

KIC 003558849

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})
003558849-01	OBS	No	493.904412	279.991703	237.7	17.952	31.7	4.3	1.51	5999	2.58	1.54
003558849-02	OBS	4307.01	160.848616	144.535240	452.7	12.449	11.7	12.3	1.51	5999	4.74	6.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003558849-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003558849-02	OBS	PC	0.30	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.

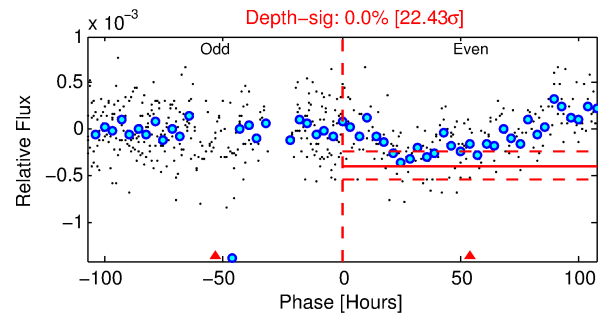
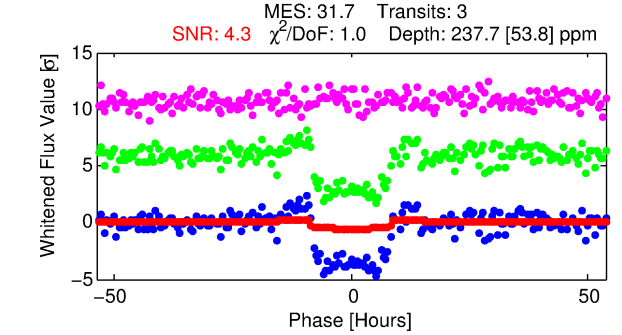
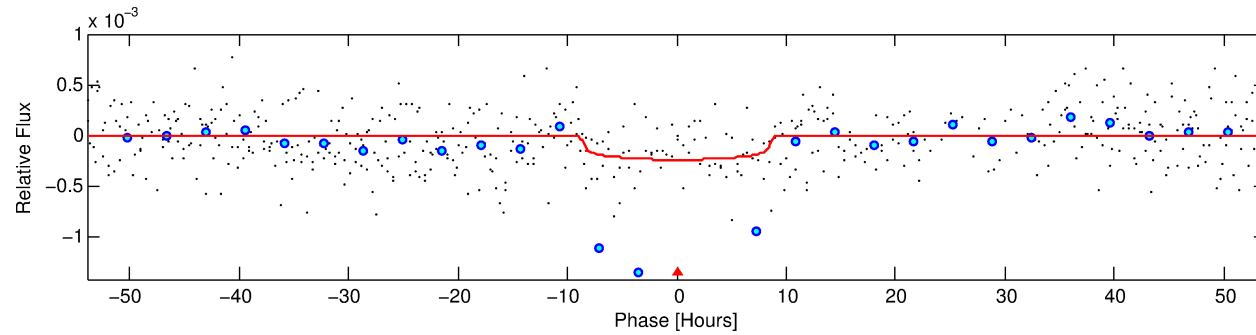
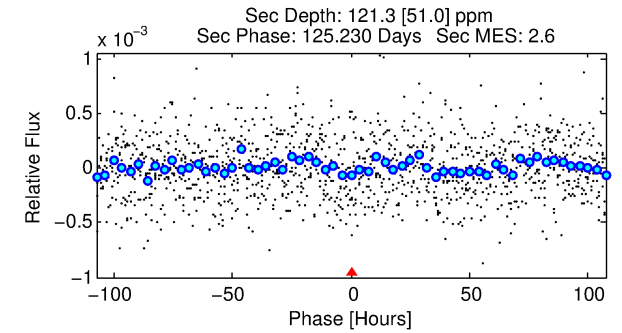
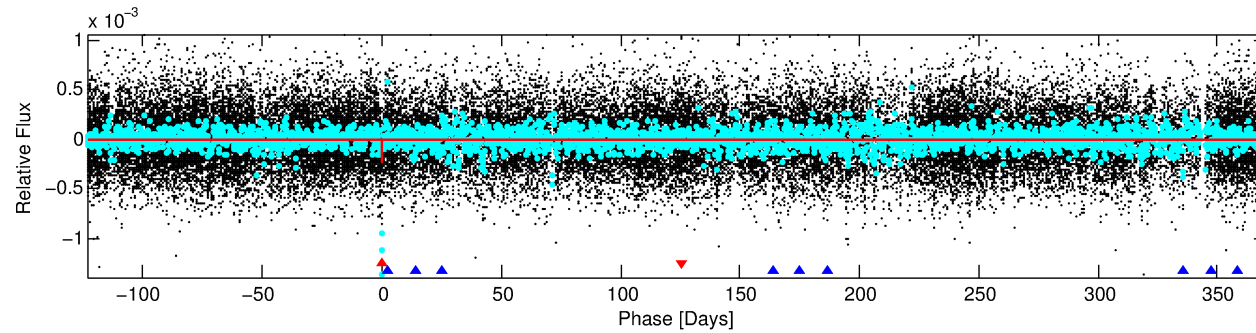
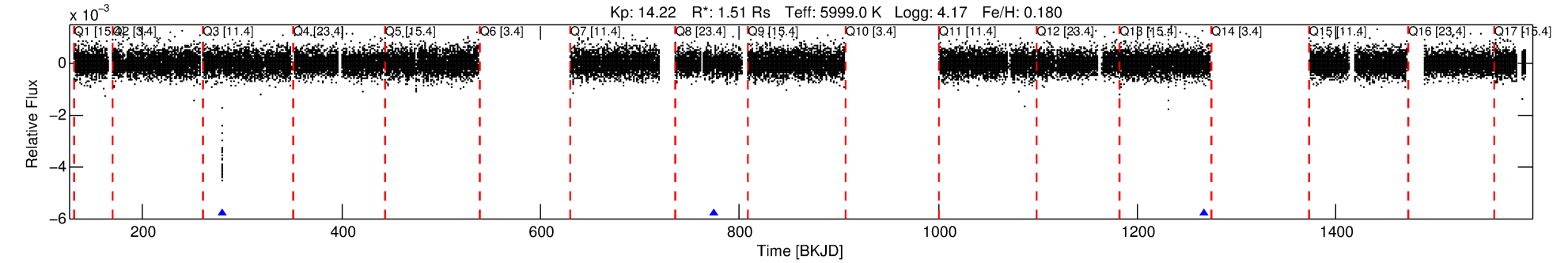
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003558849-01

No Significant Match Found

DV One-Page Summary

KIC: 3558849 Candidate: 1 of 2 Period: 493.904 d
KOI: K04307 Corr: No Ephemeris Match



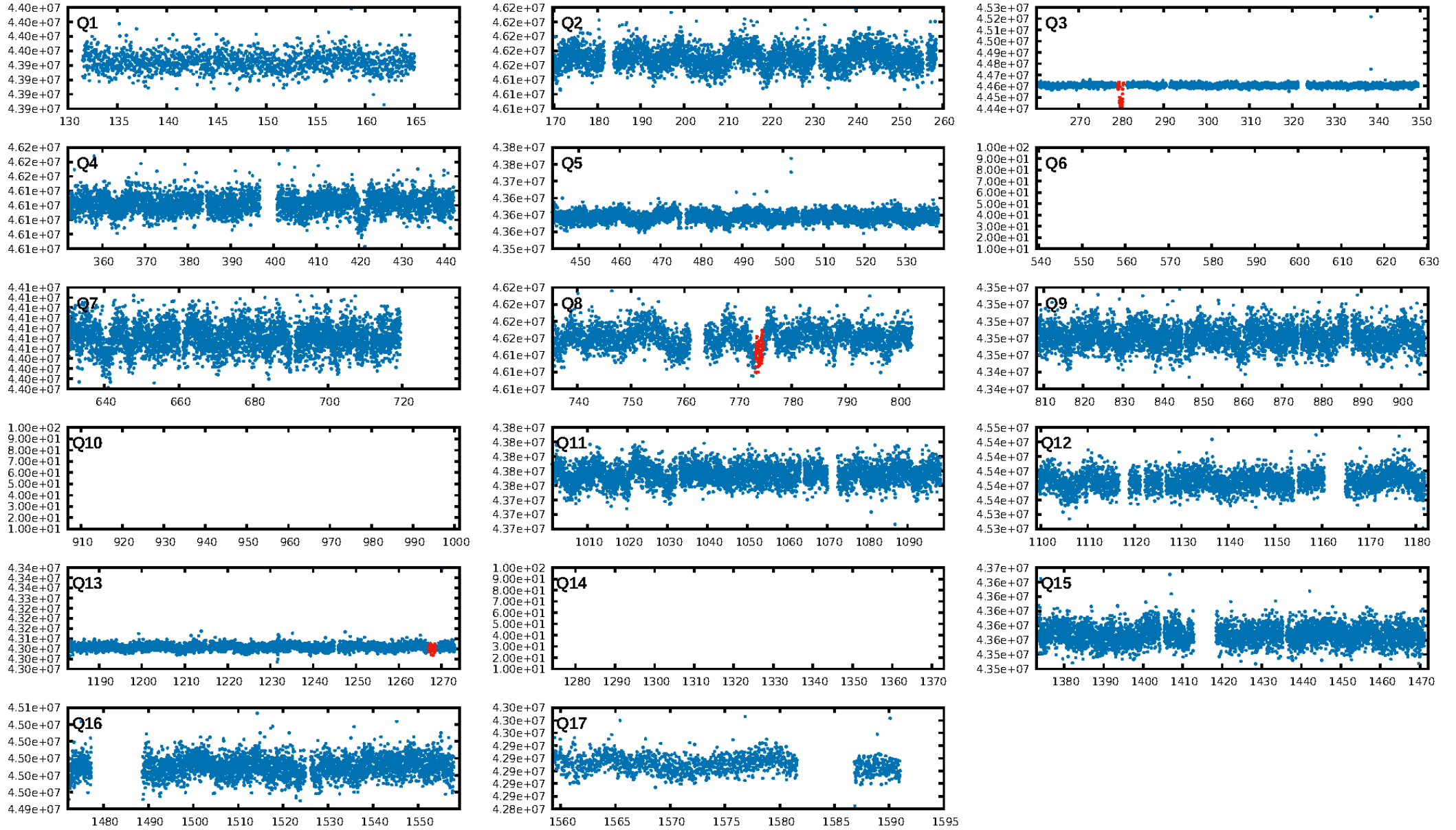
DV Fit Results:

Period = 493.90441 [0.02841] d
Epoch = 279.9917 [0.0349] BKJD
Rp/R* = 0.0157 [0.0059]
a/R* = 131.19 [220.05]
b = 0.80 [0.76]
Seff = 1.54 [0.45]
Teq = 284 [21] K
Rp = 2.58 [1.11] Re
a = 1.3068 [0.2441] AU
Ag = 17161.84 [15581.48] [1.10σ]
Teffp = 5029 [1086] K [4.37σ]

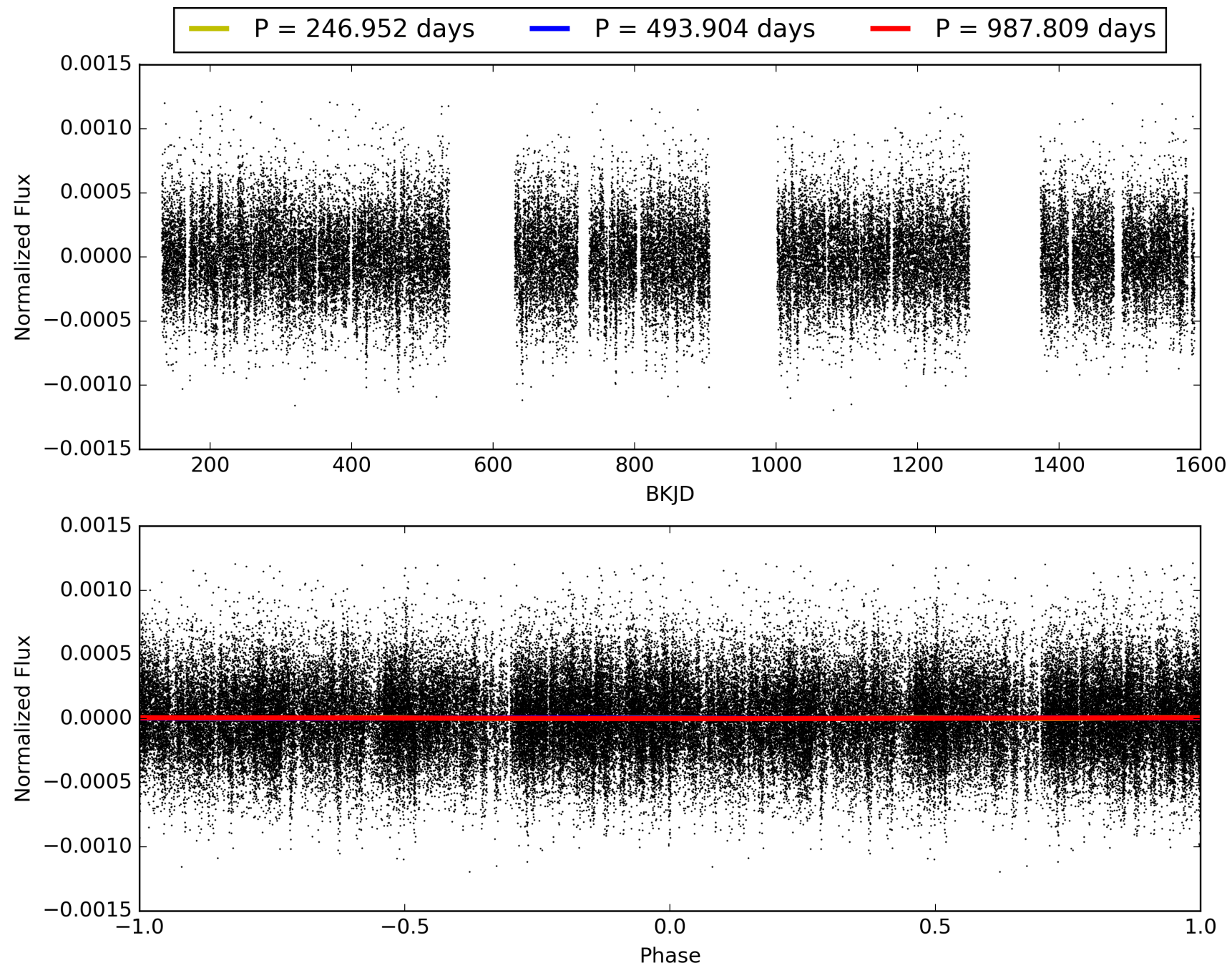
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [365.89σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 37.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.61e-229
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.758
Centroid-sig: 2.9%
Centroid-so: 3.699 arcsec [1.87σ]
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 [1/1]

