

KIC 006364215

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})
006364215-01	OBS	2404.02	5.244236	132.588677	115.0	13.310	14.6	15.6	0.92	5815	1.07	252.01
006364215-02	OBS	2404.01	2.100800	132.271354	156.2	2.393	11.6	12.5	0.92	5815	1.35	853.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006364215-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
006364215-02	OBS	PC	0.97	0	0	0	0	NO_COMMENT

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 006364215-01

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
006364215-01	6364215	TT-Lyr-pri	6364290	1:1	252.8	-61	19	9.49	15.65	7427.10	Direct-PRF	0	4.79	4.24

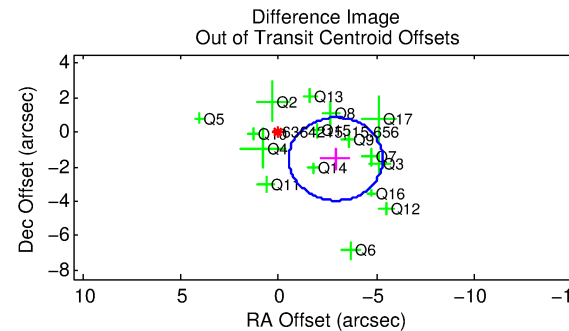
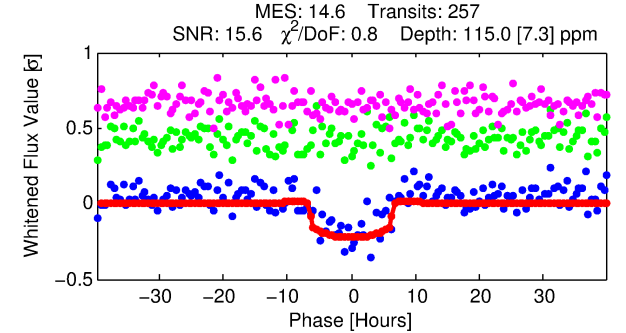
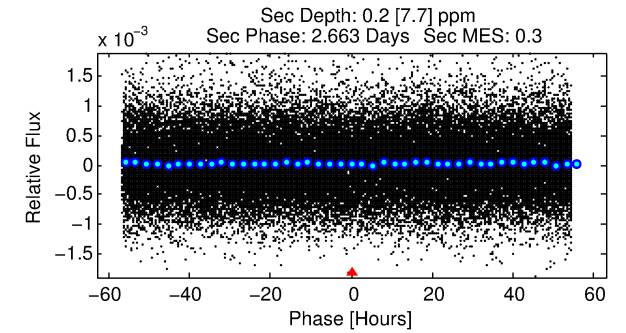
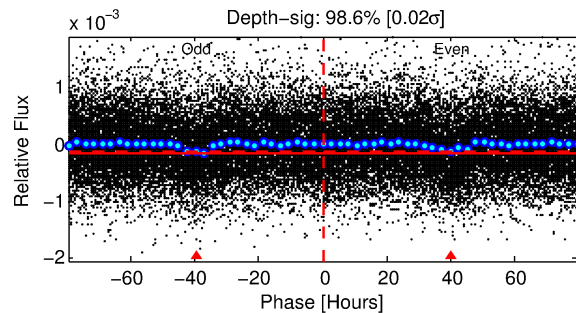
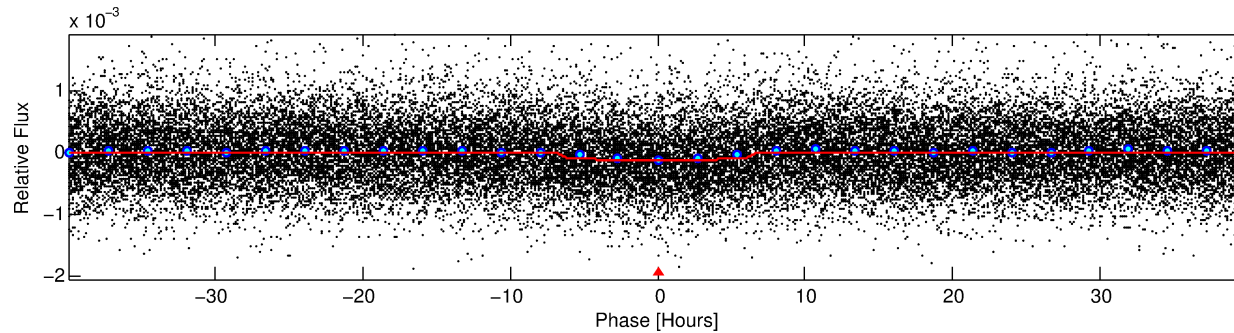
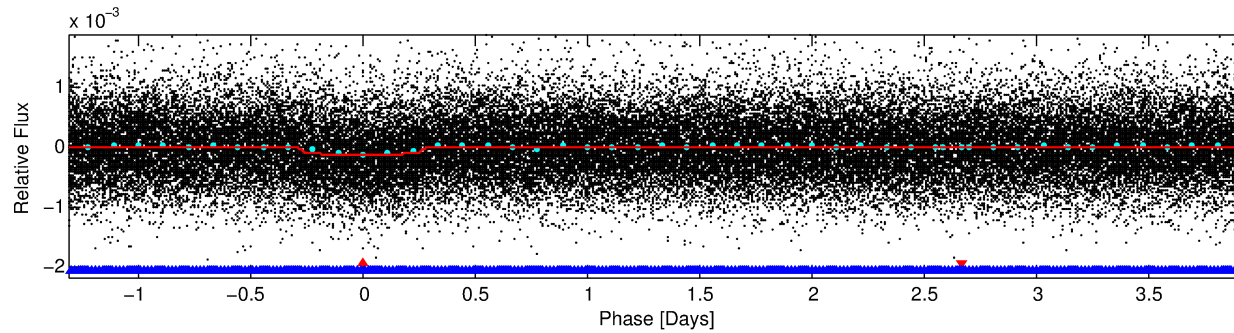
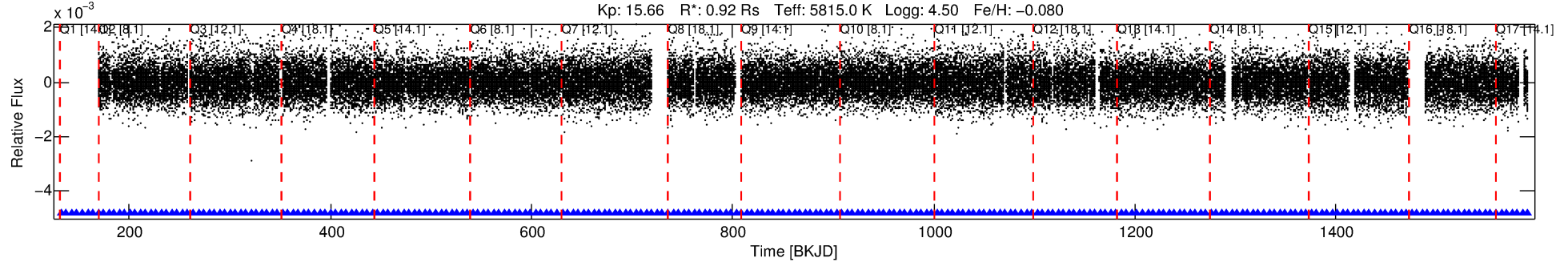
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 6364215 Candidate: 1 of 2 Period: 5.244 d

KOI: K02404.02 Corr: 0.814

Kp: 15.66 R*: 0.92 Rs Teff: 5815.0 K Logg: 4.50 Fe/H: -0.080



DV Fit Results:

Period = 5.24424 [0.00008] d
Epoch = 132.5887 [0.0108] BKJD
Rp/R* = 0.0107 [0.0035]
a/R* = 2.19 [2.60]
b = 0.75 [0.86]
Seff = 252.01 [97.72]
Teq = 1016 [98] K
Rp = 1.07 [0.47] Re
a = 0.0585 [0.0146] AU
Ag = 0.25 [12.68] [-0.06σ]
Teffp = 1115 [13923] K [0.01σ]

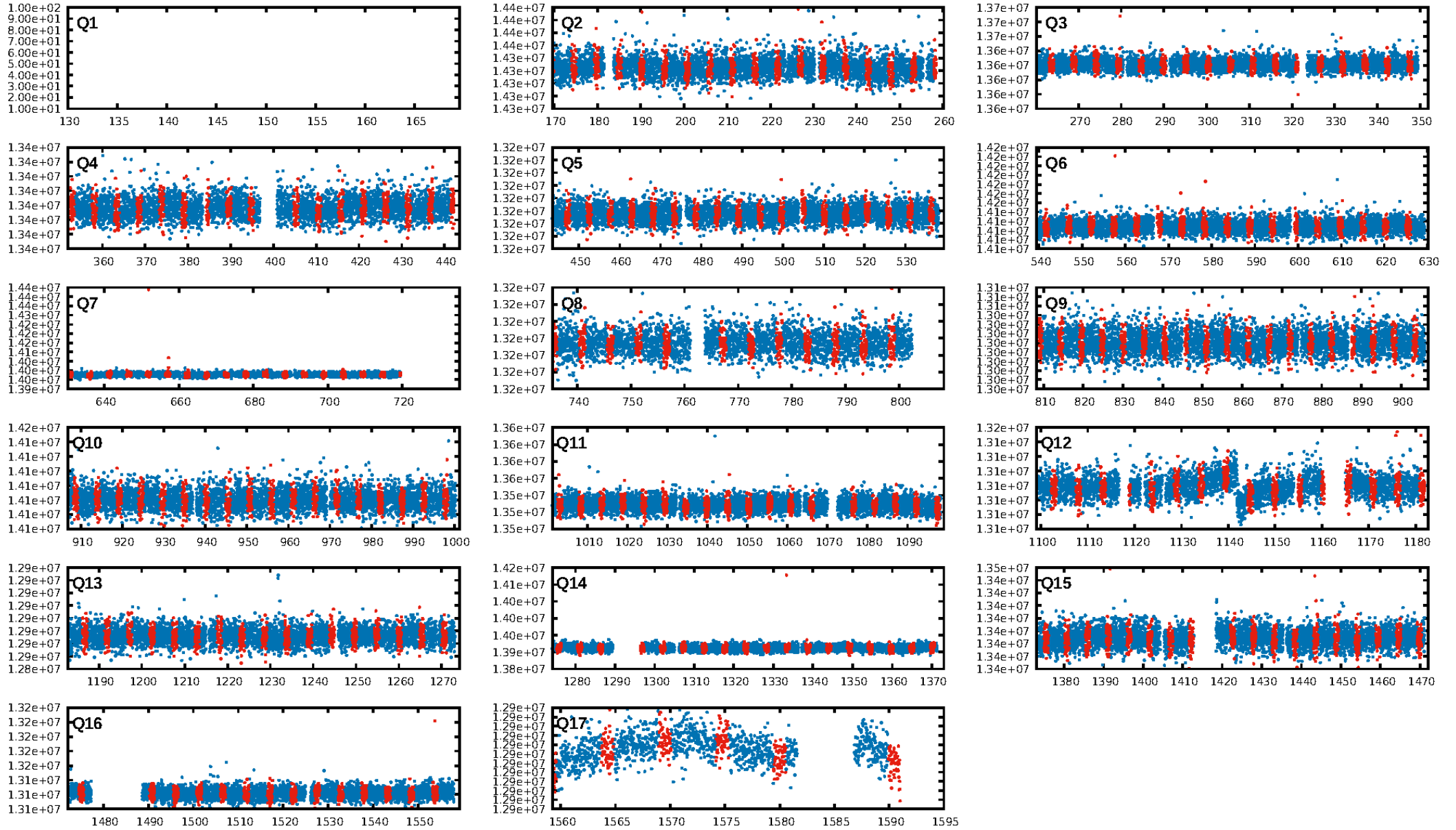
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.58σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.43e-52
RollingBand-fgt: 1.00 [251/251]
GhostDiagnostic-chr: 0.1717
Centroid-sig: 12.7%
Centroid-so: 0.975 arcsec [1.06σ]
OotOffset-rm: 3.311 arcsec [4.14σ]
KicOffset-rm: 3.372 arcsec [4.23σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.12 [2/16]
DiffImageOverlap-fno: 0.19 [3/16]

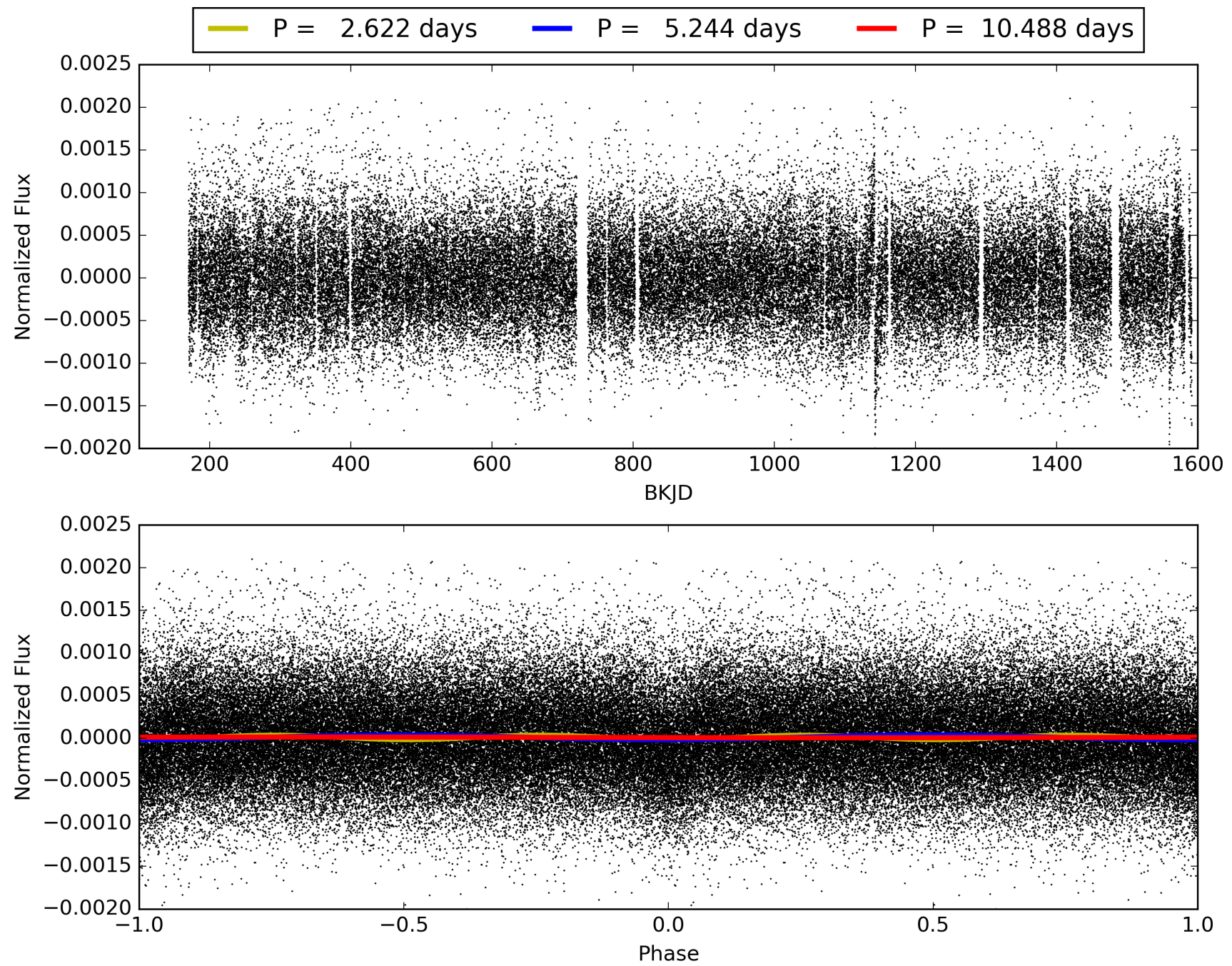
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:15:57 Z

