

KIC 004136396

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})
004136396-01	OBS	No	3.163798	133.976074	109.9	11.473	8.5	8.8	0.74	5247	0.94	240.98
004136396-02	OBS	No	255.888555	355.320239	1550.7	9.100	14.4	9.1	0.74	5247	3.04	0.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004136396-01	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
004136396-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

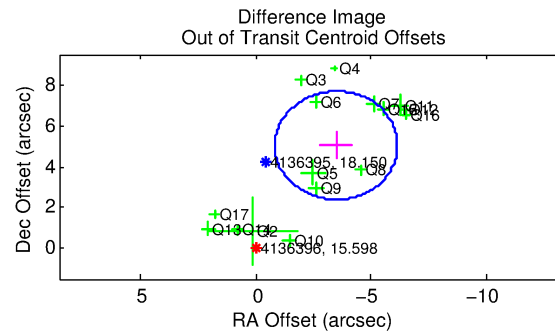
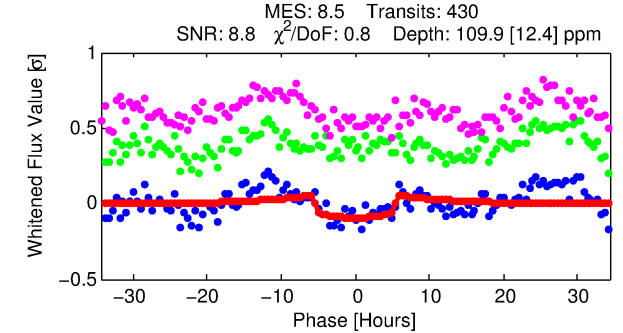
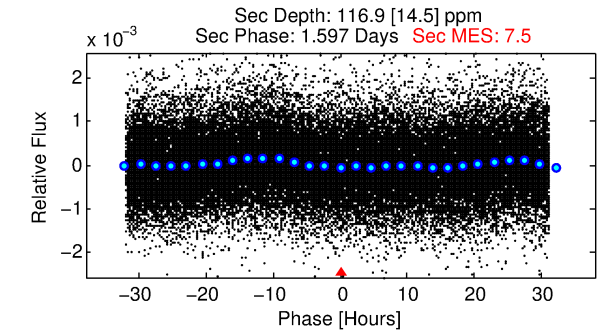
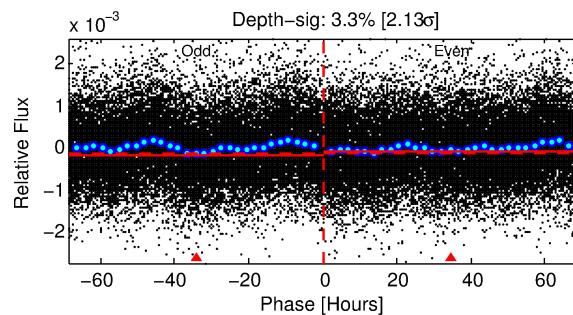
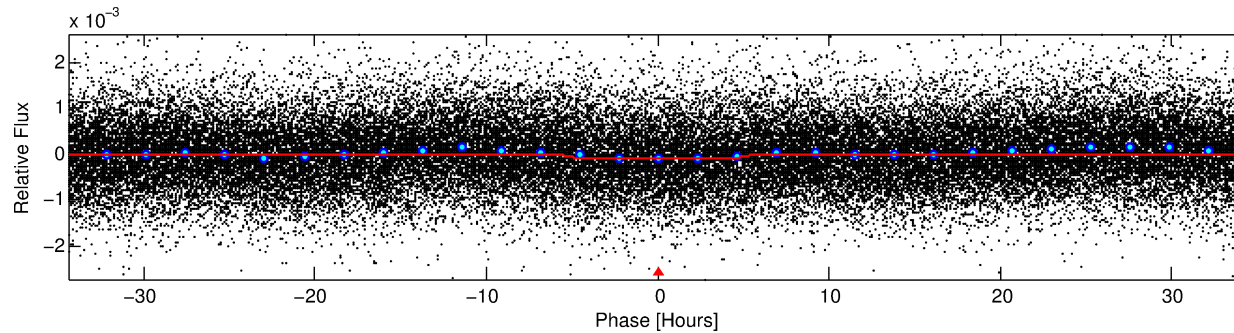
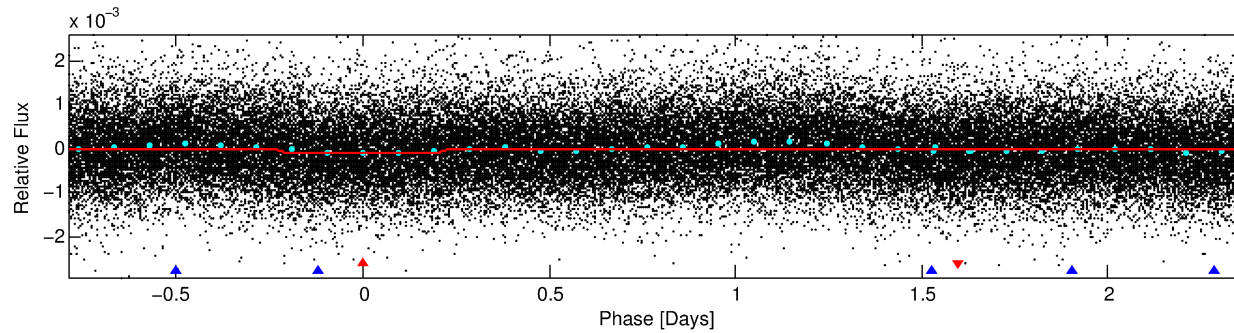
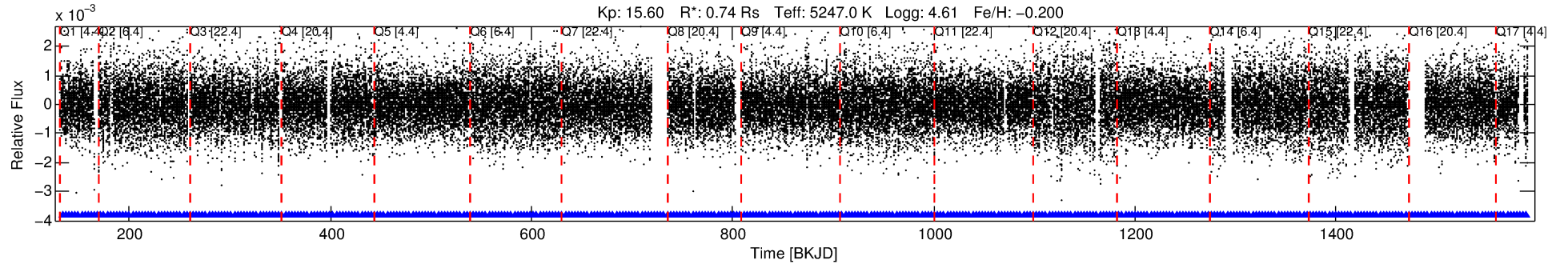
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004136396-01

No Significant Match Found

DV One-Page Summary

KIC: 4136396 Candidate: 1 of 2 Period: 3.164 d



DV Fit Results:

Period = 3.16380 [0.00005] d
Epoch = 133.9761 [0.0108] BKJD
Rp/R* = 0.0116 [0.0022]
a/R* = 1.35 [0.48]
b = 0.90 [0.17]
Seff = 240.98 [51.85]
Teq = 1005 [54] K
Rp = 0.94 [0.23] Re
a = 0.0395 [0.0049] AU
Ag = 113.68 [49.40] [2.28 σ]
Teffp = 5072 [525] K [7.70 σ]

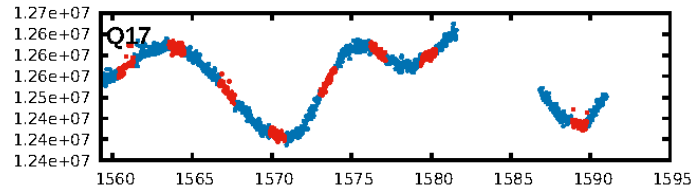
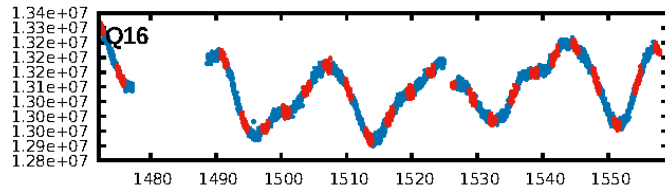
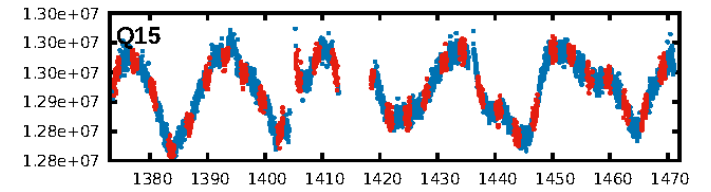
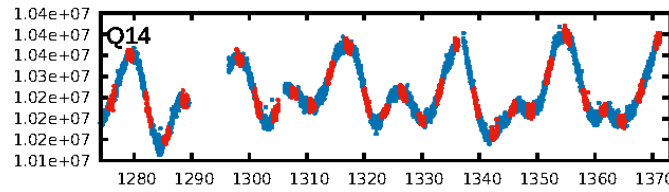
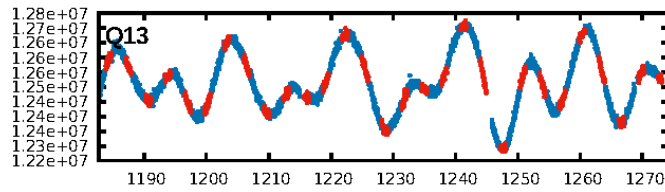
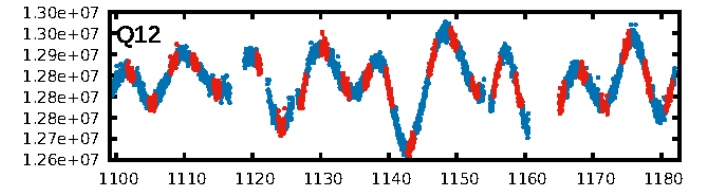
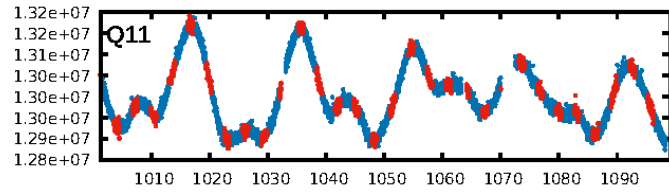
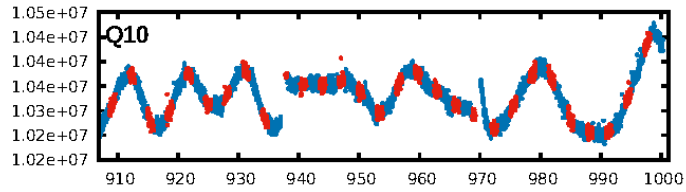
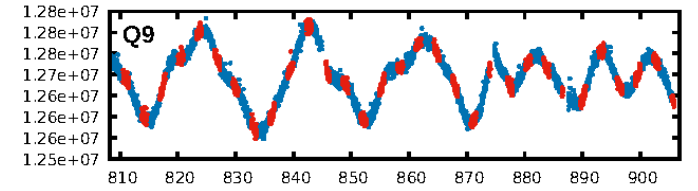
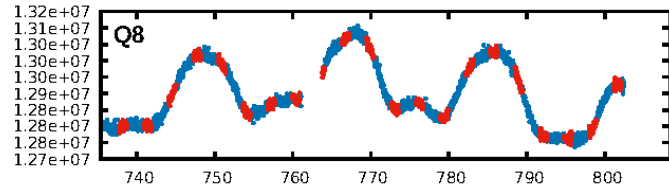
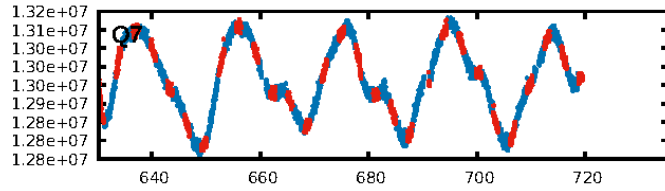
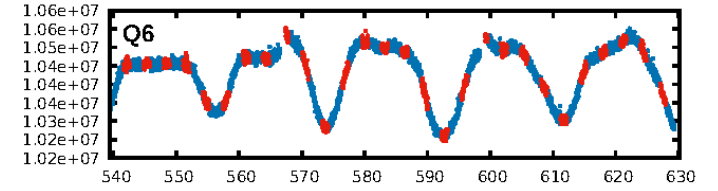
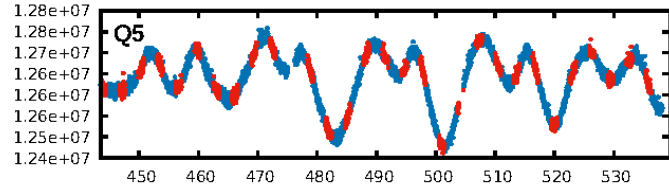
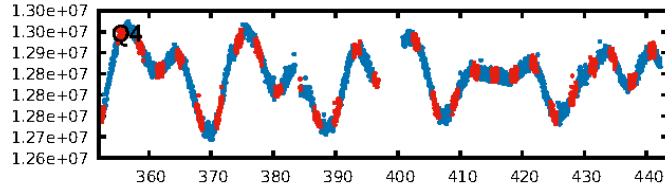
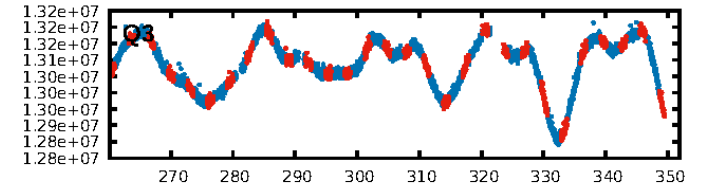
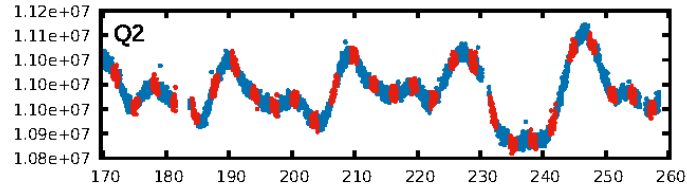
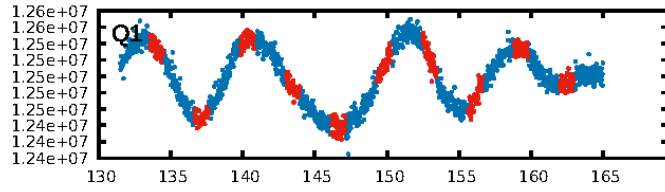
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [414.19 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.01e-17
RollingBand-fgt: 1.00 [412/412]
GhostDiagnostic-chr: 1.467
Centroid-sig: 50.6%
Centroid-so: 1.376 arcsec [1.25 σ]
OotOffset-rm: 6.126 arcsec [6.93 σ]
KicOffset-rm: 6.066 arcsec [6.36 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.38 [6/16]
DiffImageOverlap-fno: 1.00 [17/17]

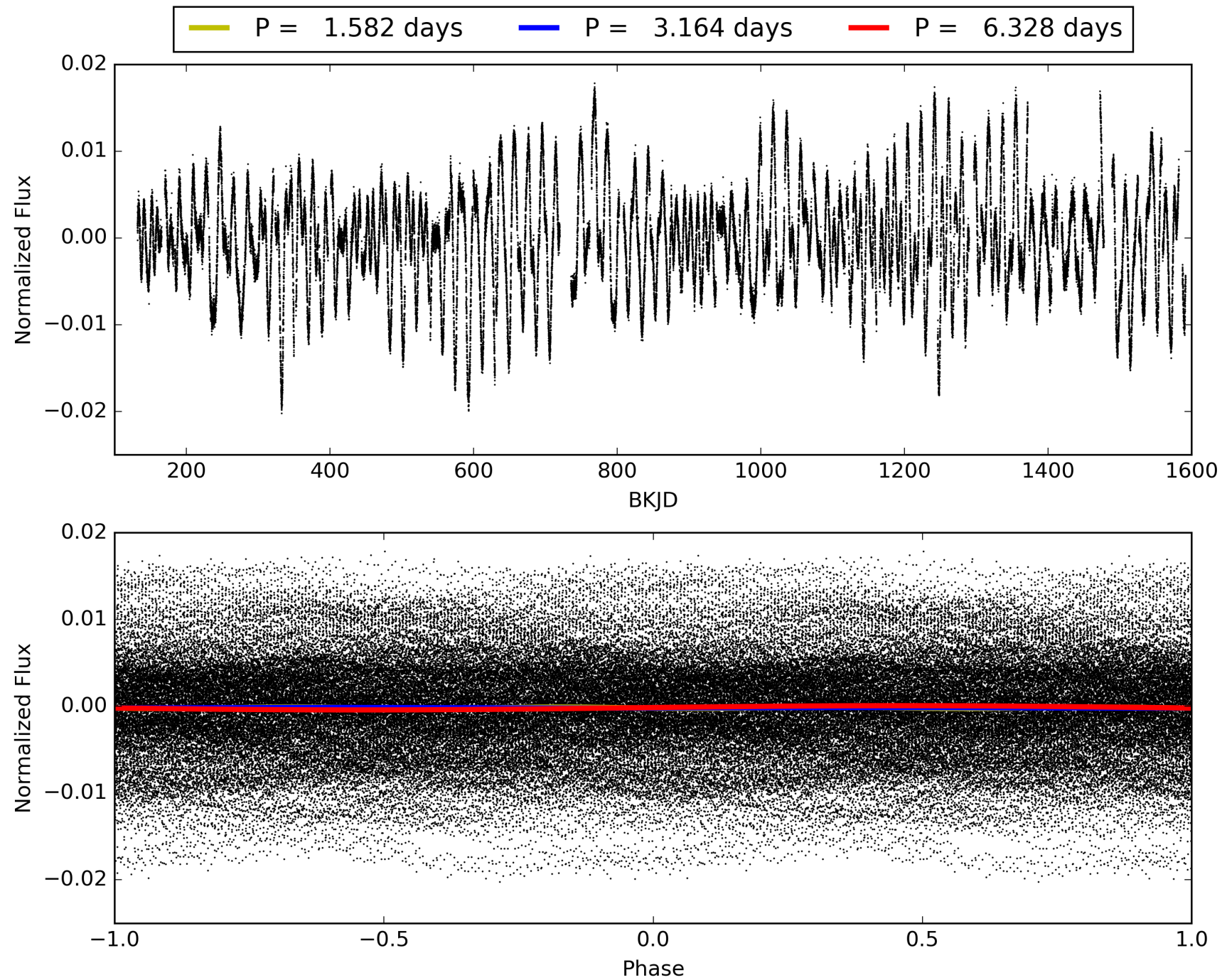
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 07:44:30 Z

