

KIC 009642292

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})
009642292-01	OBS	2946.01	15.140911	143.744523	474.5	4.502	17.6	19.1	0.89	5926	2.16	61.52
009642292-02	OBS	No	0.518519	131.819506	67.6	0.978	7.6	7.0	0.89	5926	0.79	5531.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009642292-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009642292-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS

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 009642292-01

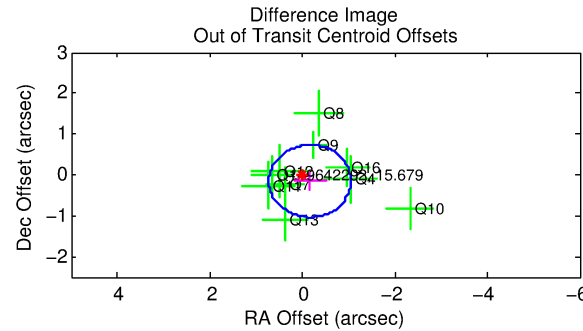
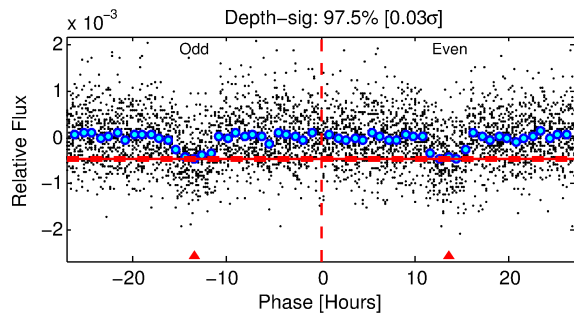
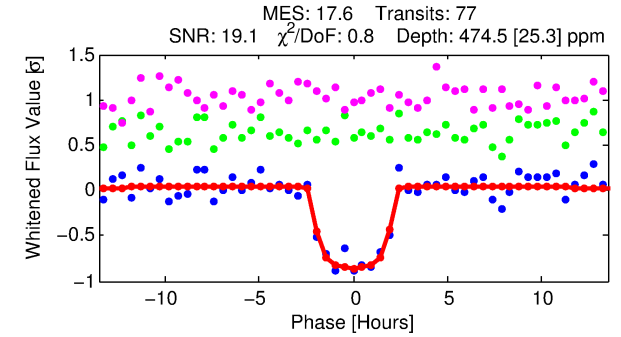
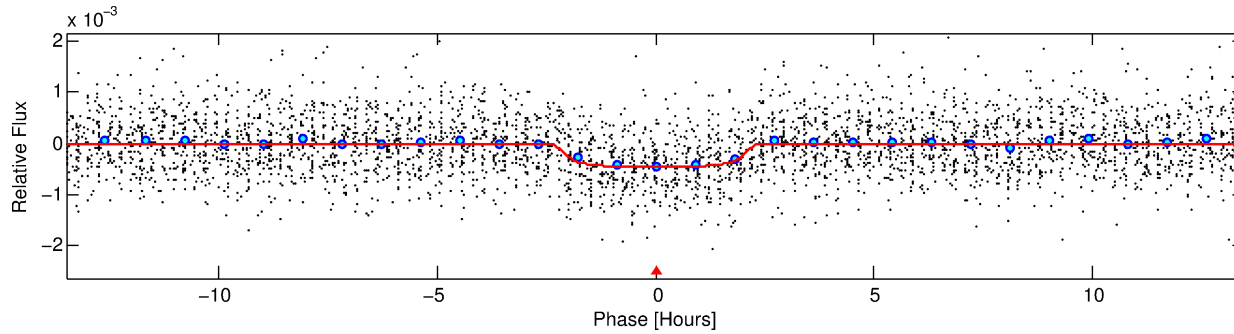
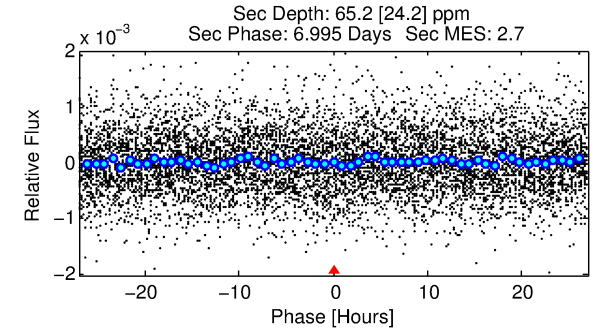
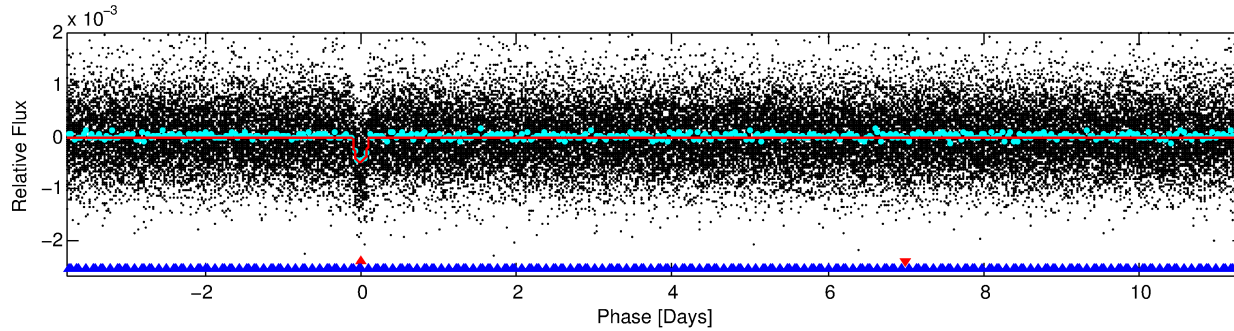
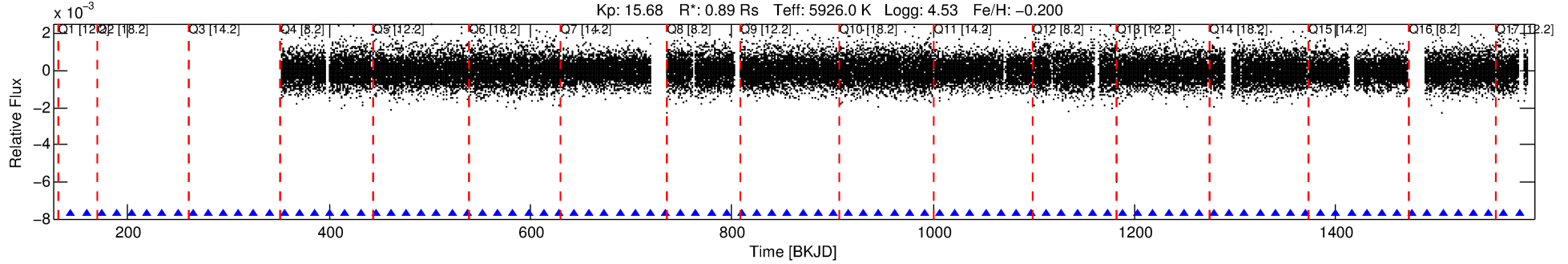
No Significant Match Found

DV One-Page Summary

KIC: 9642292 Candidate: 1 of 2 Period: 15.141 d

KOI: K02946.01 Corr: 0.974

Kp: 15.68 R*: 0.89 Rs Teff: 5926.0 K Logg: 4.53 Fe/H: -0.200



DV Fit Results:

Period = 15.14091 [0.00011] d
Epoch = 143.7445 [0.0063] BKJD
Rp/R* = 0.0223 [0.0075]
a/R* = 15.71 [25.53]
b = 0.82 [0.66]
Seff = 61.52 [24.29]
Teq = 714 [70] K
Rp = 2.16 [0.99] Re
a = 0.1189 [0.0305] AU
Ag = 108.49 [92.57] [1.16σ]
Teffp = 3563 [696] K [4.07σ]

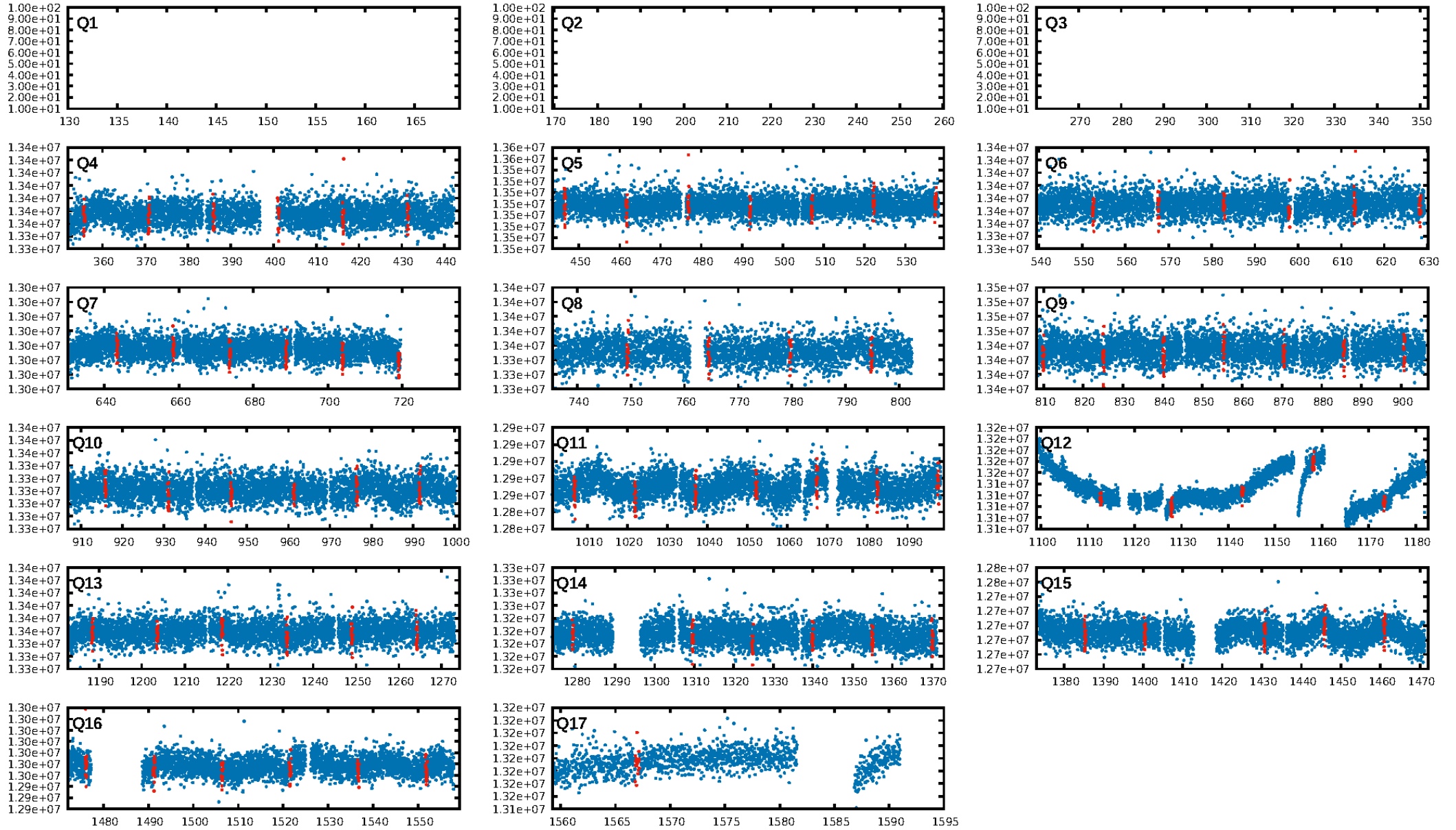
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [76.17σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 66.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.02e-66
RollingBand-fgt: 1.00 [76/76]
GhostDiagnostic-chr: 2.295
Centroid-sig: 36.2%
Centroid-so: 0.727 arcsec [0.99σ]
OotOffset-rm: 0.221 arcsec [0.75σ]
KicOffset-rm: 0.201 arcsec [0.64σ]
OotOffset-st: 2/2/4/2 [10]
KicOffset-st: 2/2/4/2 [10]
DiffImageQuality-fgm: 0.60 [6/10]
DiffImageOverlap-fno: 0.00 [0/14]

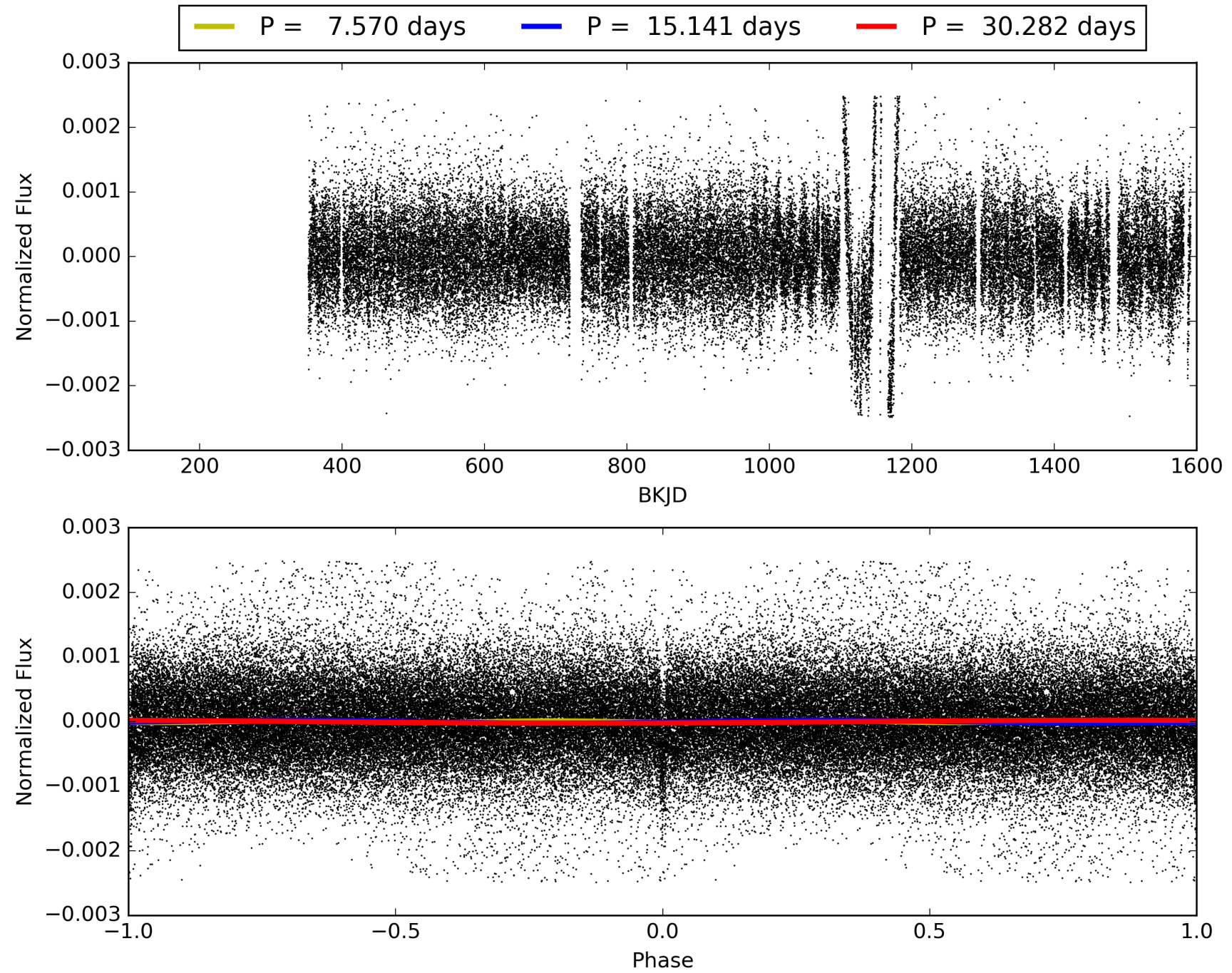
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:51:58 Z

