

KIC 003971315

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})
003971315-01	OBS	5992.01	9.892245	136.693793	4532.0	4.444	484.2	318.9	1.01	6225	12.38	160.57
003971315-02	OBS	No	9.892246	131.747711	1507.2	4.196	147.1	143.0	1.01	6225	7.36	160.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003971315-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET
003971315-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET

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.

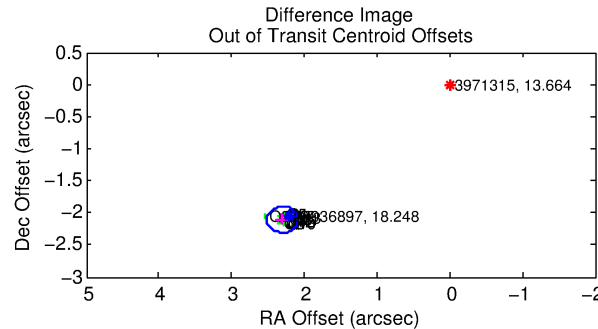
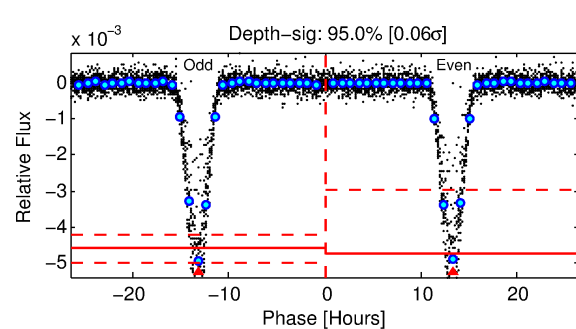
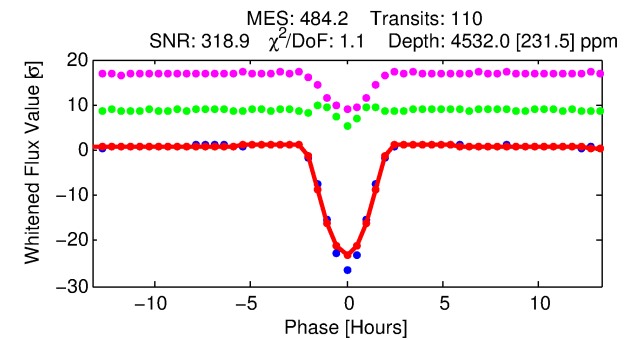
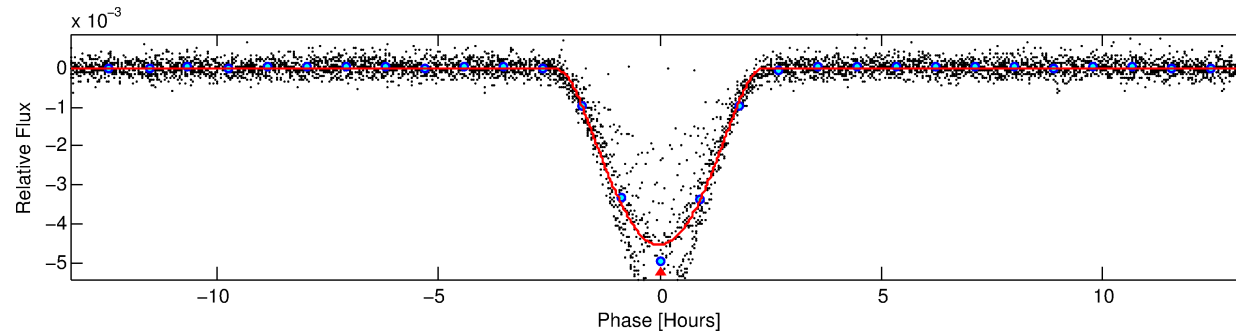
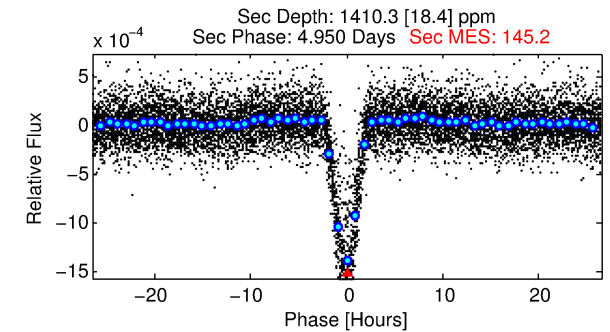
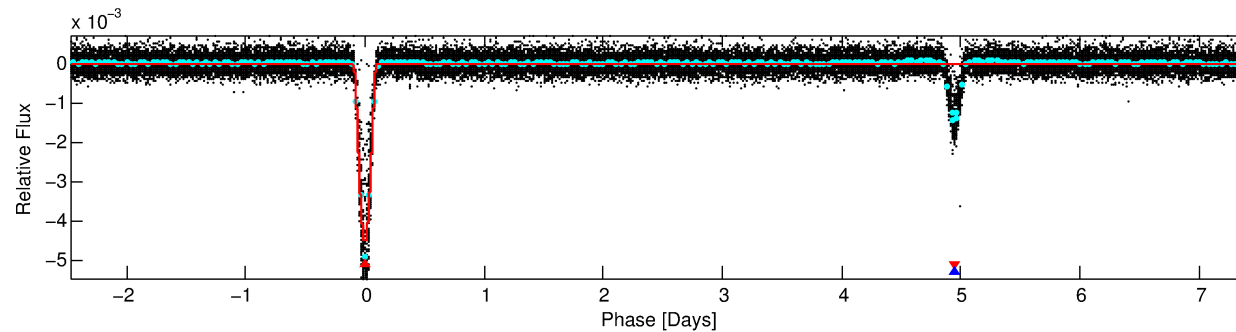
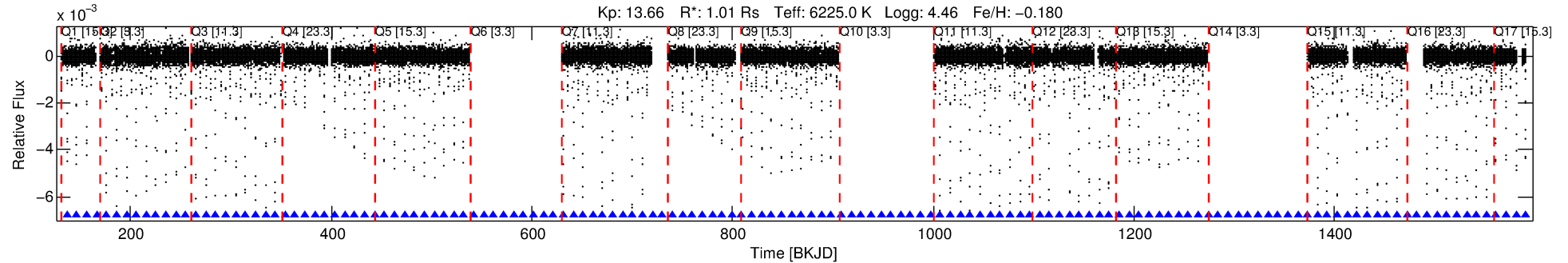
Ephemeris Match Information For 003971315-01

No Significant Match Found

DV One-Page Summary

KIC: 3971315 Candidate: 1 of 2 Period: 9.892 d
KOI: K05992.01 Corr: 0.980

Kp: 13.66 R*: 1.01 Rs Teff: 6225.0 K Logg: 4.46 Fe/H: -0.180



DV Fit Results:

Period = 9.89224 [0.00000] d
Epoch = 136.6938 [0.0003] BKJD
Rp/R* = 0.1125 [0.0140]
a/R* = 8.35 [0.19]
b = 1.00 [0.02]
Seff = 160.57 [65.06]
Teq = 908 [92] K
Rp = 12.38 [4.22] Re
a = 0.0924 [0.0245] AU
Ag = 43.17 [19.71] [2.14σ]
Teff = 3597 [253] K [9.98σ]

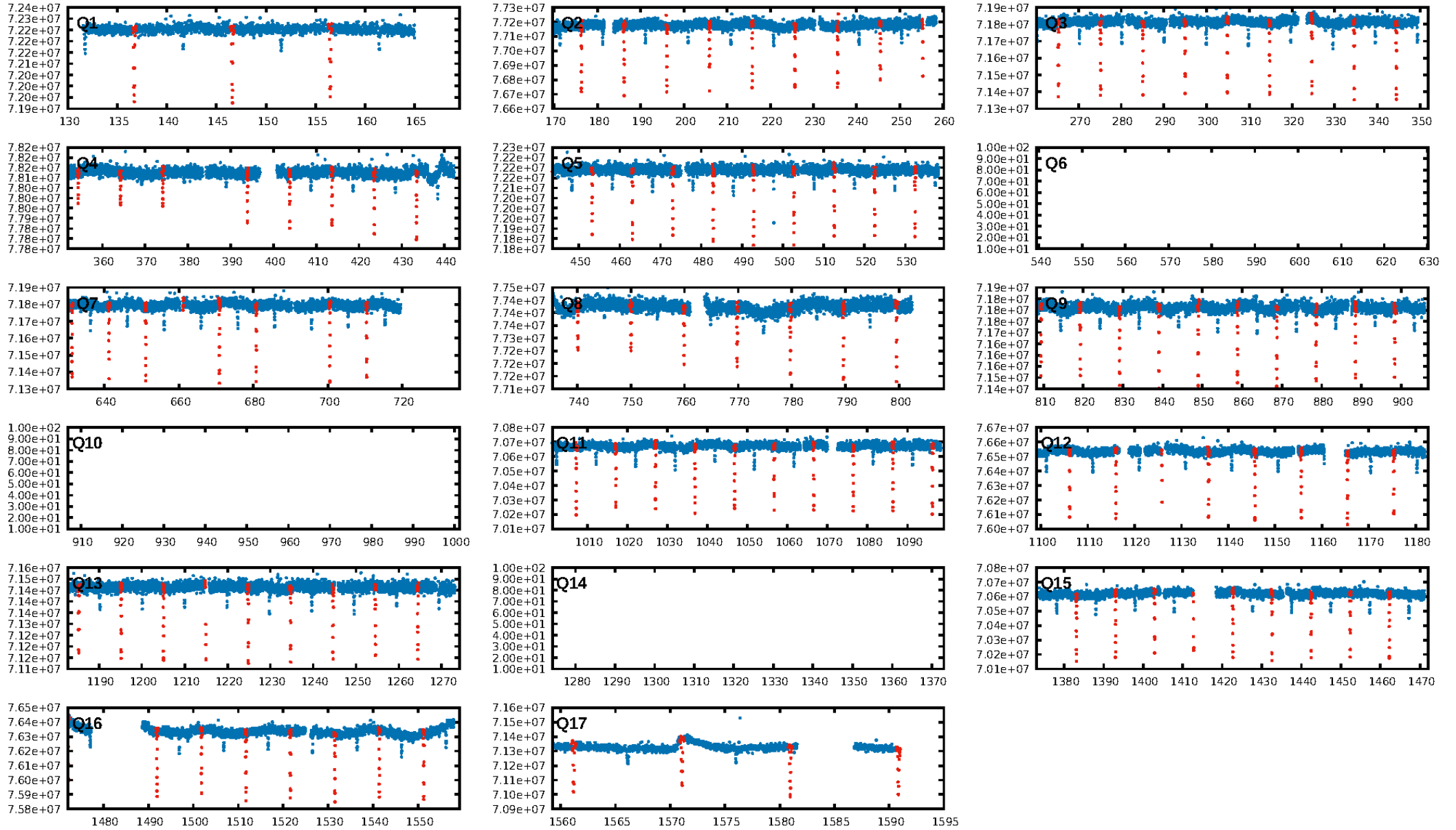
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 54.7%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [103/103]
GhostDiagnostic-chr: 1.171
Centroid-sig: 0.0%
Centroid-so: 3.561 arcsec [117.92σ]
OotOffset-rm: 3.123 arcsec [45.58σ]
KicOffset-rm: 2.999 arcsec [43.83σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

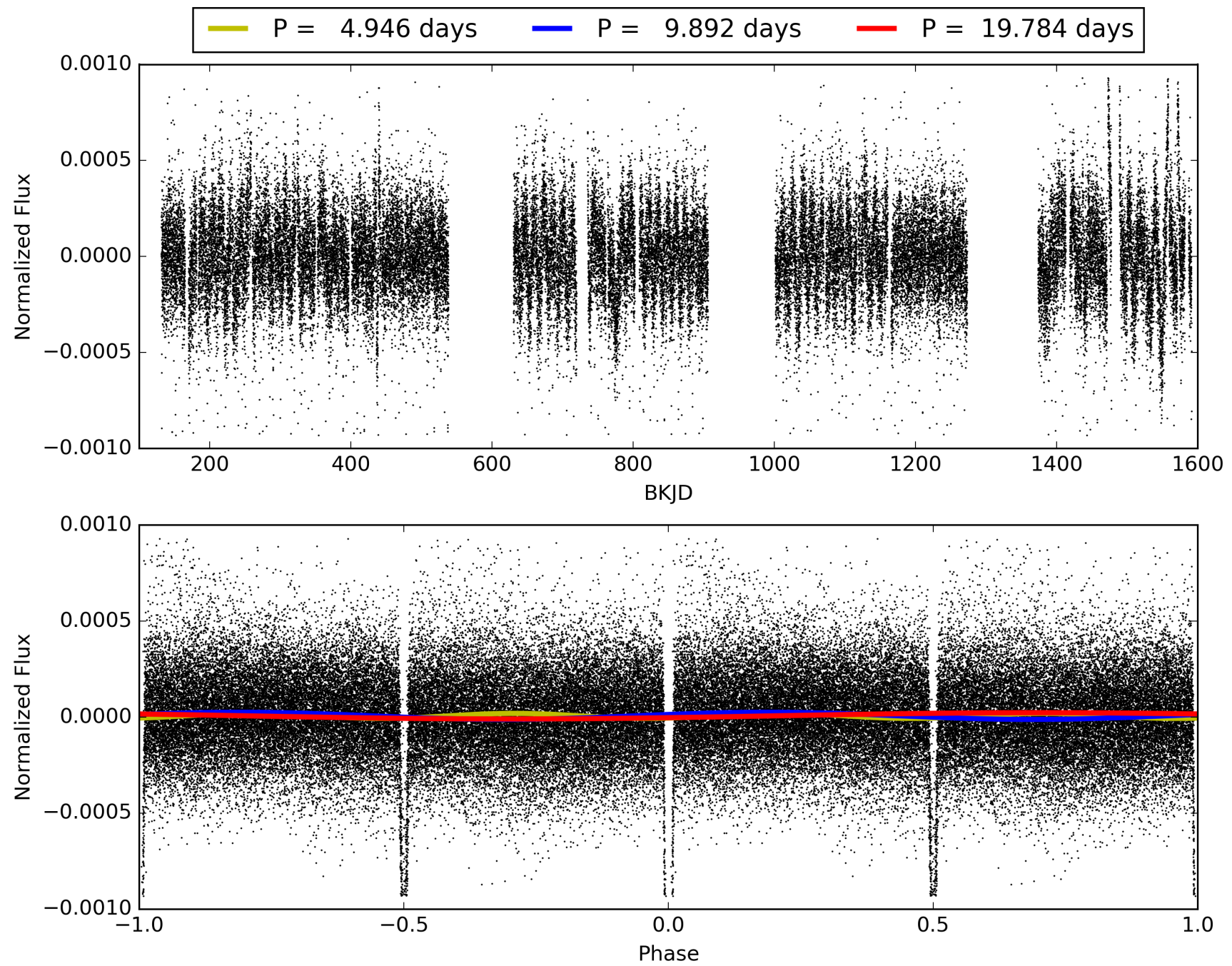
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:59:37 Z

