

KIC 004142847

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})
004142847-01	OBS	2210.02	210.631420	300.723552	1706.6	8.406	20.5	20.3	0.76	4895	3.28	0.71
004142847-02	OBS	2210.01	2.888915	132.152625	395.4	1.595	19.5	22.5	0.76	4895	1.52	215.32

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004142847-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004142847-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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 004142847-01

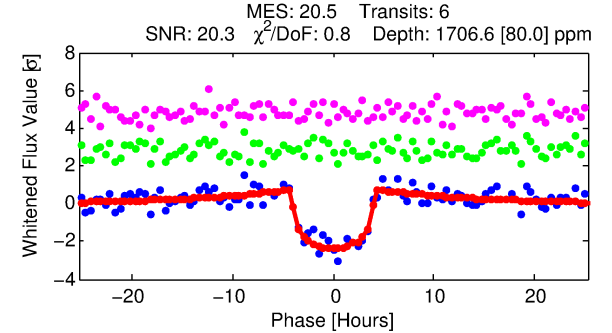
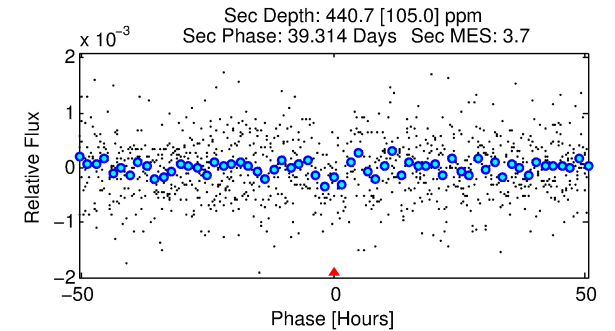
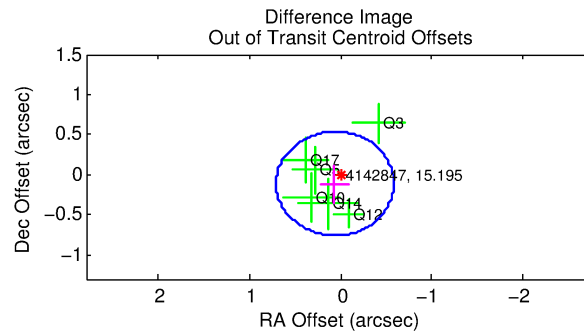
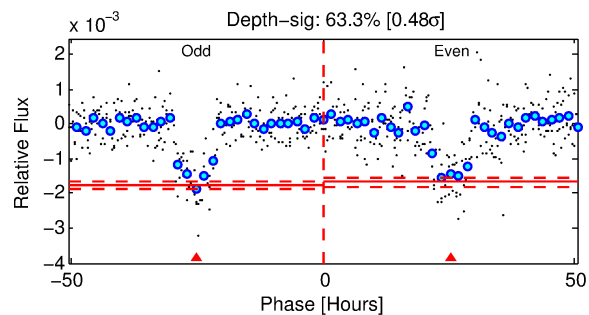
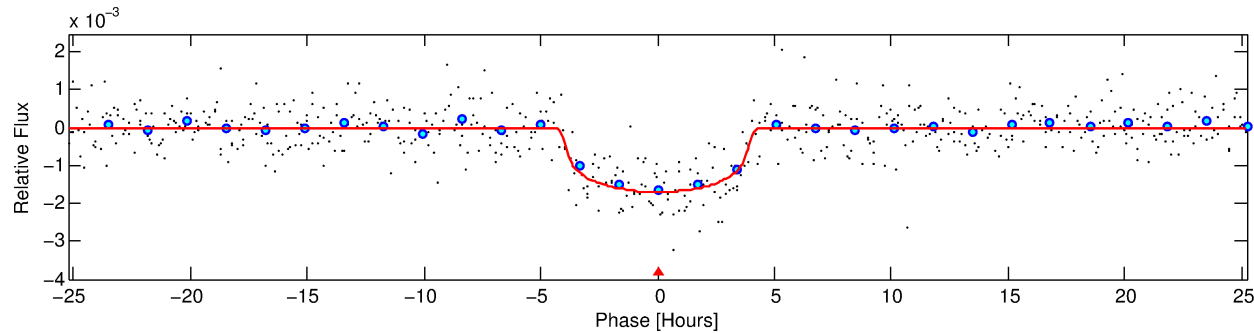
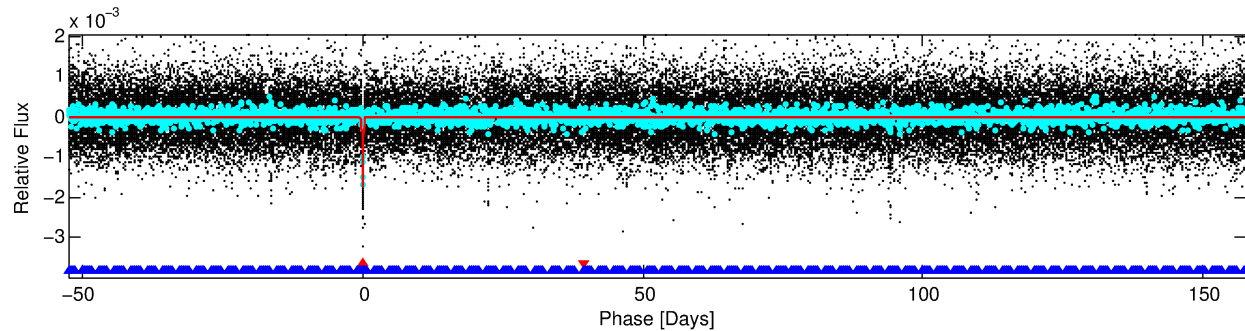
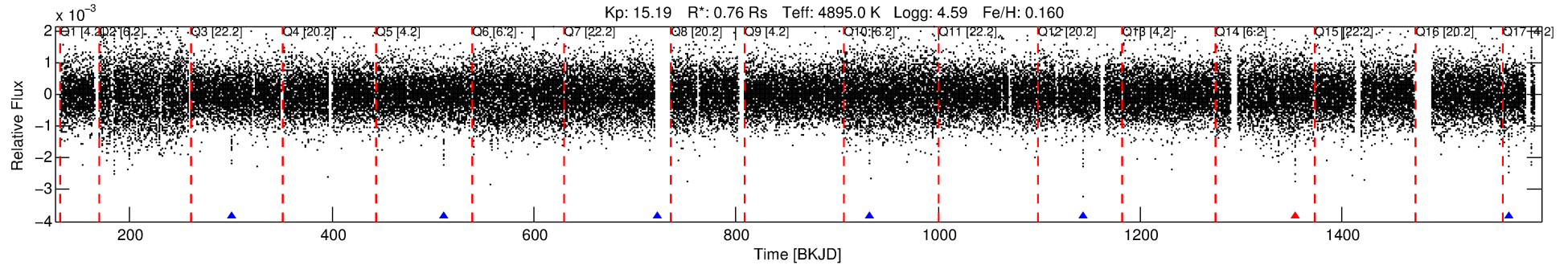
No Significant Match Found

DV One-Page Summary

KIC: 4142847 Candidate: 1 of 2 Period: 210.631 d

KOI: K02210.02 Corr: 0.984

Kp: 15.19 R*: 0.76 Rs Teff: 4895.0 K Logg: 4.59 Fe/H: 0.160



DV Fit Results:

Period = 210.63142 [0.00151] d
Epoch = 300.7236 [0.0055] BKJD
Rp/R* = 0.0396 [0.0081]
a/R* = 155.57 [103.29]
b = 0.65 [0.61]
Seff = 0.71 [0.07]
Teq = 234 [6] K
Rp = 3.28 [0.70] Re
a = 0.6475 [0.0327] AU
Ag = 9445.39 [4540.39] [2.08σ]
Teffp = 3564 [426] K [7.81σ]

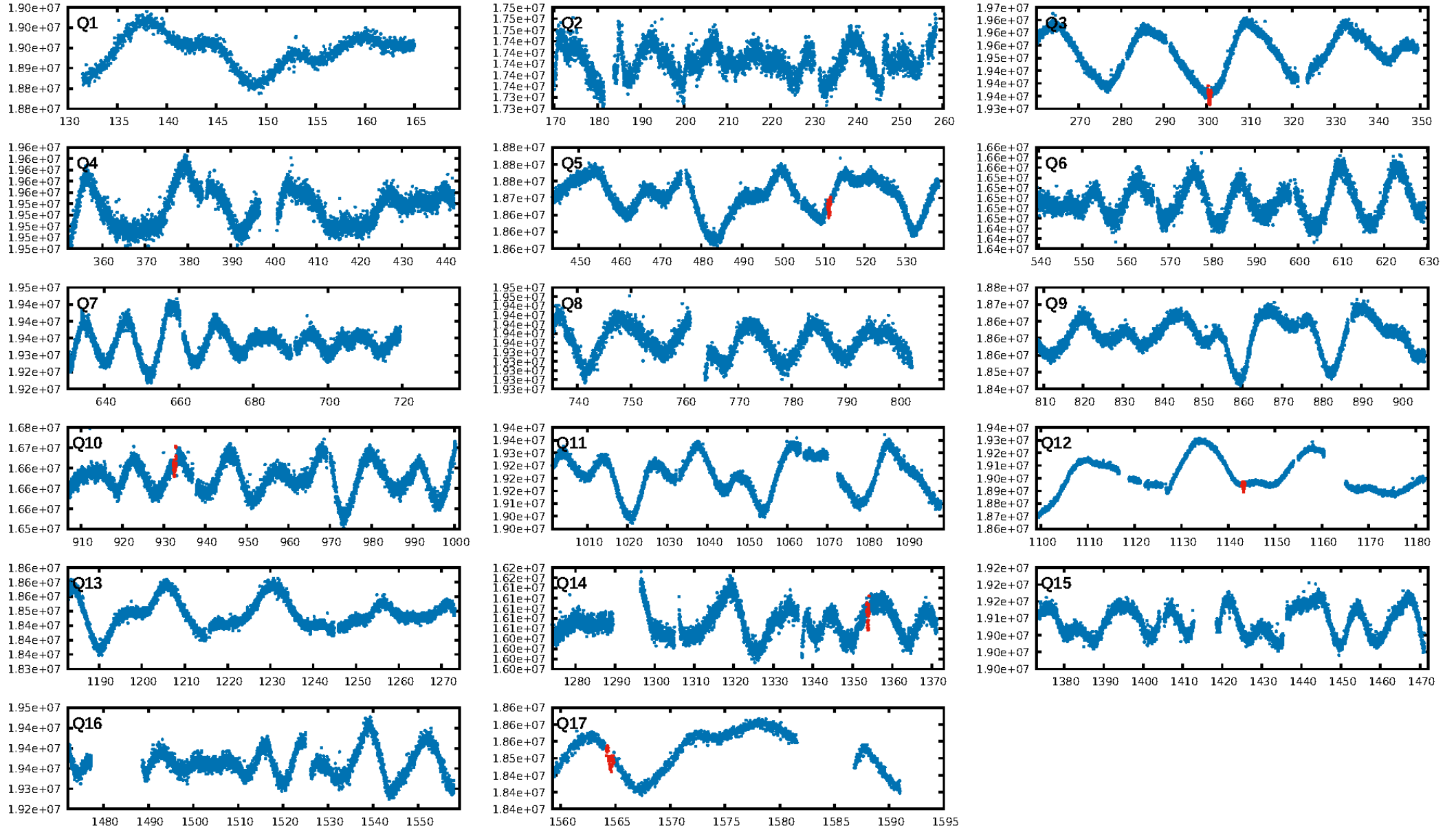
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [582.74σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 76.6%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 3.94e-56
RollingBand-fgt: 0.80 [4/5]
GhostDiagnostic-chr: 2.473
Centroid-sig: 0.0%
Centroid-so: 1.799 arcsec [2.99σ]
OotOffset-rm: 0.127 arcsec [0.59σ]
KicOffset-rm: 0.207 arcsec [0.91σ]
OotOffset-st: 2/1/1/2 [6]
KicOffset-st: 2/1/1/2 [6]
DiffImageQuality-fgm: 1.00 [6/6]
DiffImageOverlap-fno: 0.33 [2/6]

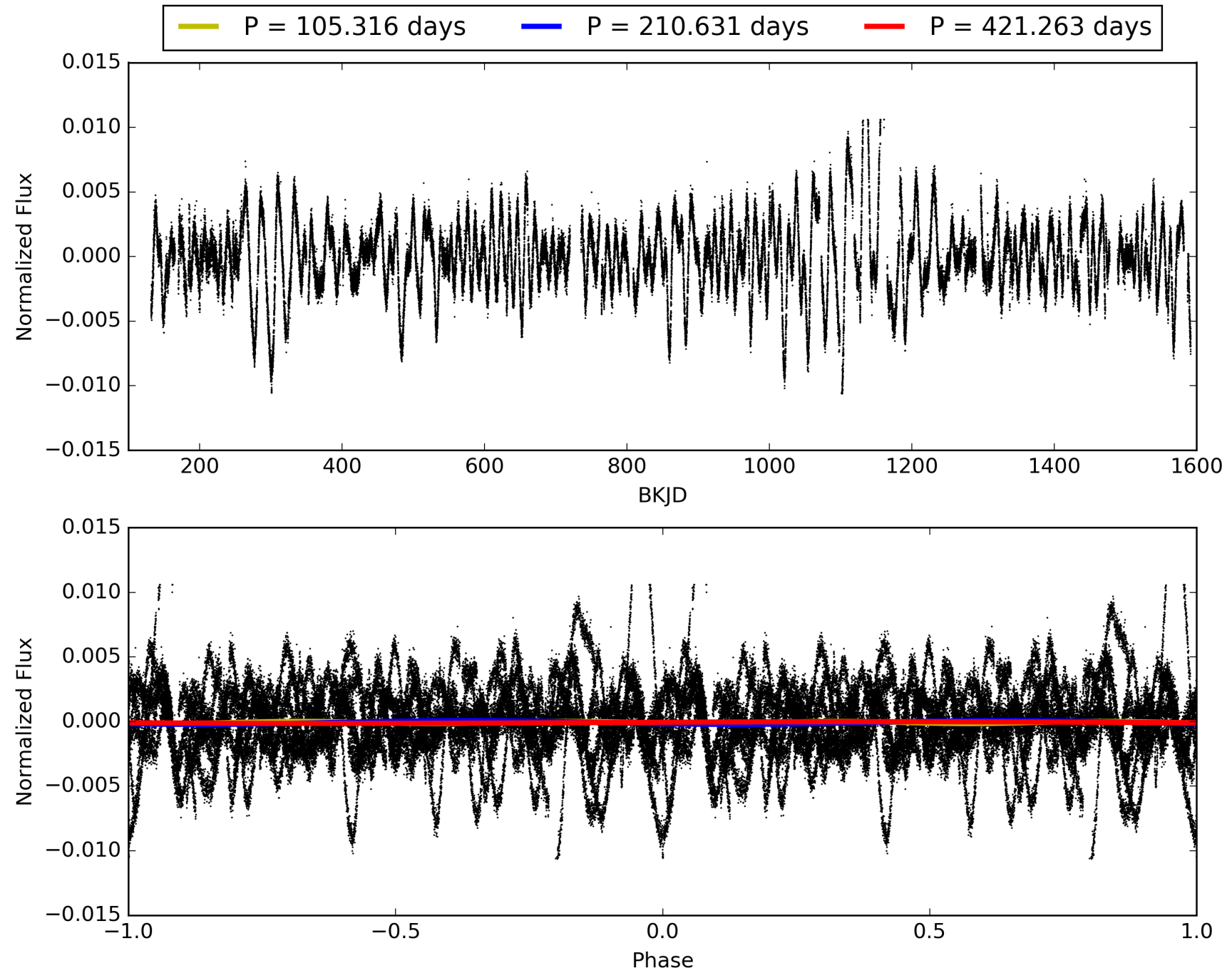
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:33:38 Z

