

KIC 005956859

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})
005956859-01	OBS	No	367.092972	154.705464	1872.3	22.708	10.5	10.2	0.97	6061	5.00	1.09
005956859-02	OBS	No	362.787215	162.395273	2521.6	24.791	8.4	10.0	0.97	6061	8.95	1.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005956859-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
005956859-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

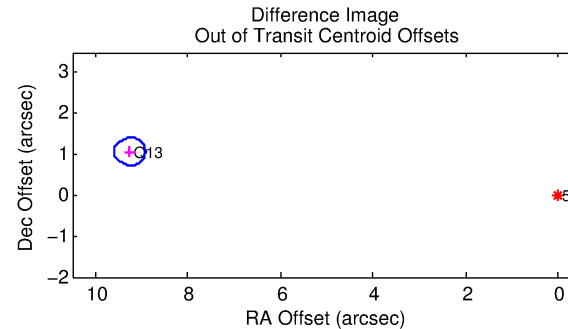
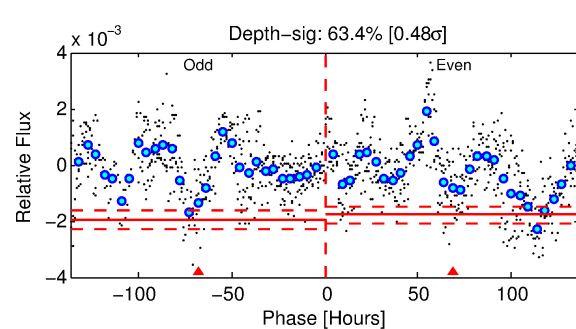
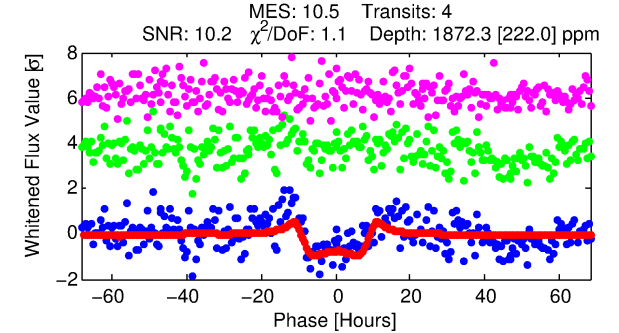
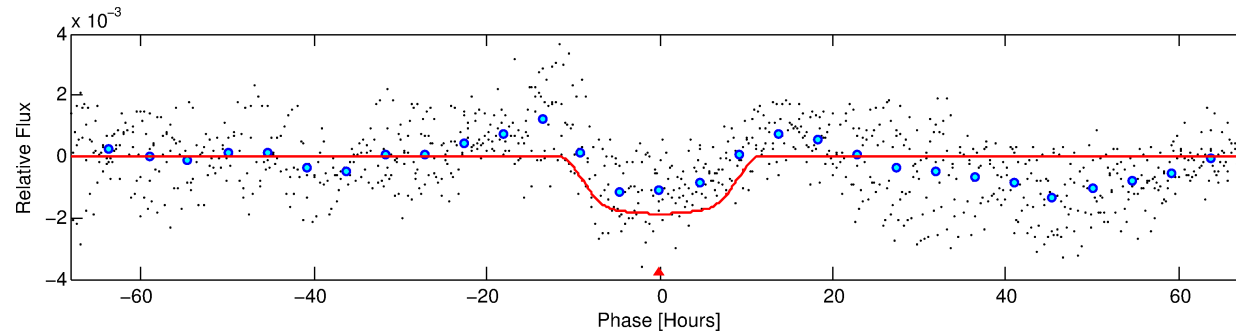
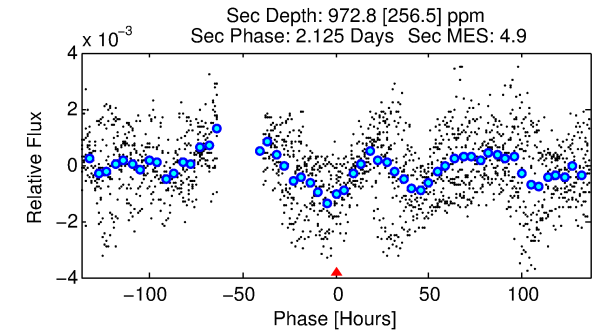
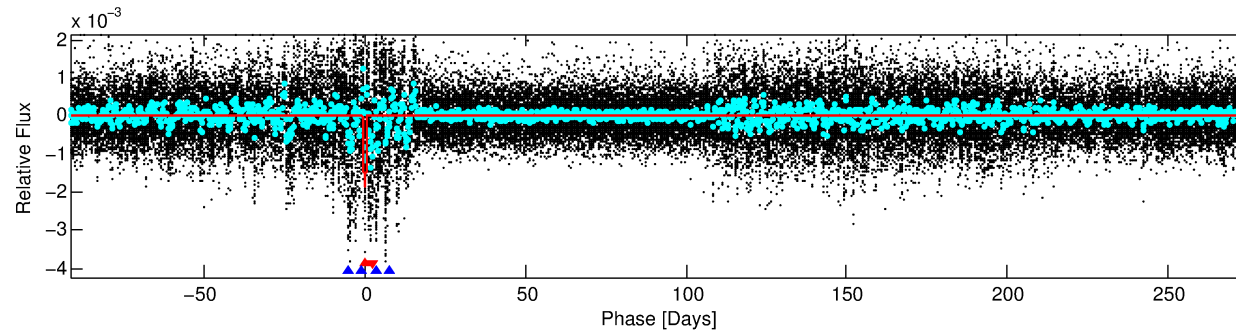
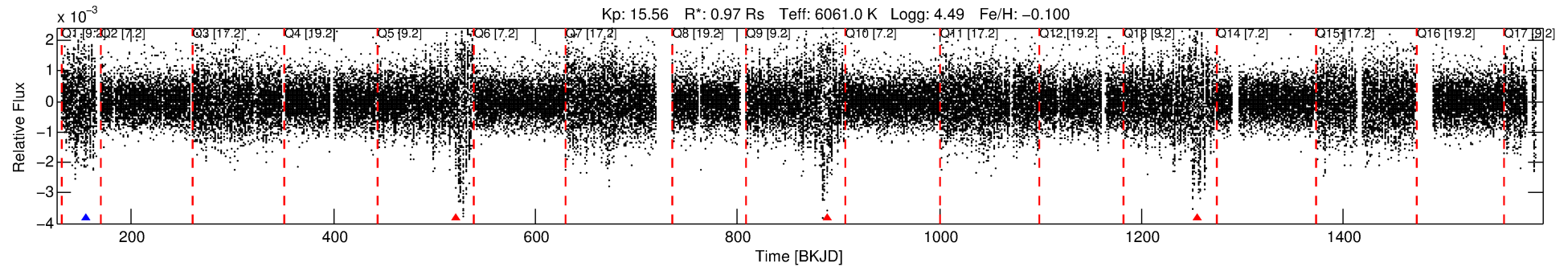
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005956859-01

No Significant Match Found

DV One-Page Summary

KIC: 5956859 Candidate: 1 of 2 Period: 367.093 d



DV Fit Results:

Period = 367.09297 [0.01457] d
Epoch = 154.7055 [0.0268] BKJD
Rp/R* = 0.0473 [0.0033]
a/R* = 64.07 [8.19]
b = 0.91 [0.03]
Seff = 1.09 [0.39]
Teq = 261 [24] K
Rp = 5.00 [1.42] Re
a = 1.0203 [0.2338] AU
Ag = 22262.03 [9925.28] [2.24σ]
Teff = 4924 [407] K [11.43σ]

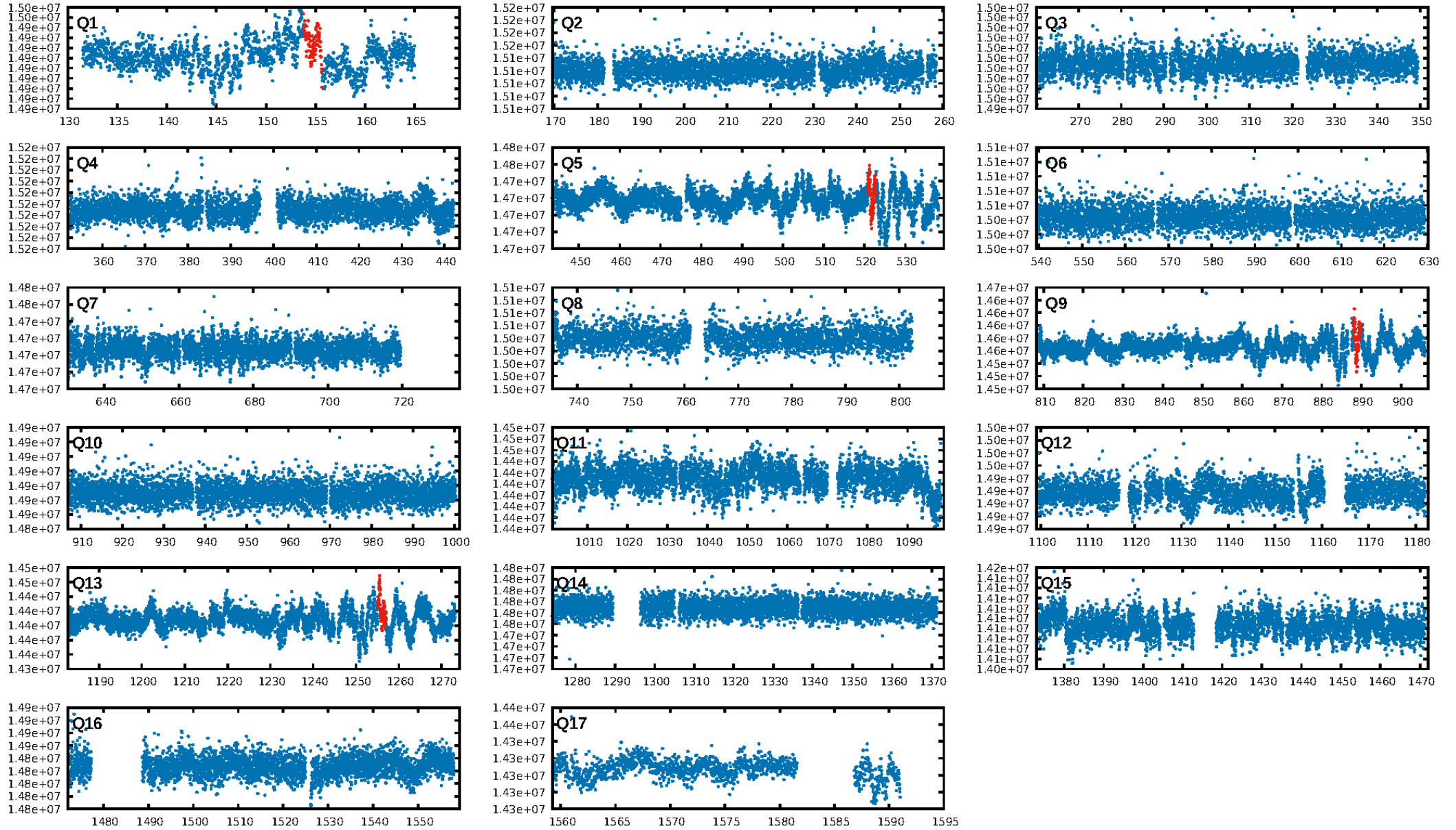
DV Diagnostic Results:

ShortPeriod-sig: 99.8% [3.07σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 39.1%
ModelChiSquareGoF-sig: 99.8%
Bootstrap-pfa: 7.54e-12
RollingBand-fgt: 0.00 [0/3]
GhostDiagnostic-chr: -7.909
Centroid-sig: 92.3%
Centroid-so: 0.539 arcsec [0.34σ]
OotOffset-rm: 9.316 arcsec [83.57σ]
KicOffset-rm: 9.280 arcsec [83.26σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [3/3]

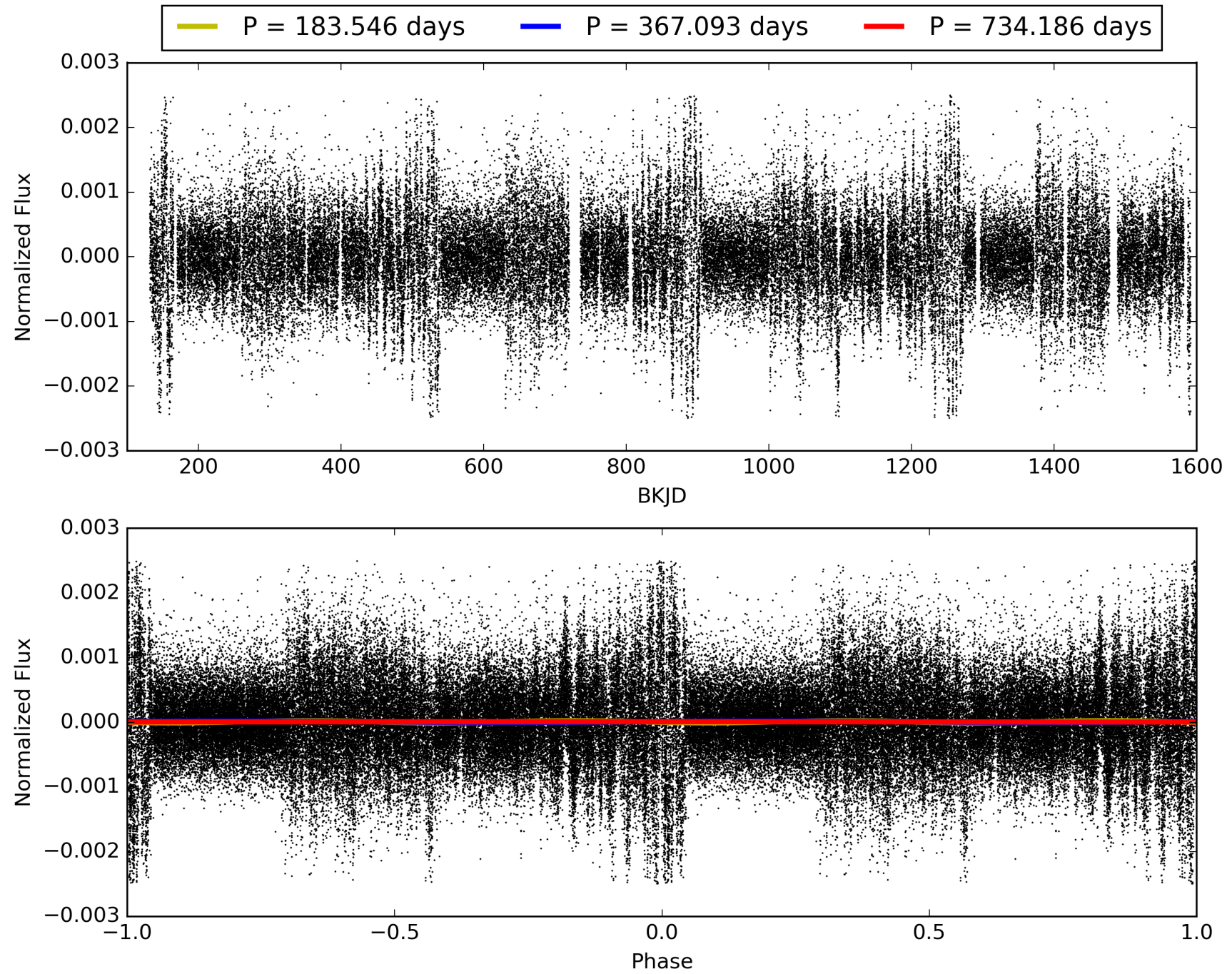
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:08:42 Z

