

KIC 009490067

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})
009490067-01	OBS	No	0.693326	131.551100	27.3	3.479	9.0	6.3	11.59	6926	7.06	0.00
009490067-02	OBS	No	0.693320	131.790480	104.4	3.674	13.1	14.6	11.59	6926	13.82	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009490067-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009490067-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED—HALO_GHOST

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

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

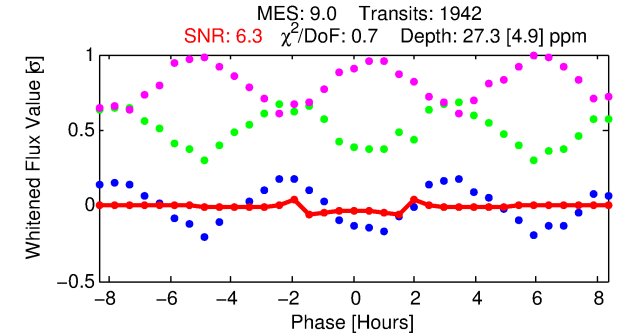
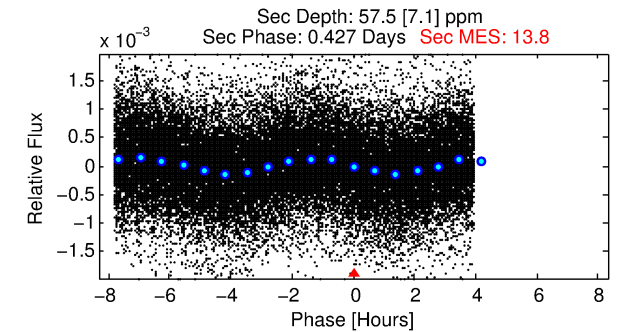
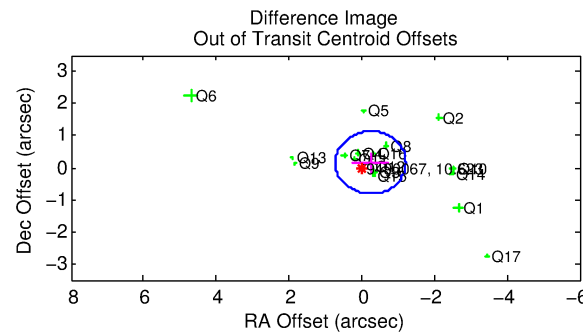
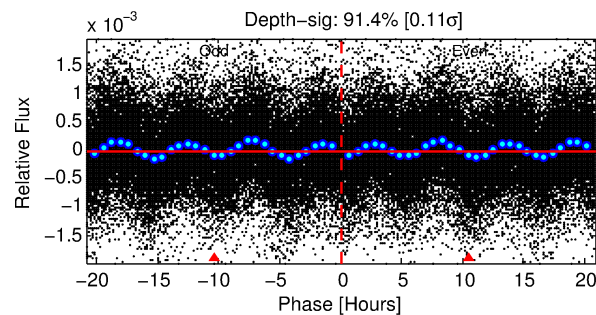
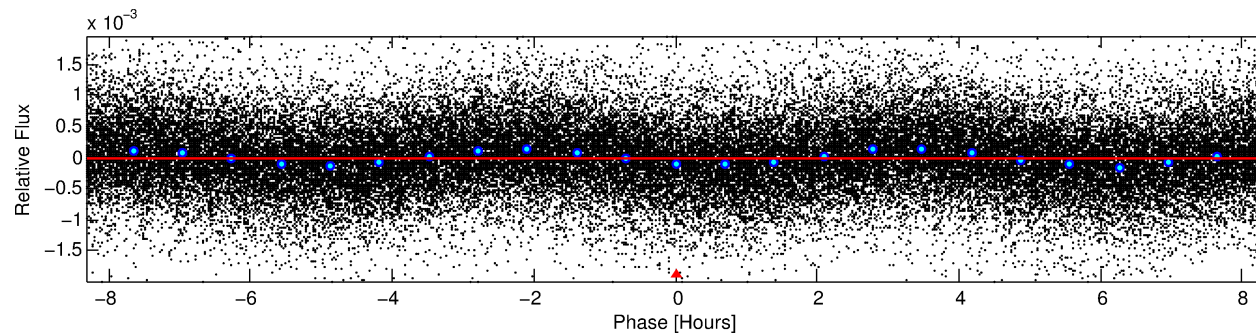
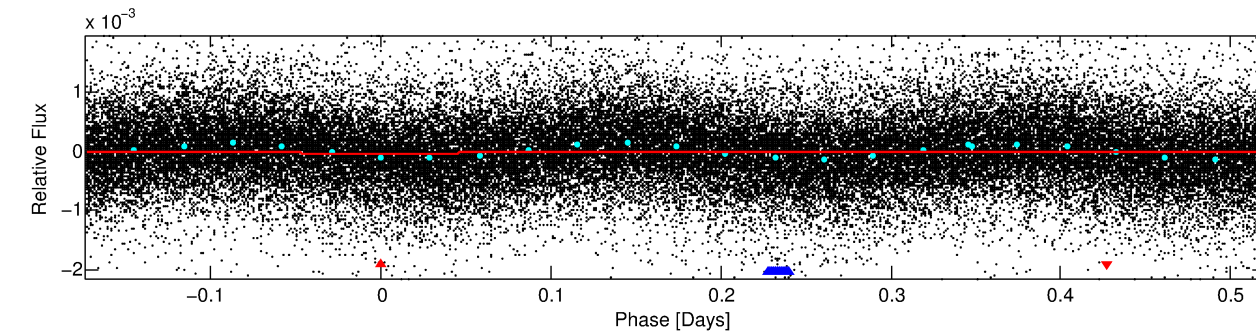
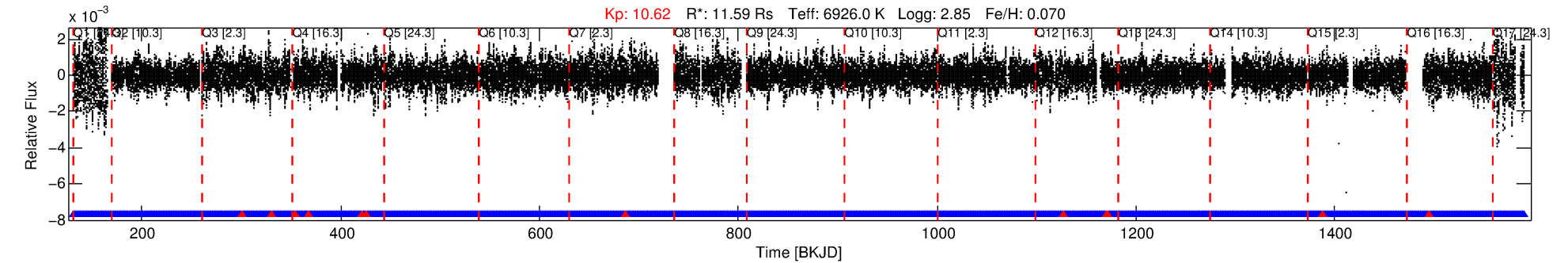
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009490067-01

No Significant Match Found

DV One-Page Summary

KIC: 9490067 Candidate: 1 of 2 Period: 0.693 d



DV Fit Results:

Period = 0.69333 [0.00001] d
Epoch = 131.5511 [0.0018] BKJD
Rp/R* = 0.0056 [0.0013]
a/R* = 1.16 [0.40]
b = 0.90 [0.28]
Seff = N/A
Teq = N/A
Rp = 7.06 [3.66] Re
a = N/A
Ag = N/A
Teffp = N/A

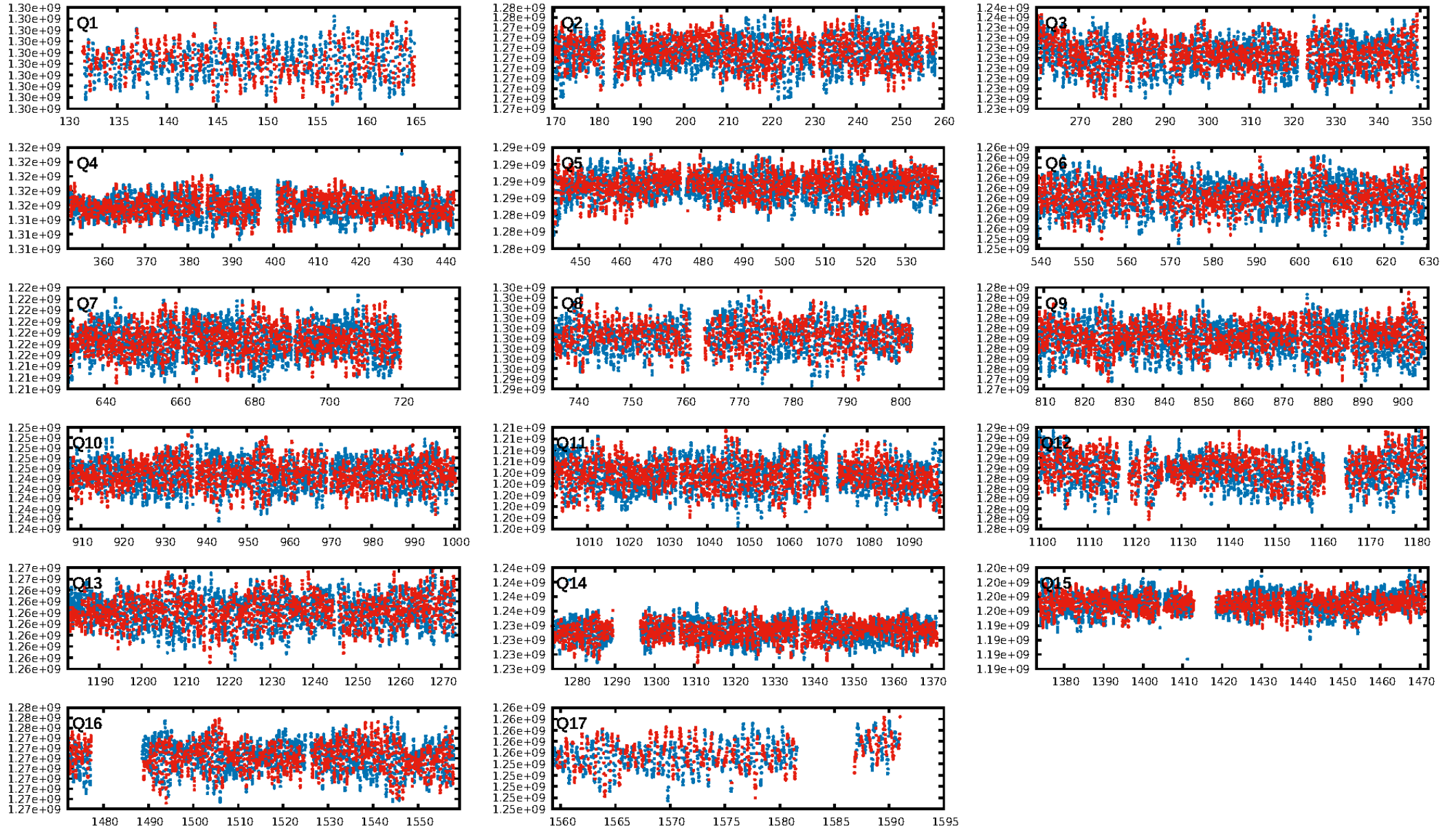
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [1842/1854]
GhostDiagnostic-chr: -0.5607
Centroid-sig: 88.0%
Centroid-so: 0.238 arcsec [0.56 σ]
OotOffset-rm: 0.287 arcsec [0.88 σ]
KicOffset-rm: 0.332 arcsec [0.81 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.53 [9/17]
DiffImageOverlap-fno: 0.00 [0/17]

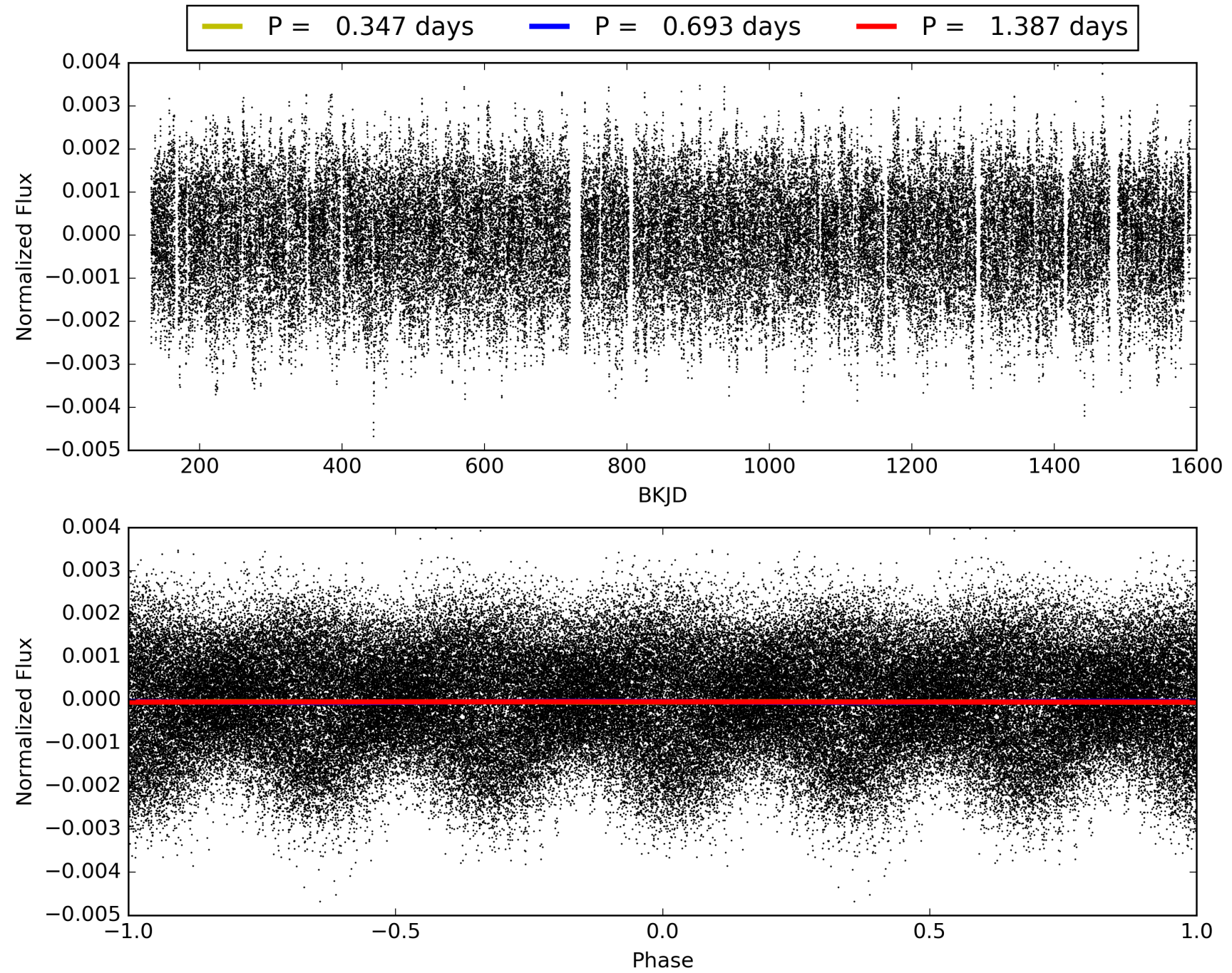
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 07:23:20 Z

