

KIC 005096590

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})
005096590-01	OBS	3093.01	29.609789	137.333416	114.8	7.577	10.2	10.2	1.12	5812	1.68	37.18
005096590-02	OBS	No	480.394161	403.085246	260.7	14.385	10.5	6.5	1.12	5812	2.23	0.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005096590-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005096590-02	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.

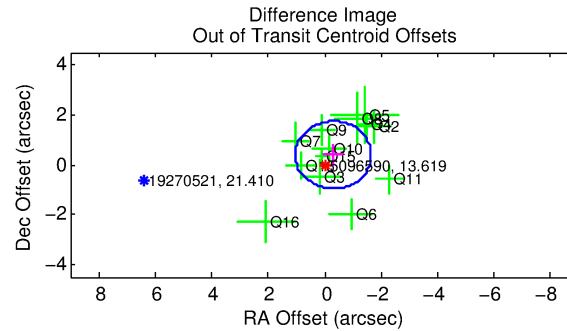
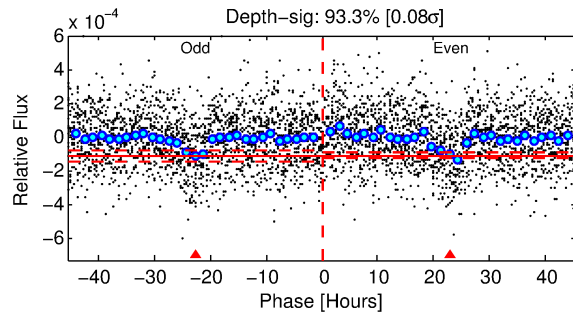
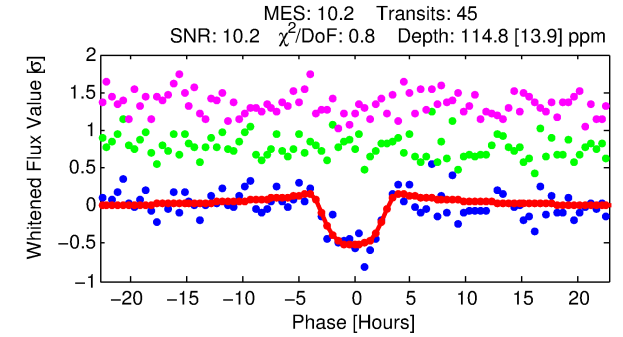
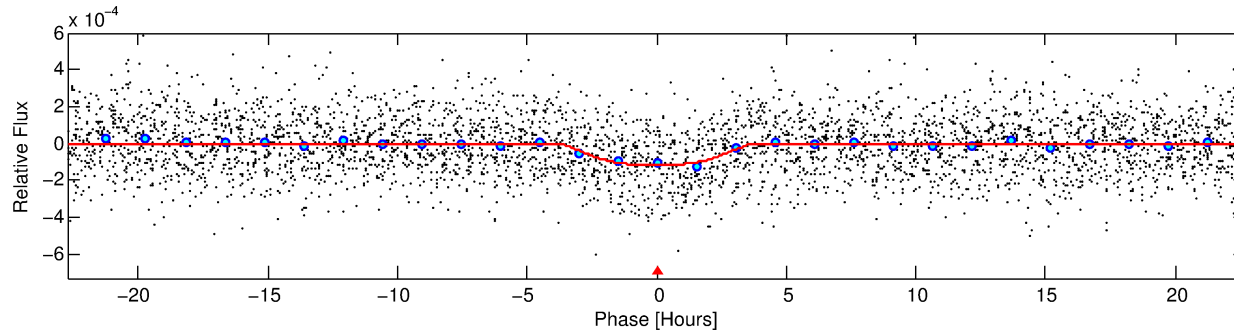
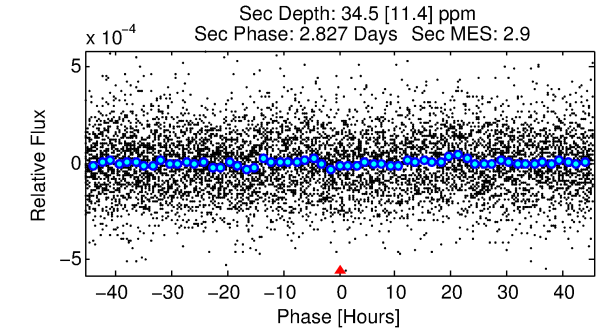
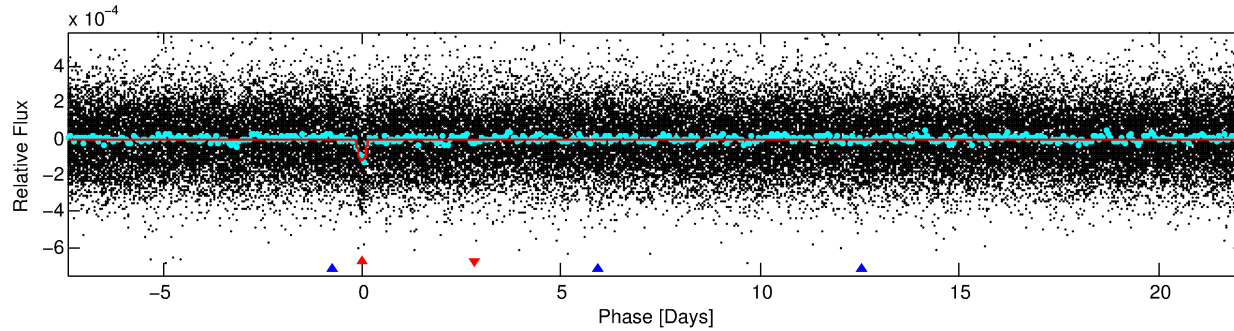
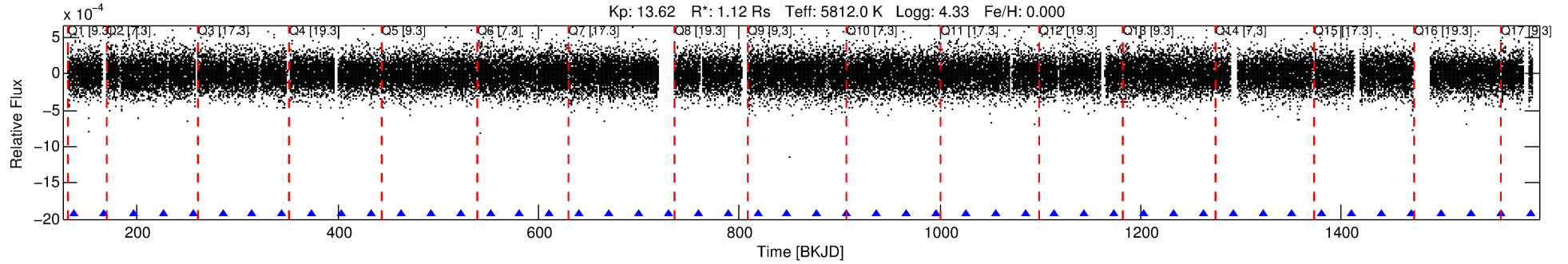
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005096590-01

No Significant Match Found

DV One-Page Summary

KIC: 5096590 Candidate: 1 of 2 Period: 29.610 d
KOI: K03093.01 Corr: 0.850



DV Fit Results:

Period = 29.60979 [0.00050] d
Epoch = 137.3334 [0.0141] BKJD
Rp/R* = 0.0137 [0.0011]
a/R* = 7.37 [1.18]
b = 0.98 [0.01]
Seff = 37.18 [8.62]
Teq = 630 [36] K
Rp = 1.68 [0.28] Re
a = 0.1861 [0.0259] AU
Ag = 233.06 [99.35] [2.34σ]
Teffp = 3804 [357] K [8.85σ]

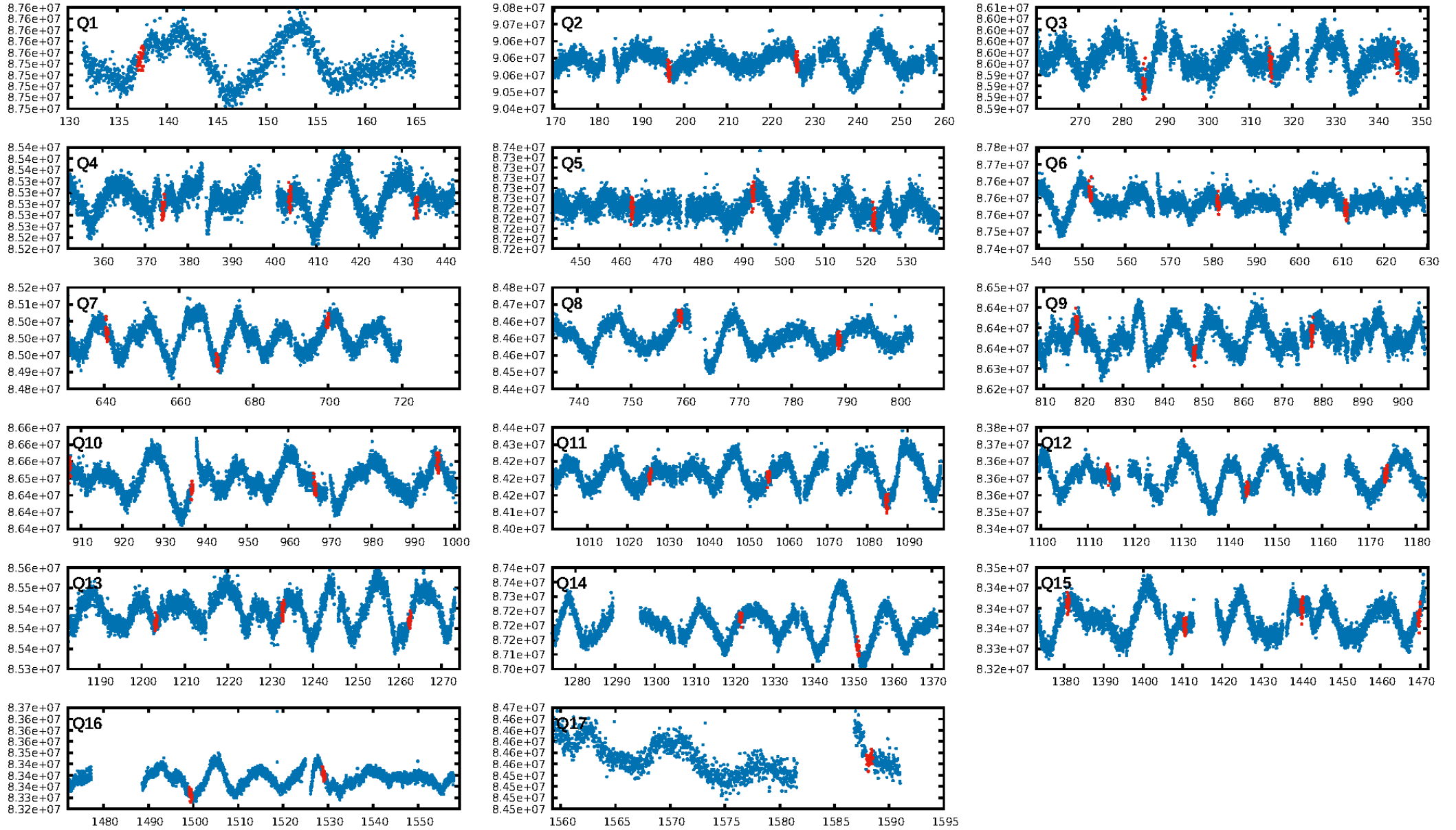
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [665.43σ]
ModelChiSquare2-sig: 85.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.20e-23
RollingBand-fgt: 1.00 [43/43]
GhostDiagnostic-chr: 1.654
Centroid-sig: 13.1%
Centroid-so: 1.149 arcsec [1.38σ]
OotOffset-rm: 0.496 arcsec [1.10σ]
KicOffset-rm: 0.519 arcsec [1.17σ]
OotOffset-st: 3/4/3/3 [13]
KicOffset-st: 3/4/3/3 [13]
DiffImageQuality-fgm: 0.85 [11/13]
DiffImageOverlap-fno: 1.00 [16/16]

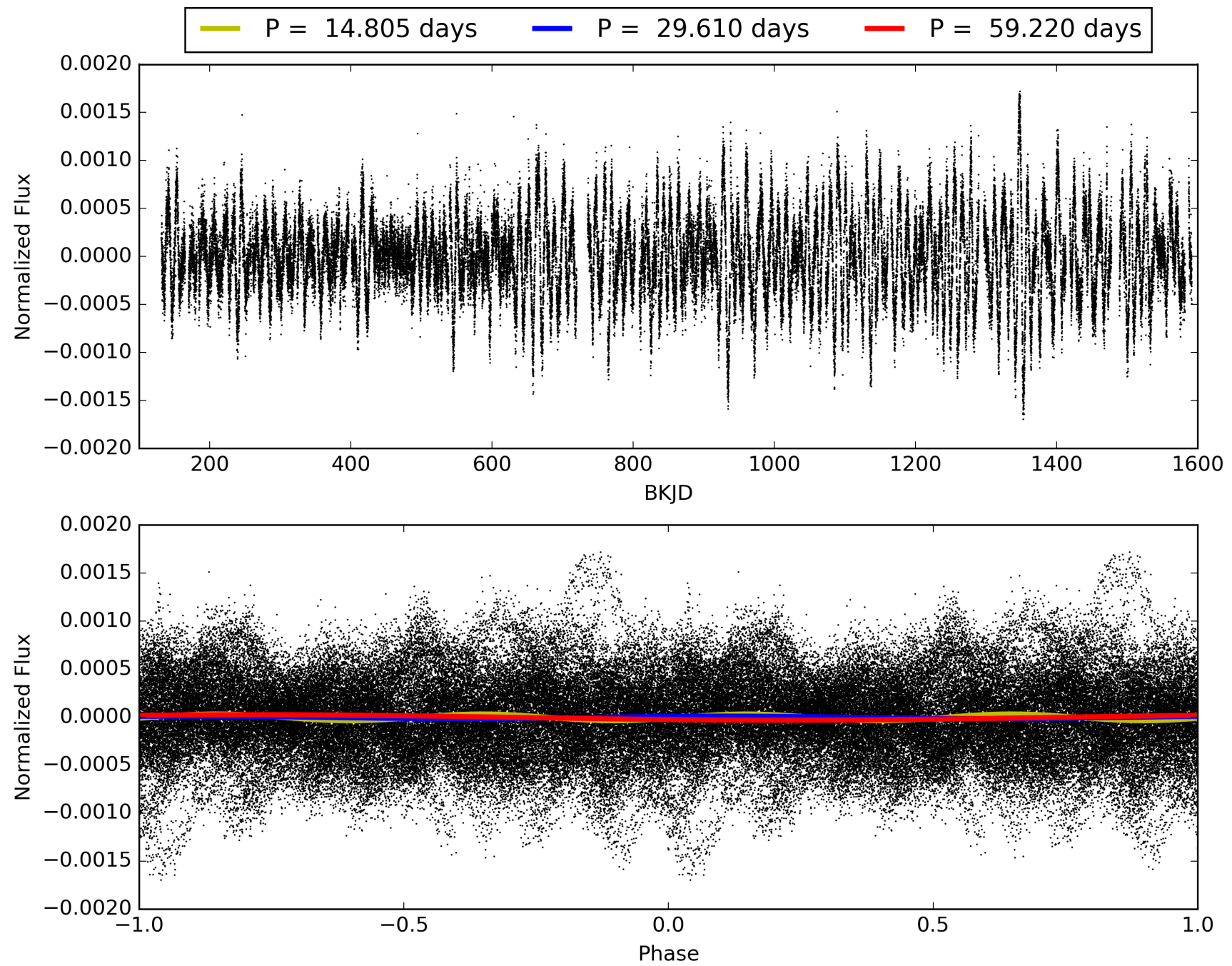
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 09:11:12 Z