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

TCE 004142847-01, PDC Light Curves

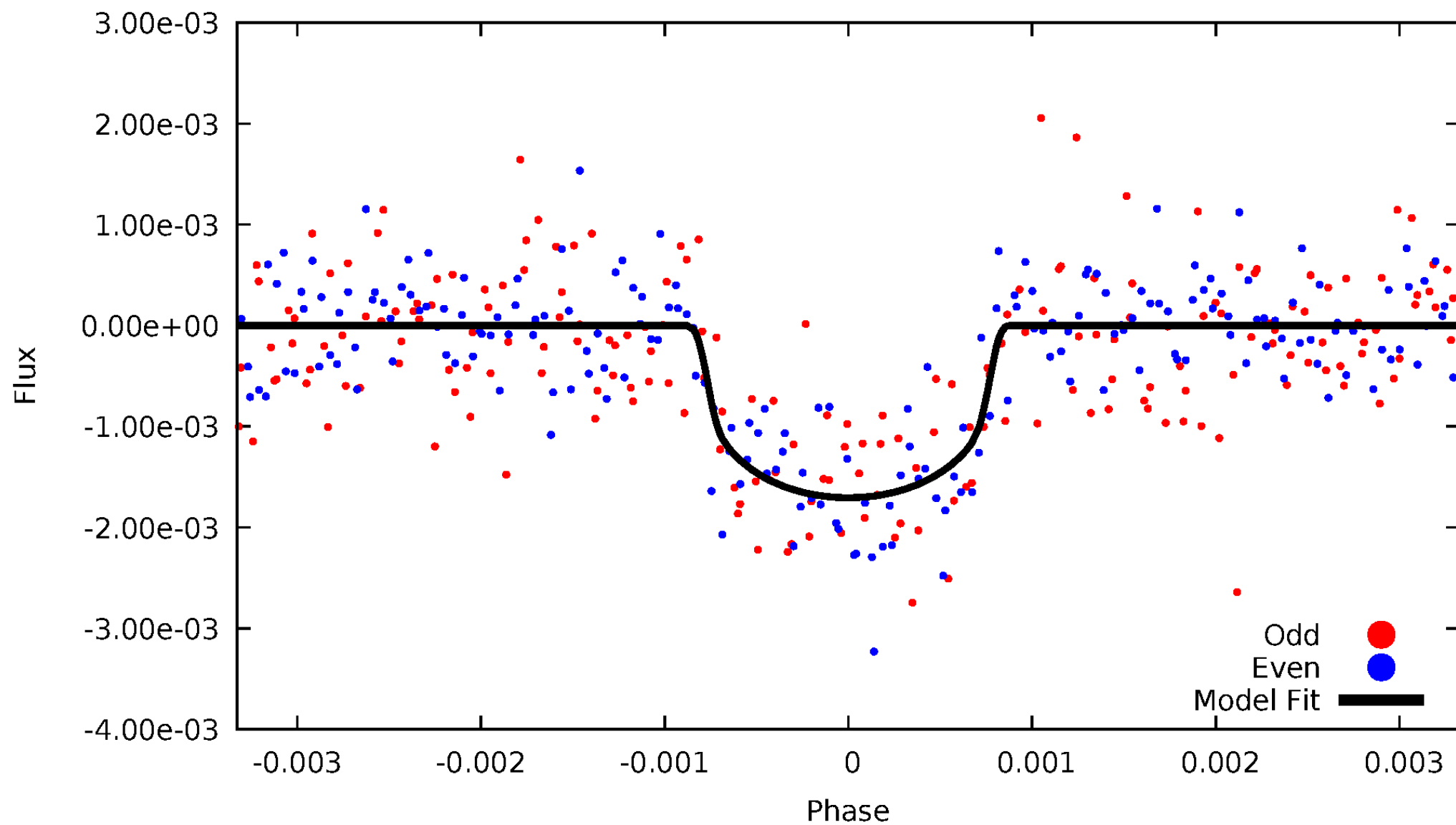


TCE 004142847-01



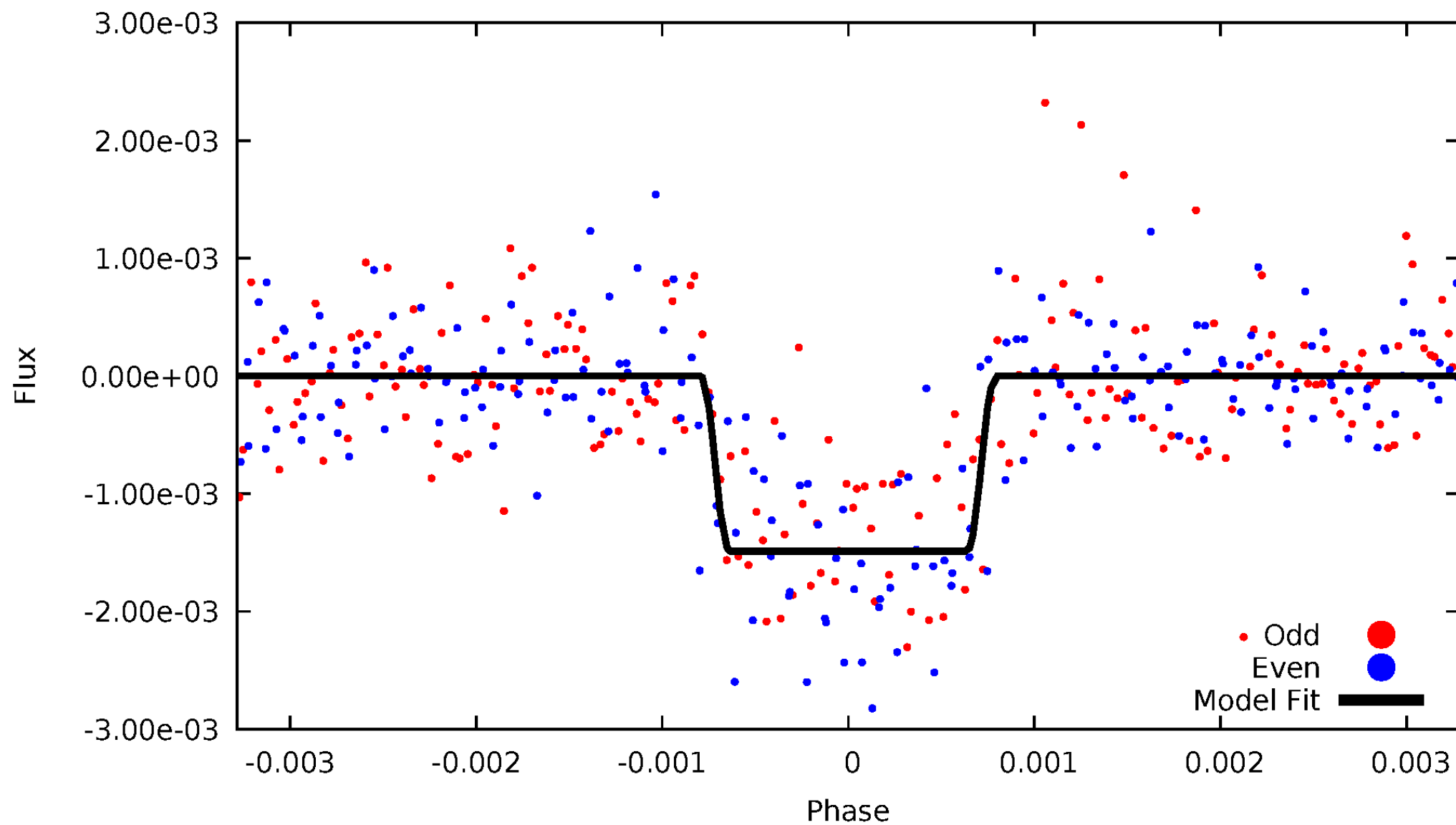
DV Odd/Even

TCE 004142847-01



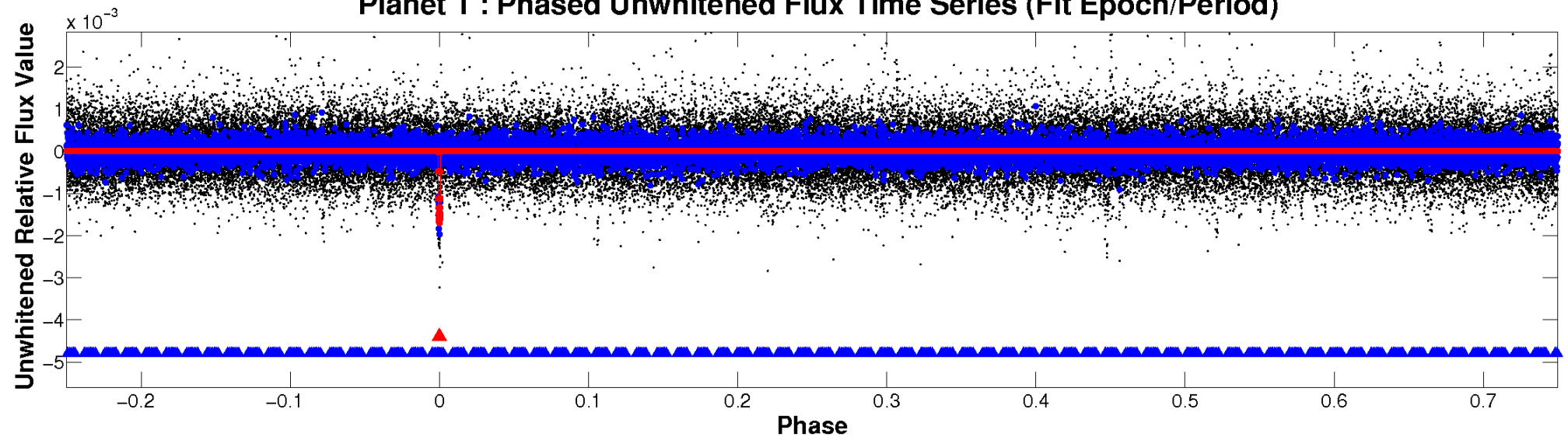
ALT Odd/Even

TCE 004142847-01

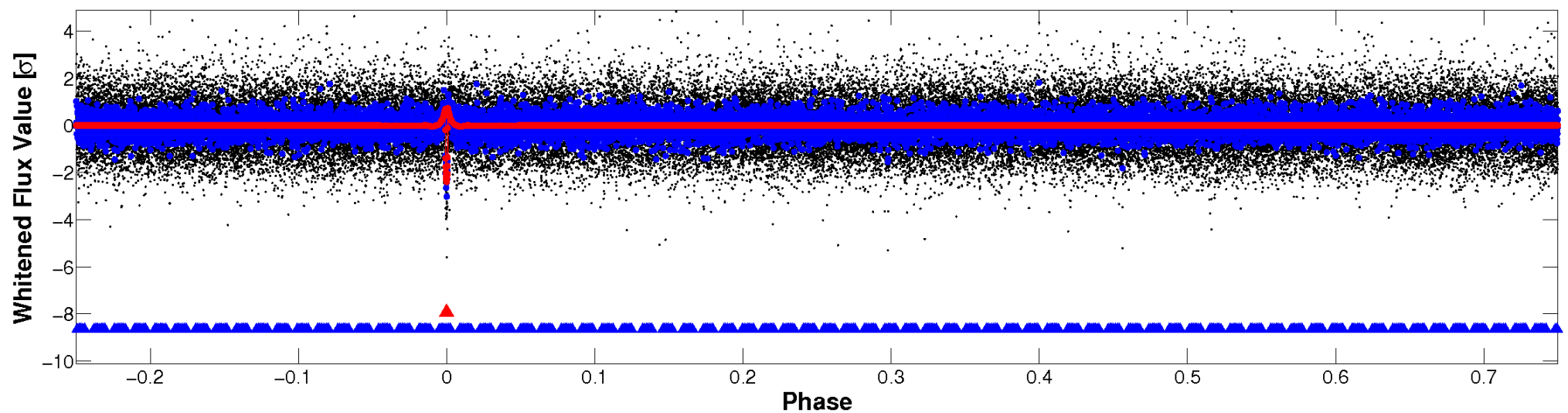


Non-Whitened Vs. Whitened Light Curve

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

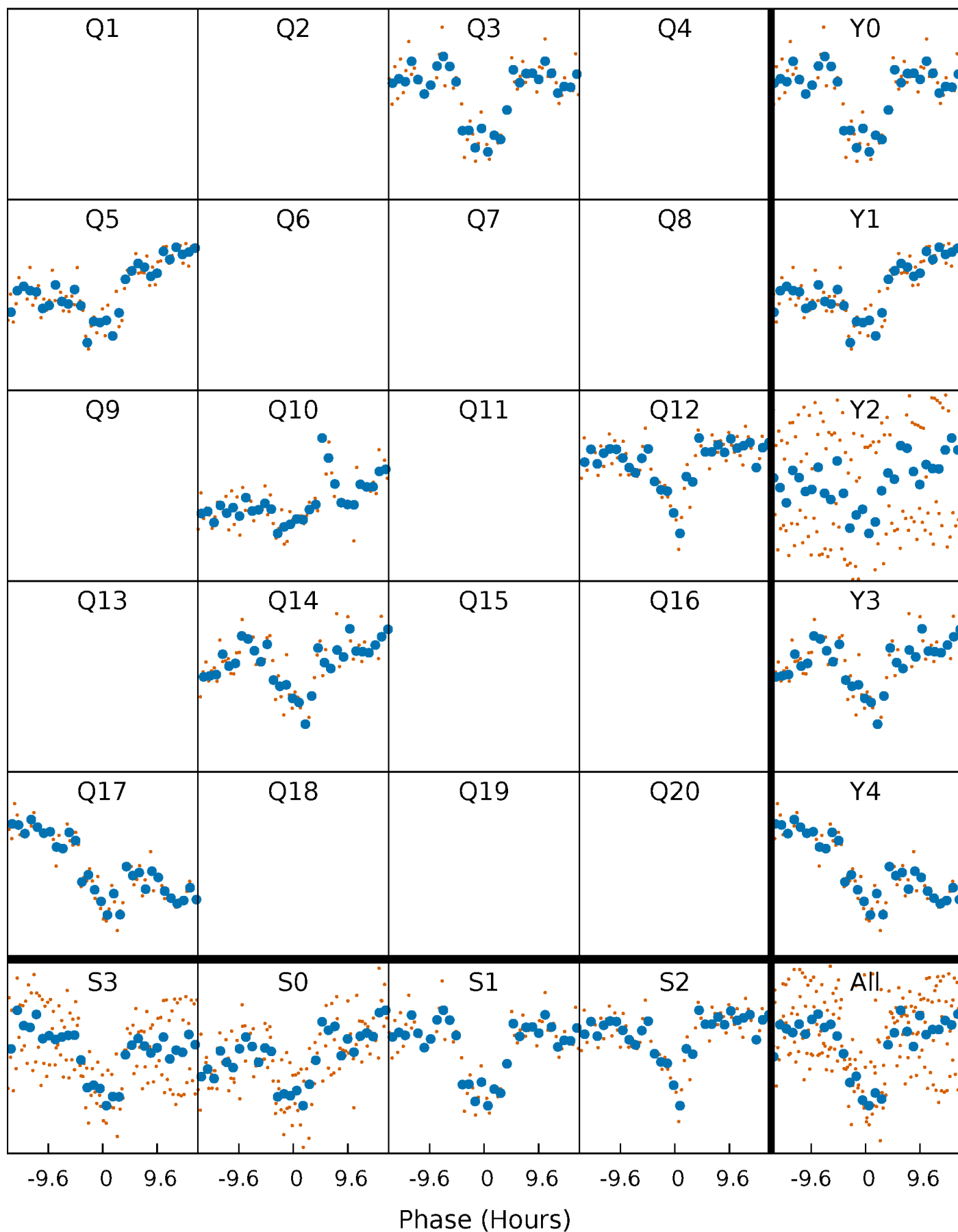


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



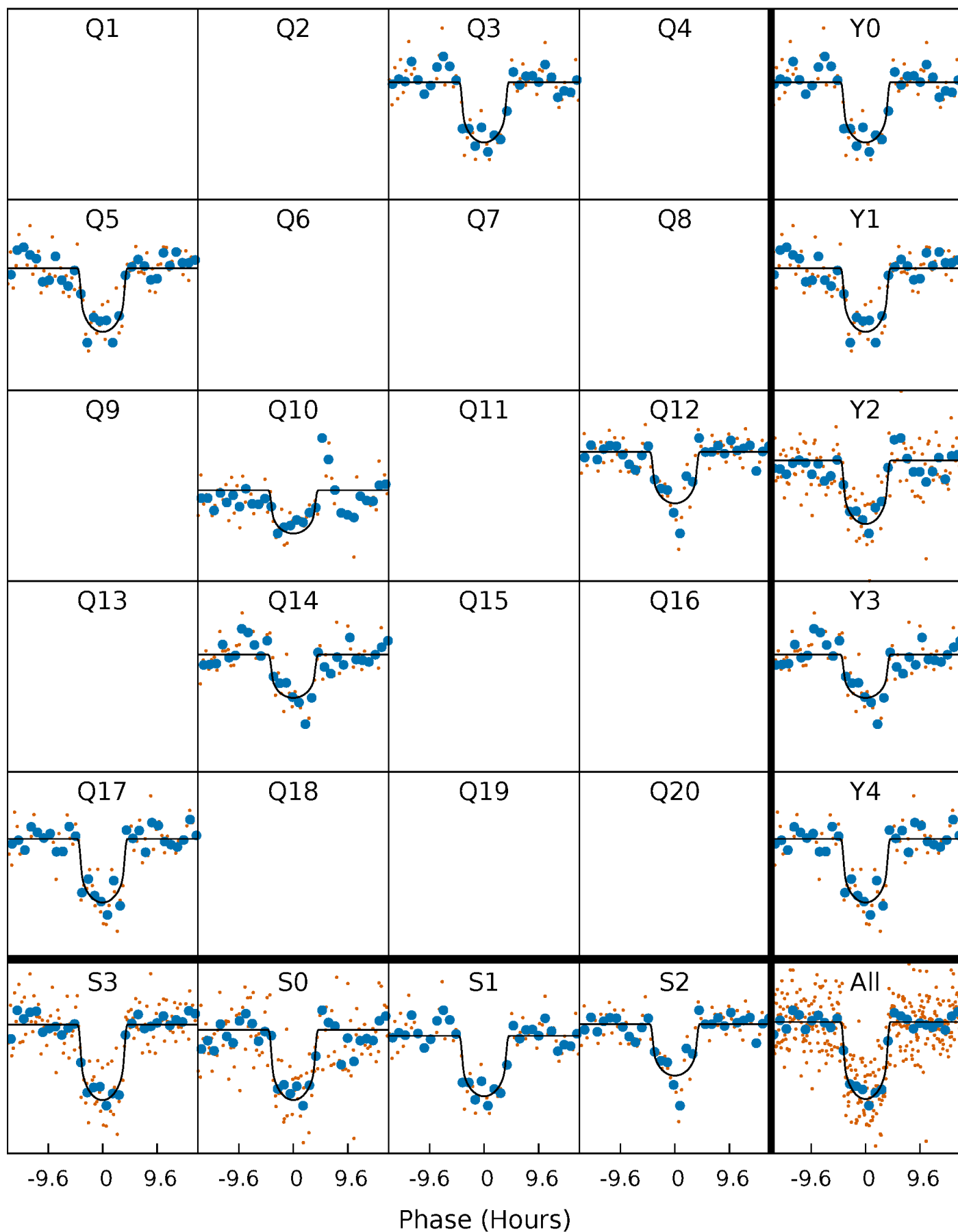
PDC Quarter-Phased Transit Curves

TCE 004142847-01 P=210.631420 Days $T_0=300.723552$ (BKJD)



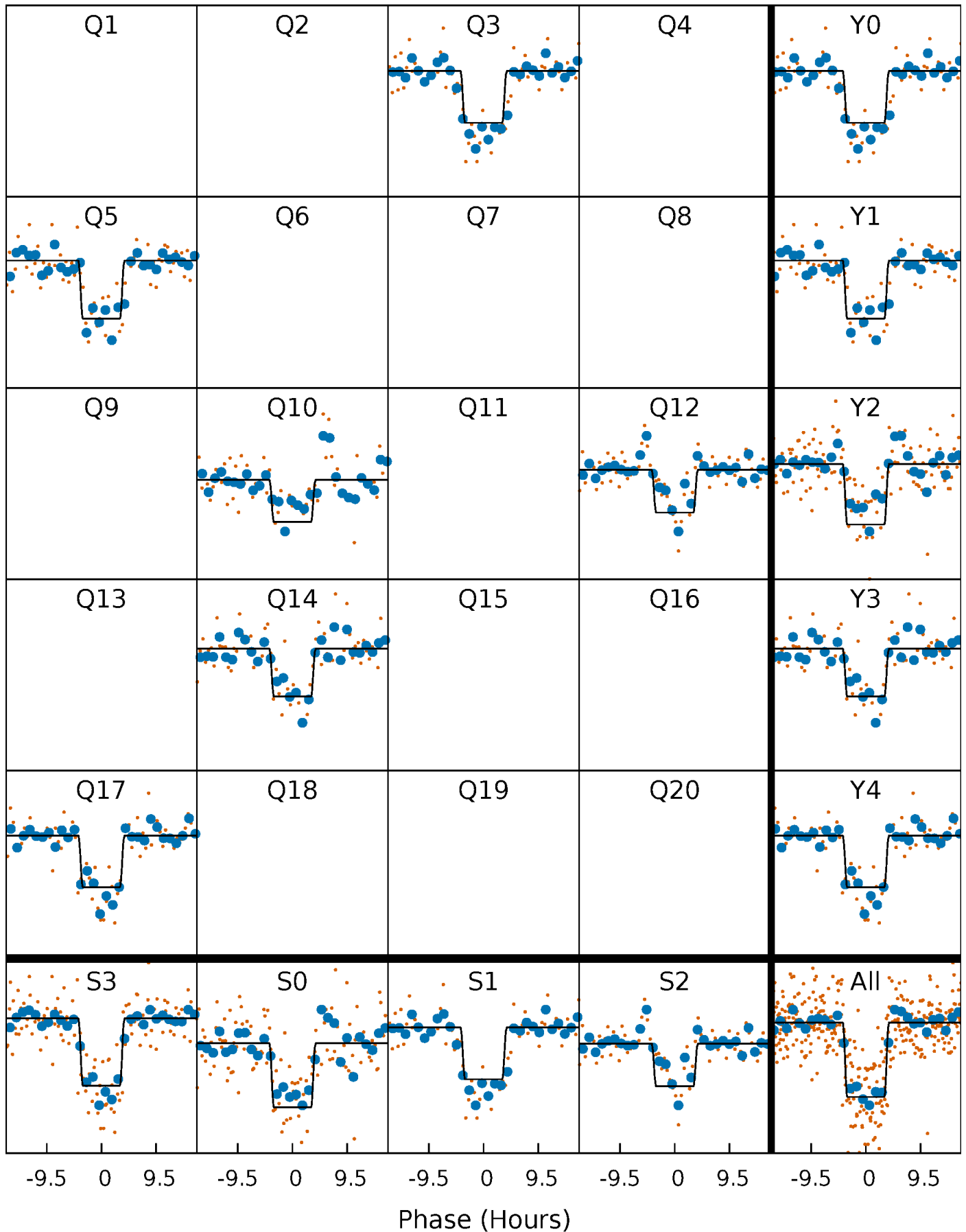
DV Quarter-Phased Transit Curves

TCE 004142847-01 $P=210.631420$ Days $T_0=300.723552$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

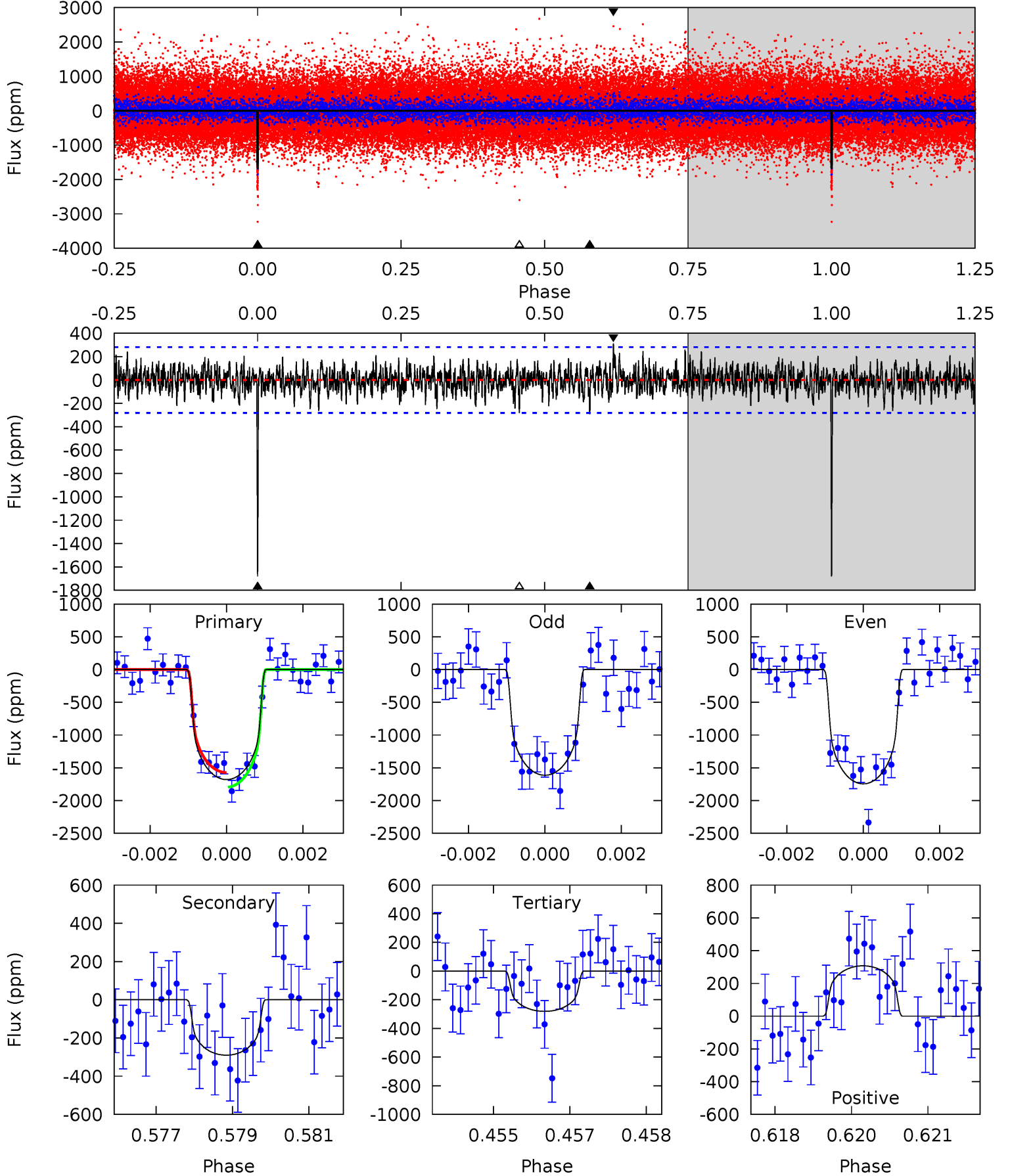
TCE 004142847-01 P=210.635948 Days $T_0=300.707833$ (BKJD)



