

KIC 004466356

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})
004466356-01	OBS	3295.01	14.128072	137.122706	284.9	3.178	16.5	18.4	0.99	6072	2.70	87.89
004466356-02	OBS	No	14.127937	145.302187	168.4	1.733	9.4	10.6	0.99	6072	1.43	87.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004466356-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
004466356-02	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.

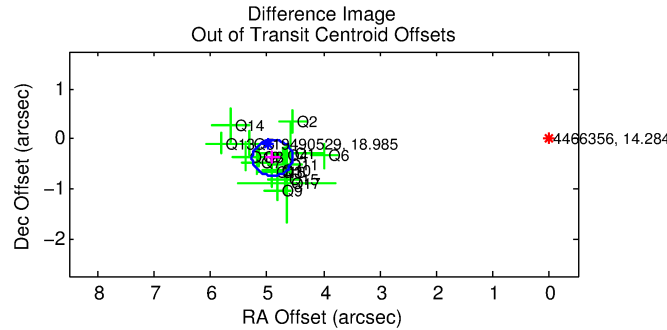
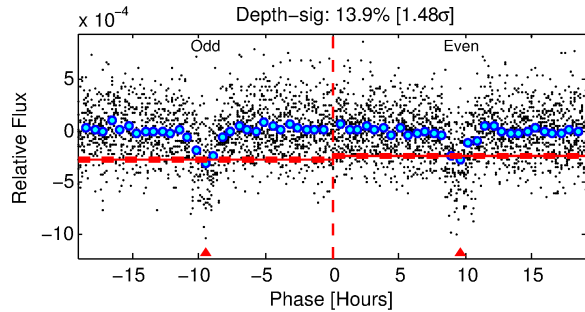
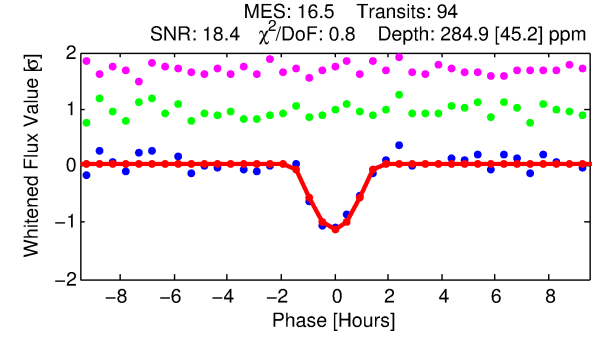
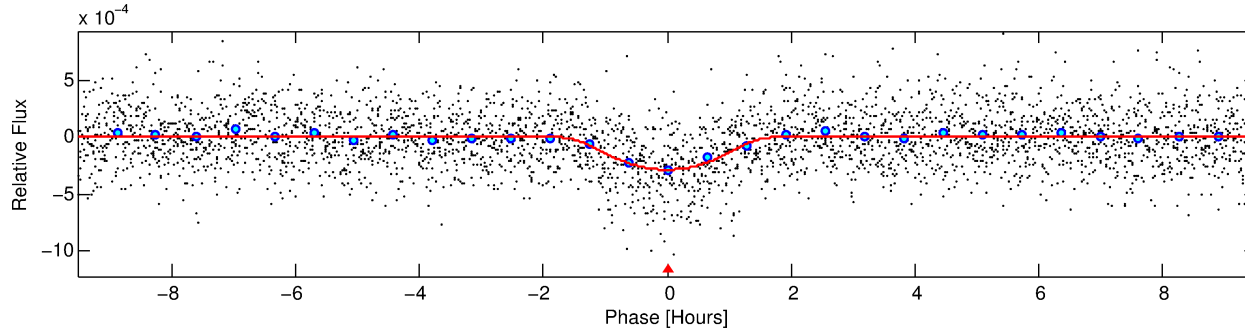
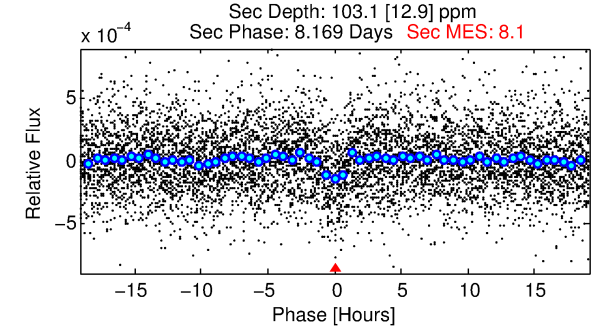
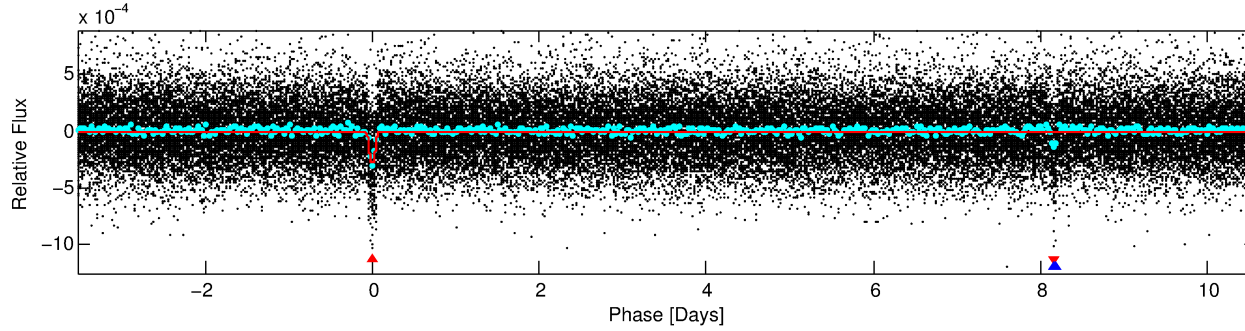
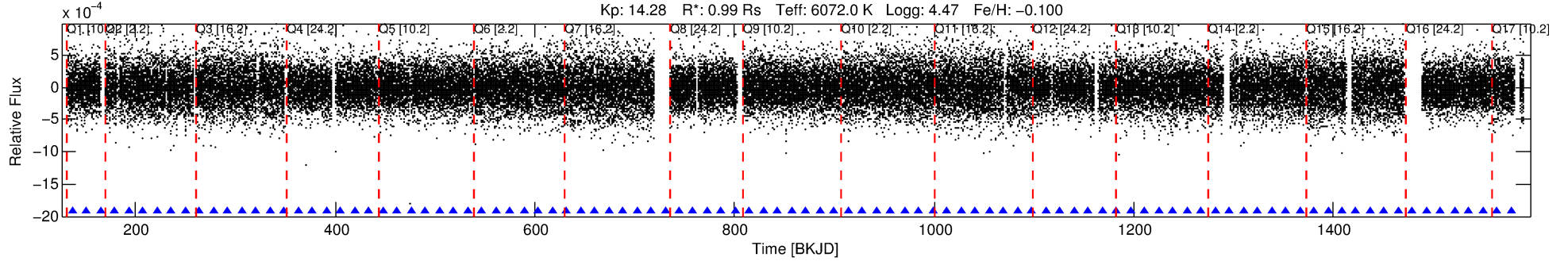
Ephemeris Match Information For 004466356-01

No Significant Match Found

DV One-Page Summary

KIC: 4466356 Candidate: 1 of 2 Period: 14.128 d
KOI: K03295 Corr: No Ephemeris Match

Kp: 14.28 R*: 0.99 Rs Teff: 6072.0 K Logg: 4.47 Fe/H: -0.100



DV Fit Results:

Period = 14.12807 [0.00007] d
Epoch = 137.1227 [0.0042] BKJD
Rp/R* = 0.0251 [0.0229]
a/R* = 9.07 [3.23]
b = 0.99 [0.04]
Seff = 87.89 [19.29]
Teq = 781 [43] K
Rp = 2.70 [2.50] Re
a = 0.1163 [0.0161] AU
Ag = 105.18 [193.61] [0.54σ]
Teffp = 3866 [1768] K [1.74σ]

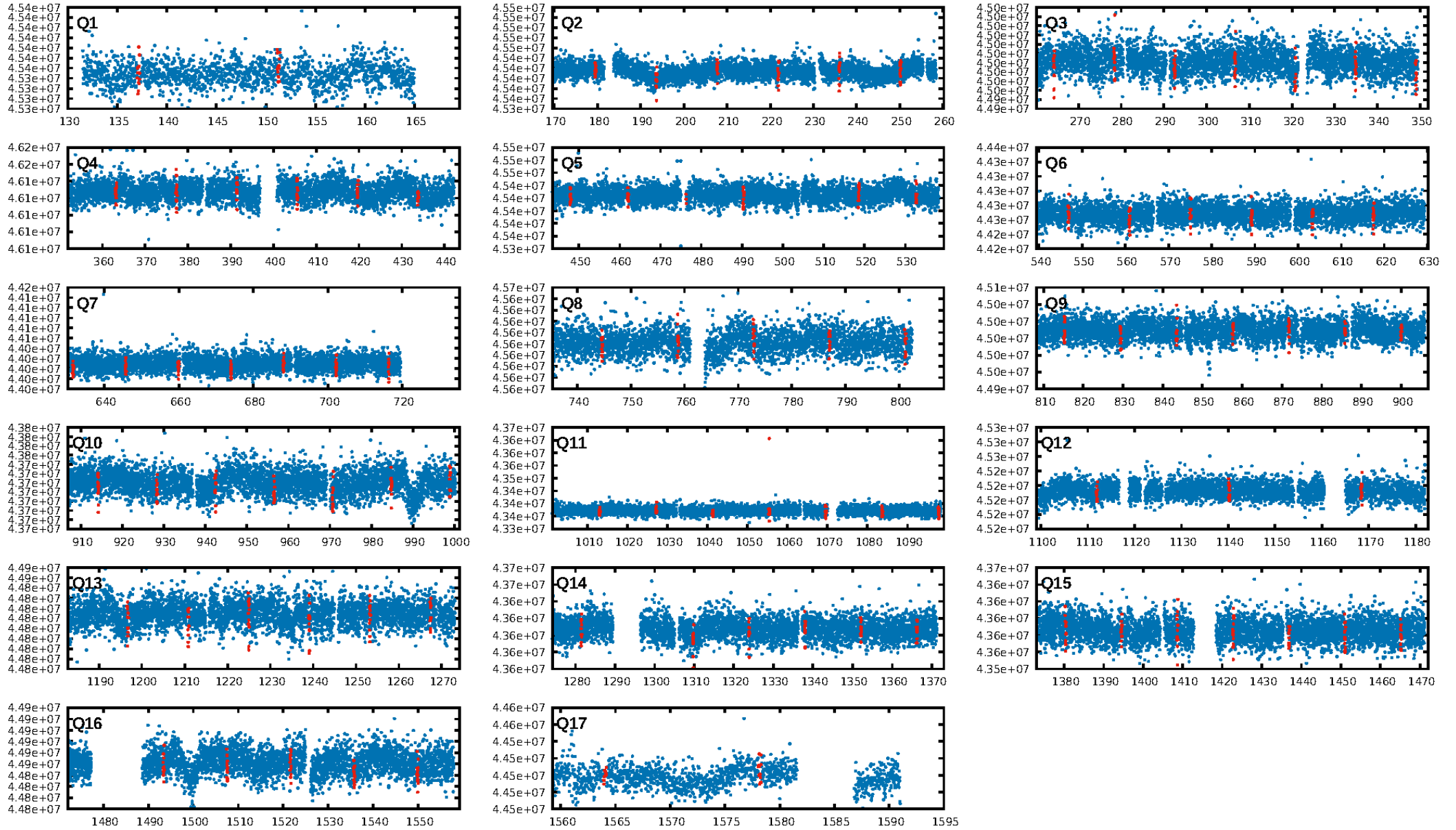
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 84.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.91e-60
RollingBand-fgt: 1.00 [90/90]
GhostDiagnostic-chr: 0.1084
Centroid-sig: 0.0%
Centroid-so: 6.871 arcsec [9.61σ]
OotOffset-rm: 4.918 arcsec [41.01σ]
KicOffset-rm: 5.028 arcsec [40.88σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
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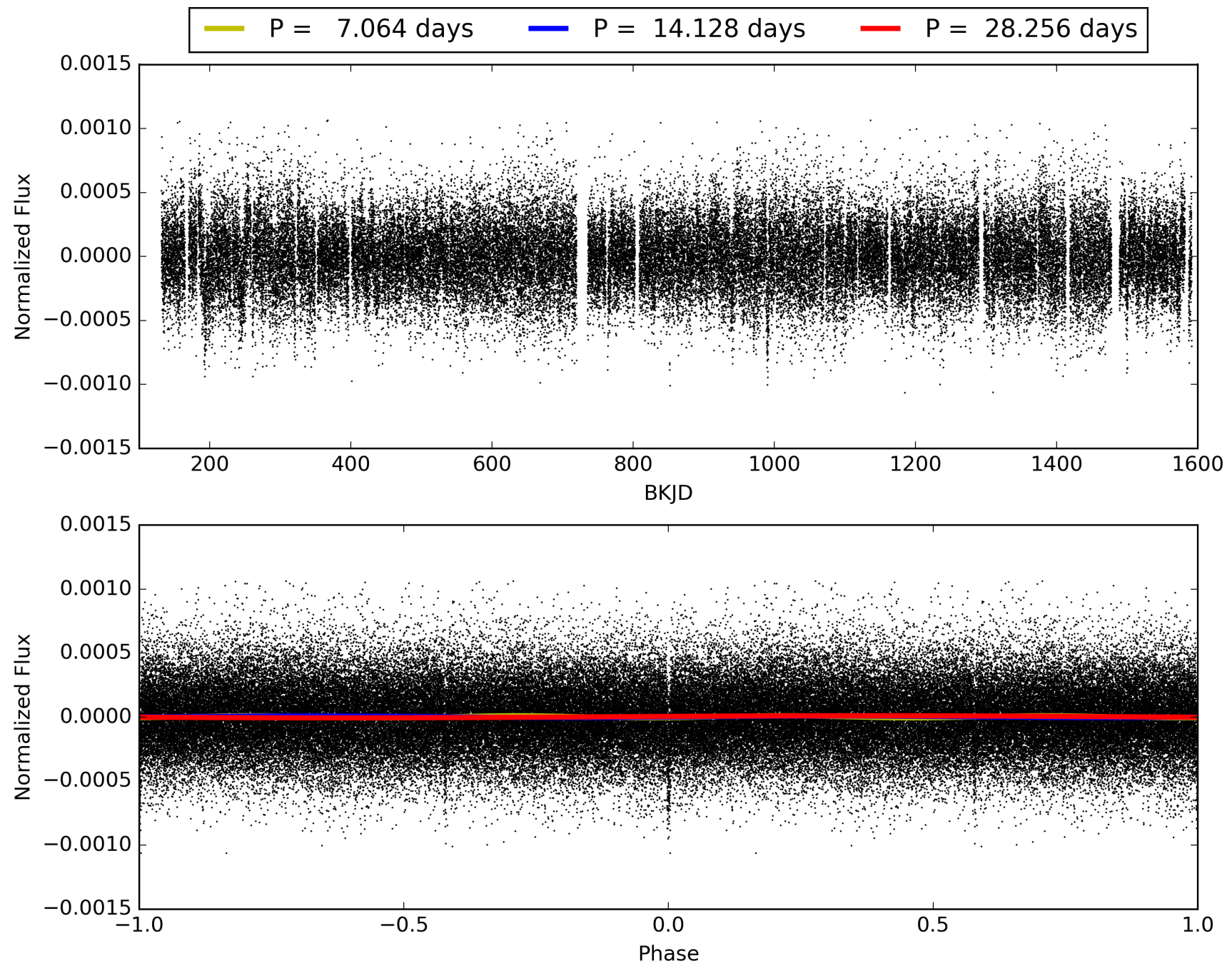
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:38:53 Z

