

KIC 008459354

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})
008459354-01	OBS	3863.01	53.556826	184.365323	3999.6	11.071	43.4	43.2	3.62	7643	41.07	317.57
008459354-02	OBS	No	0.540938	131.887498	132.1	5.542	13.4	19.4	3.62	7643	4.77	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008459354-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
008459354-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED

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.

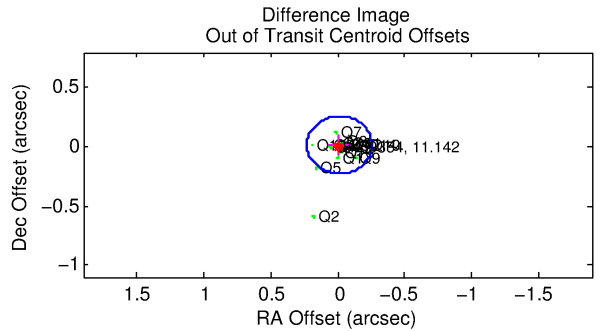
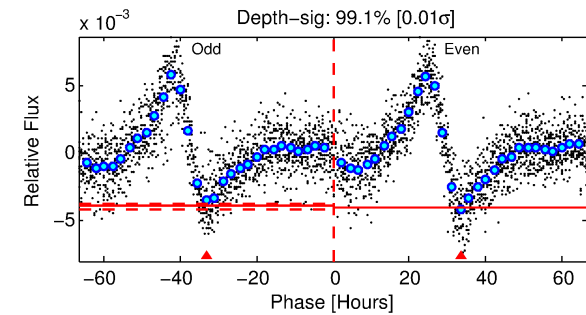
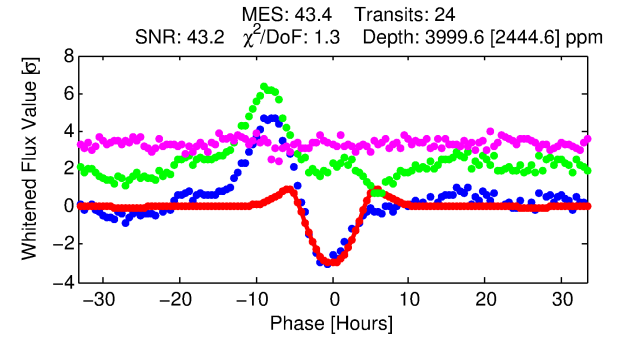
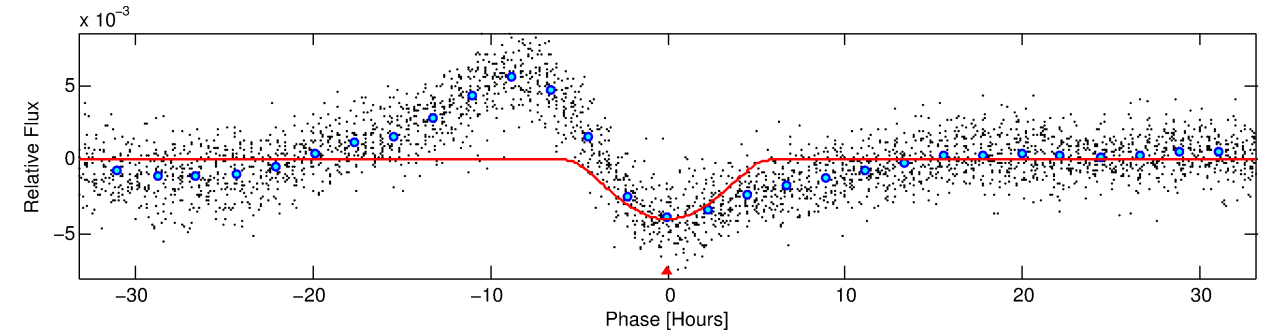
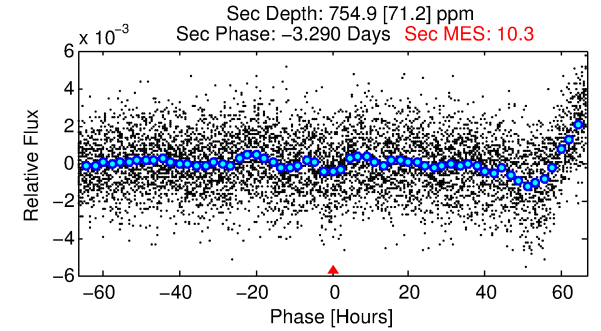
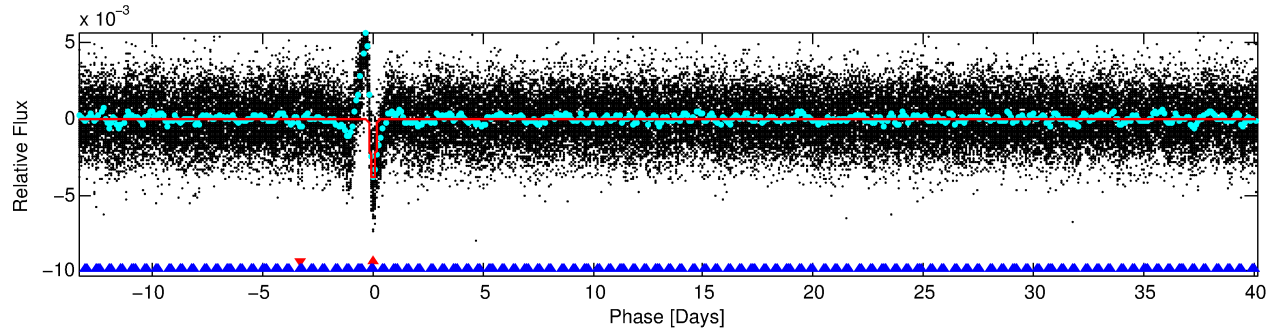
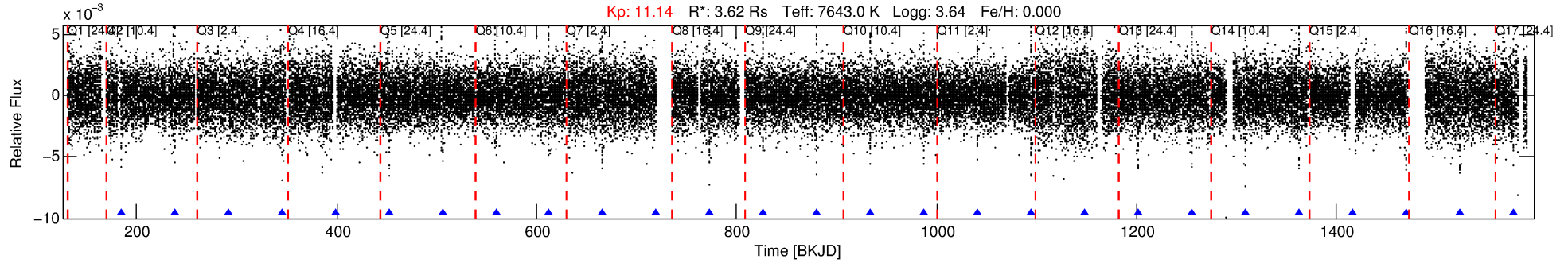
Ephemeris Match Information For 008459354-01

No Significant Match Found

DV One-Page Summary

KIC: 8459354 Candidate: 1 of 2 Period: 53.557 d

KOI: K03863.01 Corr: 0.889



DV Fit Results:

Period = 53.55683 [0.00038] d
Epoch = 184.3653 [0.0059] BKJD
Rp/R* = 0.1040 [0.0820]
a/R* = 17.32 [2.76]
b = 1.00 [0.07]
Seff = 317.57 [256.98]
Teq = 1076 [218] K
Rp = 41.07 [38.45] Re
a = 0.3550 [0.1745] AU
Ag = 31.02 [54.82] [0.55σ]
Teffp = 3928 [1560] K [1.81σ]

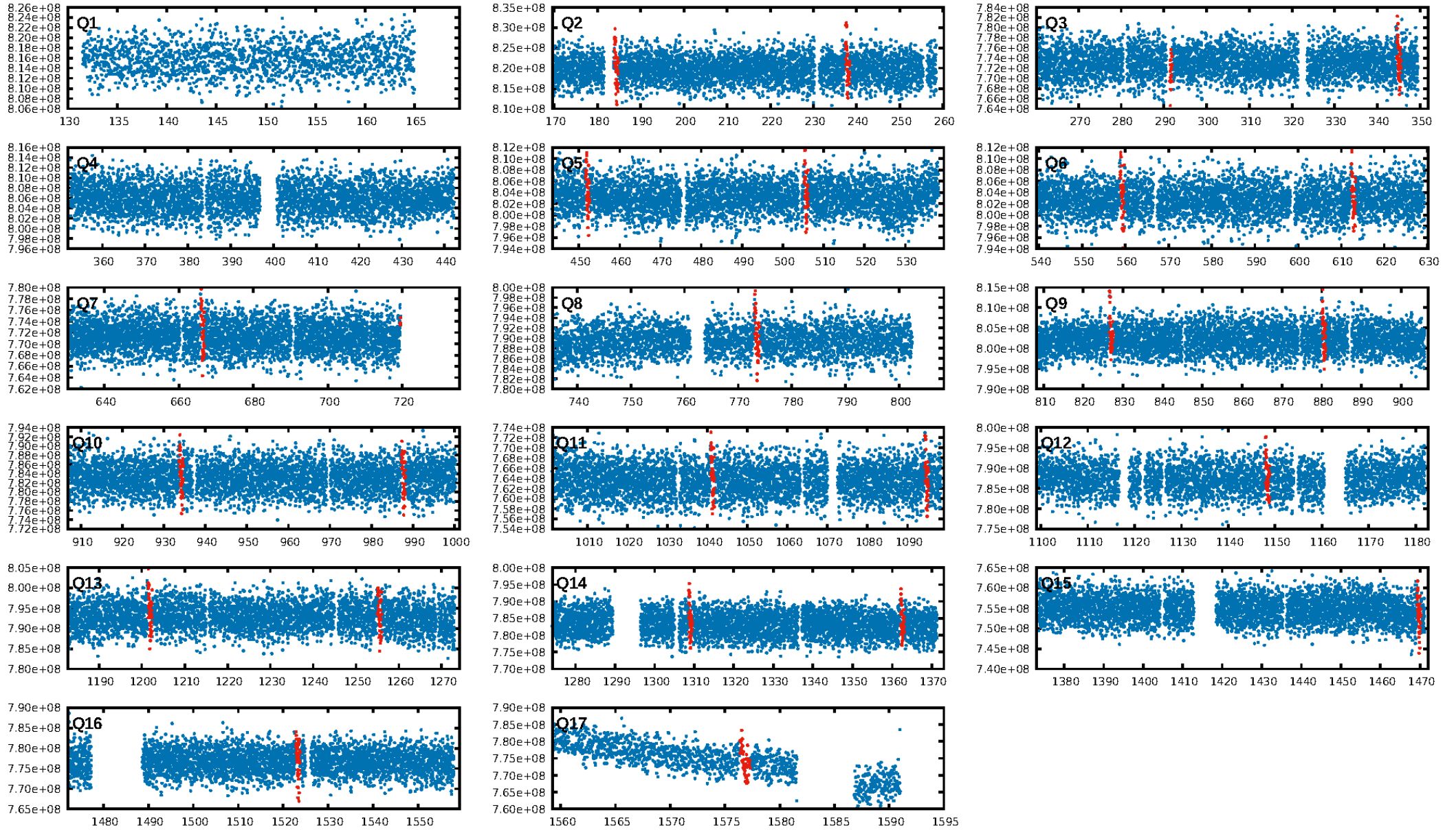
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [102.78σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [23/23]
GhostDiagnostic-chr: 1.346
Centroid-sig: 59.3%
Centroid-so: 0.156 arcsec [10.13σ]
OotOffset-rm: 0.020 arcsec [0.25σ]
KicOffset-rm: 0.130 arcsec [1.64σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 1.00 [15/15]
DiffImageOverlap-fno: 0.00 [0/15]

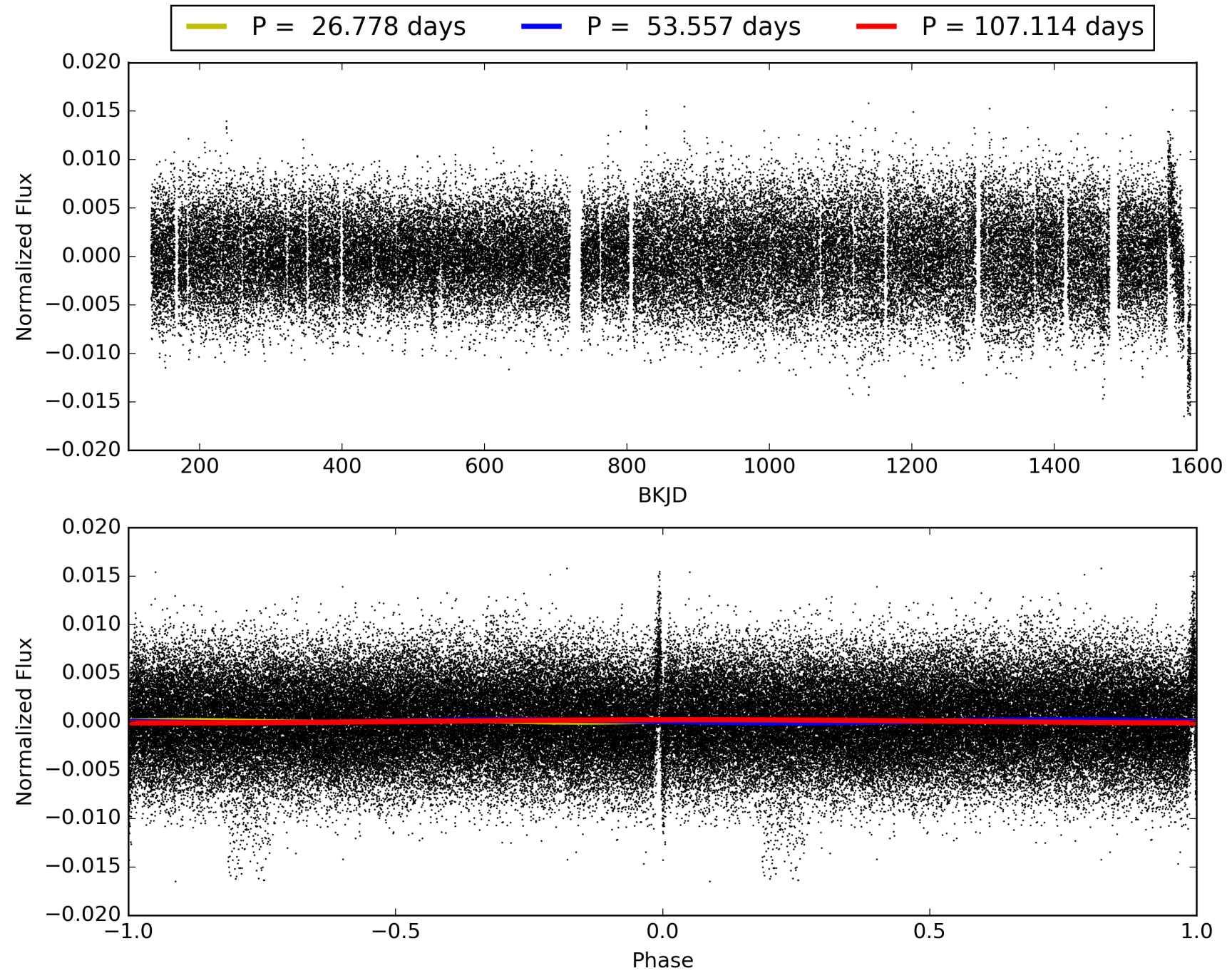
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:42:28 Z