DV Model-Shift Uniqueness Test

004142847-01, $P = 210.631420$ Days, $E = 90.092132$ Days

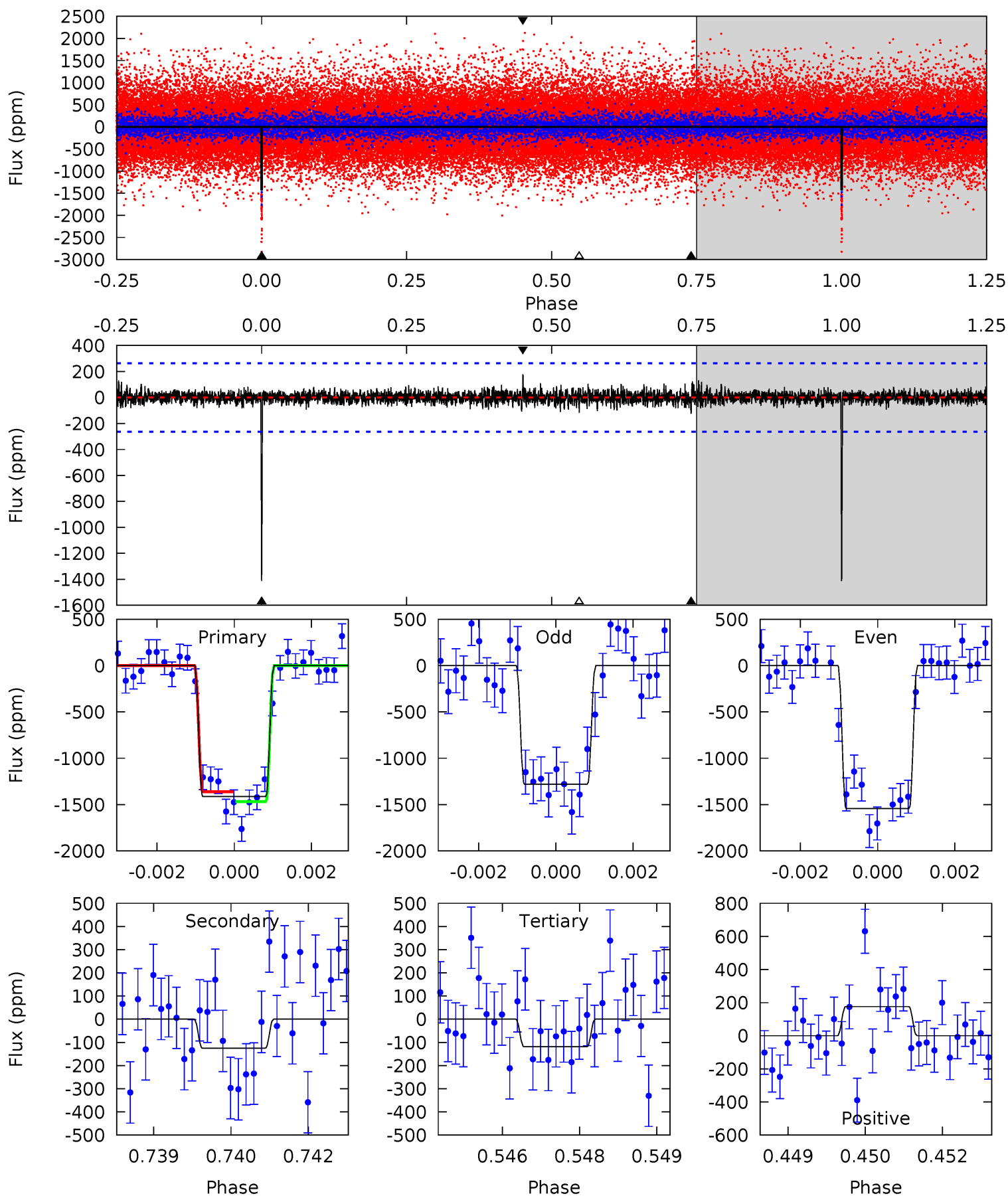
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.0	5.52	5.34	5.85	5.36	3.14	1.53	26.6	26.1	0.17	-0.33	1.26	0.97	0.15	2.12



Alt Model-Shift Uniqueness Test

004142847-01, P = 210.635948 Days, E = 90.071885 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.8	2.55	2.42	3.59	5.37	3.16	0.62	26.4	25.2	0.13	-1.04	2.68	1.00	0.11	1.10



Stellar Parameters For KIC 004142847

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4895^{+78}_{-78}	$4.589^{+0.018}_{-0.046}$	$0.160^{+0.150}_{-0.150}$	$0.759^{+0.041}_{-0.030}$	$0.817^{+0.029}_{-0.046}$	$2.629^{+0.243}_{-0.369}$
	+2%/-2%	+0%/-1%	+94%/-94%	+5%/-4%	+4%/-6%	+9%/-14%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 004142847-01 / KOI 2210.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-290 ± 53	$3.34^{+0.67}_{-0.76}$	329^{+7}_{-7}	3595^{+312}_{-254}	6065^{+3752}_{-2217}
Alt.	-125 ± 49	$3.24^{+0.72}_{-0.68}$	329^{+6}_{-6}	3166^{+285}_{-302}	2677^{+2040}_{-1350}

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 $A_{obs} \gg 1.0$

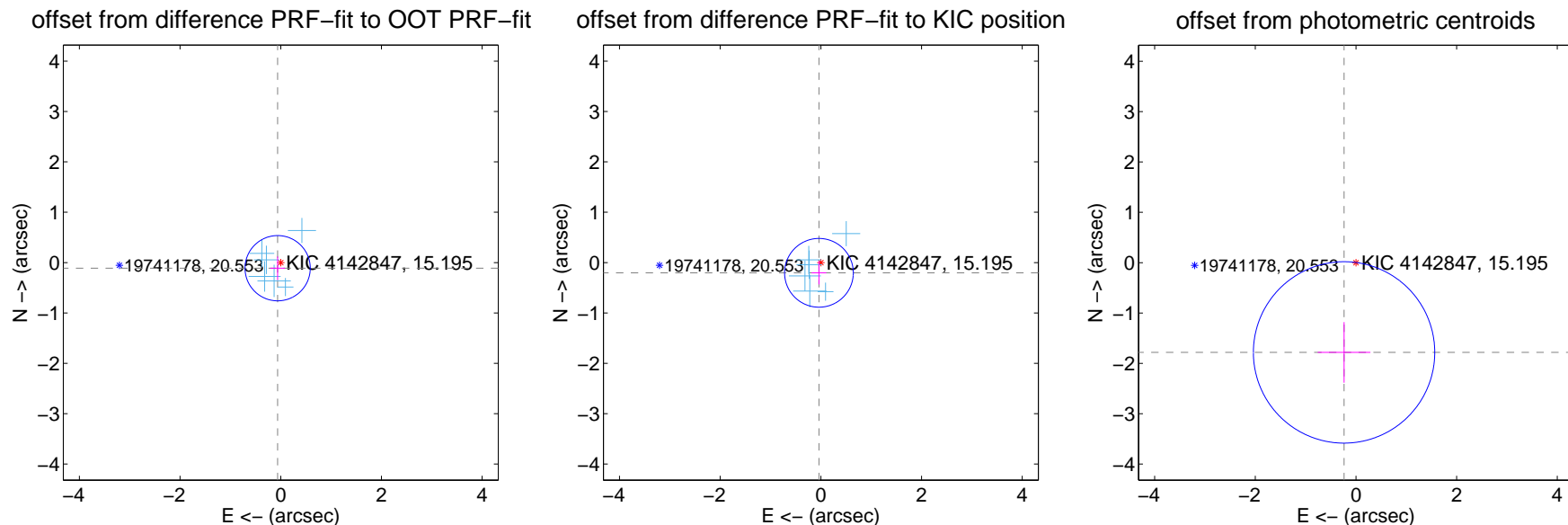
DV Centroid Data

Supplemental centroid analysis for 004142847-01. Kepler magnitude: 15.20. Transit SNR 20.30

There are 6 quarters with good PRF difference image offsets

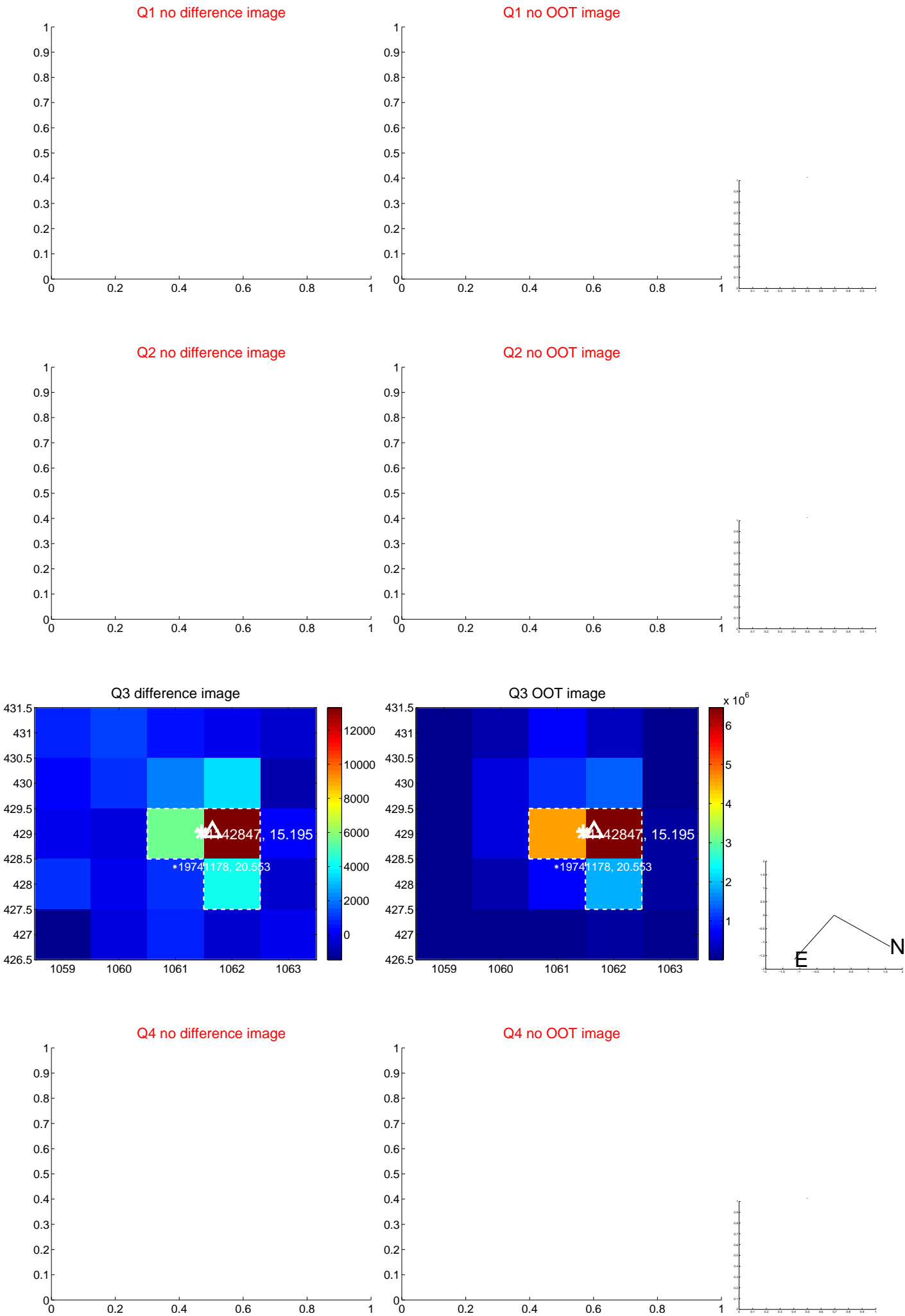
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.127 ± 0.216	0.59	0.062 ± 0.145	-0.111 ± 0.233
PRF-fit source offset from KIC position	0.207 ± 0.228	0.91	0.038 ± 0.144	-0.203 ± 0.230
photometric centroid source offset	1.80 ± 0.60	2.99	0.24 ± 0.52	-1.78 ± 0.60

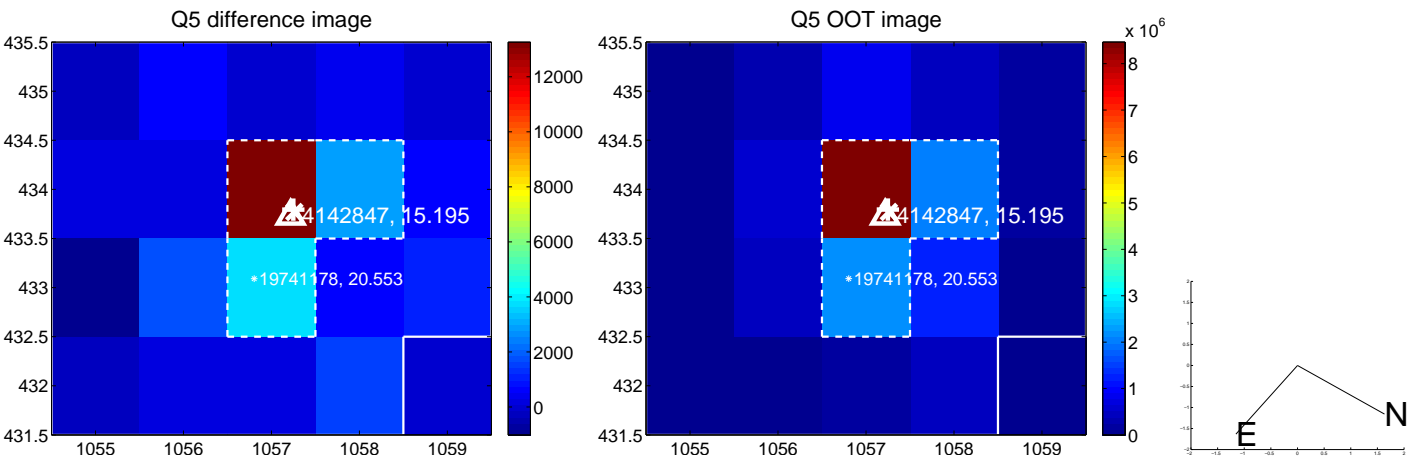


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

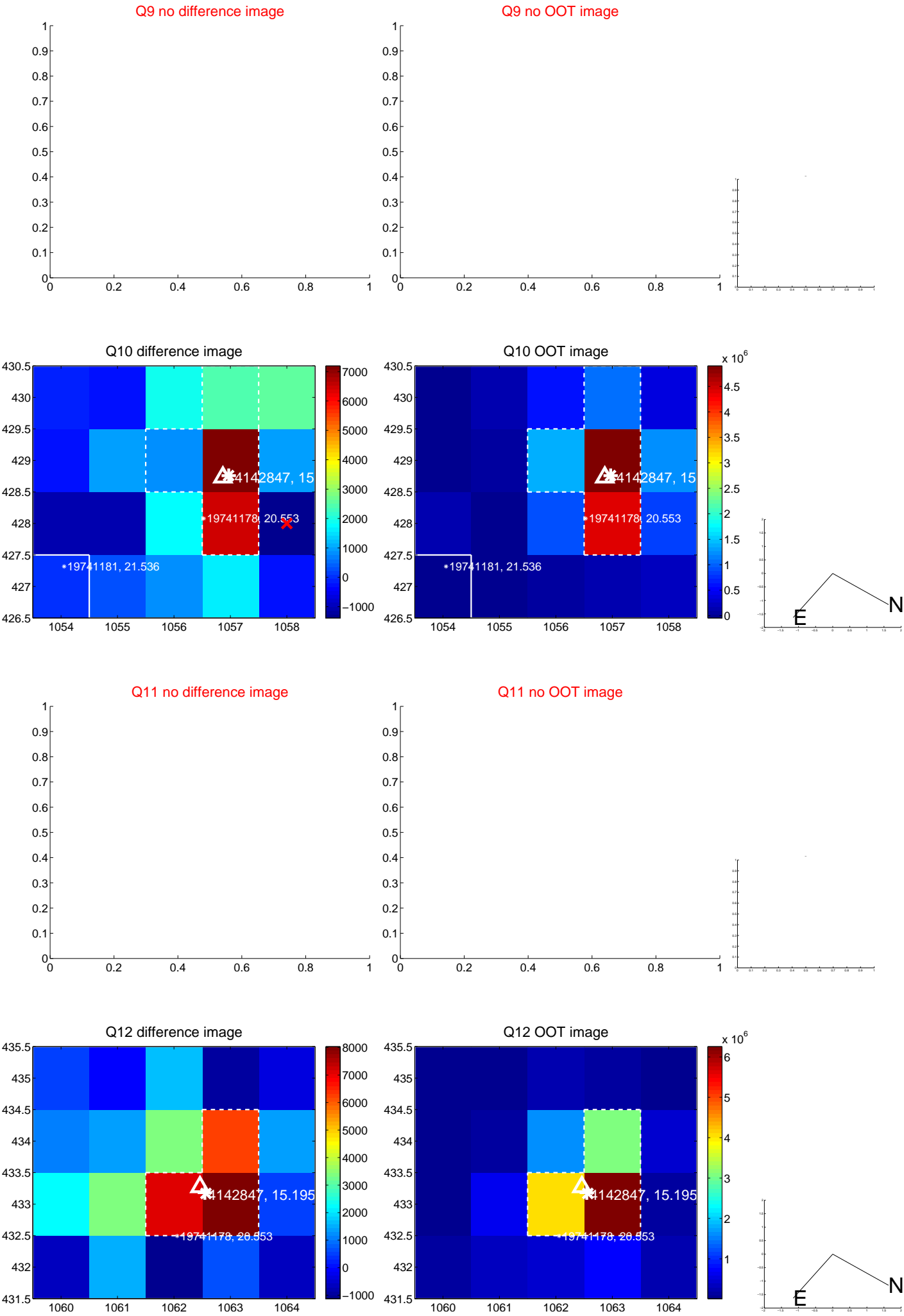
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

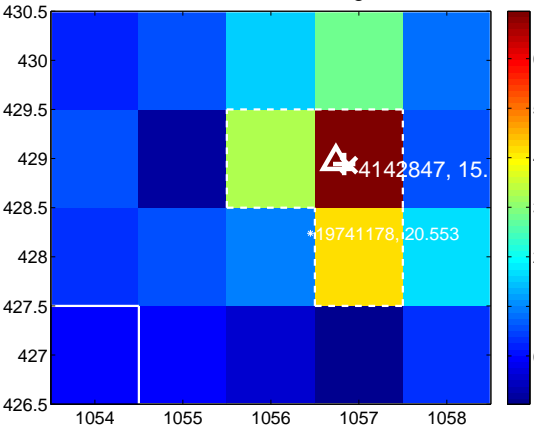
Q13 no difference image



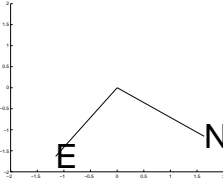
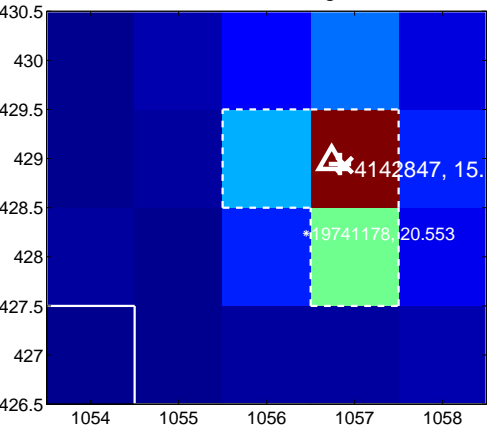
Q13 no OOT image