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

TCE 004466356-01, PDC Light Curves

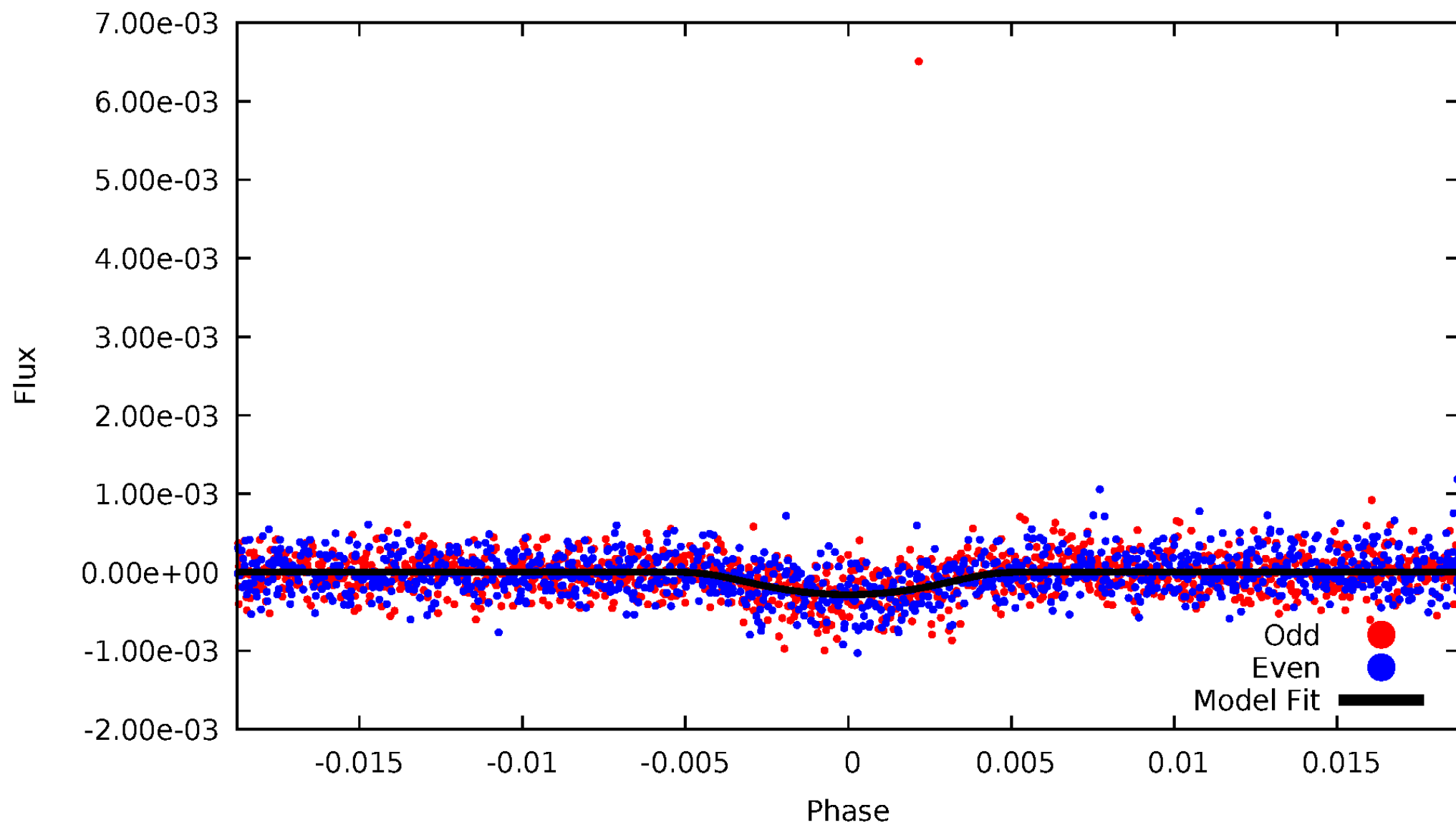


TCE 004466356-01



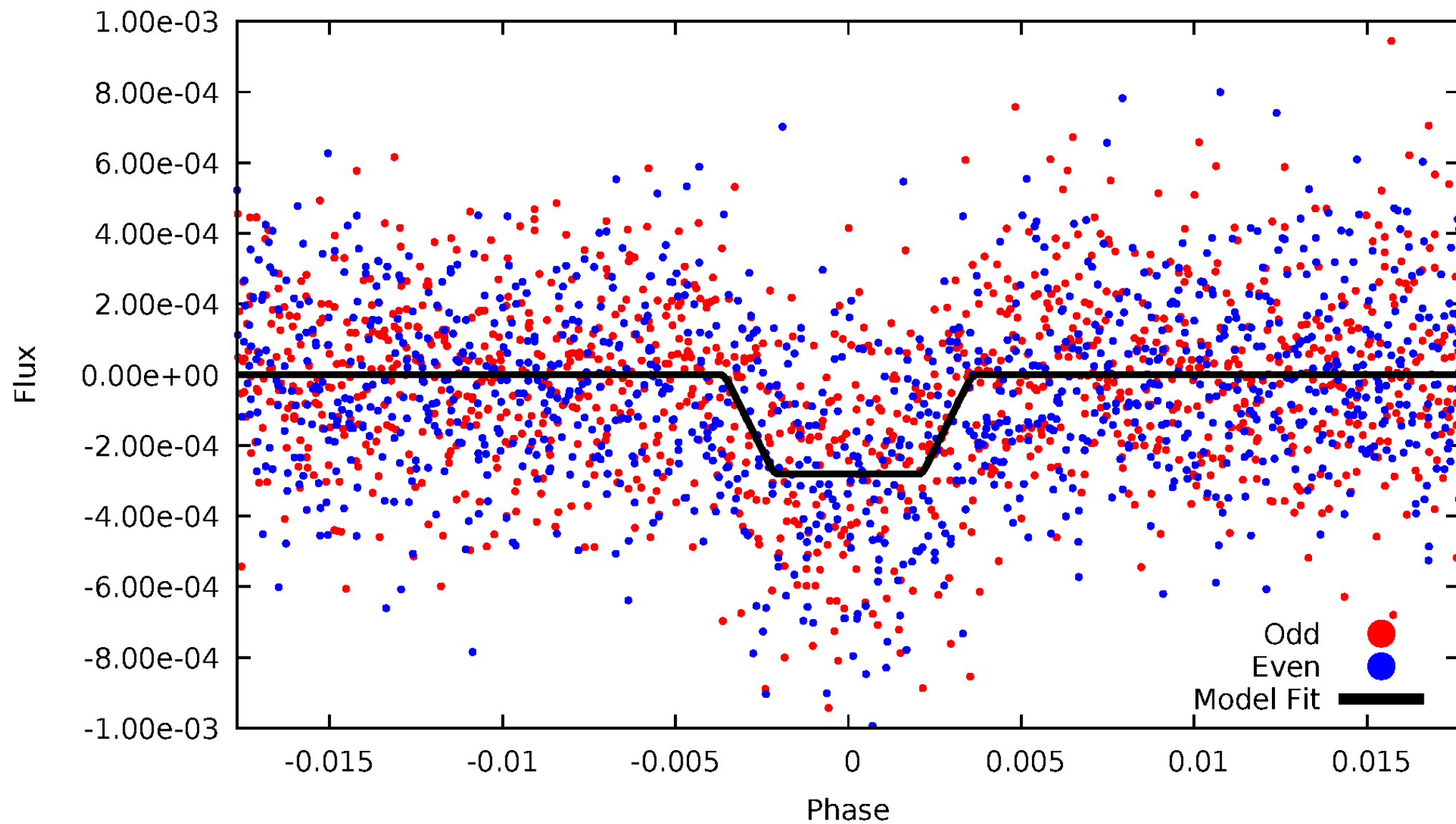
DV Odd/Even

TCE 004466356-01



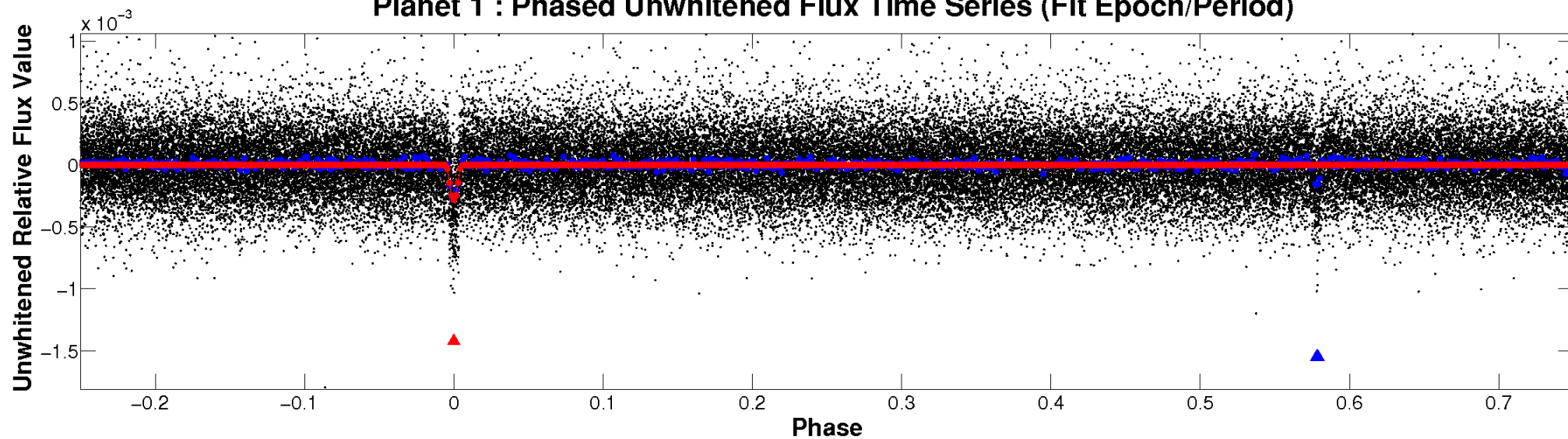
ALT Odd/Even

TCE 004466356-01

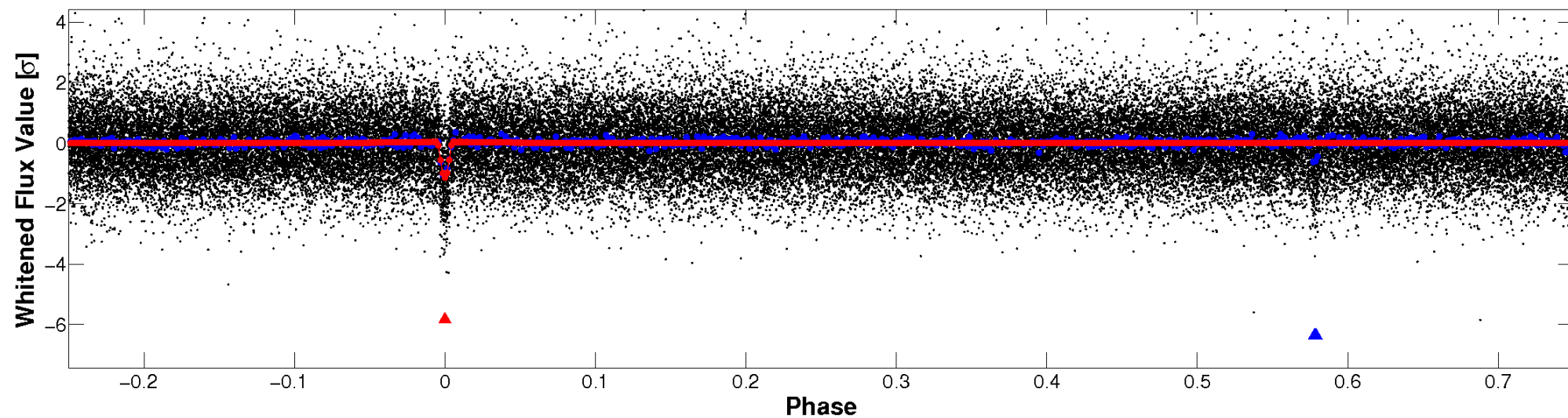


Non-Whitened Vs. Whitened Light Curve

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

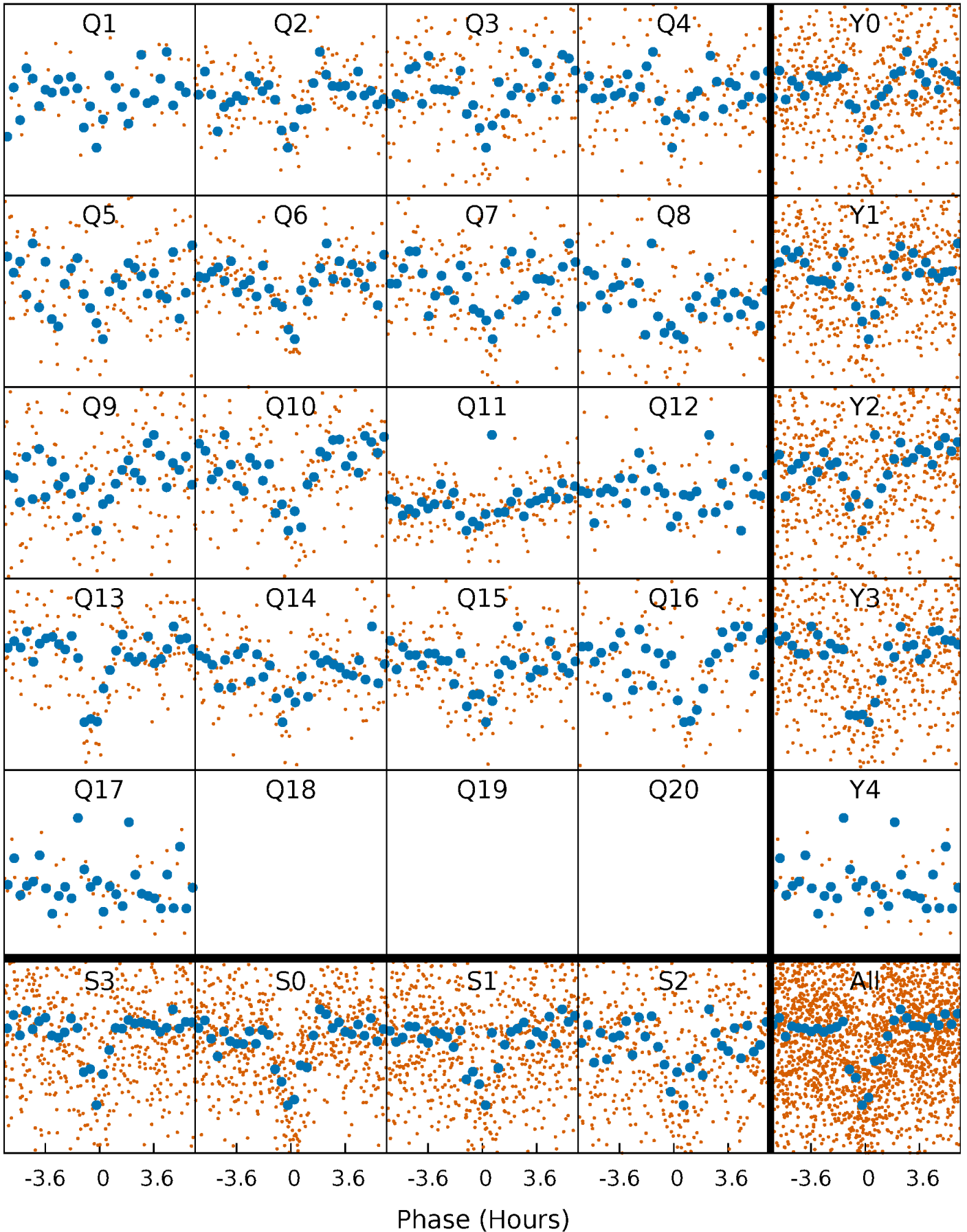


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



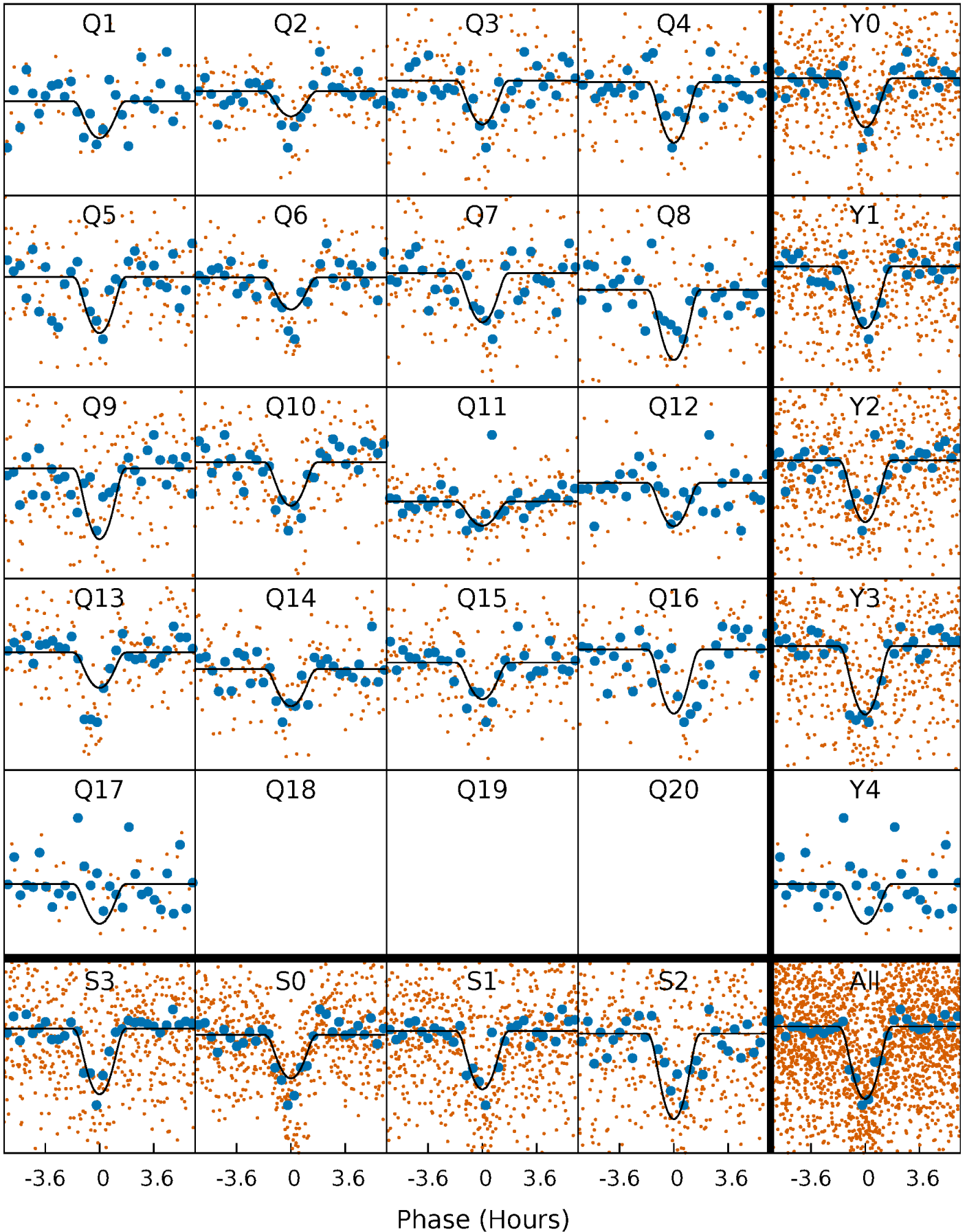
PDC Quarter-Phased Transit Curves

TCE 004466356-01 P= 14.128072 Days $T_0=137.122706$ (BKJD)



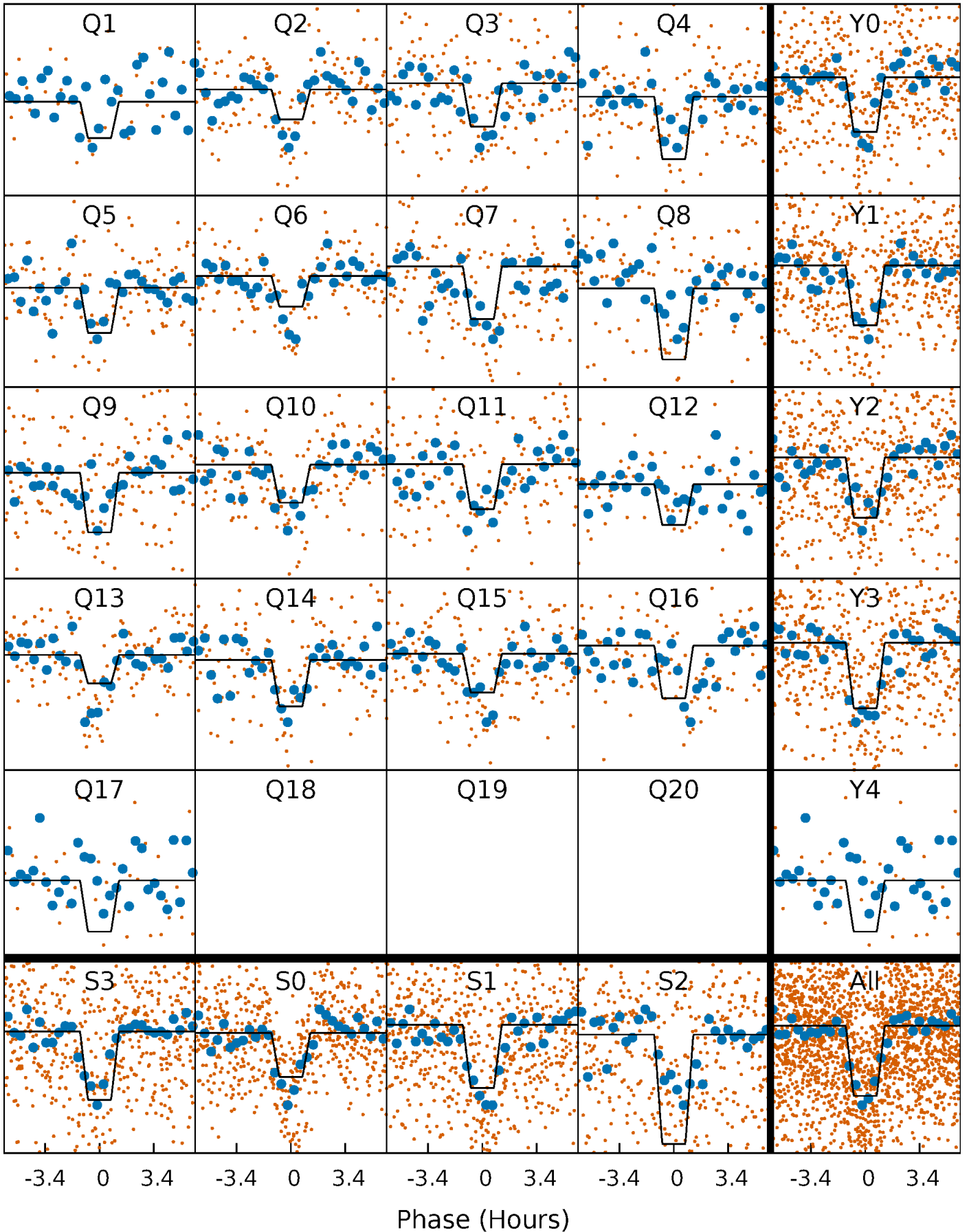
DV Quarter-Phased Transit Curves

TCE 004466356-01 P= 14.128072 Days $T_0=137.122706$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

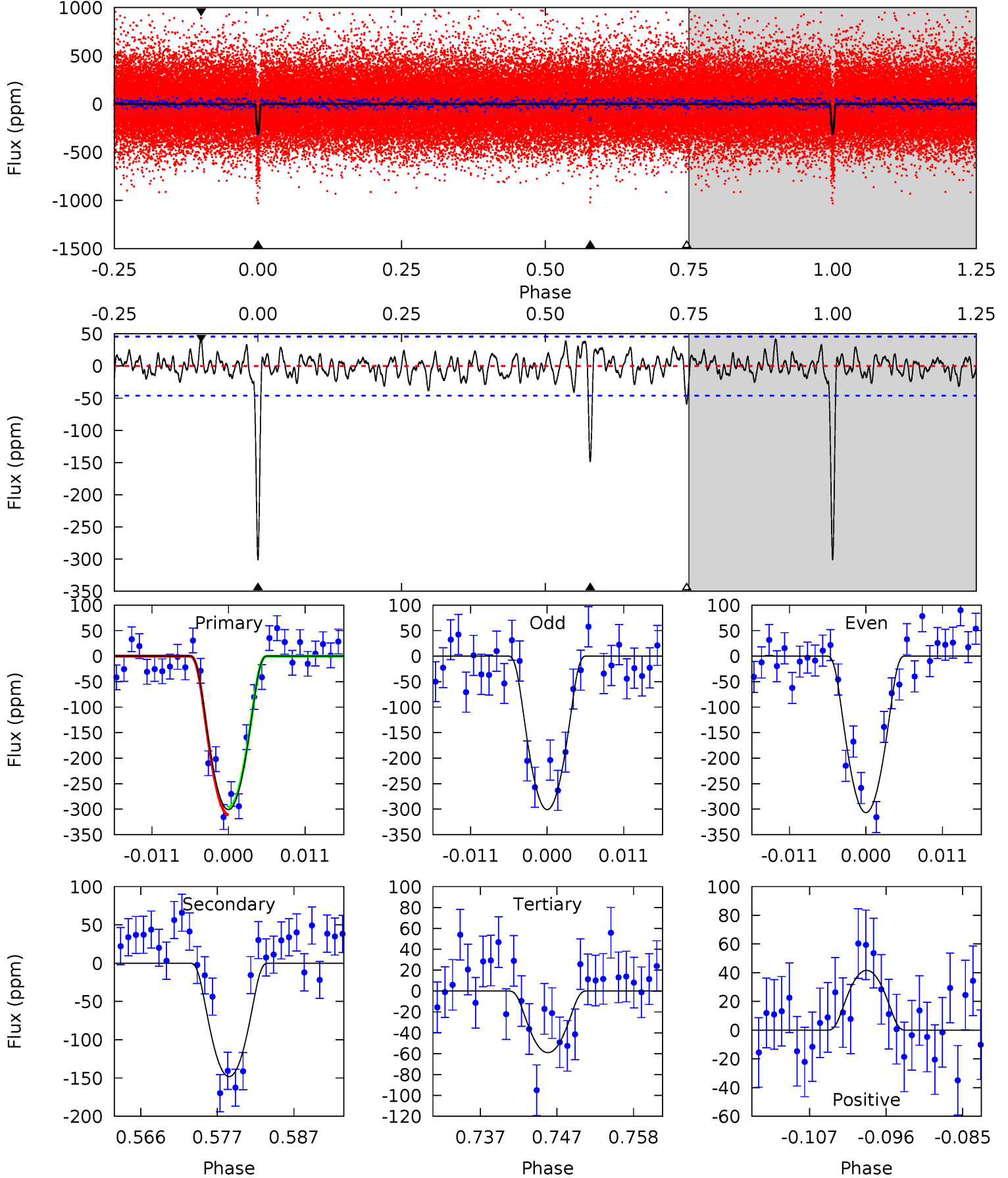
TCE 004466356-01 P= 14.127927 Days $T_0=137.129891$ (BKJD)



