

KIC 006619854

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})
006619854-01	OBS	No	469.761206	280.186304	971.6	15.296	12.0	5.8	0.86	5511	3.35	0.45
006619854-02	OBS	No	351.560106	250.617378	1209.4	3.843	7.6	6.1	0.86	5511	3.23	0.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006619854-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
006619854-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

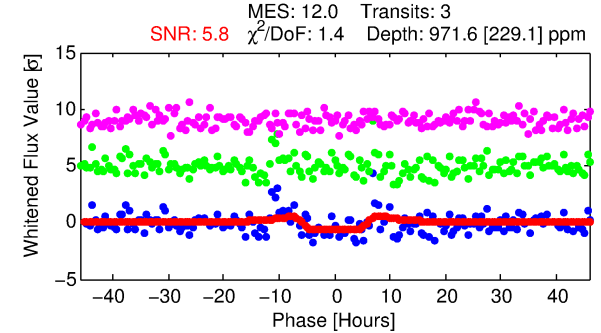
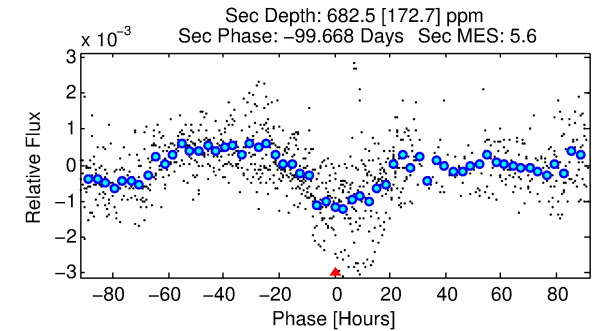
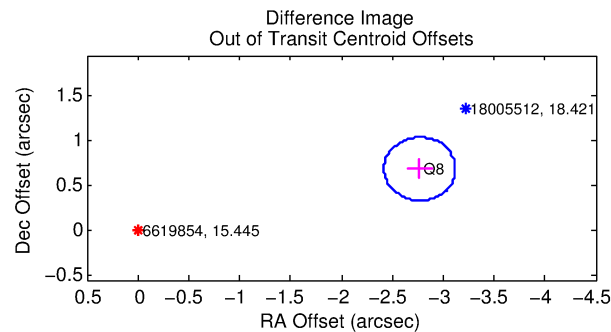
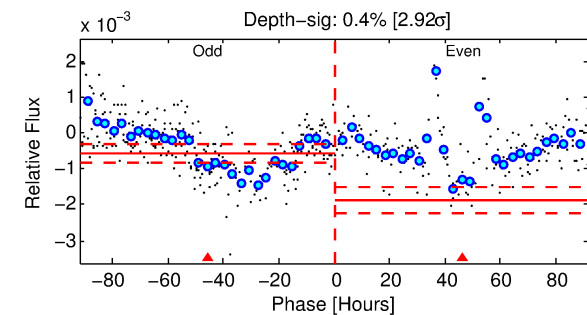
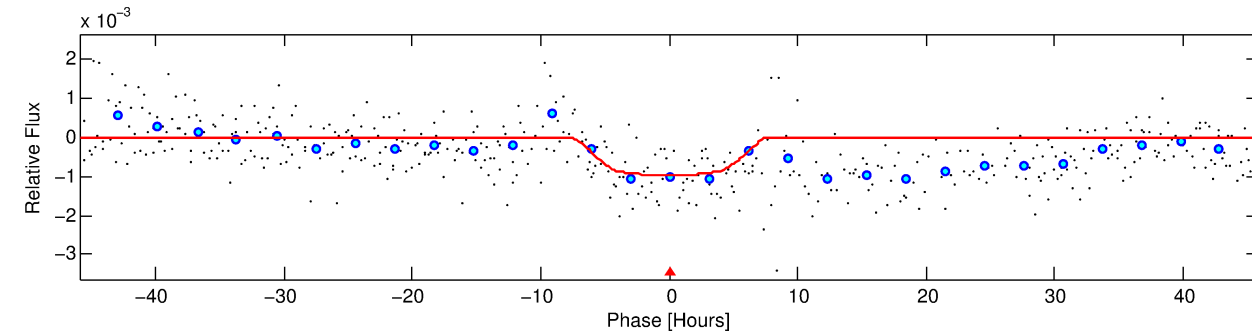
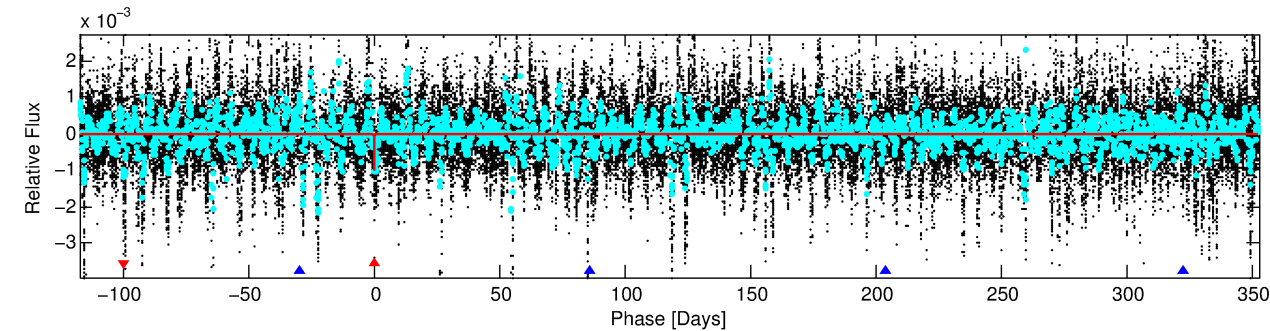
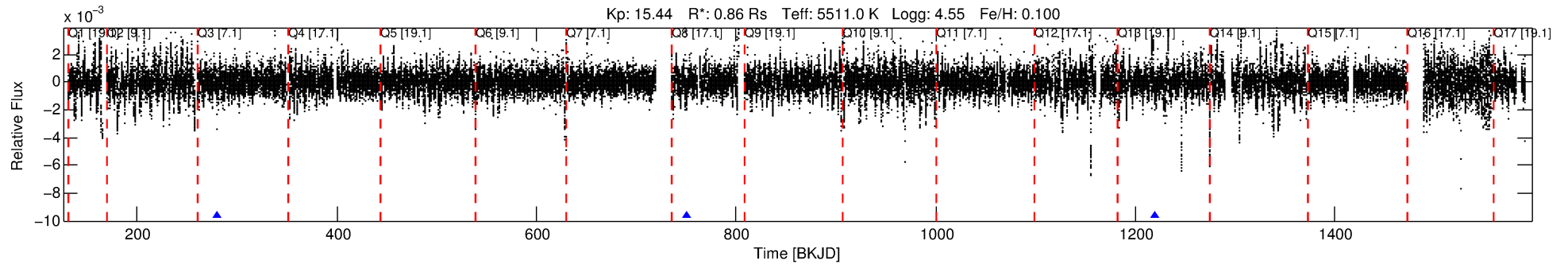
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006619854-01

No Significant Match Found

DV One-Page Summary

KIC: 6619854 Candidate: 1 of 2 Period: 469.761 d



DV Fit Results:

Period = 469.76121 [0.03089] d
Epoch = 280.1863 [0.0437] BKJD
Rp/R* = 0.0359 [0.0053]
a/R* = 104.91 [31.46]
b = 0.93 [0.04]
Seff = 0.45 [0.14]
Teq = 208 [16] K
Rp = 3.35 [0.92] Re
a = 1.1666 [0.2304] AU
Ag = 45436.57 [22093.47] [2.06 σ]
Teffp = 4704 [479] K [9.38 σ]

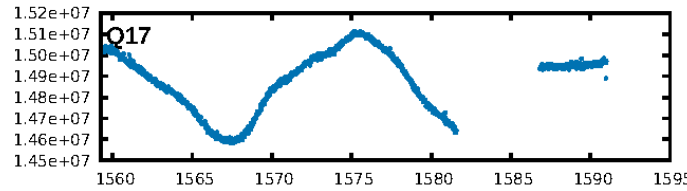
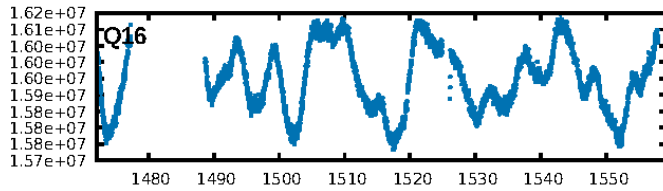
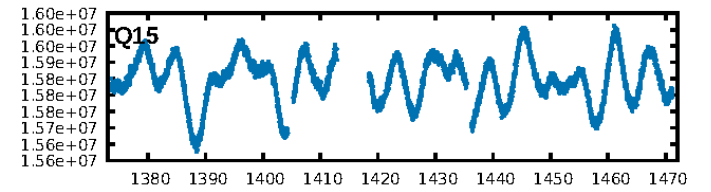
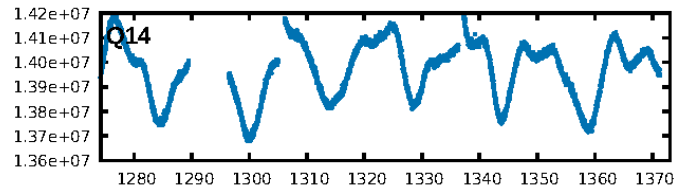
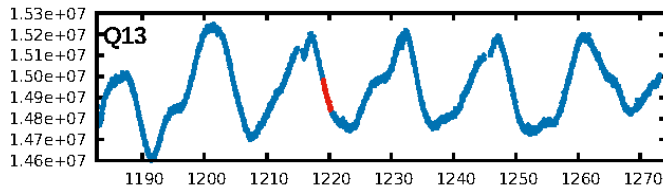
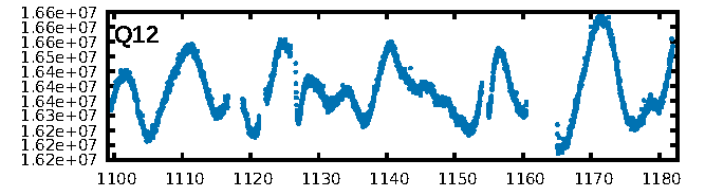
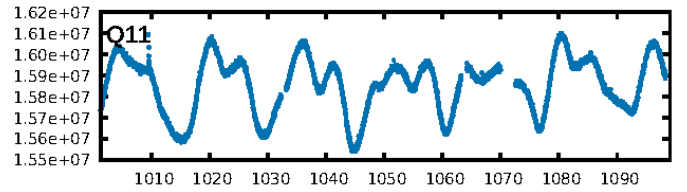
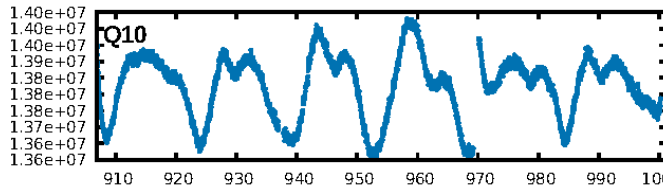
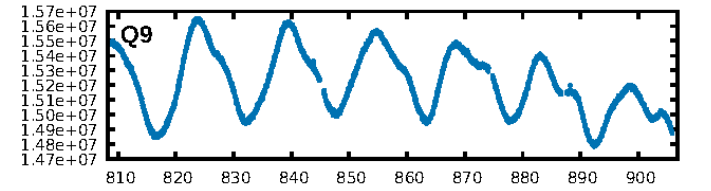
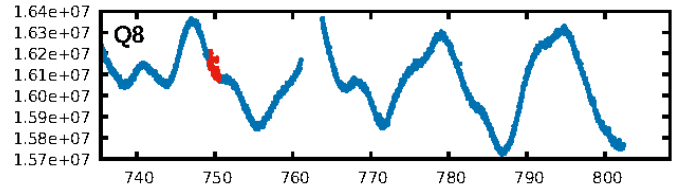
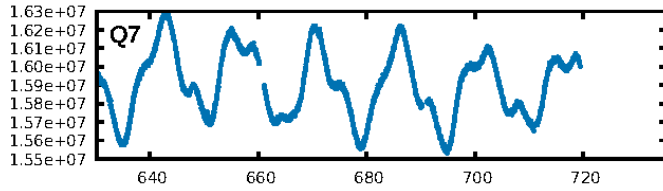
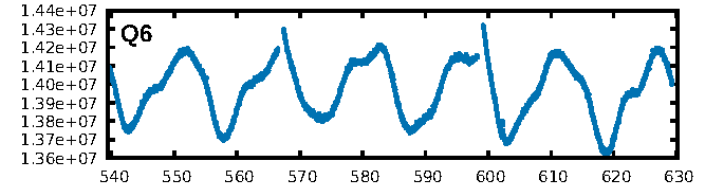
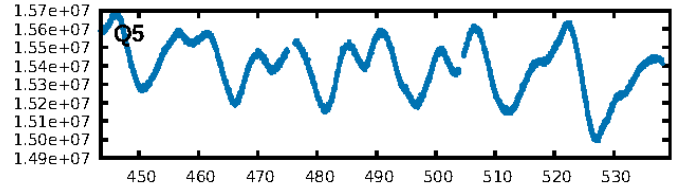
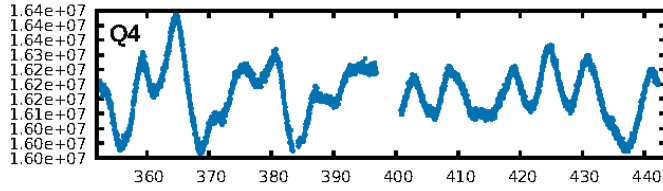
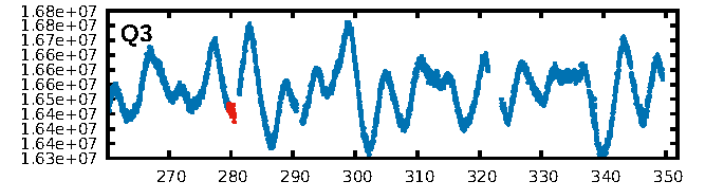
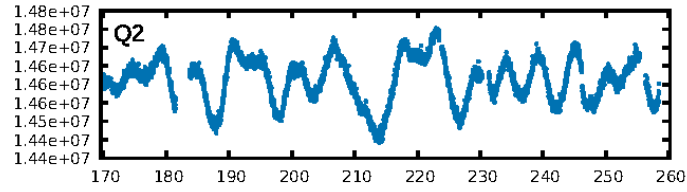
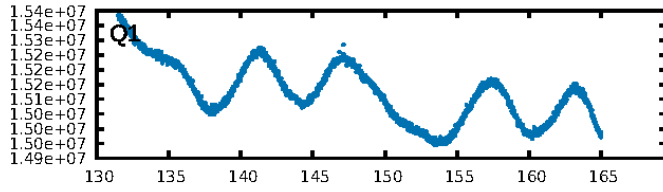
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [179.87 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.6%
ModelChiSquareGof-sig: 81.5%
Bootstrap-pfa: 2.00e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.2382
Centroid-sig: 17.8%
Centroid-so: 0.913 arcsec [0.56 σ]
OotOffset-rm: 2.853 arcsec [24.31 σ]
KicOffset-rm: 3.160 arcsec [27.04 σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [1/1]

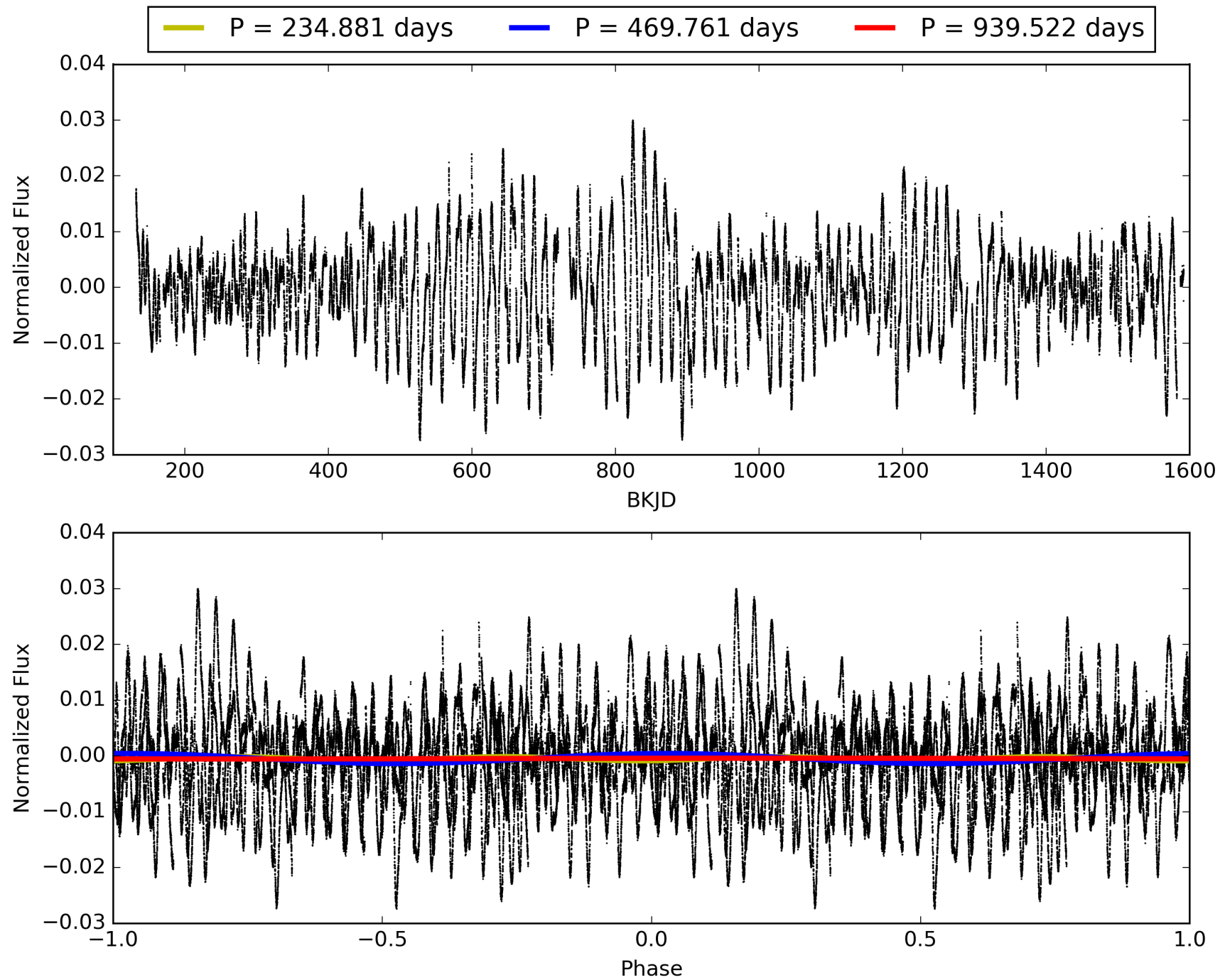
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:21:41 Z