Q14 difference image



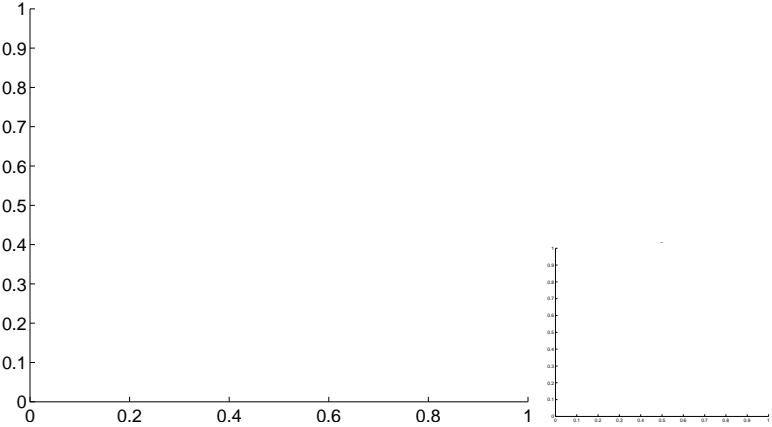
Q14 OOT image



Q15 no difference image



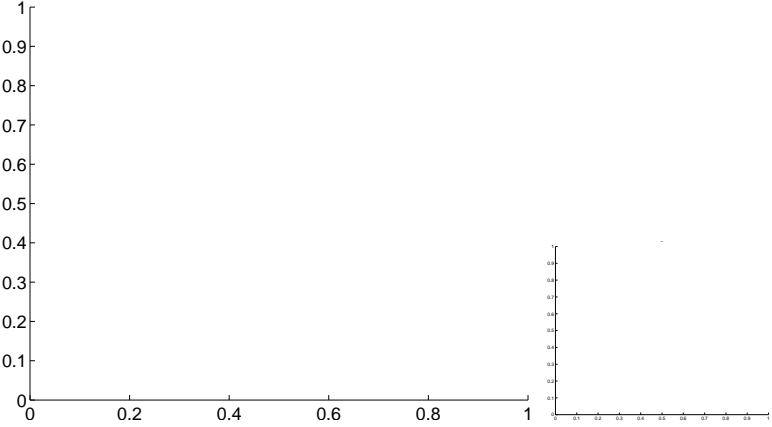
Q15 no OOT image



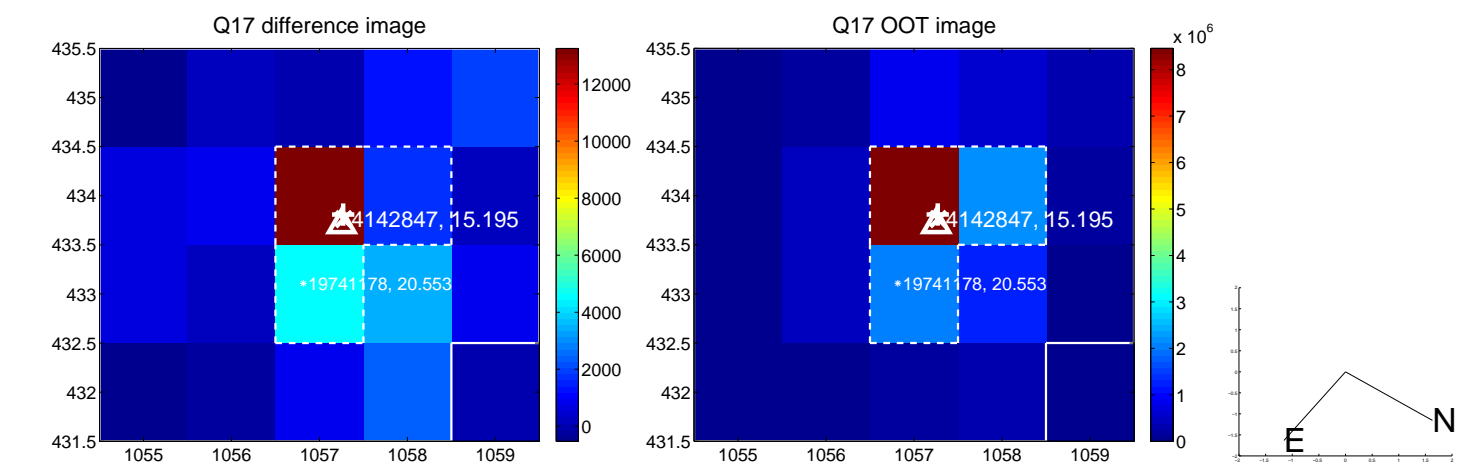
Q16 no difference image



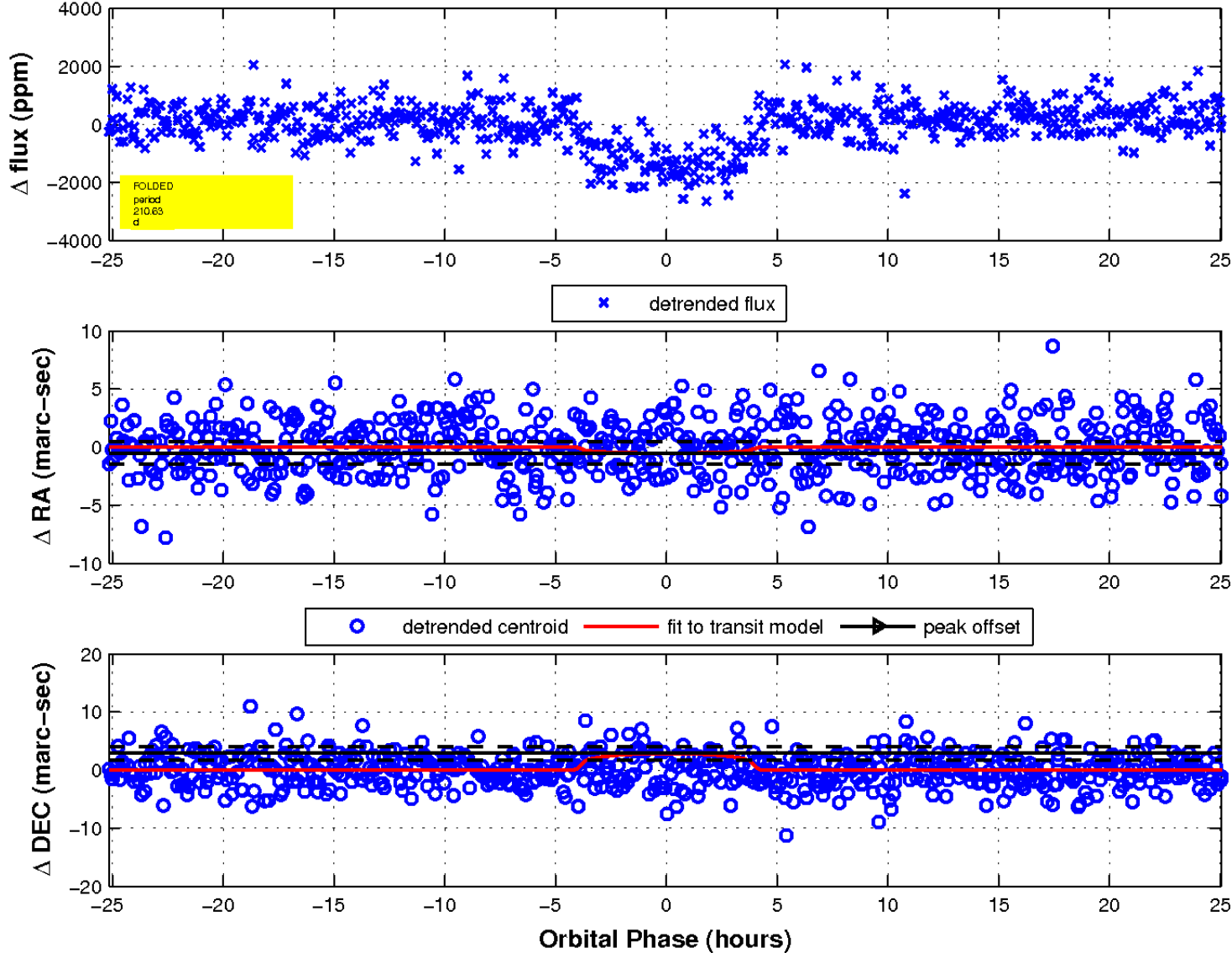
Q16 no OOT image



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

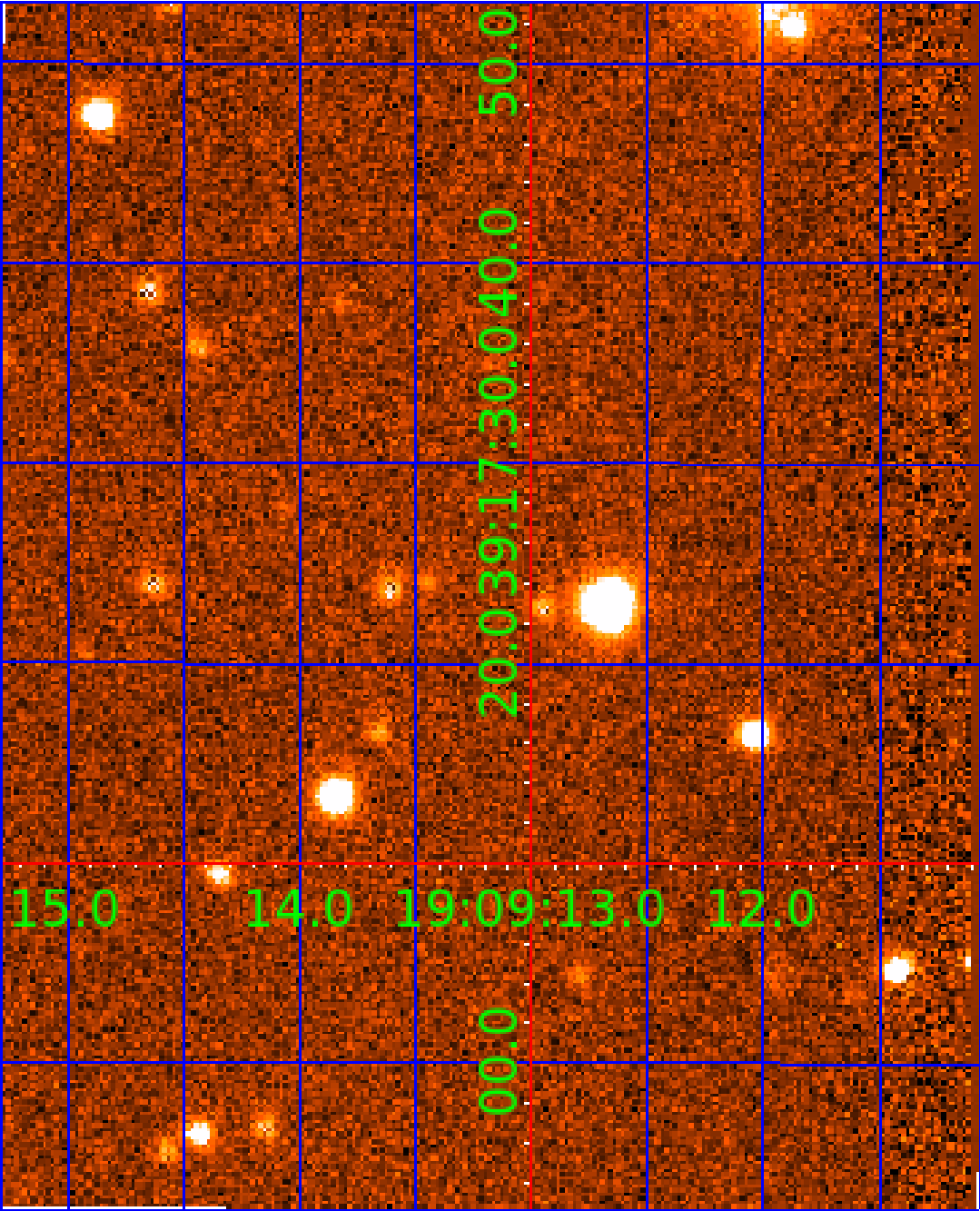


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 004142847

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})
004142847-01	OBS	2210.02	210.631420	300.723552	1706.6	8.406	20.5	20.3	0.76	4895	3.28	0.71
004142847-02	OBS	2210.01	2.888915	132.152625	395.4	1.595	19.5	22.5	0.76	4895	1.52	215.32

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004142847-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004142847-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

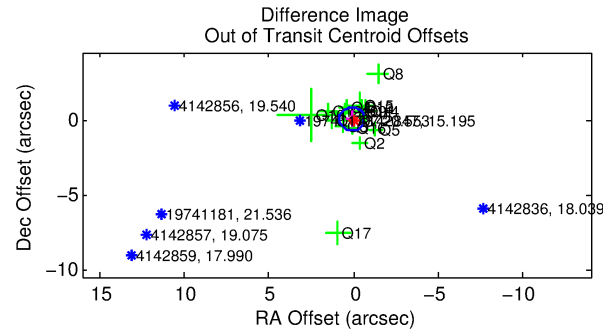
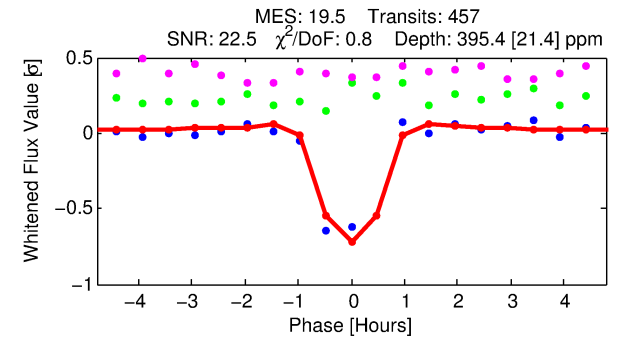
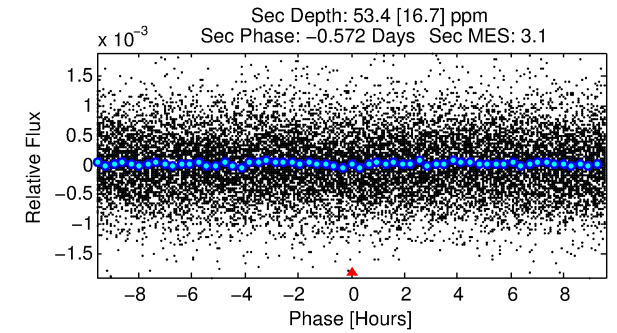
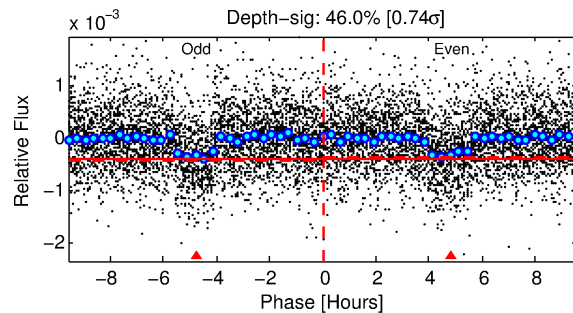
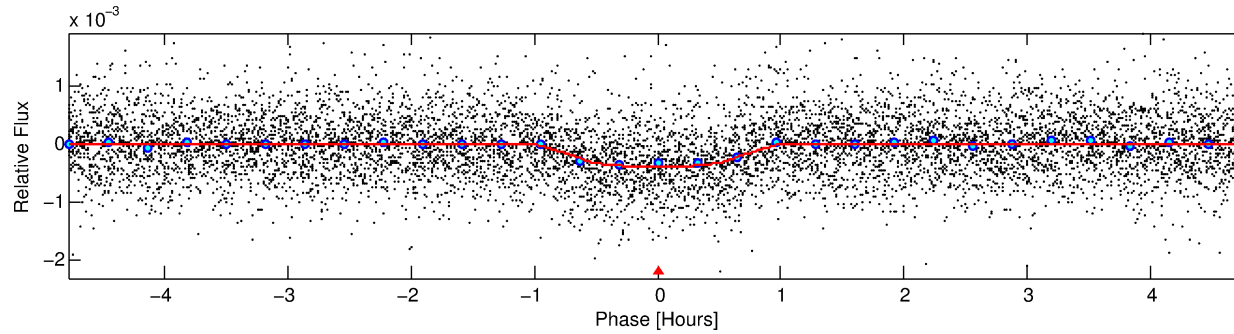
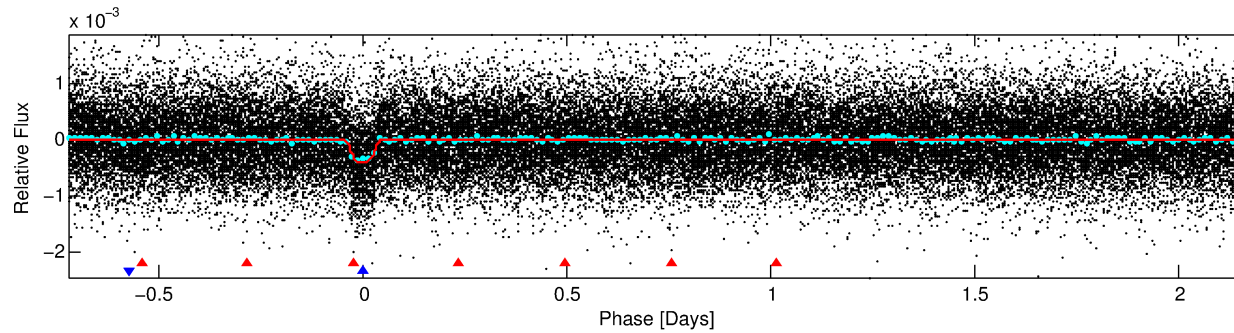
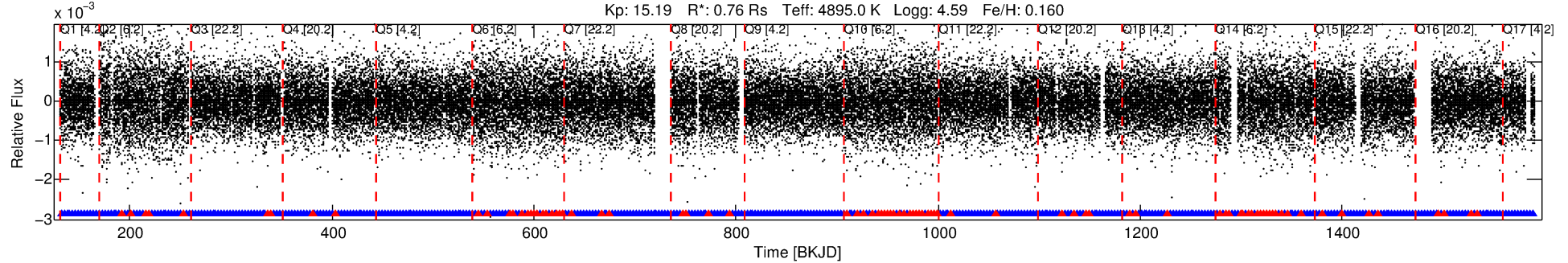
Ephemeris Match Information For 004142847-02

No Significant Match Found

DV One-Page Summary

KIC: 4142847 Candidate: 2 of 2 Period: 2.889 d
KOI: K02210.01 Corr: 0.961

Kp: 15.19 R*: 0.76 Rs Teff: 4895.0 K Logg: 4.59 Fe/H: 0.160



DV Fit Results:

Period = 2.88892 [0.00001] d
Epoch = 132.1526 [0.0012] BKJD
Rp/R* = 0.0184 [0.0092]
a/R* = 12.29 [19.61]
b = 0.50 [2.47]
Seff = 215.32 [21.90]
Teq = 977 [25] K
Rp = 1.53 [0.77] Re
a = 0.0371 [0.0019] AU
Ag = 17.38 [18.31] [0.89σ]
Teff = 3084 [811] K [2.60σ]

