

KIC 009655288

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})
009655288-01	OBS	No	1.082133	131.649268	83.3	2.845	11.2	9.5	2.64	7563	2.77	30818.60
009655288-02	OBS	No	2.863963	134.222043	130.0	34.368	9.4	18.3	2.64	7563	3.96	8418.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009655288-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009655288-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—CENT_FEW_DIFS

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

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

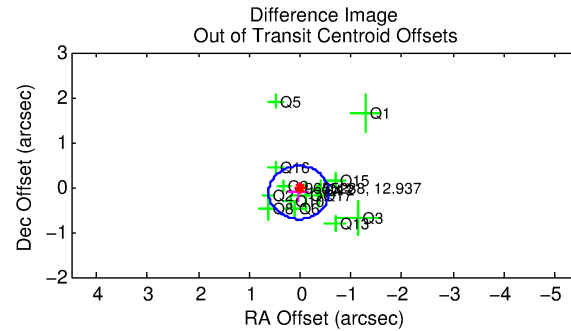
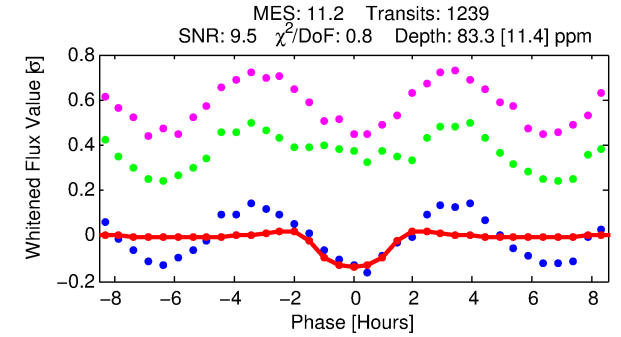
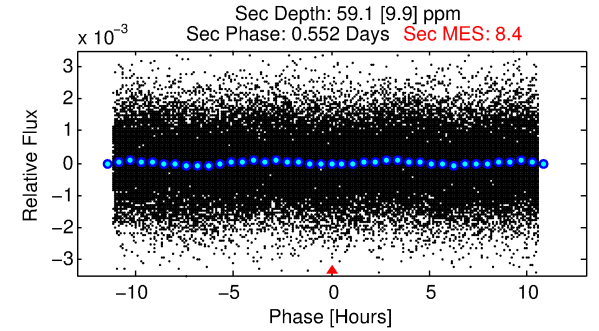
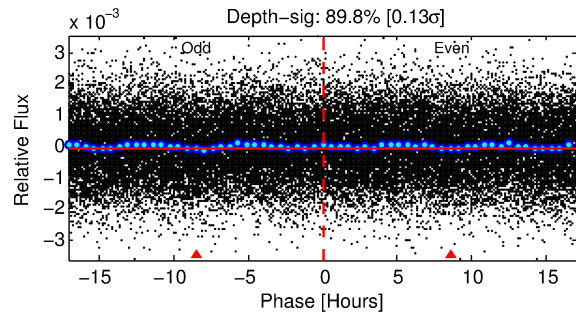
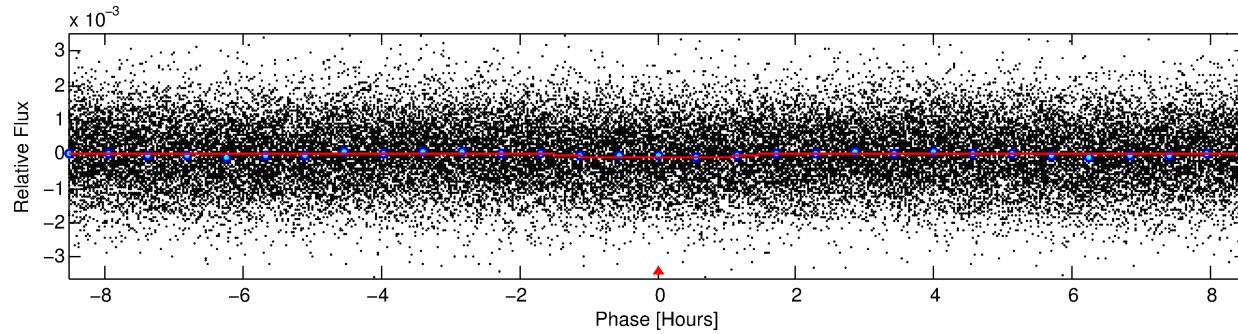
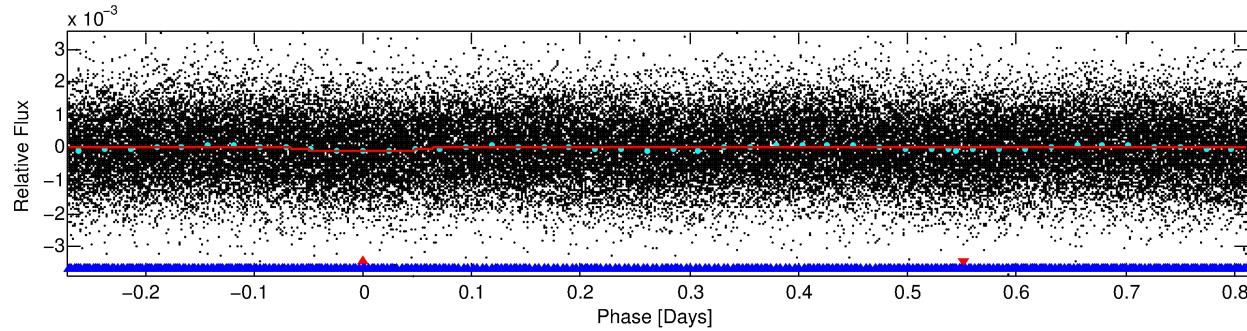
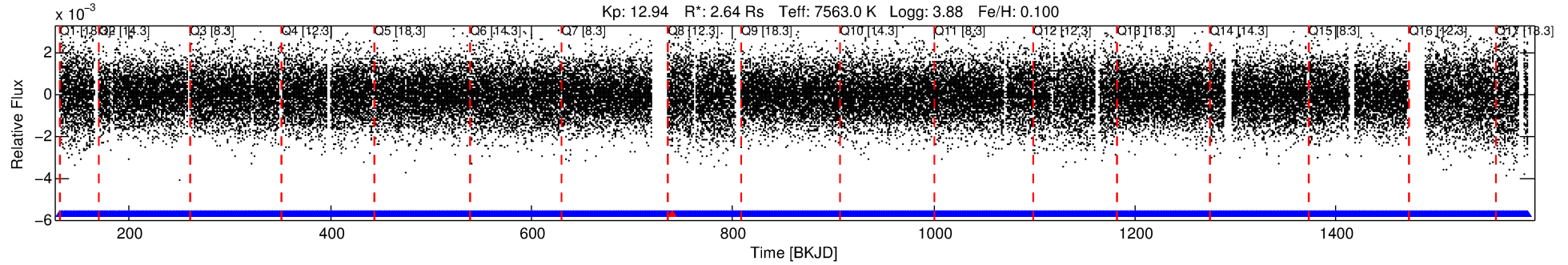
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009655288-01

No Significant Match Found

DV One-Page Summary

KIC: 9655288 Candidate: 1 of 2 Period: 1.082 d



DV Fit Results:

Period = 1.08213 [0.00001] d
Epoch = 131.6493 [0.0041] BKJD
Rp/R* = 0.0096 [0.0061]
a/R* = 1.67 [4.36]
b = 0.89 [0.96]
Seff = 30818.60 [15119.81]
Teq = 3379 [414] K
Rp = 2.77 [2.00] Re
a = 0.0257 [0.0079] AU
Ag = 2.80 [3.80] [0.47 σ]
Teffp = 6757 [2173] K [1.53 σ]

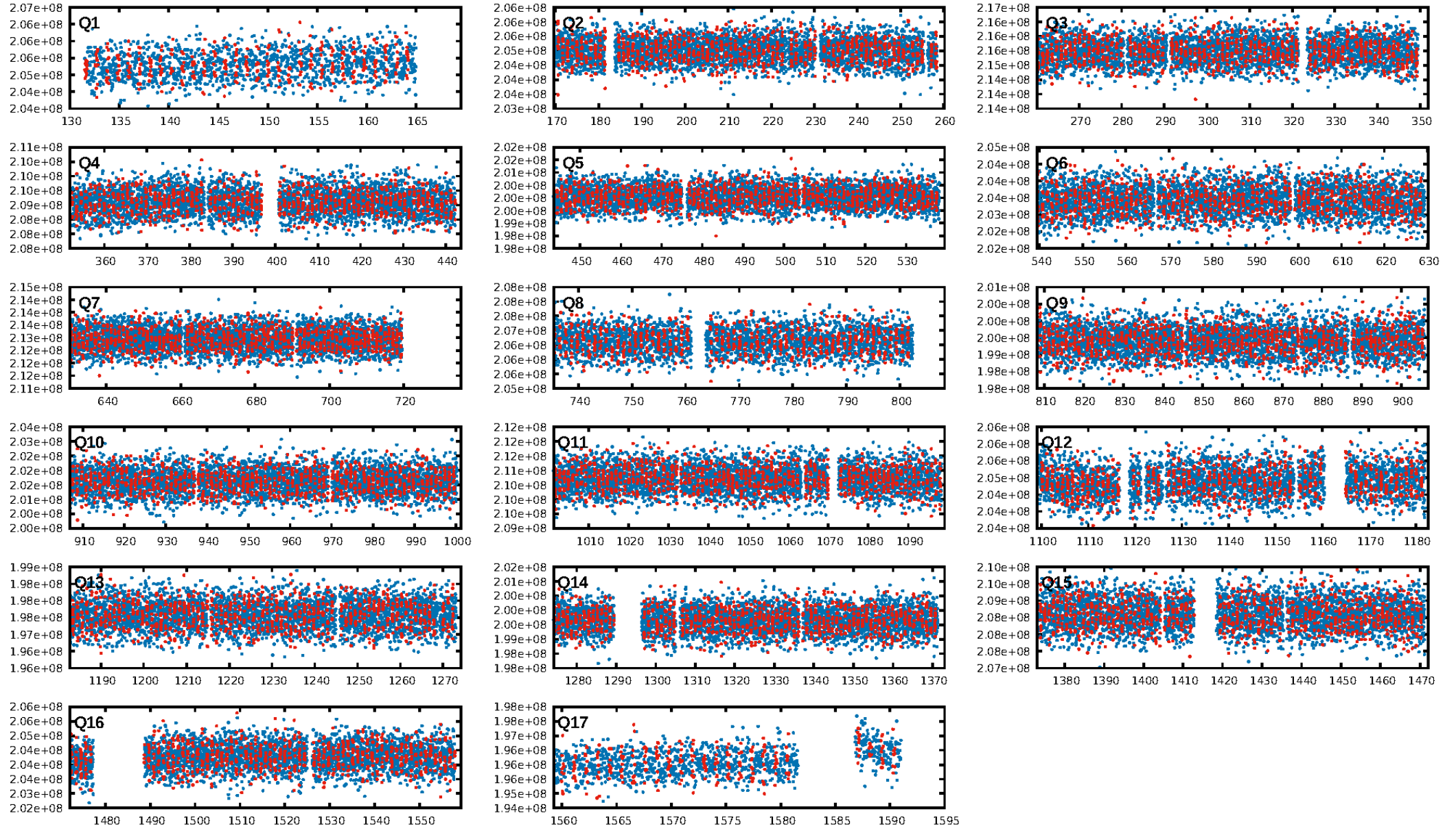
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 78.5% [1.24 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1183/1184]
GhostDiagnostic-chr: 3.491
Centroid-sig: 52.4%
Centroid-so: 0.099 arcsec [0.46 σ]
OotOffset-rm: 0.124 arcsec [0.63 σ]
OotOffset-st: 3/3/4/5 [15]
KicOffset-rm: 0.118 arcsec [0.57 σ]
KicOffset-st: 3/3/4/5 [15]
DiffImageQuality-fgm: 0.67 [10/15]
DiffImageOverlap-fno: 1.00 [17/17]

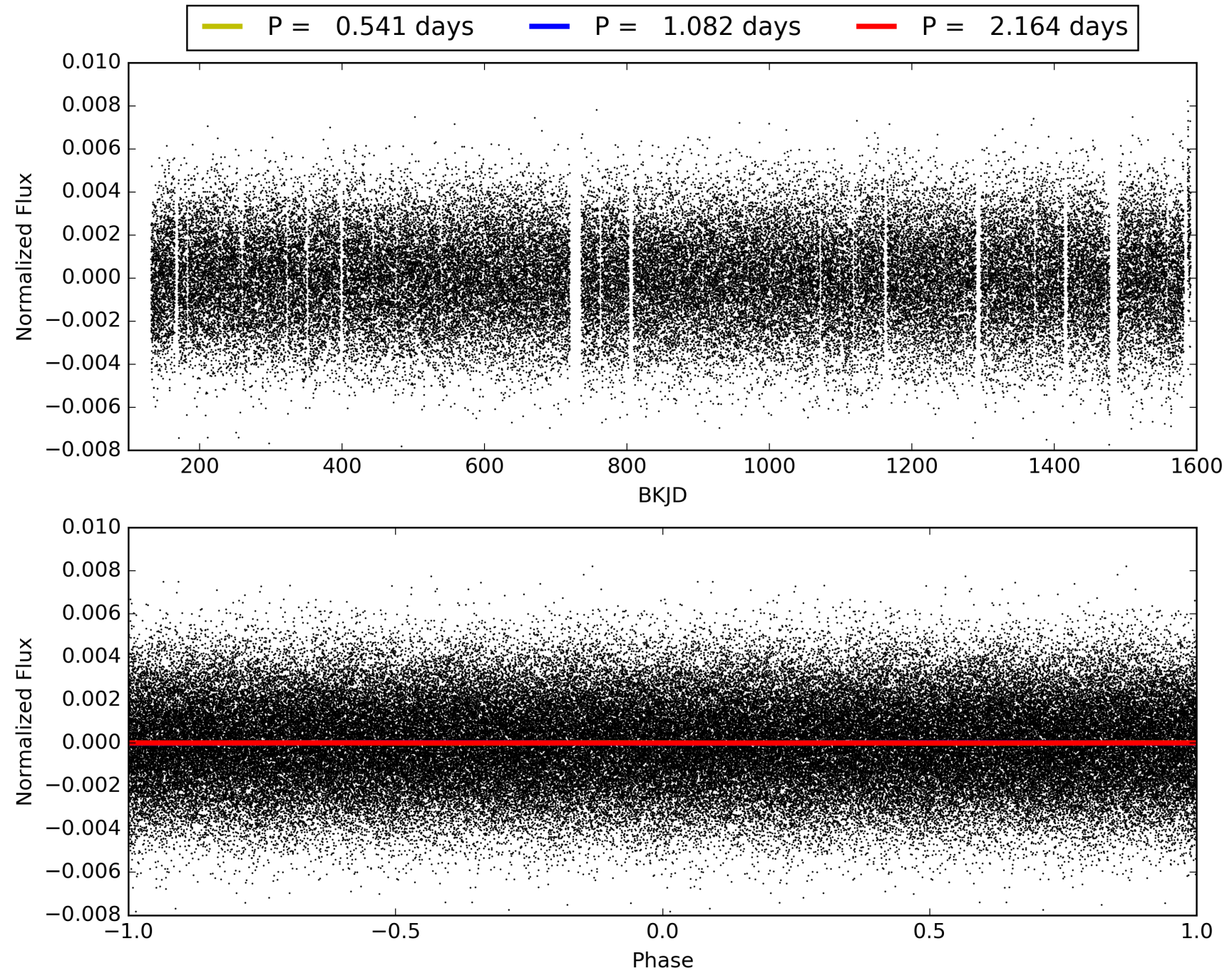
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:09:23 Z