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

TCE 006619854-01, PDC Light Curves

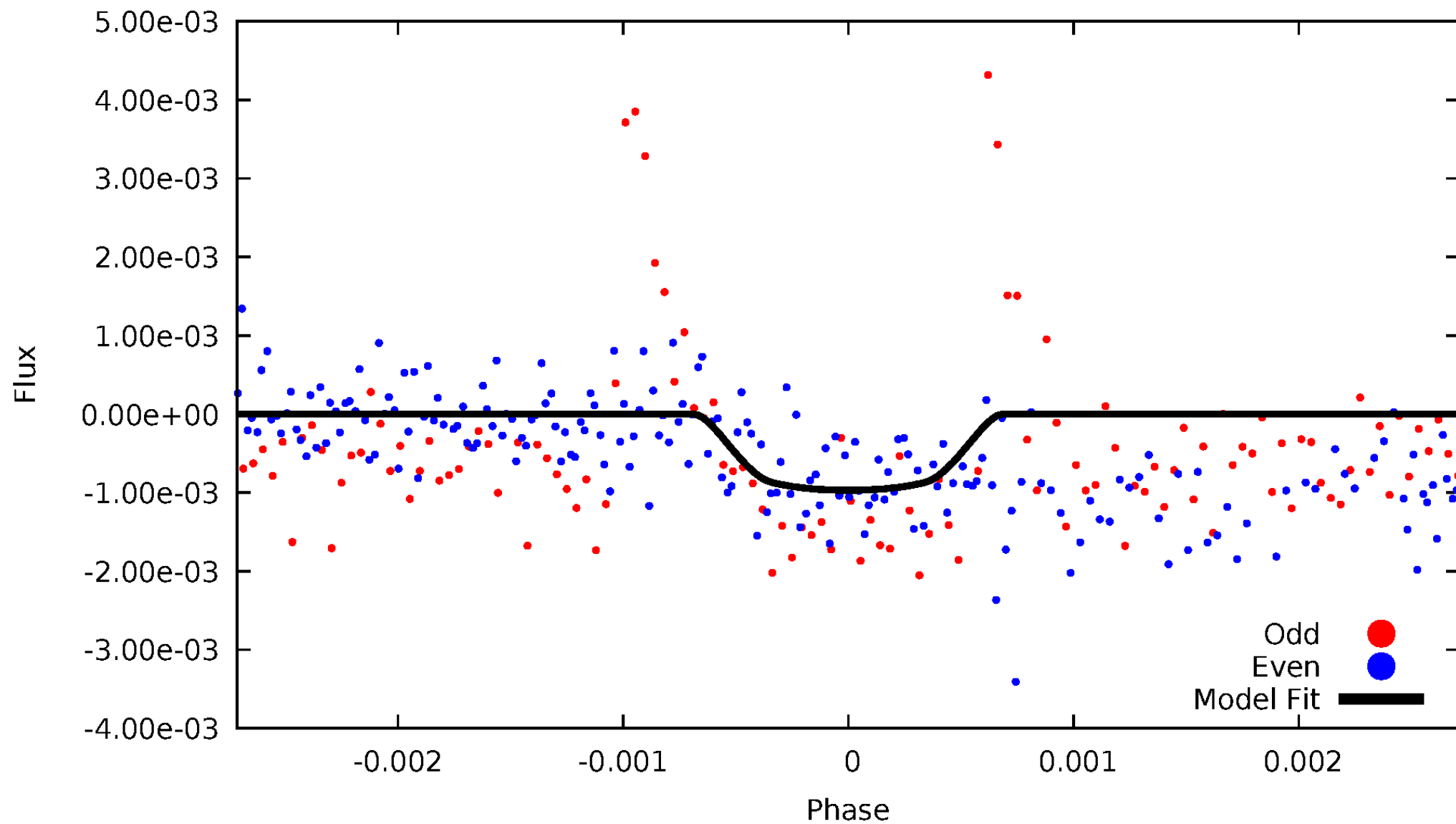


TCE 006619854-01



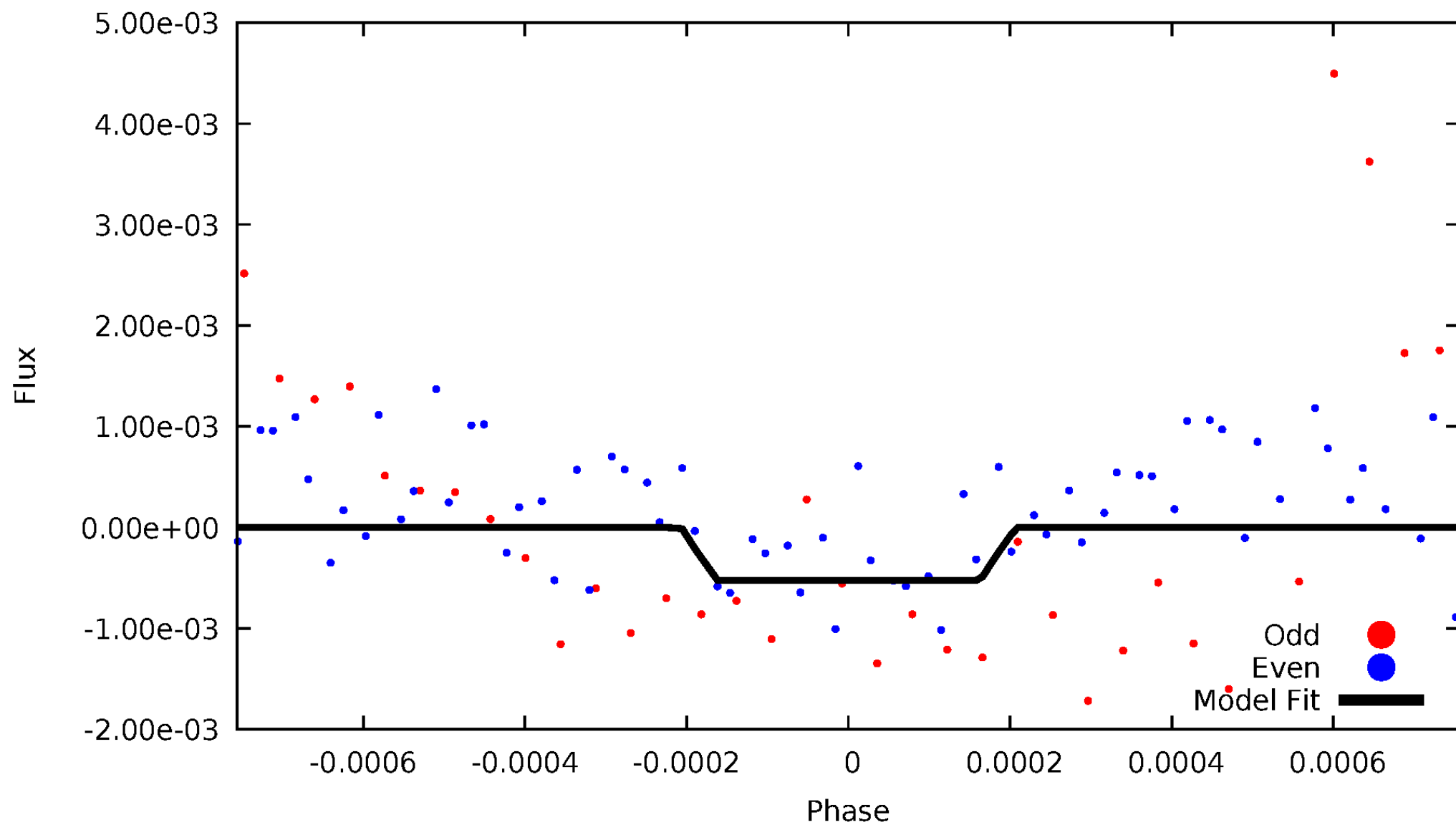
DV Odd/Even

TCE 006619854-01

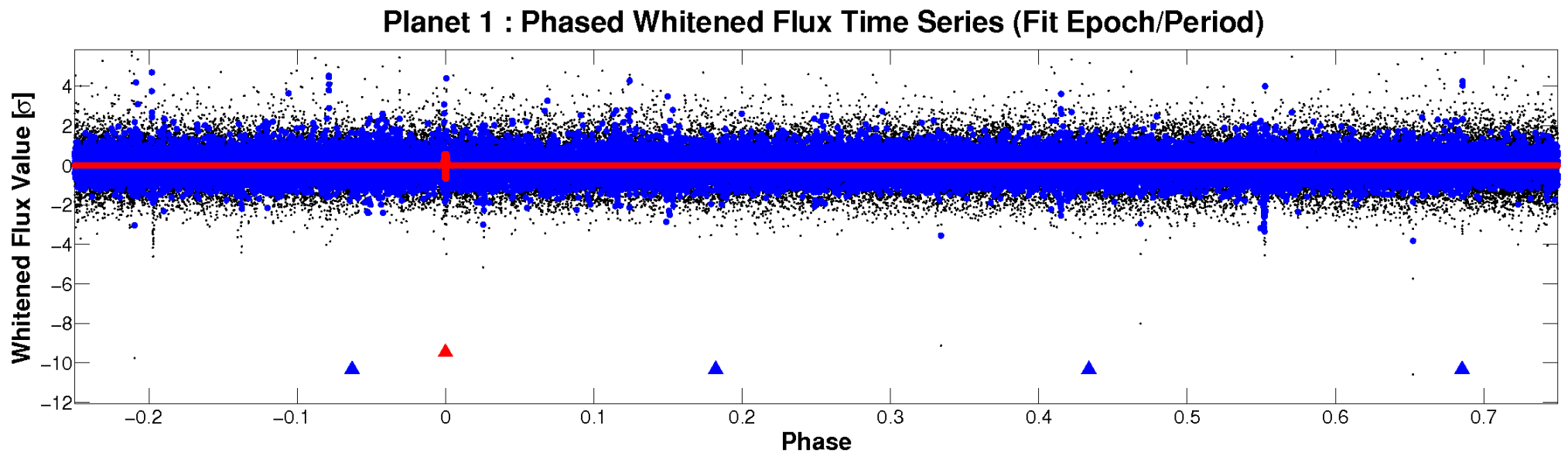
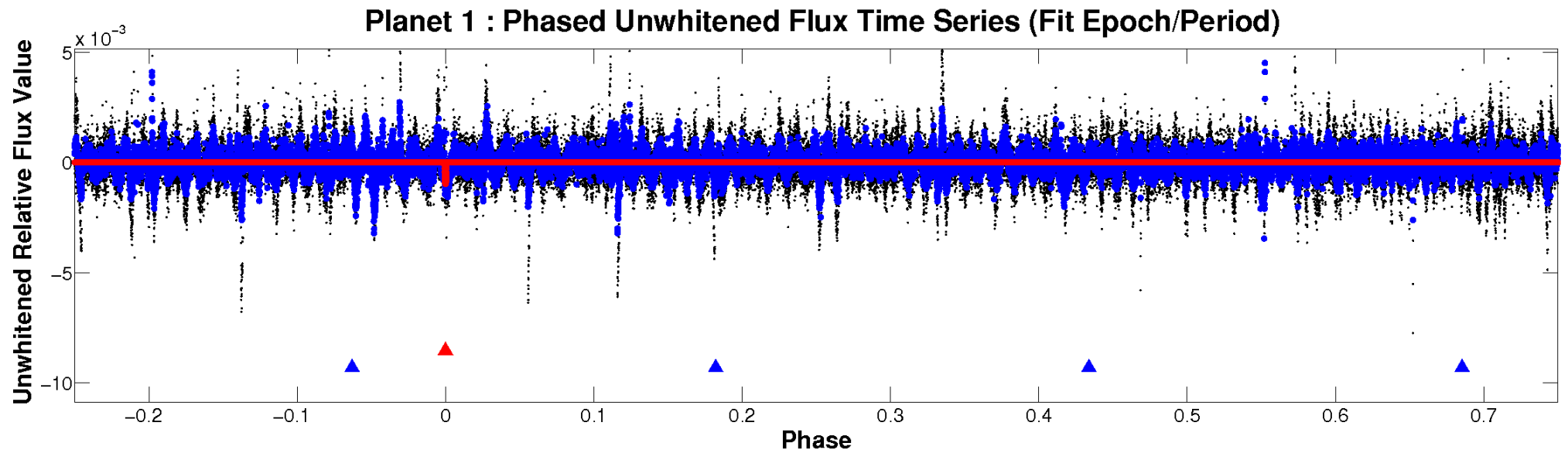