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

TCE 009490067-01, PDC Light Curves

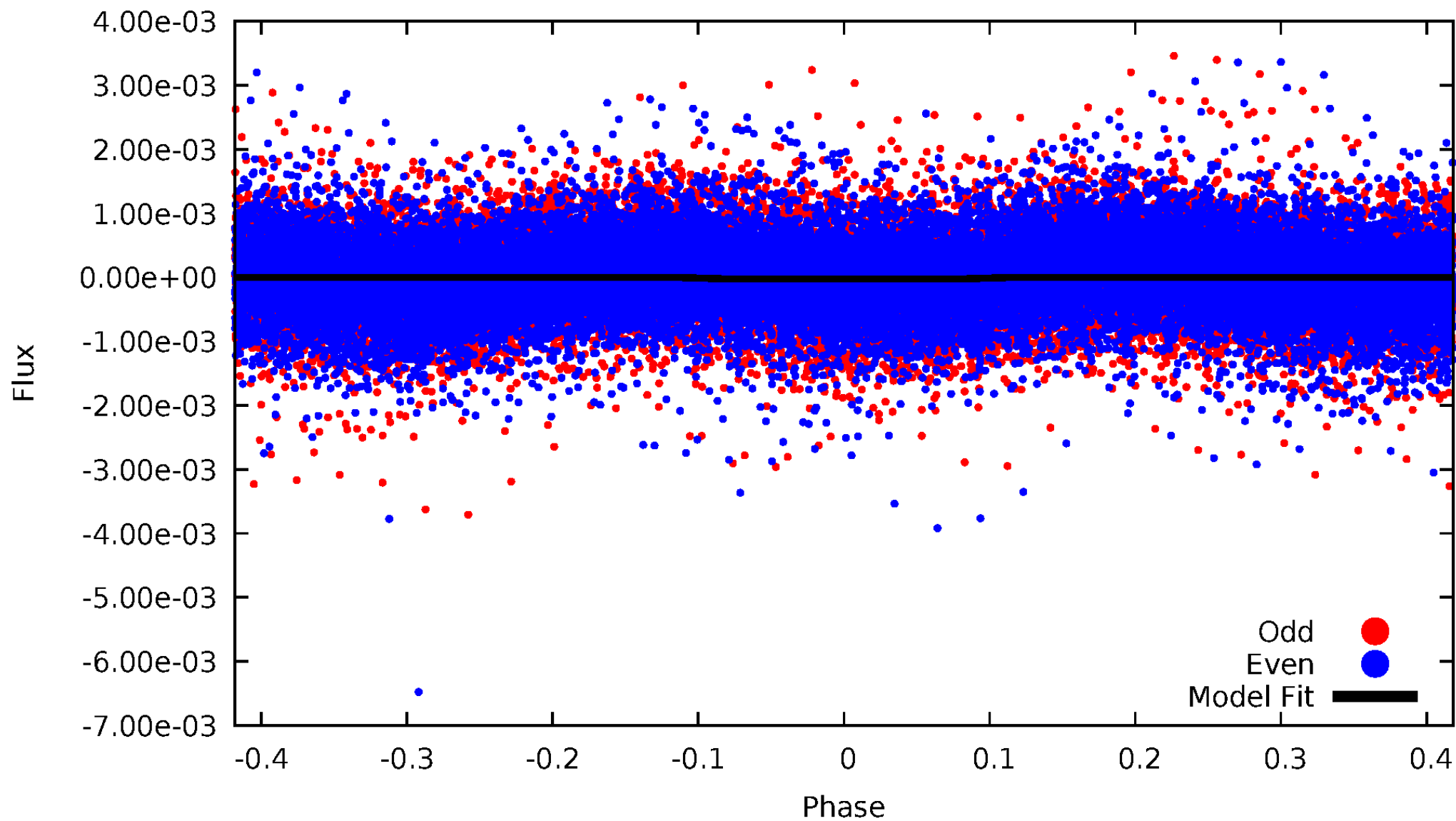


TCE 009490067-01



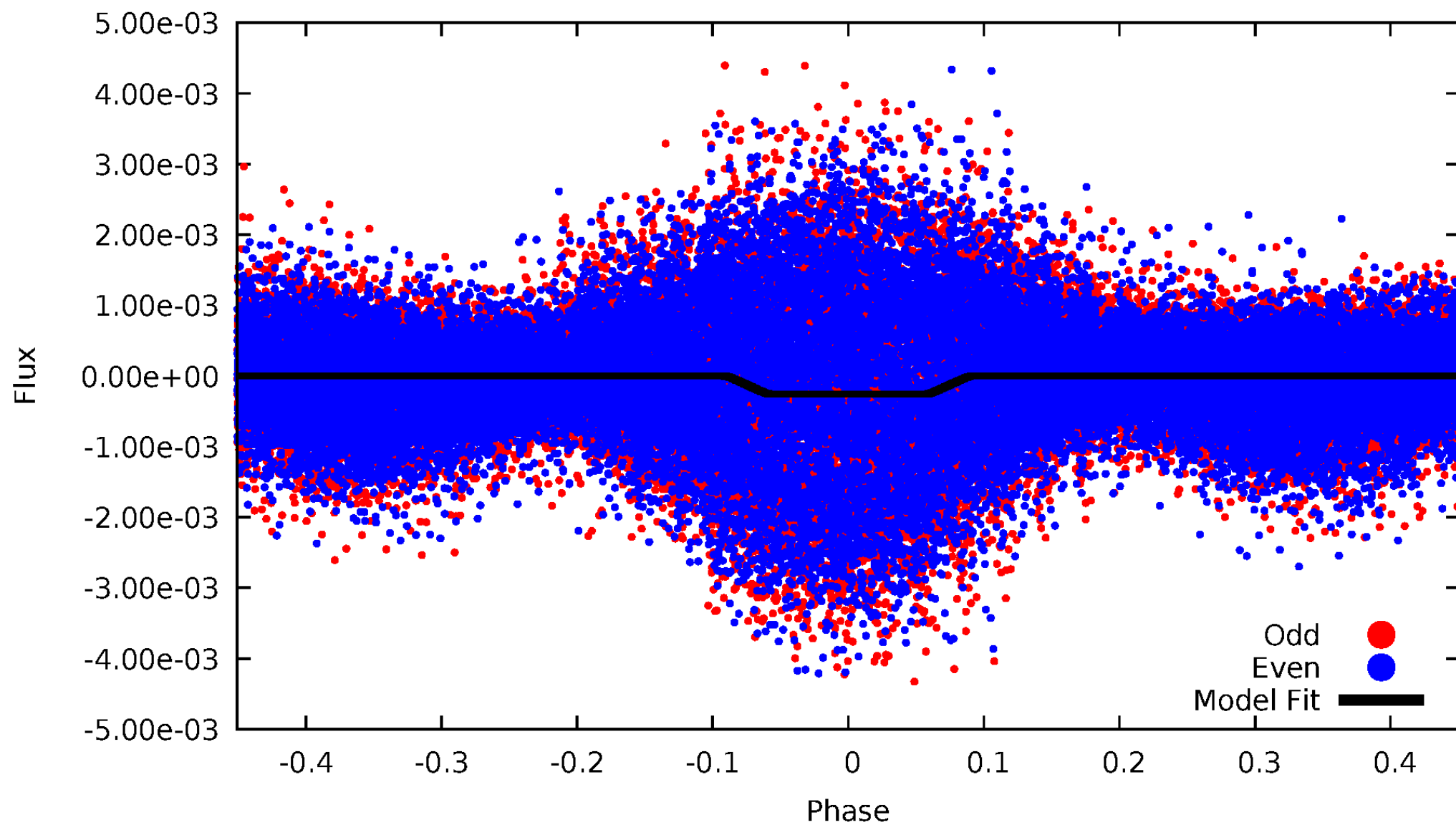
DV Odd/Even

TCE 009490067-01



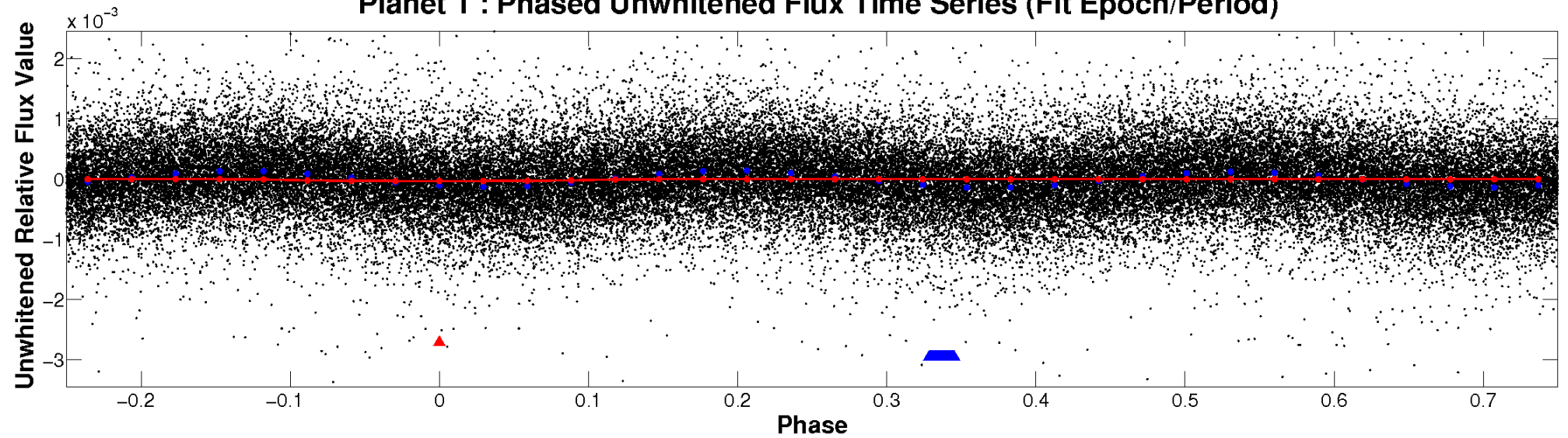
ALT Odd/Even

TCE 009490067-01

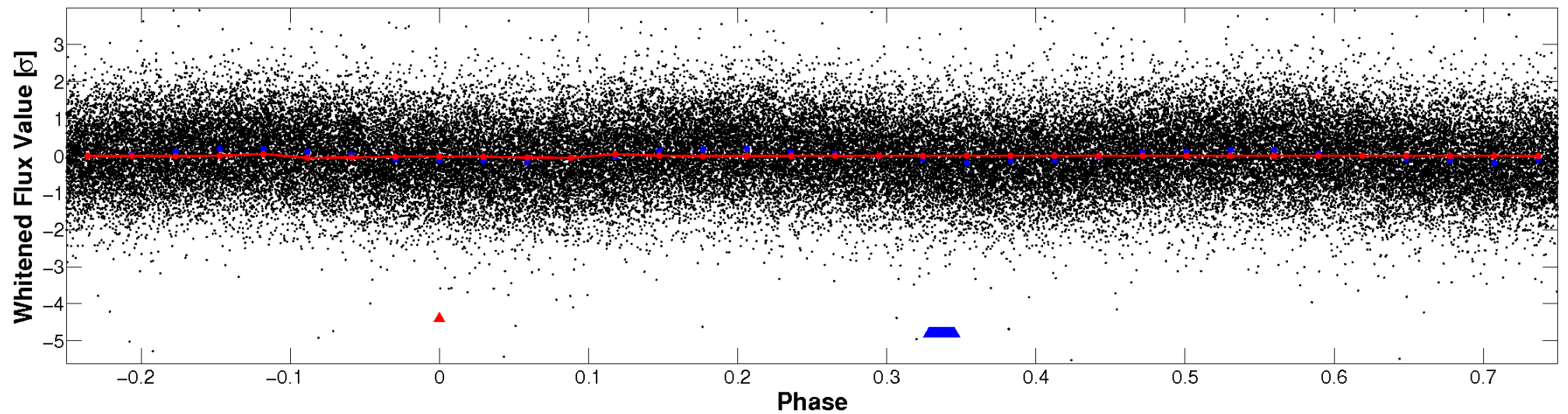


Non-Whitened Vs. Whitened Light Curve

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

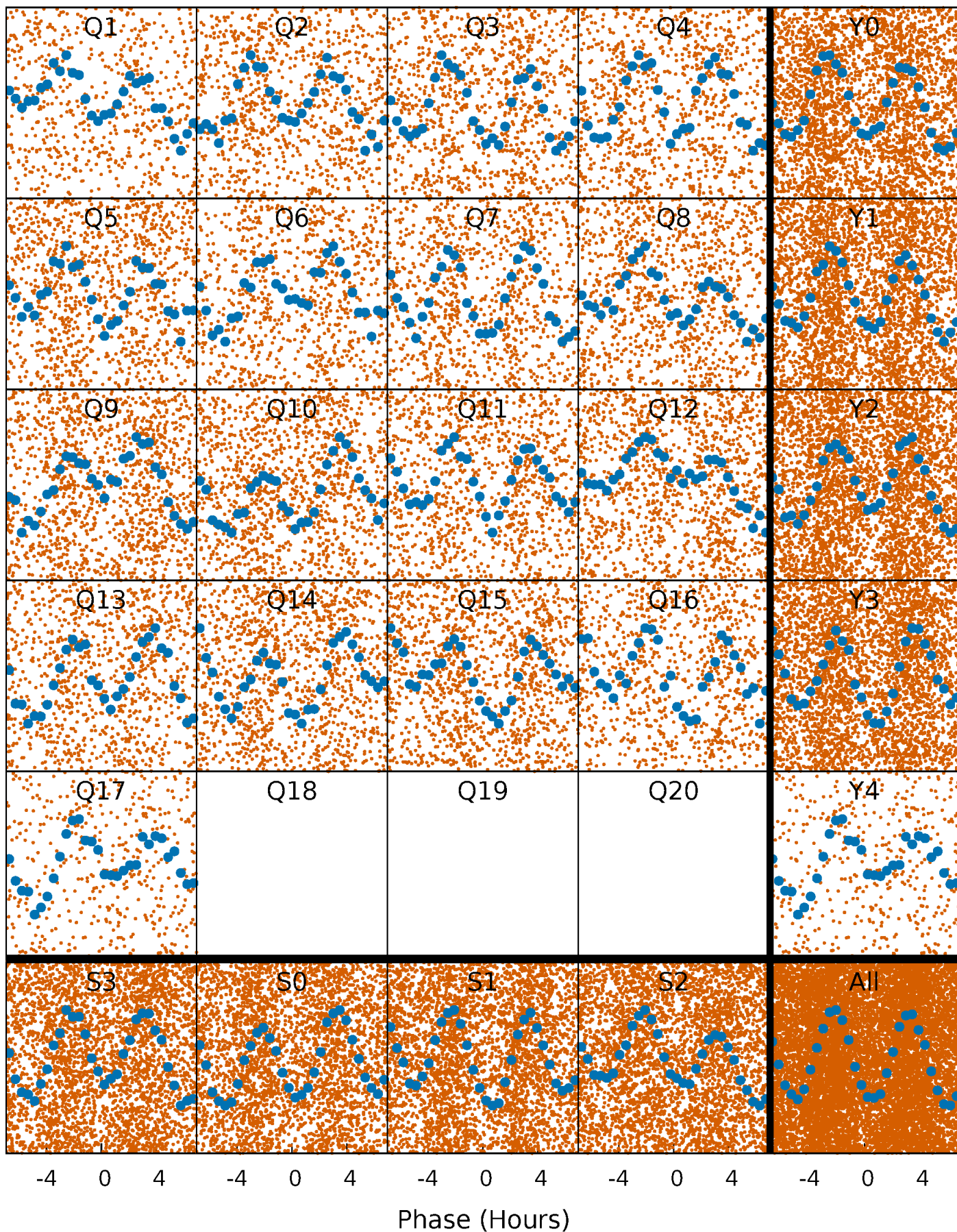


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



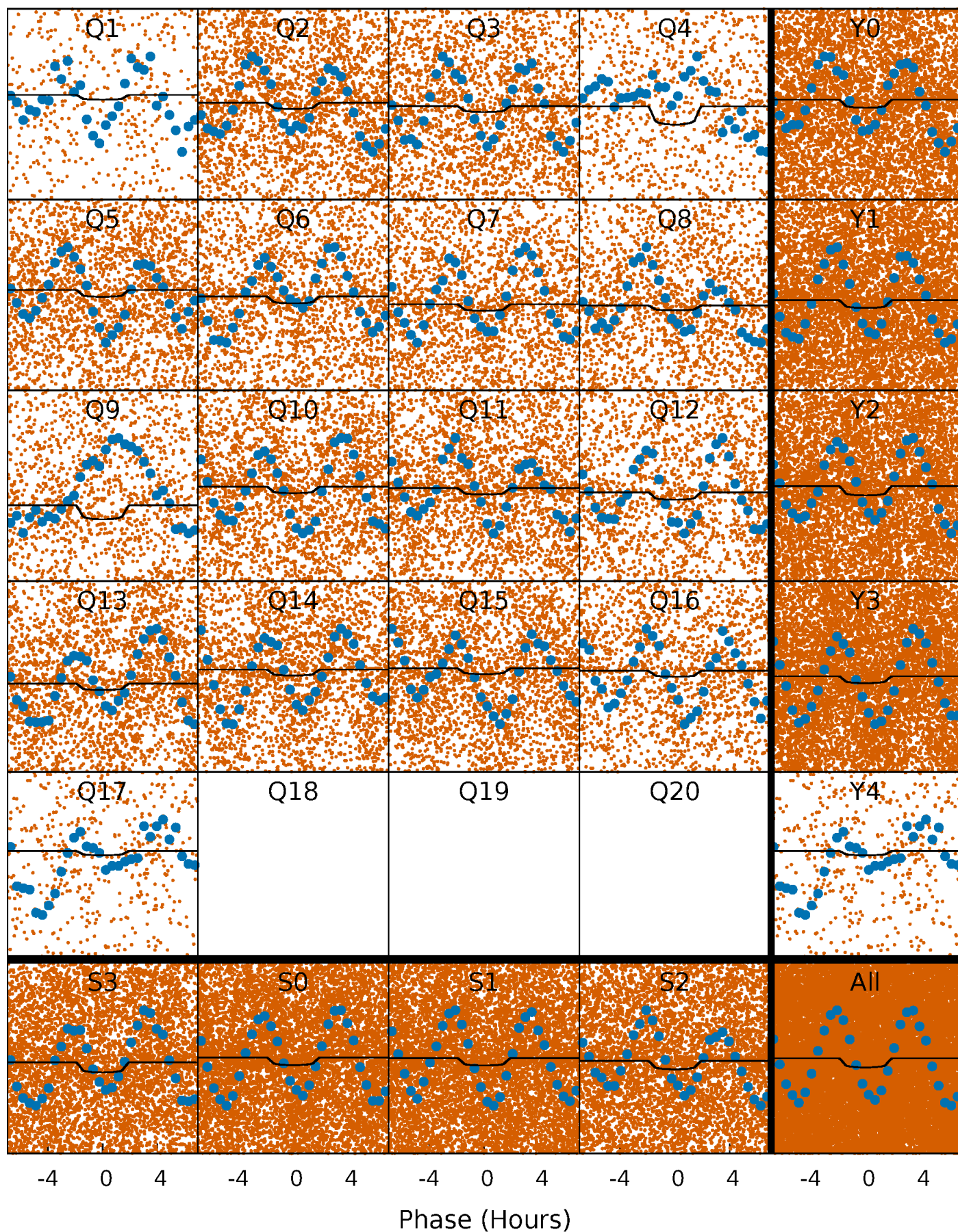
PDC Quarter-Phased Transit Curves

TCE 009490067-01 P= 0.693326 Days $T_0=131.551100$ (BKJD)



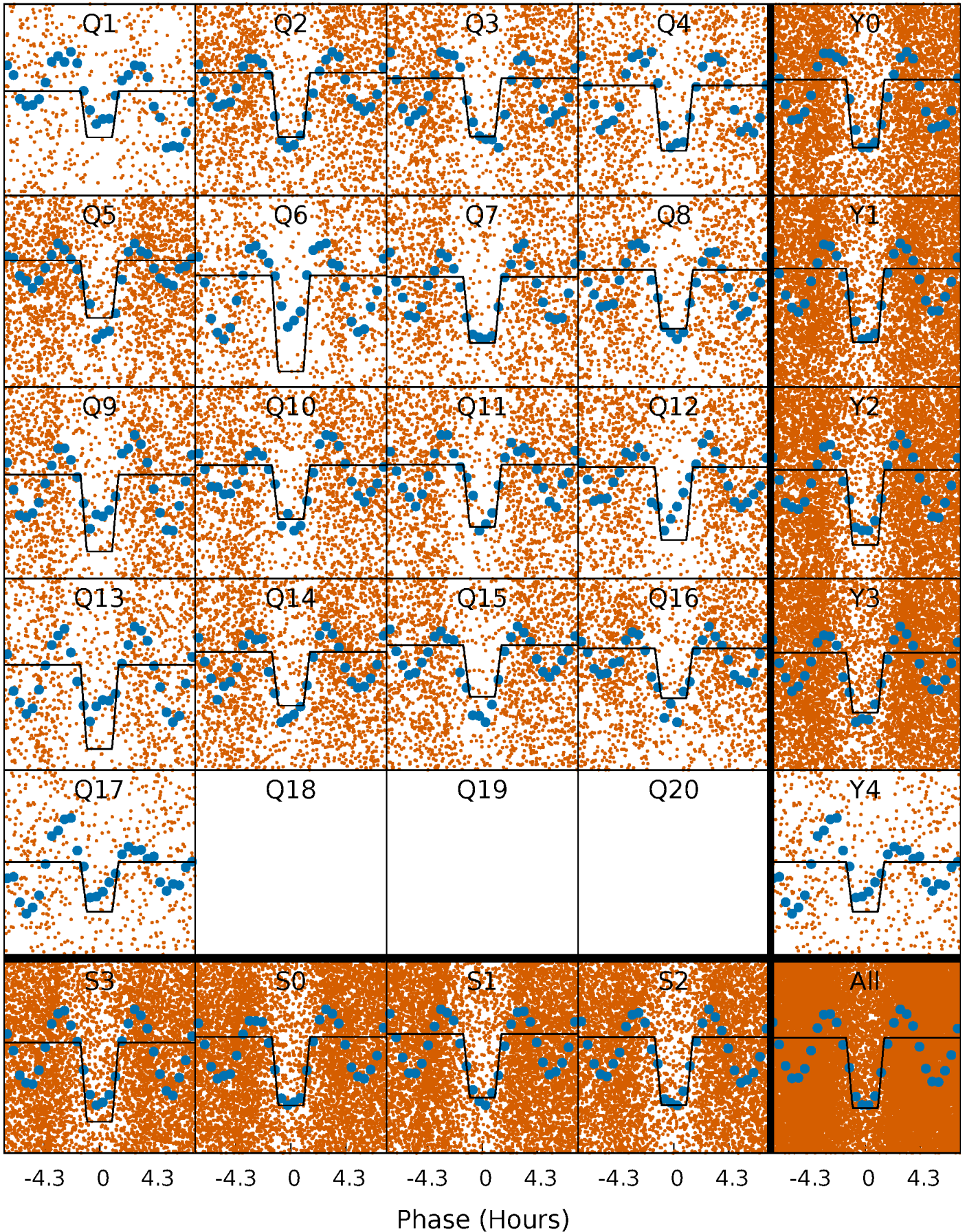
DV Quarter-Phased Transit Curves

TCE 009490067-01 P= 0.693326 Days $T_0=131.551100$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

