

KIC 004857058

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})
004857058-01	OBS	3061.01	7.328523	132.128181	238.6	1.078	11.4	13.8	0.87	5135	1.64	100.32
004857058-02	OBS	3061.02	77.920686	160.860023	207.9	6.649	7.2	7.5	0.87	5135	1.40	4.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004857058-01	OBS	PC	0.98	0	0	0	0	NO_COMMENT
004857058-02	OBS	FP	0.13	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE

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

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

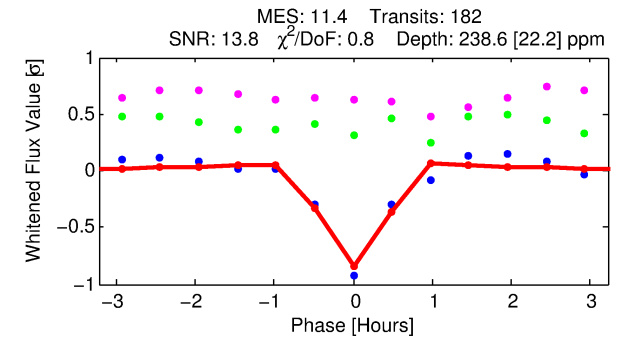
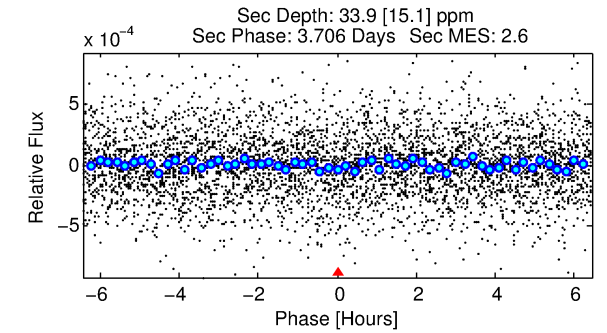
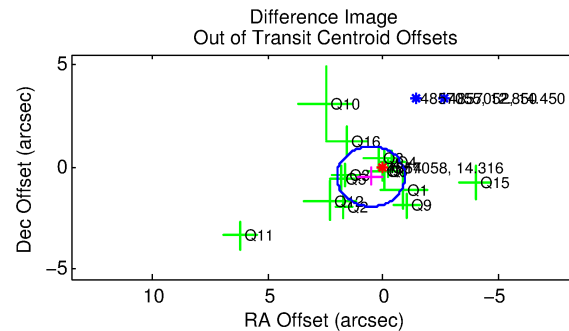
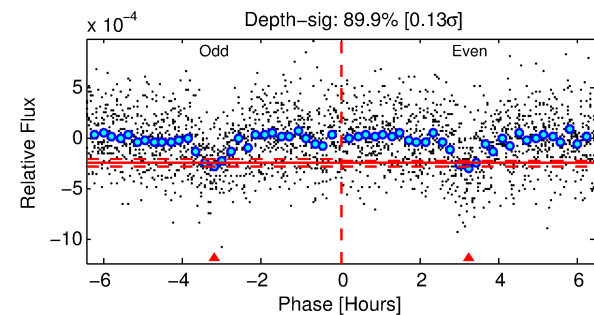
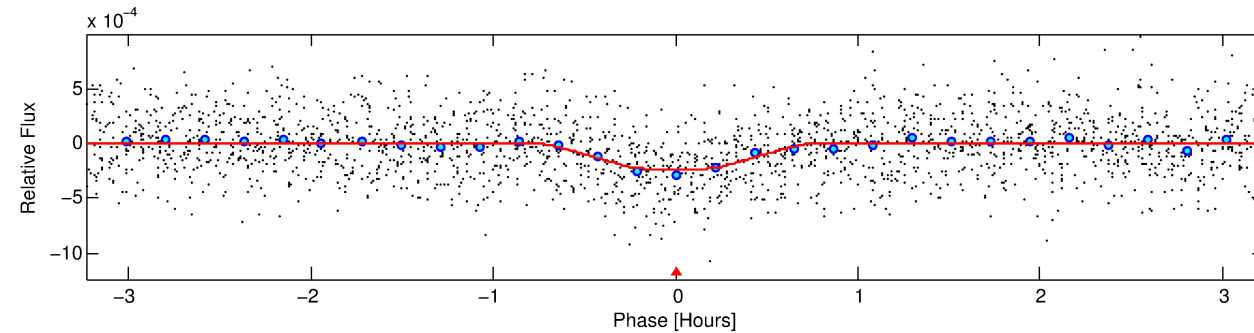
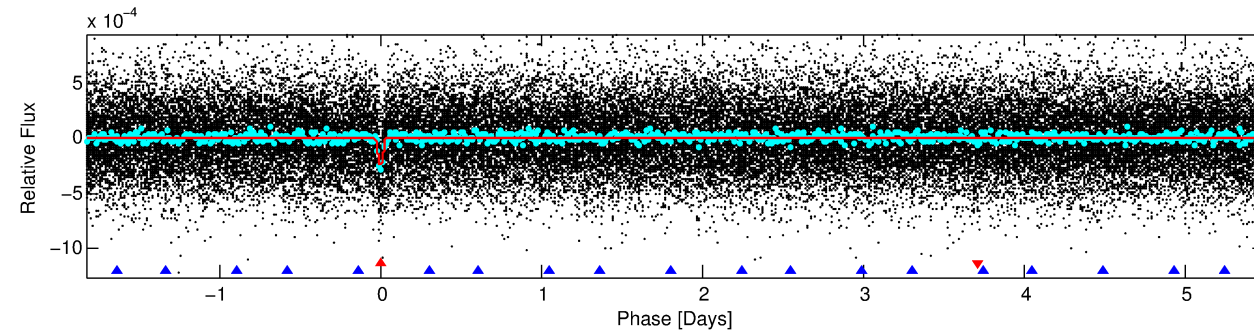
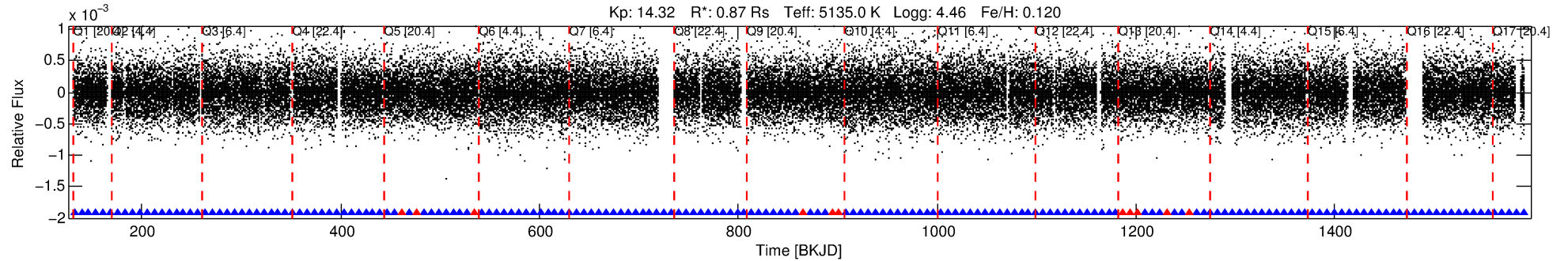
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004857058-01

No Significant Match Found

DV One-Page Summary

KIC: 4857058 Candidate: 1 of 2 Period: 7.329 d
KOI: K03061.01 Corr: 0.867



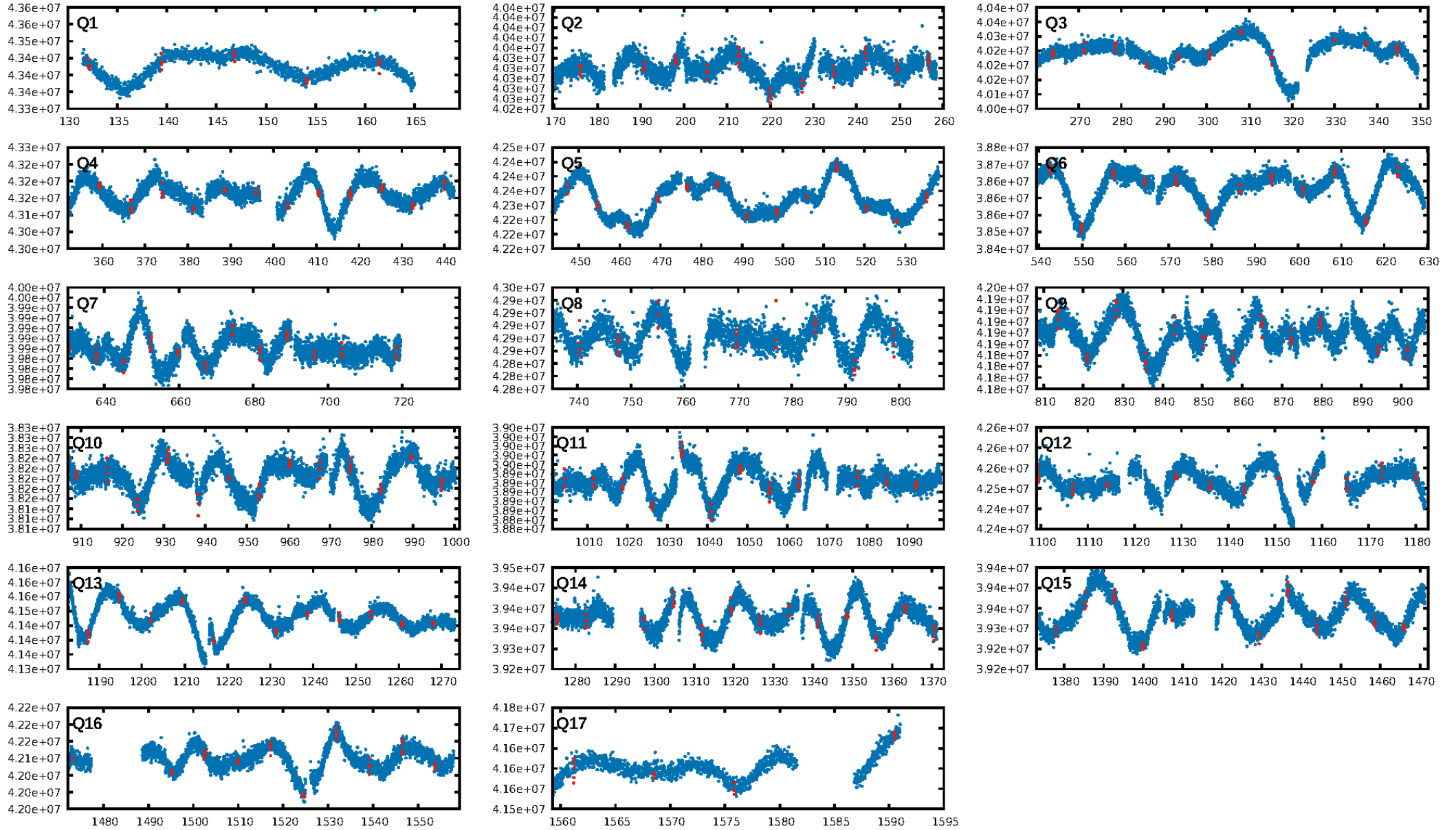
DV Fit Results:

Period = 7.32852 [0.00002] d
Epoch = 132.1282 [0.0020] BKJD
Rp/R* = 0.0172 [0.0121]
a/R* = 25.30 [70.95]
b = 0.89 [0.66]
Seff = 100.32 [15.44]
Teff = 807 [31] K
Rp = 1.64 [1.16] Re
a = 0.0689 [0.0057] AU
Ag = 32.81 [48.52] [0.66 σ]
Teffp = 2986 [1100] K [1.98 σ]

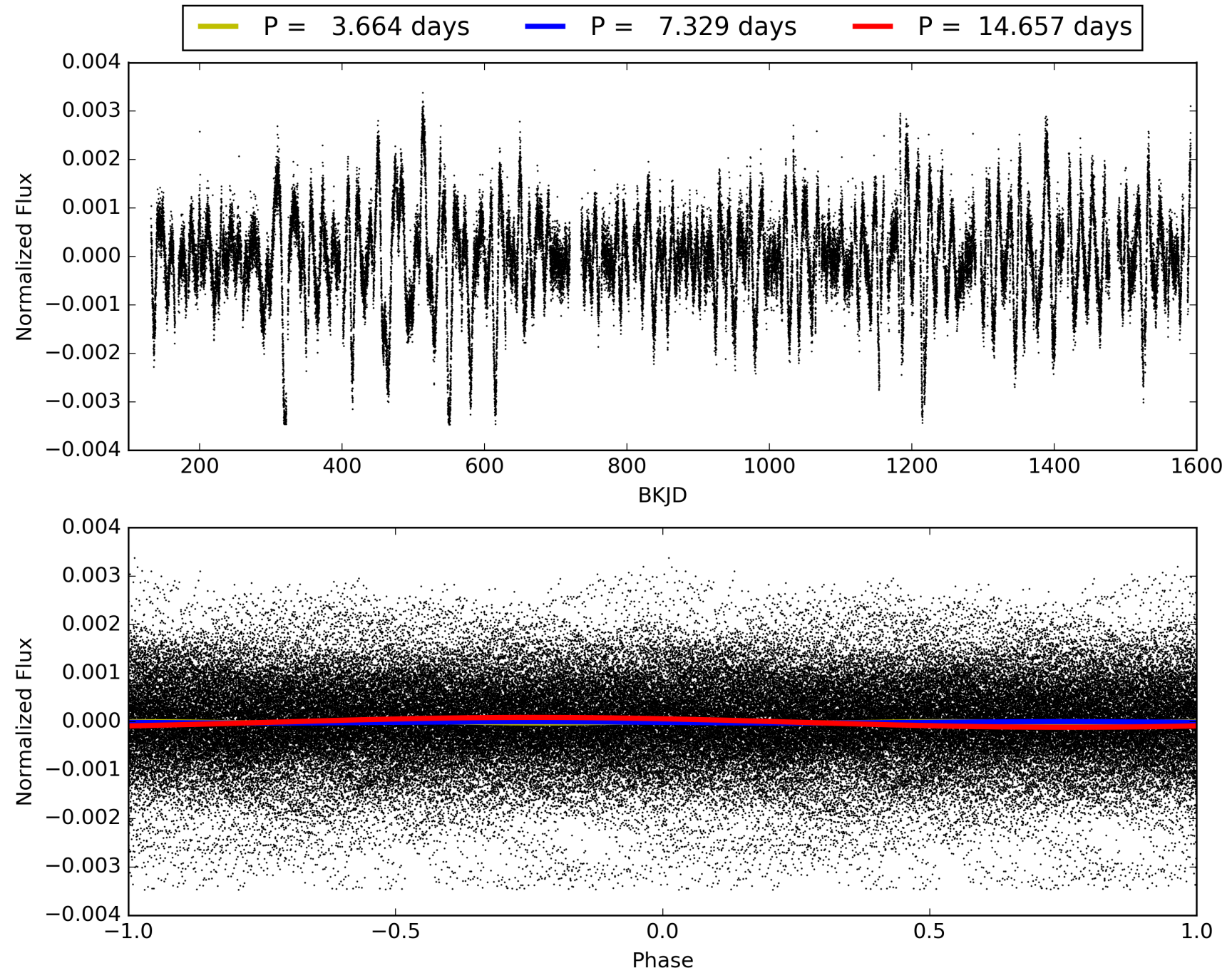
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [251.53 σ]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.88e-29
RollingBand-fgt: 0.94 [162/173]
GhostDiagnostic-chr: 1.321
Centroid-sig: 5.2%
Centroid-so: 1.243 arcsec [1.45 σ]
OotOffset-rm: 0.725 arcsec [1.48 σ]
KicOffset-rm: 0.743 arcsec [1.53 σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.67 [10/15]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 004857058-01, PDC Light Curves