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

TCE 009655288-01, PDC Light Curves

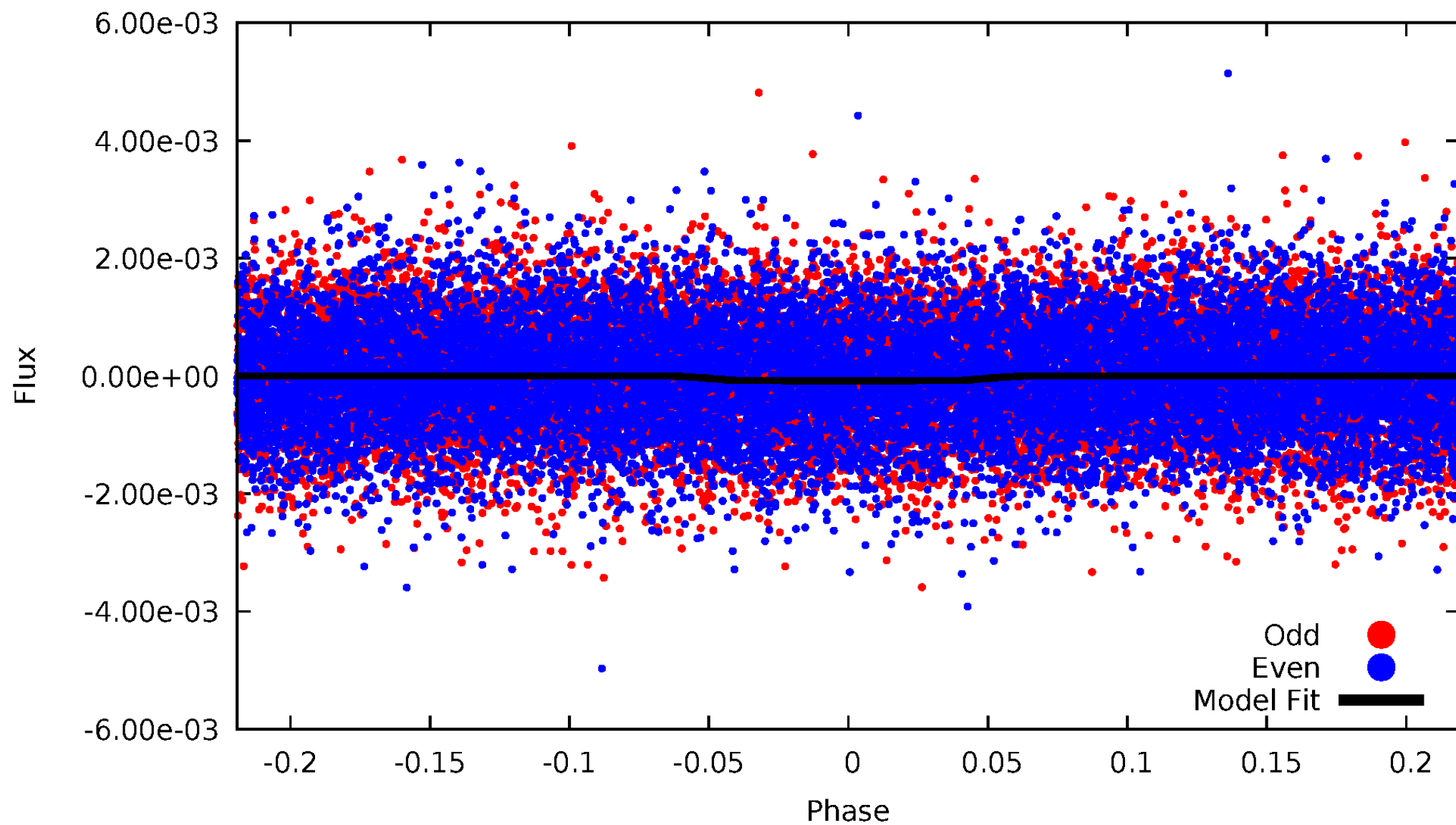


TCE 009655288-01



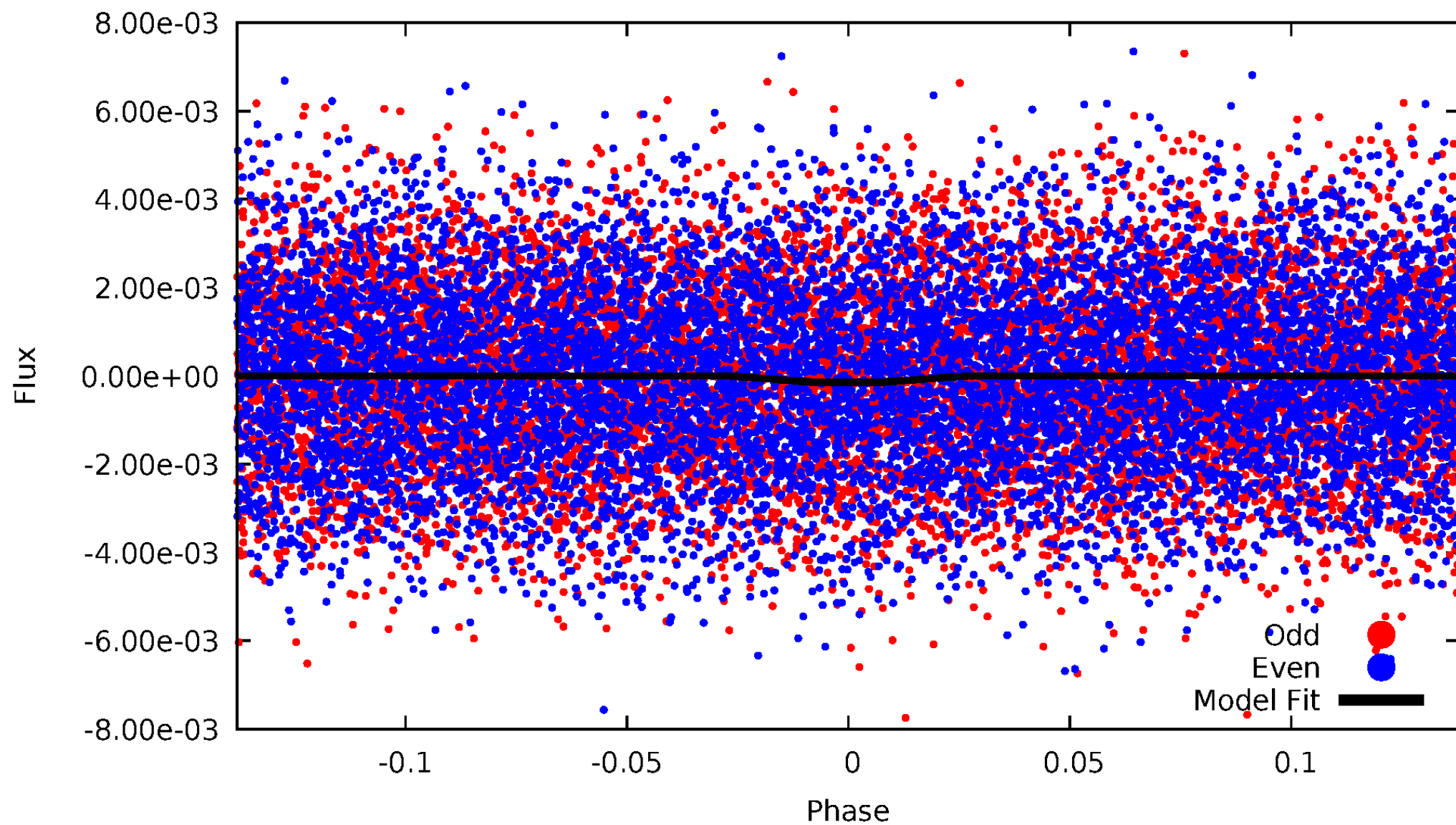
DV Odd/Even

TCE 009655288-01

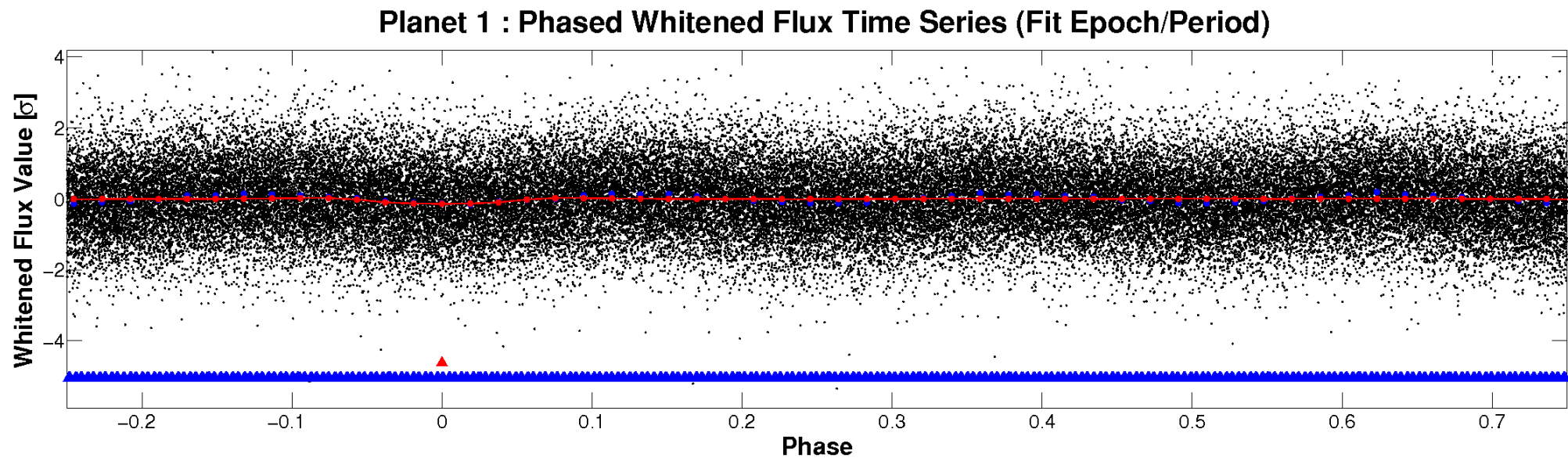
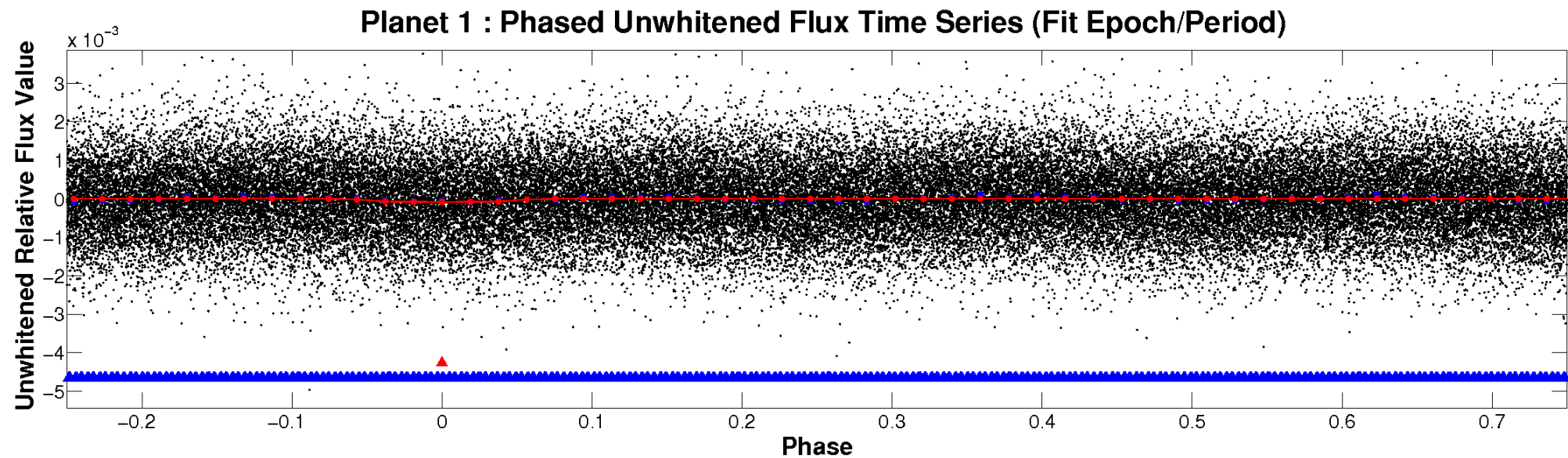


ALT Odd/Even

TCE 009655288-01

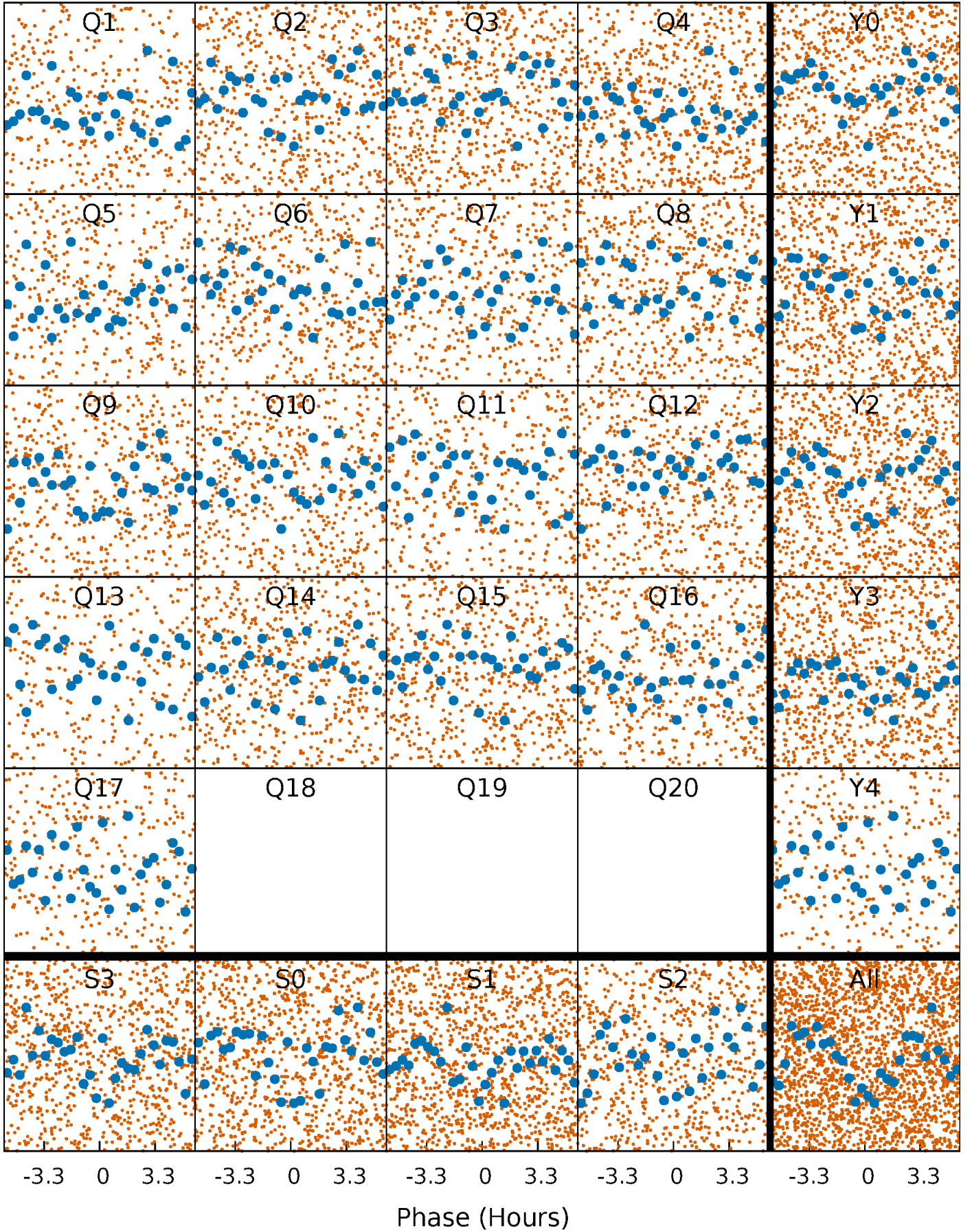


Non-Whitened Vs. Whitened Light Curve



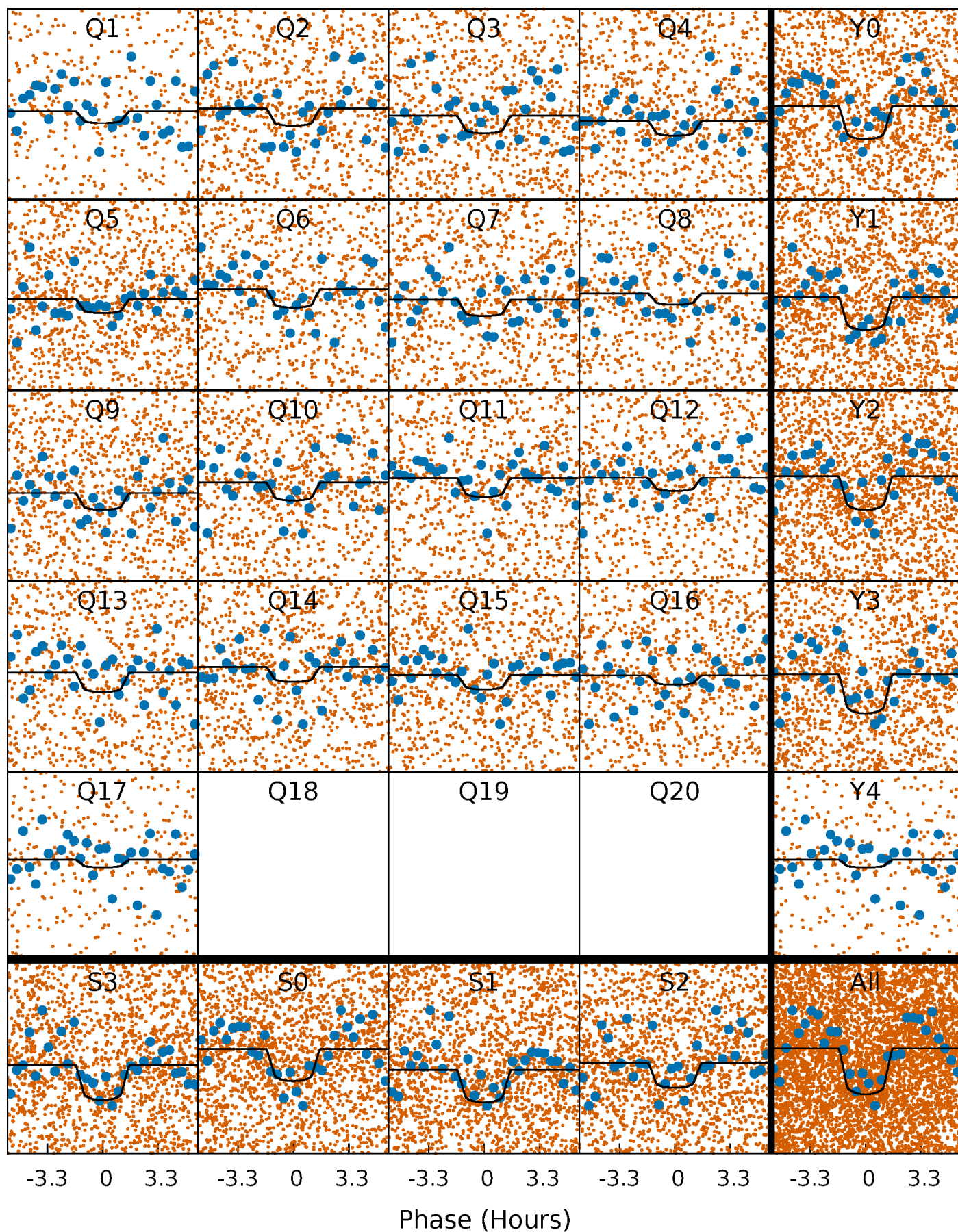
PDC Quarter-Phased Transit Curves

TCE 009655288-01 P= 1.082133 Days $T_0=131.649268$ (BKJD)



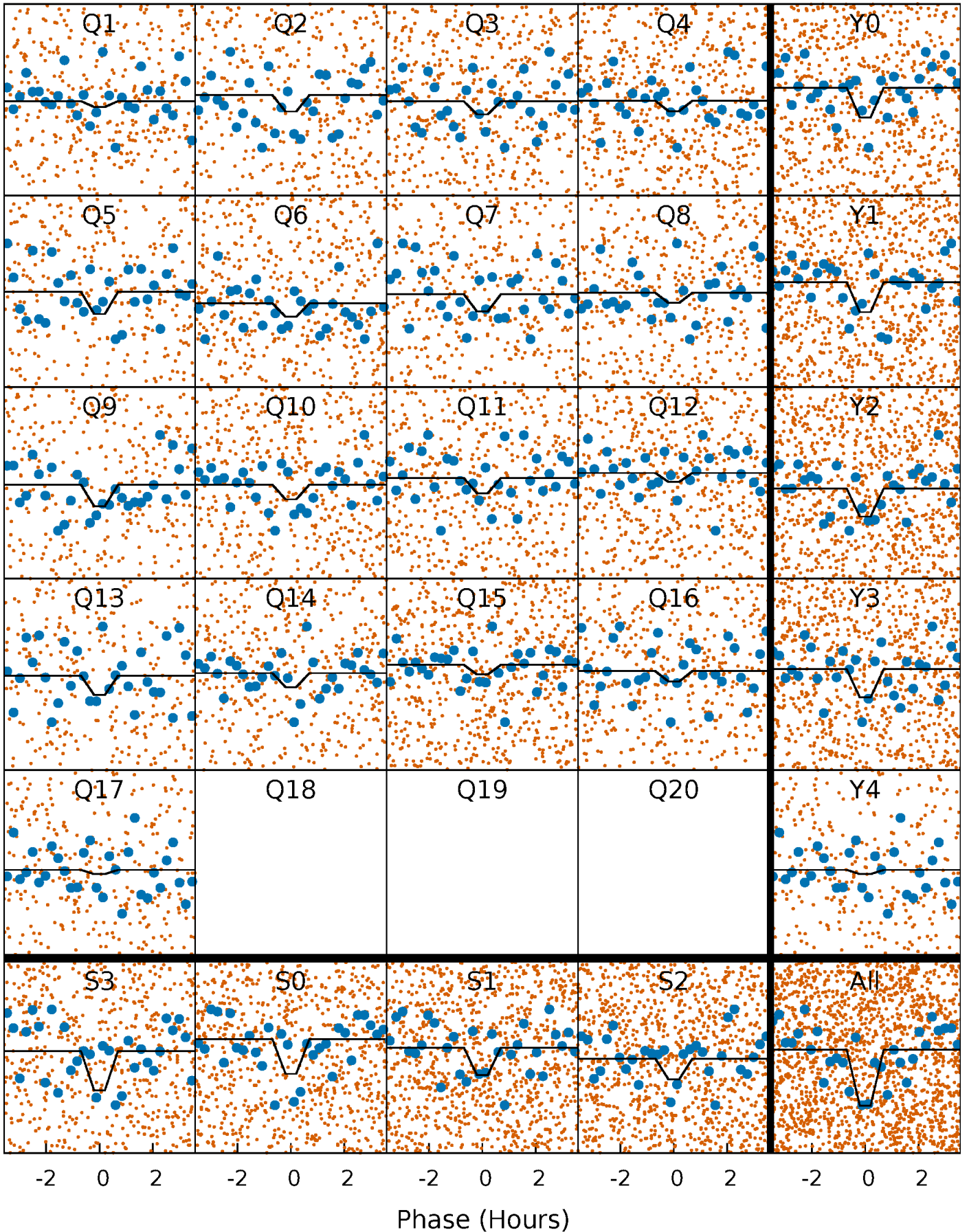
DV Quarter-Phased Transit Curves

TCE 009655288-01 P= 1.082133 Days $T_0=131.649268$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

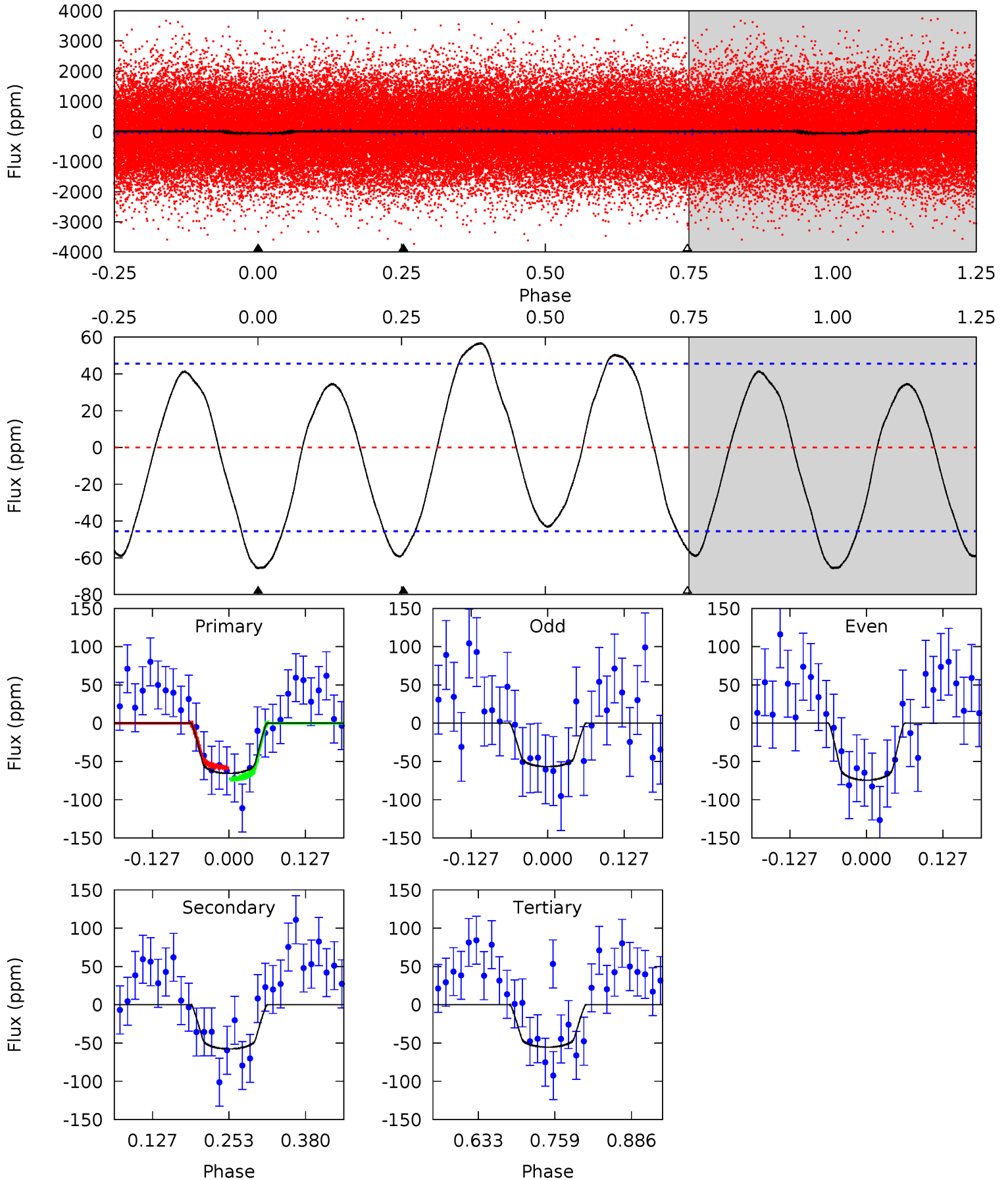
TCE 009655288-01 P= 1.082153 Days $T_0=131.643831$ (BKJD)



