

KIC 004566498

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})
004566498-01	OBS	No	0.937122	132.327245	25.1	4.902	8.0	4.3	1.50	7022	0.81	11211.12
004566498-02	OBS	No	367.287918	145.019736	828.1	3.329	9.4	8.2	1.50	7022	4.91	3.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004566498-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
004566498-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—HALO_GHOST

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

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

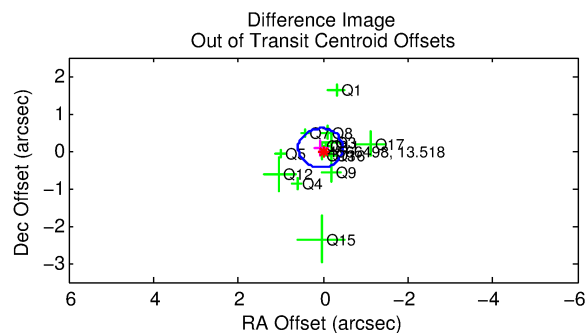
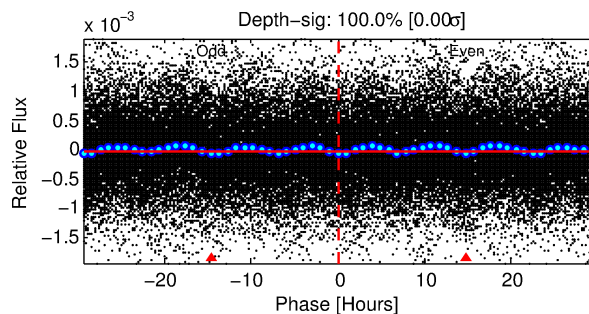
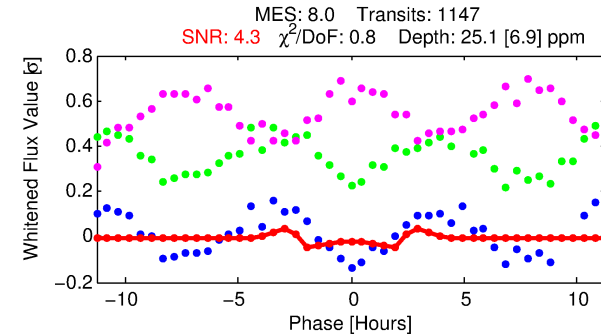
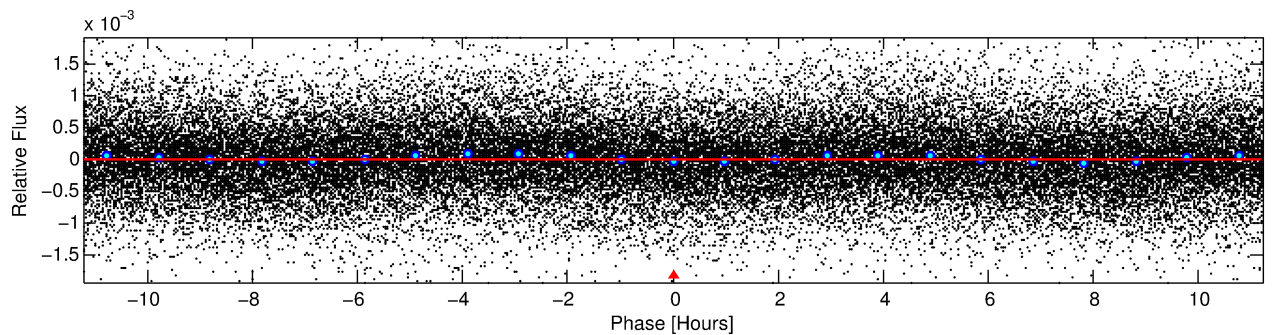
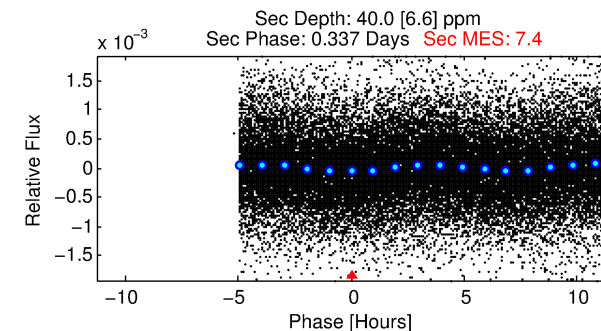
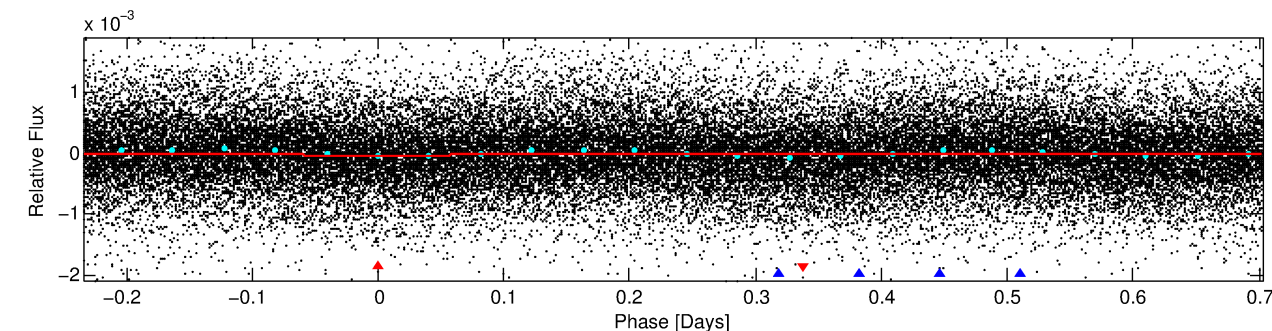
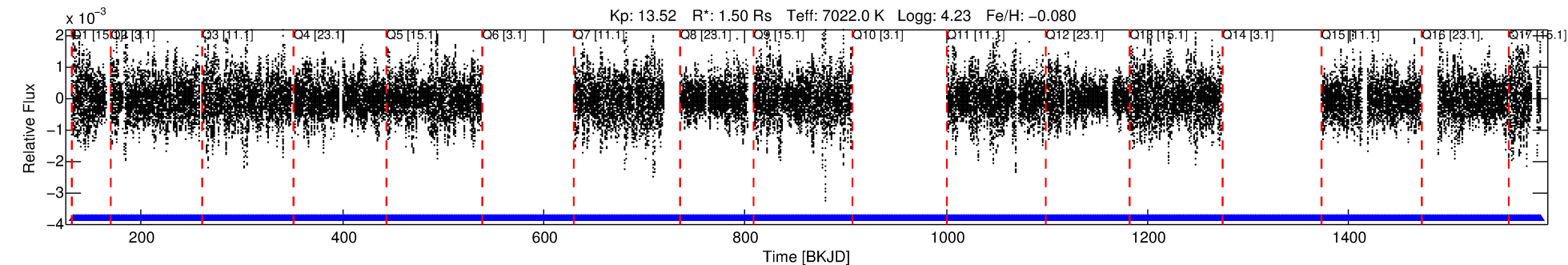
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004566498-01

No Significant Match Found

DV One-Page Summary

KIC: 4566498 Candidate: 1 of 2 Period: 0.937 d



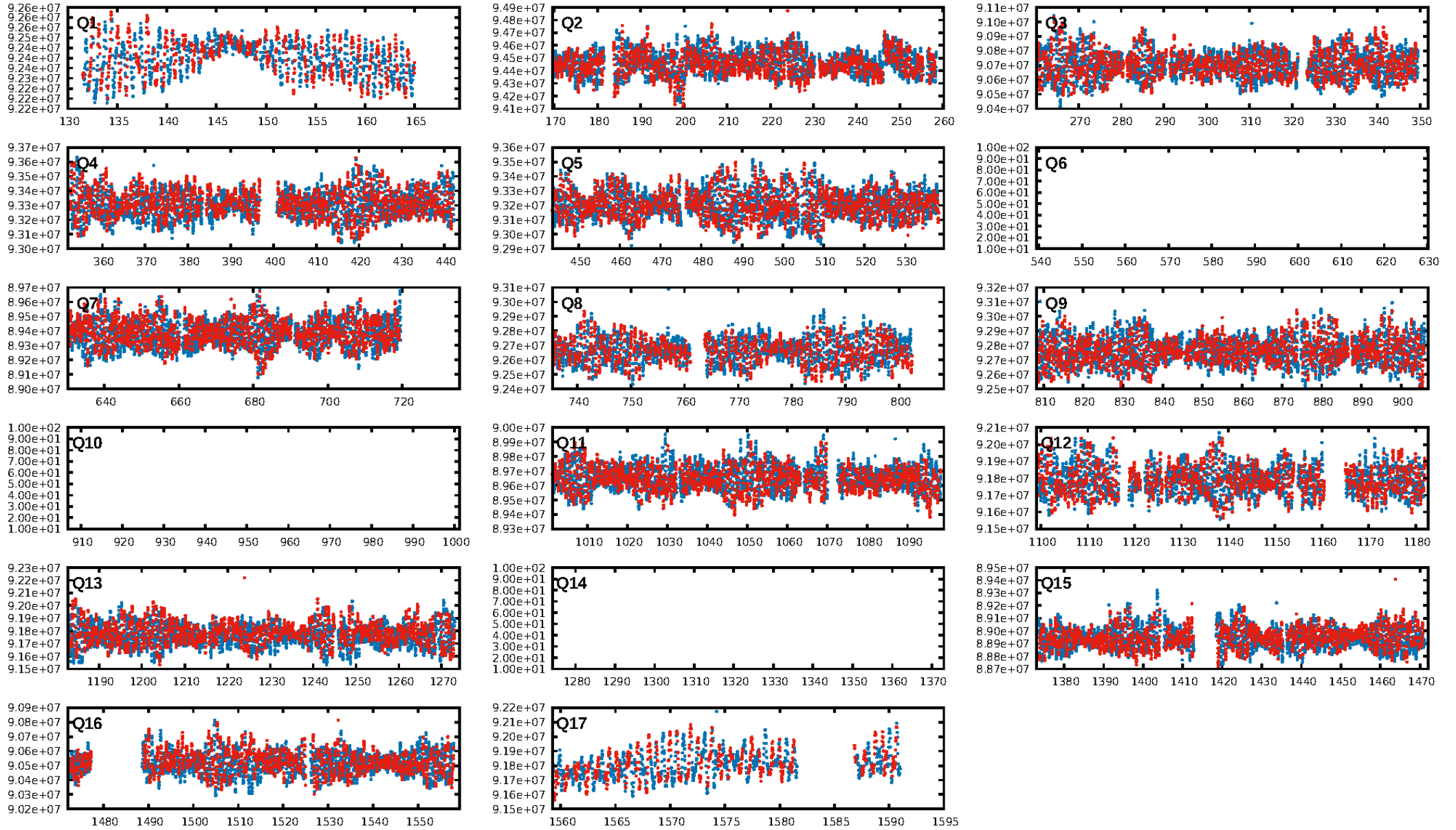
DV Fit Results:

Period = 0.93712 [0.00002] d
Epoch = 132.3272 [0.0040] BKJD
Rp/R* = 0.0049 [0.0021]
a/R* = 1.34 [1.44]
b = 0.70 [1.79]
Seff = 11211.12 [4748.45]
Teff = 2624 [278] K
Rp = 0.81 [0.43] Re
a = 0.0210 [0.0057] AU
Ag = 14.84 [14.01] [0.99σ]
Teffp = 7962 [1745] K [3.02σ]

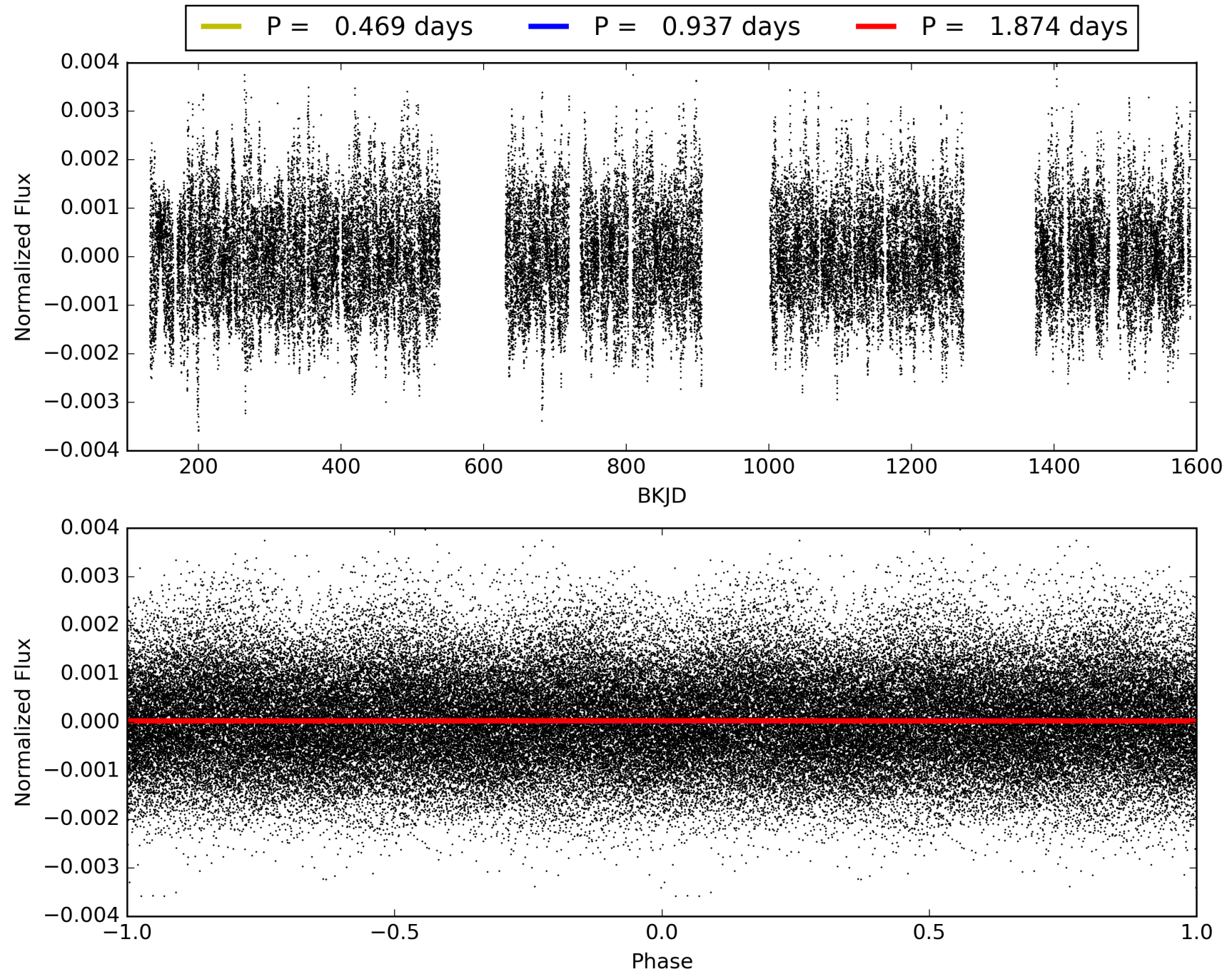
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1483.92σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.23e-11
RollingBand-fgt: 1.00 [1083/1083]
GhostDiagnostic-chr: -1.224
Centroid-sig: N/A
Centroid-so: 0.812 arcsec [0.92σ]
OotOffset-rm: 0.099 arcsec [0.56σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-rm: 0.050 arcsec [0.26σ]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.57 [8/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 004566498-01, PDC Light Curves

