

KIC 010671396

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})
010671396-01	OBS	No	368.446425	379.238226	444.0	5.292	7.9	8.6	4.66	11287	17.67	136.07
010671396-02	OBS	No	383.162405	354.440220	241.9	2.921	8.7	6.6	4.66	11287	7.60	129.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010671396-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010671396-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

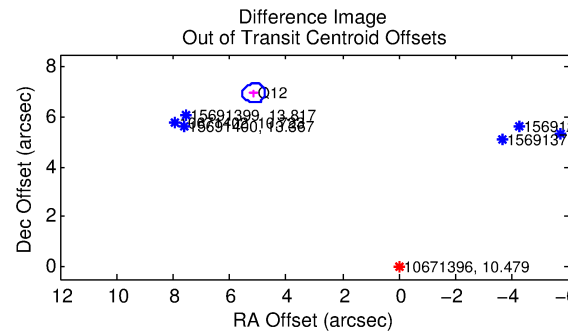
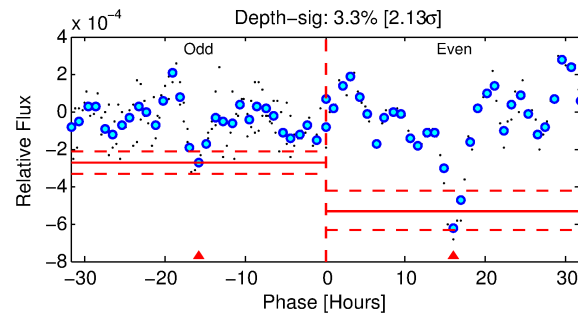
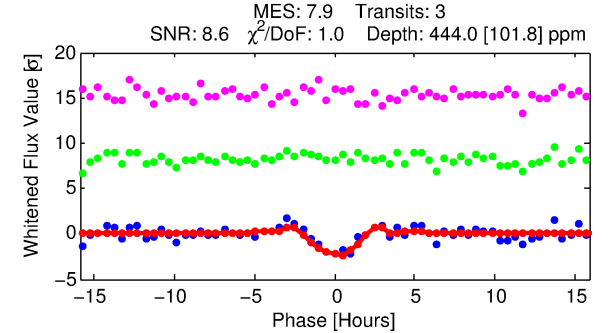
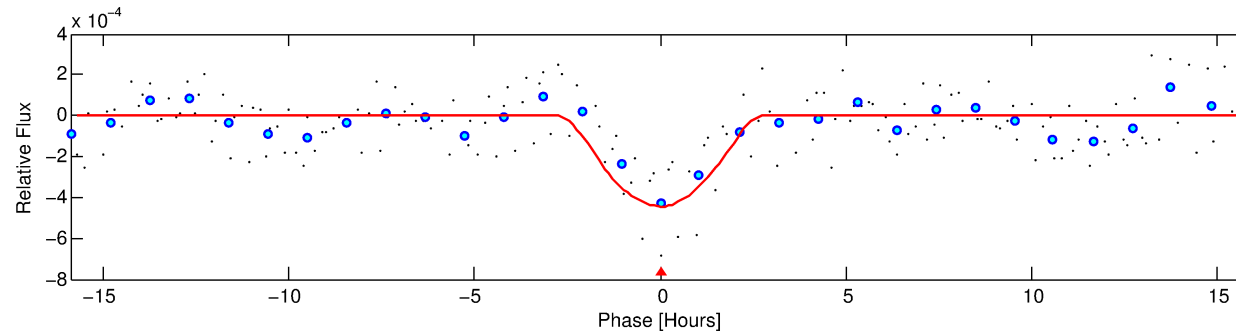
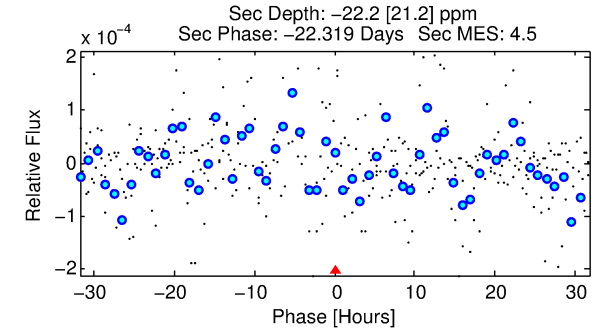
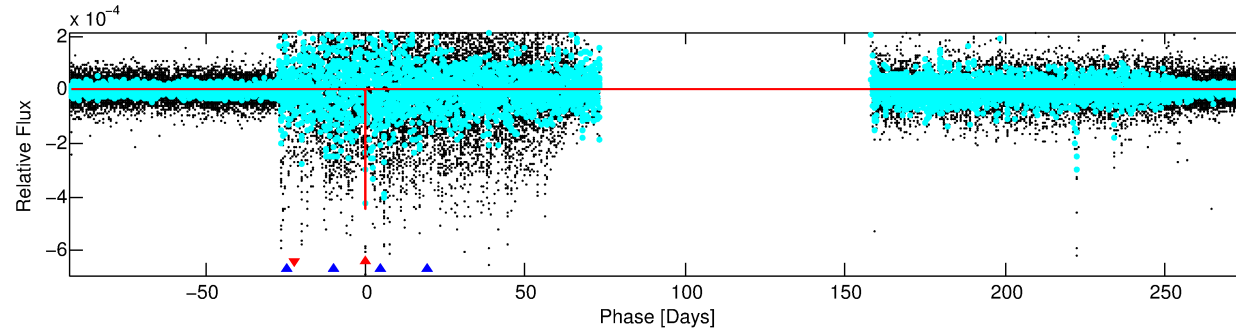
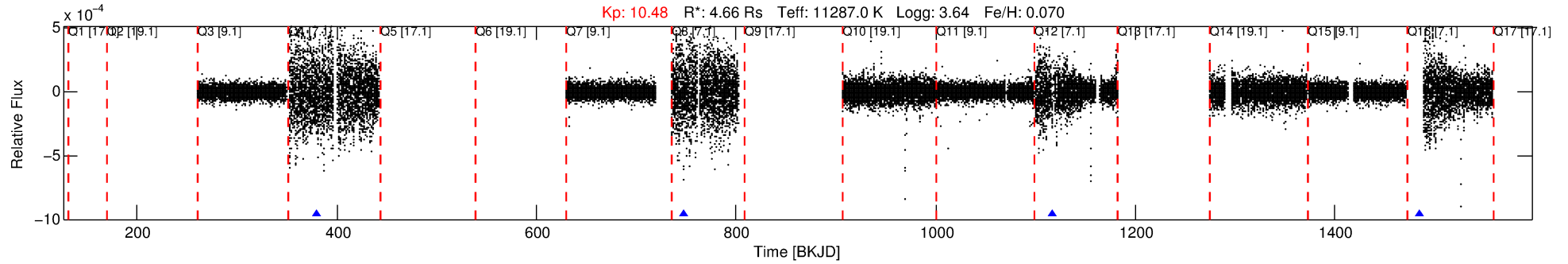
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010671396-01

No Significant Match Found

DV One-Page Summary

KIC: 10671396 Candidate: 1 of 2 Period: 368.446 d



DV Fit Results:

Period = 368.44642 [0.00676] d
Epoch = 379.2382 [0.0112] BKJD
Rp/R* = 0.0347 [0.0627]
ModelChiSquare2-sig: 40.2%
ModelChiSquareGof-sig: 83.2%
b = 1.00 [0.09]
Seff = 136.07 [135.46]
Teq = 871 [217] K
Rp = 17.67 [33.29] Re
a = 1.5240 [0.7678] AU
Ag = N/A
Teffp = N/A

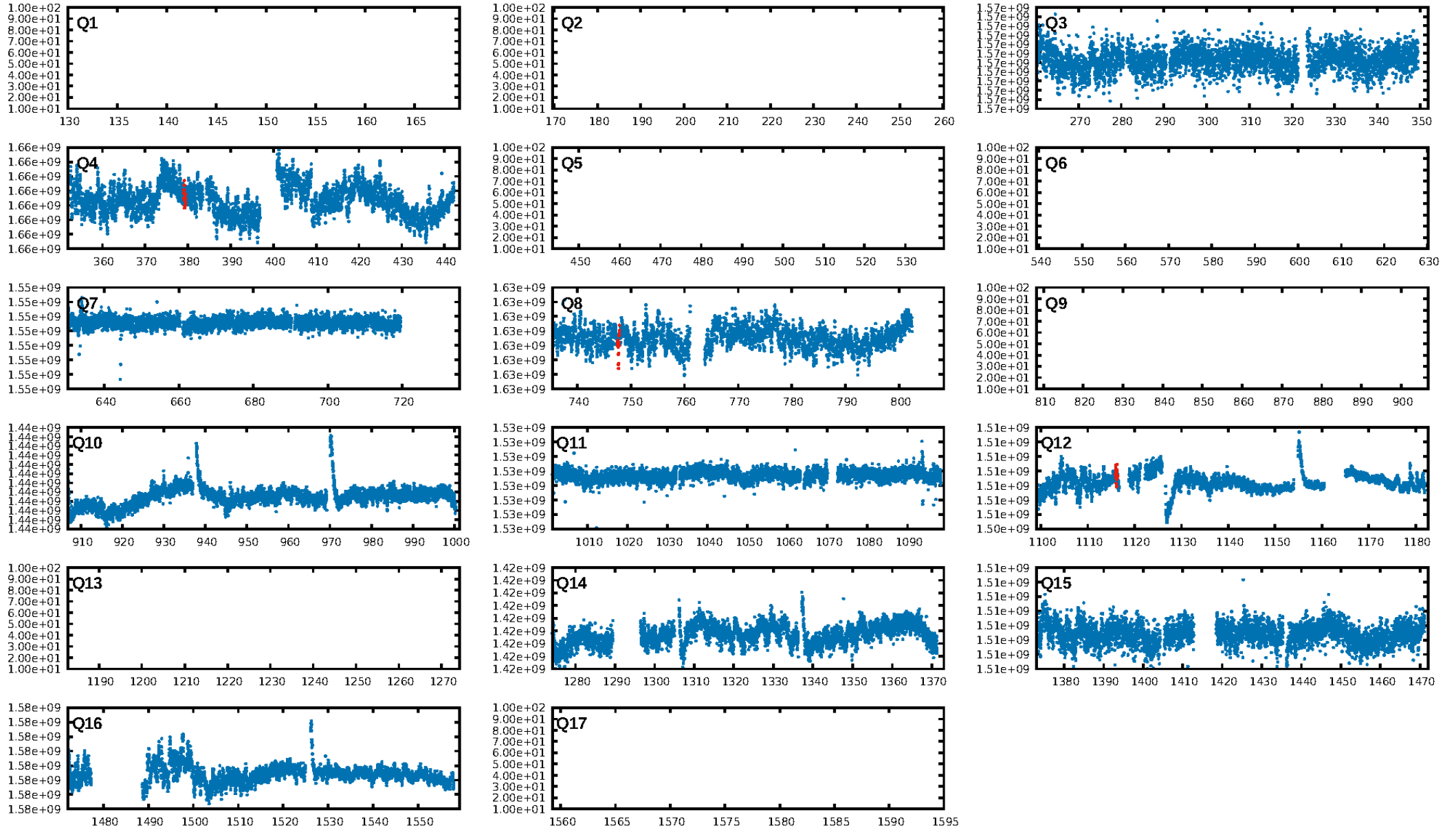
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [58.43σ]
ModelChiSquare2-sig: 40.2%
ModelChiSquareGof-sig: 83.2%
Bootstrap-pfa: 4.47e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.9304
Centroid-sig: N/A
Centroid-so: 4.588 arcsec [2.14σ]
OotOffset-rm: 8.641 arcsec [66.05σ]
KicOffset-rm: 9.062 arcsec [68.70σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [3/3]

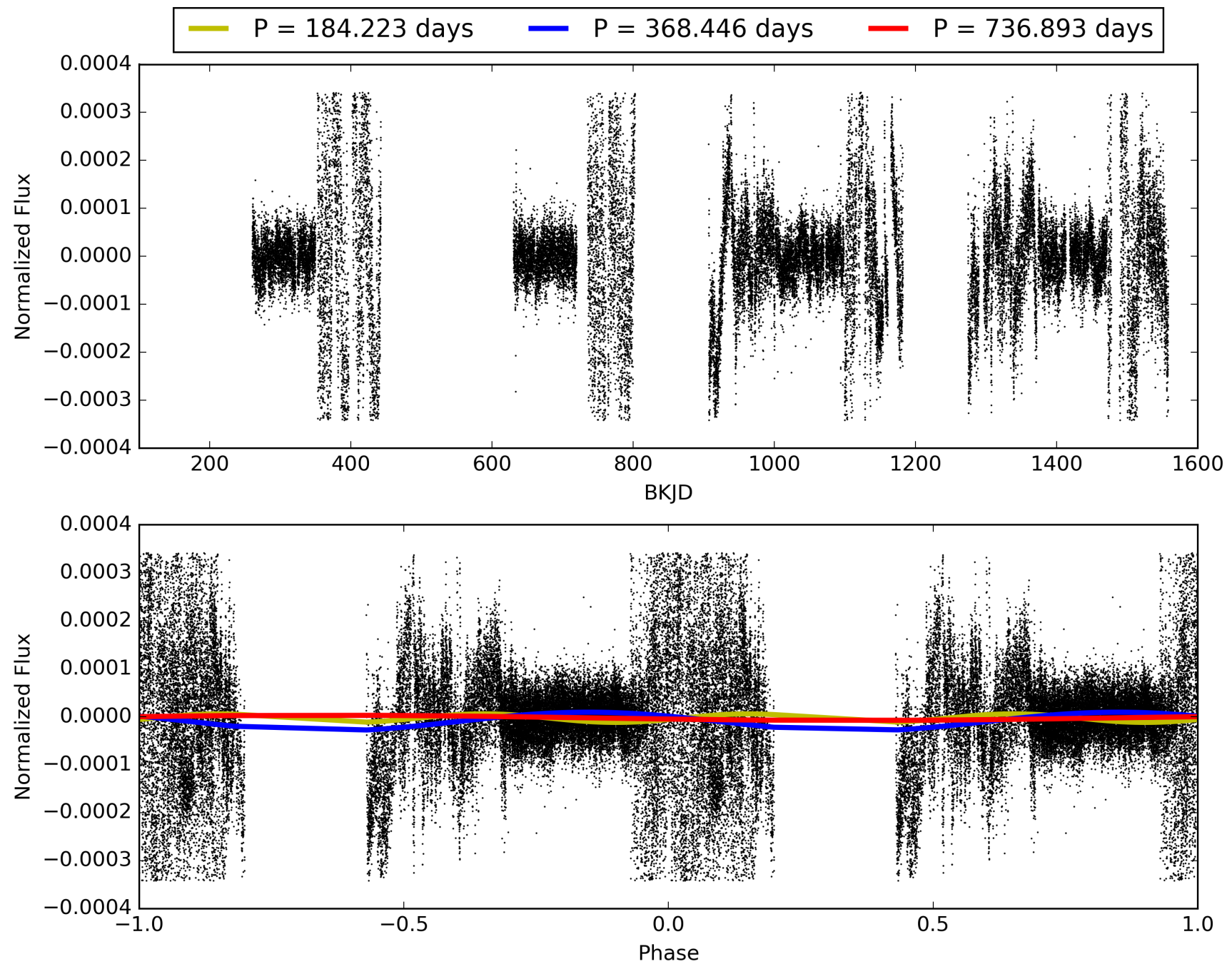
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:02:59 Z

