

KIC 004247807

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})
004247807-01	OBS	3748.01	2.050422	133.294581	7346.6	7.828	905.7	504.6	0.82	5440	13.01	632.61
004247807-02	OBS	No	202.033419	133.452182	1179.1	10.500	13.7	-1.0	0.82	5440	2.79	1.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004247807-01	OBS	FP	0.00	0	1	1	1	MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—CENT_RESOLVED_OFFSET—EPHEM_MATCH
004247807-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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 004247807-01

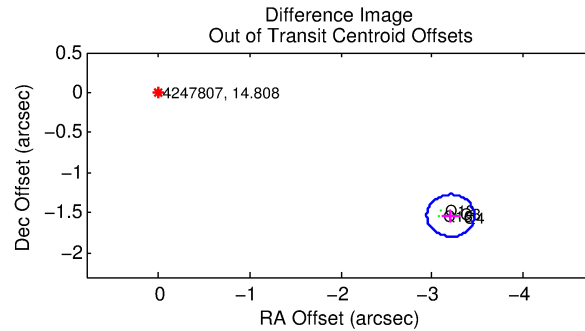
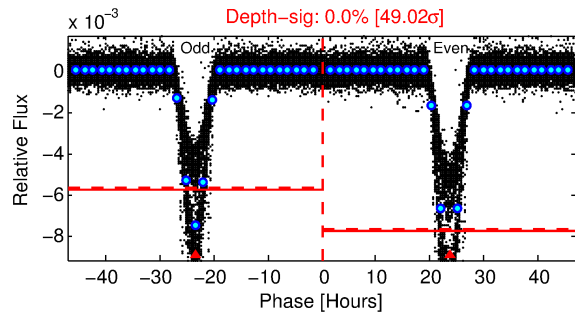
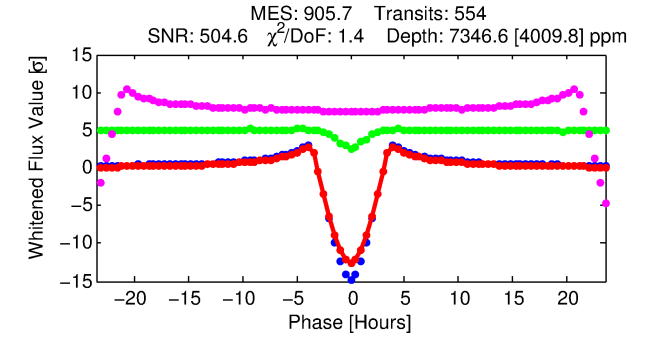
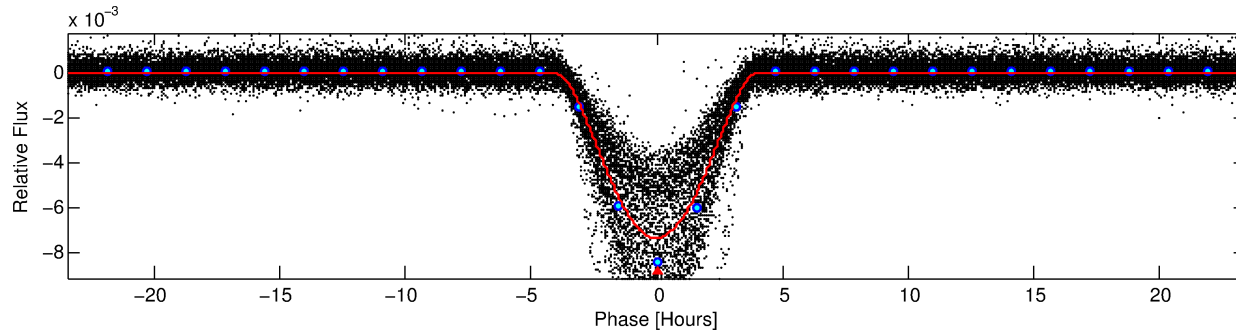
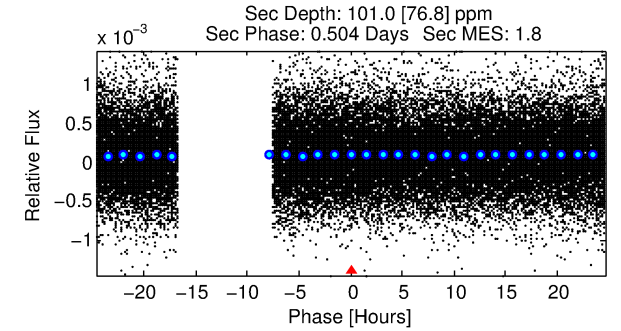
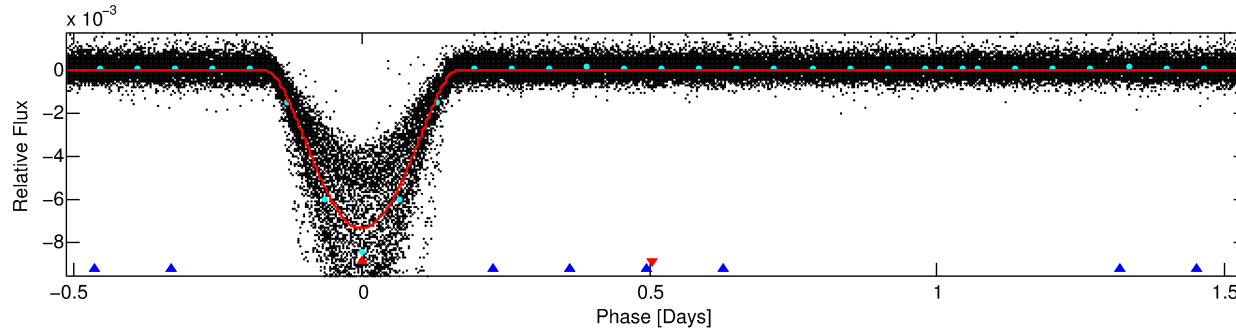
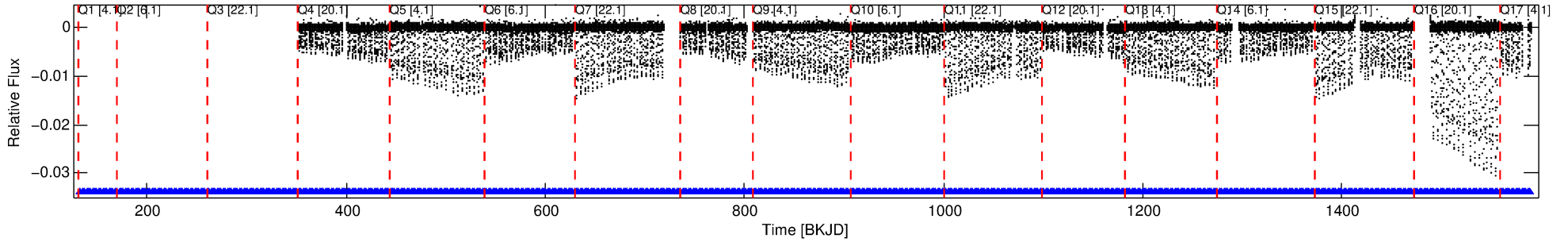
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
004247807-01	4247807	28.01	4247791	1:2	13.9	-4	-1	11.26	14.81	16.61	Direct-PRF	0	0.92	0.32

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 4247807 Candidate: 1 of 2 Period: 2.050 d
KOI: K03748.01 Corr: 0.990

Kp: 14.81 R*: 0.82 Rs Teff: 5440.0 K Logg: 4.50 Fe/H: -0.300



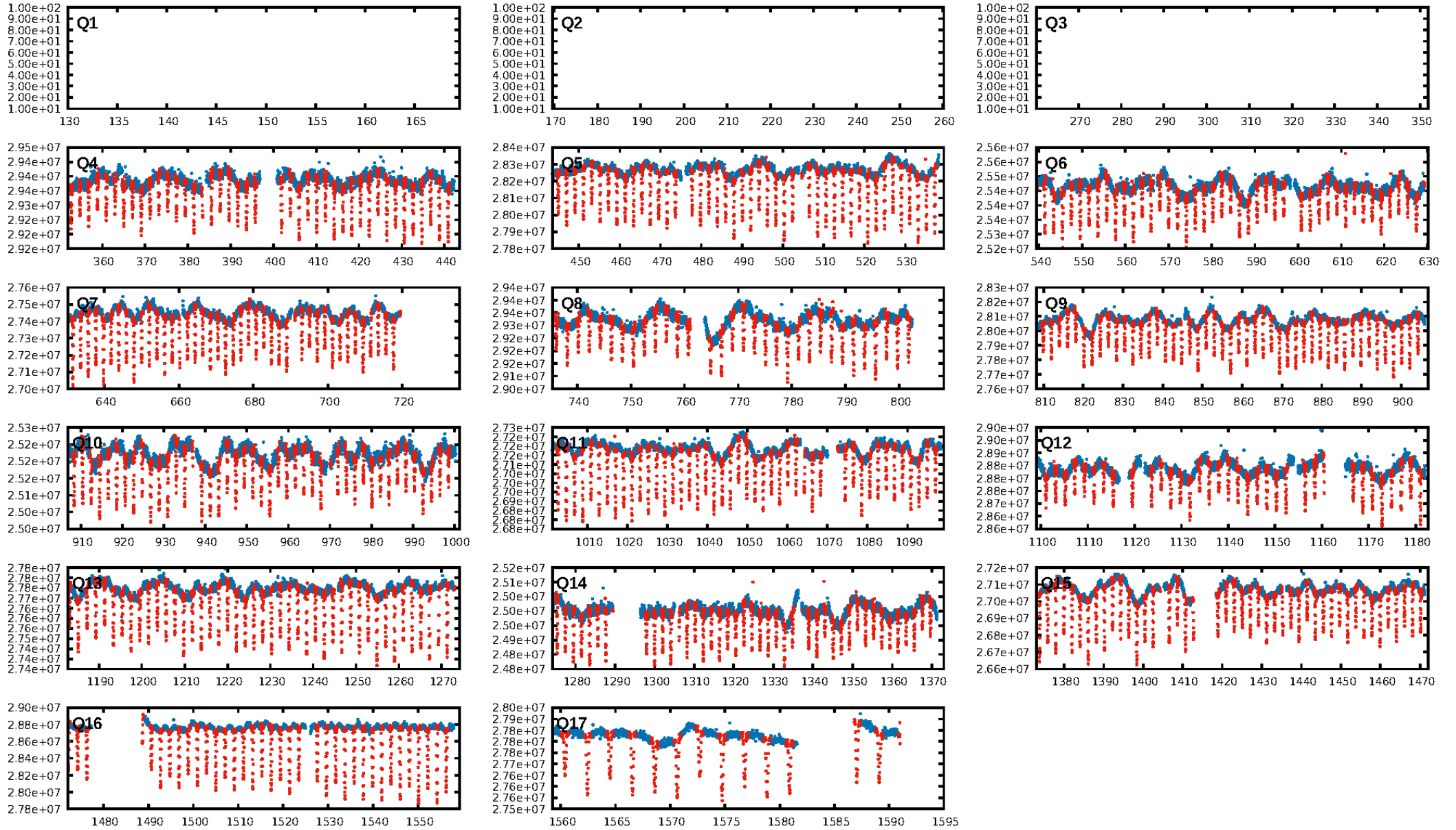
DV Fit Results:

Period = 2.05042 [0.00000] d
Epoch = 133.2946 [0.0003] BKJD
Rp/R* = 0.1445 [0.0089]
a/R* = 1.53 [0.00]
b = 1.00 [0.06]
Seff = 632.61 [175.15]
Teq = 1279 [89] K
Rp = 13.01 [2.56] Re
a = 0.0291 [0.0046] AU
Ag = 0.28 [0.22] [-3.24σ]
Teffp = 1435 [282] K [0.53σ]

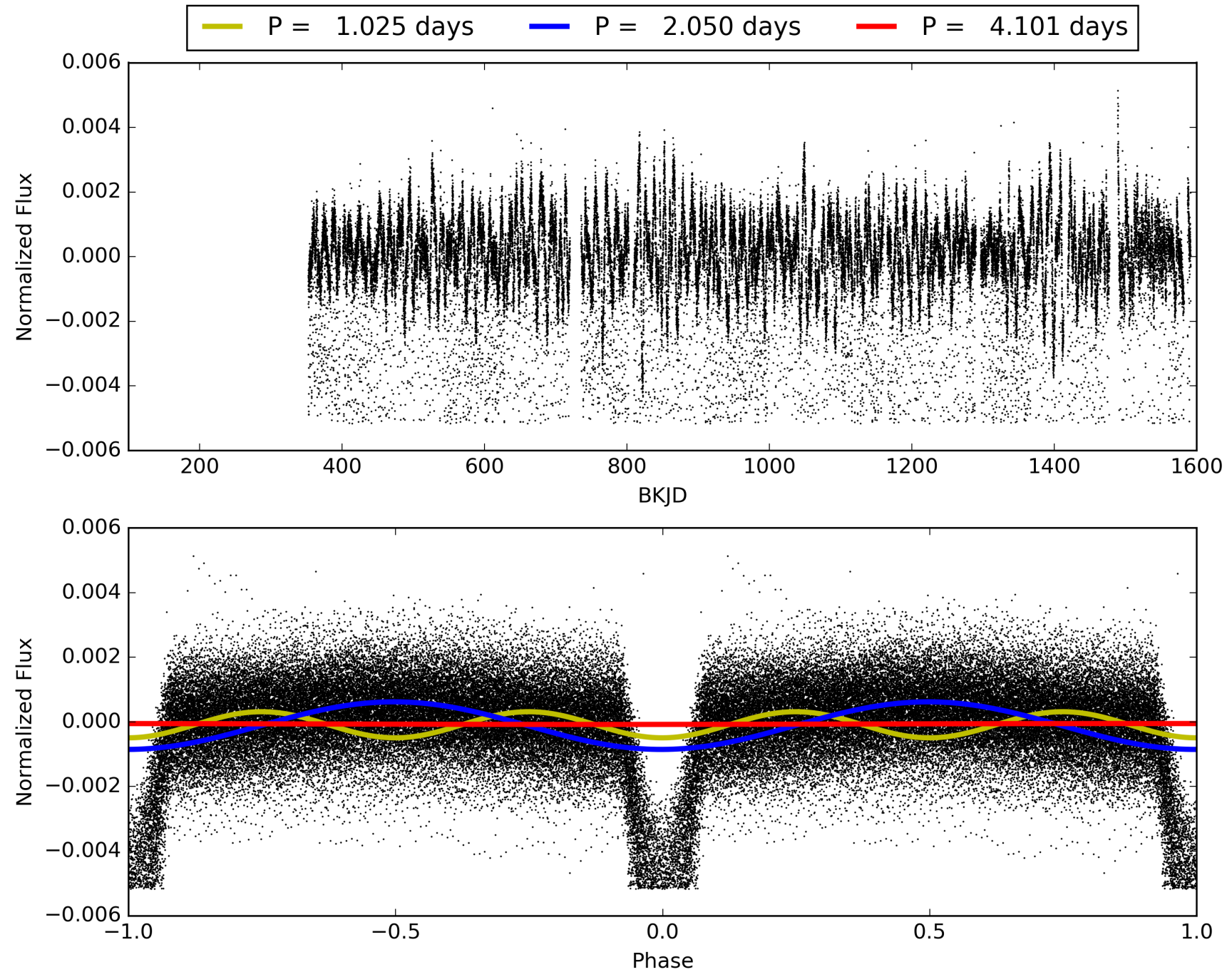
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [366.47σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [540/540]
GhostDiagnostic-chr: -0.3683
Centroid-sig: 0.0%
Centroid-so: 15.468 arcsec [986.99σ]
OotOffset-rm: 3.556 arcsec [40.67σ]
KicOffset-rm: 4.489 arcsec [44.73σ]
OotOffset-st: 0/0/4/0 [4]
KicOffset-st: 0/0/4/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 004247807-01, PDC Light Curves