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

TCE 006364215-01, PDC Light Curves

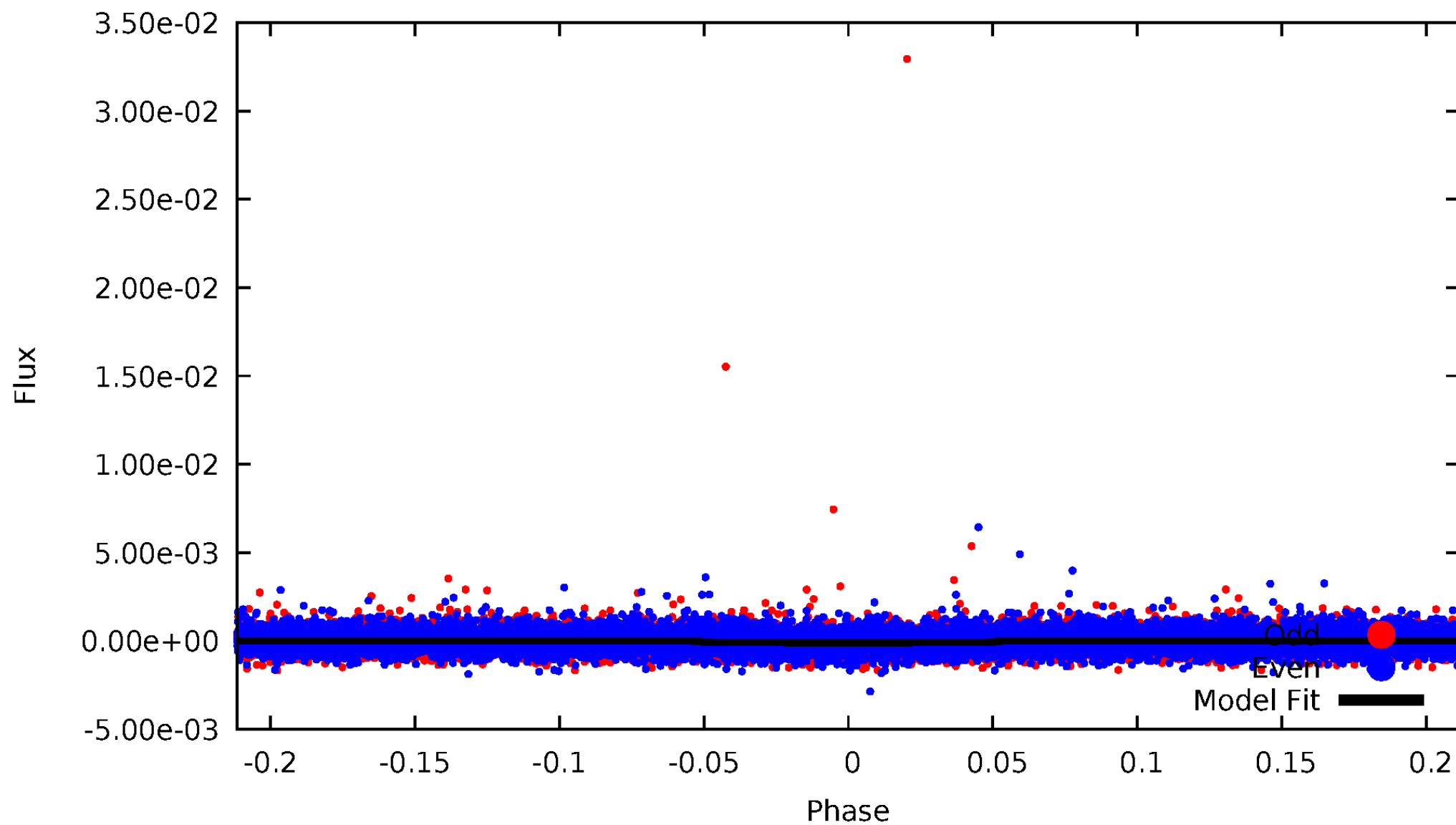


TCE 006364215-01



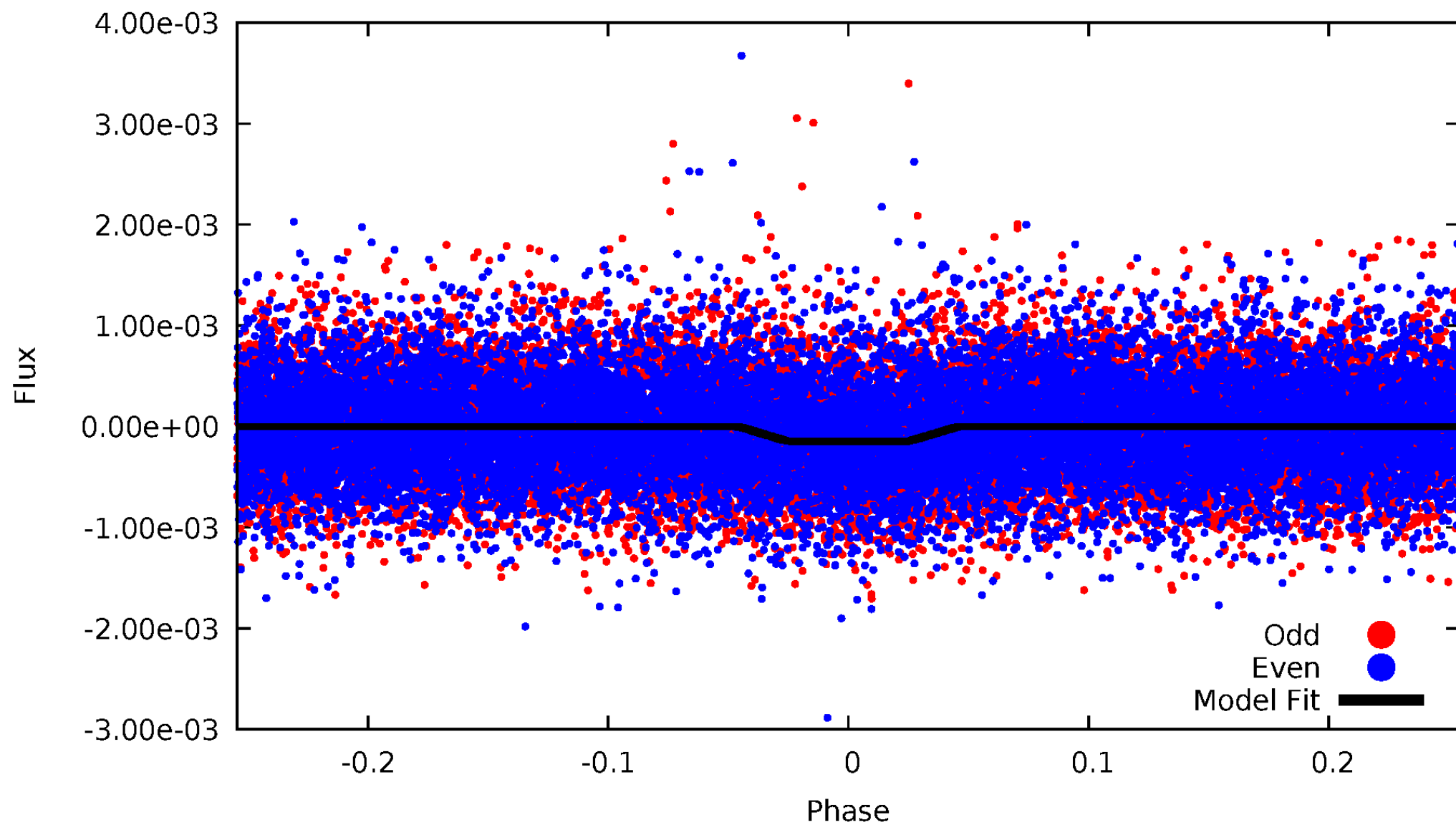
DV Odd/Even

TCE 006364215-01

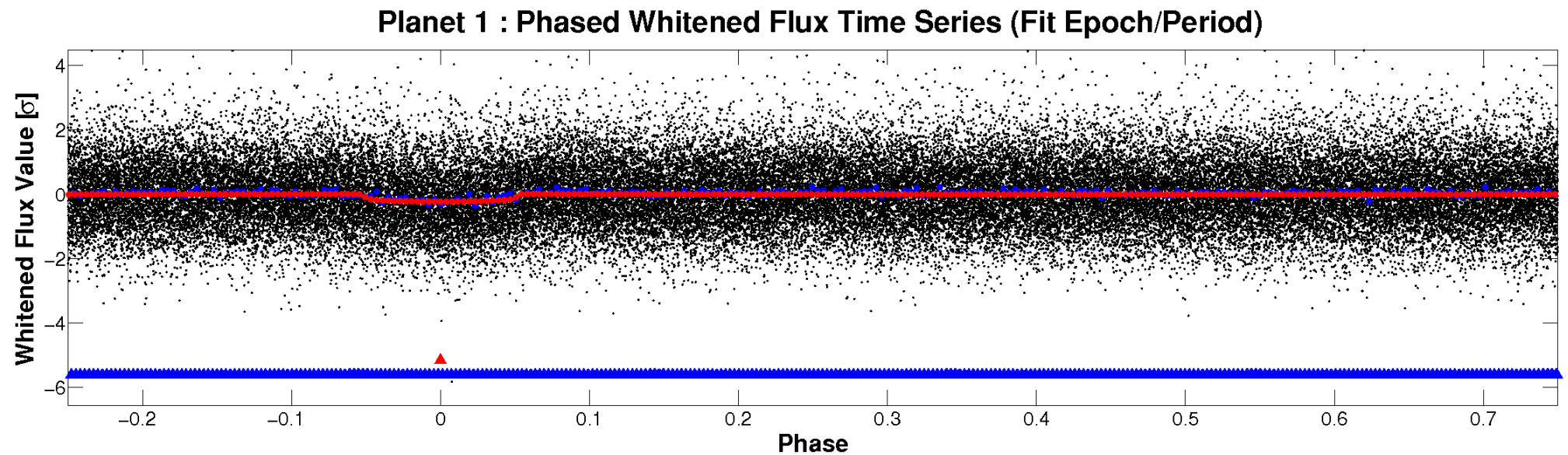
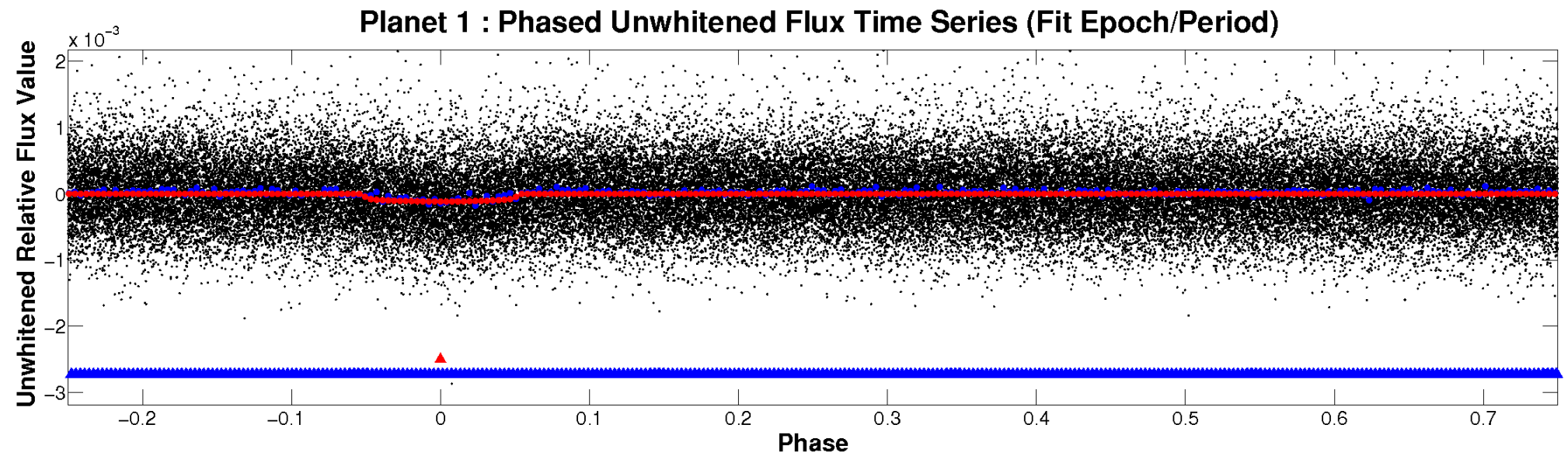


ALT Odd/Even

TCE 006364215-01

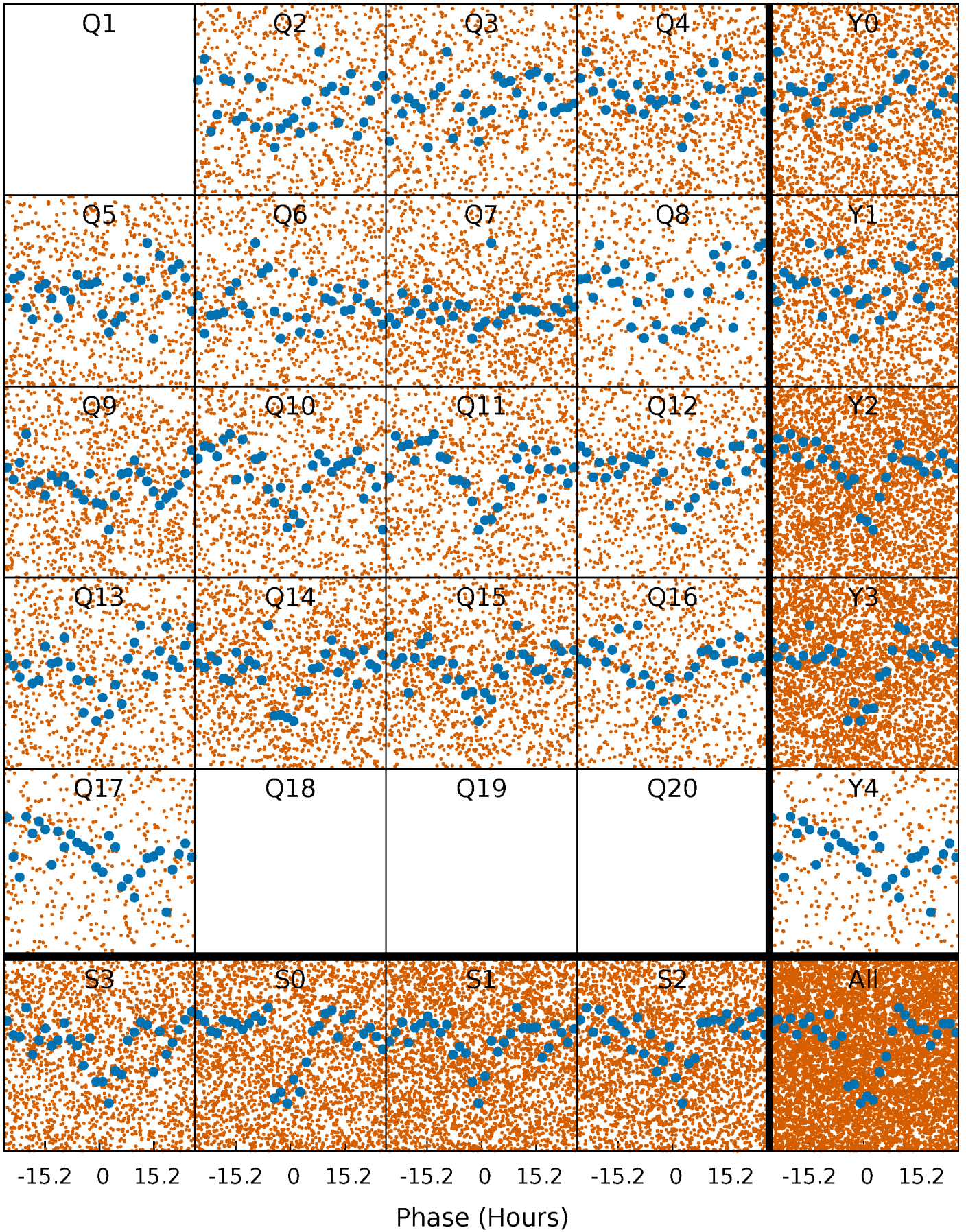


Non-Whitened Vs. Whitened Light Curve



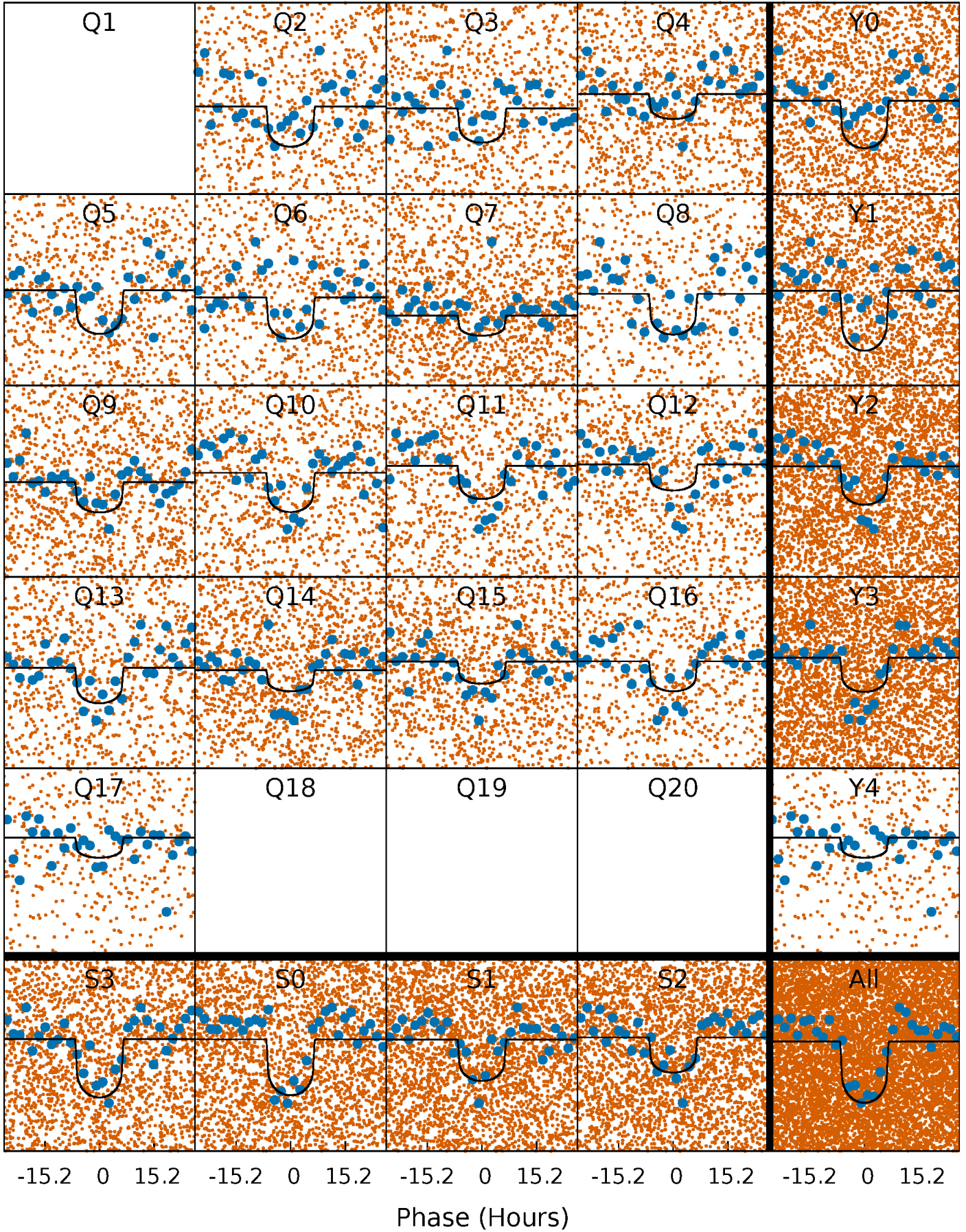
PDC Quarter-Phased Transit Curves

TCE 006364215-01 P= 5.244236 Days $T_0=132.588677$ (BKJD)



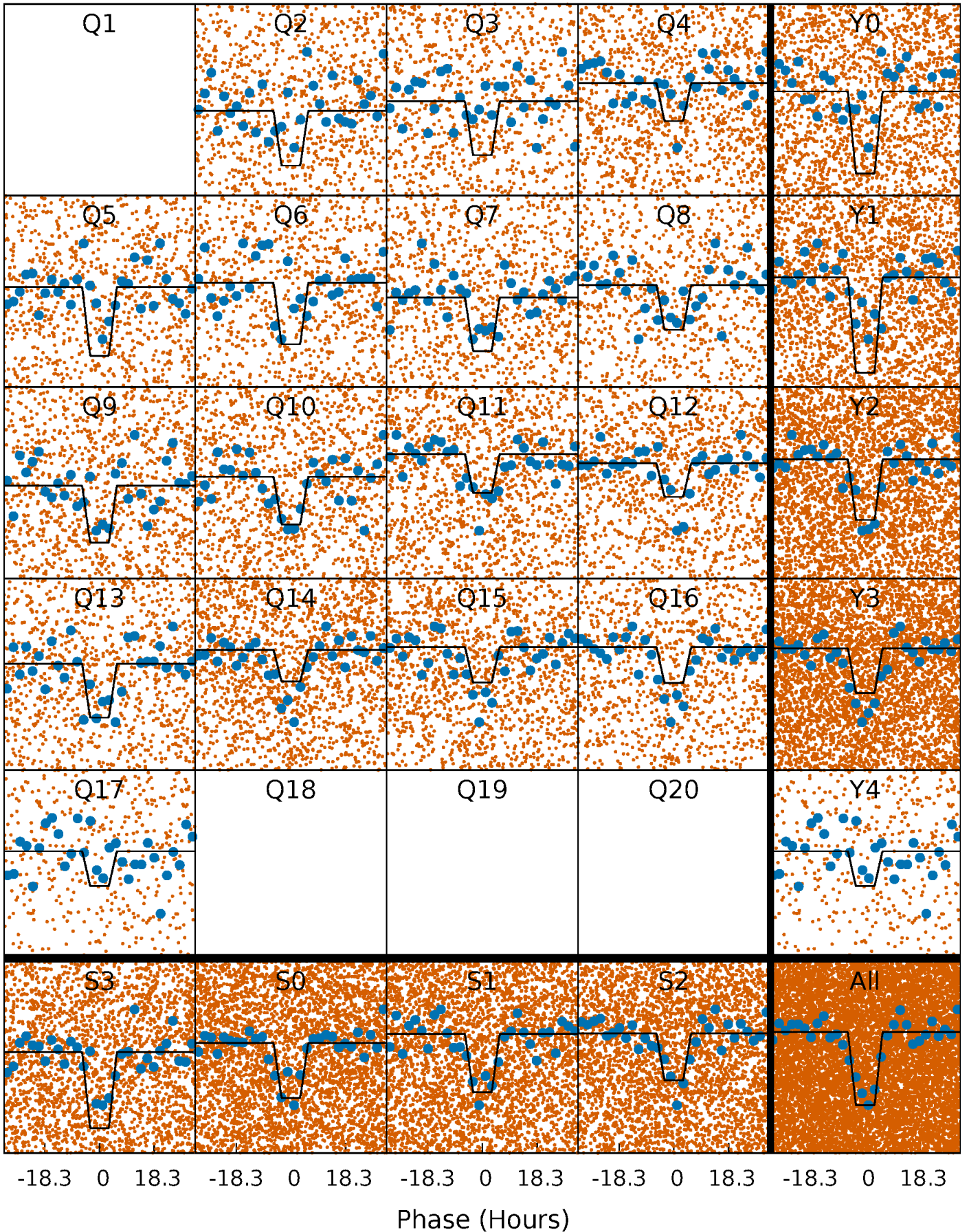
DV Quarter-Phased Transit Curves

TCE 006364215-01 P= 5.244236 Days $T_0=132.588677$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

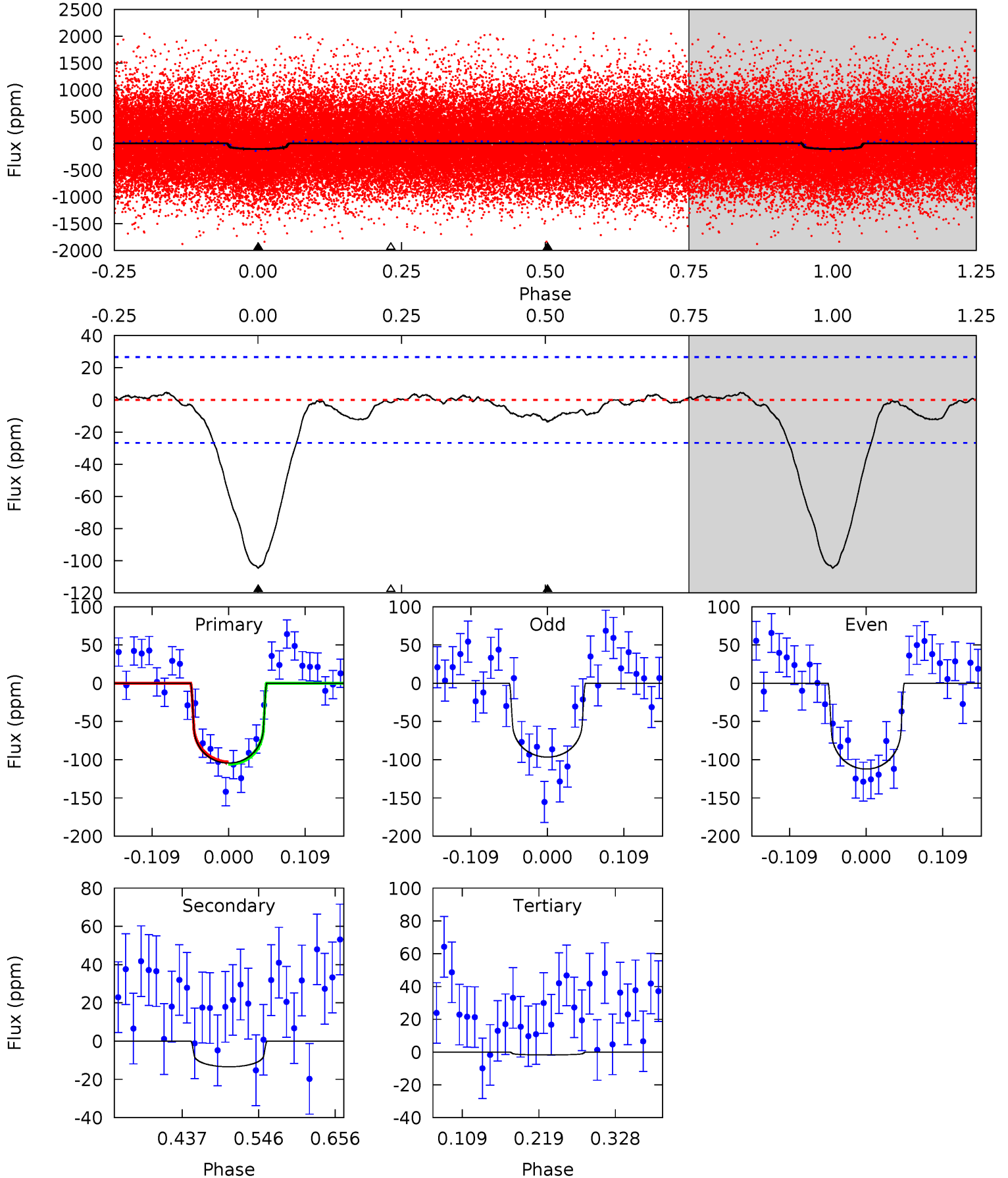
TCE 006364215-01 P= 5.243719 Days $T_0=132.692376$ (BKJD)



