

KIC 008561418

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})
008561418-01	OBS	No	57.692644	143.394895	18249.7	5.184	8.5	7.0	1.00	5780	23.97	11.71
008561418-02	OBS	No	51.367674	137.042263	21458.6	6.558	8.4	9.6	1.00	5780	17.48	13.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008561418-01	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008561418-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

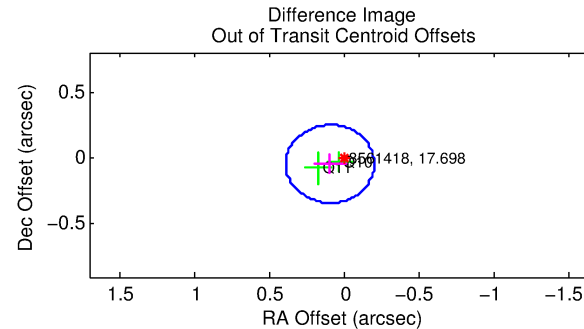
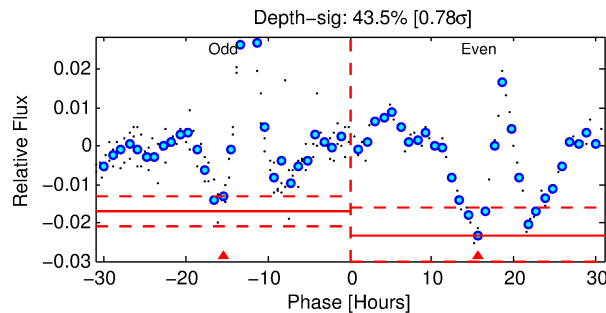
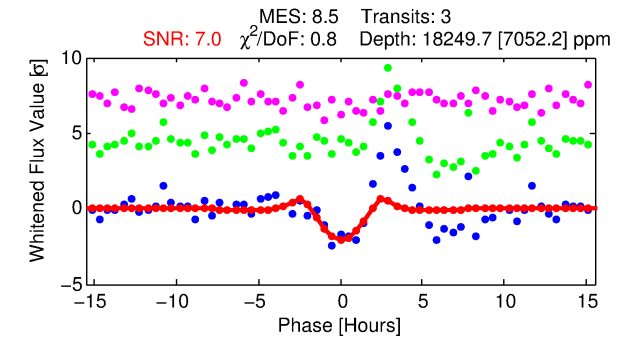
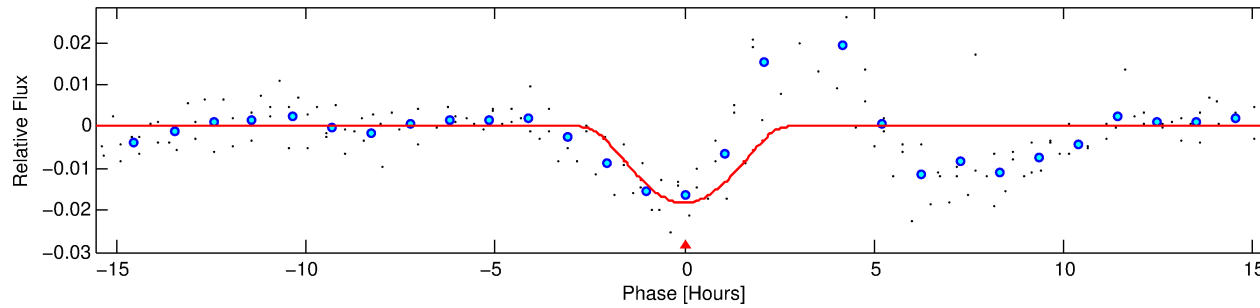
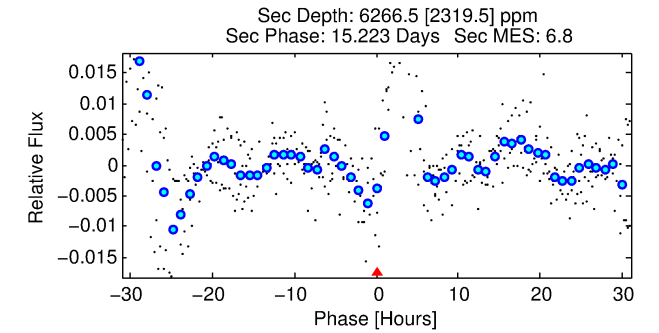
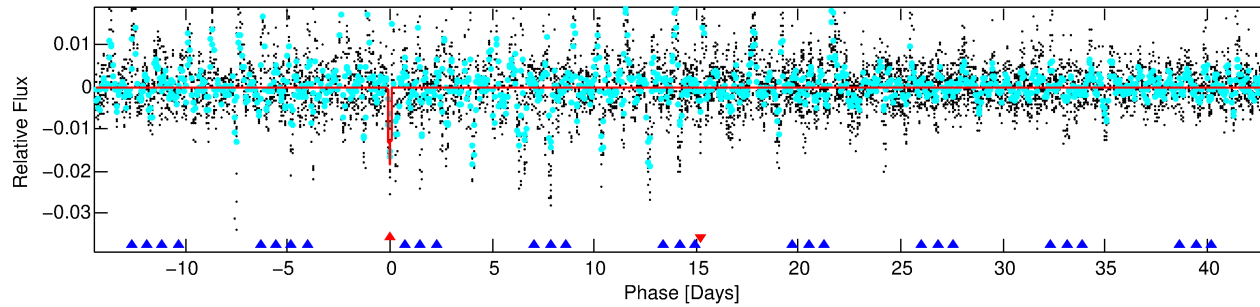
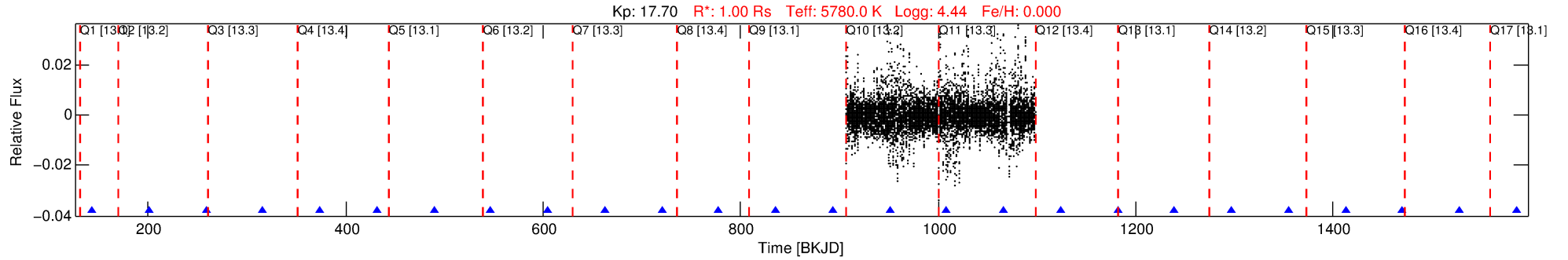
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008561418-01

No Significant Match Found

DV One-Page Summary

KIC: 8561418 Candidate: 1 of 2 Period: 57.693 d



DV Fit Results:

Period = 57.69264 [0.00708] d
Epoch = 143.3949 [0.1063] BKJD
Rp/R* = 0.2196 [0.9043]
a/R* = 59.39 [26.67]
b = 1.00 [1.19]
Seff = 11.71 [0.00]
Teq = 472 [0] K
Rp = 23.97 [98.68] Re
a = 0.2923 [0.0000] AU
Ag = 512.70 [4226.49] [0.12σ]
Teffp = 3470 [7152] K [0.42σ]

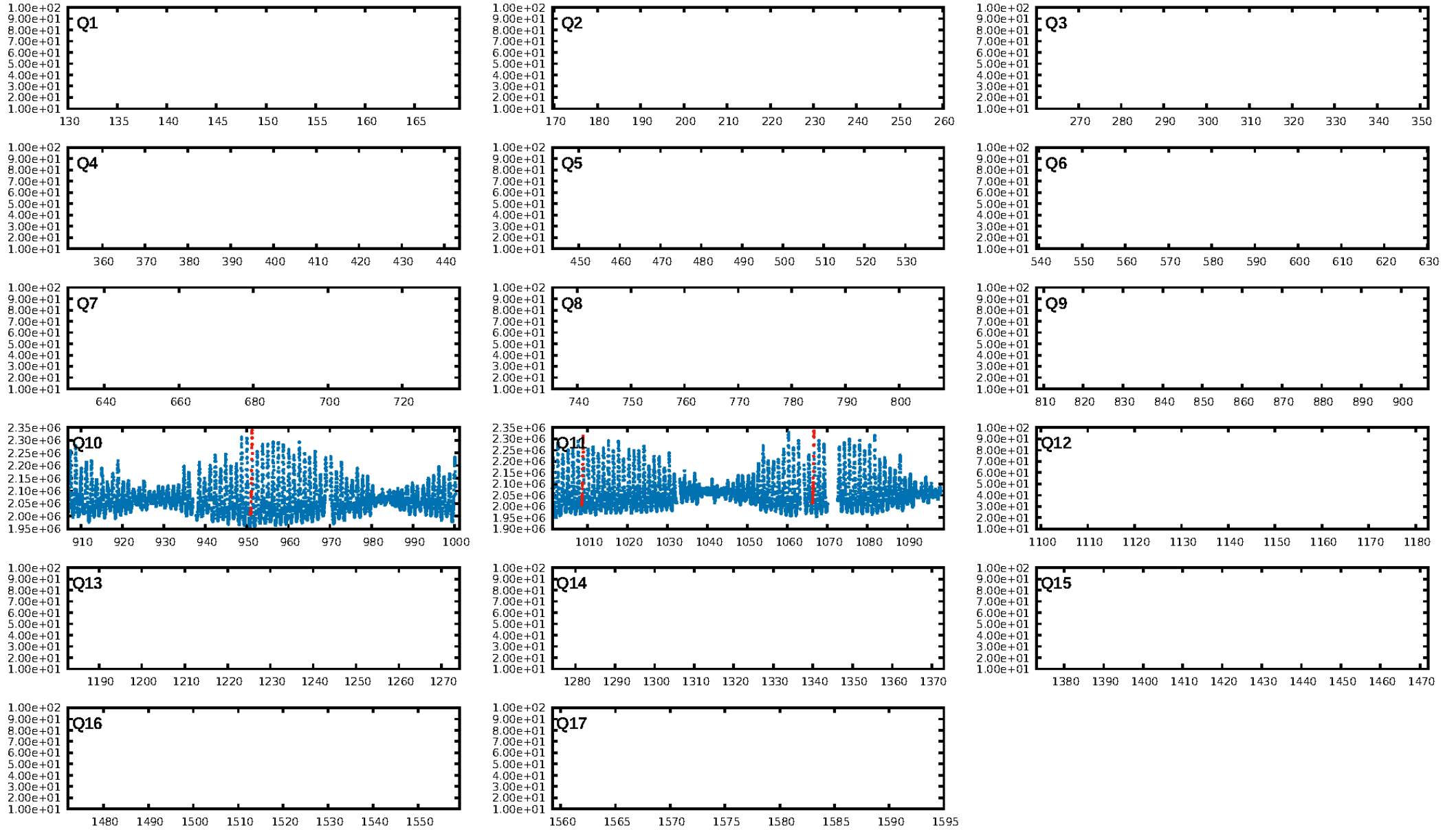
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [18.16σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 23.4%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 7.63e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.5971
Centroid-sig: 8.4%
Centroid-so: 0.860 arcsec [1.61σ]
OotOffset-rm: 0.101 arcsec [1.03σ]
KicOffset-rm: 0.273 arcsec [2.85σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

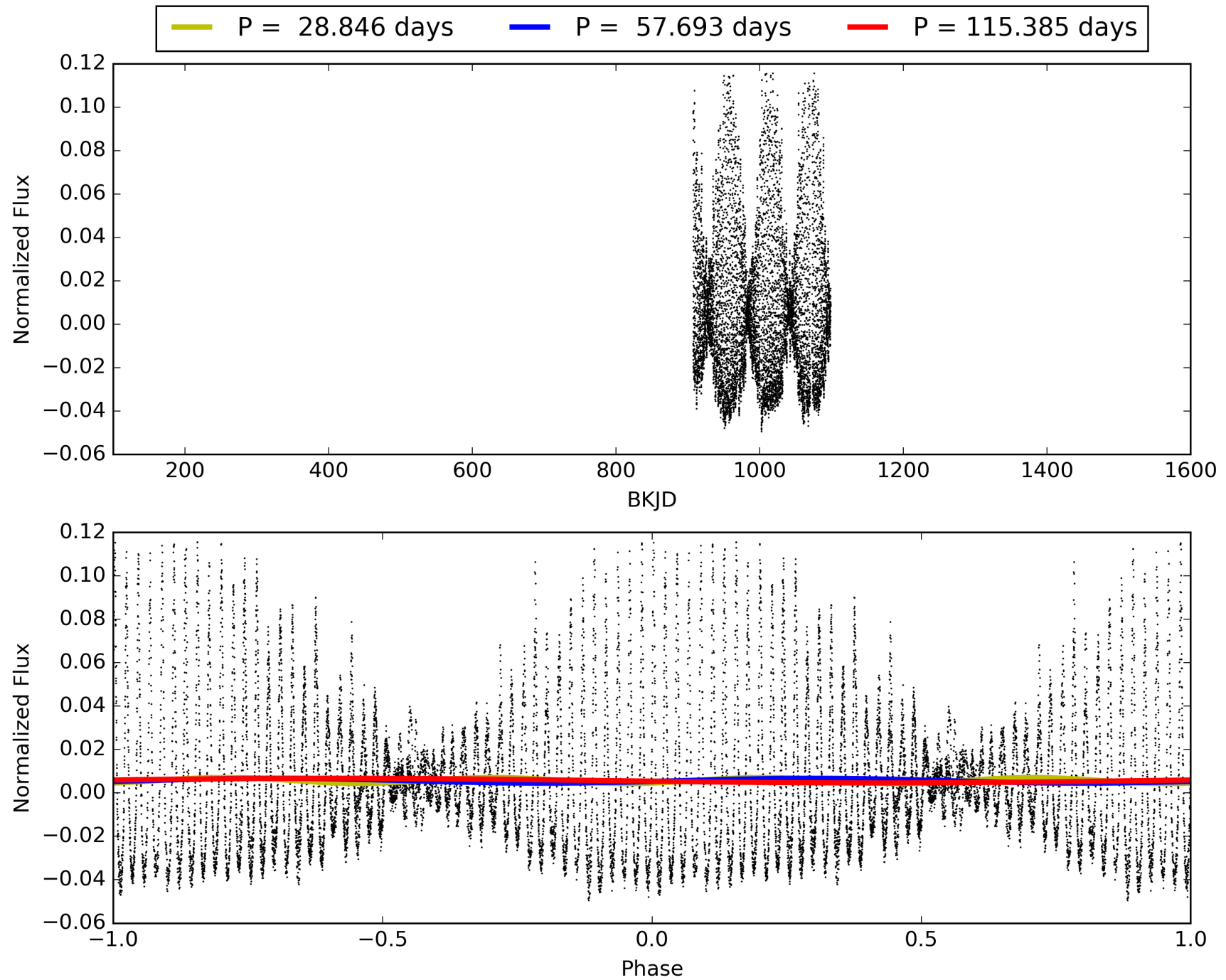
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:56:38 Z

