

KIC 003098197

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})
003098197-01	OBS	3362.01	30.476542	156.237948	102094.1	18.859	2849.2	1376.3	0.79	5913	38.36	20.43
003098197-02	OBS	No	30.476504	136.973068	111977.8	10.238	2903.2	1353.6	0.79	5913	39.94	20.43

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003098197-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
003098197-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—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 003098197-01

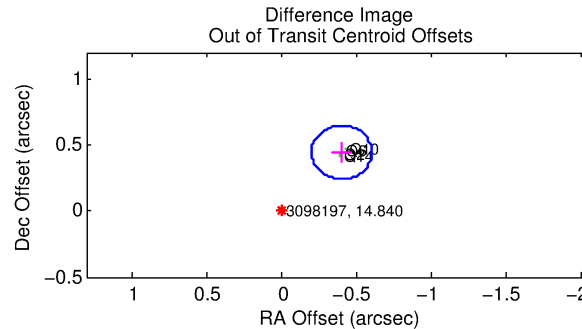
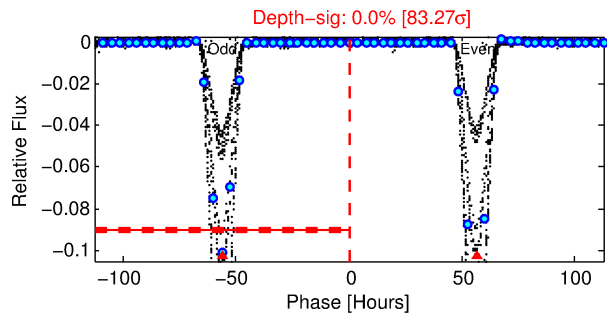
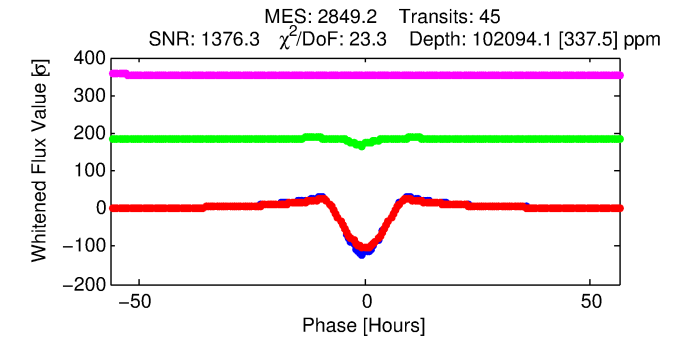
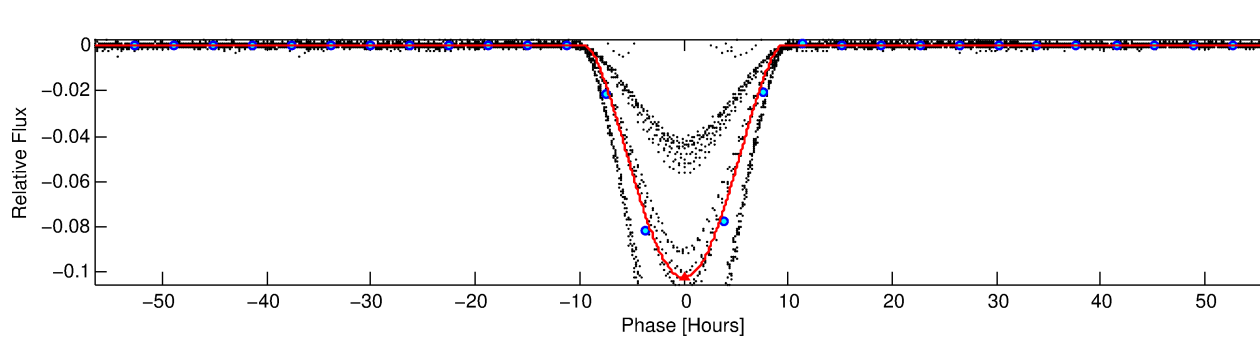
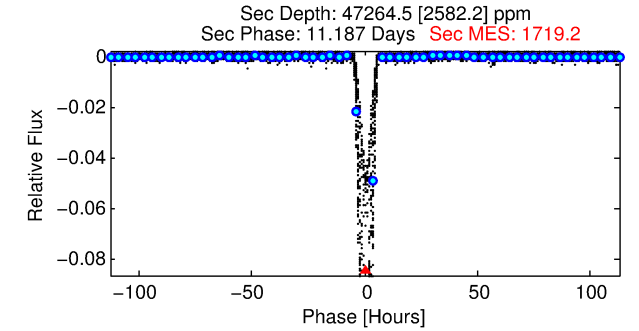
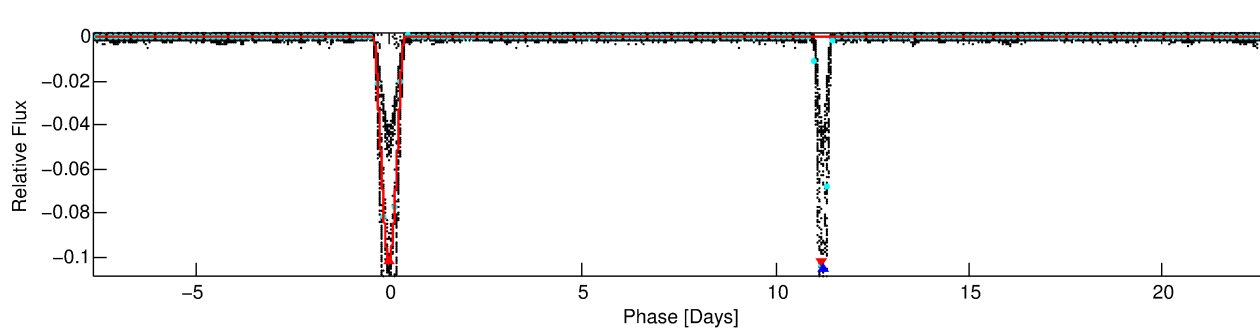
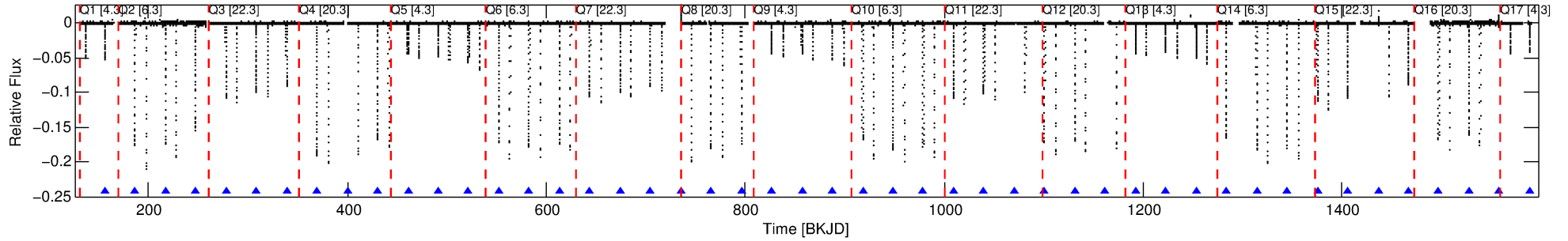
TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist ($''$)	Δ Row	Δ Col	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ_P	σ_T
003098197-01	3098197	003098194-01	3098194	1:1	5.7	0	-1	13.90	14.84	3.01	Direct-PRF	0	0.01	0.05

Notes: P₁:P₂ 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. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ 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: 3098197 Candidate: 1 of 2 Period: 30.477 d
KOI: K03362.01 Corr: 0.998

Kp: 14.84 R*: 0.79 Rs Teff: 5913.0 K Logg: 4.58 Fe/H: -0.560



DV Fit Results:

Period = 30.47654 [0.00003] d
Epoch = 156.2379 [0.0008] BKJD
Rp/R* = 0.4467 [0.1128]
a/R* = 13.69 [0.16]
b = 0.93 [0.16]
Seff = 20.42 [6.32]
Teq = 542 [42] K
Rp = 38.36 [13.14] Re
a = 0.1822 [0.0359] AU
Ag = 586.80 [343.31] [1.71σ]
Teffp = 4125 [536] K [6.67σ]

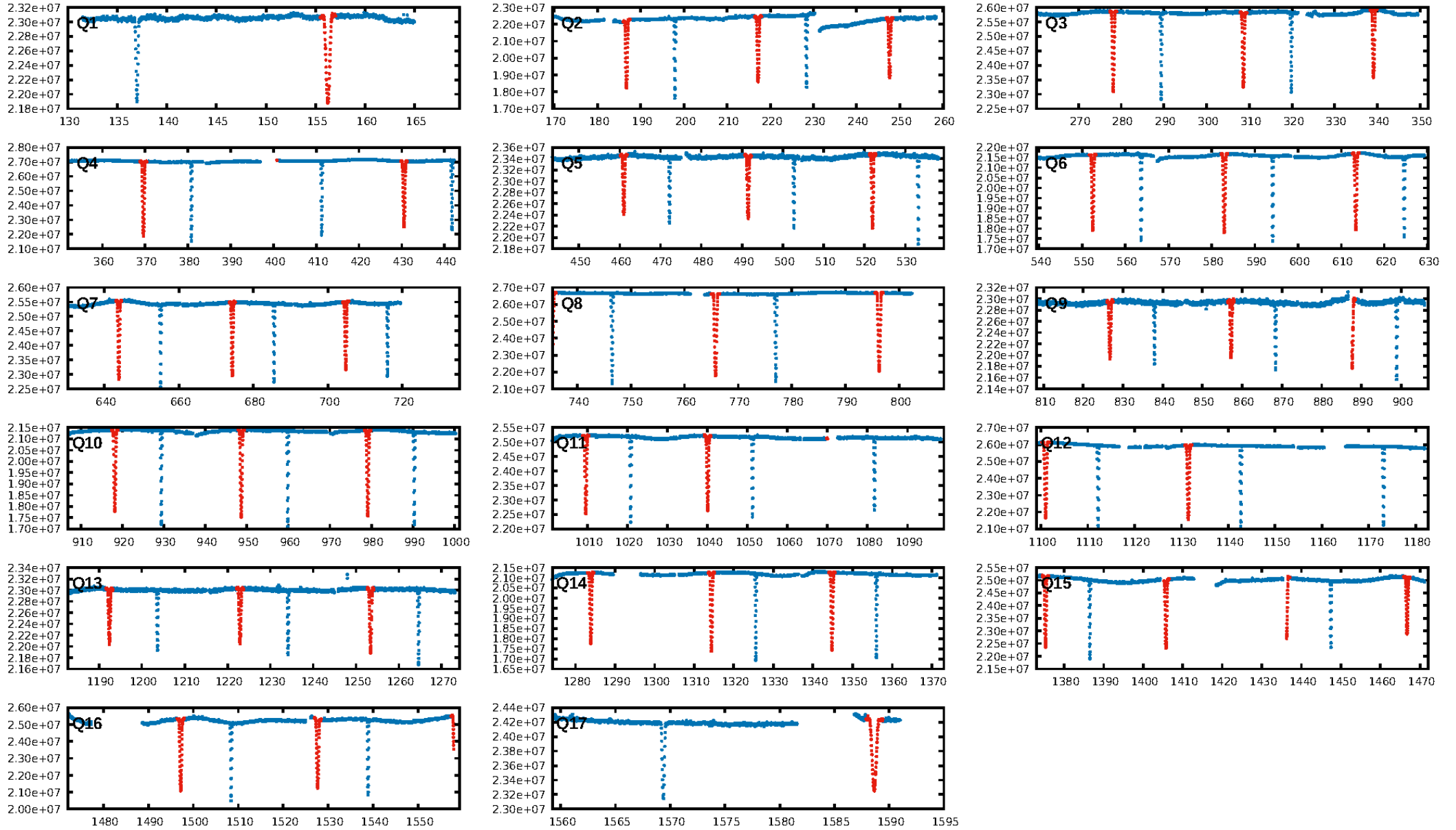
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [43/43]
GhostDiagnostic-chr: -0.2549
Centroid-sig: 0.0%
Centroid-so: 6.142 arcsec [3646.32σ]
OotOffset-rm: 0.601 arcsec [8.90σ]
KicOffset-rm: 5.531 arcsec [79.84σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [14/14]

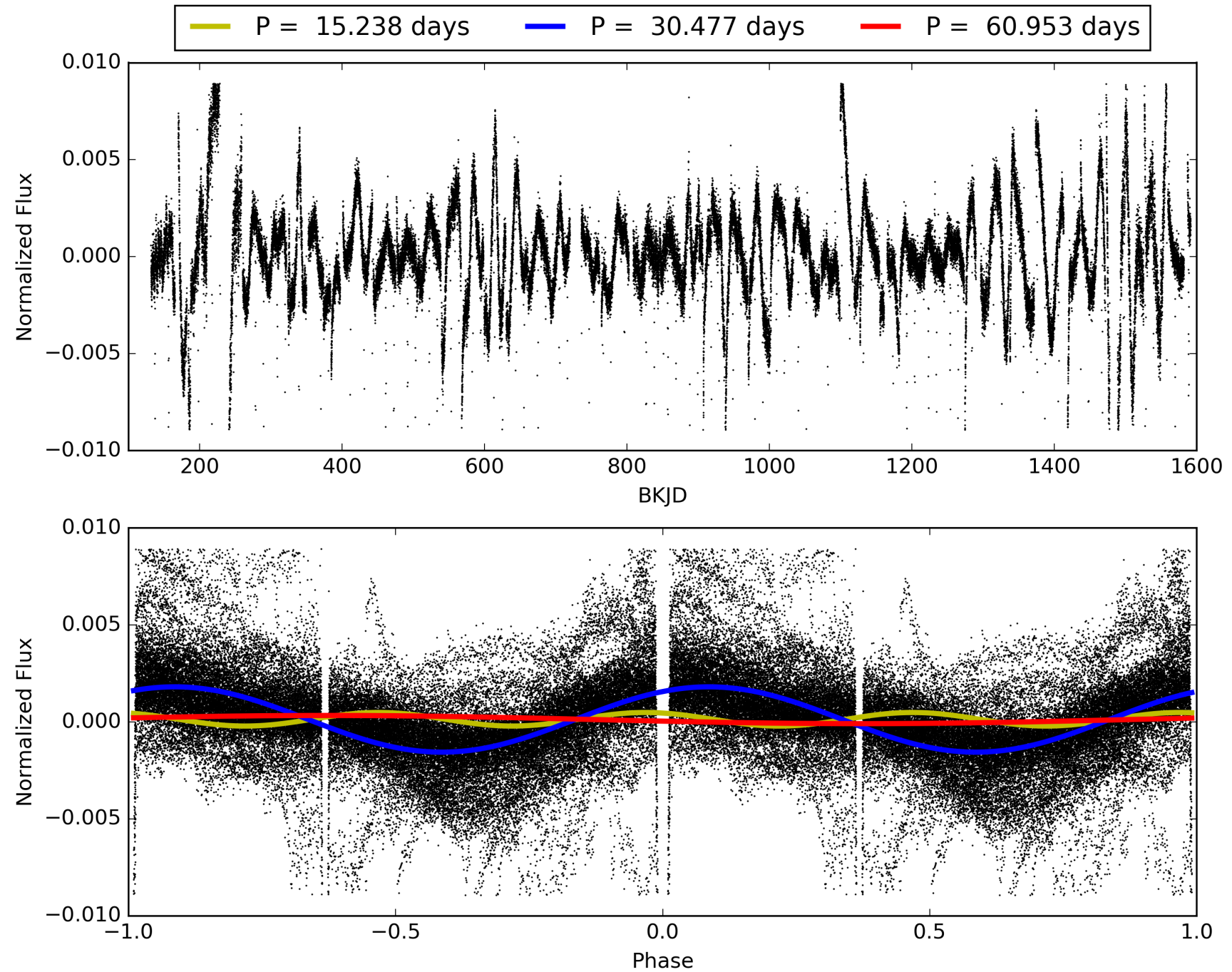
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:38:02 Z

