

KIC 008573774

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})
008573774-01	OBS	No	0.641611	131.894993	120.8	0.682	16.8	7.9	2.18	6799	2.52	36460.04
008573774-02	OBS	No	0.968584	131.567370	100.9	5.792	11.4	12.7	2.18	6799	2.53	21053.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008573774-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008573774-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

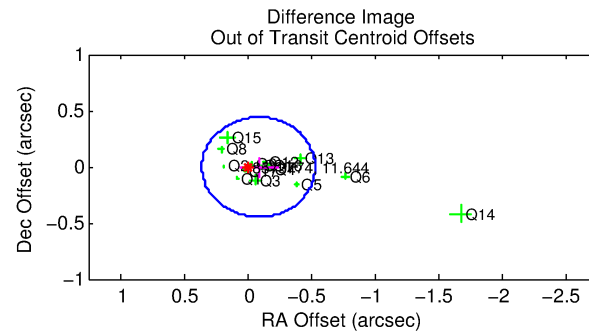
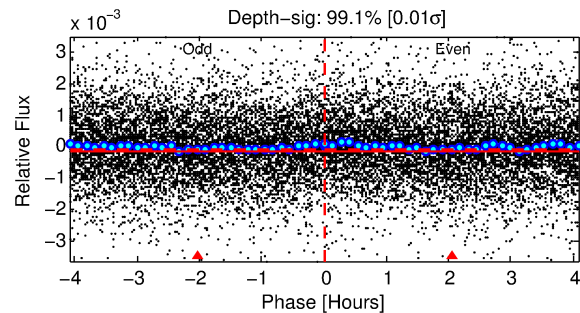
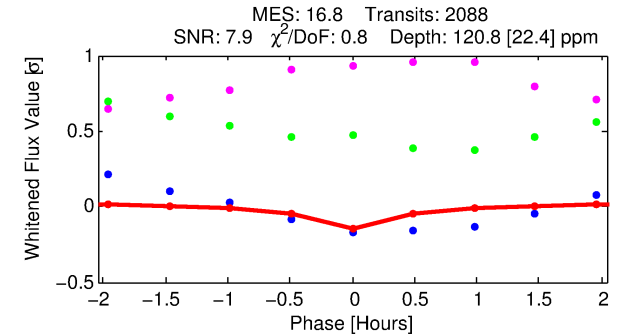
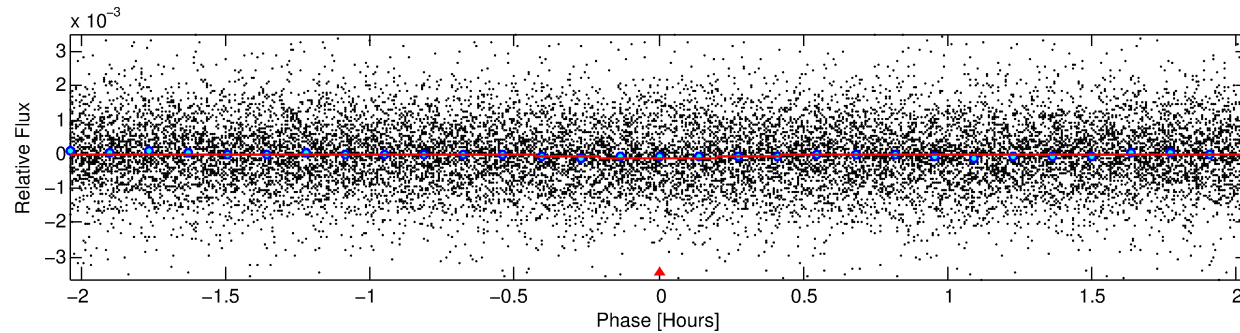
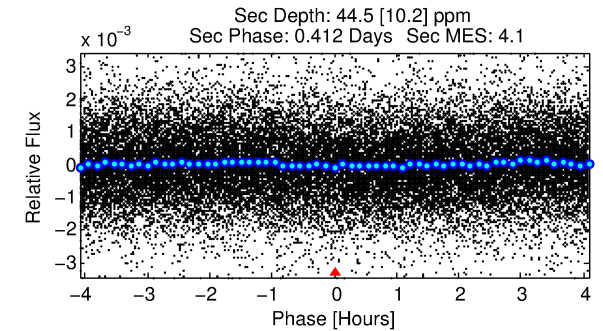
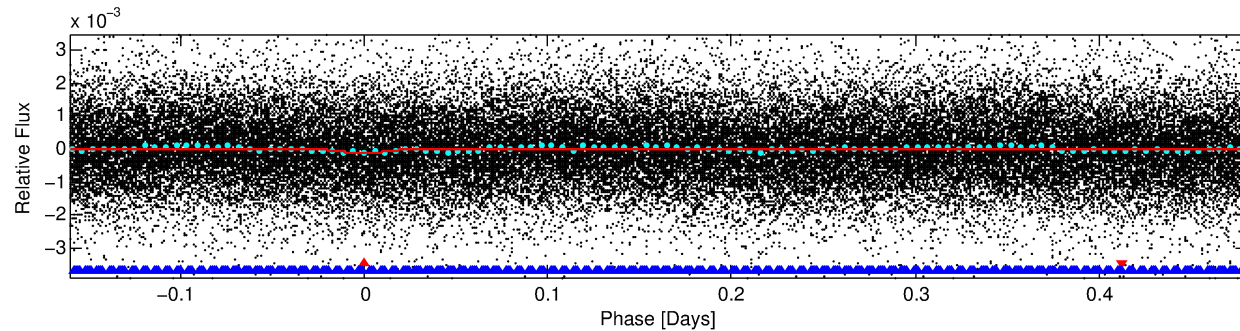
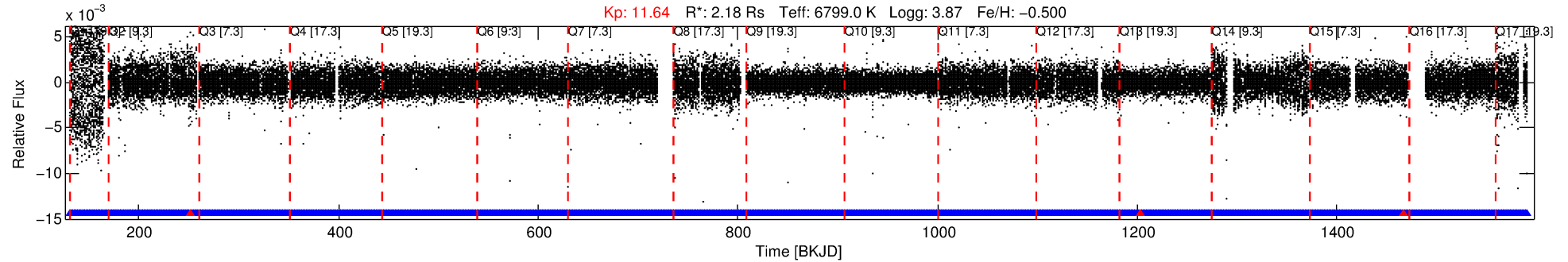
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008573774-01

No Significant Match Found

DV One-Page Summary

KIC: 8573774 Candidate: 1 of 2 Period: 0.642 d



DV Fit Results:

Period = 0.64161 [0.00001] d
Epoch = 131.8950 [0.0020] BKJD
 $R_p/R^* = 0.0106$ [0.0072]
 $a/R^* = 6.43$ [24.17]
 $b = 0.48$ [6.15]
 $\text{Seff} = 36460.04$ [27012.21]
 $T_{\text{eq}} = 3524$ [653] K
 $R_p = 2.52$ [2.03] R_e
 $a = 0.0158$ [0.0070] AU
 $A_g = 0.96$ [1.49] $[-0.03\sigma]$
 $T_{\text{eff}} = 5393$ [1865] K [0.95σ]

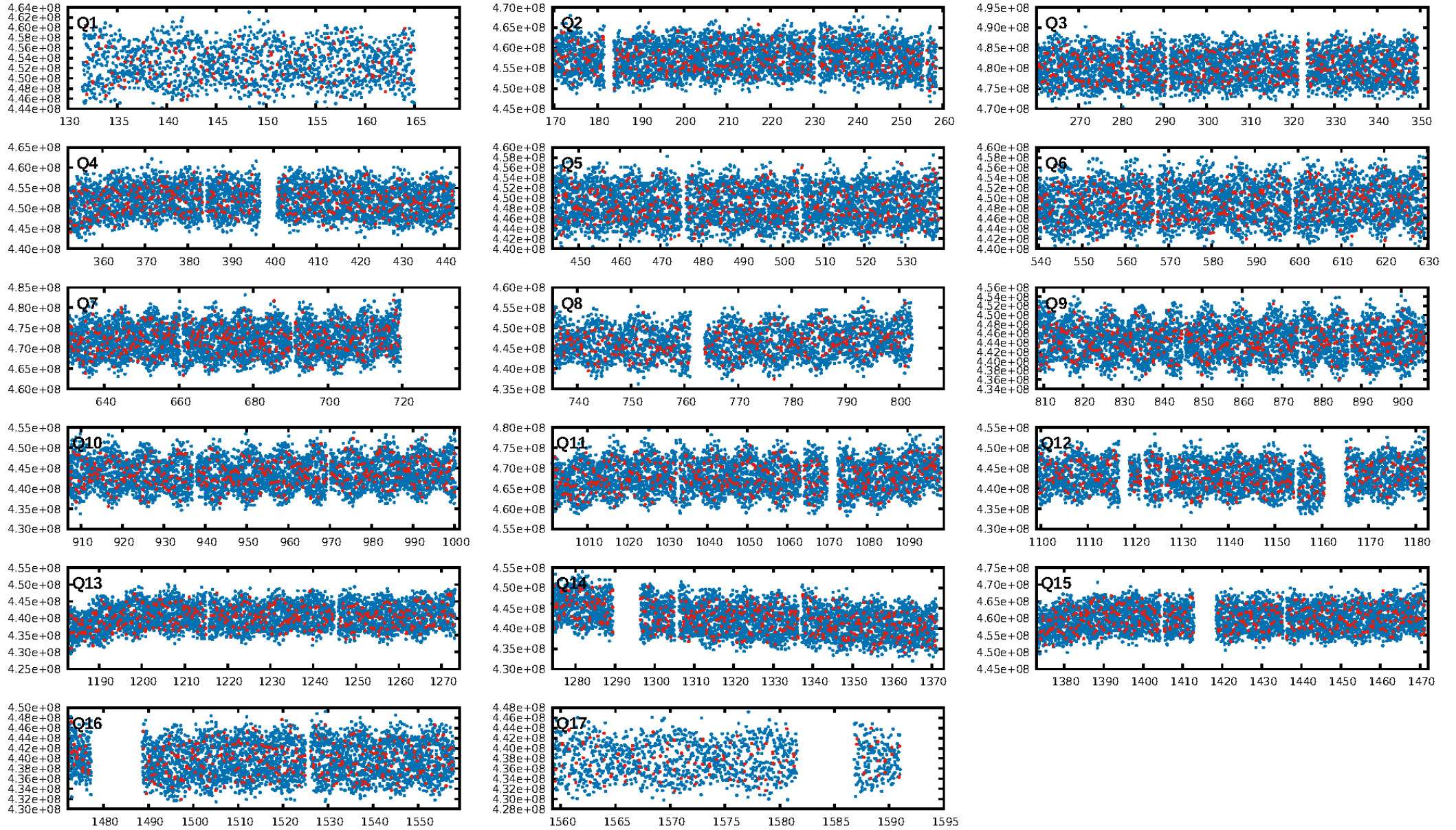
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 82.2% [1.35σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 3.42e-65
RollingBand-fgt: 1.00 [1991/1994]
GhostDiagnostic-chr: 3.547
Centroid-sig: 9.7%
Centroid-so: 0.250 arcsec [1.97σ]
OotOffset-rm: 0.089 arcsec [0.60σ]
KicOffset-rm: 0.175 arcsec [1.24σ]
OotOffset-st: 3/3/4/5 [15]
KicOffset-st: 3/3/4/5 [15]
DiffImageQuality-fgm: 0.67 [10/15]
DiffImageOverlap-fno: 1.00 [17/17]

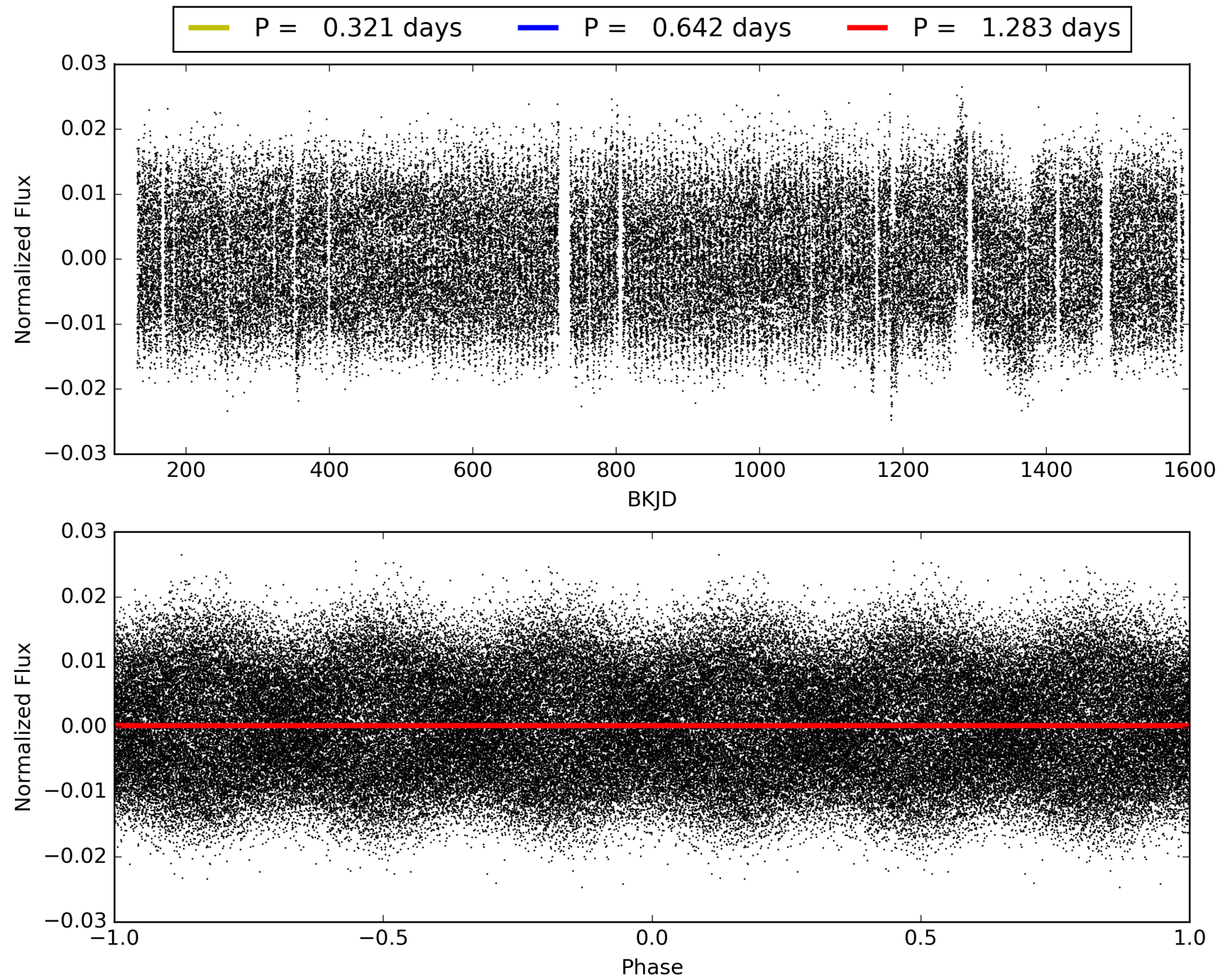
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:38:41 Z