ALT Odd/Even

TCE 006619854-01

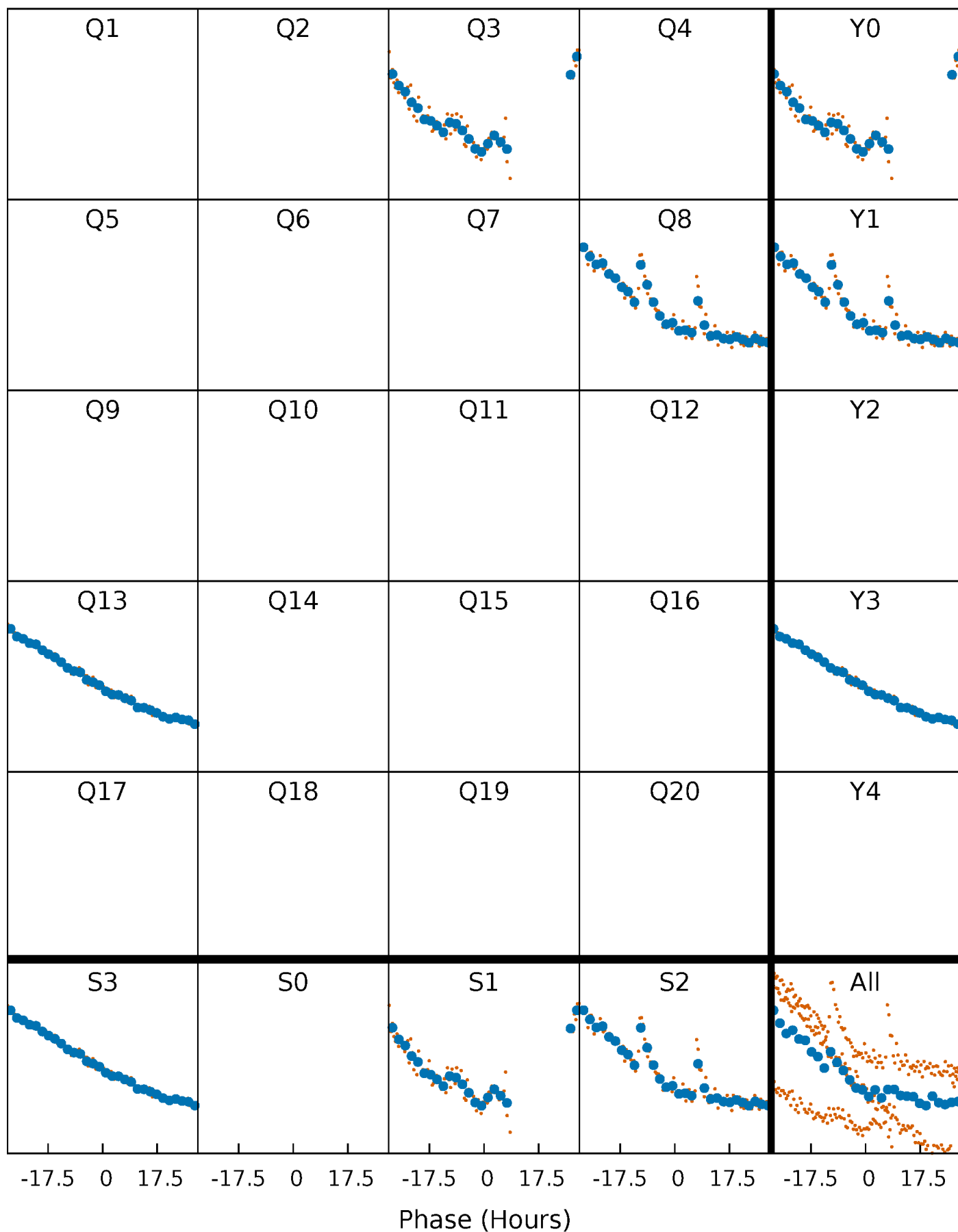


Non-Whitened Vs. Whitened Light Curve



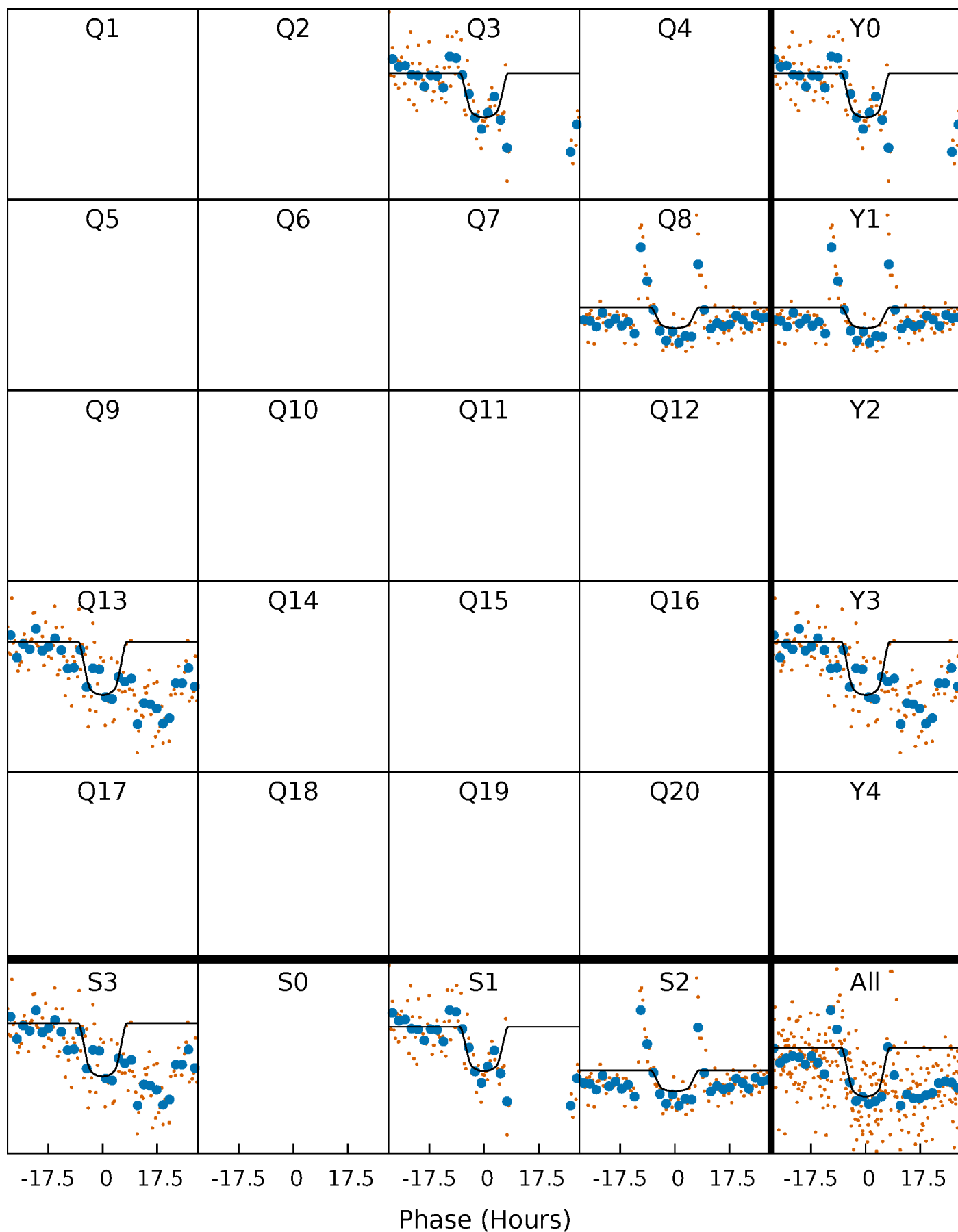
PDC Quarter-Phased Transit Curves

TCE 006619854-01 P=469.761206 Days $T_0=280.186304$ (BKJD)



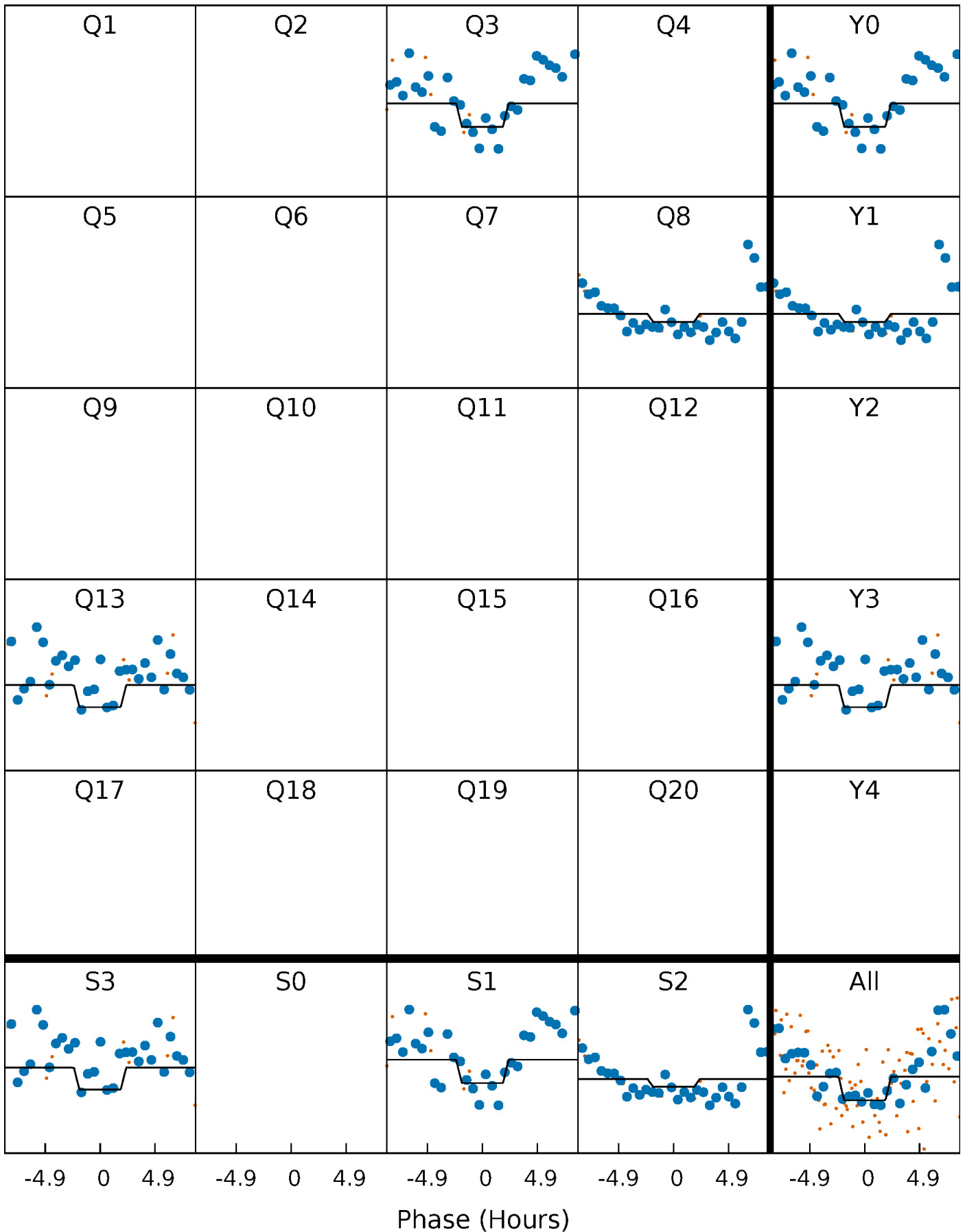
DV Quarter-Phased Transit Curves

TCE 006619854-01 P=469.761206 Days $T_0=280.186304$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

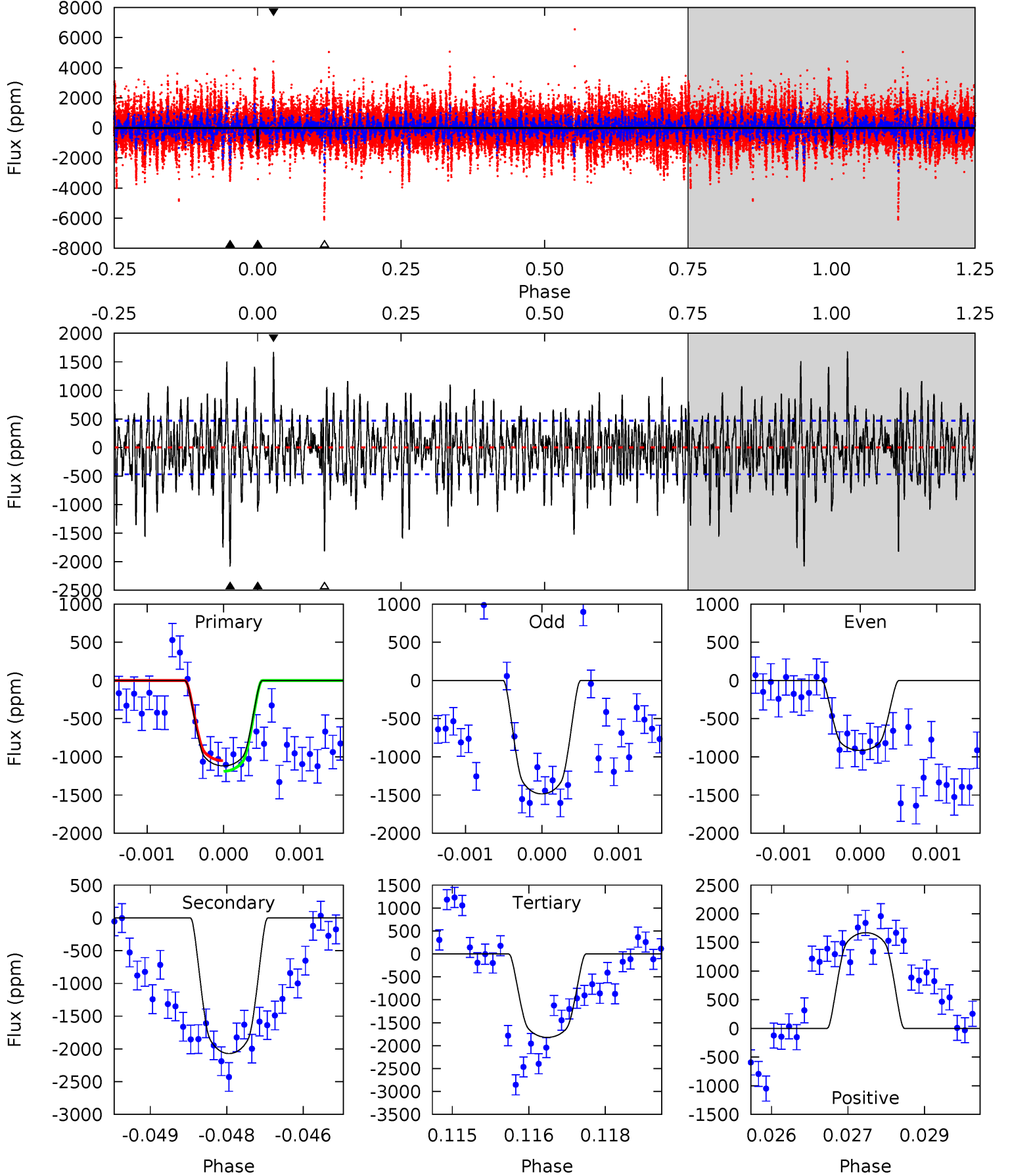
TCE 006619854-01 P=469.862901 Days $T_0=280.093348$ (BKJD)



DV Model-Shift Uniqueness Test

006619854-01, P = 469.761206 Days, E = 280.186304 Days

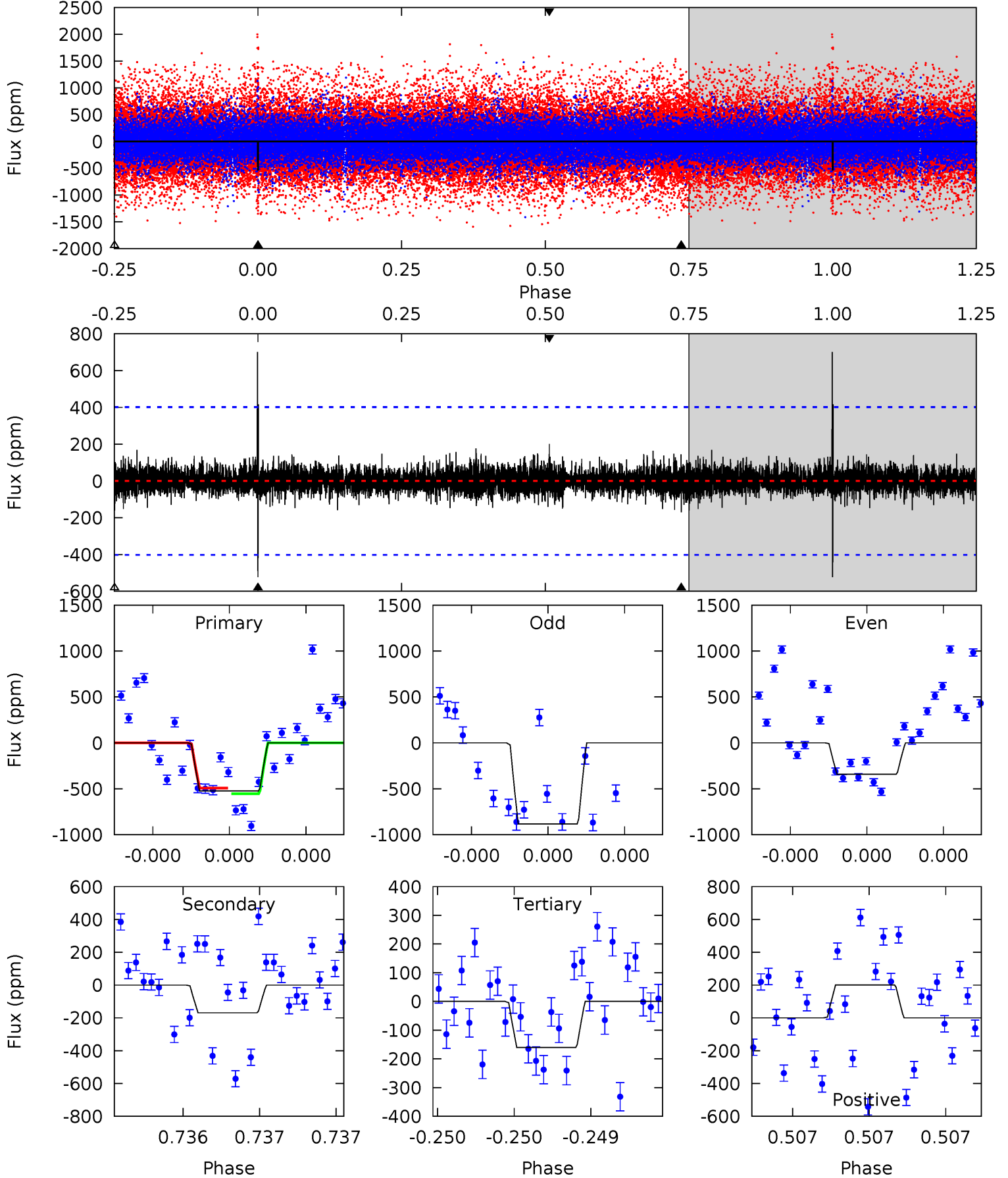
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	23.8	20.9	19.2	5.40	3.20	4.99	-8.08	-6.34	2.88	4.61	3.02	1.15	0.45	0.81



Alt Model-Shift Uniqueness Test

006619854-01, P = 469.862901 Days, E = 280.093348 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.29	2.36	2.24	2.80	5.61	3.53	0.58	5.06	4.49	0.13	-0.43	3.48	0.88	0.57	0.42



Stellar Parameters For KIC 006619854

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5511^{+164}_{-164}	$4.554^{+0.028}_{-0.161}$	$0.100^{+0.250}_{-0.300}$	$0.857^{+0.198}_{-0.062}$	$0.960^{+0.074}_{-0.101}$	$2.146^{+0.337}_{-0.902}$
	+3%/-3%	+1%/-4%	+250%/-300%	+23%/-7%	+8%/-11%	+16%/-42%
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 006619854-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2071 ± 87	$3.50^{+0.64}_{-0.59}$	298^{+16}_{-13}	6188^{+601}_{-476}	124606^{+52269}_{-36150}
Alt.	-169 ± 72	$2.22^{+0.57}_{-0.55}$	296^{+18}_{-12}	4353^{+575}_{-496}	25013^{+22075}_{-12615}

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

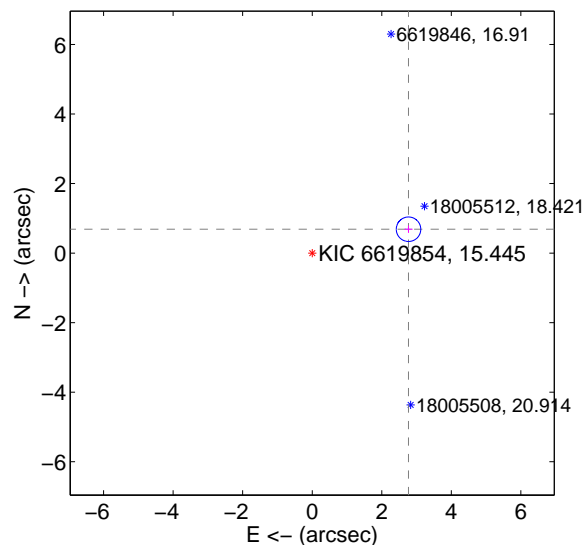
Supplemental centroid analysis for 006619854-01. Kepler magnitude: 15.45. Transit SNR 5.82

