

KIC 003968961

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})
003968961-01	OBS	No	3.742434	133.947794	332.3	6.111	8.1	8.7	1.75	7286	3.94	2721.64
003968961-02	OBS	No	0.623041	131.553187	214.8	0.576	7.5	5.2	1.75	7286	2.74	29717.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003968961-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
003968961-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

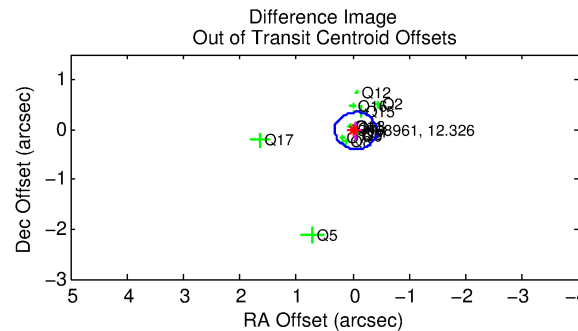
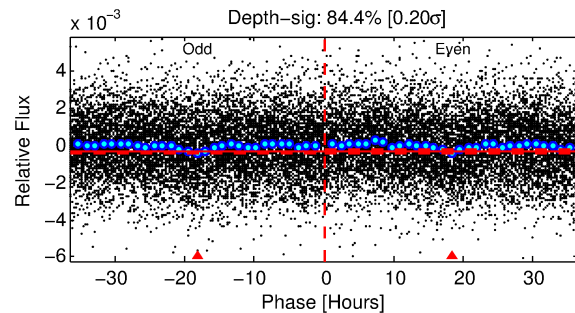
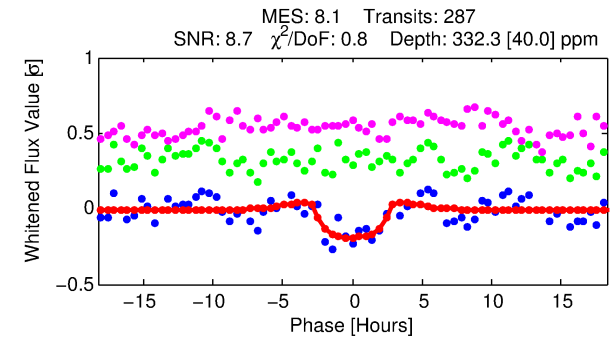
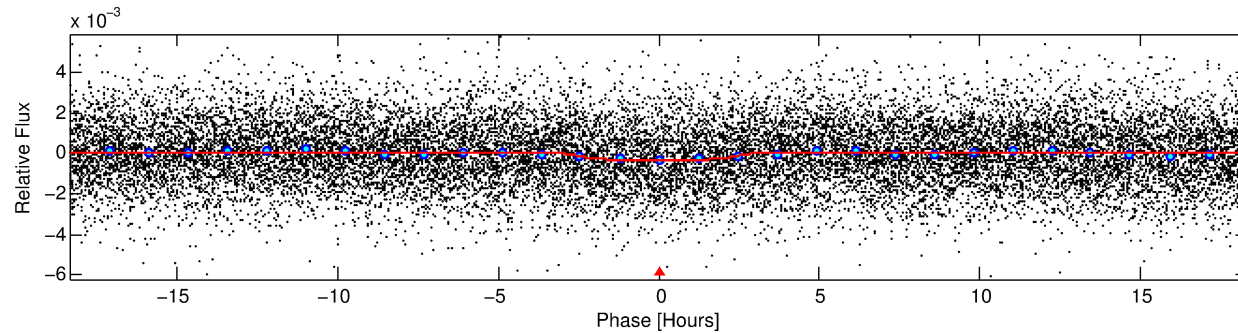
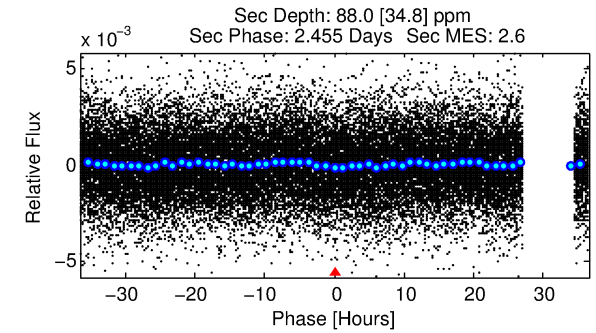
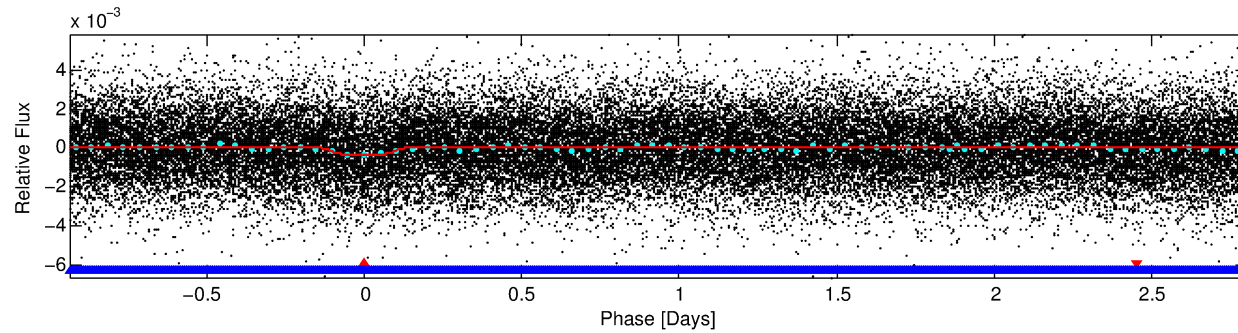
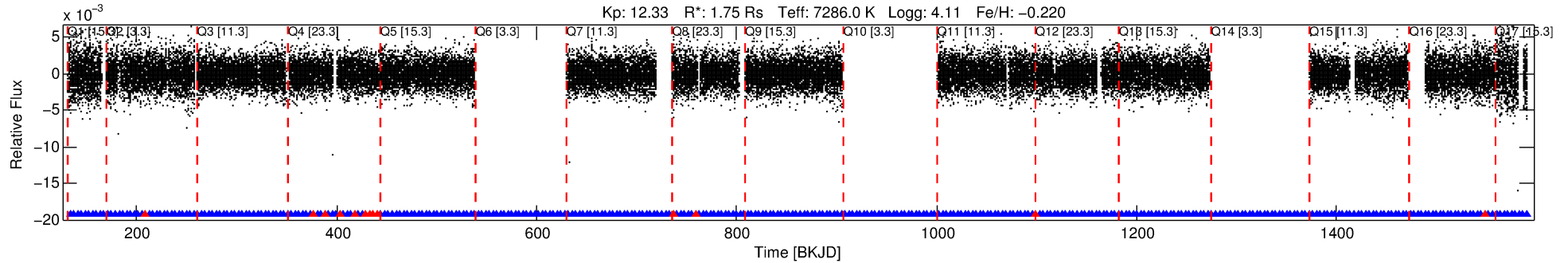
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003968961-01