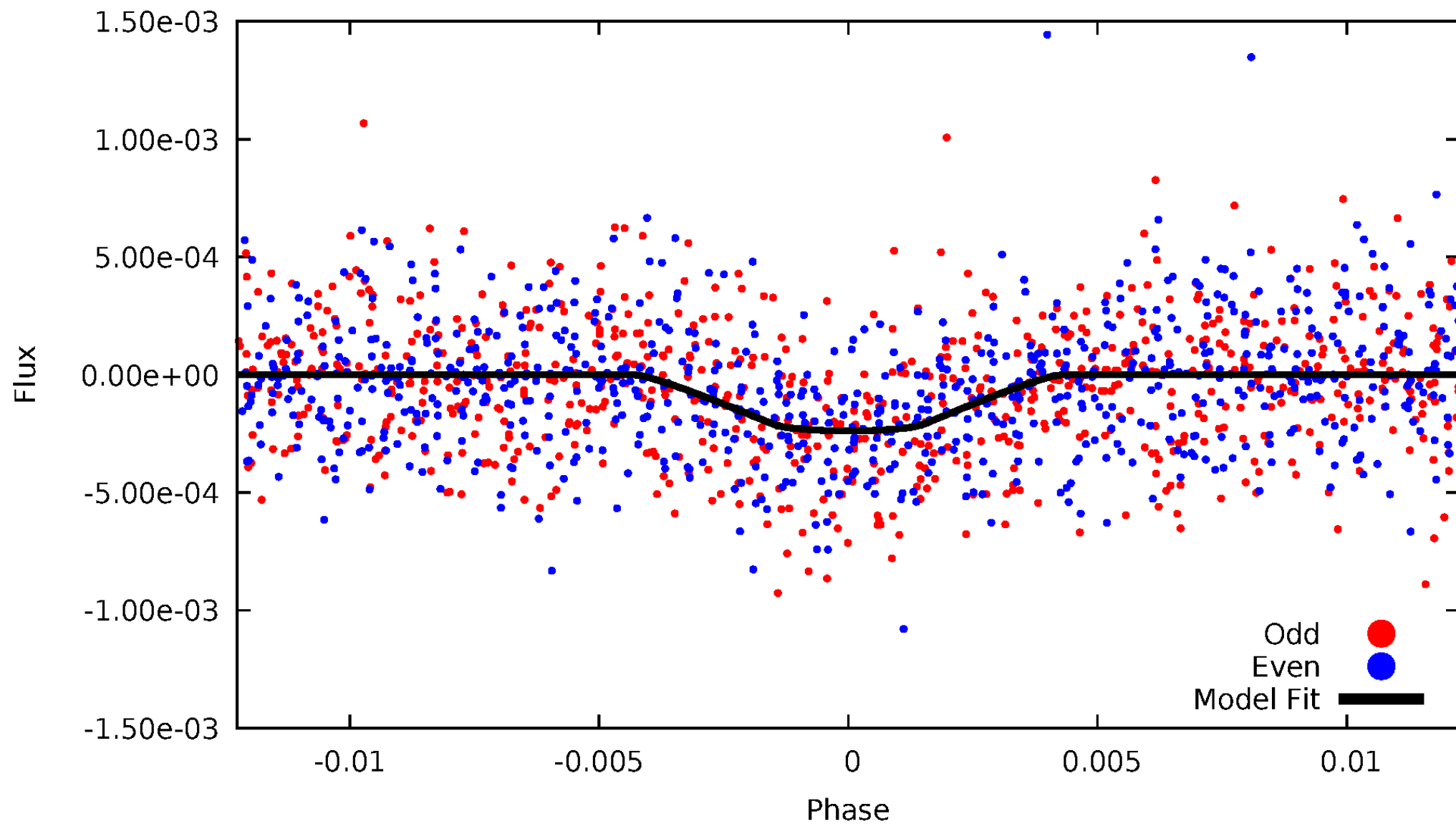


TCE 004857058-01



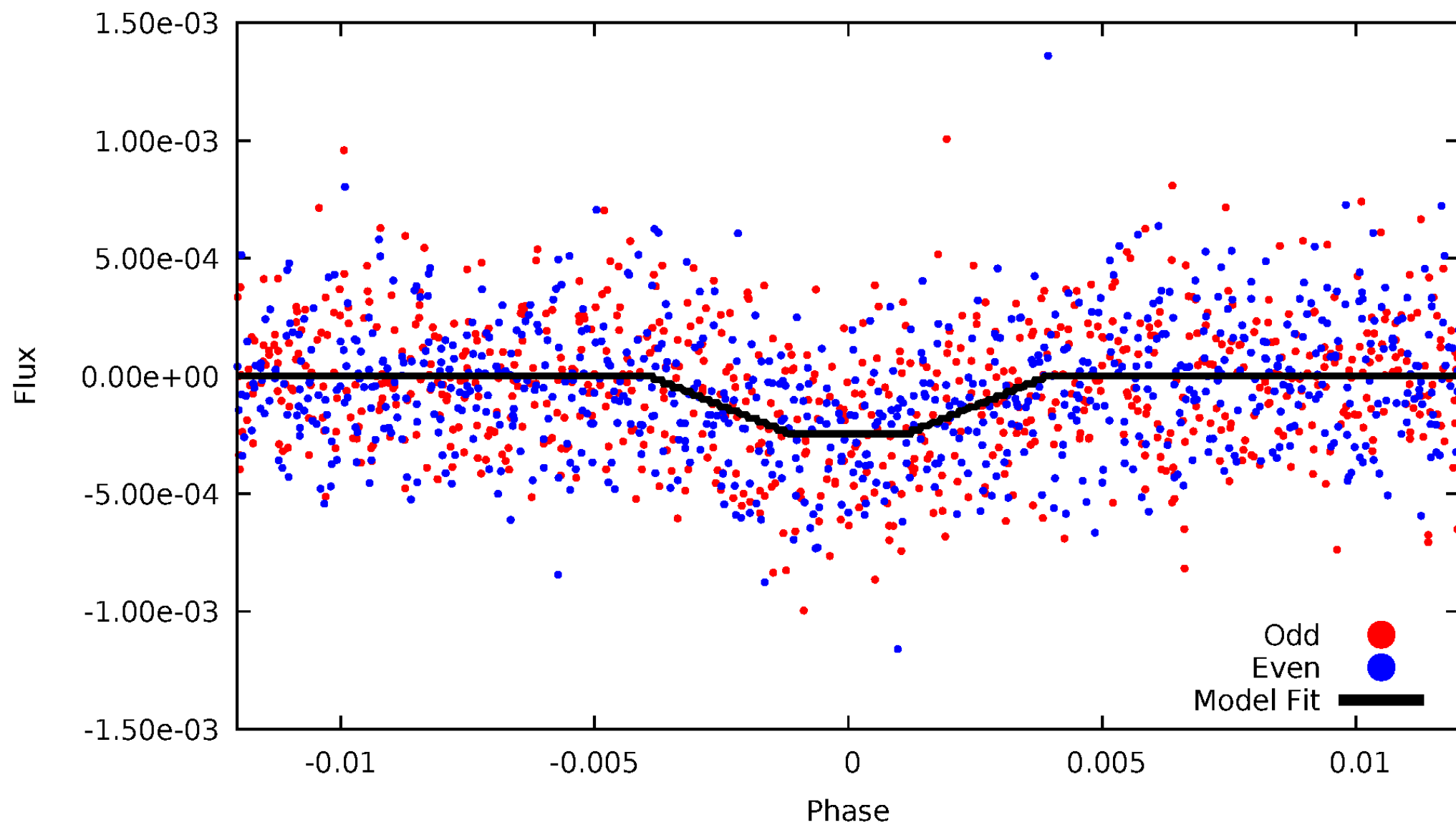
DV Odd/Even

TCE 004857058-01

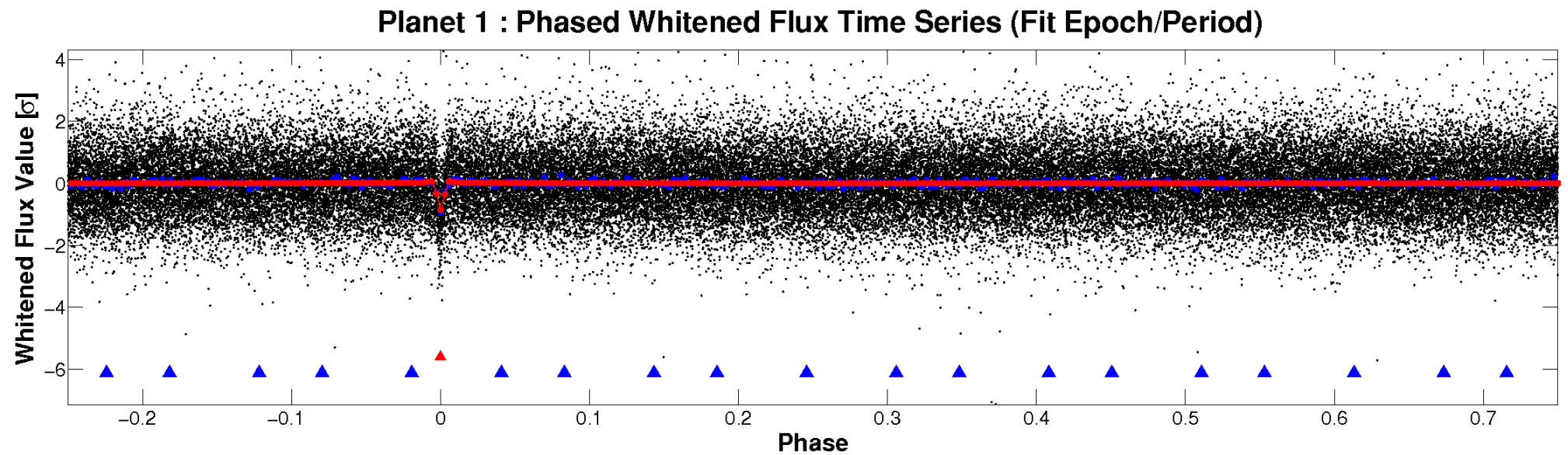
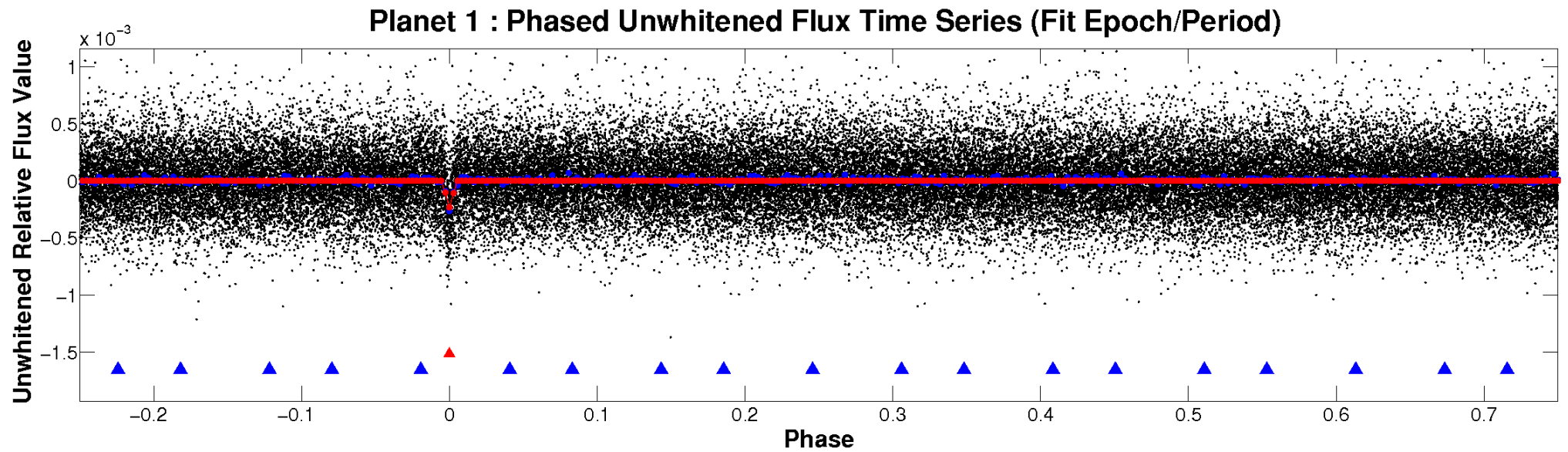


ALT Odd/Even

TCE 004857058-01

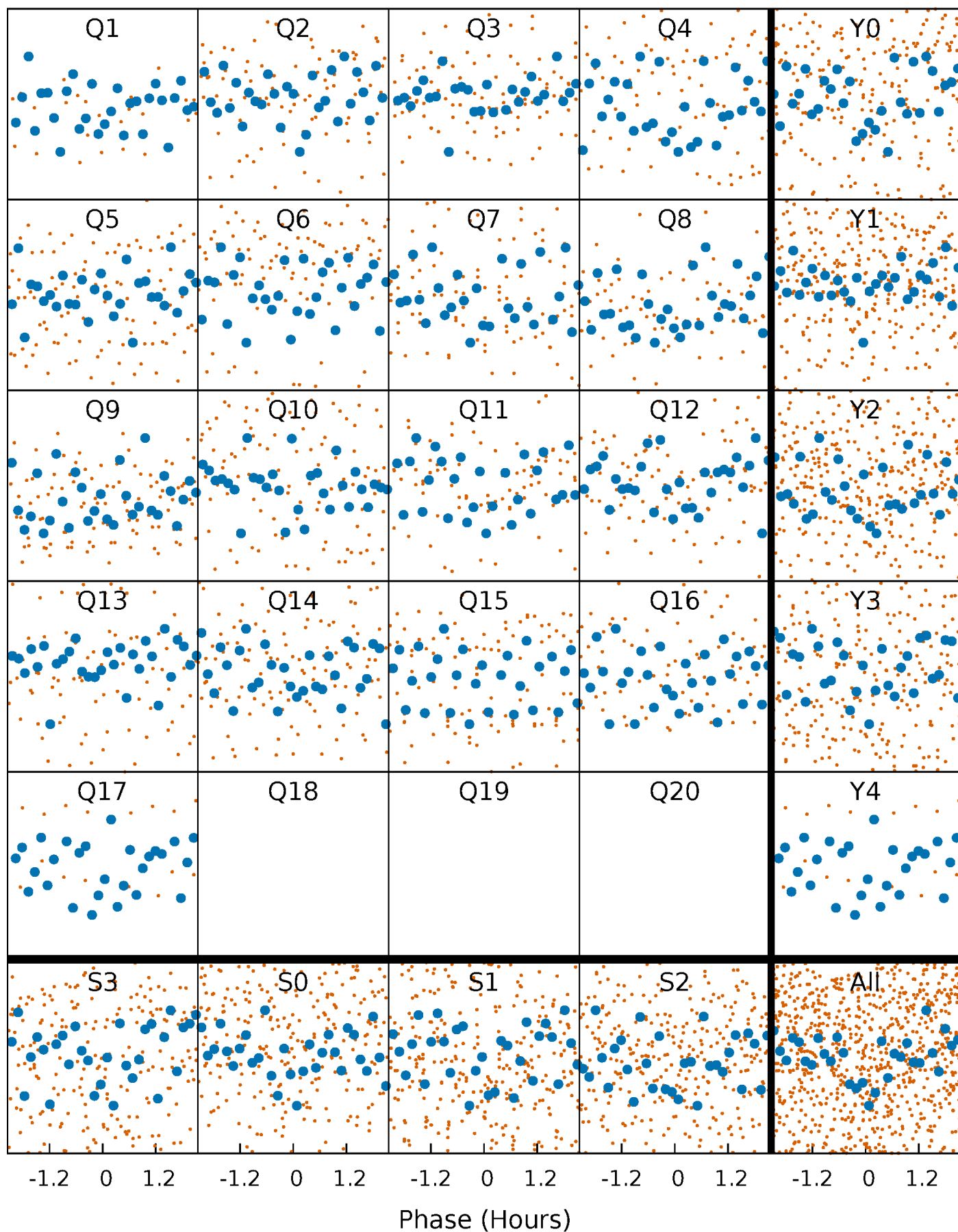


Non-Whitened Vs. Whitened Light Curve



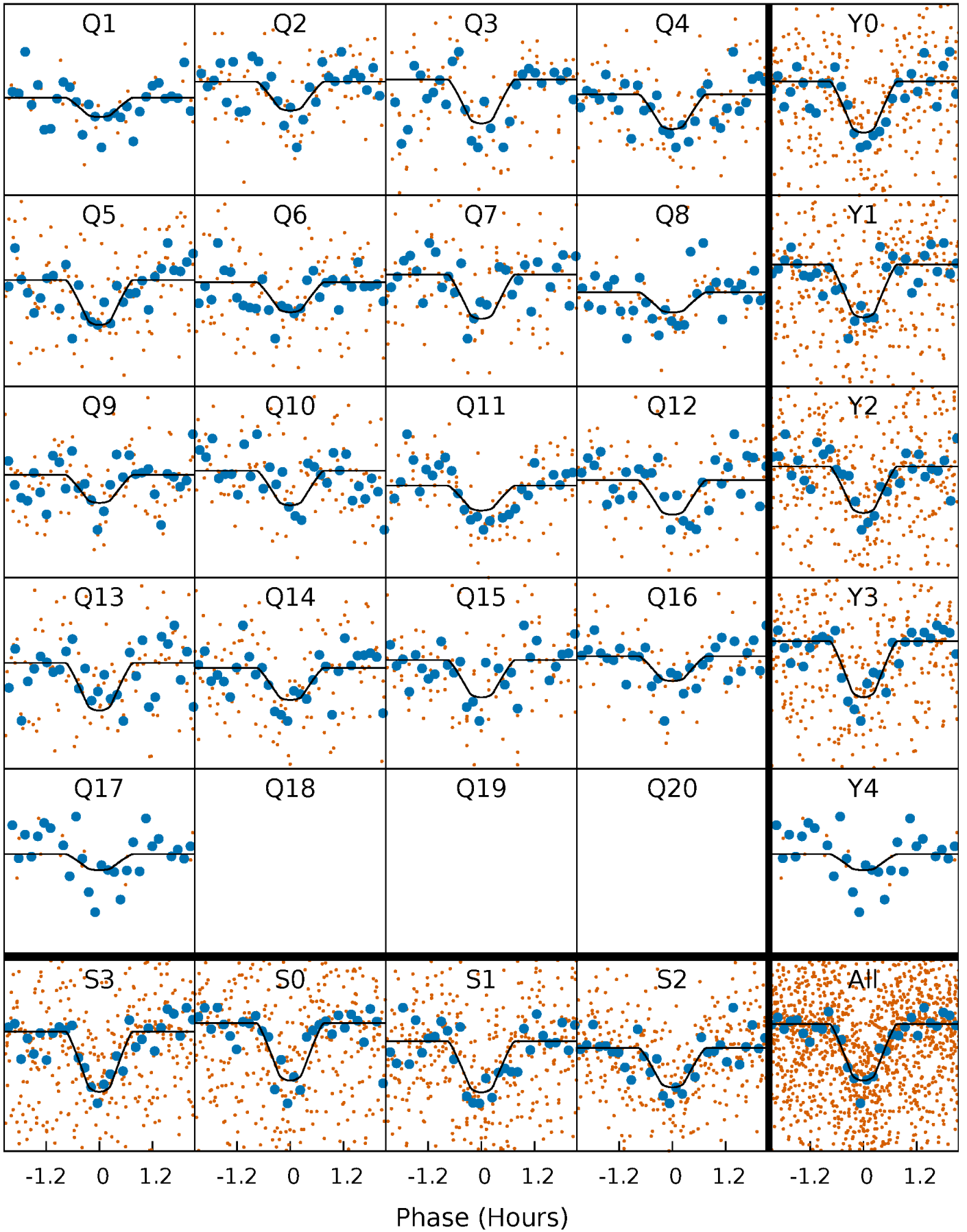
PDC Quarter-Phased Transit Curves

TCE 004857058-01 P= 7.328523 Days $T_0=132.128181$ (BKJD)



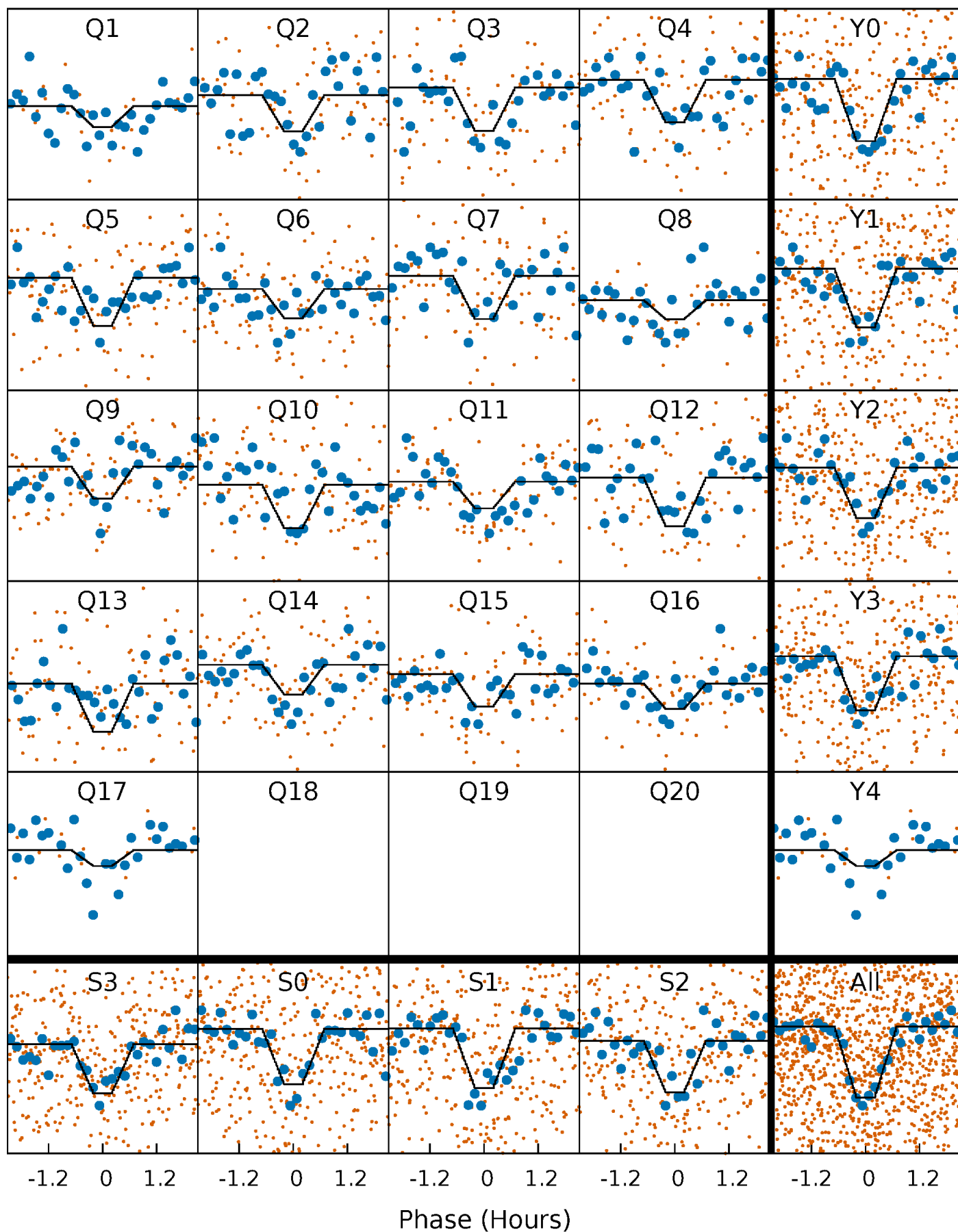
DV Quarter-Phased Transit Curves

TCE 004857058-01 P= 7.328523 Days $T_0=132.128181$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

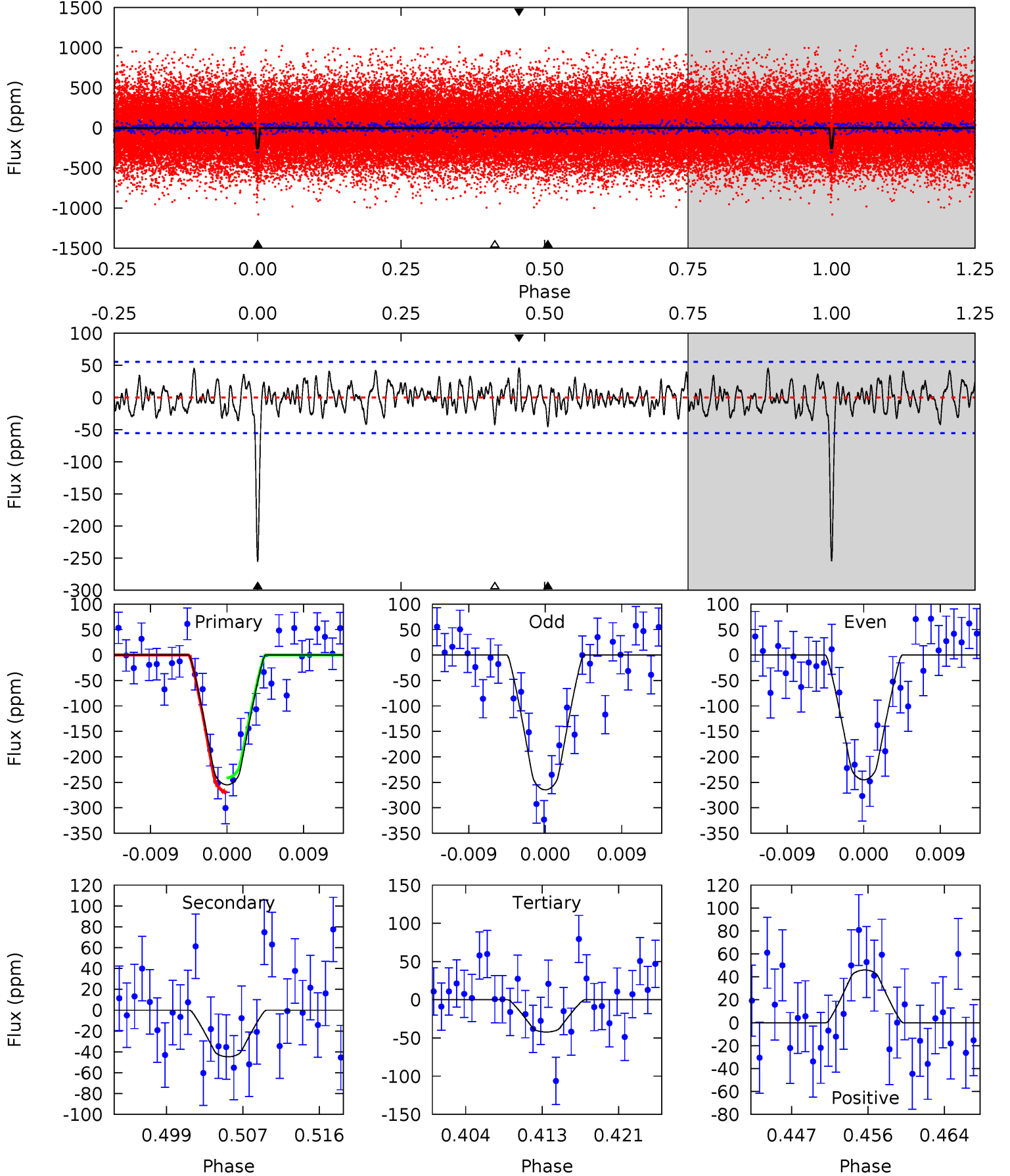
TCE 004857058-01 P= 7.328551 Days $T_0=132.126151$ (BKJD)