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

TCE 008561418-01, PDC Light Curves

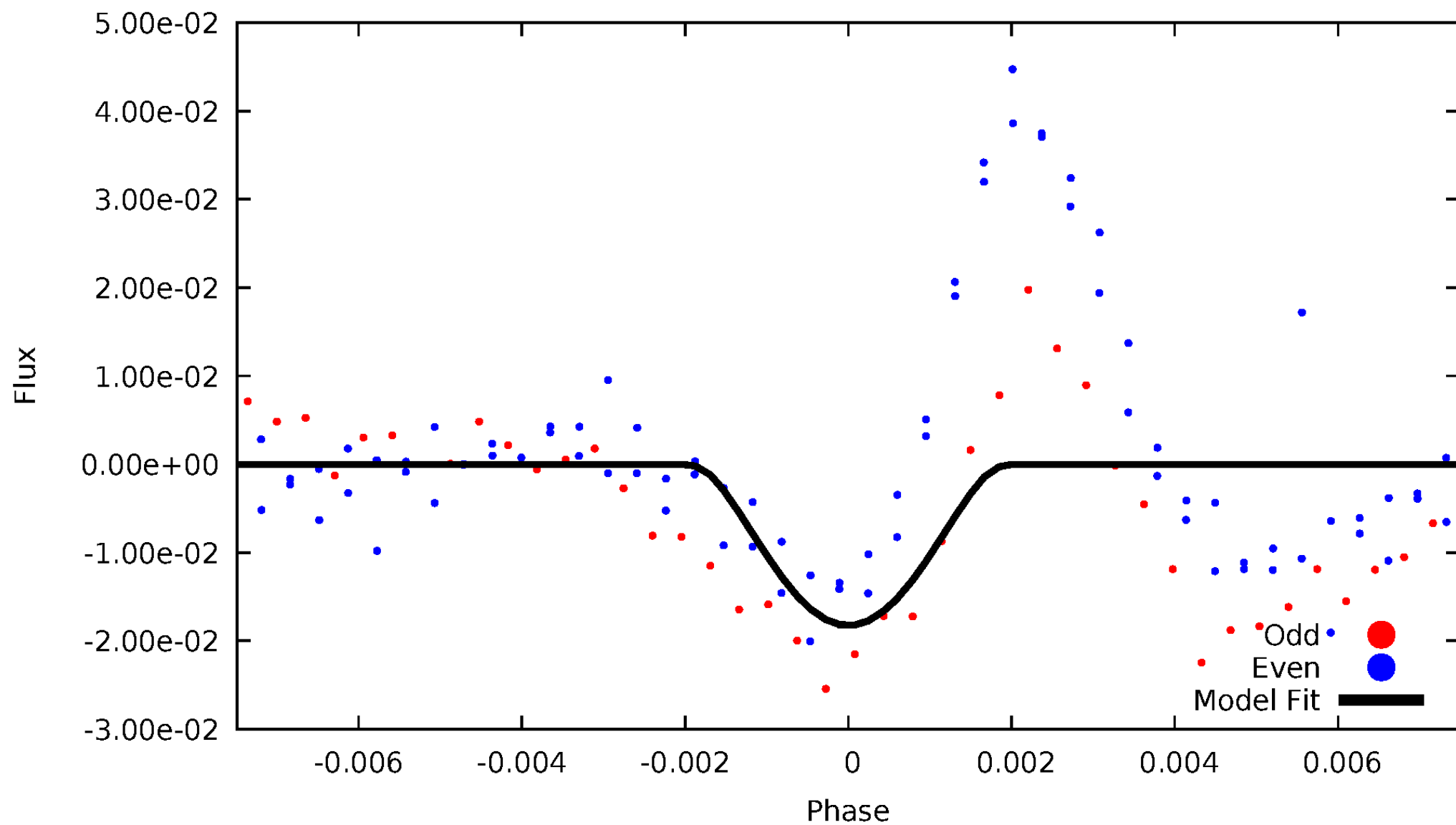


TCE 008561418-01



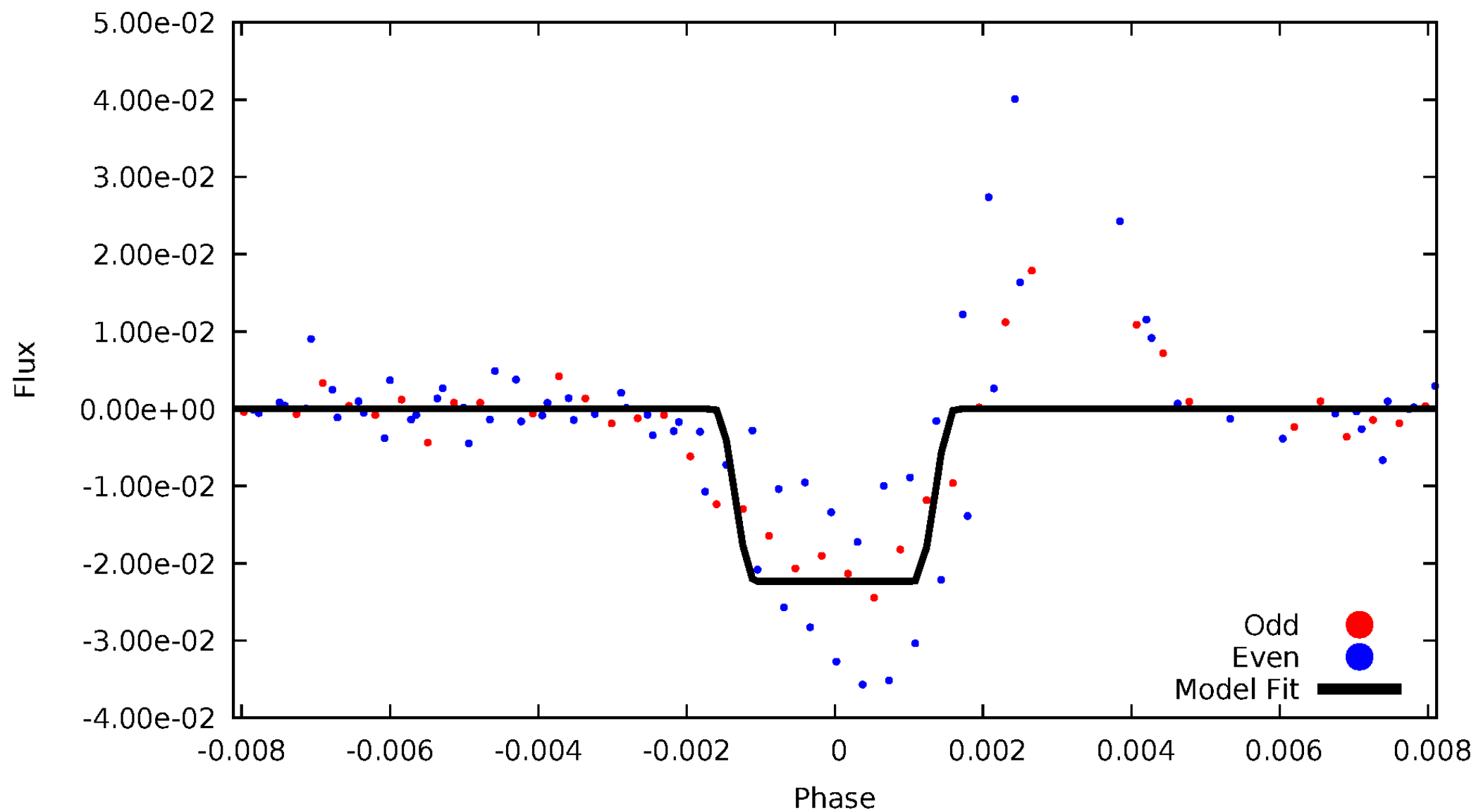
DV Odd/Even

TCE 008561418-01



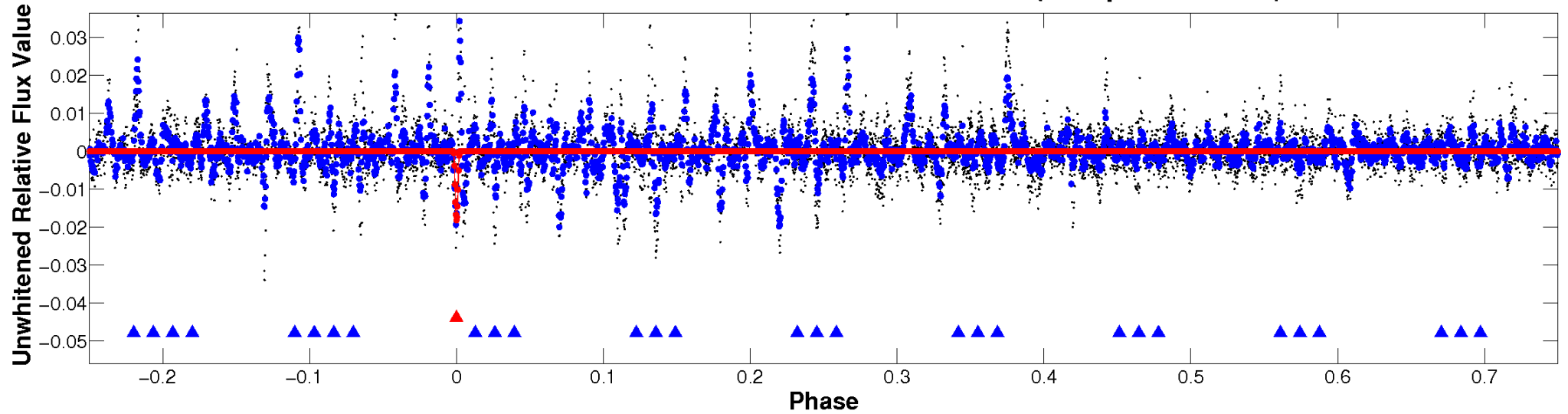
ALT Odd/Even

TCE 008561418-01

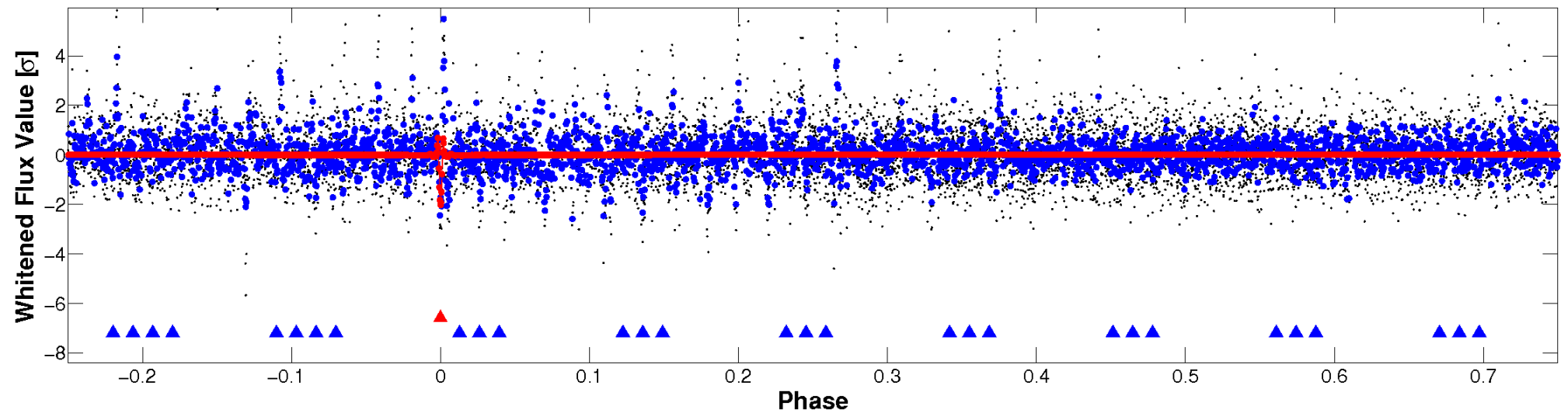


Non-Whitened Vs. Whitened Light Curve

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

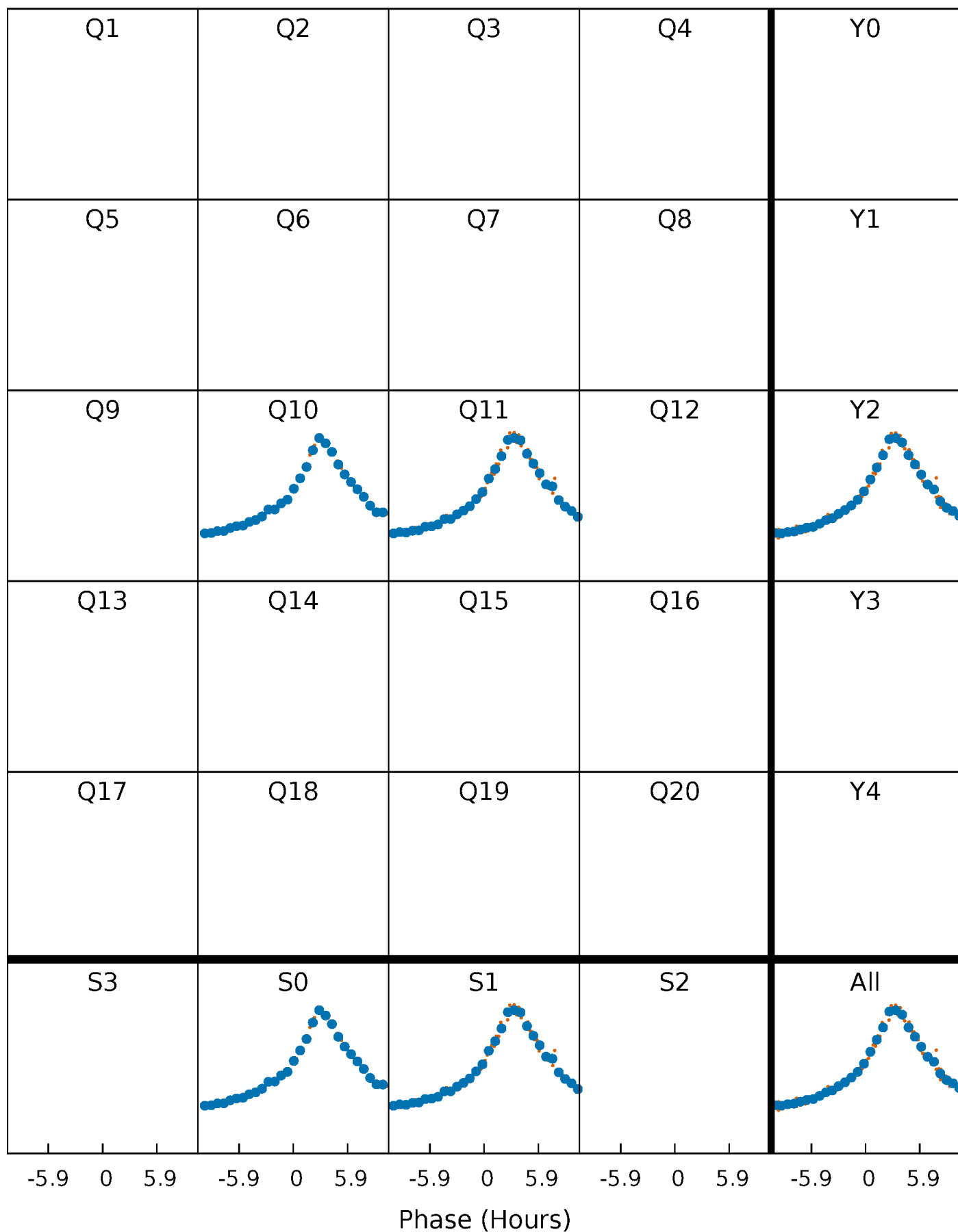


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



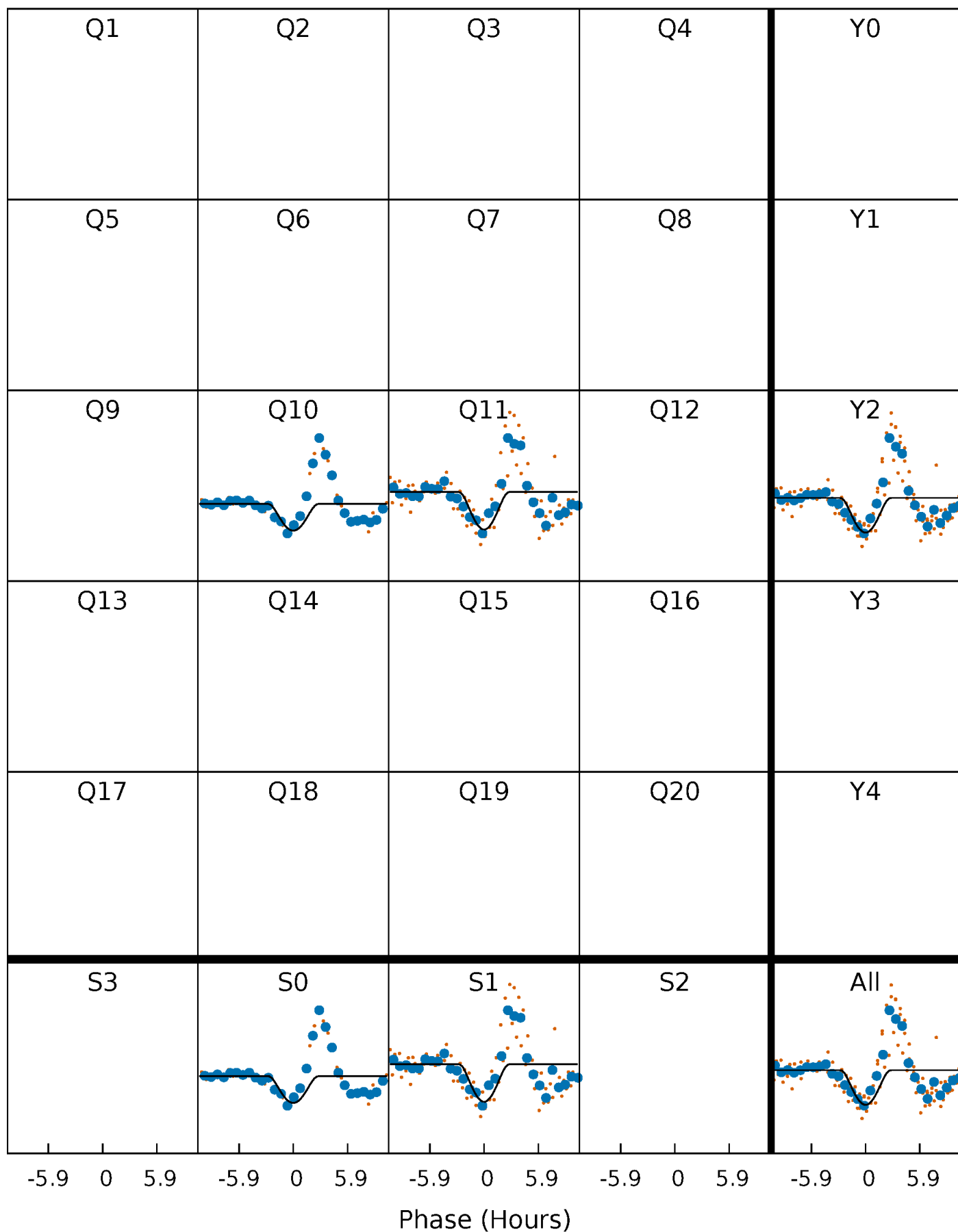
PDC Quarter-Phased Transit Curves