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

TCE 003098197-01, PDC Light Curves

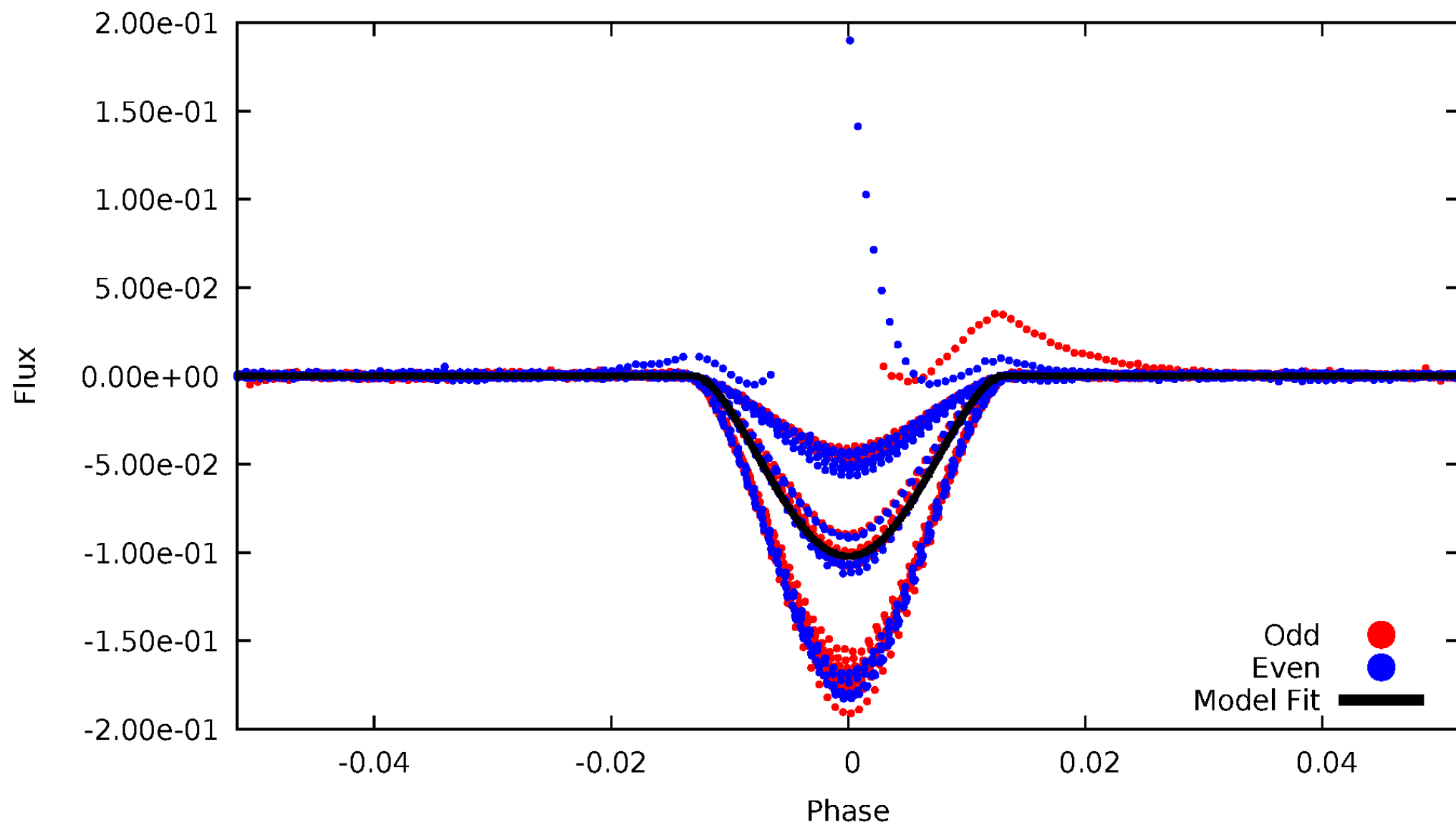


TCE 003098197-01



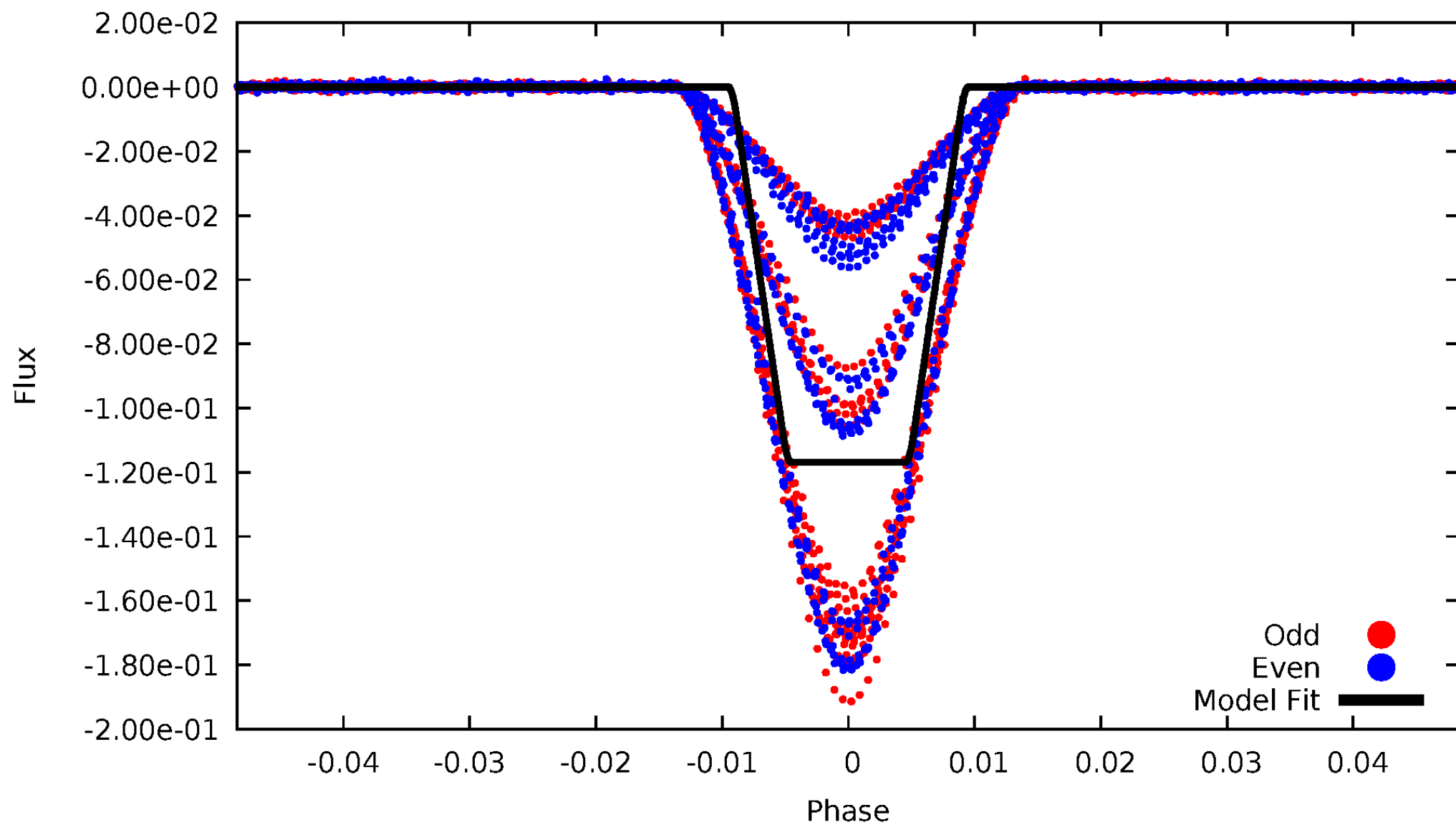
DV Odd/Even

TCE 003098197-01



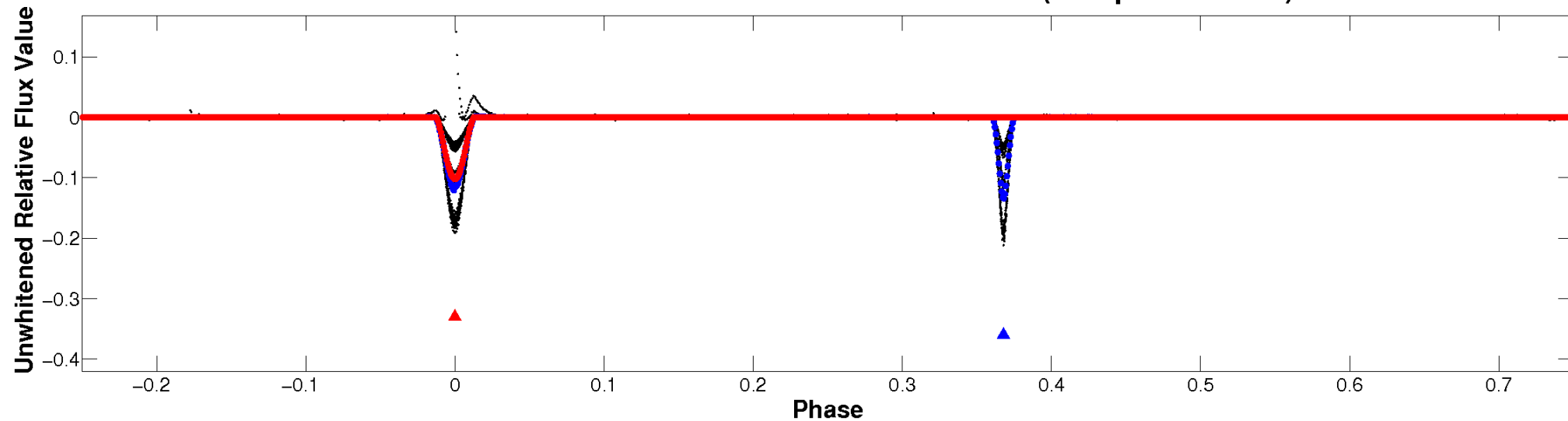
ALT Odd/Even

TCE 003098197-01

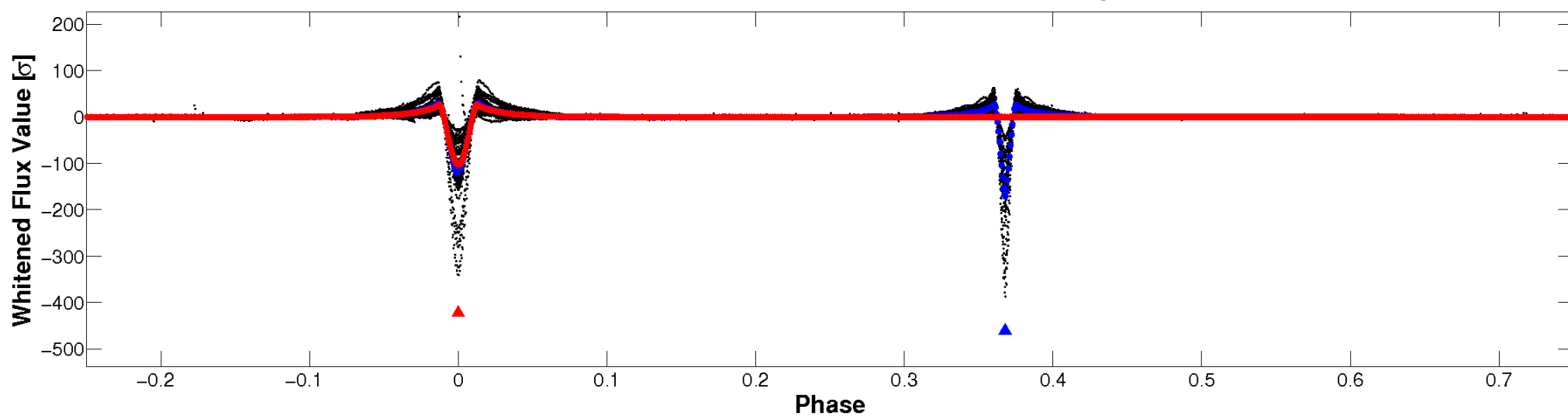


Non-Whitened Vs. Whitened Light Curve

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

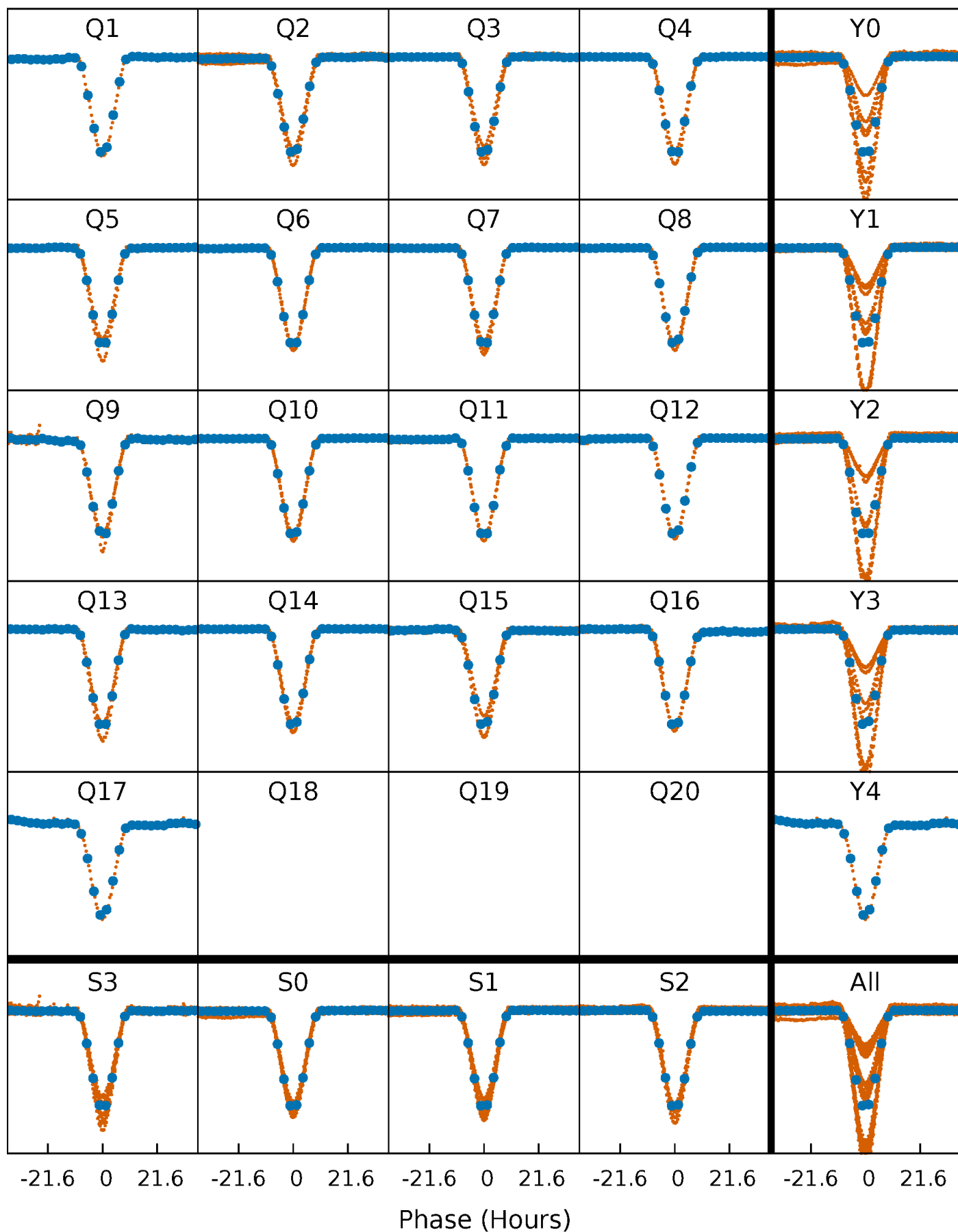


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



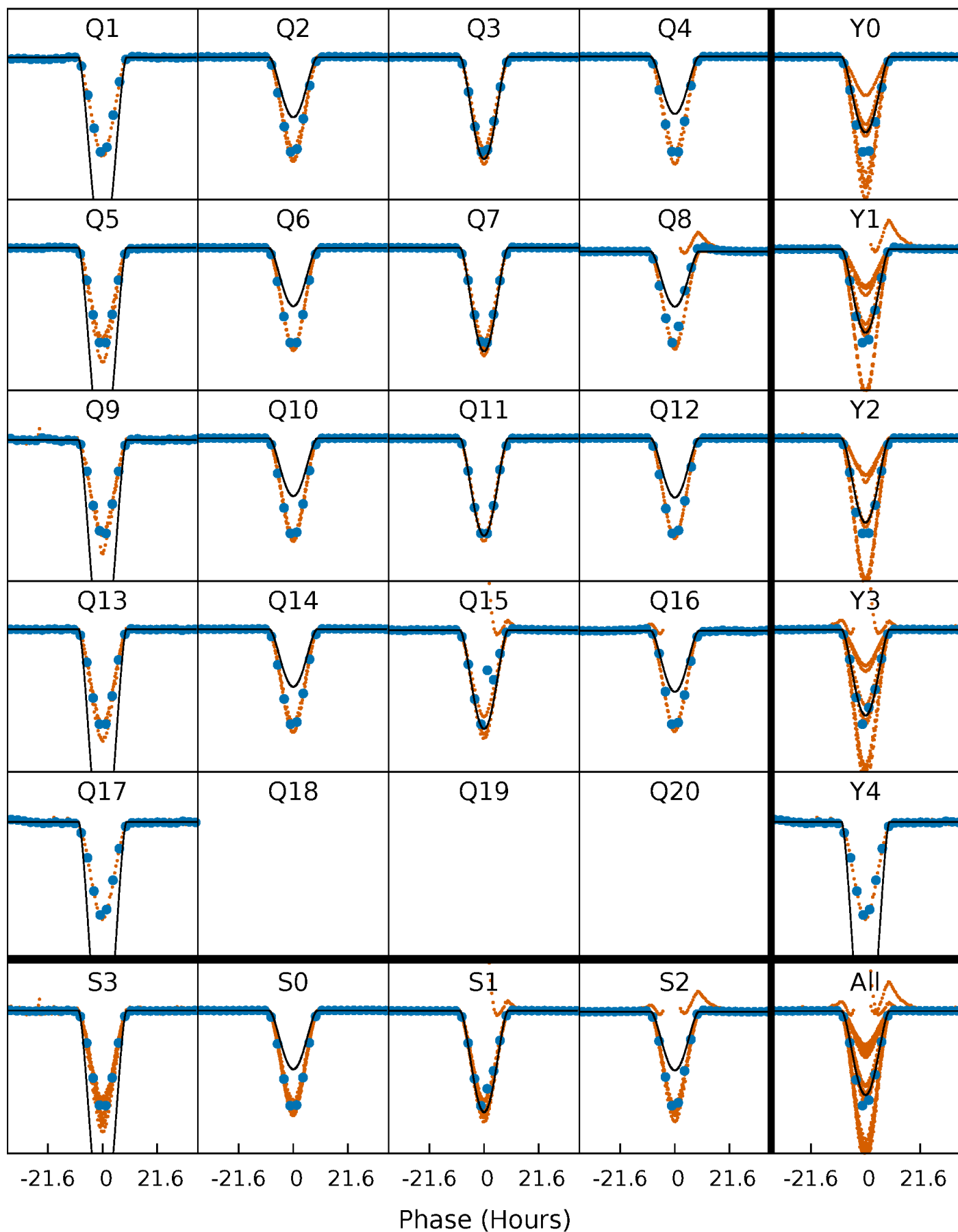
PDC Quarter-Phased Transit Curves

TCE 003098197-01 P= 30.476542 Days $T_0=156.237948$ (BKJD)



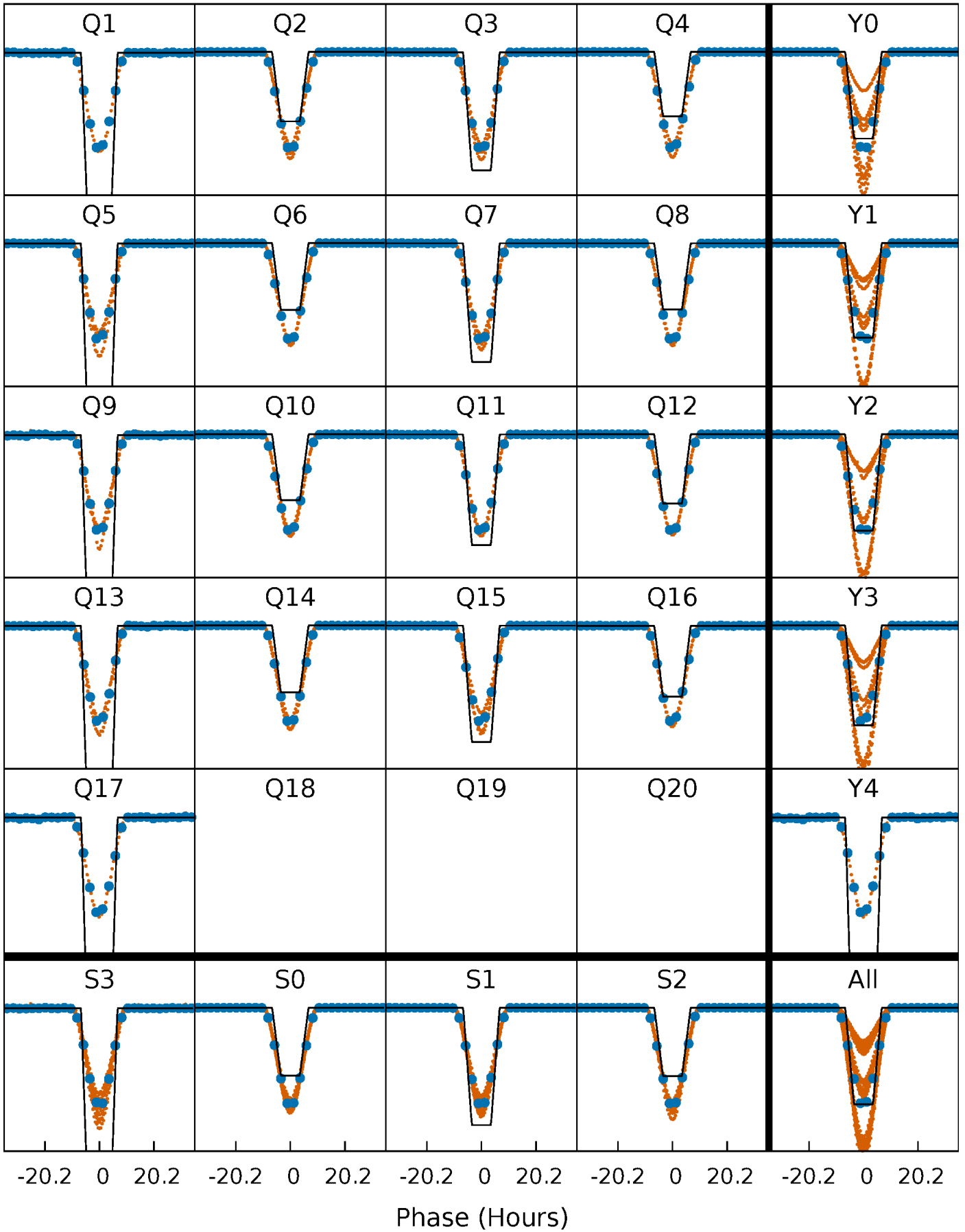
DV Quarter-Phased Transit Curves

TCE 003098197-01 P= 30.476542 Days $T_0=156.237948$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

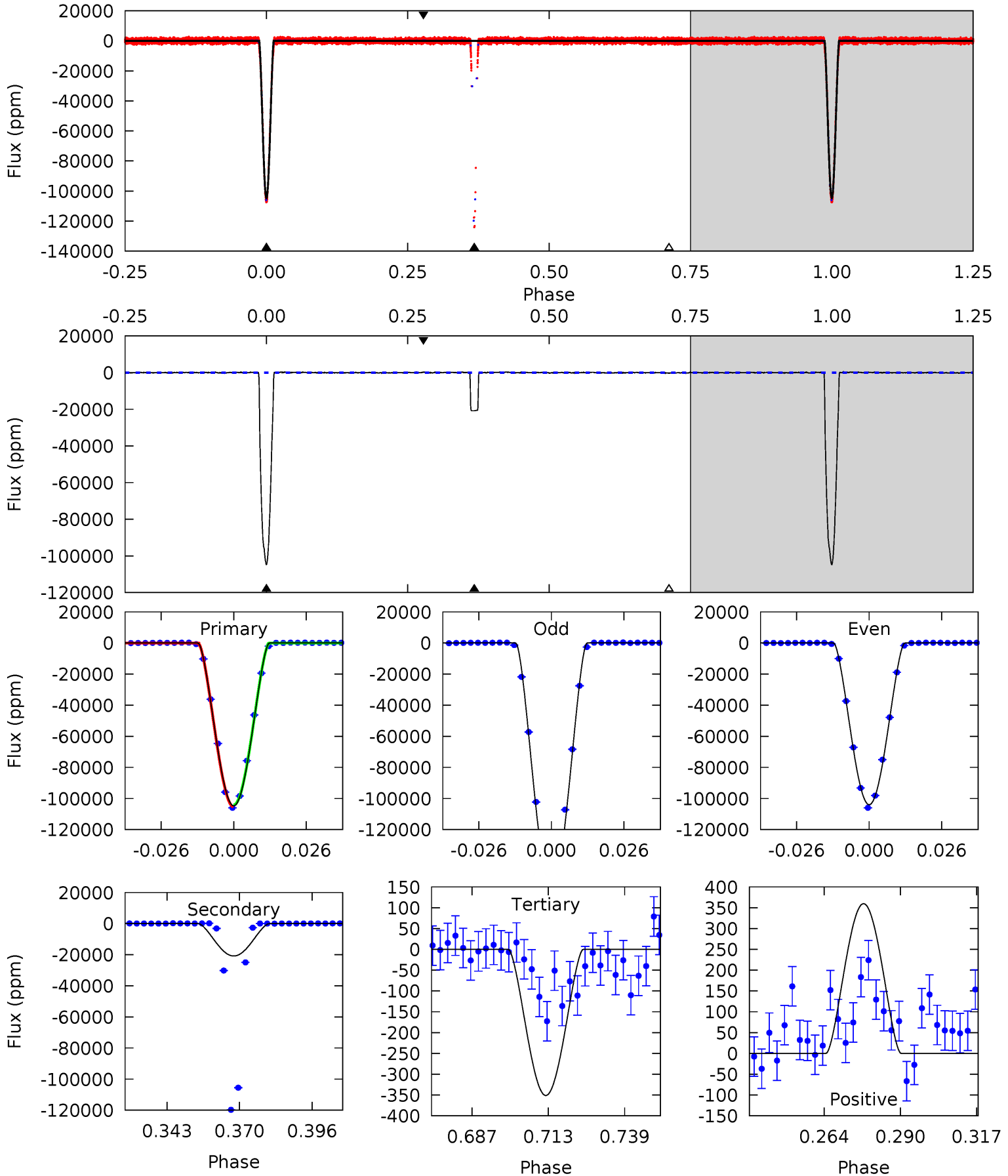
TCE 003098197-01 P= 30.476536 Days $T_0=156.238003$ (BKJD)



DV Model-Shift Uniqueness Test

003098197-01, P = 30.476542 Days, E = 125.761406 Days

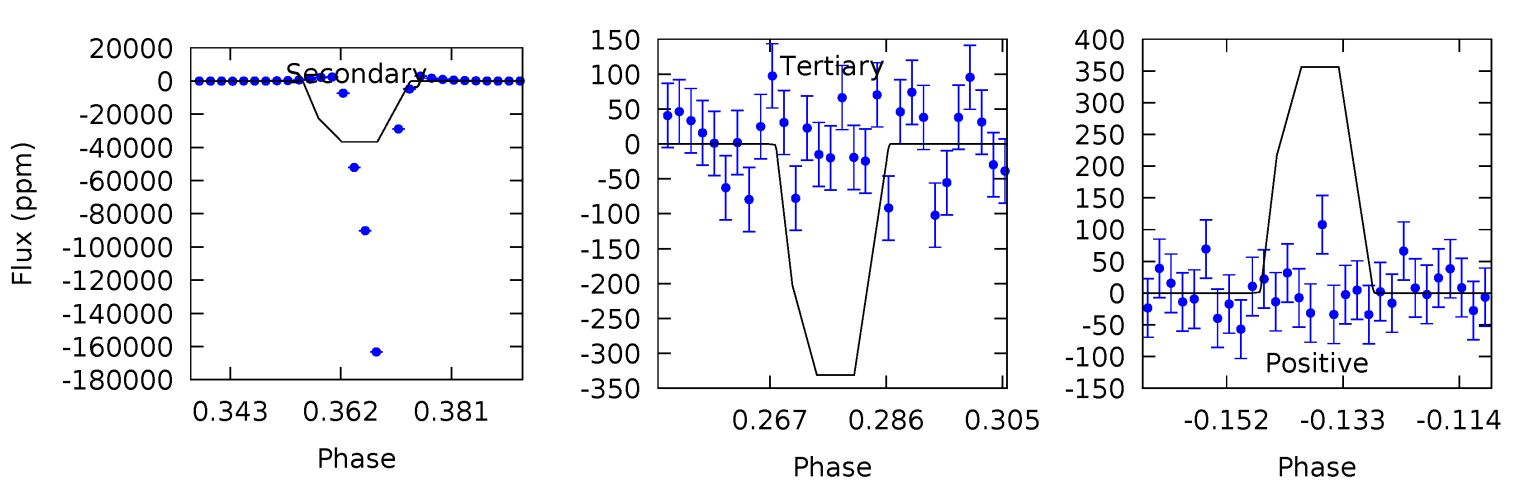
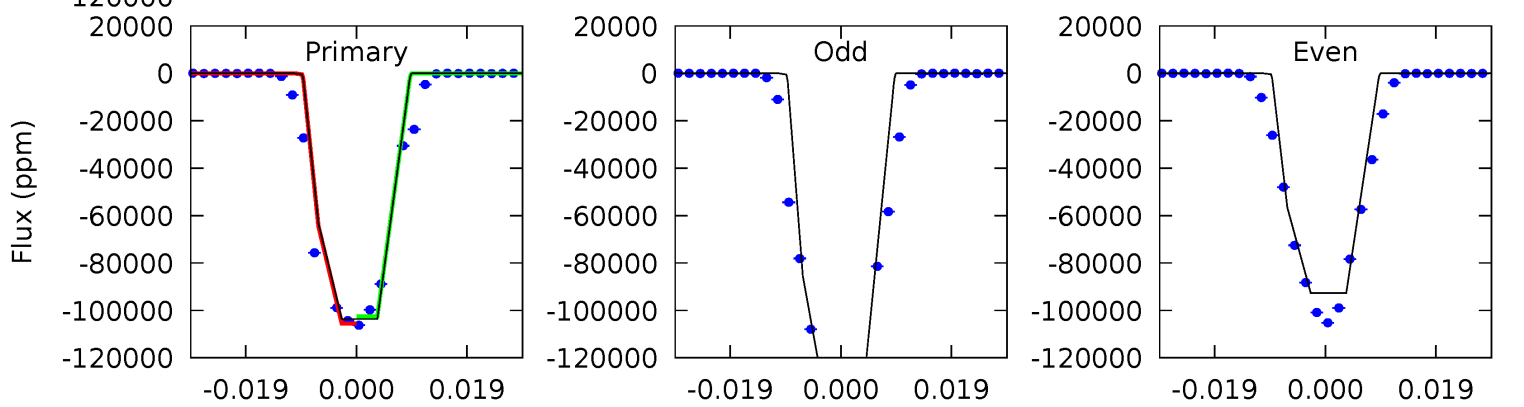
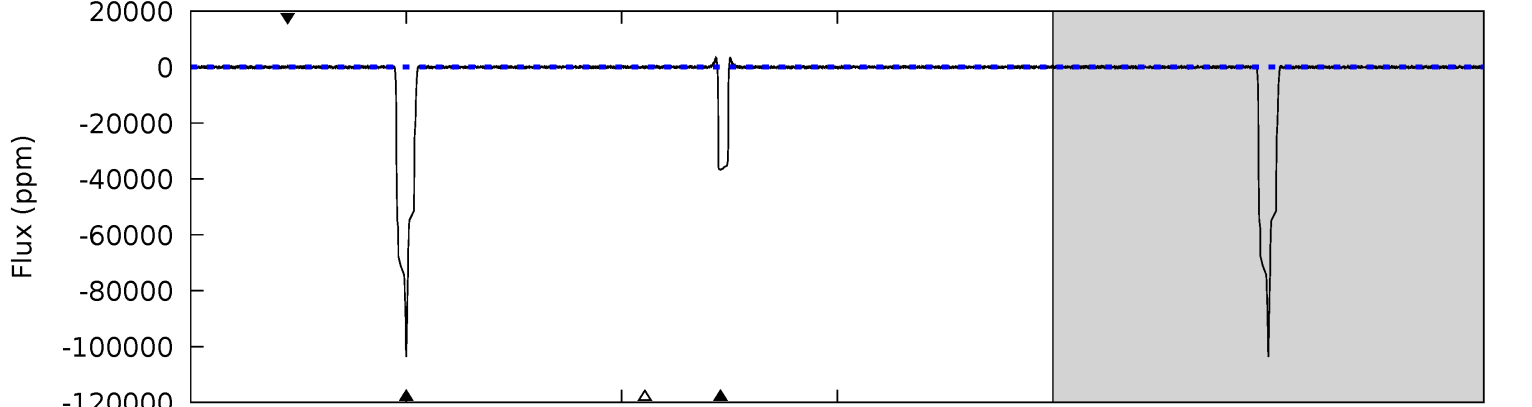
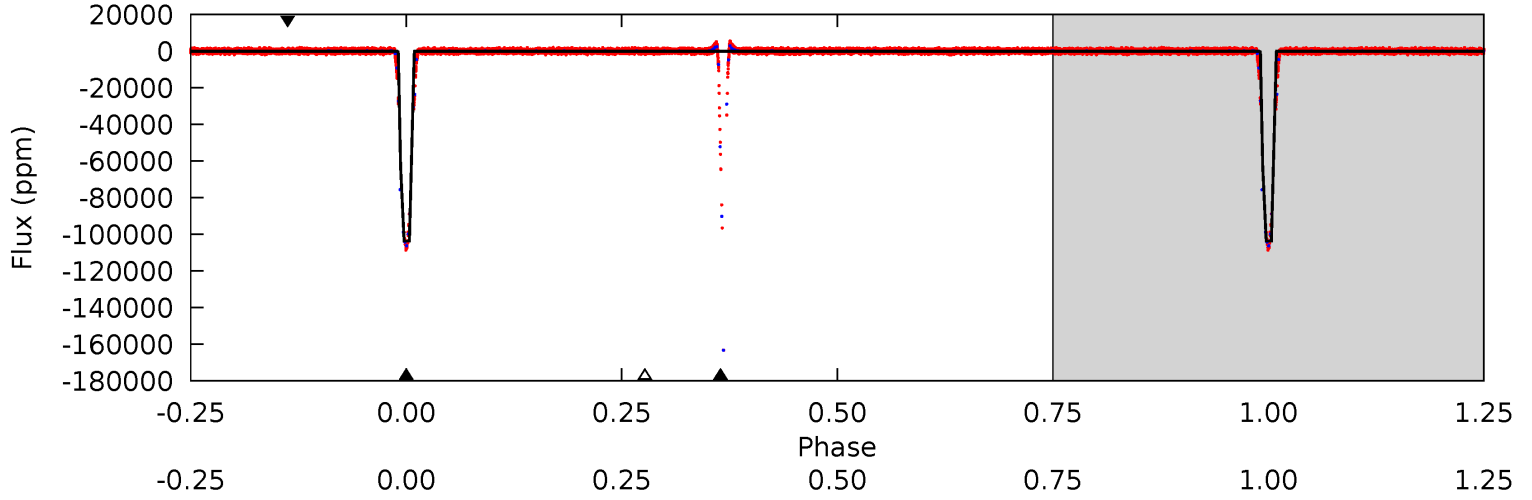
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2996	595.9	10.0	10.3	4.84	2.22	3.26	2986	2986	585.8	585.6	884.5	1.04	0.00	0