DV Model-Shift Uniqueness Test

004857058-01, P = 7.328523 Days, E = 124.799658 Days

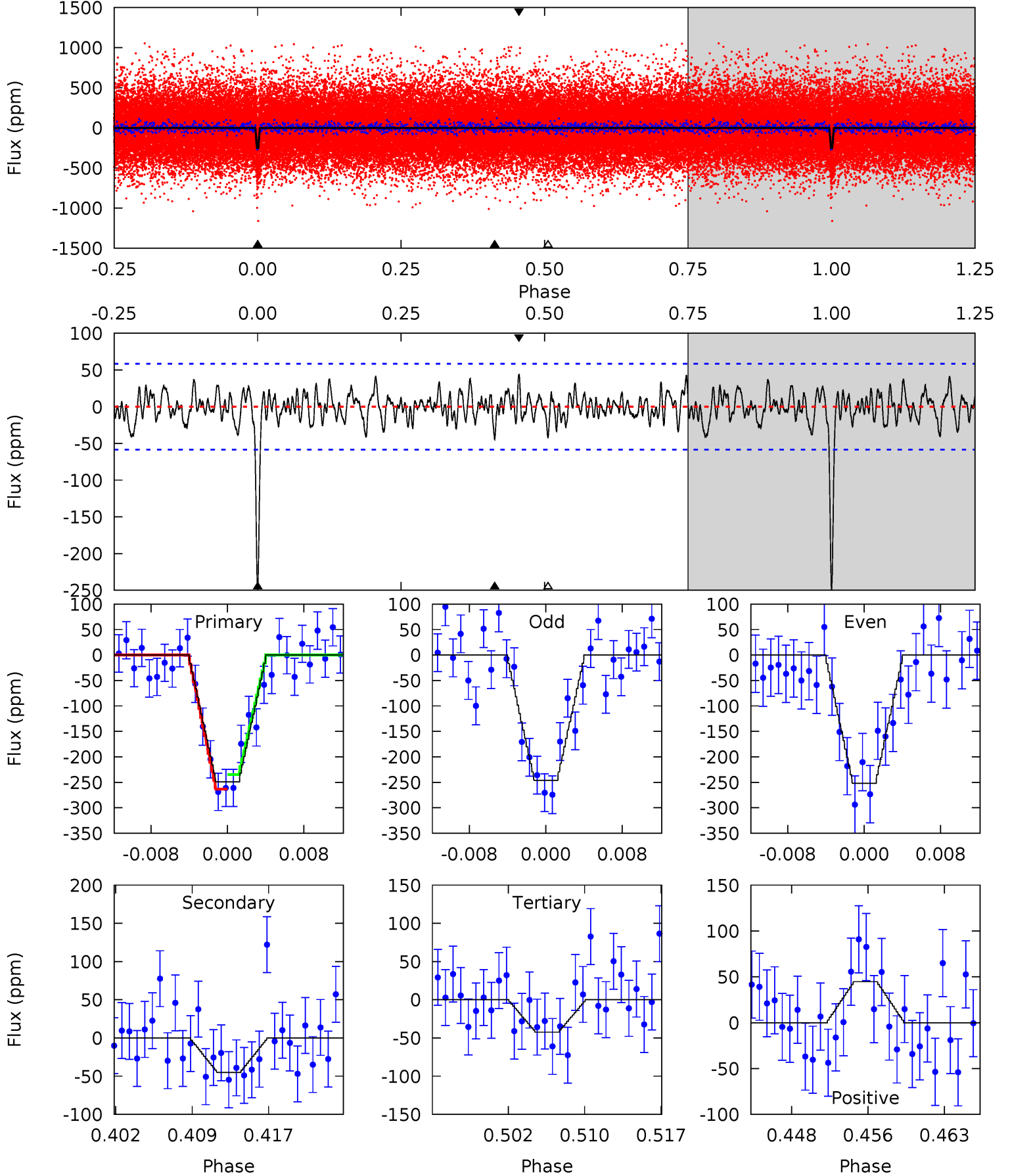
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.2	4.07	3.85	4.19	5.06	2.63	1.42	19.4	19.0	0.23	-0.11	0.89	1.03	0.15	1.27



Alt Model-Shift Uniqueness Test

004857058-01, P = 7.328551 Days, E = 124.797600 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.6	3.91	3.69	3.88	5.08	2.66	1.34	17.9	17.7	0.23	0.03	0.26	0.93	0.15	1.24



Stellar Parameters For KIC 004857058

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5135^{+84}_{-76}	$4.464^{+0.084}_{-0.039}$	$0.120^{+0.150}_{-0.150}$	$0.874^{+0.048}_{-0.069}$	$0.812^{+0.058}_{-0.029}$	$1.712^{+0.578}_{-0.232}$
	+2%/-1%	+2%/-1%	+125%/-125%	+5%/-8%	+7%/-4%	+34%/-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 004857058-01 / KOI 3061.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-45 ± 11	$1.80^{+1.09}_{-0.98}$	1120^{+27}_{-31}	3483^{+1074}_{-479}	37^{+126}_{-23}
Alt.	-45 ± 12	$1.66^{+1.07}_{-1.00}$	1121^{+28}_{-30}	3570^{+1496}_{-507}	43^{+231}_{-28}

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

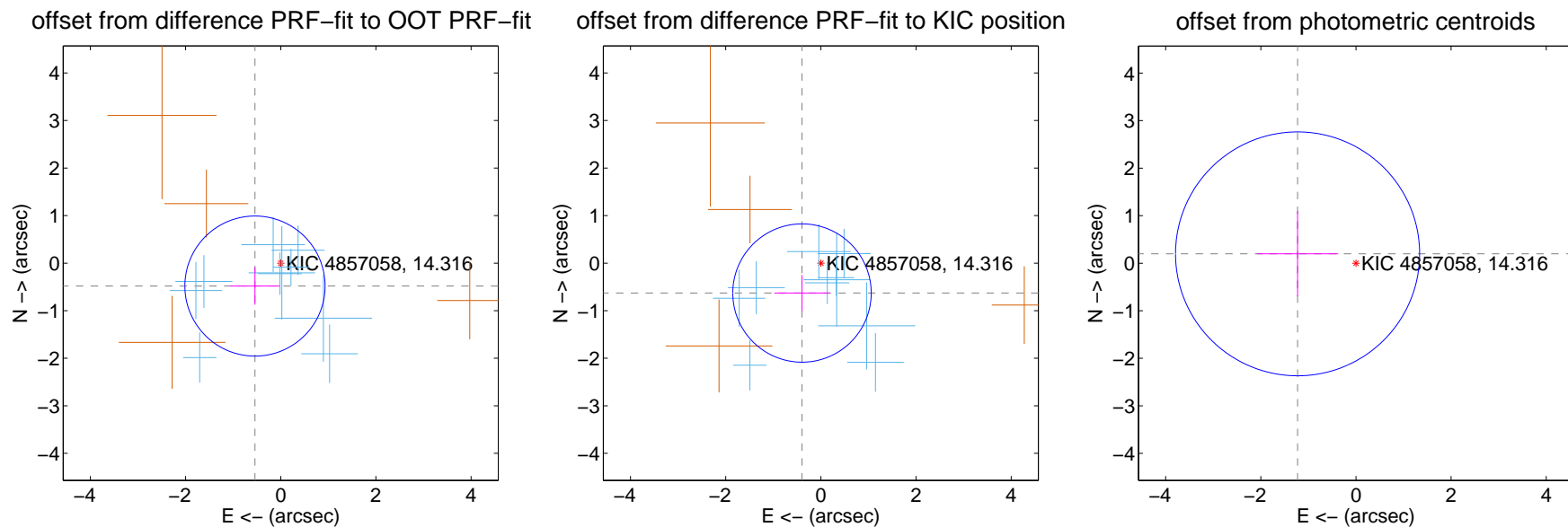
DV Centroid Data

Supplemental centroid analysis for 004857058-01. Kepler magnitude: 14.32. Transit SNR 13.76

There are 10 quarters with good PRF difference image offsets

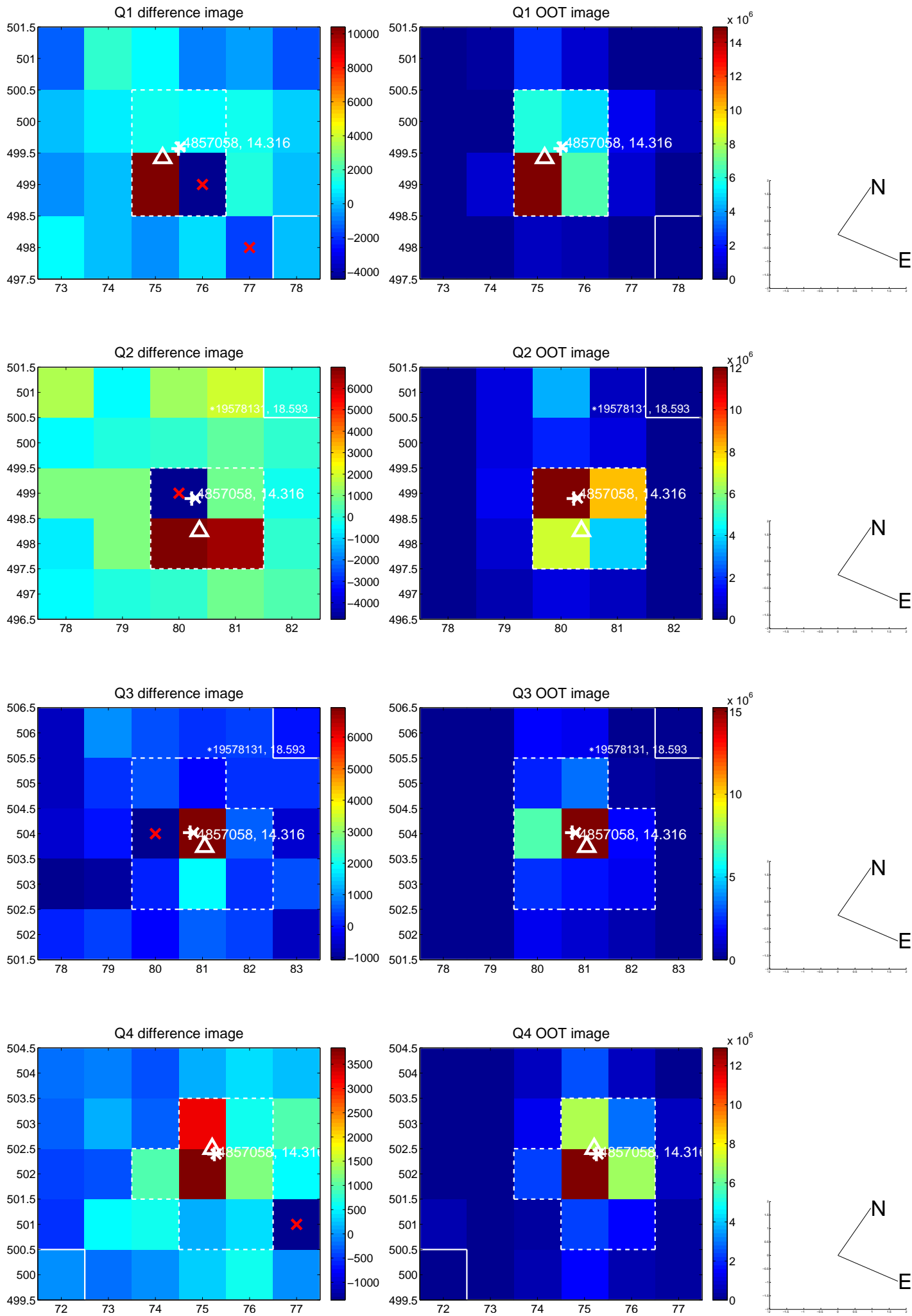
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.725 ± 0.491	1.48	0.542 ± 0.518	-0.482 ± 0.391
PRF-fit source offset from KIC position	0.743 ± 0.485	1.53	0.396 ± 0.582	-0.629 ± 0.377
photometric centroid source offset	1.24 ± 0.85	1.45	1.23 ± 0.85	0.20 ± 0.90

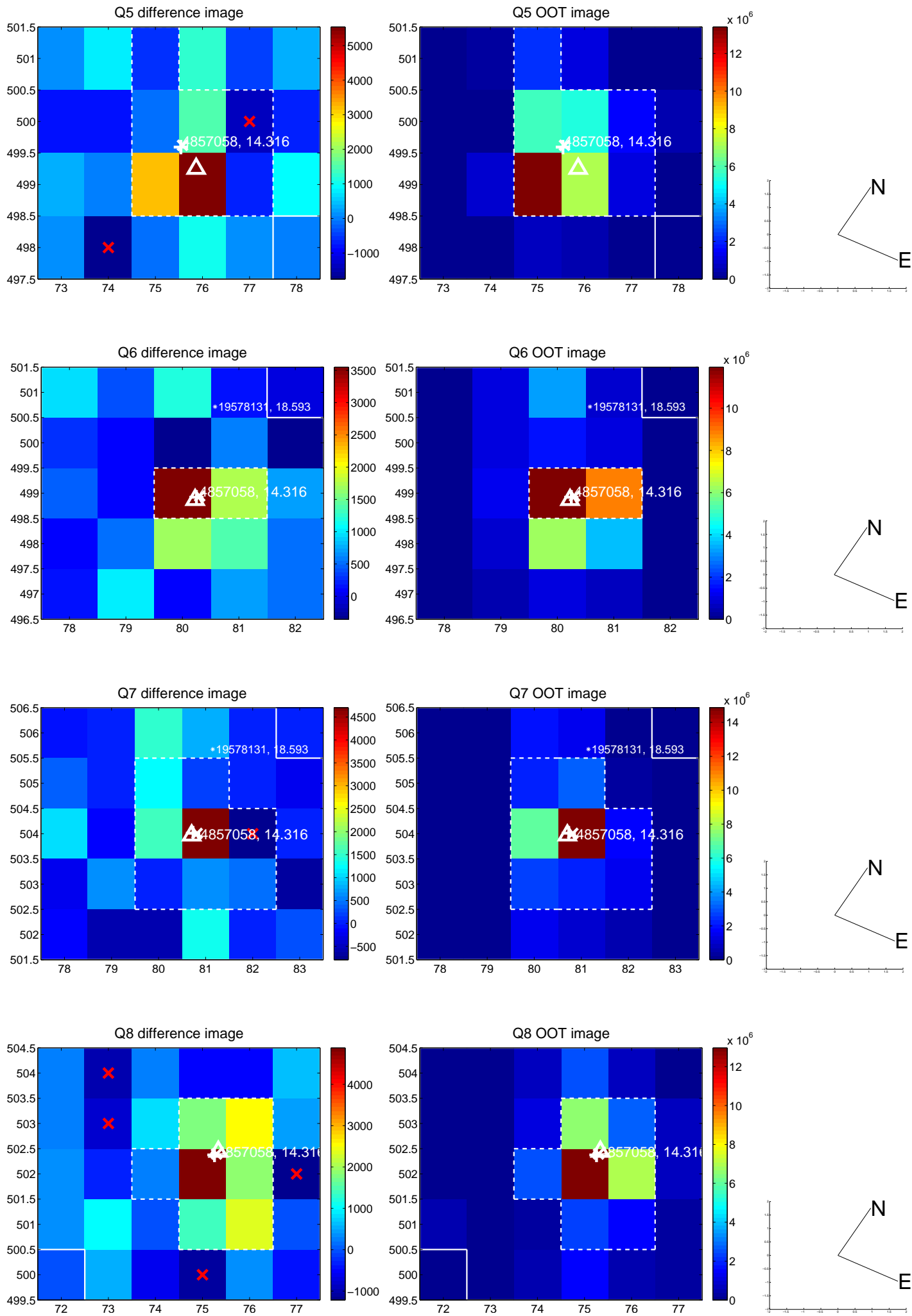


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

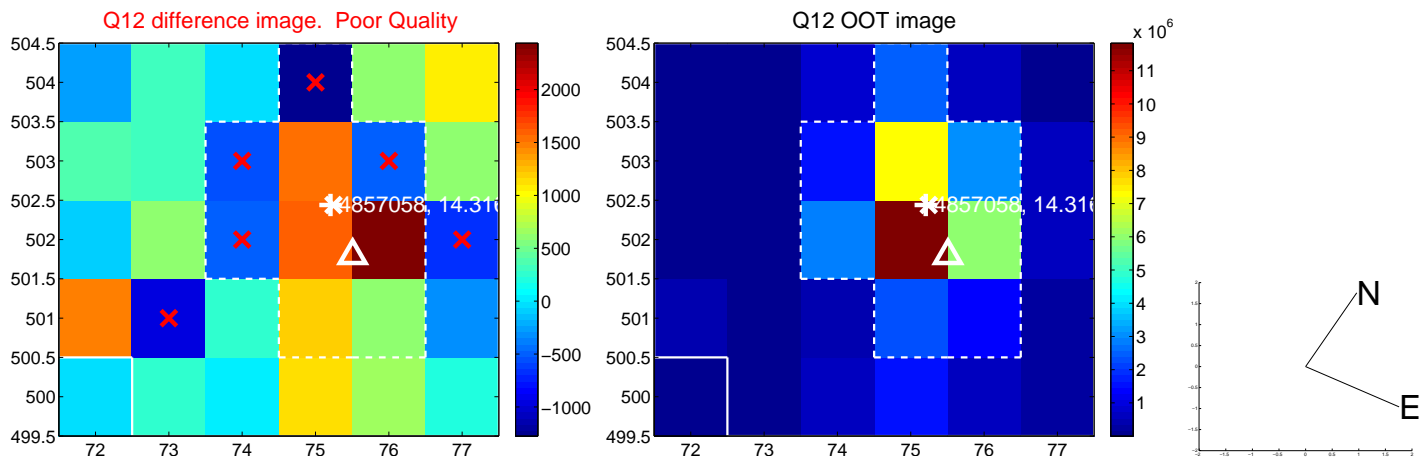
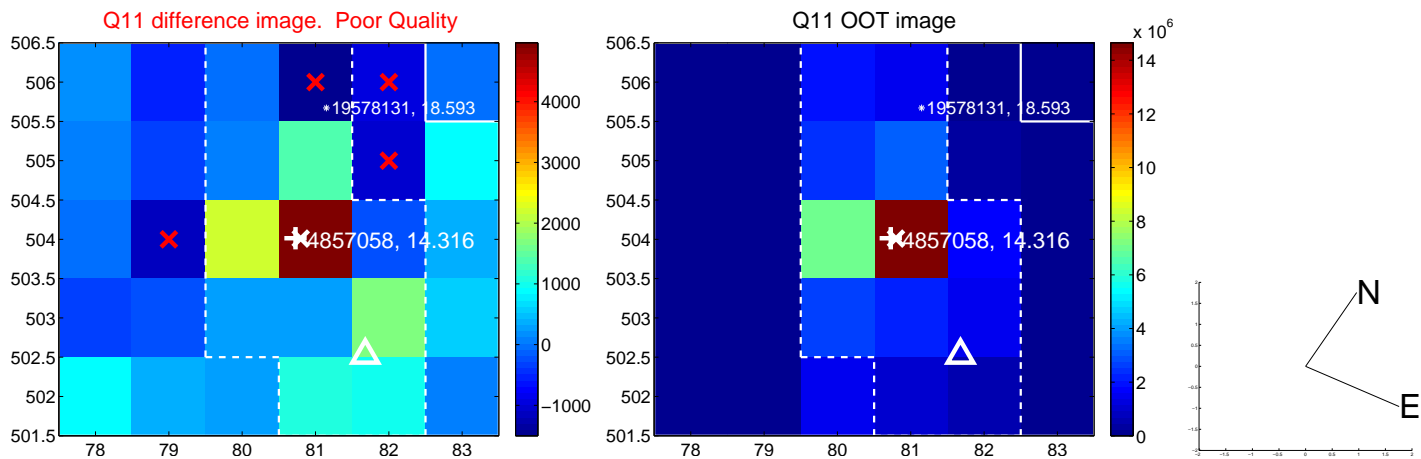
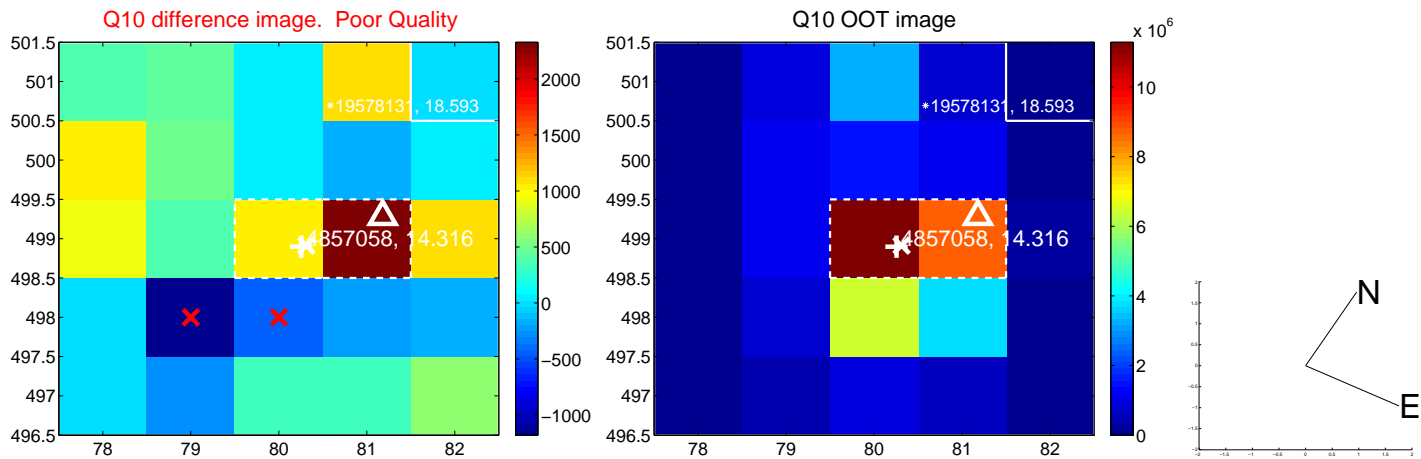
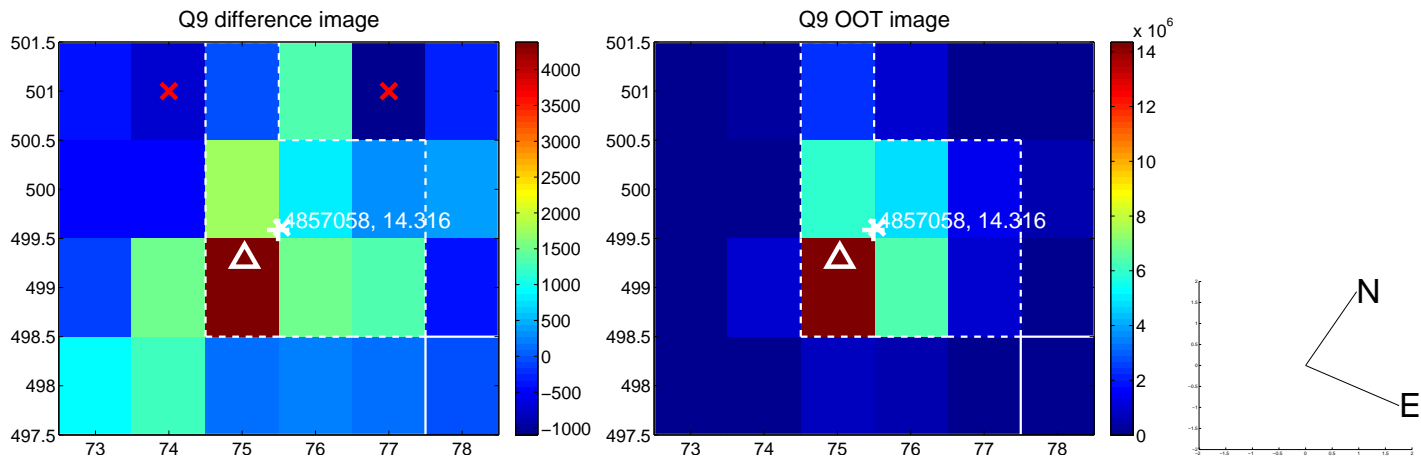
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