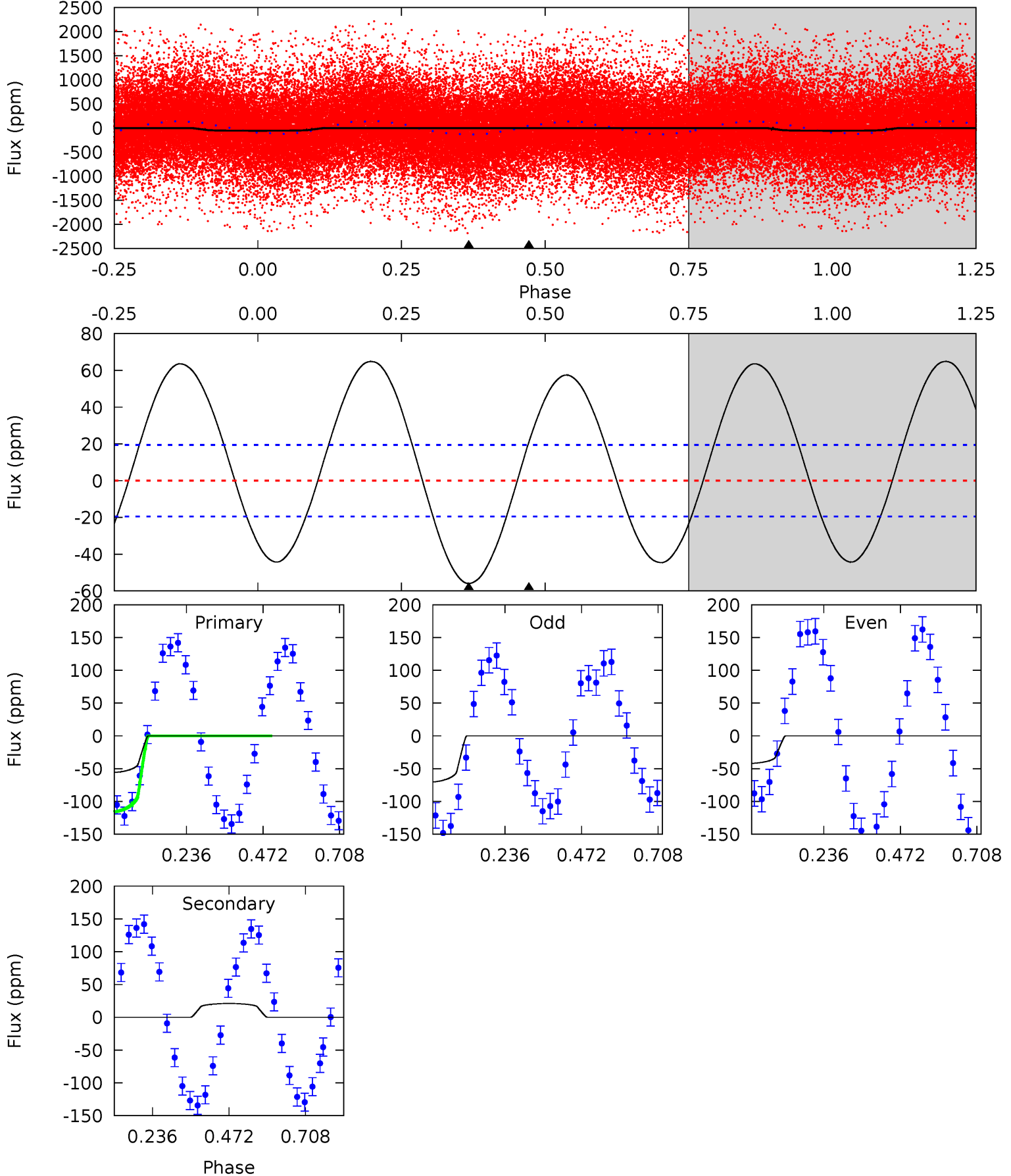
TCE 009490067-01 P= 0.693351 Days $T_0=131.546353$ (BKJD)



DV Model-Shift Uniqueness Test

009490067-01, P = 0.693326 Days, E = 130.857774 Days

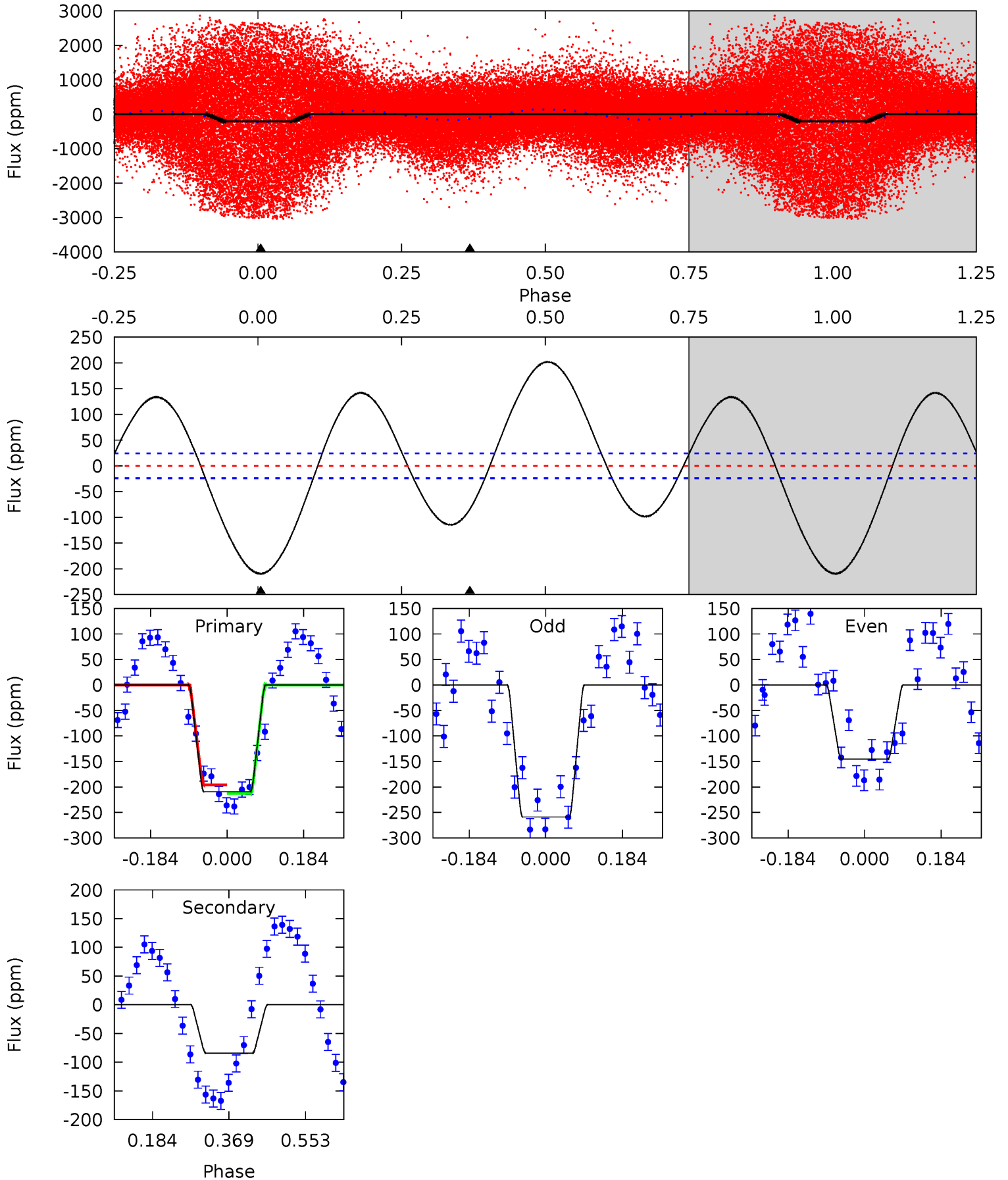
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	-4.73	0	0	4.38	1.19	8.28	12.6	12.6	-4.73	-4.73	3.25	1.28	0.54	12.7



Alt Model-Shift Uniqueness Test

009490067-01, P = 0.693351 Days, E = 130.853002 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.5	15.5	0	0	4.43	1.33	14.6	38.5	38.5	15.5	15.5	7.80	1.48	0.49	1.74



Stellar Parameters For KIC 009490067

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6926^{+478}_{-1115}	$2.852^{+0.315}_{-0.135}$	$0.070^{+0.250}_{-0.550}$	$11.591^{+1.683}_{-5.386}$	$3.479^{+0.069}_{-1.320}$	$0.003^{+0.008}_{-0.001}$
	+7%/-16%	+11%/-5%	+357%/-786%	+15%/-46%	+2%/-38%	+257%/-35%
Source	PHO1	FLK73	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 009490067-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	21 ± 4	$6.74^{+1.91}_{-2.10}$	9204^{+1090}_{-1459}	-8705^{+1549}_{-1254}	$-0.134^{+0.059}_{-0.135}$
Alt.	-84 ± 5	$19.75^{+3.02}_{-4.40}$	9224^{+1073}_{-1545}	-7081^{+1408}_{-1085}	$0.062^{+0.035}_{-0.014}$

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

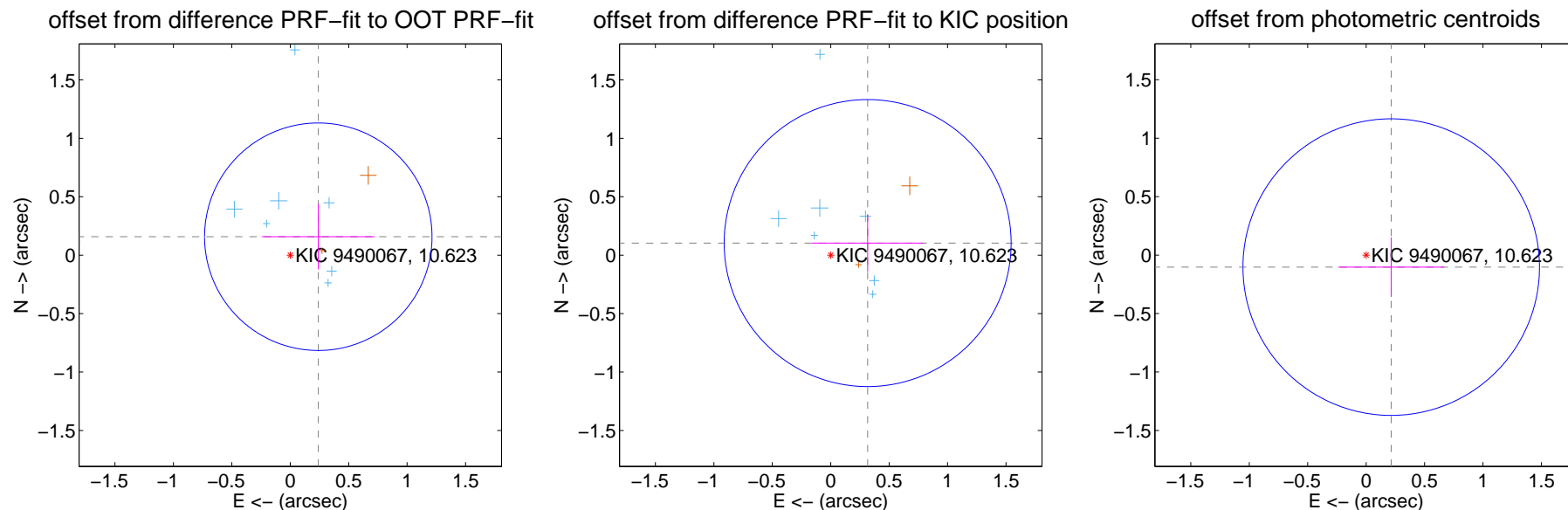
DV Centroid Data

Supplemental centroid analysis for 009490067-01. **Kepler magnitude: 10.62.** Transit SNR 6.33

There are 9 quarters with good PRF difference image offsets

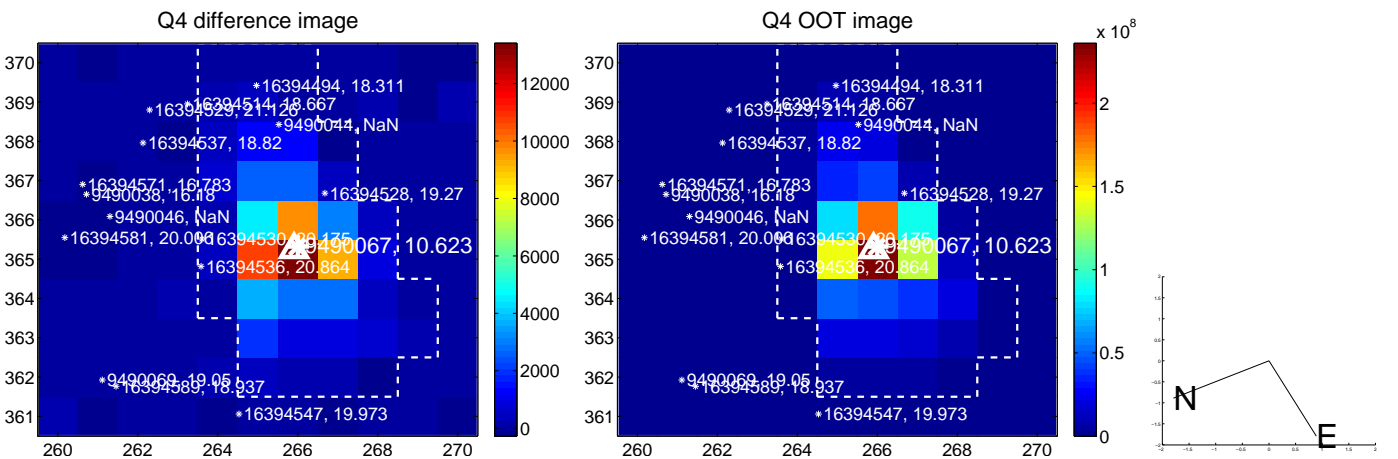
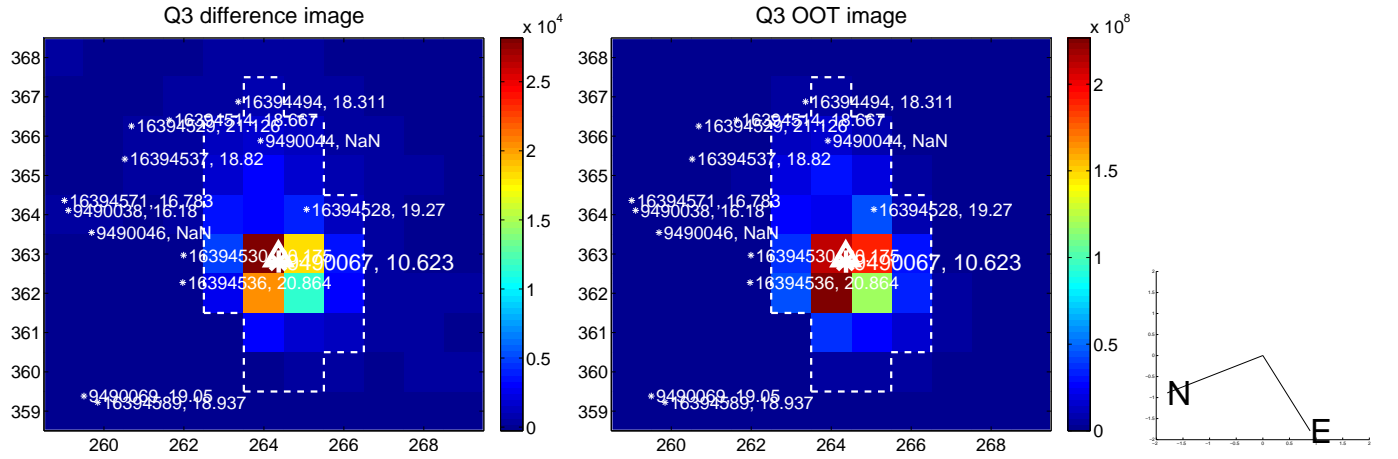
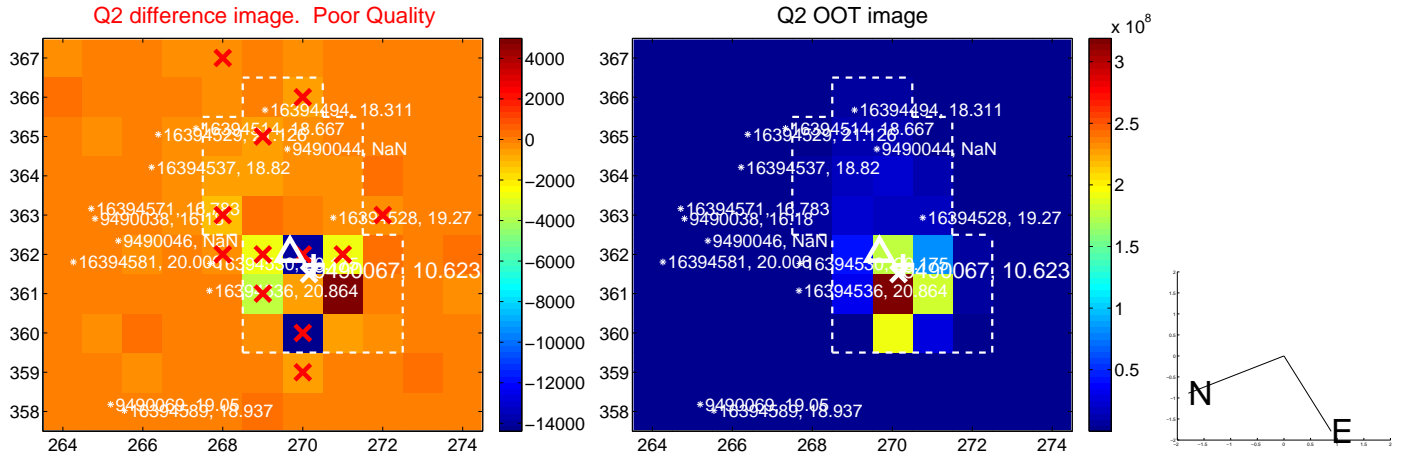
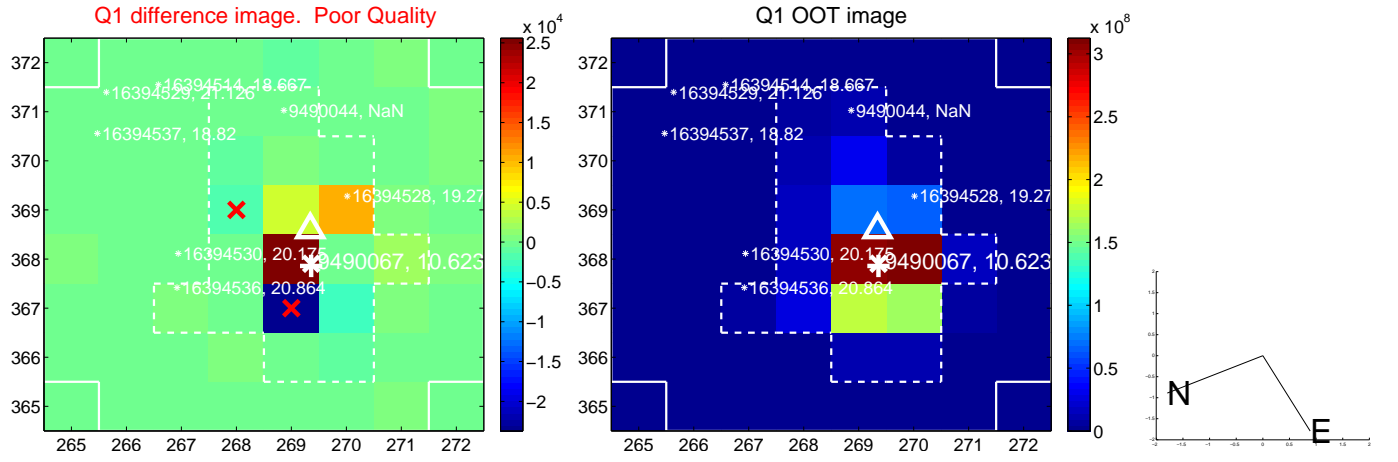
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.287 ± 0.324	0.88	-0.240 ± 0.483	0.158 ± 0.280
PRF-fit source offset from KIC position	0.332 ± 0.409	0.81	-0.316 ± 0.478	0.103 ± 0.244
photometric centroid source offset	0.24 ± 0.42	0.56	-0.21 ± 0.45	-0.10 ± 0.25