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

TCE 005096590-01, PDC Light Curves

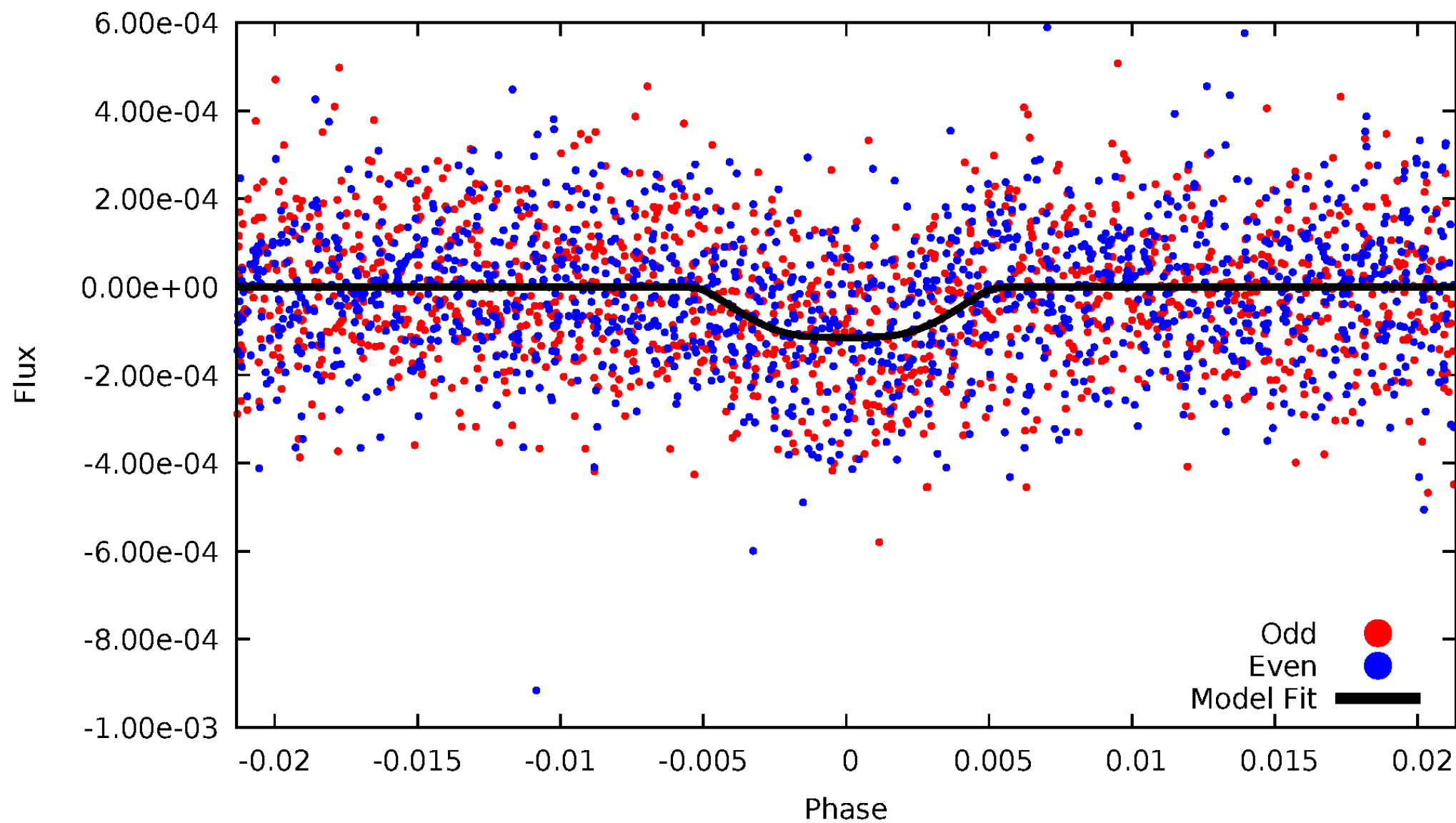


TCE 005096590-01



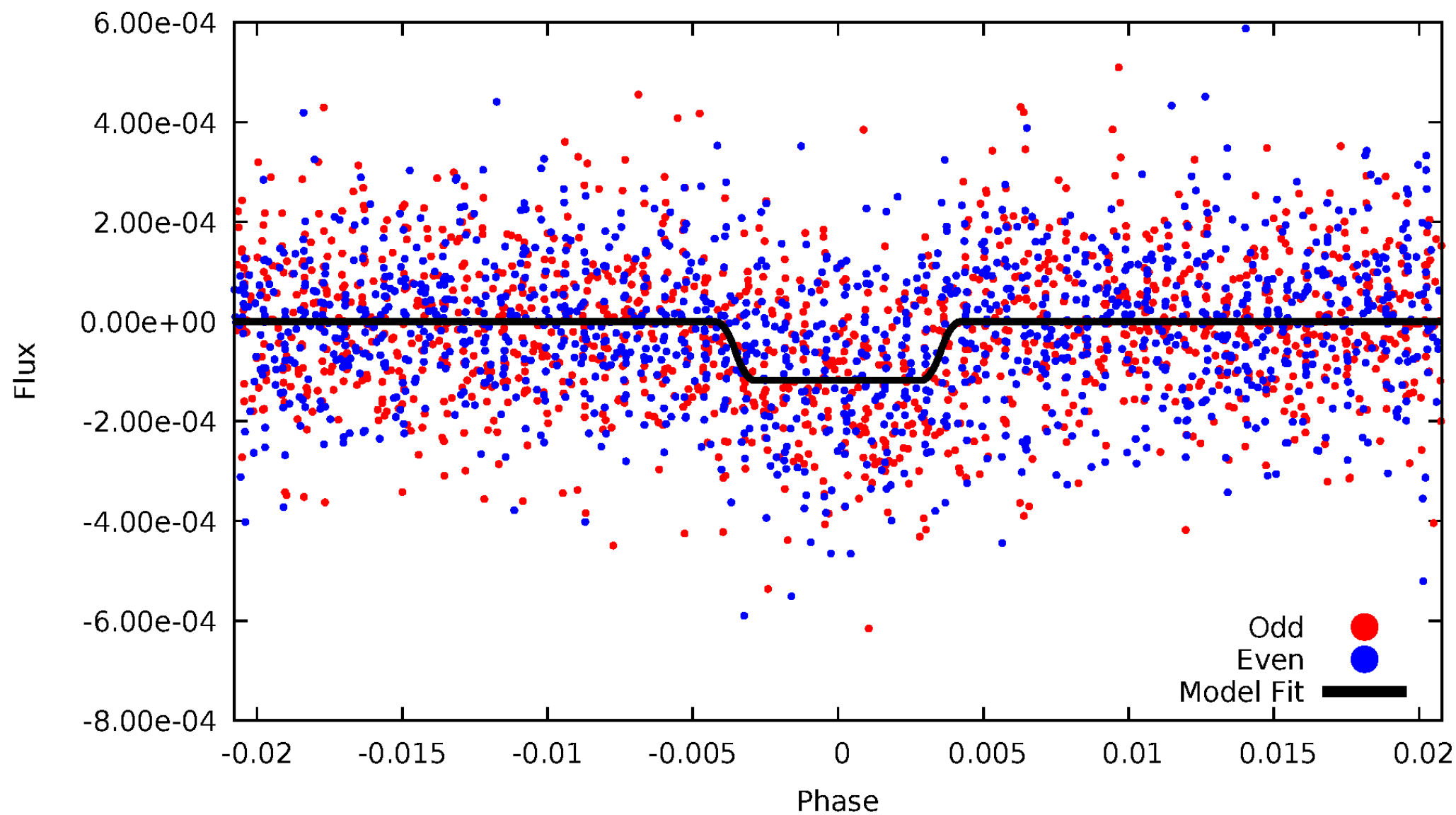
DV Odd/Even

TCE 005096590-01

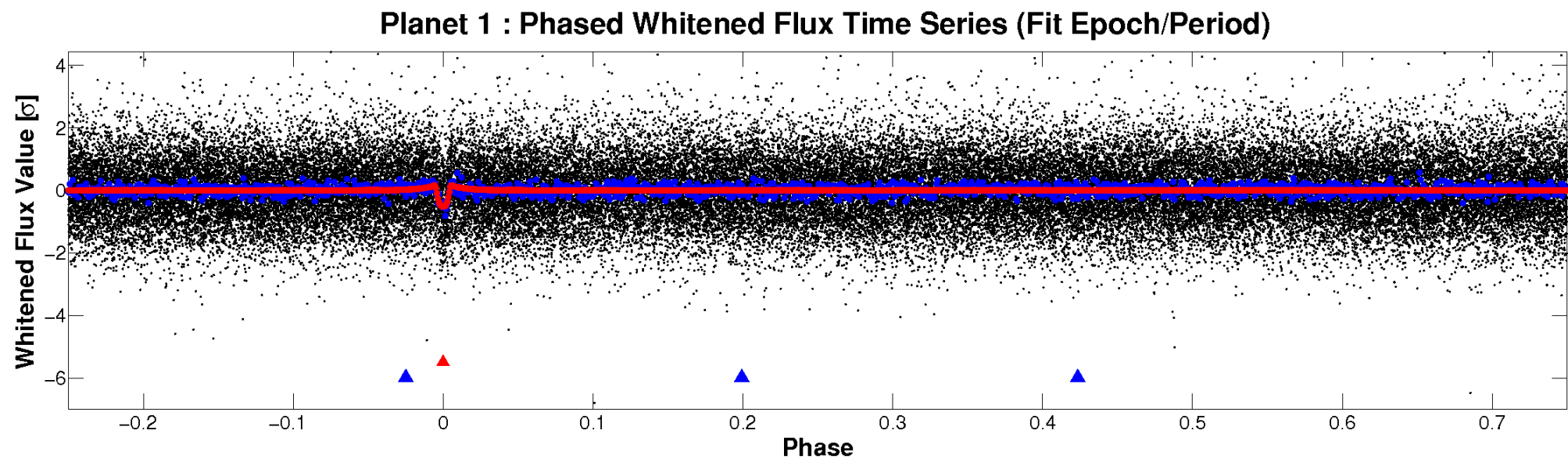
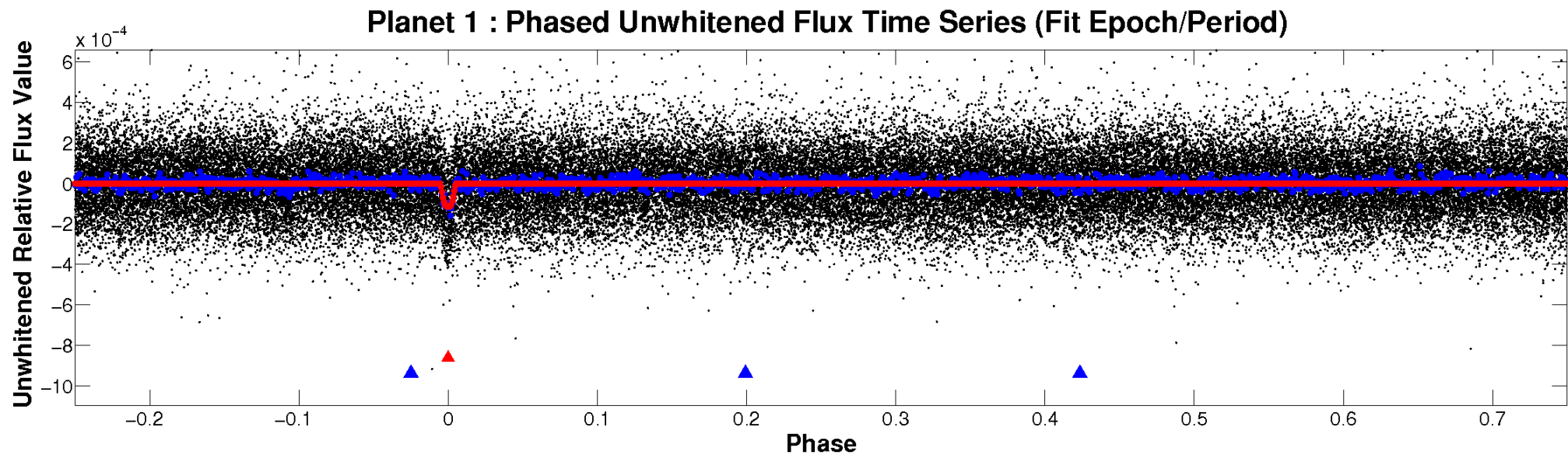


ALT Odd/Even

TCE 005096590-01

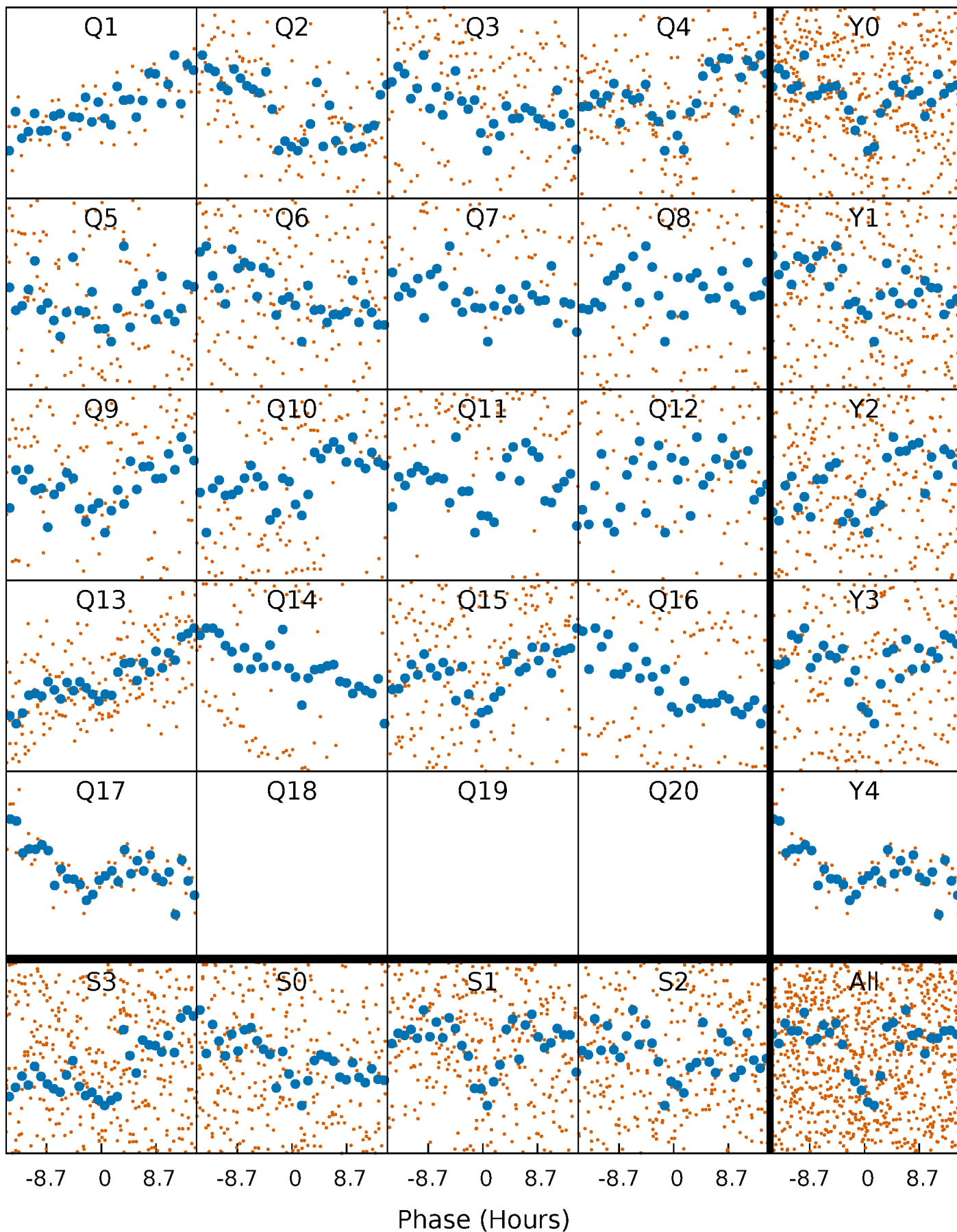


Non-Whitened Vs. Whitened Light Curve



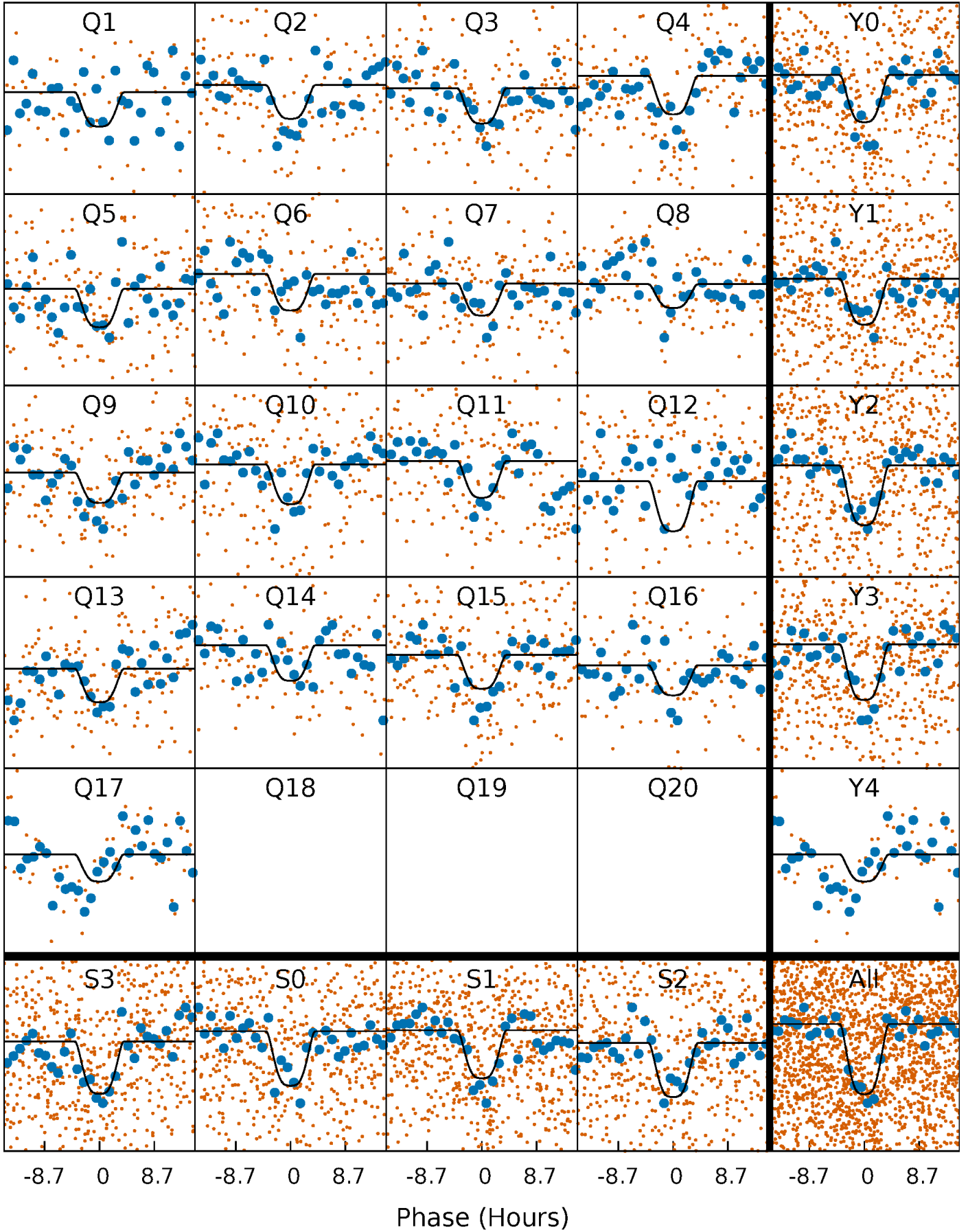
PDC Quarter-Phased Transit Curves

TCE 005096590-01 P= 29.609789 Days $T_0=137.333416$ (BKJD)



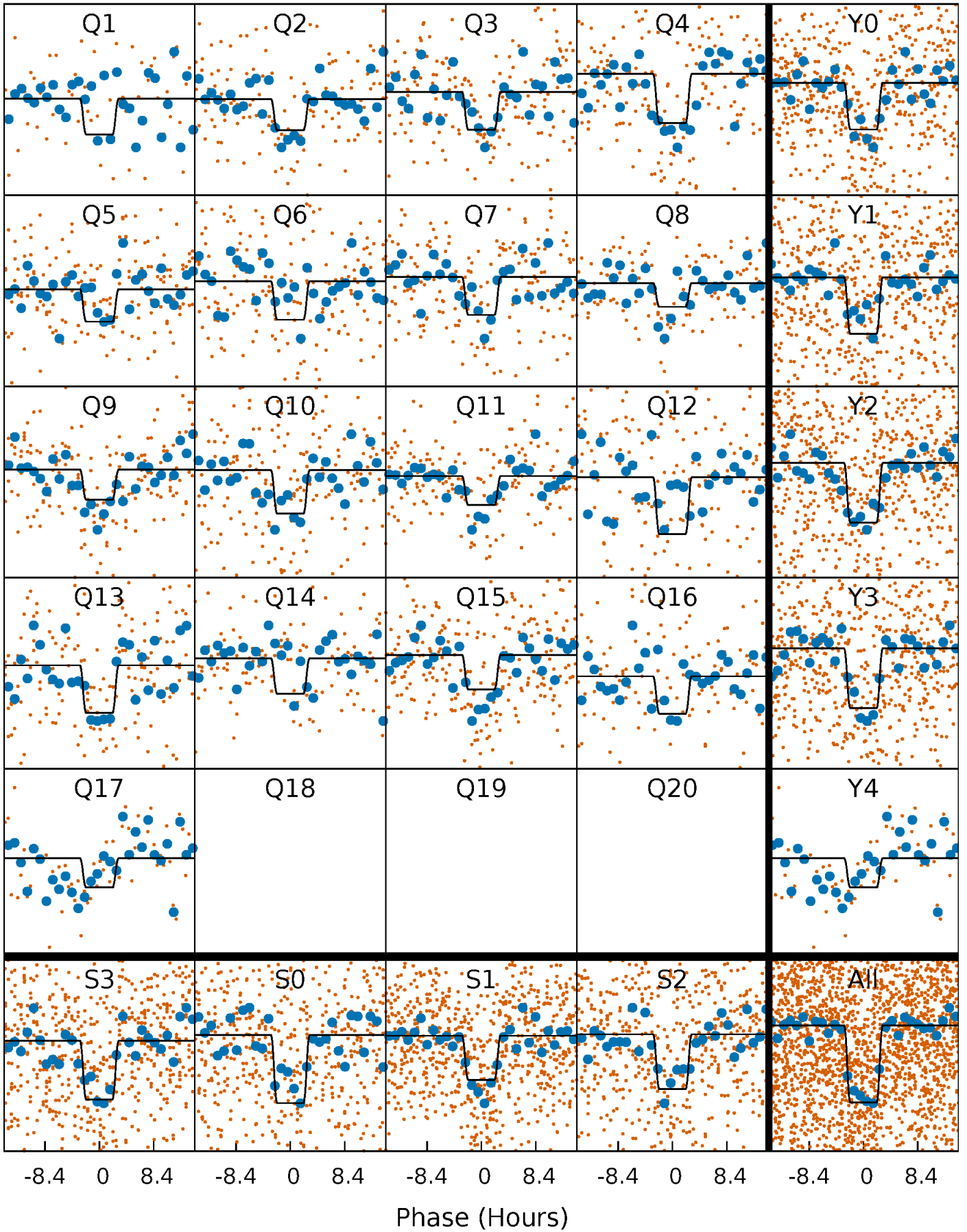
DV Quarter-Phased Transit Curves

TCE 005096590-01 P= 29.609789 Days $T_0=137.333416$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