DV Model-Shift Uniqueness Test

006364215-01, P = 5.244236 Days, E = 132.588677 Days

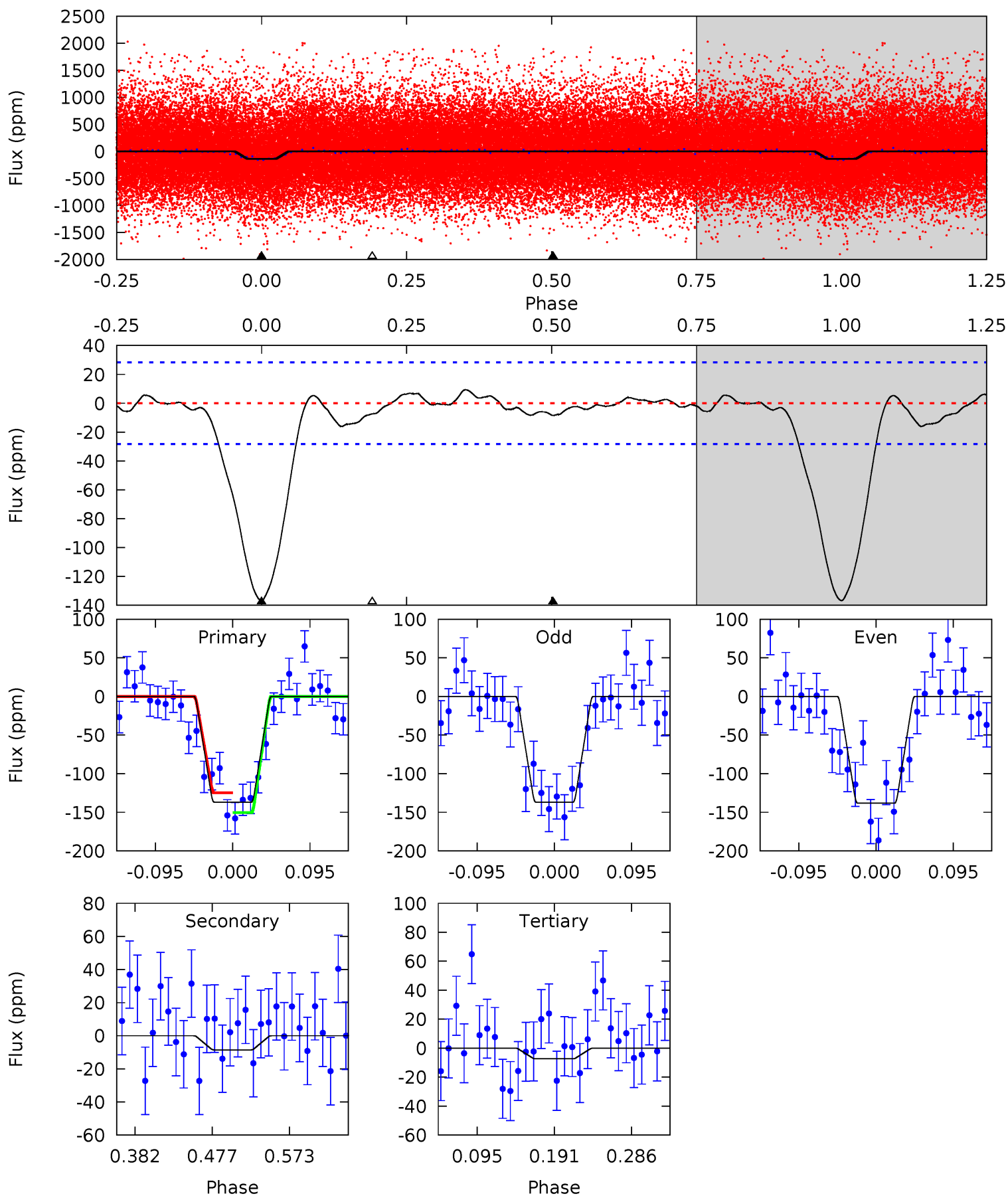
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	2.29	0.30	0	4.55	1.60	0.68	17.5	17.8	1.99	2.29	1.34	0.93	0.04	0.26



Alt Model-Shift Uniqueness Test

006364215-01, P = 5.243719 Days, E = 132.692376 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.1	1.38	1.19	0	4.57	1.67	0.89	20.9	22.1	0.19	1.38	0.09	0.97	0.06	2.07



Stellar Parameters For KIC 006364215

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5815^{+175}_{-210}	$4.500^{+0.052}_{-0.195}$	$-0.080^{+0.300}_{-0.300}$	$0.918^{+0.275}_{-0.110}$	$0.974^{+0.113}_{-0.113}$	$1.770^{+0.462}_{-0.880}$
	+3%/-4%	+1%/-4%	+375%/-375%	+30%/-12%	+12%/-12%	+26%/-50%
Source	PHO1	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 006364215-01 / KOI 2404.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-13 ± 6	$1.13^{+0.42}_{-0.38}$	1450^{+107}_{-73}	3767^{+578}_{-492}	19^{+28}_{-11}
Alt.	-9 ± 6	$1.28^{+0.43}_{-0.34}$	1448^{+99}_{-74}	3324^{+507}_{-701}	$9.003^{+12.004}_{-7.108}$

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

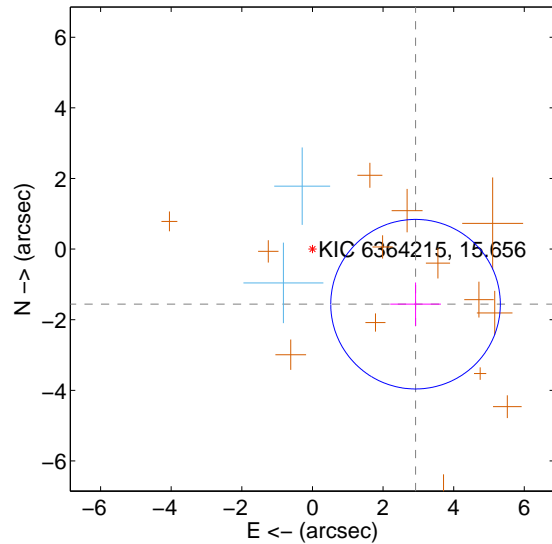
Supplemental centroid analysis for 006364215-01. Kepler magnitude: 15.66. Transit SNR 15.63

There are 2 quarters with good PRF difference image offsets

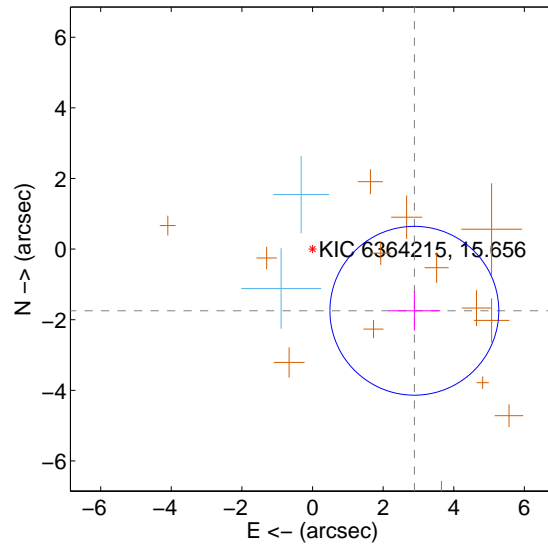
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.311 ± 0.800	4.14	-2.920 ± 0.717	-1.560 ± 0.615
PRF-fit source offset from KIC position	3.372 ± 0.797	4.23	-2.884 ± 0.733	-1.747 ± 0.564
photometric centroid source offset	0.98 ± 0.92	1.06	-0.46 ± 1.00	0.86 ± 0.89

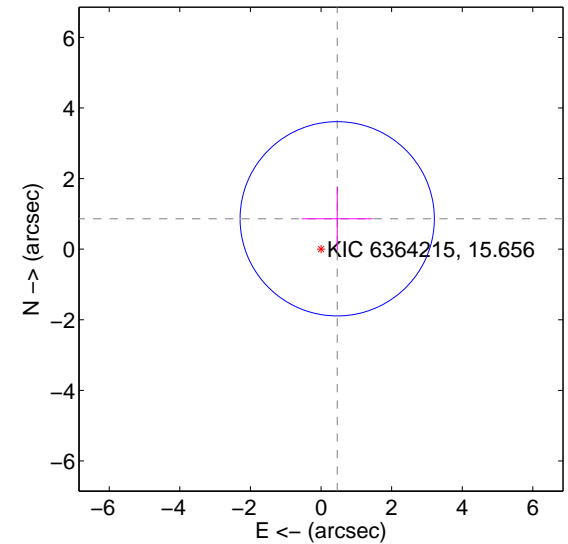
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

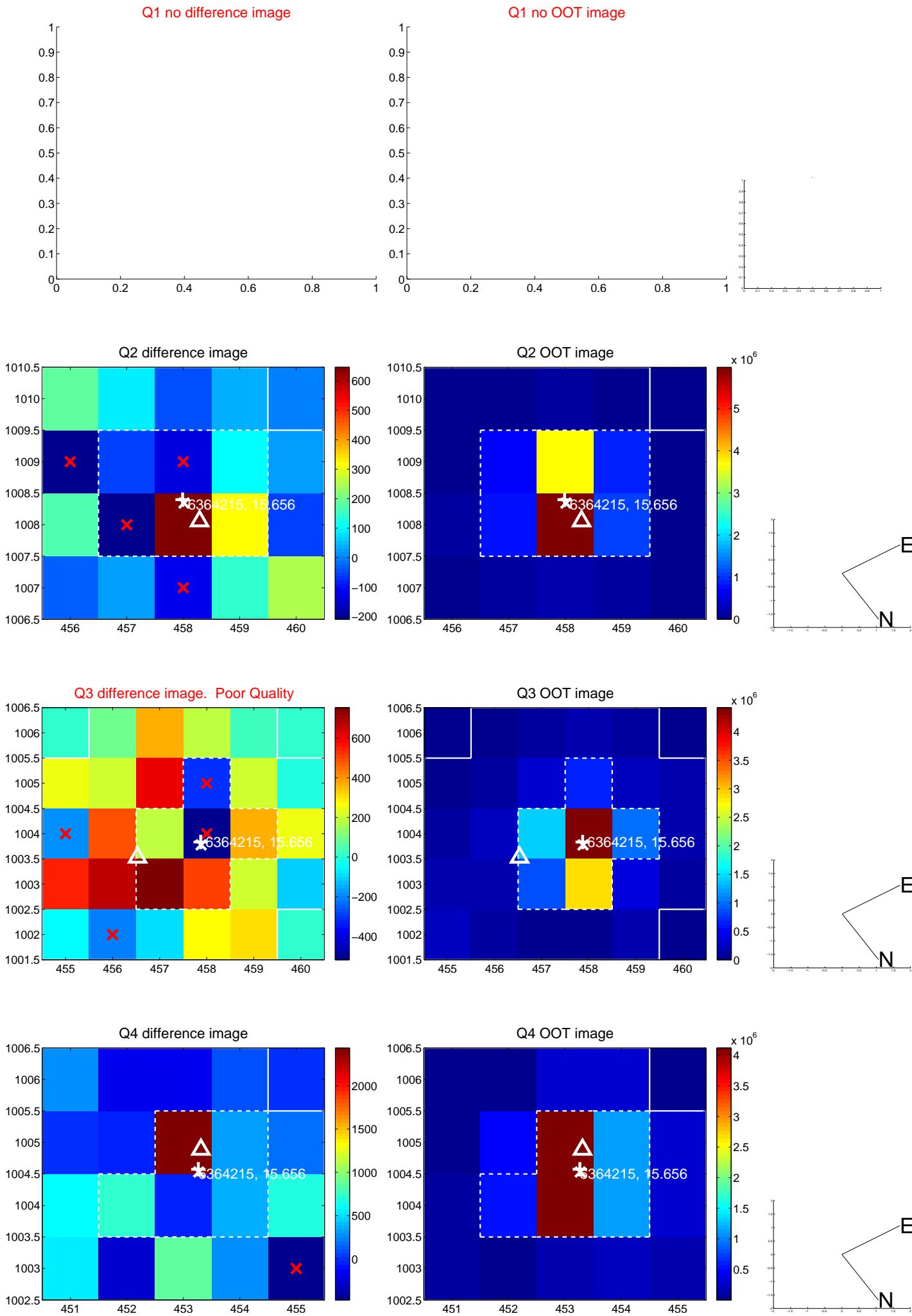


offset from photometric centroids

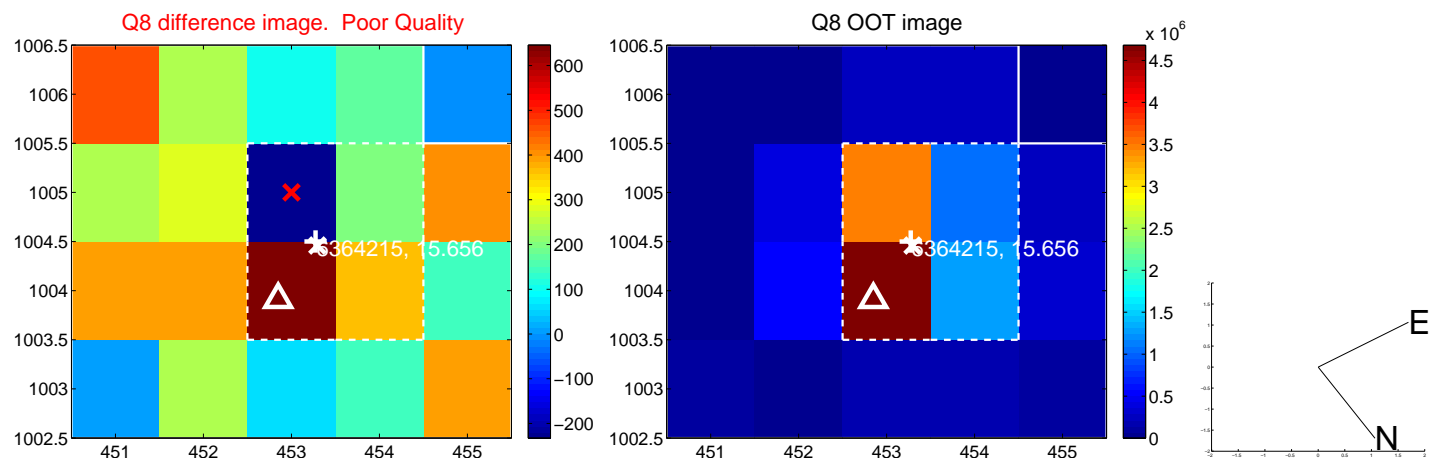
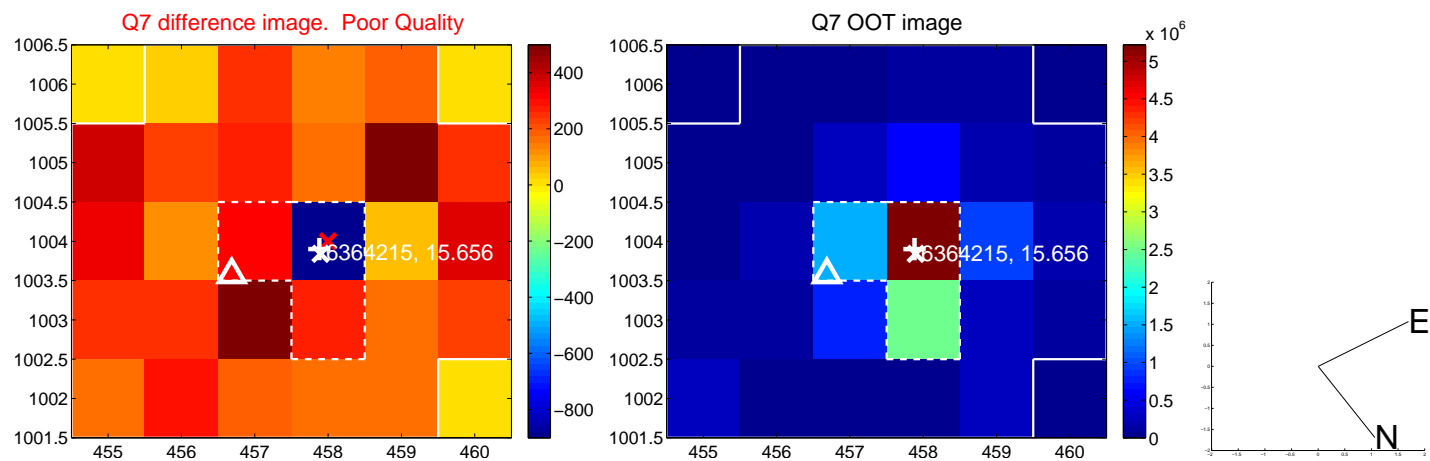
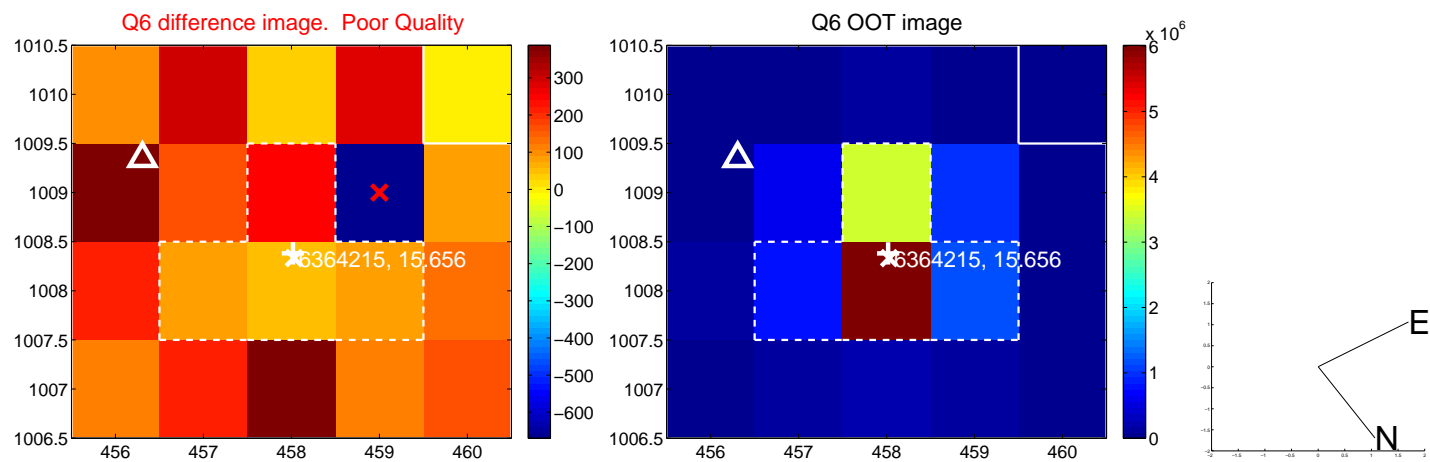
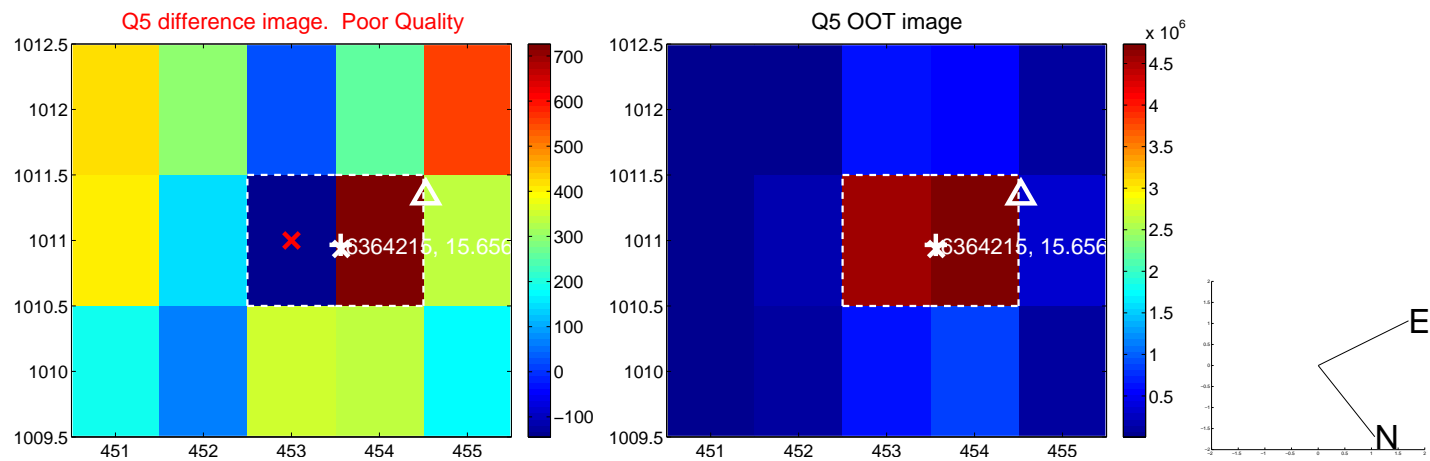