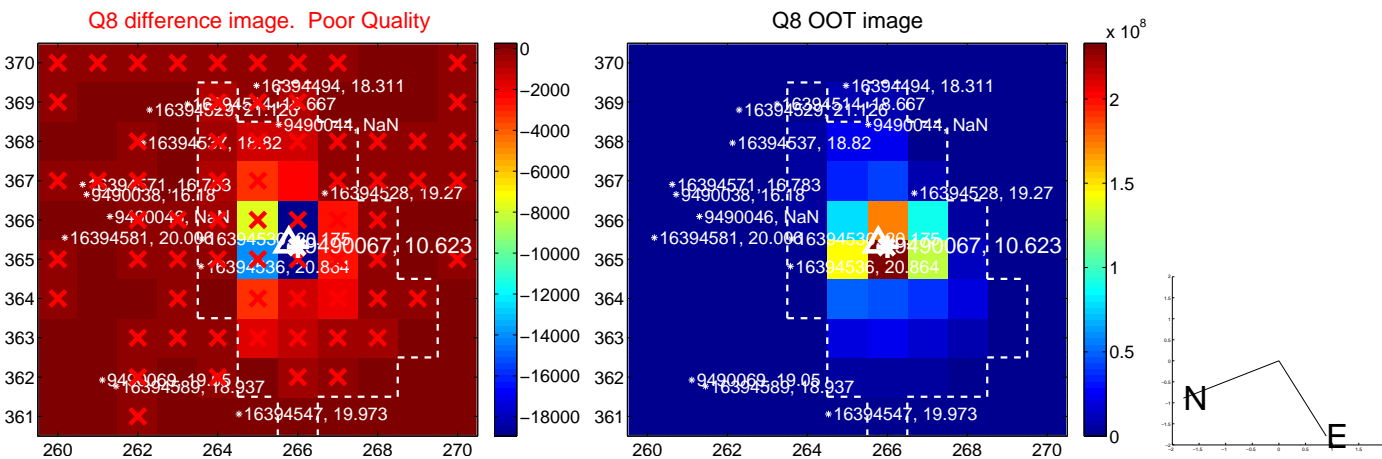
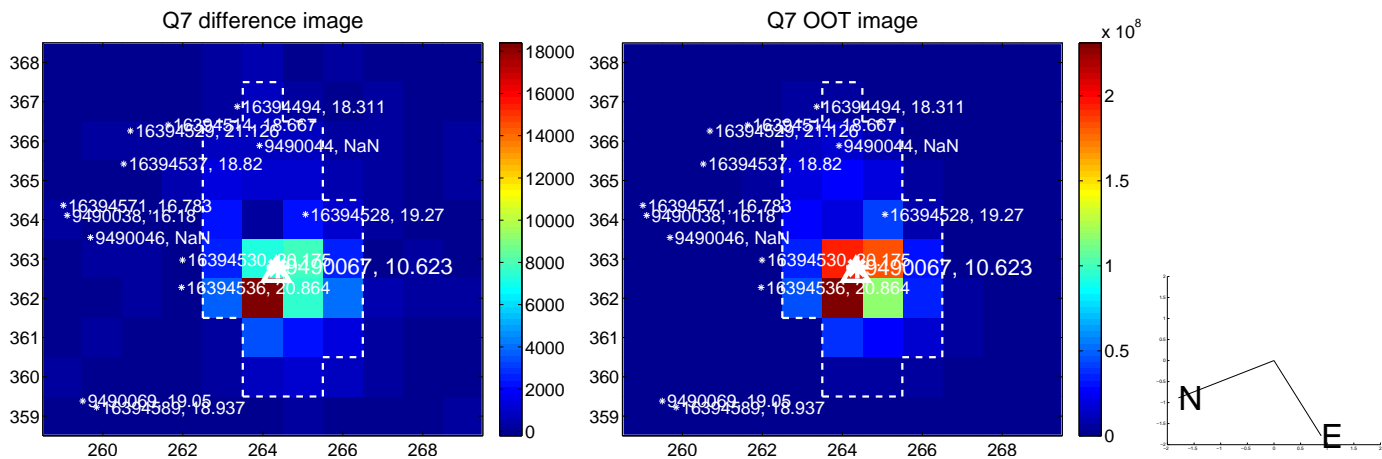
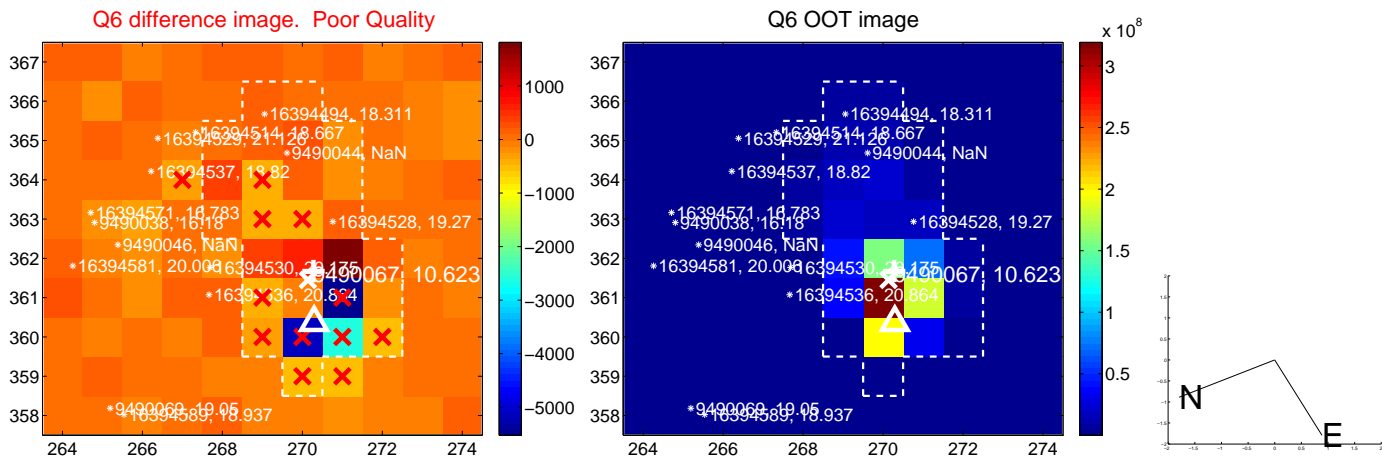
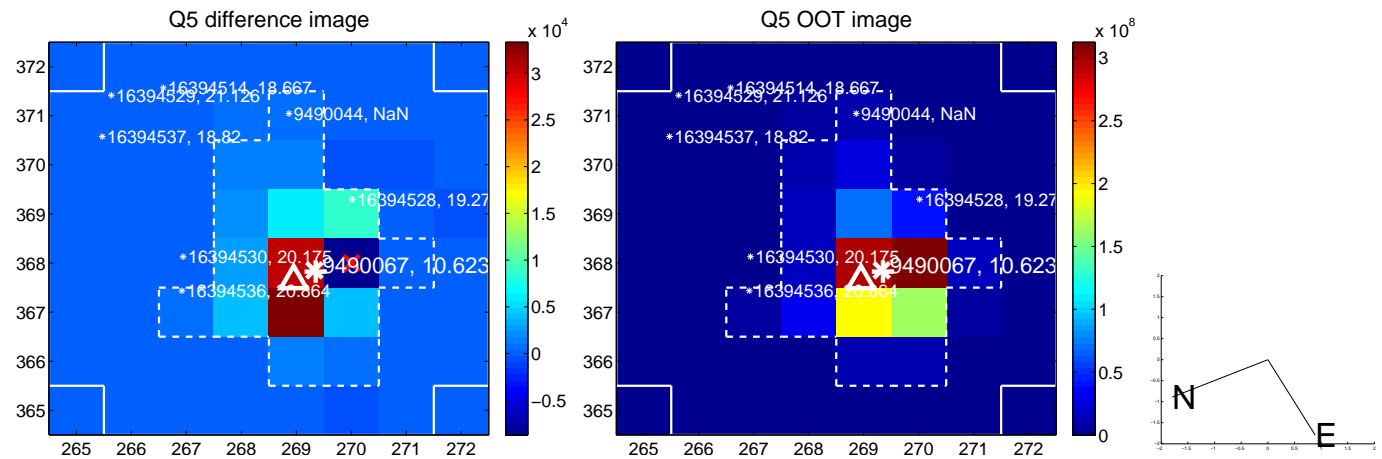


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

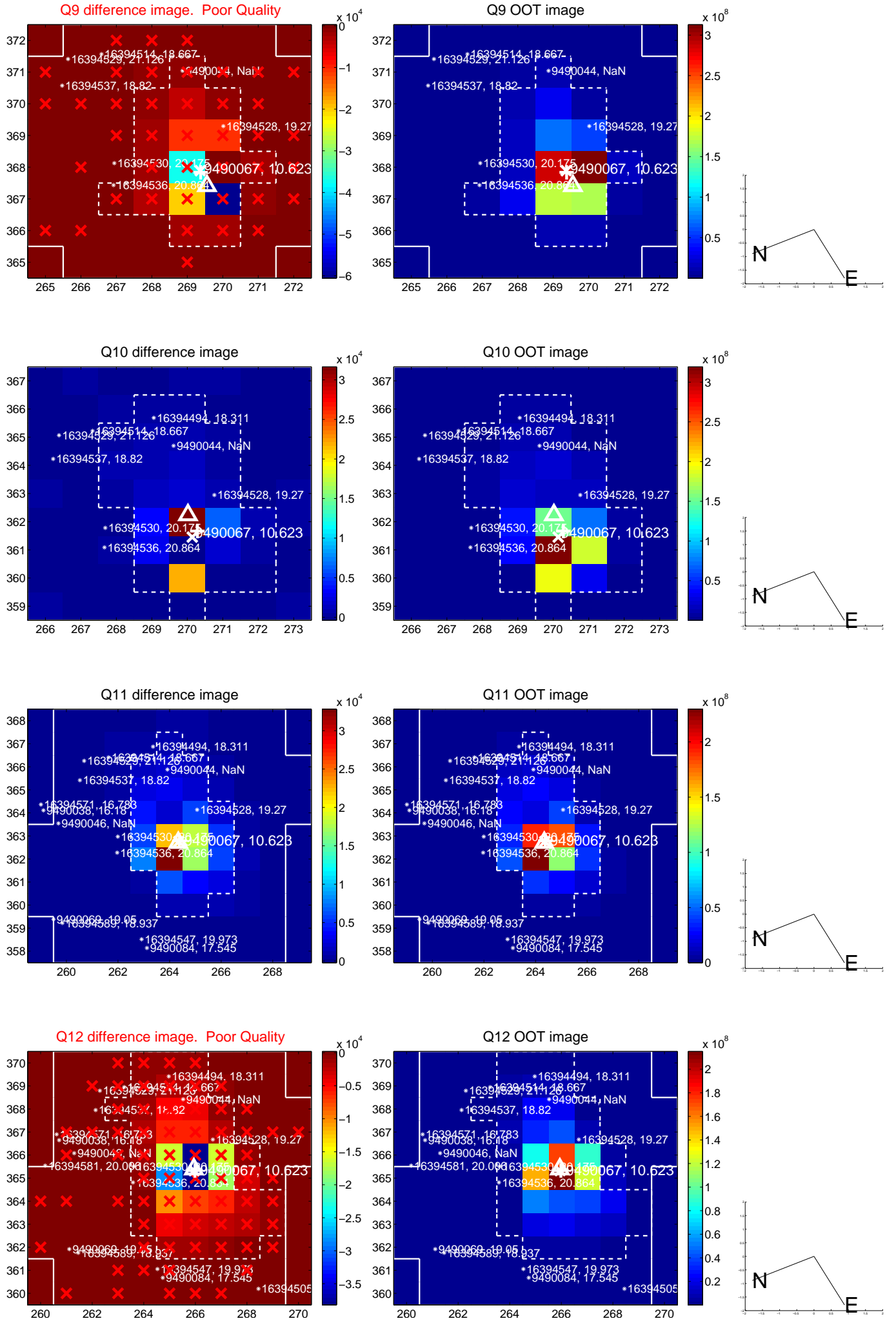
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



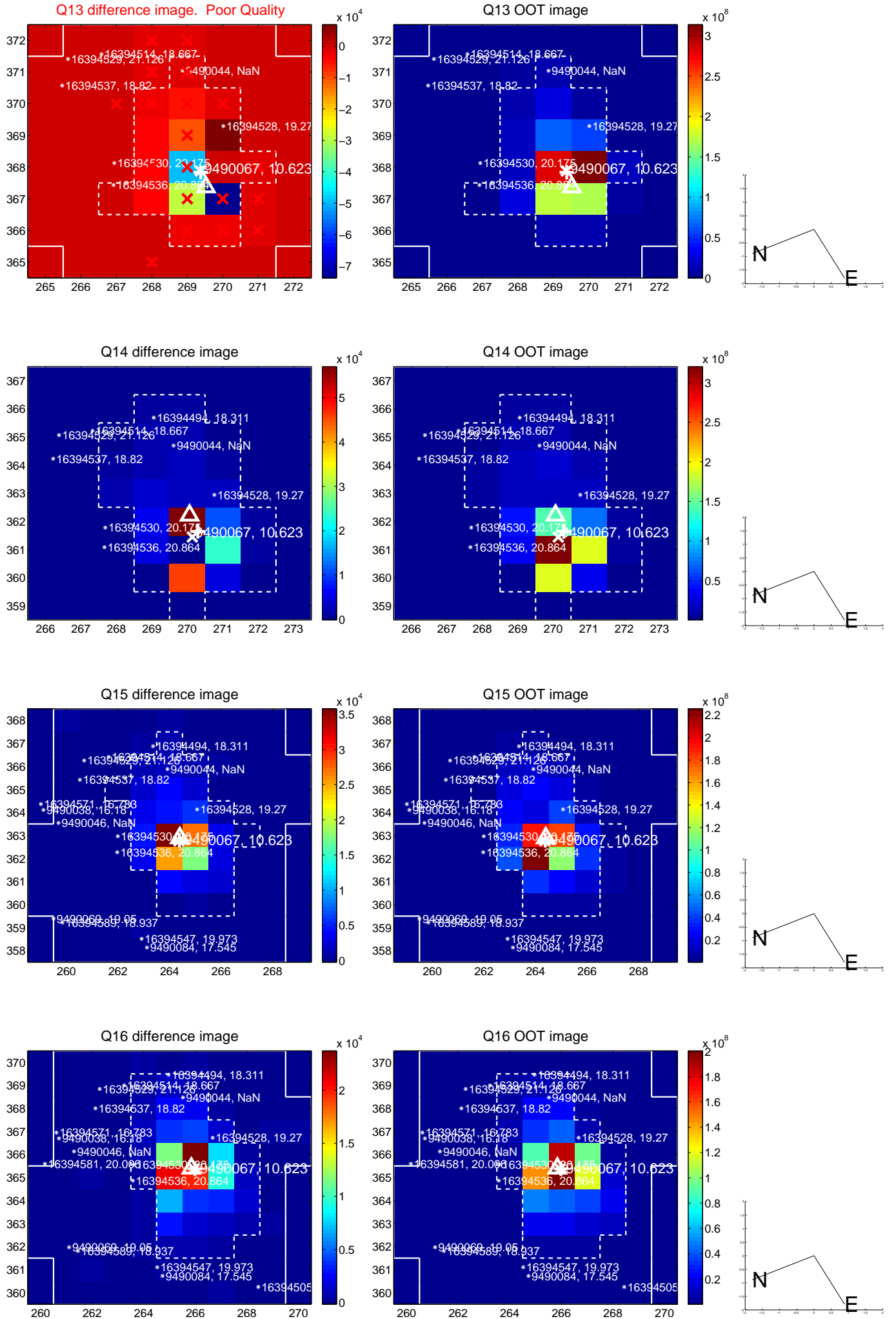
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