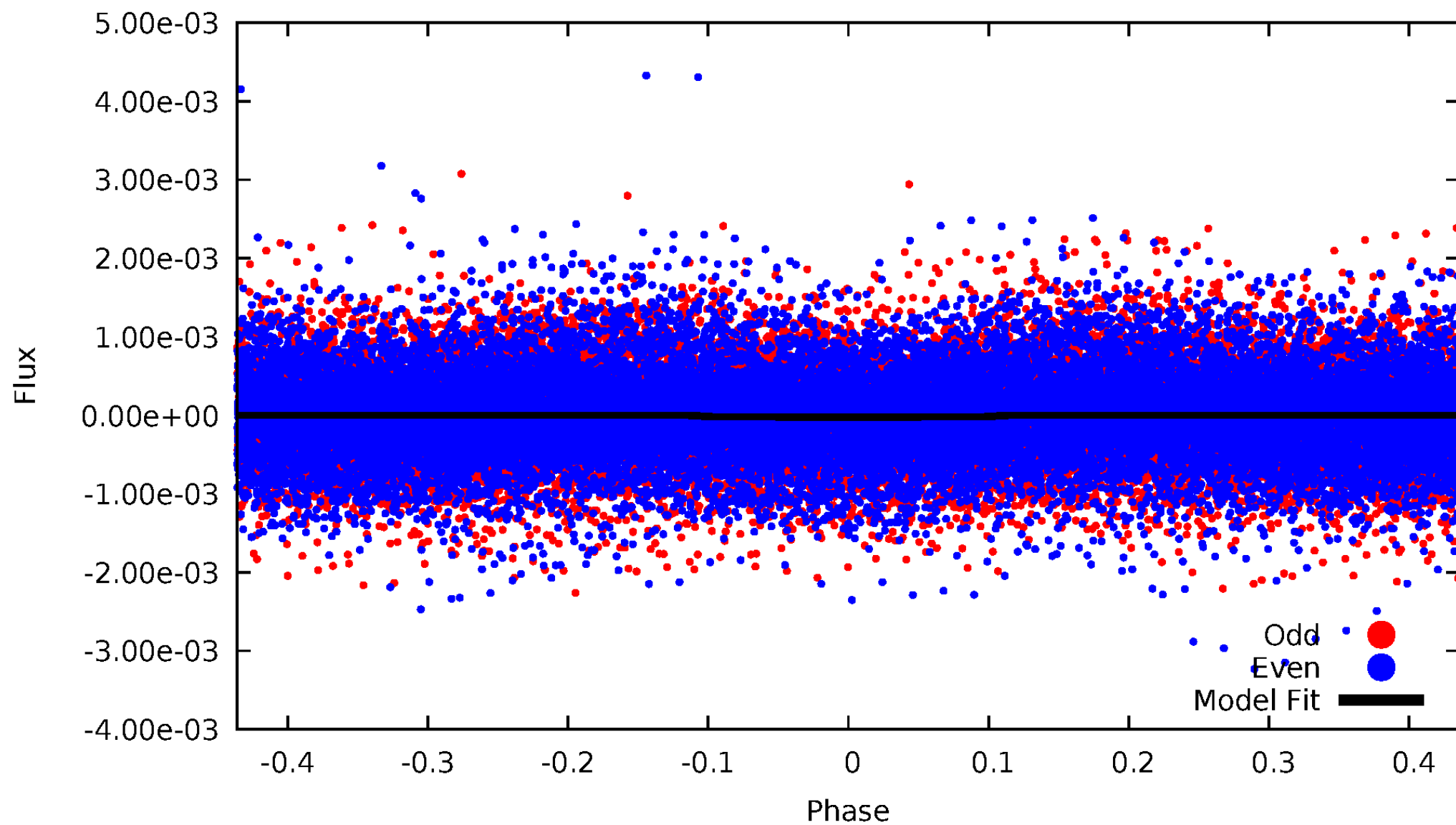


TCE 004566498-01



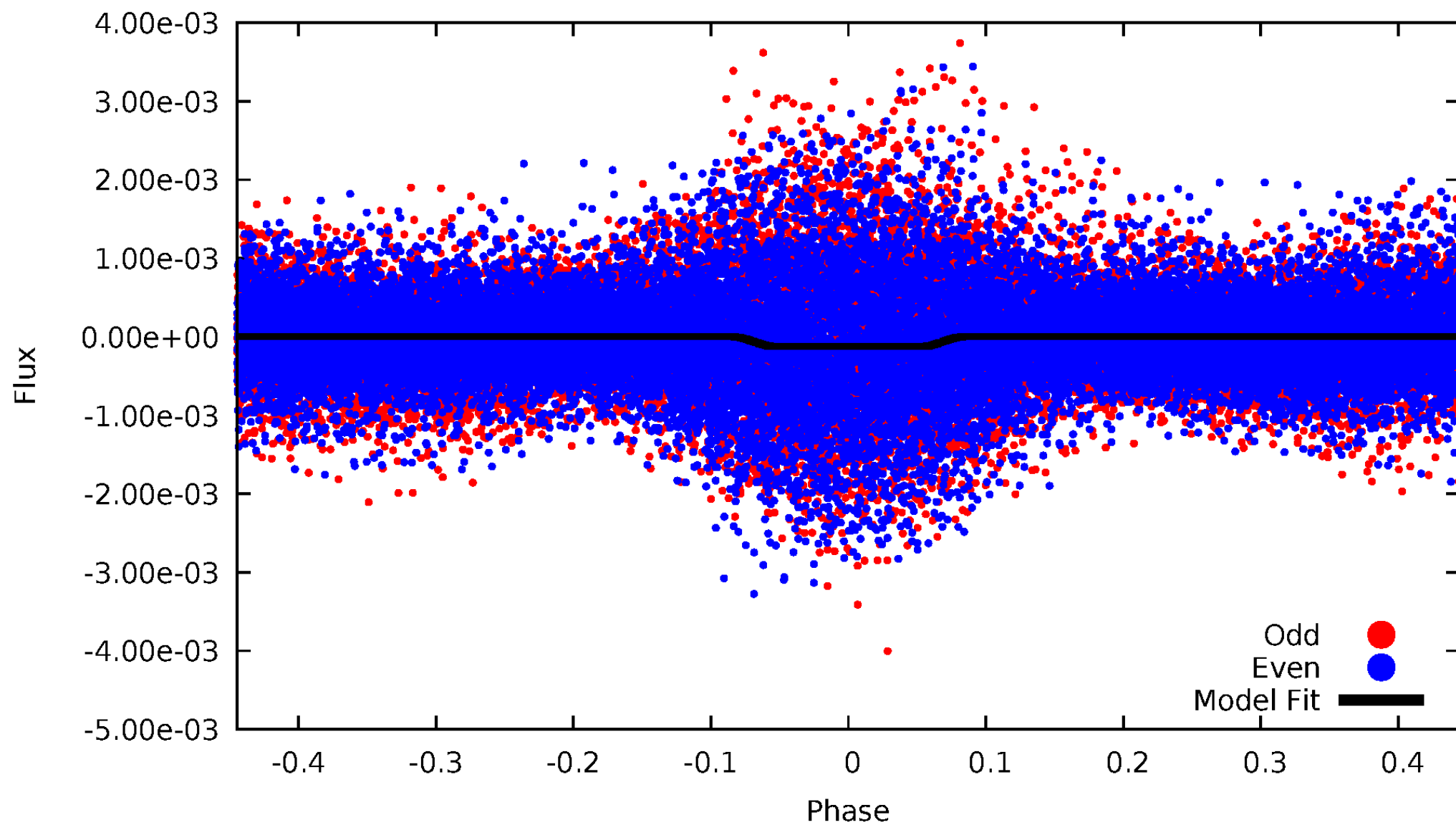
DV Odd/Even

TCE 004566498-01

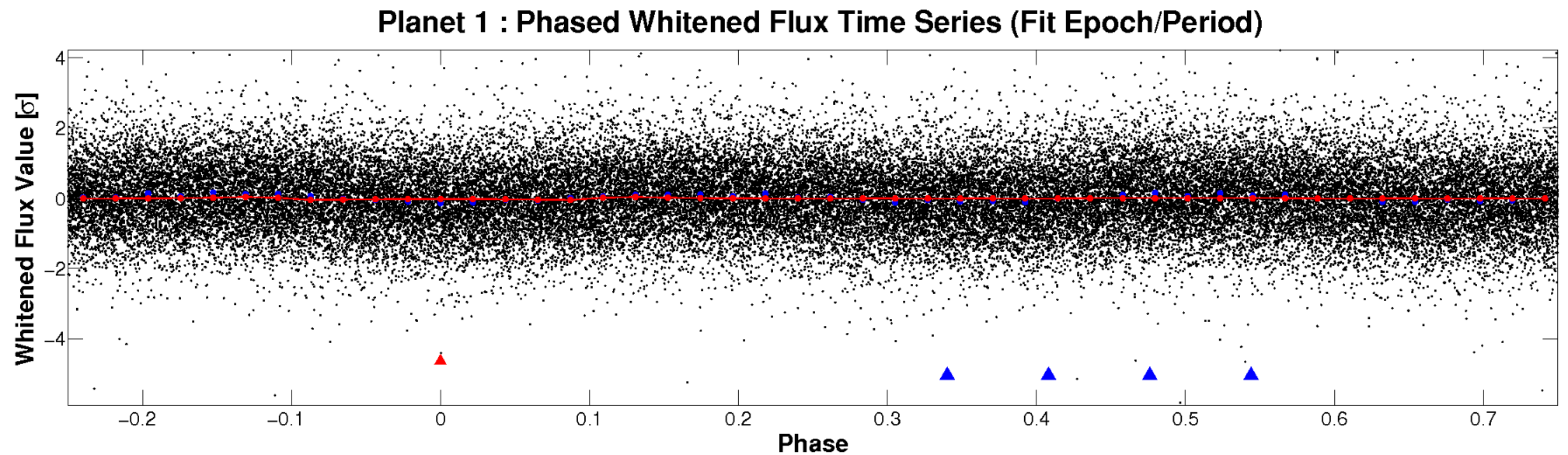
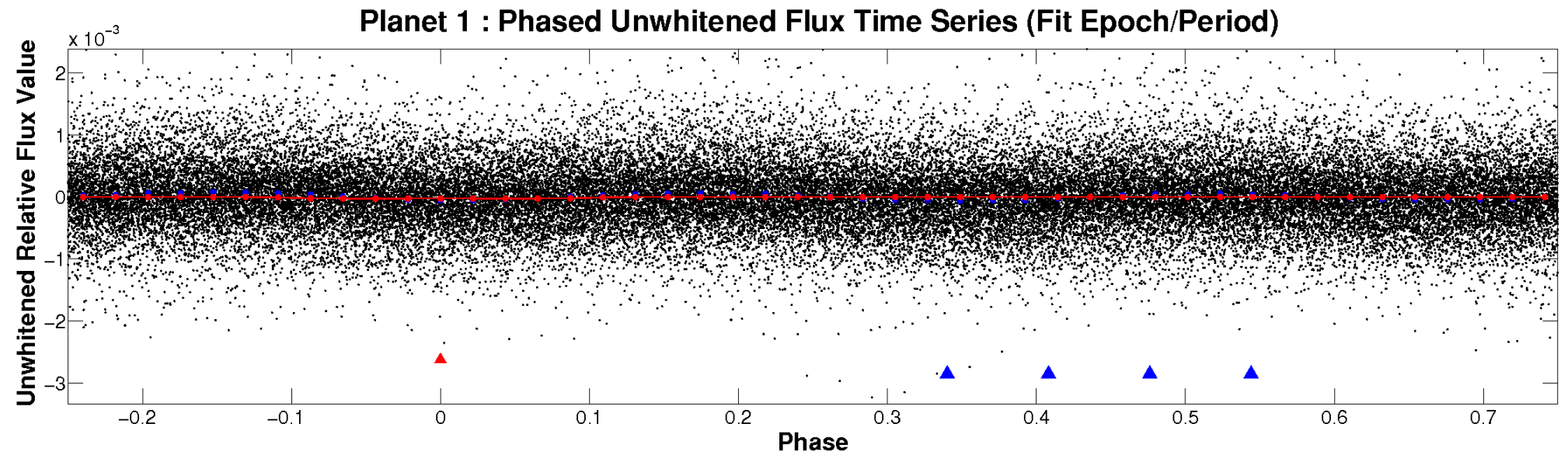


ALT Odd/Even

TCE 004566498-01

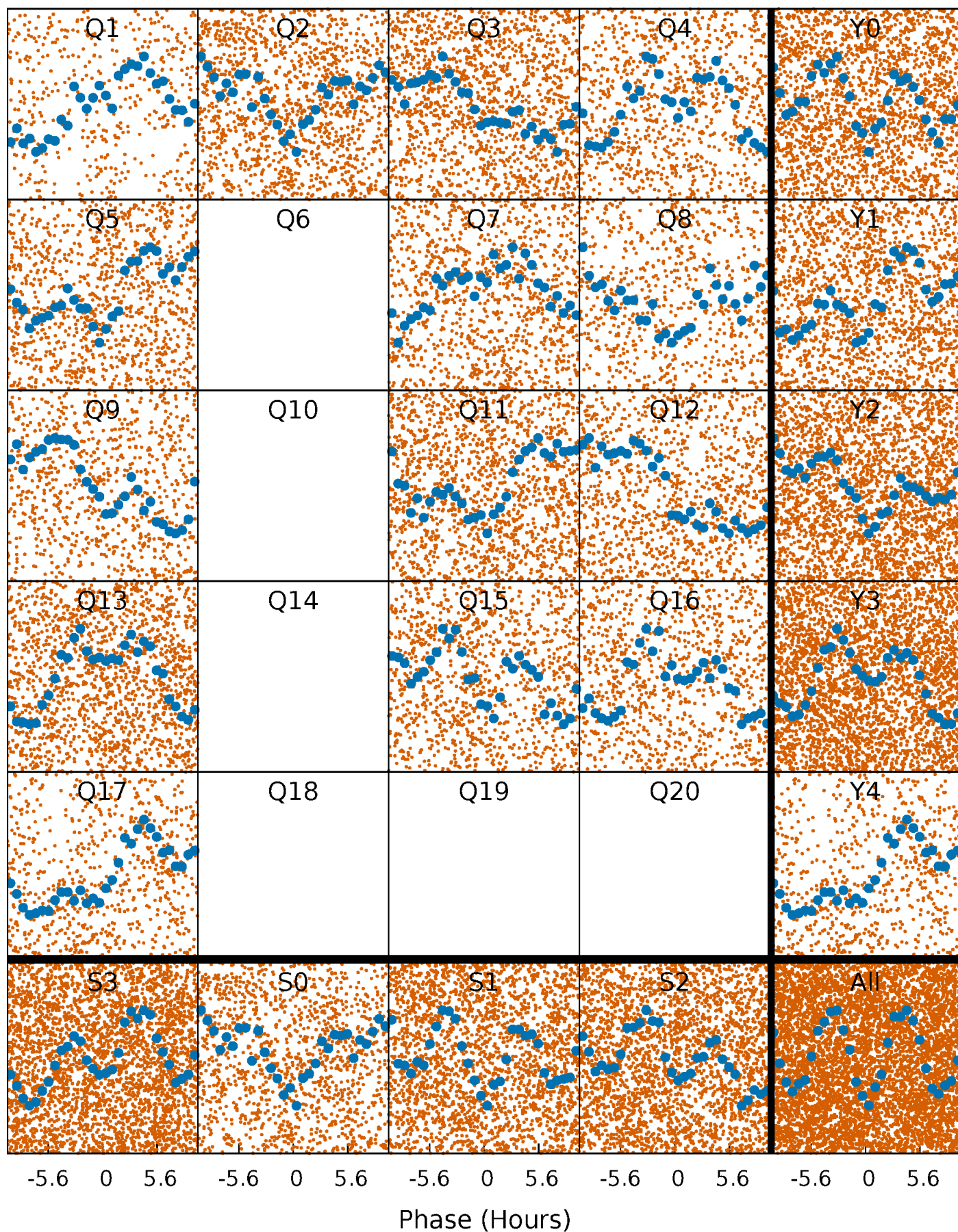


Non-Whitened Vs. Whitened Light Curve



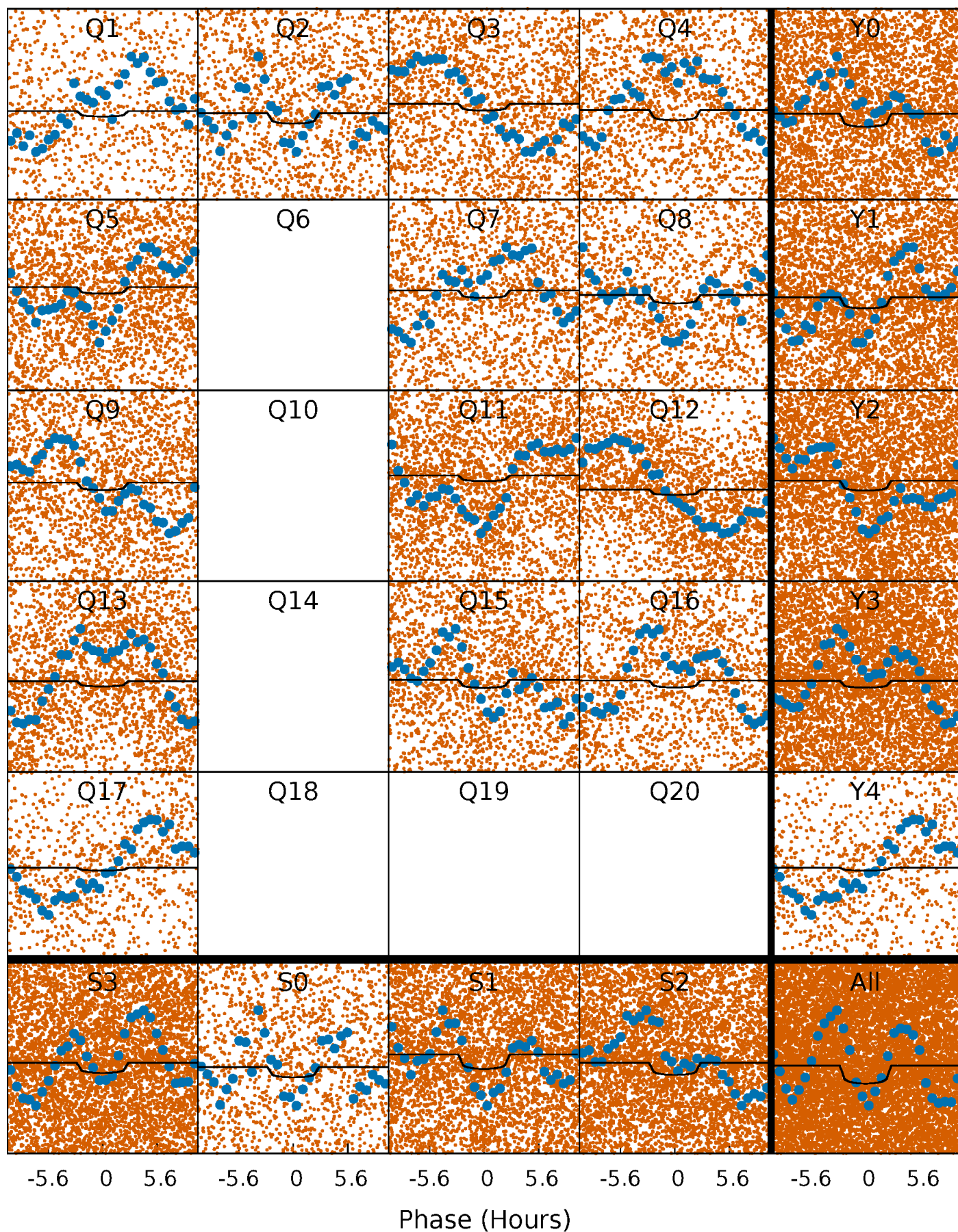
PDC Quarter-Phased Transit Curves

TCE 004566498-01 P= 0.937122 Days $T_0=132.327245$ (BKJD)



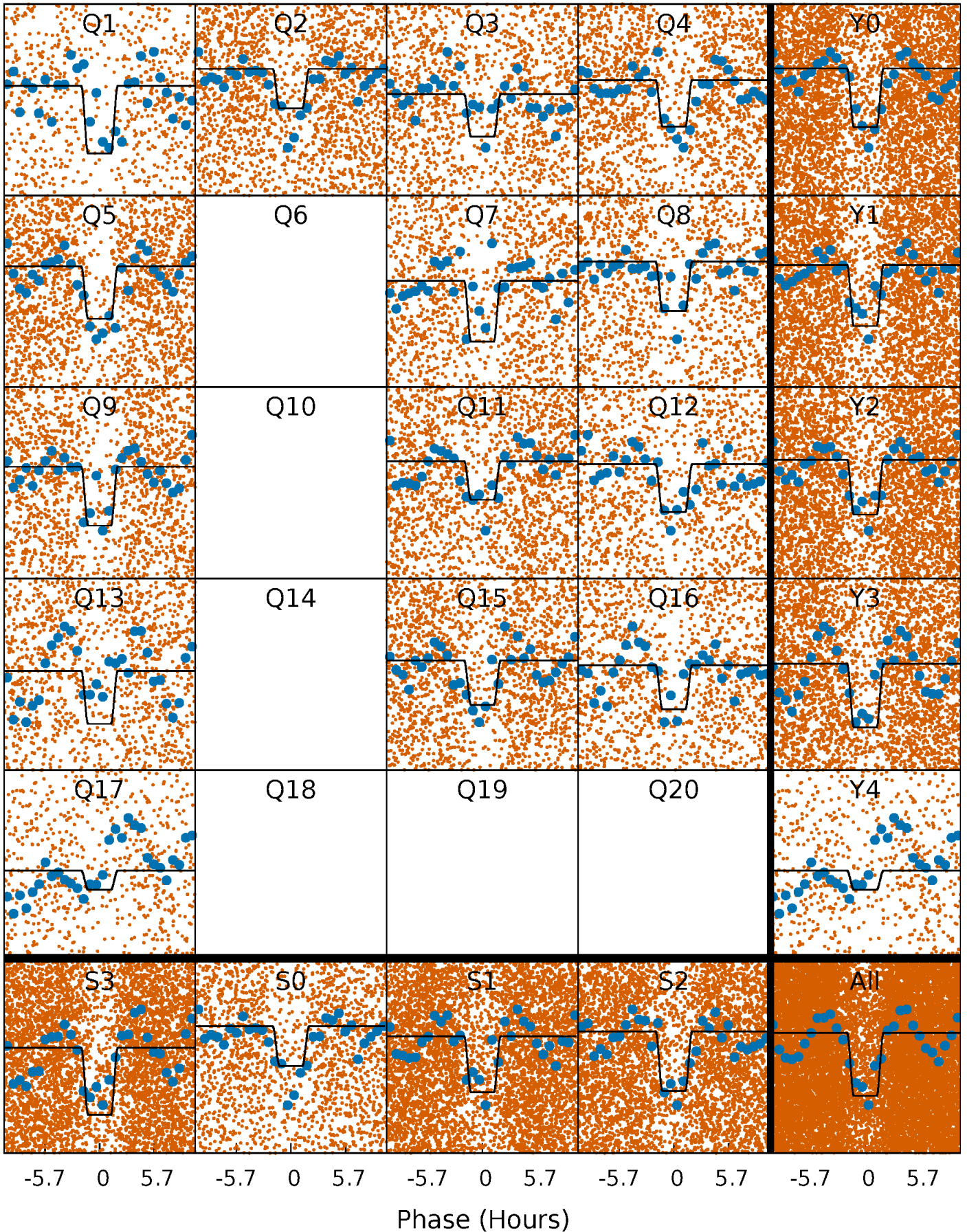
DV Quarter-Phased Transit Curves

TCE 004566498-01 P= 0.937122 Days $T_0=132.327245$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