TCE 008561418-01 P= 57.692644 Days $T_0=143.394895$ (BKJD)



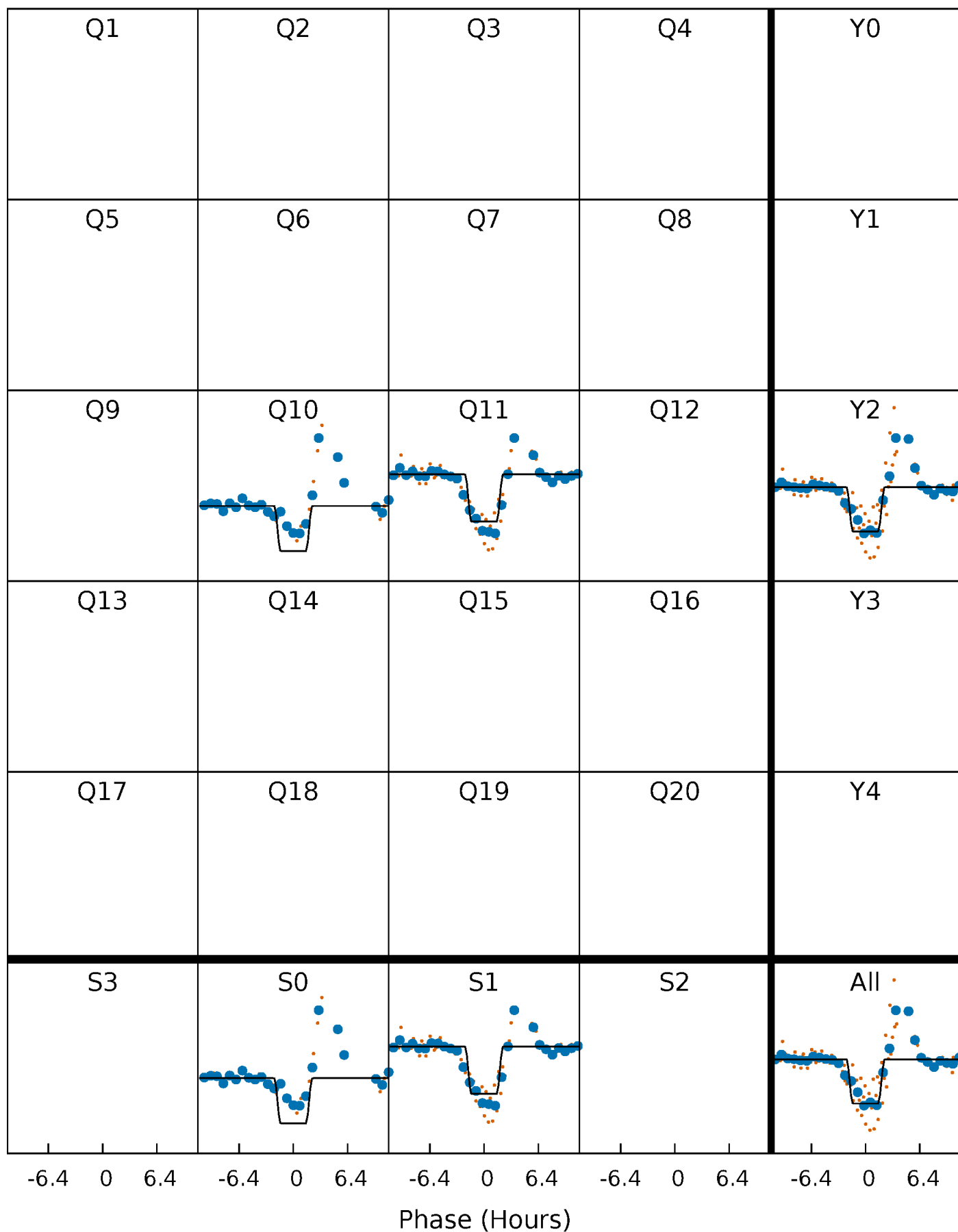
DV Quarter-Phased Transit Curves

TCE 008561418-01 P= 57.692644 Days $T_0=143.394895$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

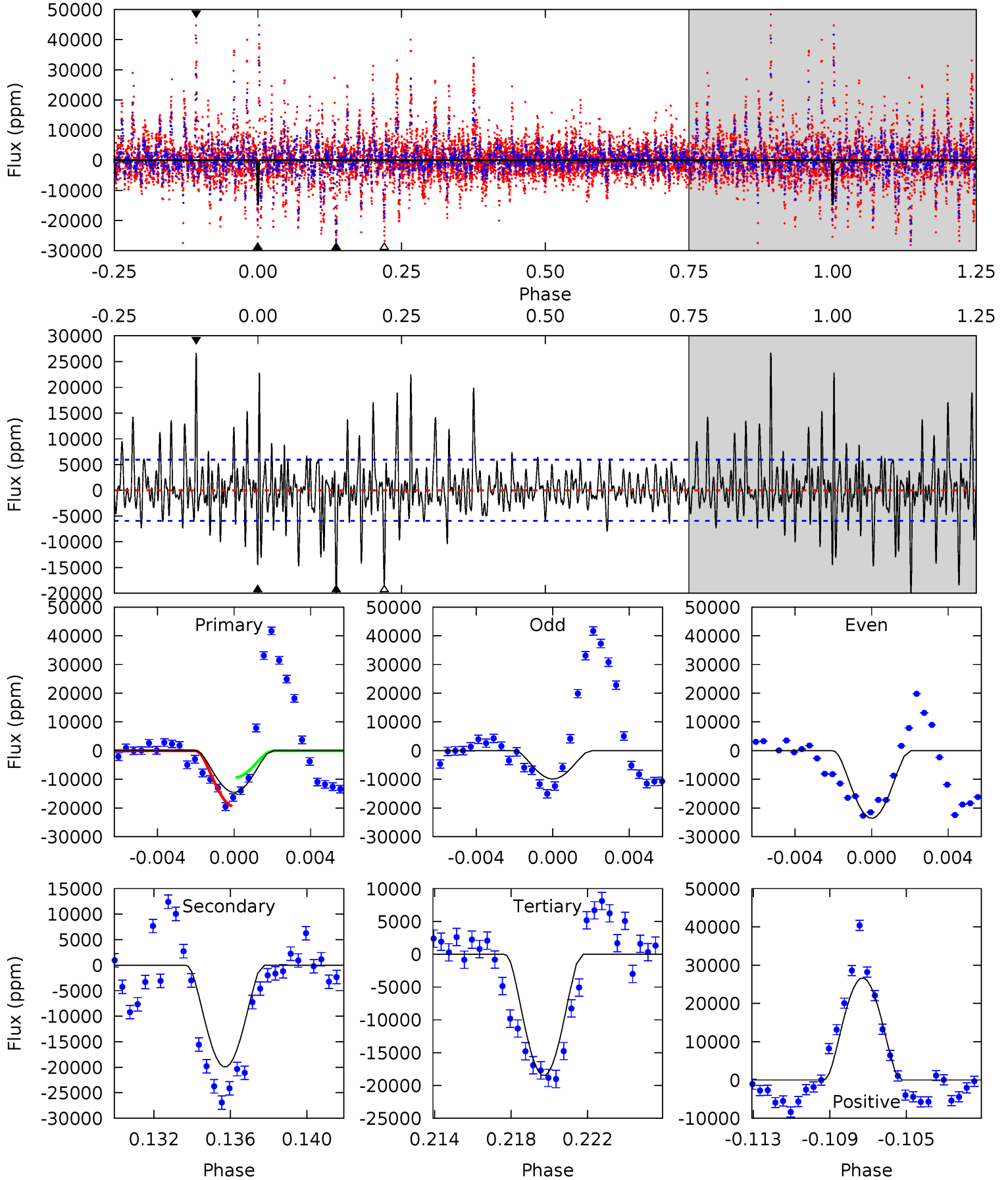
TCE 008561418-01 P= 57.690734 Days $T_0=143.377197$ (BKJD)



DV Model-Shift Uniqueness Test

008561418-01, P = 57.692644 Days, E = 143.394895 Days

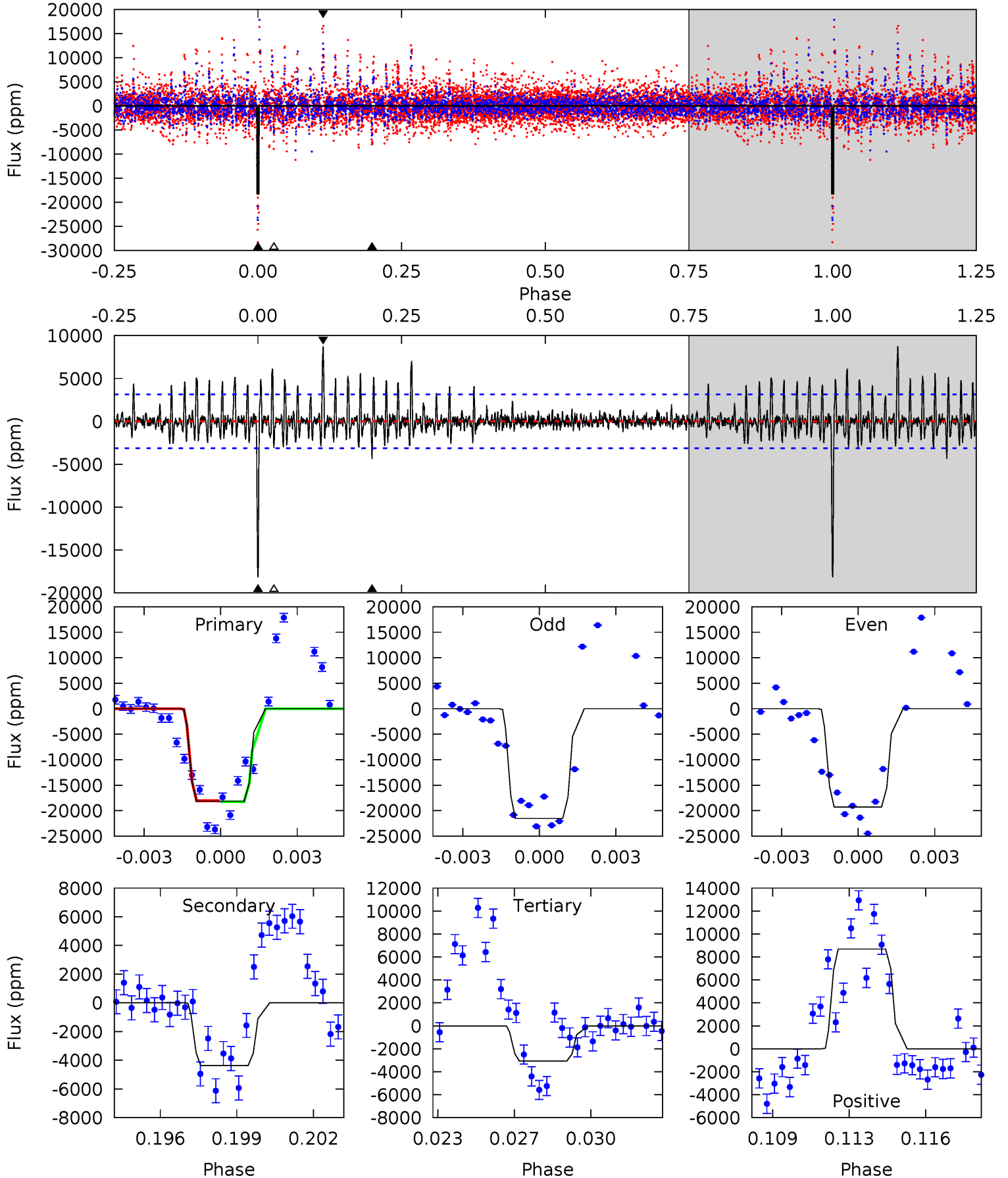
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	17.5	16.2	23.3	5.20	2.89	3.75	-3.47	-10.6	1.28	-5.86	5.80	1.19	0.57	4.41