DV Model-Shift Uniqueness Test

004466356-01, P = 14.128072 Days, E = 122.994634 Days

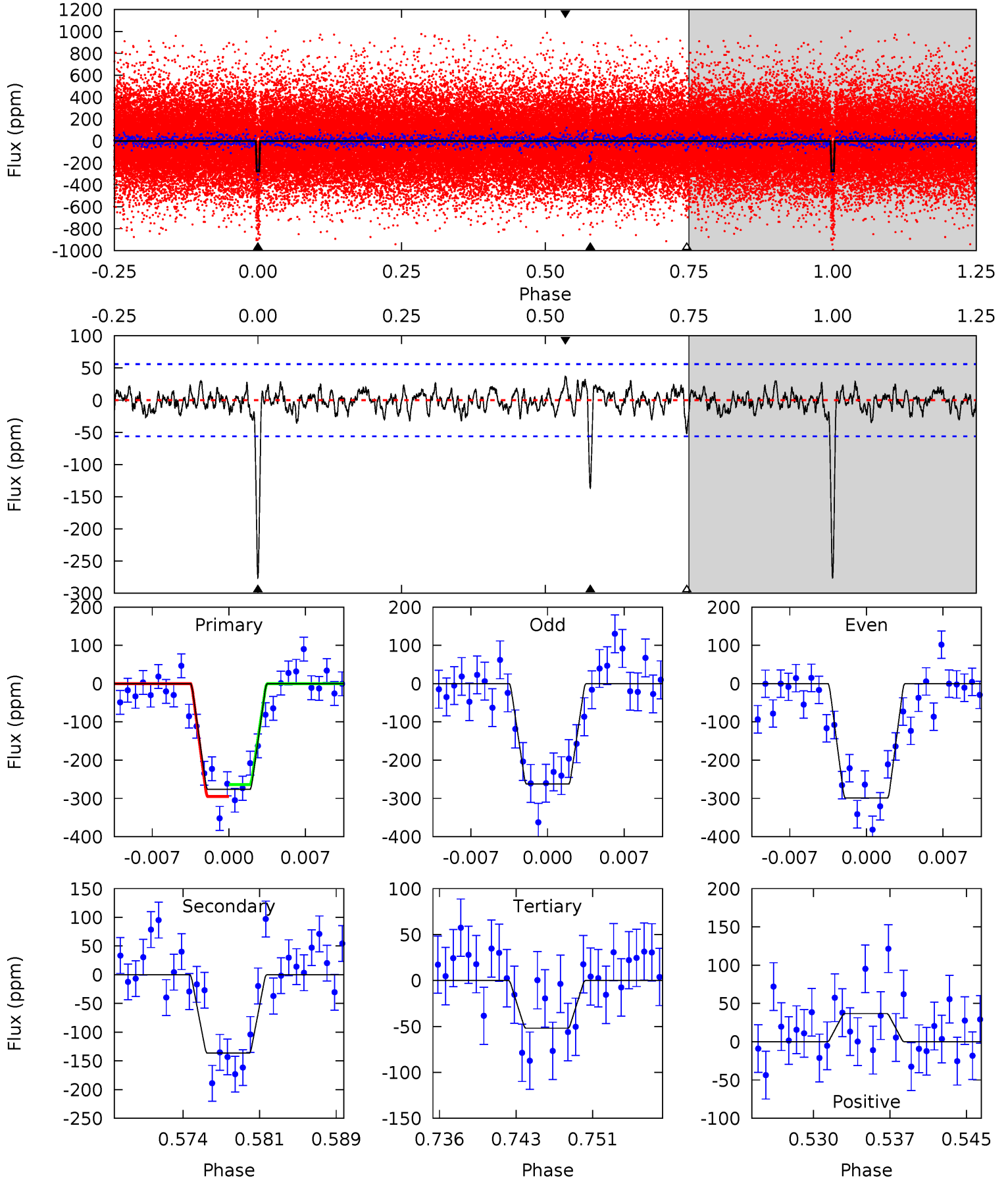
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.9	16.2	6.45	4.55	5.01	2.55	1.56	26.4	28.3	9.73	11.6	0.32	0.92	0.12	0.79



Alt Model-Shift Uniqueness Test

004466356-01, $P = 14.127927$ Days, $E = 123.001964$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.0	12.4	4.70	3.33	5.08	2.68	1.17	20.3	21.7	7.67	9.04	1.65	0.98	0.12	1.41



Stellar Parameters For KIC 004466356

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6072^{+78}_{-91}	$4.470^{+0.030}_{-0.120}$	$-0.100^{+0.150}_{-0.150}$	$0.988^{+0.153}_{-0.055}$	$1.050^{+0.060}_{-0.075}$	$1.536^{+0.229}_{-0.524}$
	+1%/-1%	+1%/-3%	+150%/-150%	+15%/-6%	+6%/-7%	+15%/-34%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 004466356-01 / KOI 3295.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-148 ± 9	$3.25^{+2.23}_{-1.99}$	1103^{+42}_{-28}	4190^{+2161}_{-701}	105^{+603}_{-68}
Alt.	-137 ± 11	$2.65^{+2.30}_{-1.80}$	1103^{+43}_{-29}	4437^{+3161}_{-836}	139^{+1228}_{-97}

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 $A_{obs} \gg 1.0$

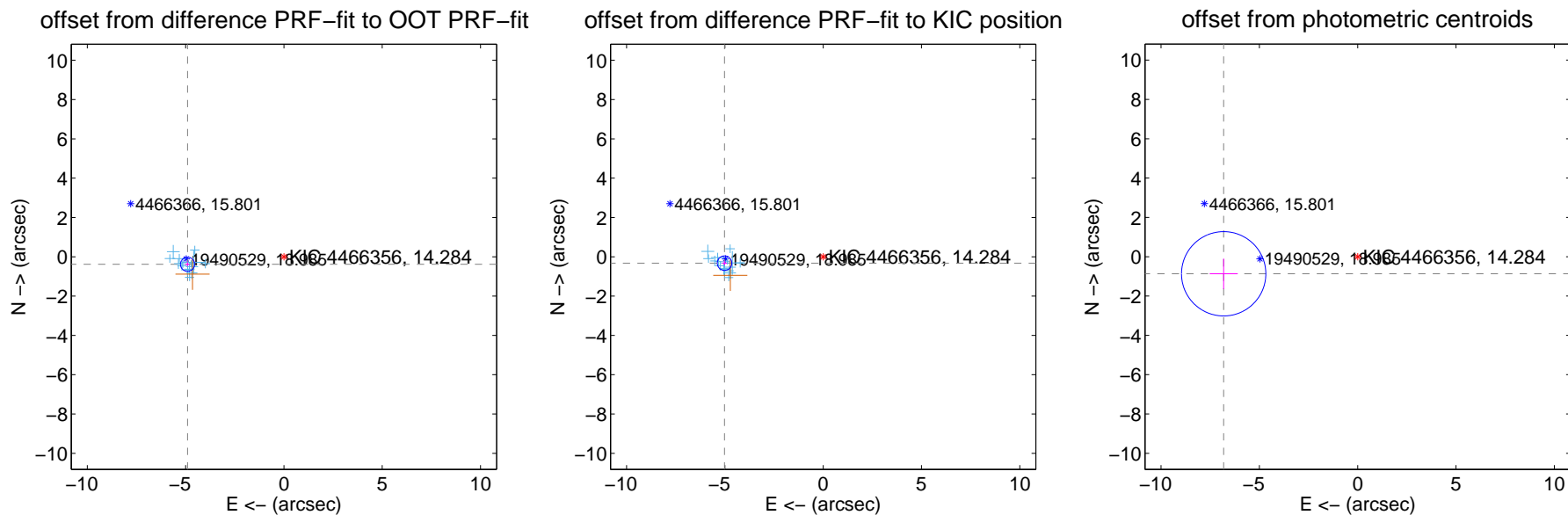
DV Centroid Data

Supplemental centroid analysis for 004466356-01. Kepler magnitude: 14.28. Transit SNR 18.40

There are 16 quarters with good PRF difference image offsets

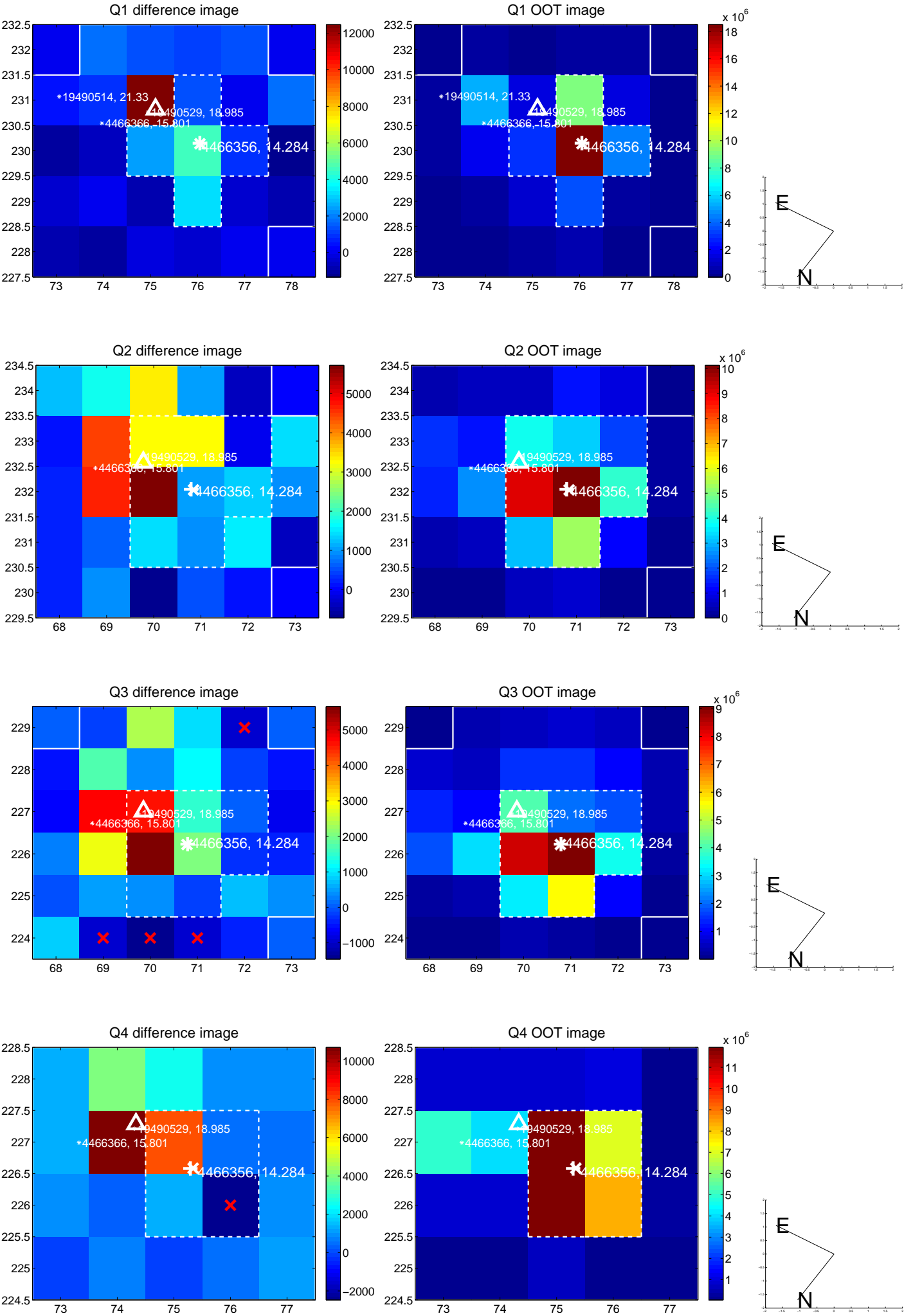
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.918 ± 0.120	41.01	4.903 ± 0.120	-0.381 ± 0.107
PRF-fit source offset from KIC position	5.028 ± 0.123	40.88	5.018 ± 0.123	-0.325 ± 0.113
photometric centroid source offset	6.87 ± 0.71	9.61	6.82 ± 0.71	-0.87 ± 0.78

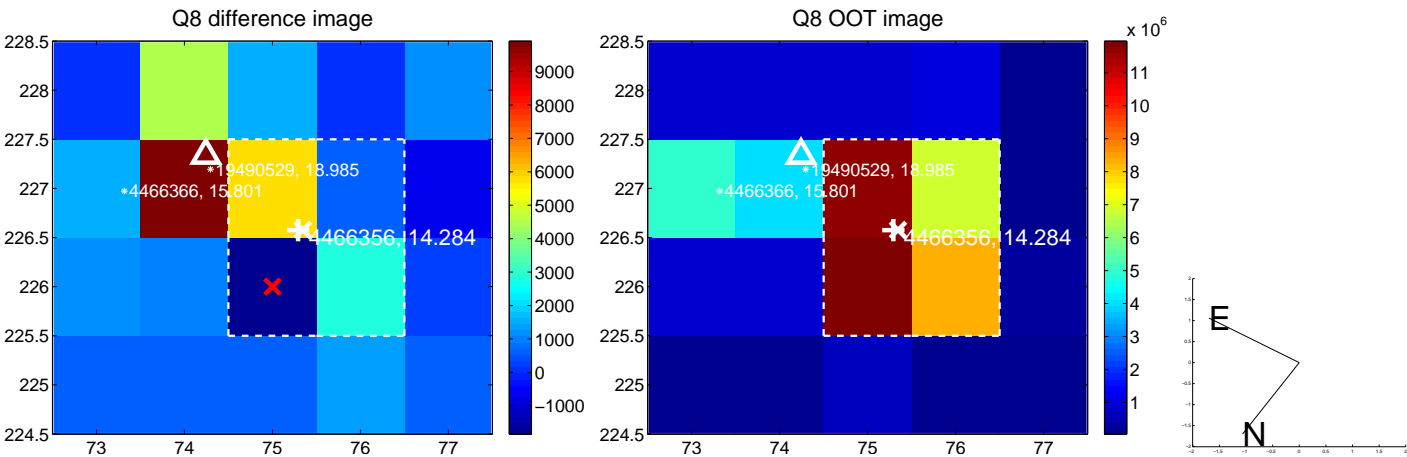
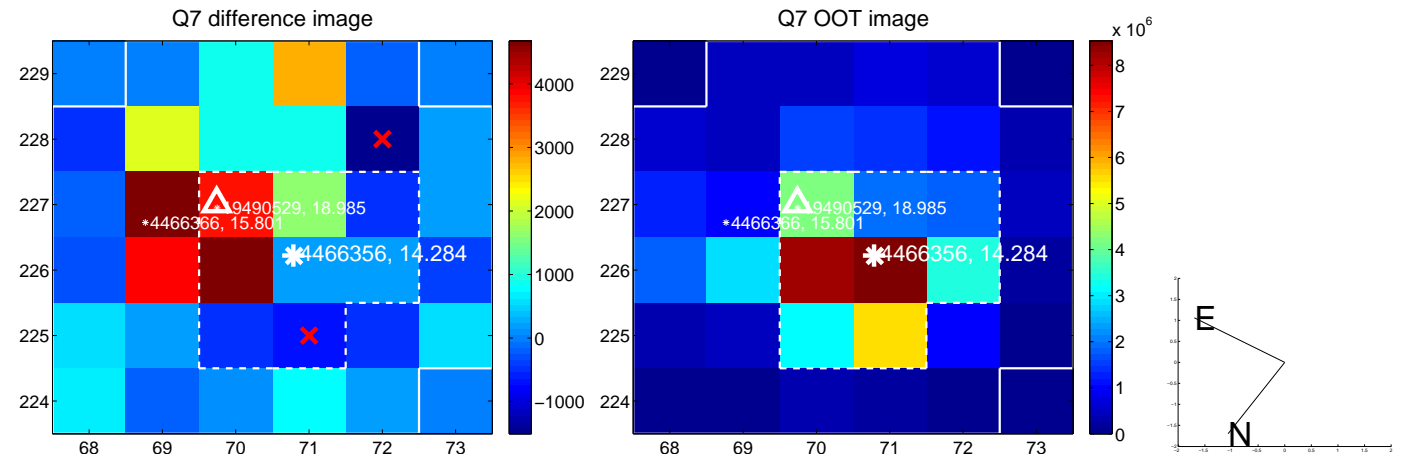
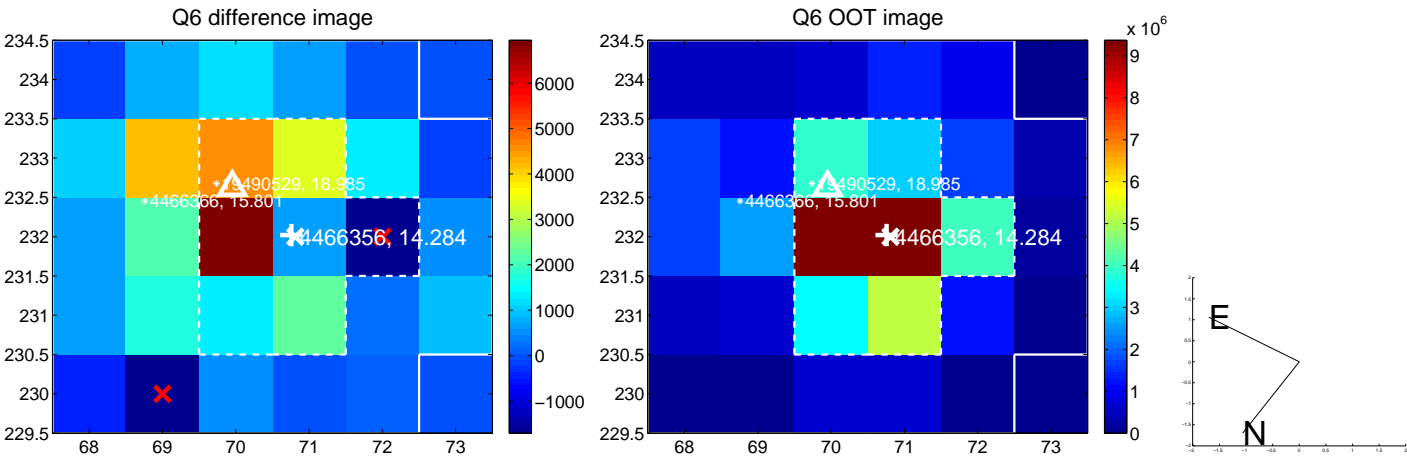
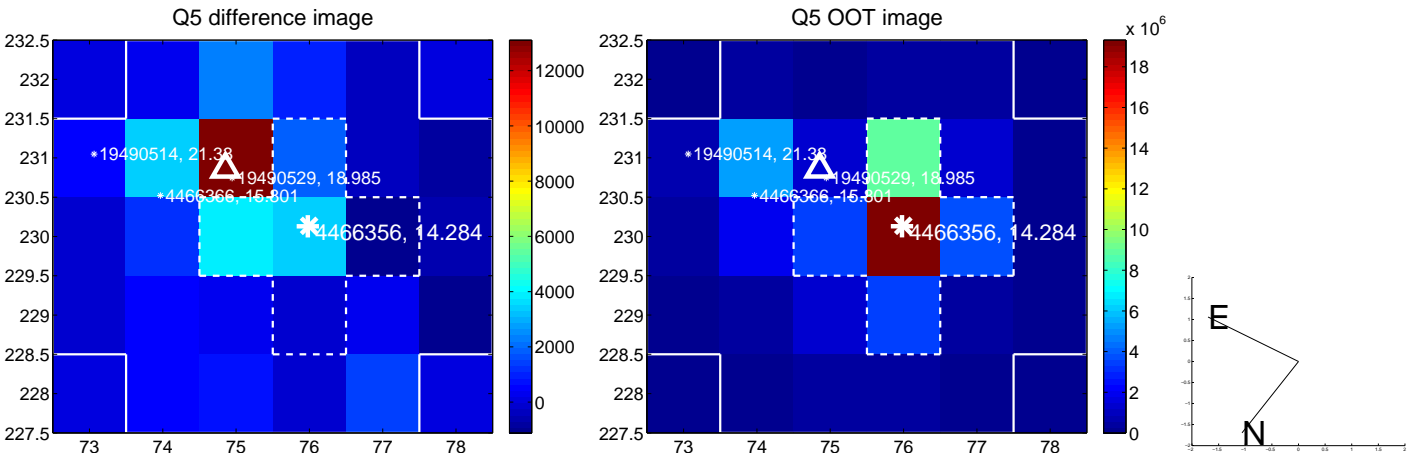