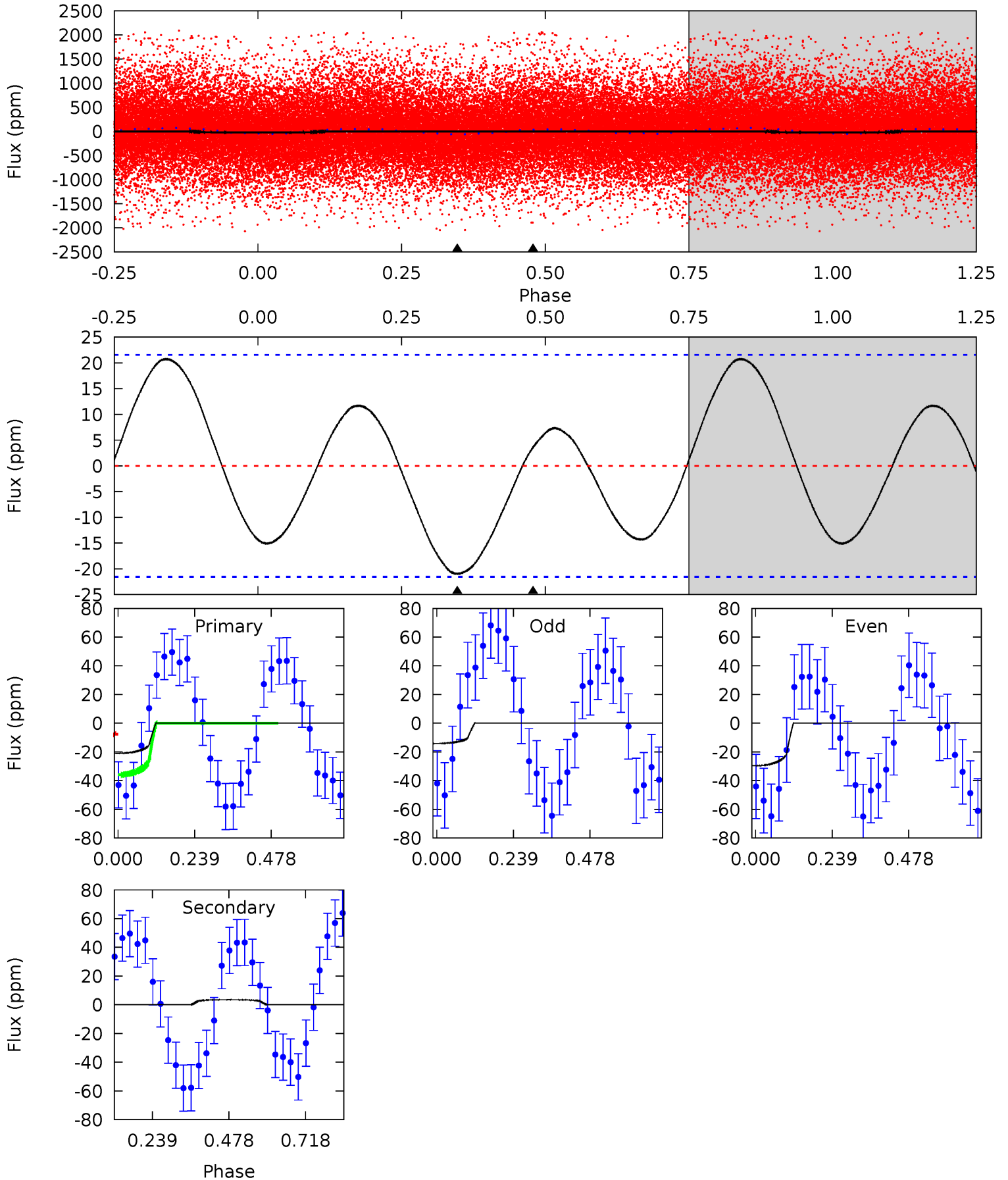
TCE 004566498-01 P= 0.937160 Days $T_0=132.311556$ (BKJD)



DV Model-Shift Uniqueness Test

004566498-01, P = 0.937122 Days, E = 131.390123 Days

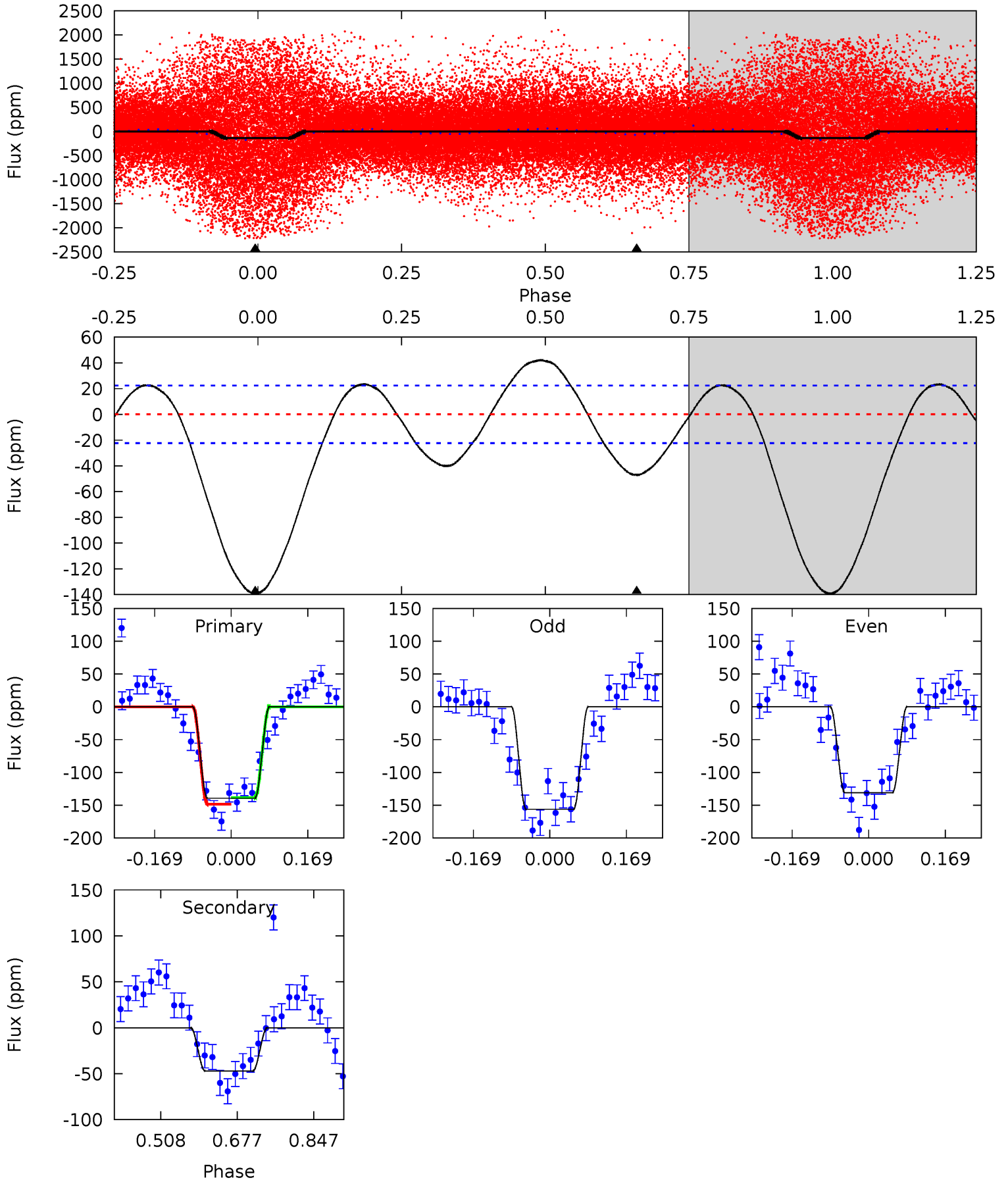
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.27	-0.72	0	0	4.38	1.18	2.47	4.27	4.27	-0.72	-0.72	1.59	1.07	0.50	2.97



Alt Model-Shift Uniqueness Test

004566498-01, P = 0.937160 Days, E = 131.374396 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.7	9.36	0	0	4.45	1.37	5.24	27.7	27.7	9.36	9.36	2.53	0.68	0.23	1.07



Stellar Parameters For KIC 004566498

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7022^{+197}_{-296}	$4.229^{+0.090}_{-0.210}$	$-0.080^{+0.250}_{-0.350}$	$1.503^{+0.489}_{-0.263}$	$1.402^{+0.205}_{-0.226}$	$0.582^{+0.288}_{-0.303}$
	+3%/-4%	+2%/-5%	+312%/-438%	+33%/-17%	+15%/-16%	+50%/-52%
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 004566498-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	4 ± 5	$0.85^{+0.40}_{-0.32}$	3722^{+279}_{-223}	-4550^{+7631}_{-1457}	$-0.988^{+1.418}_{-3.152}$
Alt.	-47 ± 5	$1.88^{+0.44}_{-0.40}$	3718^{+296}_{-233}	5364^{+597}_{-465}	$3.169^{+1.922}_{-1.123}$

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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

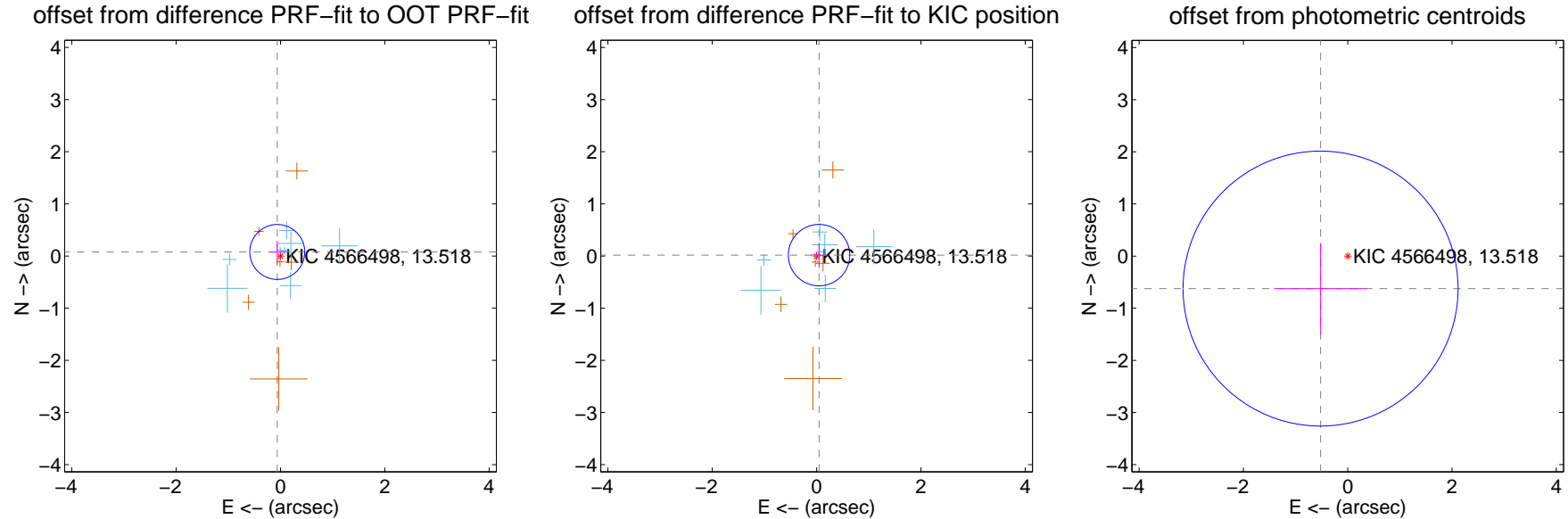
DV Centroid Data

Supplemental centroid analysis for 004566498-01. Kepler magnitude: 13.52. Transit SNR 4.32

There are 8 quarters with good PRF difference image offsets

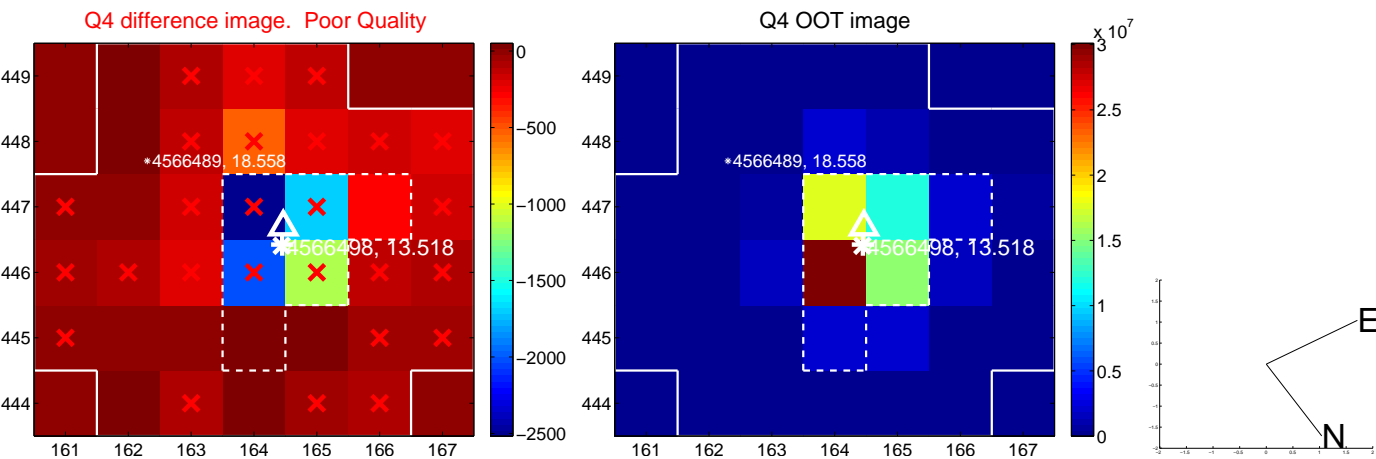
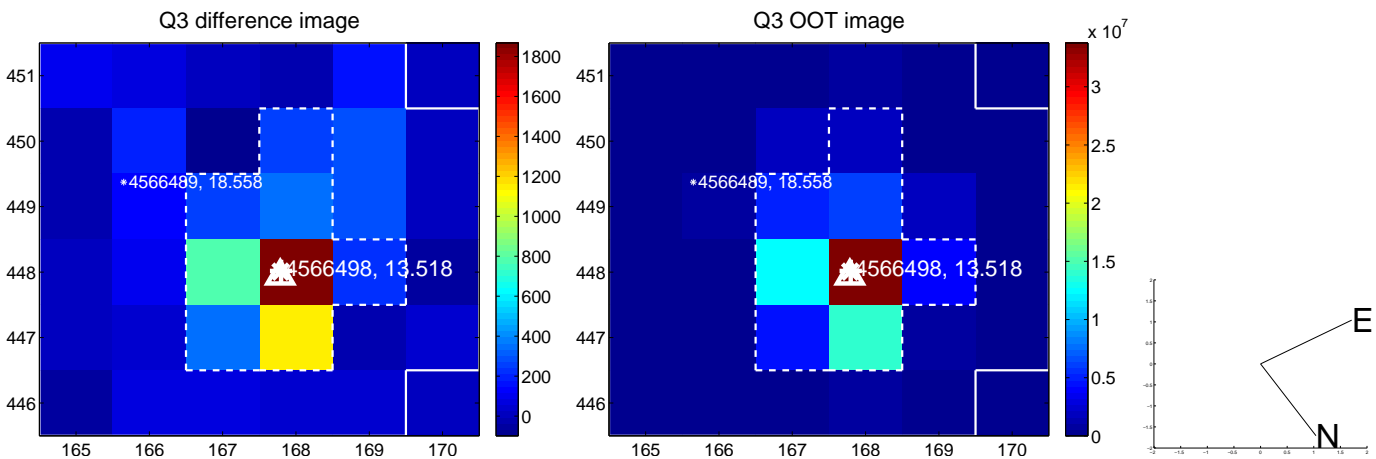
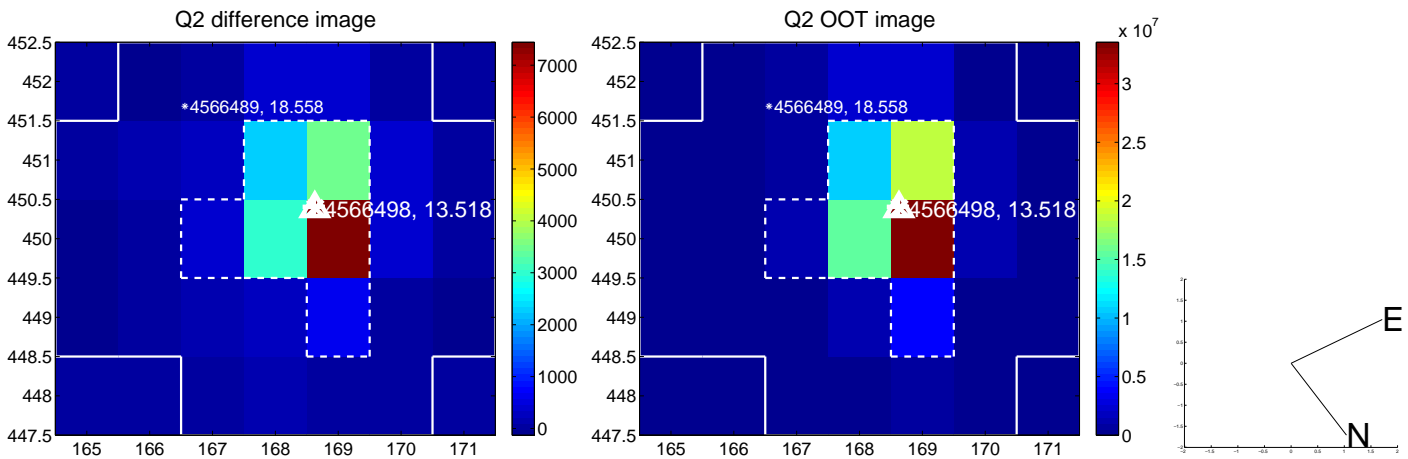
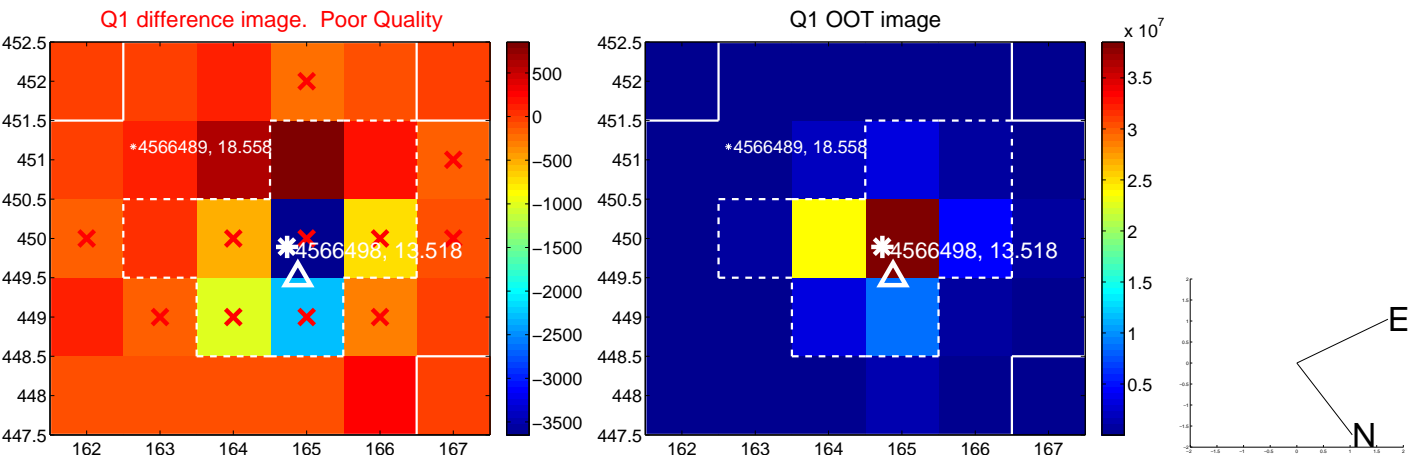
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.099 ± 0.175	0.56	0.061 ± 0.157	0.078 ± 0.218
PRF-fit source offset from KIC position	0.050 ± 0.196	0.26	-0.047 ± 0.163	0.017 ± 0.242
photometric centroid source offset	0.81 ± 0.88	0.92	0.52 ± 0.89	-0.62 ± 0.87

