

KIC 009896558

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})
009896558-01	OBS	1718.01	67.669758	198.184009	927.6	9.620	27.7	28.8	1.08	6127	3.41	14.27
009896558-02	OBS	1718.02	153.351337	190.525151	374.0	12.713	10.0	9.5	1.08	6127	2.54	4.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009896558-01	OBS	PC	0.96	0	0	0	0	NO_COMMENT
009896558-02	OBS	PC	0.99	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.

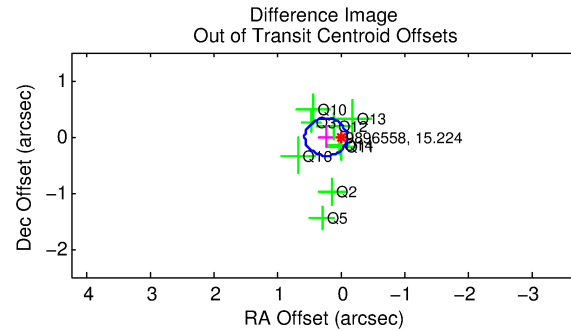
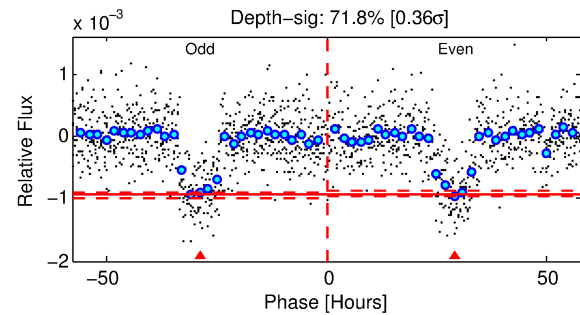
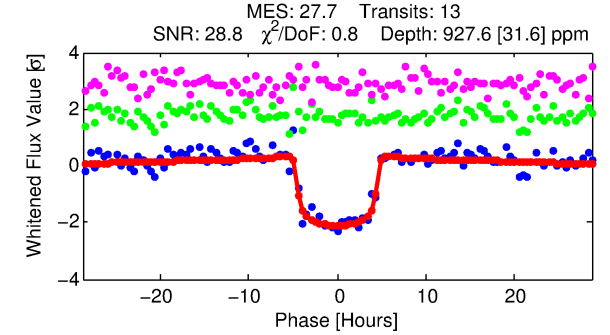
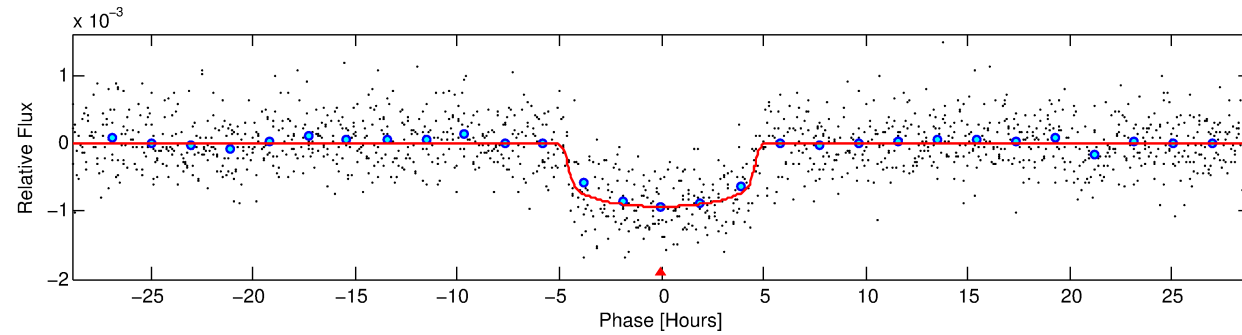
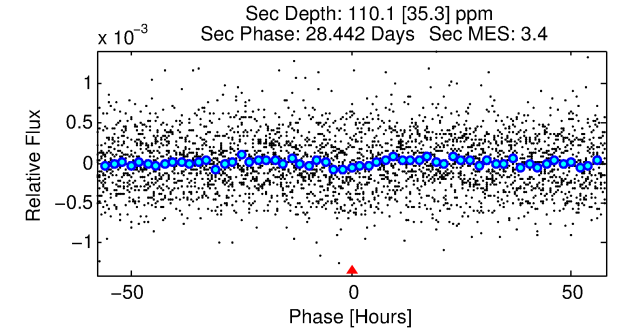
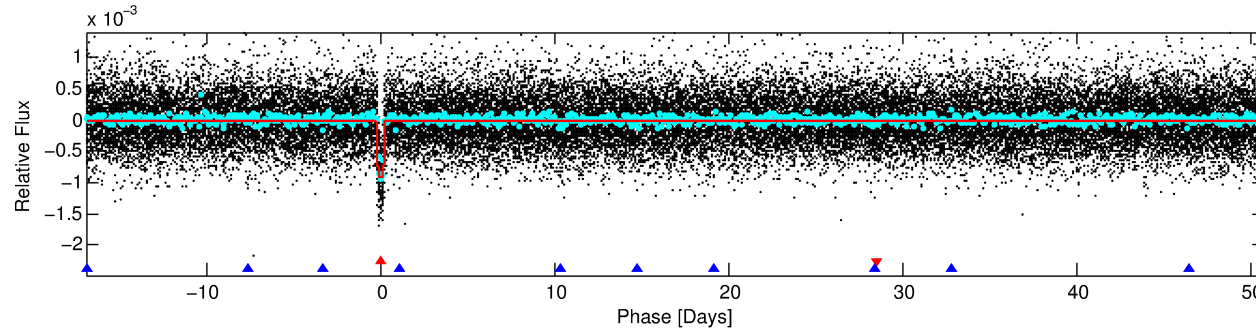
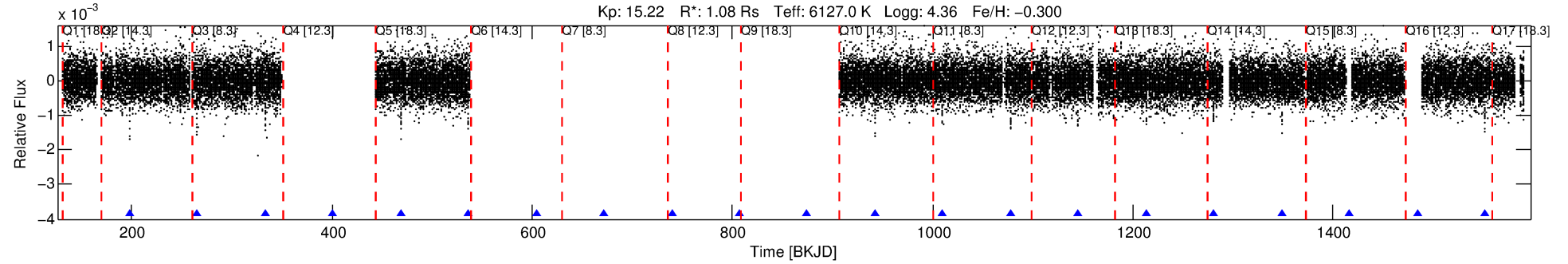
Ephemeris Match Information For 009896558-01

No Significant Match Found

DV One-Page Summary

KIC: 9896558 Candidate: 1 of 2 Period: 67.670 d

KOI: K01718.01 Corr: 0.986



DV Fit Results:

Period = 67.66976 [0.00039] d
Epoch = 198.1840 [0.0047] BKJD
Rp/R* = 0.0289 [0.0050]
a/R* = 47.01 [40.55]
b = 0.54 [1.13]
Seff = 14.27 [5.44]
Teff = 496 [47] K
Rp = 3.41 [1.17] Re
a = 0.3213 [0.0792] AU
Ag = 538.91 [317.99] [1.69σ]
Teffp = 3692 [454] K [7.01σ]

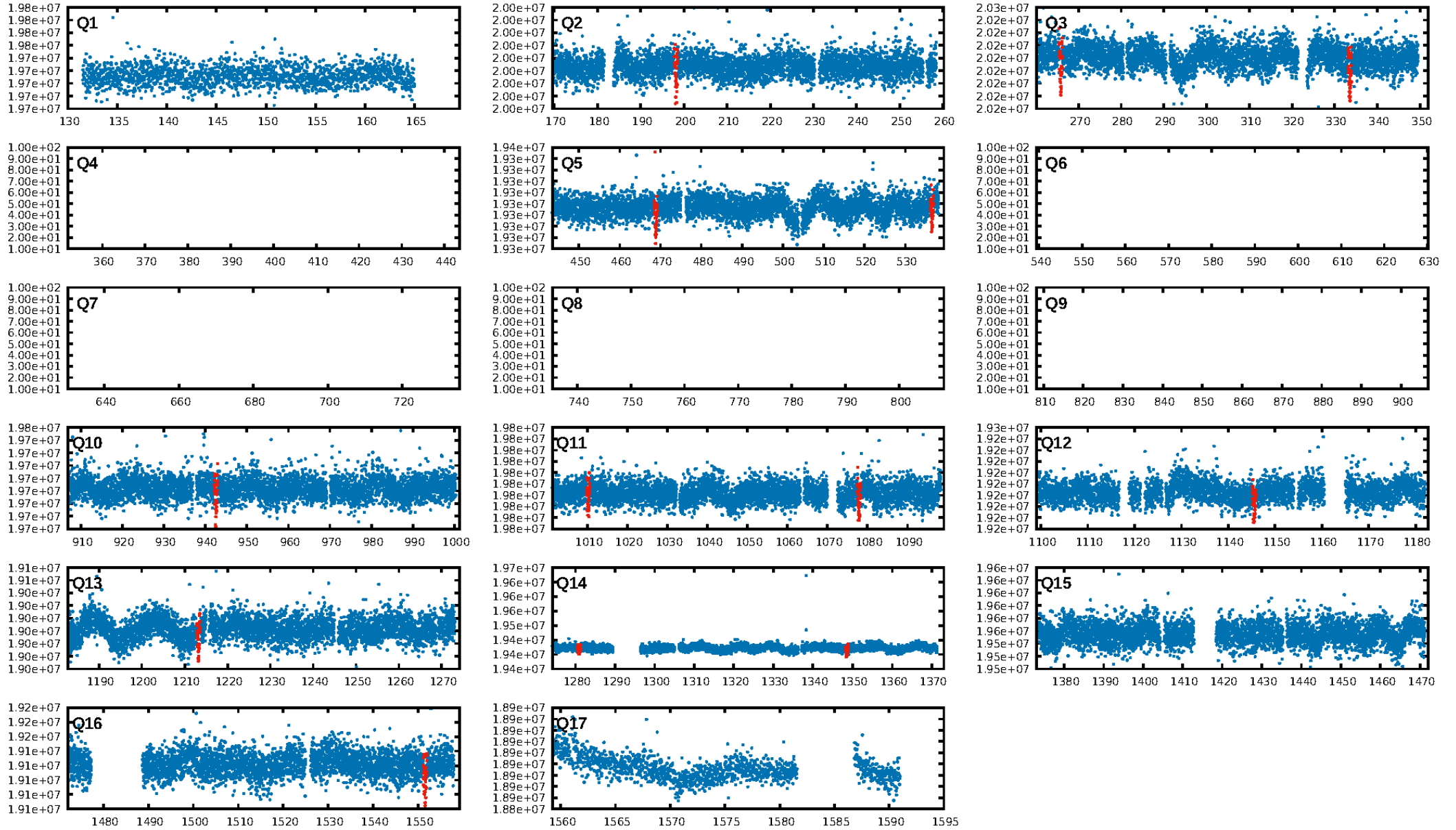
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [128.98σ]
ModelChiSquare2-sig: 62.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.55e-164
RollingBand-fgt: 1.00 [13/13]
GhostDiagnostic-chr: 5.626
Centroid-sig: 87.4%
Centroid-so: 0.090 arcsec [0.20σ]
OotOffset-rm: 0.245 arcsec [2.21σ]
KicOffset-rm: 0.260 arcsec [2.21σ]
OotOffset-st: 3/2/2/2 [9]
KicOffset-st: 3/2/2/2 [9]
DiffImageQuality-fgm: 1.00 [9/9]
DiffImageOverlap-fno: 1.00 [9/9]

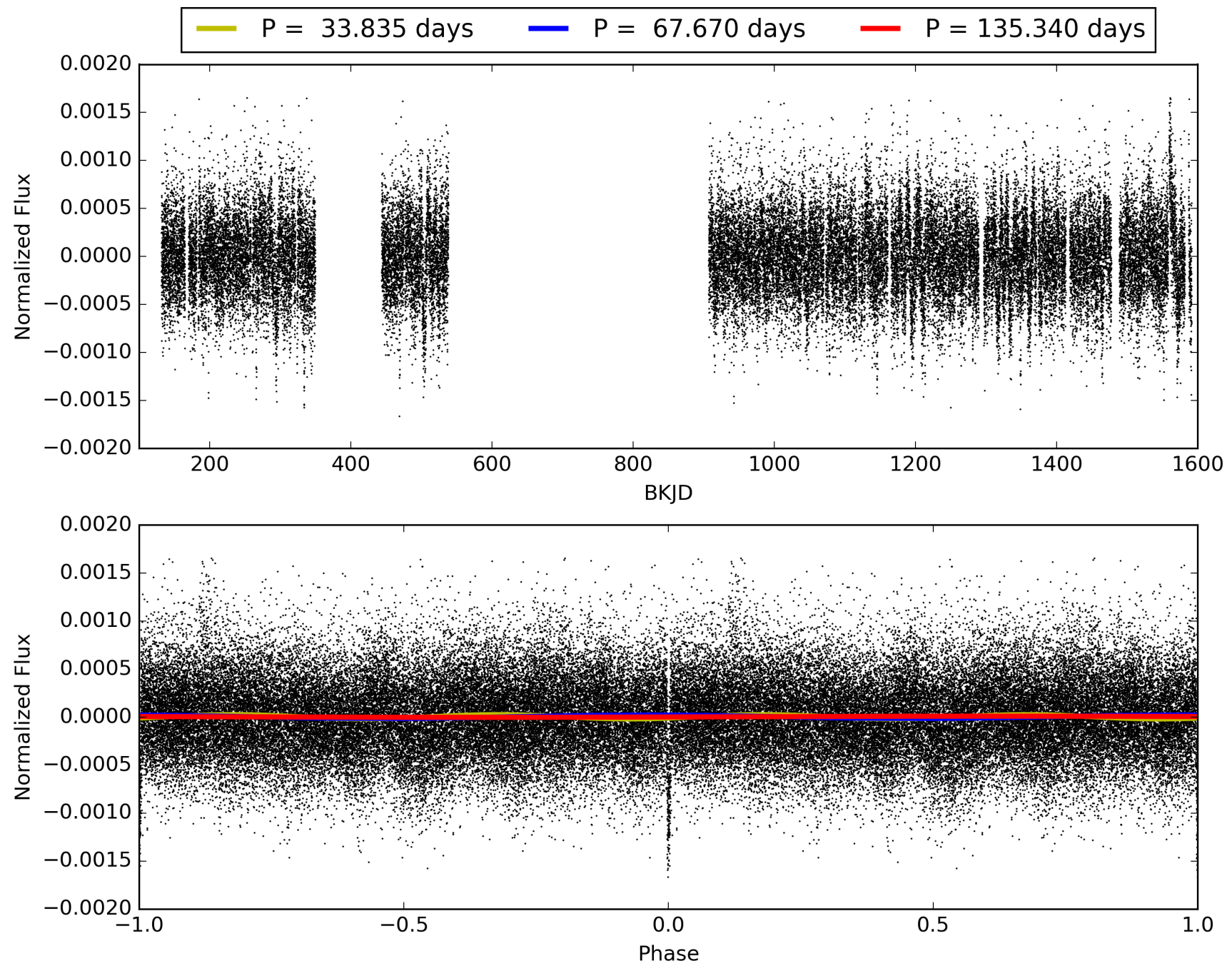
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:51:01 Z