There are 1 quarters with good PRF difference image offsets

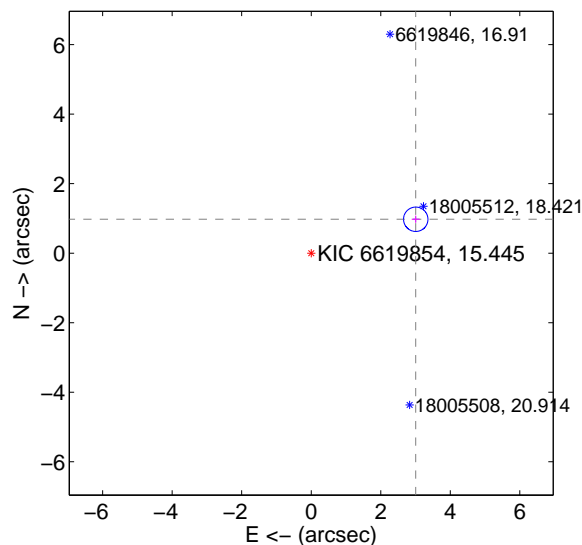
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.853 ± 0.117	24.31	-2.769 ± 0.118	0.686 ± 0.105
PRF-fit source offset from KIC position	3.160 ± 0.117	27.04	-3.006 ± 0.118	0.975 ± 0.105
photometric centroid source offset	0.91 ± 1.63	0.56	0.17 ± 2.42	-0.90 ± 1.59

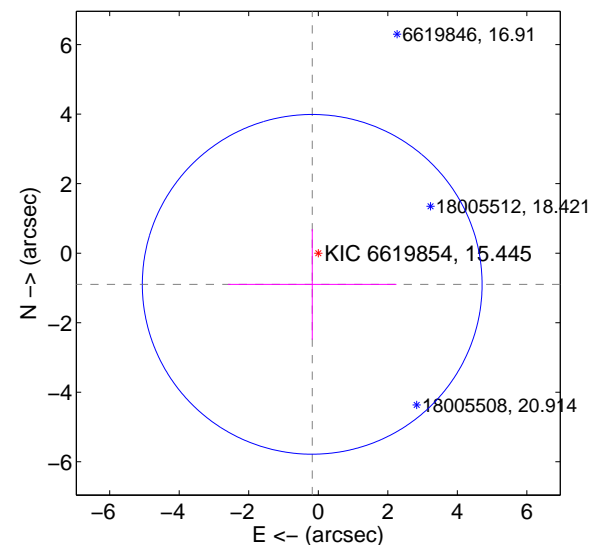
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

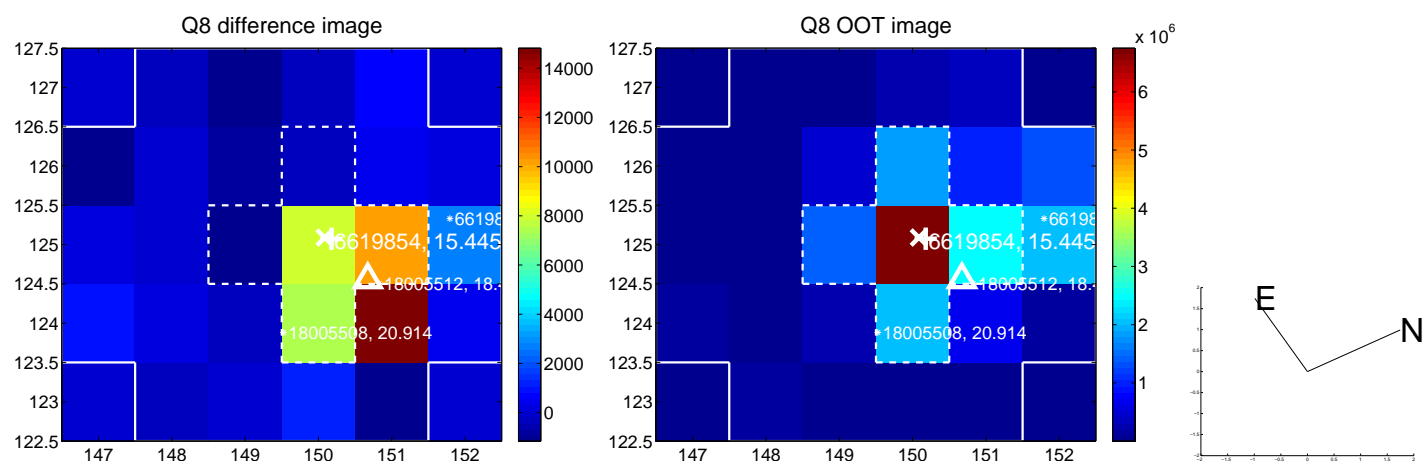


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



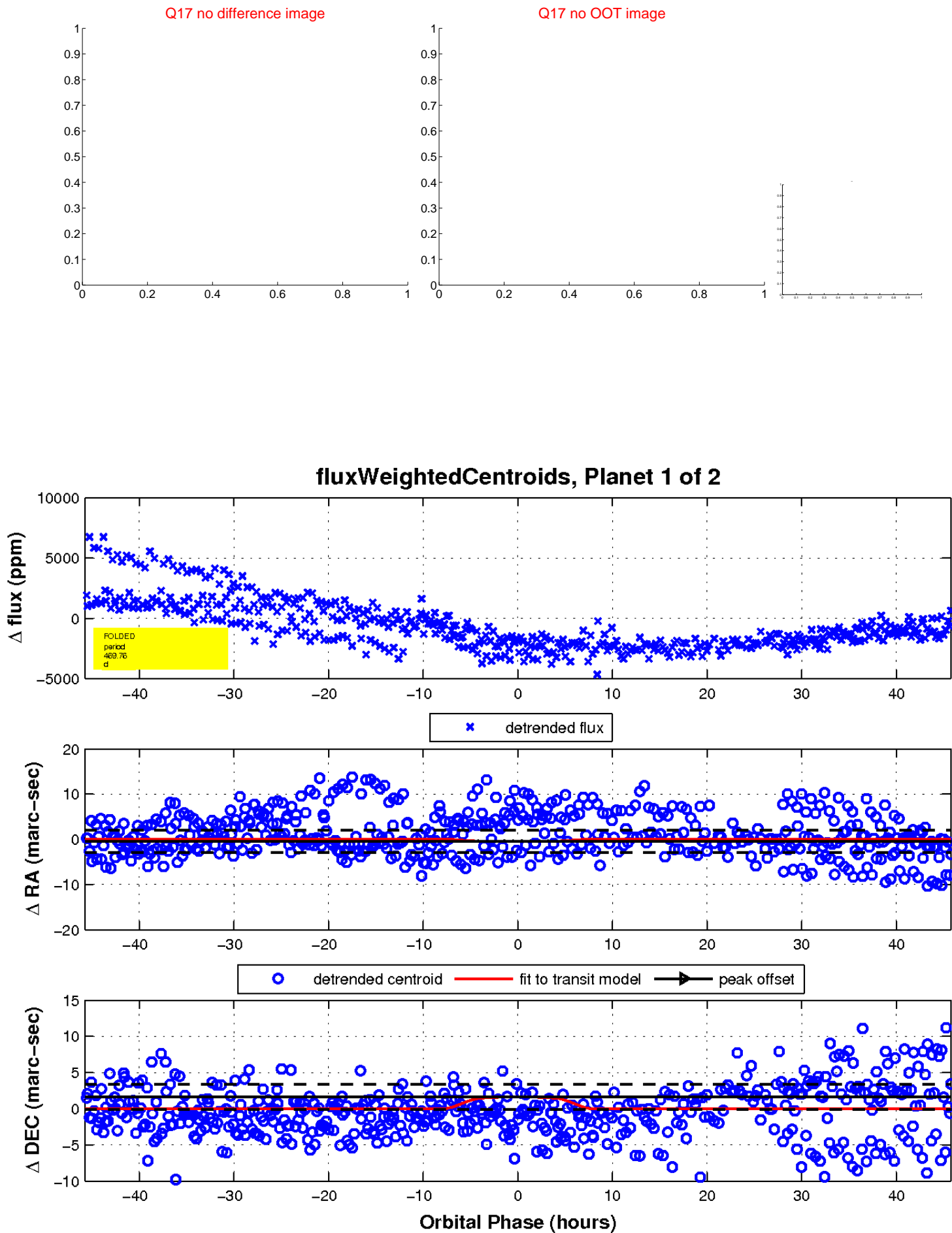
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

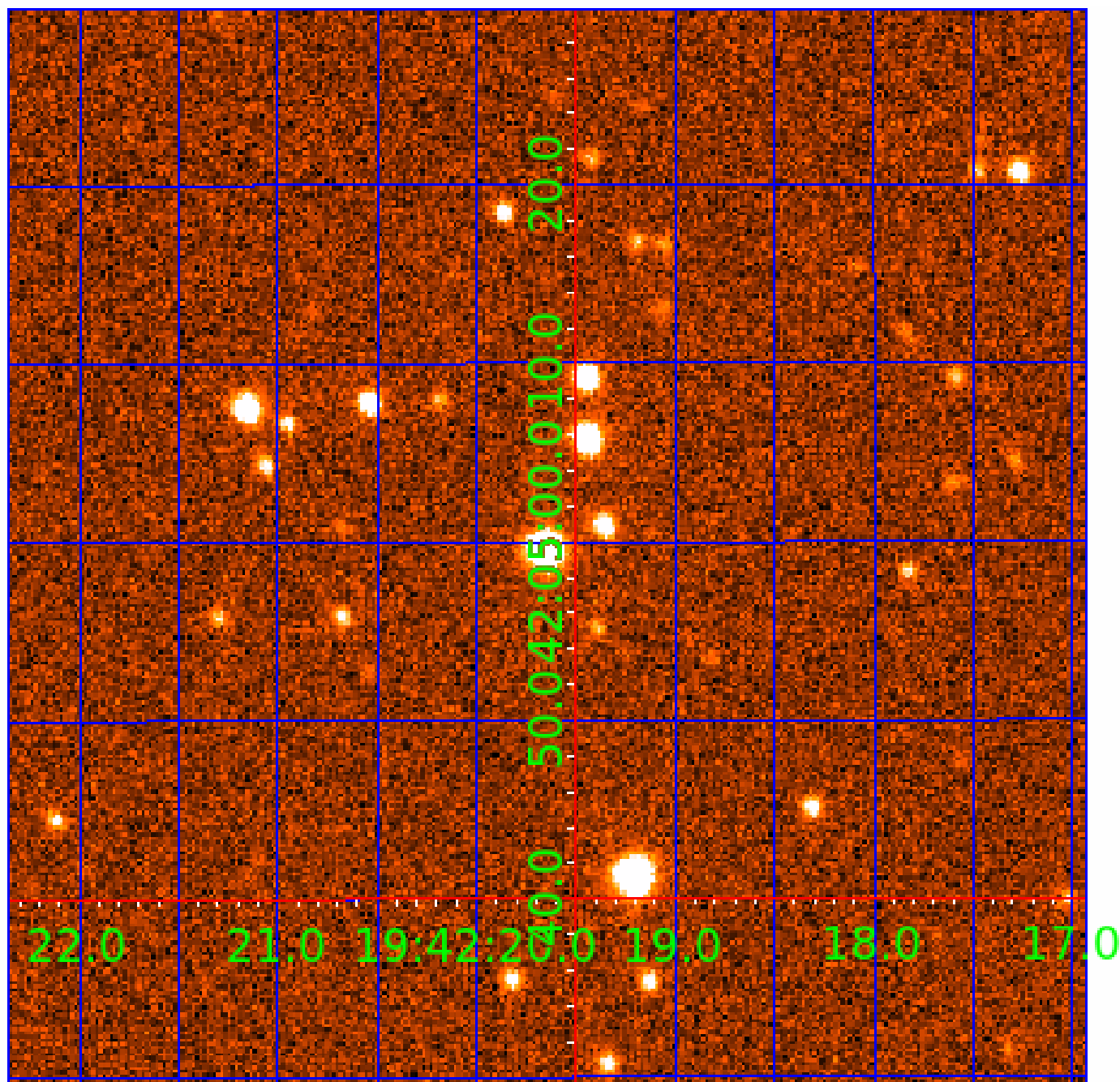


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006619854

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})
006619854-01	OBS	No	469.761206	280.186304	971.6	15.296	12.0	5.8	0.86	5511	3.35	0.45
006619854-02	OBS	No	351.560106	250.617378	1209.4	3.843	7.6	6.1	0.86	5511	3.23	0.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006619854-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
006619854-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

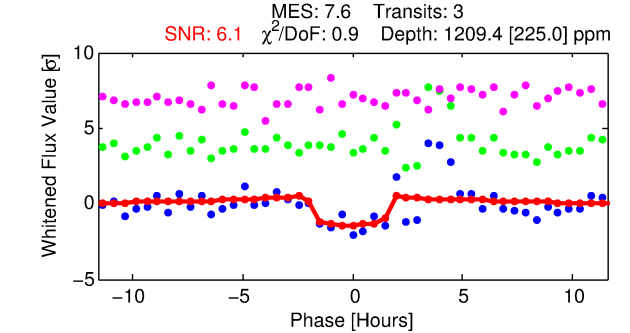
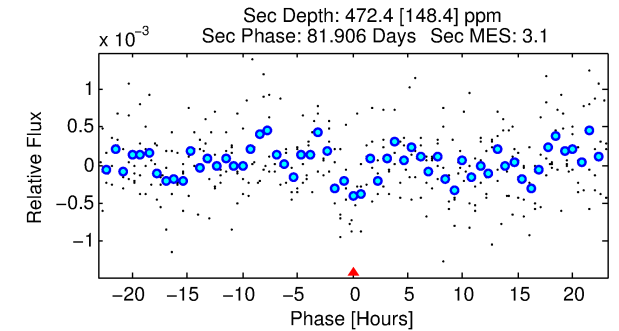
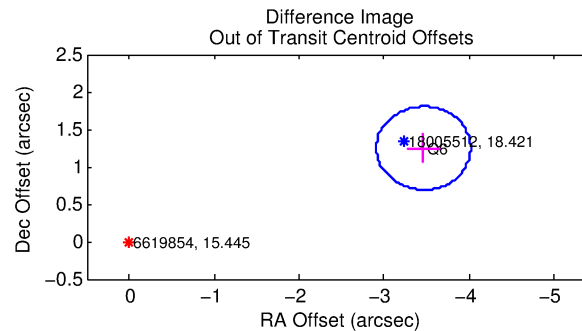
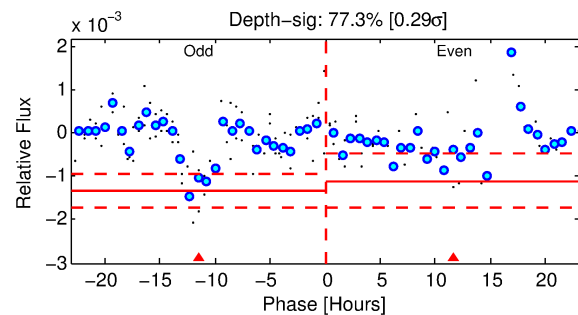
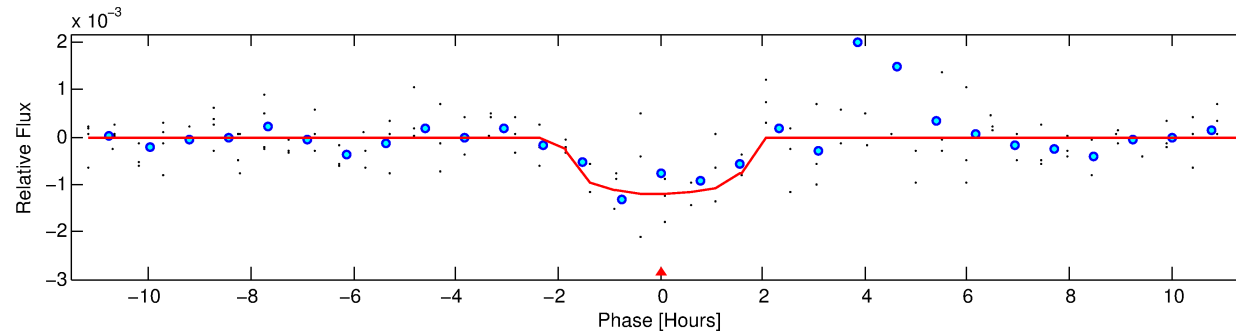
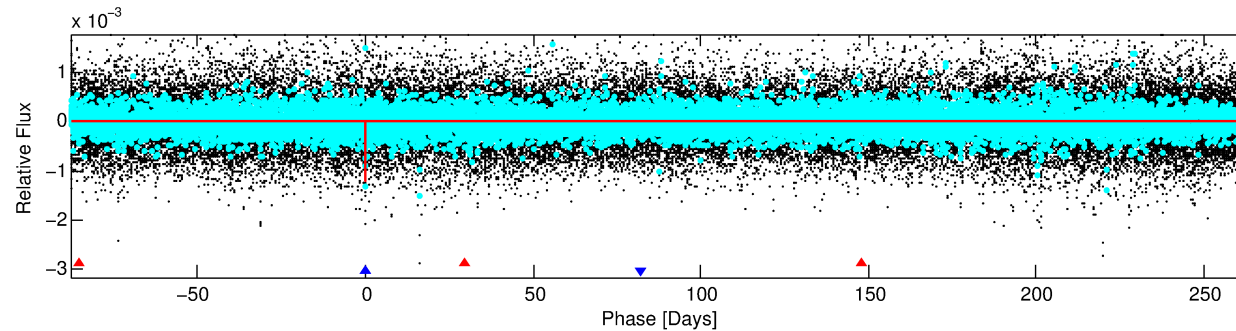
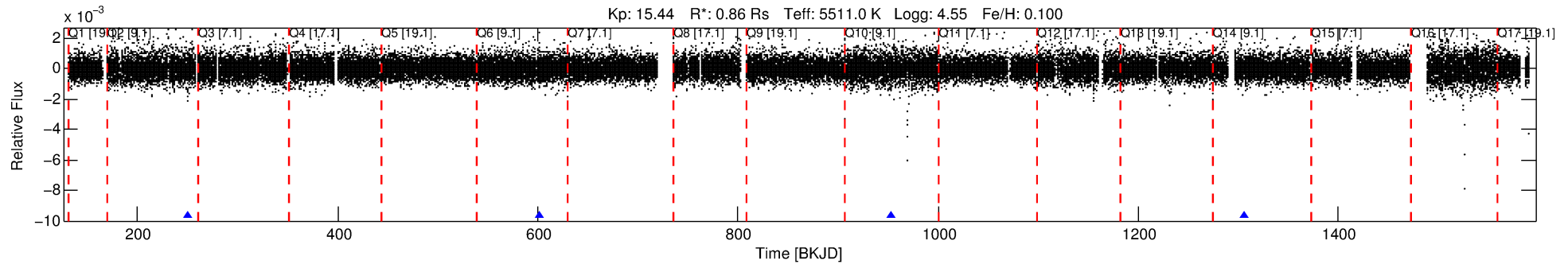
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006619854-02