TCE 003558849-01, PDC Light Curves

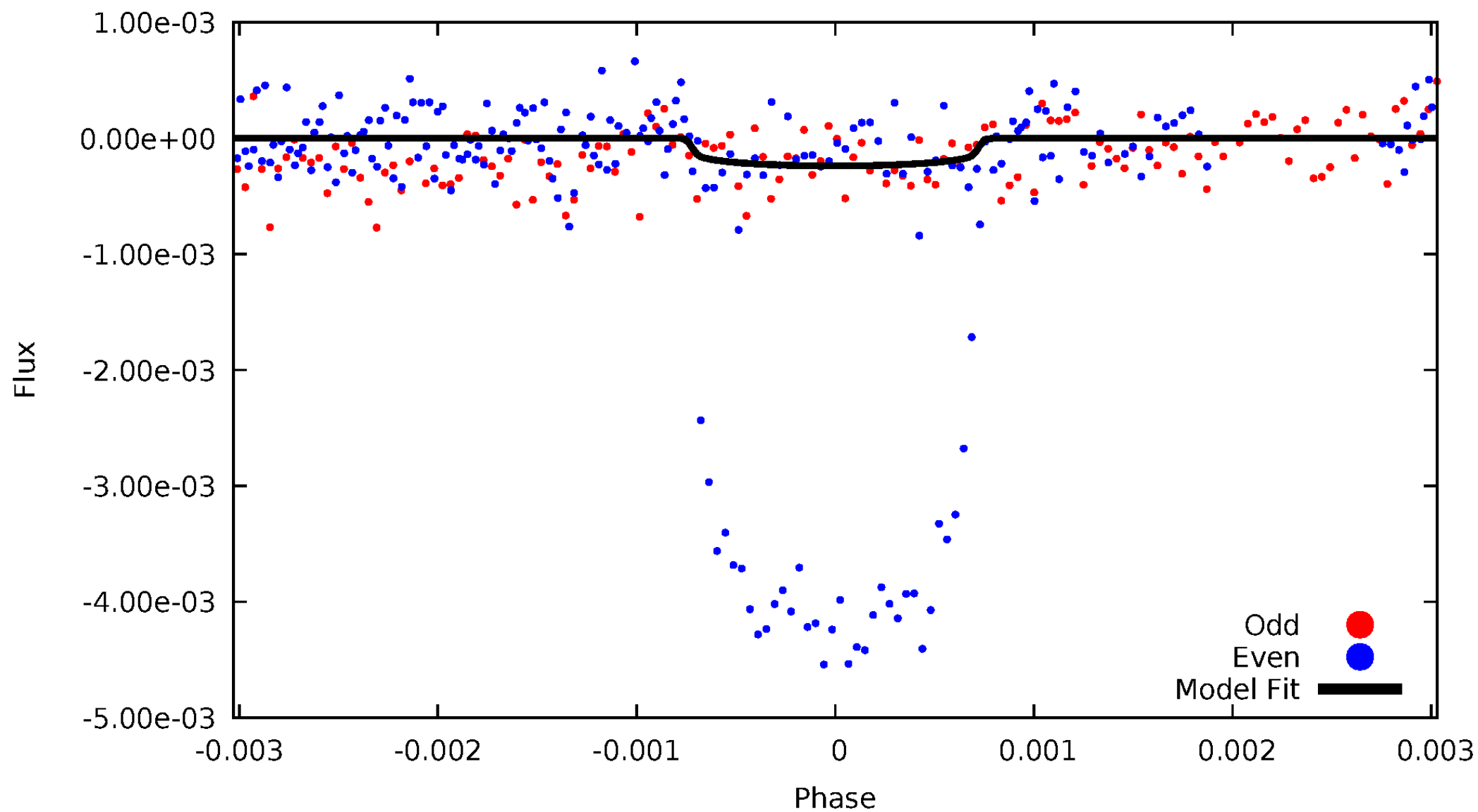


TCE 003558849-01



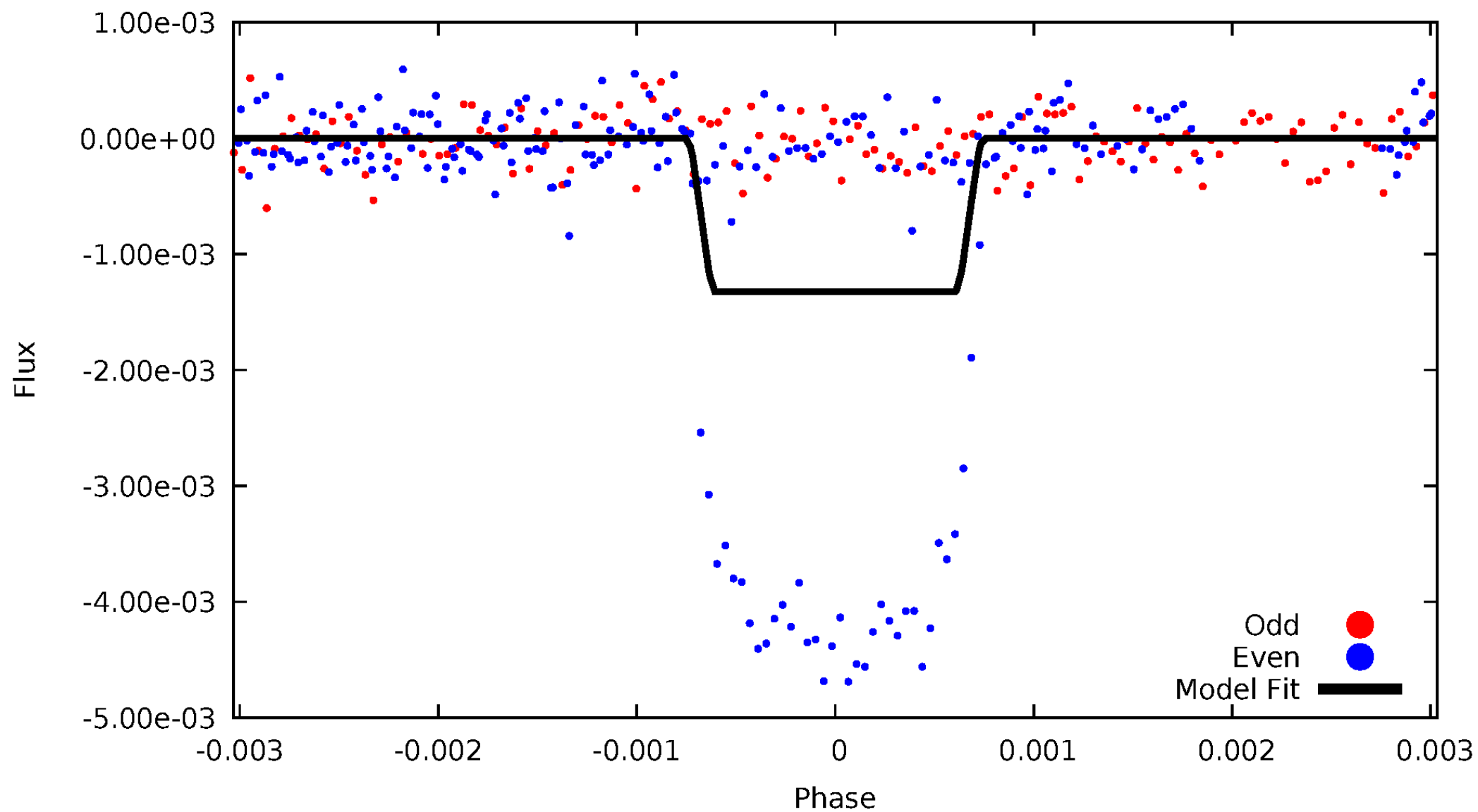
DV Odd/Even

TCE 003558849-01



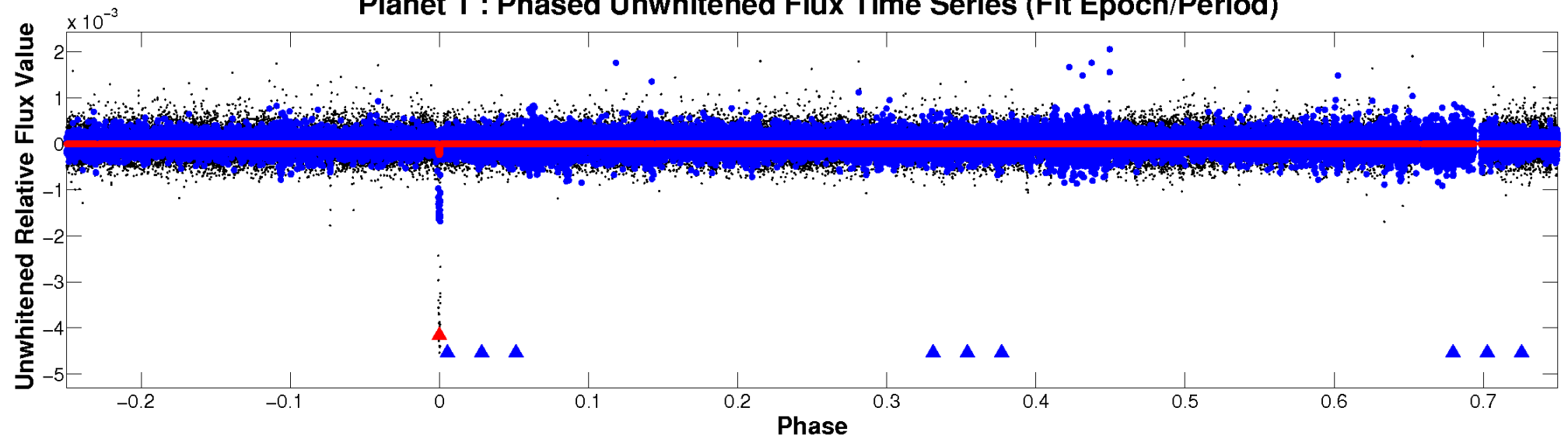
ALT Odd/Even

TCE 003558849-01

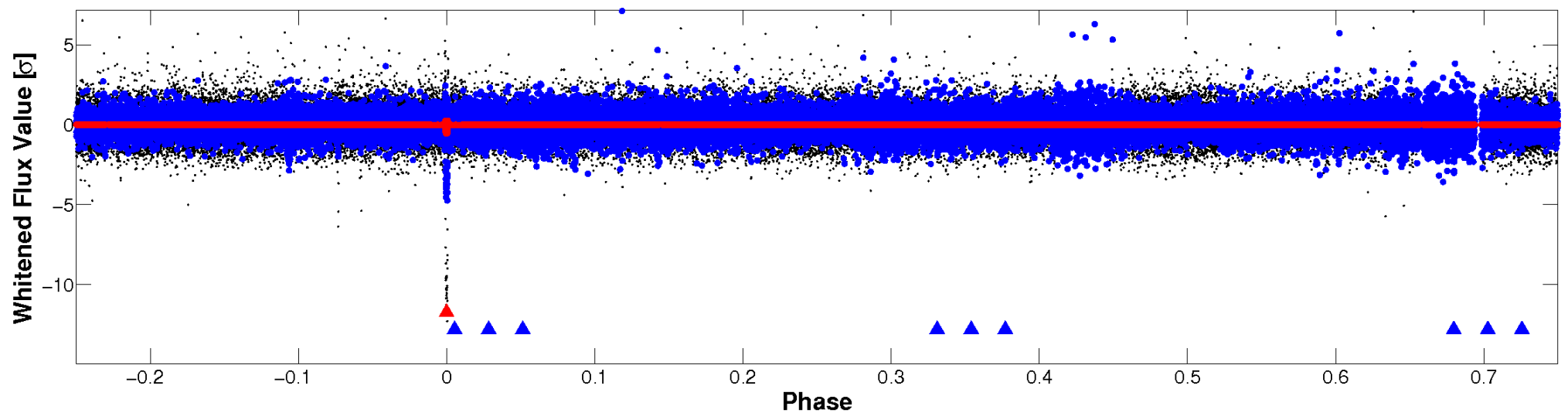


Non-Whitened Vs. Whitened Light Curve

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

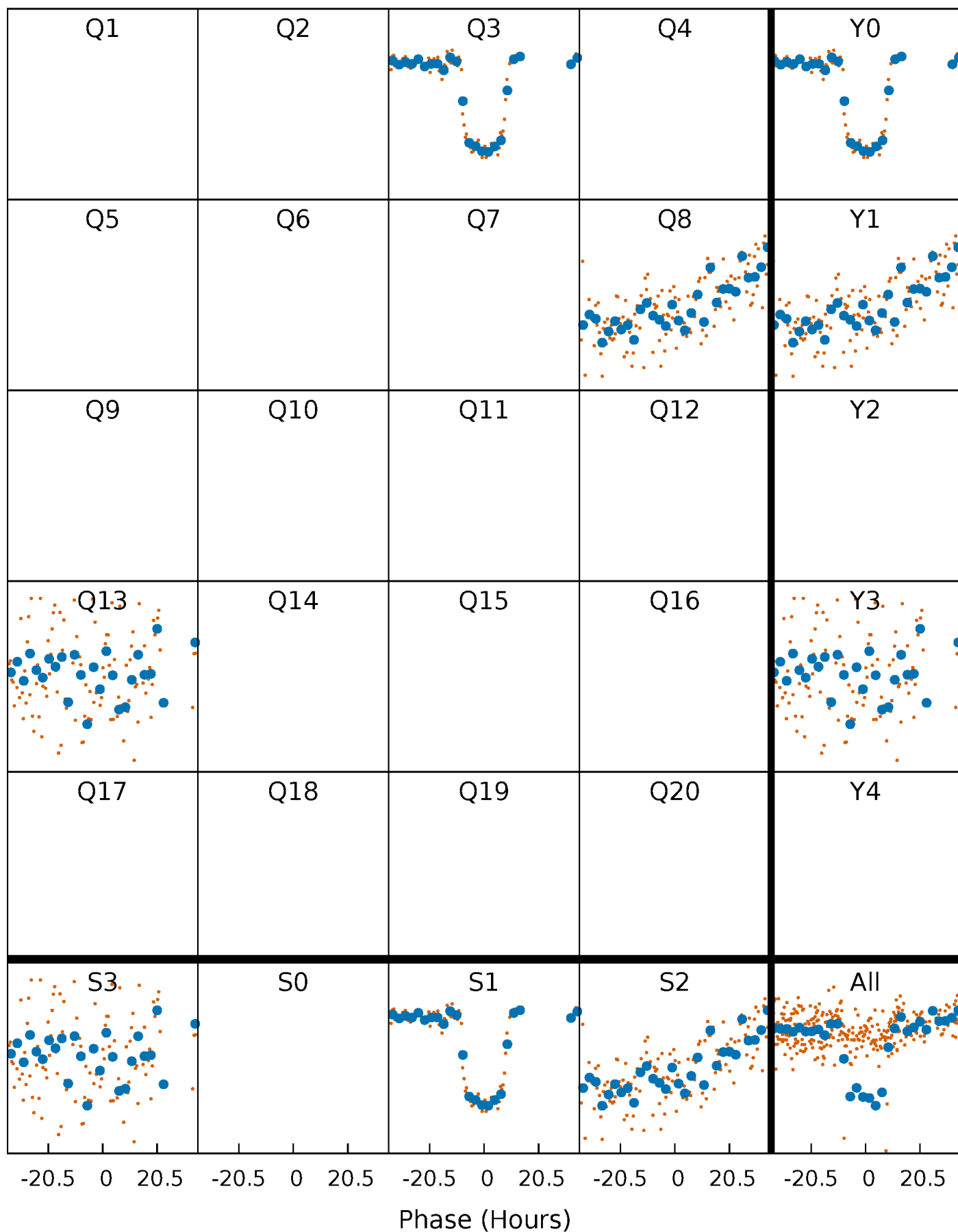


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 003558849-01 P=493.904412 Days $T_0=279.991703$ (BKJD)



