

KIC 008574840

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})
008574840-01	OBS	No	1.475383	131.610825	0.0	5.414	14.9	0.0	1.90	7345	0.03	11147.72
008574840-02	OBS	No	1.475949	133.500461	20.3	5.642	8.9	8.6	1.90	7345	0.95	11142.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008574840-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
008574840-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

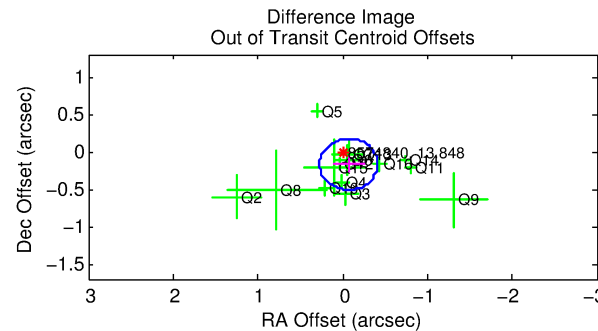
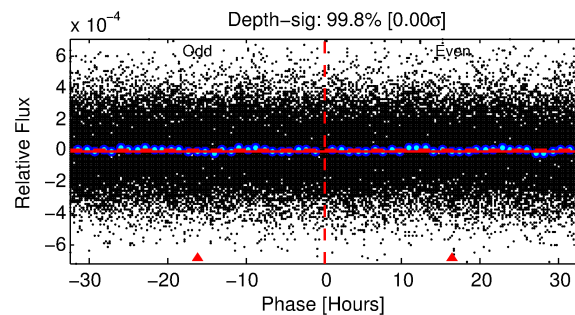
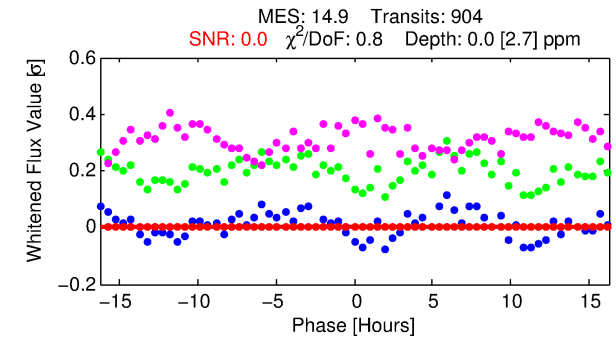
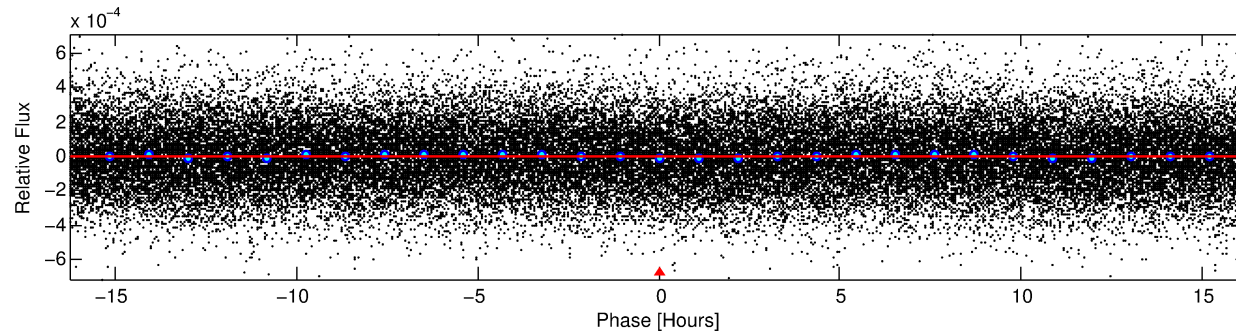
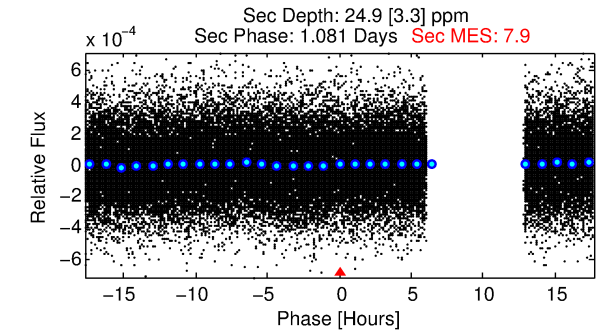
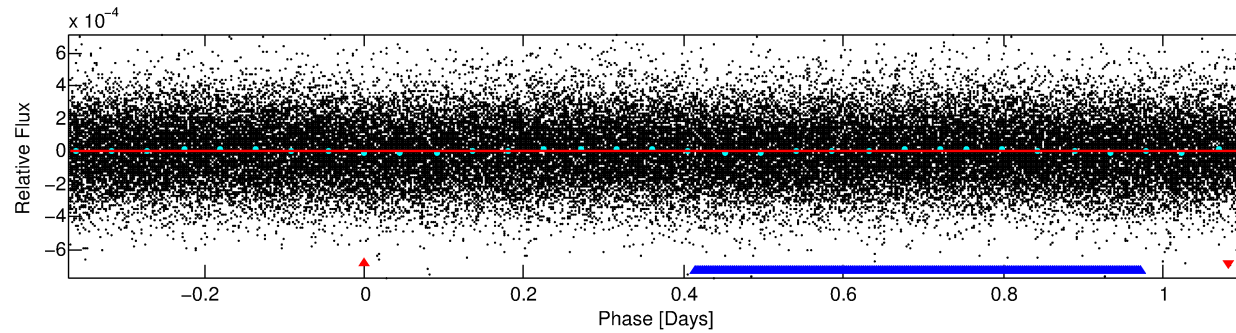
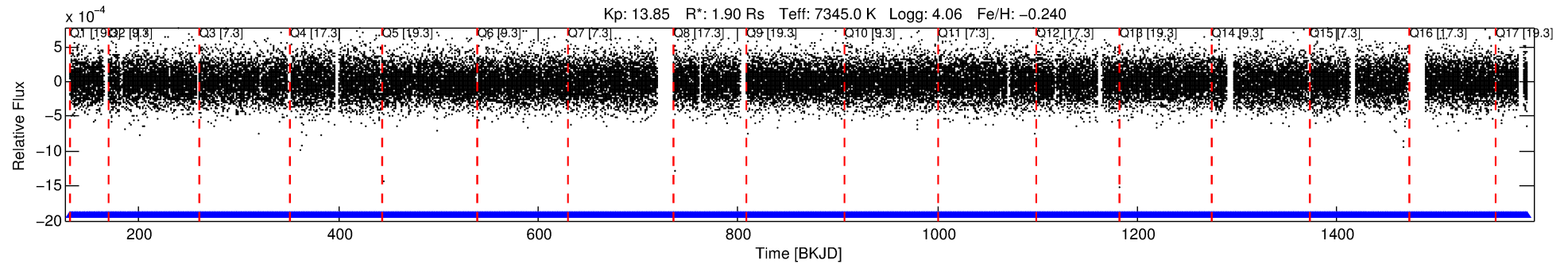
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008574840-01

No Significant Match Found

DV One-Page Summary

KIC: 8574840 Candidate: 1 of 2 Period: 1.475 d



DV Fit Results:

Period = 1.47538 [0.02038] d
Epoch = 131.6108 [5.7074] BKJD
Rp/R* = 0.0002 [0.0105]
a/R* = 1.18 [13.20]
b = 0.94 [5.31]
Seff = 11147.72 [4464.10]
Teff = 2620 [262] K
Rp = 0.03 [2.18] Re
a = 0.0290 [0.0070] AU
Ag = 10153.50 [1312782.35] [0.01σ]
Teffp = 40665 [1314481] K [0.03σ]

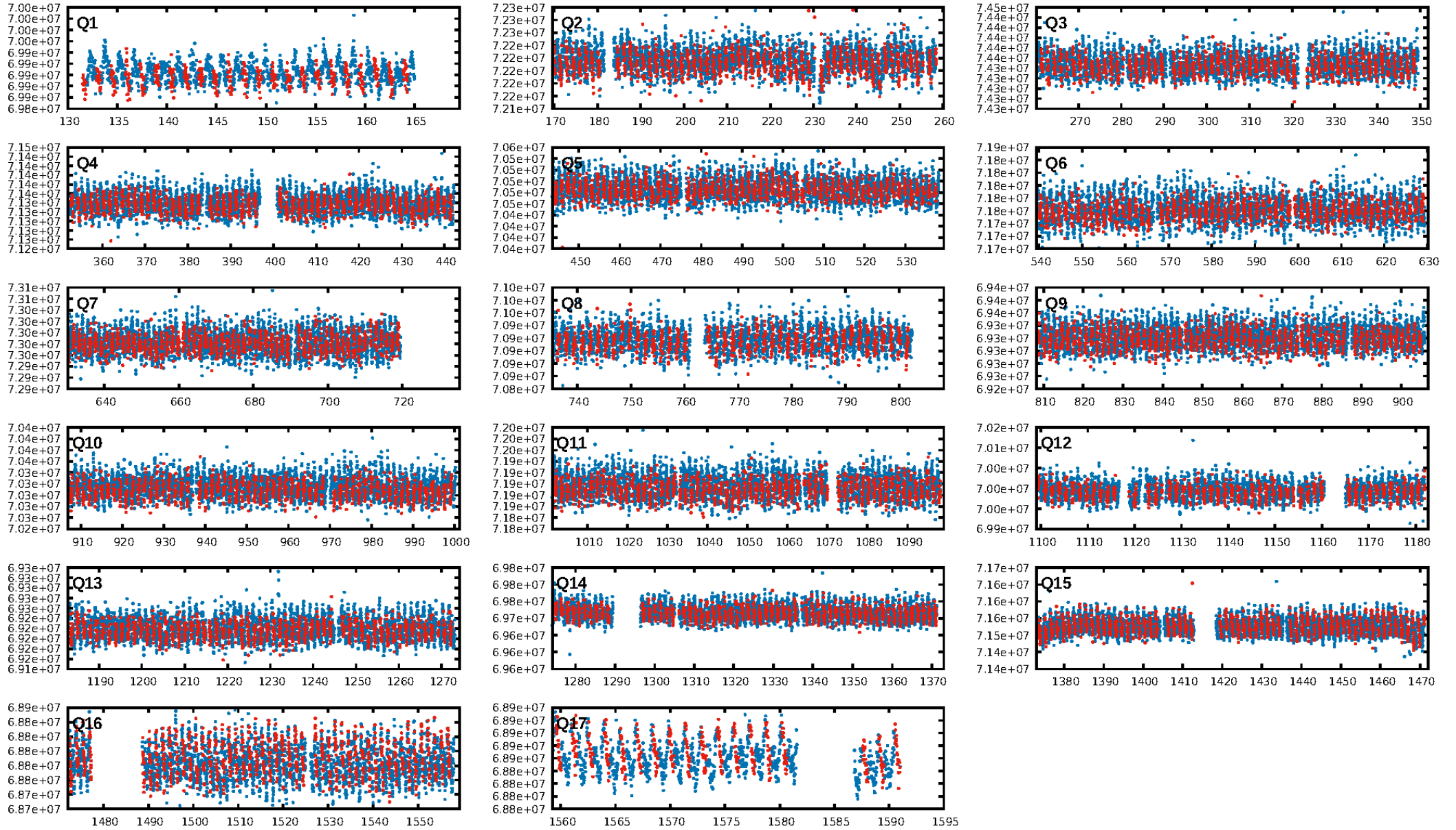
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.83e-30
RollingBand-fgt: 1.00 [863/863]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.182 arcsec [1.59σ]
KicOffset-rm: 0.193 arcsec [1.94σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.53 [8/15]
DiffImageOverlap-fno: 0.59 [10/17]

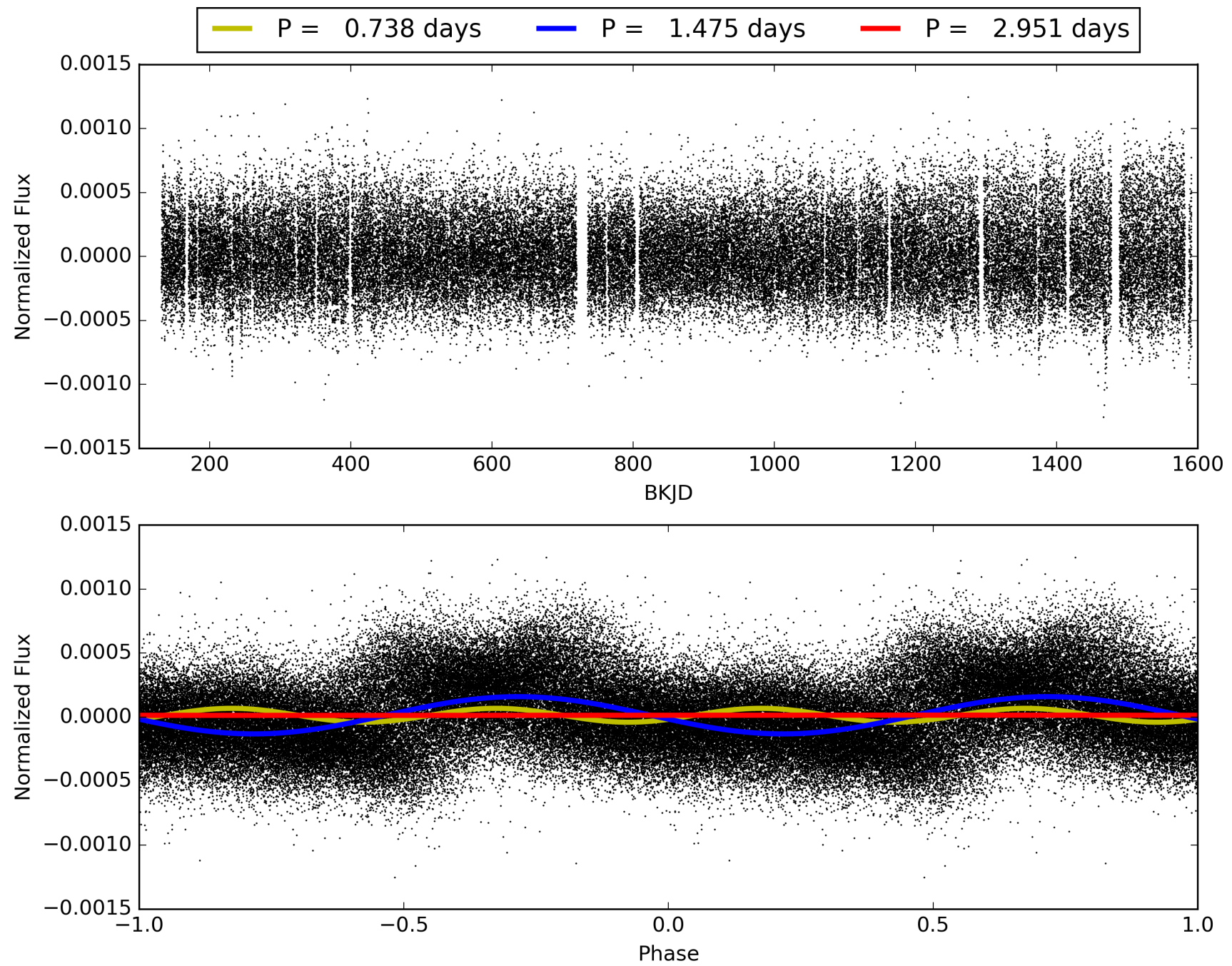
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:00:15 Z