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

TCE 008459354-01, PDC Light Curves

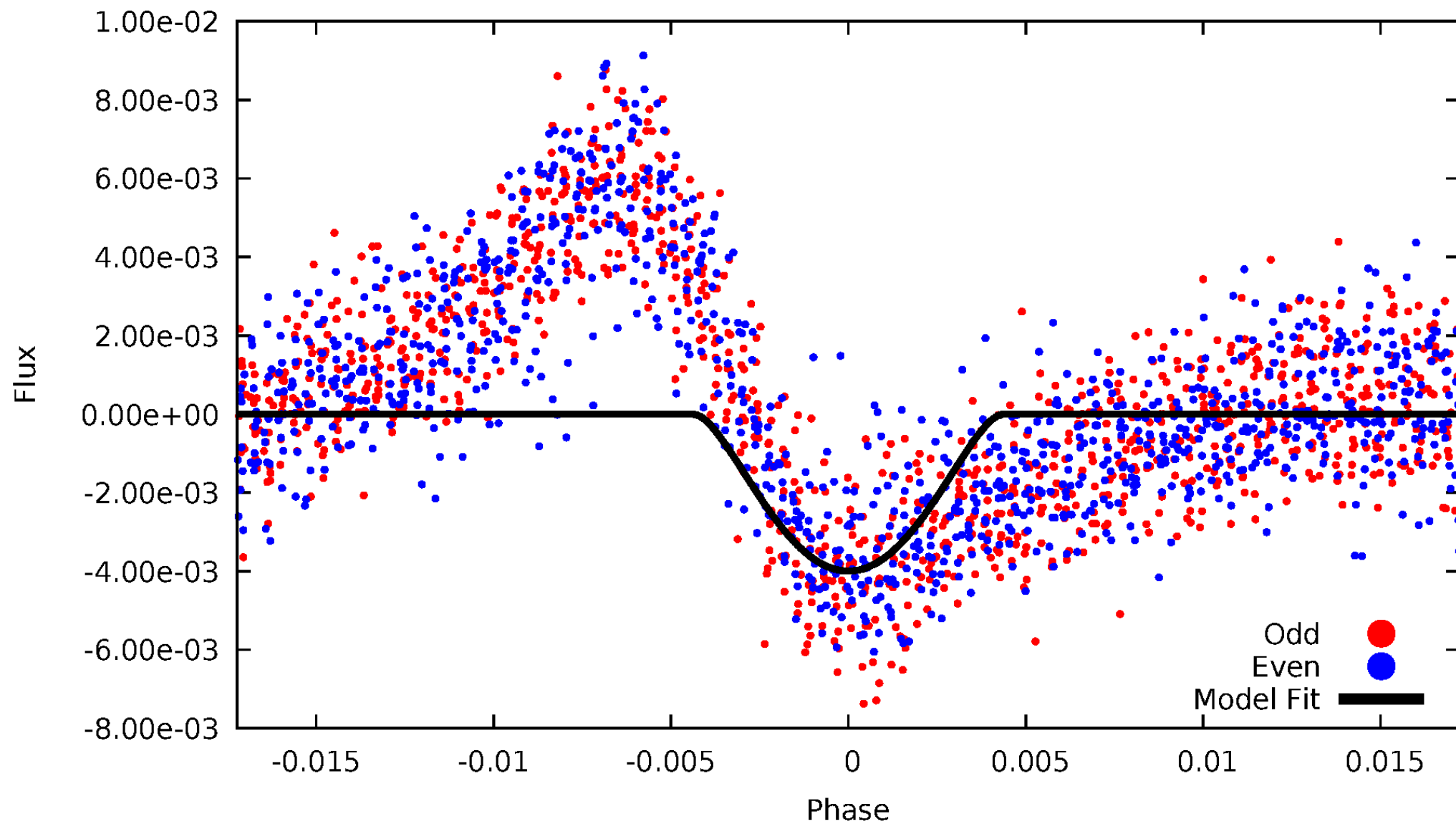


TCE 008459354-01



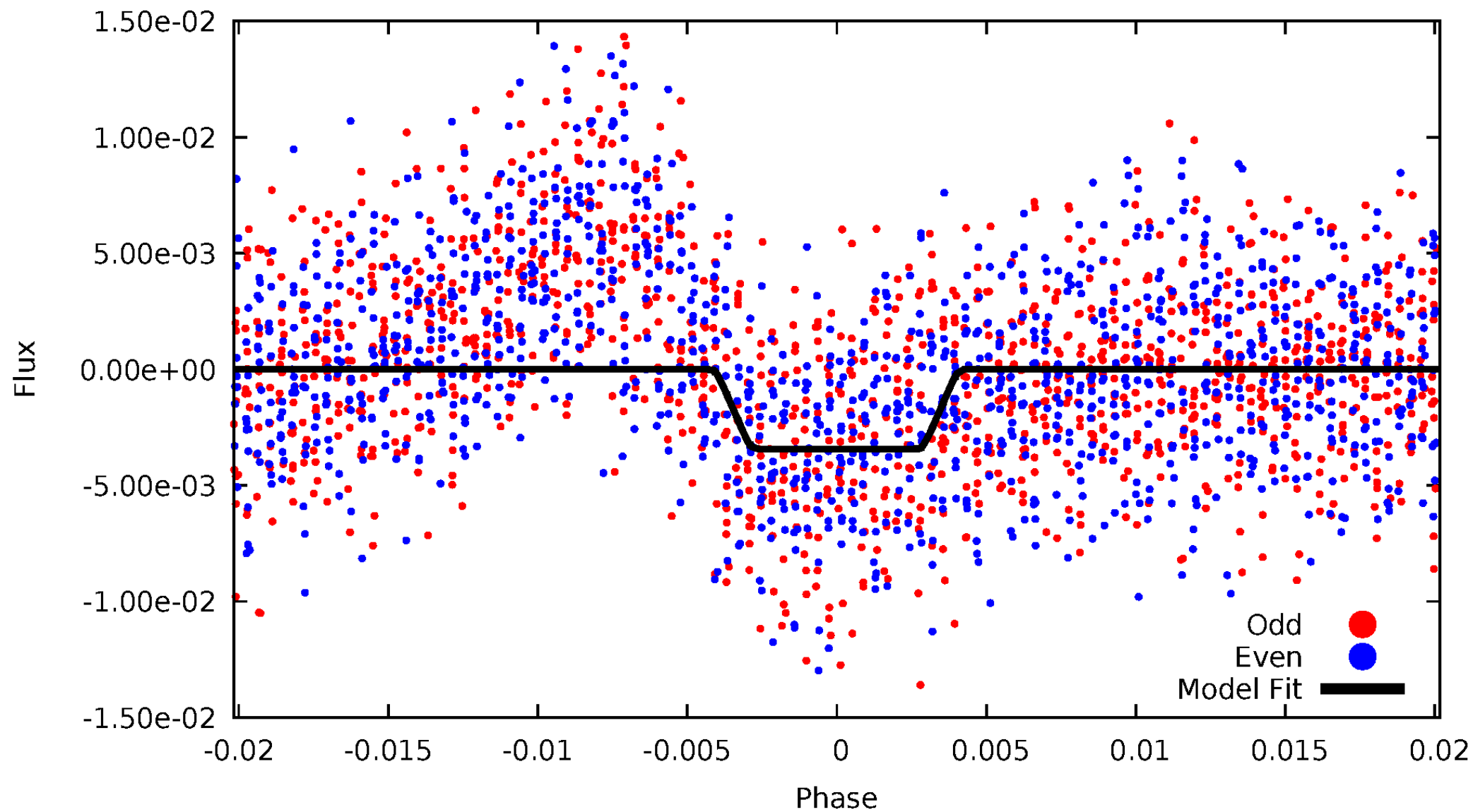
DV Odd/Even

TCE 008459354-01



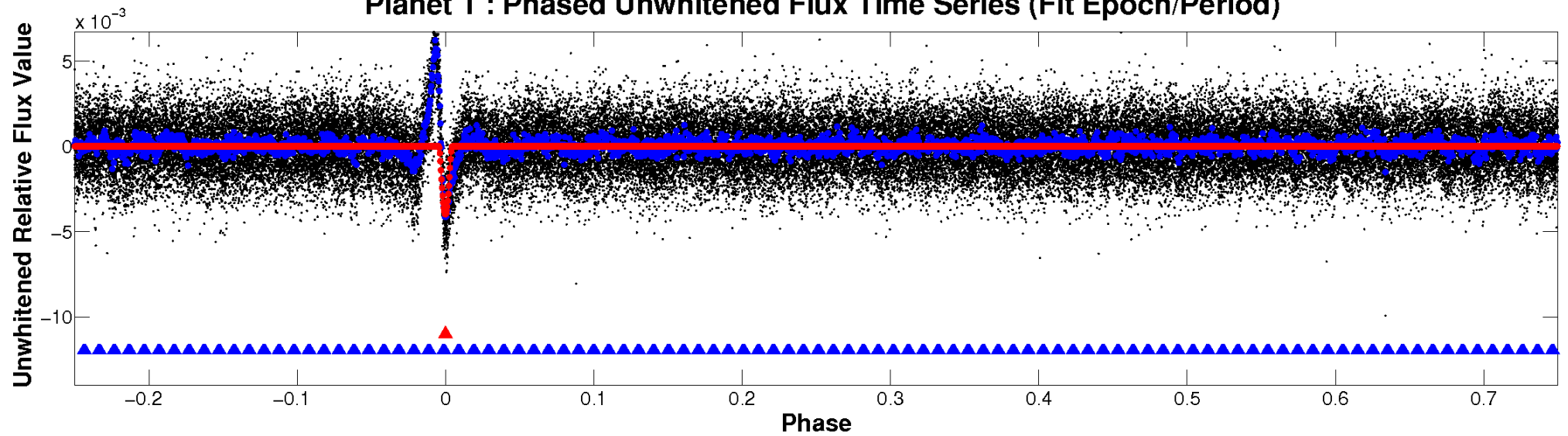
ALT Odd/Even

TCE 008459354-01

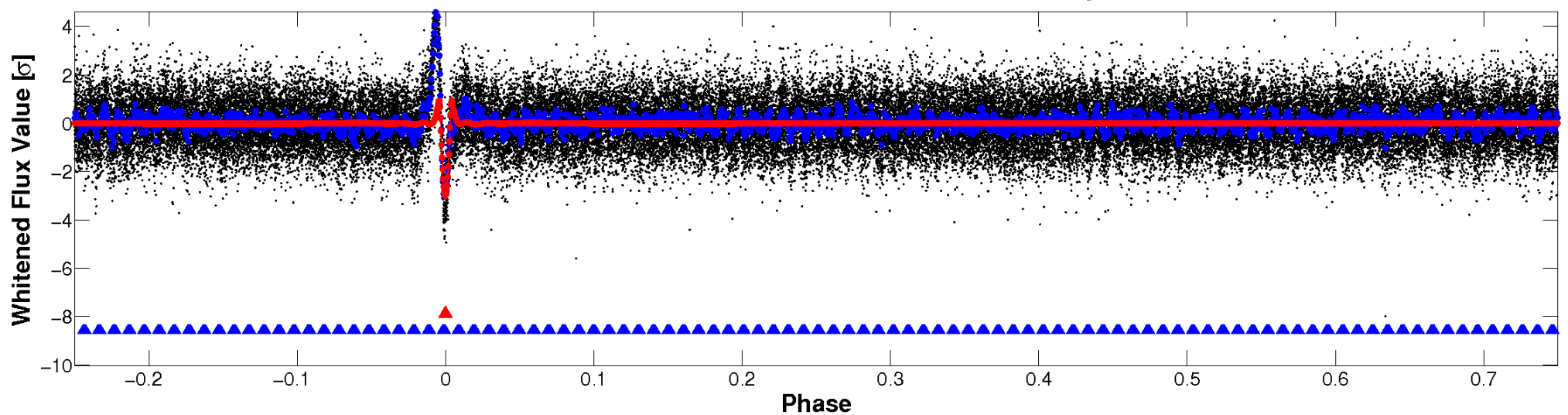


Non-Whitened Vs. Whitened Light Curve

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

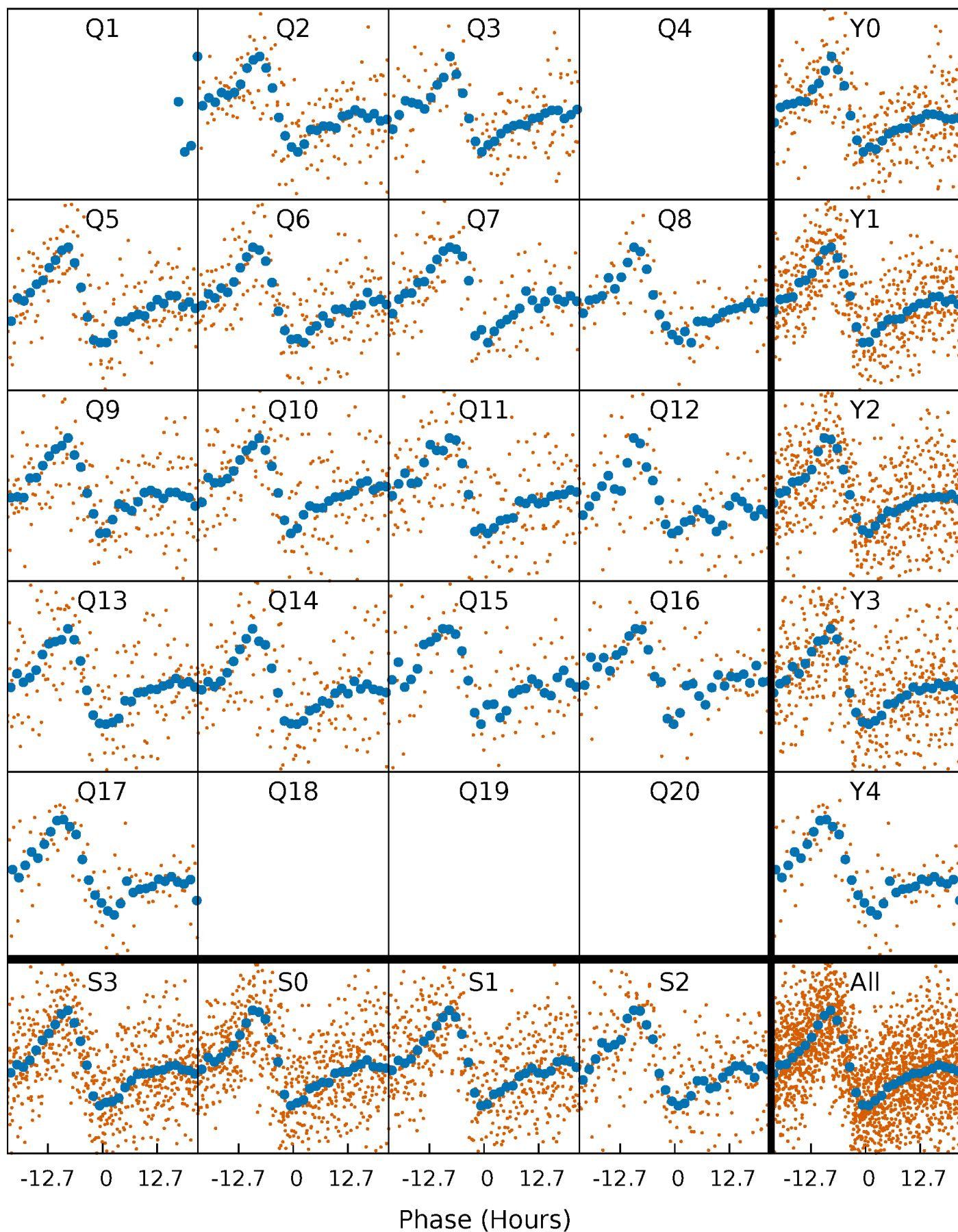


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



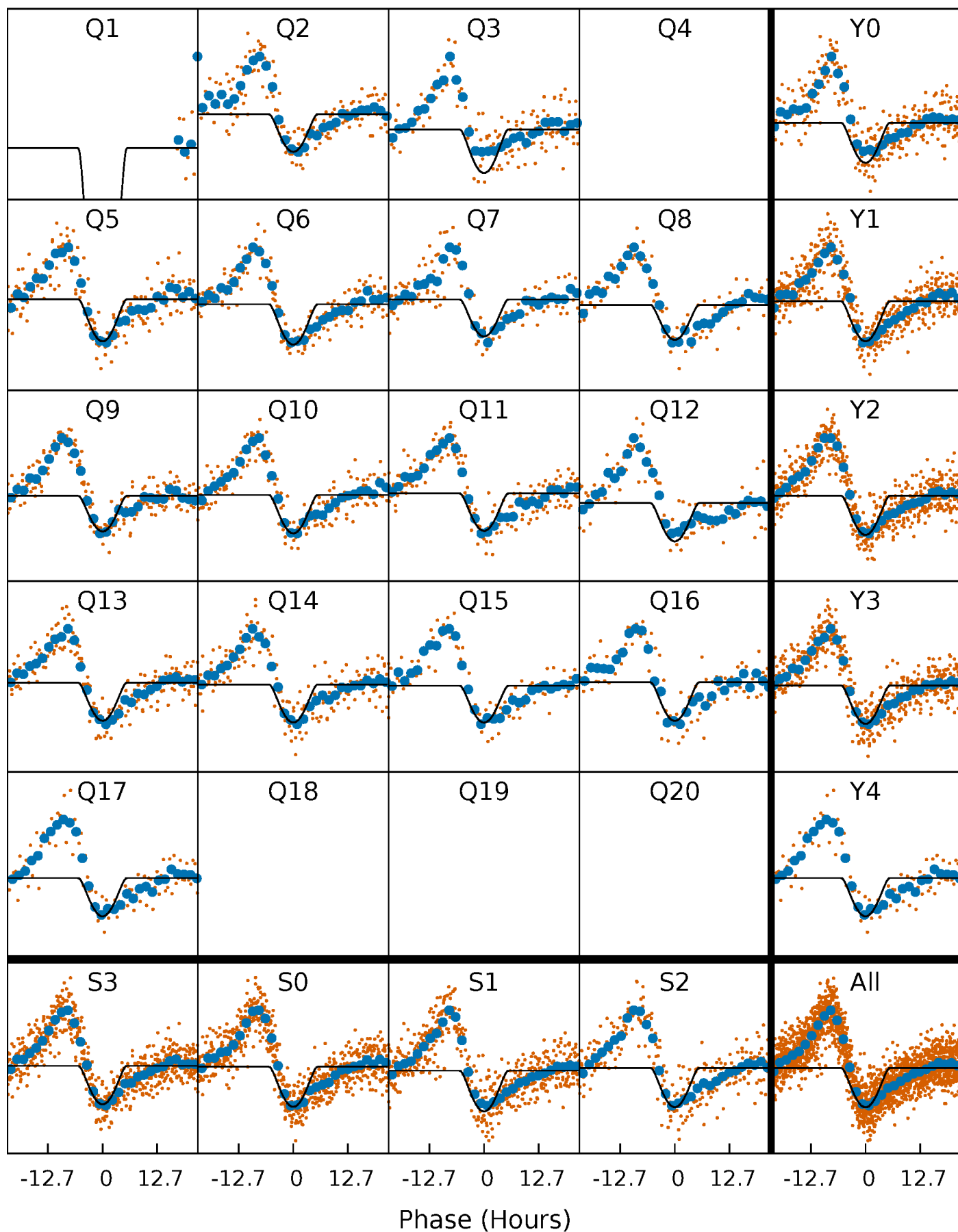
PDC Quarter-Phased Transit Curves

TCE 008459354-01 P= 53.556826 Days $T_0=184.365323$ (BKJD)