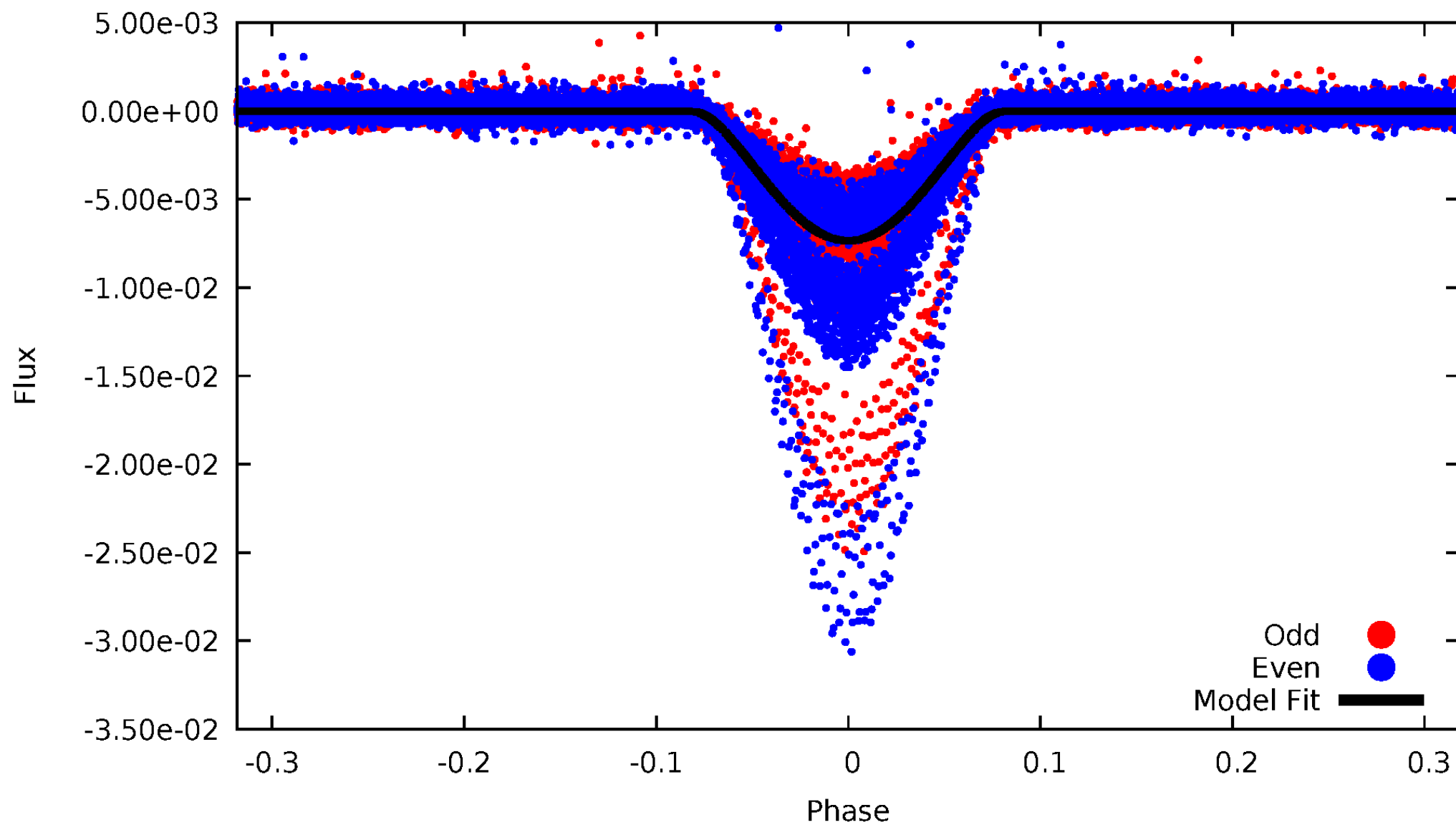


TCE 004247807-01



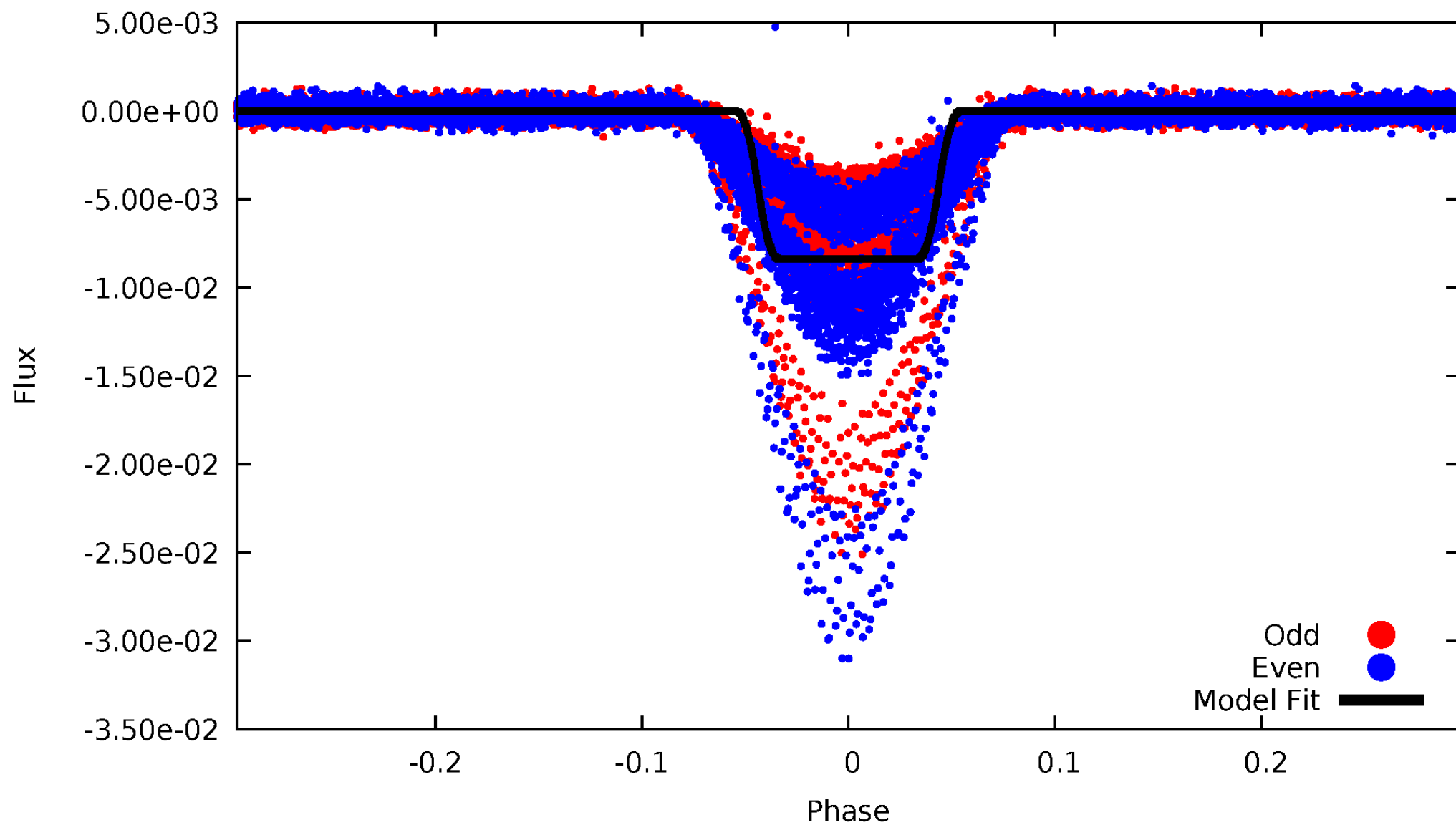
DV Odd/Even

TCE 004247807-01



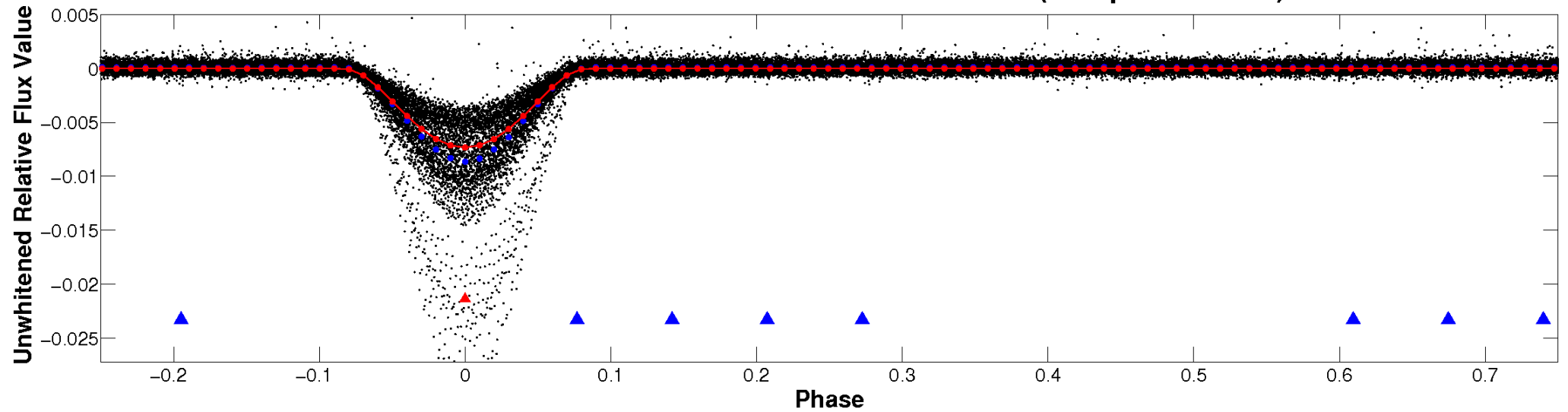
ALT Odd/Even

TCE 004247807-01

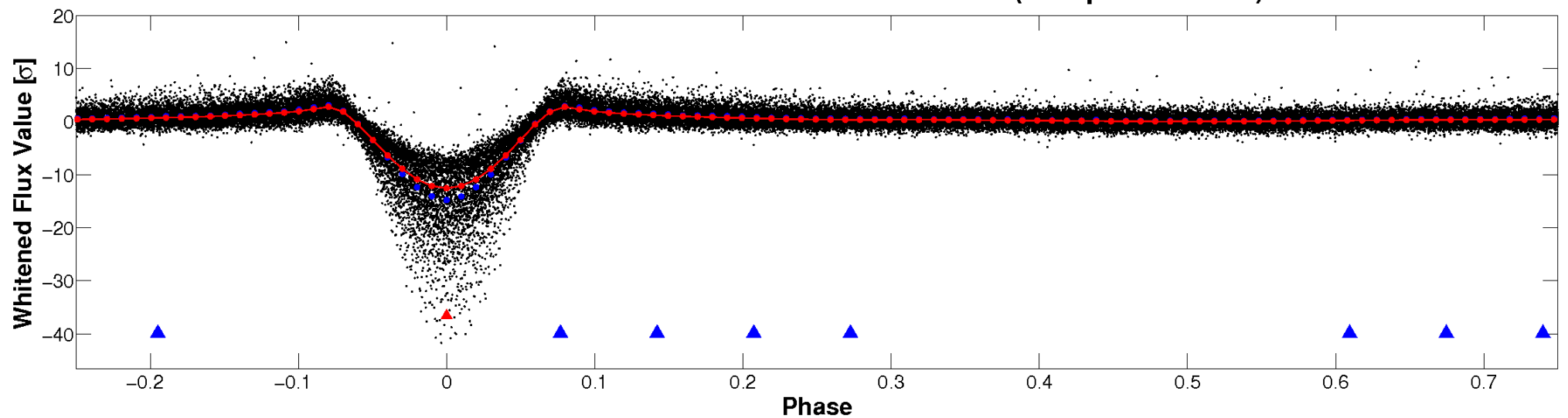


Non-Whitened Vs. Whitened Light Curve

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

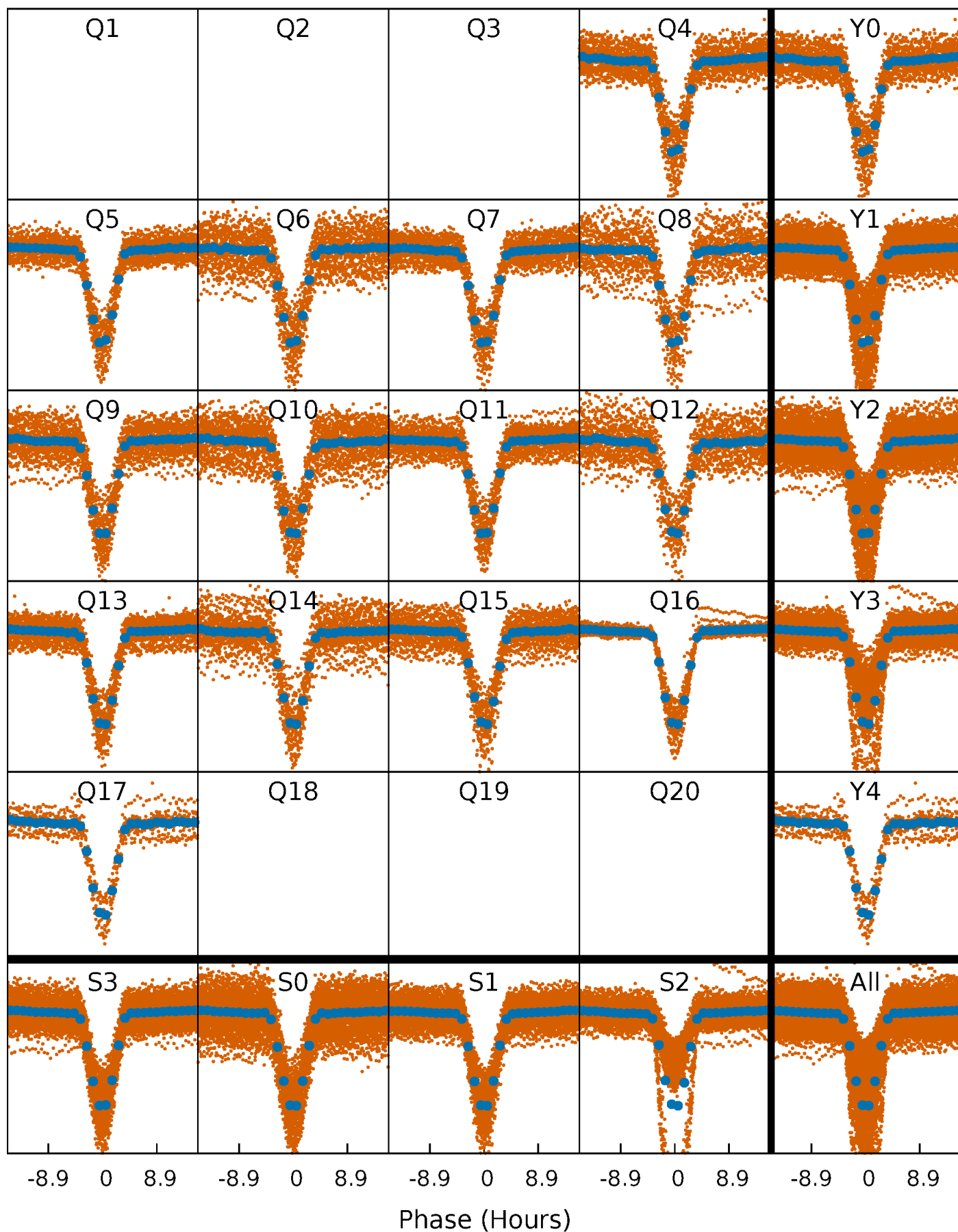


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



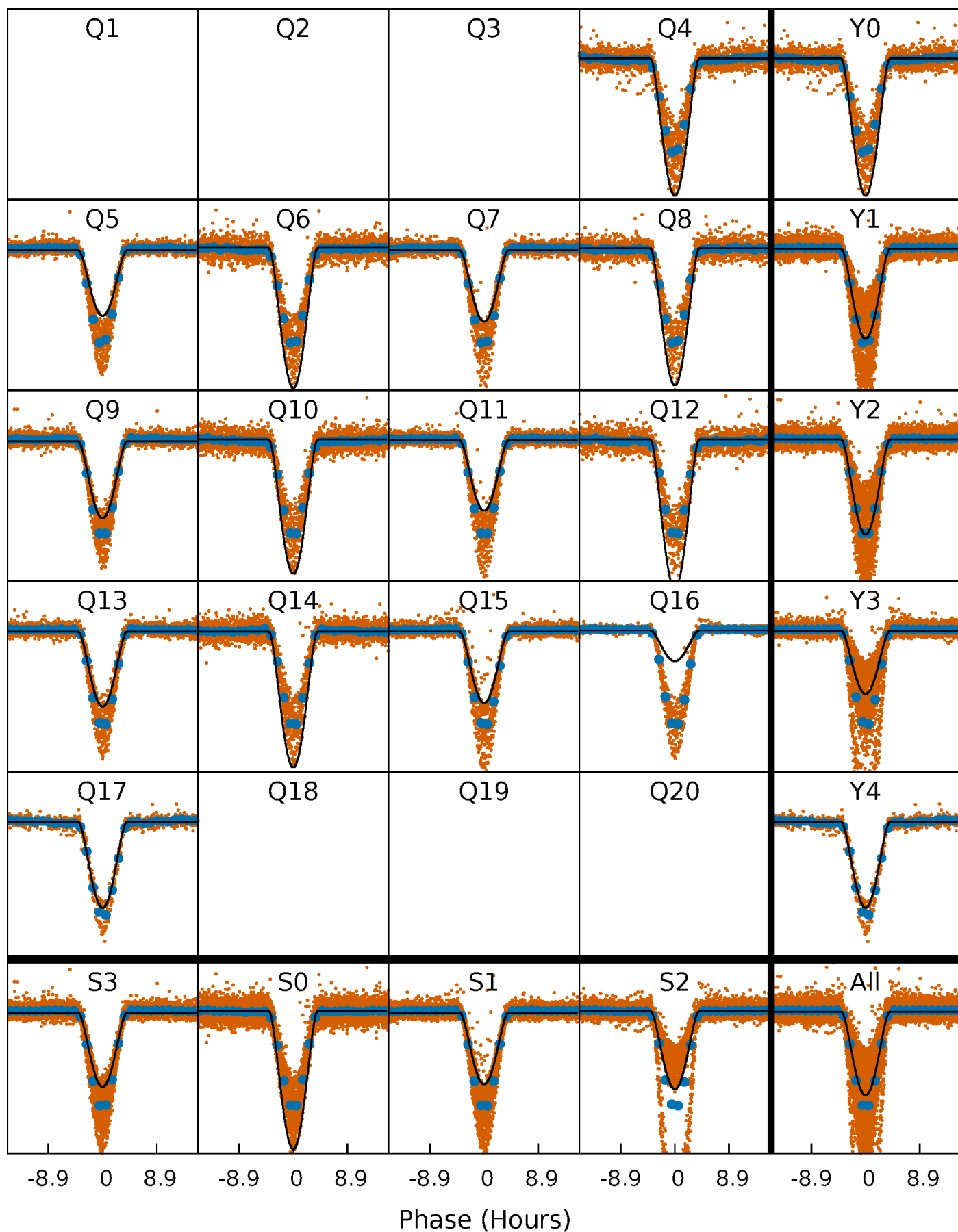
PDC Quarter-Phased Transit Curves

TCE 004247807-01 P= 2.050422 Days $T_0=133.294581$ (BKJD)



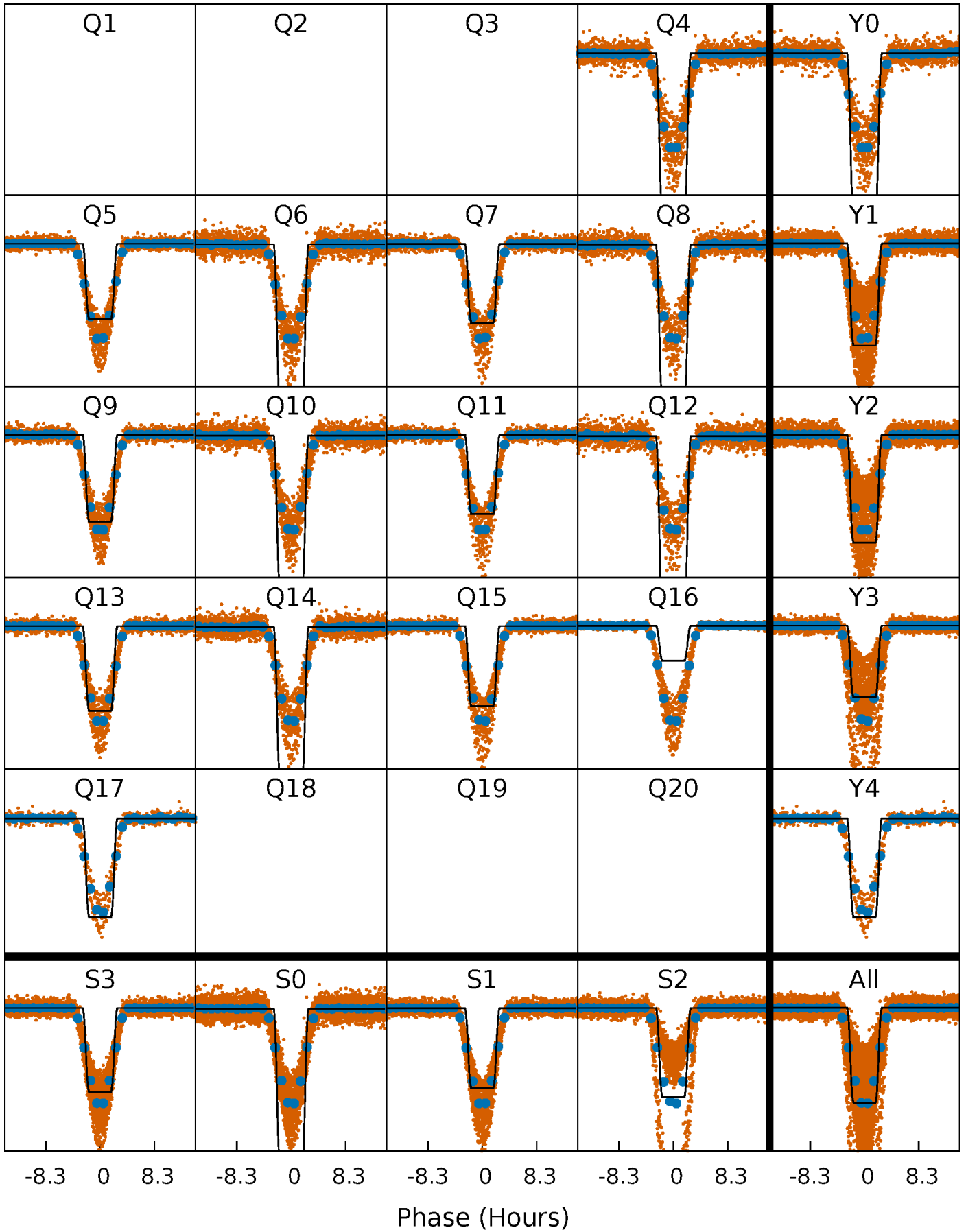
DV Quarter-Phased Transit Curves

TCE 004247807-01 P= 2.050422 Days $T_0=133.294581$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