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

TCE 005956859-01, PDC Light Curves

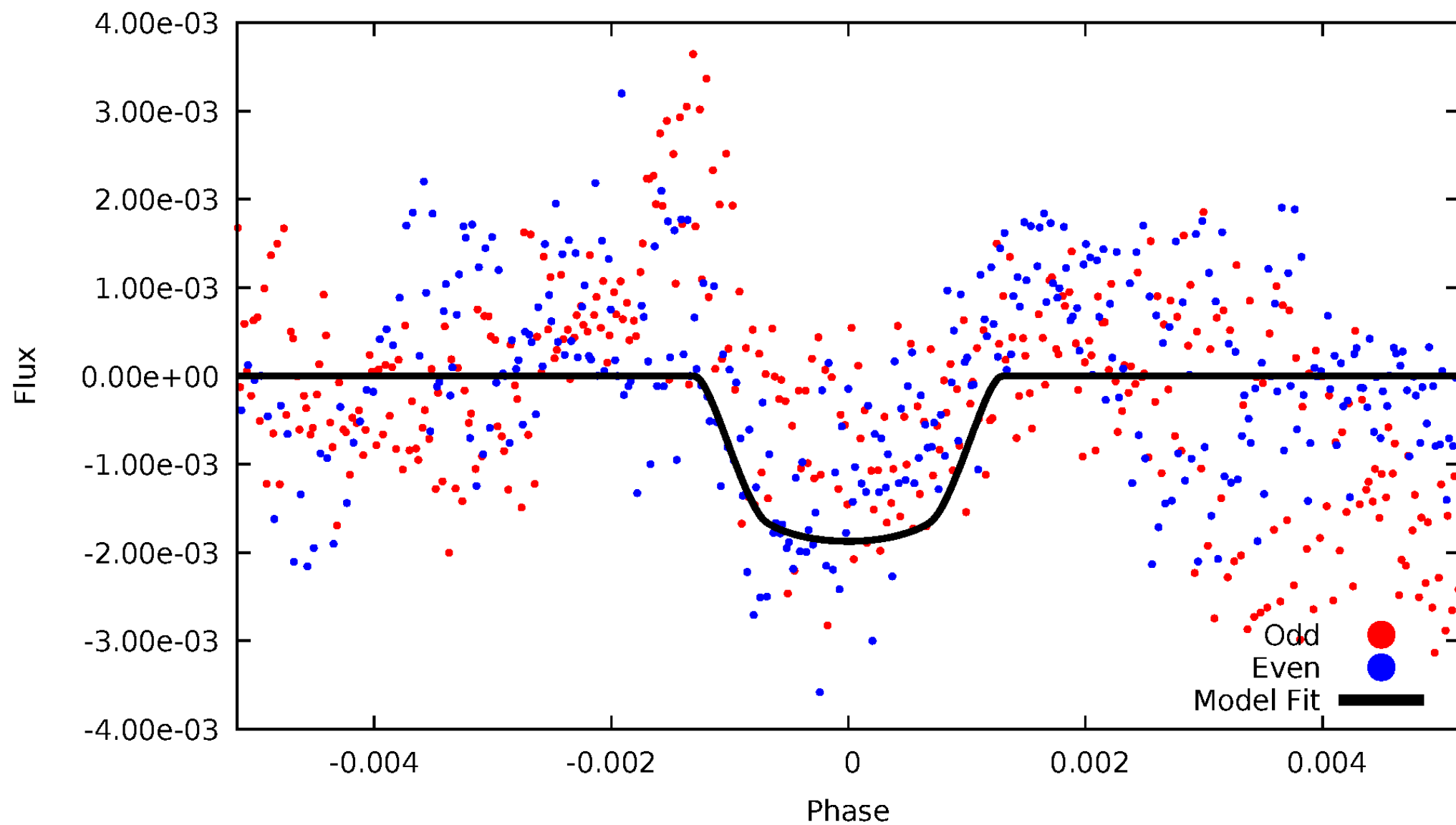


TCE 005956859-01



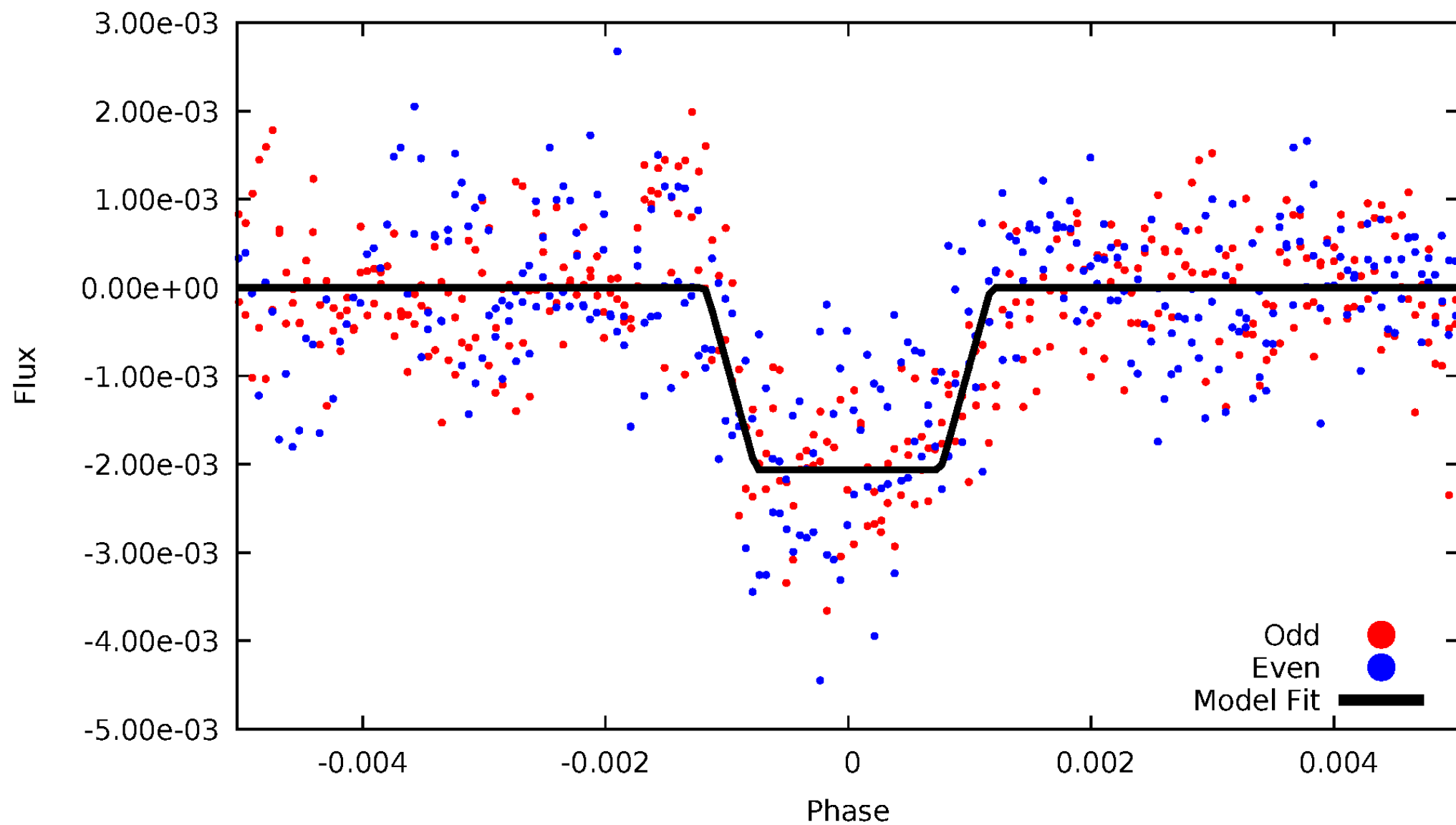
DV Odd/Even

TCE 005956859-01



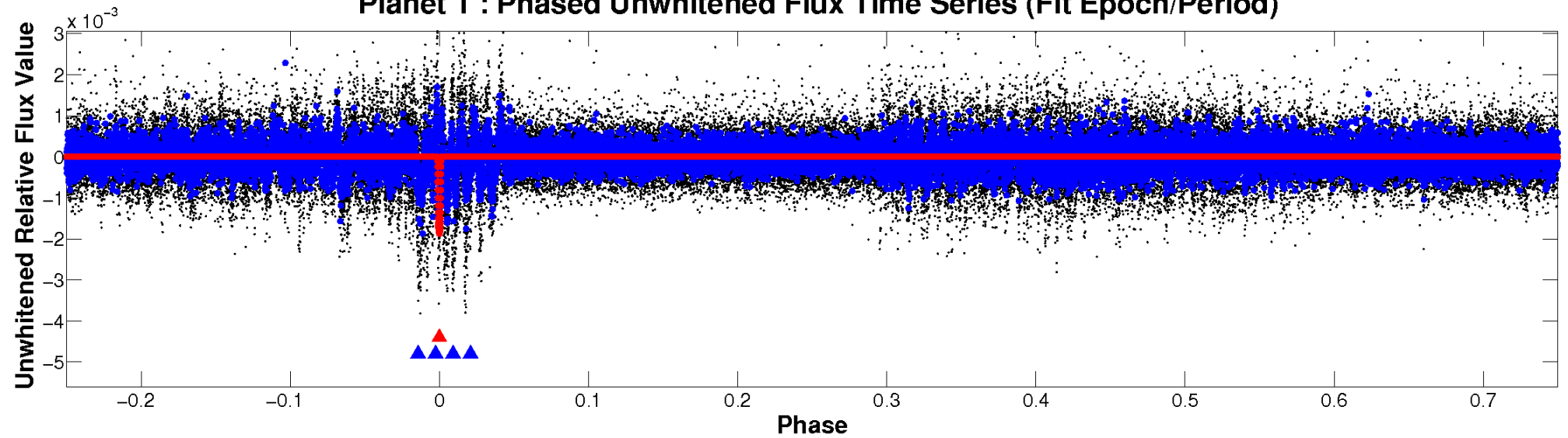
ALT Odd/Even

TCE 005956859-01

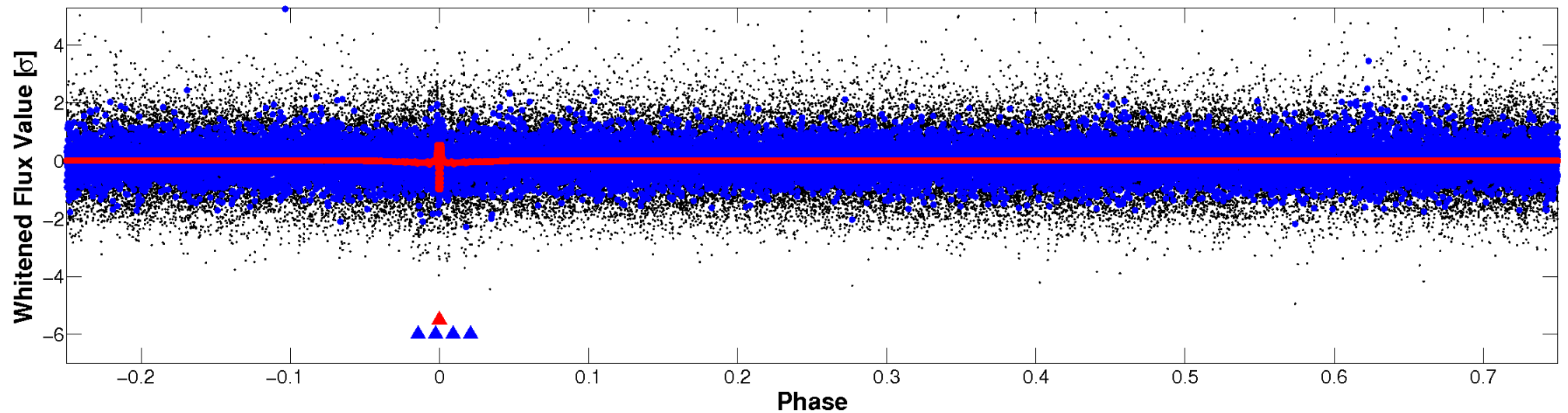


Non-Whitened Vs. Whitened Light Curve

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

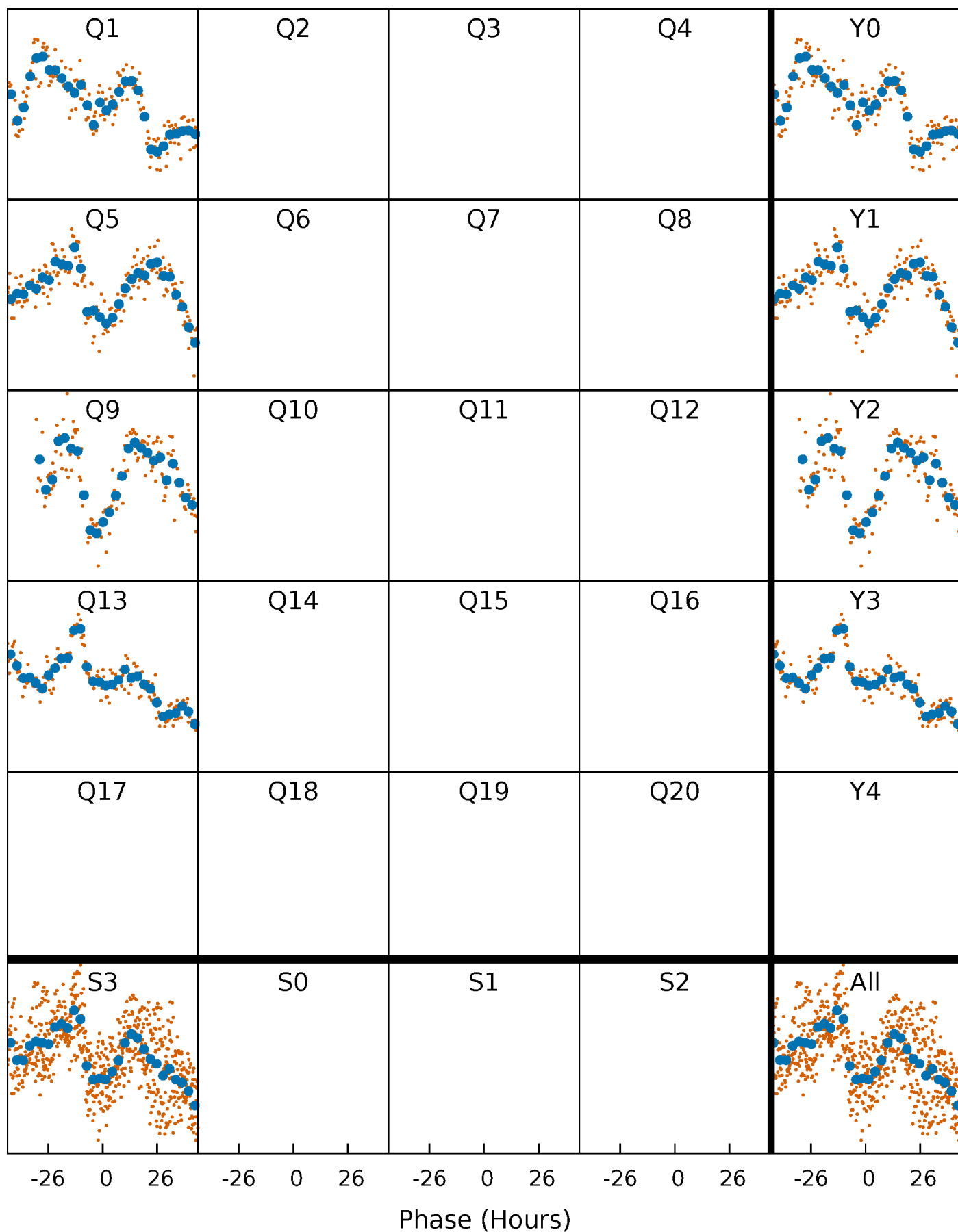


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



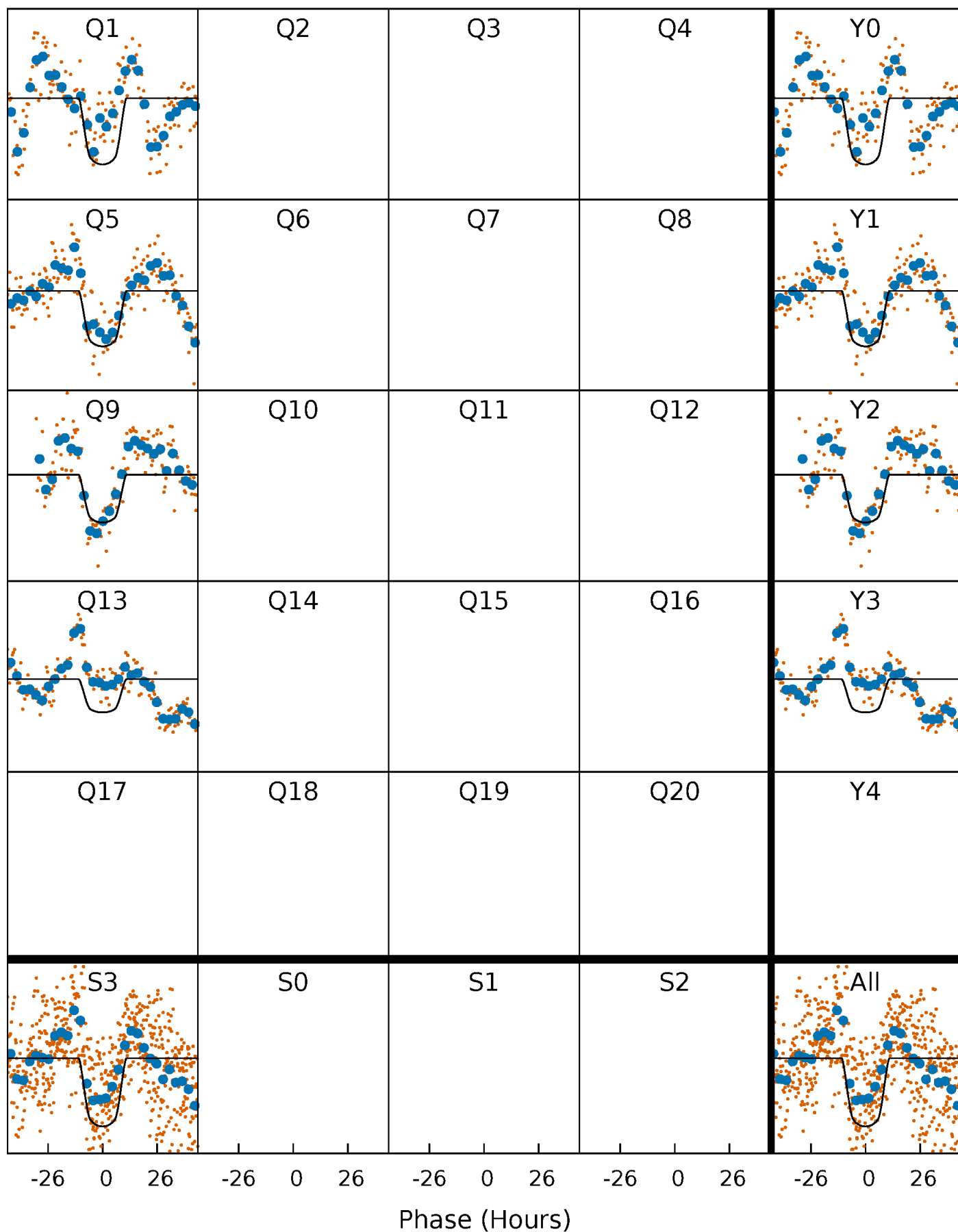
PDC Quarter-Phased Transit Curves

TCE 005956859-01 P=367.092972 Days $T_0=154.705464$ (BKJD)