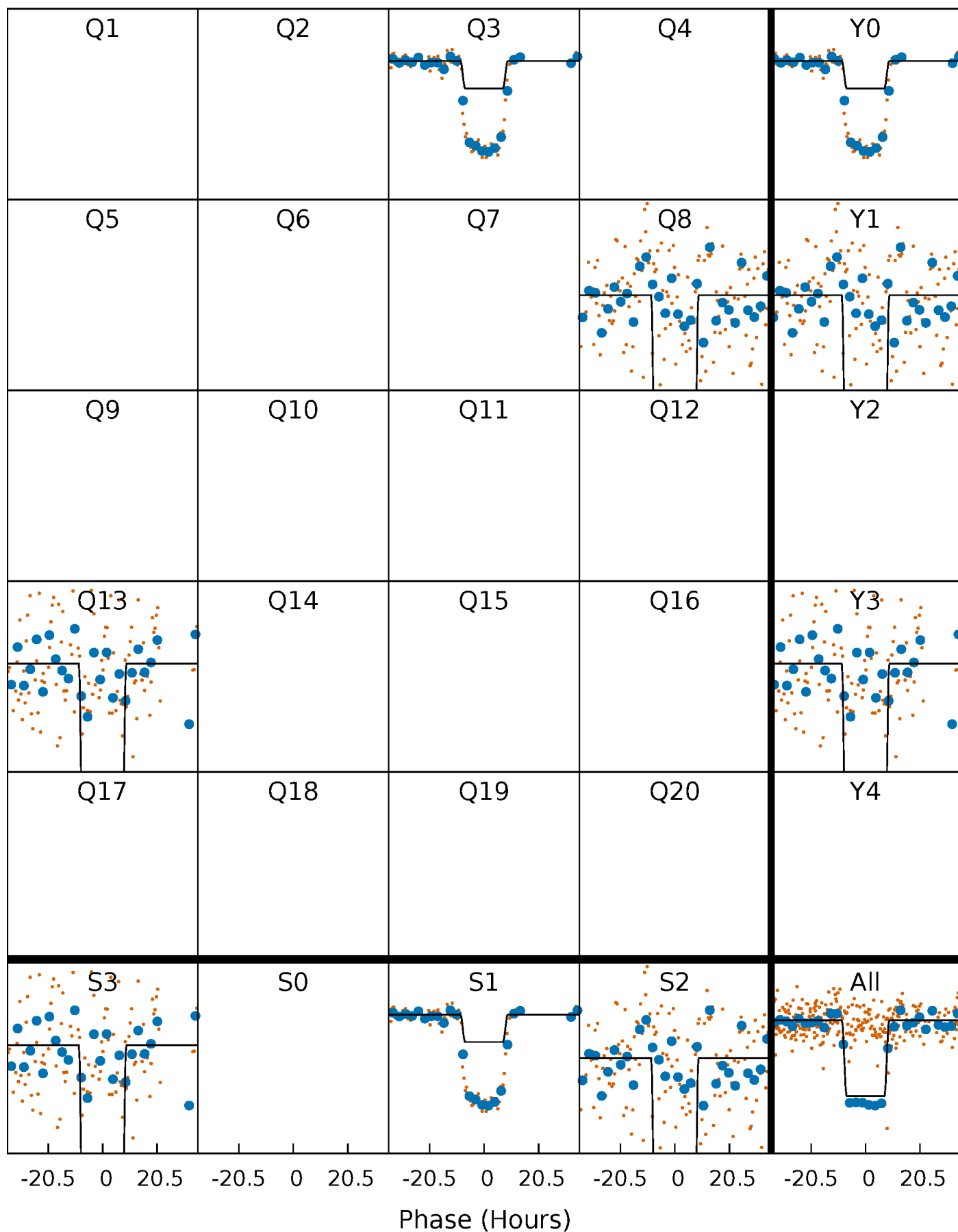
DV Quarter-Phased Transit Curves

TCE 003558849-01 P=493.904412 Days $T_0=279.991703$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

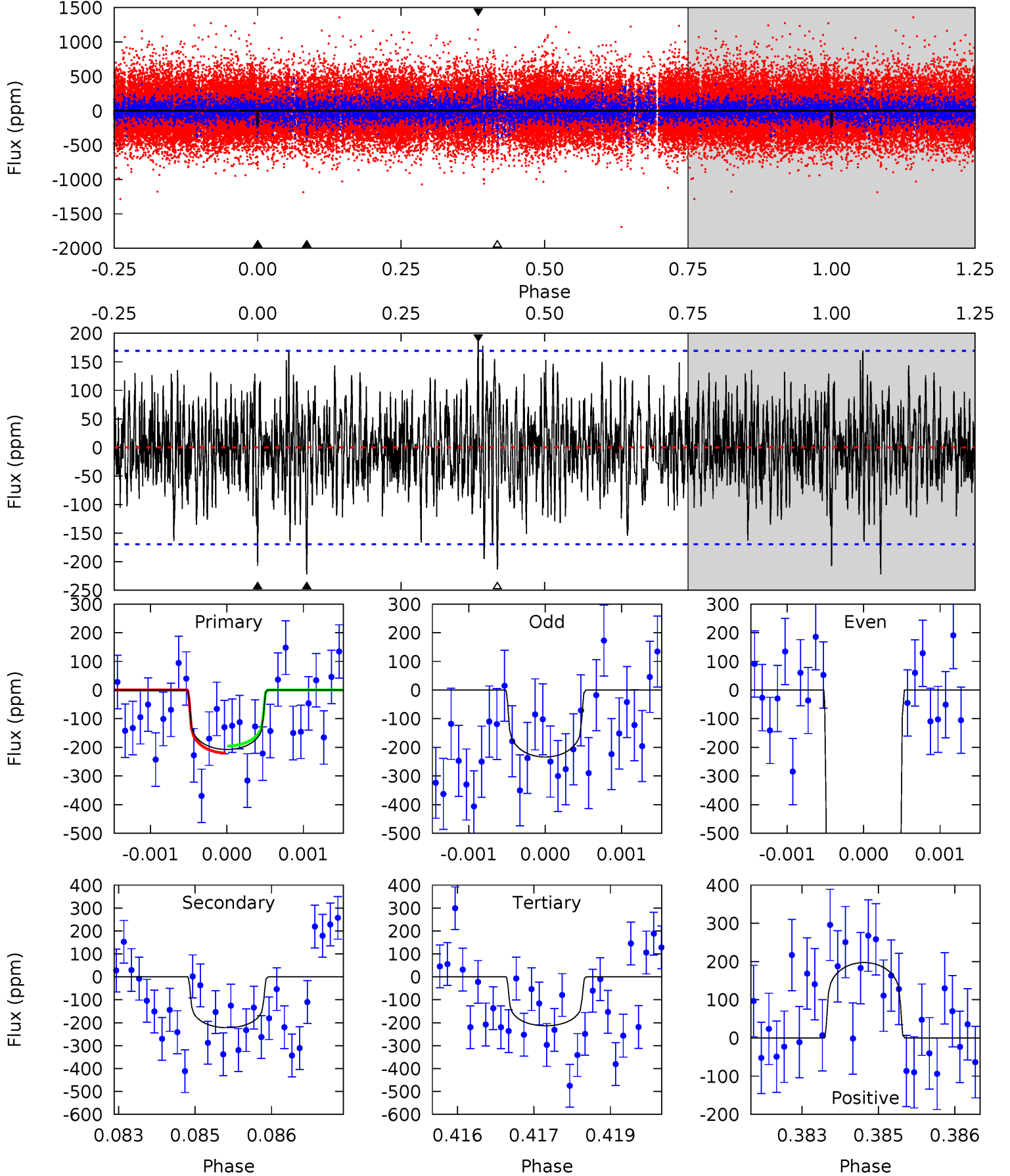
TCE 003558849-01 P=493.913201 Days $T_0=279.991952$ (BKJD)



DV Model-Shift Uniqueness Test

003558849-01, P = 493.904412 Days, E = 279.991703 Days

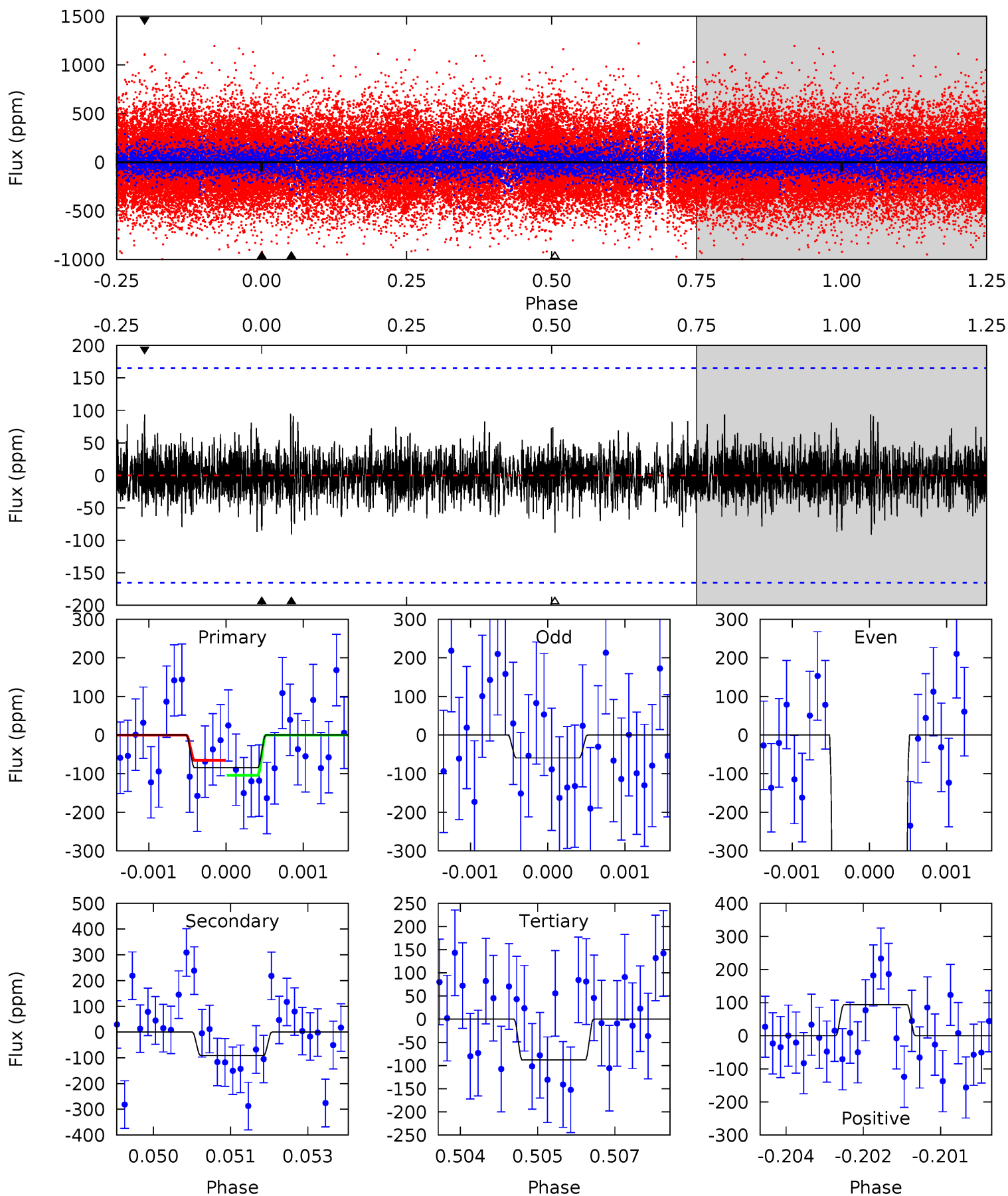
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.59	7.05	6.78	6.27	5.38	3.18	1.70	-0.19	0.33	0.27	0.79	35.0	6.55	0.47	0



Alt Model-Shift Uniqueness Test

003558849-01, P = 493.913201 Days, E = 279.991952 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.76	2.97	2.87	3.05	5.38	3.18	0.77	-0.11	-0.29	0.10	-0.08	38.1	13.3	0.51	0.63



Stellar Parameters For KIC 003558849

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5999^{+80}_{-89}	$4.168^{+0.162}_{-0.108}$	$0.180^{+0.150}_{-0.150}$	$1.507^{+0.258}_{-0.315}$	$1.225^{+0.087}_{-0.131}$	$0.504^{+0.442}_{-0.174}$
	+1%/-1%	+4%/-3%	+83%/-83%	+17%/-21%	+7%/-11%	+88%/-35%
Source	SPE90	SPE90	SPE90	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 003558849-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-222 ± 31	$2.52^{+0.97}_{-0.96}$	396^{+16}_{-22}	5898^{+1658}_{-825}	32790^{+50250}_{-16089}
Alt.	-91 ± 31	$5.89^{+1.24}_{-1.07}$	397^{+18}_{-21}	3538^{+273}_{-273}	2403^{+1570}_{-1008}

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 $A_{obs} \gg 1.0$

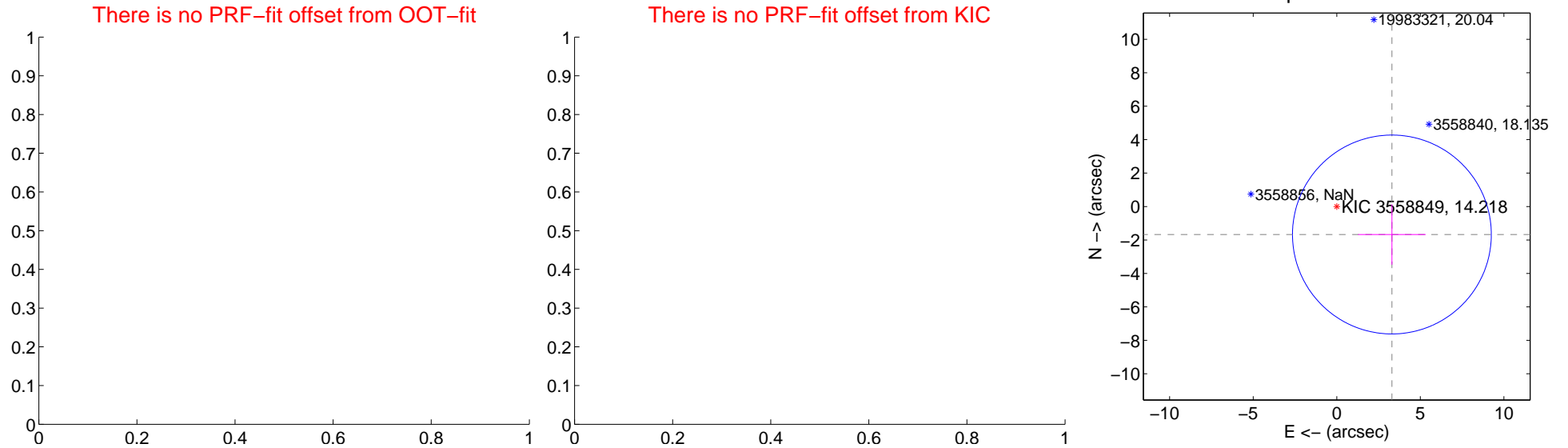
DV Centroid Data

Supplemental centroid analysis for 003558849-01. Kepler magnitude: 14.22. Transit SNR 4.26

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	3.70 ± 1.98	1.87	-3.30 ± 2.03	-1.67 ± 1.80