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

TCE 009896558-01, PDC Light Curves

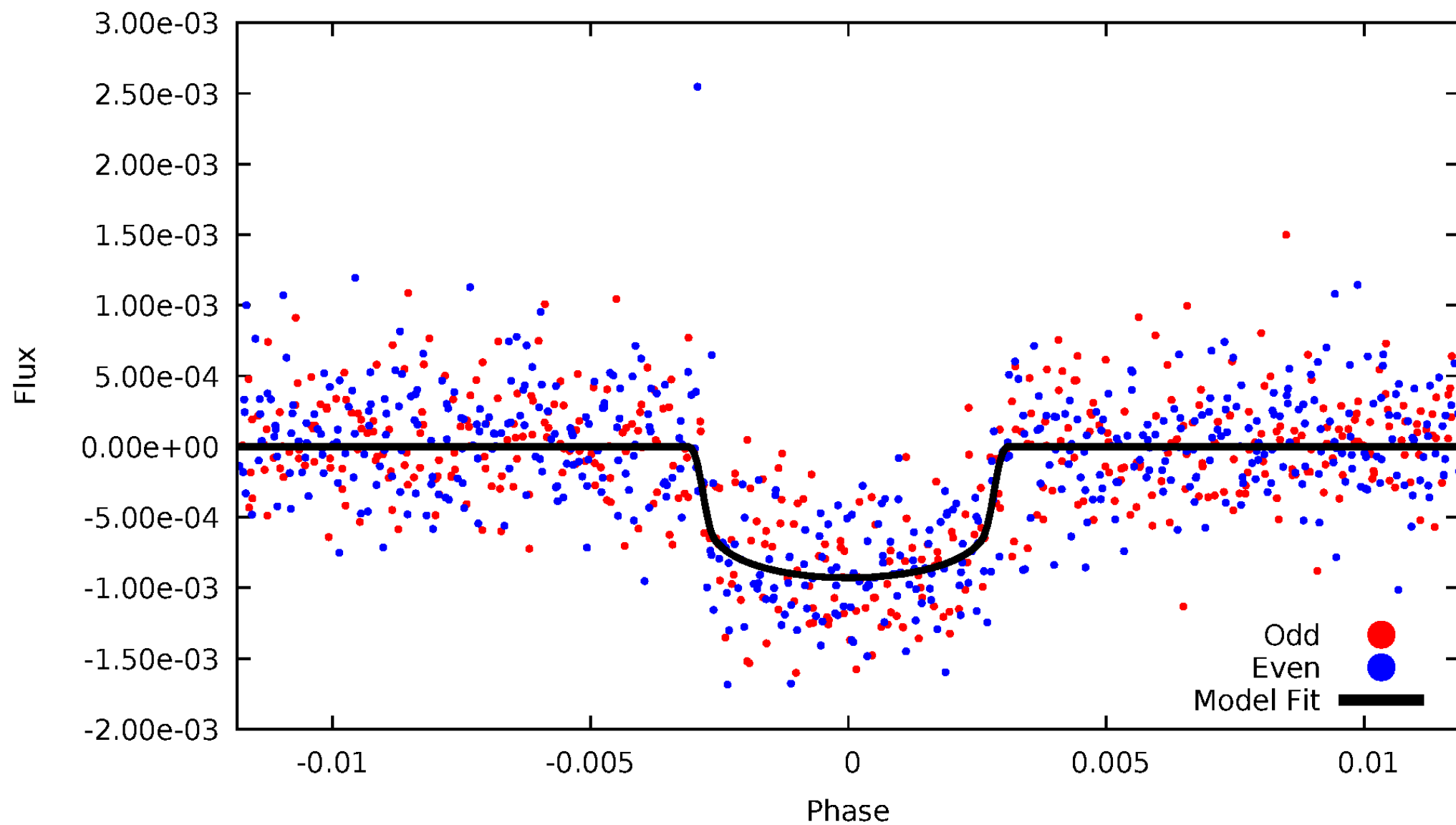


TCE 009896558-01



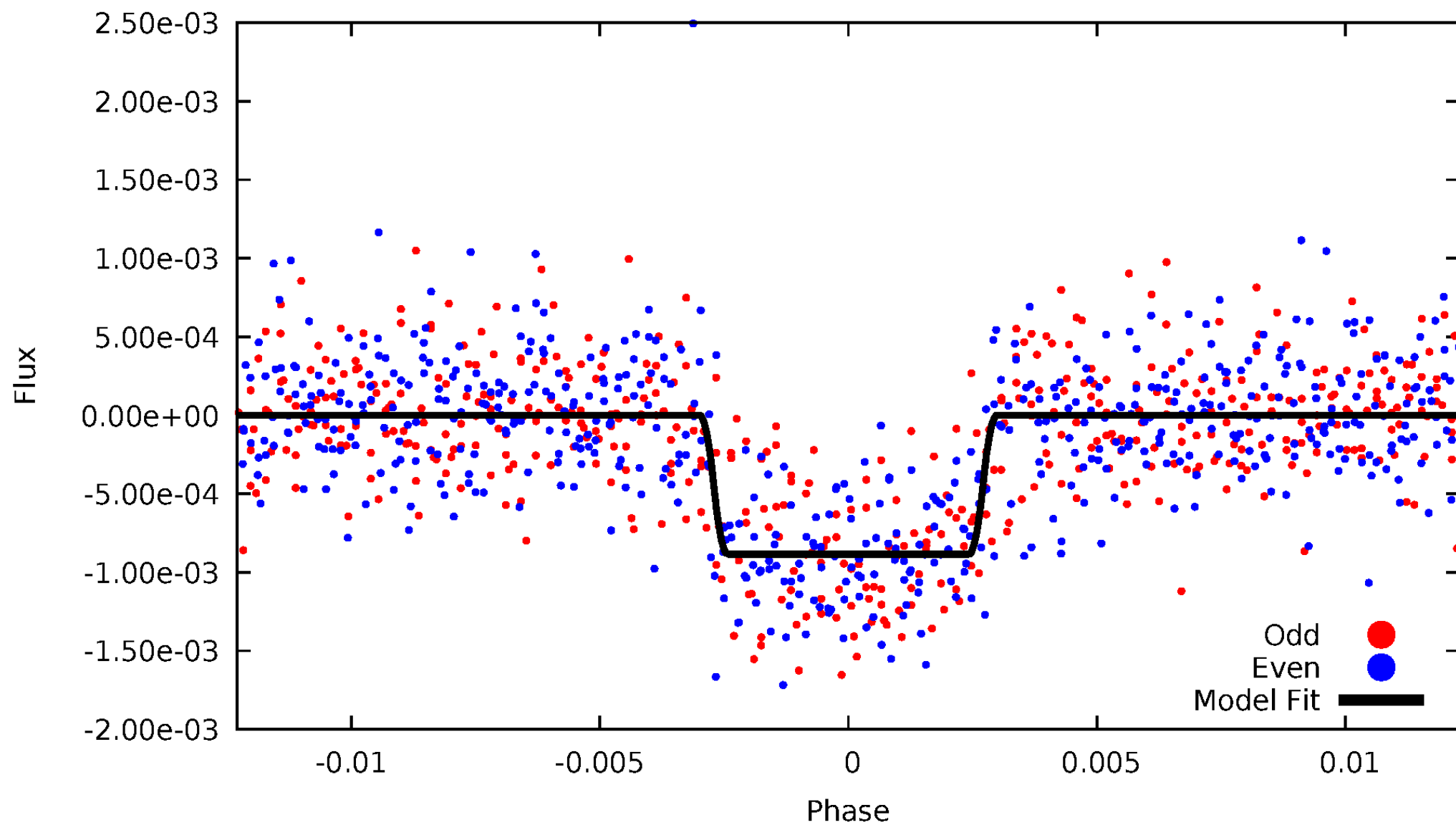
DV Odd/Even

TCE 009896558-01



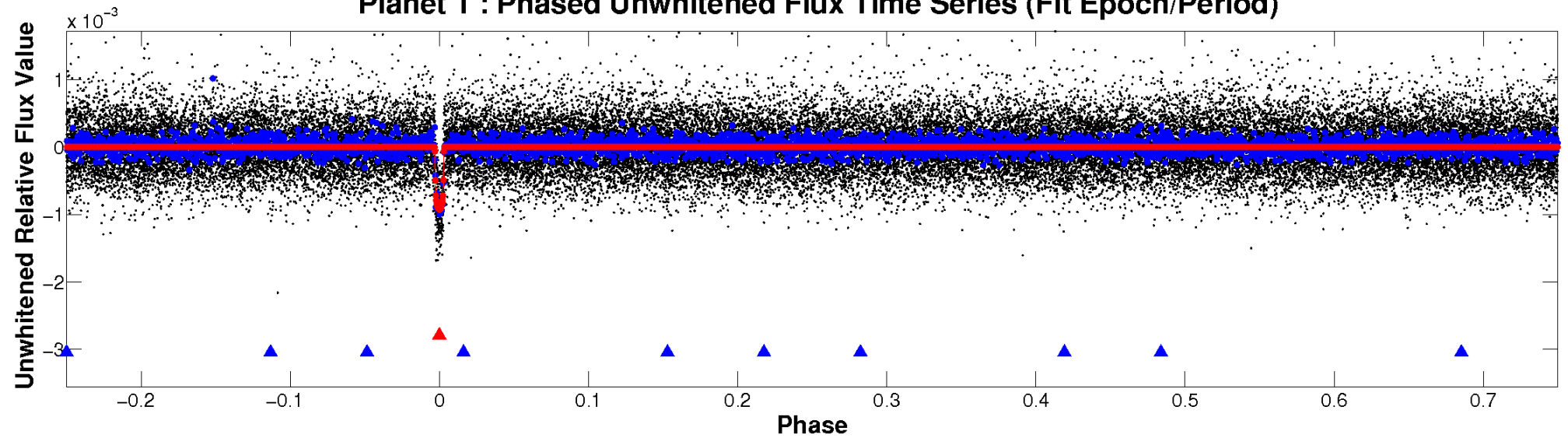
ALT Odd/Even

TCE 009896558-01

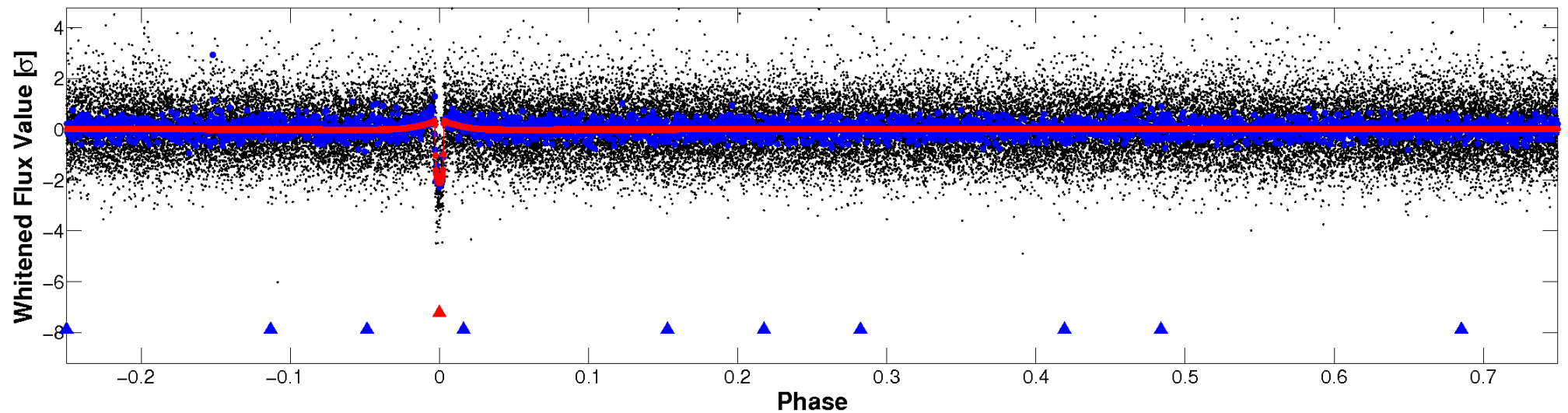


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

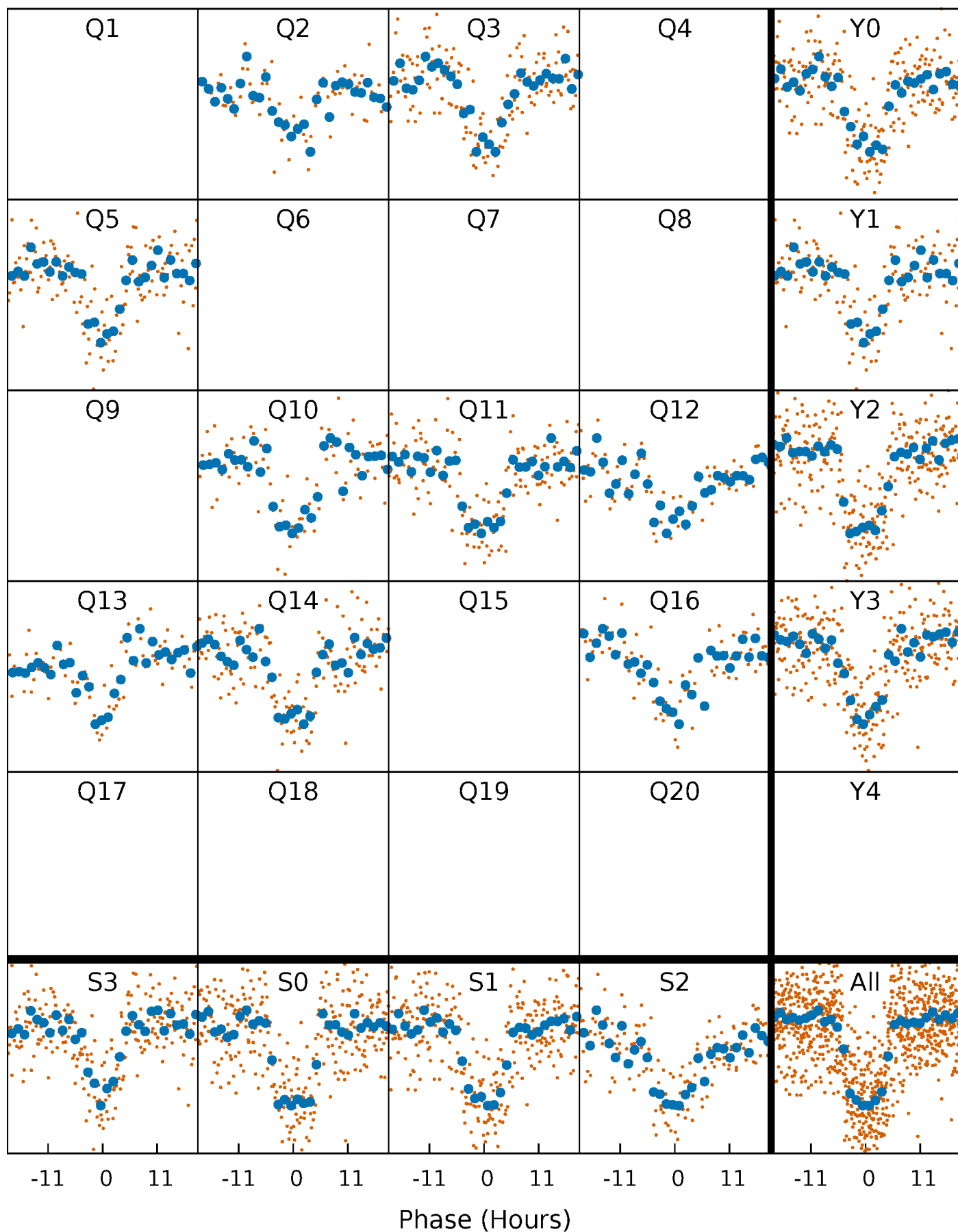


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



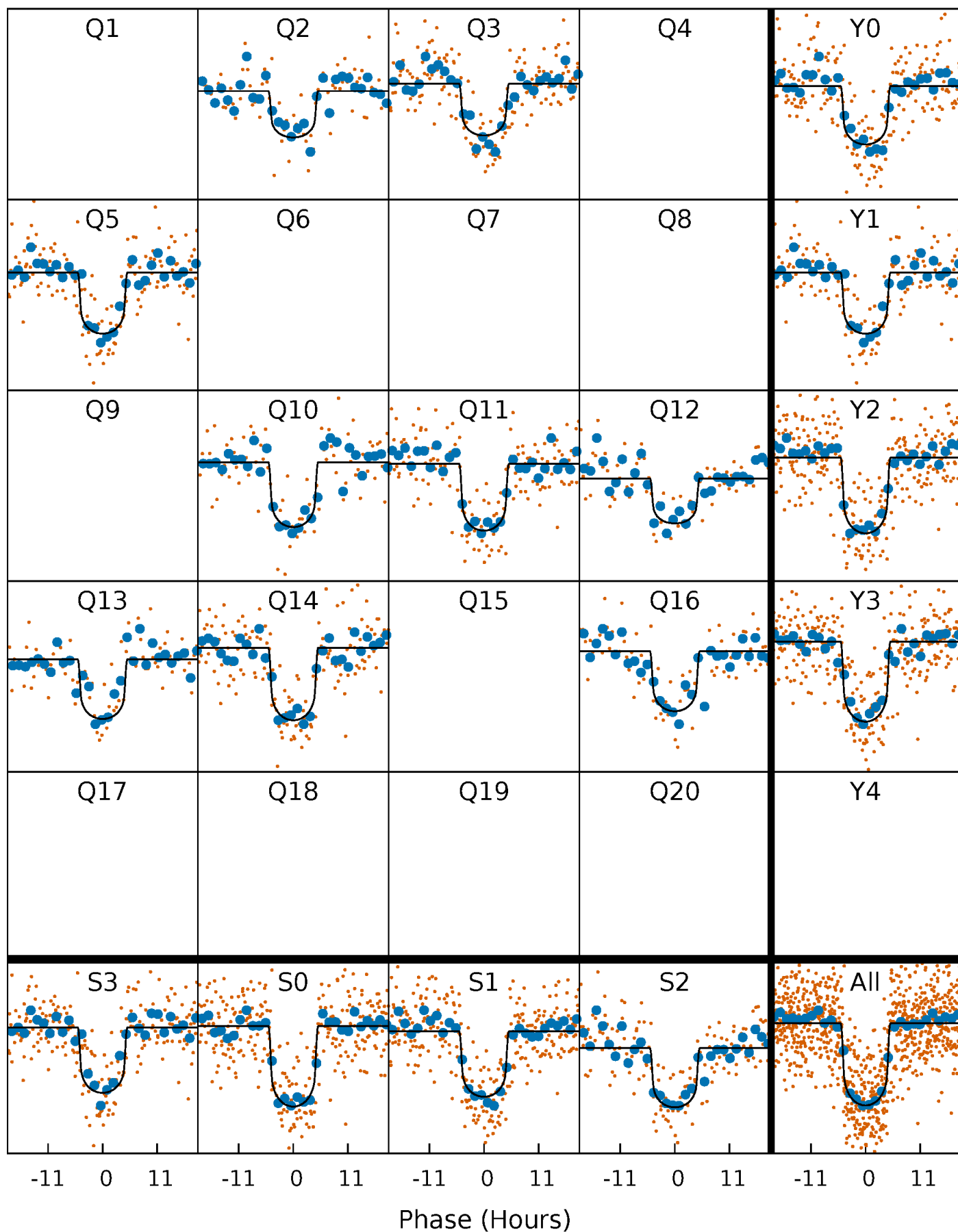
PDC Quarter-Phased Transit Curves

TCE 009896558-01 P= 67.669758 Days $T_0=198.184009$ (BKJD)



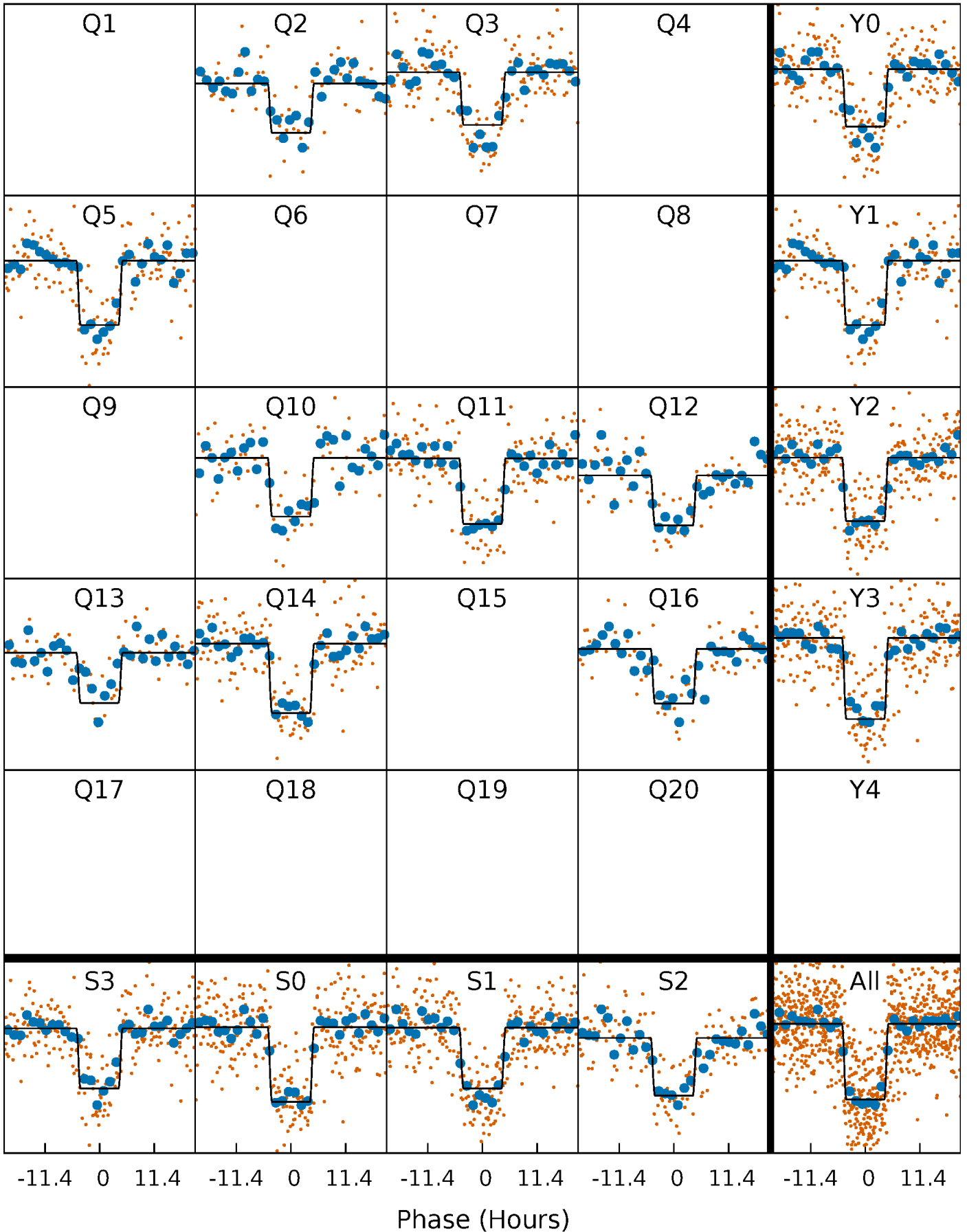
DV Quarter-Phased Transit Curves

TCE 009896558-01 P= 67.669758 Days $T_0=198.184009$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