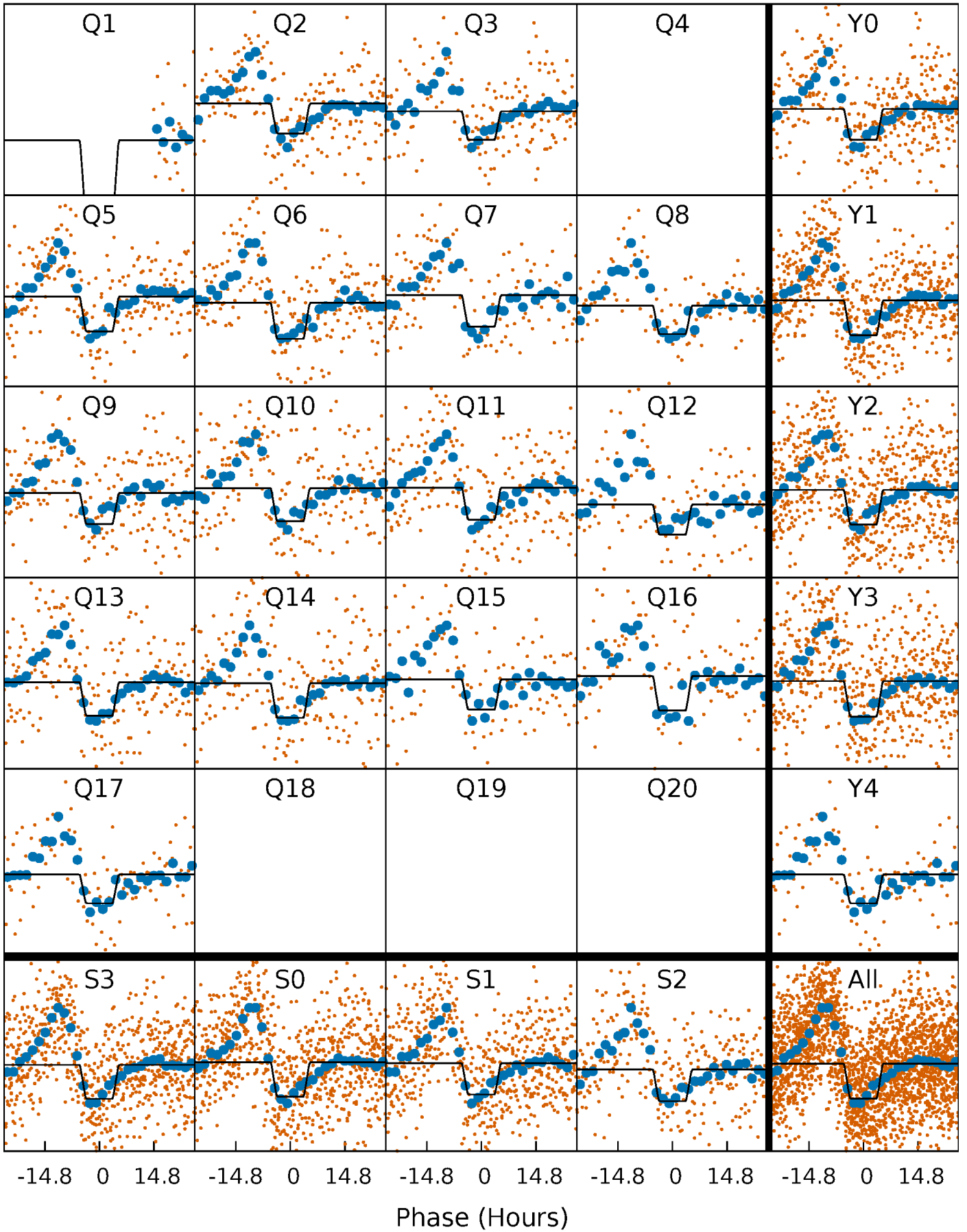
DV Quarter-Phased Transit Curves

TCE 008459354-01 P= 53.556826 Days $T_0=184.365323$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

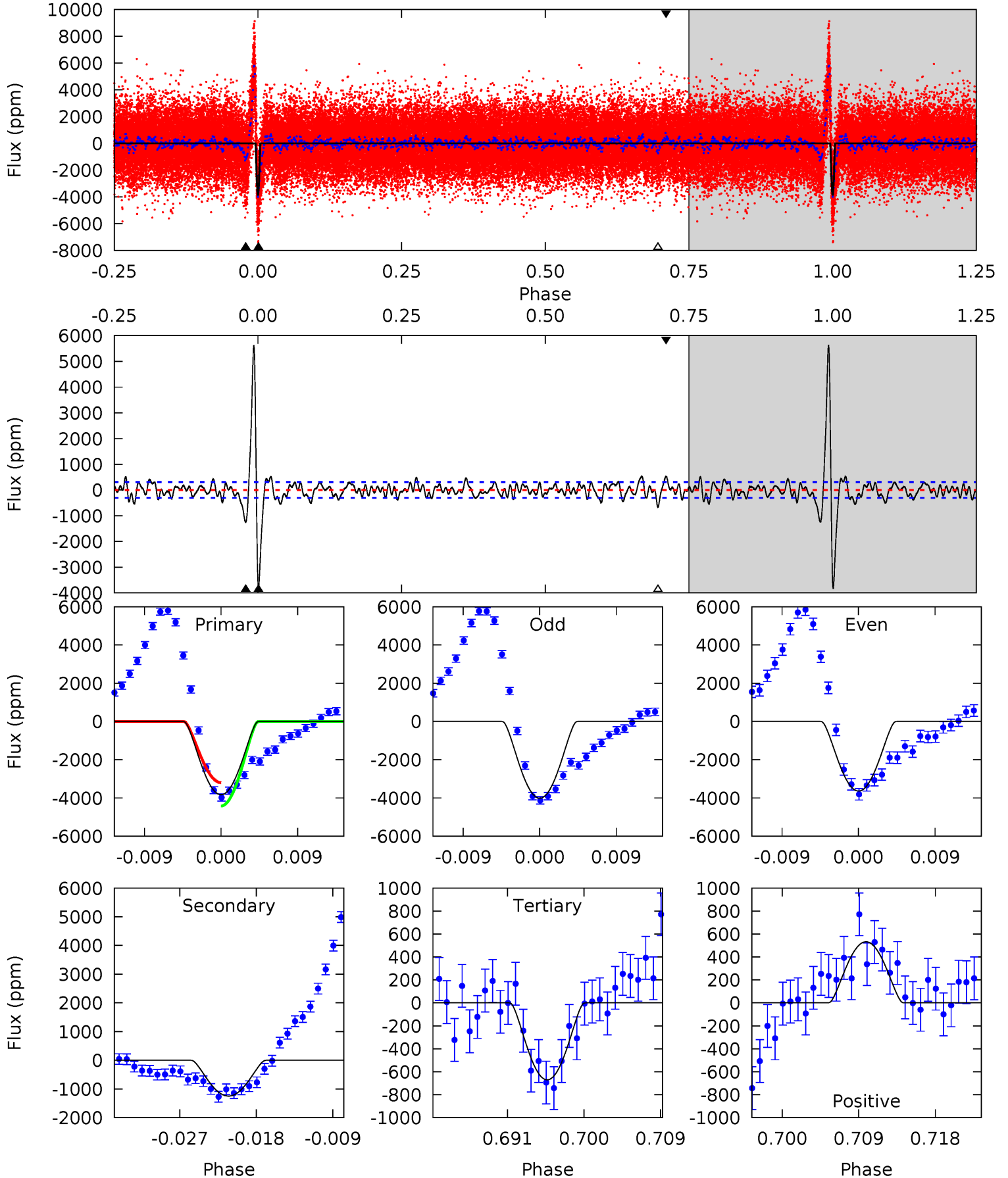
TCE 008459354-01 P= 53.556247 Days $T_0=184.451285$ (BKJD)



DV Model-Shift Uniqueness Test

008459354-01, P = 53.556826 Days, E = 130.808497 Days

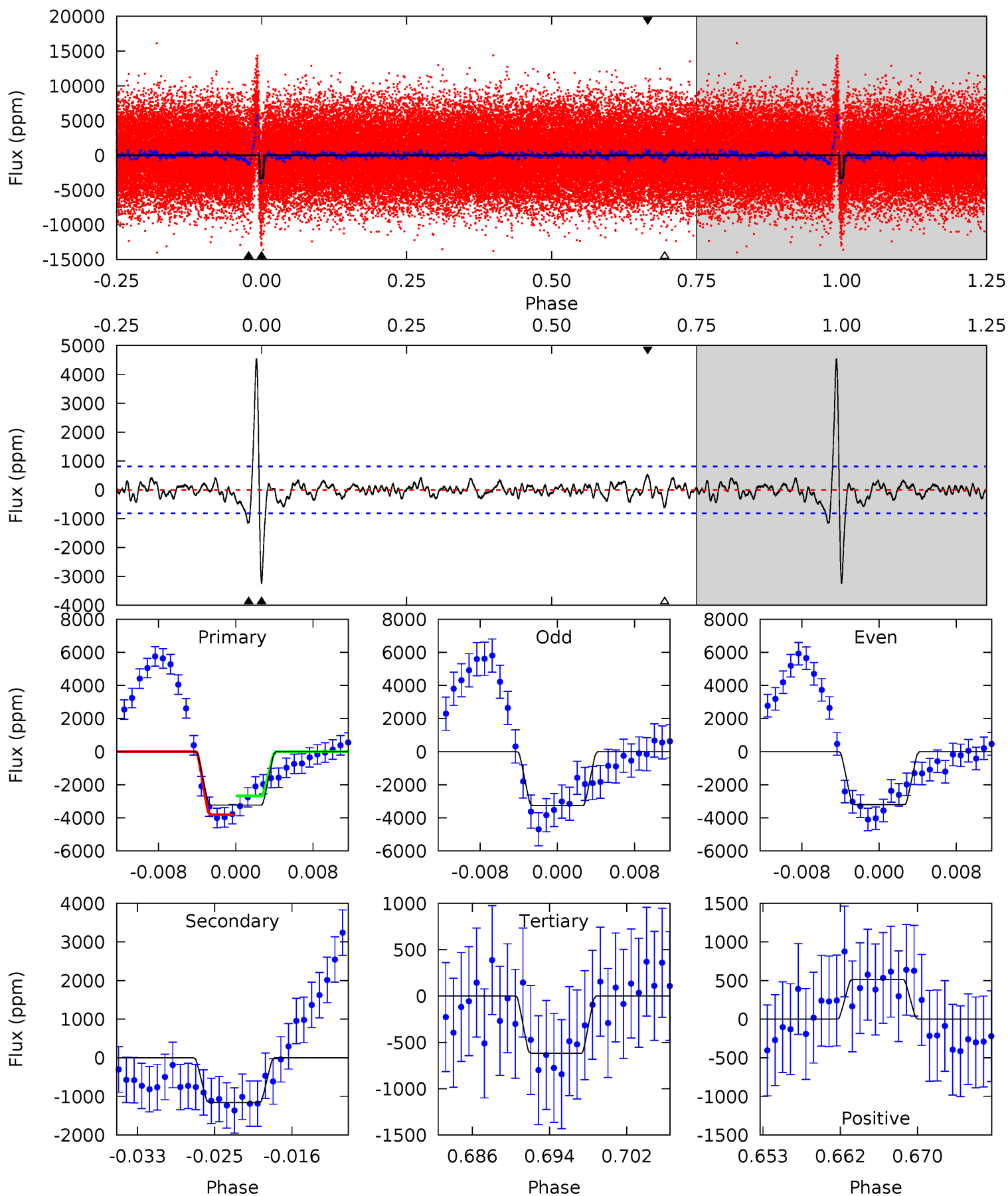
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
62.3	20.3	10.9	8.66	5.05	2.61	5.29	51.4	53.6	9.39	11.6	3.04	0.94	0.59	9.93



Alt Model-Shift Uniqueness Test

008459354-01, P = 53.556247 Days, E = 130.895038 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.1	7.20	3.85	3.21	5.07	2.65	2.04	16.3	16.9	3.35	3.99	0.20	0.98	0.58	3.53



Stellar Parameters For KIC 008459354

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7643^{+212}_{-318}	$3.639^{+0.467}_{-0.082}$	$0.000^{+0.200}_{-0.350}$	$3.618^{+0.609}_{-1.826}$	$2.082^{+0.292}_{-0.542}$	$0.062^{+0.299}_{-0.016}$
	+3%/-4%	+13%/-2%	+inf%/-inf%	+17%/-50%	+14%/-26%	+483%/-26%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008459354-01 / KOI 3863.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1248 ± 61	$40.09^{+28.78}_{-24.89}$	1452^{+100}_{-190}	4337^{+2274}_{-702}	53^{+305}_{-34}
Alt.	-1156 ± 160	$27.99^{+26.95}_{-17.91}$	1443^{+104}_{-165}	4910^{+3405}_{-1018}	100^{+702}_{-73}

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

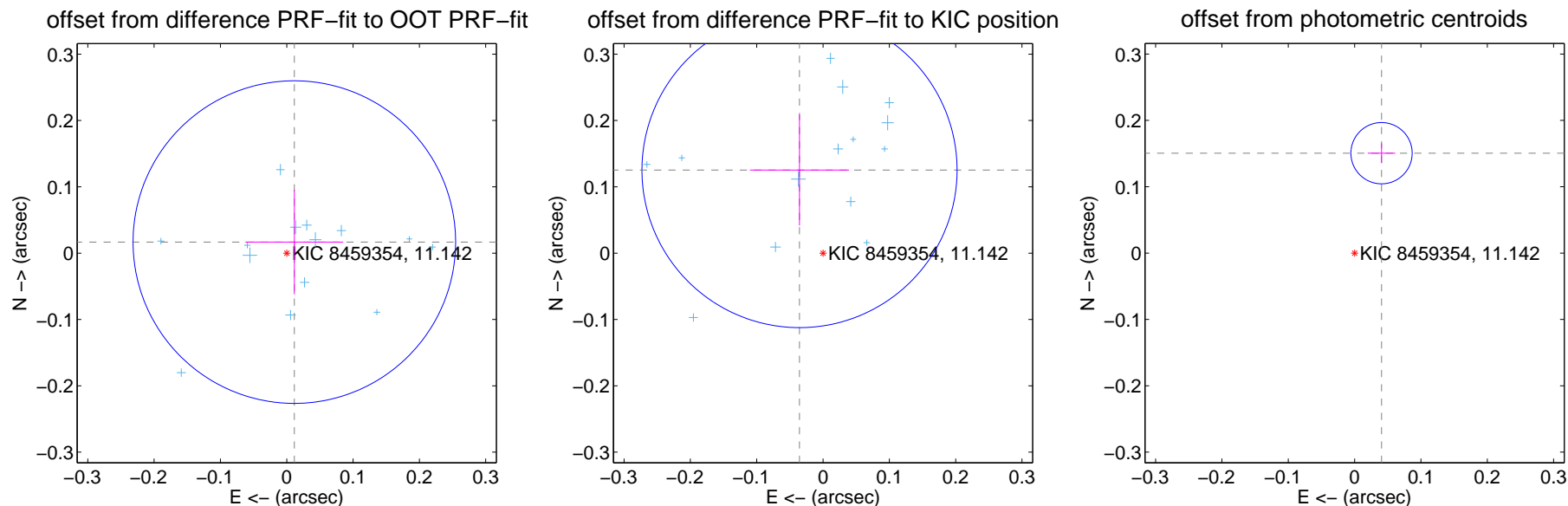
DV Centroid Data

Supplemental centroid analysis for 008459354-01. **Kepler magnitude: 11.14.** Transit SNR 43.20

There are 15 quarters with good PRF difference image offsets

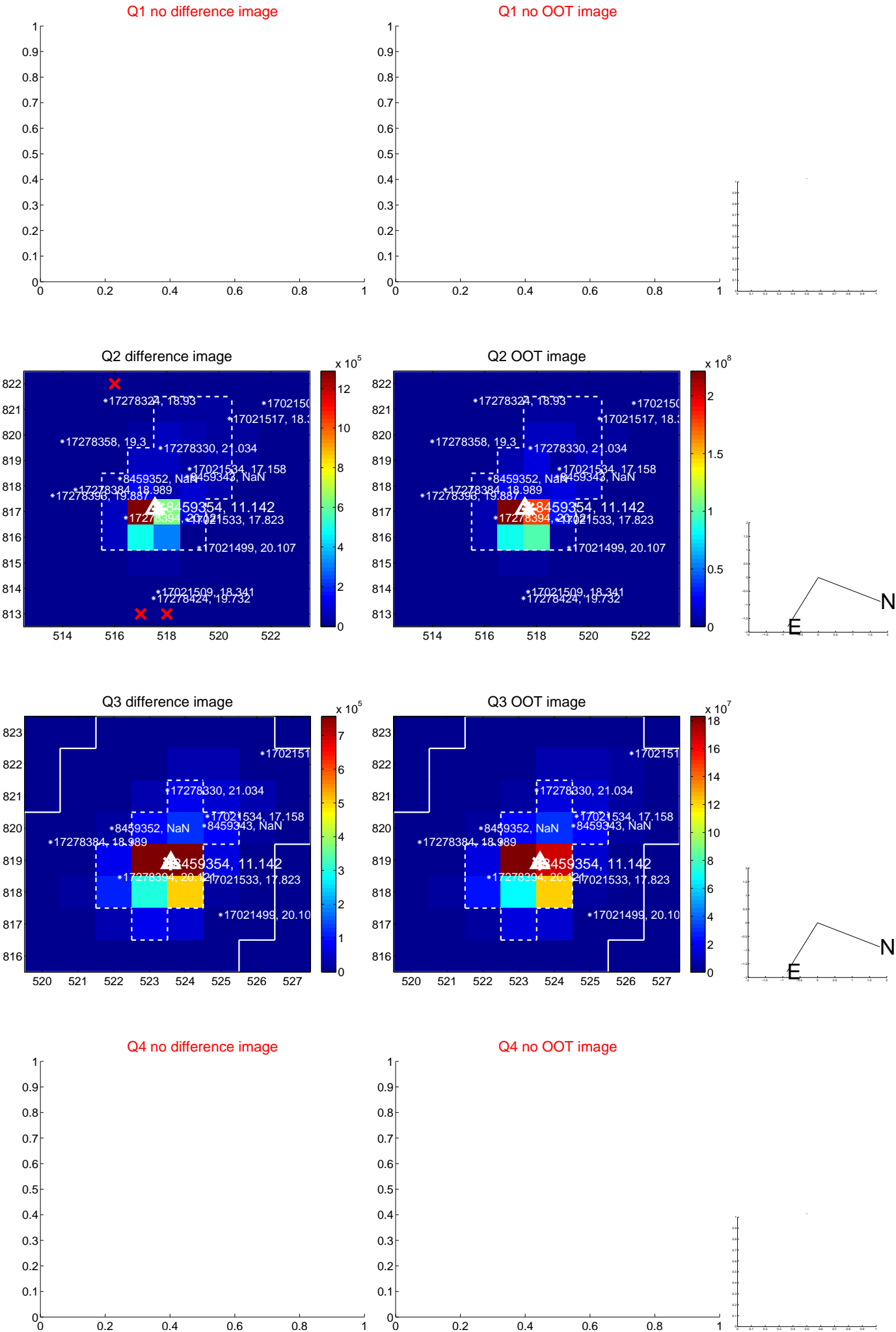
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.020 ± 0.081	0.25	-0.011 ± 0.074	0.017 ± 0.079
PRF-fit source offset from KIC position	0.130 ± 0.079	1.64	0.035 ± 0.075	0.125 ± 0.084
photometric centroid source offset	0.16 ± 0.02	10.13	-0.04 ± 0.02	0.15 ± 0.01