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

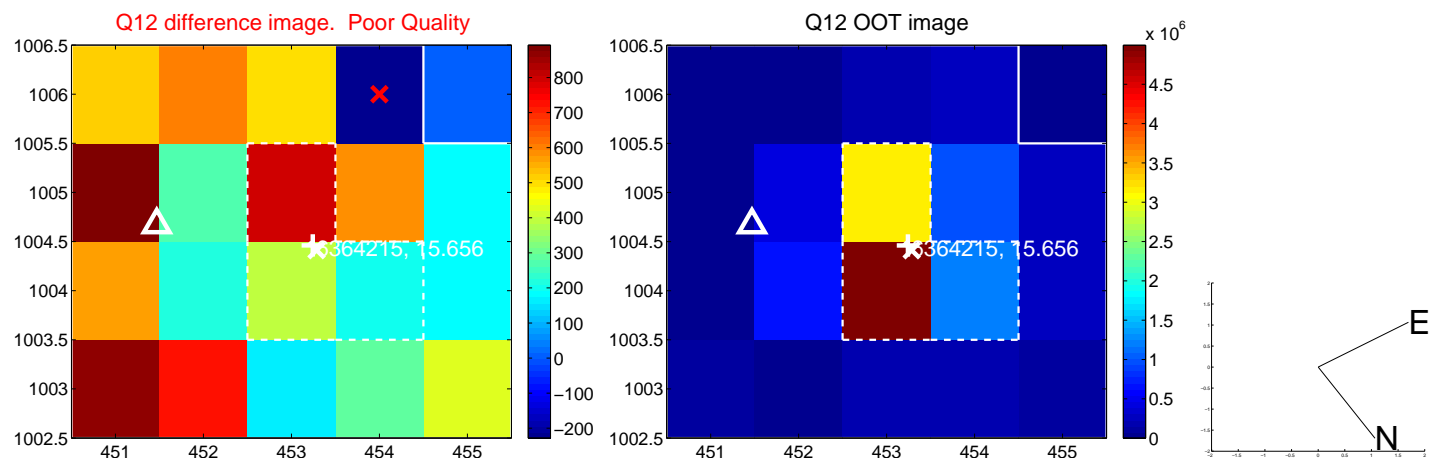
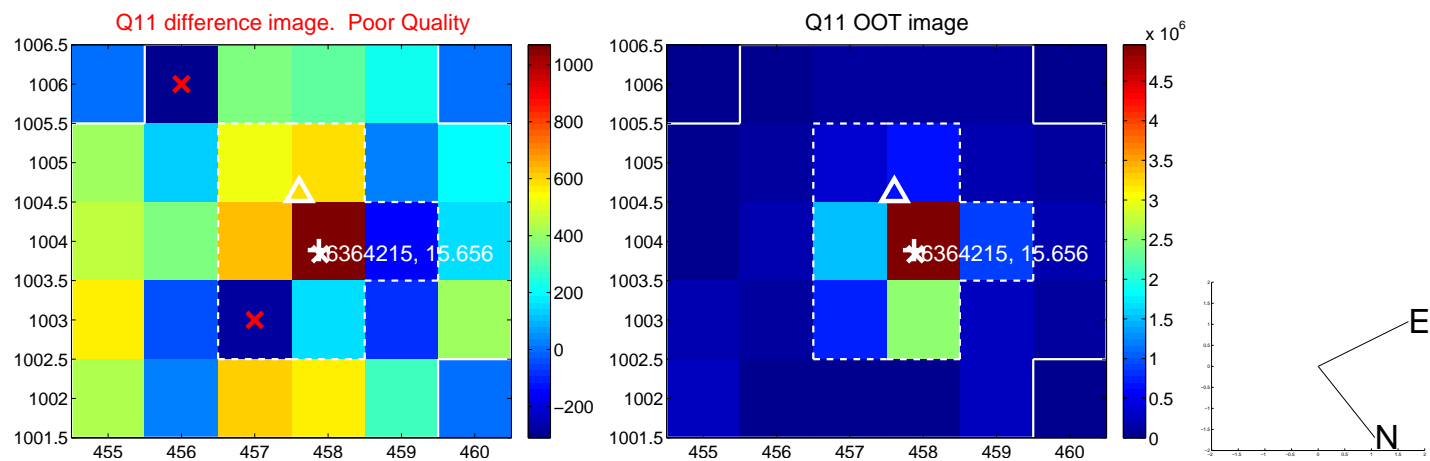
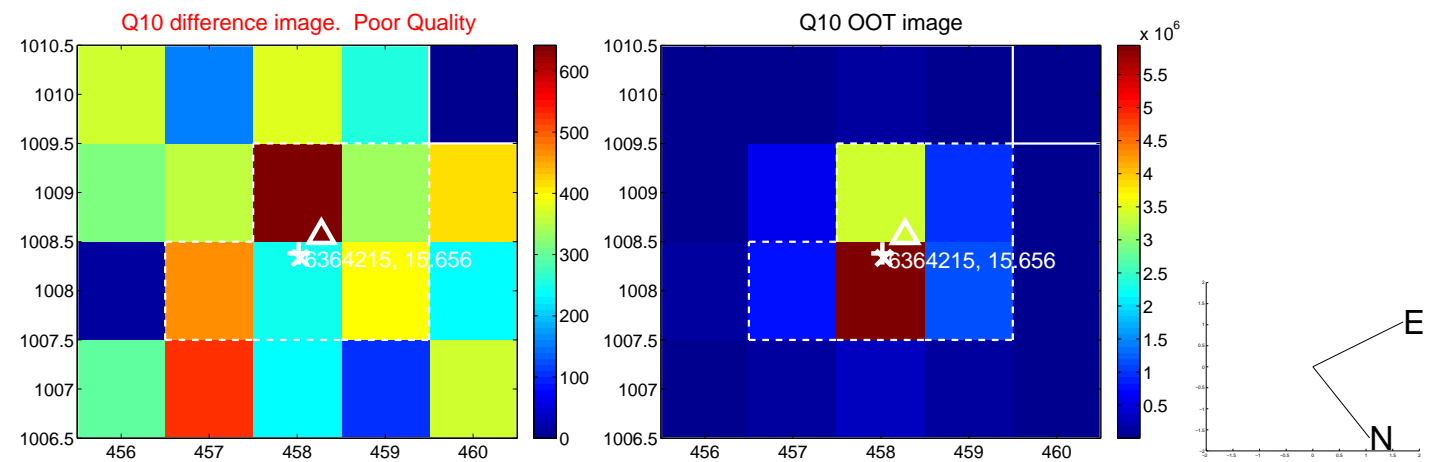
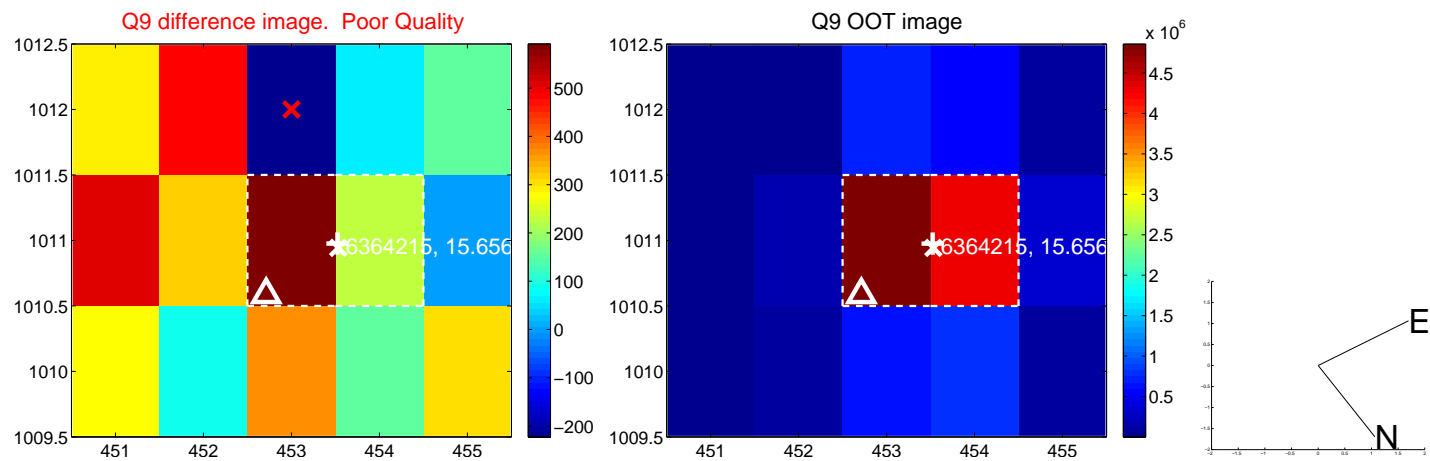
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



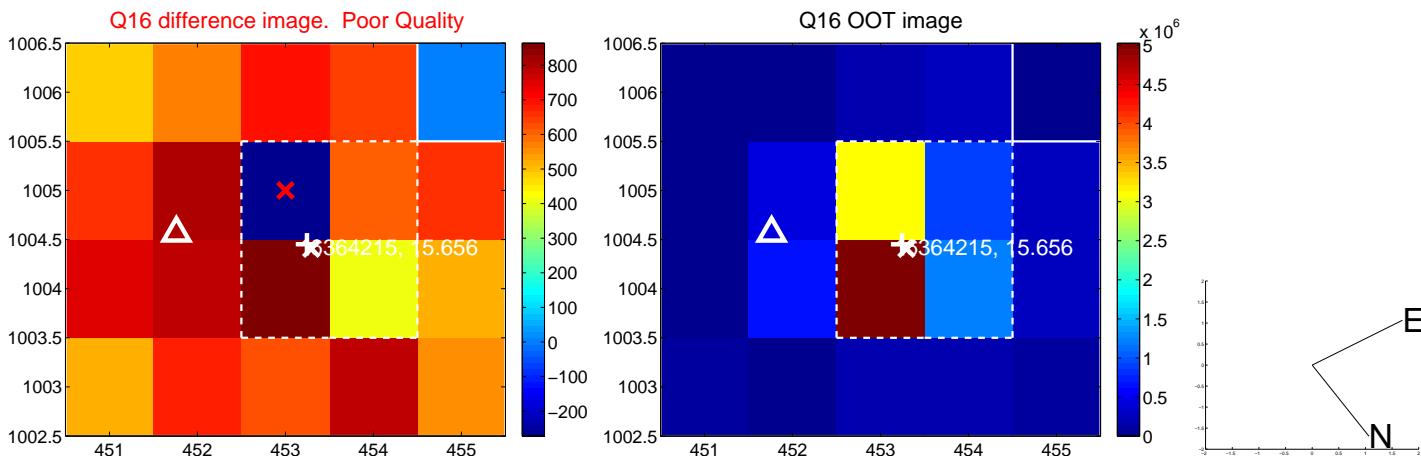
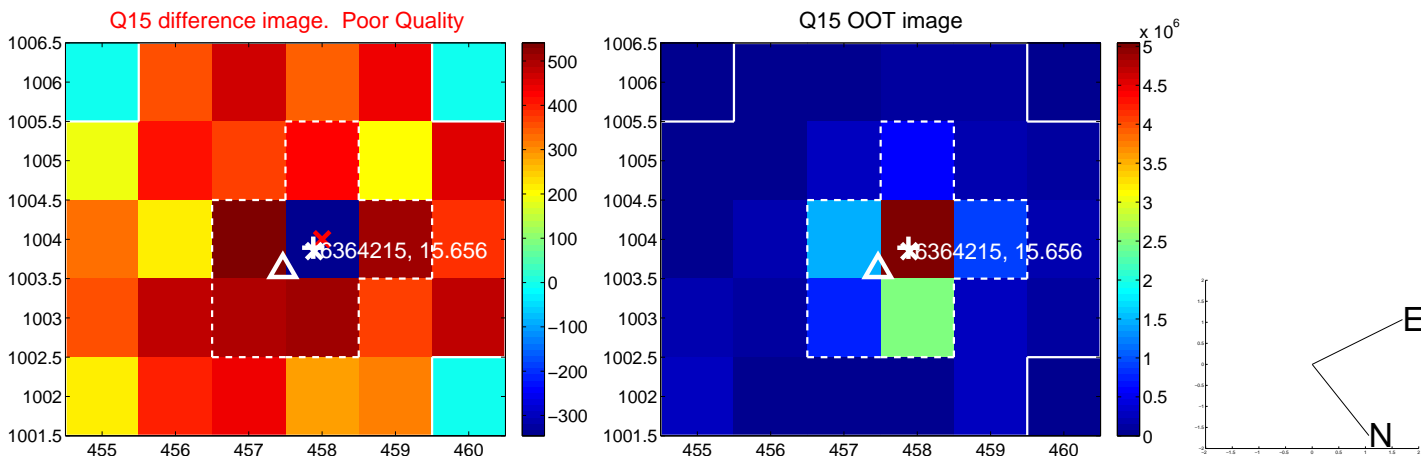
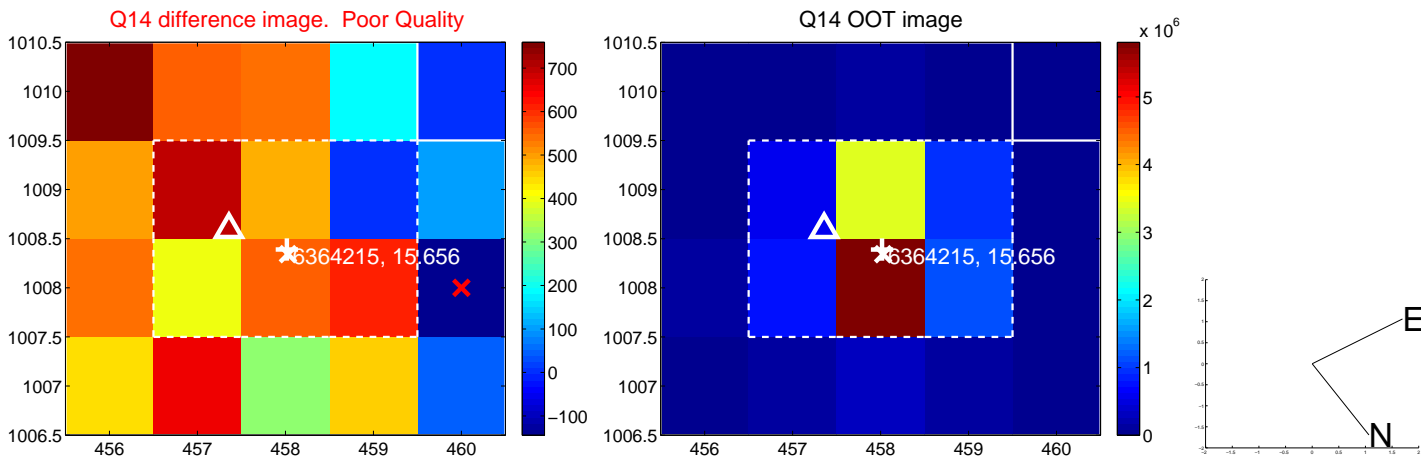
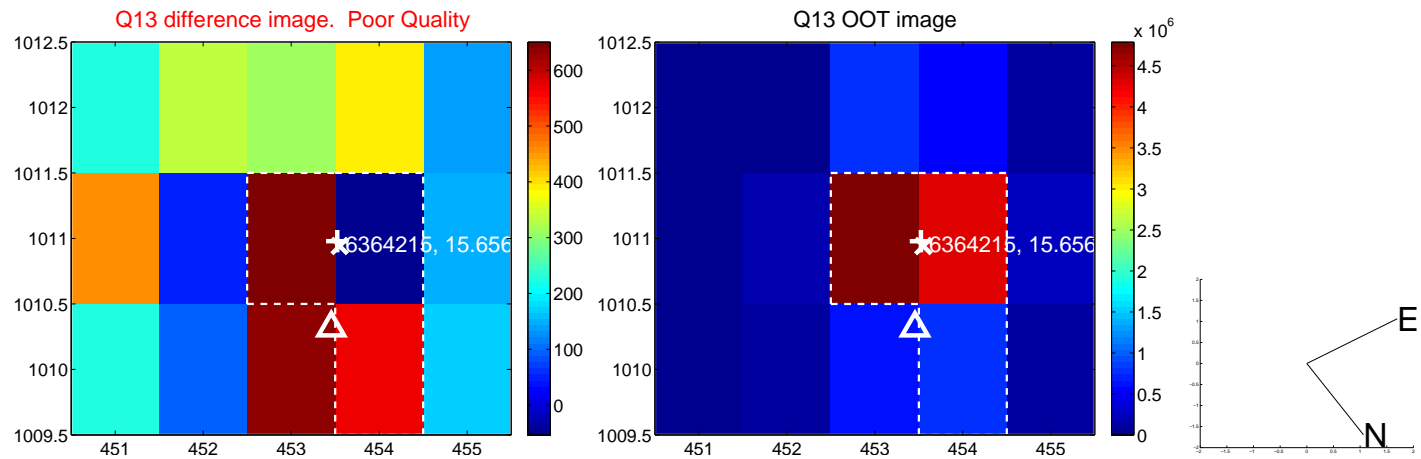
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



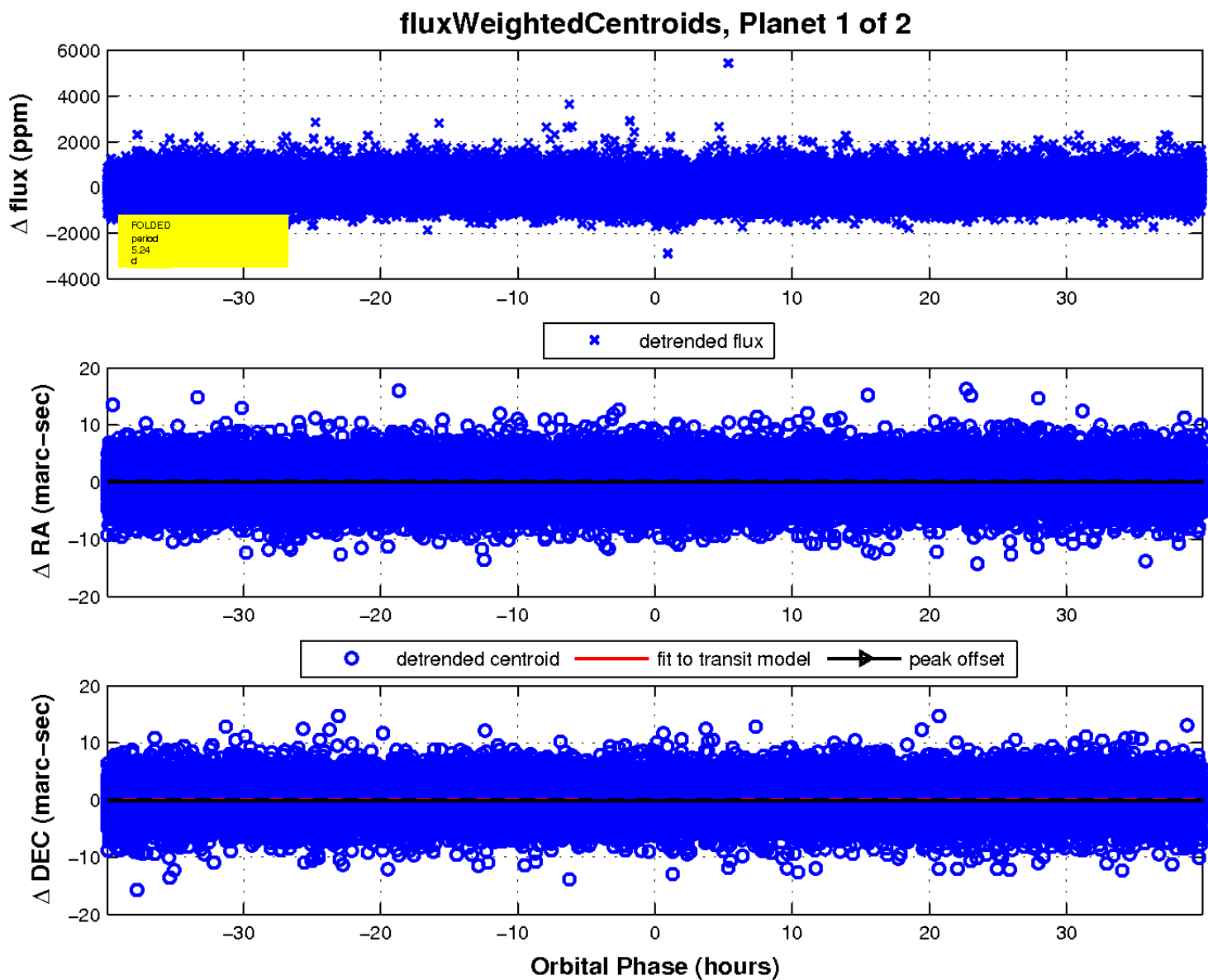
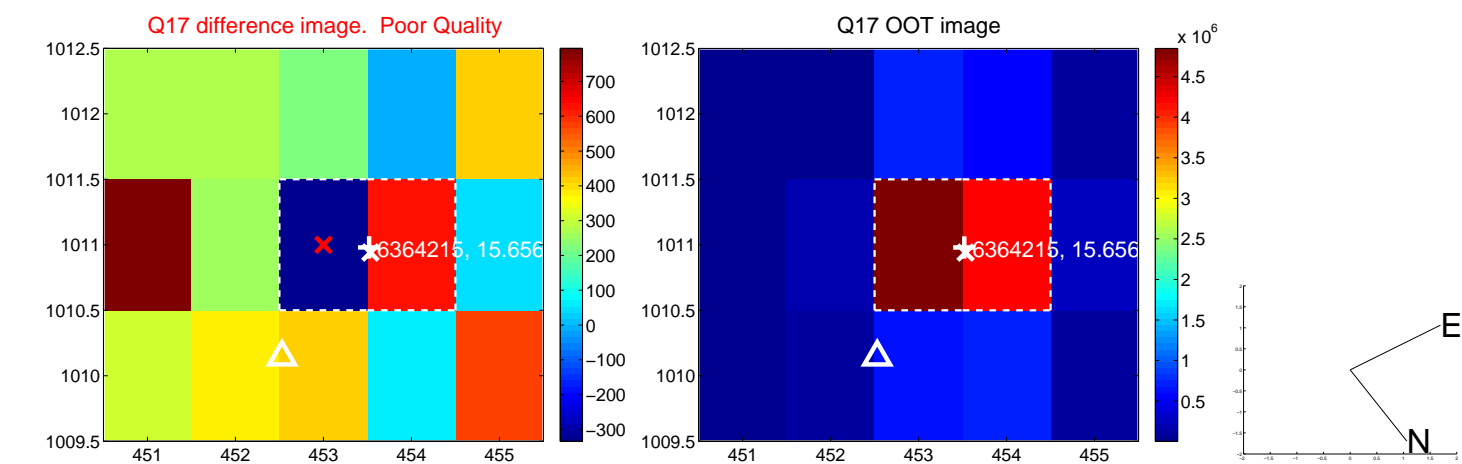
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