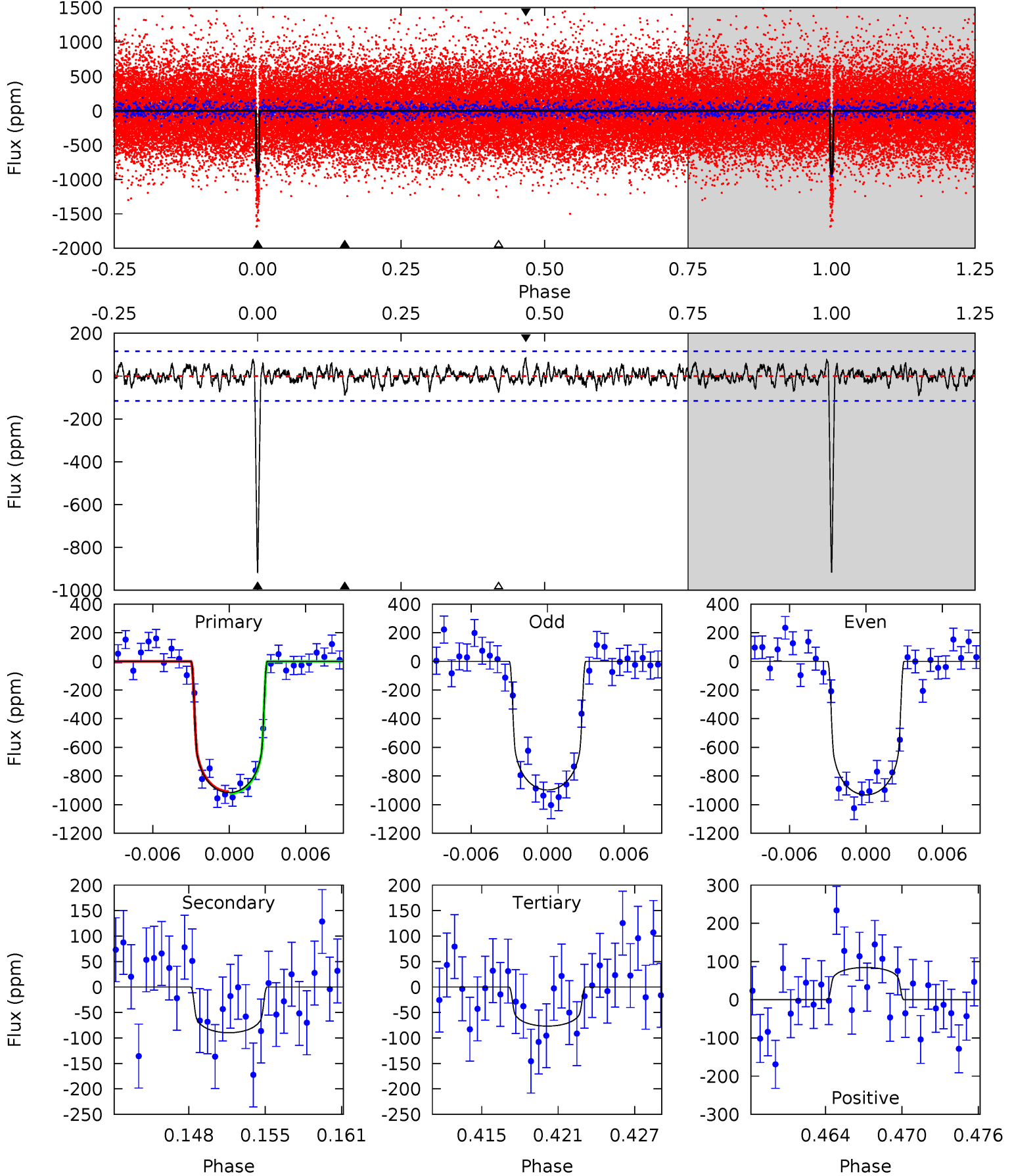
TCE 009896558-01 P= 67.667658 Days $T_0=198.205753$ (BKJD)



DV Model-Shift Uniqueness Test

009896558-01, P = 67.669758 Days, E = 130.514251 Days

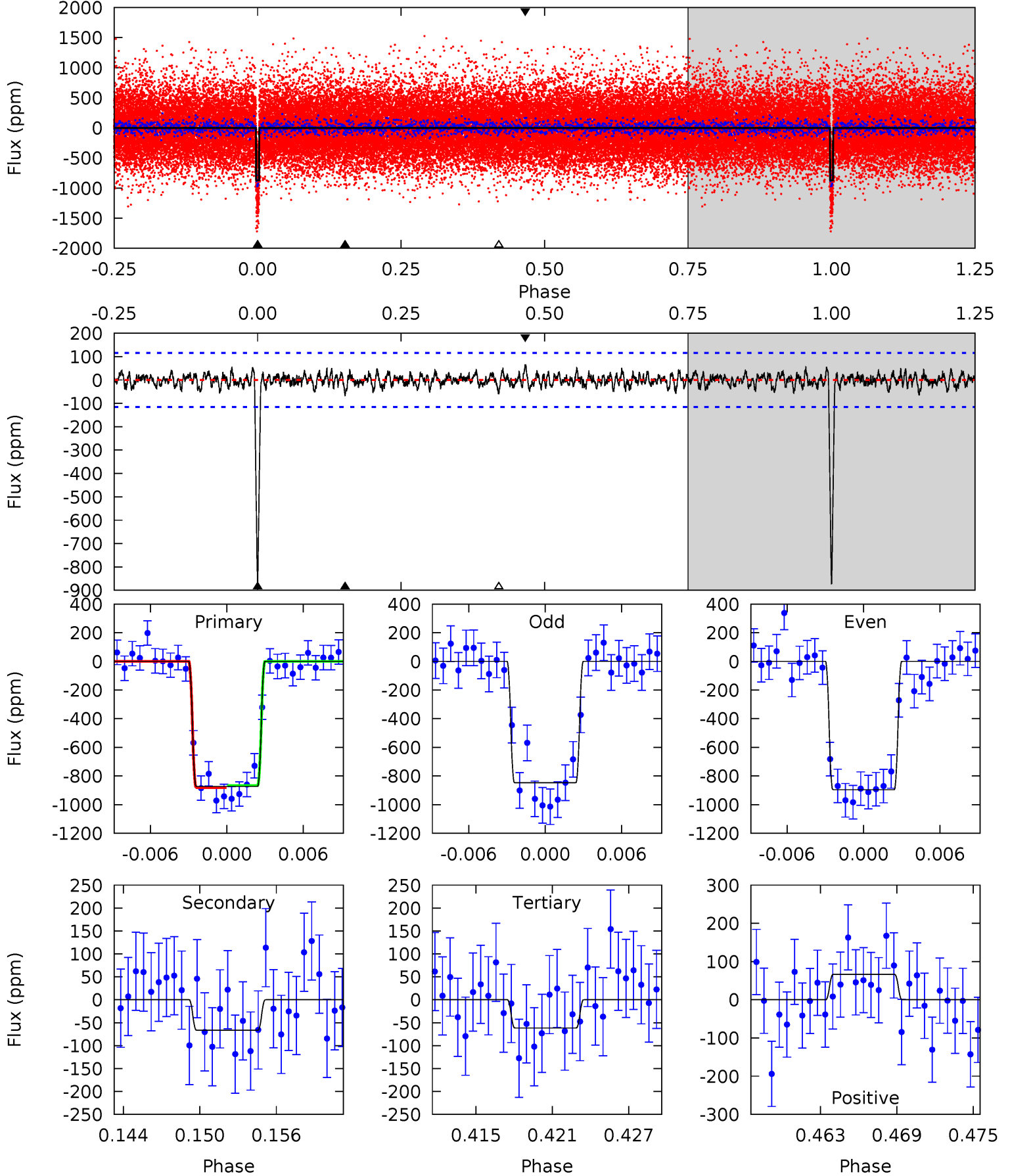
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.6	3.97	3.40	3.74	5.12	2.74	1.14	37.2	36.8	0.58	0.23	0.76	1.00	0.08	0.27



Alt Model-Shift Uniqueness Test

009896558-01, $P = 67.667658$ Days, $E = 130.538095$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.7	2.94	2.72	2.94	5.12	2.75	0.88	36.0	35.7	0.22	0.00	1.08	1.01	0.07	0.31



Stellar Parameters For KIC 009896558

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6127^{+192}_{-213}	$4.356^{+0.128}_{-0.192}$	$-0.300^{+0.300}_{-0.300}$	$1.080^{+0.320}_{-0.172}$	$0.964^{+0.142}_{-0.106}$	$1.079^{+0.645}_{-0.544}$
	+3%/-3%	+3%/-4%	+100%/-100%	+30%/-16%	+15%/-11%	+60%/-50%
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 009896558-01 / KOI 1718.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-90 ± 23	$3.47^{+0.77}_{-0.75}$	697^{+50}_{-40}	3859^{+350}_{-263}	422^{+277}_{-161}
Alt.	-66 ± 23	$3.60^{+0.84}_{-0.69}$	697^{+51}_{-45}	3626^{+323}_{-301}	280^{+211}_{-115}

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 $A_{obs} \gg 1.0$

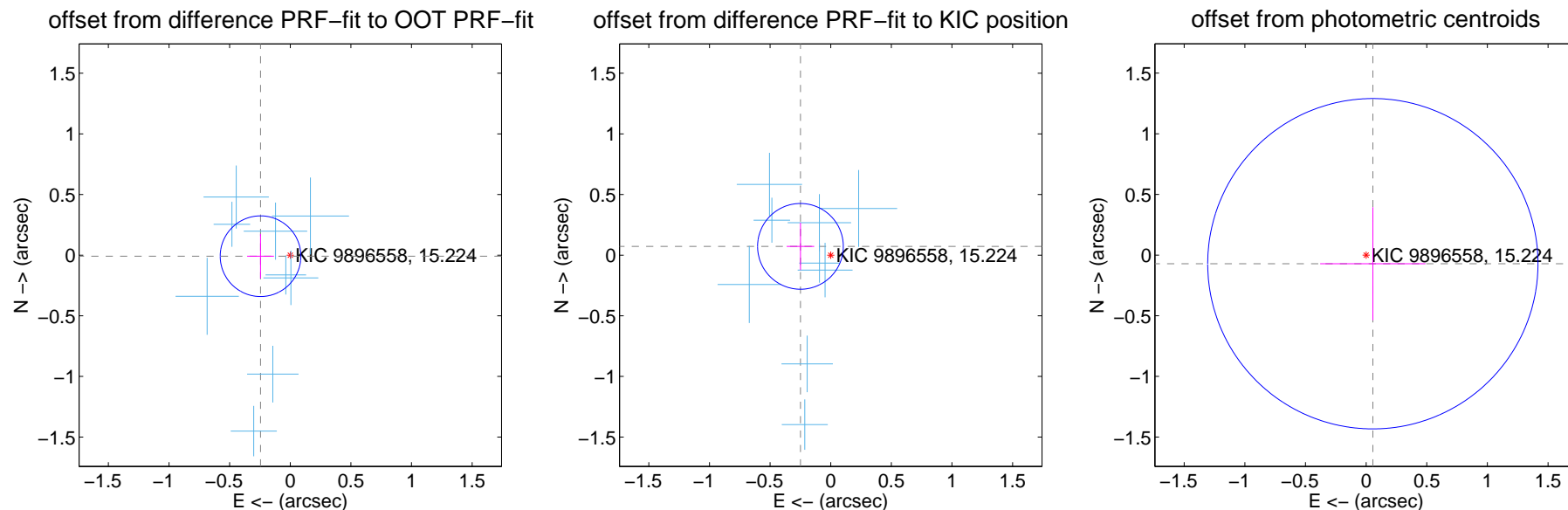
DV Centroid Data

Supplemental centroid analysis for 009896558-01. Kepler magnitude: 15.22. Transit SNR 28.81

There are 9 quarters with good PRF difference image offsets

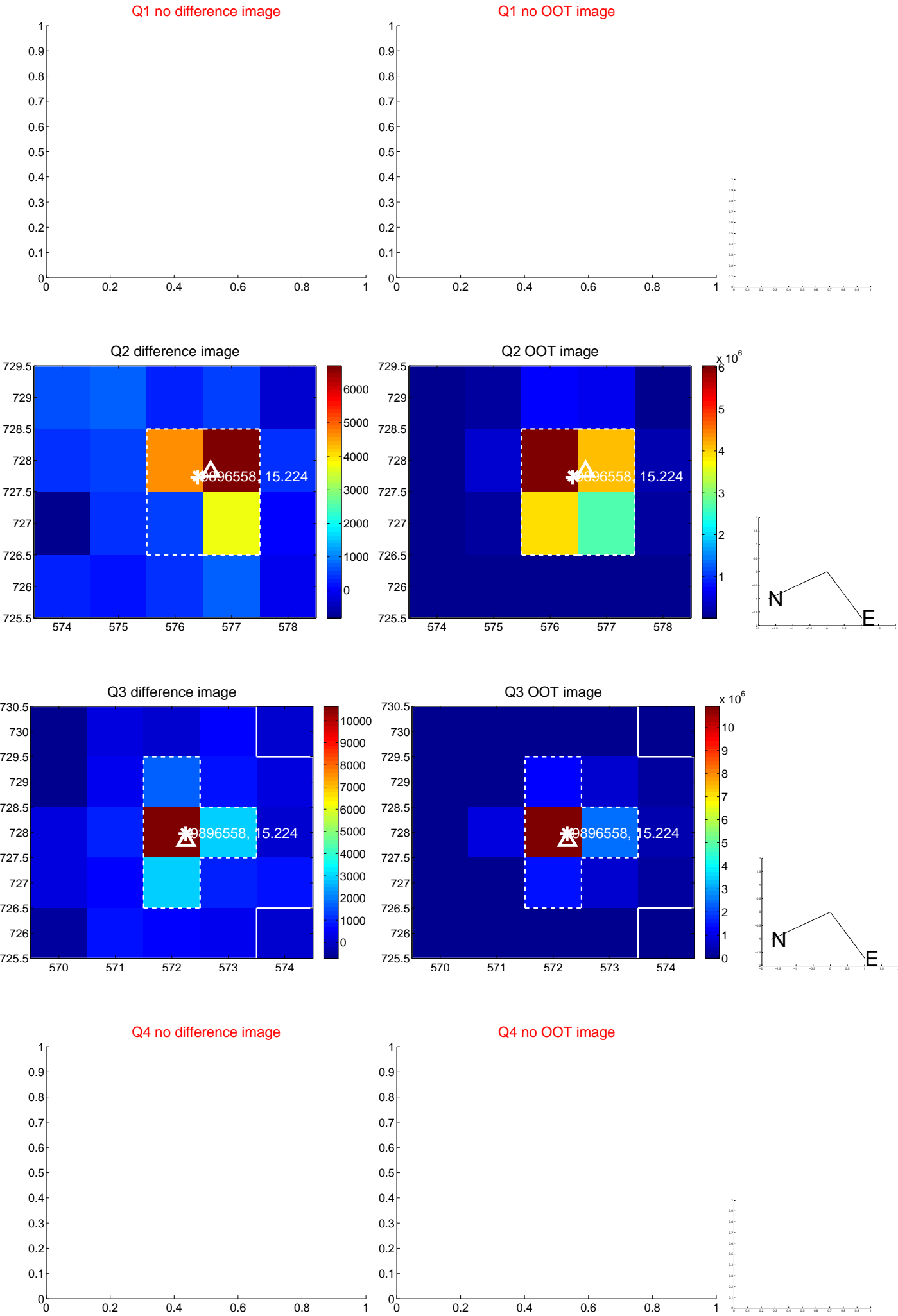
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.245 ± 0.111	2.21	0.245 ± 0.111	-0.009 ± 0.183
PRF-fit source offset from KIC position	0.260 ± 0.118	2.21	0.250 ± 0.113	0.072 ± 0.195
photometric centroid source offset	0.09 ± 0.45	0.20	-0.06 ± 0.43	-0.07 ± 0.47