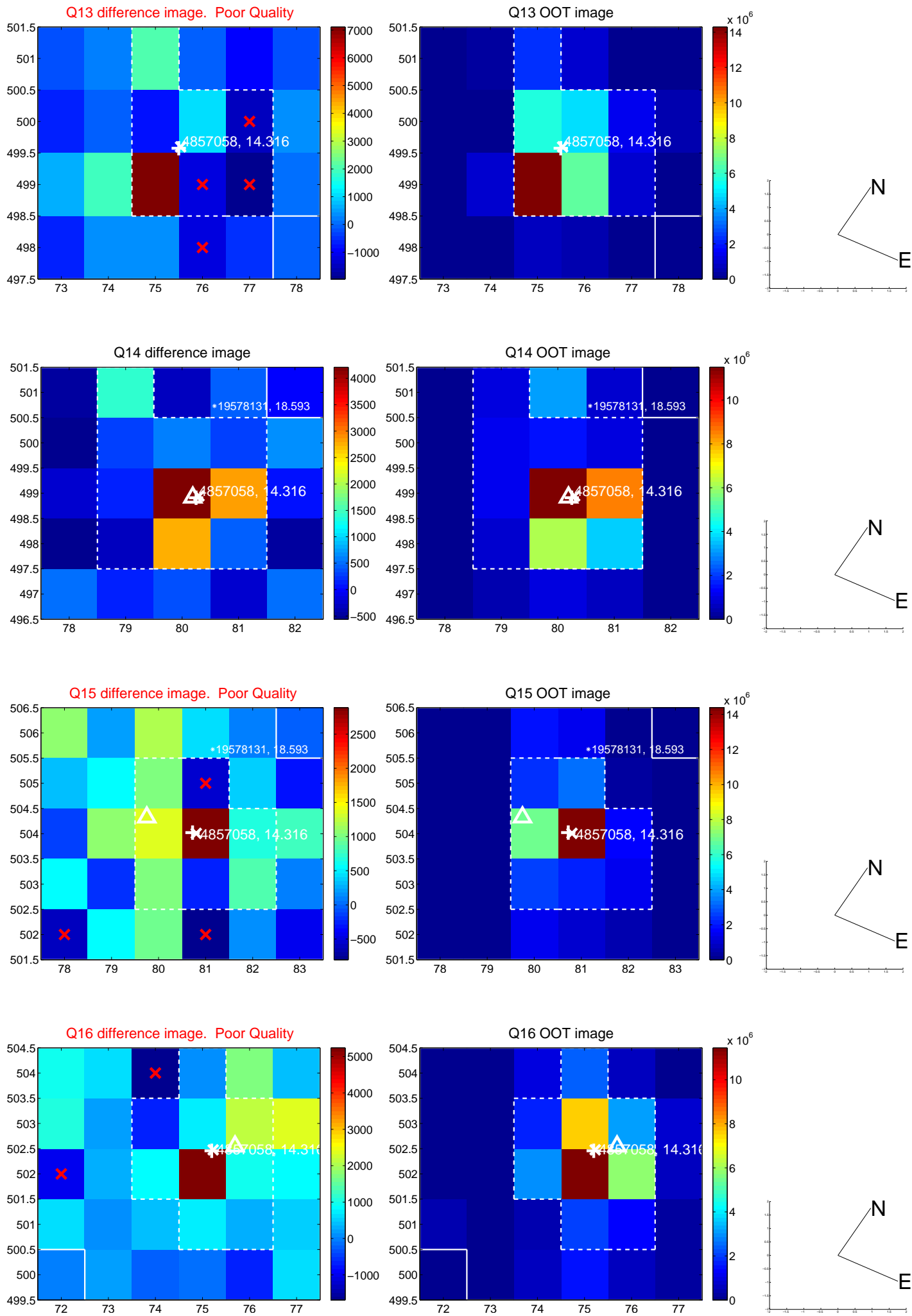
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



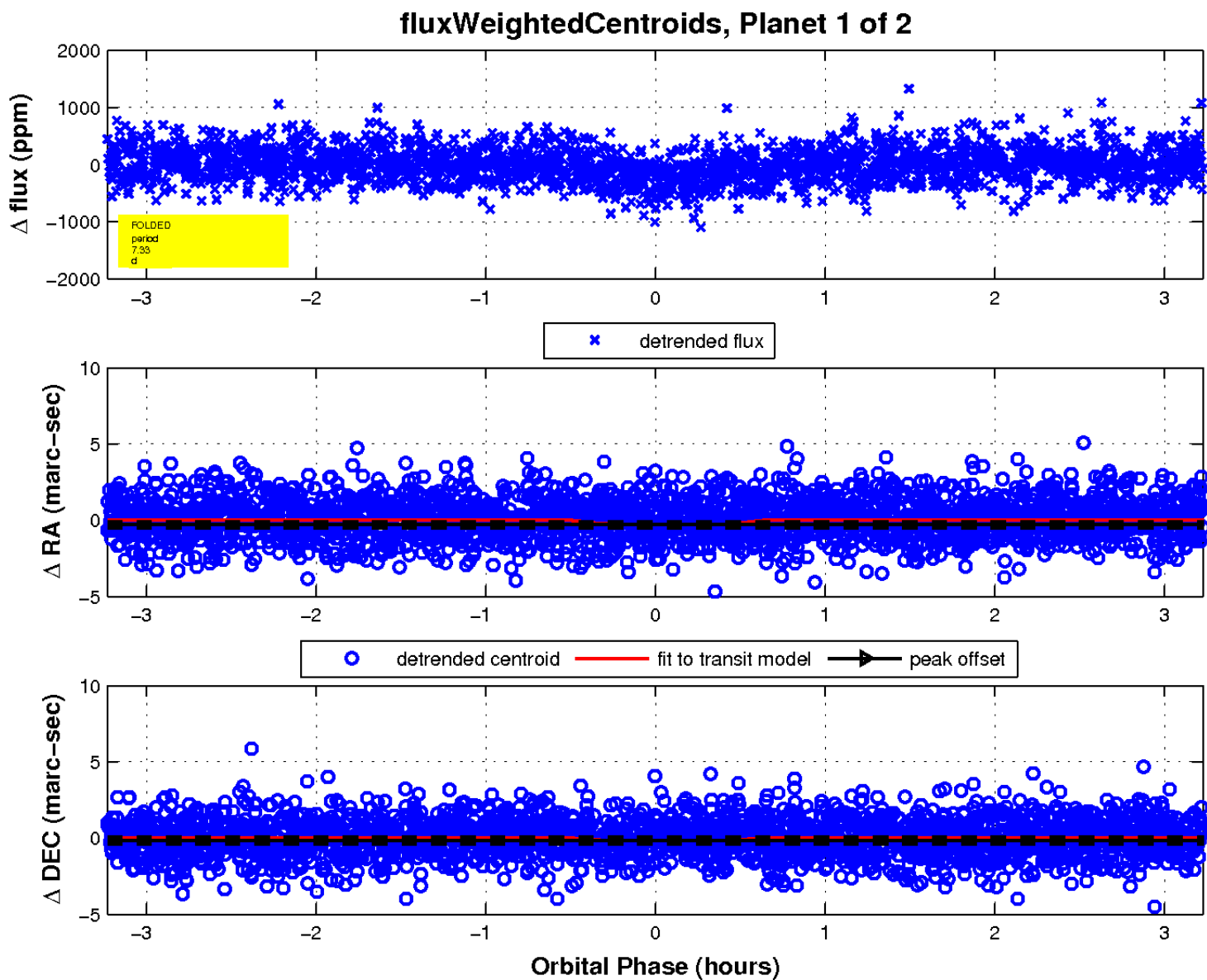
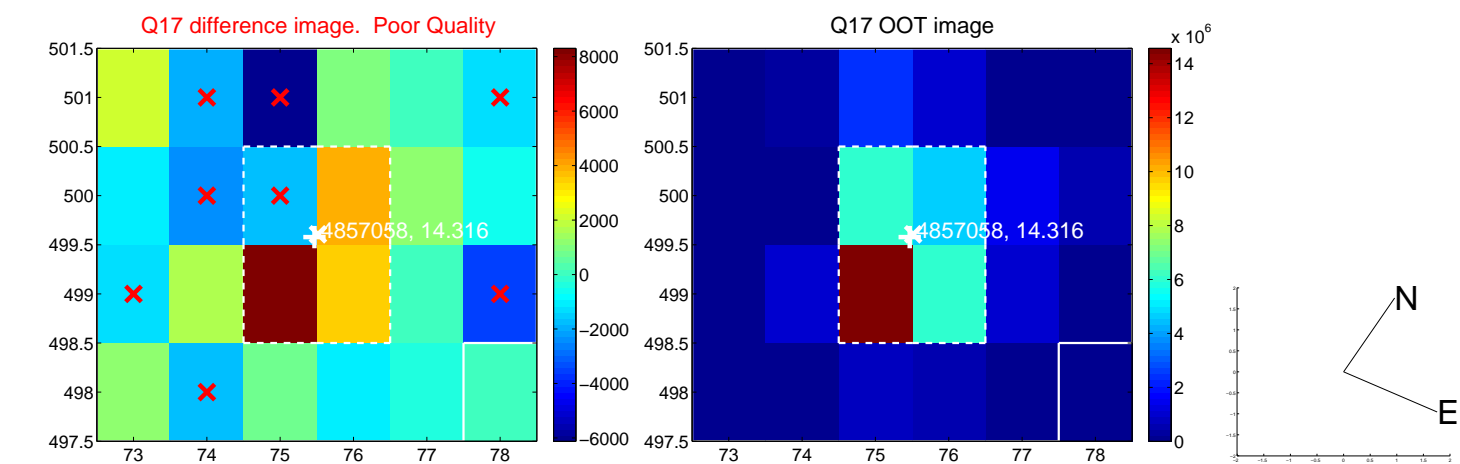
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

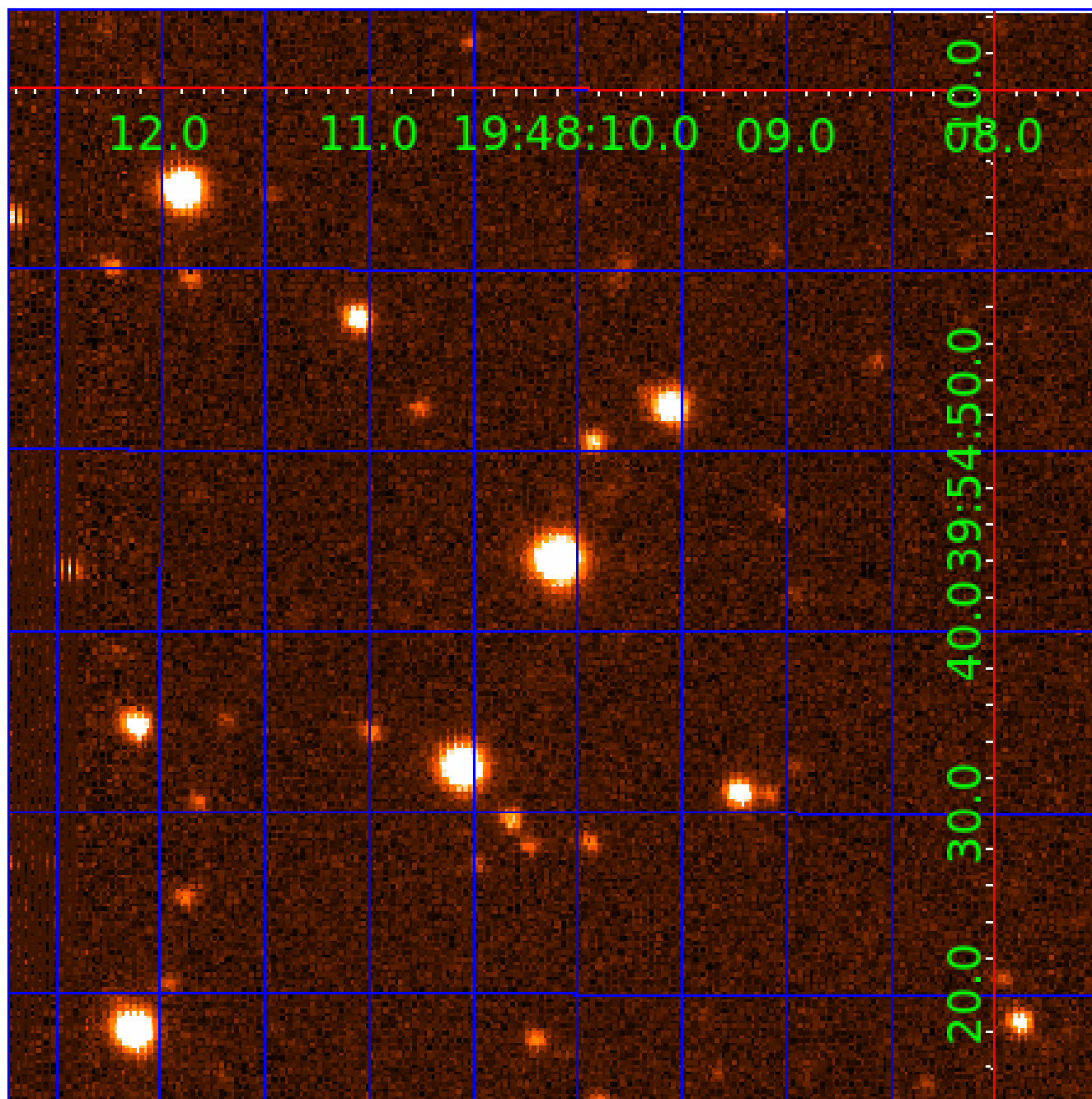


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004857058

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})
004857058-01	OBS	3061.01	7.328523	132.128181	238.6	1.078	11.4	13.8	0.87	5135	1.64	100.32
004857058-02	OBS	3061.02	77.920686	160.860023	207.9	6.649	7.2	7.5	0.87	5135	1.40	4.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004857058-01	OBS	PC	0.98	0	0	0	0	NO_COMMENT
004857058-02	OBS	FP	0.13	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE

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 004857058-02

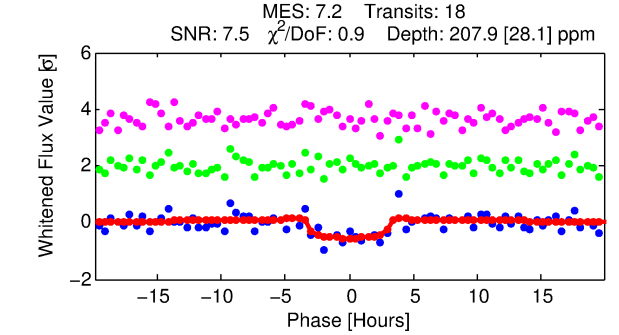
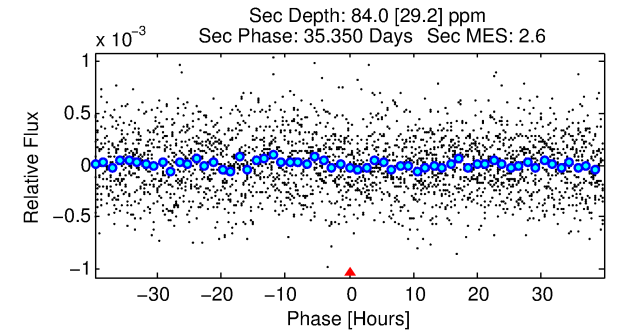
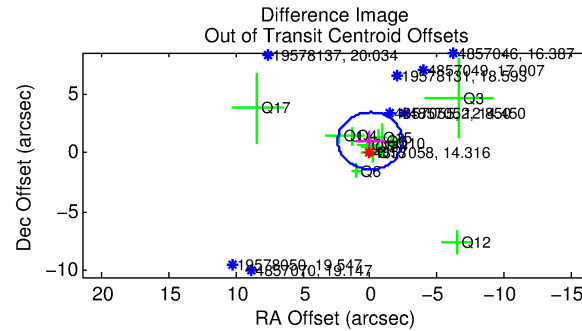
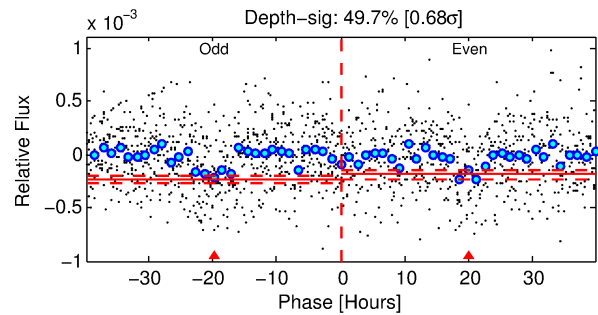
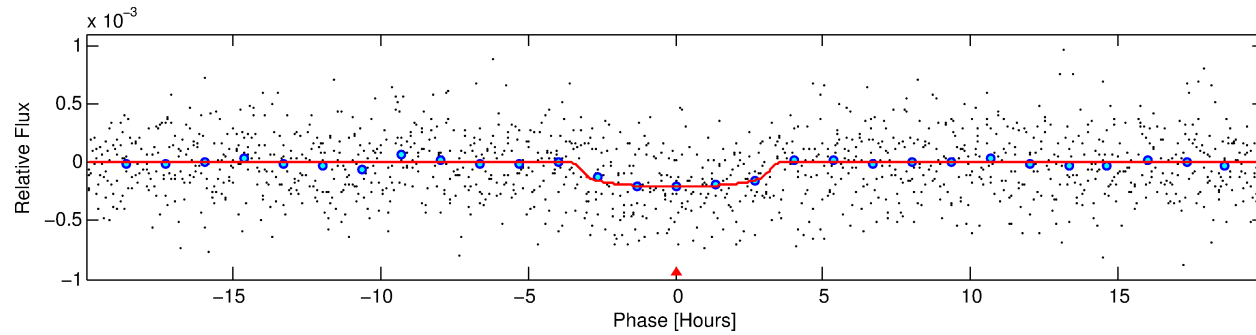
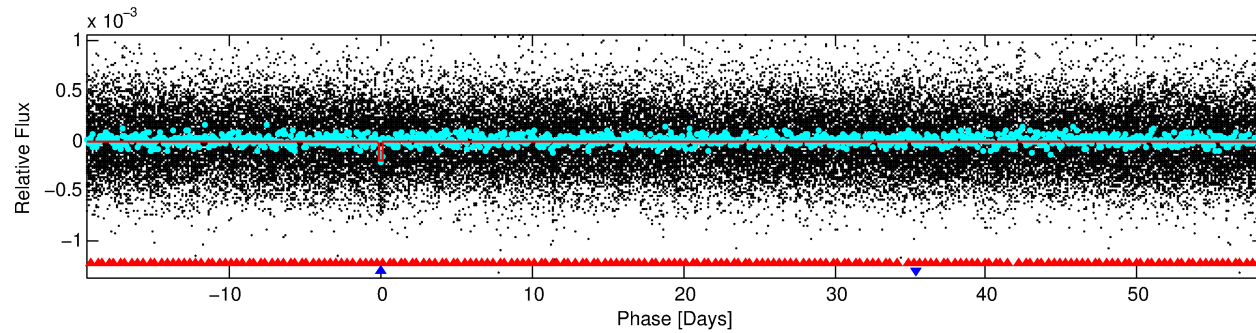
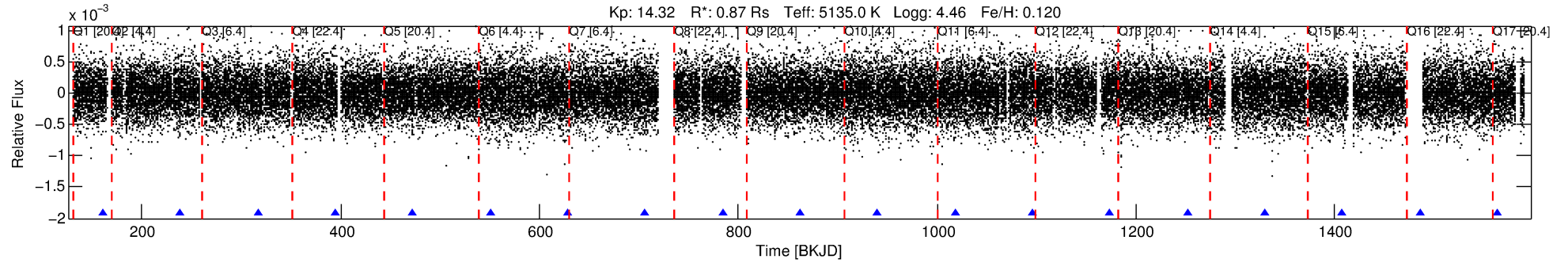
No Significant Match Found