No Significant Match Found

DV One-Page Summary

KIC: 3968961 Candidate: 1 of 2 Period: 3.742 d



DV Fit Results:

Period = 3.74243 [0.00006] d
Epoch = 133.9478 [0.0111] BKJD
Rp/R* = 0.0206 [0.0019]
a/R* = 1.93 [0.52]
b = 0.96 [0.03]
Seff = 2721.64 [1019.24]
Teq = 1842 [172] K
Rp = 3.94 [1.24] Re
a = 0.0535 [0.0129] AU
Ag = 8.91 [4.89] [1.62σ]
Teffp = 4920 [573] K [5.14σ]

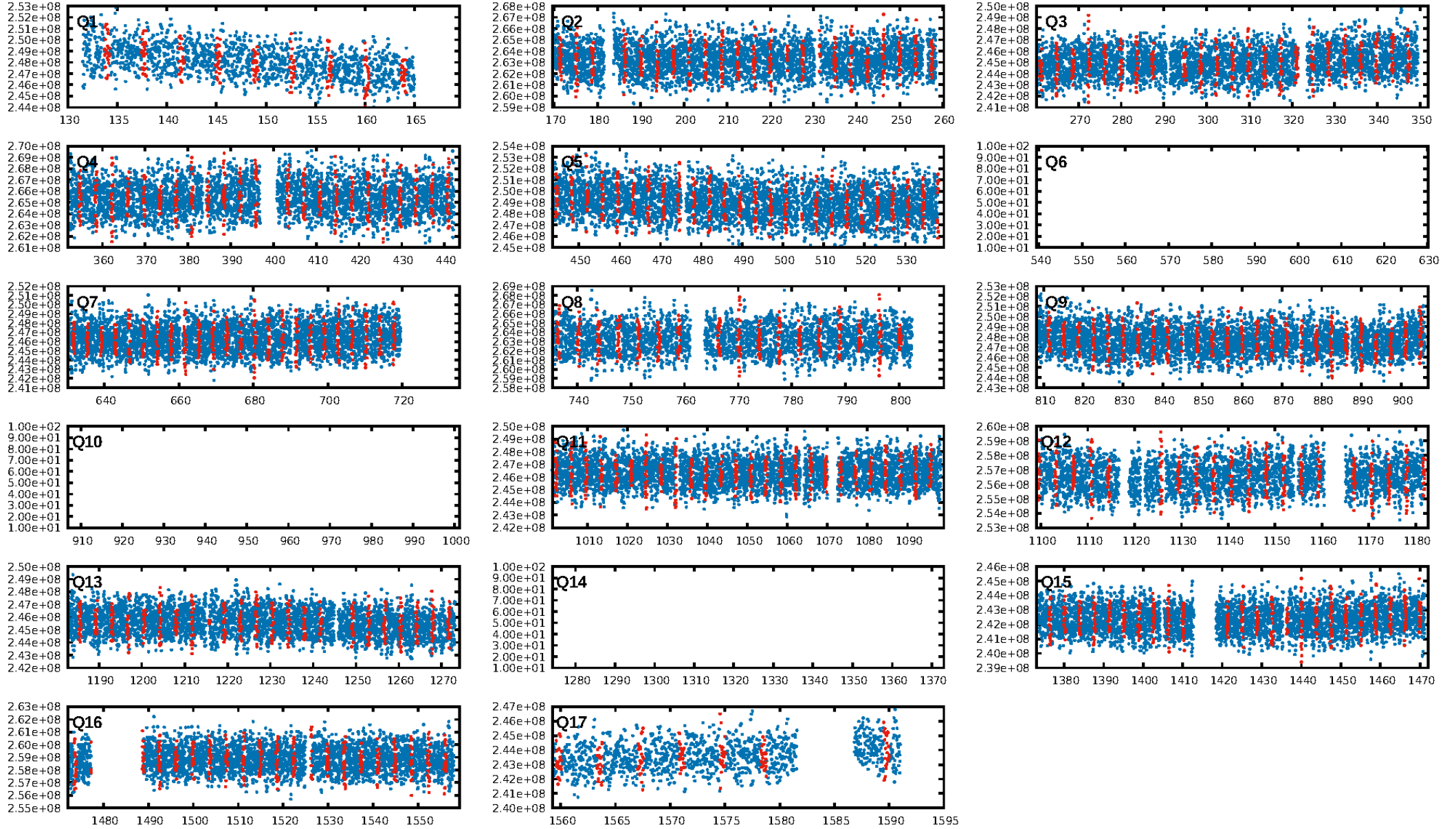
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.20σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.18e-13
RollingBand-fgt: 0.95 [258/271]
GhostDiagnostic-chr: 0.8131
Centroid-sig: N/A
Centroid-so: 0.109 arcsec [1.08σ]
OotOffset-rm: 0.054 arcsec [0.44σ]
KicOffset-rm: 0.149 arcsec [1.02σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.93 [13/14]
DiffImageOverlap-fno: 0.00 [0/14]

