

KIC 011911580

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})
011911580-01	OBS	3900.01	359.036198	393.906217	1018.6	16.215	20.8	22.9	1.11	6355	6.71	1.67
011911580-02	OBS	No	359.026404	415.497738	988.7	29.404	19.2	19.9	1.11	6355	6.61	1.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011911580-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
011911580-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH

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.

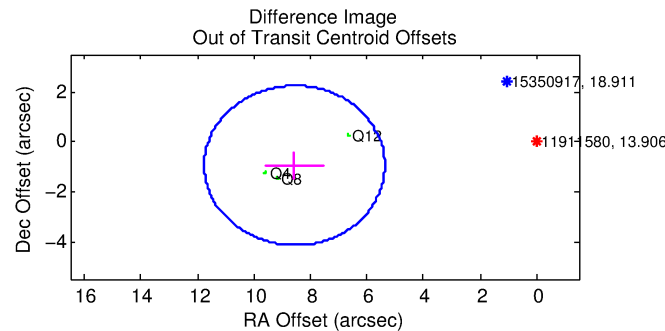
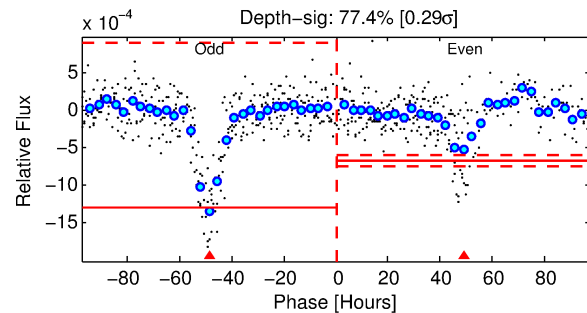
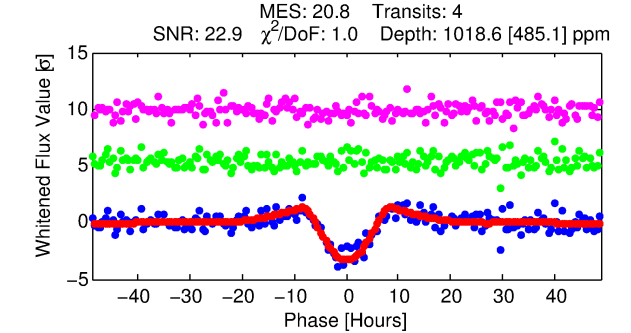
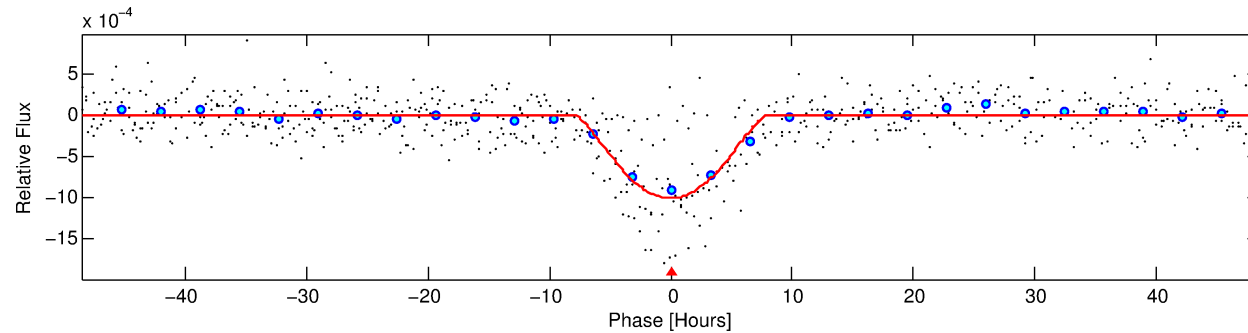
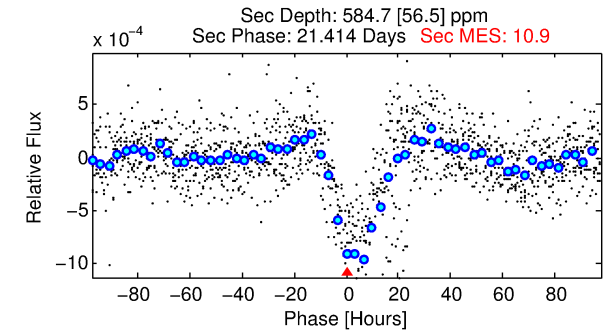
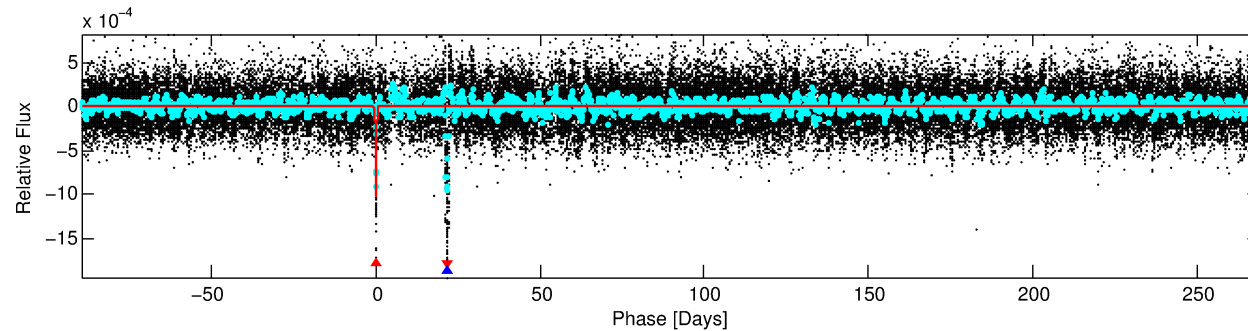
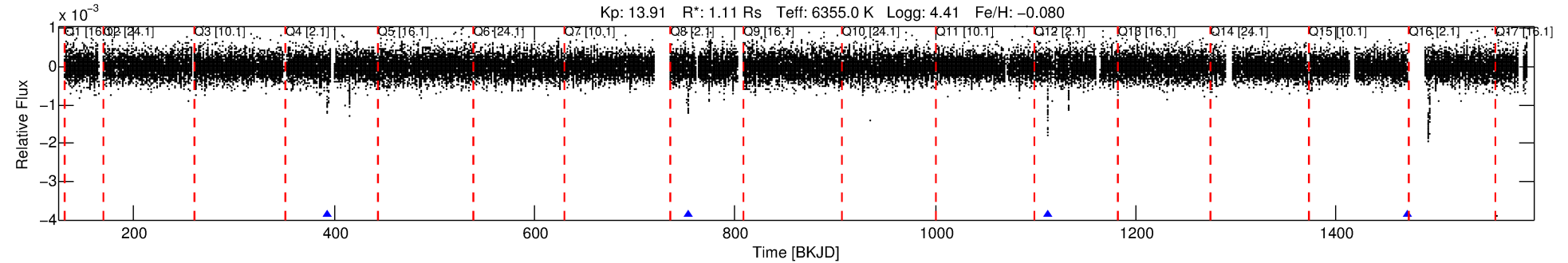
Ephemeris Match Information For 011911580-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist (μ)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
011911580-01	11911580	003644542-sec	3644542	3:1	41461.2	-18	44	8.35	13.90	252.21	Reflection	0	0.40	0.09

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 11911580 Candidate: 1 of 2 Period: 359.036 d
KOI: K03900.01 Corr: 0.947



DV Fit Results:

Period = 359.03620 [0.00712] d
Epoch = 393.9062 [0.0119] BKJD
Rp/R* = 0.0555 [0.0736]
a/R* = 57.14 [18.24]
b = 1.00 [0.09]
Seff = 1.67 [0.66]
Teq = 290 [29] K
Rp = 6.71 [9.14] Re
a = 1.0363 [0.2710] AU
Ag = 7676.26 [20570.03] [0.37σ]
Teffp = 4195 [2786] K [1.40σ]

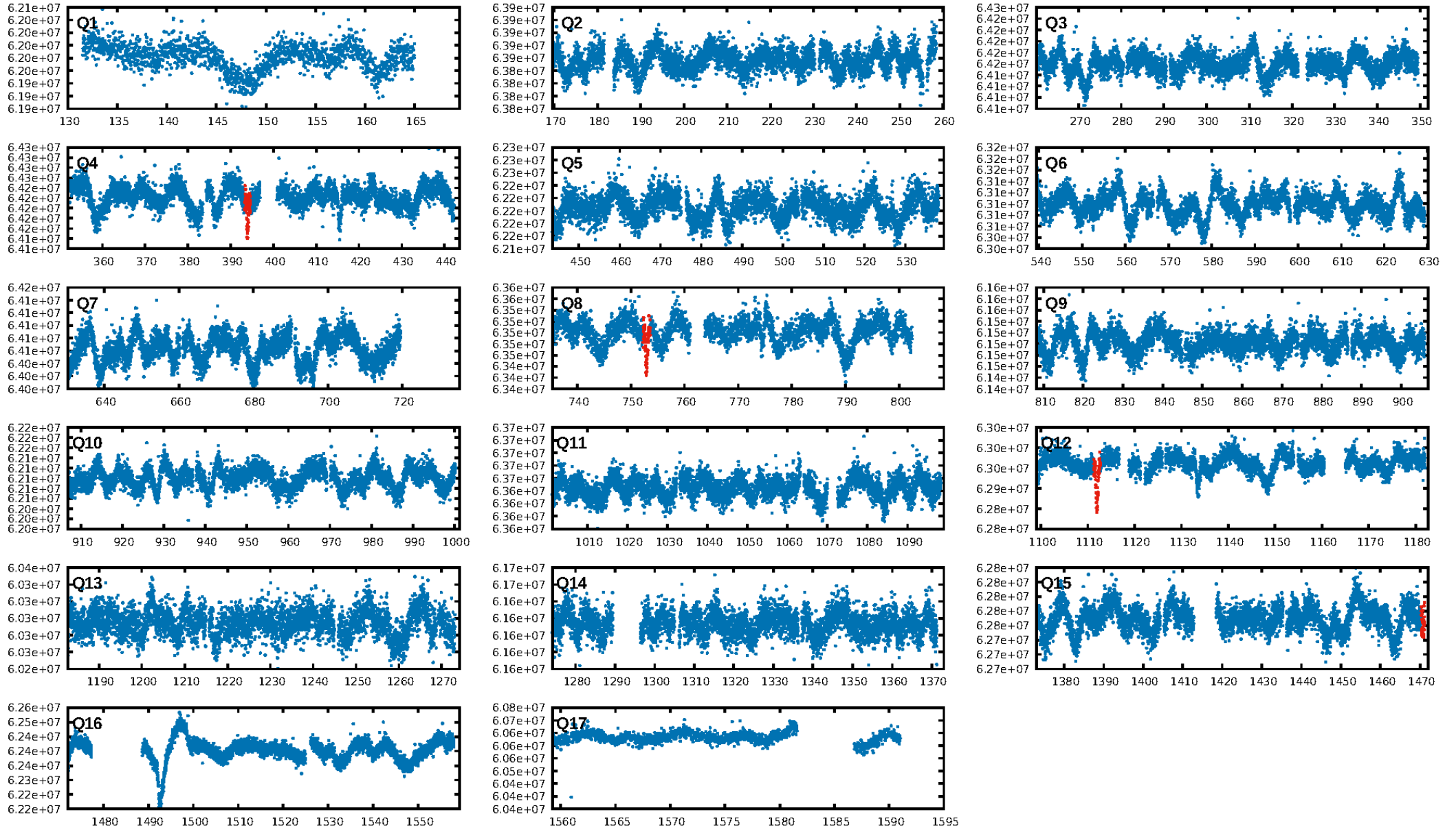
DV Diagnostic Results:

ShortPeriod-sig: 0.6% [0.01σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 75.6%
Bootstrap-pfa: 2.88e-40
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.04598
Centroid-sig: 0.0%
Centroid-so: 7.115 arcsec [15.06σ]
OotOffset-rm: 8.617 arcsec [8.09σ]
KicOffset-rm: 8.622 arcsec [8.49σ]
OotOffset-st: 0/0/3/0 [3]
KicOffset-st: 0/0/3/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

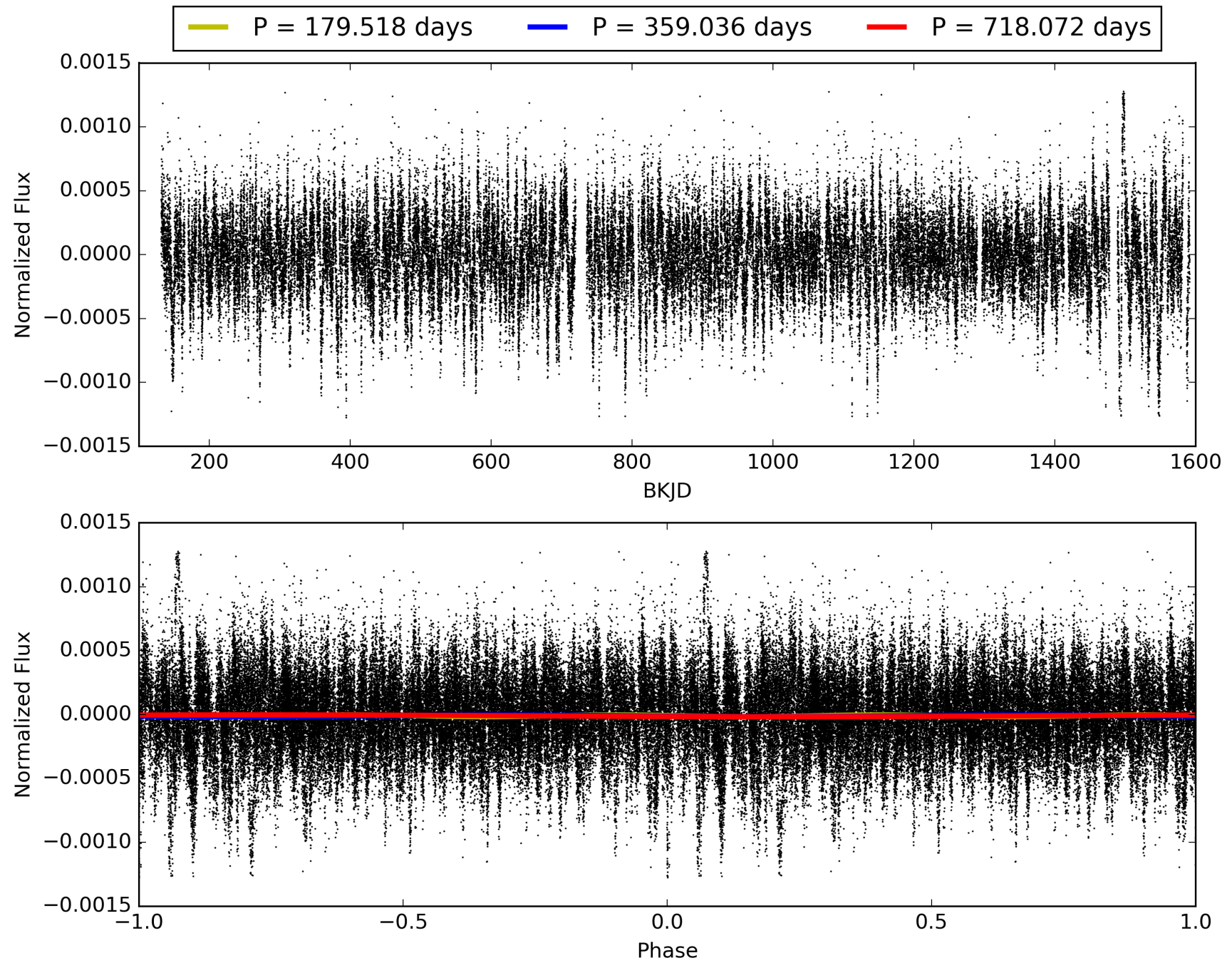
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:05:37 Z