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

TCE 008574840-01, PDC Light Curves

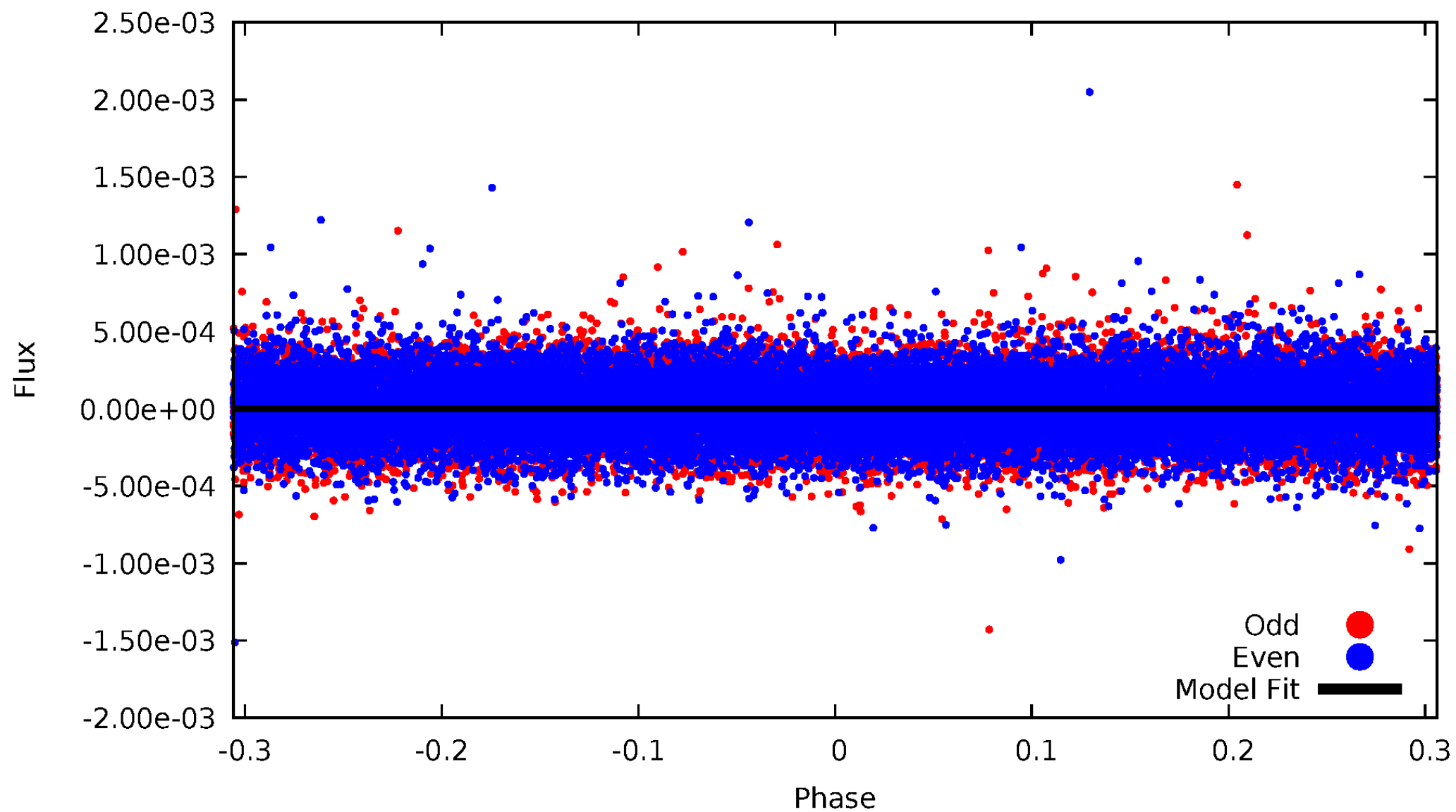


TCE 008574840-01



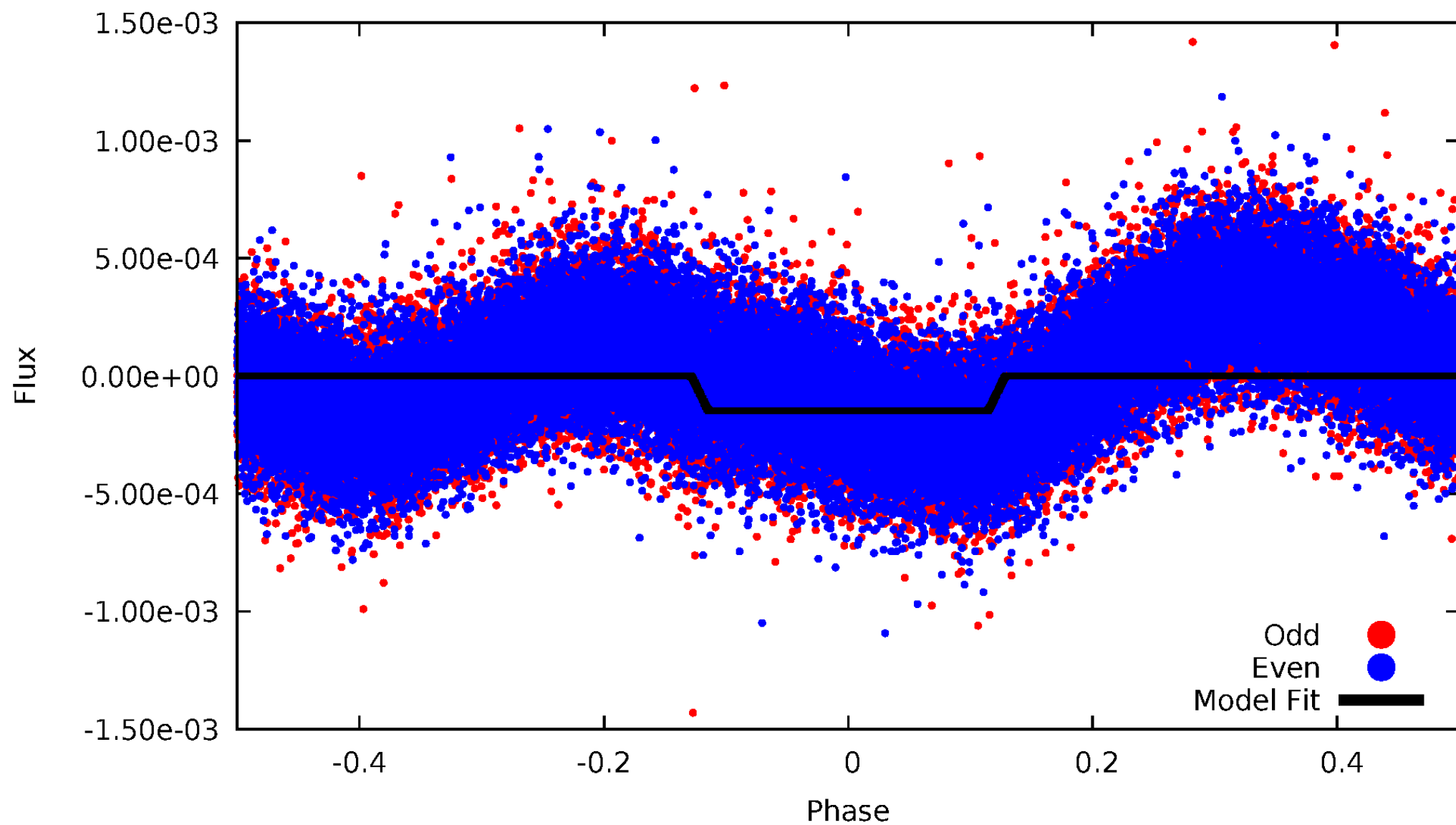
DV Odd/Even

TCE 008574840-01



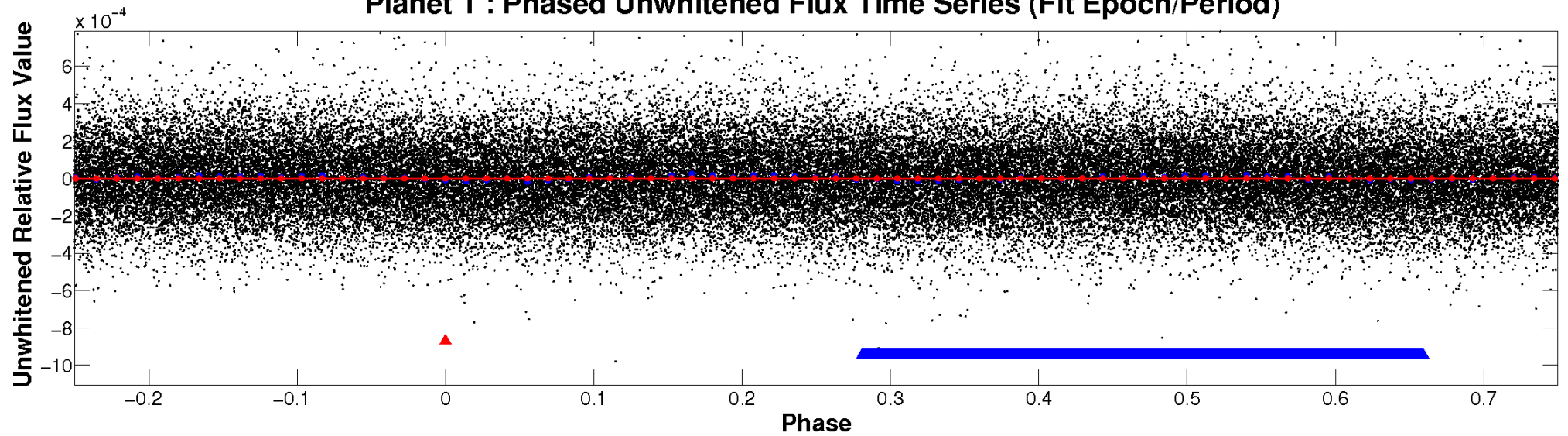
ALT Odd/Even

TCE 008574840-01

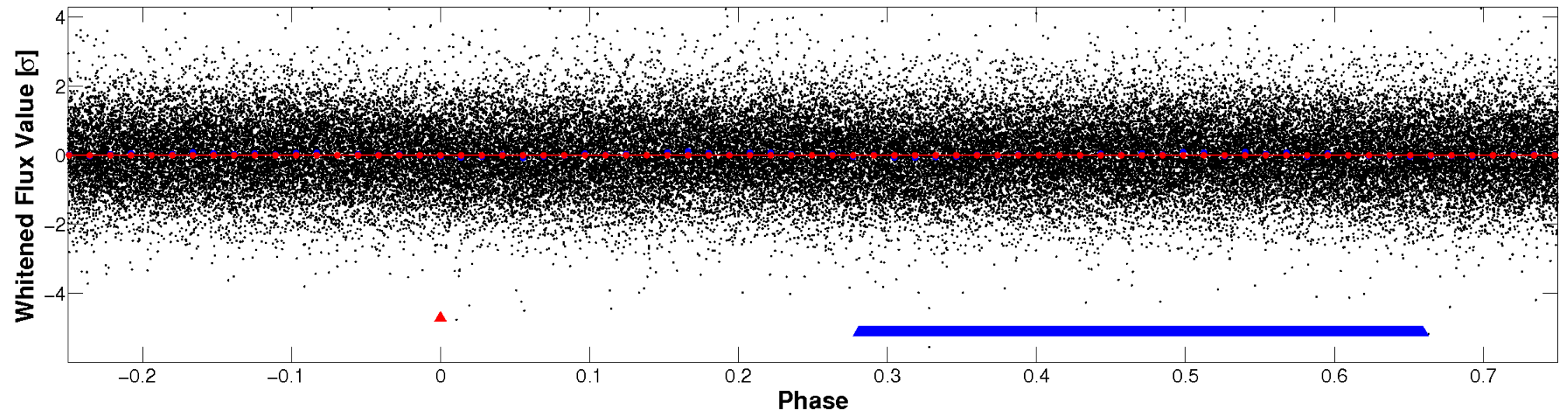


Non-Whitened Vs. Whitened Light Curve

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

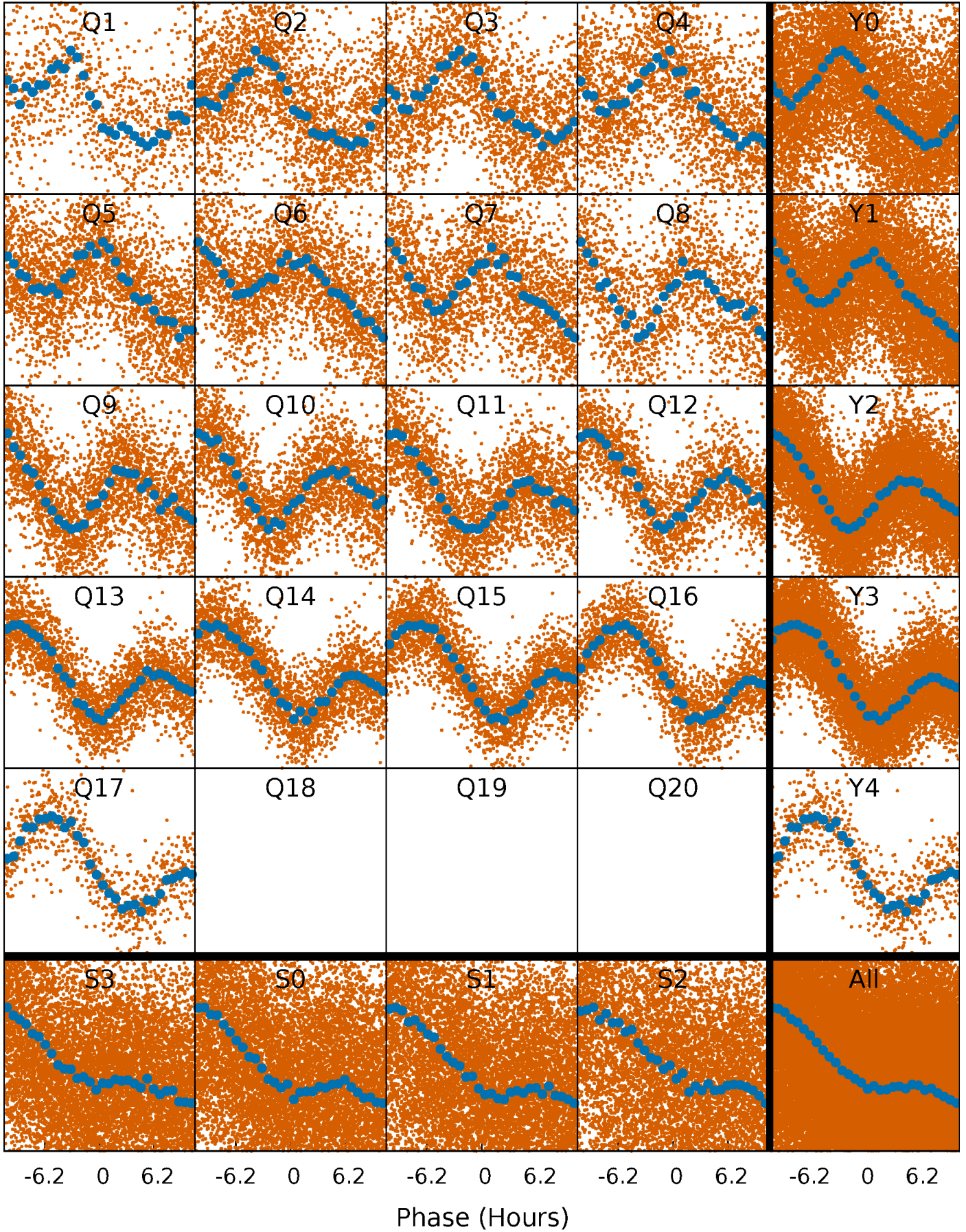


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



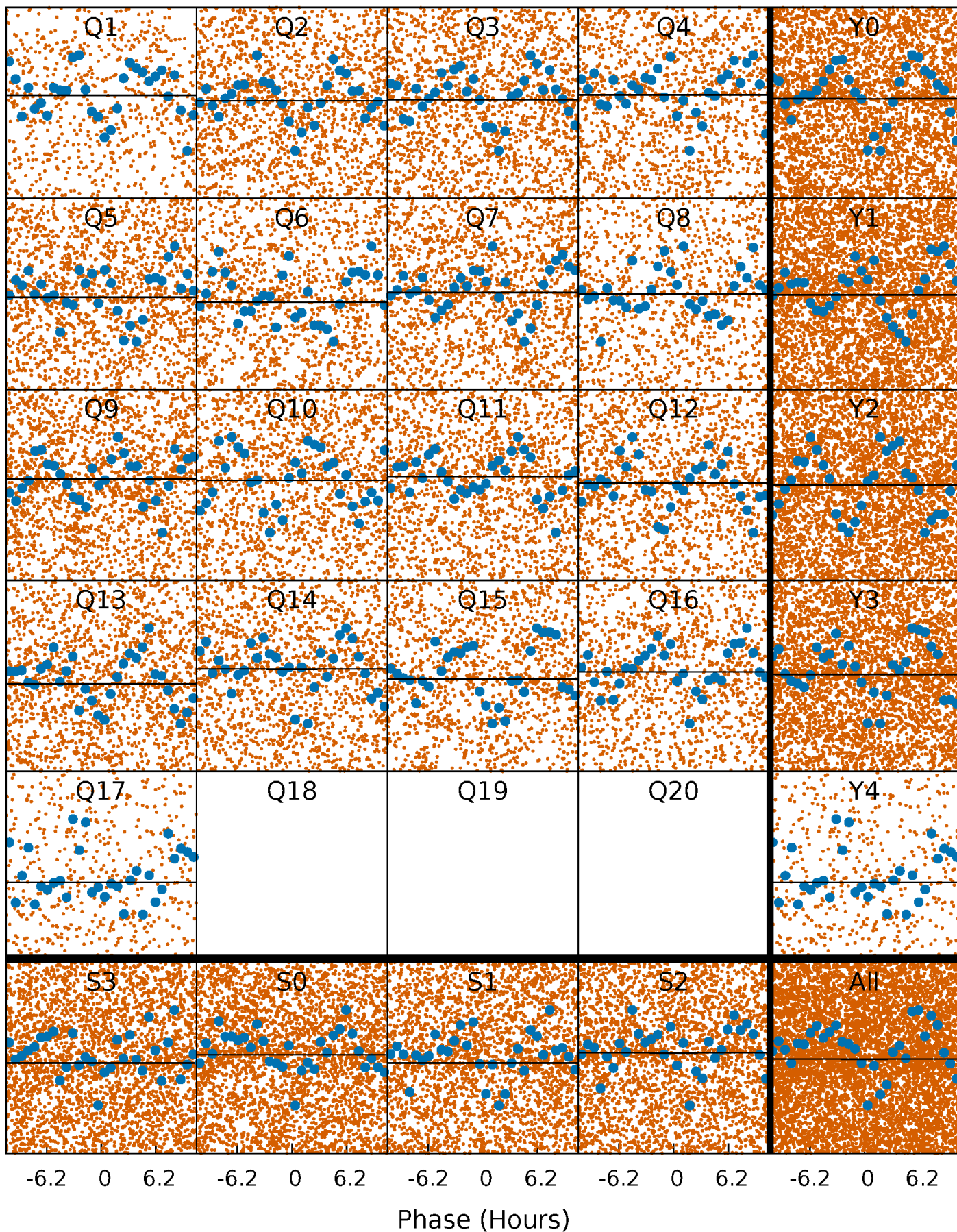
PDC Quarter-Phased Transit Curves

TCE 008574840-01 P= 1.475383 Days $T_0=131.610825$ (BKJD)



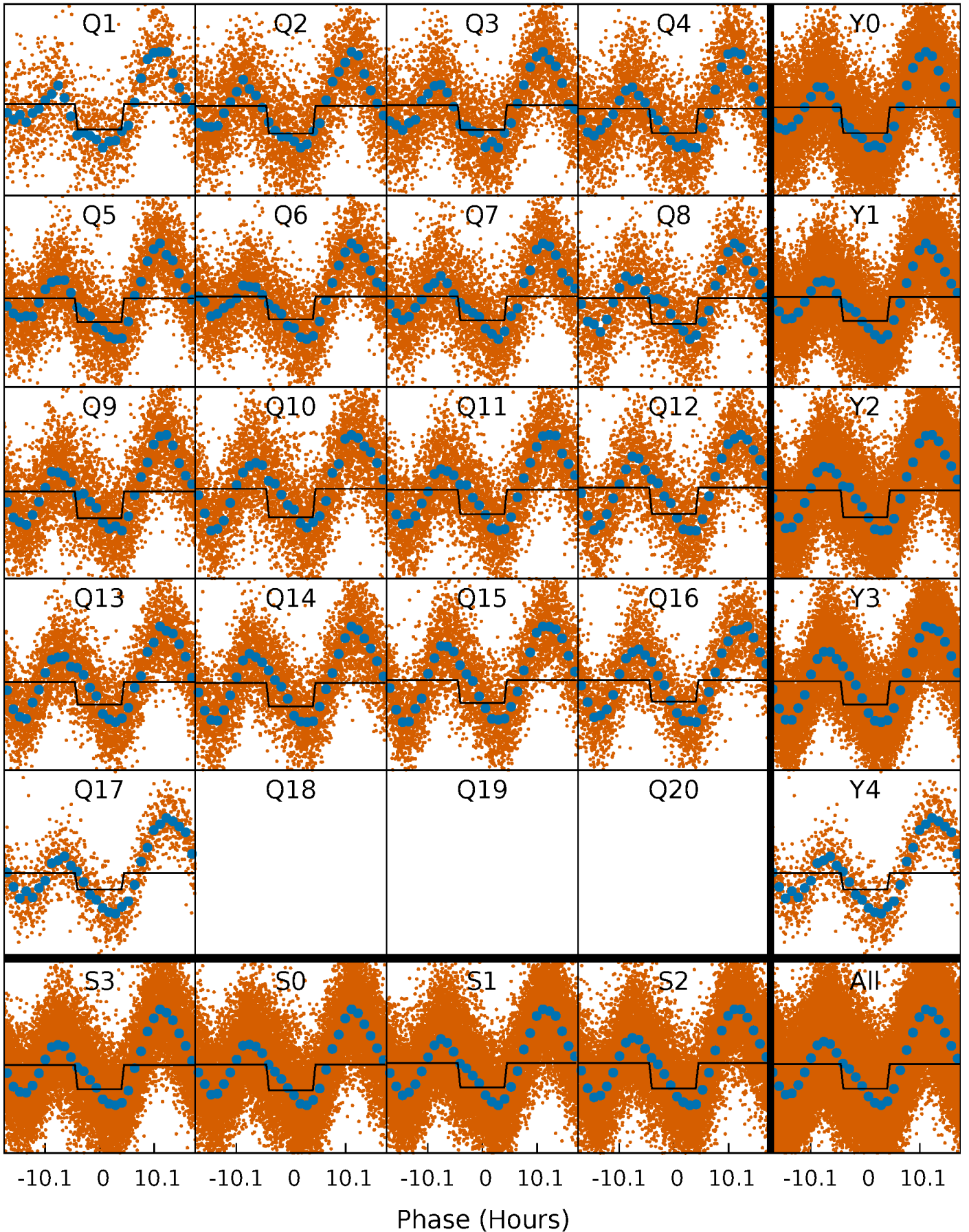
DV Quarter-Phased Transit Curves

TCE 008574840-01 P= 1.475383 Days $T_0=131.610825$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