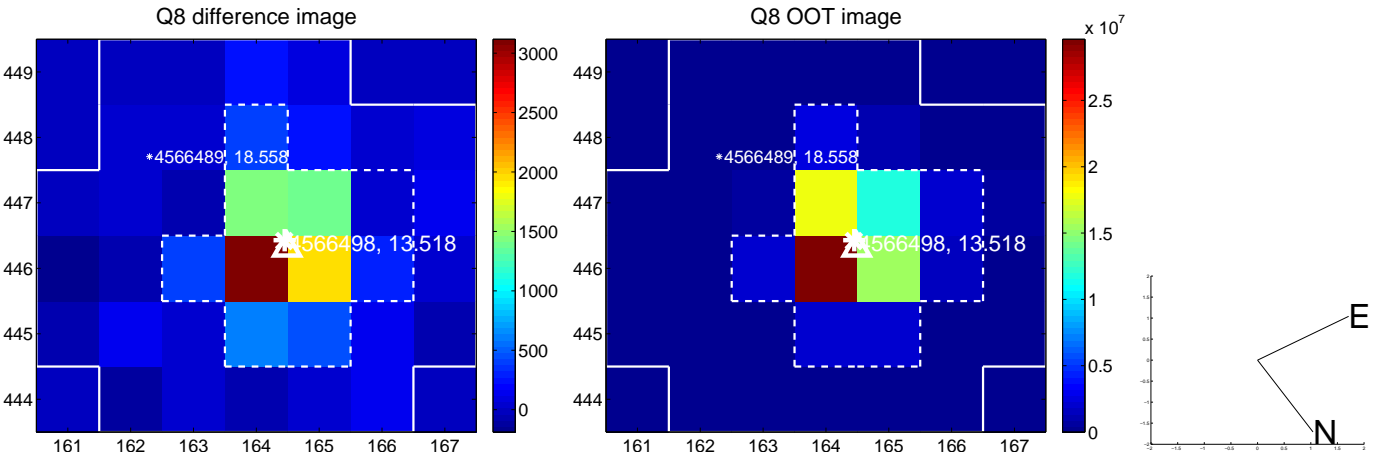
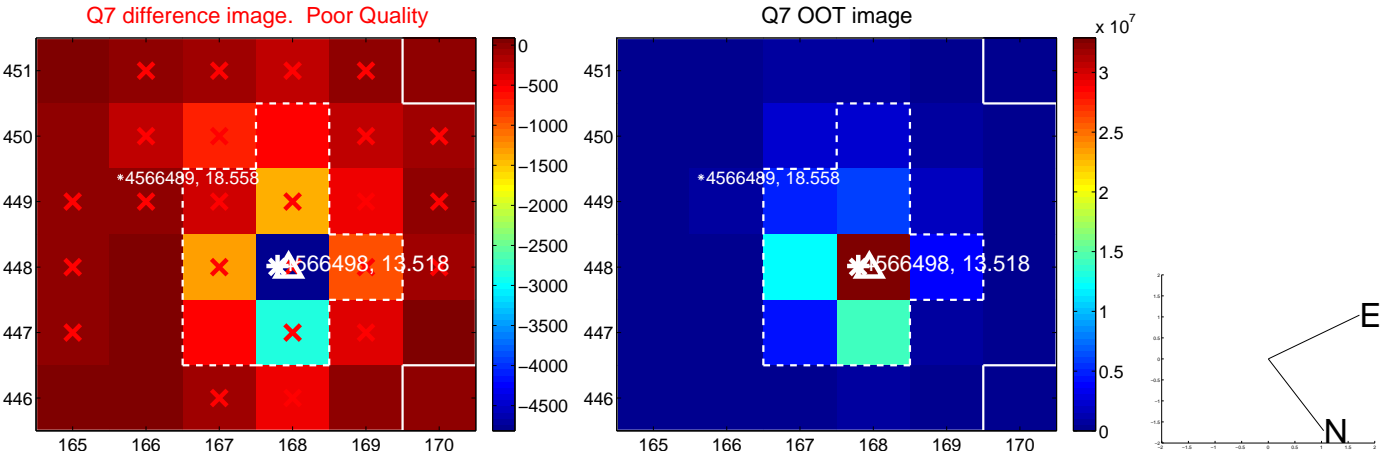
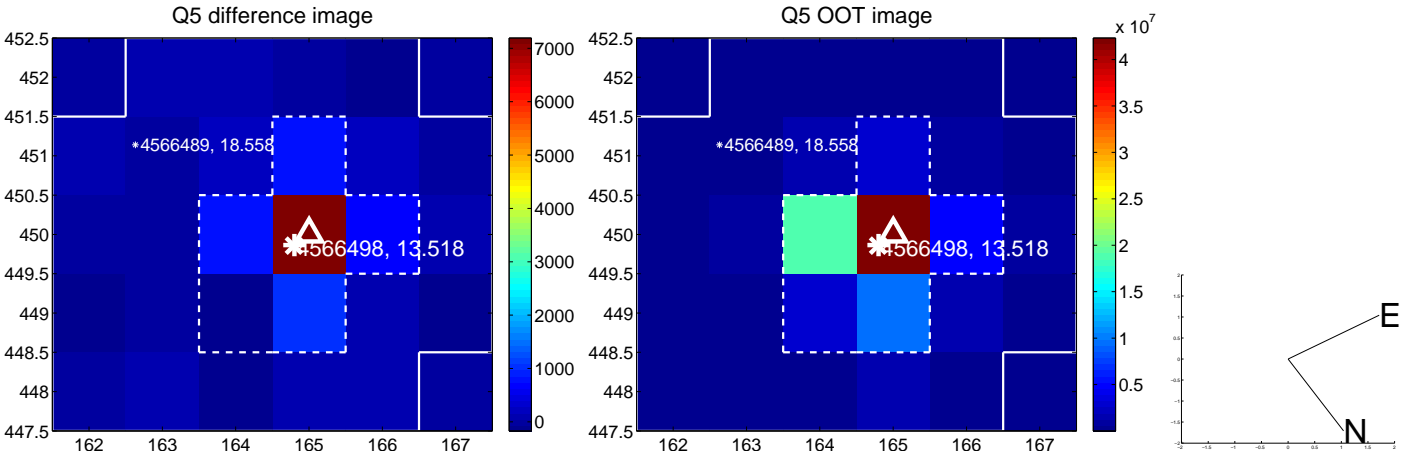


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

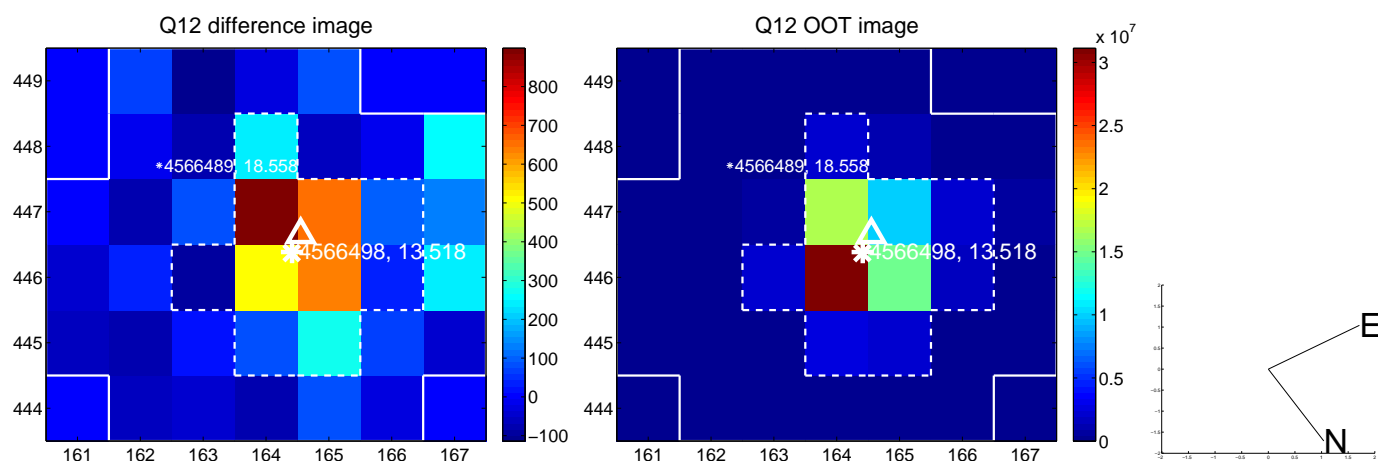
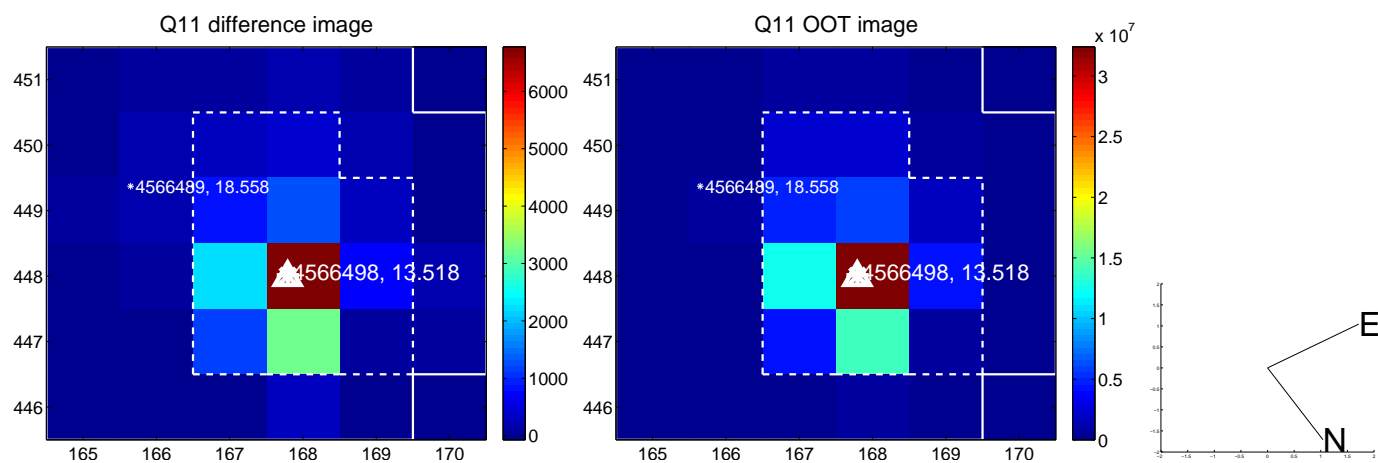
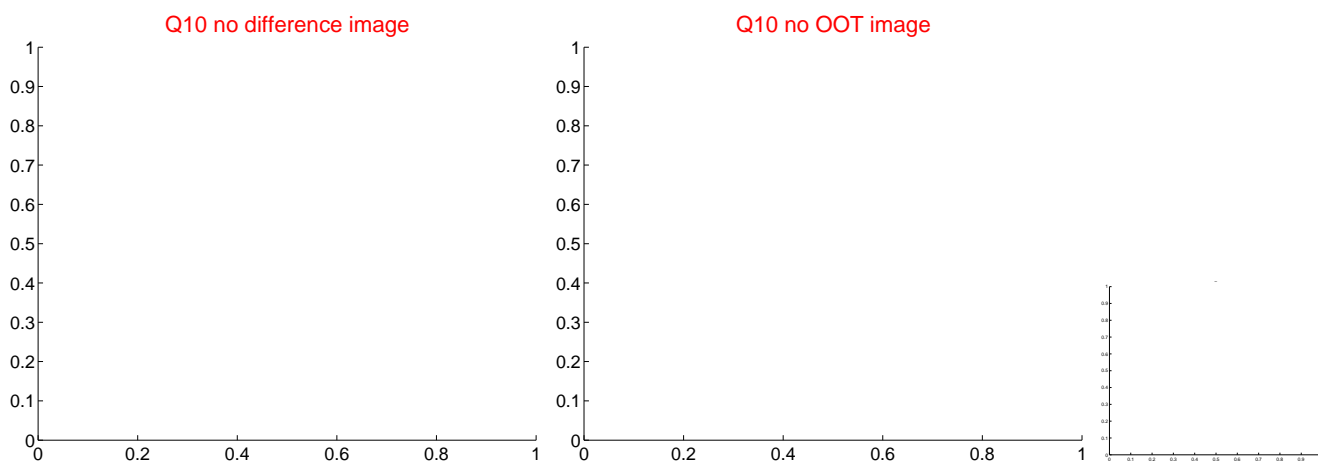
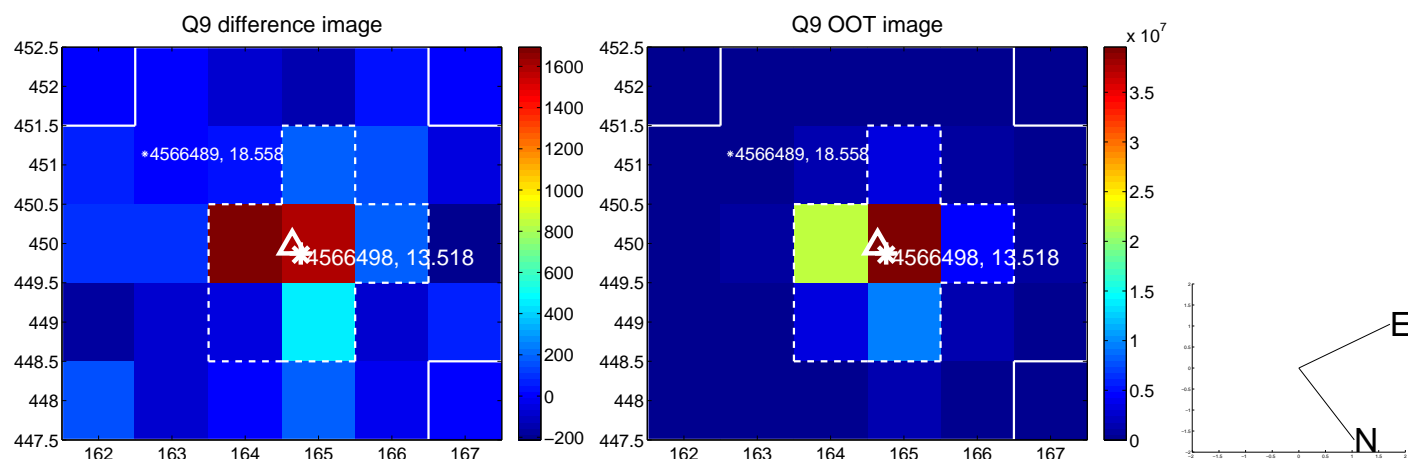
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



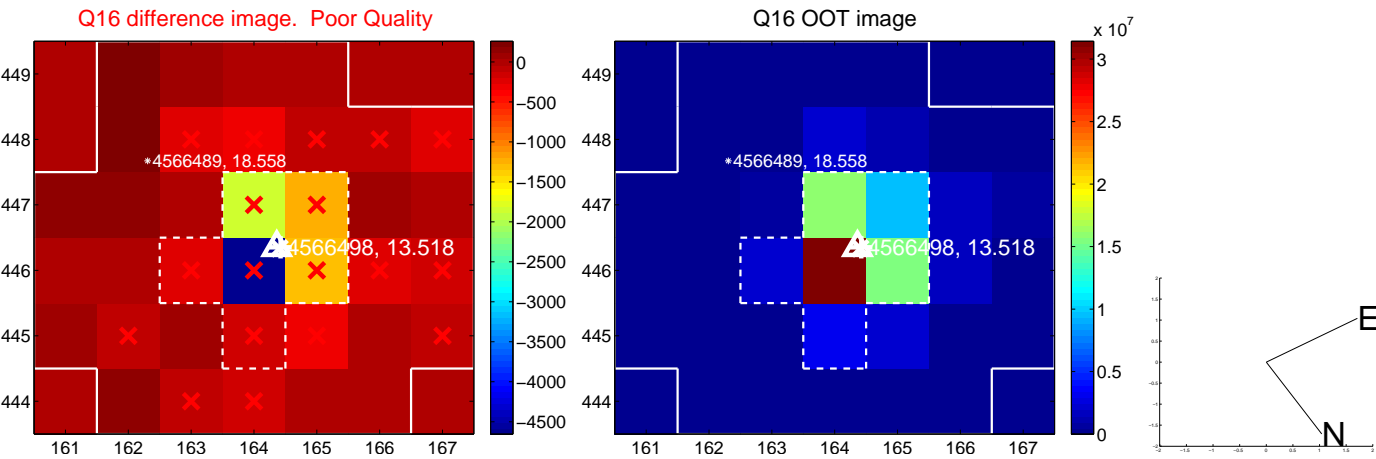
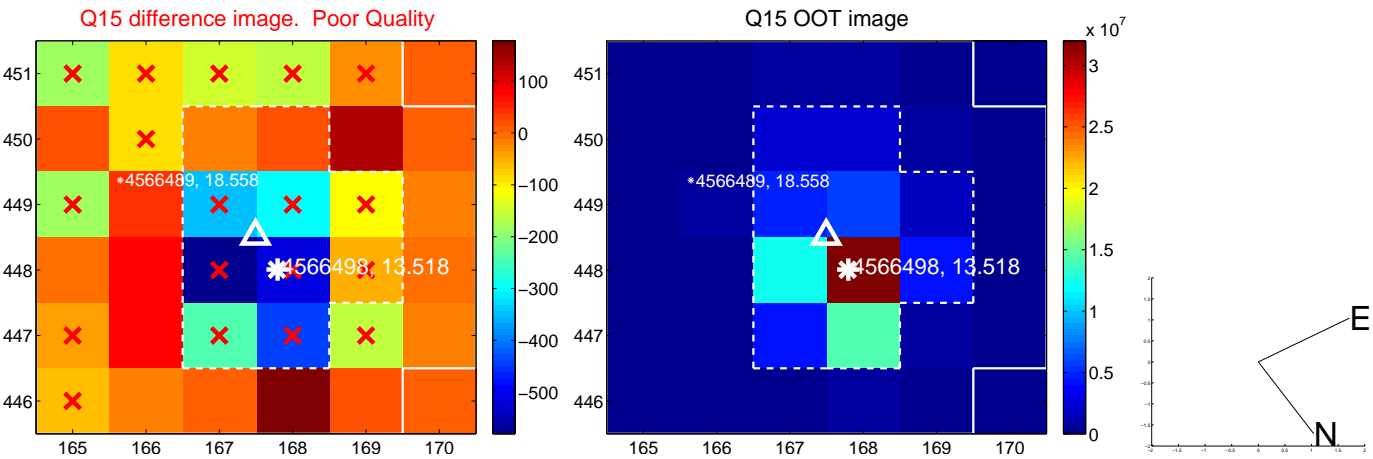
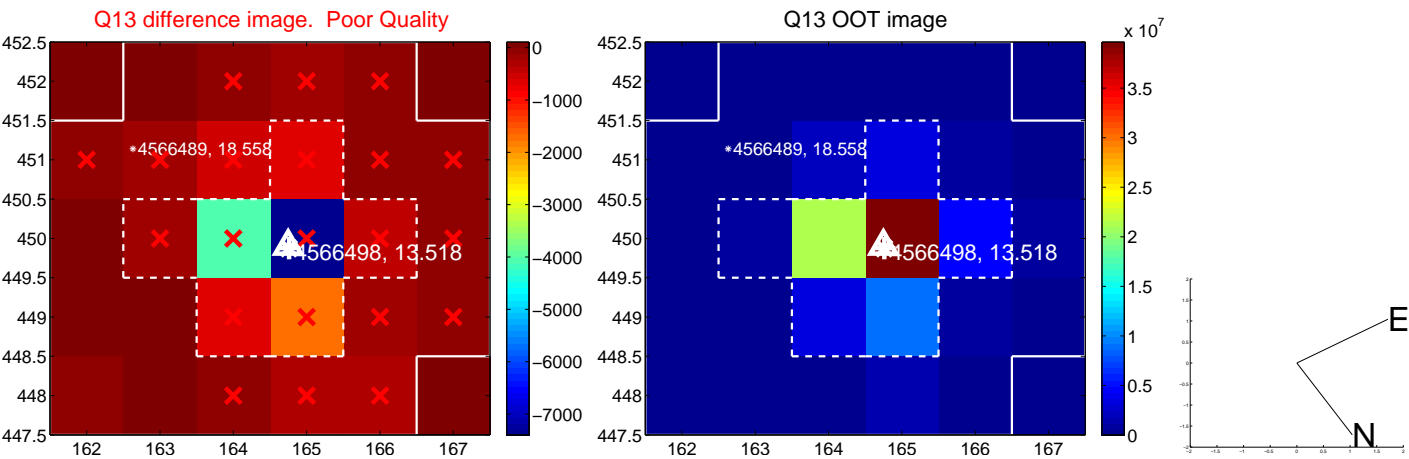
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