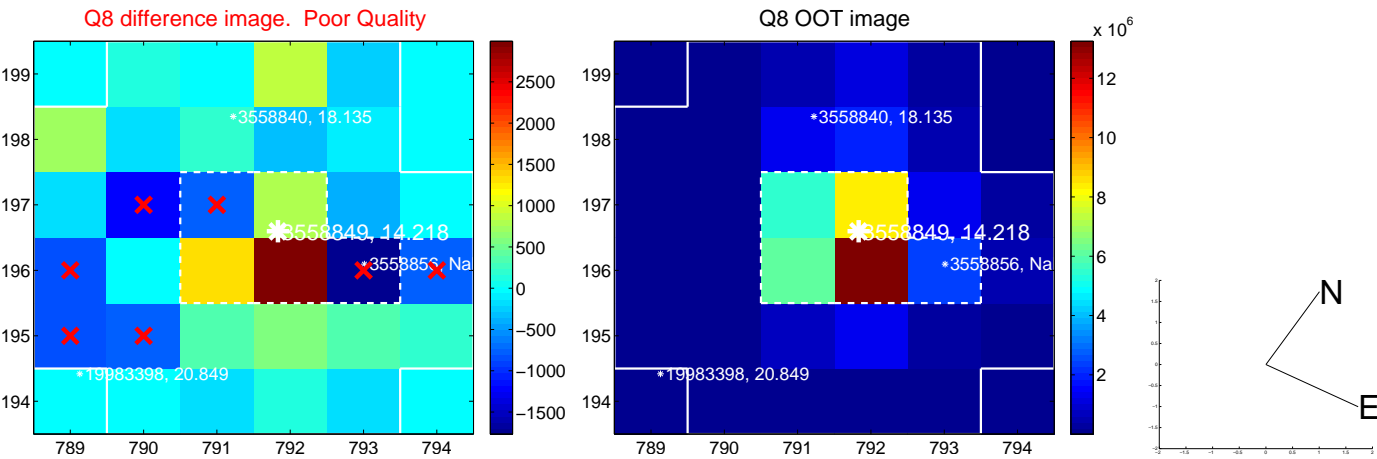
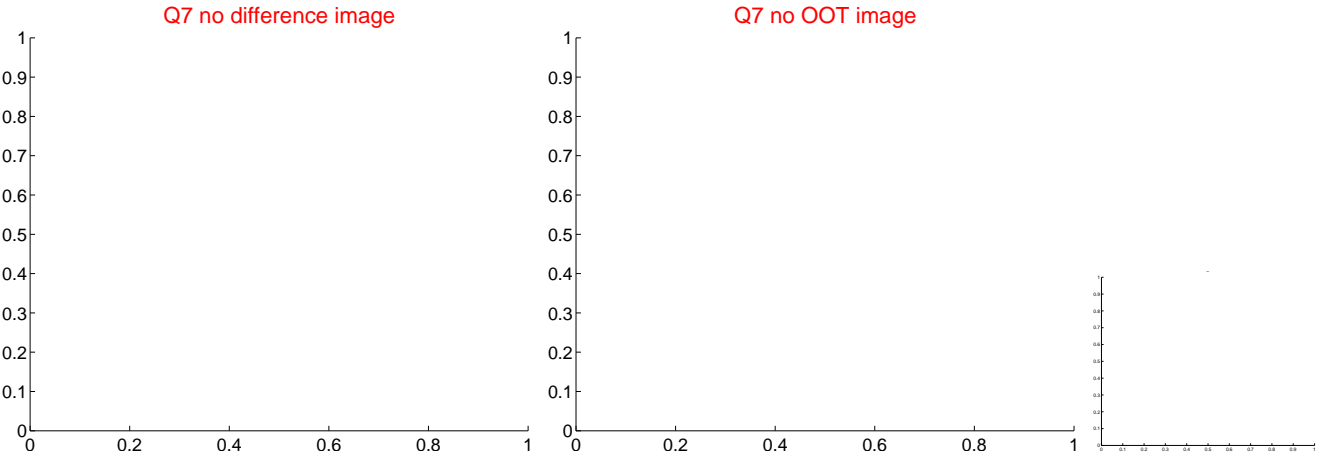
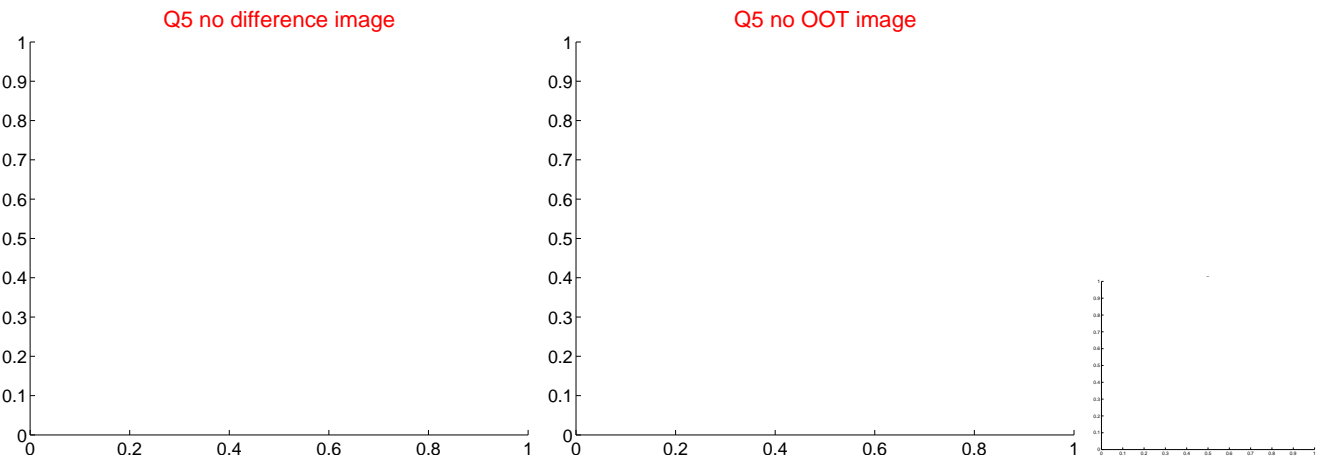


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



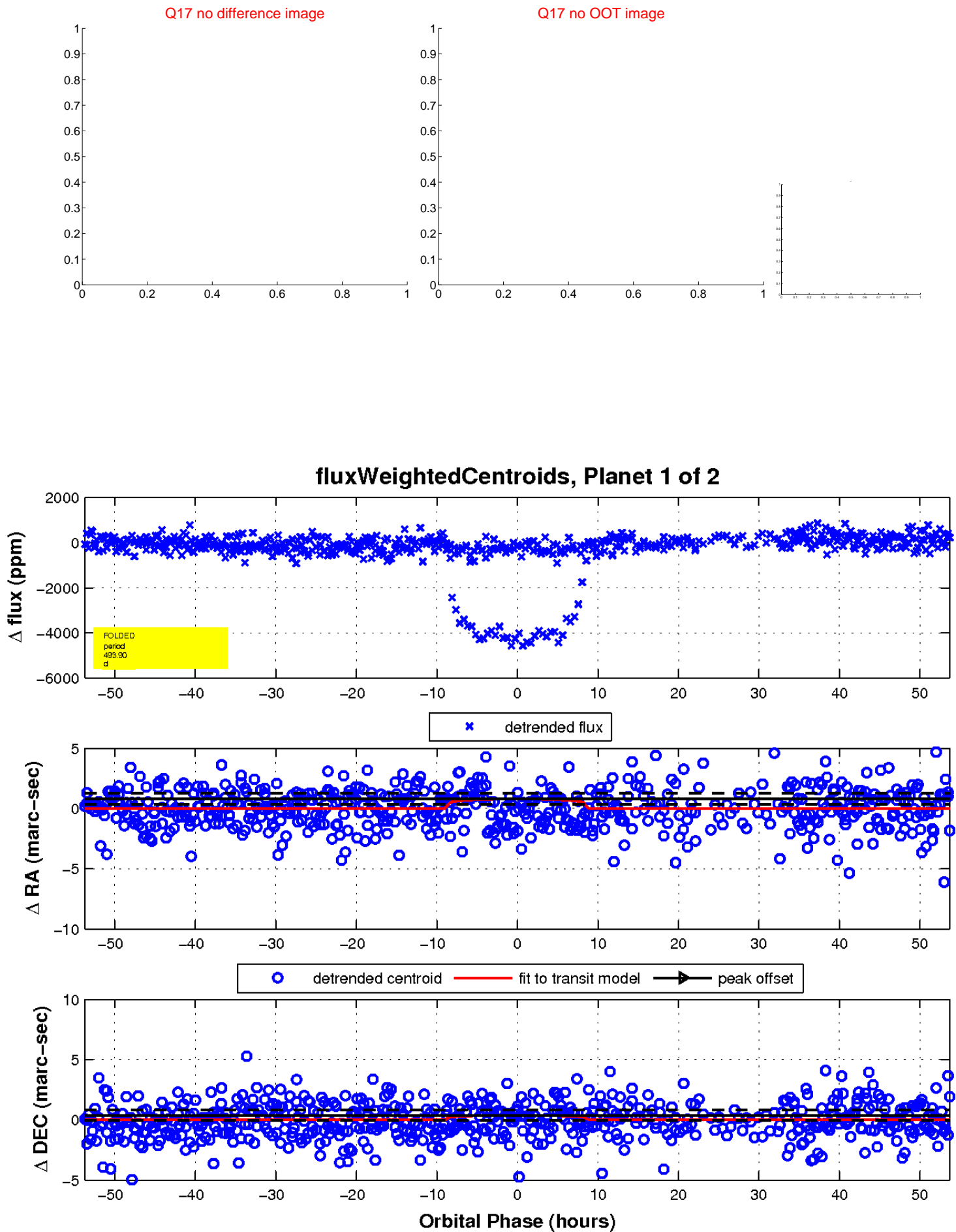
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

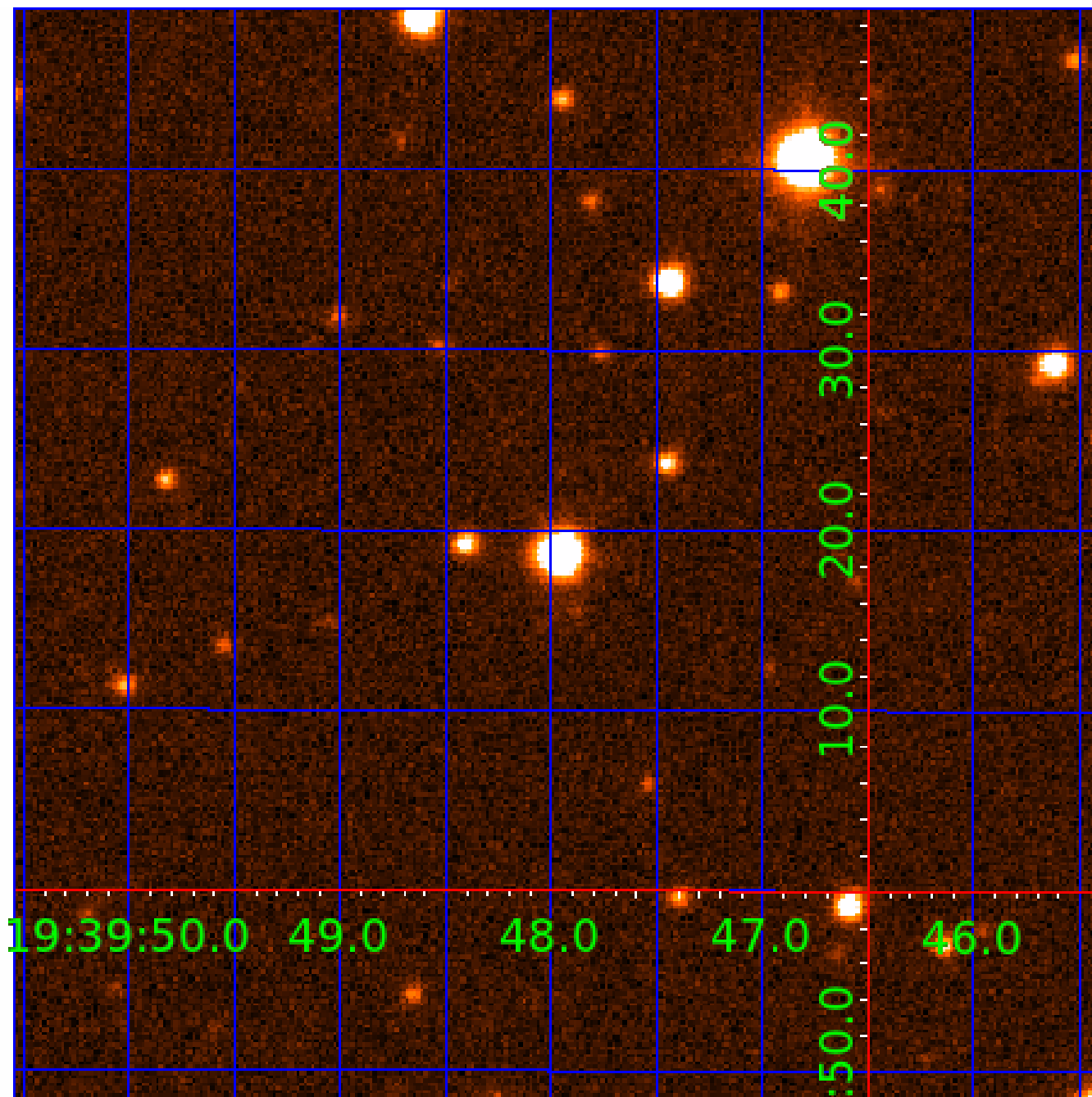


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003558849

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})
003558849-01	OBS	No	493.904412	279.991703	237.7	17.952	31.7	4.3	1.51	5999	2.58	1.54
003558849-02	OBS	4307.01	160.848616	144.535240	452.7	12.449	11.7	12.3	1.51	5999	4.74	6.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003558849-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003558849-02	OBS	PC	0.30	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.