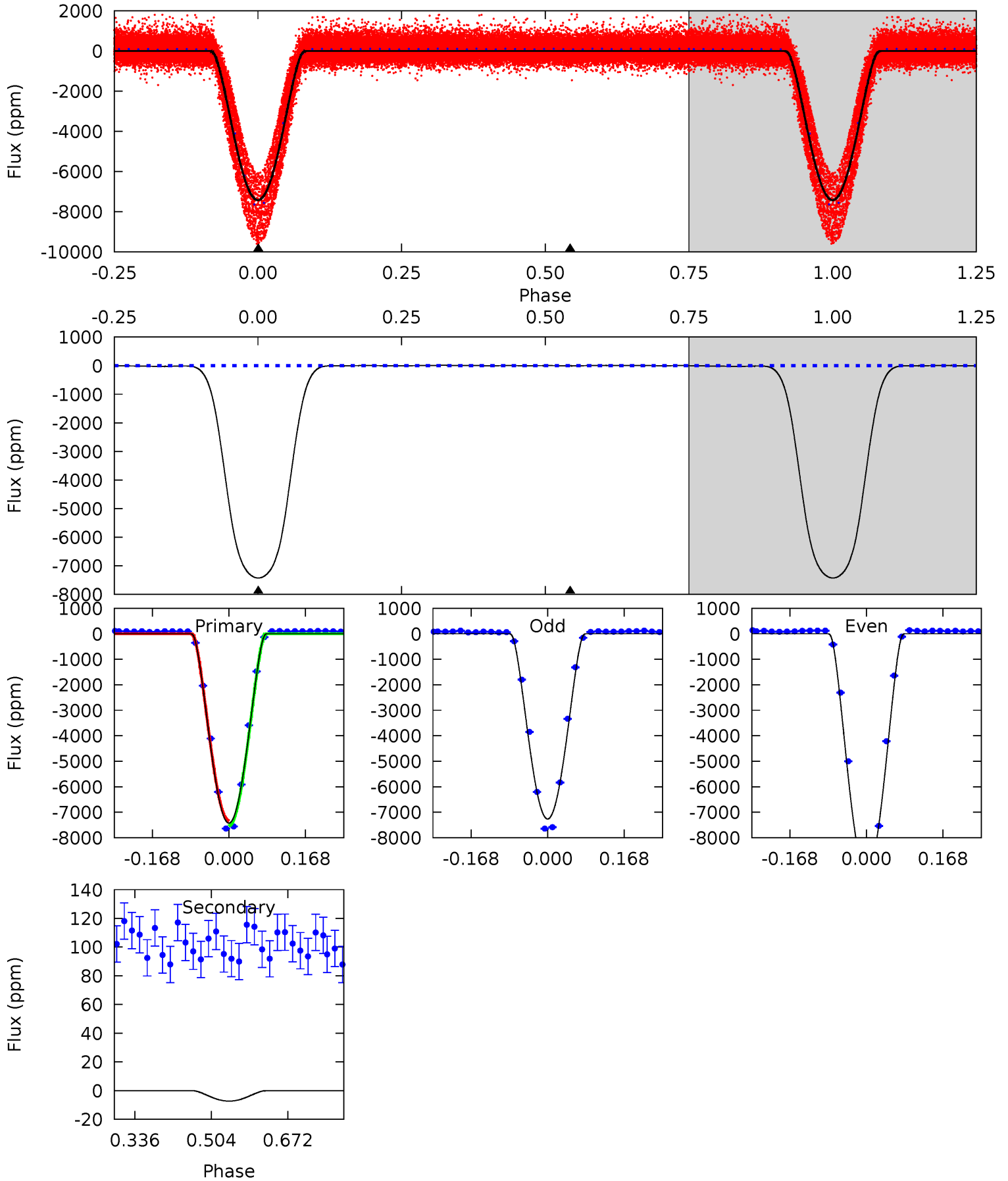
TCE 004247807-01 P= 2.050433 Days $T_0=133.289748$ (BKJD)



DV Model-Shift Uniqueness Test

004247807-01, P = 2.050422 Days, E = 133.294581 Days

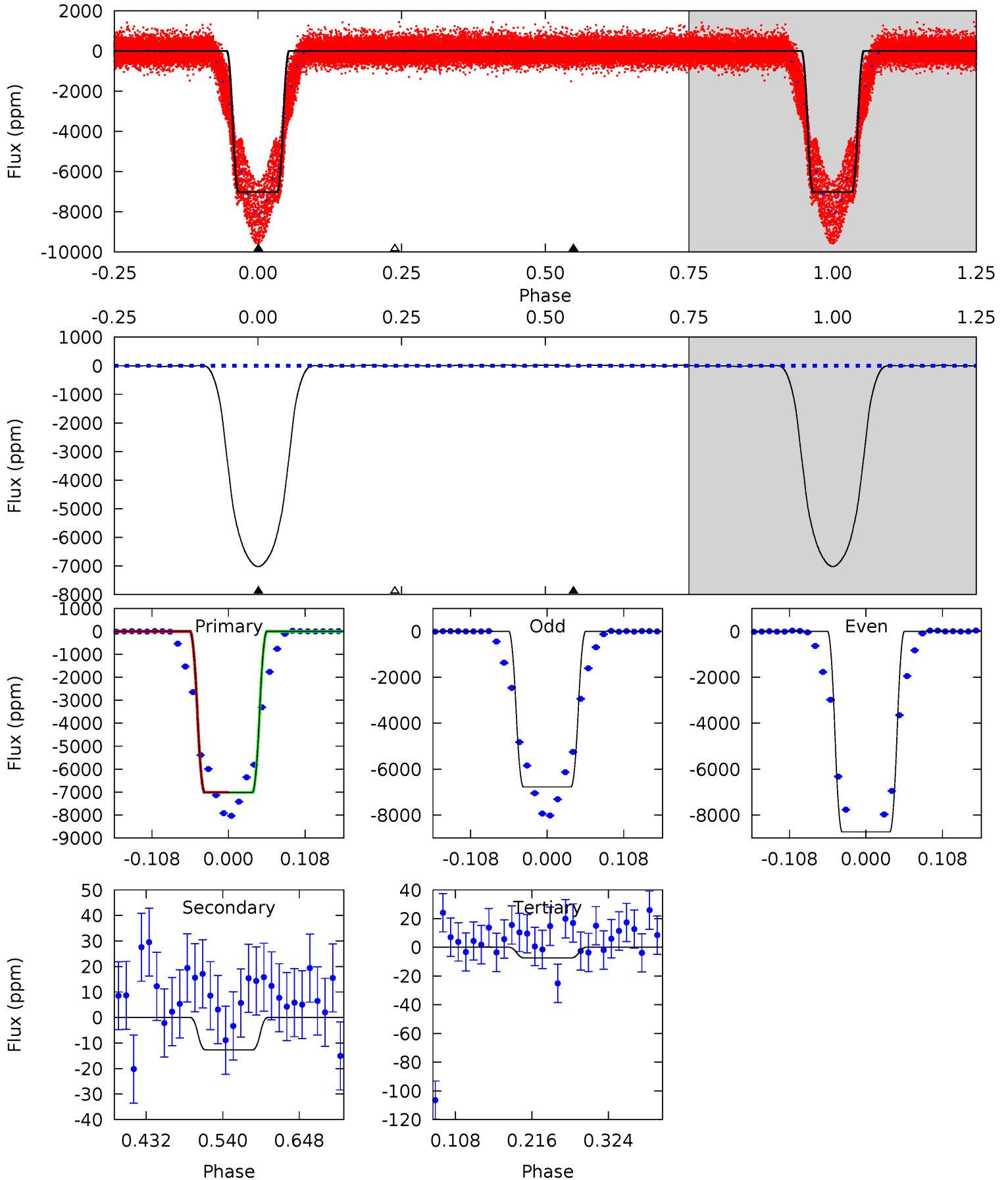
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1492	1.47	0	0	4.45	1.38	1.82	1492	1492	1.47	1.47	208.8	1.11	0.00	0



Alt Model-Shift Uniqueness Test

004247807-01, P = 2.050433 Days, E = 133.289748 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1051	1.90	1.10	0	4.55	1.61	1.11	1050	1051	0.79	1.90	149.2	1.08	0.00	0.51



Stellar Parameters For KIC 004247807

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5440^{+207}_{-189}	$4.496^{+0.092}_{-0.127}$	$-0.300^{+0.350}_{-0.300}$	$0.825^{+0.154}_{-0.103}$	$0.779^{+0.113}_{-0.061}$	$1.950^{+0.844}_{-0.692}$
	+4%/-3%	+2%/-3%	+117%/-100%	+19%/-12%	+15%/-8%	+43%/-35%
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 004247807-01 / KOI 3748.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-7 ± 5	$13.11^{+1.48}_{-1.23}$	1789^{+114}_{-92}	-2343^{+63}_{-70}	$0.019^{+0.015}_{-0.013}$
Alt.	-13 ± 7	$8.28^{+1.23}_{-0.96}$	1798^{+98}_{-97}	-2275^{+101}_{-91}	$0.082^{+0.057}_{-0.045}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

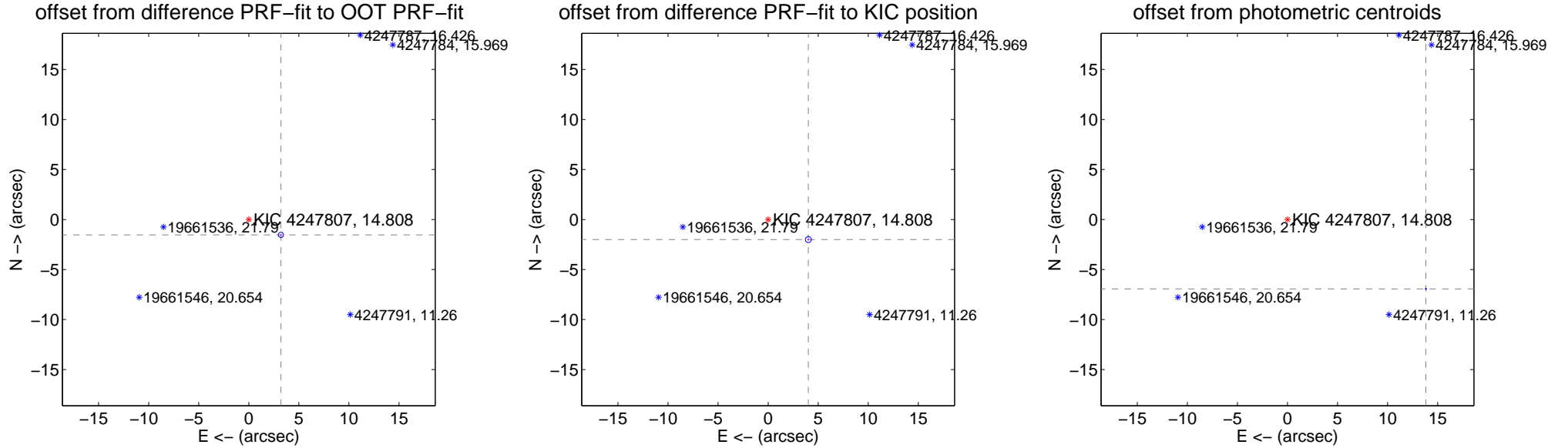
DV Centroid Data

Supplemental centroid analysis for 004247807-01. Kepler magnitude: 14.81. Transit SNR 504.59

There are 4 quarters with good PRF difference image offsets

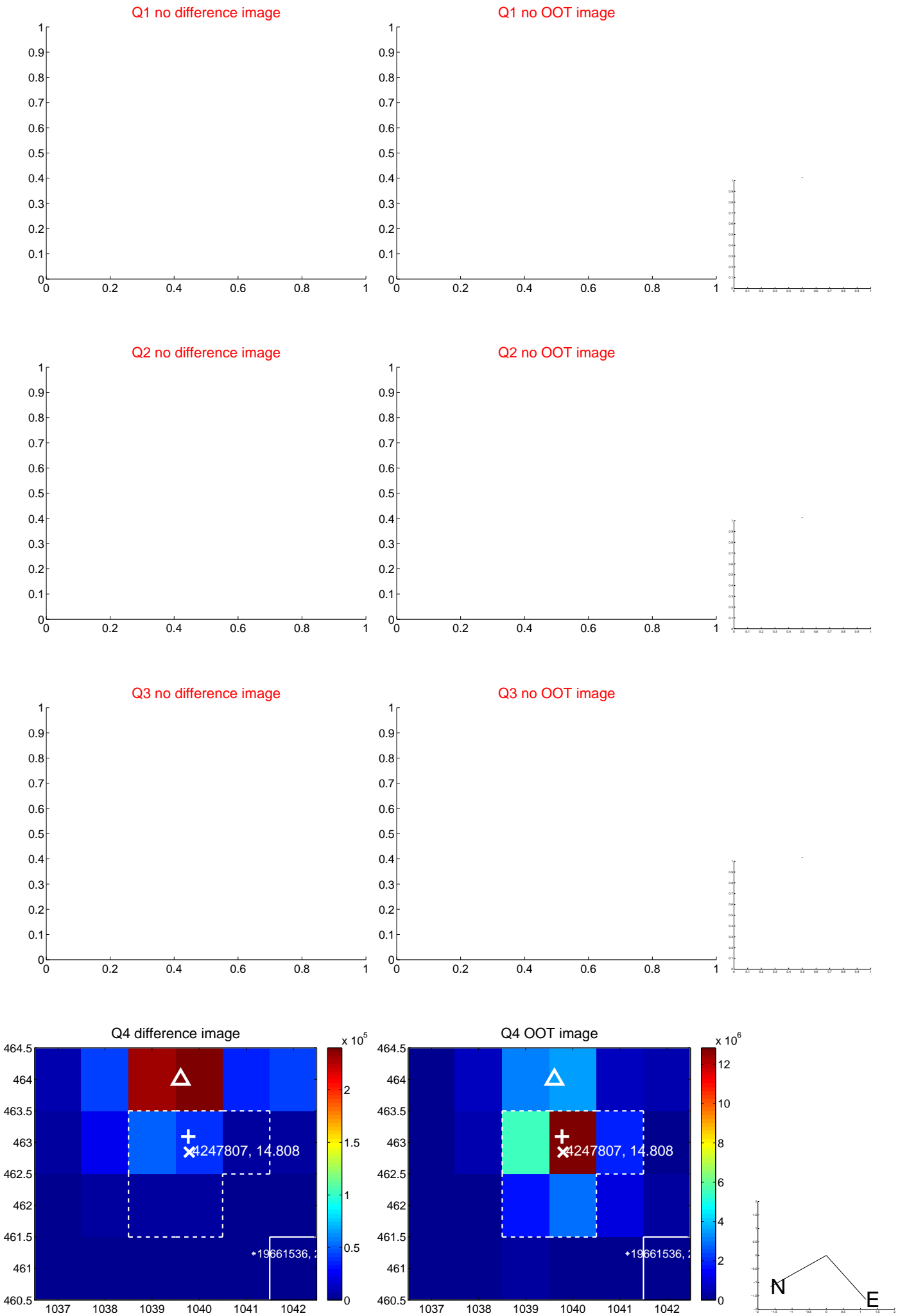
The direct PRF centroid is offset from the target star catalog position by about 0.97 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.556 ± 0.087	40.67	-3.208 ± 0.091	-1.535 ± 0.070
PRF-fit source offset from KIC position	4.489 ± 0.100	44.73	-4.017 ± 0.105	-2.005 ± 0.079
photometric centroid source offset	15.47 ± 0.02	986.99	-13.82 ± 0.02	-6.94 ± 0.01

