-881}	4266^{+36468}_{-3174}

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 $A_{obs} \gg 1.0$

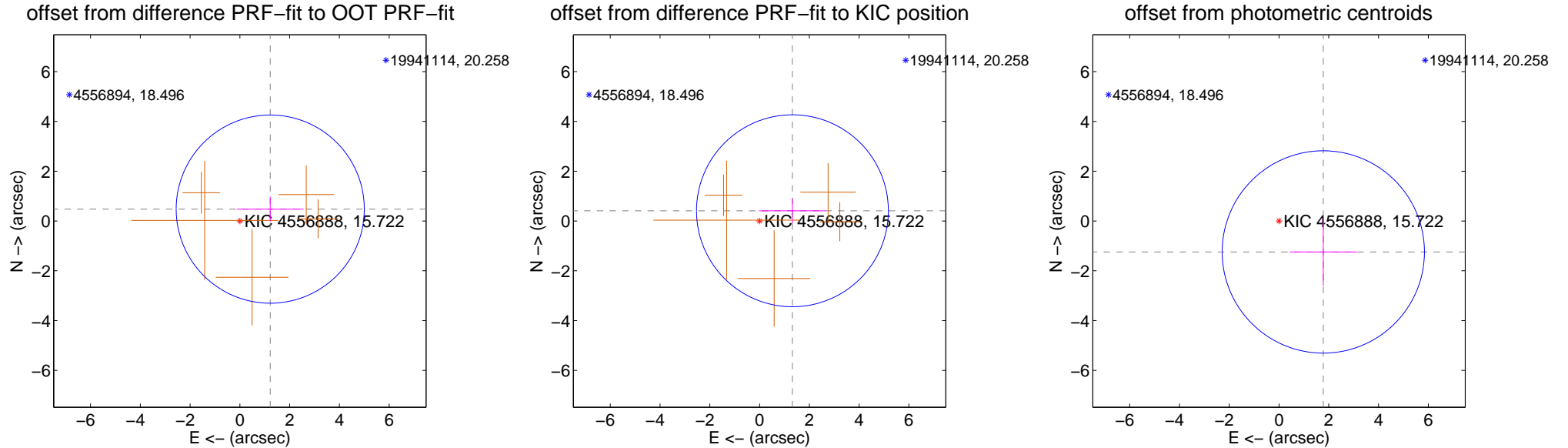
DV Centroid Data