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

TCE 003971315-01, PDC Light Curves

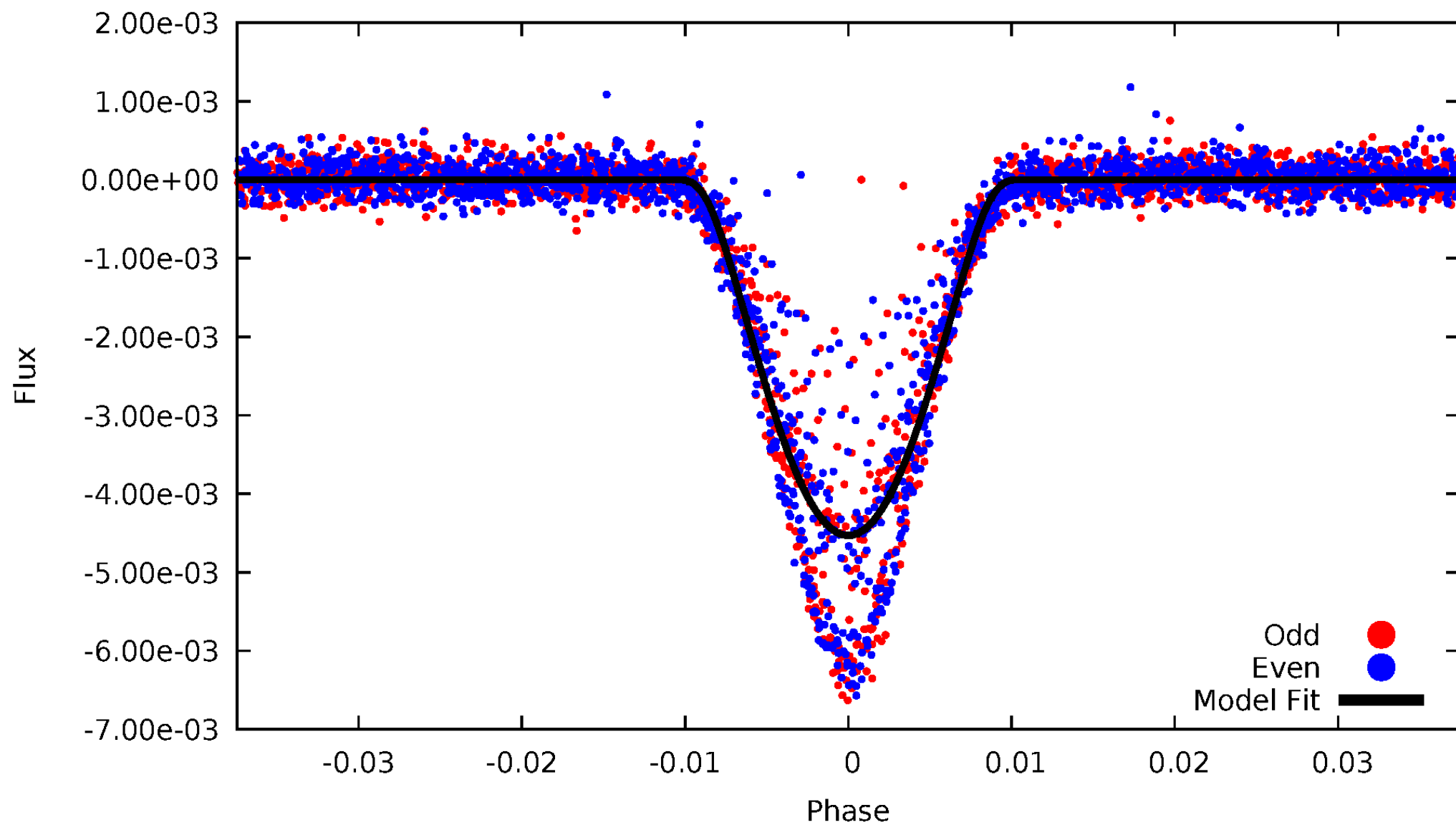


TCE 003971315-01



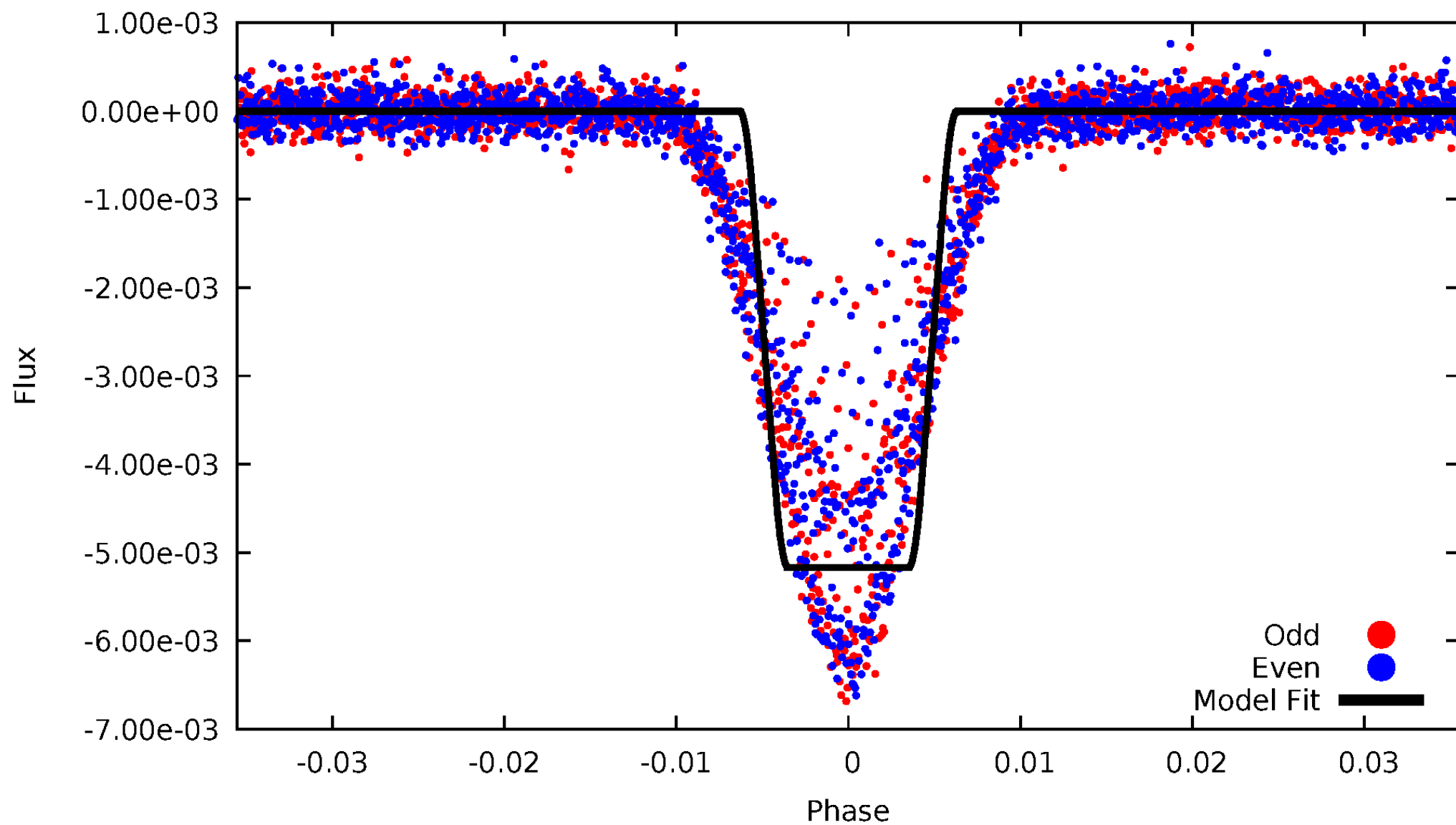
DV Odd/Even

TCE 003971315-01

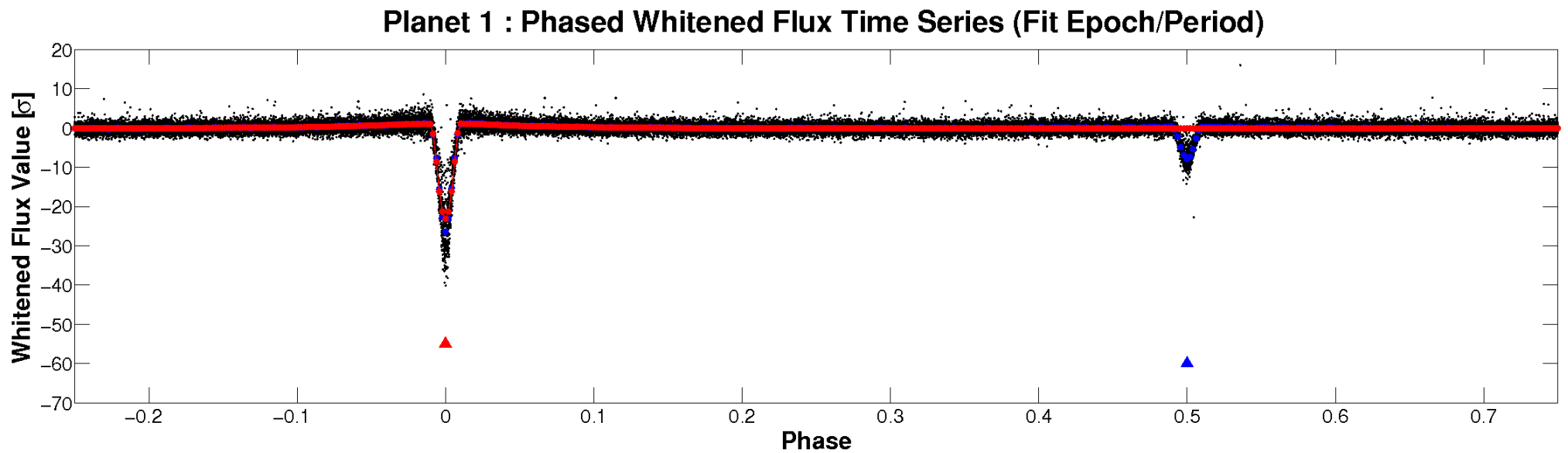
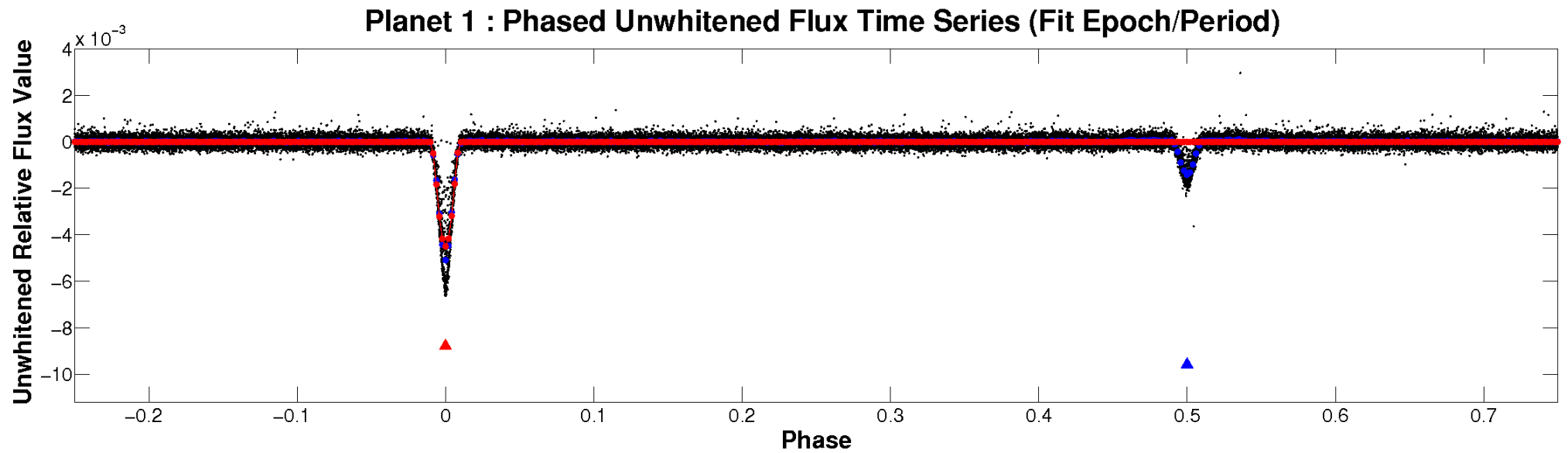


ALT Odd/Even

TCE 003971315-01

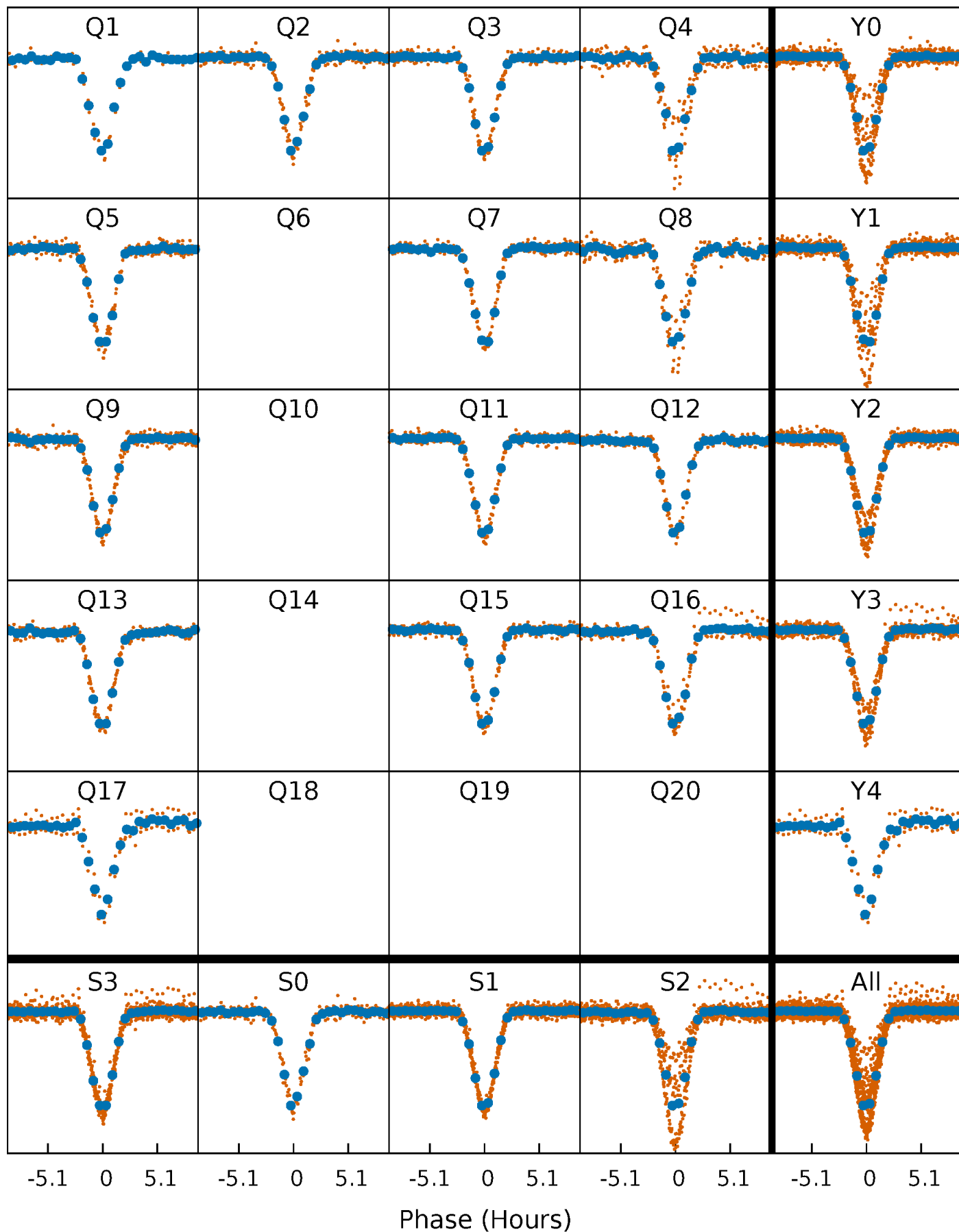


Non-Whitened Vs. Whitened Light Curve



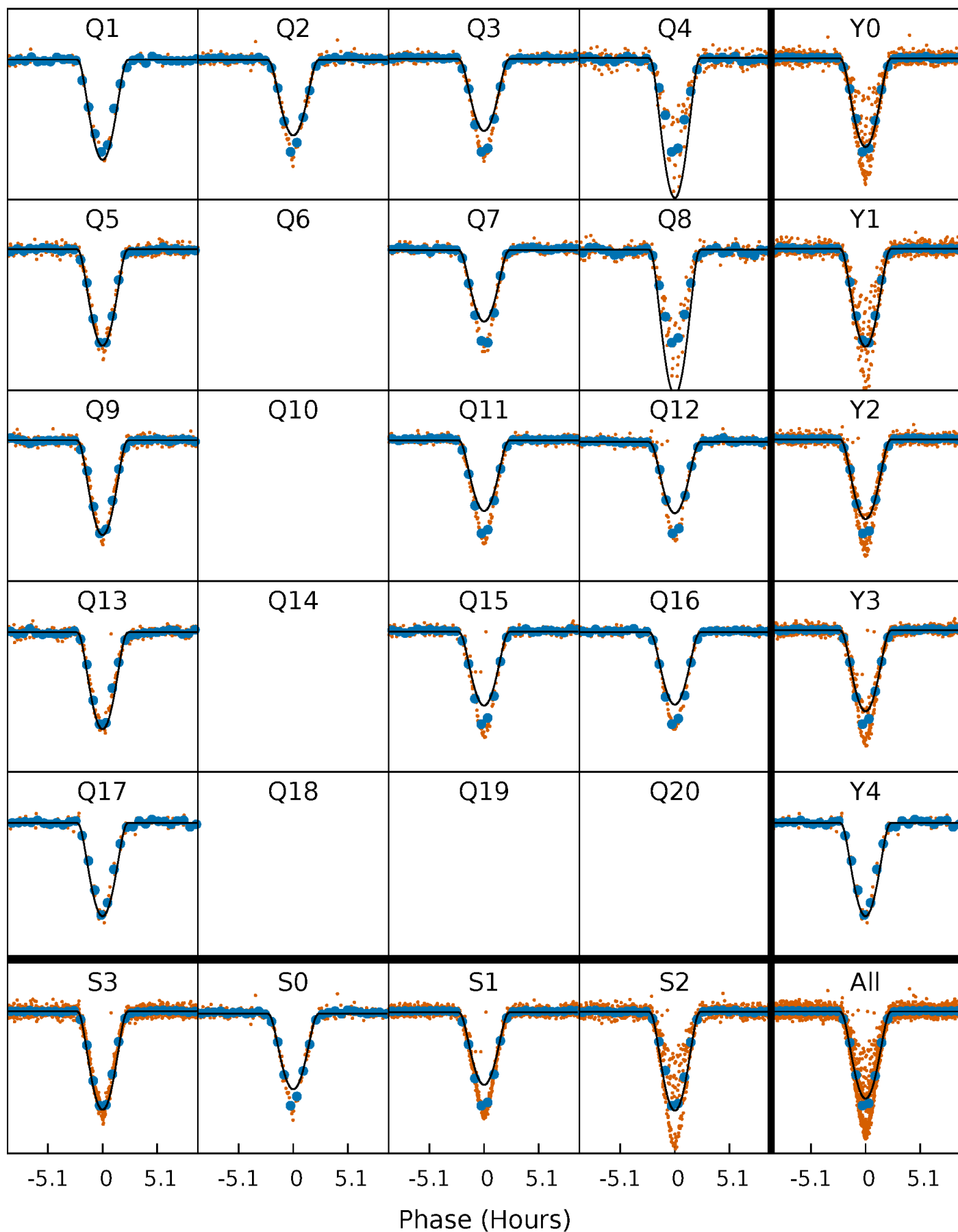
PDC Quarter-Phased Transit Curves

TCE 003971315-01 P= 9.892245 Days $T_0=136.693793$ (BKJD)



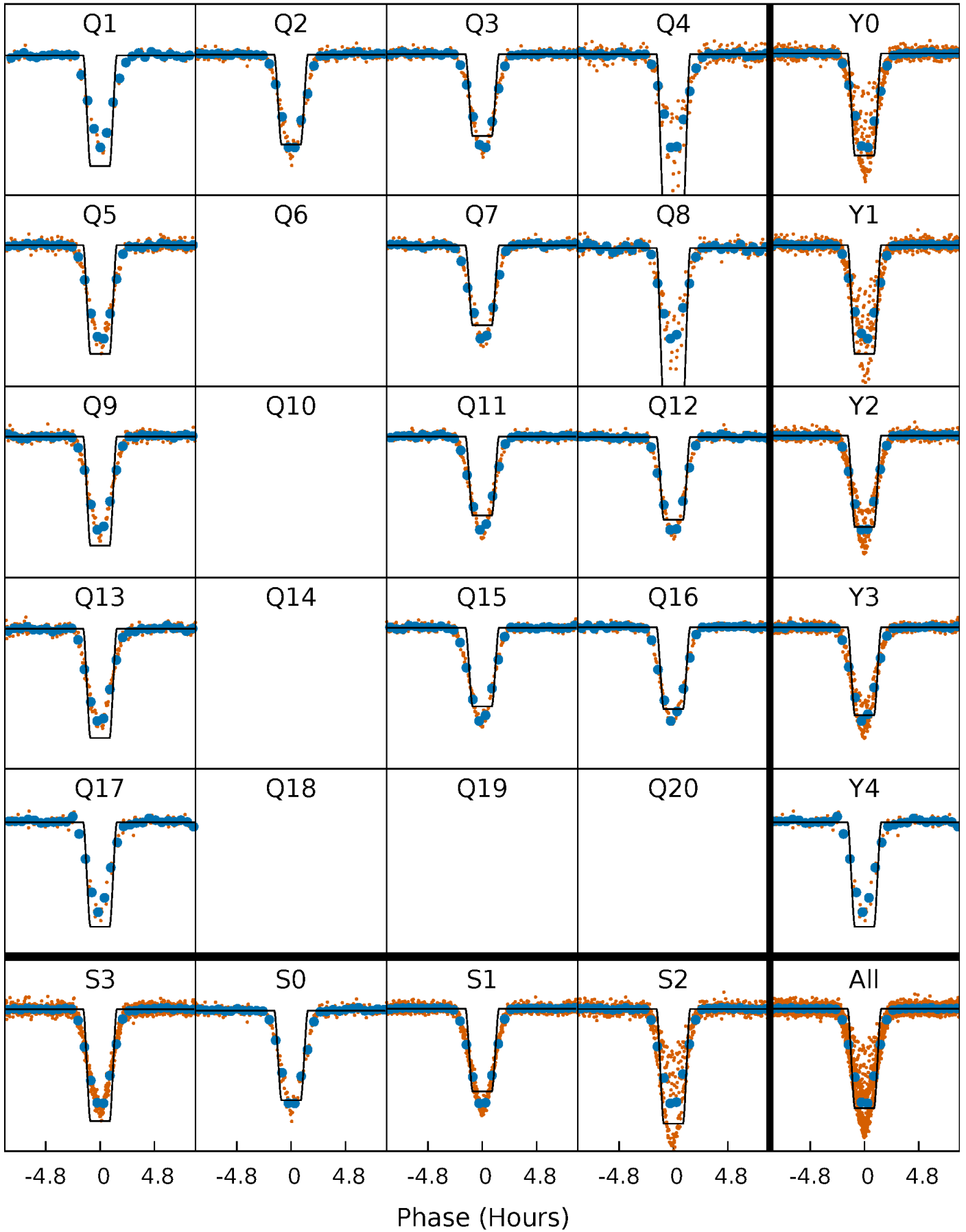
DV Quarter-Phased Transit Curves

TCE 003971315-01 P= 9.892245 Days $T_0=136.693793$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

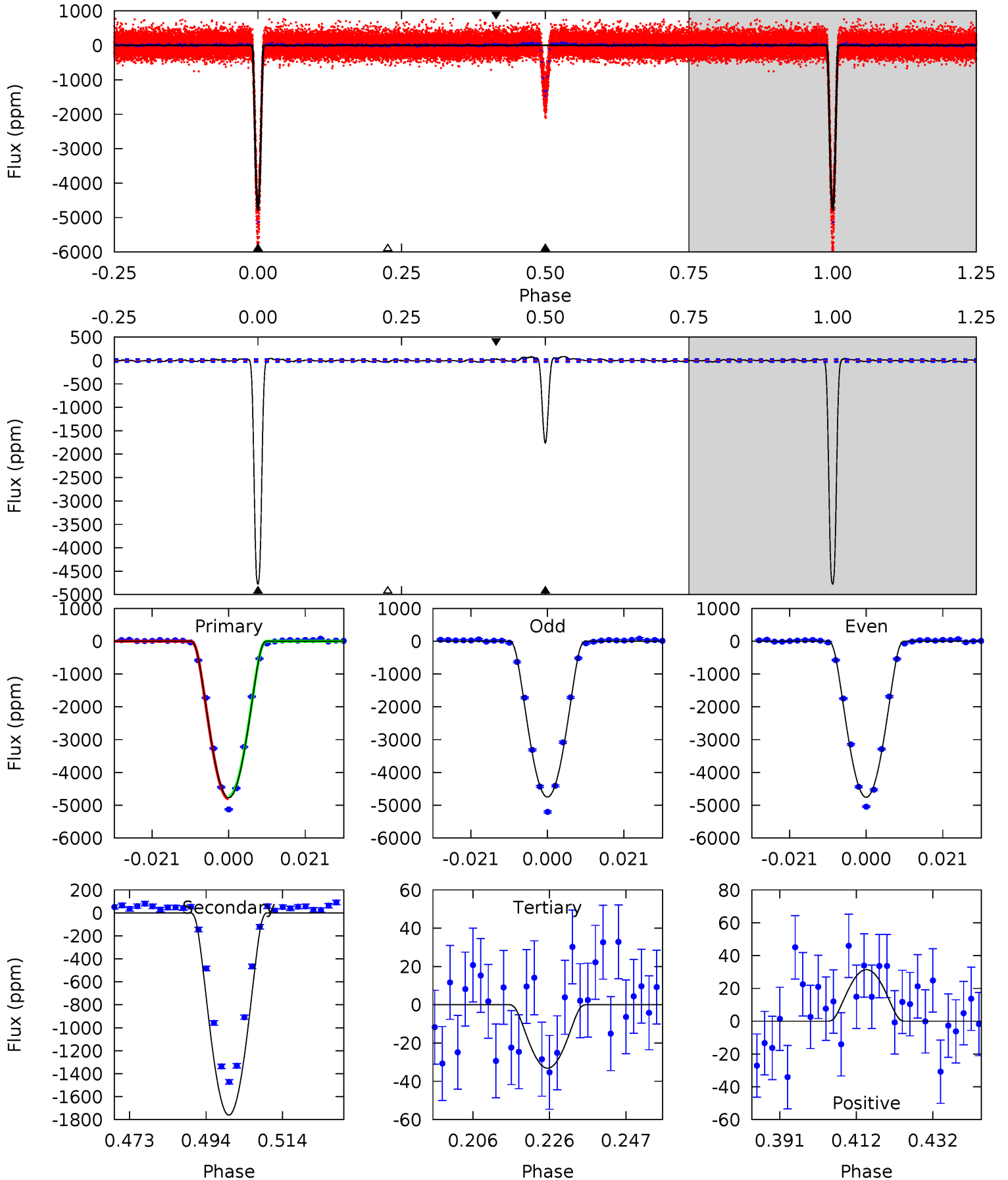
TCE 003971315-01 P= 9.892295 Days $T_0=136.689851$ (BKJD)