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

TCE 010671396-01, PDC Light Curves

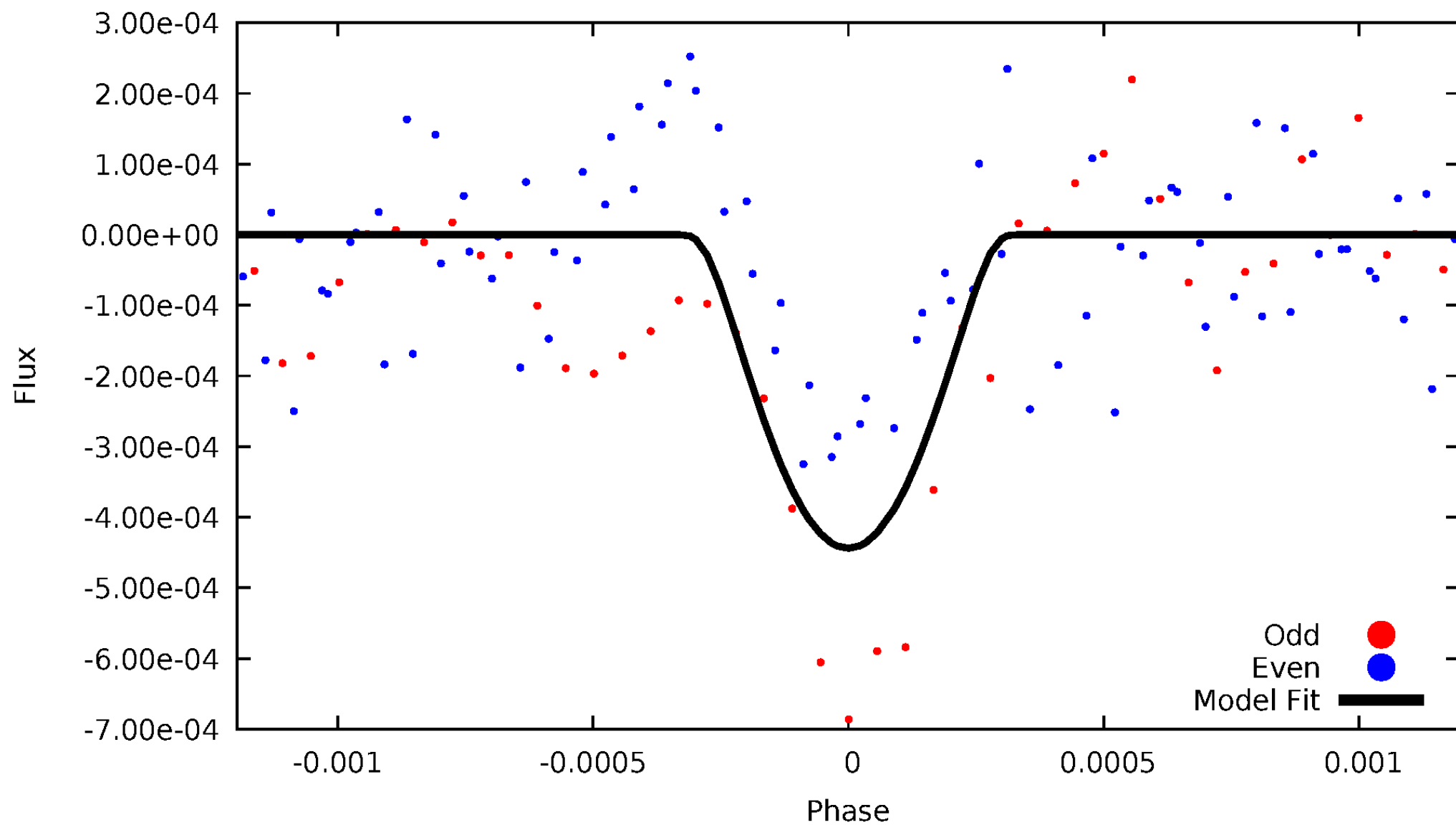


TCE 010671396-01



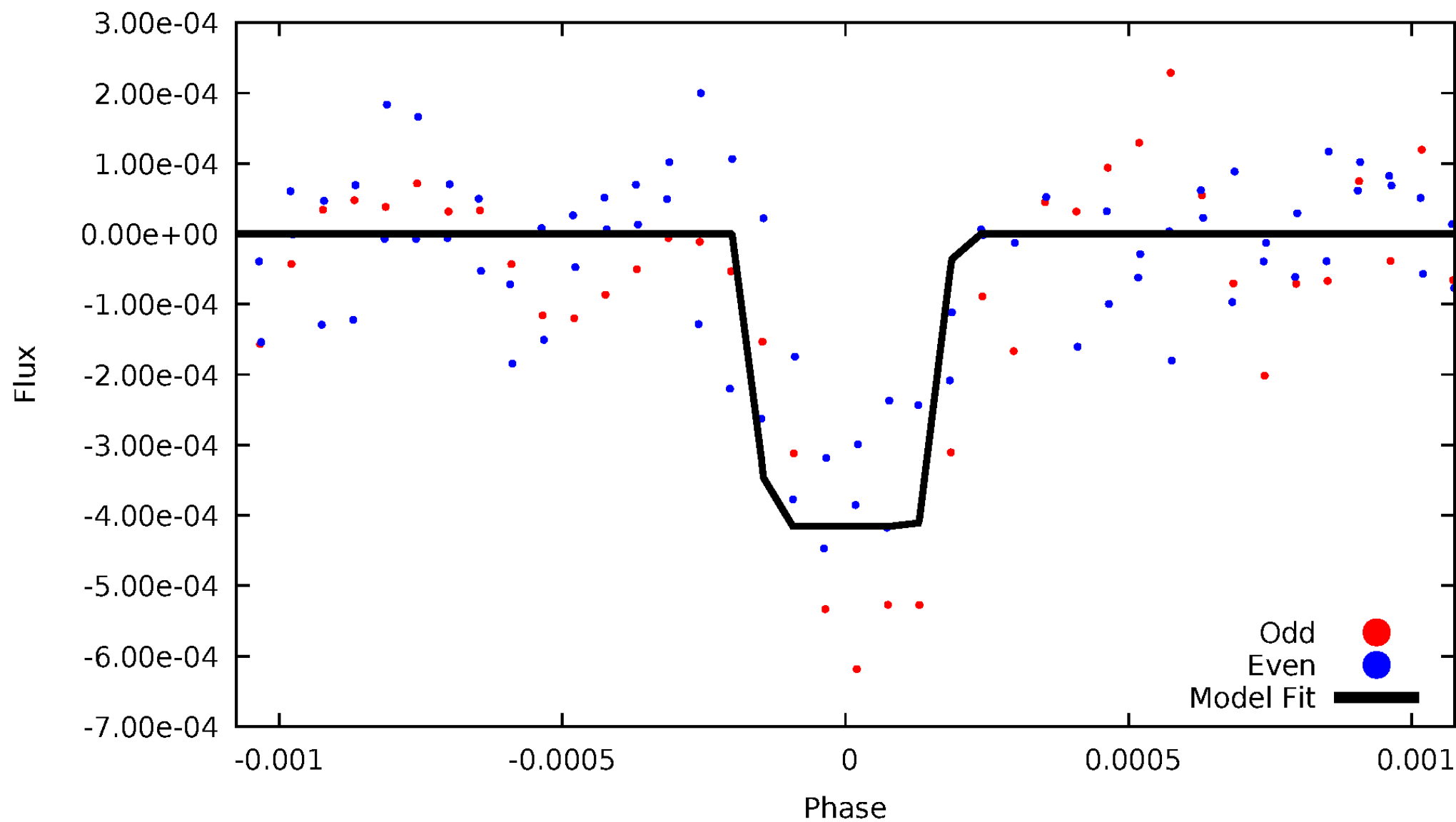
DV Odd/Even

TCE 010671396-01

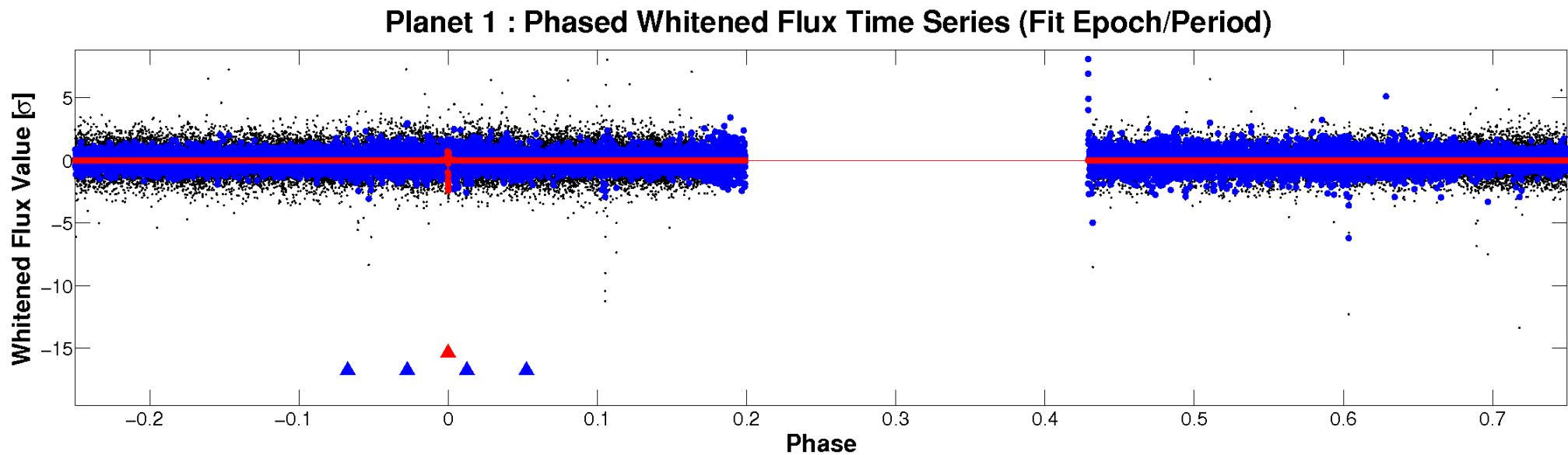
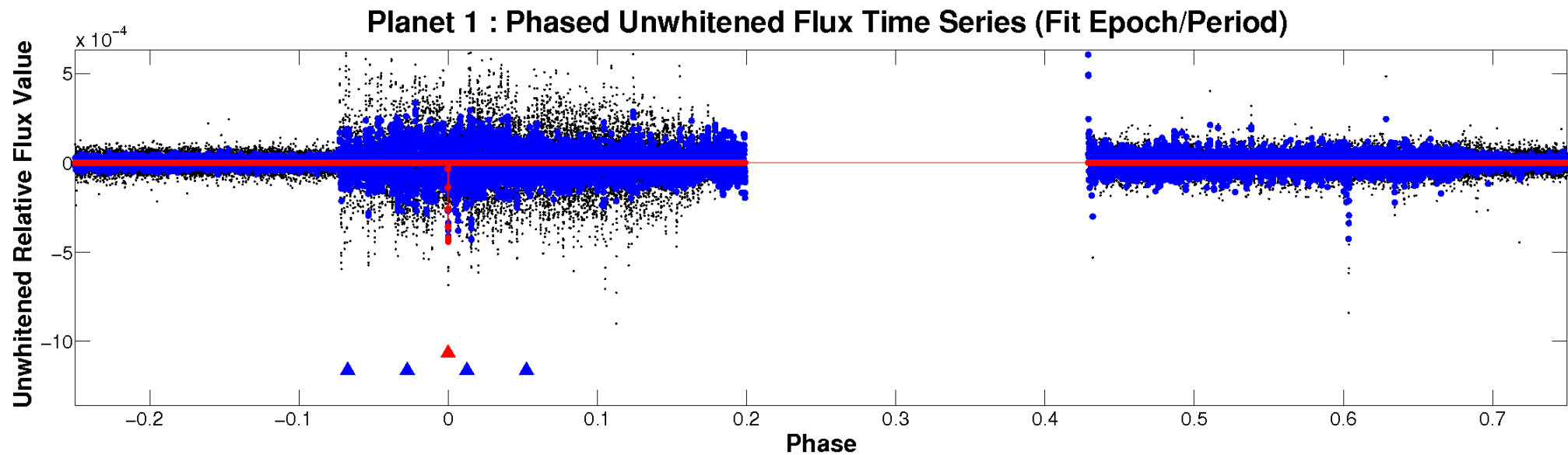


ALT Odd/Even

TCE 010671396-01

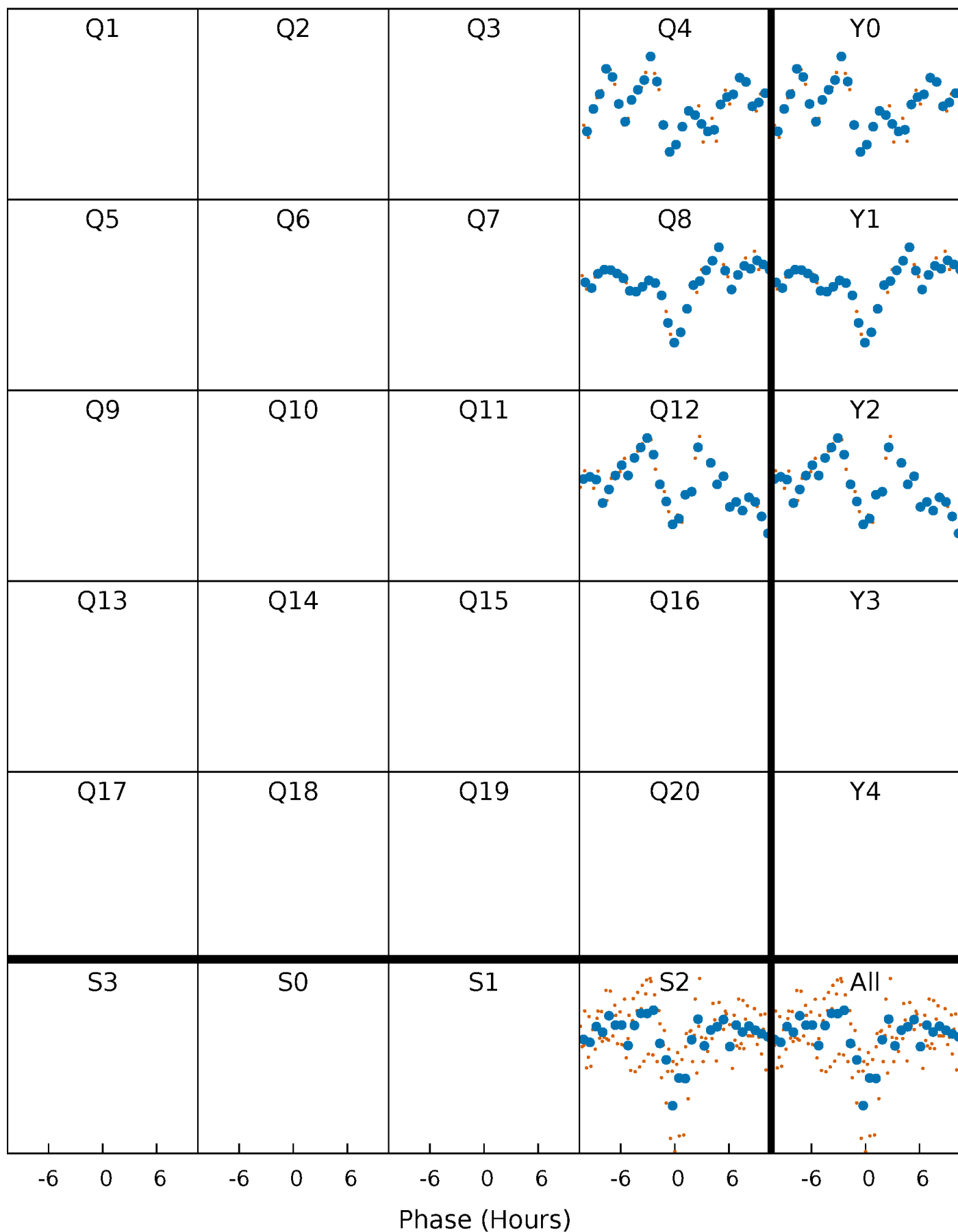


Non-Whitened Vs. Whitened Light Curve



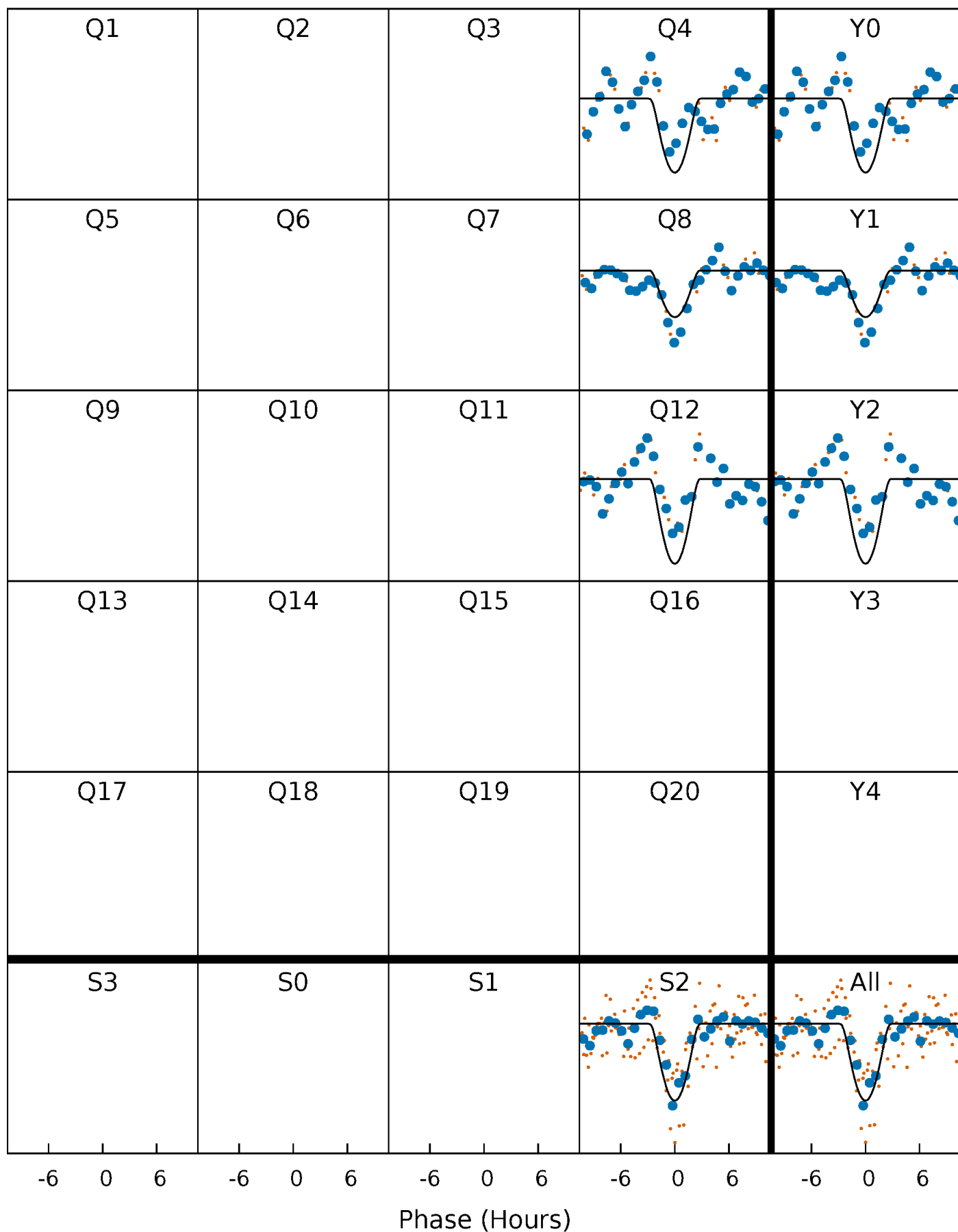
PDC Quarter-Phased Transit Curves

TCE 010671396-01 P=368.446425 Days $T_0=379.238226$ (BKJD)



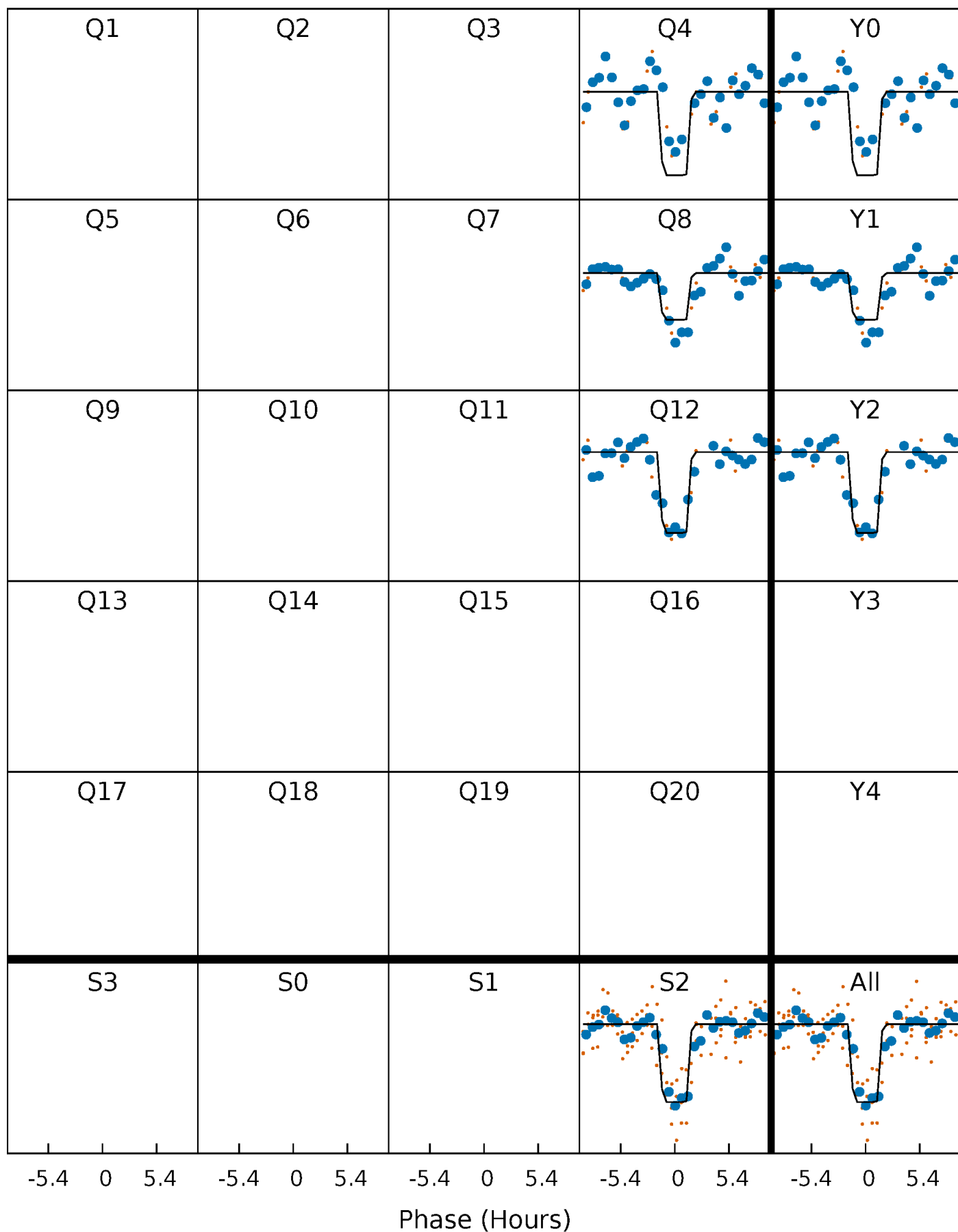
DV Quarter-Phased Transit Curves

TCE 010671396-01 P=368.446425 Days $T_0=379.238226$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