No Significant Match Found

DV One-Page Summary

KIC: 6619854 Candidate: 2 of 2 Period: 351.560 d



DV Fit Results:

Period = 351.56011 [0.00963] d
Epoch = 250.6174 [0.0137] BKJD
Rp/R* = 0.0345 [0.0327]
a/R* = 506.34 [1906.96]
b = 0.74 [2.35]
Seff = 0.66 [0.21]
Teq = 230 [18] K
Rp = 3.23 [3.15] Re
a = 0.9617 [0.1899] AU
Ag = 23056.37 [44843.29] [0.51 σ]
Teffp = 4373 [2106] K [1.97 σ]

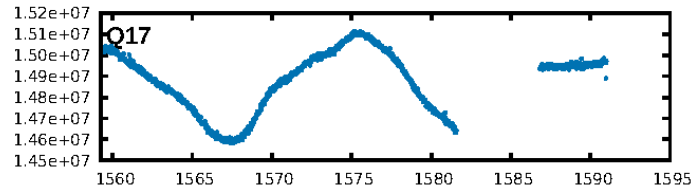
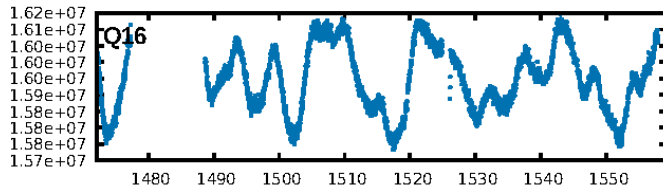
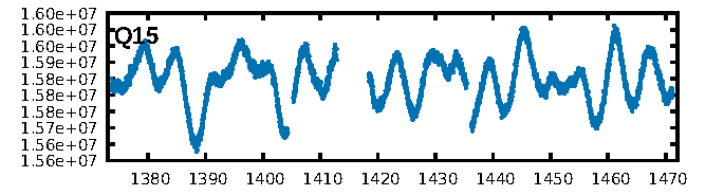
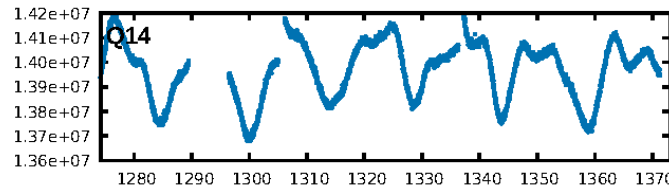
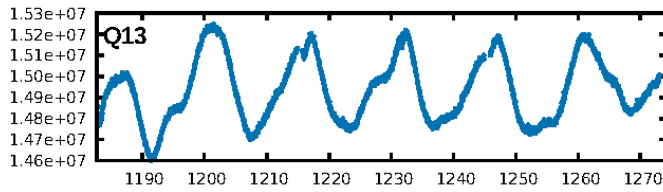
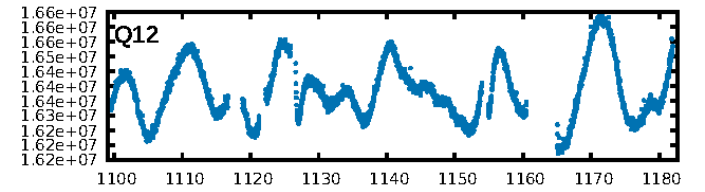
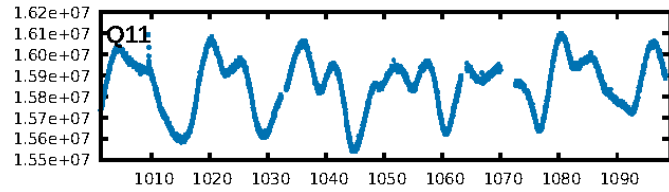
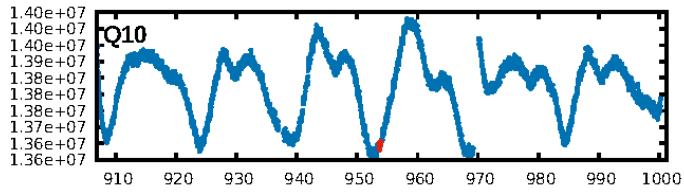
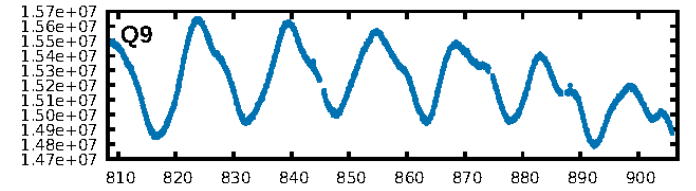
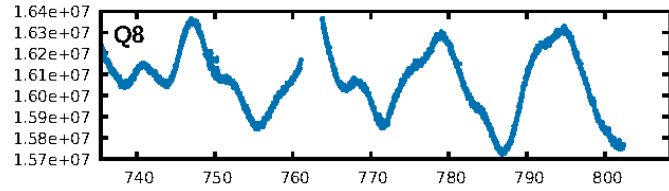
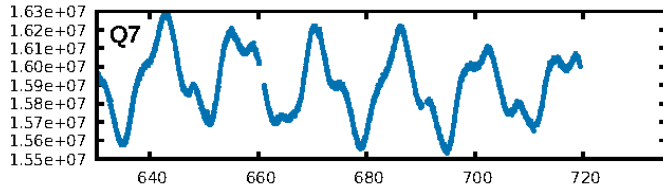
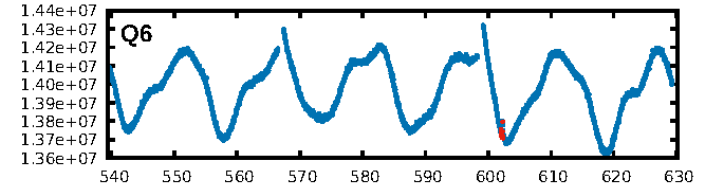
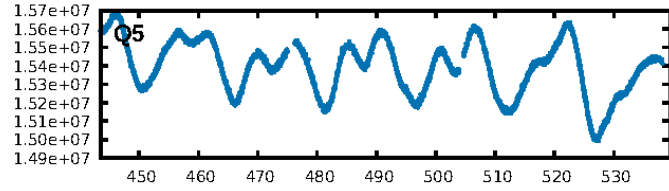
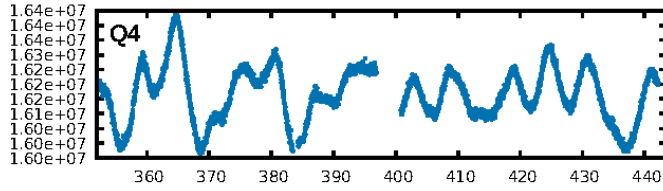
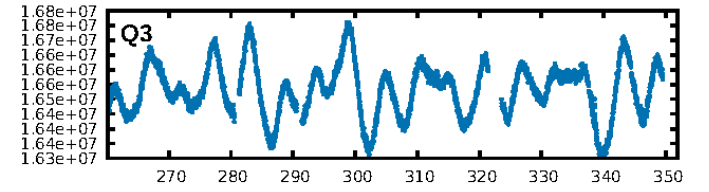
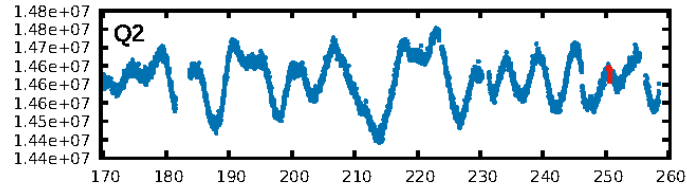
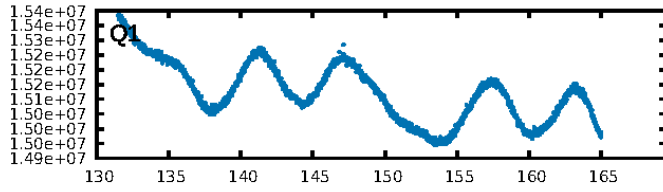
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [179.87 σ]
ModelChiSquare2-sig: 70.1%
ModelChiSquareGof-sig: 94.1%
Bootstrap-pfa: 1.02e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.875
Centroid-sig: 15.9%
Centroid-so: 1.279 arcsec [0.87 σ]
OotOffset-rm: 3.685 arcsec [19.88 σ]
KicOffset-rm: 3.609 arcsec [19.46 σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [3/3]

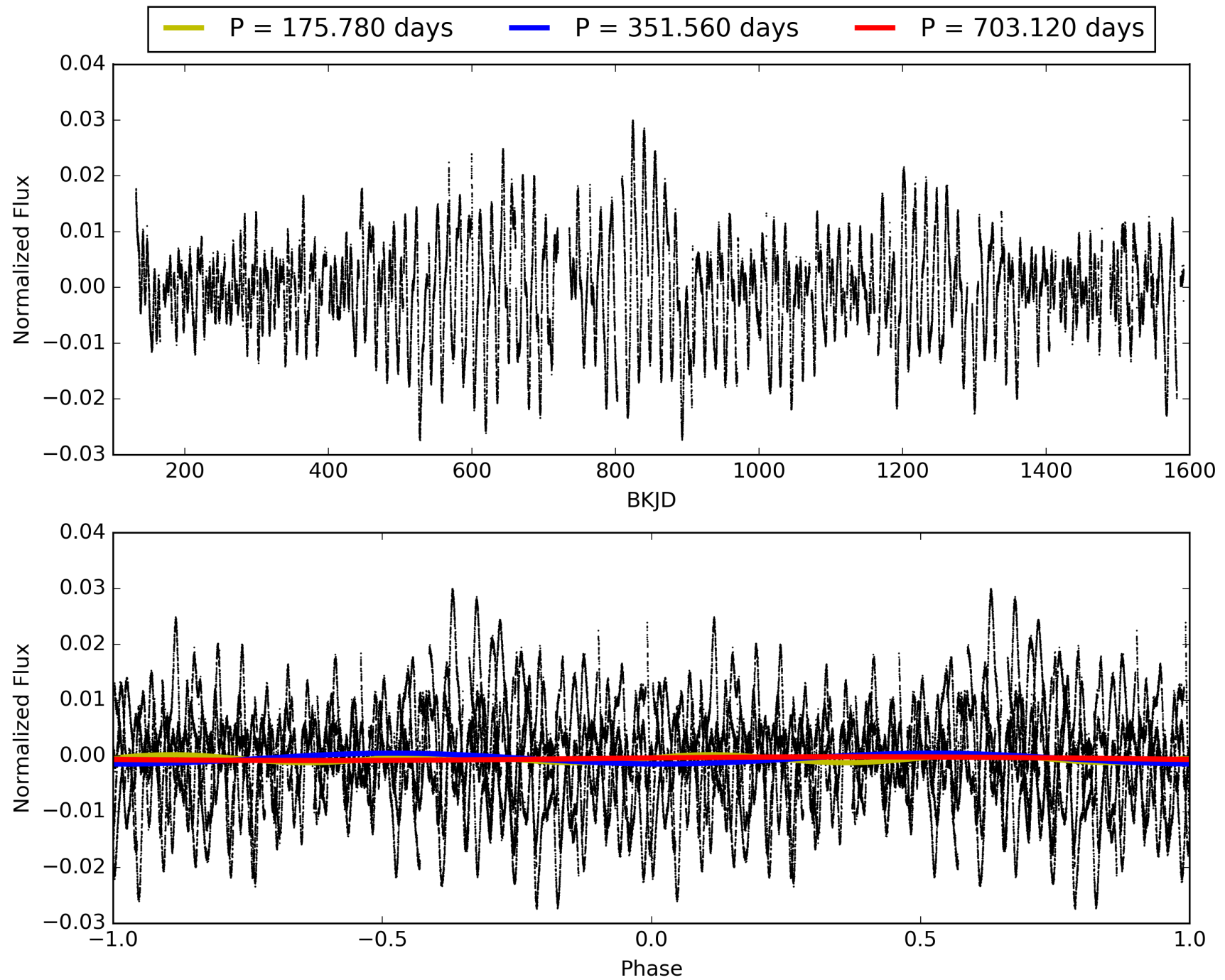
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:21:56 Z