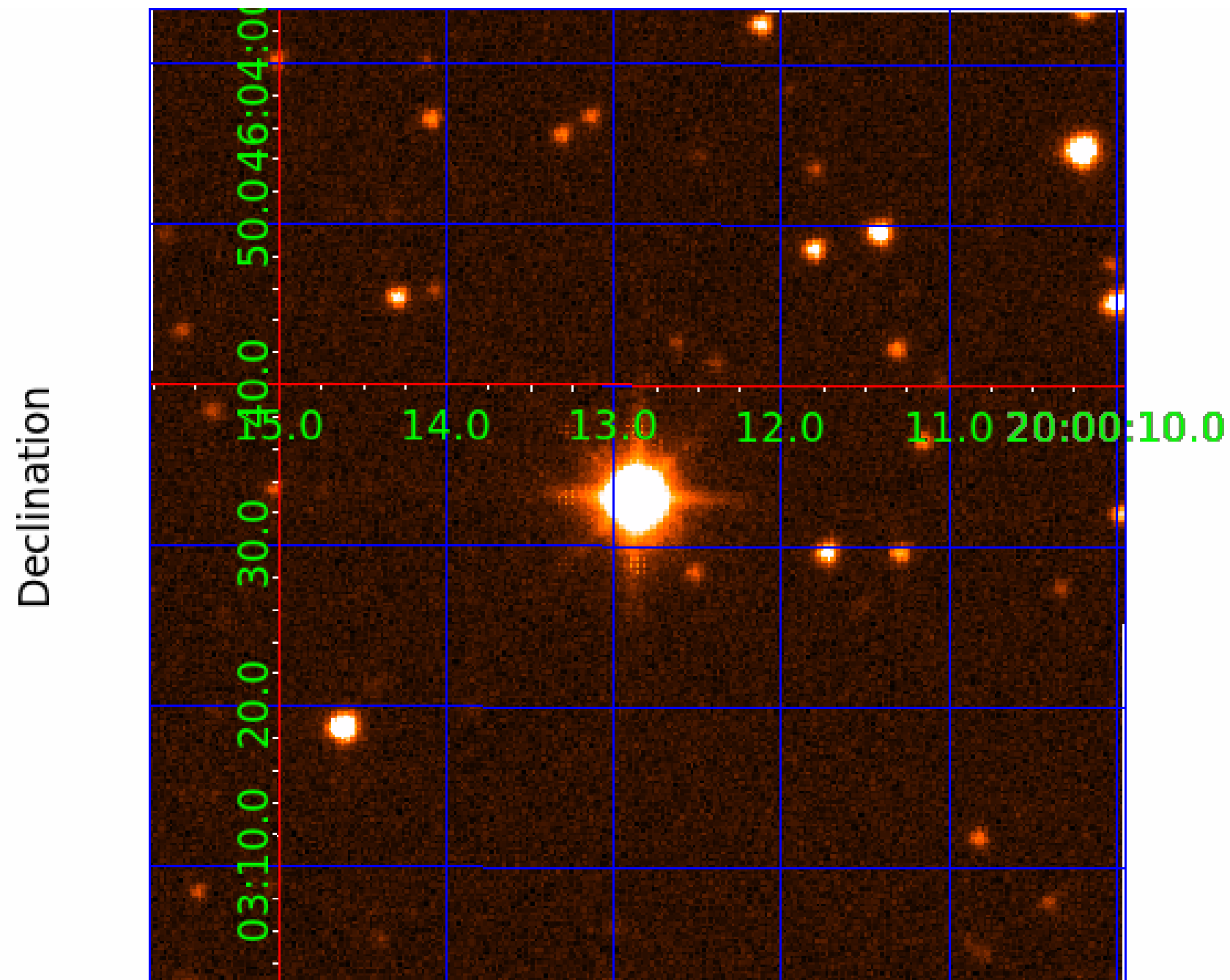
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009490067

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})
009490067-01	OBS	No	0.693326	131.551100	27.3	3.479	9.0	6.3	11.59	6926	7.06	0.00
009490067-02	OBS	No	0.693320	131.790480	104.4	3.674	13.1	14.6	11.59	6926	13.82	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009490067-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009490067-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED—HALO_GHOST

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

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

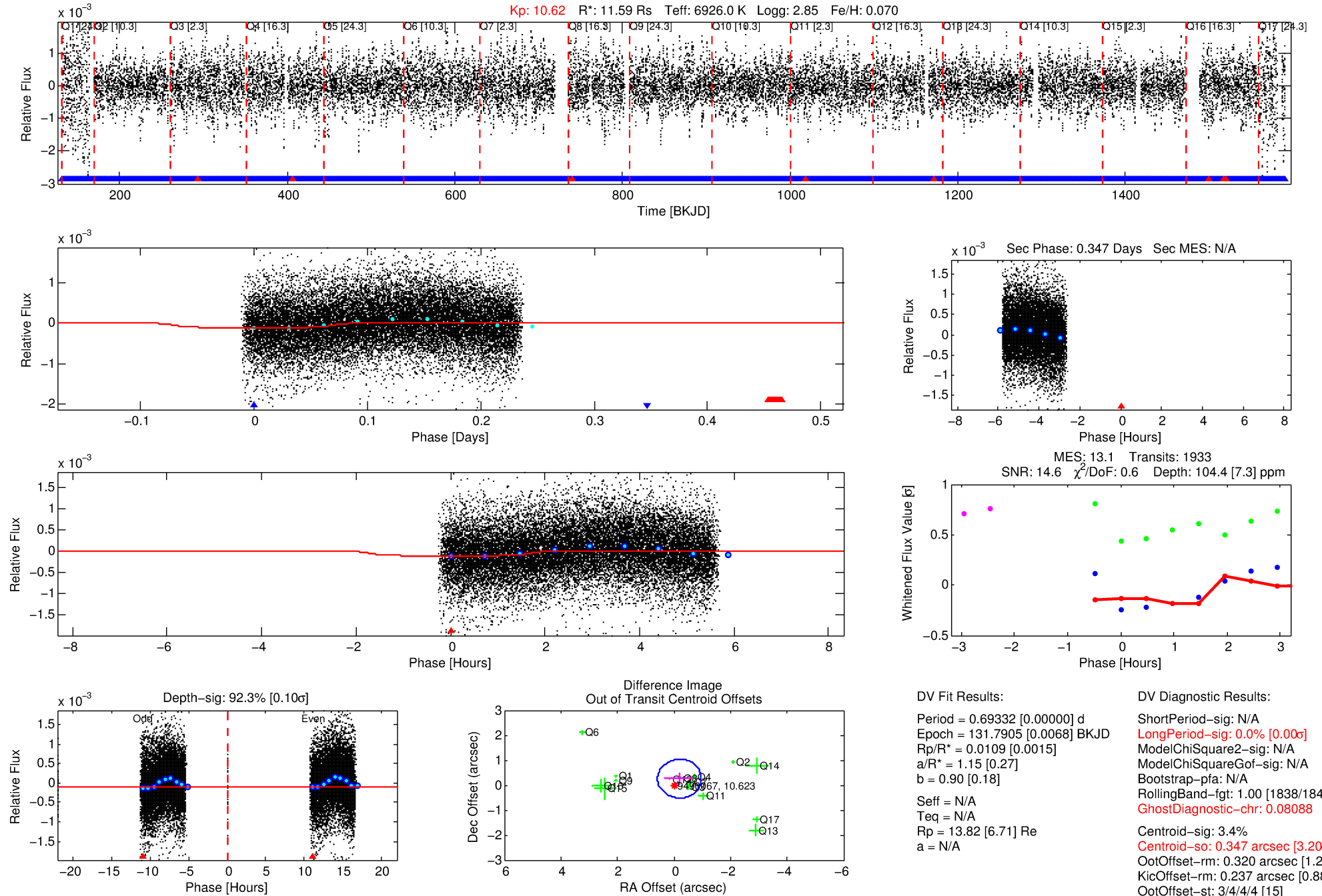
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009490067-02

No Significant Match Found

DV One-Page Summary

KIC: 9490067 Candidate: 2 of 2 Period: 0.693 d



DV Fit Results:

Period = 0.69332 [0.00000] d
Epoch = 131.7905 [0.0068] BKJD
Rp/R* = 0.0109 [0.0015]
a/R* = 1.15 [0.27]
b = 0.90 [0.18]
Seff = N/A
Teq = N/A
Rp = 13.82 [6.71] Re
a = N/A

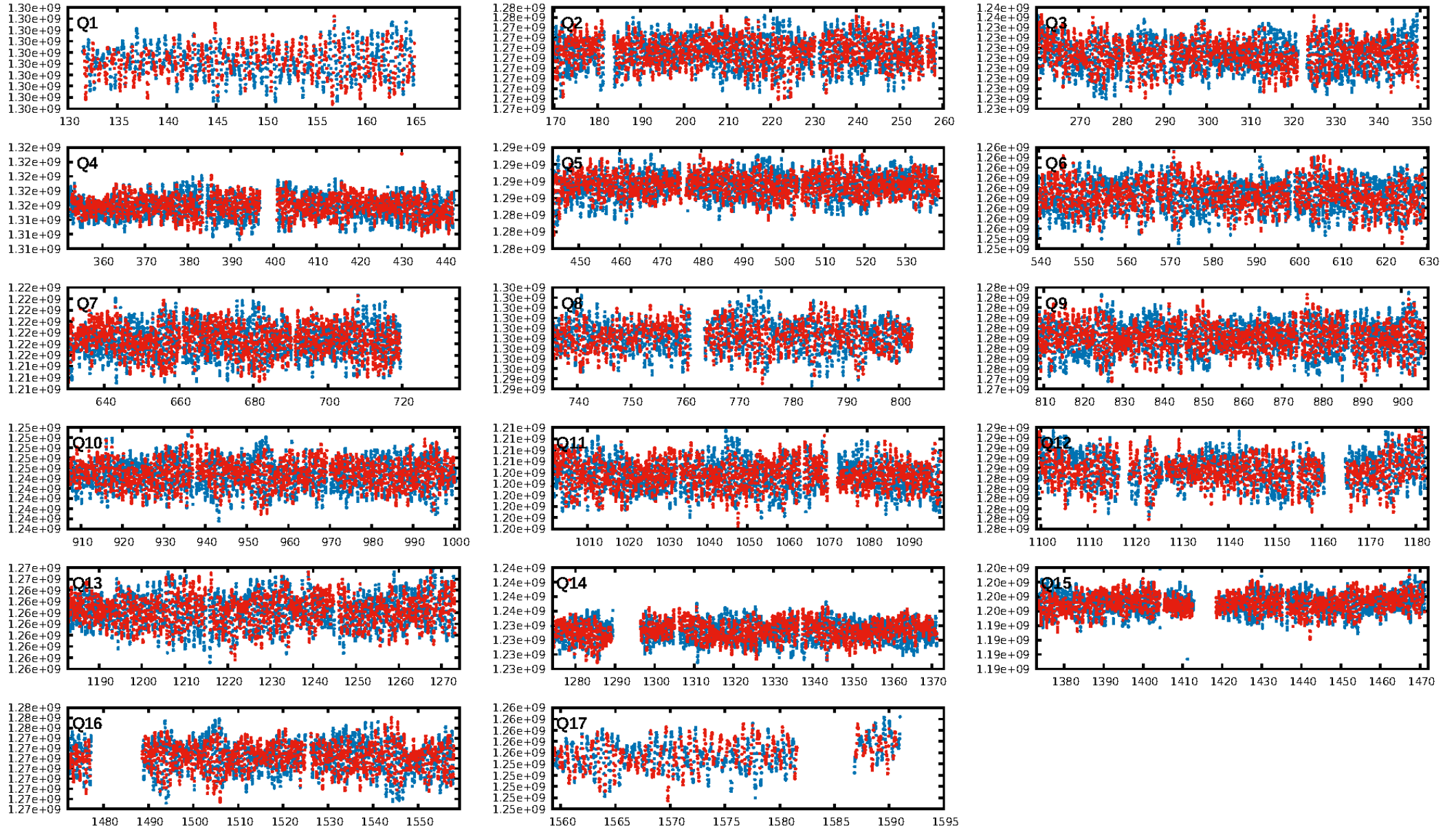
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1838/1846]
GhostDiagnostic-chr: 0.08088
Centroid-sig: 3.4%
Centroid-so: 0.347 arcsec [3.20σ]
OotOffset-rm: 0.320 arcsec [1.24σ]
KicOffset-rm: 0.237 arcsec [0.88σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.67 [10/15]
DiffImageOverlap-fno: 0.00 [0/17]

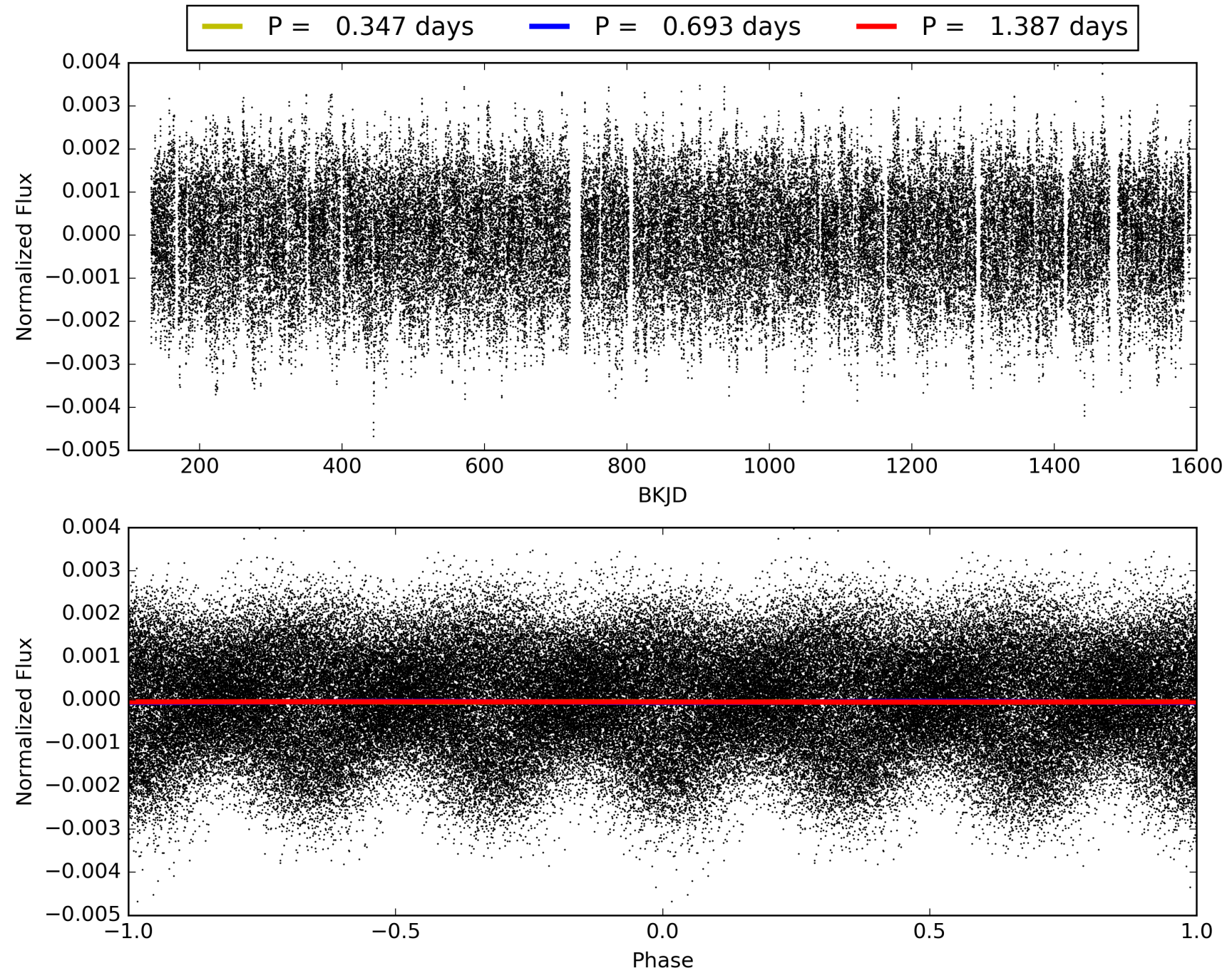
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 07:23:34 Z