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

TCE 009642292-01, PDC Light Curves

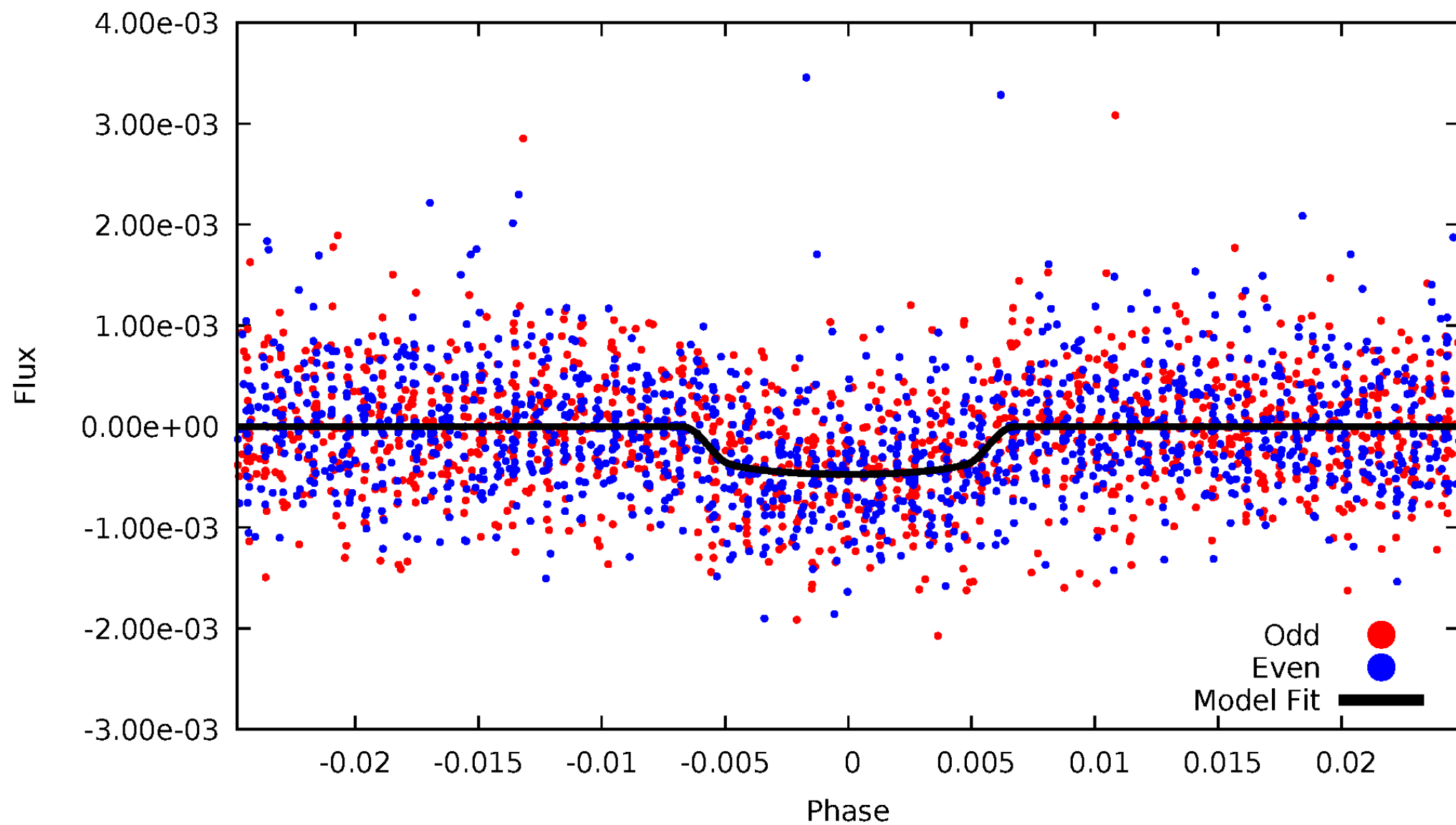


TCE 009642292-01



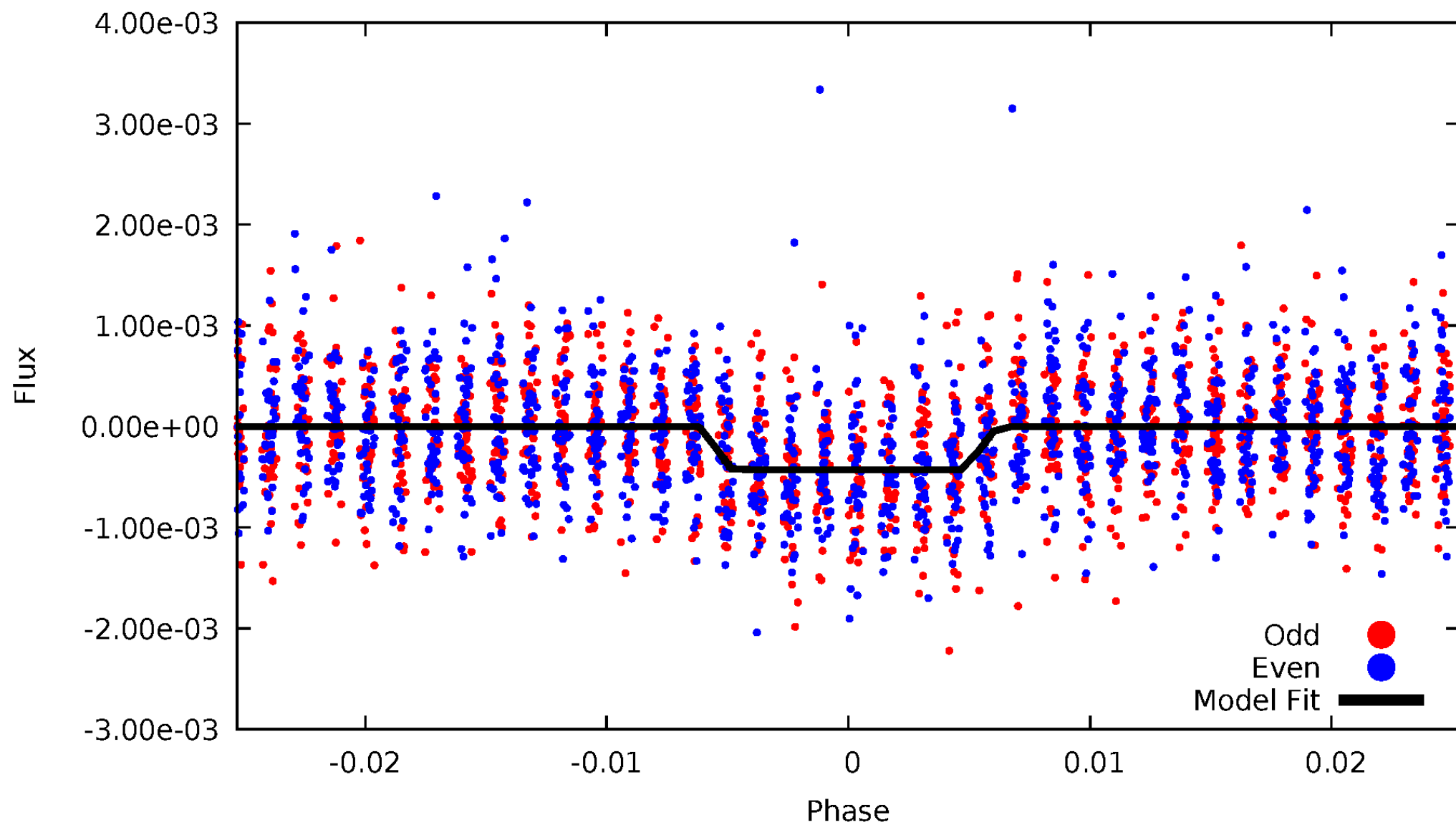
DV Odd/Even

TCE 009642292-01



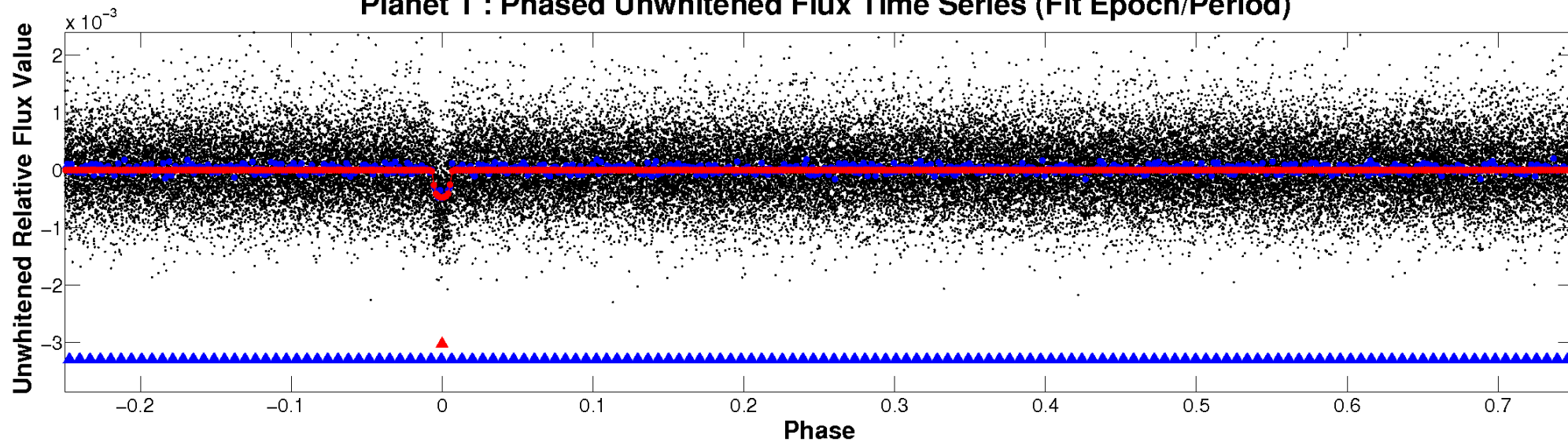
ALT Odd/Even

TCE 009642292-01

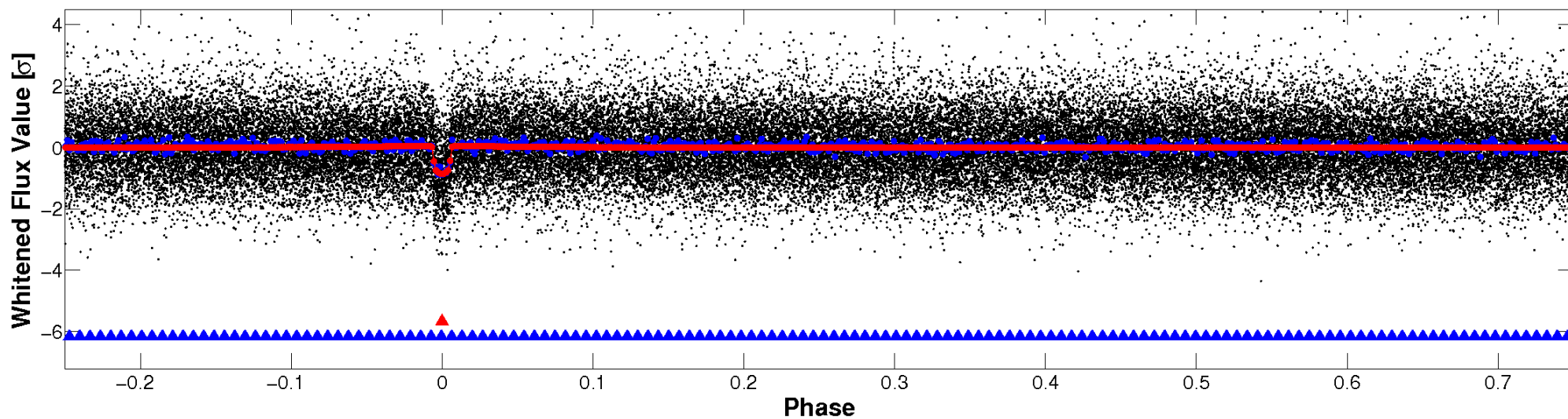


Non-Whitened Vs. Whitened Light Curve

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

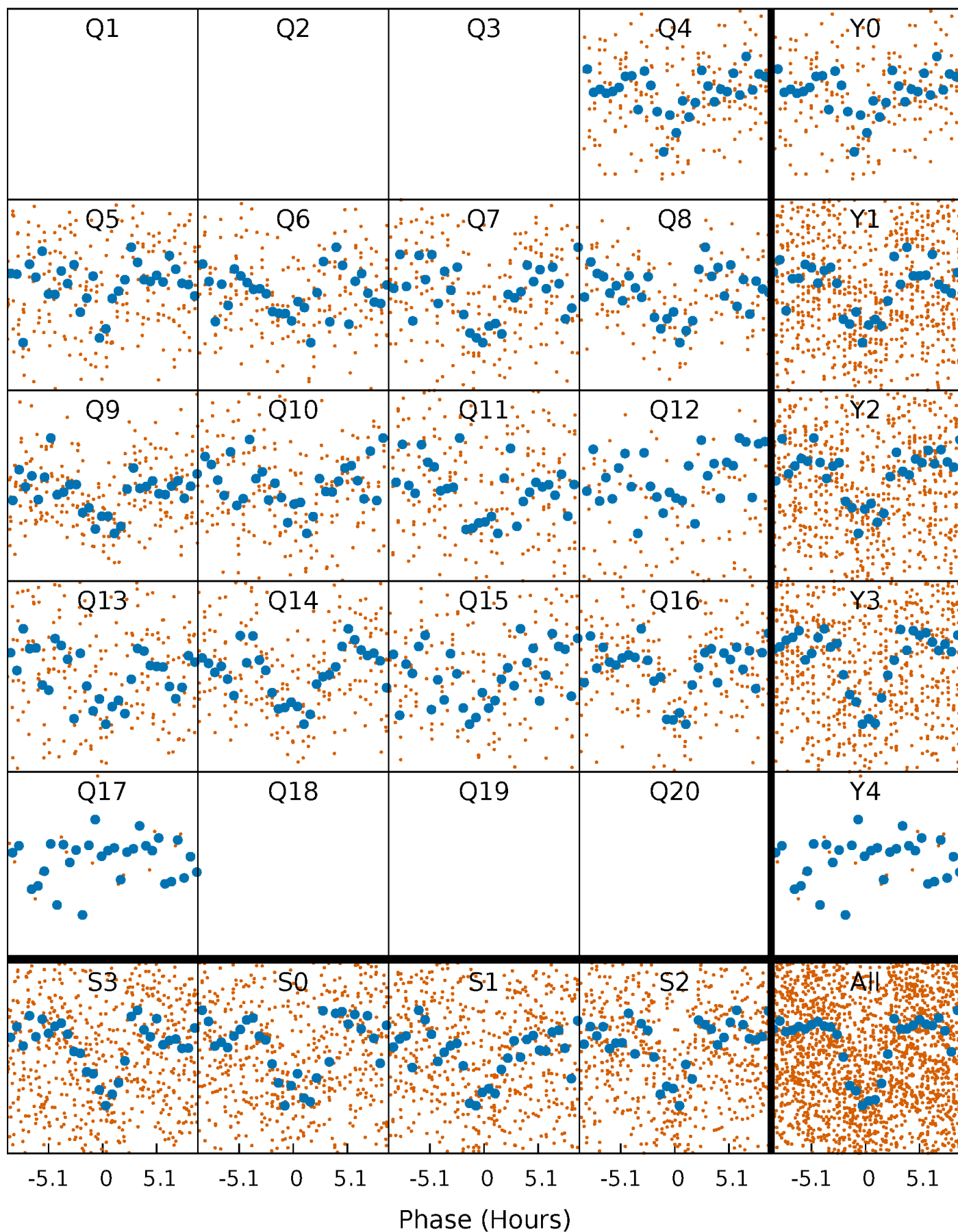


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



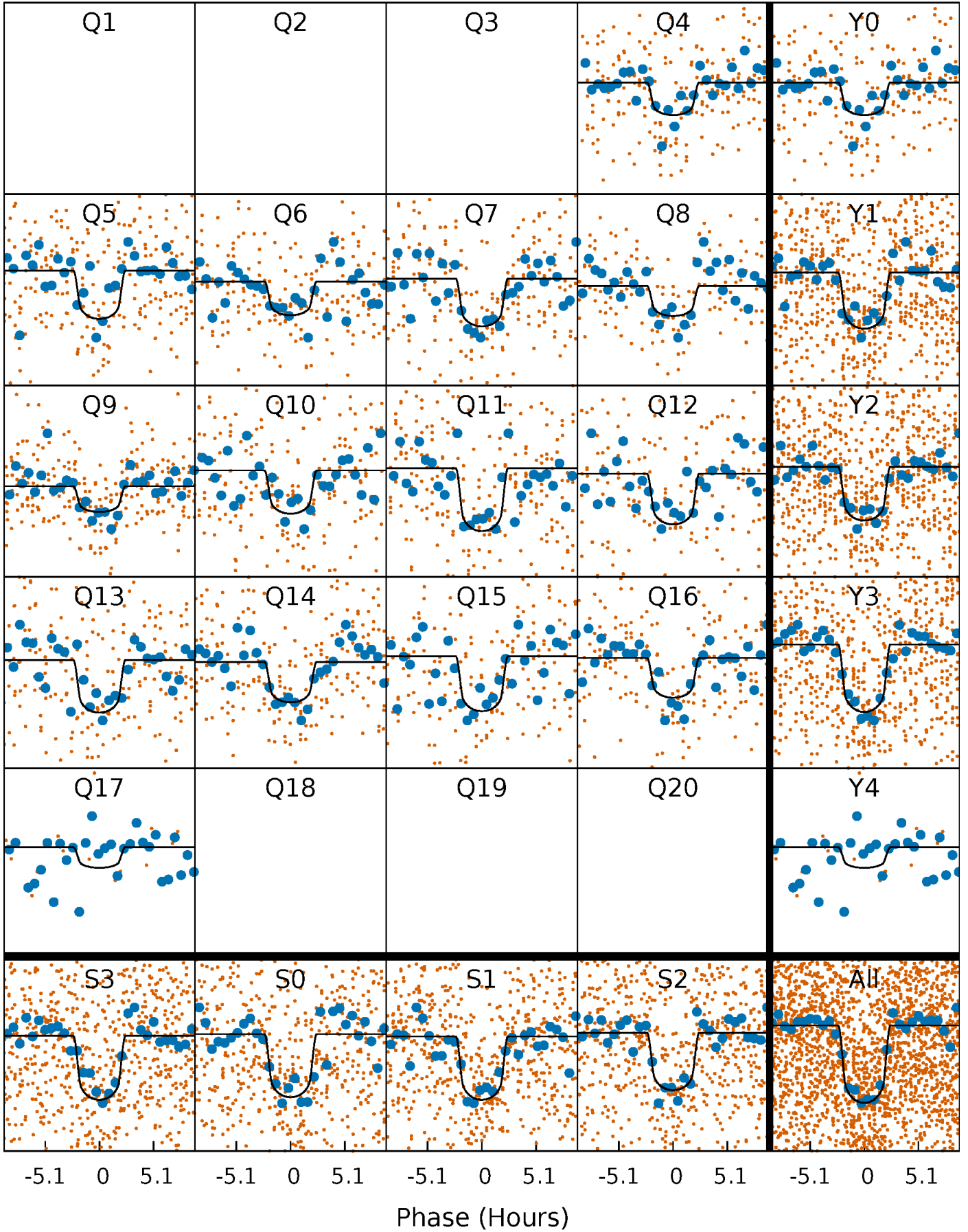
PDC Quarter-Phased Transit Curves

TCE 009642292-01 P= 15.140911 Days $T_0=143.744523$ (BKJD)



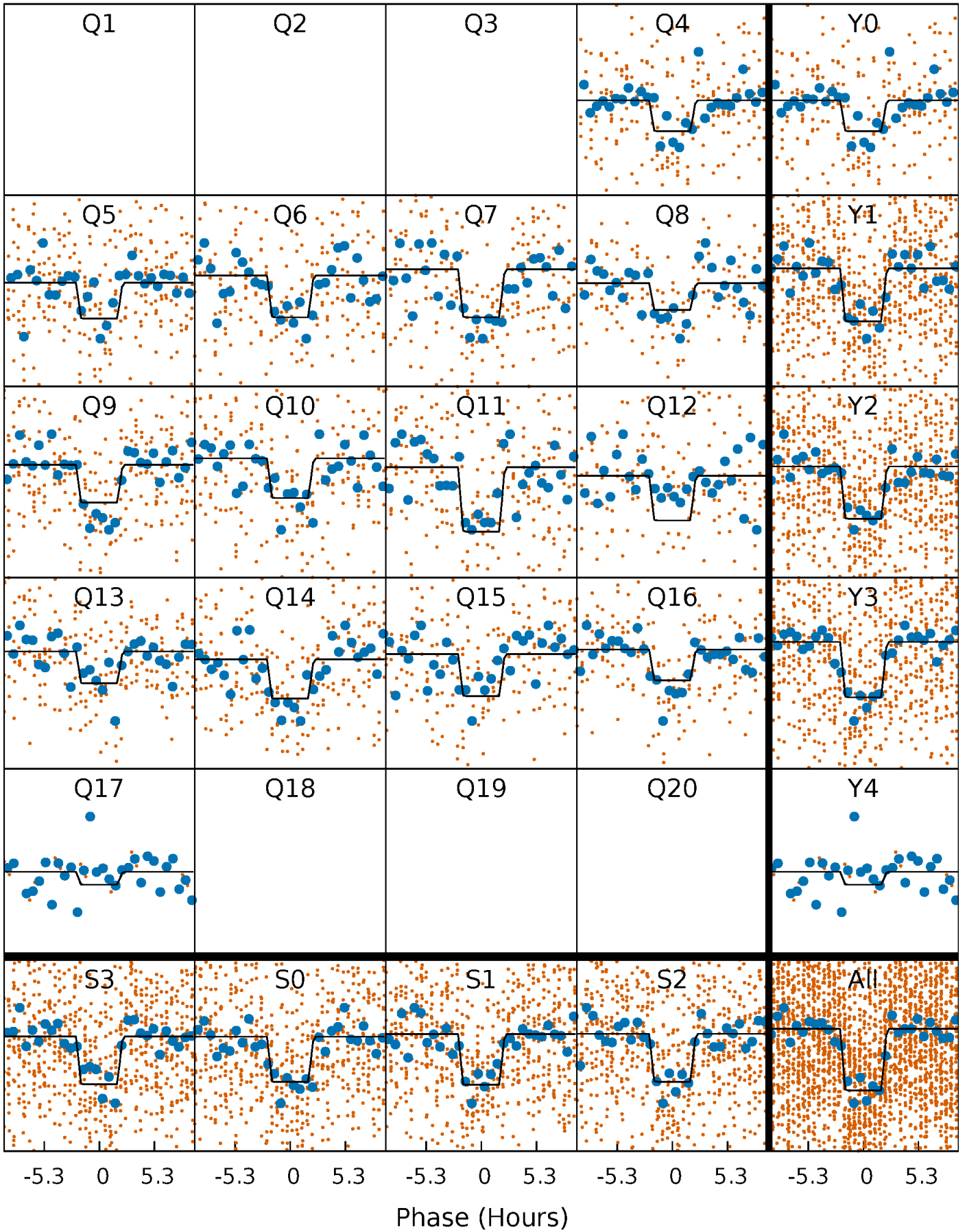
DV Quarter-Phased Transit Curves

TCE 009642292-01 P= 15.140911 Days $T_0=143.744523$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

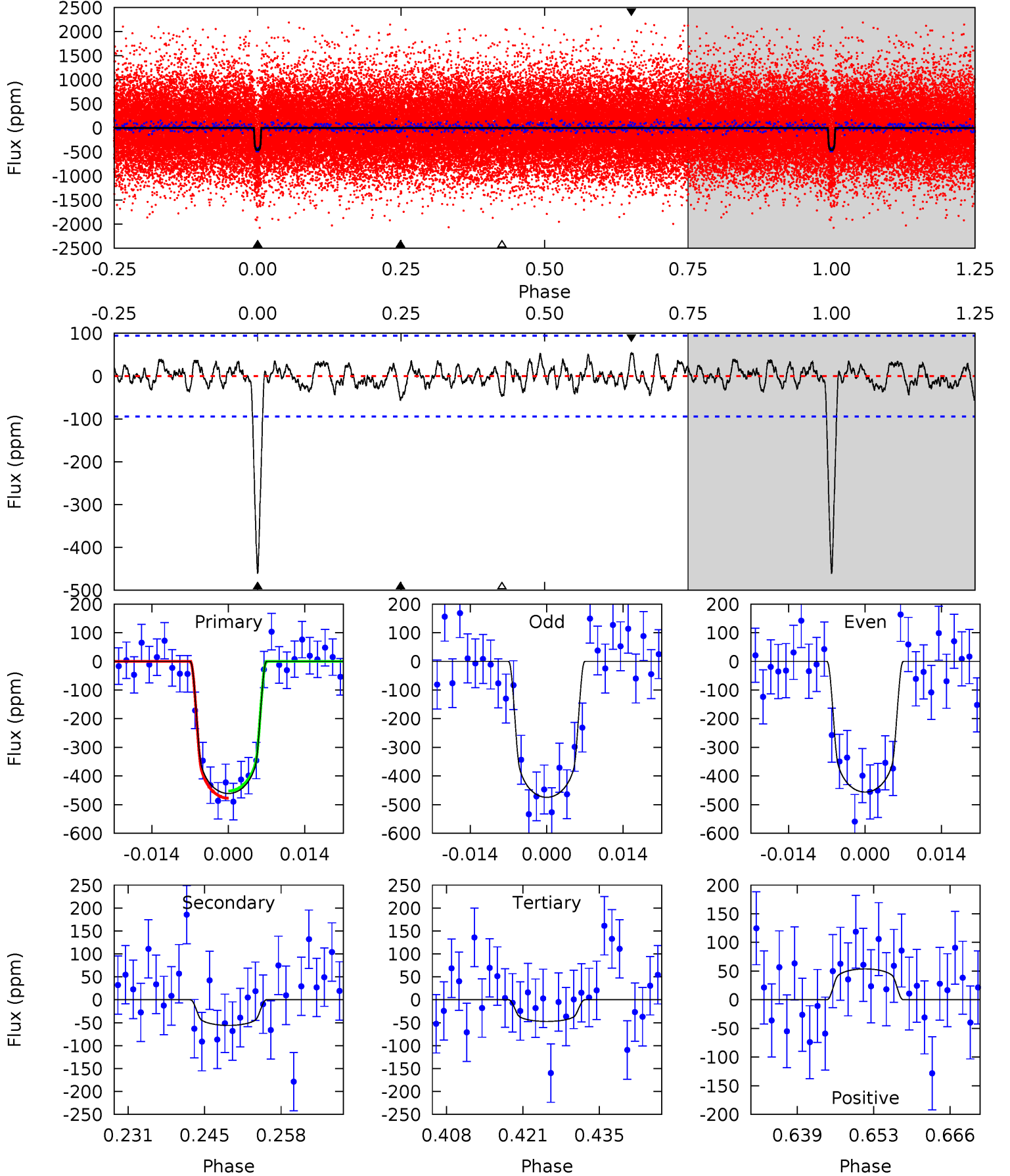
TCE 009642292-01 P= 15.141224 Days $T_0=143.729638$ (BKJD)