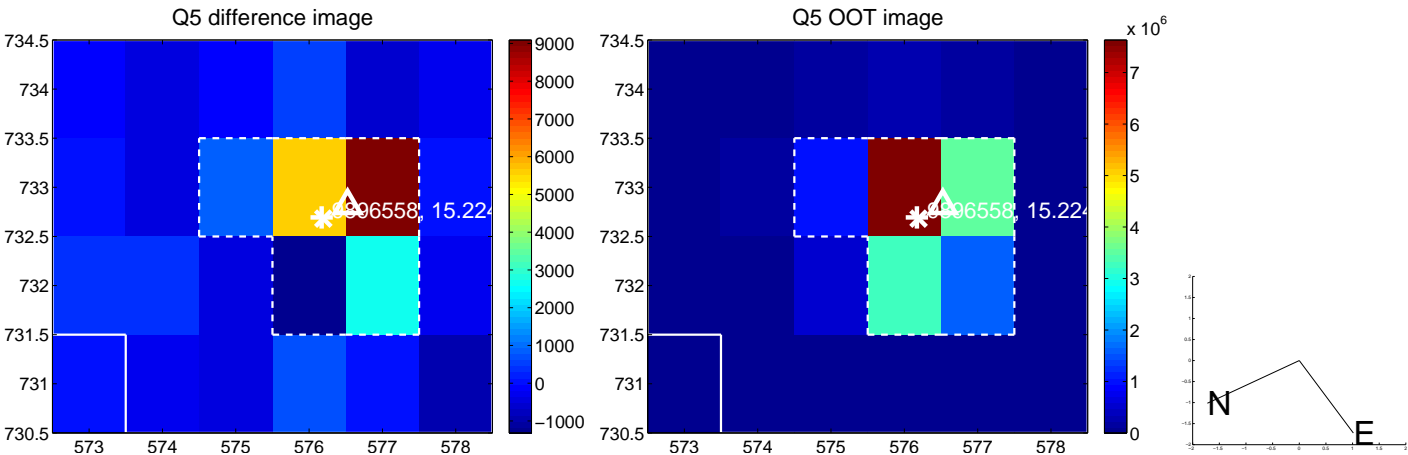


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

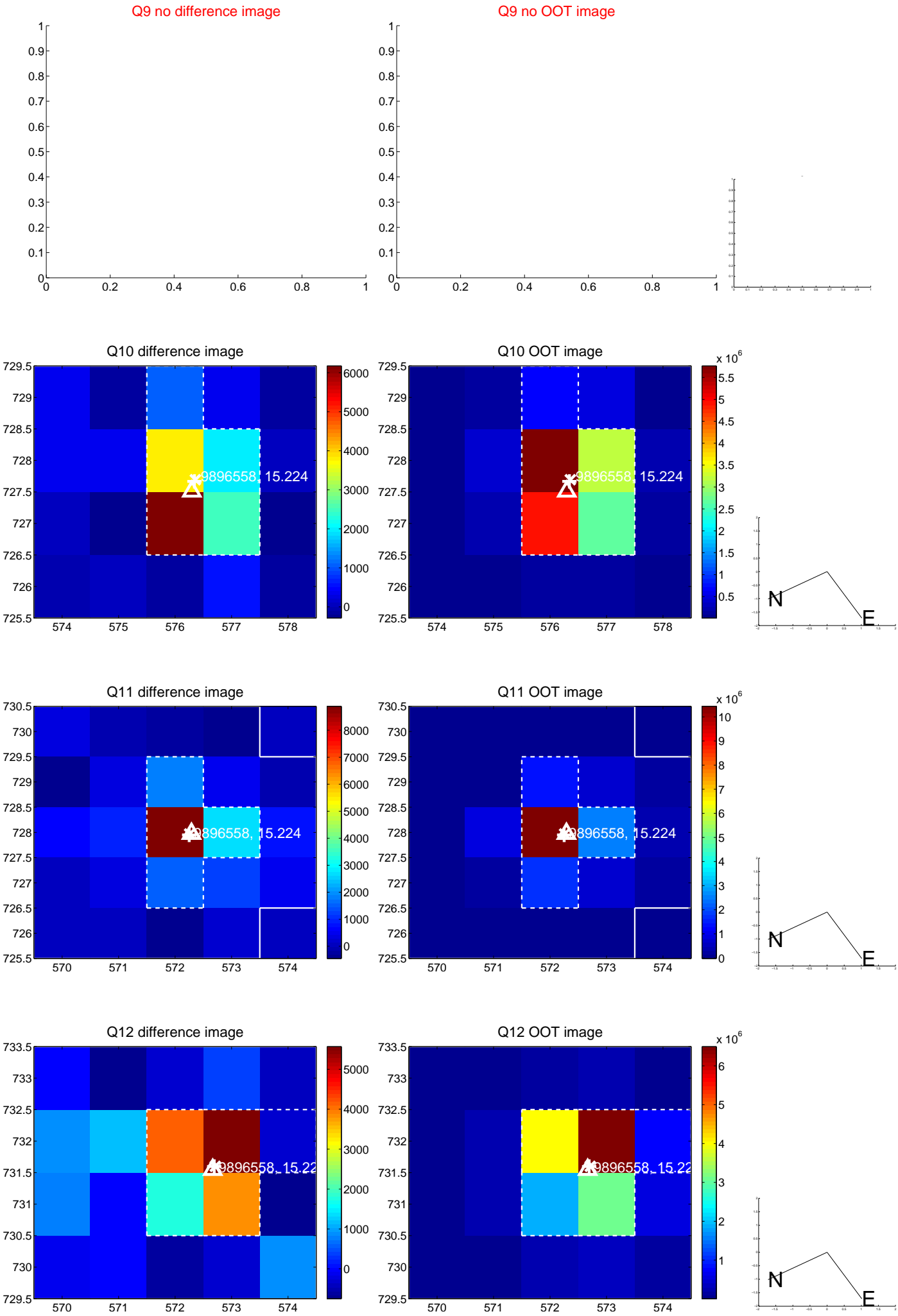
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



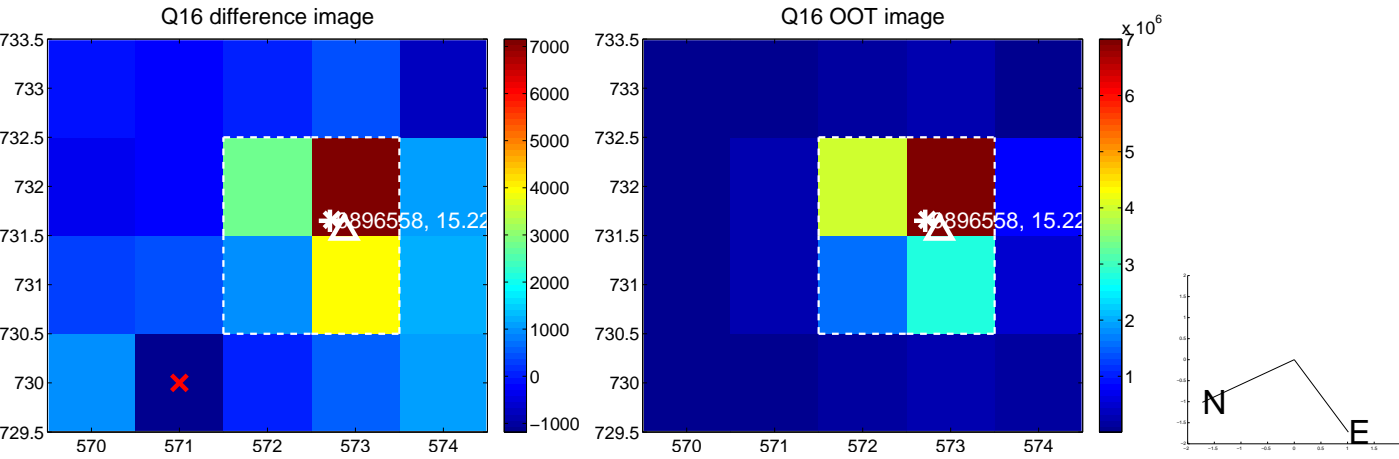
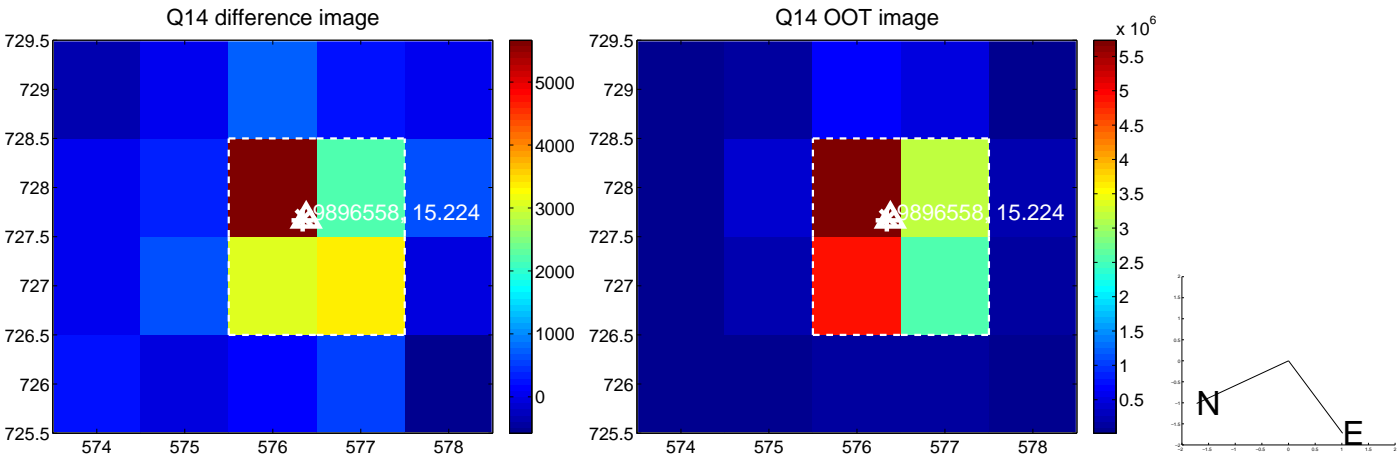
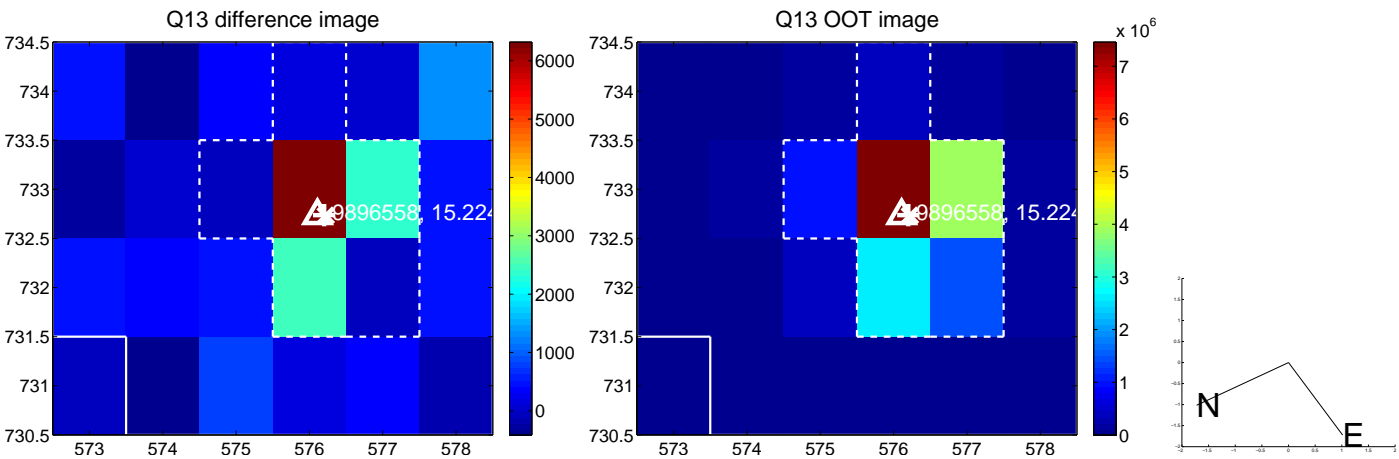
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



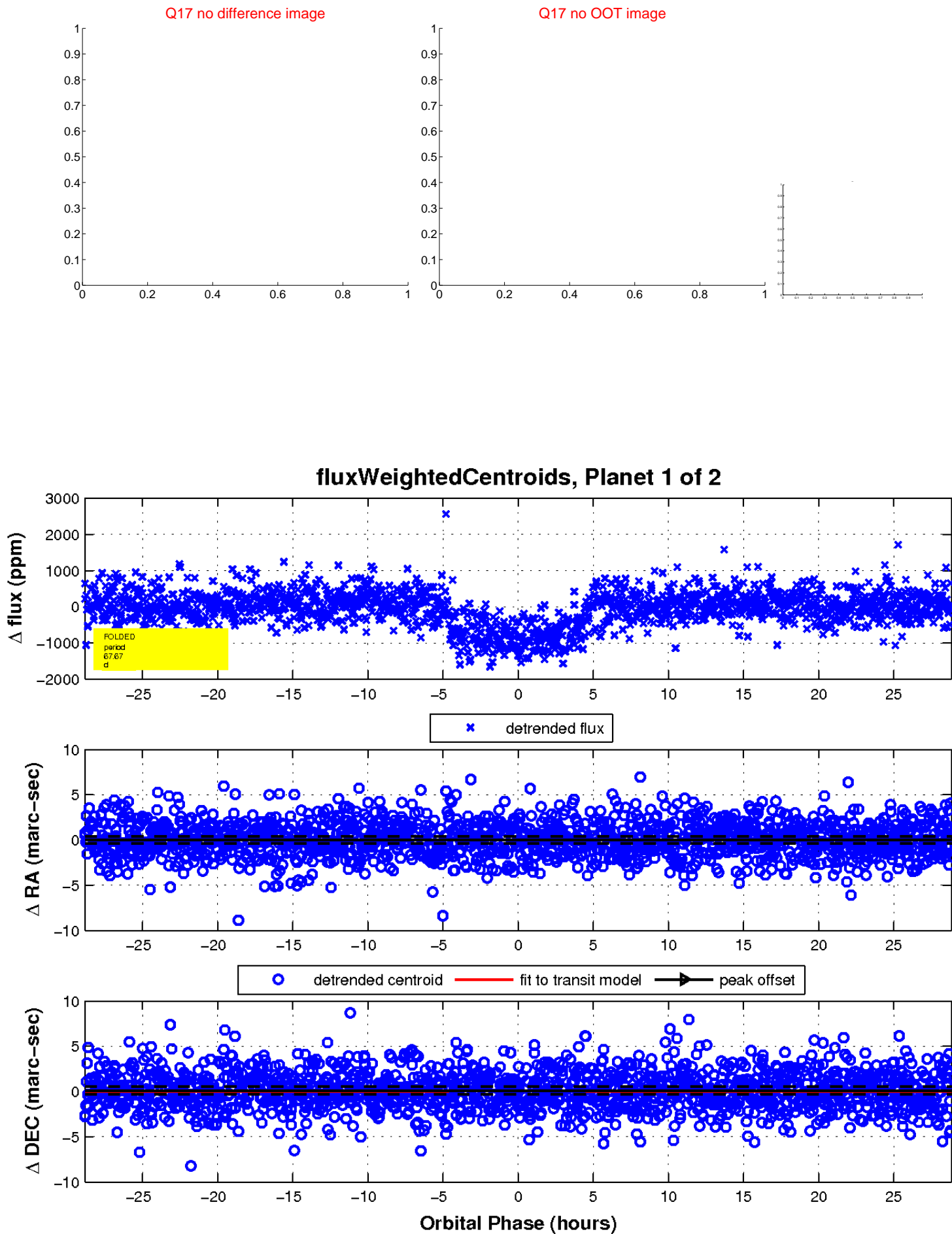
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

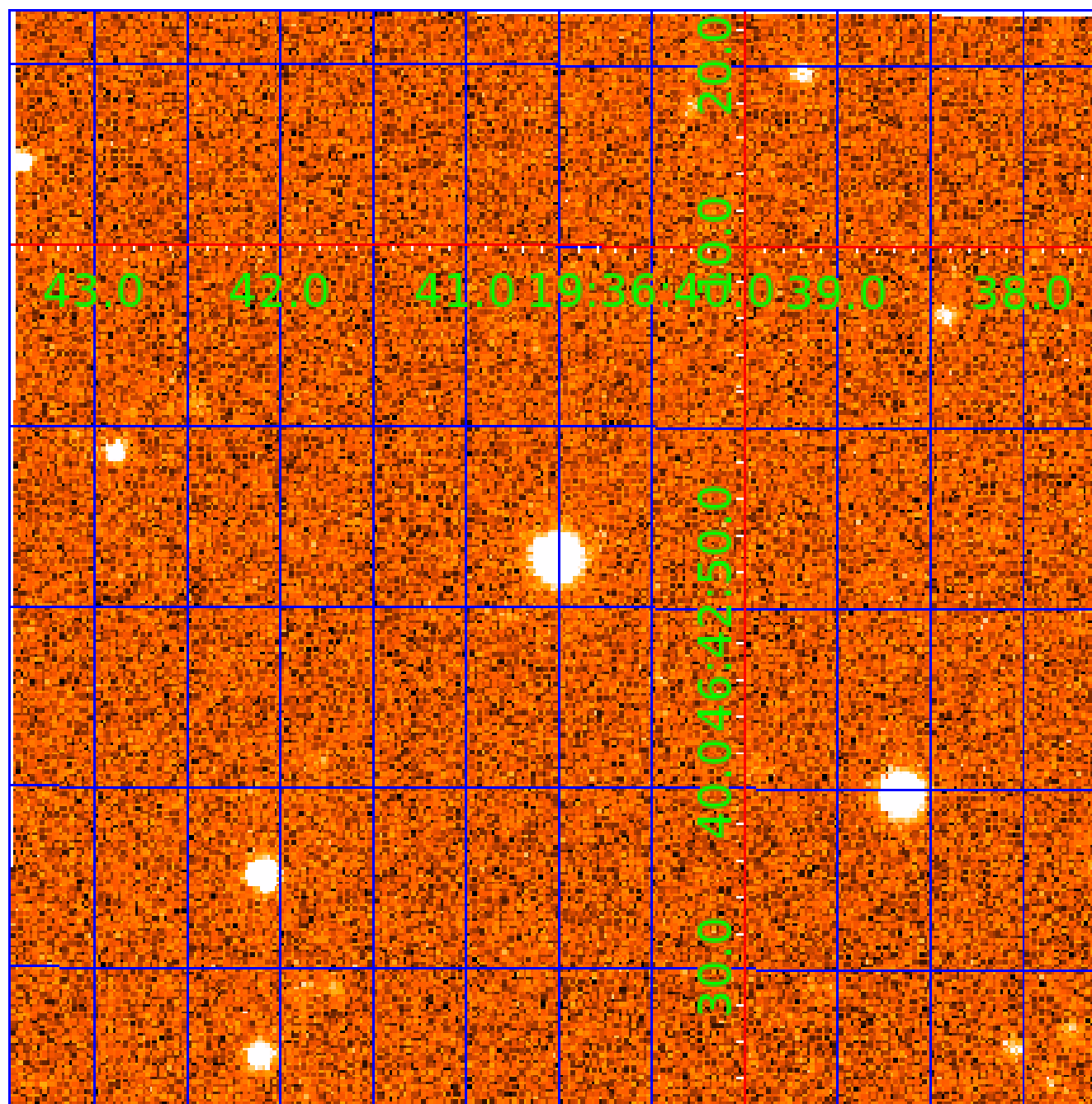


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009896558

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})
009896558-01	OBS	1718.01	67.669758	198.184009	927.6	9.620	27.7	28.8	1.08	6127	3.41	14.27
009896558-02	OBS	1718.02	153.351337	190.525151	374.0	12.713	10.0	9.5	1.08	6127	2.54	4.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009896558-01	OBS	PC	0.96	0	0	0	0	NO_COMMENT
009896558-02	OBS	PC	0.99	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.