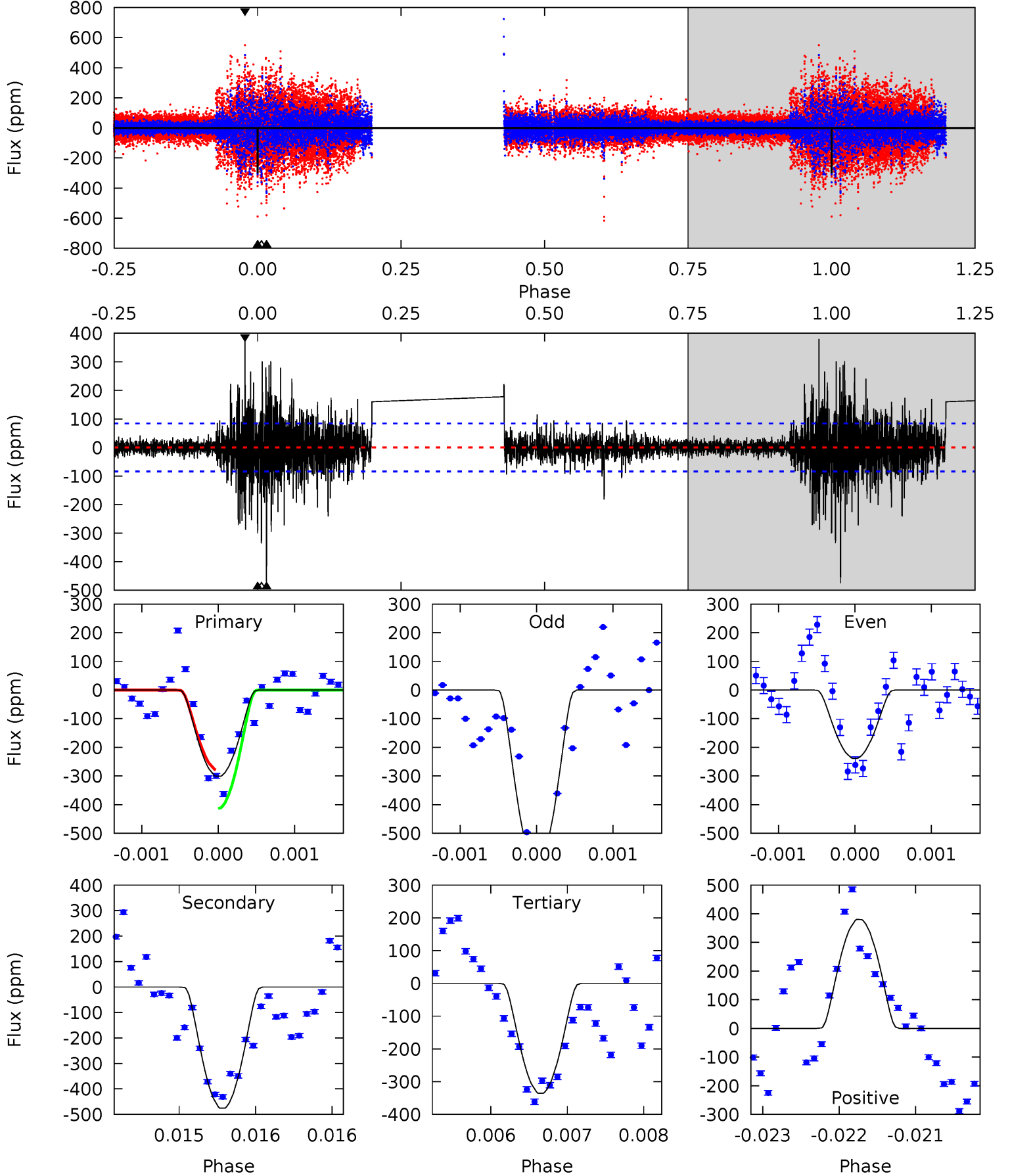
TCE 010671396-01 P=368.459438 Days $T_0=379.218236$ (BKJD)



DV Model-Shift Uniqueness Test

010671396-01, P = 368.446425 Days, E = 10.791801 Days

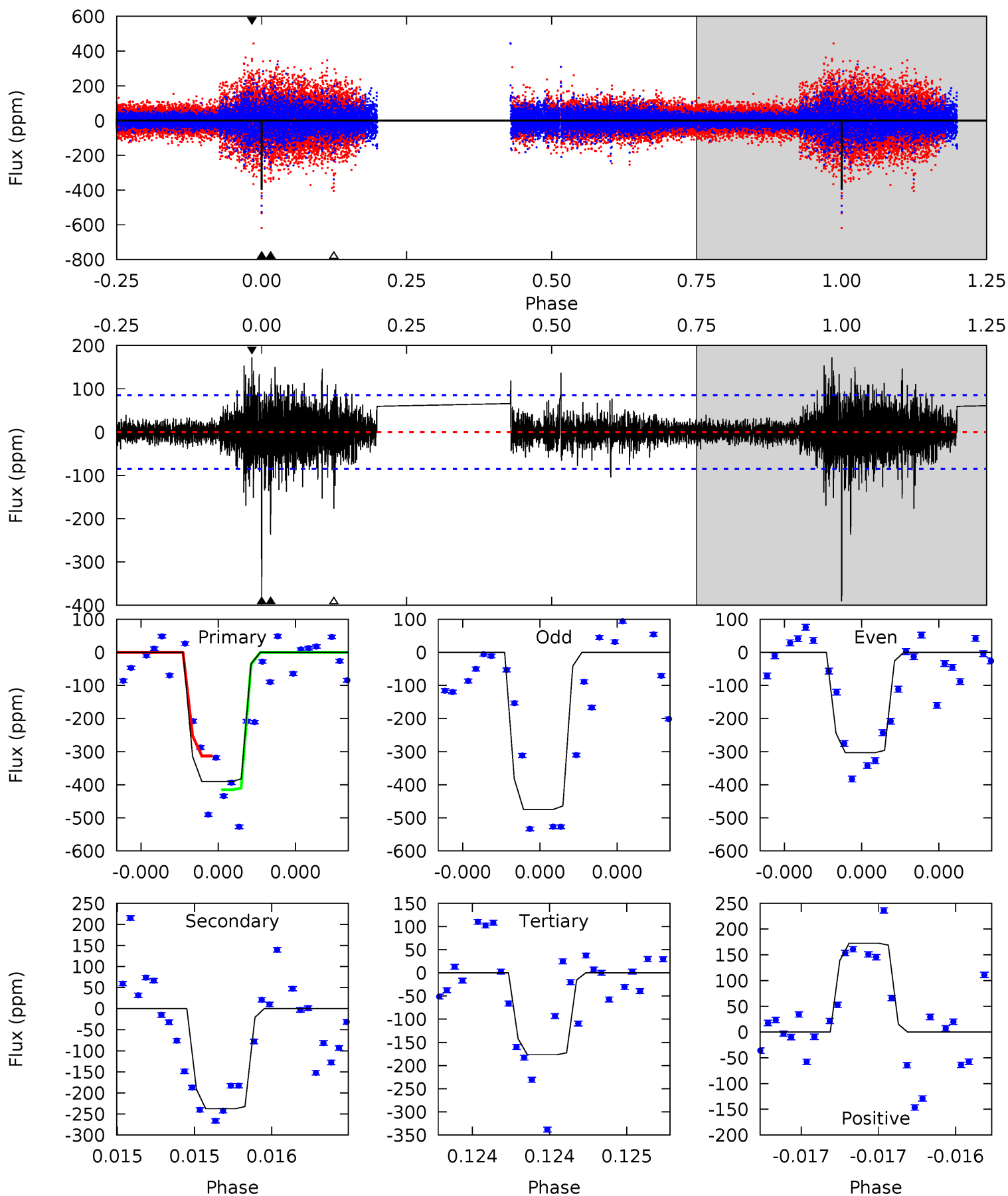
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.8	31.3	22.1	25.0	5.53	3.42	3.25	-2.29	-5.21	9.21	6.29	10.9	1.42	0.44	4.01



Alt Model-Shift Uniqueness Test

010671396-01, P = 368.459438 Days, E = 10.758798 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.6	15.6	11.6	11.3	5.60	3.52	1.77	14.0	14.3	4.00	4.26	5.12	0.95	0.31	3.02



Stellar Parameters For KIC 010671396

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	11287^{+612}_{-1716}	$3.642^{+0.456}_{-0.085}$	$0.070^{+0.150}_{-0.600}$	$4.662^{+0.447}_{-2.534}$	$3.471^{+0.069}_{-1.164}$	$0.048^{+0.261}_{-0.014}$
	+5%/-15%	+13%/-2%	+214%/-857%	+10%/-54%	+2%/-34%	+541%/-28%
Source	KIC0	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 010671396-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-475 ± 15	$25.86^{+28.33}_{-17.53}$	1132^{+142}_{-196}	5897^{+5552}_{-1570}	818^{+6945}_{-618}
Alt.	-237 ± 15	$22.29^{+23.84}_{-15.45}$	1136^{+151}_{-184}	5374^{+5725}_{-1335}	570^{+5685}_{-438}

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 $A_{obs} \gg 1.0$

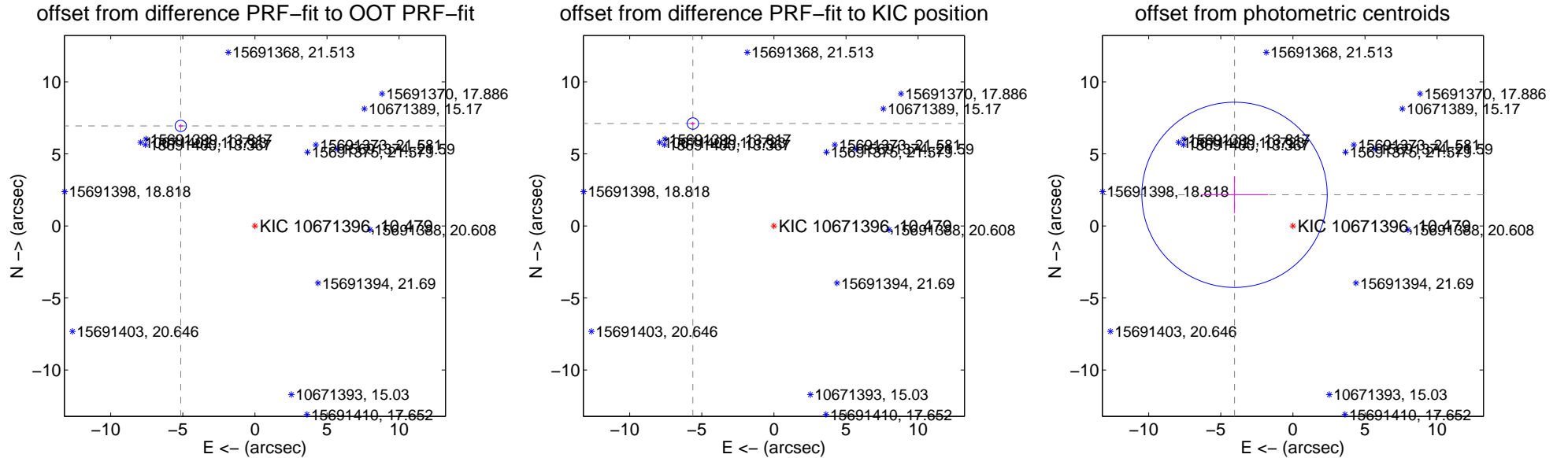
DV Centroid Data

Supplemental centroid analysis for 010671396-01. **Kepler magnitude: 10.48.** Transit SNR 8.60

There are 0 quarters with good PRF difference image offsets

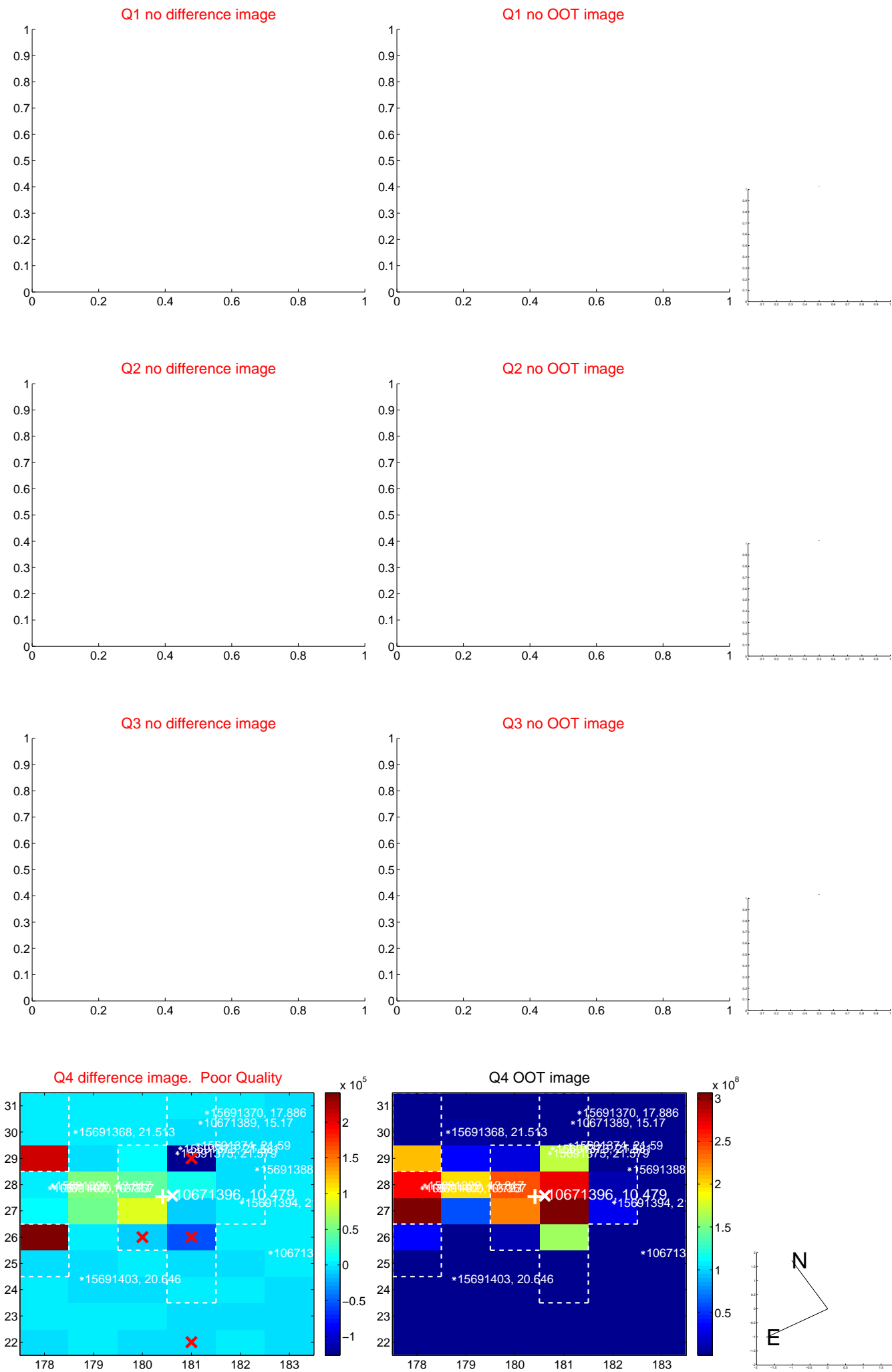
The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.641 \pm 0.131	66.05	5.144 \pm 0.152	6.943 \pm 0.118
PRF-fit source offset from KIC position	9.062 \pm 0.132	68.70	5.621 \pm 0.152	7.108 \pm 0.118
photometric centroid source offset	4.59 \pm 2.14	2.14	4.05 \pm 2.33	2.16 \pm 1.27