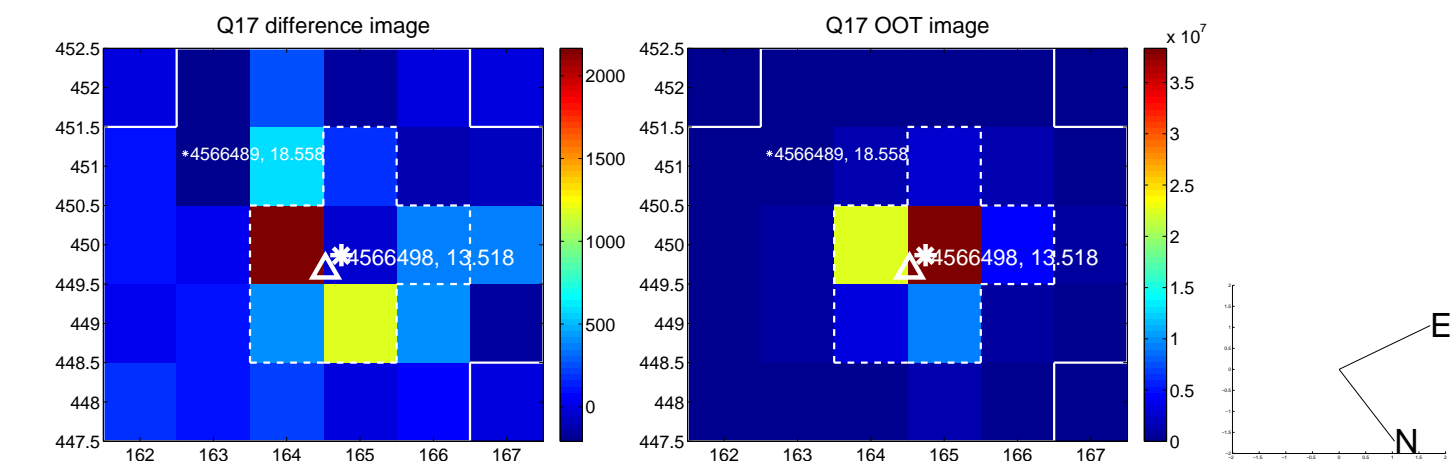
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



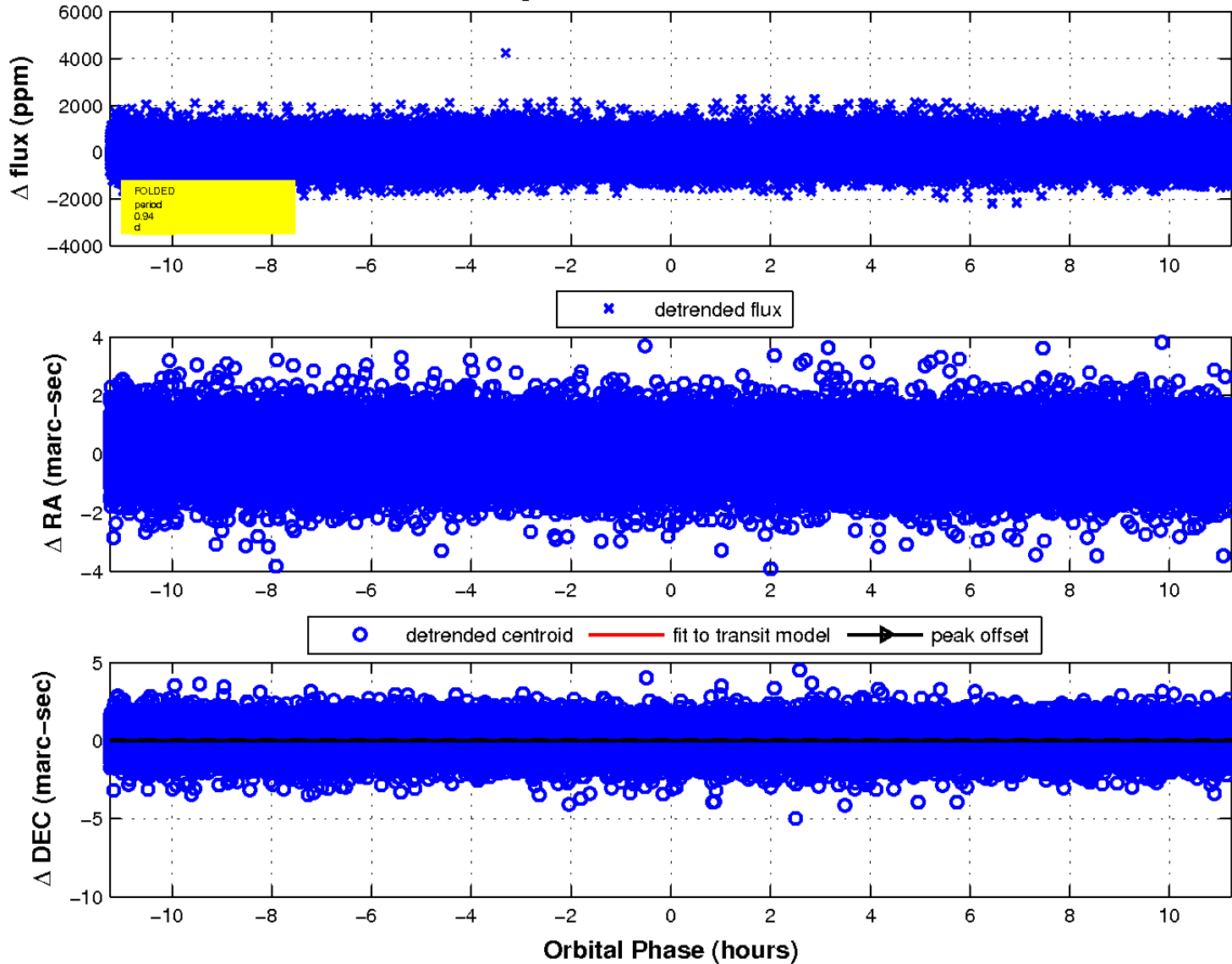
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

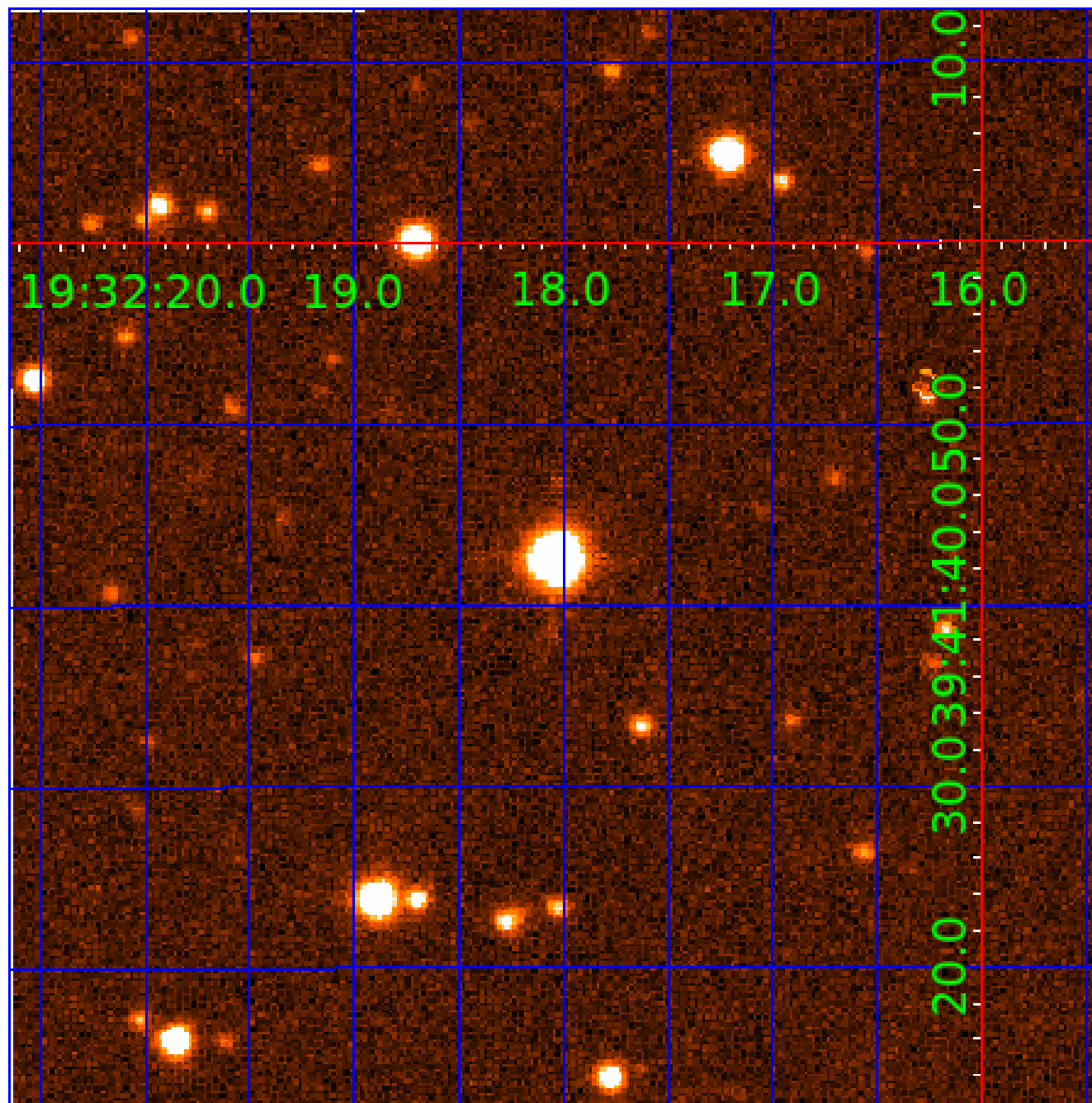


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 004566498

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})
004566498-01	OBS	No	0.937122	132.327245	25.1	4.902	8.0	4.3	1.50	7022	0.81	11211.12
004566498-02	OBS	No	367.287918	145.019736	828.1	3.329	9.4	8.2	1.50	7022	4.91	3.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004566498-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
004566498-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—HALO_GHOST

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

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

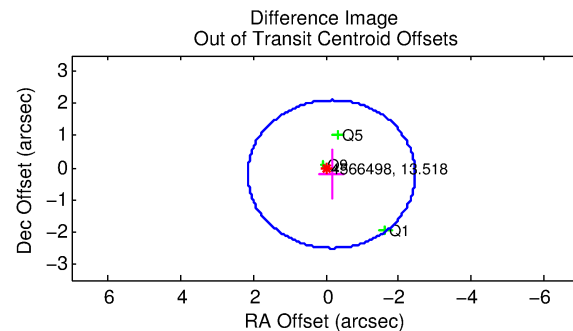
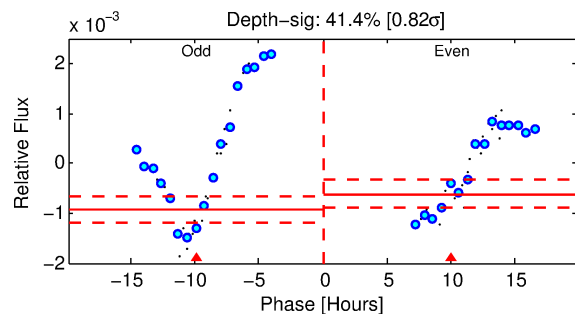
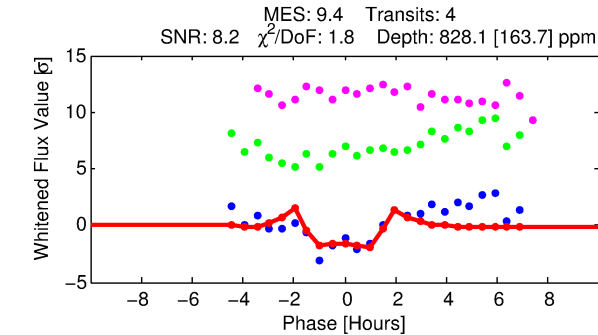
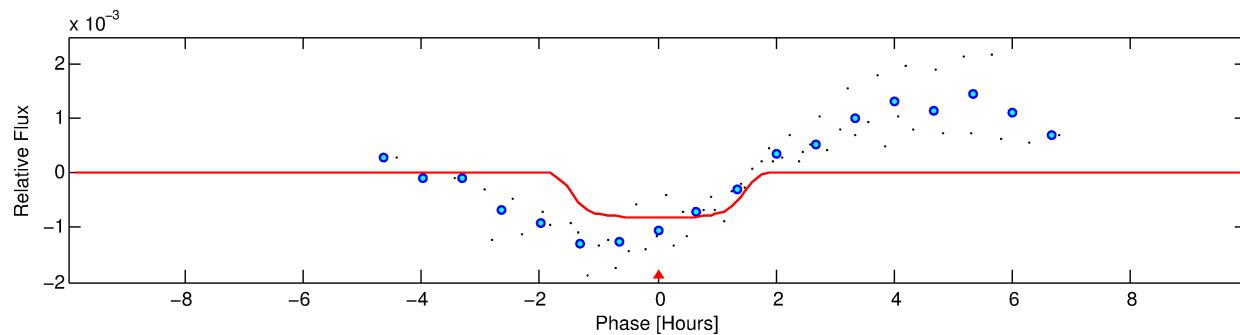
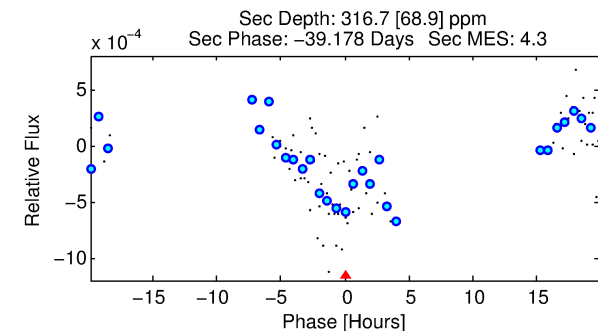
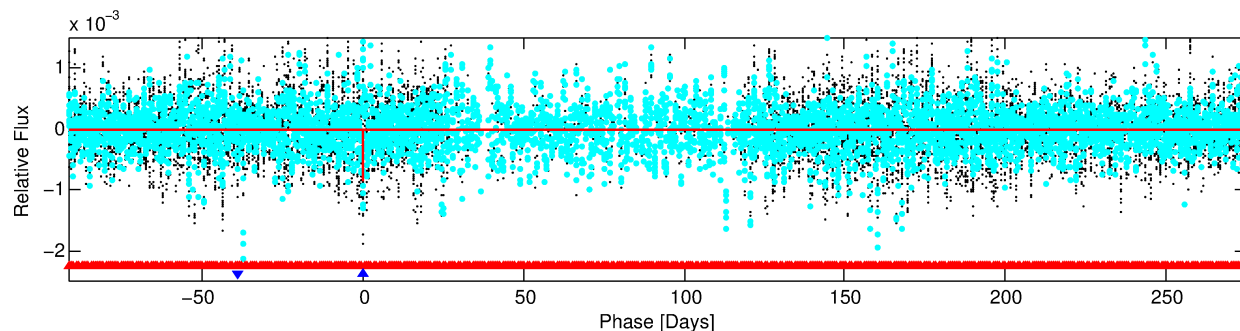
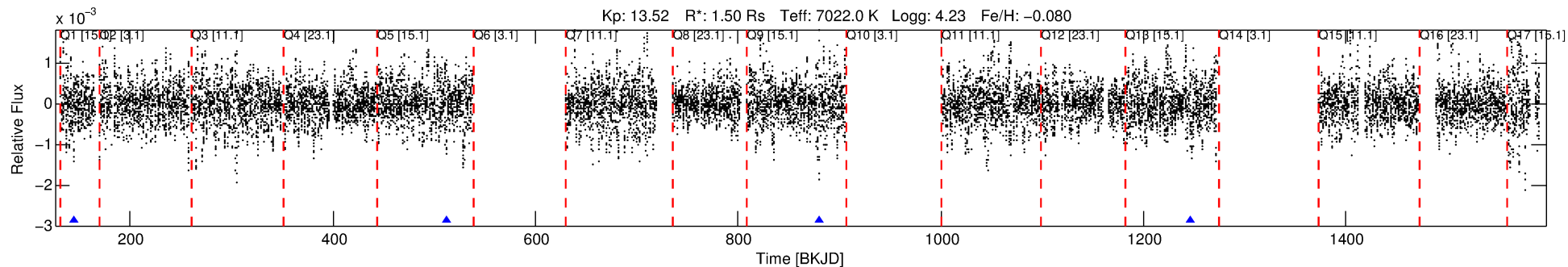
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004566498-02

No Significant Match Found

DV One-Page Summary

KIC: 4566498 Candidate: 2 of 2 Period: 367.288 d



DV Fit Results:

Period = 367.28792 [0.00329] d
Epoch = 145.0197 [0.0047] BKJD
Rp/R* = 0.0299 [0.0092]
a/R* = 474.72 [757.60]
b = 0.86 [0.48]
Seff = 3.91 [1.66]
Teq = 359 [38] K
Rp = 4.91 [2.20] Re
a = 1.1220 [0.3032] AU
Ag = 9105.01 [6921.49] [1.32σ]
Teff = 5415 [913] K [5.53σ]