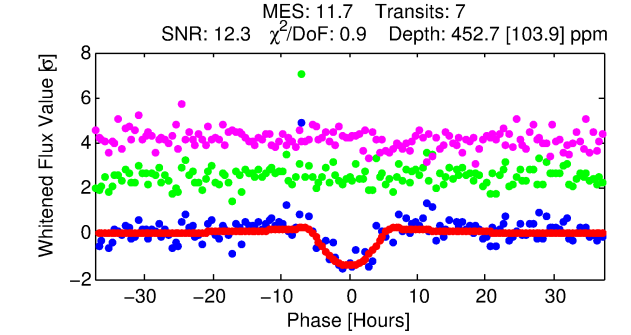
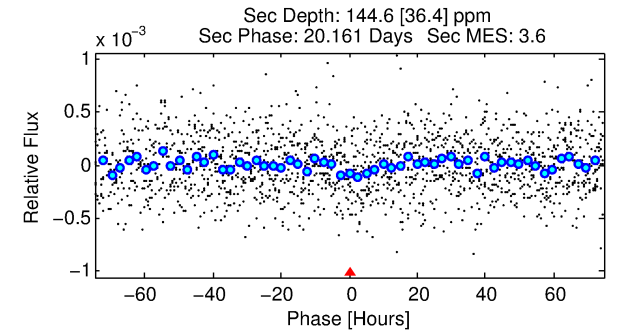
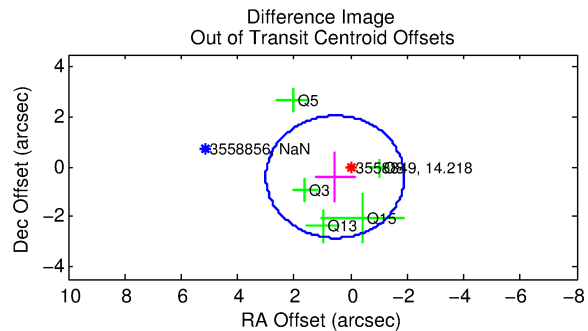
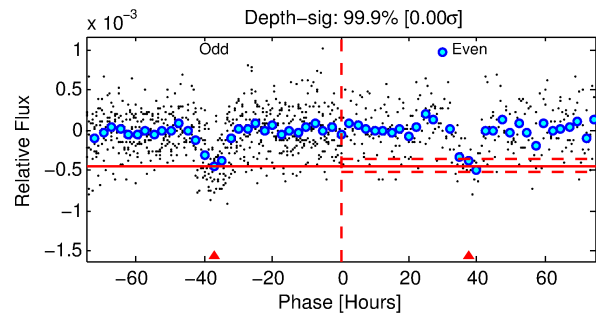
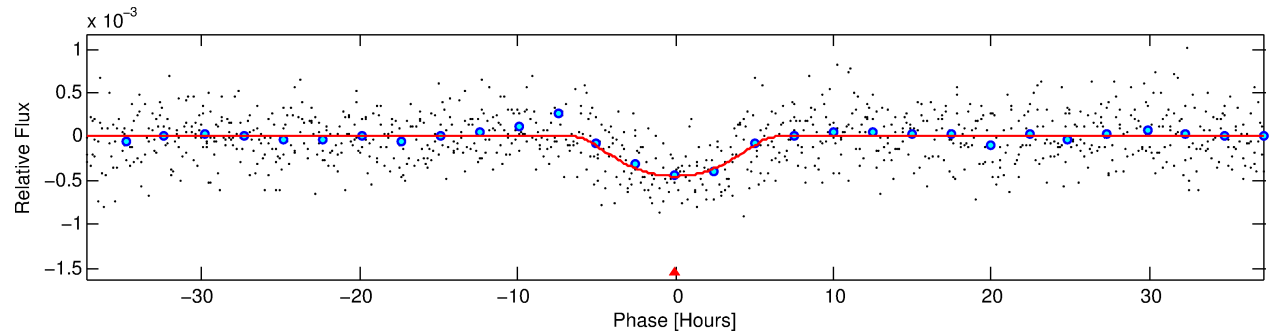
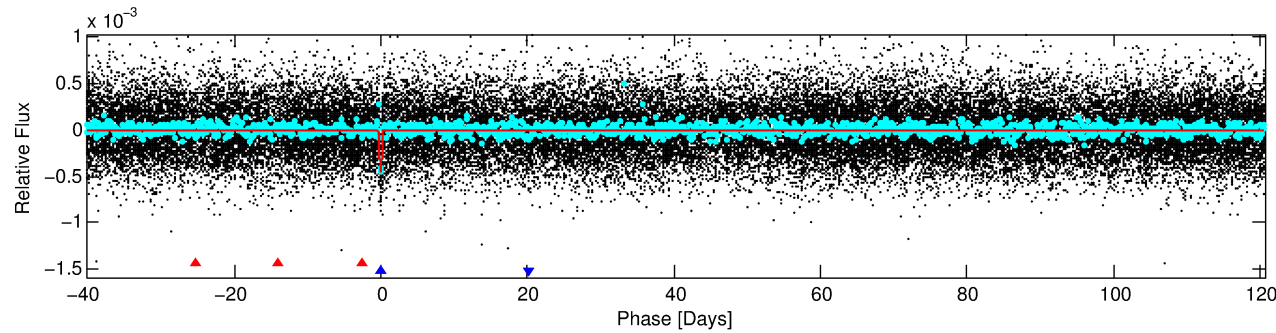
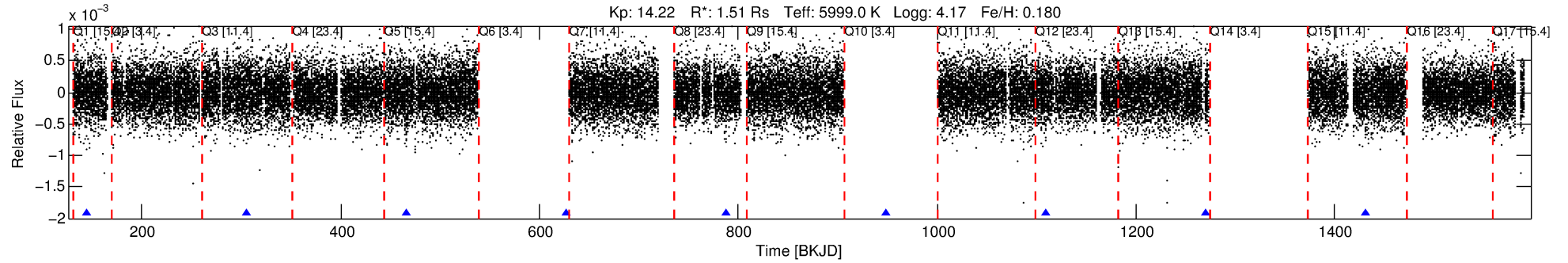
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003558849-02

No Significant Match Found

DV One-Page Summary

KIC: 3558849 Candidate: 2 of 2 Period: 160.849 d
KOI: K04307.01 Corr: 0.876



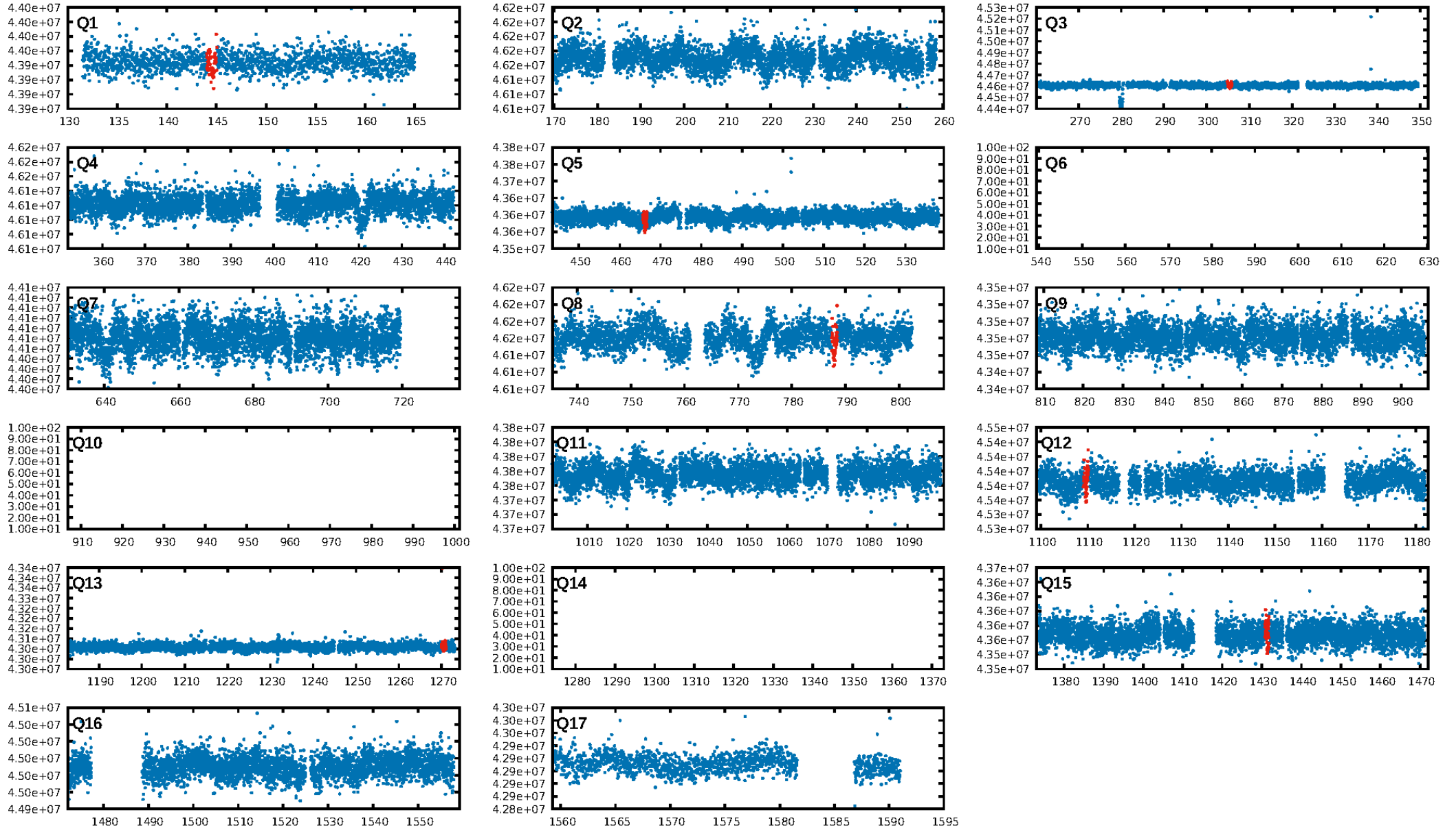
DV Fit Results:

Period = 160.84862 [0.00398] d
Epoch = 144.5352 [0.0198] BKJD
Rp/R* = 0.0288 [0.0185]
a/R* = 30.17 [9.77]
b = 0.98 [0.04]
Seff = 6.89 [2.01]
Teq = 413 [30] K
Rp = 4.74 [3.21] Re
a = 0.6186 [0.1155] AU
Ag = 1354.25 [1816.48] [0.74σ]
Teffp = 3874 [1271] K [2.72σ]

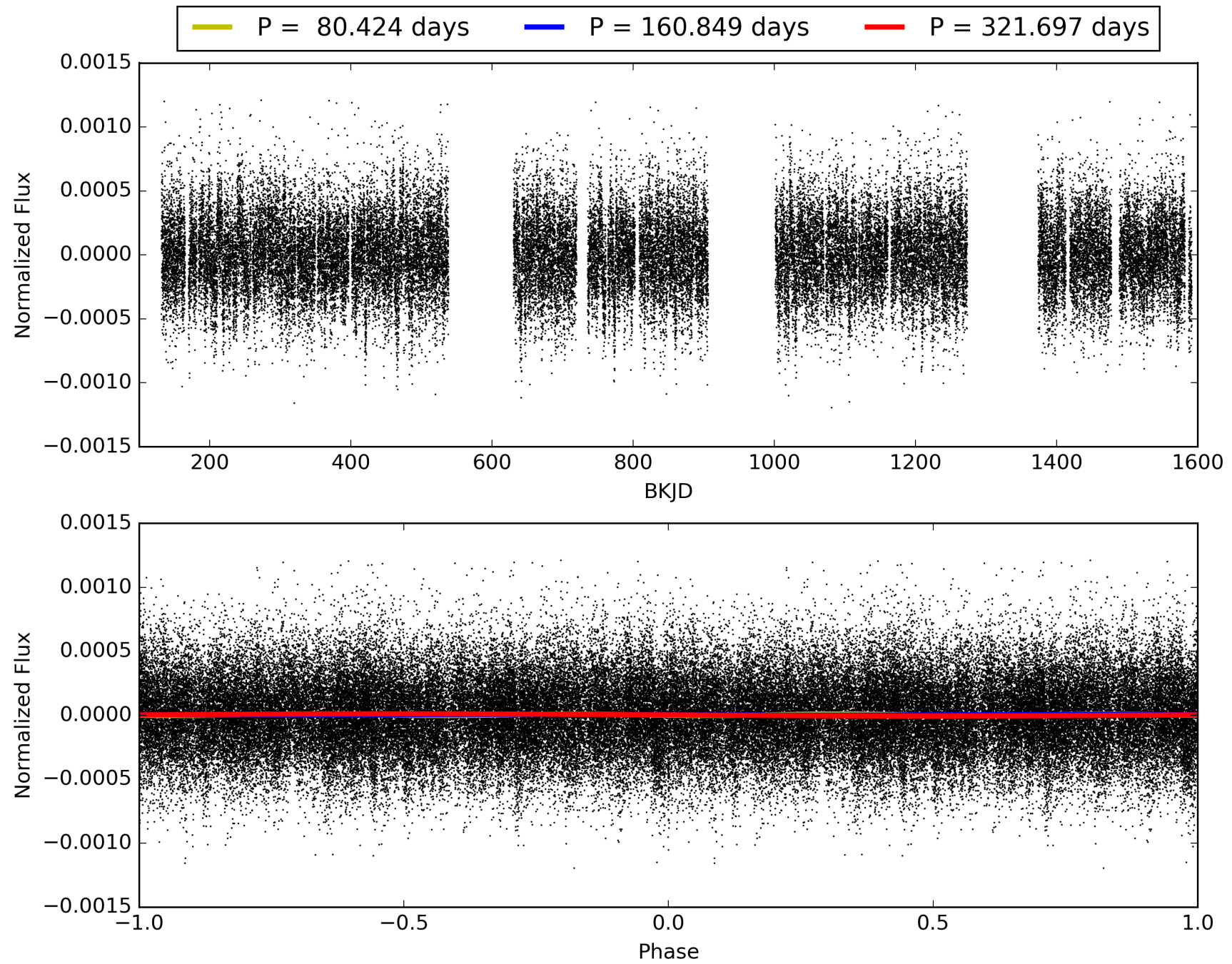
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [365.89σ]
ModelChiSquare2-sig: 63.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.67e-30
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 8.914
Centroid-sig: 9.1%
Centroid-so: 1.394 arcsec [1.36σ]
OotOffset-rm: 0.687 arcsec [0.84σ]
KicOffset-rm: 0.672 arcsec [0.83σ]
OotOffset-st: 0/2/1/2 [5]
KicOffset-st: 0/2/1/2 [5]
DiffImageQuality-fgm: 0.80 [4/5]
DiffImageOverlap-fno: 1.00 [6/6]