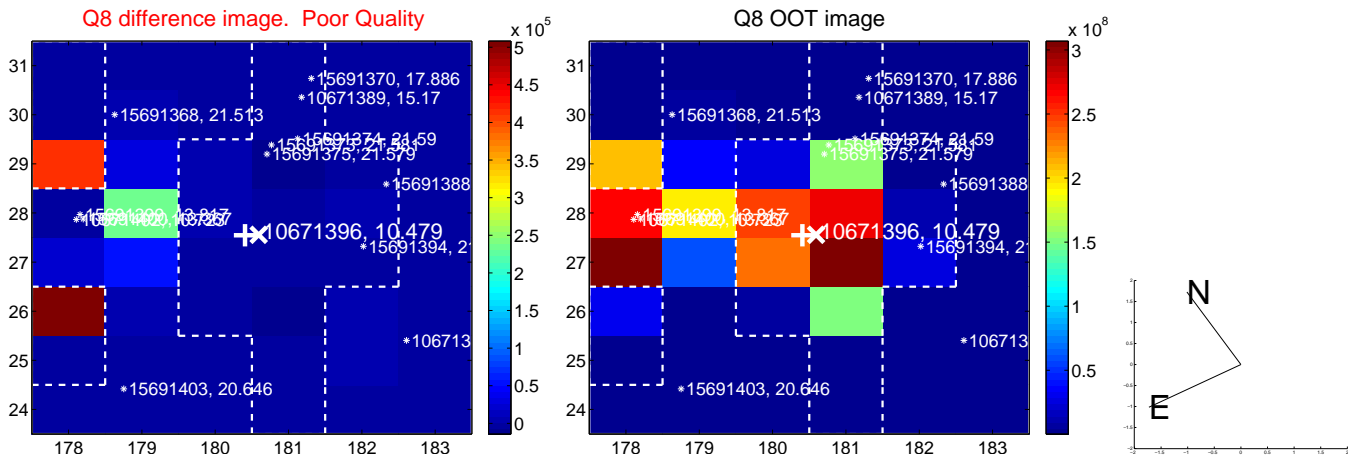
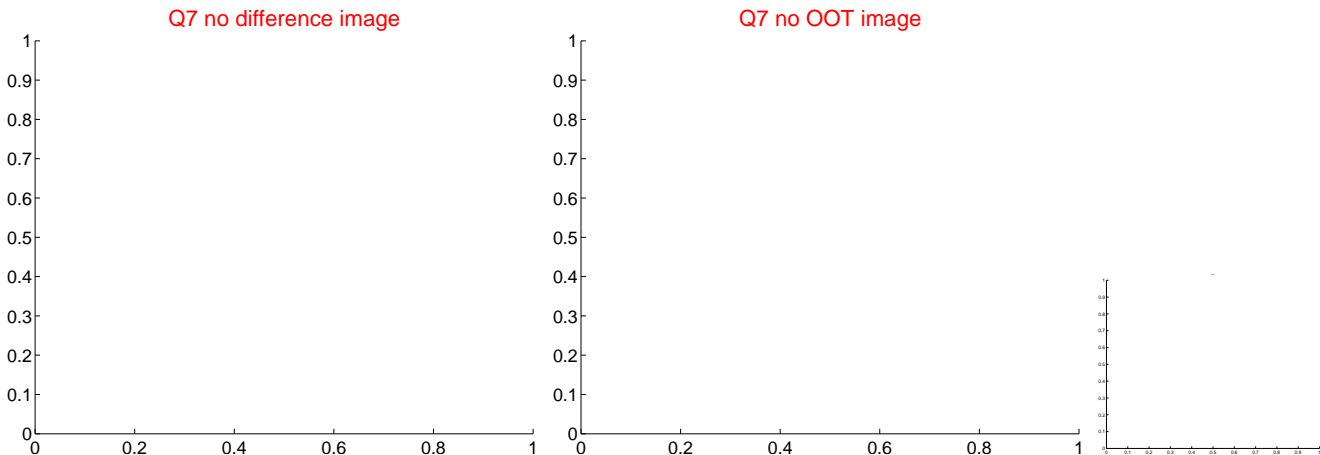
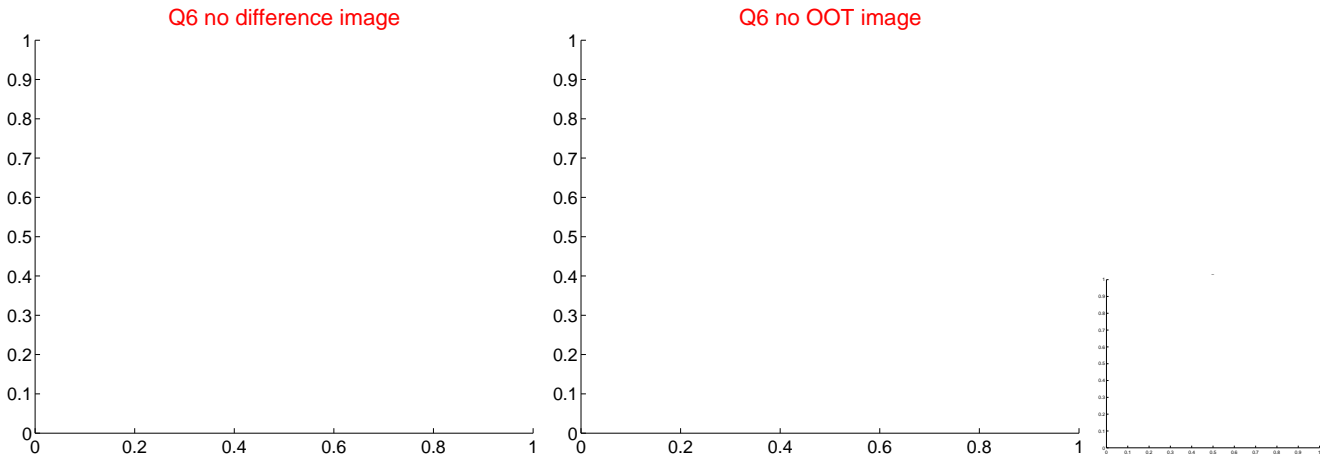
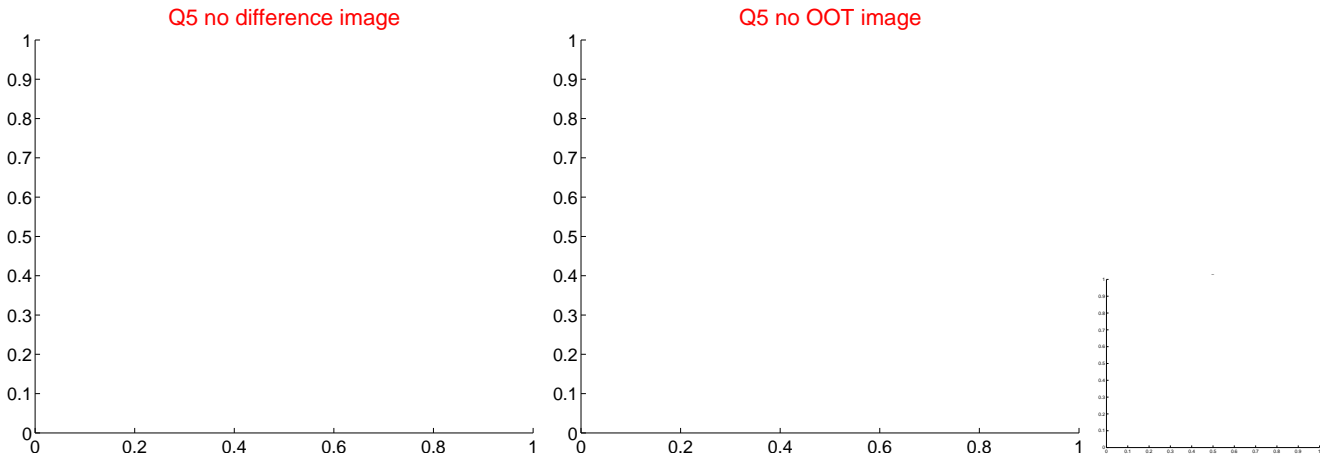


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

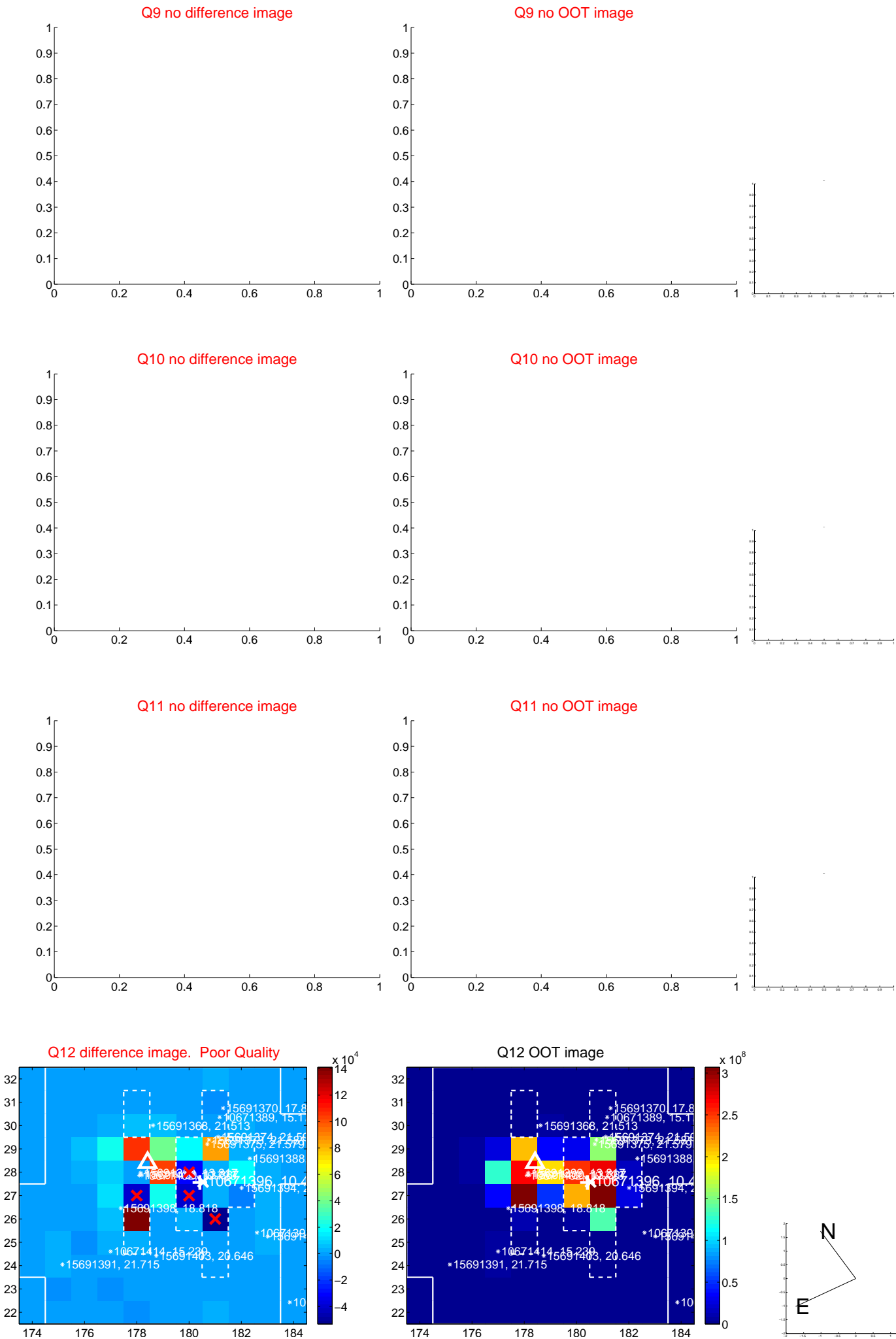
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



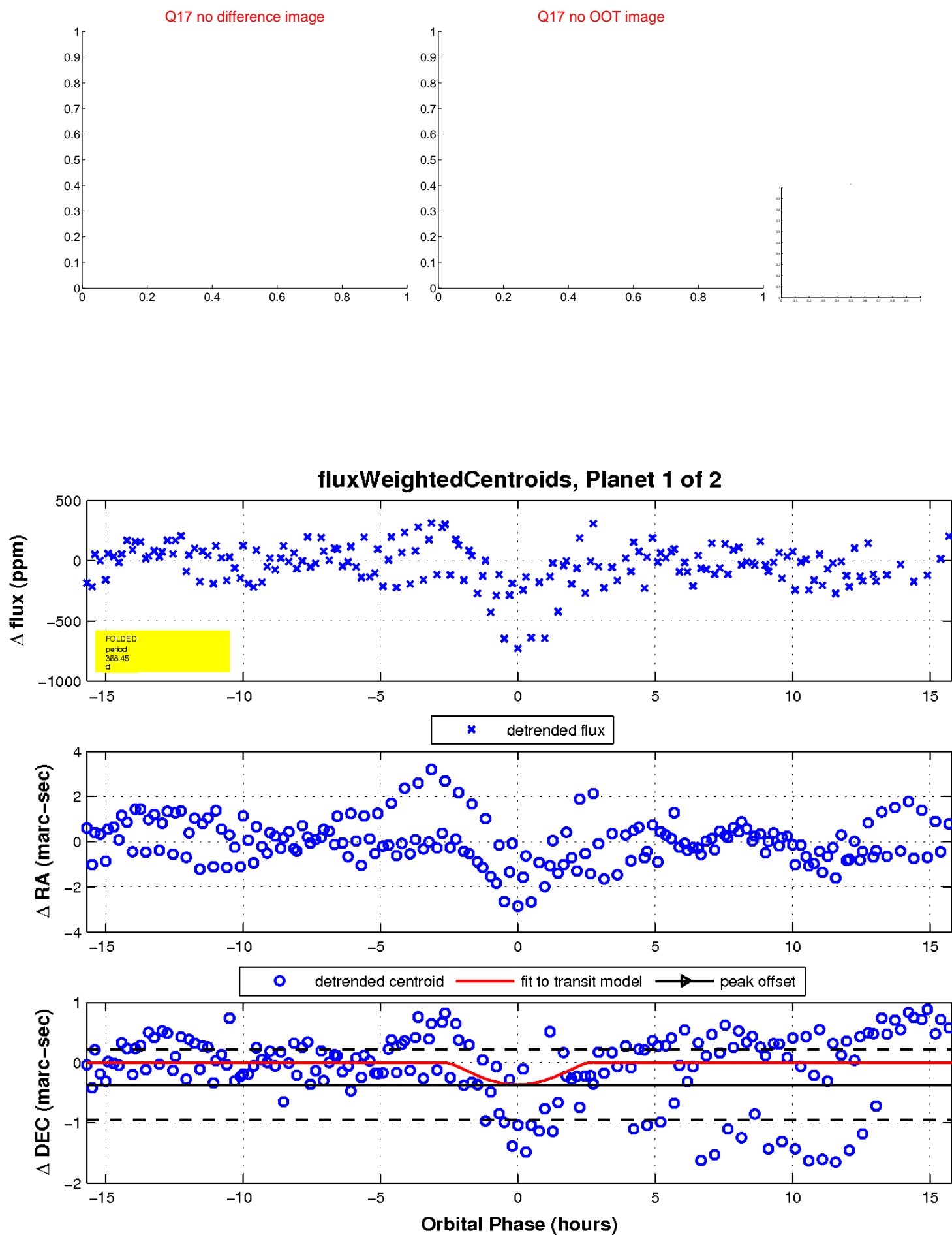
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

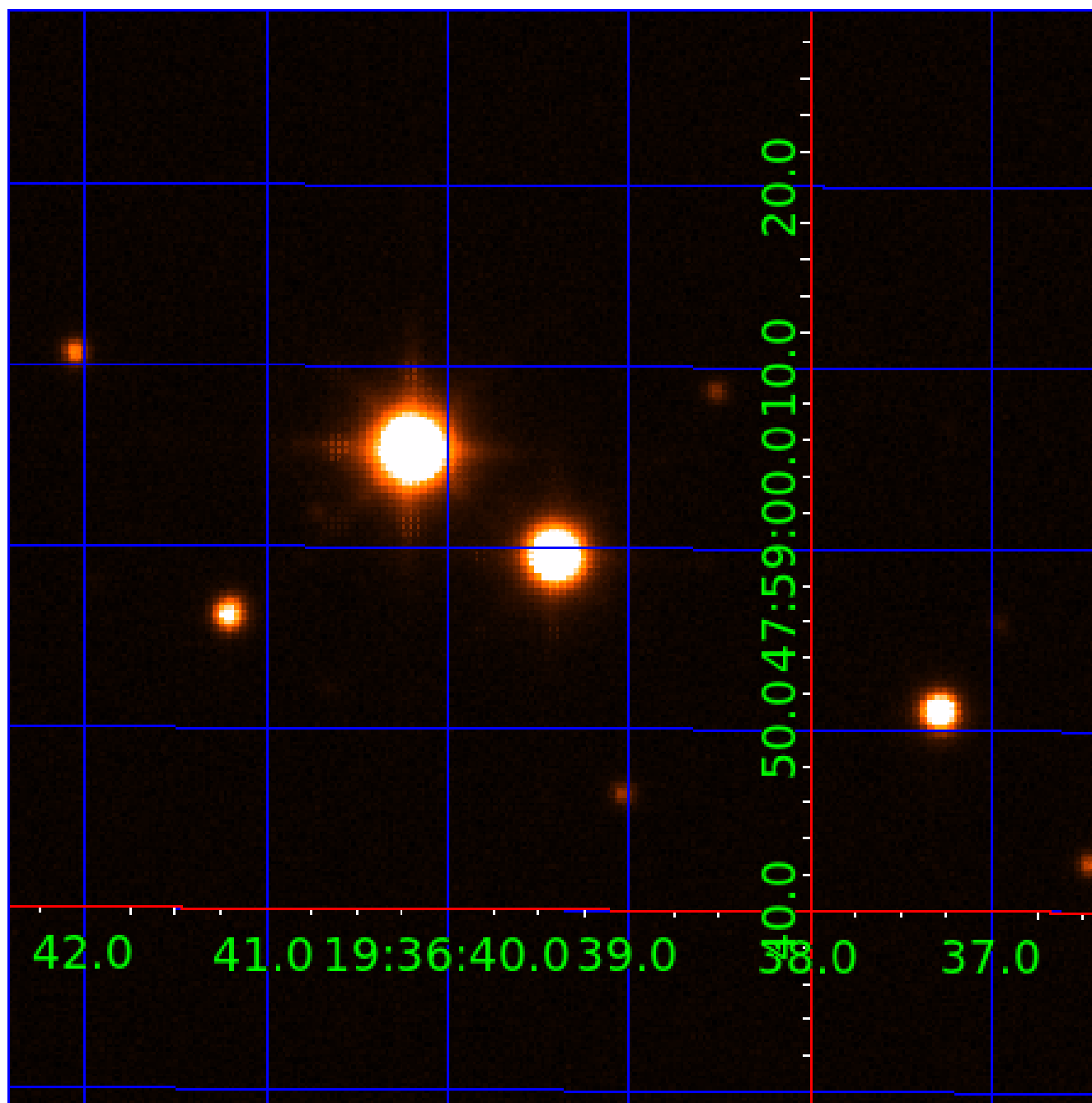


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010671396

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})
010671396-01	OBS	No	368.446425	379.238226	444.0	5.292	7.9	8.6	4.66	11287	17.67	136.07
010671396-02	OBS	No	383.162405	354.440220	241.9	2.921	8.7	6.6	4.66	11287	7.60	129.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010671396-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010671396-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