DV One-Page Summary

KIC: 4857058 Candidate: 2 of 2 Period: 77.921 d

KOI: K03061.02 Corr: 0.960

Kp: 14.32 R*: 0.87 Rs Teff: 5135.0 K Logg: 4.46 Fe/H: 0.120



DV Fit Results:

Period = 77.92069 [0.00131] d
Epoch = 160.8600 [0.0131] BKJD
Rp/R* = 0.0147 [0.0117]
a/R* = 57.09 [169.66]
b = 0.79 [1.45]
Seff = 4.29 [0.66]
Teff = 367 [14] K
Rp = 1.40 [1.12] Re
a = 0.3330 [0.0277] AU
Ag = 2612.73 [4284.61] [0.61σ]
Teffp = 4057 [1658] K [2.22σ]

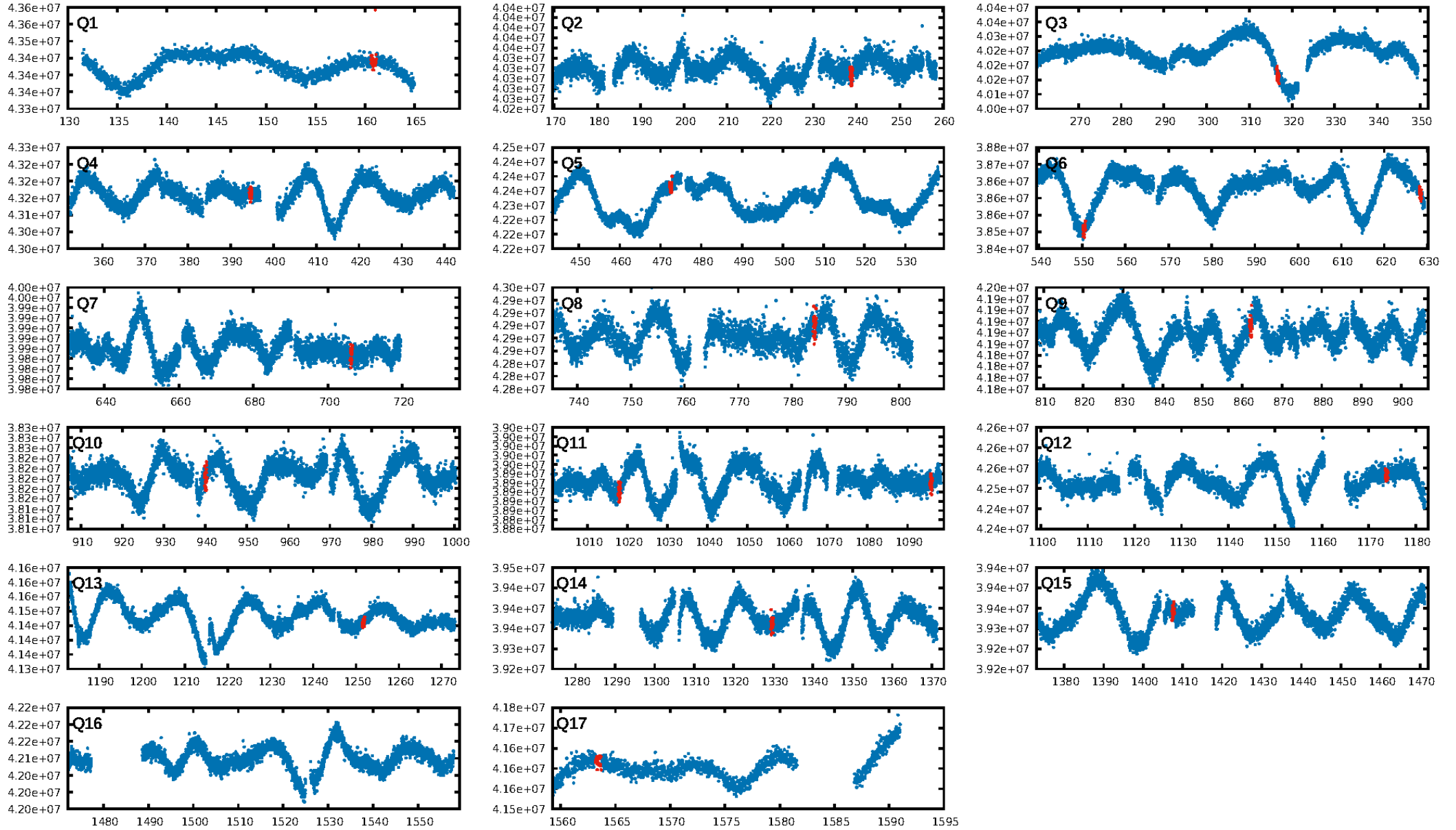
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [251.53σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 62.7%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 5.16e-12
RollingBand-fgt: 1.00 [16/16]
GhostDiagnostic-chr: 0.7676
Centroid-sig: 8.7%
Centroid-so: 2.087 arcsec [1.64σ]
OotOffset-rm: 1.019 arcsec [1.27σ]
KicOffset-rm: 0.894 arcsec [1.21σ]
OotOffset-st: 2/4/3/3 [12]
KicOffset-st: 2/4/3/3 [12]
DiffImageQuality-fgm: 0.42 [5/12]
DiffImageOverlap-fno: 0.81 [13/16]

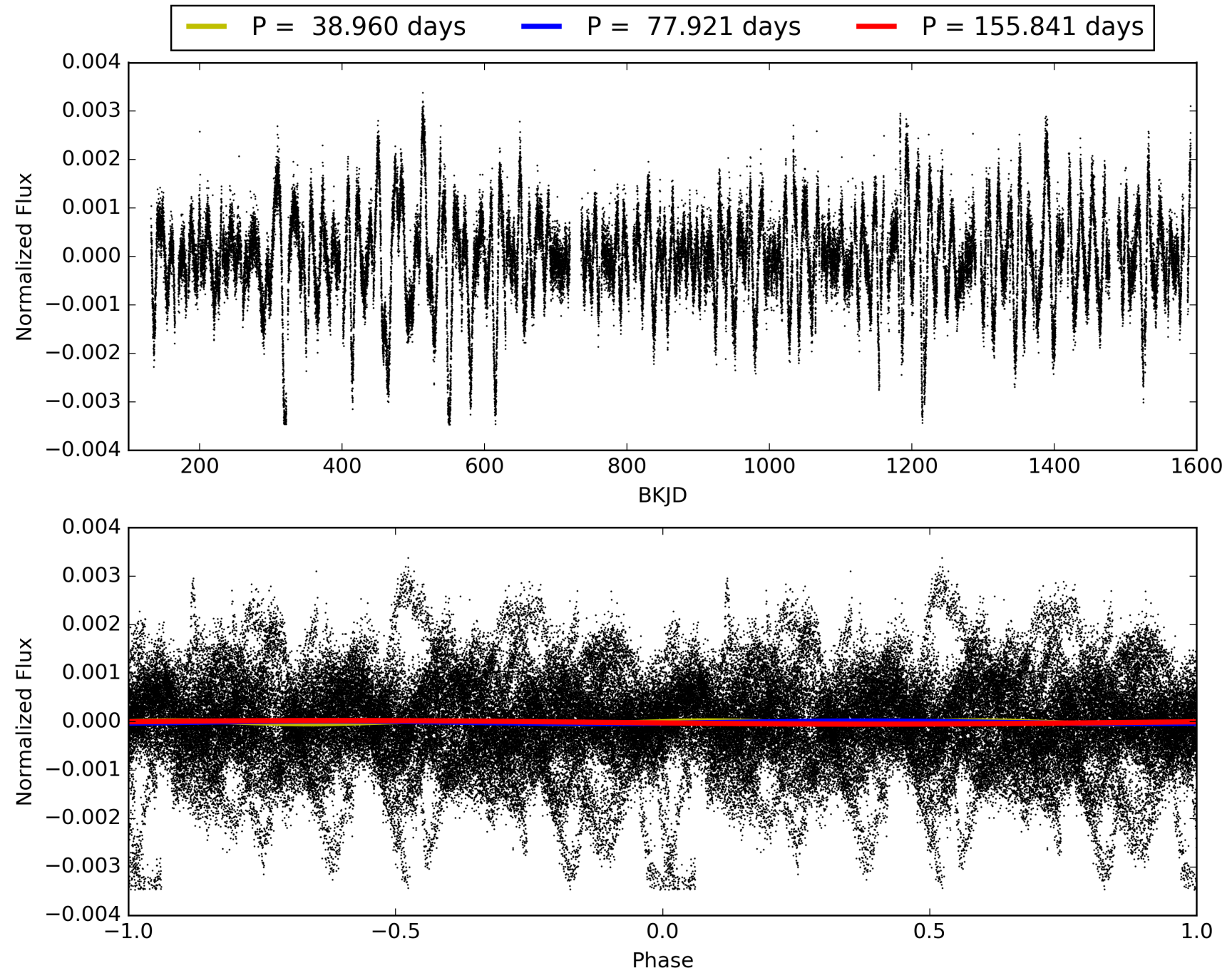
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:09:24 Z