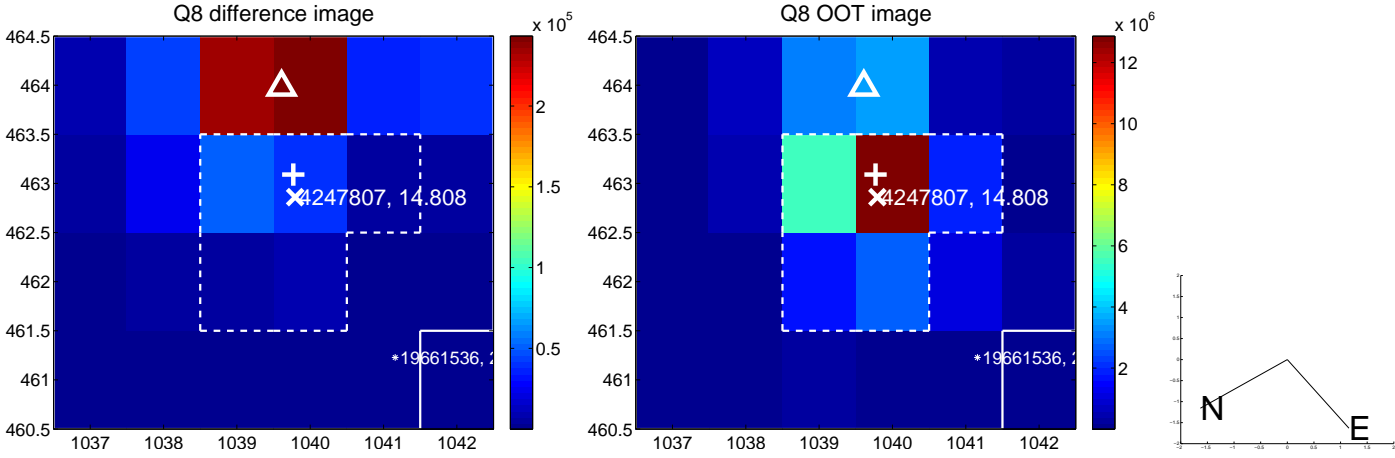
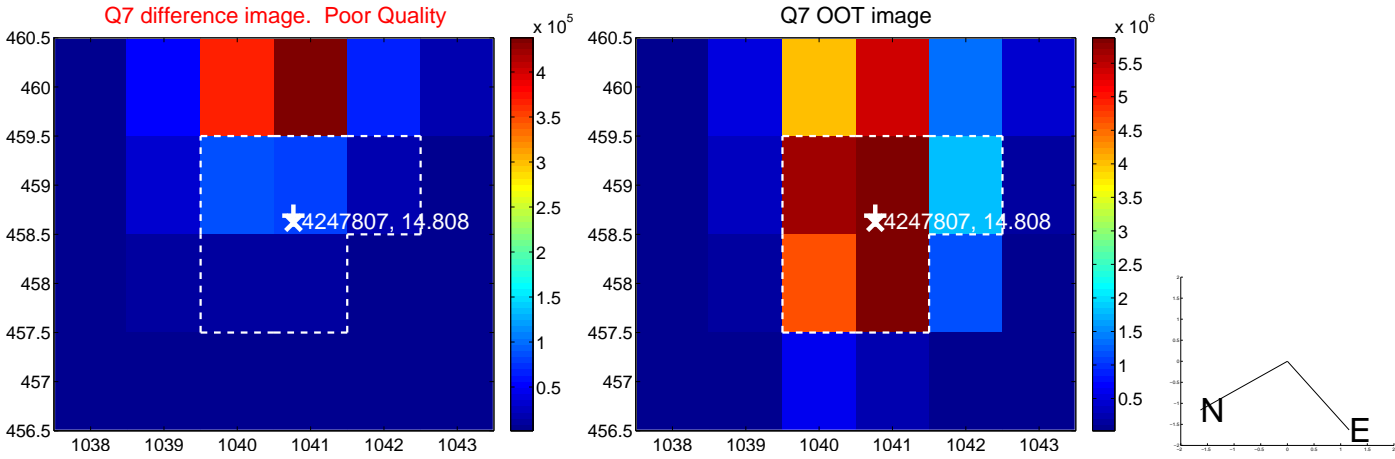
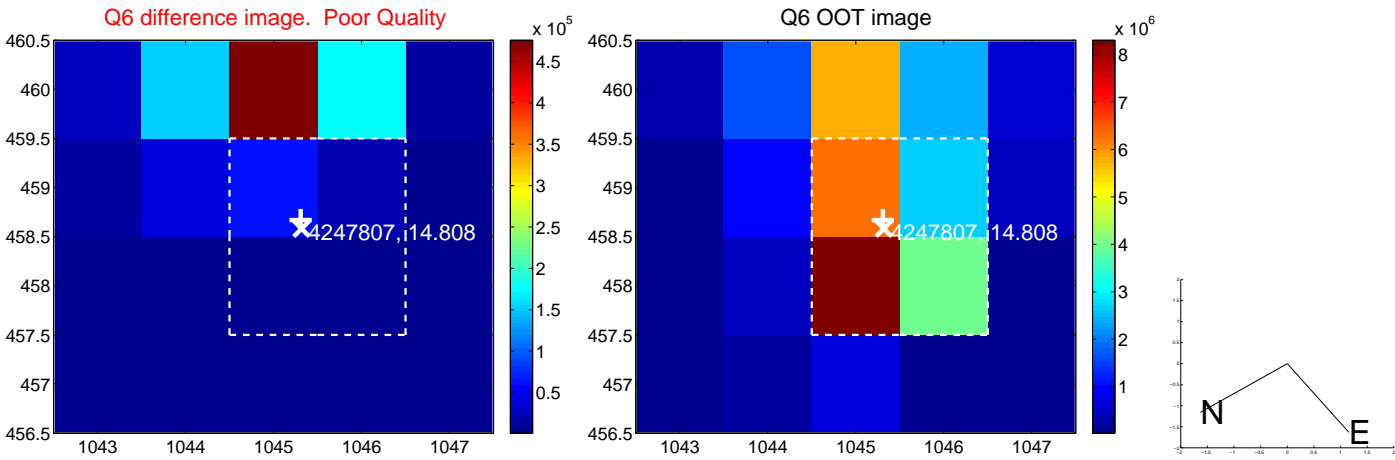
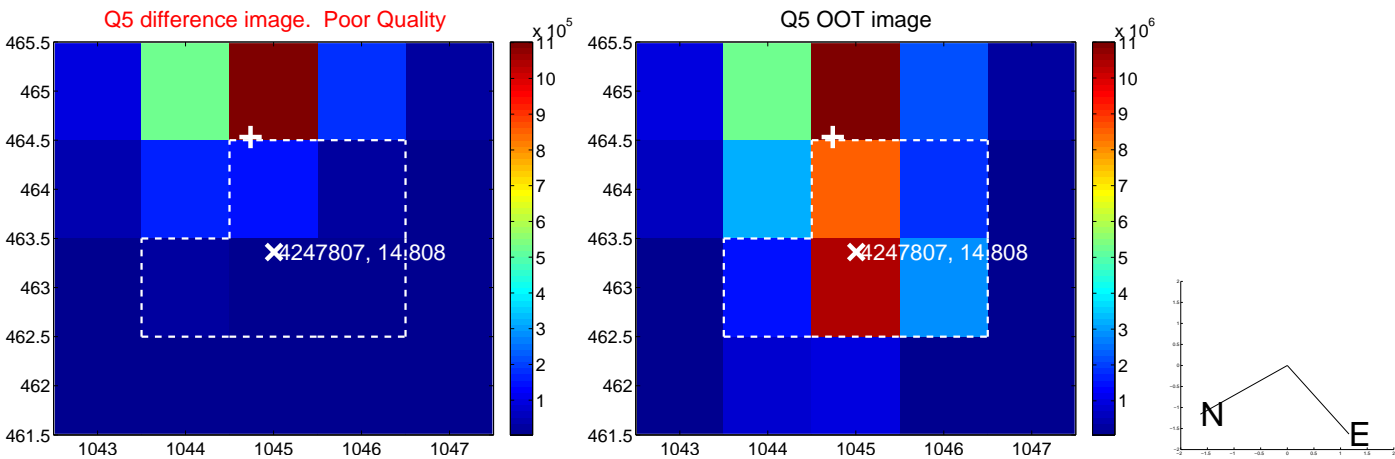


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

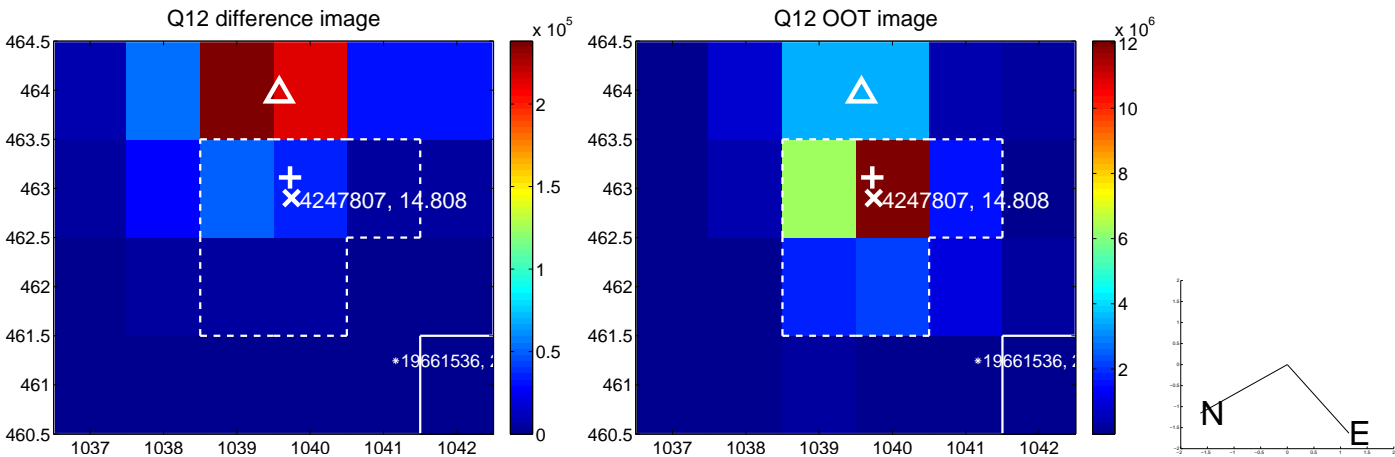
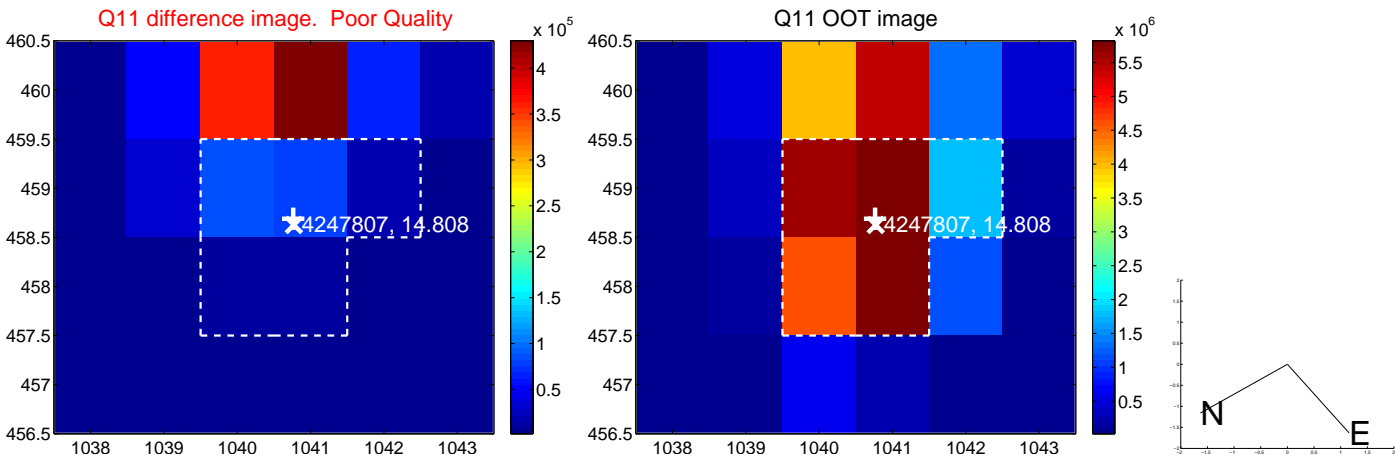
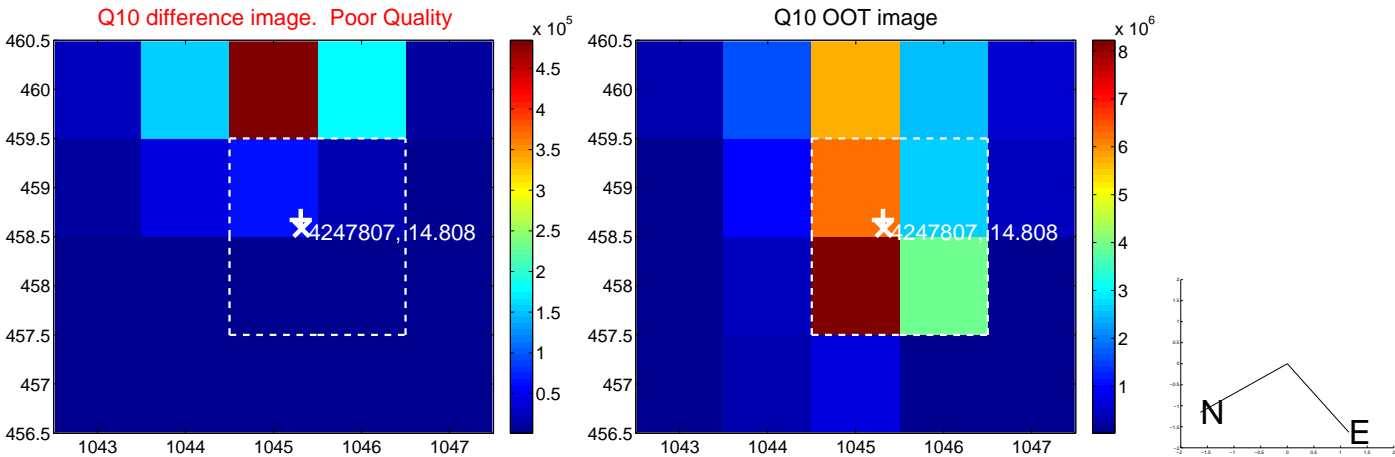
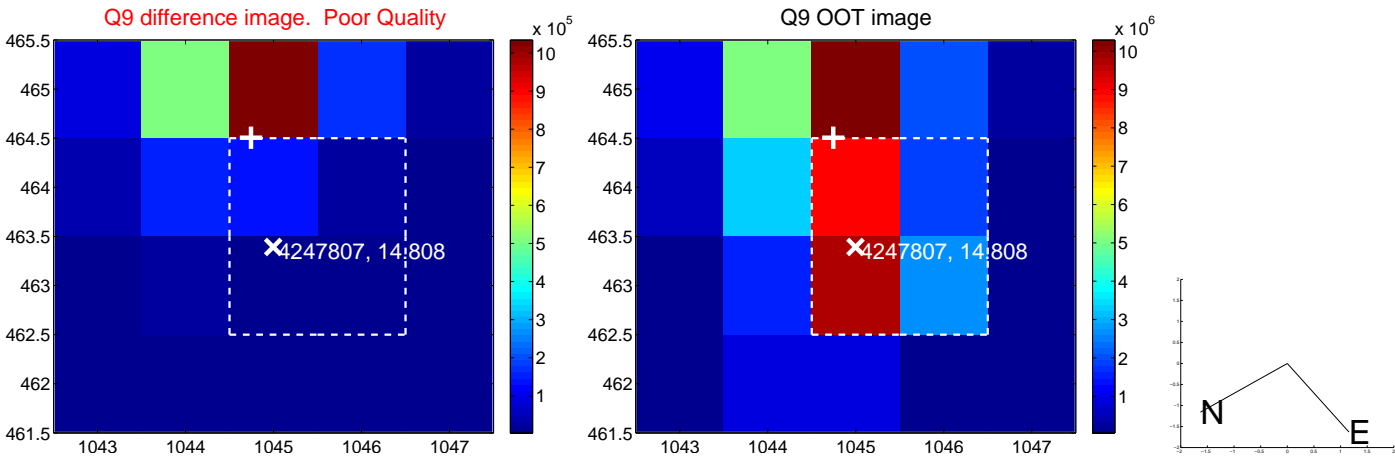
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



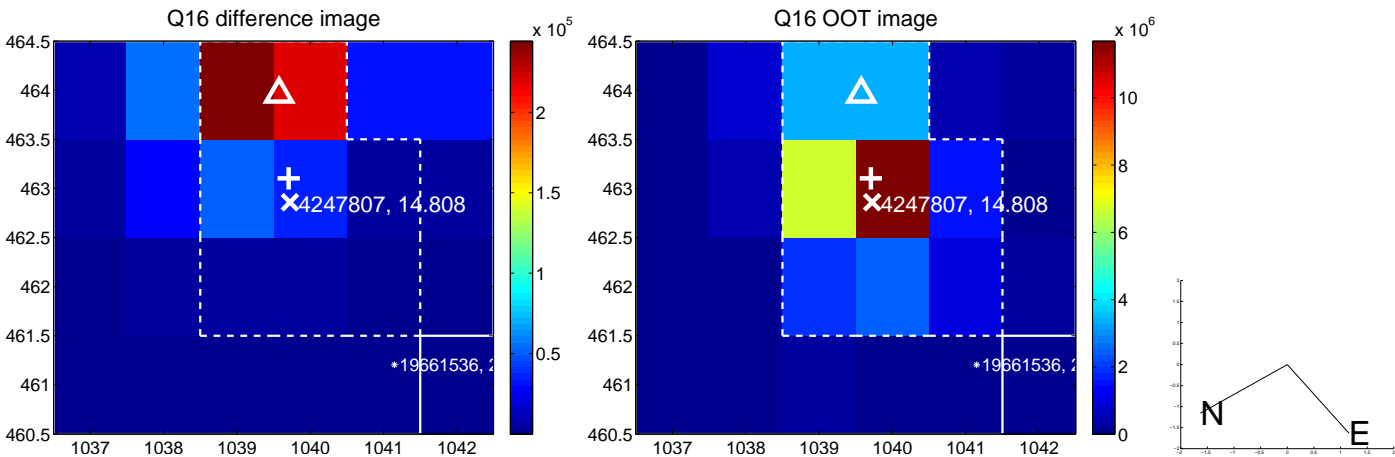
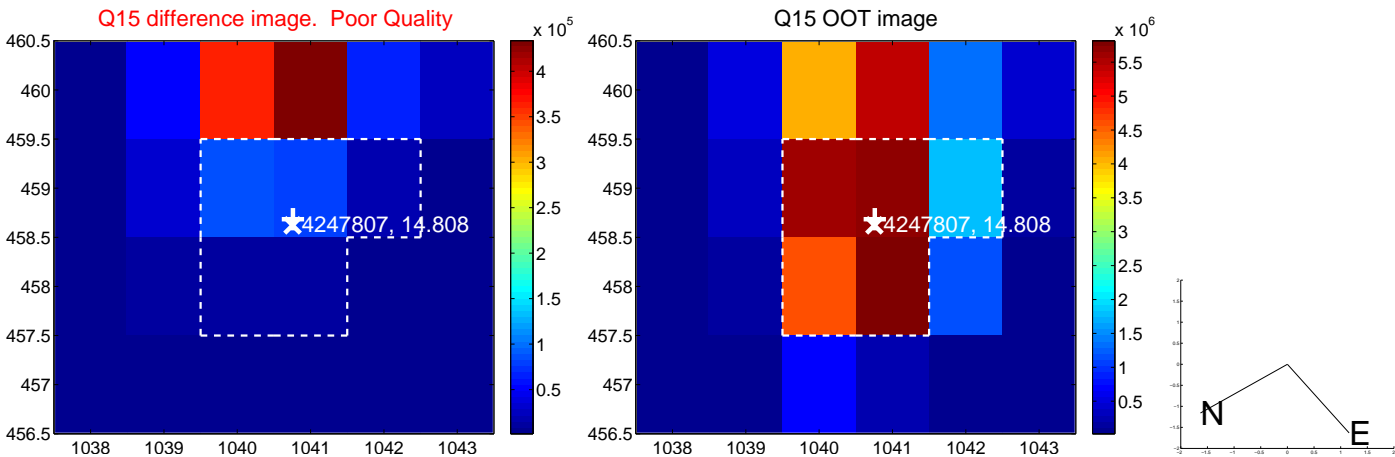
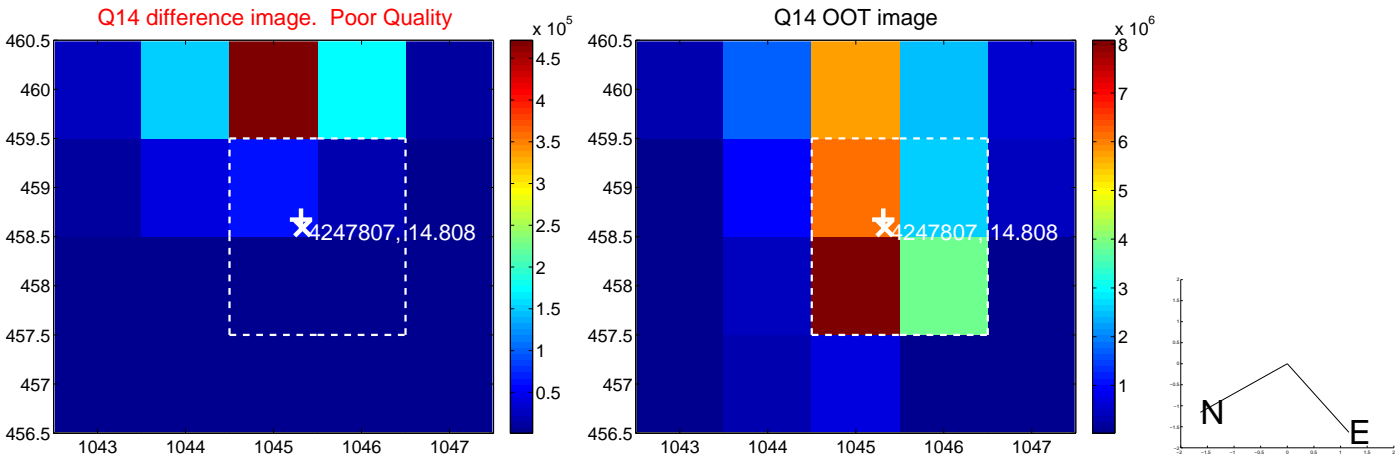
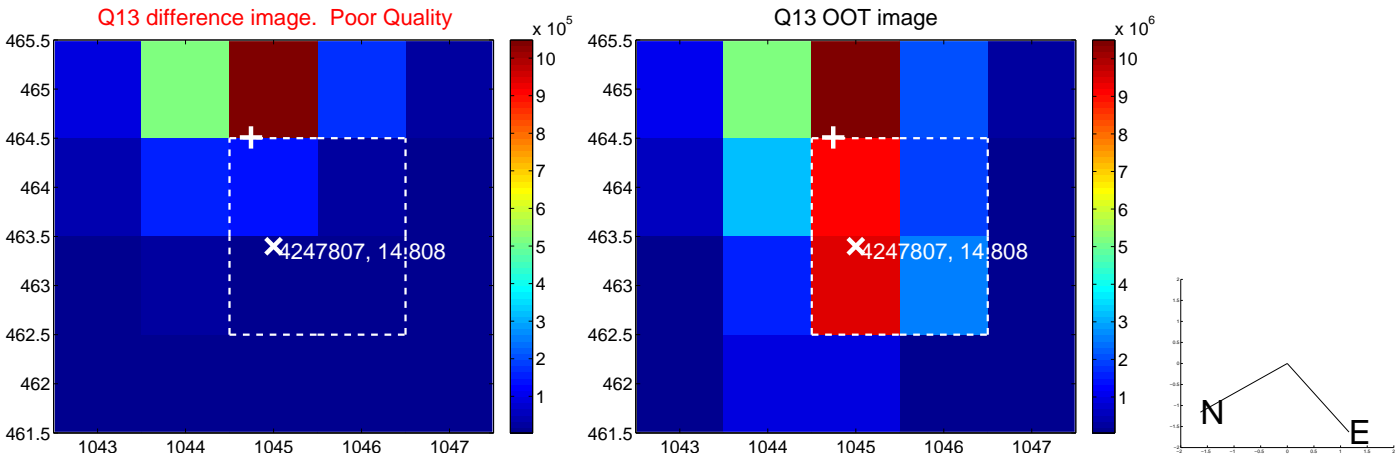
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