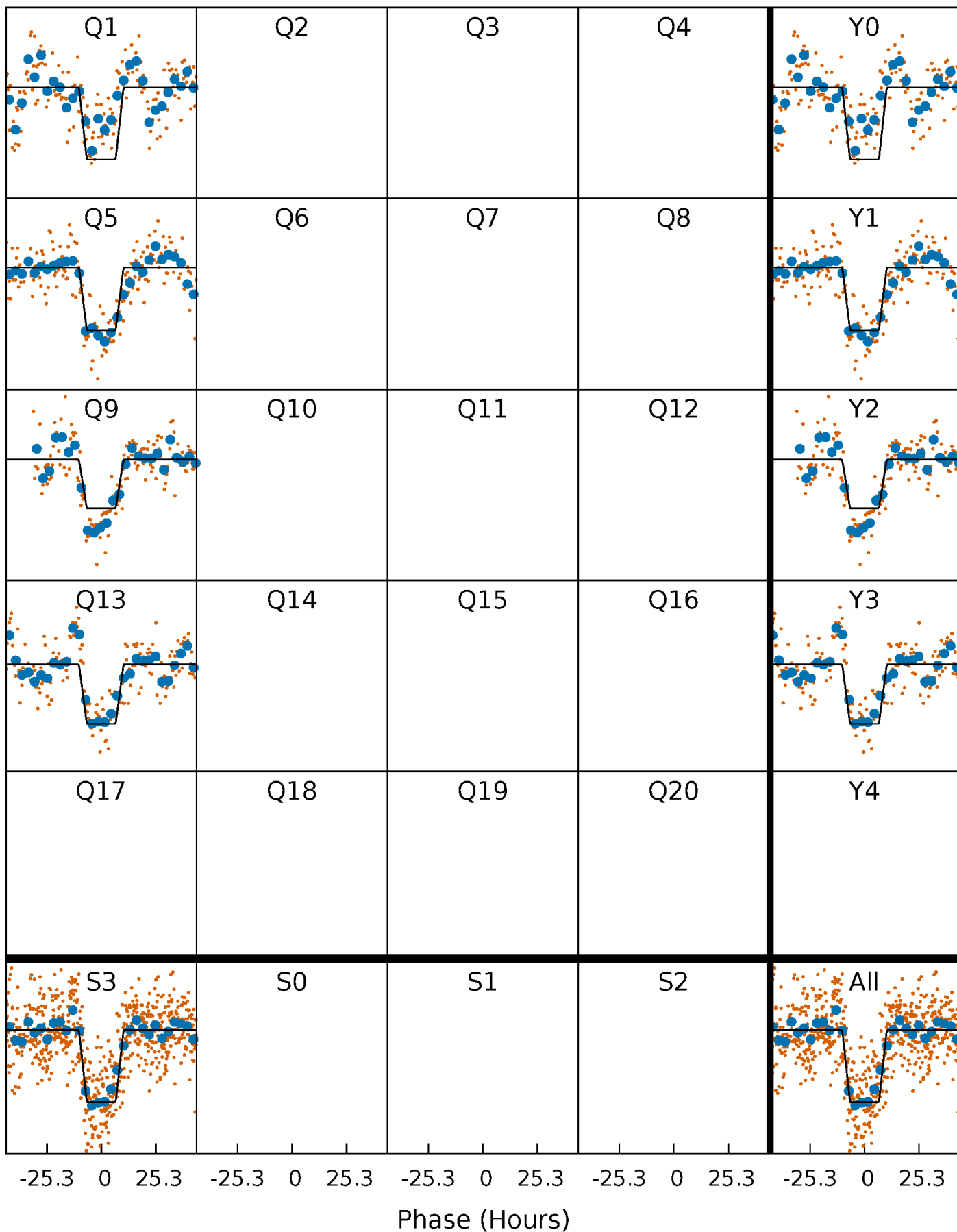
DV Quarter-Phased Transit Curves

TCE 005956859-01 P=367.092972 Days $T_0=154.705464$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

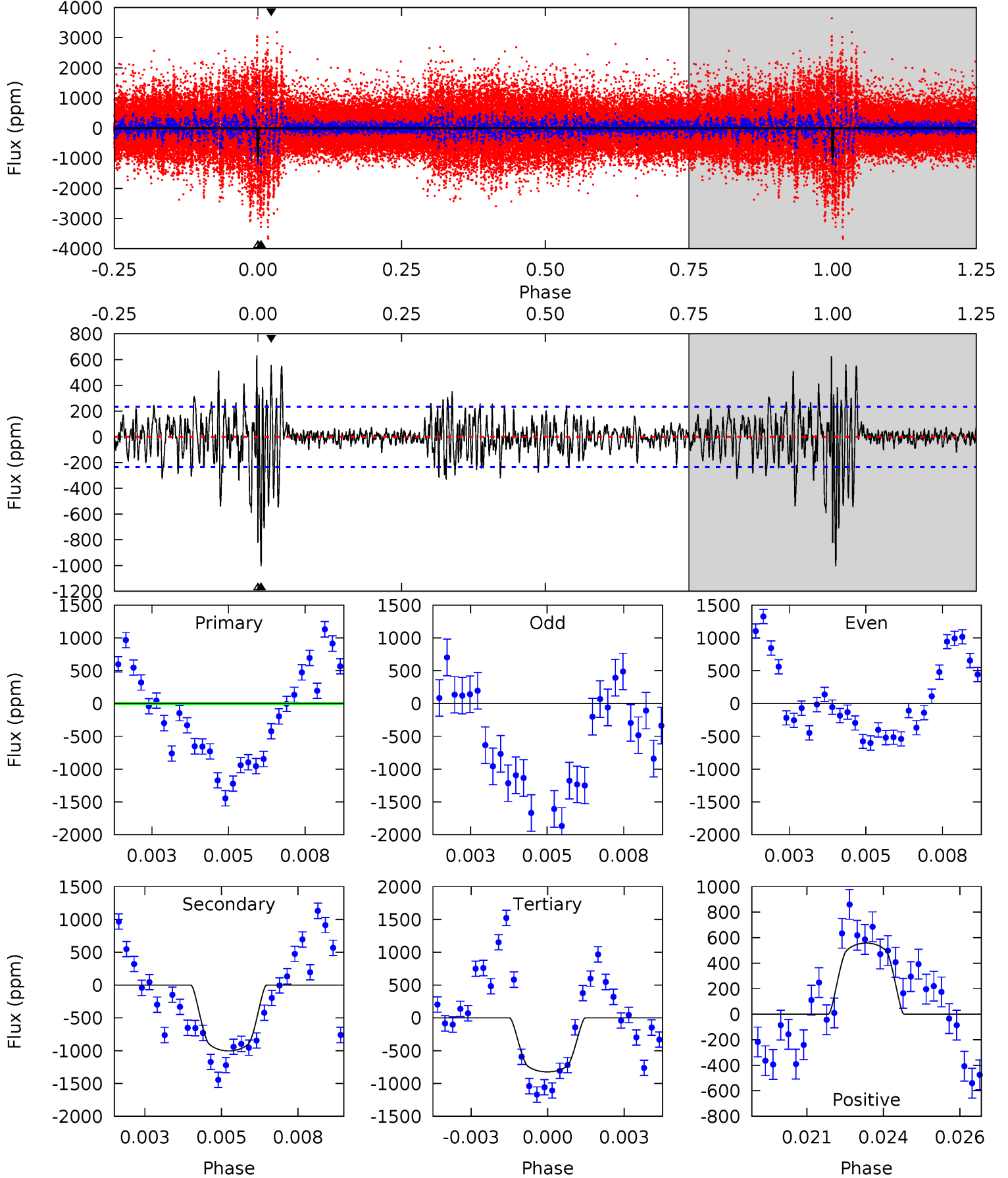
TCE 005956859-01 P=367.088905 Days $T_0=154.709839$ (BKJD)



DV Model-Shift Uniqueness Test

005956859-01, P = 367.092972 Days, E = 154.705464 Days

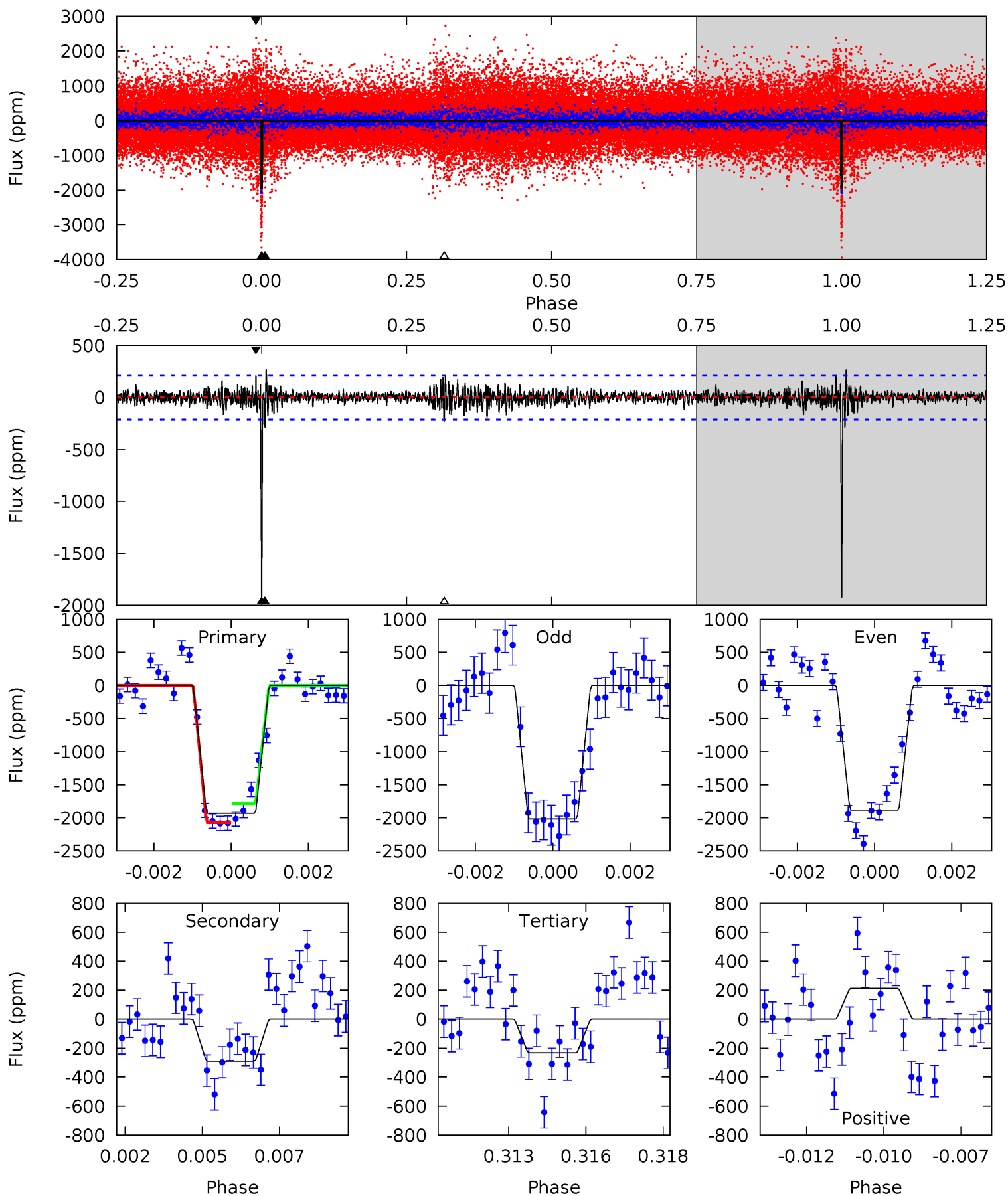
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.2	22.7	18.6	12.6	5.28	3.01	2.94	3.59	9.58	4.09	10.1	6.18	0.93	0.38	3.16



Alt Model-Shift Uniqueness Test

005956859-01, P = 367.088905 Days, E = 154.709839 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
47.8	7.15	5.74	5.24	5.29	3.04	1.17	42.0	42.5	1.41	1.91	1.67	0.97	0.12	3.57



Stellar Parameters For KIC 005956859

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6061^{+180}_{-217}	$4.486^{+0.048}_{-0.180}$	$-0.100^{+0.300}_{-0.300}$	$0.970^{+0.266}_{-0.114}$	$1.050^{+0.129}_{-0.142}$	$1.620^{+0.403}_{-0.785}$
	+3%/-4%	+1%/-4%	+300%/-300%	+27%/-12%	+12%/-14%	+25%/-48%
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 005956859-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1004 ± 44	$5.22^{+0.73}_{-0.60}$	372^{+24}_{-16}	5052^{+207}_{-202}	21172^{+4654}_{-4963}
Alt.	-289 ± 40	$5.03^{+0.72}_{-0.61}$	372^{+24}_{-18}	4009^{+177}_{-165}	6494^{+1922}_{-1801}

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

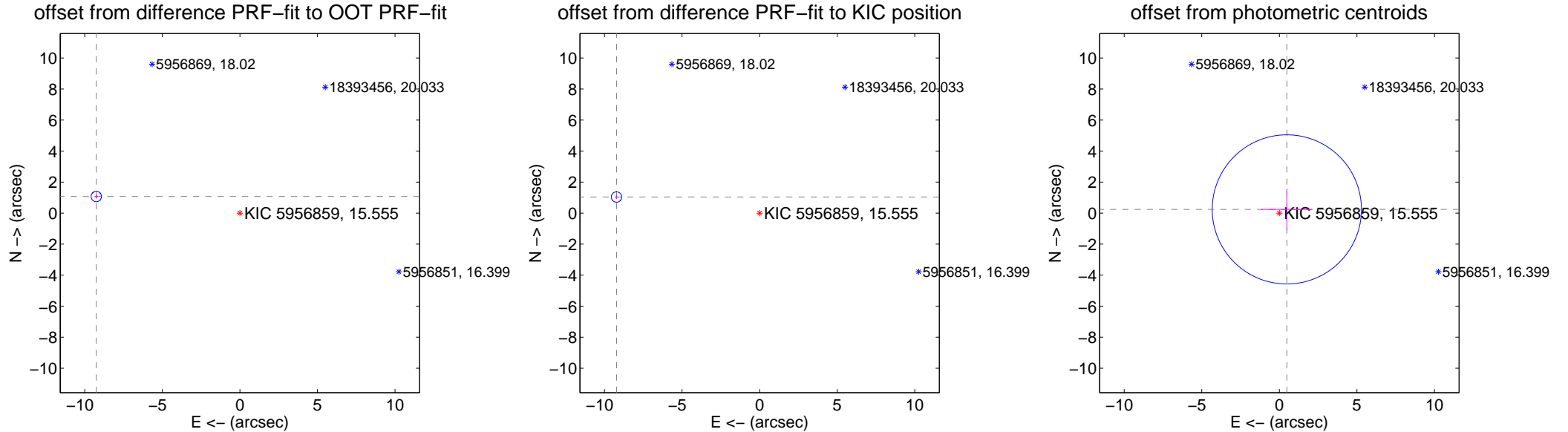
DV Centroid Data

Supplemental centroid analysis for 005956859-01. Kepler magnitude: 15.55. Transit SNR 10.23