DV Model-Shift Uniqueness Test

009655288-01, P = 1.082133 Days, E = 130.567135 Days

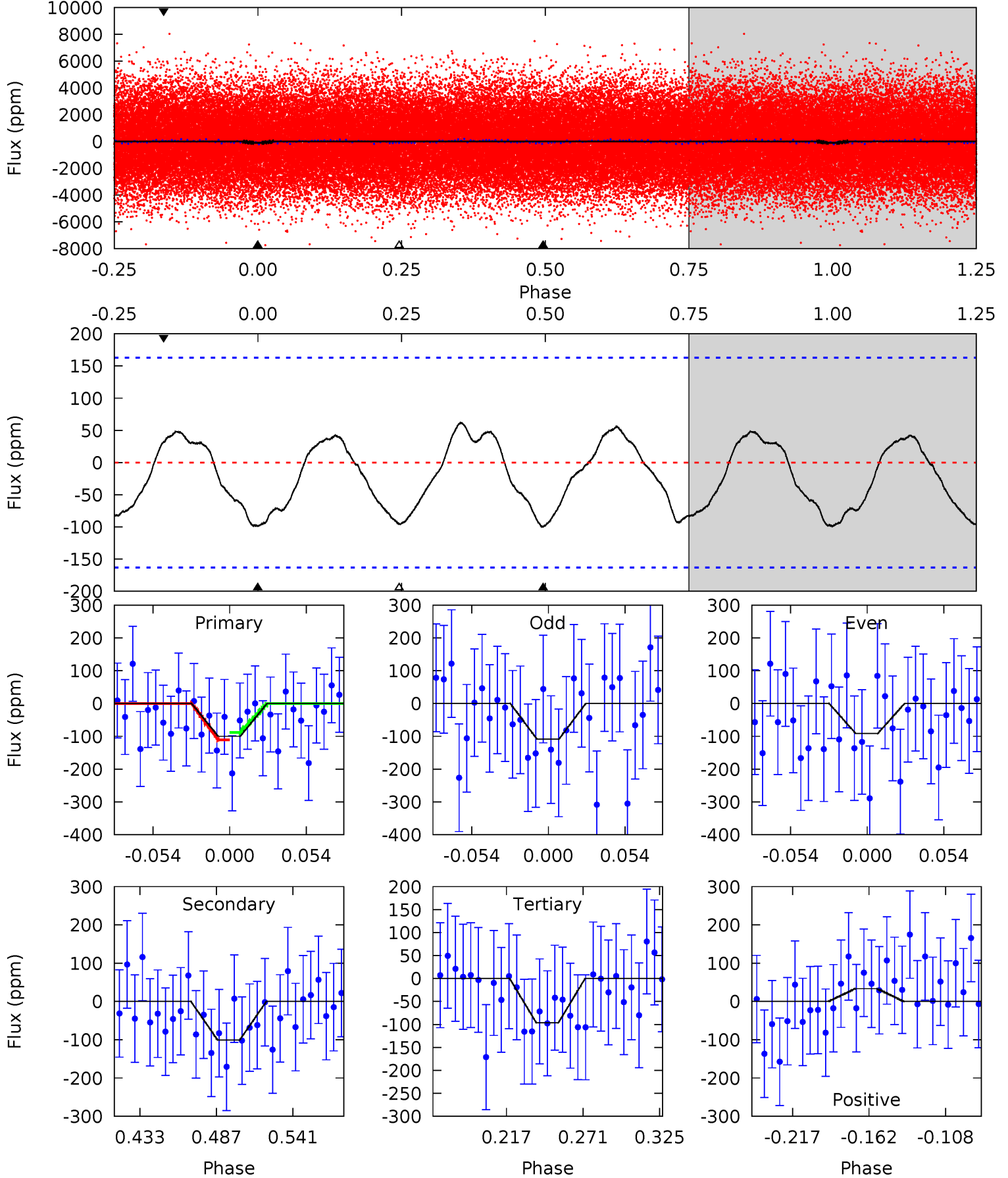
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.50	5.71	5.48	0	4.52	1.53	3.56	1.02	6.50	0.22	5.71	0.88	1.06	0.46	0.72



Alt Model-Shift Uniqueness Test

009655288-01, P = 1.082153 Days, E = 130.561678 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.88	2.90	2.77	0.95	4.69	1.93	1.31	0.10	1.92	0.12	1.94	0.25	0.81	0.39	0.33



Stellar Parameters For KIC 009655288

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7563^{+211}_{-316}	$3.883^{+0.260}_{-0.120}$	$0.100^{+0.200}_{-0.350}$	$2.638^{+0.493}_{-0.915}$	$1.938^{+0.104}_{-0.441}$	$0.149^{+0.279}_{-0.054}$
	+3%/-4%	+7%/-3%	+200%/-350%	+19%/-35%	+5%/-23%	+188%/-36%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009655288-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-58 ± 10	$2.75^{+1.75}_{-1.56}$	4636^{+317}_{-369}	6135^{+4051}_{-1436}	$2.546^{+10.656}_{-1.580}$
Alt.	-101 ± 35	$3.16^{+1.90}_{-1.56}$	4616^{+354}_{-367}	6648^{+3744}_{-1583}	$3.458^{+9.797}_{-2.152}$

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 $A_{obs} \gg 1.0$

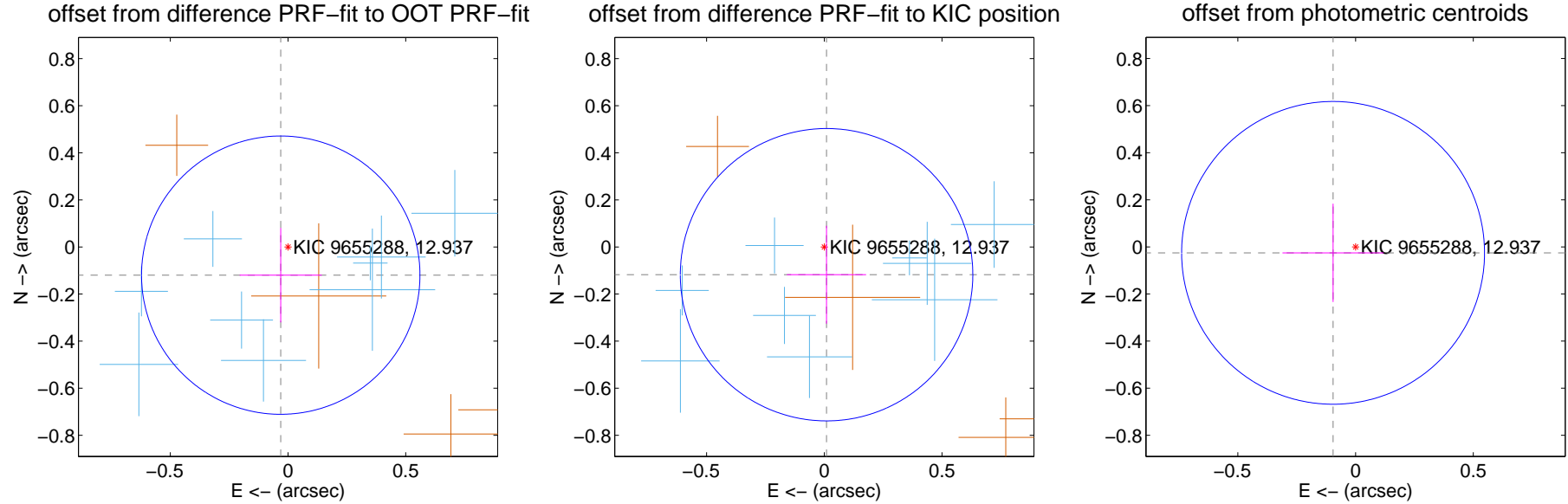
DV Centroid Data

Supplemental centroid analysis for 009655288-01. Kepler magnitude: 12.94. Transit SNR 9.50

There are 10 quarters with good PRF difference image offsets

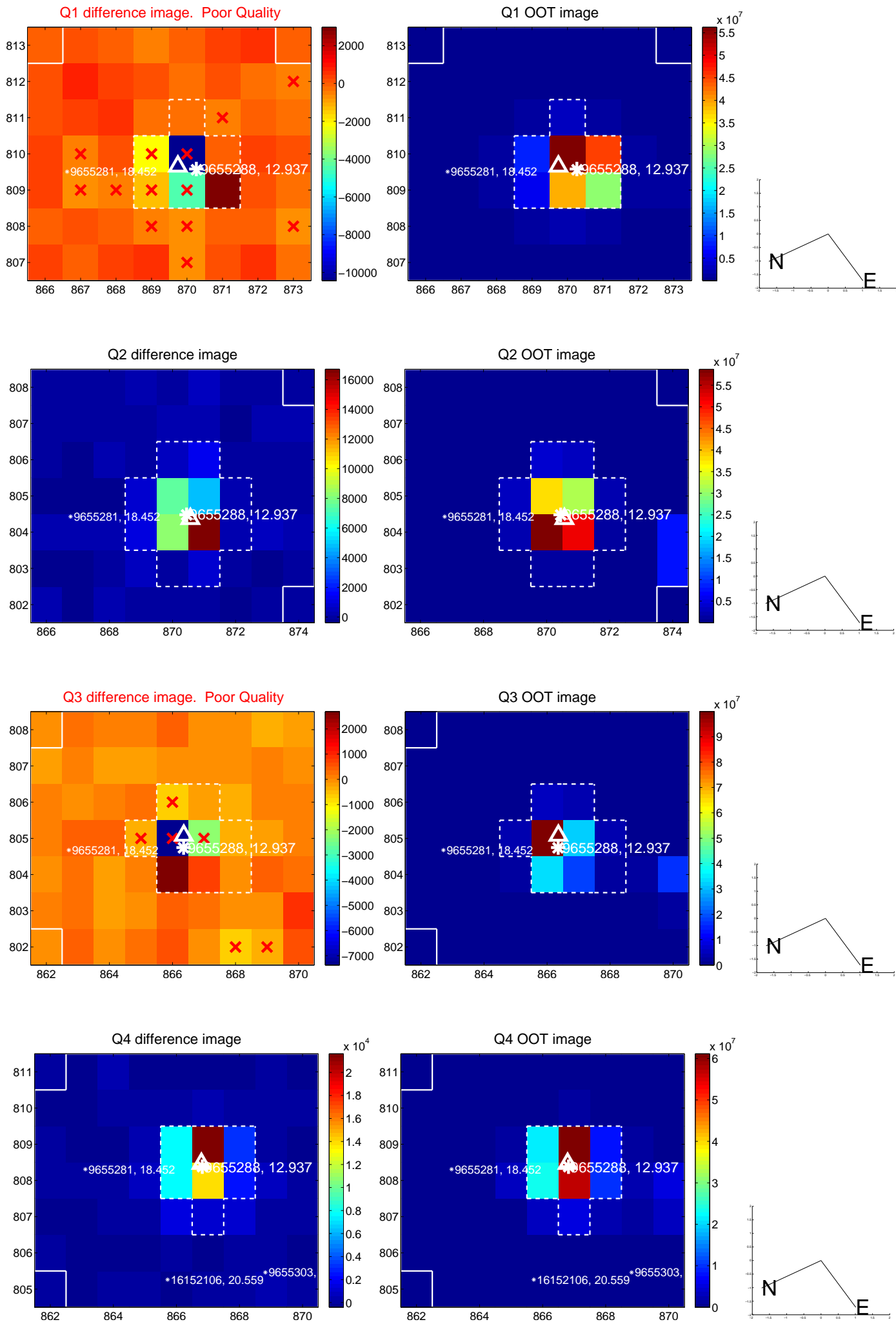
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.124 ± 0.197	0.63	0.031 ± 0.174	-0.120 ± 0.200
PRF-fit source offset from KIC position	0.118 ± 0.207	0.57	-0.010 ± 0.168	-0.118 ± 0.208
photometric centroid source offset	0.10 ± 0.21	0.46	0.10 ± 0.21	-0.03 ± 0.21

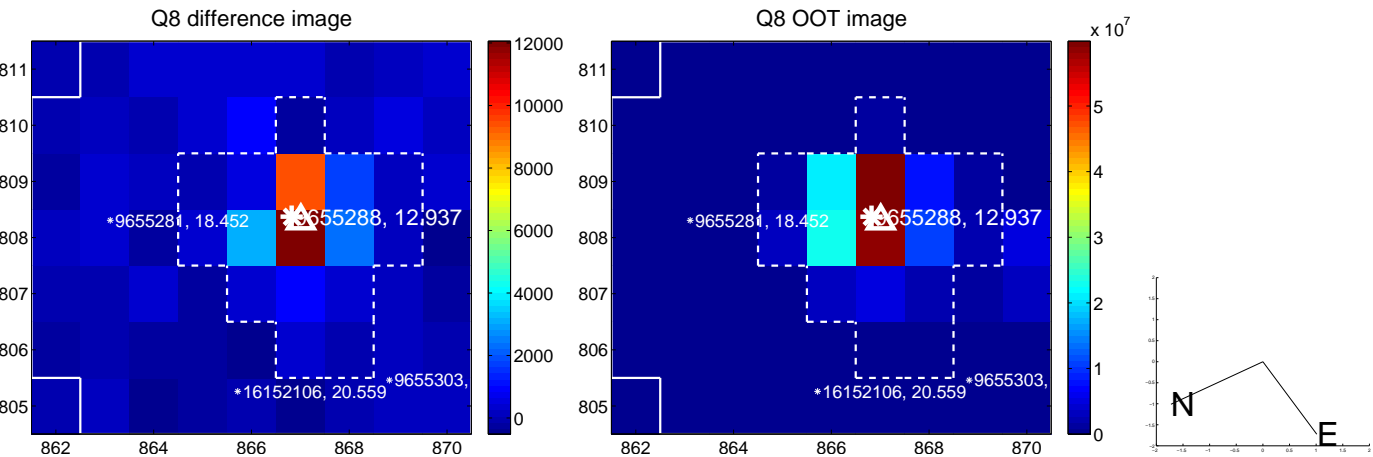
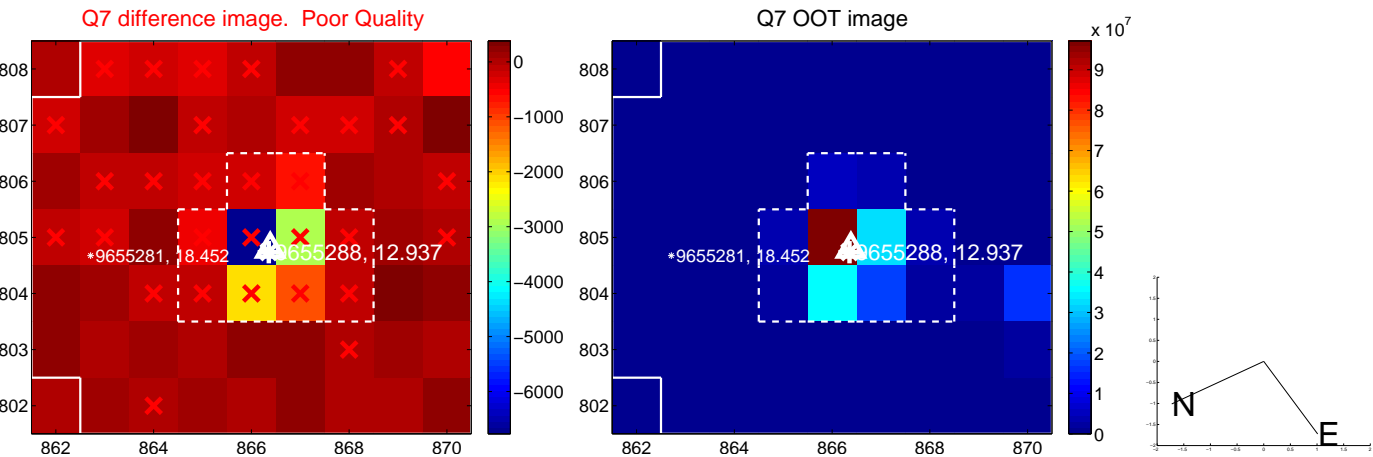
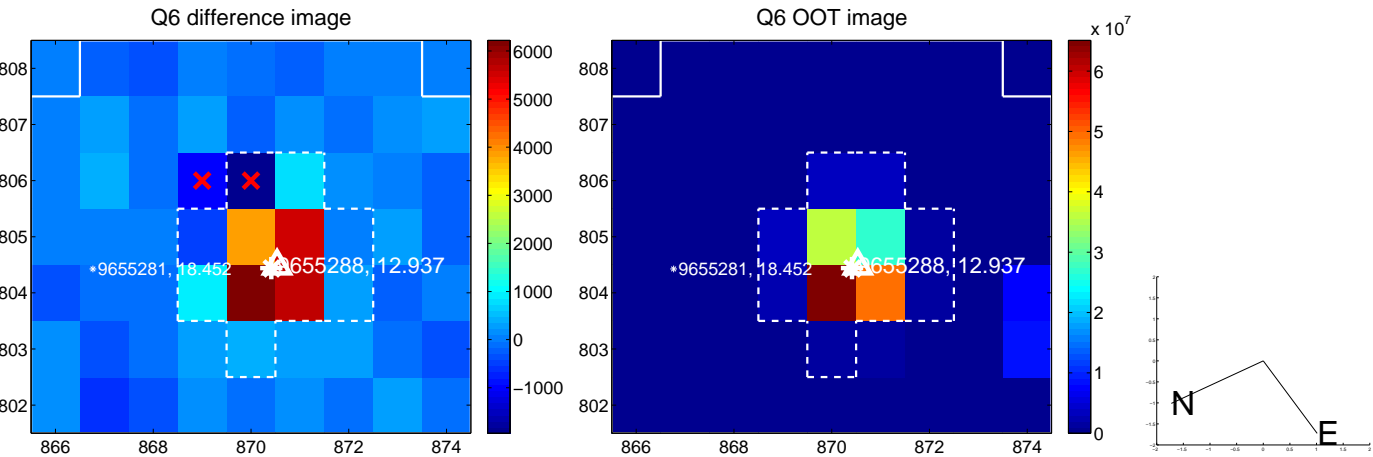
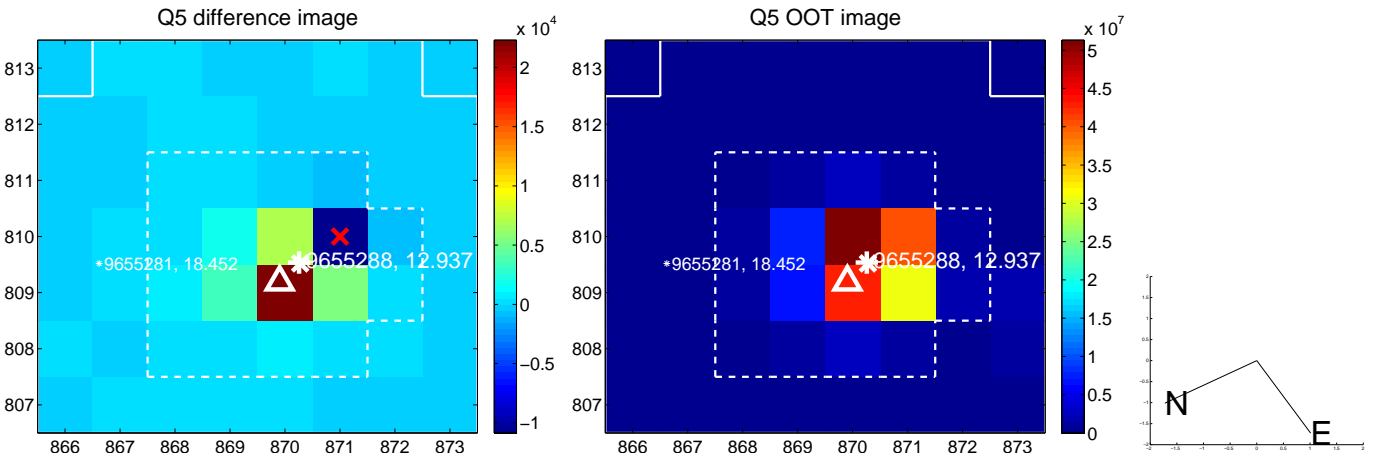