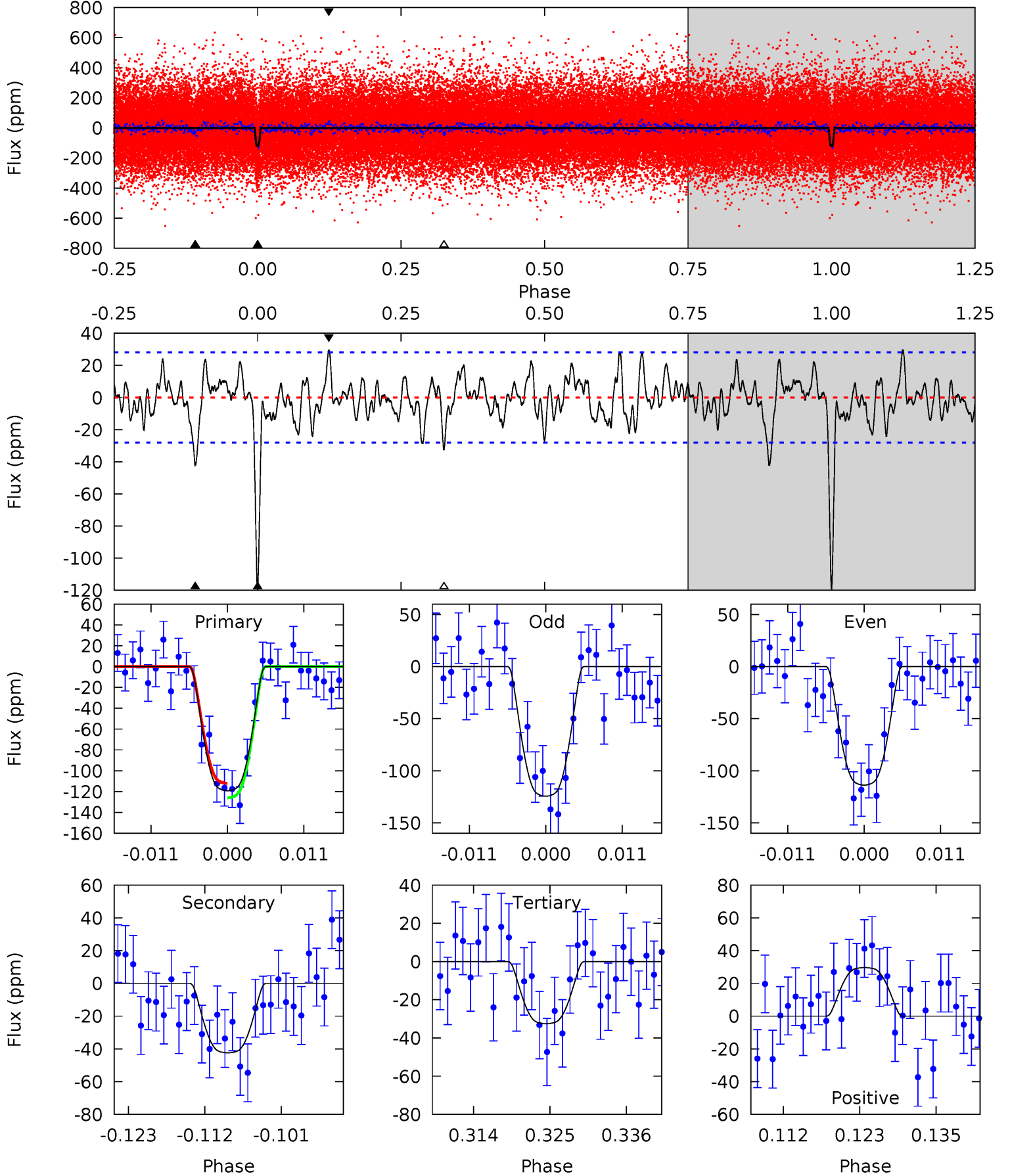
TCE 005096590-01 P= 29.609979 Days $T_0=137.327718$ (BKJD)



DV Model-Shift Uniqueness Test

005096590-01, $P = 29.609789$ Days, $E = 107.723627$ Days

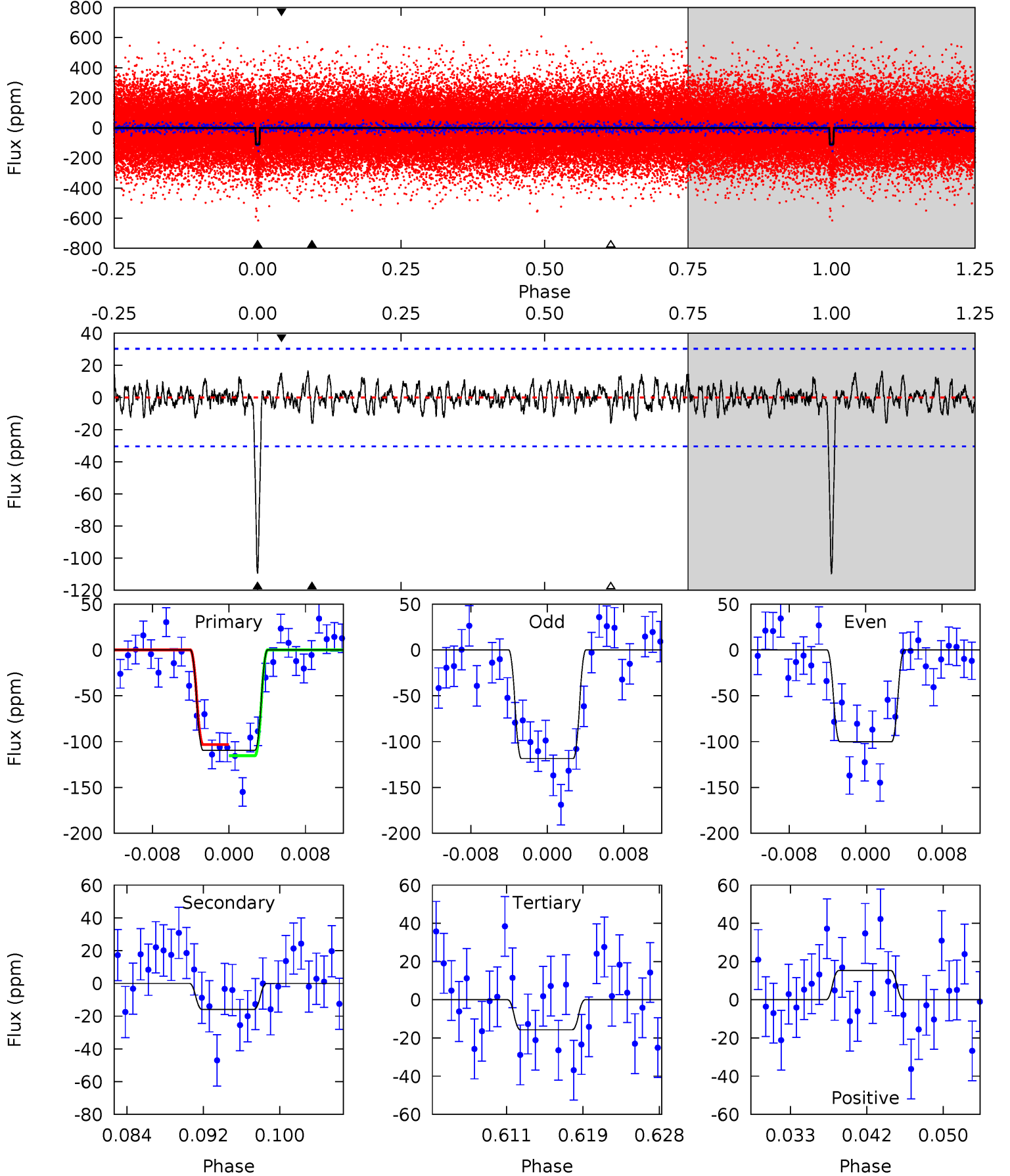
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.2	7.54	5.78	5.27	5.00	2.54	1.87	15.4	15.9	1.76	2.27	0.95	1.06	0.20	1.24



Alt Model-Shift Uniqueness Test

005096590-01, $P = 29.609979$ Days, $E = 107.717739$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.2	2.65	2.62	2.54	5.06	2.64	0.88	15.6	15.7	0.03	0.11	1.52	0.94	0.13	1.01



Stellar Parameters For KIC 005096590

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5812^{+104}_{-116}	$4.329^{+0.126}_{-0.115}$	$0.000^{+0.150}_{-0.150}$	$1.122^{+0.168}_{-0.151}$	$0.977^{+0.081}_{-0.066}$	$0.975^{+0.558}_{-0.301}$
	+2%/-2%	+3%/-3%	+inf%/-inf%	+15%/-13%	+8%/-7%	+57%/-31%
Source	SPE57	SPE57	SPE57	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 005096590-01 / KOI 3093.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-42 ± 6	$1.68^{+0.20}_{-0.21}$	878^{+40}_{-37}	4252^{+191}_{-177}	288^{+88}_{-66}
Alt.	-16 ± 6	$1.33^{+0.17}_{-0.18}$	878^{+37}_{-43}	3862^{+284}_{-299}	168^{+94}_{-69}

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

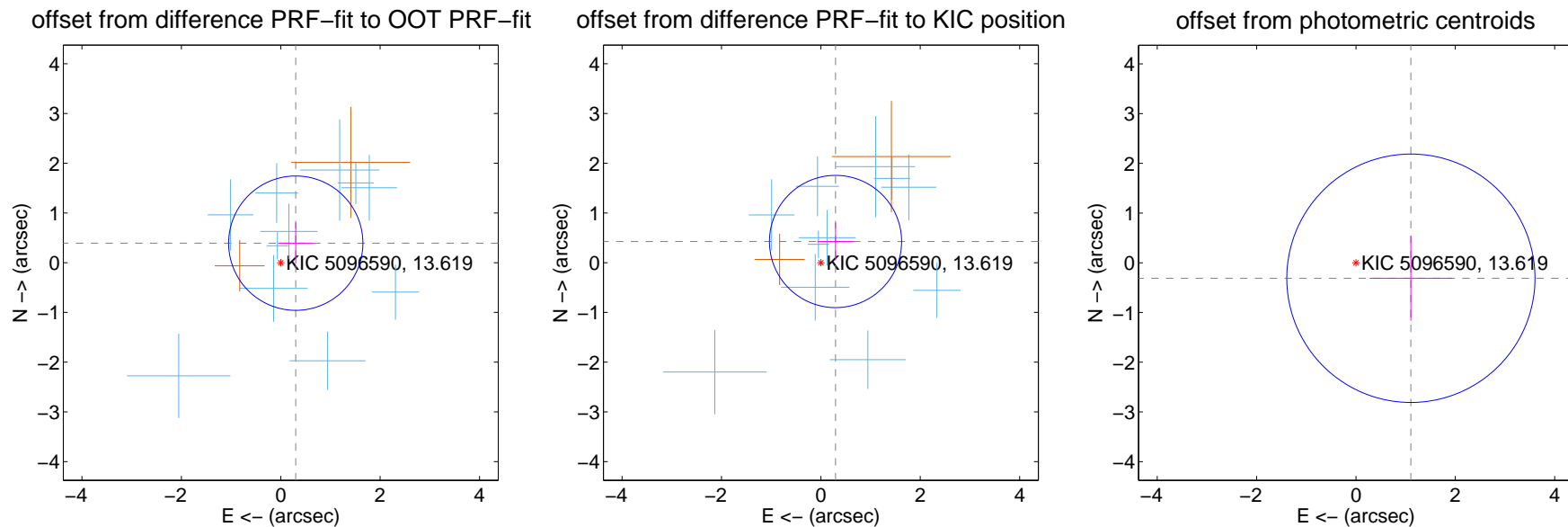
DV Centroid Data

Supplemental centroid analysis for 005096590-01. Kepler magnitude: 13.62. Transit SNR 10.23

There are 11 quarters with good PRF difference image offsets

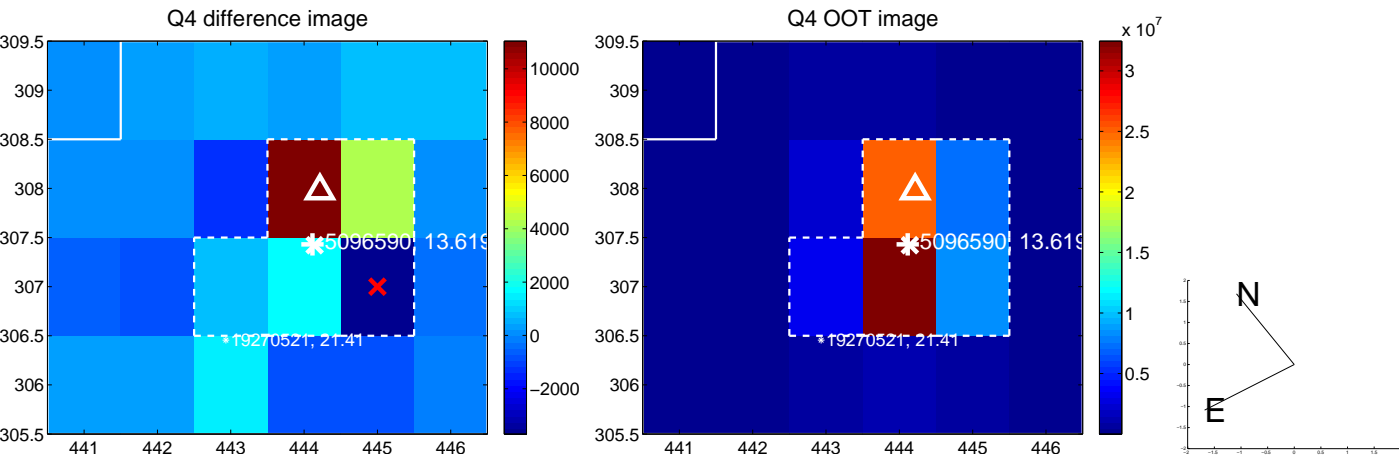
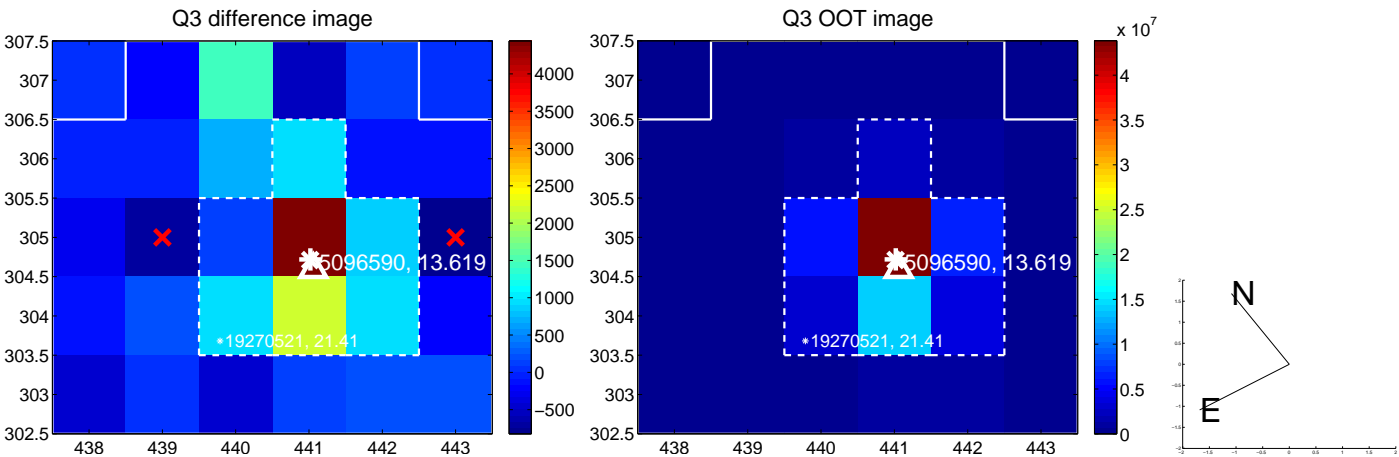
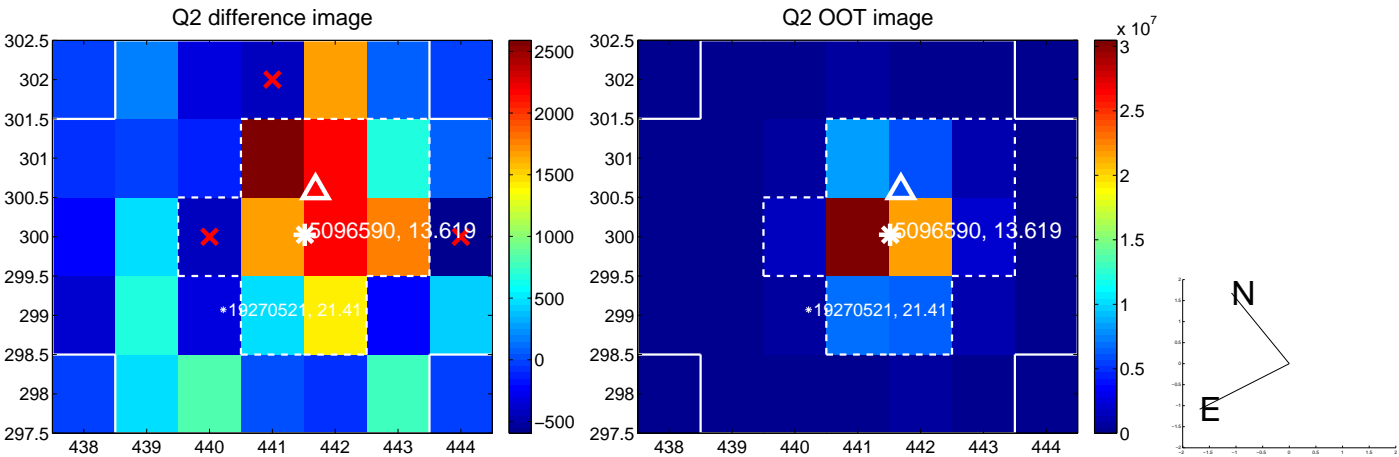
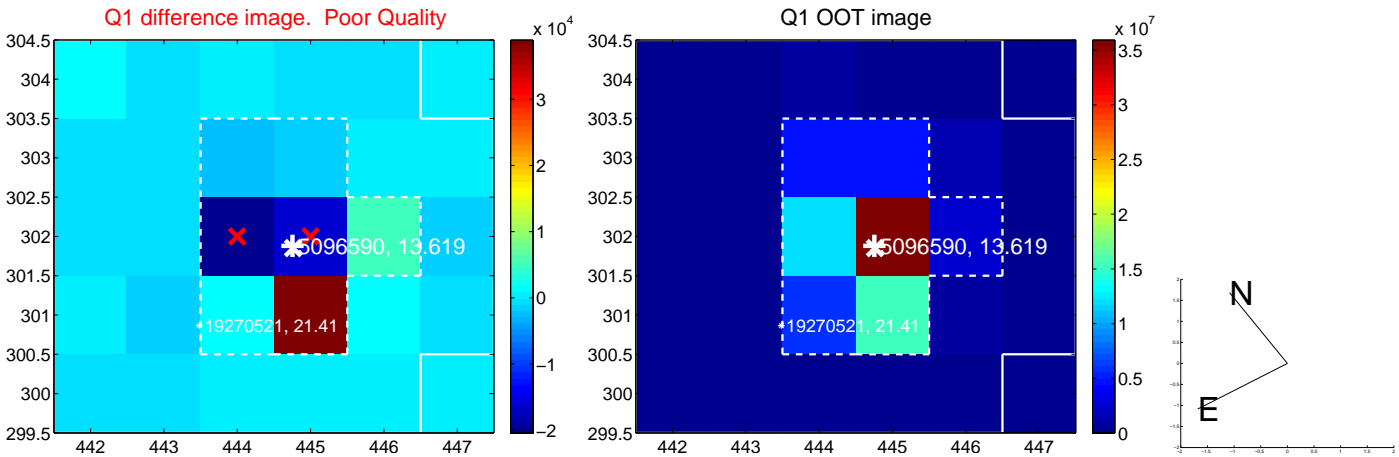
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.496 ± 0.450	1.10	-0.302 ± 0.357	0.393 ± 0.415
PRF-fit source offset from KIC position	0.519 ± 0.443	1.17	-0.295 ± 0.367	0.426 ± 0.378
photometric centroid source offset	1.15 ± 0.83	1.38	-1.11 ± 0.83	-0.31 ± 0.85