Alt Model-Shift Uniqueness Test

003098197-01, P = 30.476536 Days, E = 125.761467 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1391	492.3	4.44	4.78	4.90	2.34	1.20	1386	1386	487.8	487.5	506.0	1.13	0.03	7.29



Stellar Parameters For KIC 003098197

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5913^{+159}_{-159}	$4.585^{+0.040}_{-0.160}$	$-0.560^{+0.300}_{-0.300}$	$0.787^{+0.182}_{-0.061}$	$0.874^{+0.088}_{-0.096}$	$2.527^{+0.395}_{-1.108}$
	+3%/-3%	+1%/-3%	+54%/-54%	+23%/-8%	+10%/-11%	+16%/-44%
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 003098197-01 / KOI 3362.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-20827 ± 35	$39.93^{+11.69}_{-10.41}$	772^{+41}_{-30}	3780^{+403}_{-287}	242^{+199}_{-97}
Alt.	-36681 ± 75	$30.94^{+10.78}_{-11.00}$	773^{+42}_{-33}	4593^{+951}_{-450}	709^{+1008}_{-308}

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

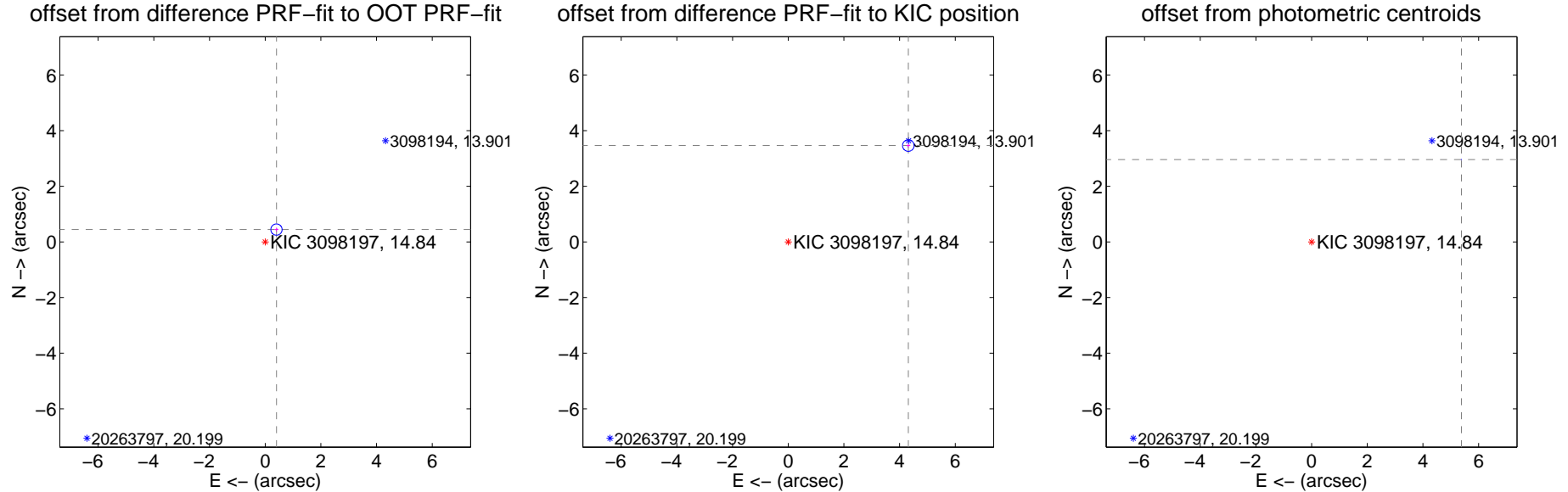
DV Centroid Data

Supplemental centroid analysis for 003098197-01. Kepler magnitude: 14.84. Transit SNR 1376.29

There are 4 quarters with good PRF difference image offsets

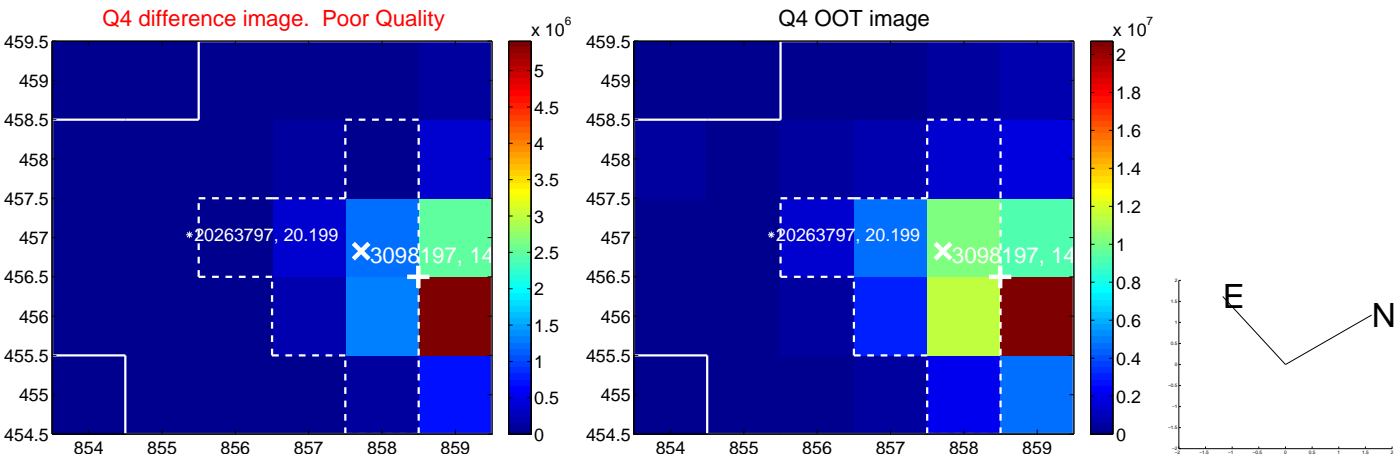
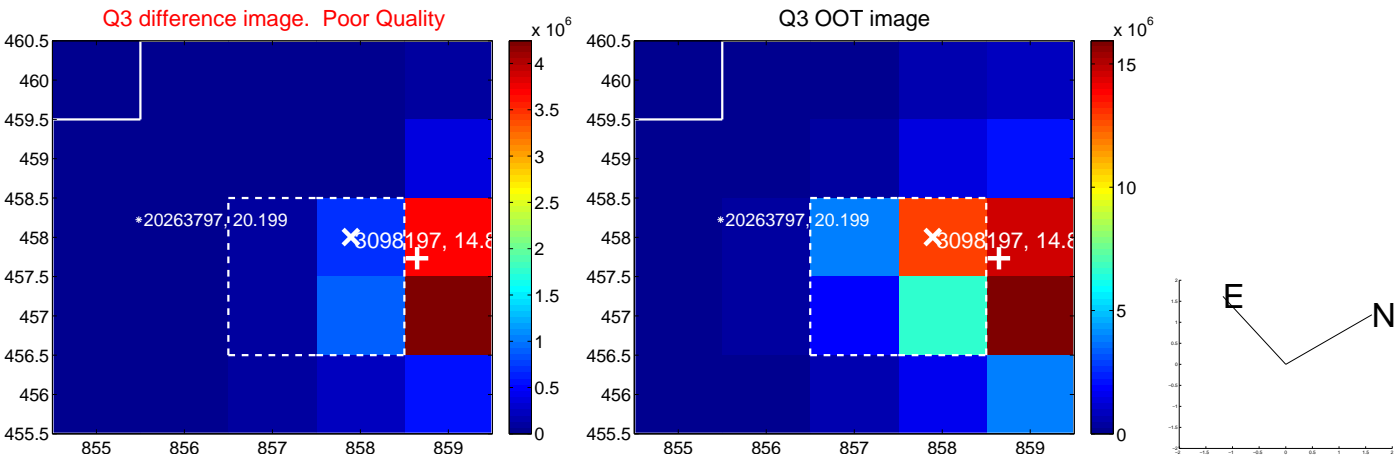
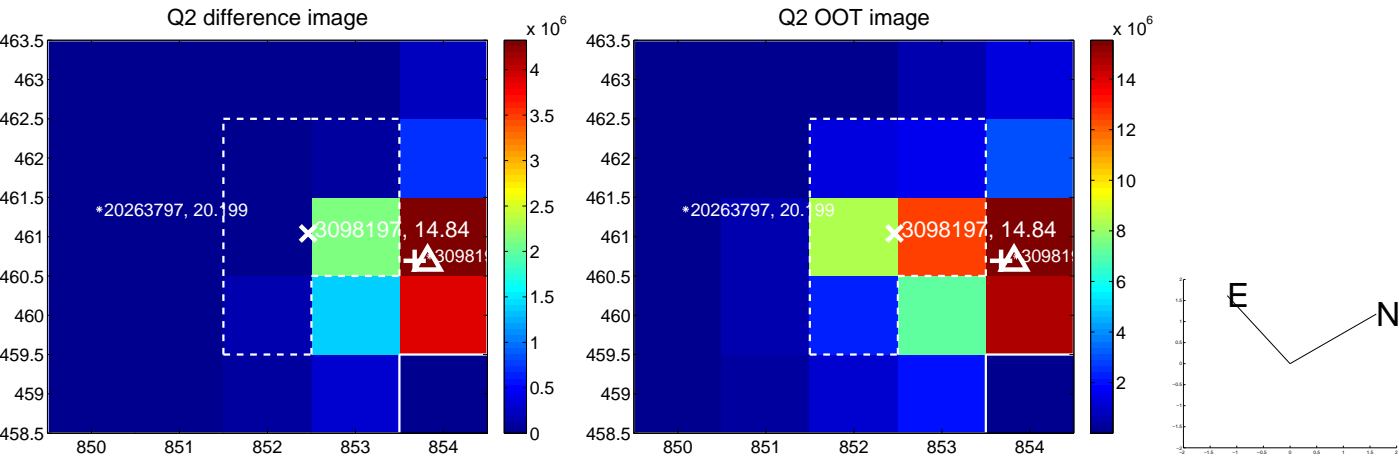
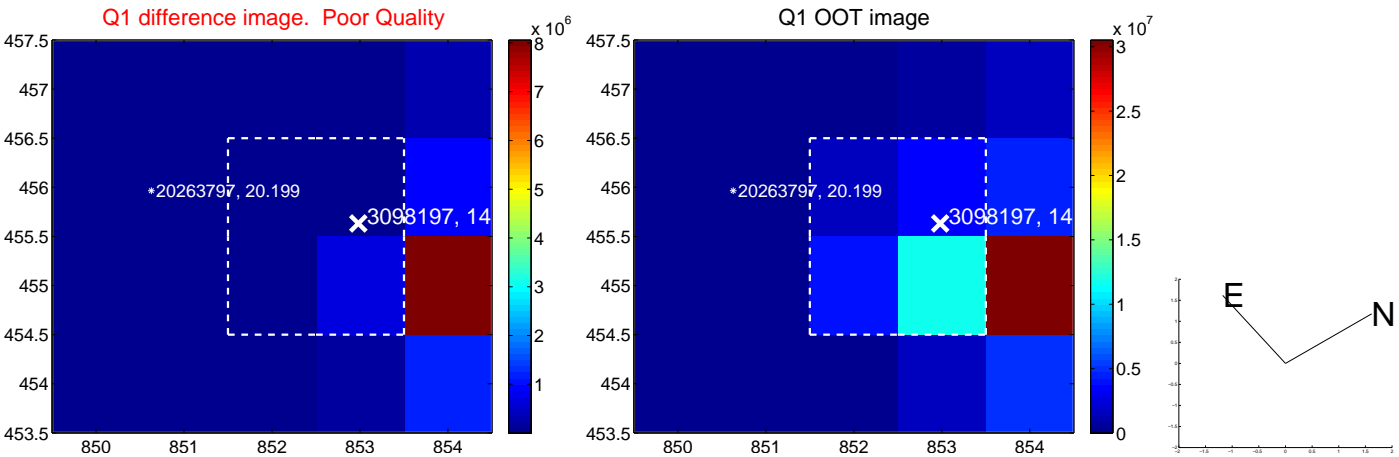
The OOT PRF centroid is offset from the target star catalog position by about 4.91 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.601 ± 0.068	8.90	-0.405 ± 0.067	0.443 ± 0.068
PRF-fit source offset from KIC position	5.531 ± 0.069	79.84	-4.312 ± 0.069	3.463 ± 0.070
photometric centroid source offset	6.14 ± 0.00	3646.32	-5.38 ± 0.00	2.96 ± 0.00

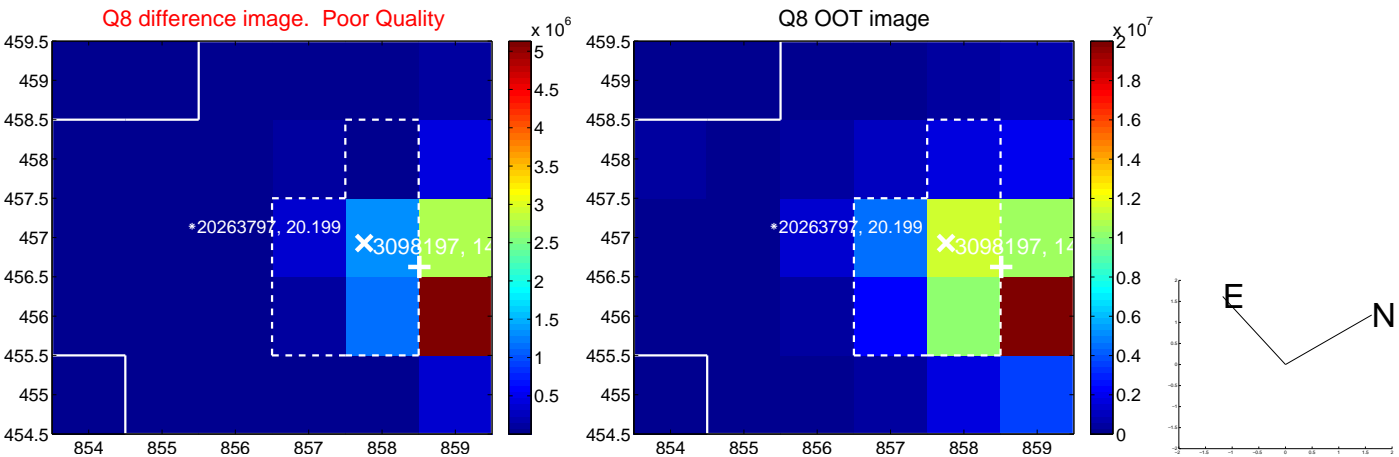
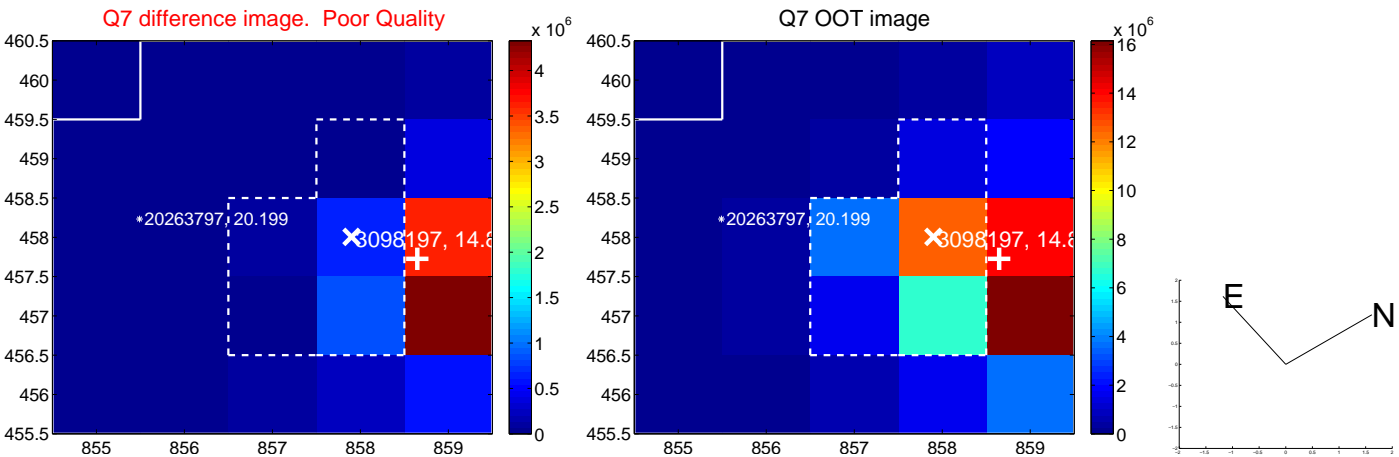
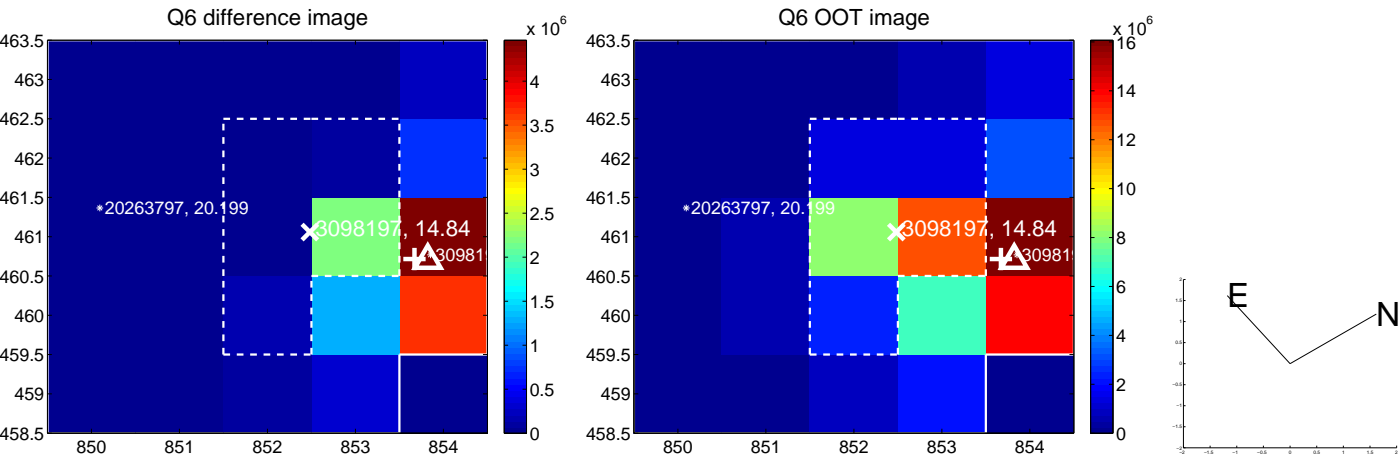
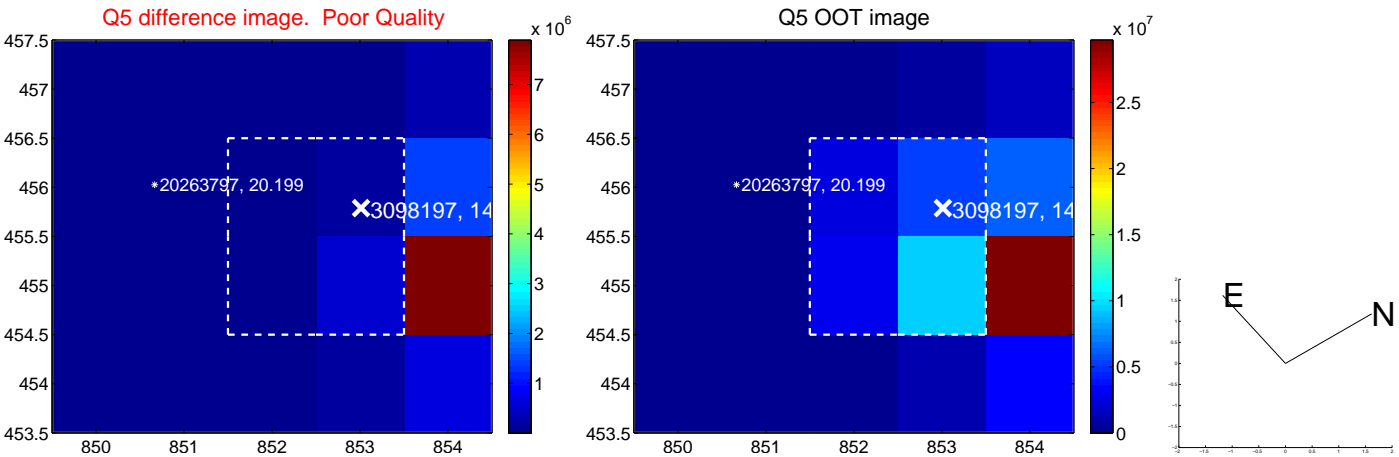