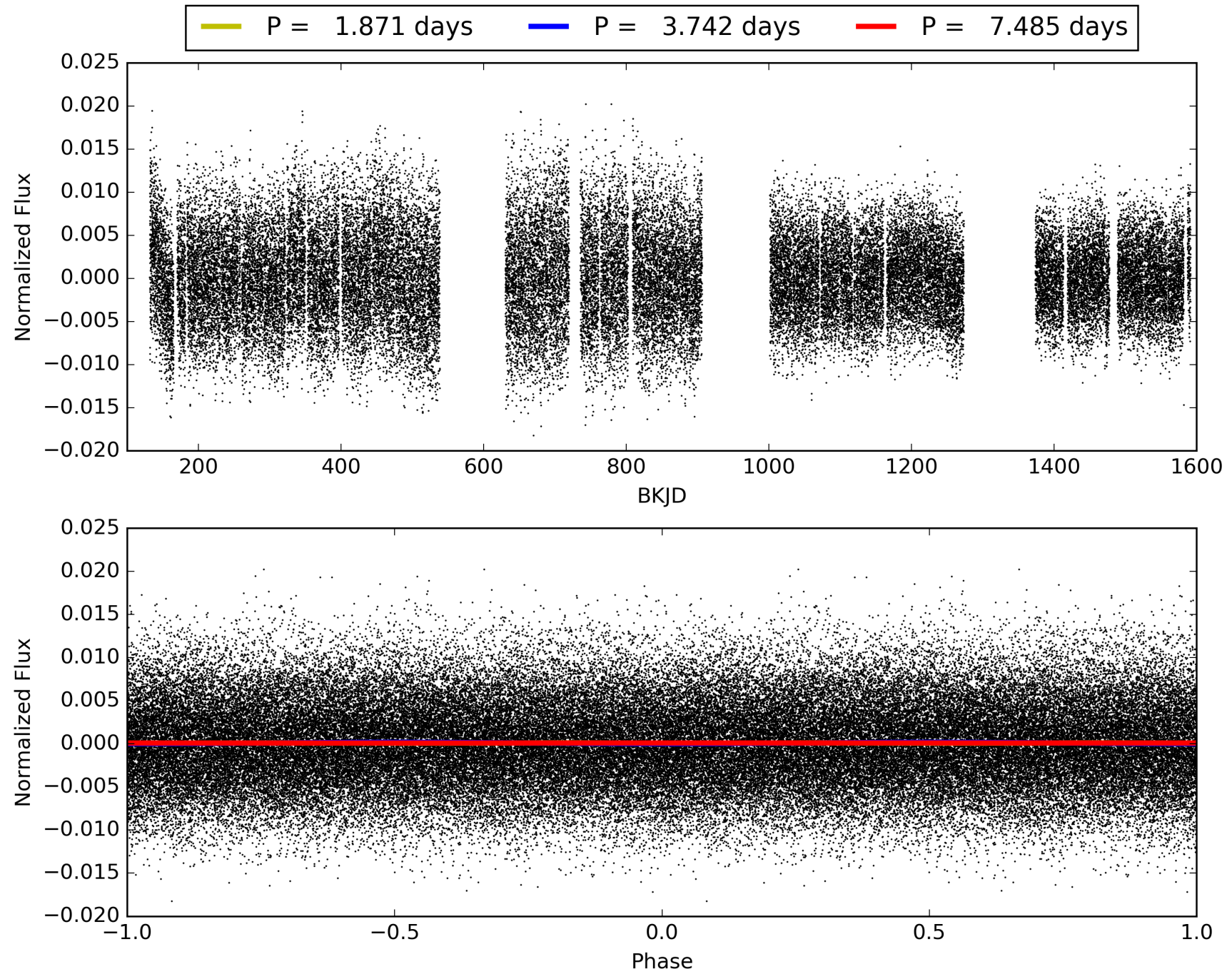
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 09:09:54 Z