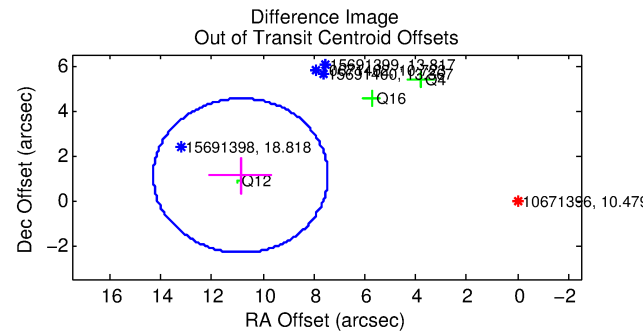
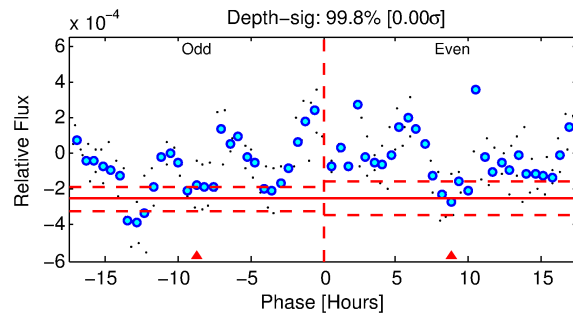
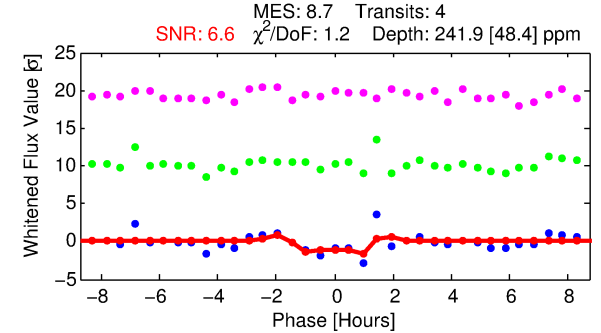
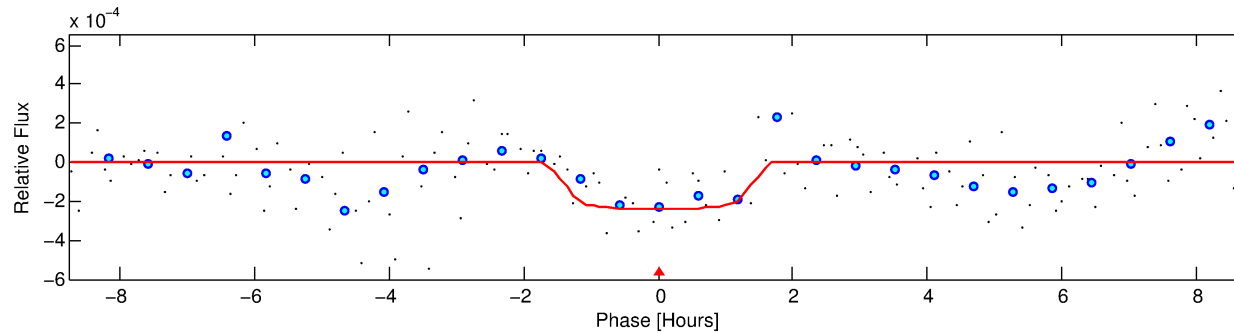
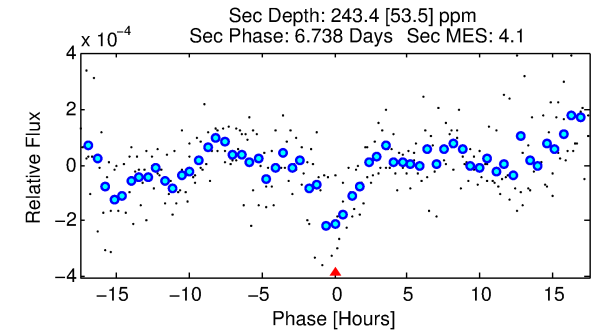
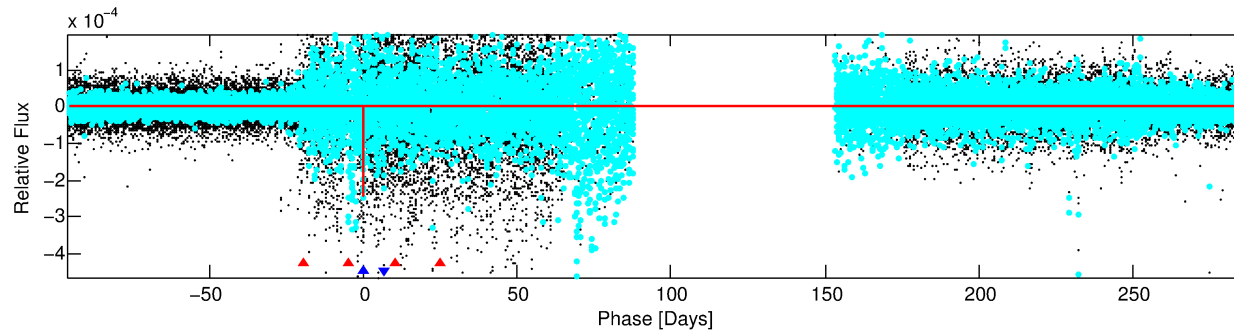
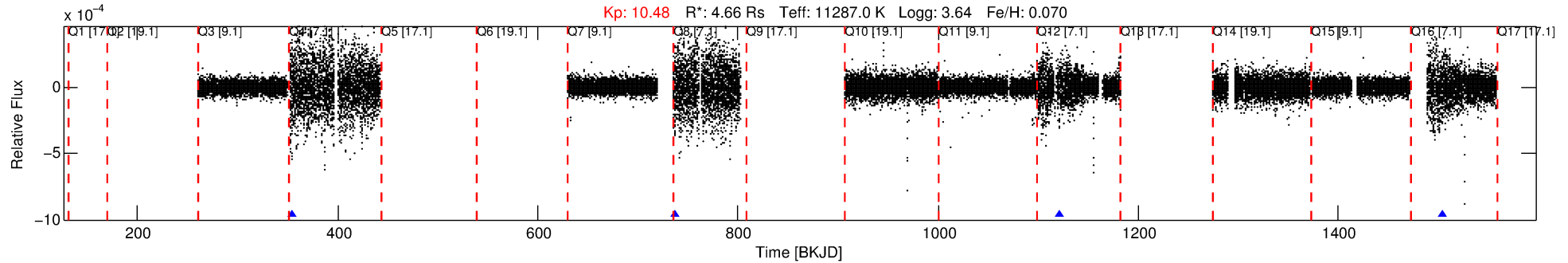
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010671396-02

No Significant Match Found

DV One-Page Summary

KIC: 10671396 Candidate: 2 of 2 Period: 383.162 d



DV Fit Results:

Period = 383.16241 [0.00368] d
Epoch = 354.4402 [0.0074] BKJD
Rp/R* = 0.0149 [0.0063]
a/R* = 901.59 [2995.07]
b = 0.47 [5.53]
Seff = 129.15 [128.57]
Teq = 860 [214] K
Rp = 7.60 [5.24] Re
a = 1.5643 [0.7881] AU
Ag = 5674.81 [6694.35] [0.85σ]
Teffp = 11535 [3079] K [3.4σ]

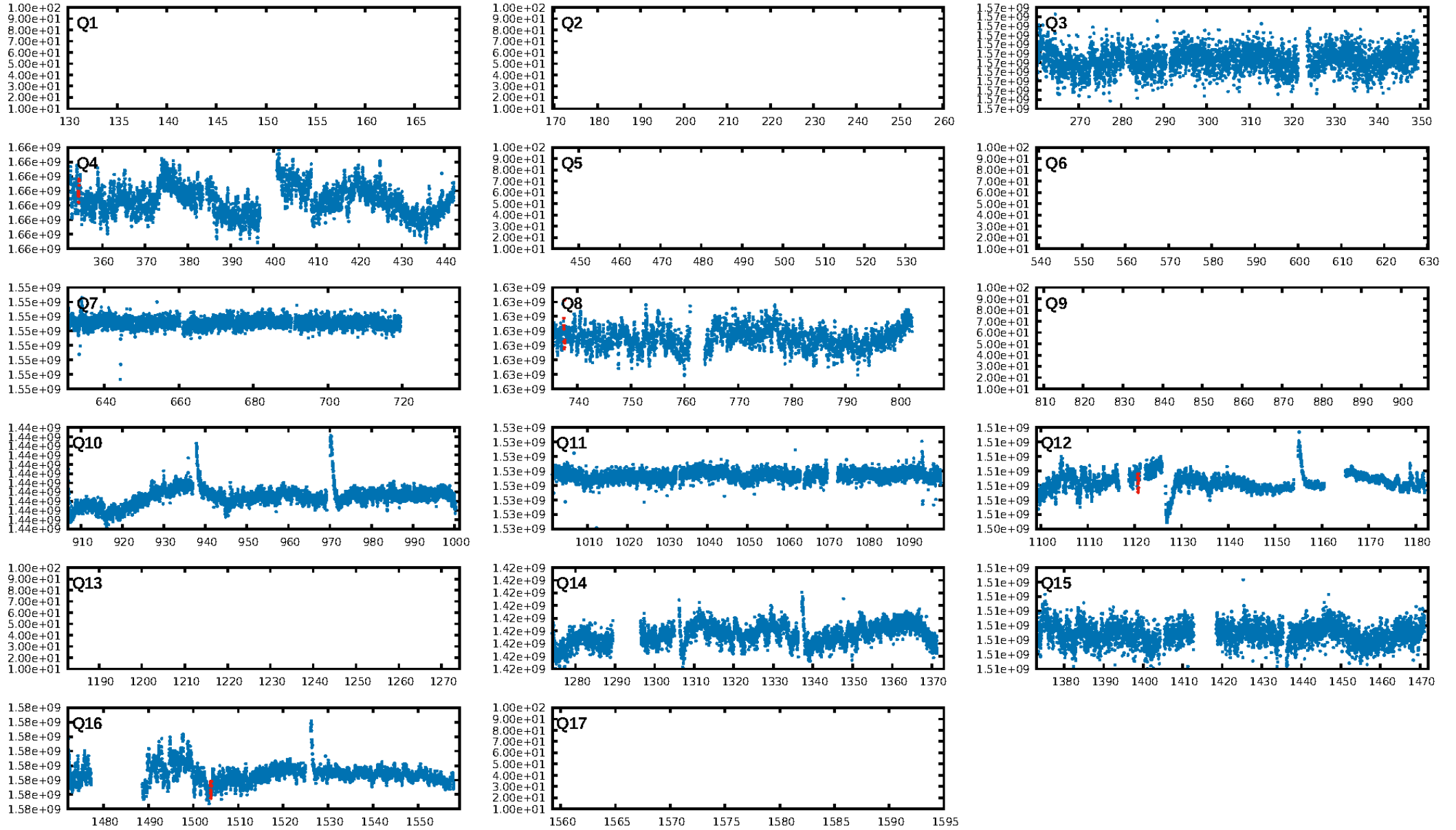
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [58.43σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 92.7%
ModelChiSquareGof-sig: 98.5%
Bootstrap-pfa: 2.01e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.203
Centroid-sig: N/A
Centroid-so: 5.353 arcsec [2.23σ]
OotOffset-rm: 10.925 arcsec [9.55σ]
KicOffset-rm: 11.430 arcsec [7.50σ]
OotOffset-st: 0/0/3/0 [3]
KicOffset-st: 0/0/3/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
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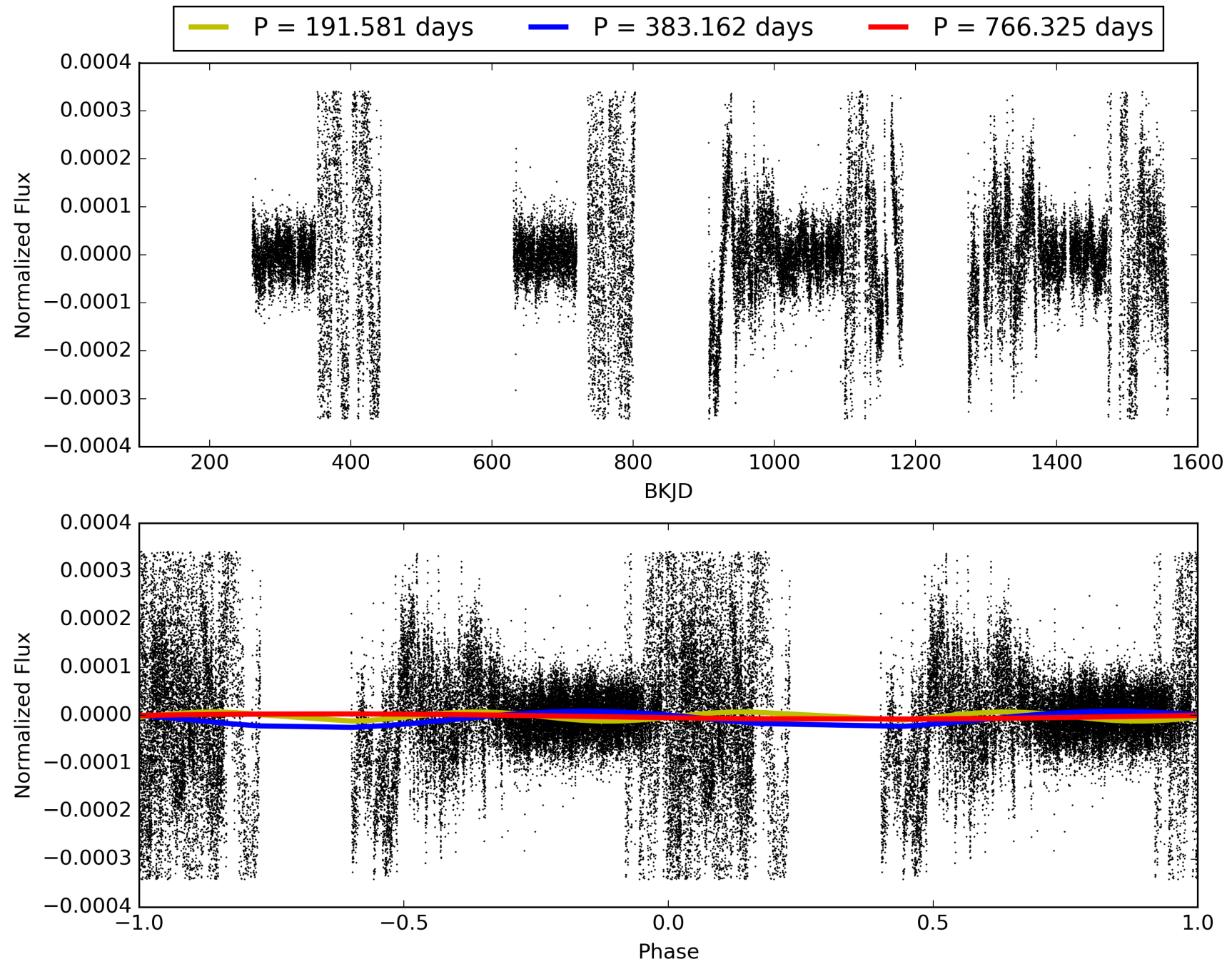
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010671396-02, PDC Light Curves