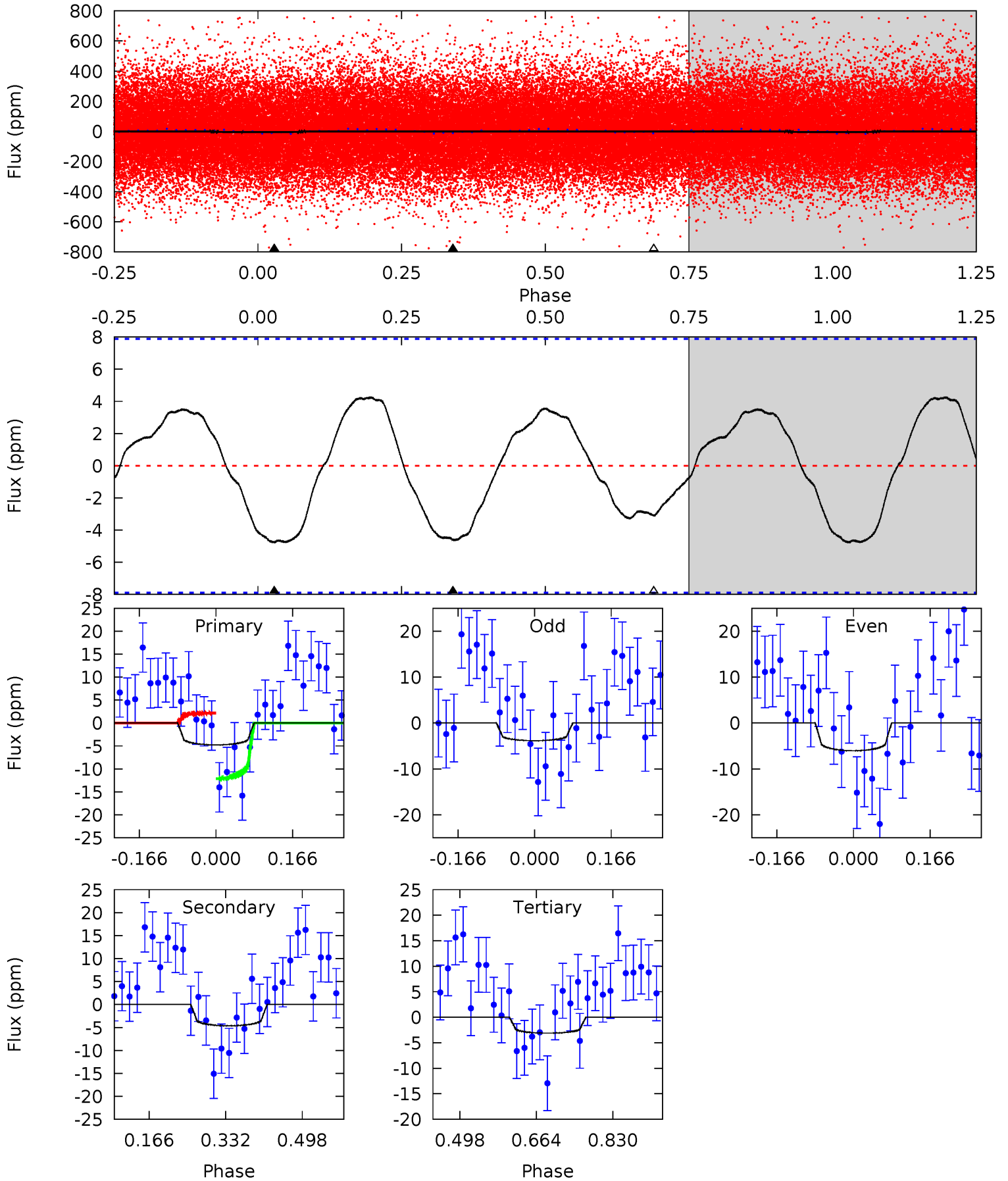
TCE 008574840-01 P= 1.475911 Days $T_0=131.801585$ (BKJD)



DV Model-Shift Uniqueness Test

008574840-01, P = 1.475383 Days, E = 130.135442 Days

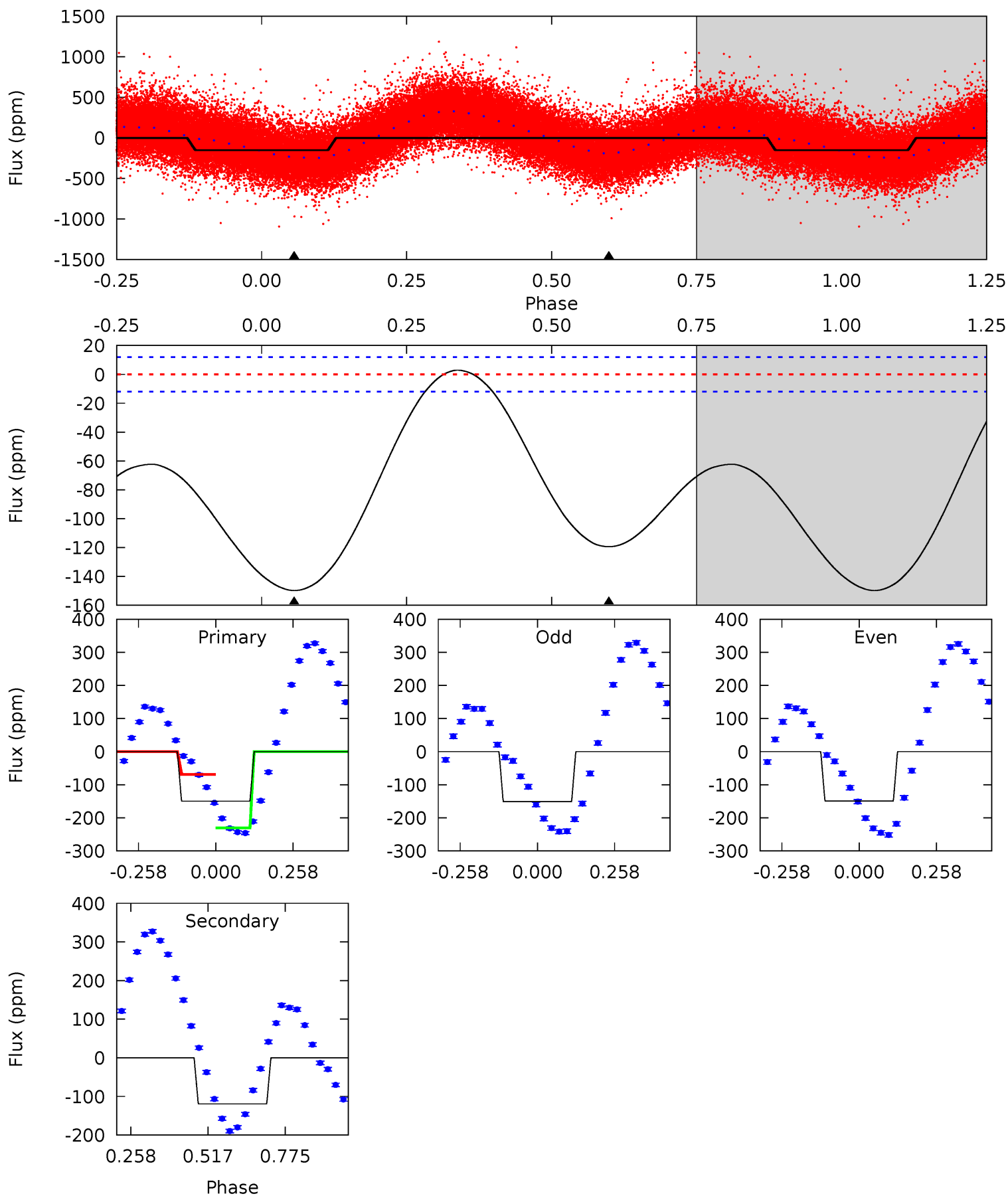
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.69	2.62	1.76	0	4.46	1.39	1.30	0.94	2.69	0.86	2.62	0.62	0.83	0.47	2.81



Alt Model-Shift Uniqueness Test

008574840-01, P = 1.475911 Days, E = 130.325674 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
54.7	43.6	0	0	4.36	1.13	6.28	54.7	54.7	43.6	43.6	0.31	1.02	0.02	43.0



Stellar Parameters For KIC 008574840

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7345^{+230}_{-307}	$4.057^{+0.204}_{-0.167}$	$-0.240^{+0.250}_{-0.350}$	$1.898^{+0.525}_{-0.525}$	$1.496^{+0.209}_{-0.255}$	$0.308^{+0.356}_{-0.143}$
	+3%/-4%	+5%/-4%	+104%/-146%	+28%/-28%	+14%/-17%	+115%/-46%
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 008574840-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-5 ± 2	$1.42^{+1.71}_{-0.98}$	3645^{+266}_{-283}	3950^{+3364}_{-6879}	$1.008^{+10.241}_{-0.805}$
Alt.	-119 ± 3	$2.83^{+2.09}_{-1.67}$	3646^{+282}_{-301}	6306^{+4906}_{-1466}	$6.888^{+34.550}_{-4.555}$

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

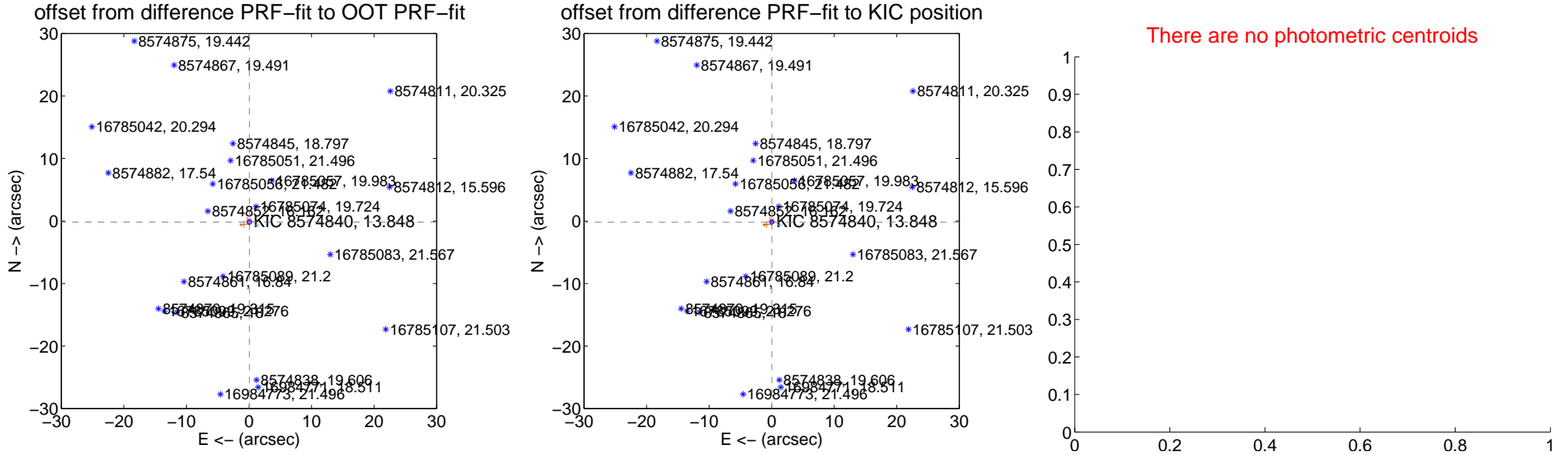
DV Centroid Data

Supplemental centroid analysis for 008574840-01. Kepler magnitude: 13.85. Transit SNR 0.01

There are 8 quarters with good PRF difference image offsets

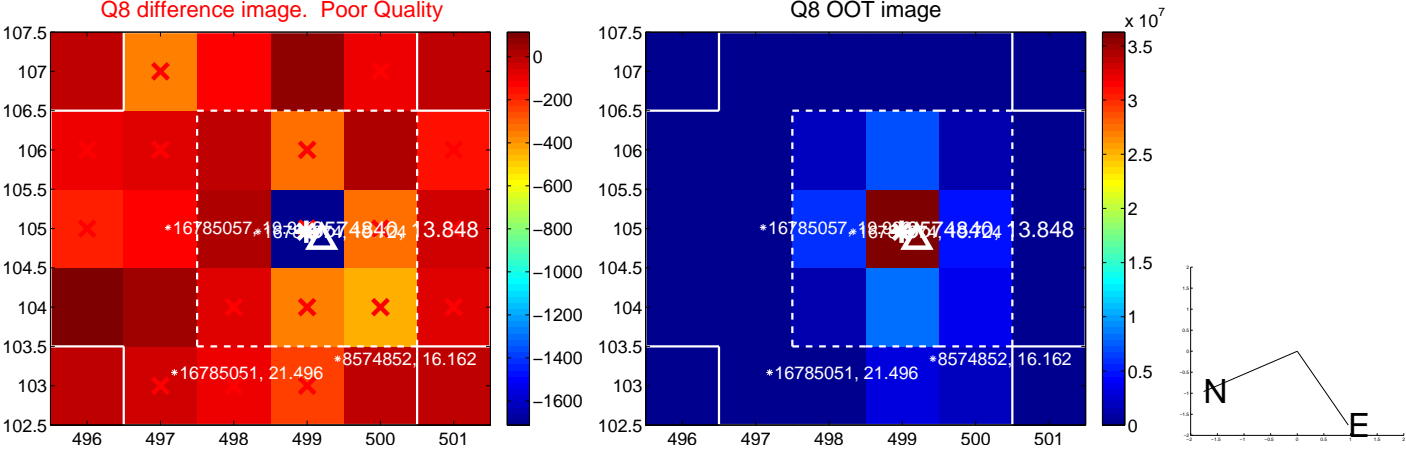
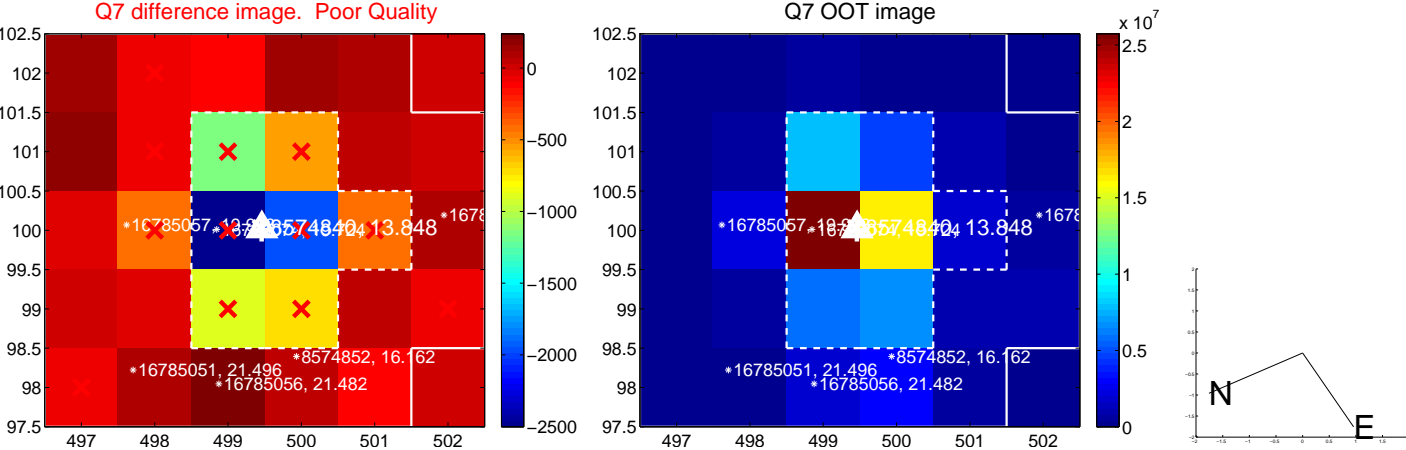
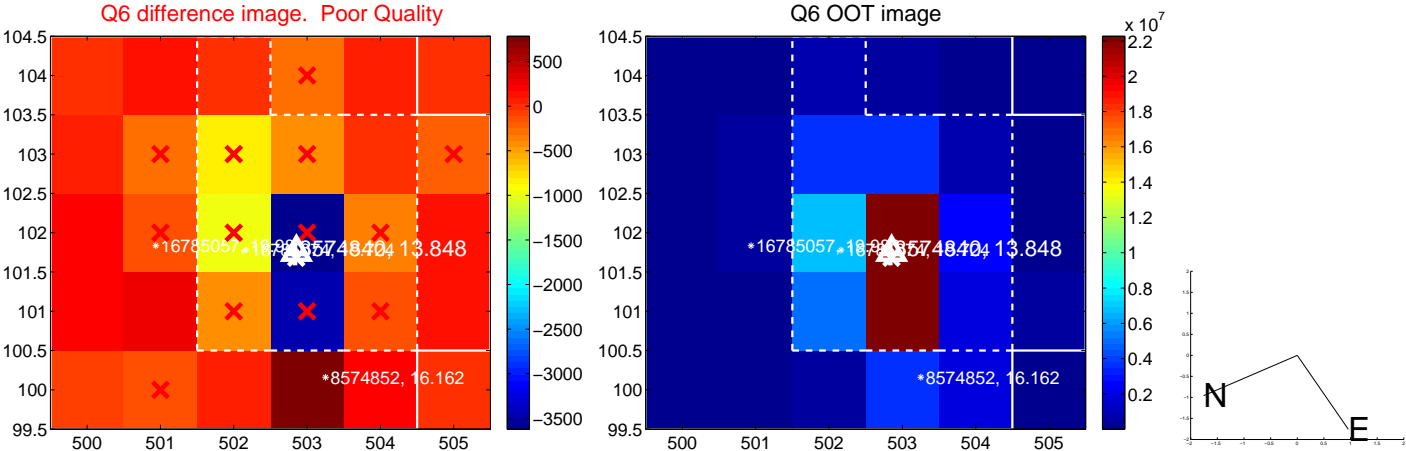
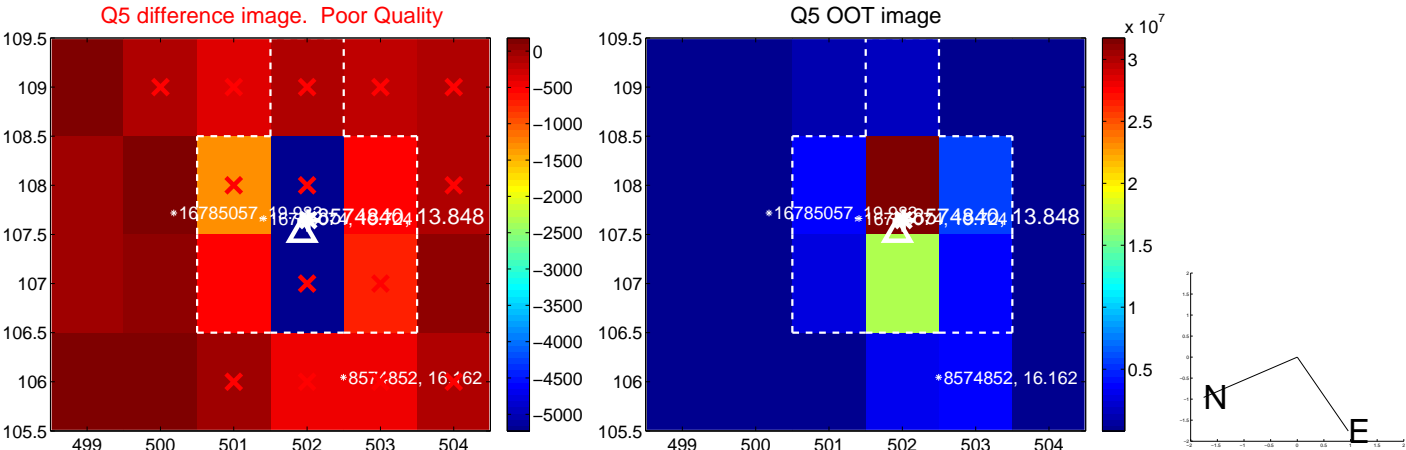
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.182 ± 0.114	1.59	-0.069 ± 0.178	-0.168 ± 0.101
PRF-fit source offset from KIC position	0.193 ± 0.099	1.94	-0.026 ± 0.166	-0.191 ± 0.098
photometric centroid source offset	—	—	—	—