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

TCE 008573774-01, PDC Light Curves

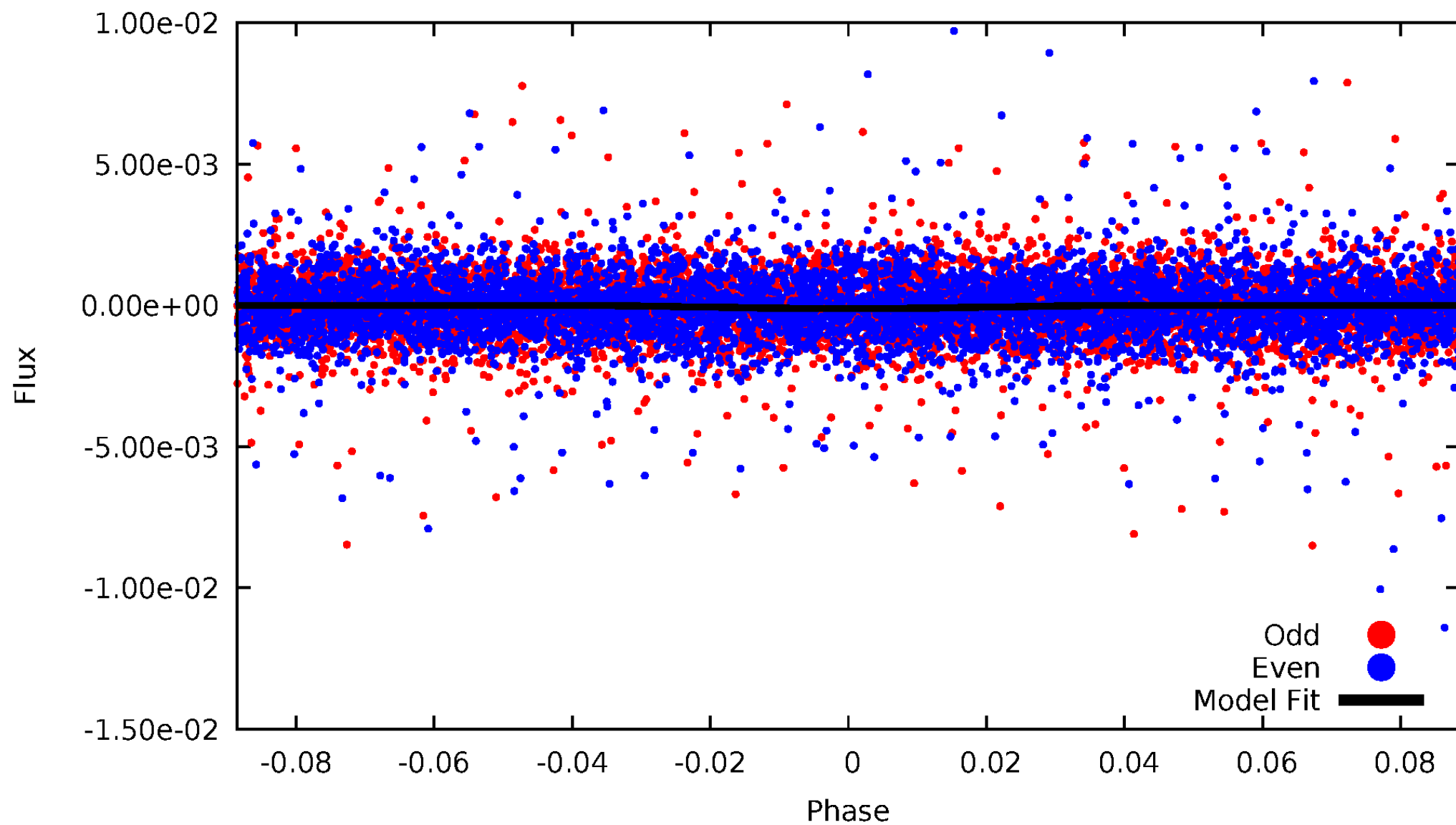


TCE 008573774-01



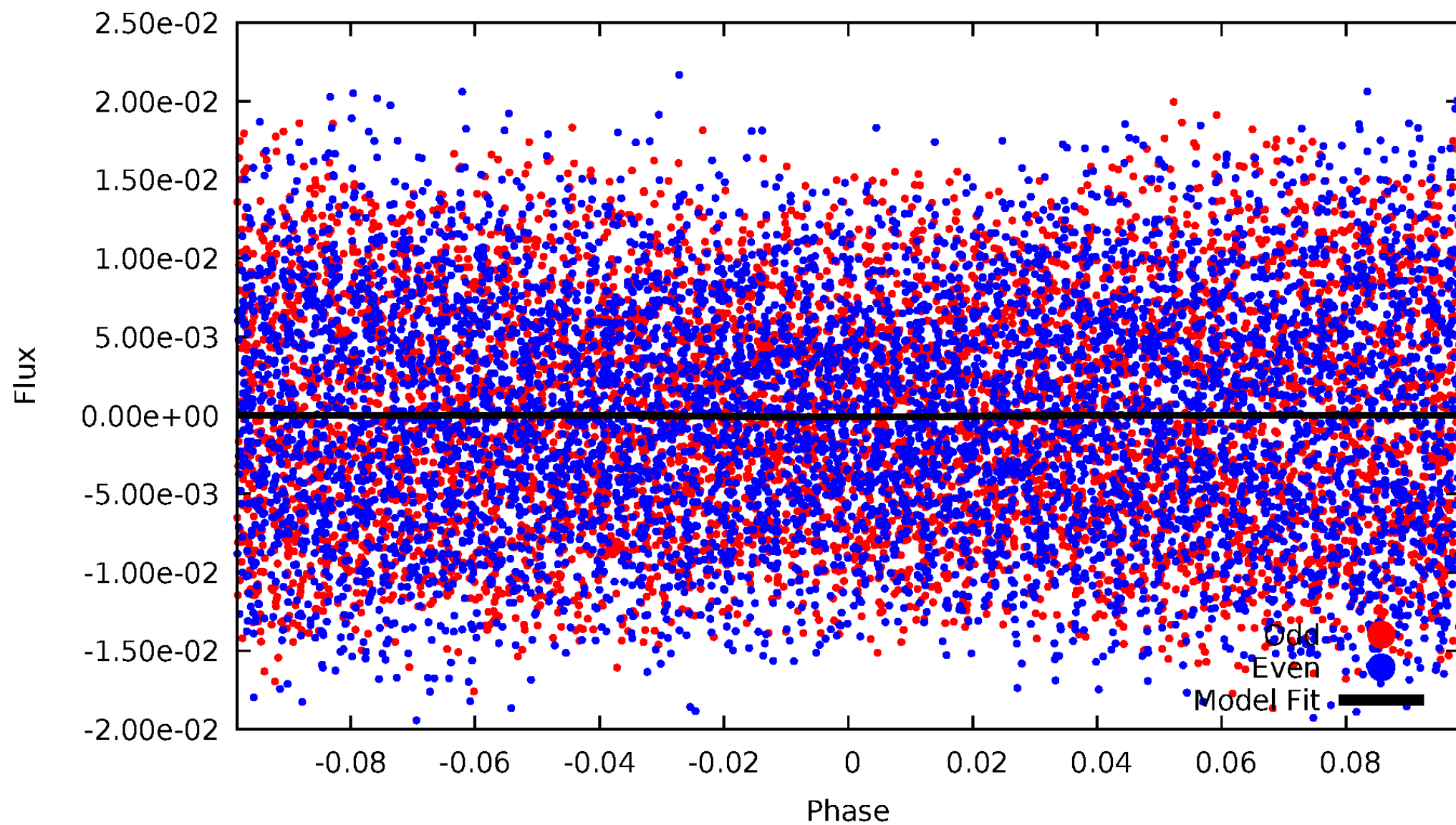
DV Odd/Even

TCE 008573774-01



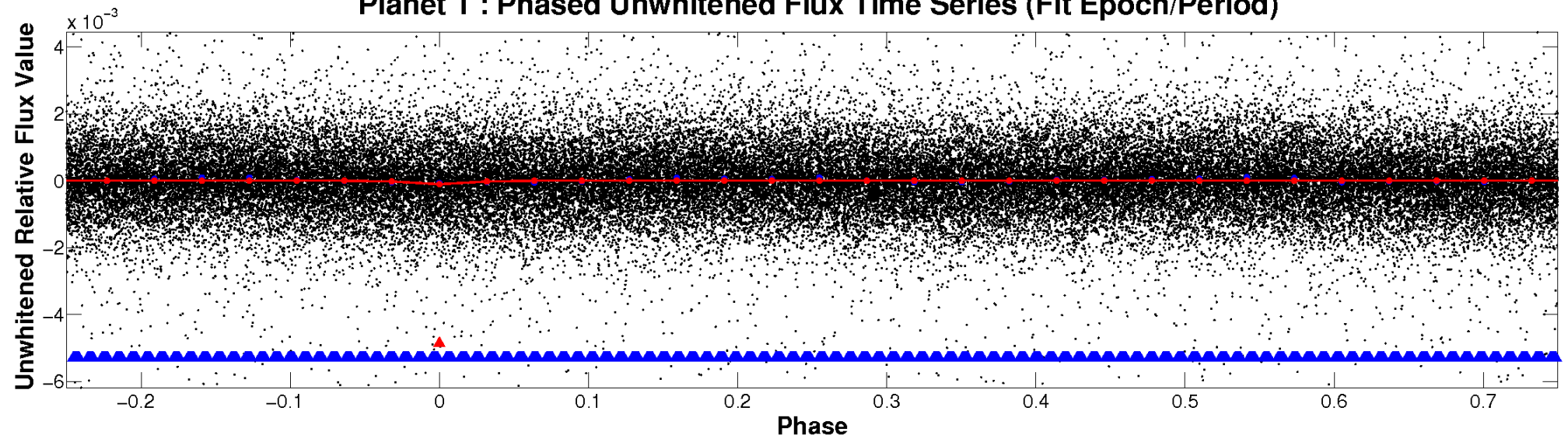
ALT Odd/Even

TCE 008573774-01

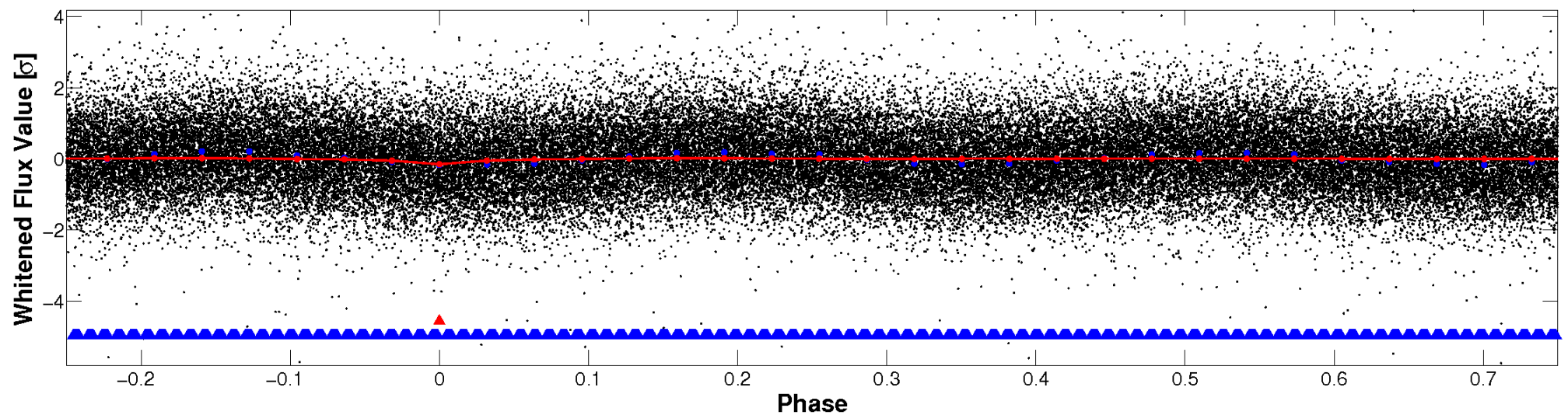


Non-Whitened Vs. Whitened Light Curve

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

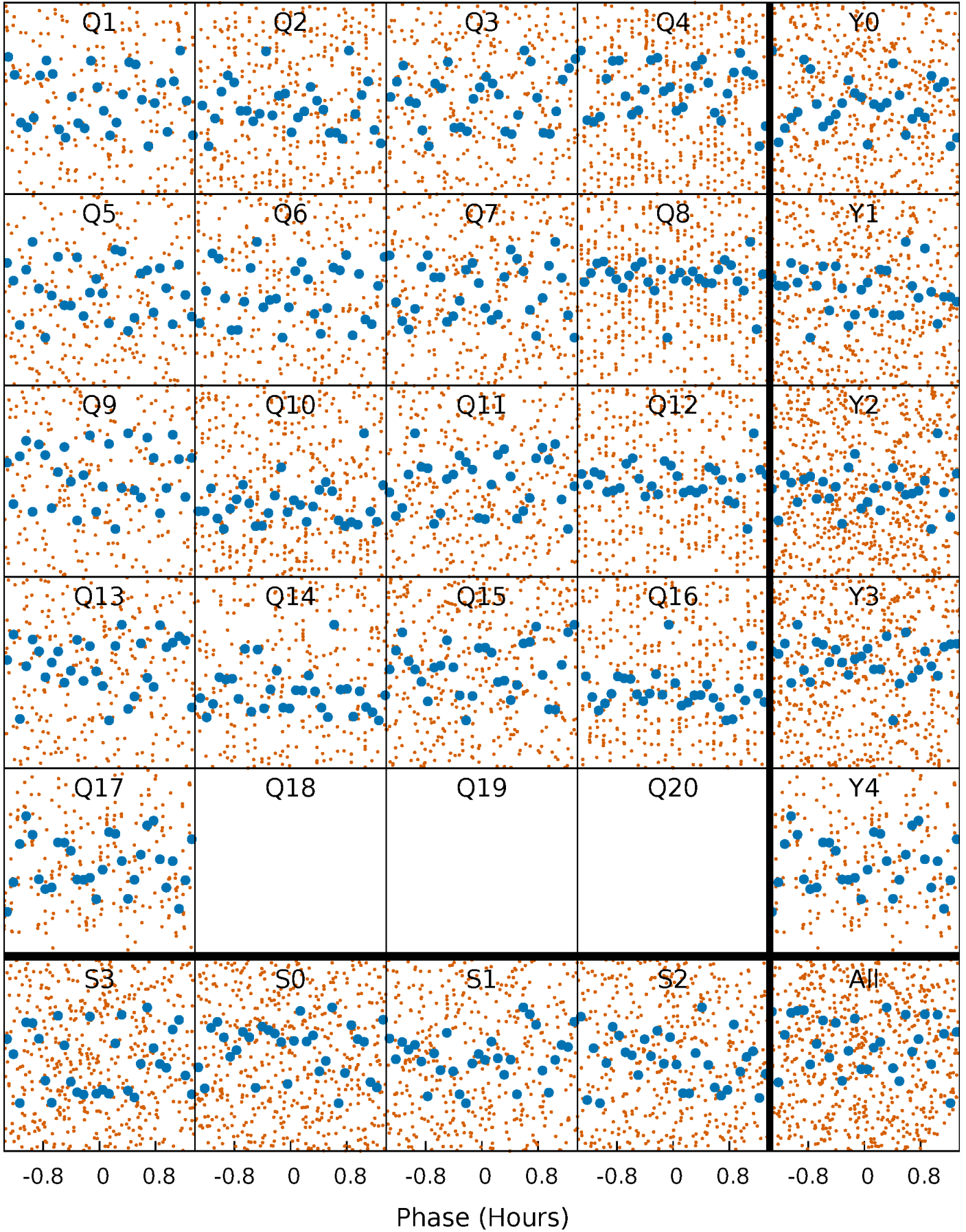


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



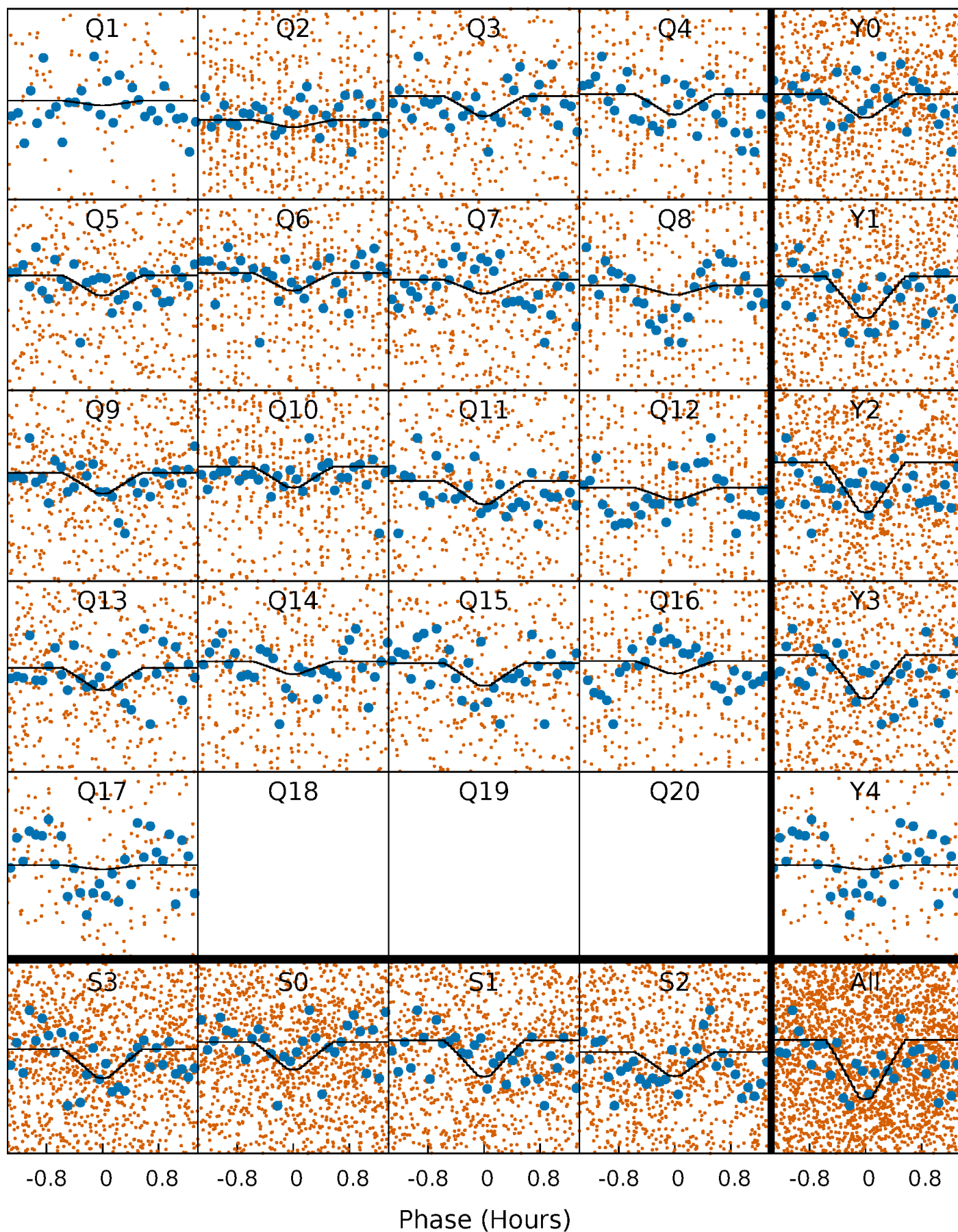
PDC Quarter-Phased Transit Curves

TCE 008573774-01 P= 0.641611 Days $T_0=131.894993$ (BKJD)



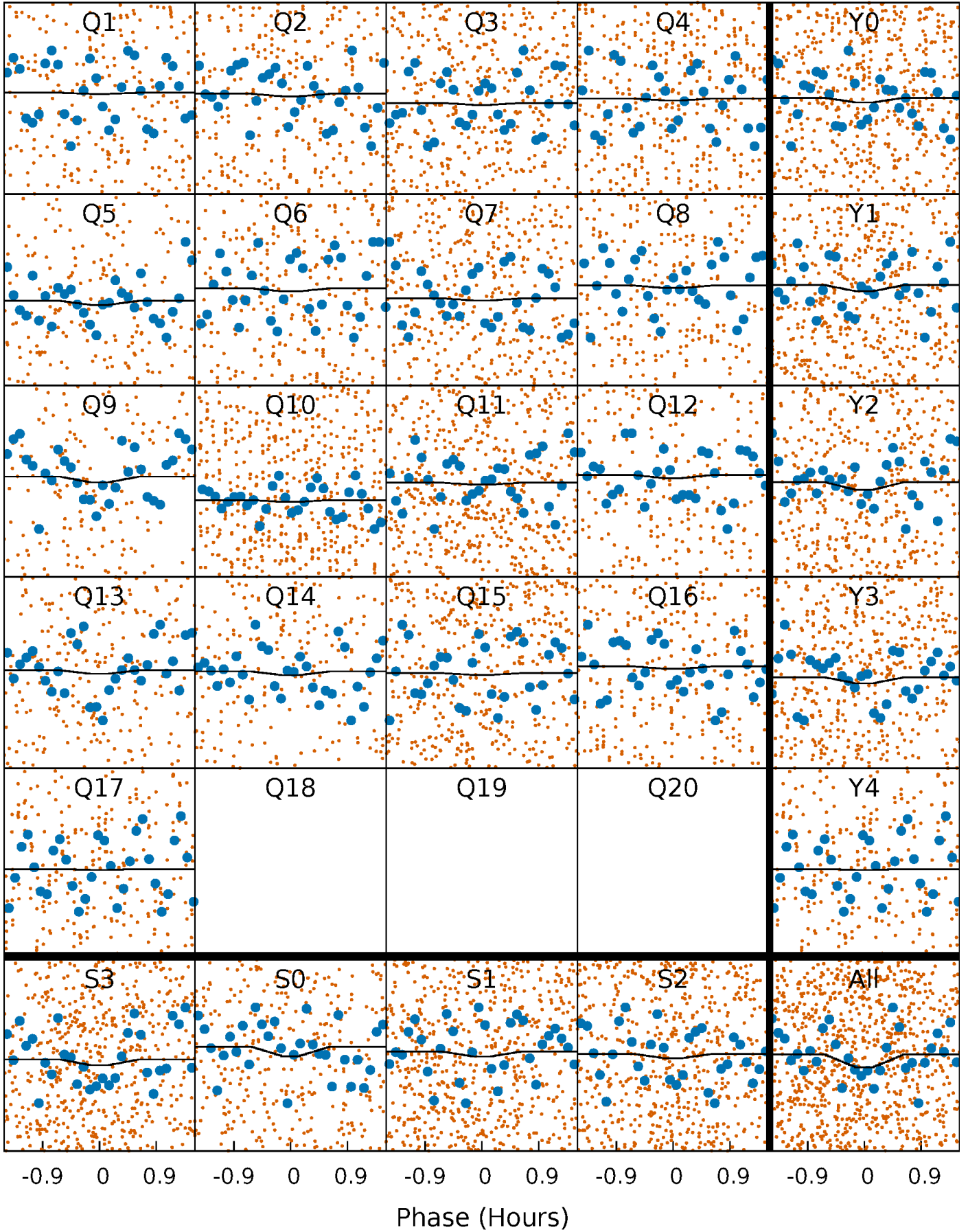
DV Quarter-Phased Transit Curves

TCE 008573774-01 P= 0.641611 Days $T_0=131.894993$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