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

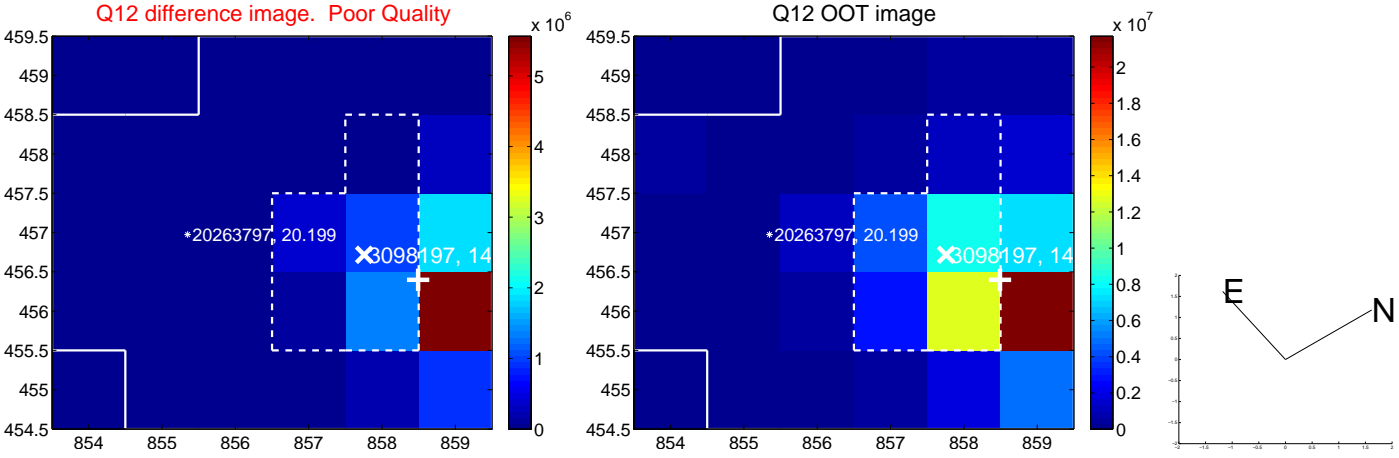
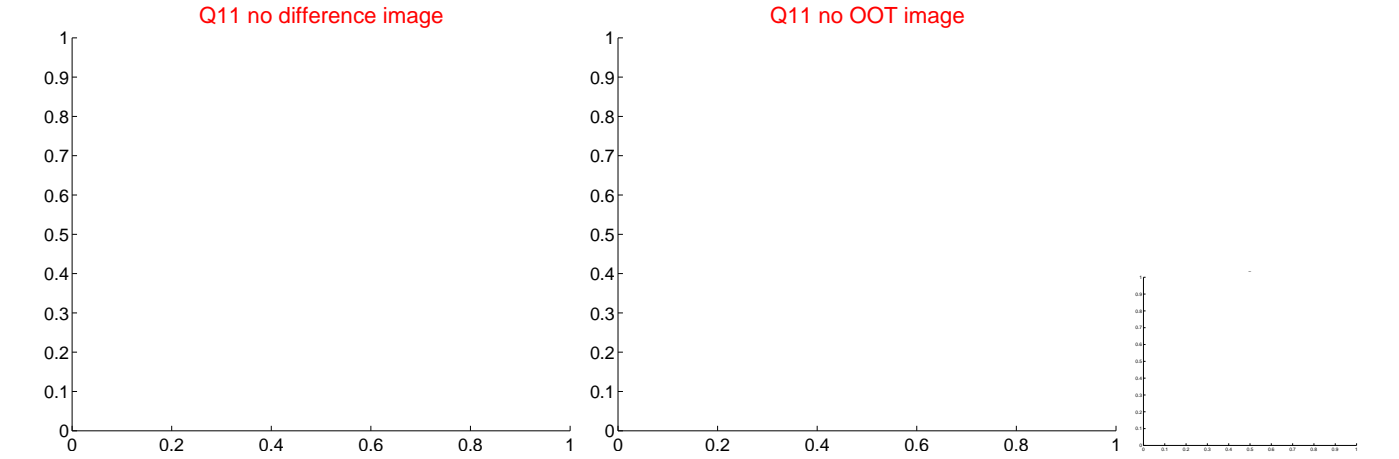
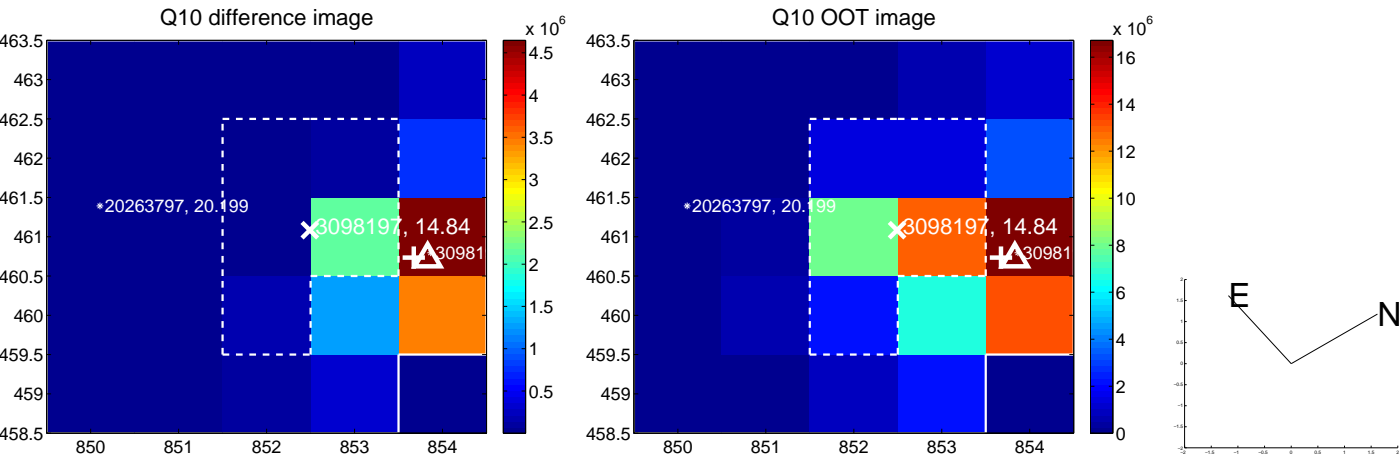
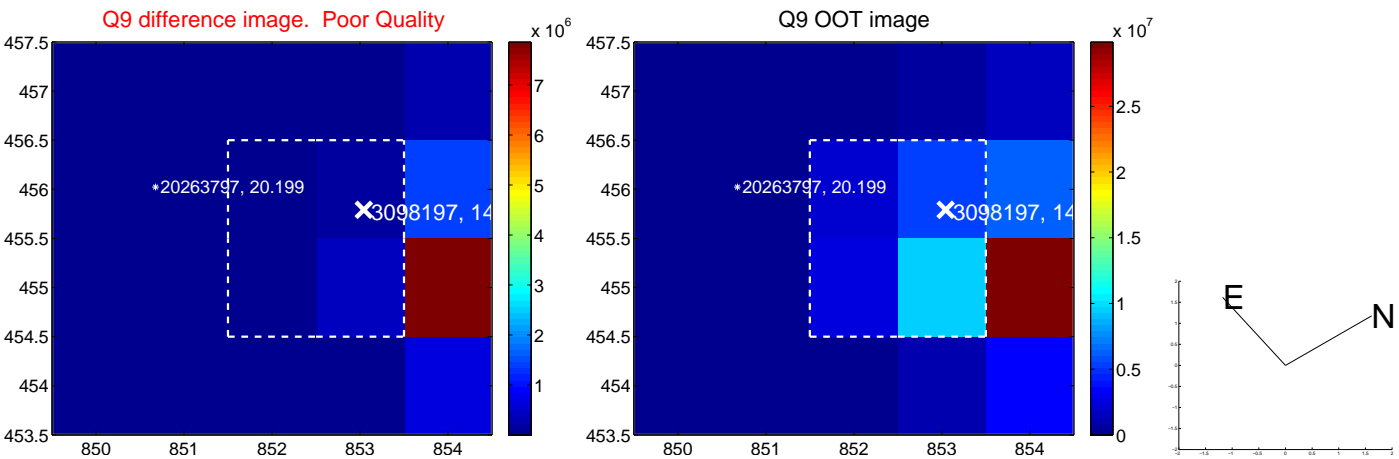
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



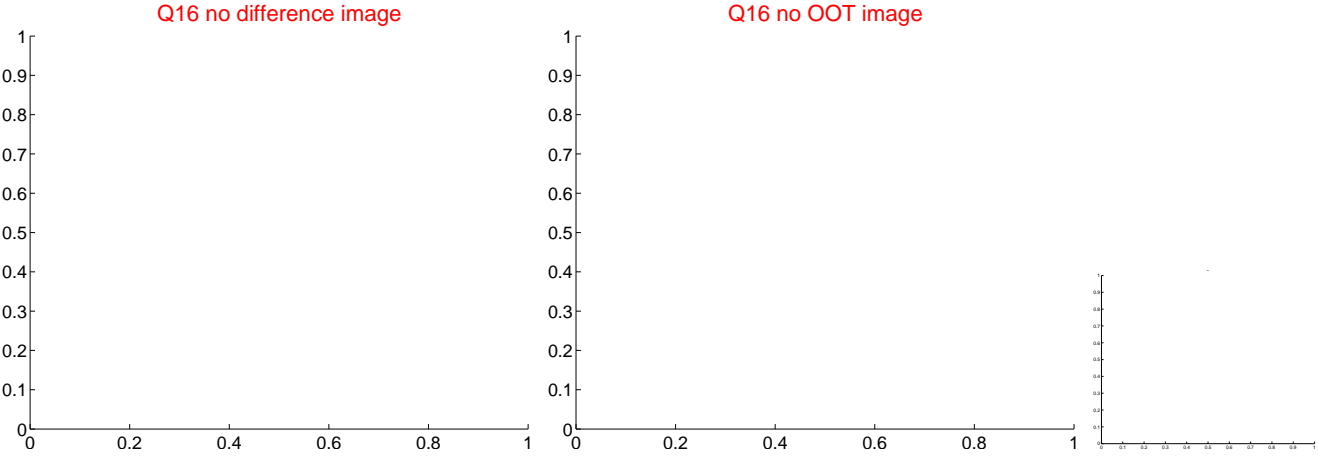
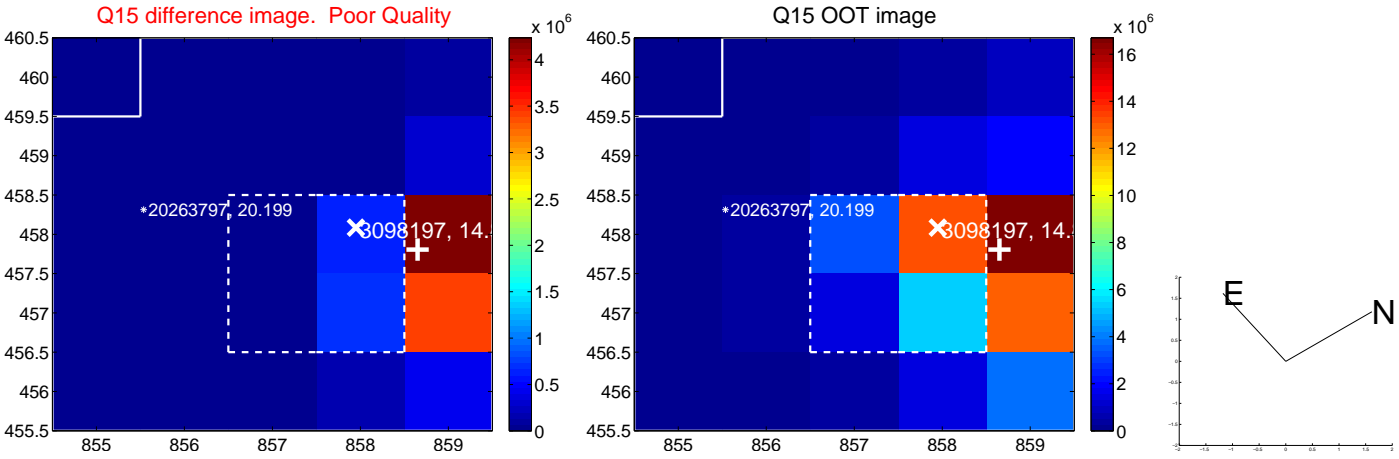
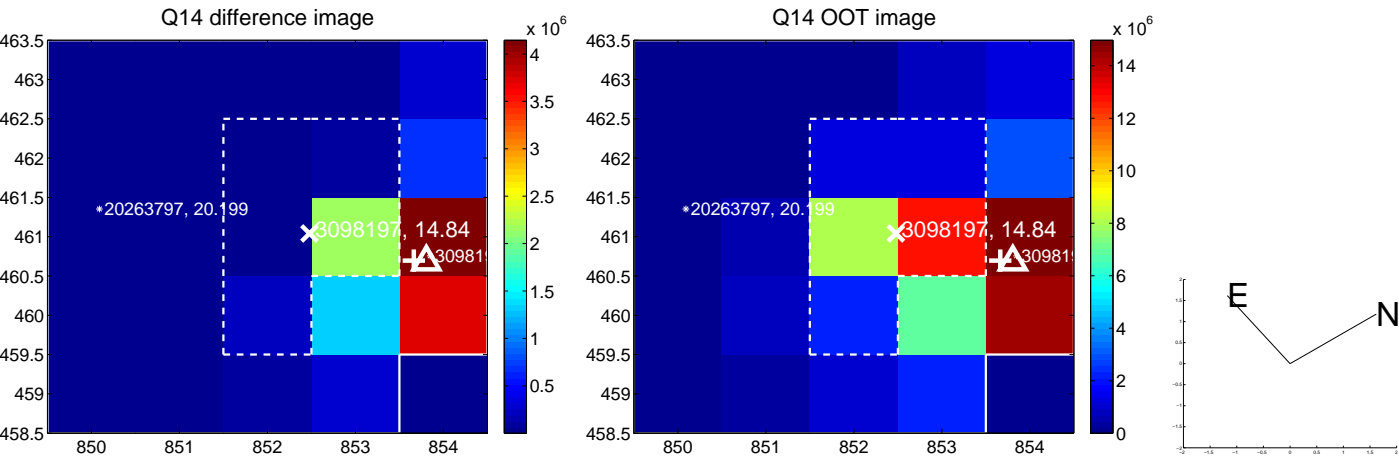
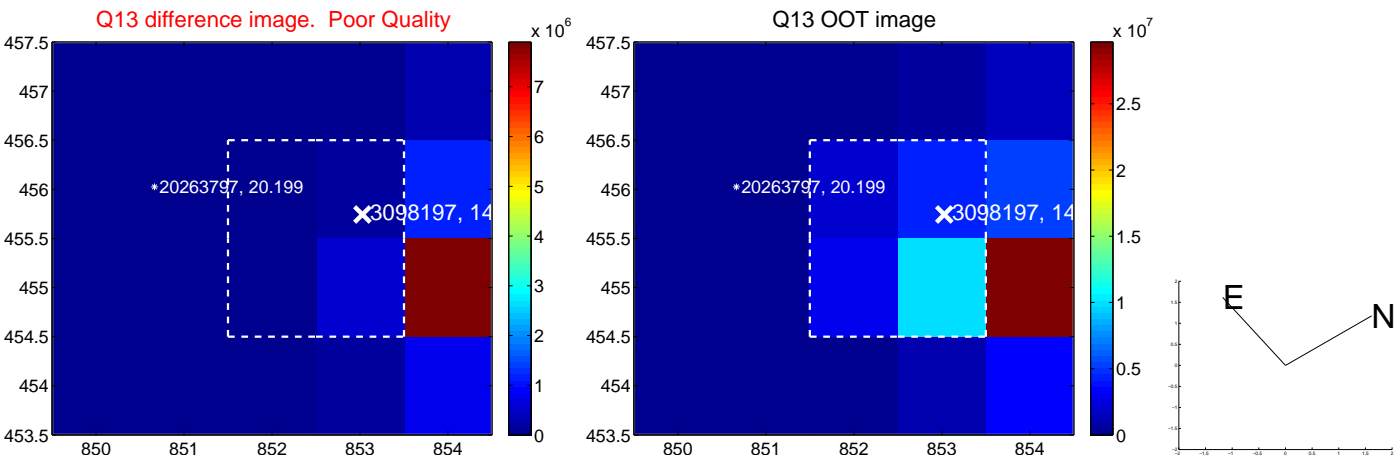
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



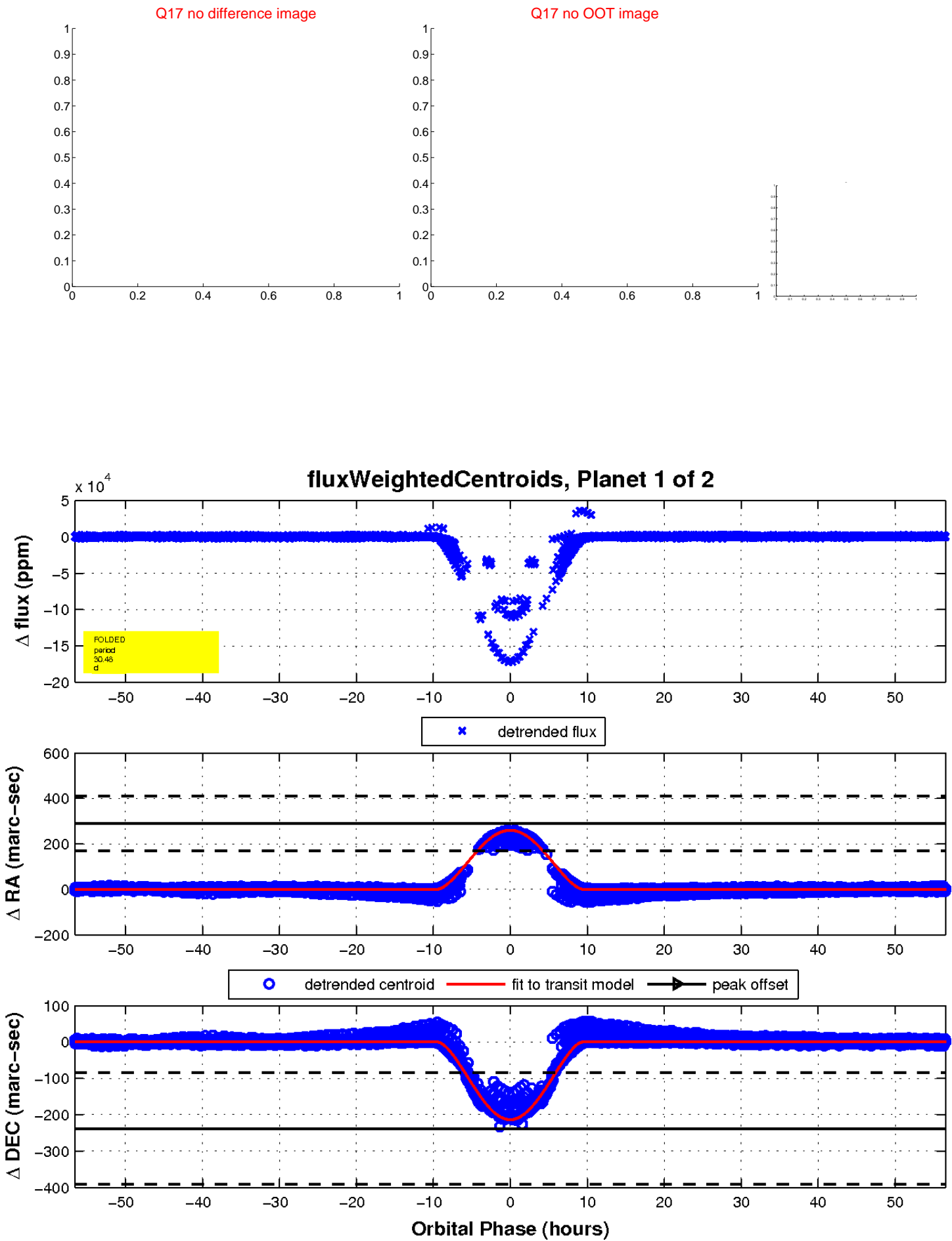
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

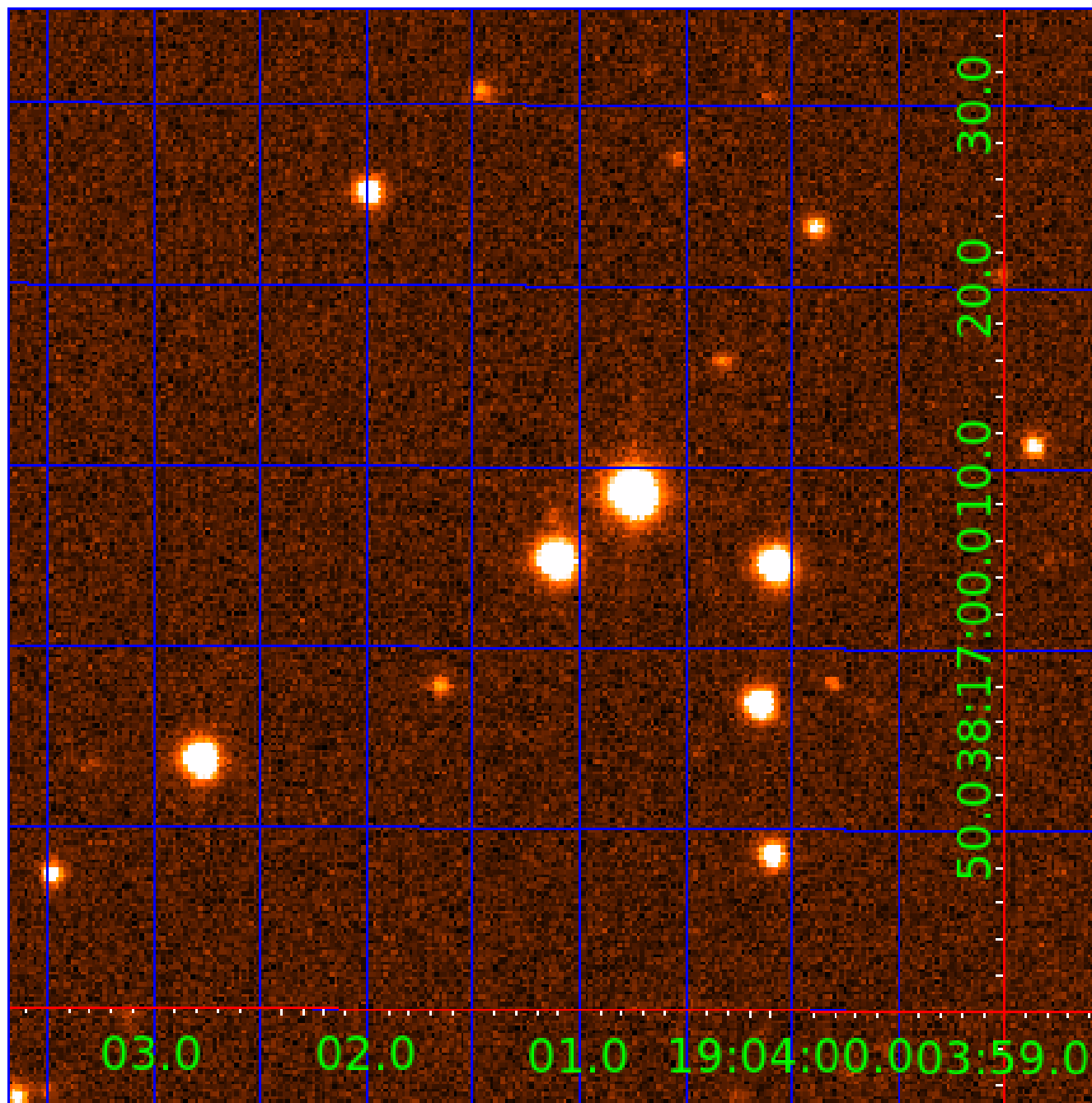


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003098197

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})
003098197-01	OBS	3362.01	30.476542	156.237948	102094.1	18.859	2849.2	1376.3	0.79	5913	38.36	20.43
003098197-02	OBS	No	30.476504	136.973068	111977.8	10.238	2903.2	1353.6	0.79	5913	39.94	20.43