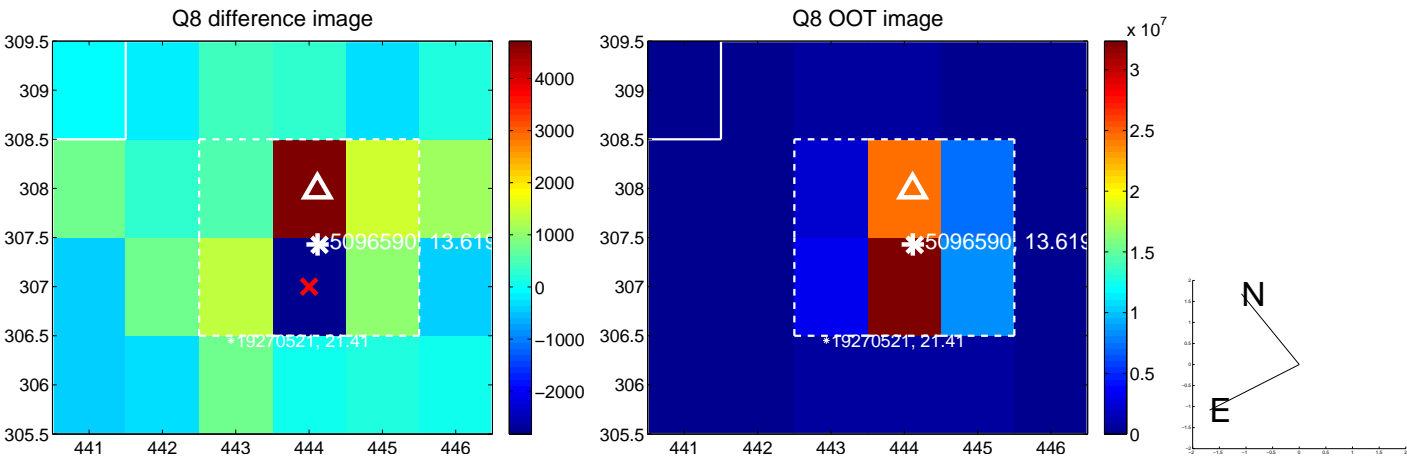
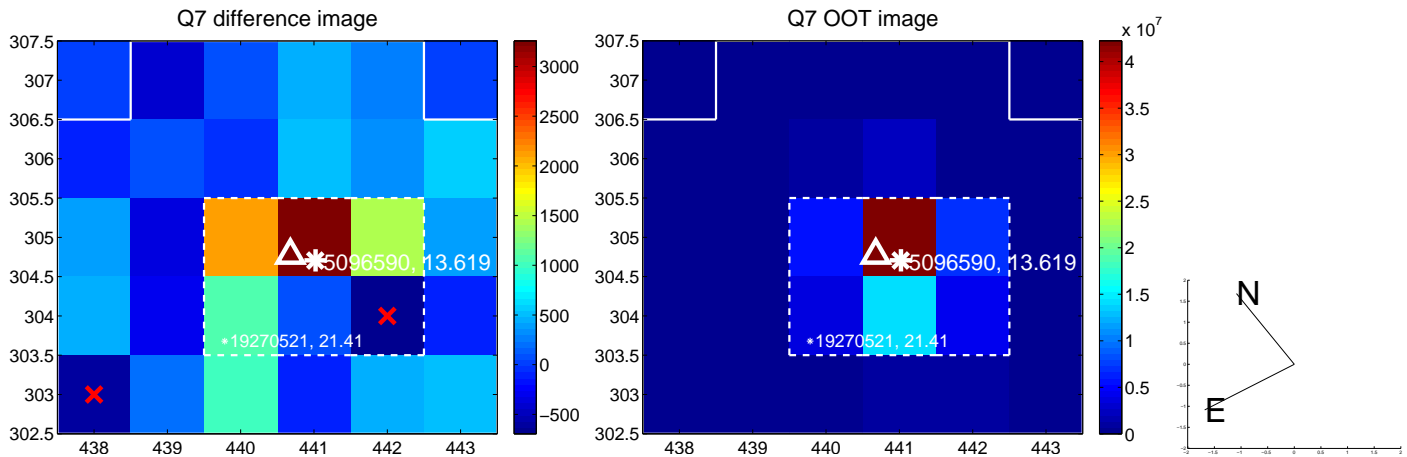
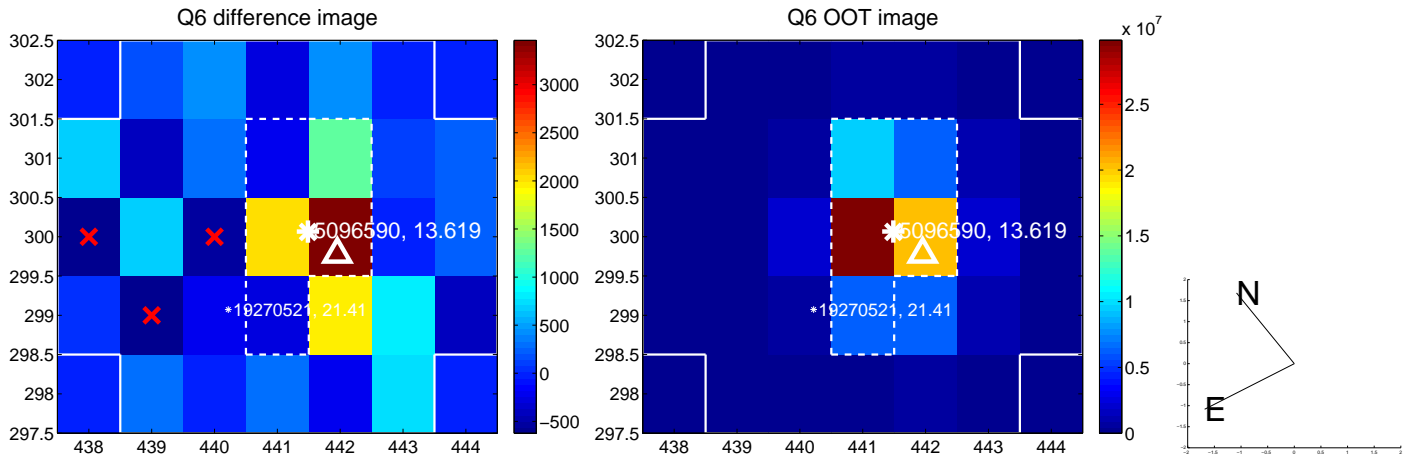
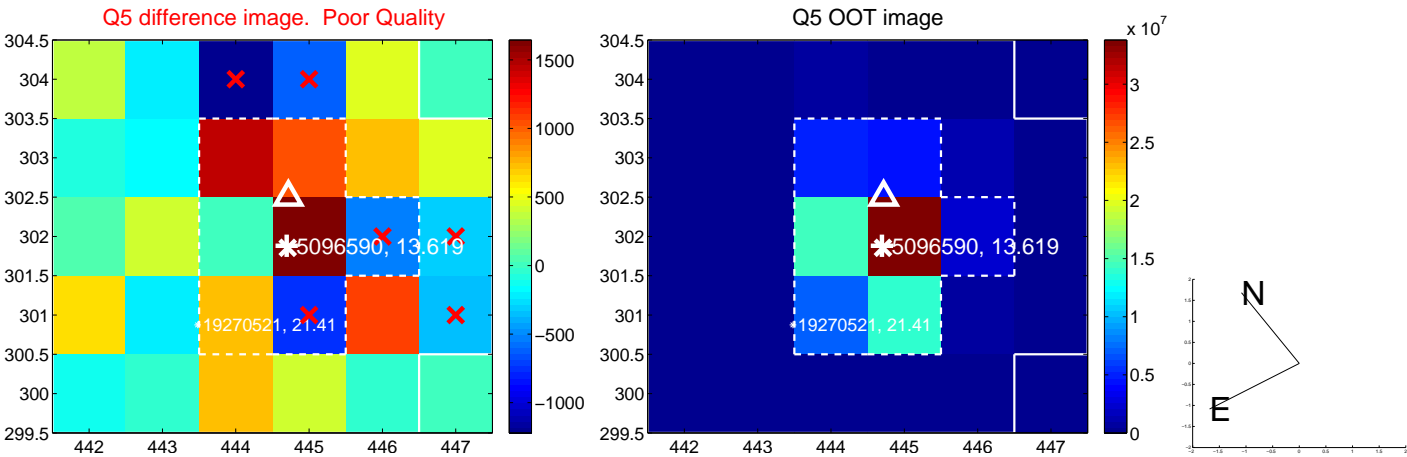


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

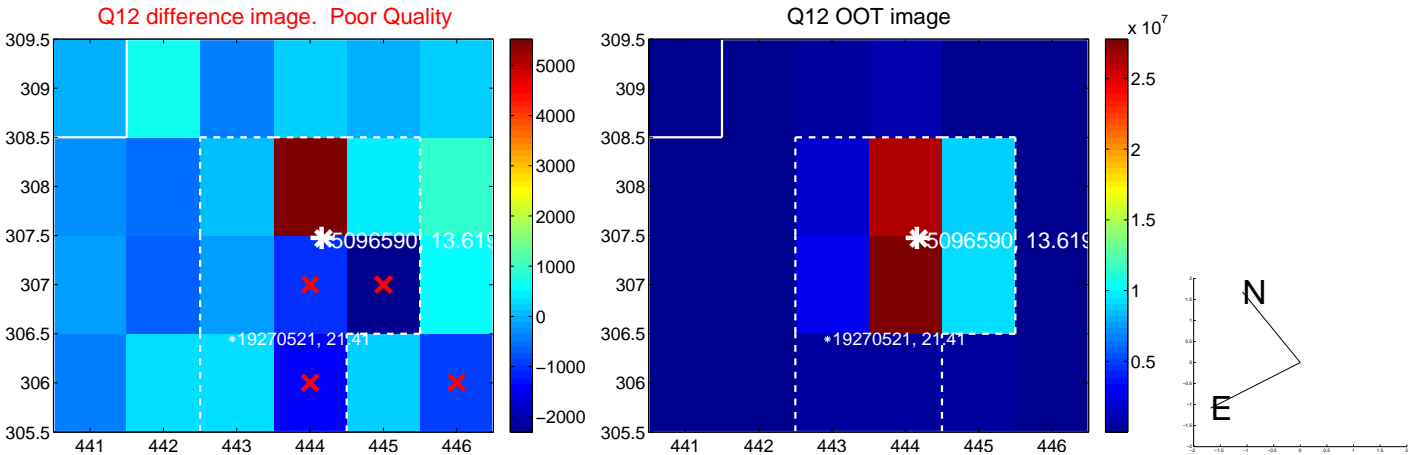
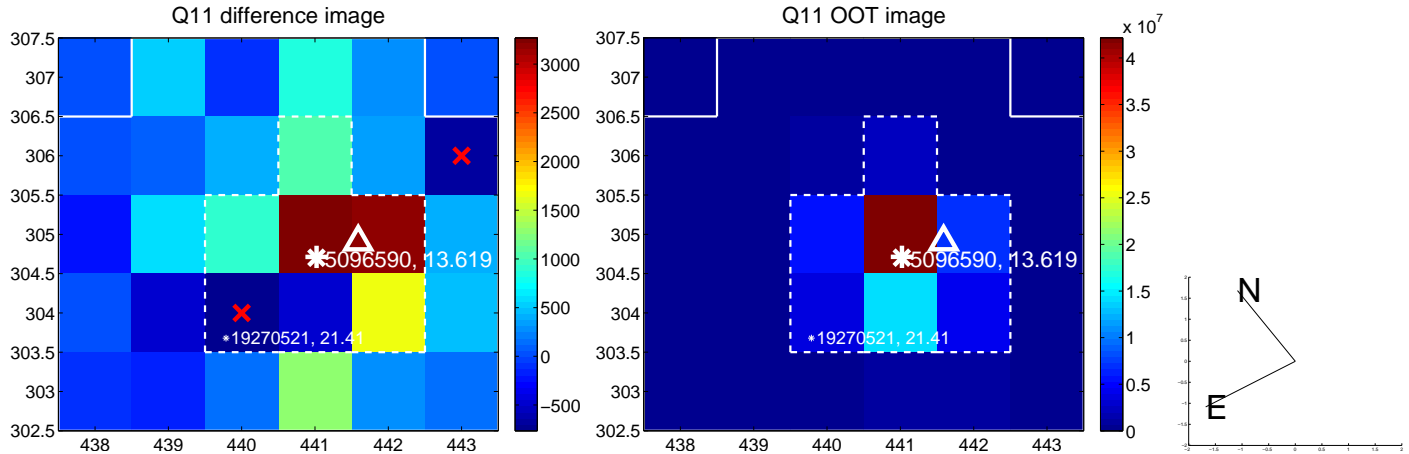
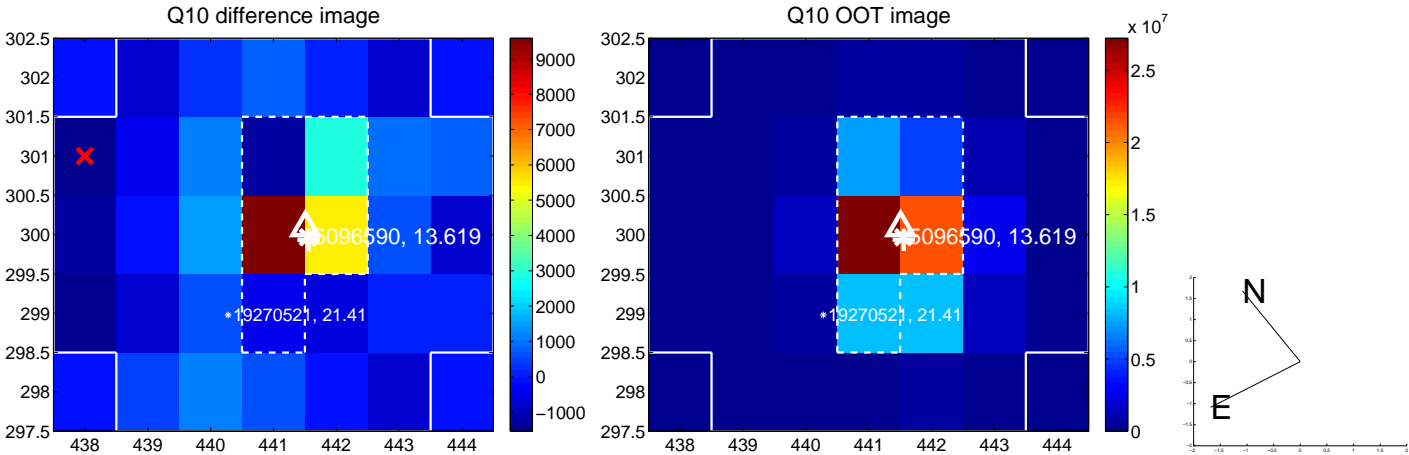
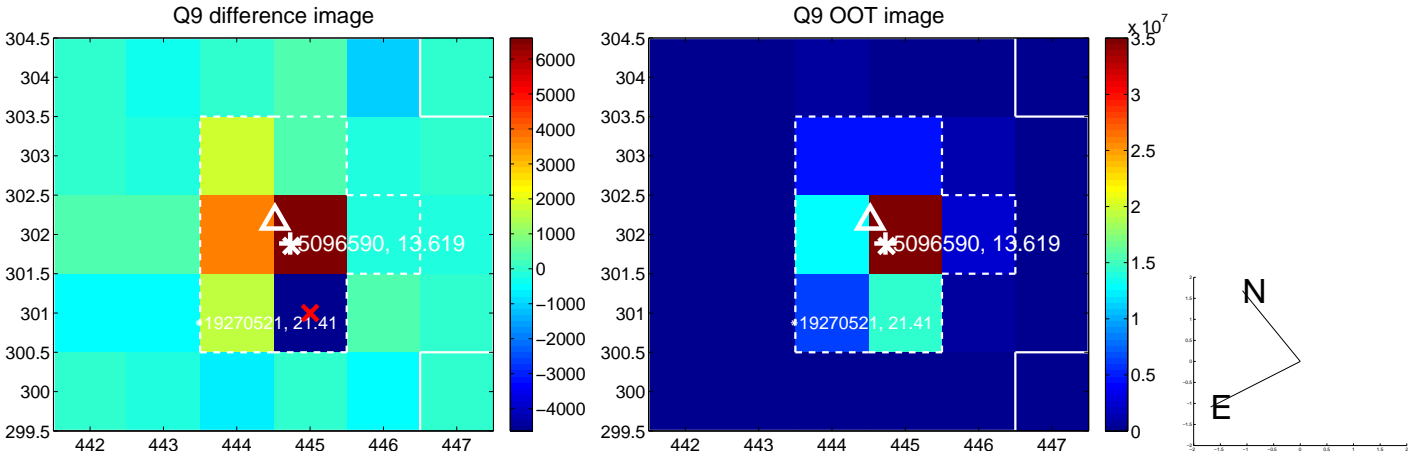
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