DV Model-Shift Uniqueness Test

003971315-01, P = 9.892245 Days, E = 126.801548 Days

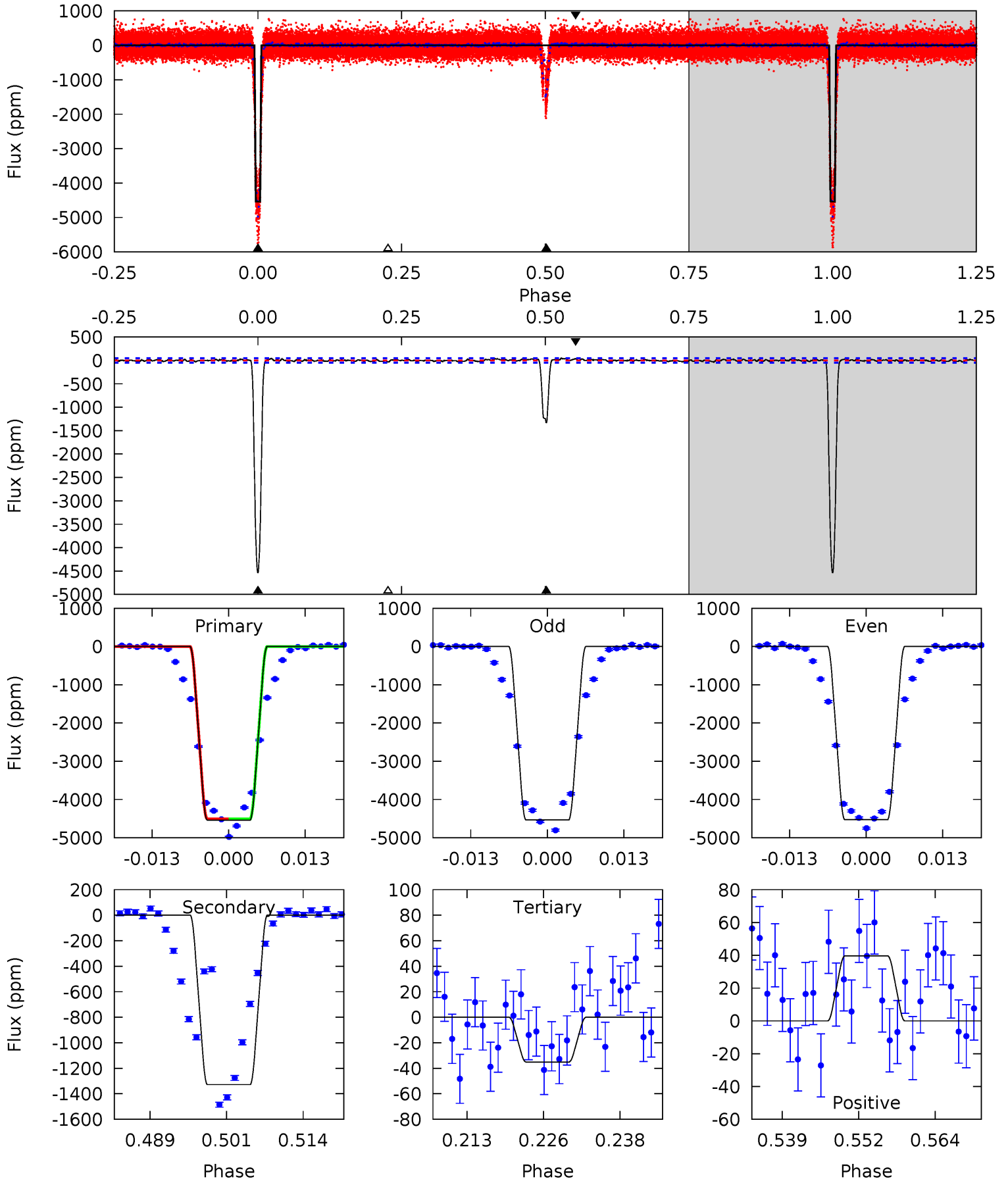
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
769.8	284.0	5.34	5.07	4.89	2.32	3.13	764.4	764.7	278.7	278.9	0.71	0.95	0.02	0



Alt Model-Shift Uniqueness Test

003971315-01, P = 9.892295 Days, E = 126.797556 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
483.6	141.5	3.74	4.22	4.98	2.50	1.48	479.8	479.3	137.8	137.3	0.27	0.94	0.01	0.13



Stellar Parameters For KIC 003971315

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6225^{+169}_{-206}	$4.461^{+0.052}_{-0.208}$	$-0.180^{+0.250}_{-0.350}$	$1.009^{+0.320}_{-0.107}$	$1.070^{+0.144}_{-0.144}$	$1.467^{+0.408}_{-0.804}$
	+3%/-3%	+1%/-5%	+139%/-194%	+32%/-11%	+13%/-13%	+28%/-55%
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 003971315-01 / KOI 5992.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1761 ± 6	$12.89^{+2.44}_{-1.98}$	1299^{+87}_{-68}	4080^{+245}_{-169}	48^{+19}_{-14}
Alt.	-1328 ± 9	$8.27^{+2.14}_{-1.86}$	1305^{+91}_{-70}	4592^{+500}_{-322}	88^{+58}_{-31}

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

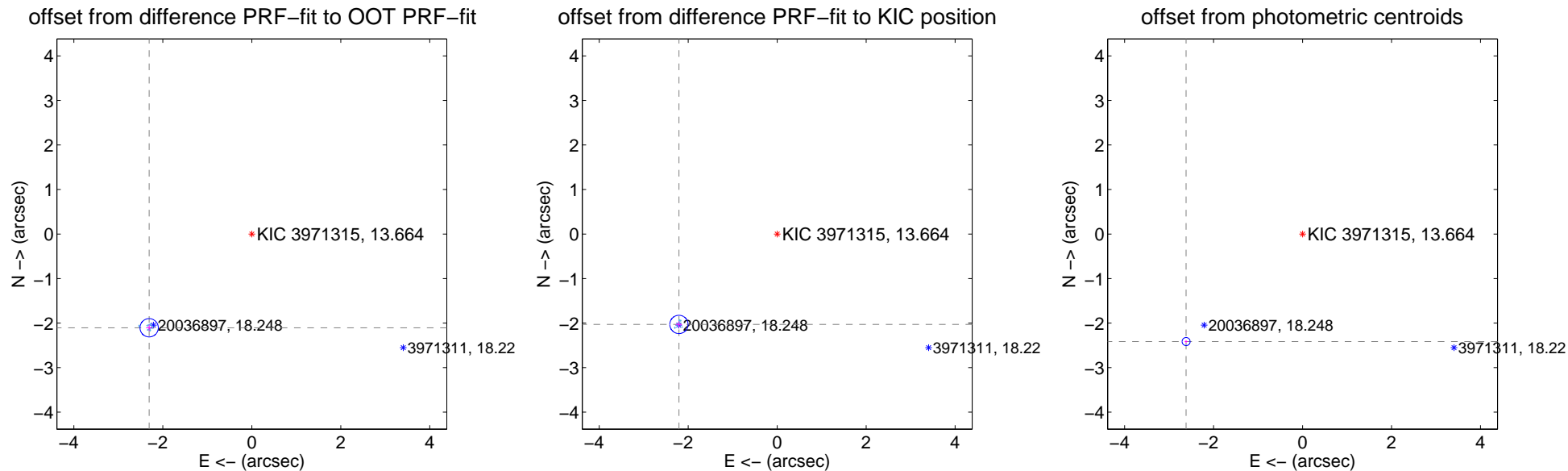
DV Centroid Data

Supplemental centroid analysis for 003971315-01. Kepler magnitude: 13.66. Transit SNR 318.85

There are 14 quarters with good PRF difference image offsets

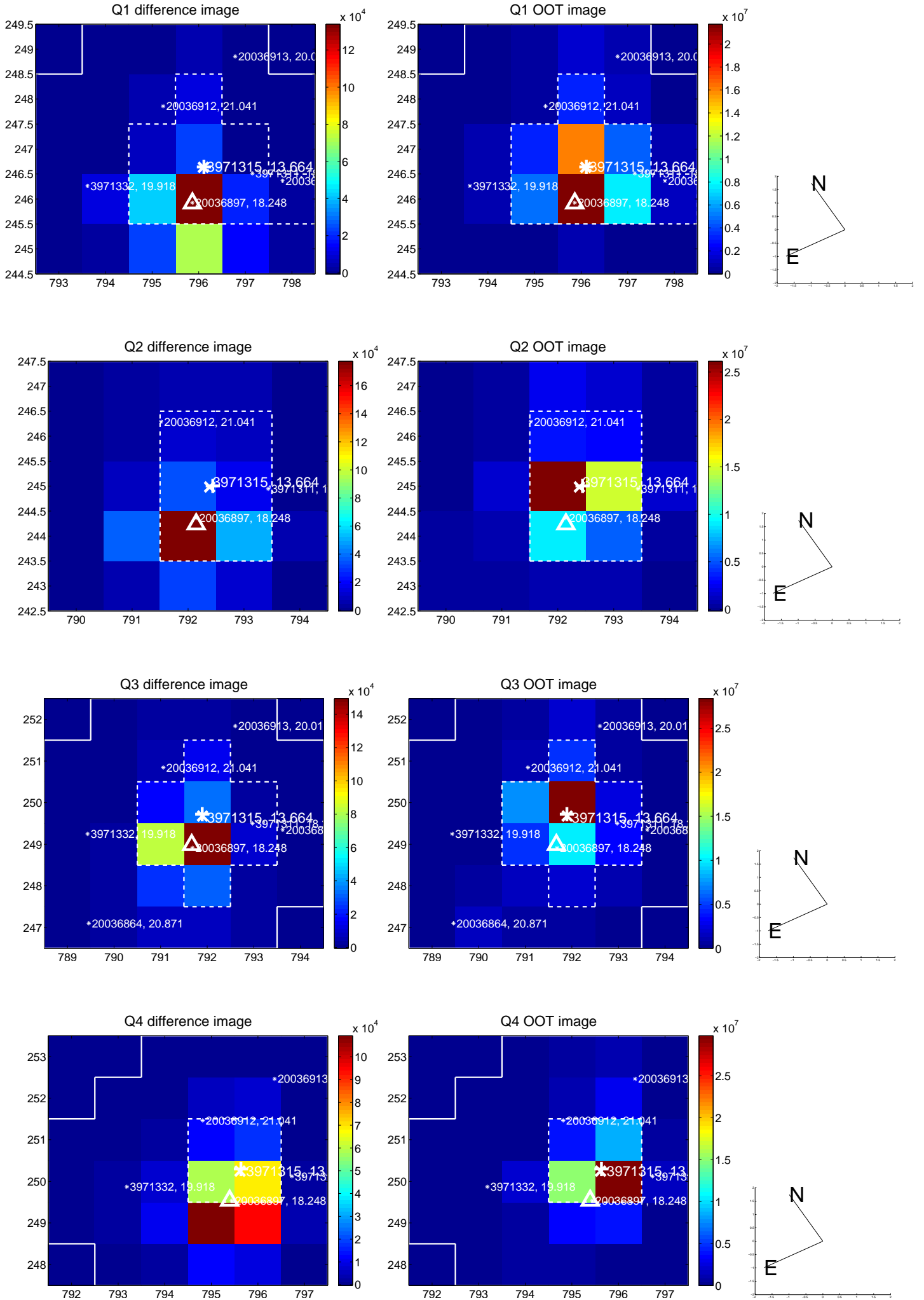
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.123 ± 0.069	45.58	2.307 ± 0.069	-2.105 ± 0.068
PRF-fit source offset from KIC position	2.999 ± 0.068	43.83	2.208 ± 0.068	-2.030 ± 0.068
photometric centroid source offset	3.56 ± 0.03	117.92	2.62 ± 0.03	-2.41 ± 0.03

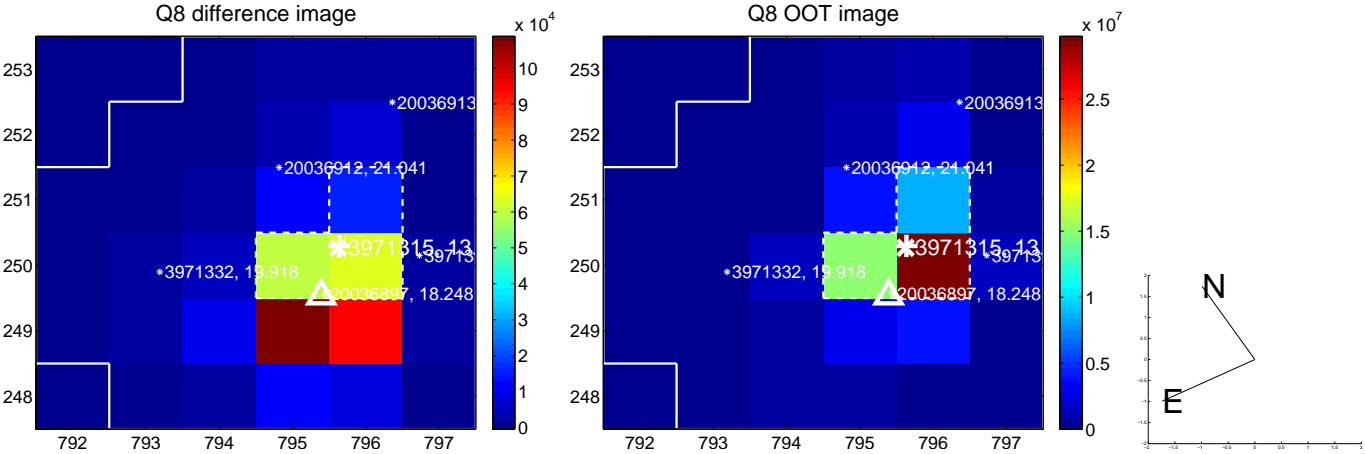
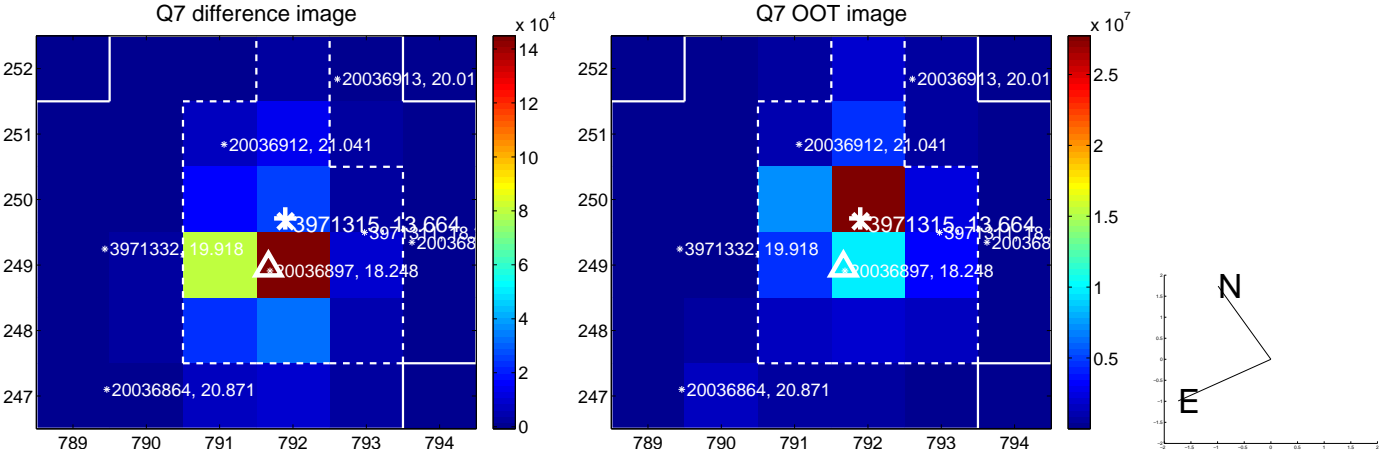
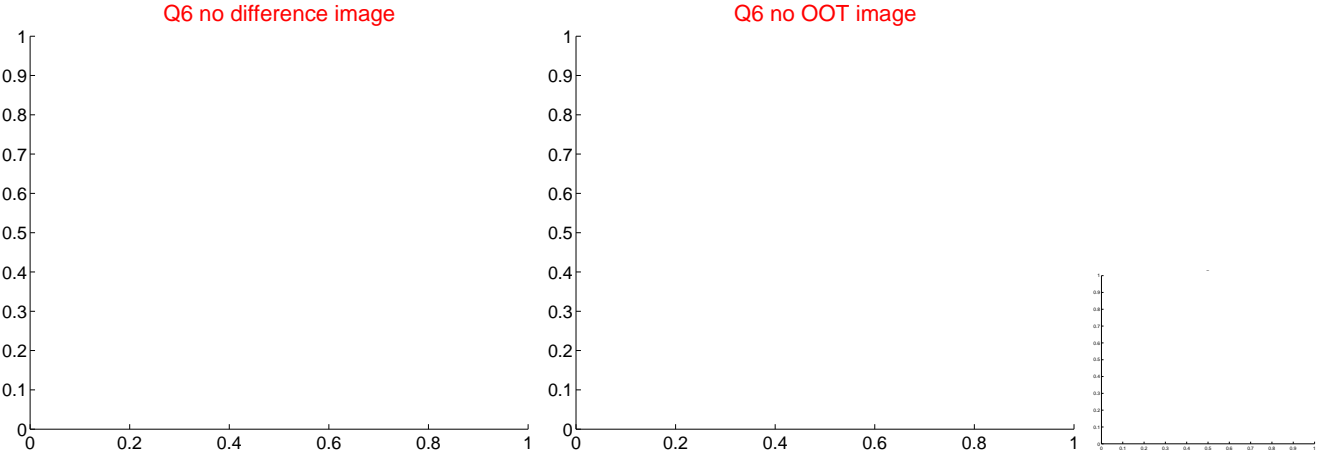
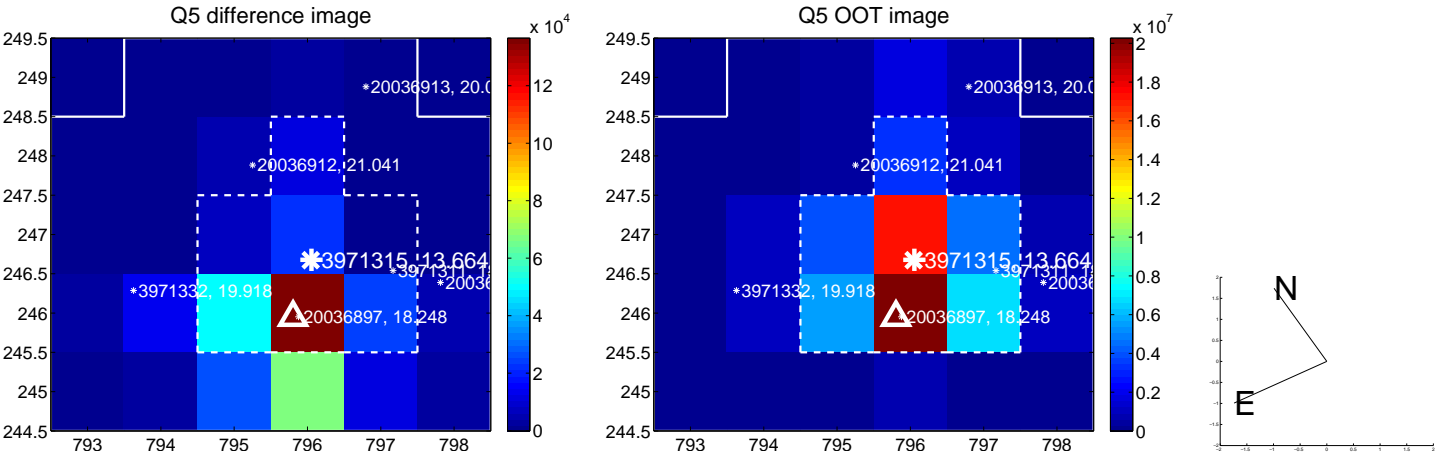