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003098197-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
003098197-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—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 003098197-02

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
003098197-02	3098197	003098194-02	3098194	1:1	5.7	0	-1	13.90	14.84	3.01	Direct-PRF	0	0.29	0.08

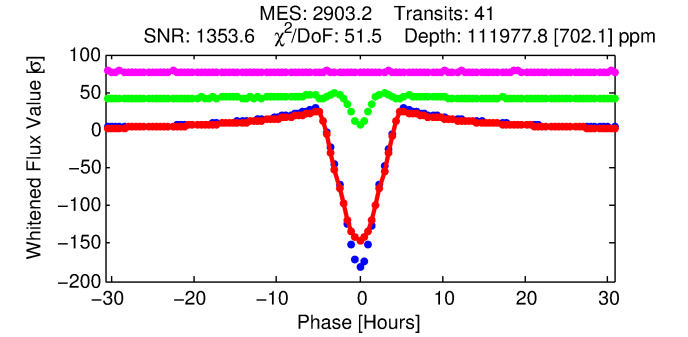
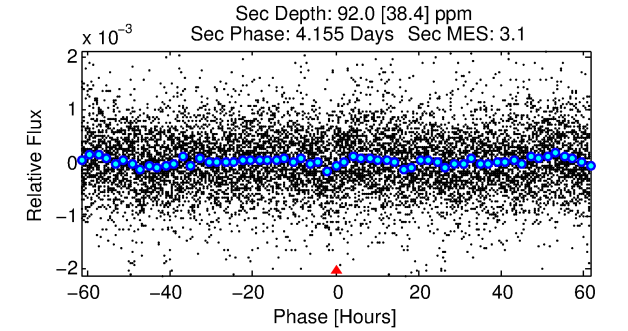
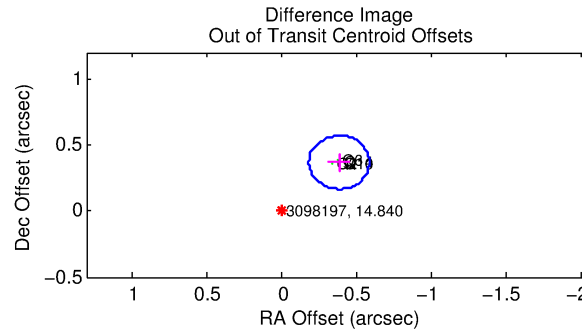
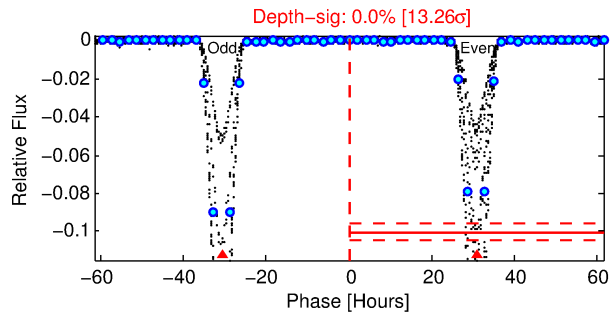
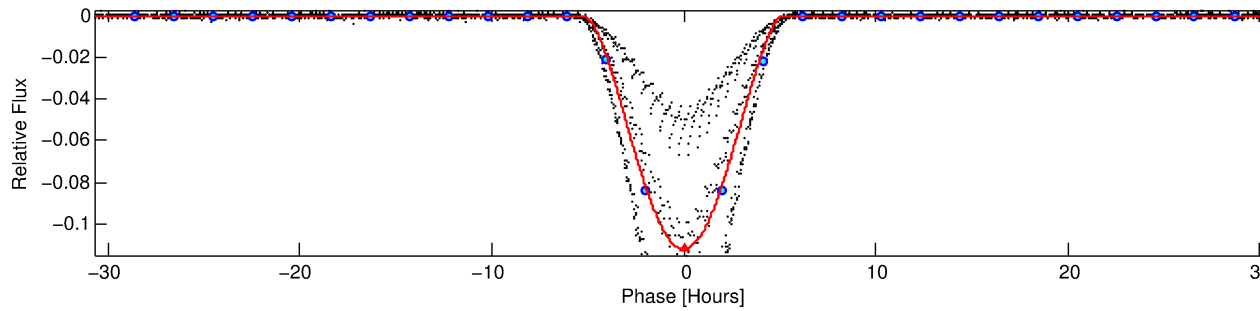
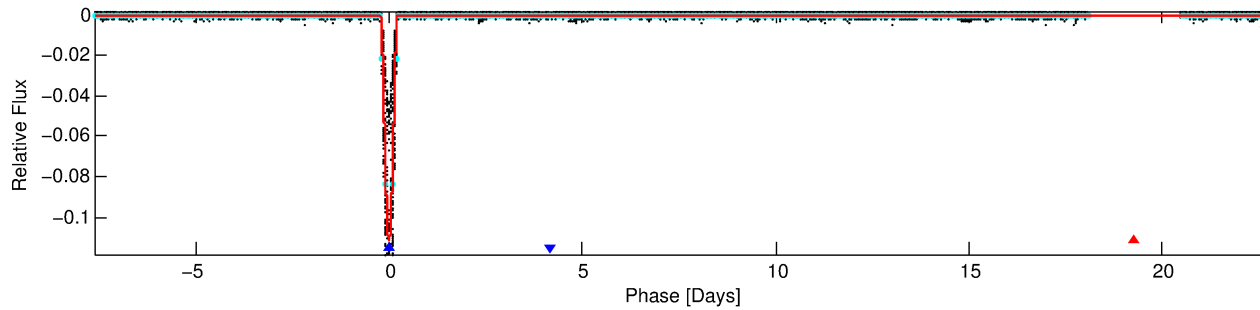
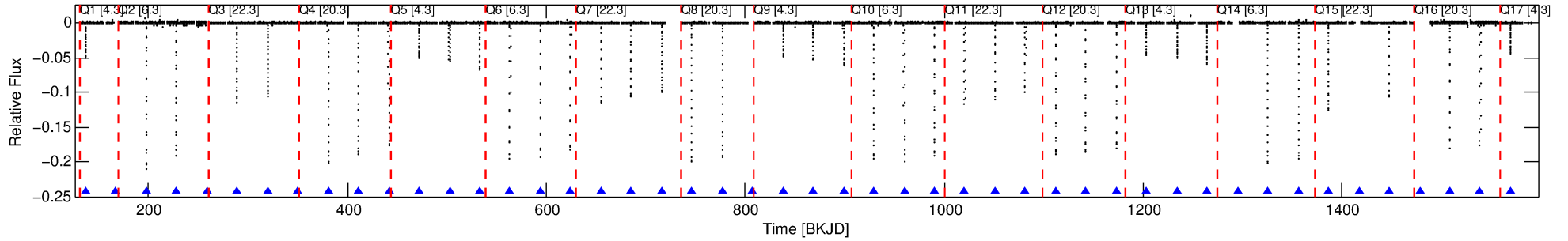
Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period 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: 3098197 Candidate: 2 of 2 Period: 30.477 d

KOI: K03362 Corr: No Ephemeris Match

Kp: 14.84 R*: 0.79 Rs Teff: 5913.0 K Logg: 4.58 Fe/H: -0.560



DV Fit Results:

Period = 30.47650 [0.00003] d
Epoch = 136.9731 [0.0007] BKJD
Rp/R* = 0.4651 [0.2391]
a/R* = 25.83 [0.74]
b = 0.93 [0.34]
Seff = 20.42 [6.32]
Teq = 542 [42] K
Rp = 39.94 [22.51] Re
a = 0.1822 [0.0359] AU
Ag = 1.05 [1.21] [0.04σ]
Teffp = 849 [237] K [1.28σ]

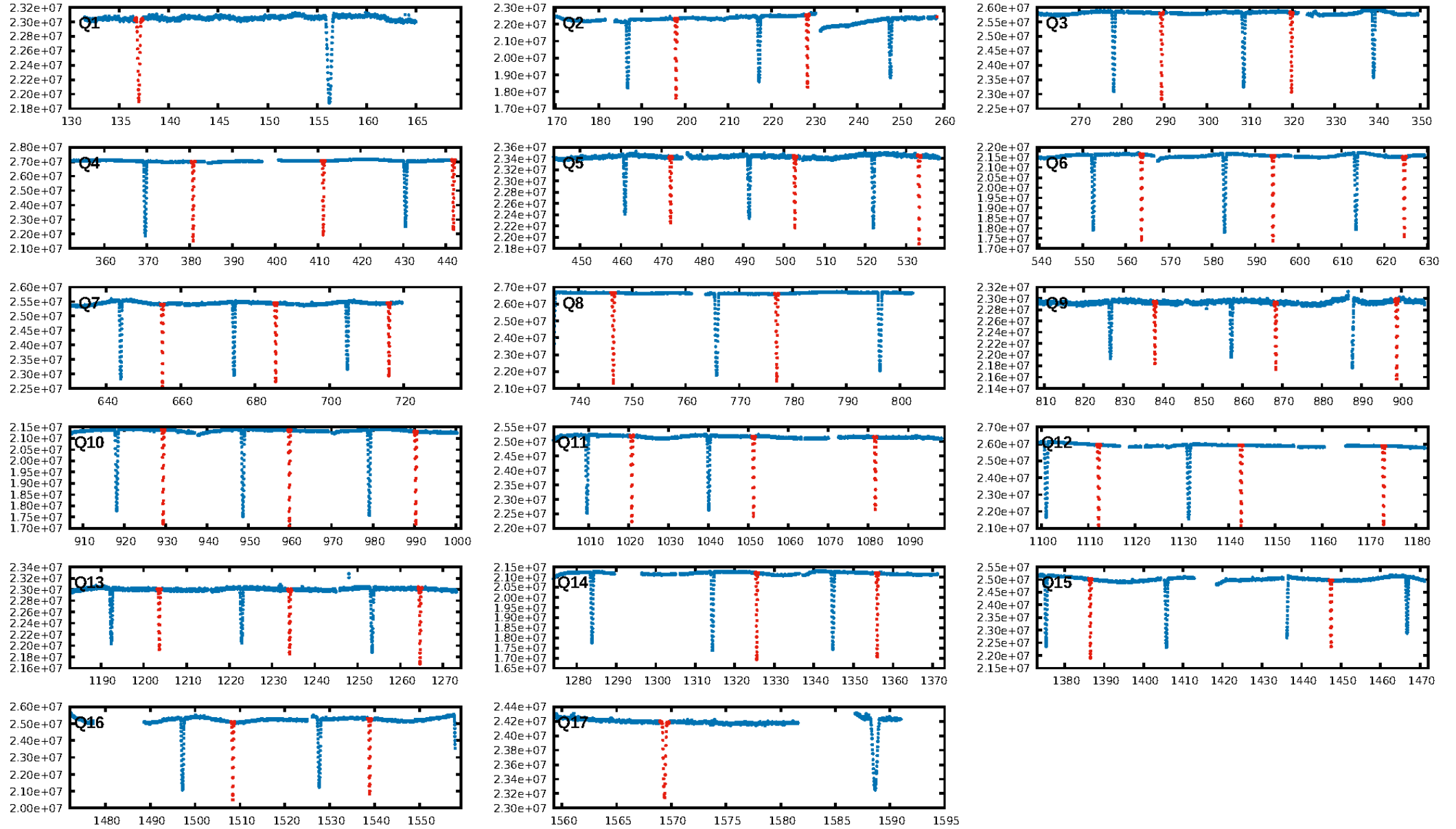
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [39/39]
GhostDiagnostic-chr: -0.2869
Centroid-sig: 0.0%
Centroid-so: 6.052 arcsec [3367.97σ]
OotOffset-rm: 0.534 arcsec [7.95σ]
KicOffset-rm: 5.517 arcsec [80.49σ]
OotOffset-st: 4/0/0/0 [4]
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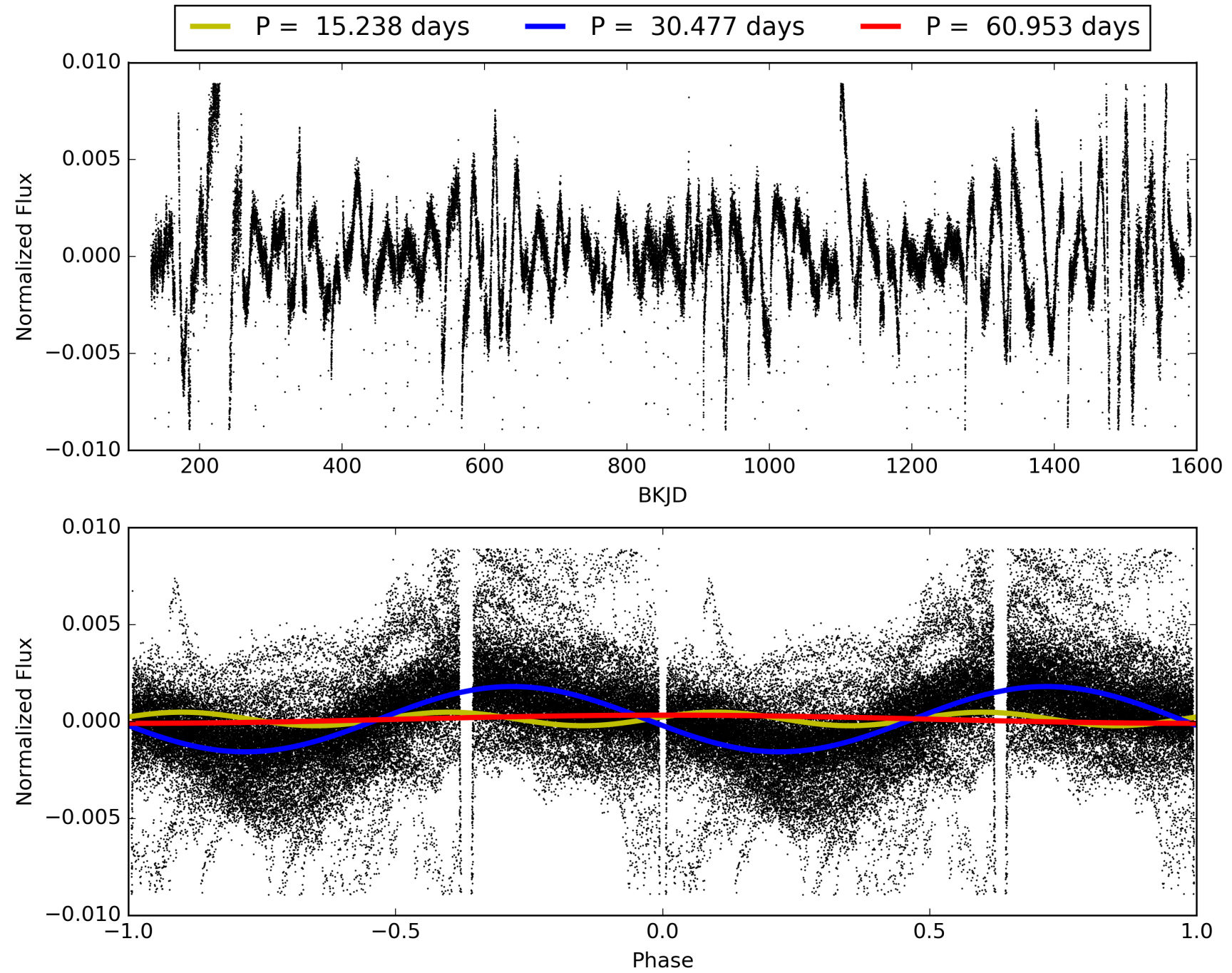
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:38:07 Z