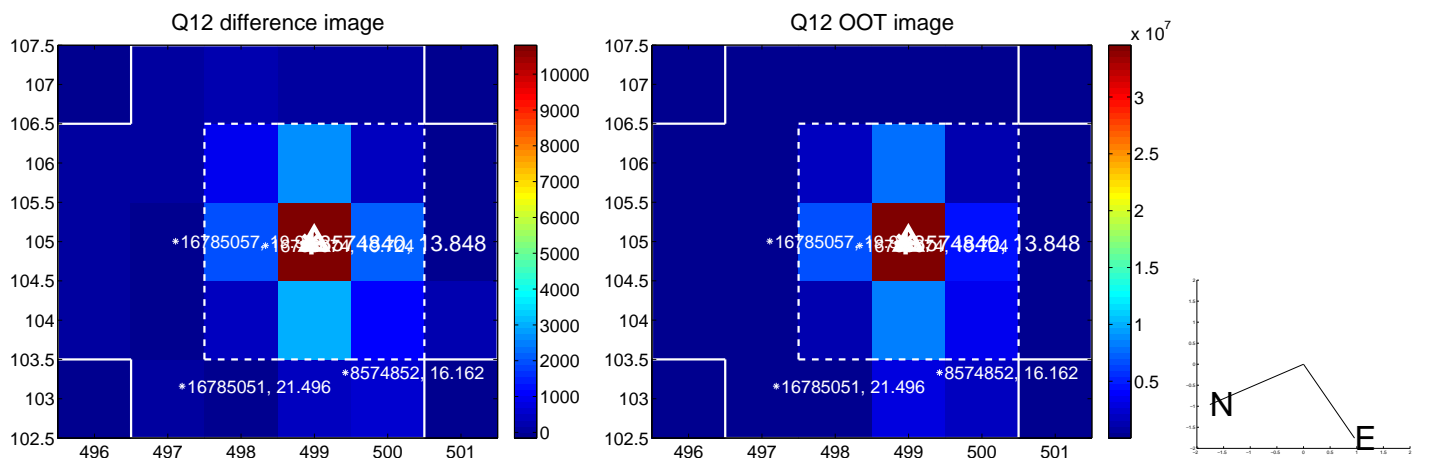
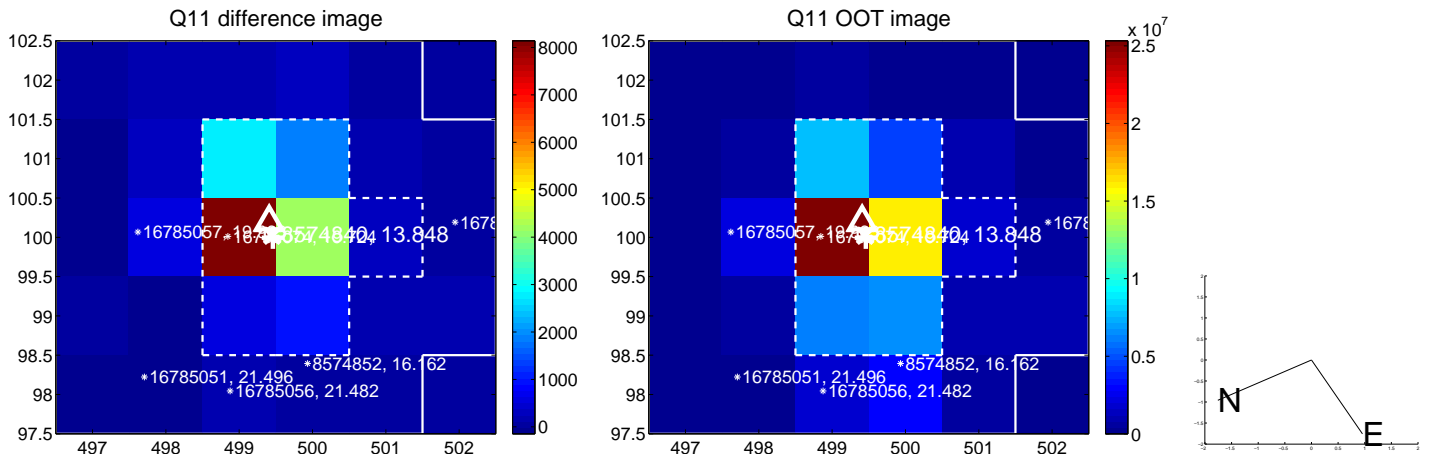
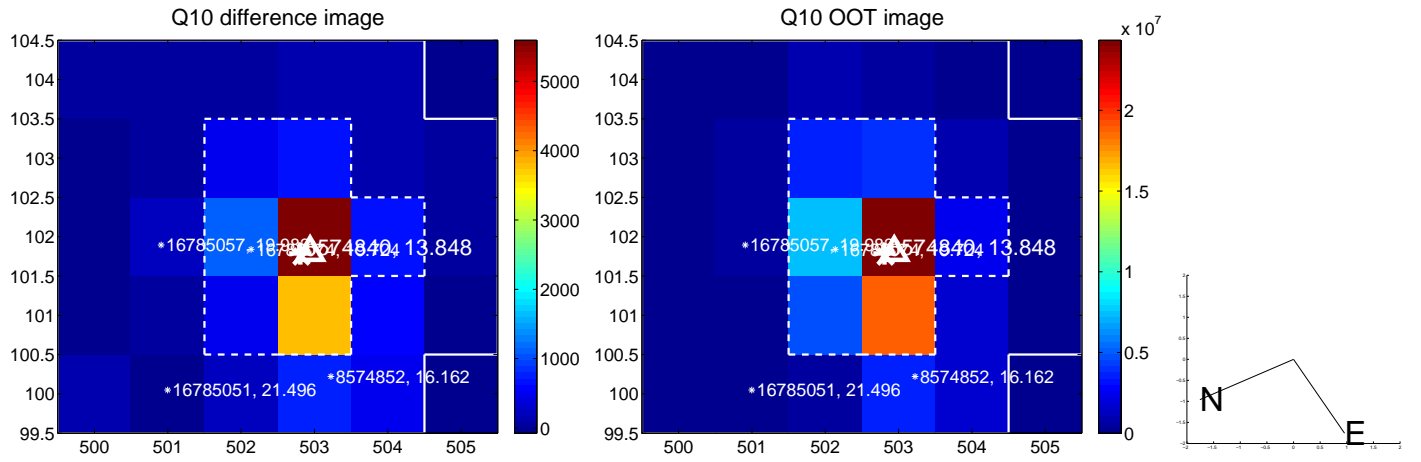
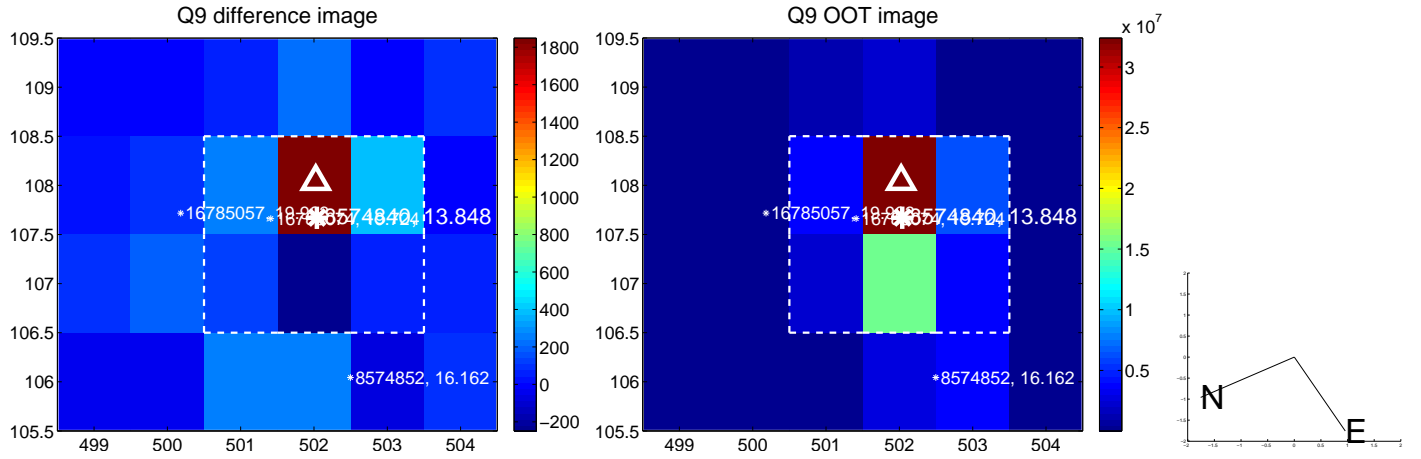


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

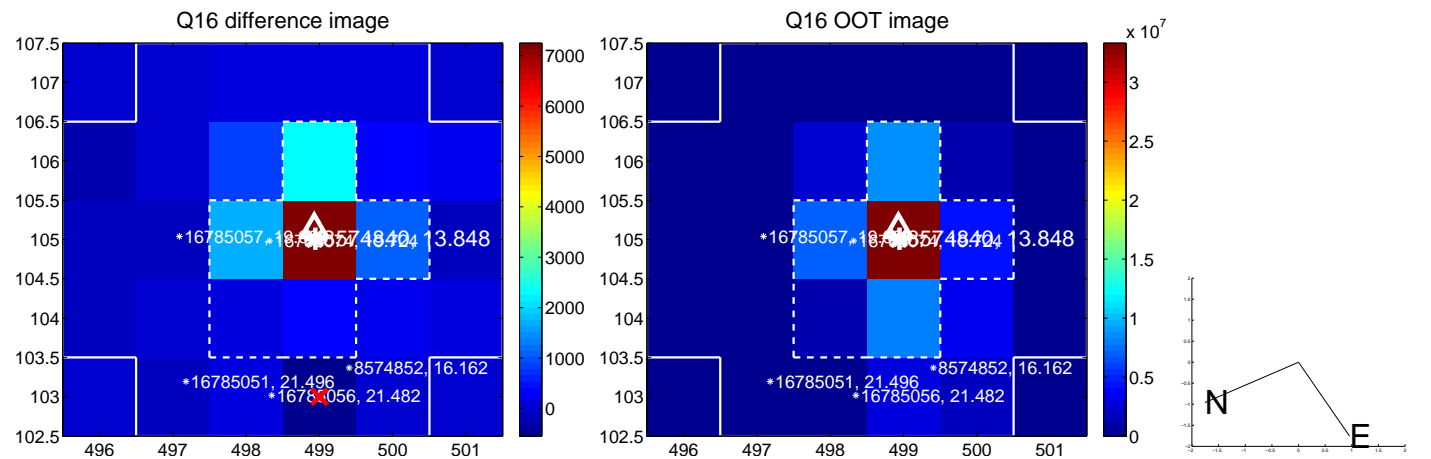
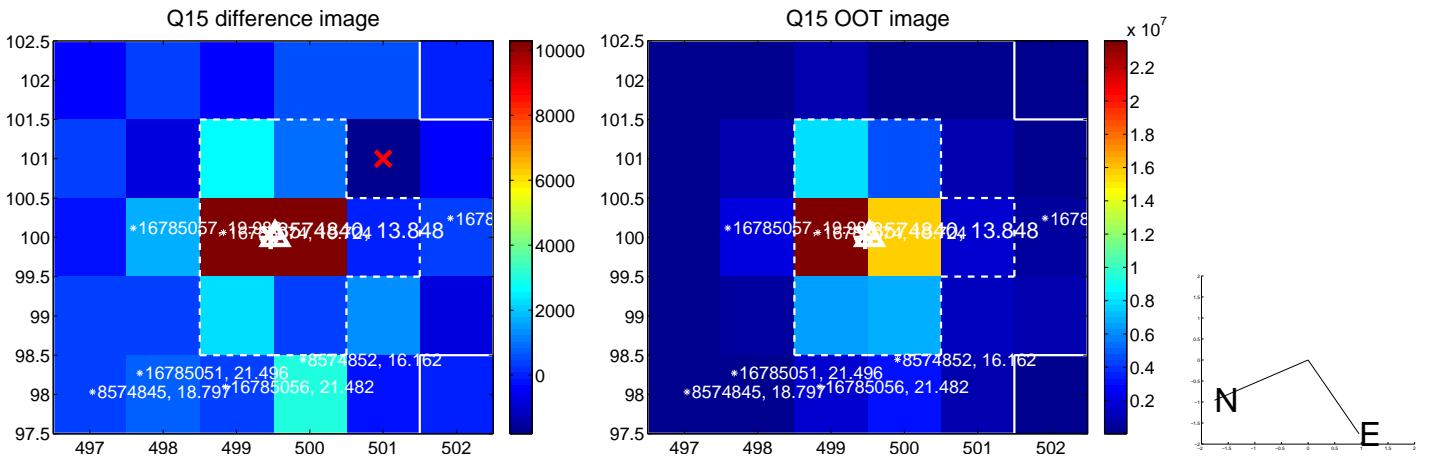
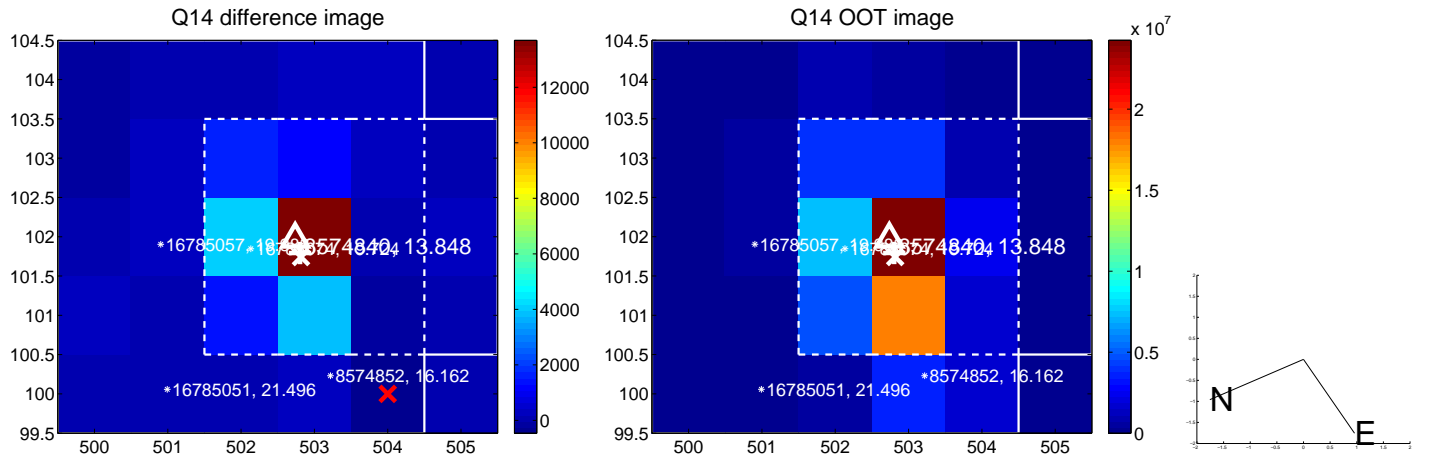
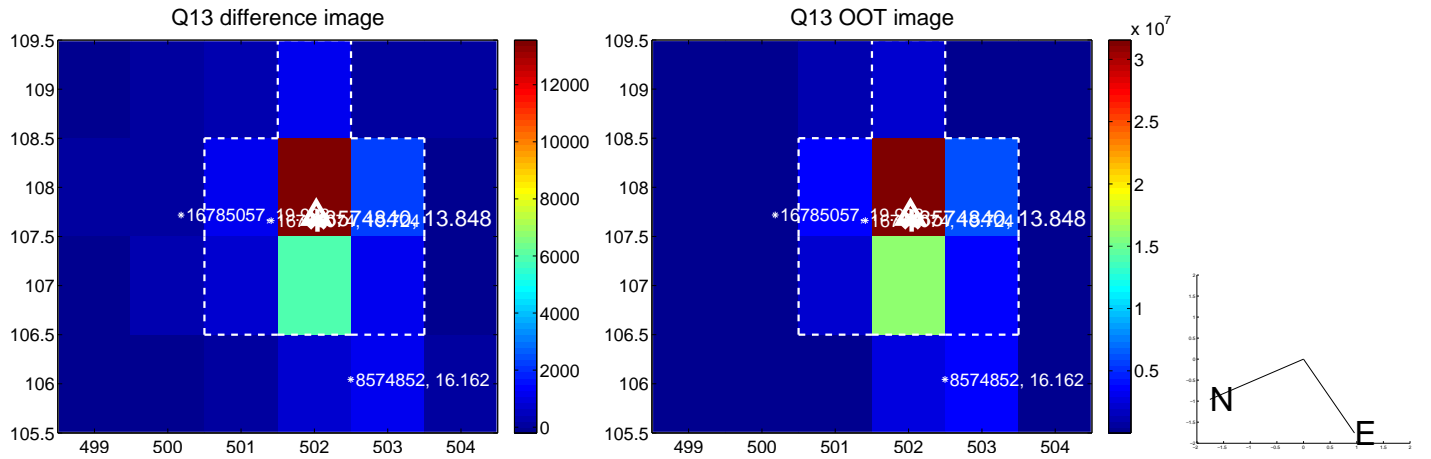
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



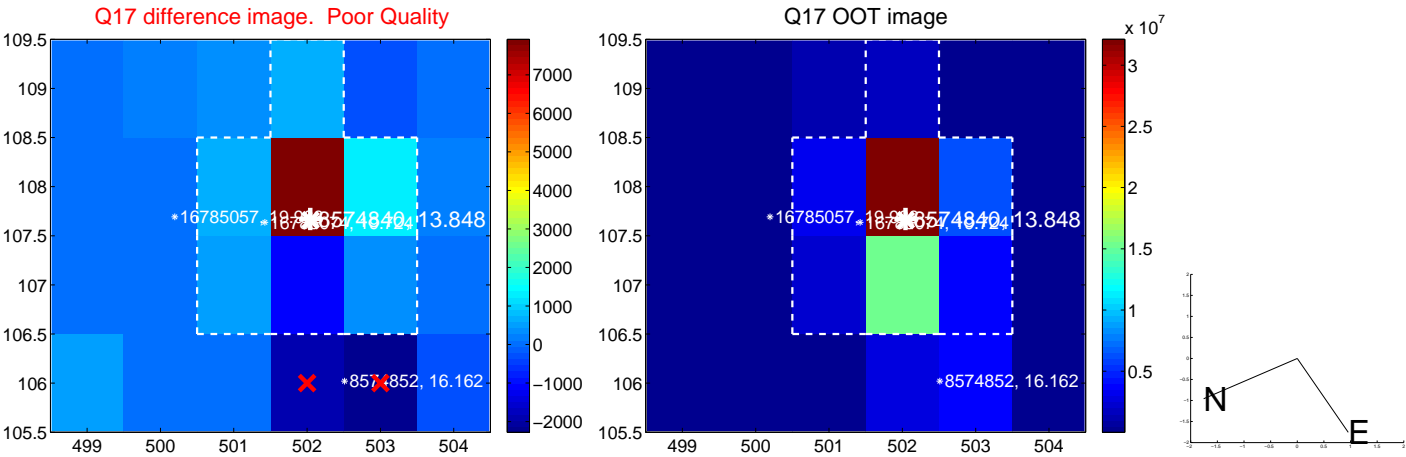
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