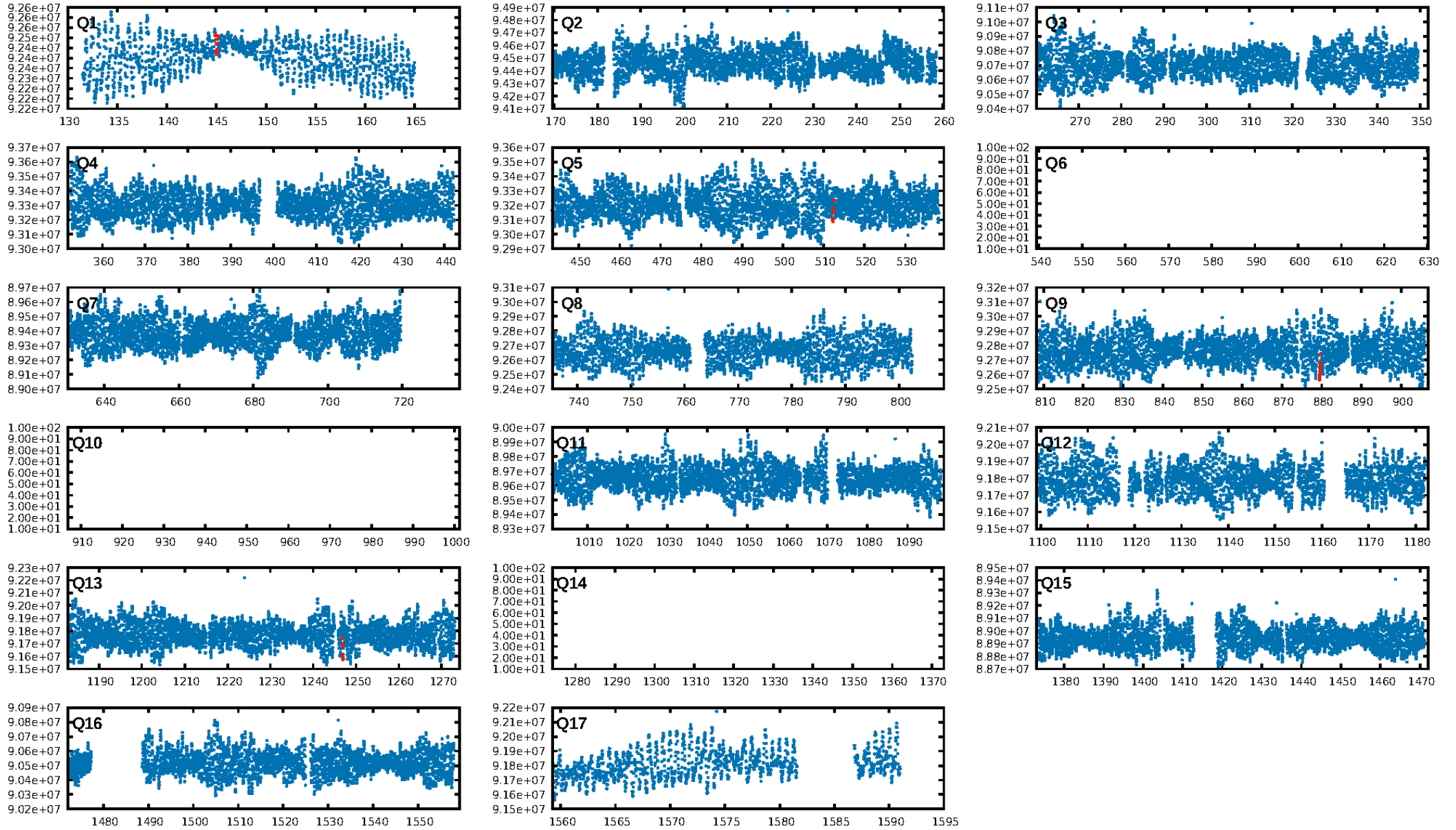
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1483.92σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 70.4%
ModelChiSquareGof-sig: 79.8%
Bootstrap-pfa: 2.48e-15
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.1816
Centroid-sig: N/A
Centroid-so: 0.270 arcsec [0.53σ]
OotOffset-rm: 0.258 arcsec [0.34σ]
KicOffset-rm: 0.257 arcsec [0.32σ]
OotOffset-st: 0/0/0/3 [3]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.33 [1/3]

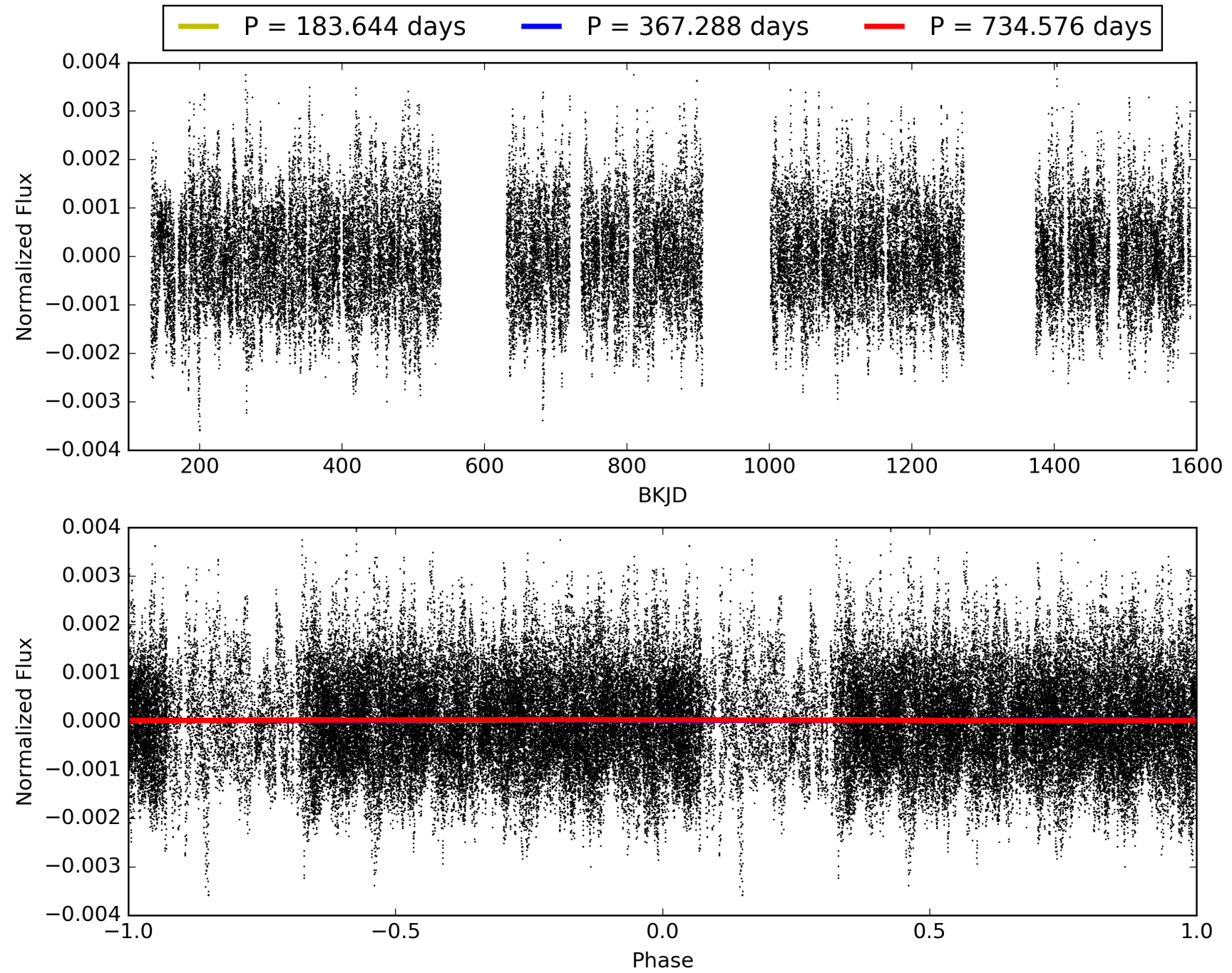
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:10:06 Z