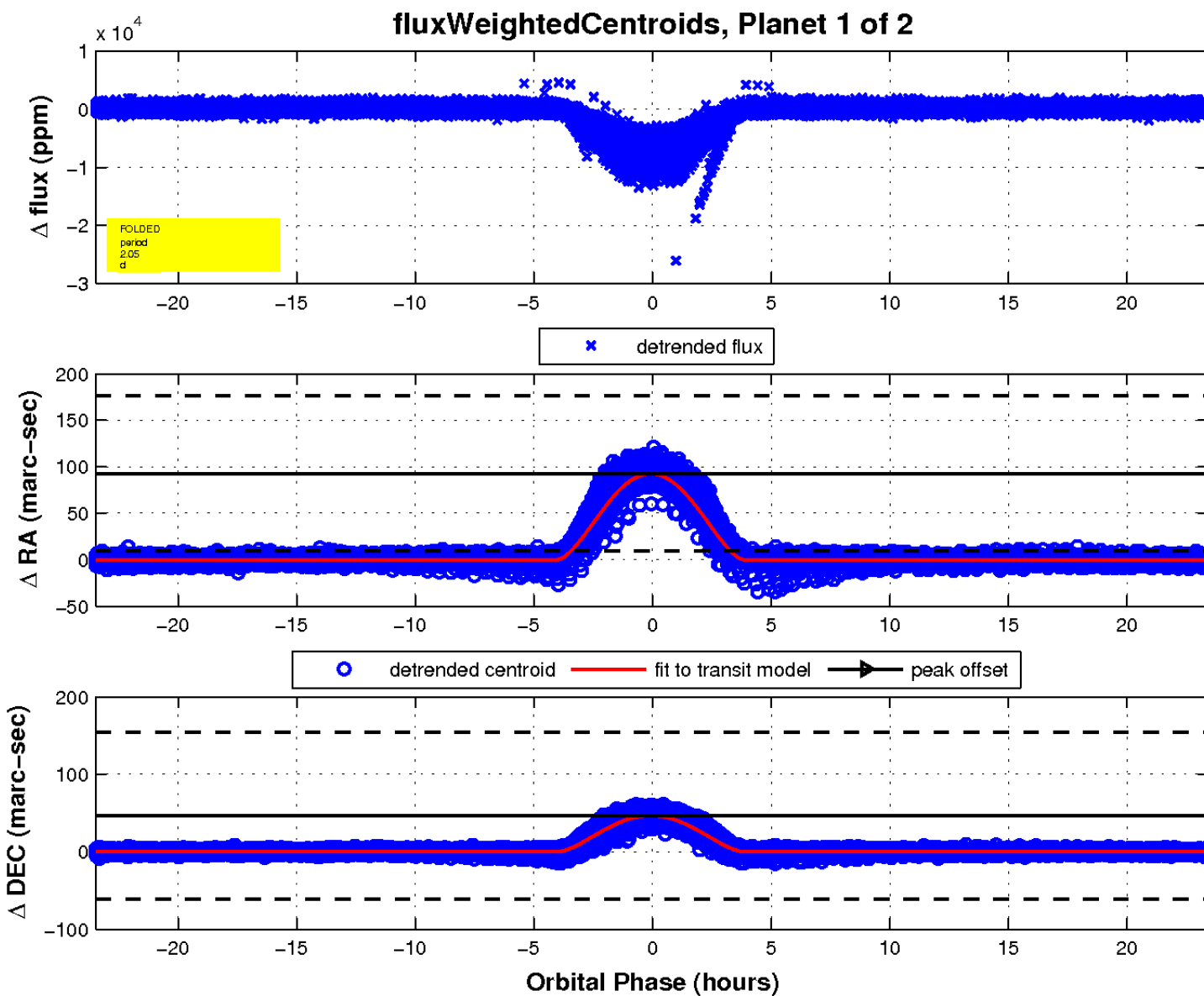
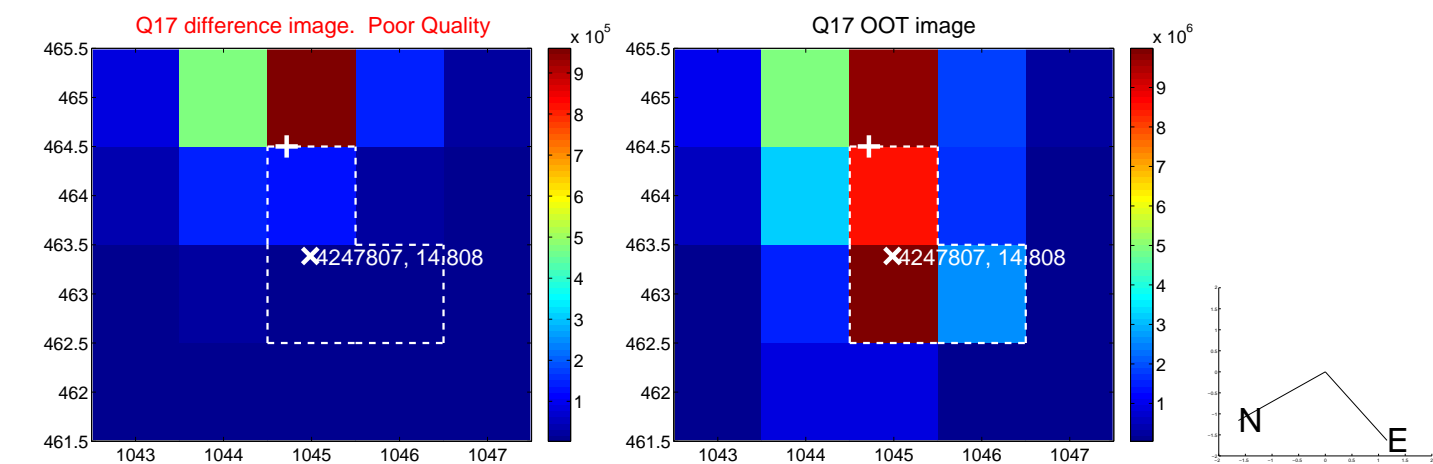
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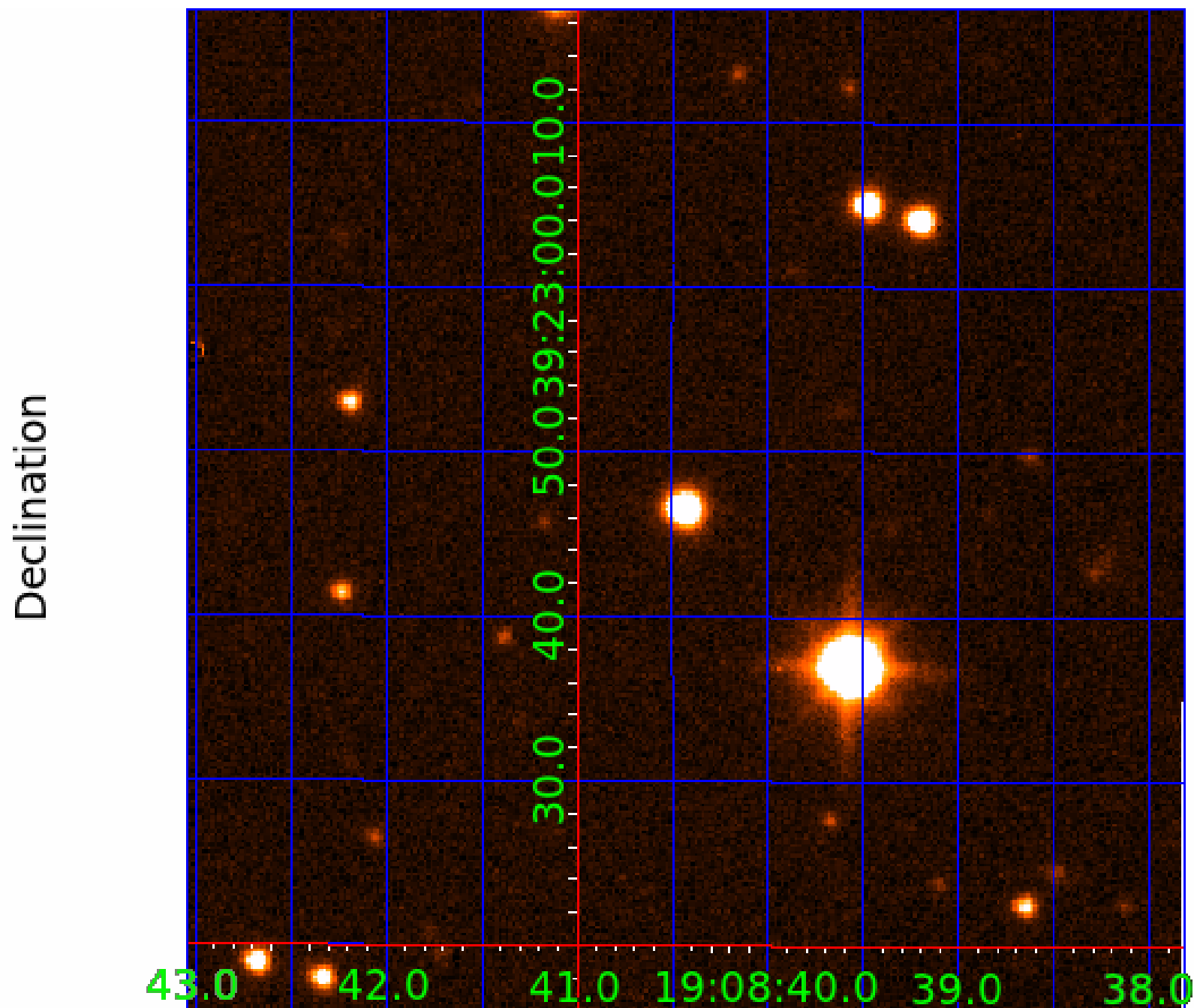
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004247807

Q1-17 DR25 TCE Parameters

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004247807-02	OBS	No	202.033419	133.452182	1179.1	10.500	13.7	-1.0	0.82	5440	2.79	1.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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004247807-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

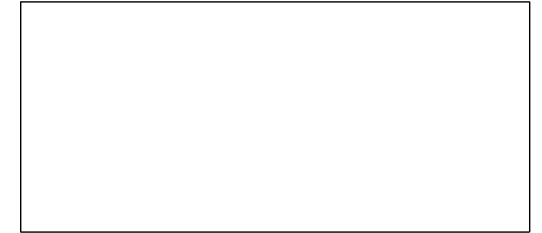
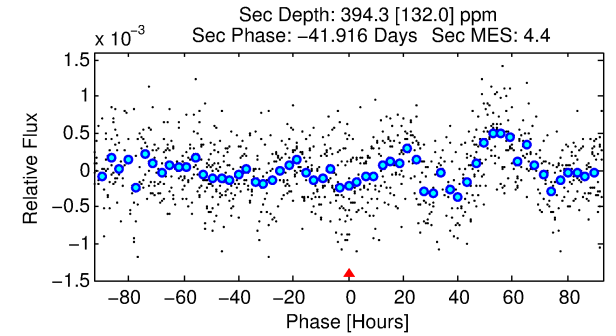
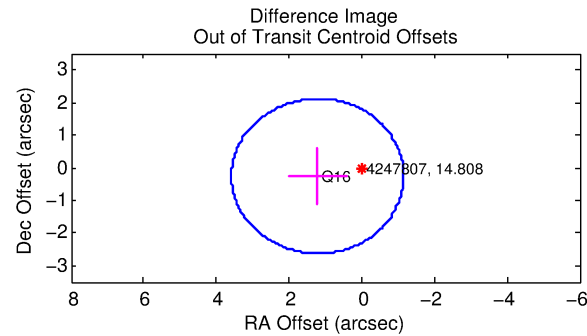
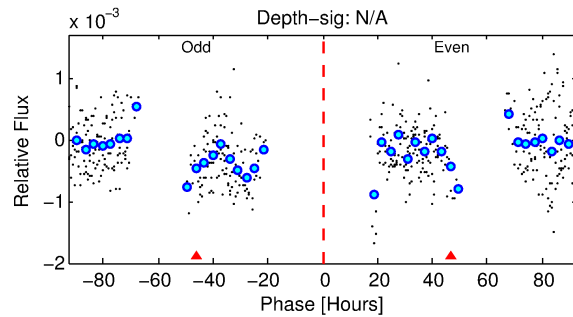
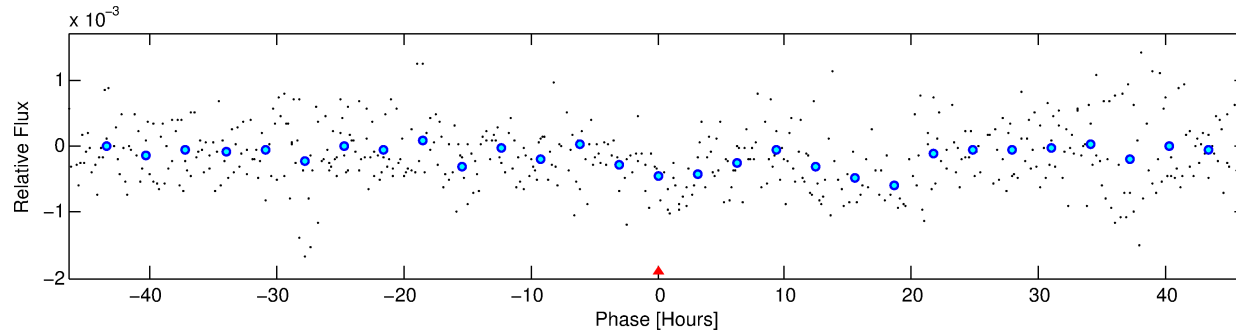
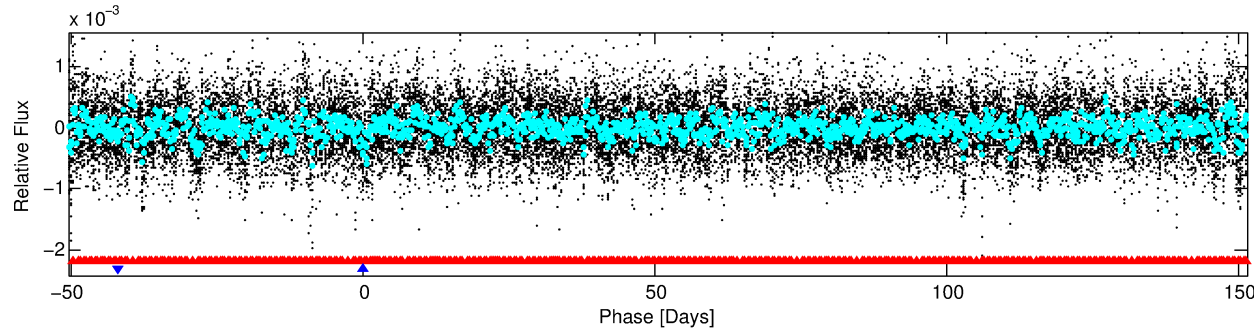
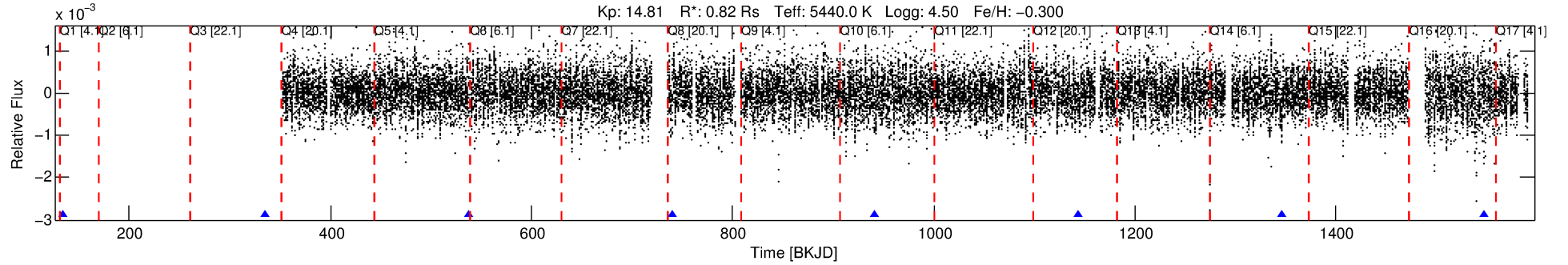
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004247807-02

No Significant Match Found

DV One-Page Summary

KIC: 4247807 Candidate: 2 of 2 Period: 202.033 d
KOI: K03748 Corr: No Ephemeris Match



TPS TCE Results:

Period = 202.03342 d
Epoch = 133.4522 BKJD

DV fit results are unavailable

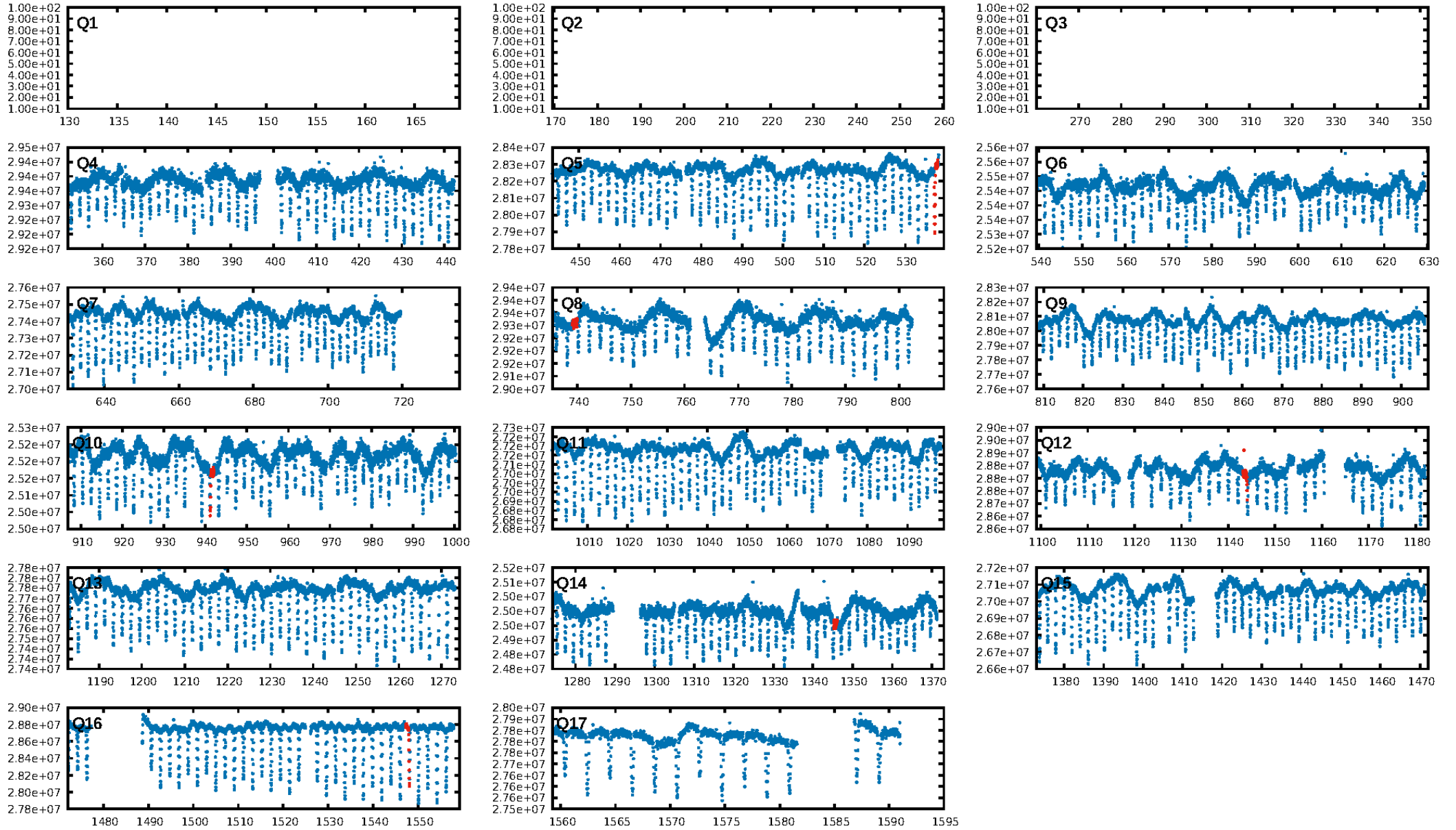
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [366.47σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.4004
Centroid-sig: 2.5%
Centroid-so: 2.719 arcsec [2.54σ]
OotOffset-rm: 1.247 arcsec [1.58σ]
KicOffset-rm: 0.921 arcsec [1.10σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.00 [0/5]

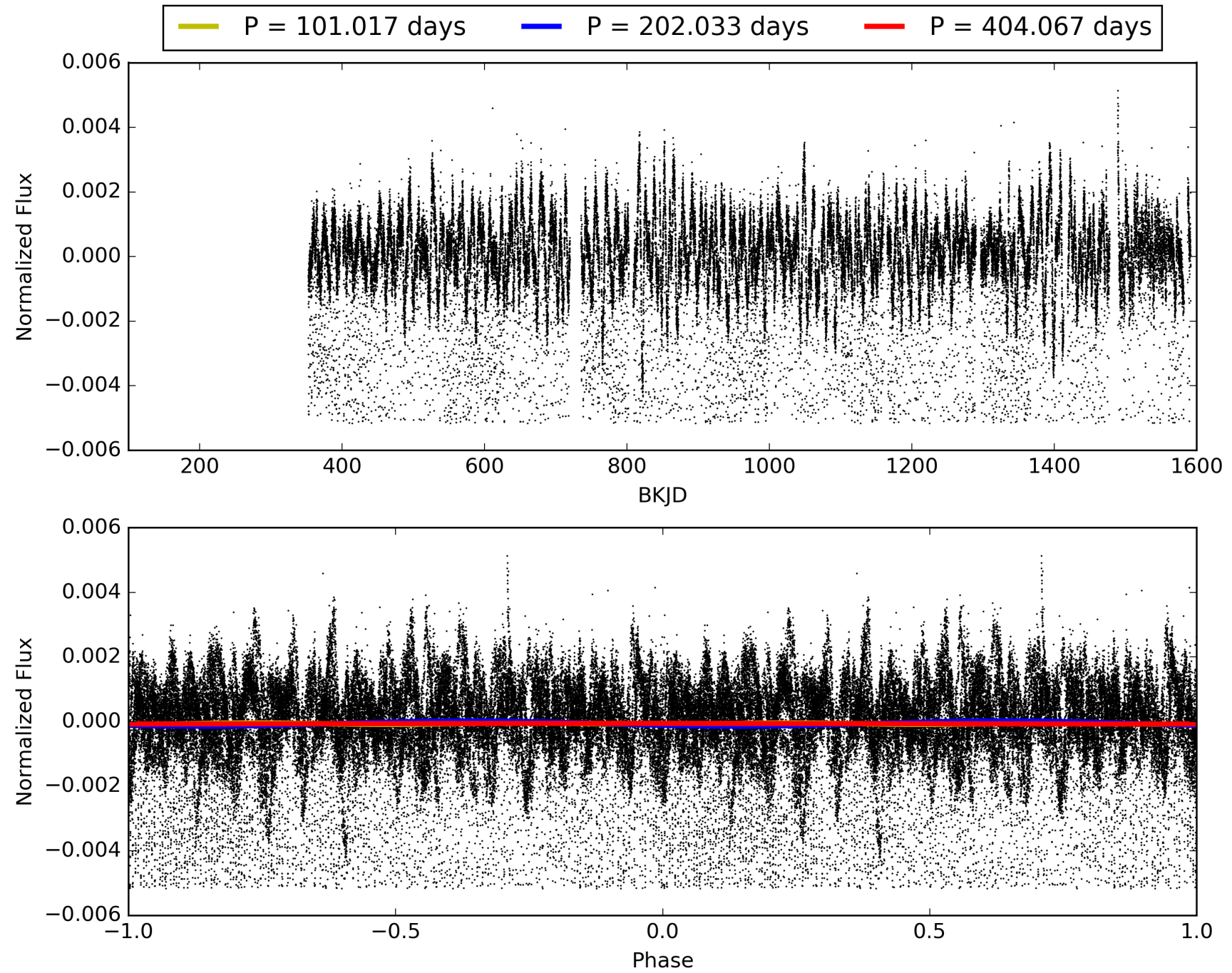
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:41:22 Z