DV Model-Shift Uniqueness Test

009642292-01, P = 15.140911 Days, E = 143.744523 Days

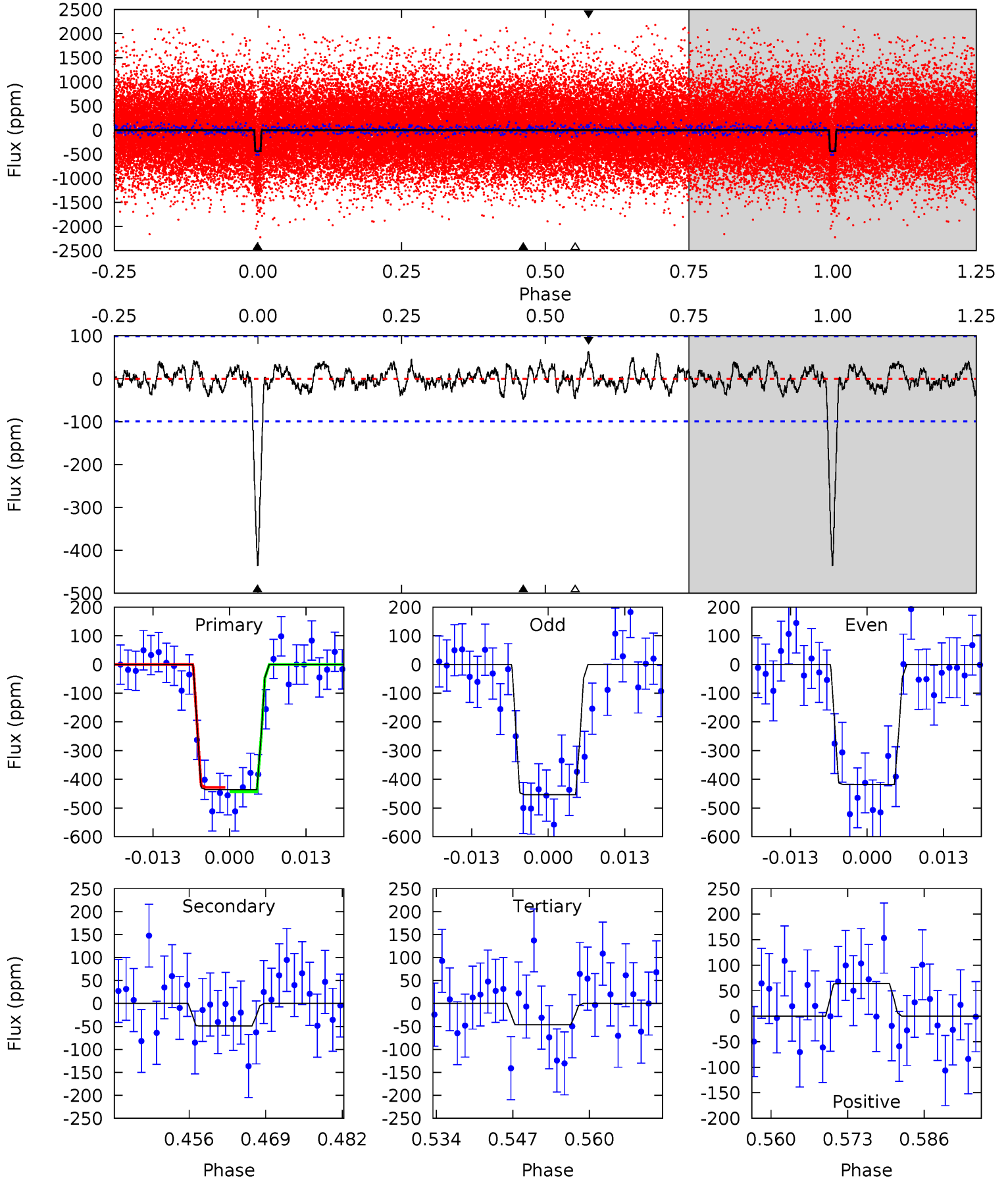
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.3	2.95	2.49	2.84	4.97	2.47	1.03	21.8	21.5	0.45	0.11	0.48	0.97	0.10	0.67



Alt Model-Shift Uniqueness Test

009642292-01, $P = 15.141224$ Days, $E = 143.729638$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.9	2.47	2.34	3.21	4.98	2.48	0.95	19.5	18.6	0.13	-0.75	0.89	0.92	0.13	0.39



Stellar Parameters For KIC 009642292

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5926^{+187}_{-207}	$4.532^{+0.050}_{-0.200}$	$-0.200^{+0.300}_{-0.300}$	$0.887^{+0.273}_{-0.091}$	$0.978^{+0.119}_{-0.131}$	$1.971^{+0.409}_{-1.044}$
	+3%/-3%	+1%/-4%	+150%/-150%	+31%/-10%	+12%/-13%	+21%/-53%
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 009642292-01 / KOI 2946.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-56 ± 19	$2.23^{+0.88}_{-0.78}$	1020^{+68}_{-49}	3805^{+679}_{-435}	85^{+116}_{-46}
Alt.	-49 ± 20	$2.11^{+0.79}_{-0.81}$	1019^{+70}_{-50}	3796^{+752}_{-478}	80^{+148}_{-43}

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

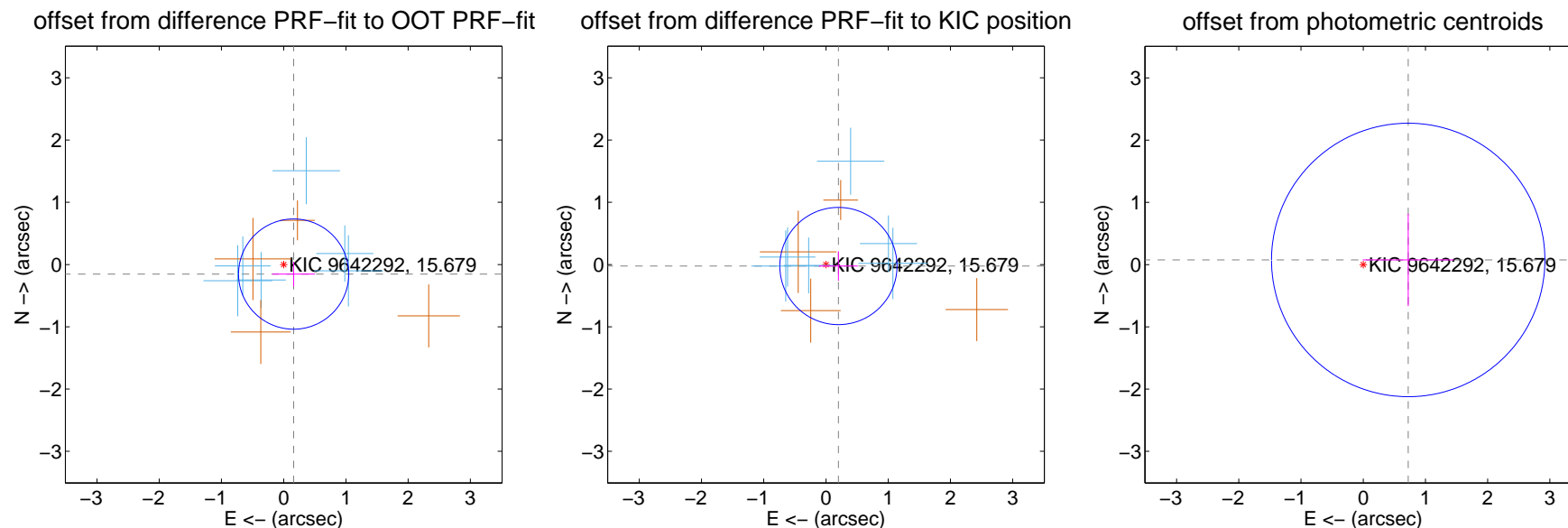
DV Centroid Data

Supplemental centroid analysis for 009642292-01. Kepler magnitude: 15.68. Transit SNR 19.07

There are 6 quarters with good PRF difference image offsets

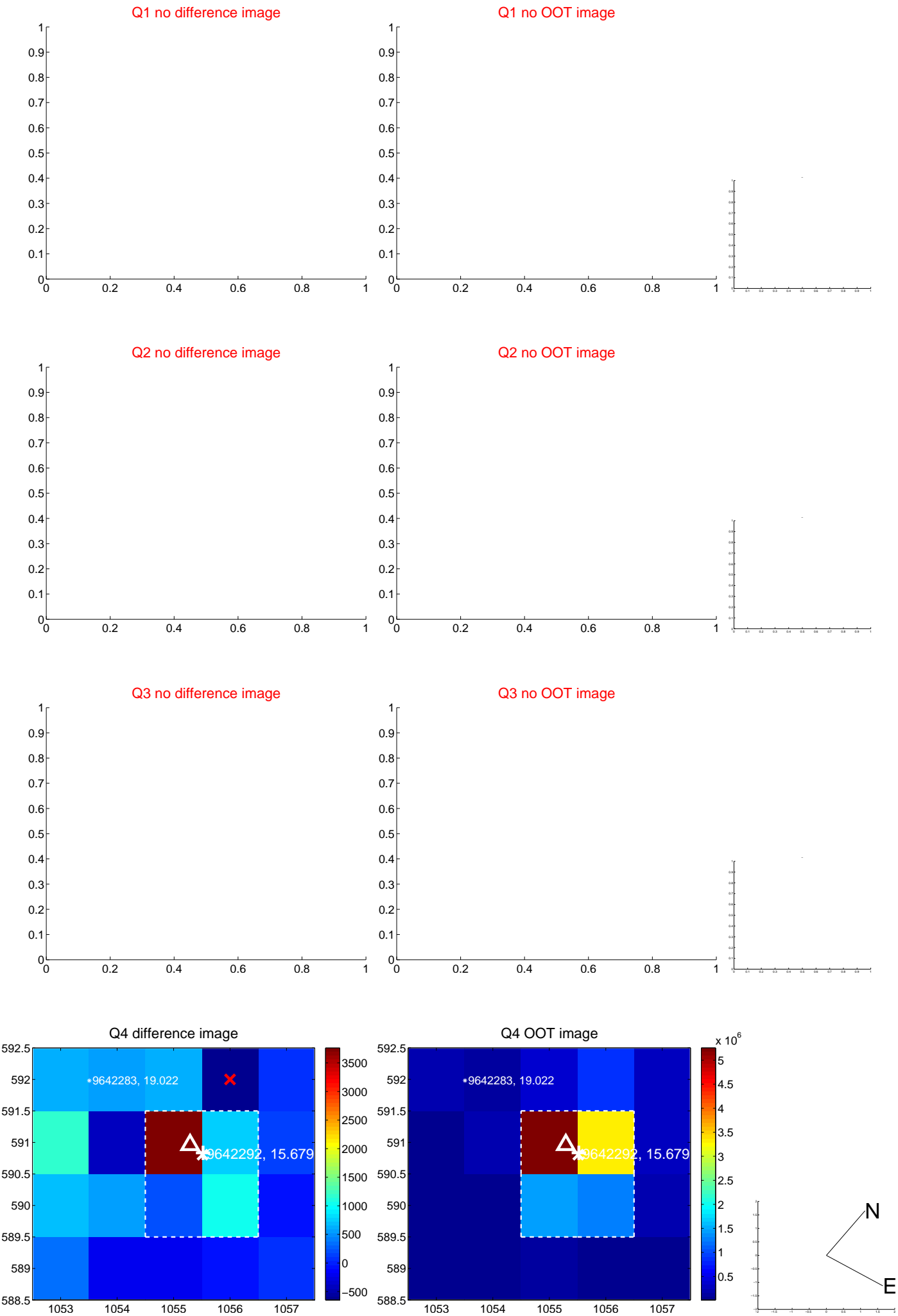
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.221 ± 0.295	0.75	-0.160 ± 0.344	-0.153 ± 0.198
PRF-fit source offset from KIC position	0.201 ± 0.314	0.64	-0.200 ± 0.311	-0.024 ± 0.238
photometric centroid source offset	0.73 ± 0.73	0.99	-0.72 ± 0.73	0.07 ± 0.74

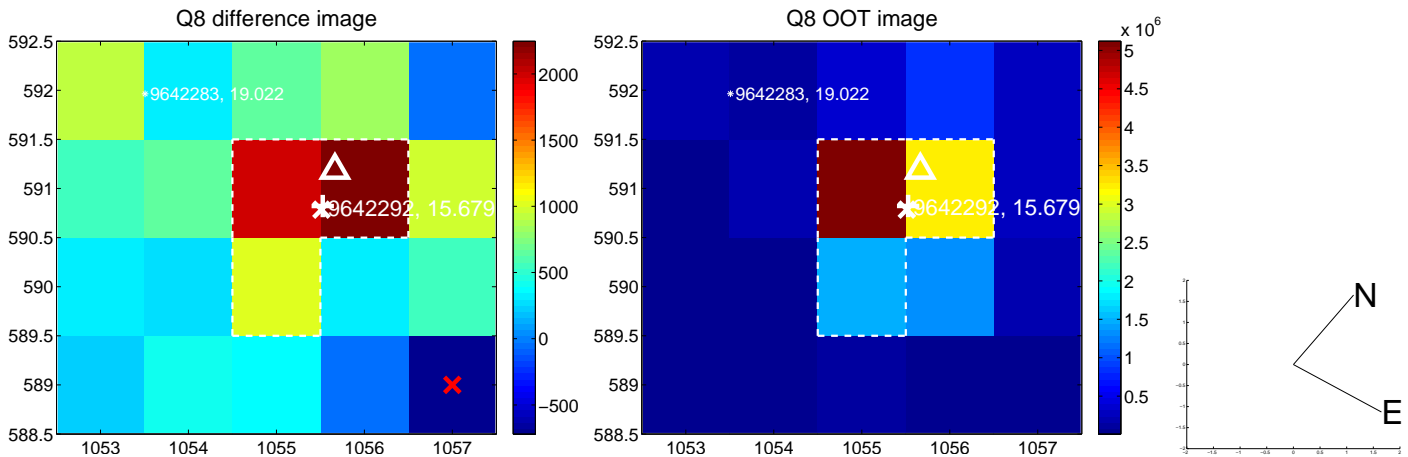
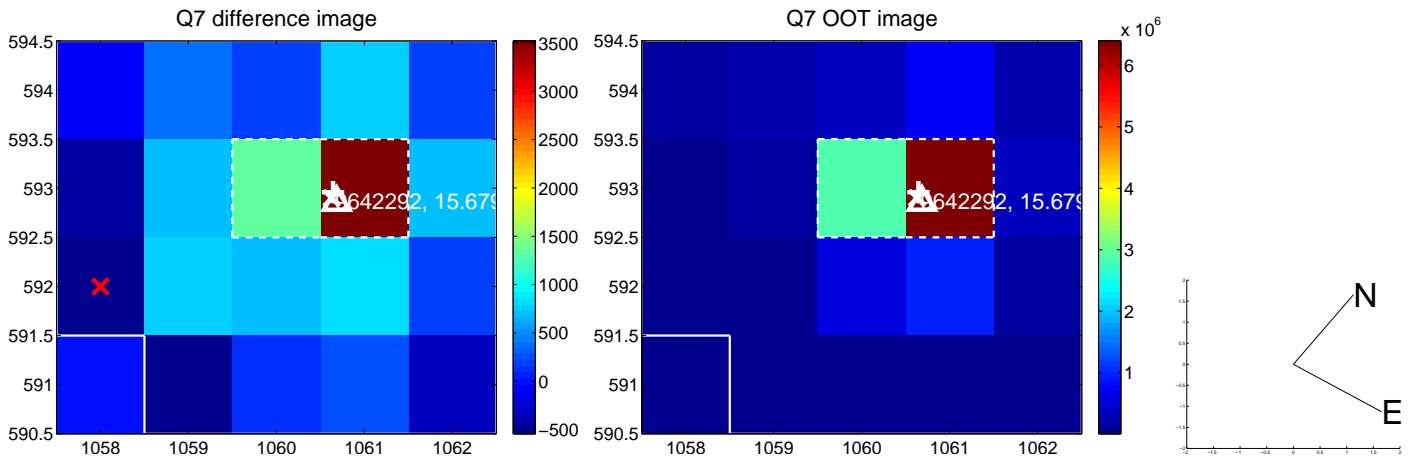
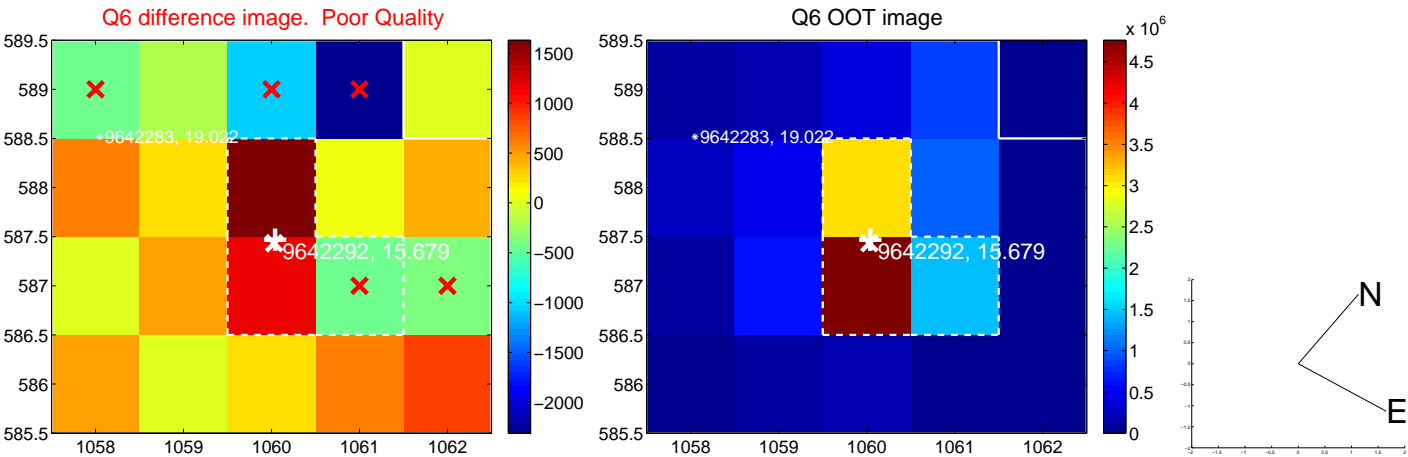
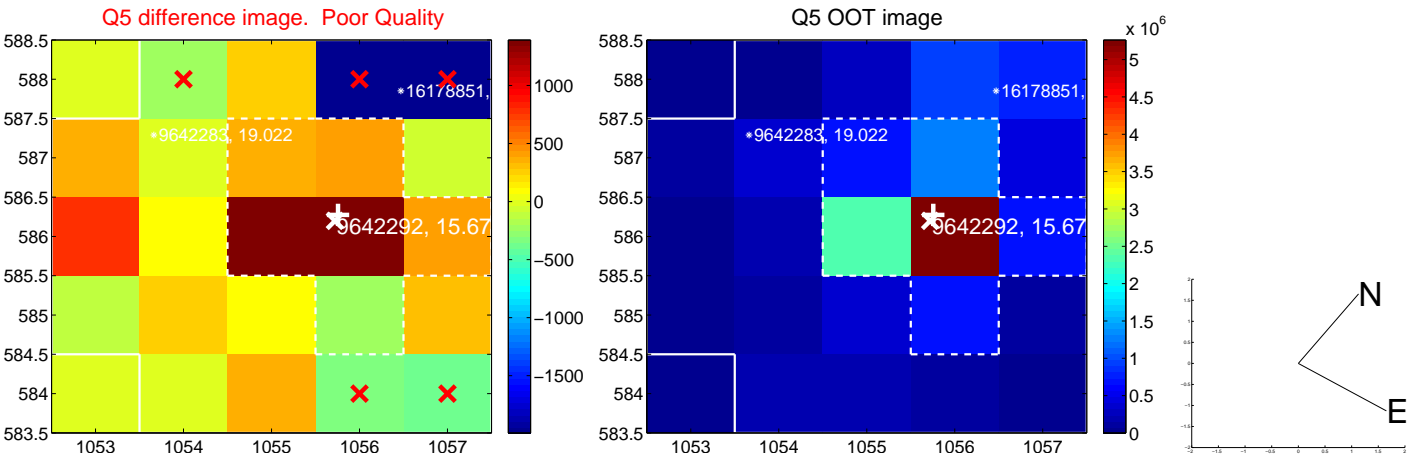