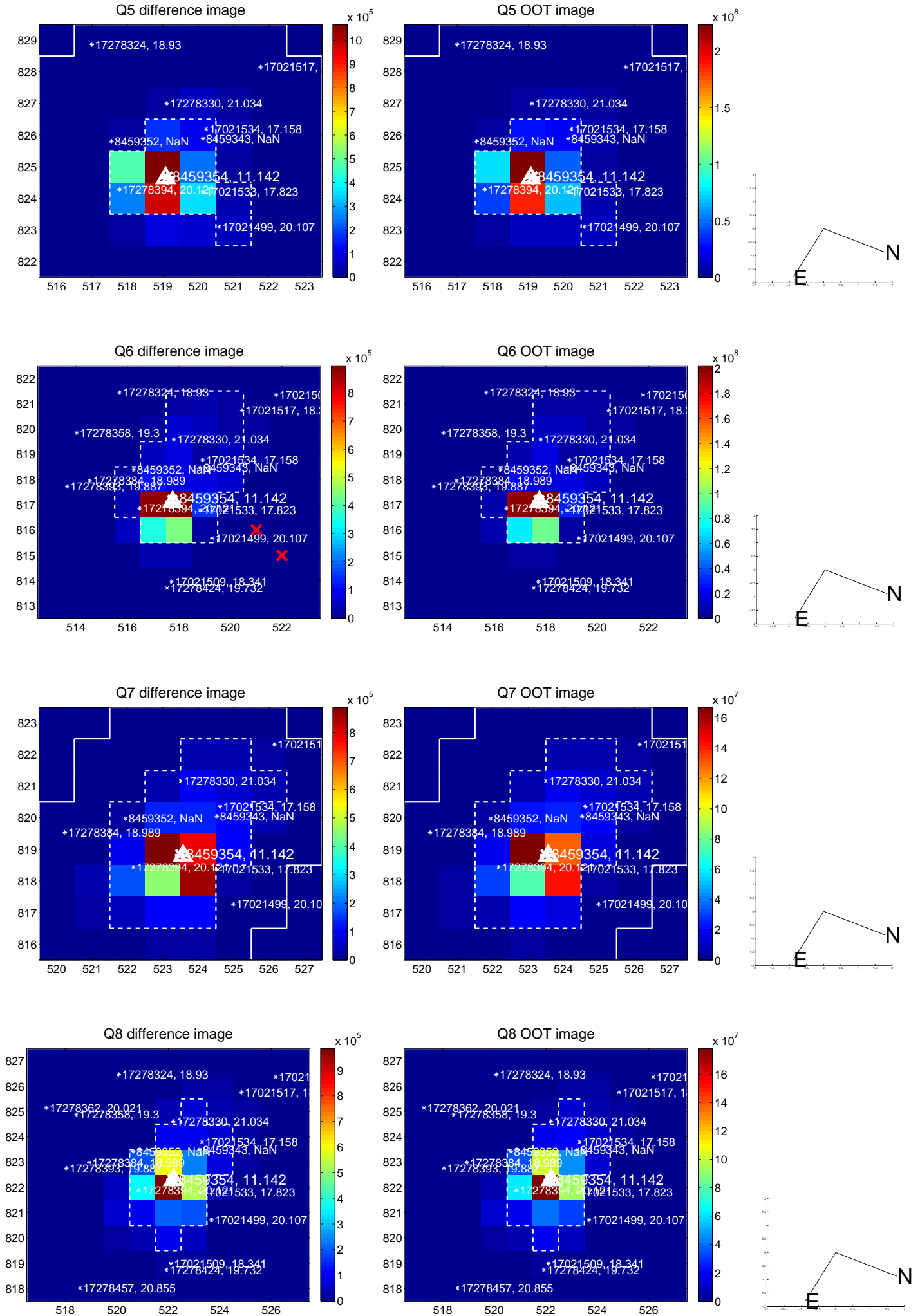


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

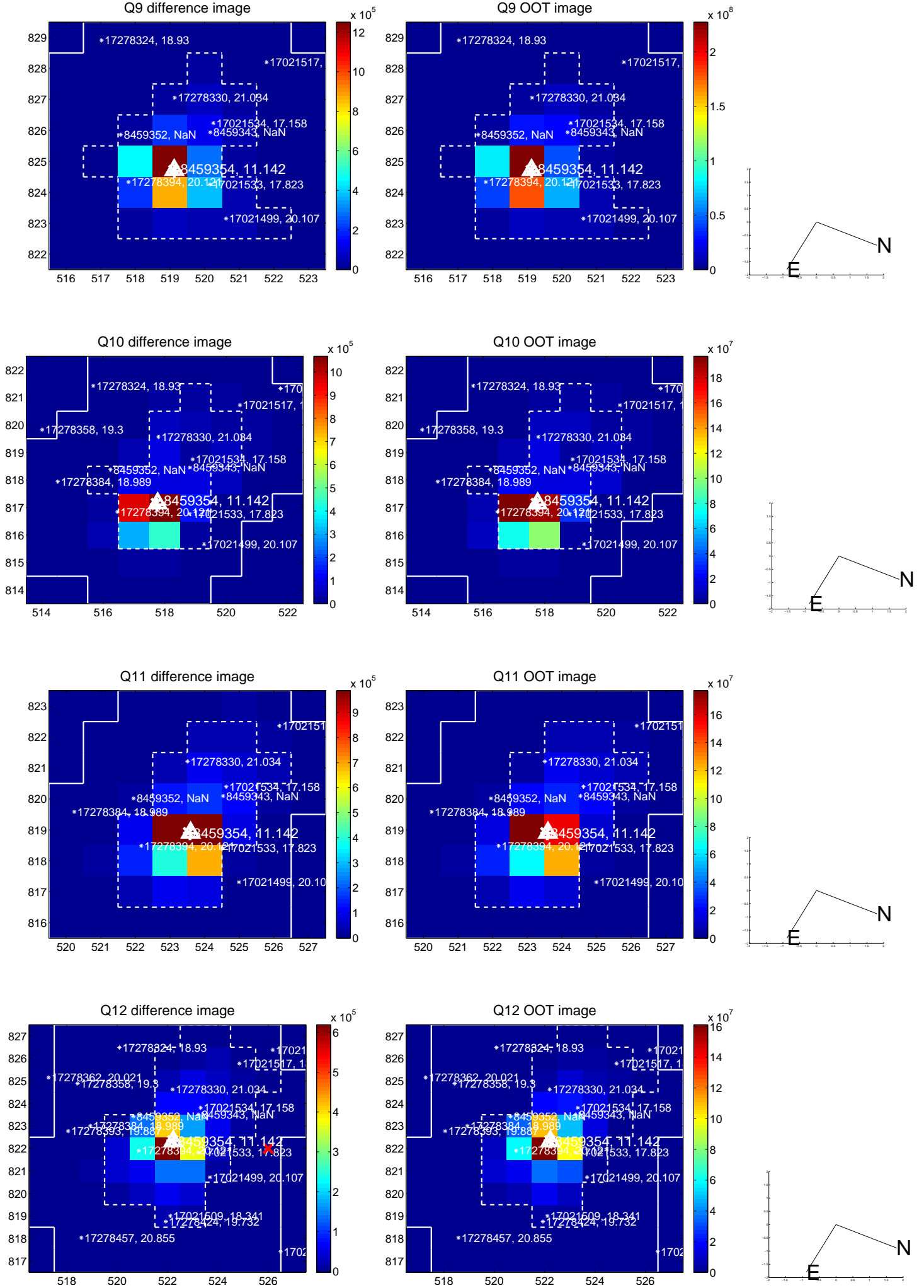
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



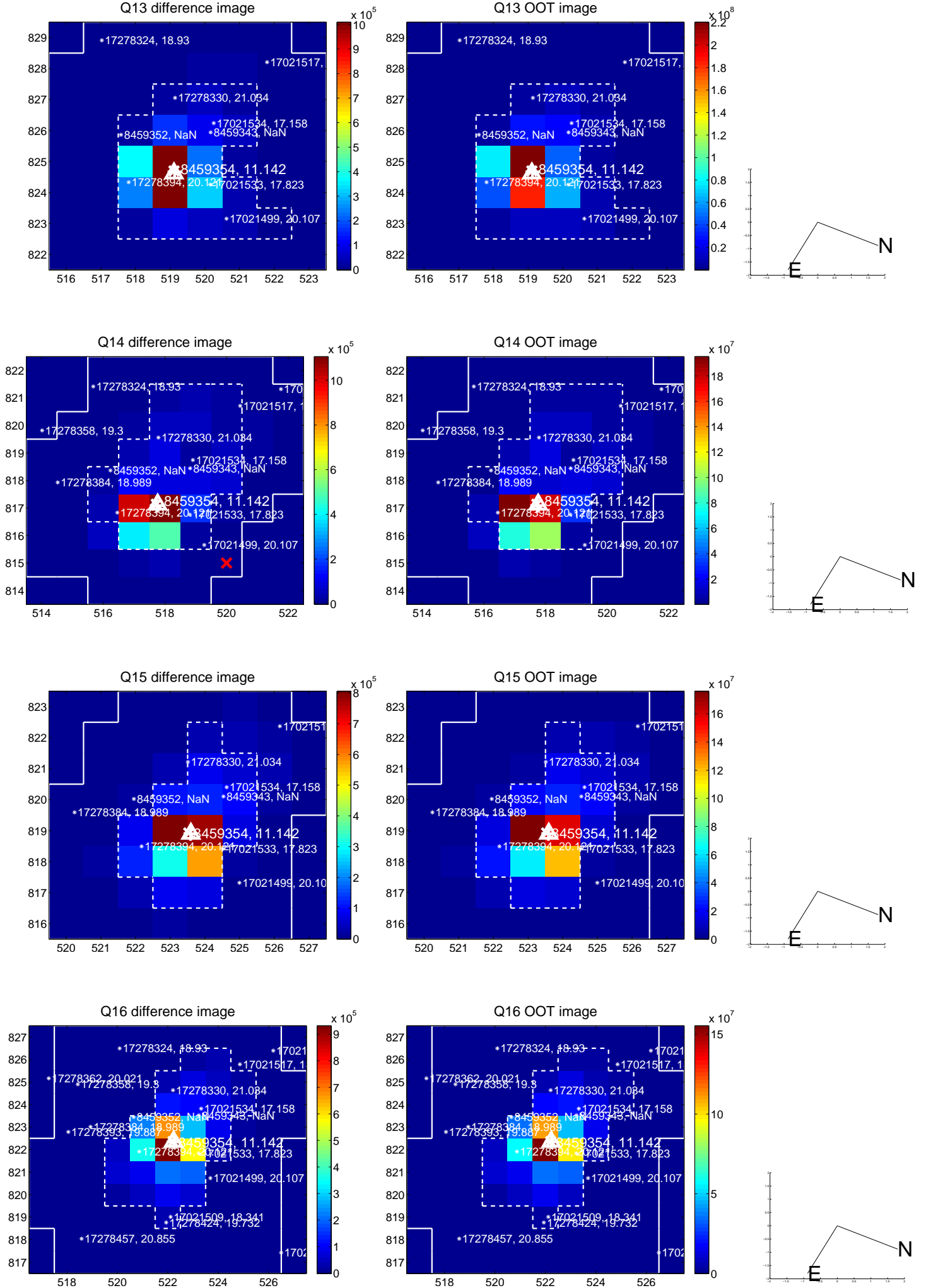
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



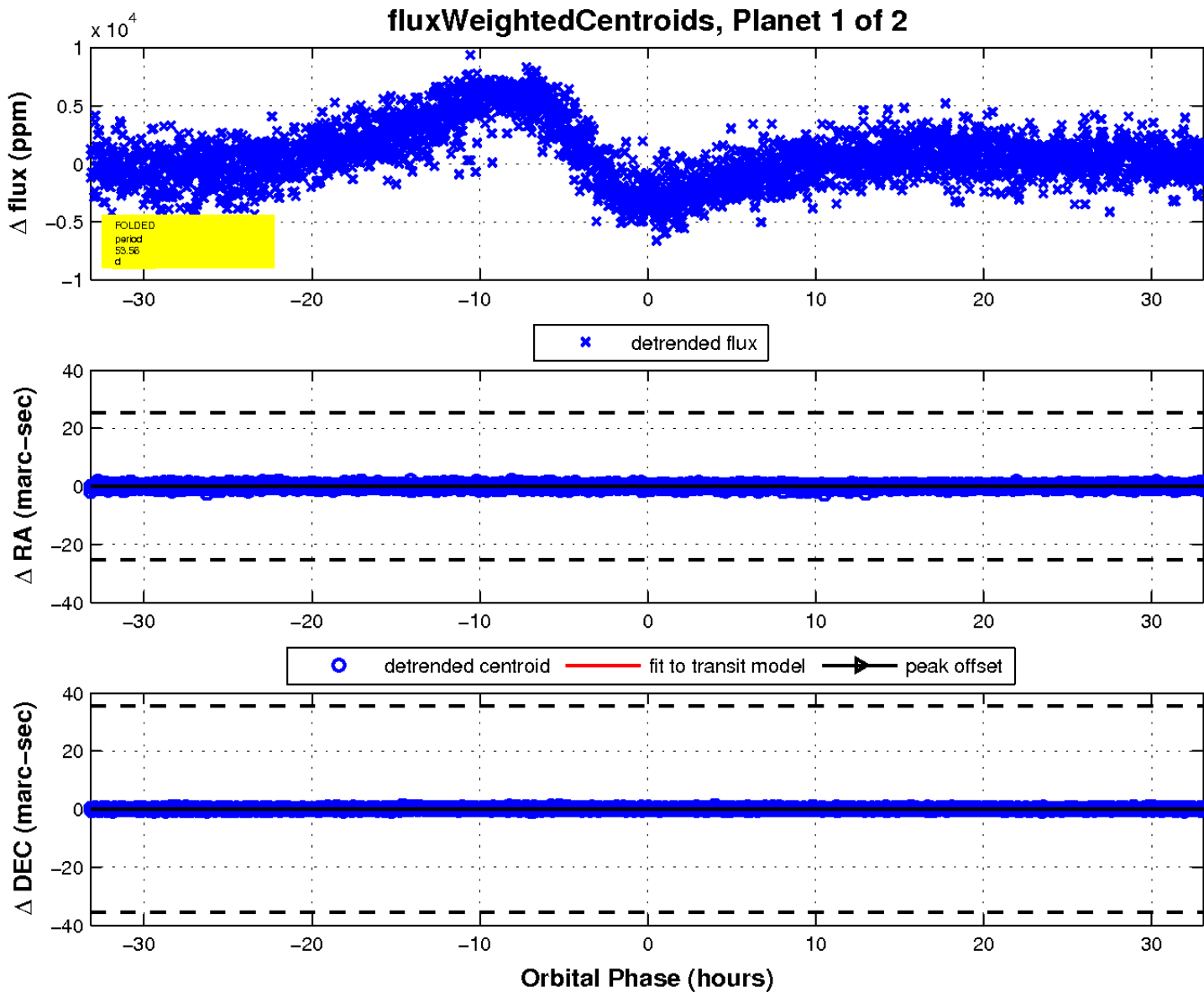
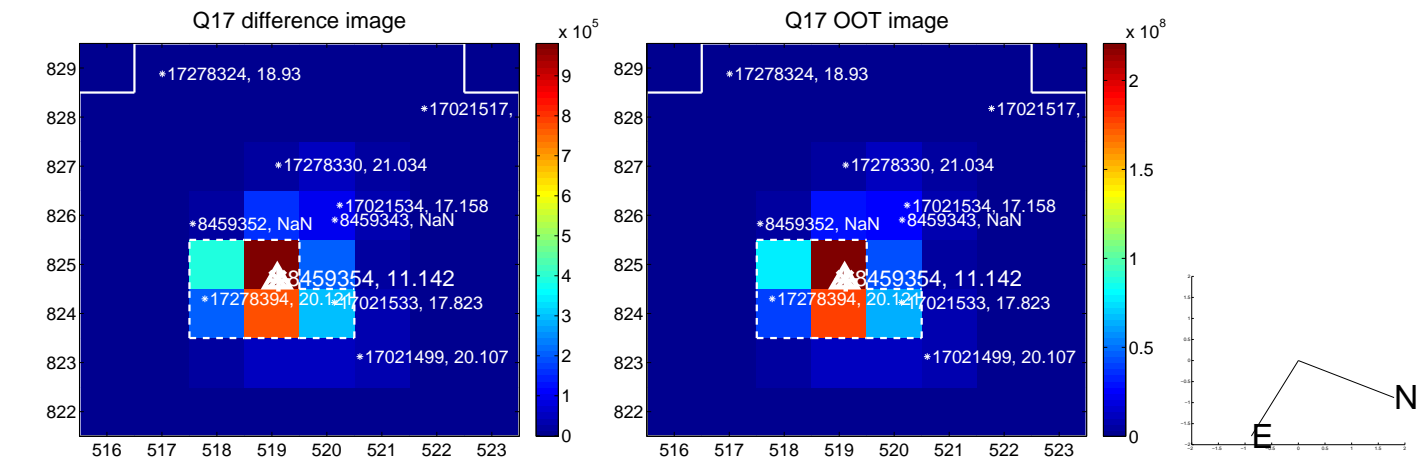
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