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

TCE 006619854-02, PDC Light Curves

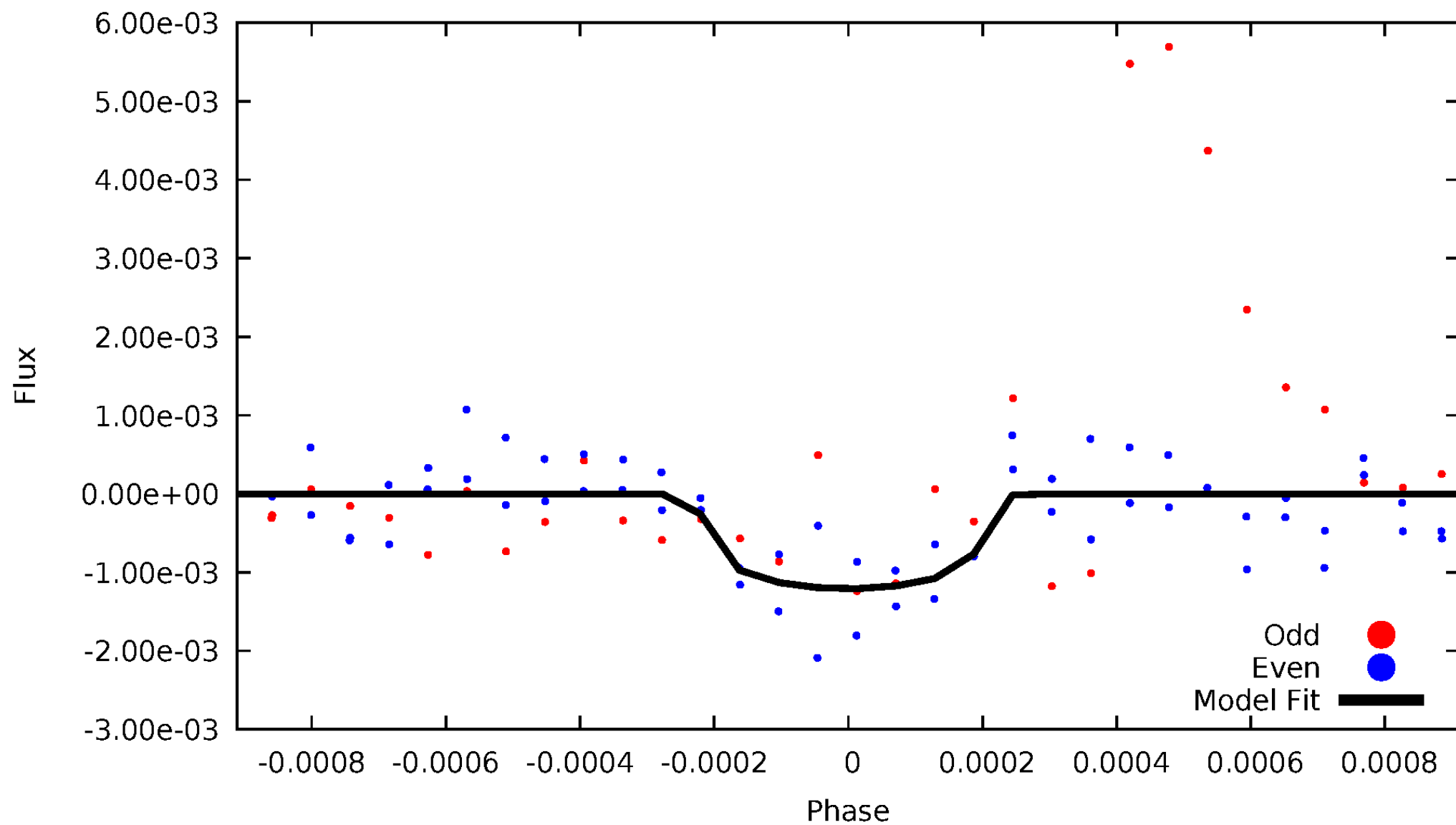


TCE 006619854-02



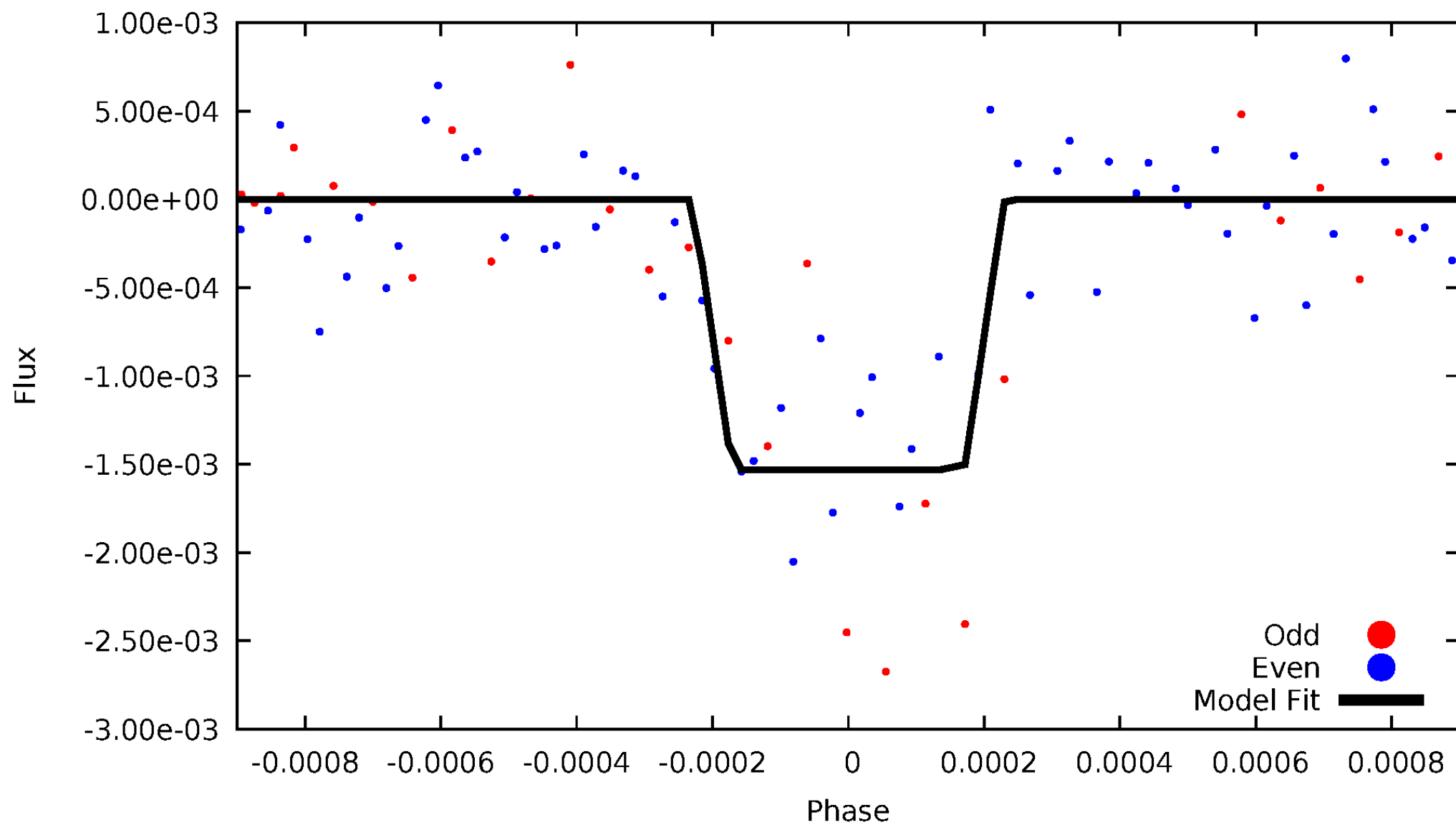
DV Odd/Even

TCE 006619854-02



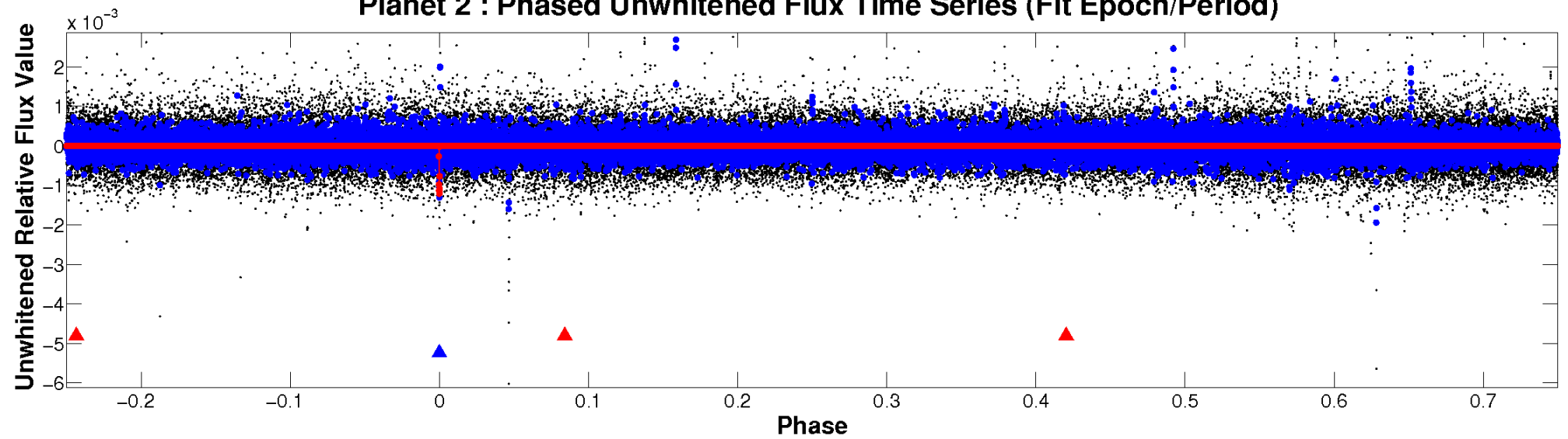
ALT Odd/Even

TCE 006619854-02

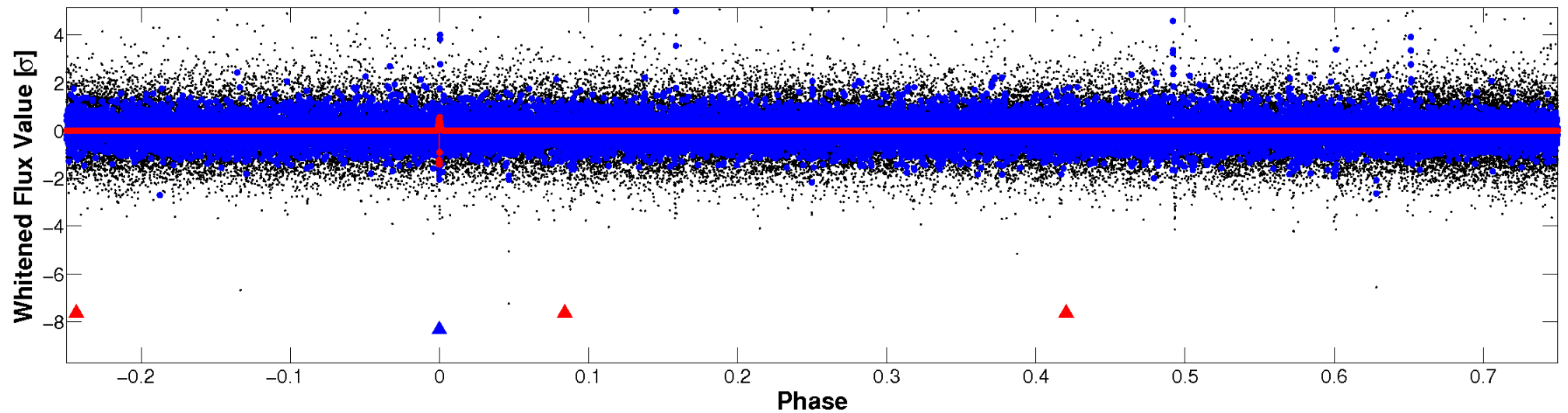


Non-Whitened Vs. Whitened Light Curve

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

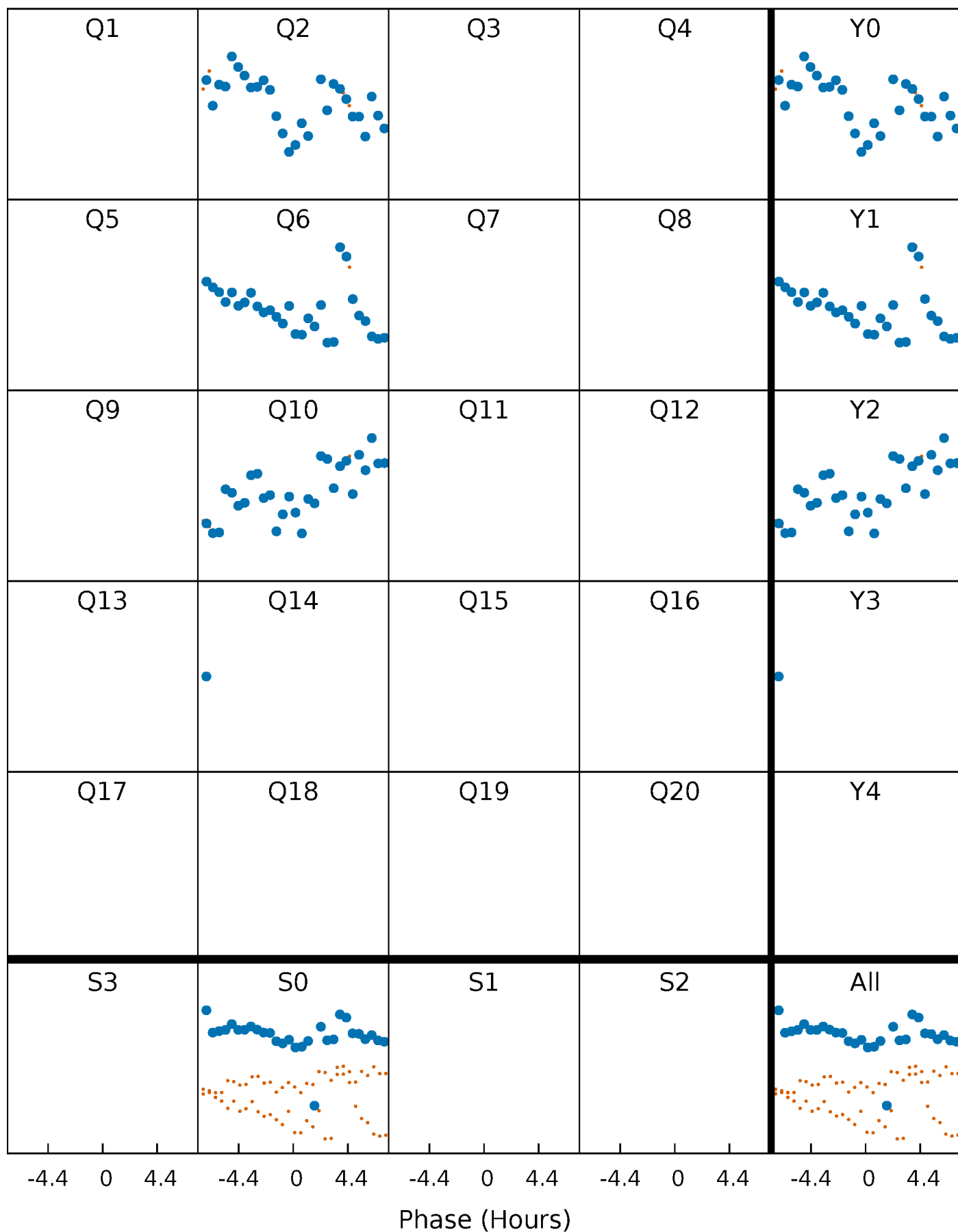


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



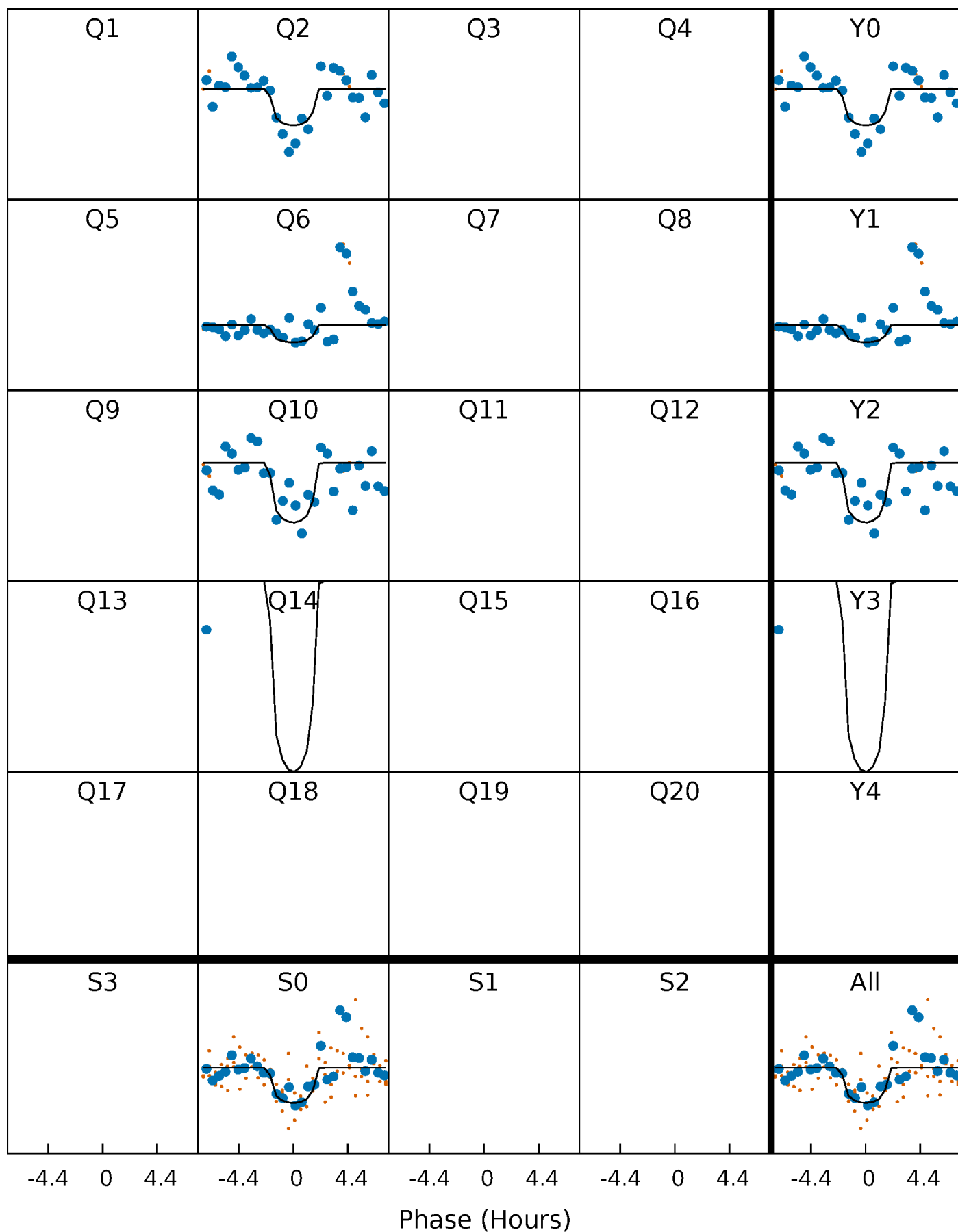
PDC Quarter-Phased Transit Curves

TCE 006619854-02 P=351.560106 Days $T_0=250.617378$ (BKJD)