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

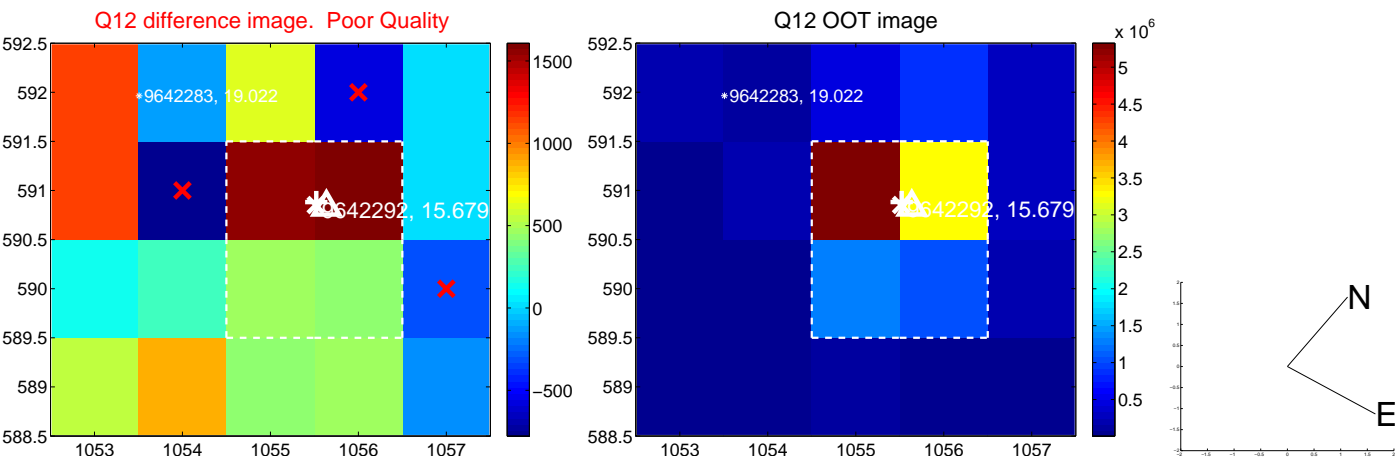
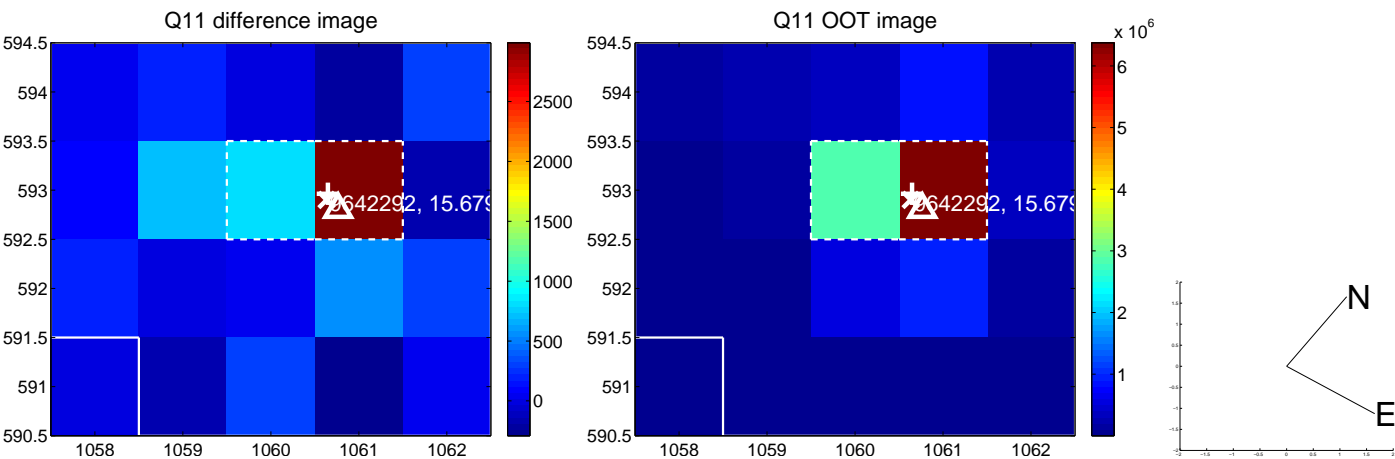
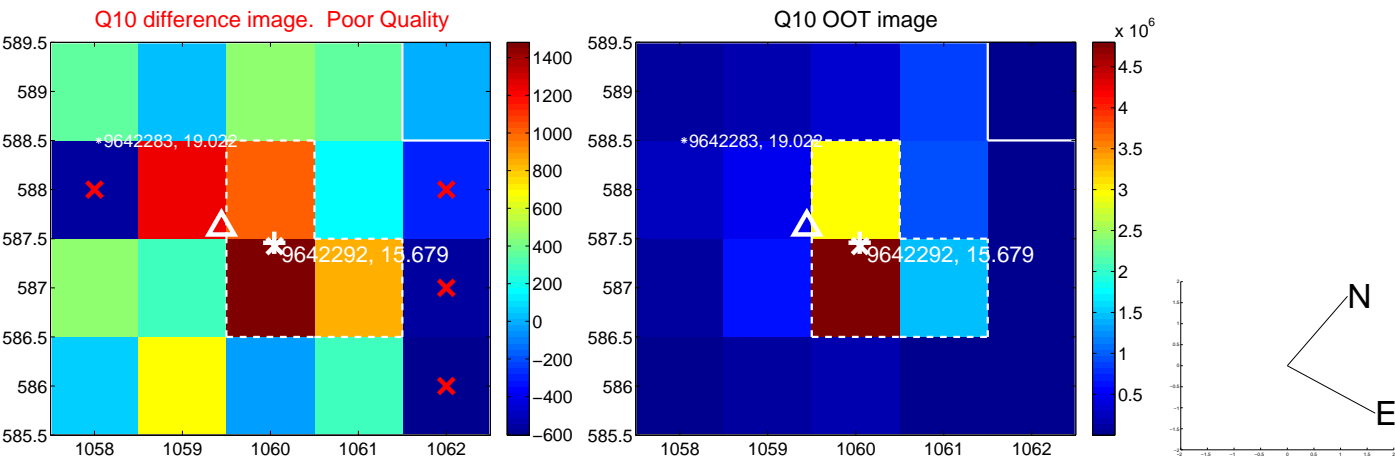
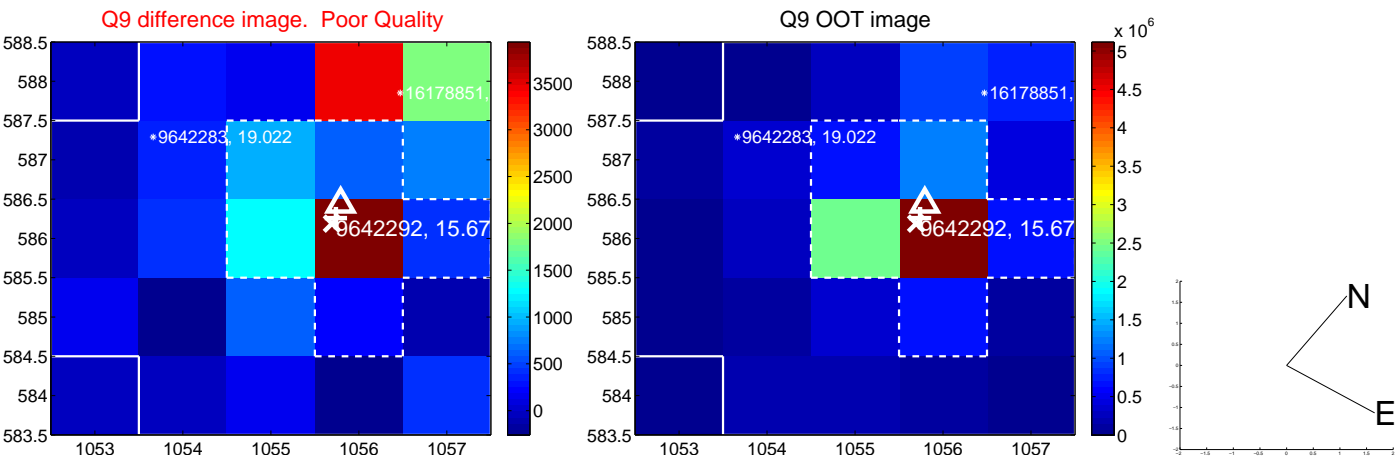
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



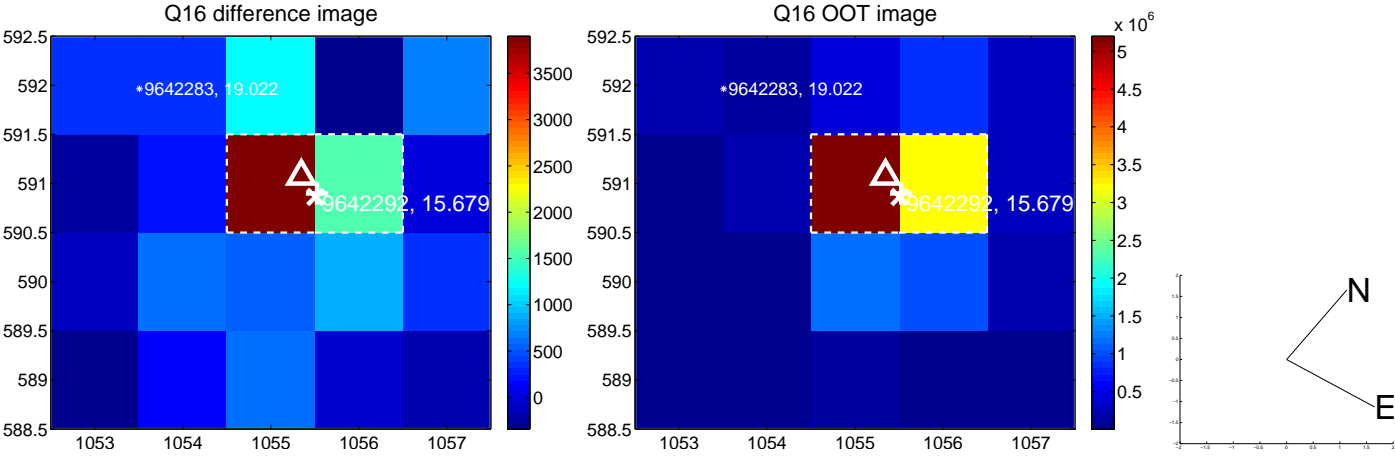
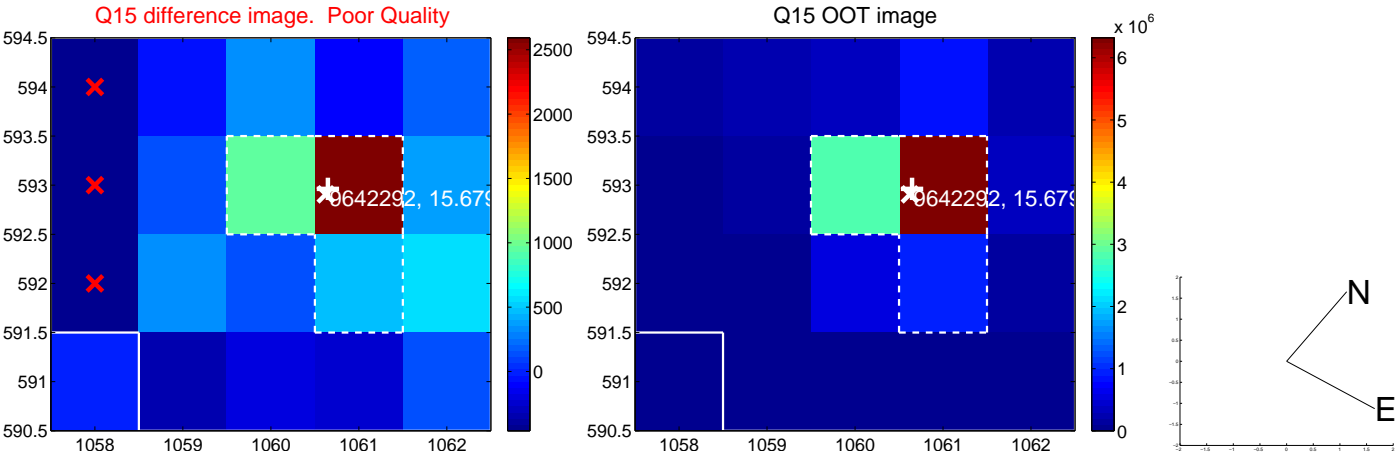
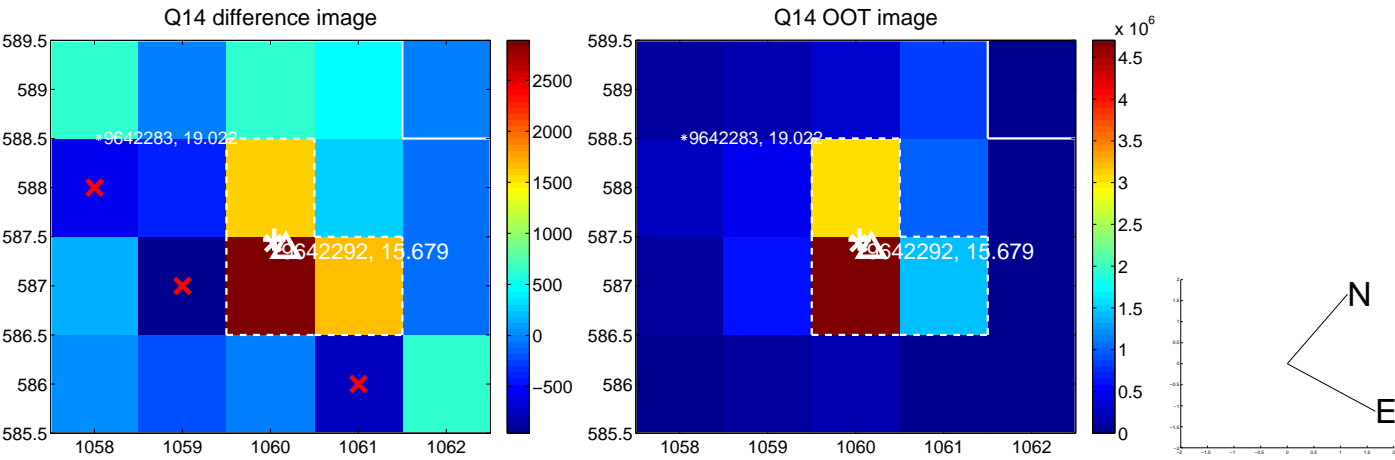
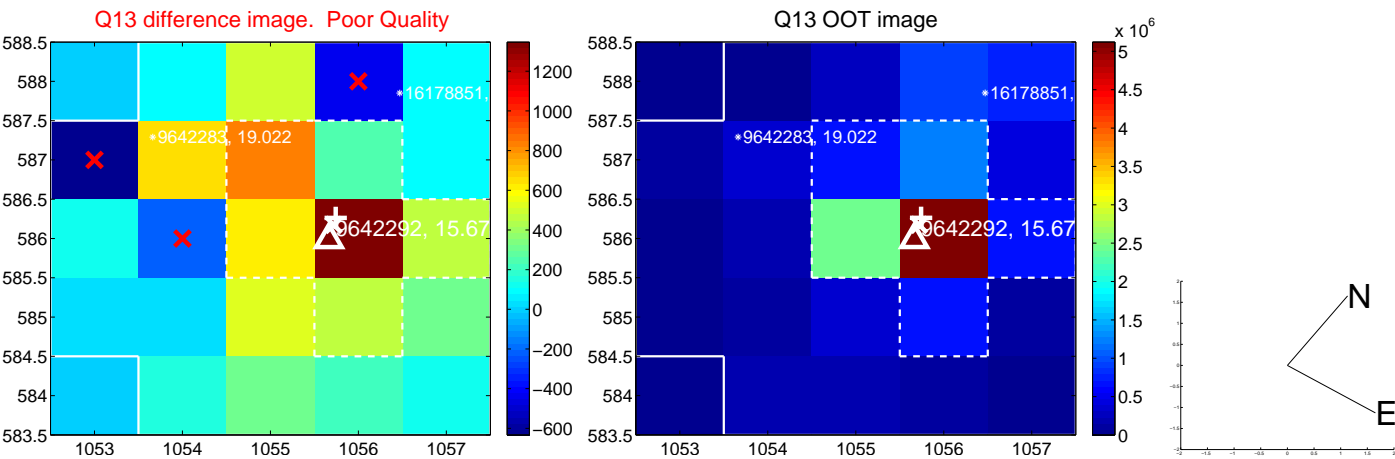
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



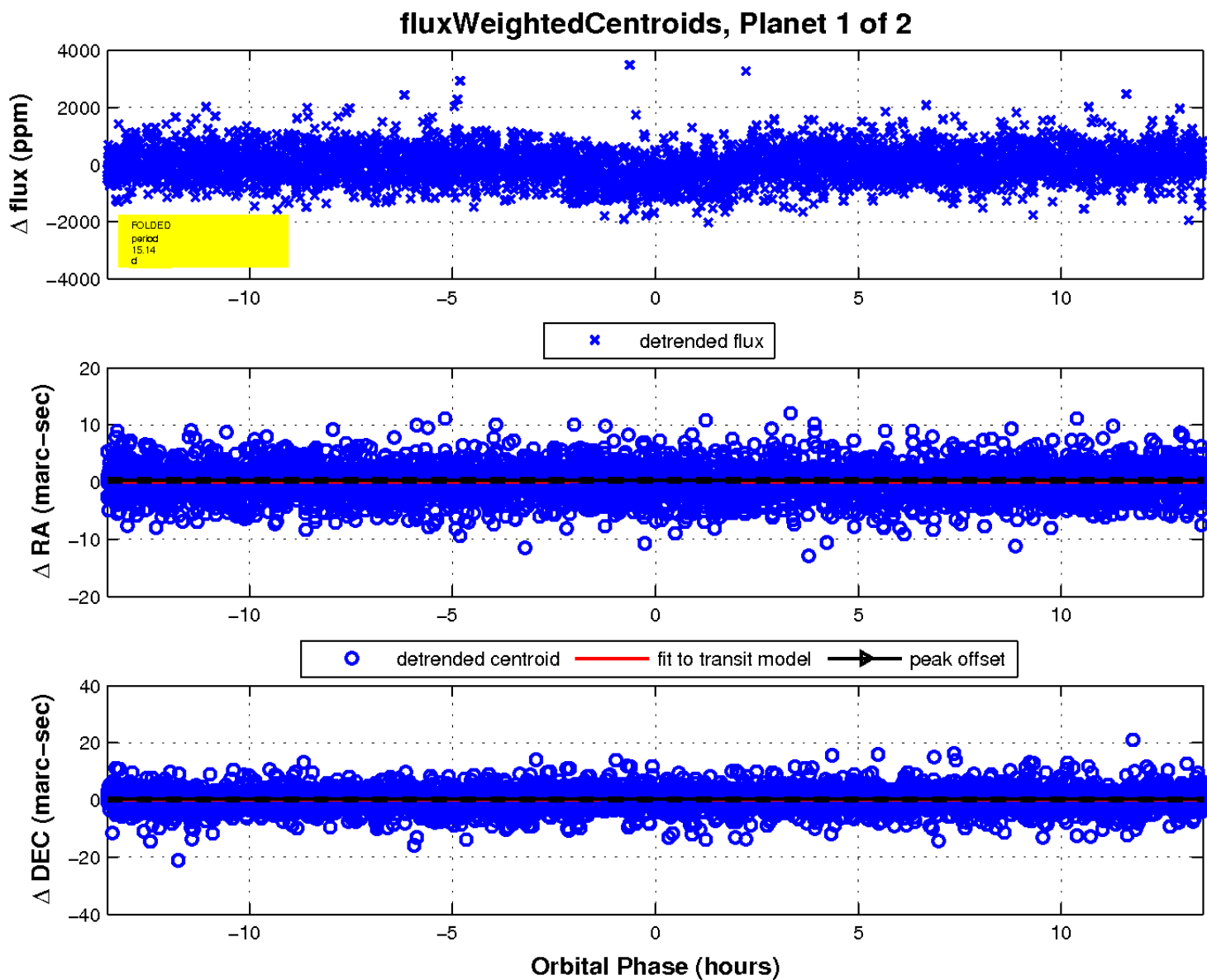
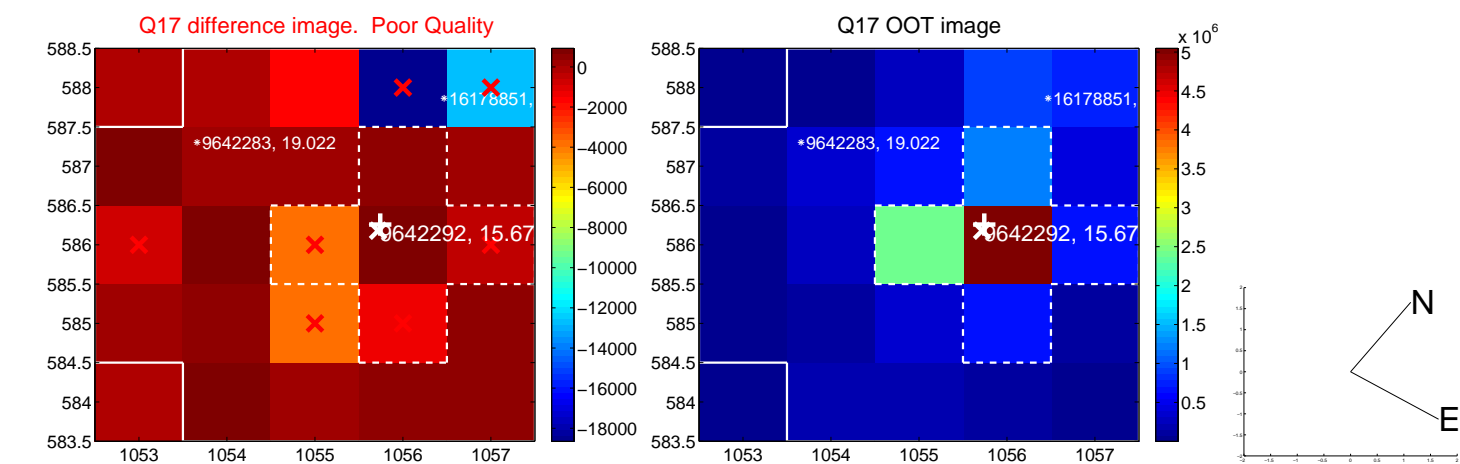
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