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

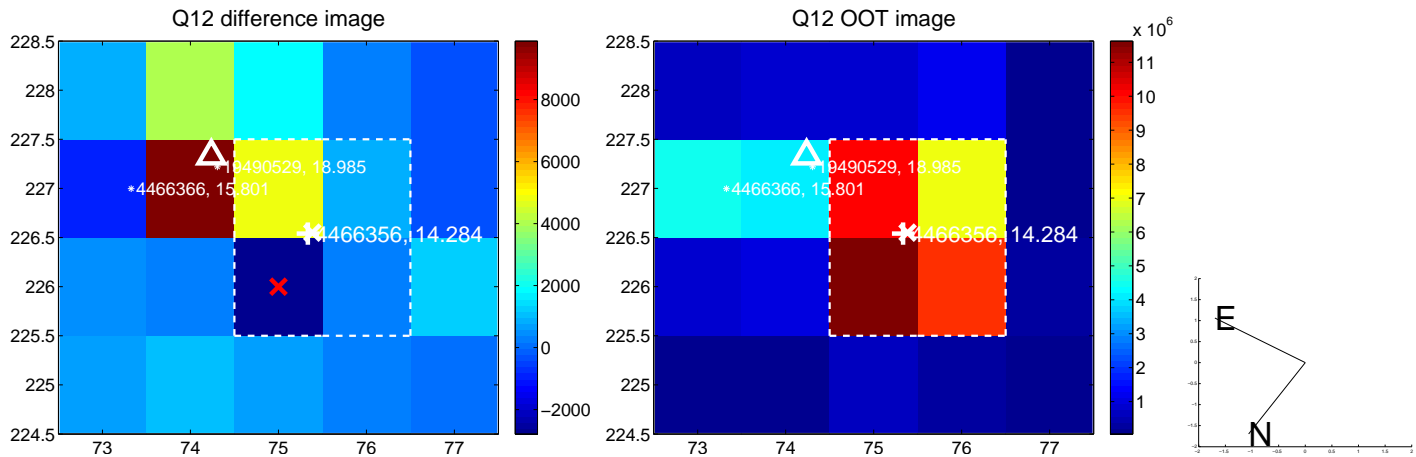
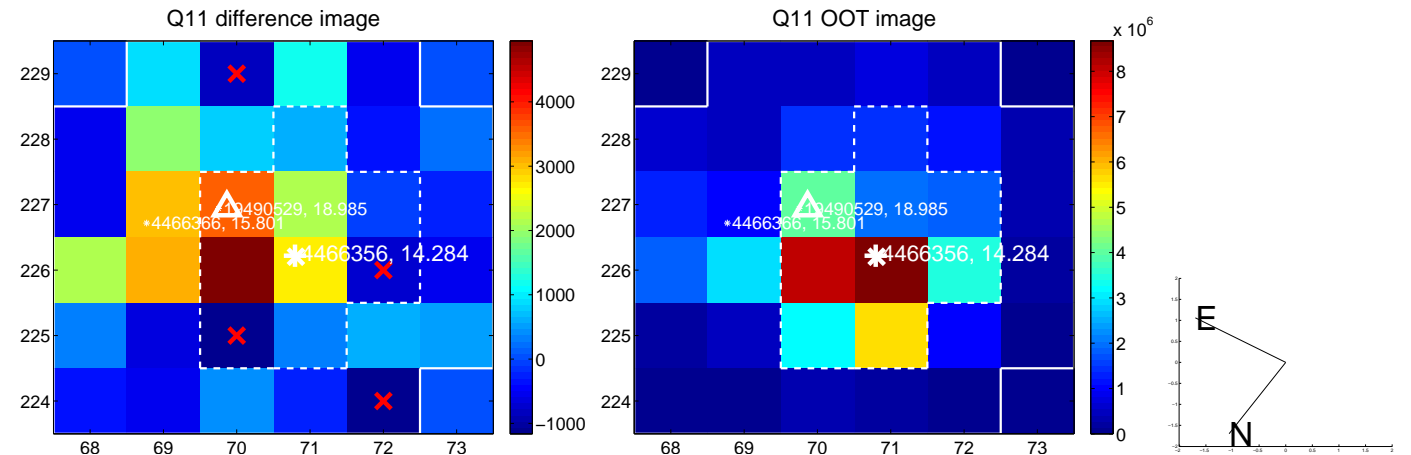
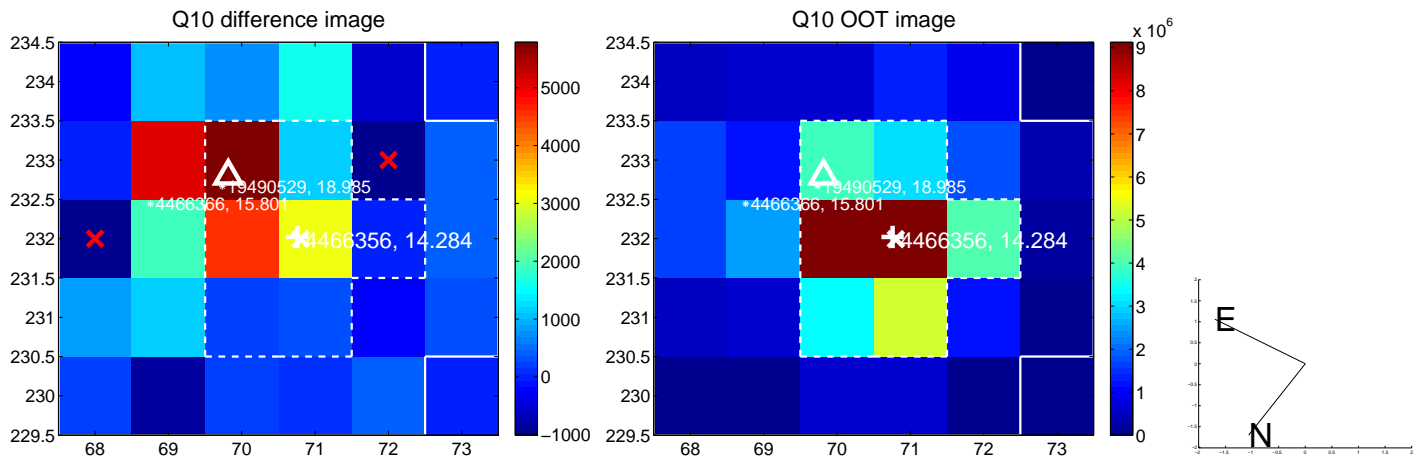
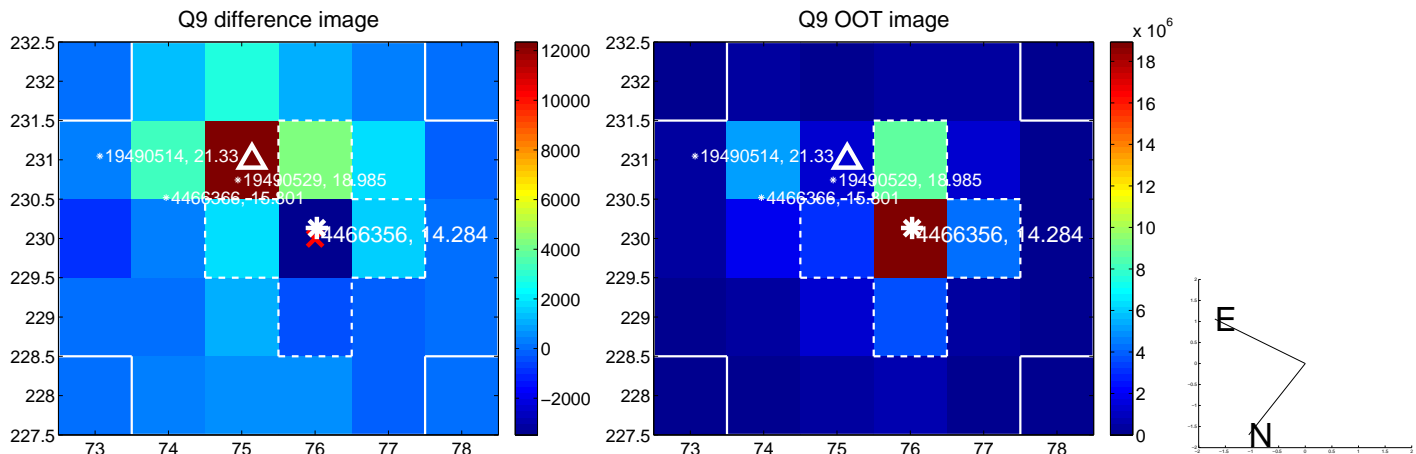
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



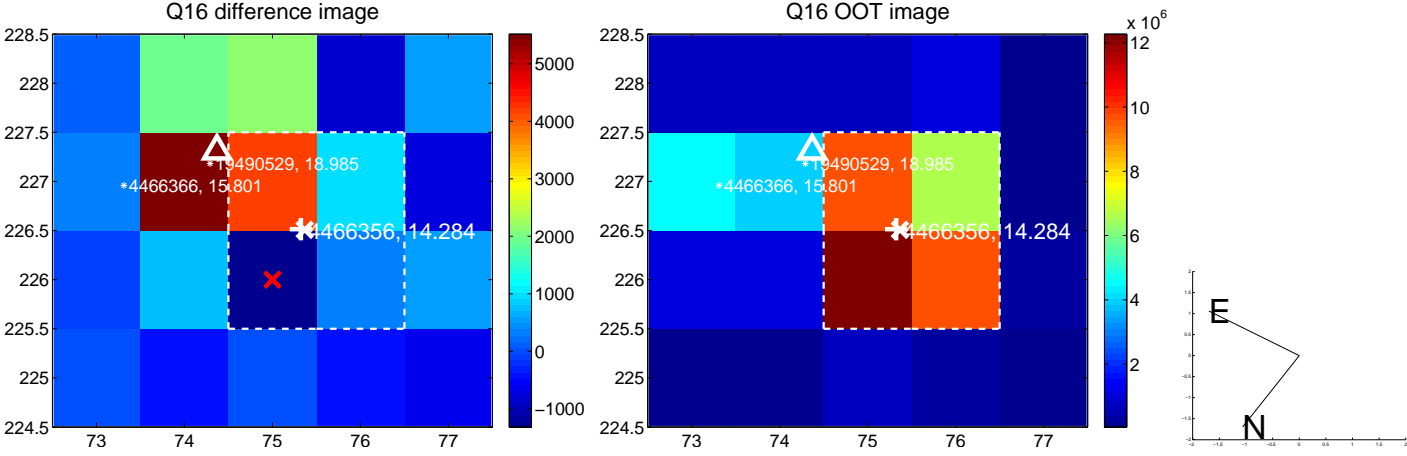
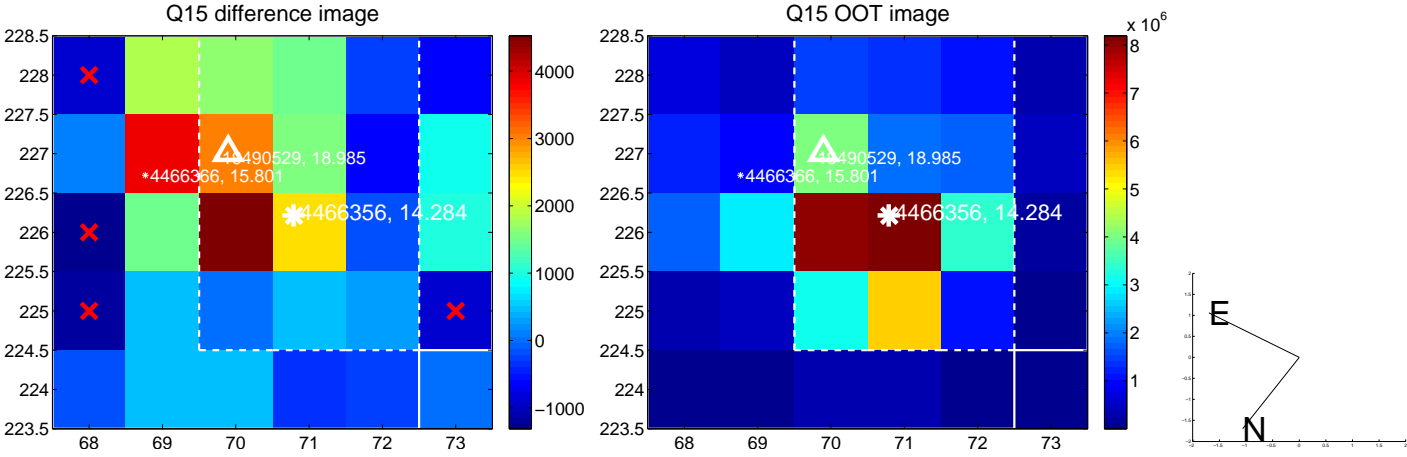
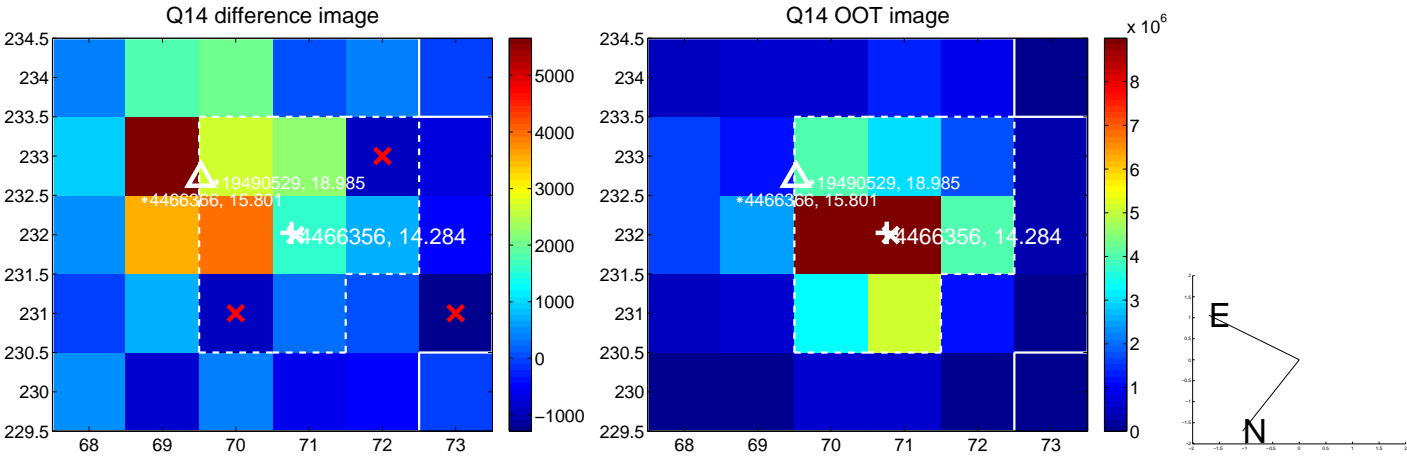
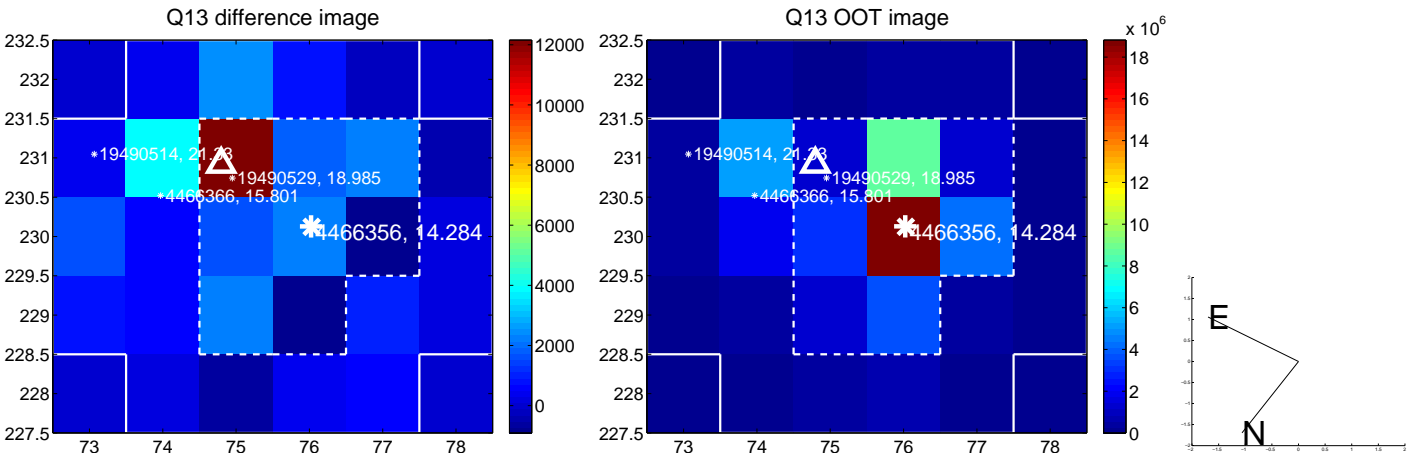
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



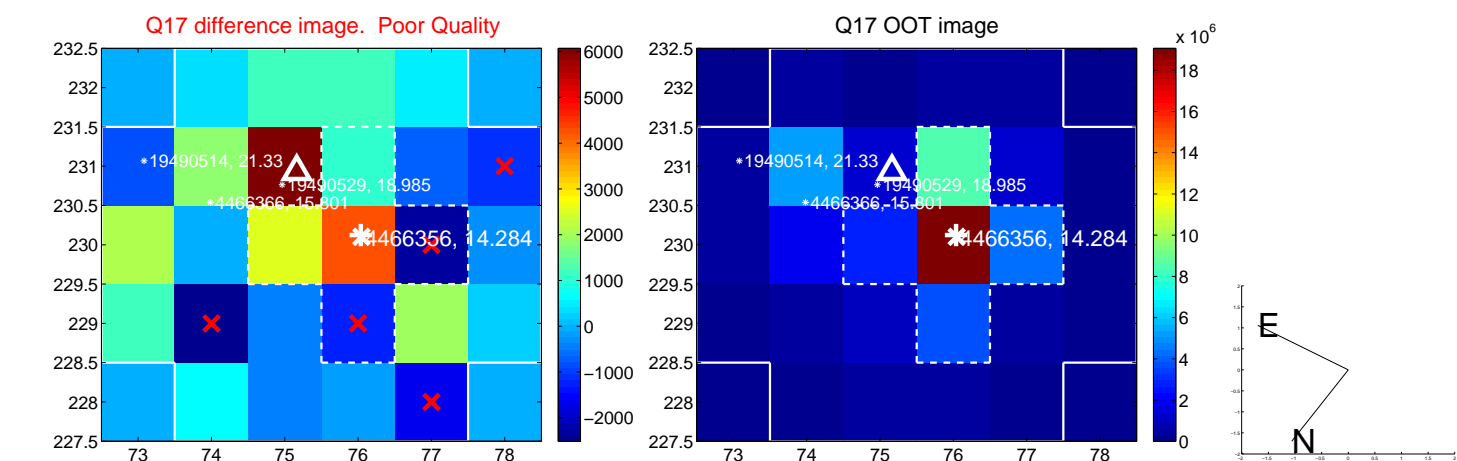
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



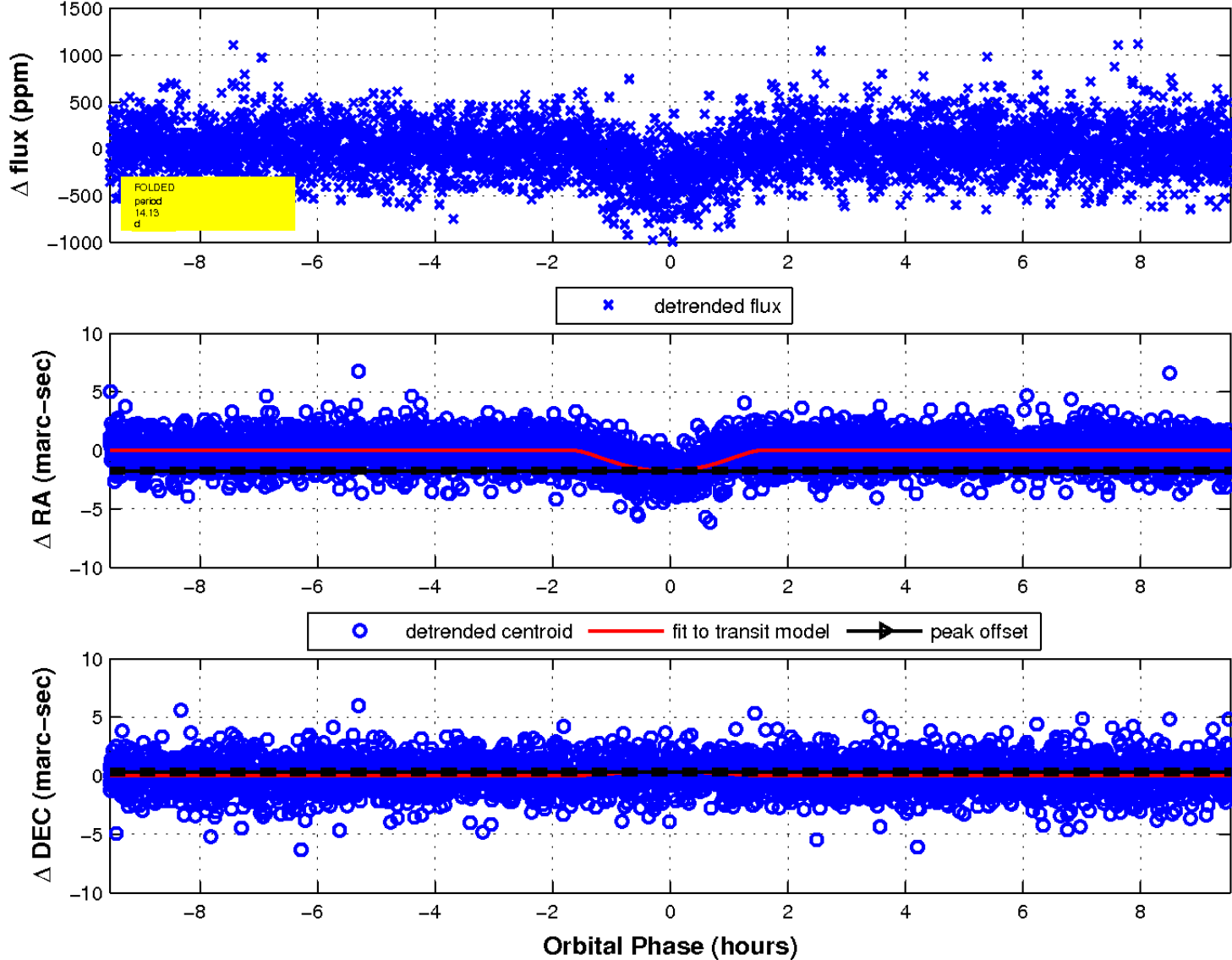
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

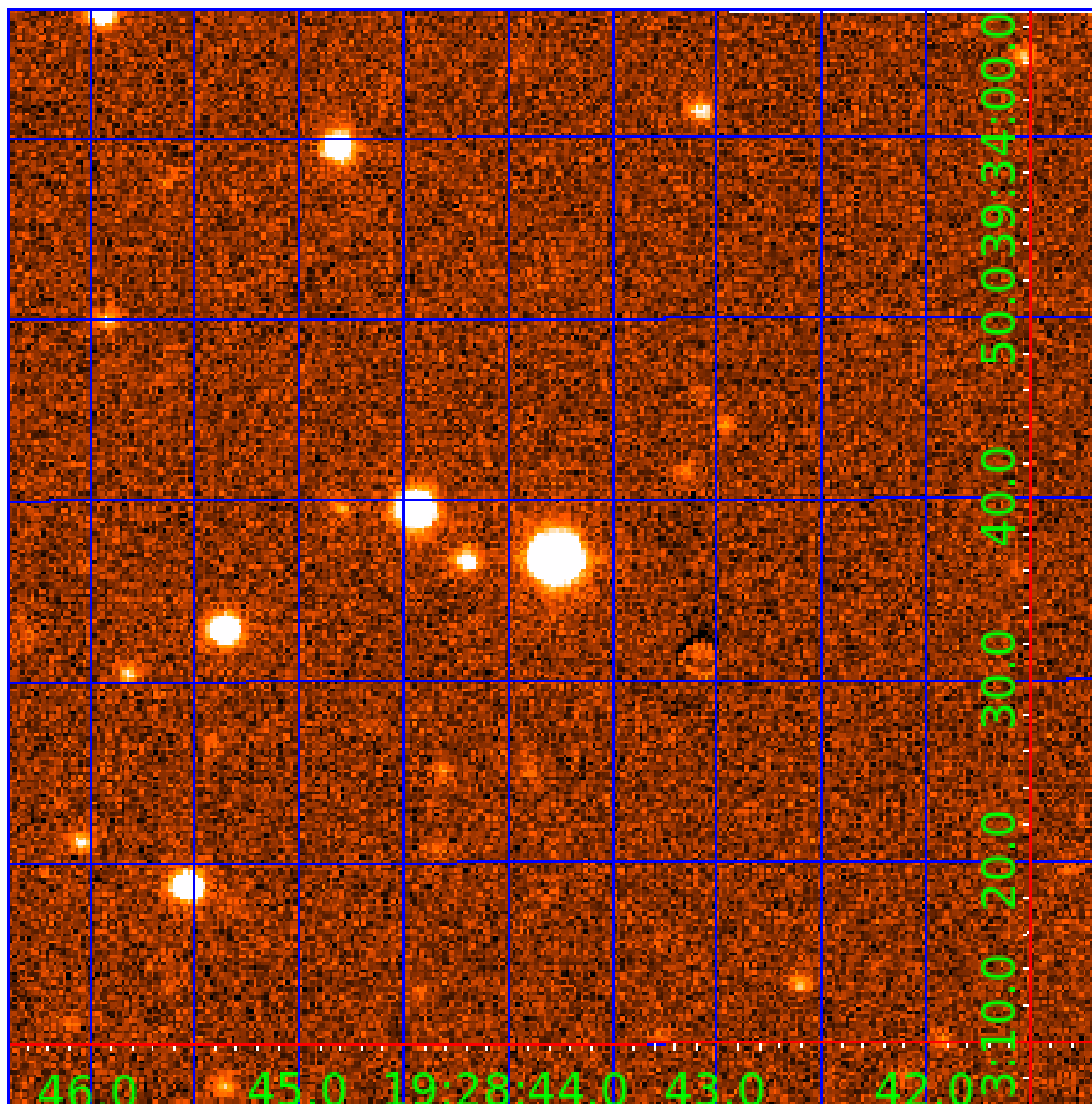


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 004466356

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})
004466356-01	OBS	3295.01	14.128072	137.122706	284.9	3.178	16.5	18.4	0.99	6072	2.70	87.89
004466356-02	OBS	No	14.127937	145.302187	168.4	1.733	9.4	10.6	0.99	6072	1.43	87.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004466356-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
004466356-02	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.