Alt Model-Shift Uniqueness Test

008561418-01, $P = 57.690734$ Days, $E = 143.377197$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.2	7.29	5.11	14.5	5.23	2.94	1.86	25.1	15.8	2.17	-7.18	2.05	1.04	0.32	0.17



Stellar Parameters For KIC 008561418

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 008561418-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-19917 ± 1140	$81.05^{+74.72}_{-55.14}$	657^{+30}_{-31}	3153^{+1449}_{-543}	142^{+1234}_{-103}
Alt.	-4374 ± 600	$70.37^{+77.61}_{-47.64}$	659^{+33}_{-29}	2652^{+1006}_{-446}	42^{+346}_{-33}

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

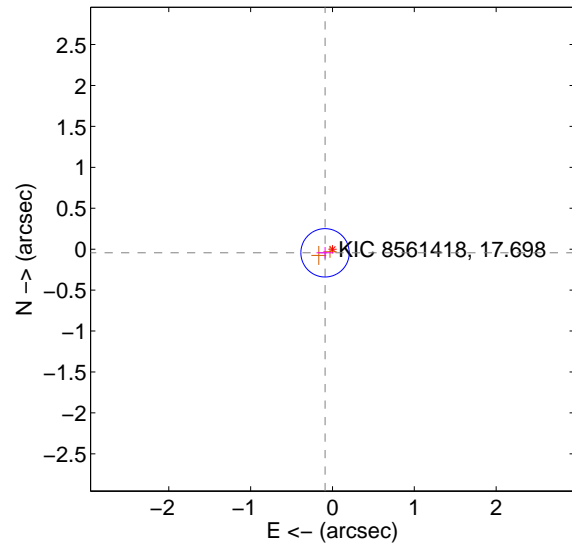
Supplemental centroid analysis for 008561418-01. Kepler magnitude: 17.70. Transit SNR 7.02

There are 0 quarters with good PRF difference image offsets

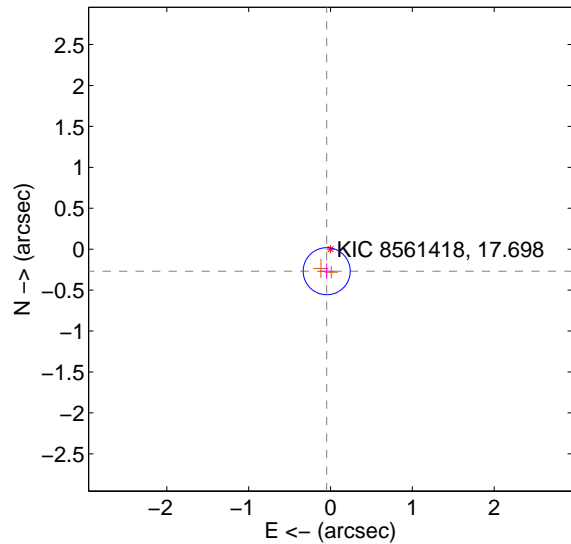
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.101 ± 0.098	1.03	0.091 ± 0.104	-0.045 ± 0.071
PRF-fit source offset from KIC position	0.273 ± 0.096	2.85	0.047 ± 0.090	-0.269 ± 0.096
photometric centroid source offset	0.86 ± 0.53	1.61	-0.83 ± 0.52	-0.23 ± 0.66

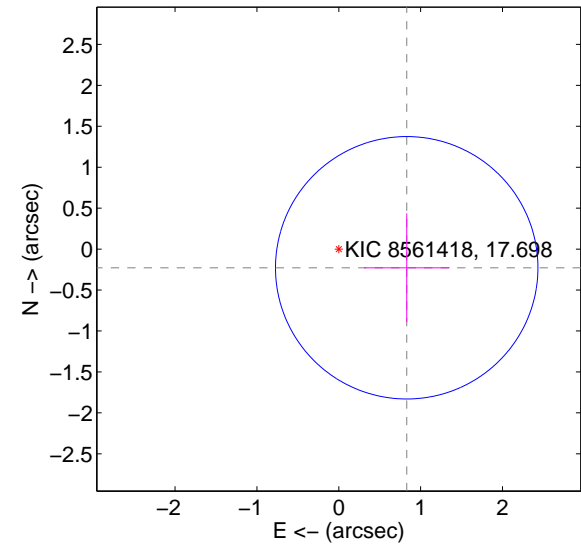
offset from difference PRF-fit to OOT PRF-fit



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.