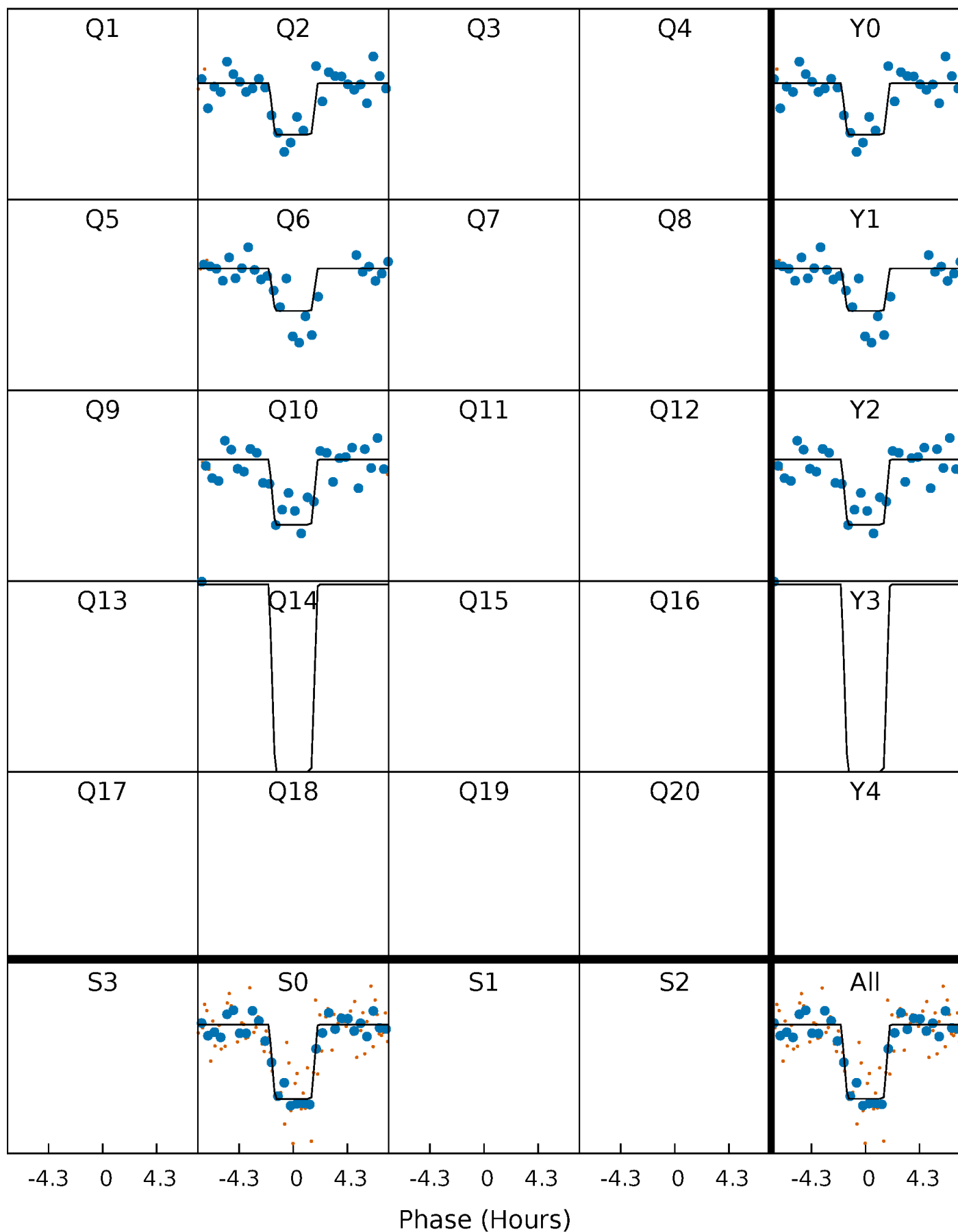
DV Quarter-Phased Transit Curves

TCE 006619854-02 P=351.560106 Days $T_0=250.617378$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

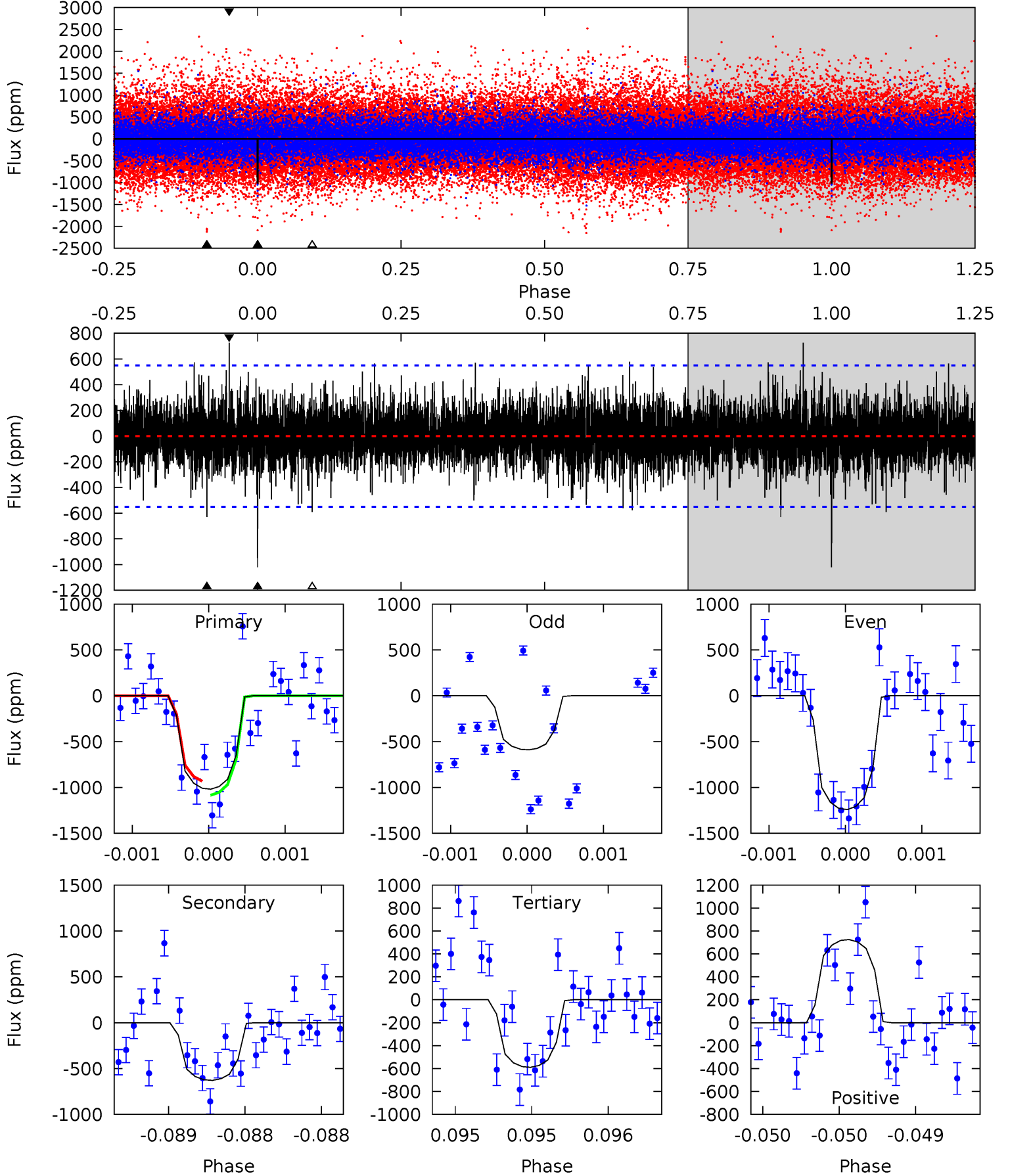
TCE 006619854-02 P=351.553184 Days $T_0=250.629729$ (BKJD)



DV Model-Shift Uniqueness Test

006619854-02, P = 351.560106 Days, E = 250.617378 Days

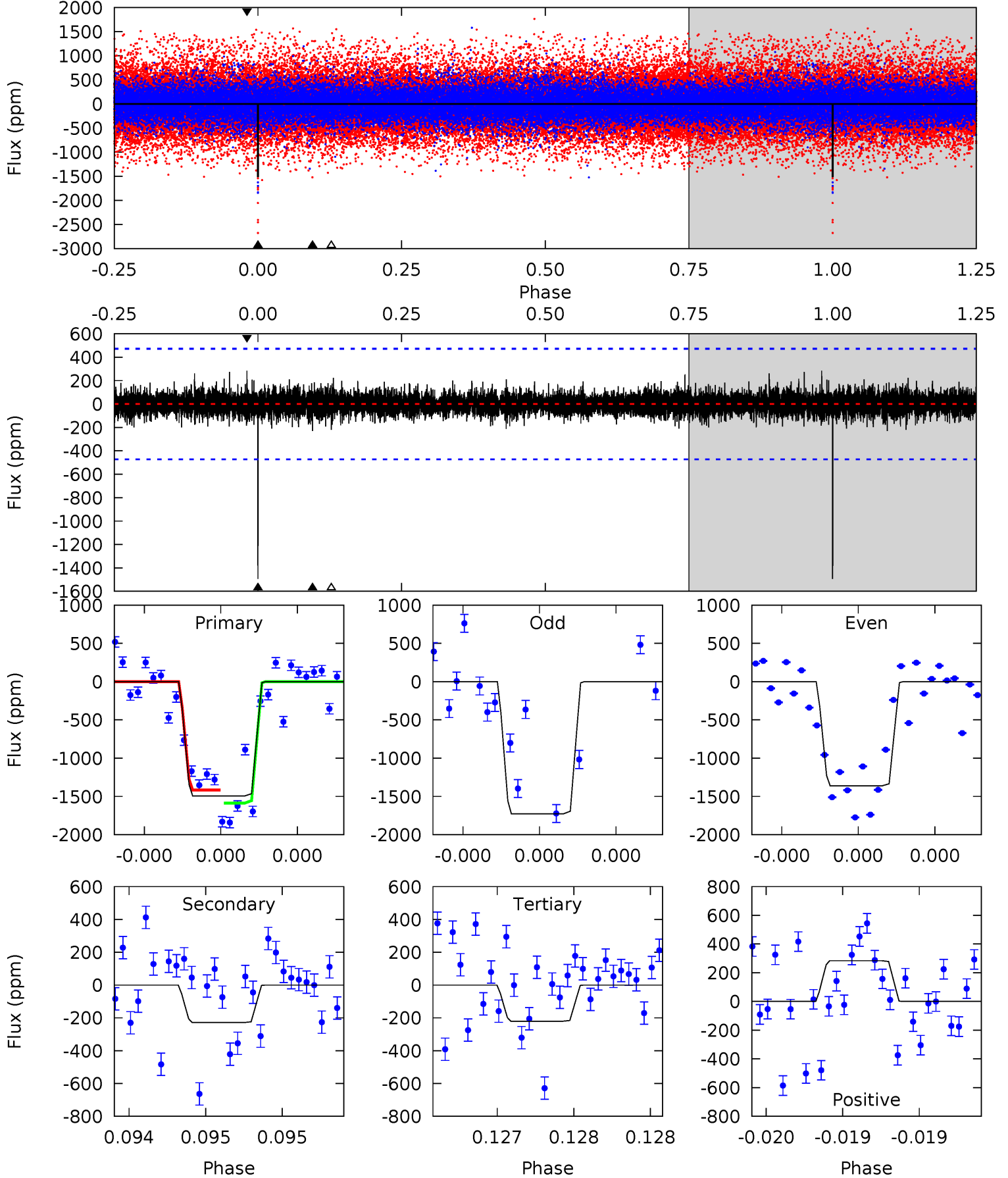
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	6.36	5.96	7.34	5.57	3.47	1.46	4.35	2.97	0.40	-0.97	3.12	1.08	0.42	0.76



Alt Model-Shift Uniqueness Test

006619854-02, $P = 351.553184$ Days, $E = 250.629729$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	2.71	2.61	3.37	5.60	3.52	0.66	15.1	14.4	0.10	-0.66	2.10	1.00	0.16	1.01



Stellar Parameters For KIC 006619854

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5511^{+164}_{-164}	$4.554^{+0.028}_{-0.161}$	$0.100^{+0.250}_{-0.300}$	$0.857^{+0.198}_{-0.062}$	$0.960^{+0.074}_{-0.101}$	$2.146^{+0.337}_{-0.902}$
	+3%/-3%	+1%/-4%	+250%/-300%	+23%/-7%	+8%/-11%	+16%/-42%
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 006619854-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-629±99	$3.85^{+2.88}_{-2.29}$	328^{+18}_{-14}	4528^{+2478}_{-795}	$20964^{+106760}_{-14345}$
Alt.	-228±84	$4.27^{+3.21}_{-2.62}$	327^{+20}_{-13}	3628^{+1452}_{-617}	5765^{+32074}_{-3959}

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

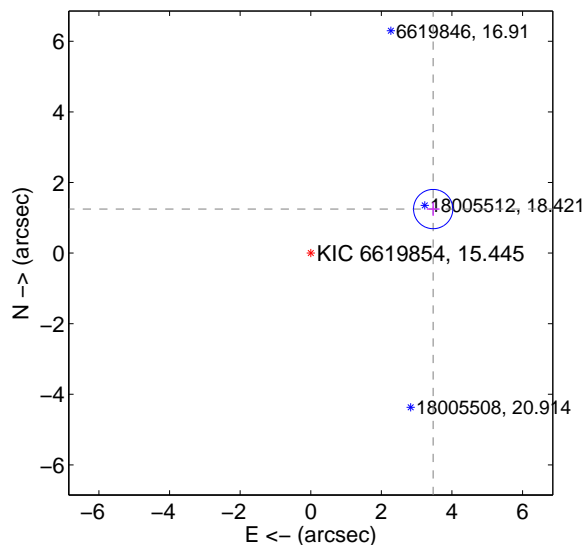
Supplemental centroid analysis for 006619854-02. Kepler magnitude: 15.45. Transit SNR 6.14

There are 1 quarters with good PRF difference image offsets

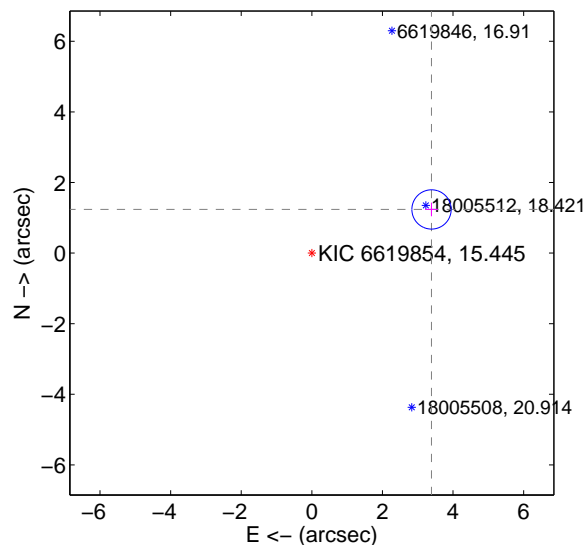
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.685 ± 0.185	19.88	-3.468 ± 0.184	1.247 ± 0.194
PRF-fit source offset from KIC position	3.609 ± 0.185	19.46	-3.390 ± 0.184	1.237 ± 0.194
photometric centroid source offset	1.28 ± 1.48	0.87	-1.23 ± 1.49	-0.37 ± 1.34

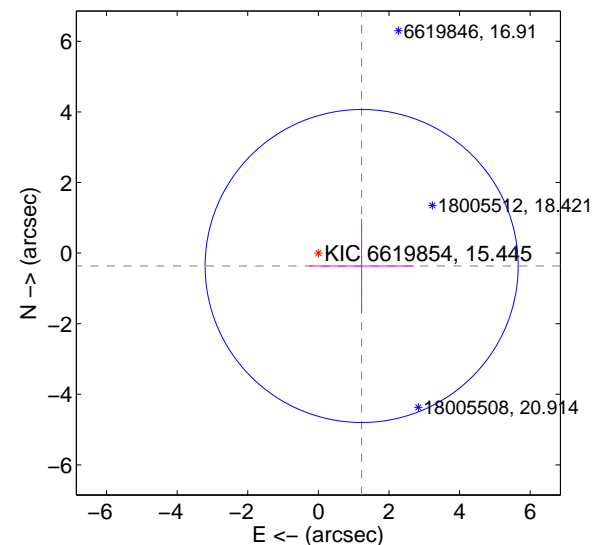
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