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

TCE 009490067-02, PDC Light Curves

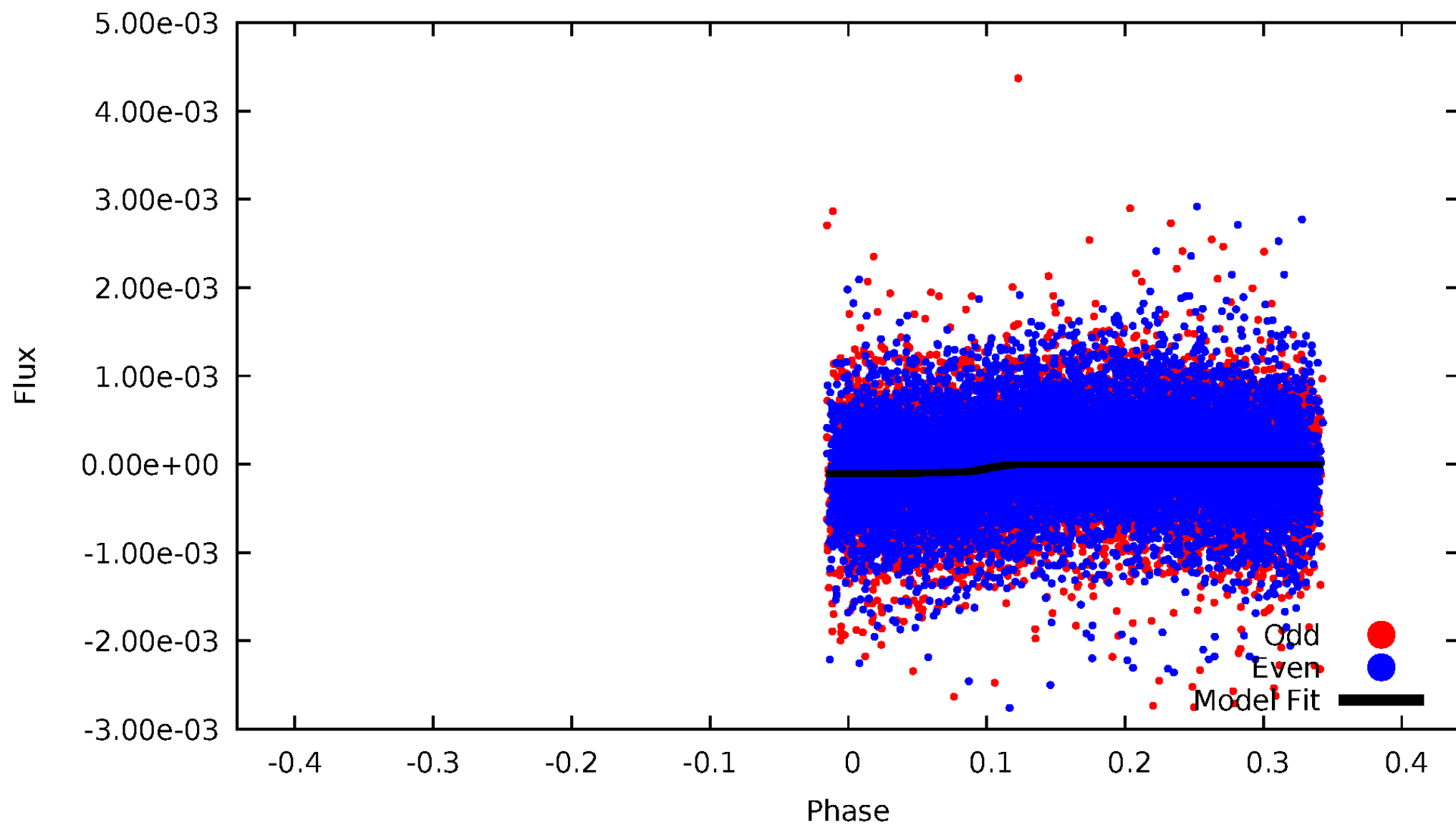


TCE 009490067-02



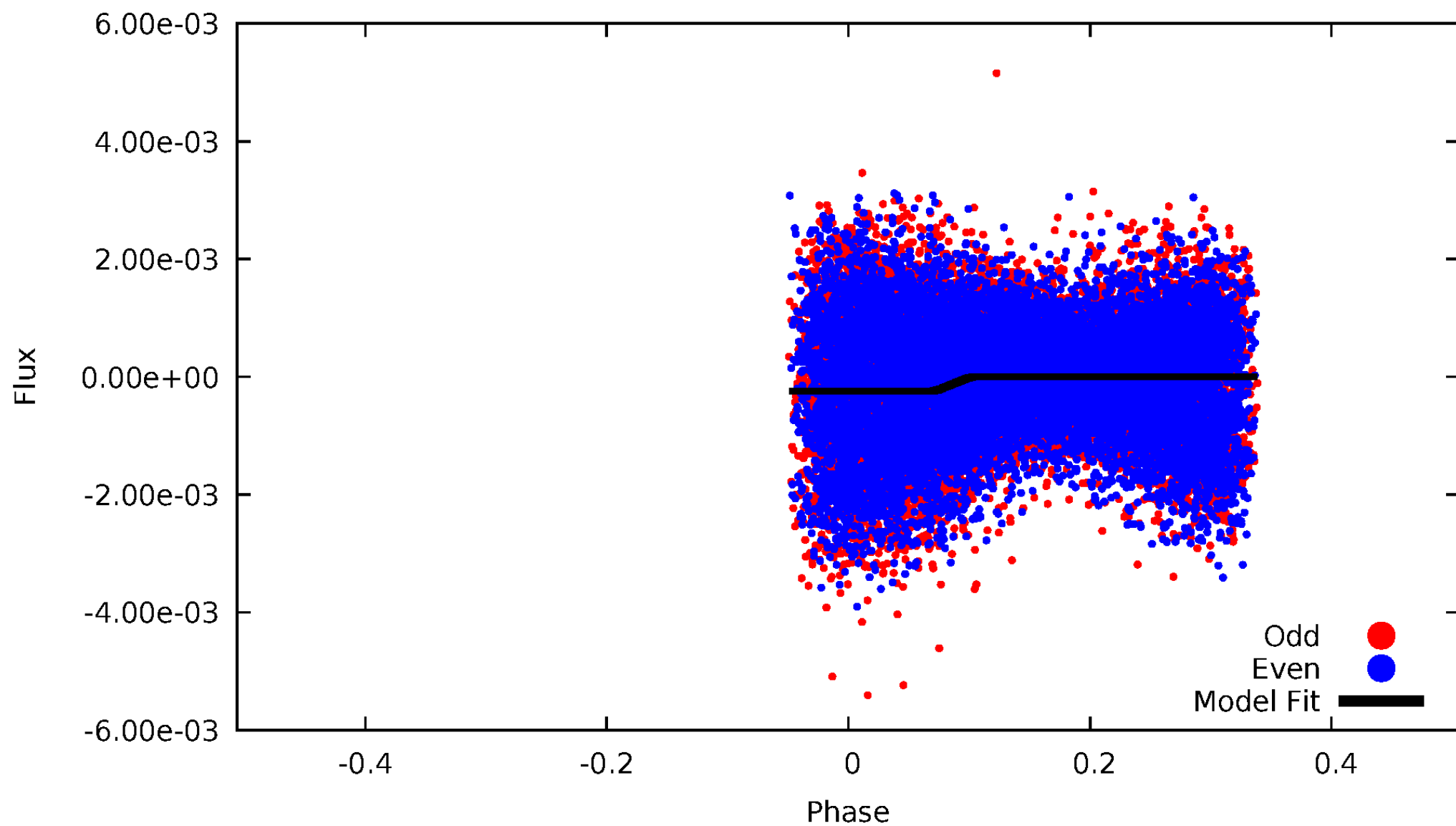
DV Odd/Even

TCE 009490067-02



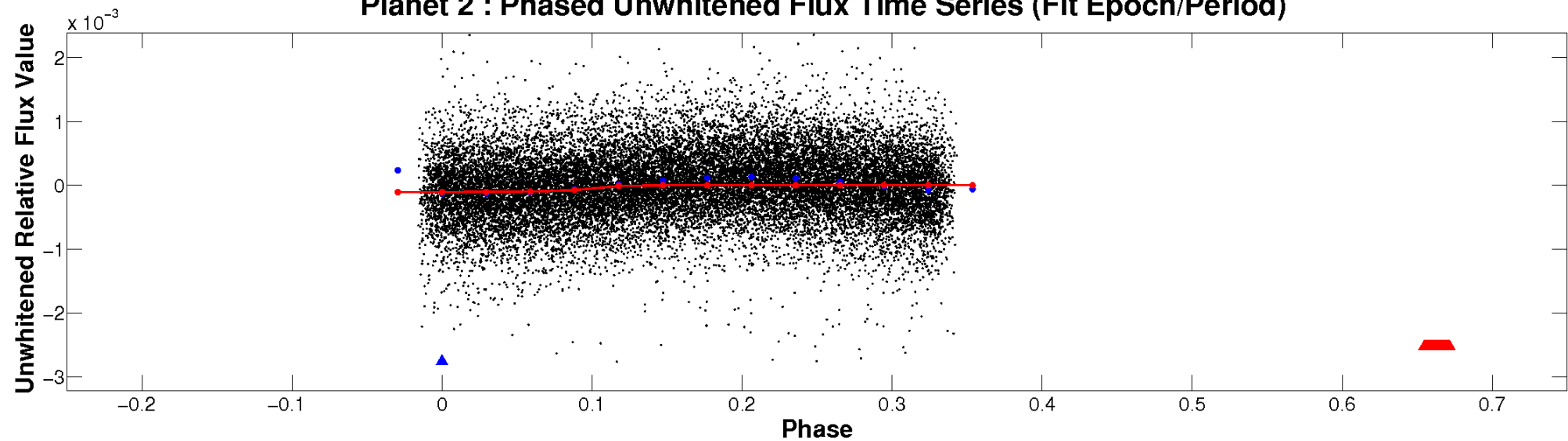
ALT Odd/Even

TCE 009490067-02

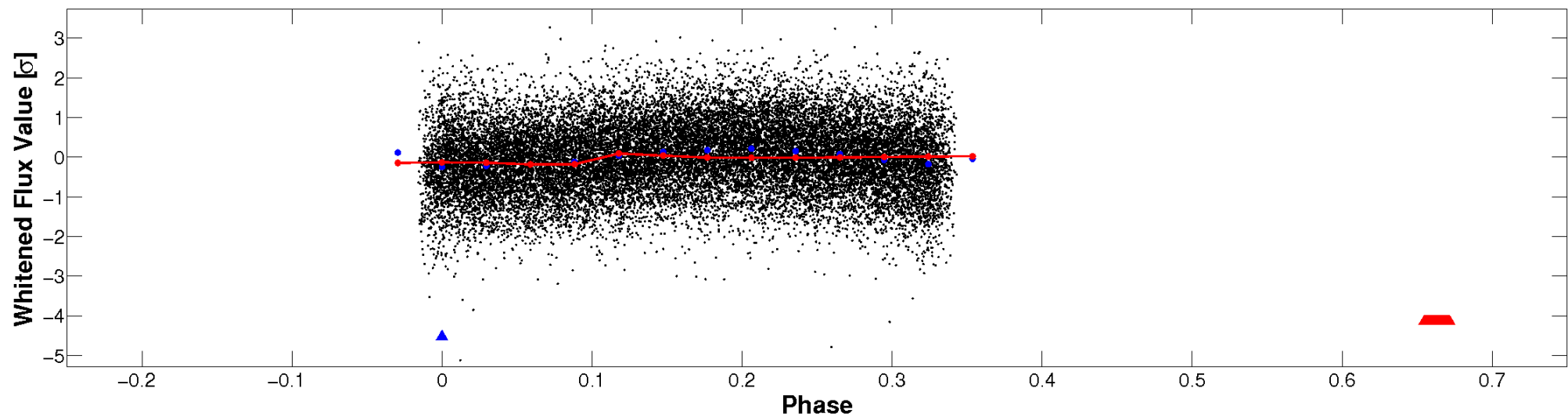


Non-Whitened Vs. Whitened Light Curve

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

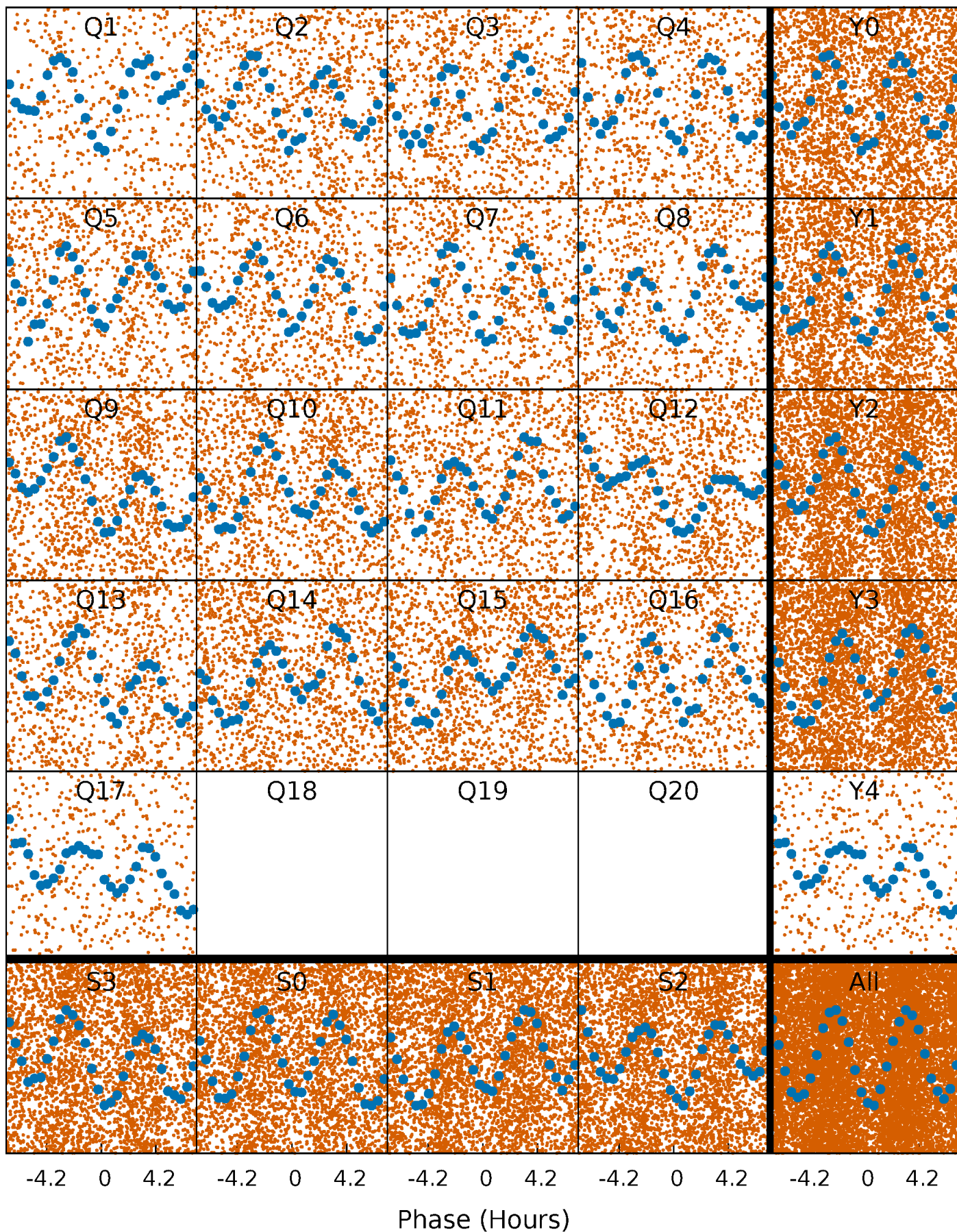


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



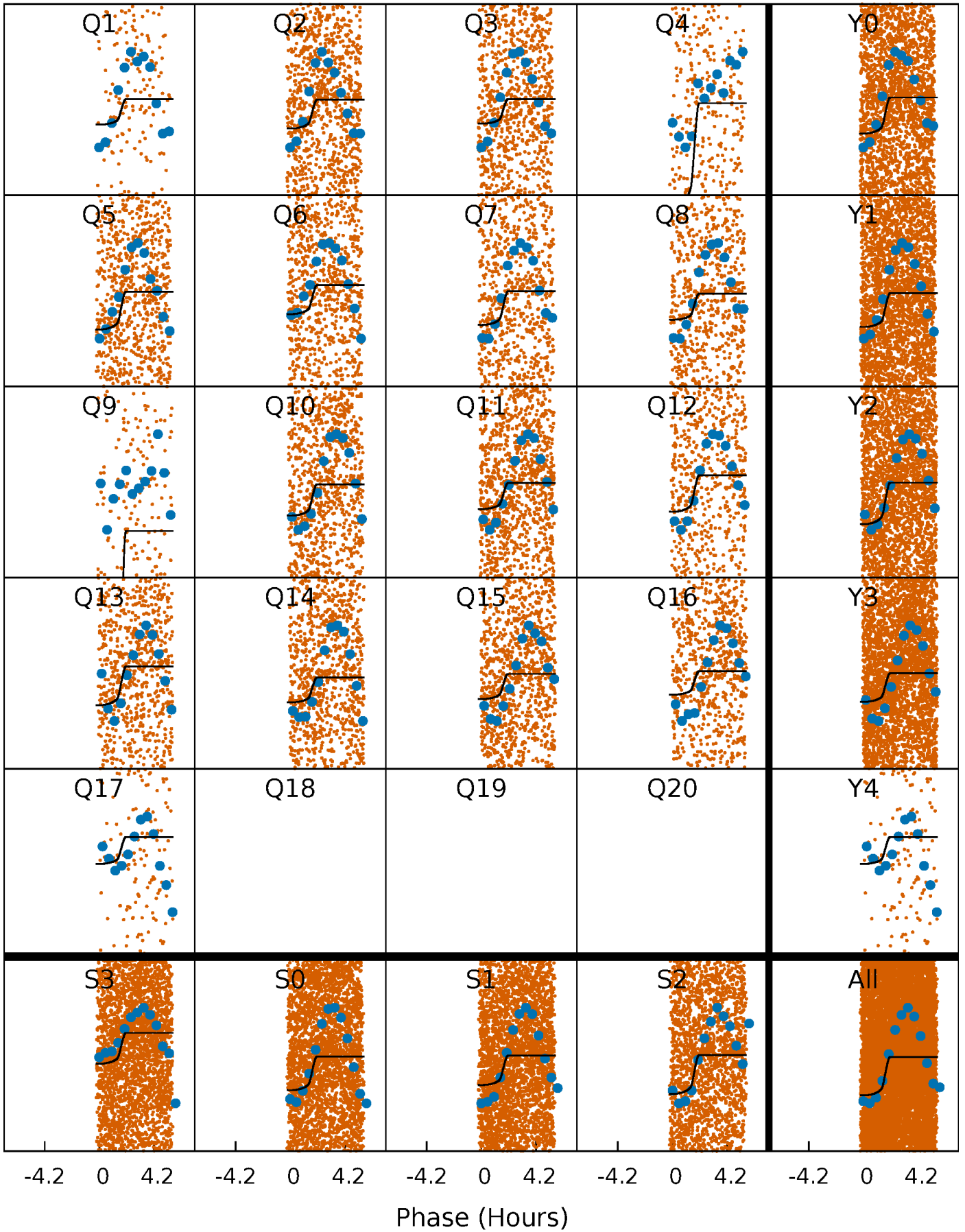
PDC Quarter-Phased Transit Curves

TCE 009490067-02 P= 0.693320 Days $T_0=131.790480$ (BKJD)