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

TCE 004566498-02, PDC Light Curves

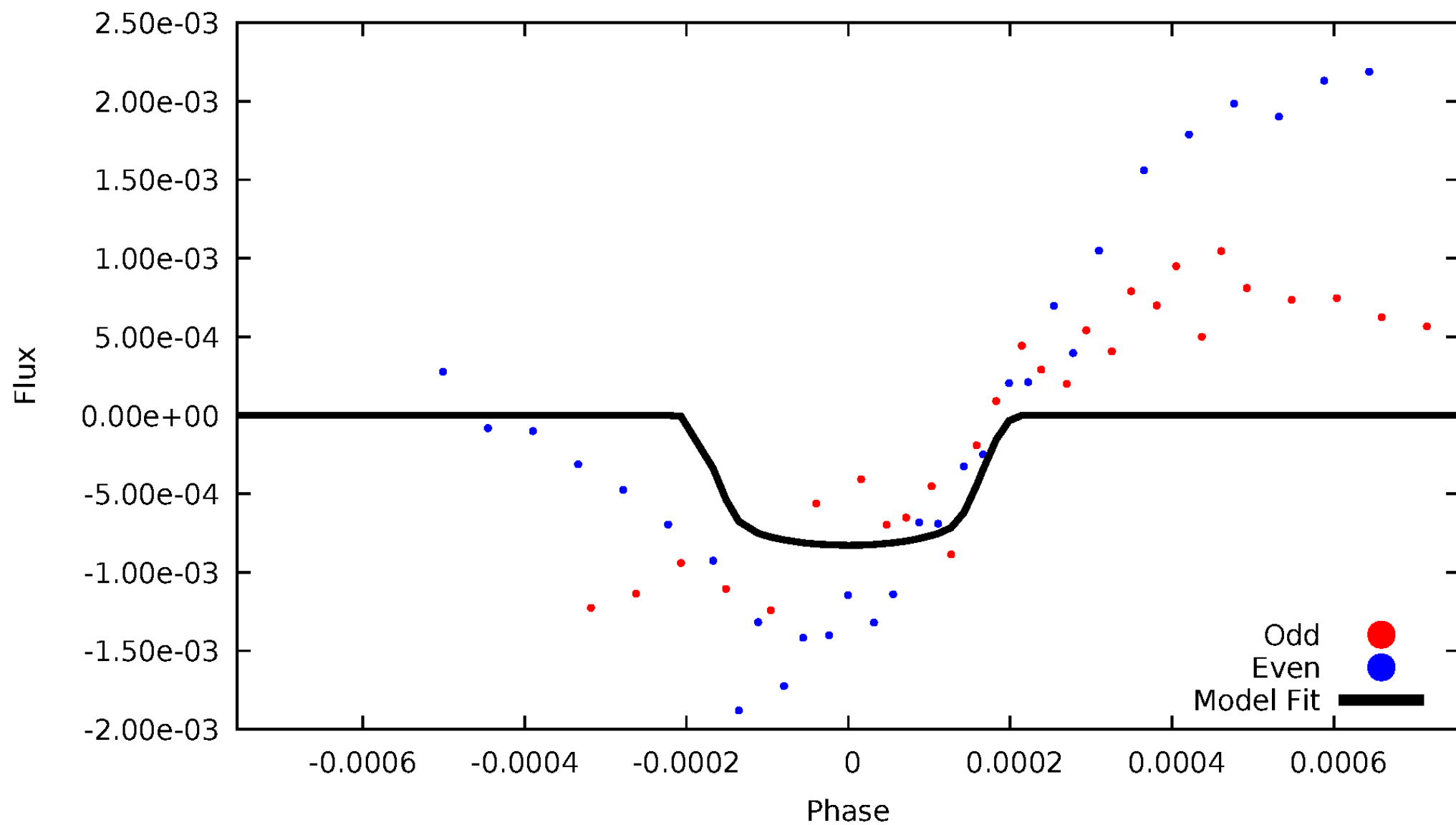


TCE 004566498-02



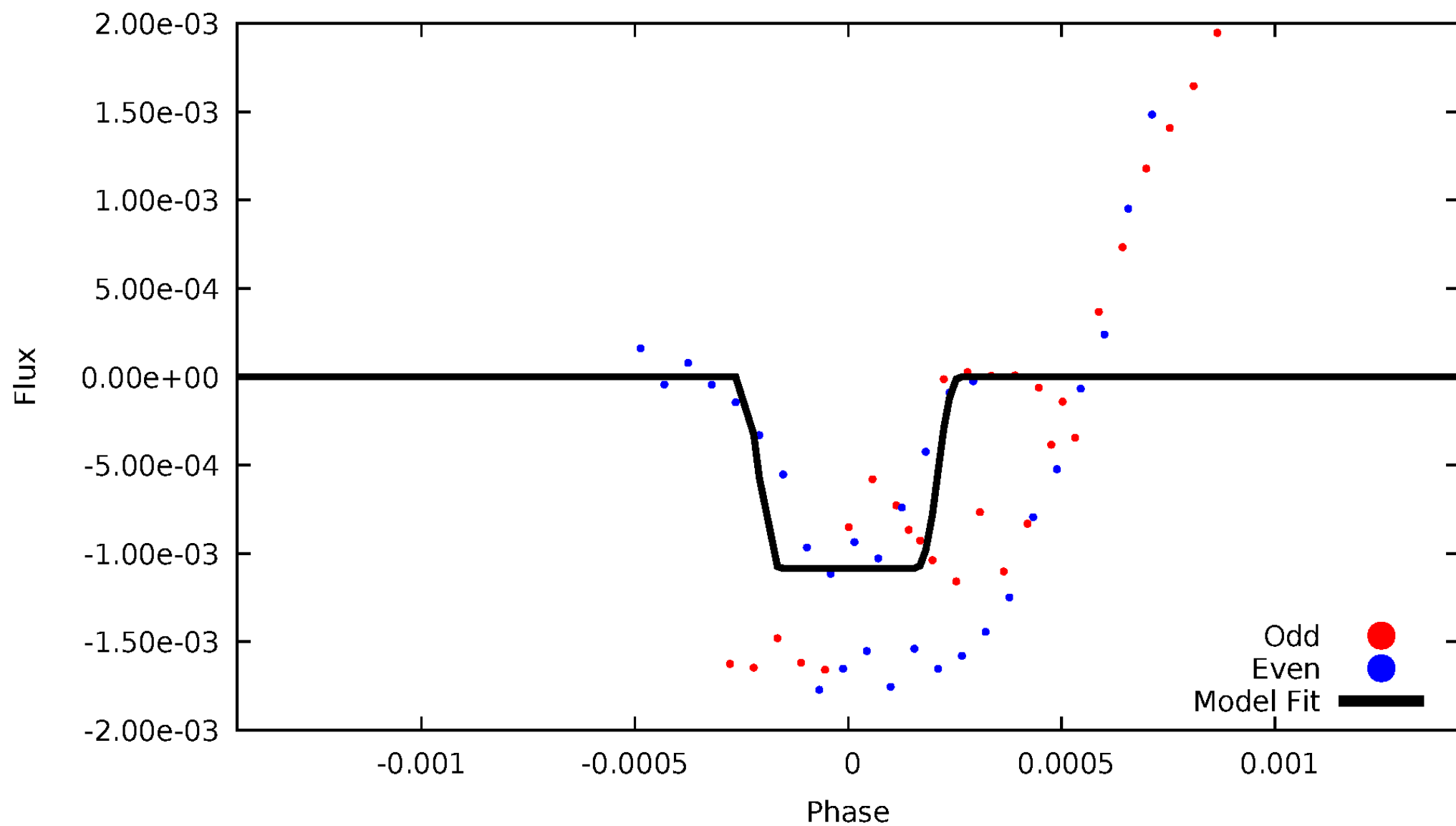
DV Odd/Even

TCE 004566498-02



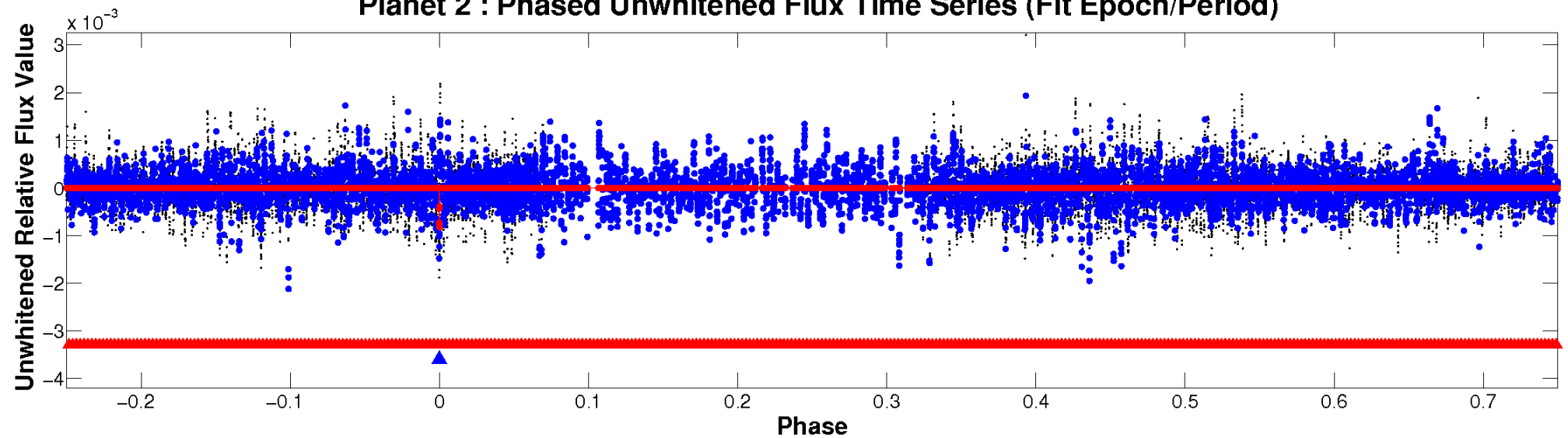
ALT Odd/Even

TCE 004566498-02

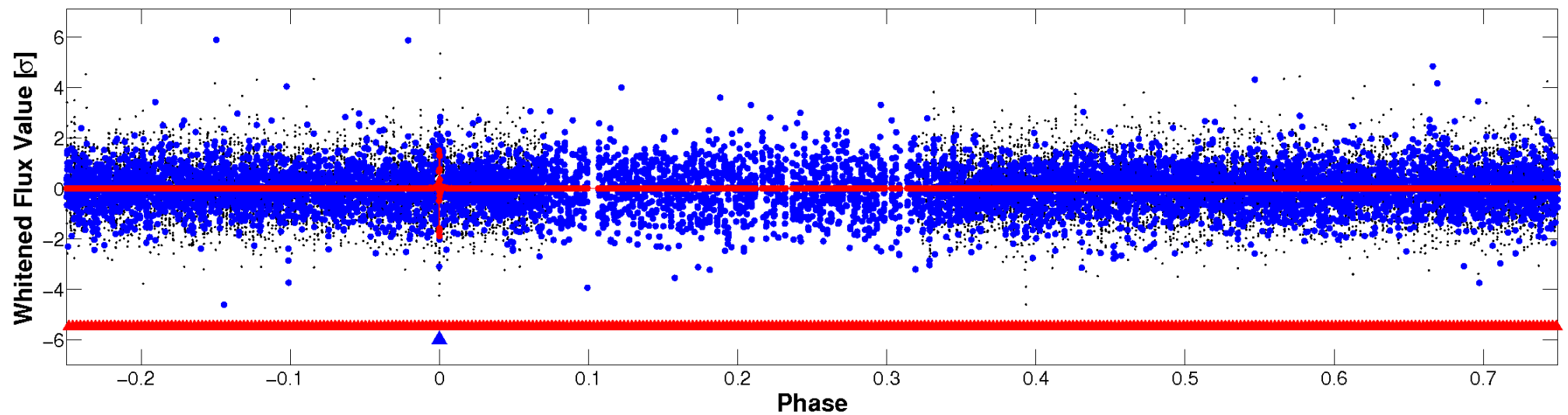


Non-Whitened Vs. Whitened Light Curve

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

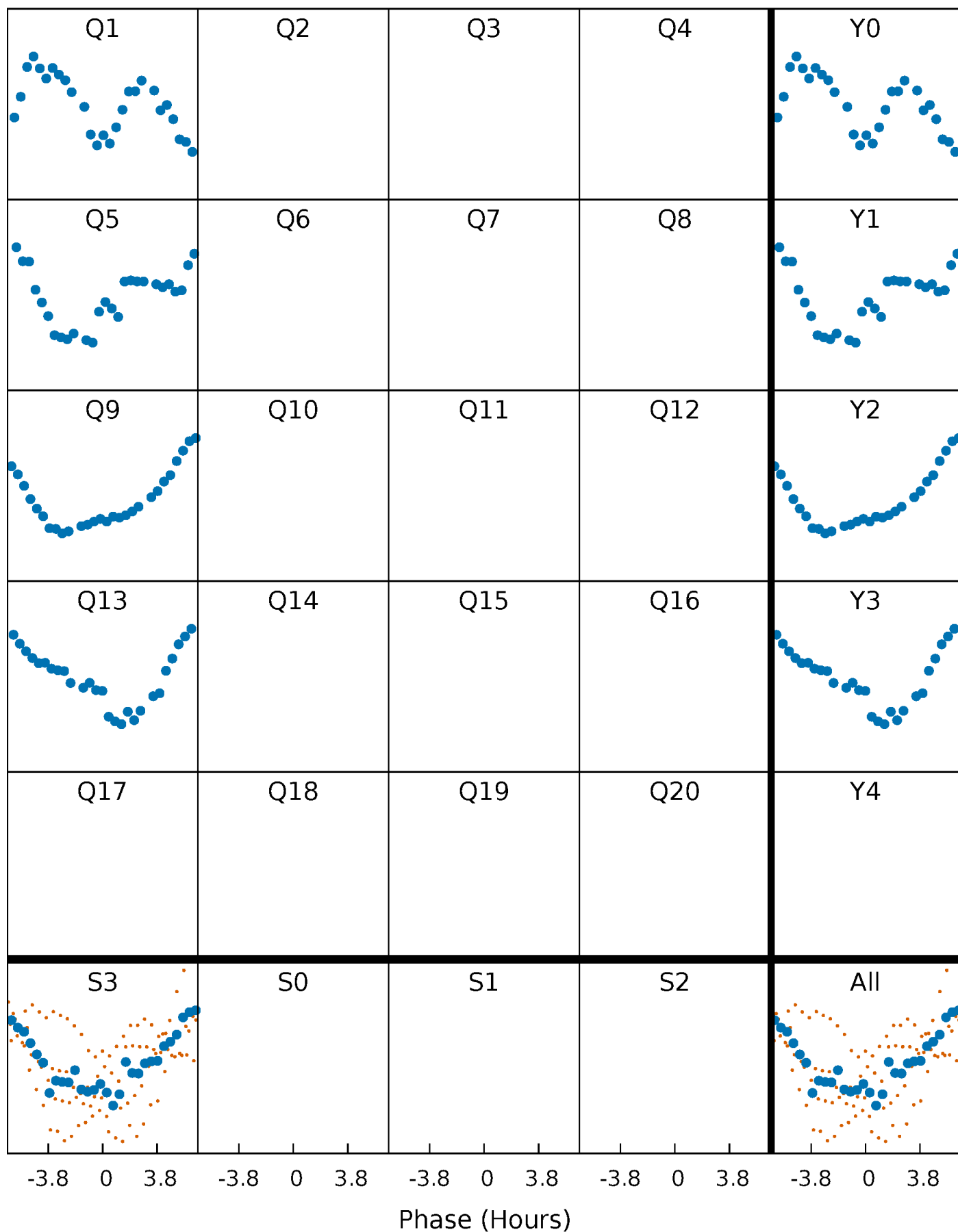


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



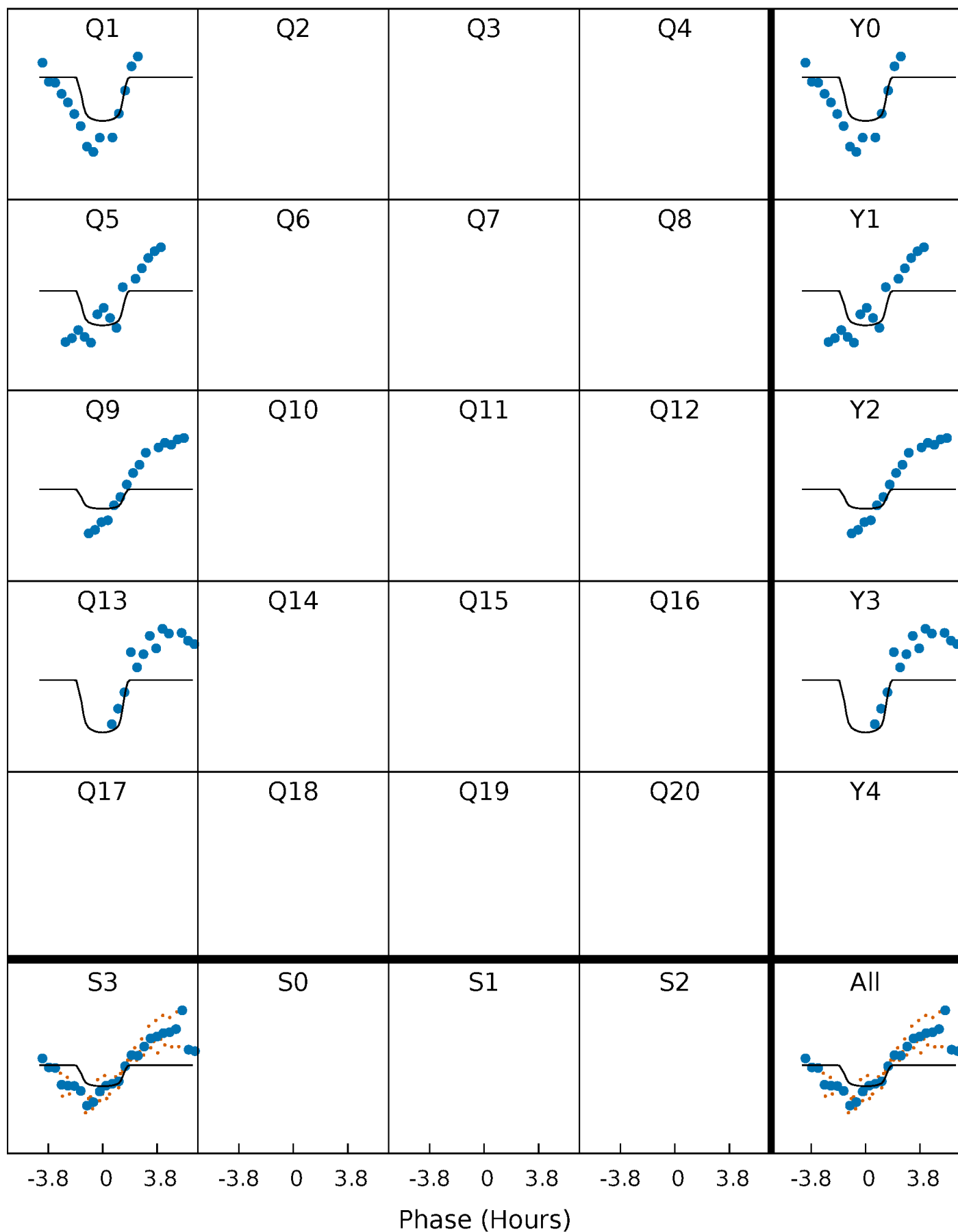
PDC Quarter-Phased Transit Curves

TCE 004566498-02 P=367.287918 Days $T_0=145.019736$ (BKJD)



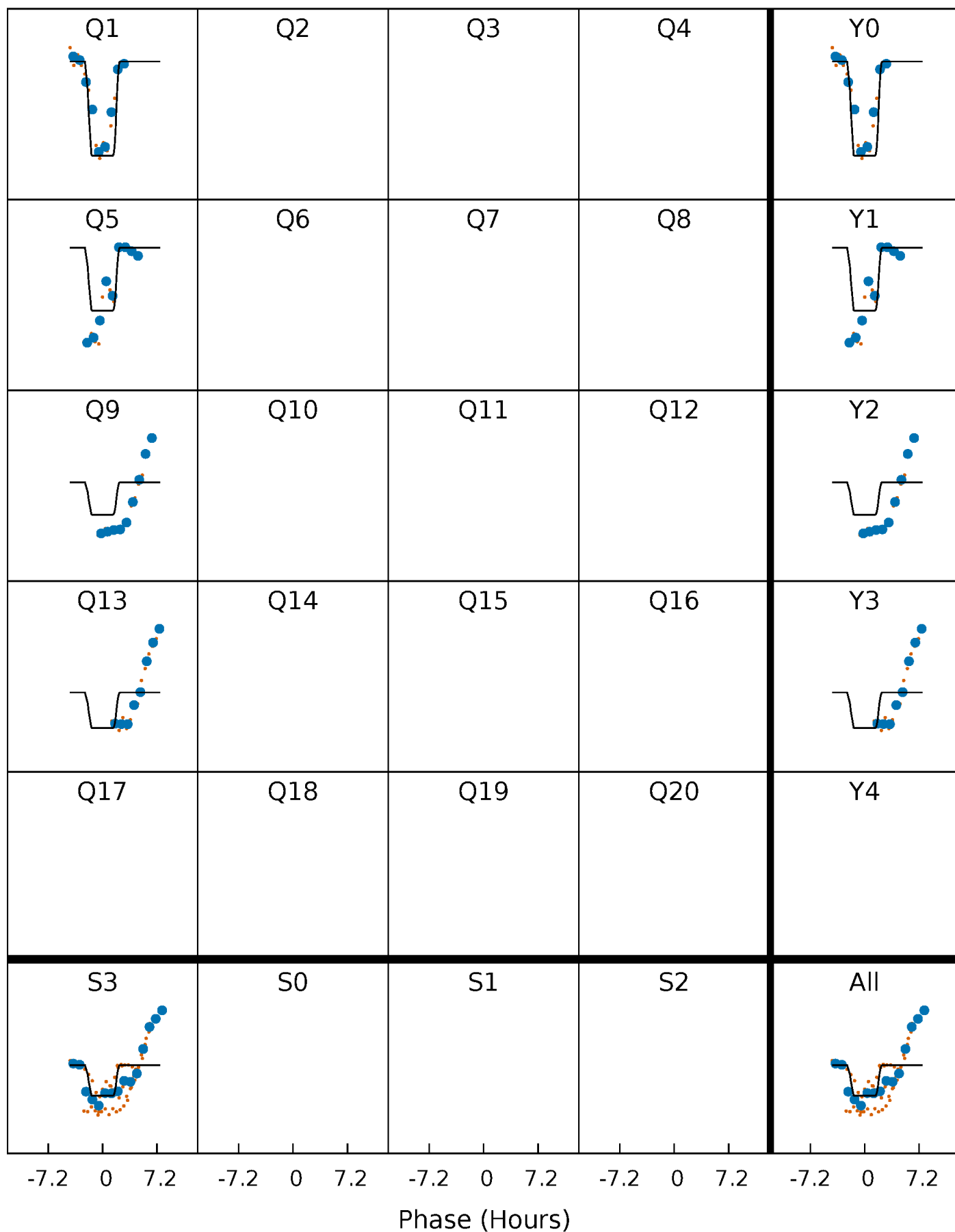
DV Quarter-Phased Transit Curves

TCE 004566498-02 P=367.287918 Days $T_0=145.019736$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

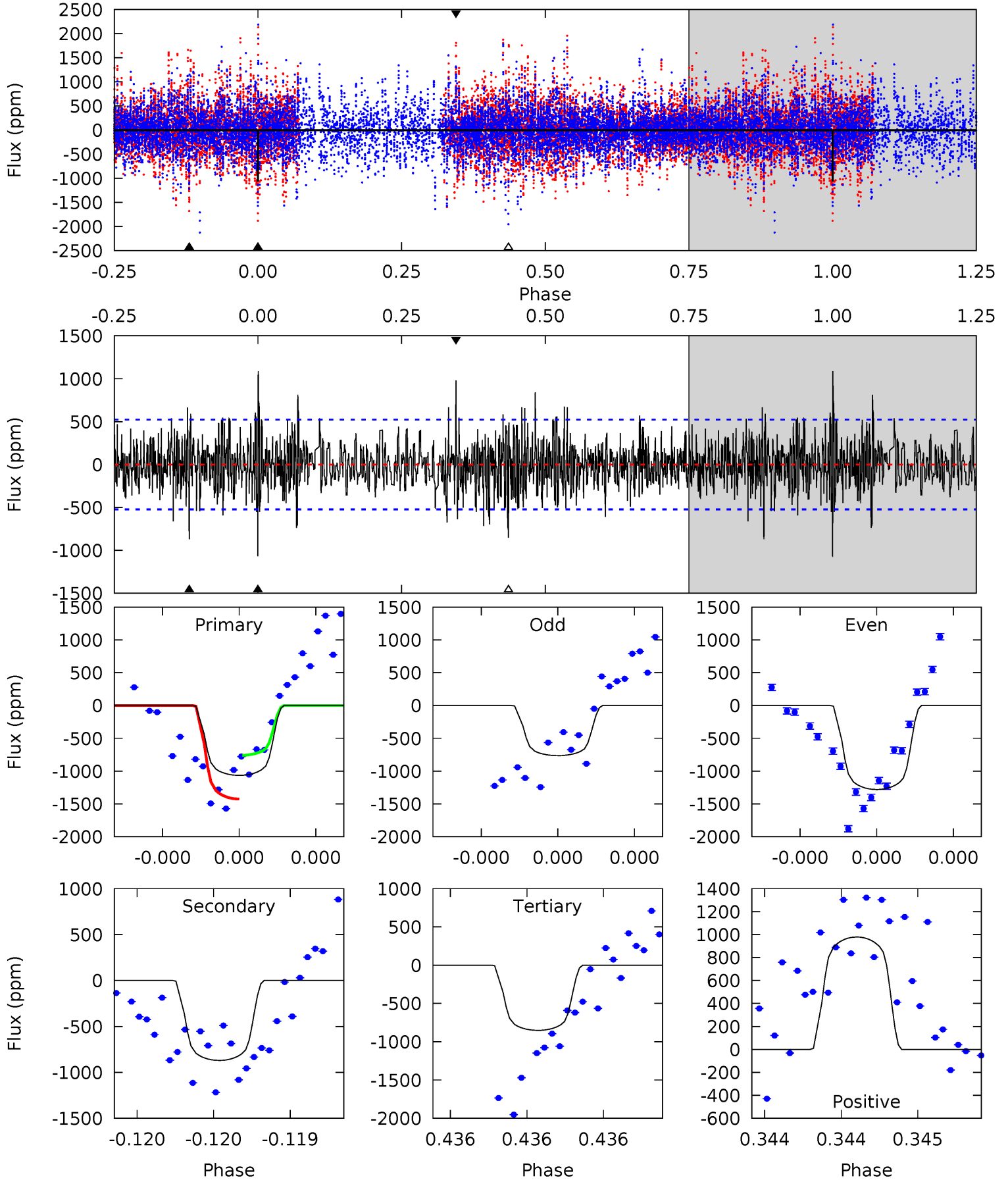
TCE 004566498-02 $P=367.278187$ Days $T_0=145.014425$ (BKJD)



DV Model-Shift Uniqueness Test

004566498-02, P = 367.287918 Days, E = 145.019736 Days

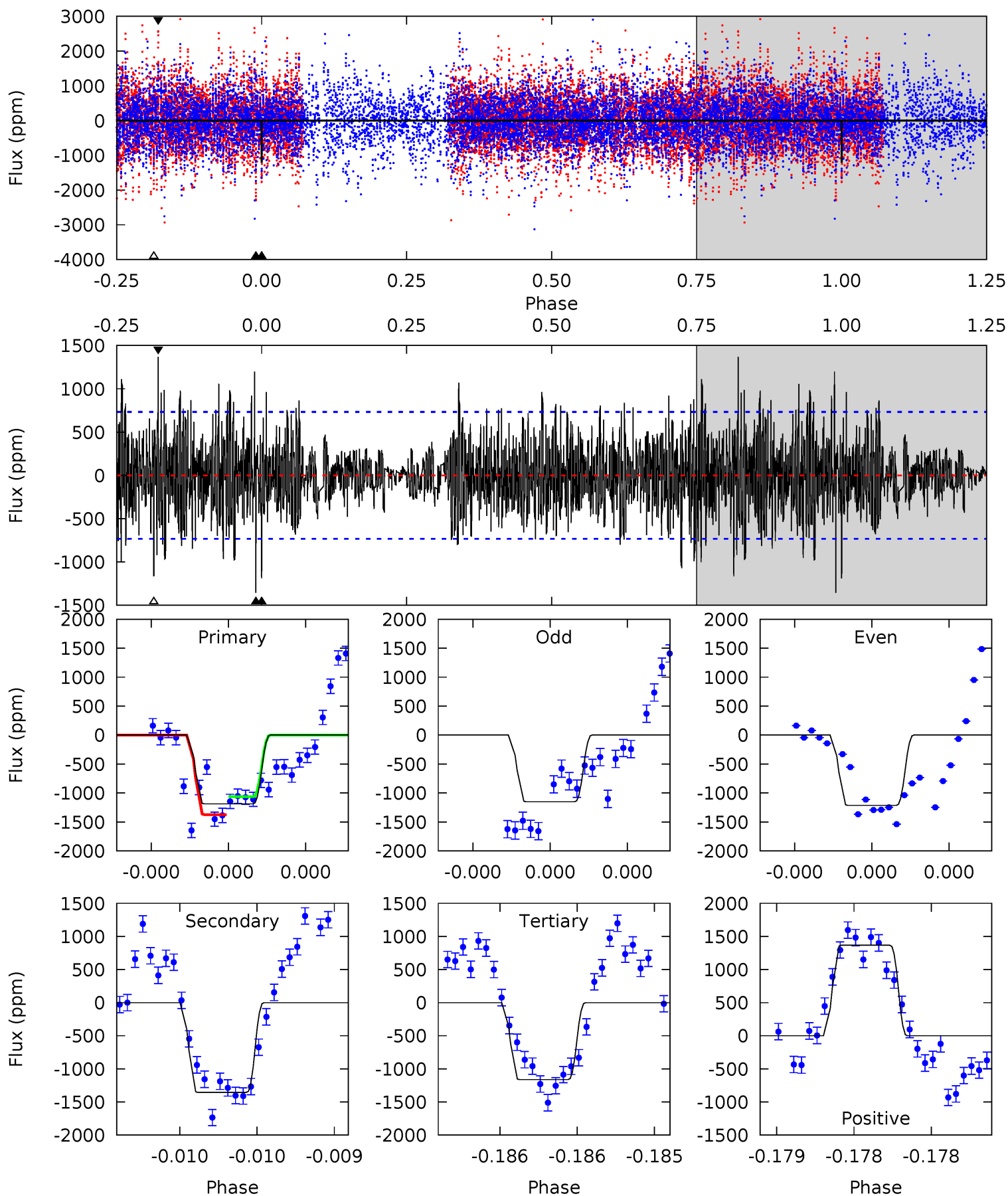
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	9.37	9.17	10.5	5.63	3.56	2.44	2.31	0.94	0.20	-1.16	2.83	0.97	0.50	3.52



Alt Model-Shift Uniqueness Test

004566498-02, P = 367.278187 Days, E = 145.014425 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.04	10.3	8.85	10.4	5.58	3.49	2.60	0.19	-1.36	1.47	-0.08	0.23	1.07	0.50	1.11



Stellar Parameters For KIC 004566498

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7022^{+197}_{-296}	$4.229^{+0.090}_{-0.210}$	$-0.080^{+0.250}_{-0.350}$	$1.503^{+0.489}_{-0.263}$	$1.402^{+0.205}_{-0.226}$	$0.582^{+0.288}_{-0.303}$
	+3%/-4%	+2%/-5%	+312%/-438%	+33%/-17%	+15%/-16%	+50%/-52%
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 004566498-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-870 ± 93	$5.06^{+1.80}_{-1.70}$	509^{+42}_{-31}	6936^{+1788}_{-937}	22844^{+27049}_{-10449}
Alt.	-1356 ± 131	$5.61^{+1.84}_{-1.58}$	508^{+42}_{-31}	7433^{+1687}_{-972}	29595^{+27762}_{-13136}