There are 0 quarters with good PRF difference image offsets

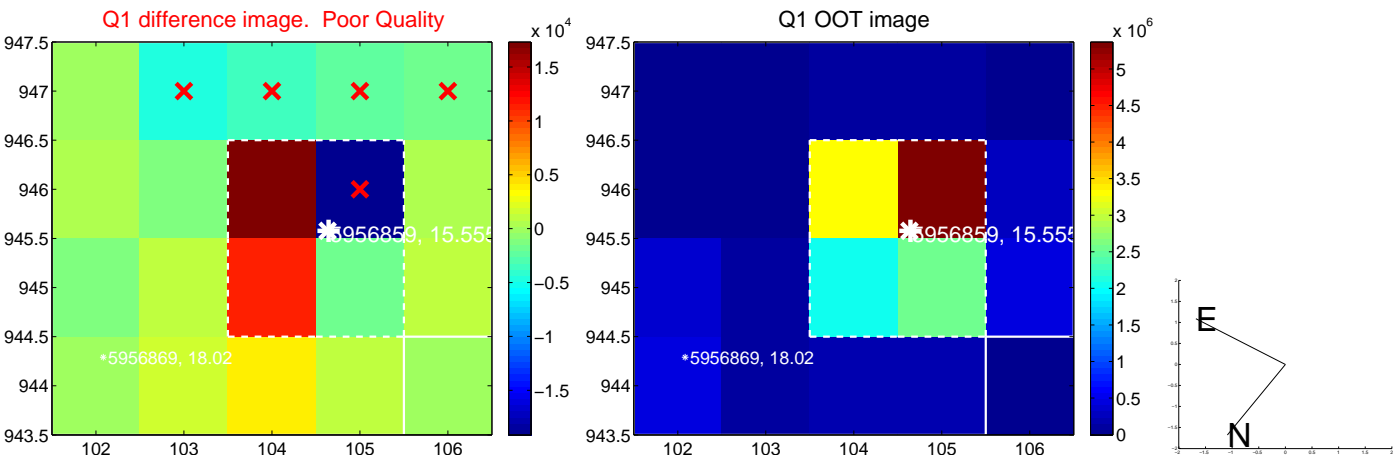
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	9.316 \pm 0.111	83.57	9.254 \pm 0.111	1.070 \pm 0.130
PRF-fit source offset from KIC position	9.280 \pm 0.111	83.26	9.222 \pm 0.111	1.037 \pm 0.130
photometric centroid source offset	0.54 \pm 1.60	0.34	-0.48 \pm 1.66	0.24 \pm 1.34

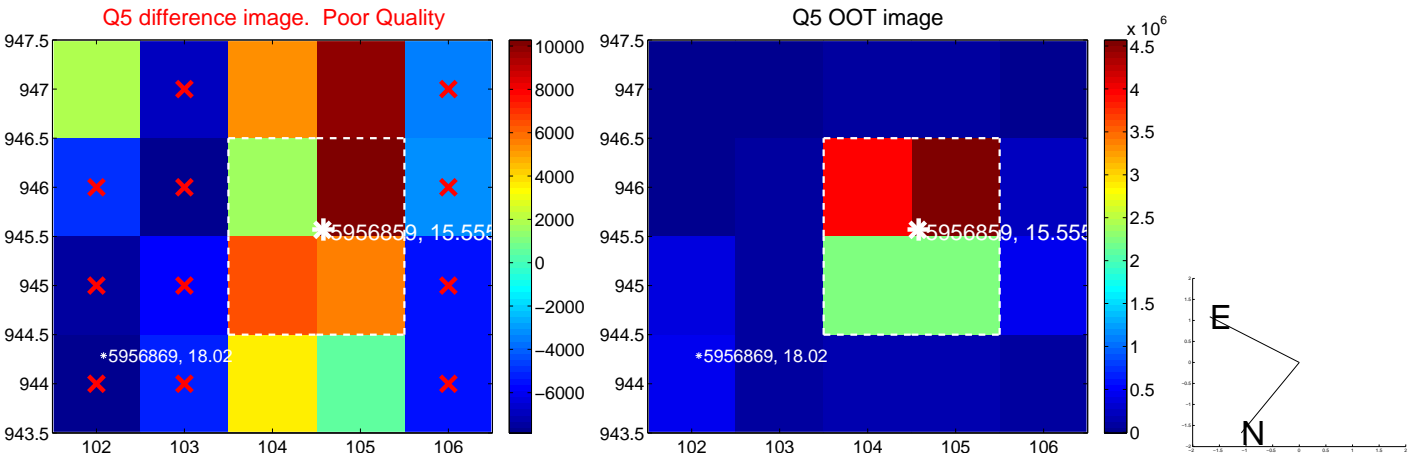


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



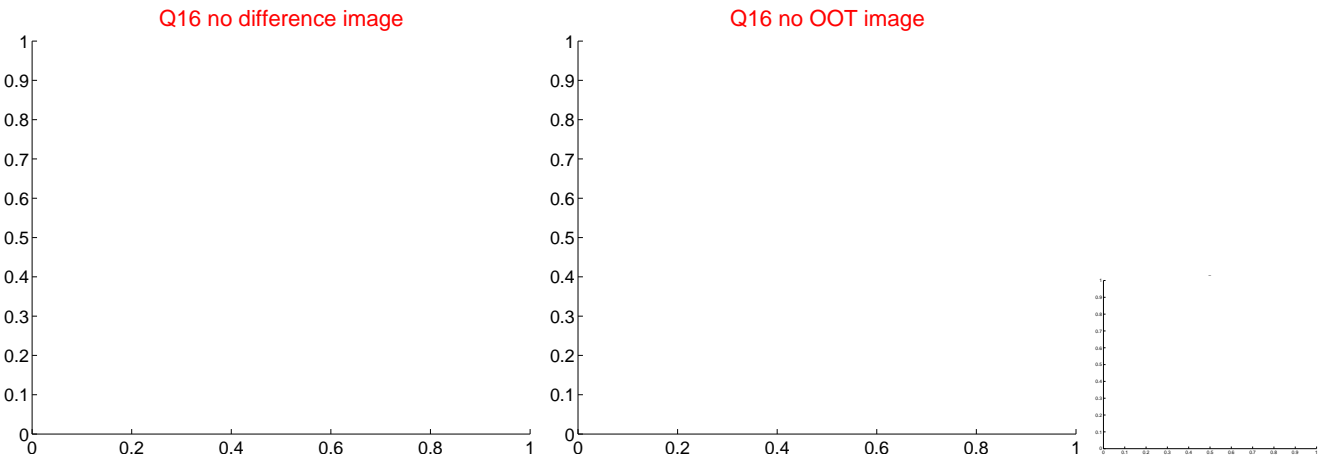
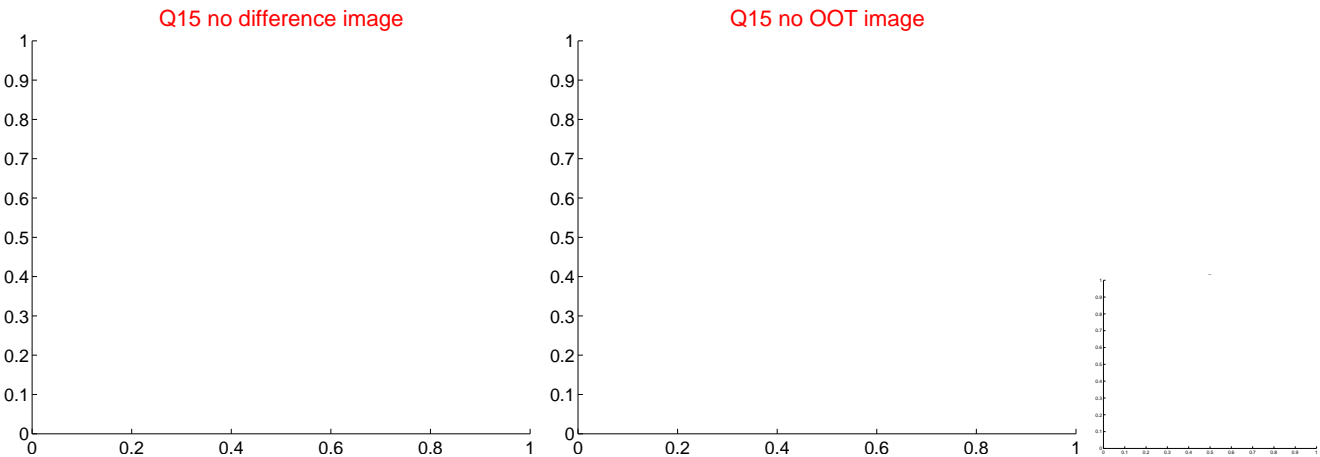
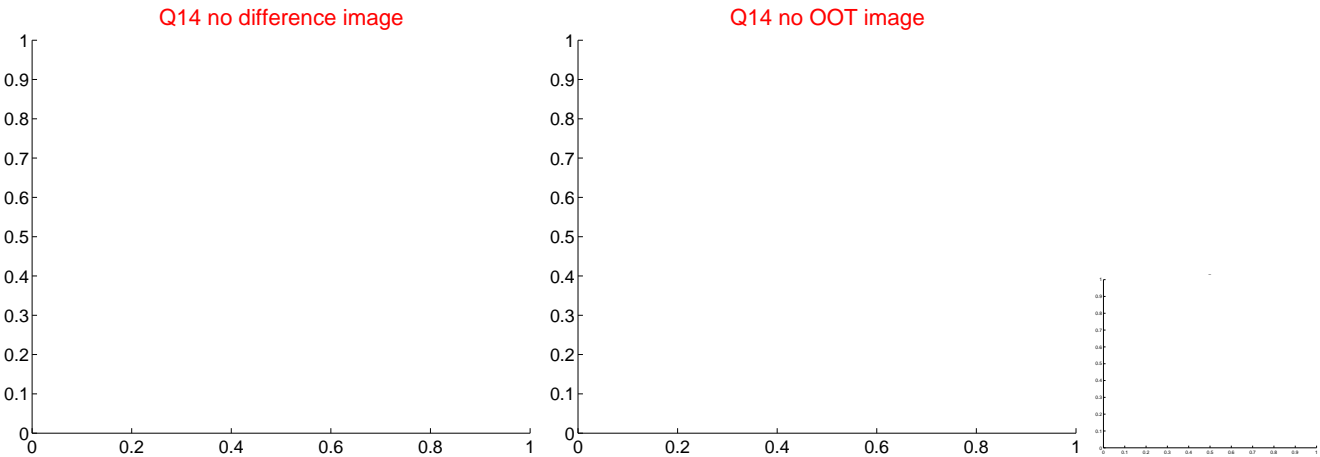
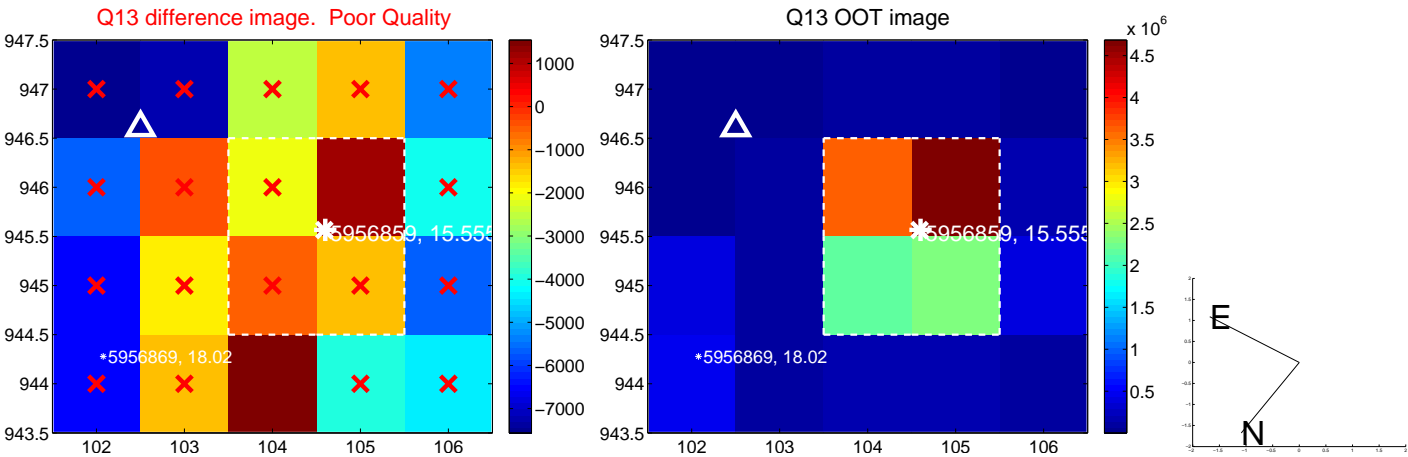
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



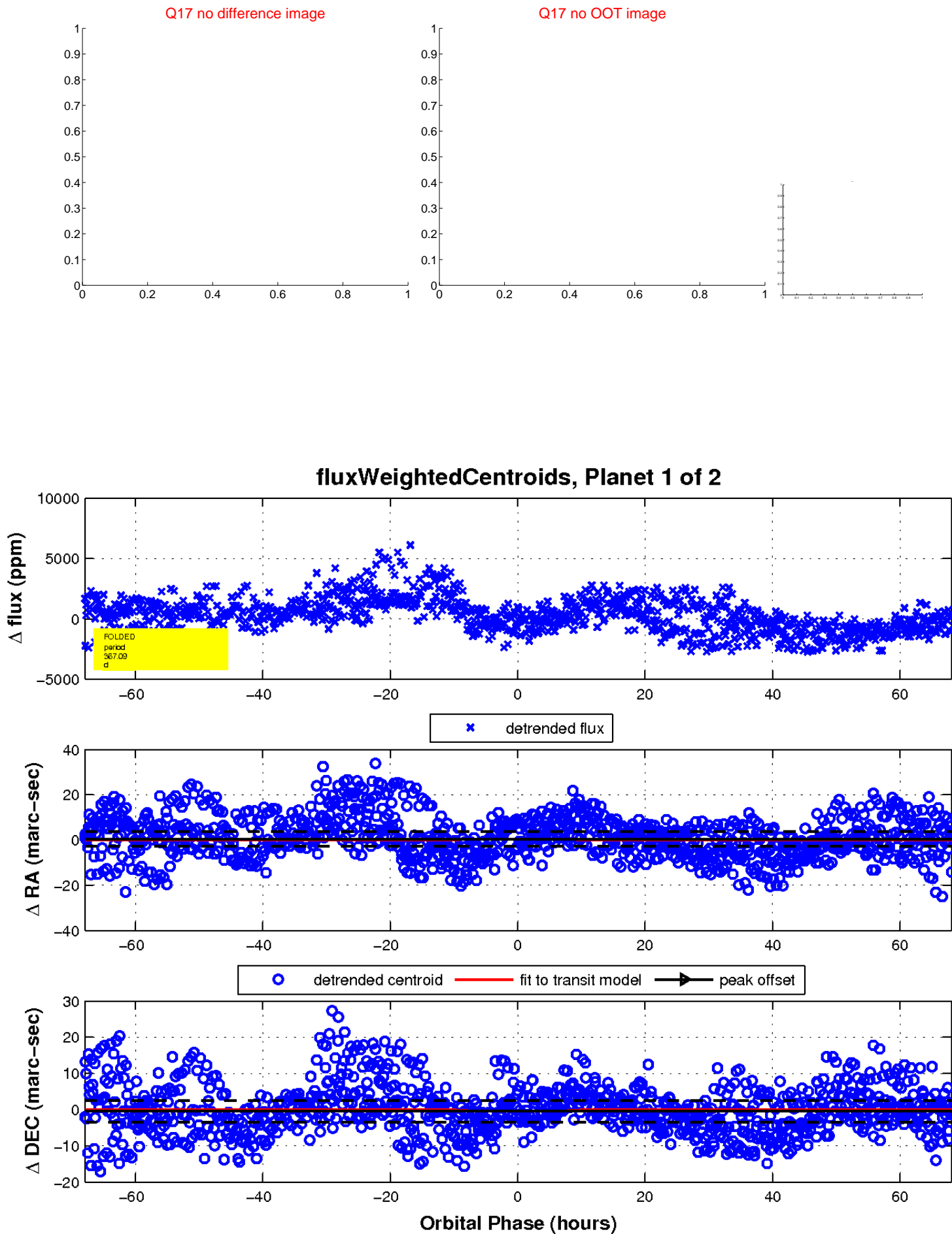
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