Supplemental centroid analysis for 004556888-02. Kepler magnitude: 15.72. Transit SNR 7.40

There are 0 quarters with good PRF difference image offsets

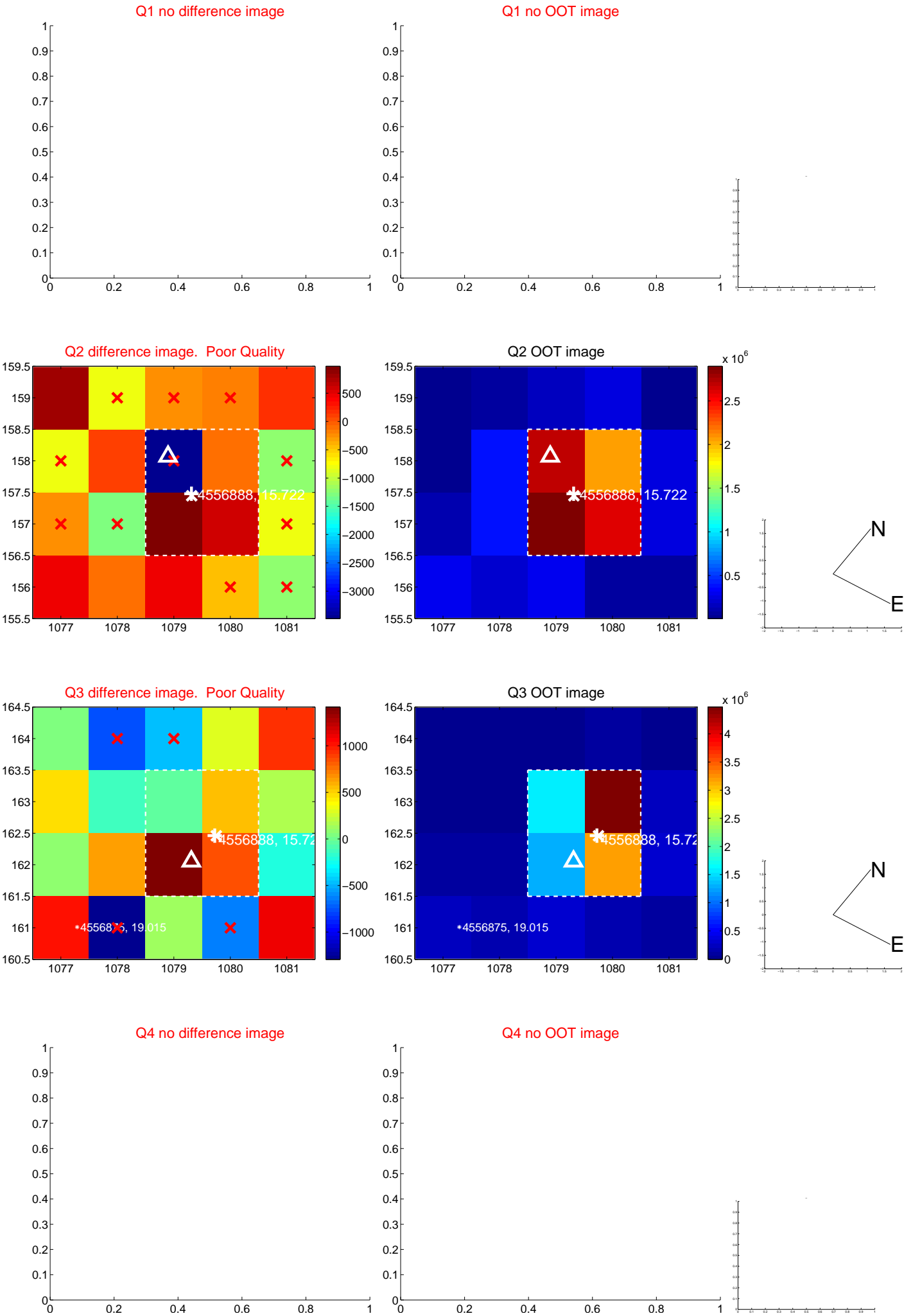