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

TCE 004136396-01, PDC Light Curves

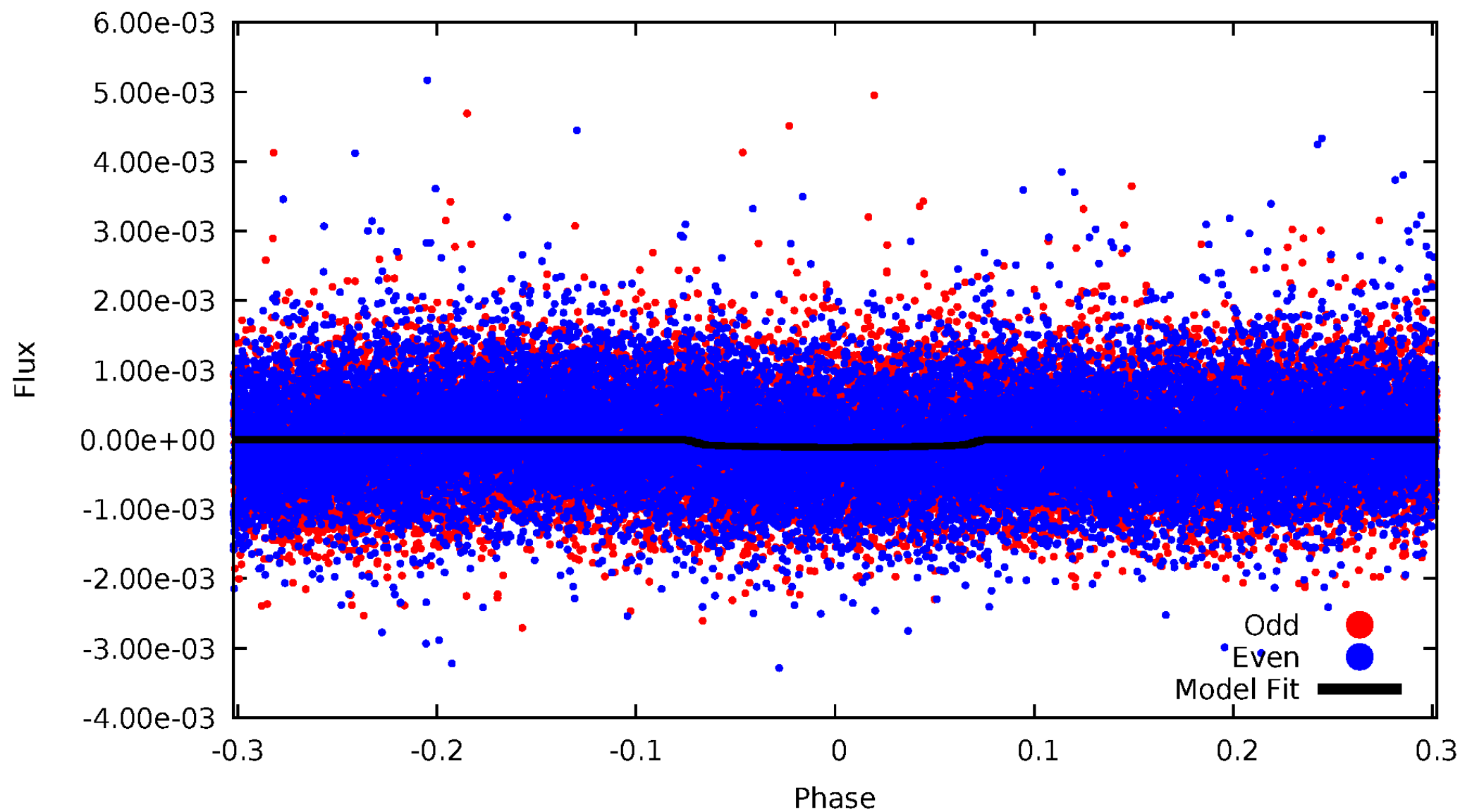


TCE 004136396-01



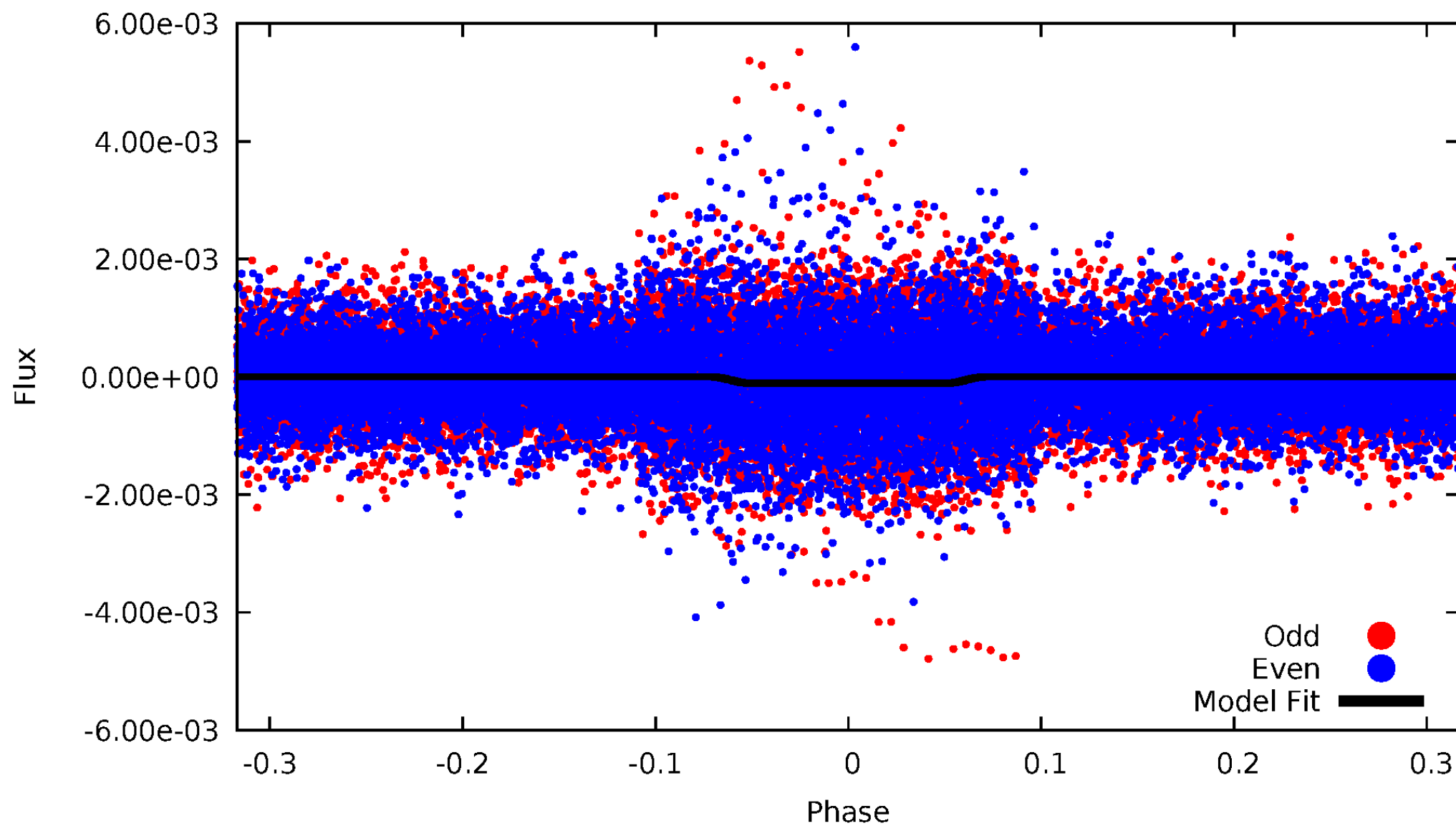
DV Odd/Even

TCE 004136396-01



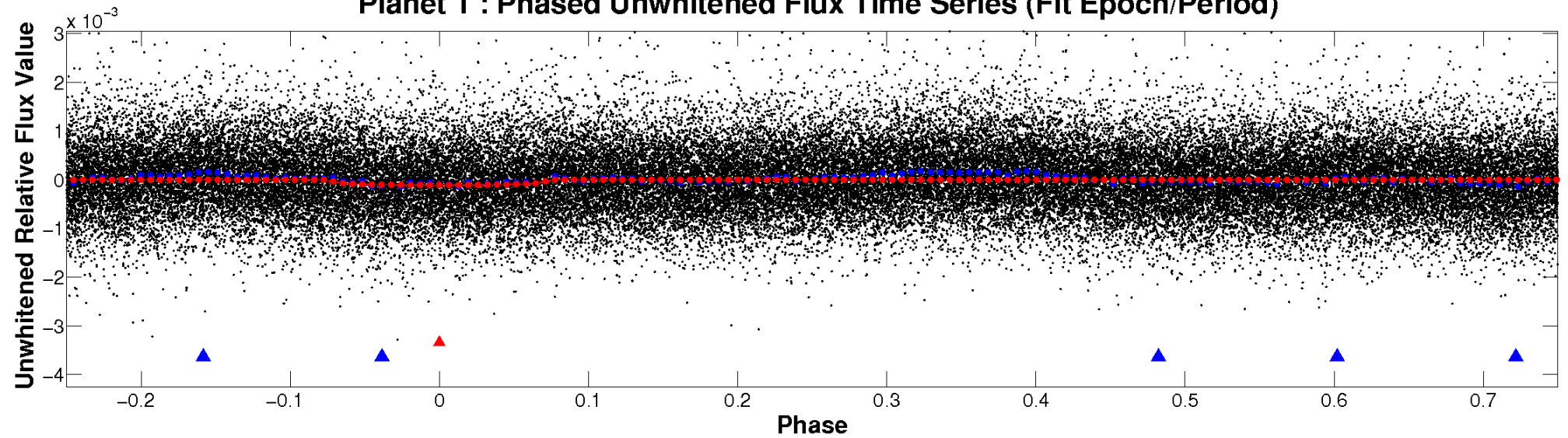
ALT Odd/Even

TCE 004136396-01

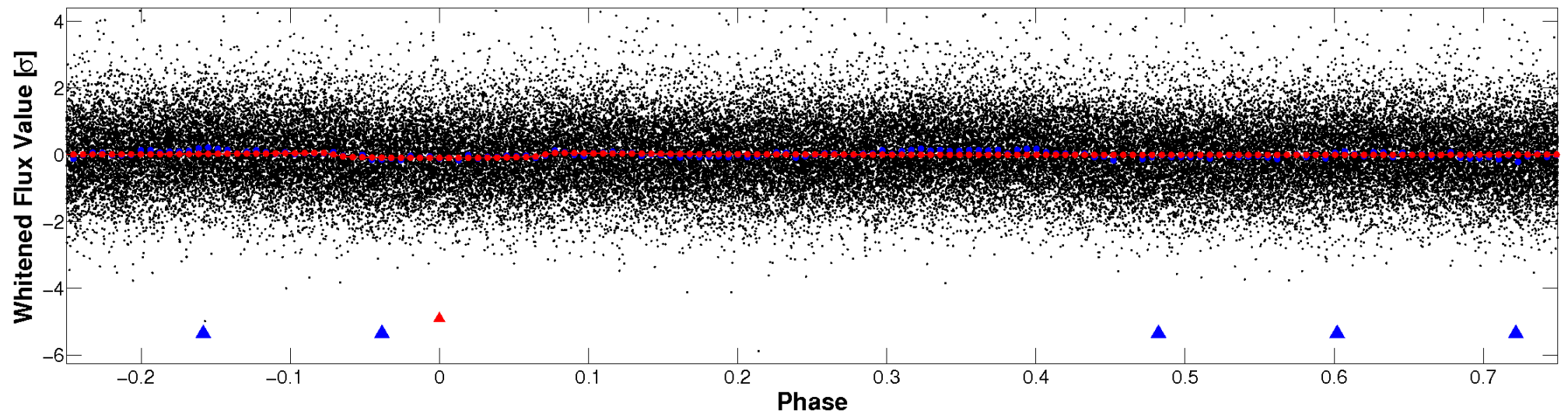


Non-Whitened Vs. Whitened Light Curve

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

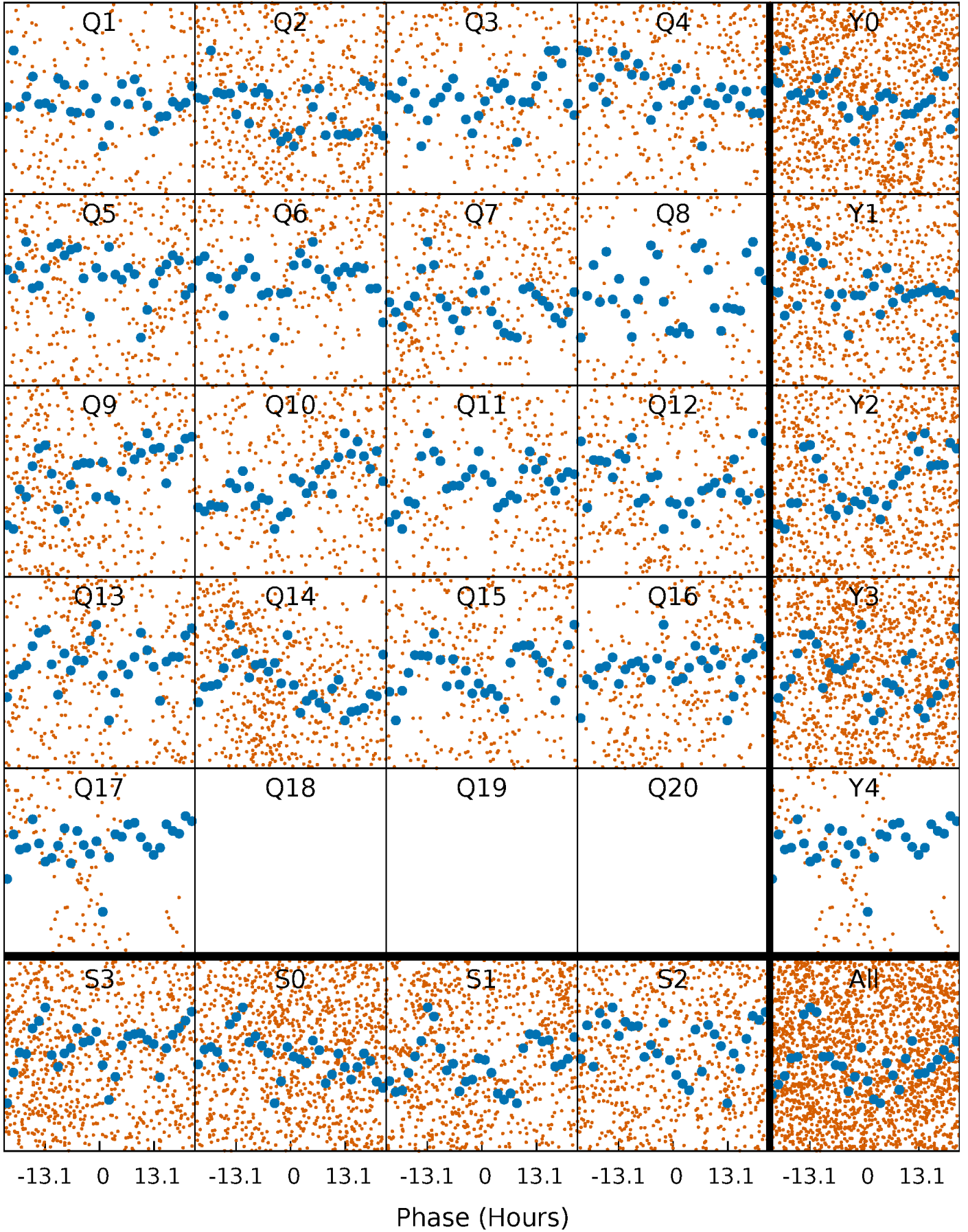


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



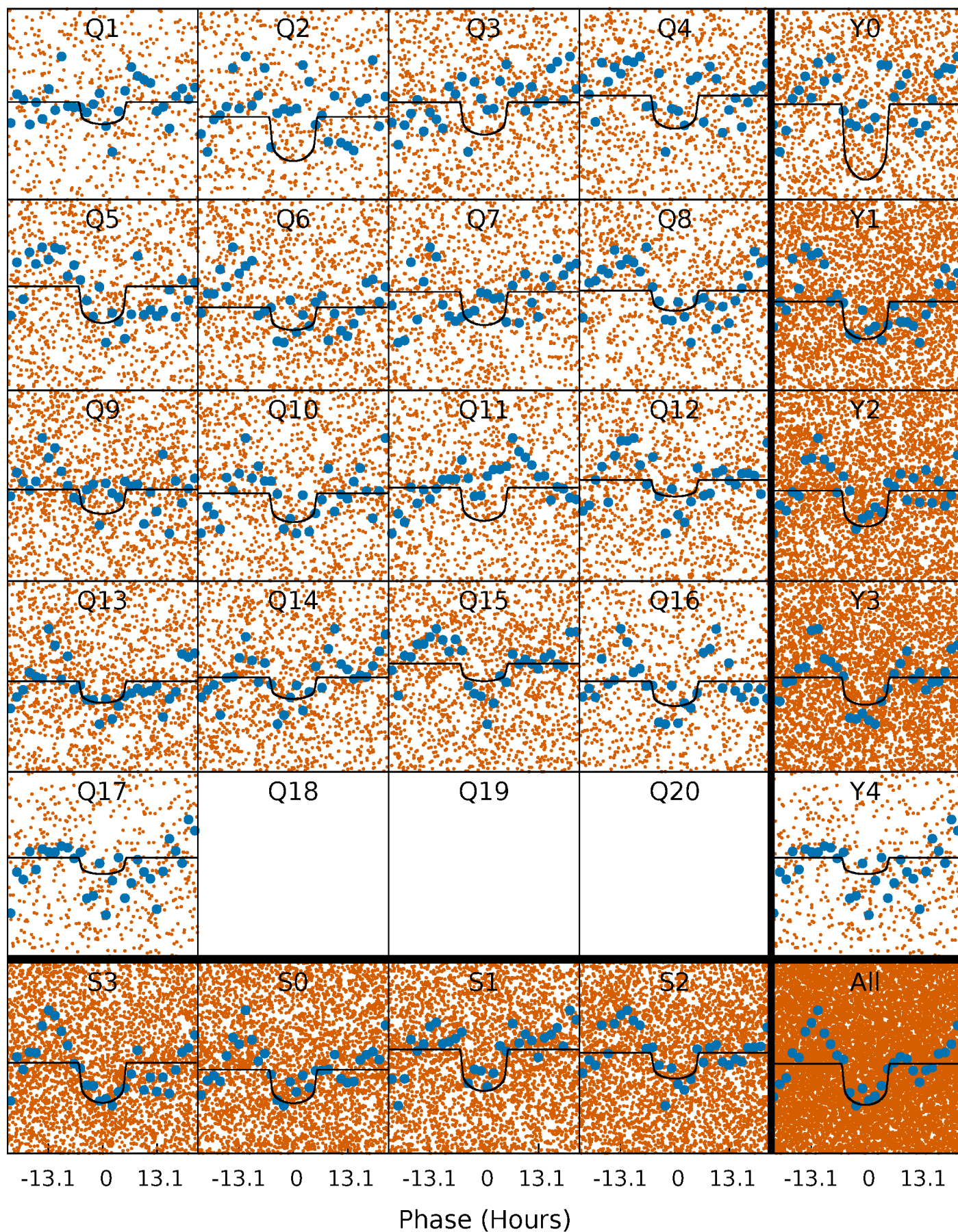
PDC Quarter-Phased Transit Curves

TCE 004136396-01 P= 3.163798 Days $T_0=133.976074$ (BKJD)



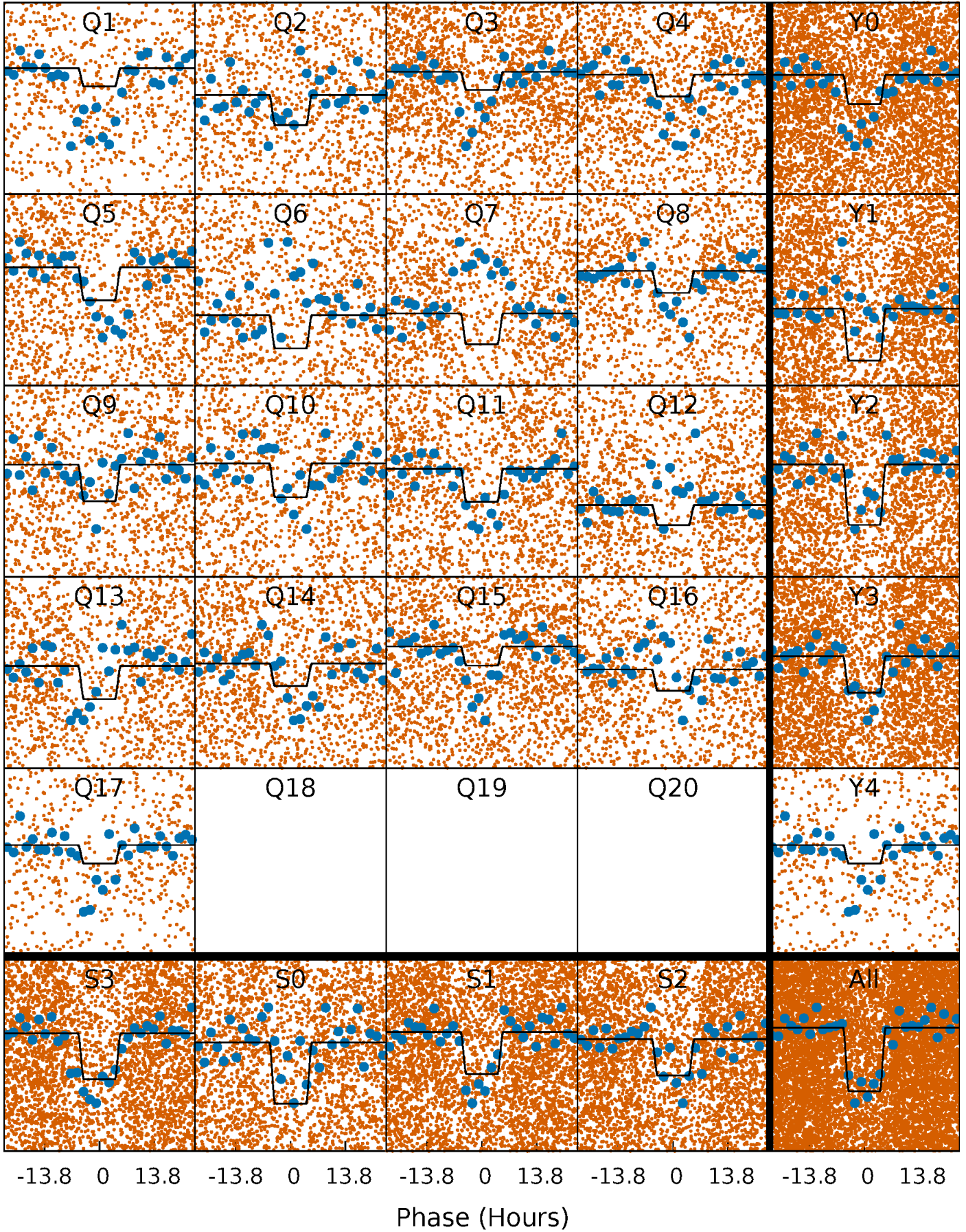
DV Quarter-Phased Transit Curves

TCE 004136396-01 P= 3.163798 Days $T_0=133.976074$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