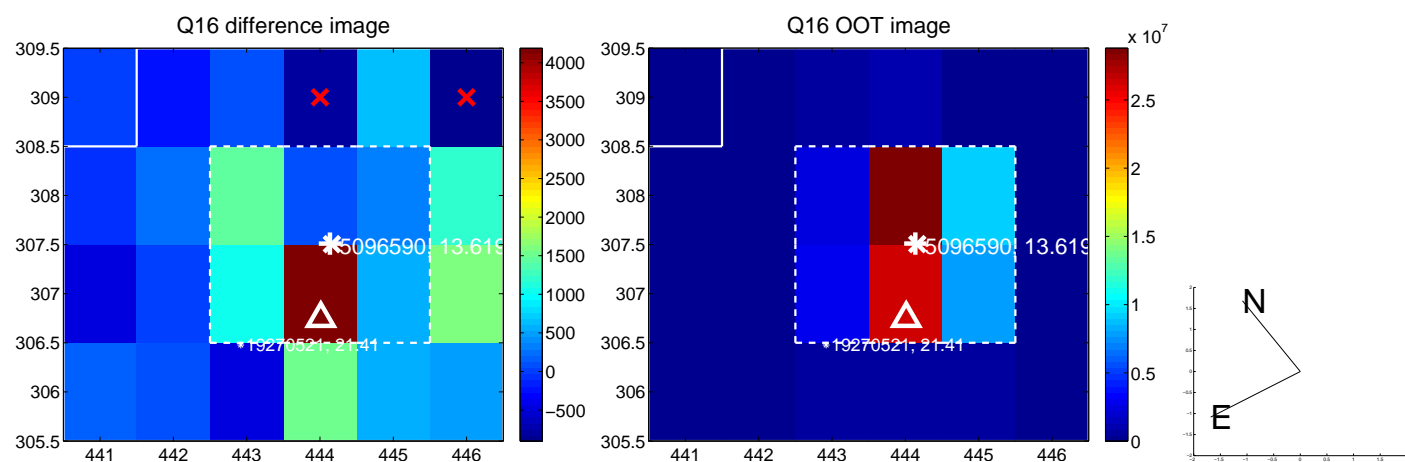
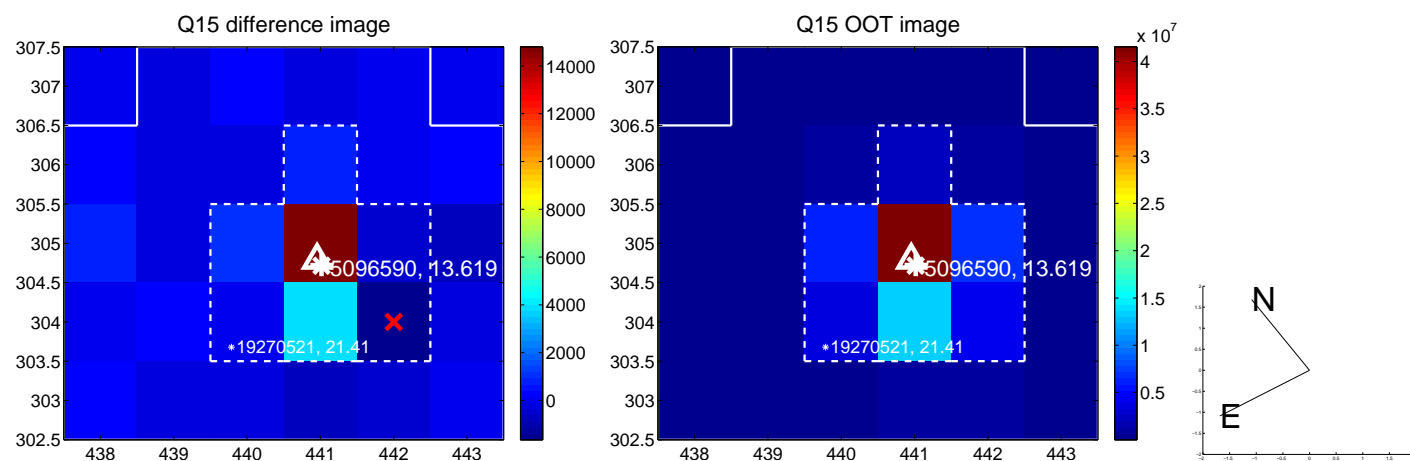
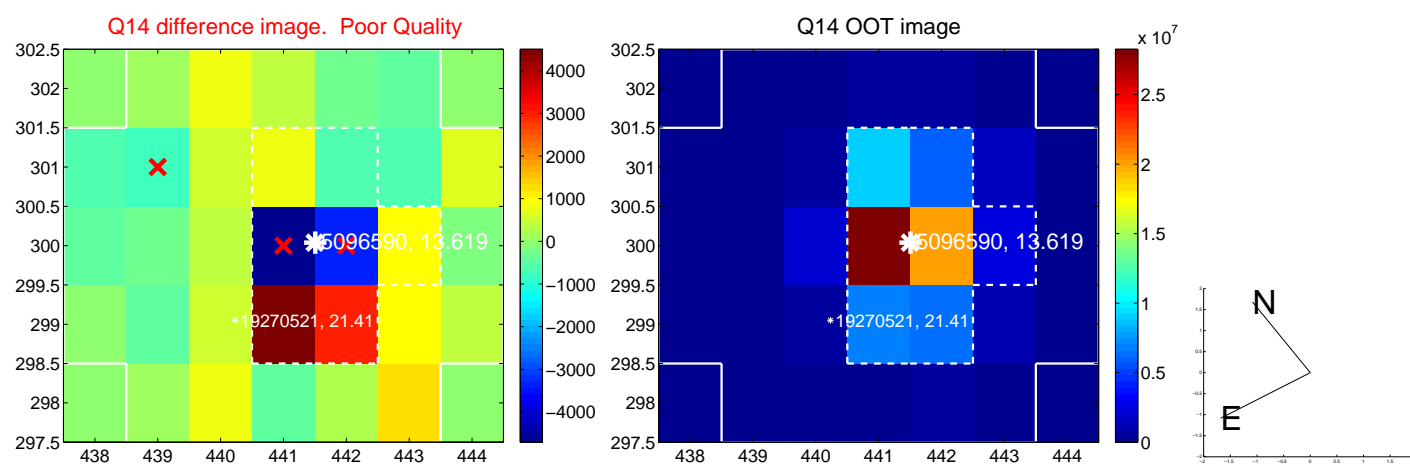
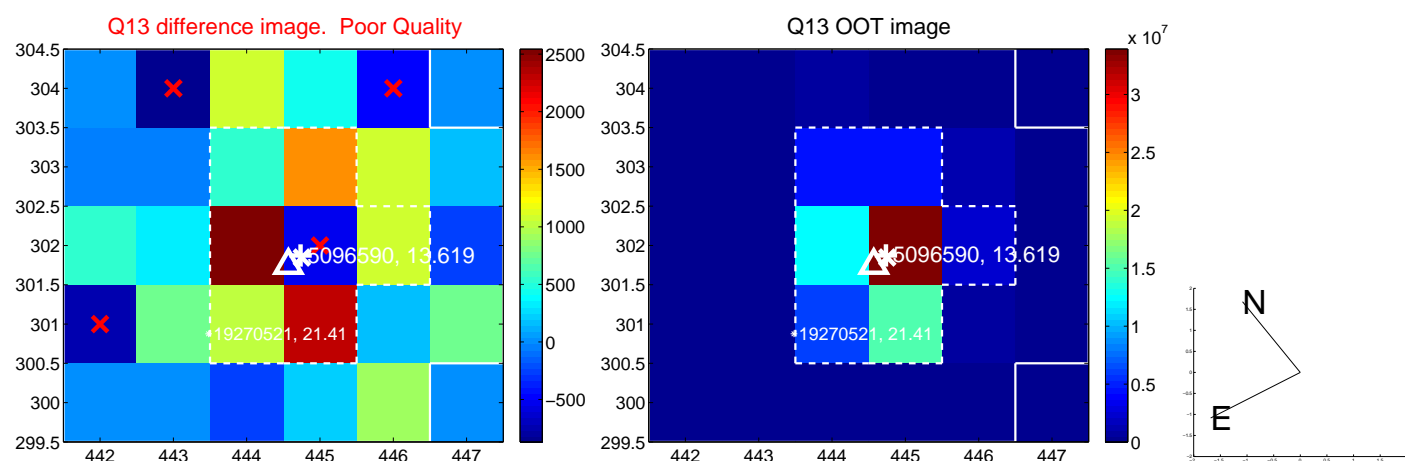
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



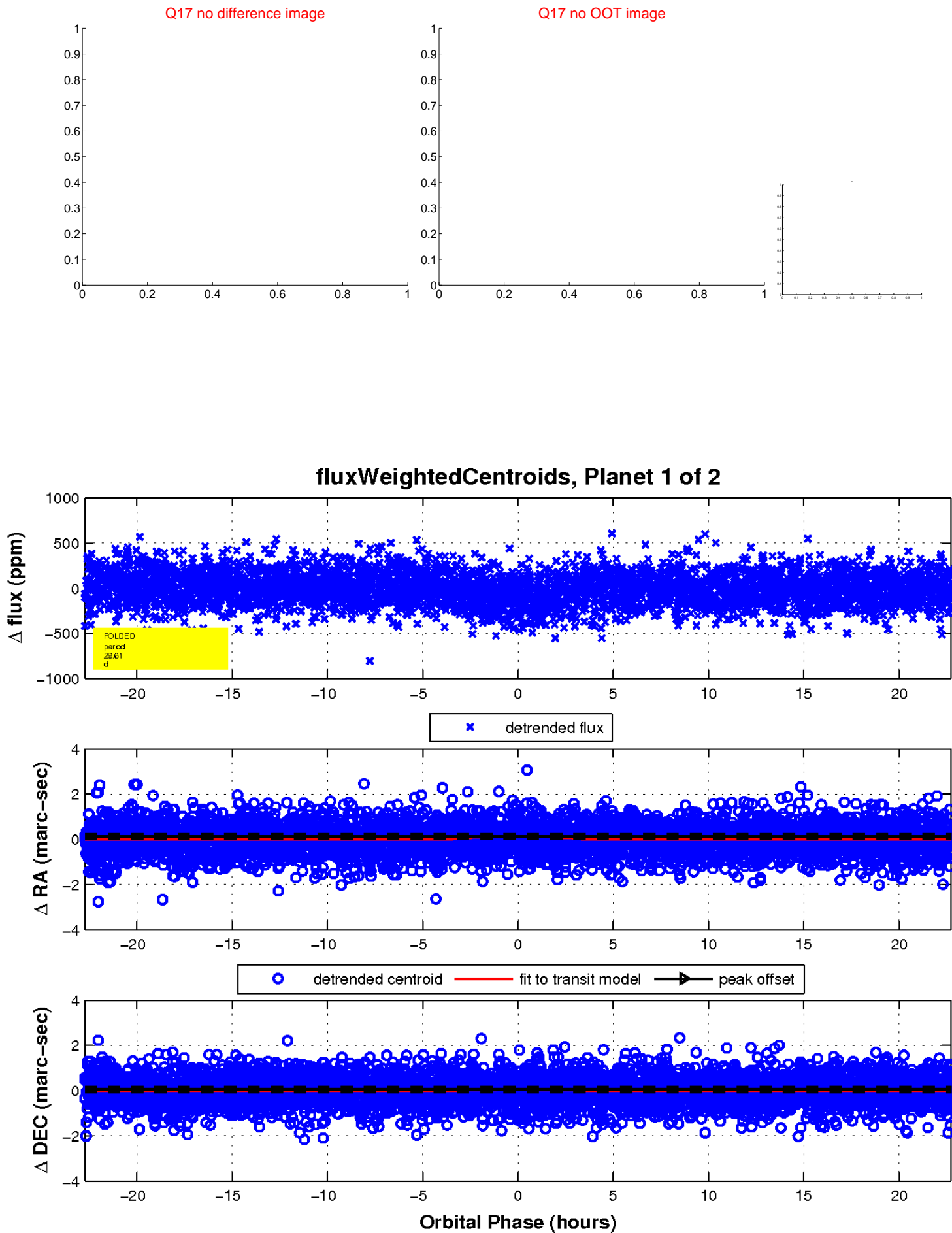
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

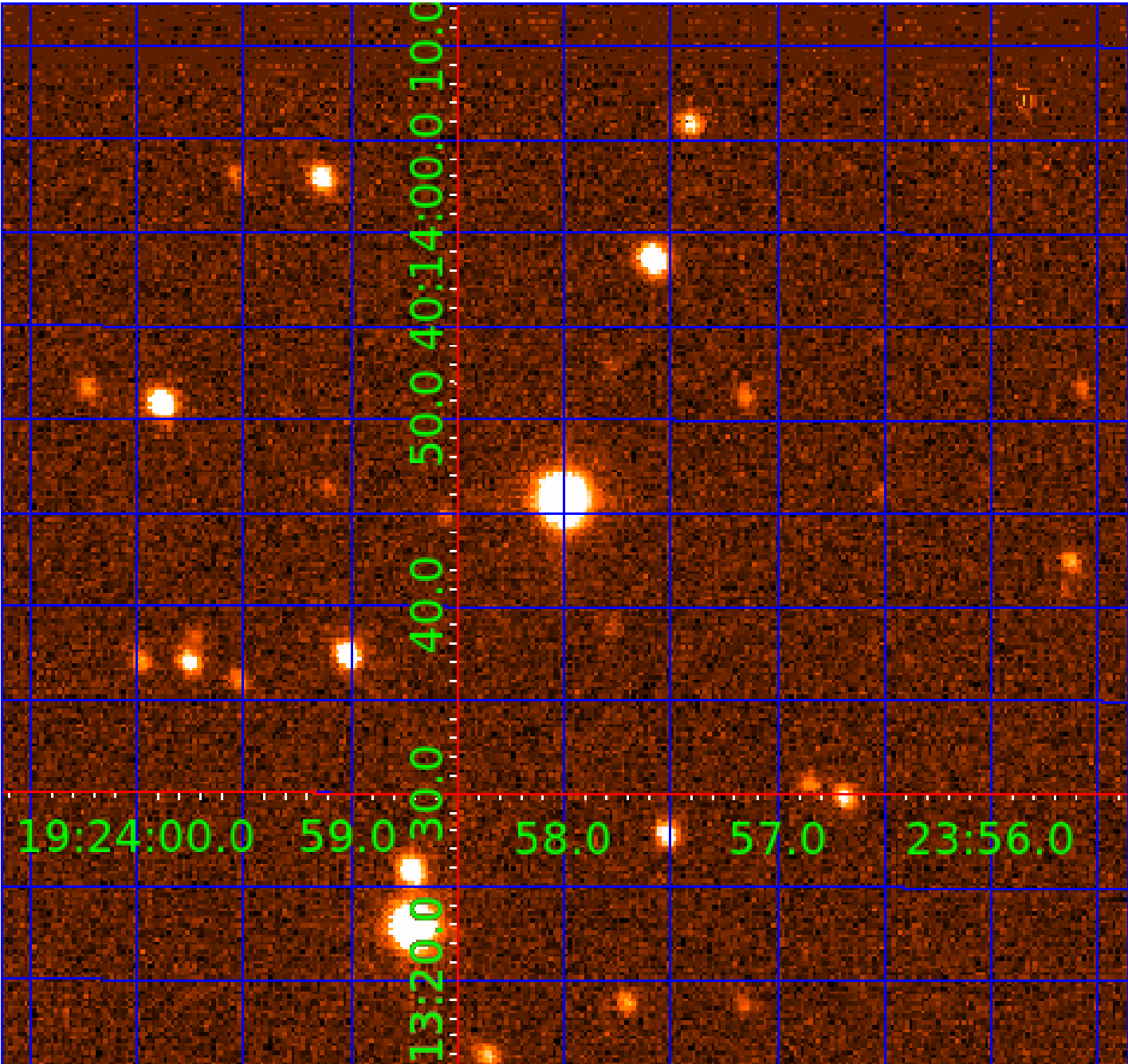


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005096590

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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005096590-02	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.