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.311 ± 1.260	1.04	-1.221 ± 1.338	0.477 ± 0.499
PRF-fit source offset from KIC position	1.383 ± 1.284	1.08	-1.320 ± 1.336	0.411 ± 0.502
photometric centroid source offset	2.17 ± 1.35	1.60	-1.78 ± 1.35	-1.24 ± 1.36

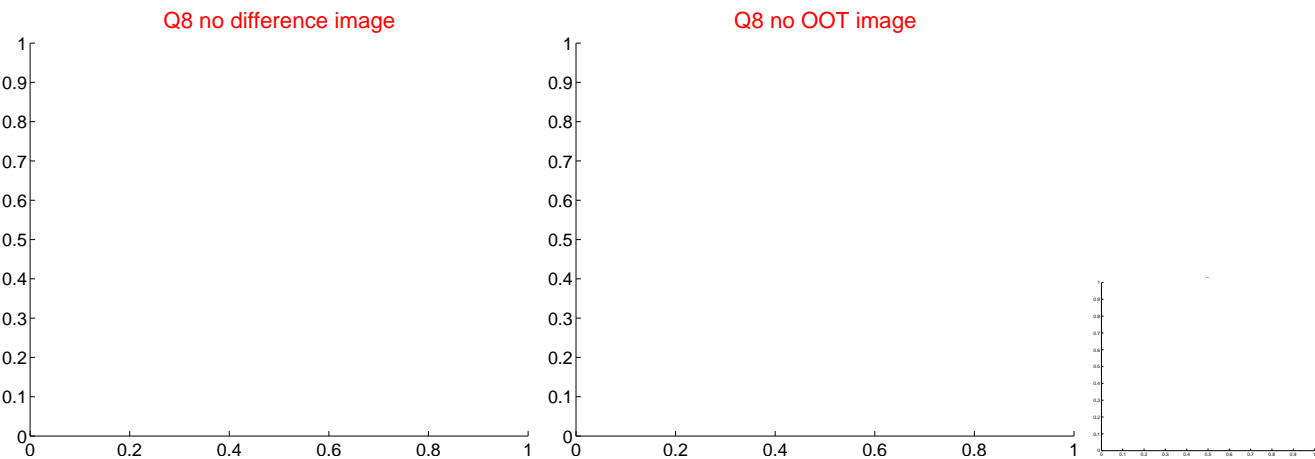