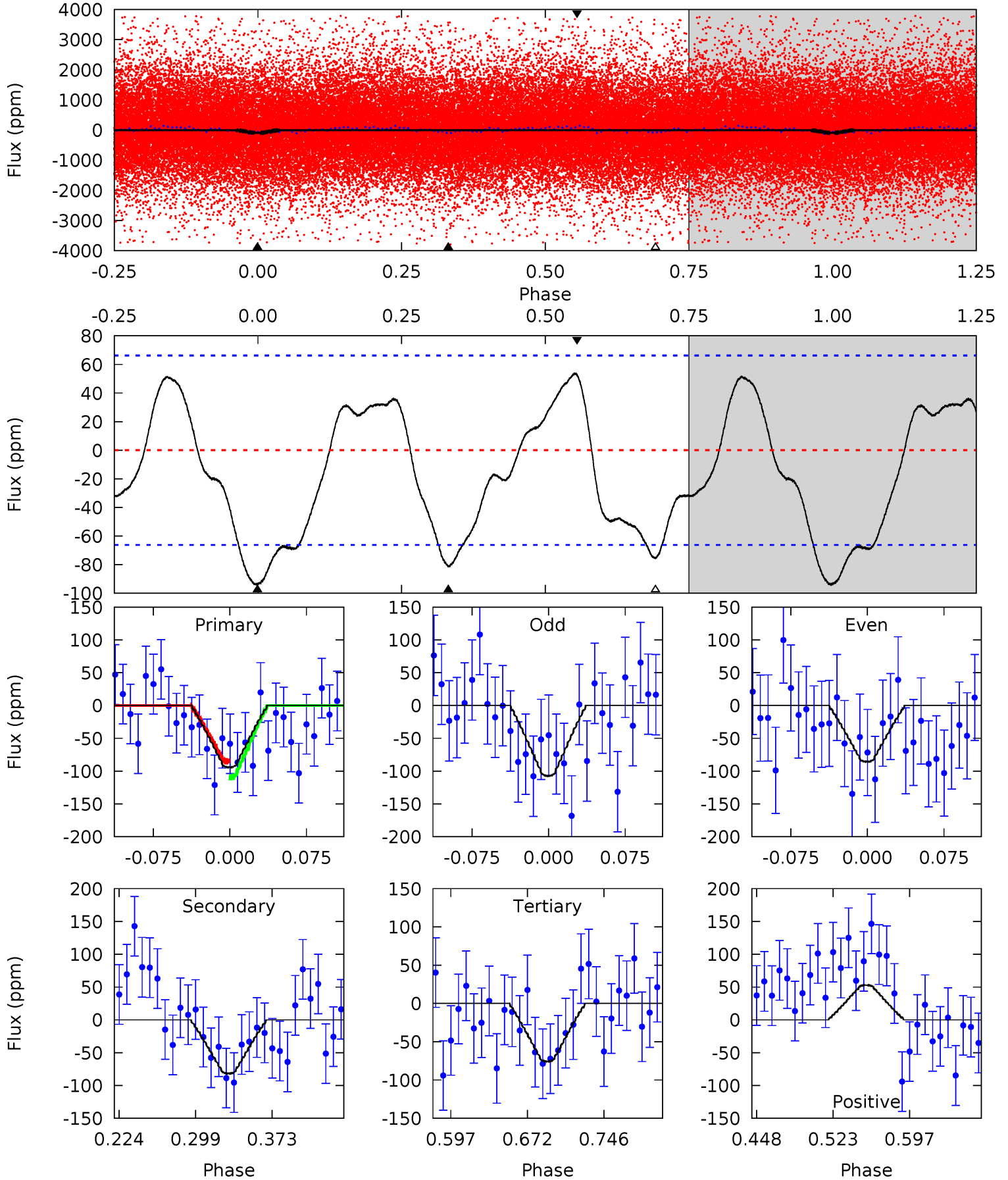
TCE 008573774-01 P= 0.641613 Days $T_0=131.894762$ (BKJD)



DV Model-Shift Uniqueness Test

008573774-01, P = 0.641611 Days, E = 131.253382 Days

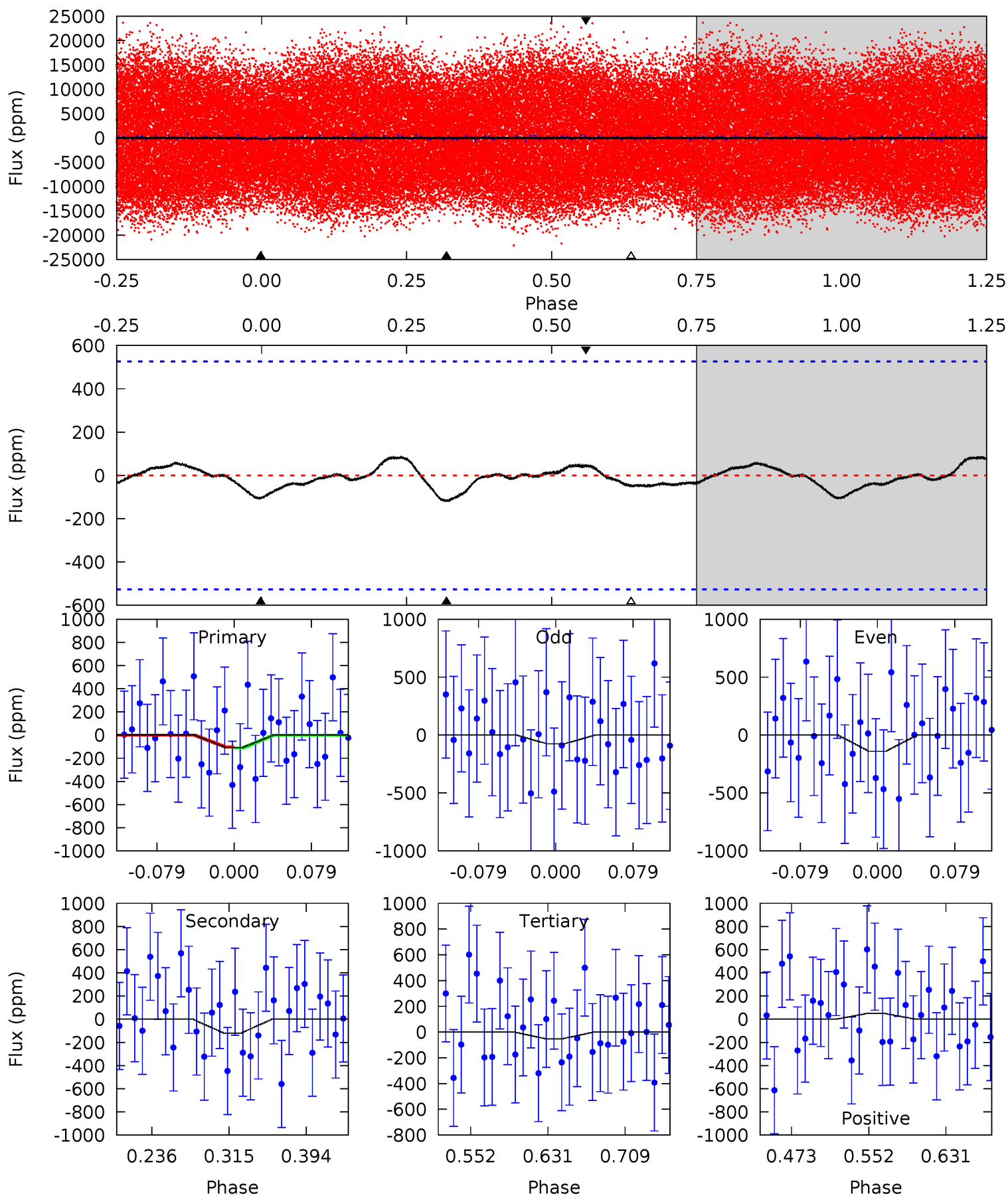
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.59	5.71	5.30	3.69	4.63	1.78	2.56	1.29	2.90	0.41	2.02	0.76	0.74	0.36	0.84



Alt Model-Shift Uniqueness Test

008573774-01, P = 0.641613 Days, E = 131.253149 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.94	1.06	0.46	0.44	4.61	1.76	0.29	0.48	0.50	0.60	0.62	0.28	0.36	0.42	0.04



Stellar Parameters For KIC 008573774

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6799^{+214}_{-262}	$3.867^{+0.432}_{-0.108}$	$-0.500^{+0.250}_{-0.300}$	$2.179^{+0.514}_{-0.955}$	$1.276^{+0.184}_{-0.253}$	$0.174^{+0.638}_{-0.059}$
	+3%/-4%	+11%/-3%	+50%/-60%	+24%/-44%	+14%/-20%	+367%/-34%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 008573774-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-82 ± 14	$2.29^{+1.87}_{-1.27}$	4762^{+383}_{-575}	5796^{+4033}_{-1546}	$2.081^{+9.027}_{-1.434}$
Alt.	-121 ± 114	$2.34^{+1.78}_{-1.31}$	4764^{+389}_{-538}	6227^{+5265}_{-9846}	$2.498^{+13.514}_{-2.369}$

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

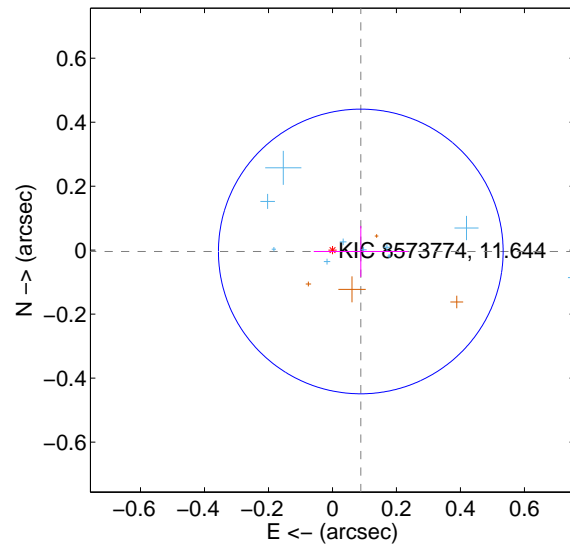
Supplemental centroid analysis for 008573774-01. **Kepler magnitude: 11.64.** Transit SNR 7.88

There are 10 quarters with good PRF difference image offsets

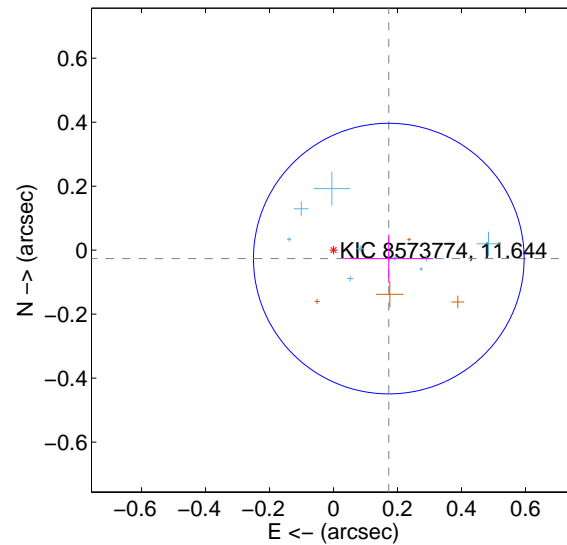
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.089 ± 0.148	0.60	-0.088 ± 0.147	-0.004 ± 0.080
PRF-fit source offset from KIC position	0.175 ± 0.141	1.24	-0.173 ± 0.139	-0.026 ± 0.075
photometric centroid source offset	0.25 ± 0.13	1.97	-0.25 ± 0.13	0.05 ± 0.12

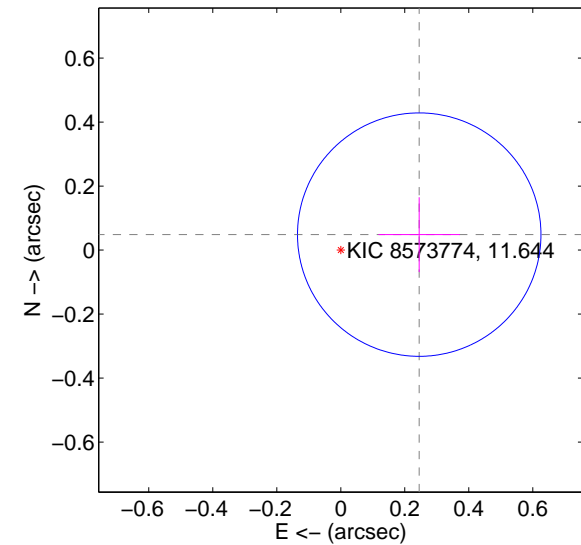
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

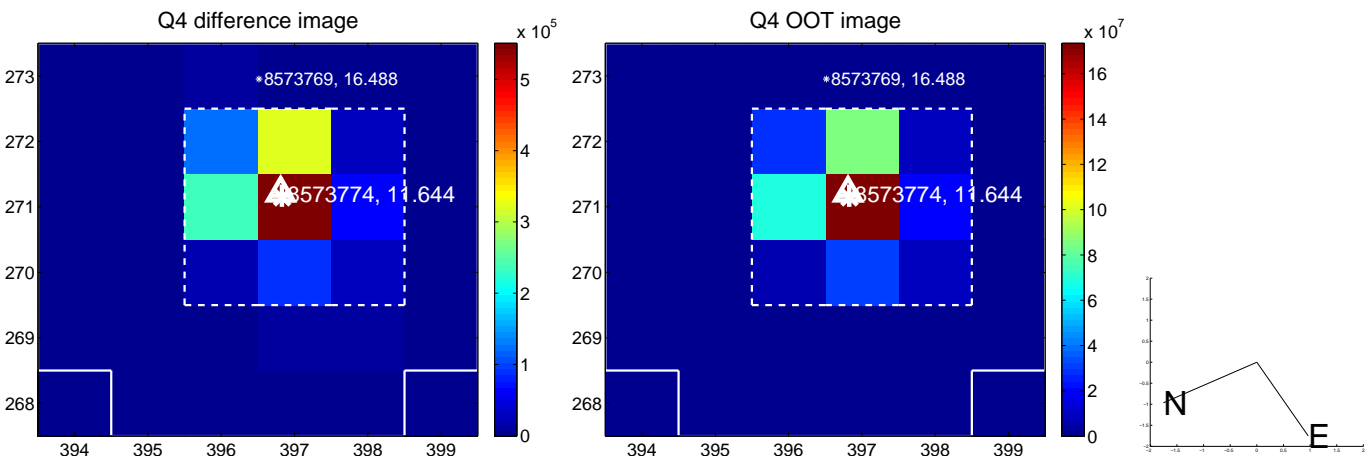
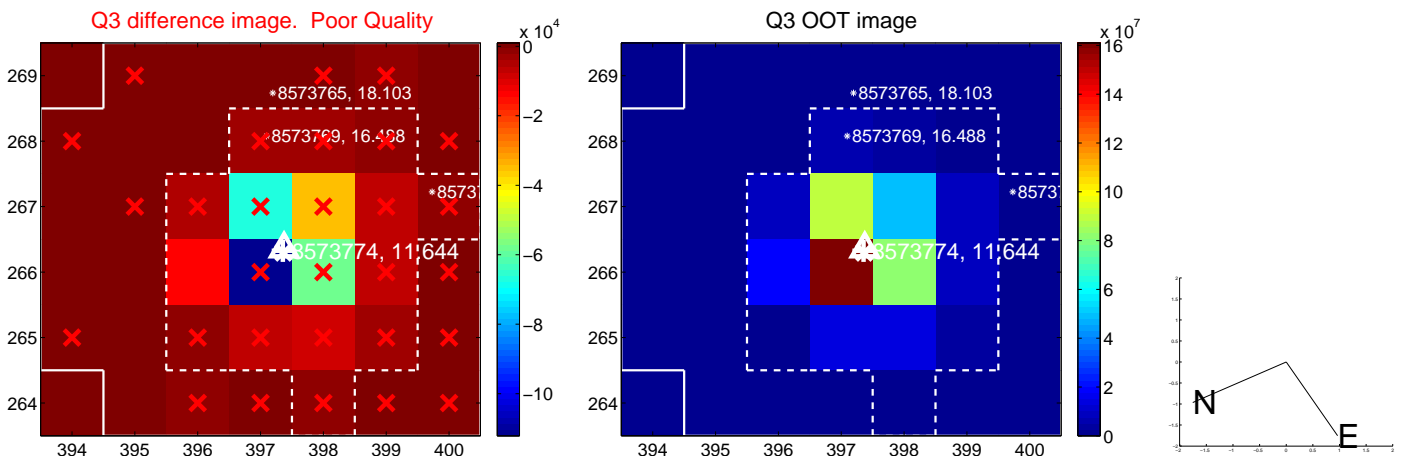
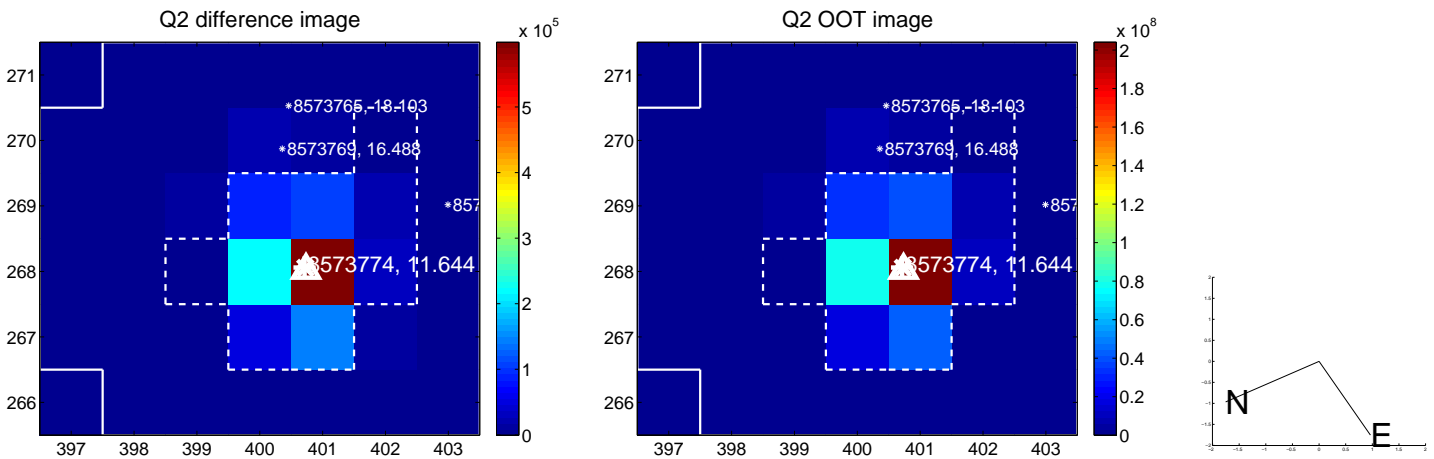
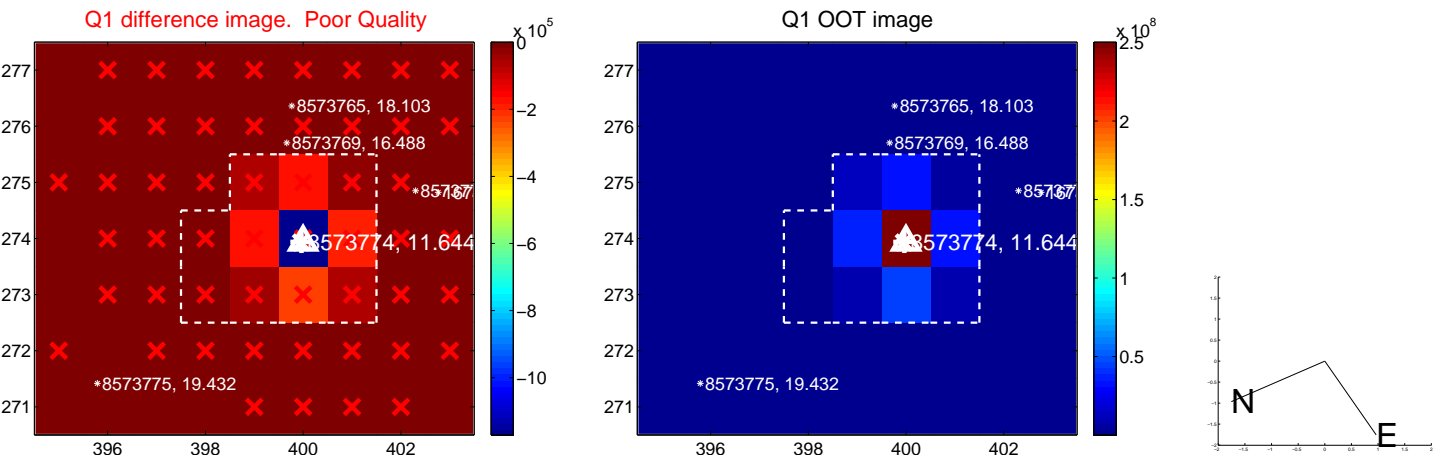