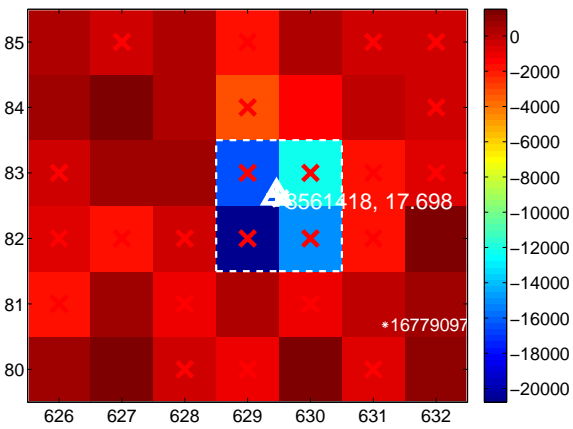
Q9 no difference image



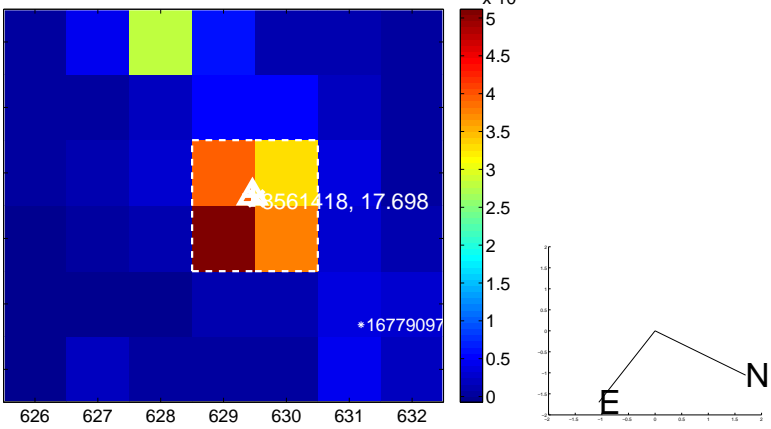
Q9 no OOT image



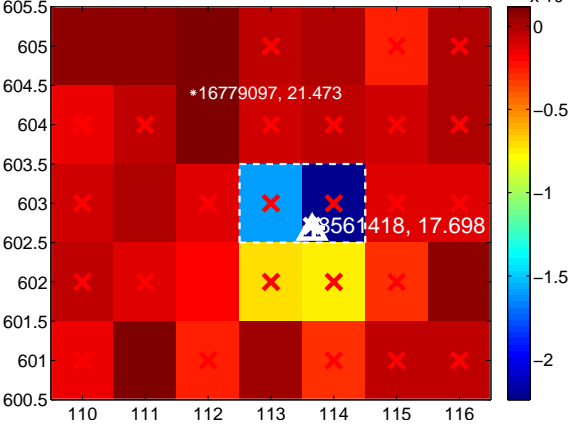
Q10 difference image. Poor Quality



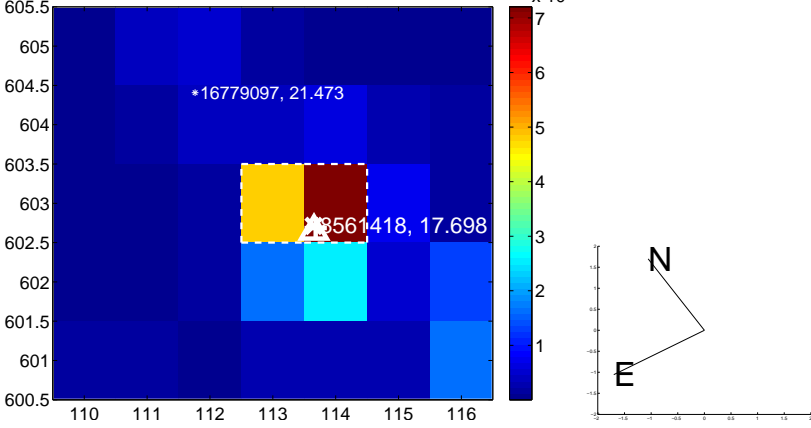
Q10 OOT image



Q11 difference image. Poor Quality



Q11 OOT image



Q12 no difference image



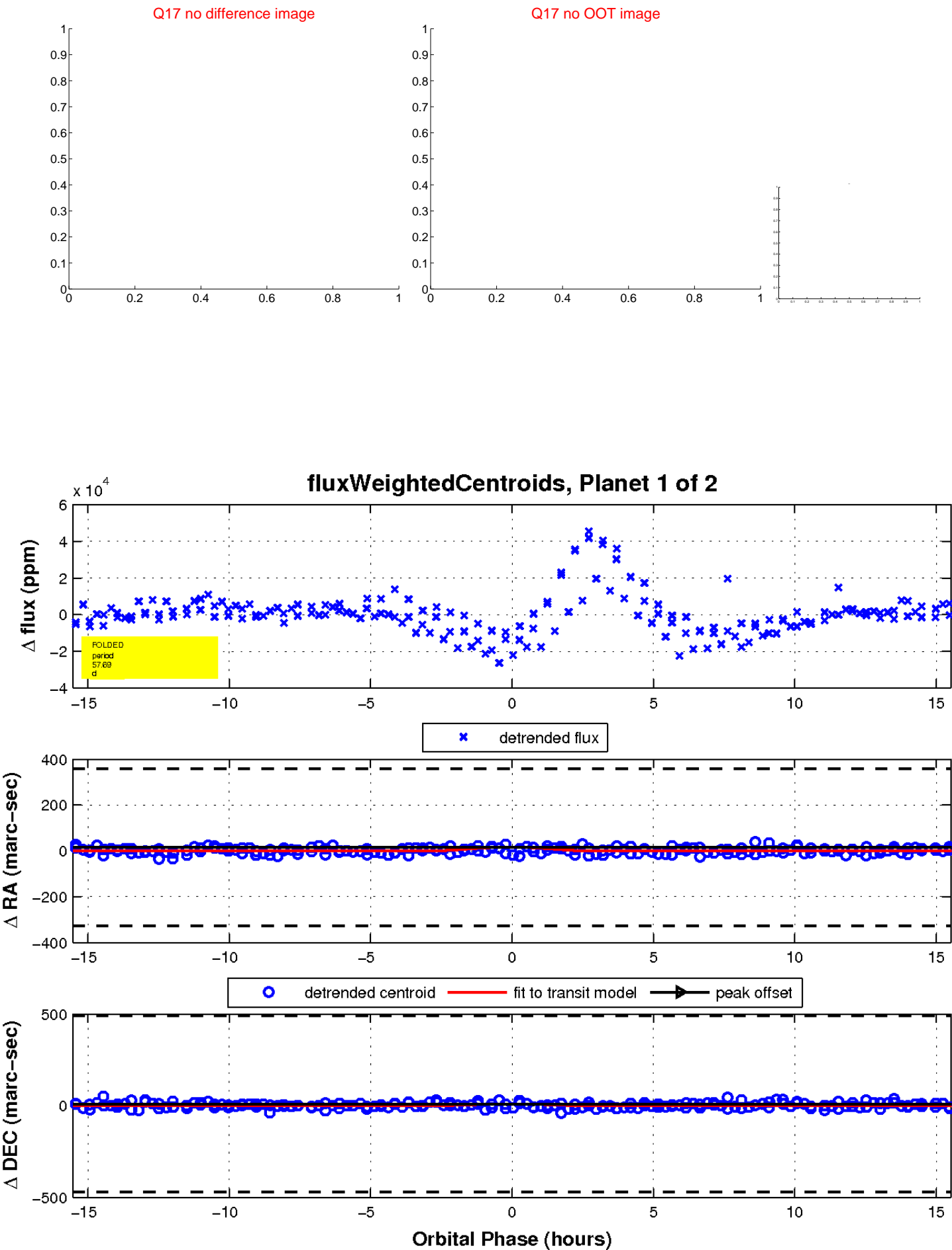
Q12 no OOT image



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

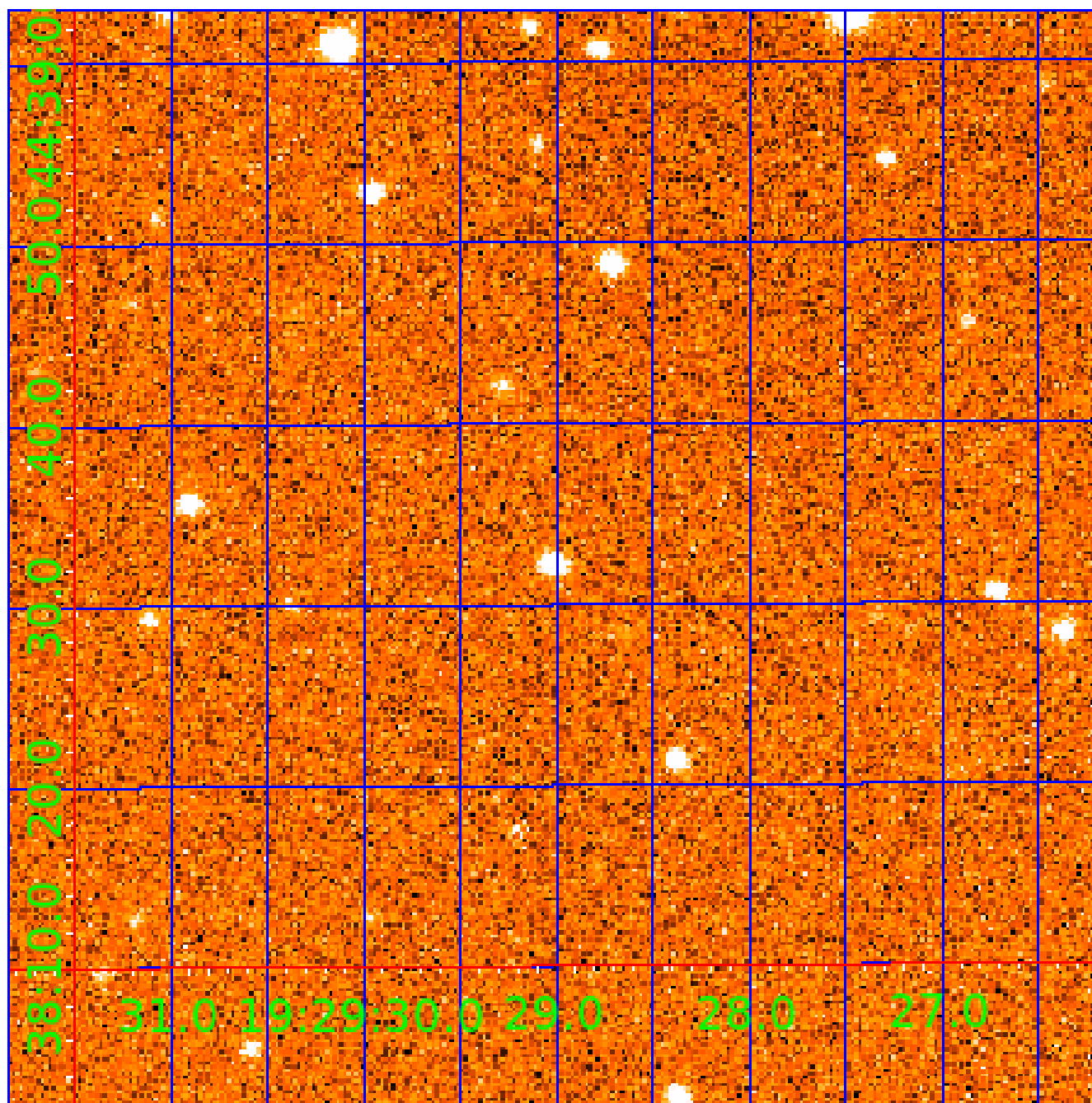


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008561418

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})
008561418-01	OBS	No	57.692644	143.394895	18249.7	5.184	8.5	7.0	1.00	5780	23.97	11.71
008561418-02	OBS	No	51.367674	137.042263	21458.6	6.558	8.4	9.6	1.00	5780	17.48	13.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008561418-01	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008561418-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

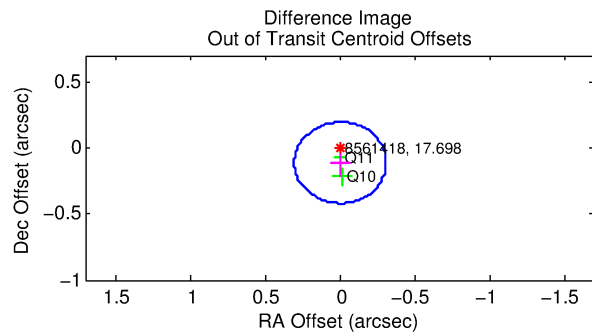
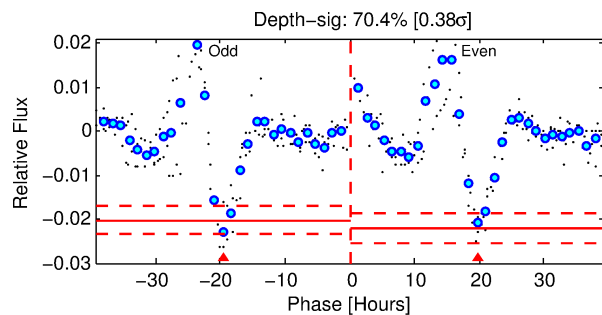
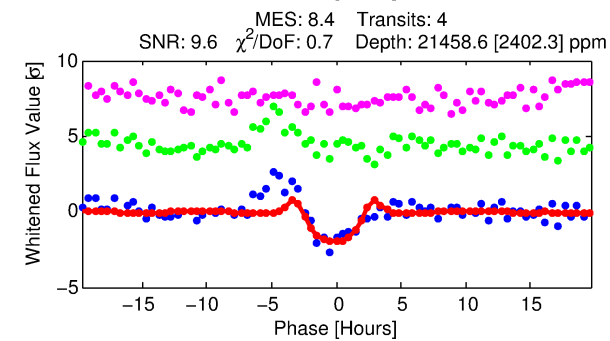
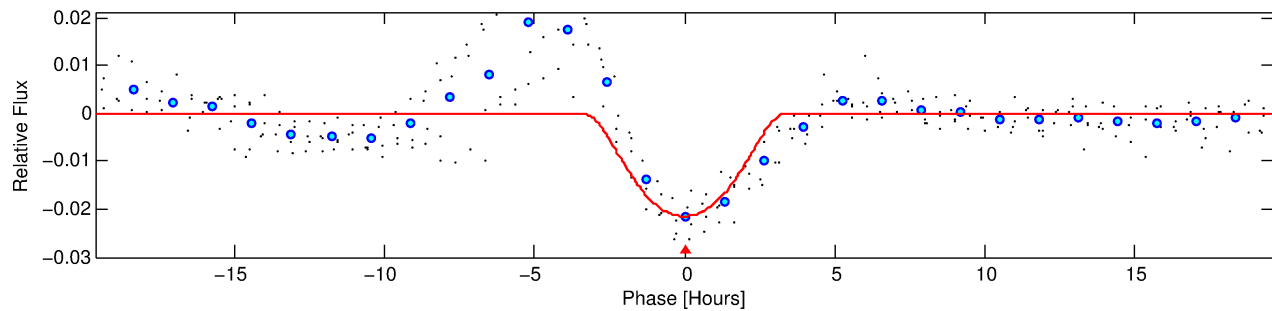
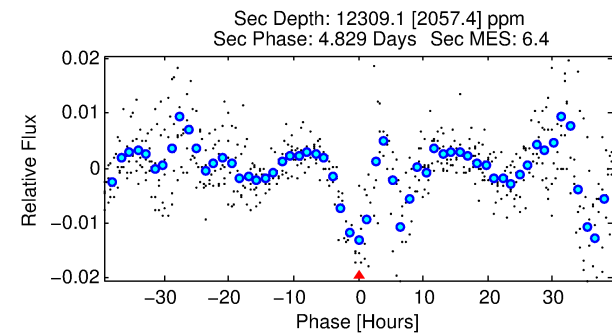
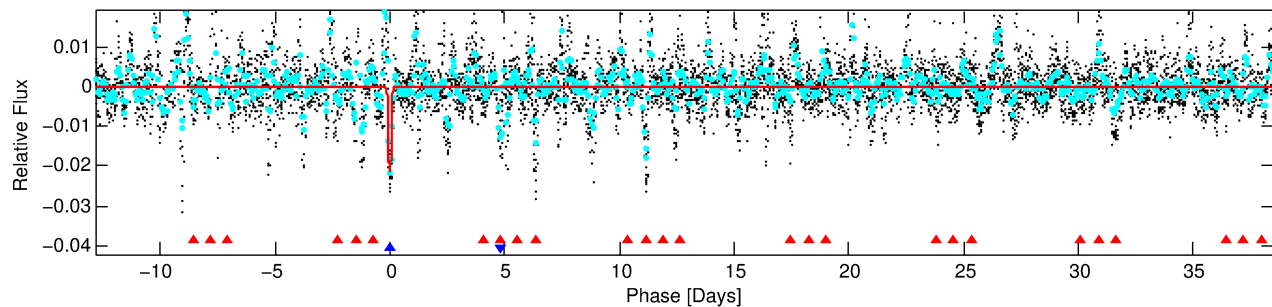
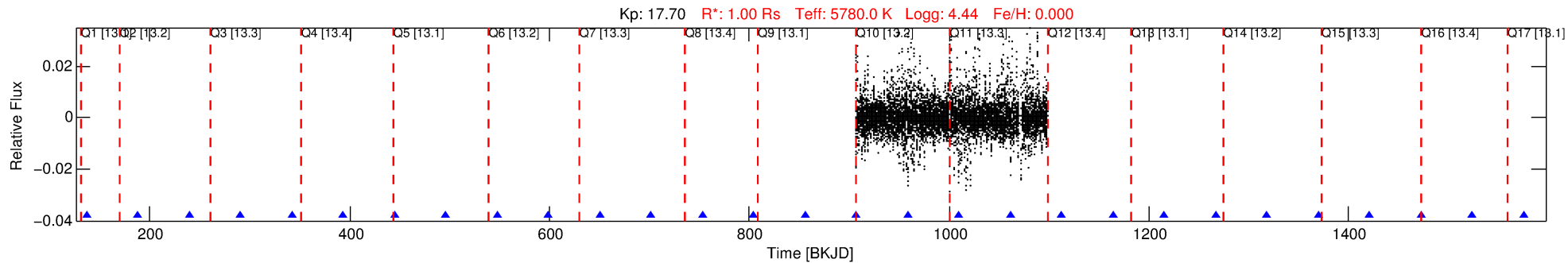
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008561418-02

No Significant Match Found

DV One-Page Summary

KIC: 8561418 Candidate: 2 of 2 Period: 51.368 d



DV Fit Results:

Period = 51.36767 [0.00404] d
Epoch = 137.0423 [0.0669] BKJD
Rp/R* = 0.1602 [0.0284]
a/R* = 46.36 [4.77]
b = 0.86 [0.07]
Seff = 13.67 [0.00]
Teq = 490 [0] K
Rp = 17.48 [3.10] Re
a = 0.2705 [0.0000] AU
Ag = 1620.69 [634.80] [2.55σ]
Teffp = 4810 [471] K [9.17σ]

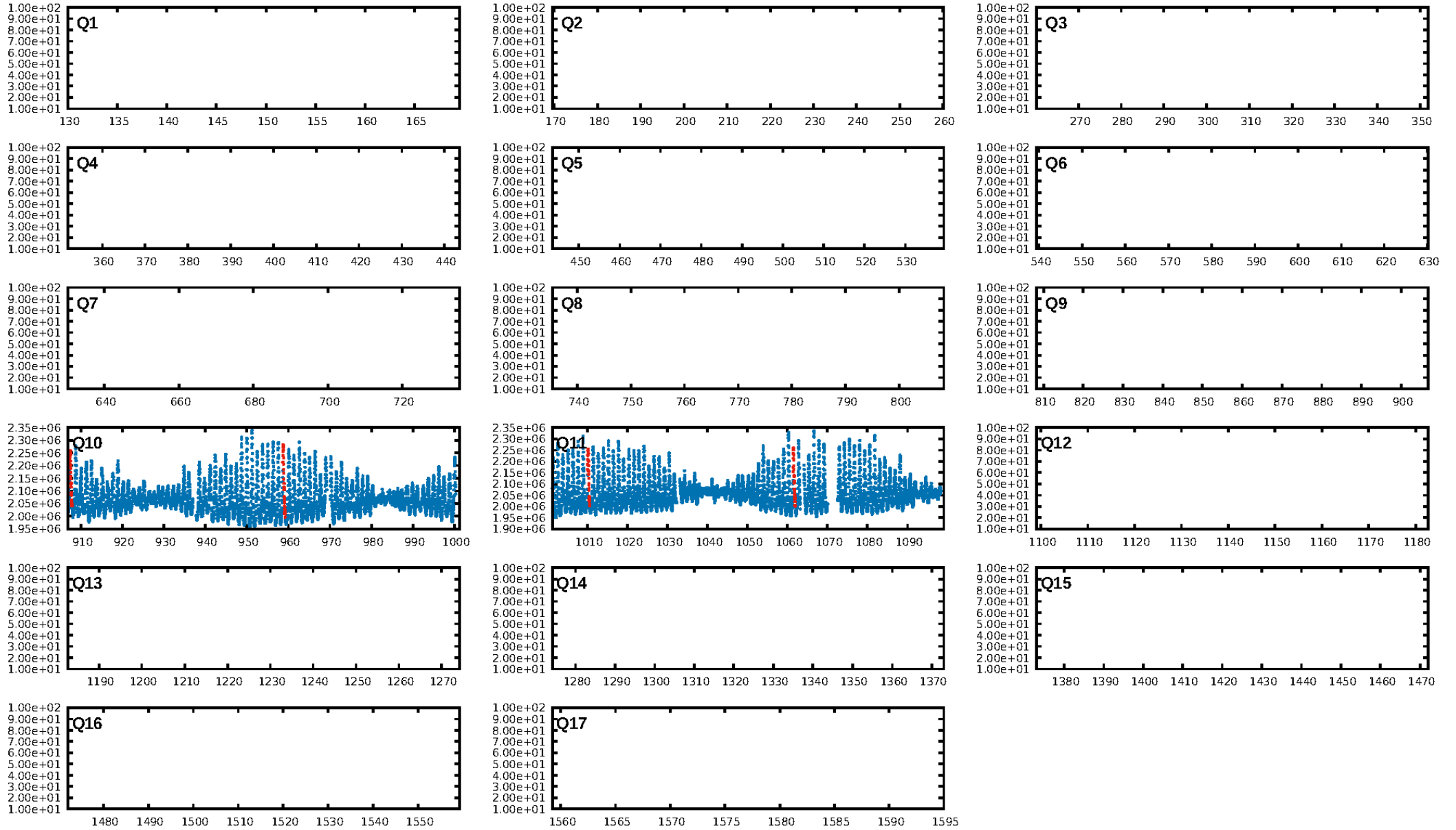
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [18.16σ]
ModelChiSquare2-sig: 42.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.94e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.002
Centroid-sig: 72.8%
Centroid-so: 0.092 arcsec [0.23σ]
OotOffset-rm: 0.113 arcsec [1.10σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-rm: 0.307 arcsec [2.25σ]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