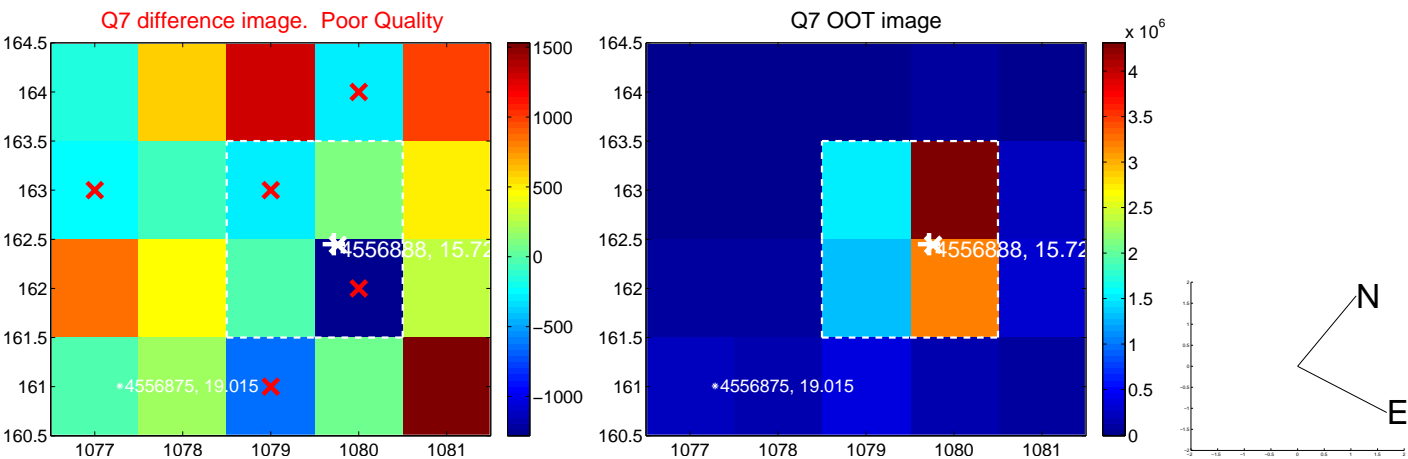
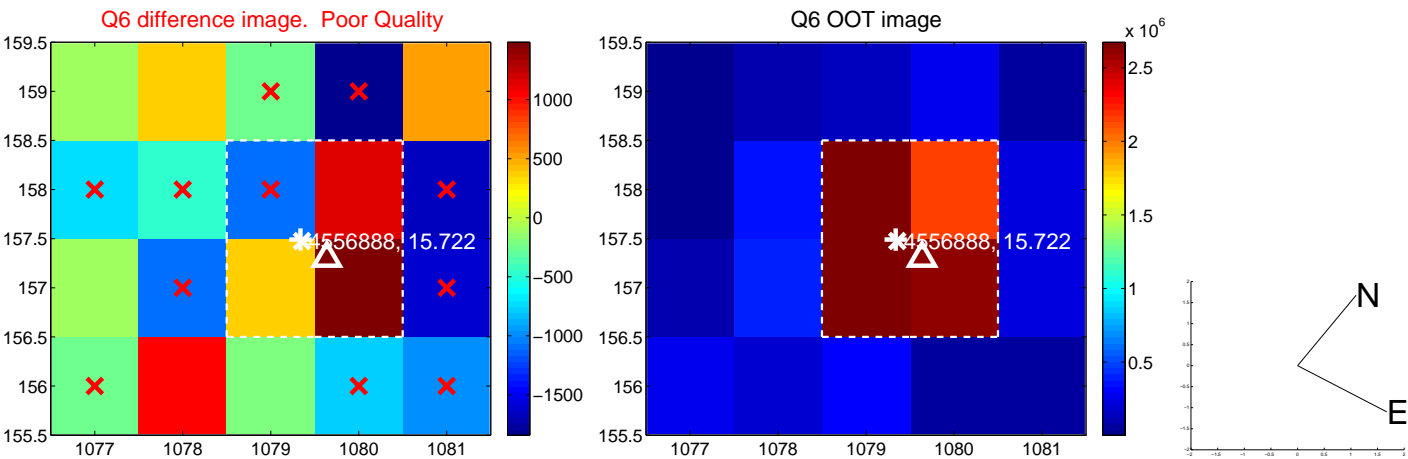
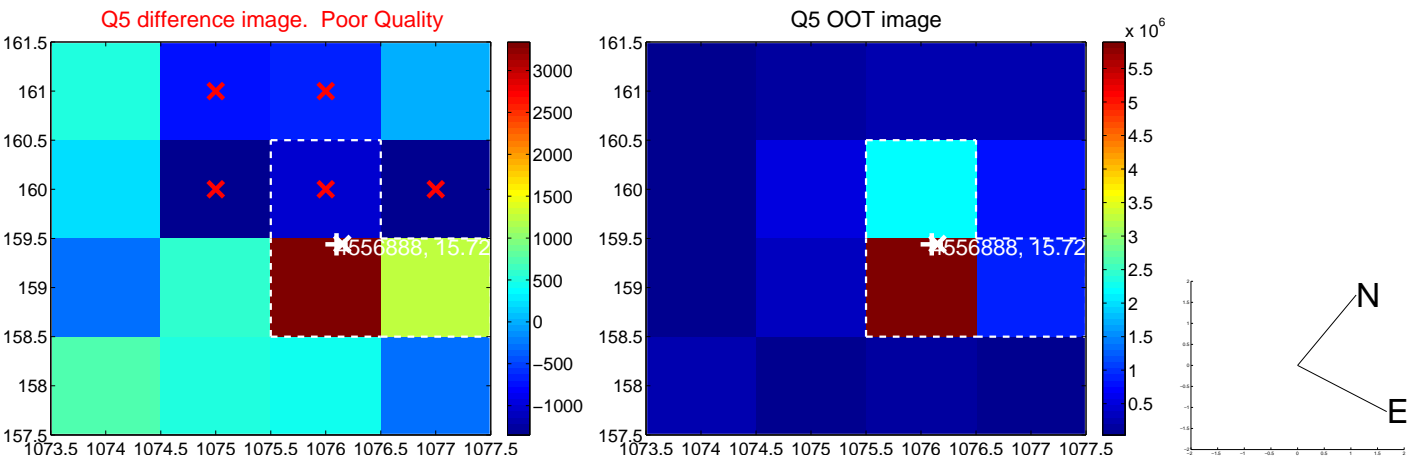


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