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

TCE 011911580-01, PDC Light Curves

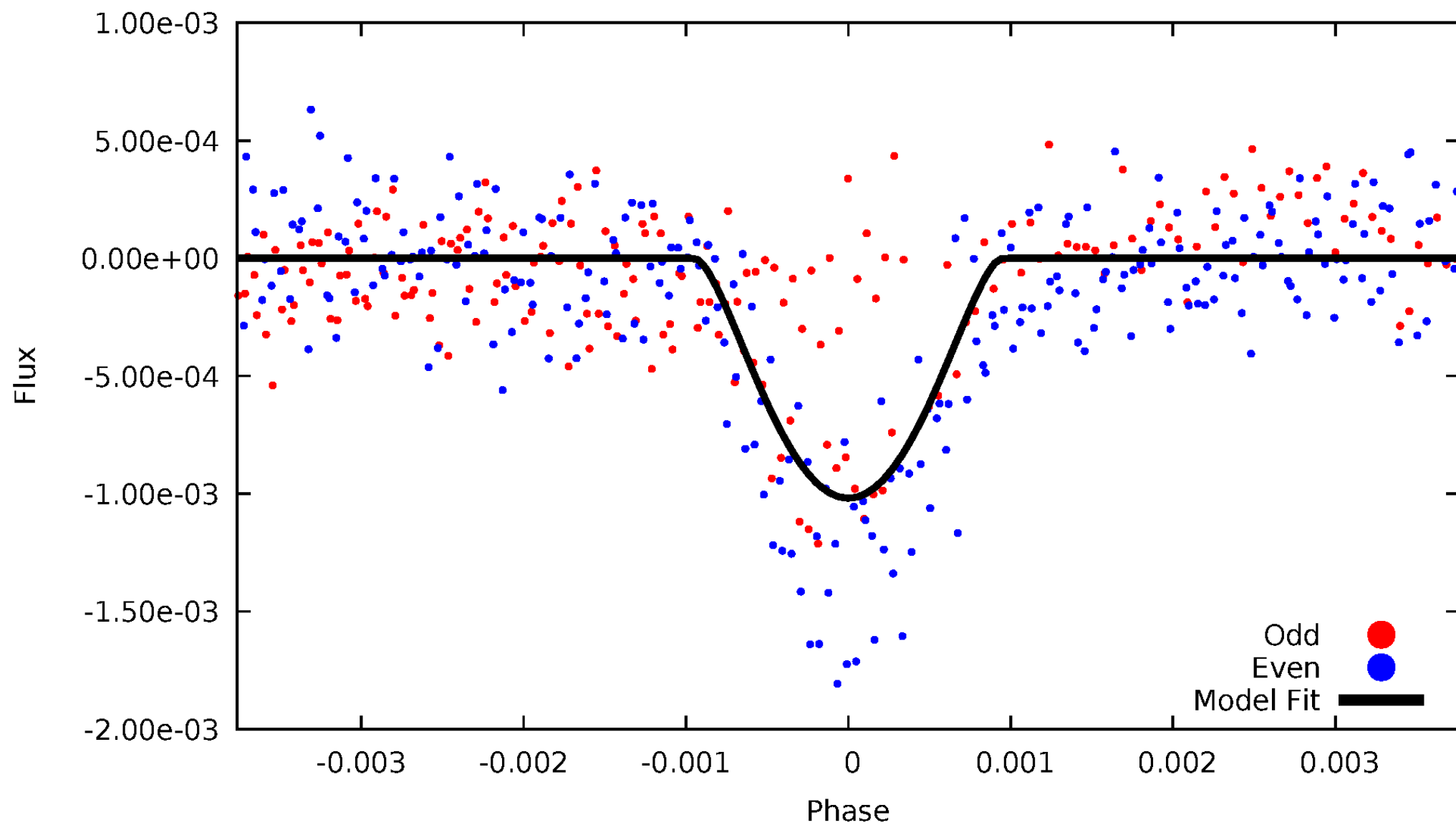


TCE 011911580-01



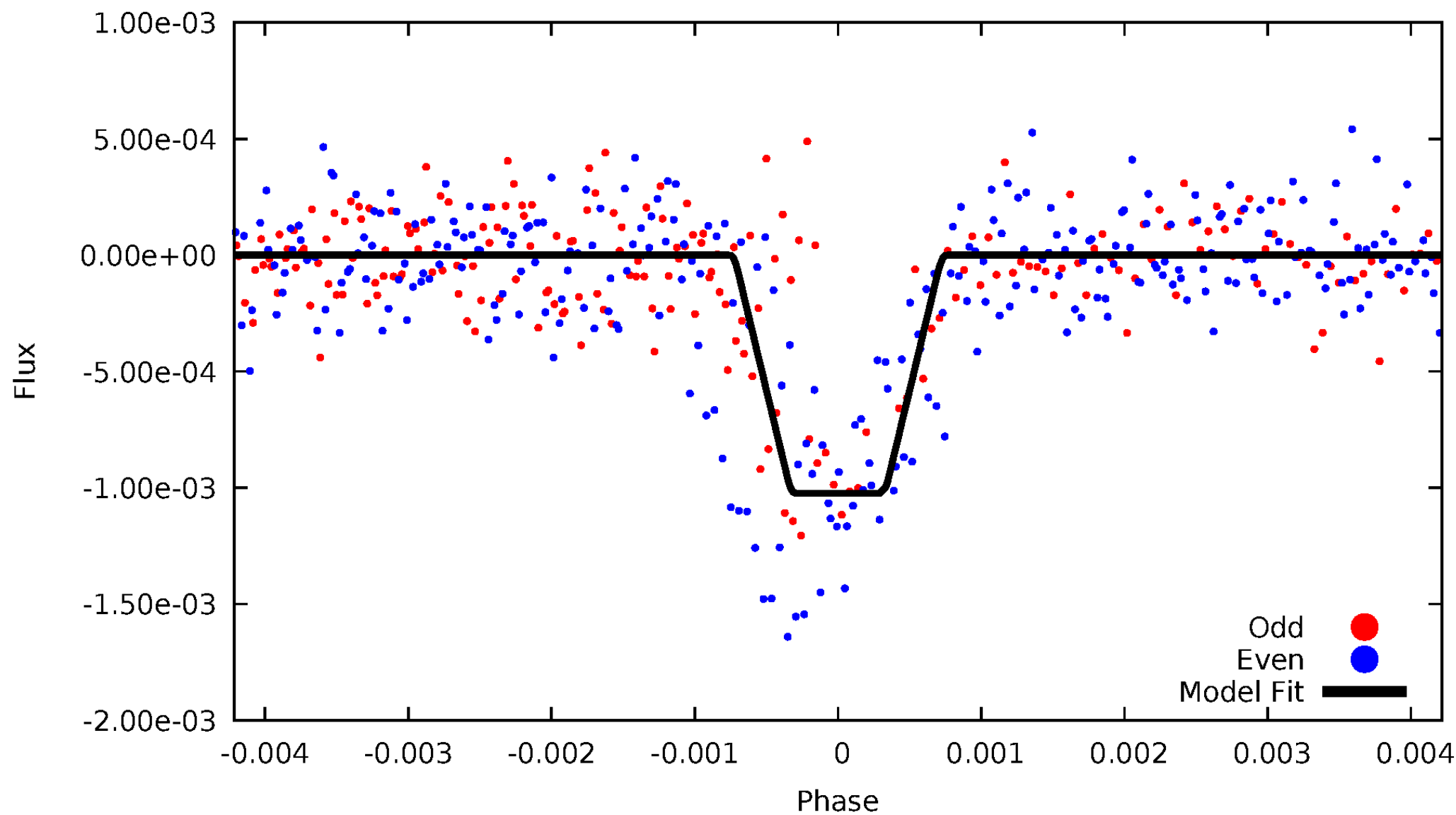
DV Odd/Even

TCE 011911580-01



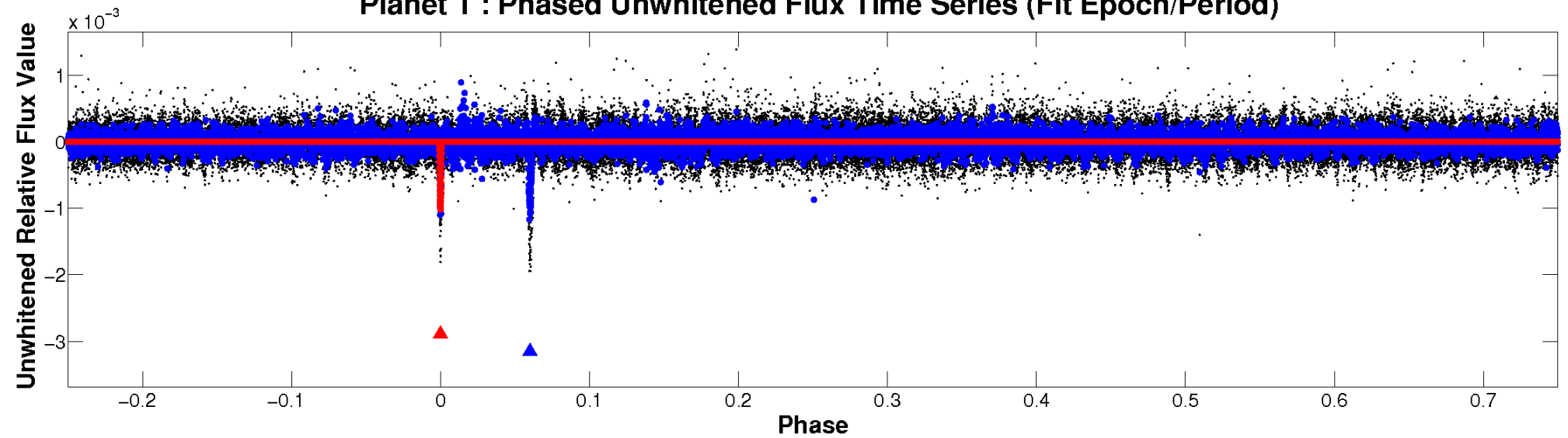
ALT Odd/Even

TCE 011911580-01

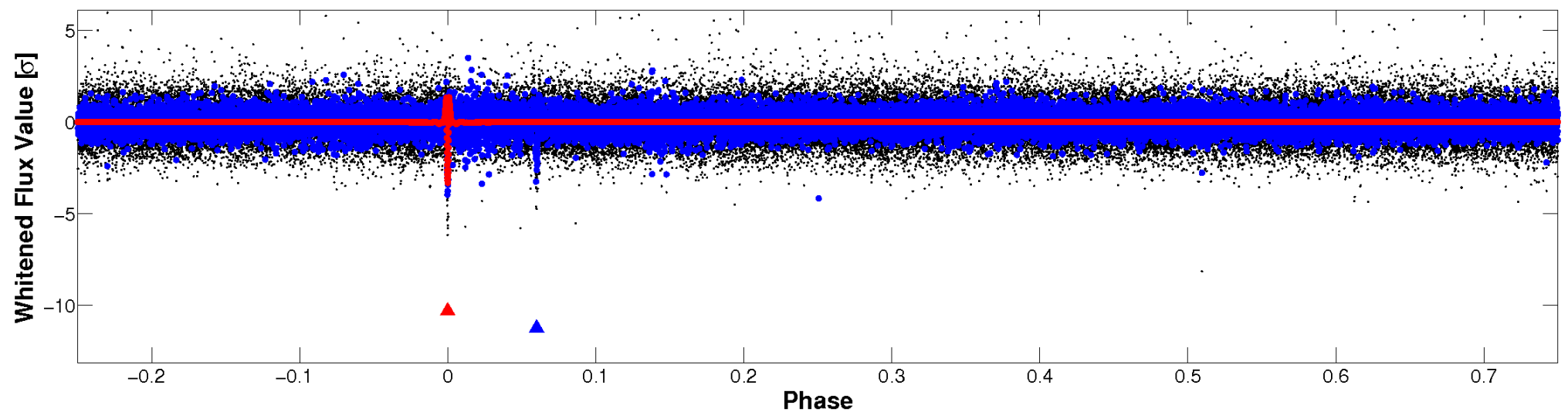


Non-Whitened Vs. Whitened Light Curve

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

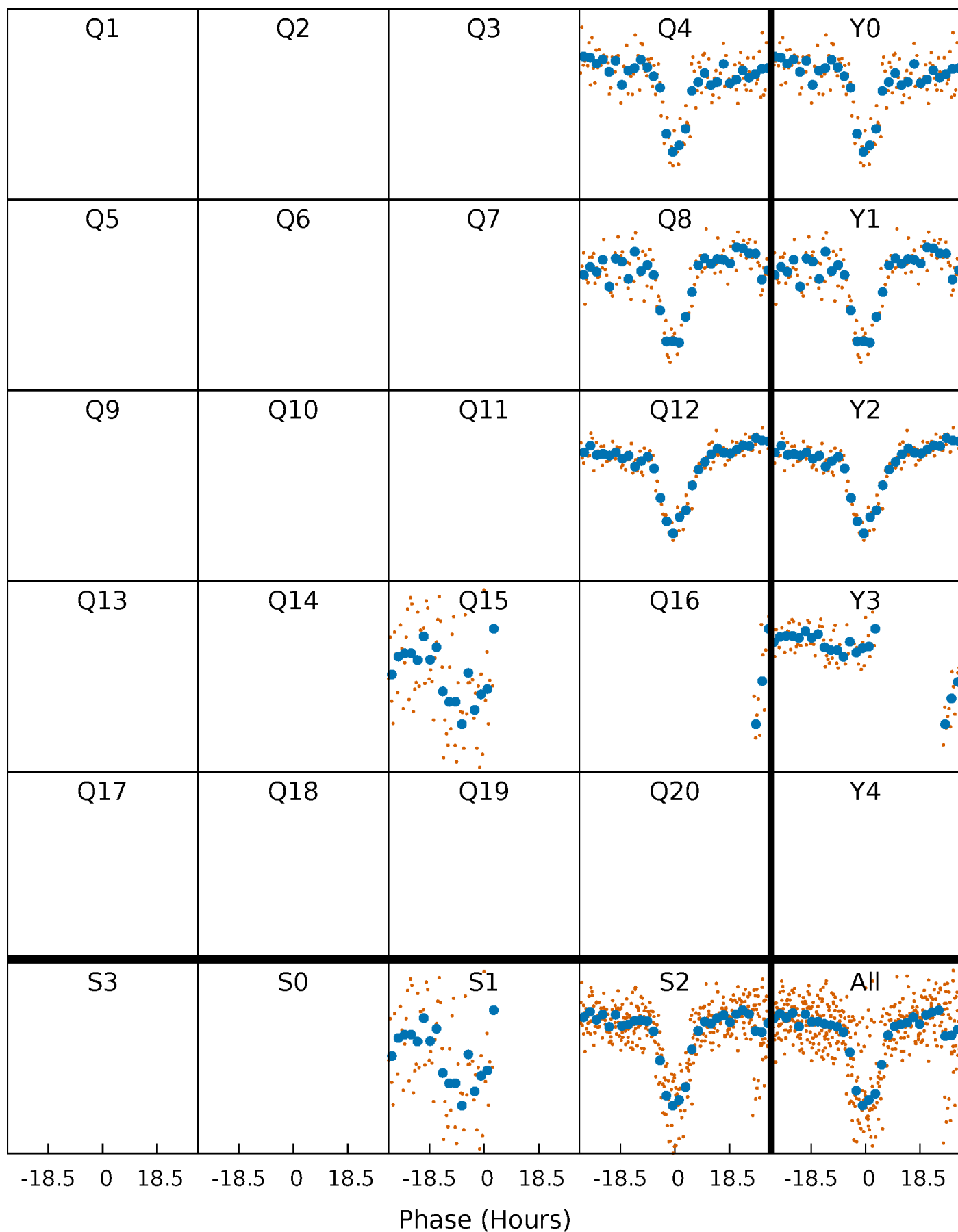


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



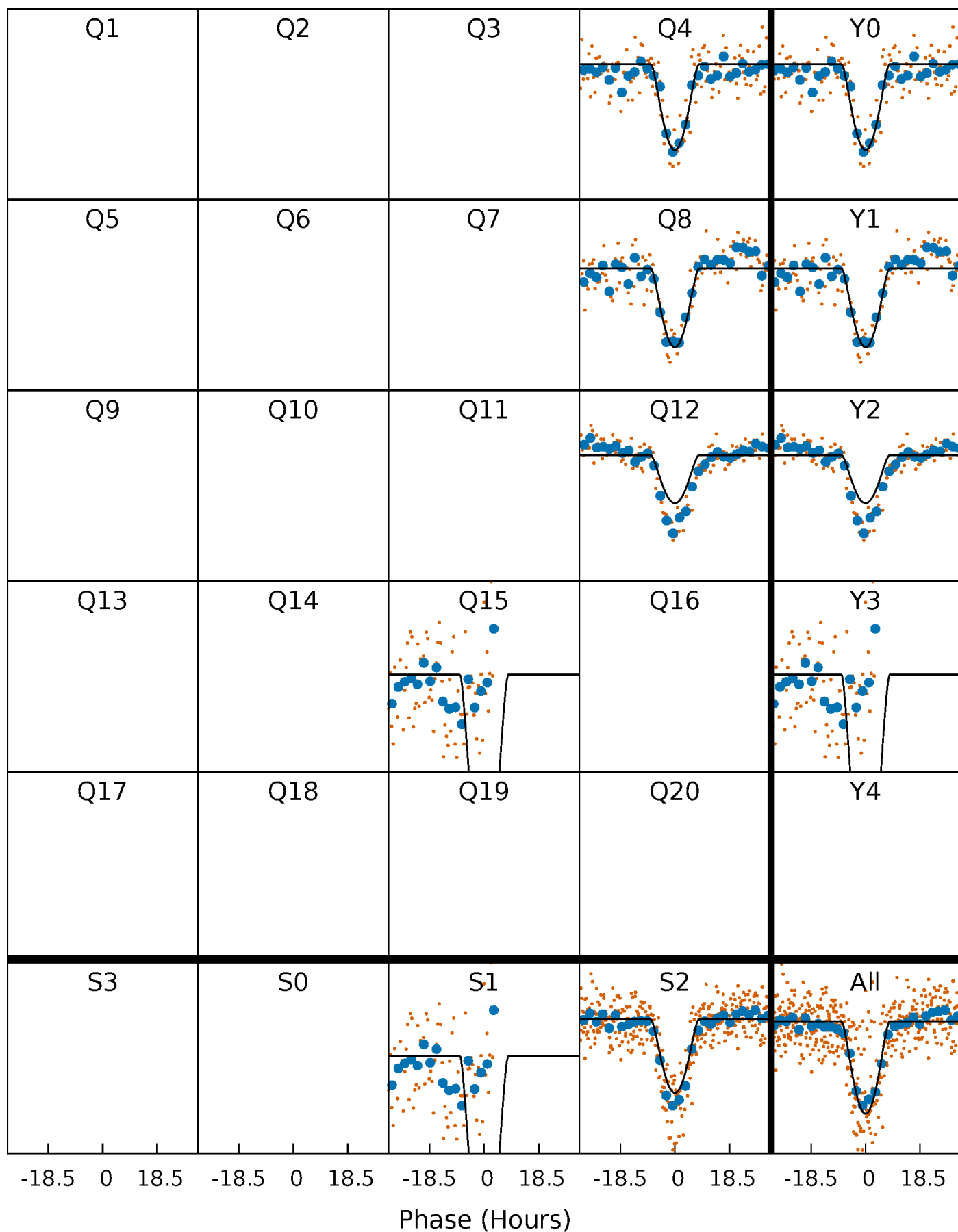
PDC Quarter-Phased Transit Curves

TCE 011911580-01 P=359.036198 Days $T_0=393.906217$ (BKJD)



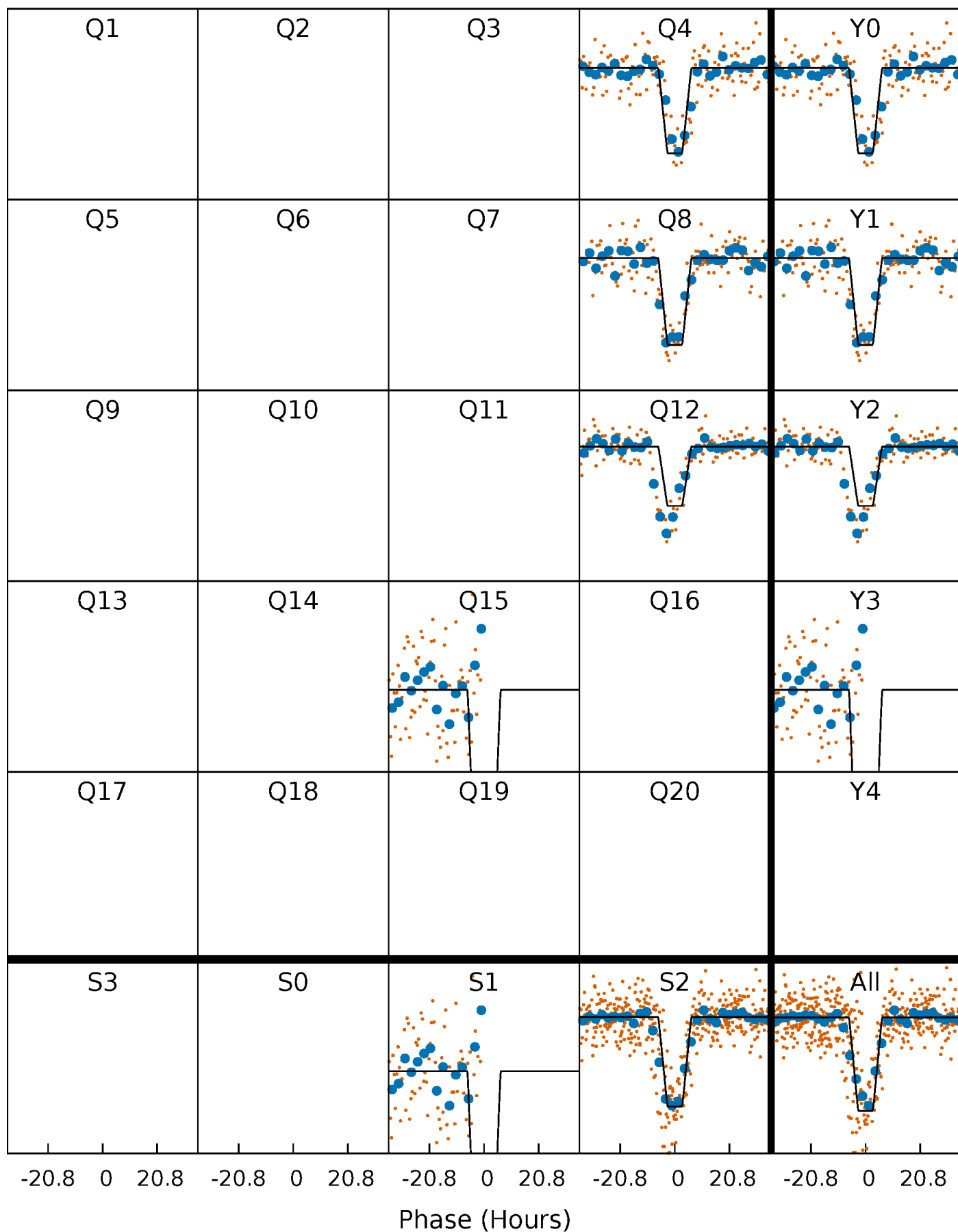
DV Quarter-Phased Transit Curves

TCE 011911580-01 P=359.036198 Days $T_0=393.906217$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

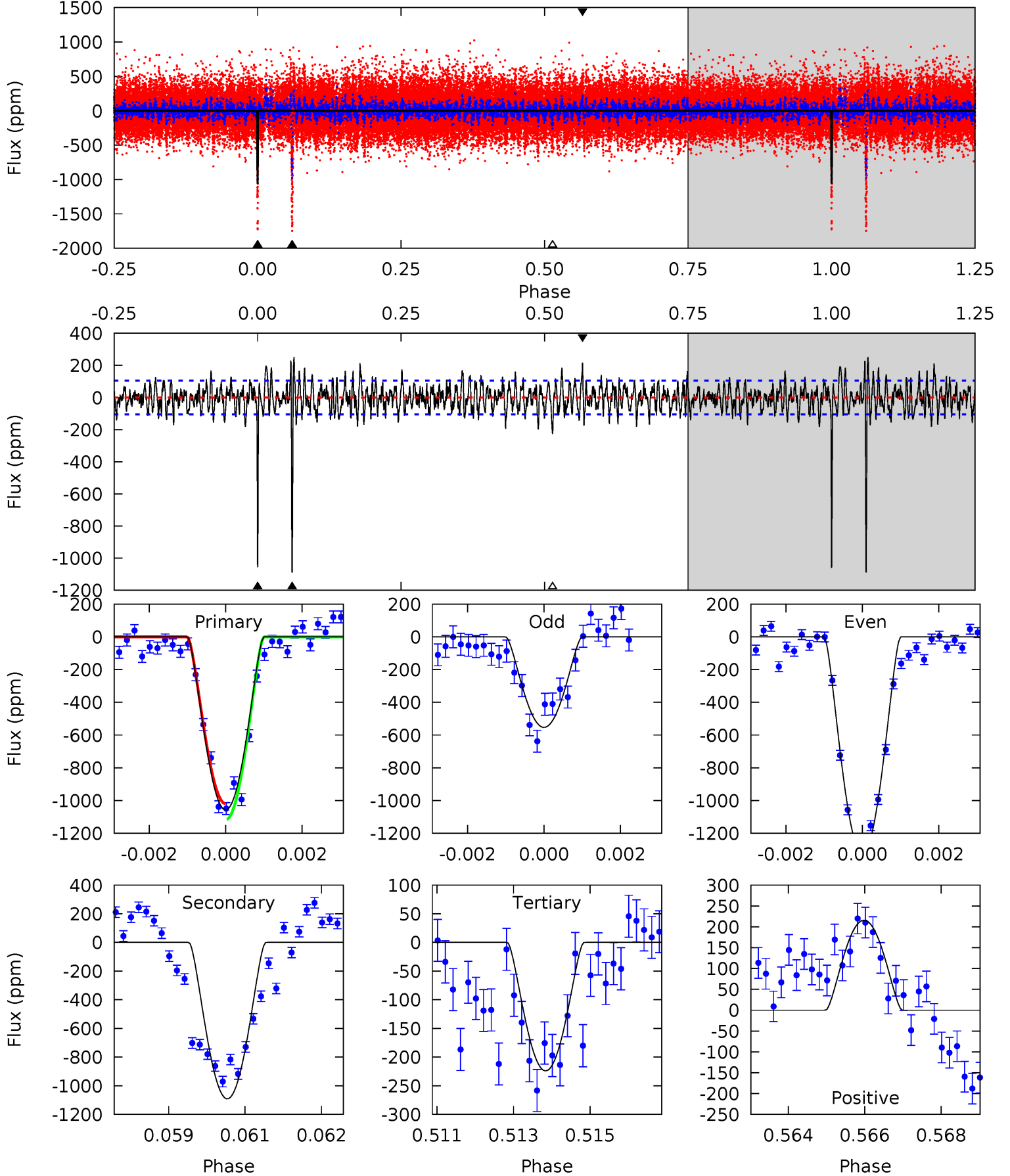
TCE 011911580-01 P=359.113006 Days $T_0=393.854974$ (BKJD)



DV Model-Shift Uniqueness Test

011911580-01, P = 359.036198 Days, E = 34.870019 Days