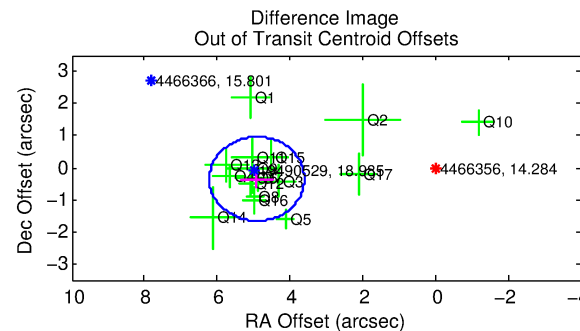
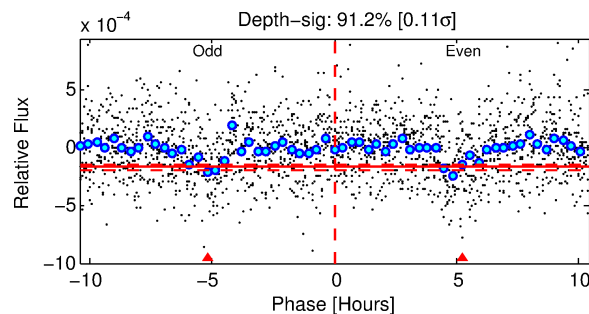
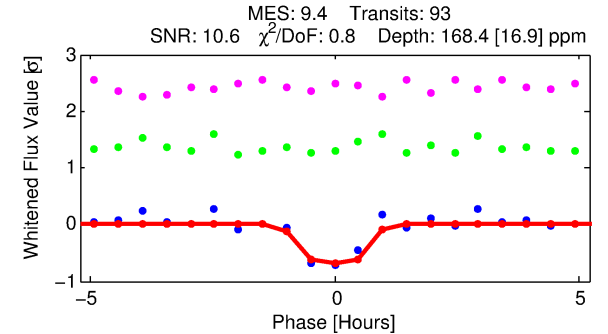
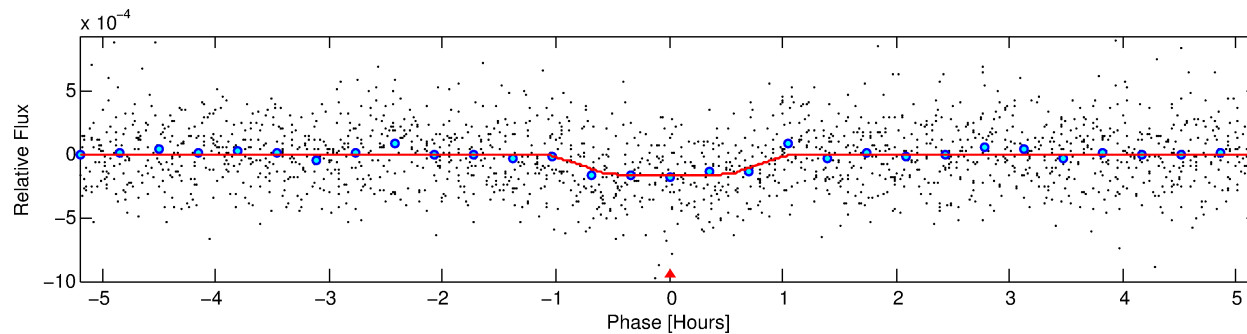
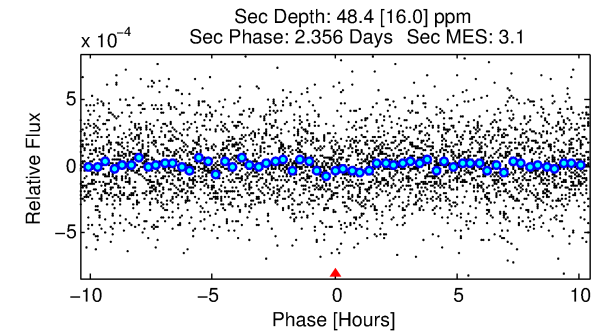
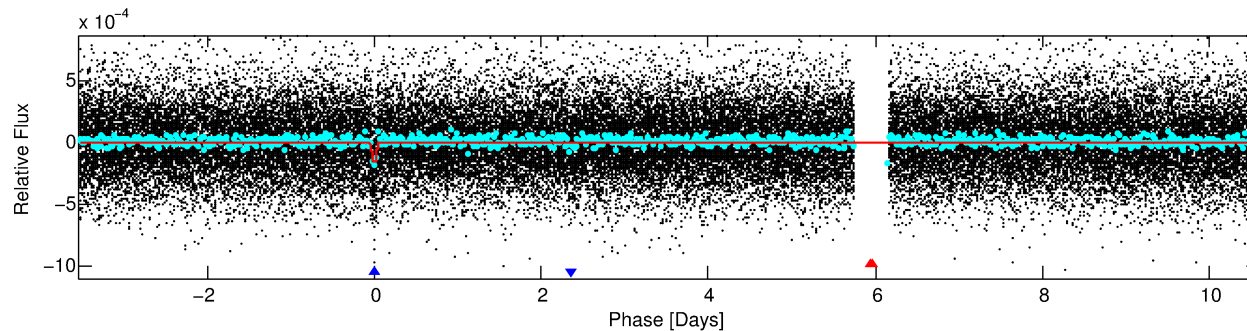
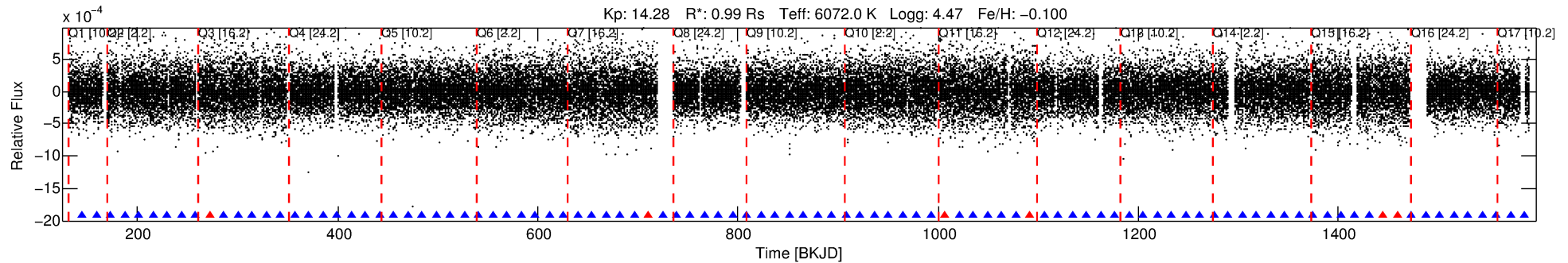
Ephemeris Match Information For 004466356-02

No Significant Match Found

DV One-Page Summary

KIC: 4466356 Candidate: 2 of 2 Period: 14.128 d

KOI: K03295.01 Corr: 0.976



DV Fit Results:

Period = 14.12794 [0.00008] d
Epoch = 145.3022 [0.0043] BKJD
Rp/R* = 0.0133 [0.0103]
a/R* = 37.39 [145.18]
b = 0.82 [1.61]
Seff = 87.89 [19.29]
Teff = 781 [43] K
Rp = 1.43 [1.13] Re
a = 0.1163 [0.0161] AU
Ag = 175.28 [280.04] [0.62σ]
Teffp = 4392 [1740] K [2.07σ]

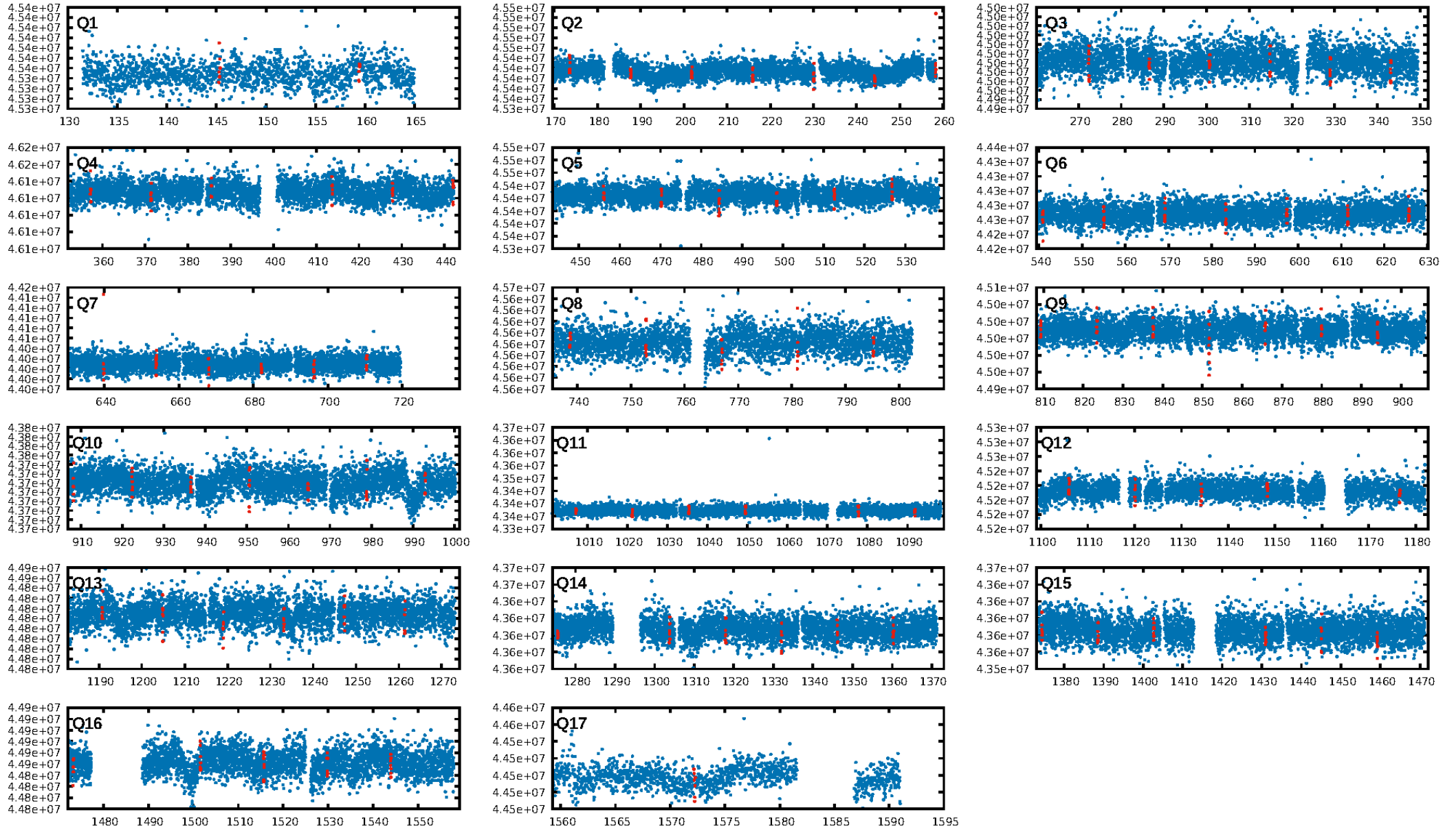
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: 83.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.57e-20
RollingBand-fgt: 0.93 [84/90]
GhostDiagnostic-chr: 0.4982
Centroid-sig: 0.0%
Centroid-so: 6.711 arcsec [5.23σ]
OotOffset-rm: 4.928 arcsec [11.30σ]
KicOffset-rm: 5.016 arcsec [11.33σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.71 [12/17]
DiffImageOverlap-fno: 1.00 [17/17]

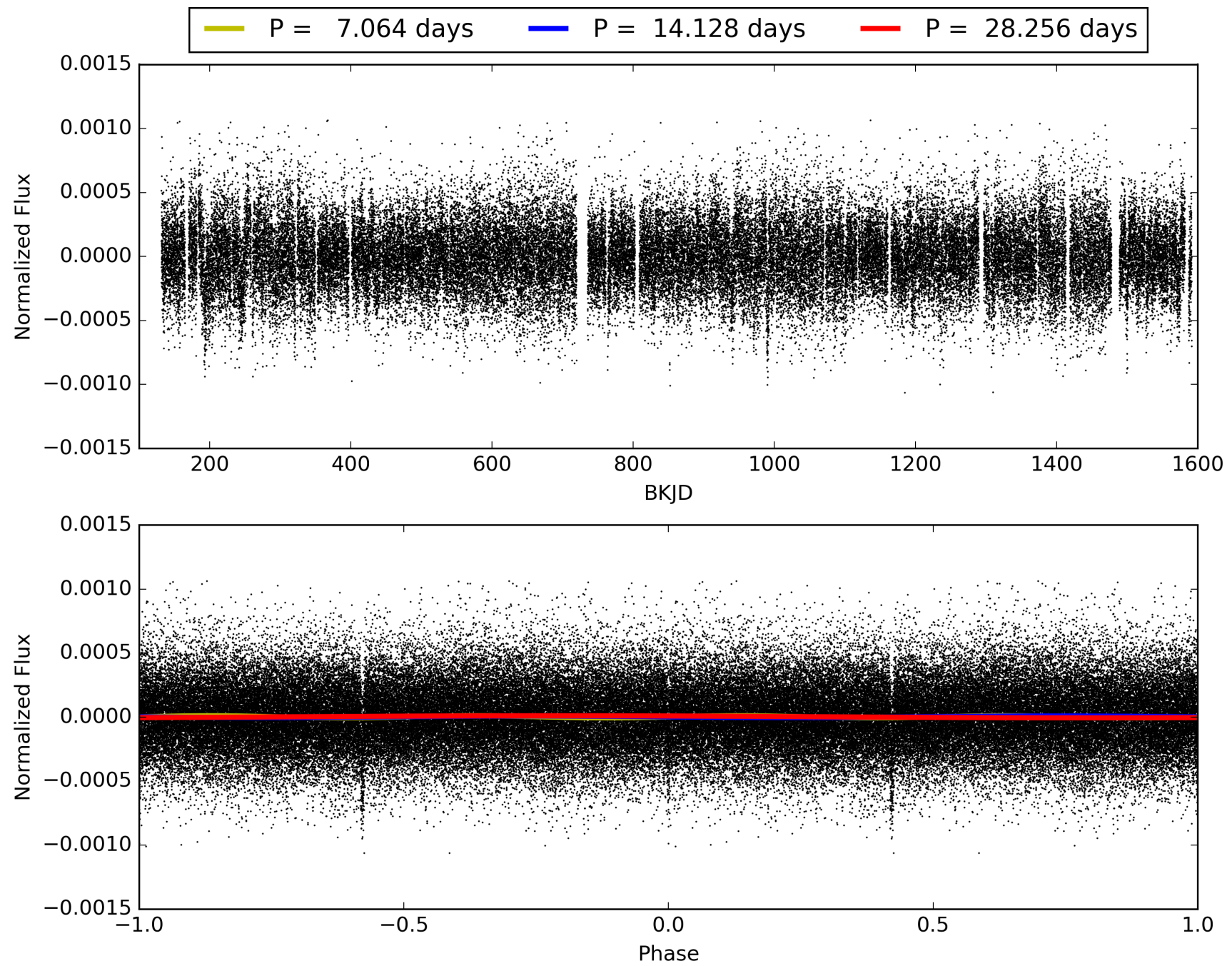
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004466356-02, PDC Light Curves