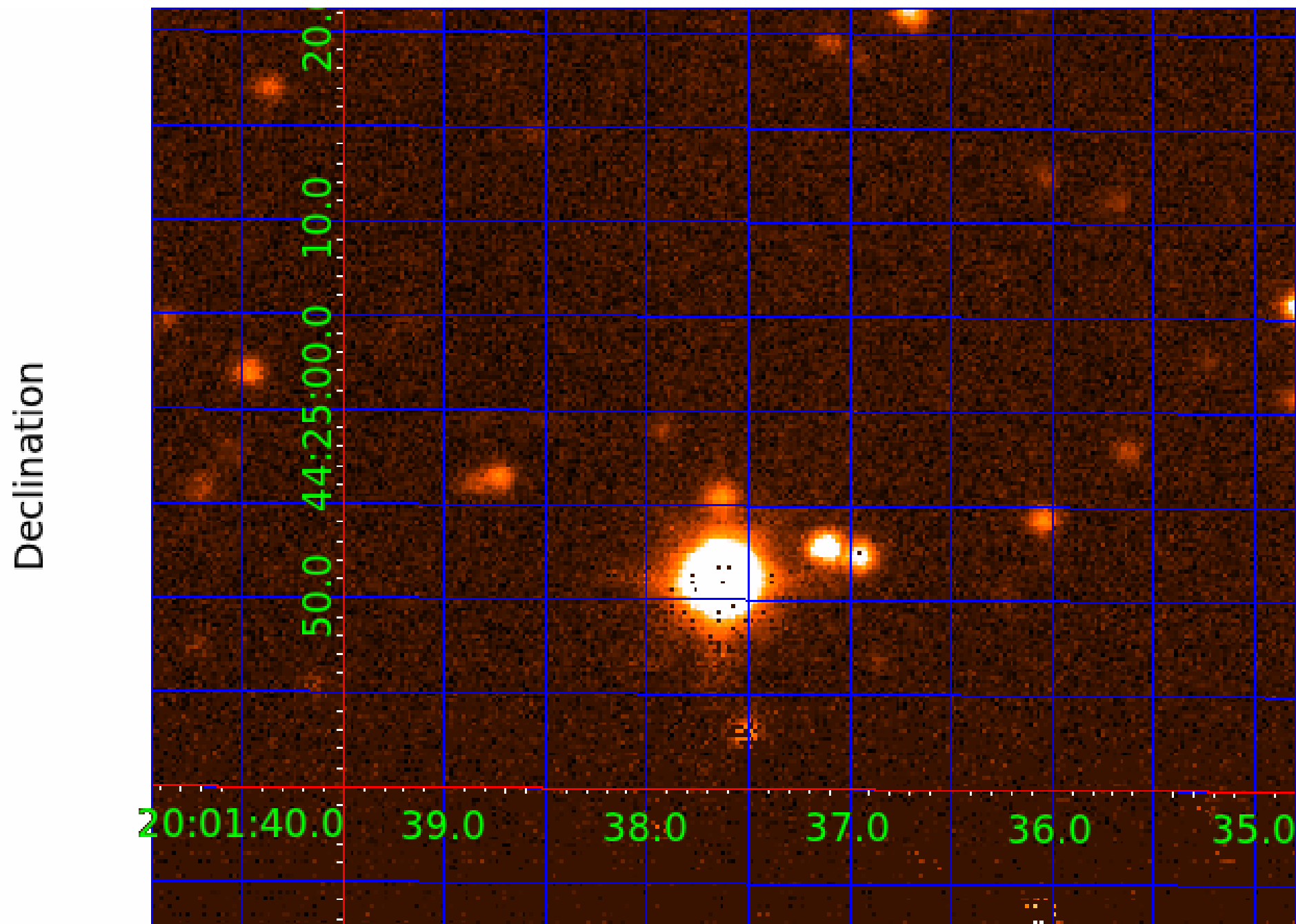
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008459354

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})
008459354-01	OBS	3863.01	53.556826	184.365323	3999.6	11.071	43.4	43.2	3.62	7643	41.07	317.57
008459354-02	OBS	No	0.540938	131.887498	132.1	5.542	13.4	19.4	3.62	7643	4.77	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008459354-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
008459354-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED

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 008459354-02

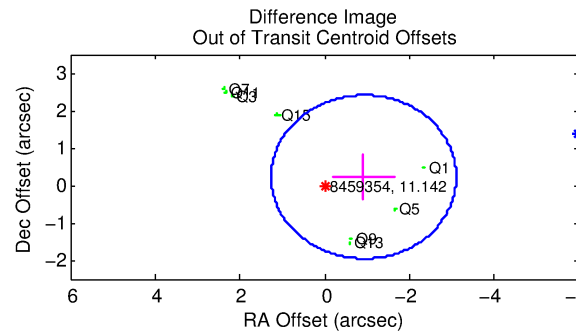
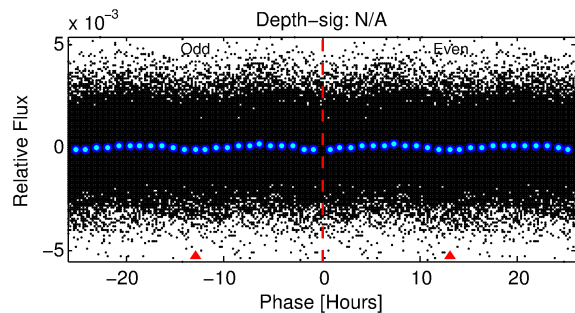
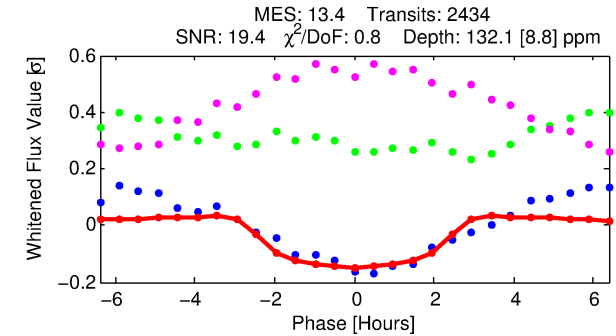
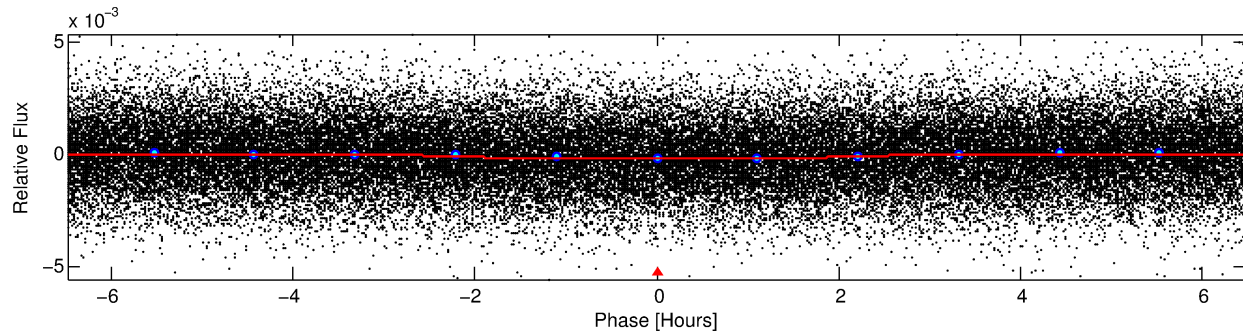
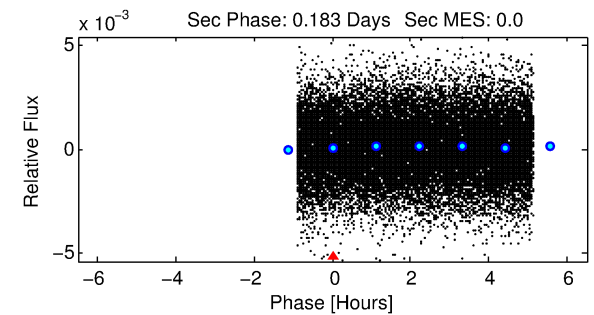
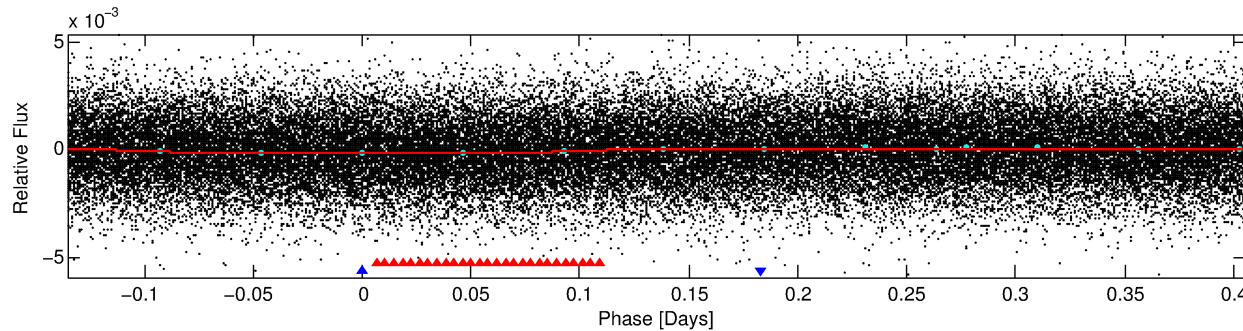
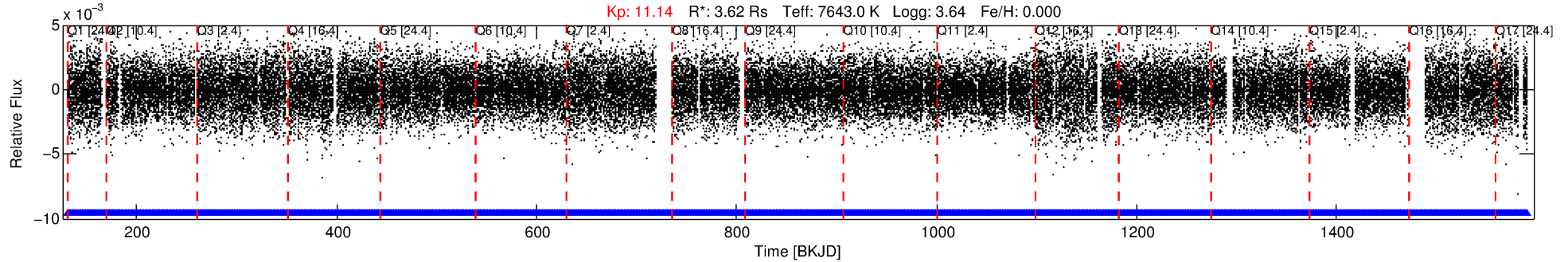
No Significant Match Found

DV One-Page Summary

KIC: 8459354 Candidate: 2 of 2 Period: 0.541 d

KOI: K03863 Corr: No Ephemeris Match

Kp: 11.14 R*: 3.62 Rs Teff: 7643.0 K Logg: 3.64 Fe/H: 0.000



DV Fit Results:

Period = 0.54094 [0.00001] d
Epoch = 131.8875 [0.0032] BKJD
Rp/R* = 0.0121 [0.0019]
a/R* = 1.02 [0.03]
b = 0.88 [0.24]
Seff = N/A
Teq = N/A
Rp = 4.77 [2.52] Re
a = N/A
Ag = N/A
Teffp = N/A

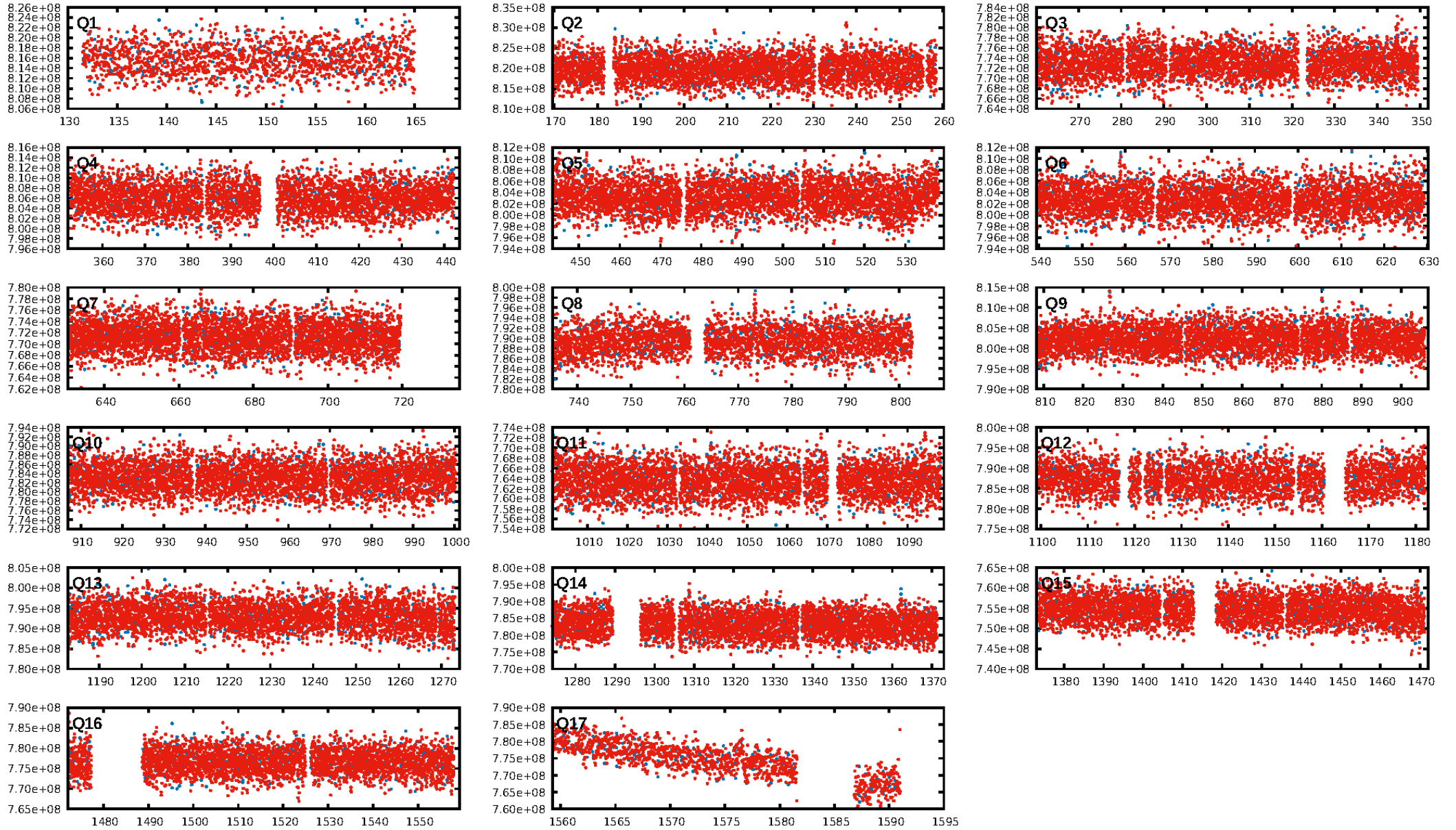
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [102.78σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2324/2324]
GhostDiagnostic-chr: 1.132
Centroid-sig: 0.6%
Centroid-so: 0.251 arcsec [4.98σ]
OotOffset-rm: 0.948 arcsec [1.30σ]
KicOffset-rm: 0.932 arcsec [1.31σ]
OotOffset-st: 0/4/0/4 [8]
KicOffset-st: 0/4/0/4 [8]
DiffImageQuality-fgm: 0.75 [6/8]
DiffImageOverlap-fno: 1.00 [17/17]

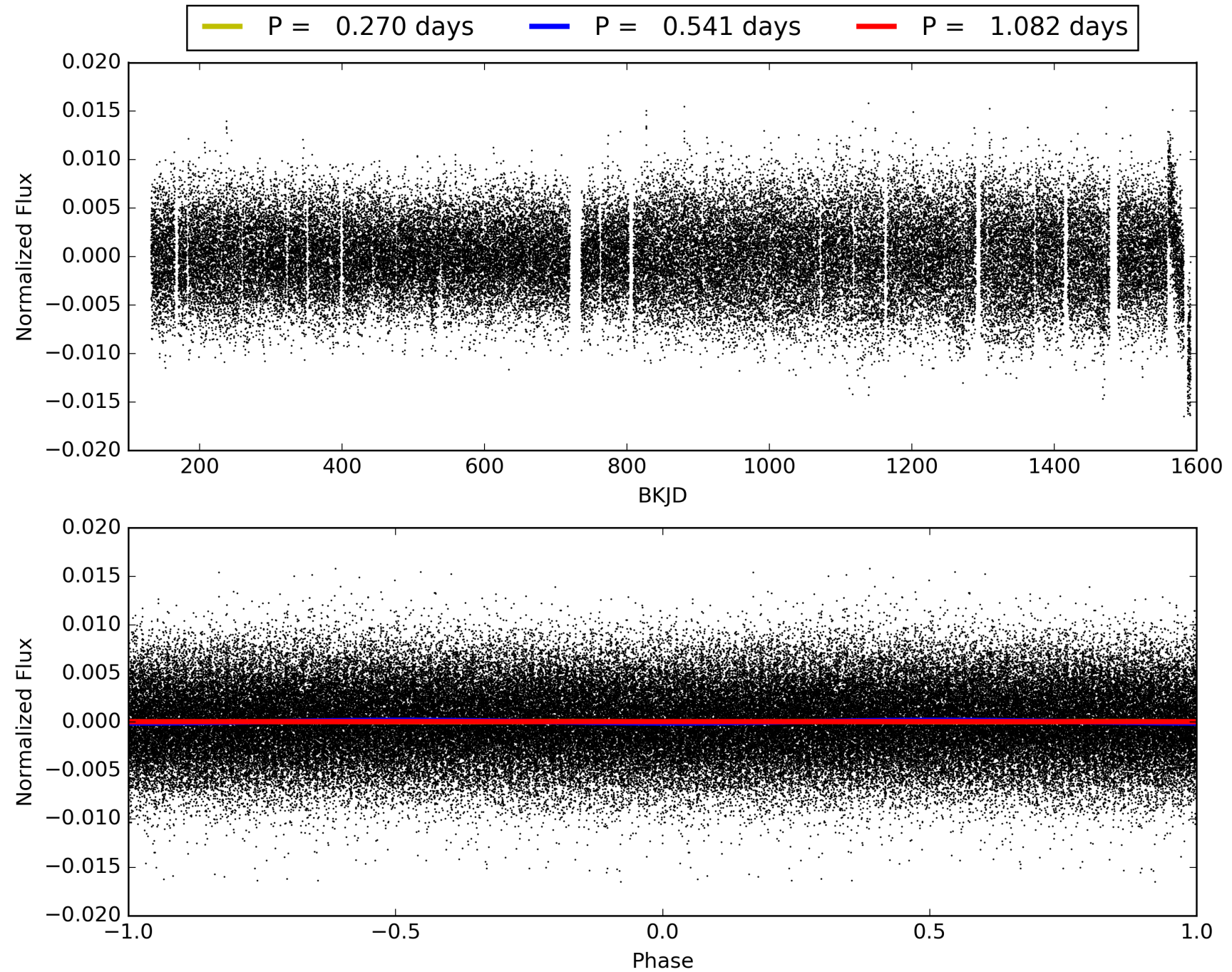
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008459354-02, PDC Light Curves