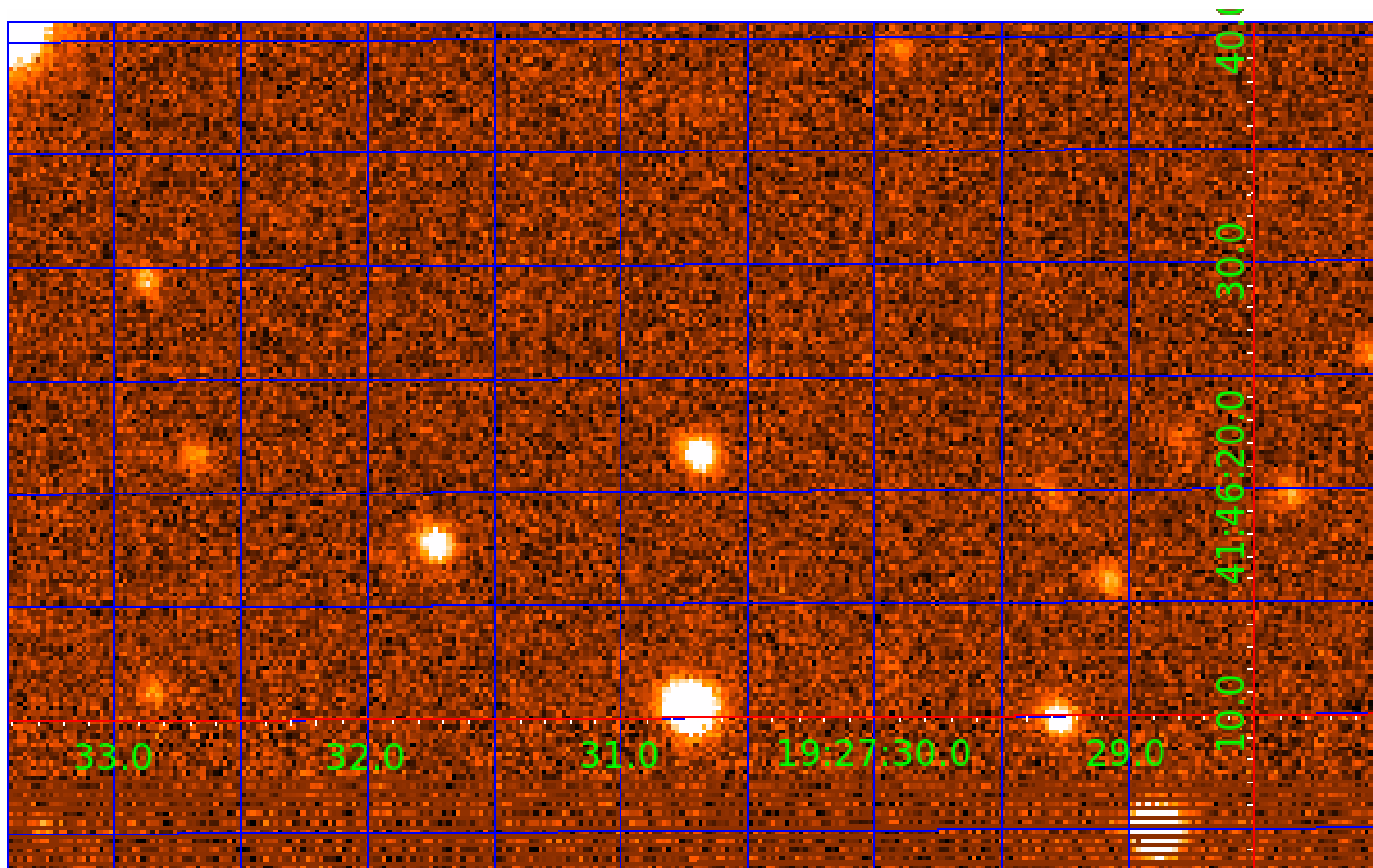
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 006364215

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})
006364215-01	OBS	2404.02	5.244236	132.588677	115.0	13.310	14.6	15.6	0.92	5815	1.07	252.01
006364215-02	OBS	2404.01	2.100800	132.271354	156.2	2.393	11.6	12.5	0.92	5815	1.35	853.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006364215-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
006364215-02	OBS	PC	0.97	0	0	0	0	NO_COMMENT

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

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

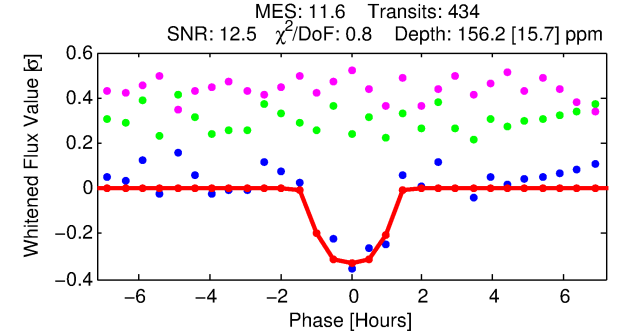
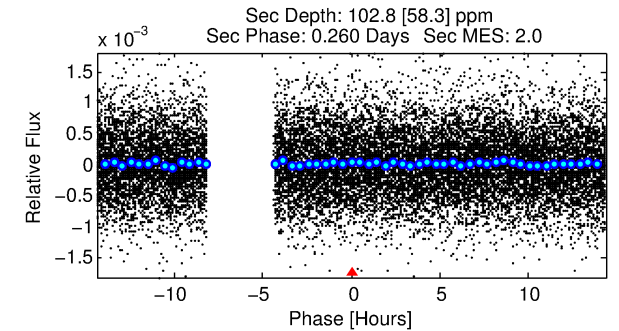
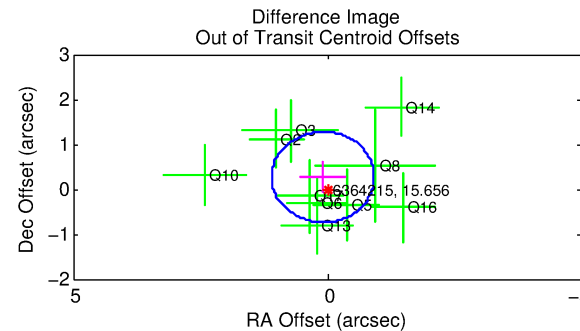
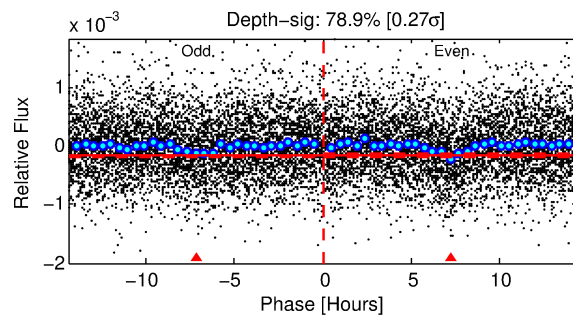
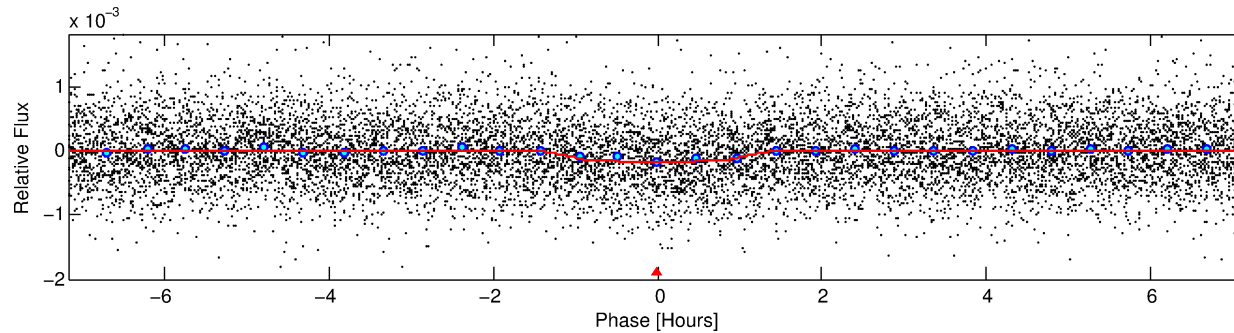
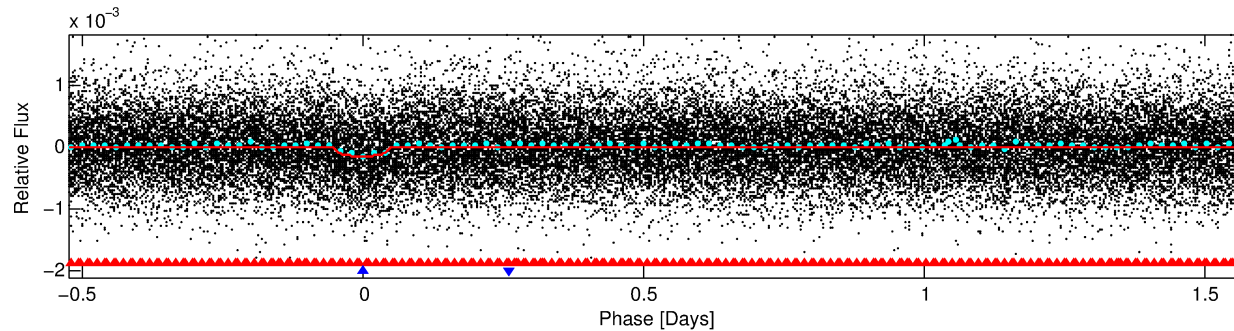
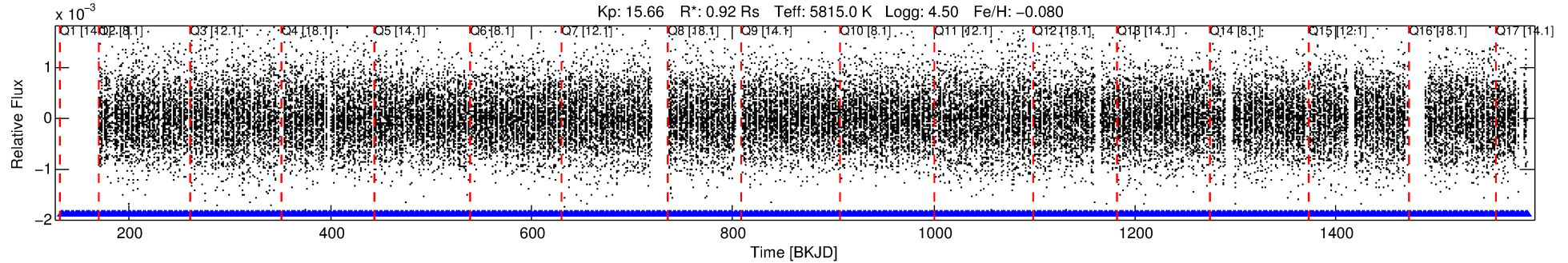
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006364215-02

No Significant Match Found

DV One-Page Summary

KIC: 6364215 Candidate: 2 of 2 Period: 2.101 d
KOI: K02404.01 Corr: 0.945



DV Fit Results:

Period = 2.10080 [0.00001] d
Epoch = 132.2714 [0.0032] BKJD
Rp/R* = 0.0135 [0.0091]
a/R* = 3.38 [10.08]
b = 0.89 [0.78]
Seff = 853.38 [330.90]
Teq = 1378 [134] K
Rp = 1.35 [0.99] Re
a = 0.0318 [0.0079] AU
Ag = 31.36 [47.16] [0.64 σ]
Teffp = 5043 [1850] K [1.98 σ]

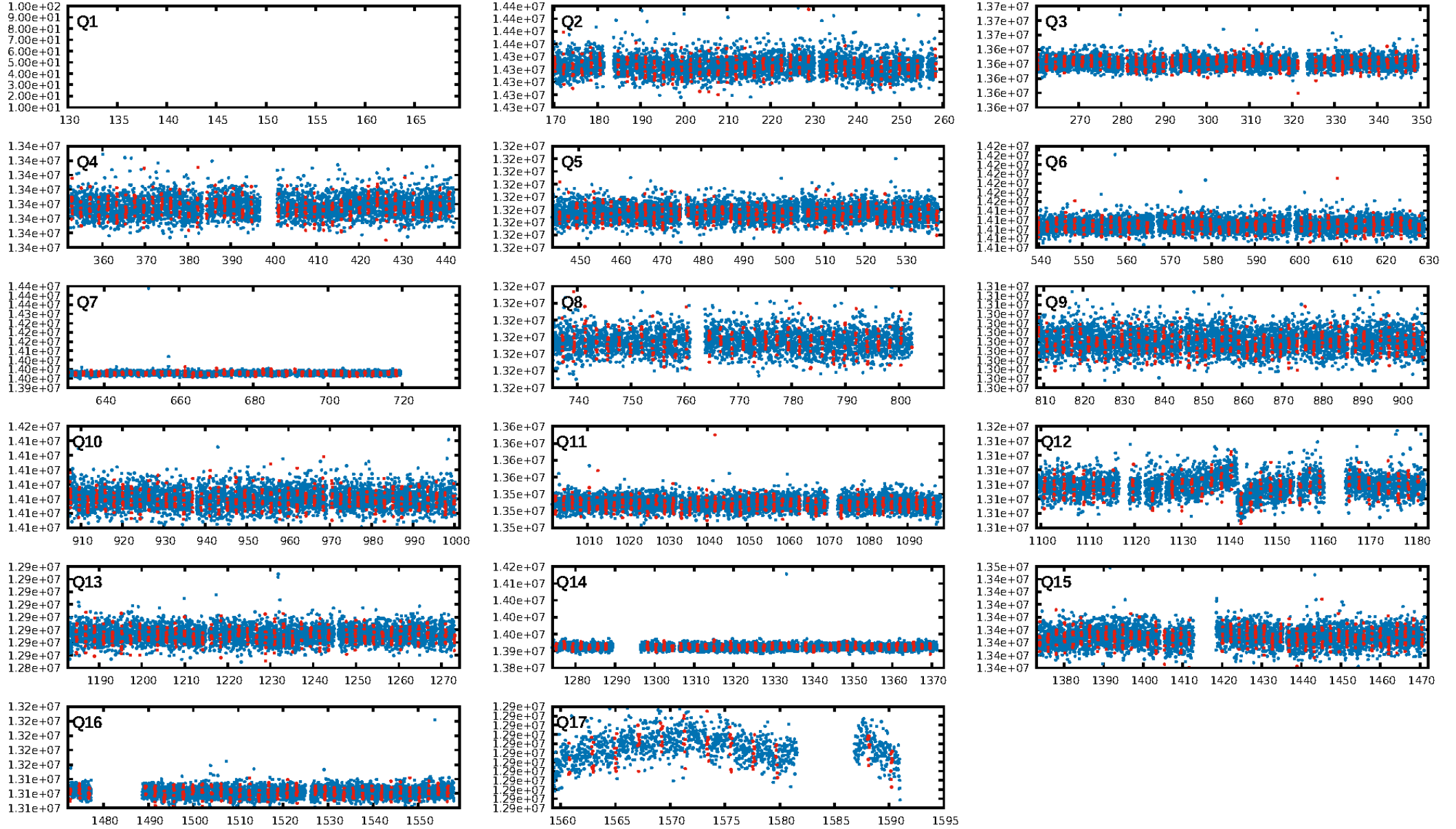
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [5.58 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.16e-31
RollingBand-fgt: 1.00 [427/427]
GhostDiagnostic-chr: 1.979
Centroid-sig: 51.6%
Centroid-so: 0.701 arcsec [0.65 σ]
OotOffset-rm: 0.282 arcsec [0.84 σ]
KicOffset-rm: 0.153 arcsec [0.37 σ]
OotOffset-st: 4/1/2/3 [10]
KicOffset-st: 4/1/2/3 [10]
DiffImageQuality-fgm: 0.60 [6/10]
DiffImageOverlap-fno: 1.00 [16/16]

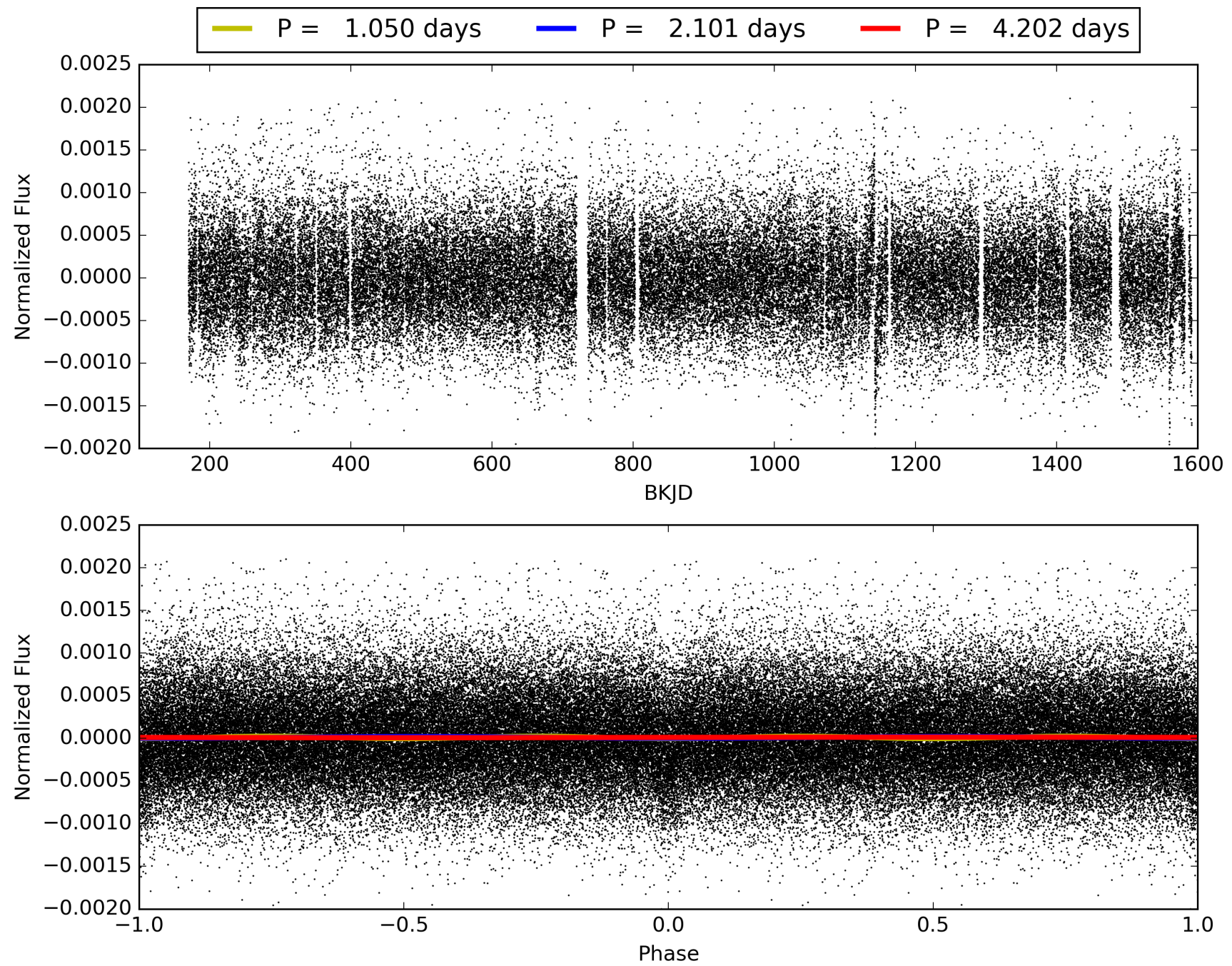
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:16:07 Z