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

TCE 004247807-02, PDC Light Curves

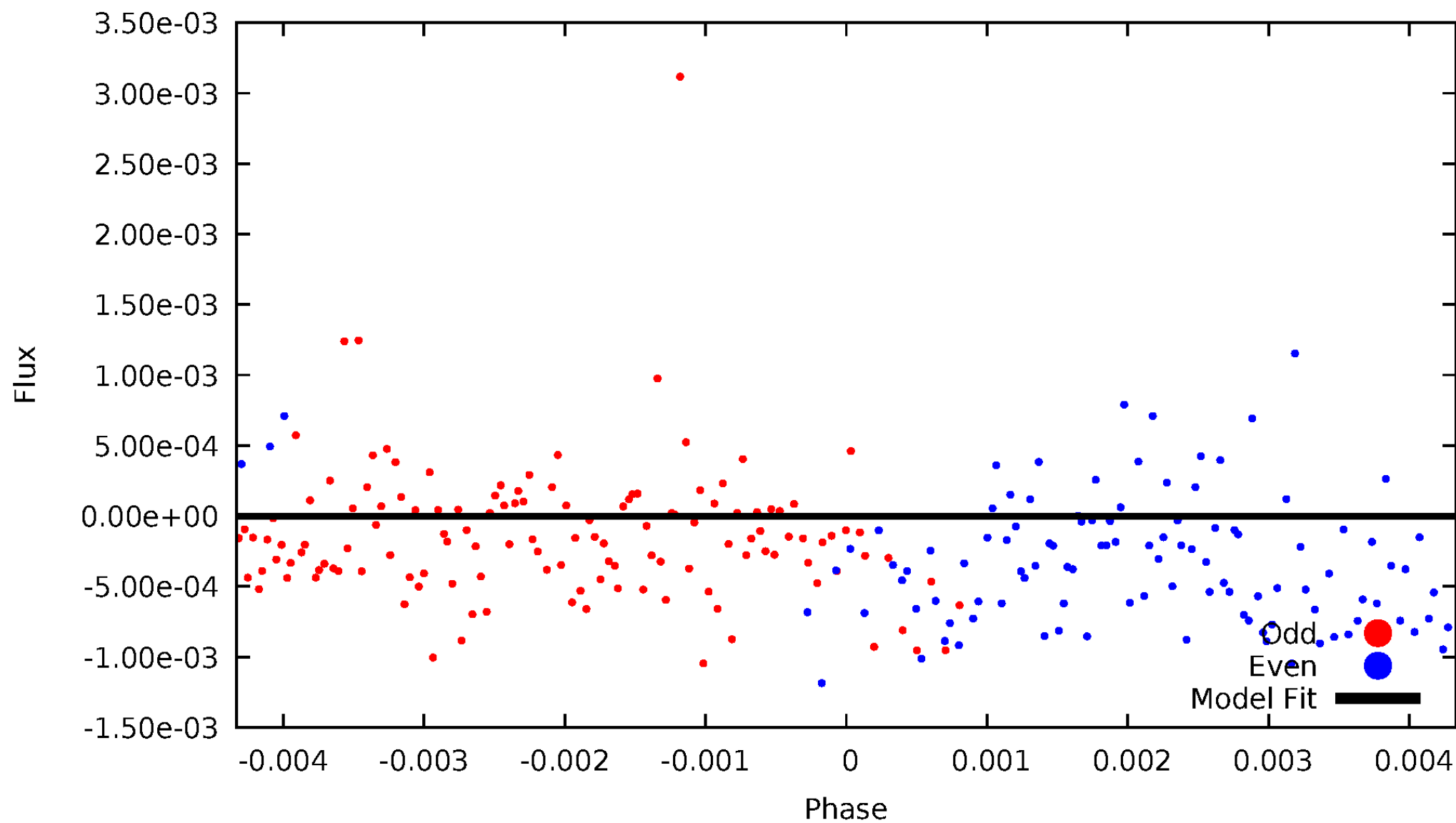


TCE 004247807-02



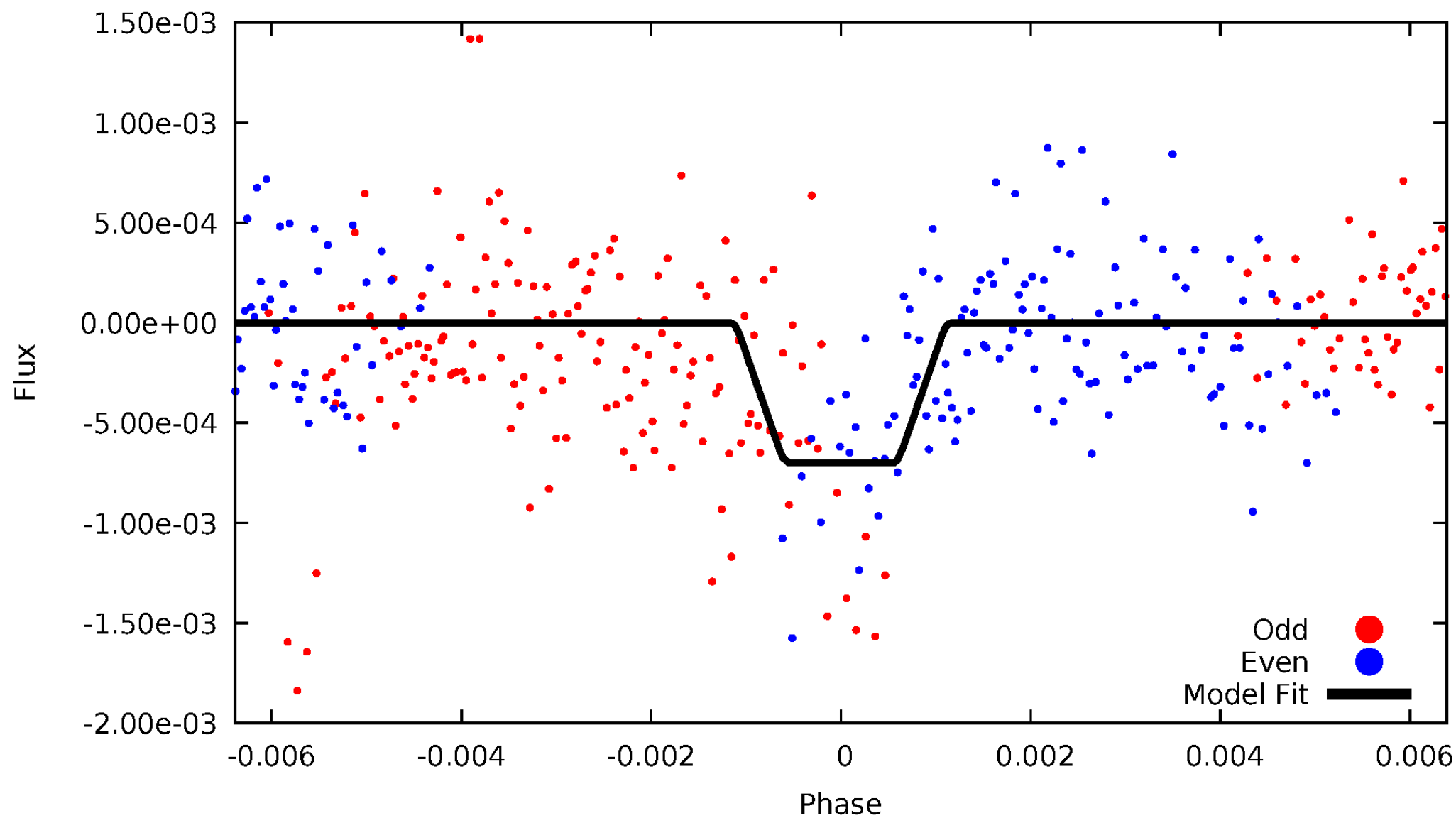
DV Odd/Even

TCE 004247807-02



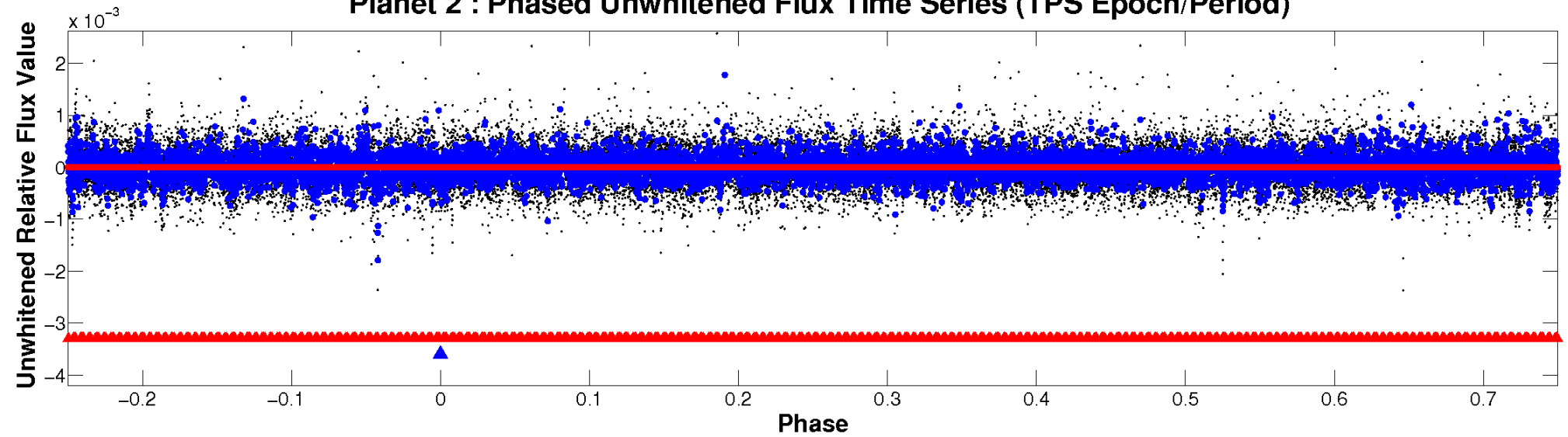
ALT Odd/Even

TCE 004247807-02



Non-Whitened Vs. Whitened Light Curve

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

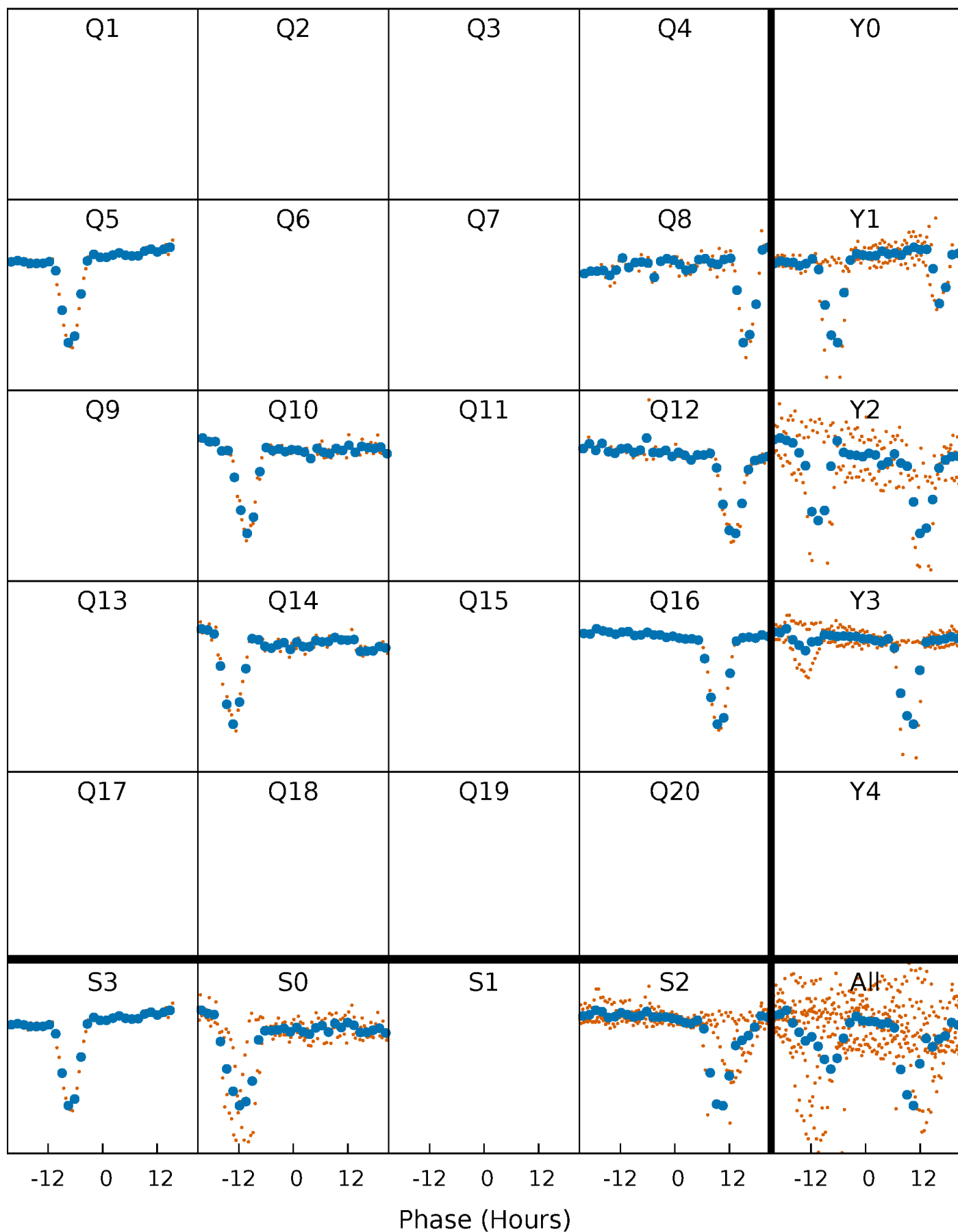


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



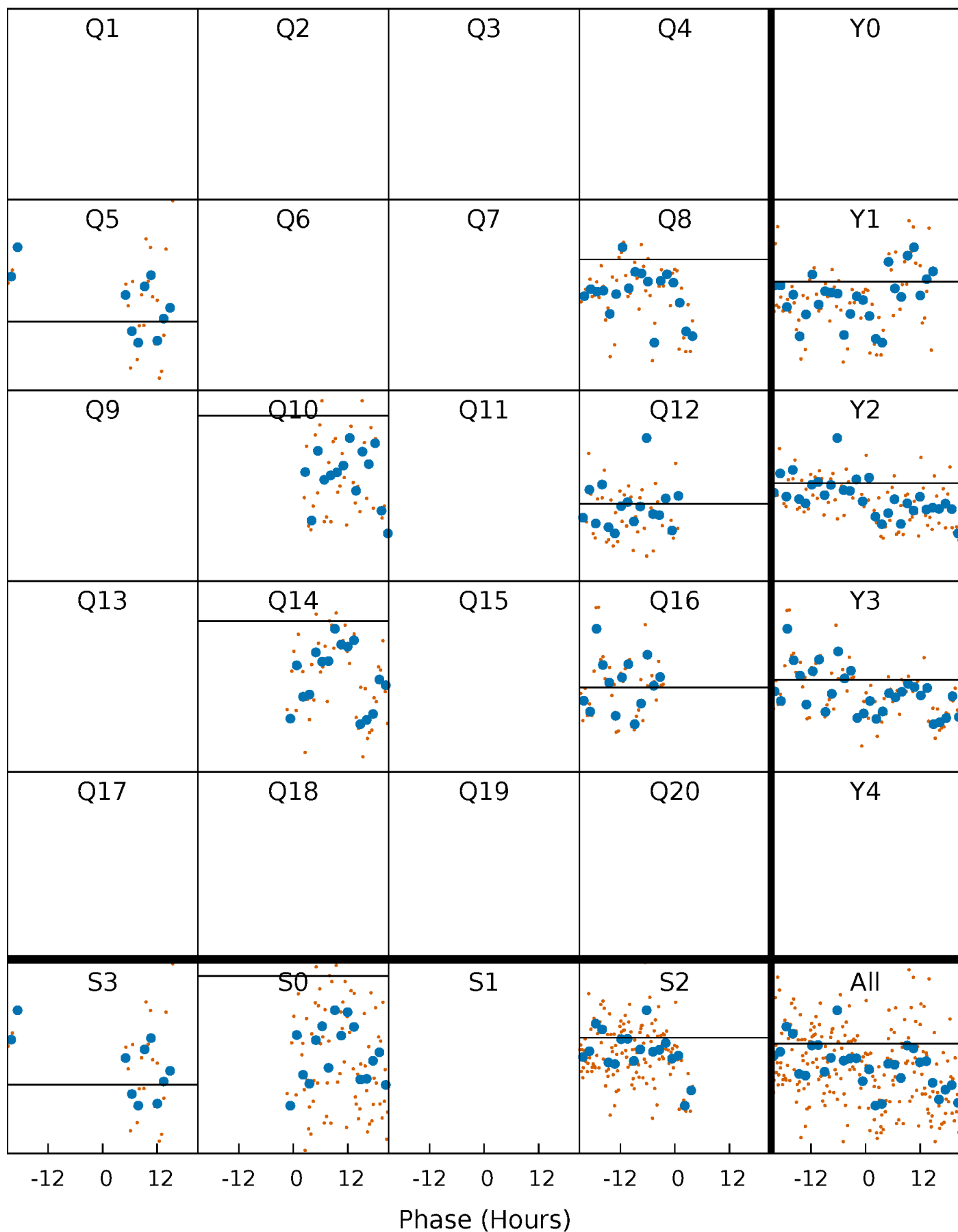
PDC Quarter-Phased Transit Curves

TCE 004247807-02 $P=202.033419$ Days $T_0=133.452182$ (BKJD)



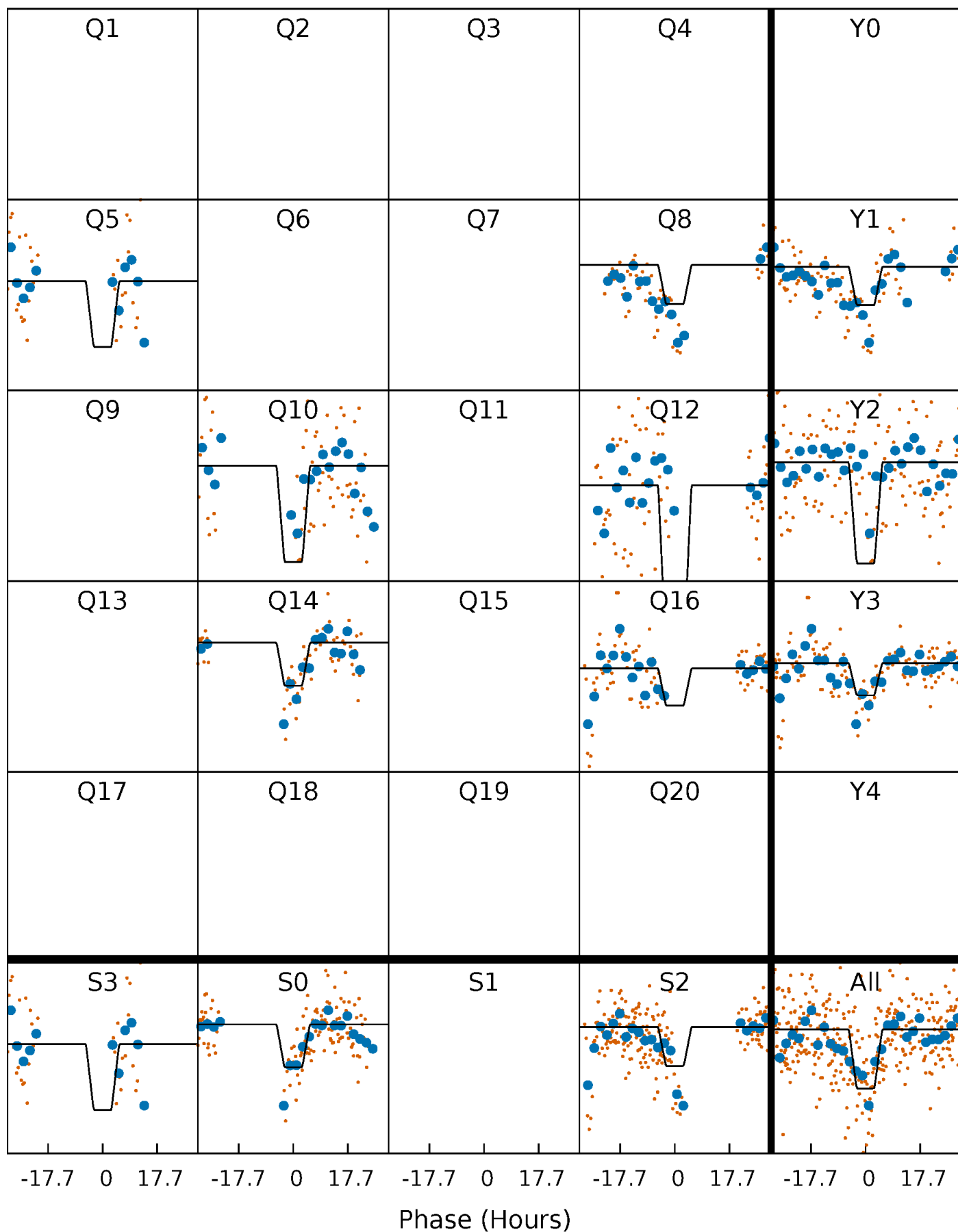
DV Quarter-Phased Transit Curves

TCE 004247807-02 P=202.033419 Days $T_0=133.452182$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

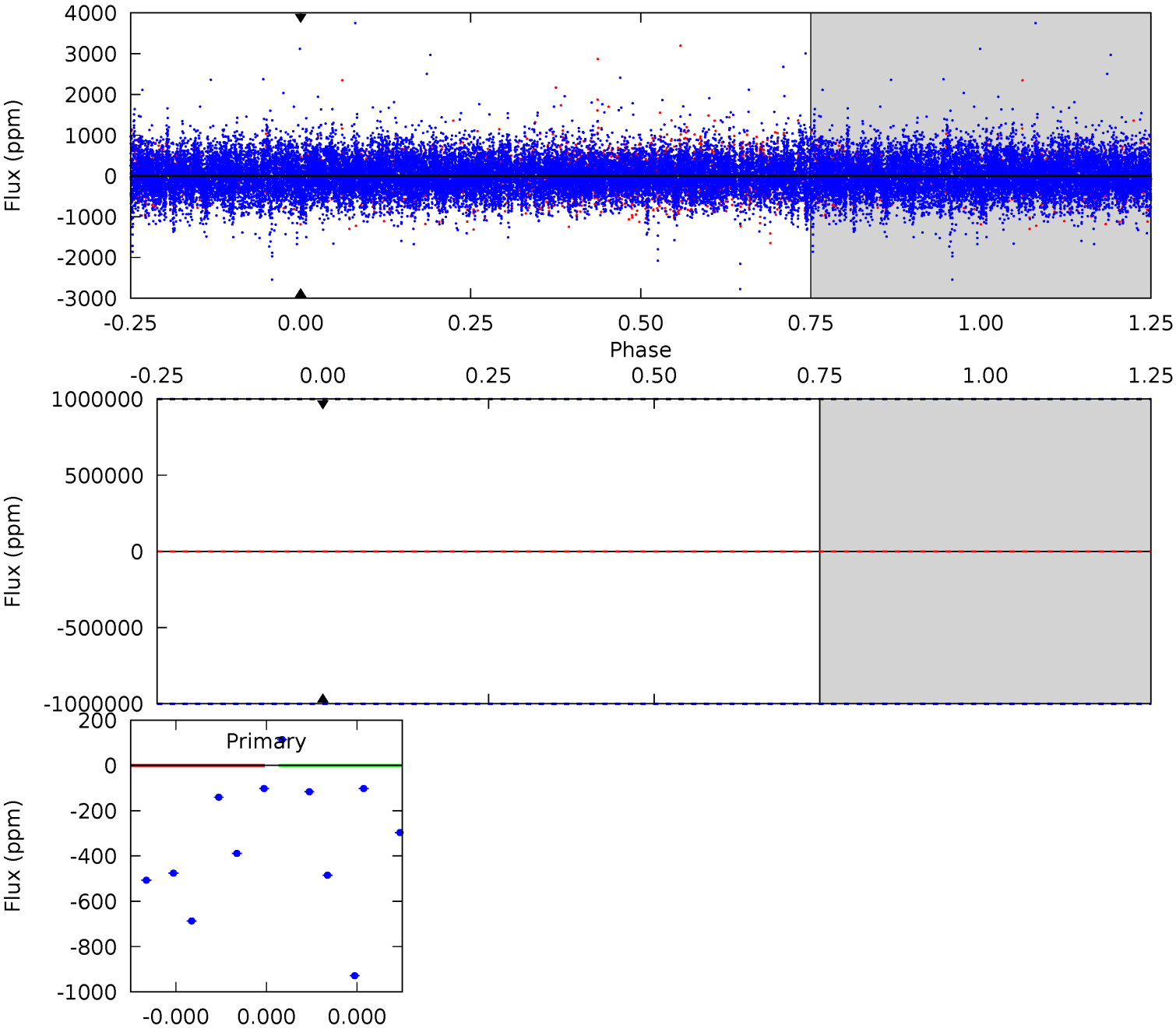
TCE 004247807-02 $P=202.033419$ Days $T_0=133.521052$ (BKJD)



DV Model-Shift Uniqueness Test

004247807-02, P = 202.033419 Days, E = 133.452182 Days

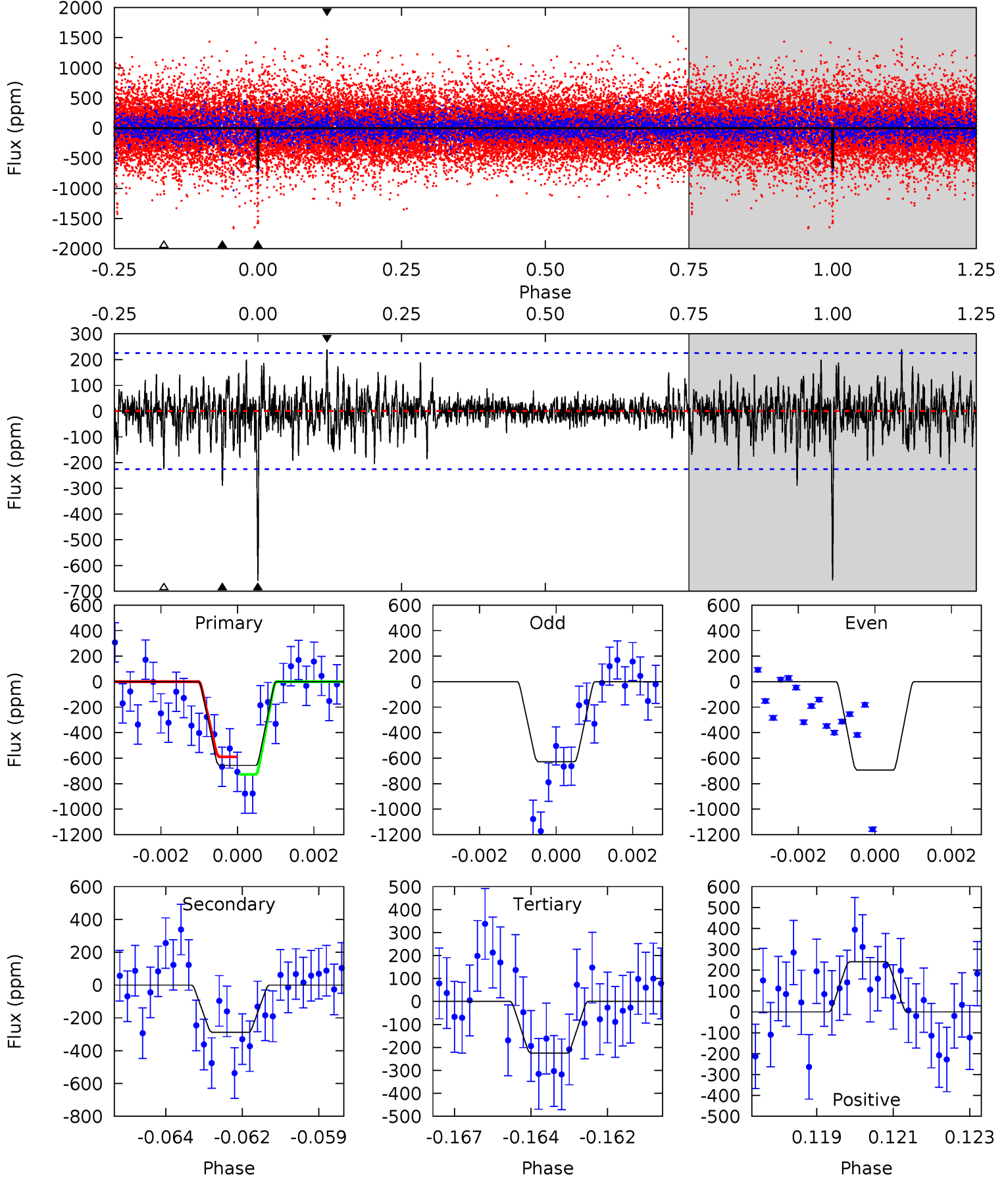
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004247807-02, P = 202.033419 Days, E = 133.521052 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	6.79	5.30	5.64	5.30	3.05	1.21	10.2	9.83	1.49	1.15	0.77	1.04	0.27	1.62



Stellar Parameters For KIC 004247807

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5440^{+207}_{-189}	$4.496^{+0.092}_{-0.127}$	$-0.300^{+0.350}_{-0.300}$	$0.825^{+0.154}_{-0.103}$	$0.779^{+0.113}_{-0.061}$	$1.950^{+0.844}_{-0.692}$
	+4%/-3%	+2%/-3%	+117%/-100%	+19%/-12%	+15%/-8%	+43%/-35%
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 004247807-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$7.21^{+6.94}_{-4.88}$	391^{+21}_{-22}	3208^{+15319}_{-18804}	$1255^{+878366}_{-585193}$
Alt.	-289 ± 43	$7.32^{+7.35}_{-5.12}$	389^{+23}_{-20}	3111^{+1635}_{-526}	1166^{+12012}_{-886}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

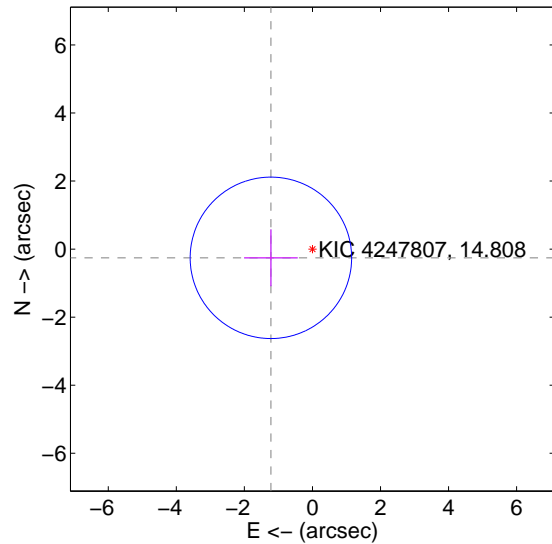
Supplemental centroid analysis for 004247807-02. Kepler magnitude: 14.81. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