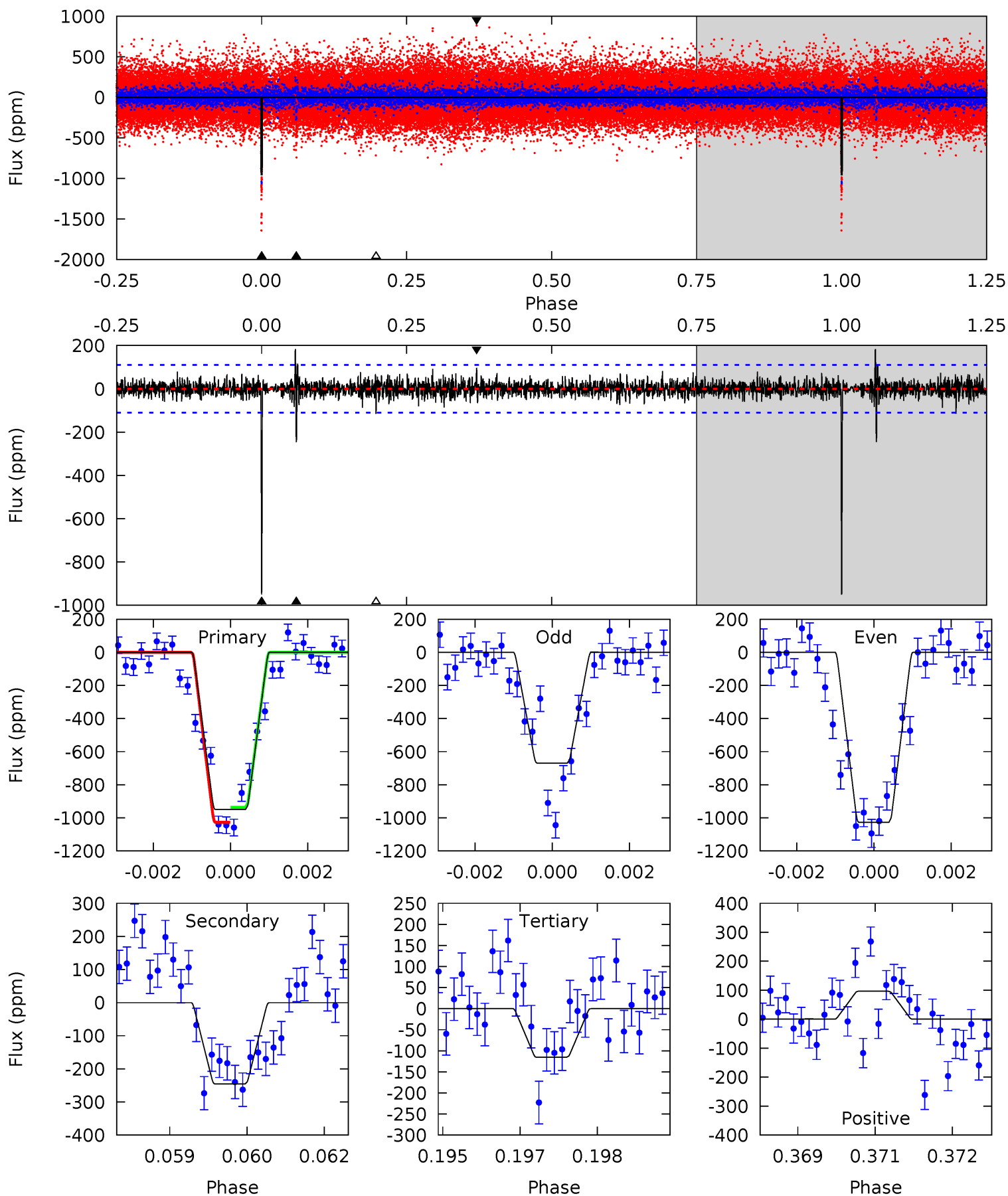
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
53.3	55.0	11.3	10.9	5.34	3.11	3.39	42.0	42.4	43.7	44.1	19.9	0.92	0.19	0



Alt Model-Shift Uniqueness Test

011911580-01, P = 359.113006 Days, E = 34.741968 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.4	12.0	5.63	4.71	5.38	3.17	1.19	40.7	41.7	6.37	7.29	8.75	0.78	0.16	2.15



Stellar Parameters For KIC 011911580

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6355^{+153}_{-192}	$4.410^{+0.054}_{-0.202}$	$-0.080^{+0.250}_{-0.300}$	$1.108^{+0.350}_{-0.117}$	$1.151^{+0.157}_{-0.157}$	$1.191^{+0.332}_{-0.620}$
	+2%/-3%	+1%/-5%	+312%/-375%	+32%/-11%	+14%/-14%	+28%/-52%
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 011911580-01 / KOI 3900.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1089 ± 20	$9.64^{+8.01}_{-6.31}$	414^{+29}_{-20}	4413^{+2623}_{-849}	6923^{+50140}_{-4904}
Alt.	-246 ± 20	$7.83^{+8.06}_{-5.29}$	412^{+30}_{-19}	3637^{+1946}_{-717}	2317^{+19913}_{-1759}