offset from photometric centroids

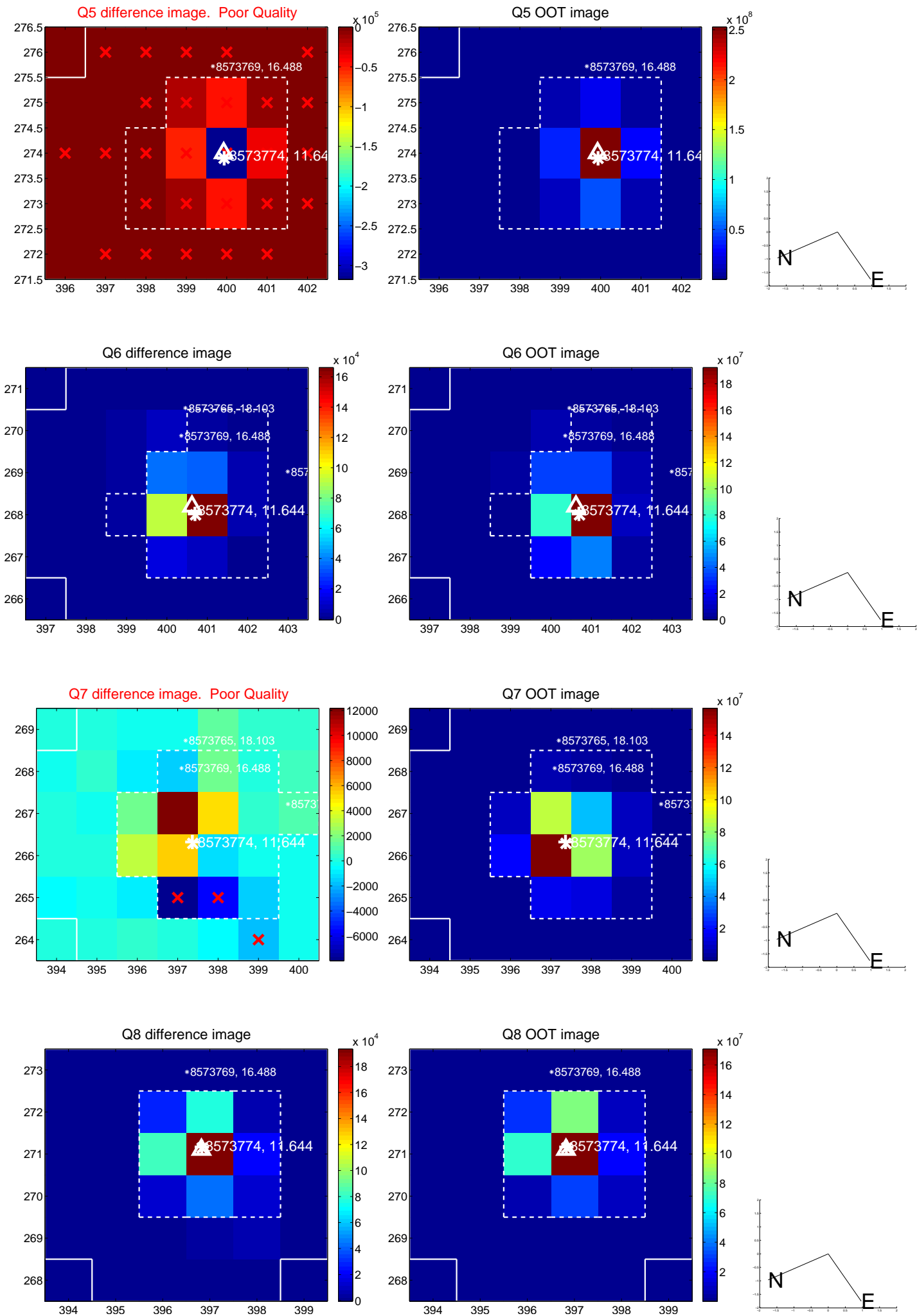


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

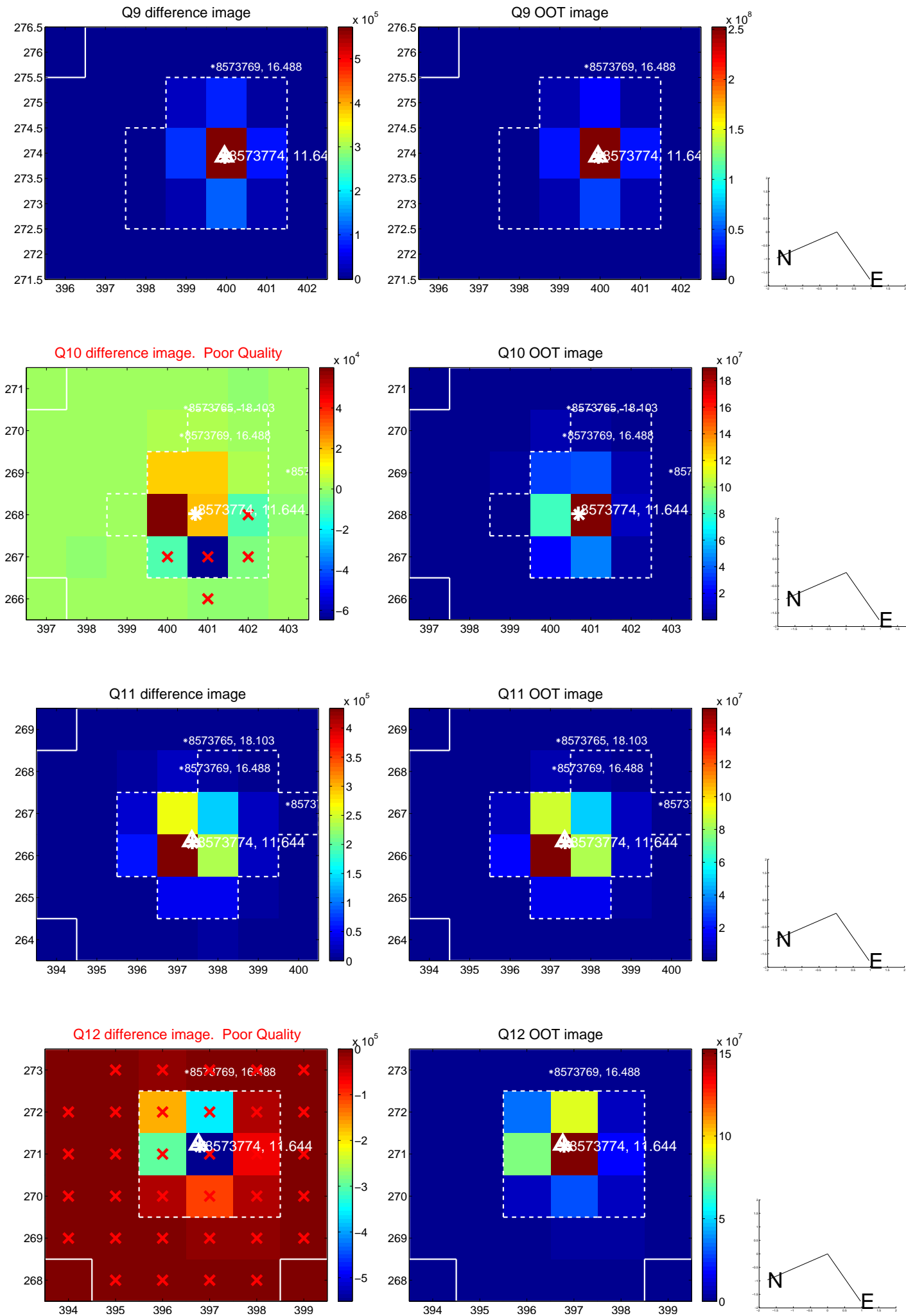
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



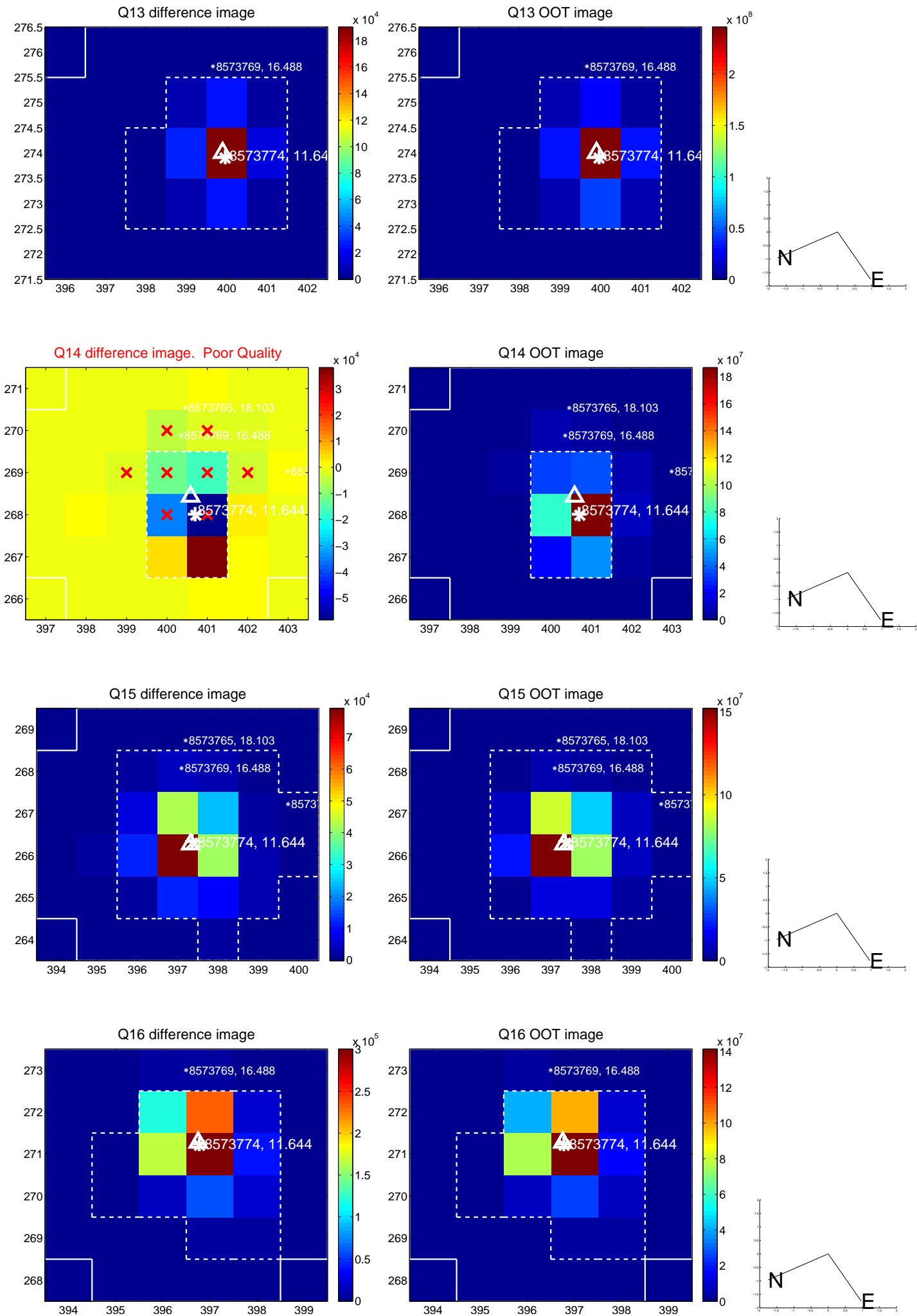
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



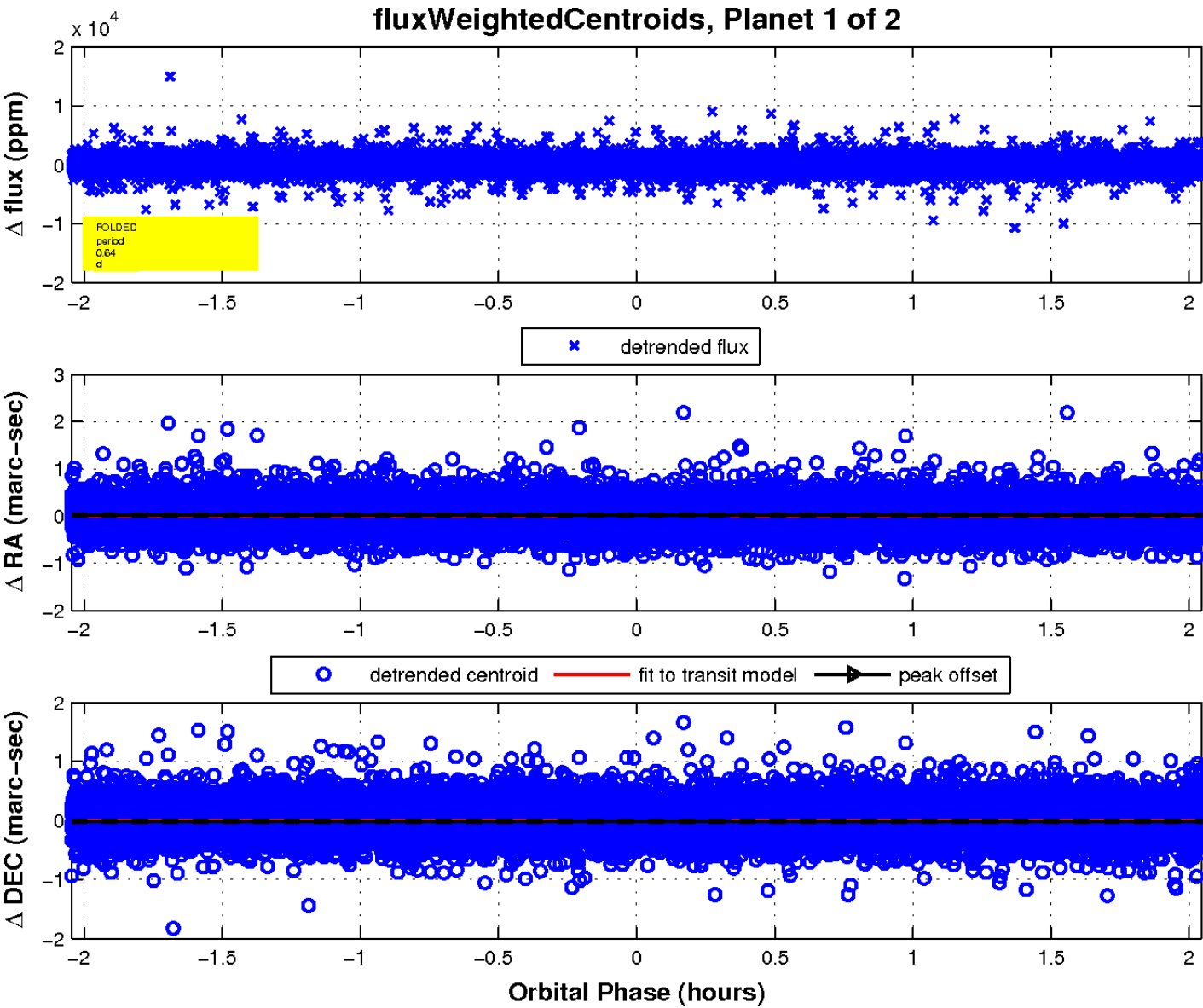
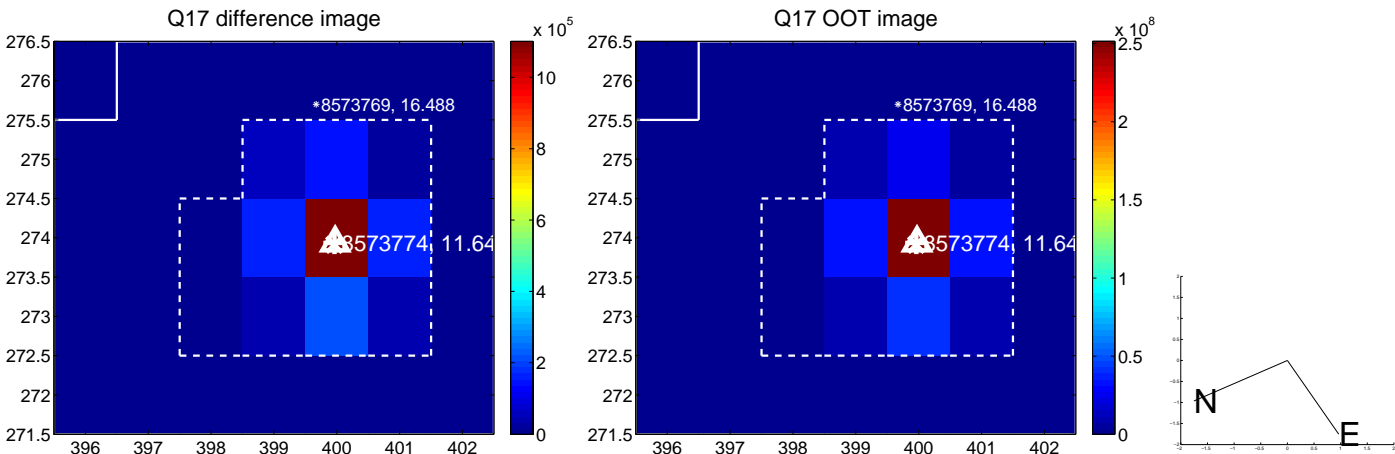
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