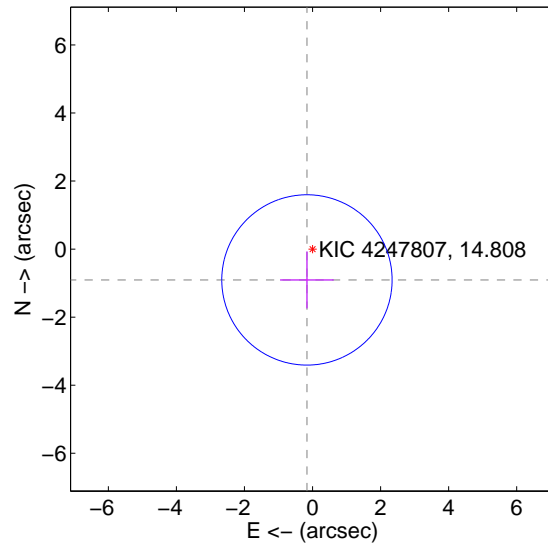
The direct PRF centroid is offset from the target star catalog position by about 1.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.247 ± 0.791	1.58	1.220 ± 0.789	-0.257 ± 0.836
PRF-fit source offset from KIC position	0.921 ± 0.834	1.10	0.164 ± 0.789	-0.906 ± 0.836
photometric centroid source offset	2.72 ± 1.07	2.54	-2.68 ± 1.07	0.48 ± 1.04

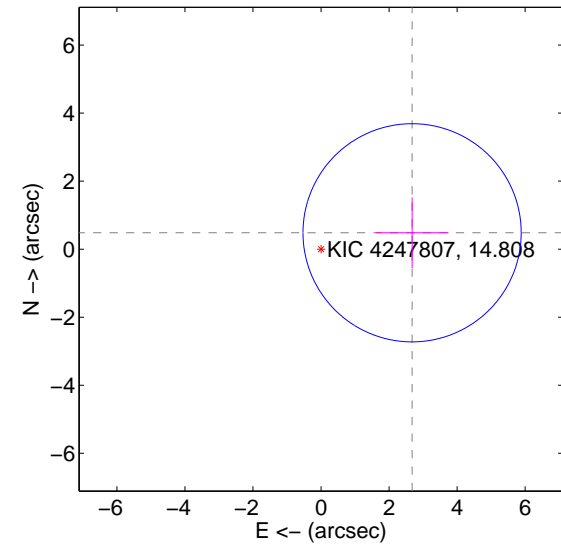
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

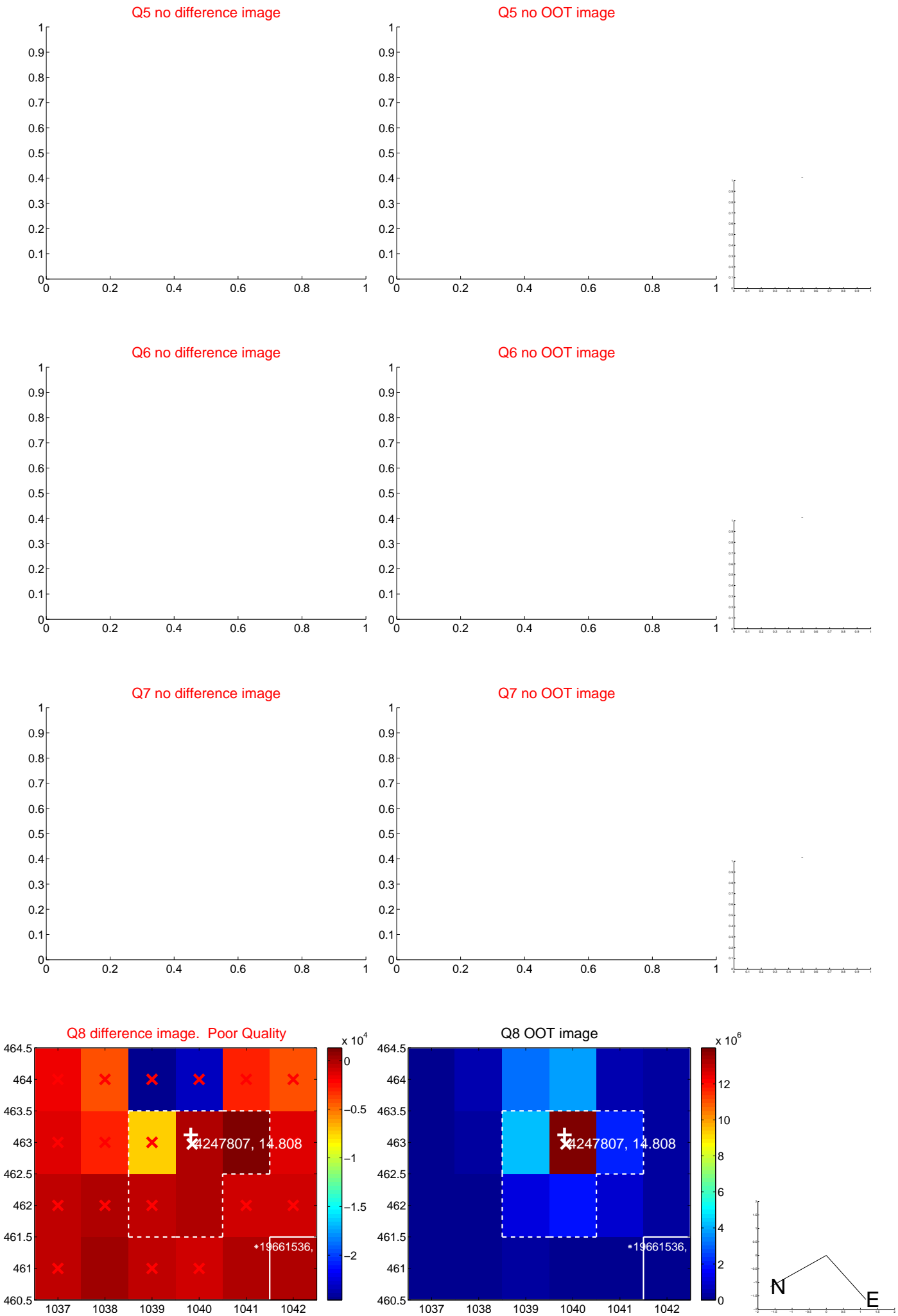


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

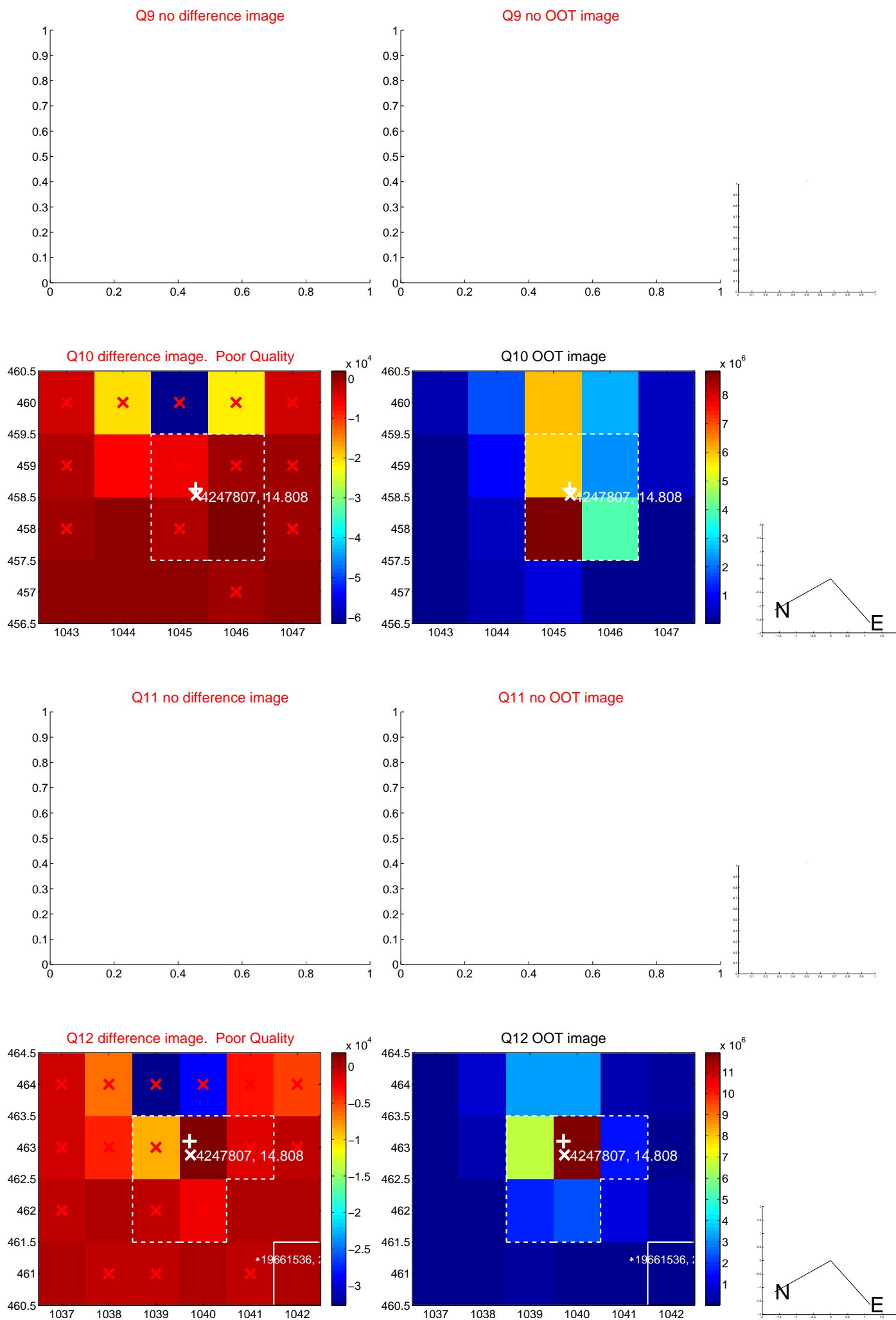
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



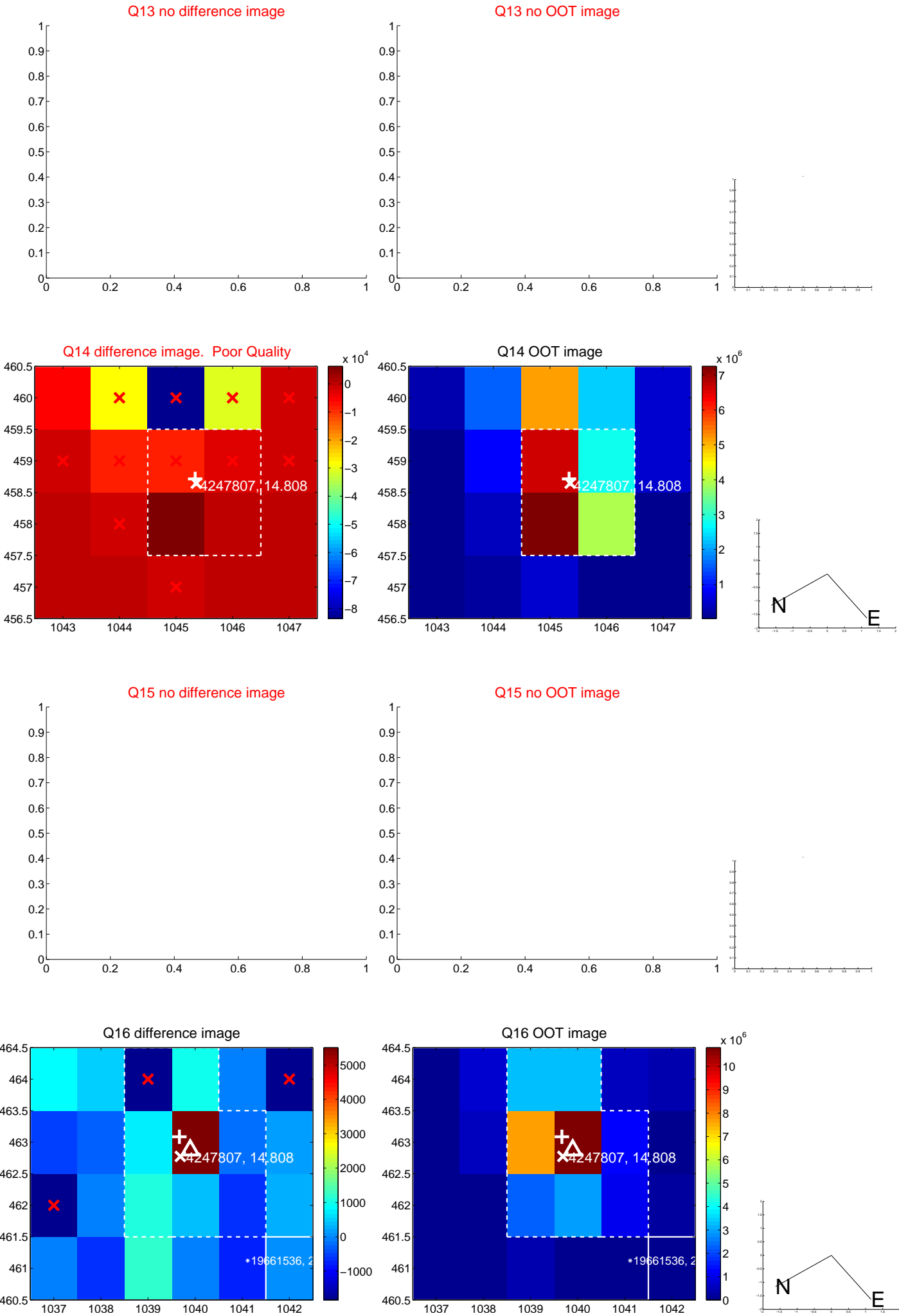
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

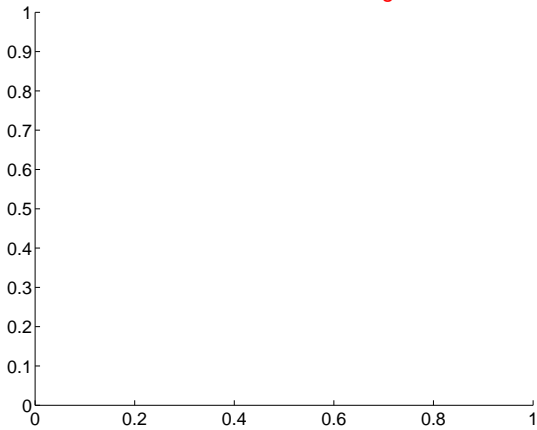


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

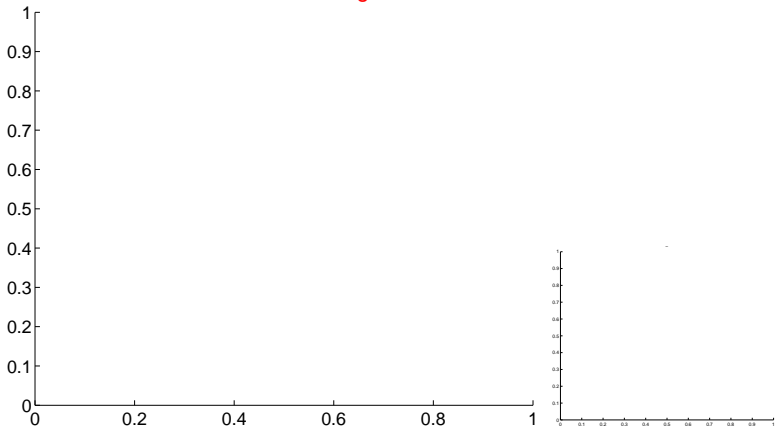


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

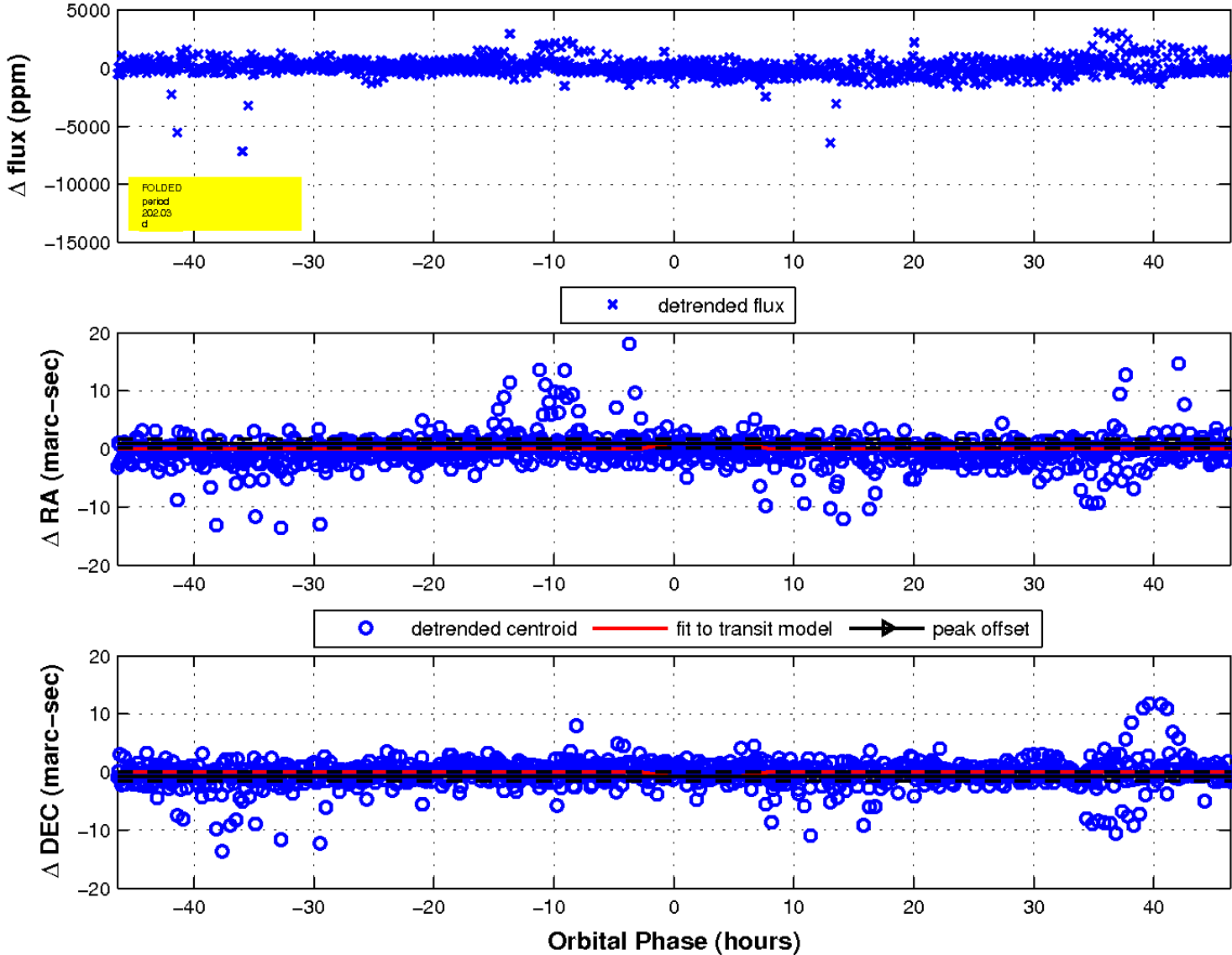
Q17 no difference image



Q17 no OOT image



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