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 $A_{obs} \gg 1.0$

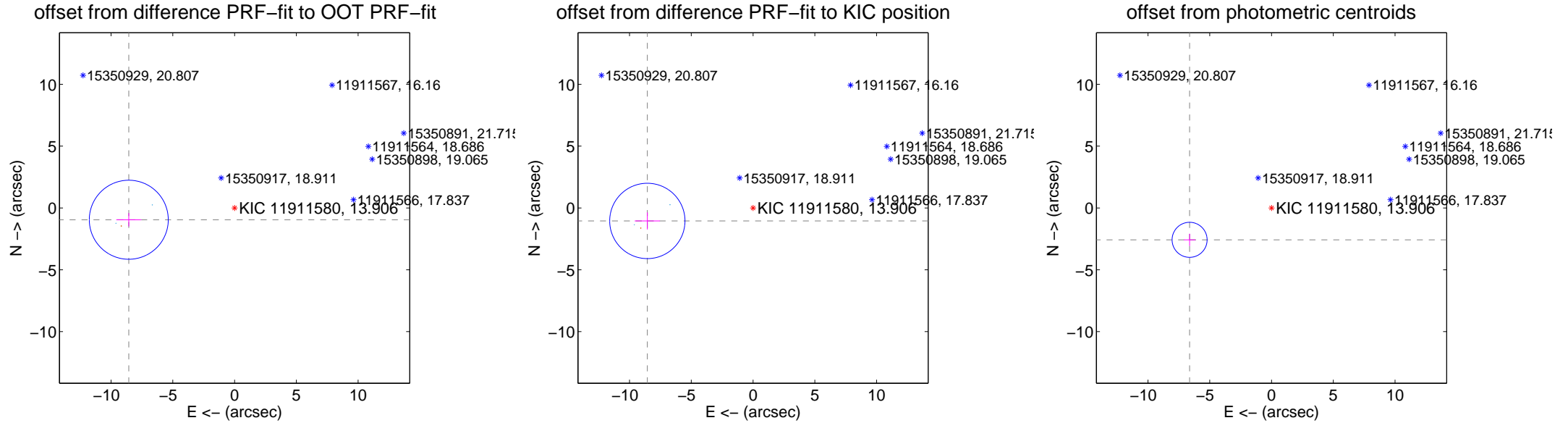
DV Centroid Data

Supplemental centroid analysis for 011911580-01. Kepler magnitude: 13.91. Transit SNR 22.95

There are 2 quarters with good PRF difference image offsets

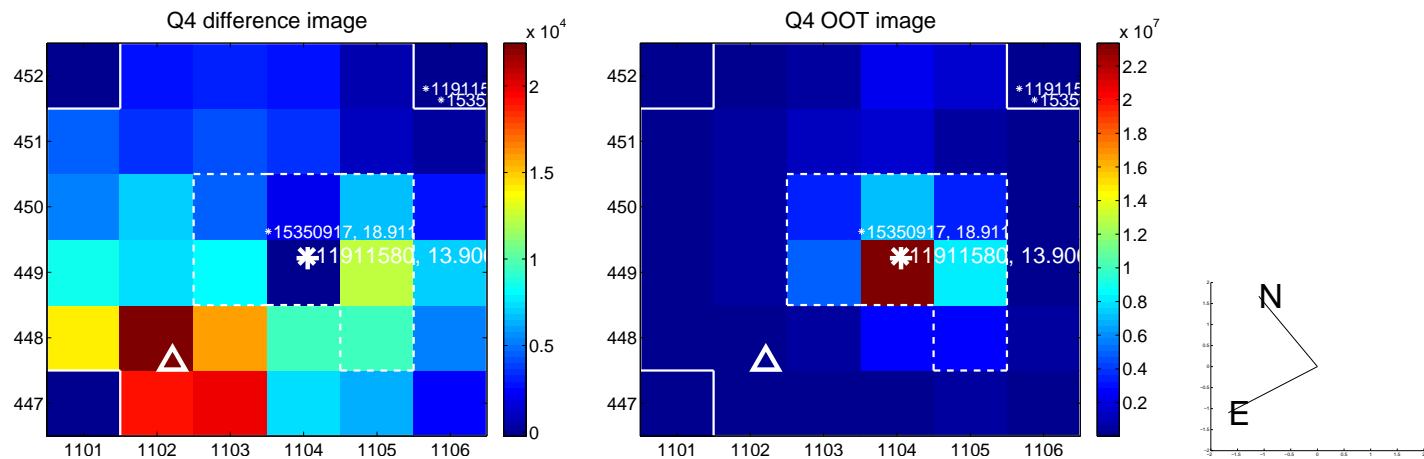
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.617 \pm 1.065	8.09	8.564 \pm 1.013	-0.953 \pm 0.542
PRF-fit source offset from KIC position	8.622 \pm 1.016	8.49	8.558 \pm 1.020	-1.050 \pm 0.692
photometric centroid source offset	7.11 \pm 0.47	15.06	6.63 \pm 0.47	-2.58 \pm 0.49



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.

Q5 no difference image



Q5 no OOT image



Q6 no difference image



Q6 no OOT image



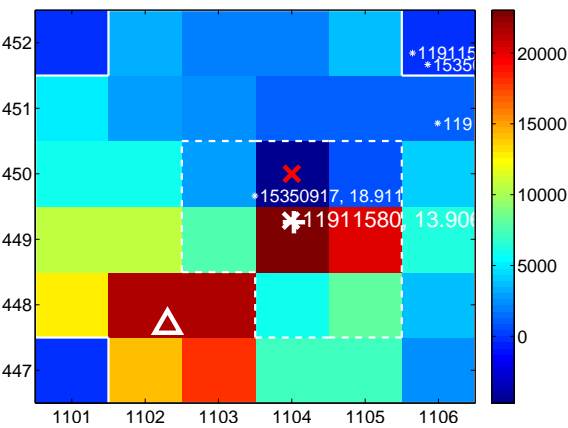
Q7 no difference image



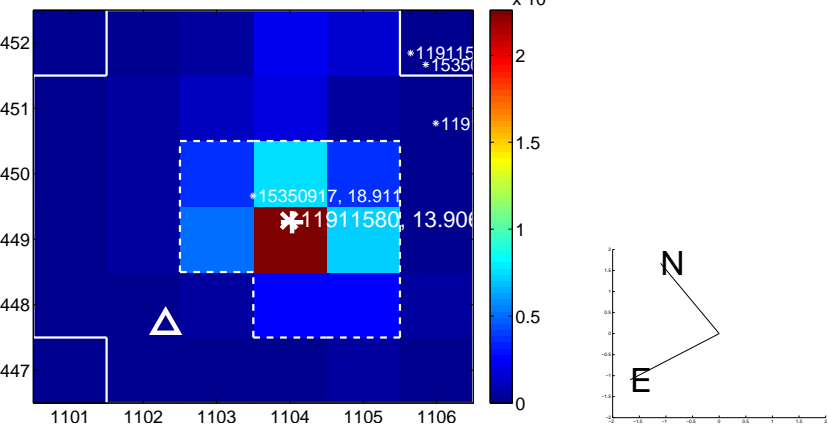
Q7 no OOT image



Q8 difference image. Poor Quality



Q8 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 no difference image



Q10 no OOT image



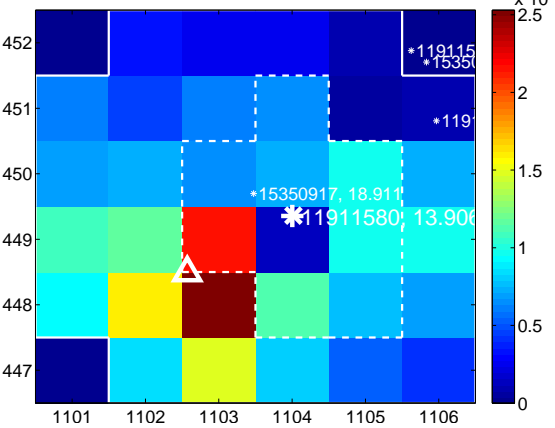
Q11 no difference image



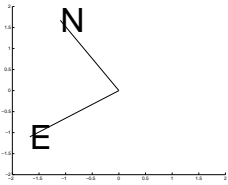
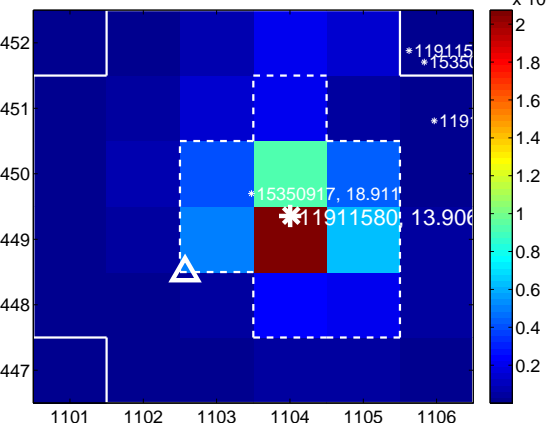
Q11 no OOT image



Q12 difference image



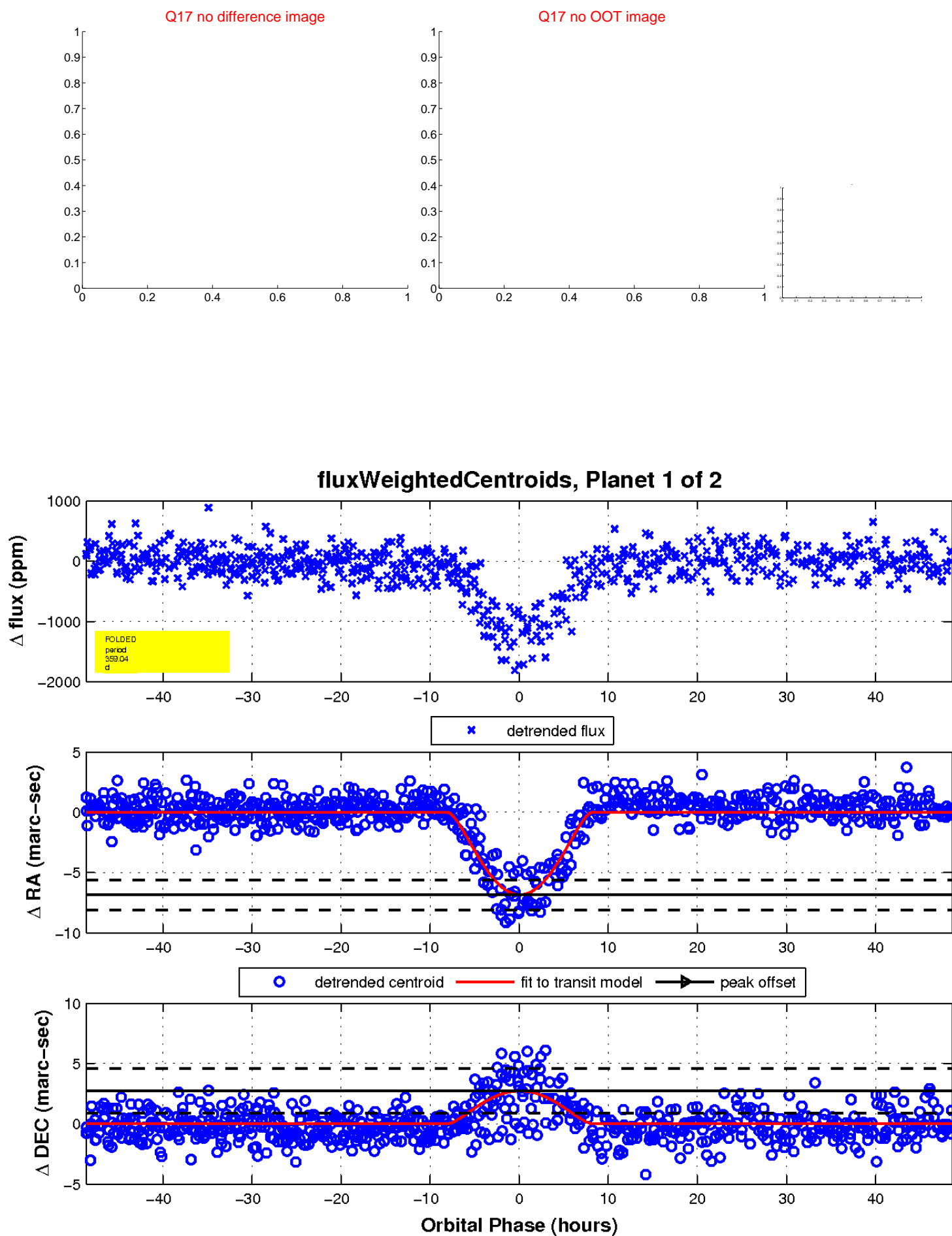
Q12 OOT image



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

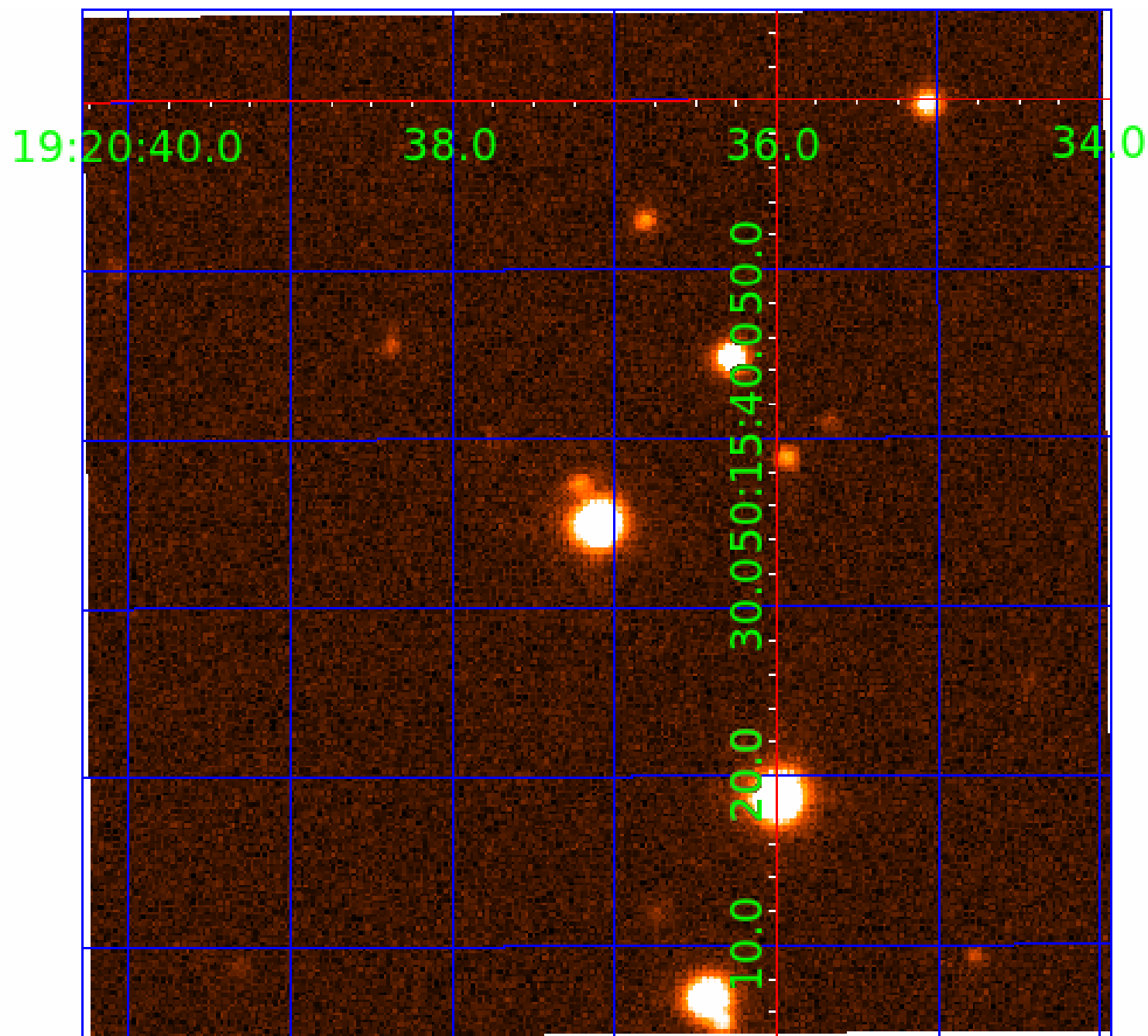


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011911580

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})
011911580-01	OBS	3900.01	359.036198	393.906217	1018.6	16.215	20.8	22.9	1.11	6355	6.71	1.67
011911580-02	OBS	No	359.026404	415.497738	988.7	29.404	19.2	19.9	1.11	6355	6.61	1.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011911580-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
011911580-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH