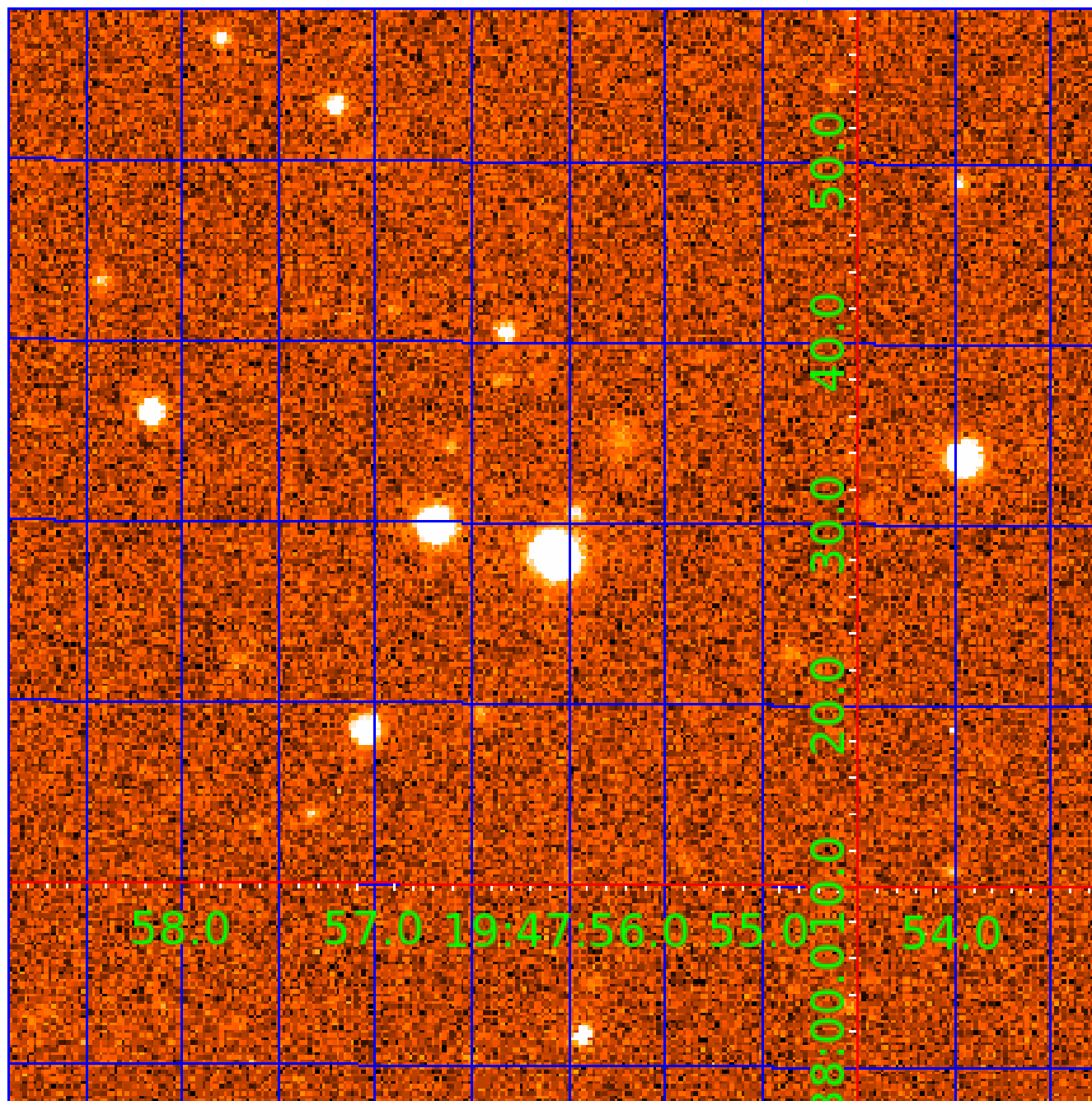
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 008574840

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})
008574840-01	OBS	No	1.475383	131.610825	0.0	5.414	14.9	0.0	1.90	7345	0.03	11147.72
008574840-02	OBS	No	1.475949	133.500461	20.3	5.642	8.9	8.6	1.90	7345	0.95	11142.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008574840-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
008574840-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

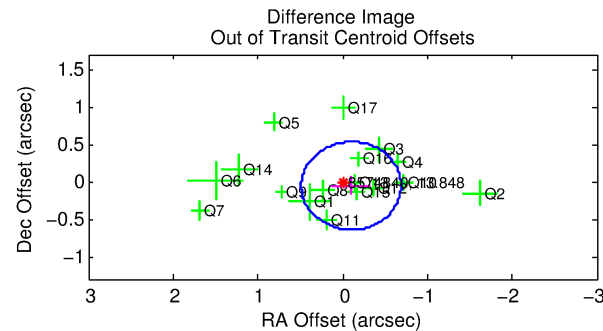
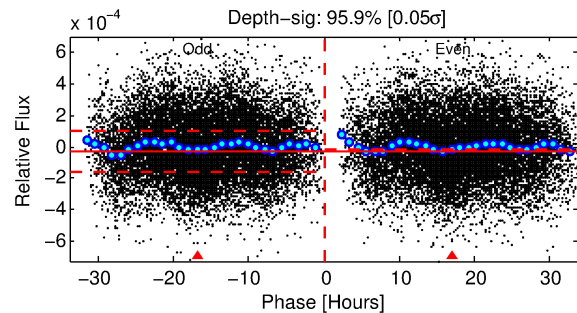
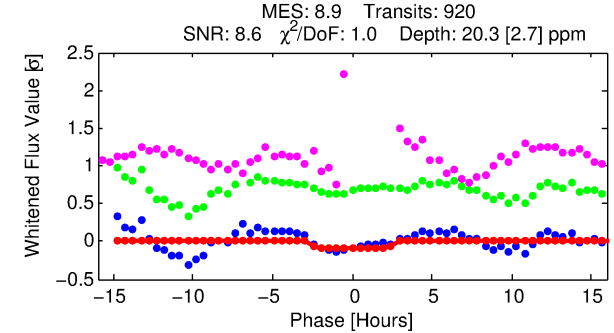
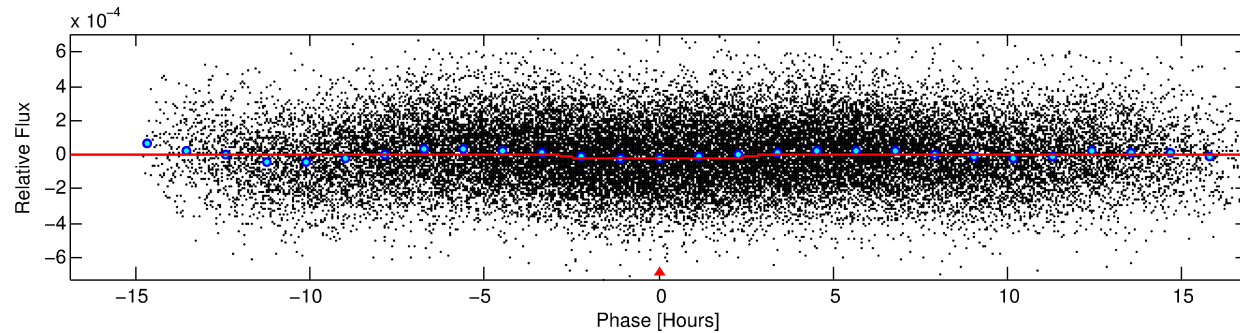
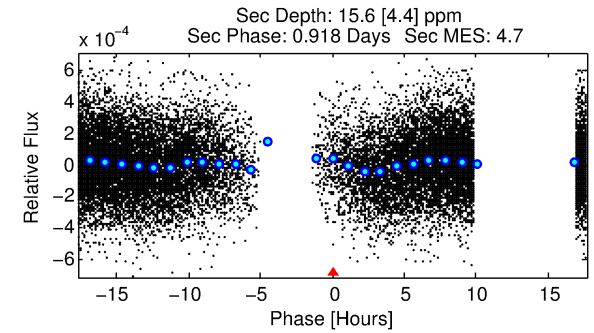
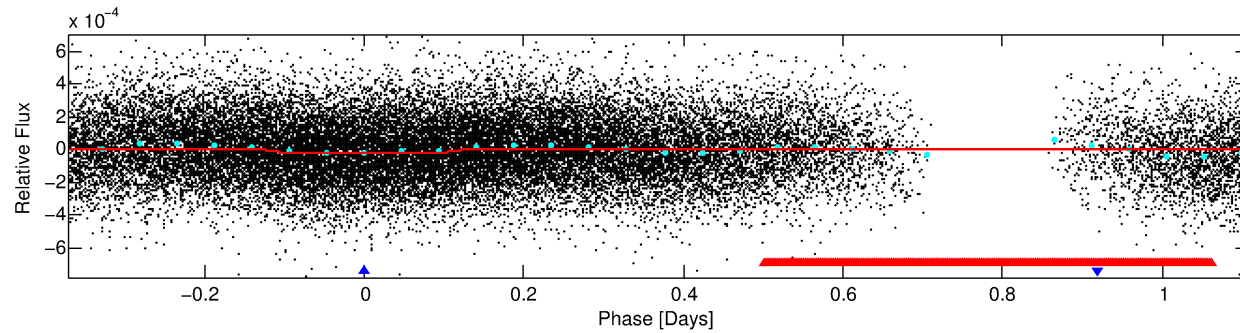
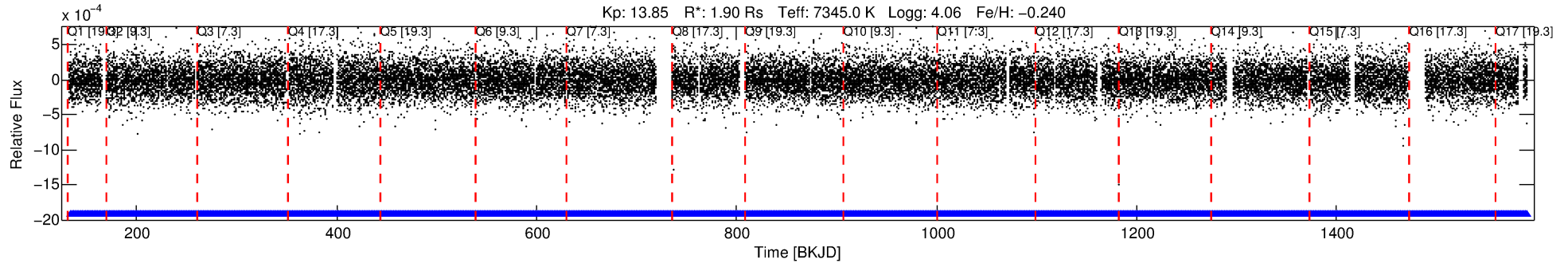
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008574840-02

No Significant Match Found

DV One-Page Summary

KIC: 8574840 Candidate: 2 of 2 Period: 1.476 d



DV Fit Results:

Period = 1.47595 [0.00002] d
Epoch = 133.5005 [0.0067] BKJD
Rp/R* = 0.0046 [0.0015]
a/R* = 1.45 [1.43]
b = 0.83 [0.73]
Seff = 11142.02 [4457.10]
Teff = 2620 [262] K
Rp = 0.95 [0.40] Re
a = 0.0290 [0.0070] AU
Ag = 7.94 [6.24] [1.11σ]
Teffp = 6799 [1218] K [3.36σ]

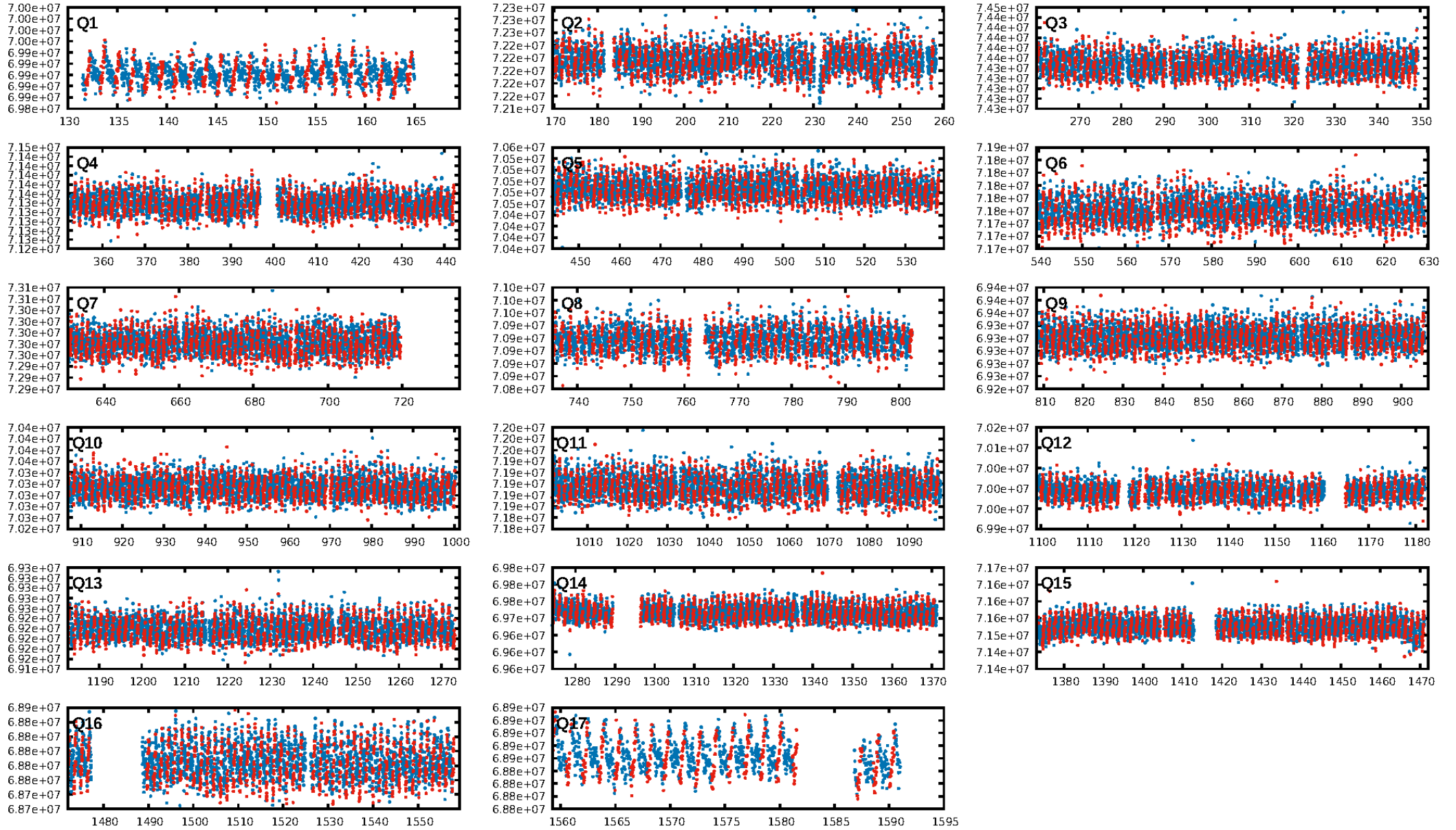
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.83e-16
RollingBand-fgt: 1.00 [878/878]
GhostDiagnostic-chr: 0.4155
Centroid-sig: 0.0%
Centroid-so: 8.006 arcsec [5.09σ]
OotOffset-rm: 0.114 arcsec [0.58σ]
KicOffset-rm: 0.085 arcsec [0.59σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.53 [9/17]

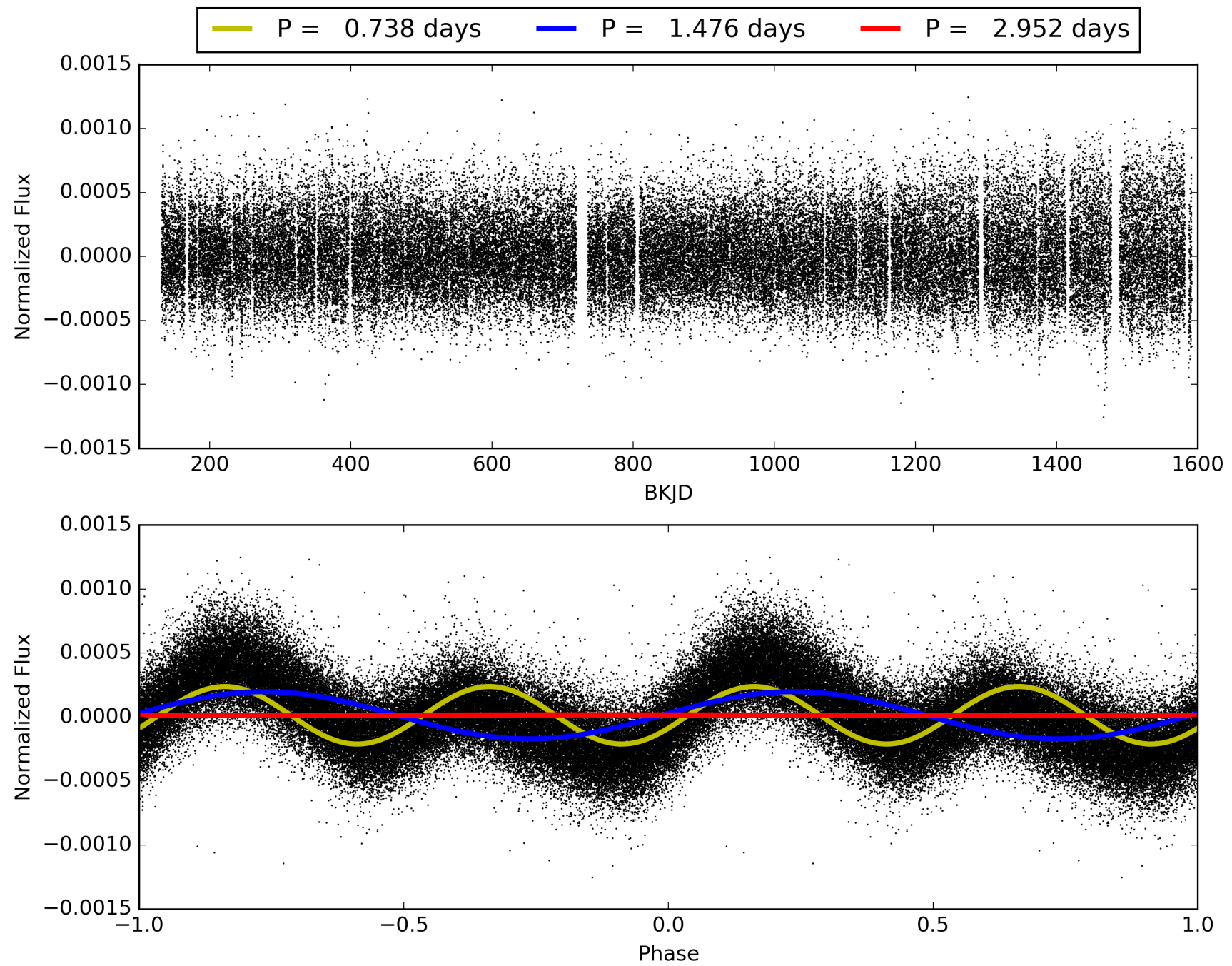
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:00:27 Z