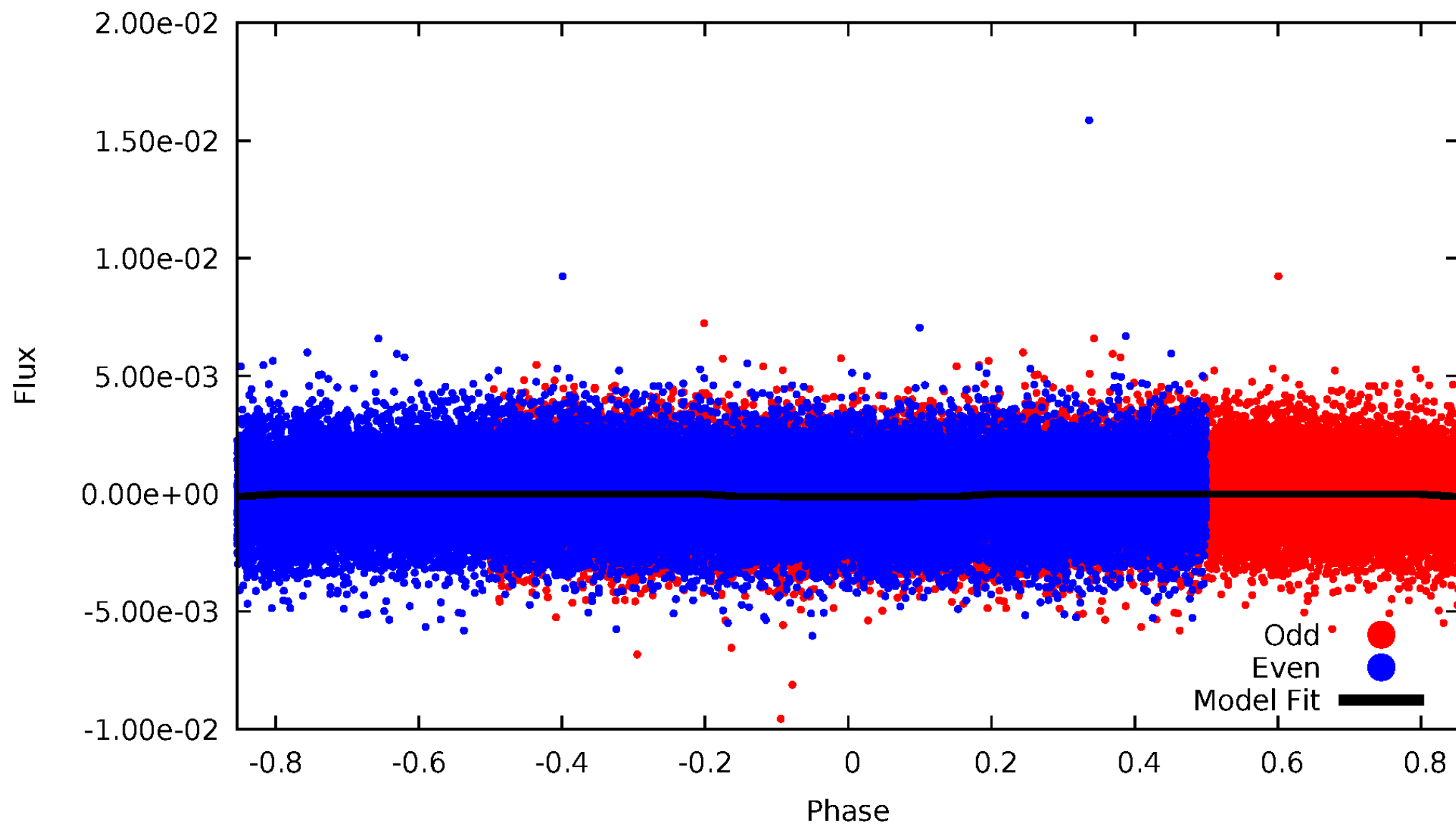


TCE 008459354-02



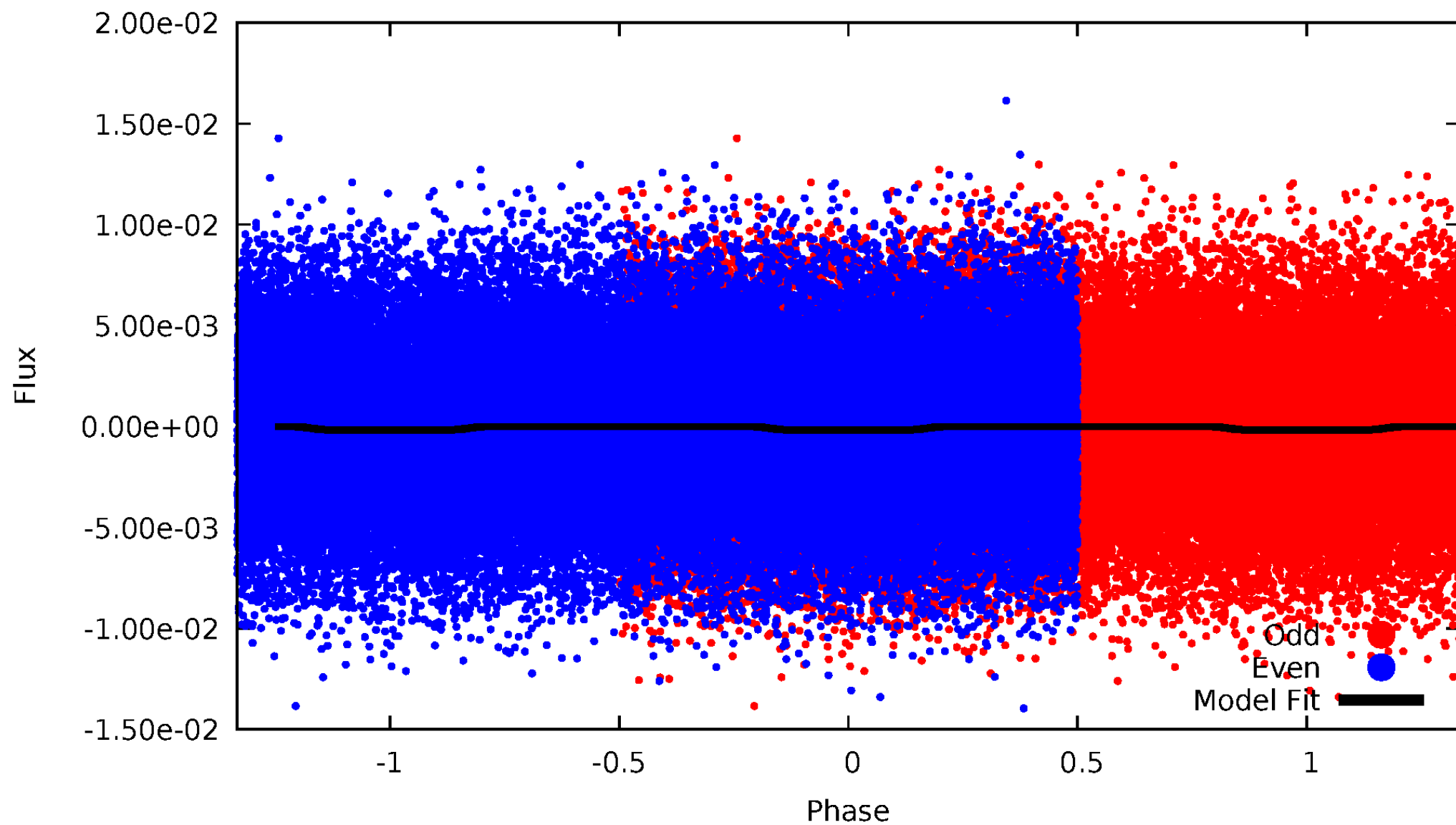
DV Odd/Even

TCE 008459354-02



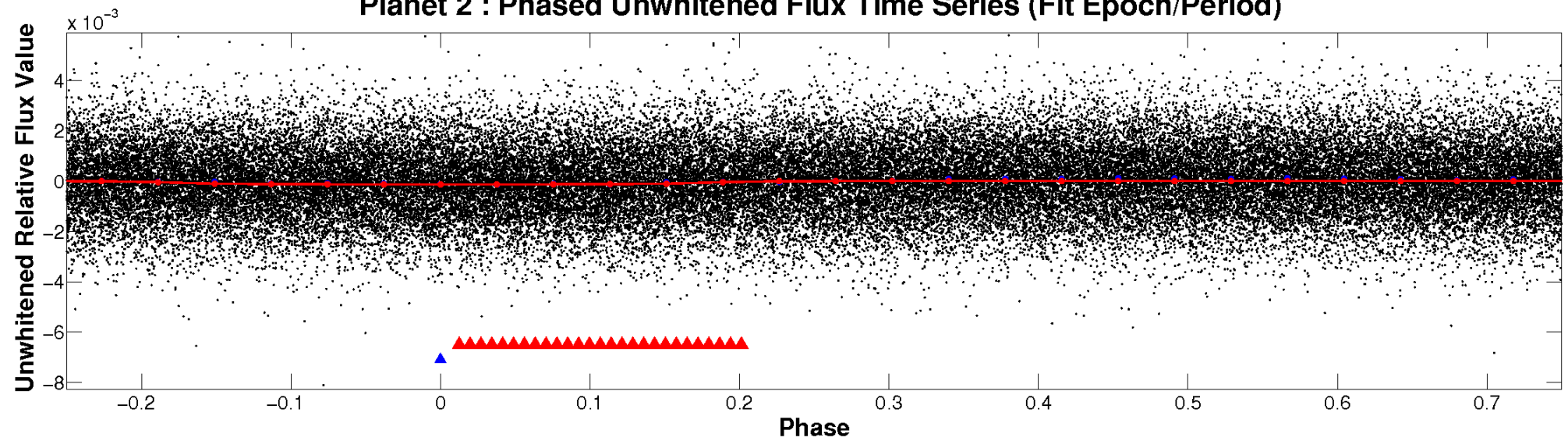
ALT Odd/Even

TCE 008459354-02

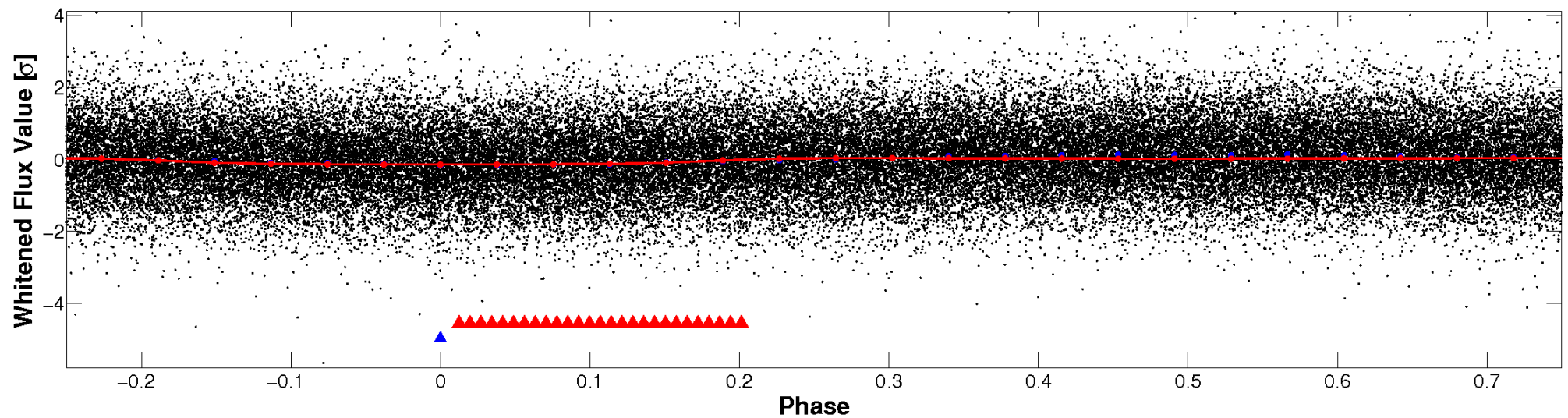


Non-Whitened Vs. Whitened Light Curve

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

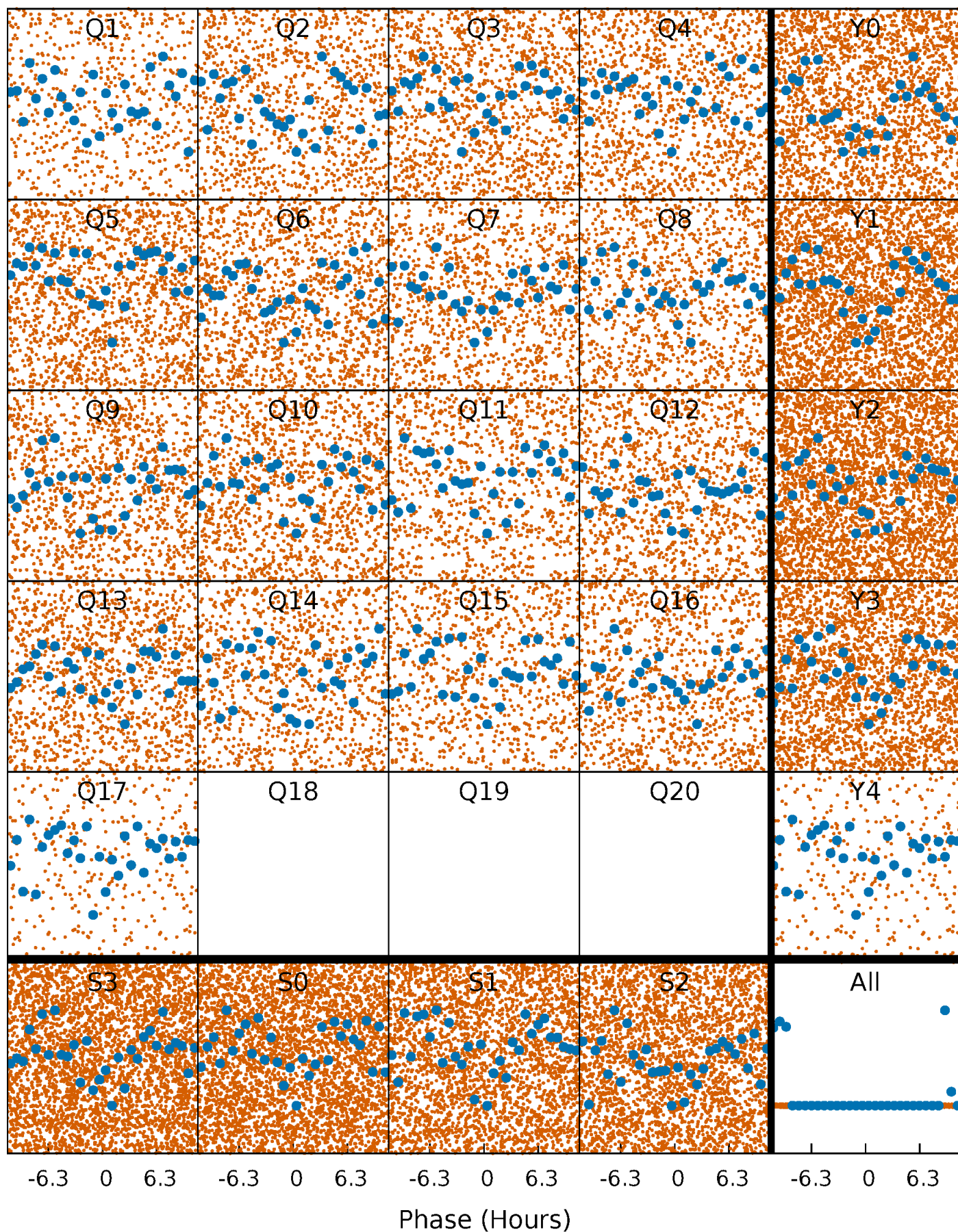


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



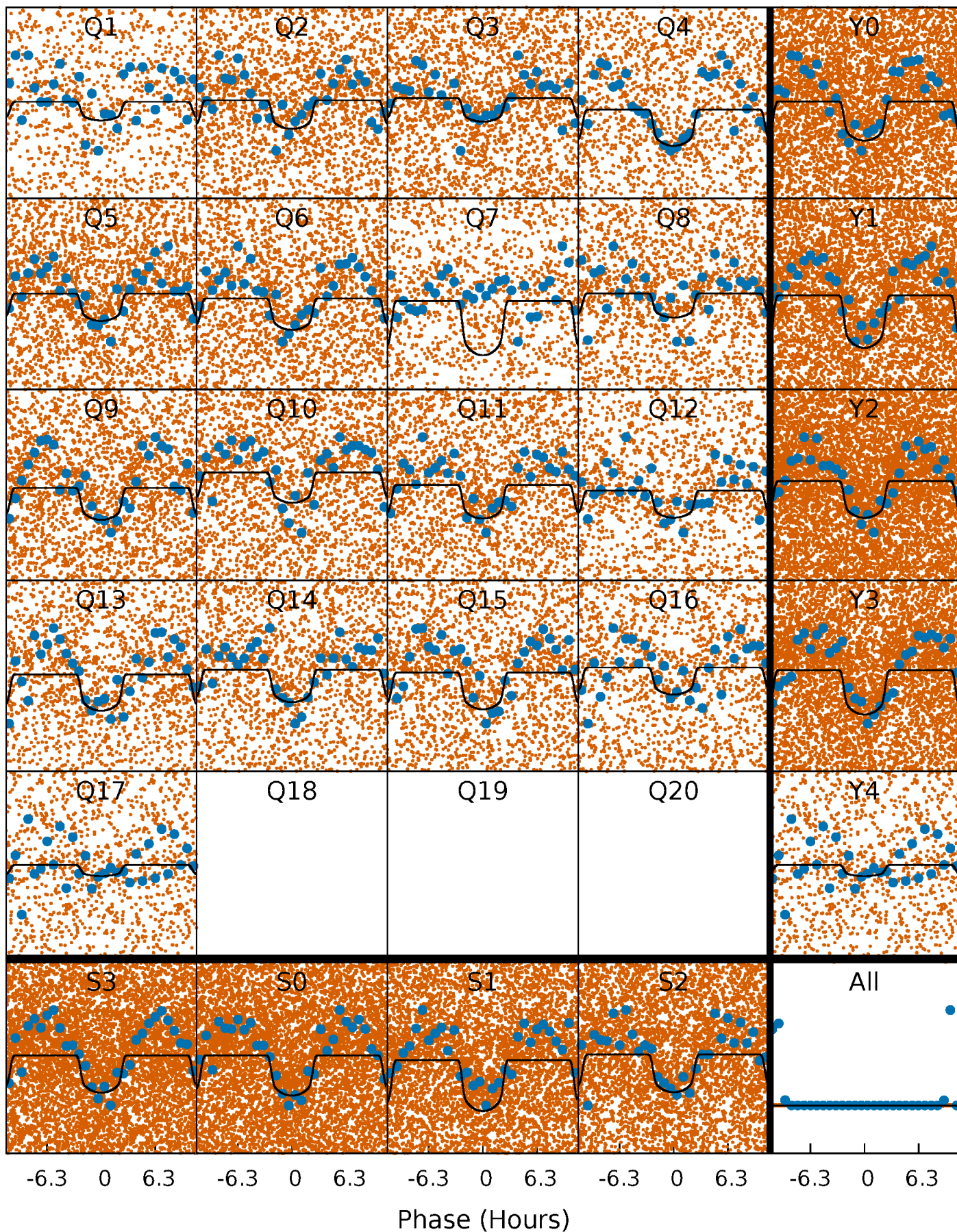
PDC Quarter-Phased Transit Curves

TCE 008459354-02 P= 0.540938 Days $T_0=131.887498$ (BKJD)



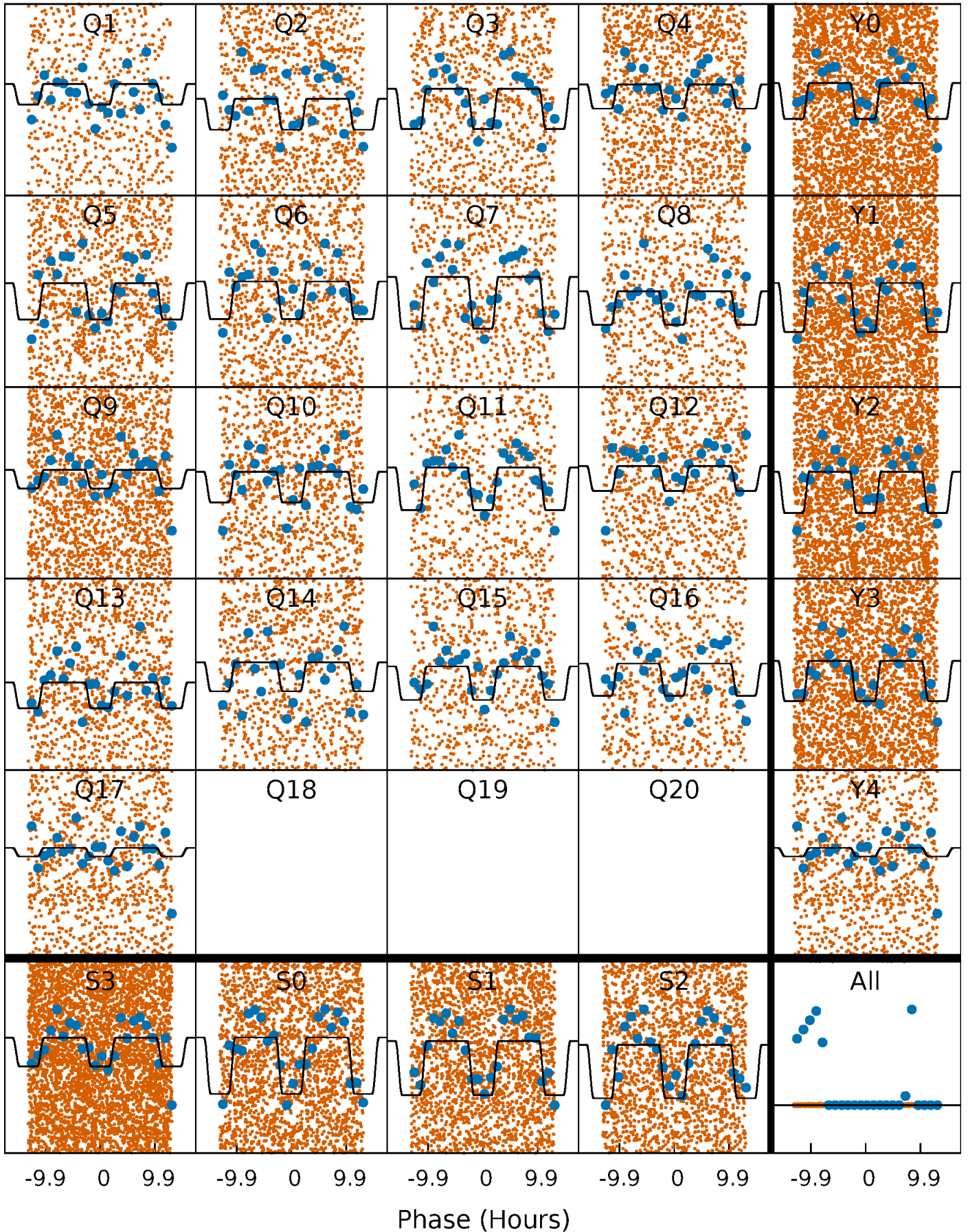
DV Quarter-Phased Transit Curves

TCE 008459354-02 P= 0.540938 Days $T_0=131.887498$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

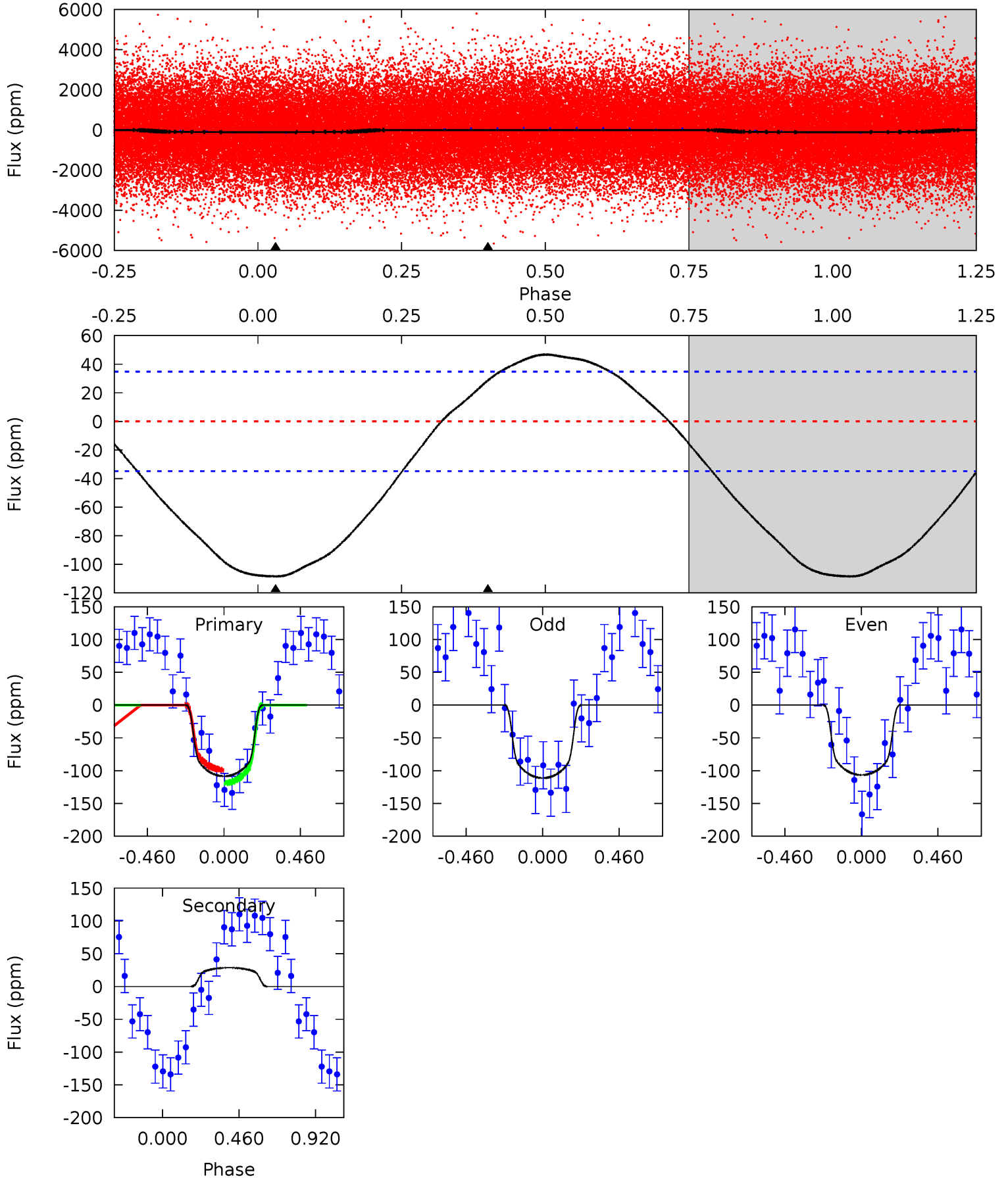
TCE 008459354-02 P= 0.540955 Days $T_0=131.880524$ (BKJD)



DV Model-Shift Uniqueness Test

008459354-02, P = 0.540938 Days, E = 131.346560 Days

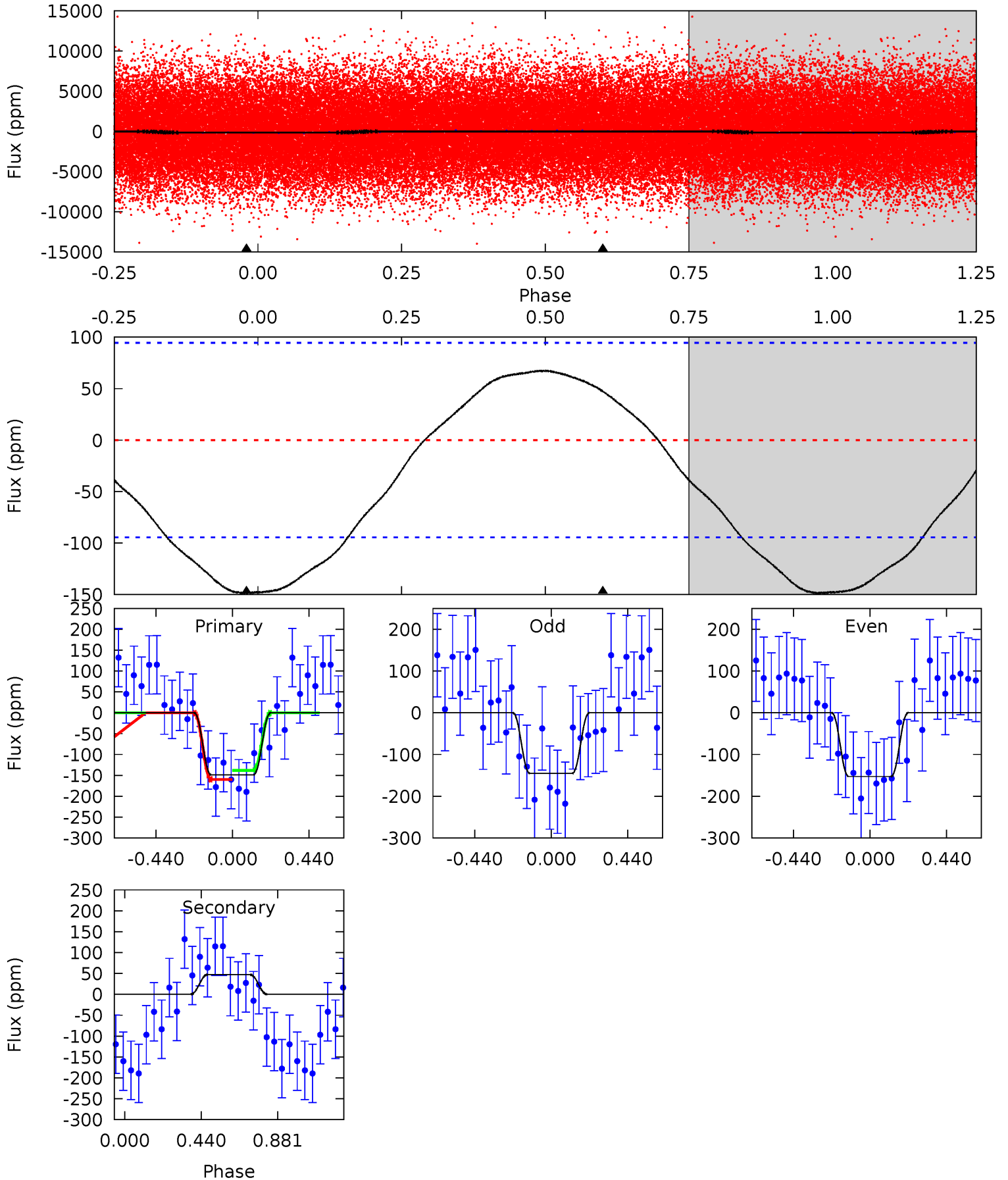
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	-3.48	0	0	4.23	0.74	1.49	13.2	13.2	-3.48	-3.48	0.28	0.89	0.30	1.22