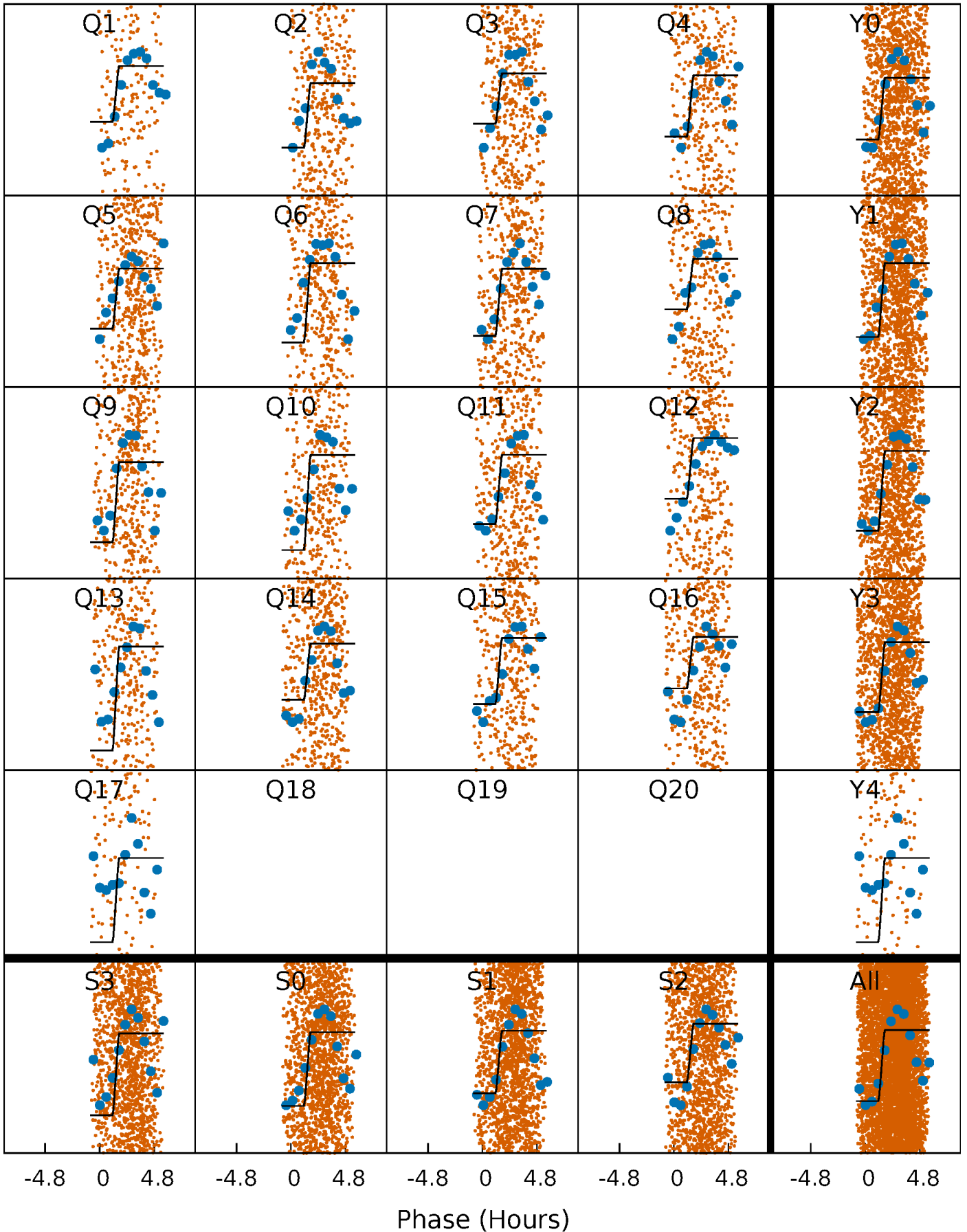
DV Quarter-Phased Transit Curves

TCE 009490067-02 P= 0.693320 Days $T_0=131.790480$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

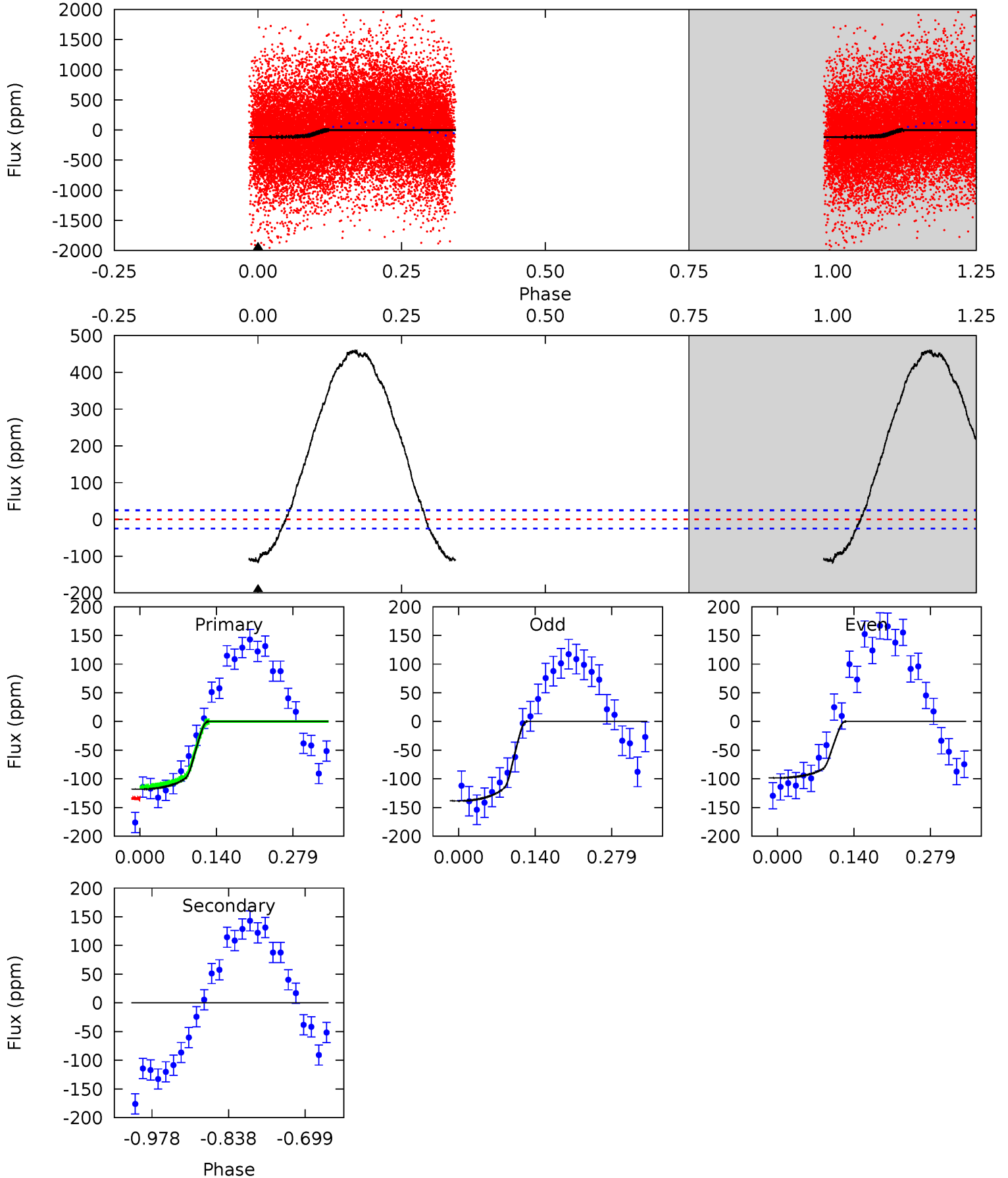
TCE 009490067-02 P= 0.693341 Days $T_0=131.781469$ (BKJD)



DV Model-Shift Uniqueness Test

009490067-02, P = 0.693320 Days, E = 131.790480 Days

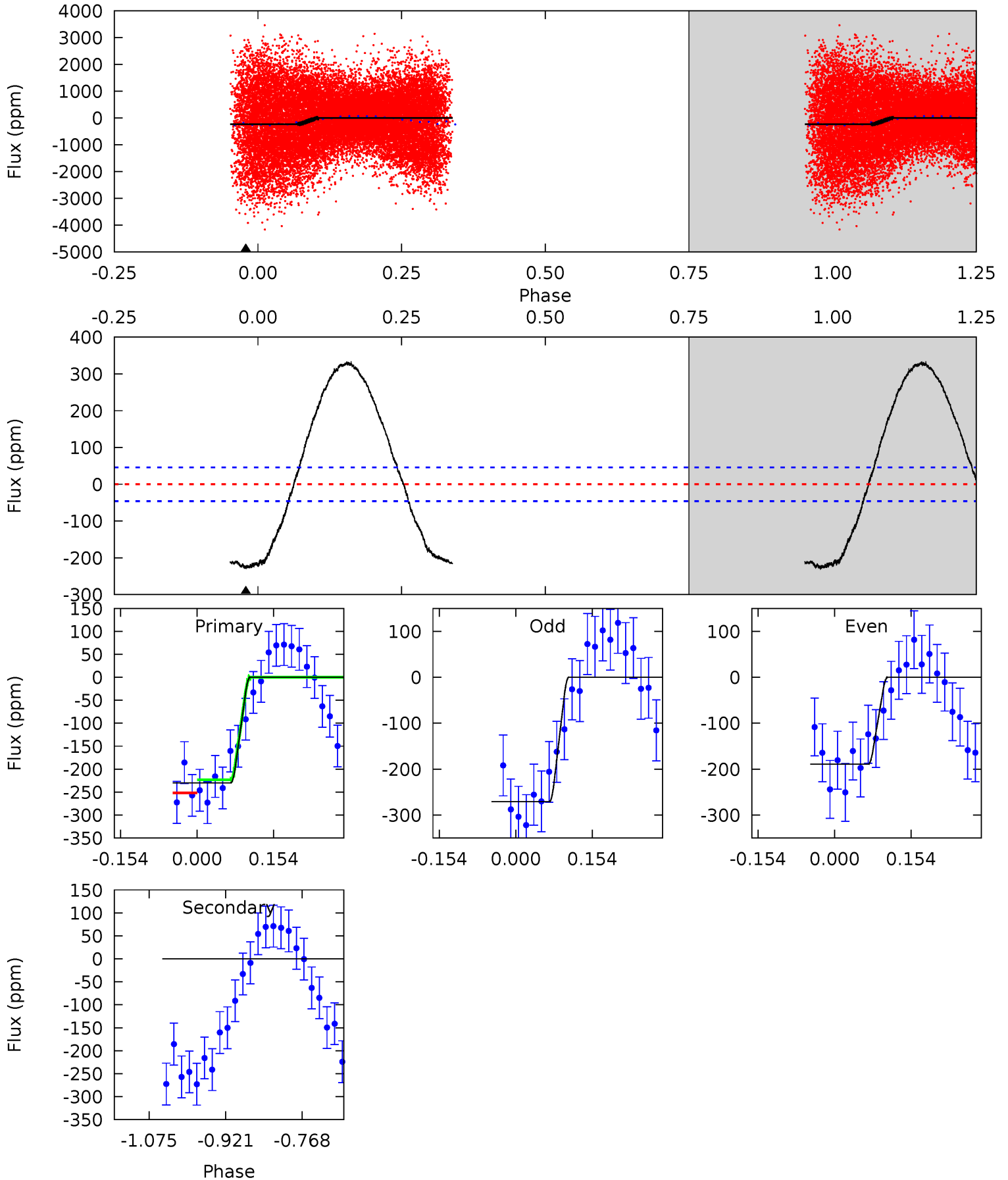
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.4	0	0	0	4.49	1.48	18.3	21.4	21.4	0	0	3.65	1.03	0.80	0.83



Alt Model-Shift Uniqueness Test

009490067-02, P = 0.693341 Days, E = 131.781469 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.4	0	0	0	4.47	1.43	14.8	22.4	22.4	0	0	3.91	1.18	0.59	0.85



Stellar Parameters For KIC 009490067

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6926^{+478}_{-1115}	$2.852^{+0.315}_{-0.135}$	$0.070^{+0.250}_{-0.550}$	$11.591^{+1.683}_{-5.386}$	$3.479^{+0.069}_{-1.320}$	$0.003^{+0.008}_{-0.001}$
	+7%/-16%	+11%/-5%	+357%/-786%	+15%/-46%	+2%/-38%	+257%/-35%
Source	PHO1	FLK73	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 009490067-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 6	$13.00^{+2.93}_{-3.18}$	9210^{+1119}_{-1601}	-7644^{+1449}_{-1122}	$-0.000^{+0.010}_{-0.010}$
Alt.	0 ± 10	$19.06^{+3.17}_{-4.18}$	9141^{+1131}_{-1501}	-7580^{+1331}_{-1129}	$-0.000^{+0.009}_{-0.008}$

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 $A_{obs} \gg 1.0$

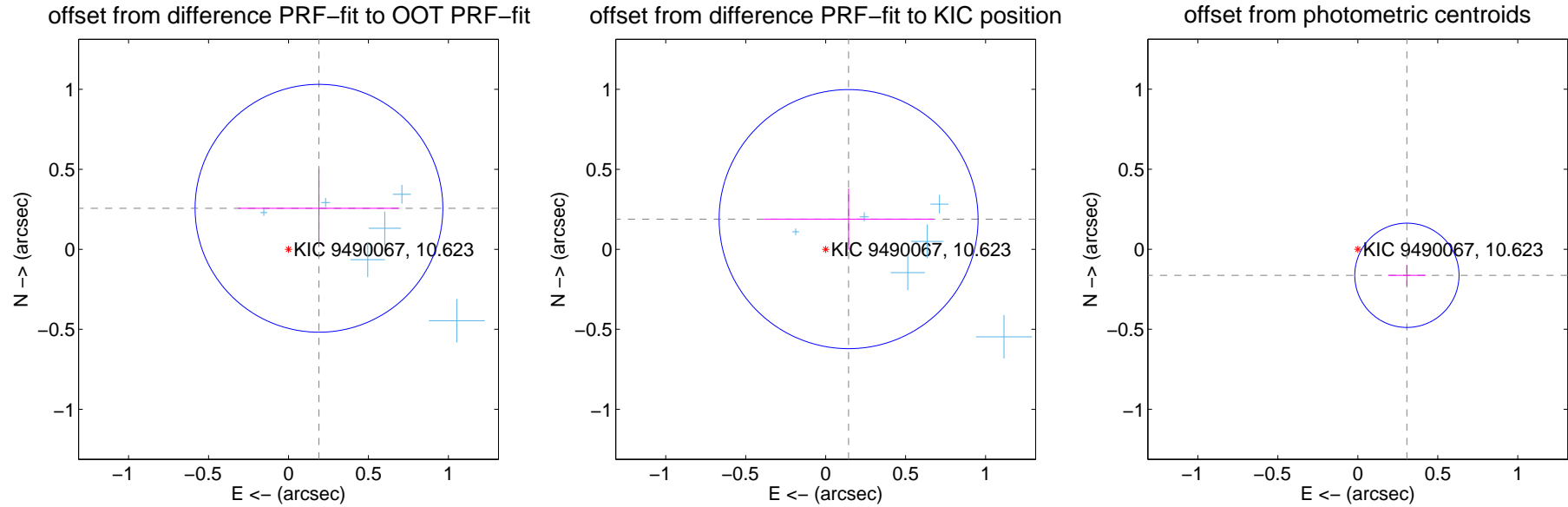
DV Centroid Data

Supplemental centroid analysis for 009490067-02. **Kepler magnitude: 10.62.** Transit SNR 14.60

There are 10 quarters with good PRF difference image offsets

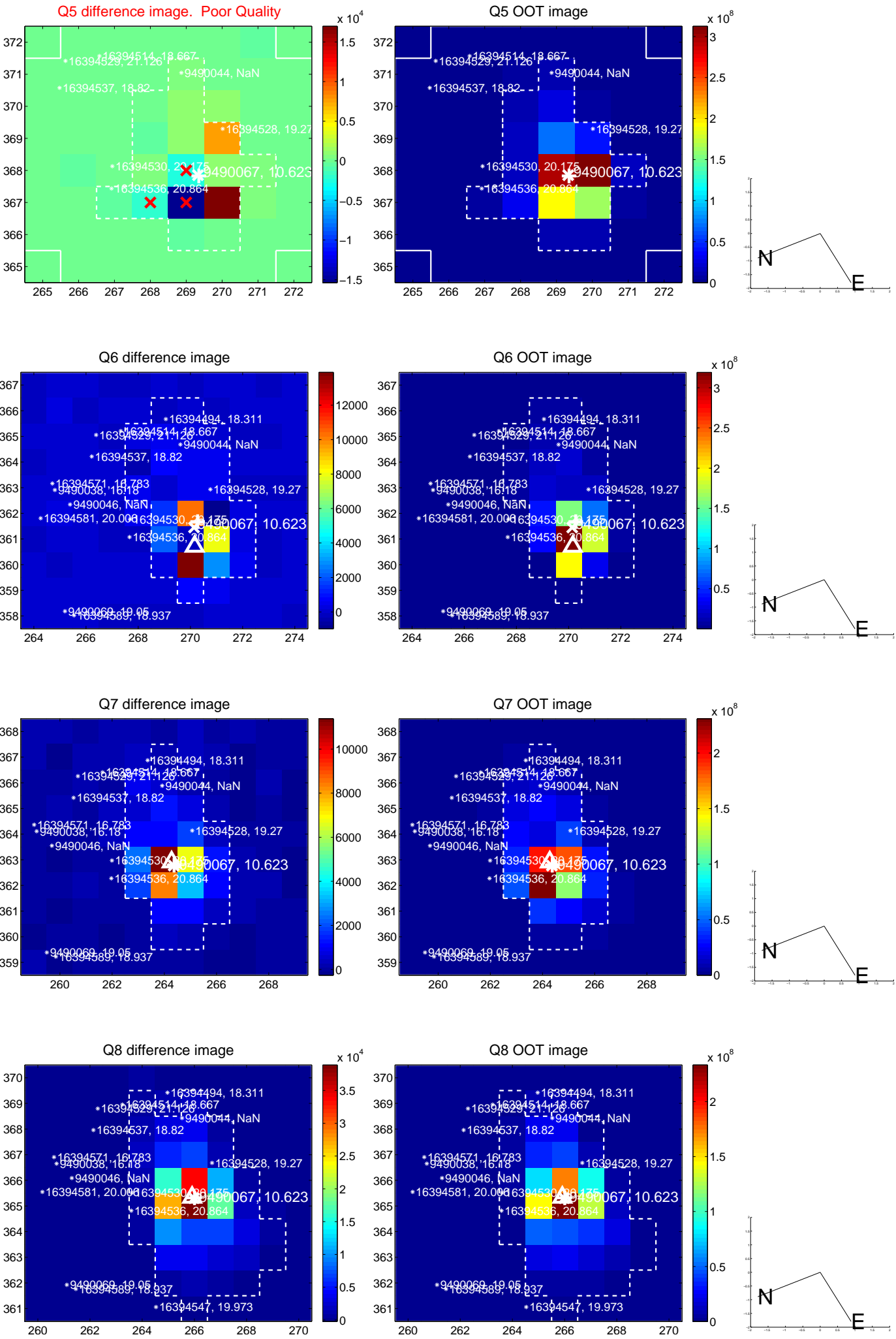
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.320 ± 0.258	1.24	-0.191 ± 0.504	0.256 ± 0.243
PRF-fit source offset from KIC position	0.237 ± 0.270	0.88	-0.143 ± 0.530	0.189 ± 0.191
photometric centroid source offset	0.35 ± 0.11	3.20	-0.31 ± 0.12	-0.16 ± 0.07