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

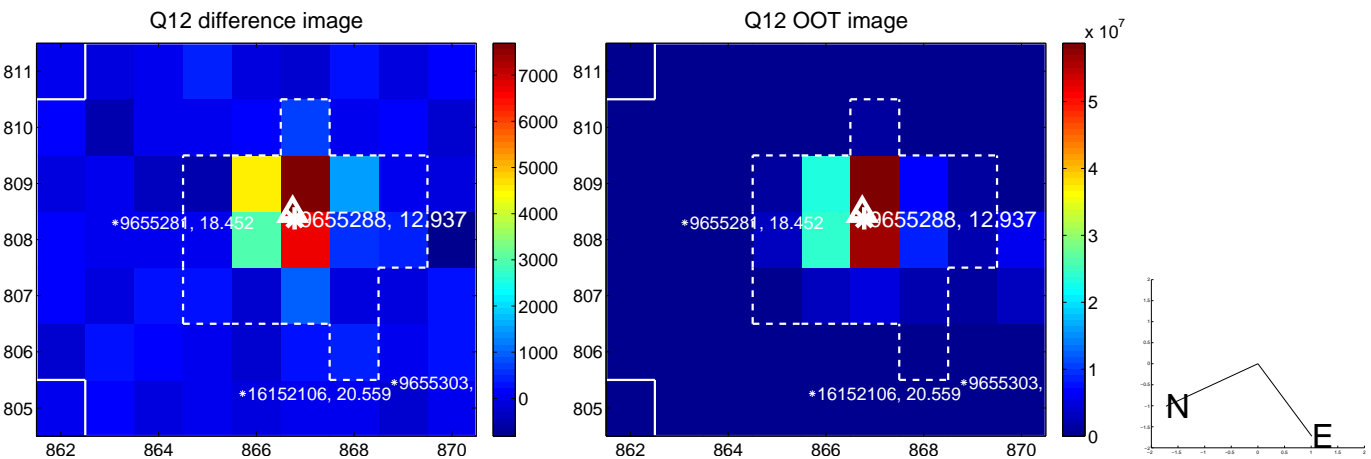
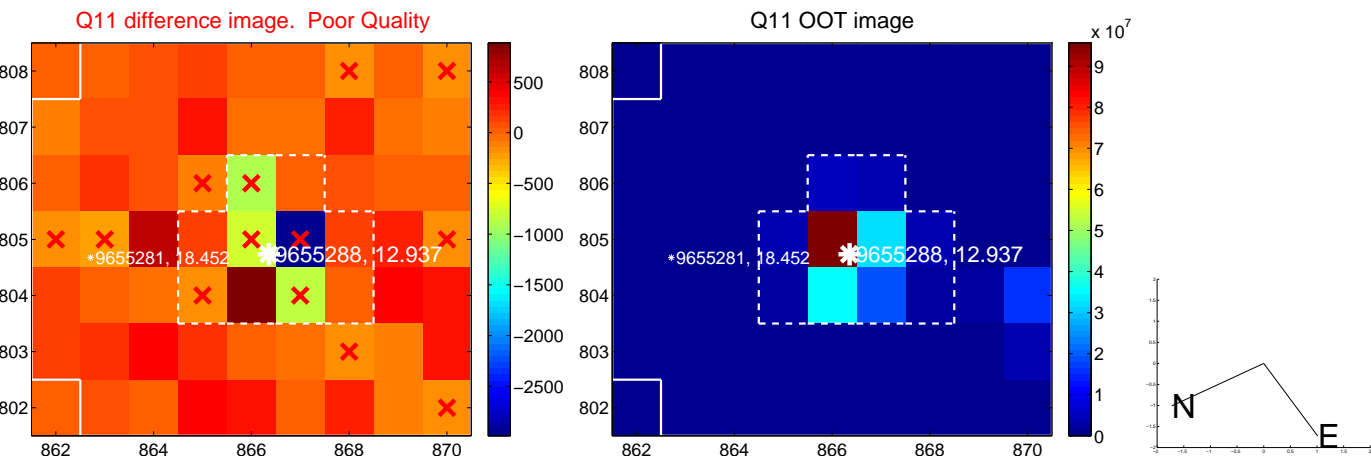
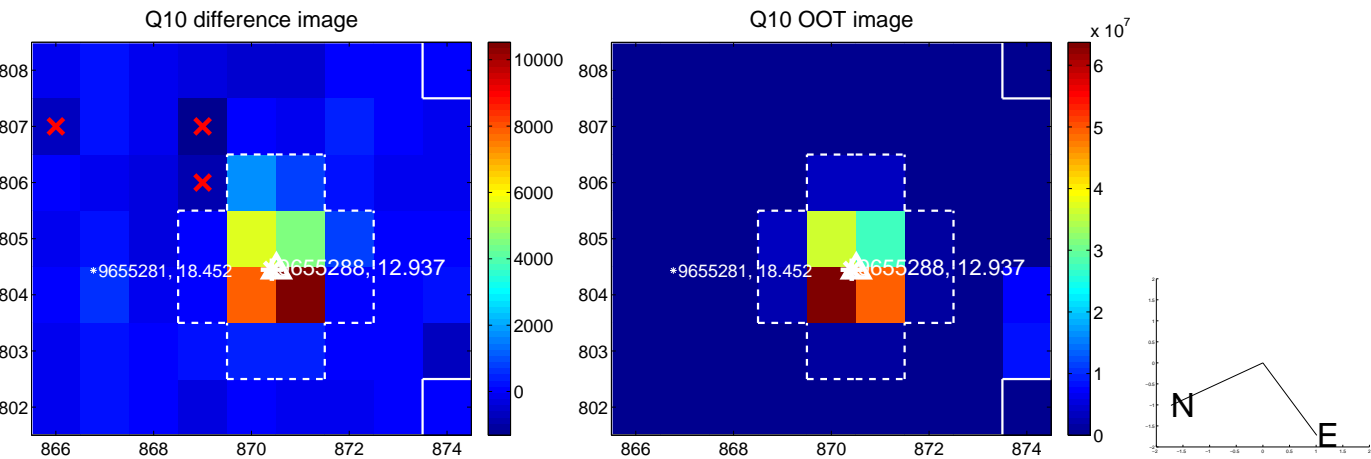
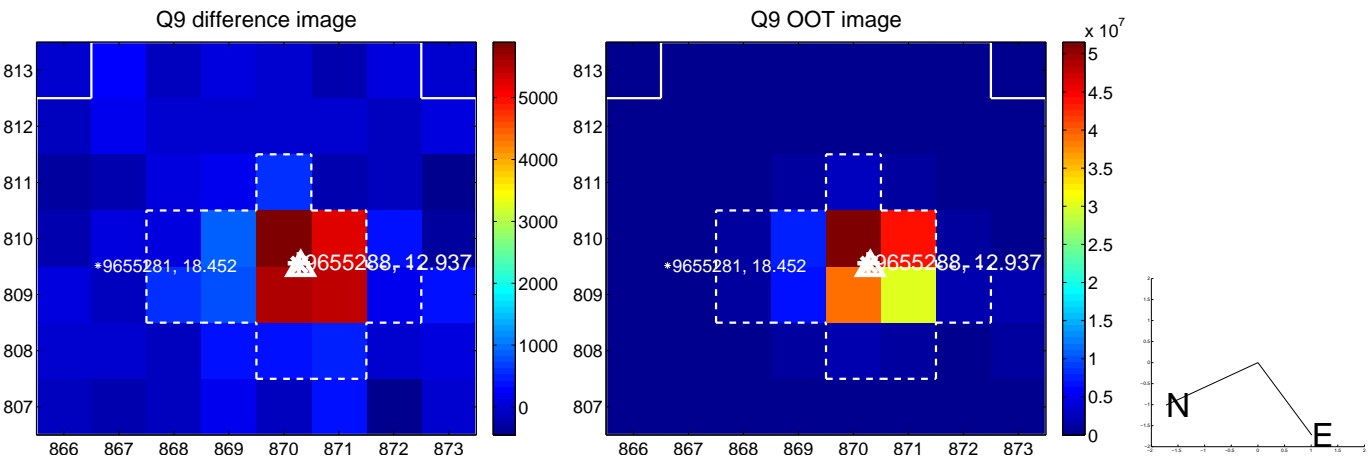
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



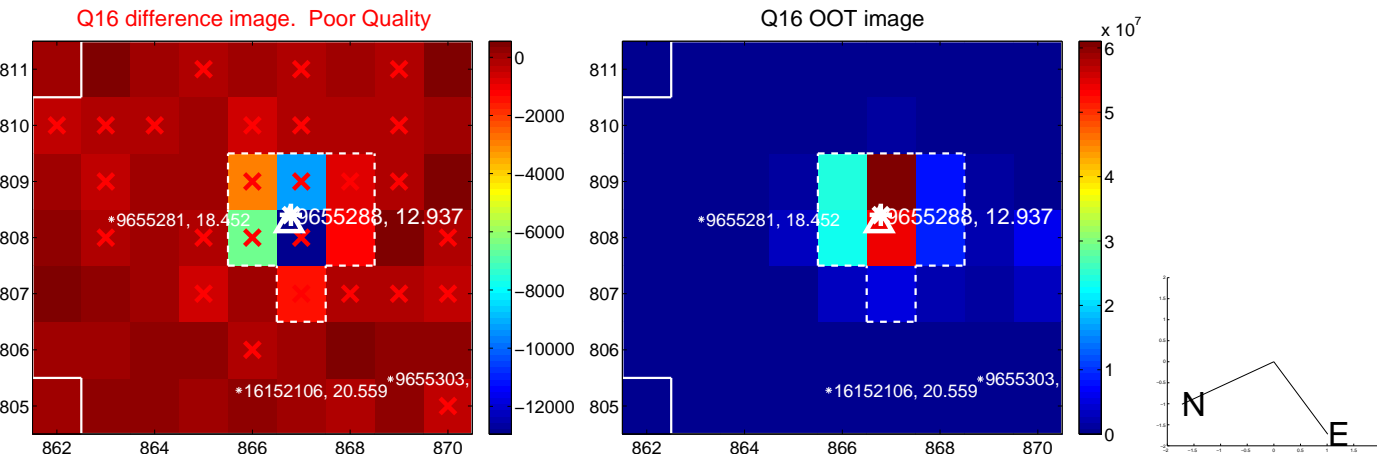
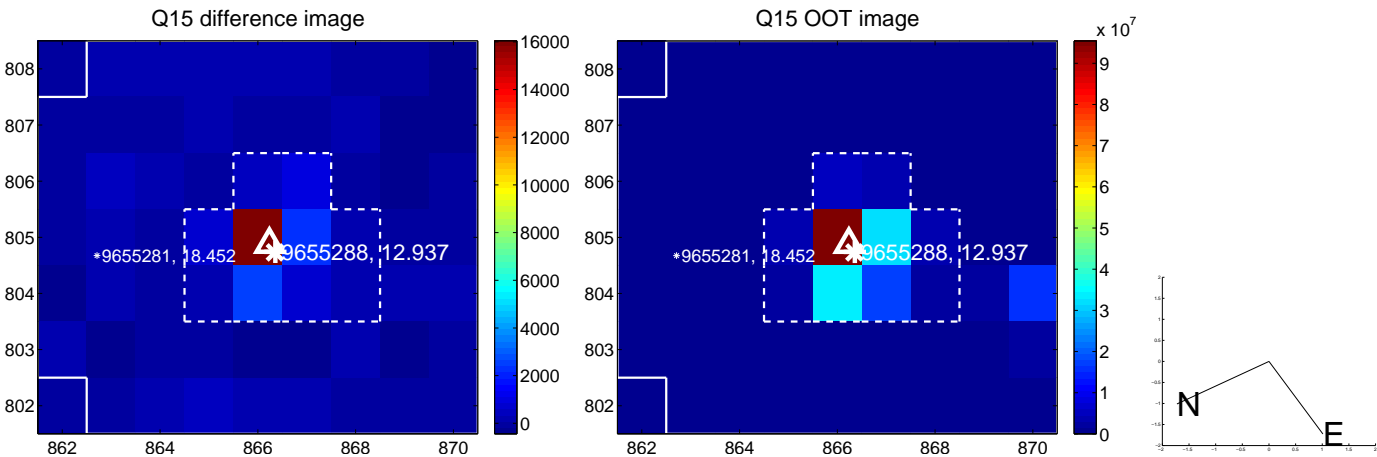
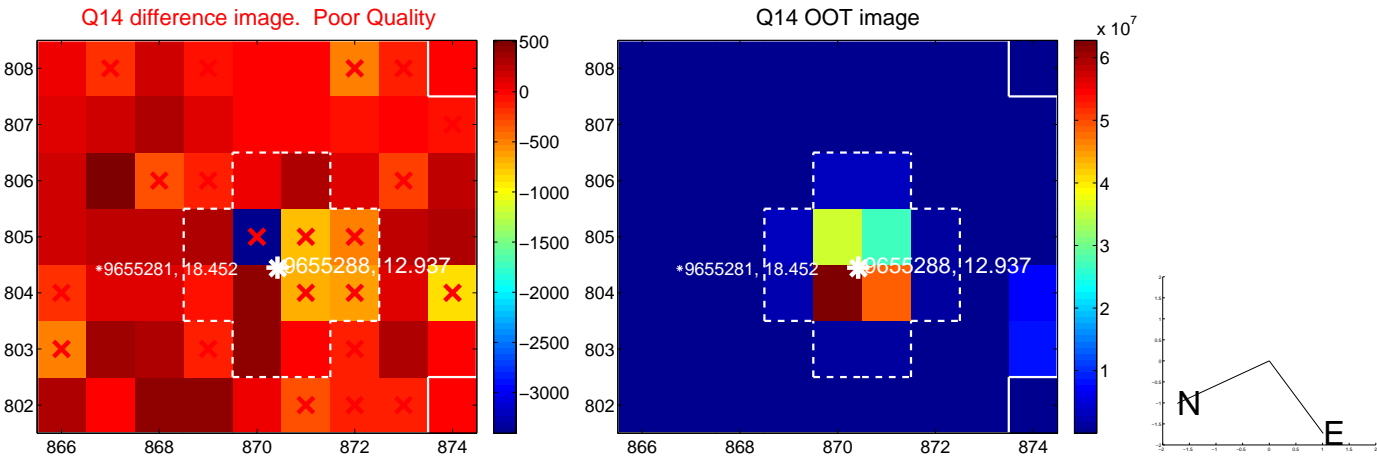
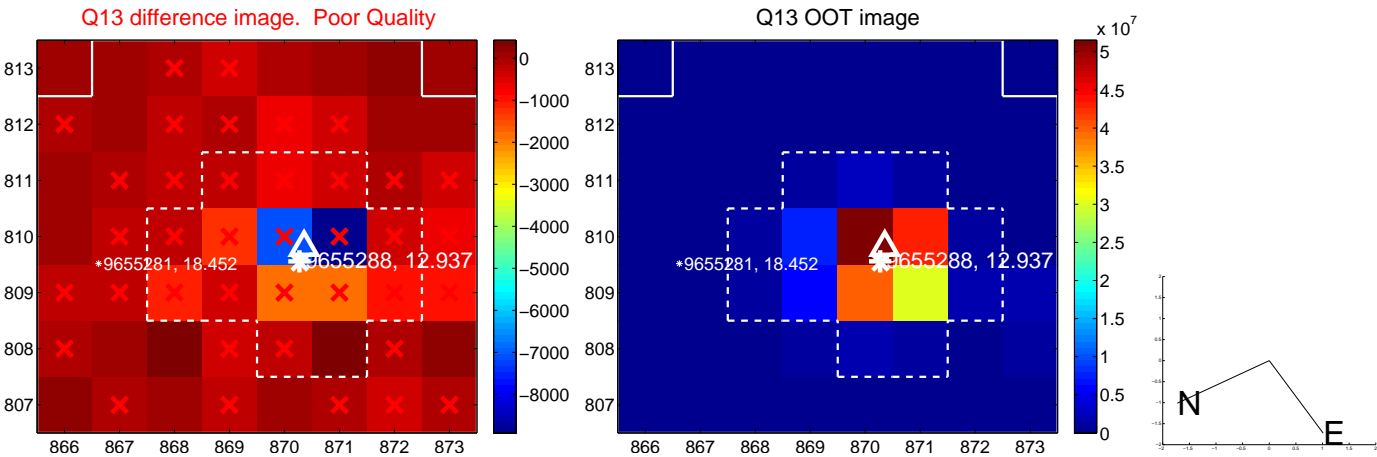
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



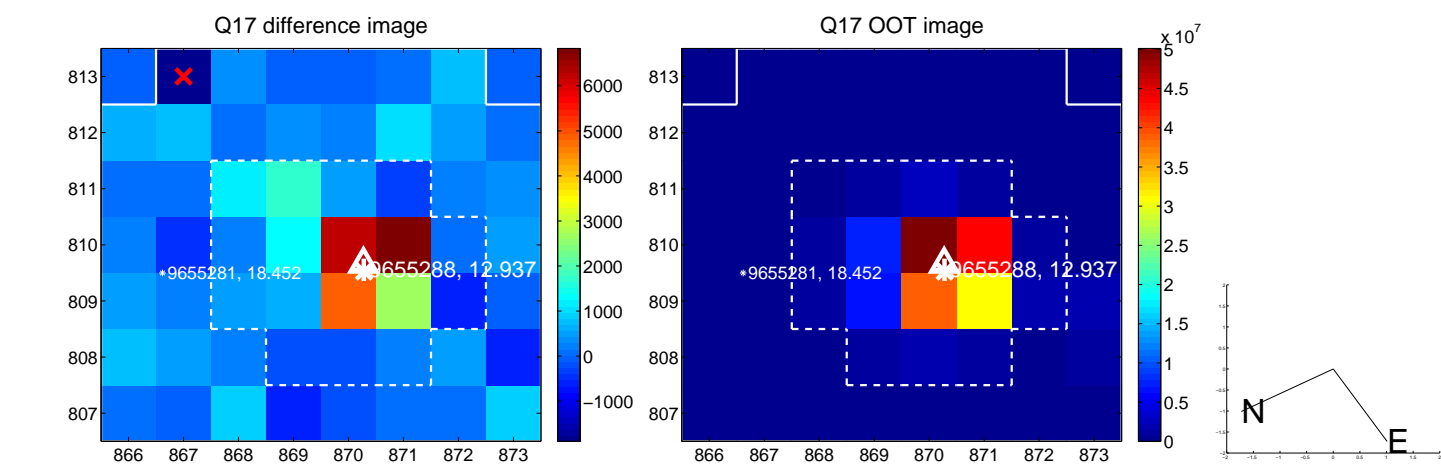
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



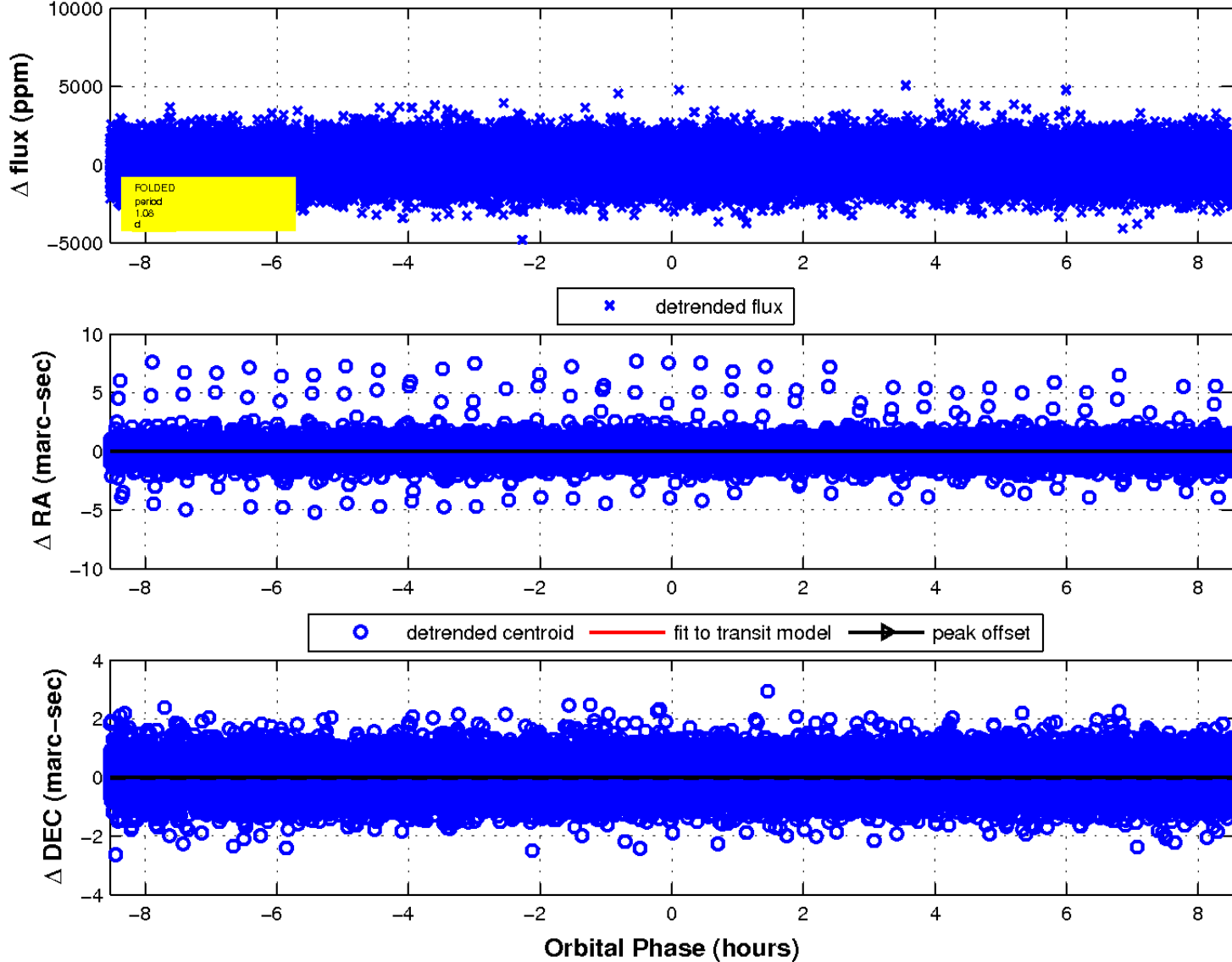
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

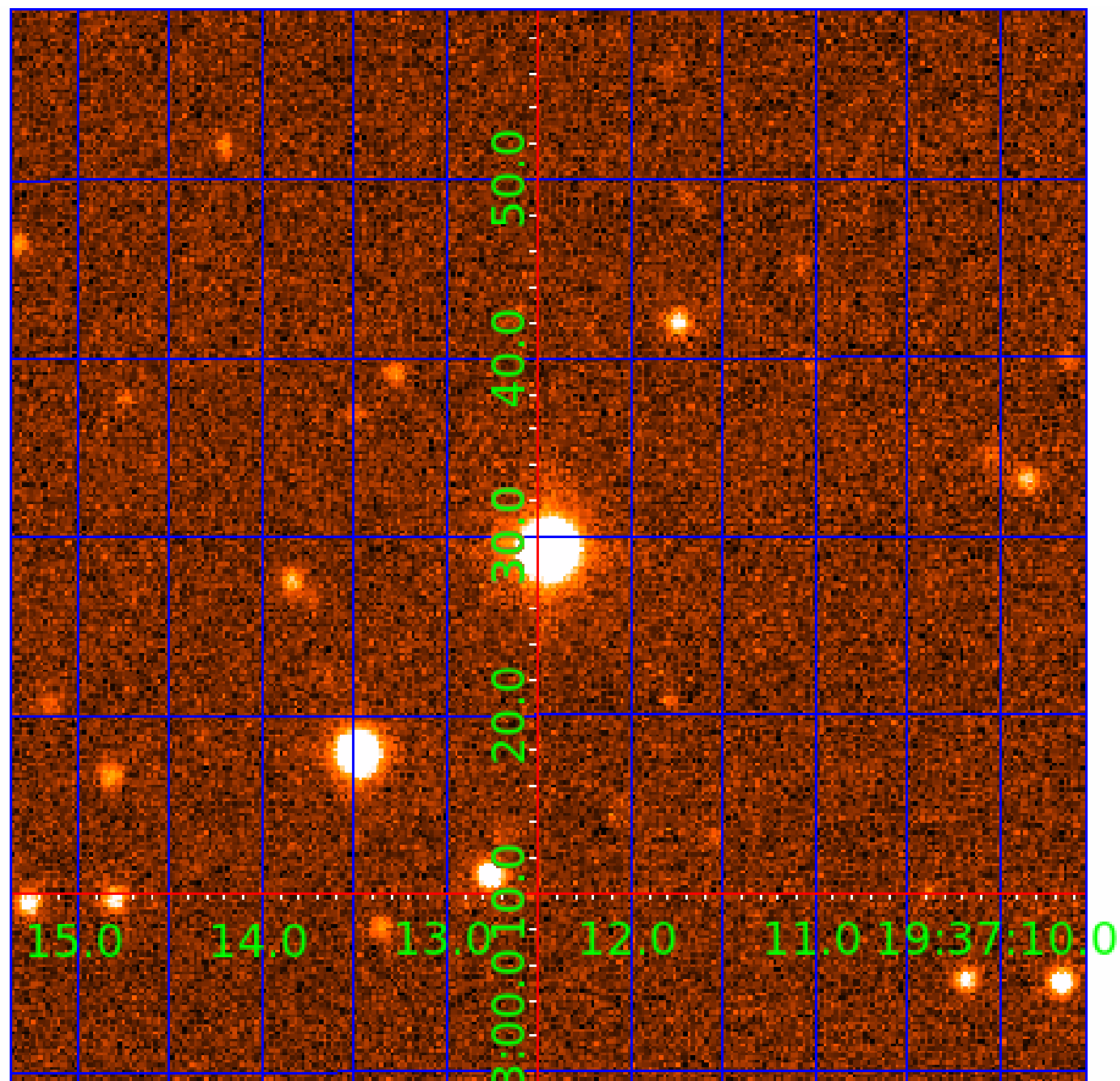


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 009655288

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})
009655288-01	OBS	No	1.082133	131.649268	83.3	2.845	11.2	9.5	2.64	7563	2.77	30818.60
009655288-02	OBS	No	2.863963	134.222043	130.0	34.368	9.4	18.3	2.64	7563	3.96	8418.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009655288-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009655288-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—CENT_FEW_DIFS