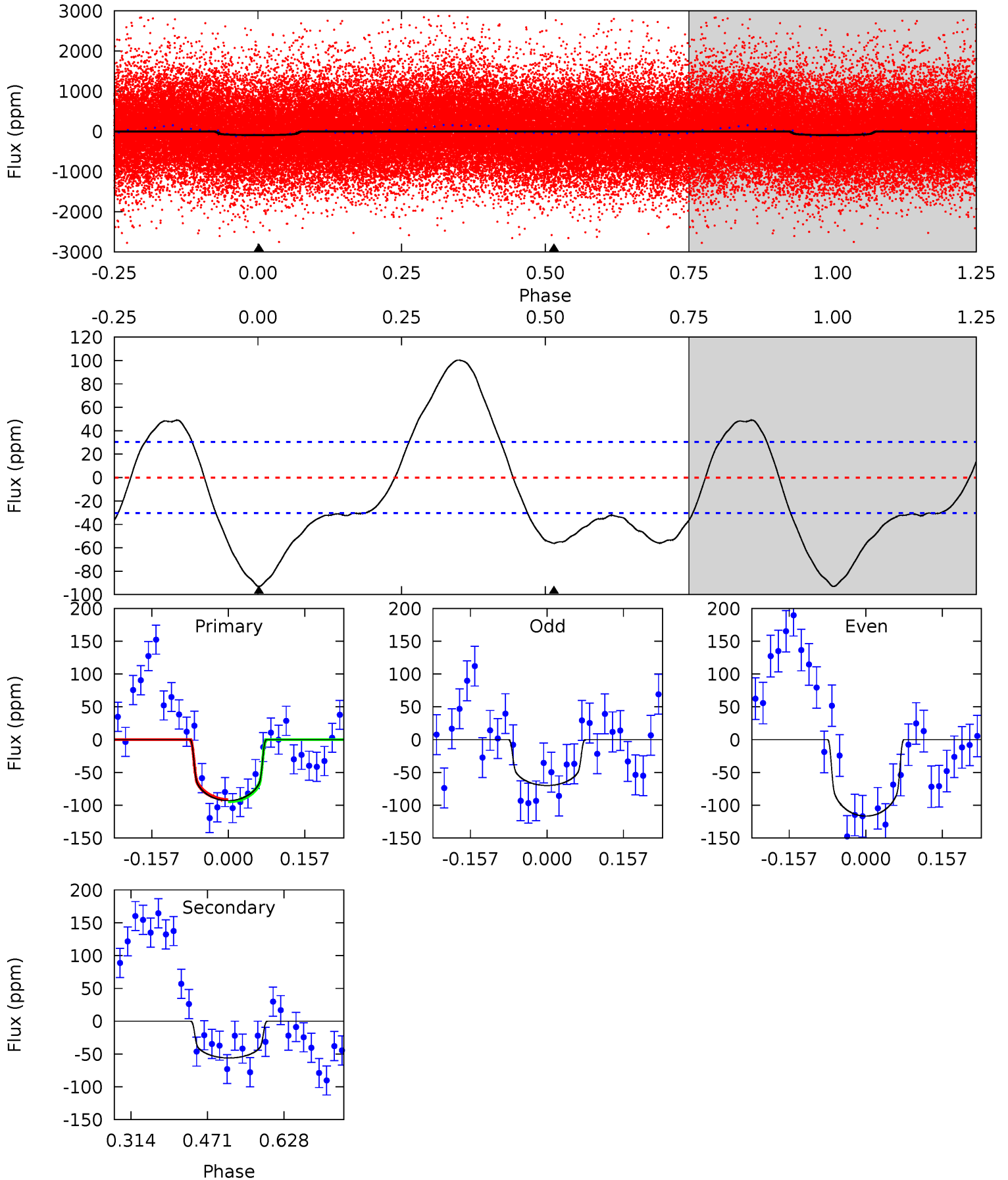
TCE 004136396-01 P= 3.163864 Days $T_0=133.964049$ (BKJD)



DV Model-Shift Uniqueness Test

004136396-01, P = 3.163798 Days, E = 130.812276 Days

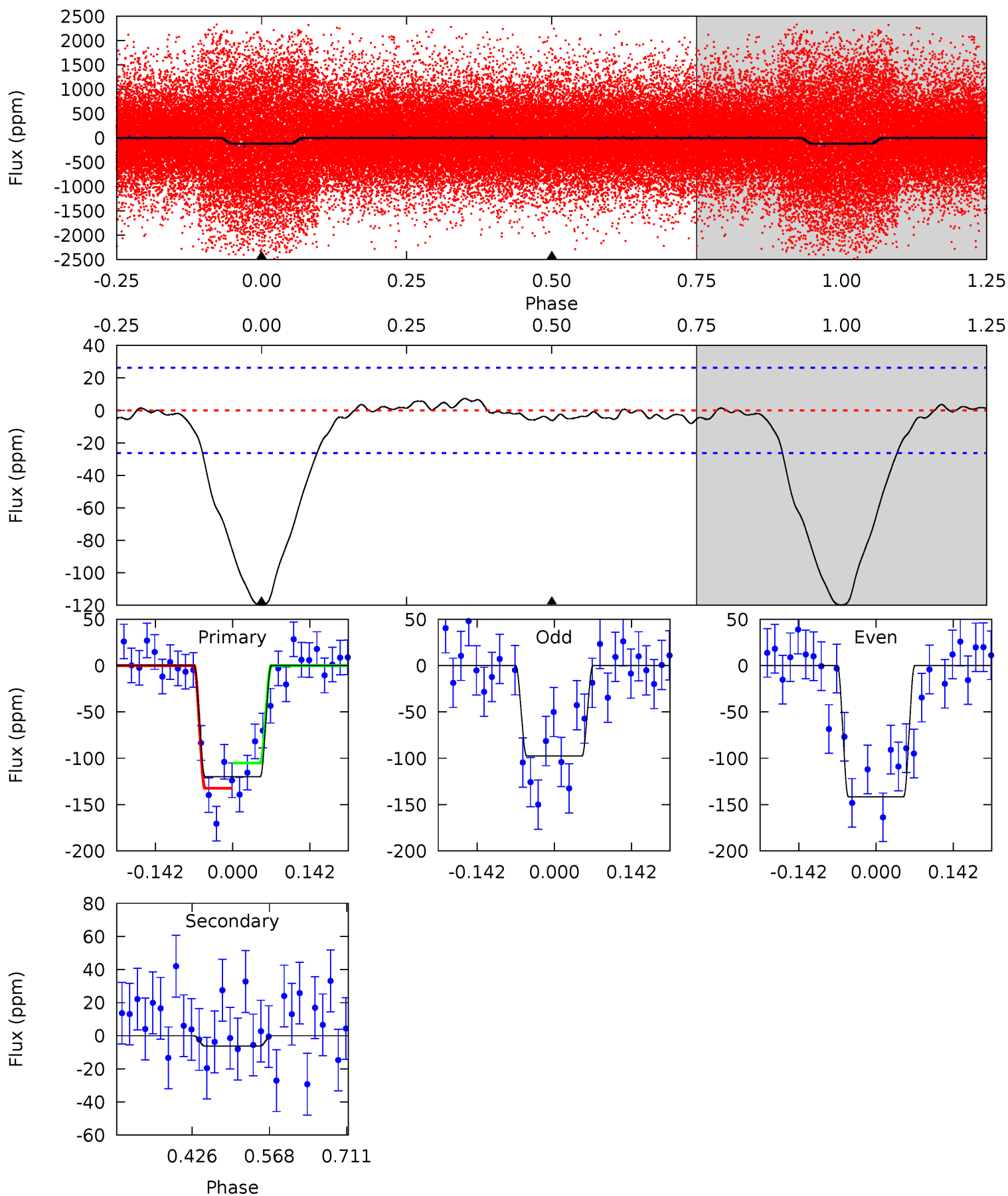
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	8.24	0	0	4.47	1.42	7.22	13.7	13.7	8.24	8.24	3.44	1.23	0.52	0.22



Alt Model-Shift Uniqueness Test

004136396-01, P = 3.163864 Days, E = 130.800185 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	1.06	0	0	4.49	1.47	0.60	20.5	20.5	1.06	1.06	3.75	1.05	0.06	2.31



Stellar Parameters For KIC 004136396

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5247^{+158}_{-142}	$4.609^{+0.036}_{-0.096}$	$-0.200^{+0.300}_{-0.300}$	$0.744^{+0.112}_{-0.060}$	$0.833^{+0.069}_{-0.103}$	$2.848^{+0.484}_{-0.819}$
	+3%/-3%	+1%/-2%	+150%/-150%	+15%/-8%	+8%/-12%	+17%/-29%
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 004136396-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-56 ± 7	$0.97^{+0.19}_{-0.19}$	1424^{+63}_{-53}	4398^{+385}_{-338}	50^{+27}_{-15}
Alt.	-6 ± 6	$0.86^{+0.19}_{-0.18}$	1422^{+58}_{-53}	3113^{+418}_{-1337}	$6.750^{+8.477}_{-6.396}$

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

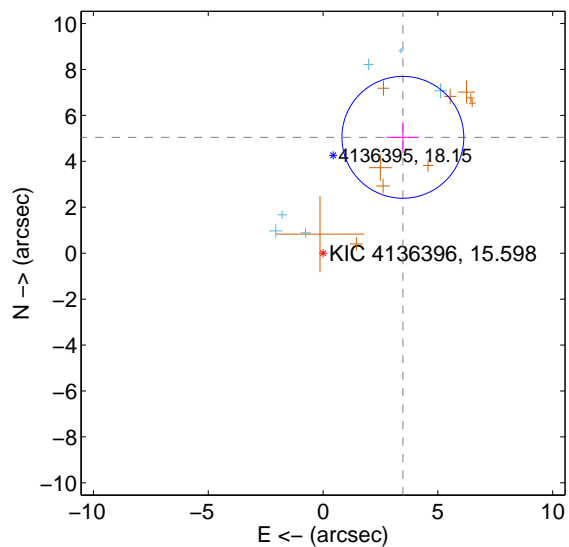
Supplemental centroid analysis for 004136396-01. Kepler magnitude: 15.60. Transit SNR 8.81

There are 6 quarters with good PRF difference image offsets

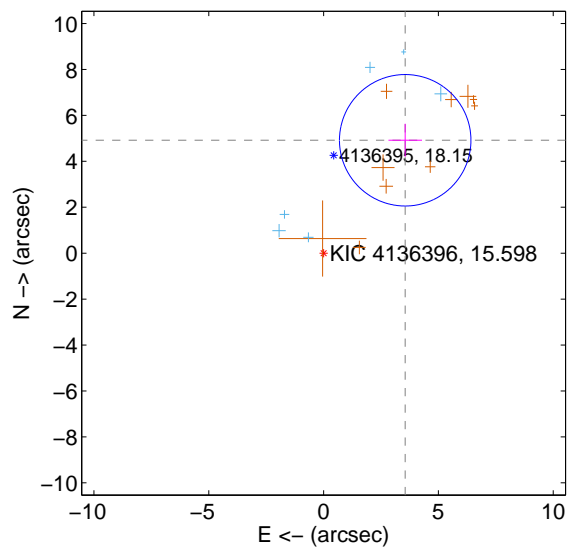
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.126 \pm 0.884	6.93	-3.476 \pm 0.695	5.044 \pm 0.675
PRF-fit source offset from KIC position	6.066 \pm 0.954	6.36	-3.554 \pm 0.730	4.916 \pm 0.720
photometric centroid source offset	1.38 \pm 1.10	1.25	-1.27 \pm 1.11	-0.52 \pm 1.00

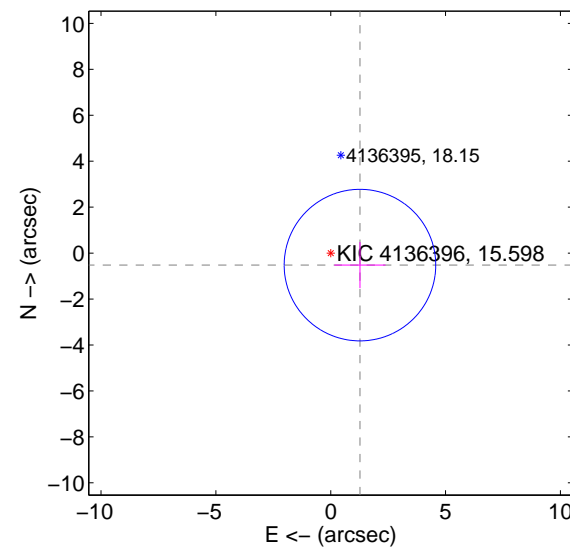
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

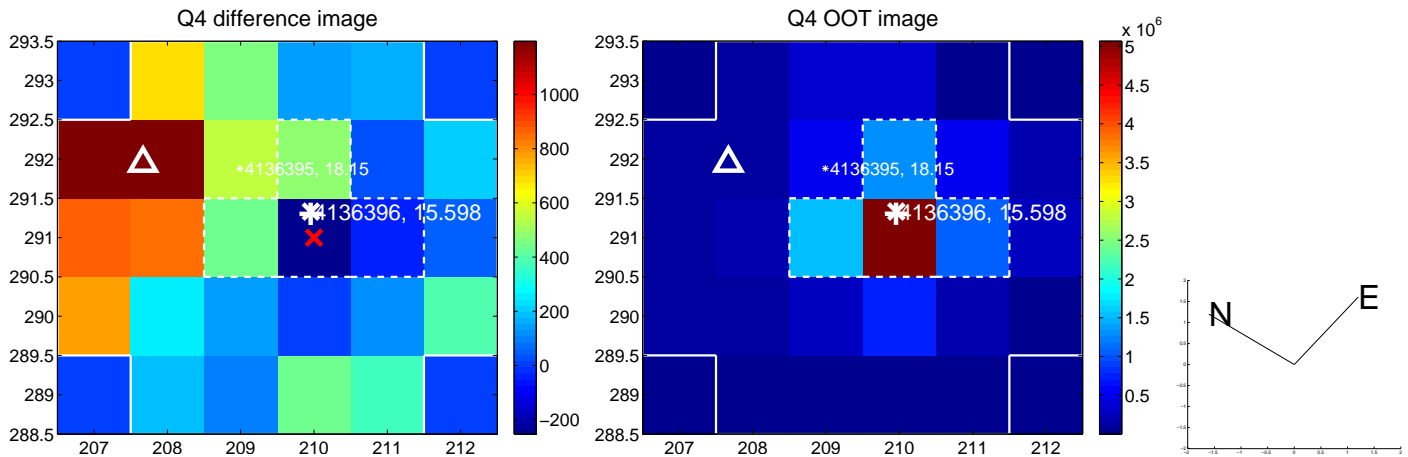
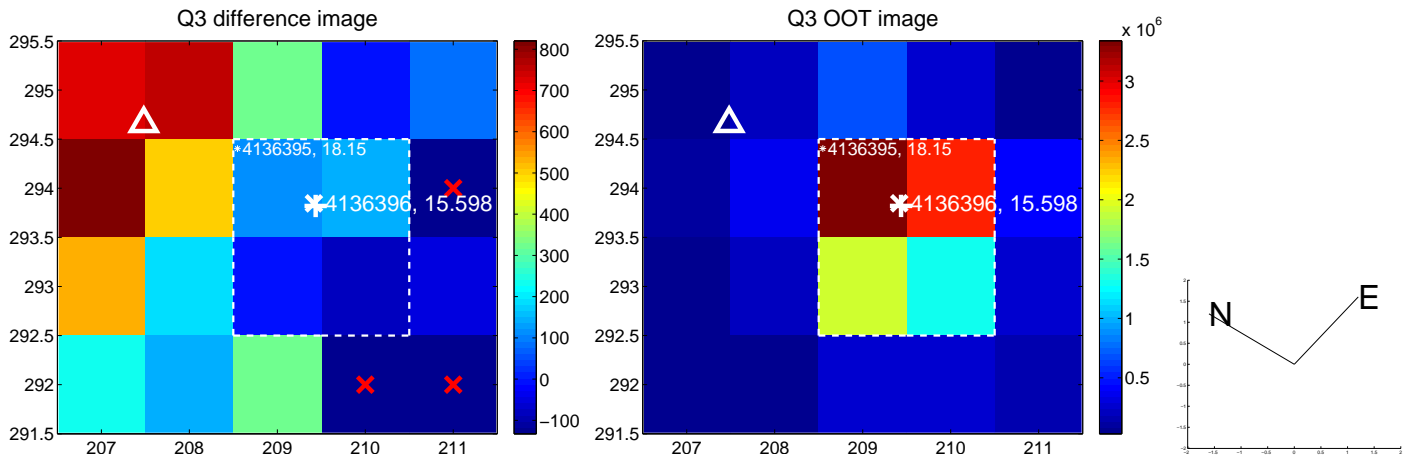
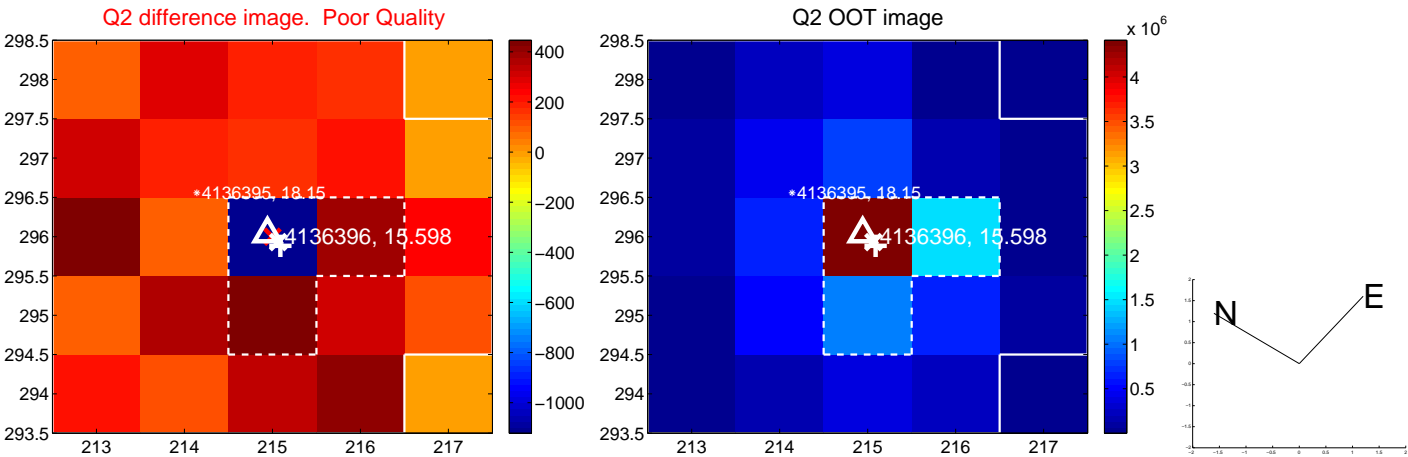
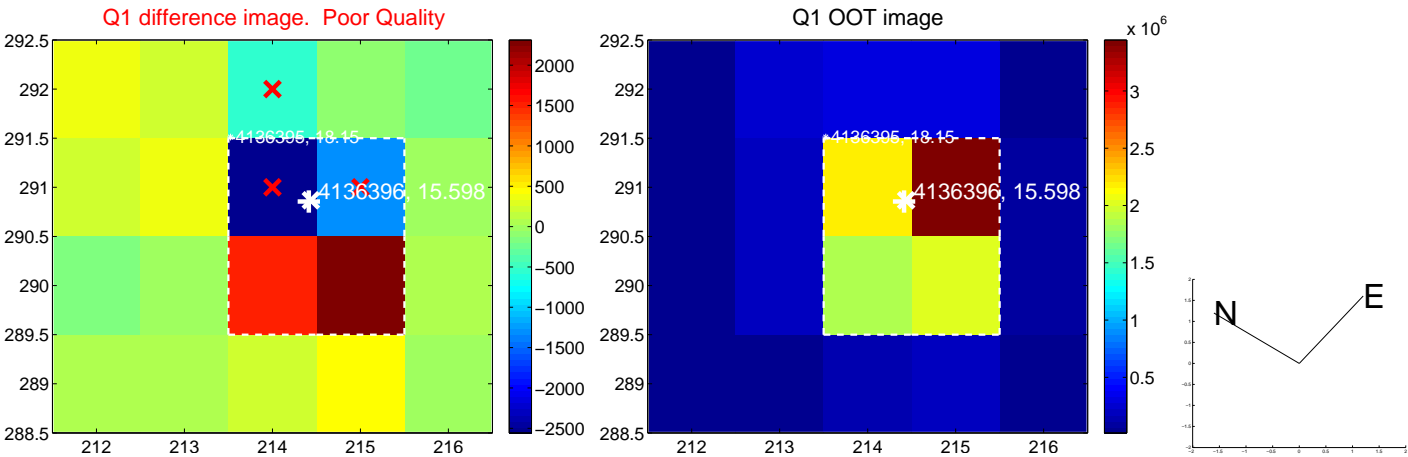