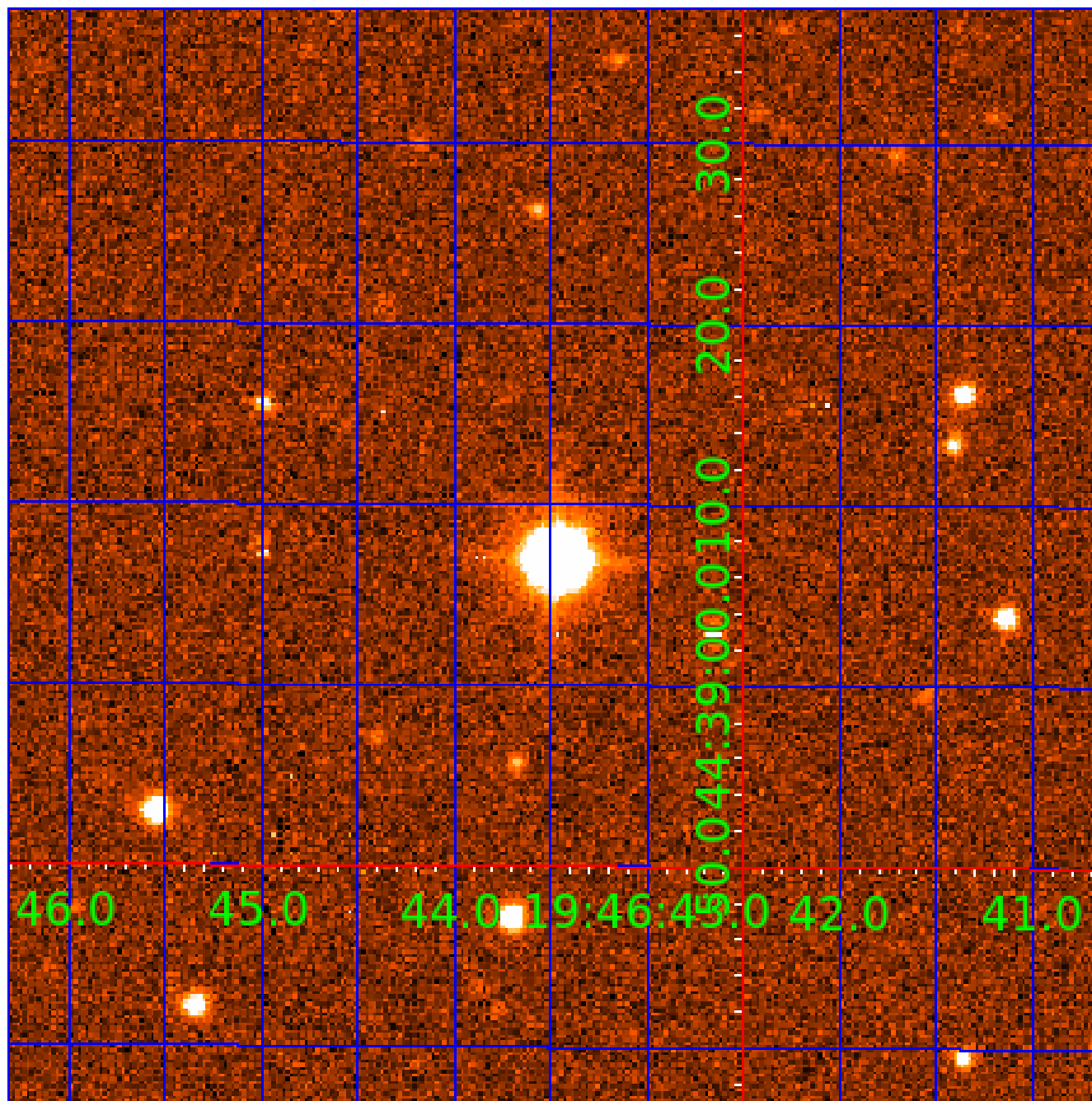


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008573774

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})
008573774-01	OBS	No	0.641611	131.894993	120.8	0.682	16.8	7.9	2.18	6799	2.52	36460.04
008573774-02	OBS	No	0.968584	131.567370	100.9	5.792	11.4	12.7	2.18	6799	2.53	21053.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008573774-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008573774-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

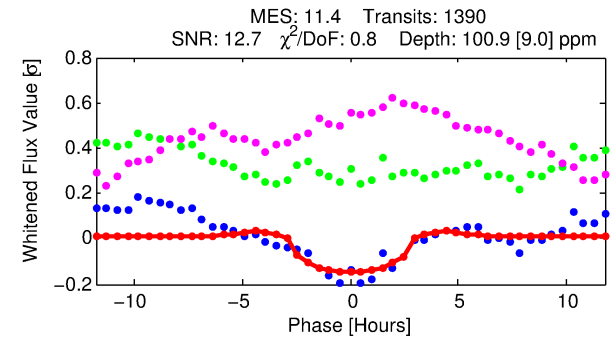
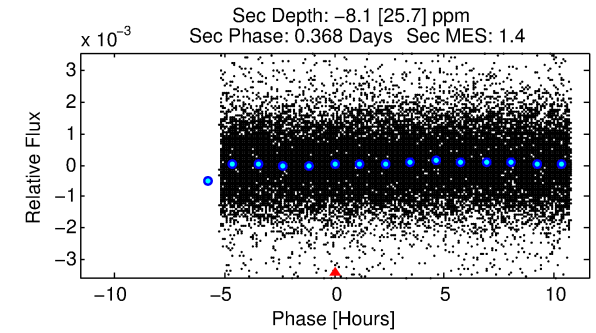
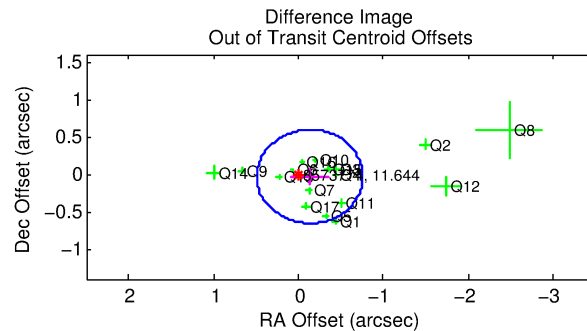
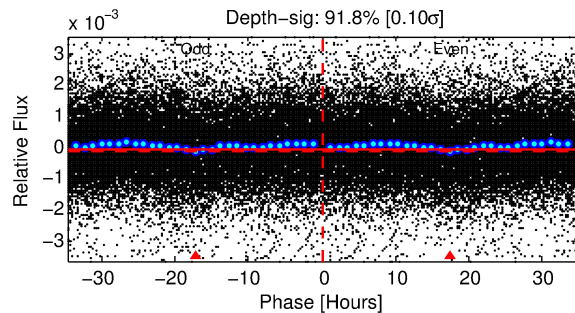
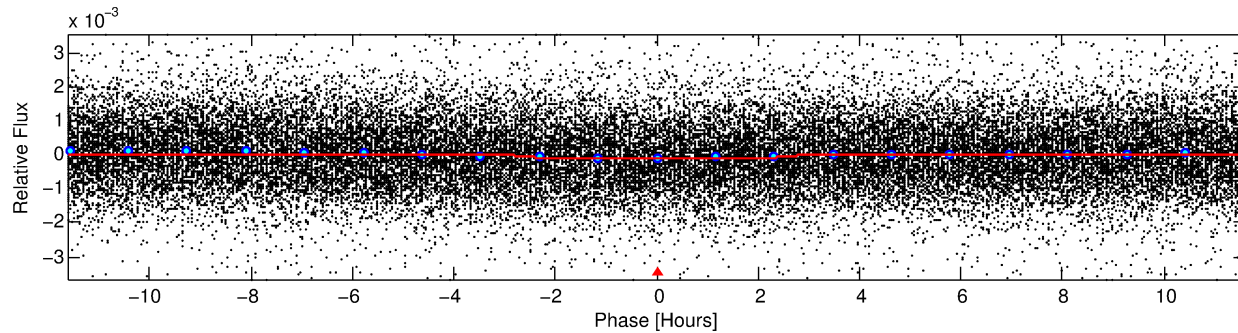
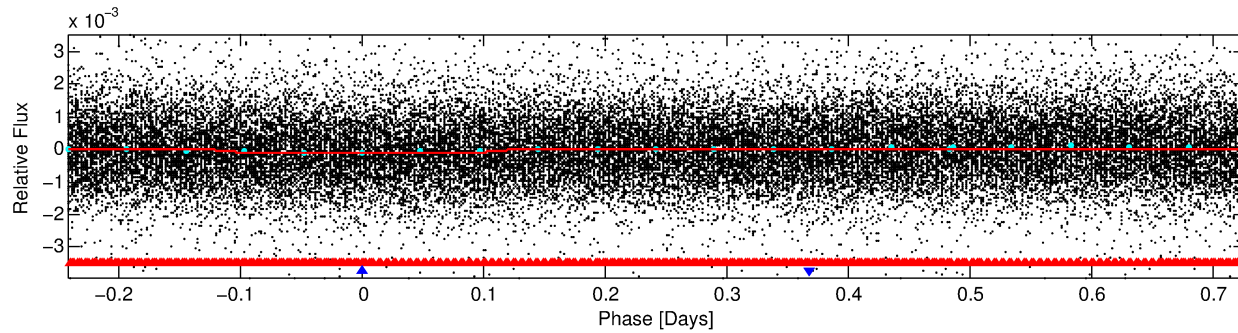
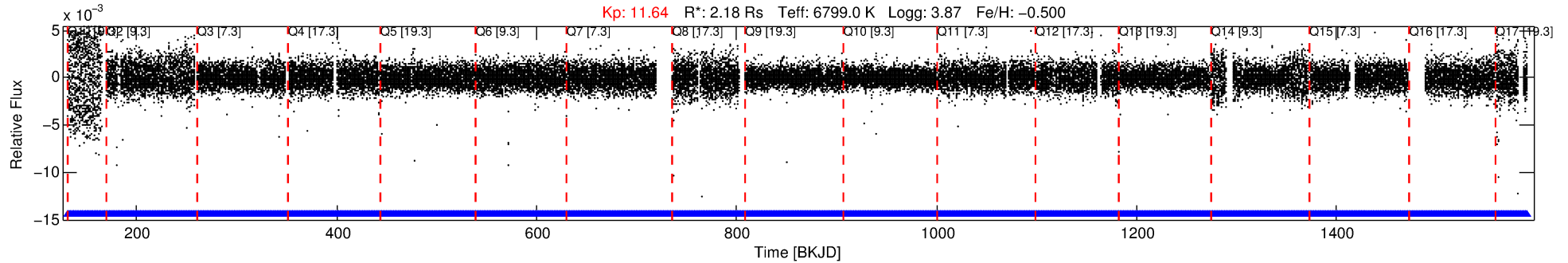
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008573774-02

No Significant Match Found

DV One-Page Summary

KIC: 8573774 Candidate: 2 of 2 Period: 0.969 d



DV Fit Results:

Period = 0.96858 [0.00001] d
Epoch = 131.5674 [0.0053] BKJD
Rp/R* = 0.0106 [0.0034]
a/R* = 1.12 [0.44]
b = 0.89 [0.46]
Seff = 21053.77 [15598.14]
Teq = 3072 [569] K
Rp = 2.53 [1.38] Re
a = 0.0208 [0.0092] AU
Ag = N/A
Teffp = N/A

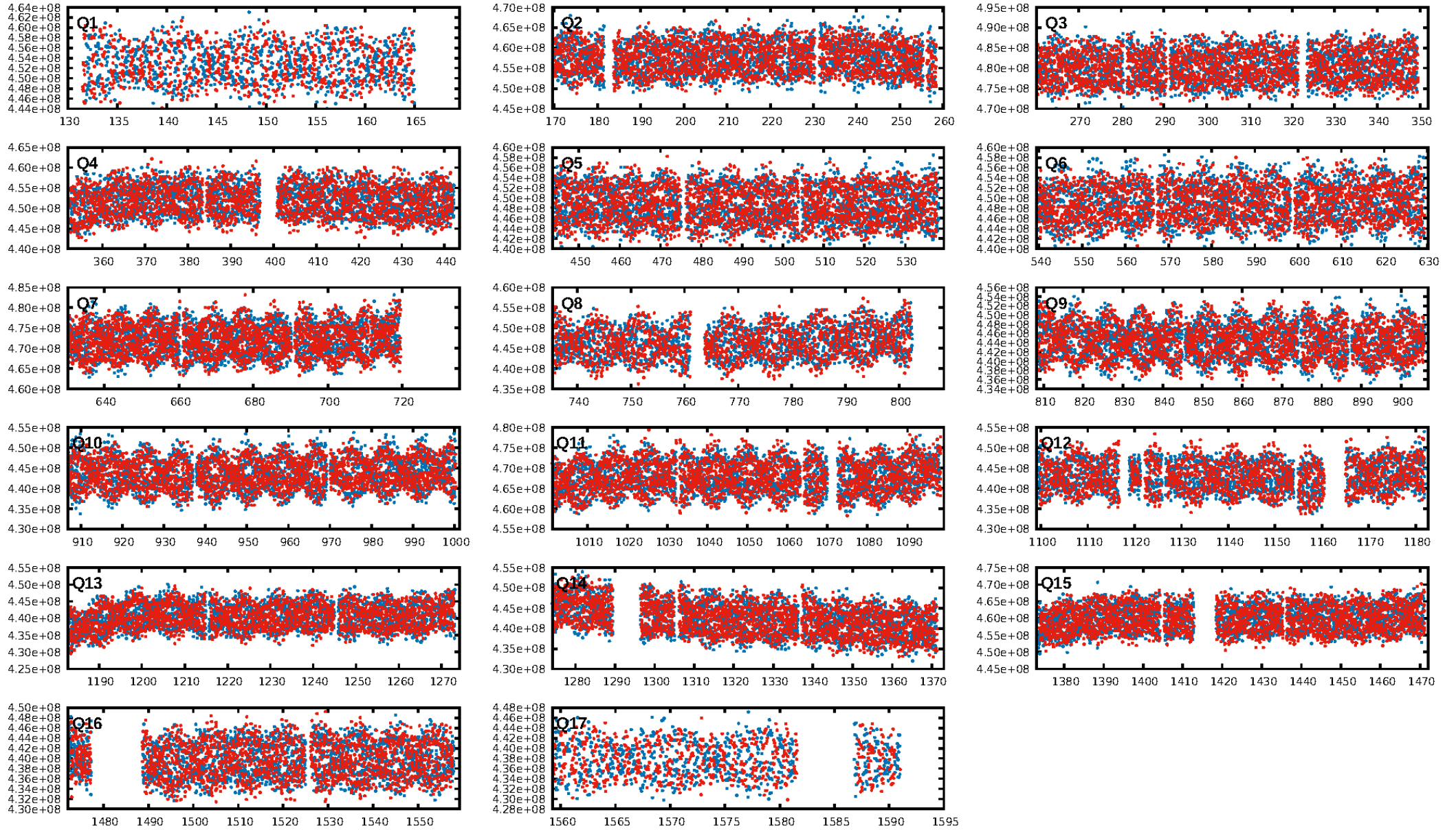
DV Diagnostic Results:

ShortPeriod-sig: 82.2% [1.35 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.97e-33
RollingBand-fgt: 1.00 [1327/1327]
GhostDiagnostic-chr: 1.425
Centroid-sig: 2.0%
Centroid-so: 0.264 arcsec [4.06 σ]
OotOffset-rm: 0.140 arcsec [0.67 σ]
KicOffset-rm: 0.248 arcsec [1.31 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 0.00 [0/17]

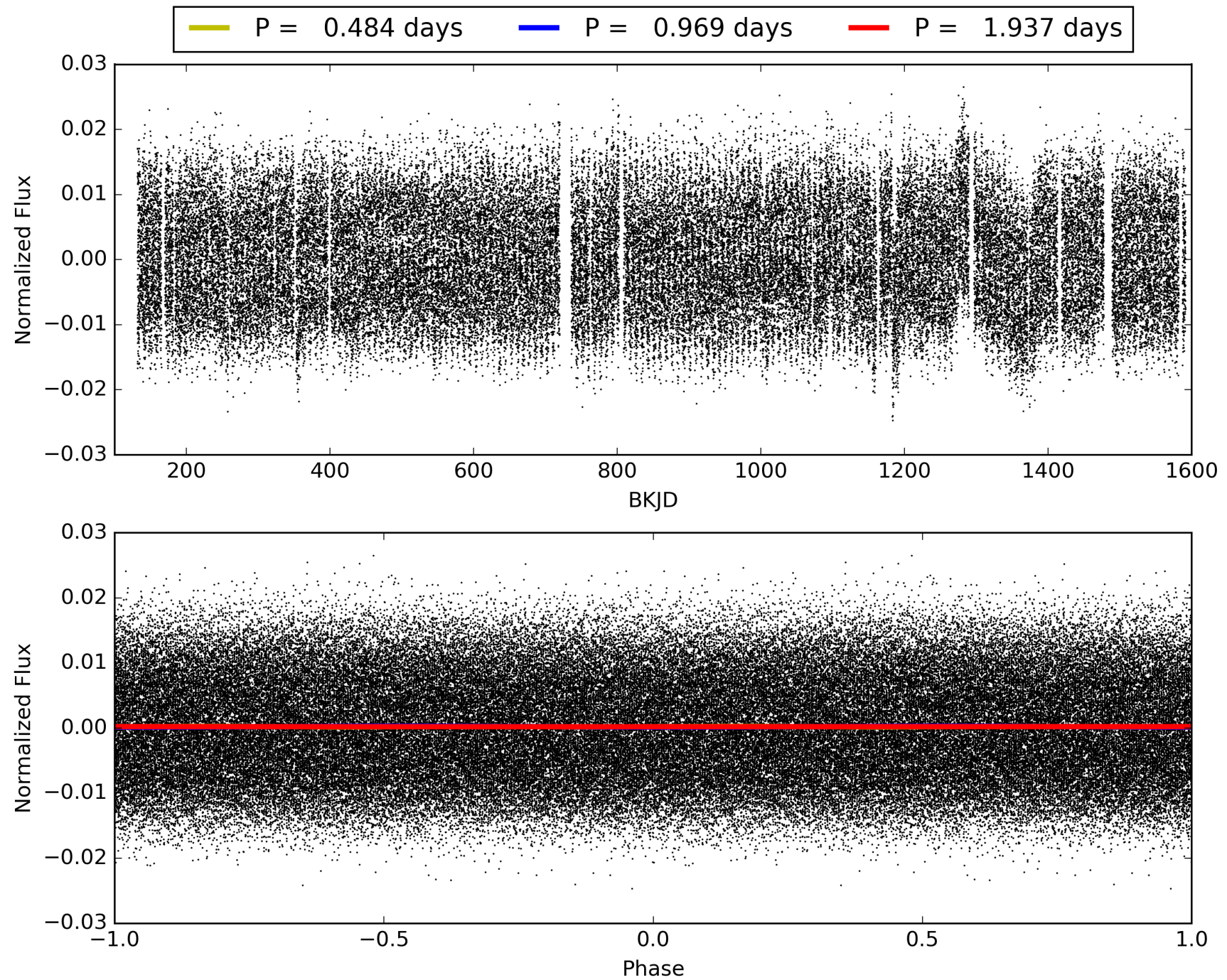
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:38:52 Z