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

TCE 008574840-02, PDC Light Curves

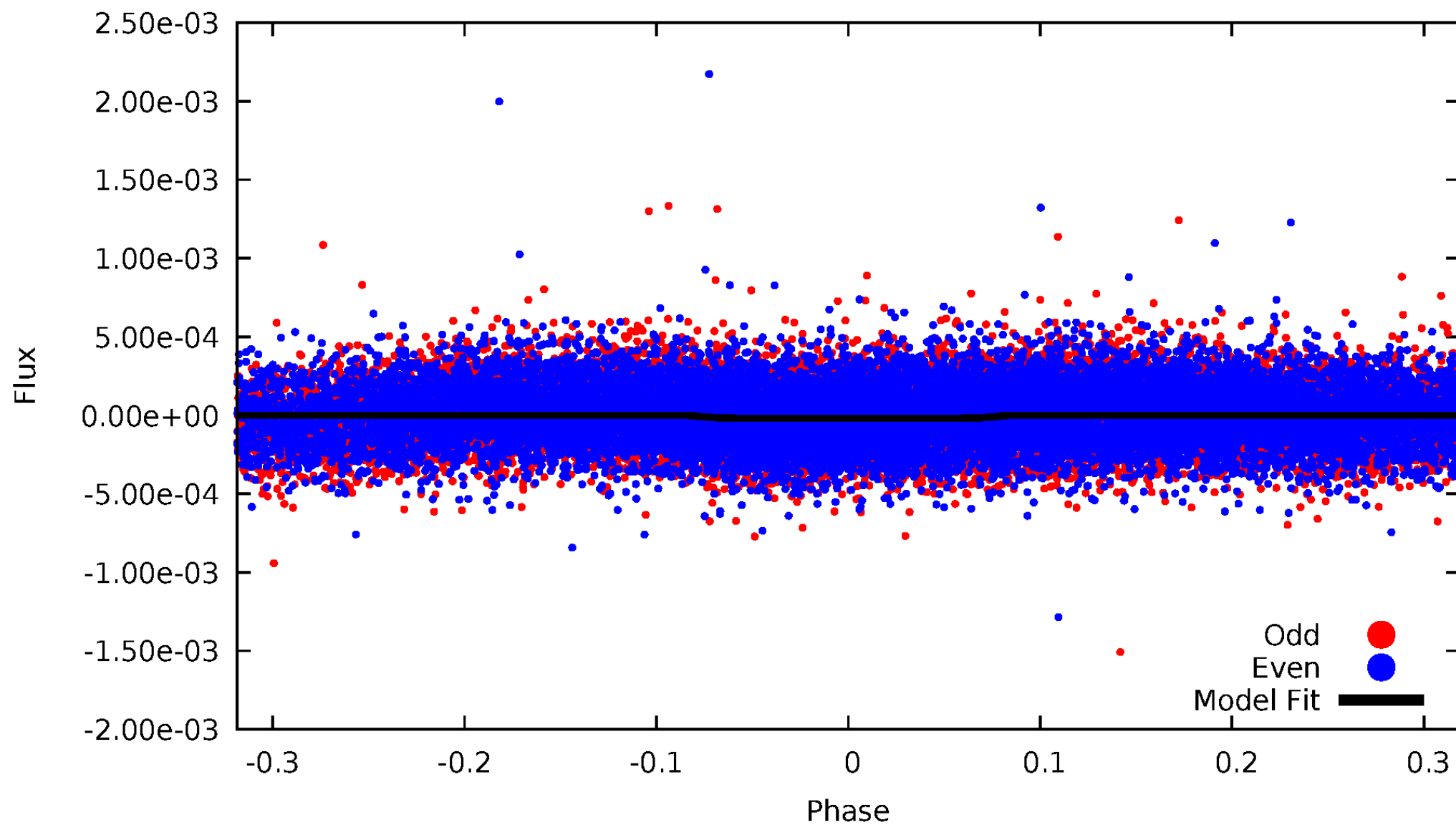


TCE 008574840-02



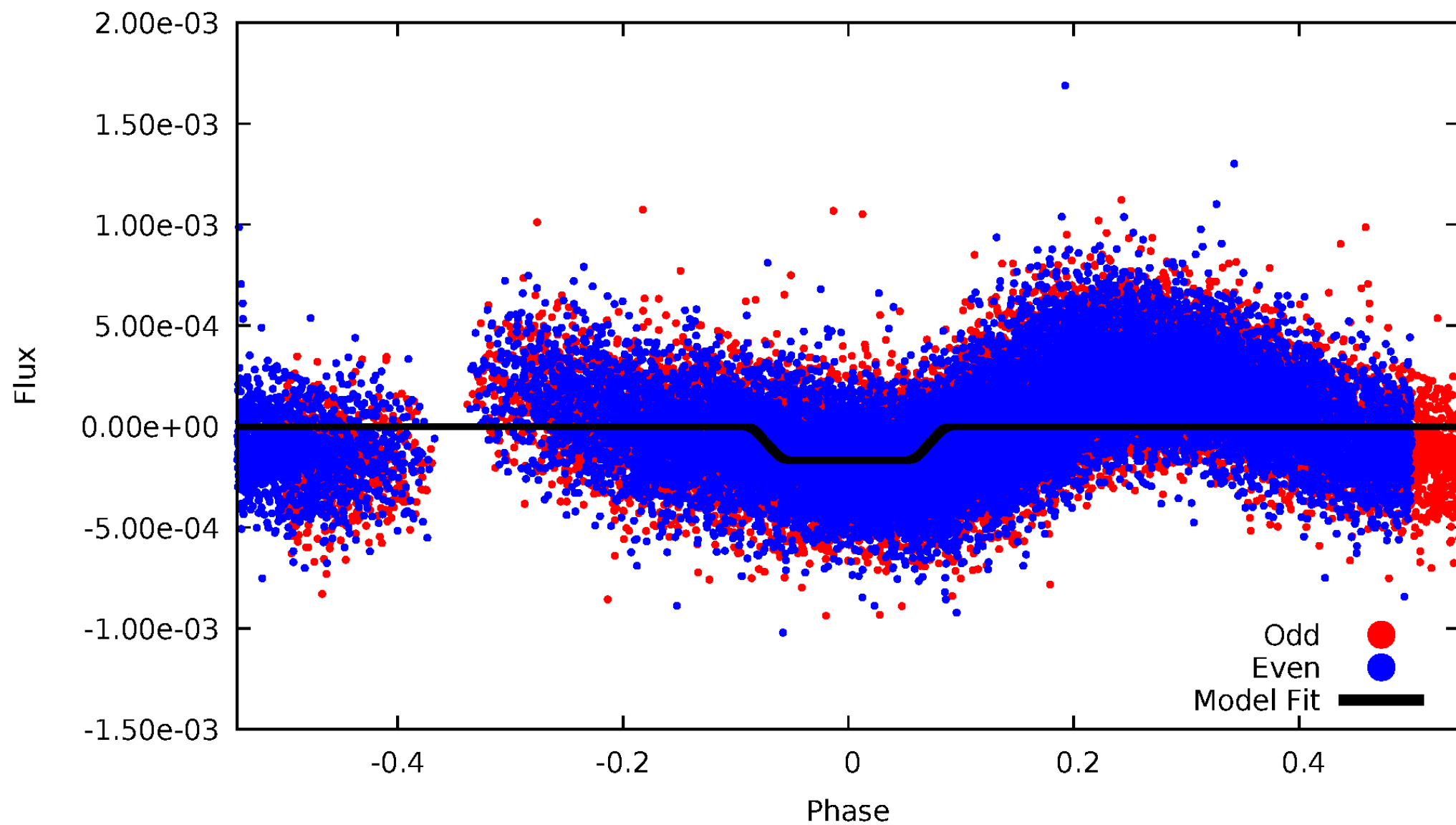
DV Odd/Even

TCE 008574840-02



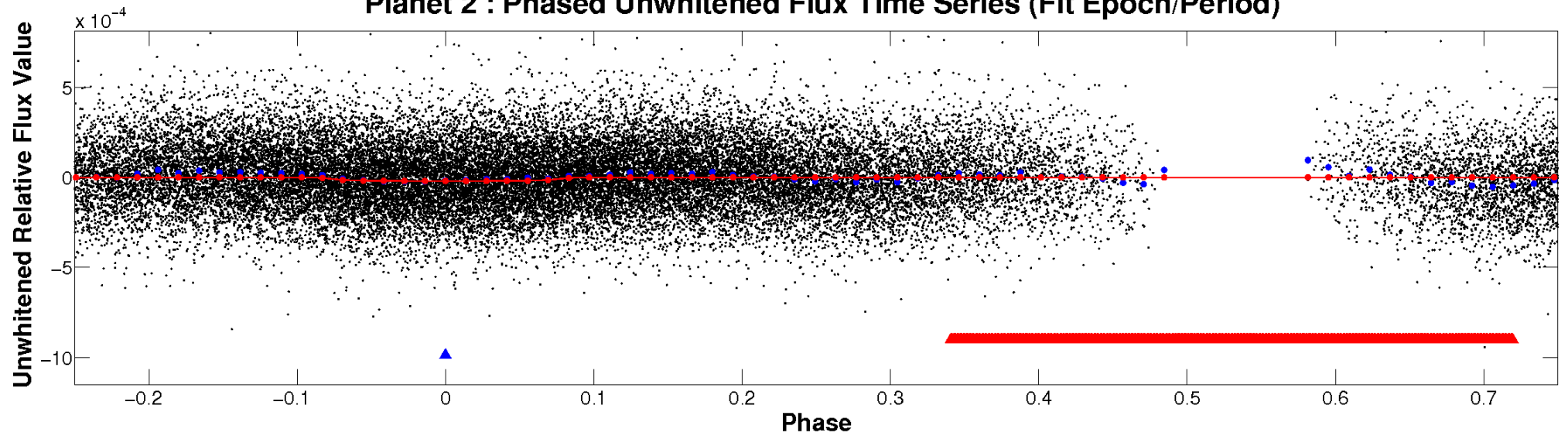
ALT Odd/Even

TCE 008574840-02

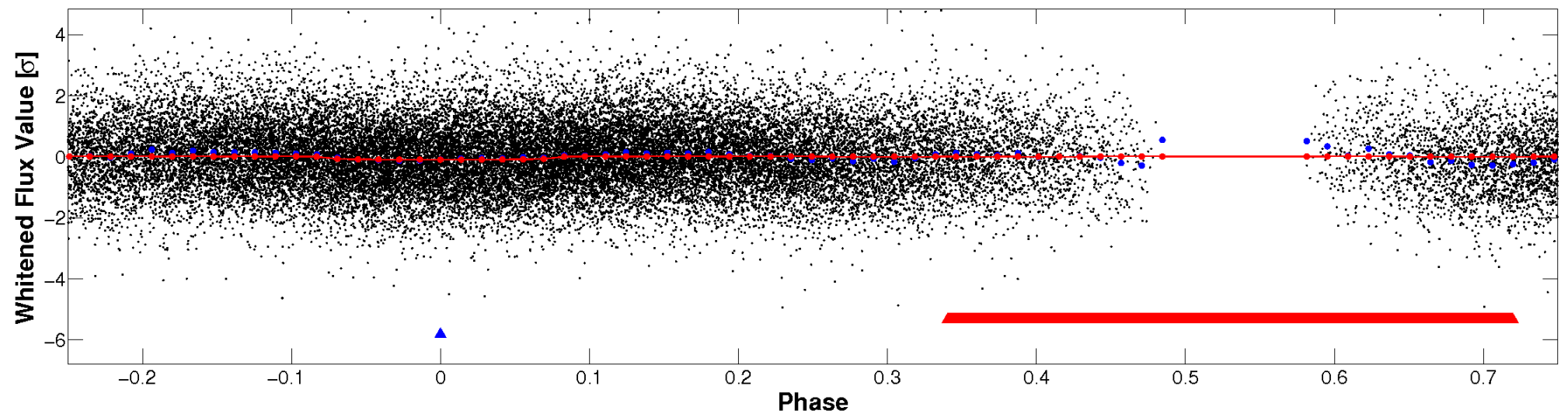


Non-Whitened Vs. Whitened Light Curve

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

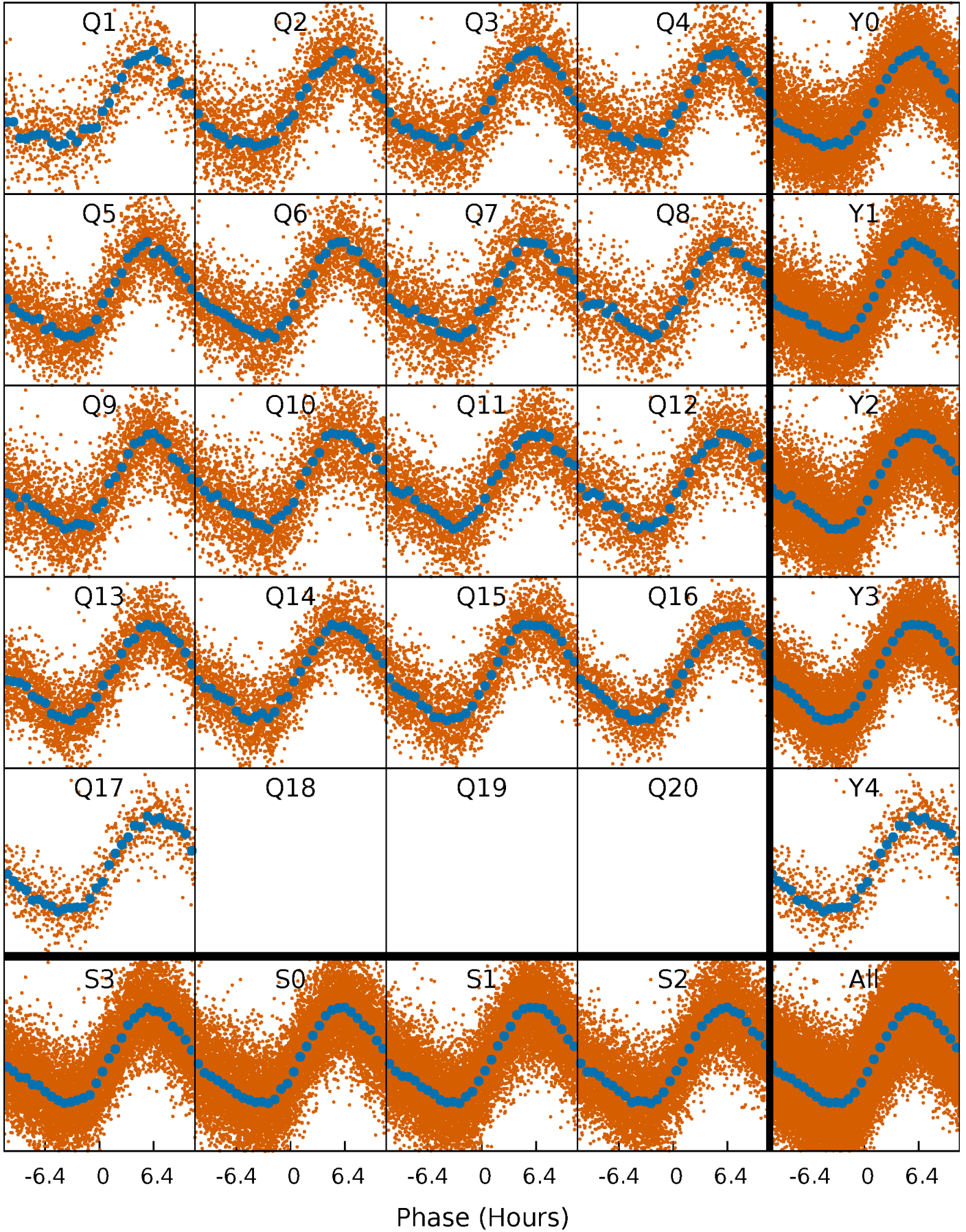


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



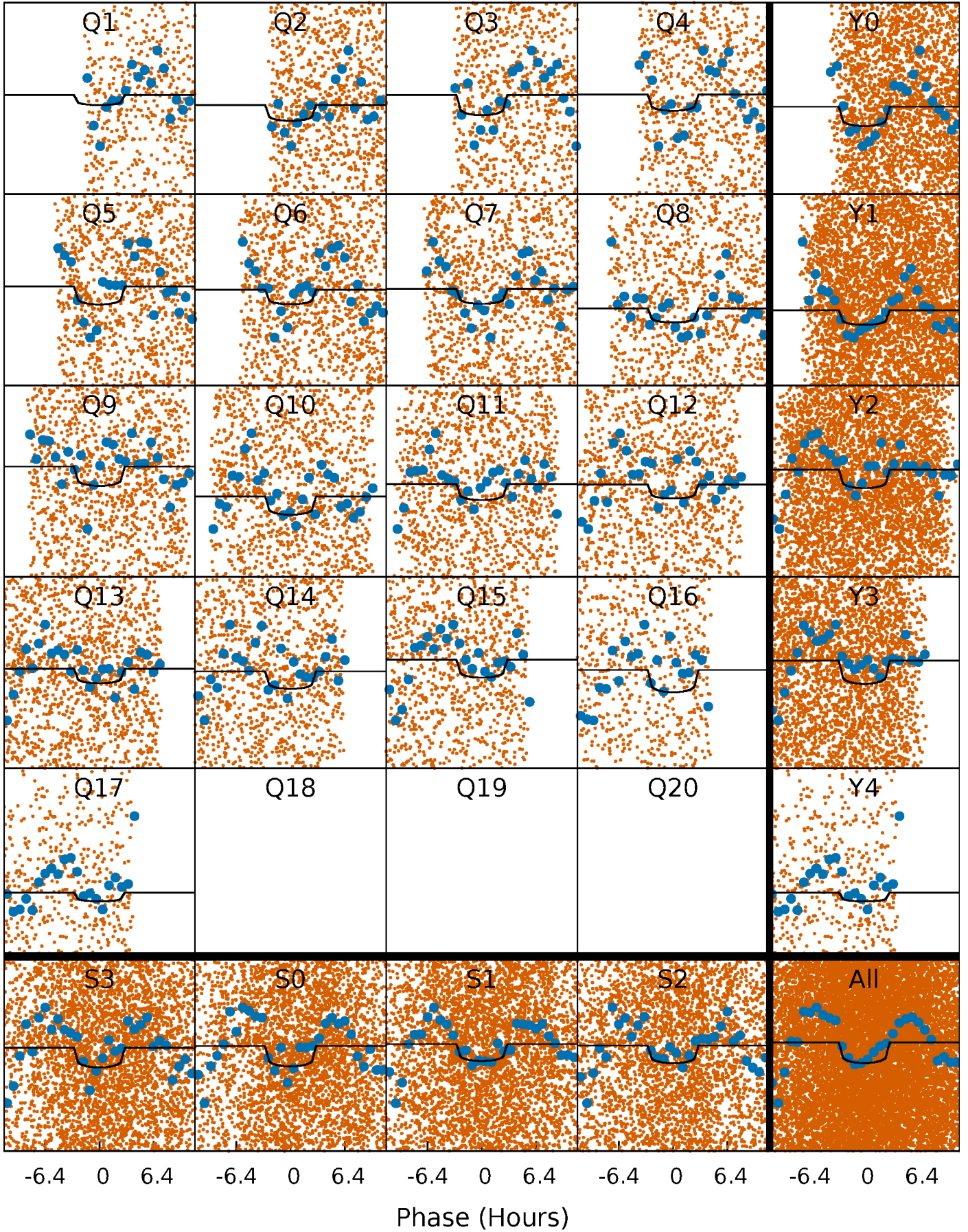
PDC Quarter-Phased Transit Curves

TCE 008574840-02 $P = 1.475949$ Days $T_0 = 133.500461$ (BKJD)