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

TCE 004857058-02, PDC Light Curves

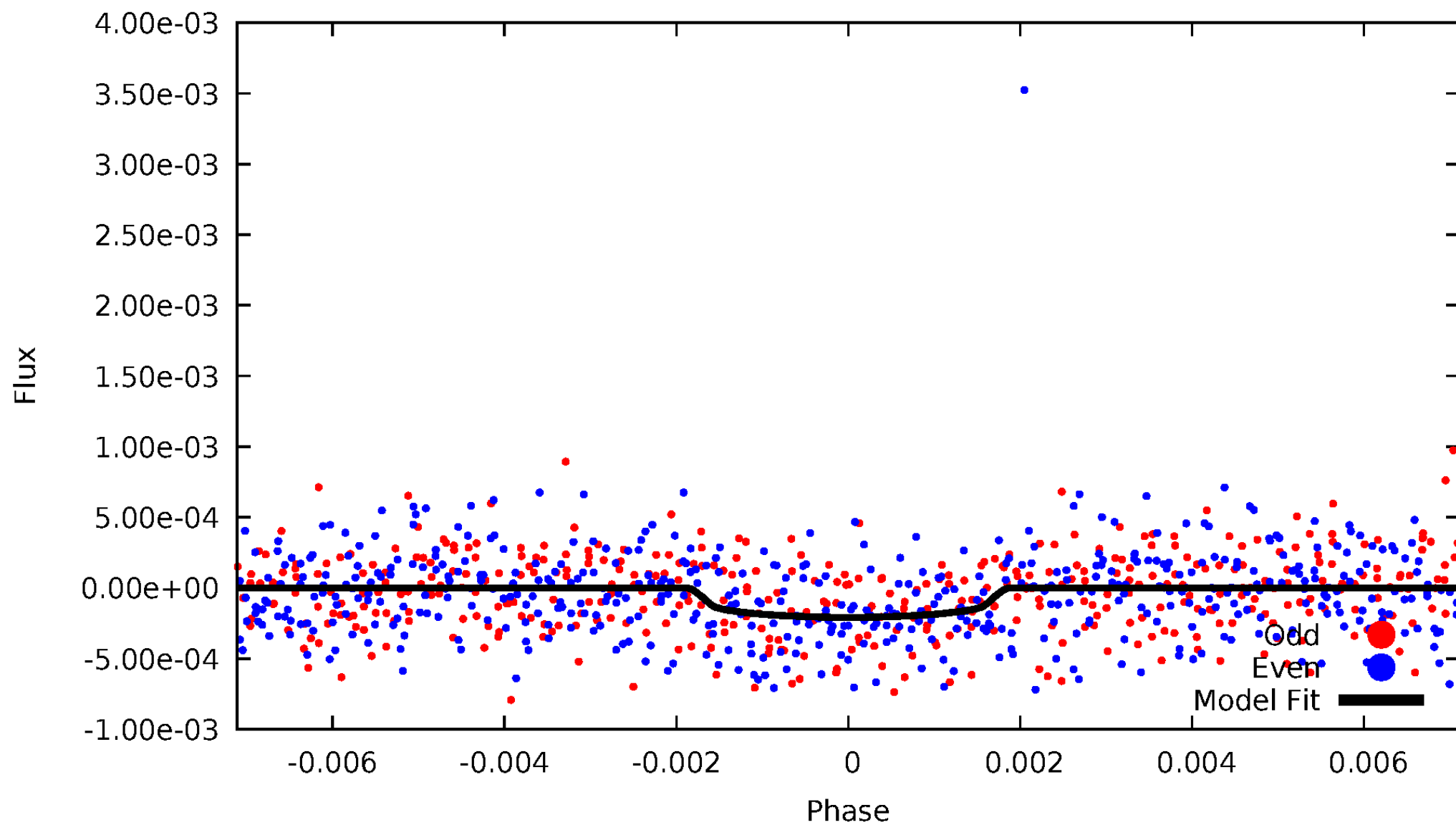


TCE 004857058-02



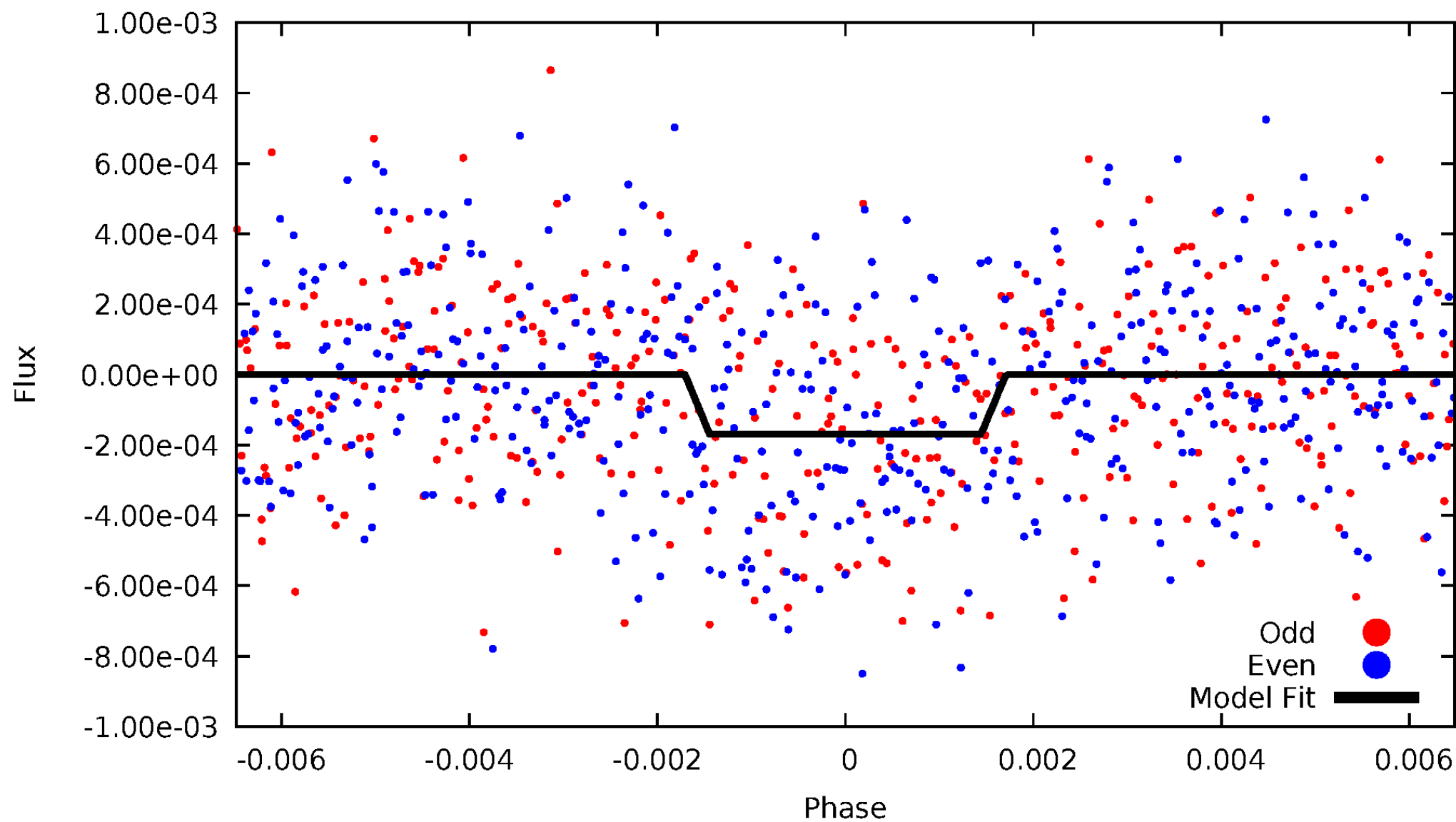
DV Odd/Even

TCE 004857058-02



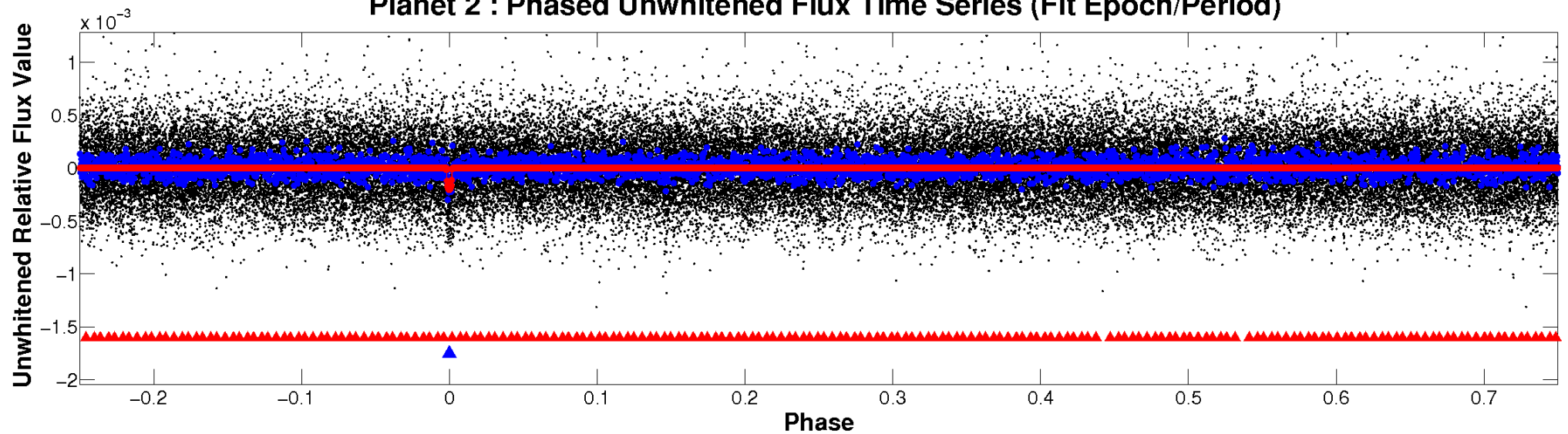
ALT Odd/Even

TCE 004857058-02

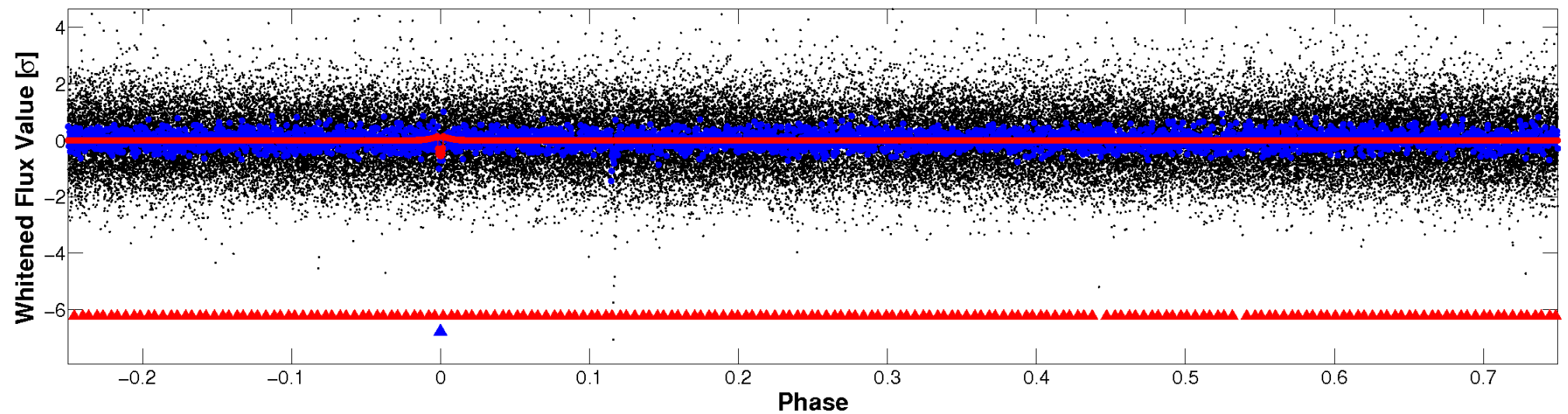


Non-Whitened Vs. Whitened Light Curve

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

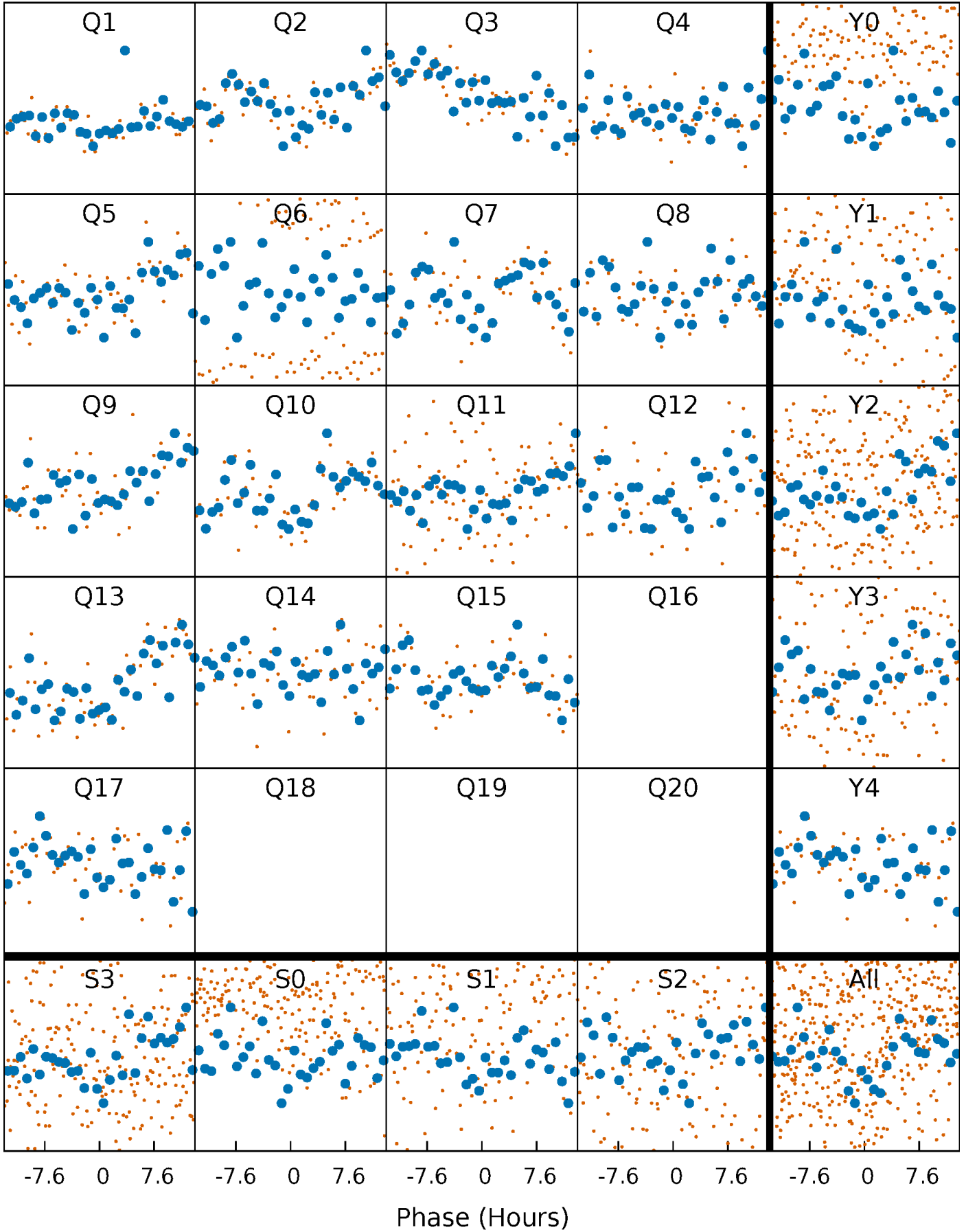


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



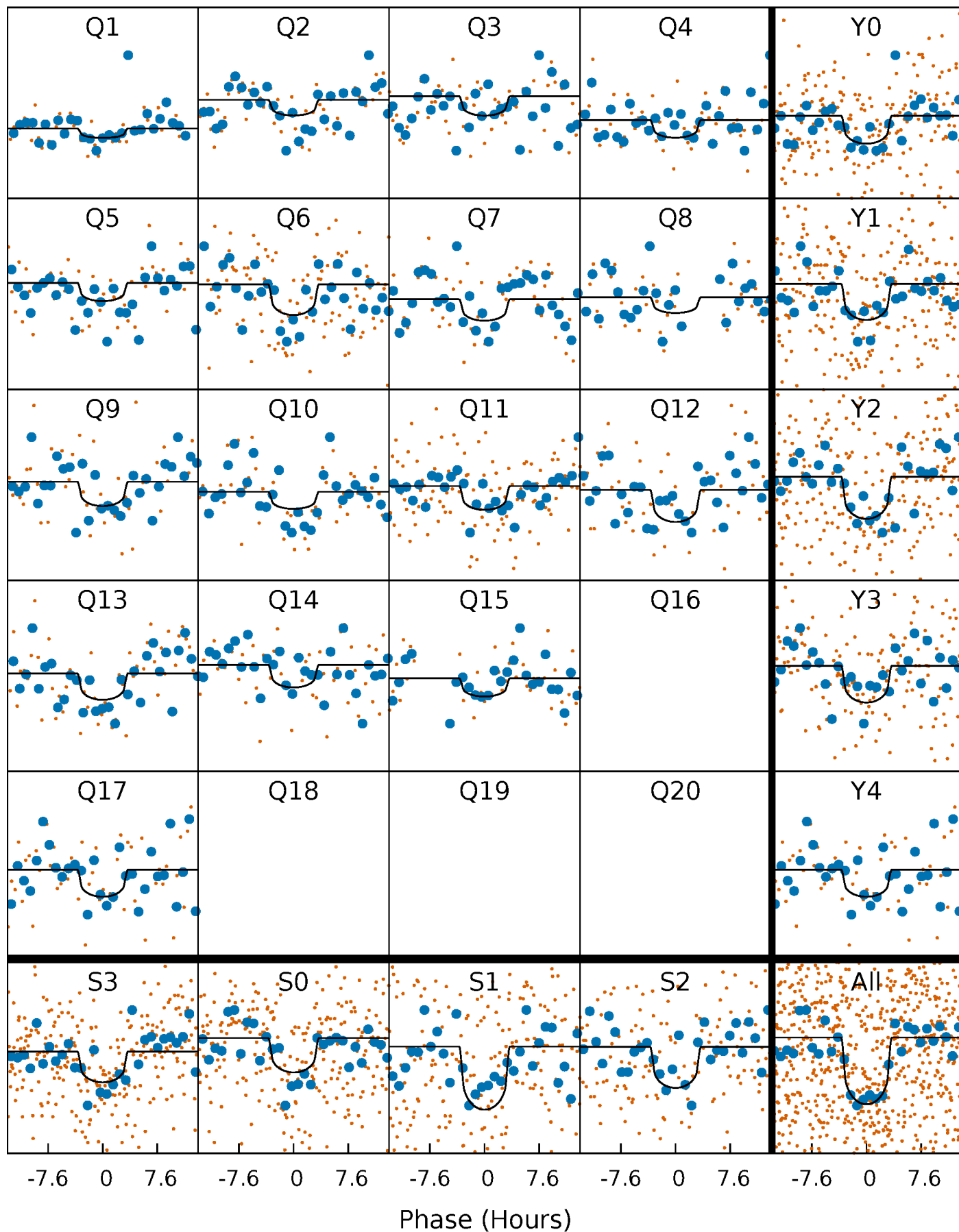
PDC Quarter-Phased Transit Curves

TCE 004857058-02 P= 77.920686 Days $T_0=160.860023$ (BKJD)



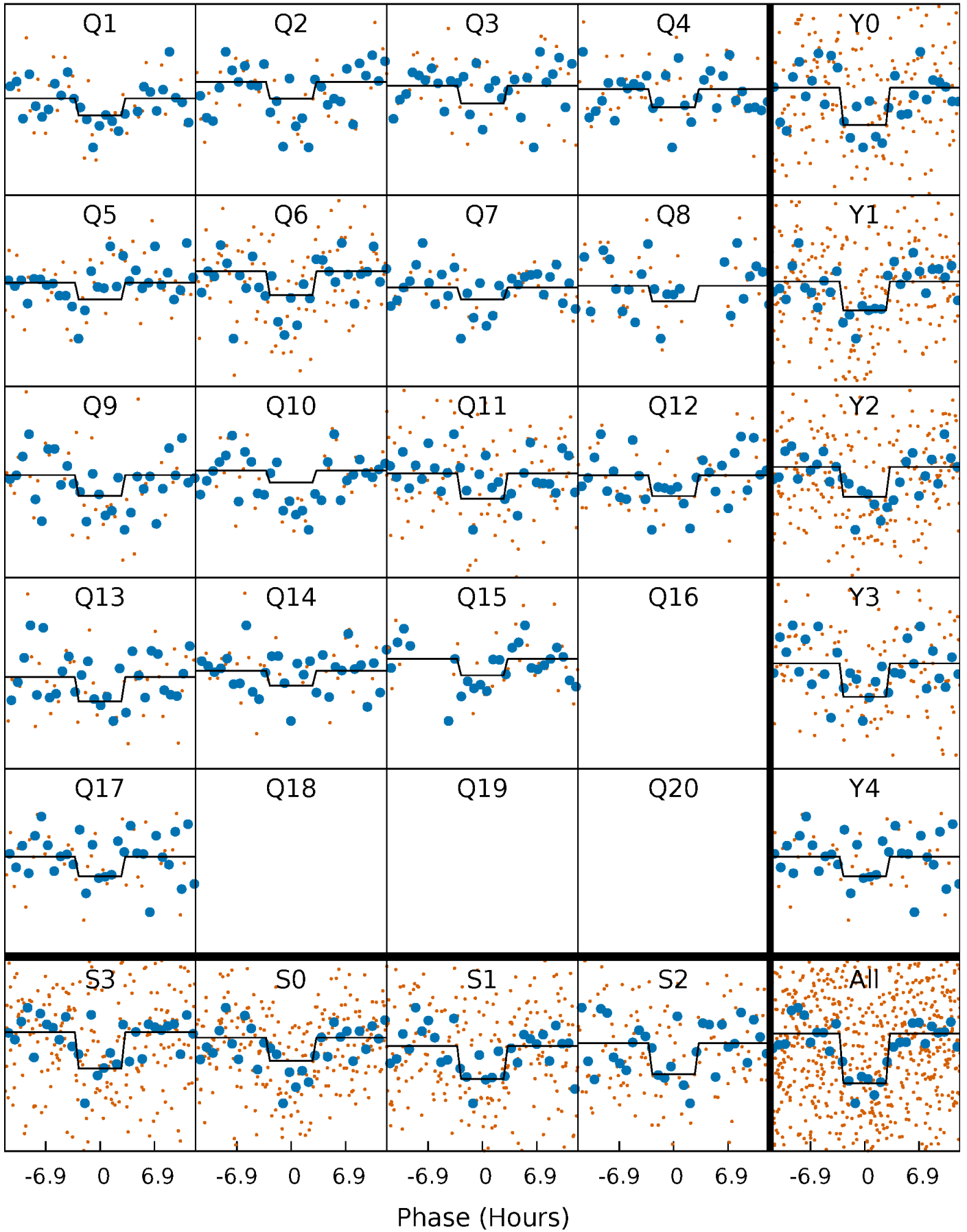
DV Quarter-Phased Transit Curves

TCE 004857058-02 P= 77.920686 Days $T_0=160.860023$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

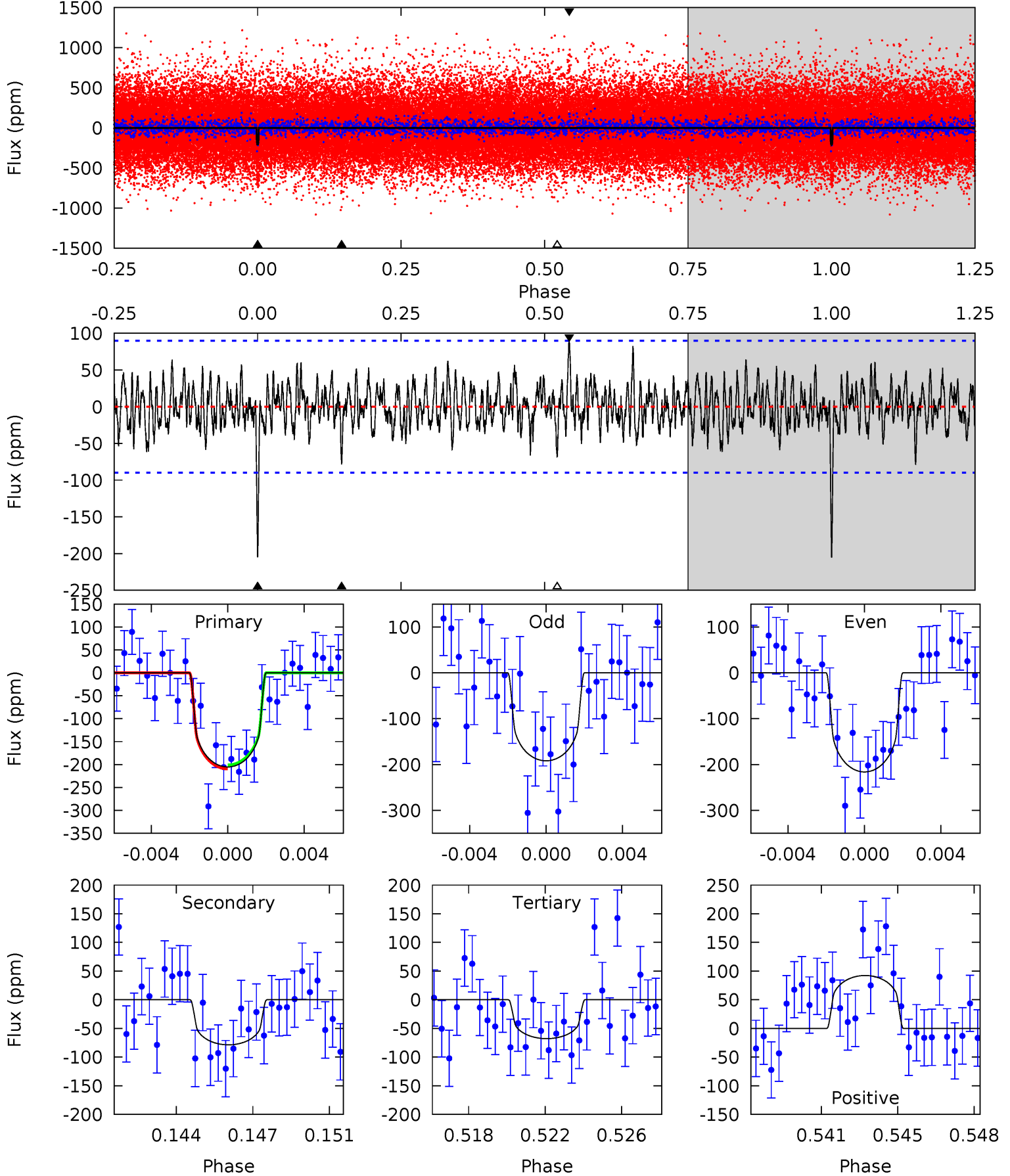
TCE 004857058-02 $P = 77.920090$ Days $T_0 = 160.857169$ (BKJD)



DV Model-Shift Uniqueness Test

004857058-02, P = 77.920686 Days, E = 82.939337 Days

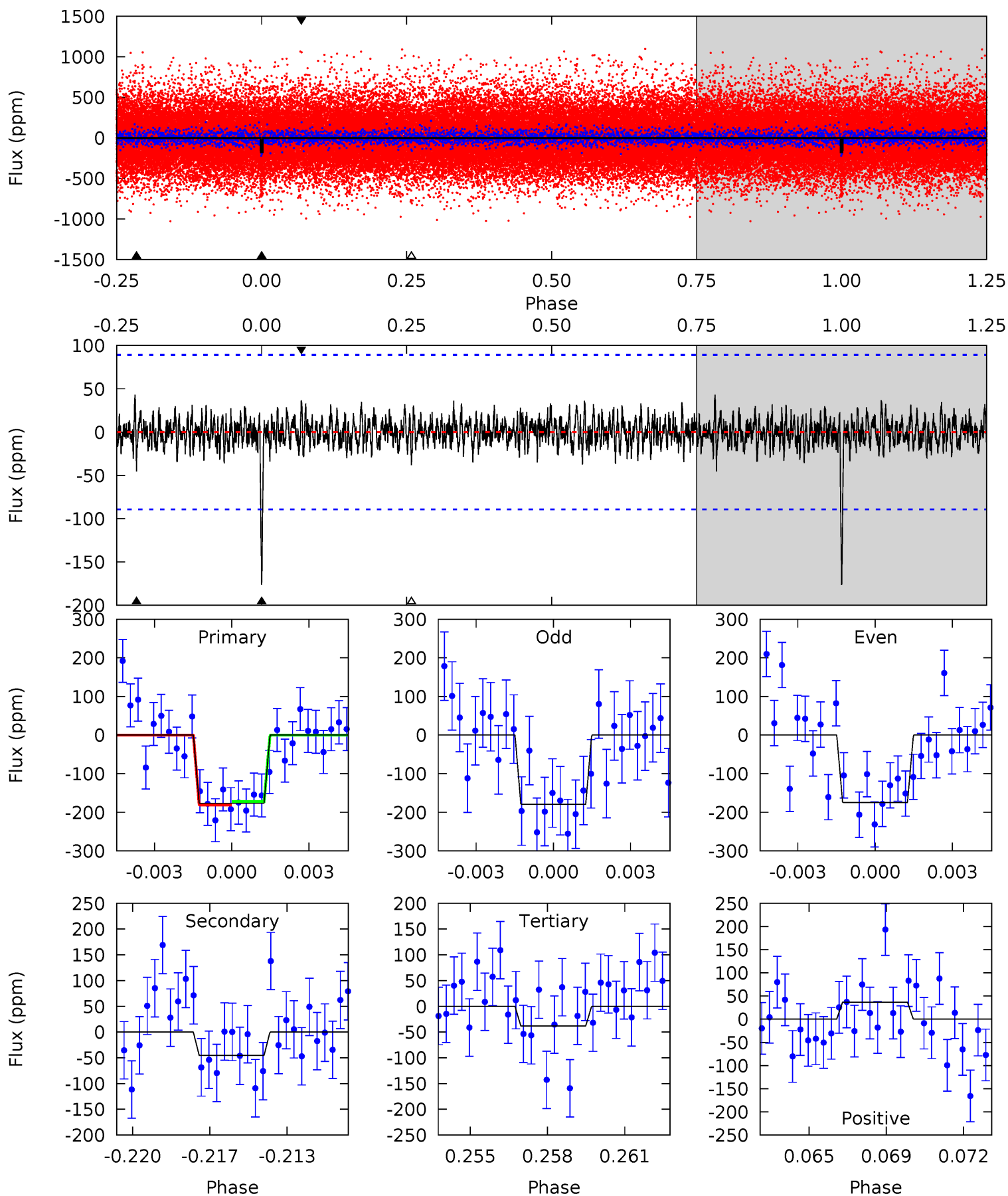
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	4.56	3.93	5.35	5.21	2.90	1.41	7.97	6.55	0.63	-0.79	0.70	1.07	0.31	0.25



Alt Model-Shift Uniqueness Test

004857058-02, P = 77.920090 Days, E = 82.937079 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	2.66	2.23	2.16	5.23	2.93	0.73	8.12	8.20	0.42	0.50	0.14	1.02	0.20	0.26



Stellar Parameters For KIC 004857058

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5135^{+84}_{-76}	$4.464^{+0.084}_{-0.039}$	$0.120^{+0.150}_{-0.150}$	$0.874^{+0.048}_{-0.069}$	$0.812^{+0.058}_{-0.029}$	$1.712^{+0.578}_{-0.232}$
	+2%/-1%	+2%/-1%	+125%/-125%	+5%/-8%	+7%/-4%	+34%/-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 004857058-02 / KOI 3061.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-79 ± 17	$1.57^{+1.11}_{-0.87}$	510^{+13}_{-14}	4002^{+1519}_{-648}	1946^{+7615}_{-1311}
Alt.	-45 ± 17	$1.38^{+0.99}_{-0.80}$	510^{+13}_{-13}	3774^{+1671}_{-633}	1368^{+7691}_{-953}