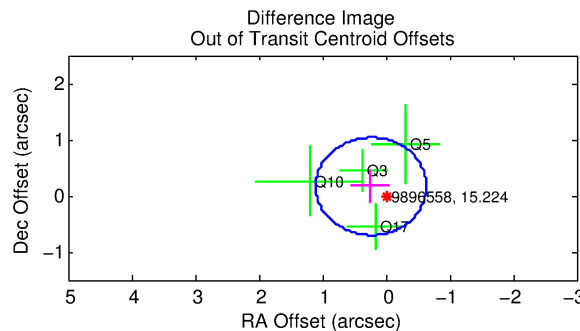
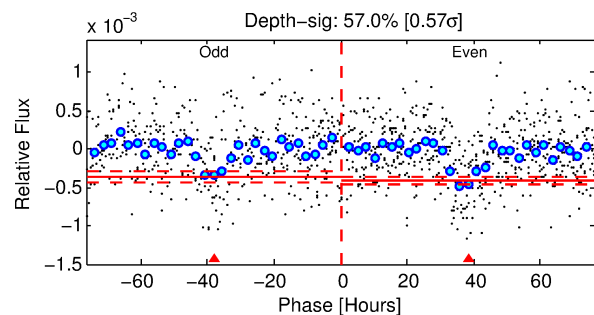
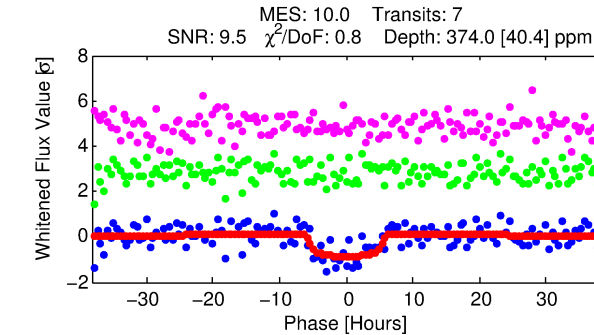
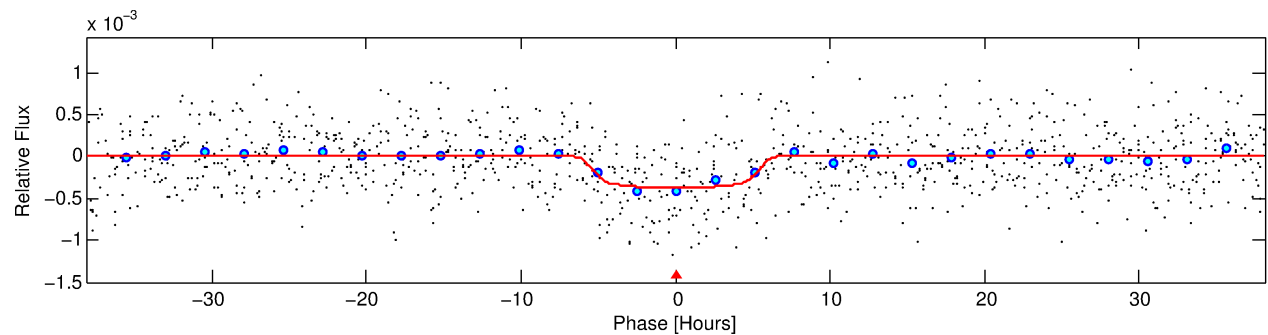
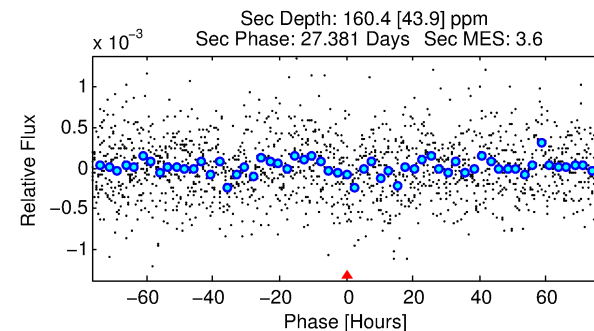
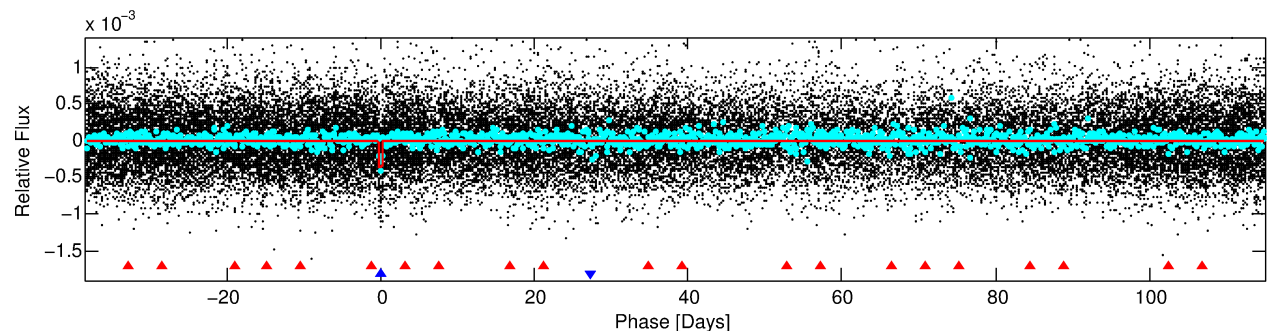
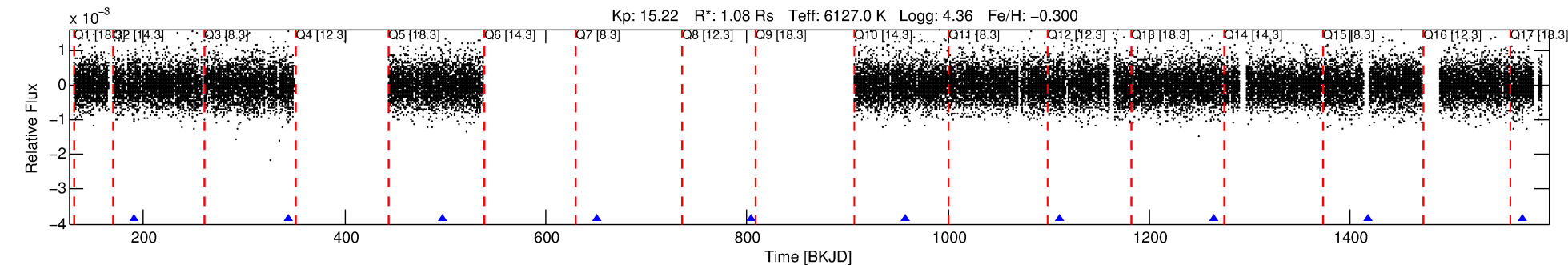
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009896558-02

No Significant Match Found

DV One-Page Summary

KIC: 9896558 Candidate: 2 of 2 Period: 153.351 d
KOI: K01718.02 Corr: 0.912



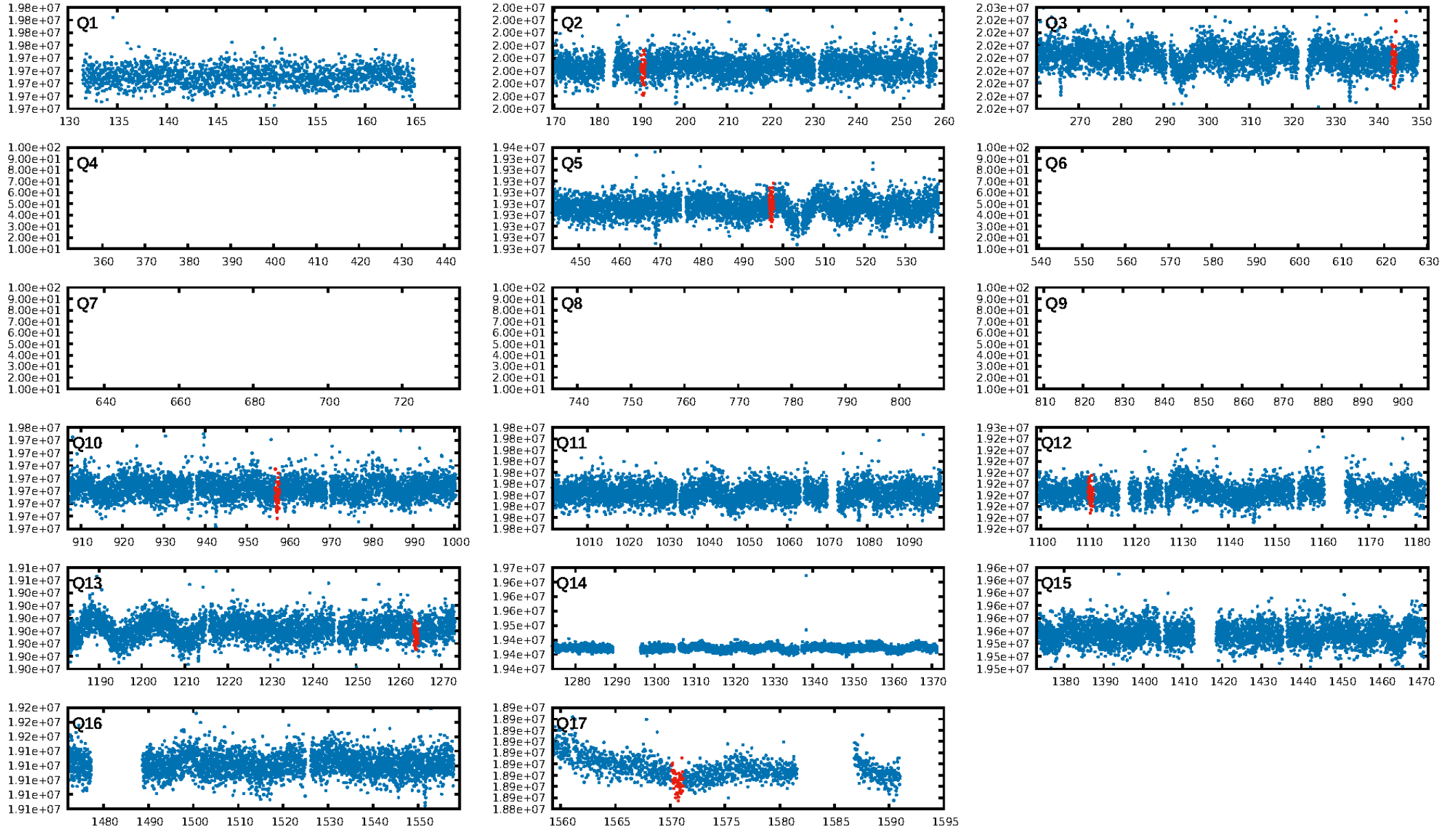
DV Fit Results:

Period = 153.35134 [0.00401] d
Epoch = 190.5252 [0.0210] BKJD
Rp/R* = 0.0216 [0.0022]
a/R* = 38.16 [16.03]
b = 0.93 [0.06]
Seff = 4.79 [1.83]
Teq = 377 [36] K
Rp = 2.54 [0.79] Re
a = 0.5543 [0.1366] AU
Ag = 4201.26 [2062.24] [2.04σ]
Teffp = 4696 [430] K [10.00σ]

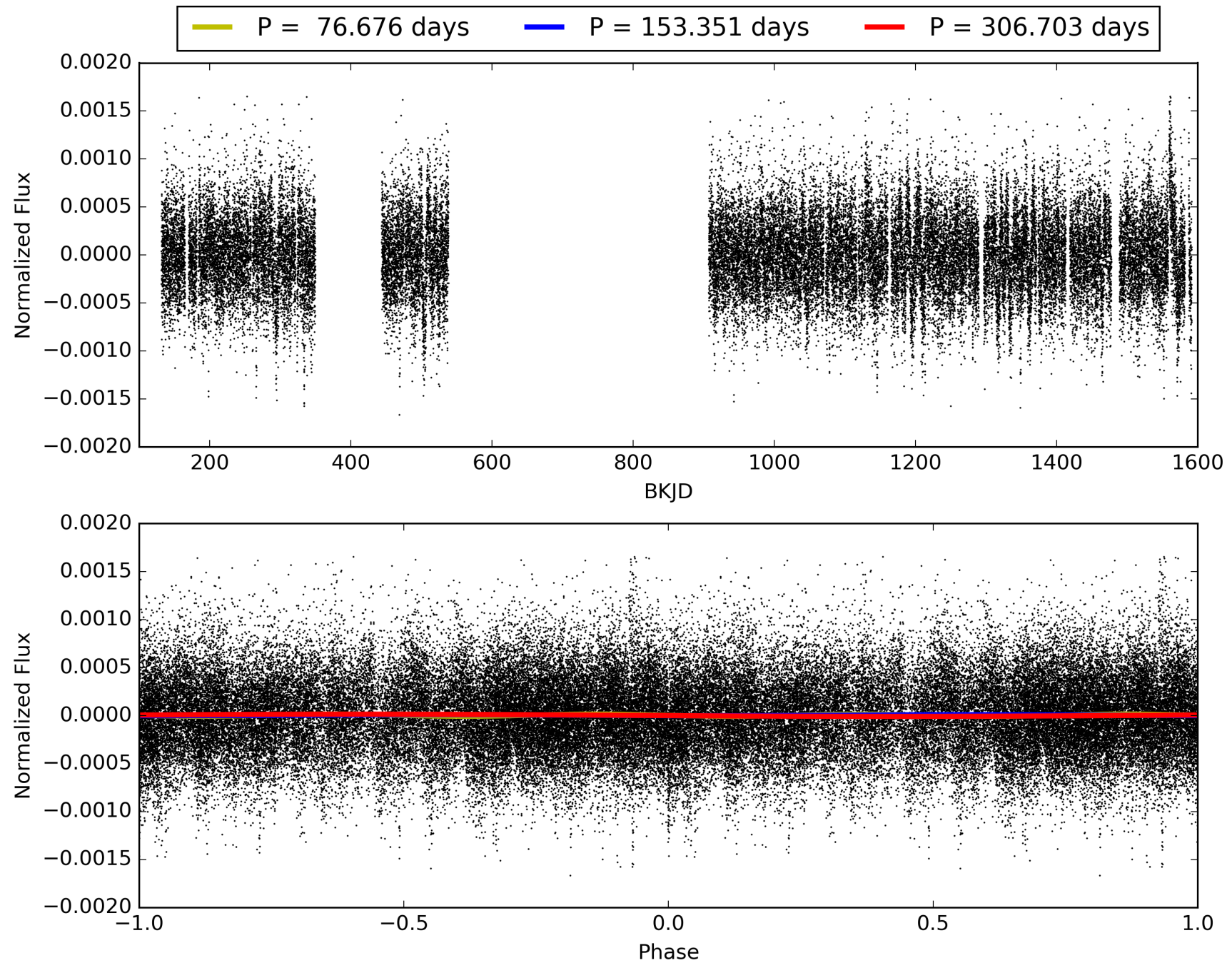
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [128.98σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 65.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.18e-24
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 3.302
Centroid-sig: 30.4%
Centroid-so: 1.343 arcsec [0.94σ]
OotOffset-rm: 0.290 arcsec [1.00σ]
KicOffset-rm: 0.314 arcsec [0.98σ]
OotOffset-st: 1/1/0/2 [4]
KicOffset-st: 1/1/0/2 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [6/6]