TCE 003558849-02, PDC Light Curves

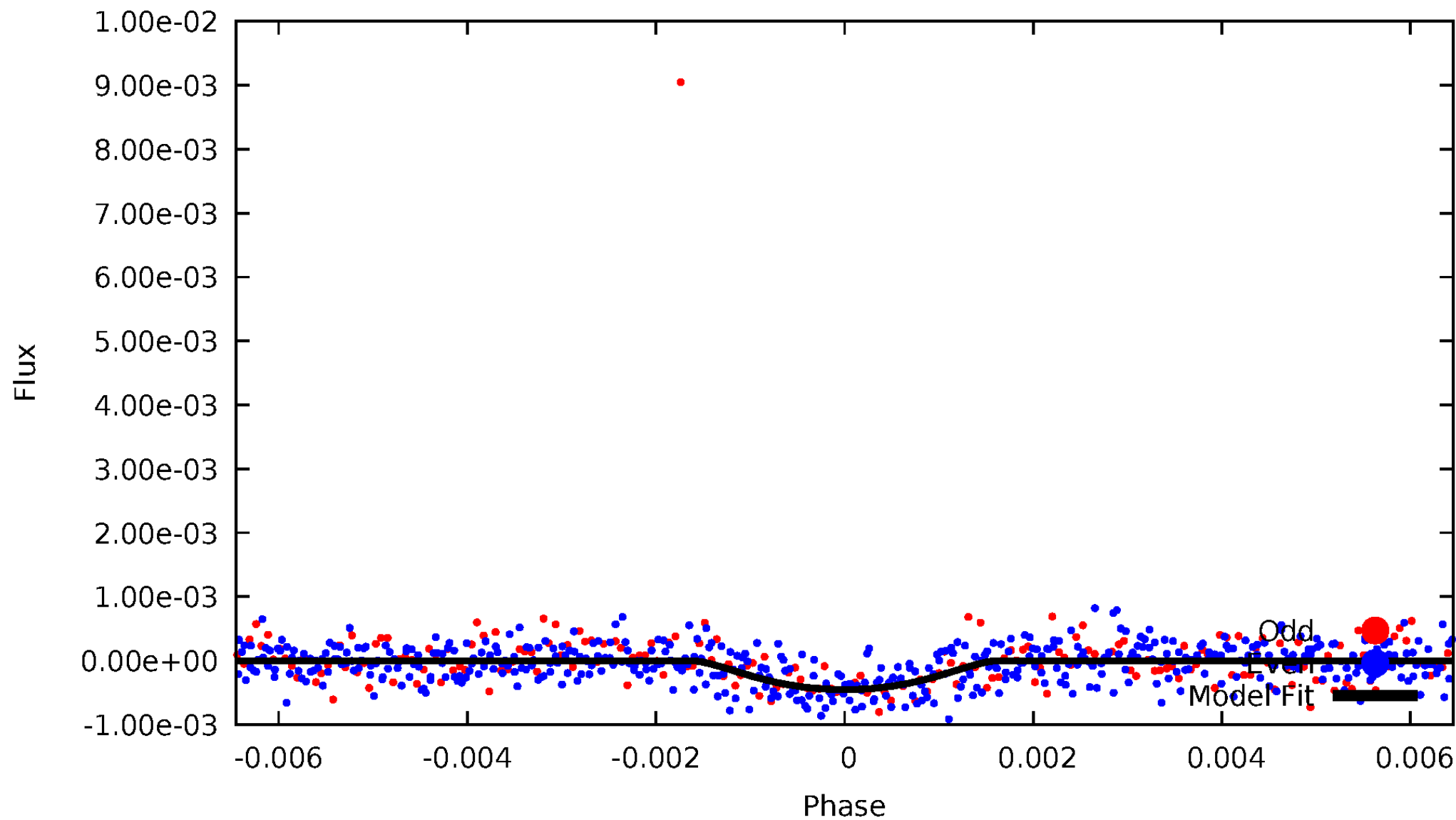


TCE 003558849-02



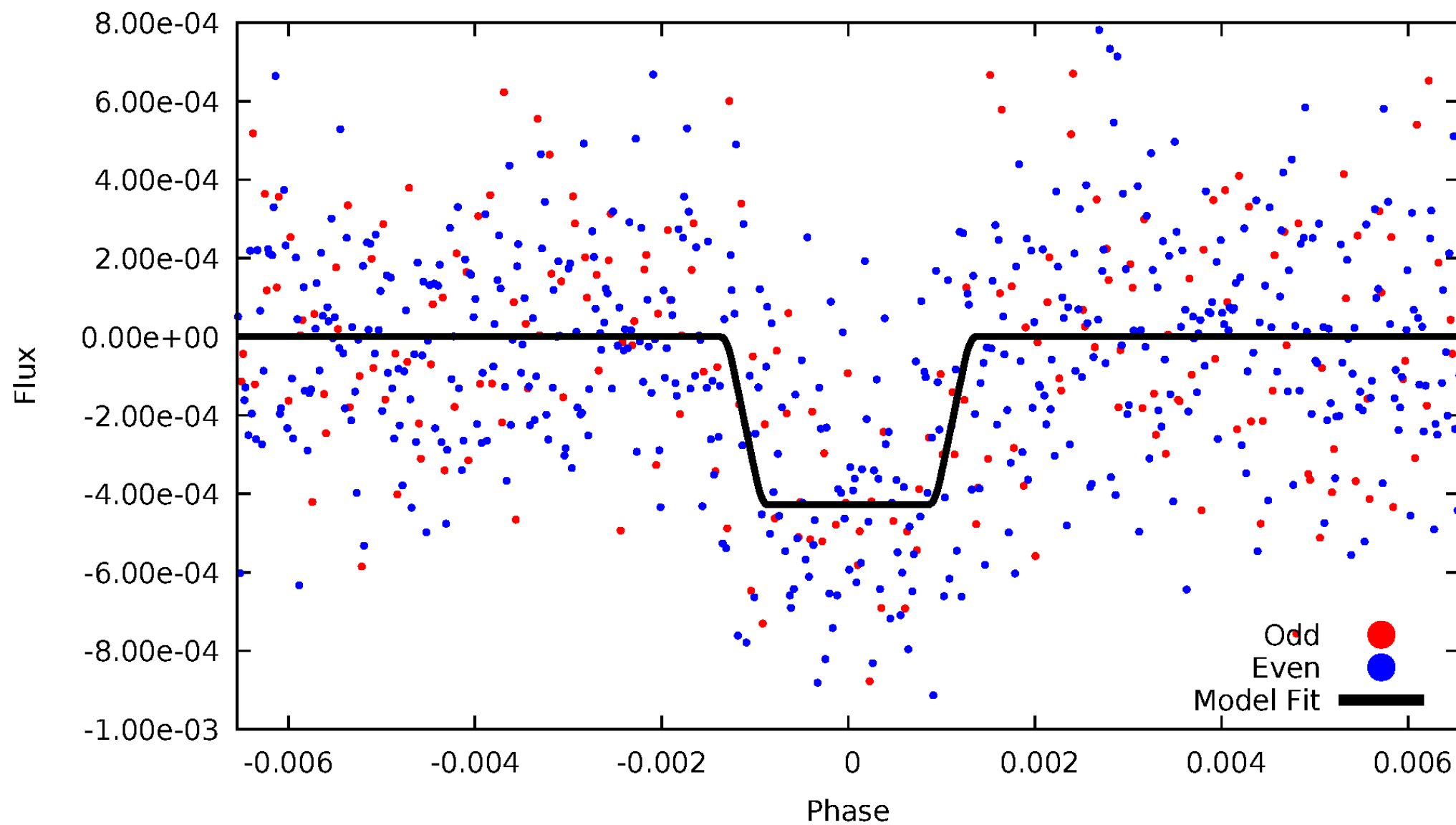
DV Odd/Even

TCE 003558849-02



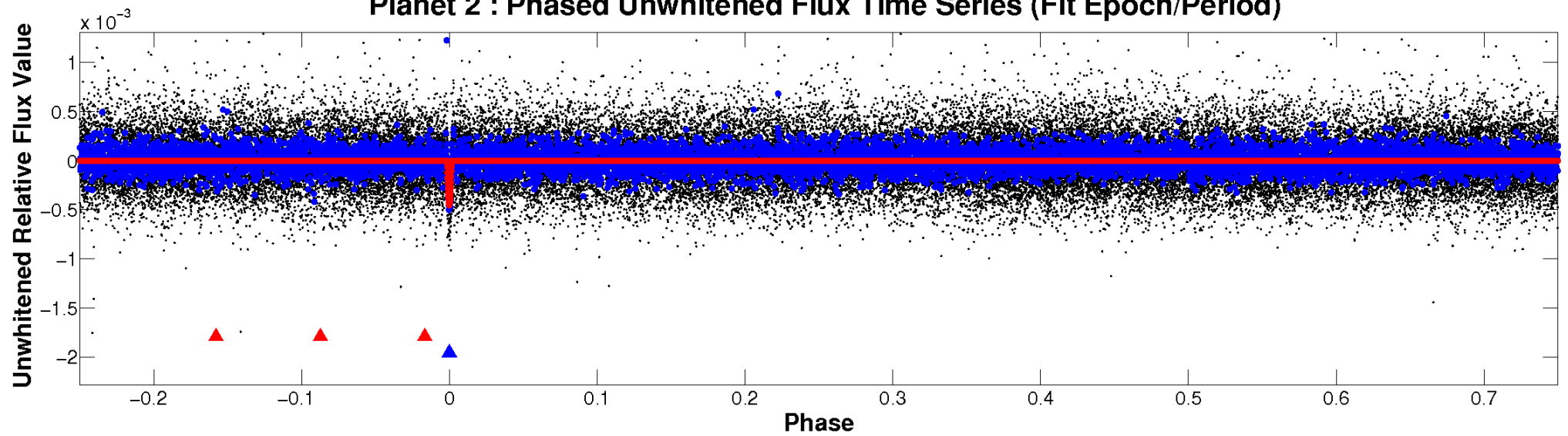
ALT Odd/Even

TCE 003558849-02

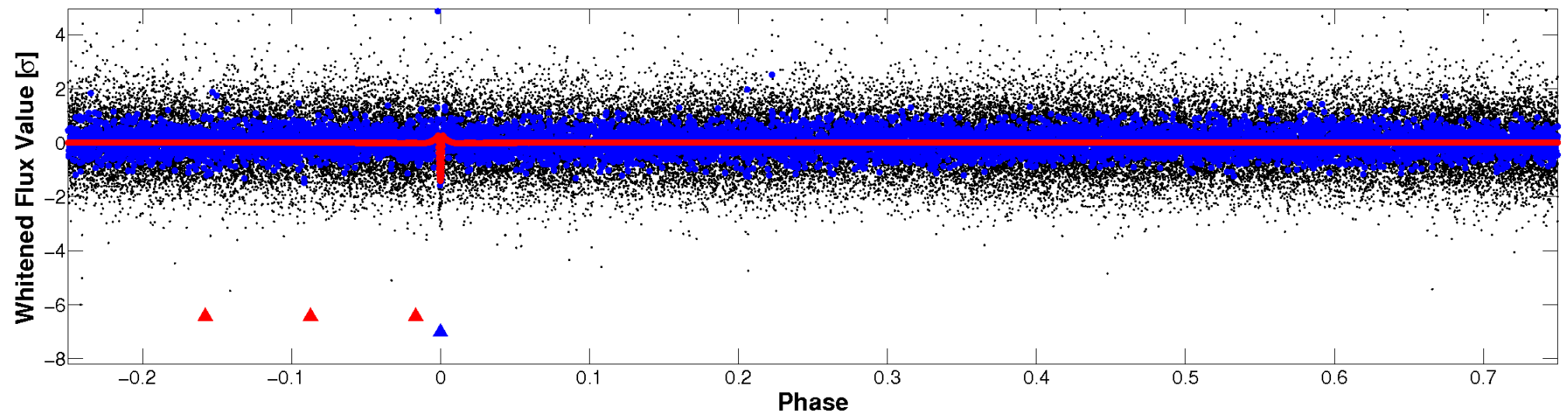


Non-Whitened Vs. Whitened Light Curve

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

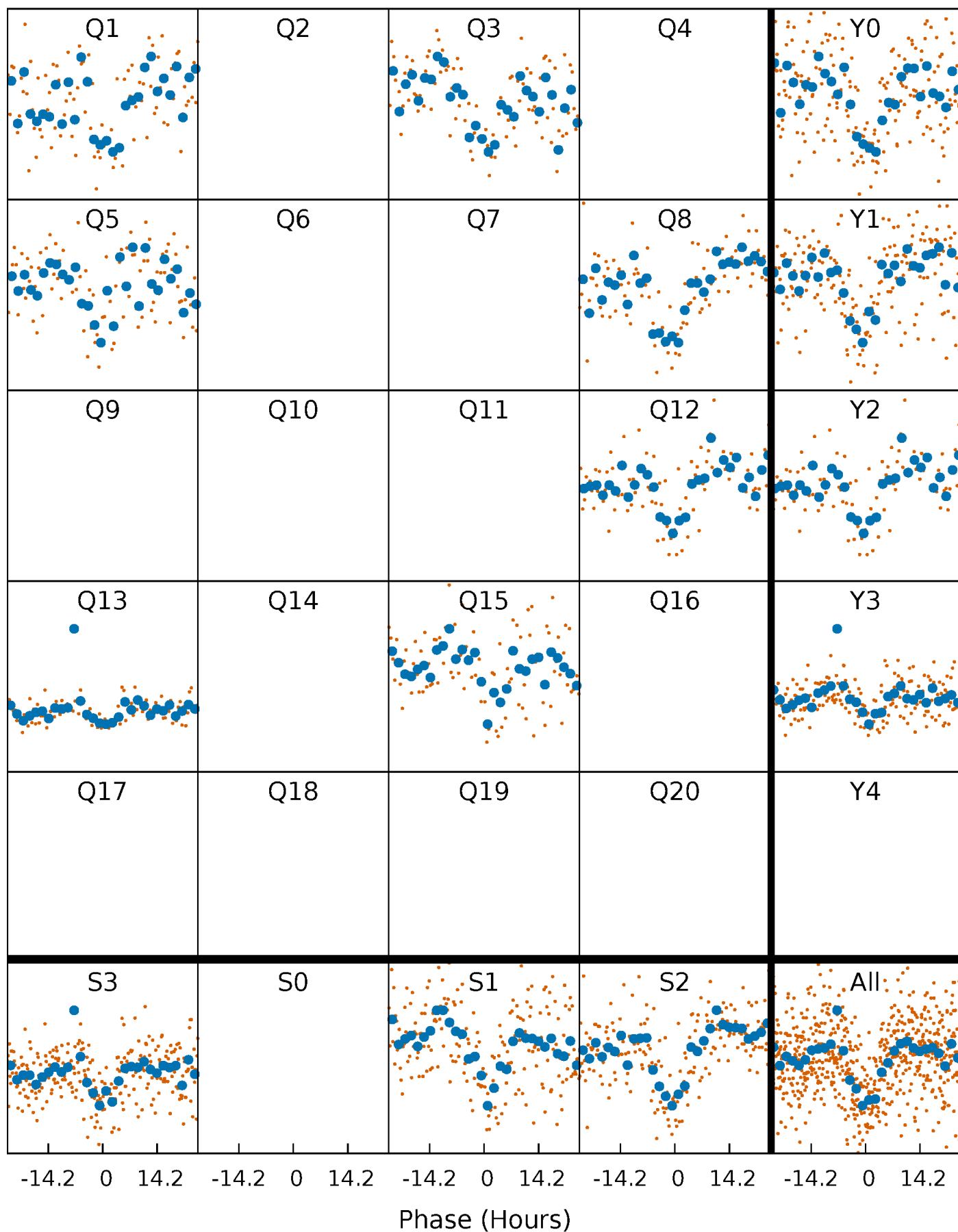


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



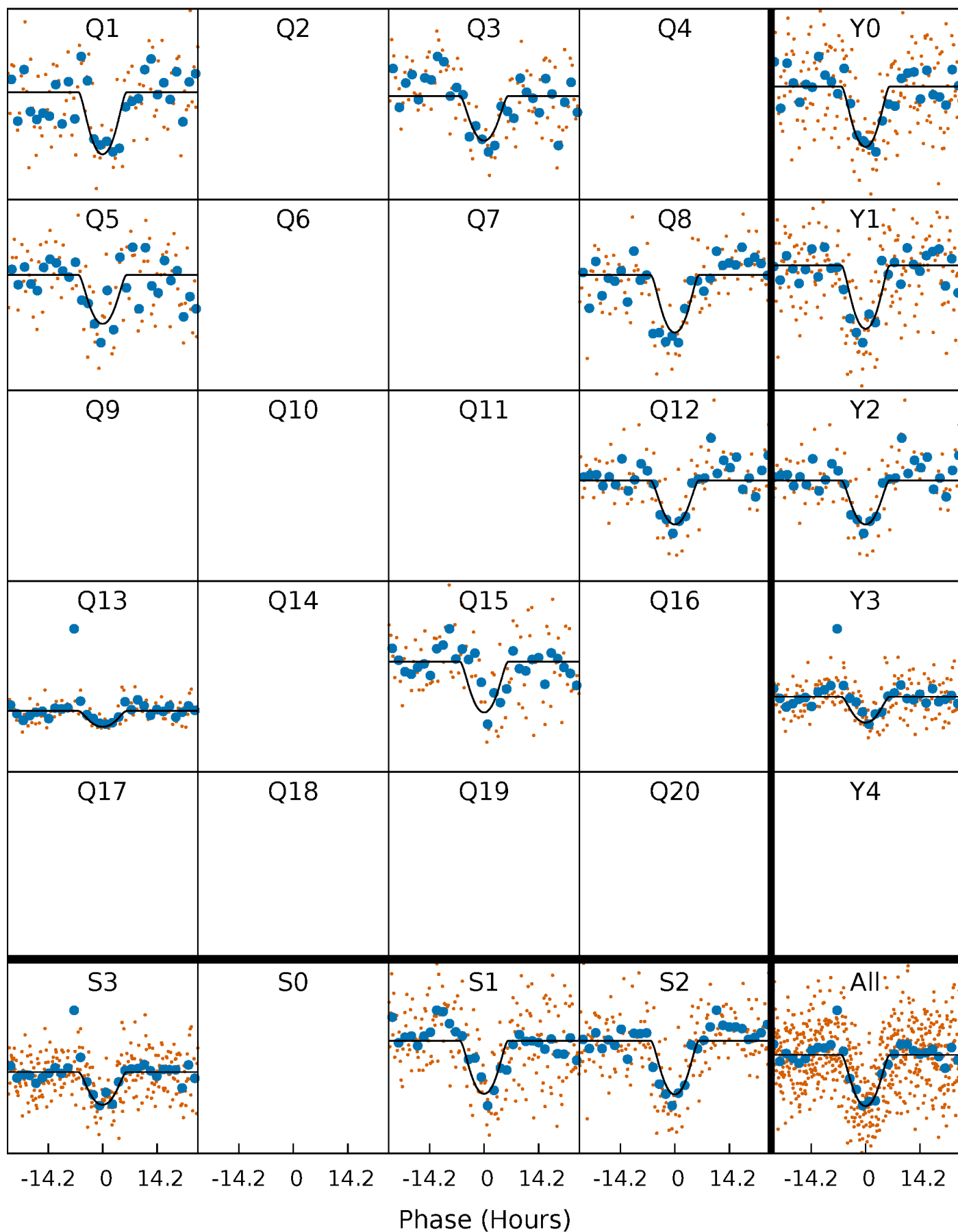
PDC Quarter-Phased Transit Curves

TCE 003558849-02 P=160.848616 Days $T_0=144.535240$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 003558849-02 $P=160.848616$ Days $T_0=144.535240$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

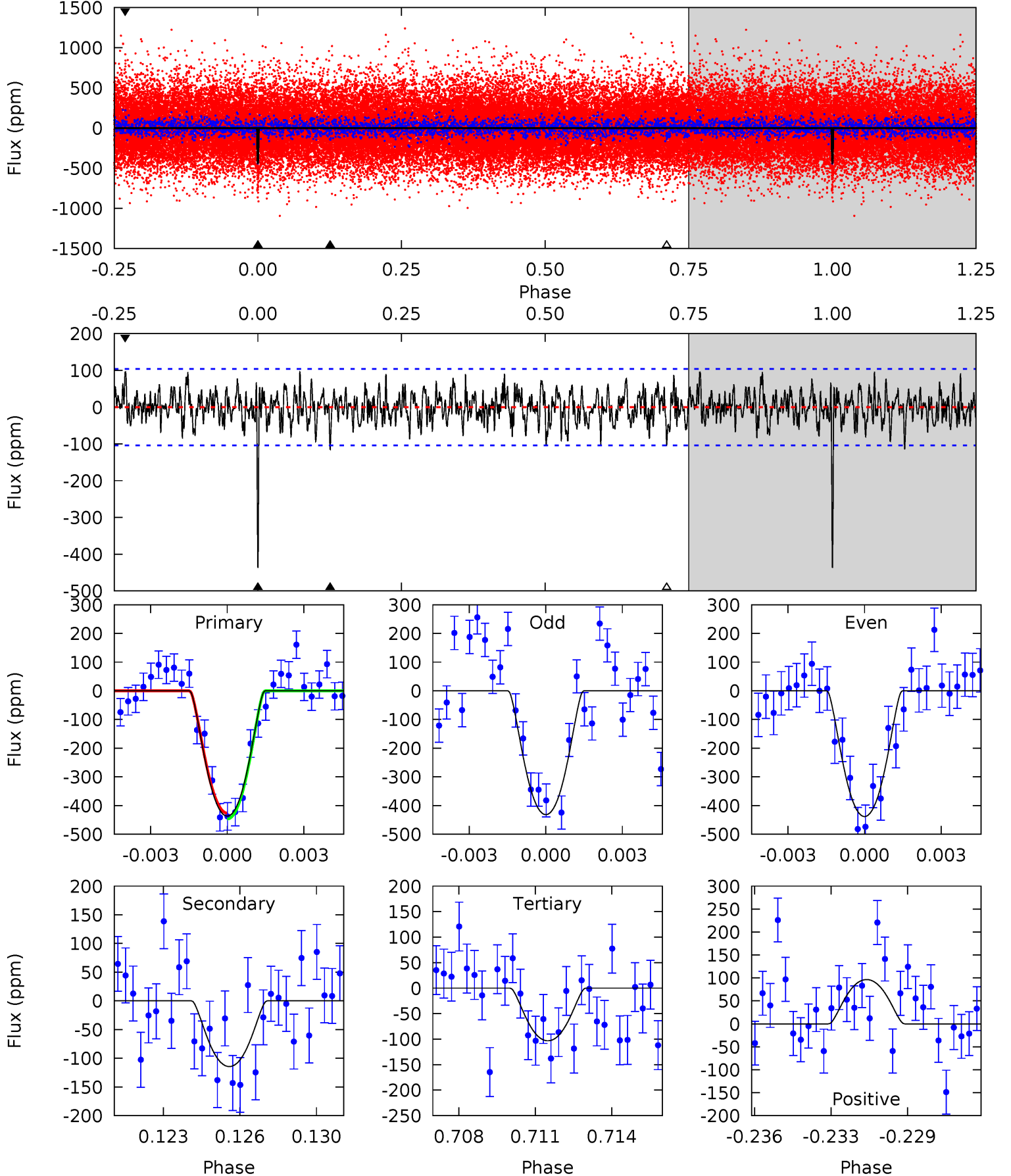
TCE 003558849-02 P=160.839362 Days $T_0=144.566826$ (BKJD)



DV Model-Shift Uniqueness Test

003558849-02, P = 160.848616 Days, E = 144.535240 Days

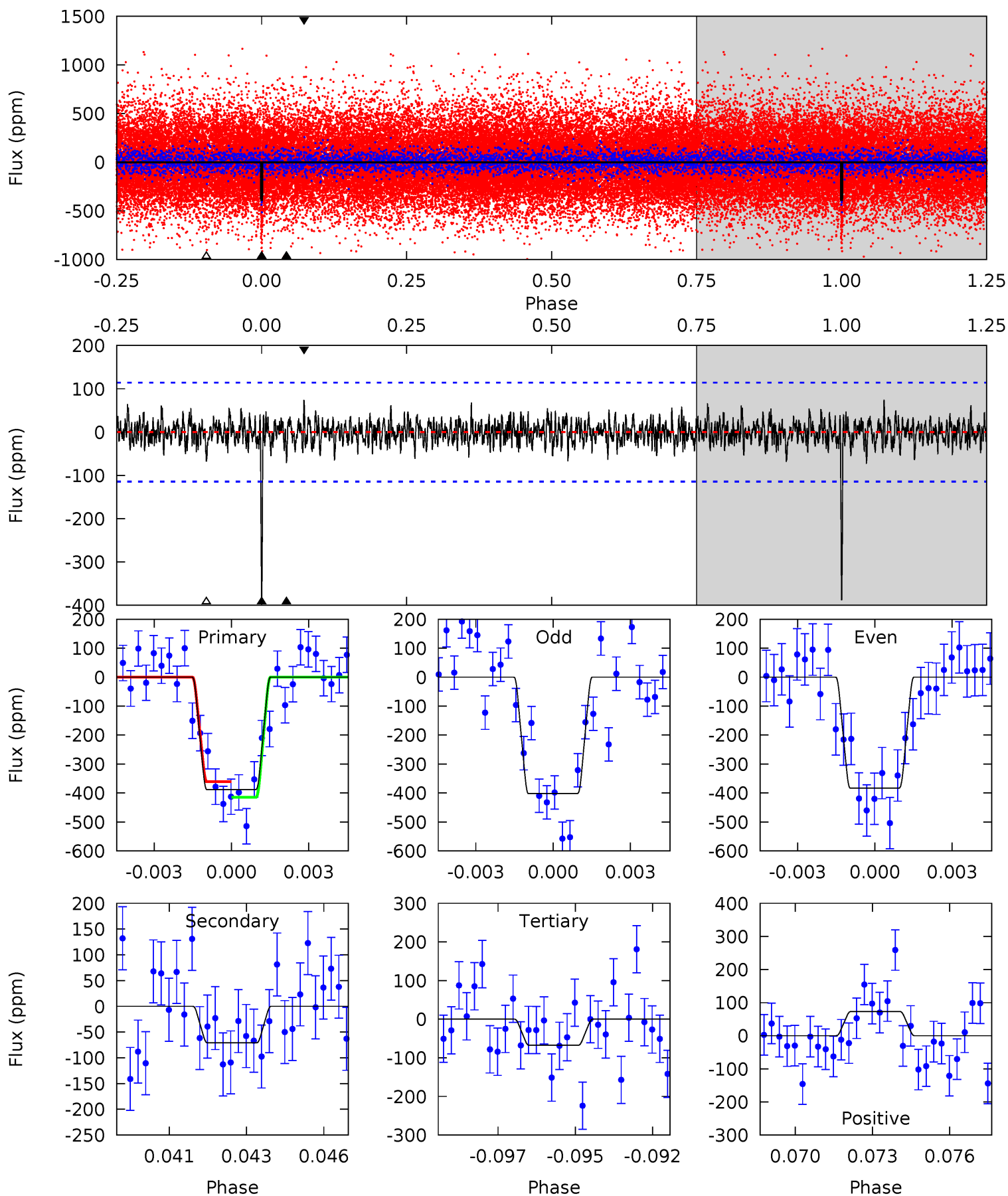
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	5.76	5.19	4.85	5.23	2.94	1.74	16.8	17.1	0.56	0.91	0.15	0.96	0.18	0.52