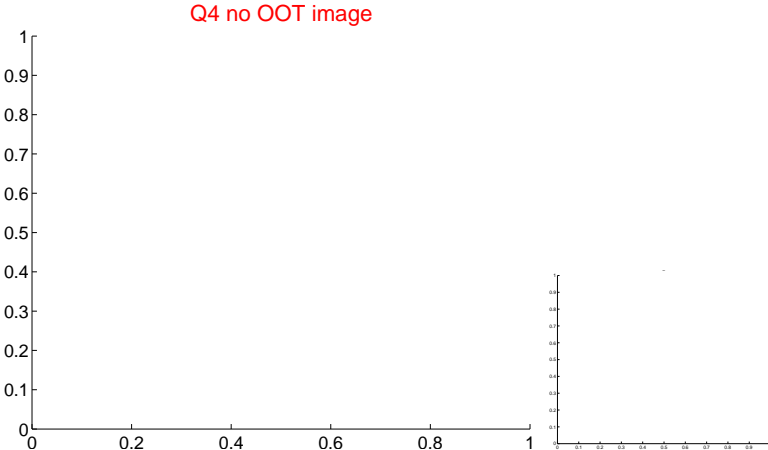
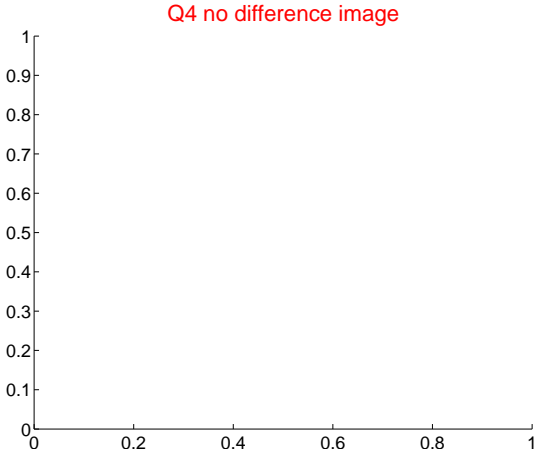
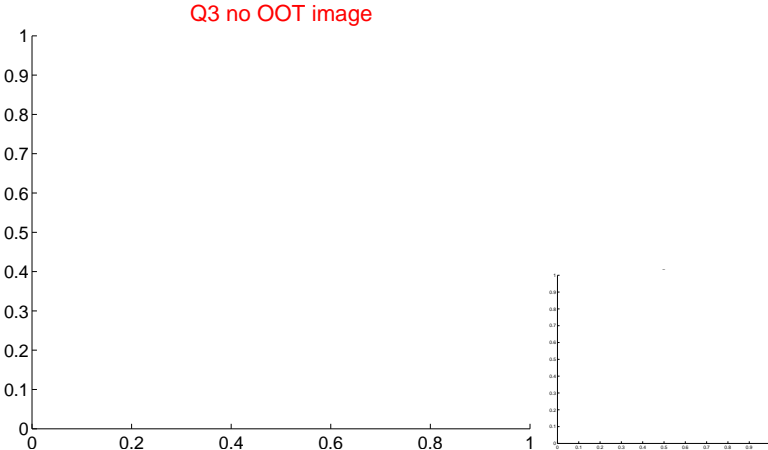
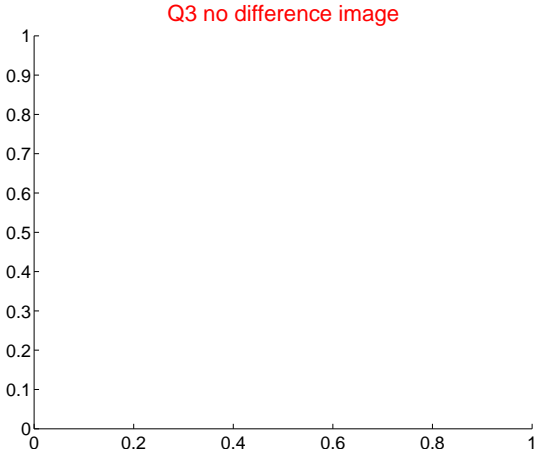
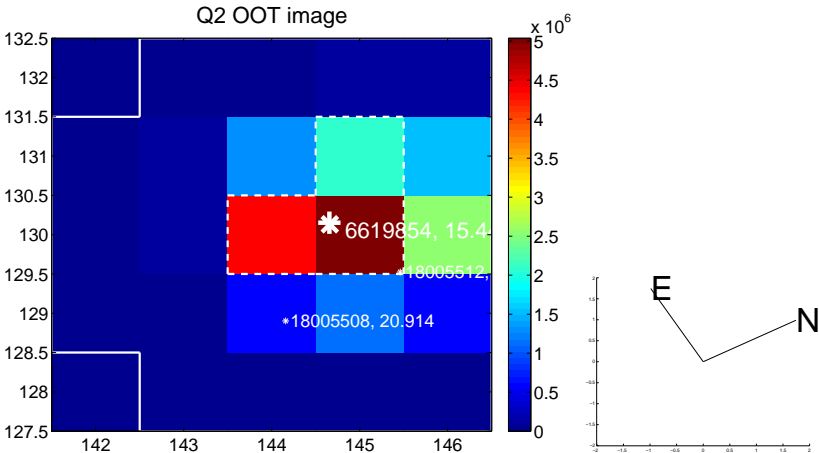
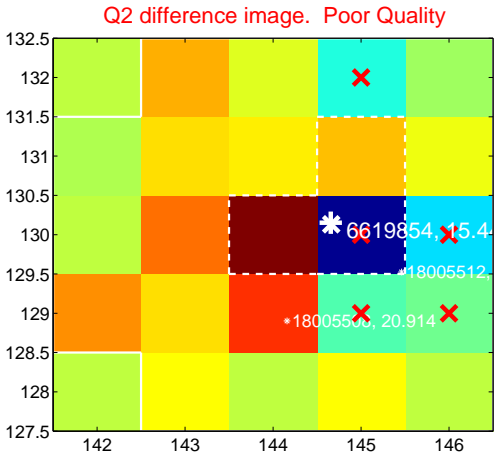
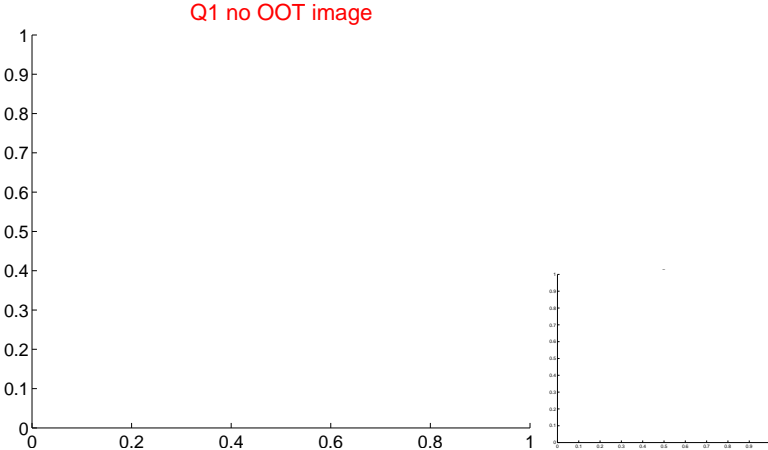
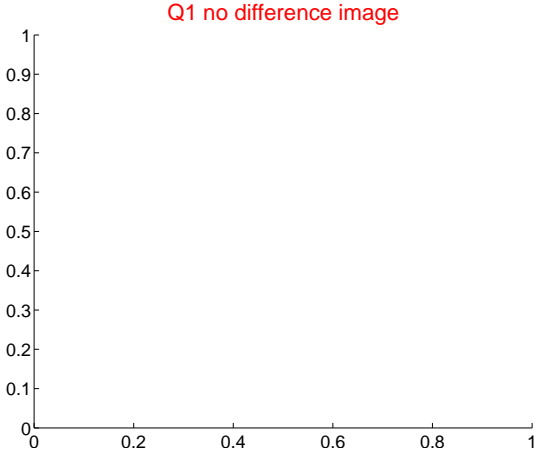


offset from photometric centroids



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 \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.

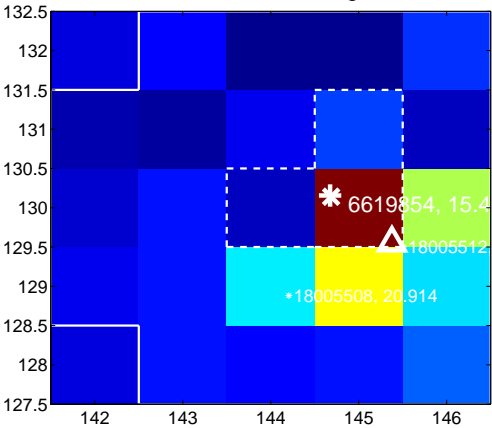
Q5 no difference image



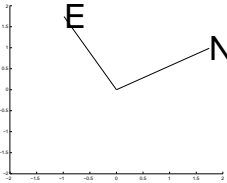
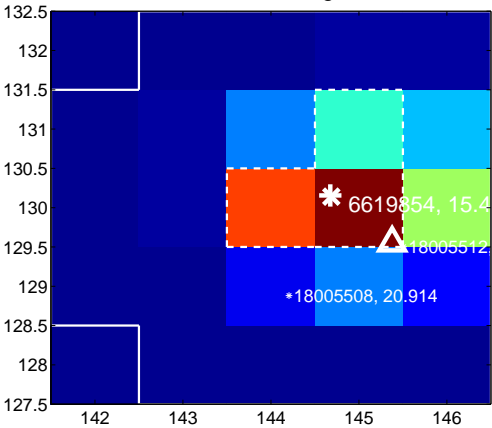
Q5 no OOT image



Q6 difference image



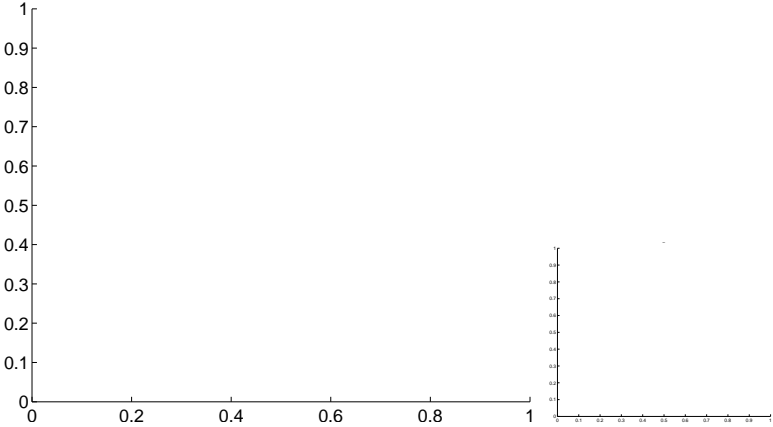
Q6 OOT image



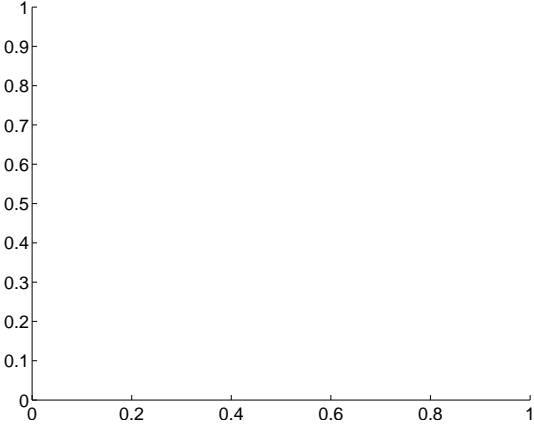
Q7 no difference image



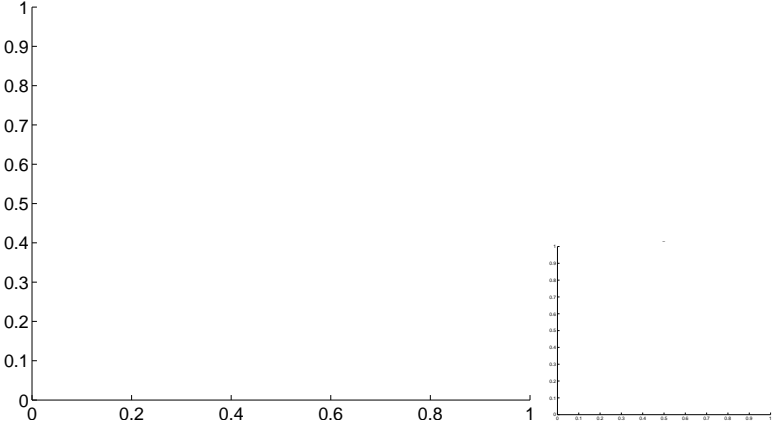
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



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

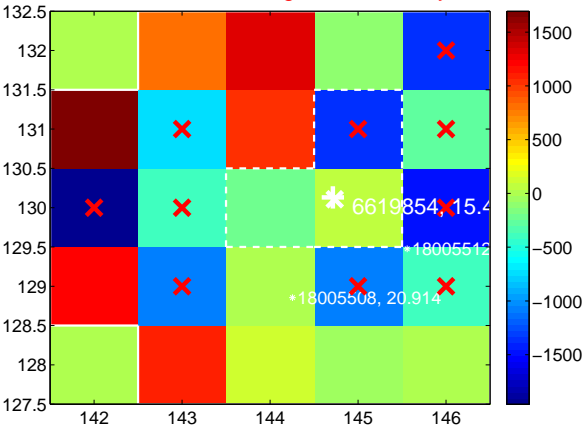
Q9 no difference image



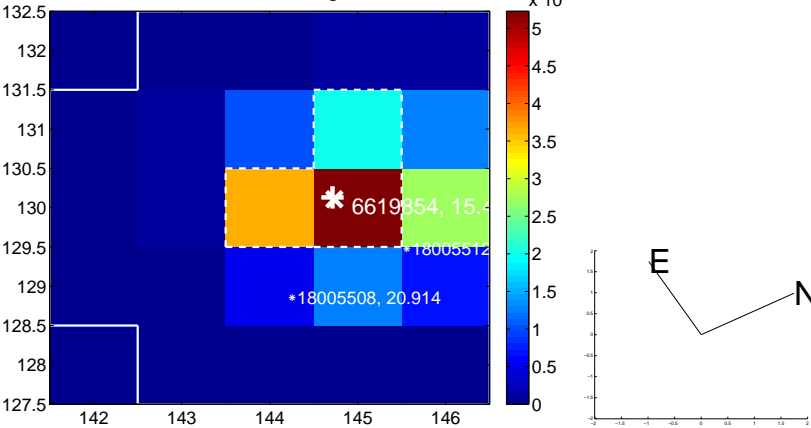
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



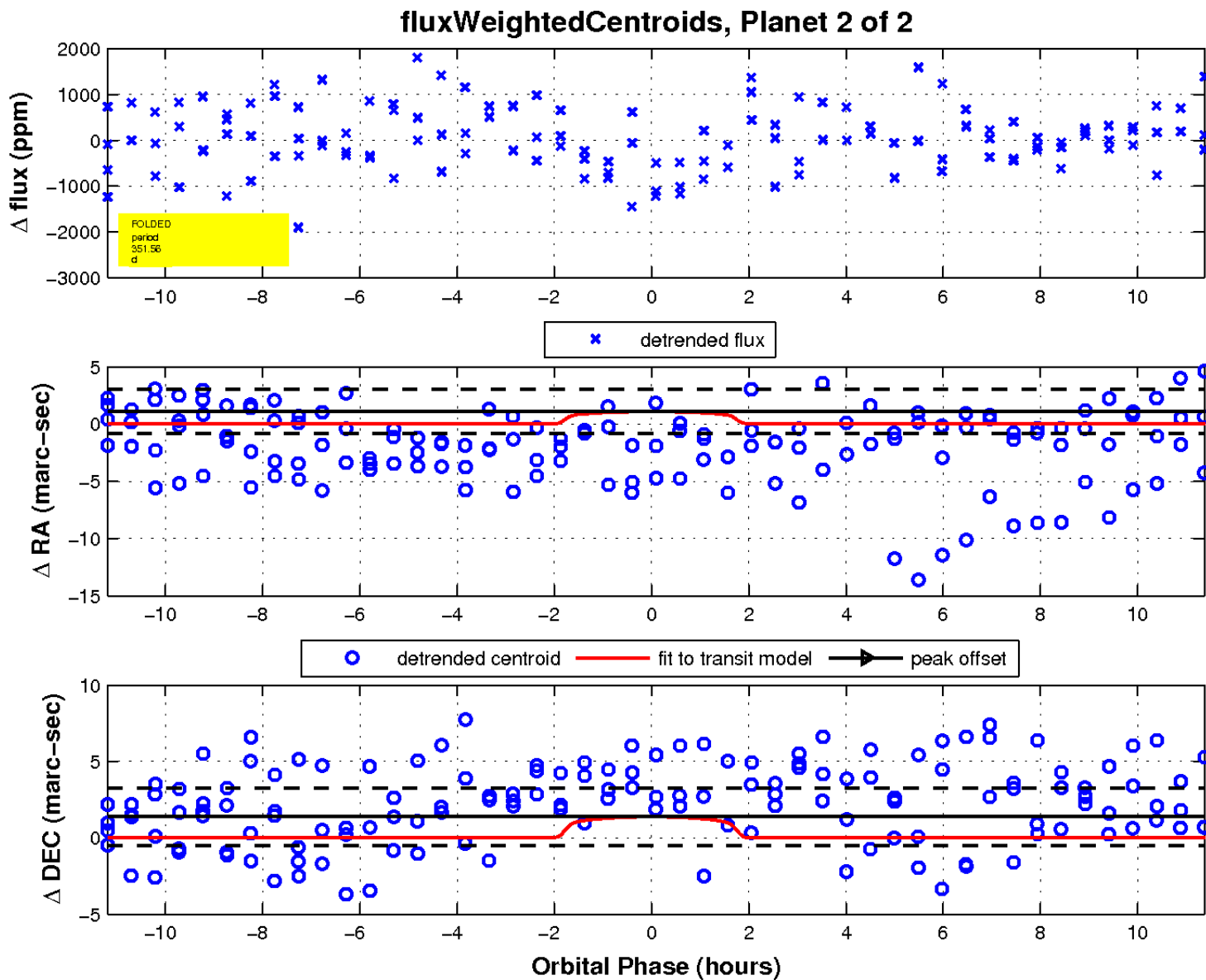
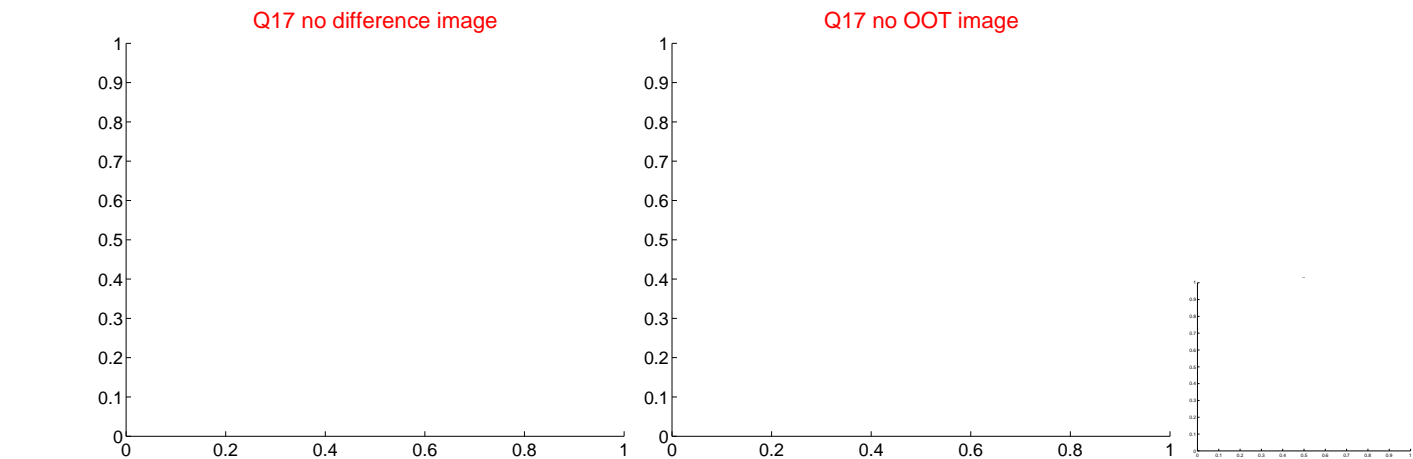
Q12 no OOT image



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