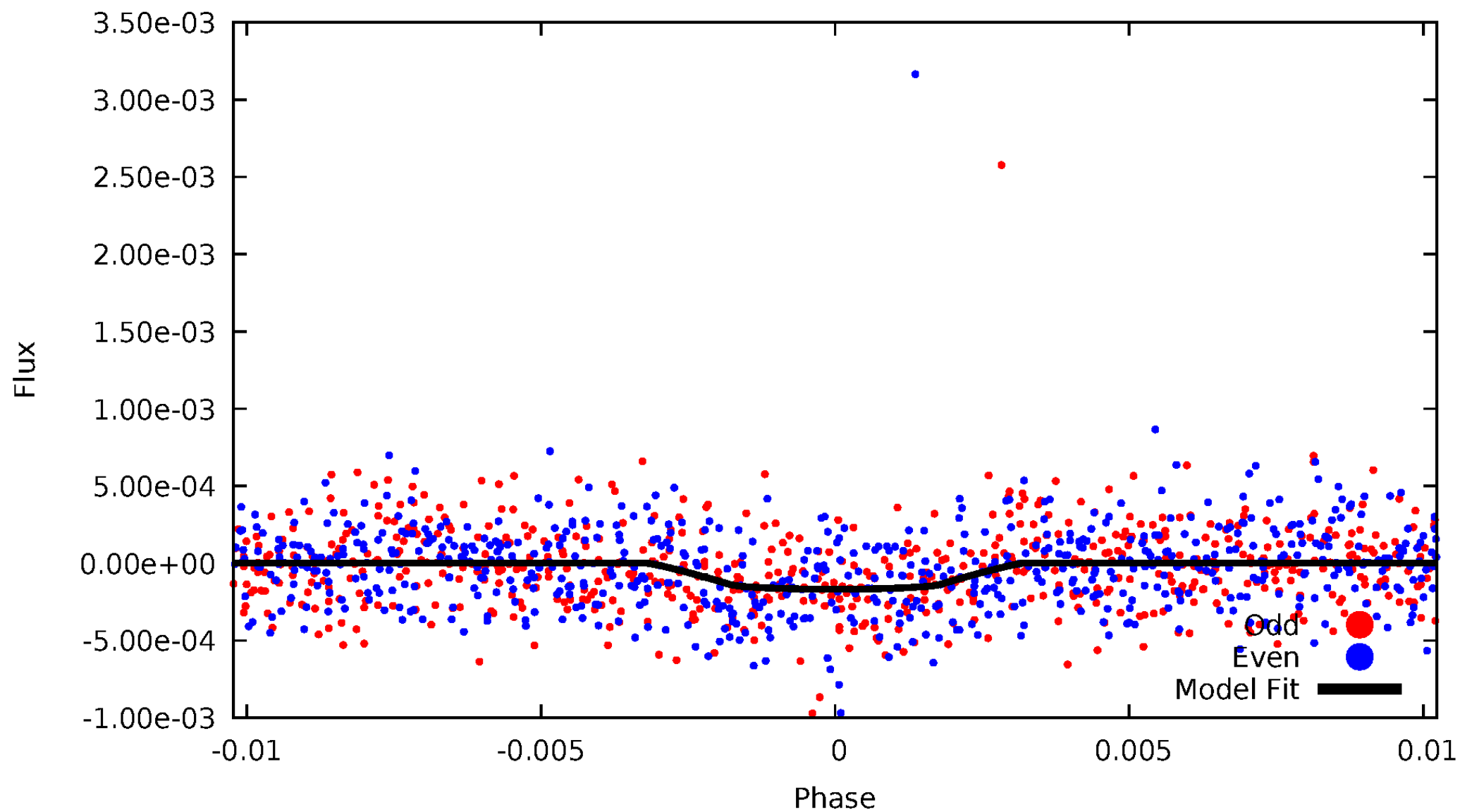


TCE 004466356-02



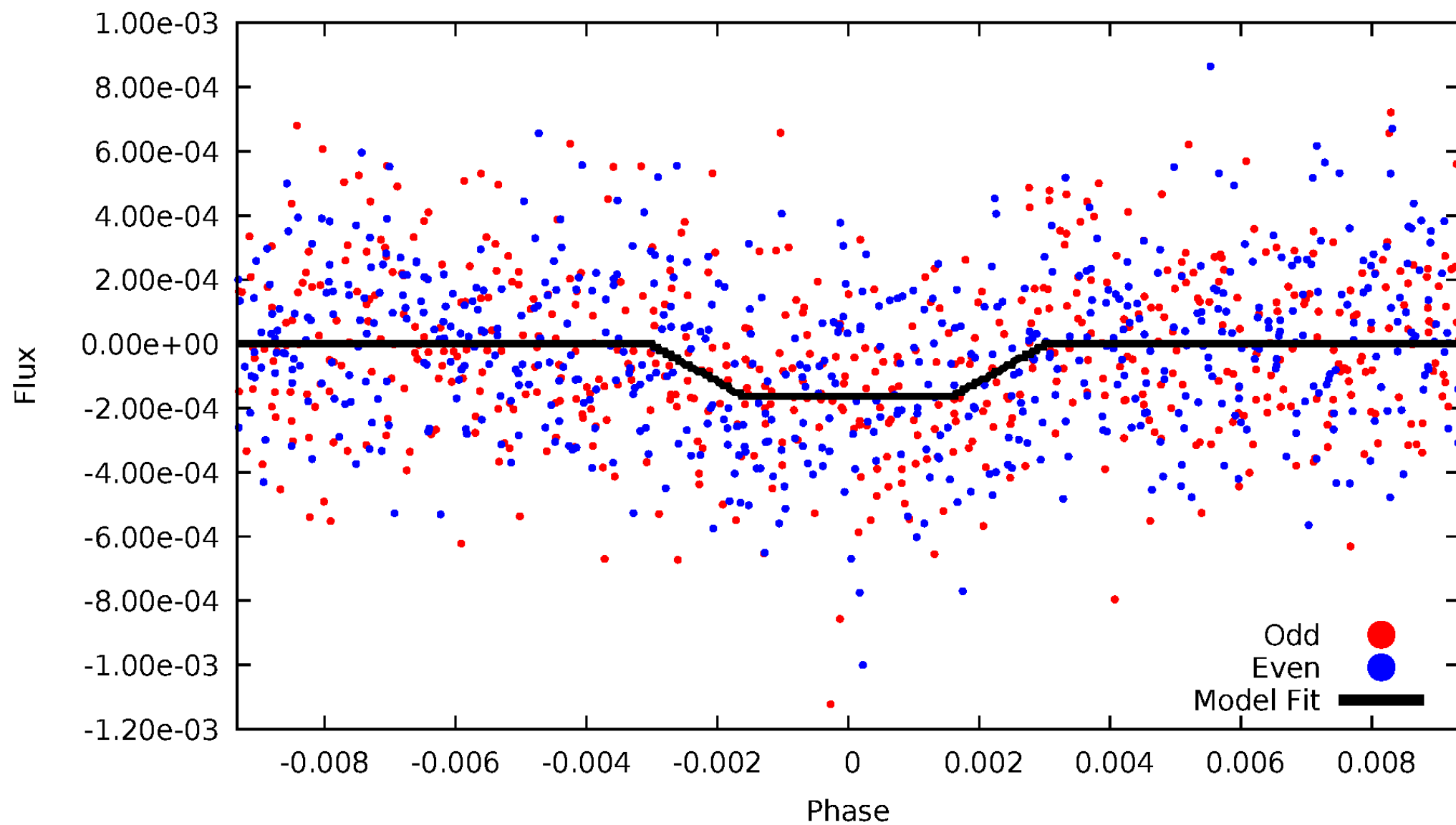
DV Odd/Even

TCE 004466356-02



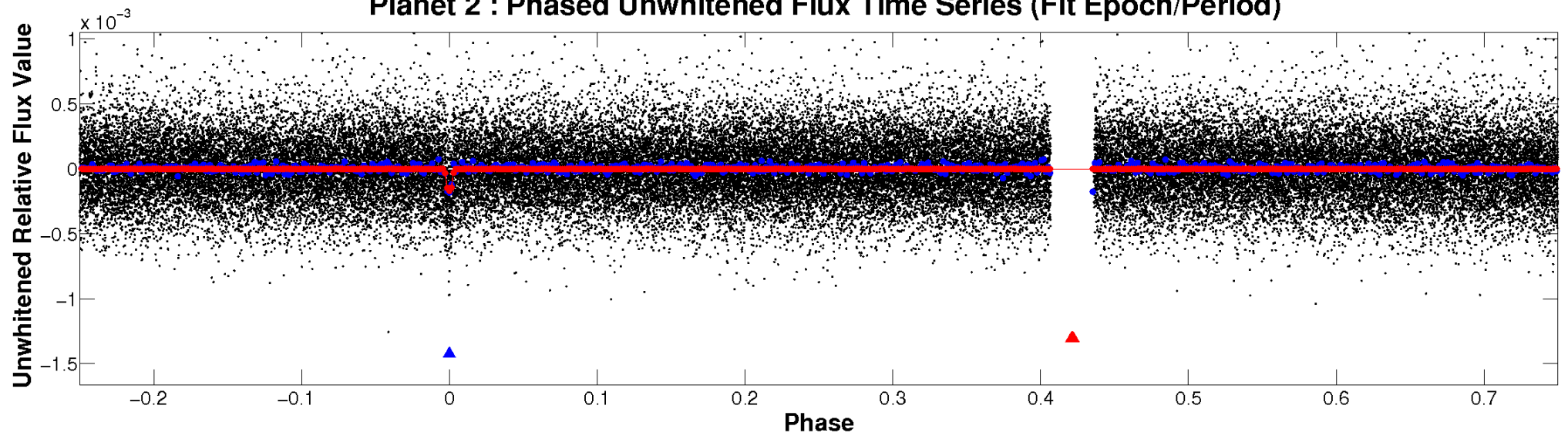
ALT Odd/Even

TCE 004466356-02

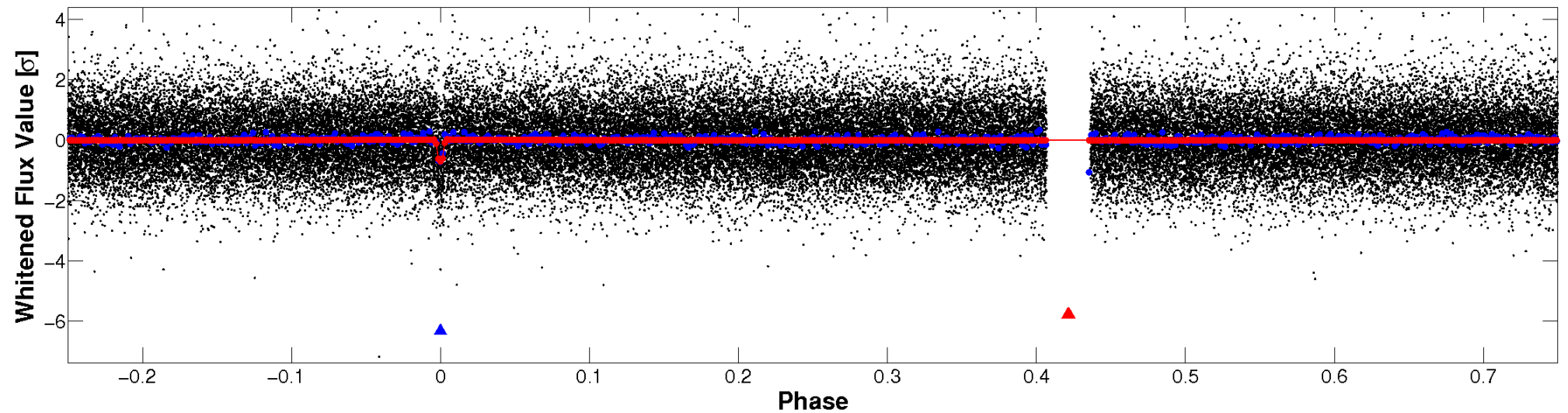


Non-Whitened Vs. Whitened Light Curve

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

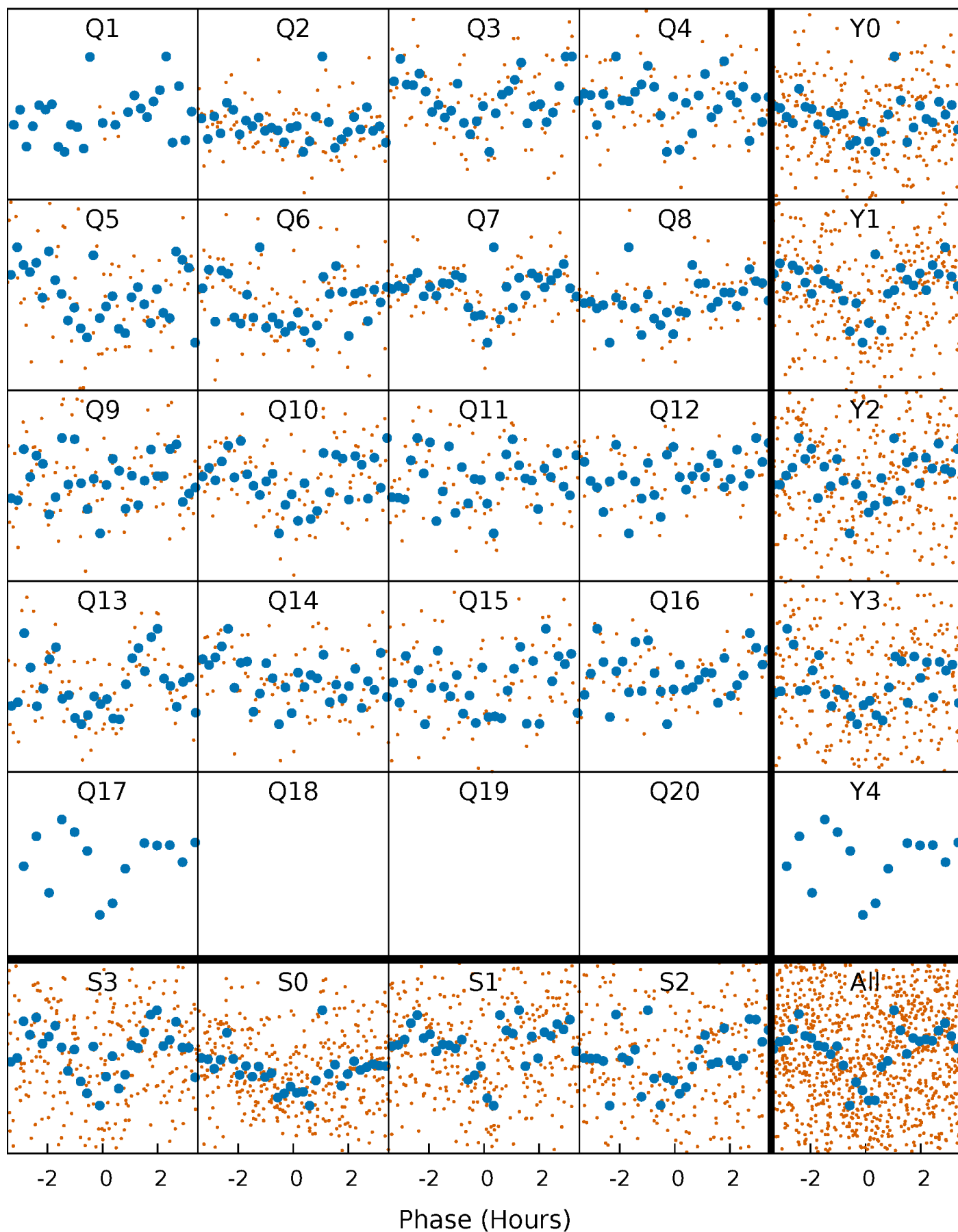


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



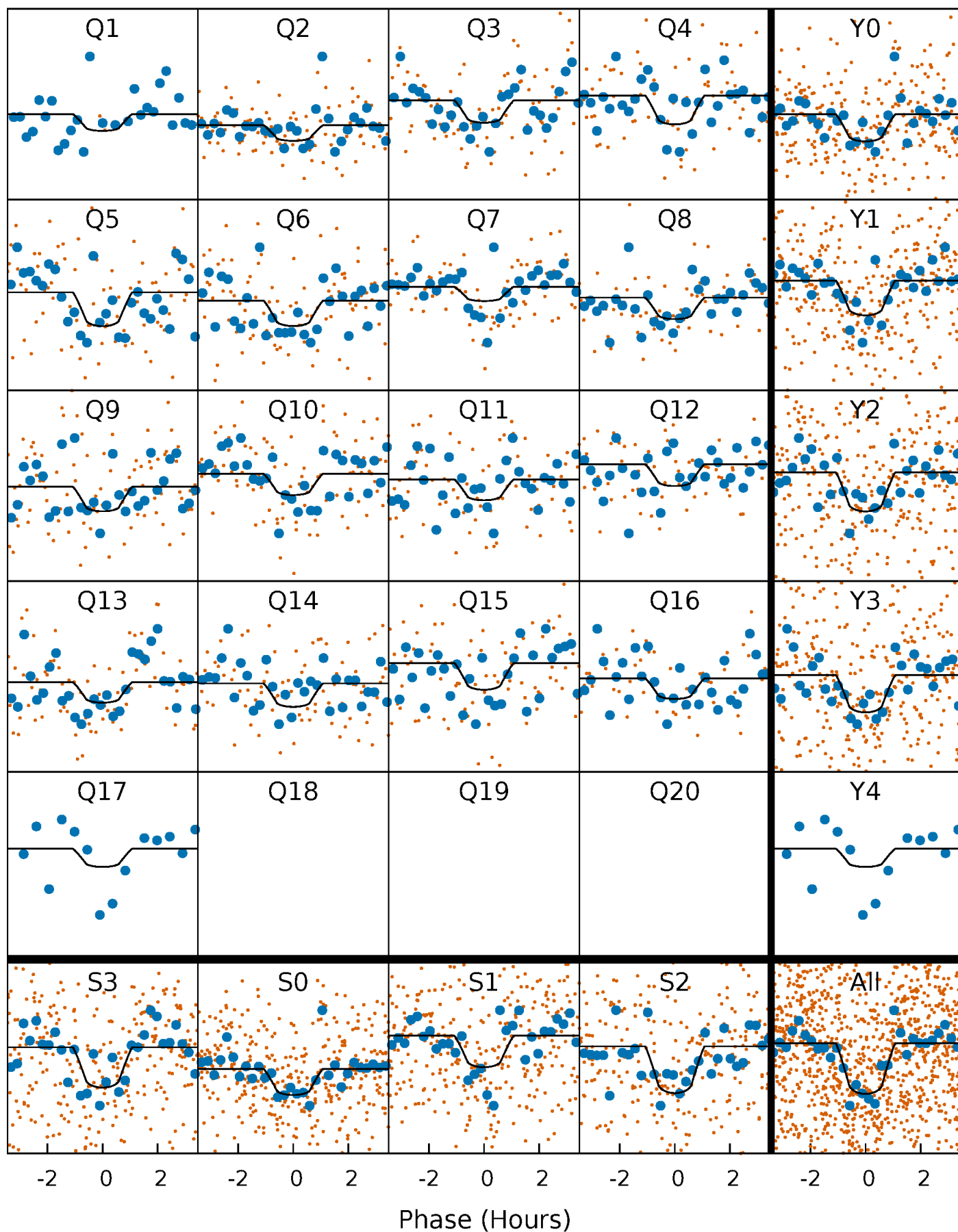
PDC Quarter-Phased Transit Curves

TCE 004466356-02 P= 14.127937 Days $T_0=145.302187$ (BKJD)



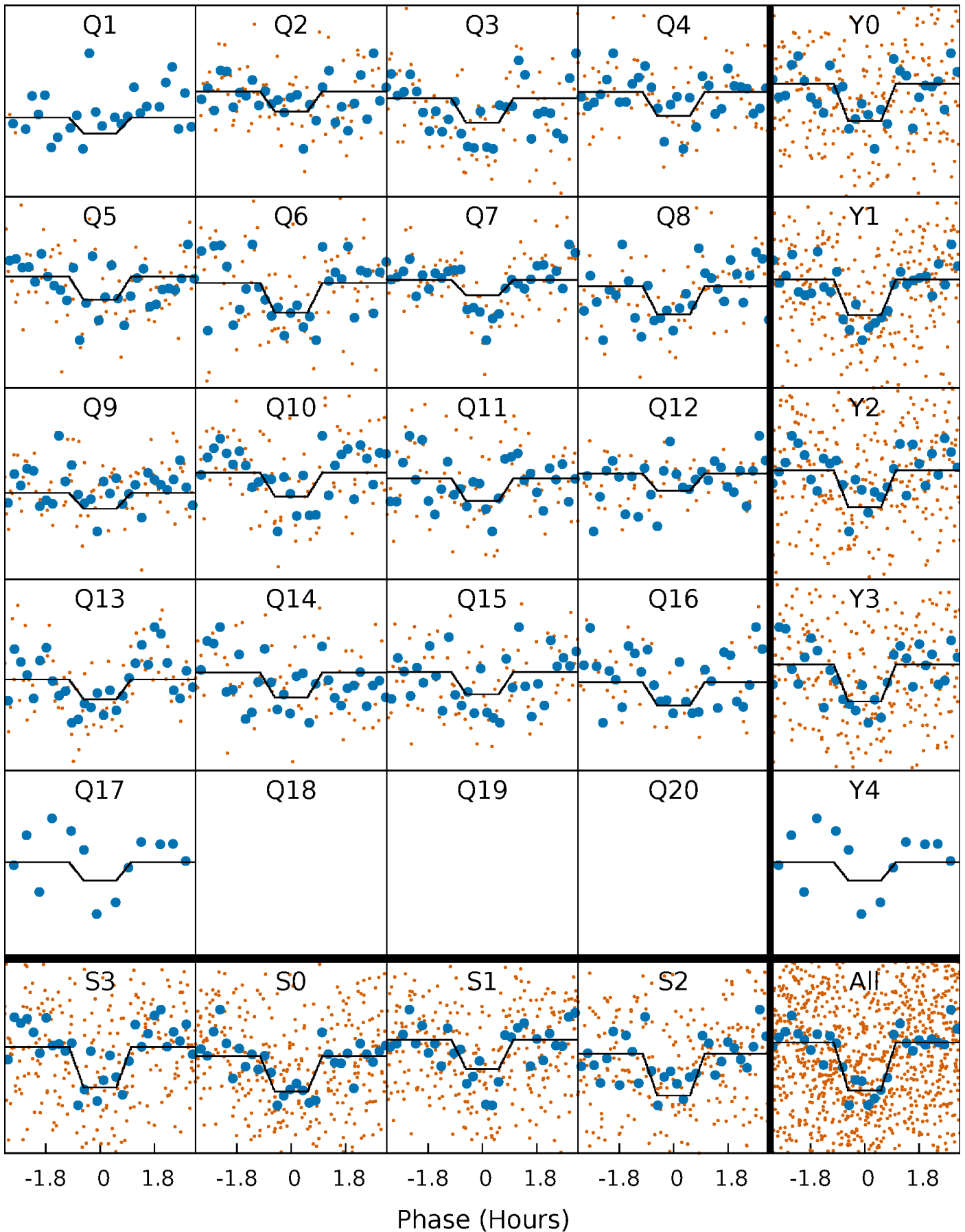
DV Quarter-Phased Transit Curves

TCE 004466356-02 P= 14.127937 Days $T_0=145.302187$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

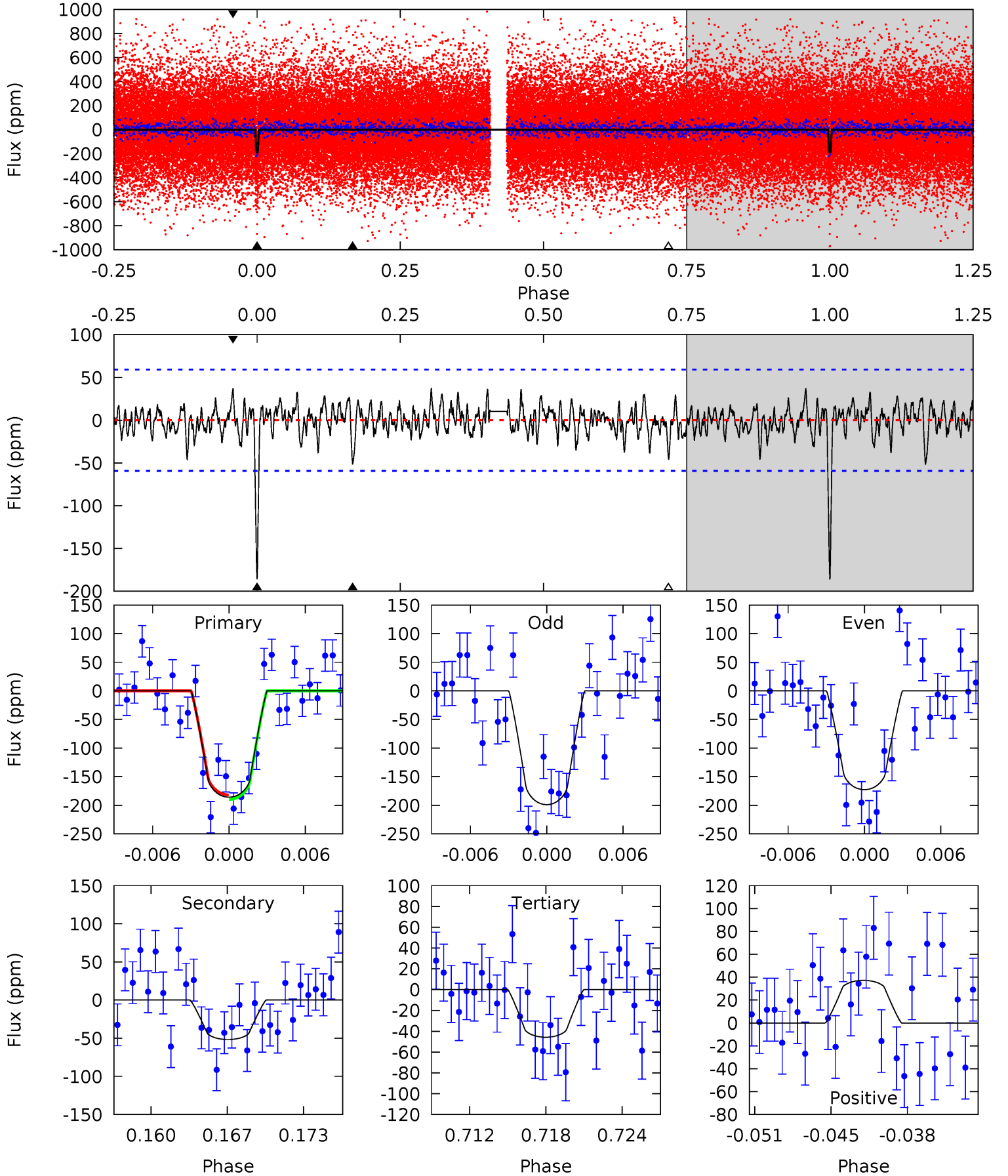
TCE 004466356-02 P= 14.127950 Days $T_0=145.299960$ (BKJD)