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

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

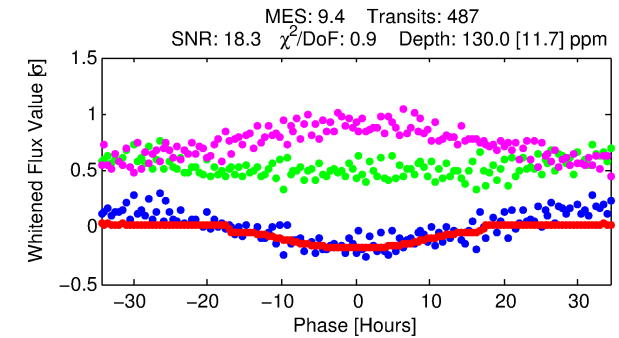
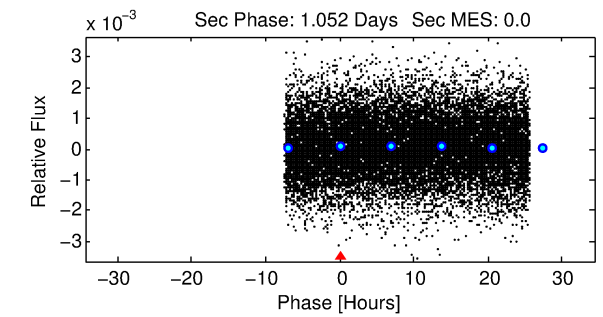
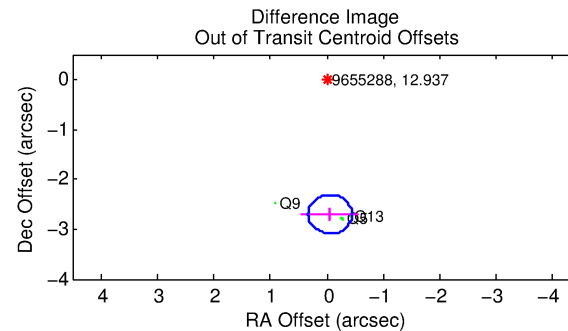
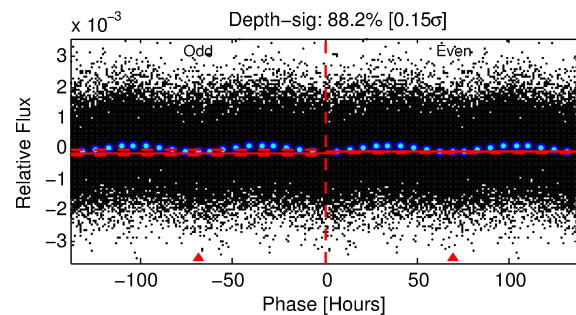
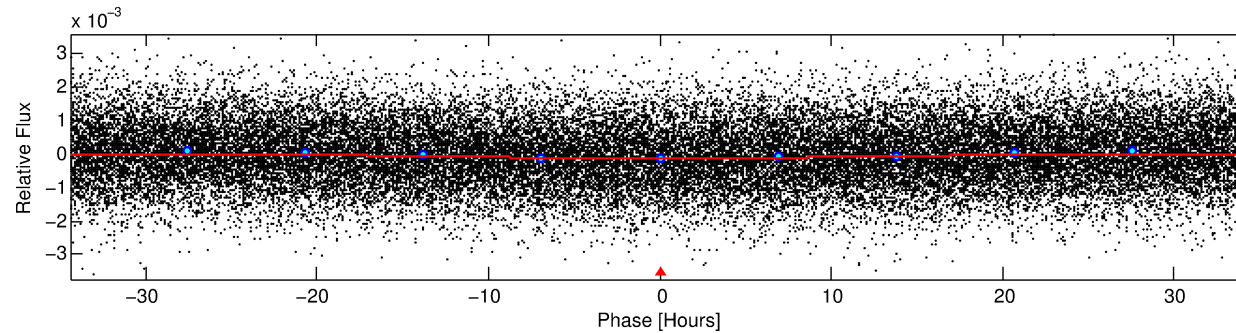
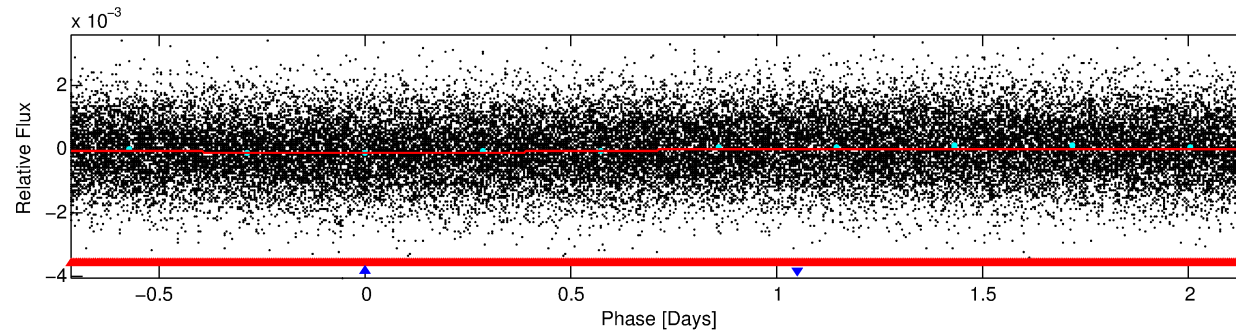
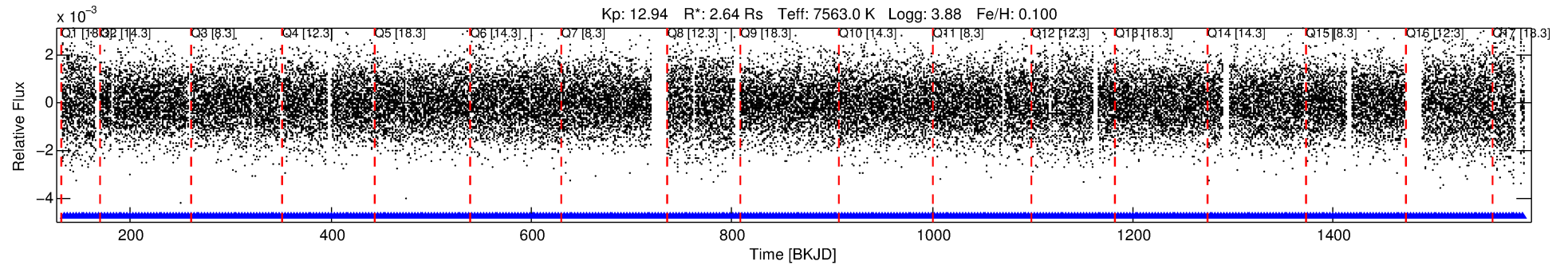
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009655288-02

No Significant Match Found

DV One-Page Summary

KIC: 9655288 Candidate: 2 of 2 Period: 2.864 d



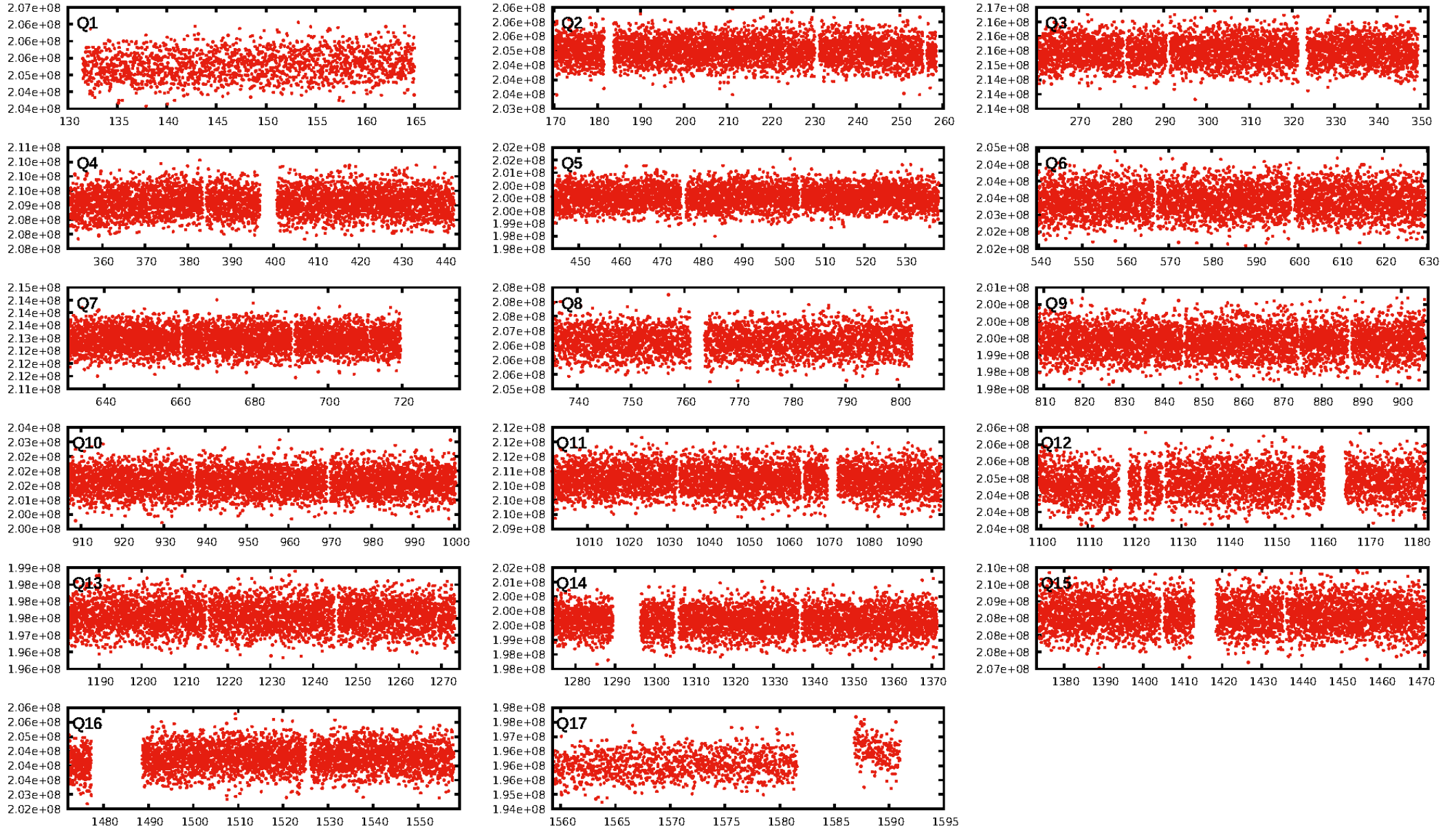
DV Fit Results:

Period = 2.86396 [0.00008] d
Epoch = 134.2220 [0.0194] BKJD
Rp/R* = 0.0138 [0.0008]
a/R* = 1.00 [0.00]
b = 0.98 [0.01]
Seff = 8418.42 [4130.13]
Teq = 2442 [300] K
Rp = 3.97 [1.40] Re
a = 0.0492 [0.0150] AU
Ag = N/A
Teffp = N/A

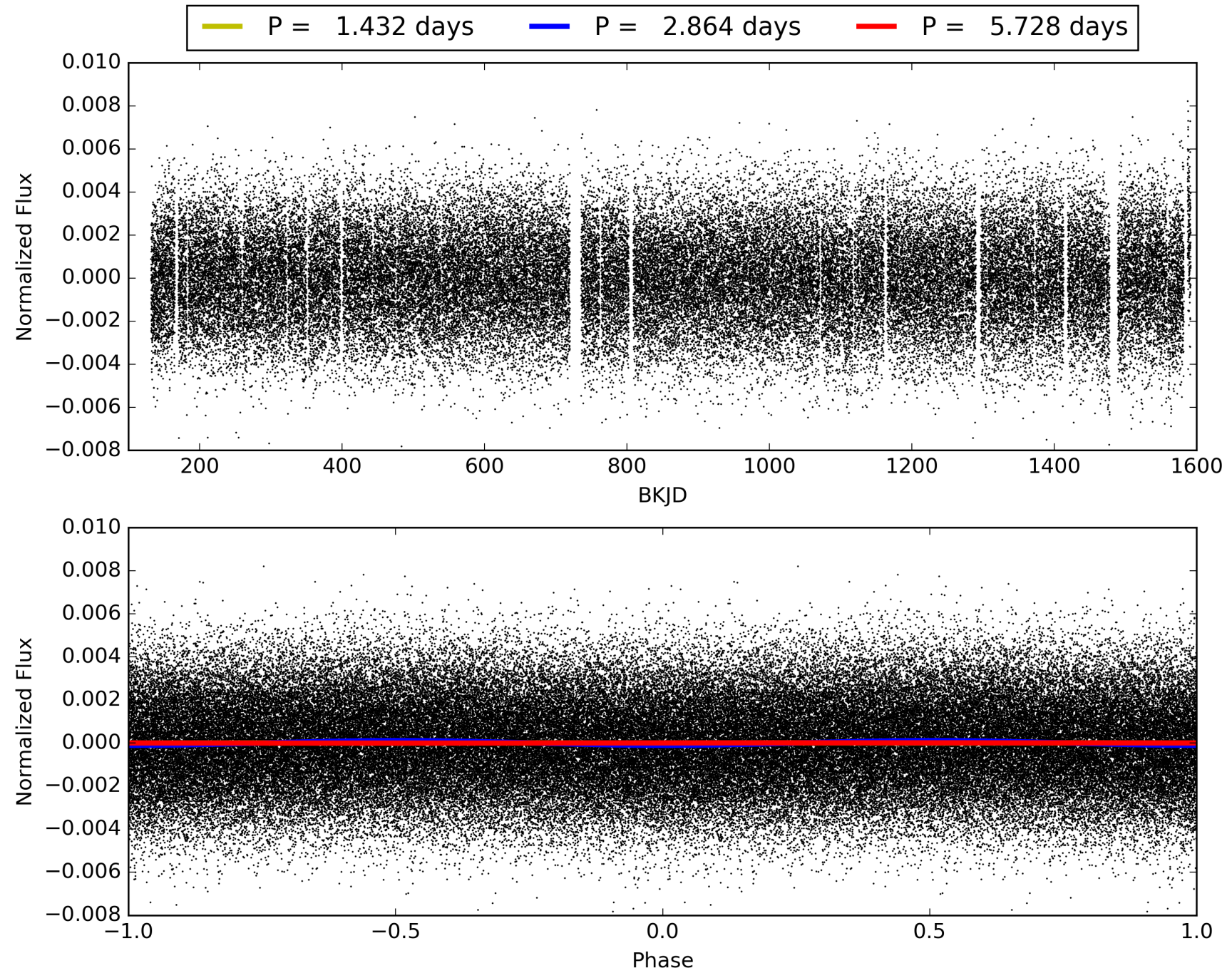
DV Diagnostic Results:

ShortPeriod-sig: 78.5% [1.24 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [465/465]
GhostDiagnostic-chr: 2.487
Centroid-sig: 0.1%
Centroid-so: 0.200 arcsec [2.21 σ]
OotOffset-rm: 2.705 arcsec [20.89 σ]
KicOffset-rm: 2.716 arcsec [23.26 σ]
OotOffset-st: 0/0/3 [3]
KicOffset-st: 0/0/3 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 009655288-02, PDC Light Curves