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

TCE 006364215-02, PDC Light Curves

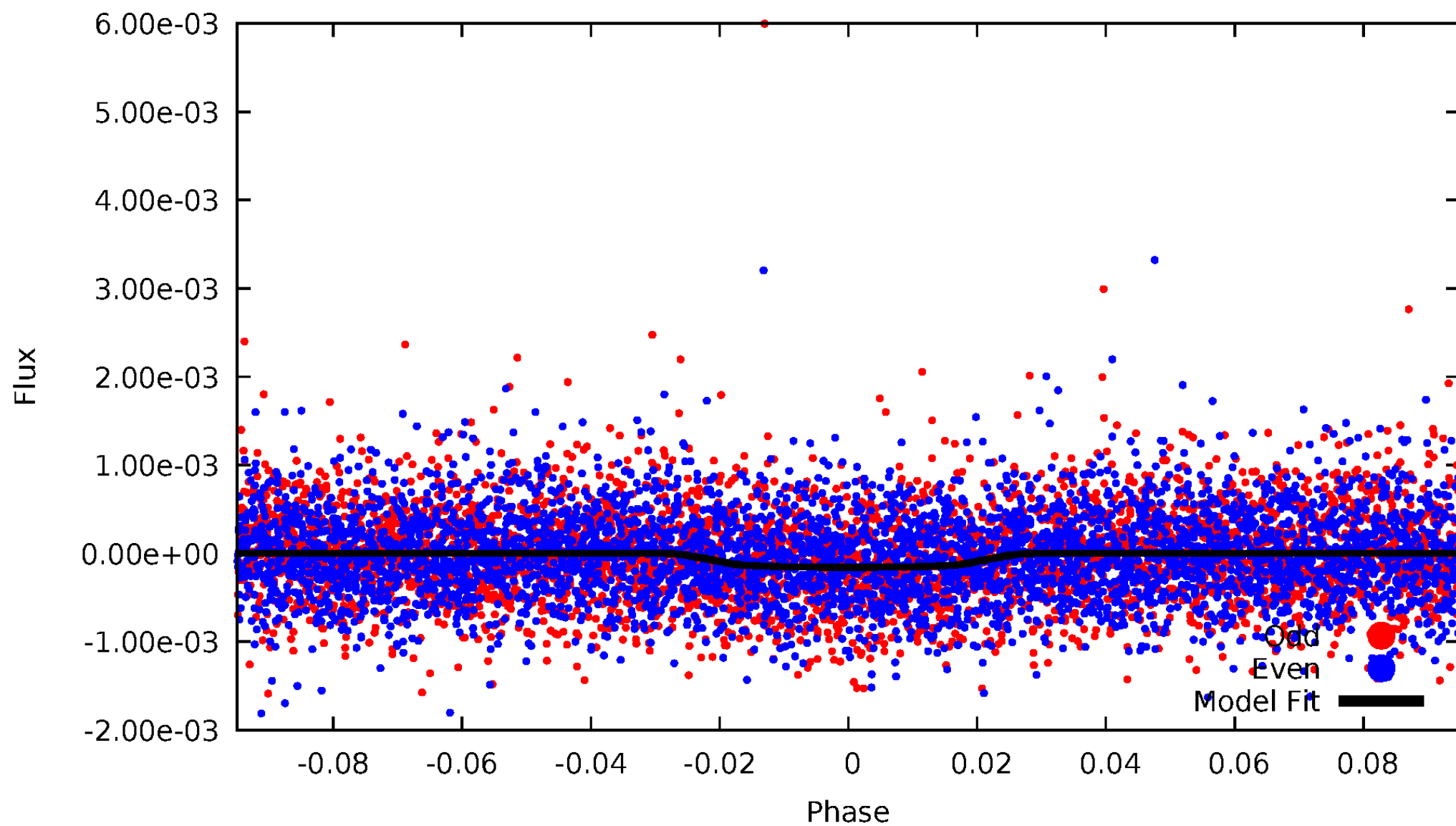


TCE 006364215-02



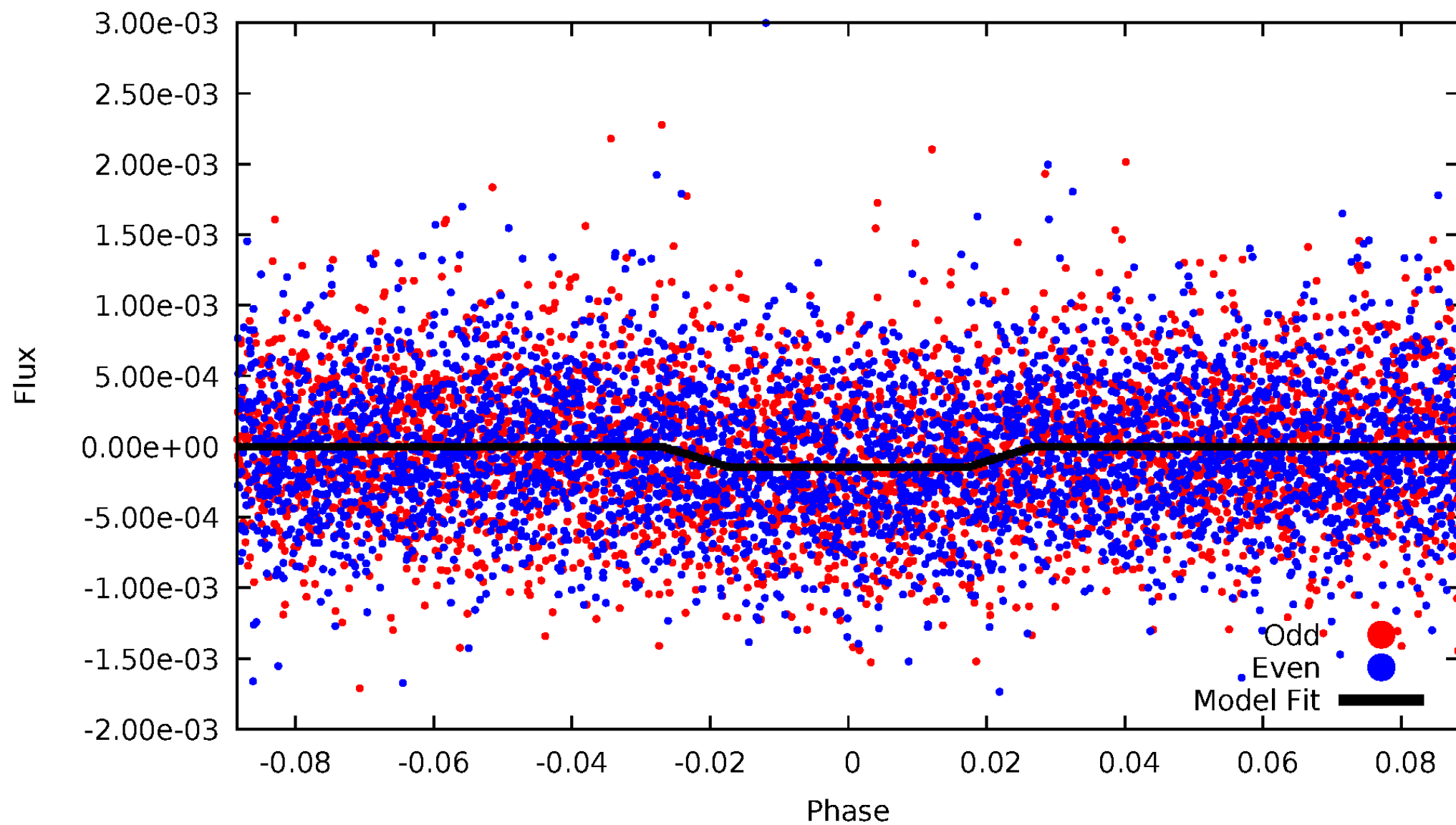
DV Odd/Even

TCE 006364215-02



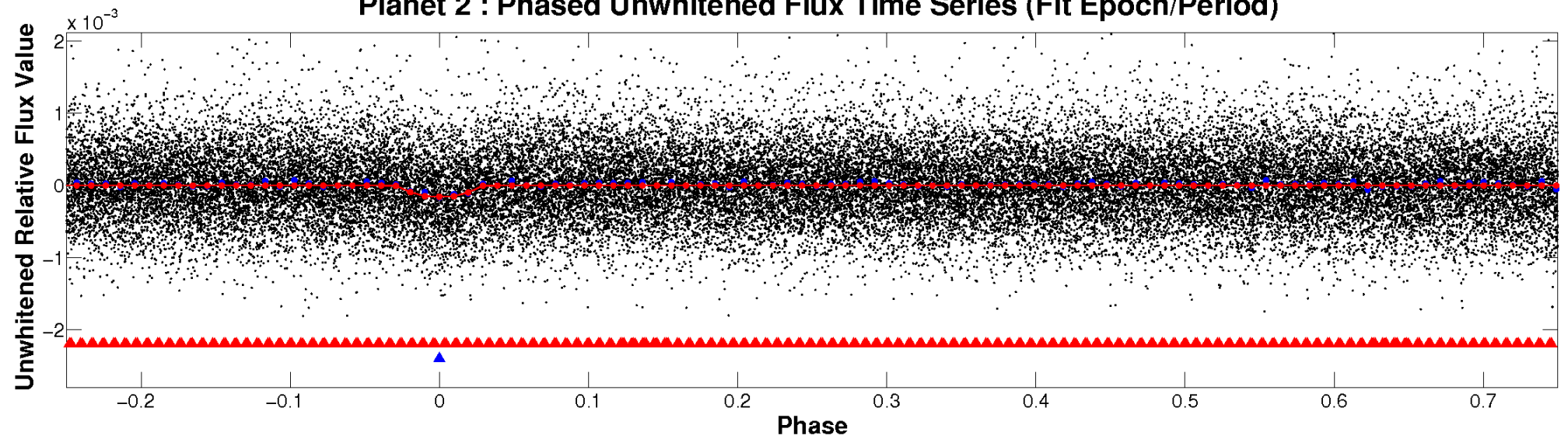
ALT Odd/Even

TCE 006364215-02

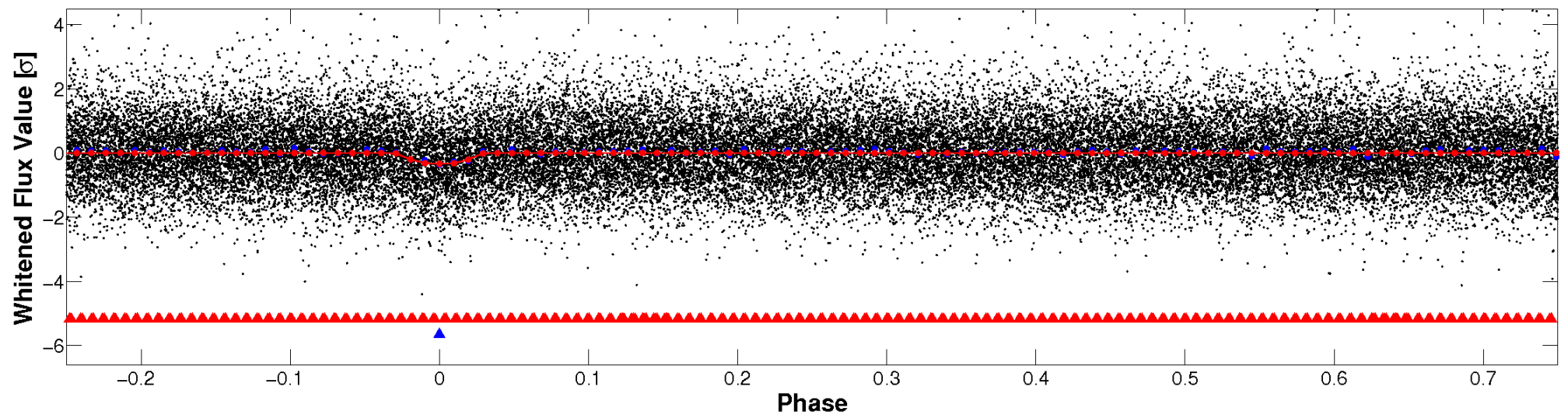


Non-Whitened Vs. Whitened Light Curve

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

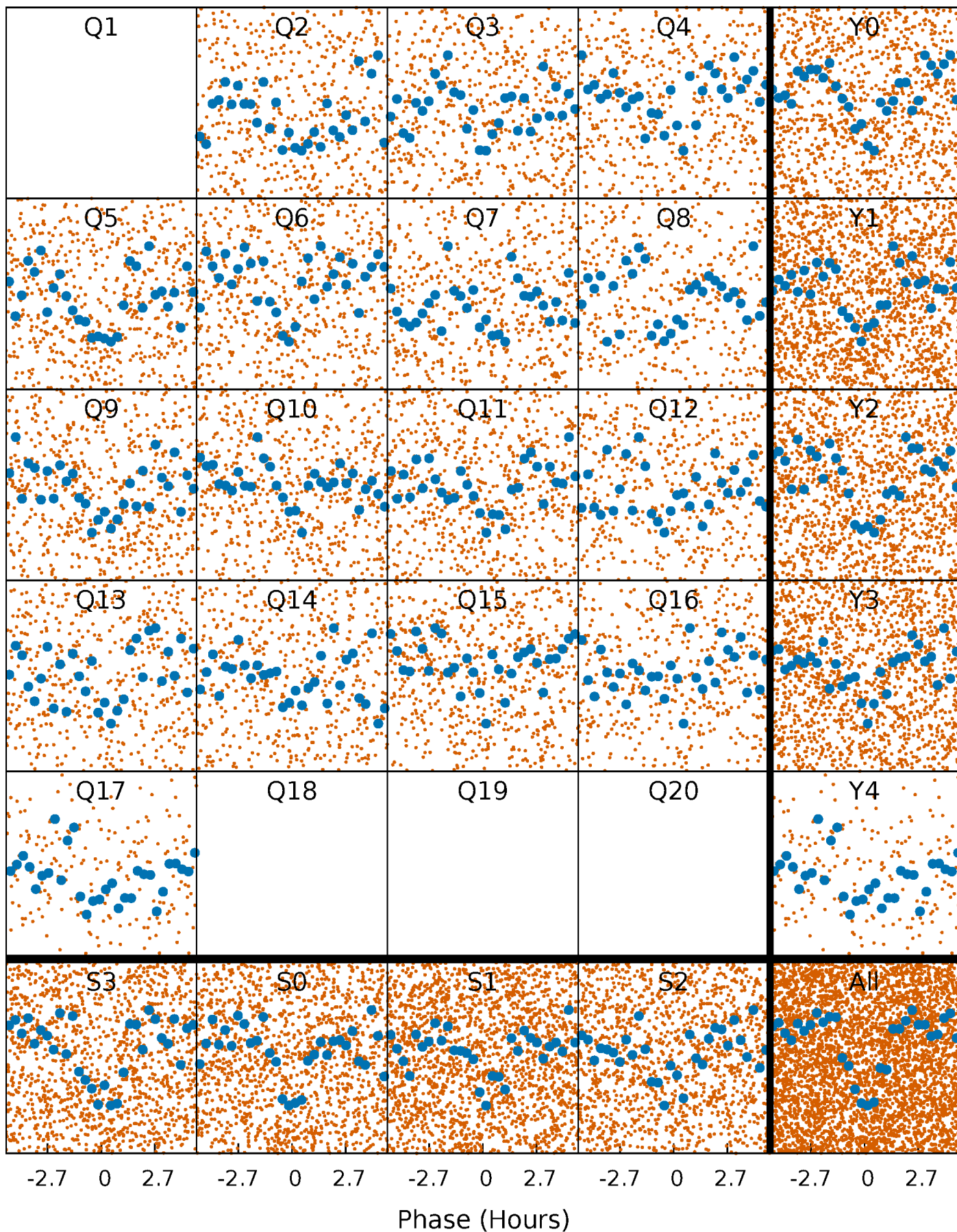


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



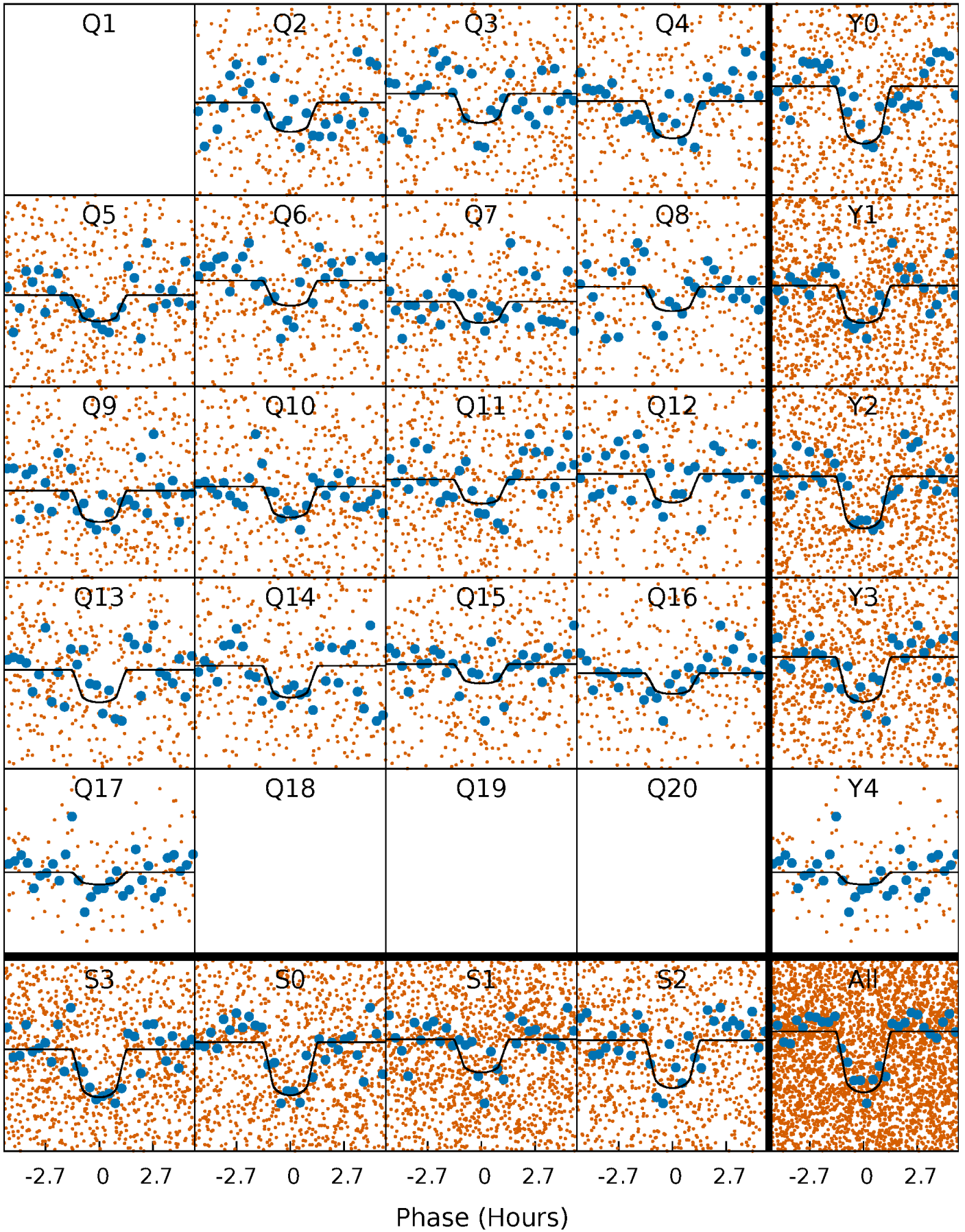
PDC Quarter-Phased Transit Curves

TCE 006364215-02 P= 2.100800 Days $T_0=132.271354$ (BKJD)



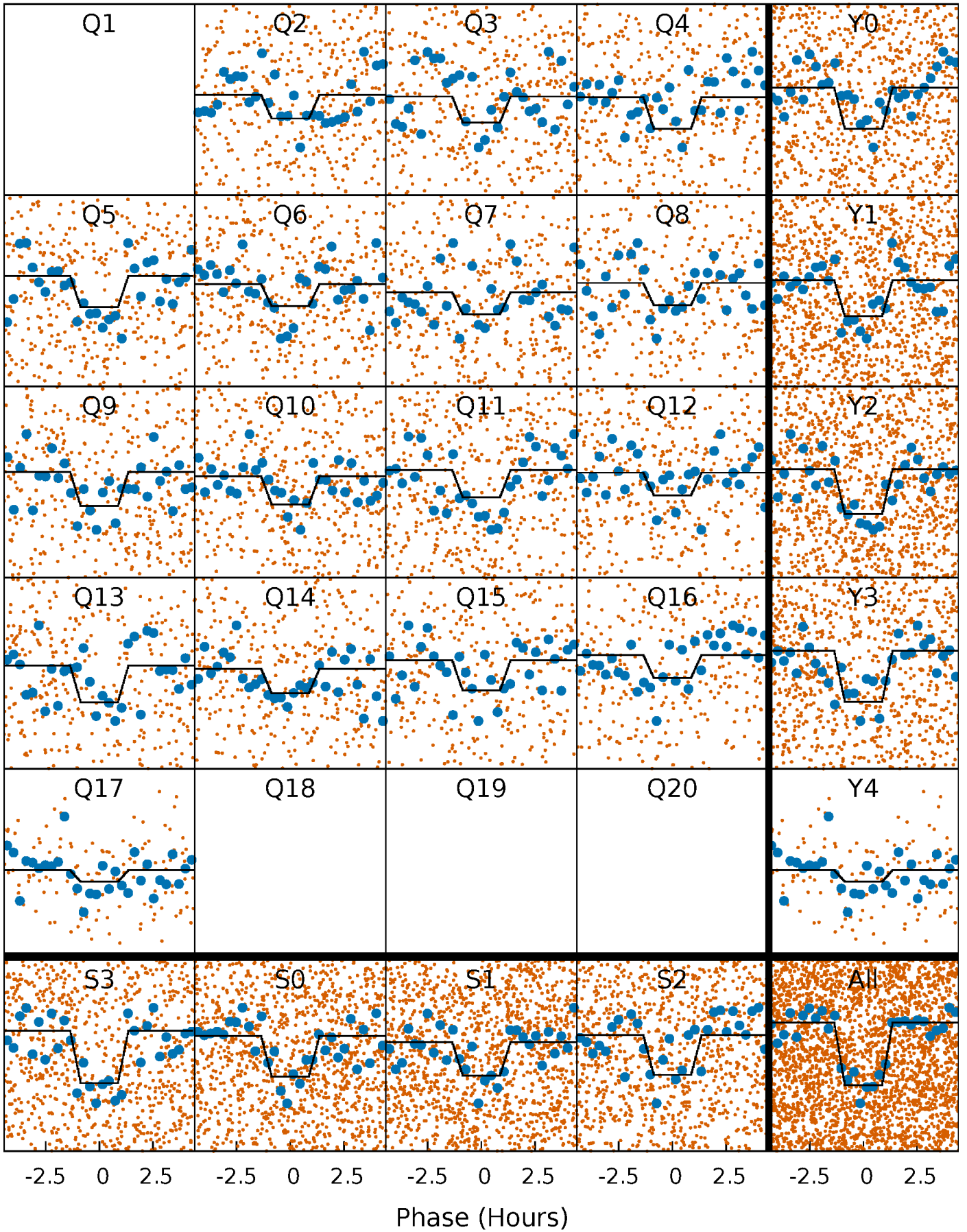
DV Quarter-Phased Transit Curves

TCE 006364215-02 P= 2.100800 Days $T_0=132.271354$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