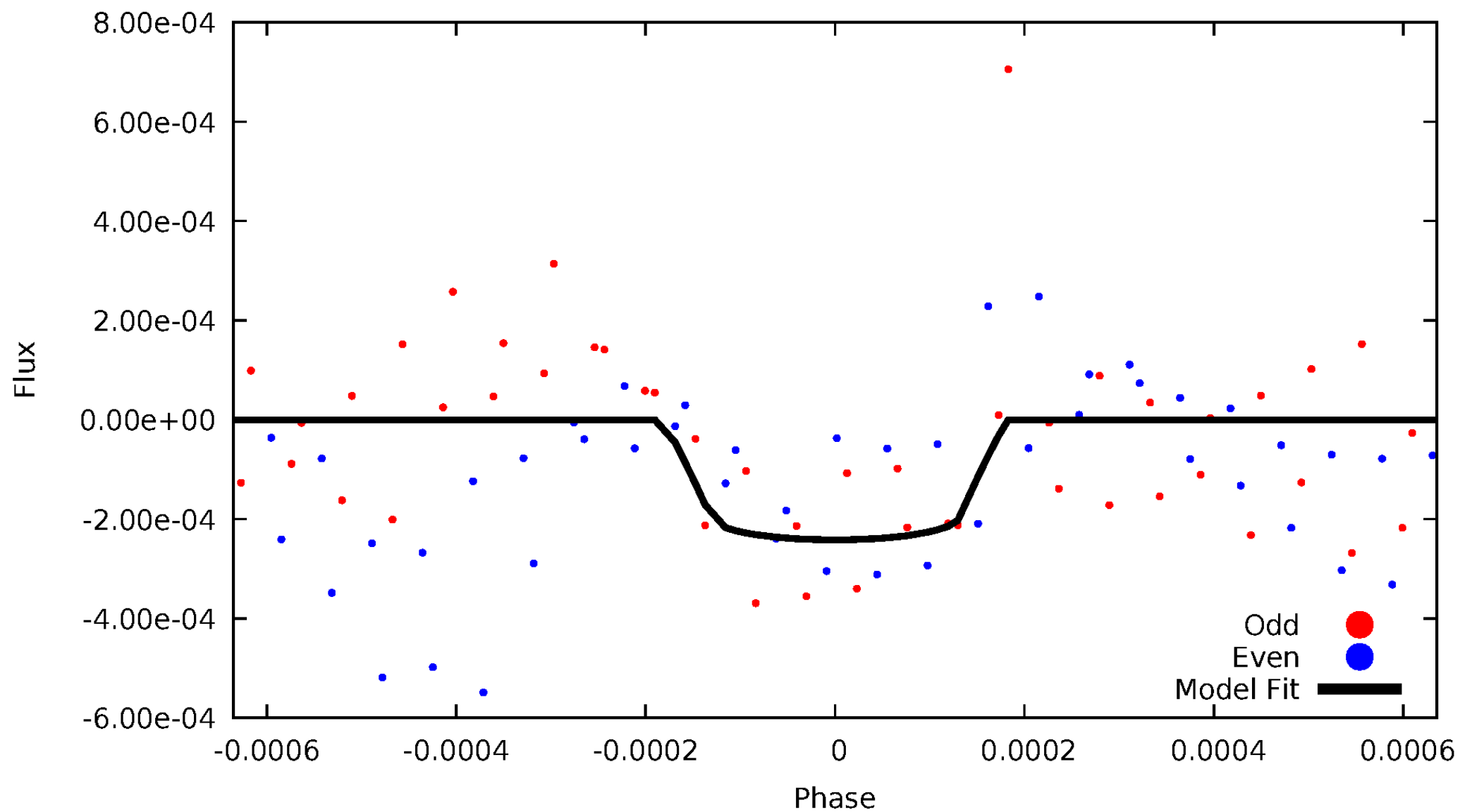


TCE 010671396-02



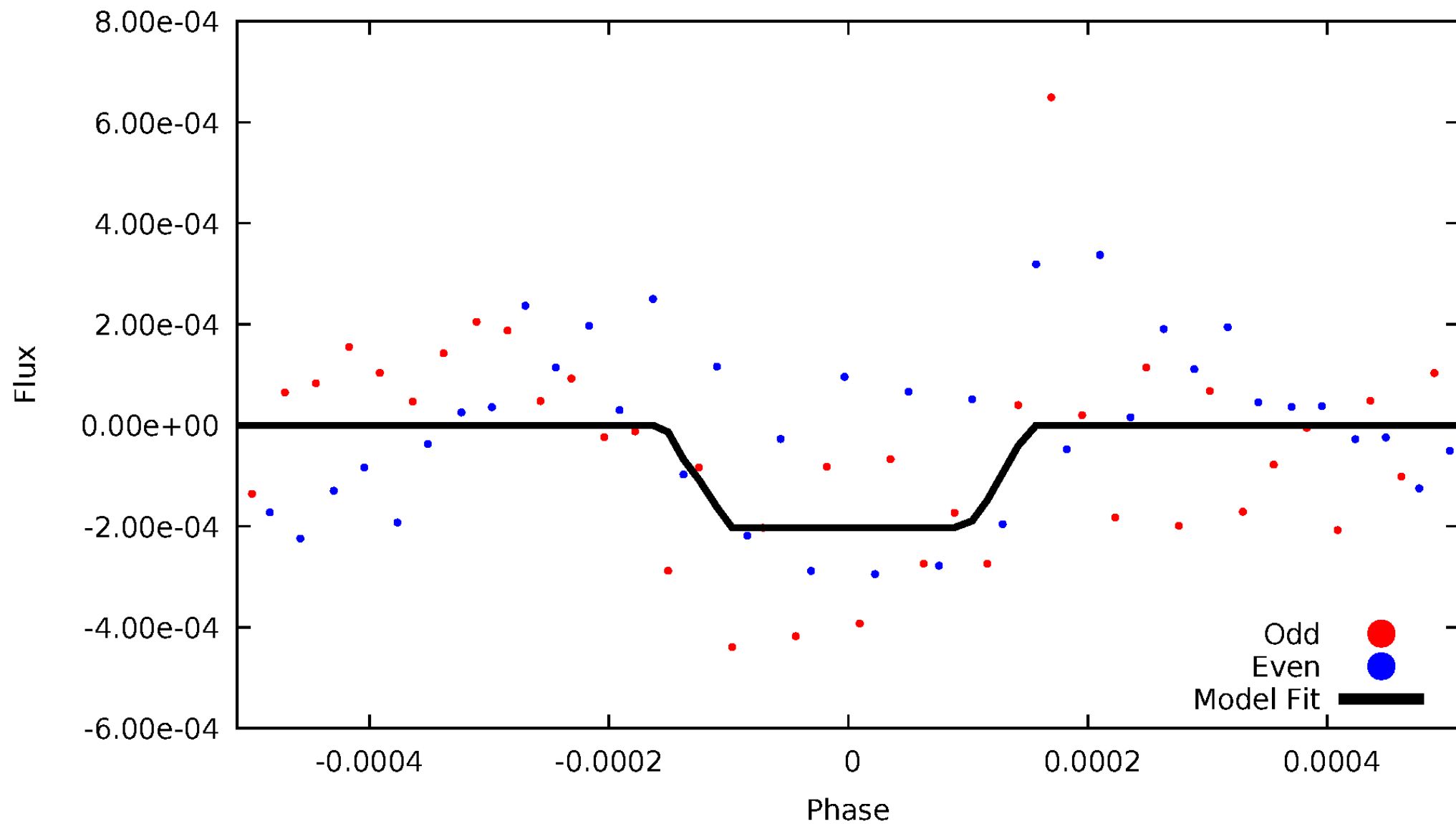
DV Odd/Even

TCE 010671396-02



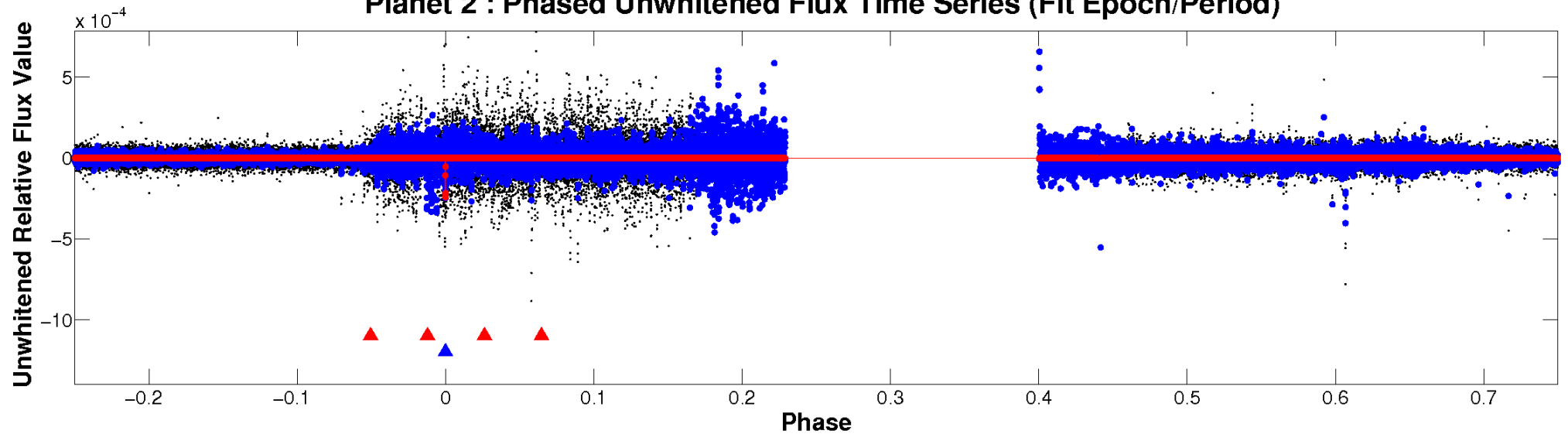
ALT Odd/Even

TCE 010671396-02

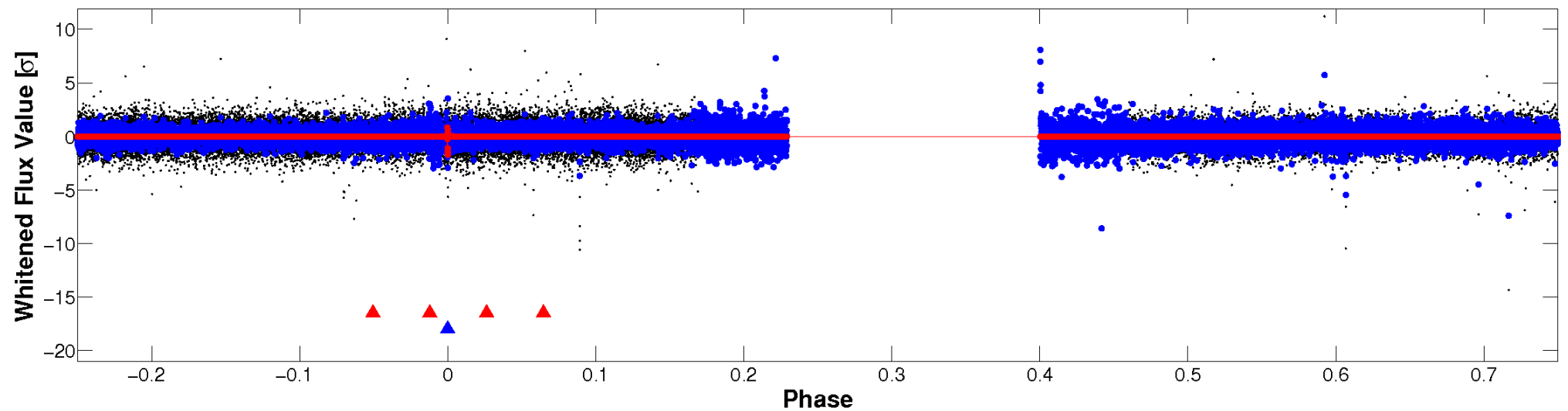


Non-Whitened Vs. Whitened Light Curve

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

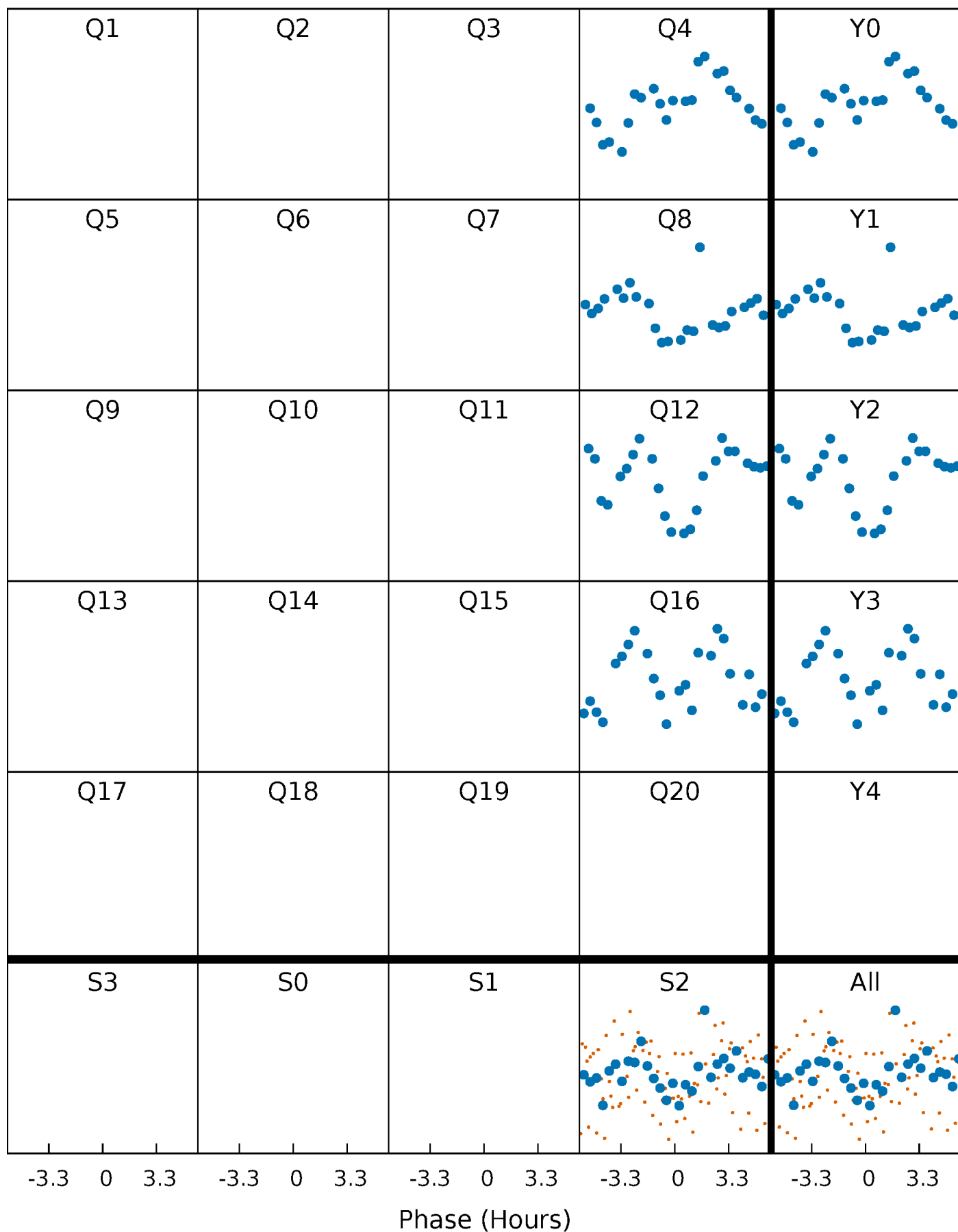


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



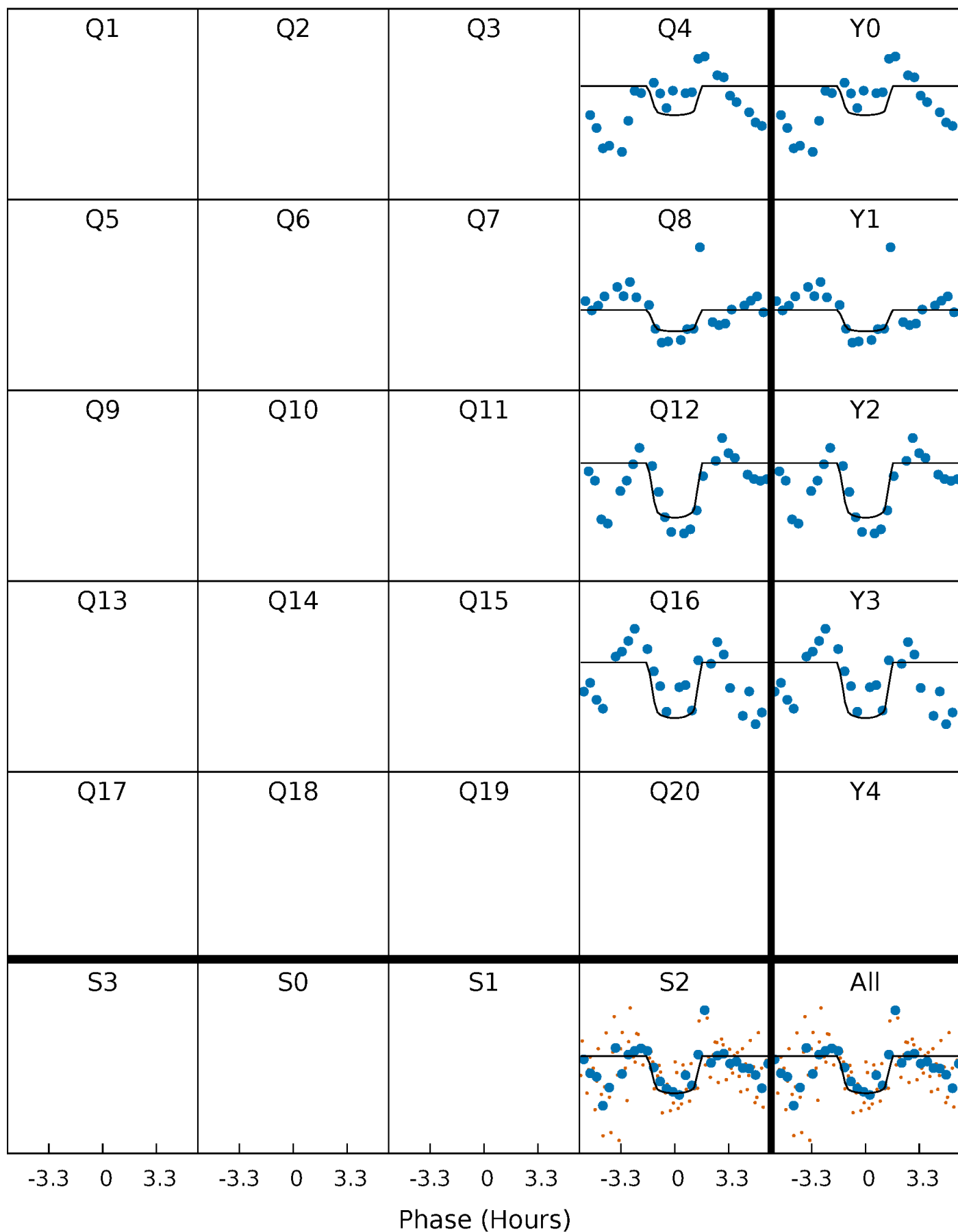
PDC Quarter-Phased Transit Curves

TCE 010671396-02 P=383.162405 Days $T_0=354.440220$ (BKJD)



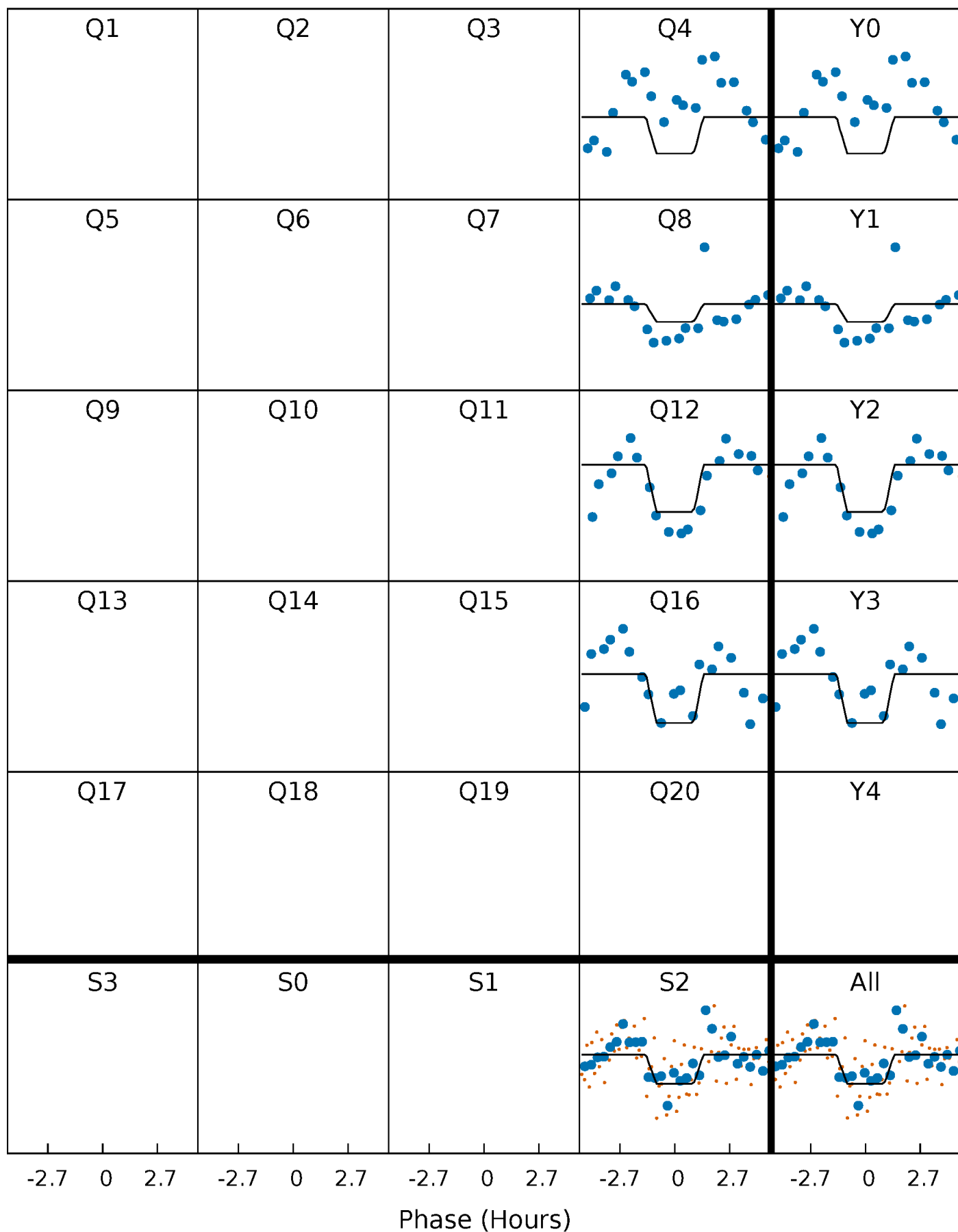
DV Quarter-Phased Transit Curves

TCE 010671396-02 $P=383.162405$ Days $T_0=354.440220$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