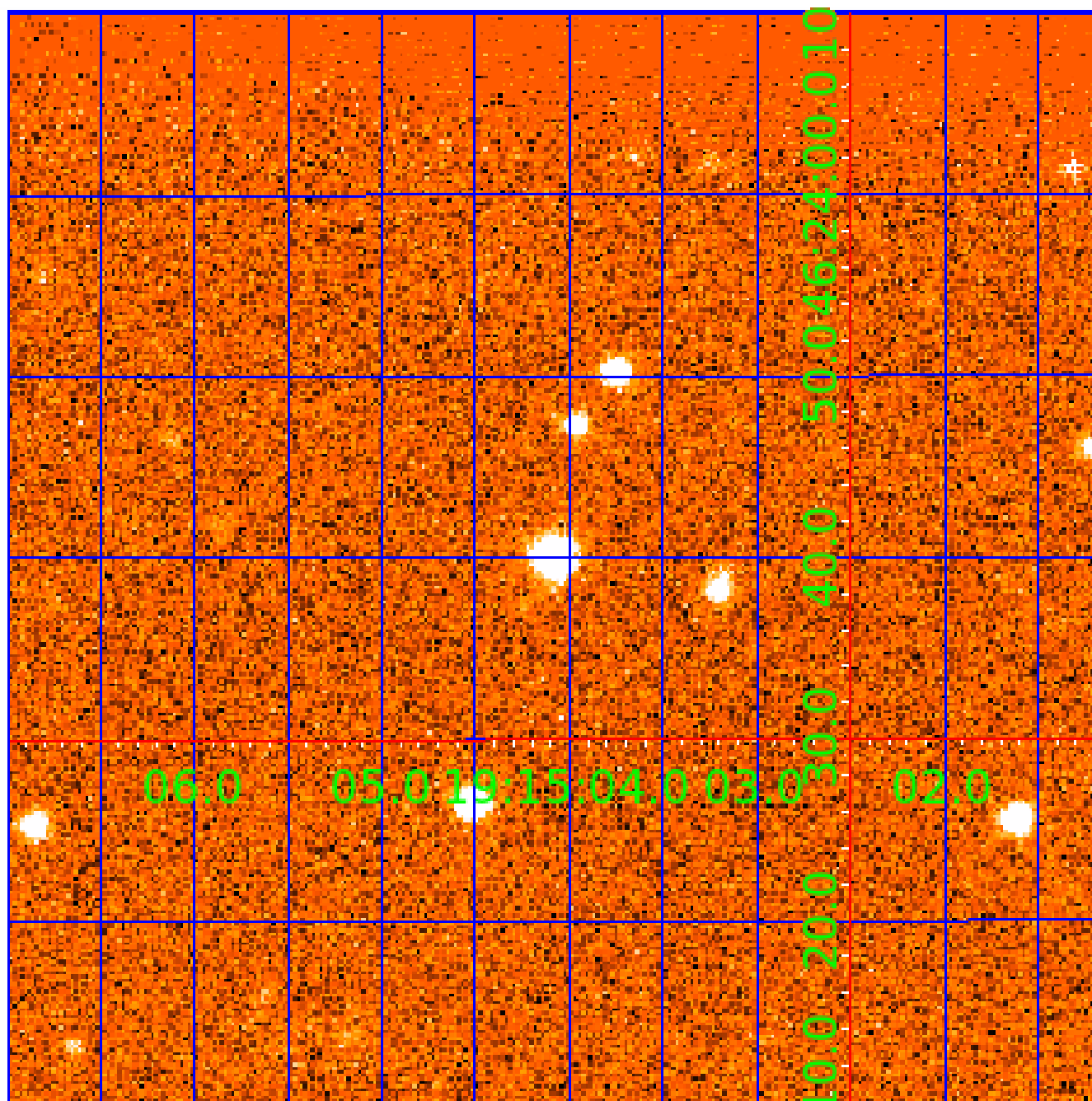


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009642292

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})
009642292-01	OBS	2946.01	15.140911	143.744523	474.5	4.502	17.6	19.1	0.89	5926	2.16	61.52
009642292-02	OBS	No	0.518519	131.819506	67.6	0.978	7.6	7.0	0.89	5926	0.79	5531.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009642292-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009642292-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS

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 009642292-02

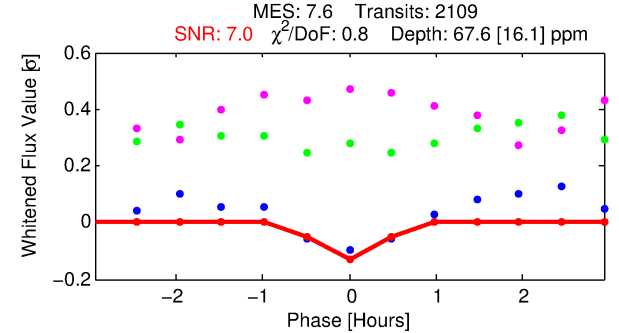
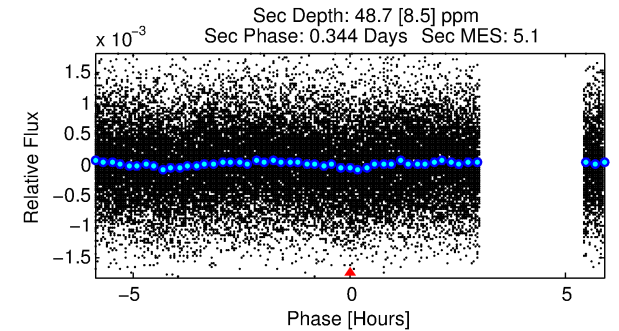
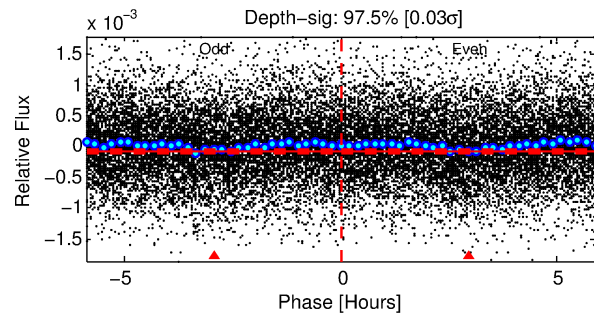
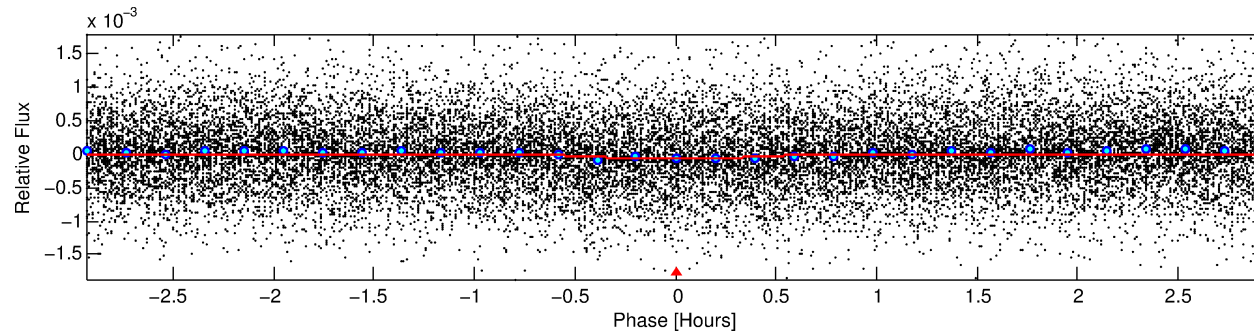
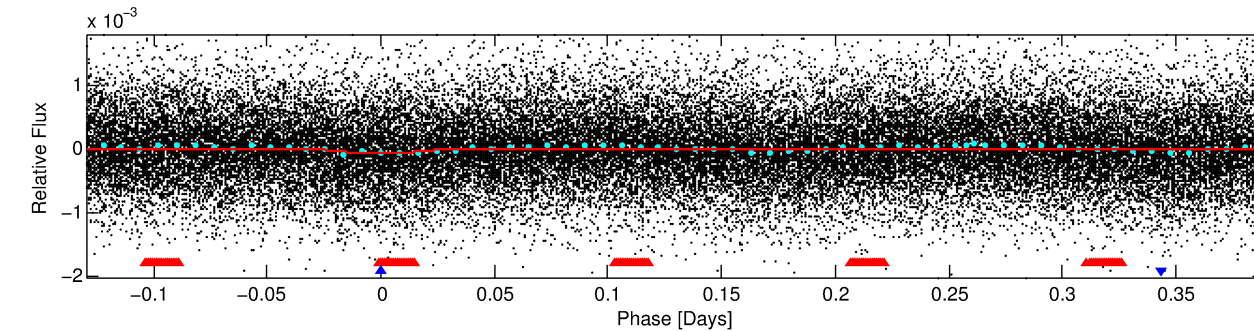
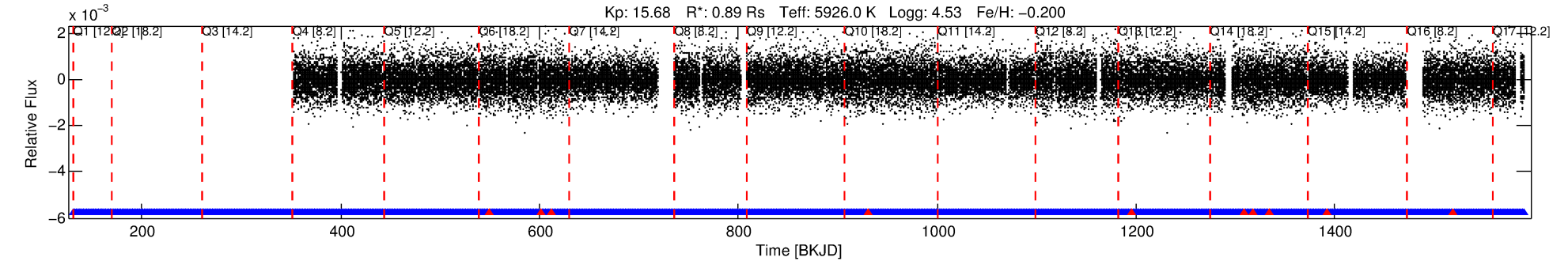
No Significant Match Found

DV One-Page Summary

KIC: 9642292 Candidate: 2 of 2 Period: 0.519 d

KOI: K02946 Corr: No Ephemeris Match

Kp: 15.68 R*: 0.89 Rs Teff: 5926.0 K Logg: 4.53 Fe/H: -0.200



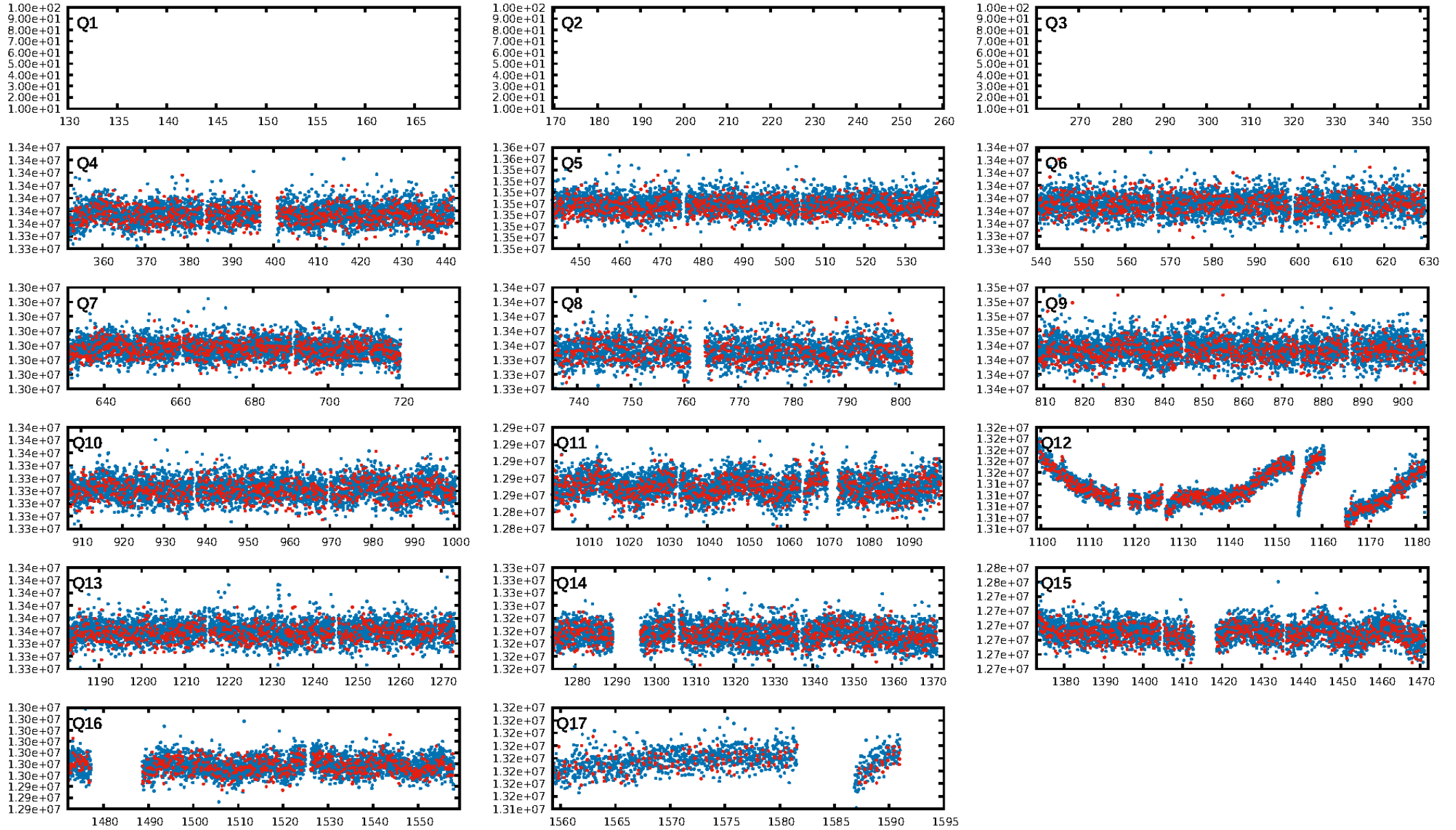
DV Fit Results:

Period = 0.51852 [0.00002] d
Epoch = 131.8195 [0.0025] BKJD
Rp/R* = 0.0082 [0.0045]
a/R* = 2.98 [6.80]
b = 0.72 [1.74]
Seff = 5531.86 [2184.07]
Teff = 2199 [217] K
Rp = 0.79 [0.50] Re
a = 0.0125 [0.0032] AU
Ag = 6.74 [7.86] [0.73σ]
Teffp = 5477 [1529] K [2.12σ]

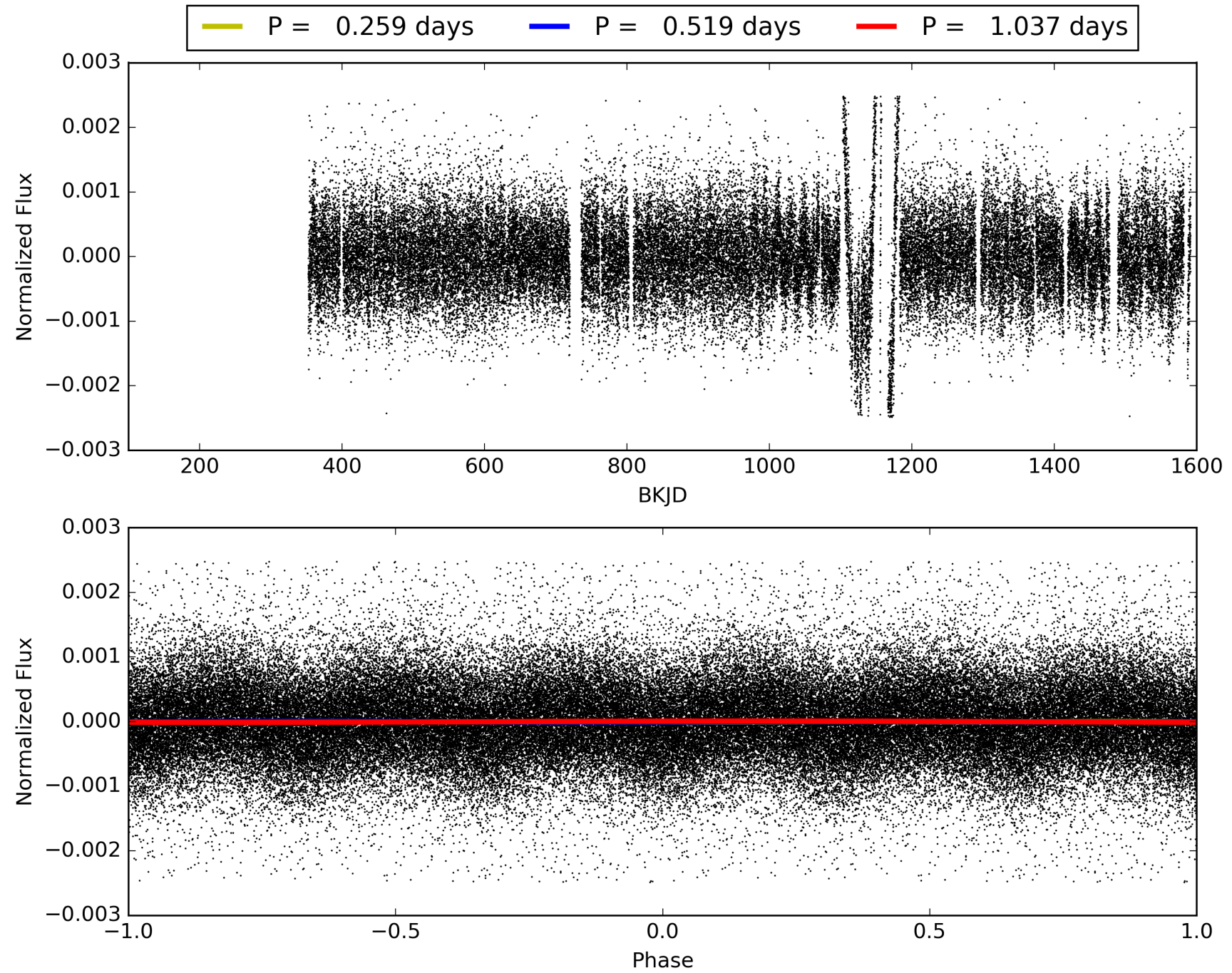
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [76.17σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.35e-14
RollingBand-fgt: 1.00 [2048/2058]
GhostDiagnostic-chr: -0.5625
Centroid-sig: 0.0%
Centroid-so: 6.989 arcsec [3.28σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [14/14]