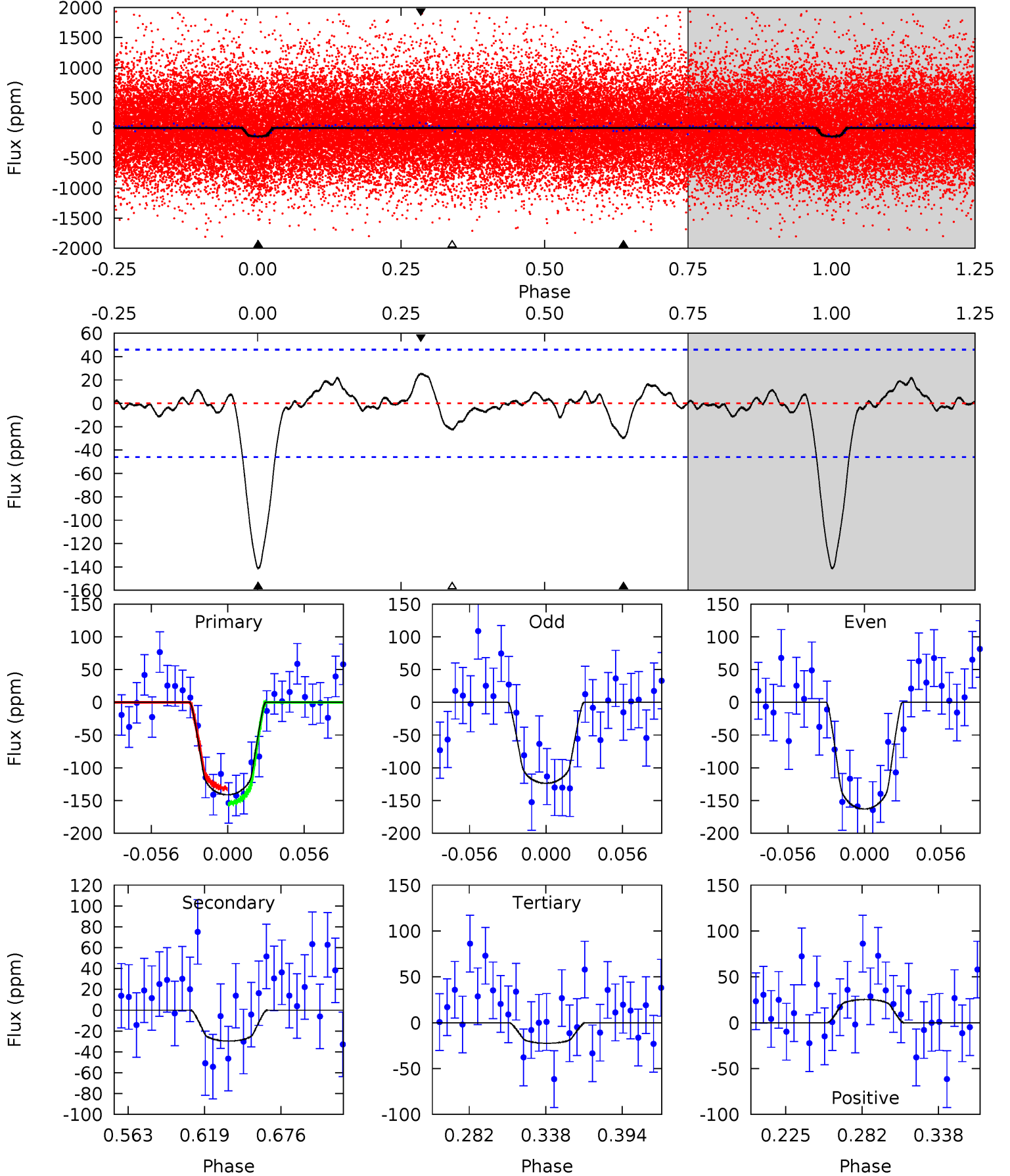
TCE 006364215-02 P= 2.100818 Days $T_0=132.267905$ (BKJD)



DV Model-Shift Uniqueness Test

006364215-02, P = 2.100800 Days, E = 132.271354 Days

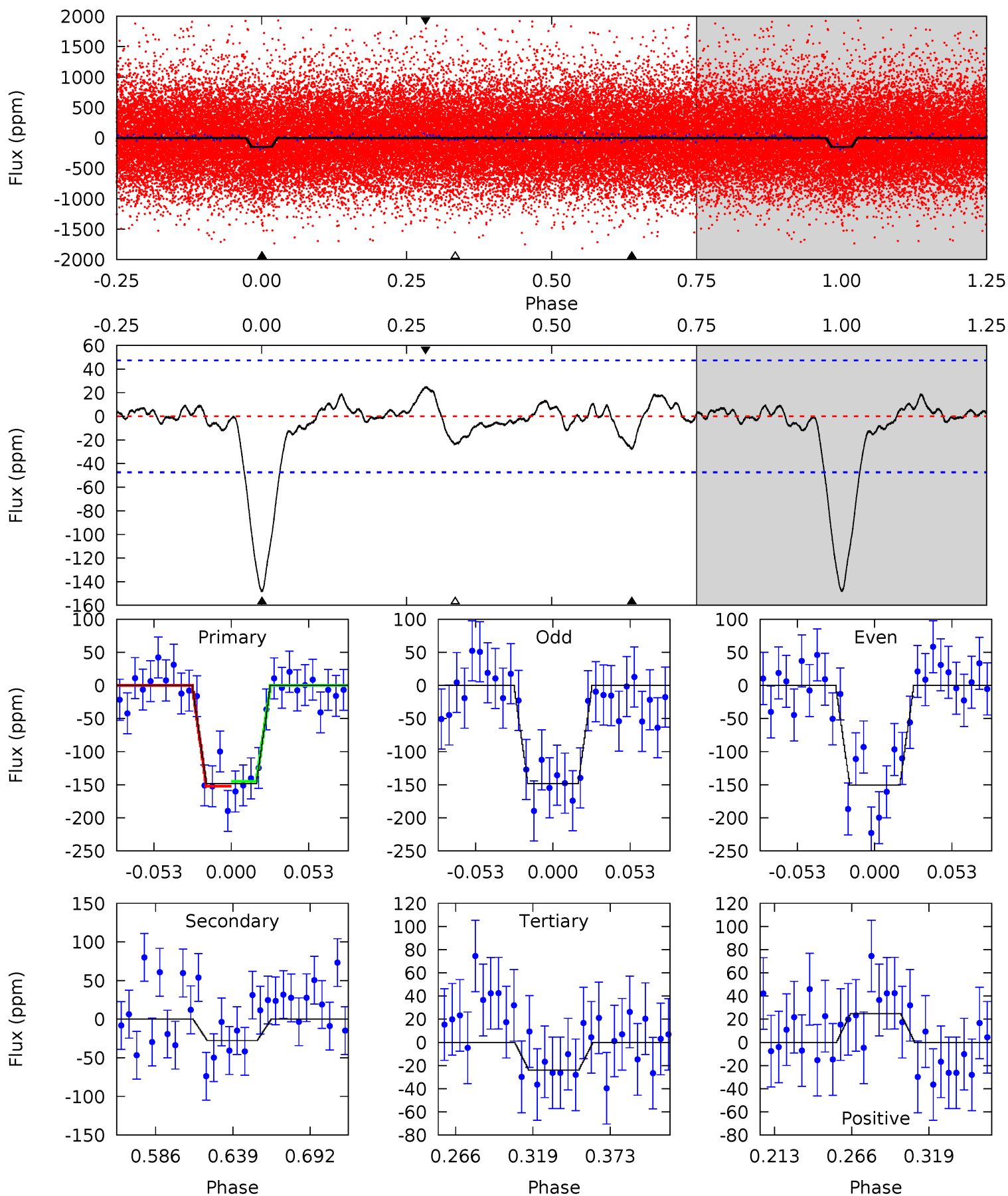
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	3.02	2.29	2.57	4.68	1.91	0.90	12.1	11.8	0.73	0.45	2.01	0.98	0.15	1.18



Alt Model-Shift Uniqueness Test

006364215-02, P = 2.100818 Days, E = 132.267905 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	2.74	2.37	2.46	4.70	1.93	0.88	12.3	12.2	0.37	0.28	0.10	1.08	0.14	0.37



Stellar Parameters For KIC 006364215

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5815^{+175}_{-210}	$4.500^{+0.052}_{-0.195}$	$-0.080^{+0.300}_{-0.300}$	$0.918^{+0.275}_{-0.110}$	$0.974^{+0.113}_{-0.113}$	$1.770^{+0.462}_{-0.880}$
	+3%/-4%	+1%/-4%	+375%/-375%	+30%/-12%	+12%/-12%	+26%/-50%
Source	PHO1	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 006364215-02 / KOI 2404.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-30 ± 10	$1.53^{+0.96}_{-0.90}$	1964^{+140}_{-103}	3846^{+1612}_{-627}	$6.975^{+33.078}_{-4.548}$
Alt.	-28 ± 10	$1.38^{+0.98}_{-0.83}$	1969^{+137}_{-104}	3898^{+1854}_{-652}	$7.443^{+37.232}_{-4.950}$

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

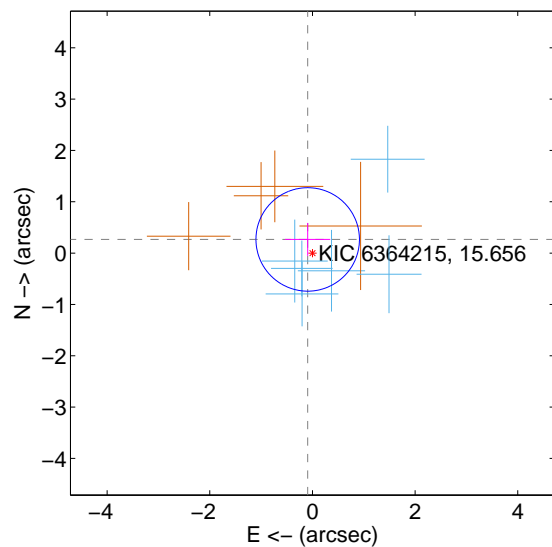
Supplemental centroid analysis for 006364215-02. Kepler magnitude: 15.66. Transit SNR 12.47

There are 6 quarters with good PRF difference image offsets

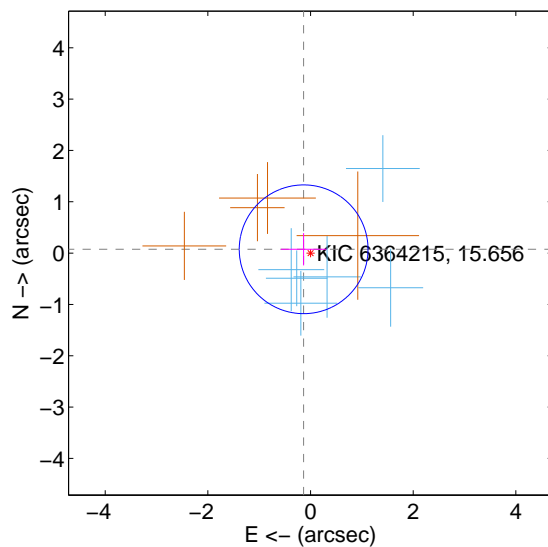
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.282 ± 0.336	0.84	0.093 ± 0.440	0.266 ± 0.321
PRF-fit source offset from KIC position	0.153 ± 0.418	0.37	0.134 ± 0.445	0.074 ± 0.314
photometric centroid source offset	0.70 ± 1.08	0.65	0.50 ± 1.13	-0.49 ± 1.02

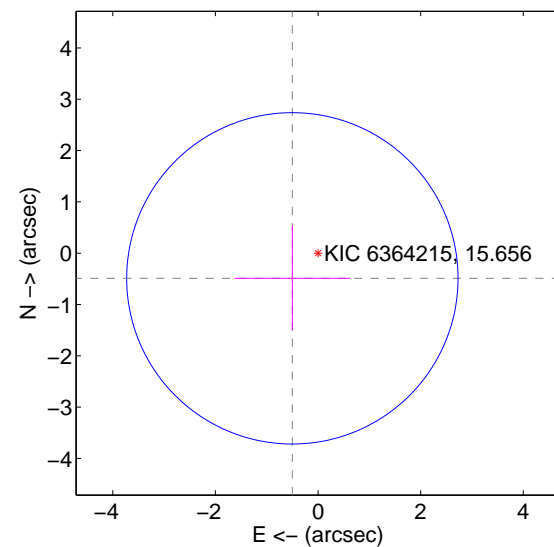
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