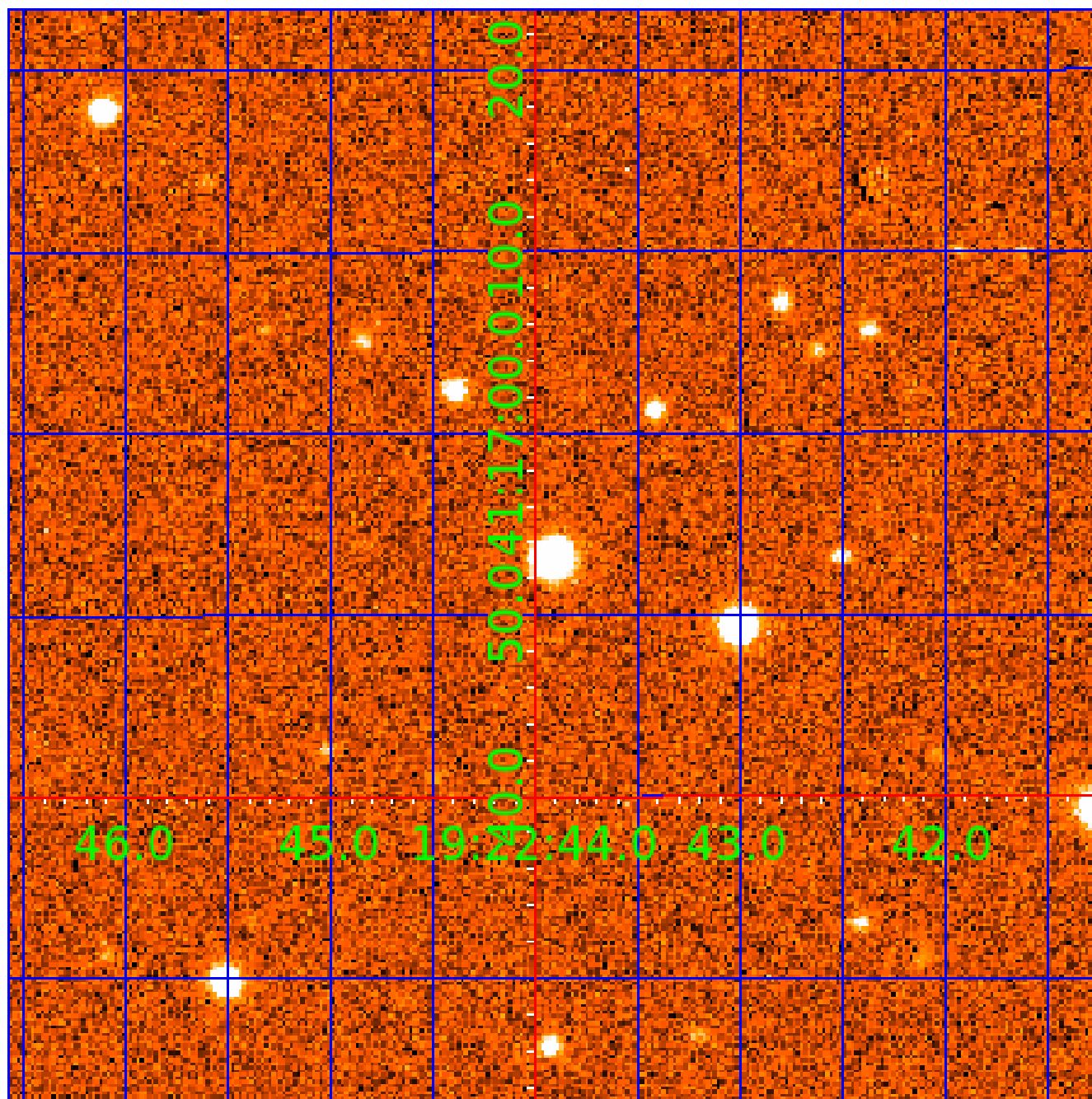


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005956859

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})
005956859-01	OBS	No	367.092972	154.705464	1872.3	22.708	10.5	10.2	0.97	6061	5.00	1.09
005956859-02	OBS	No	362.787215	162.395273	2521.6	24.791	8.4	10.0	0.97	6061	8.95	1.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005956859-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
005956859-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

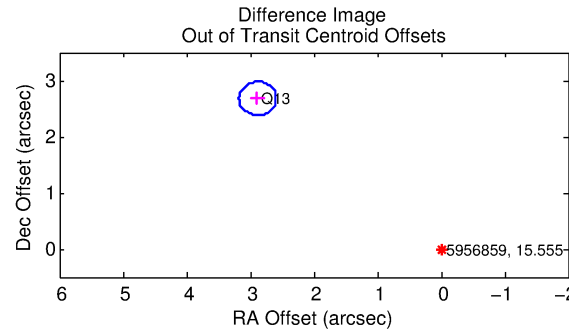
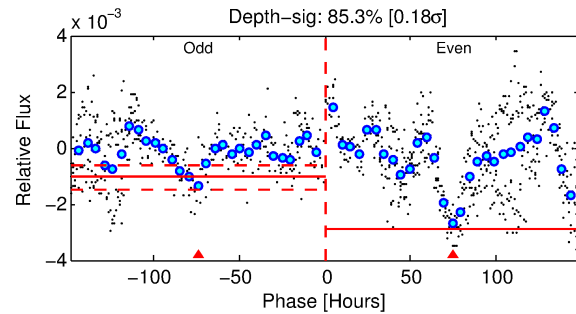
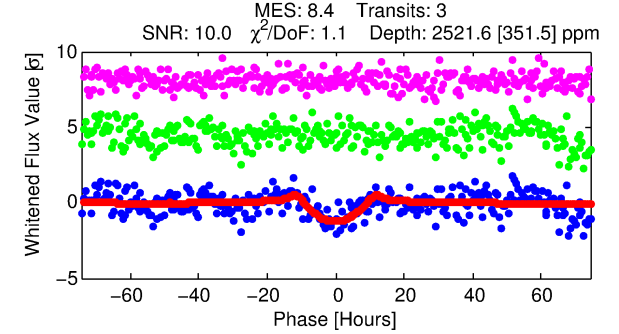
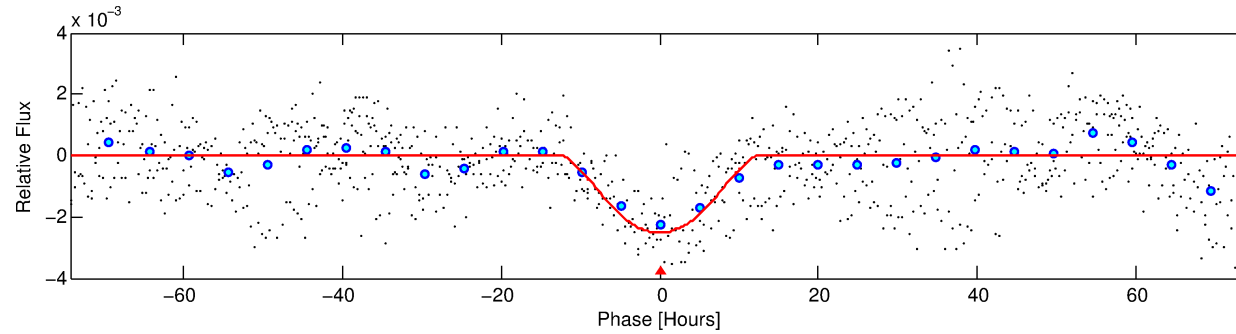
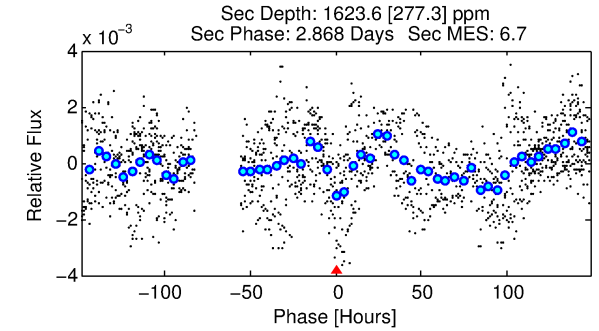
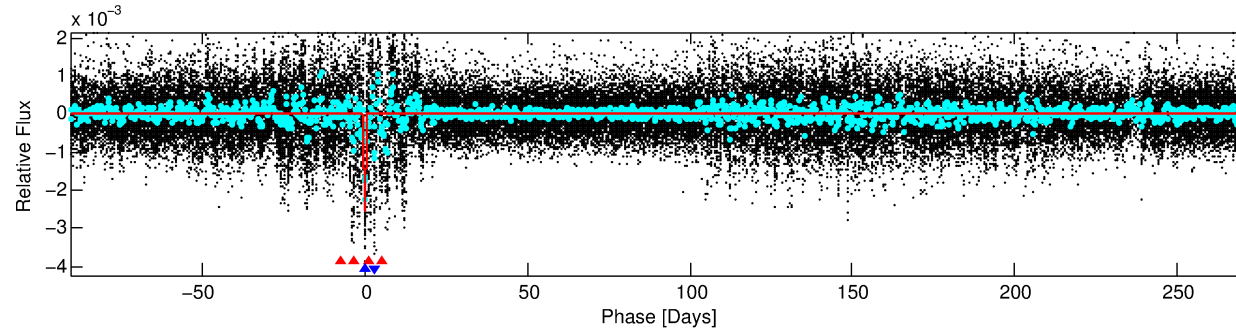
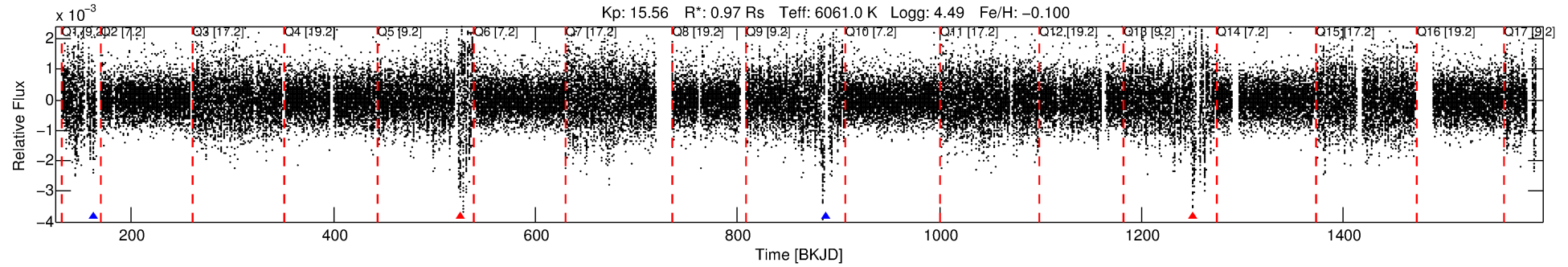
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005956859-02

No Significant Match Found

DV One-Page Summary

KIC: 5956859 Candidate: 2 of 2 Period: 362.787 d



DV Fit Results:

Period = 362.78722 [0.01976] d
Epoch = 162.3953 [0.0380] BKJD
Rp/R* = 0.0846 [0.1607]
a/R* = 47.42 [19.12]
b = 1.00 [0.24]
Seff = 1.11 [0.40]
Teq = 262 [24] K
Rp = 8.95 [17.18] Re
a = 1.0123 [0.2320] AU
Ag = 11423.08 [43614.93] [0.26σ]
Teff = 4184 [3981] K [0.99σ]

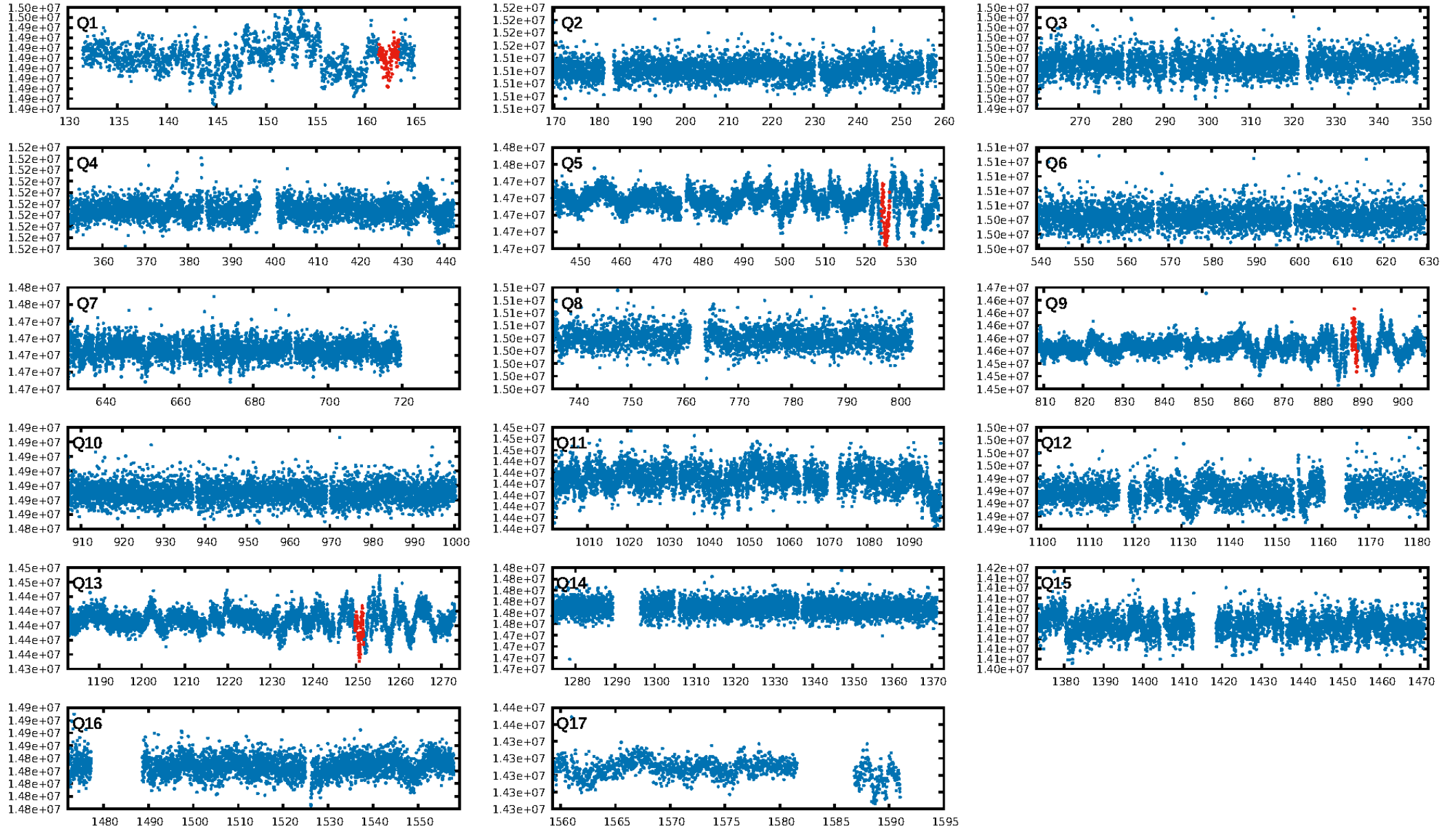
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 99.8% [3.07σ]
ModelChiSquare2-sig: 7.7%
ModelChiSquareGoF-sig: 99.9%
Bootstrap-pfa: 3.01e-09
RollingBand-fgt: 0.00 [0/2]
GhostDiagnostic-chr: -3.235
Centroid-sig: 8.9%
Centroid-so: 1.674 arcsec [1.39σ]
OotOffset-rm: 3.935 arcsec [40.03σ]
KicOffset-rm: 3.890 arcsec [39.56σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [3/3]

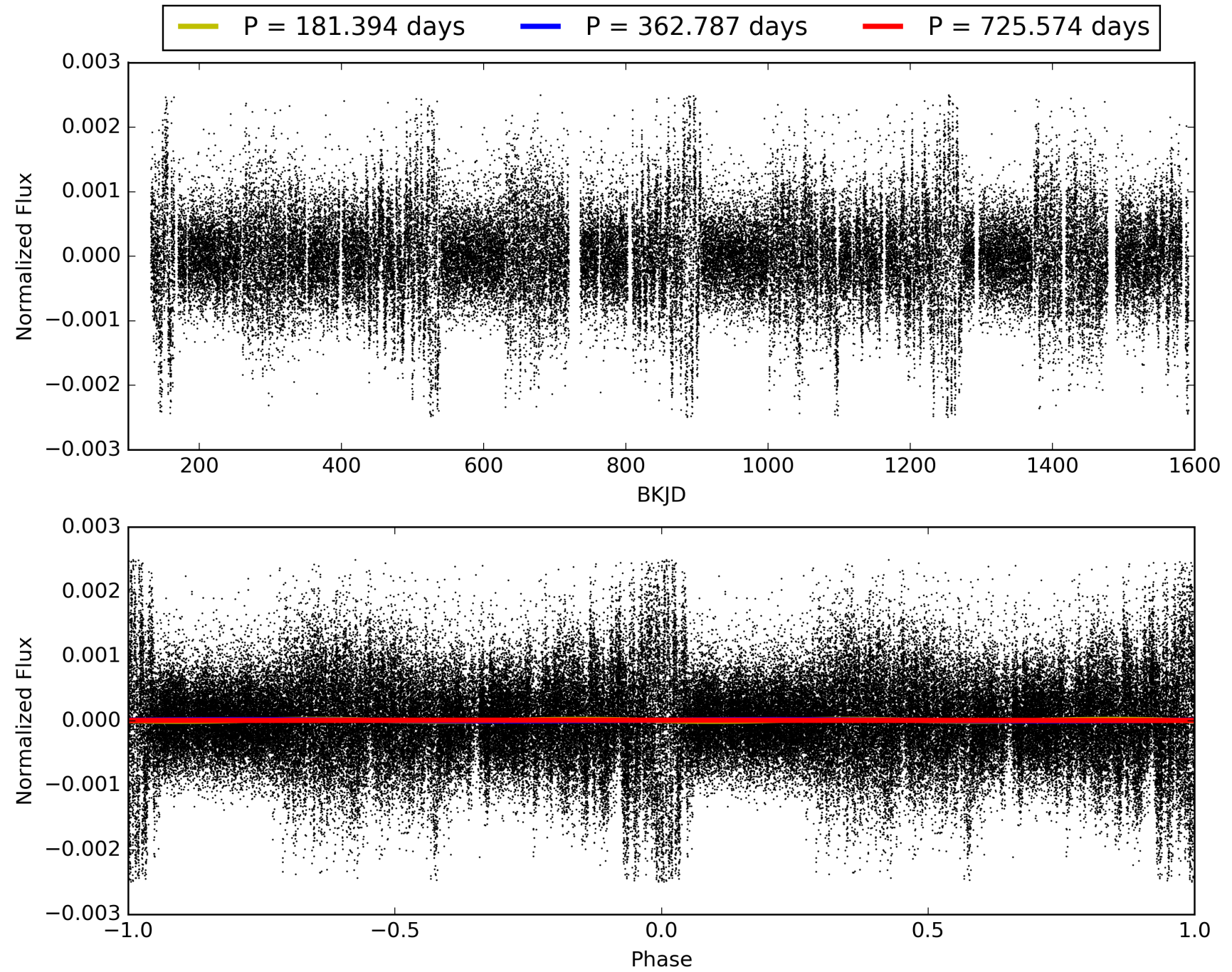
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:08:50 Z