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 011911580-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
011911580-02	11911580	3511.01	3644542	3:1	41461.2	-18	44	8.35	13.90	302.34	Reflection	0	1.60	0.41

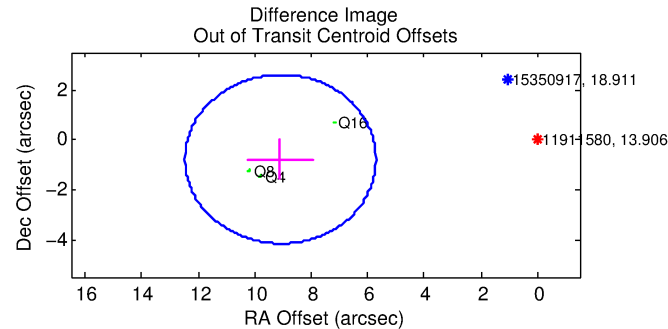
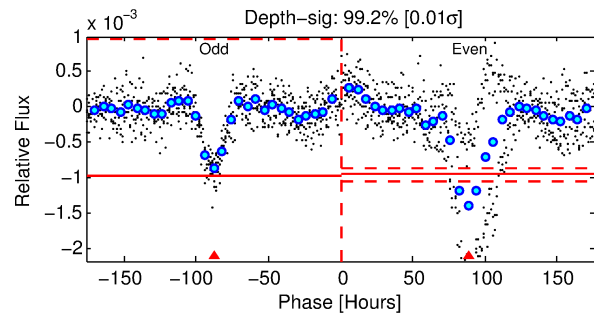
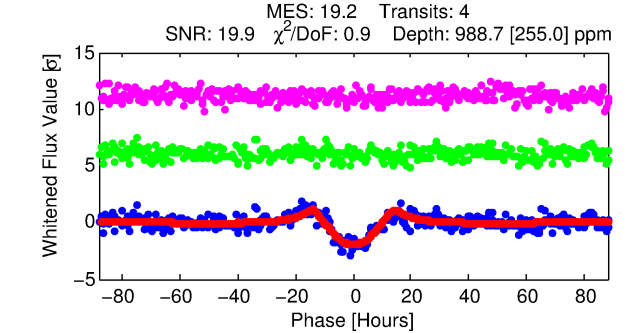
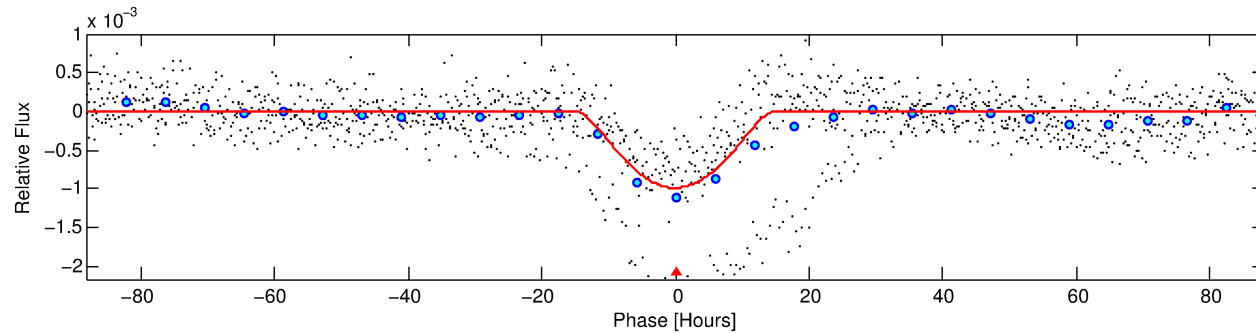
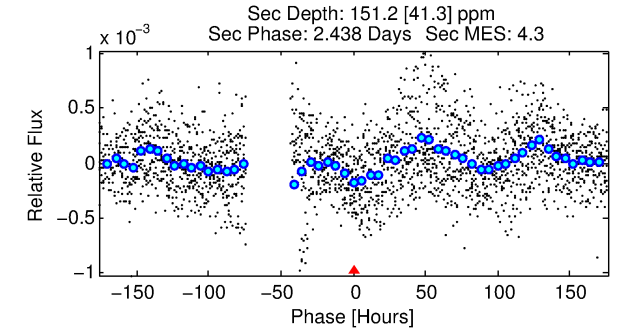
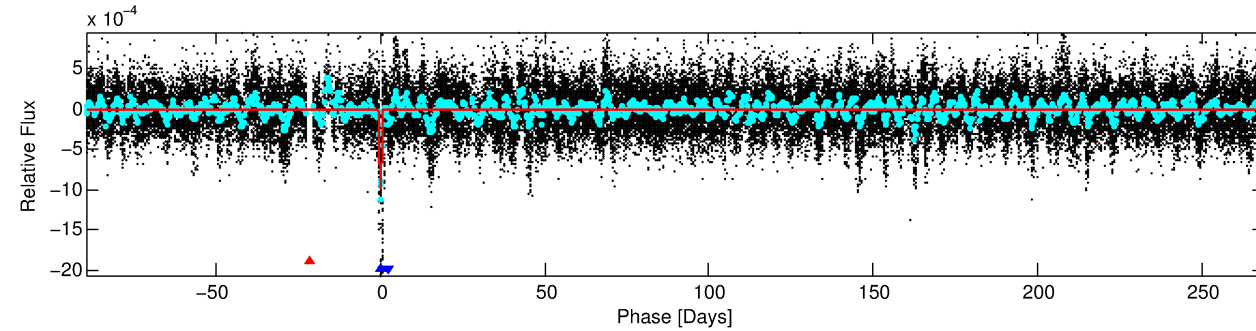
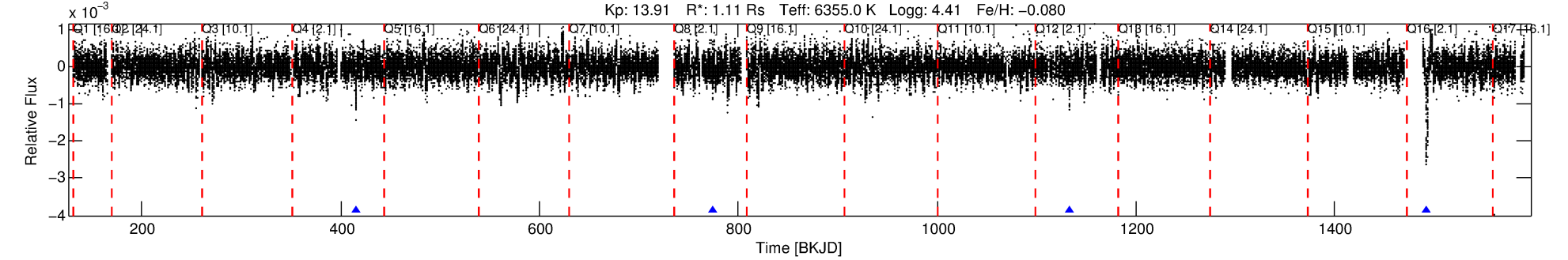
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 11911580 Candidate: 2 of 2 Period: 359.026 d

KOI: K03900 Corr: No Ephemeris Match

Kp: 13.91 R*: 1.11 Rs Teff: 6355.0 K Logg: 4.41 Fe/H: -0.080



DV Fit Results:

Period = 359.02640 [0.01142] d
Epoch = 415.4977 [0.0200] BKJD
Rp/R* = 0.0547 [0.0502]
a/R* = 31.29 [6.89]
b = 1.00 [0.06]
Seff = 1.67 [0.66]
Teq = 290 [29] K
Rp = 6.61 [6.42] Re
a = 1.0363 [0.2710] AU
Ag = 2042.76 [3870.63] [0.53 sigma]
Teffp = 3013 [1402] K [1.94 sigma]

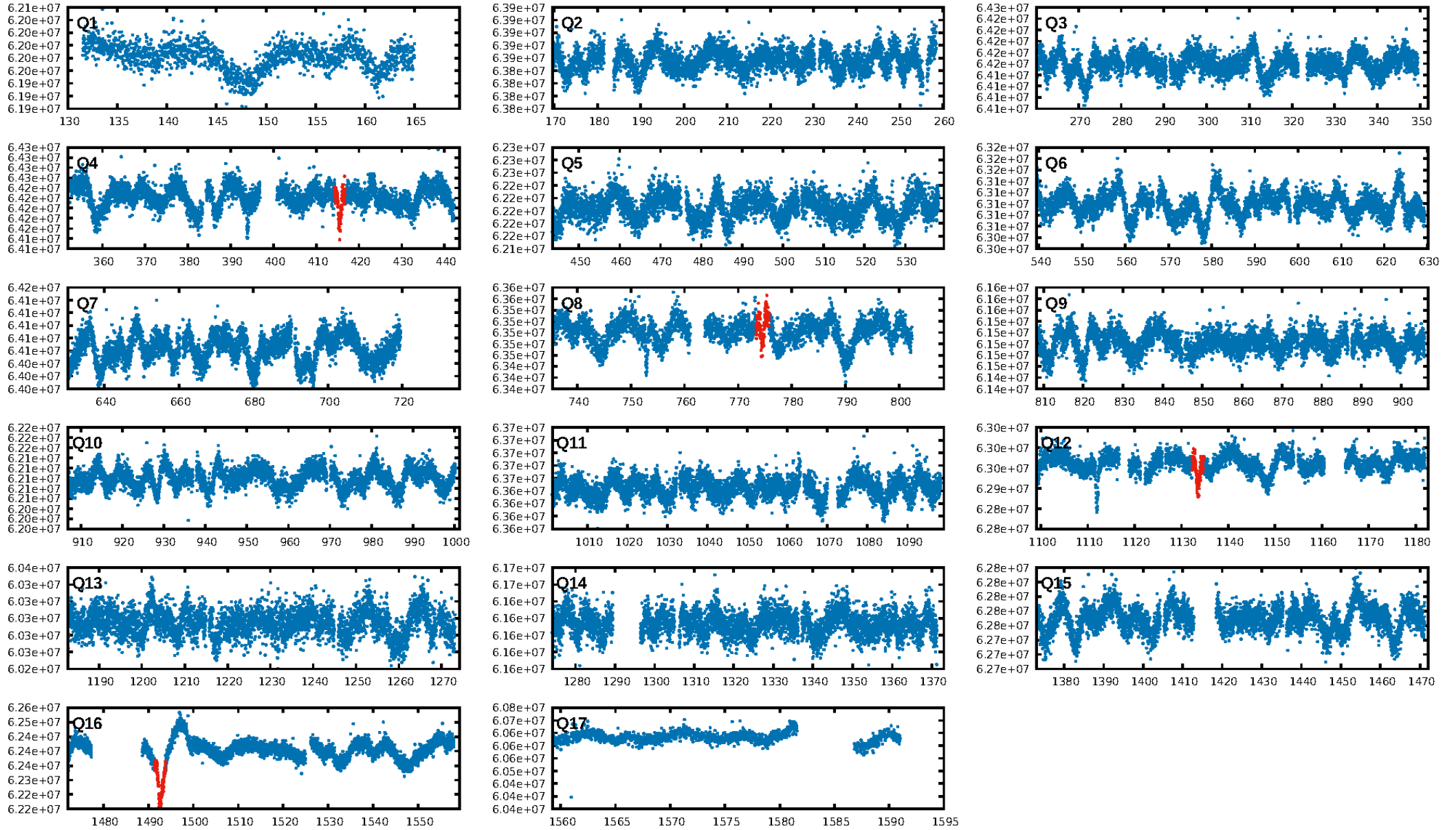
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.6% [0.01 sigma]
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.72e-90
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.1054
Centroid-sig: 0.0%
Centroid-so: 8.722 arcsec [18.21 sigma]
OotOffset-rm: 9.122 arcsec [8.09 sigma]
KicOffset-rm: 9.108 arcsec [8.28 sigma]
OotOffset-st: 0/0/3/0 [3]
KicOffset-st: 0/0/3/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

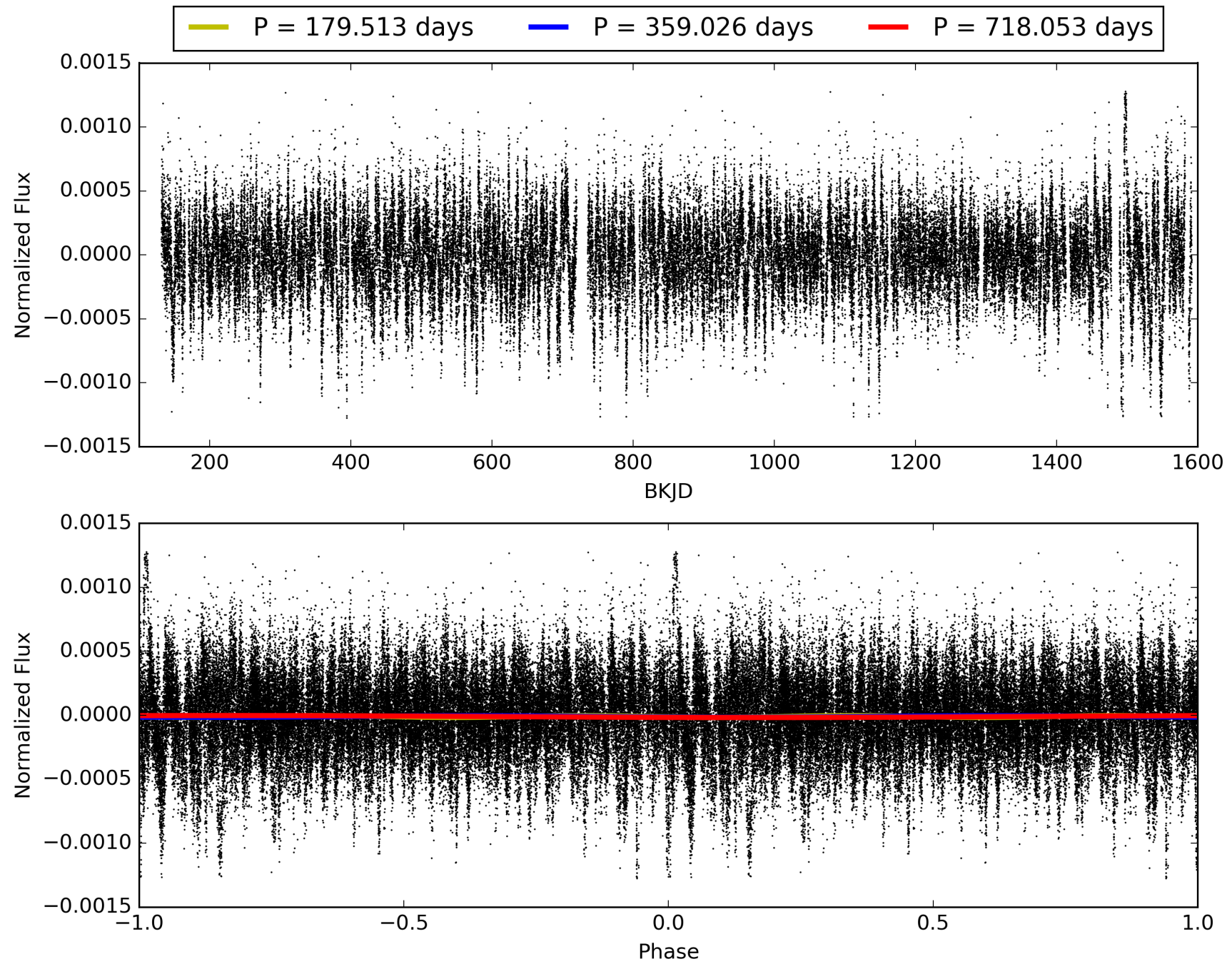
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:05:44 Z

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TCE 011911580-02, PDC Light Curves