TCE 009896558-02, PDC Light Curves

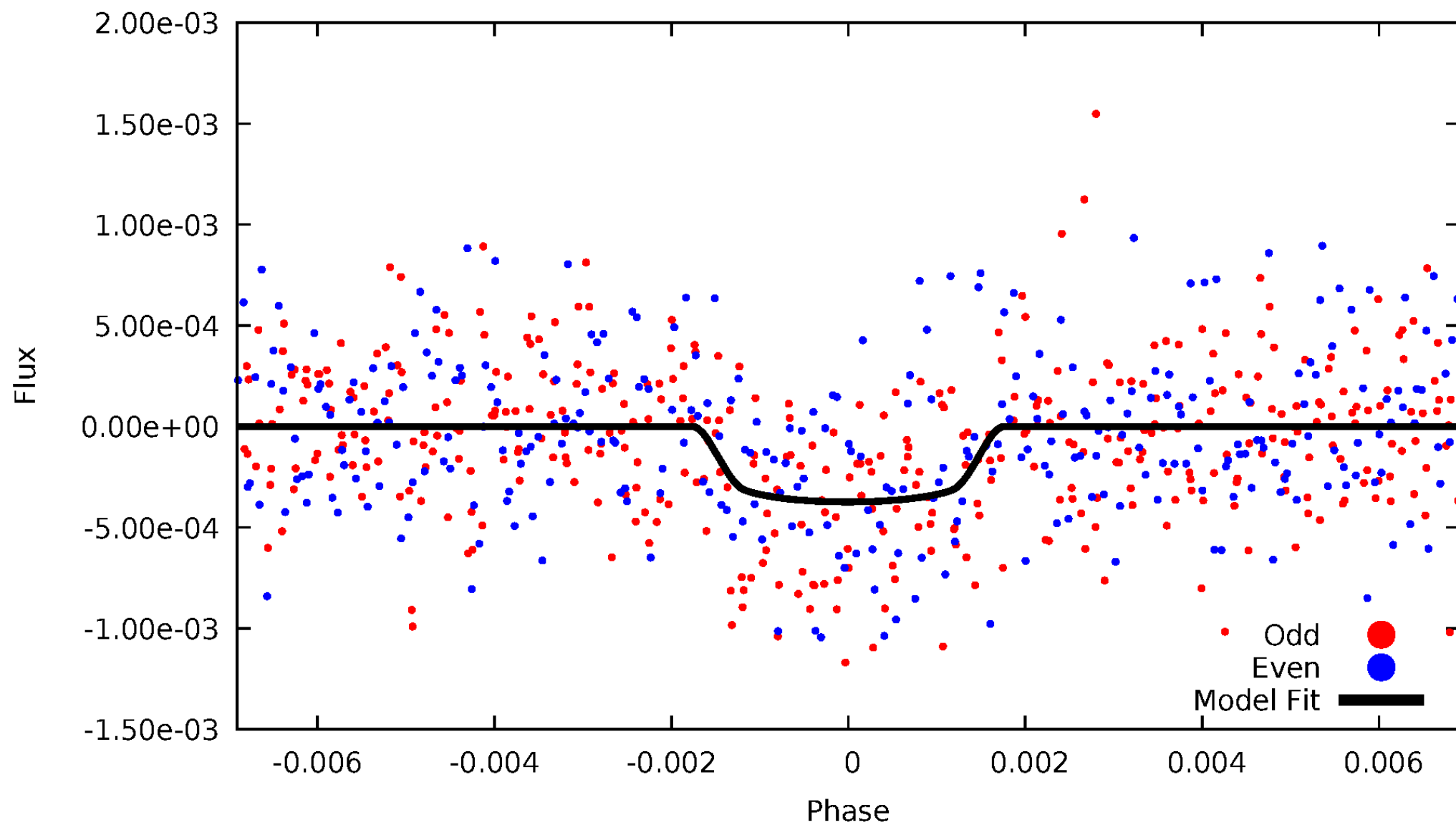


TCE 009896558-02



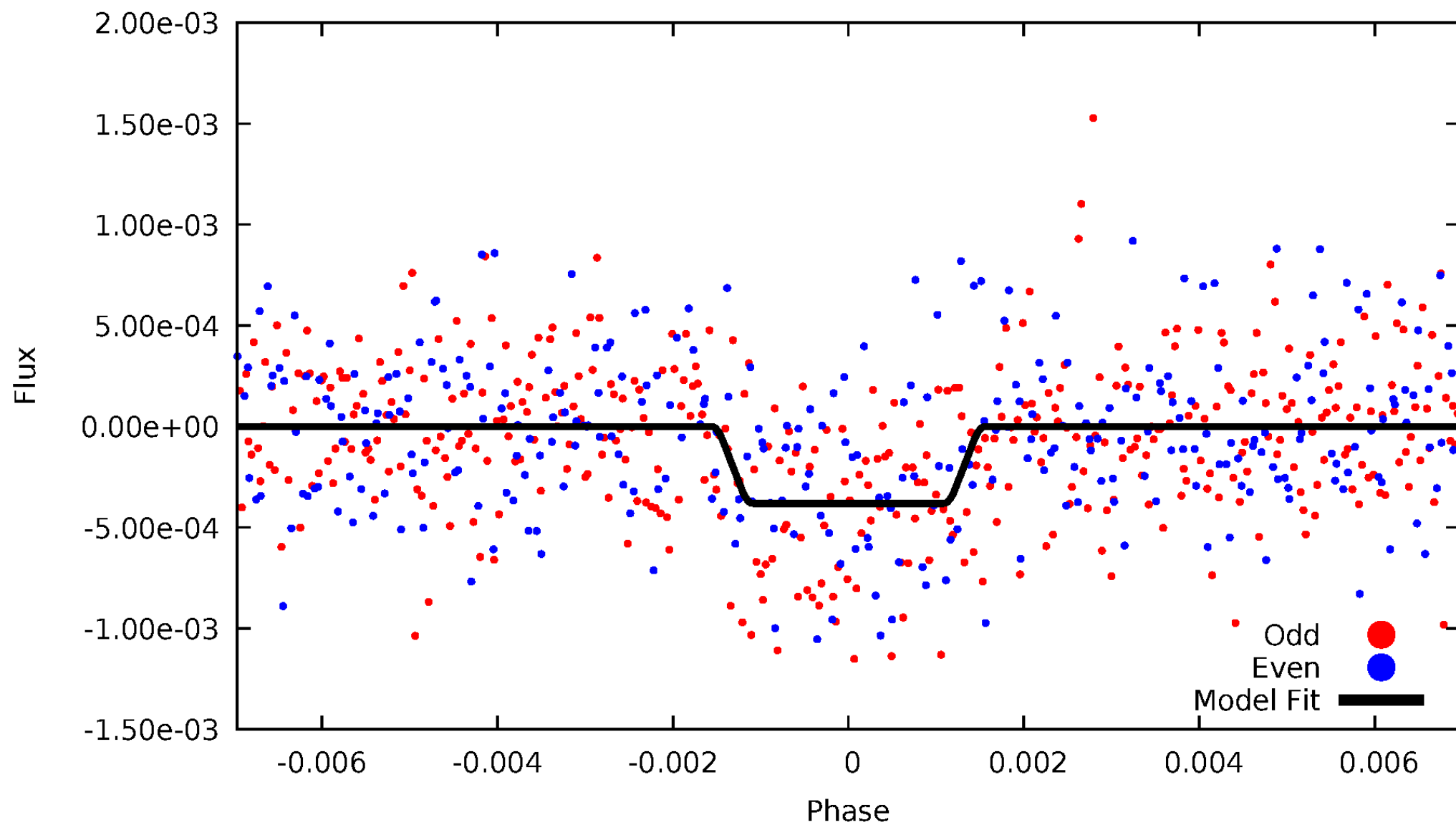
DV Odd/Even

TCE 009896558-02



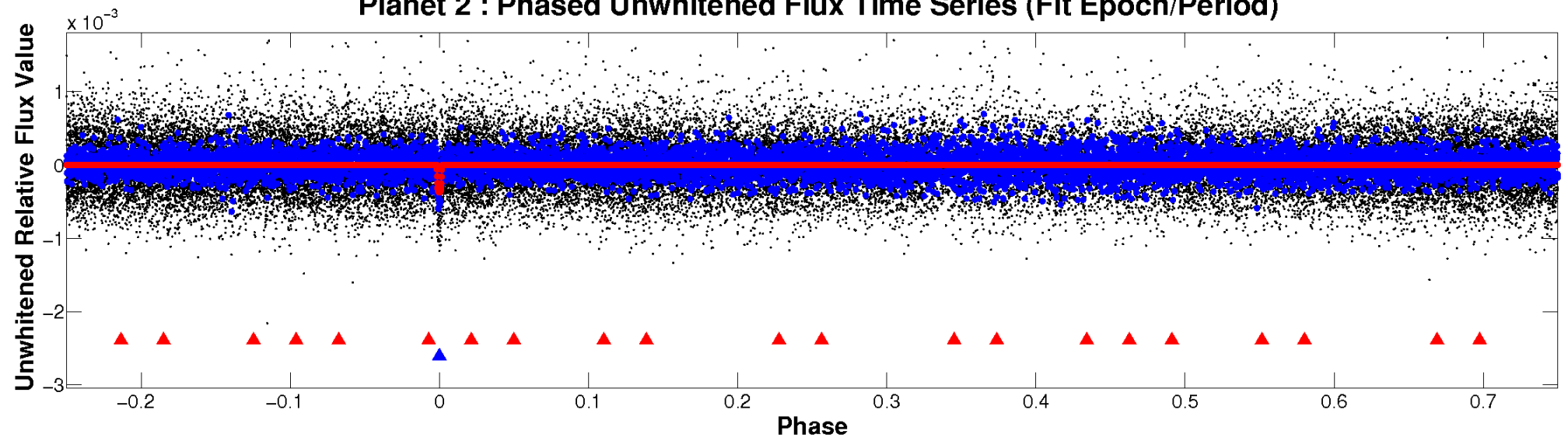
ALT Odd/Even

TCE 009896558-02

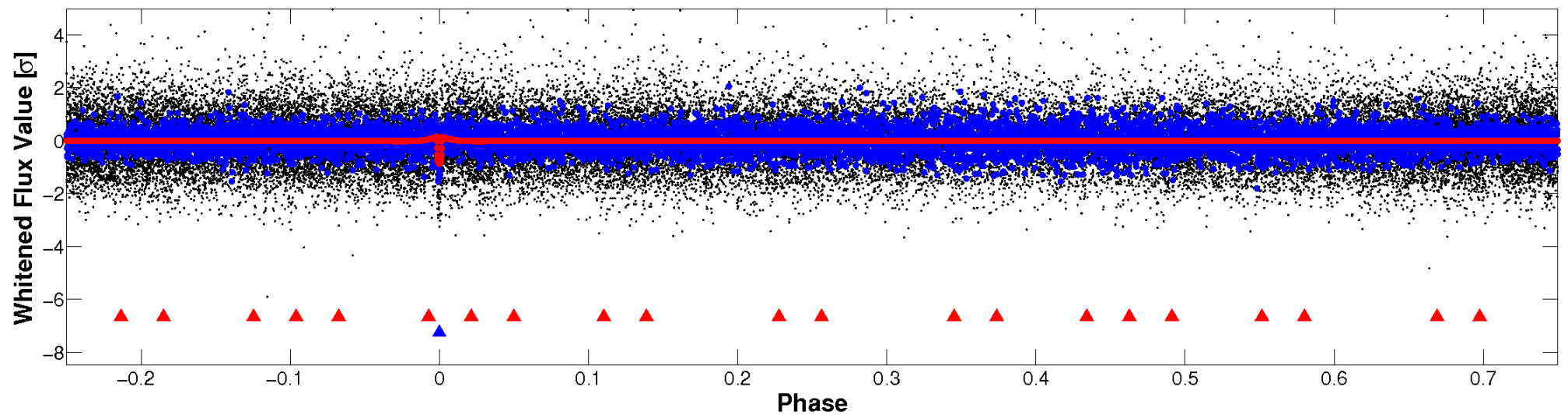


Non-Whitened Vs. Whitened Light Curve

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

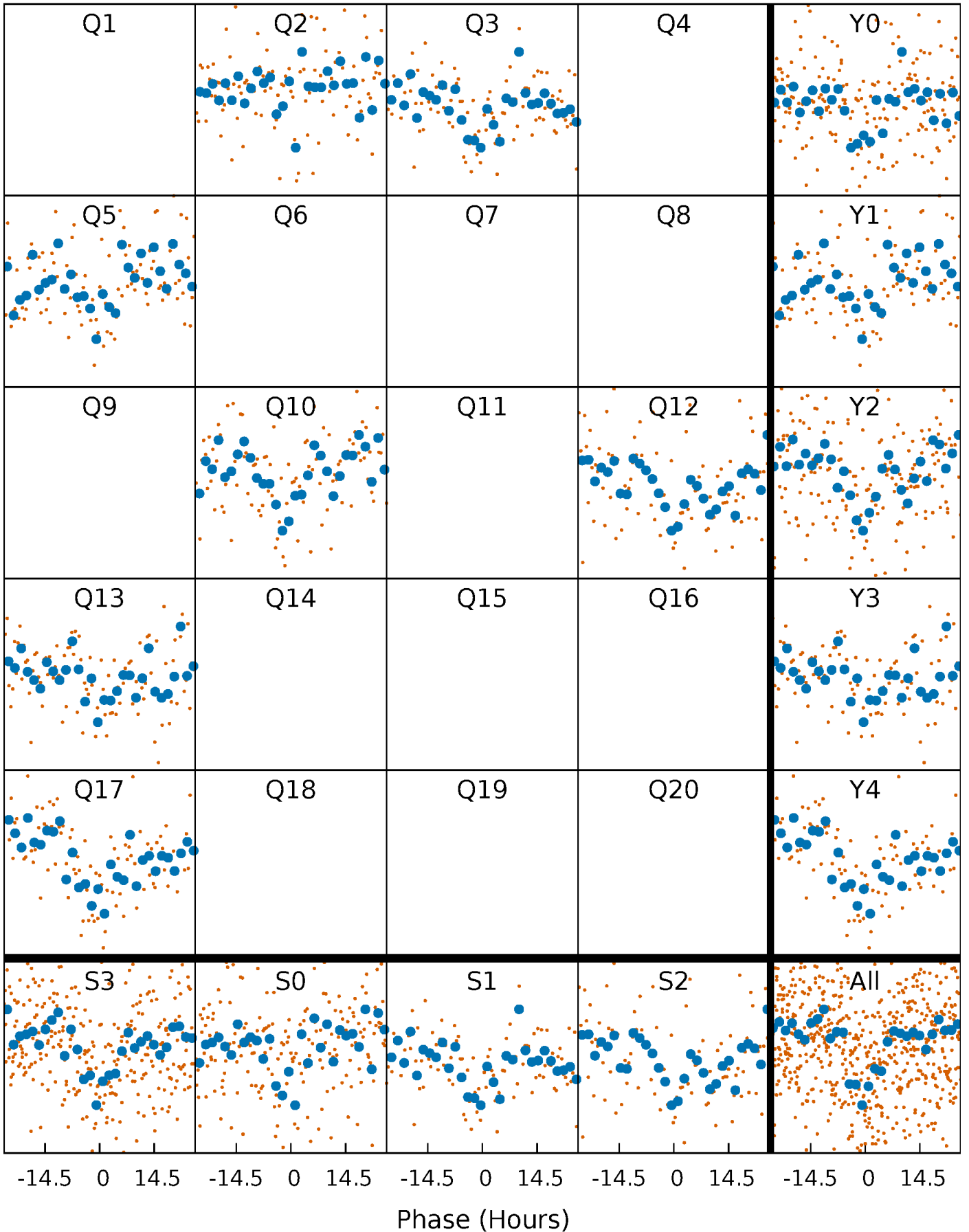


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



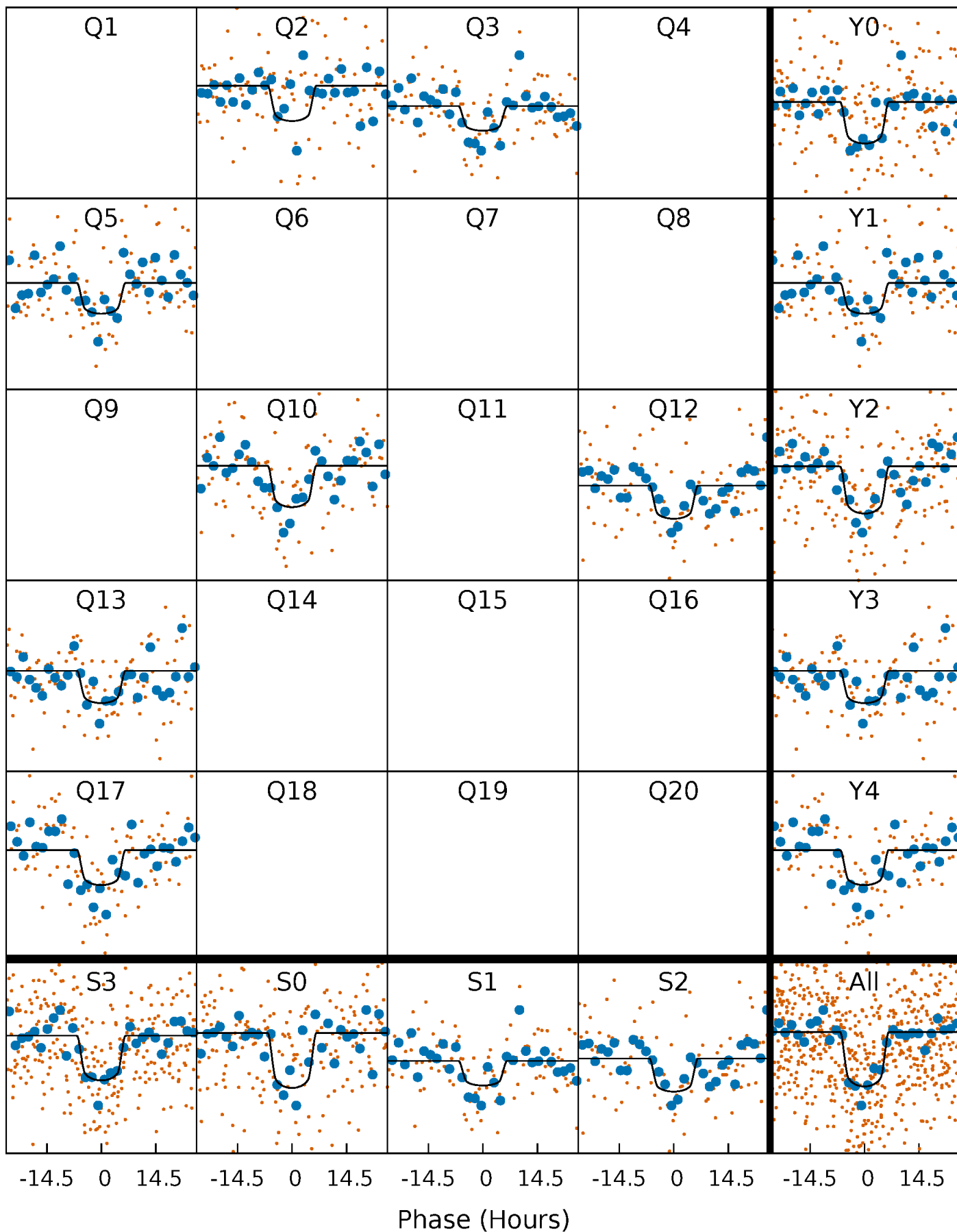
PDC Quarter-Phased Transit Curves

TCE 009896558-02 P=153.351337 Days $T_0=190.525151$ (BKJD)



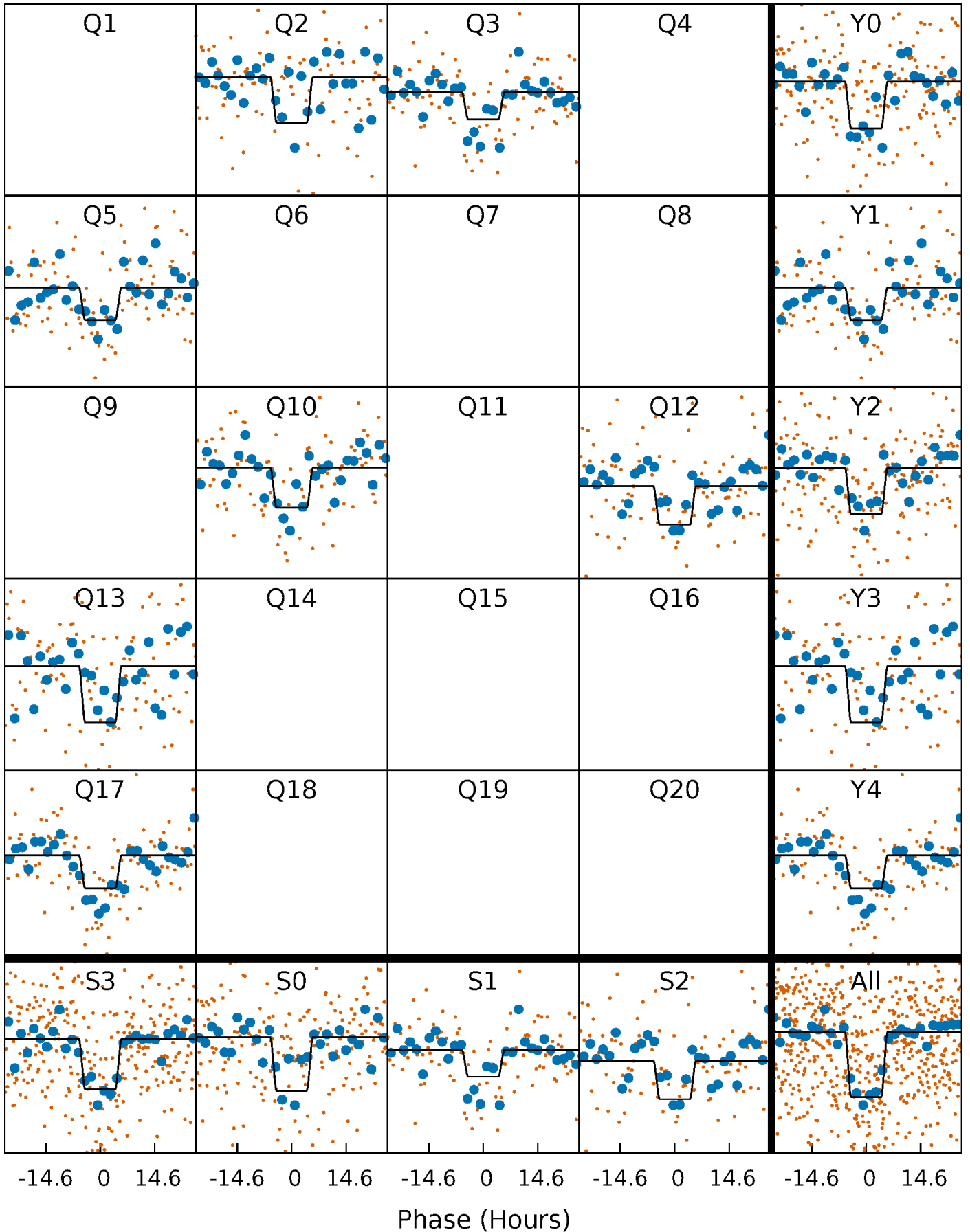
DV Quarter-Phased Transit Curves

TCE 009896558-02 P=153.351337 Days $T_0=190.525151$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