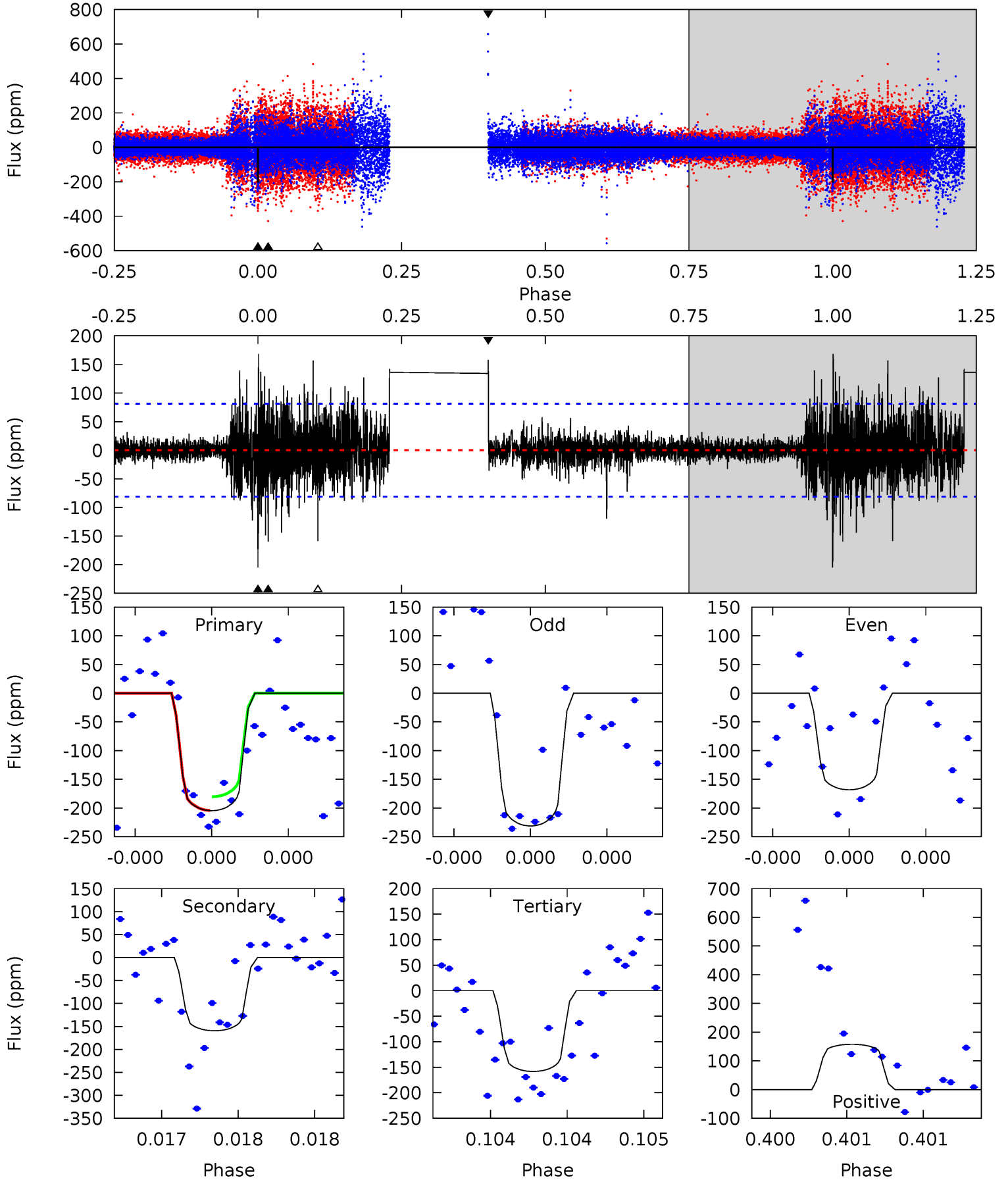
TCE 010671396-02 P=383.165691 Days $T_0=354.442113$ (BKJD)



DV Model-Shift Uniqueness Test

010671396-02, P = 383.162405 Days, E = 354.440220 Days

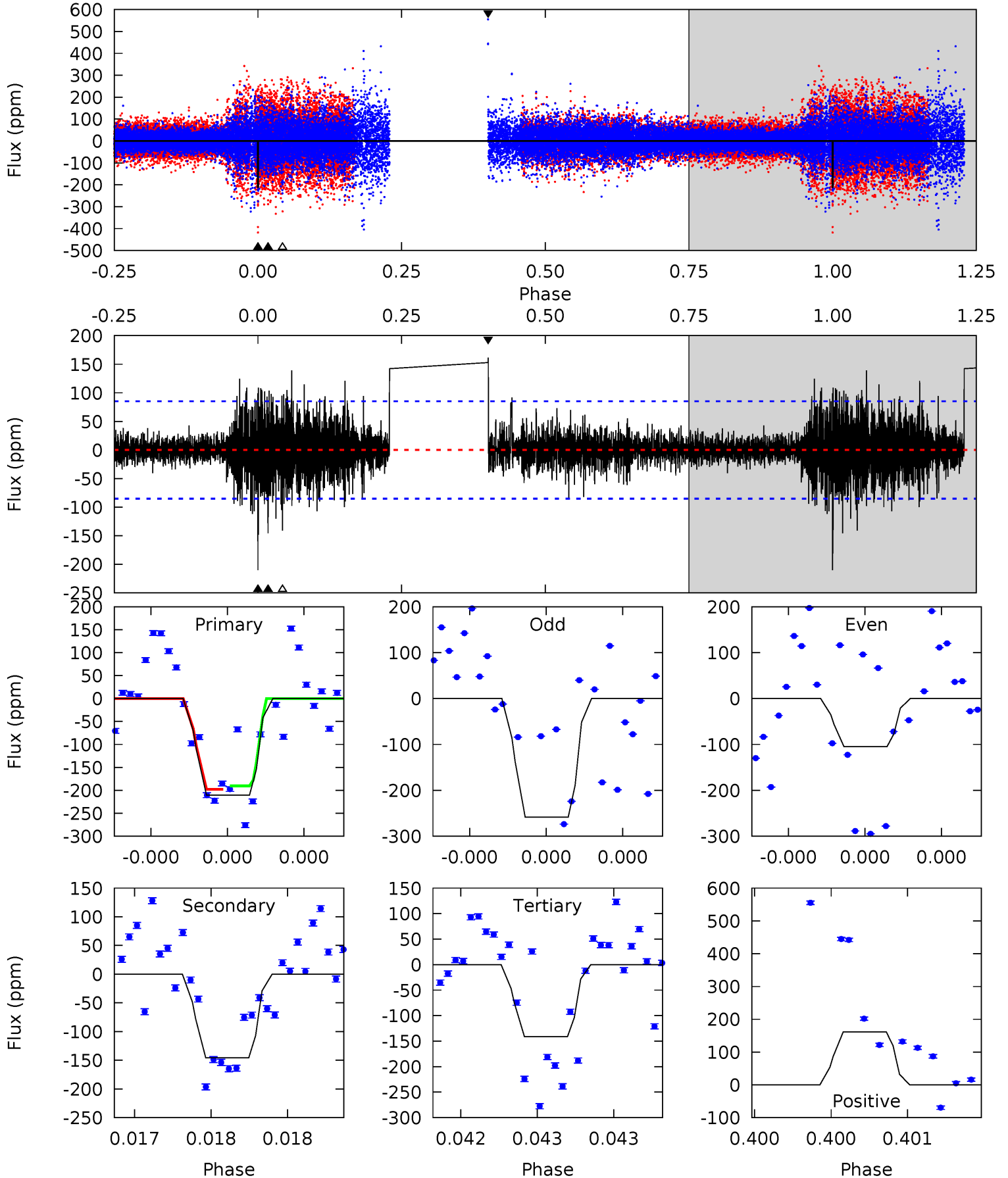
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	11.0	10.9	10.9	5.63	3.57	1.88	3.20	3.24	0.08	0.11	2.02	0.95	0.45	0.72



Alt Model-Shift Uniqueness Test

010671396-02, P = 383.165691 Days, E = 354.442113 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	9.67	9.36	10.7	5.66	3.61	1.67	4.59	3.24	0.31	-1.05	5.31	0.90	0.43	0



Stellar Parameters For KIC 010671396

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	11287^{+612}_{-1716}	$3.642^{+0.456}_{-0.085}$	$0.070^{+0.150}_{-0.600}$	$4.662^{+0.447}_{-2.534}$	$3.471^{+0.069}_{-1.164}$	$0.048^{+0.261}_{-0.014}$
	+5%/-15%	+13%/-2%	+214%/-857%	+10%/-54%	+2%/-34%	+541%/-28%
Source	KIC0	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 010671396-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-159 ± 14	$6.70^{+3.38}_{-3.08}$	1131^{+137}_{-208}	9577^{+5280}_{-1986}	4458^{+9930}_{-2358}
Alt.	-146 ± 15	$6.49^{+3.18}_{-2.88}$	1127^{+128}_{-197}	9452^{+5033}_{-2047}	4412^{+9156}_{-2385}

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

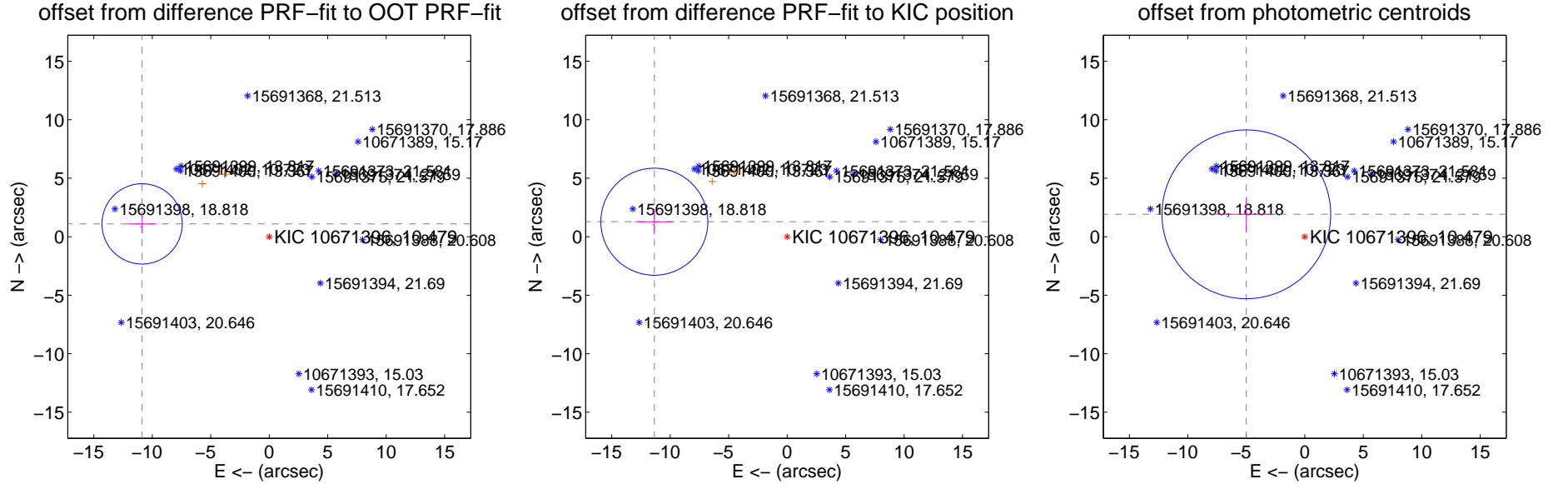
DV Centroid Data

Supplemental centroid analysis for 010671396-02. **Kepler magnitude: 10.48.** Transit SNR 6.65

There are 0 quarters with good PRF difference image offsets

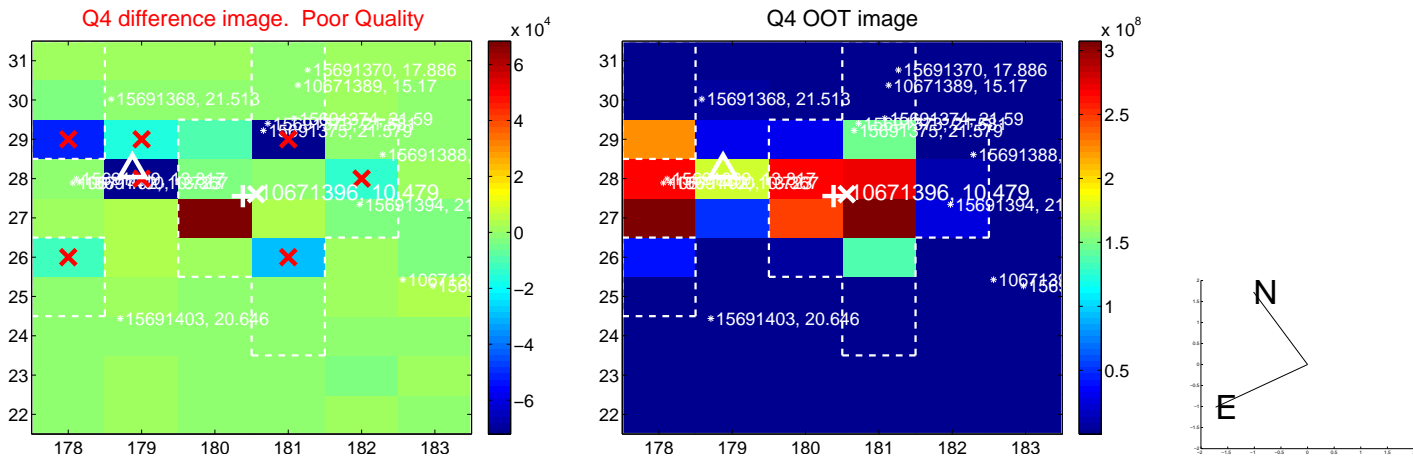
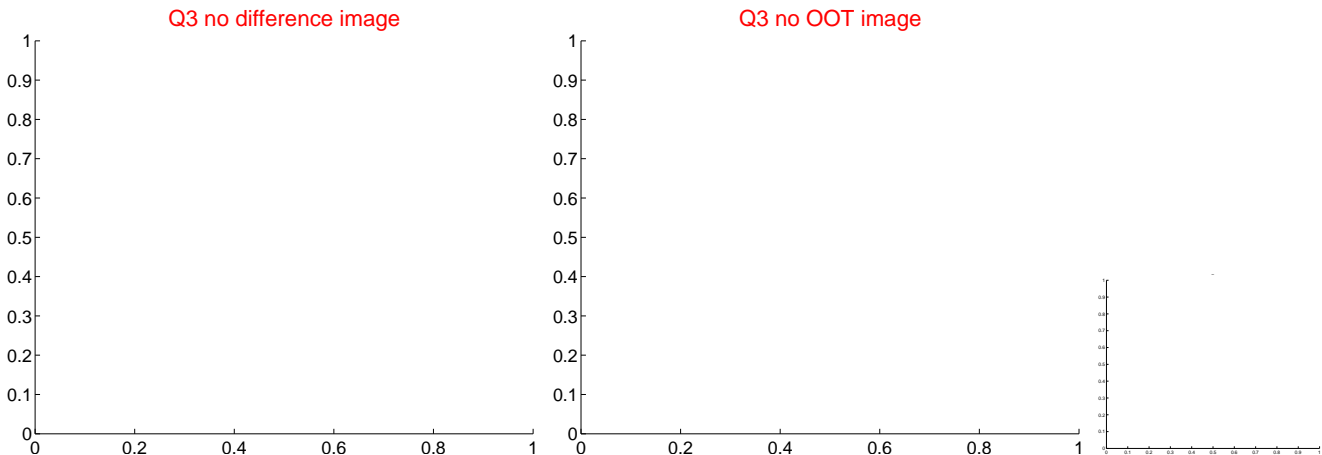
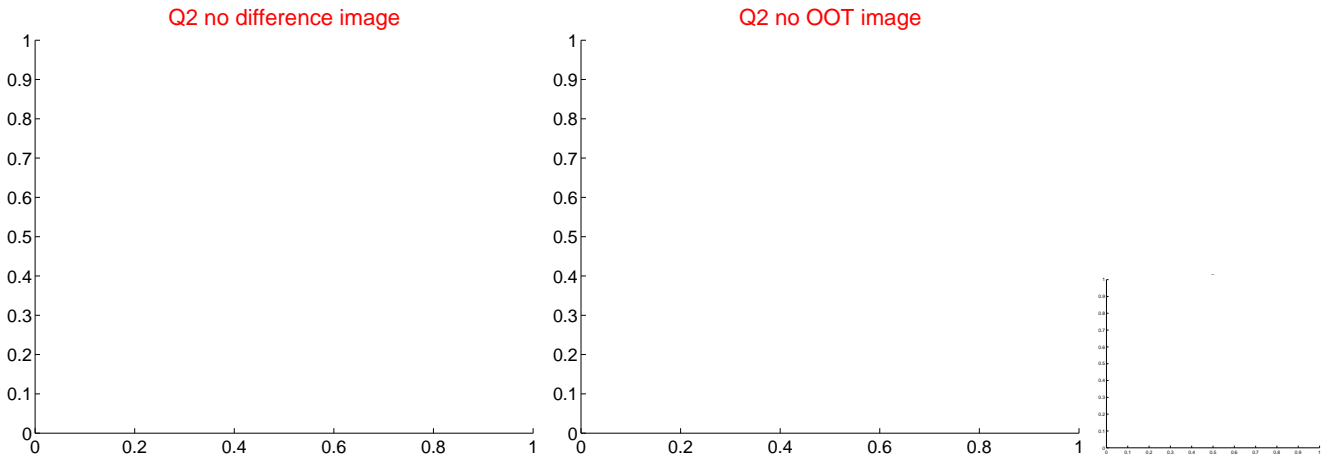
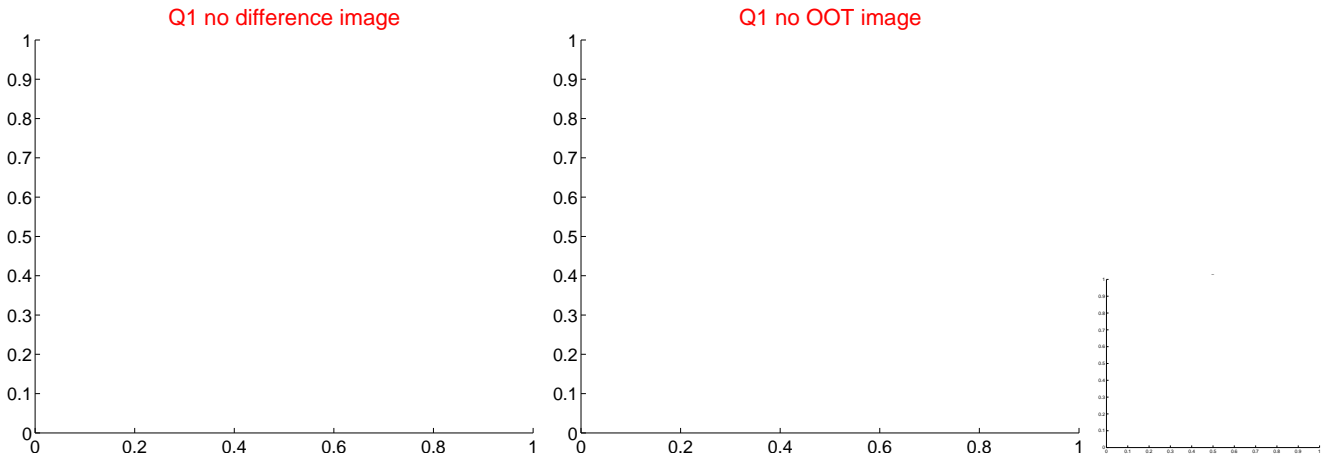
The direct PRF centroid is offset from the target star catalog position by about 0.72 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.925 \pm 1.144	9.55	10.869 \pm 1.231	1.099 \pm 0.807
PRF-fit source offset from KIC position	11.430 \pm 1.525	7.50	11.357 \pm 1.658	1.285 \pm 1.101
photometric centroid source offset	5.35 \pm 2.40	2.23	5.00 \pm 2.51	1.92 \pm 1.49