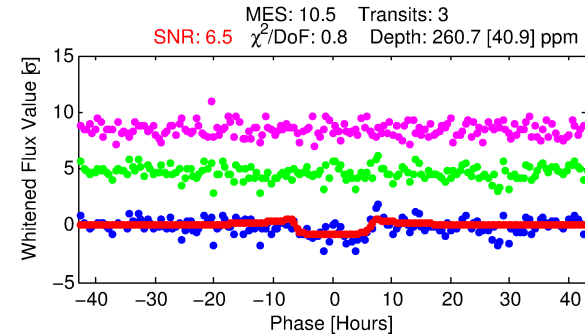
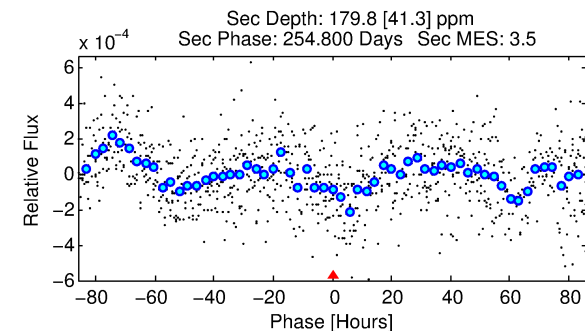
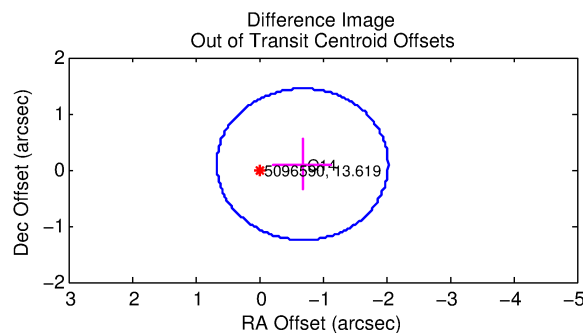
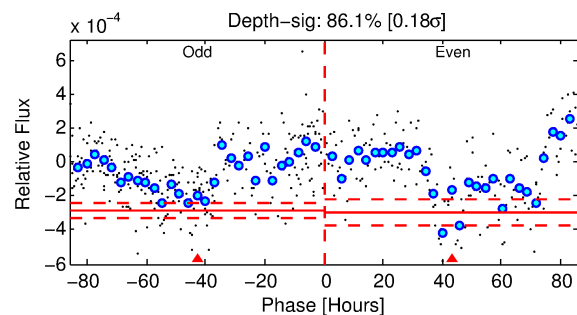
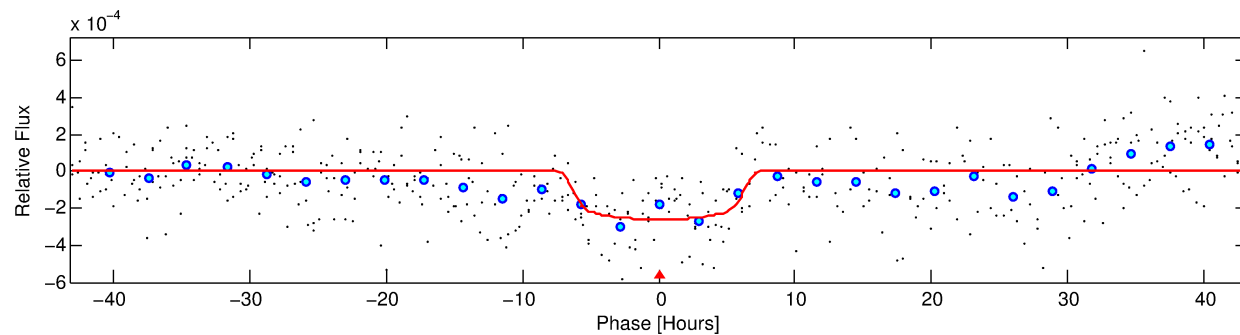
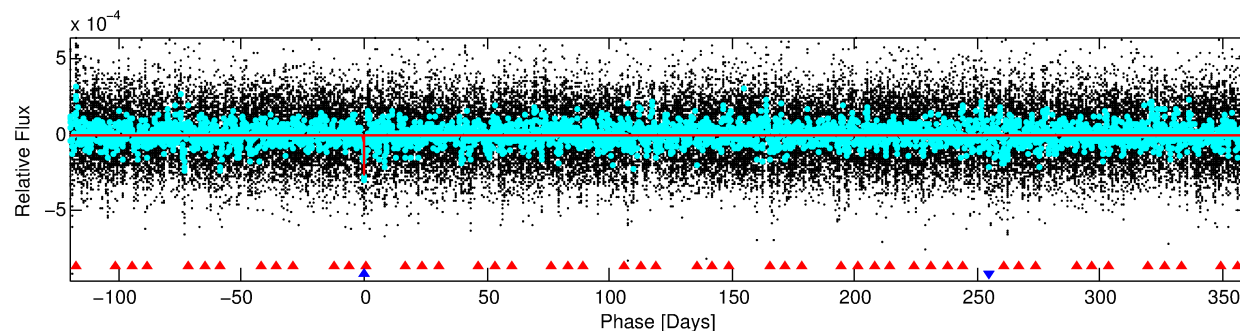
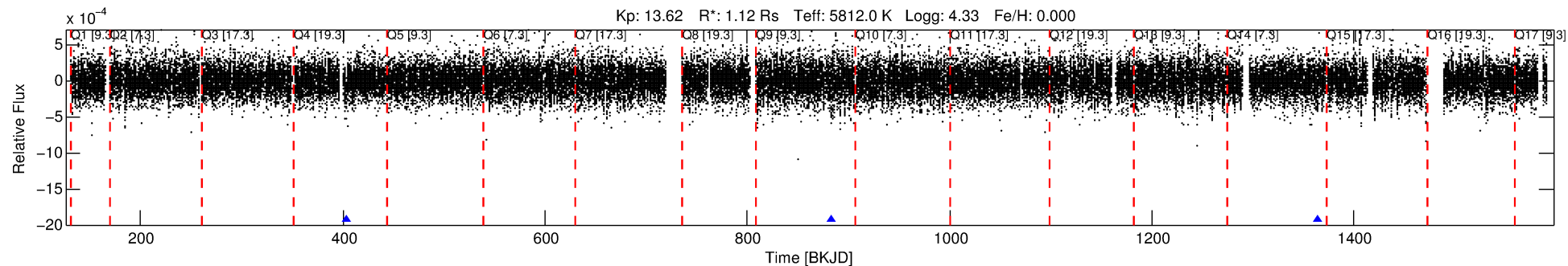
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005096590-02

No Significant Match Found

DV One-Page Summary

KIC: 5096590 Candidate: 2 of 2 Period: 480.394 d
KOI: K03093 Corr: No Ephemeris Match



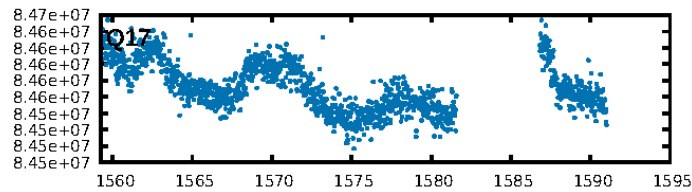
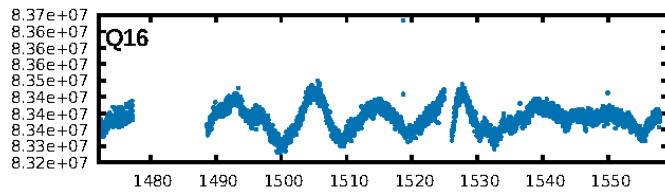
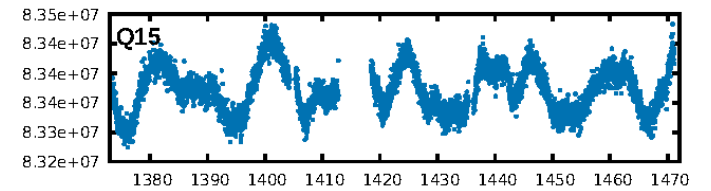
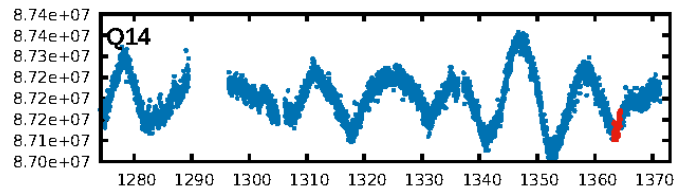
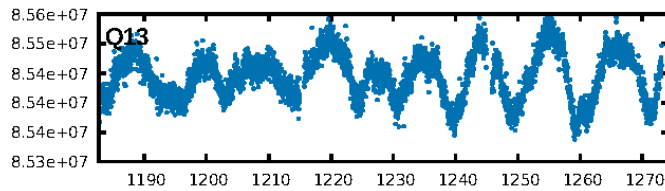
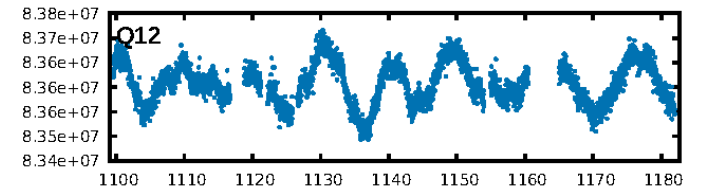
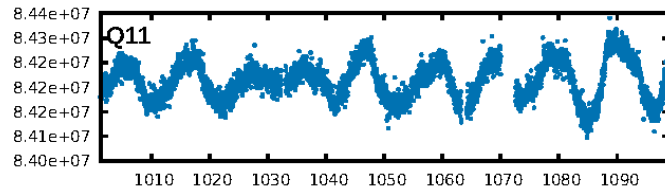
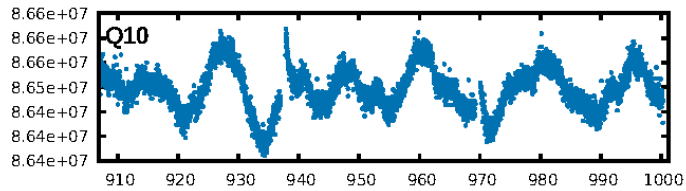
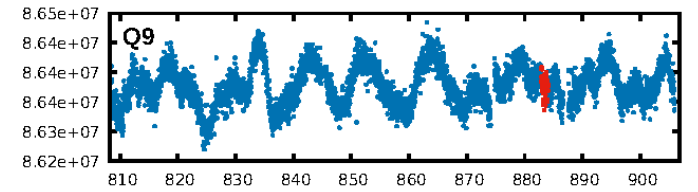
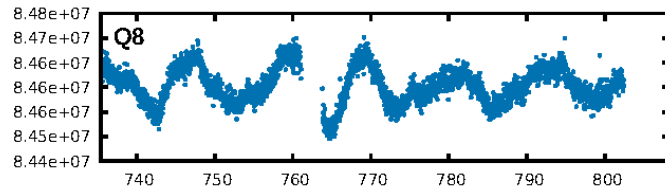
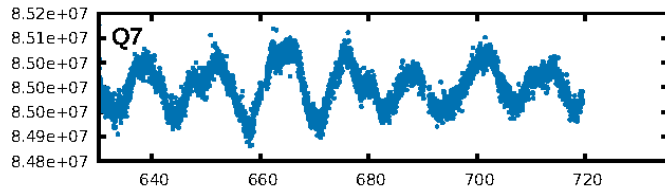
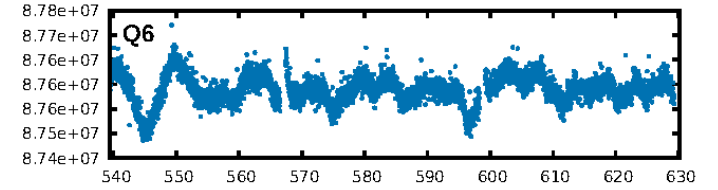
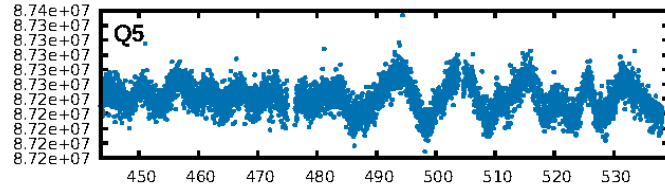
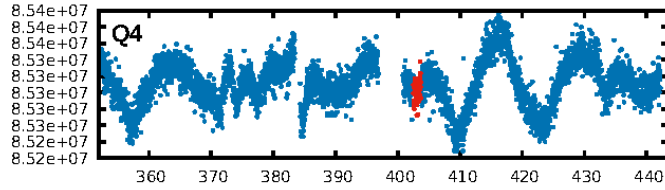
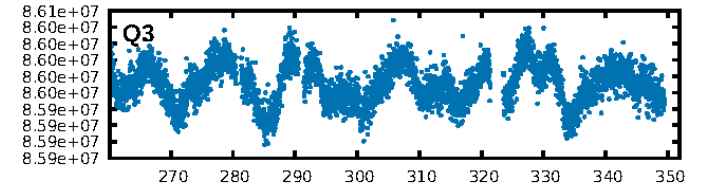
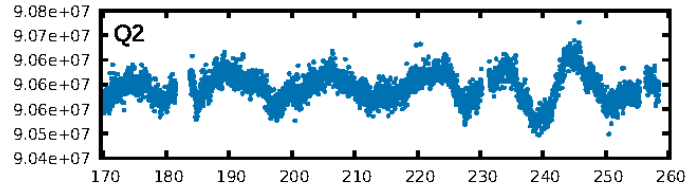
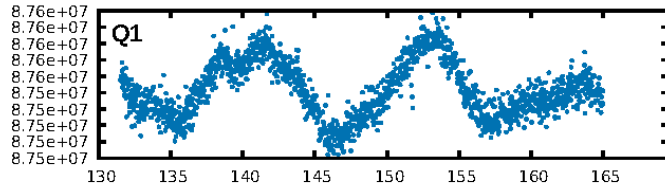
DV Fit Results:

Period = 480.39416 [0.01619] d
Epoch = 403.0852 [0.0221] BKJD
Rp/R* = 0.0182 [0.0022]
a/R* = 104.58 [42.23]
b = 0.93 [0.06]
Seff = 0.91 [0.21]
Teq = 249 [14] K
Rp = 2.23 [0.43] Re
a = 1.1924 [0.1657] AU
Ag = 28236.21 [11187.77] [2.52 σ]
Teffp = 4985 [424] K [11.15 σ]

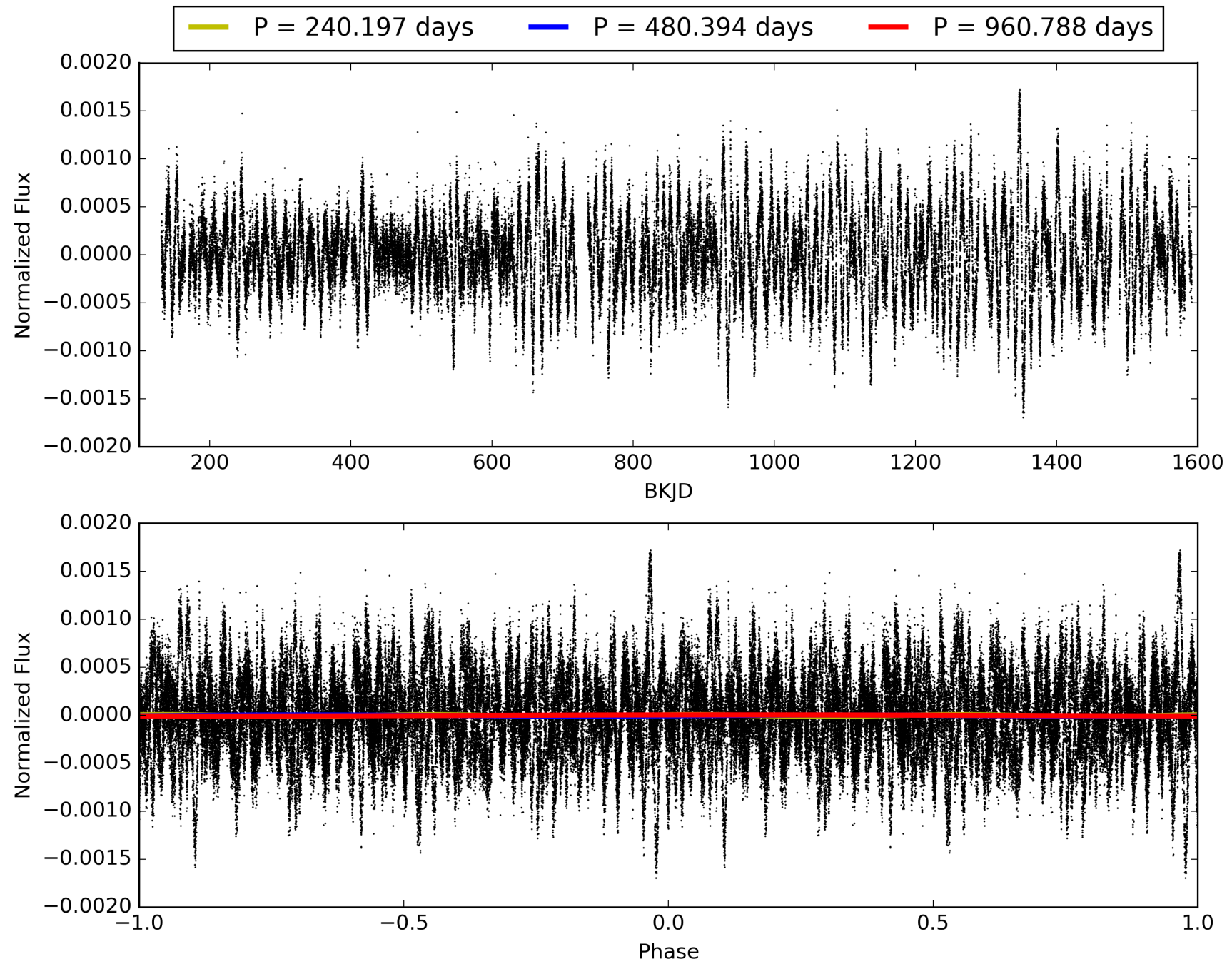
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [665.43 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 33.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.03e-25
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.372
Centroid-sig: 7.9%
Centroid-so: 1.734 arcsec [1.80 σ]
OotOffset-rm: 0.689 arcsec [1.53 σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-rm: 0.664 arcsec [1.48 σ]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.67 [2/3]