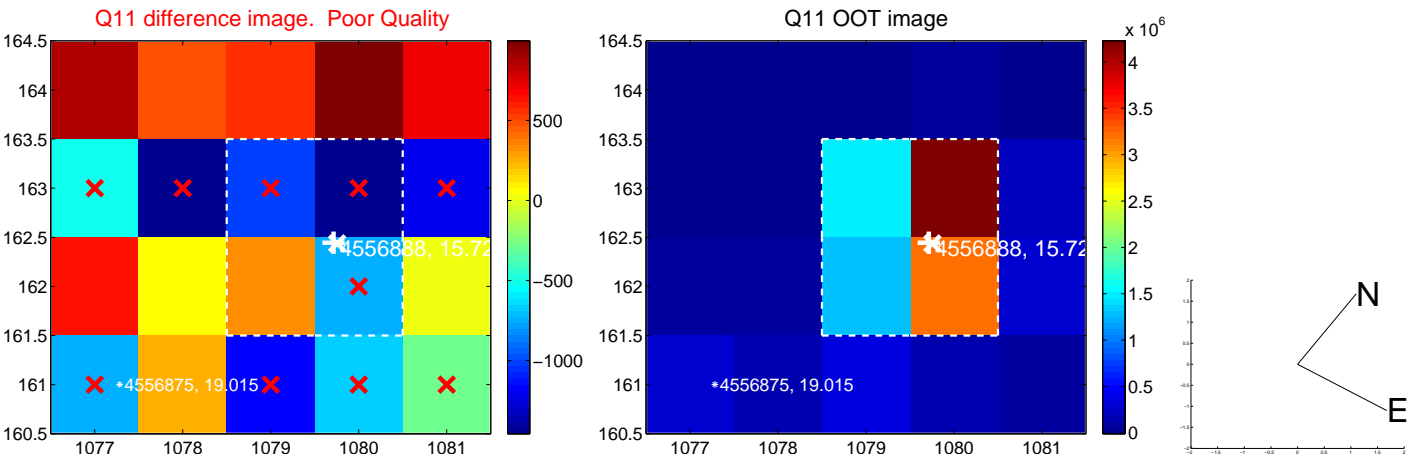
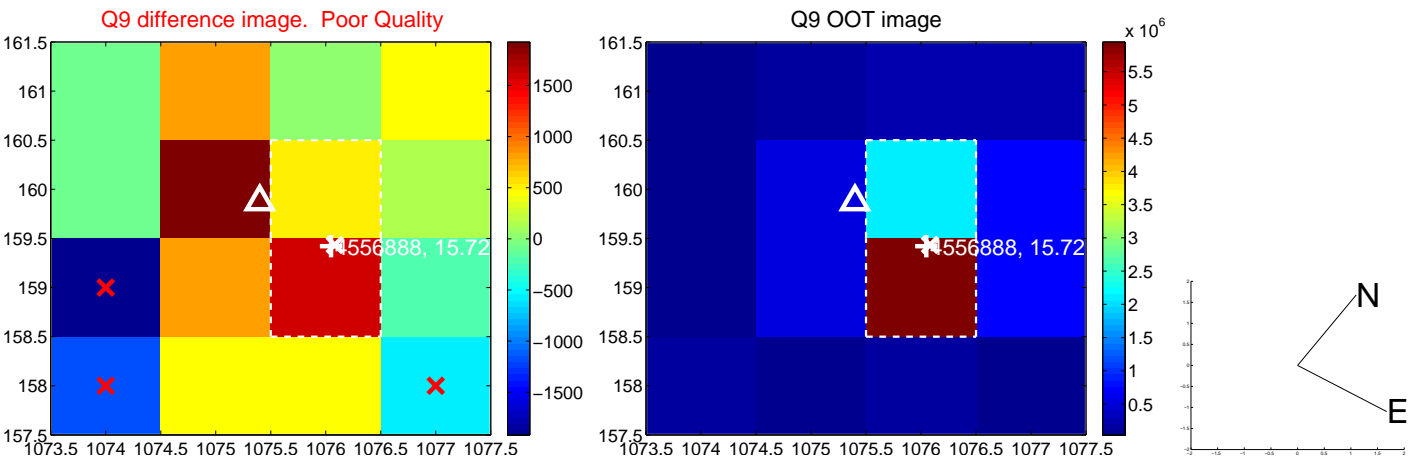
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



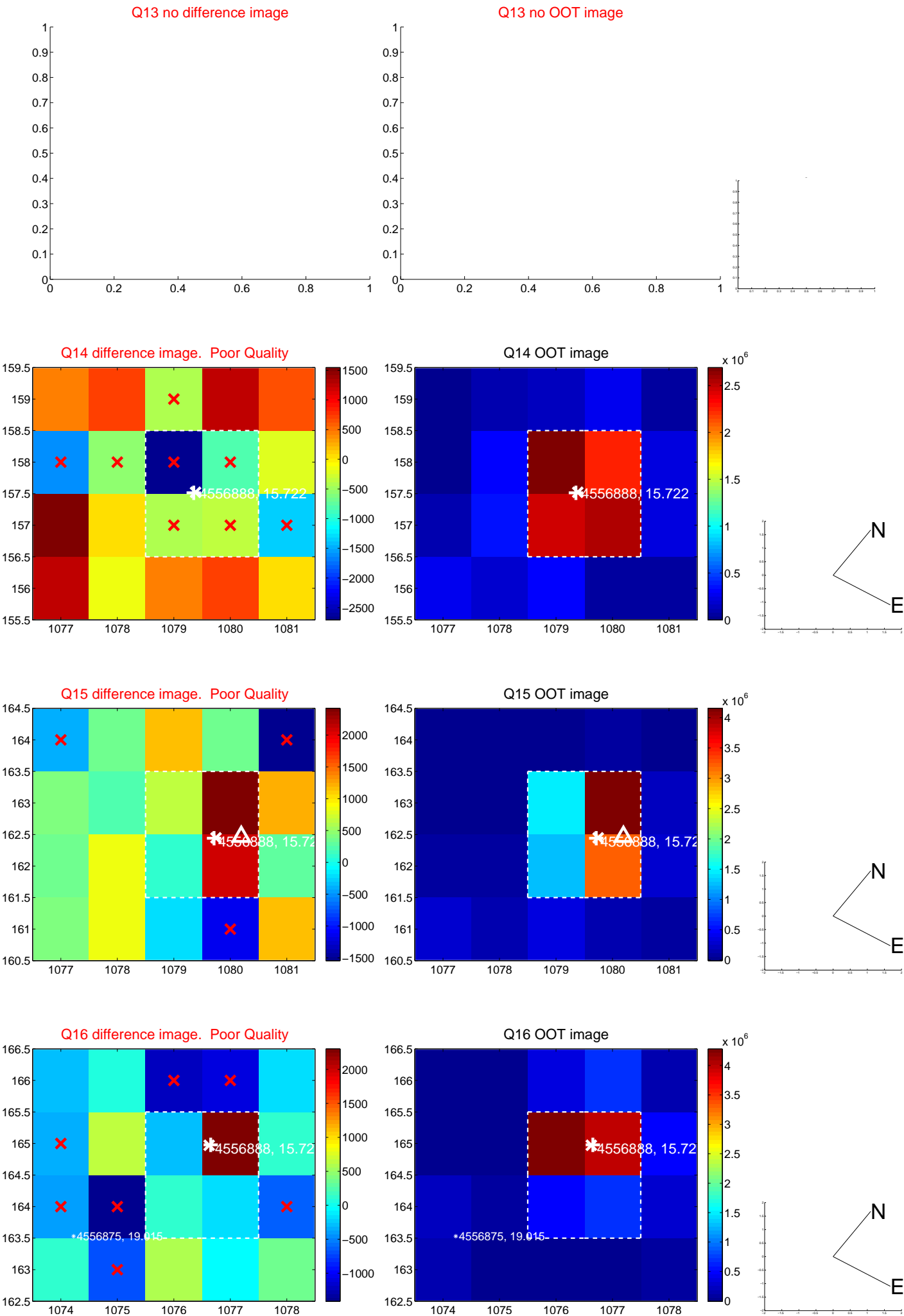