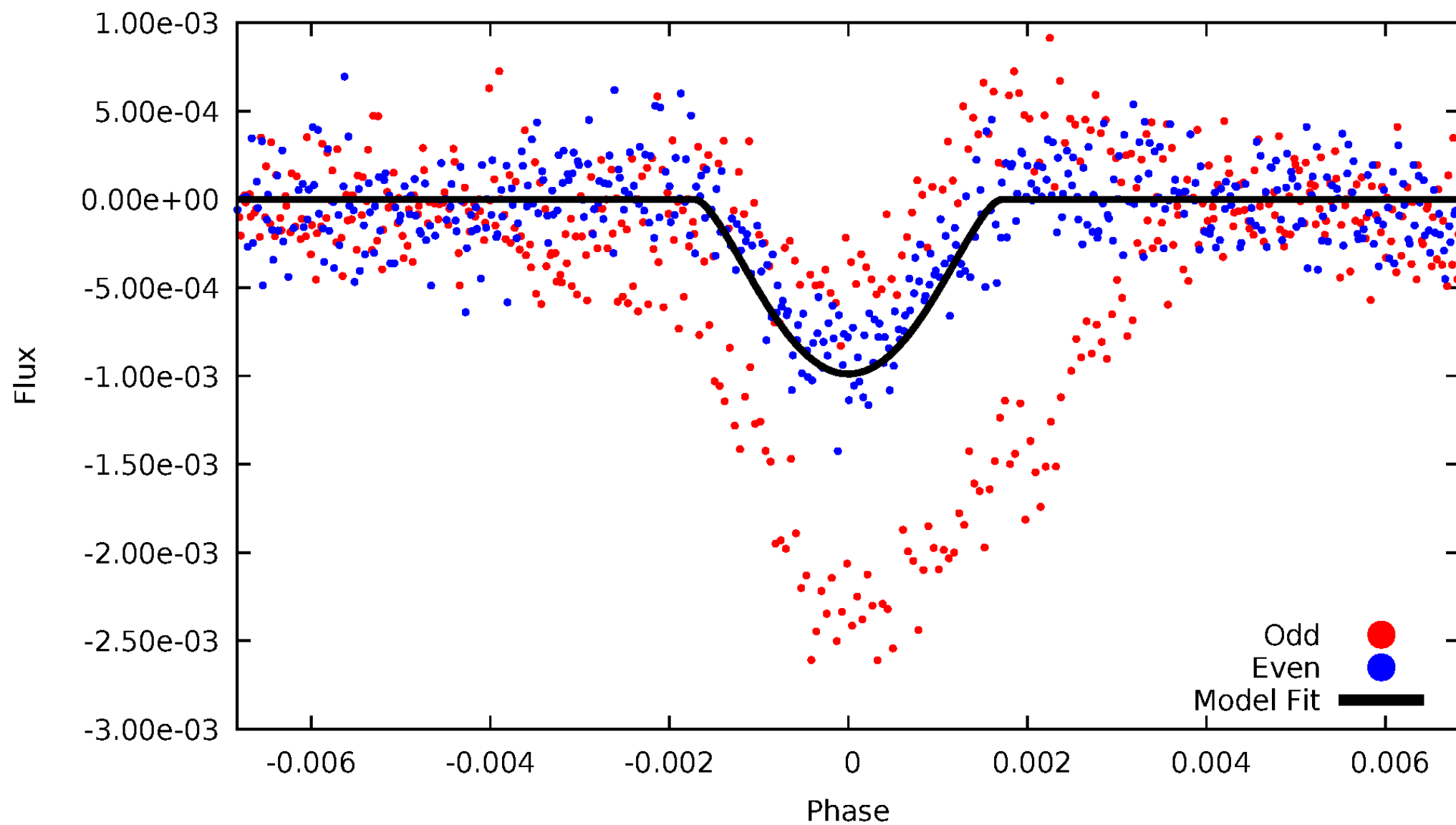


TCE 011911580-02



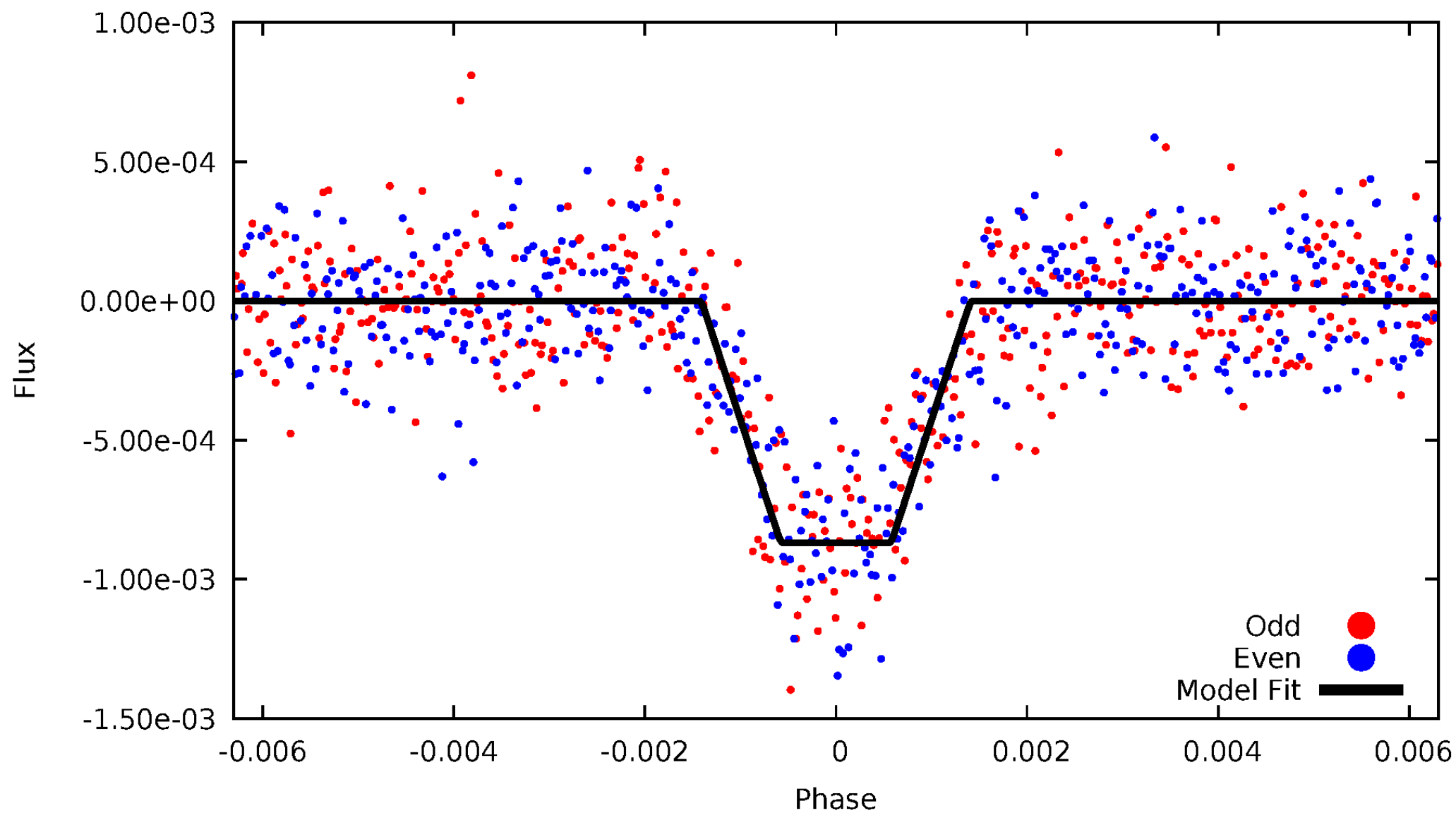
DV Odd/Even

TCE 011911580-02



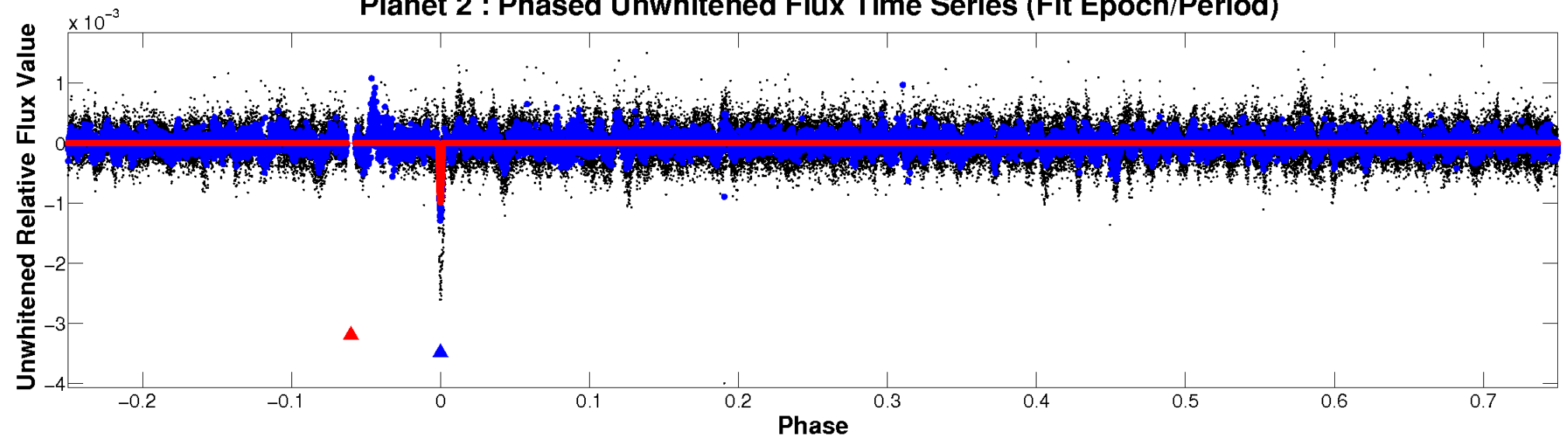
ALT Odd/Even

TCE 011911580-02

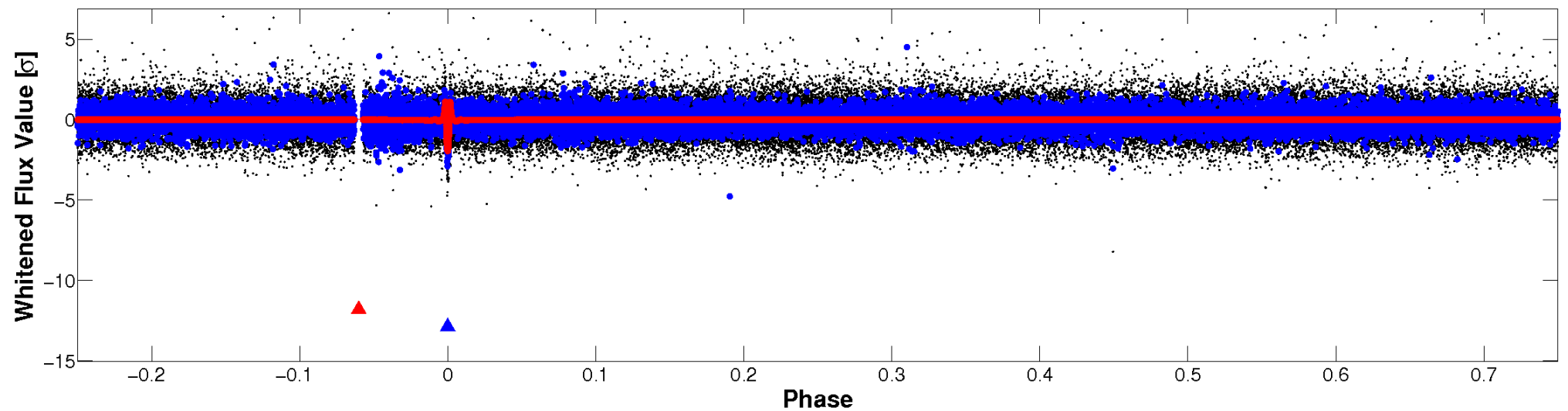


Non-Whitened Vs. Whitened Light Curve

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

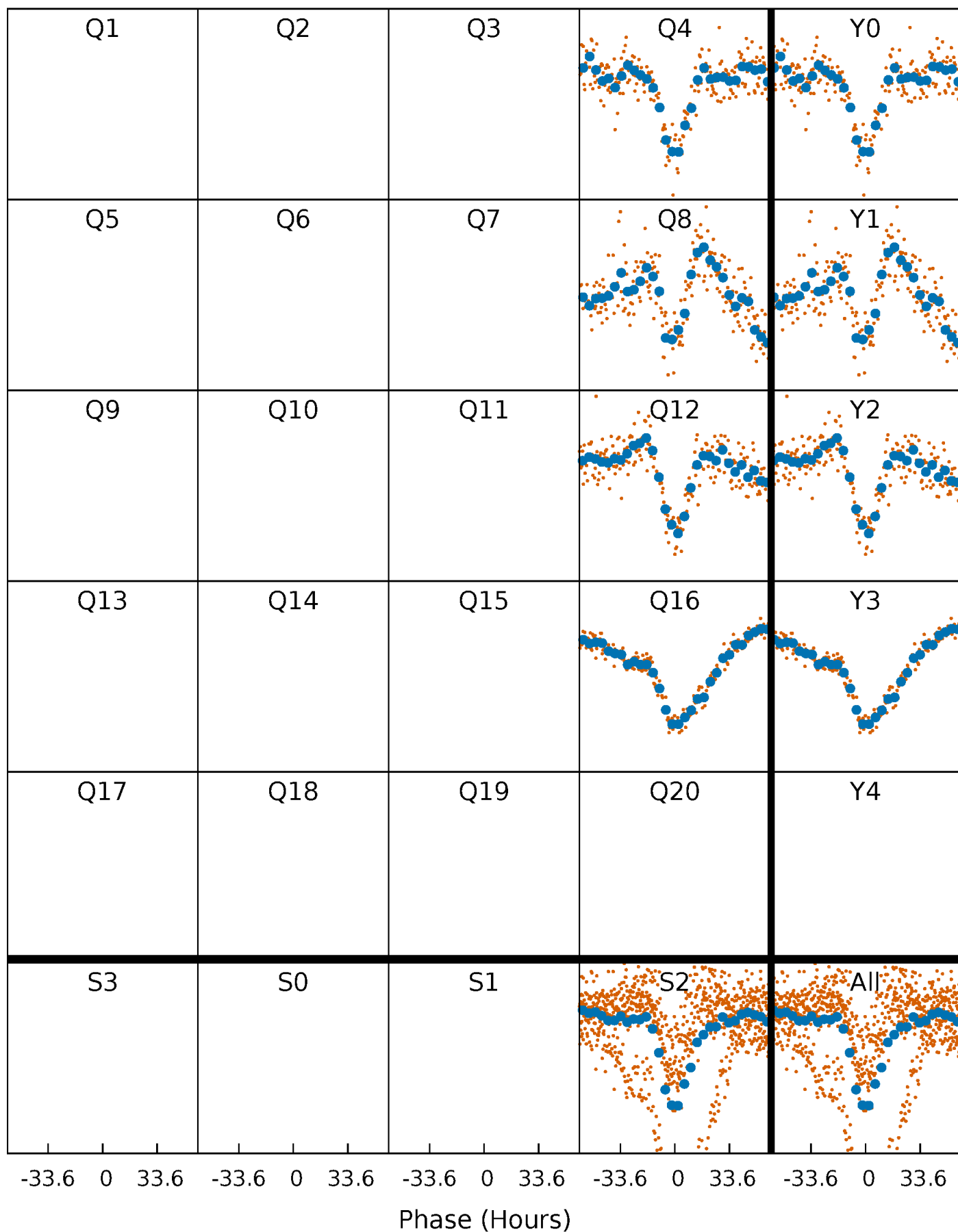


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



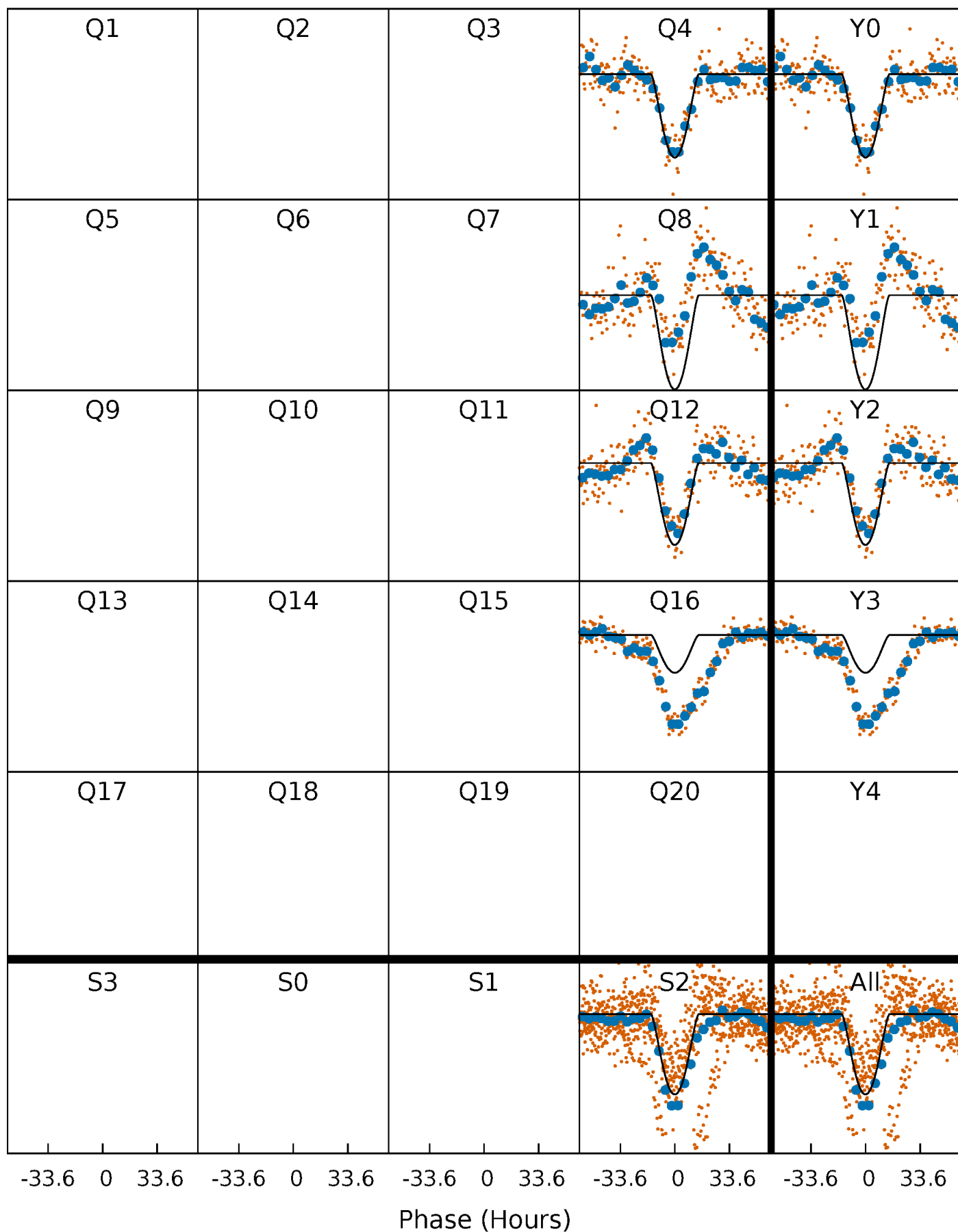
PDC Quarter-Phased Transit Curves

TCE 011911580-02 $P=359.026404$ Days $T_0=415.497738$ (BKJD)



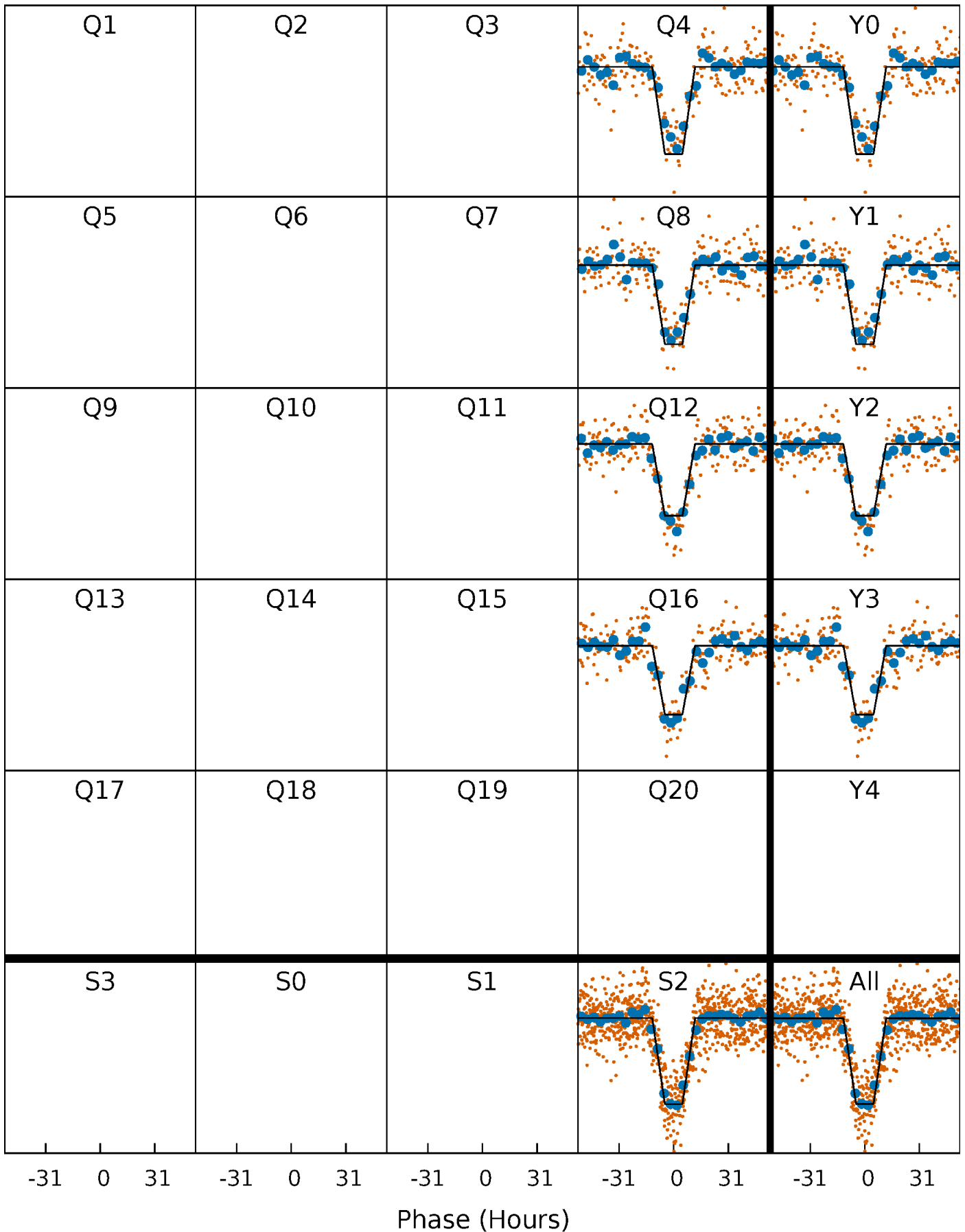
DV Quarter-Phased Transit Curves

TCE 011911580-02 P=359.026404 Days $T_0=415.497738$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

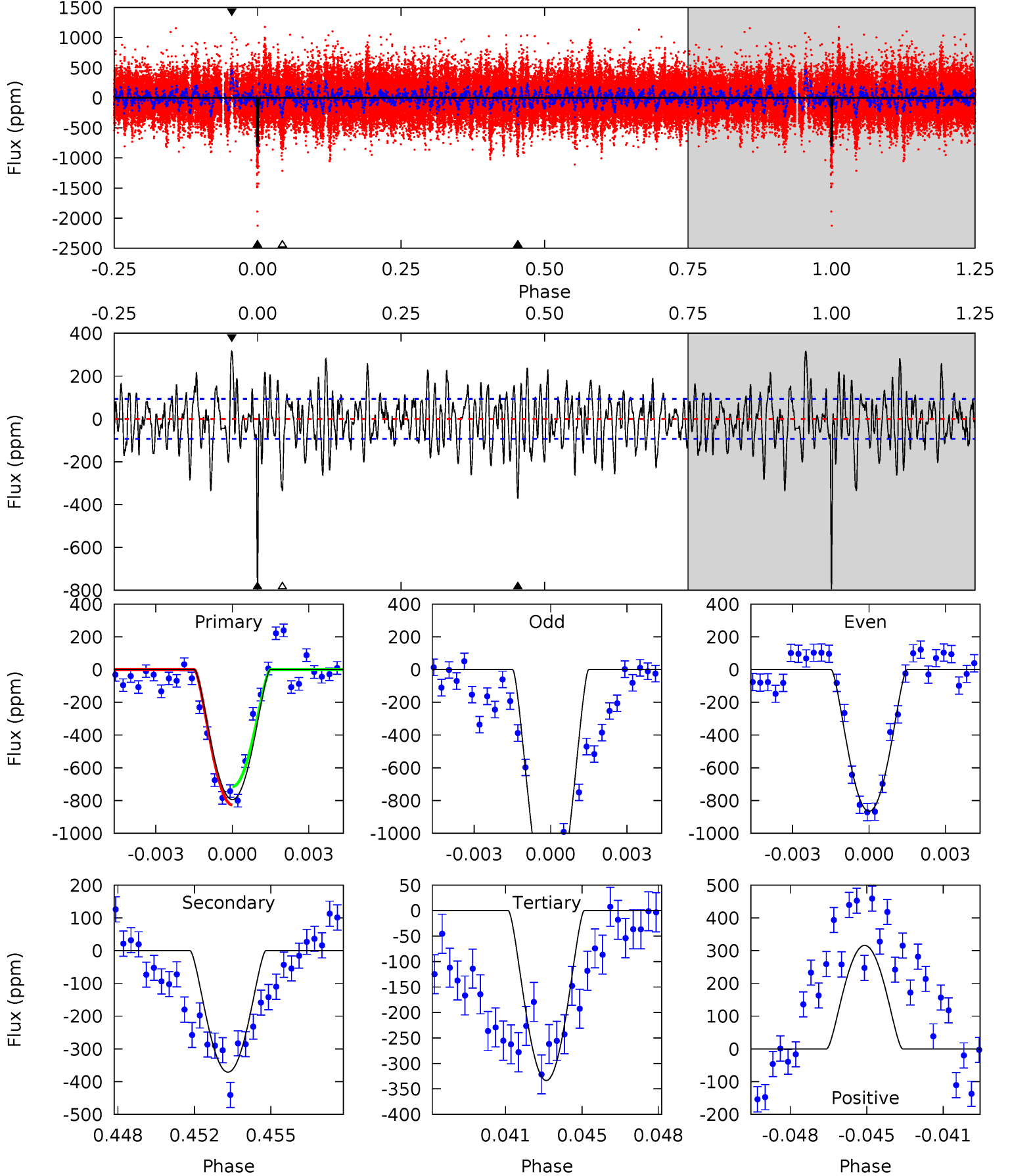
TCE 011911580-02 P=359.051705 Days $T_0=415.443616$ (BKJD)



DV Model-Shift Uniqueness Test

011911580-02, $P = 359.026404$ Days, $E = 56.471334$ Days