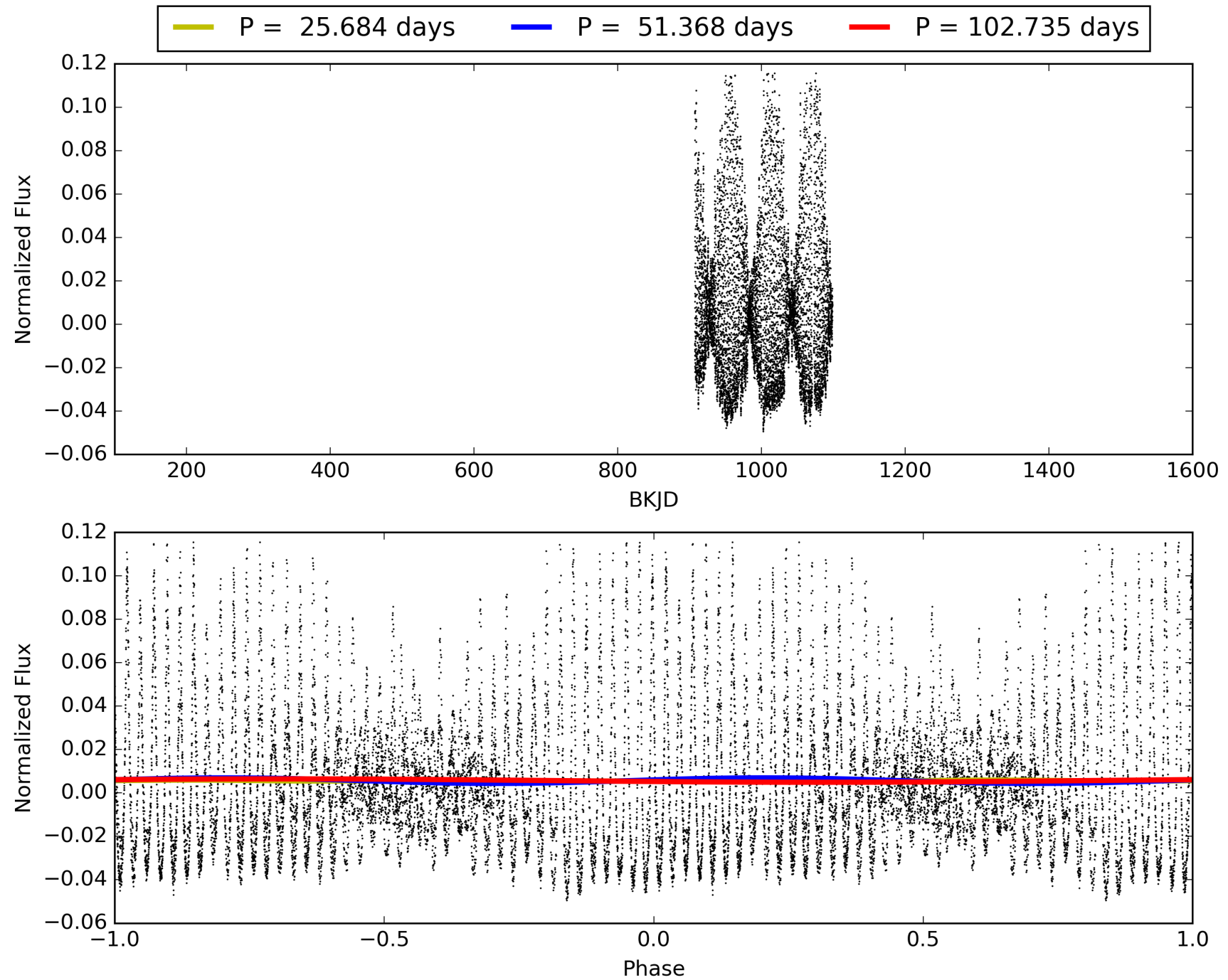
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:56:41 Z