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



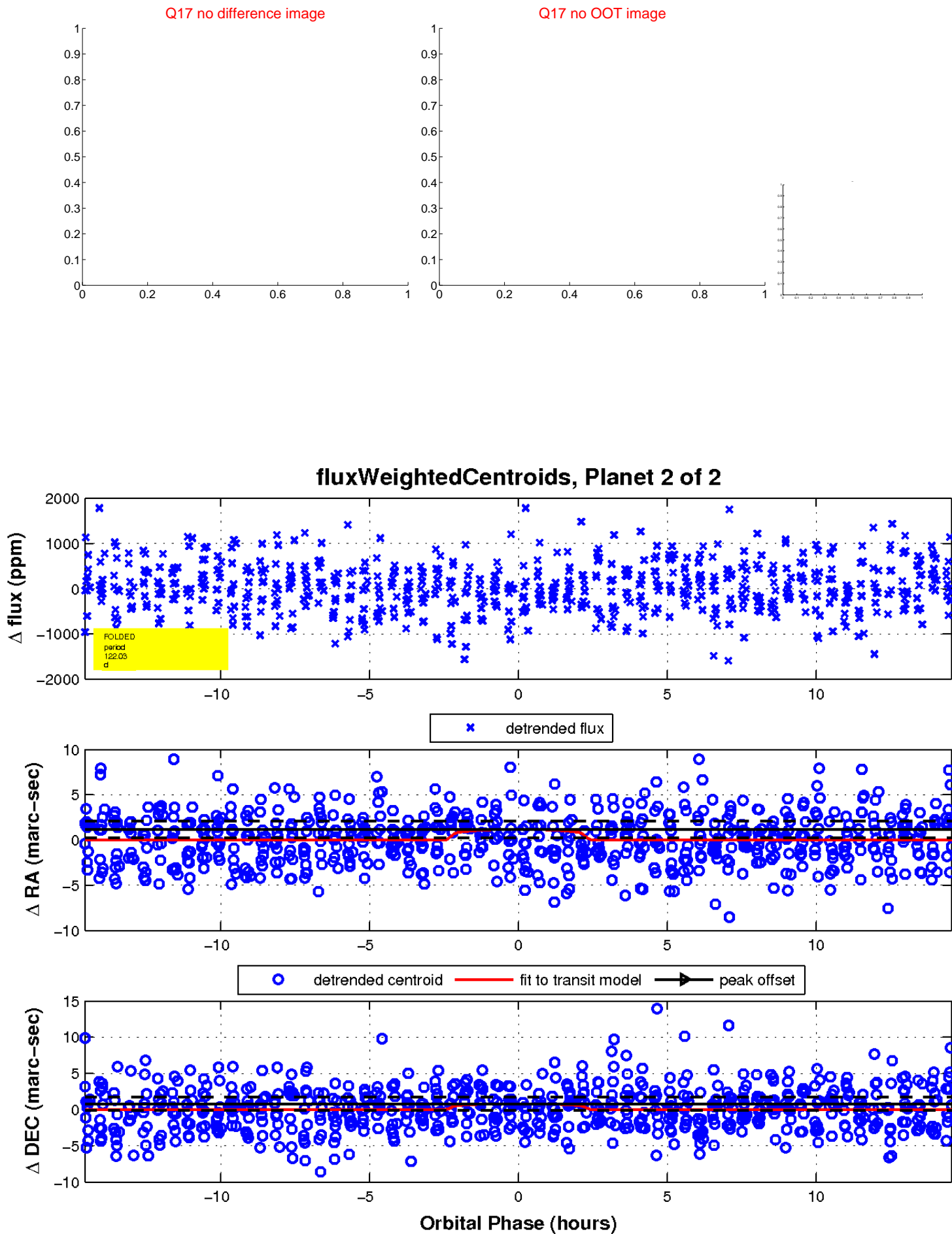
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