TCE 009642292-02, PDC Light Curves

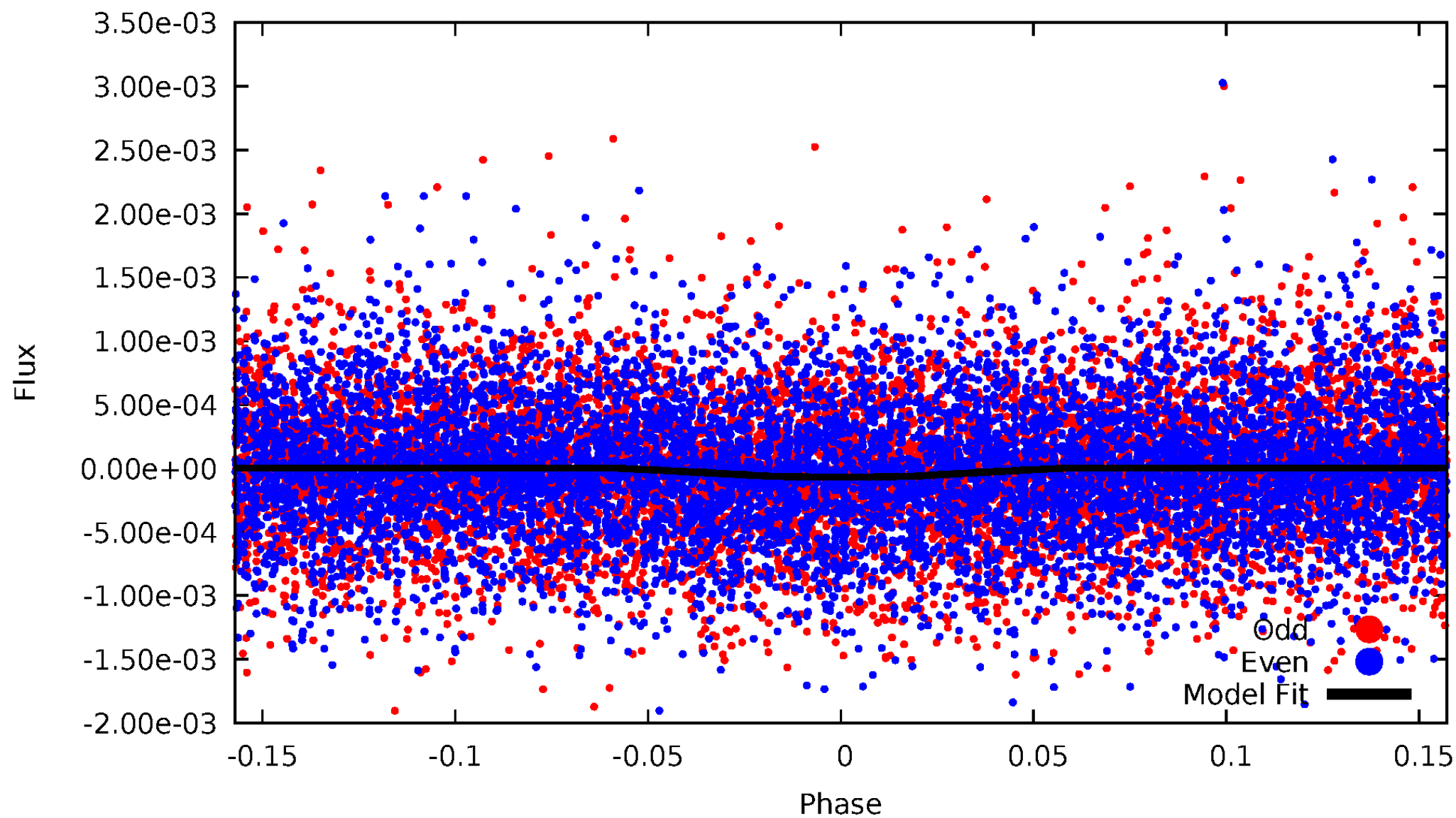


TCE 009642292-02



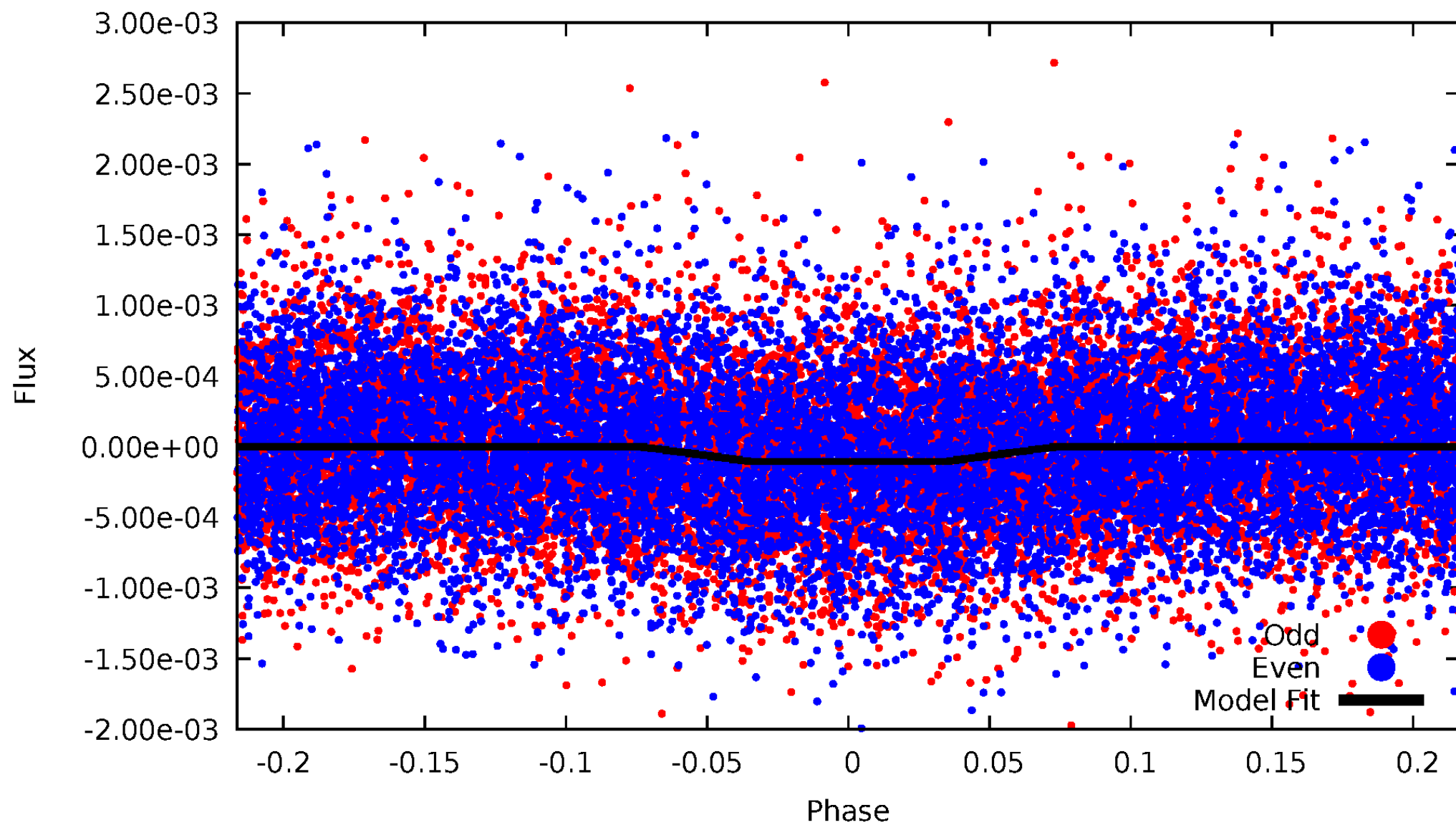
DV Odd/Even

TCE 009642292-02



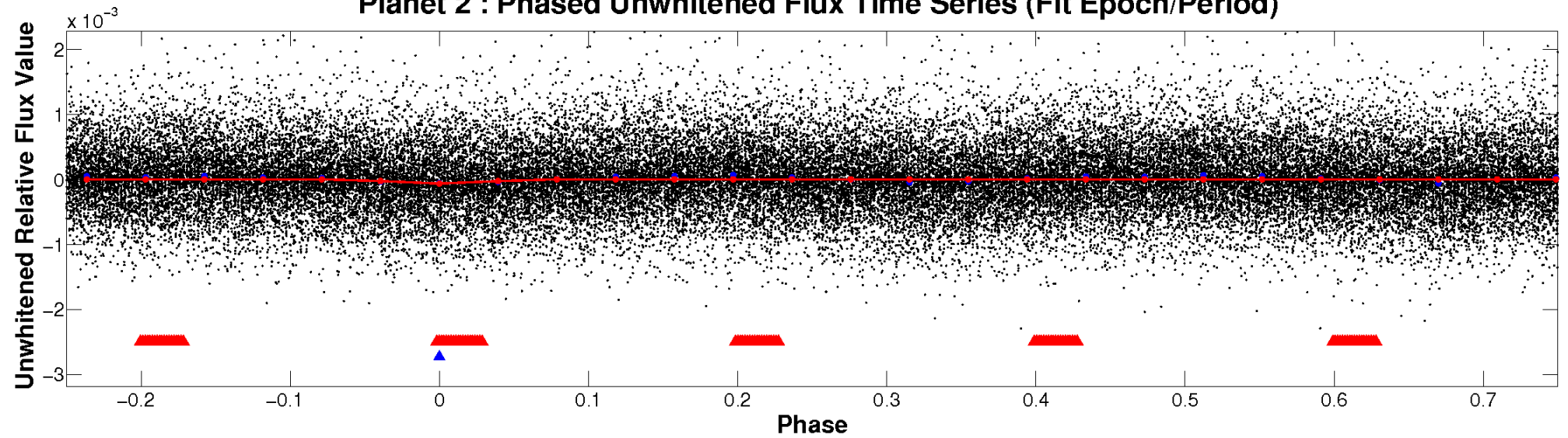
ALT Odd/Even

TCE 009642292-02

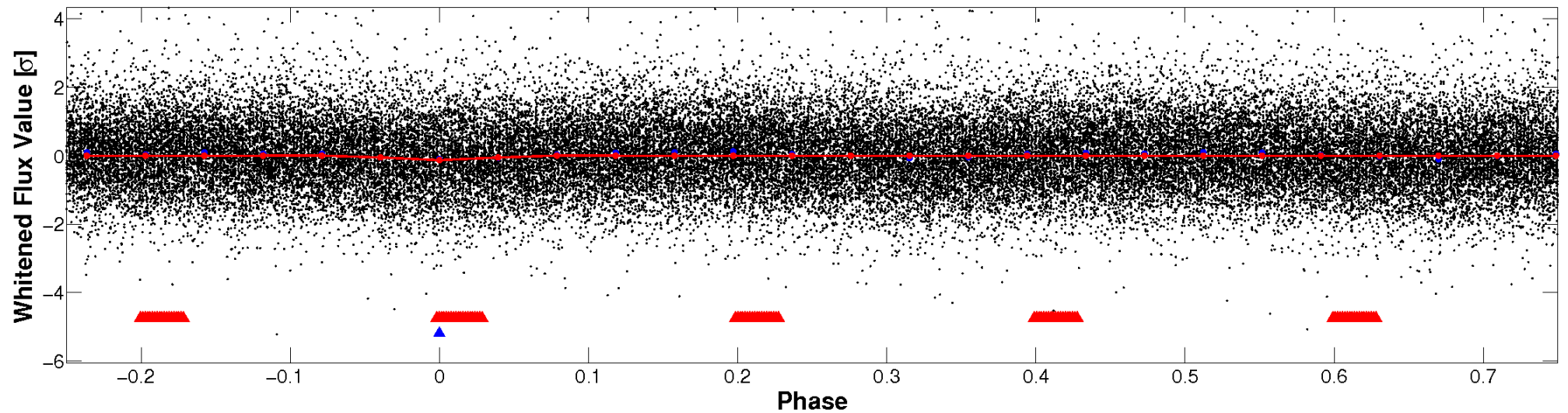


Non-Whitened Vs. Whitened Light Curve

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

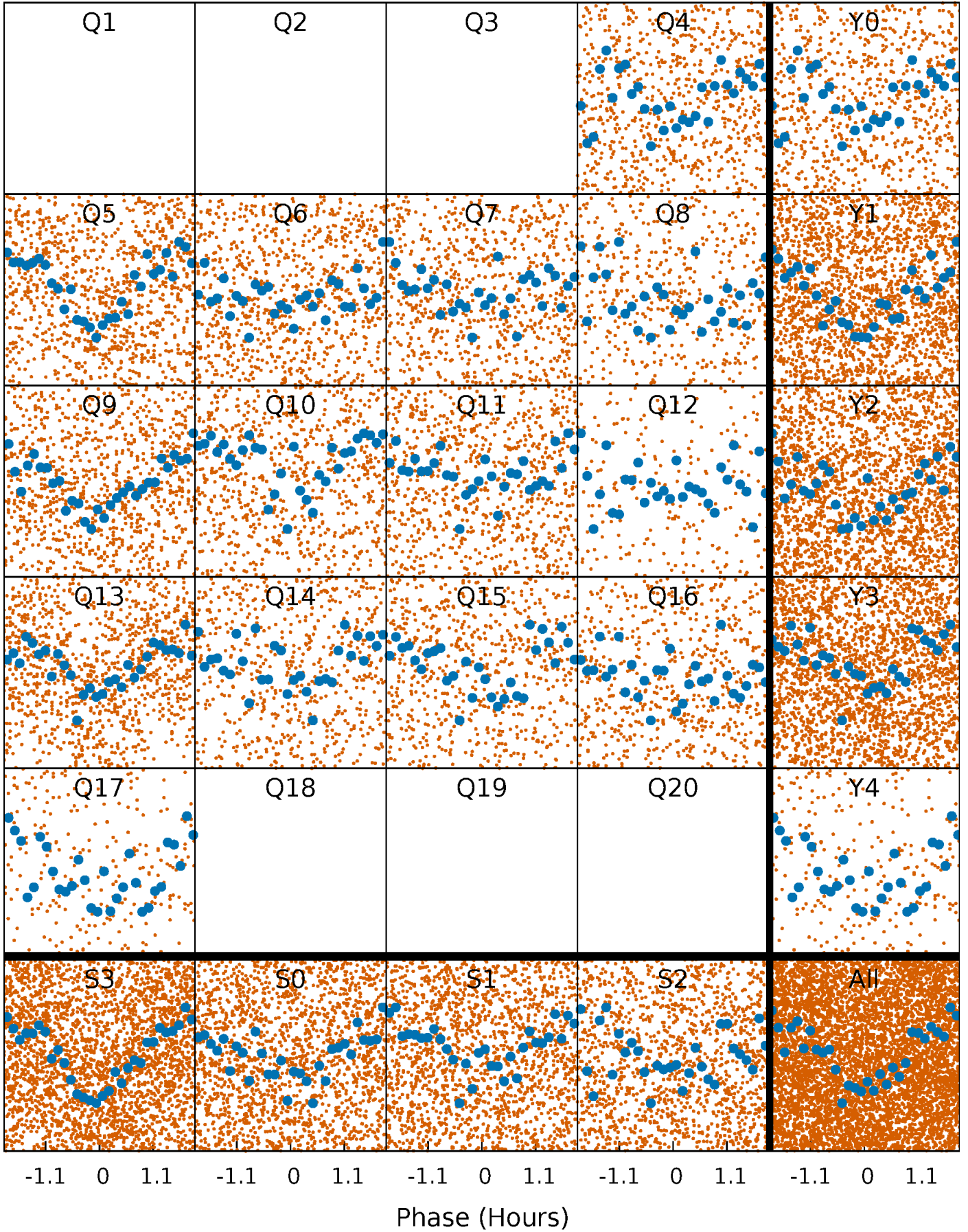


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



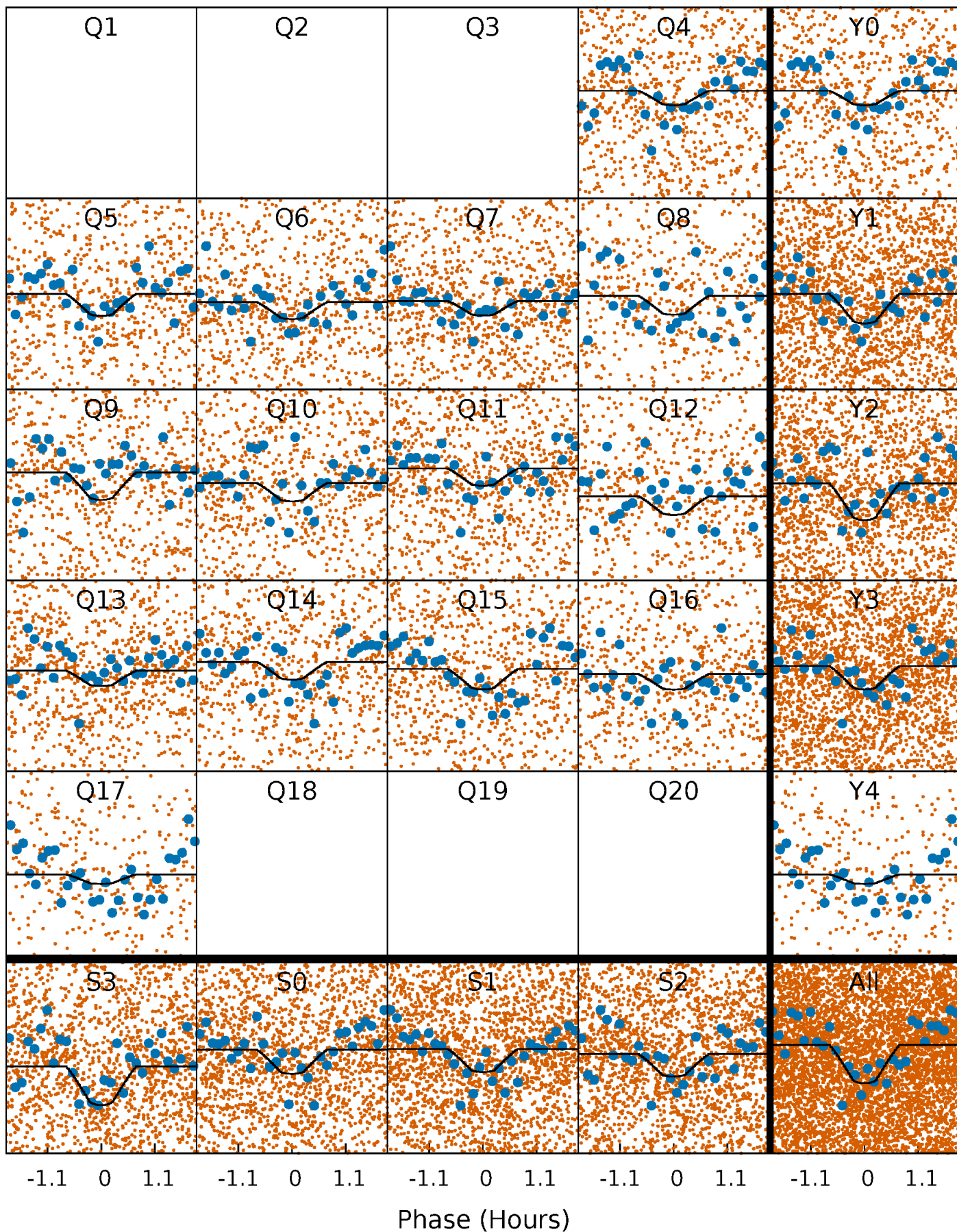
PDC Quarter-Phased Transit Curves

TCE 009642292-02 P= 0.518519 Days $T_0=131.819506$ (BKJD)



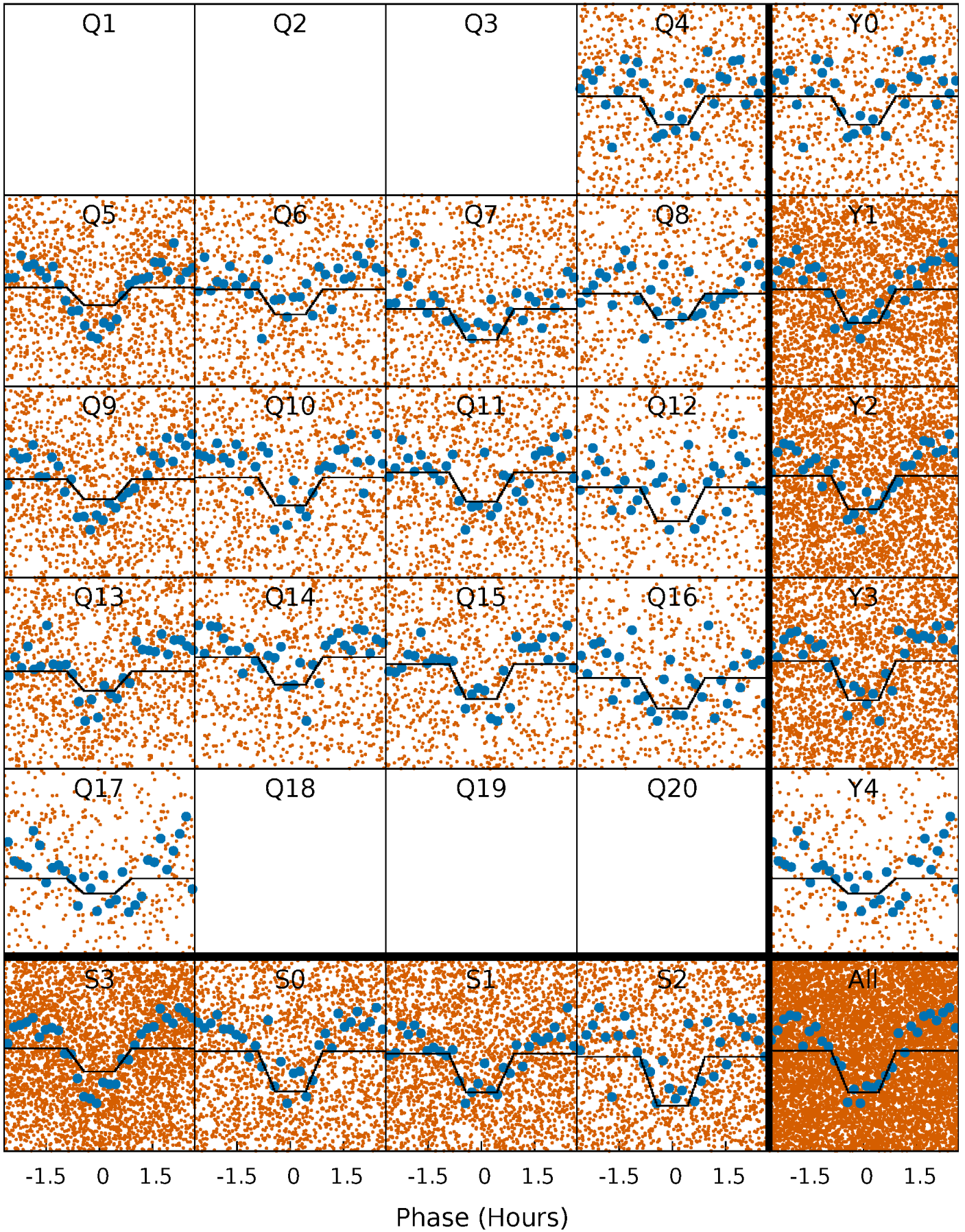
DV Quarter-Phased Transit Curves

TCE 009642292-02 P= 0.518519 Days $T_0=131.819506$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