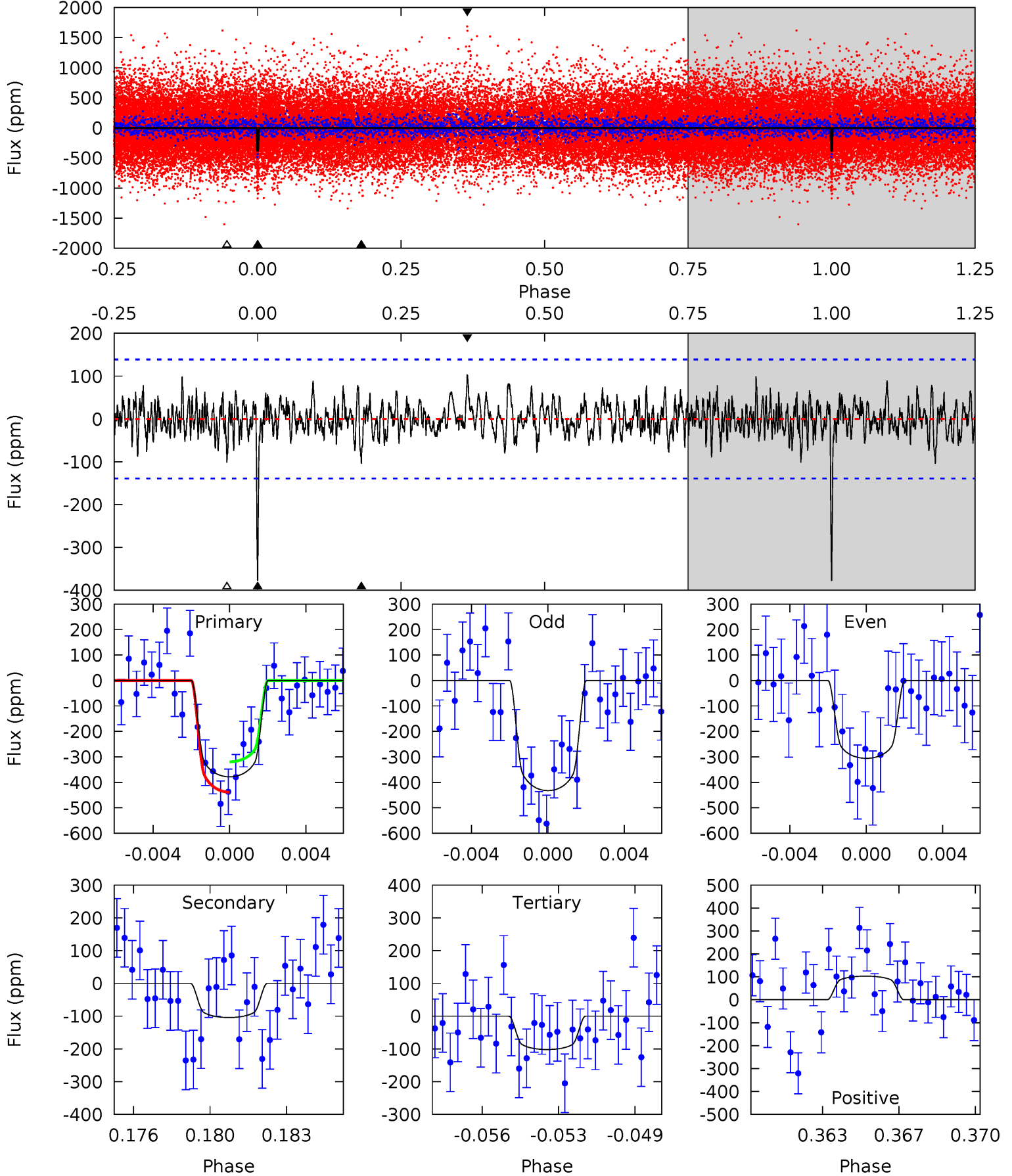
TCE 009896558-02 P=153.347057 Days $T_0=190.531267$ (BKJD)



DV Model-Shift Uniqueness Test

009896558-02, $P = 153.351337$ Days, $E = 37.173814$ Days

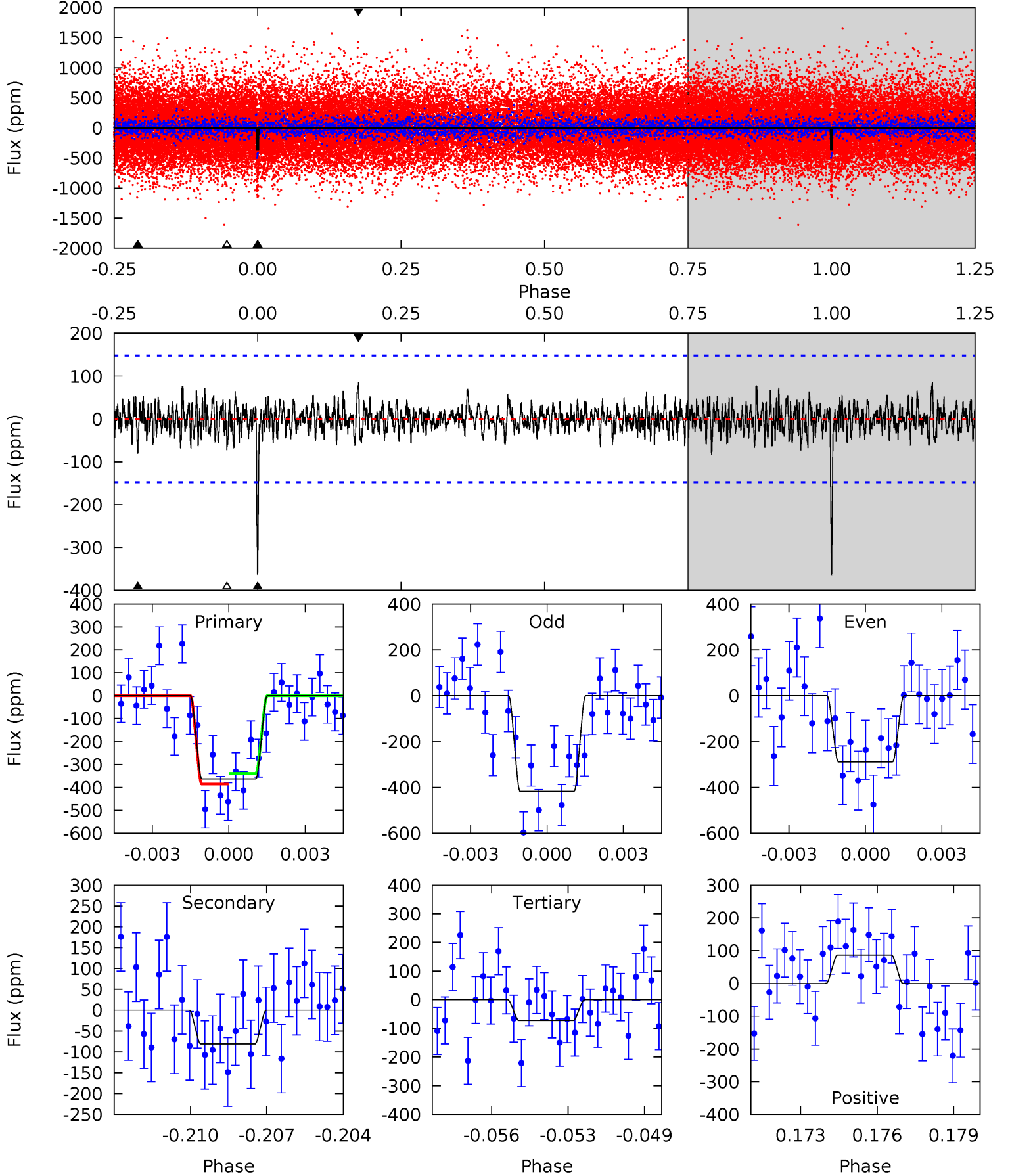
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	3.92	3.83	3.87	5.22	2.92	1.17	10.4	10.3	0.09	0.05	2.36	0.97	0.21	2.25



Alt Model-Shift Uniqueness Test

009896558-02, $P = 153.347057$ Days, $E = 37.184210$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	2.88	2.58	3.06	5.25	2.96	0.85	10.3	9.81	0.30	-0.18	2.26	1.01	0.19	0.82



Stellar Parameters For KIC 009896558

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6127^{+192}_{-213}	$4.356^{+0.128}_{-0.192}$	$-0.300^{+0.300}_{-0.300}$	$1.080^{+0.320}_{-0.172}$	$0.964^{+0.142}_{-0.106}$	$1.079^{+0.645}_{-0.544}$
	+3%/-3%	+3%/-4%	+100%/-100%	+30%/-16%	+15%/-11%	+60%/-50%
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 009896558-02 / KOI 1718.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-104 ± 27	$2.58^{+0.46}_{-0.38}$	533^{+38}_{-34}	4413^{+293}_{-280}	2588^{+1313}_{-900}
Alt.	-81 ± 28	$2.35^{+0.43}_{-0.35}$	530^{+44}_{-31}	4372^{+381}_{-382}	2460^{+1351}_{-1016}

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 $A_{obs} \gg 1.0$

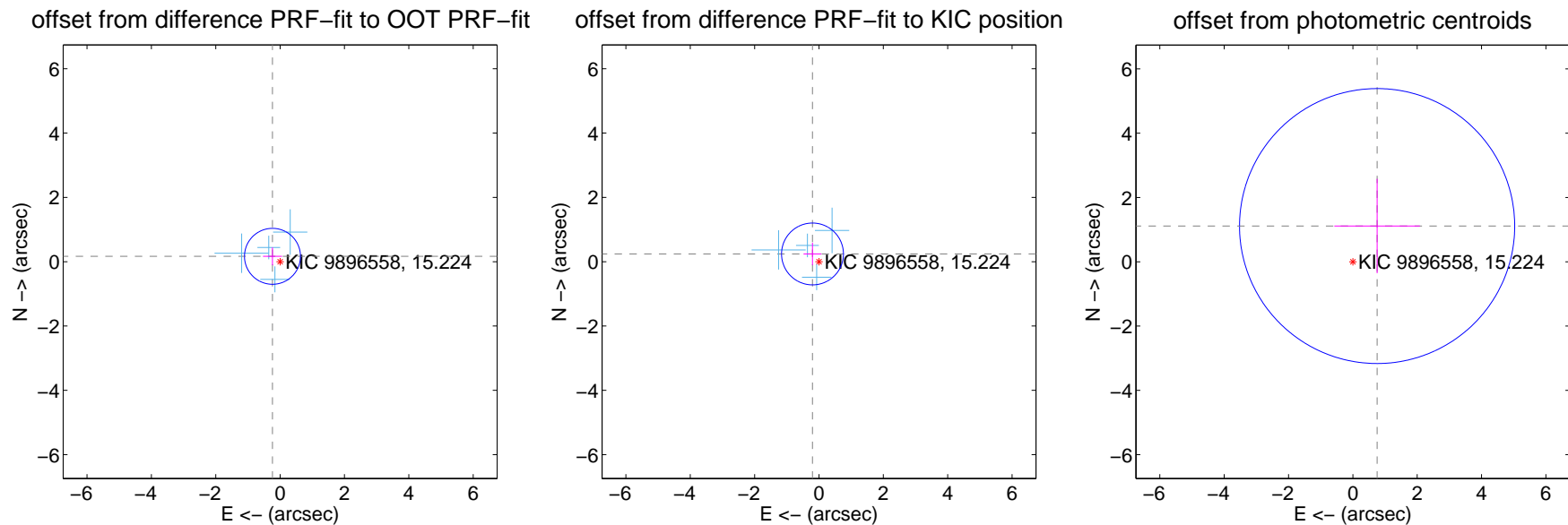
DV Centroid Data

Supplemental centroid analysis for 009896558-02. Kepler magnitude: 15.22. Transit SNR 9.46

There are 4 quarters with good PRF difference image offsets

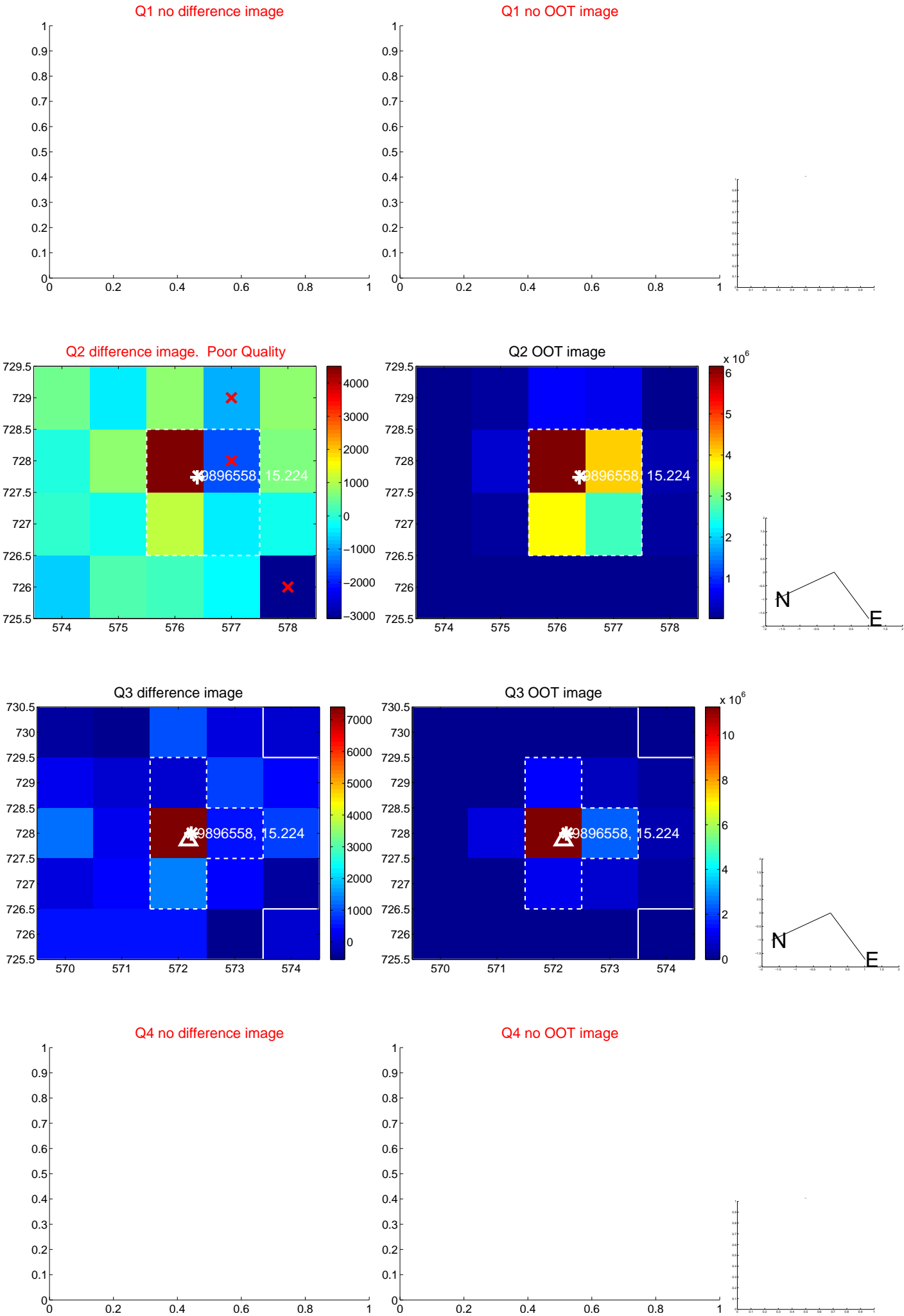
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.290 ± 0.290	1.00	0.237 ± 0.295	0.167 ± 0.279
PRF-fit source offset from KIC position	0.314 ± 0.321	0.98	0.202 ± 0.278	0.241 ± 0.347
photometric centroid source offset	1.34 ± 1.43	0.94	-0.75 ± 1.33	1.11 ± 1.47