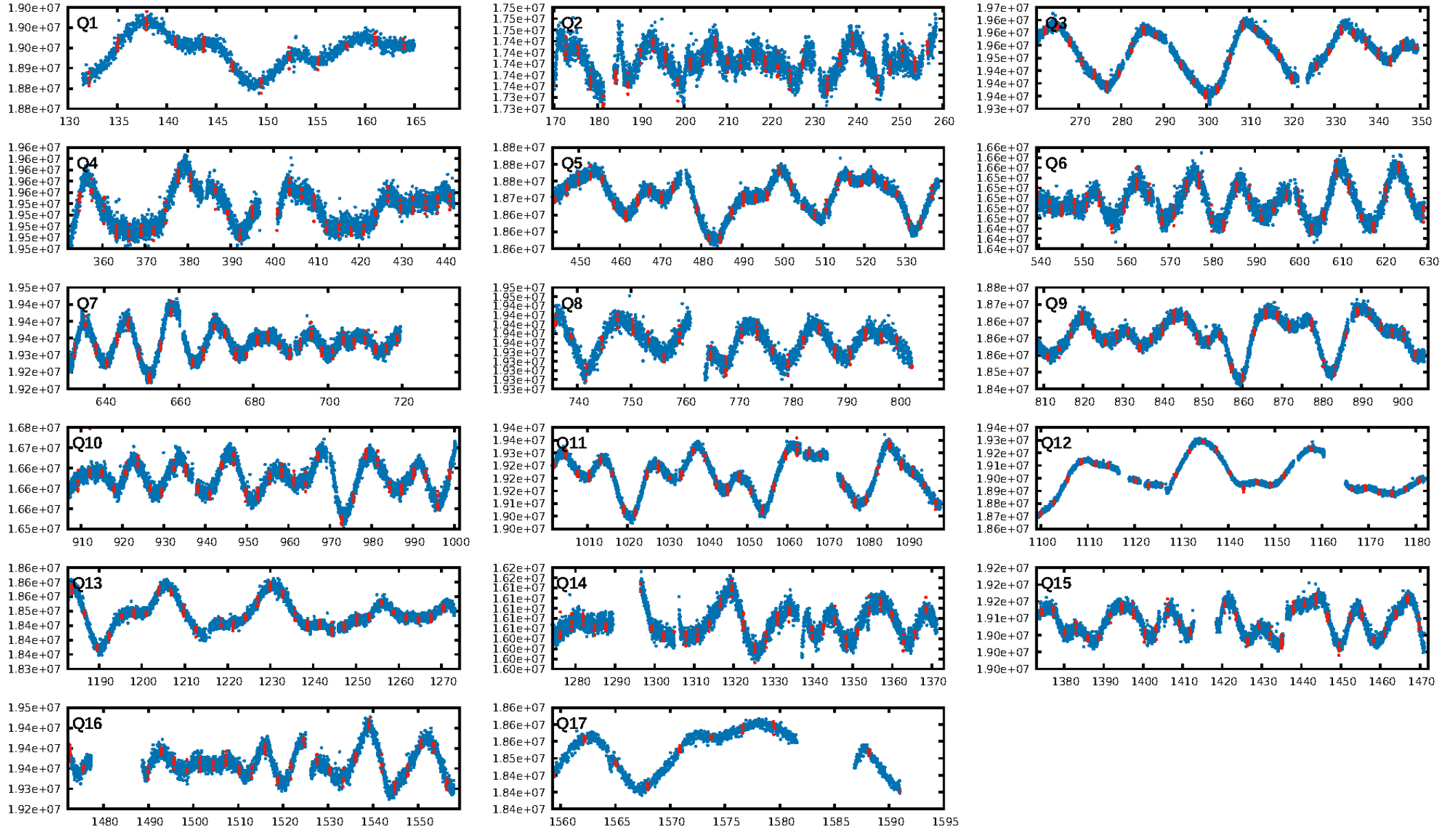
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [582.74σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.34e-82
RollingBand-fgt: 0.80 [350/436]
GhostDiagnostic-chr: 2.219
Centroid-sig: 0.2%
Centroid-so: 1.206 arcsec [1.82σ]
OotOffset-rm: 0.119 arcsec [0.47σ]
KicOffset-rm: 0.087 arcsec [0.24σ]
OotOffset-st: 4/4/4/5 [17]
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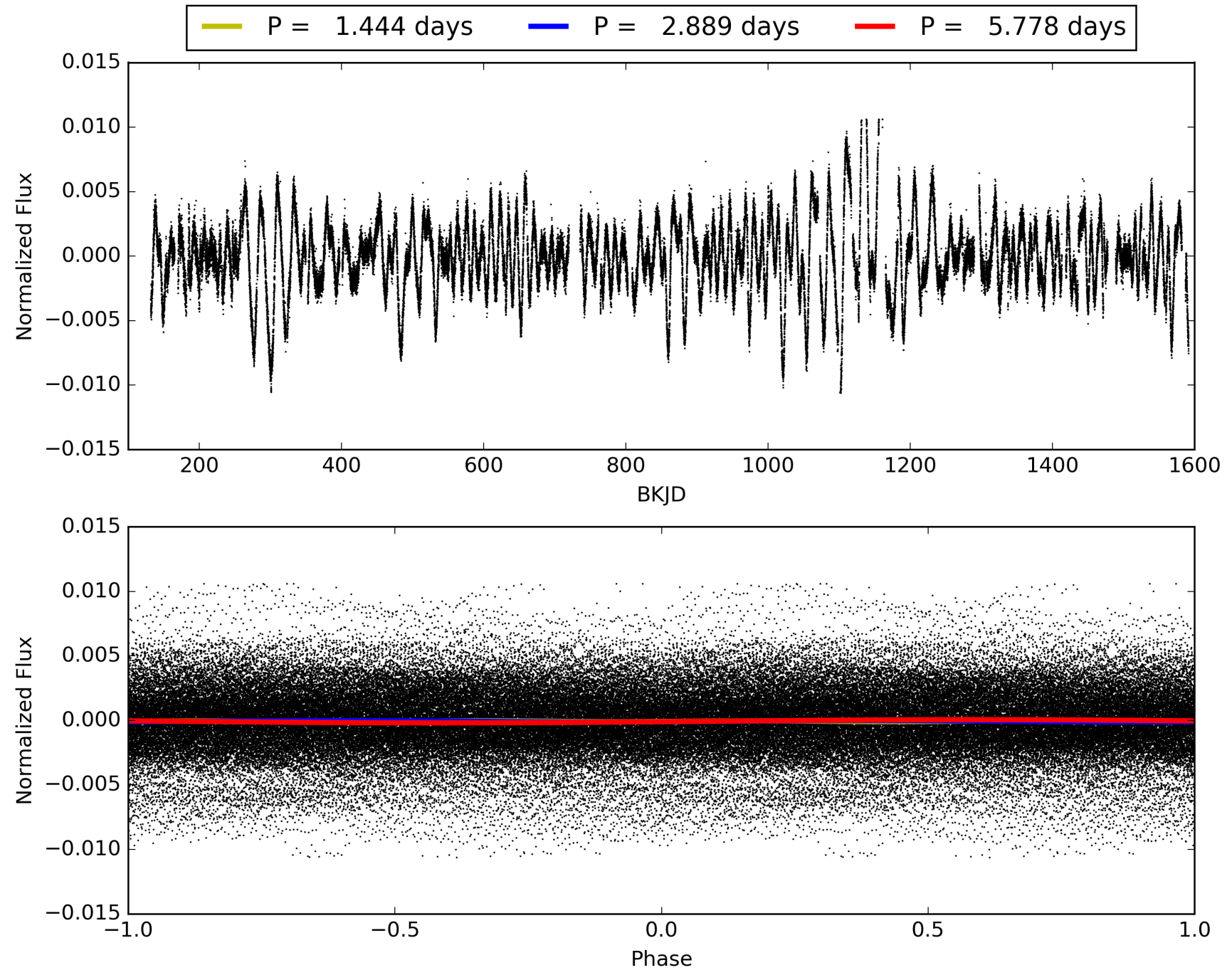
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:33:51 Z

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

TCE 004142847-02, PDC Light Curves

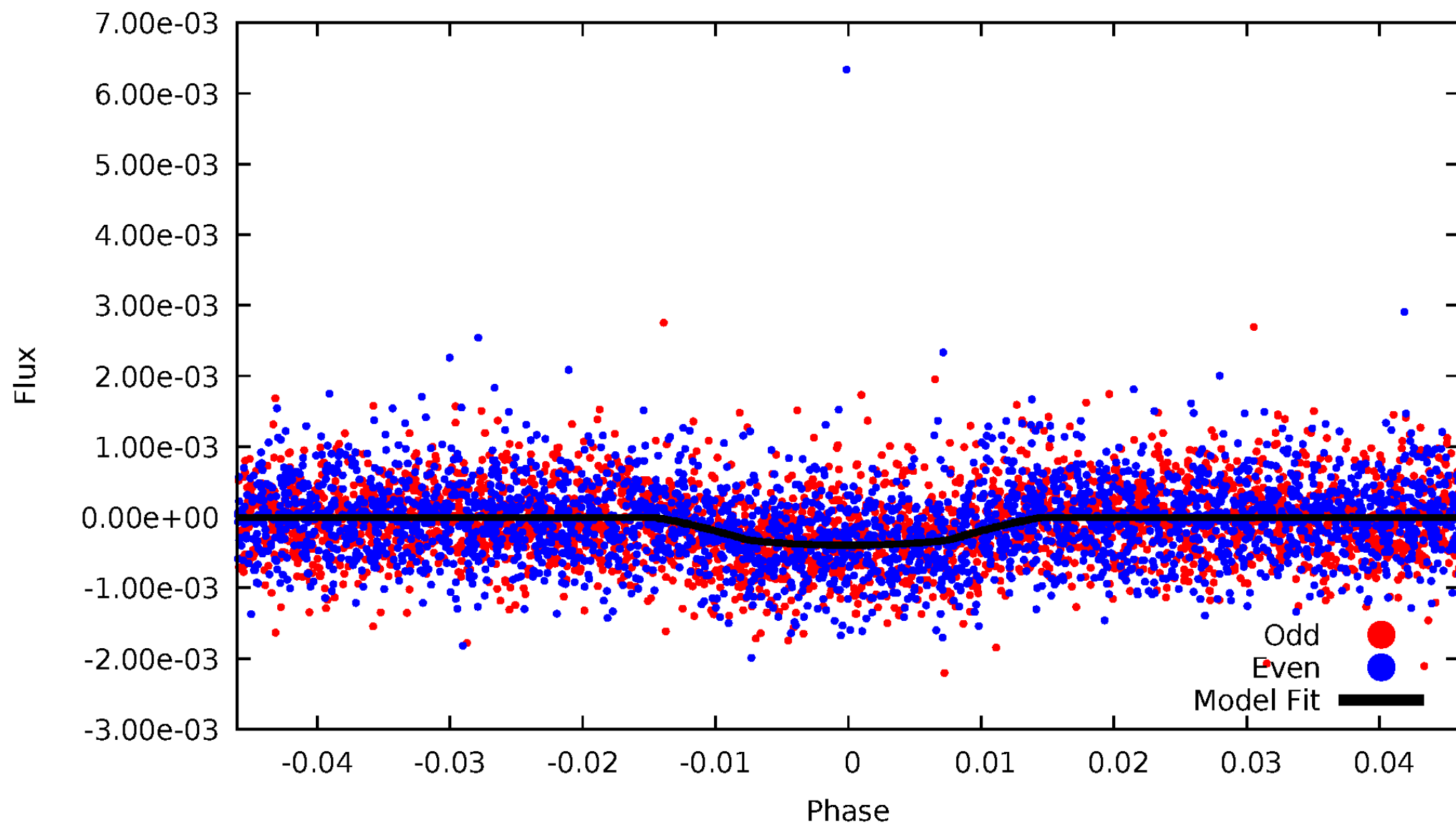


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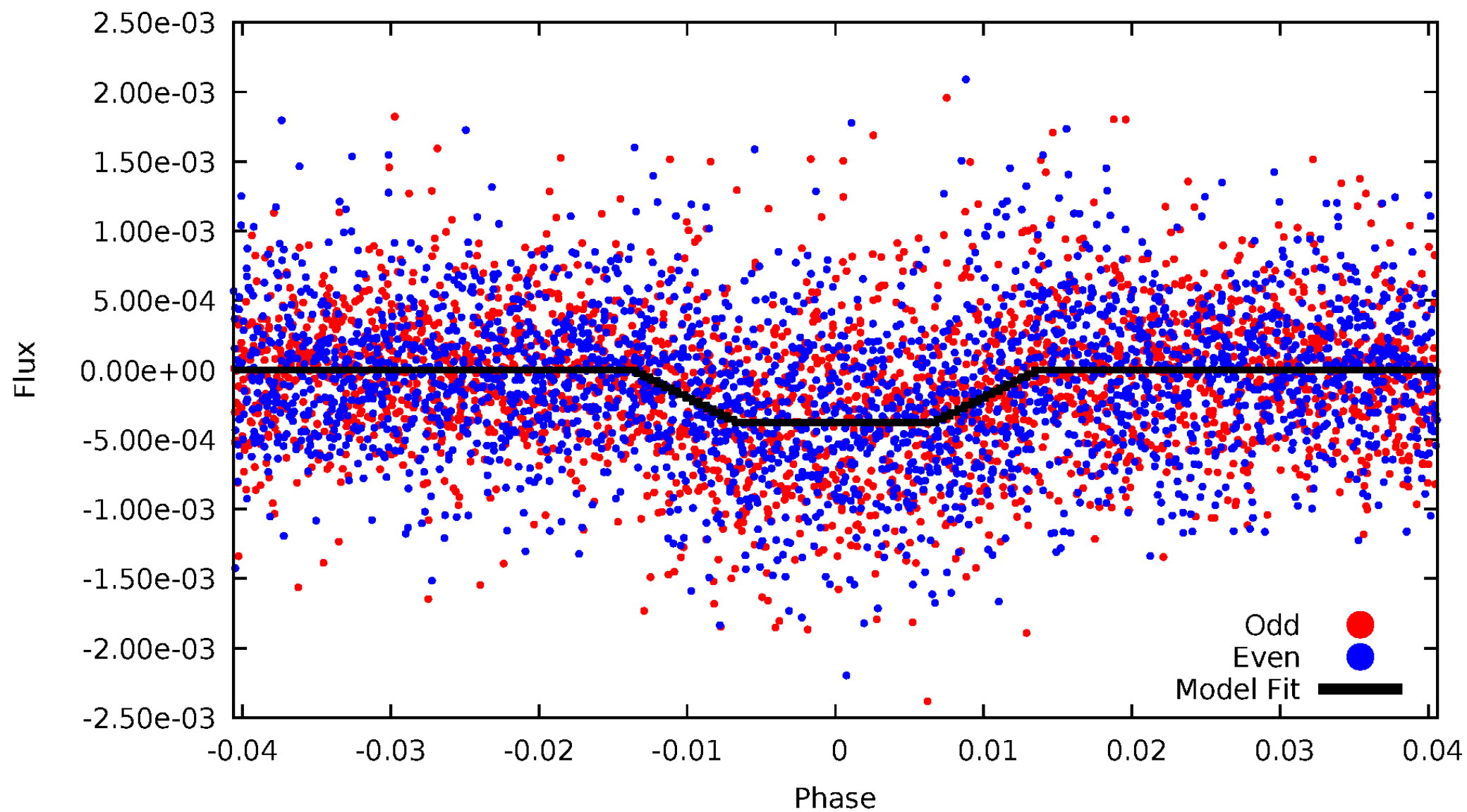
DV Odd/Even