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

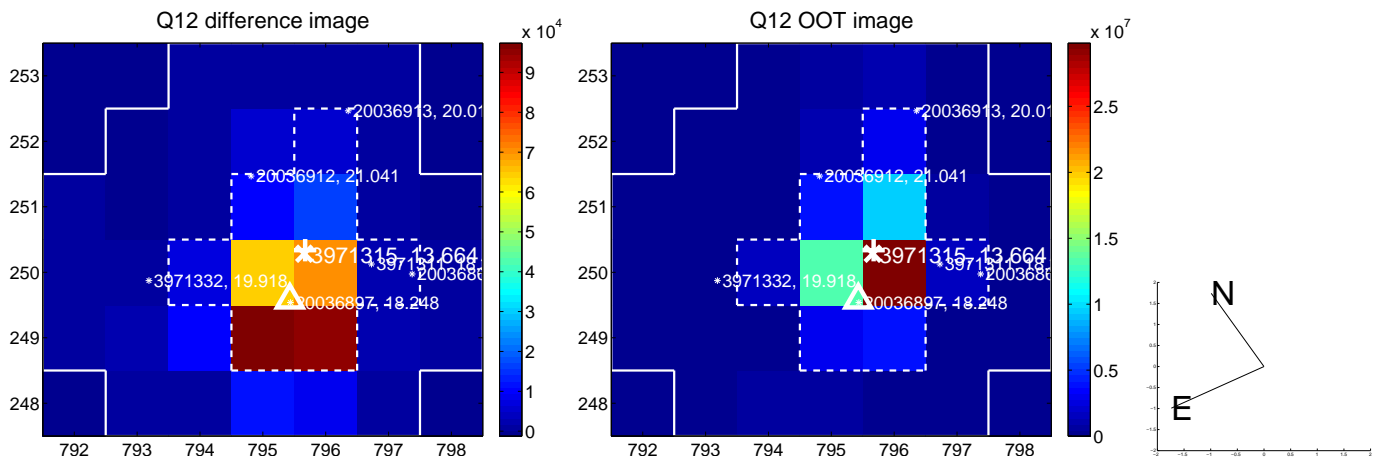
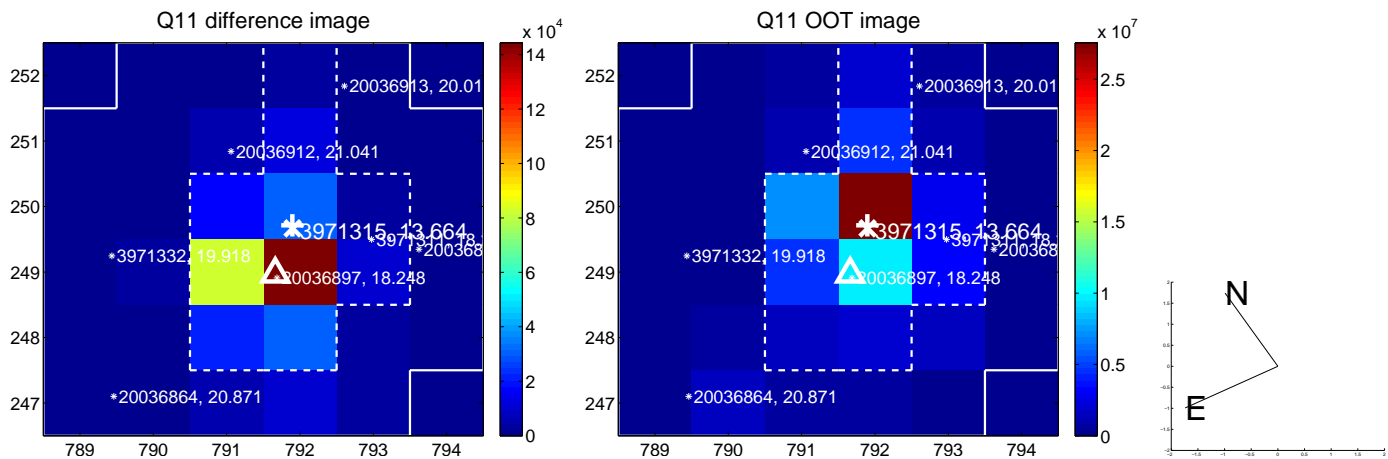
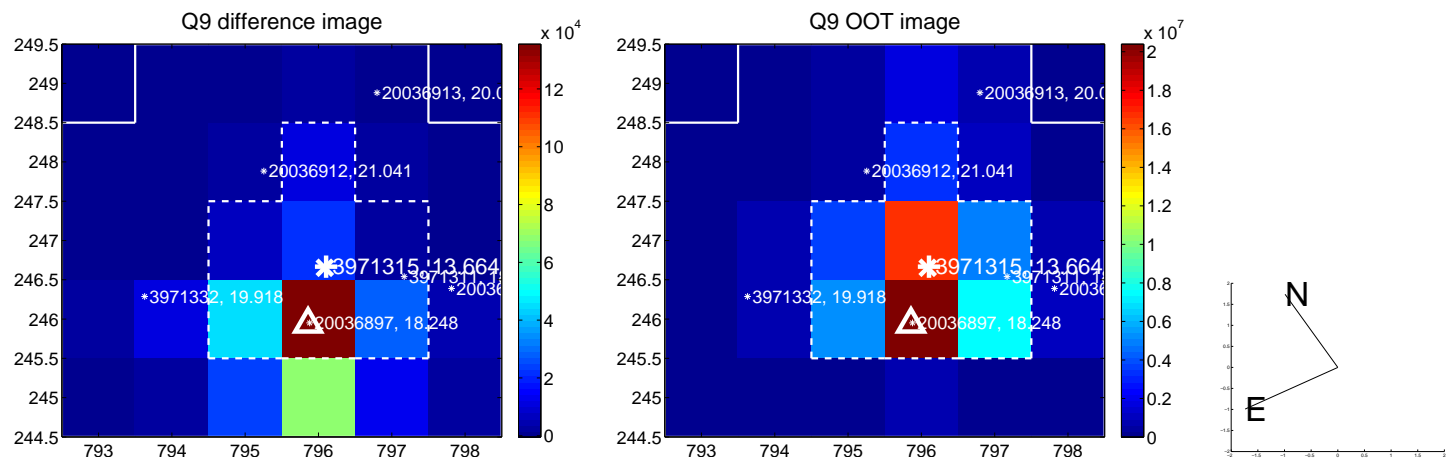
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



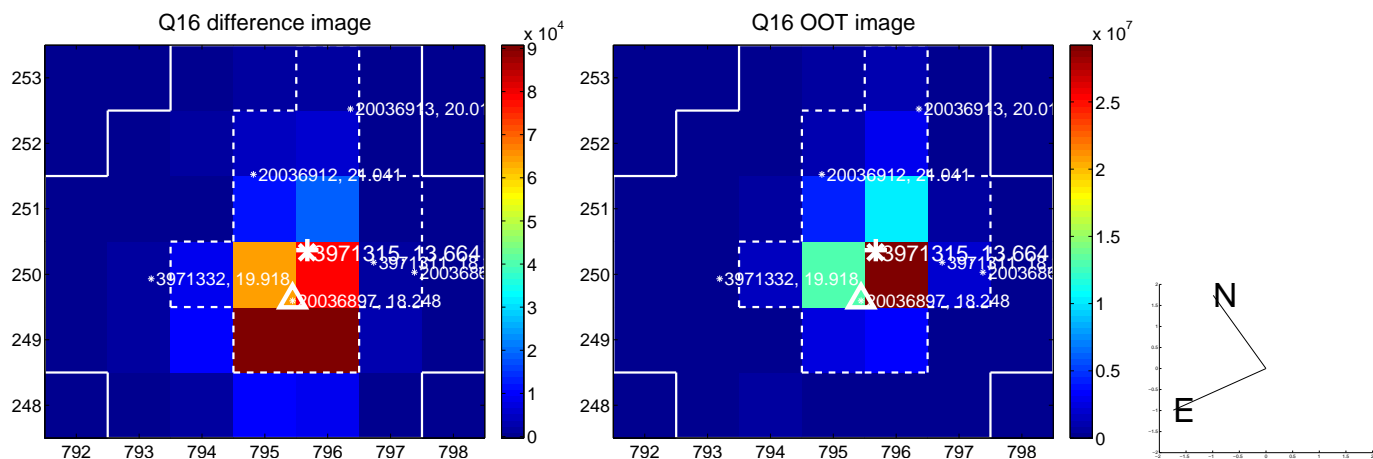
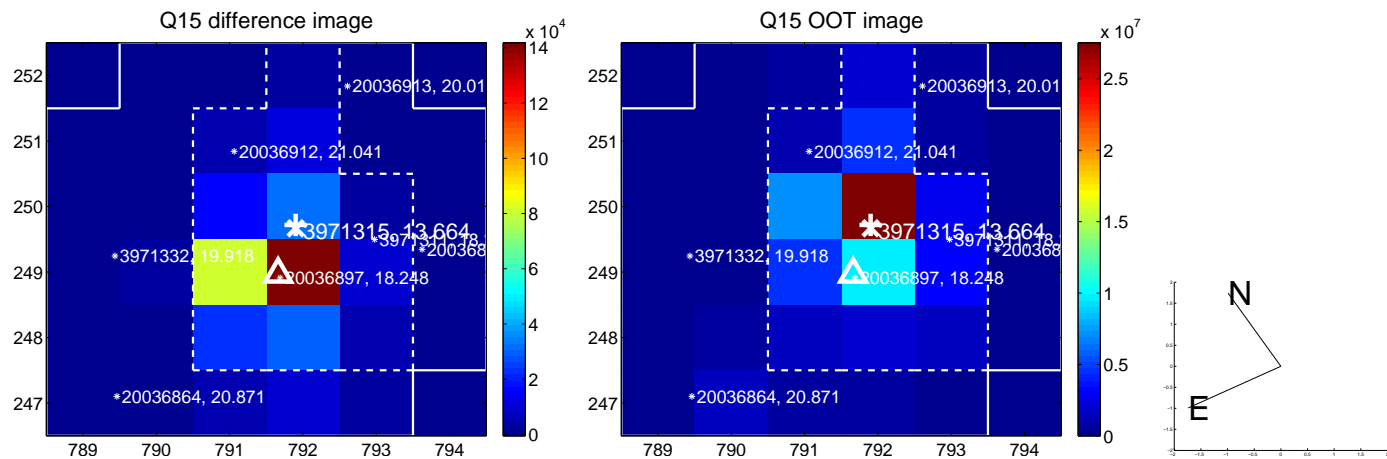
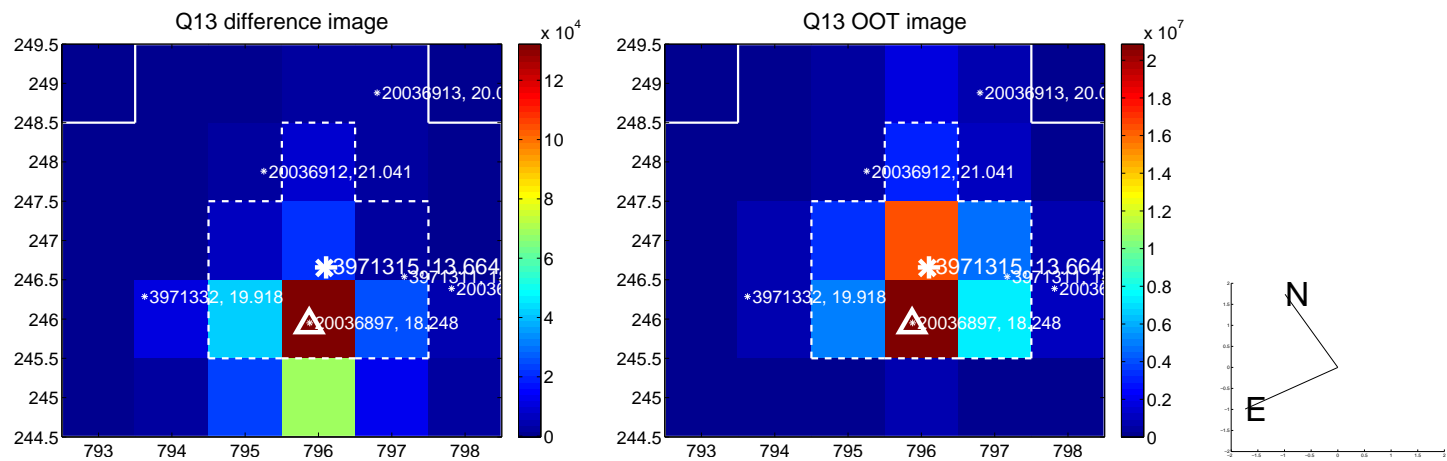
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



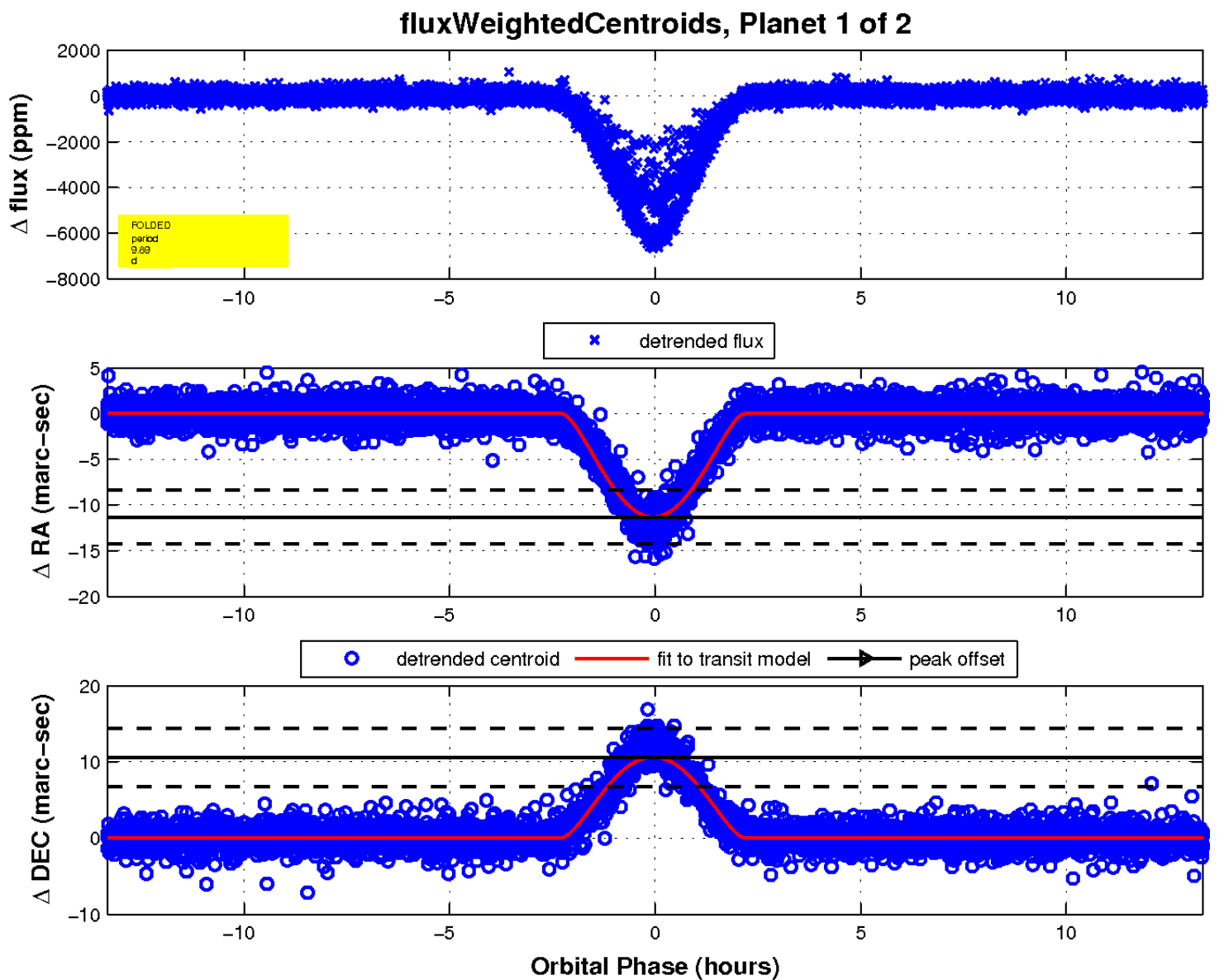
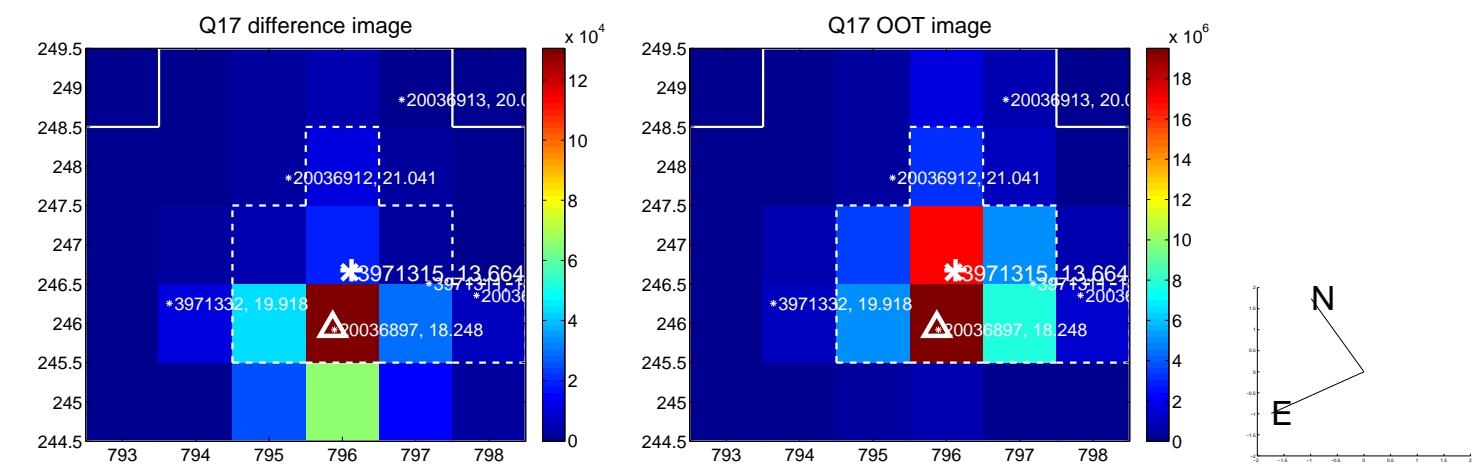
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

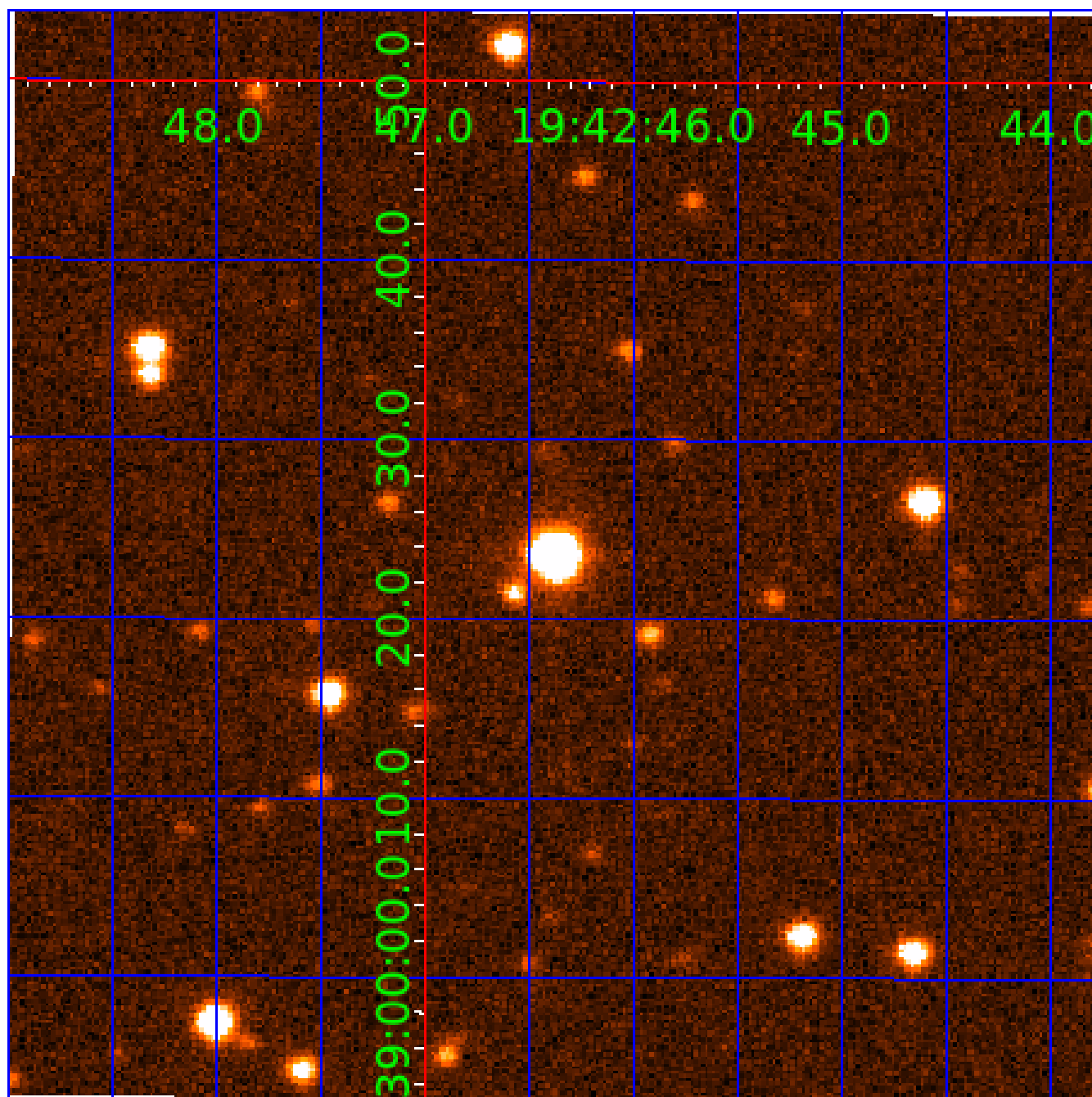


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003971315

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})
003971315-01	OBS	5992.01	9.892245	136.693793	4532.0	4.444	484.2	318.9	1.01	6225	12.38	160.57
003971315-02	OBS	No	9.892246	131.747711	1507.2	4.196	147.1	143.0	1.01	6225	7.36	160.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003971315-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET
003971315-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET

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.