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

TCE 005956859-02, PDC Light Curves

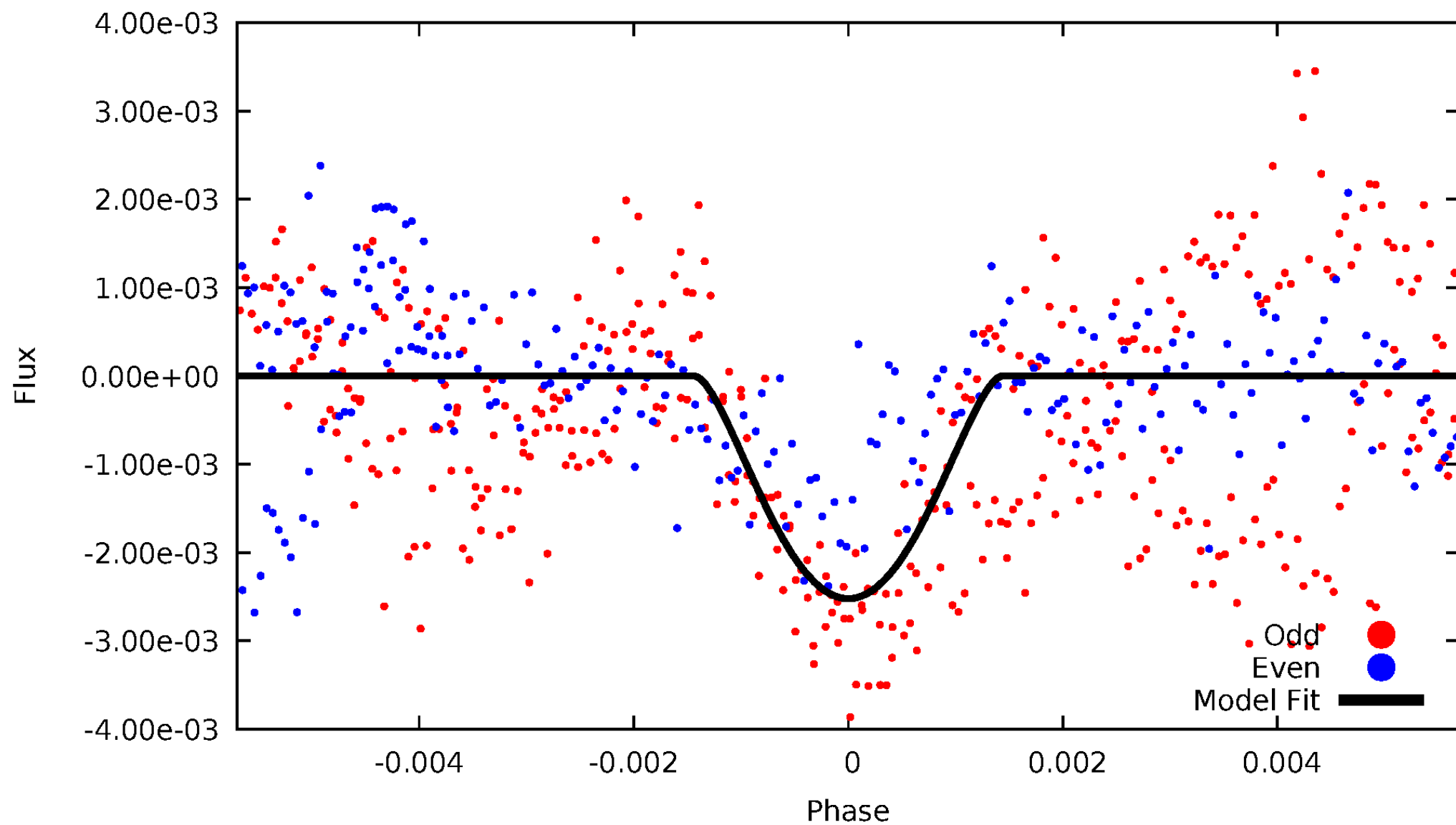


TCE 005956859-02



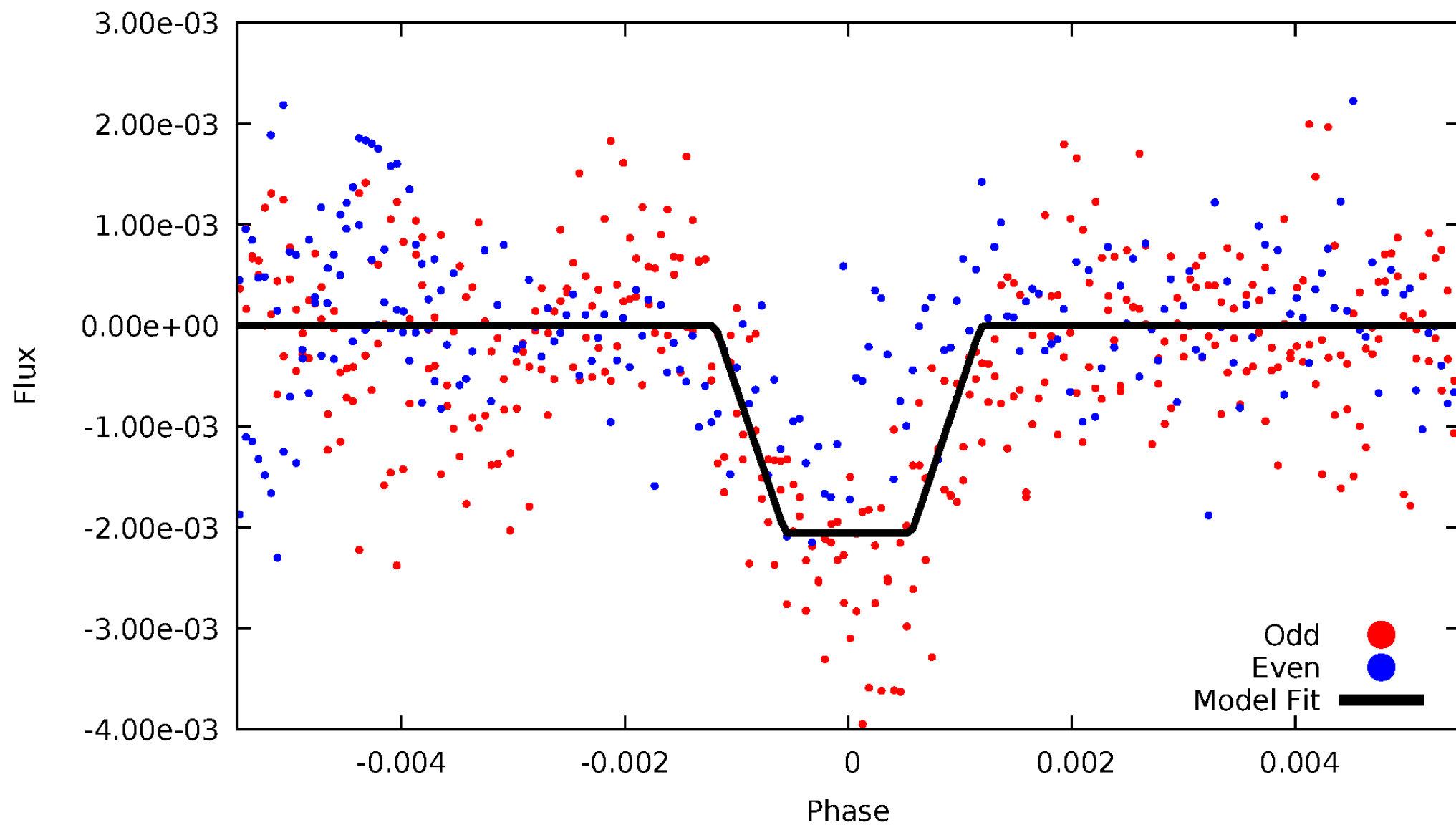
DV Odd/Even

TCE 005956859-02



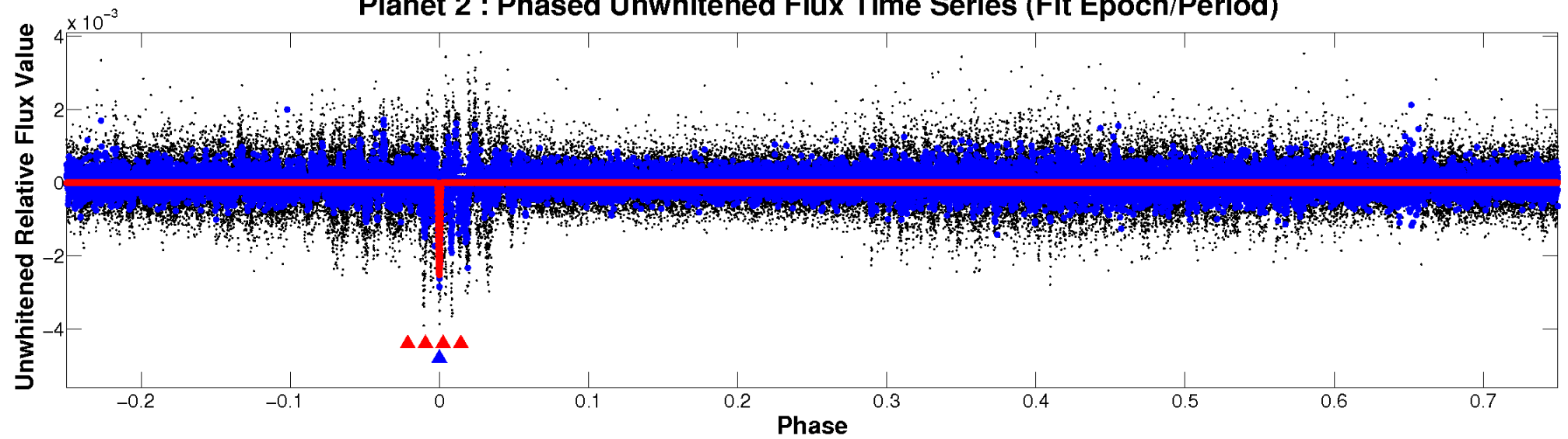
ALT Odd/Even

TCE 005956859-02

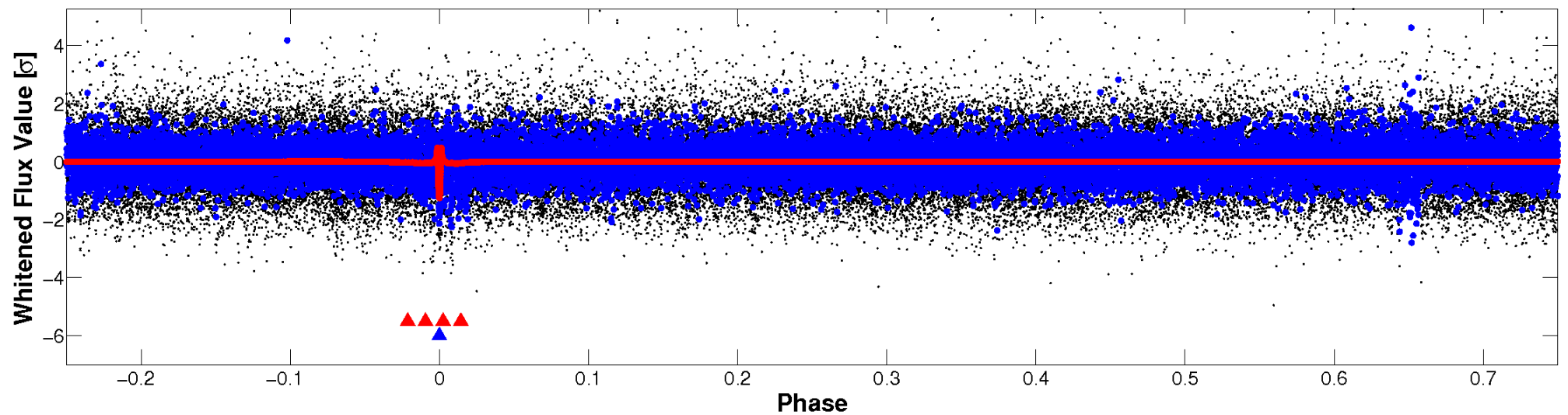


Non-Whitened Vs. Whitened Light Curve

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

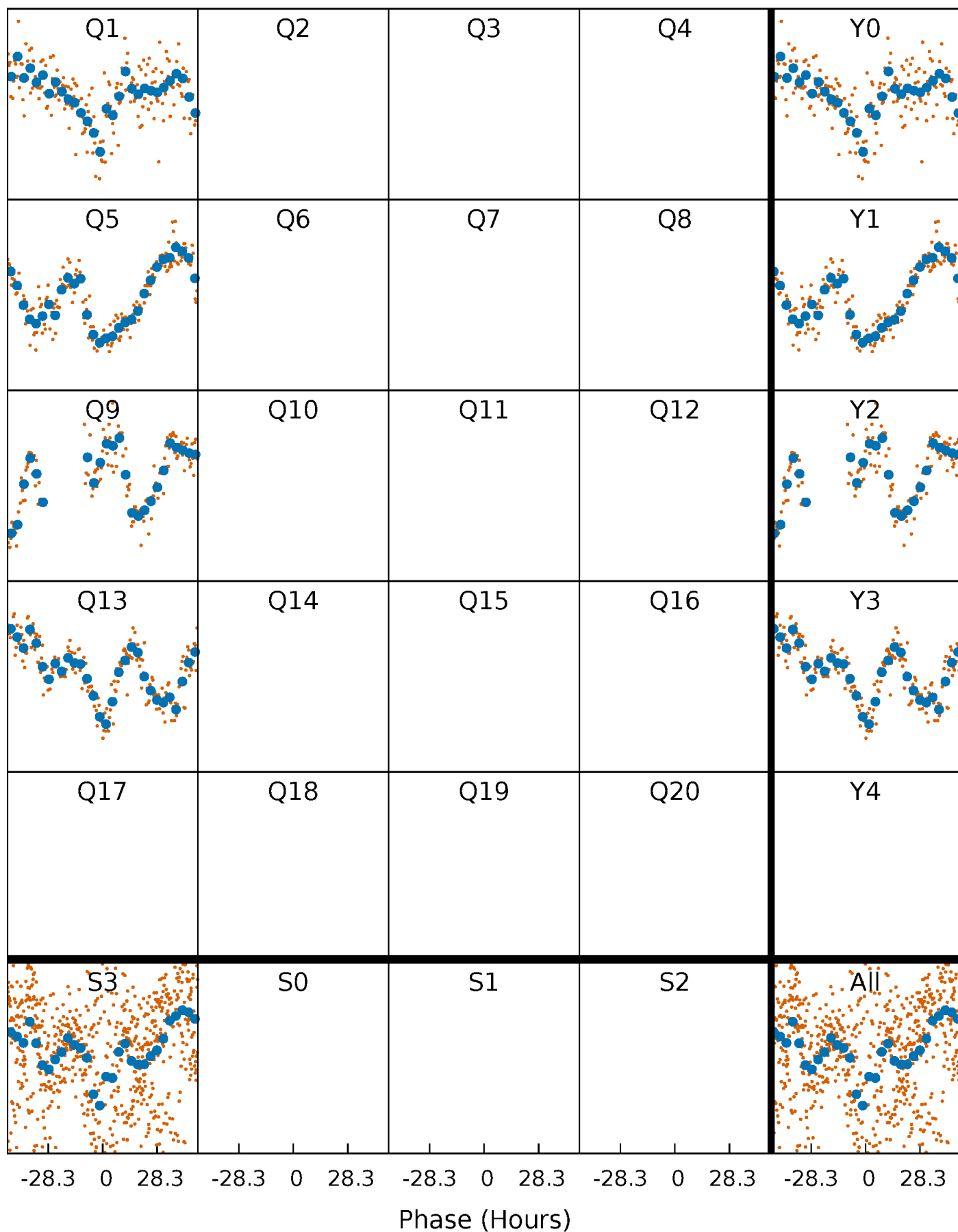


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



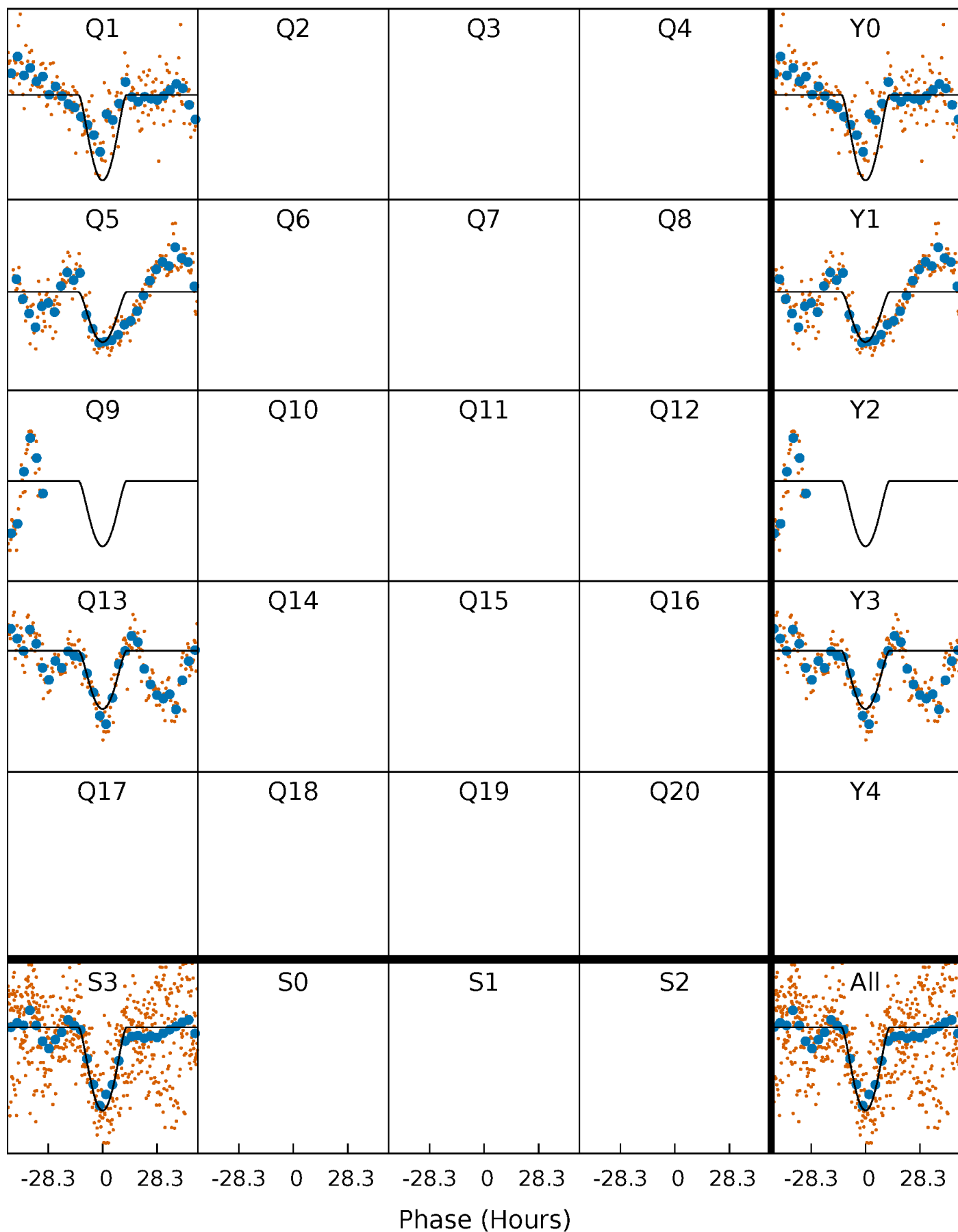
PDC Quarter-Phased Transit Curves

TCE 005956859-02 $P=362.787215$ Days $T_0=162.395273$ (BKJD)



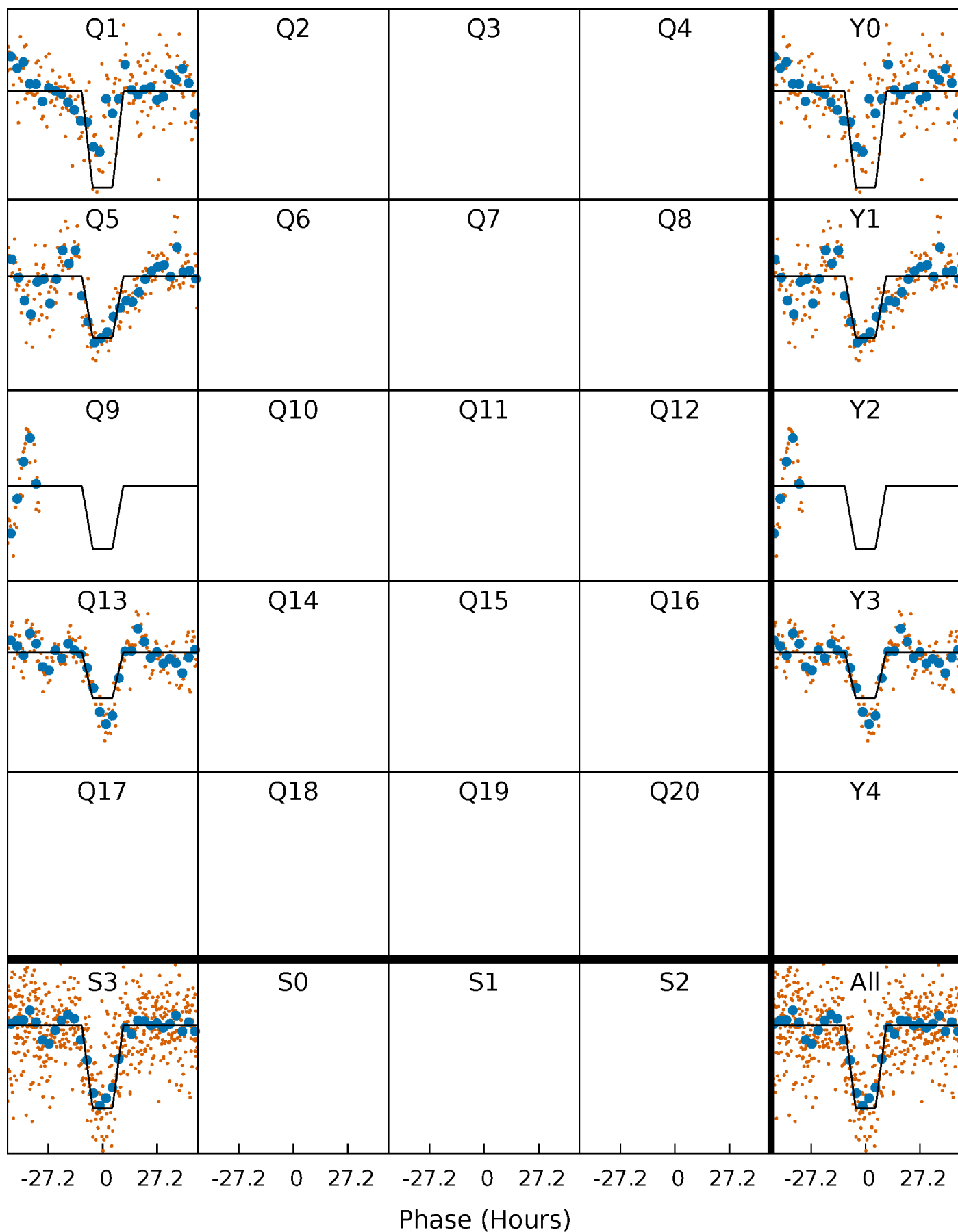
DV Quarter-Phased Transit Curves

TCE 005956859-02 $P=362.787215$ Days $T_0=162.395273$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

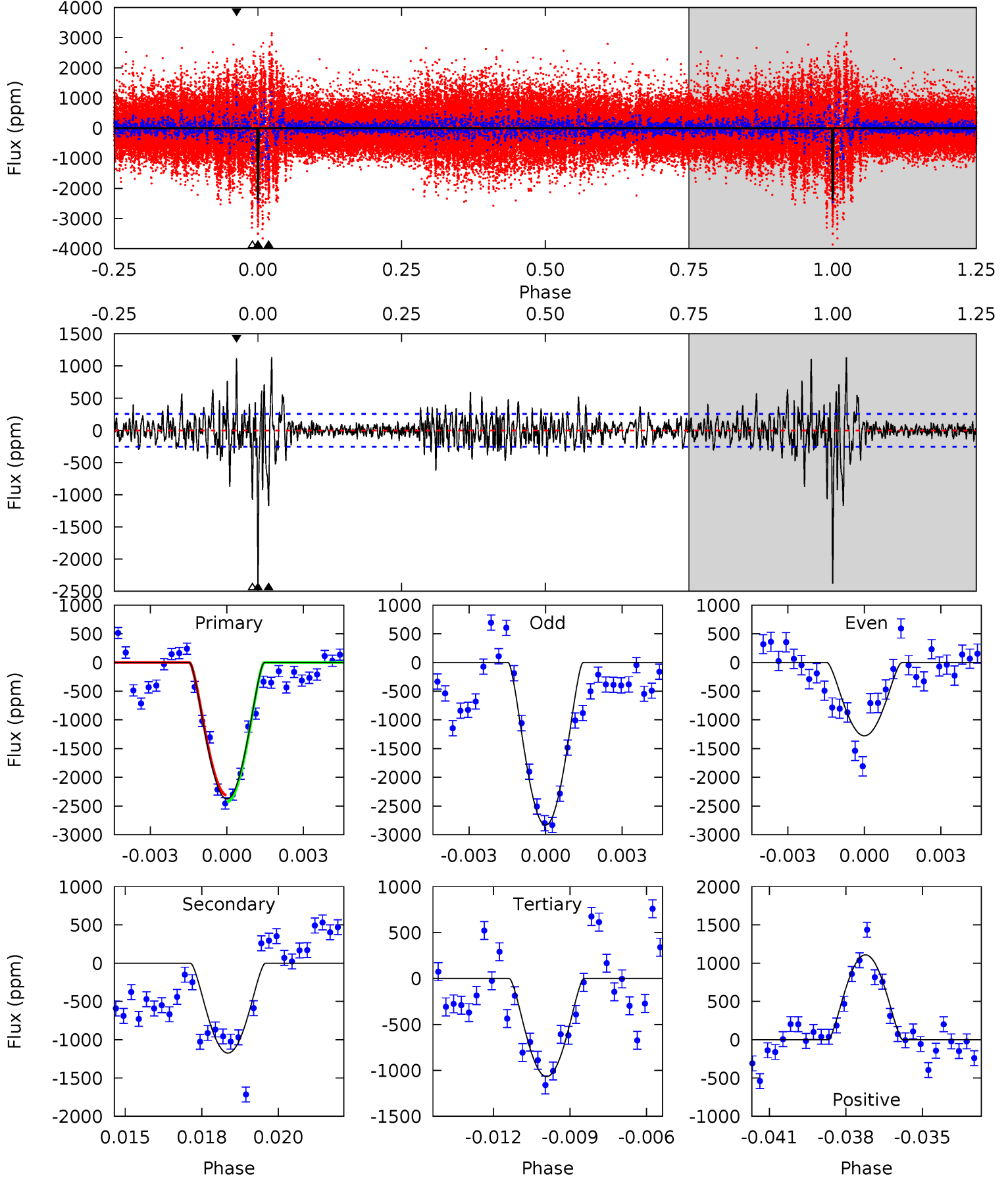
TCE 005956859-02 P=362.756991 Days $T_0=162.445387$ (BKJD)



DV Model-Shift Uniqueness Test