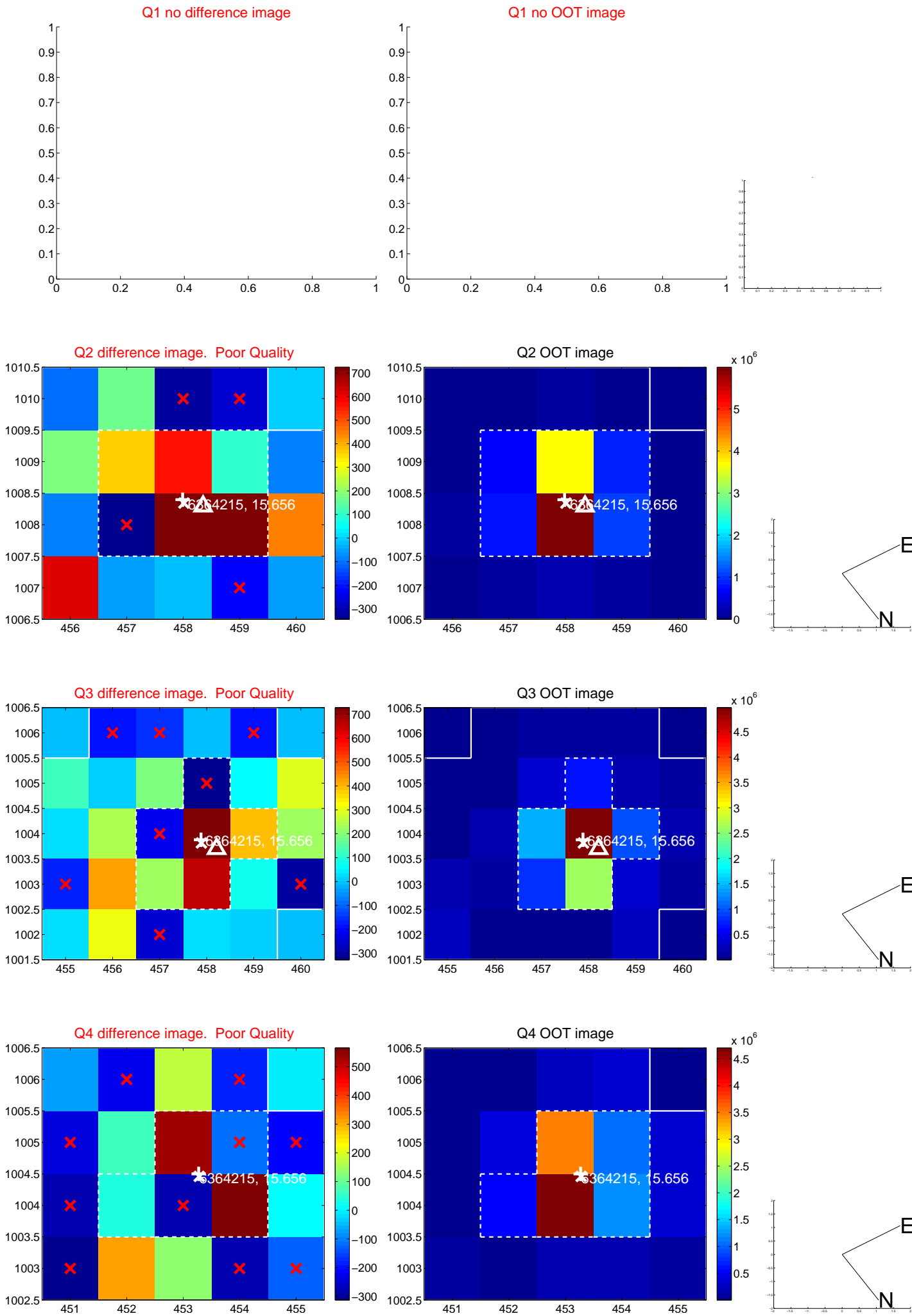


offset from photometric centroids

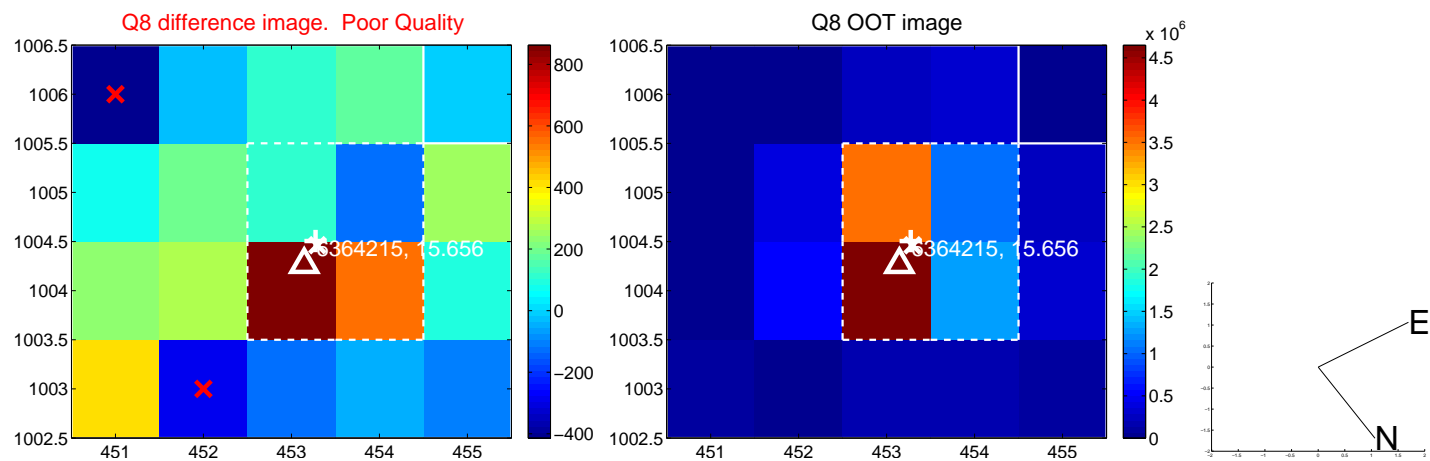
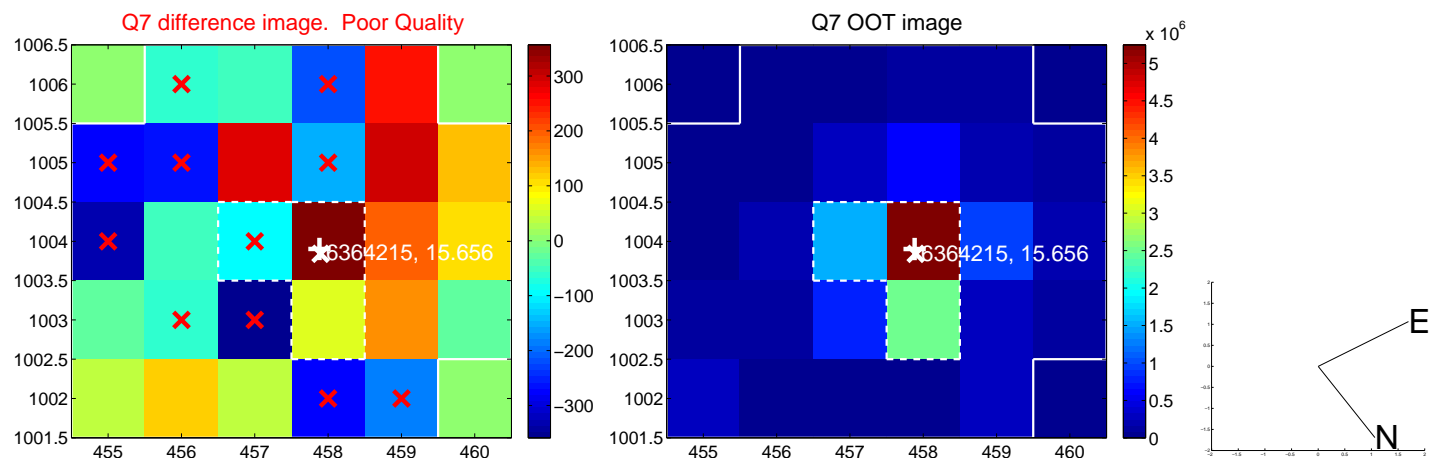
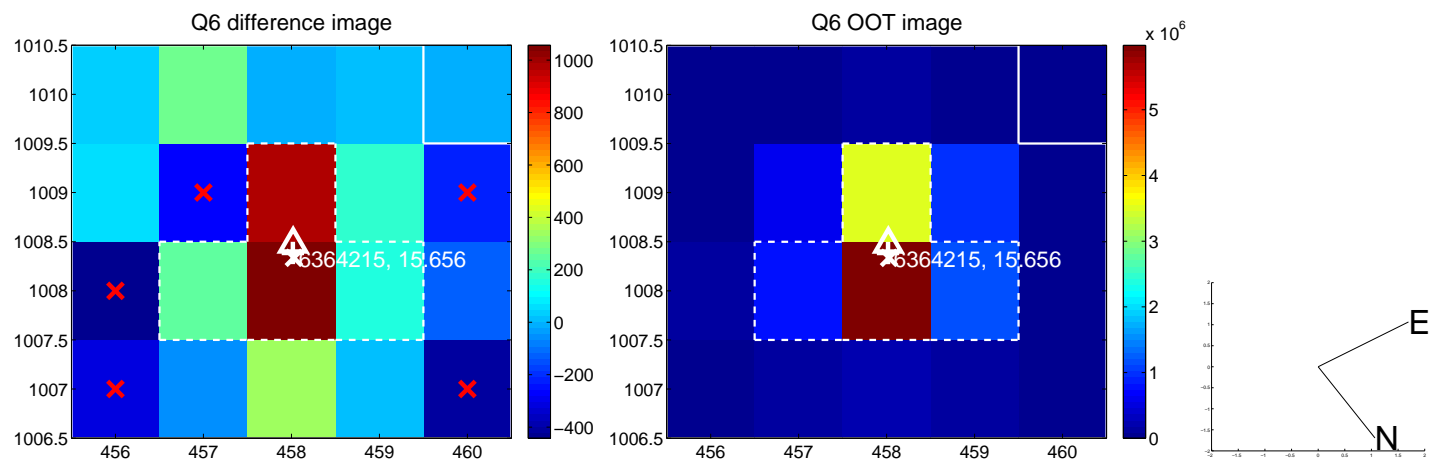
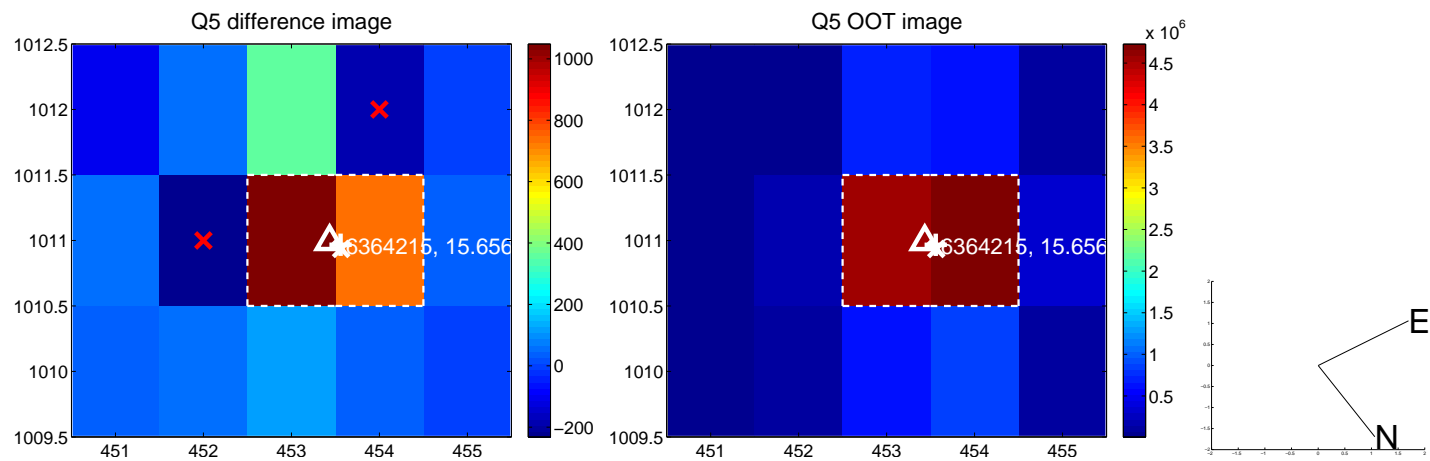


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

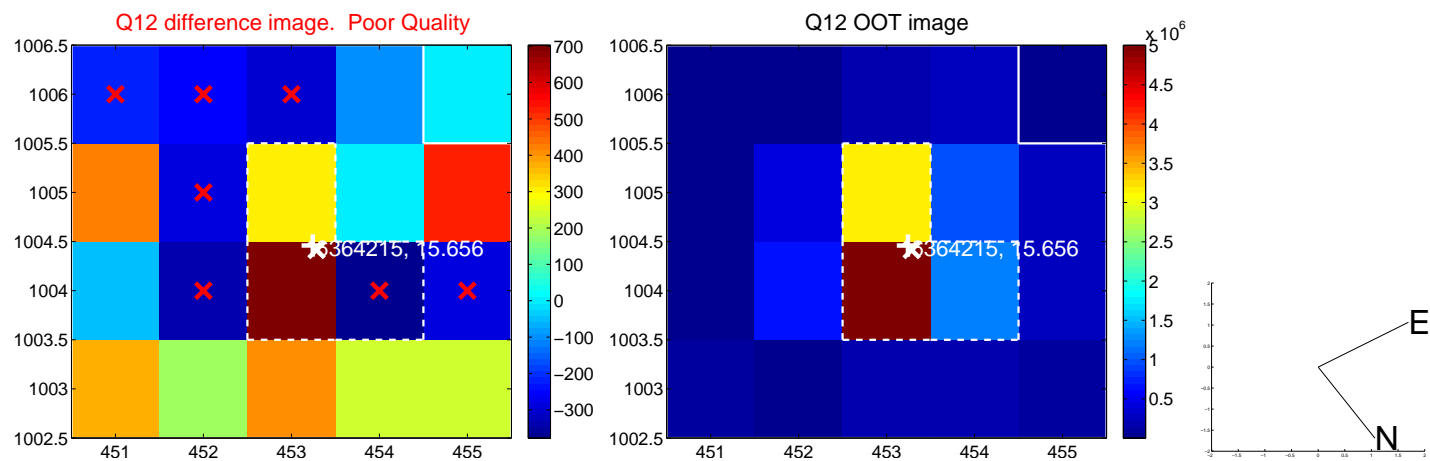
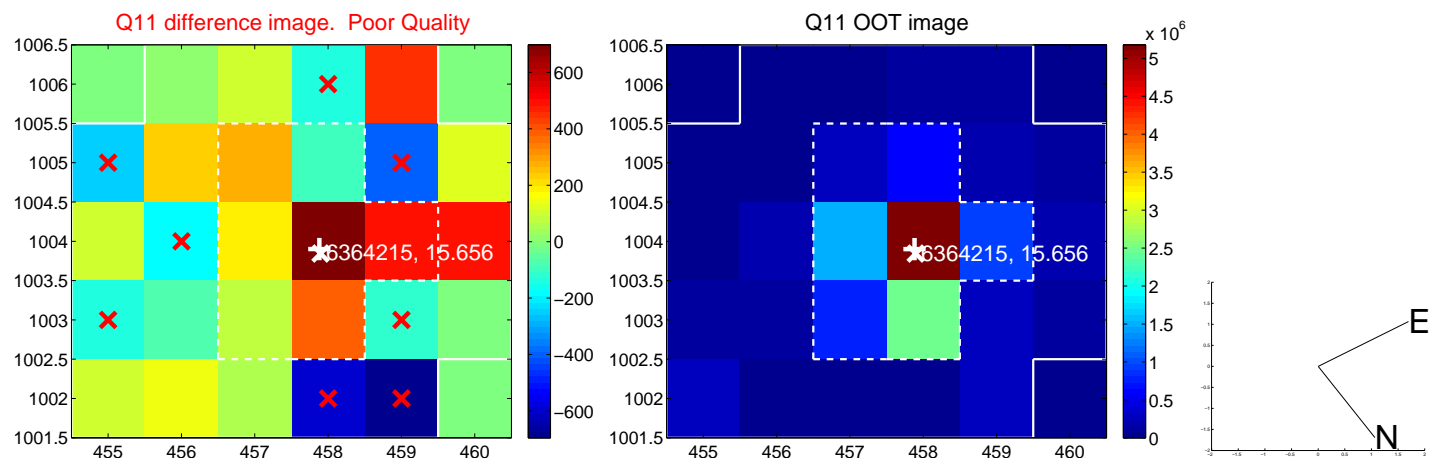
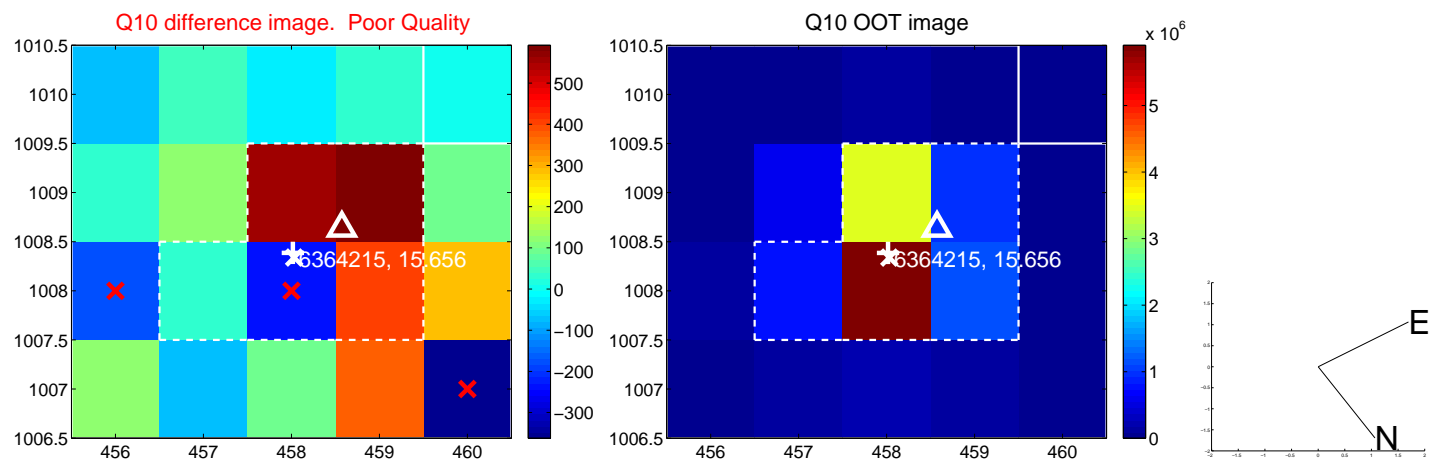
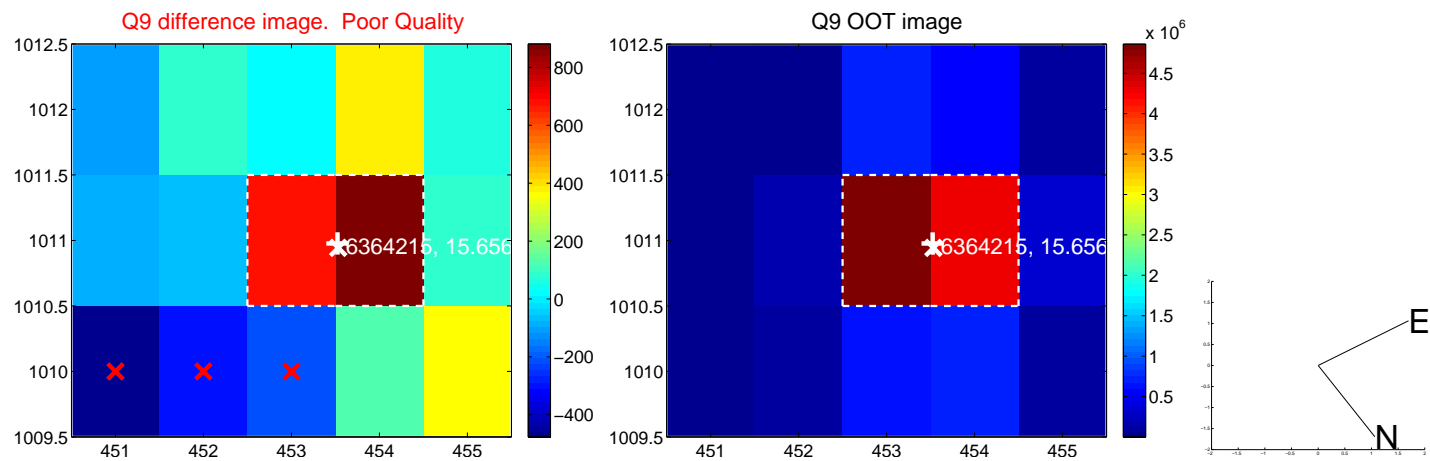
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



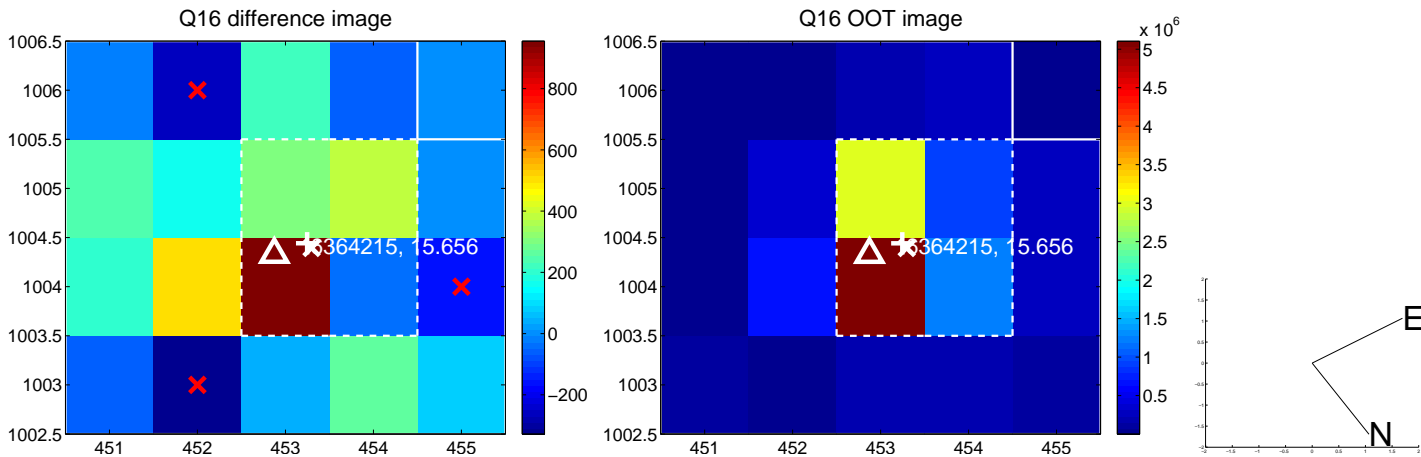
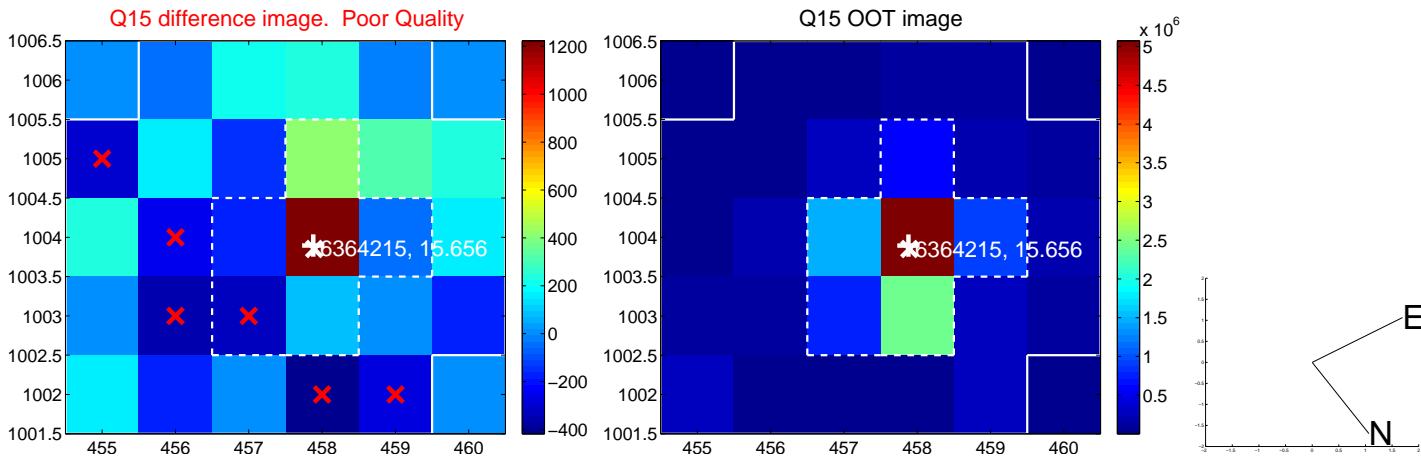
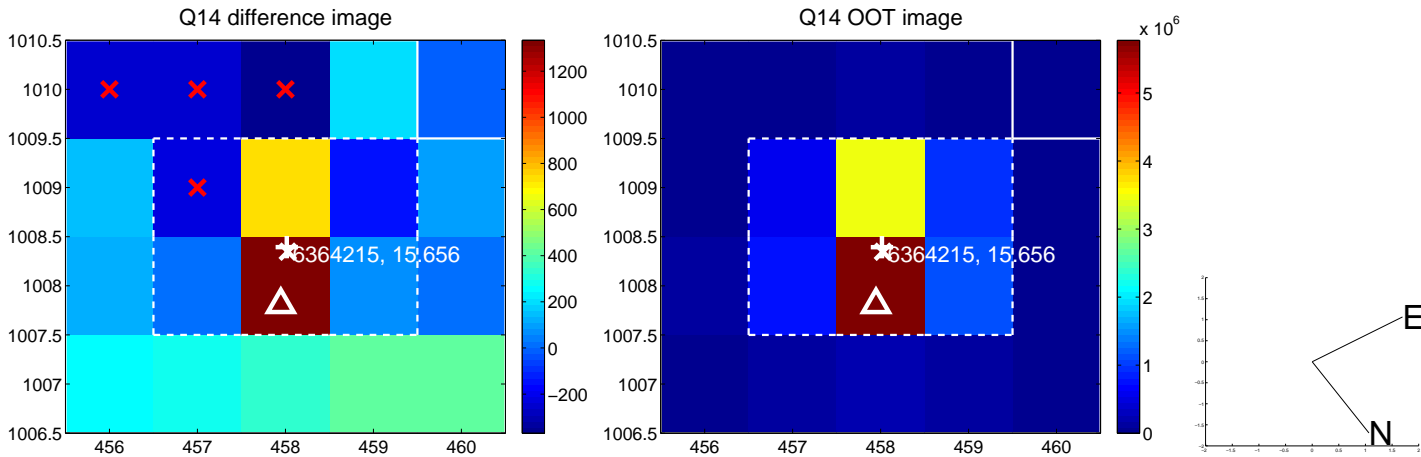
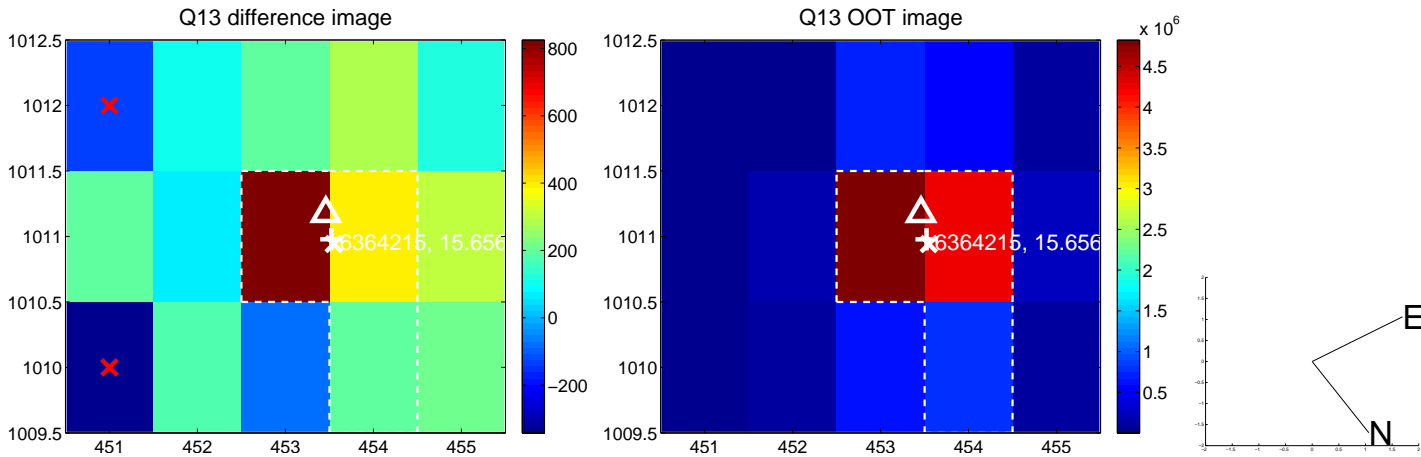
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