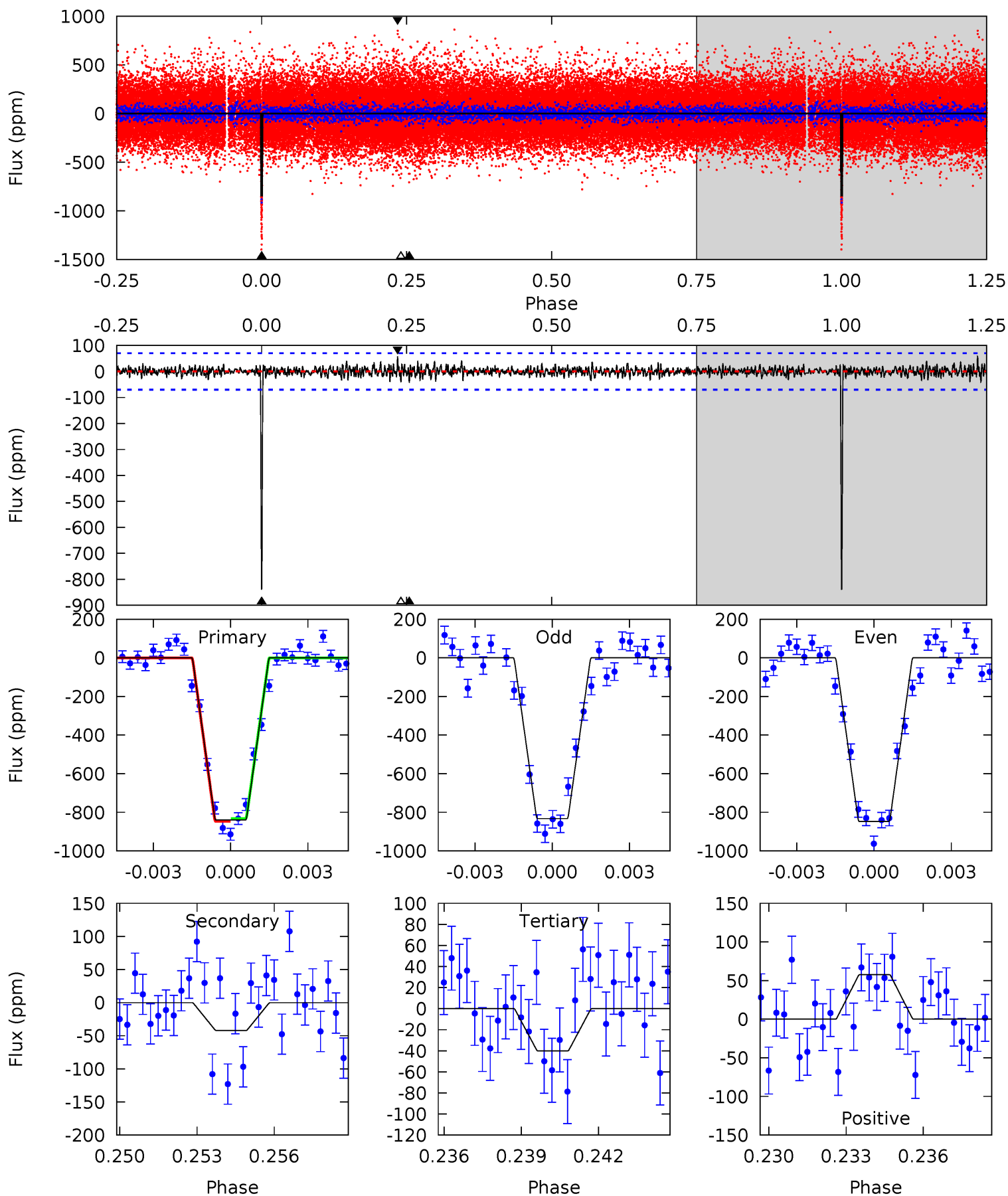
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.6	20.8	18.7	17.7	5.23	2.92	5.72	25.9	26.9	2.11	3.09	19.7	1.38	0.28	3.10



Alt Model-Shift Uniqueness Test

011911580-02, $P = 359.051705$ Days, $E = 56.391911$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
63.1	3.16	3.01	4.32	5.26	2.98	0.88	60.1	58.8	0.15	-1.16	0.56	1.01	0.06	0.51



Stellar Parameters For KIC 011911580

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6355^{+153}_{-192}	$4.410^{+0.054}_{-0.202}$	$-0.080^{+0.250}_{-0.300}$	$1.108^{+0.350}_{-0.117}$	$1.151^{+0.157}_{-0.157}$	$1.191^{+0.332}_{-0.620}$
	+2%/-3%	+1%/-5%	+312%/-375%	+32%/-11%	+14%/-14%	+28%/-52%
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 011911580-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-371 ± 18	$8.14^{+6.12}_{-5.15}$	414^{+29}_{-20}	3838^{+1862}_{-606}	3220^{+20680}_{-2151}
Alt.	-42 ± 13	$5.98^{+5.43}_{-4.07}$	413^{+28}_{-20}	2998^{+1407}_{-490}	630^{+5969}_{-467}