005956859-02, P = 362.787215 Days, E = 162.395273 Days

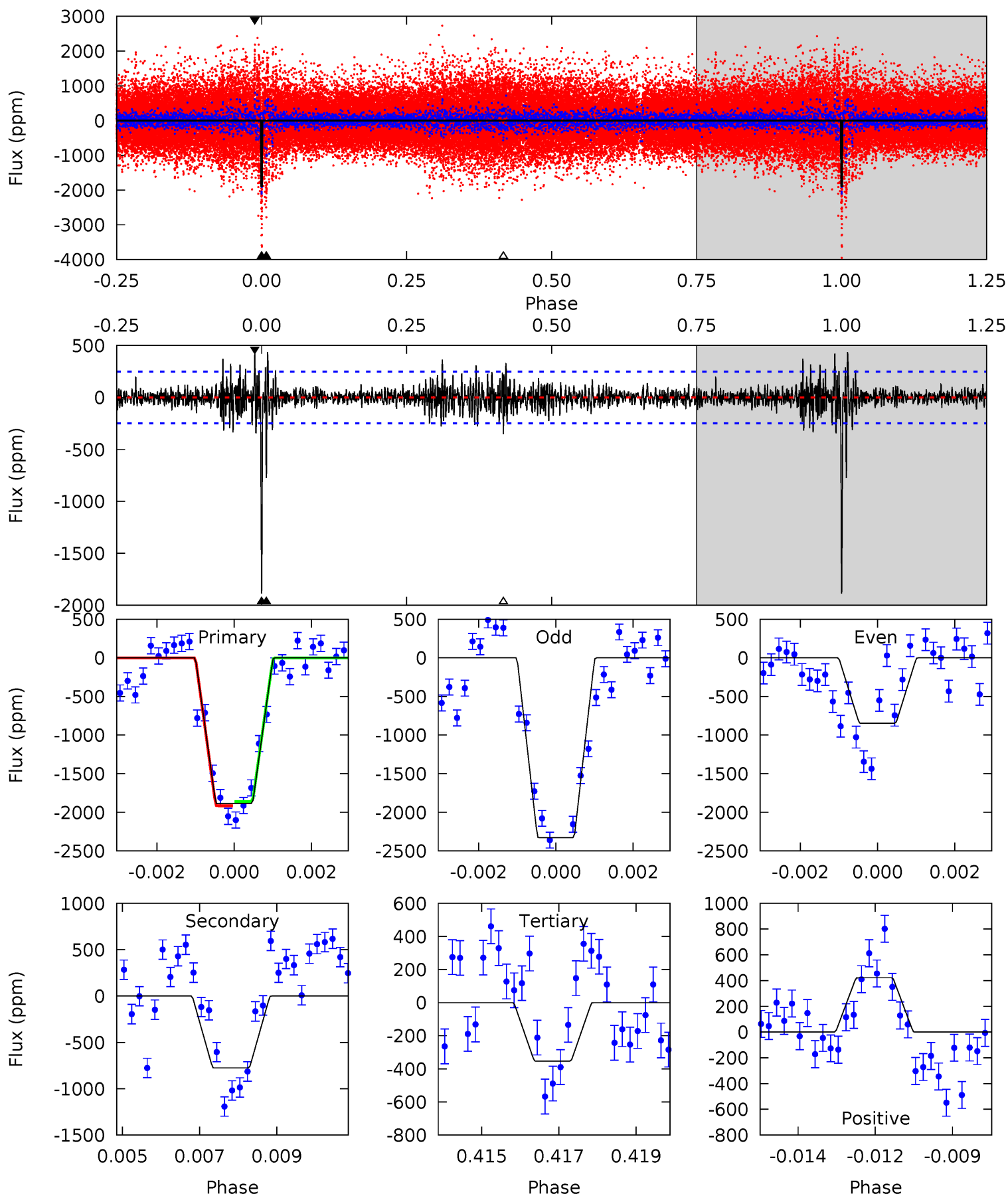
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
49.2	24.3	22.1	22.9	5.26	2.98	3.83	27.1	26.2	2.20	1.34	15.4	0.82	0.32	1.19



Alt Model-Shift Uniqueness Test

005956859-02, P = 362.756991 Days, E = 162.445387 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.3	16.6	7.54	9.00	5.30	3.04	1.67	32.8	31.3	9.02	7.56	15.0	0.89	0.19	0.59



Stellar Parameters For KIC 005956859

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6061^{+180}_{-217}	$4.486^{+0.048}_{-0.180}$	$-0.100^{+0.300}_{-0.300}$	$0.970^{+0.266}_{-0.114}$	$1.050^{+0.129}_{-0.142}$	$1.620^{+0.403}_{-0.785}$
	+3%/-4%	+1%/-4%	+300%/-300%	+27%/-12%	+12%/-14%	+25%/-48%
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 005956859-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1174 ± 48	$17.32^{+14.87}_{-11.00}$	374^{+26}_{-19}	3380^{+1483}_{-550}	2149^{+15149}_{-1519}
Alt.	-775 ± 47	$14.46^{+13.24}_{-10.14}$	373^{+25}_{-18}	3326^{+1818}_{-565}	1987^{+20924}_{-1440}