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

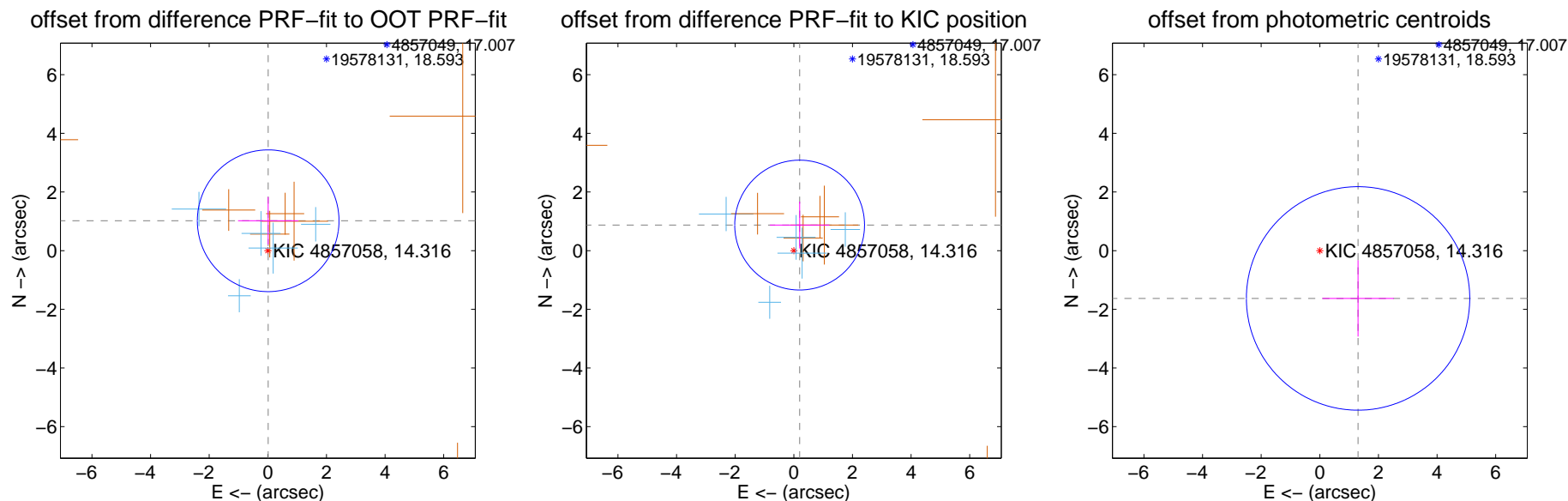
DV Centroid Data

Supplemental centroid analysis for 004857058-02. Kepler magnitude: 14.32. Transit SNR 7.52

There are 5 quarters with good PRF difference image offsets

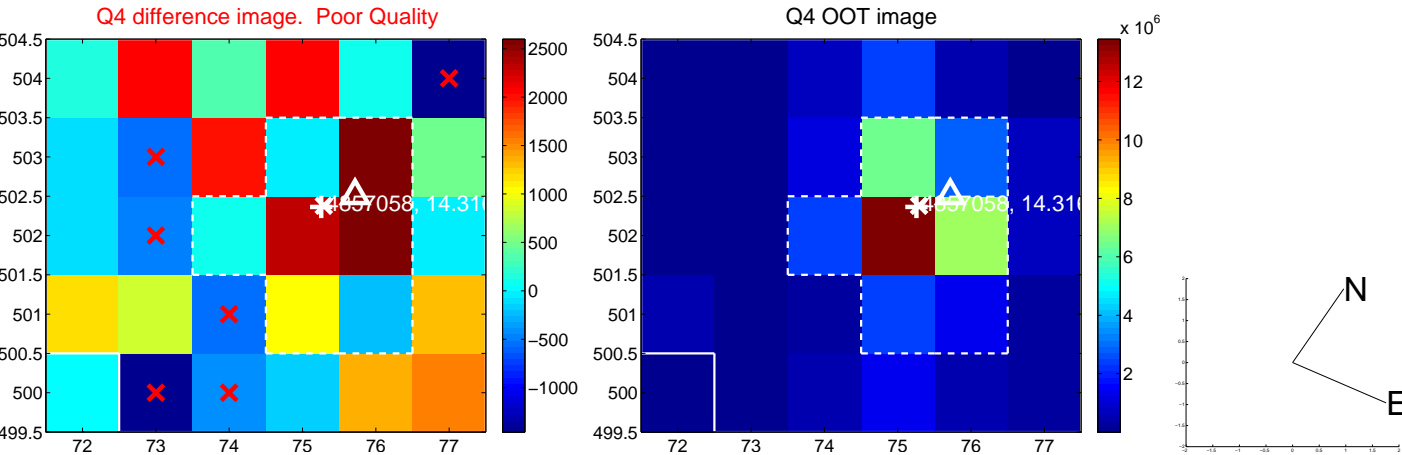
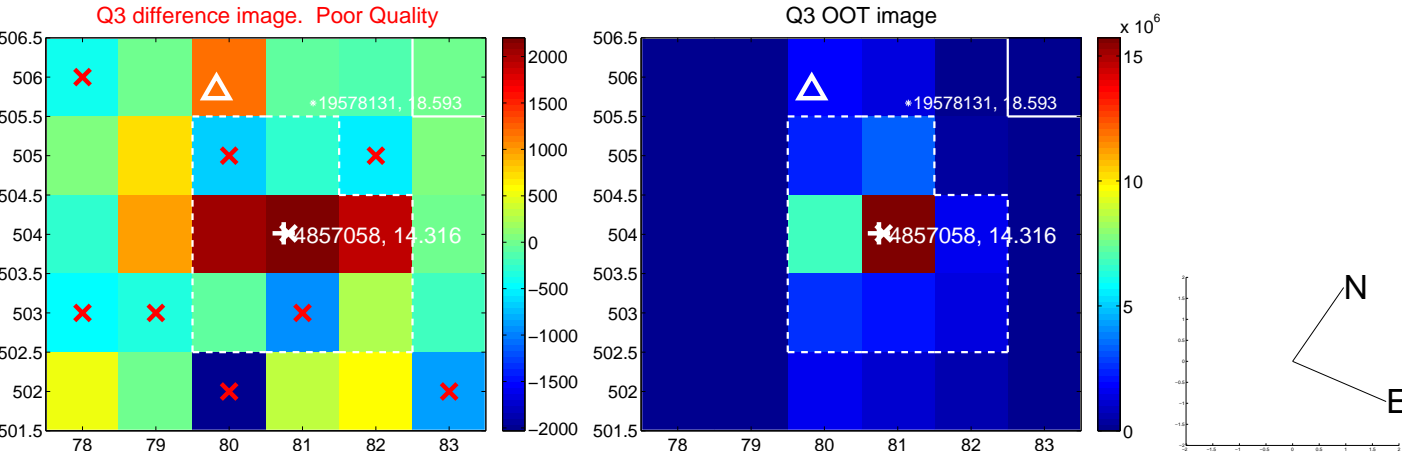
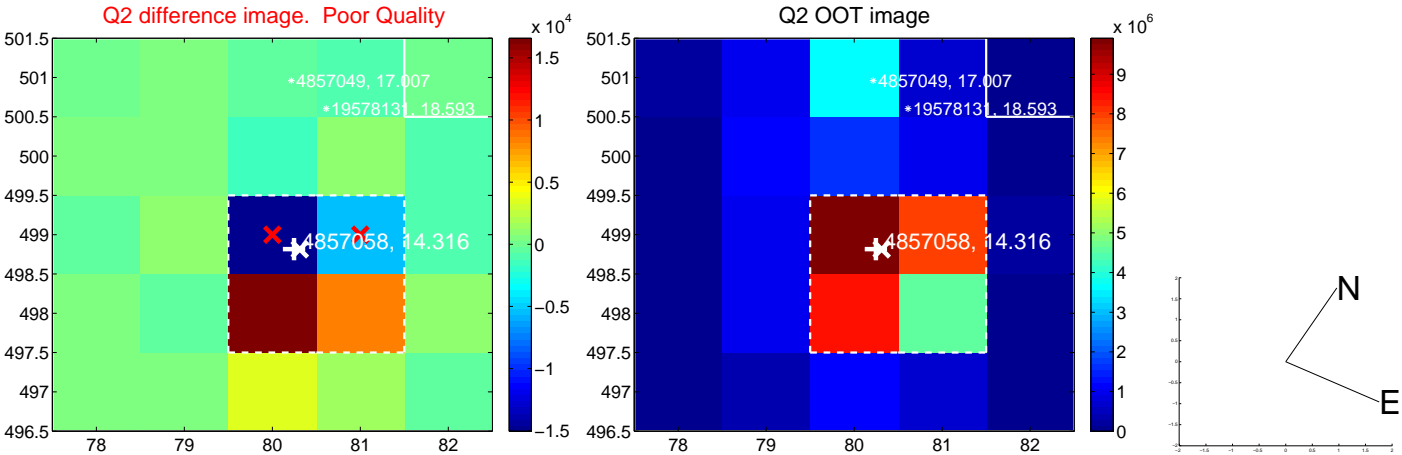
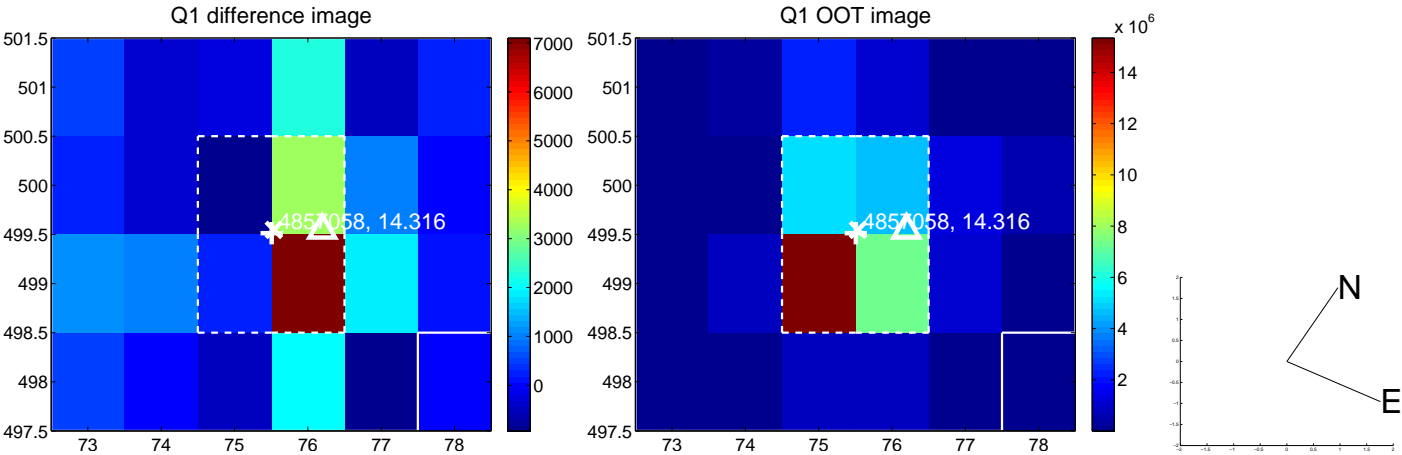
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.019 ± 0.805	1.27	-0.012 ± 1.027	1.019 ± 0.810
PRF-fit source offset from KIC position	0.894 ± 0.738	1.21	-0.198 ± 1.014	0.872 ± 0.798
photometric centroid source offset	2.09 ± 1.27	1.64	-1.30 ± 1.22	-1.63 ± 1.30

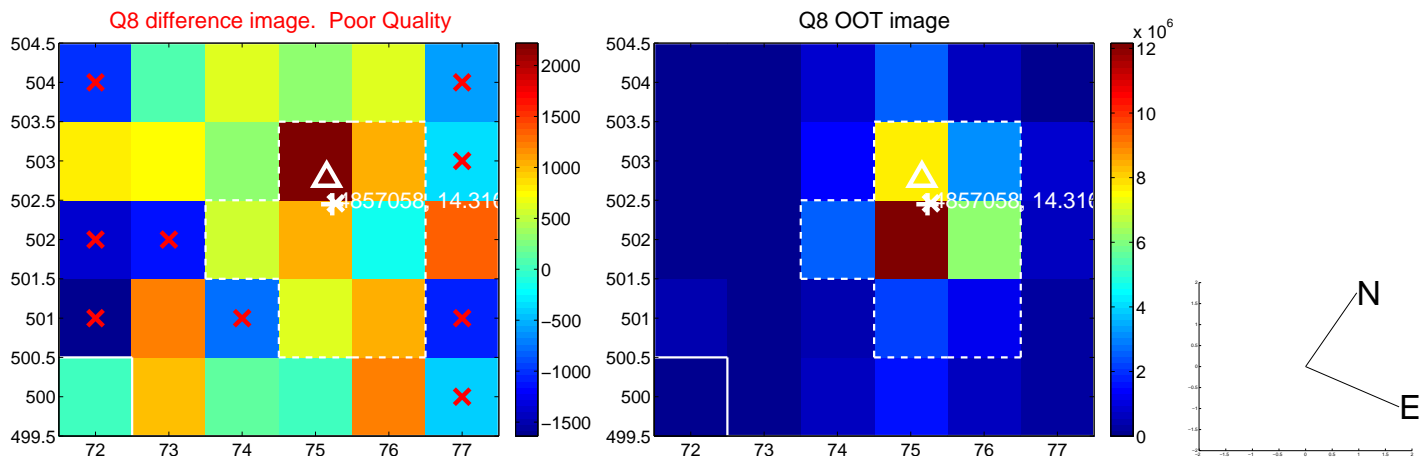
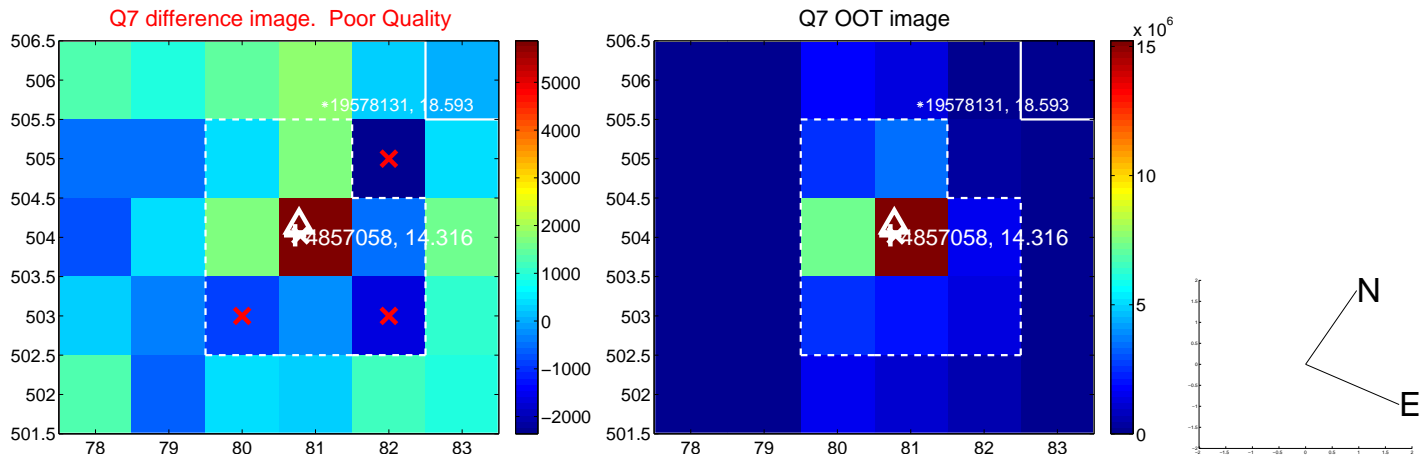
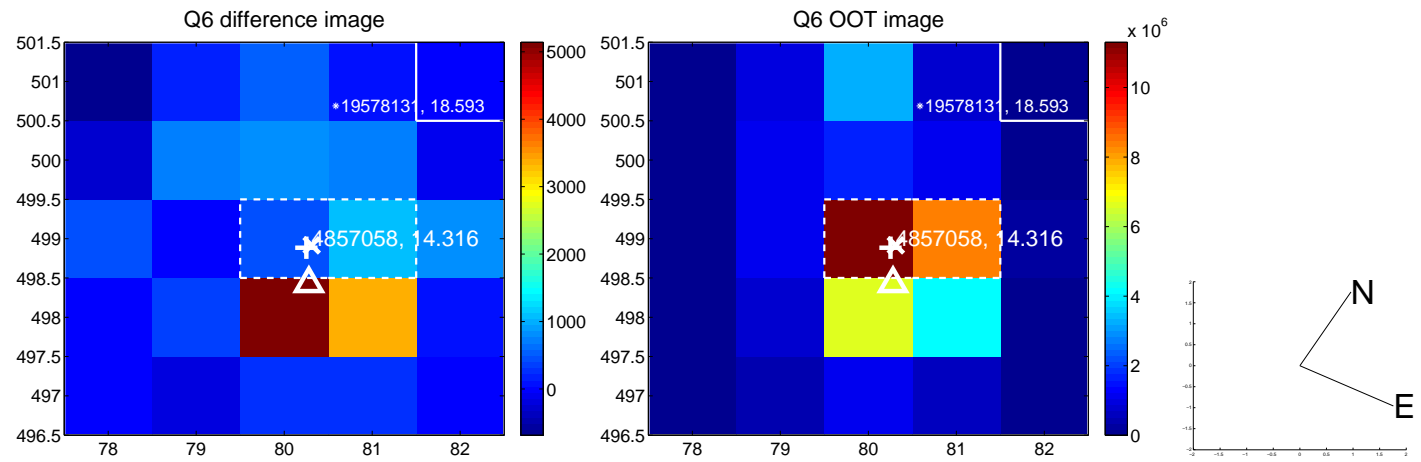
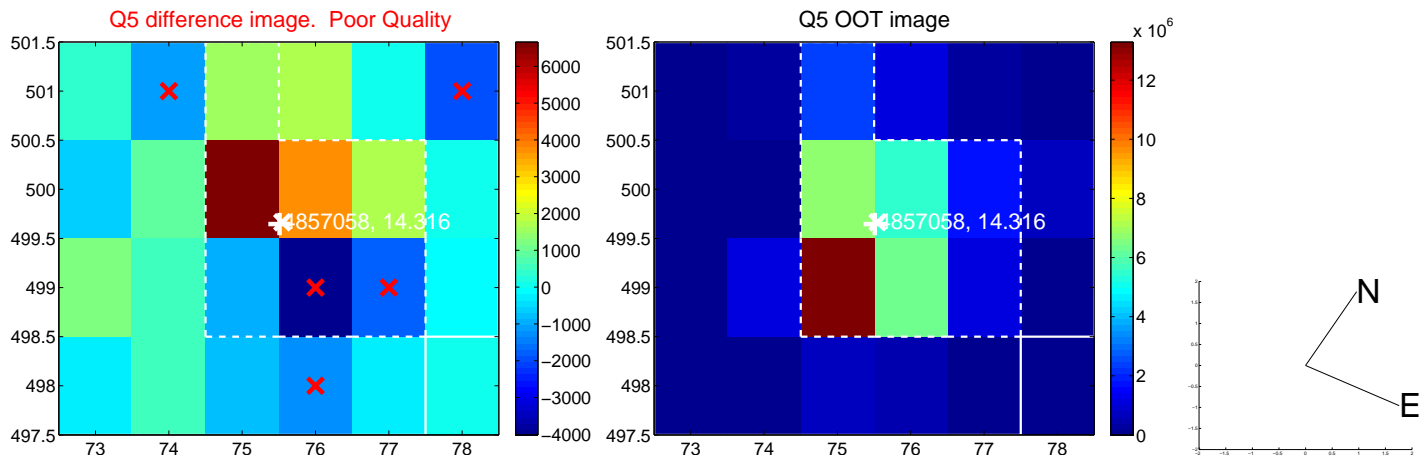