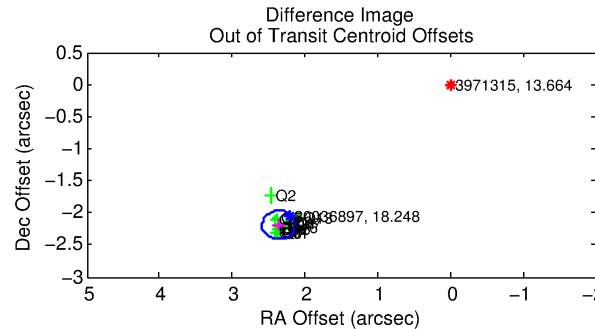
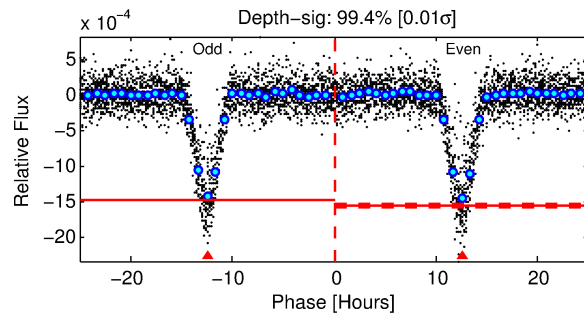
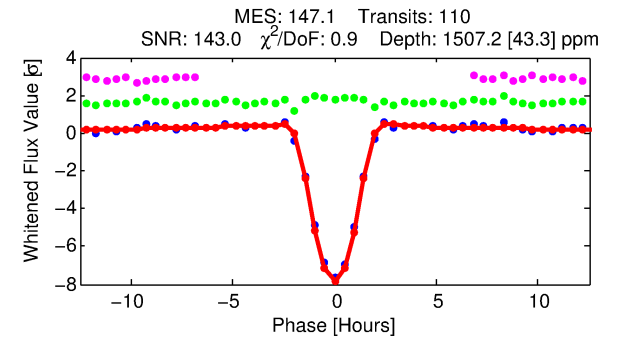
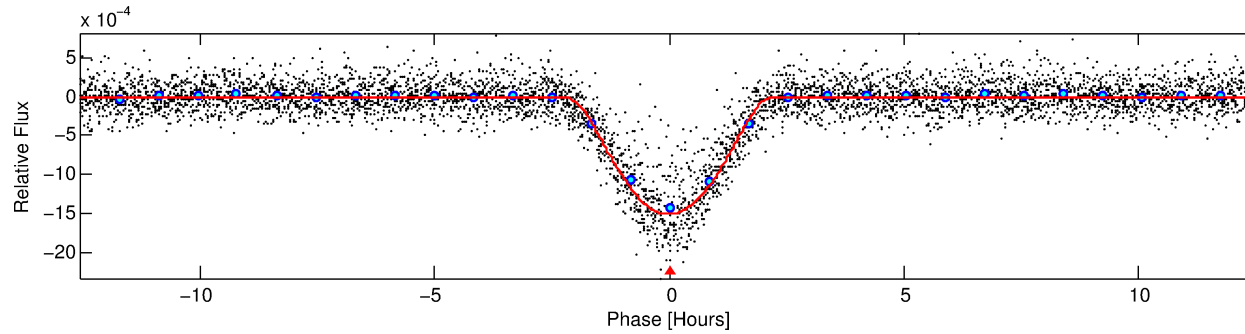
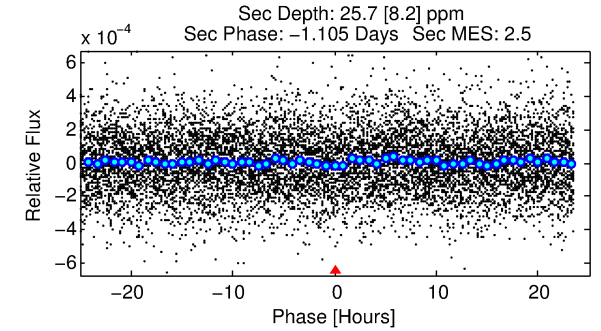
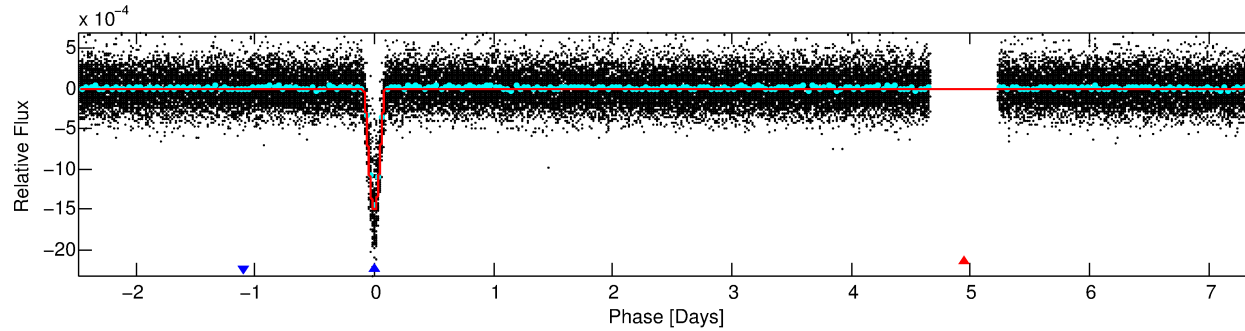
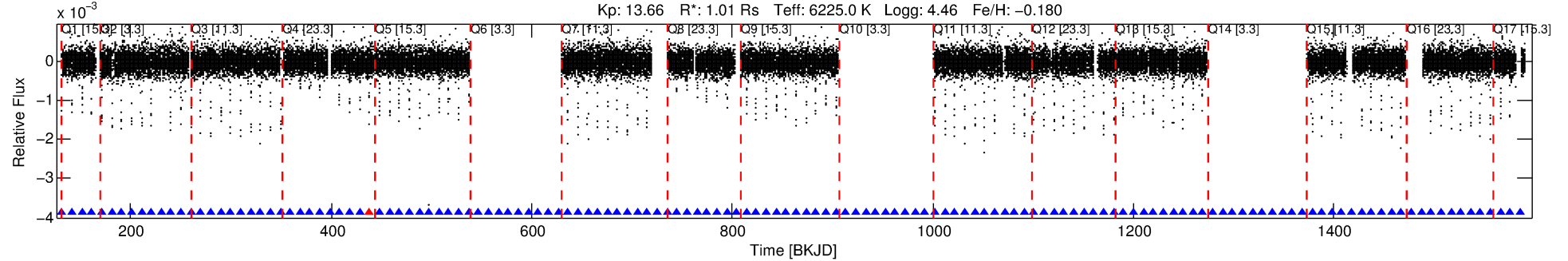
Ephemeris Match Information For 003971315-02

No Significant Match Found

DV One-Page Summary

KIC: 3971315 Candidate: 2 of 2 Period: 9.892 d
KOI: K05992 Corr: No Ephemeris Match

Kp: 13.66 R*: 1.01 Rs Teff: 6225.0 K Logg: 4.46 Fe/H: -0.180



DV Fit Results:

Period = 9.89225 [0.00001] d
Epoch = 131.7477 [0.0006] BKJD
Rp/R* = 0.0669 [0.0196]
a/R* = 6.79 [0.45]
b = 1.00 [0.03]
Seff = 160.57 [65.06]
Teq = 908 [92] K
Rp = 7.36 [3.18] Re
a = 0.0924 [0.0245] AU
Ag = 2.23 [1.71] [0.72σ]
Teffp = 1715 [292] K [2.64σ]

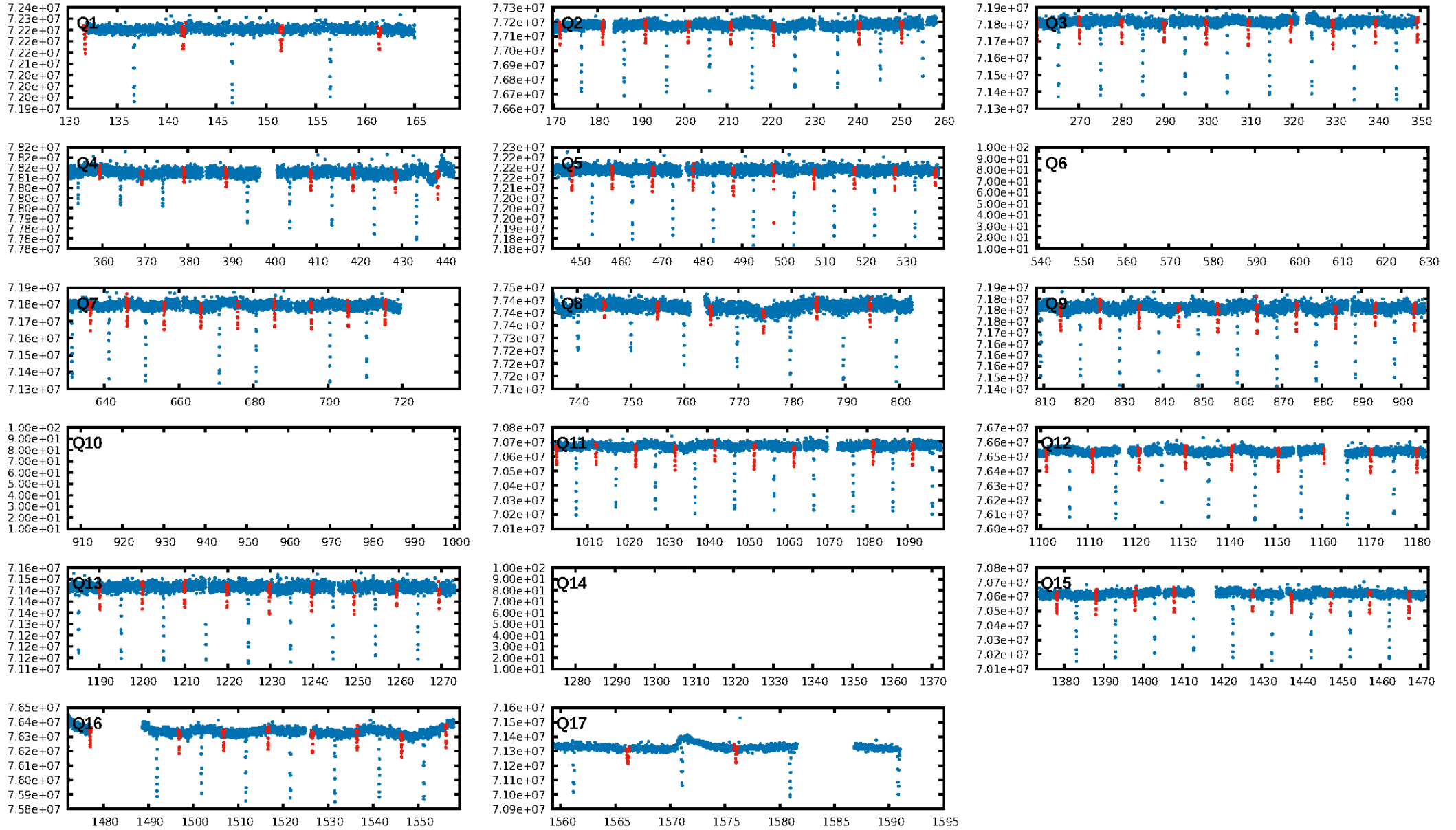
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [103/104]
GhostDiagnostic-chr: 1.939
Centroid-sig: 0.0%
Centroid-so: 3.085 arcsec [33.59σ]
OotOffset-rm: 3.222 arcsec [42.89σ]
KicOffset-rm: 3.095 arcsec [42.97σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

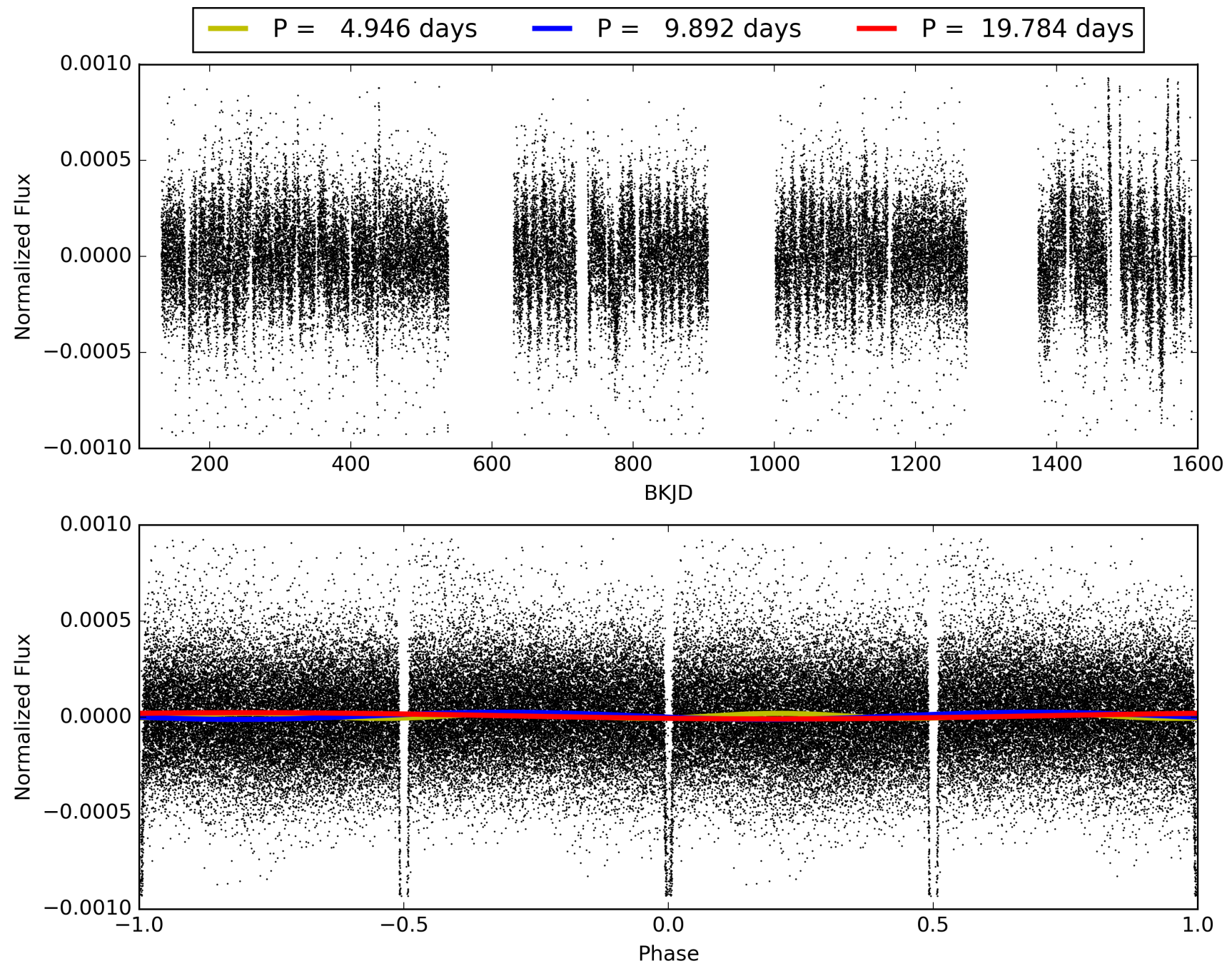
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:59:43 Z