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

TCE 008573774-02, PDC Light Curves

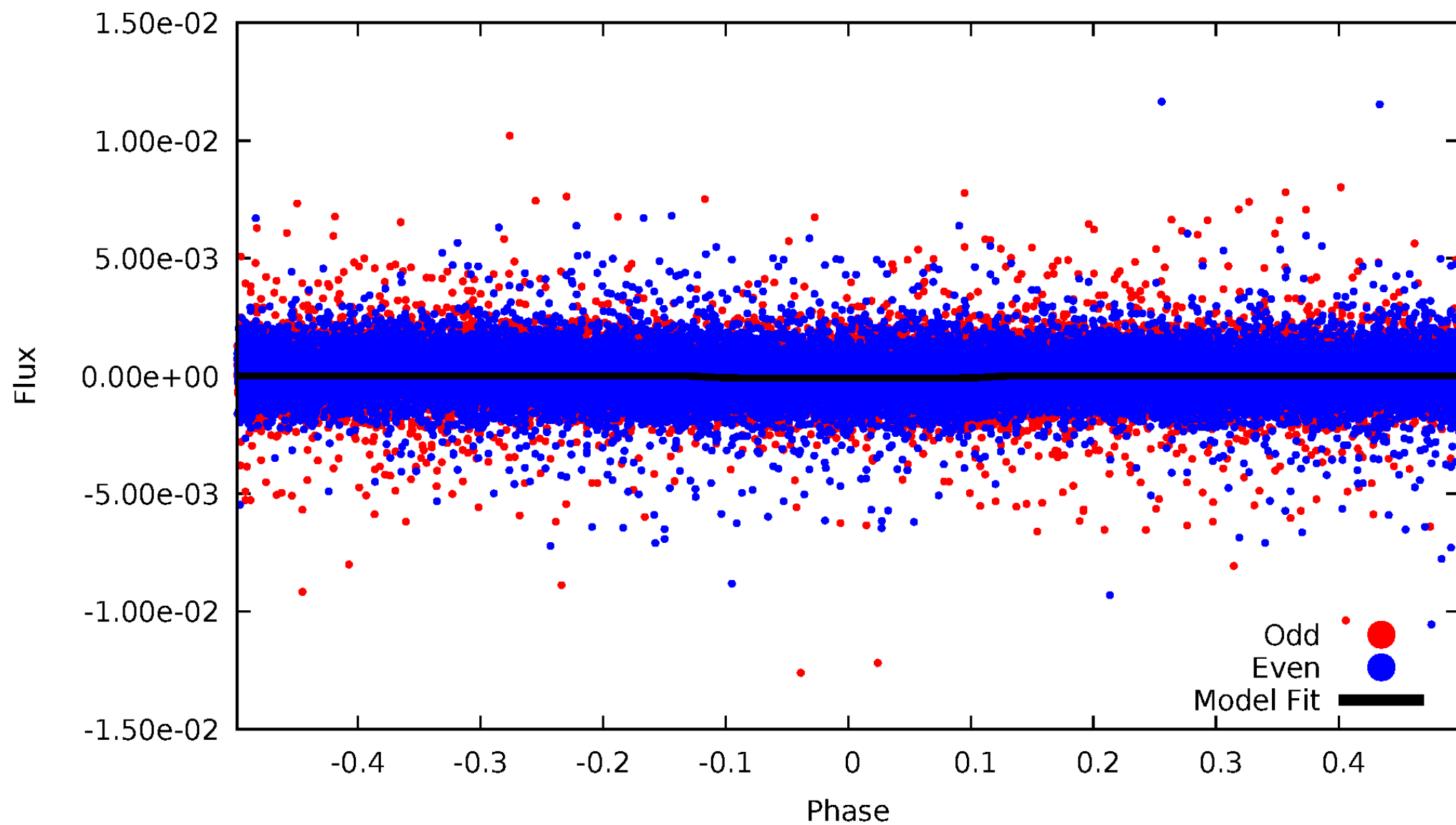


TCE 008573774-02



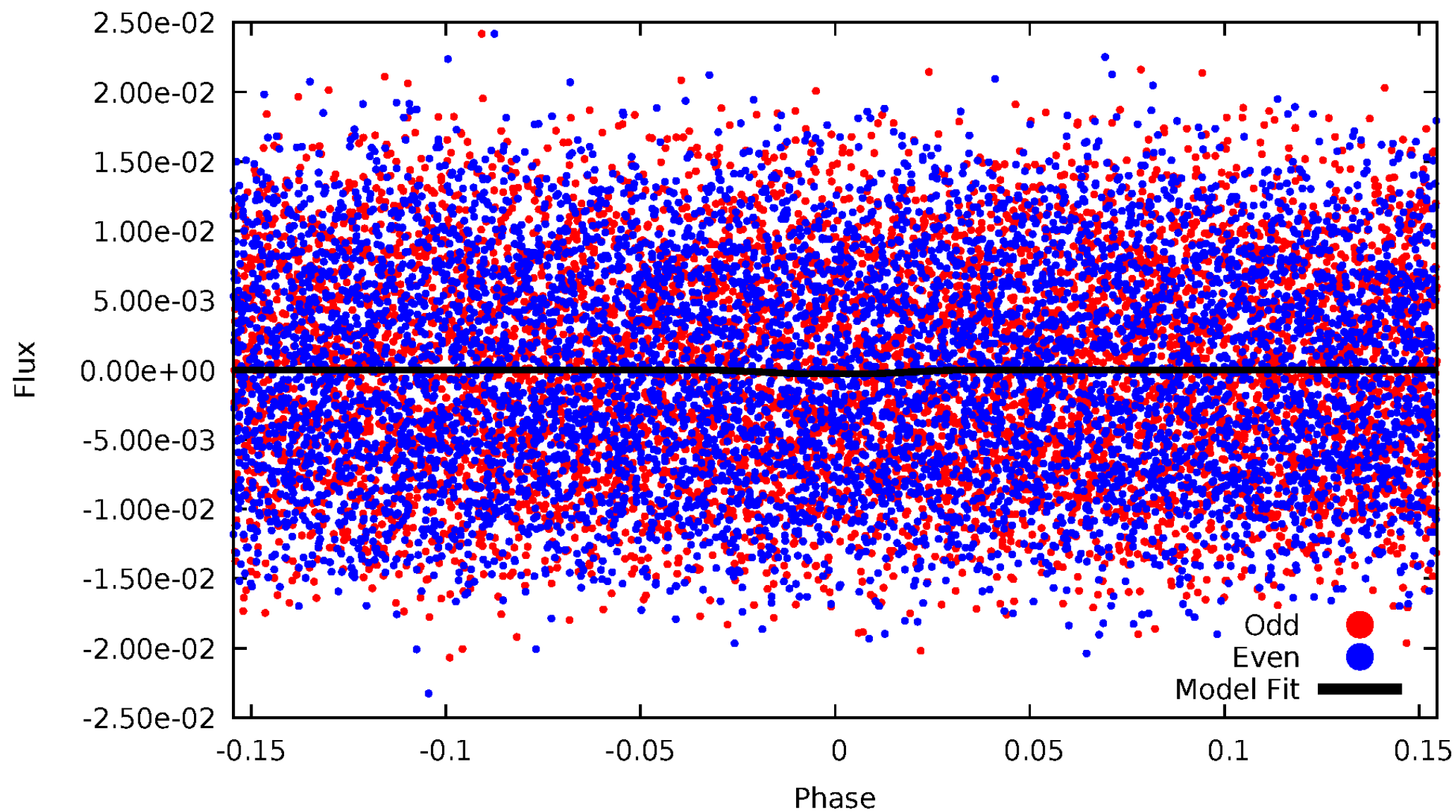
DV Odd/Even

TCE 008573774-02



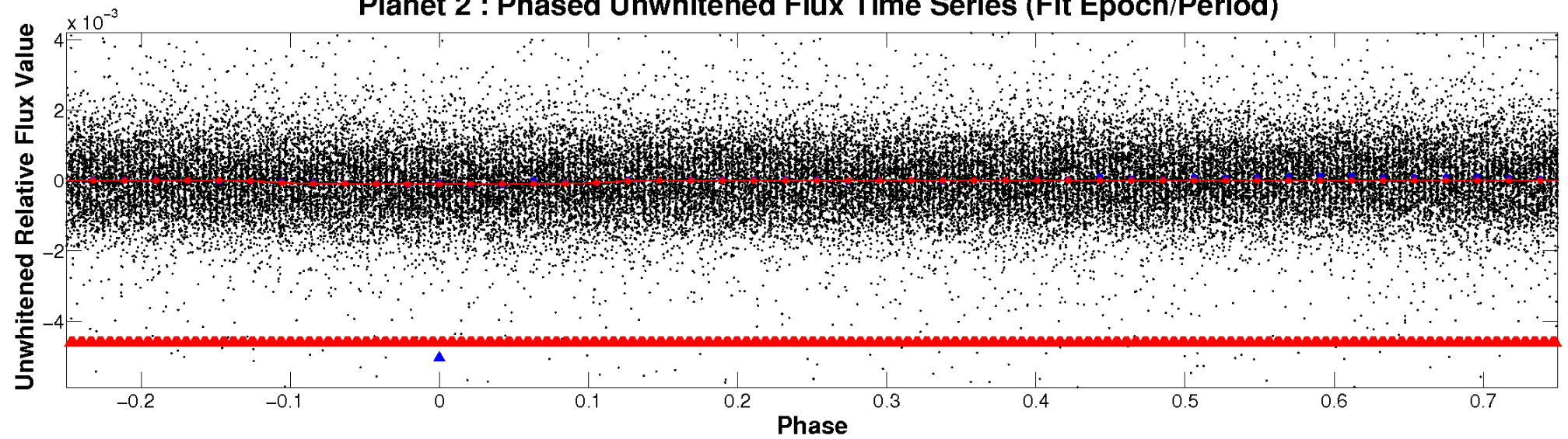
ALT Odd/Even

TCE 008573774-02

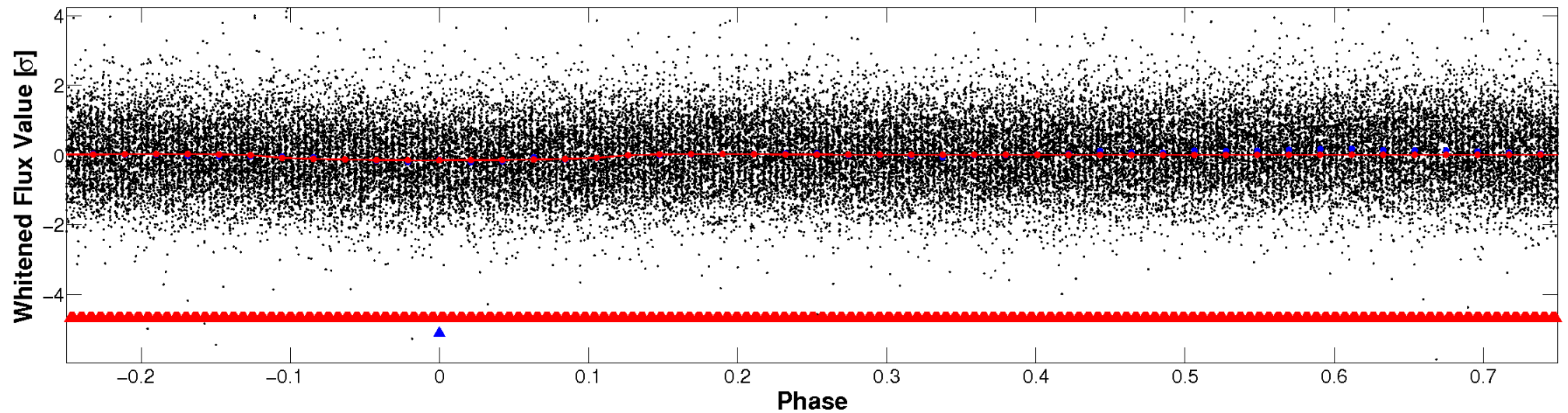


Non-Whitened Vs. Whitened Light Curve

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

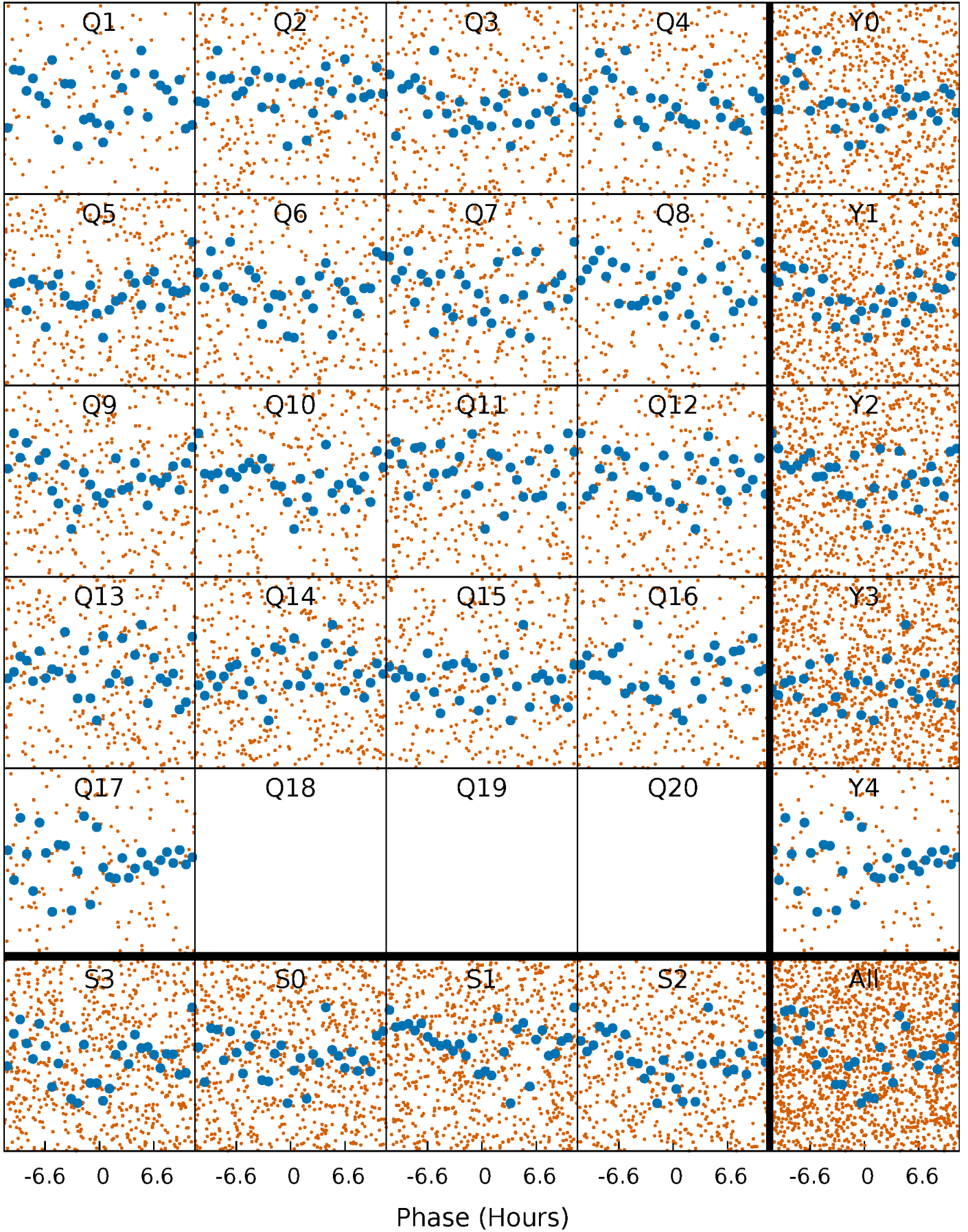


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



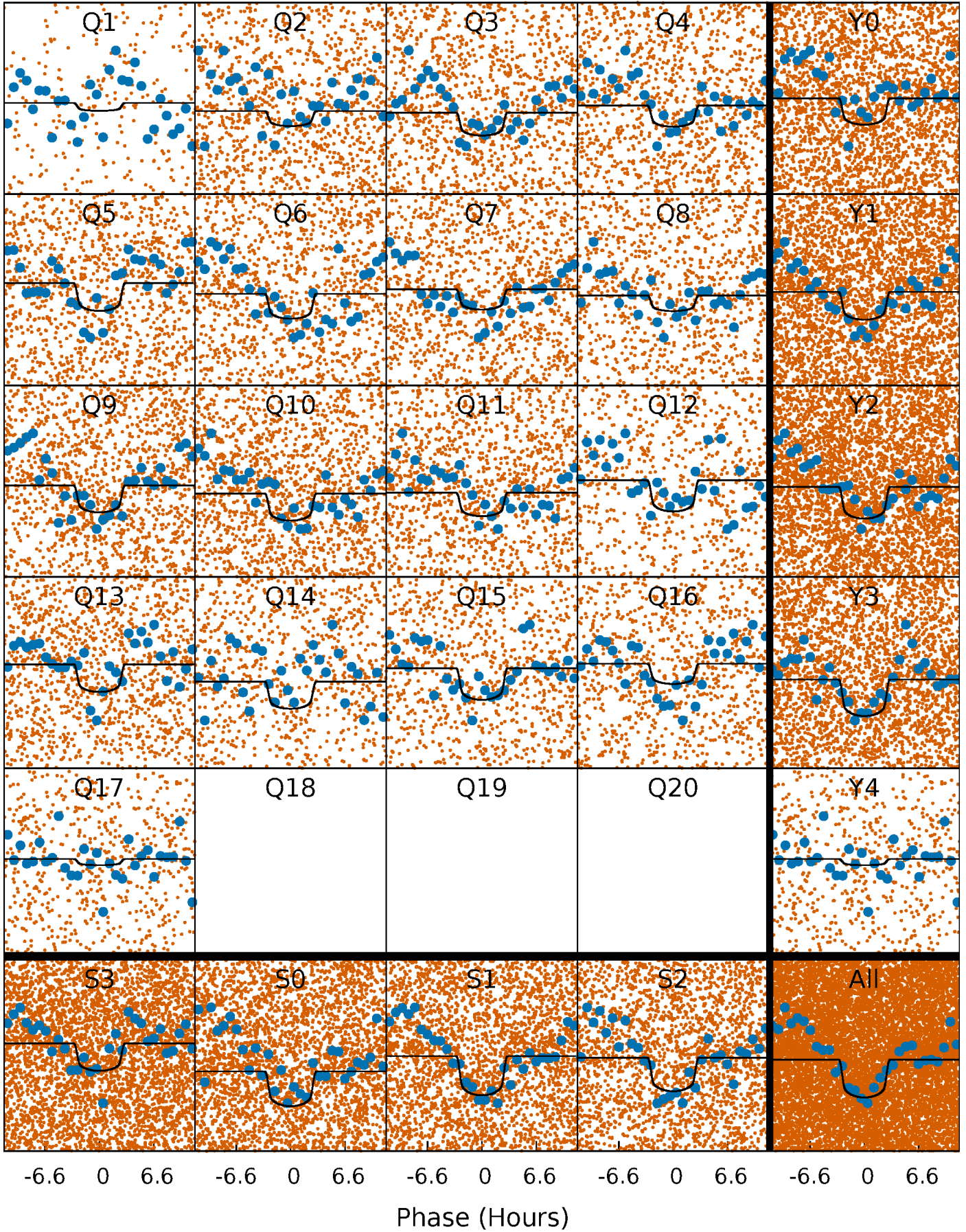
PDC Quarter-Phased Transit Curves

TCE 008573774-02 P= 0.968584 Days $T_0=131.567370$ (BKJD)



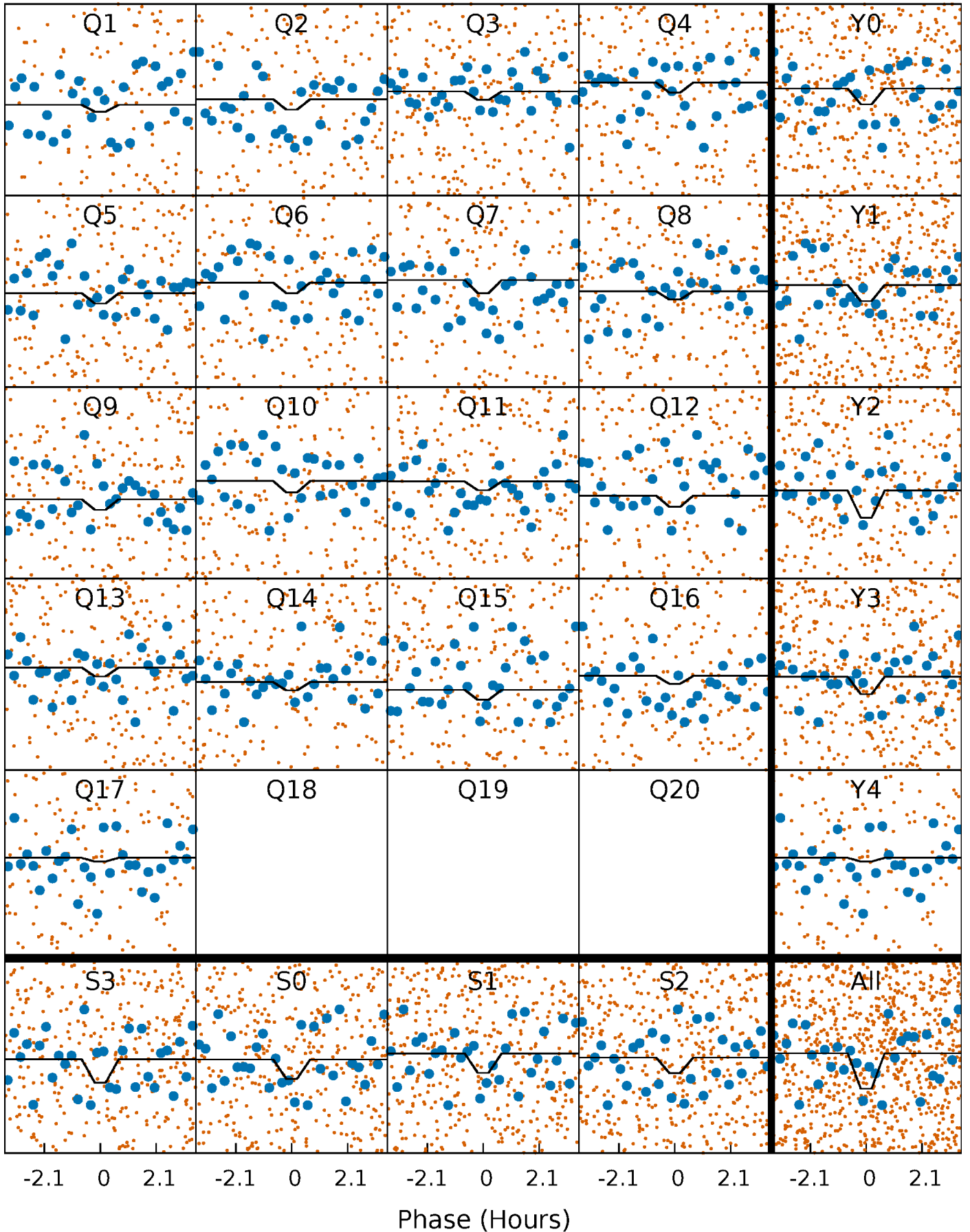
DV Quarter-Phased Transit Curves

TCE 008573774-02 P= 0.968584 Days $T_0=131.567370$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