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

TCE 008561418-02, PDC Light Curves

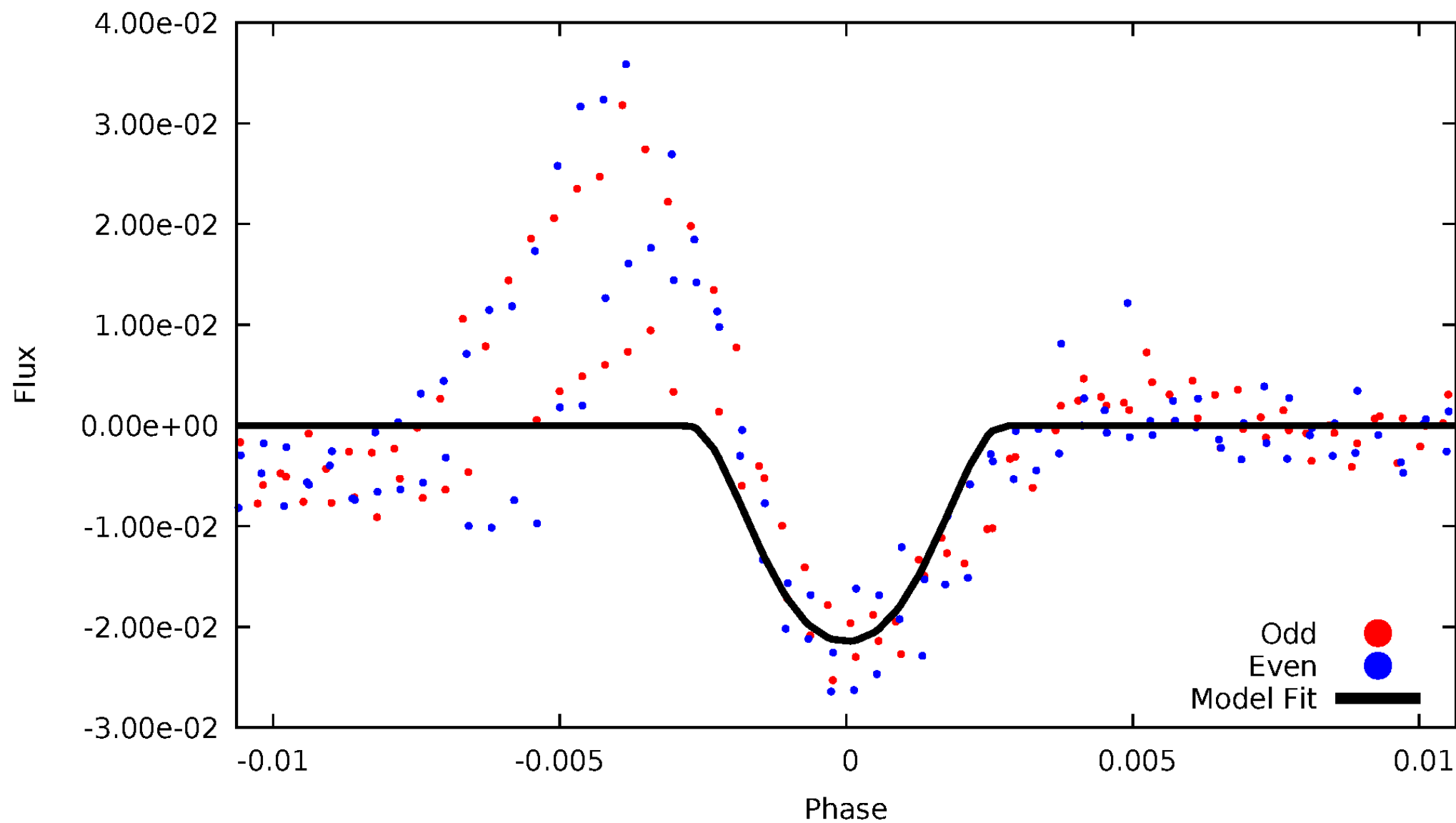


TCE 008561418-02



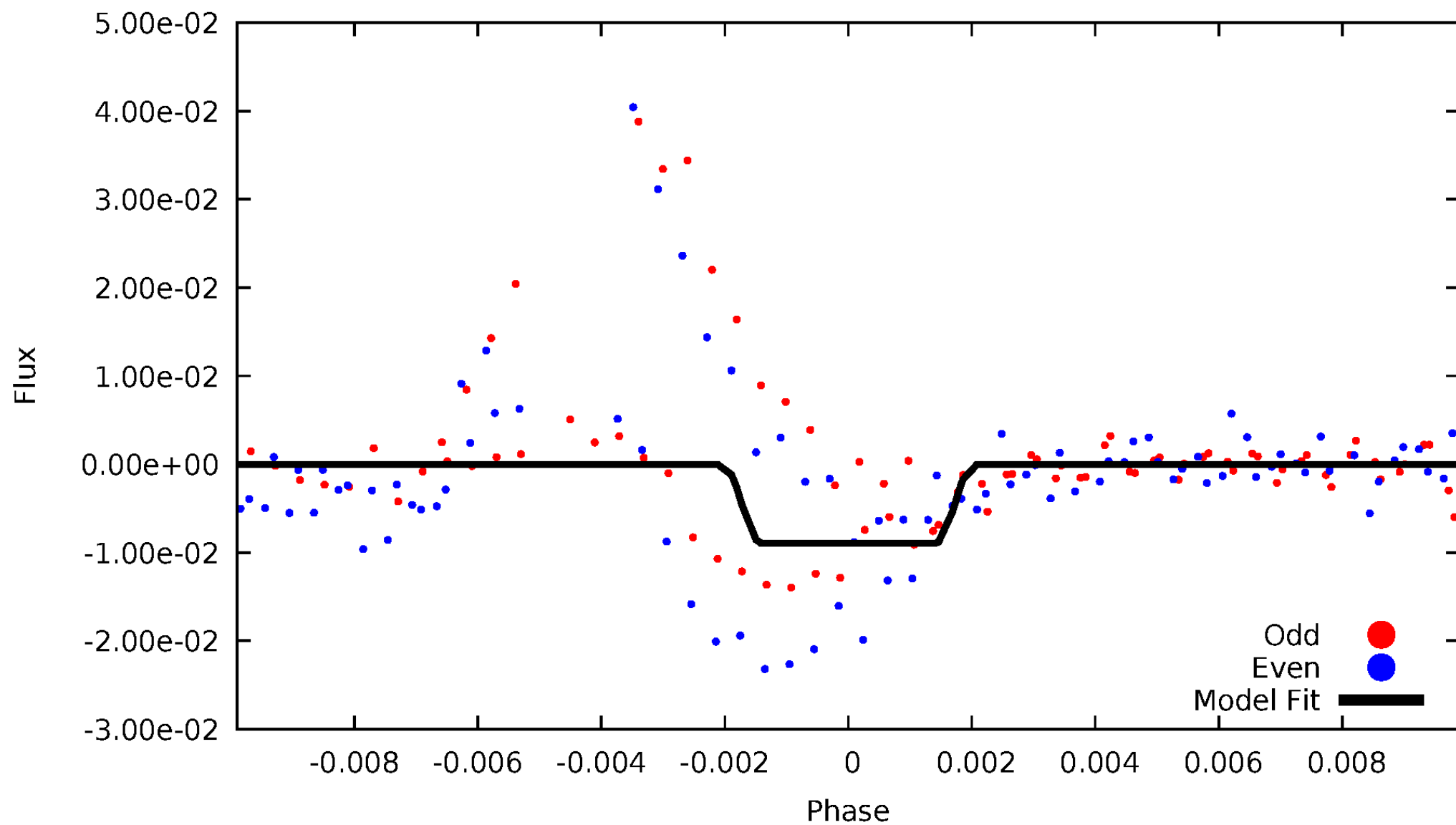
DV Odd/Even

TCE 008561418-02



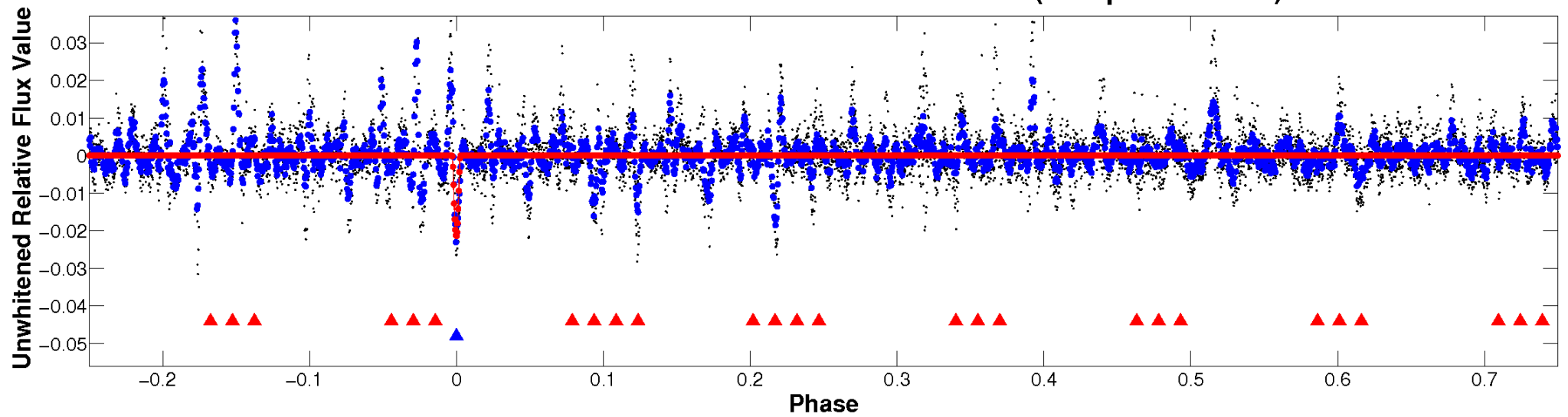
ALT Odd/Even

TCE 008561418-02

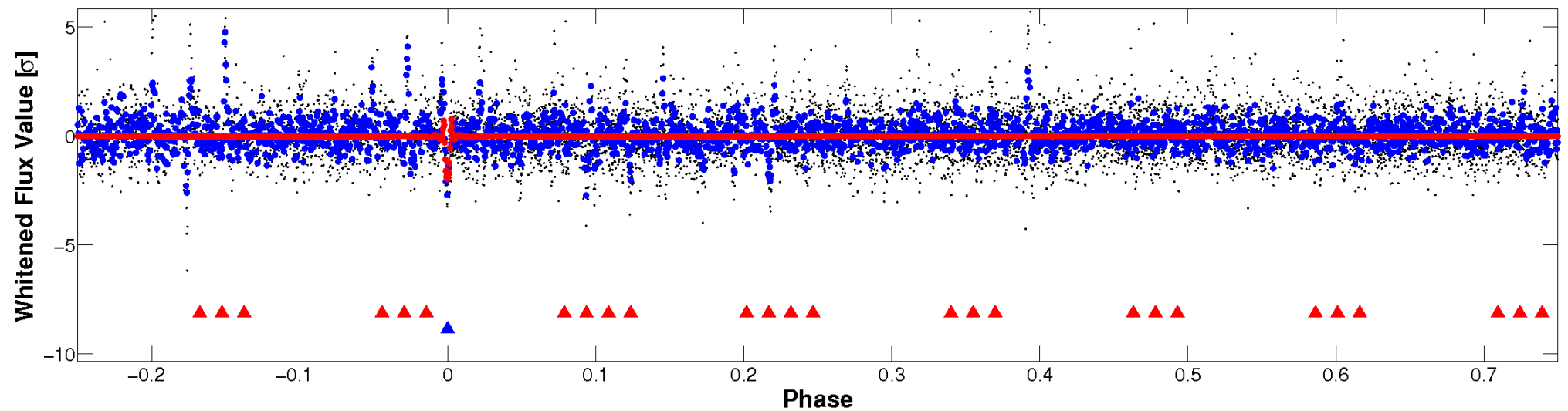


Non-Whitened Vs. Whitened Light Curve

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

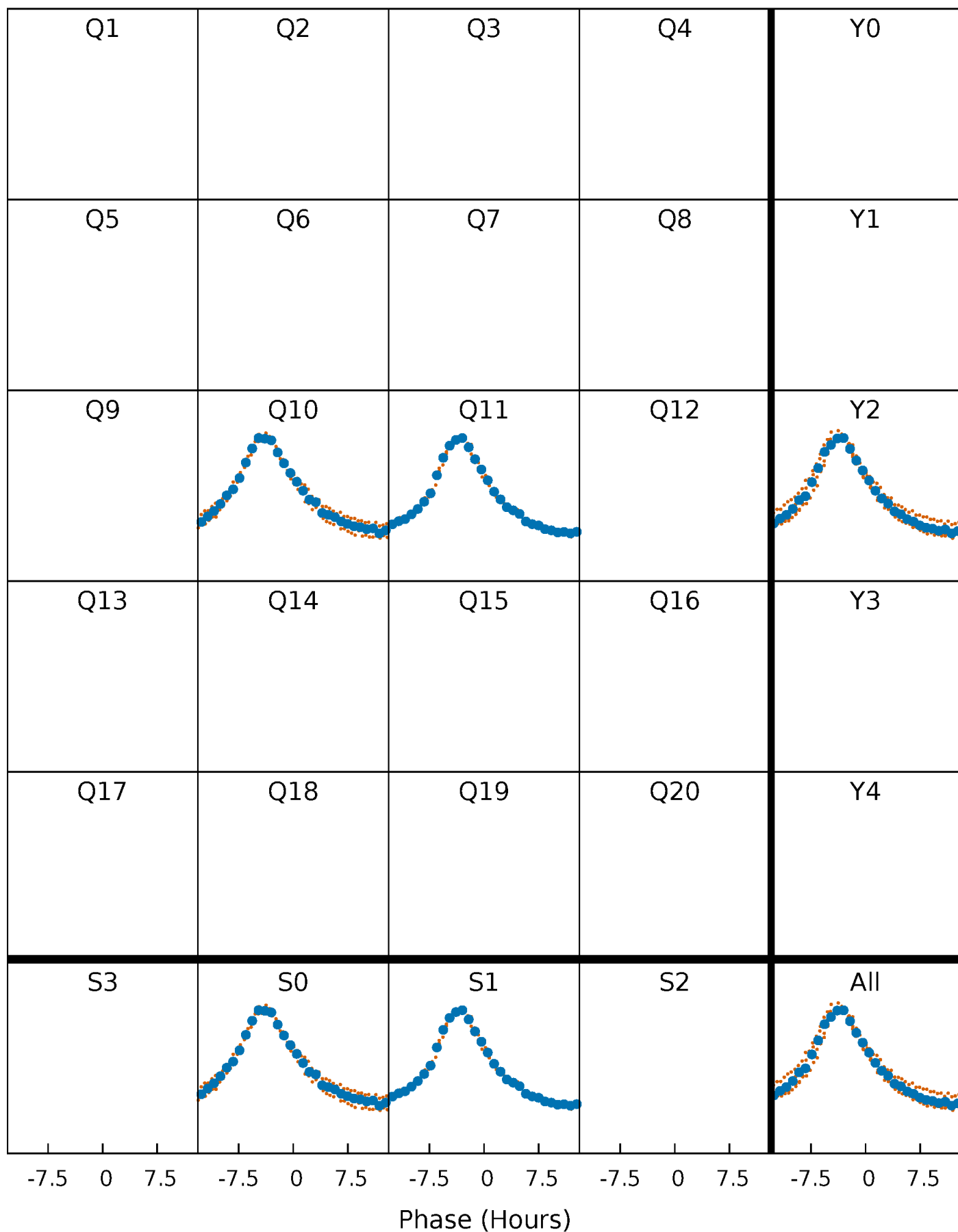


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



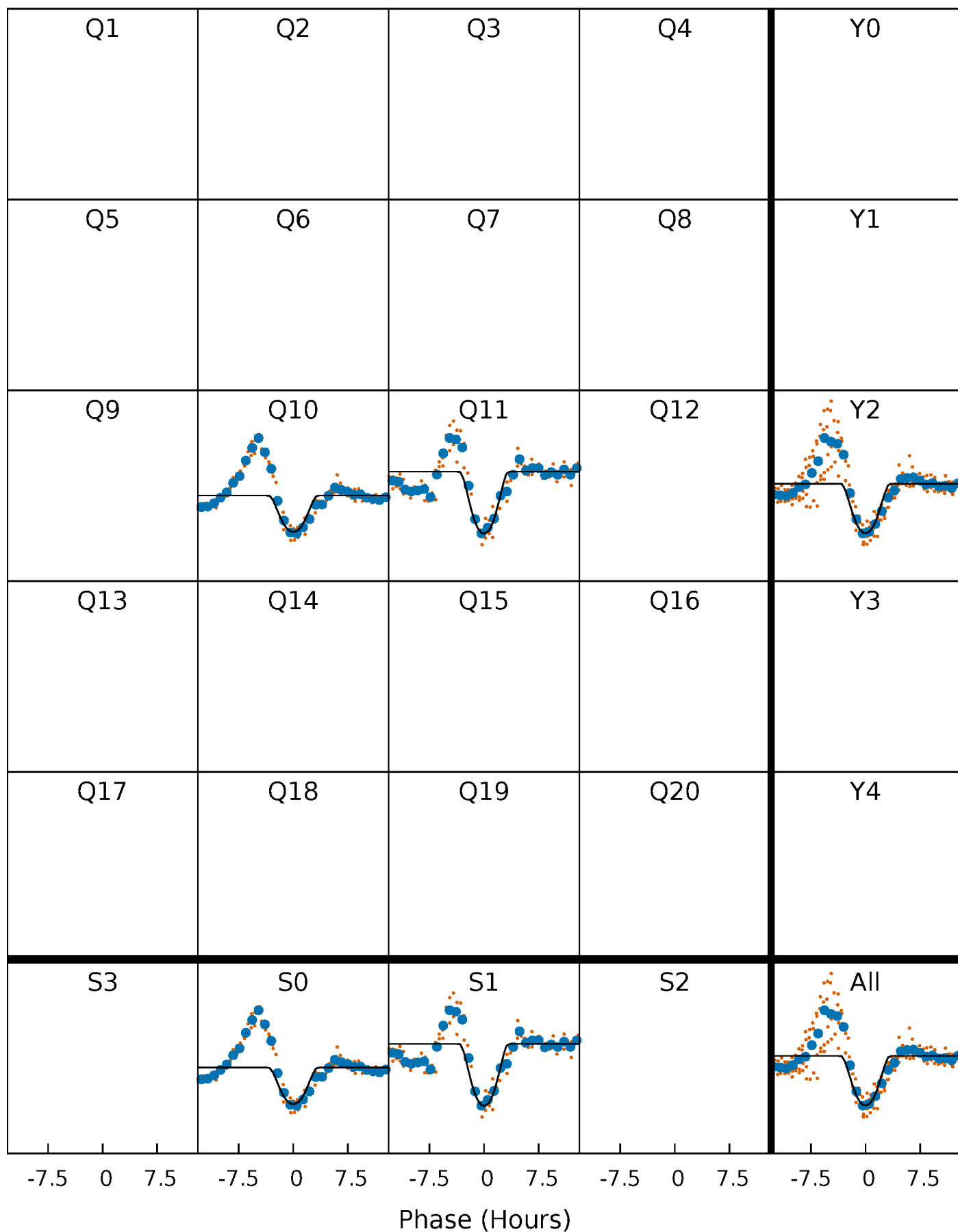
PDC Quarter-Phased Transit Curves

TCE 008561418-02 P= 51.367674 Days $T_0=137.042263$ (BKJD)



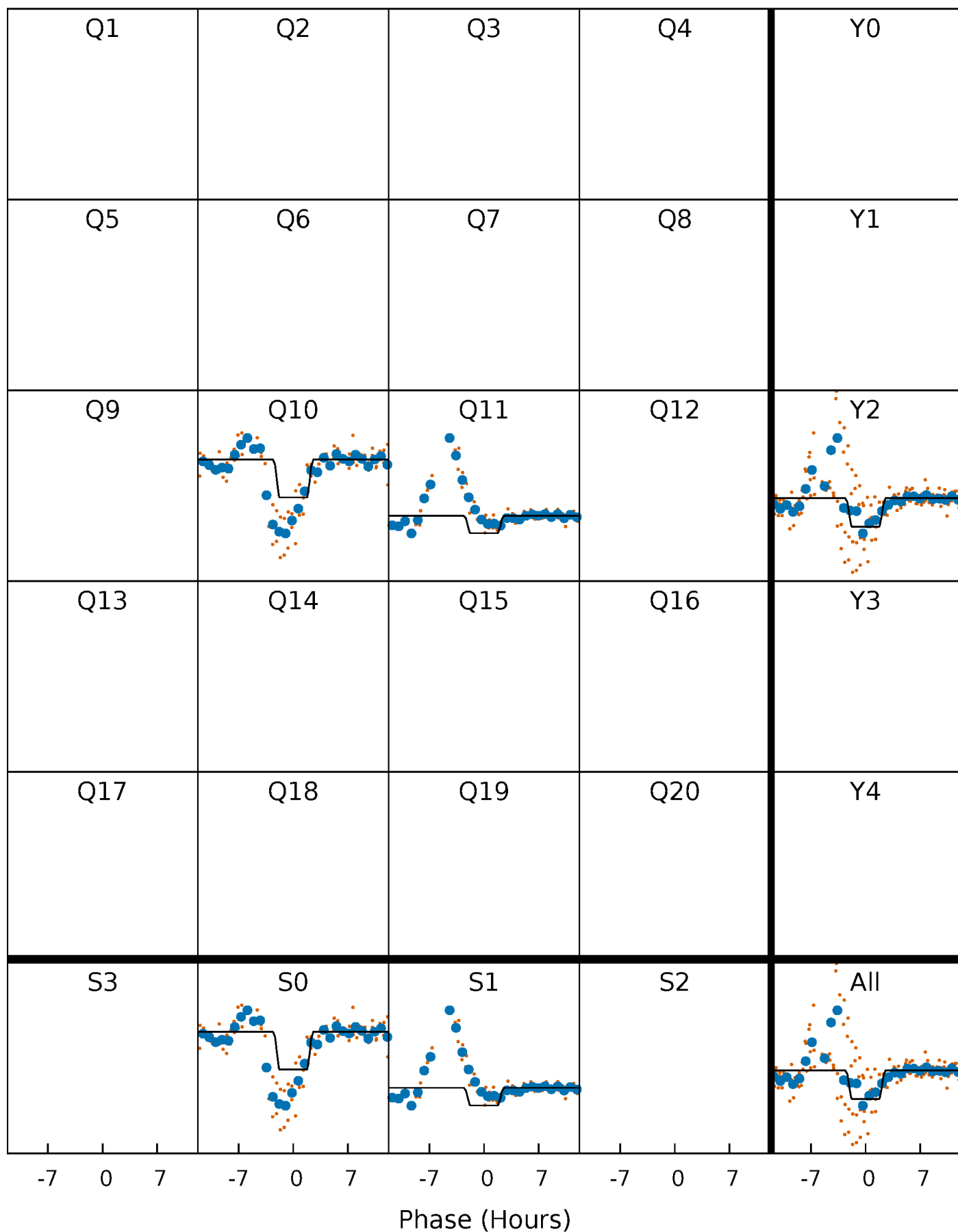
DV Quarter-Phased Transit Curves

TCE 008561418-02 P= 51.367674 Days $T_0=137.042263$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

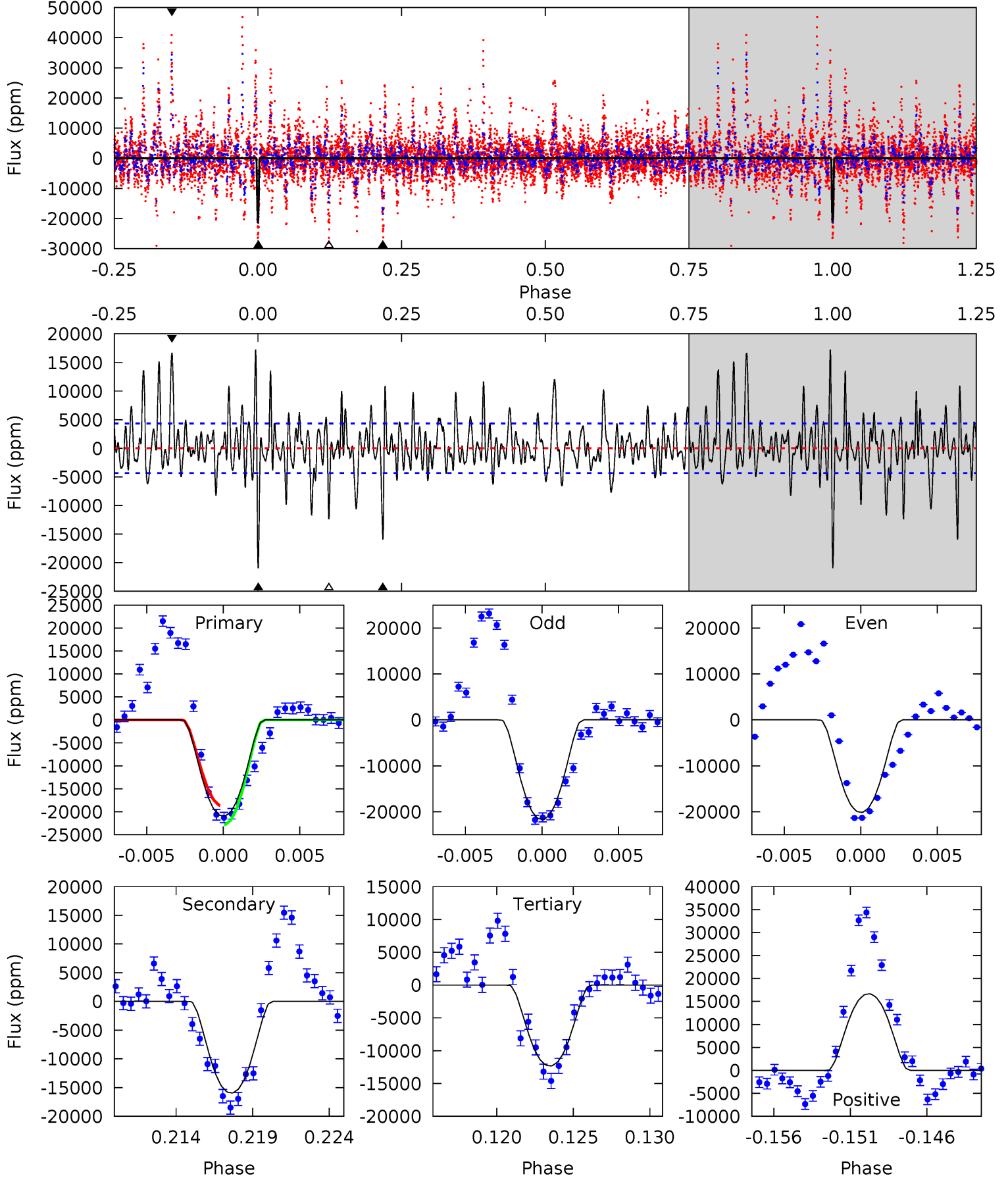
TCE 008561418-02 P= 51.372304 Days $T_0=137.024119$ (BKJD)