offset from photometric centroids

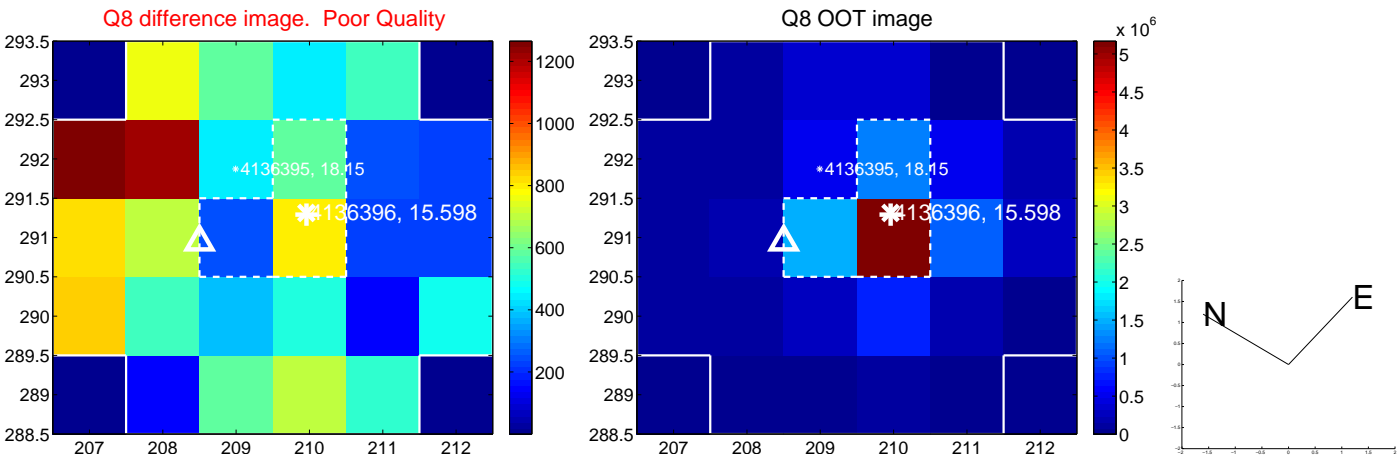
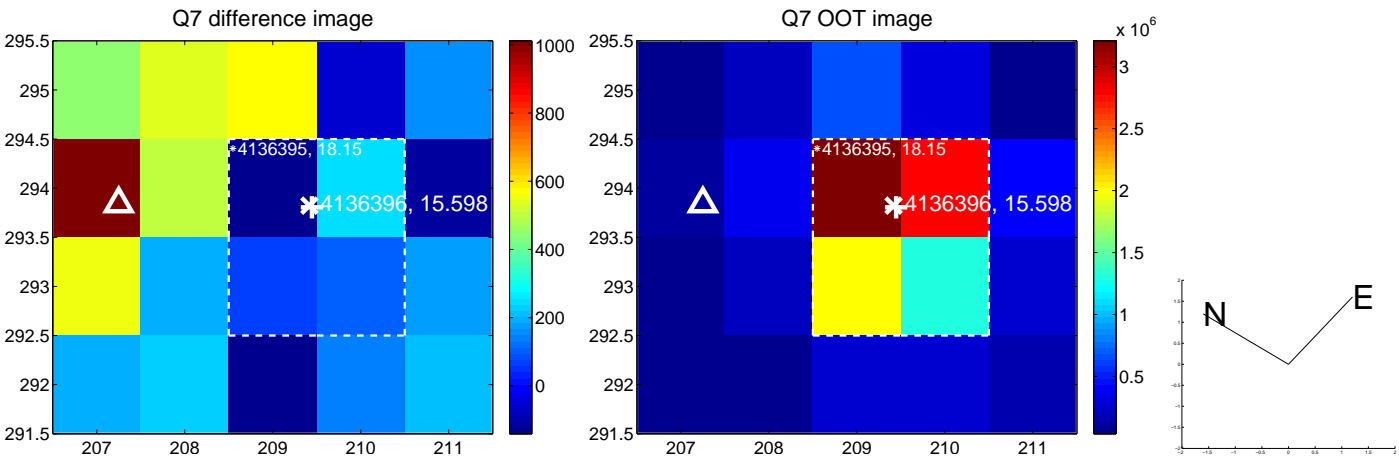
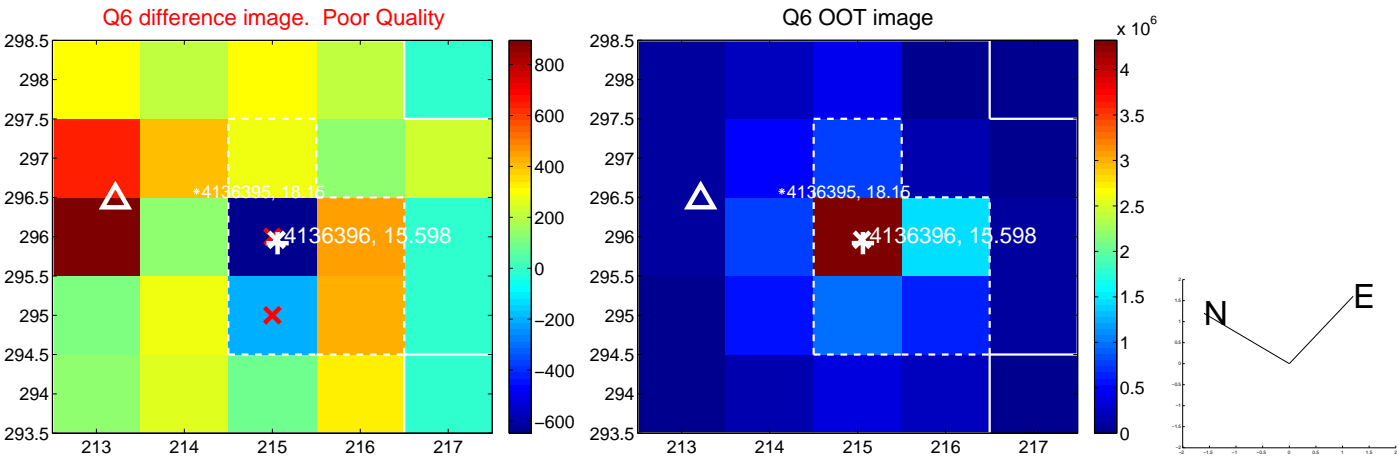
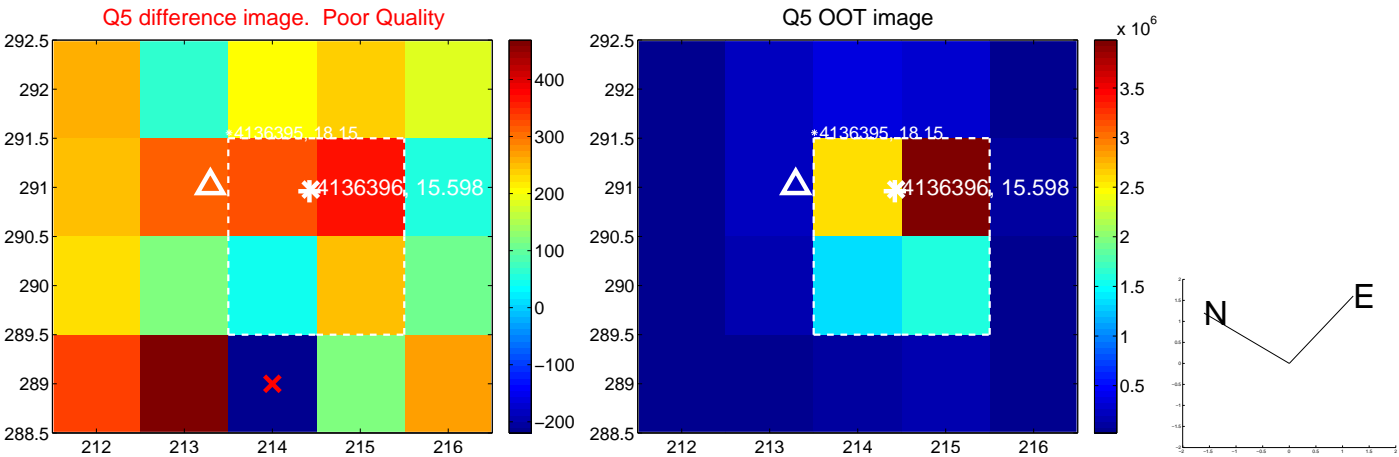


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

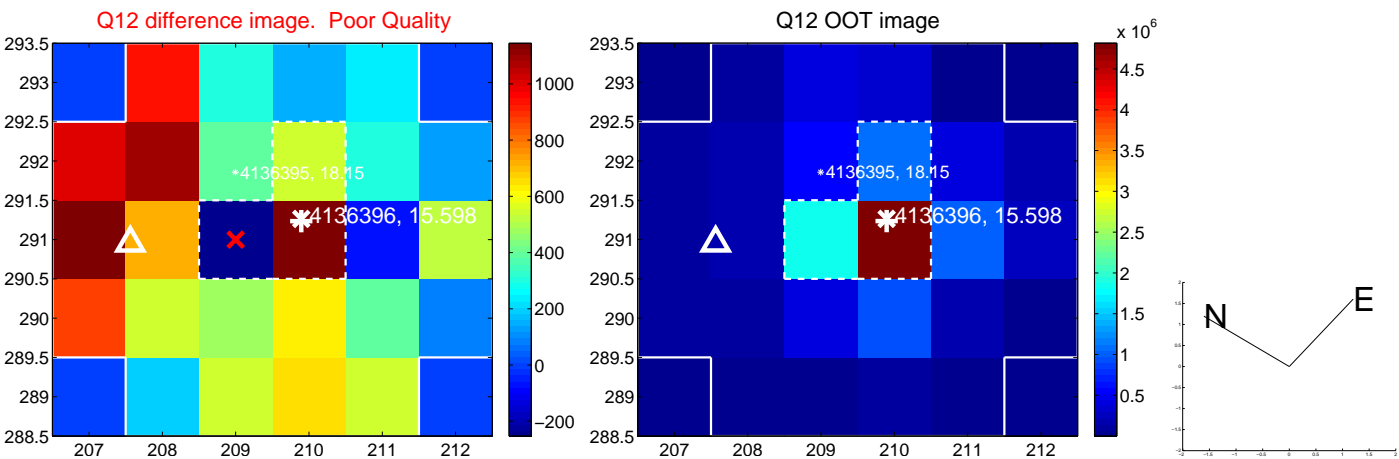
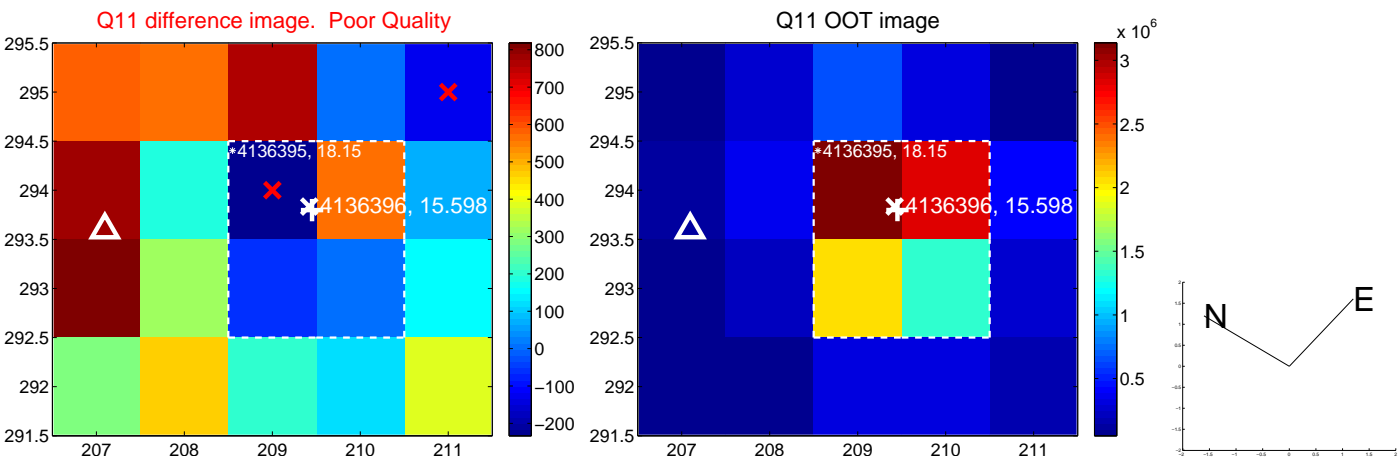
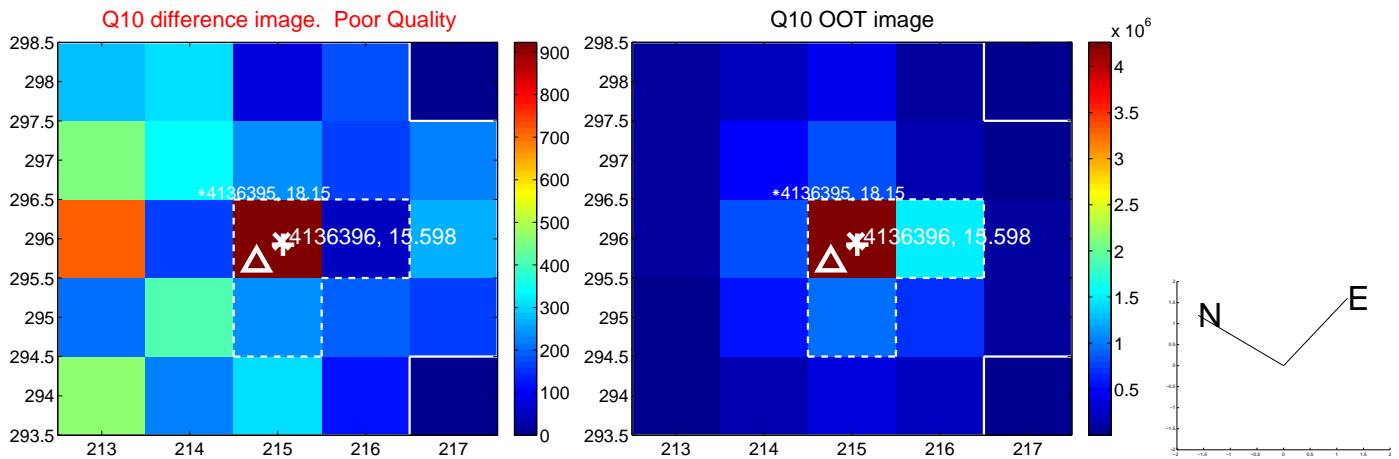
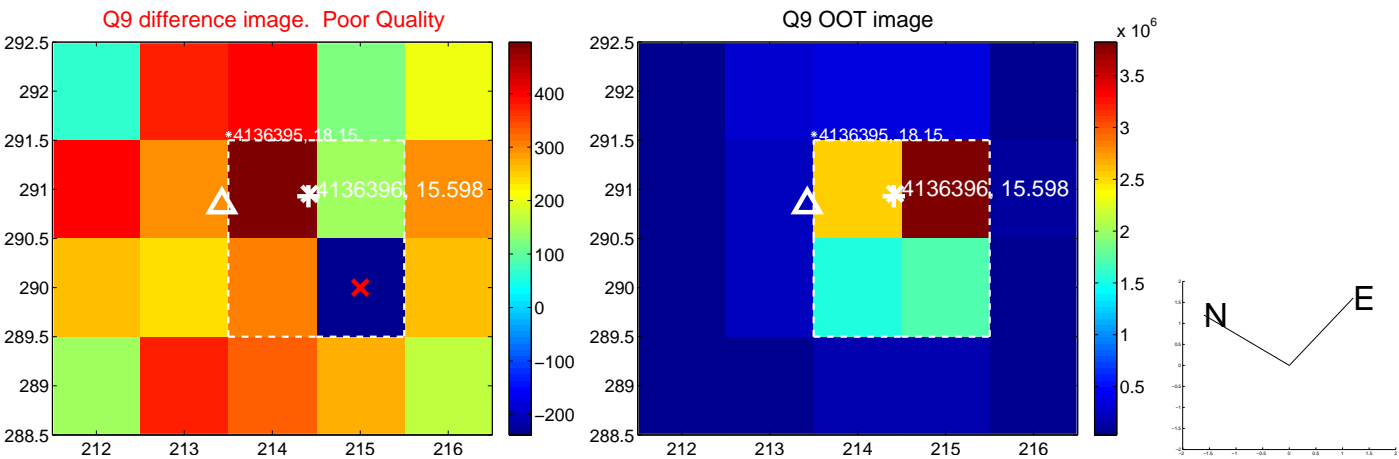
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