DV Model-Shift Uniqueness Test

004466356-02, $P = 14.127937$ Days, $E = 131.174250$ Days

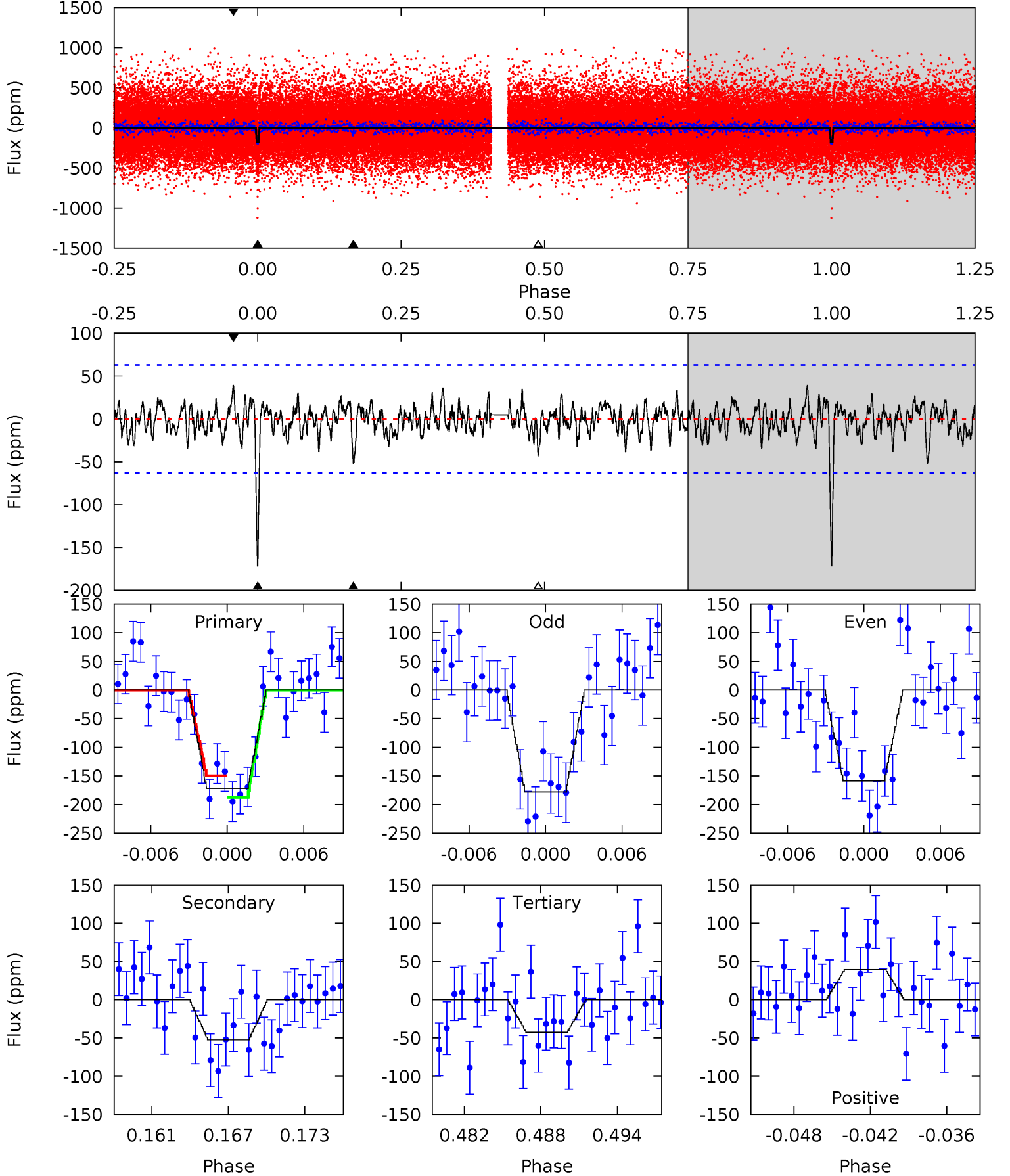
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.1	4.47	3.95	3.21	5.11	2.73	1.16	12.1	12.8	0.52	1.26	1.14	1.00	0.17	0.34



Alt Model-Shift Uniqueness Test

004466356-02, $P = 14.127950$ Days, $E = 131.172010$ 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	4.27	3.47	3.21	5.12	2.75	1.10	10.5	10.8	0.80	1.06	0.79	1.05	0.19	1.53



Stellar Parameters For KIC 004466356

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	6072^{+78}_{-91}	$4.470^{+0.030}_{-0.120}$	$-0.100^{+0.150}_{-0.150}$	$0.988^{+0.153}_{-0.055}$	$1.050^{+0.060}_{-0.075}$	$1.536^{+0.229}_{-0.524}$
	+1%/-1%	+1%/-3%	+150%/-150%	+15%/-6%	+6%/-7%	+15%/-34%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 004466356-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-52 ± 12	$1.58^{+1.08}_{-0.92}$	1103^{+41}_{-30}	4480^{+2228}_{-768}	154^{+752}_{-103}
Alt.	-52 ± 12	$1.60^{+1.10}_{-0.95}$	1101^{+46}_{-25}	4473^{+2118}_{-796}	147^{+737}_{-97}

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

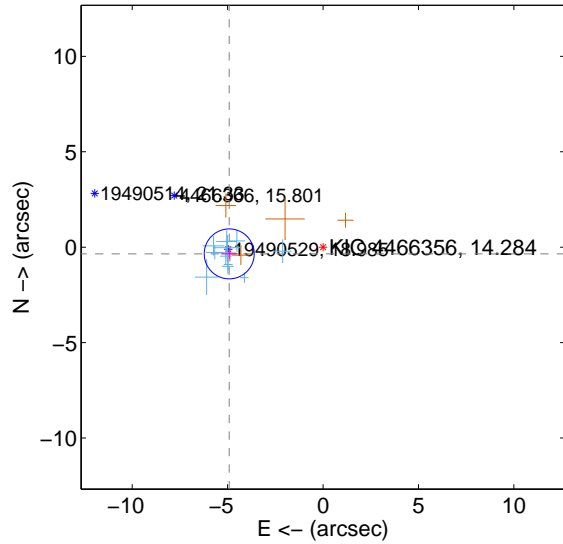
Supplemental centroid analysis for 004466356-02. Kepler magnitude: 14.28. Transit SNR 10.64

There are 12 quarters with good PRF difference image offsets

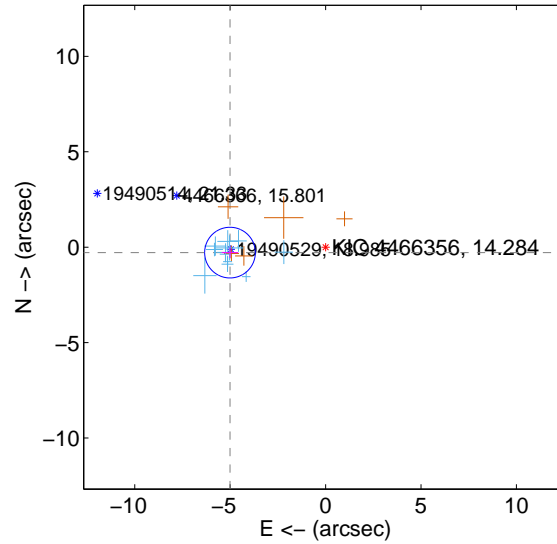
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.928 ± 0.436	11.30	4.915 ± 0.428	-0.352 ± 0.266
PRF-fit source offset from KIC position	5.016 ± 0.443	11.33	5.008 ± 0.436	-0.285 ± 0.268
photometric centroid source offset	6.71 ± 1.28	5.23	6.69 ± 1.28	-0.50 ± 1.35

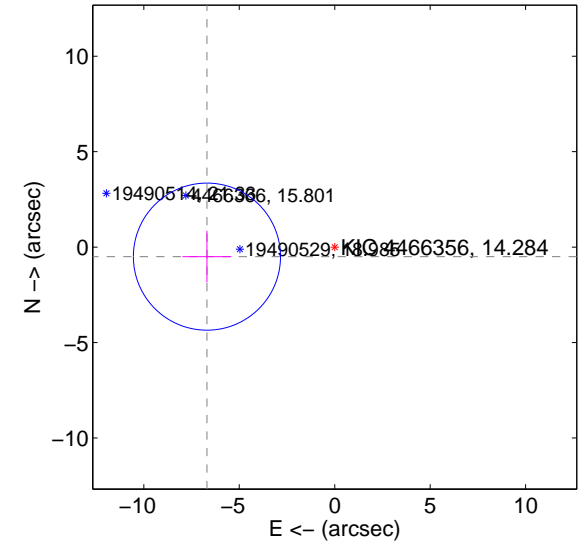
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

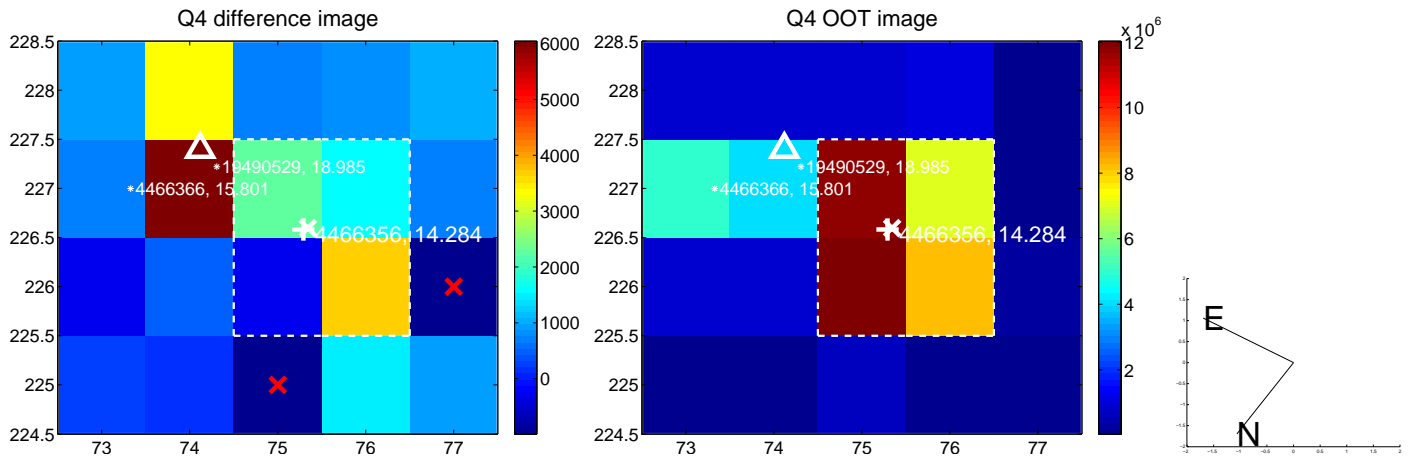
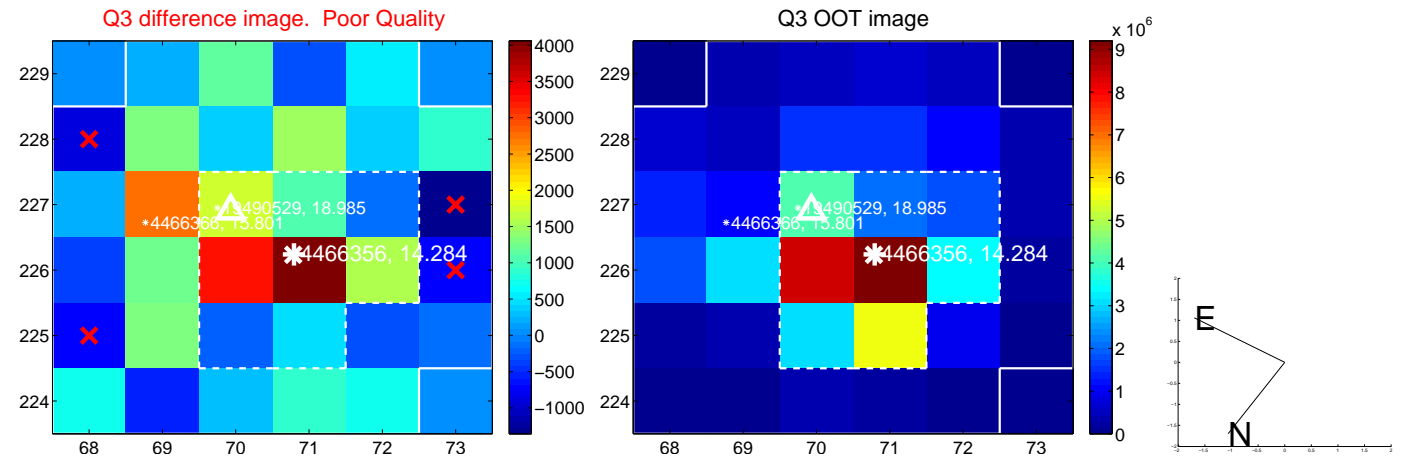
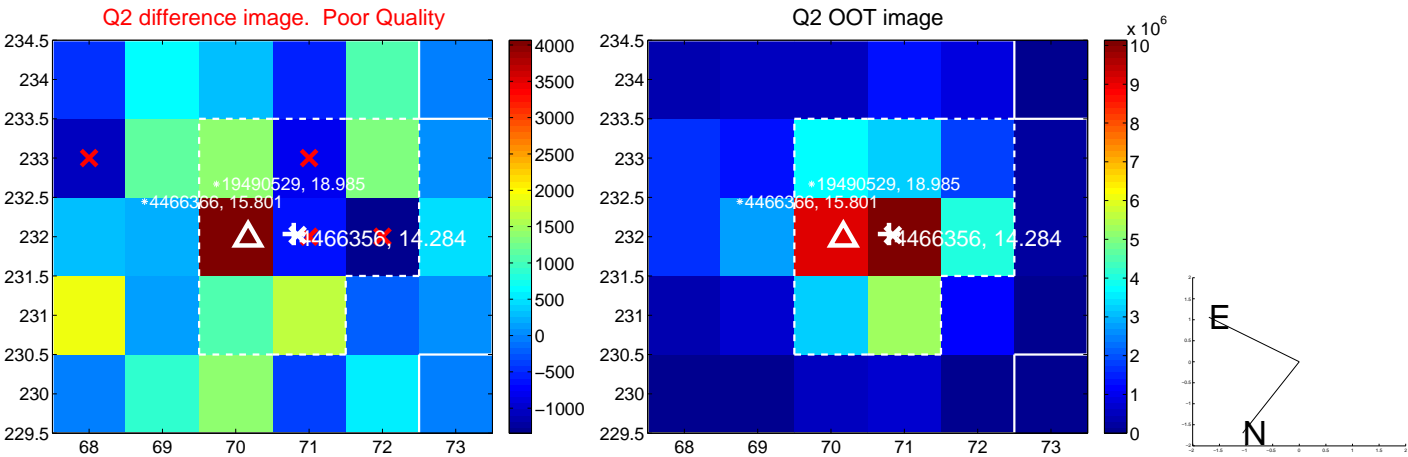
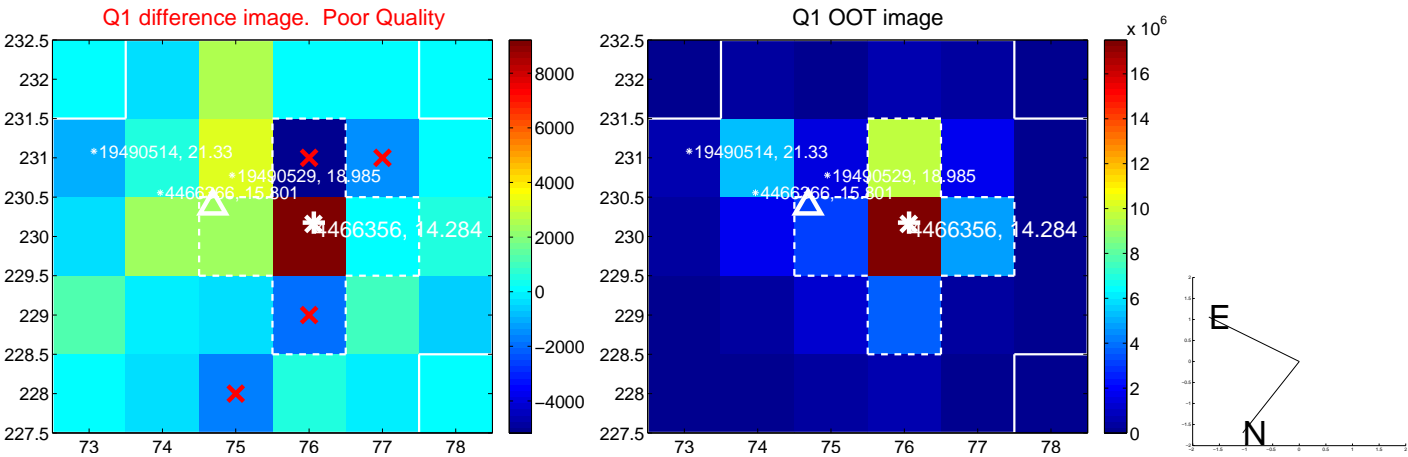


offset from photometric centroids

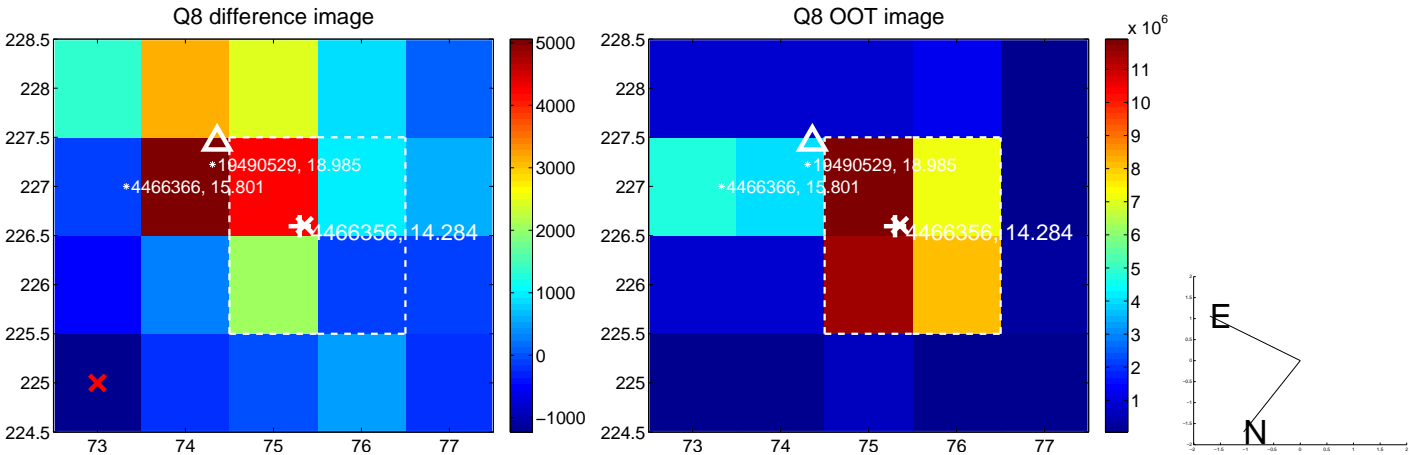
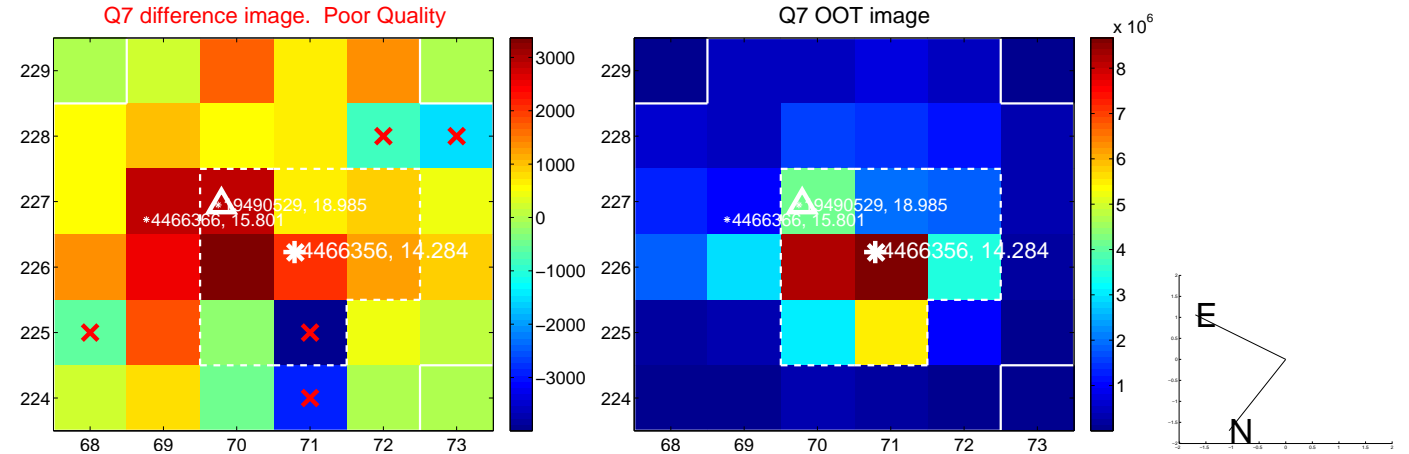
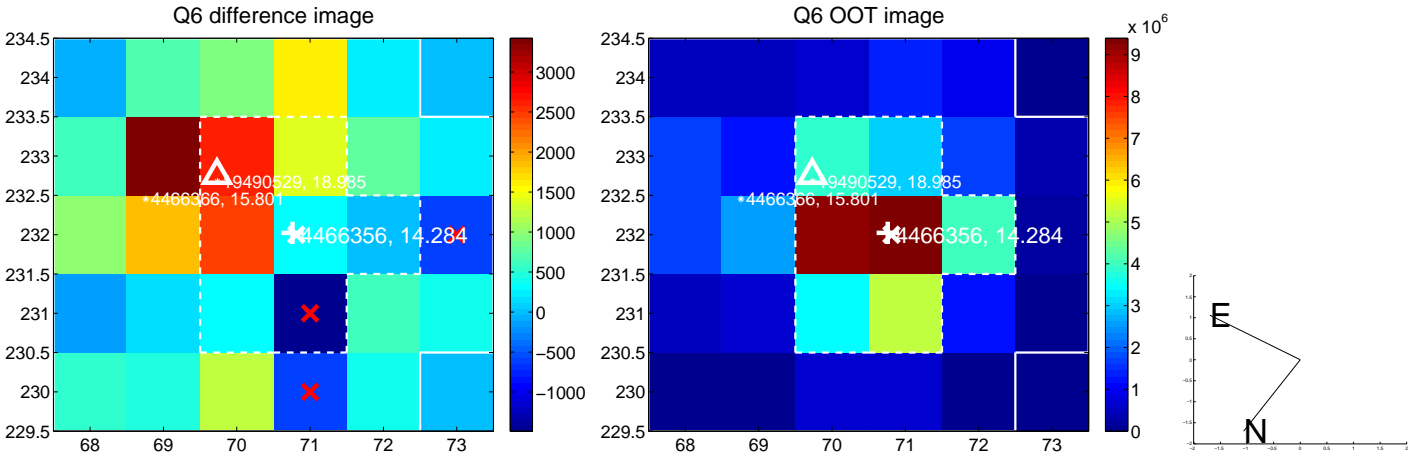
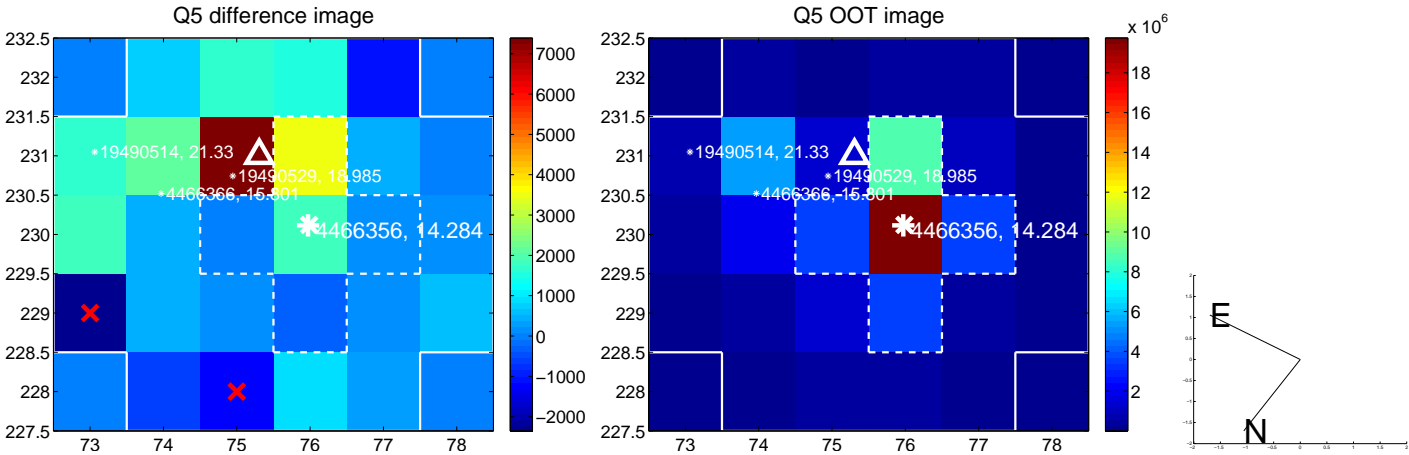