Alt Model-Shift Uniqueness Test

003558849-02, P = 160.839362 Days, E = 144.566826 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.9	3.28	3.12	3.38	5.27	3.00	0.99	14.8	14.5	0.16	-0.10	0.39	1.02	0.16	1.25



Stellar Parameters For KIC 003558849

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5999^{+80}_{-89}	$4.168^{+0.162}_{-0.108}$	$0.180^{+0.150}_{-0.150}$	$1.507^{+0.258}_{-0.315}$	$1.225^{+0.087}_{-0.131}$	$0.504^{+0.442}_{-0.174}$
	+1%/-1%	+4%/-3%	+83%/-83%	+17%/-21%	+7%/-11%	+88%/-35%
Source	SPE90	SPE90	SPE90	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 003558849-02 / KOI 4307.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-114 ± 20	$4.93^{+2.83}_{-2.64}$	575^{+28}_{-31}	3883^{+1434}_{-523}	967^{+3479}_{-586}
Alt.	-71 ± 22	$3.70^{+2.85}_{-2.14}$	576^{+28}_{-29}	3966^{+1711}_{-696}	1056^{+5308}_{-732}

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

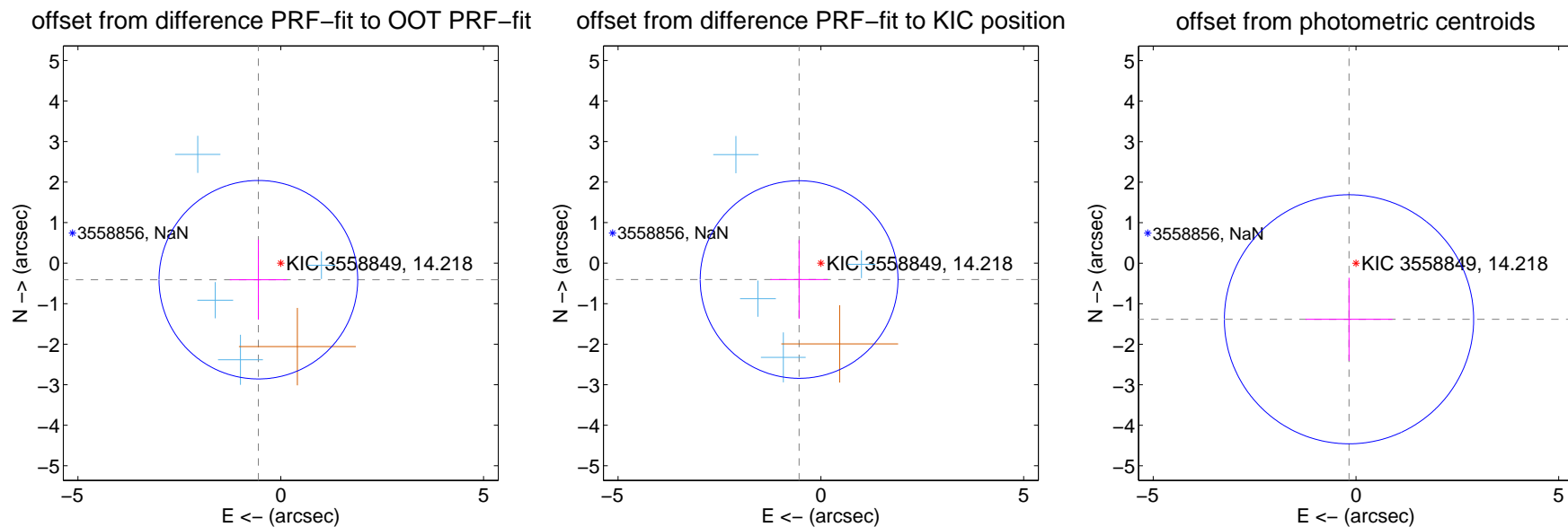
DV Centroid Data

Supplemental centroid analysis for 003558849-02. Kepler magnitude: 14.22. Transit SNR 12.31