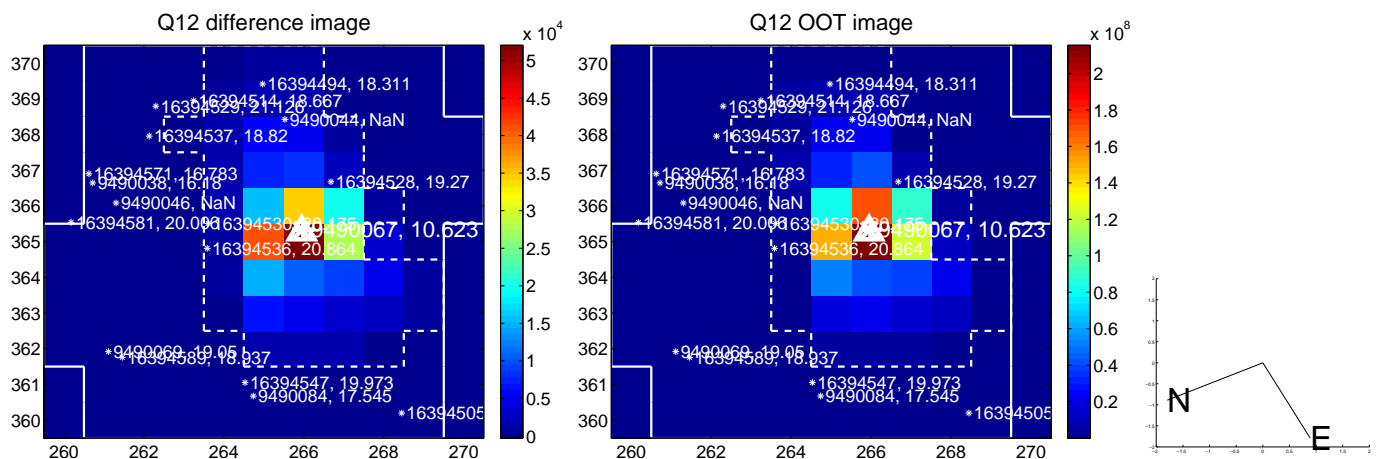
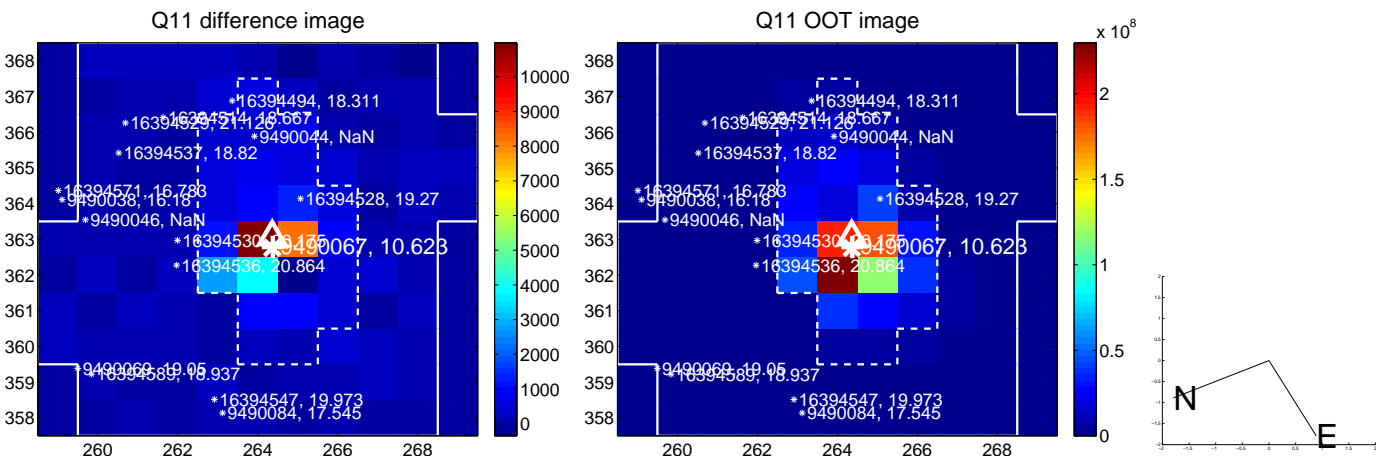
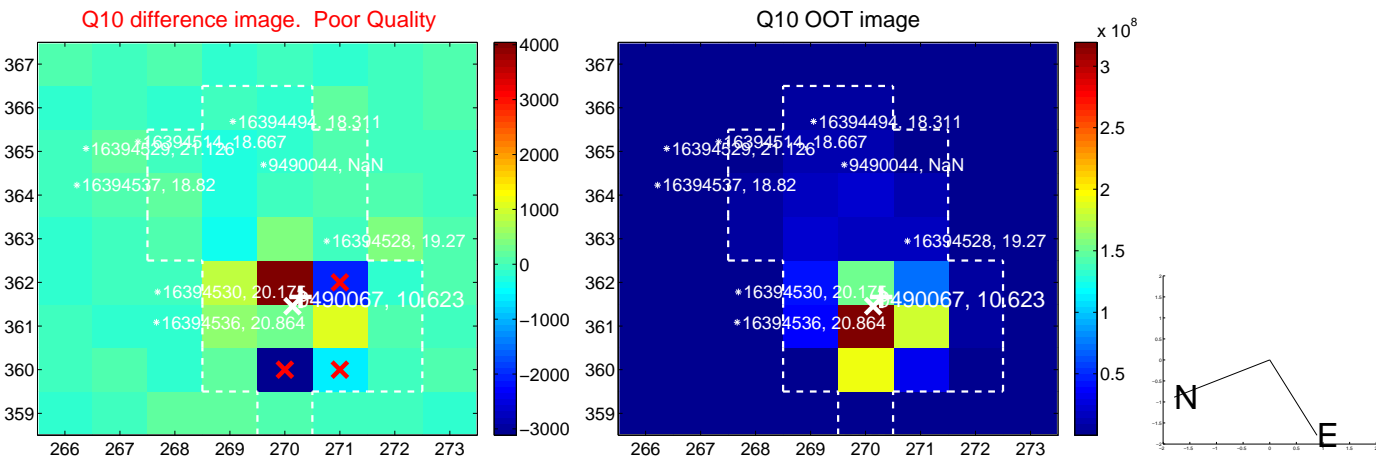
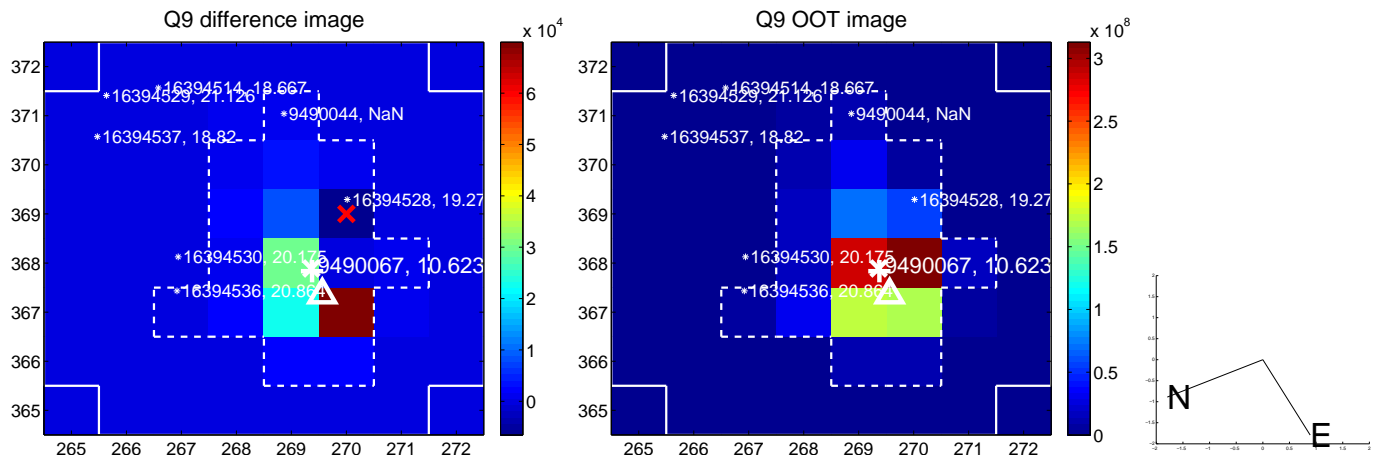


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

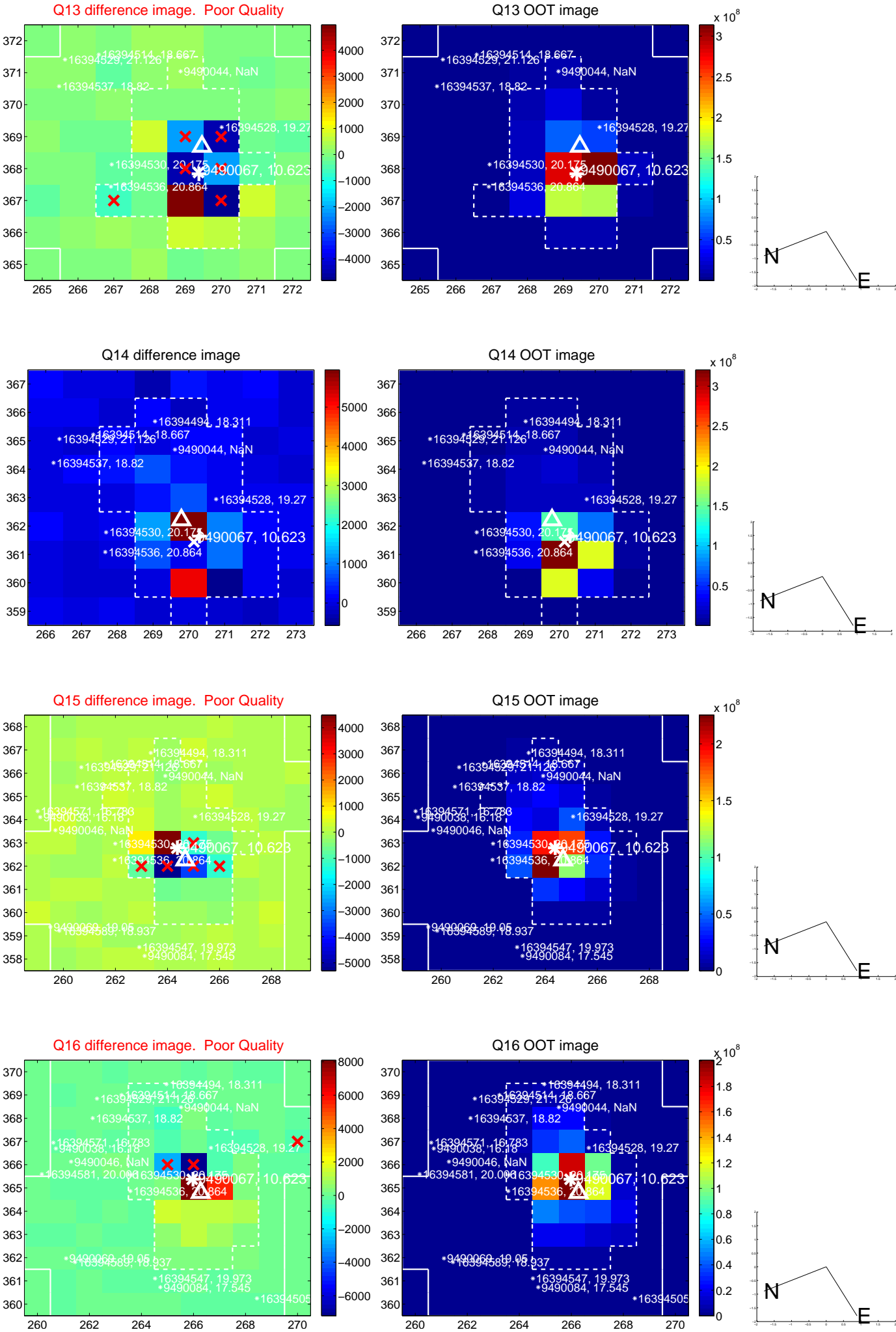
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



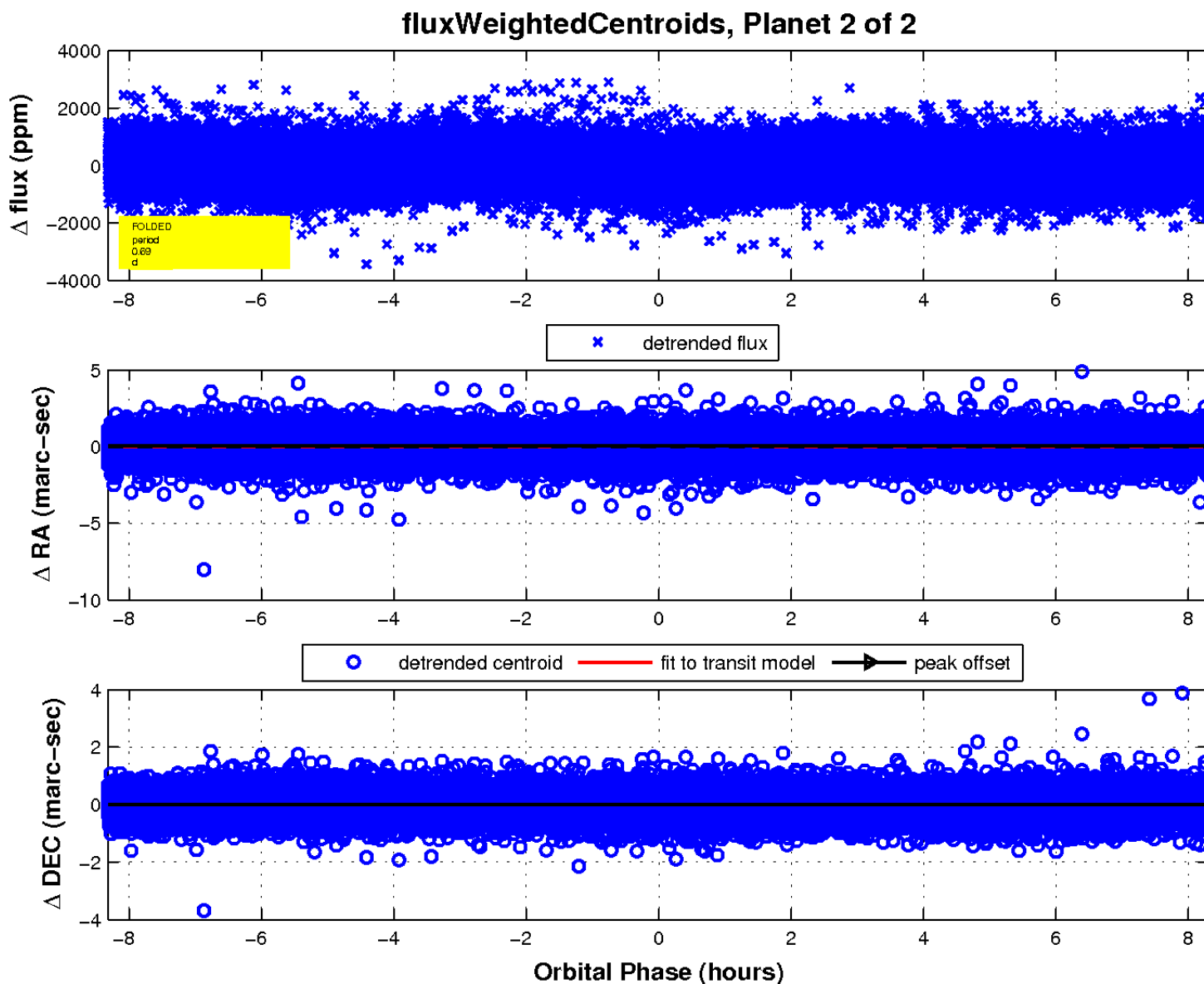
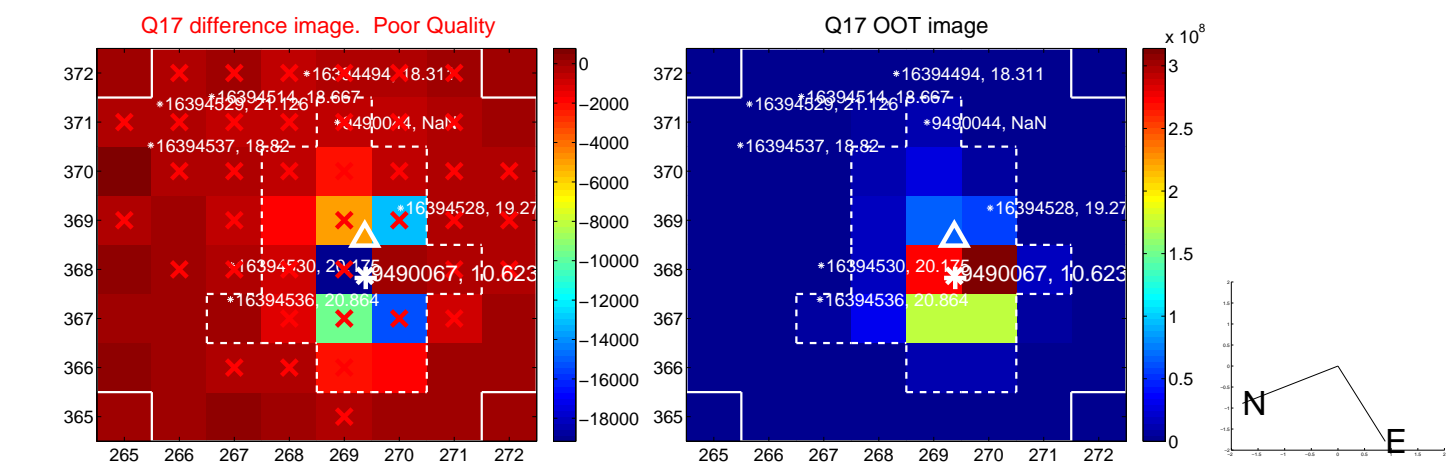
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