Alt Model-Shift Uniqueness Test

008459354-02, P = 0.540955 Days, E = 131.339569 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.69	-2.11	0	0	4.24	0.77	0.80	6.69	6.69	-2.11	-2.11	0.17	1.13	0.31	0.49



Stellar Parameters For KIC 008459354

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7643^{+212}_{-318}	$3.639^{+0.467}_{-0.082}$	$0.000^{+0.200}_{-0.350}$	$3.618^{+0.609}_{-1.826}$	$2.082^{+0.292}_{-0.542}$	$0.062^{+0.299}_{-0.016}$
	+3%/-4%	+13%/-2%	+inf%/-inf%	+17%/-50%	+14%/-26%	+483%/-26%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008459354-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	29 ± 8	$4.47^{+1.14}_{-1.31}$	6710^{+465}_{-830}	-6192^{+472}_{-406}	$-0.225^{+0.098}_{-0.204}$
Alt.	47 ± 22	$4.87^{+1.21}_{-1.41}$	6670^{+492}_{-838}	-6327^{+592}_{-568}	$-0.282^{+0.141}_{-0.319}$

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

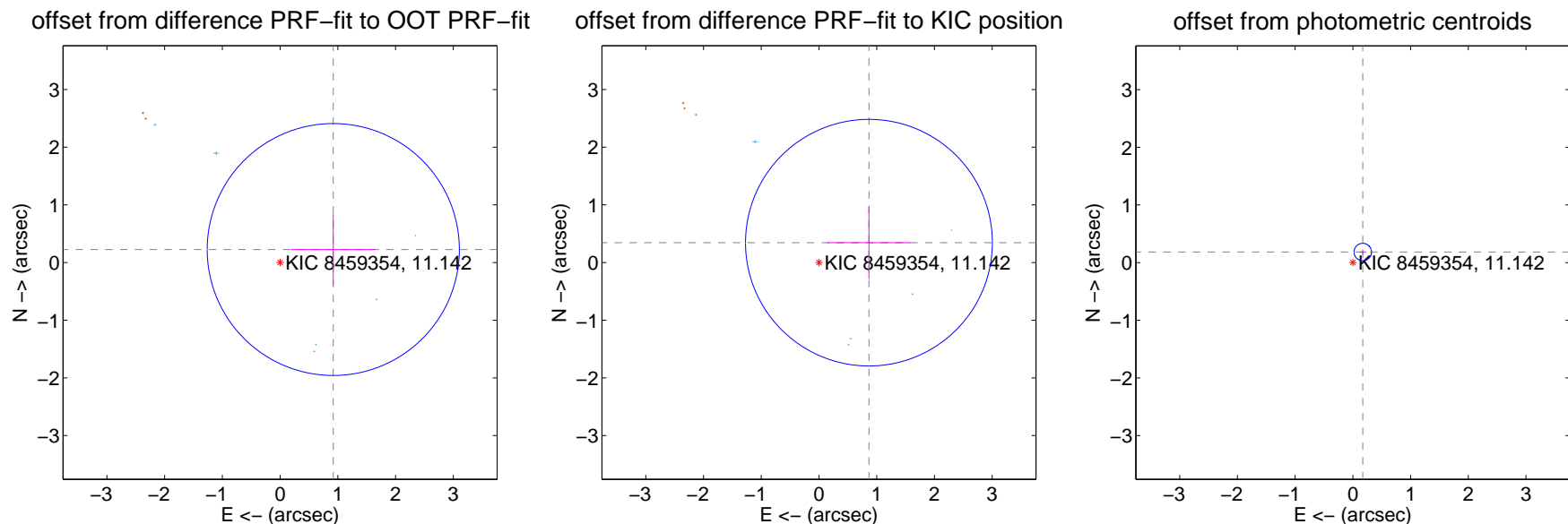
DV Centroid Data

Supplemental centroid analysis for 008459354-02. **Kepler magnitude: 11.14.** Transit SNR 19.39