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

TCE 003098197-02, PDC Light Curves

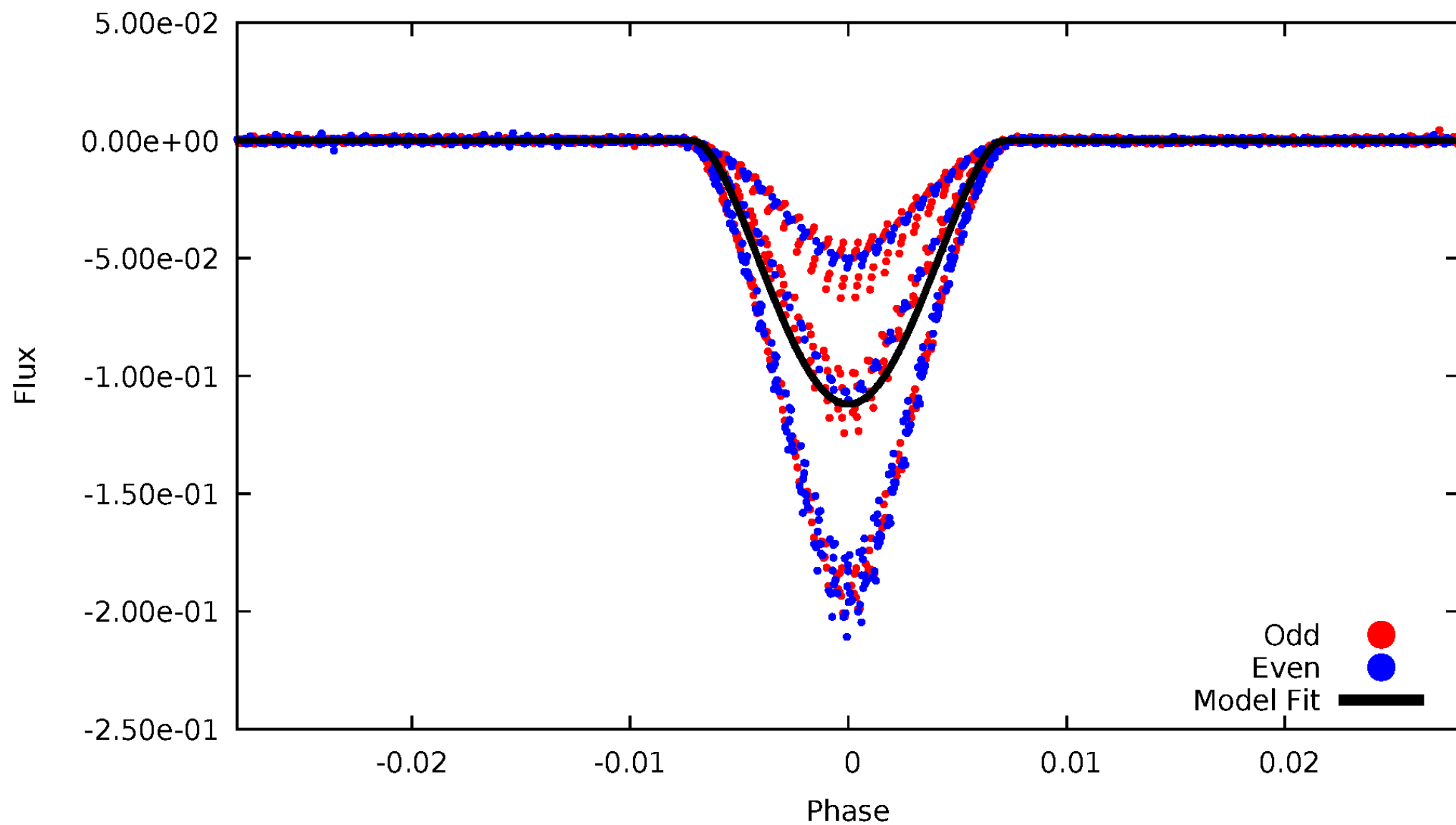


TCE 003098197-02



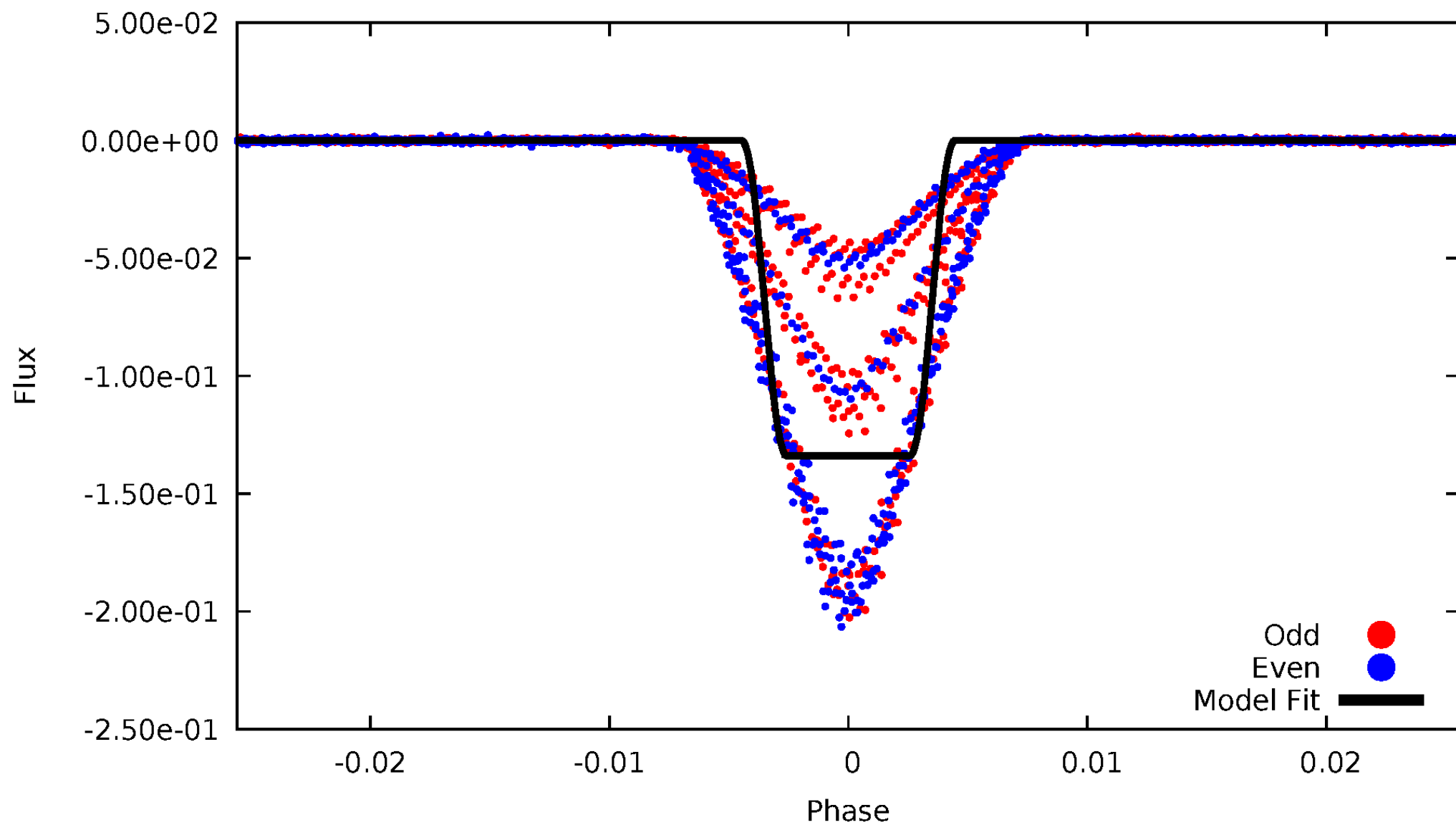
DV Odd/Even

TCE 003098197-02



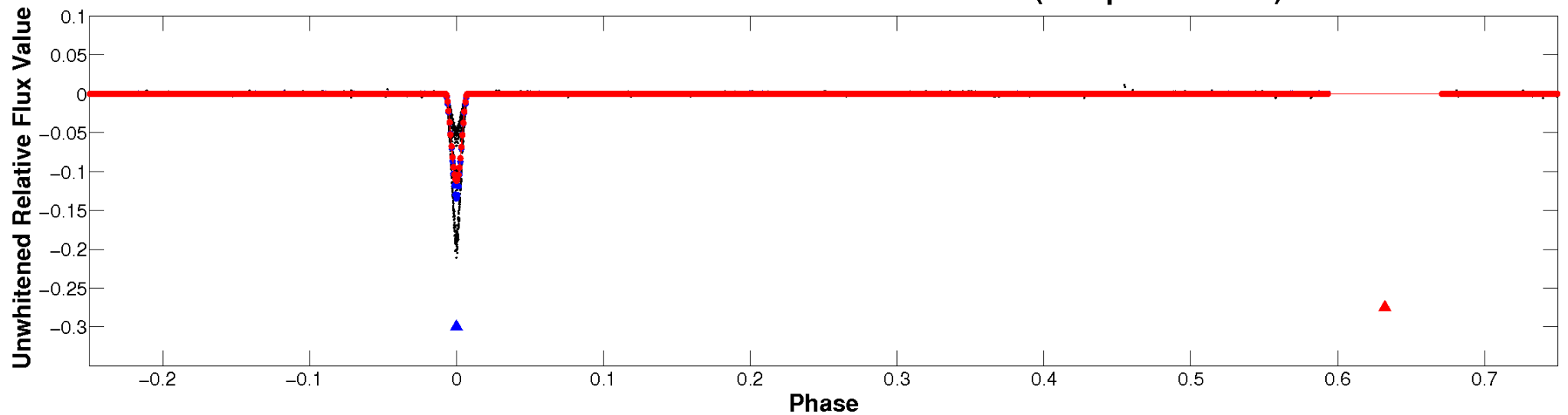
ALT Odd/Even

TCE 003098197-02

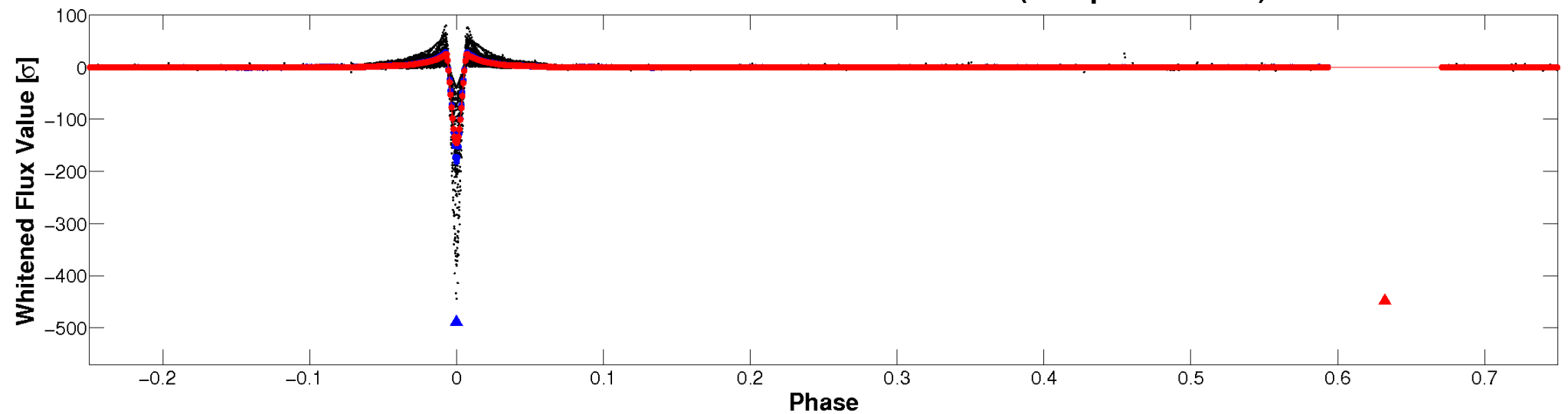


Non-Whitened Vs. Whitened Light Curve

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

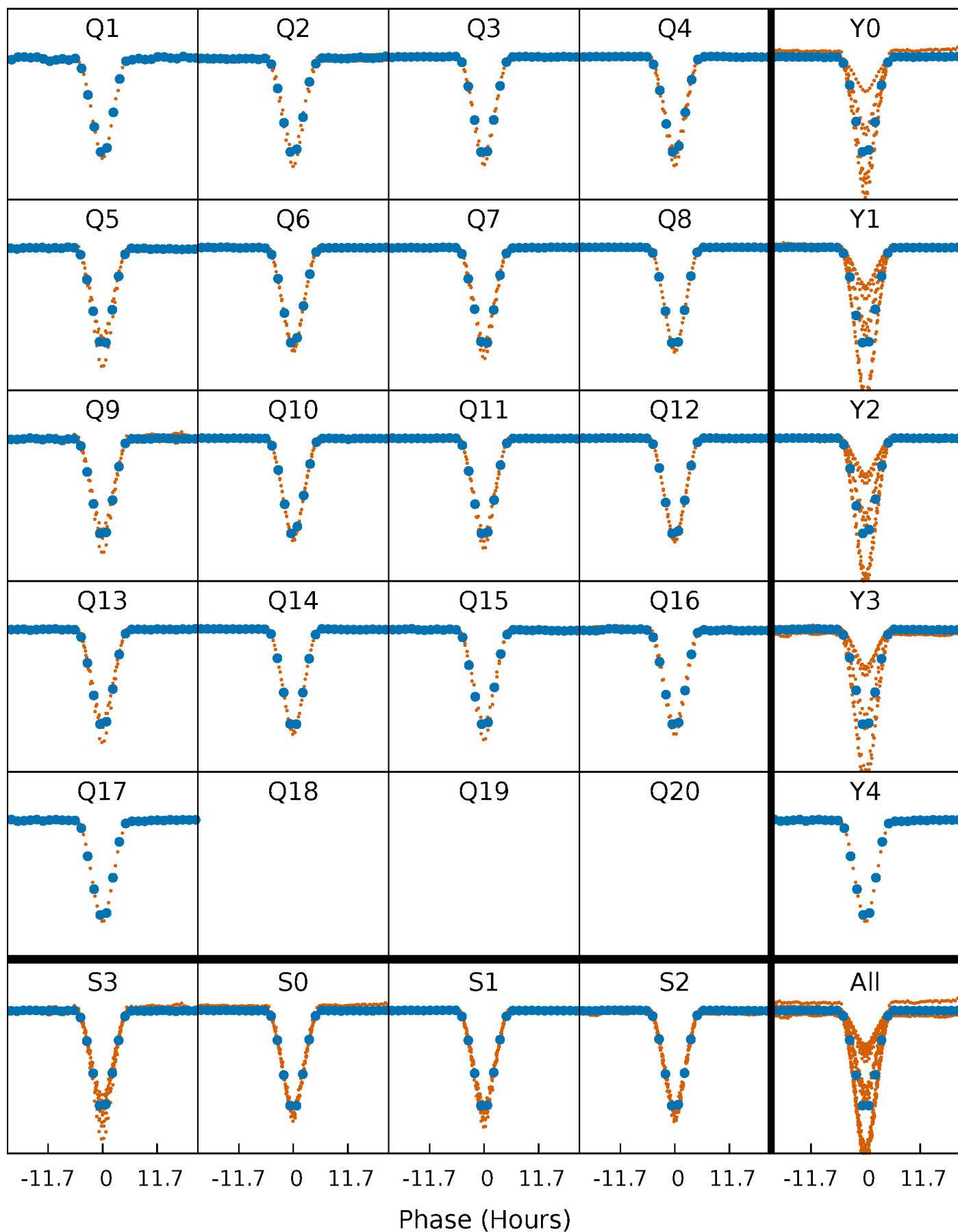


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



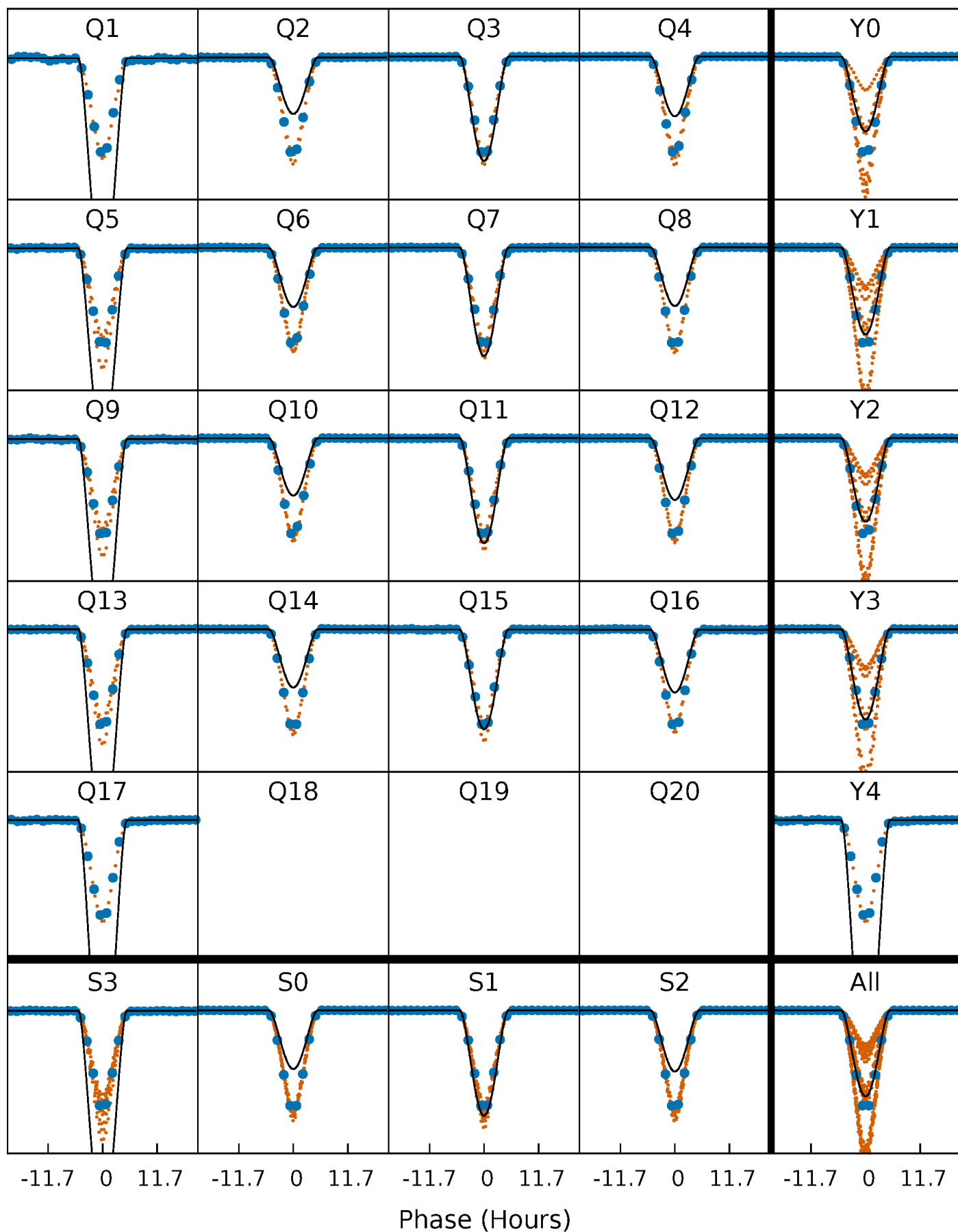
PDC Quarter-Phased Transit Curves

TCE 003098197-02 P= 30.476504 Days $T_0=136.973068$ (BKJD)



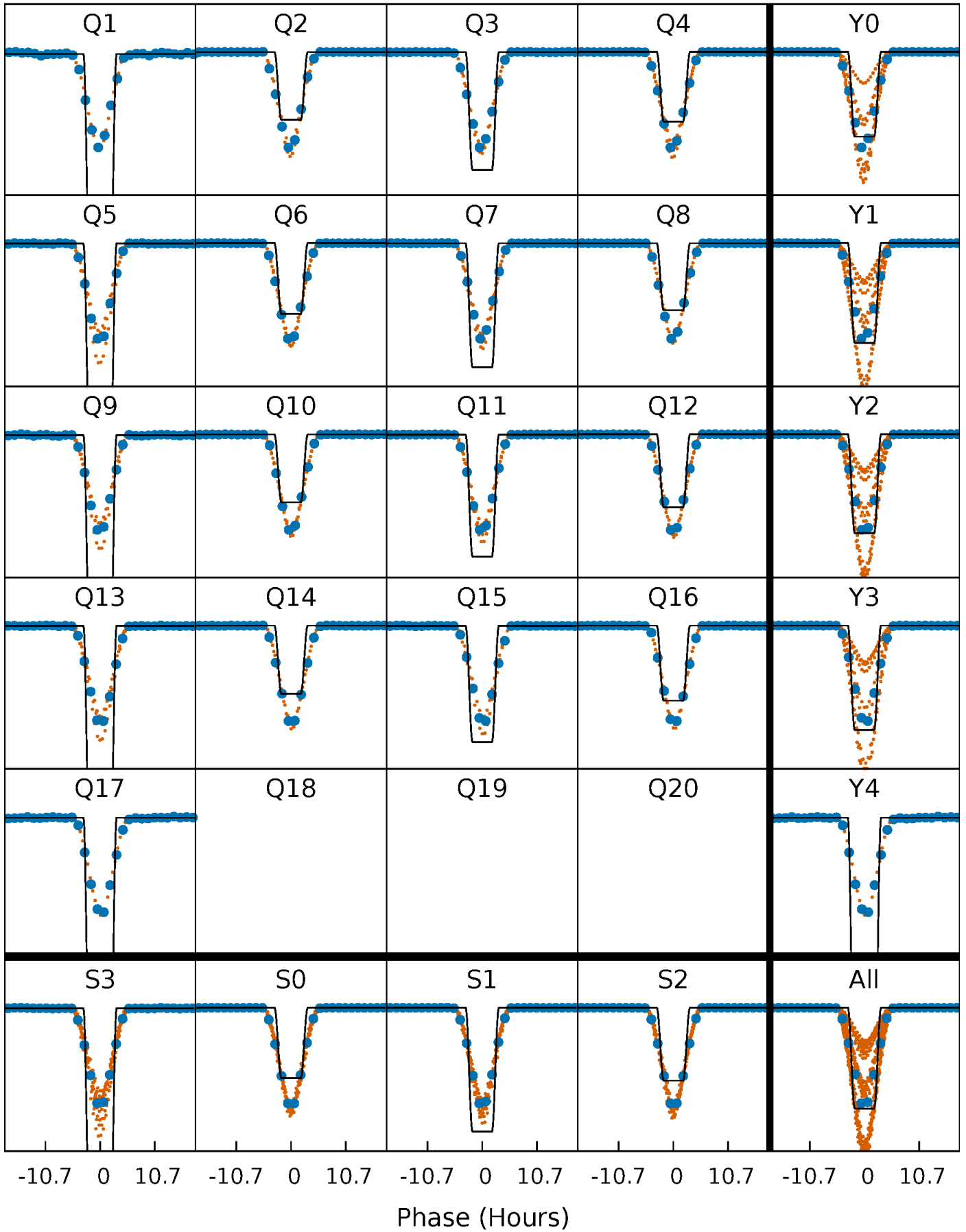
DV Quarter-Phased Transit Curves

TCE 003098197-02 $P = 30.476504$ Days $T_0 = 136.973068$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

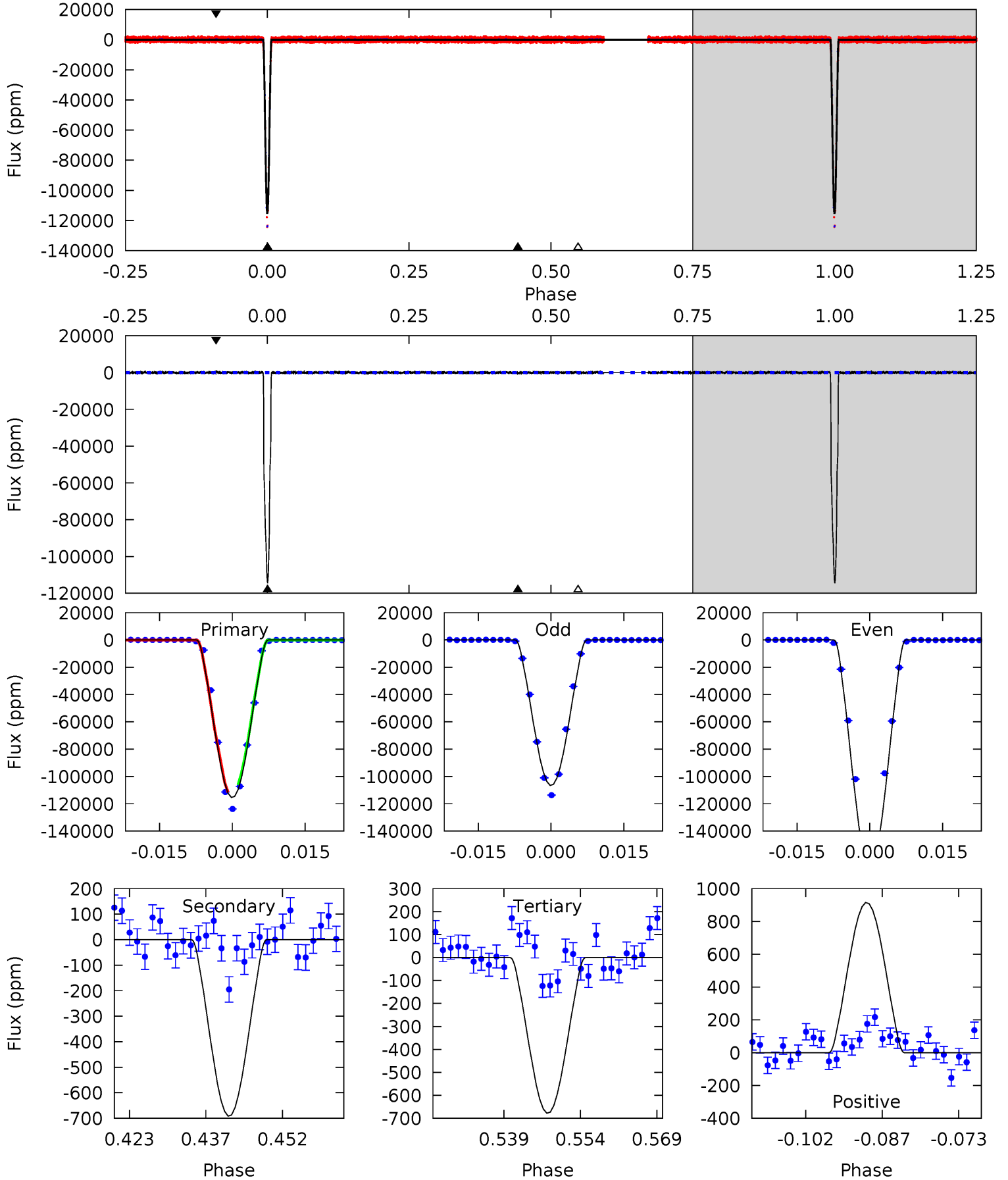
TCE 003098197-02 P= 30.476157 Days $T_0=136.980528$ (BKJD)