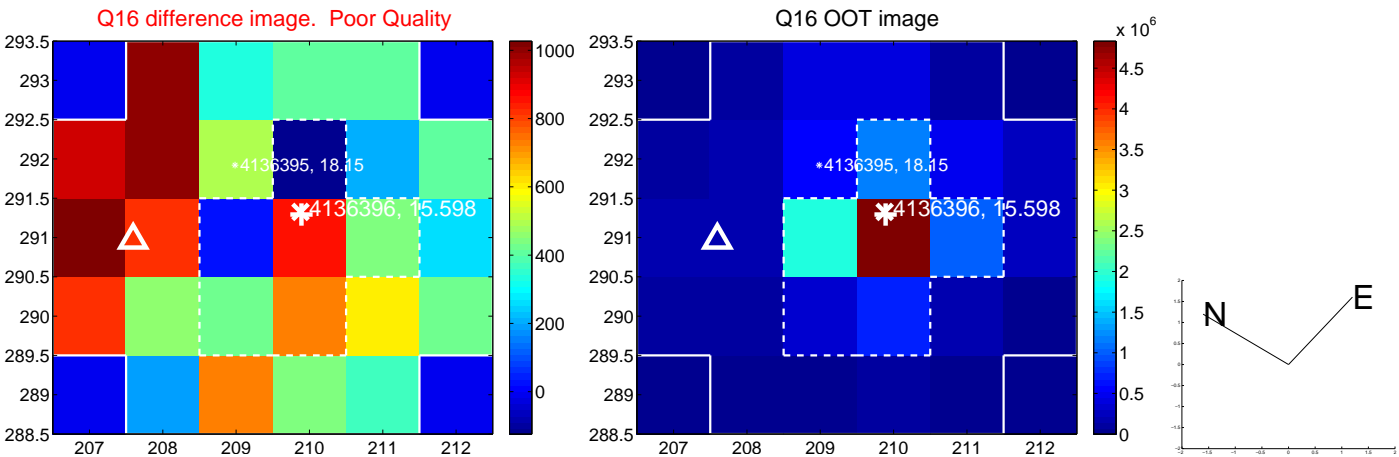
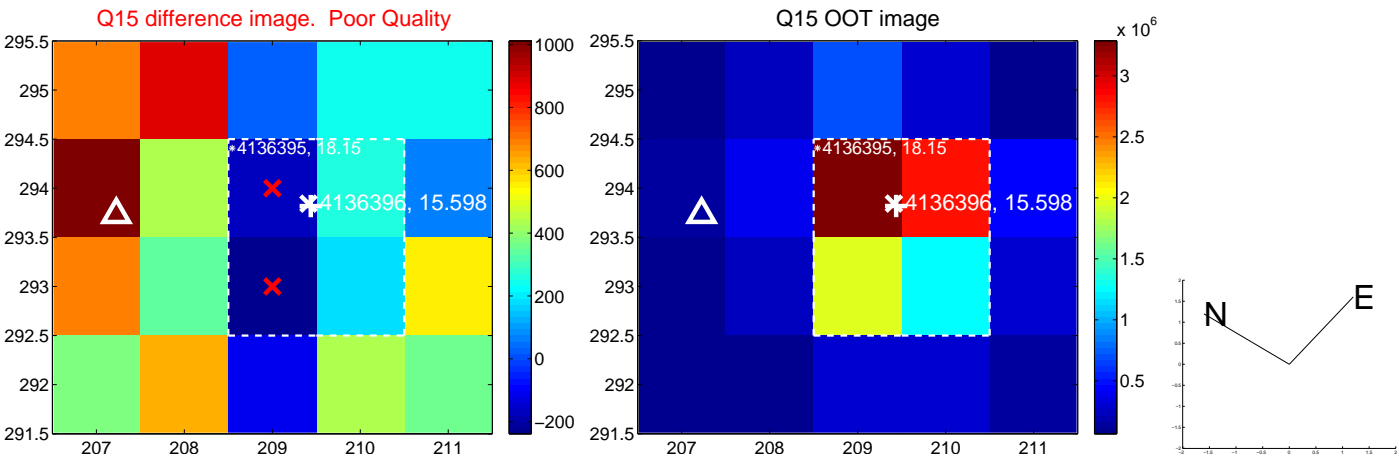
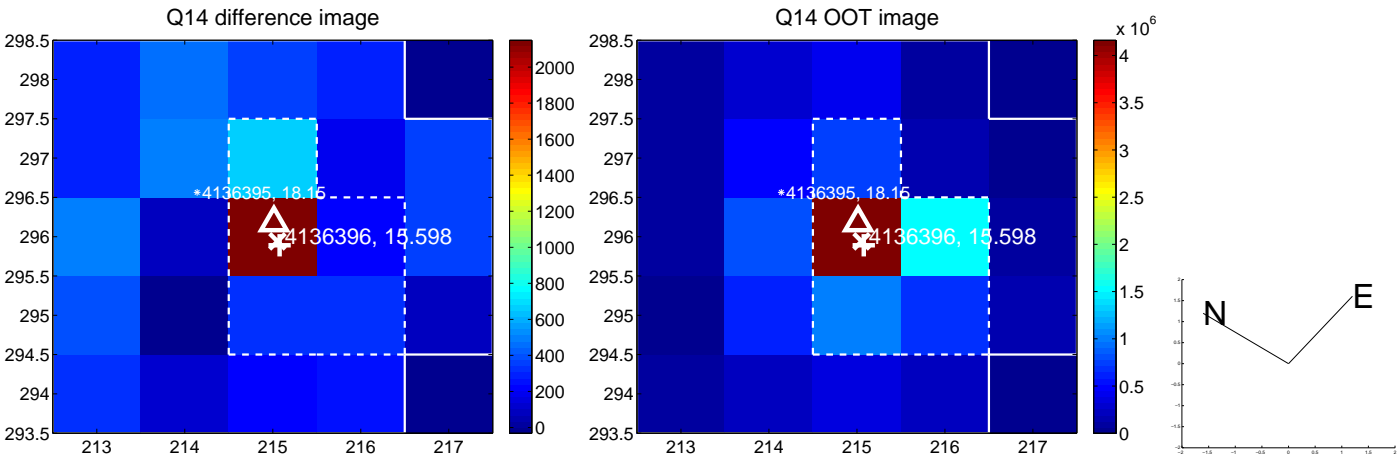
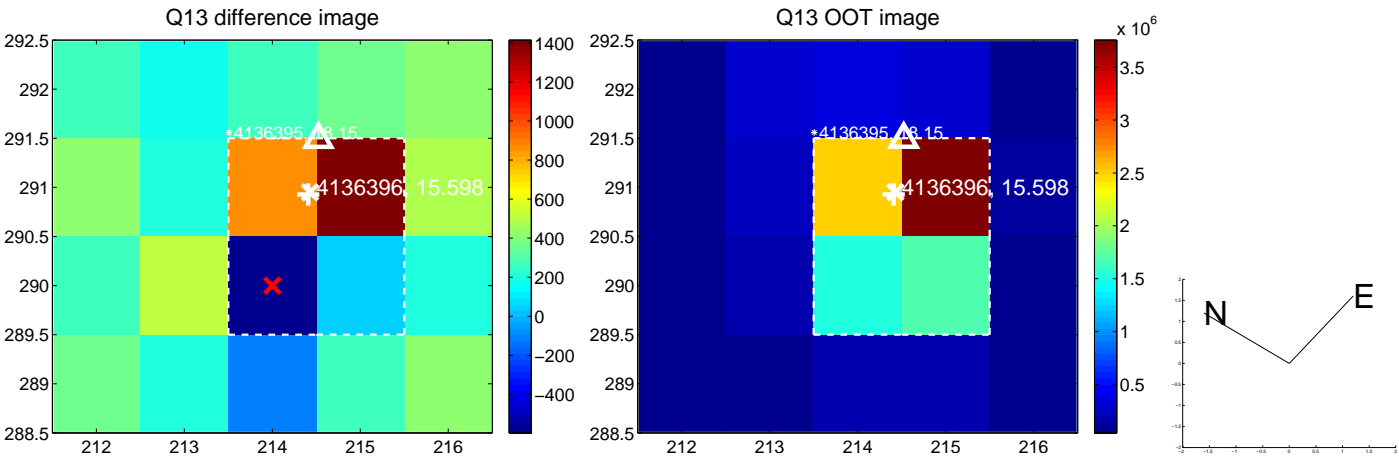
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



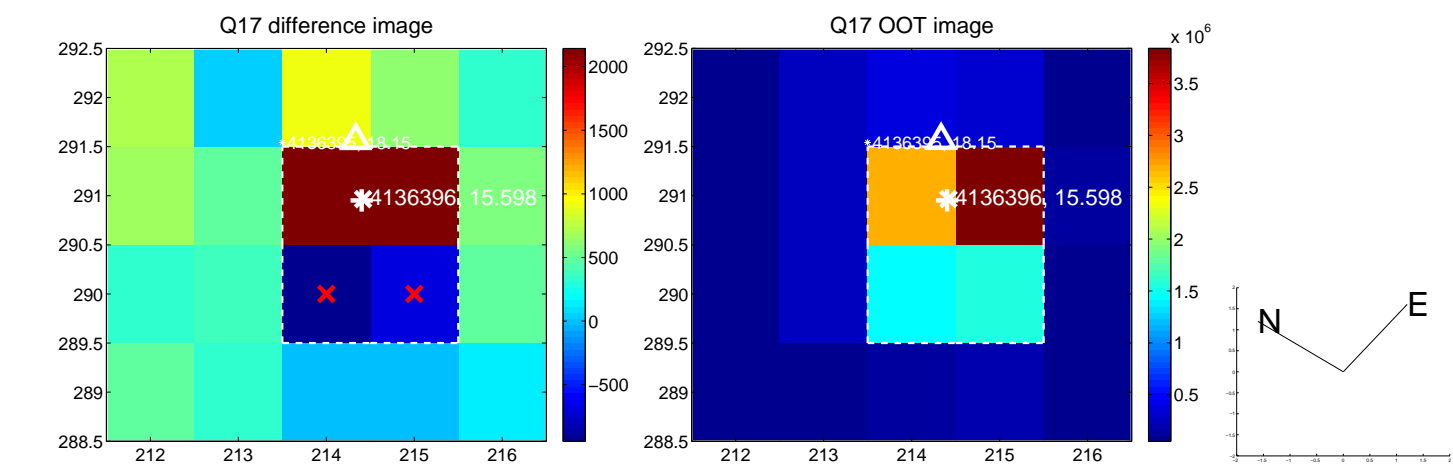
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



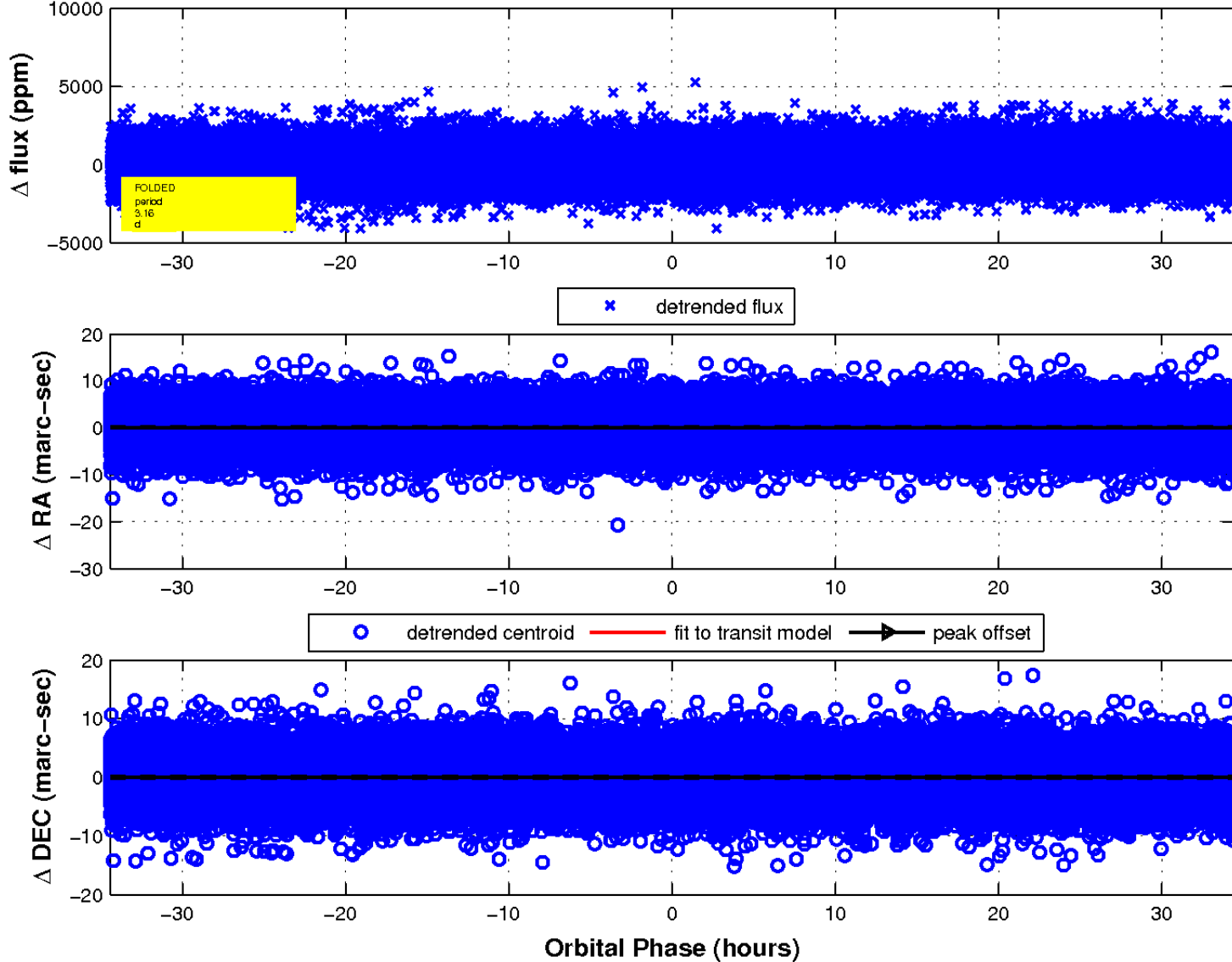
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

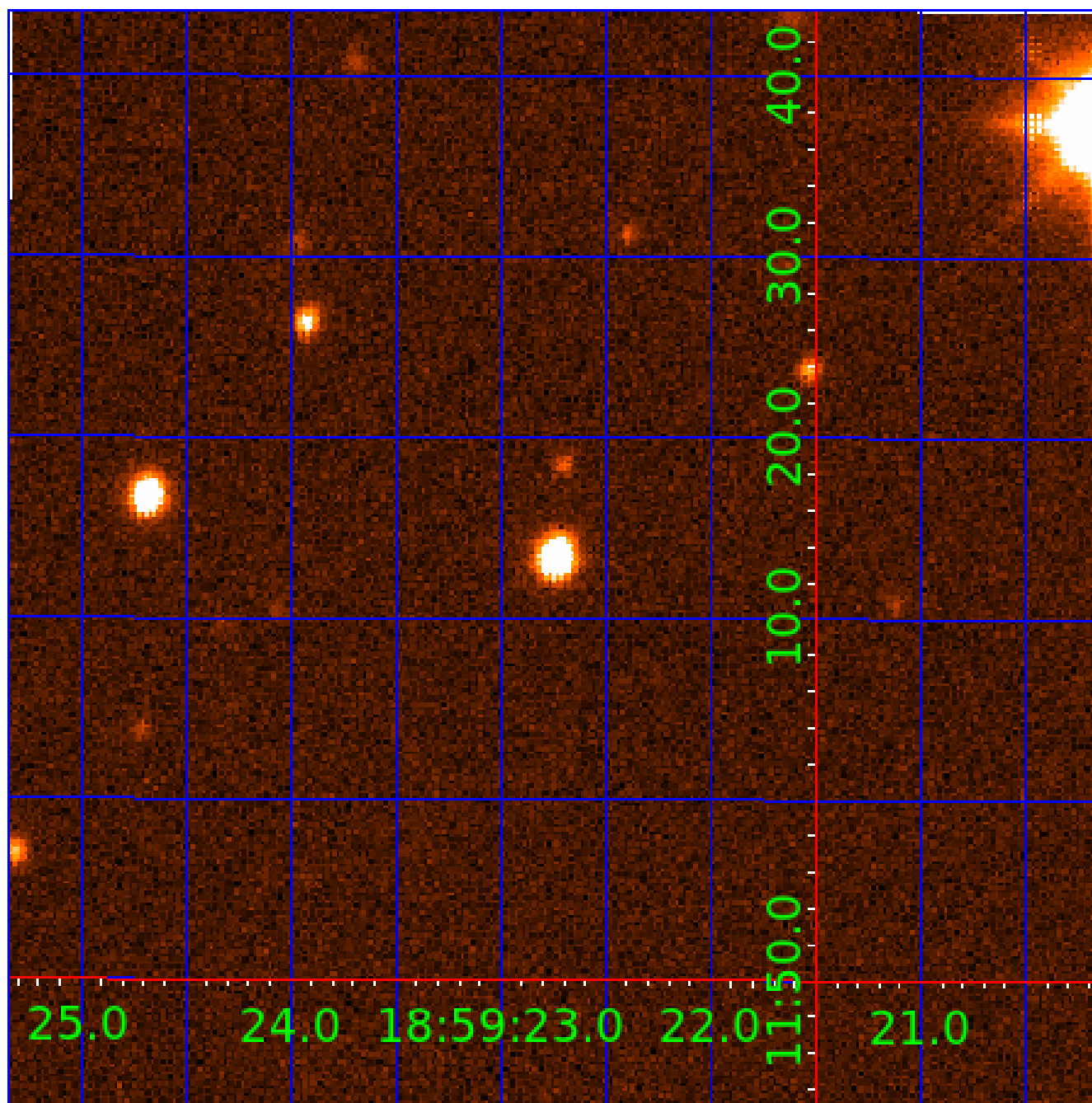


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 004136396

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})
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Robovetter Results

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004136396-01	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
004136396-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

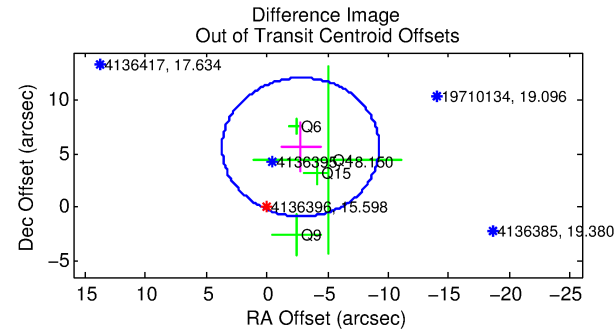
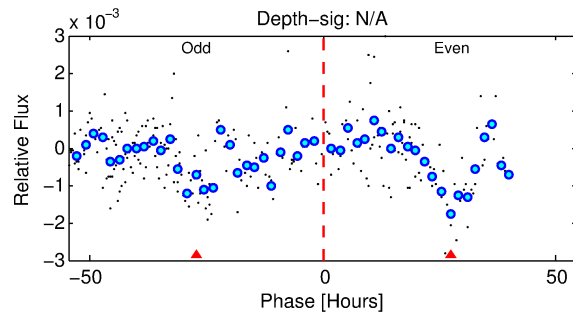
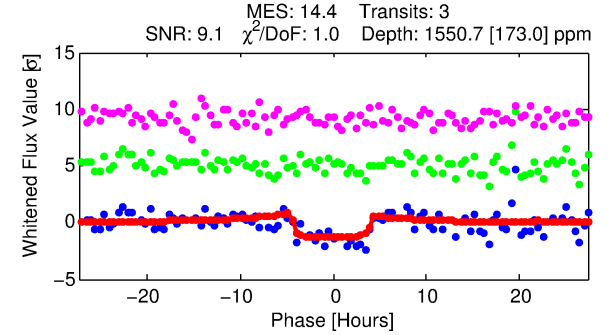
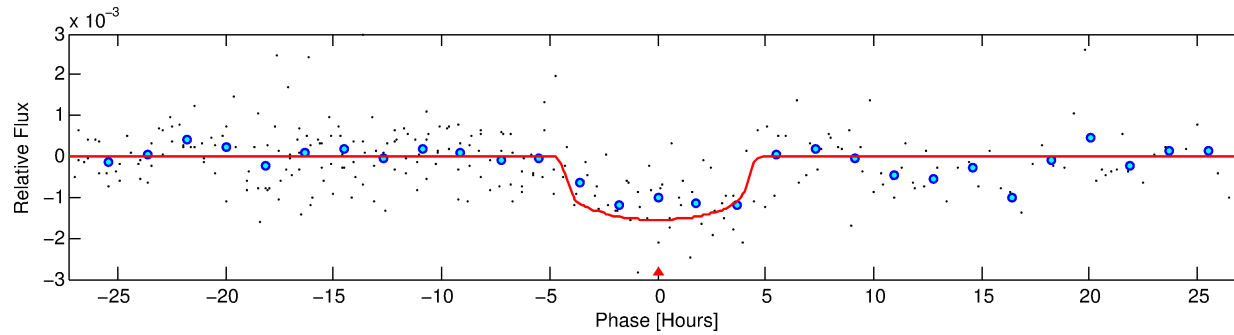
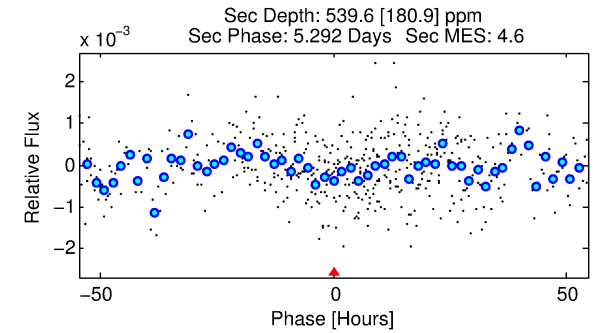
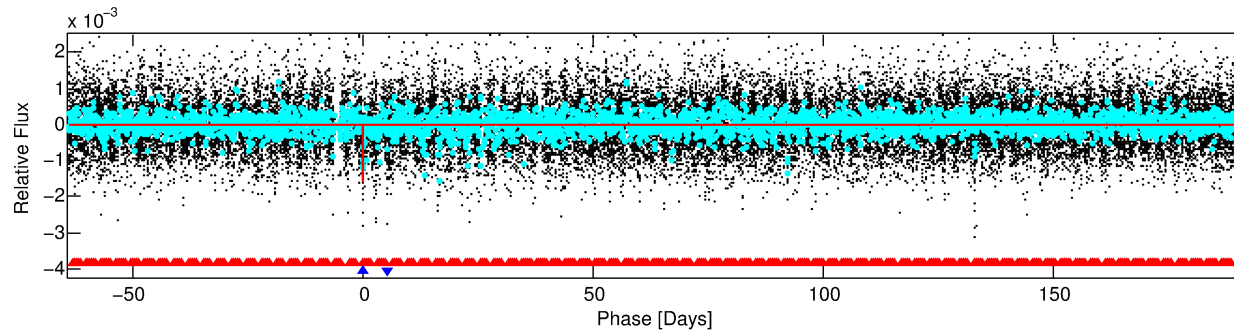
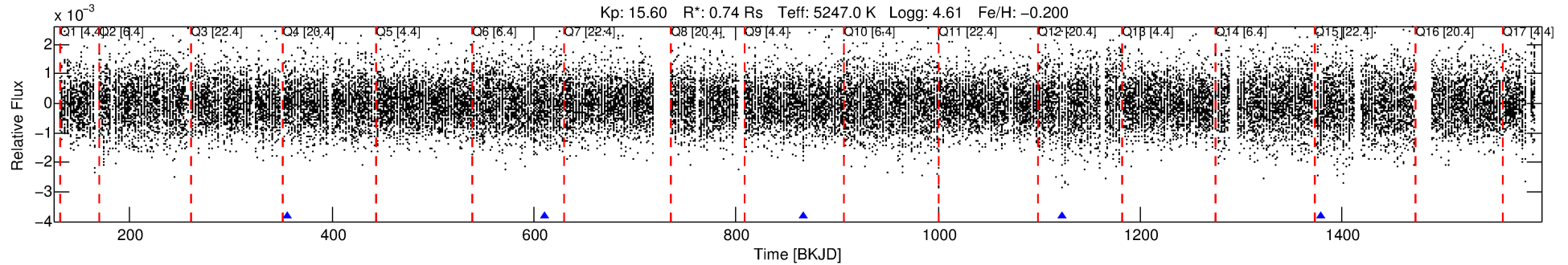
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004136396-02