DV Model-Shift Uniqueness Test

008561418-02, P = 51.367674 Days, E = 137.042263 Days

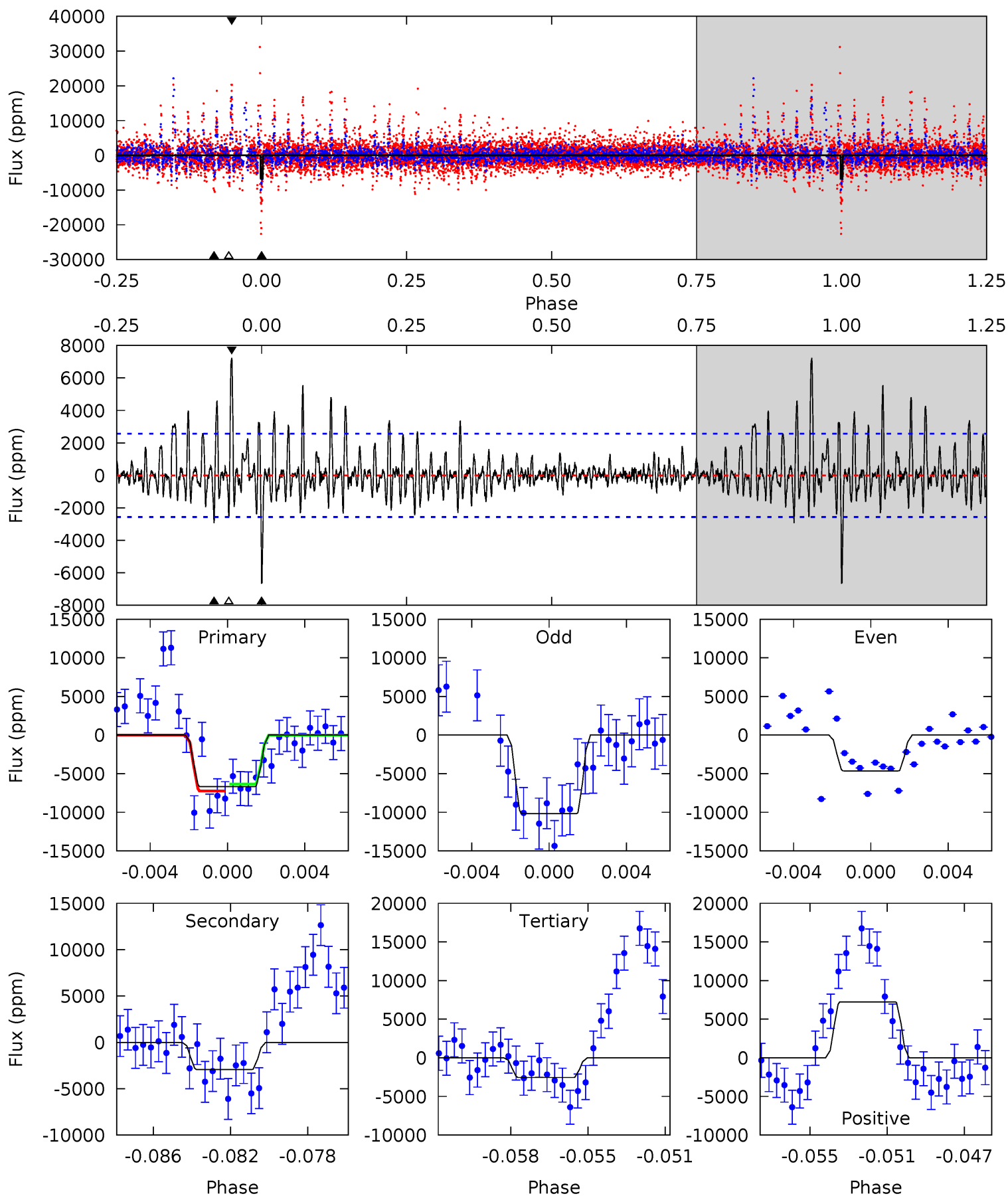
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.0	19.0	14.7	19.9	5.15	2.79	4.29	10.3	5.09	4.30	-0.87	0.87	1.03	0.45	2.45



Alt Model-Shift Uniqueness Test

008561418-02, P = 51.372304 Days, E = 137.024119 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	5.93	5.17	14.7	5.20	2.89	1.94	8.33	-1.17	0.77	-8.74	5.51	1.05	0.52	0.87



Stellar Parameters For KIC 008561418

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 008561418-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-15934 ± 839	$17.58^{+3.39}_{-3.48}$	687^{+32}_{-33}	5212^{+540}_{-409}	2102^{+1176}_{-601}
Alt.	-2930 ± 494	$10.27^{+2.94}_{-3.24}$	683^{+34}_{-33}	4544^{+795}_{-454}	1122^{+1259}_{-473}

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 $A_{obs} \gg 1.0$

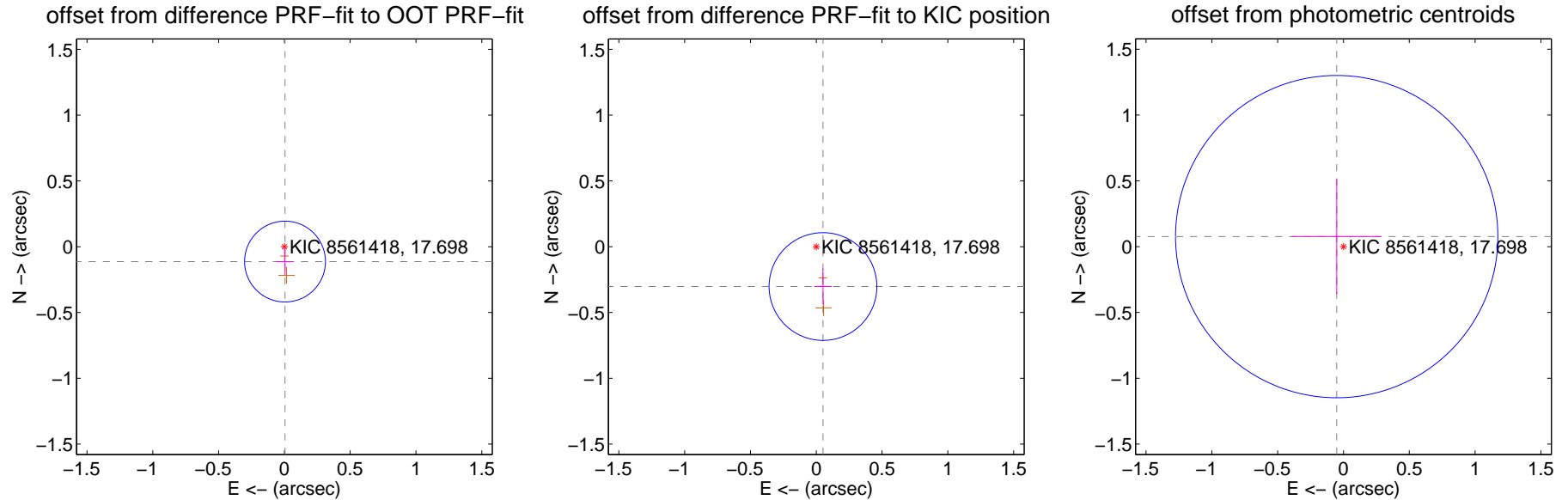
DV Centroid Data

Supplemental centroid analysis for 008561418-02. Kepler magnitude: 17.70. Transit SNR 9.59

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.113 ± 0.102	1.10	-0.005 ± 0.067	-0.113 ± 0.102
PRF-fit source offset from KIC position	0.307 ± 0.136	2.25	-0.051 ± 0.067	-0.303 ± 0.138
photometric centroid source offset	0.09 ± 0.41	0.23	0.05 ± 0.34	0.08 ± 0.44



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.



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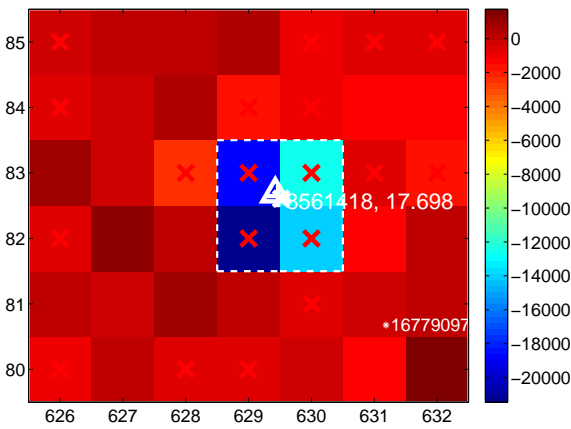
Q9 no difference image



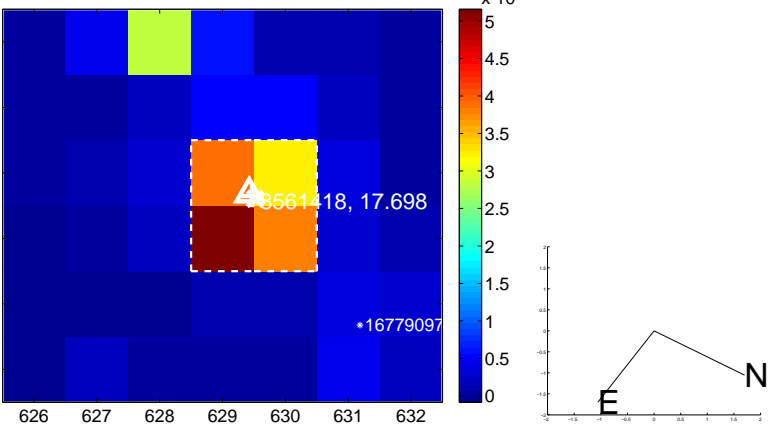
Q9 no OOT image



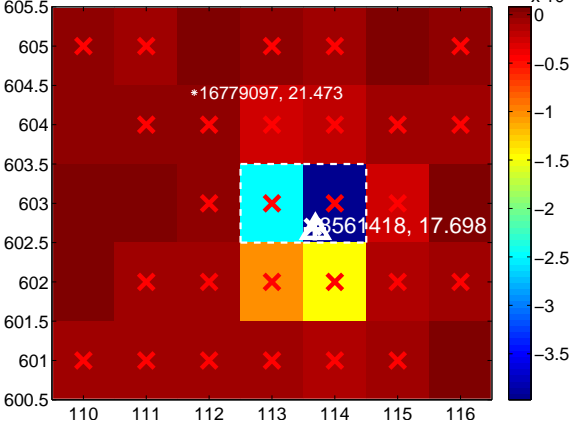
Q10 difference image. Poor Quality



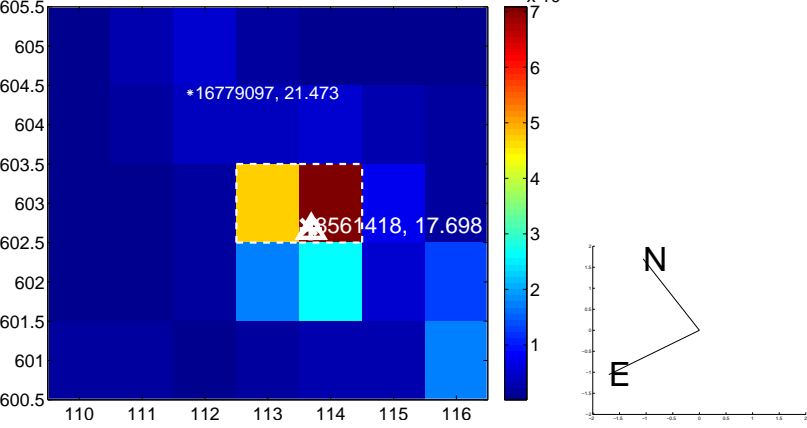
Q10 OOT image



Q11 difference image. Poor Quality



Q11 OOT image



Q12 no difference image



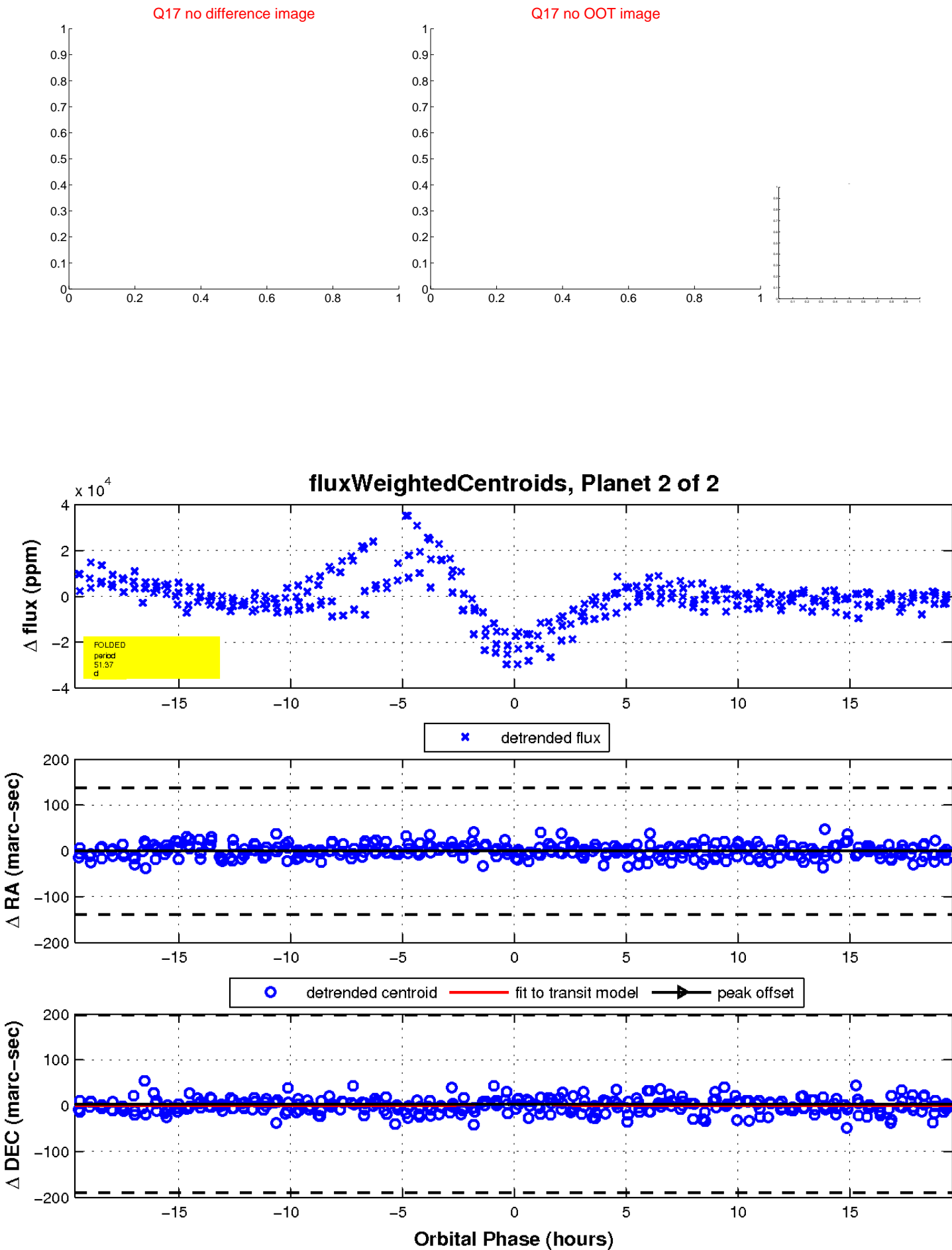
Q12 no OOT image



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UKIRT Image

Declination