TCE 004142847-02



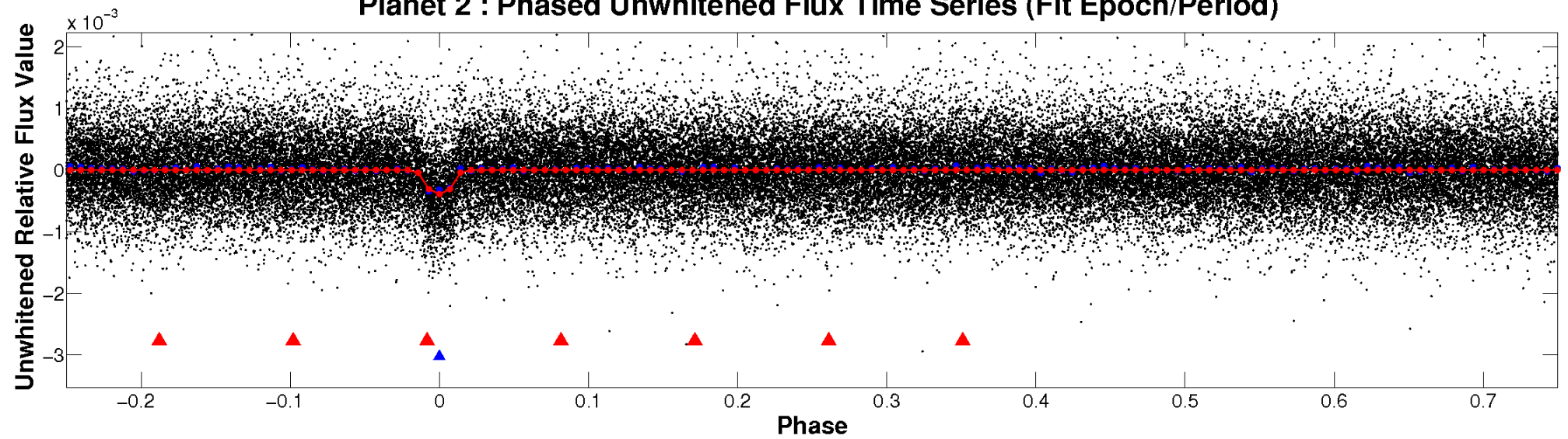
ALT Odd/Even

TCE 004142847-02

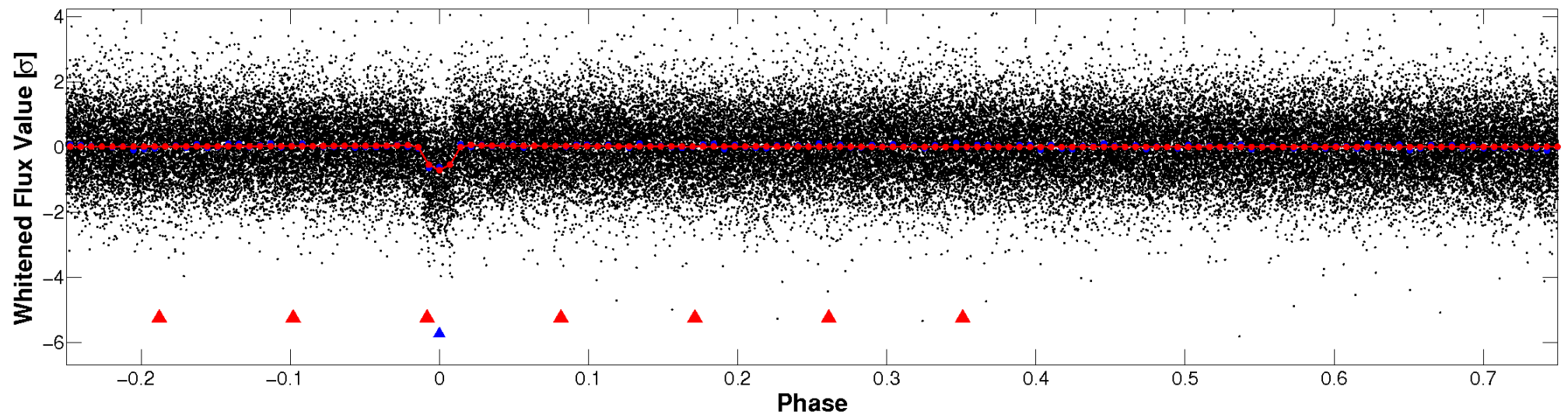


Non-Whitened Vs. Whitened Light Curve

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

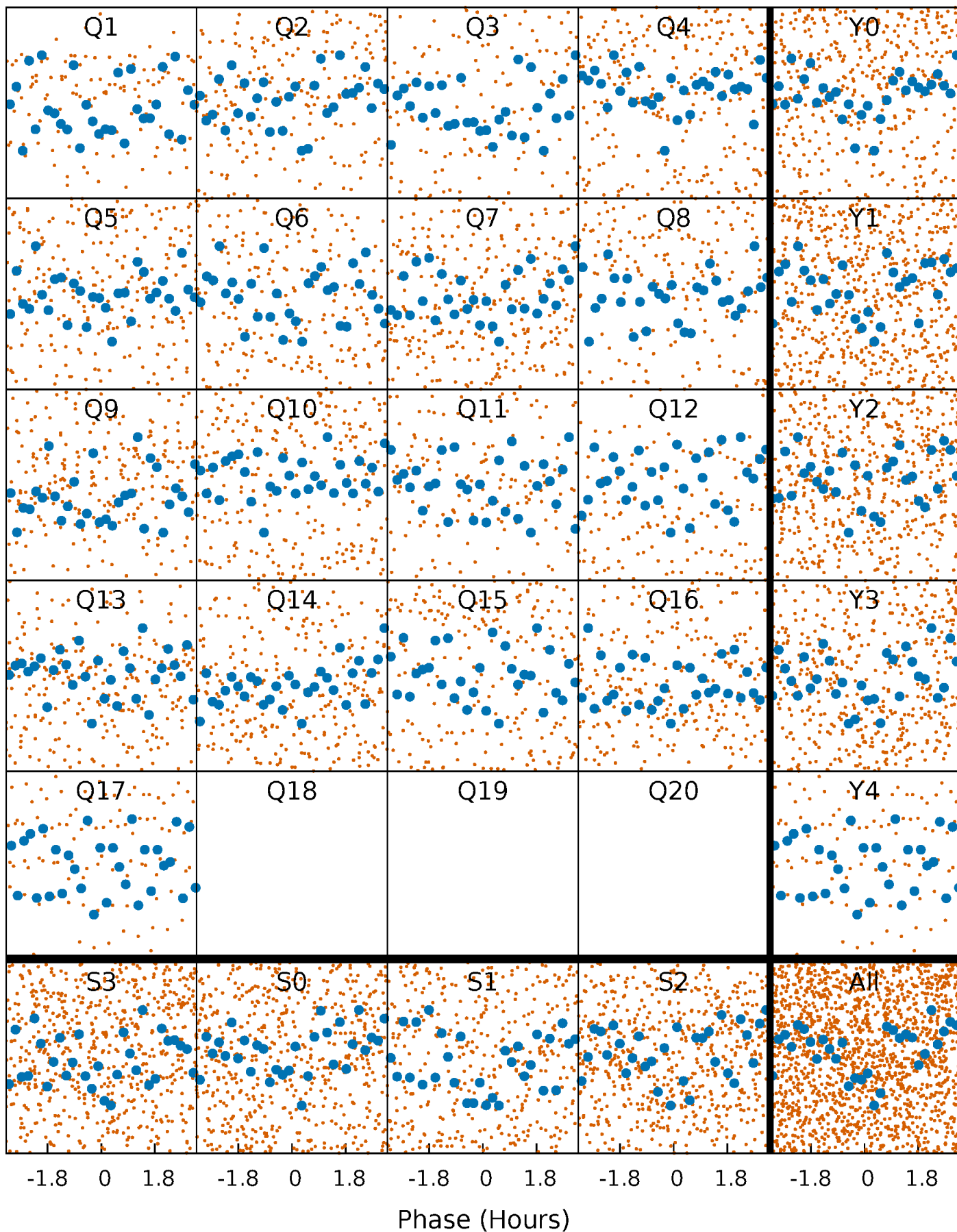


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



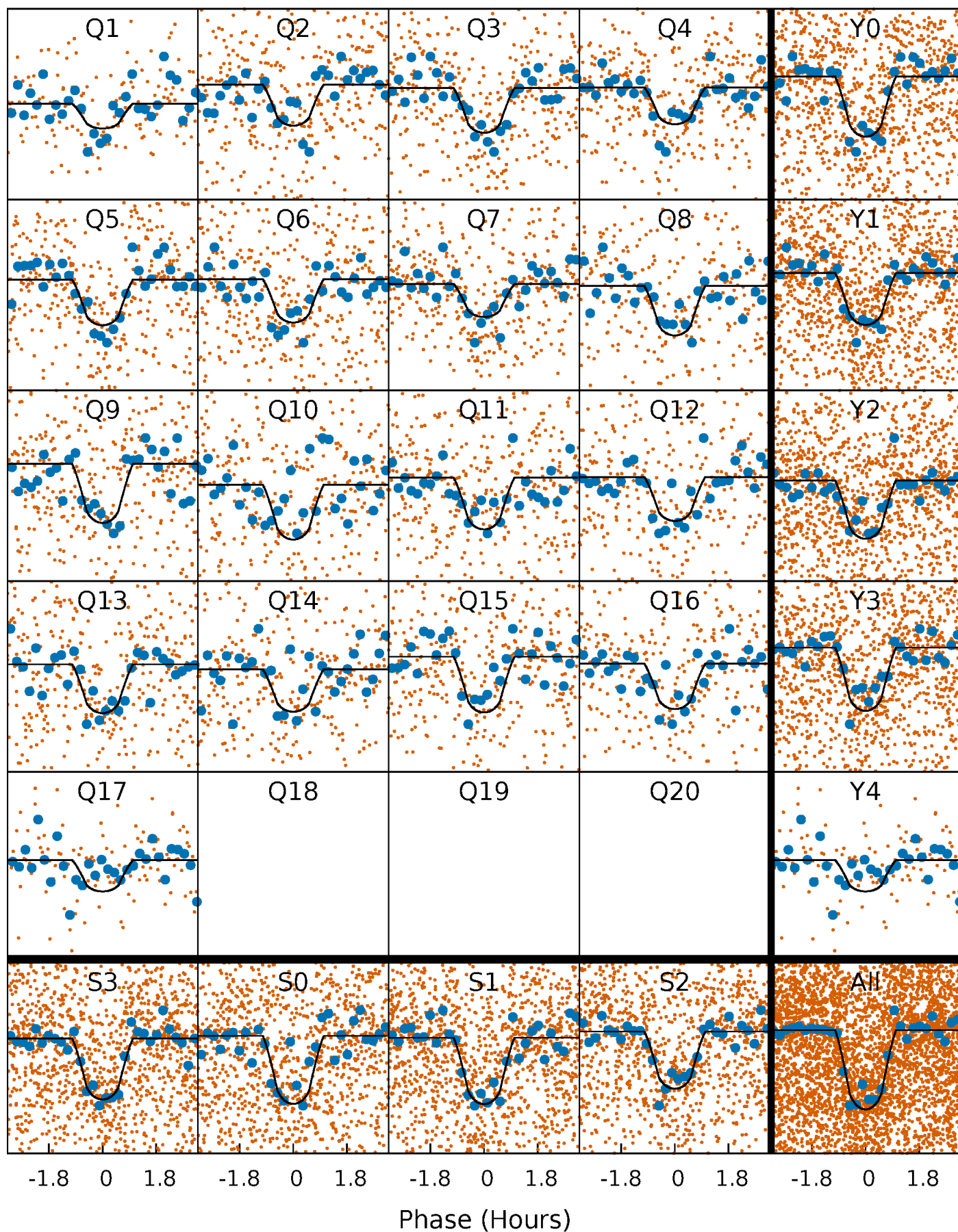
PDC Quarter-Phased Transit Curves

TCE 004142847-02 P= 2.888915 Days $T_0=132.152625$ (BKJD)



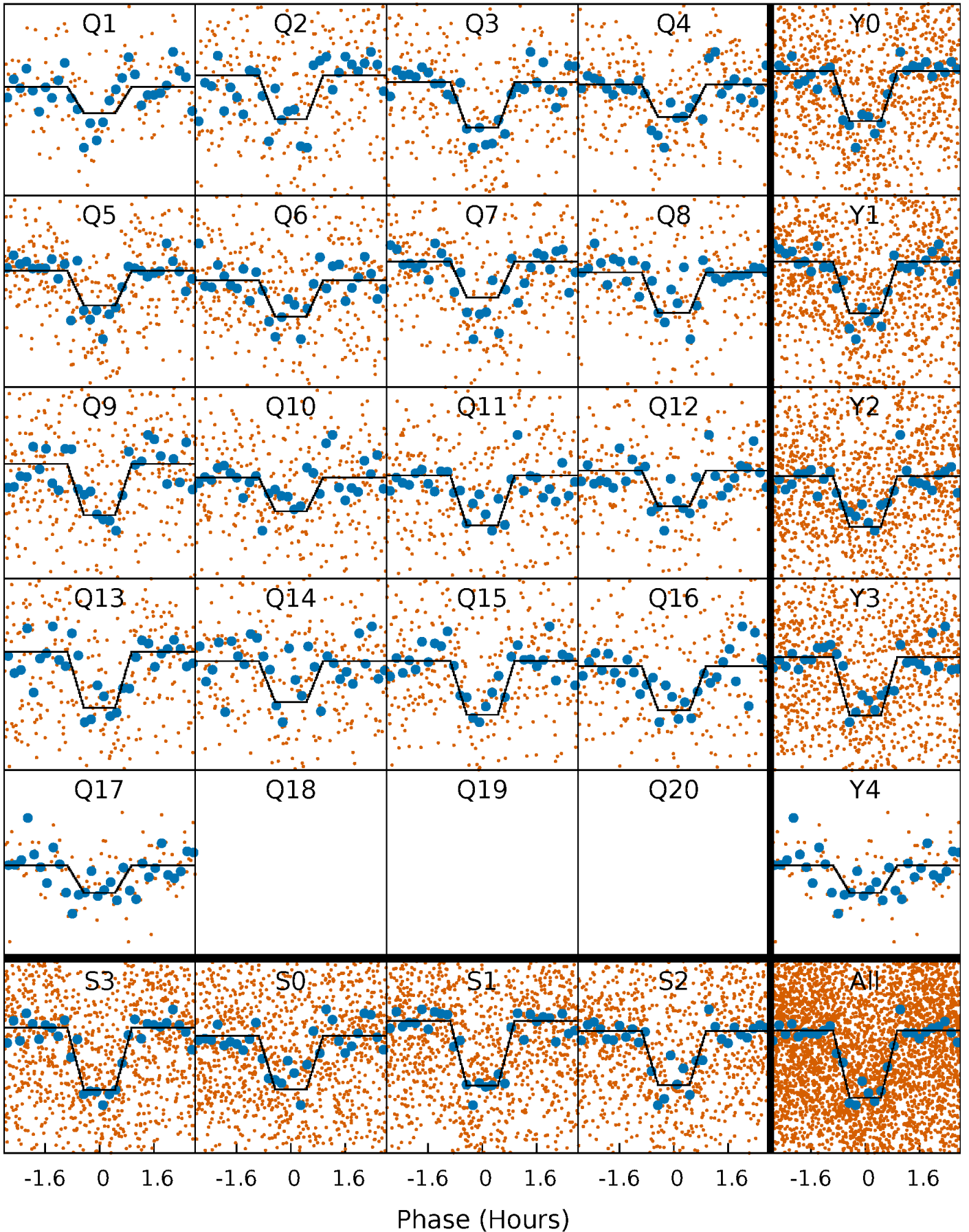
DV Quarter-Phased Transit Curves

TCE 004142847-02 P= 2.888915 Days $T_0=132.152625$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

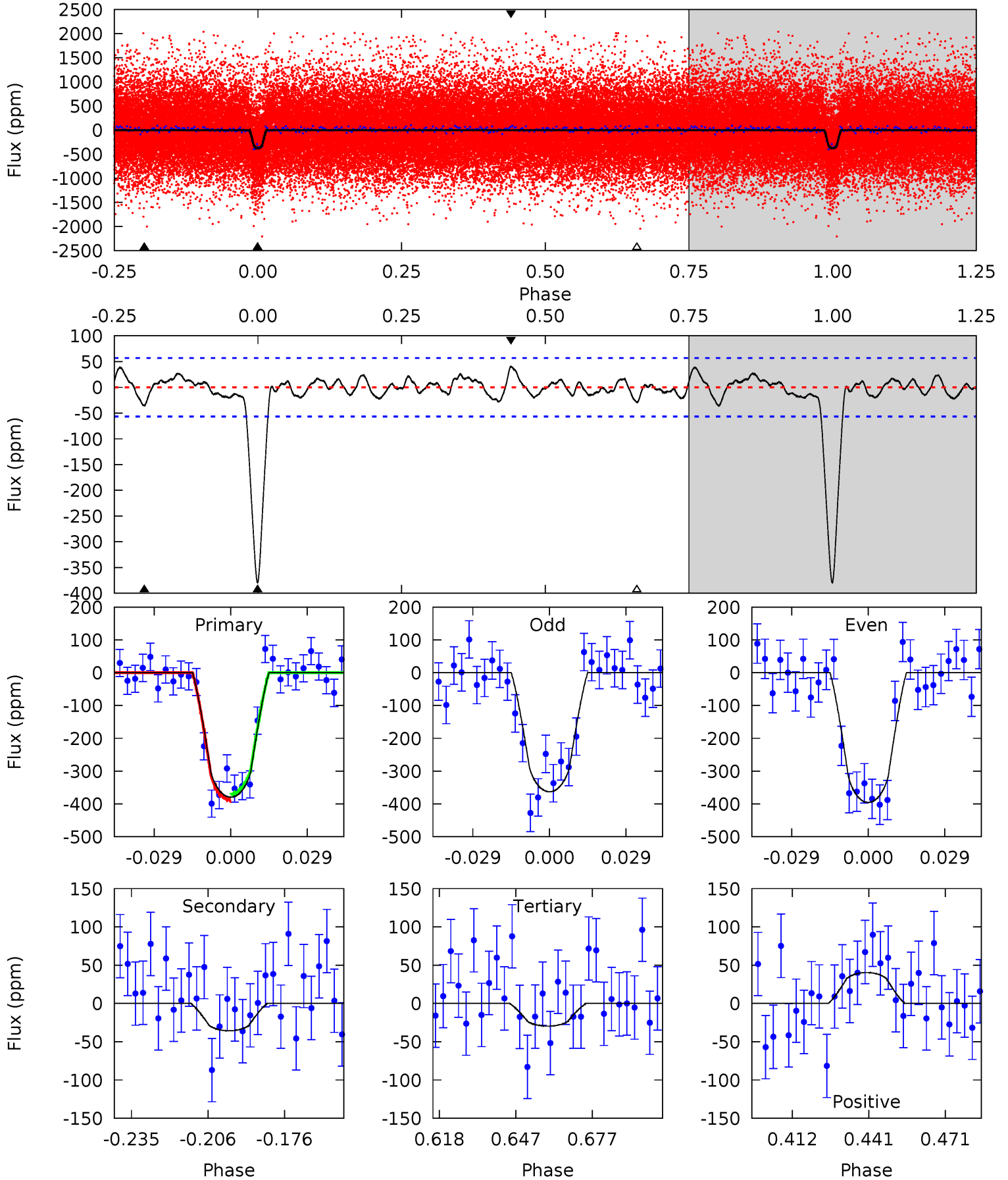
TCE 004142847-02 P= 2.888895 Days $T_0=132.156033$ (BKJD)



DV Model-Shift Uniqueness Test

004142847-02, P = 2.888915 Days, E = 129.263710 Days

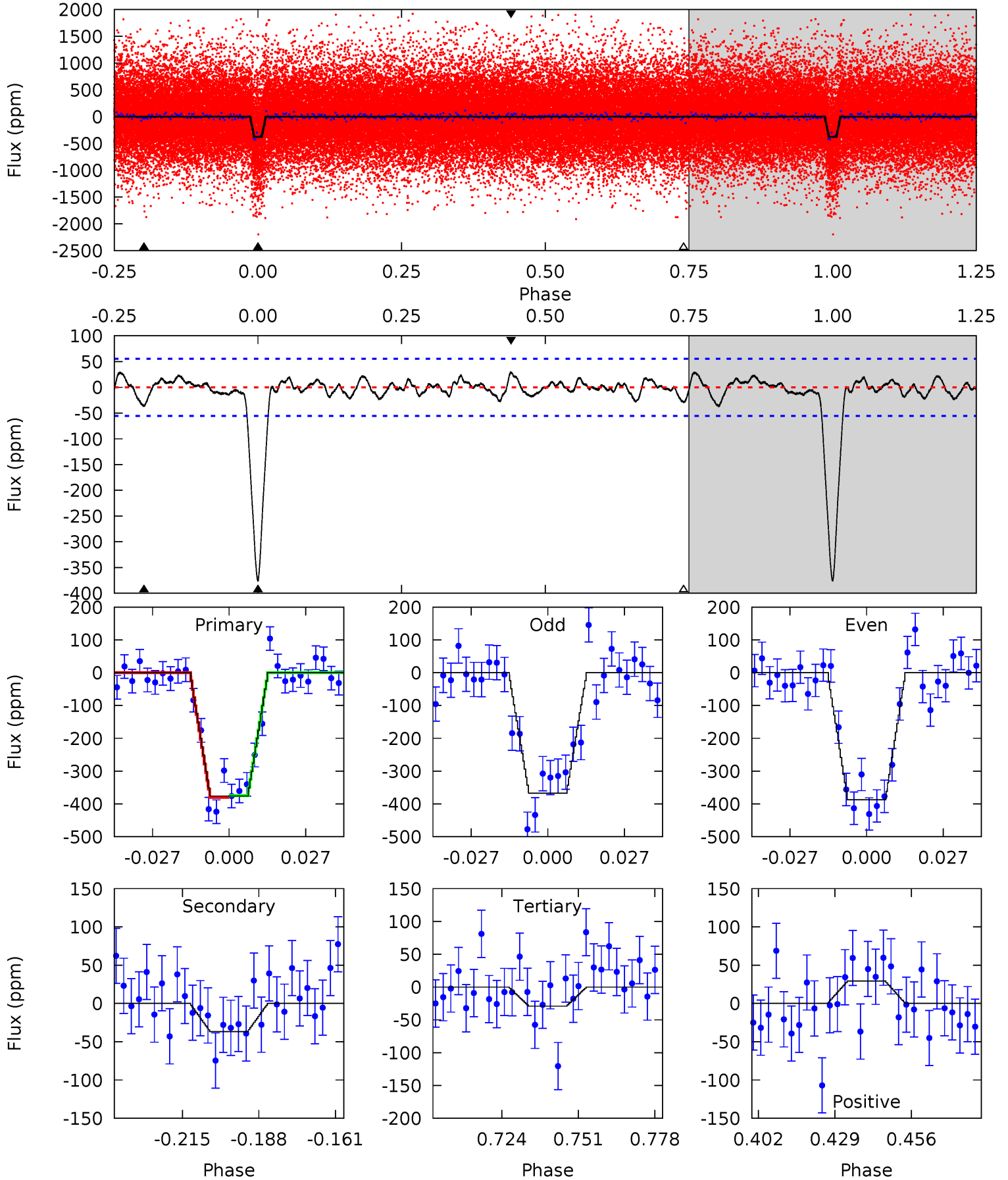
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.2	3.03	2.51	3.43	4.82	2.18	1.19	29.7	28.8	0.52	-0.40	1.38	0.93	0.10	0.73



Alt Model-Shift Uniqueness Test

004142847-02, P = 2.888895 Days, E = 129.267138 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.8	3.20	2.54	2.54	4.83	2.21	1.01	30.2	30.2	0.66	0.66	0.87	1.02	0.07	0.25



Stellar Parameters For KIC 004142847

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4895^{+78}_{-78}	$4.589^{+0.018}_{-0.046}$	$0.160^{+0.150}_{-0.150}$	$0.759^{+0.041}_{-0.030}$	$0.817^{+0.029}_{-0.046}$	$2.629^{+0.243}_{-0.369}$
	+2%/-2%	+0%/-1%	+94%/-94%	+5%/-4%	+4%/-6%	+9%/-14%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 004142847-02 / KOI 2210.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-36 ± 12	$1.56^{+0.81}_{-0.80}$	1372^{+28}_{-28}	3247^{+835}_{-414}	11^{+33}_{-6}
Alt.	-37 ± 11	$1.60^{+0.78}_{-0.72}$	1372^{+29}_{-26}	3226^{+709}_{-388}	10^{+24}_{-6}

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

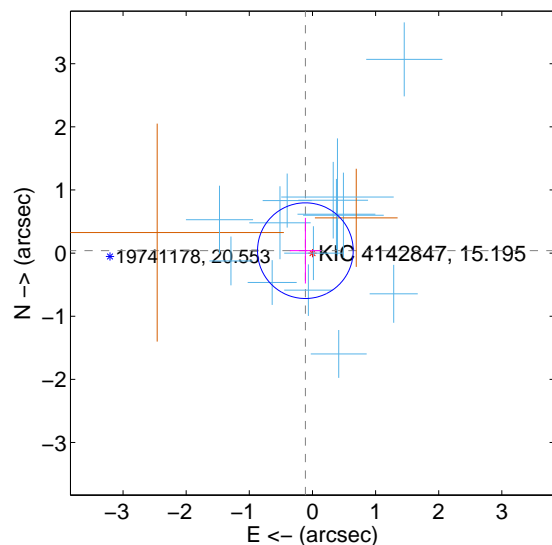
Supplemental centroid analysis for 004142847-02. Kepler magnitude: 15.20. Transit SNR 22.54