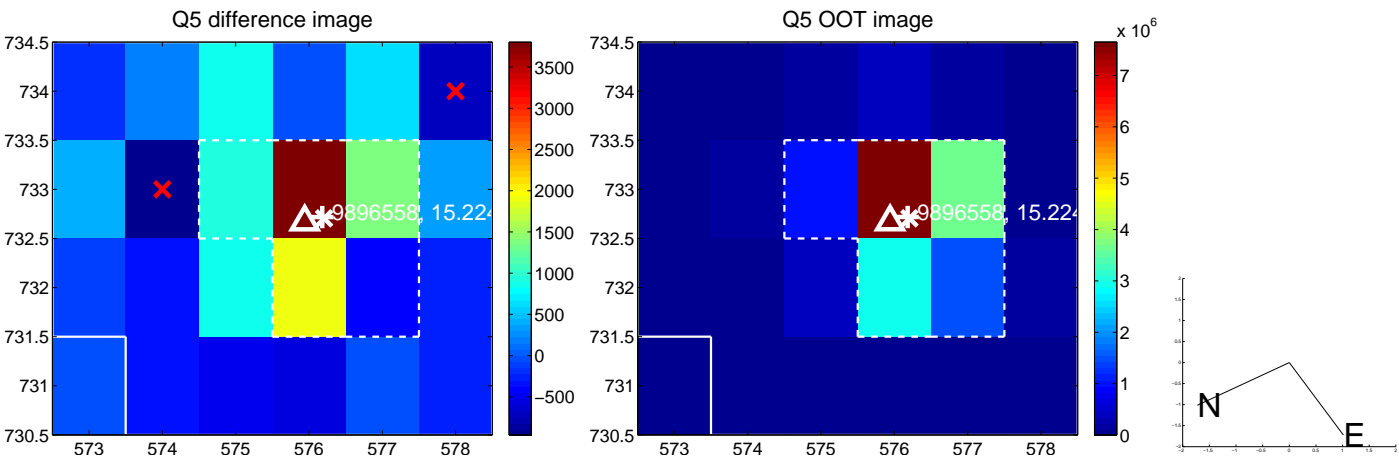


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

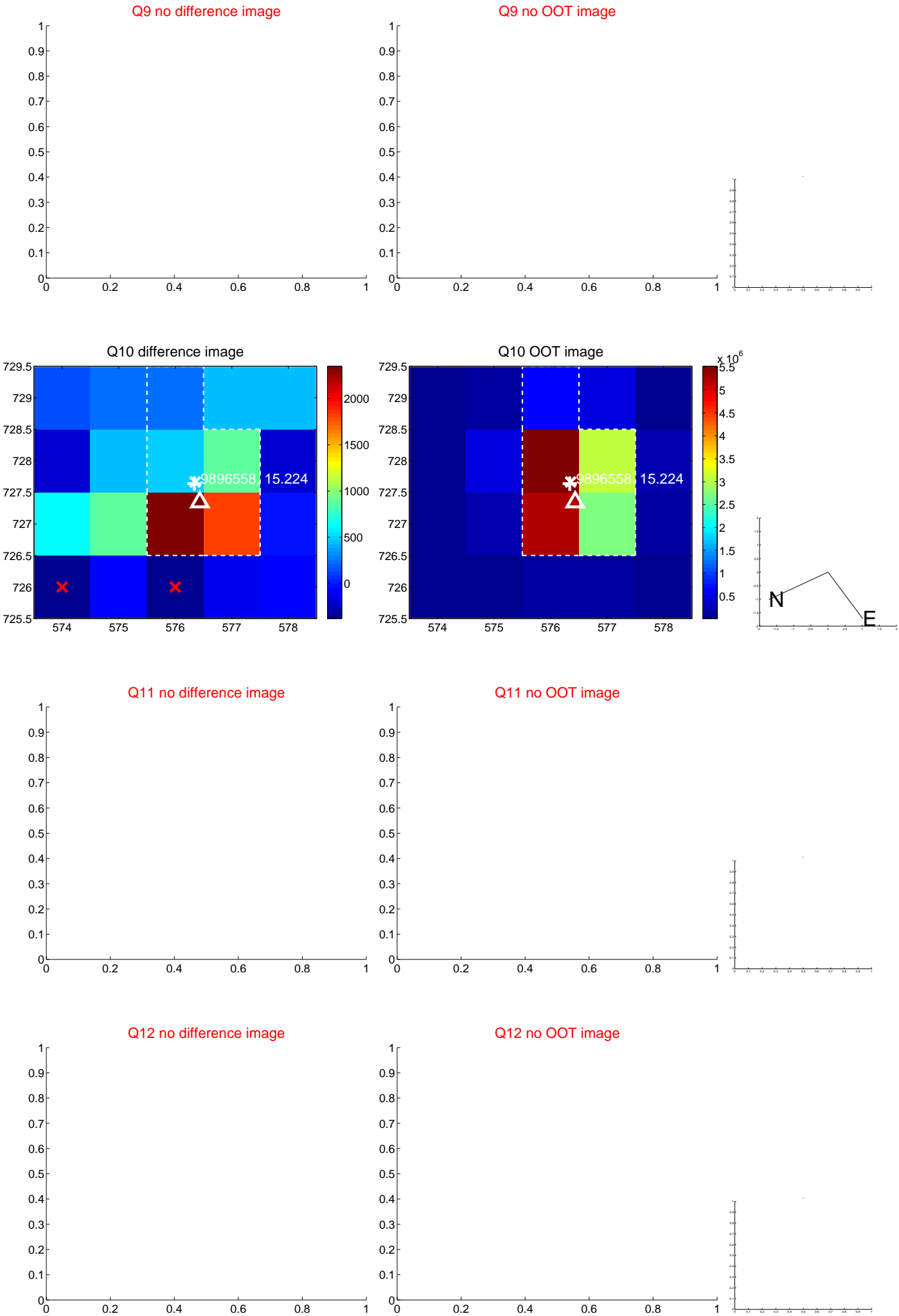
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



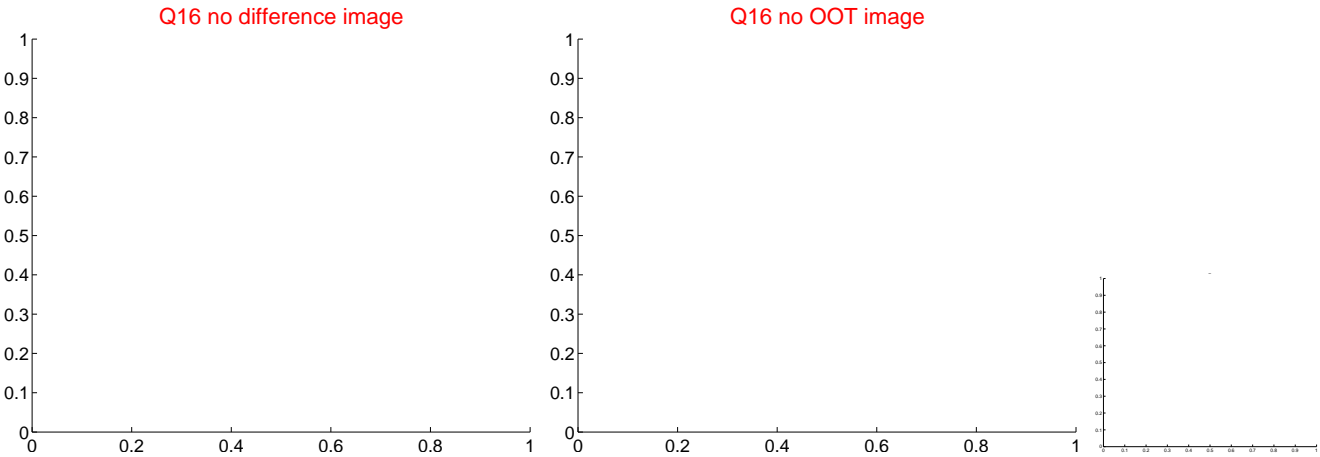
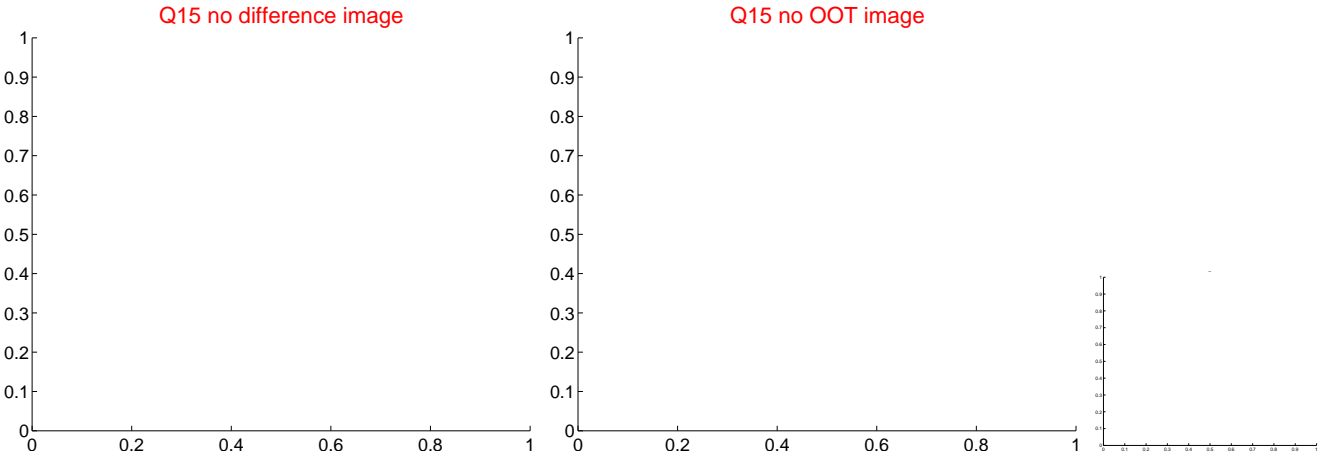
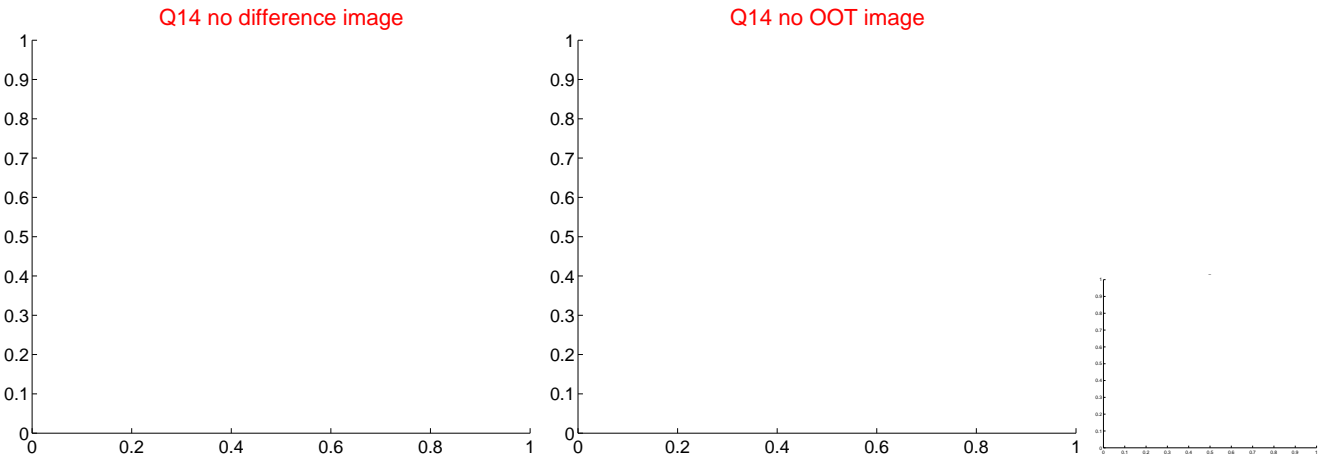
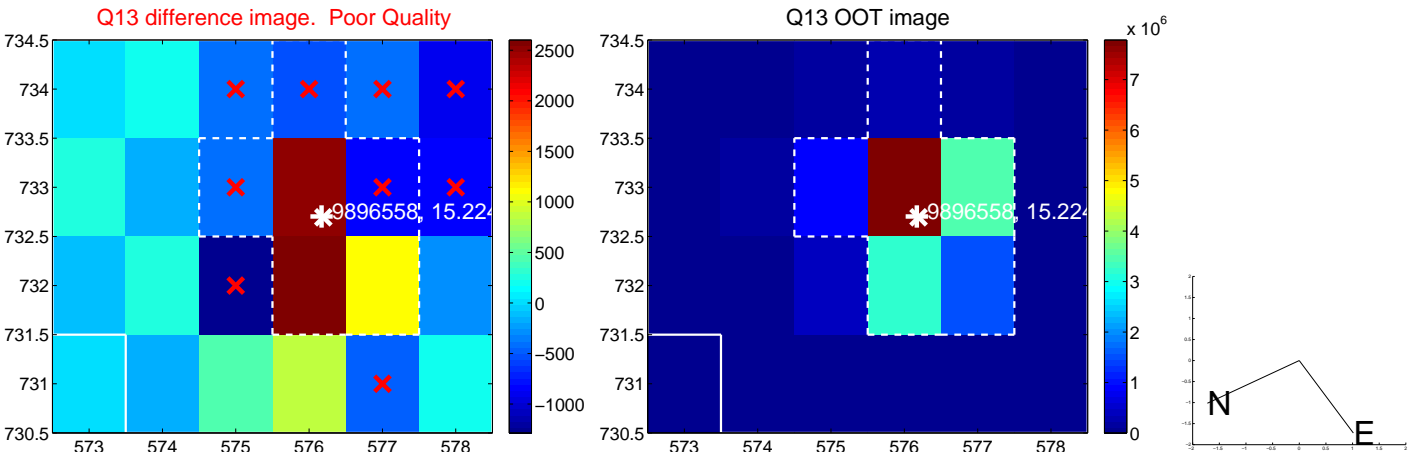
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



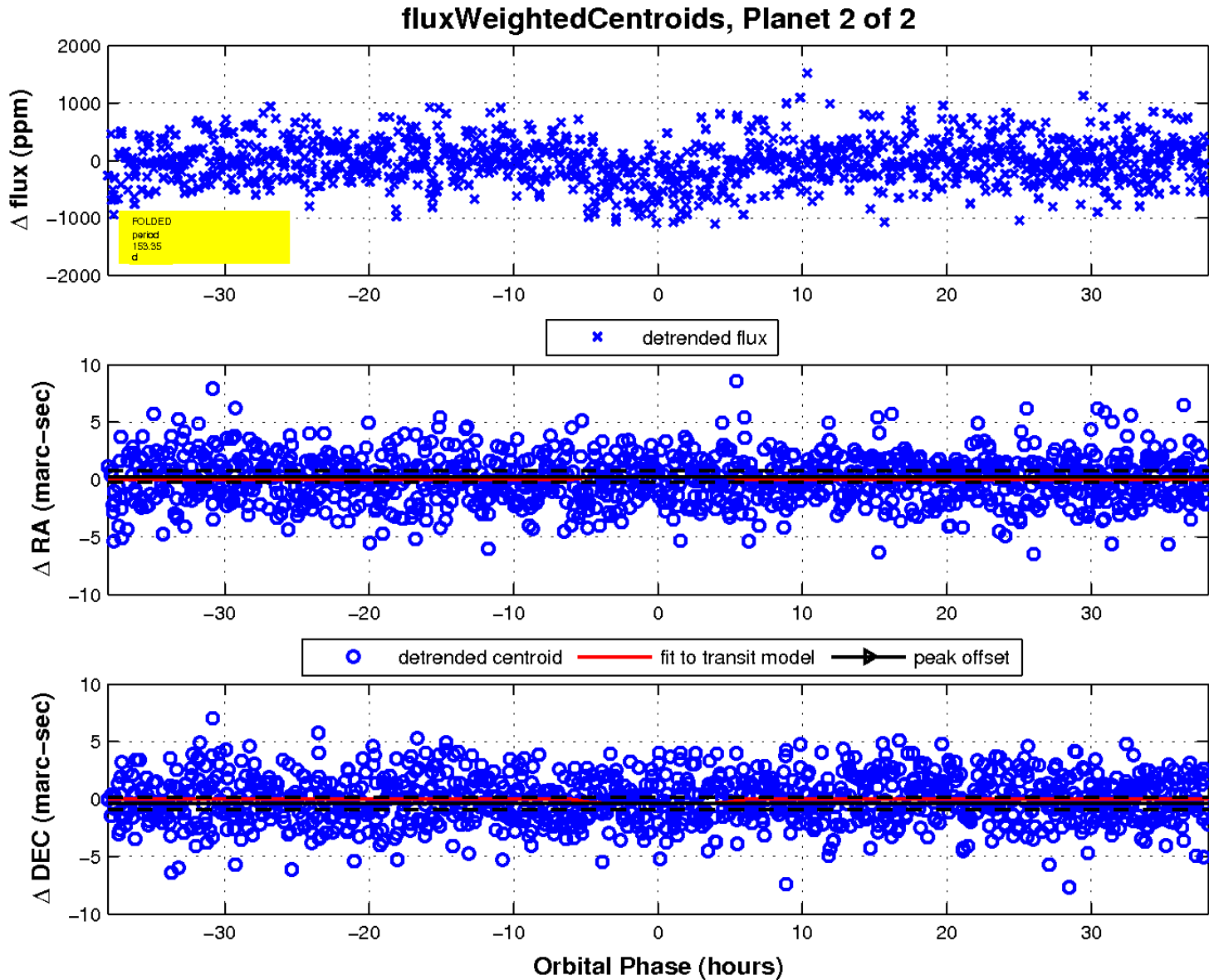
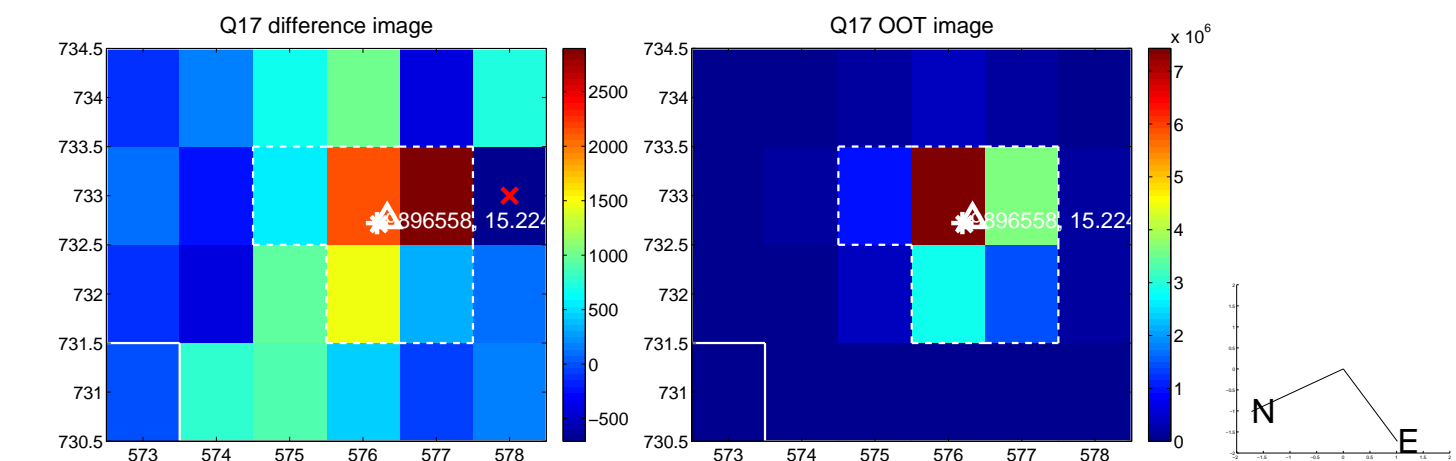
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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.



UKIRT Image

Declination