TCE 005096590-02, PDC Light Curves

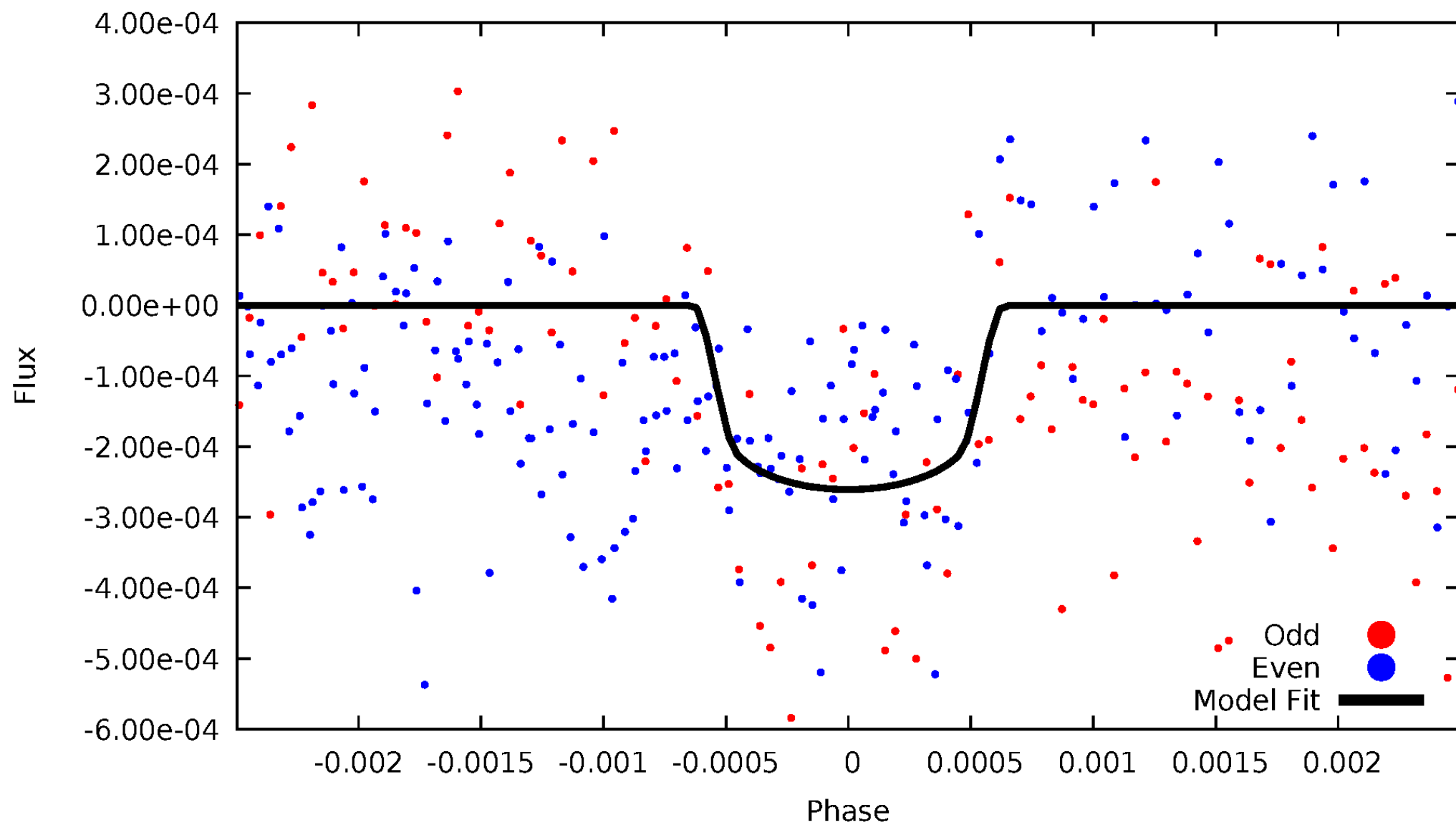


TCE 005096590-02



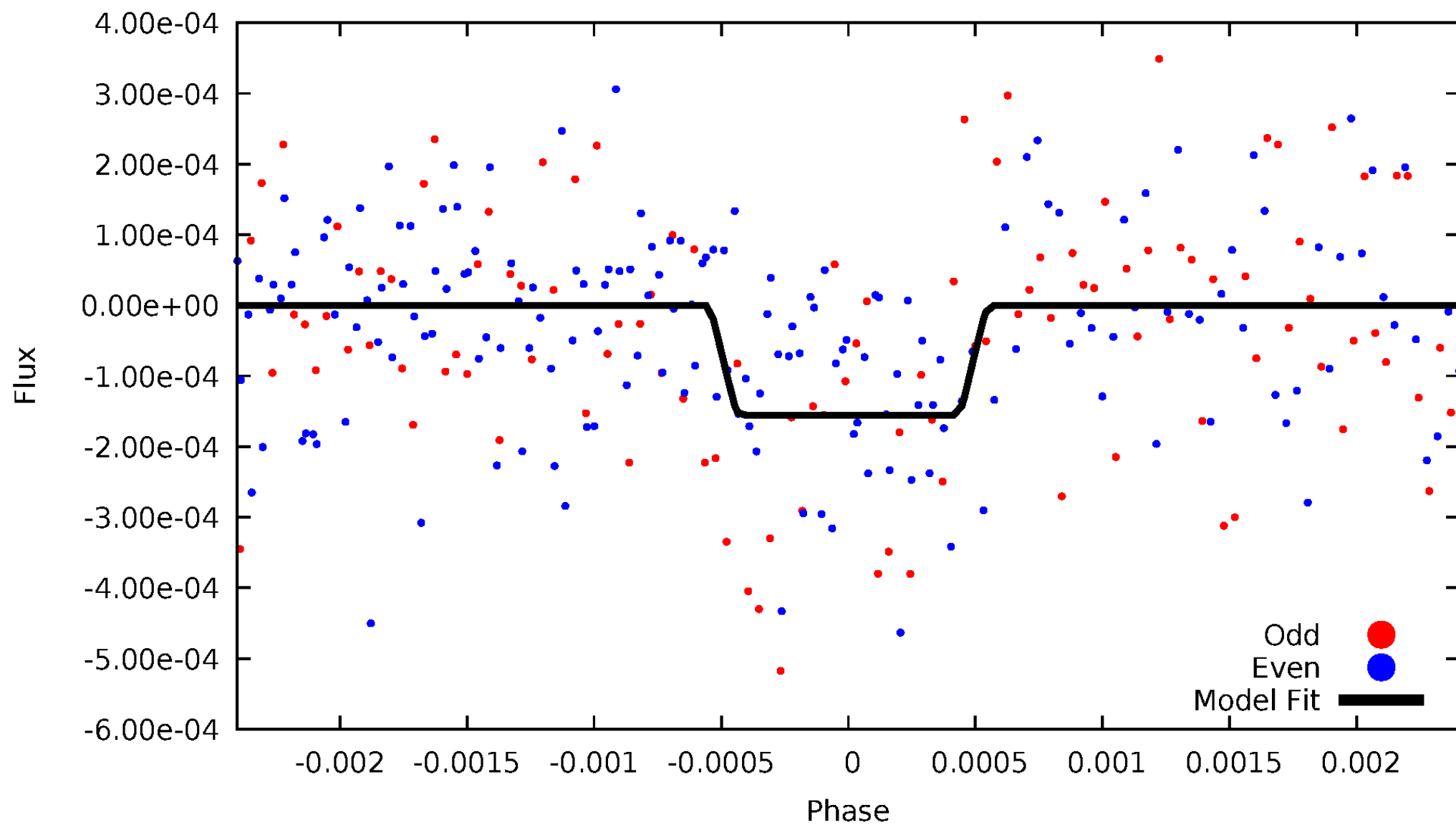
DV Odd/Even

TCE 005096590-02



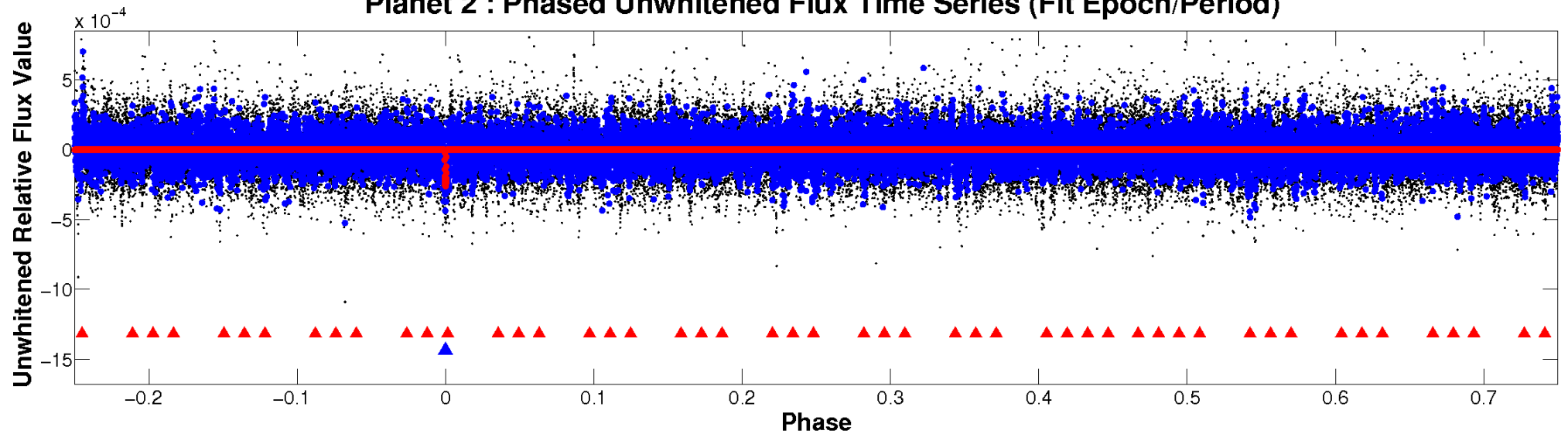
ALT Odd/Even

TCE 005096590-02

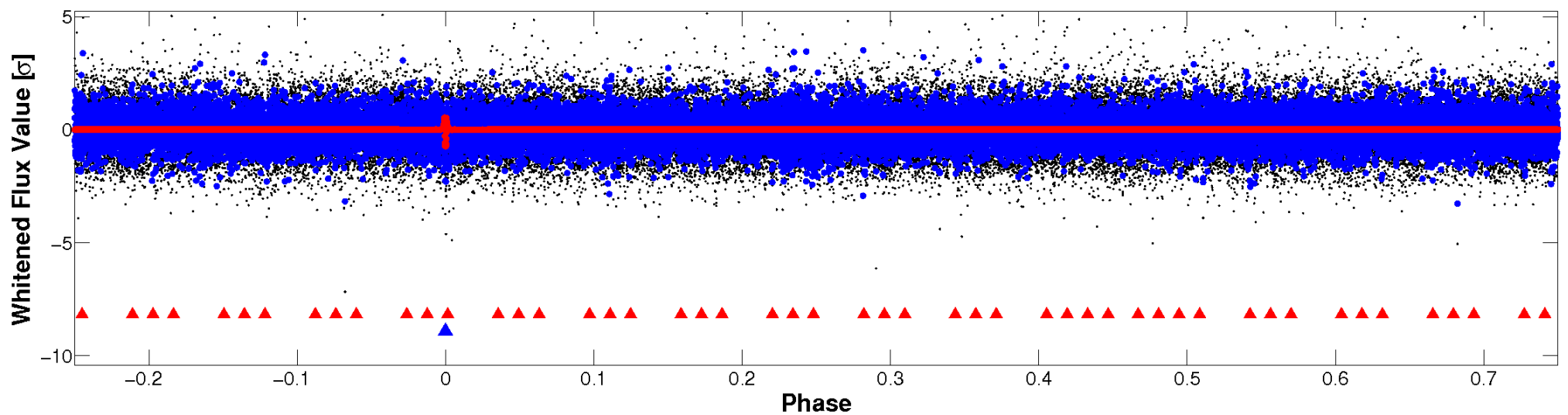


Non-Whitened Vs. Whitened Light Curve

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



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



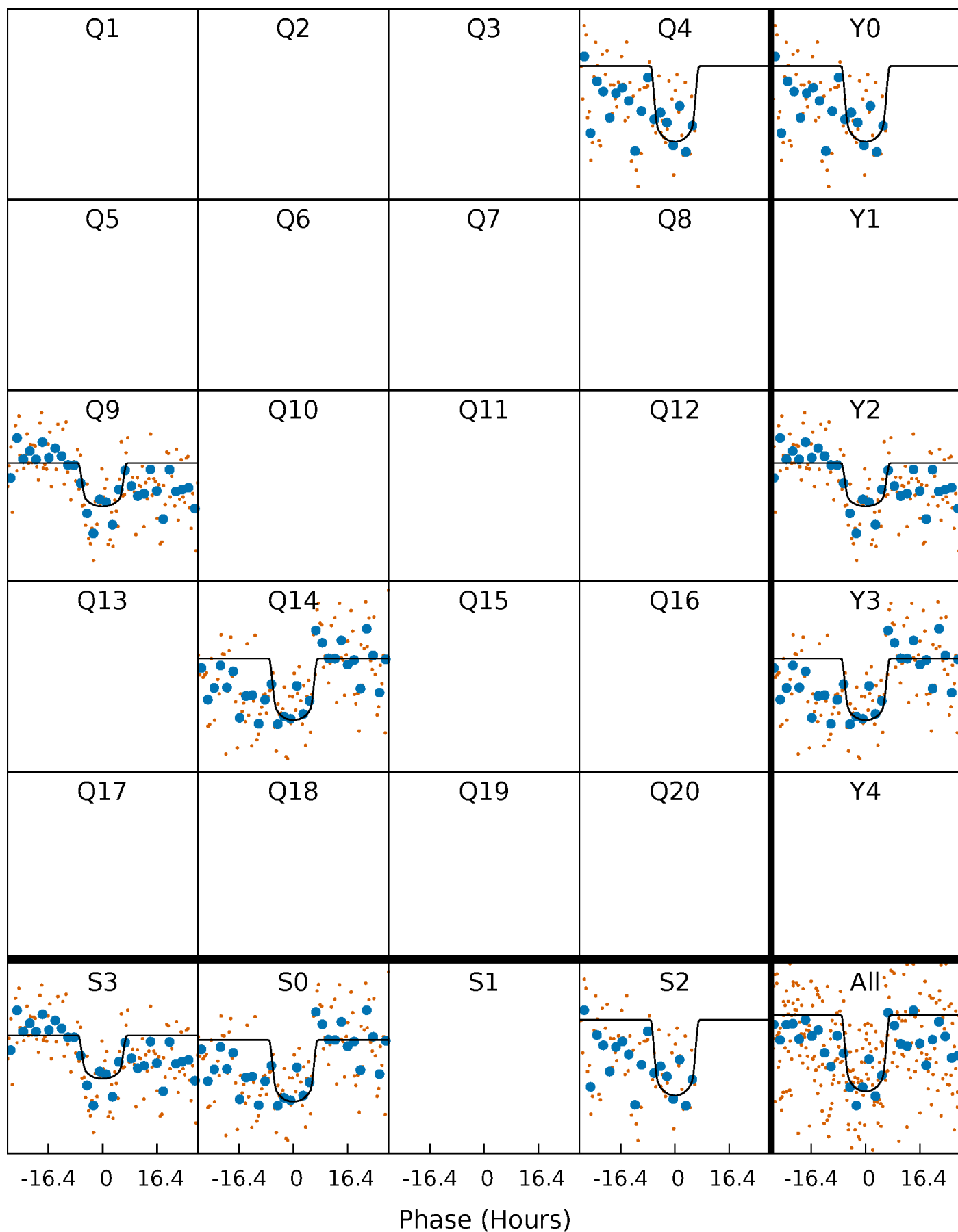
PDC Quarter-Phased Transit Curves

TCE 005096590-02 P=480.394161 Days $T_0=403.085246$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 005096590-02 P=480.394161 Days $T_0=403.085246$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

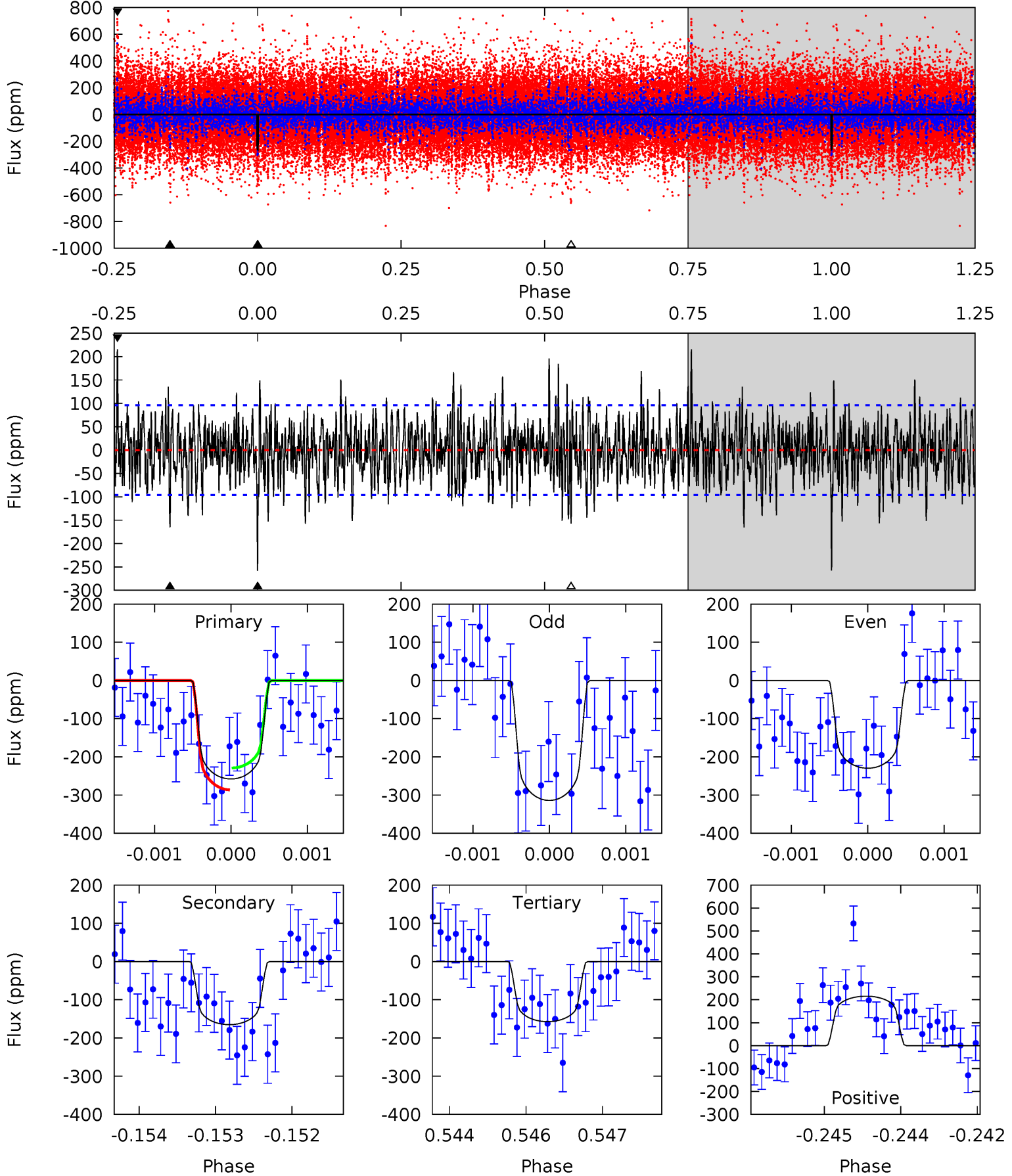
TCE 005096590-02 P=480.338506 Days $T_0=403.156724$ (BKJD)



DV Model-Shift Uniqueness Test

005096590-02, P = 480.394161 Days, E = 403.085246 Days

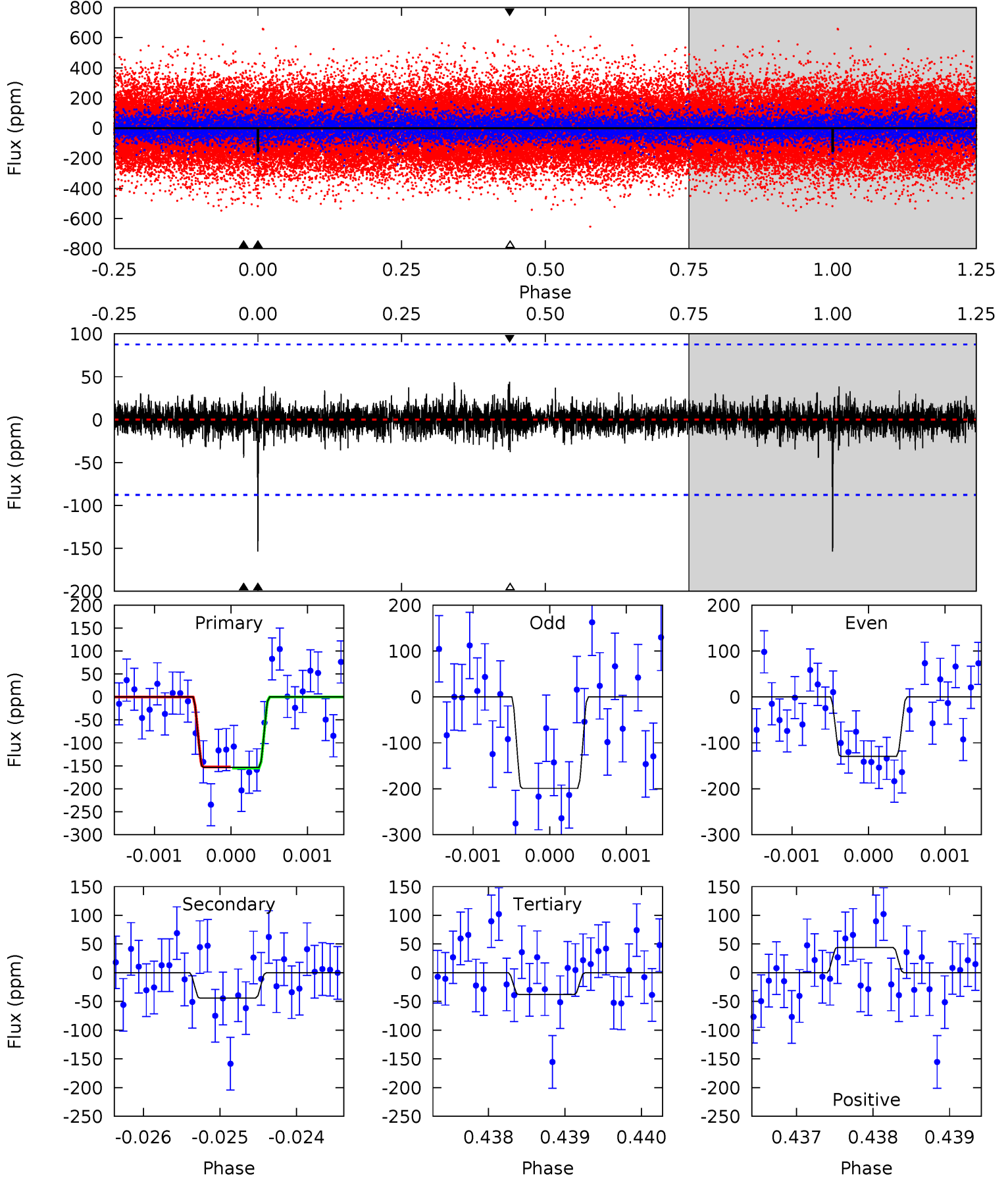
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	9.30	8.86	12.1	5.41	3.23	2.84	5.66	2.37	0.44	-2.84	2.25	1.11	0.46	1.61