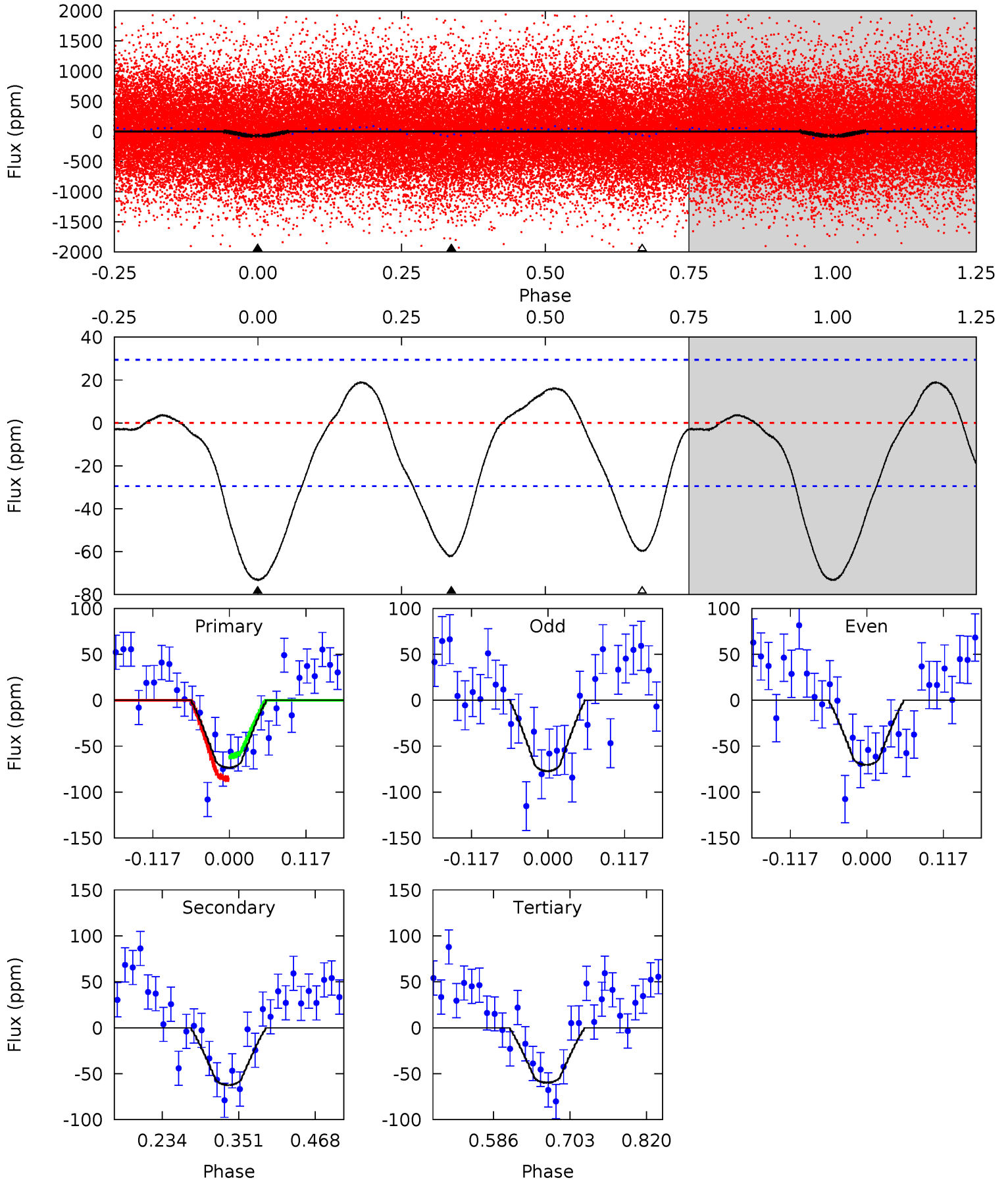
TCE 009642292-02 P= 0.518518 Days $T_0=131.820931$ (BKJD)



DV Model-Shift Uniqueness Test

009642292-02, P = 0.518519 Days, E = 131.819506 Days

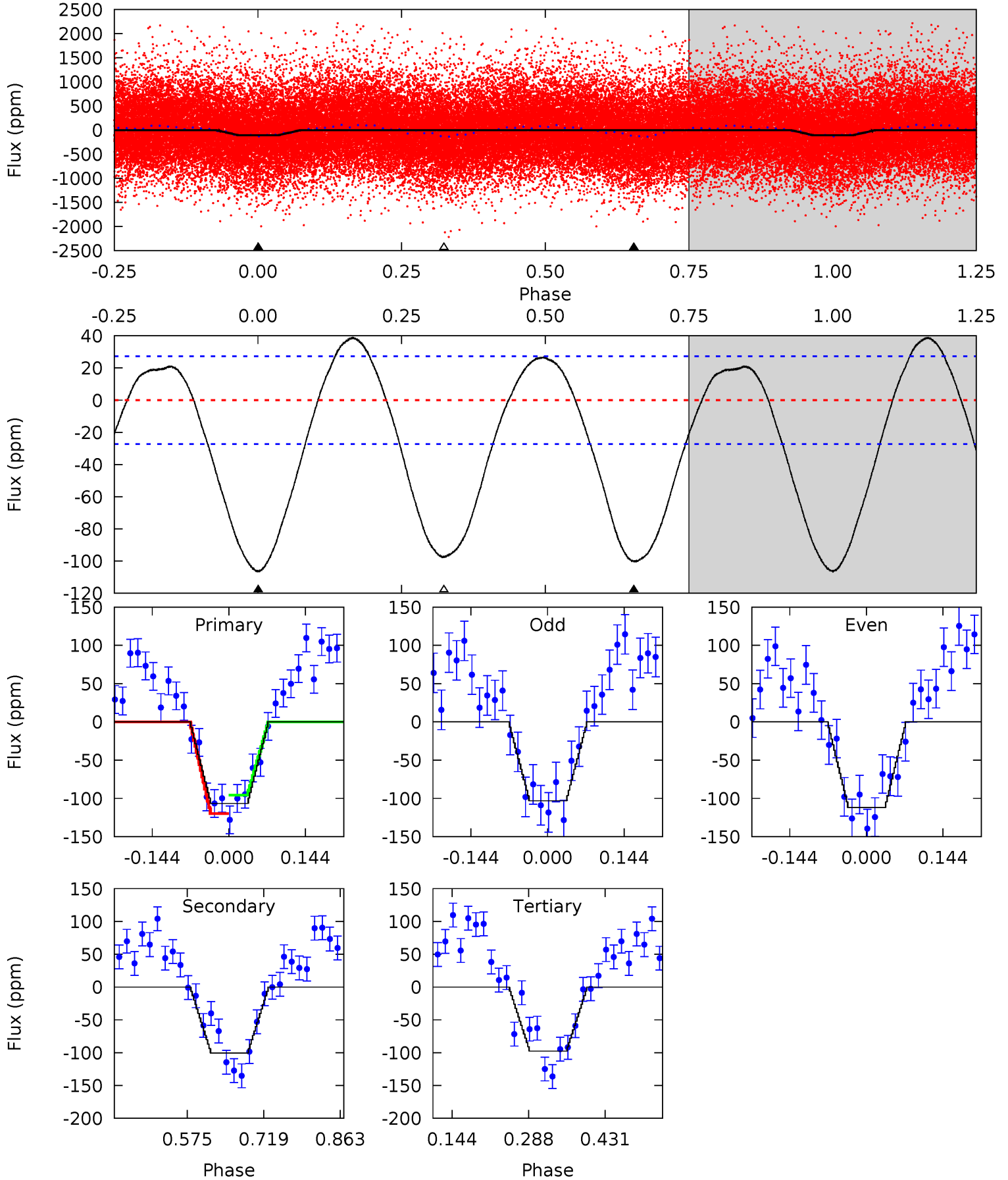
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	9.60	9.21	0	4.53	1.57	3.47	2.10	11.3	0.38	9.60	0.53	1.00	0.21	1.89



Alt Model-Shift Uniqueness Test

009642292-02, P = 0.518518 Days, E = 131.820931 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.5	16.5	16.1	0	4.49	1.46	7.63	1.47	17.5	0.46	16.5	0.73	0.92	0.27	2.00



Stellar Parameters For KIC 009642292

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5926^{+187}_{-207}	$4.532^{+0.050}_{-0.200}$	$-0.200^{+0.300}_{-0.300}$	$0.887^{+0.273}_{-0.091}$	$0.978^{+0.119}_{-0.131}$	$1.971^{+0.409}_{-1.044}$
	+3%/-3%	+1%/-4%	+150%/-150%	+31%/-10%	+12%/-13%	+21%/-53%
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 009642292-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-62 ± 6	$0.84^{+0.44}_{-0.40}$	3142^{+214}_{-153}	5773^{+2426}_{-1044}	$7.576^{+20.966}_{-4.342}$
Alt.	-100 ± 6	$1.08^{+0.47}_{-0.48}$	3136^{+214}_{-150}	5750^{+2101}_{-912}	$7.361^{+17.415}_{-3.796}$

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

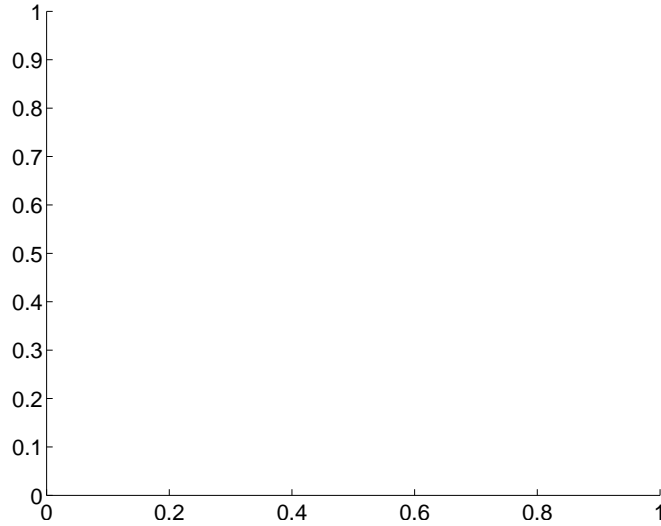
Supplemental centroid analysis for 009642292-02. Kepler magnitude: 15.68. Transit SNR 7.01

There are 0 quarters with good PRF difference image offsets

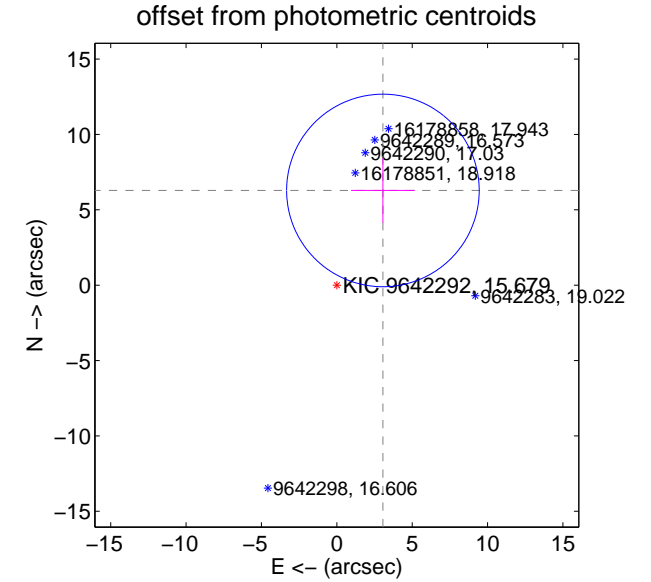
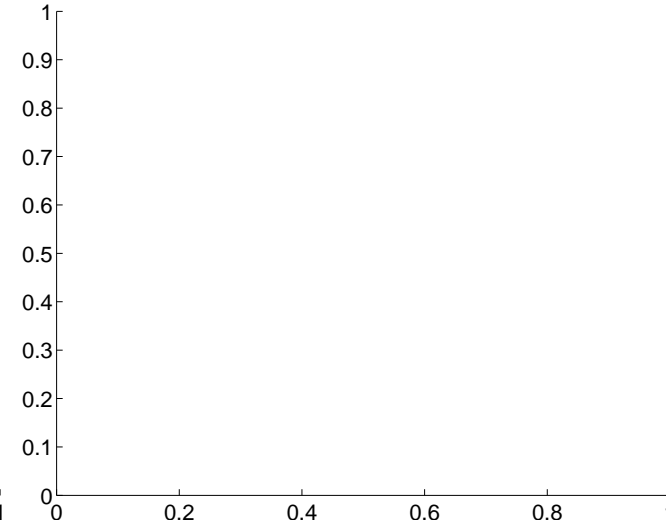
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	6.99 ± 2.13	3.28	-3.06 ± 2.11	6.28 ± 2.13