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

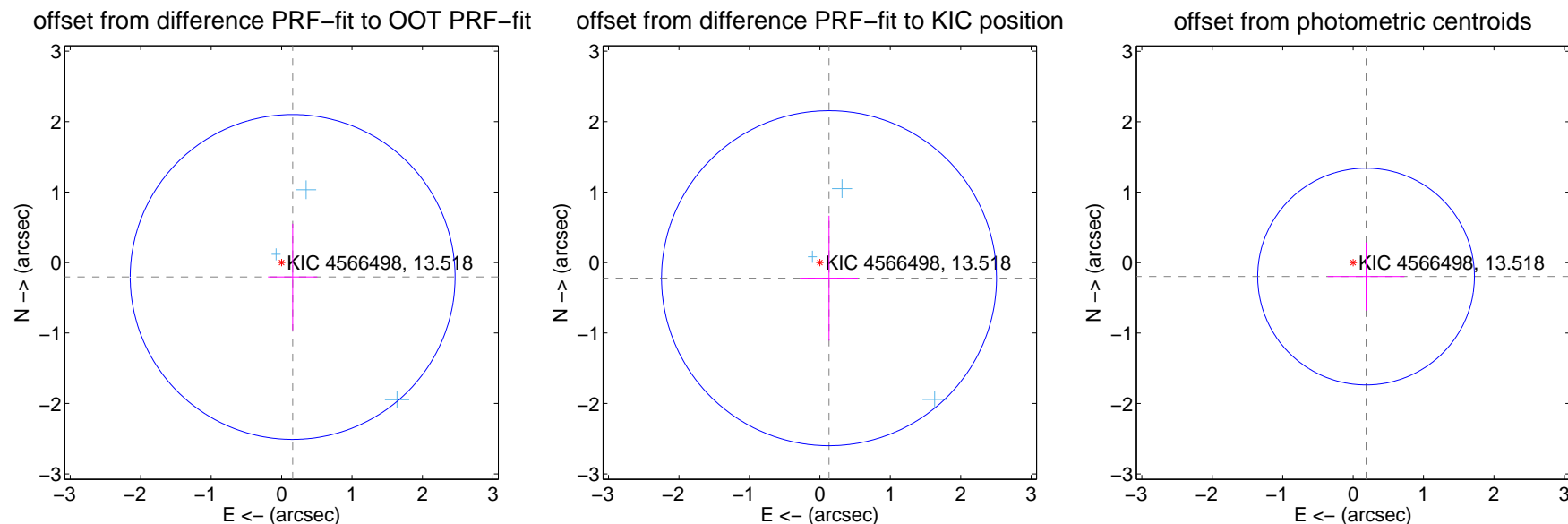
DV Centroid Data

Supplemental centroid analysis for 004566498-02. Kepler magnitude: 13.52. Transit SNR 8.22

There are 3 quarters with good PRF difference image offsets

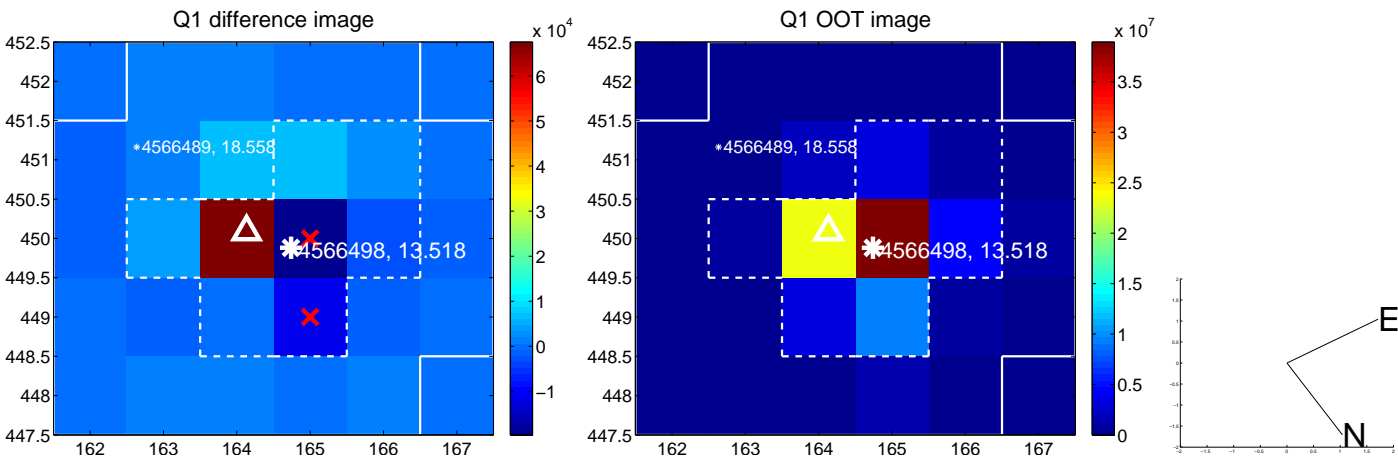
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.258 ± 0.768	0.34	-0.157 ± 0.350	-0.205 ± 0.755
PRF-fit source offset from KIC position	0.257 ± 0.792	0.32	-0.130 ± 0.410	-0.222 ± 0.887
photometric centroid source offset	0.27 ± 0.51	0.53	-0.18 ± 0.55	-0.20 ± 0.48

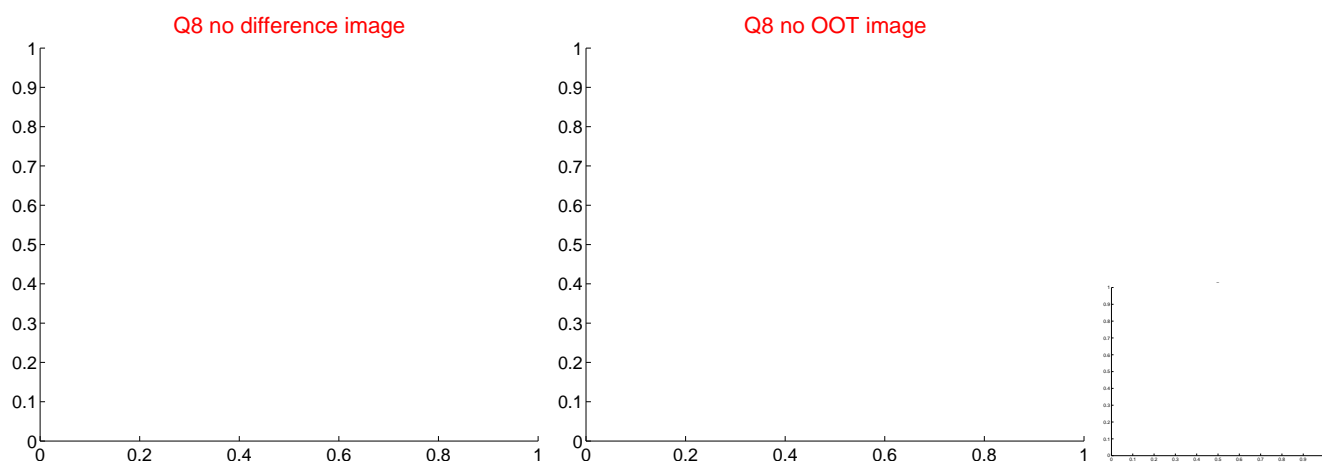
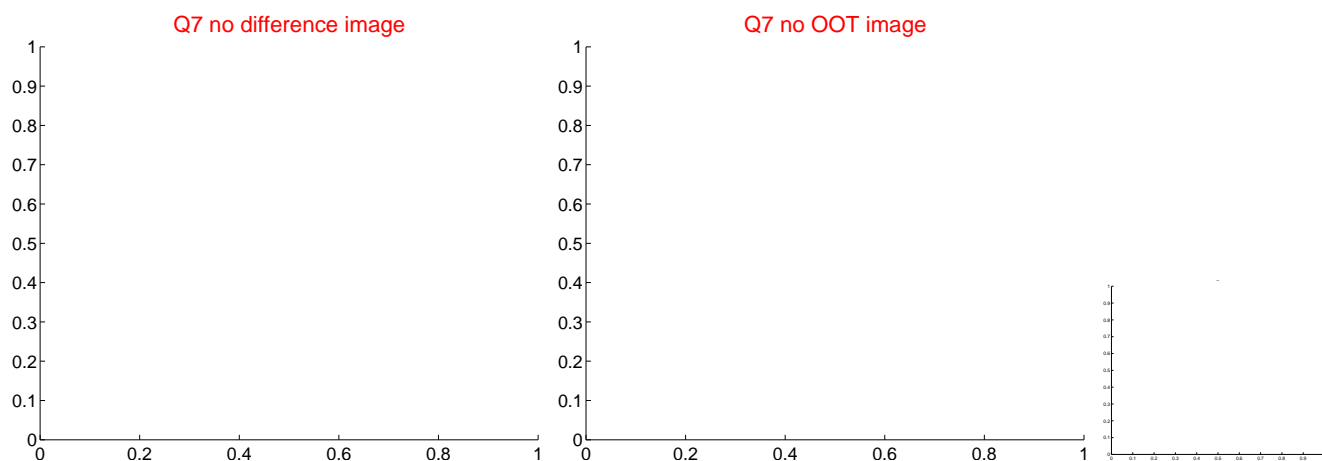
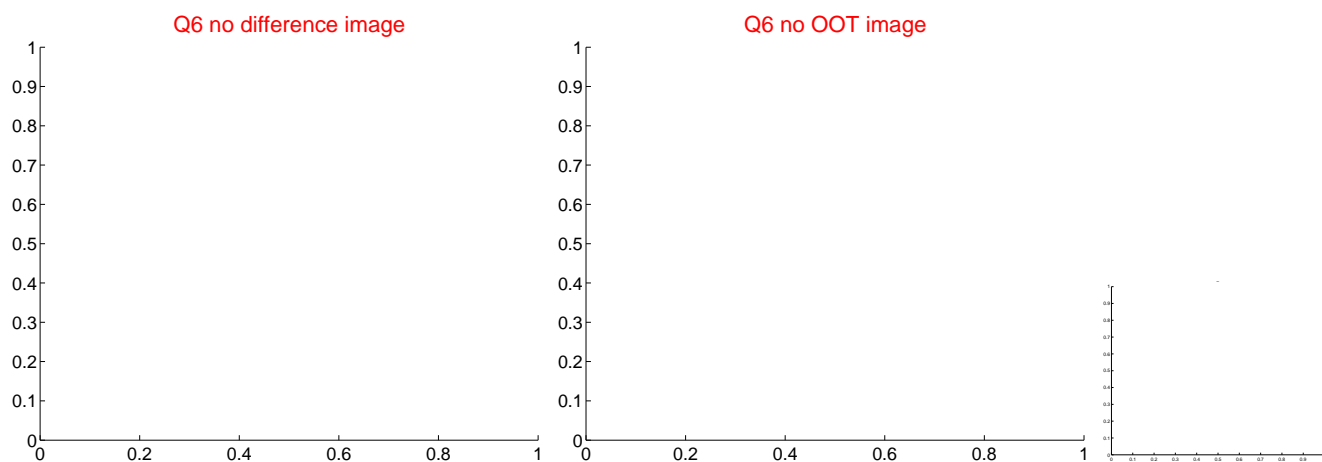
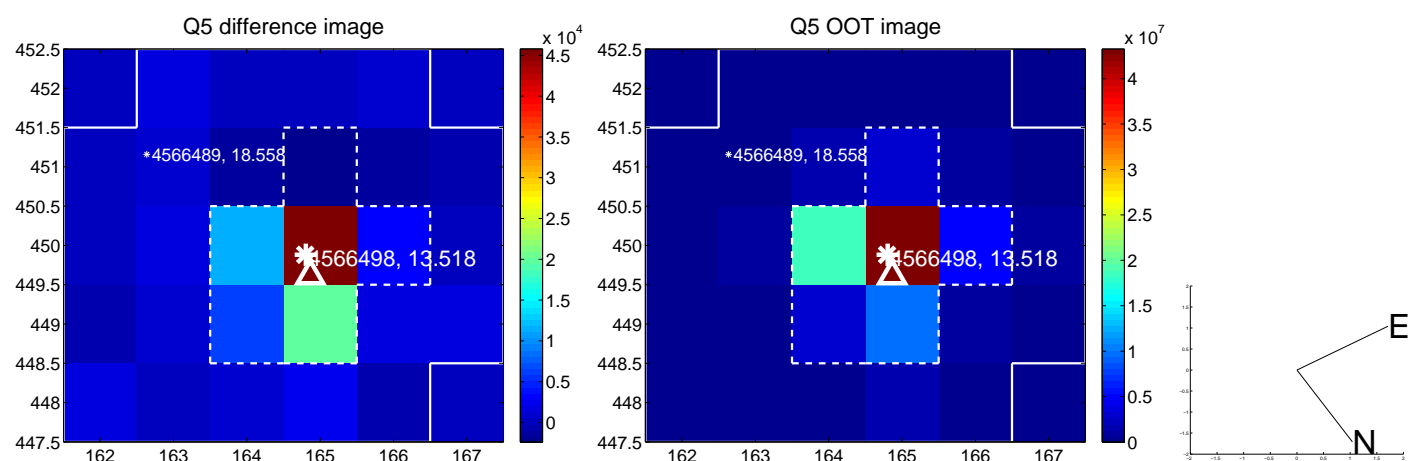


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

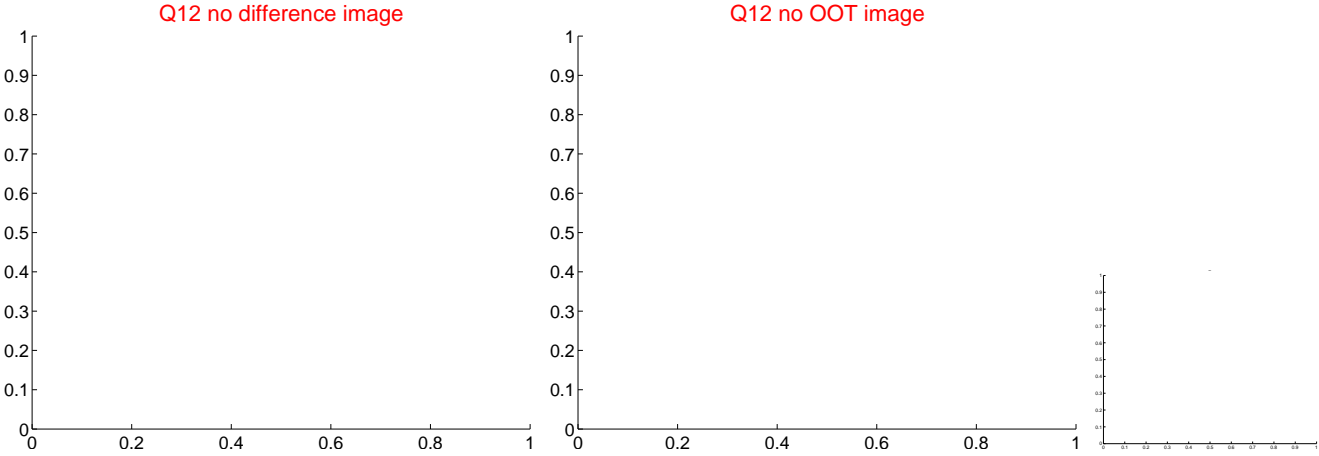
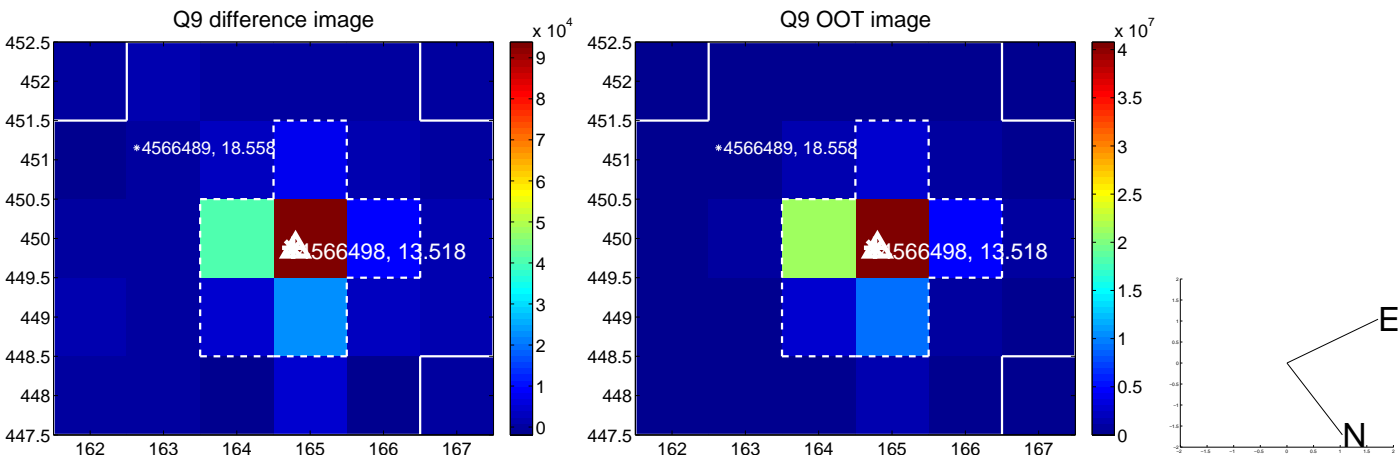
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



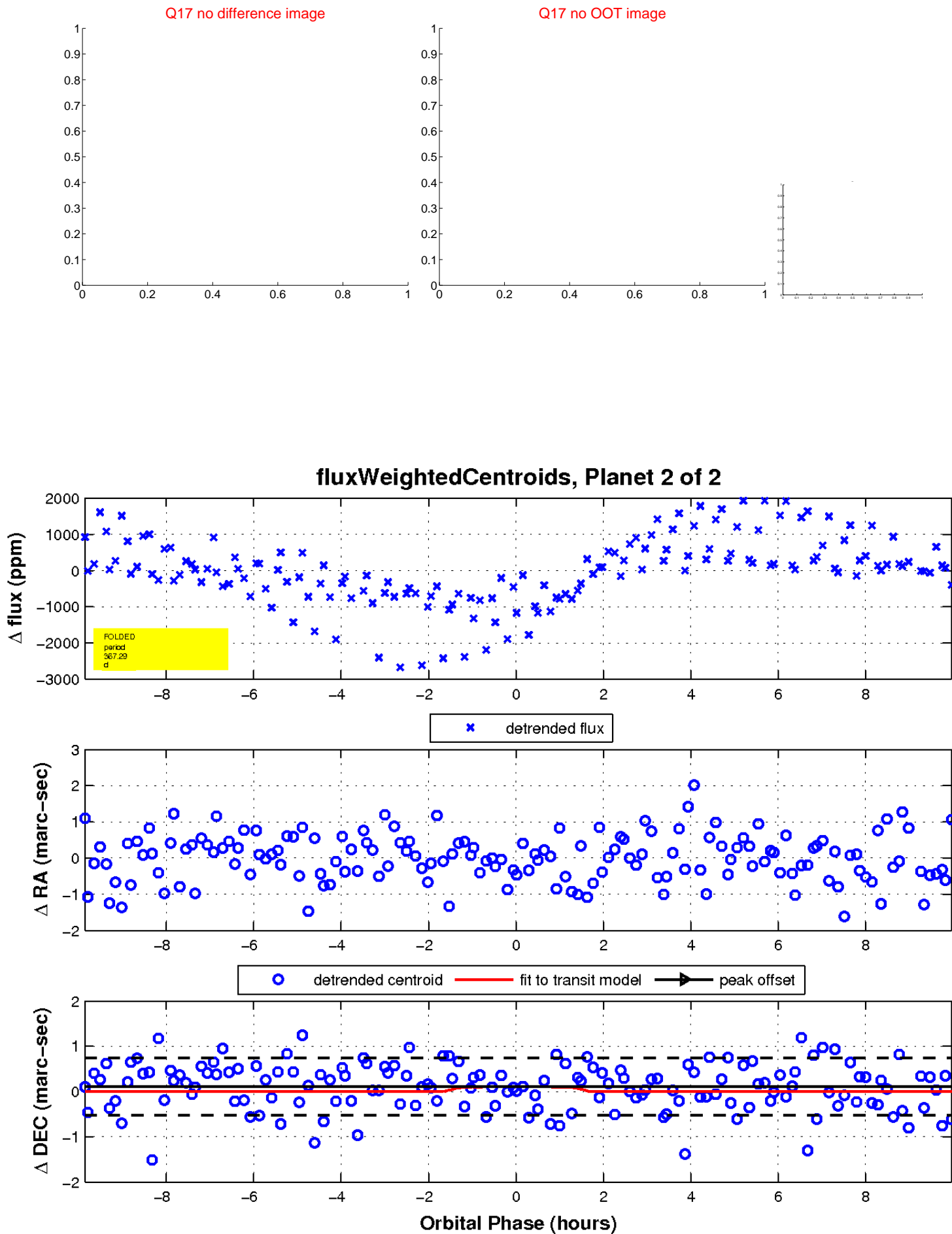
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