No Significant Match Found

DV One-Page Summary

KIC: 4136396 Candidate: 2 of 2 Period: 255.889 d



DV Fit Results:

Period = 255.88855 [0.00847] d
Epoch = 355.3202 [0.0284] BKJD
Rp/R* = 0.0374 [0.0184]
a/R* = 180.91 [332.96]
b = 0.61 [1.95]
Seff = 0.69 [0.15]
Teq = 232 [12] K
Rp = 3.04 [1.57] Re
a = 0.7387 [0.0920] AU
Ag = 17554.65 [18540.43] [0.95σ]
Teffp = 4134 [1083] K [3.60σ]

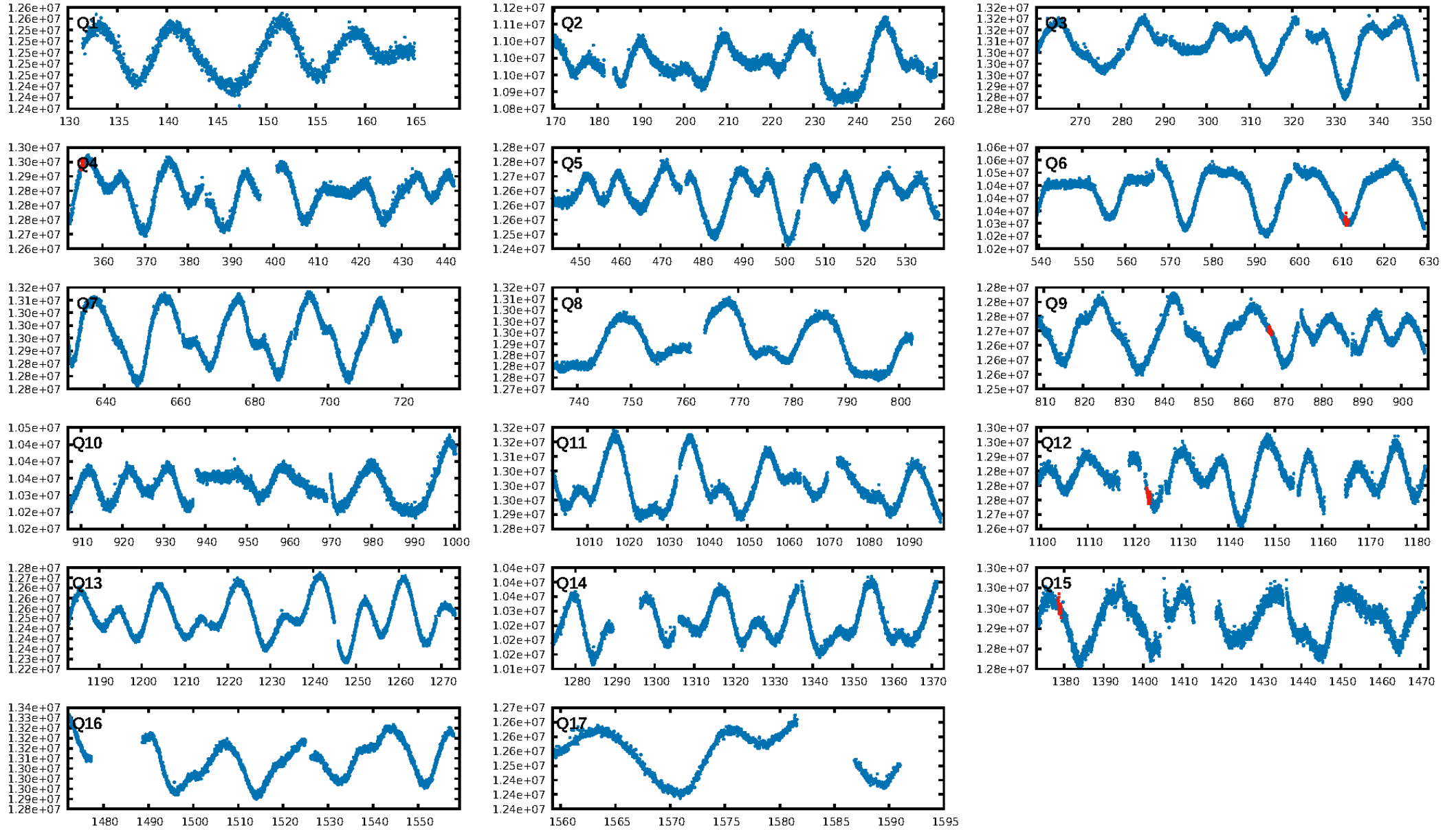
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [414.19σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.5%
ModelChiSquareGof-sig: 97.0%
Bootstrap-pfa: 5.96e-17
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.747
Centroid-sig: 7.8%
Centroid-so: 1.467 arcsec [1.86σ]
OotOffset-rm: 6.281 arcsec [2.91σ]
KicOffset-rm: 6.089 arcsec [2.82σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 0.25 [1/4]

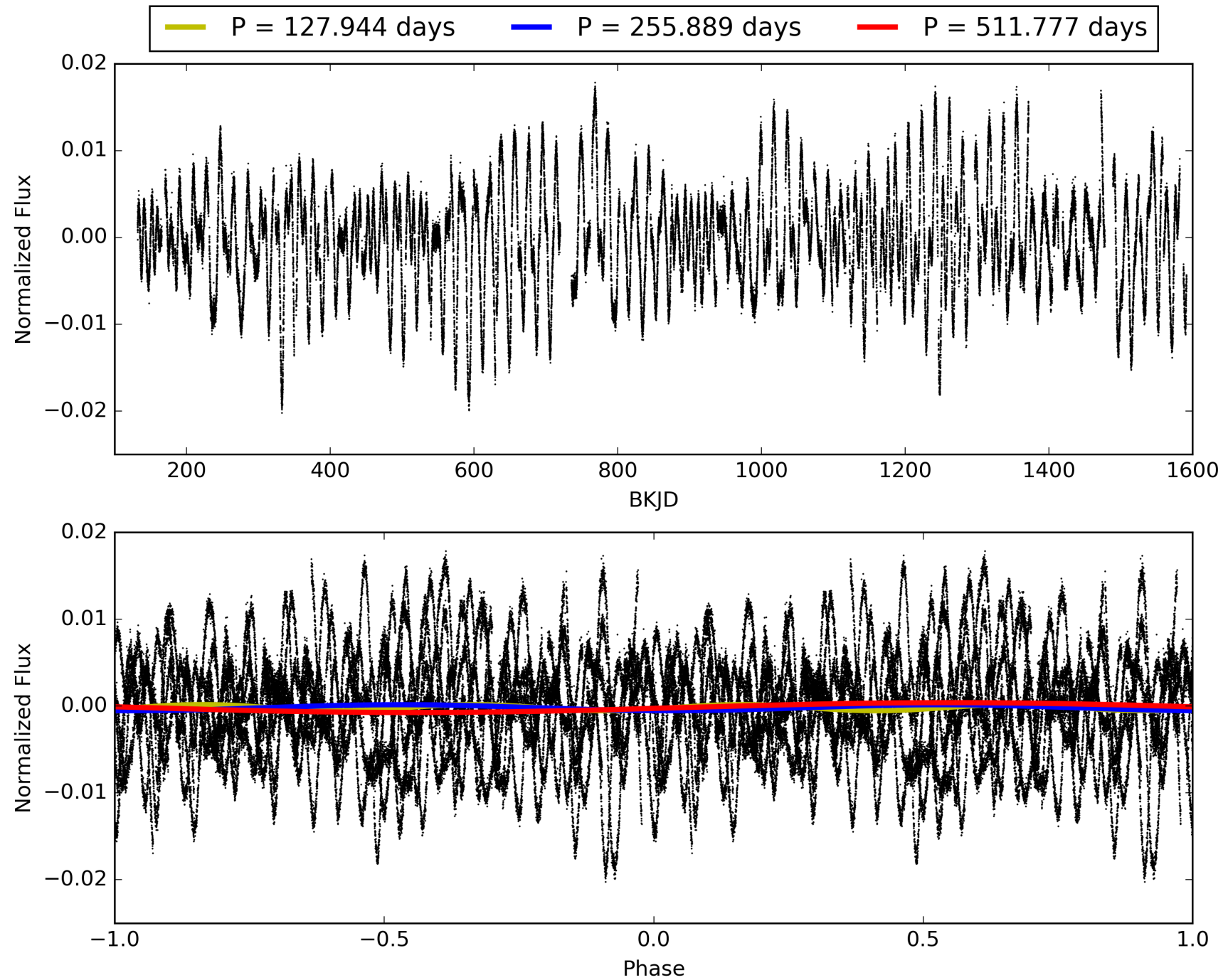
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 07:44:41 Z