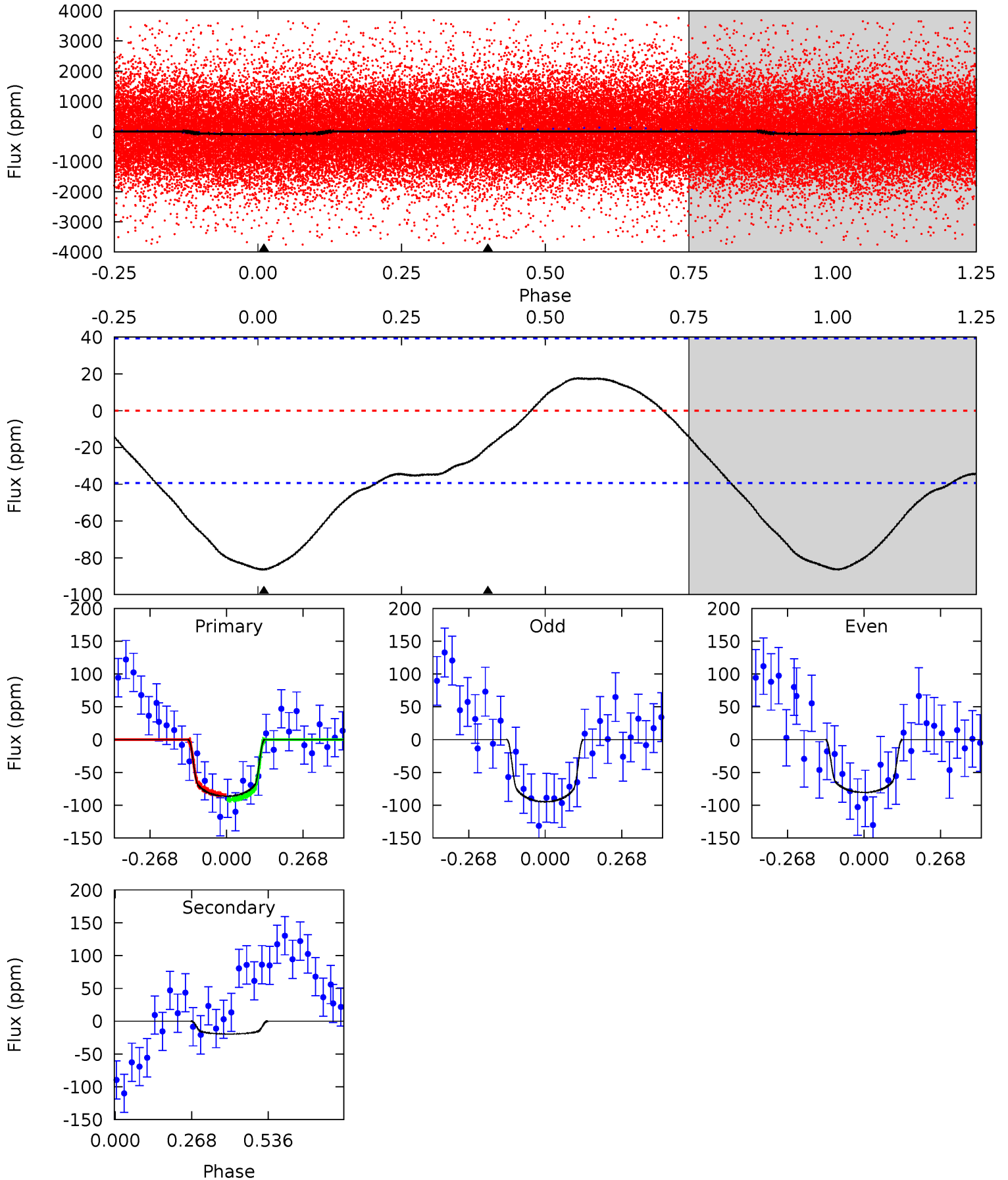
TCE 008573774-02 $P = 0.968624$ Days $T_0 = 131.564755$ (BKJD)



DV Model-Shift Uniqueness Test

008573774-02, P = 0.968584 Days, E = 130.598786 Days

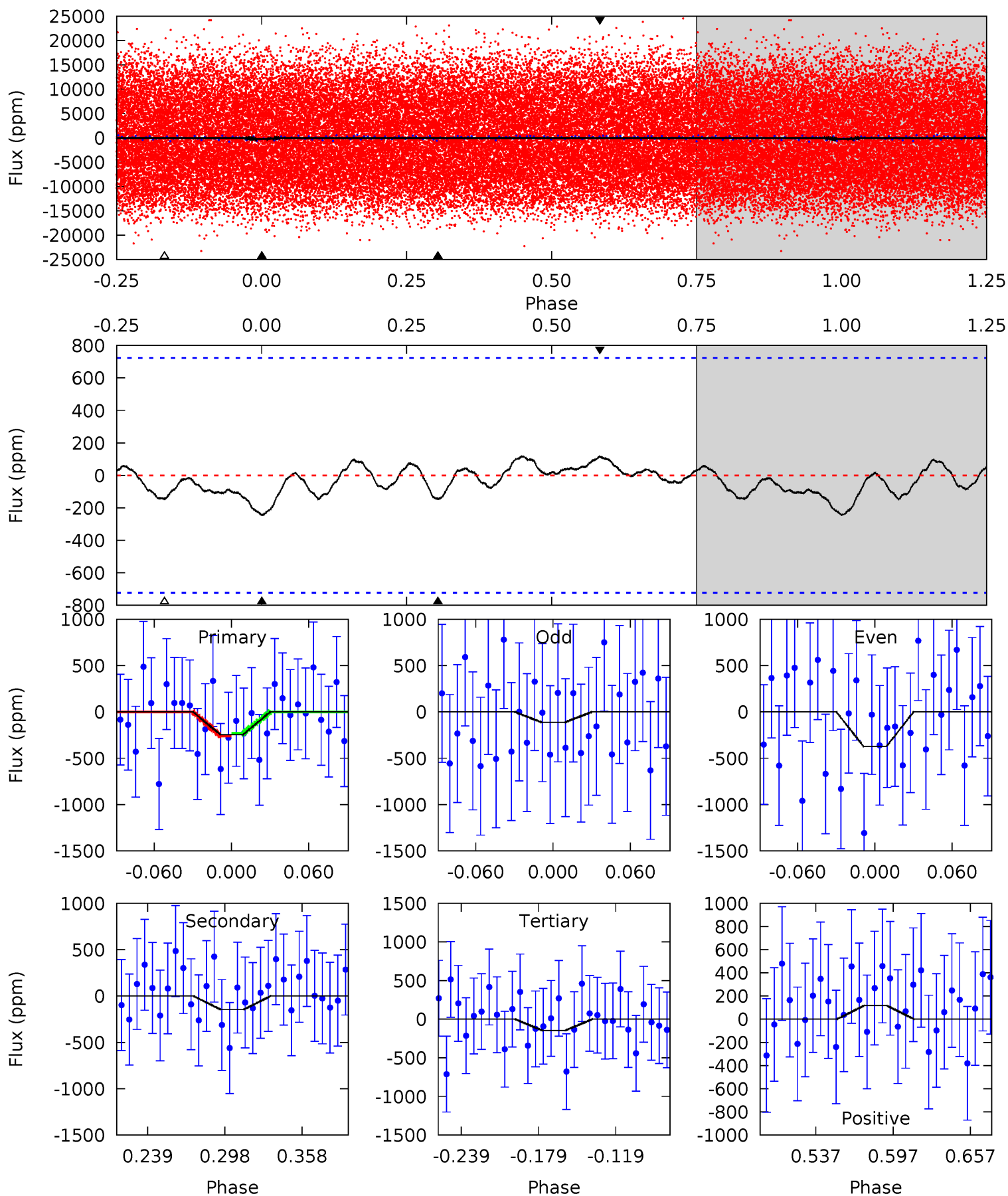
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.56	2.17	0	0	4.35	1.11	0.90	9.56	9.56	2.17	2.17	0.79	0.64	0.17	0.44



Alt Model-Shift Uniqueness Test

008573774-02, P = 0.968624 Days, E = 130.596131 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.58	0.95	0.95	0.76	4.67	1.88	0.43	0.64	0.83	0.00	0.19	0.84	0.36	0.33	0.09



Stellar Parameters For KIC 008573774

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6799^{+214}_{-262}	$3.867^{+0.432}_{-0.108}$	$-0.500^{+0.250}_{-0.300}$	$2.179^{+0.514}_{-0.955}$	$1.276^{+0.184}_{-0.253}$	$0.174^{+0.638}_{-0.059}$
	+3%/-4%	+11%/-3%	+50%/-60%	+24%/-44%	+14%/-20%	+367%/-34%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 008573774-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-20 ± 9	$2.27^{+0.91}_{-0.82}$	4143^{+345}_{-478}	4108^{+1154}_{-1344}	$0.864^{+1.433}_{-0.523}$
Alt.	-147 ± 155	$3.61^{+1.15}_{-0.98}$	4162^{+325}_{-432}	5566^{+1645}_{-9404}	$2.525^{+4.448}_{-2.586}$

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

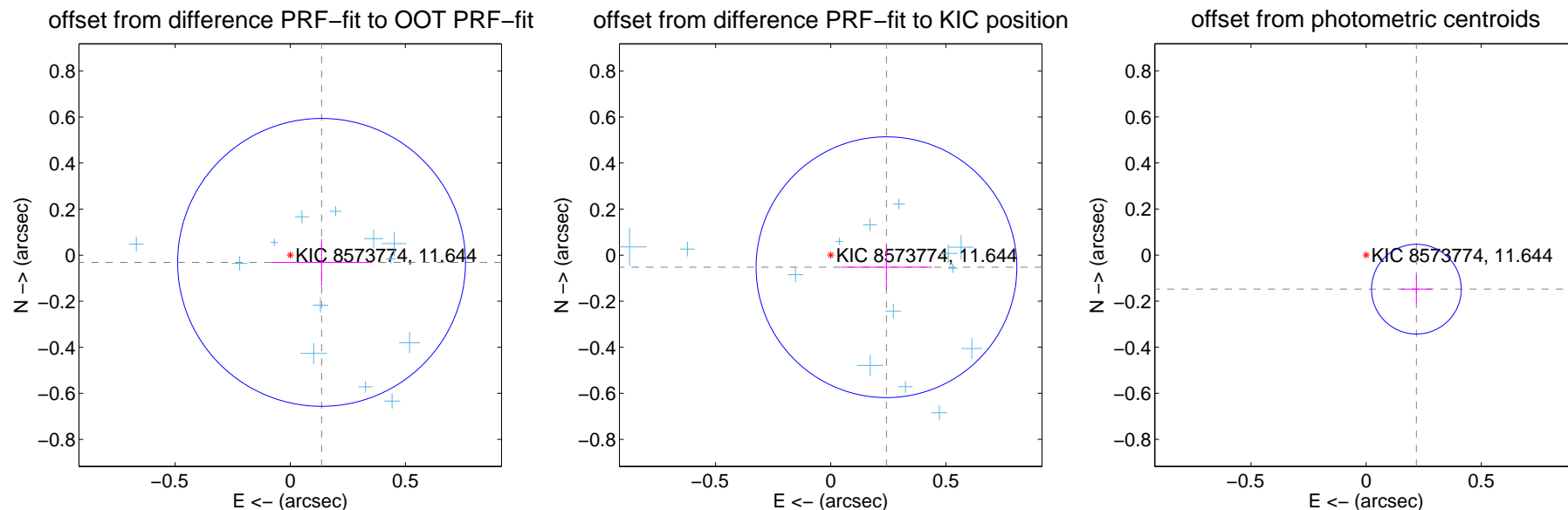
DV Centroid Data

Supplemental centroid analysis for 008573774-02. **Kepler magnitude: 11.64.** Transit SNR 12.71

There are 16 quarters with good PRF difference image offsets

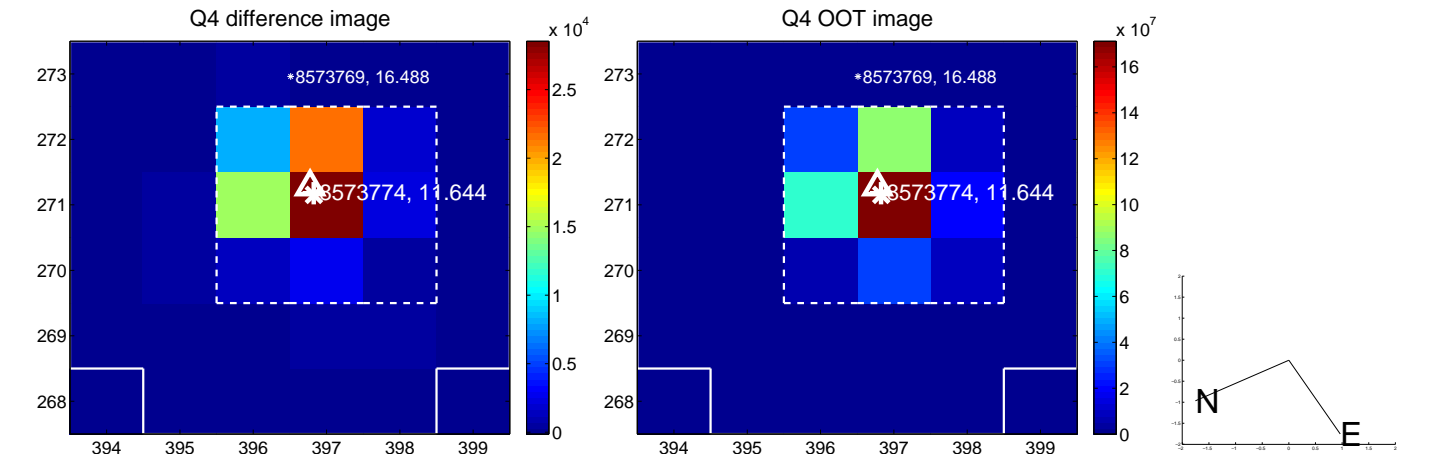
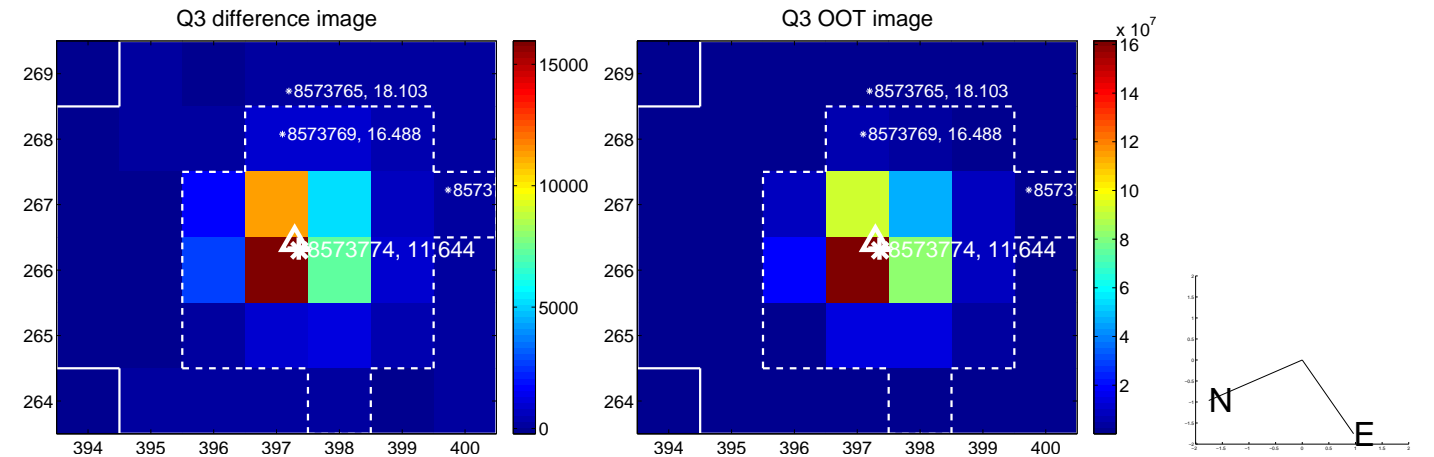
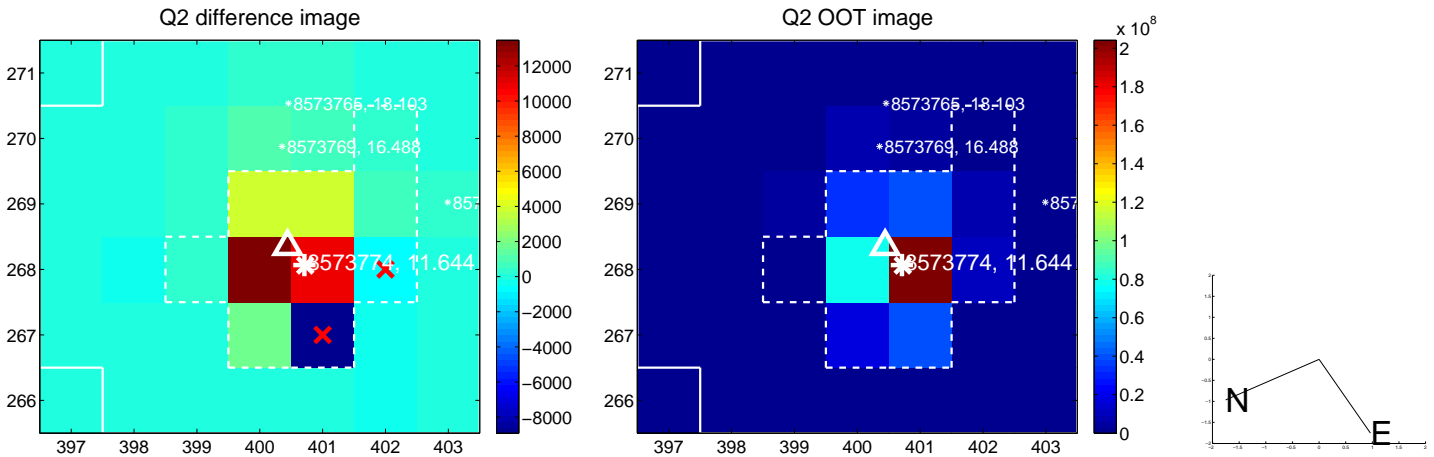
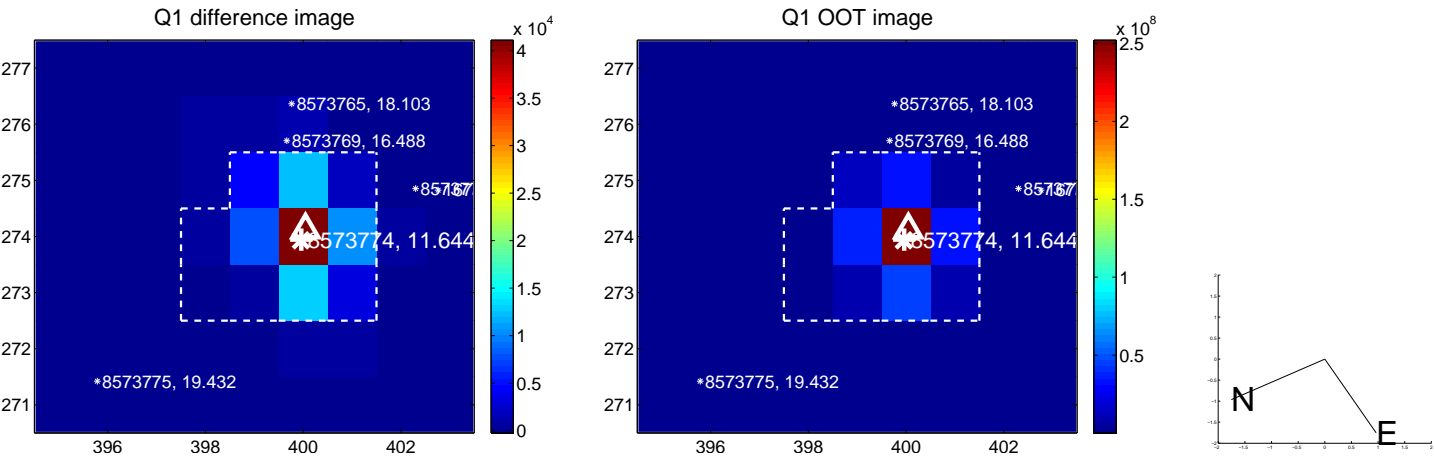
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.140 ± 0.208	0.67	-0.136 ± 0.219	-0.031 ± 0.101
PRF-fit source offset from KIC position	0.248 ± 0.189	1.31	-0.242 ± 0.197	-0.052 ± 0.100
photometric centroid source offset	0.26 ± 0.06	4.06	-0.22 ± 0.07	-0.15 ± 0.06