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 $A_{obs} \gg 1.0$

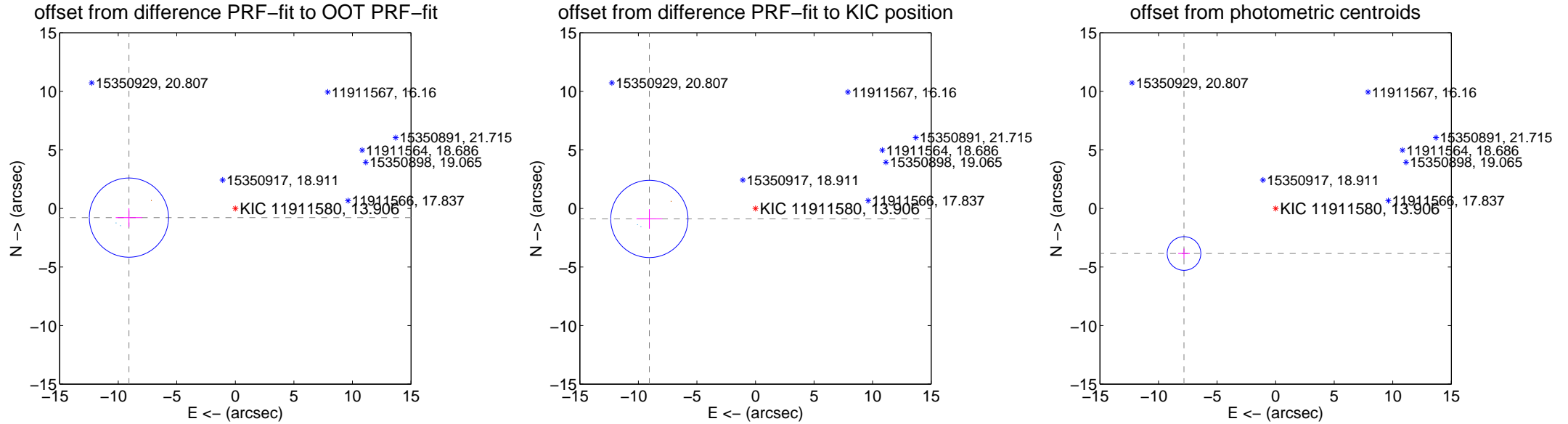
DV Centroid Data

Supplemental centroid analysis for 011911580-02. Kepler magnitude: 13.91. Transit SNR 19.90

There are 2 quarters with good PRF difference image offsets

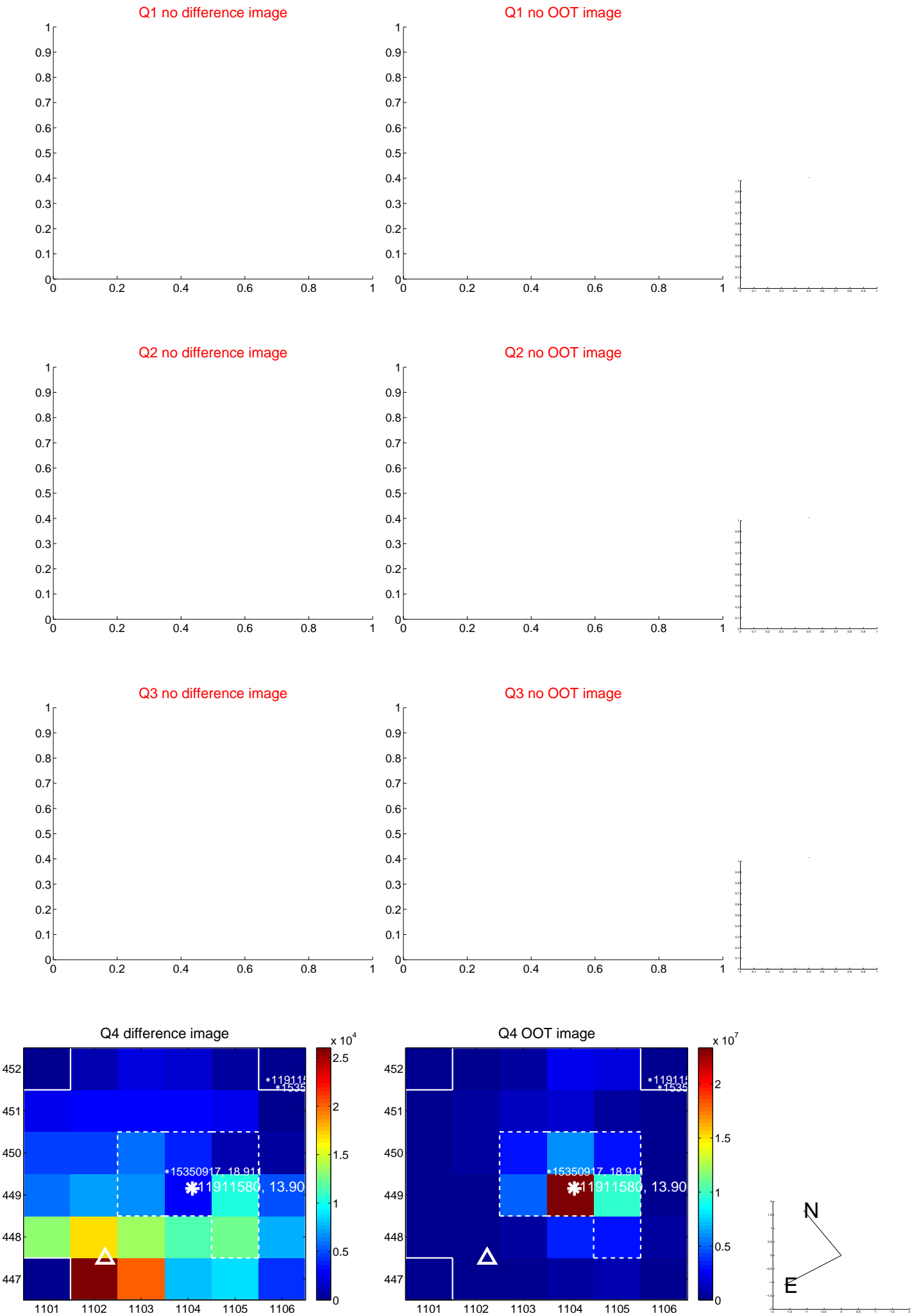
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	9.122 \pm 1.127	8.09	9.088 \pm 1.129	-0.782 \pm 0.799
PRF-fit source offset from KIC position	9.108 \pm 1.100	8.28	9.064 \pm 1.102	-0.894 \pm 0.829
photometric centroid source offset	8.72 \pm 0.48	18.21	7.83 \pm 0.49	-3.85 \pm 0.42

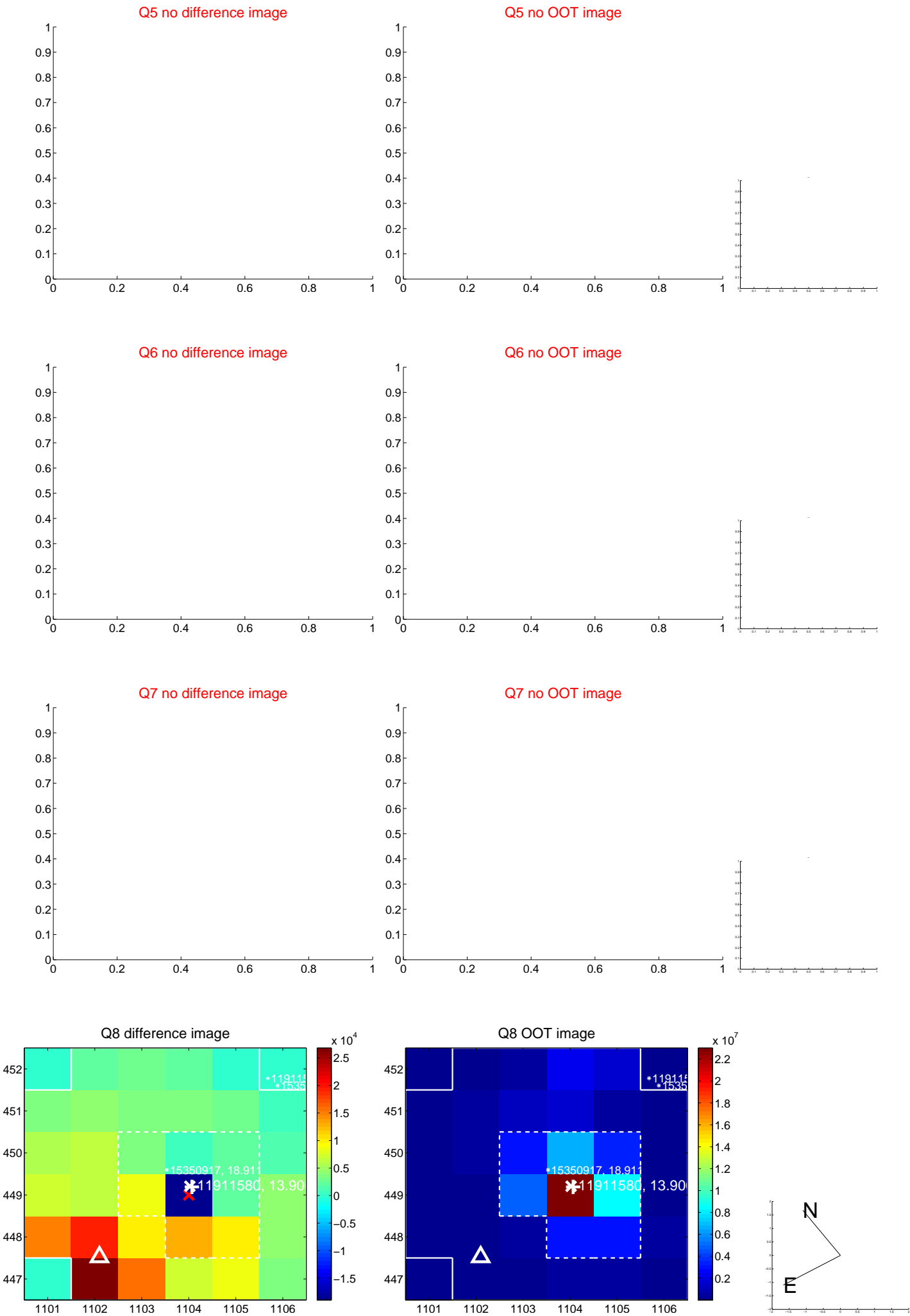


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



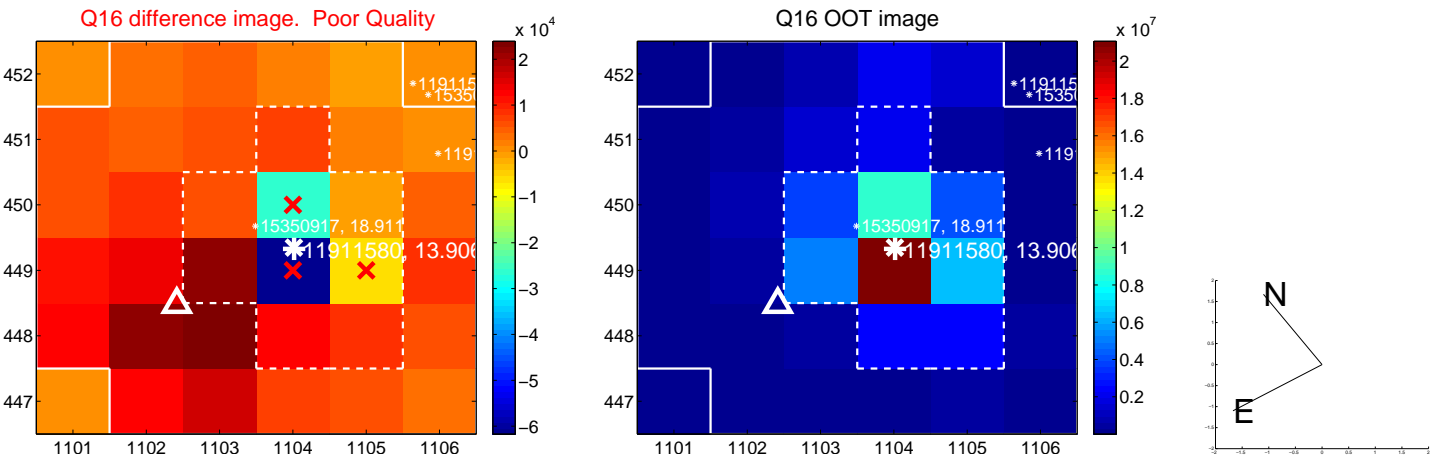
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



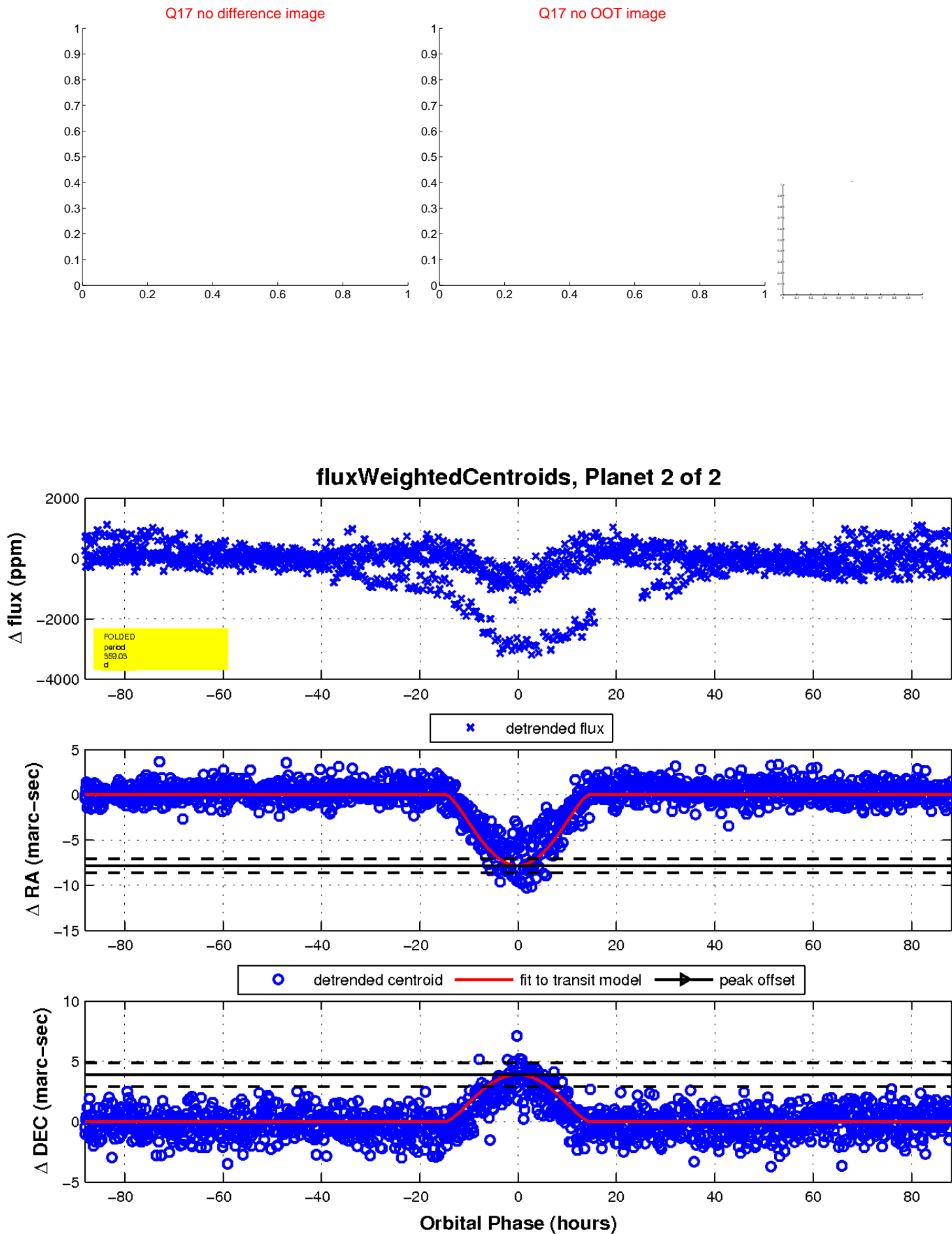
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