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

TCE 003971315-02, PDC Light Curves

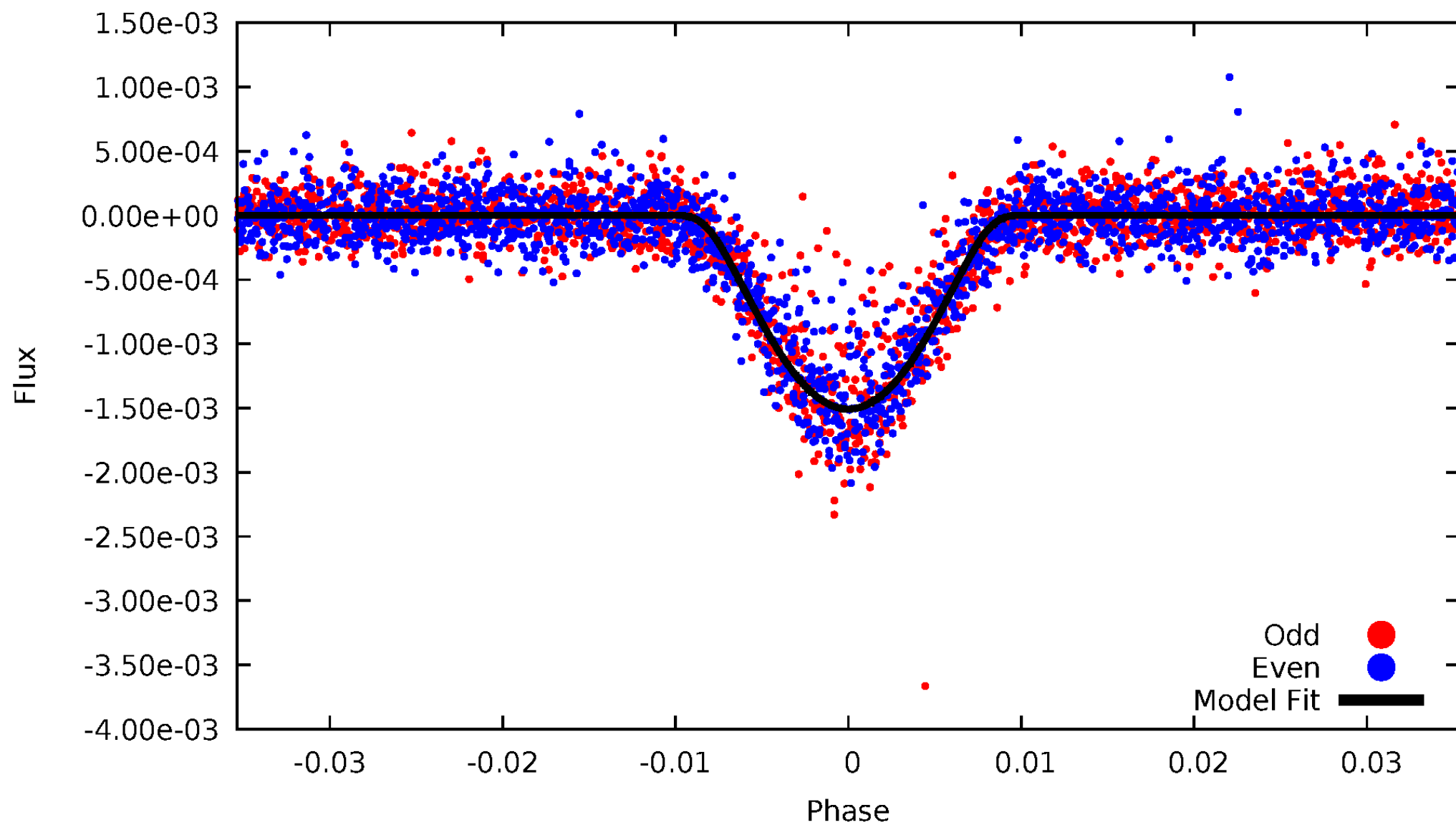


TCE 003971315-02



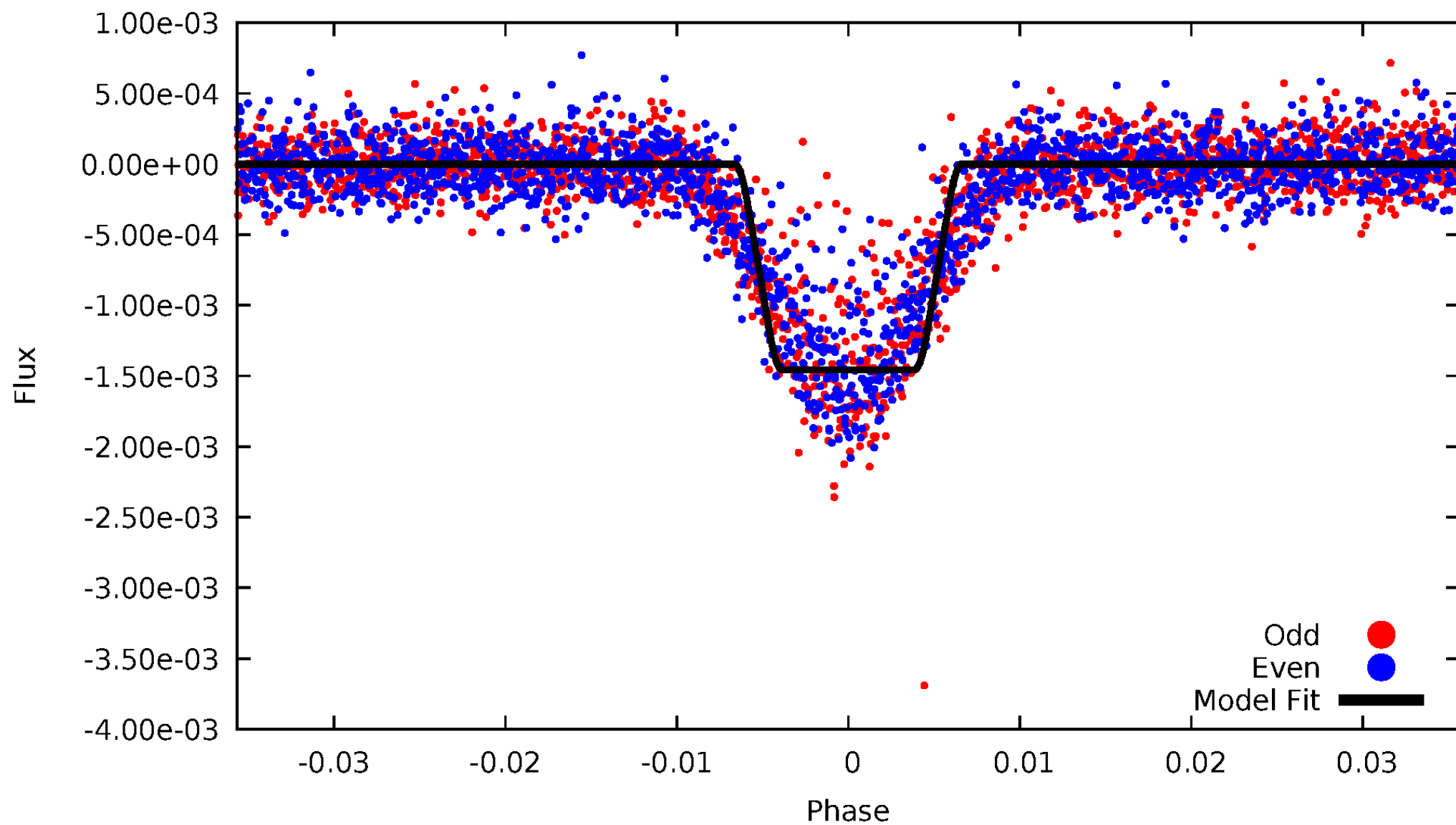
DV Odd/Even

TCE 003971315-02



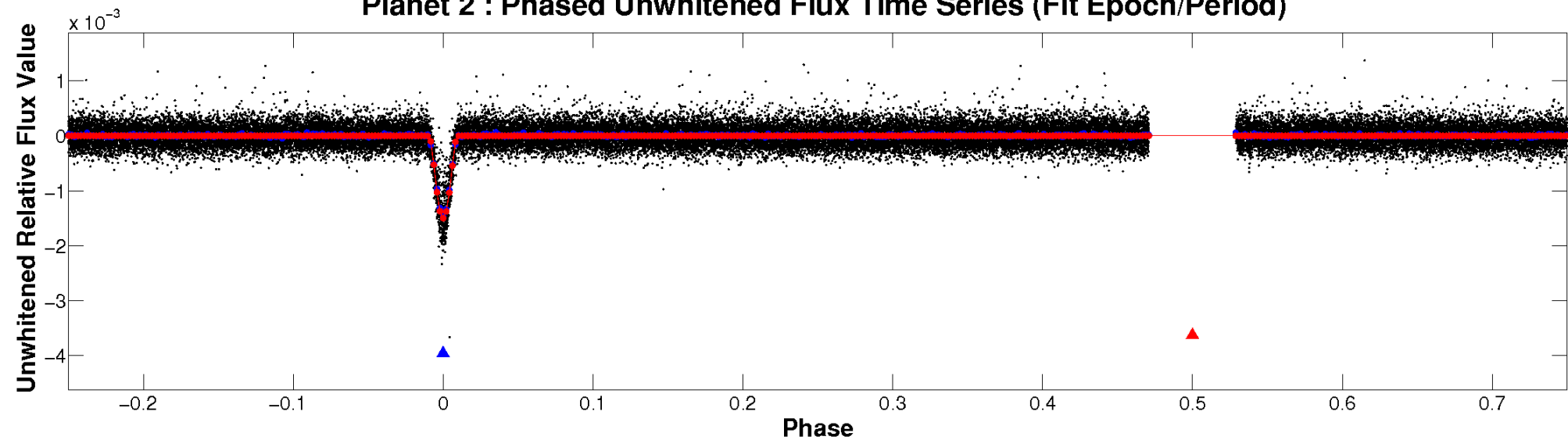
ALT Odd/Even

TCE 003971315-02

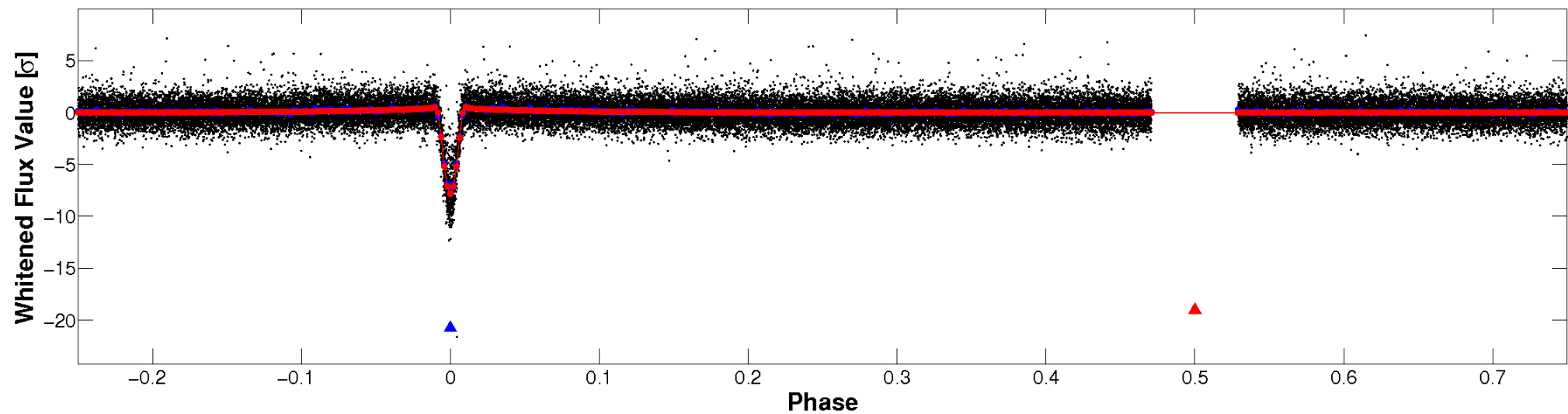


Non-Whitened Vs. Whitened Light Curve

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

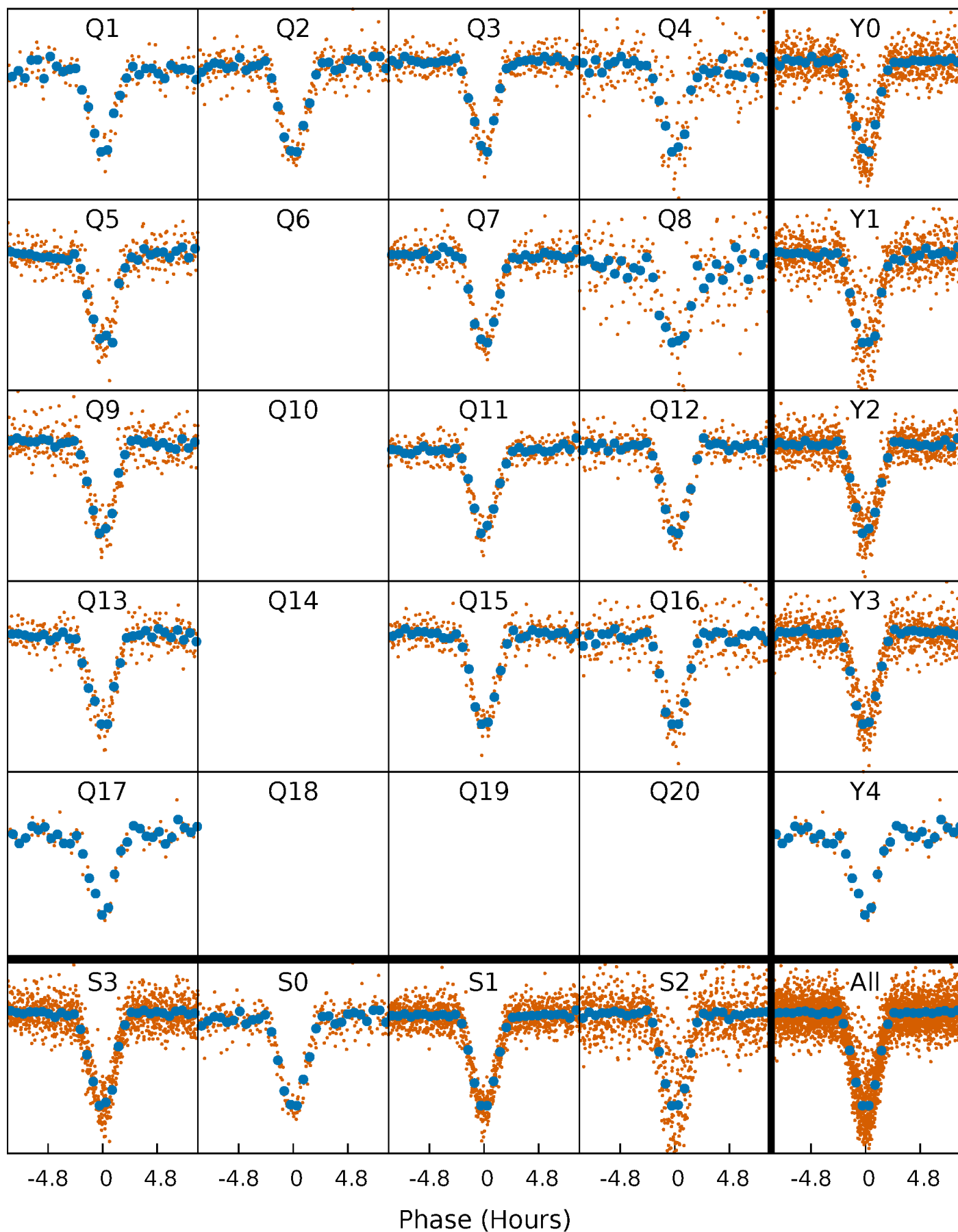


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



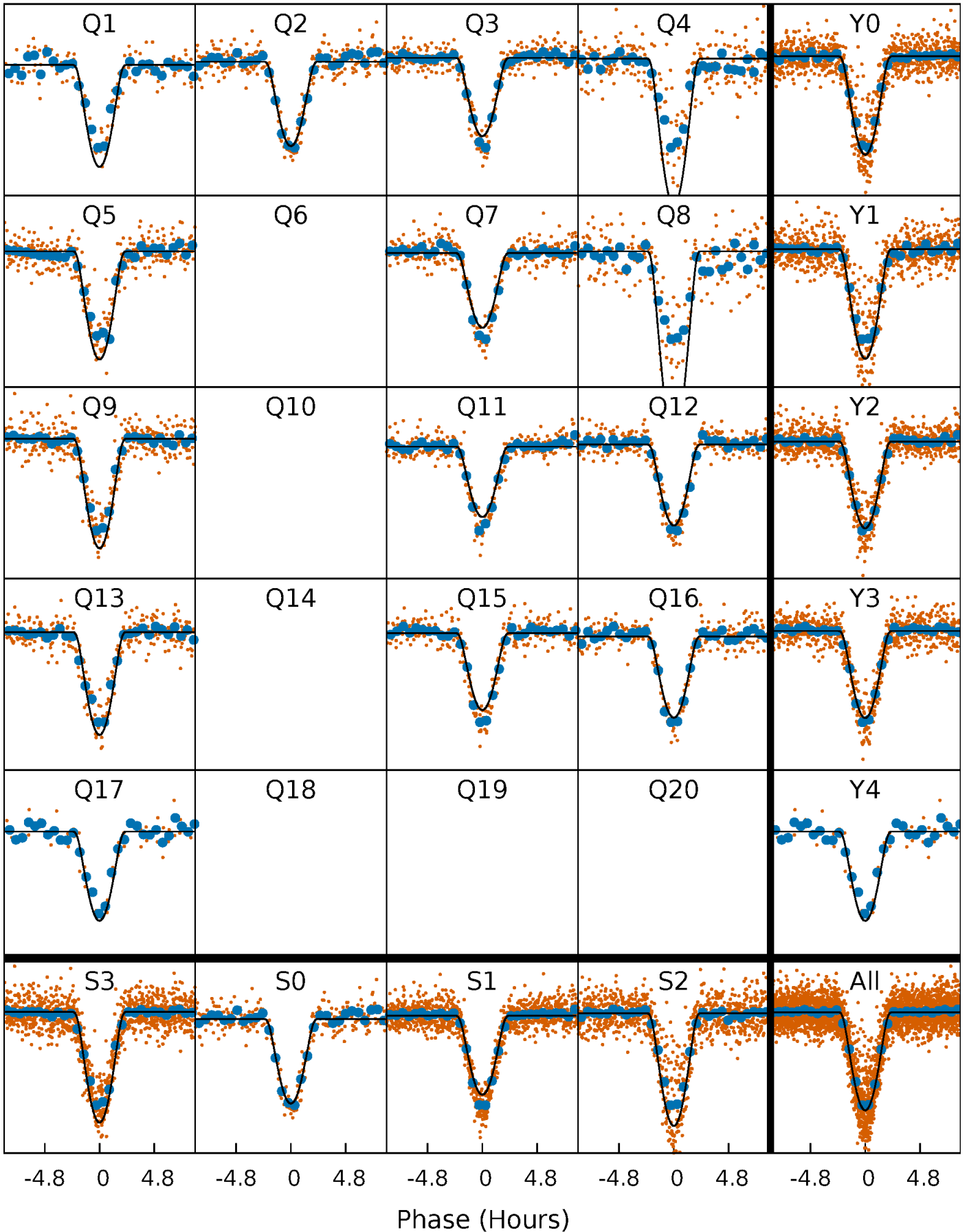
PDC Quarter-Phased Transit Curves

TCE 003971315-02 P= 9.892246 Days $T_0=131.747712$ (BKJD)



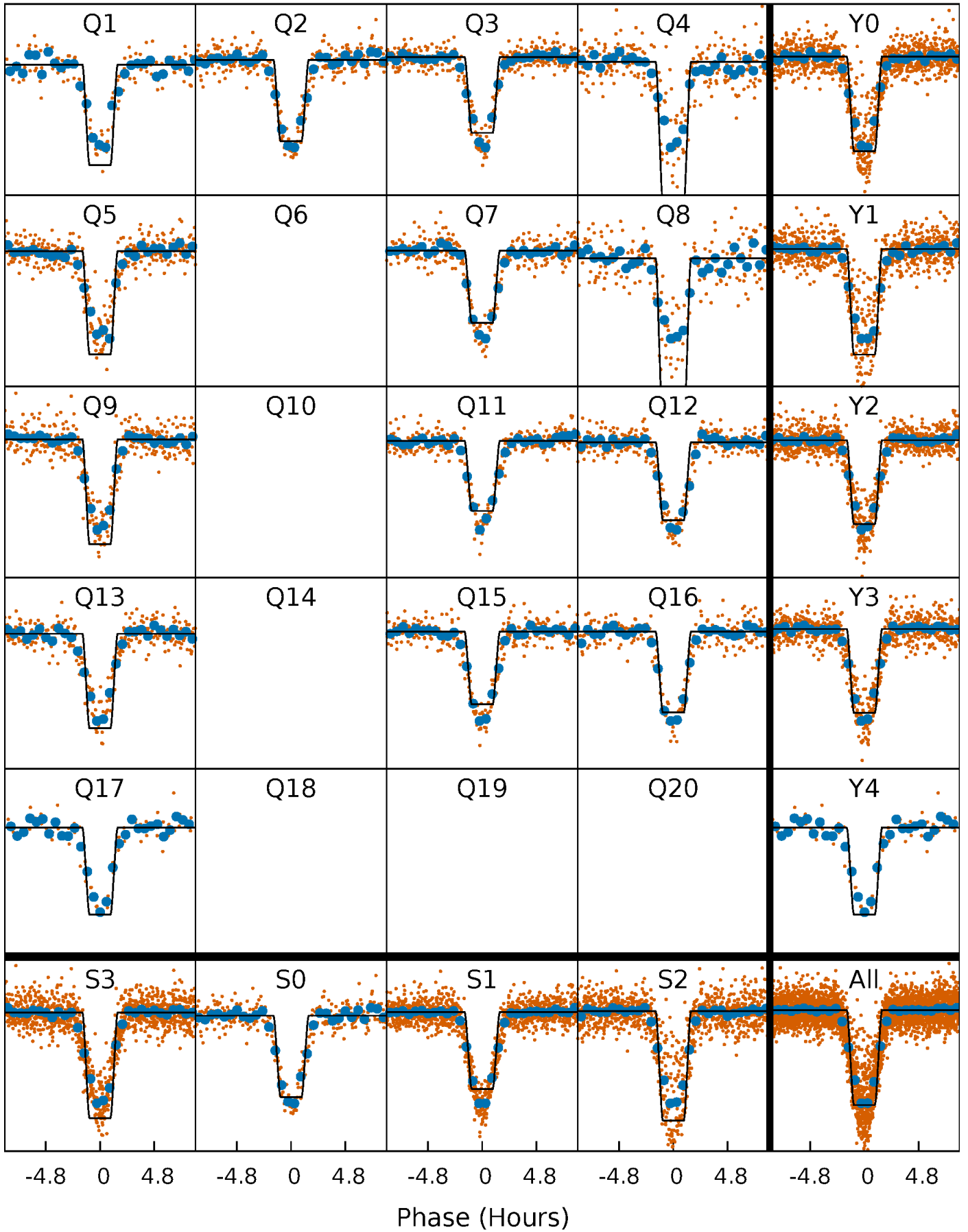
DV Quarter-Phased Transit Curves

TCE 003971315-02 P= 9.892246 Days $T_0=131.747712$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

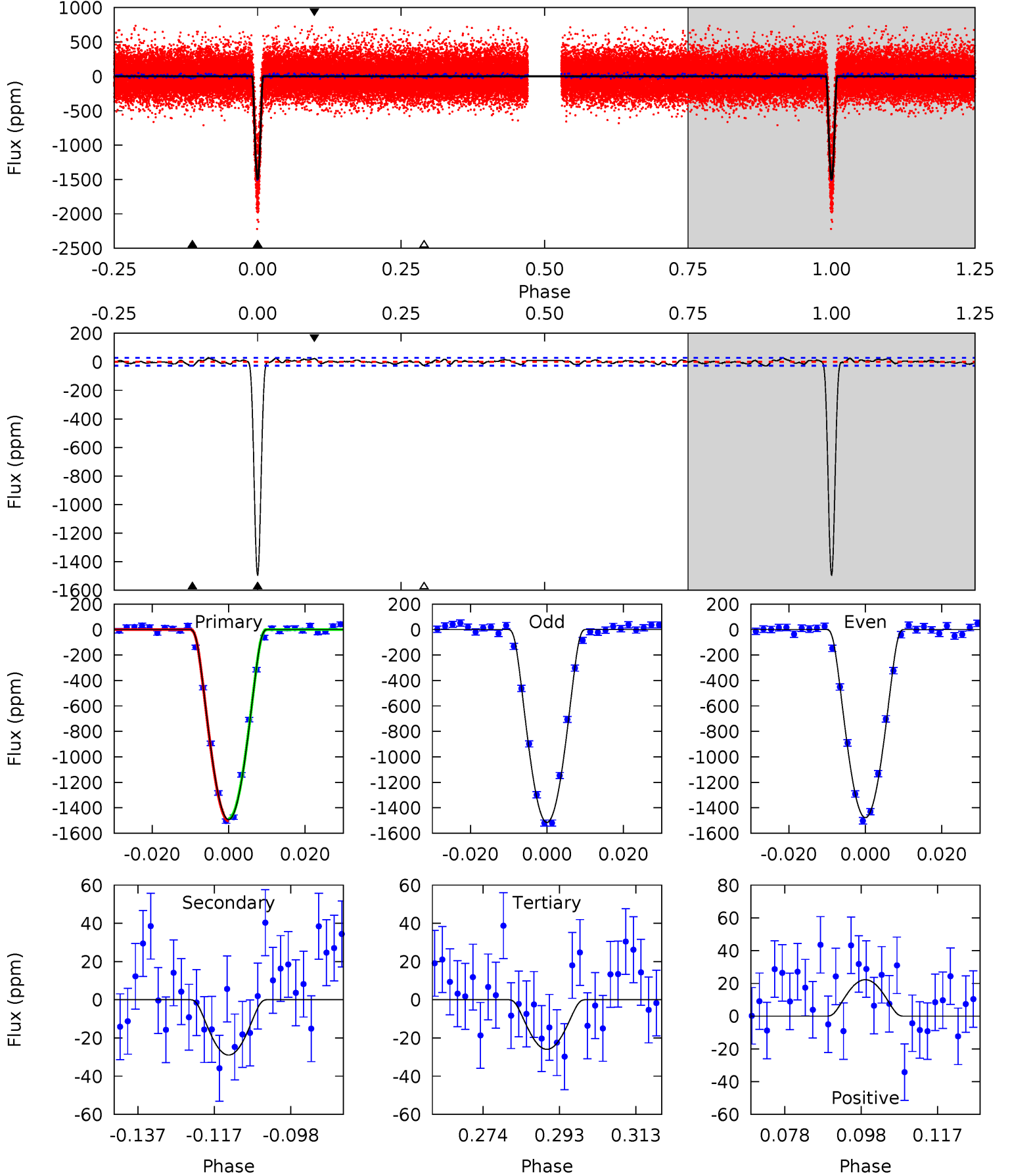
TCE 003971315-02 P= 9.892247 Days $T_0=131.747770$ (BKJD)



DV Model-Shift Uniqueness Test

003971315-02, P = 9.892246 Days, E = 121.855466 Days

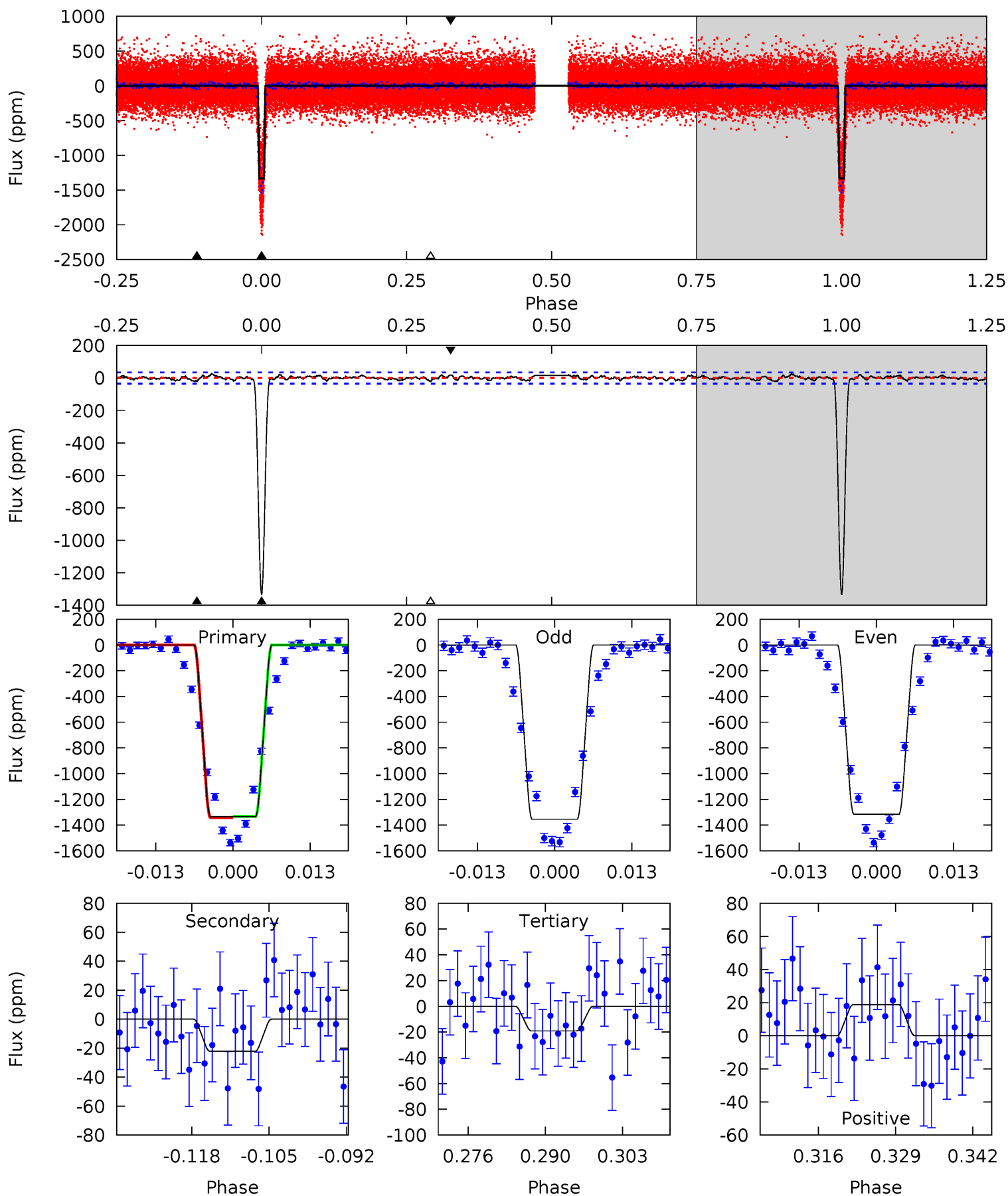
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
264.1	5.12	4.59	3.94	4.90	2.33	1.67	259.5	260.1	0.53	1.18	3.30	0.94	0.02	1.40