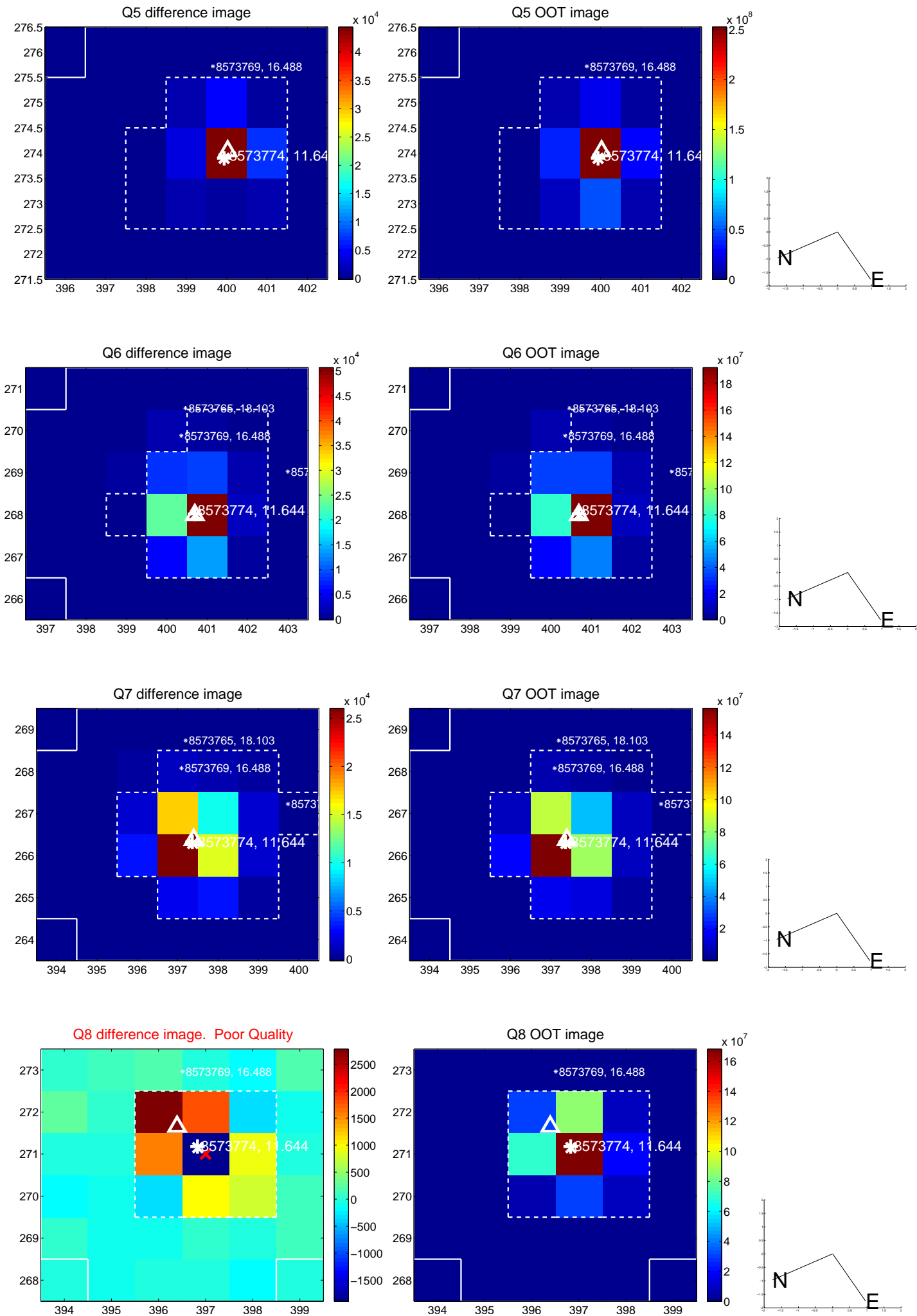


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

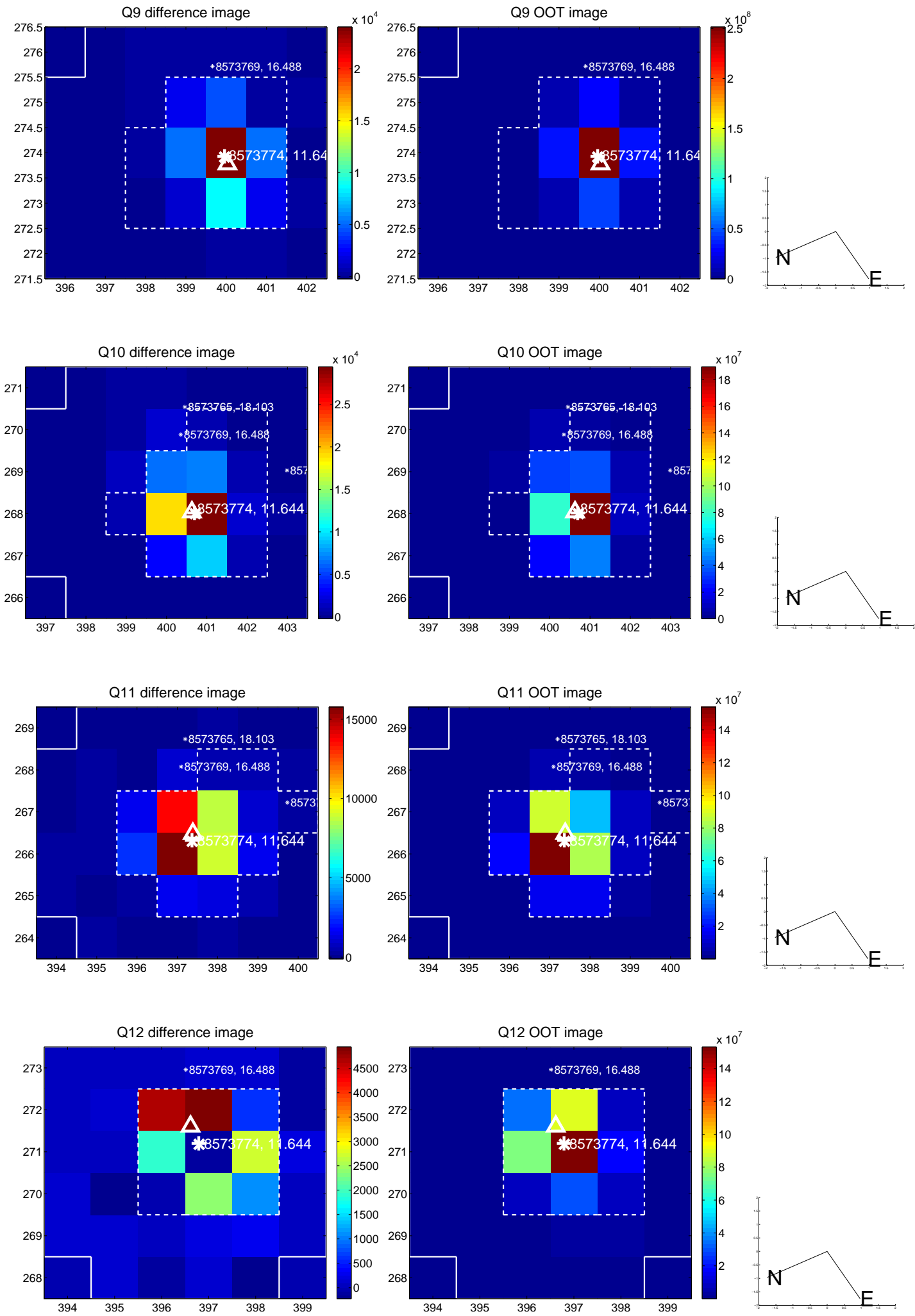
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



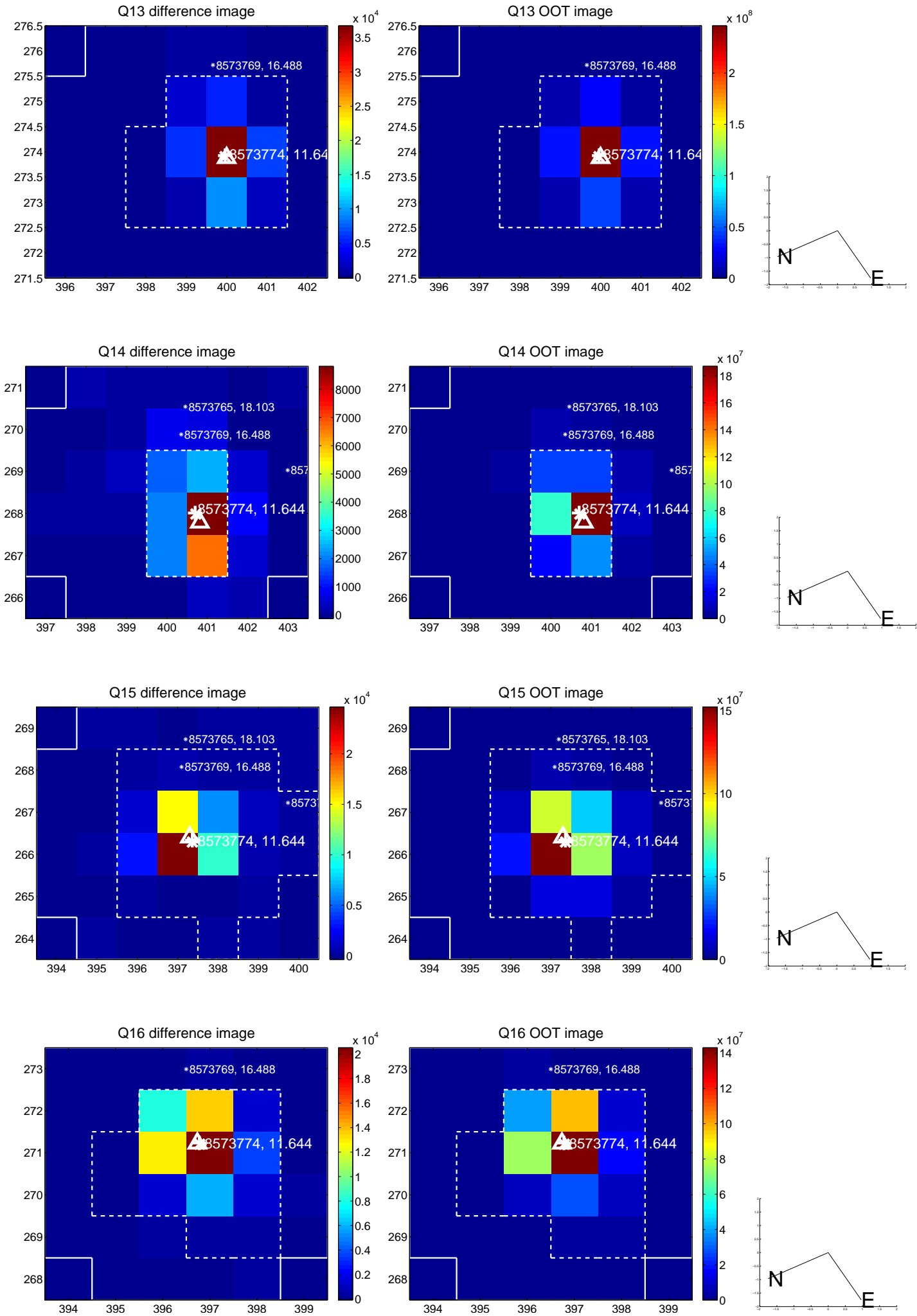
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



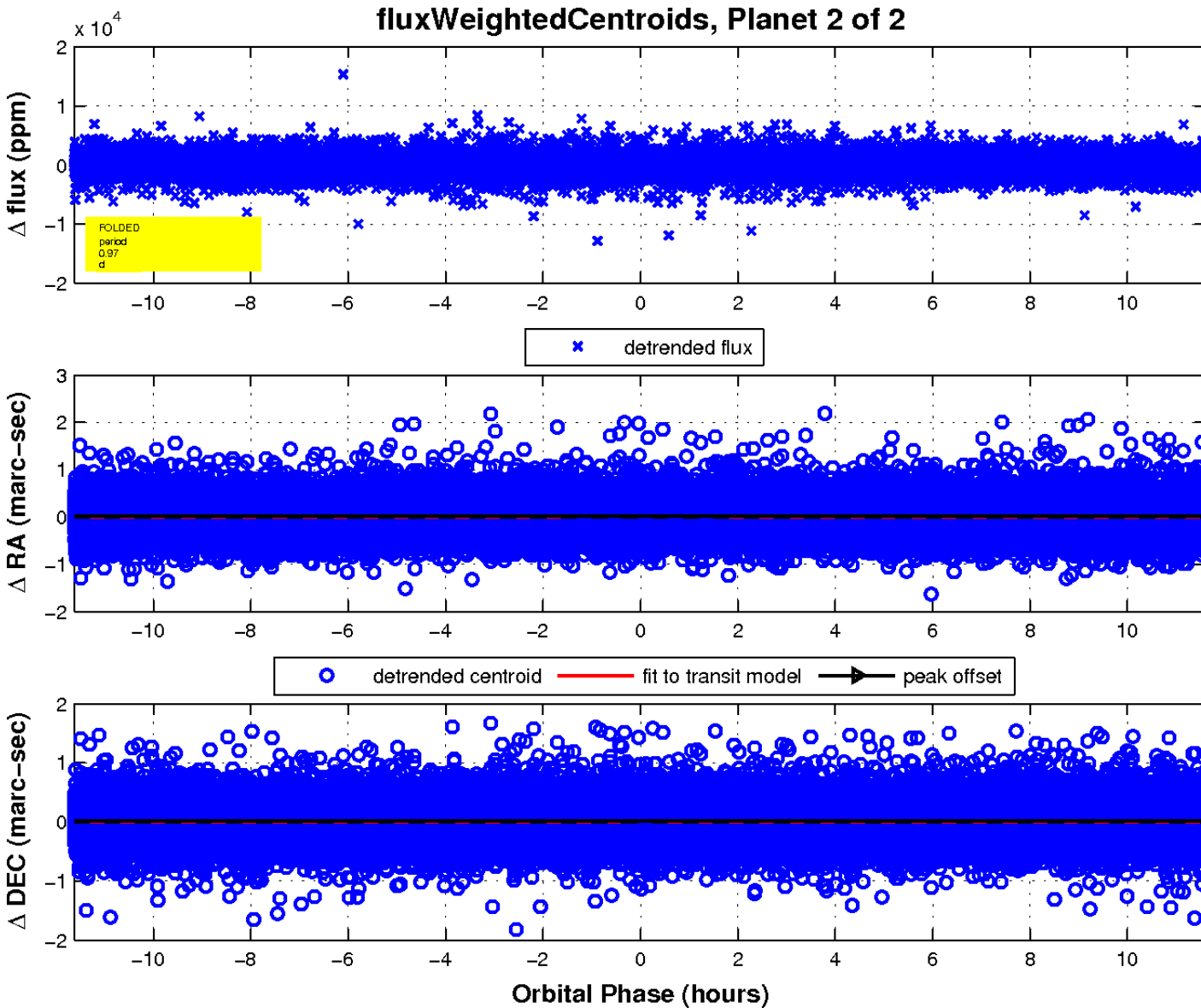
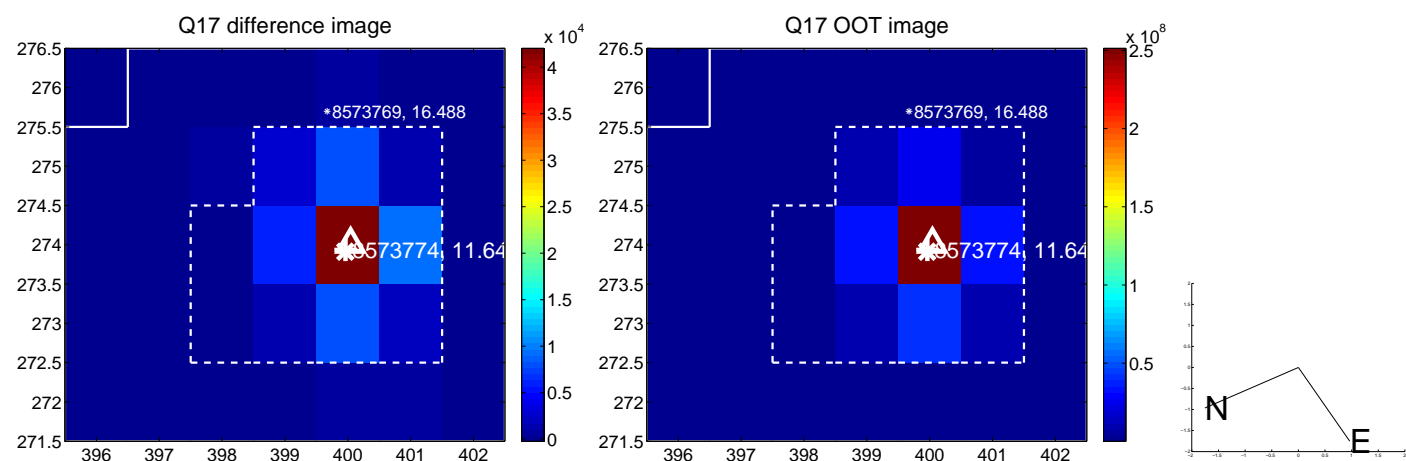
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