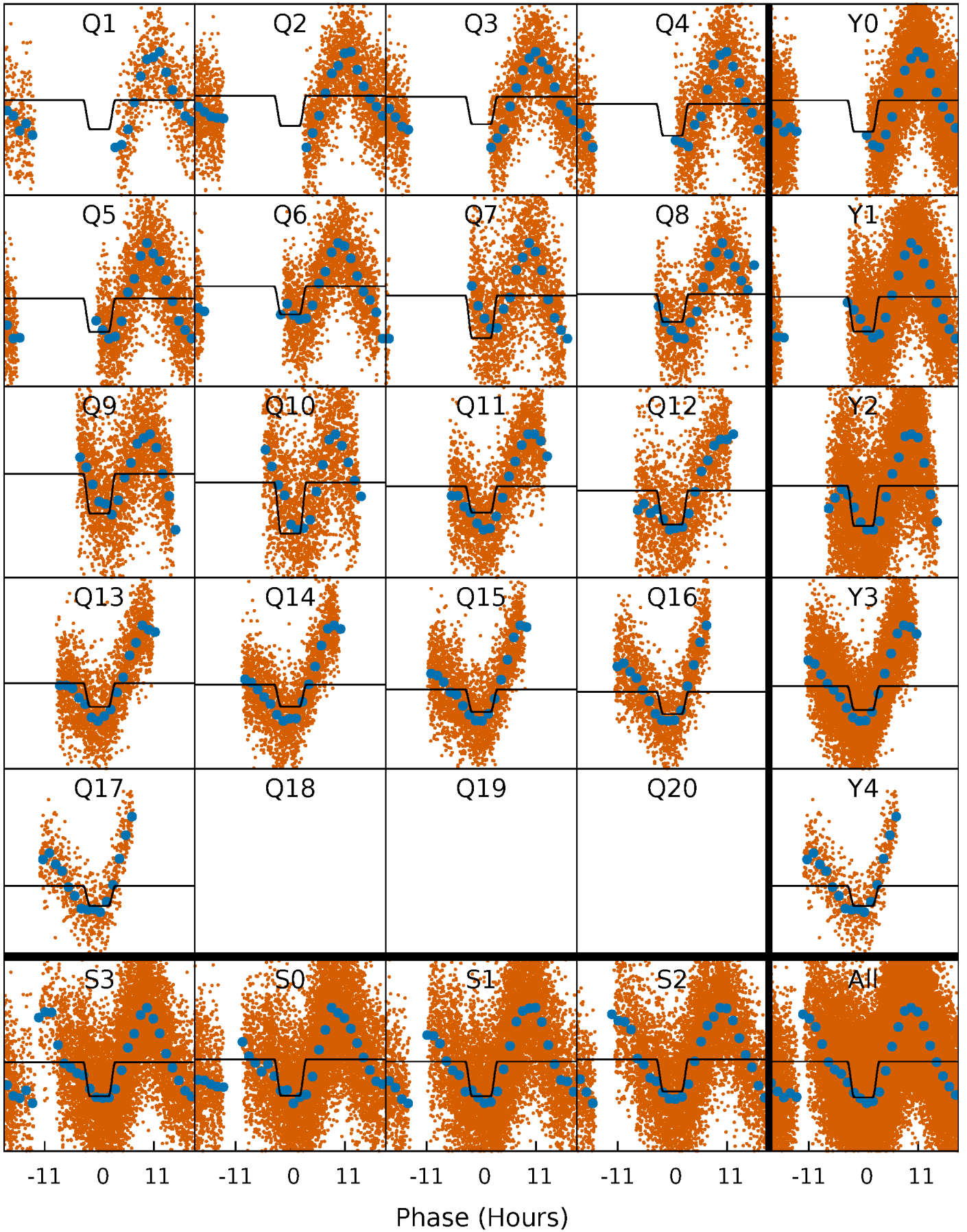
DV Quarter-Phased Transit Curves

TCE 008574840-02 P= 1.475949 Days $T_0=133.500461$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

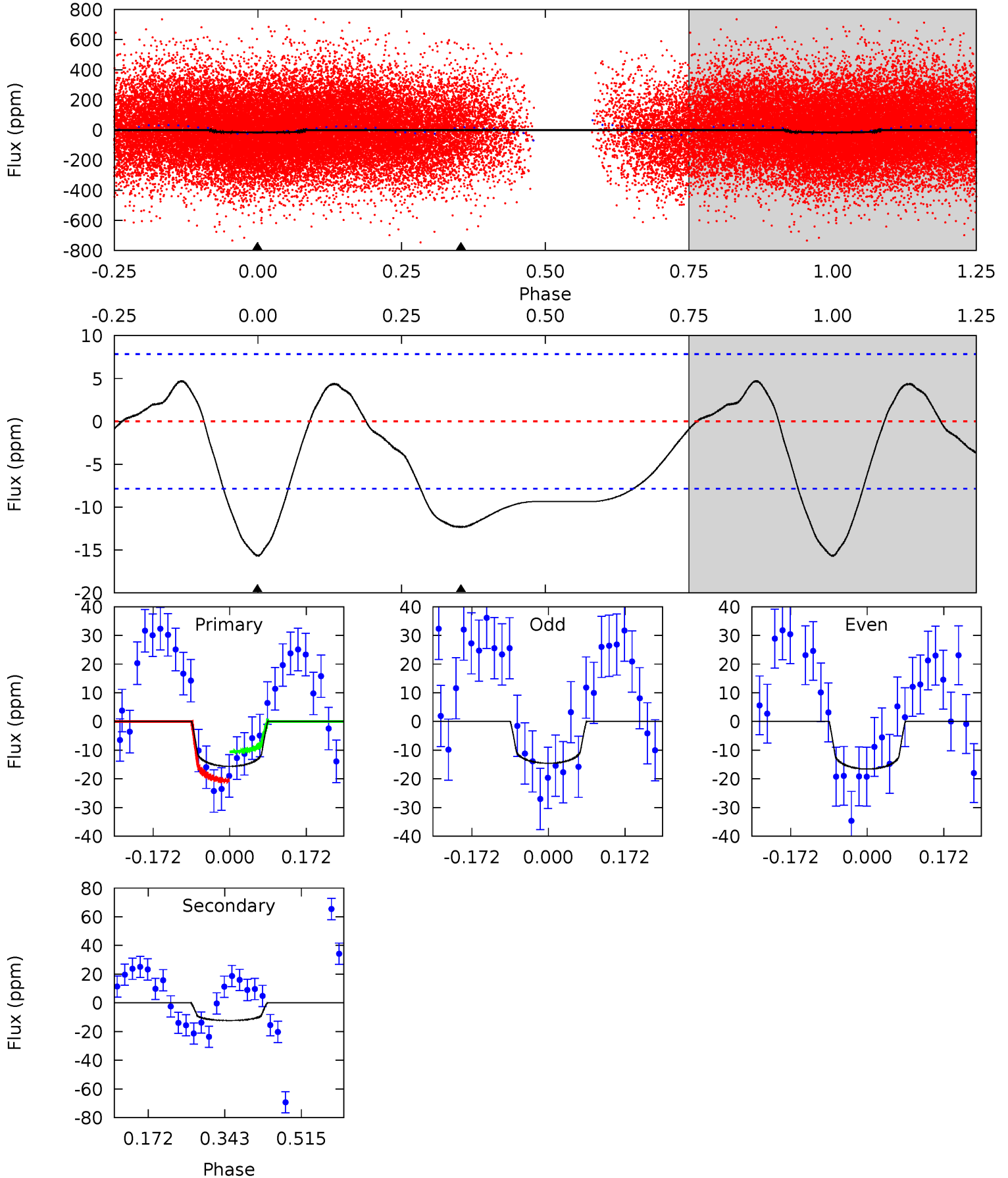
TCE 008574840-02 P= 1.476057 Days $T_0=133.275255$ (BKJD)



DV Model-Shift Uniqueness Test

008574840-02, P = 1.475949 Days, E = 130.548563 Days

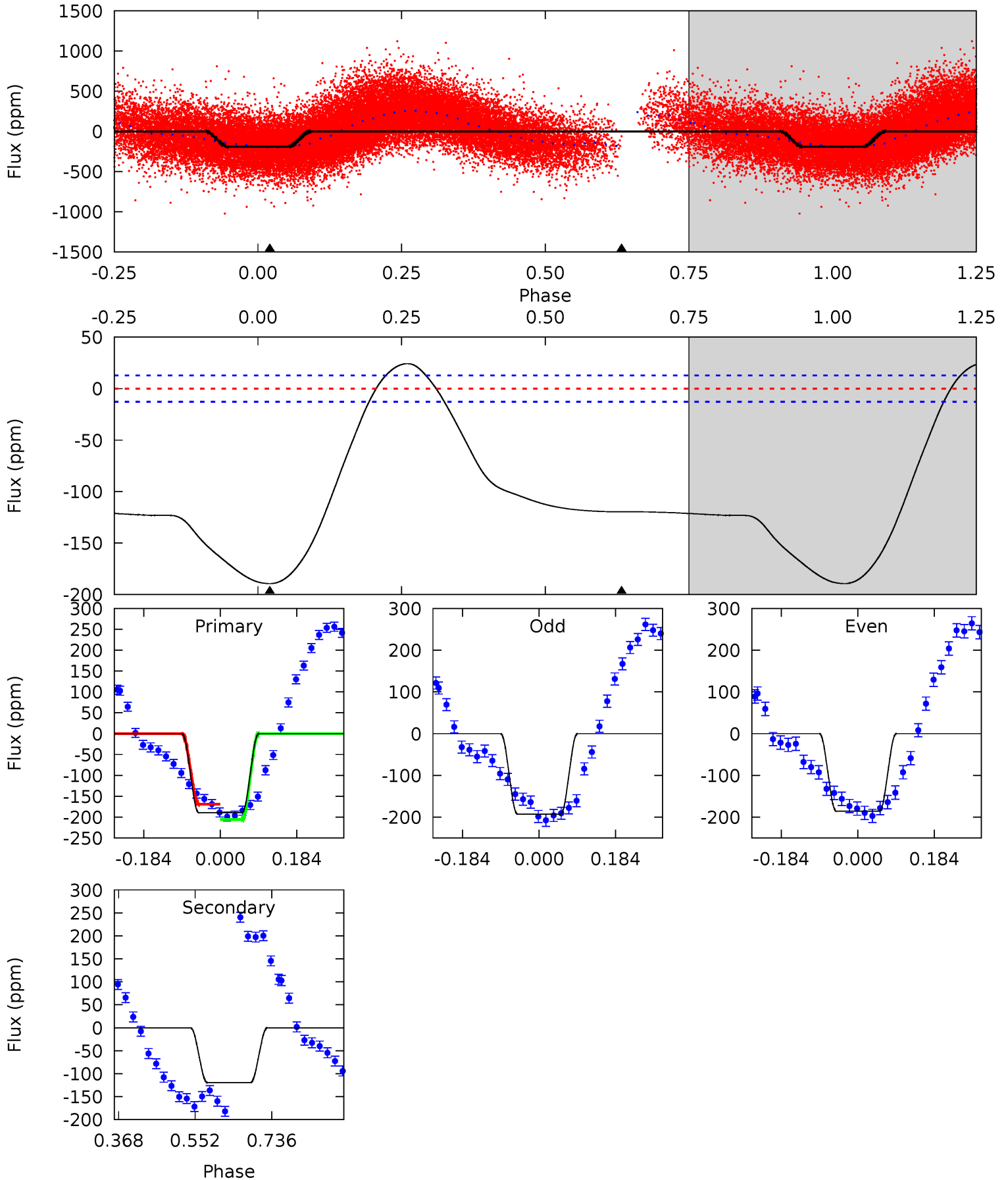
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.87	6.97	0	0	4.45	1.37	1.97	8.87	8.87	6.97	6.97	0.57	1.13	0.23	2.90



Alt Model-Shift Uniqueness Test

008574840-02, P = 1.476057 Days, E = 131.799198 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
66.0	41.7	0	0	4.44	1.33	16.6	66.0	66.0	41.7	41.7	1.17	1.08	0.11	6.82



Stellar Parameters For KIC 008574840

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7345^{+230}_{-307}	$4.057^{+0.204}_{-0.167}$	$-0.240^{+0.250}_{-0.350}$	$1.898^{+0.525}_{-0.525}$	$1.496^{+0.209}_{-0.255}$	$0.308^{+0.356}_{-0.143}$
	+3%/-4%	+5%/-4%	+104%/-146%	+28%/-28%	+14%/-17%	+115%/-46%
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 008574840-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-12 ± 2	$0.91^{+0.36}_{-0.31}$	3623^{+260}_{-287}	6300^{+1476}_{-922}	$6.829^{+8.372}_{-3.250}$
Alt.	-120 ± 3	$2.63^{+0.49}_{-0.44}$	3645^{+282}_{-288}	6623^{+498}_{-462}	$7.977^{+3.219}_{-2.251}$

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

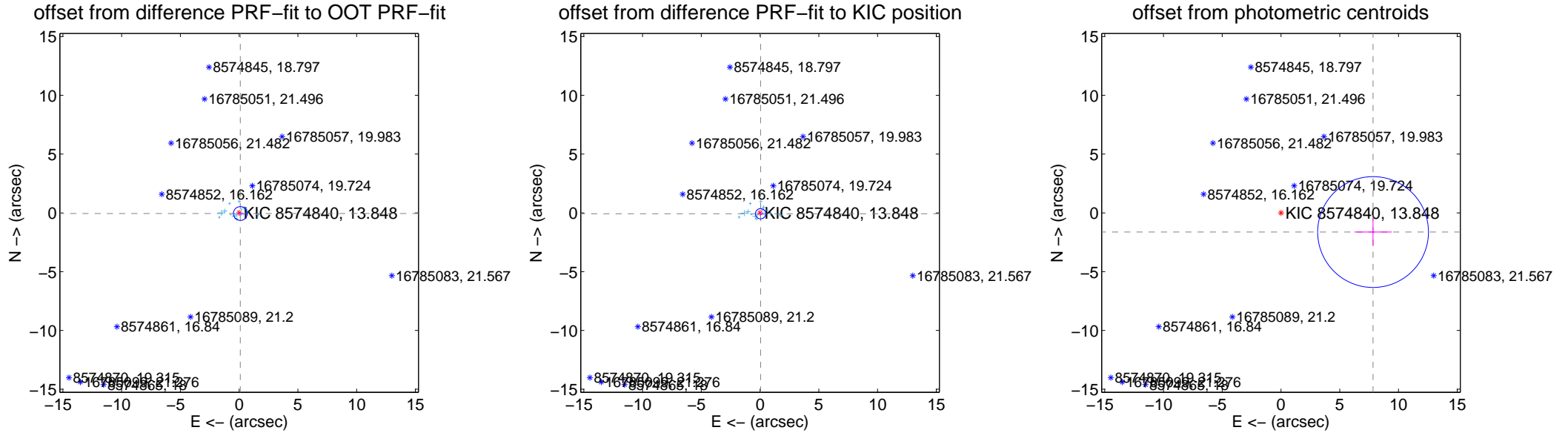
DV Centroid Data

Supplemental centroid analysis for 008574840-02. Kepler magnitude: 13.85. Transit SNR 8.62

There are 17 quarters with good PRF difference image offsets

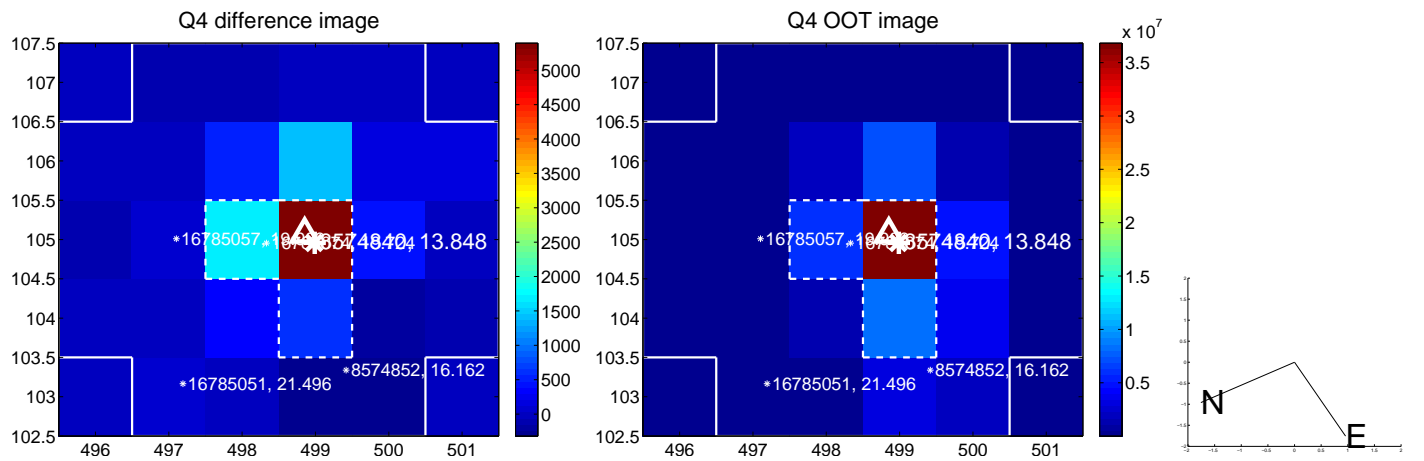
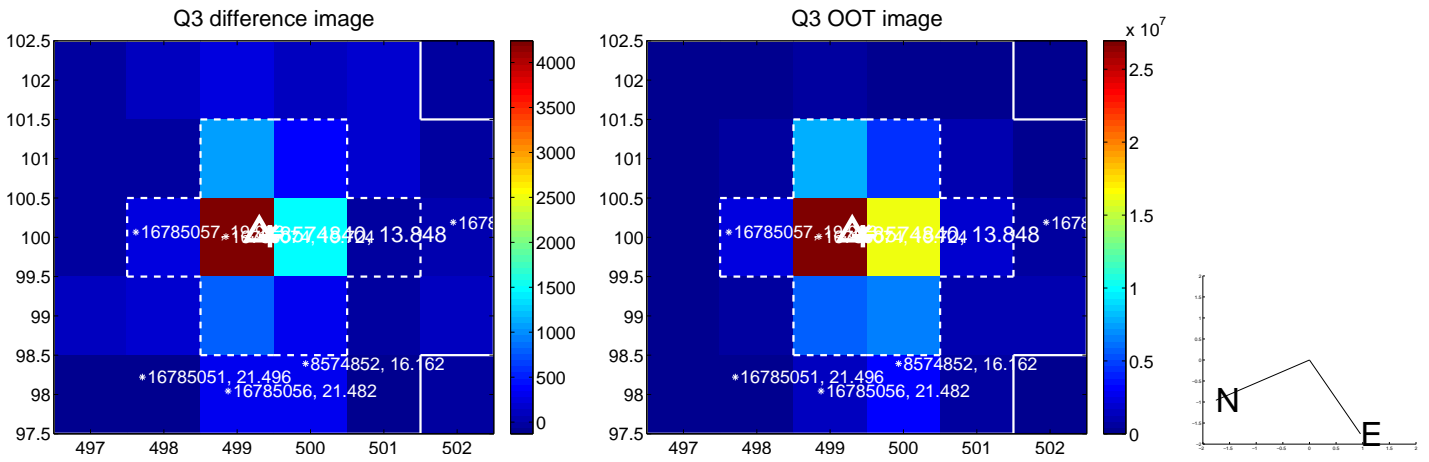
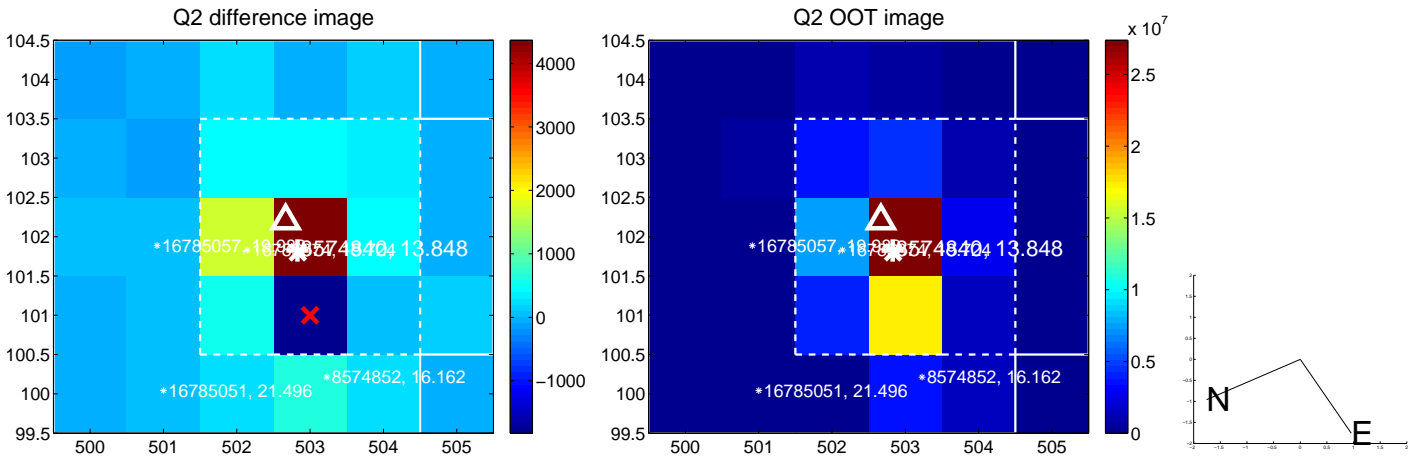
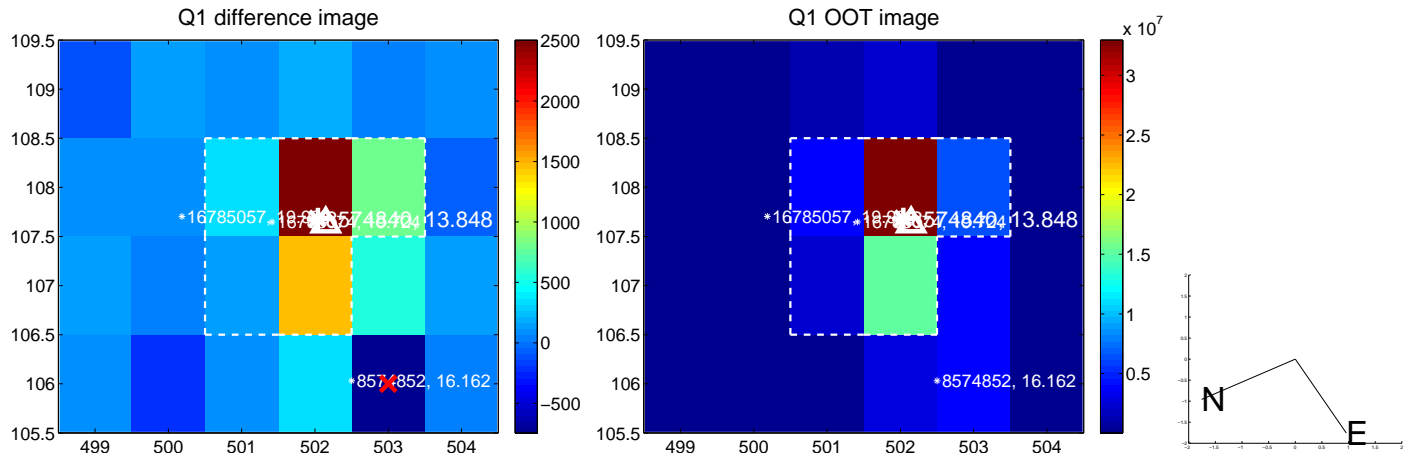
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.114 ± 0.196	0.58	-0.100 ± 0.213	-0.056 ± 0.112
PRF-fit source offset from KIC position	0.085 ± 0.146	0.59	-0.045 ± 0.218	-0.072 ± 0.117
photometric centroid source offset	8.01 ± 1.57	5.09	-7.84 ± 1.59	-1.63 ± 1.18