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

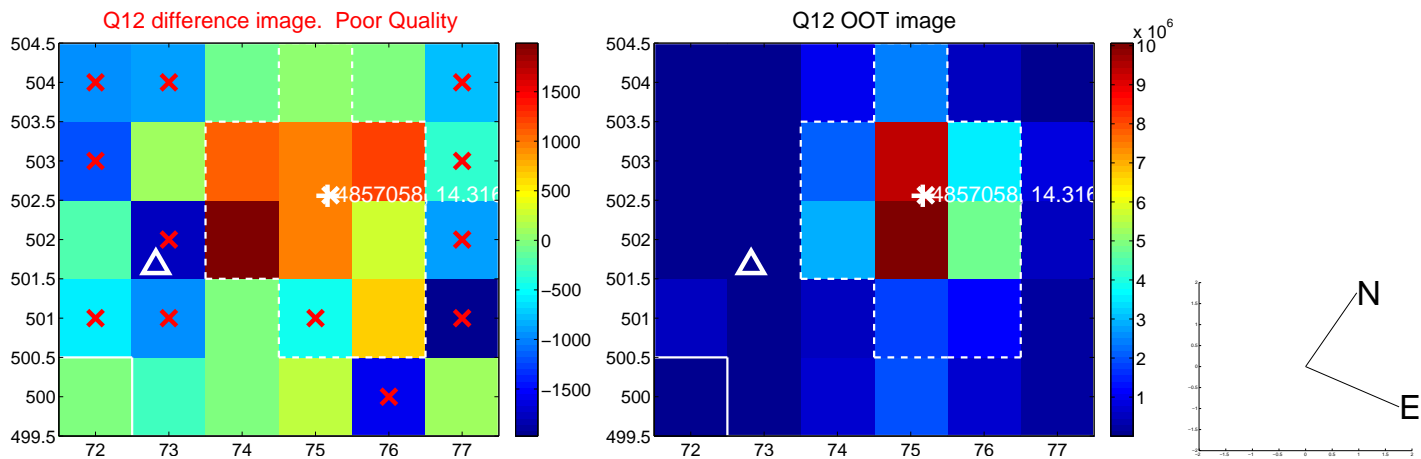
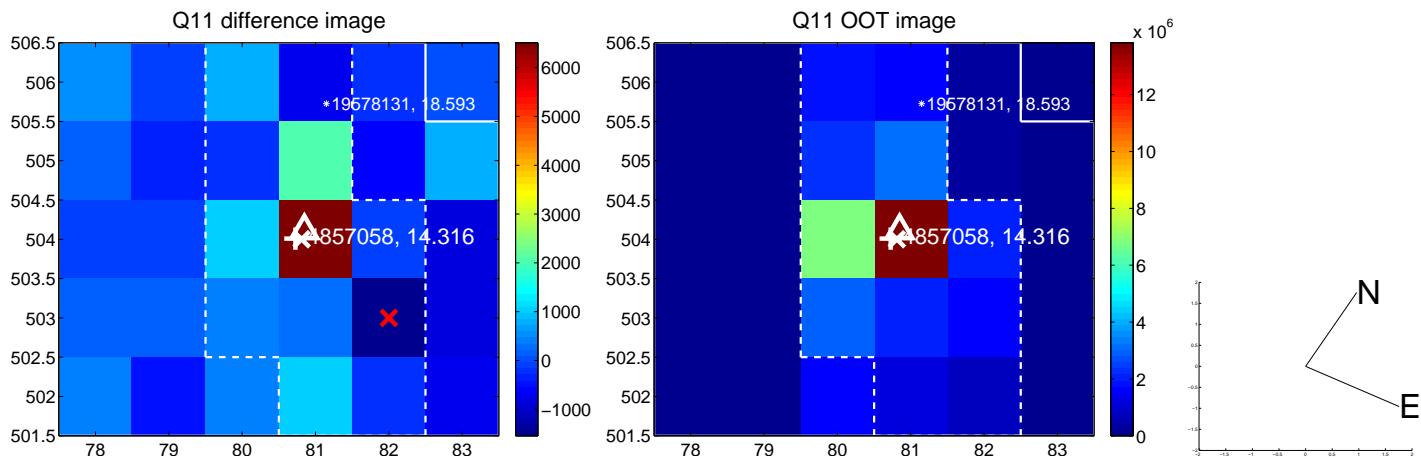
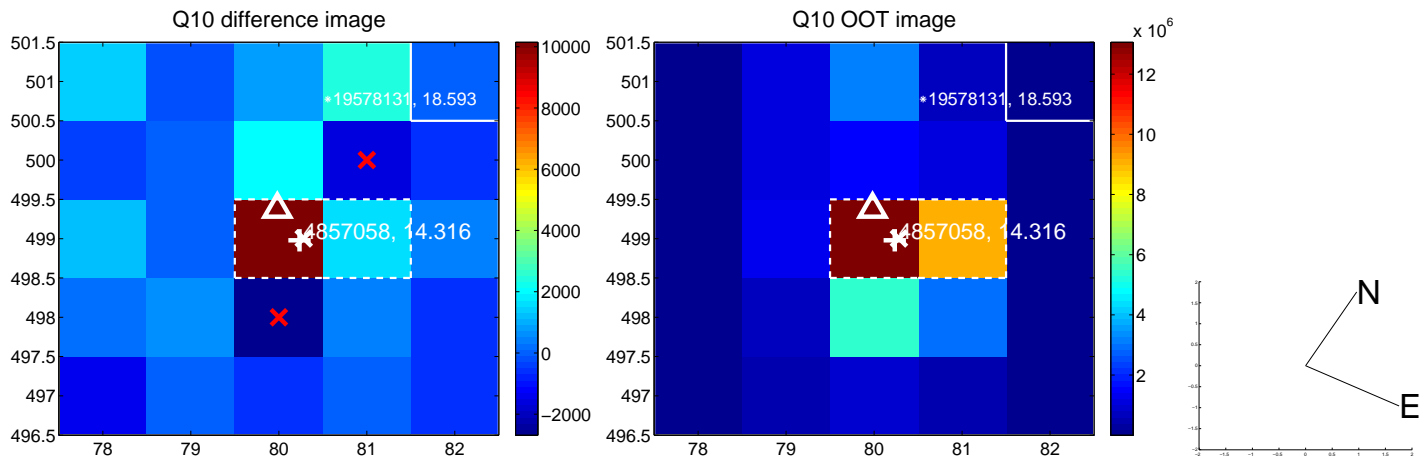
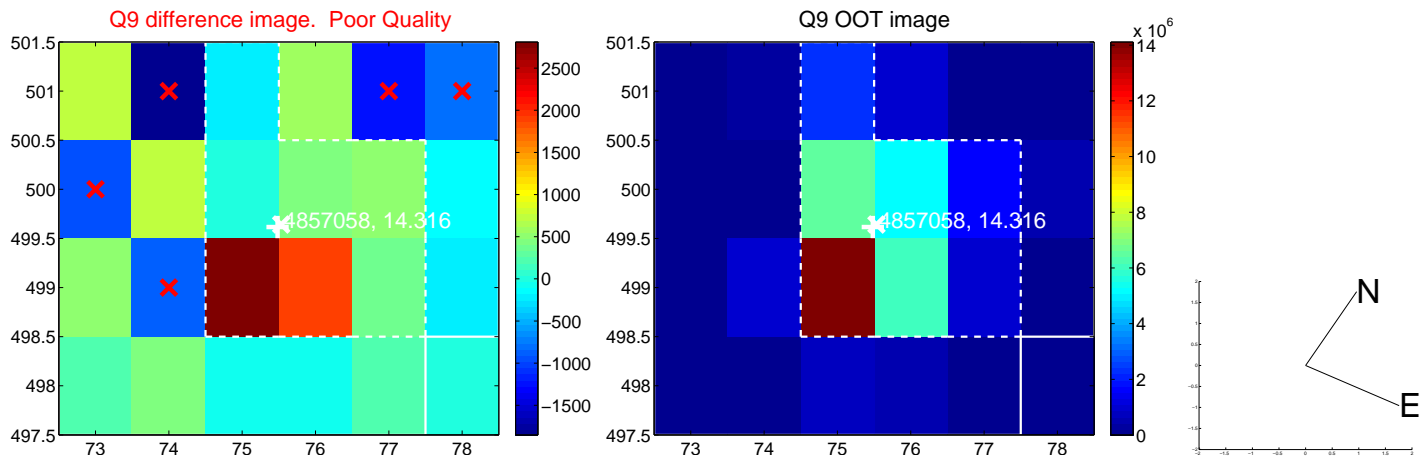
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



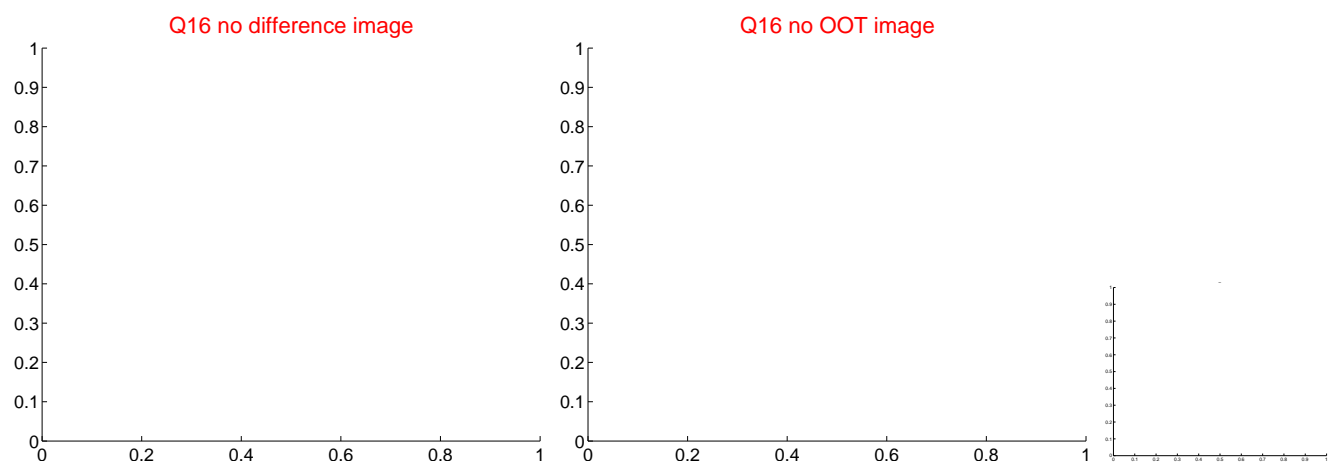
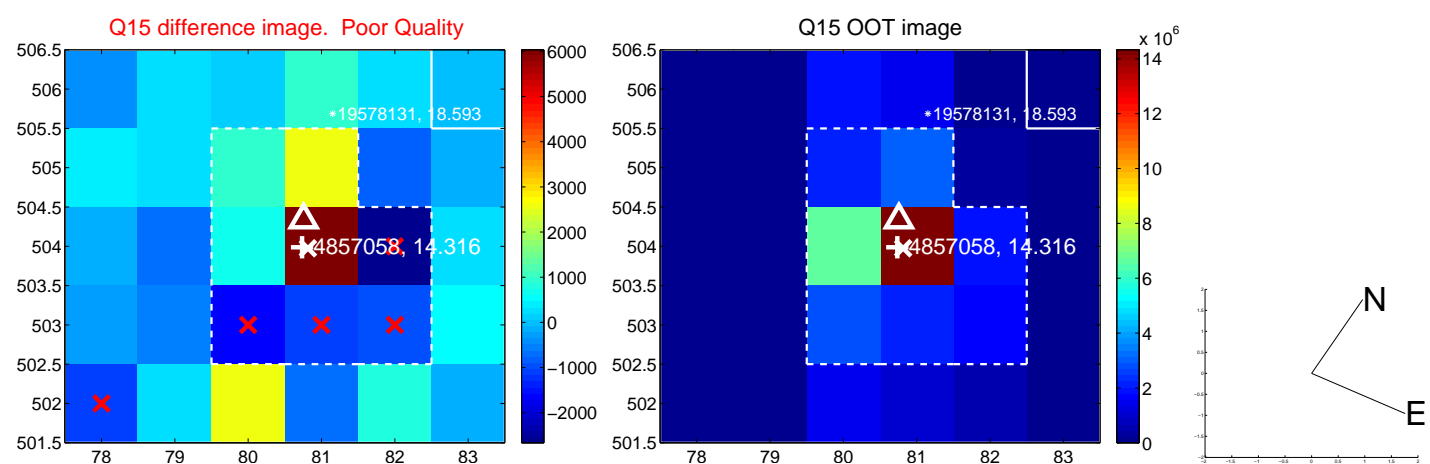
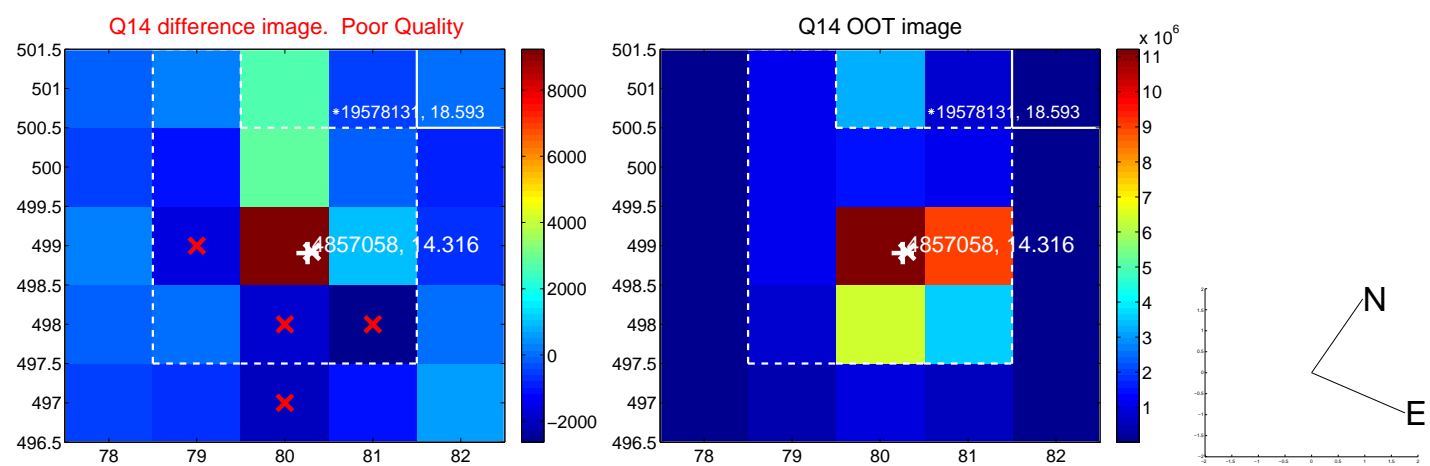
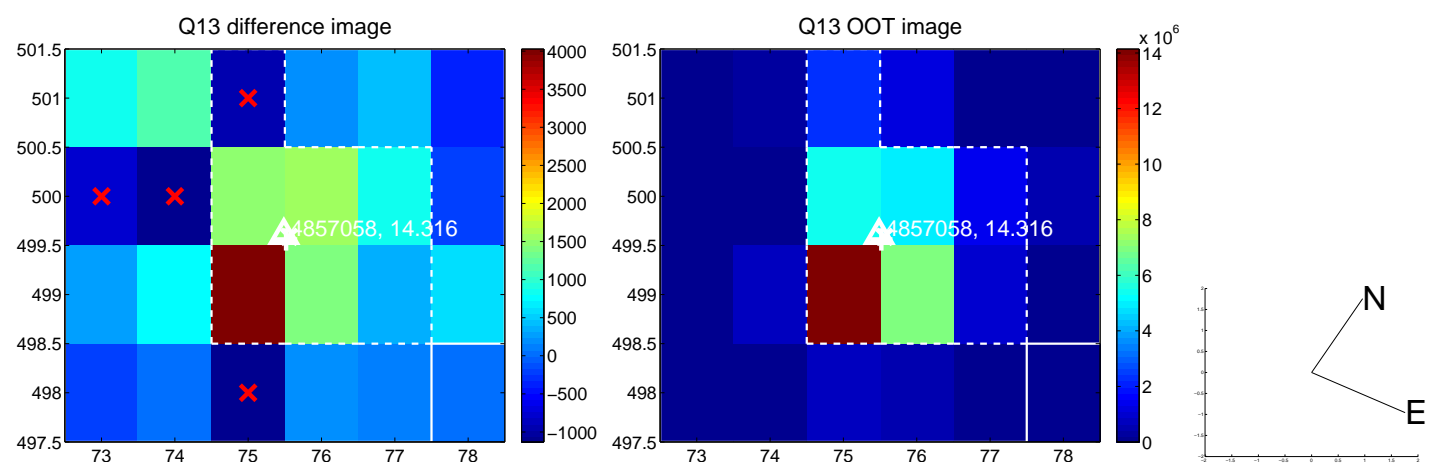
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



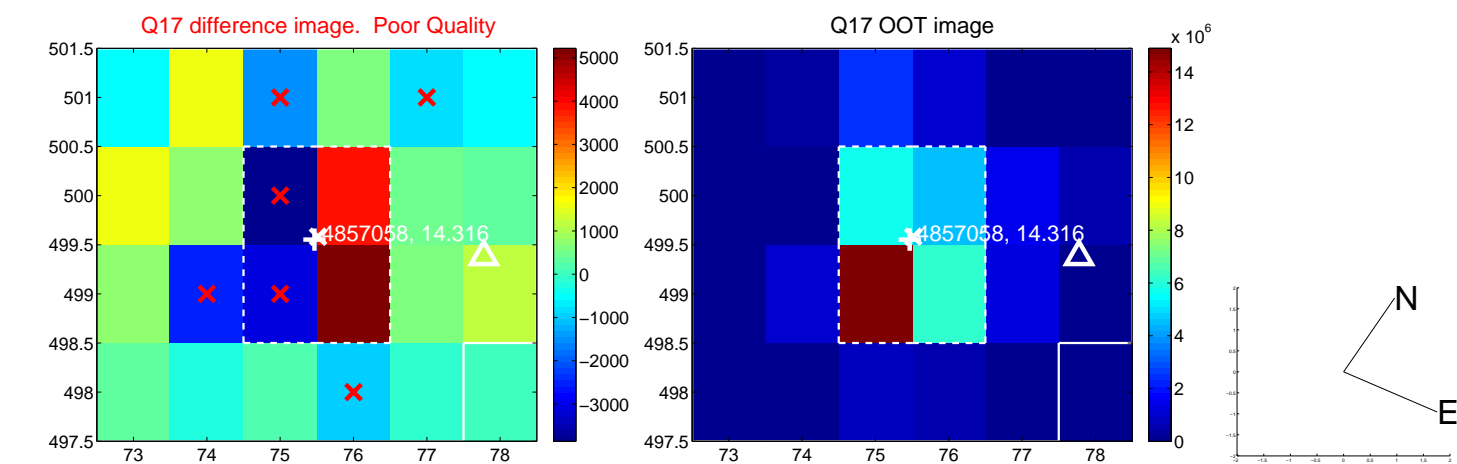
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



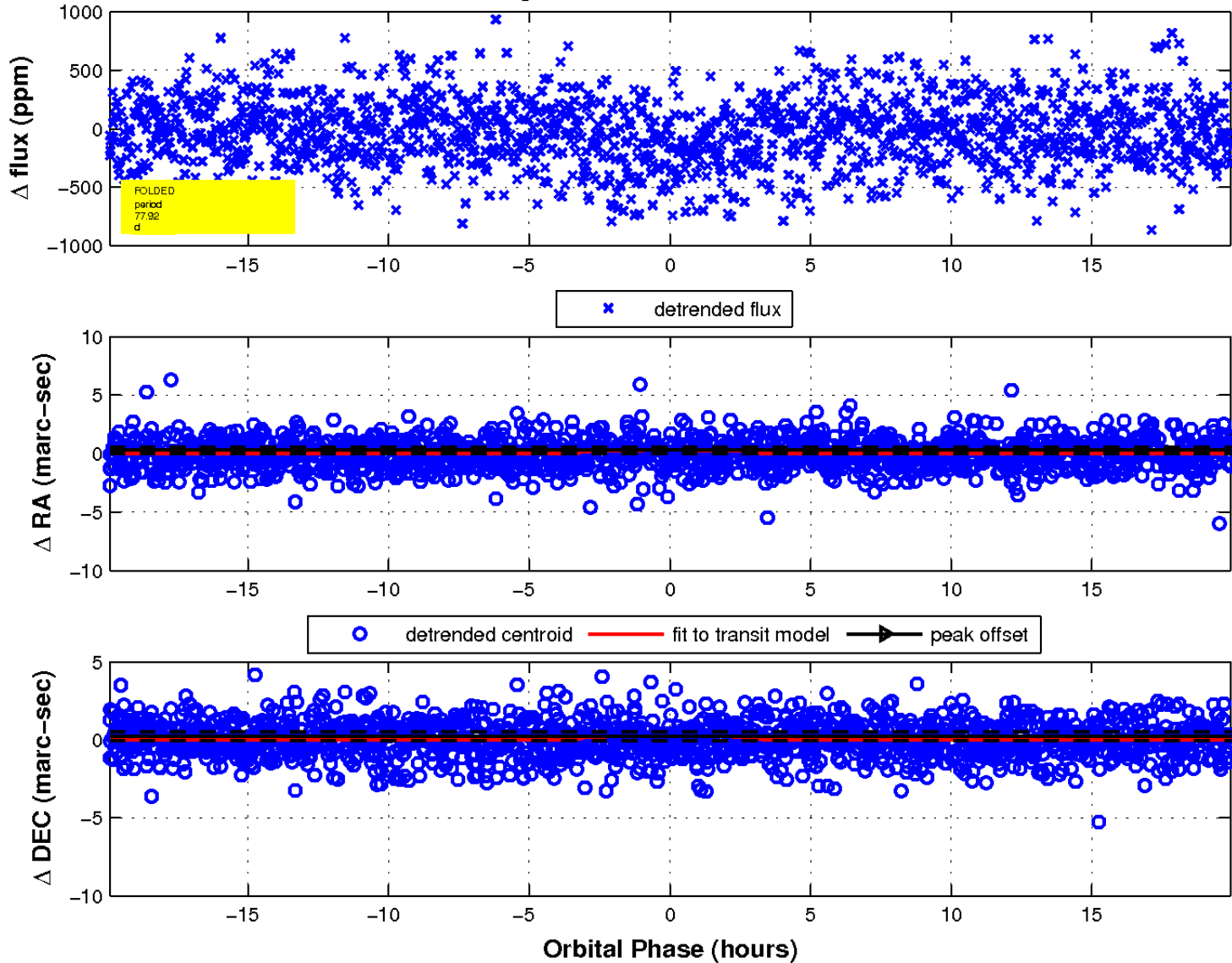
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