There are 14 quarters with good PRF difference image offsets

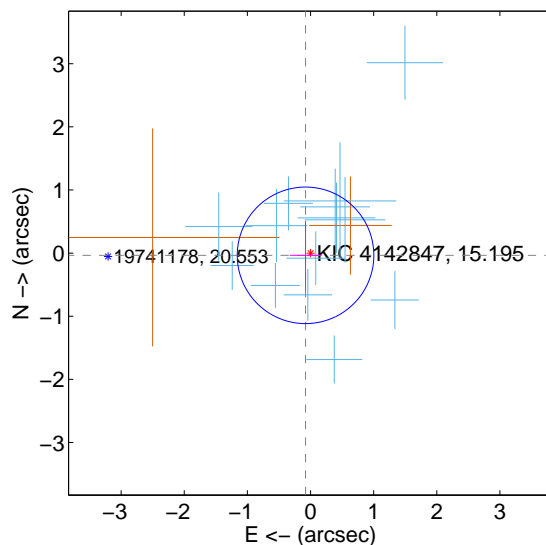
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.119 ± 0.253	0.47	0.112 ± 0.247	0.039 ± 0.520
PRF-fit source offset from KIC position	0.087 ± 0.360	0.24	0.079 ± 0.251	-0.036 ± 0.547
photometric centroid source offset	1.21 ± 0.66	1.82	0.68 ± 0.63	1.00 ± 0.68

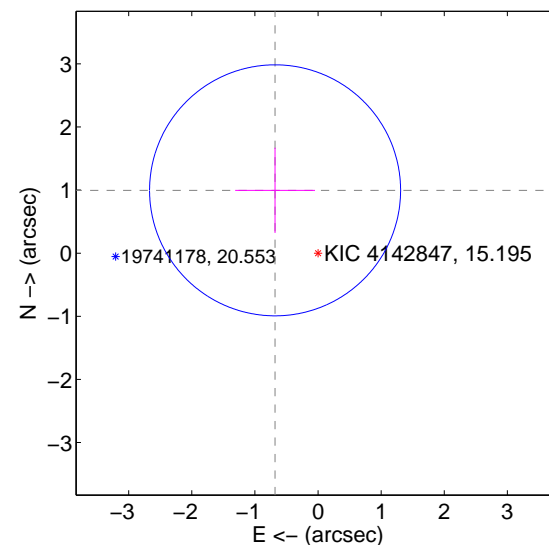
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

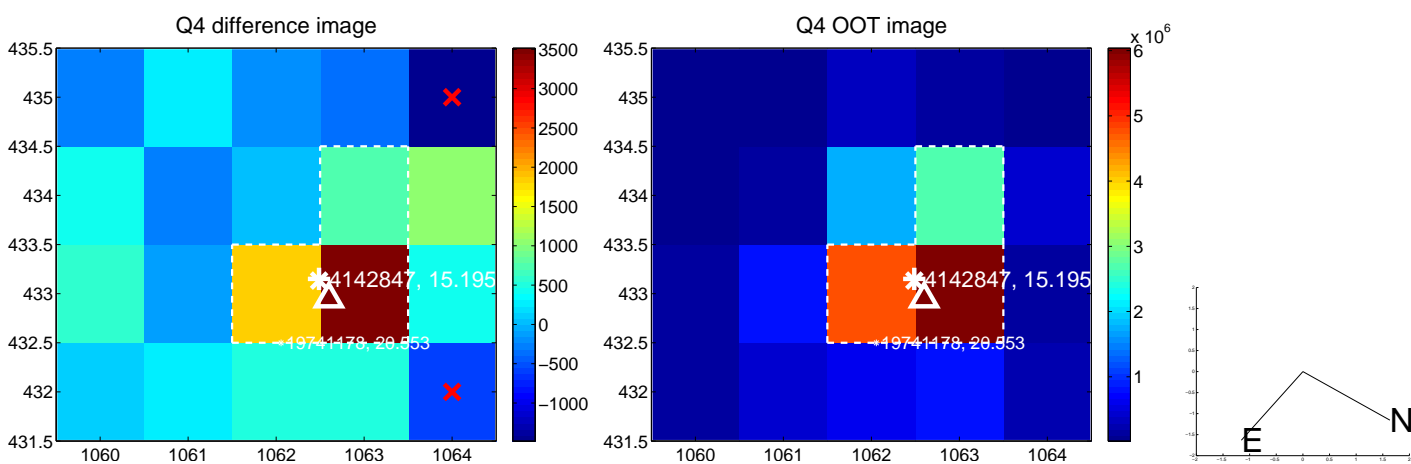
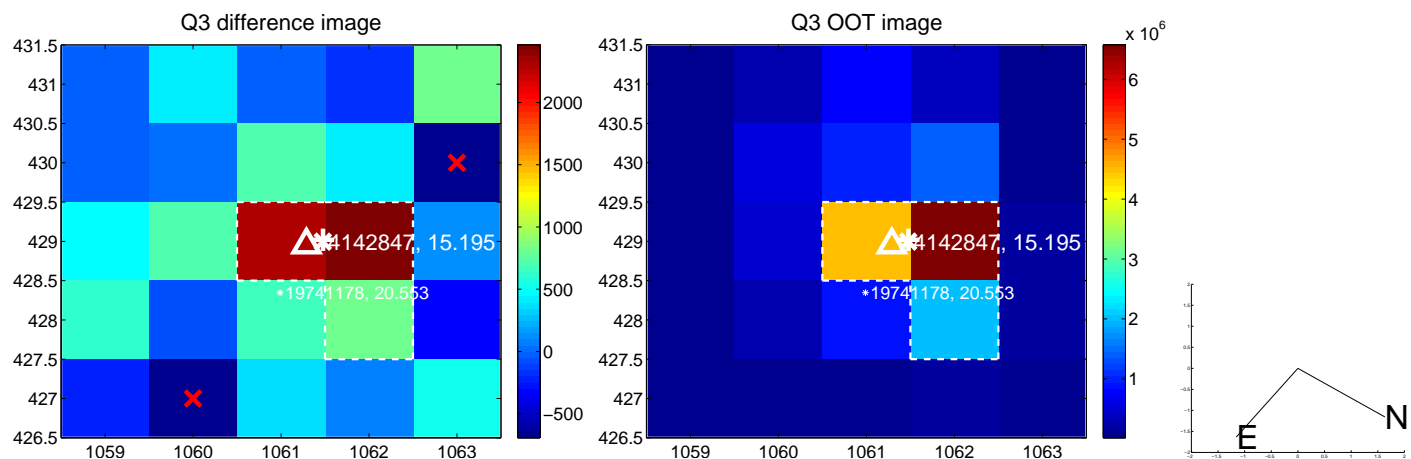
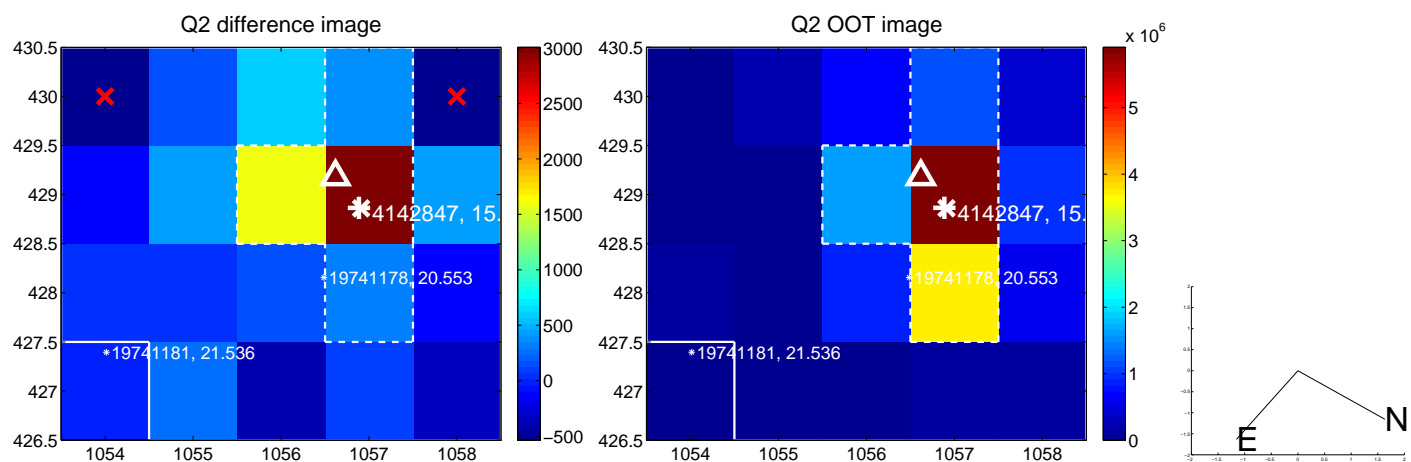
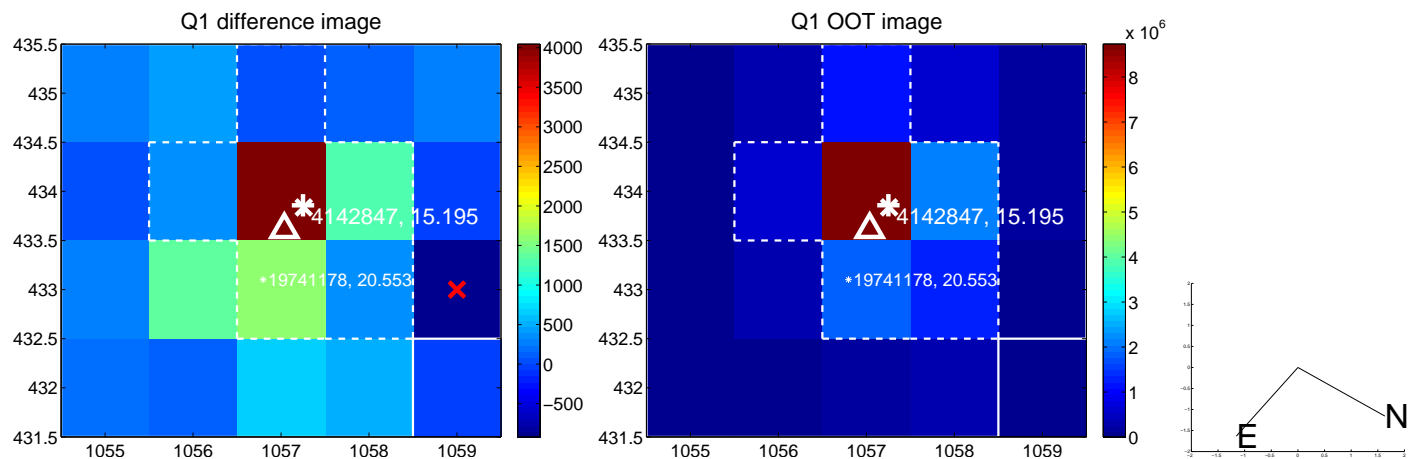


offset from photometric centroids

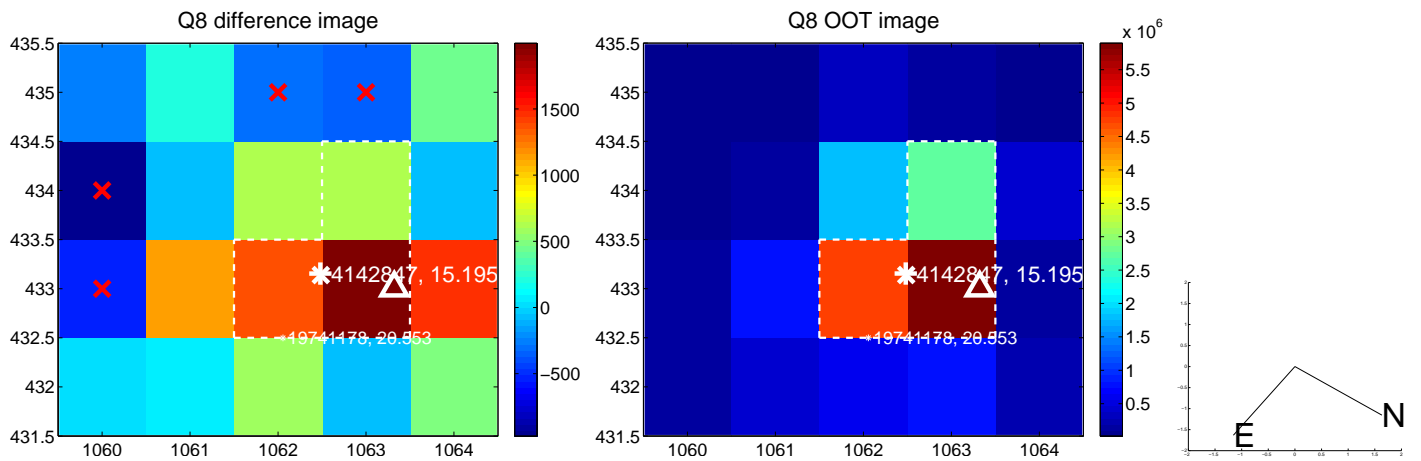
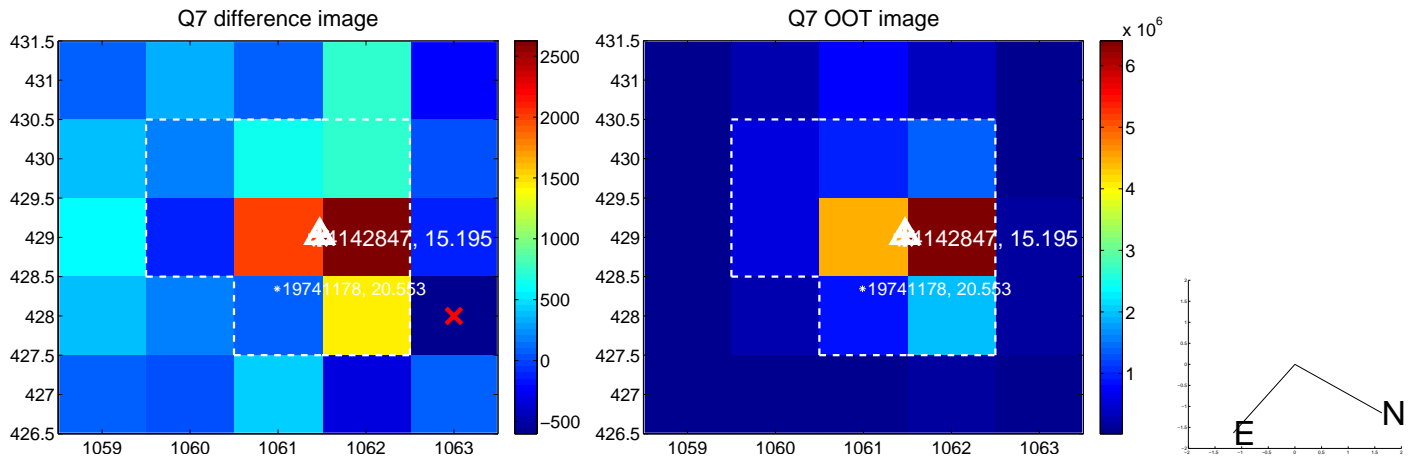
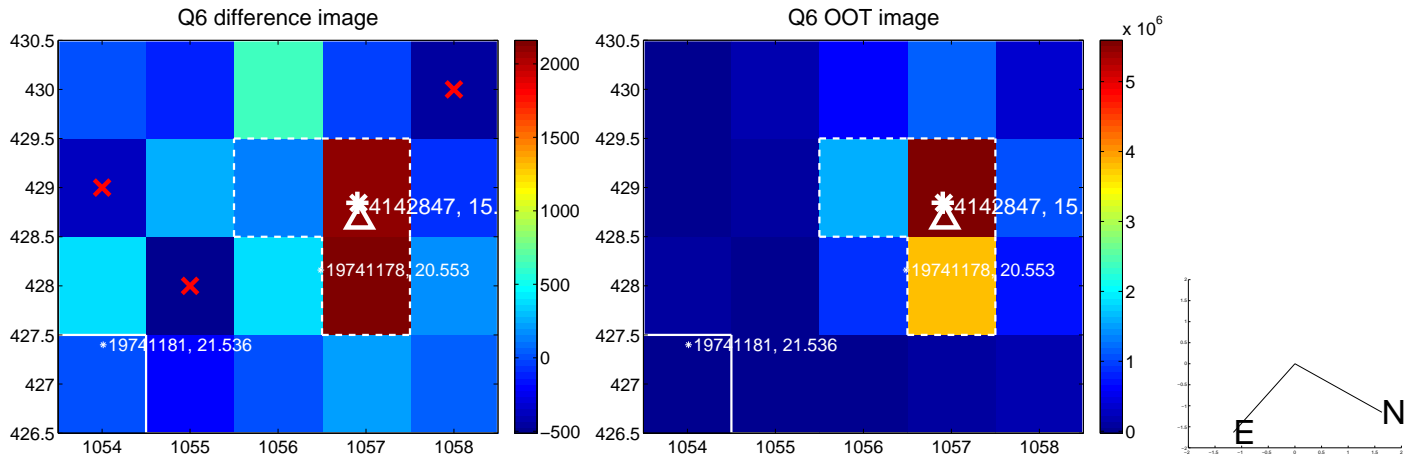
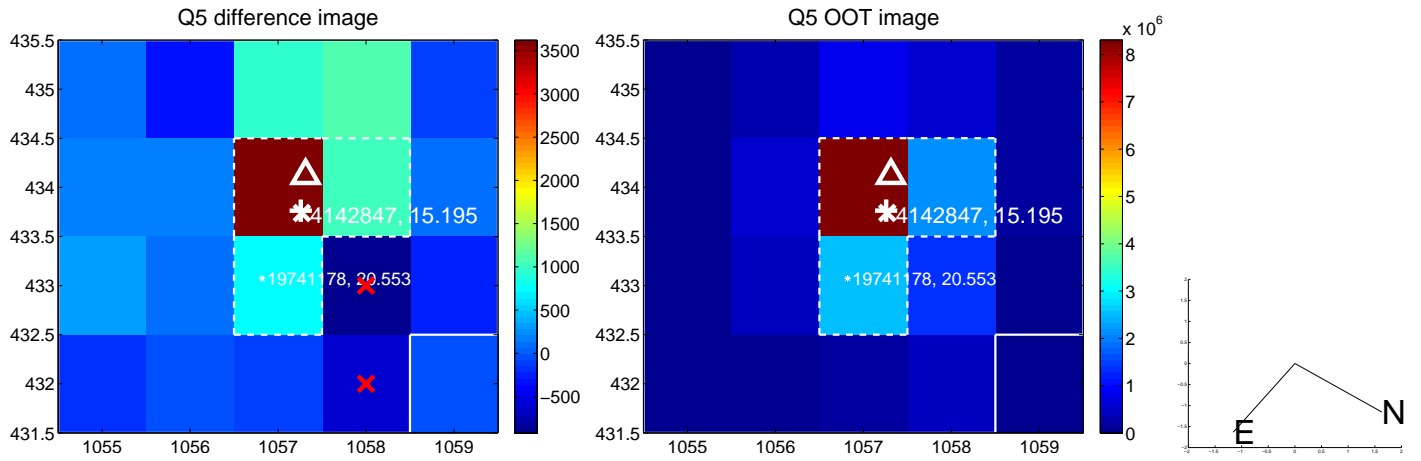