DV Model-Shift Uniqueness Test

003098197-02, P = 30.476504 Days, E = 106.496564 Days

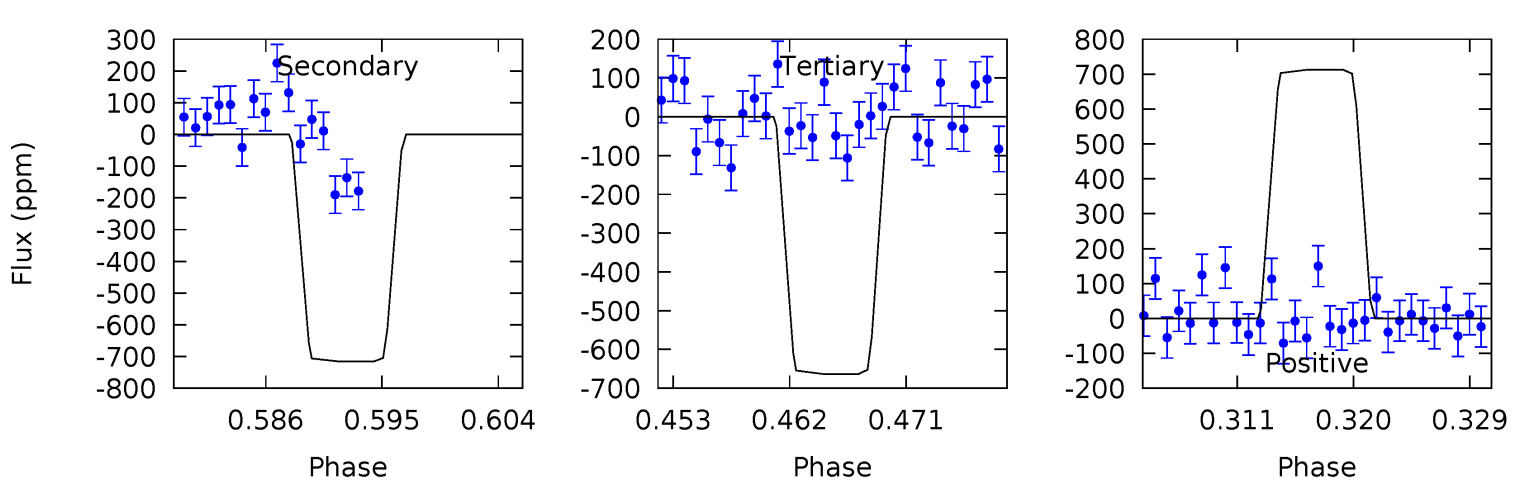
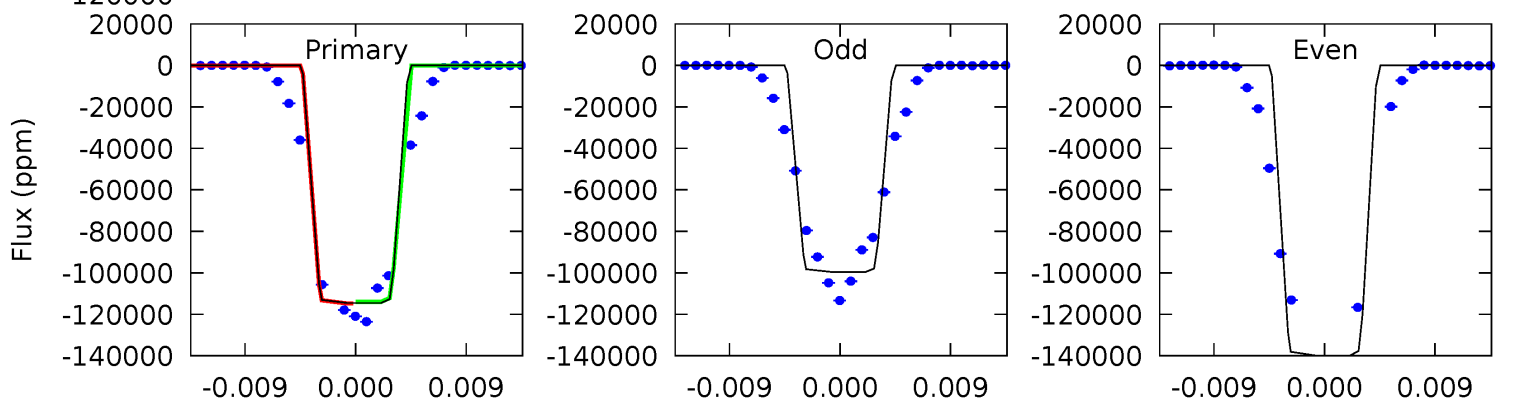
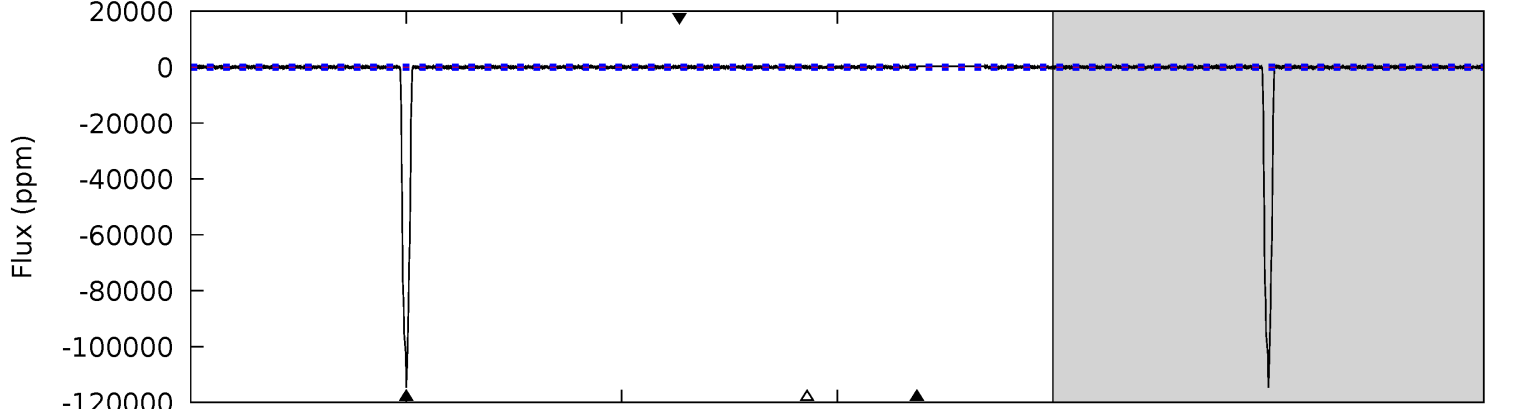
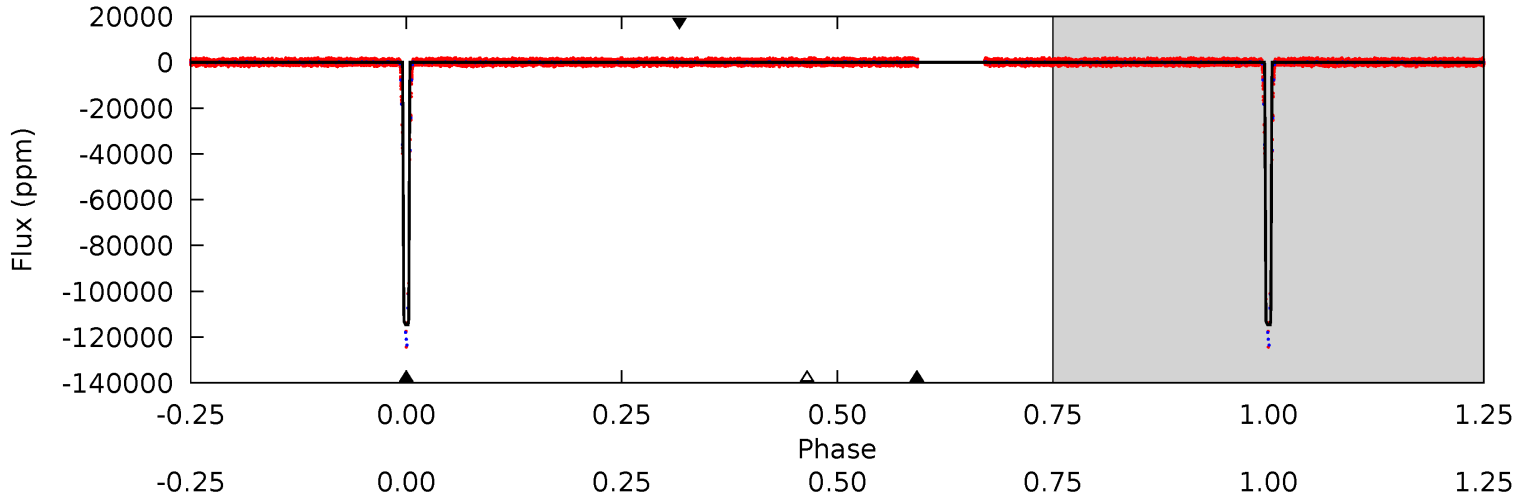
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2077	12.4	12.2	16.5	4.95	2.44	3.59	2065	2061	0.25	-4.02	764.0	1.08	0.01	0



Alt Model-Shift Uniqueness Test

003098197-02, P = 30.476157 Days, E = 106.504371 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
808.6	5.05	4.68	5.03	5.05	2.62	1.12	803.9	803.5	0.37	0.02	250.1	1.08	0.01	0



Stellar Parameters For KIC 003098197

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5913^{+159}_{-159}	$4.585^{+0.040}_{-0.160}$	$-0.560^{+0.300}_{-0.300}$	$0.787^{+0.182}_{-0.061}$	$0.874^{+0.088}_{-0.096}$	$2.527^{+0.395}_{-1.108}$
	+3%/-3%	+1%/-3%	+54%/-54%	+23%/-8%	+10%/-11%	+16%/-44%
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 003098197-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-687 ± 55	$41.91^{+23.53}_{-19.20}$	768^{+43}_{-27}	2298^{+379}_{-220}	$6.998^{+16.804}_{-4.107}$
Alt.	-716 ± 142	$32.78^{+20.49}_{-17.51}$	771^{+39}_{-32}	2458^{+531}_{-283}	12^{+45}_{-8}

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

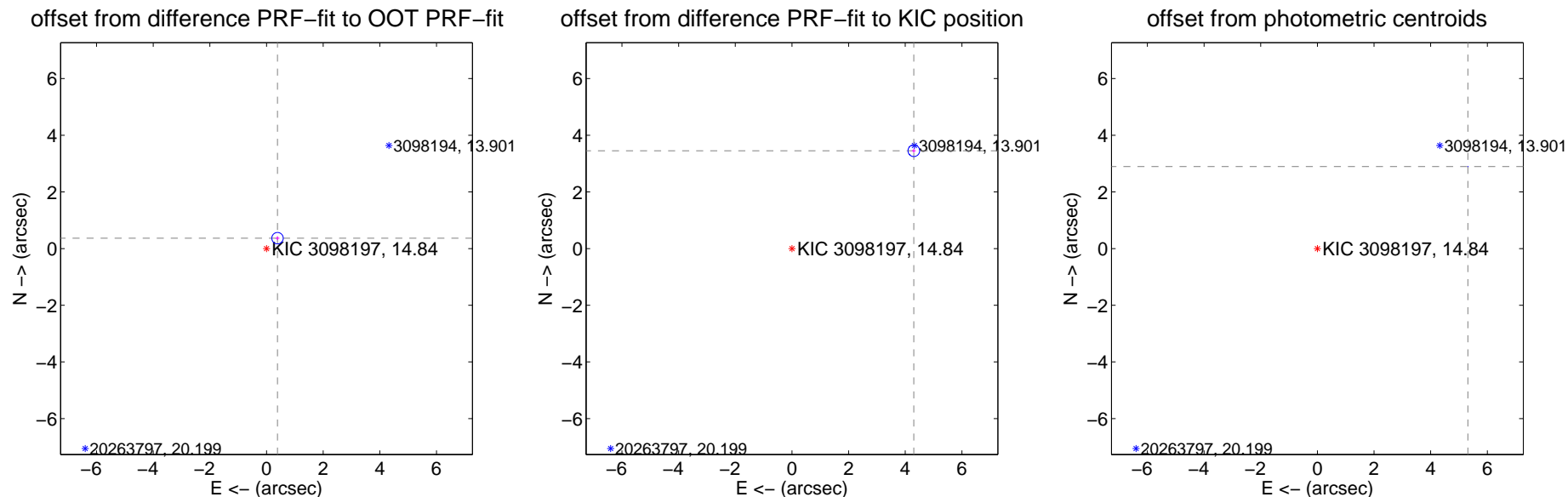
DV Centroid Data

Supplemental centroid analysis for 003098197-02. Kepler magnitude: 14.84. Transit SNR 1353.63

There are 4 quarters with good PRF difference image offsets

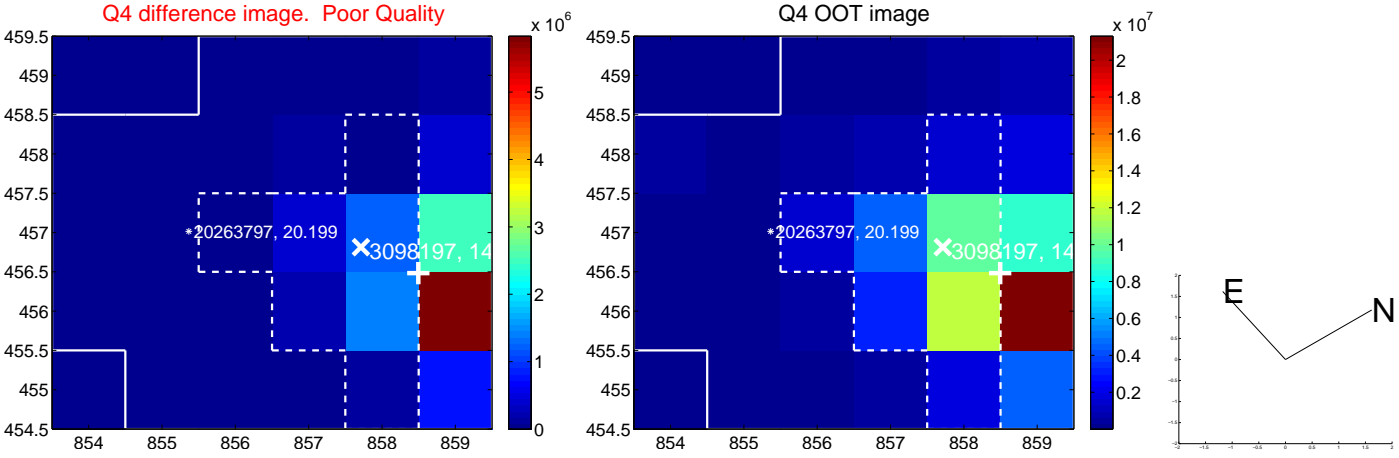
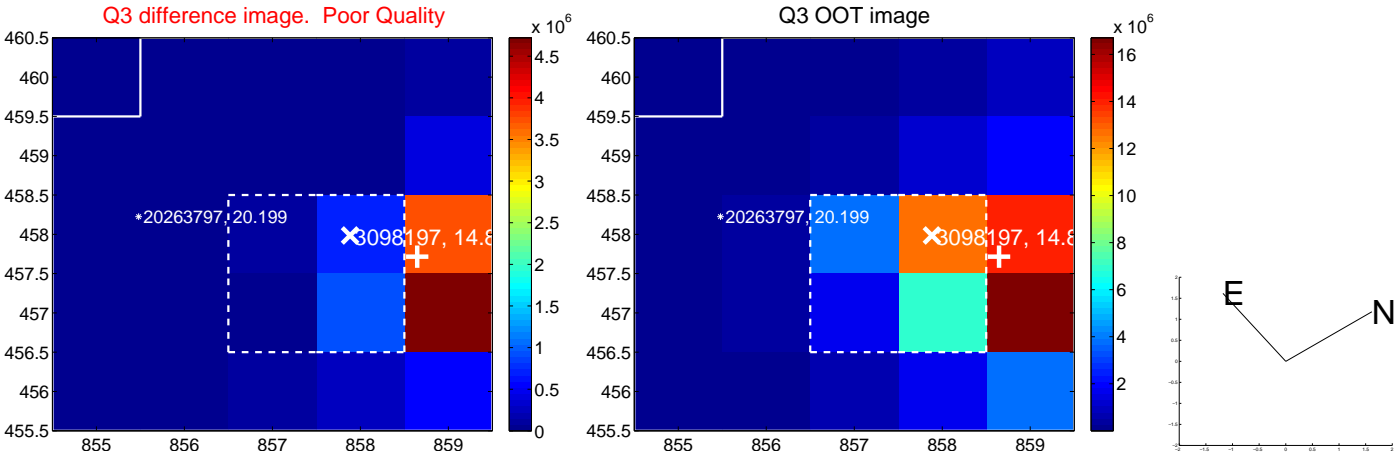
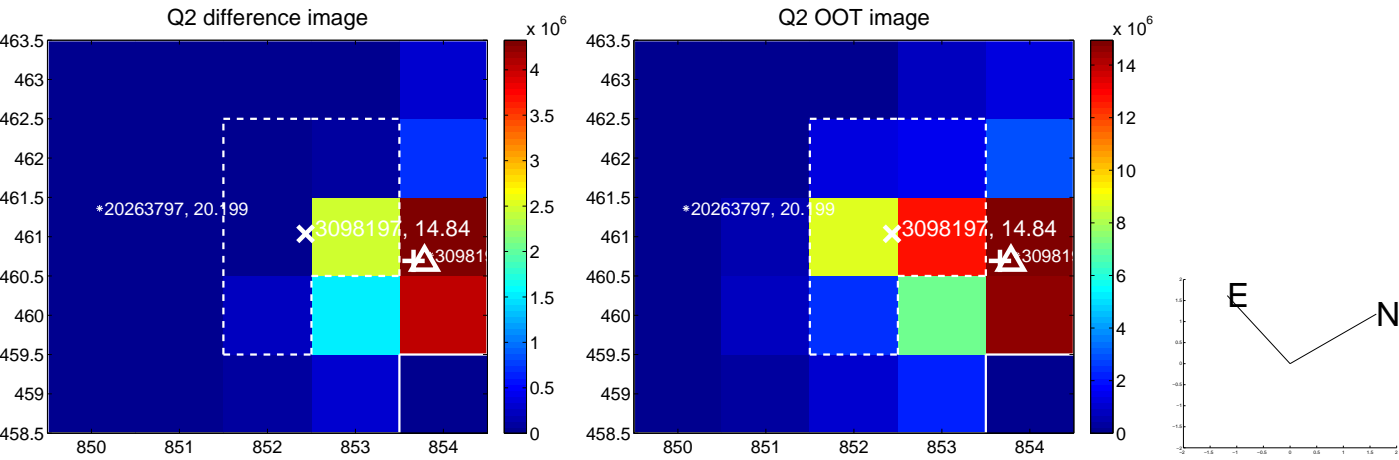
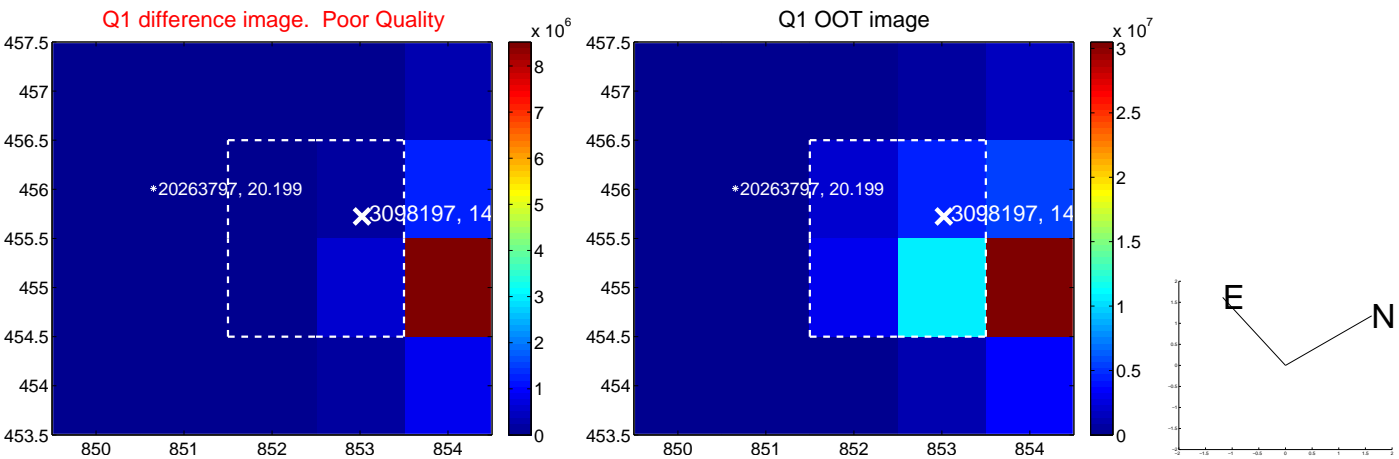
The OOT PRF centroid is offset from the target star catalog position by about 4.96 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.534 ± 0.067	7.95	-0.388 ± 0.067	0.367 ± 0.068
PRF-fit source offset from KIC position	5.517 ± 0.069	80.49	-4.303 ± 0.067	3.453 ± 0.069
photometric centroid source offset	6.05 ± 0.00	3367.97	-5.31 ± 0.00	2.89 ± 0.00

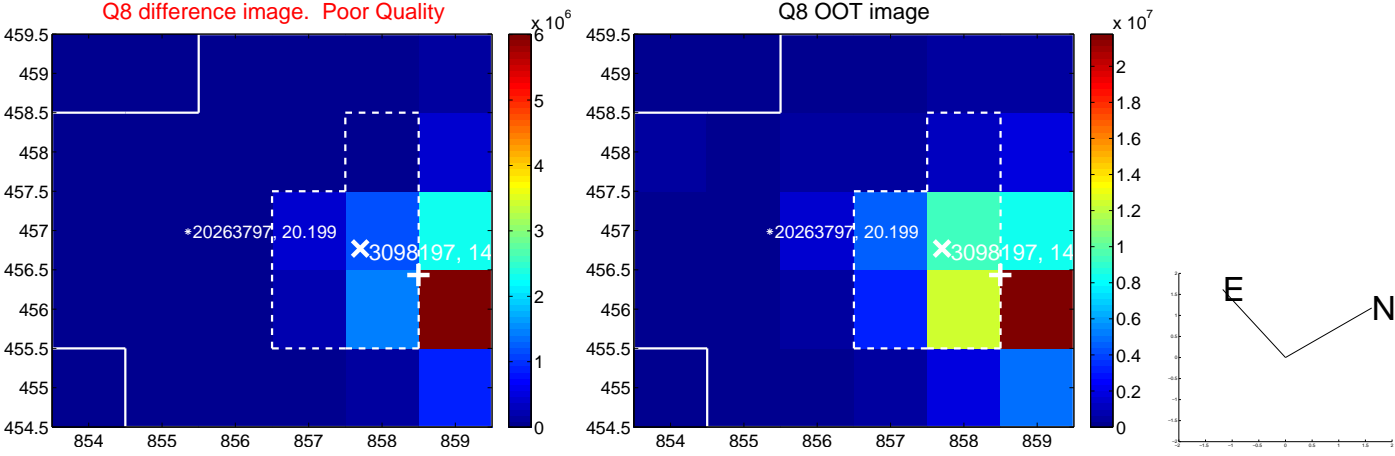
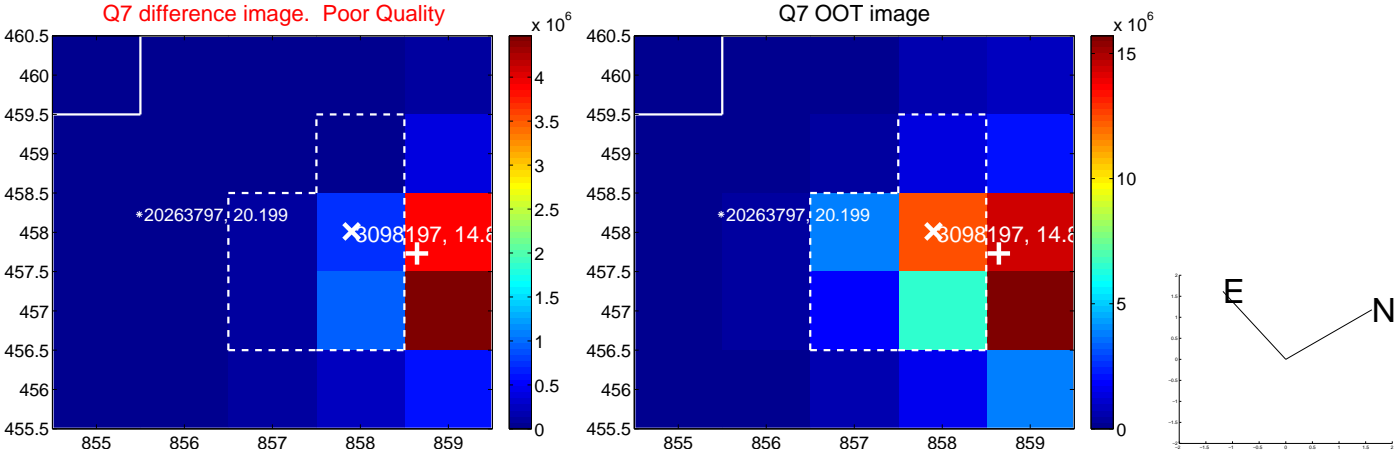
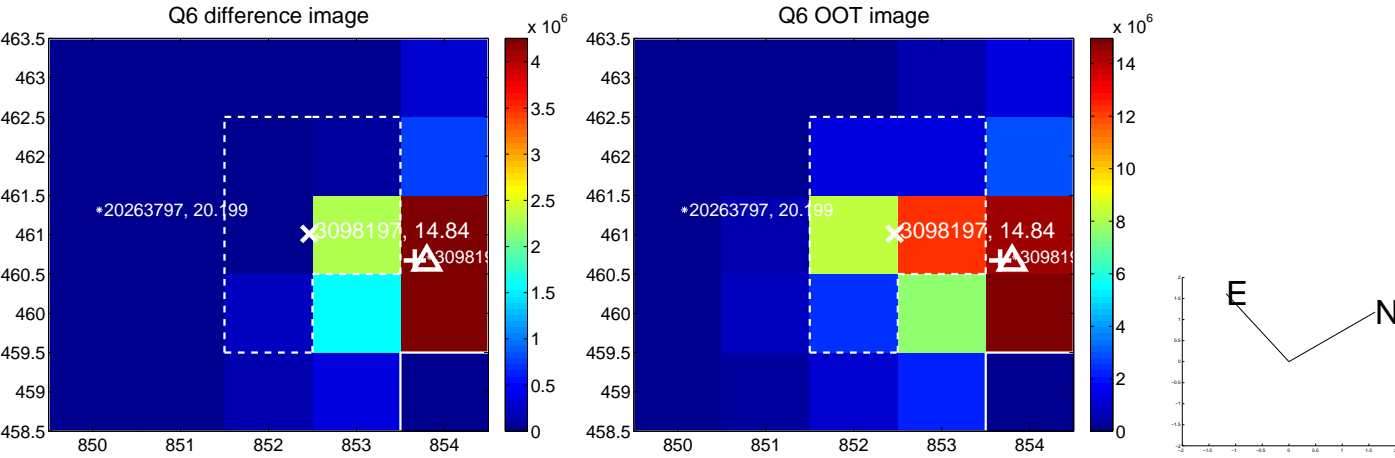
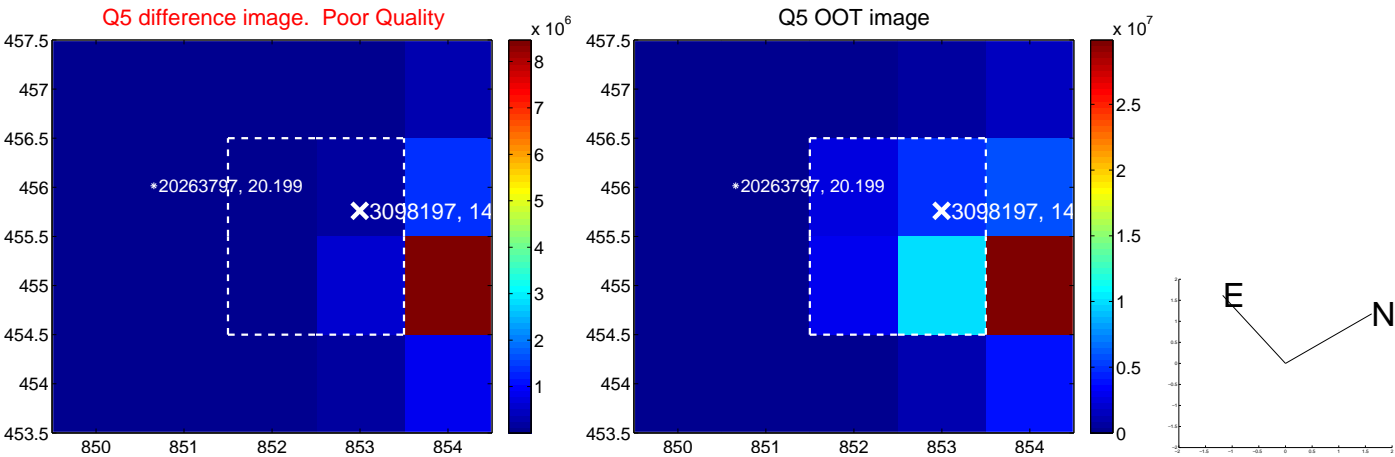