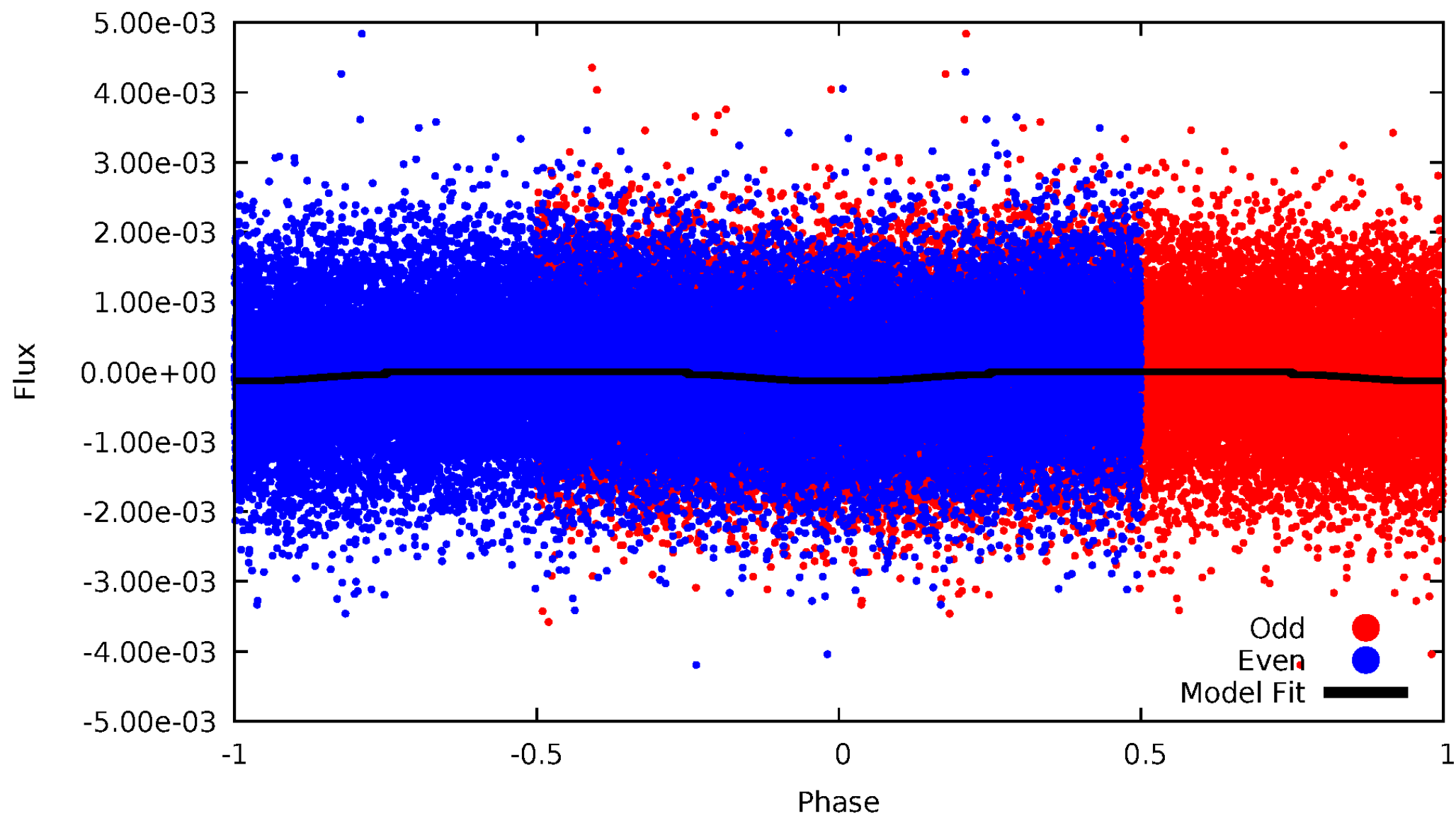


TCE 009655288-02



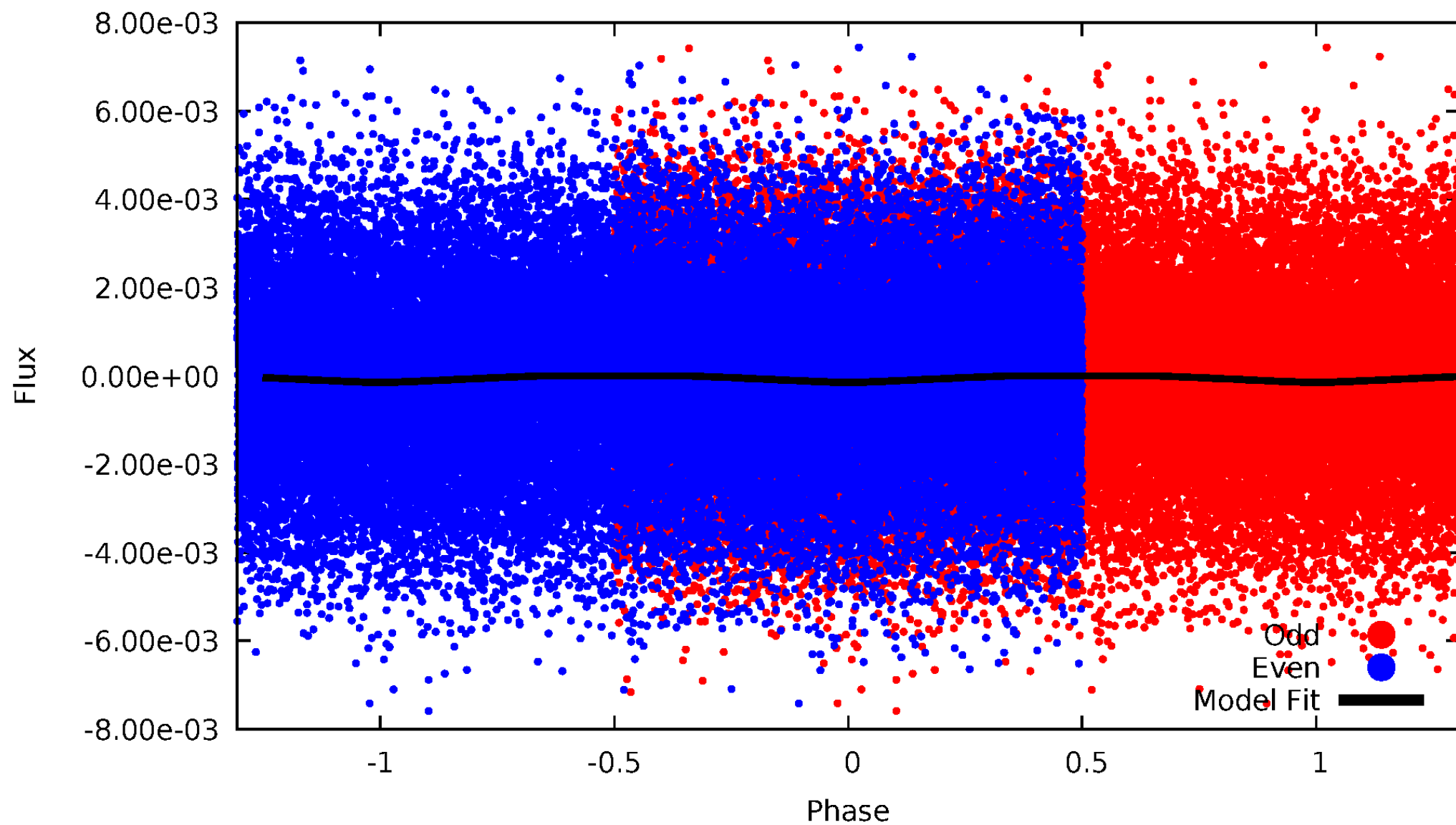
DV Odd/Even

TCE 009655288-02



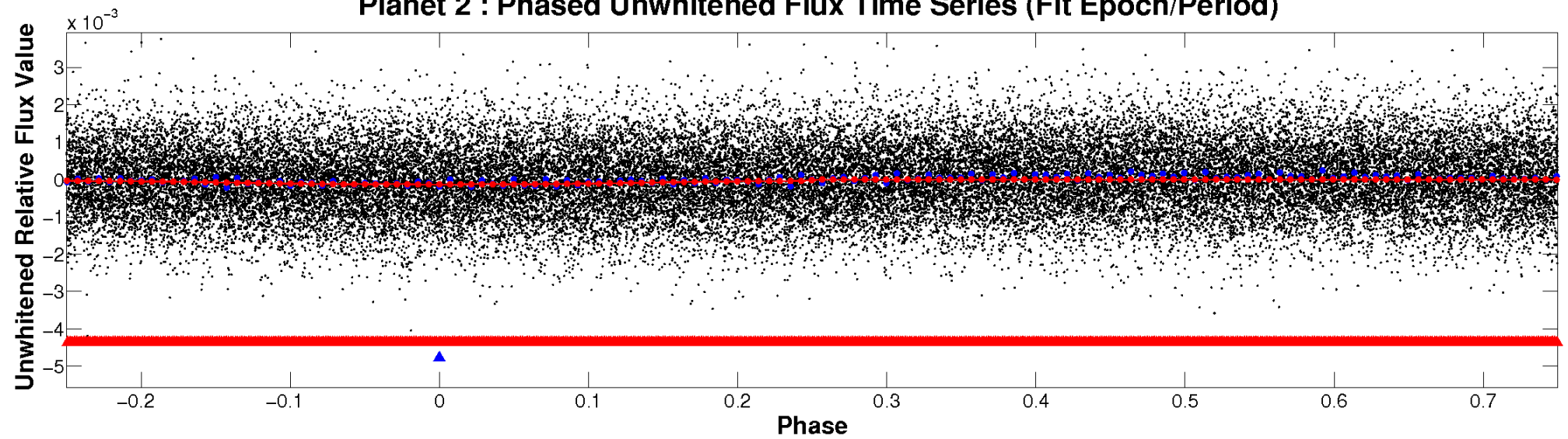
ALT Odd/Even

TCE 009655288-02

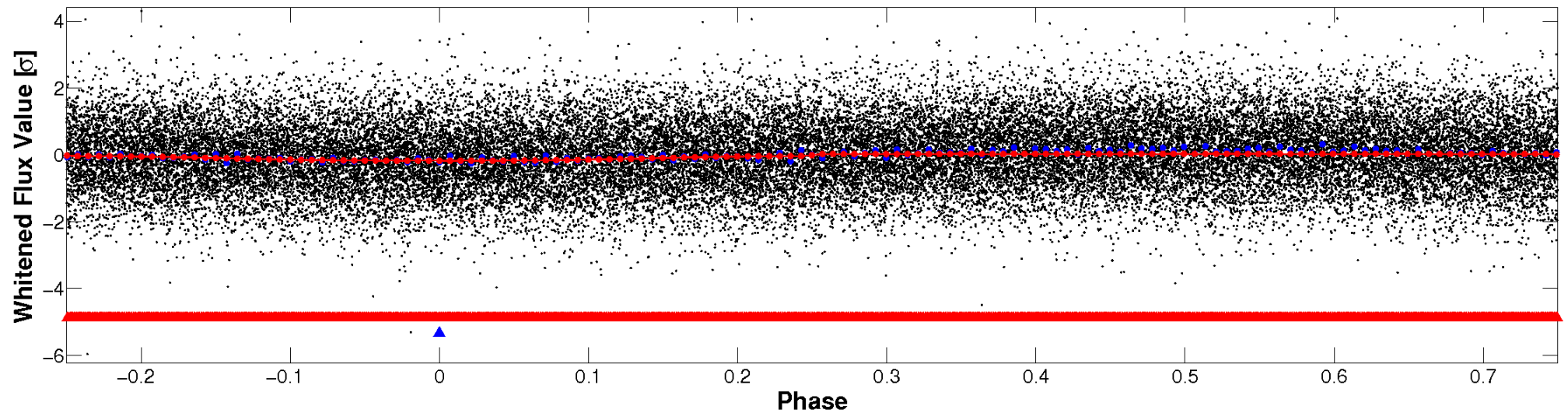


Non-Whitened Vs. Whitened Light Curve

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

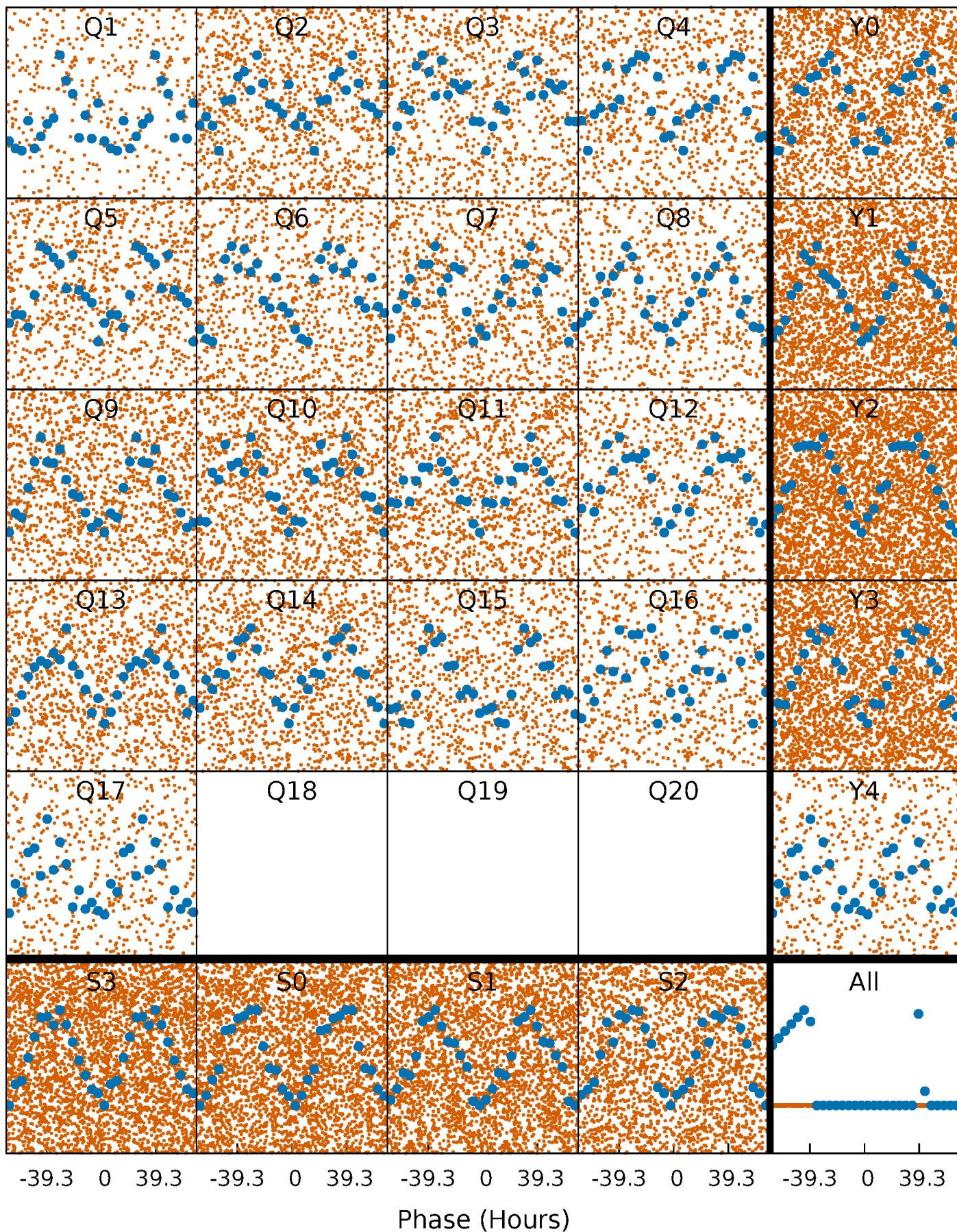


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



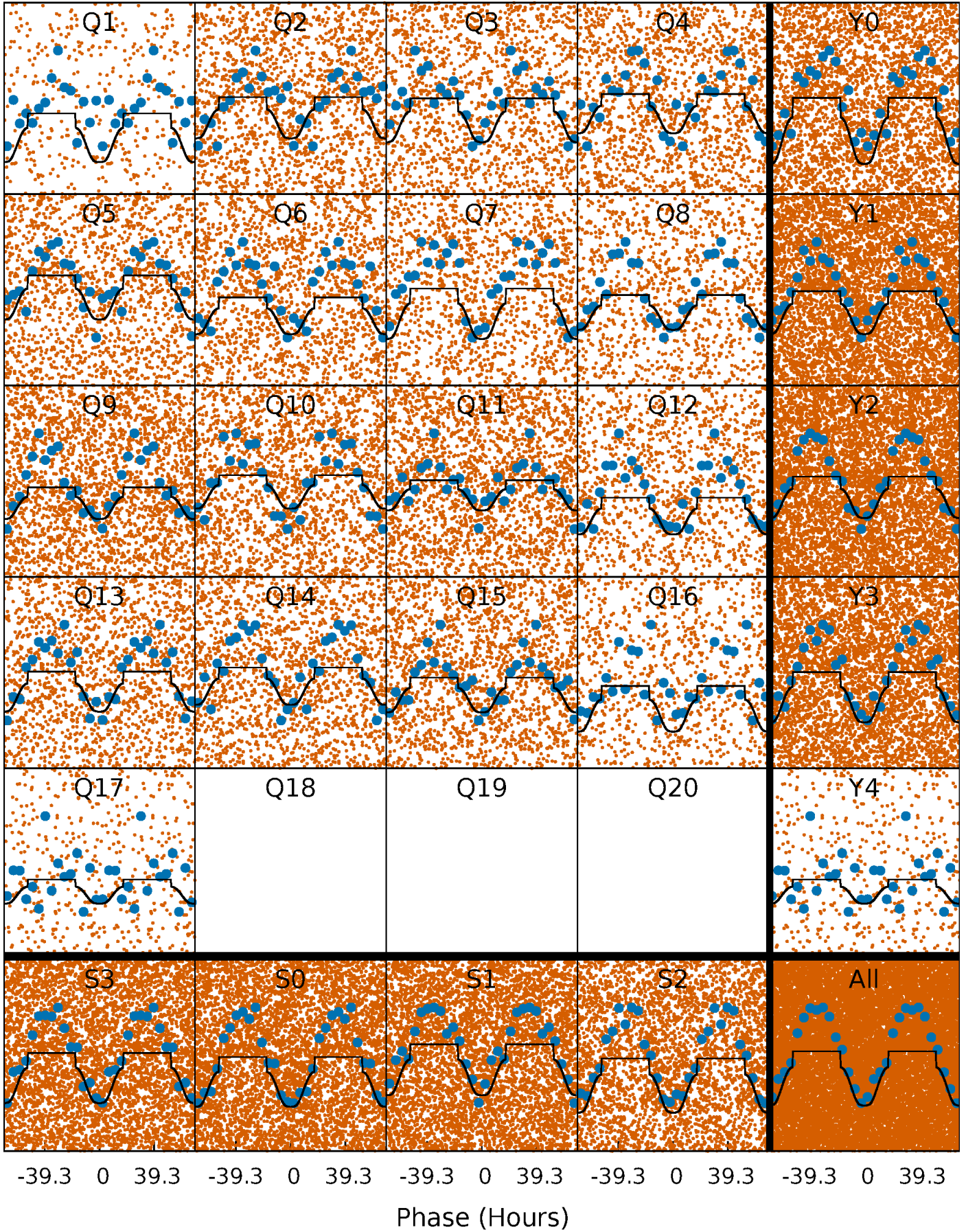
PDC Quarter-Phased Transit Curves

TCE 009655288-02 P= 2.863963 Days $T_0=134.222042$ (BKJD)



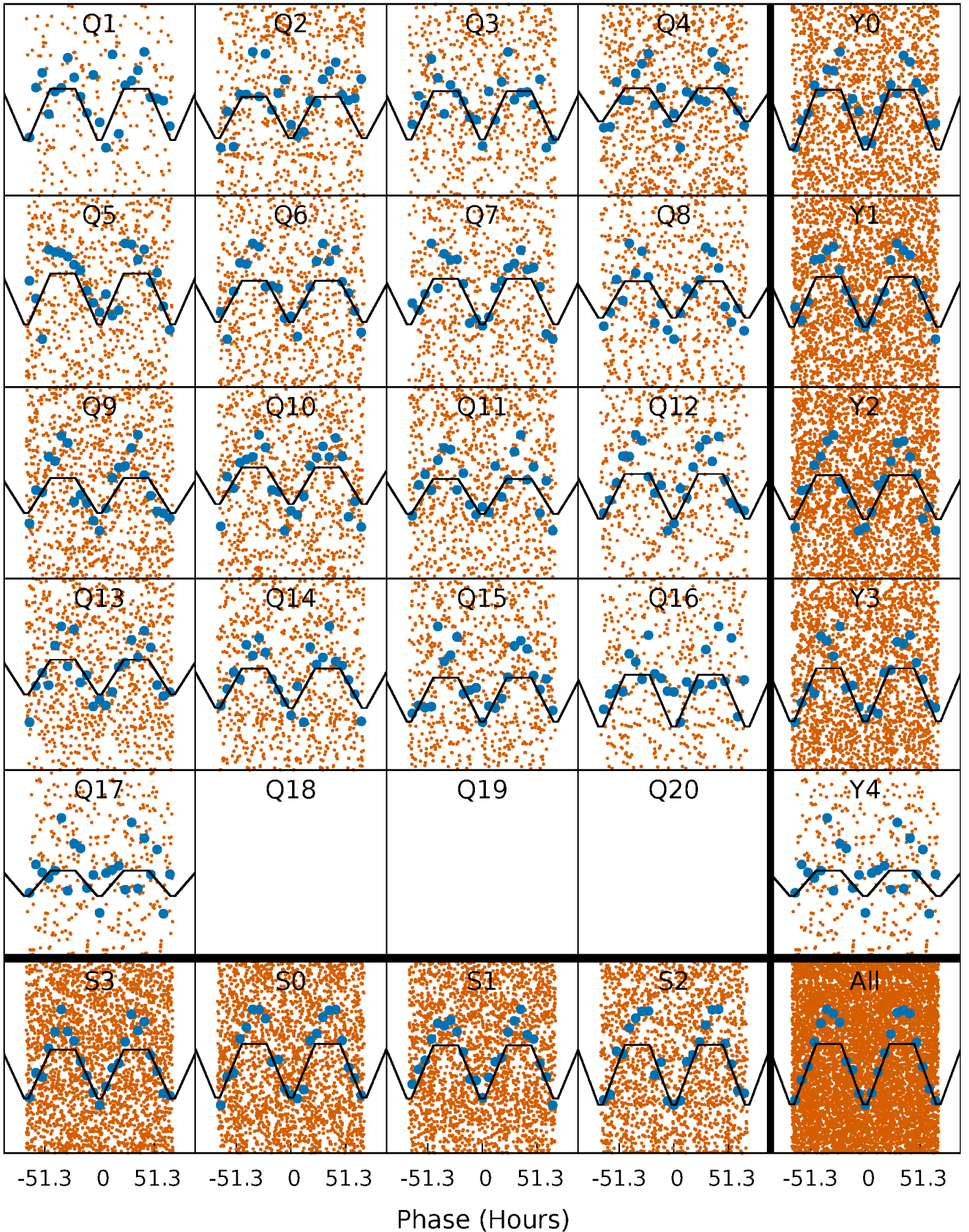
DV Quarter-Phased Transit Curves

TCE 009655288-02 P= 2.863963 Days $T_0=134.222042$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

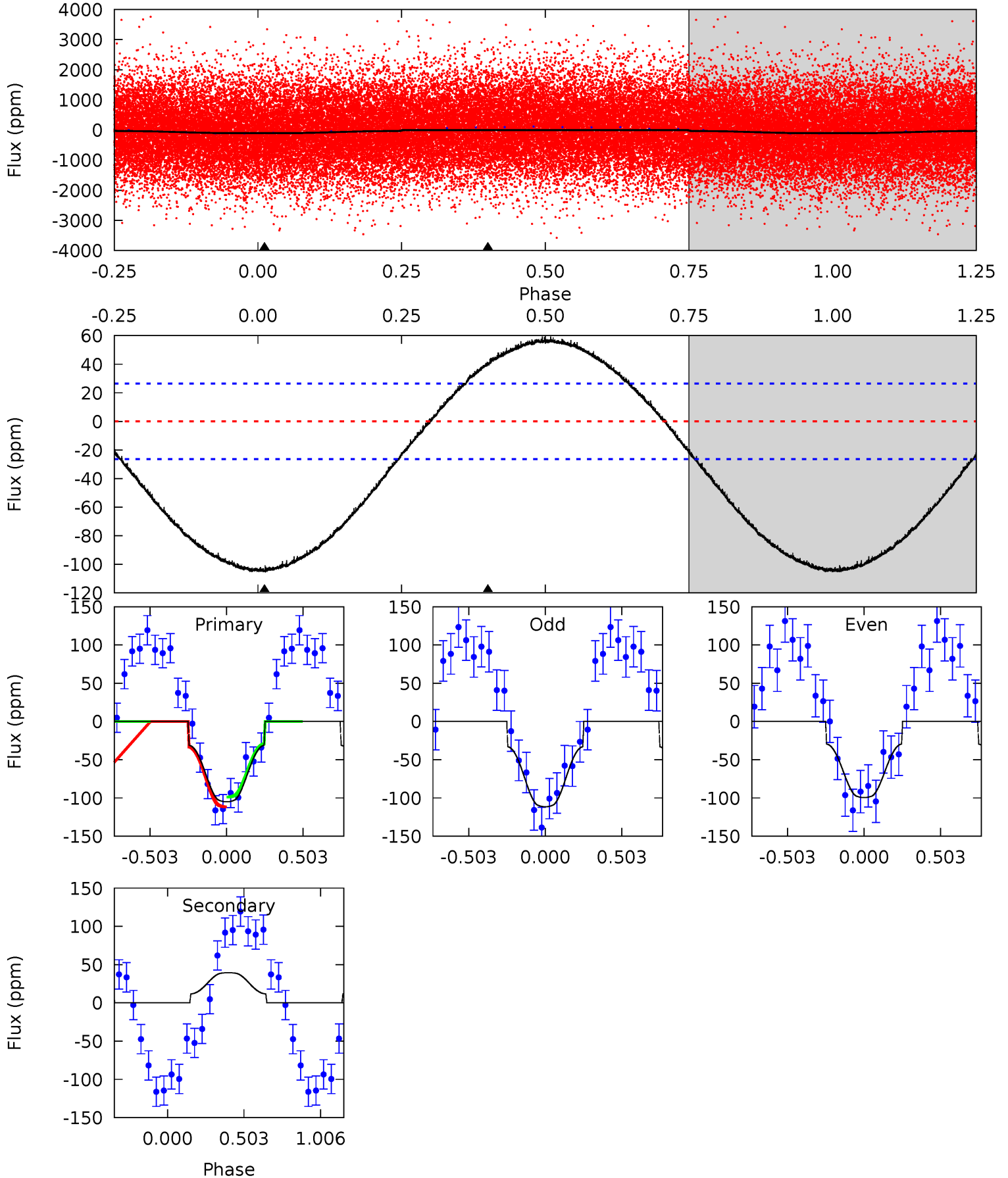
TCE 009655288-02 P= 2.863772 Days $T_0=134.268533$ (BKJD)



DV Model-Shift Uniqueness Test

009655288-02, P = 2.863963 Days, E = 131.358079 Days

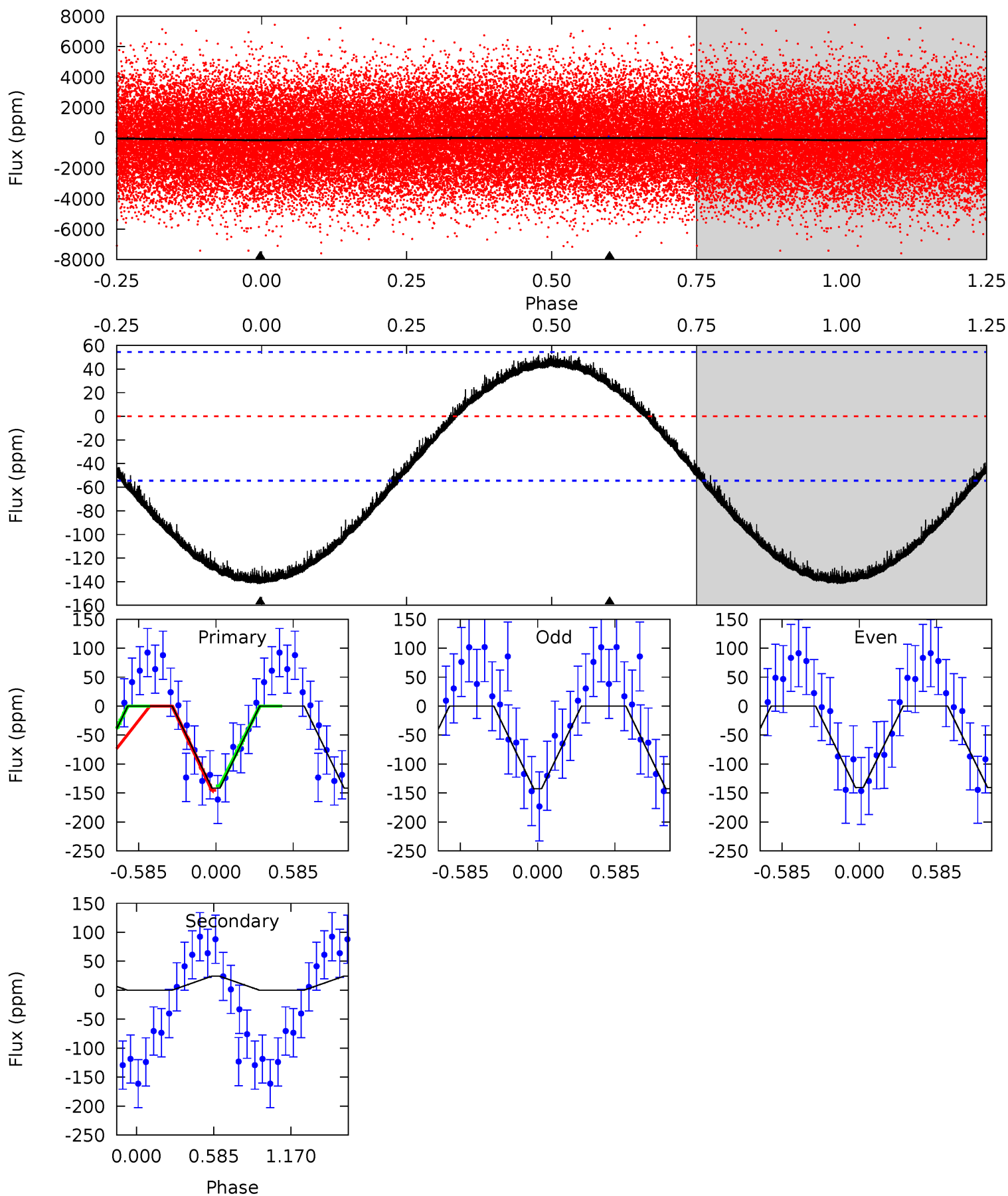
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.8	-6.29	0	0	4.21	0.67	2.24	16.8	16.8	-6.29	-6.29	0.96	0.91	0.36	1.03