Alt Model-Shift Uniqueness Test

005096590-02, P = 480.338506 Days, E = 403.156724 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.51	2.74	2.34	2.72	5.43	3.25	0.60	7.16	6.78	0.39	0.01	2.05	1.03	0.22	0.07



Stellar Parameters For KIC 005096590

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5812^{+104}_{-116}	$4.329^{+0.126}_{-0.115}$	$0.000^{+0.150}_{-0.150}$	$1.122^{+0.168}_{-0.151}$	$0.977^{+0.081}_{-0.066}$	$0.975^{+0.558}_{-0.301}$
	+2%/-2%	+3%/-3%	+inf%/-inf%	+15%/-13%	+8%/-7%	+57%/-31%
Source	SPE57	SPE57	SPE57	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 005096590-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-165 ± 18	$2.24^{+0.34}_{-0.33}$	347^{+16}_{-15}	4959^{+318}_{-262}	26124^{+9232}_{-6769}
Alt.	-44 ± 16	$1.51^{+0.32}_{-0.27}$	347^{+15}_{-16}	4445^{+451}_{-435}	14972^{+10131}_{-6558}

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 $A_{obs} \gg 1.0$

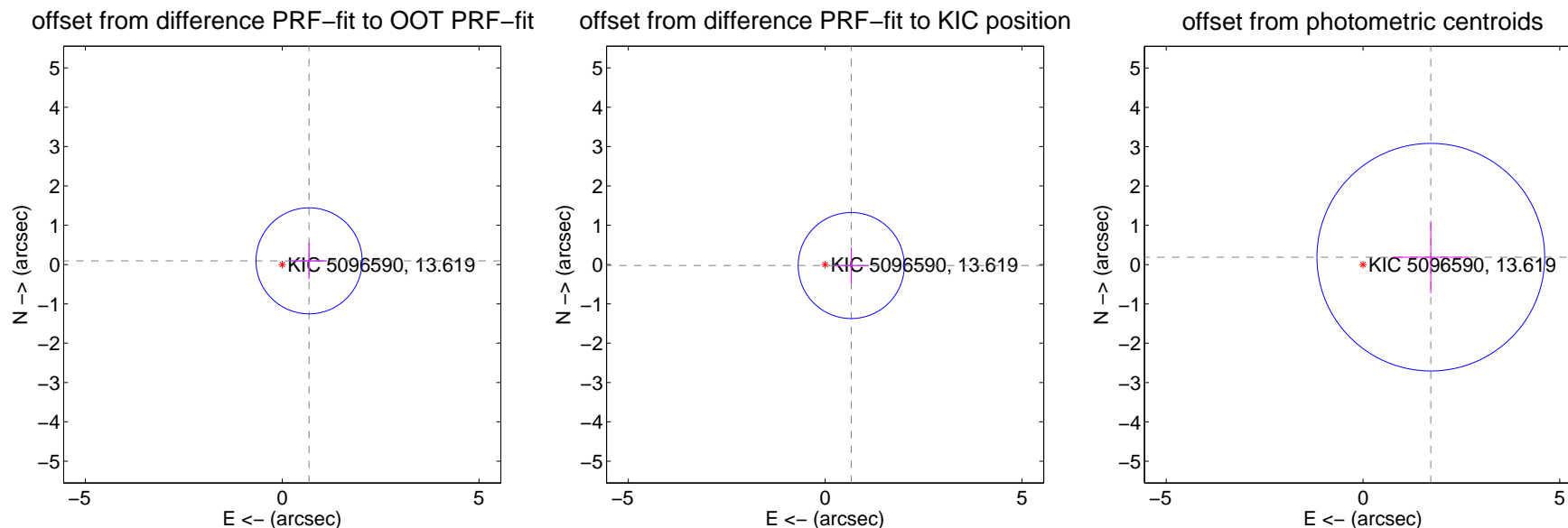
DV Centroid Data

Supplemental centroid analysis for 005096590-02. Kepler magnitude: 13.62. Transit SNR 6.50

There are 1 quarters with good PRF difference image offsets

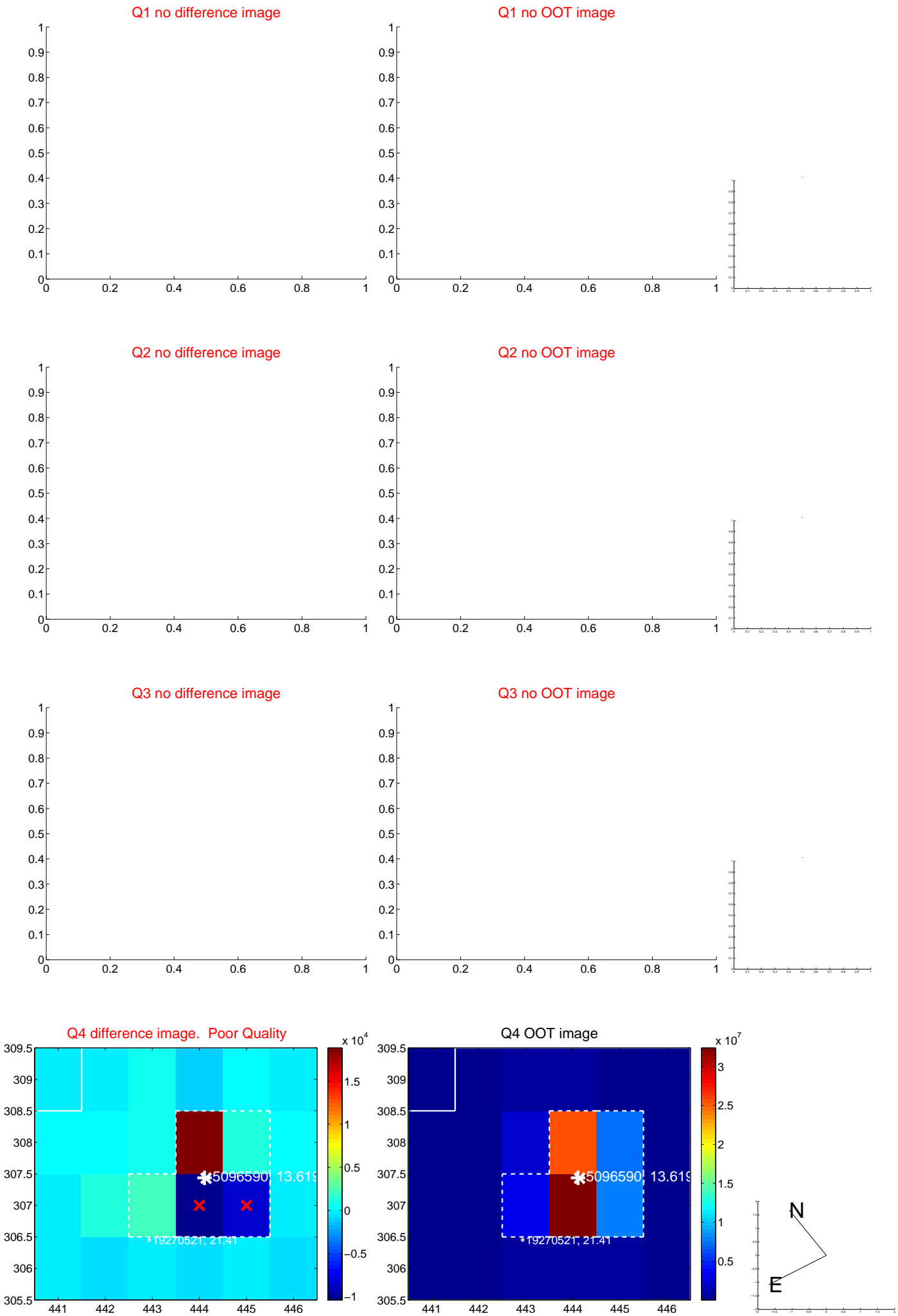
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.689 ± 0.449	1.53	-0.683 ± 0.449	0.094 ± 0.456
PRF-fit source offset from KIC position	0.664 ± 0.449	1.48	-0.664 ± 0.449	-0.025 ± 0.456
photometric centroid source offset	1.73 ± 0.96	1.80	-1.72 ± 0.97	0.19 ± 0.92



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.

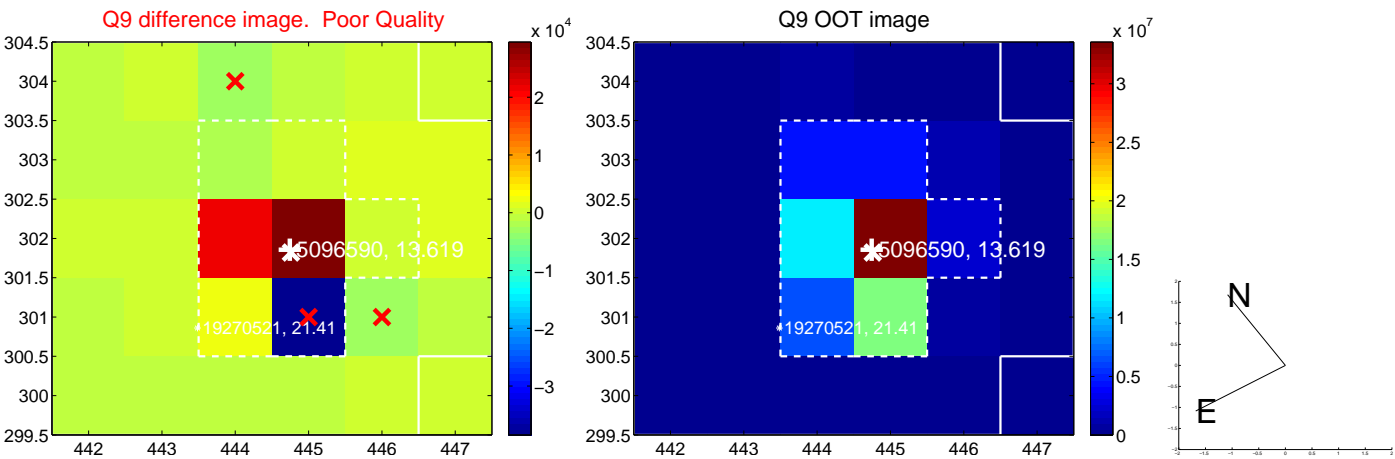
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



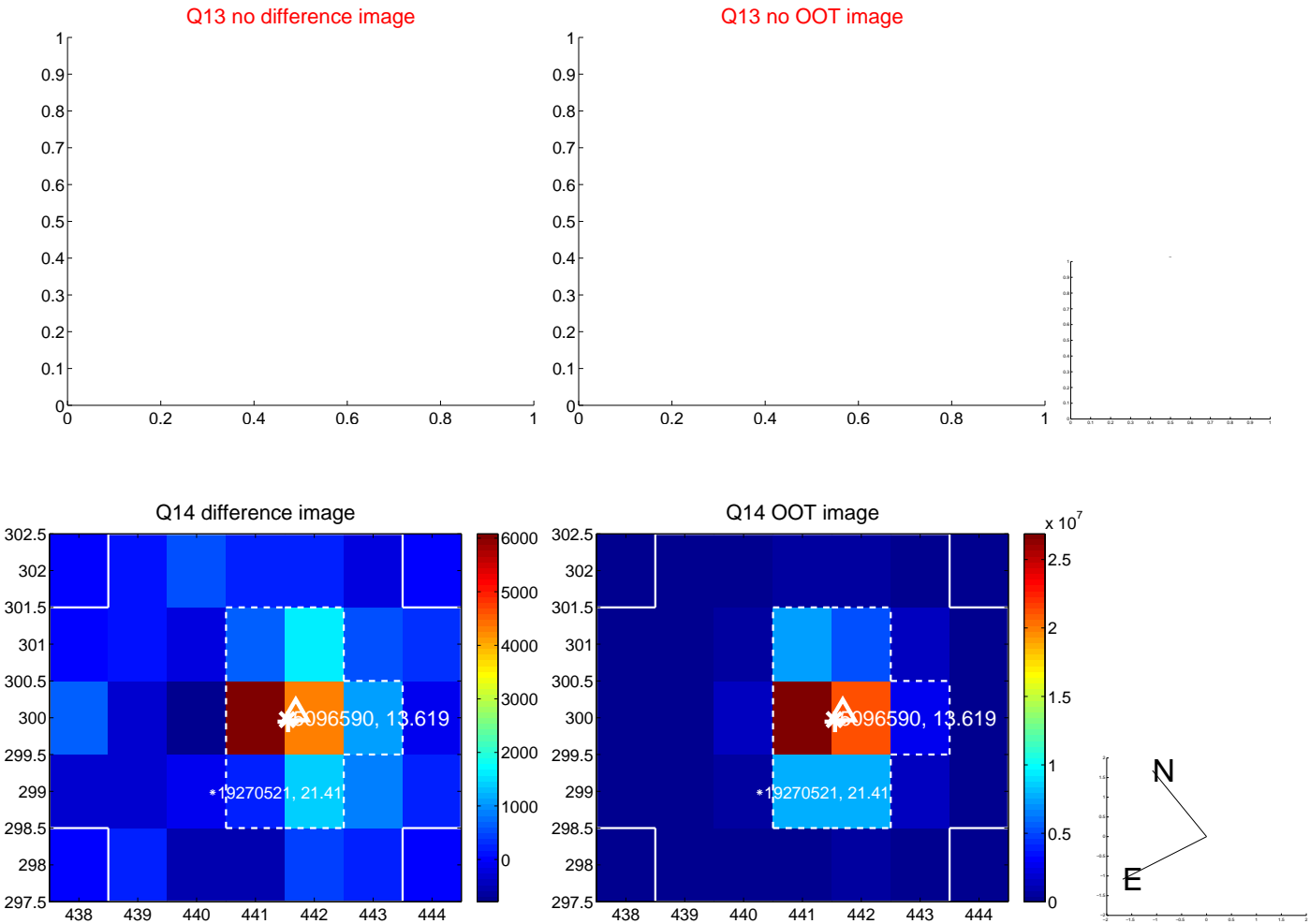
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



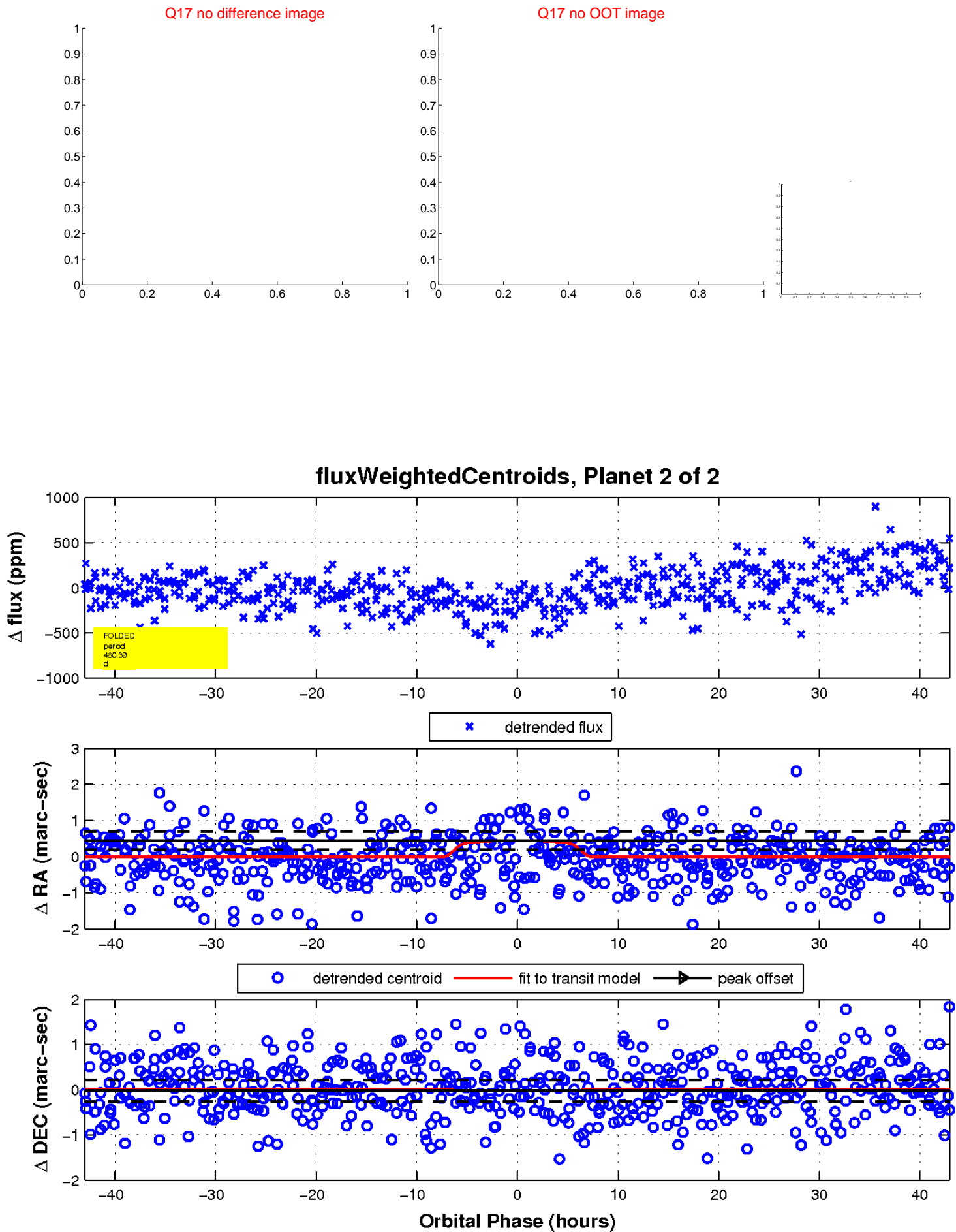
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