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

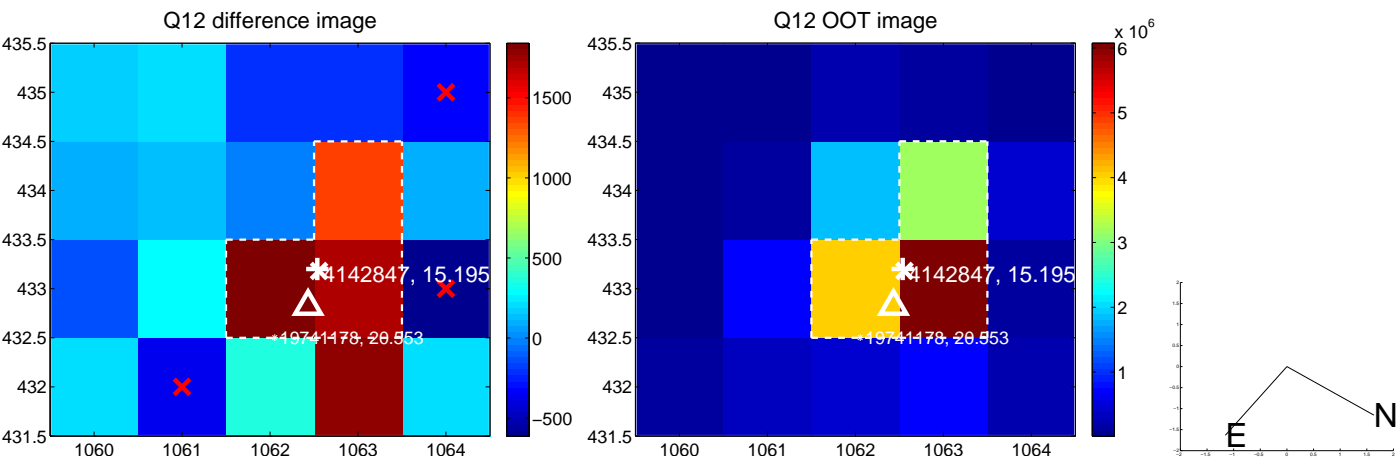
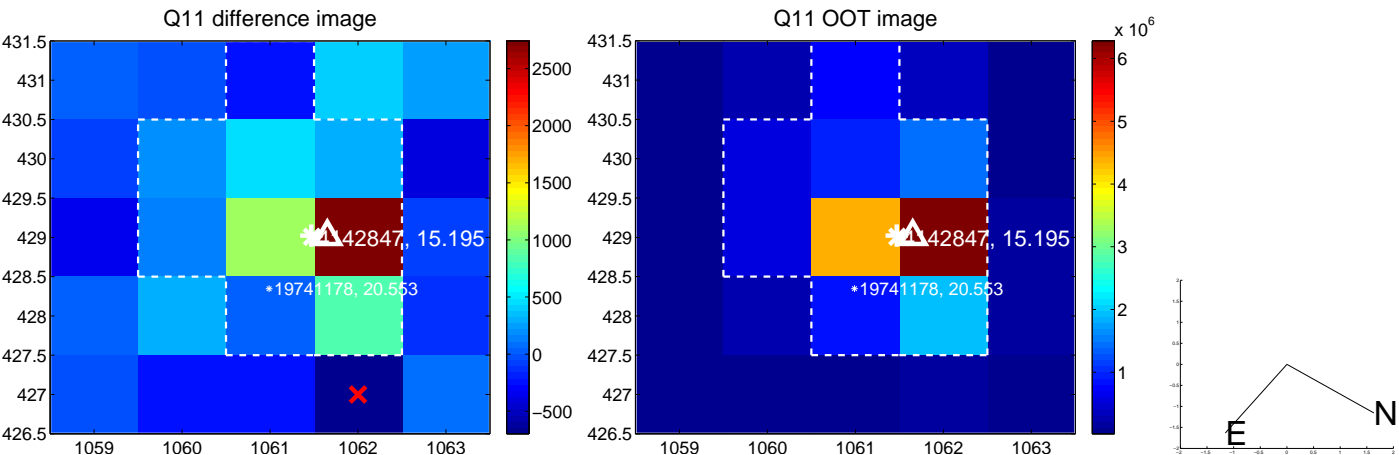
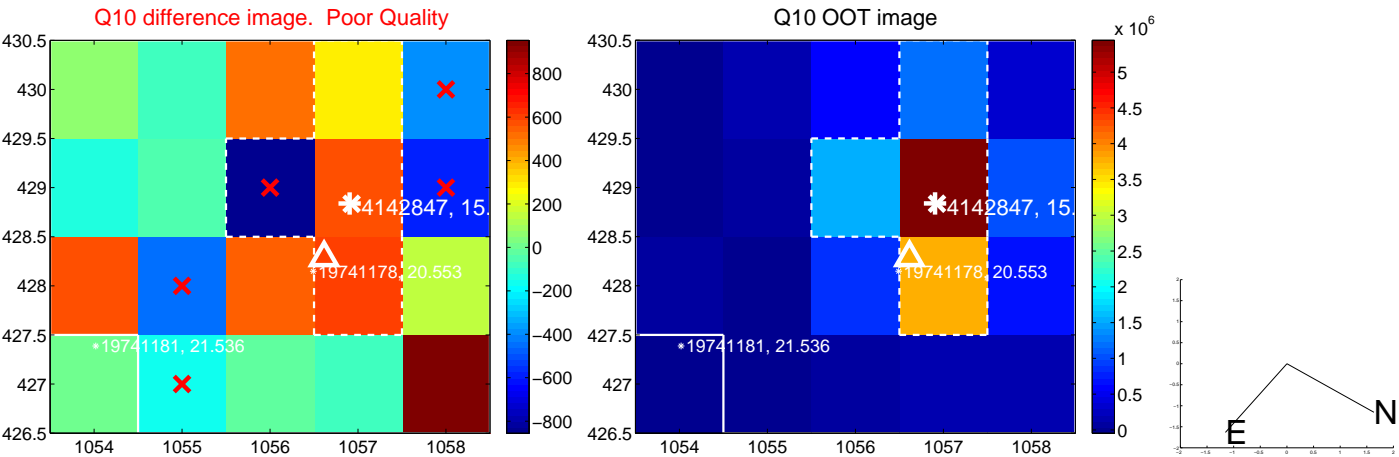
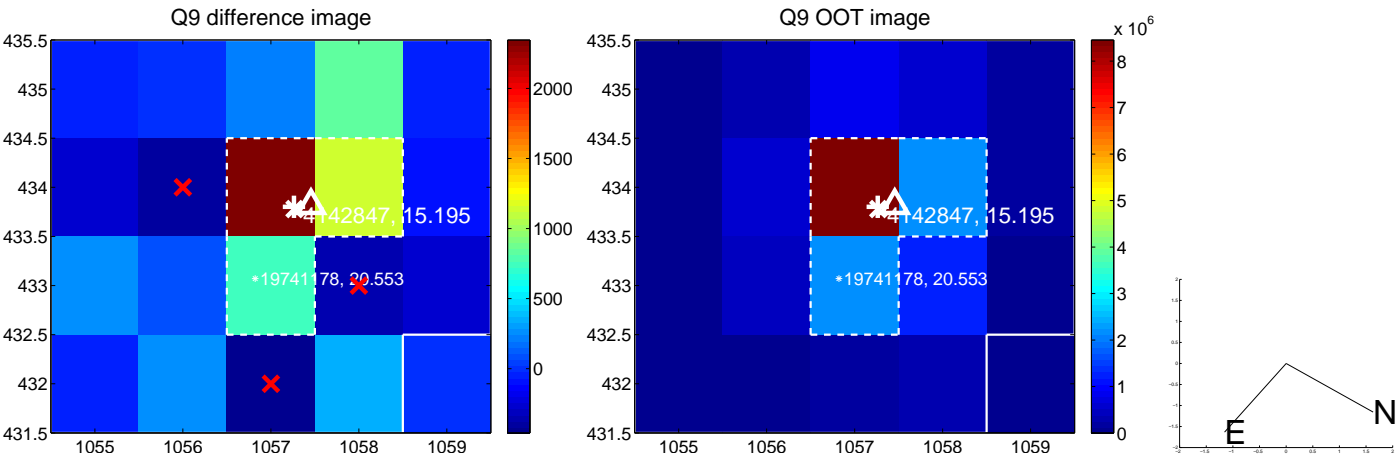
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



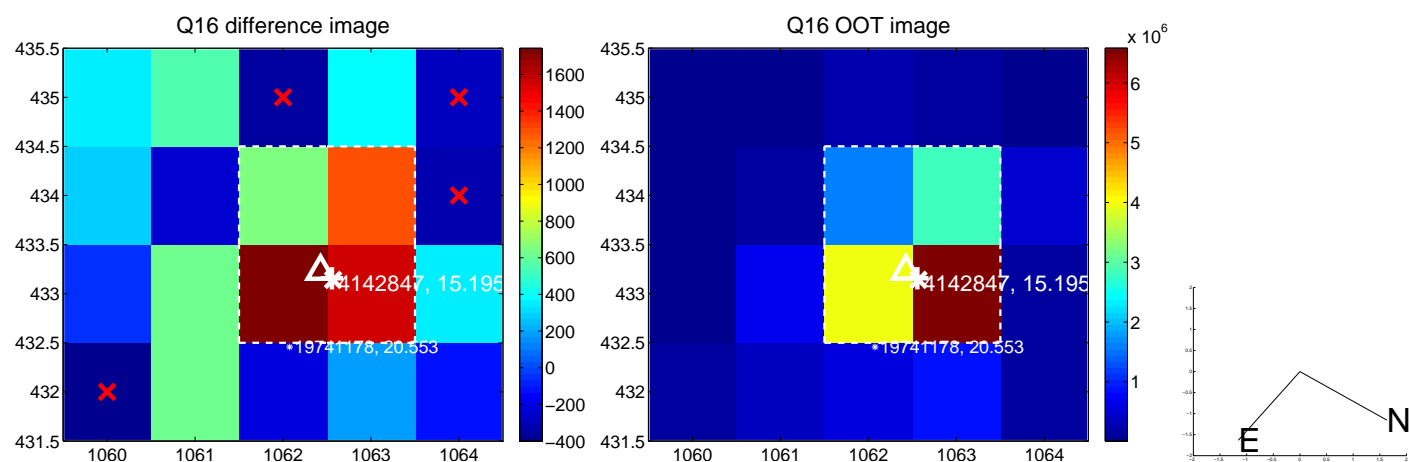
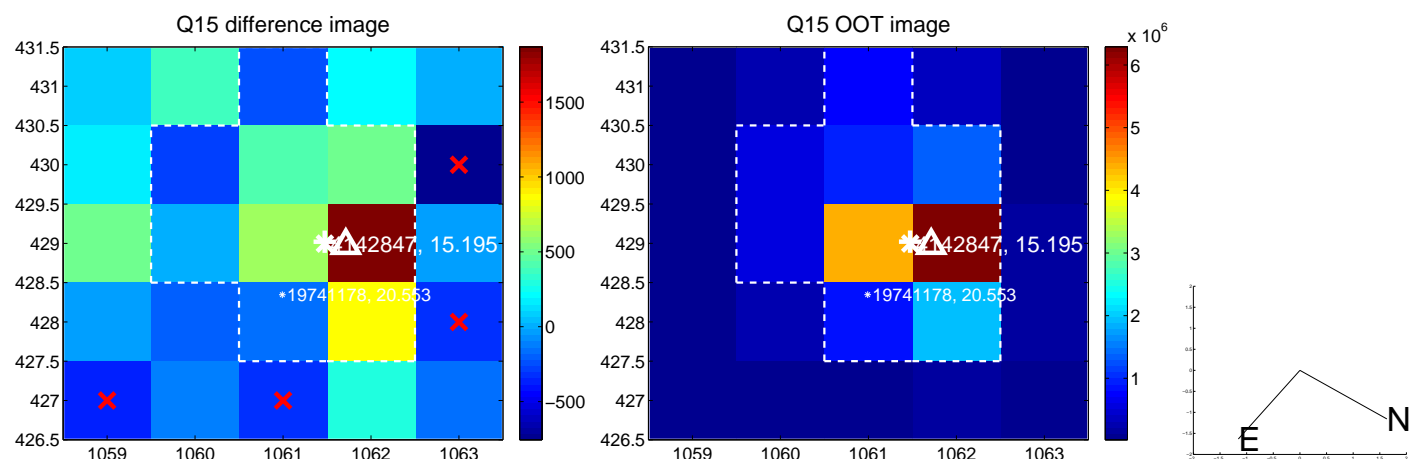
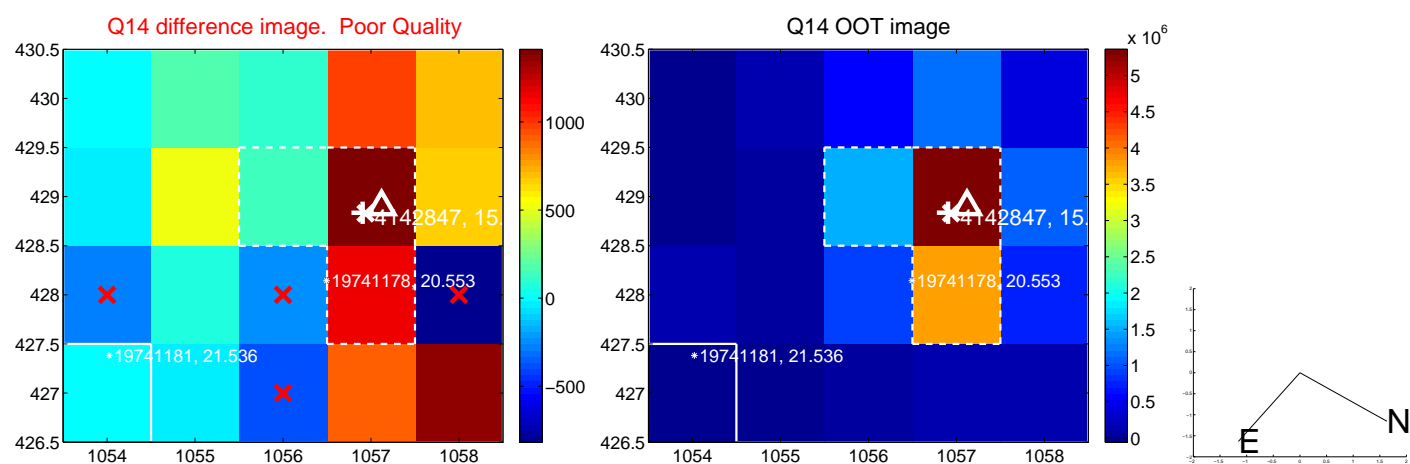
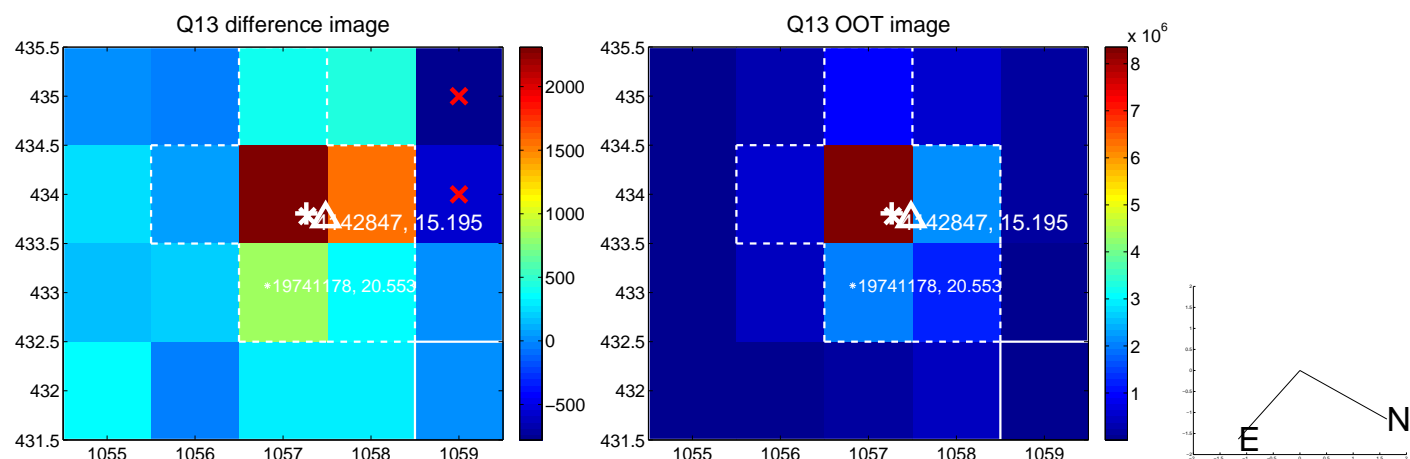
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



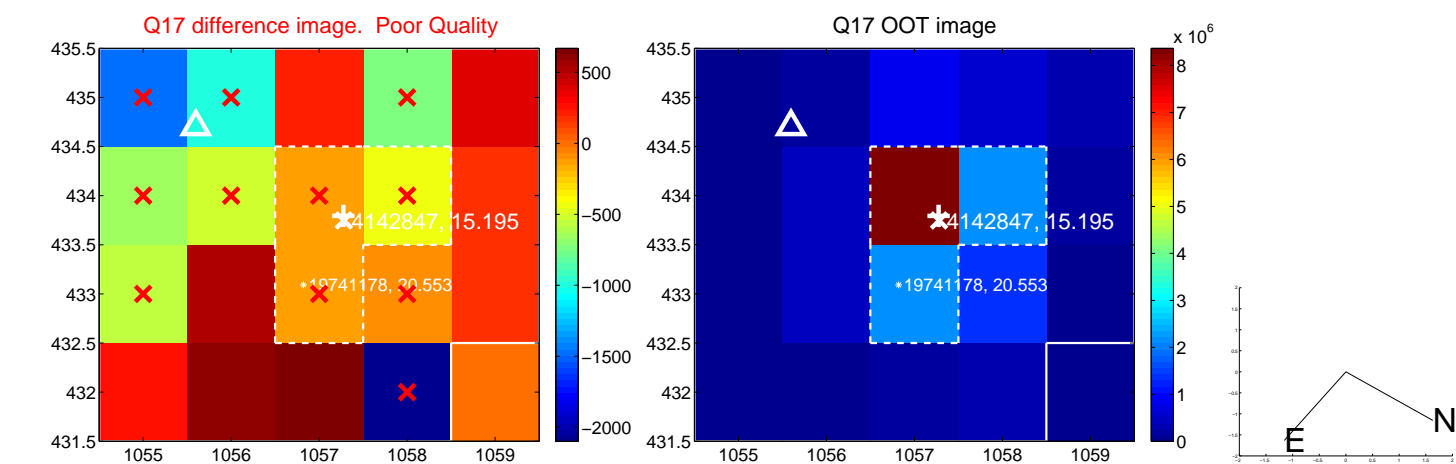
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



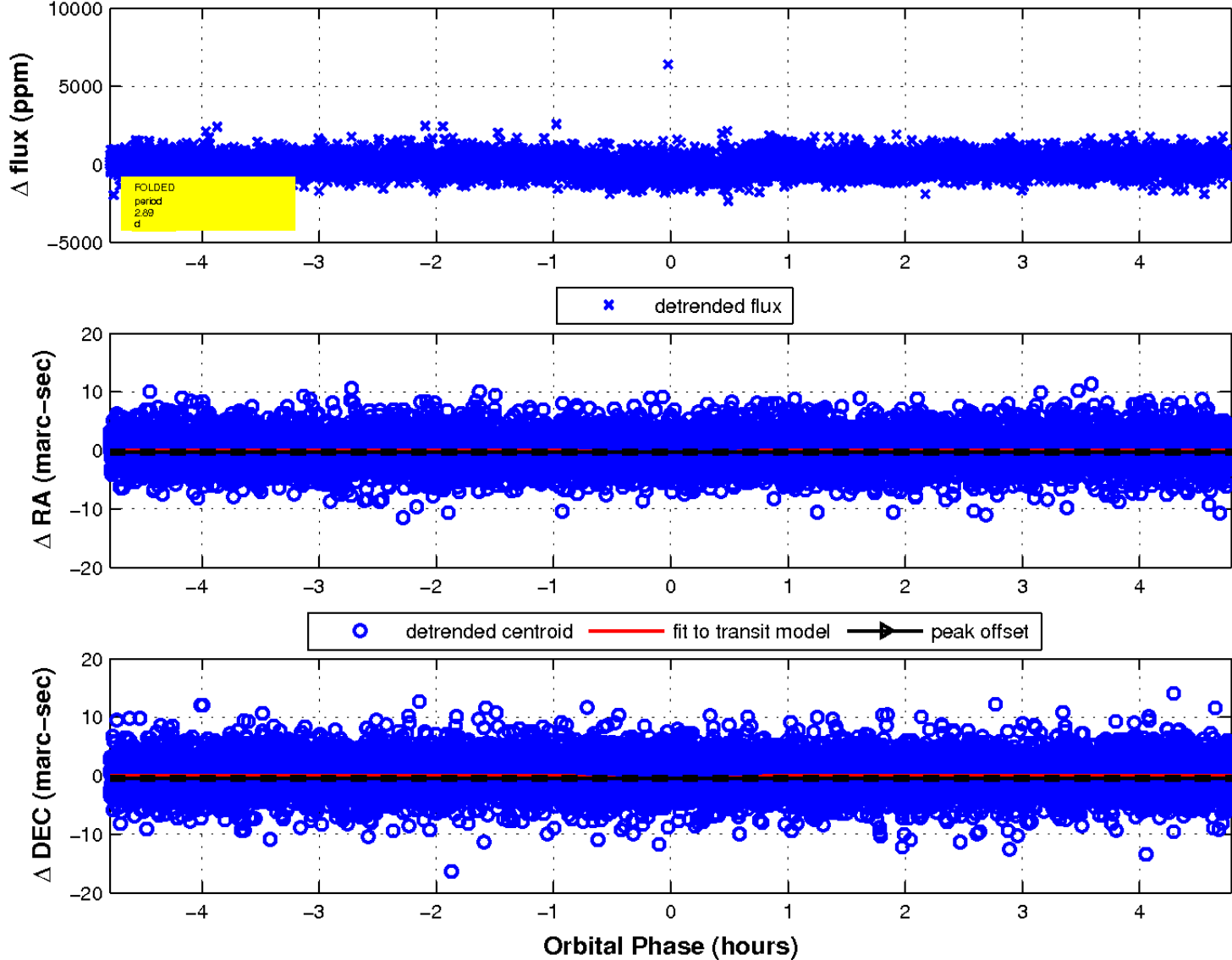
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