There is no PRF-fit offset from OOT-fit

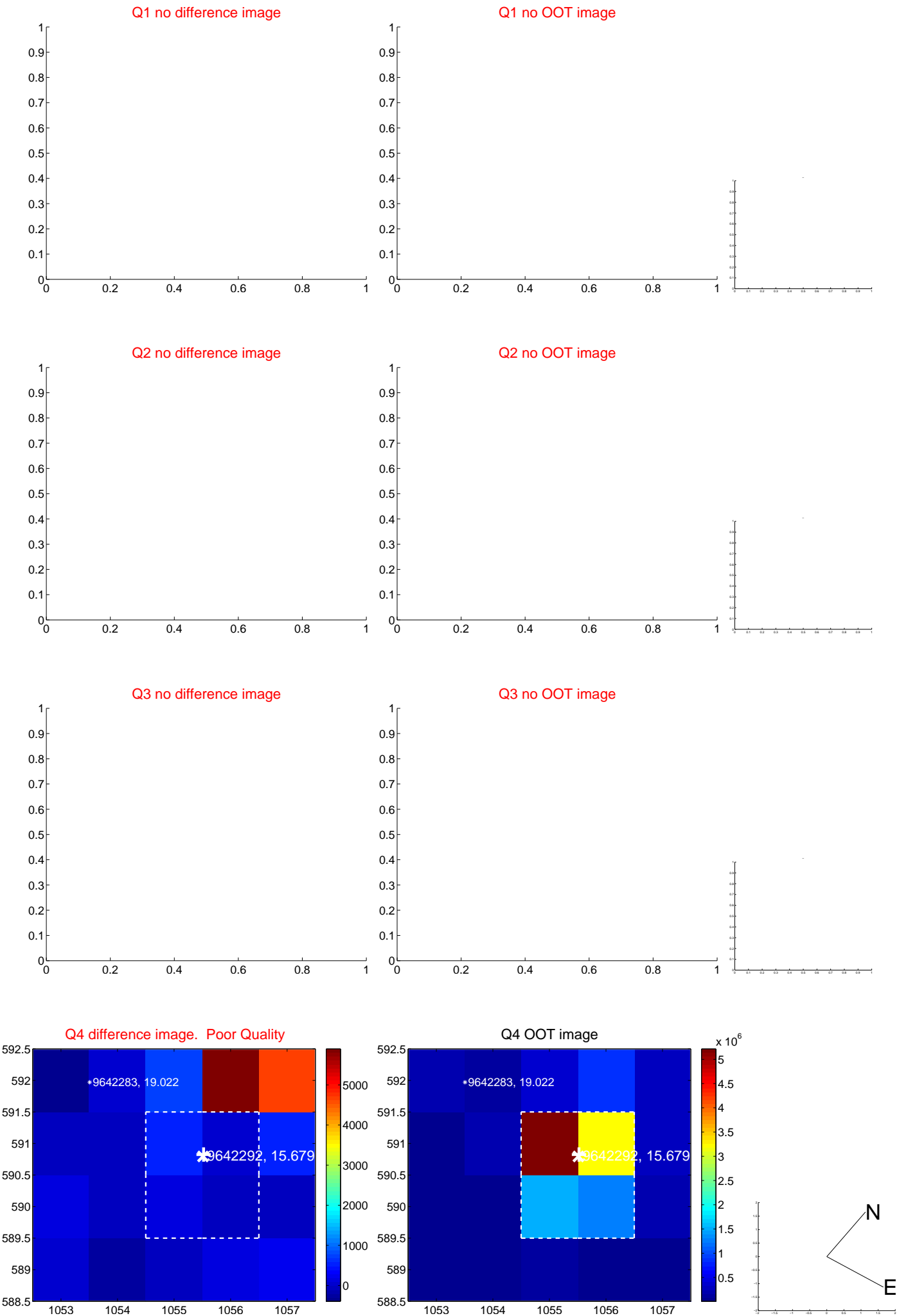


There is no PRF-fit offset from KIC

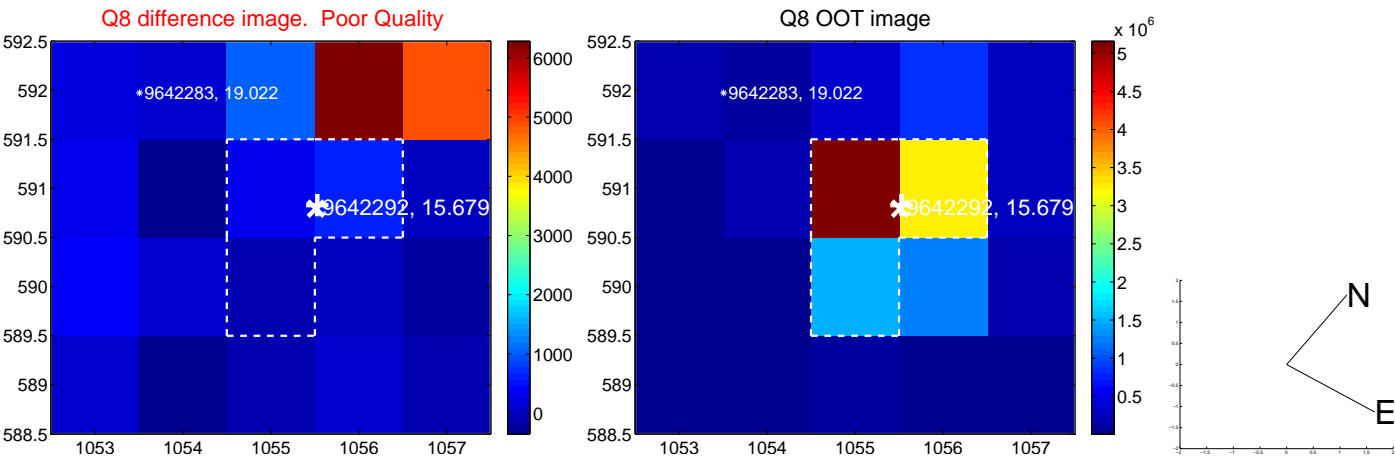
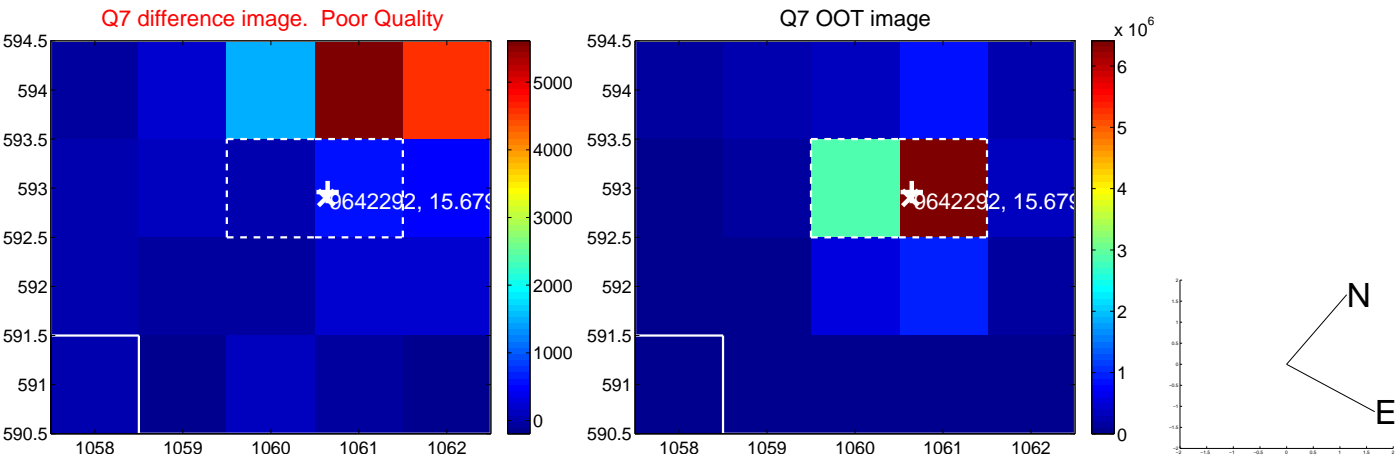
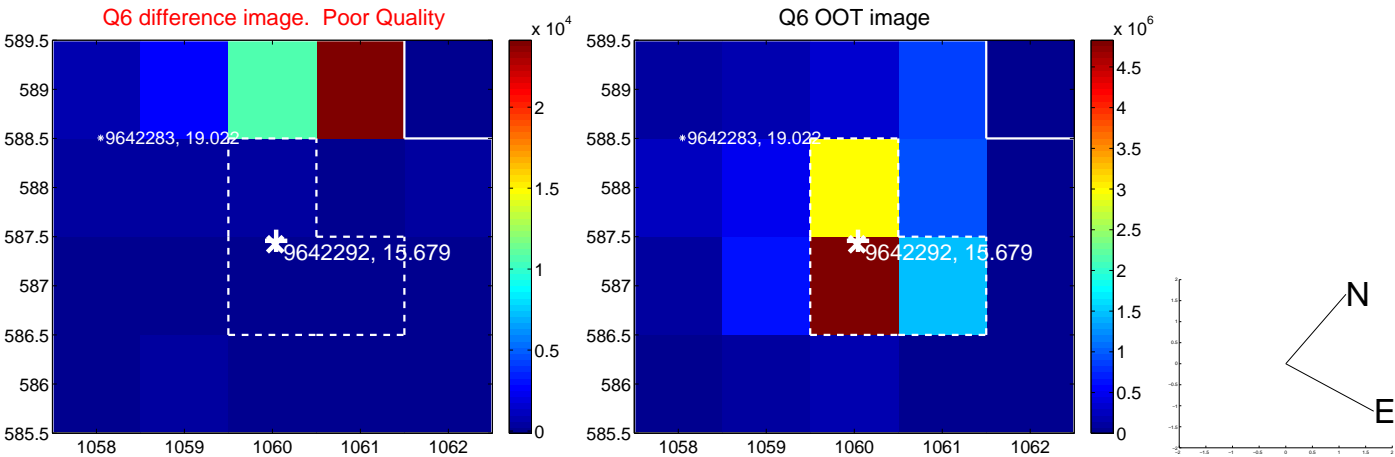
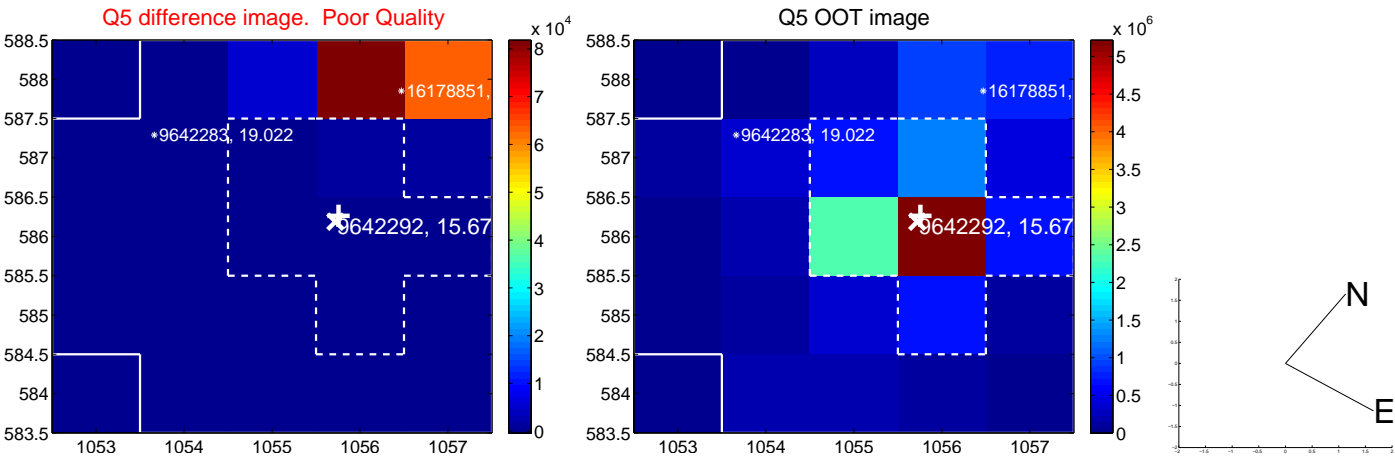


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

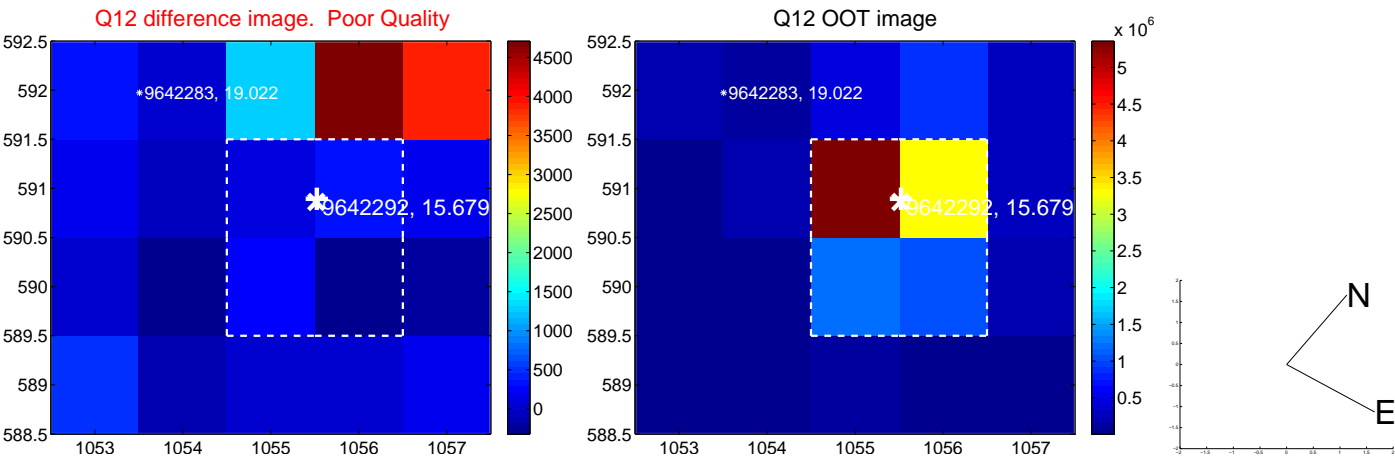
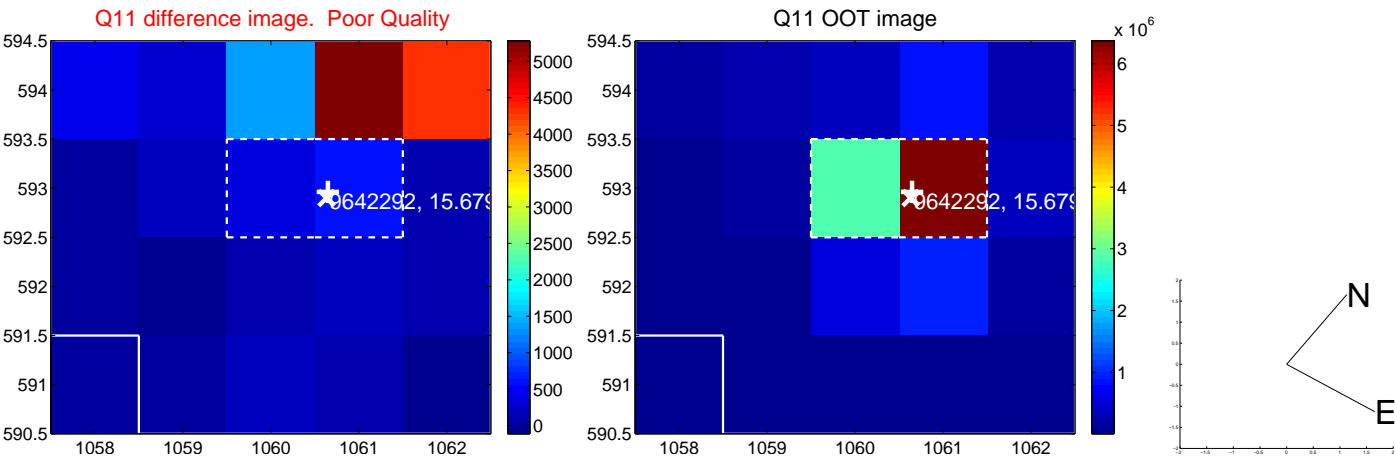
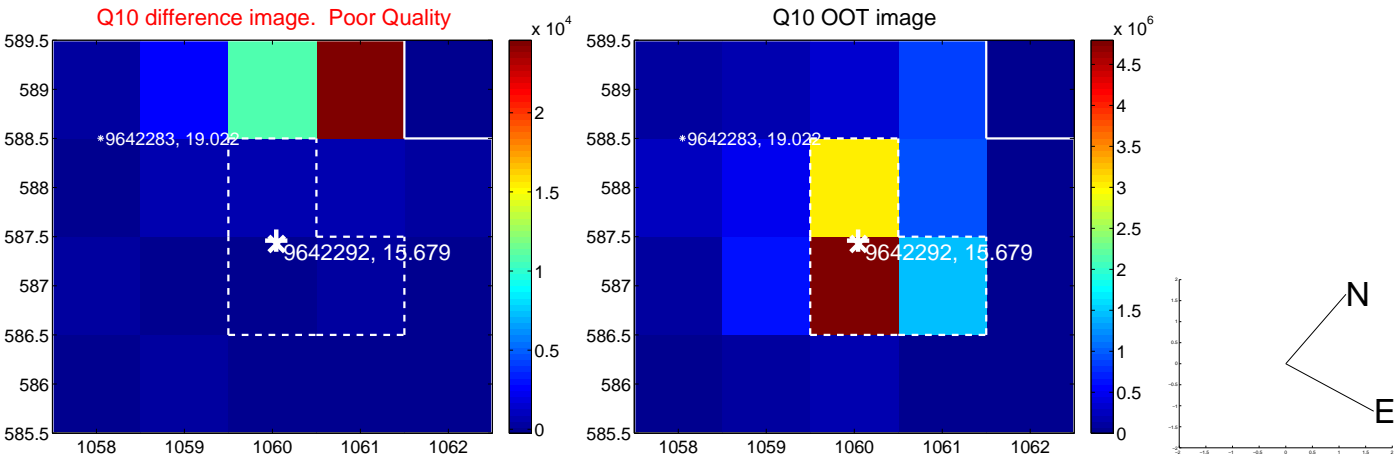
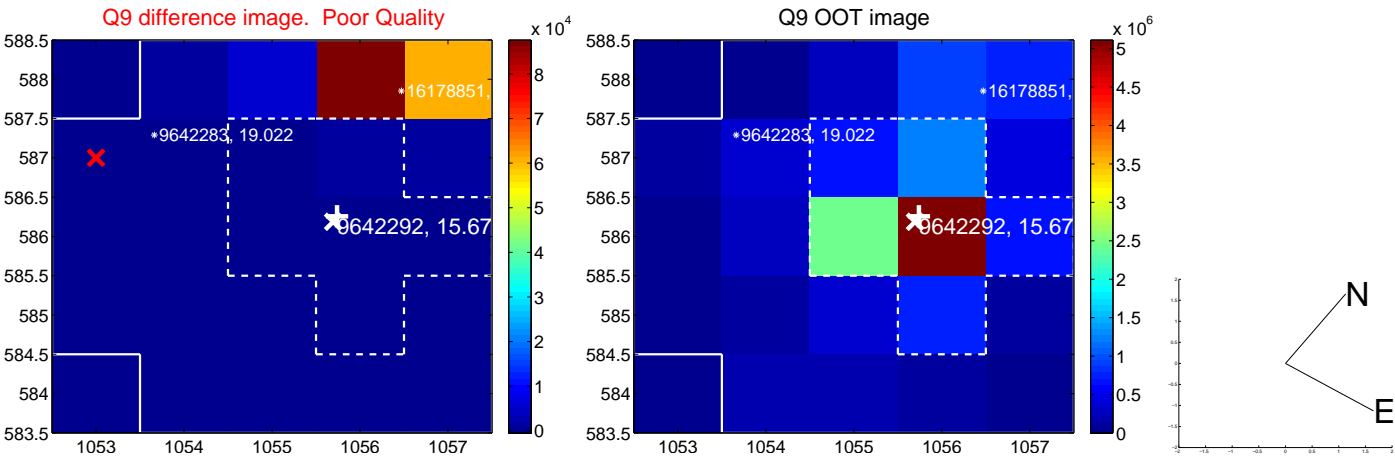
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



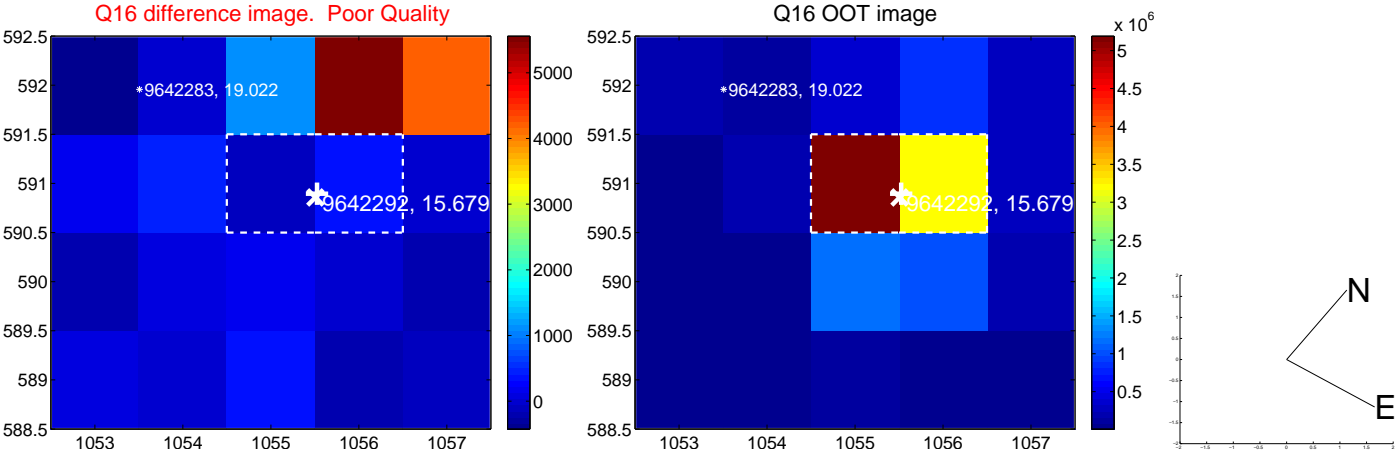
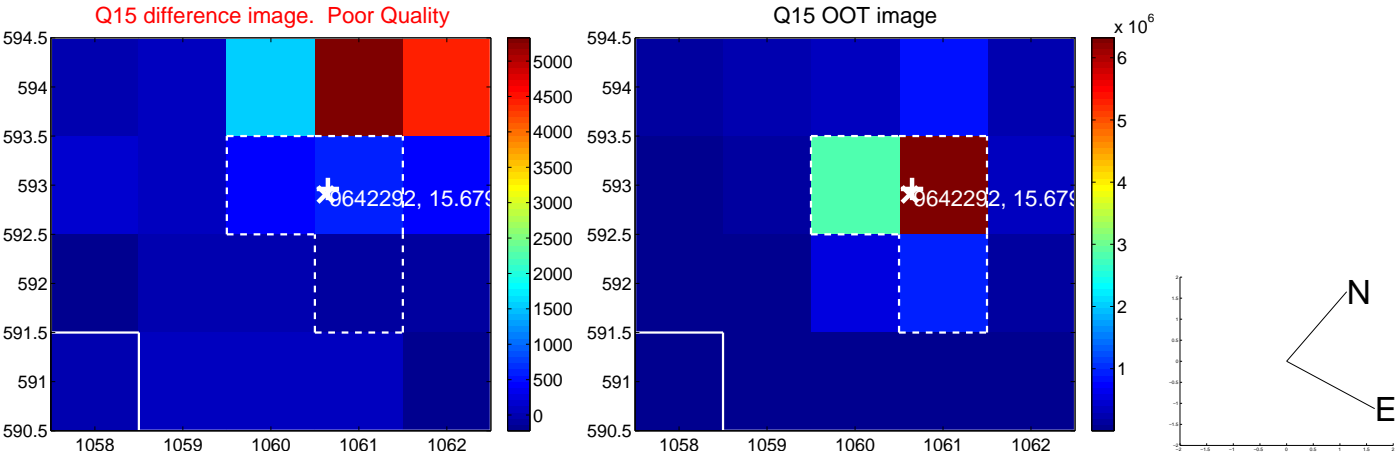
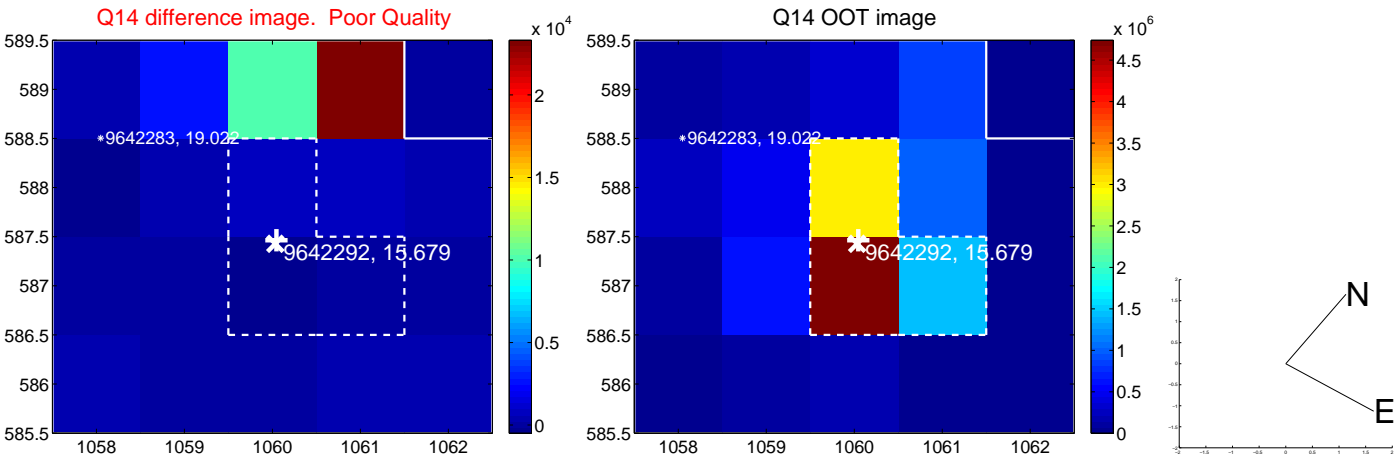
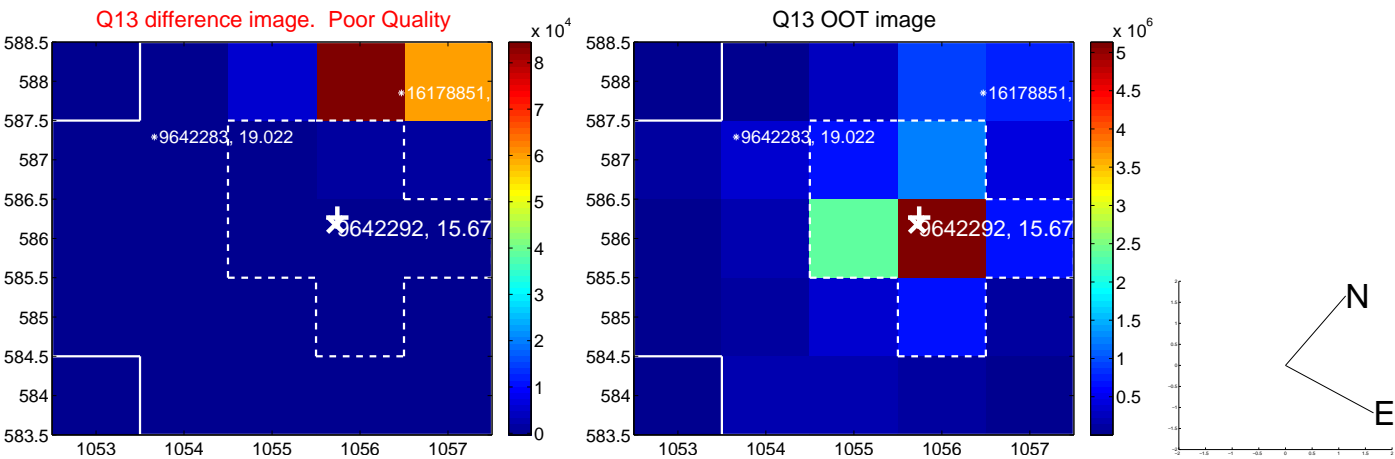
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Declination