There are 4 quarters with good PRF difference image offsets

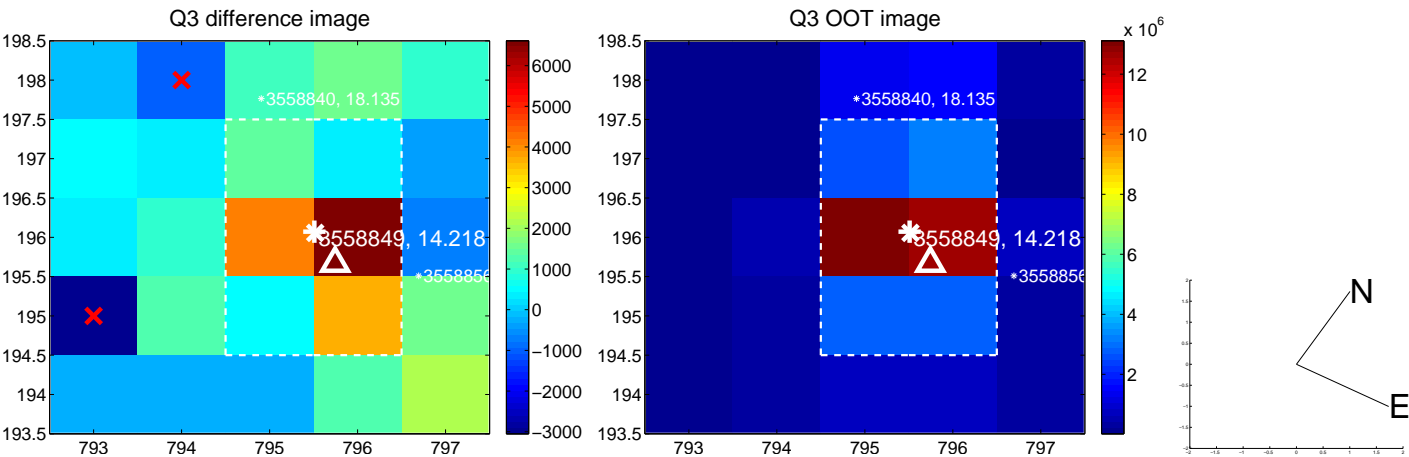
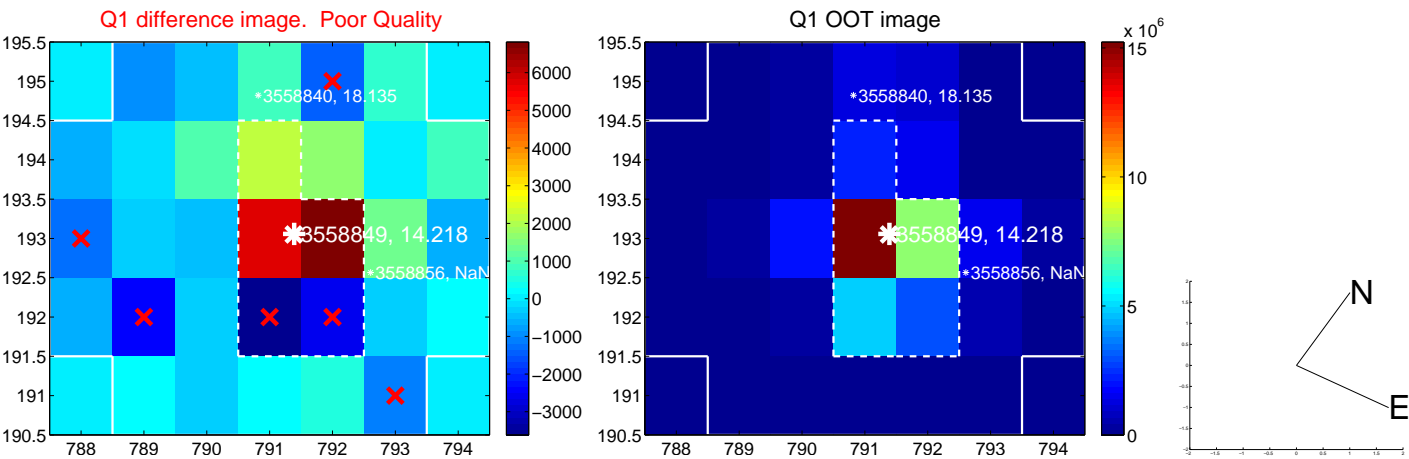
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.687 ± 0.816	0.84	0.552 ± 0.706	-0.409 ± 0.985
PRF-fit source offset from KIC position	0.672 ± 0.813	0.83	0.536 ± 0.707	-0.404 ± 0.971
photometric centroid source offset	1.39 ± 1.02	1.36	0.17 ± 1.07	-1.38 ± 1.02

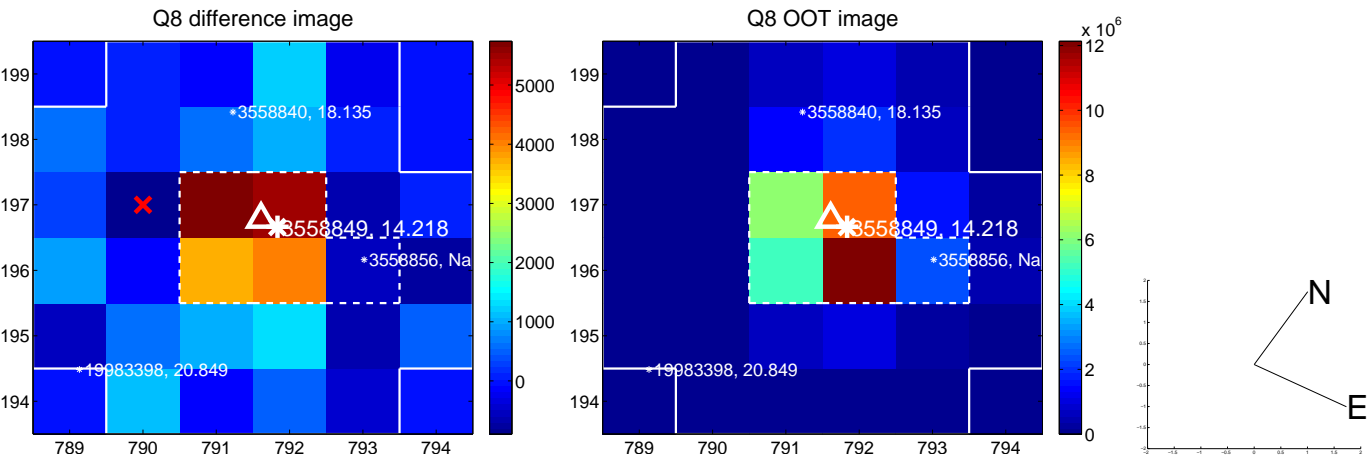
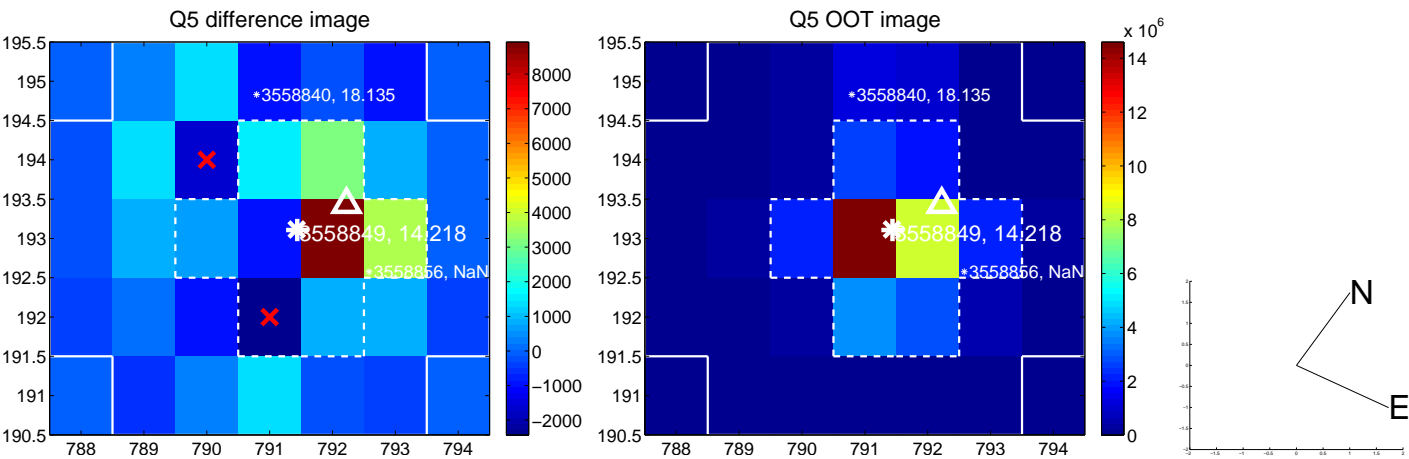


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



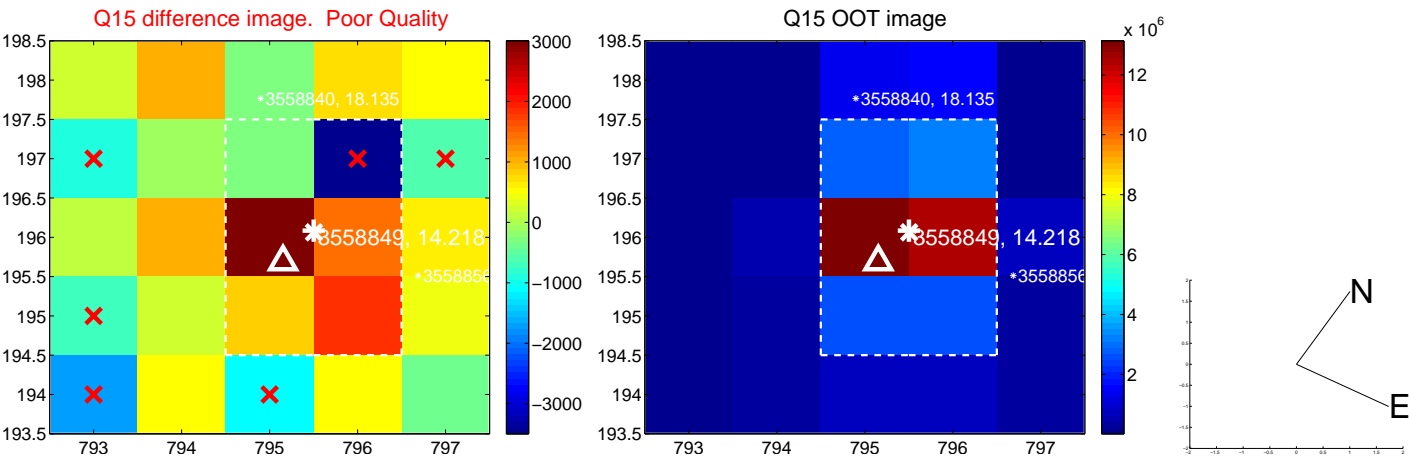
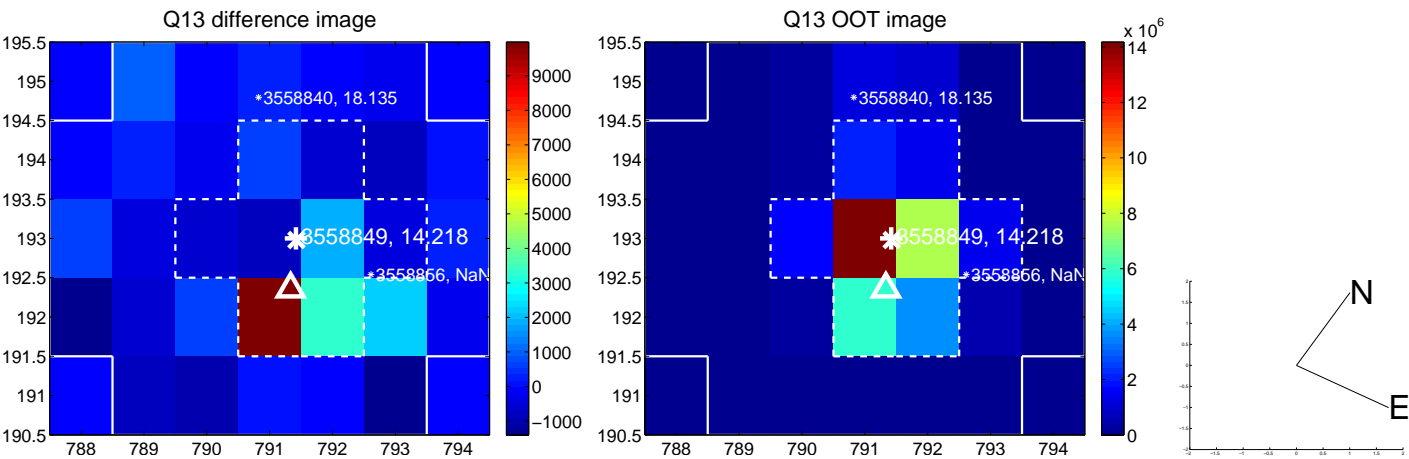
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



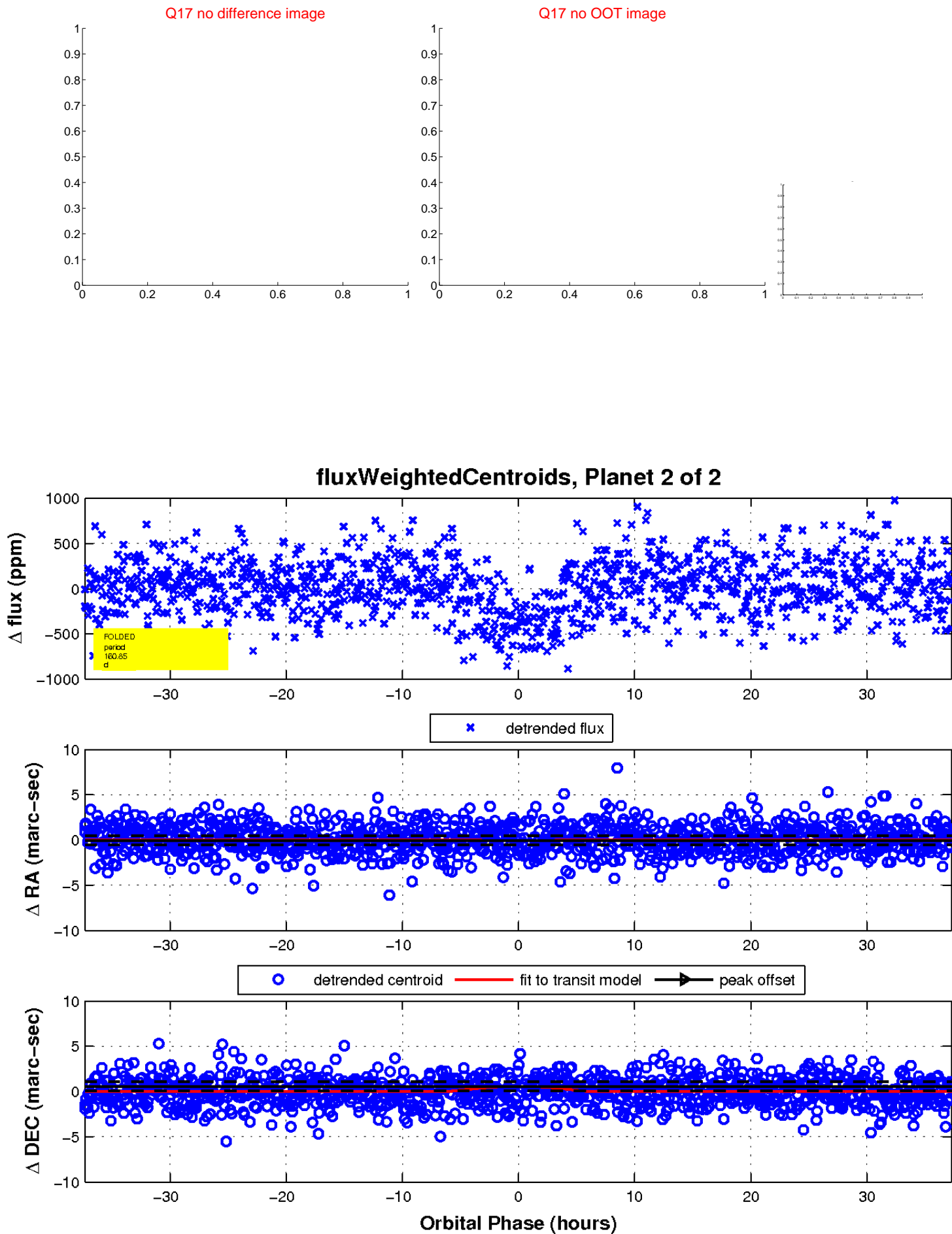
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