Alt Model-Shift Uniqueness Test

003971315-02, P = 9.892247 Days, E = 121.855523 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
191.7	3.19	2.76	2.71	4.97	2.48	1.17	189.0	189.0	0.43	0.48	2.77	0.93	0.02	0.71



Stellar Parameters For KIC 003971315

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6225^{+169}_{-206}	$4.461^{+0.052}_{-0.208}$	$-0.180^{+0.250}_{-0.350}$	$1.009^{+0.320}_{-0.107}$	$1.070^{+0.144}_{-0.144}$	$1.467^{+0.408}_{-0.804}$
	+3%/-3%	+1%/-5%	+139%/-194%	+32%/-11%	+13%/-13%	+28%/-55%
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 003971315-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-29±6	$7.72^{+2.39}_{-2.50}$	1297^{+90}_{-65}	2536^{+301}_{-202}	$2.240^{+2.472}_{-0.995}$
Alt.	-22±7	$4.49^{+2.20}_{-2.01}$	1288^{+88}_{-59}	2824^{+597}_{-313}	$4.693^{+12.627}_{-2.708}$

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

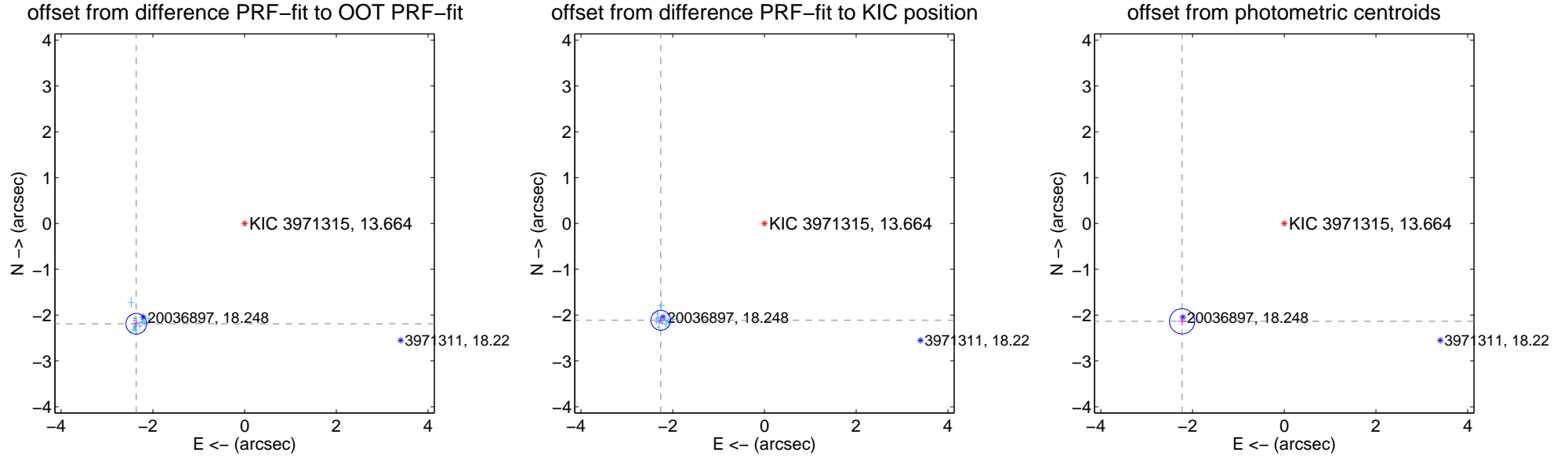
DV Centroid Data

Supplemental centroid analysis for 003971315-02. Kepler magnitude: 13.66. Transit SNR 142.97

There are 14 quarters with good PRF difference image offsets

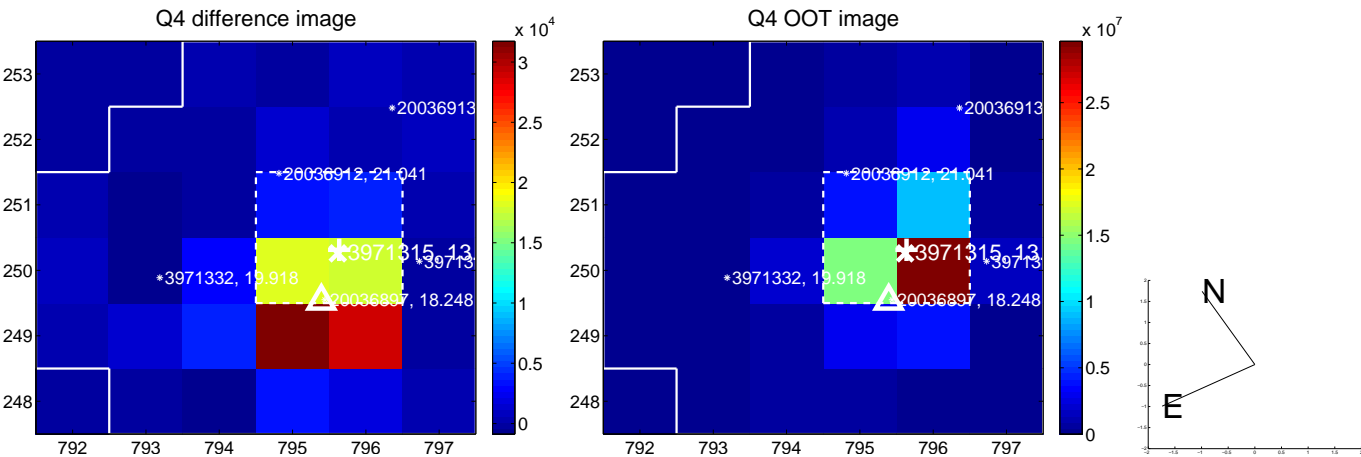
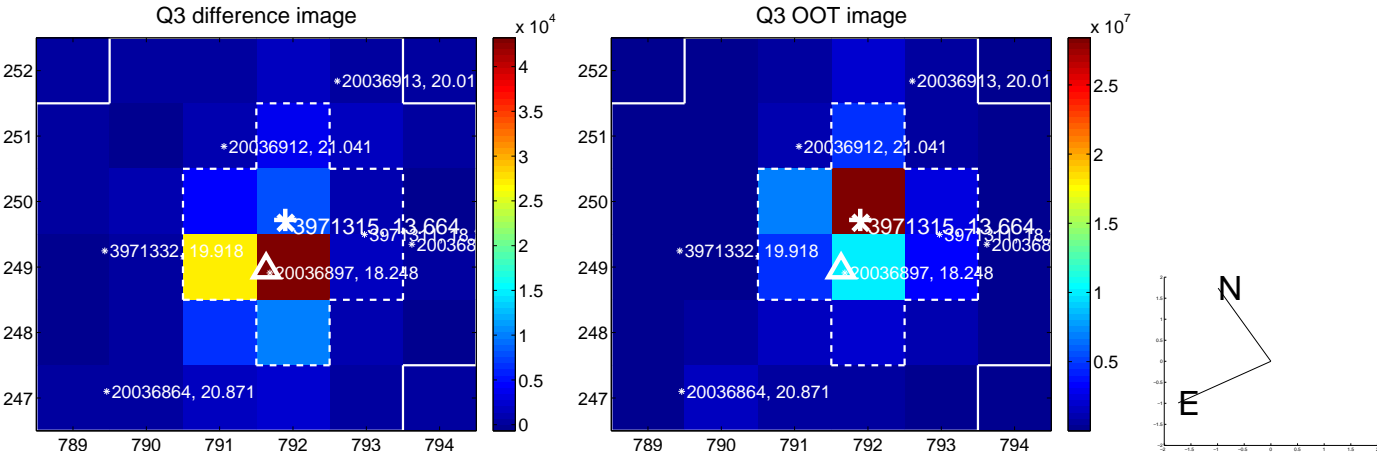
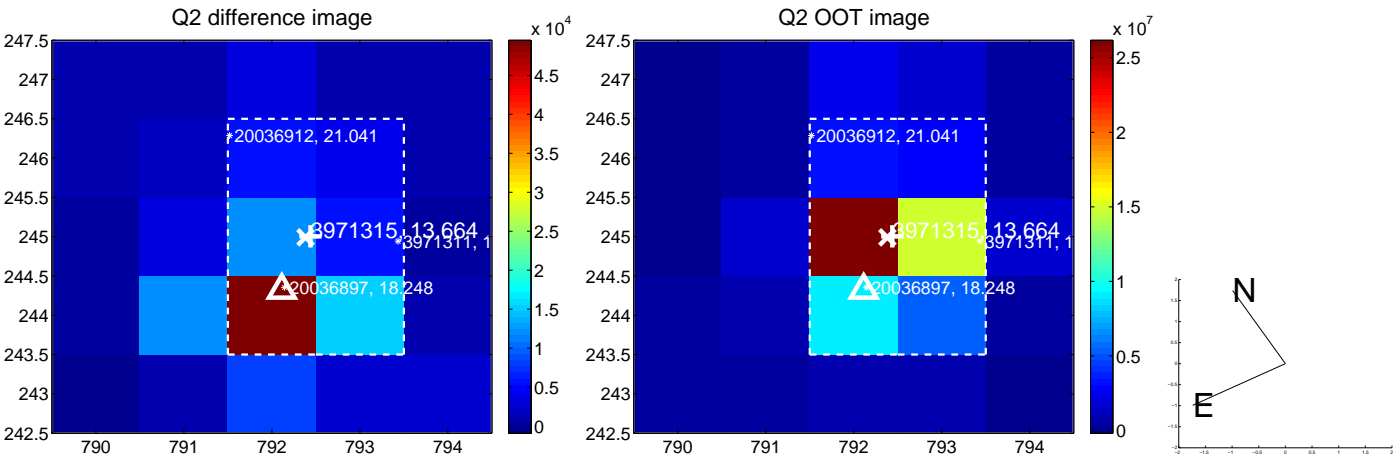
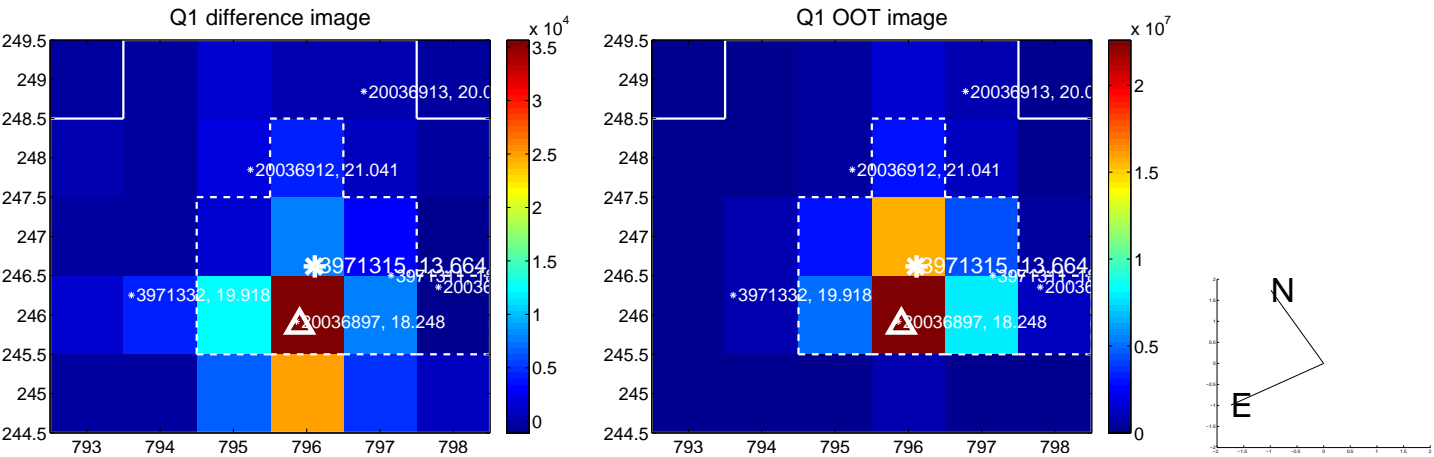
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.222 ± 0.075	42.89	2.364 ± 0.073	-2.190 ± 0.077
PRF-fit source offset from KIC position	3.095 ± 0.072	42.97	2.260 ± 0.072	-2.114 ± 0.073
photometric centroid source offset	3.09 ± 0.09	33.59	2.23 ± 0.09	-2.13 ± 0.09

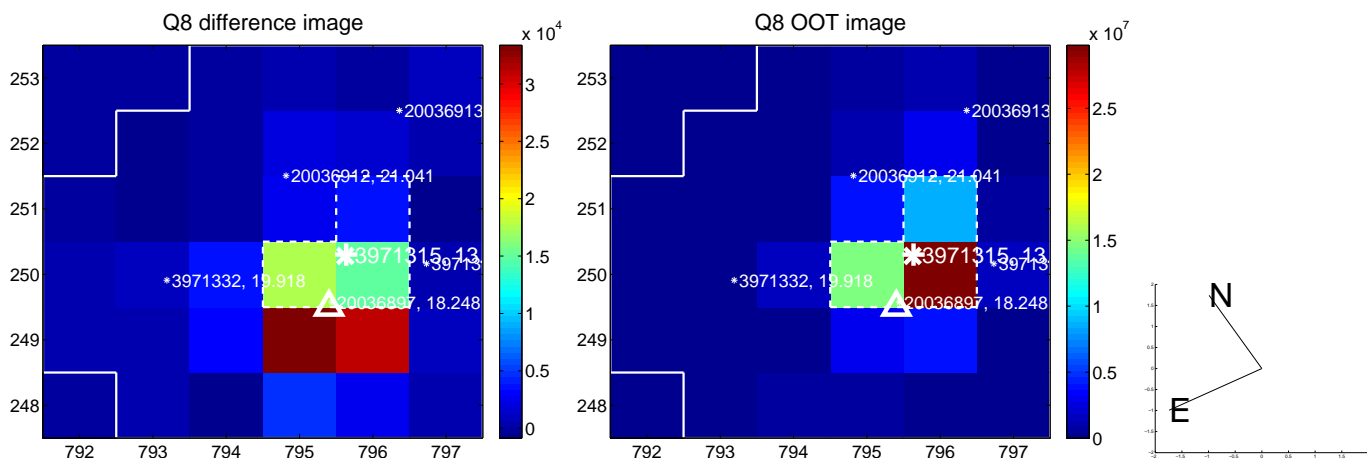
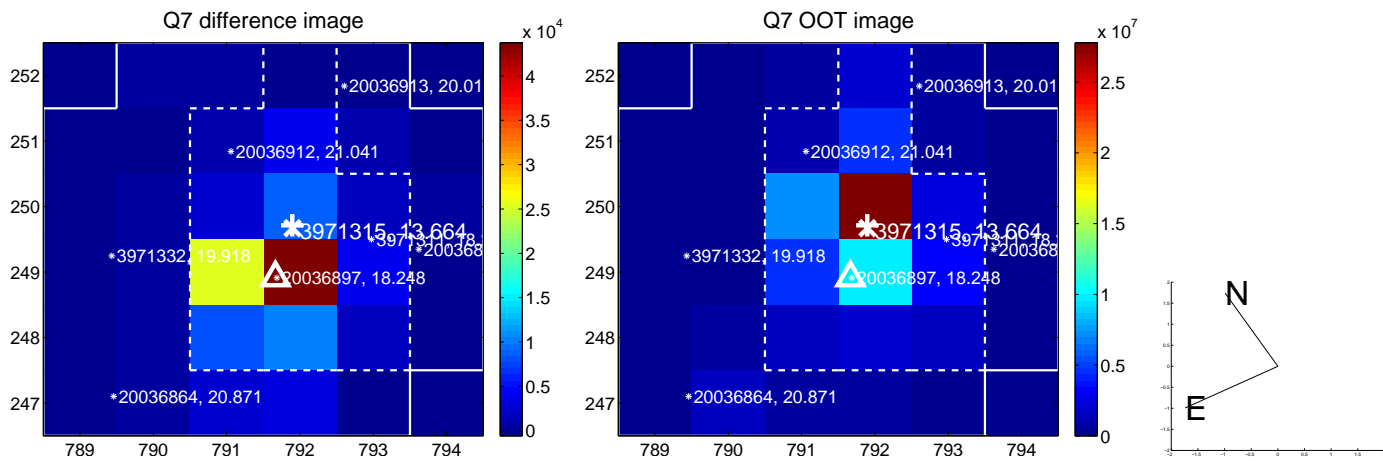
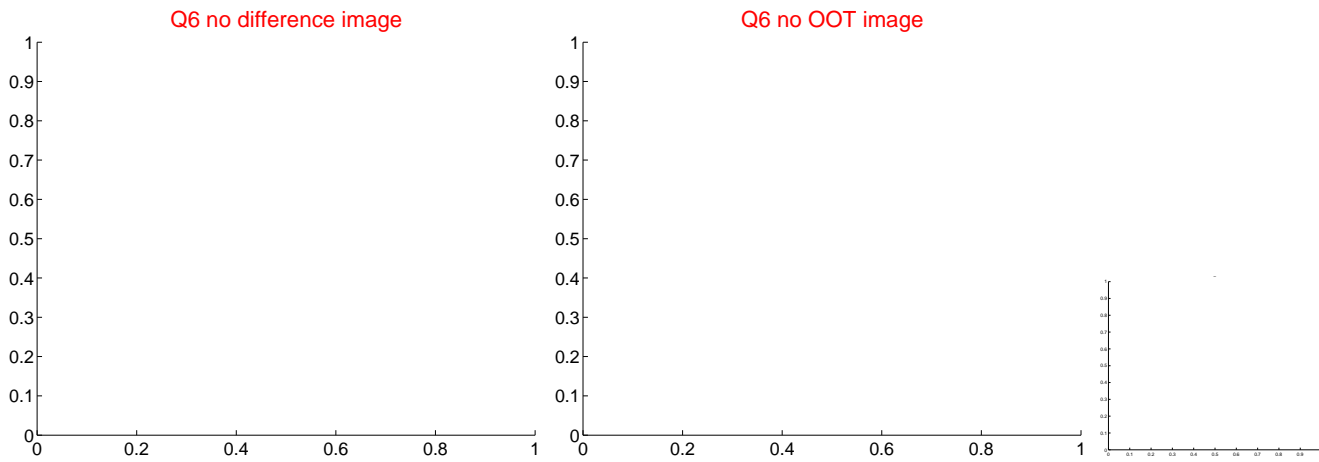
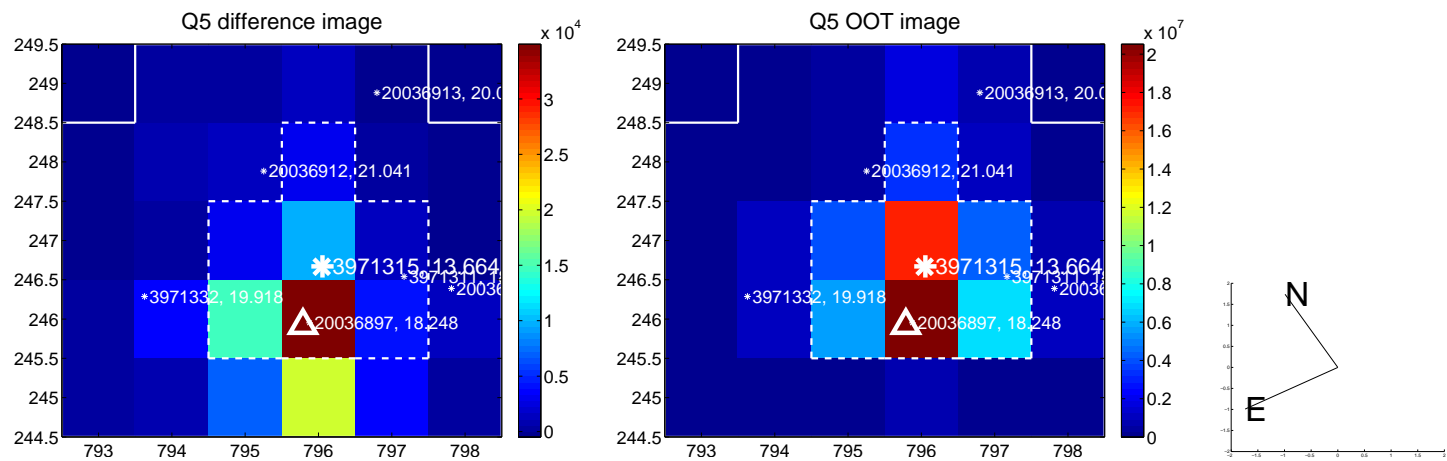