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

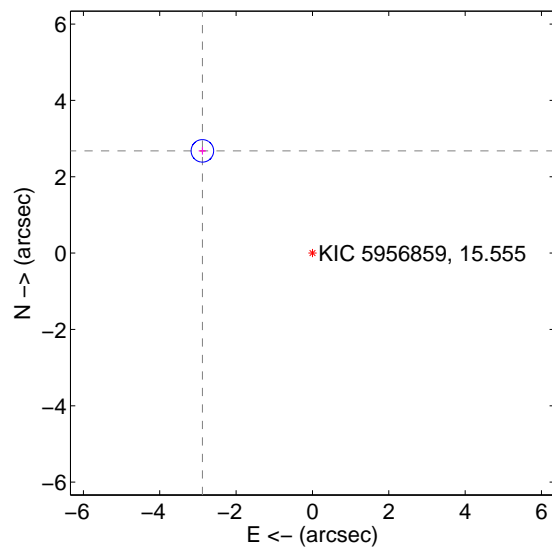
Supplemental centroid analysis for 005956859-02. Kepler magnitude: 15.55. Transit SNR 9.96

There are 0 quarters with good PRF difference image offsets

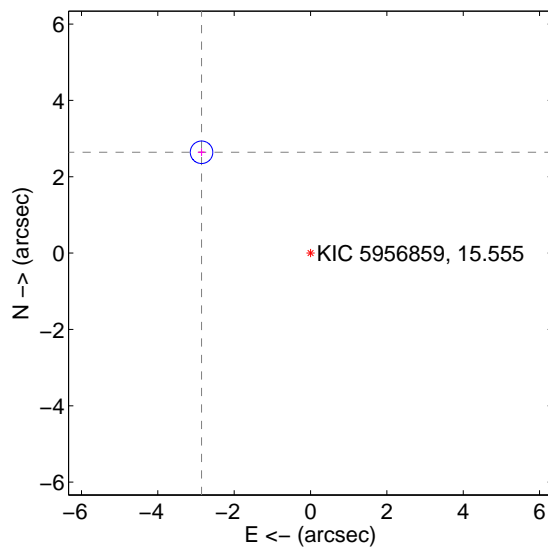
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.935 ± 0.098	40.03	2.883 ± 0.099	2.678 ± 0.098
PRF-fit source offset from KIC position	3.890 ± 0.098	39.56	2.855 ± 0.099	2.642 ± 0.098
photometric centroid source offset	1.67 ± 1.20	1.39	-0.46 ± 1.47	-1.61 ± 1.18

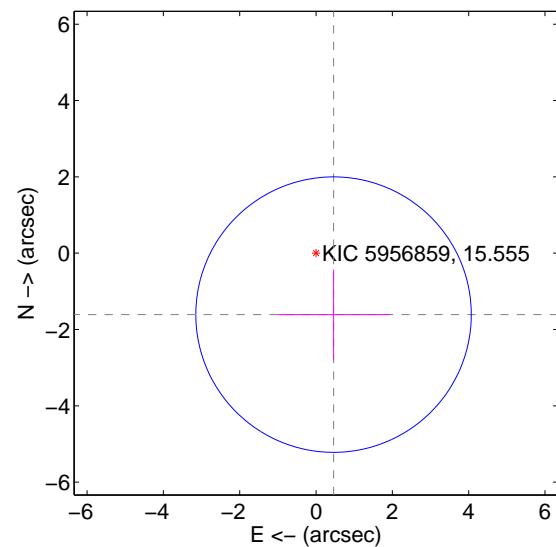
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

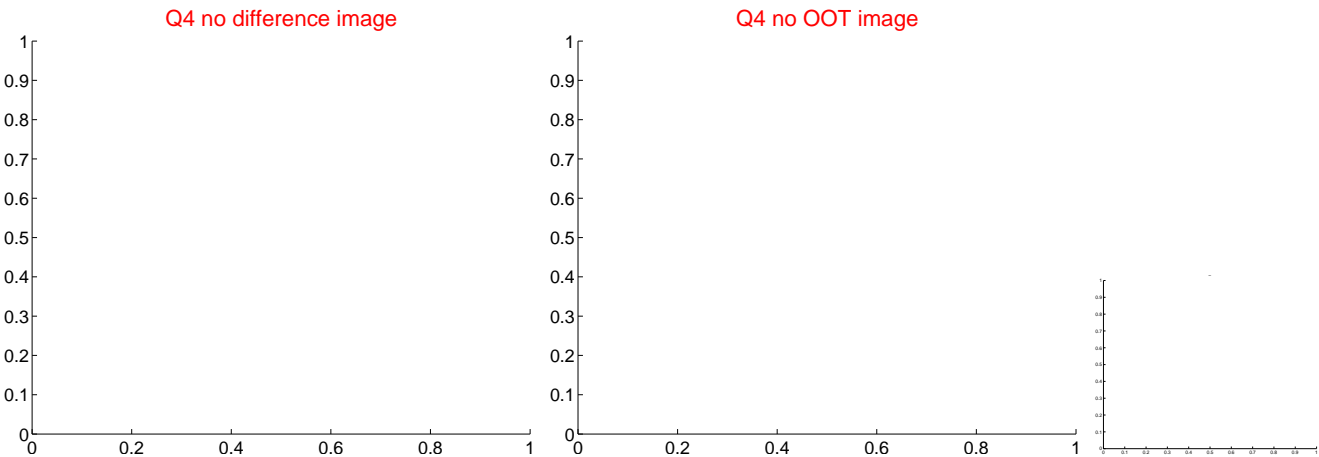
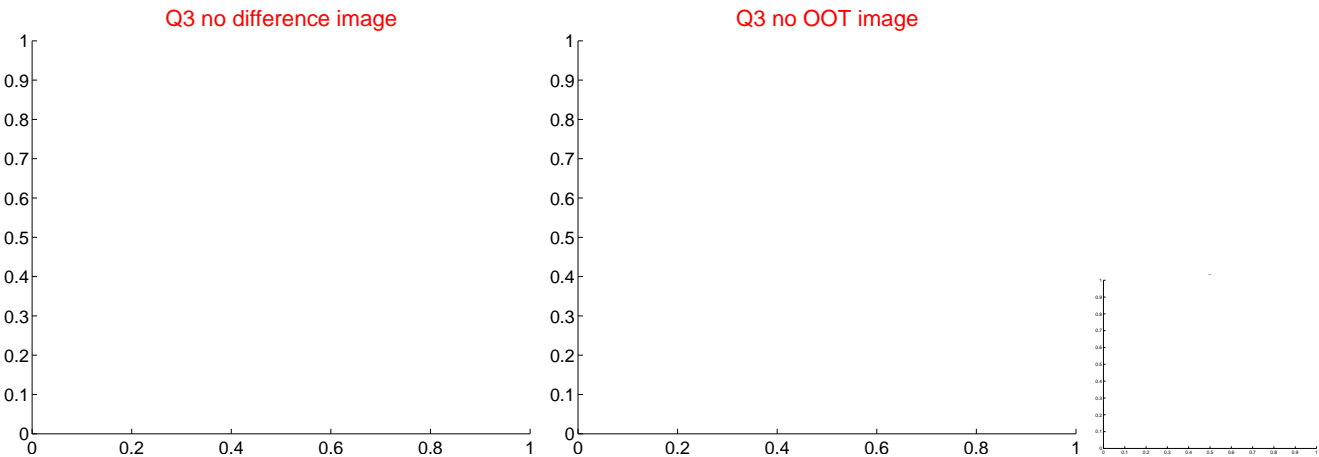
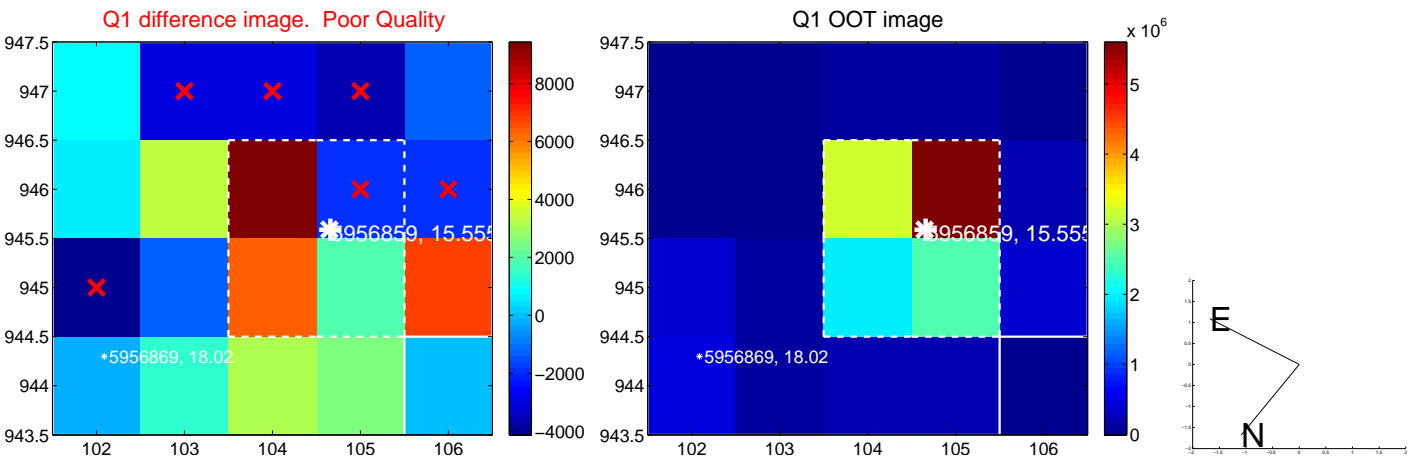


offset from photometric centroids

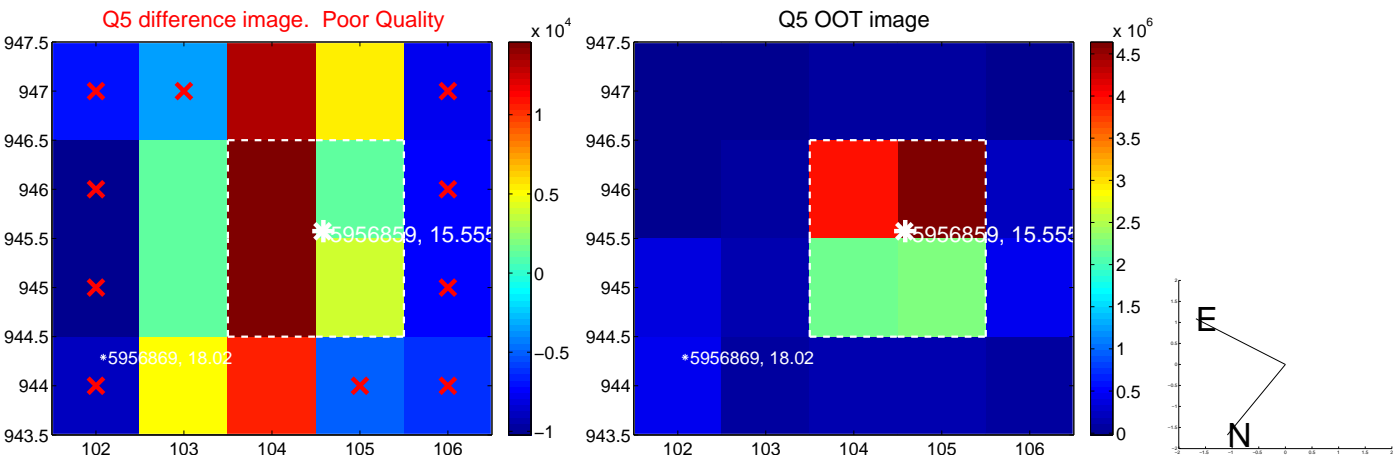


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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



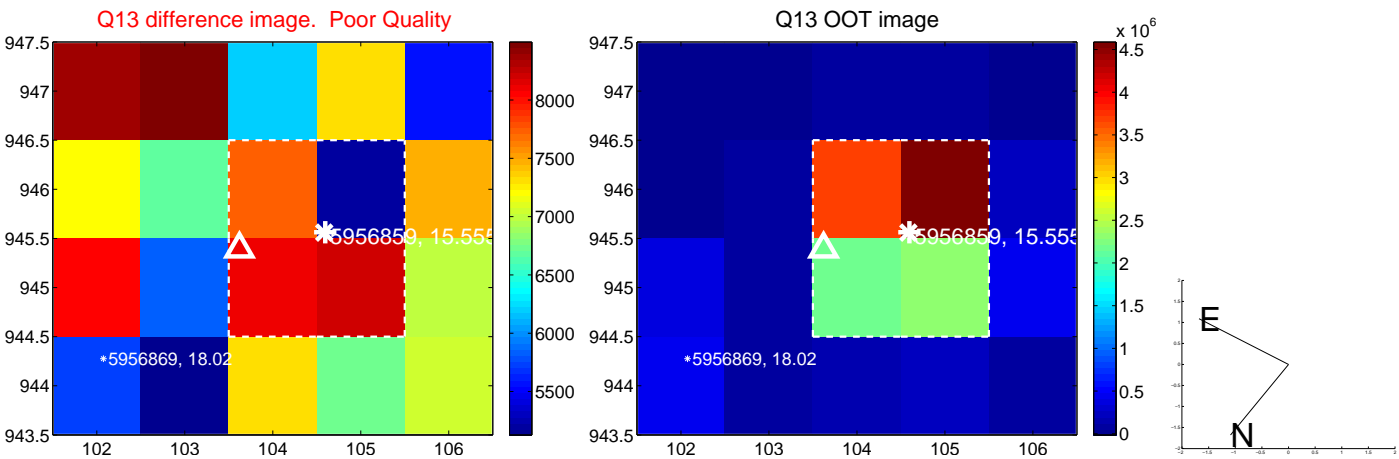
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



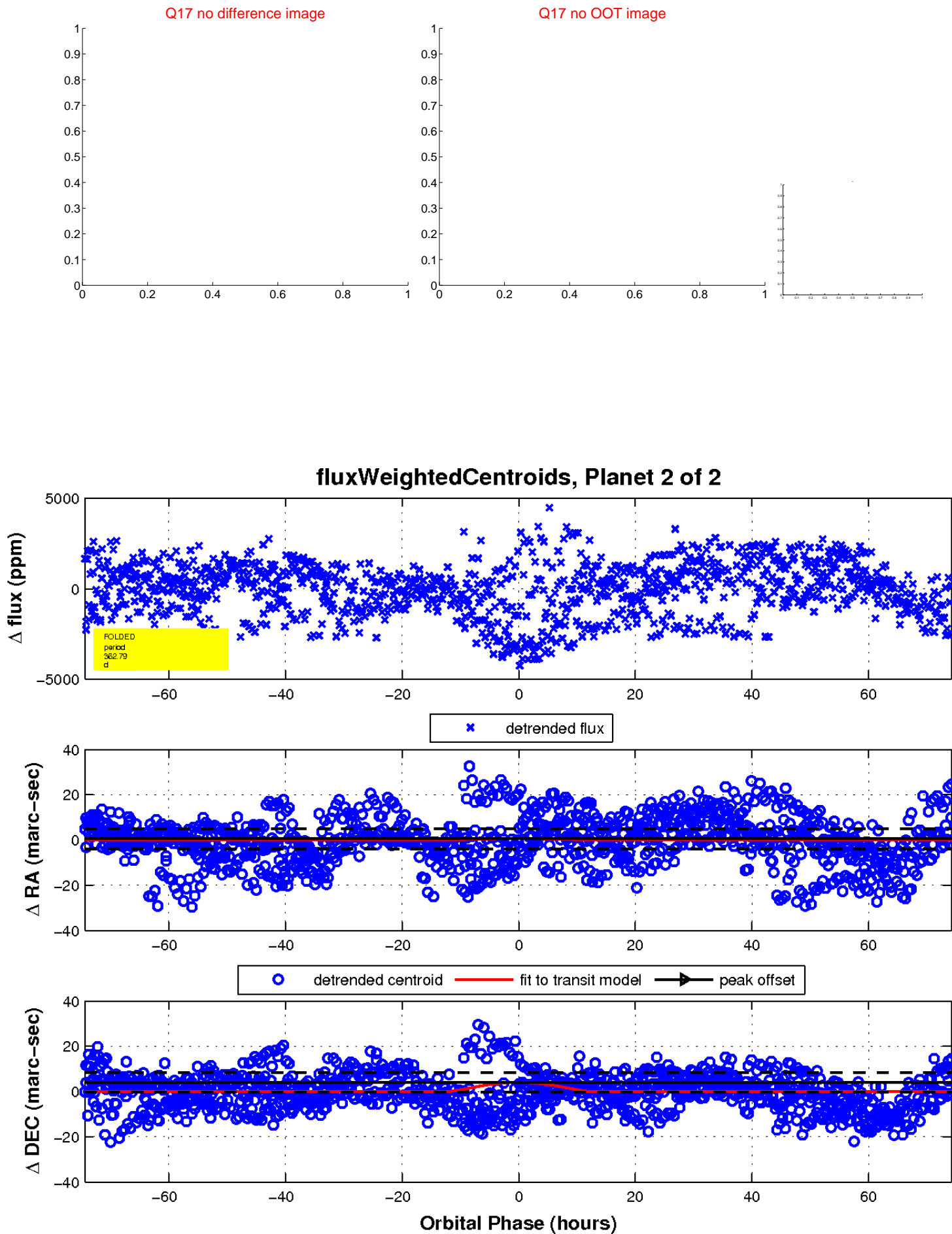
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