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

TCE 004136396-02, PDC Light Curves

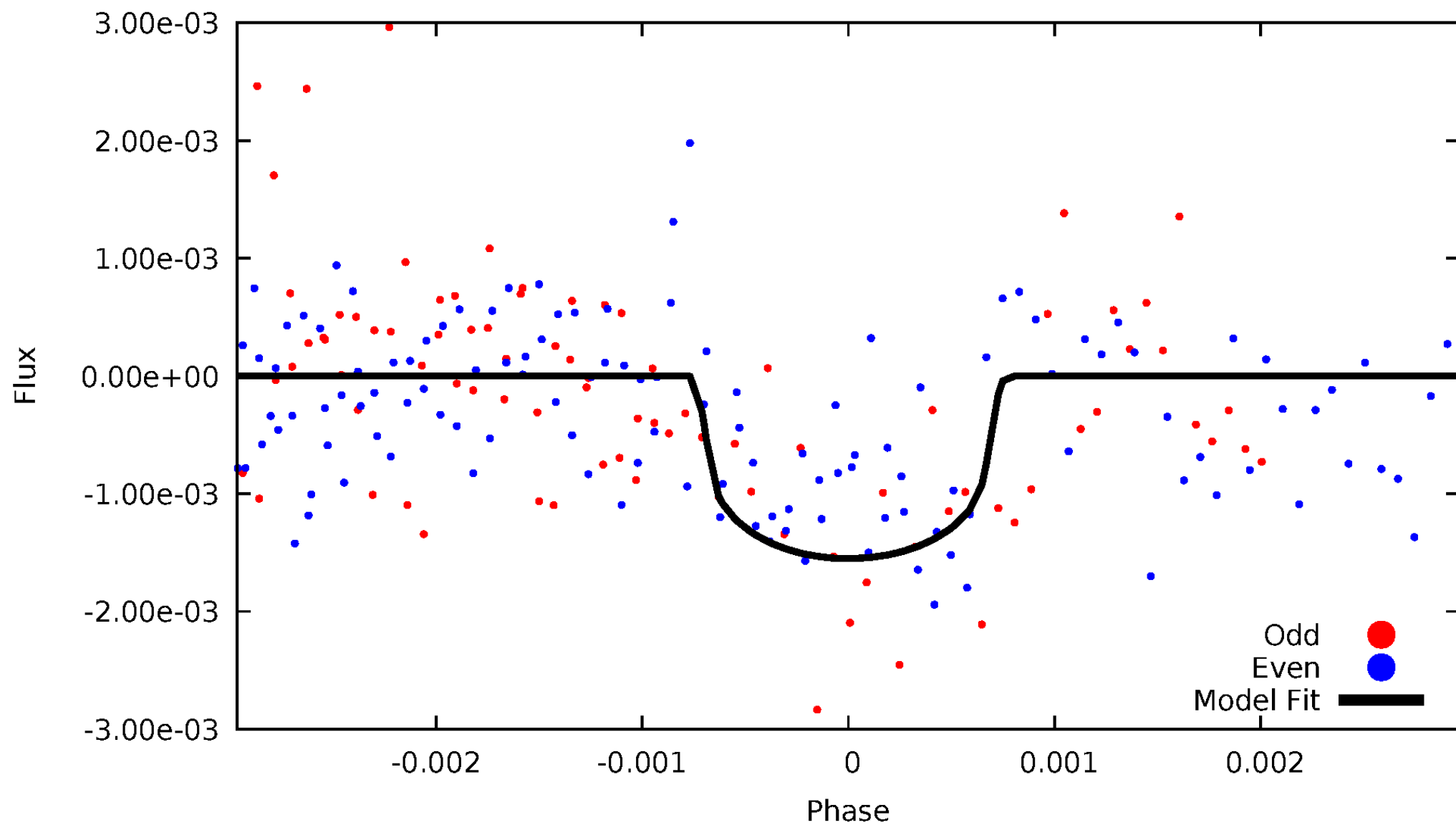


TCE 004136396-02



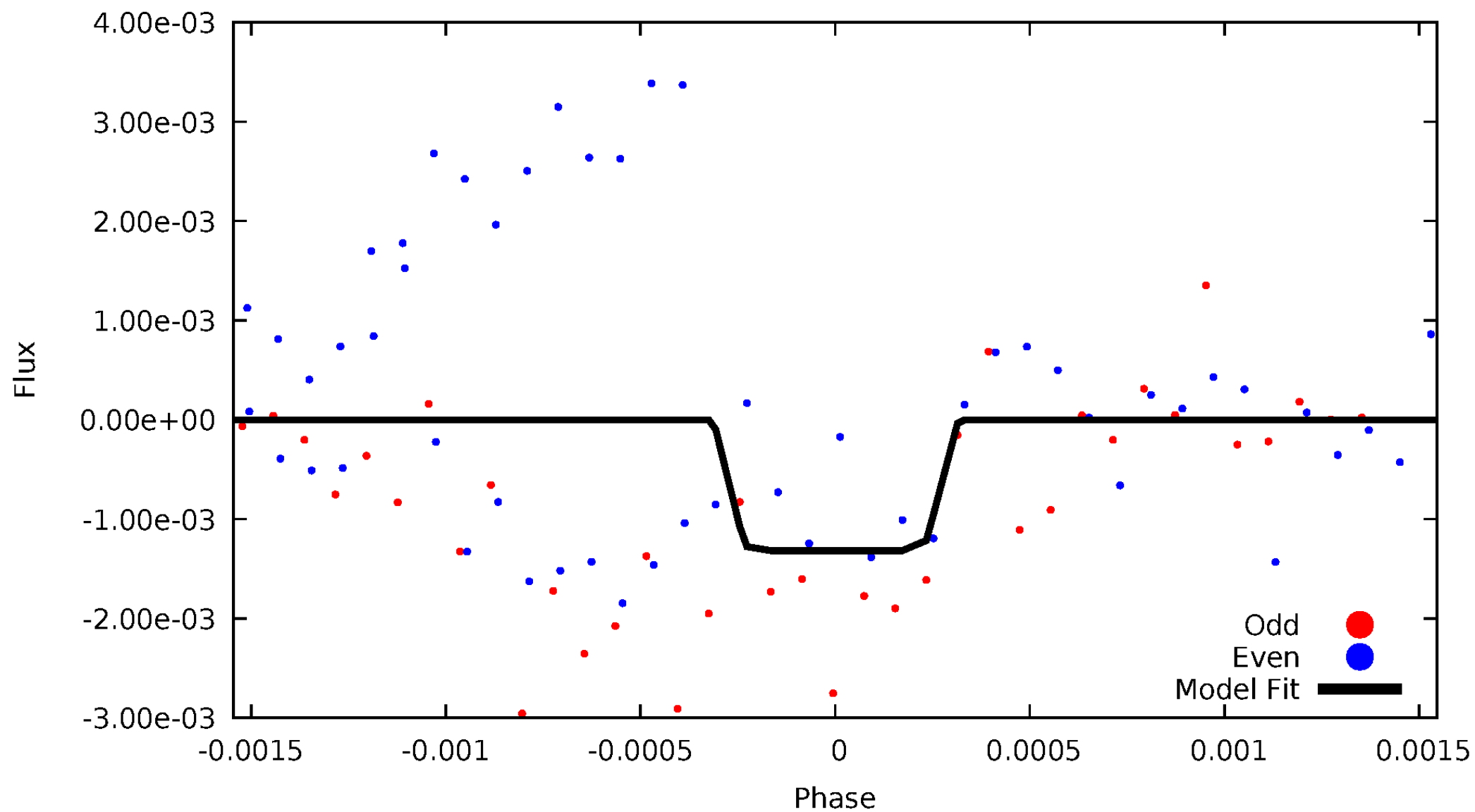
DV Odd/Even

TCE 004136396-02



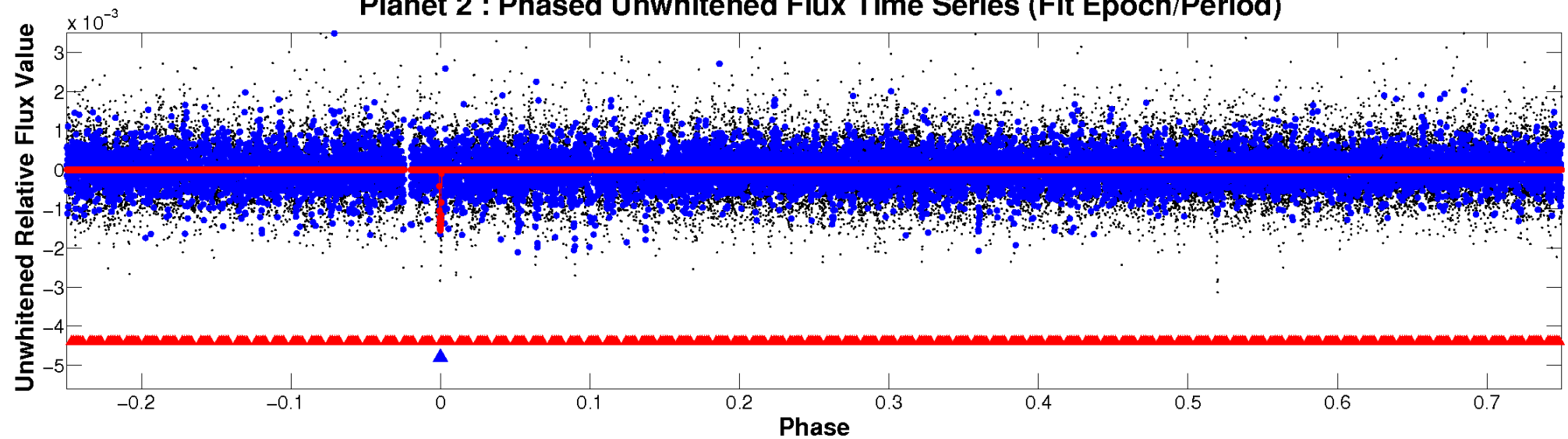
ALT Odd/Even

TCE 004136396-02

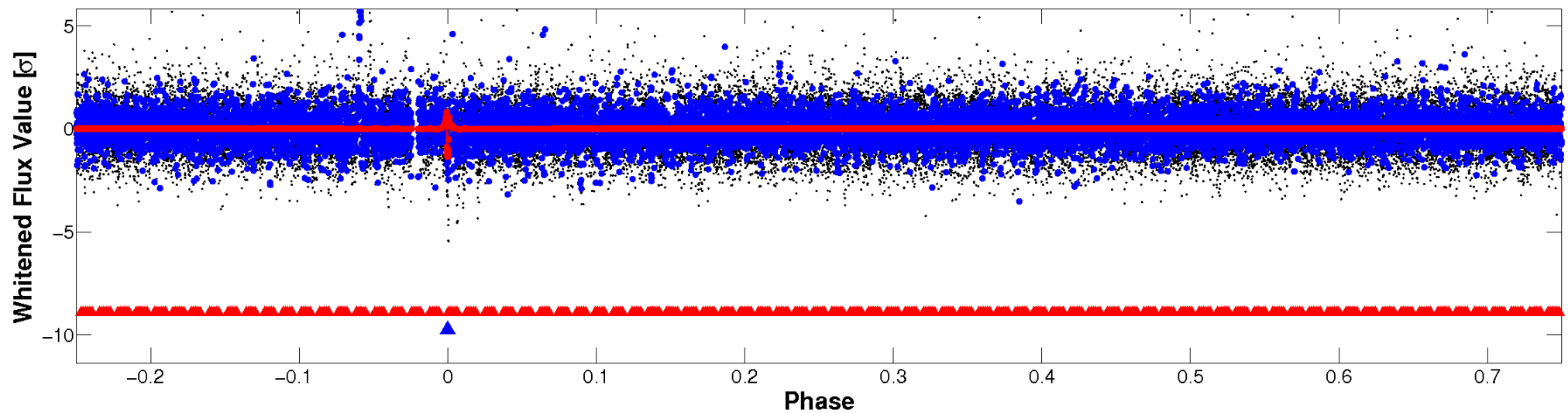


Non-Whitened Vs. Whitened Light Curve

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

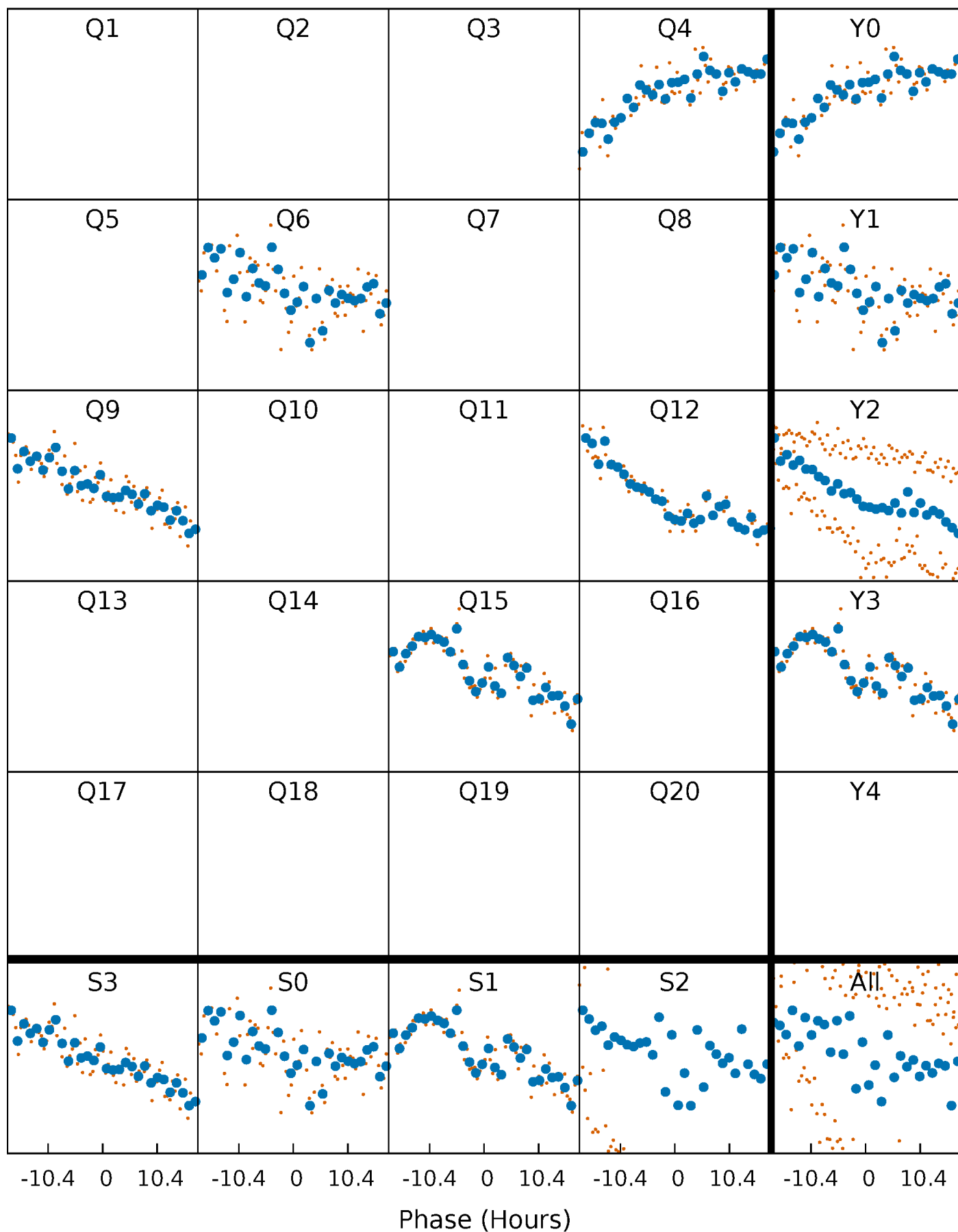


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



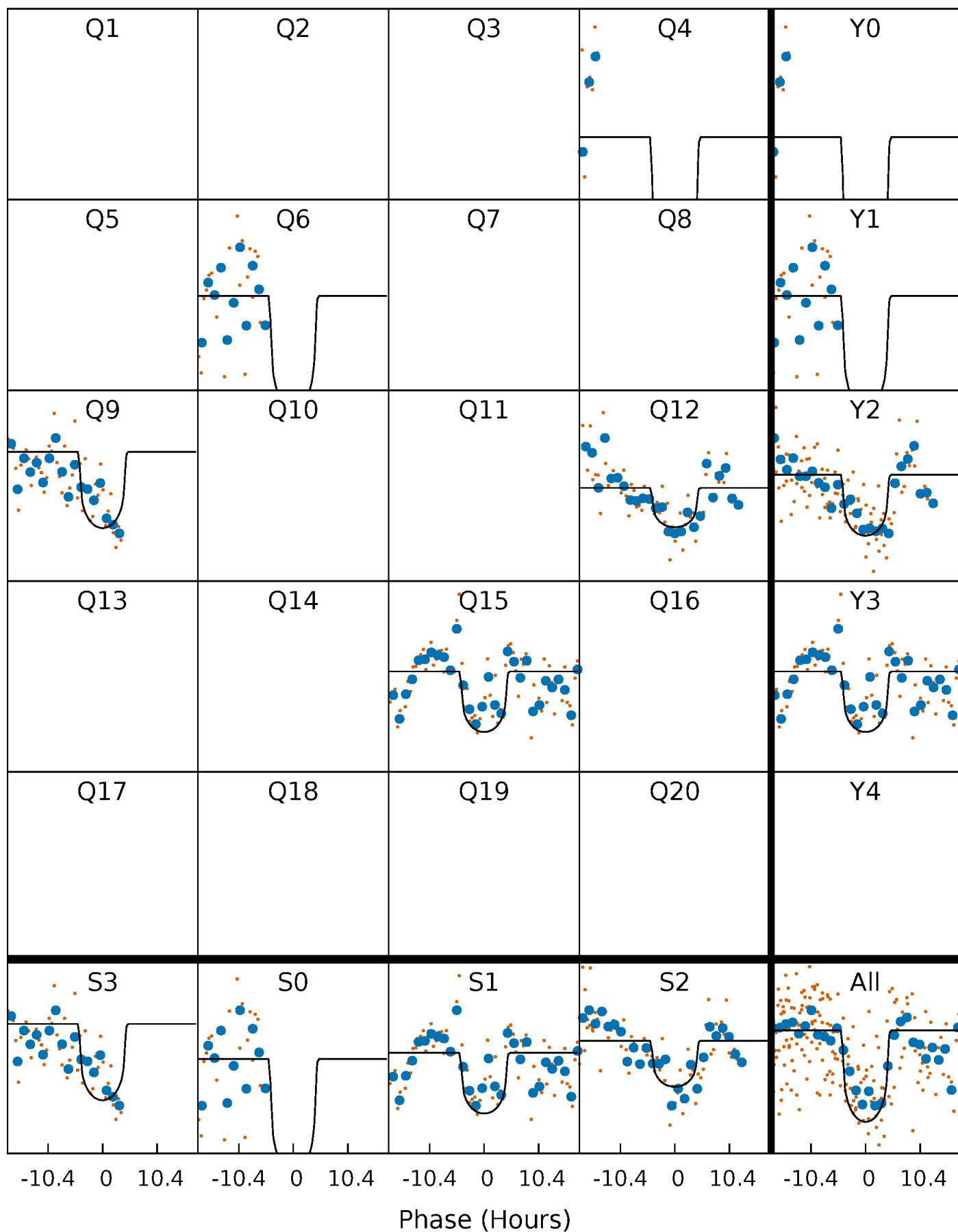
PDC Quarter-Phased Transit Curves

TCE 004136396-02 $P=255.888554$ Days $T_0=355.320239$ (BKJD)



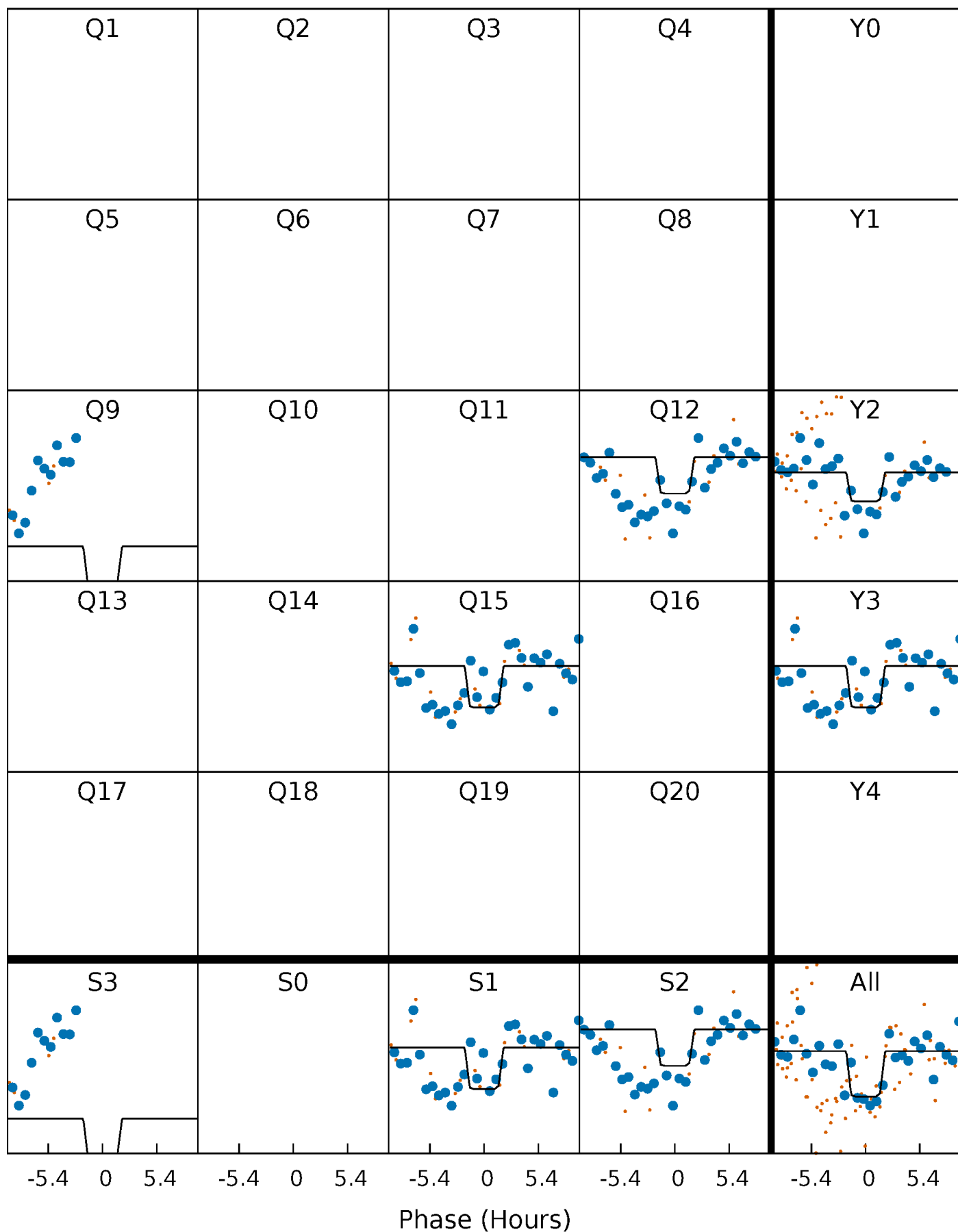
DV Quarter-Phased Transit Curves

TCE 004136396-02 $P=255.888554$ Days $T_0=355.320239$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

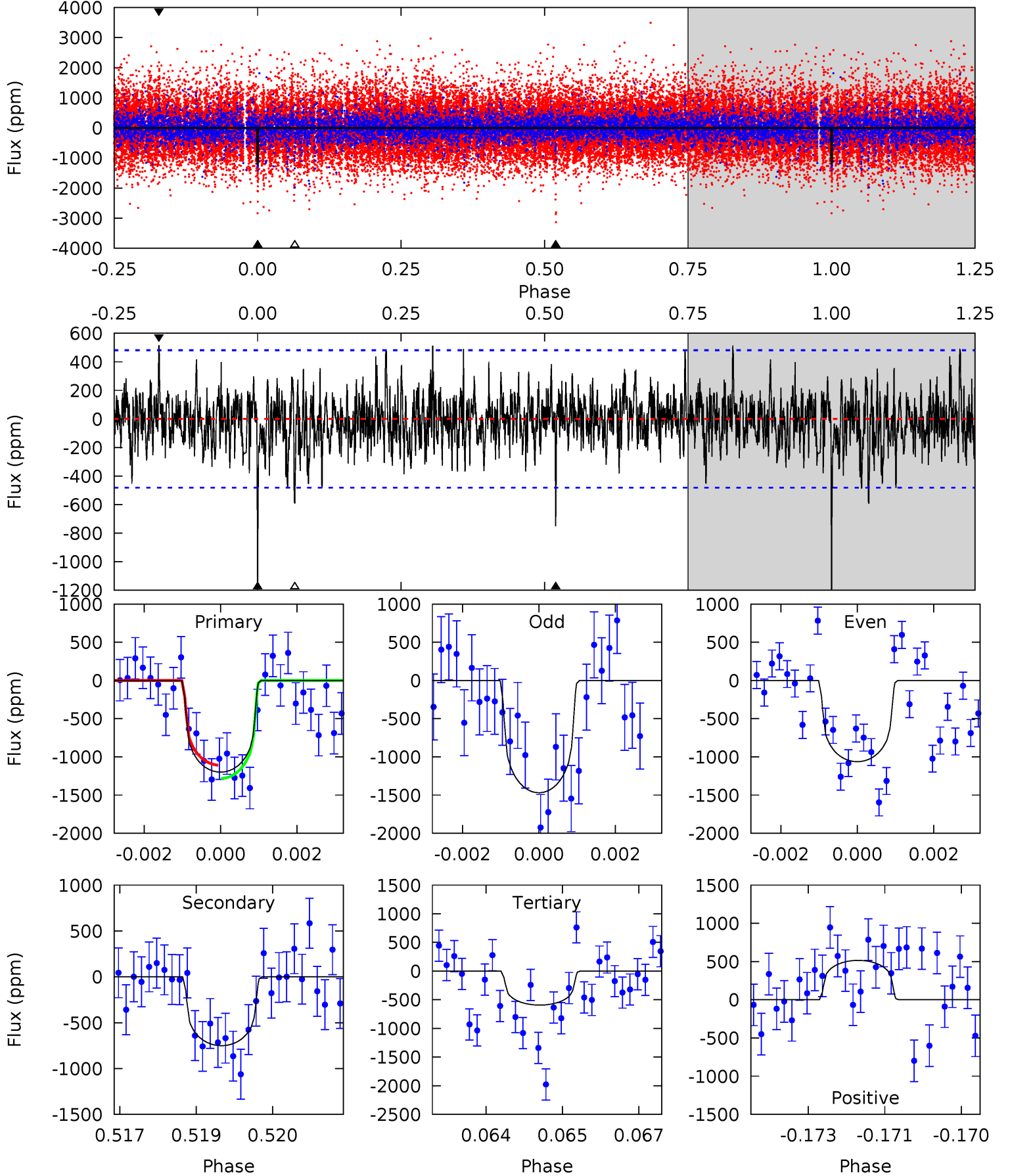
TCE 004136396-02 $P=255.807738$ Days $T_0=355.729705$ (BKJD)



DV Model-Shift Uniqueness Test

004136396-02, $P = 255.888554$ Days, $E = 99.431685$ Days

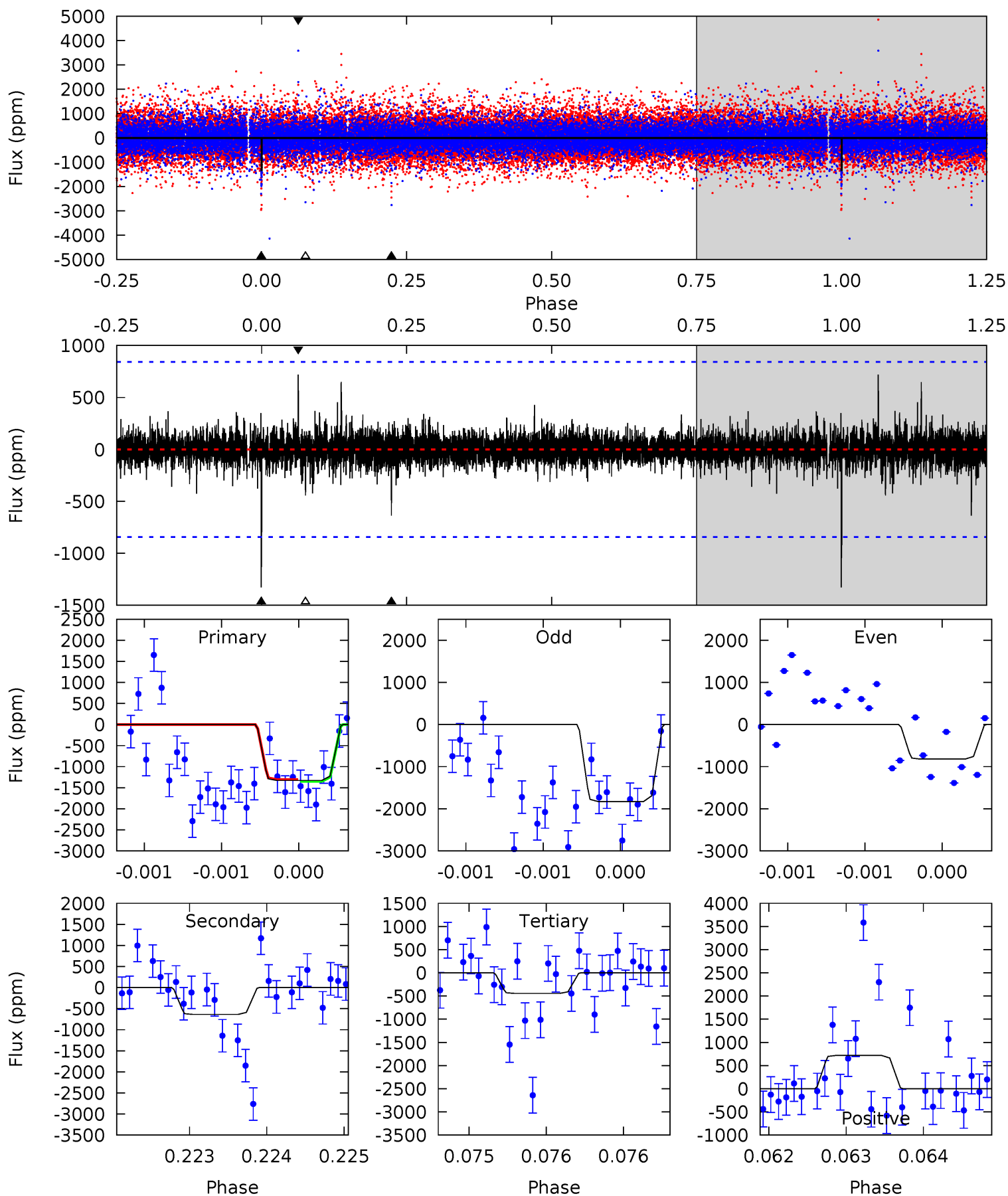
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	8.38	6.61	5.75	5.38	3.17	1.56	6.78	7.64	1.76	2.63	2.15	1.00	0.30	0.97



Alt Model-Shift Uniqueness Test

004136396-02, P = 255.807738 Days, E = 99.921967 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.74	4.20	2.92	4.73	5.55	3.44	0.59	5.82	4.01	1.28	-0.53	3.30	1.00	0.35	0.14