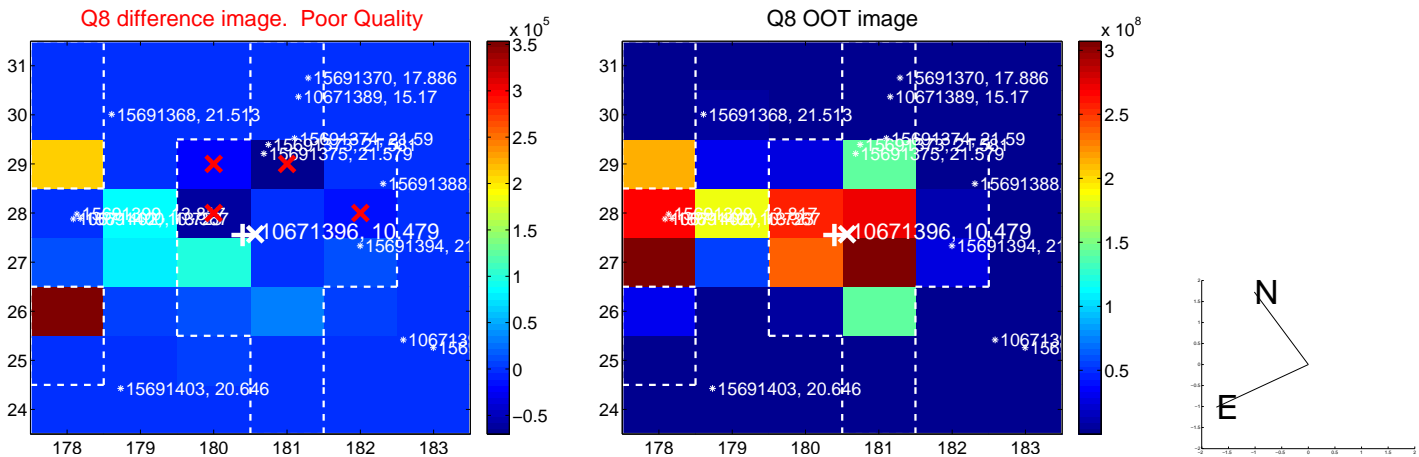
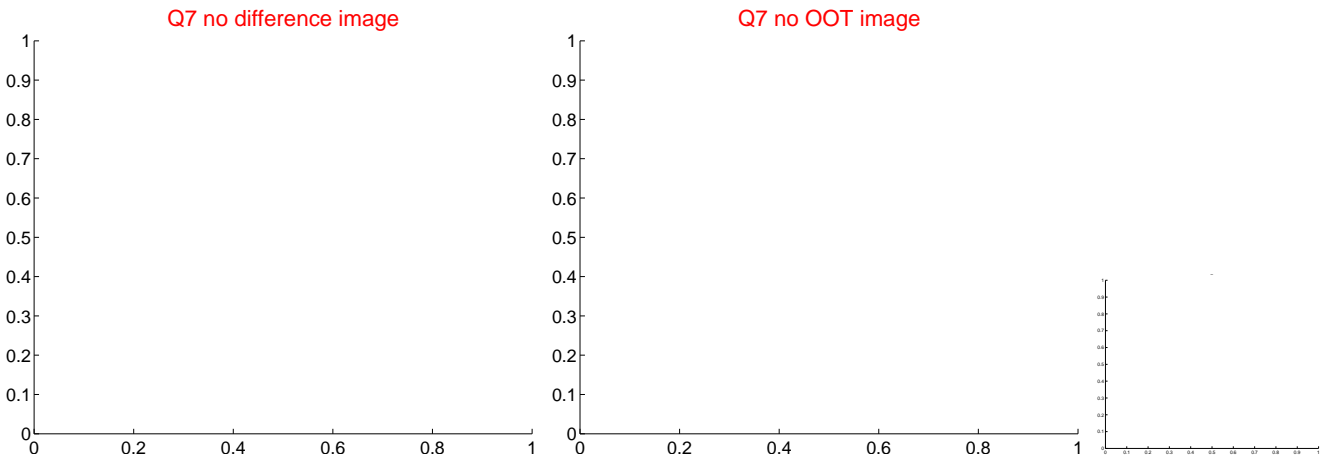
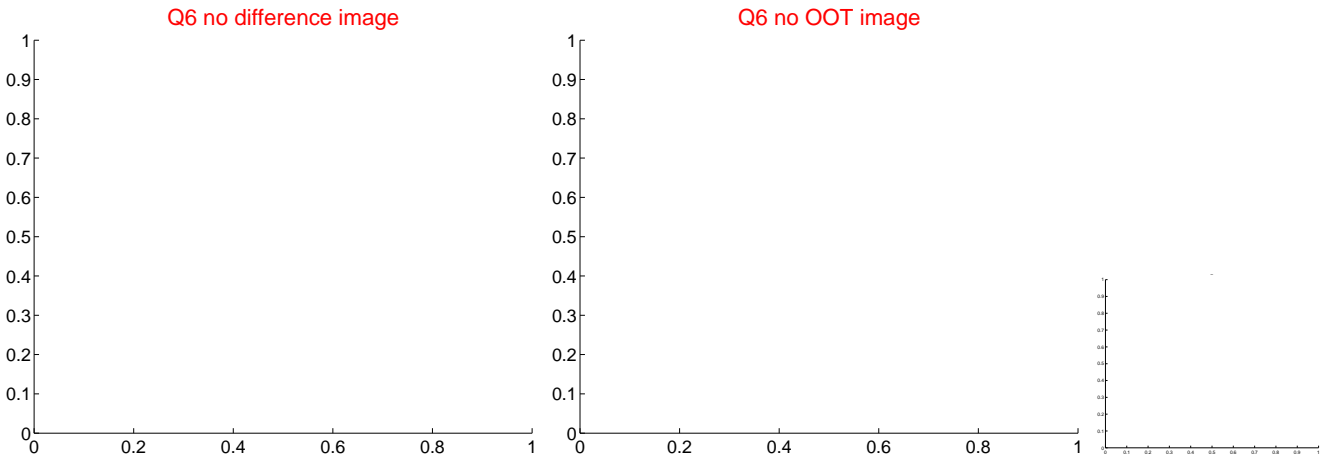
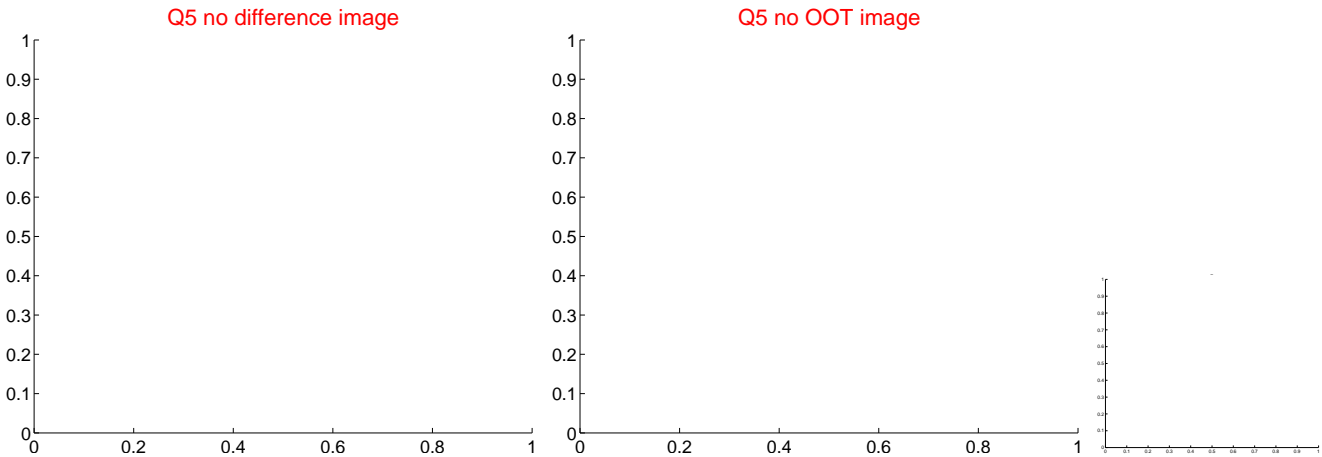


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



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



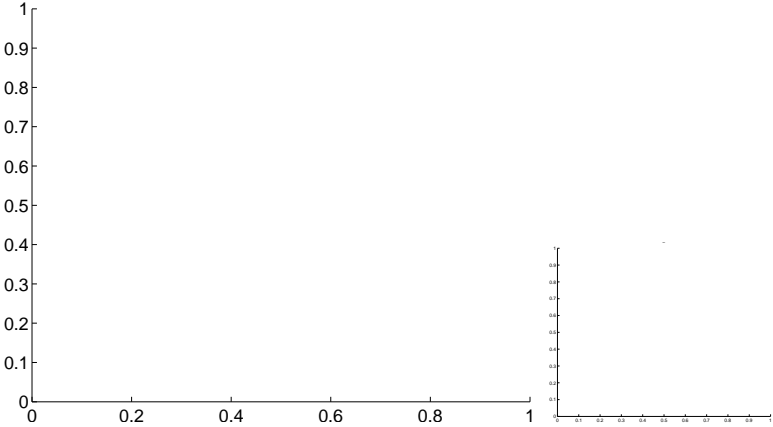
Q10 no OOT image



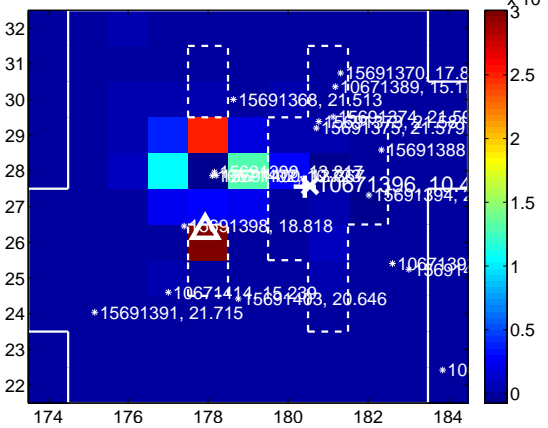
Q11 no difference image



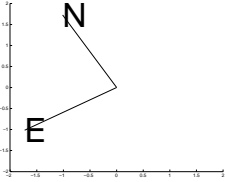
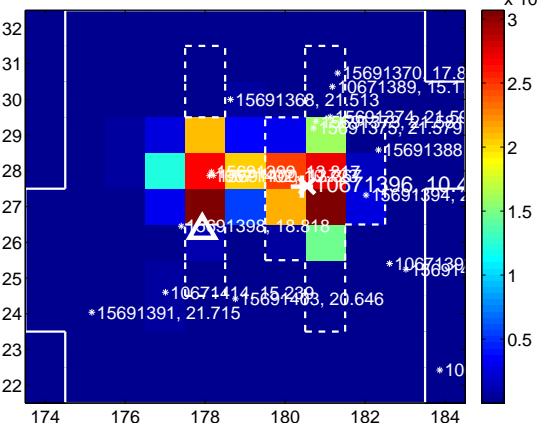
Q11 no OOT image



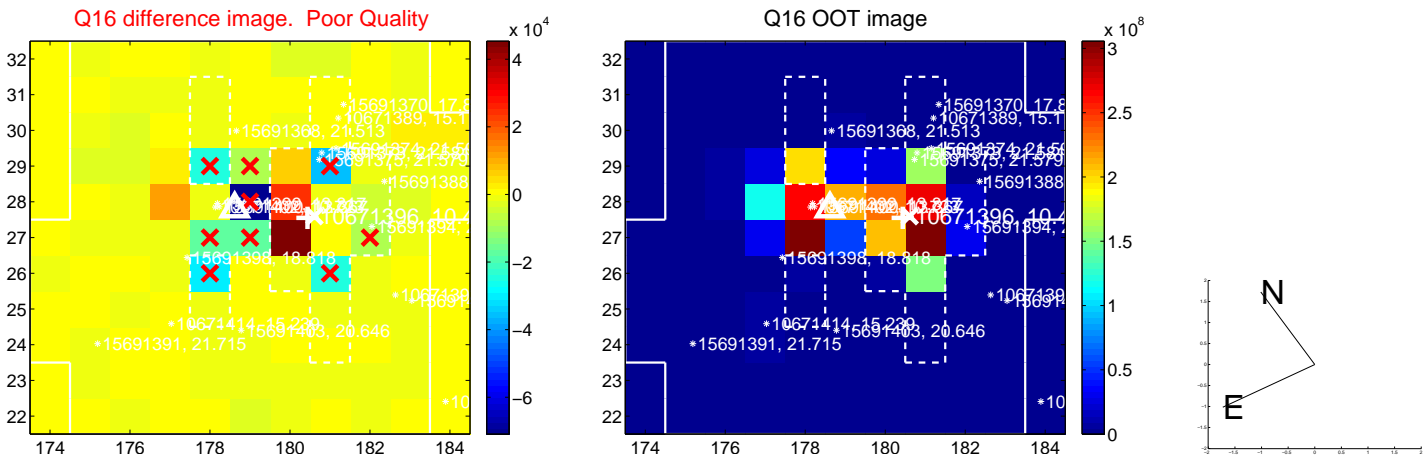
Q12 difference image. Poor Quality



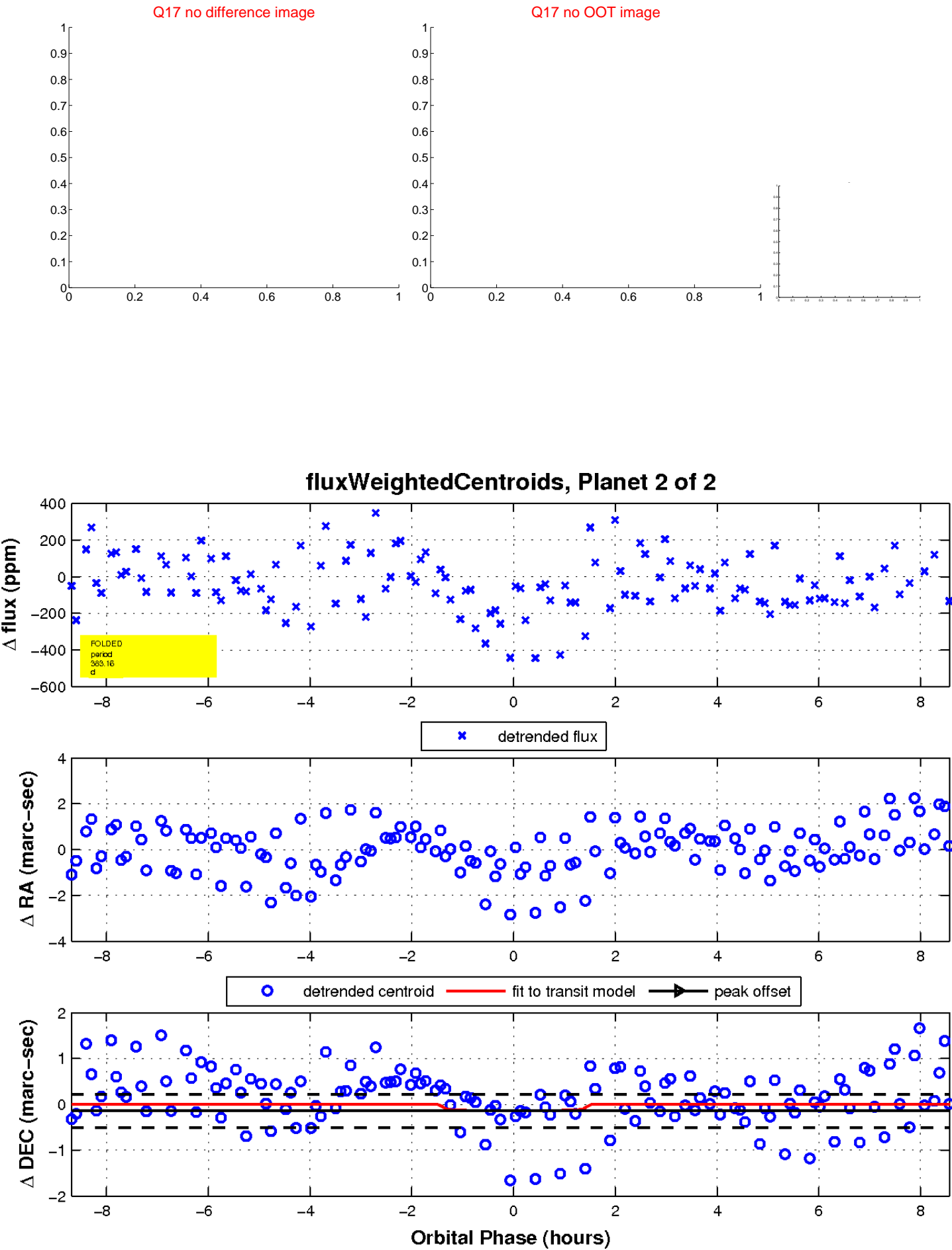
Q12 OOT image



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