There are 6 quarters with good PRF difference image offsets

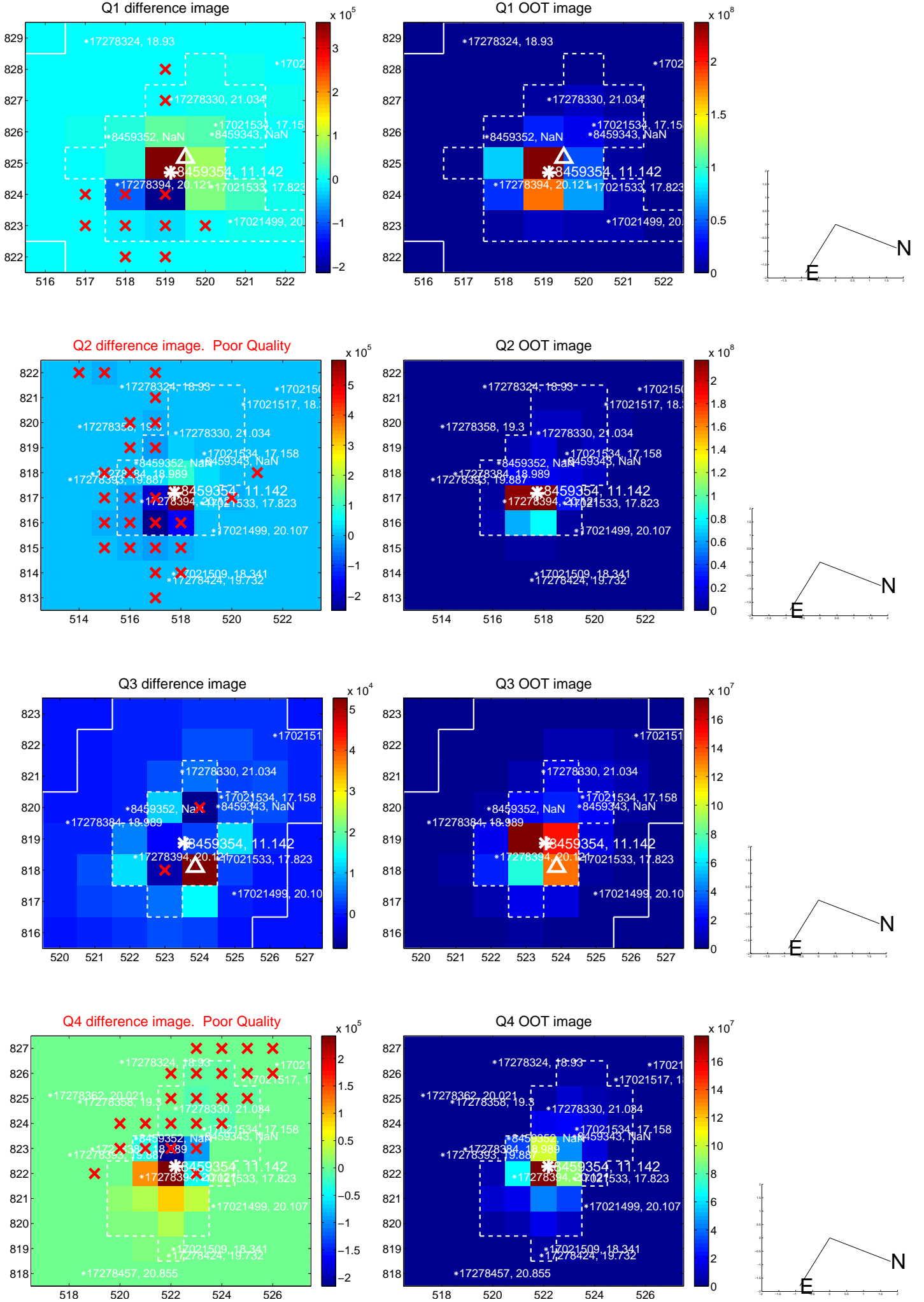
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.948 ± 0.728	1.30	-0.921 ± 0.734	0.226 ± 0.620
PRF-fit source offset from KIC position	0.932 ± 0.713	1.31	-0.866 ± 0.725	0.345 ± 0.630
photometric centroid source offset	0.25 ± 0.05	4.98	-0.17 ± 0.06	0.18 ± 0.04

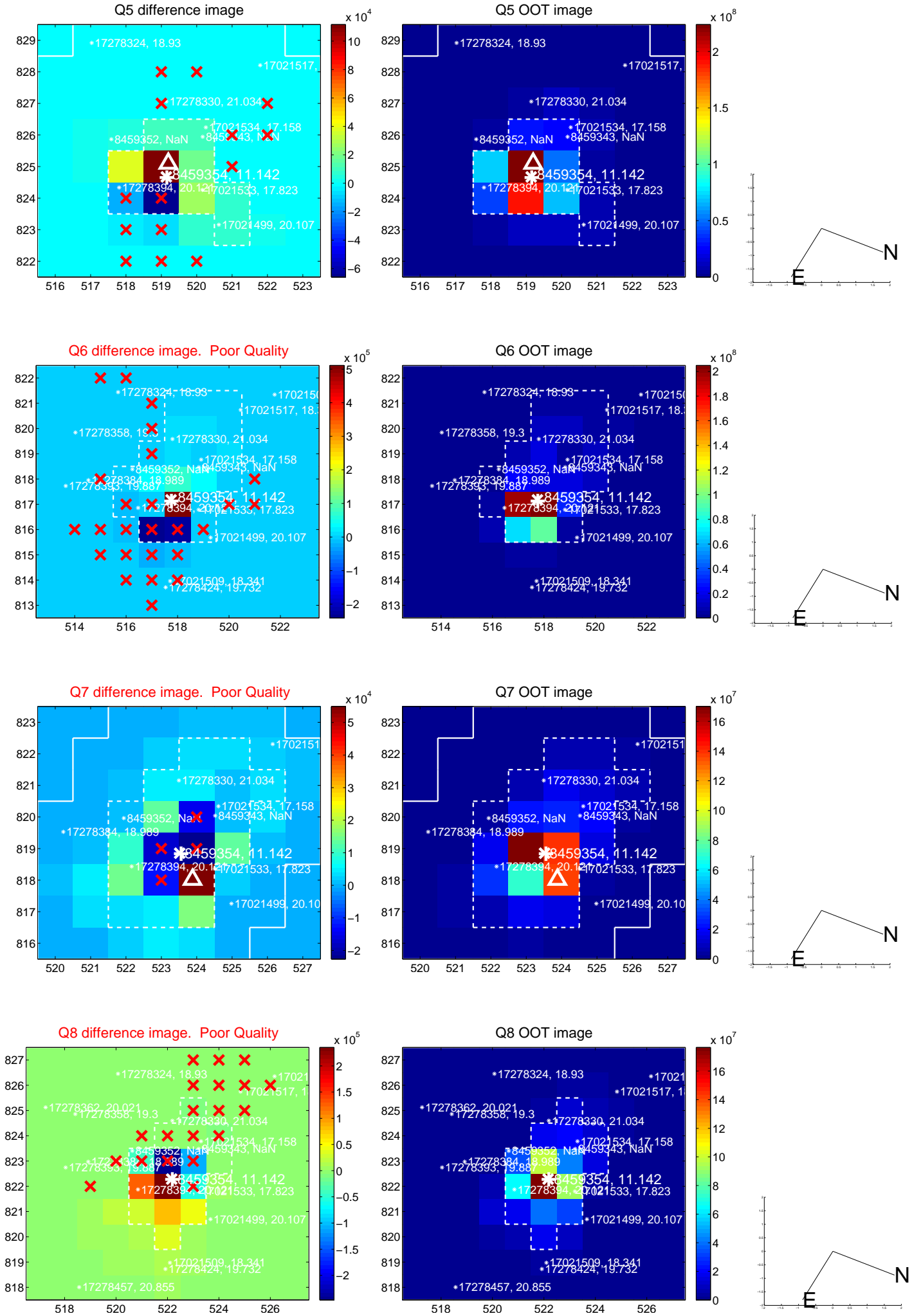


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

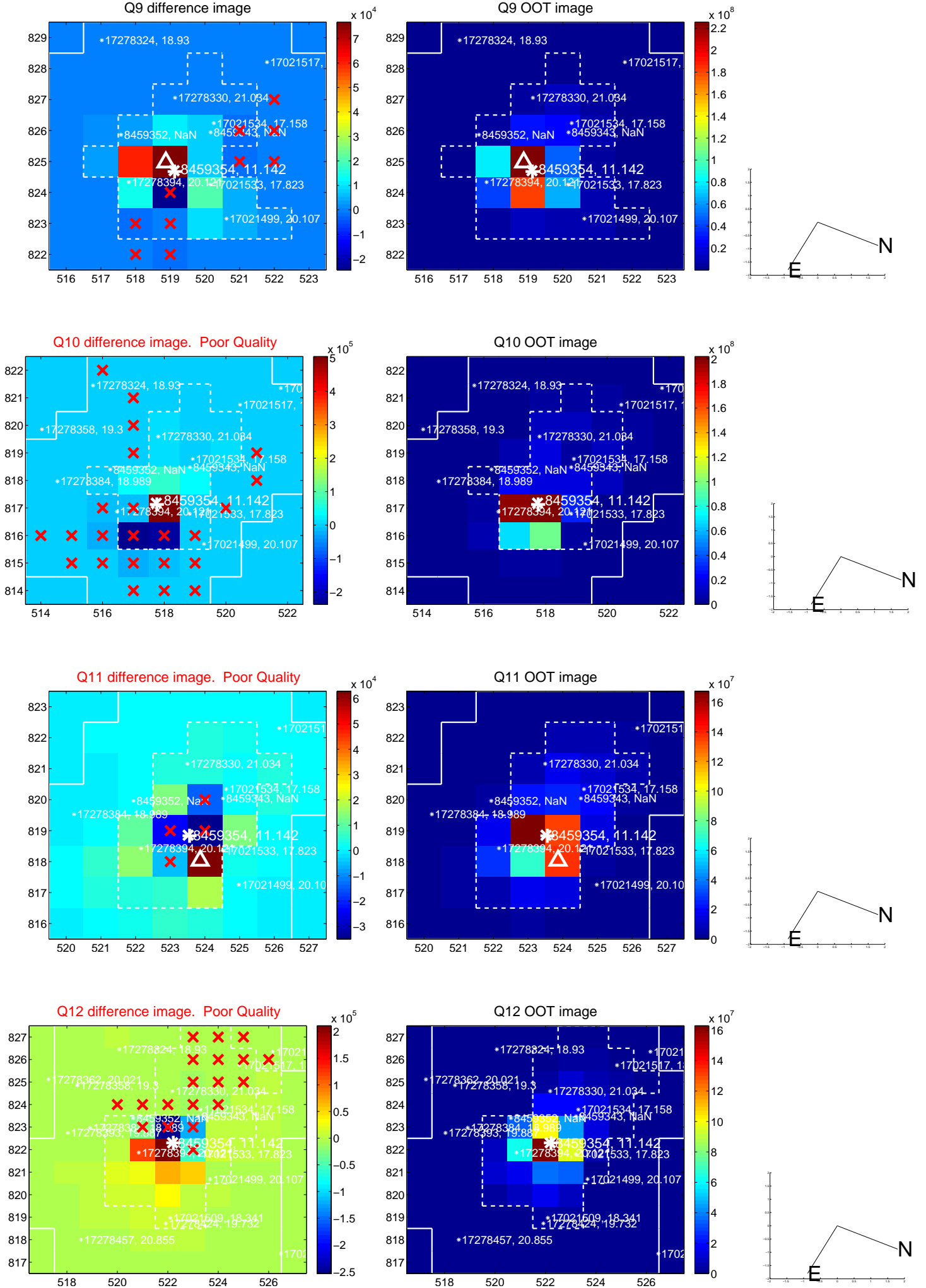
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



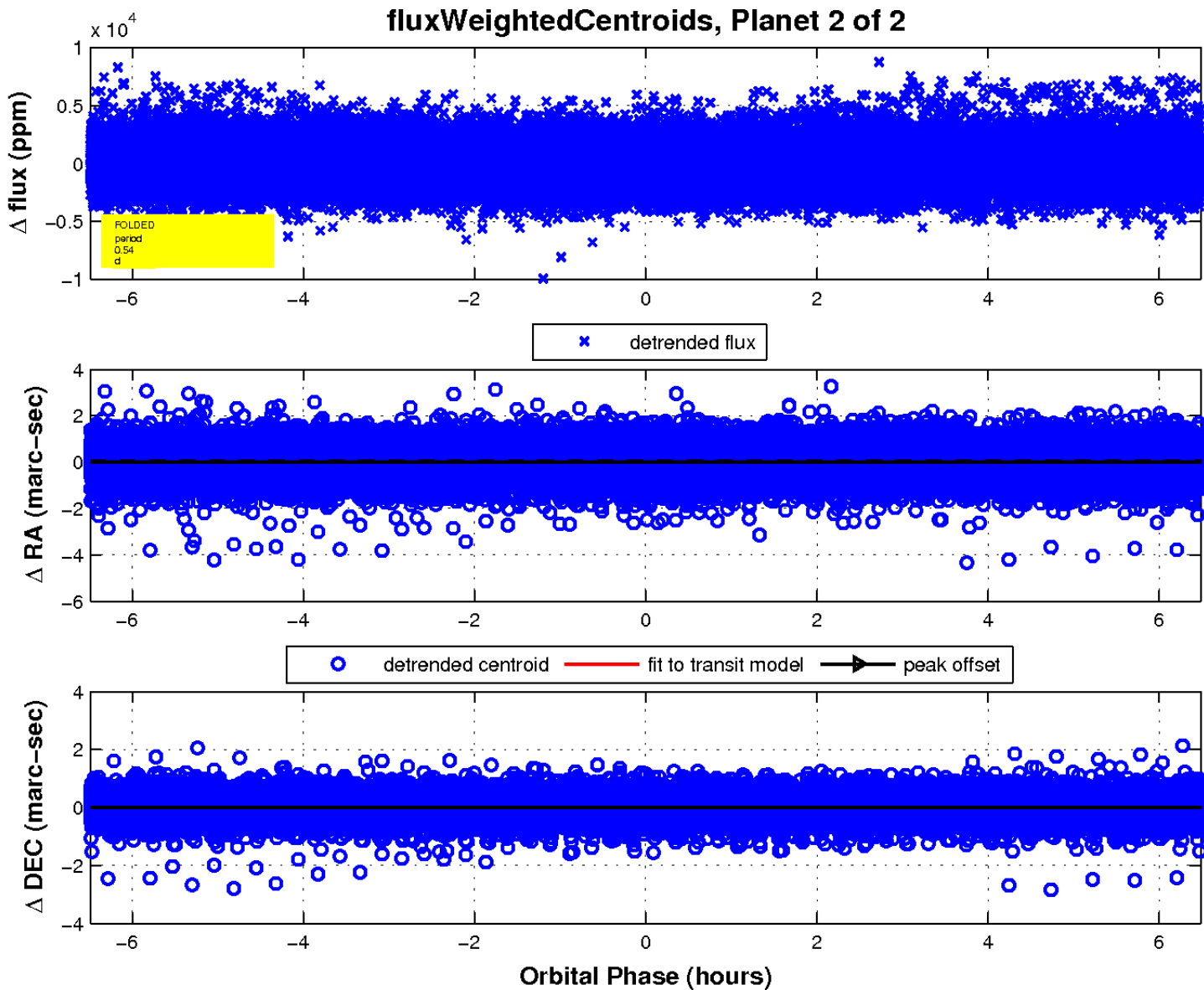
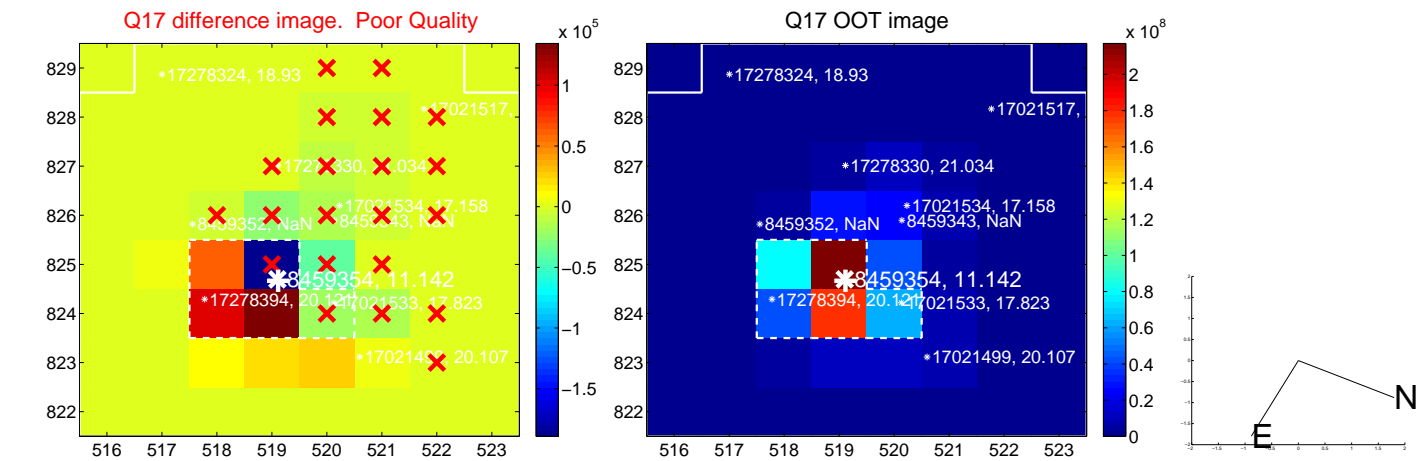
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