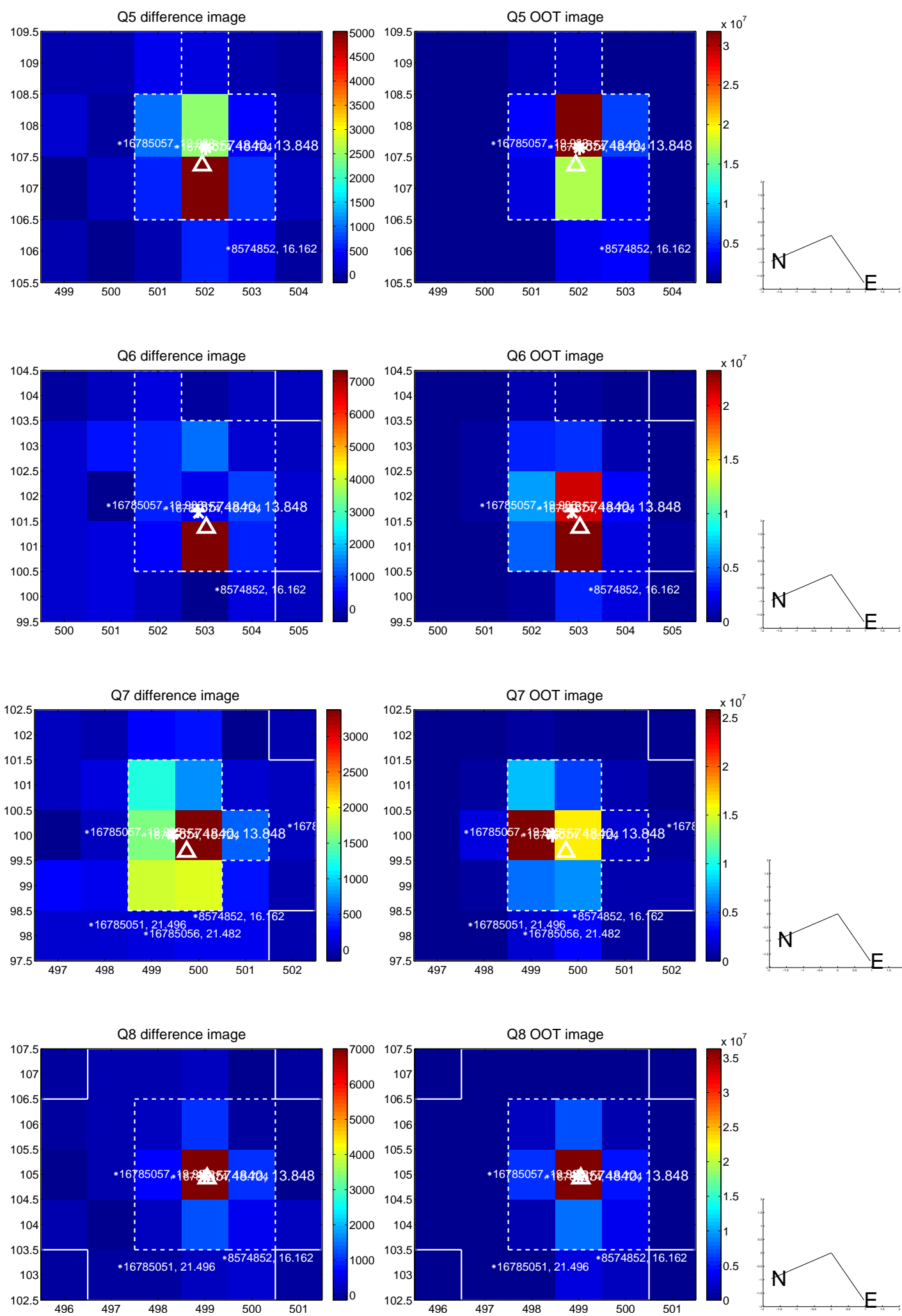


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

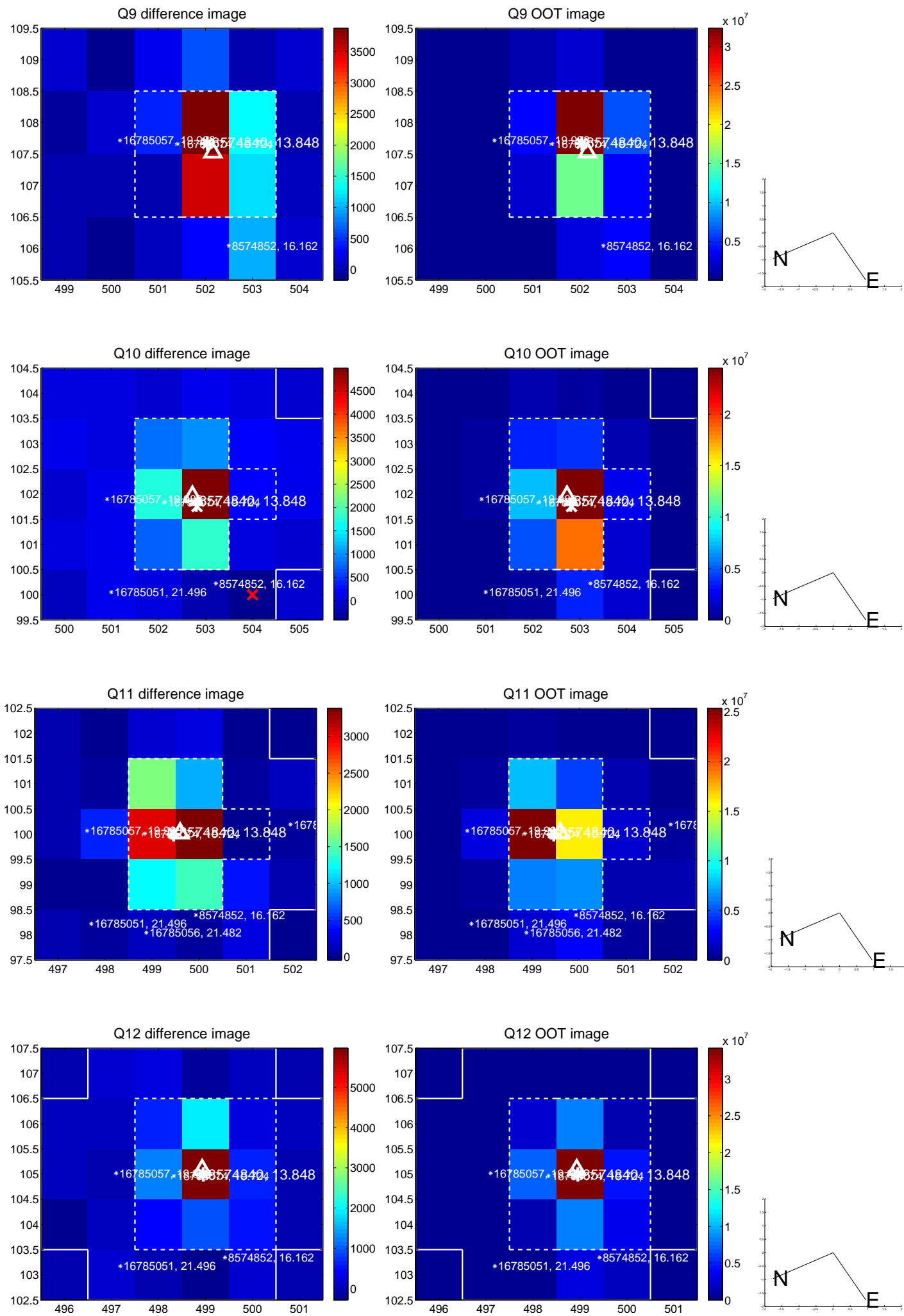
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



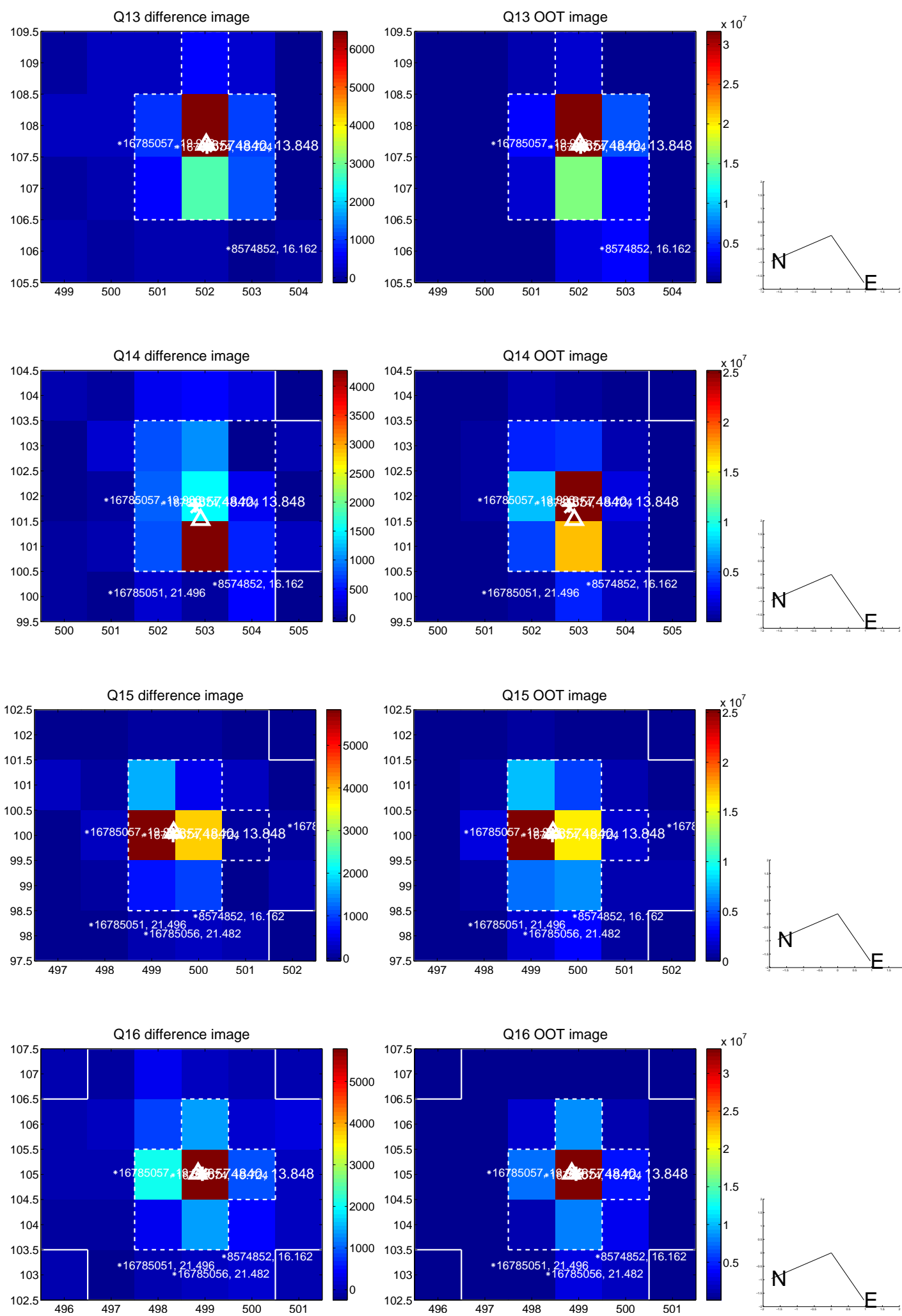
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



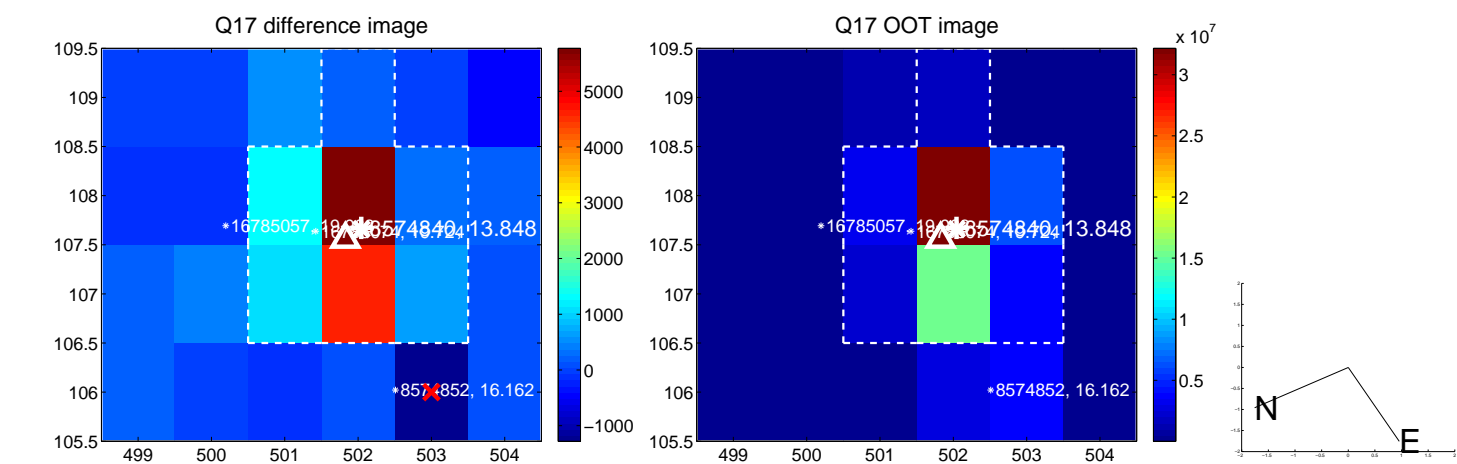
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



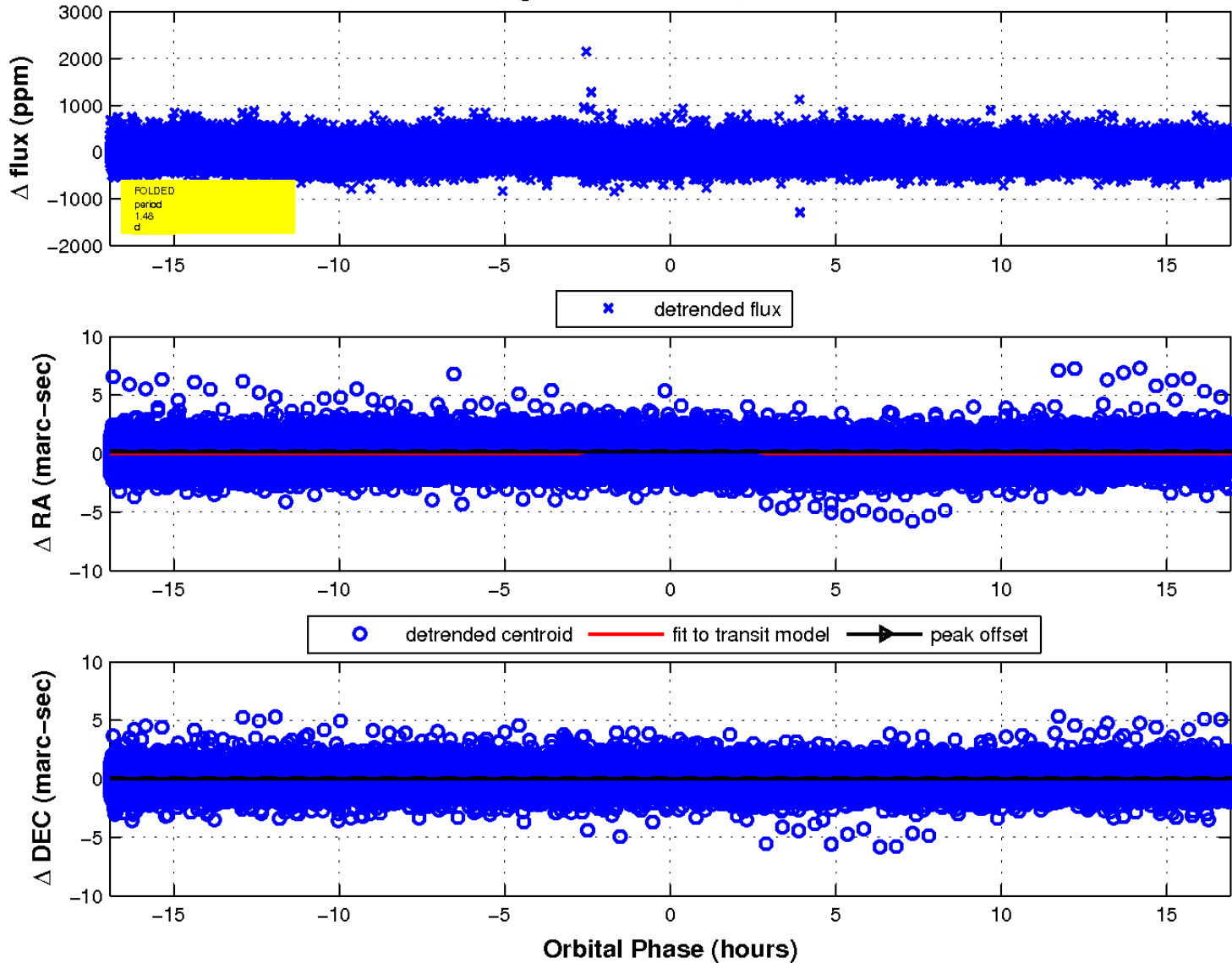
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