Alt Model-Shift Uniqueness Test

009655288-02, P = 2.863772 Days, E = 131.404761 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	-1.85	0	0	4.18	0.55	1.13	10.9	10.9	-1.85	-1.85	0.08	0.94	0.28	0.29



Stellar Parameters For KIC 009655288

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7563^{+211}_{-316}	$3.883^{+0.260}_{-0.120}$	$0.100^{+0.200}_{-0.350}$	$2.638^{+0.493}_{-0.915}$	$1.938^{+0.104}_{-0.441}$	$0.149^{+0.279}_{-0.054}$
	+3%/-4%	+7%/-3%	+200%/-350%	+19%/-35%	+5%/-23%	+188%/-36%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009655288-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	39 ± 6	$3.82^{+0.55}_{-0.70}$	3353^{+234}_{-288}	-5161^{+240}_{-245}	$-3.509^{+0.932}_{-1.595}$
Alt.	24 ± 13	$3.30^{+0.46}_{-0.58}$	3365^{+209}_{-264}	-4948^{+700}_{-524}	$-2.820^{+1.689}_{-2.193}$

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

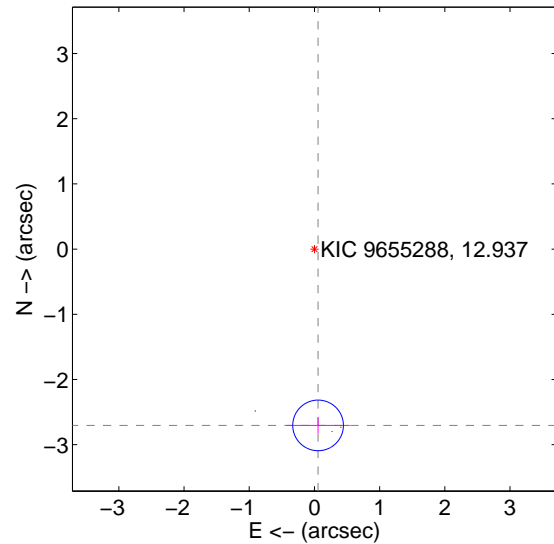
Supplemental centroid analysis for 009655288-02. Kepler magnitude: 12.94. Transit SNR 18.29

There are 0 quarters with good PRF difference image offsets

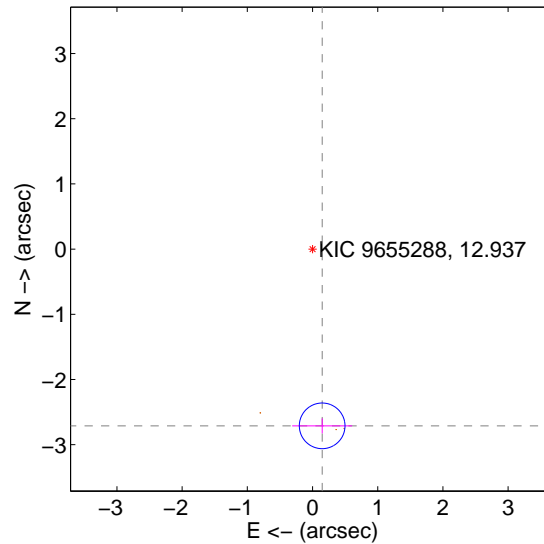
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.705 ± 0.130	20.89	-0.056 ± 0.487	-2.705 ± 0.121
PRF-fit source offset from KIC position	2.716 ± 0.117	23.26	-0.148 ± 0.460	-2.712 ± 0.114
photometric centroid source offset	0.20 ± 0.09	2.21	-0.17 ± 0.09	-0.10 ± 0.09

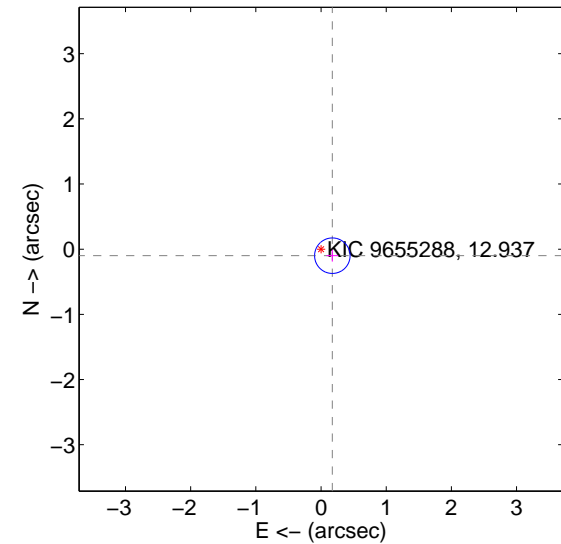
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

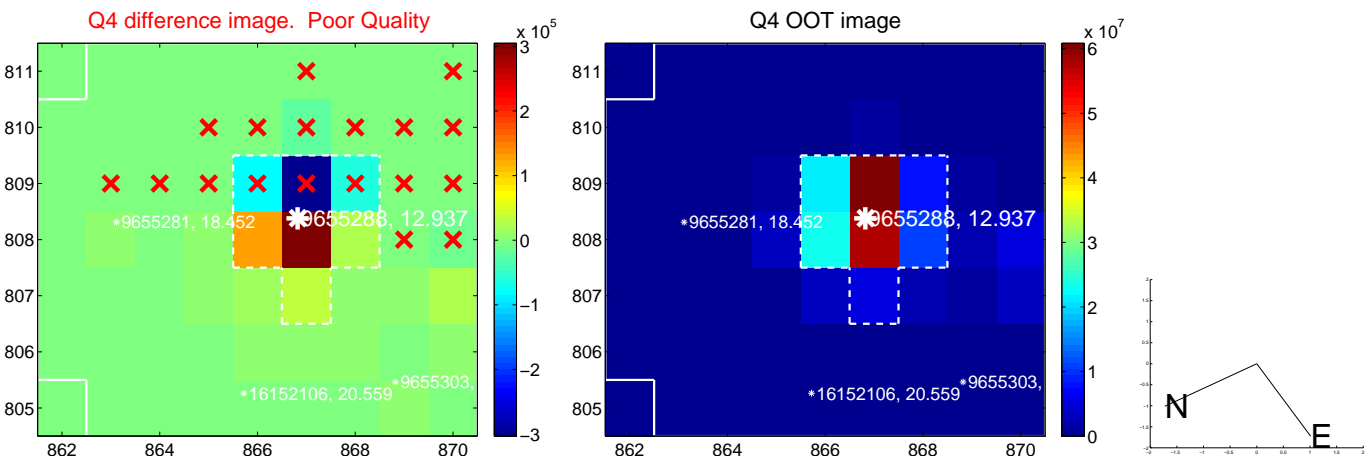
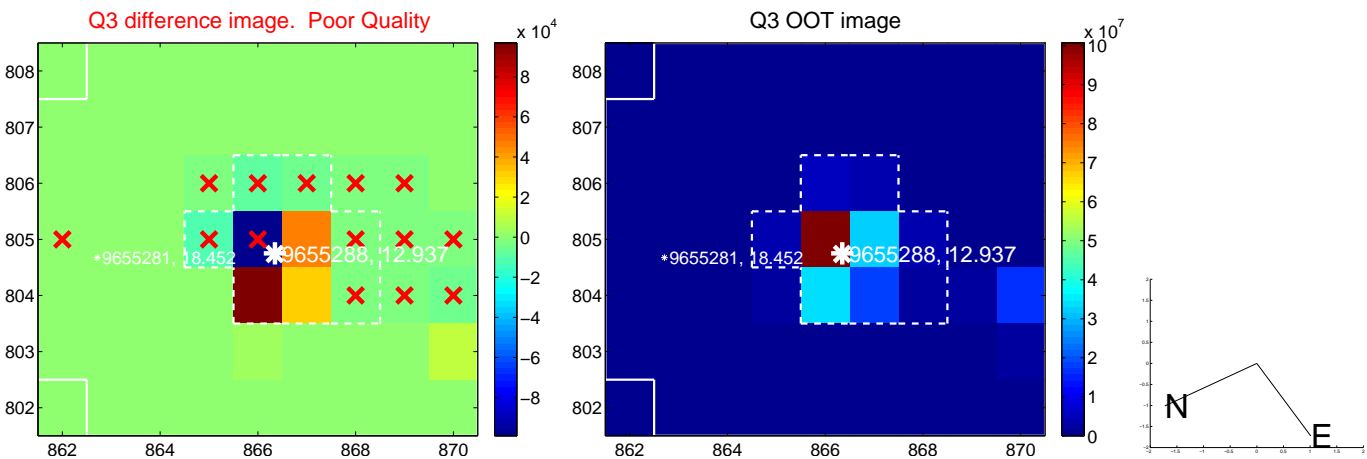
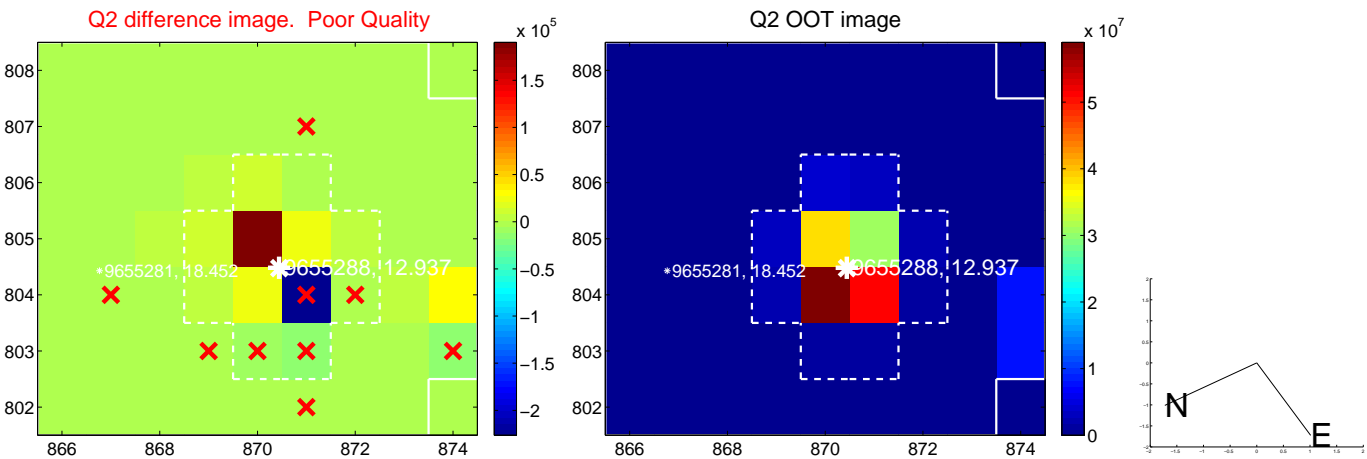
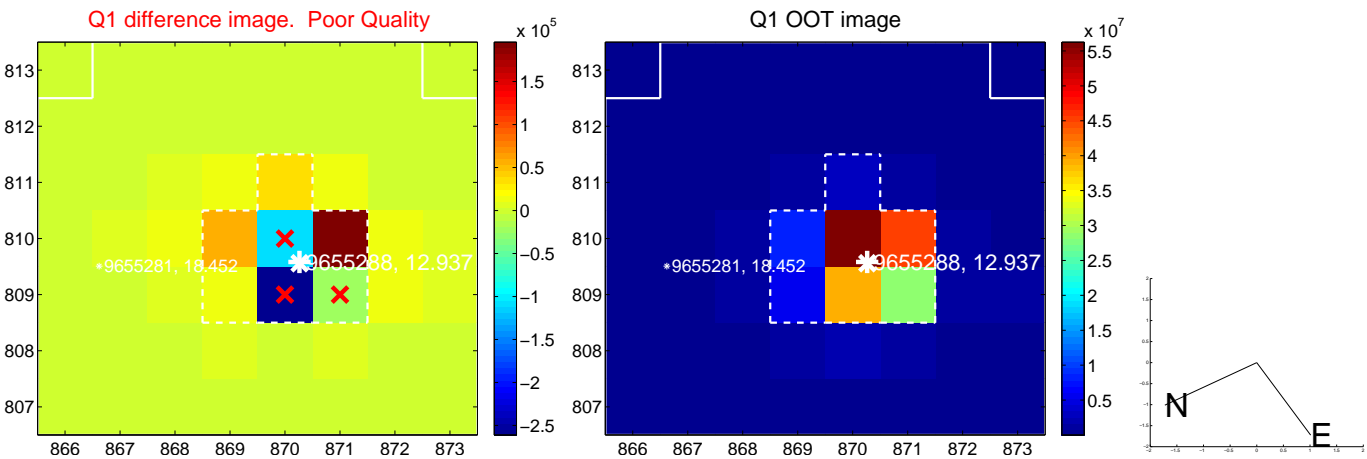


offset from photometric centroids

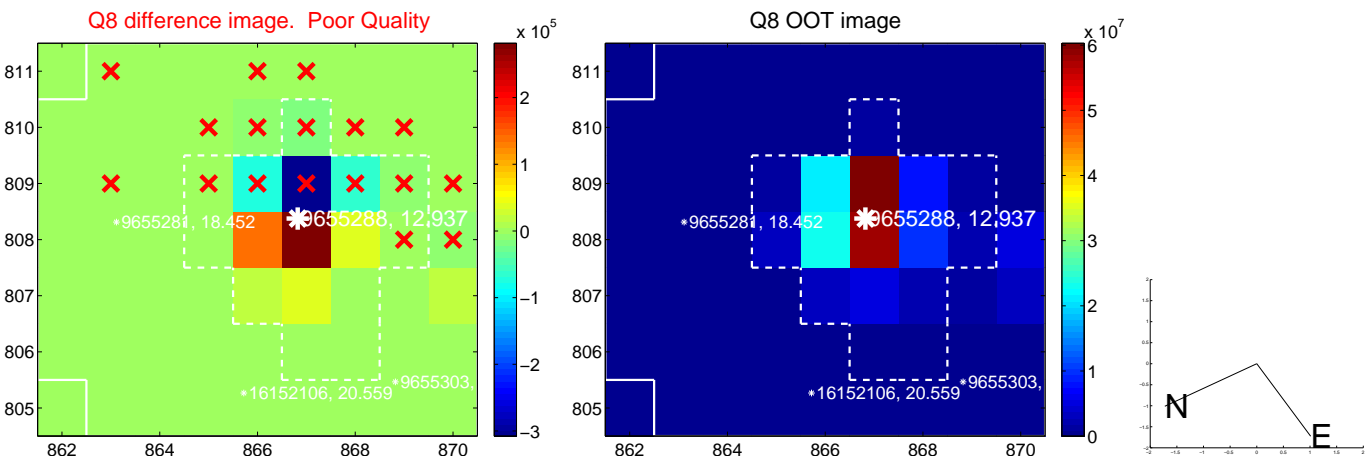
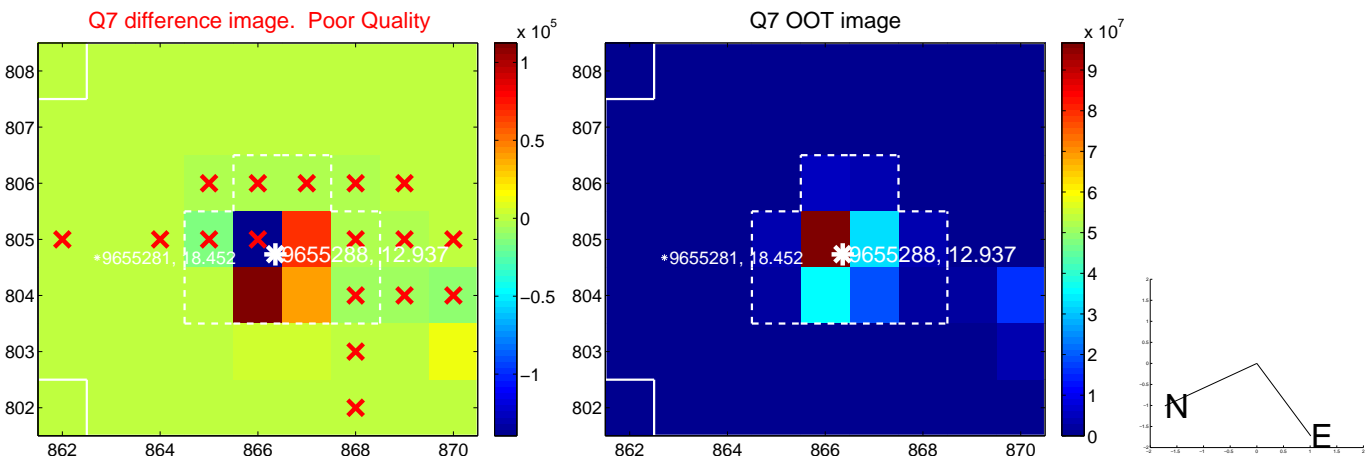
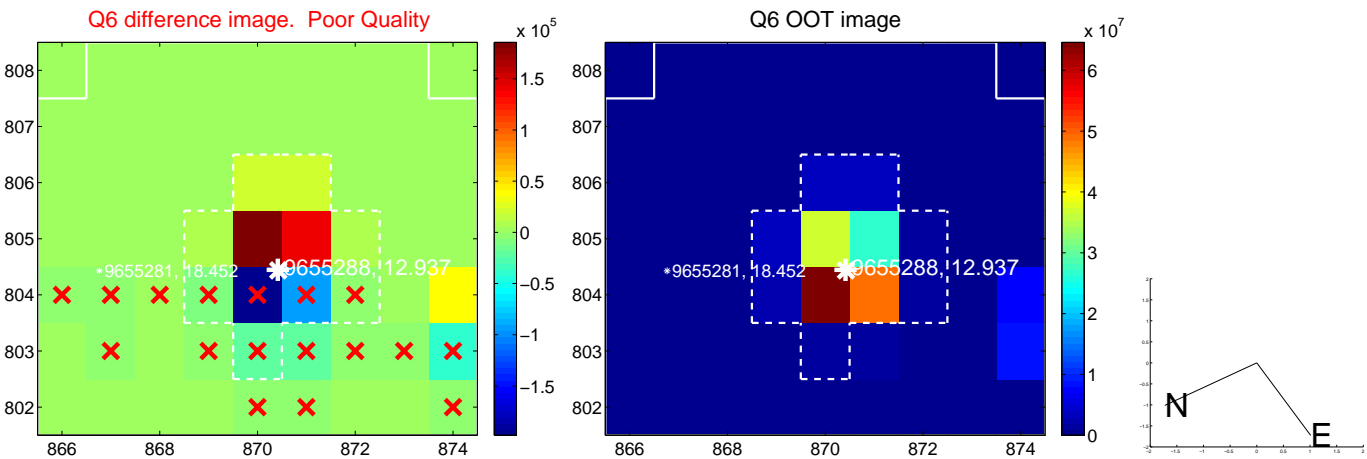
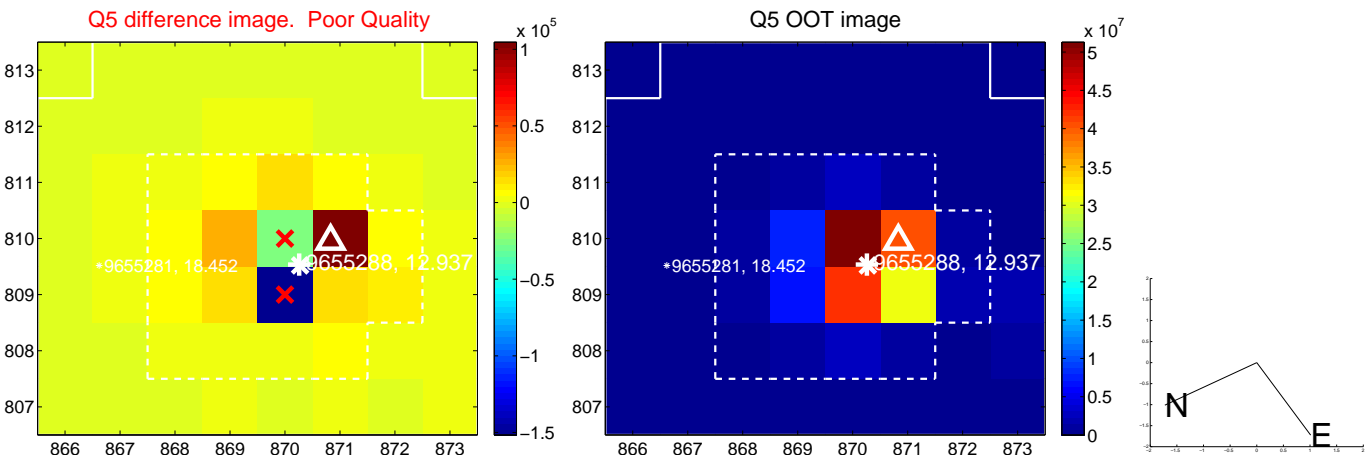