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

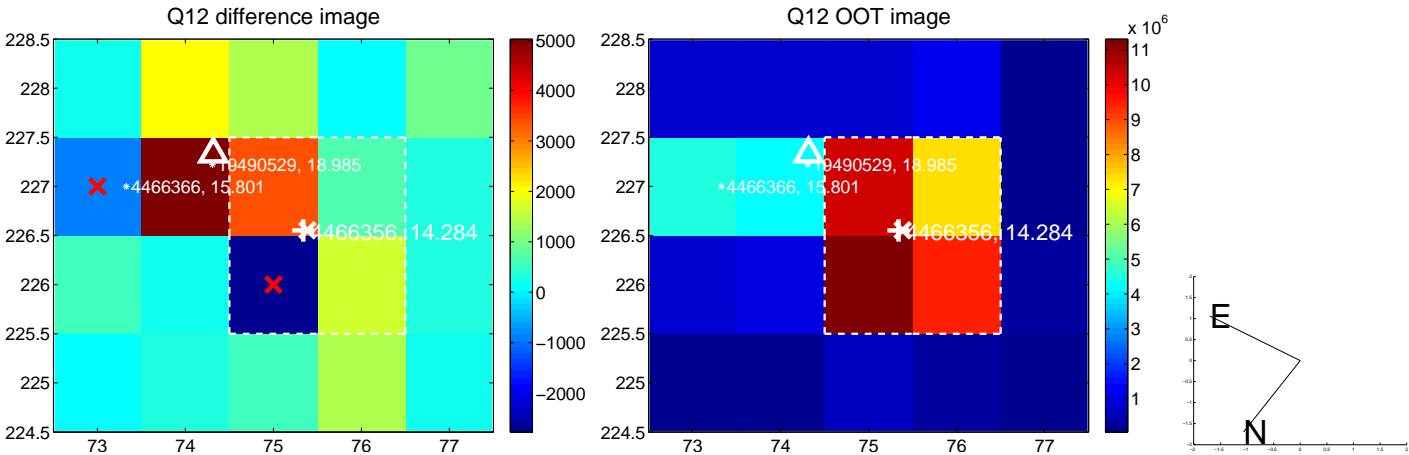
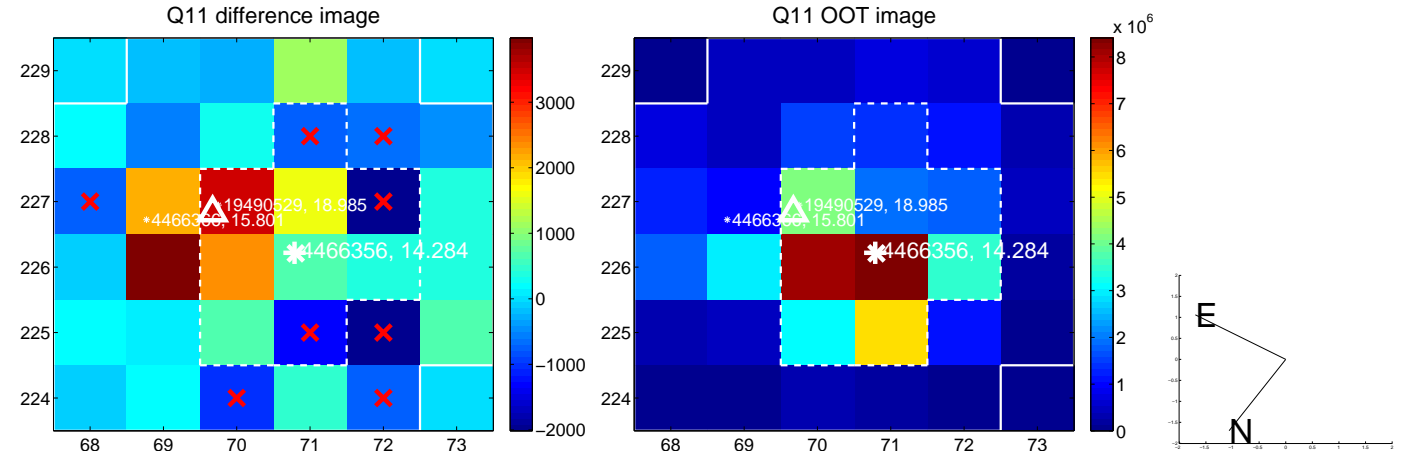
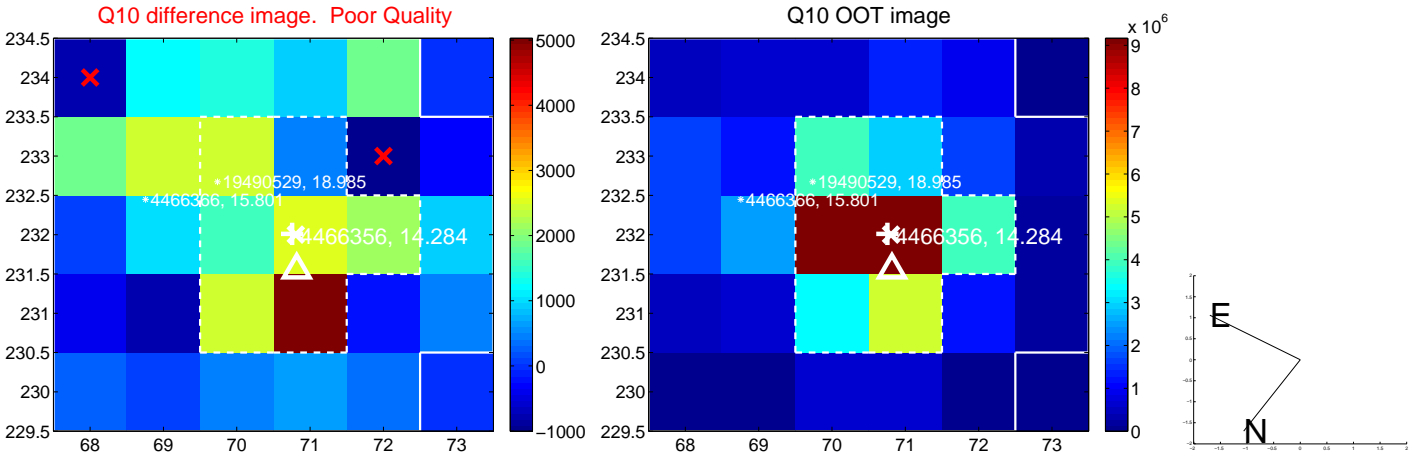
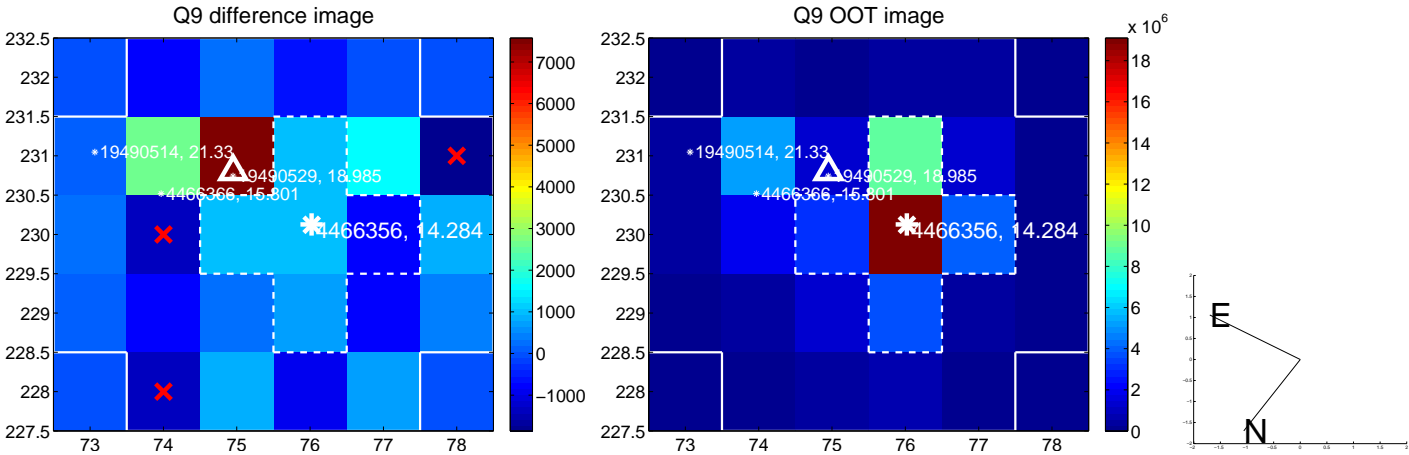
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



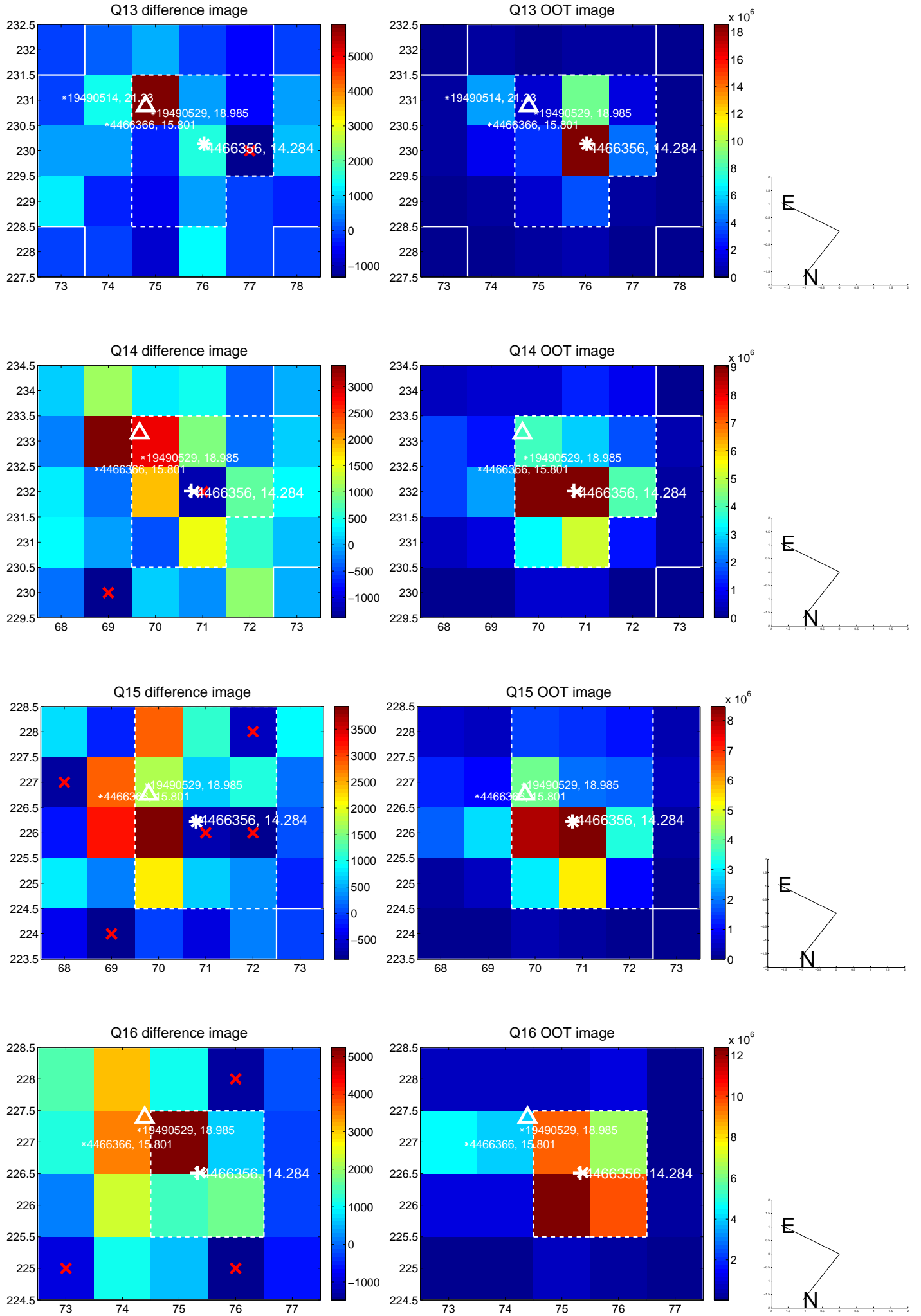
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



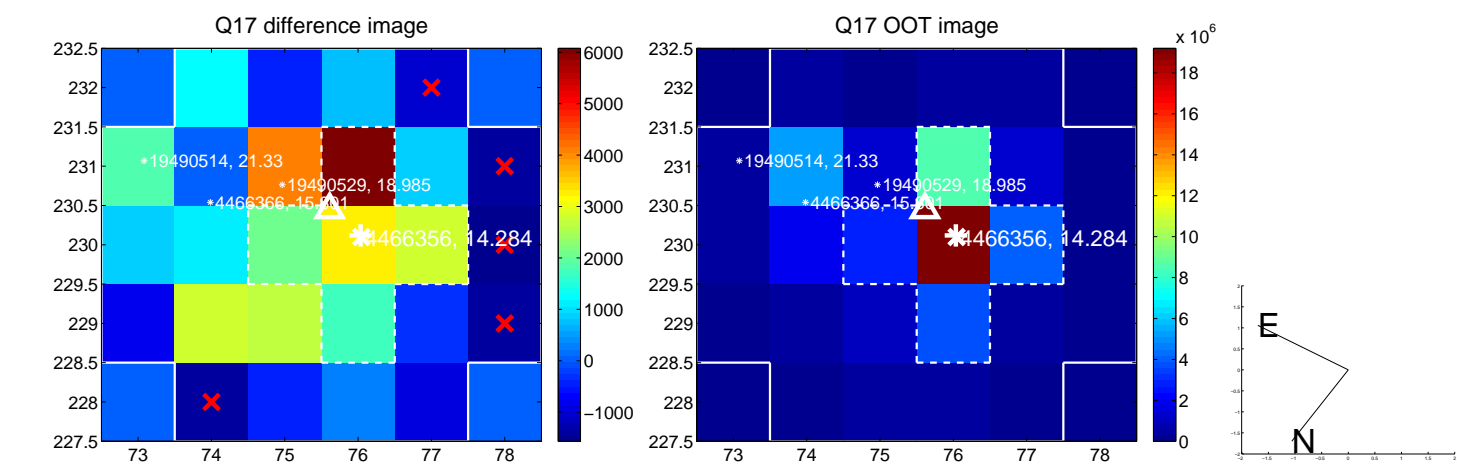
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



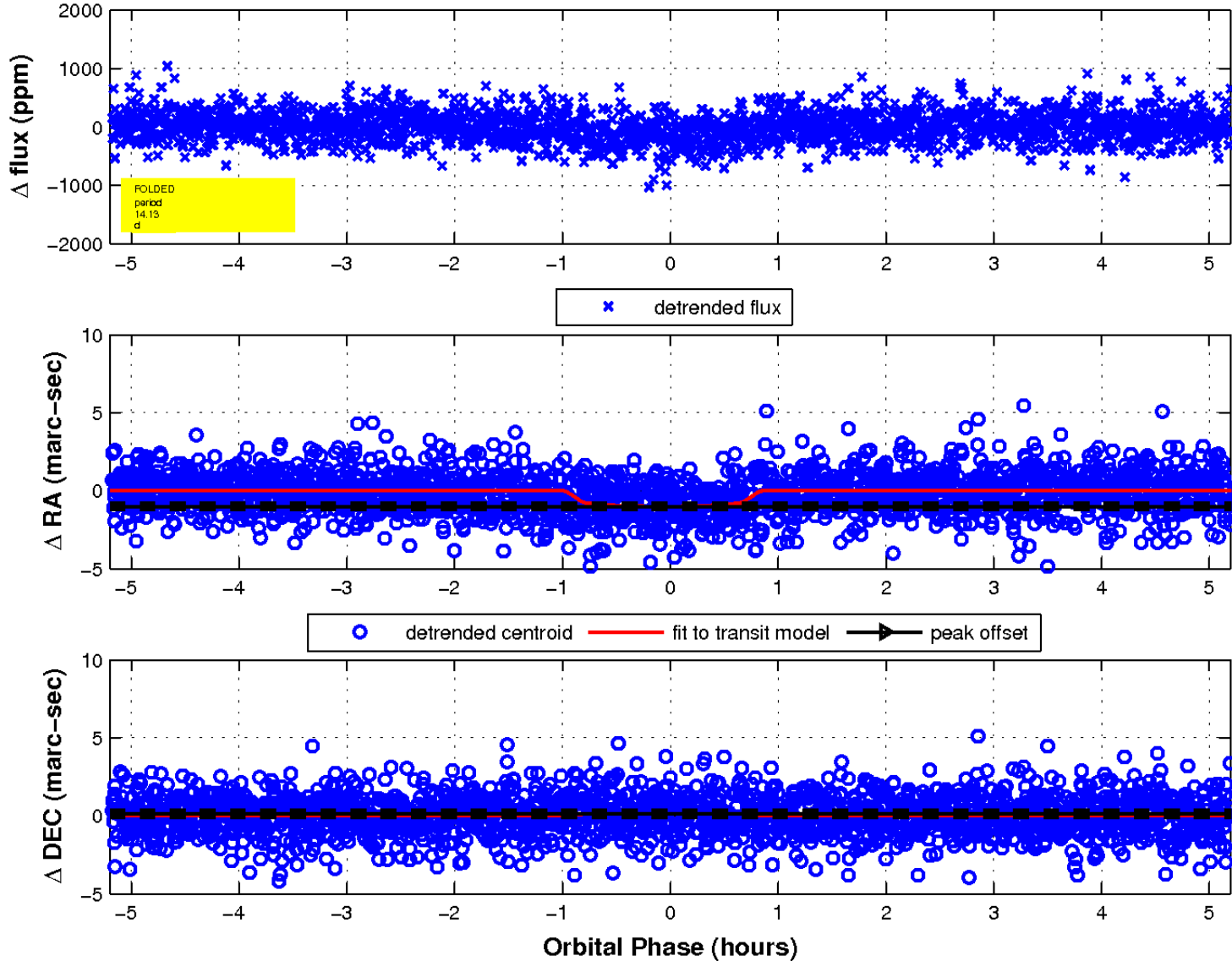
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