Stellar Parameters For KIC 004136396

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5247^{+158}_{-142}	$4.609^{+0.036}_{-0.096}$	$-0.200^{+0.300}_{-0.300}$	$0.744^{+0.112}_{-0.060}$	$0.833^{+0.069}_{-0.103}$	$2.848^{+0.484}_{-0.819}$
	+3%/-3%	+1%/-2%	+150%/-150%	+15%/-8%	+8%/-12%	+17%/-29%
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 004136396-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-750 ± 90	$3.21^{+1.51}_{-1.53}$	328^{+14}_{-12}	4541^{+1572}_{-593}	21594^{+57294}_{-11485}
Alt.	-638 ± 152	$2.99^{+1.55}_{-1.44}$	329^{+14}_{-12}	4484^{+1588}_{-633}	19767^{+58972}_{-10920}

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

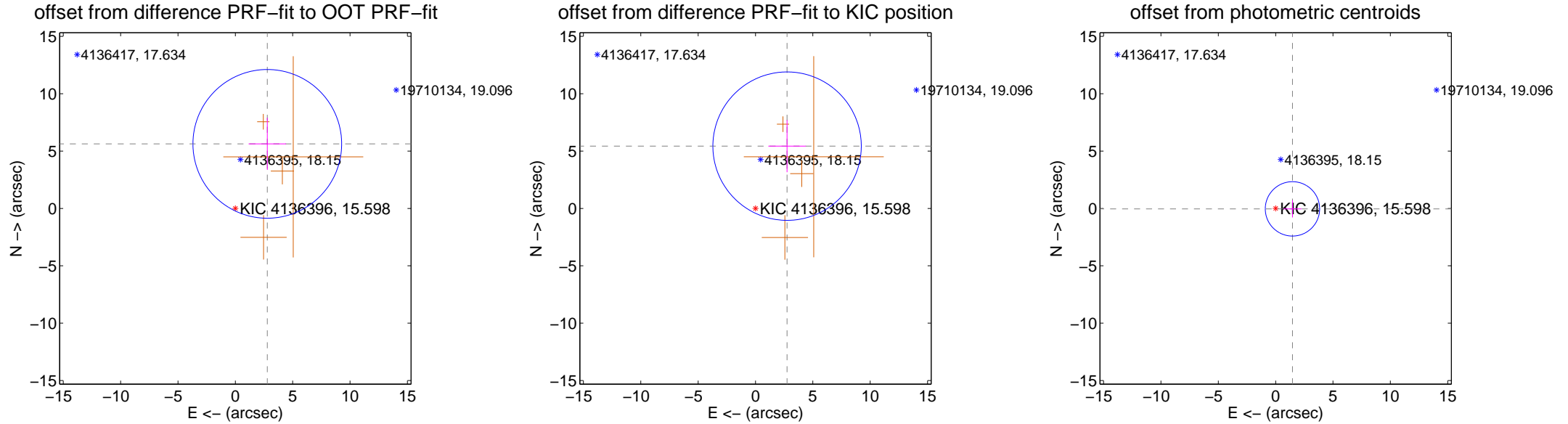
DV Centroid Data

Supplemental centroid analysis for 004136396-02. Kepler magnitude: 15.60. Transit SNR 9.06

There are 0 quarters with good PRF difference image offsets

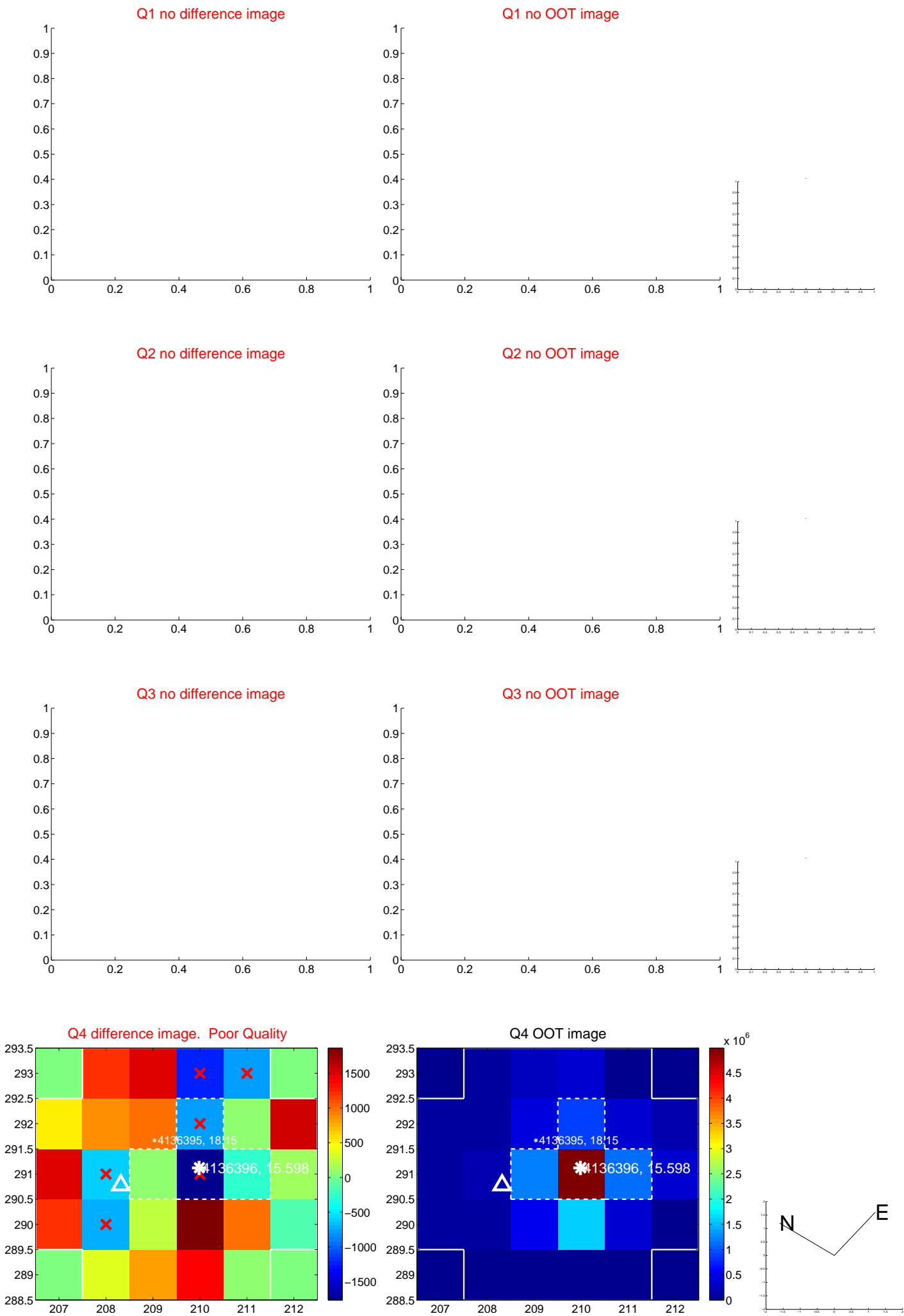
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.281 ± 2.160	2.91	-2.786 ± 1.632	5.629 ± 2.271
PRF-fit source offset from KIC position	6.089 ± 2.156	2.82	-2.754 ± 1.632	5.431 ± 2.271
photometric centroid source offset	1.47 ± 0.79	1.86	-1.47 ± 0.79	-0.04 ± 0.75

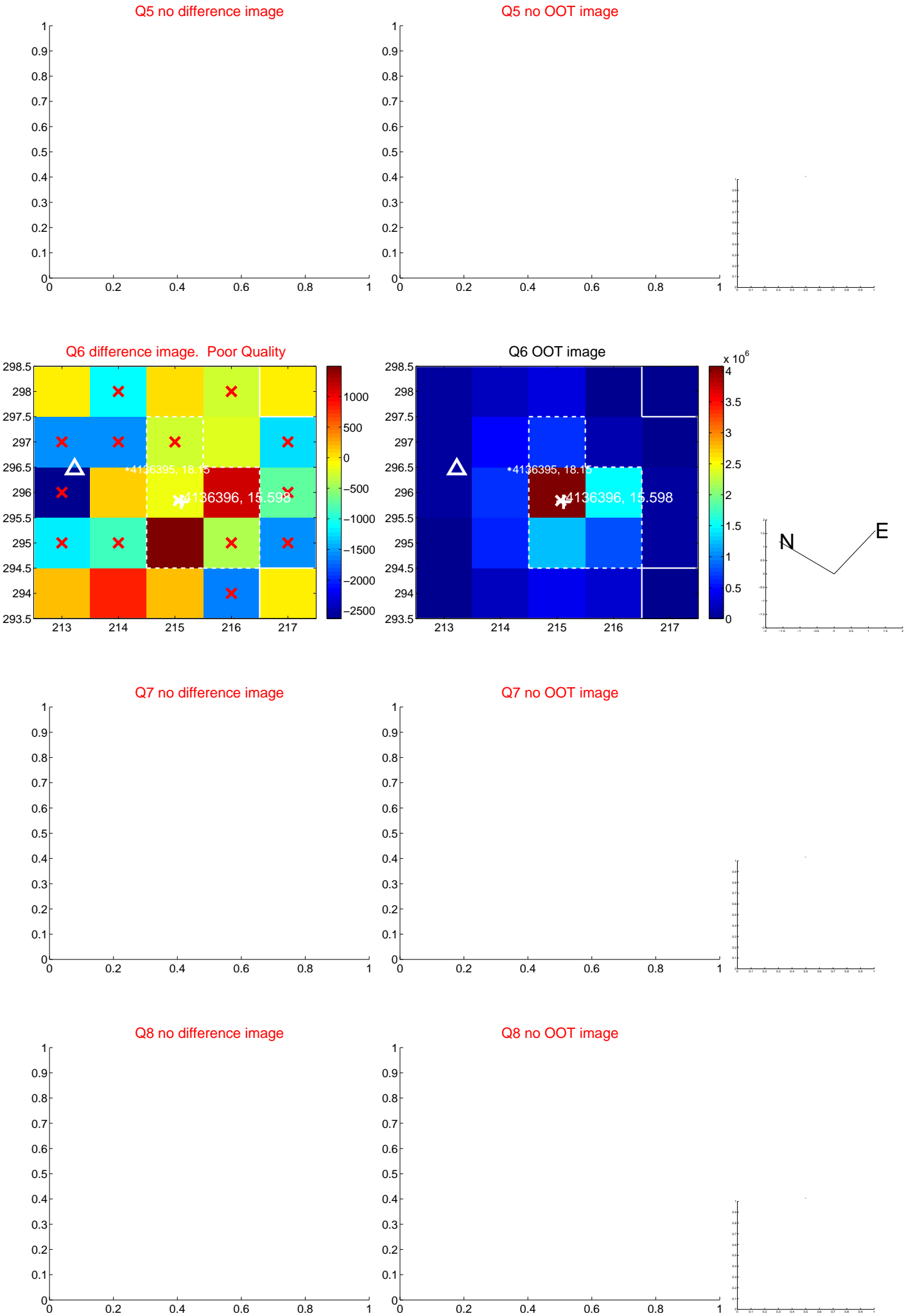


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

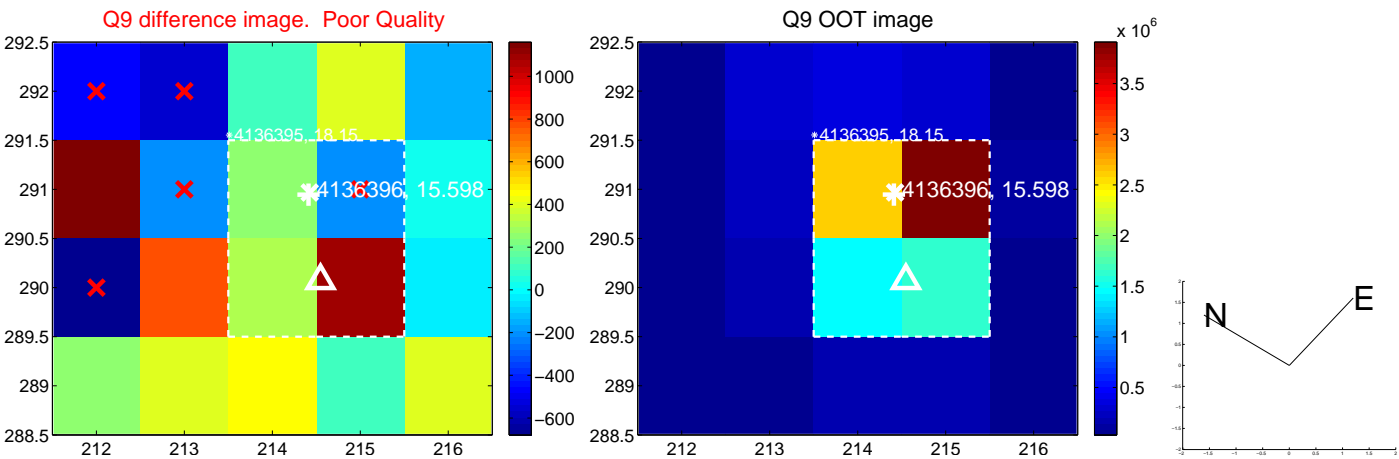
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



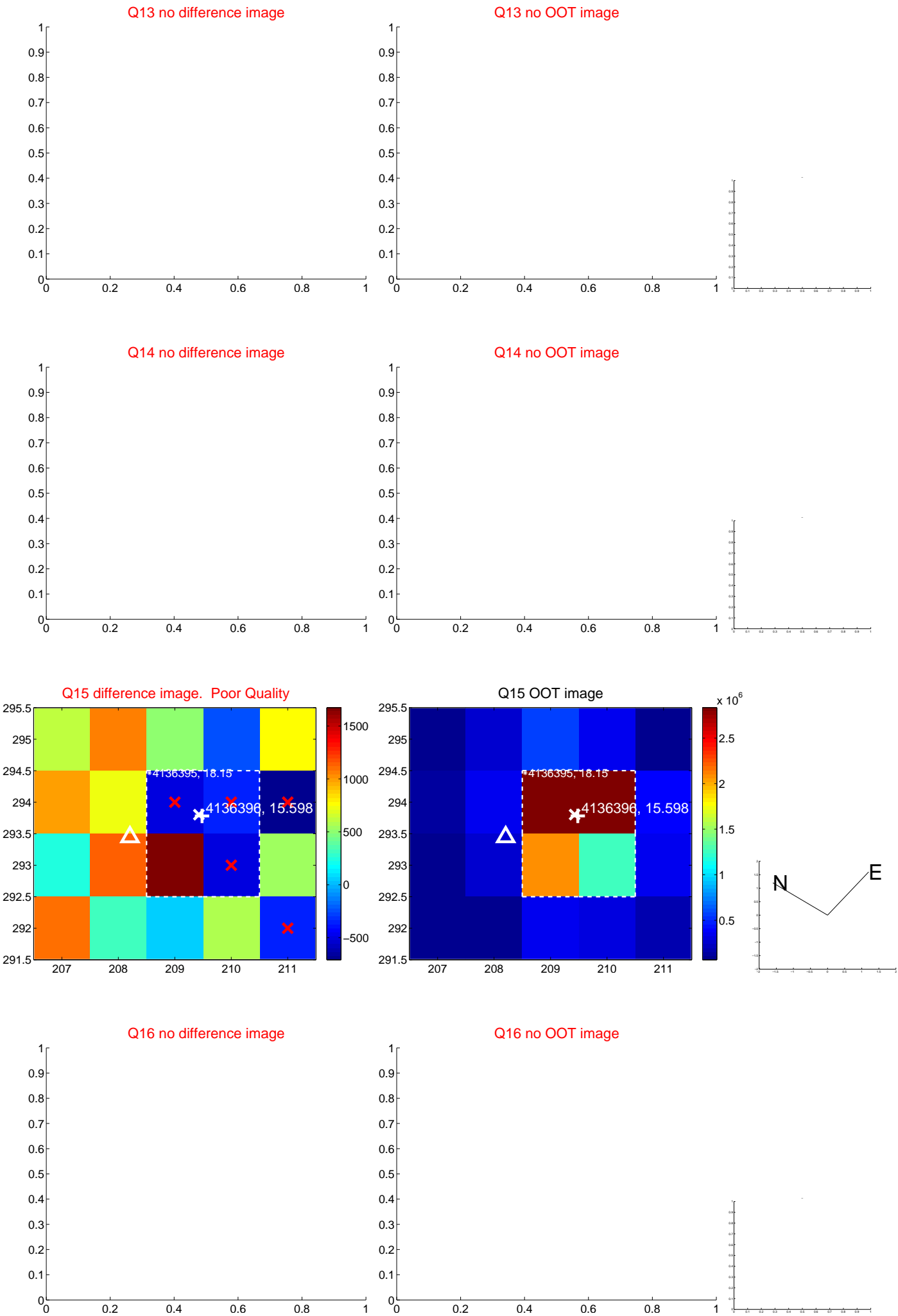
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



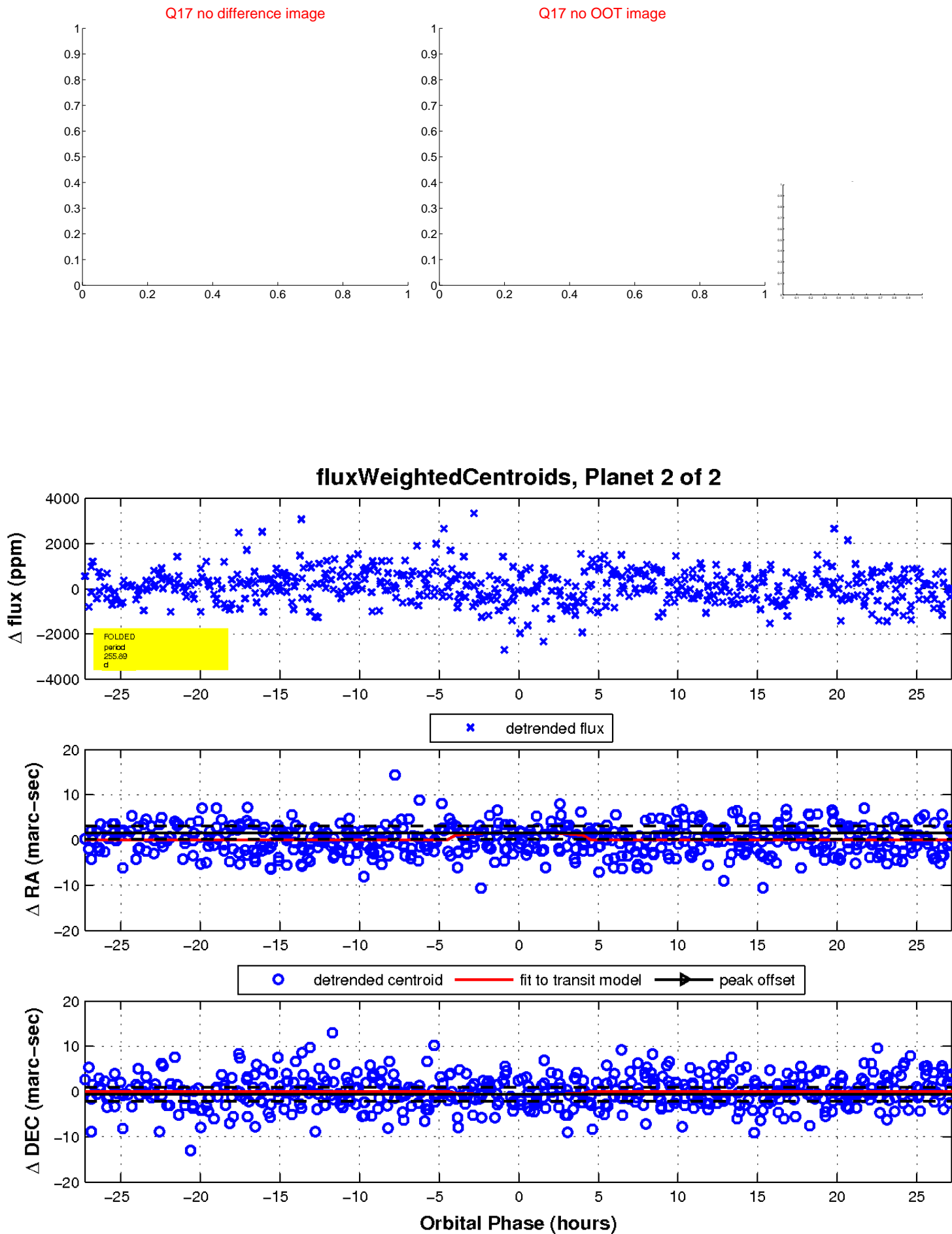
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