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

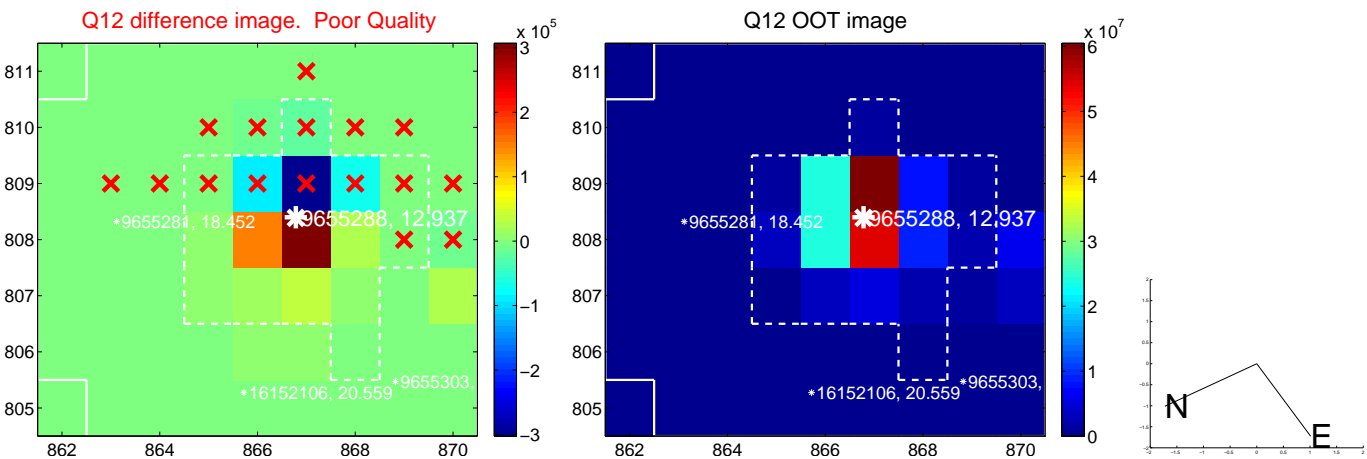
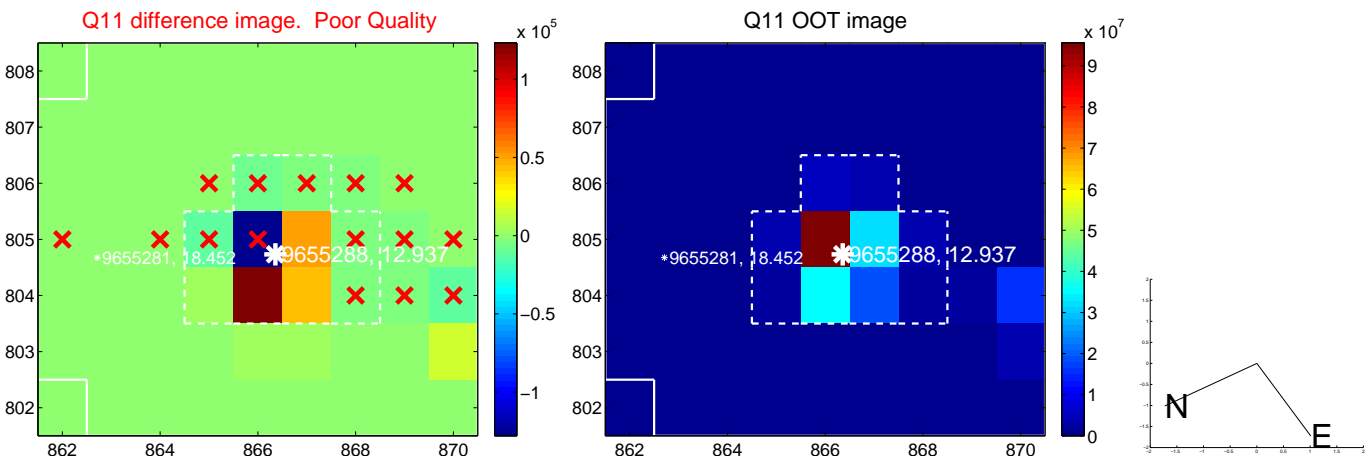
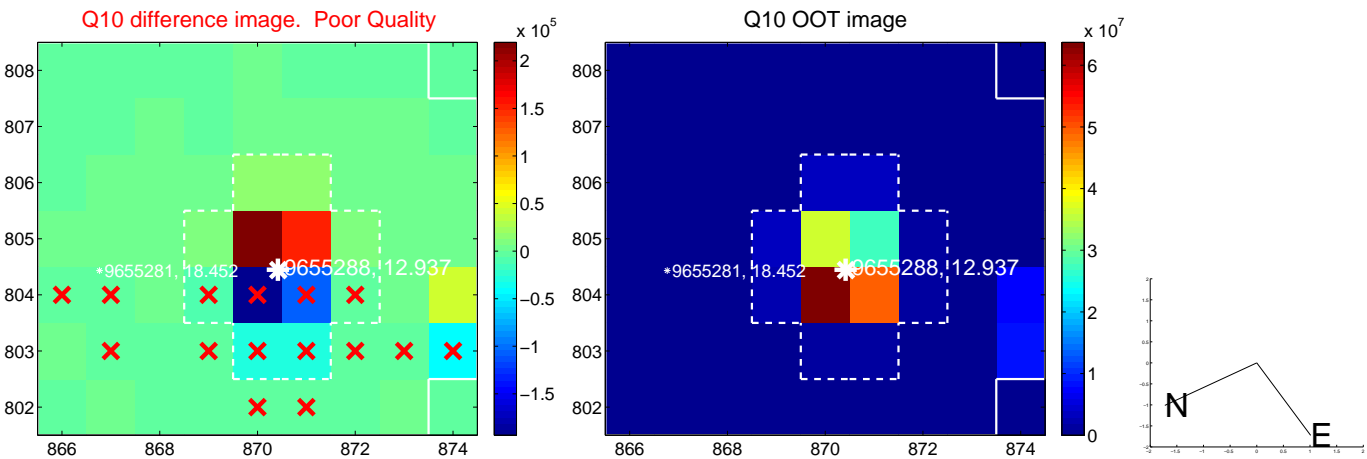
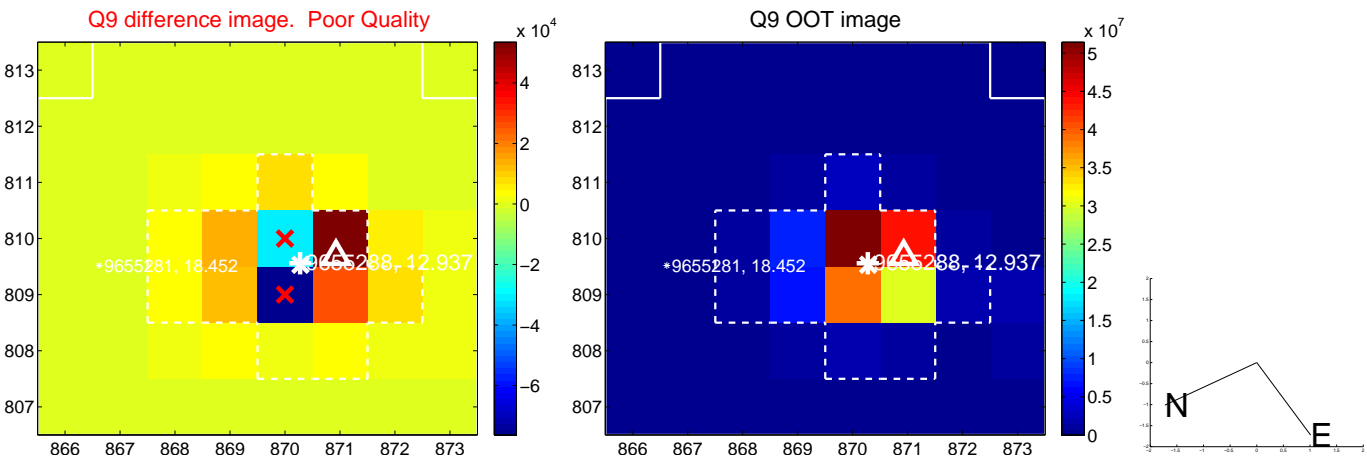
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



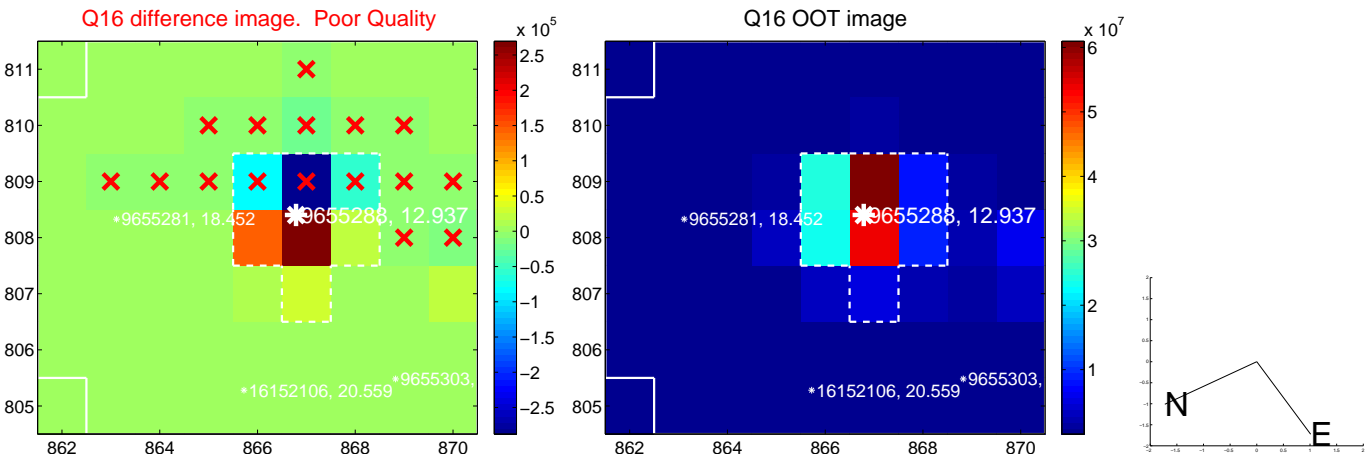
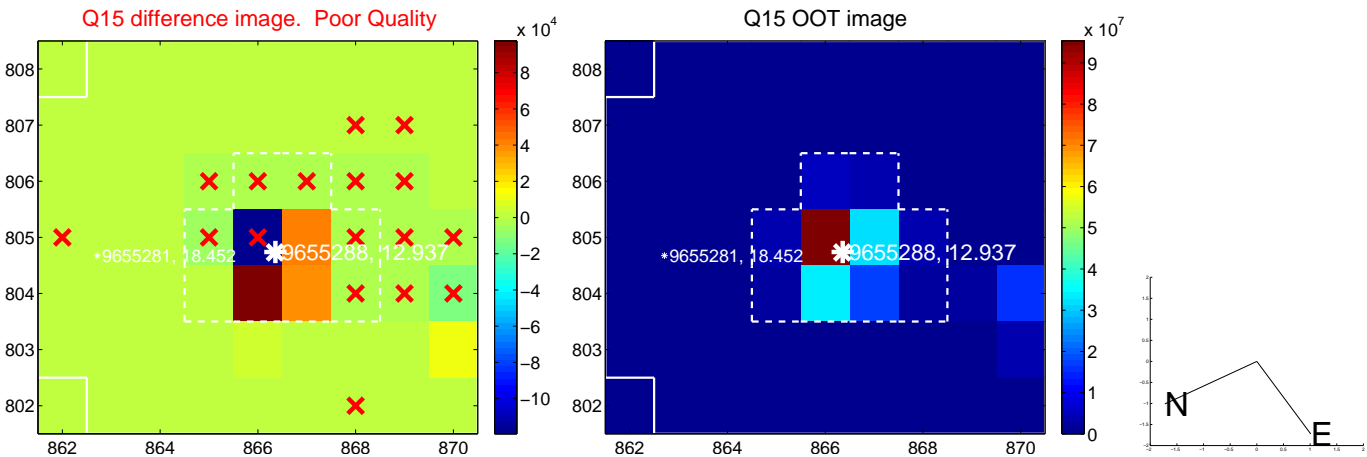
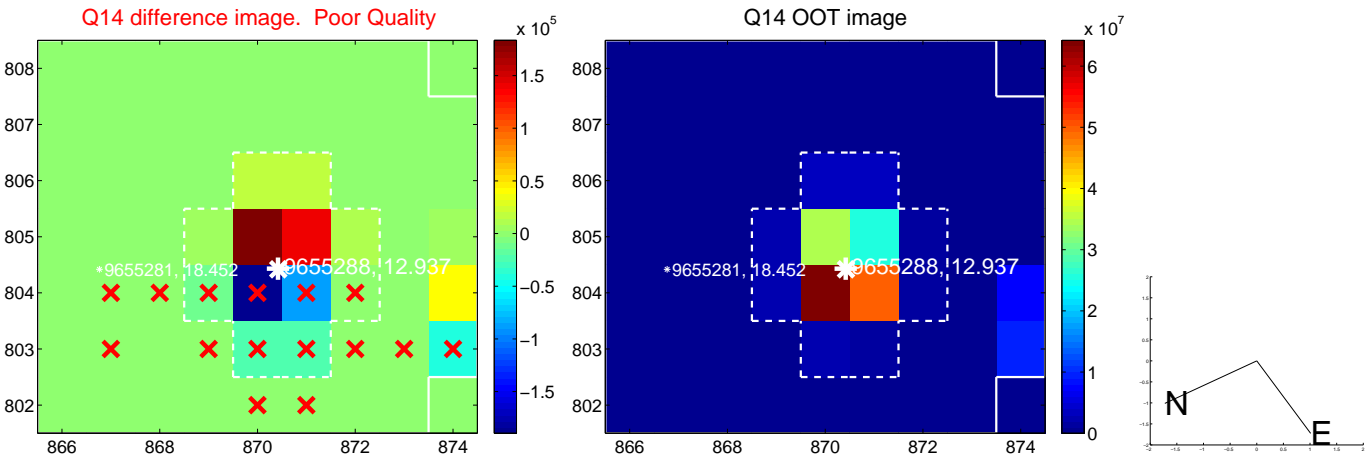
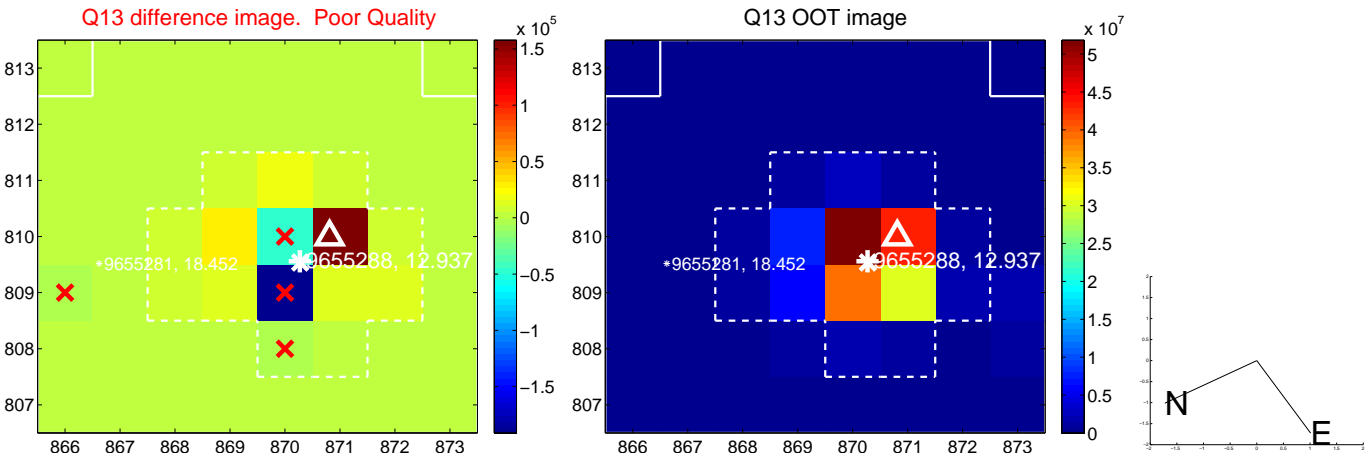
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



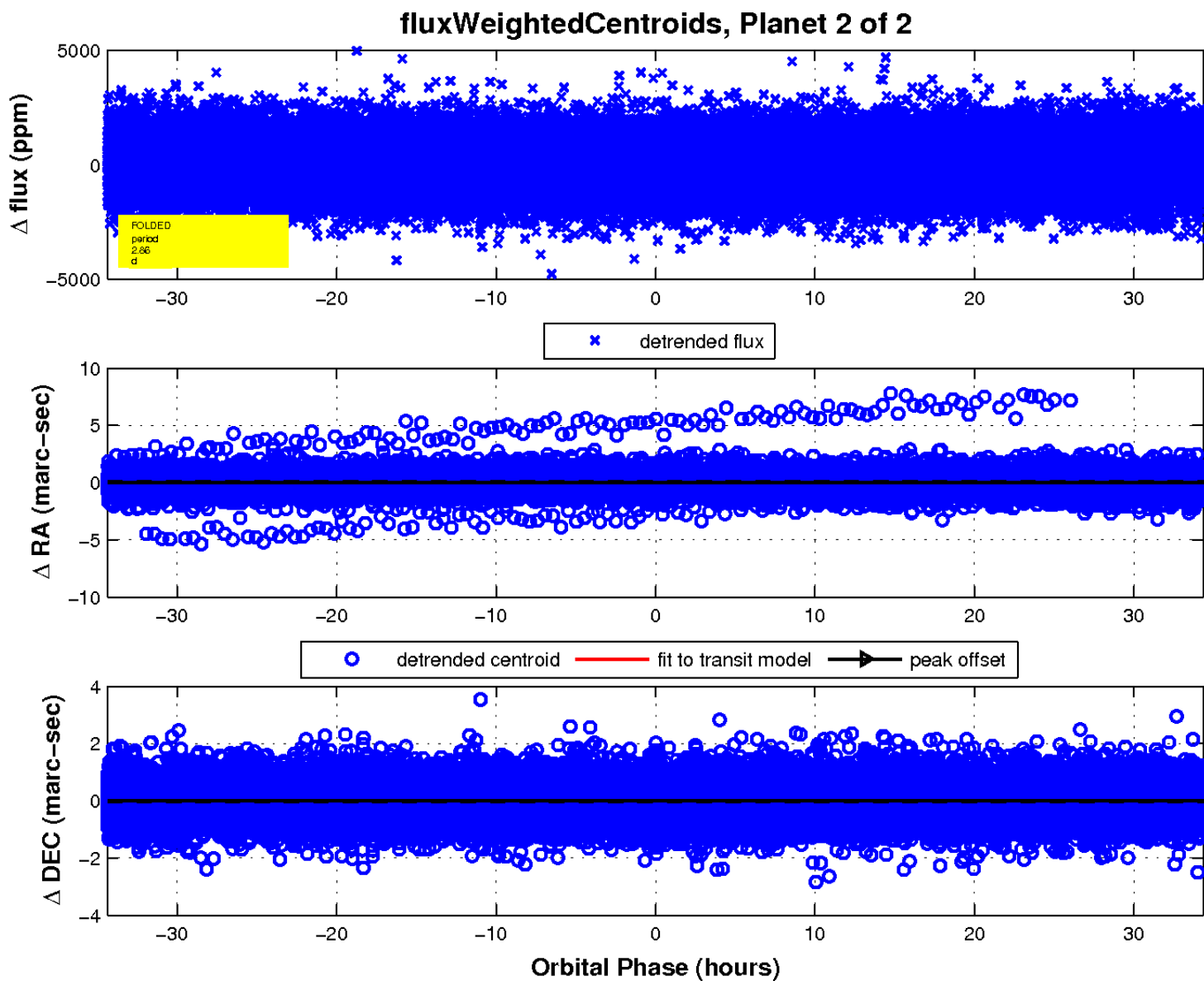
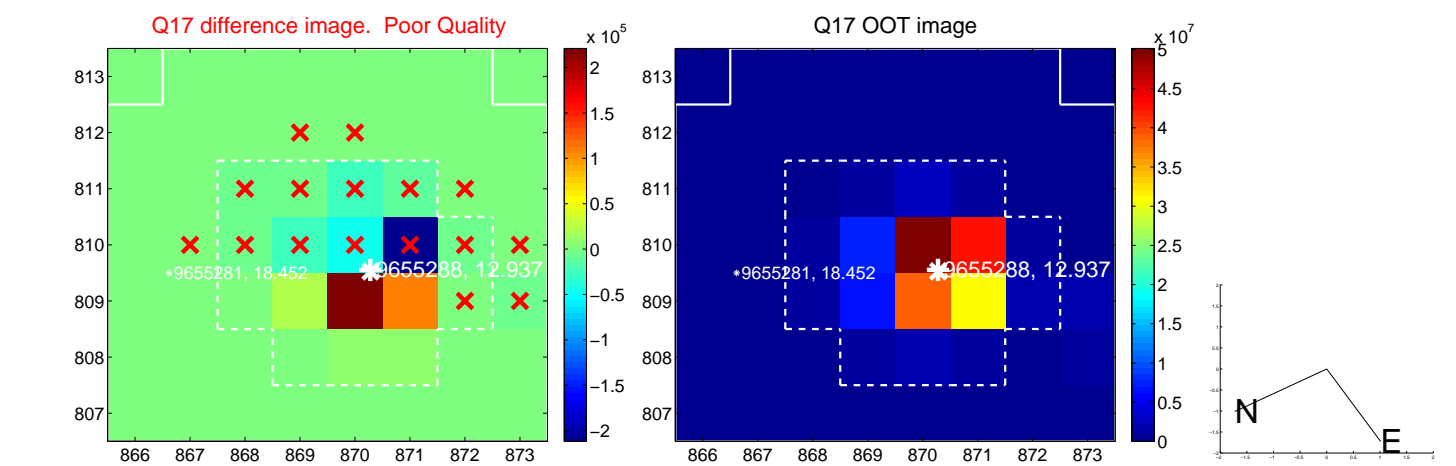
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Declination