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

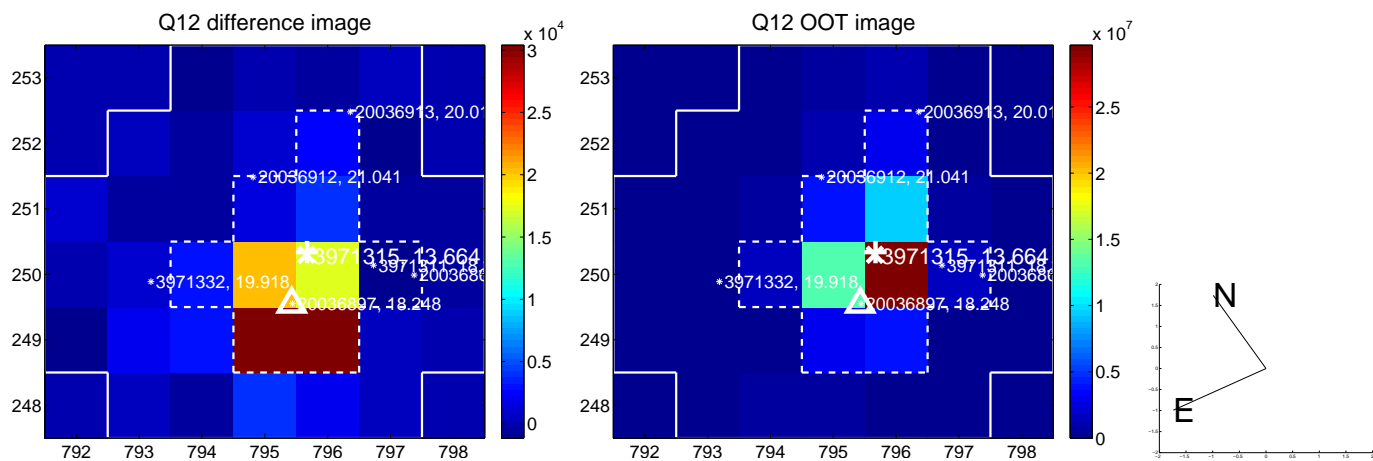
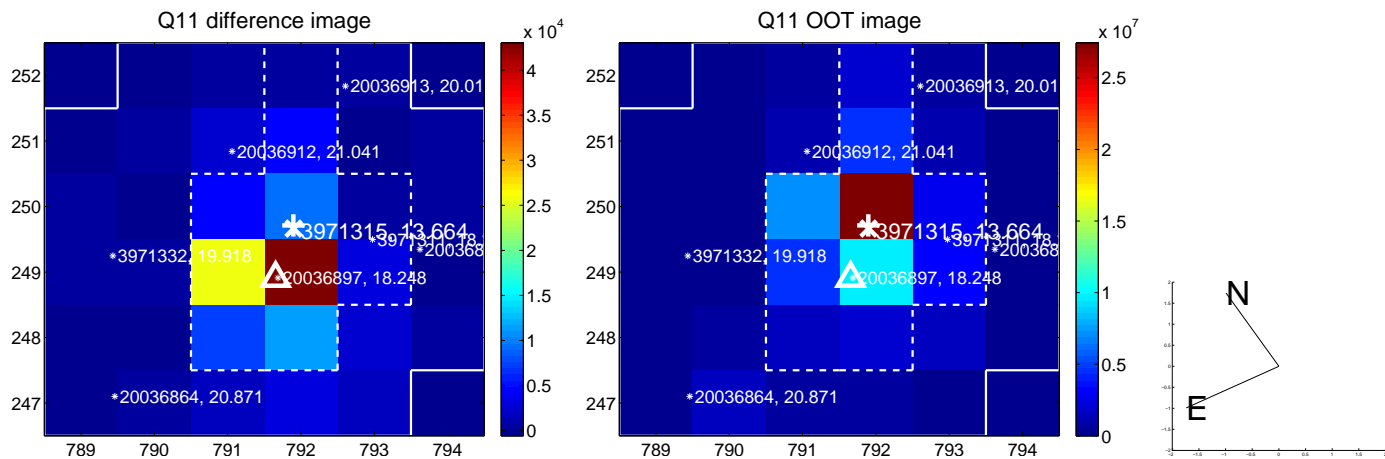
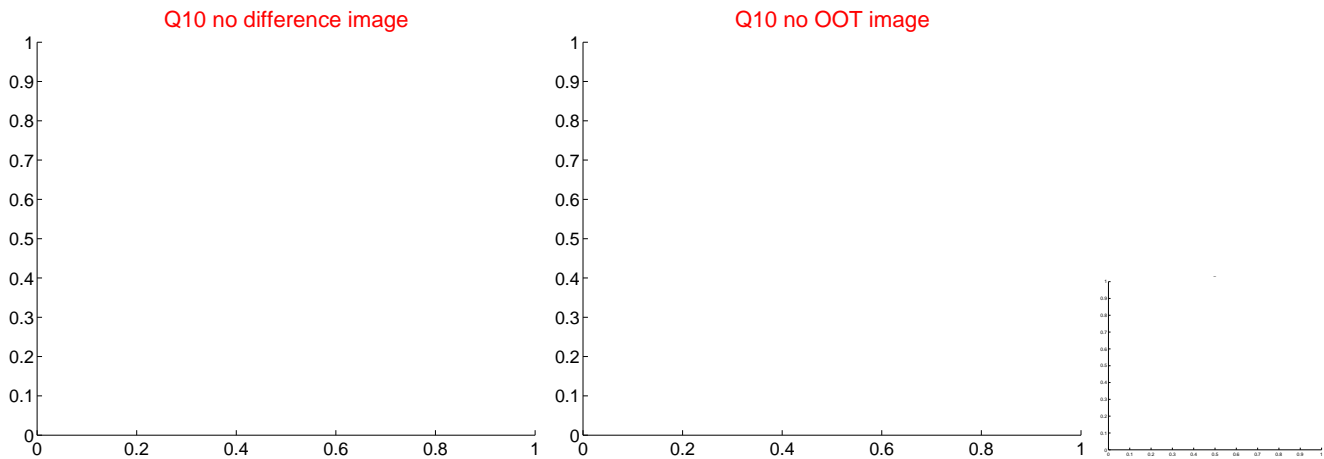
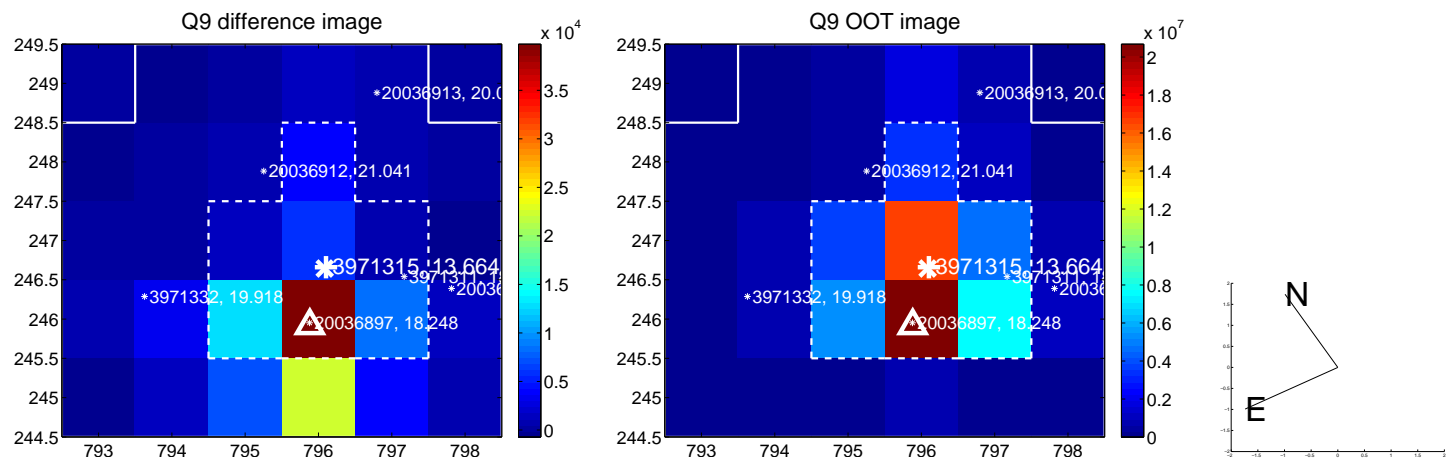
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



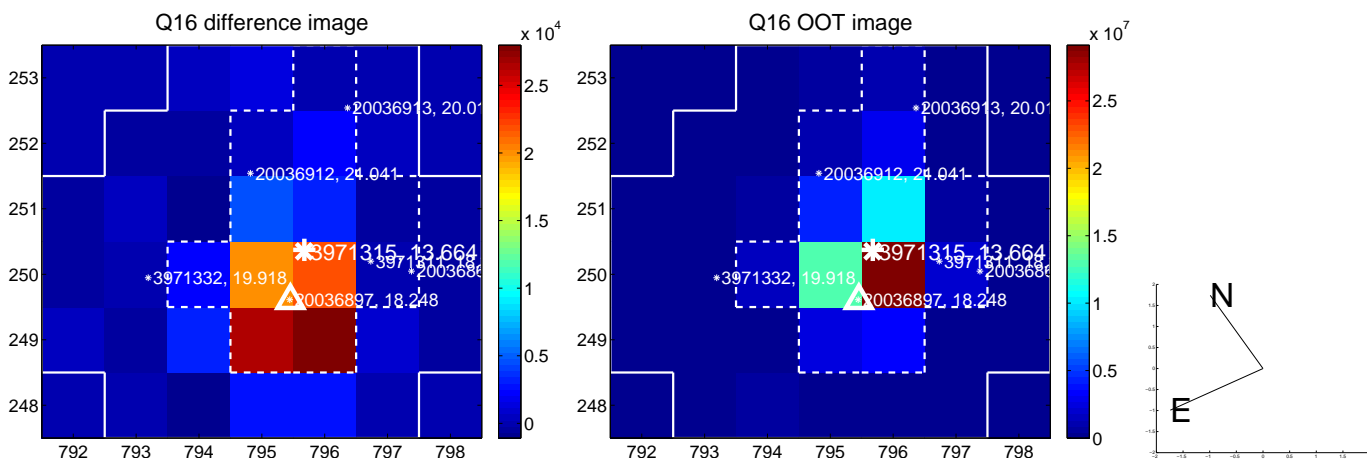
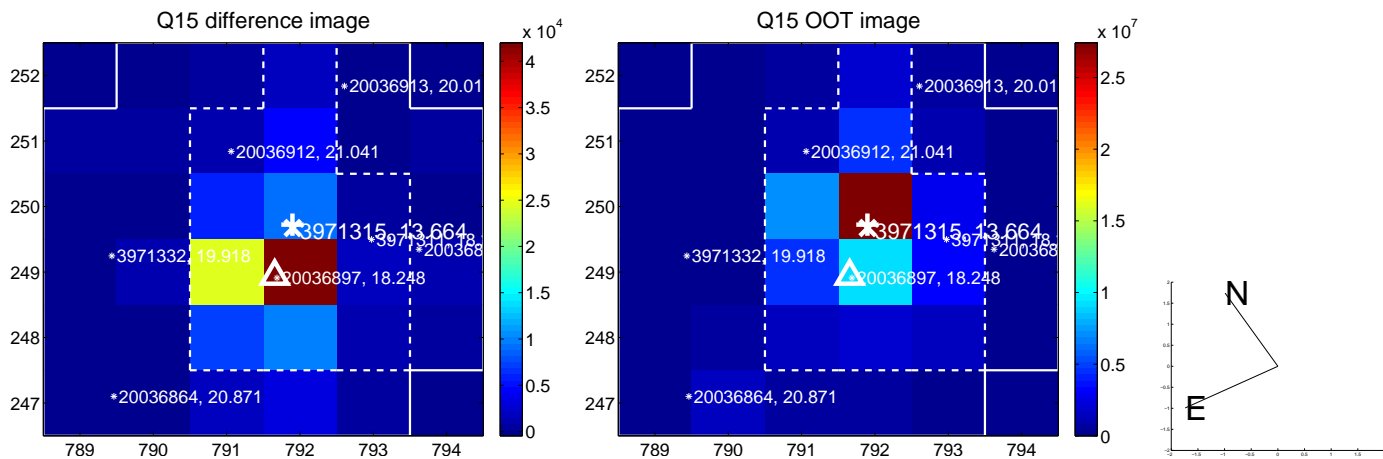
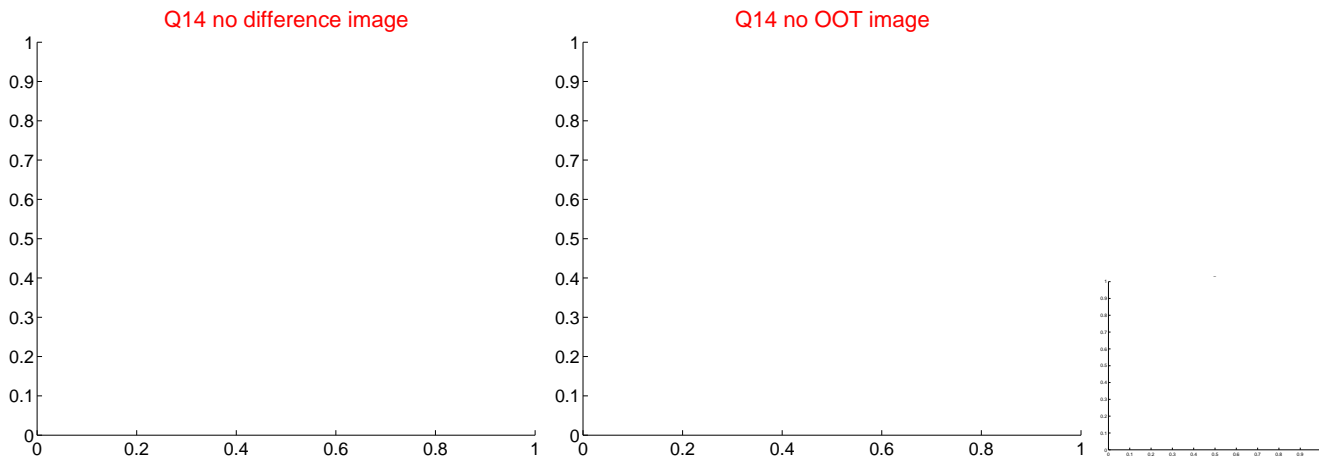
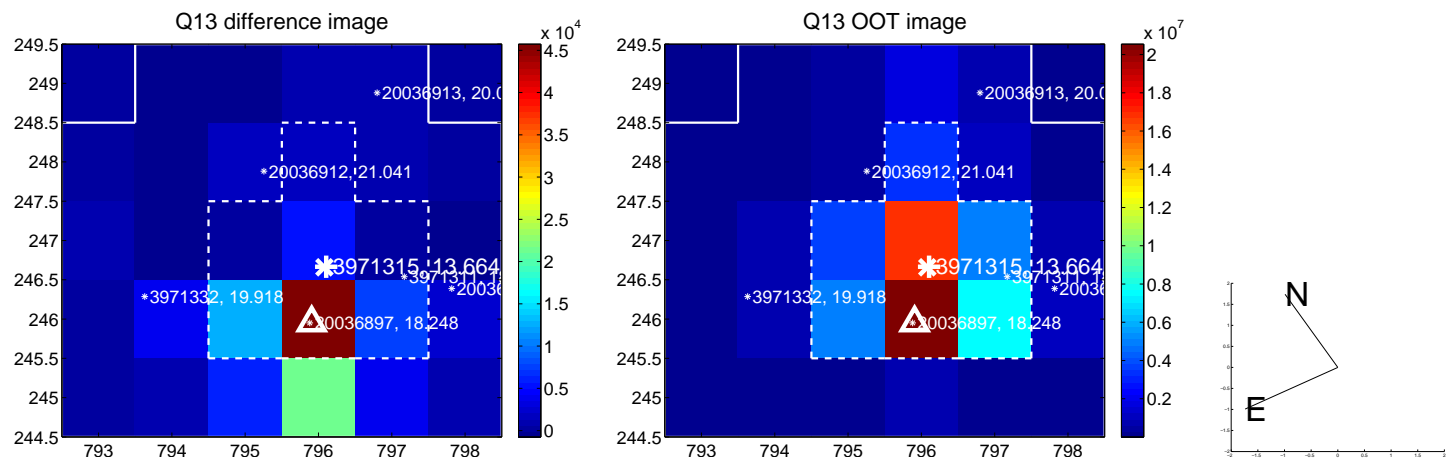
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



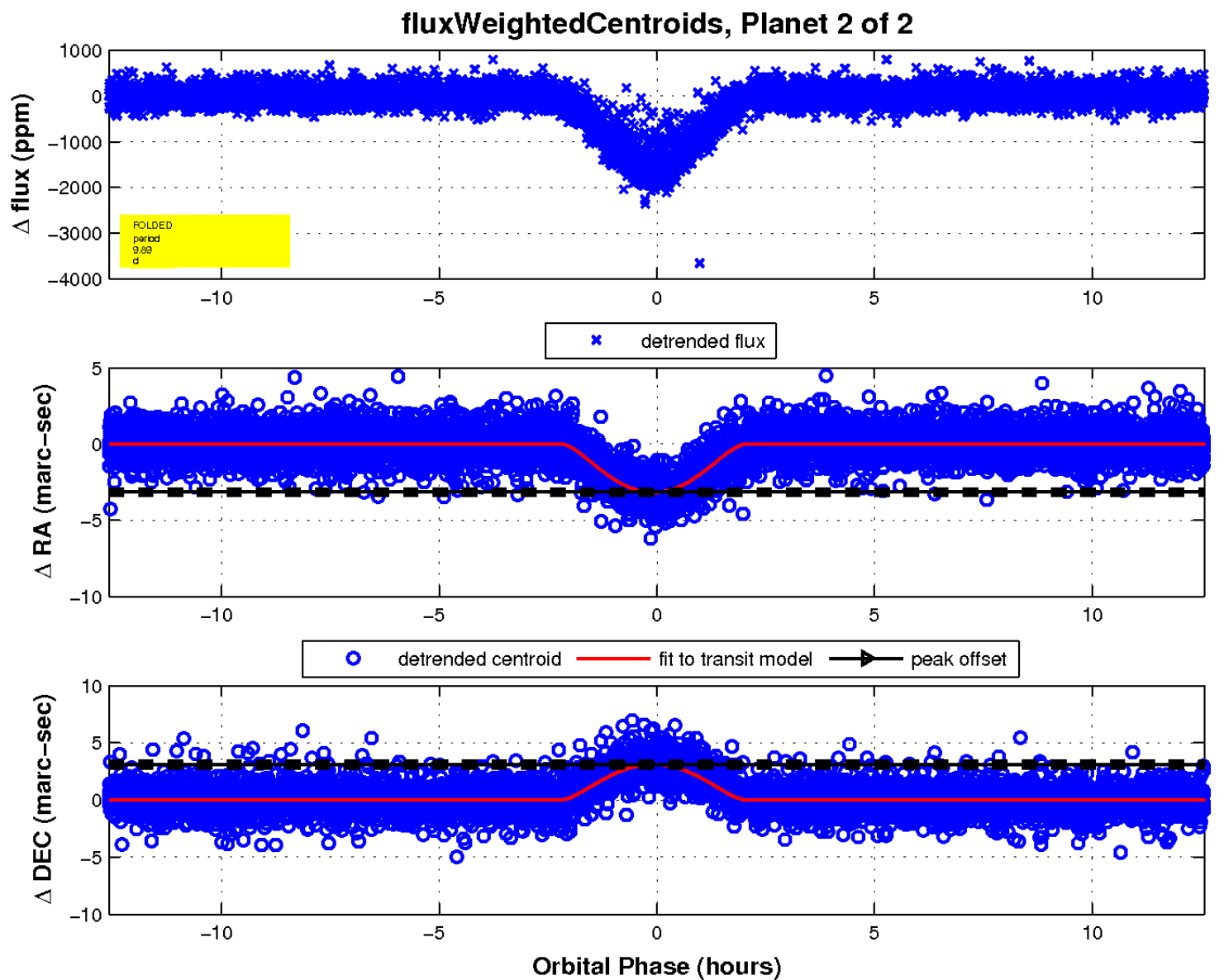
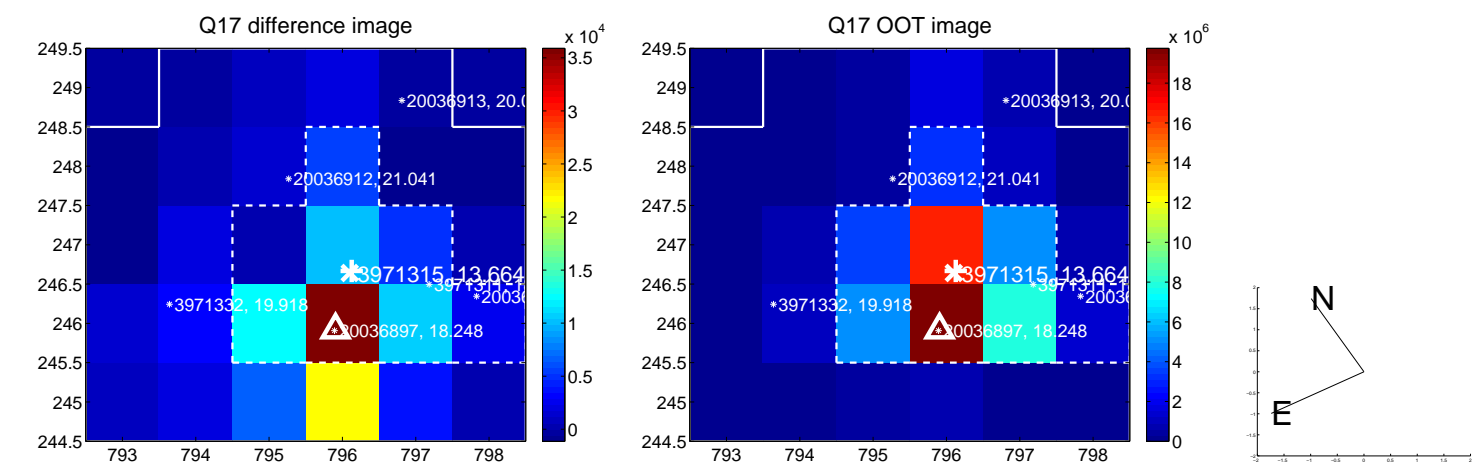
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