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

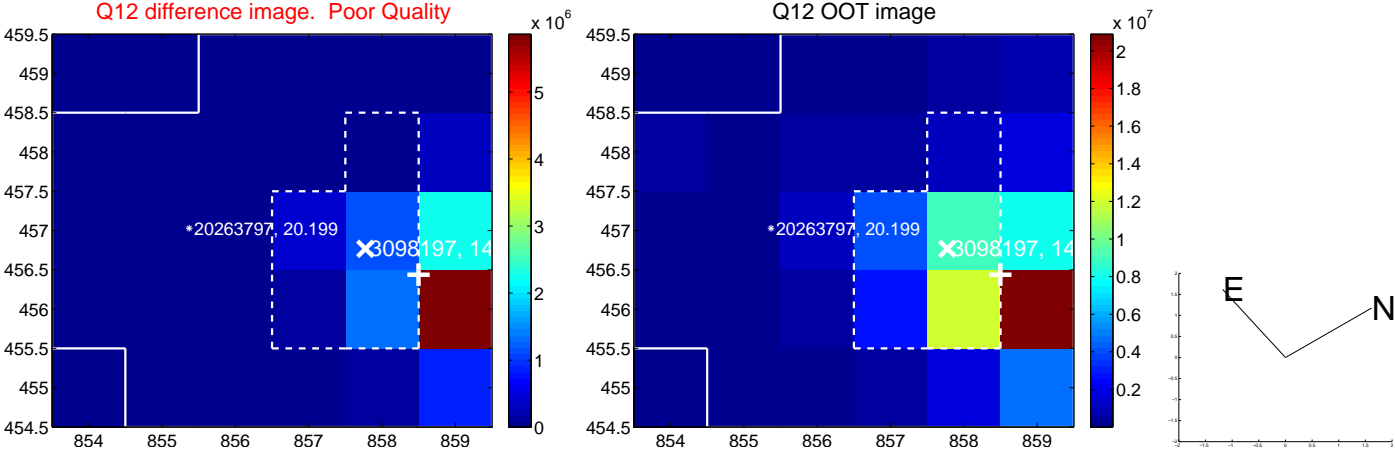
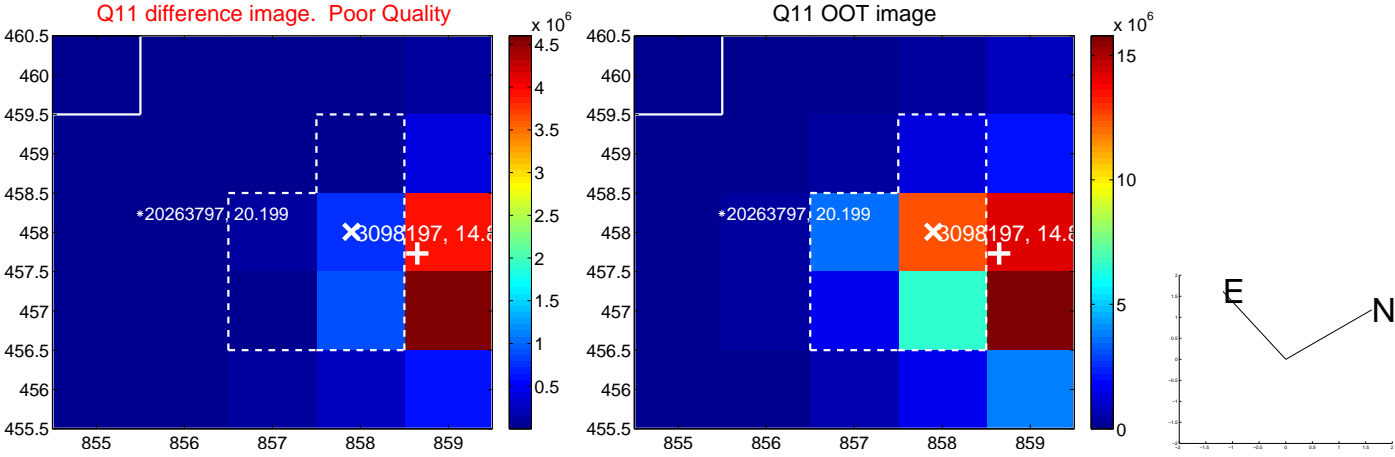
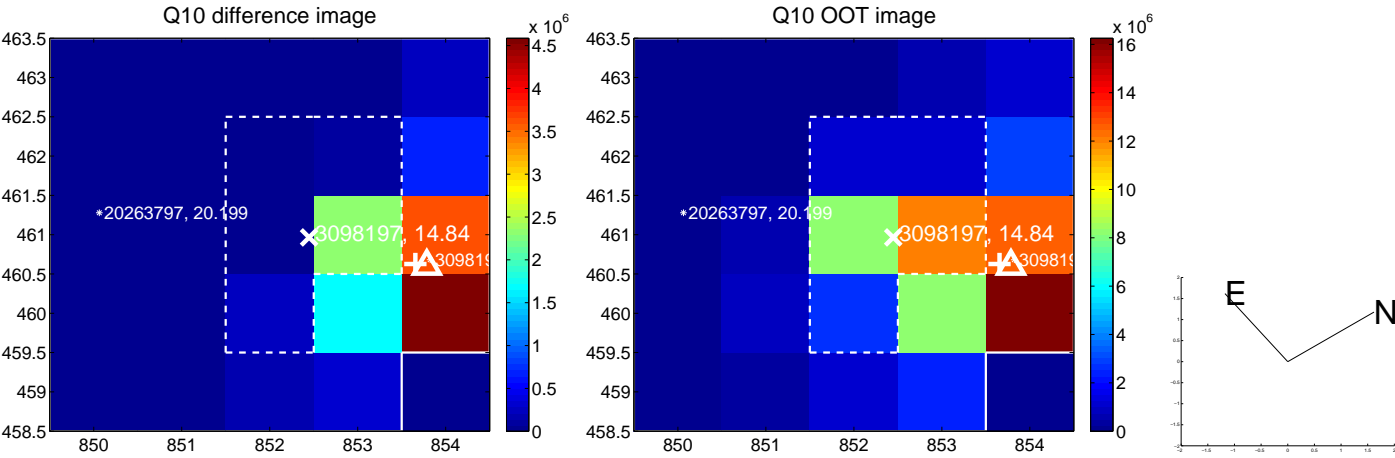
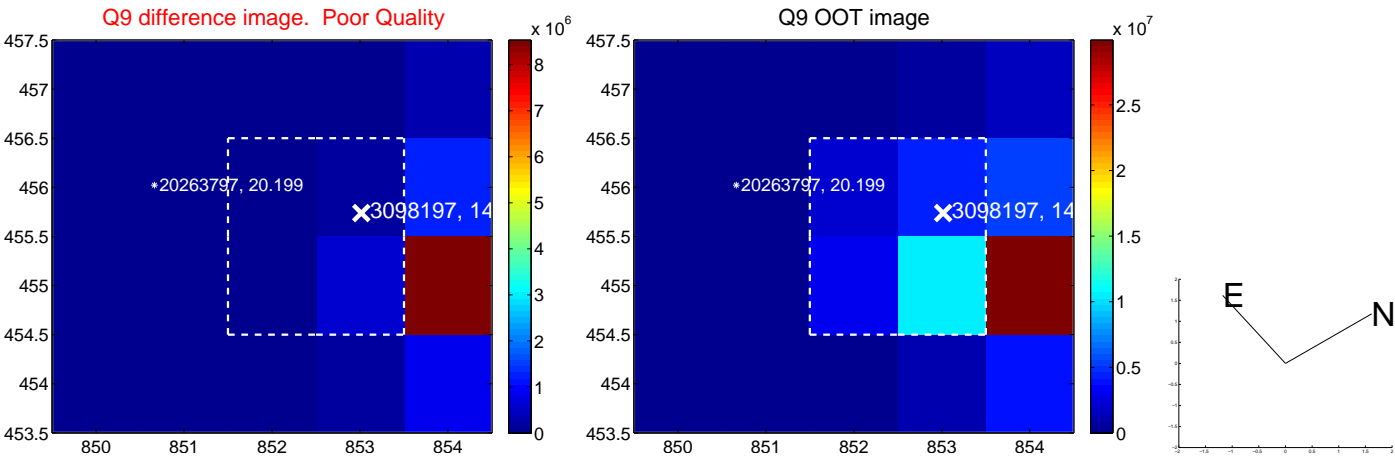
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



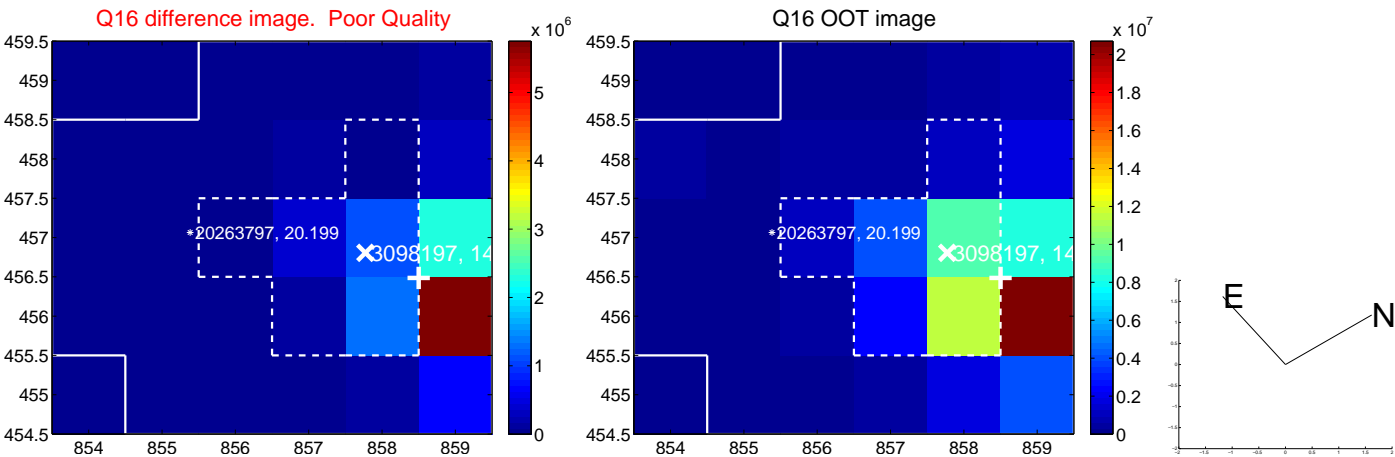
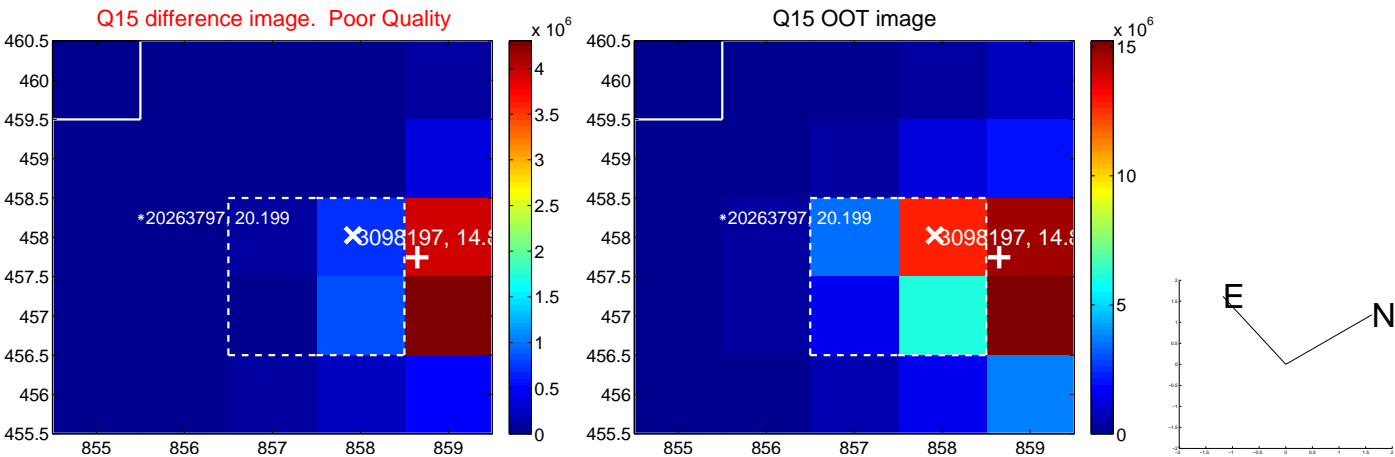
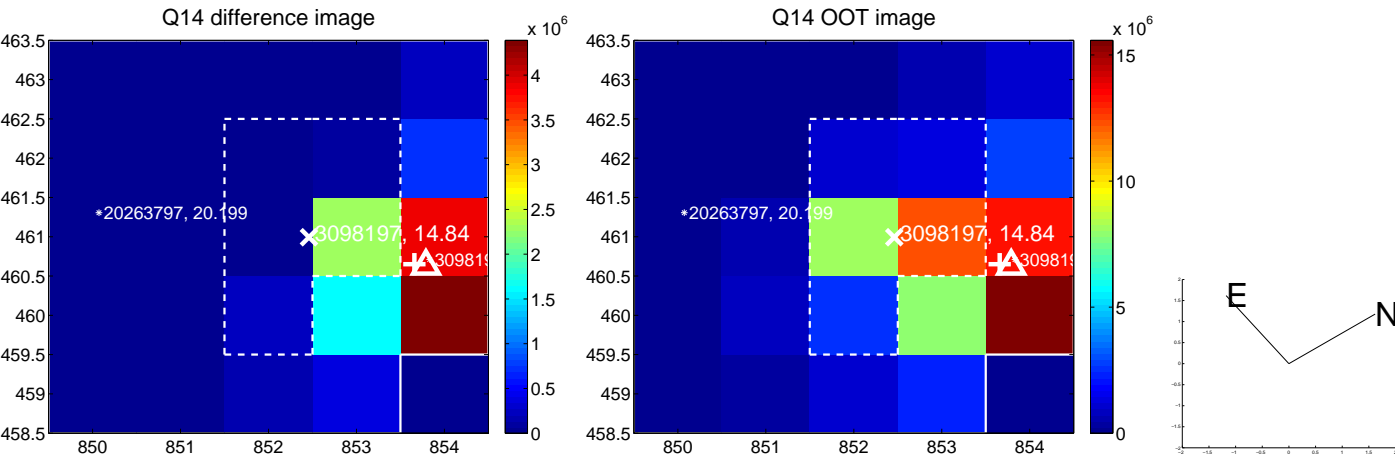
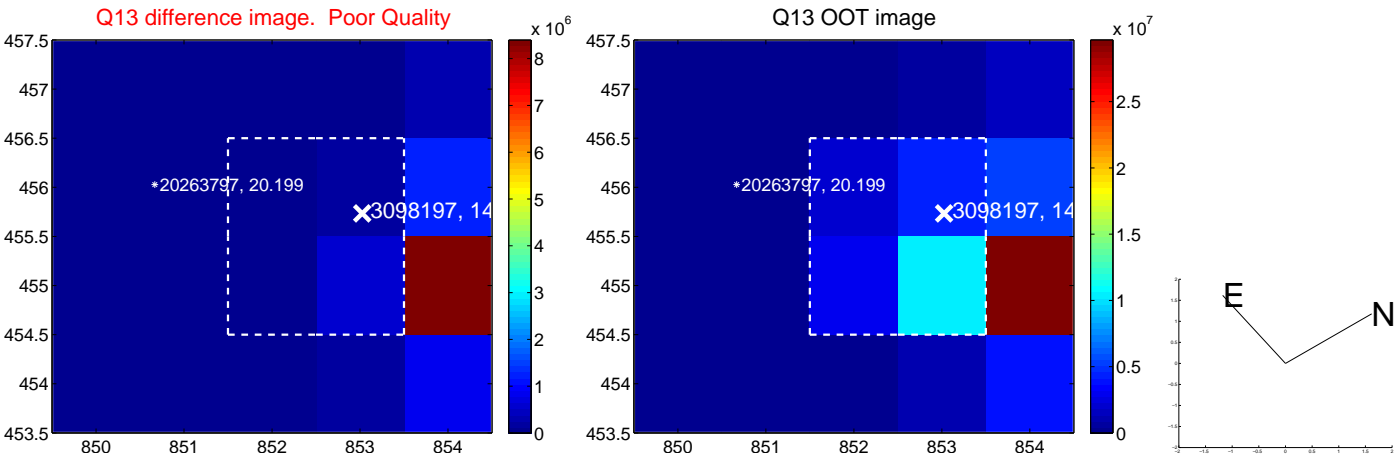
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



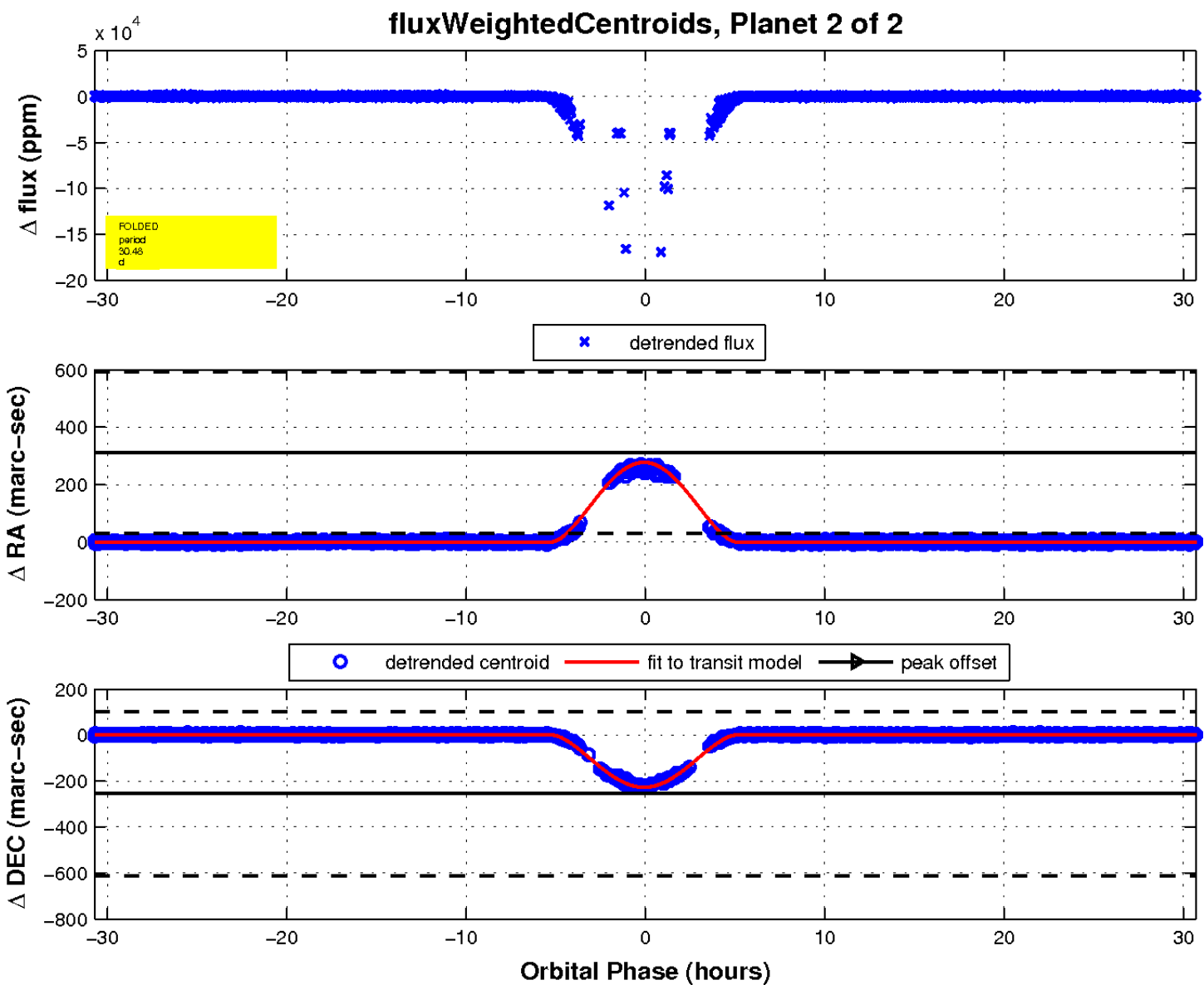
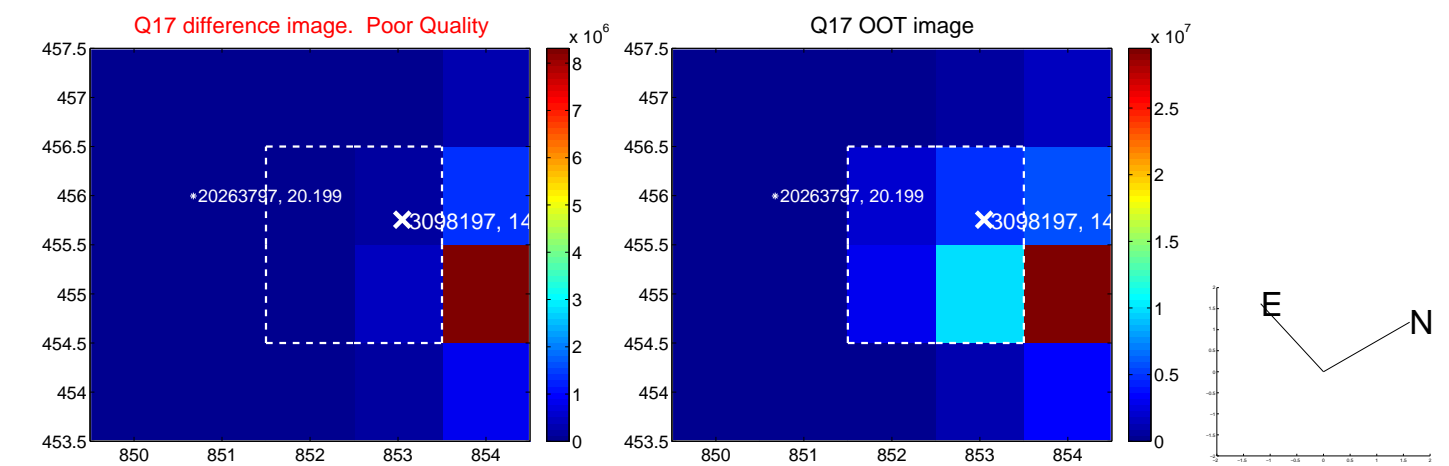
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