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

TCE 003968961-01, PDC Light Curves

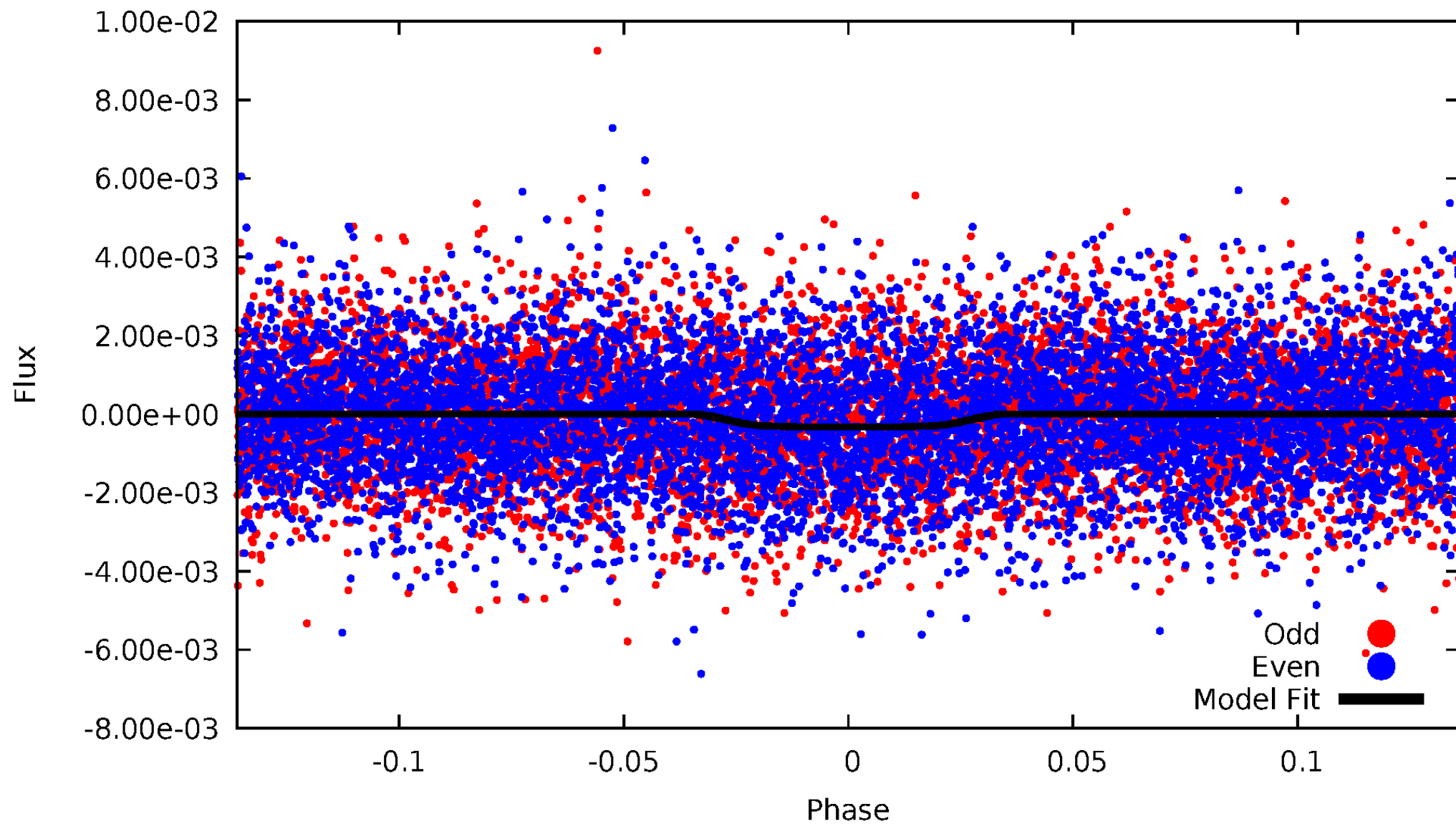


TCE 003968961-01



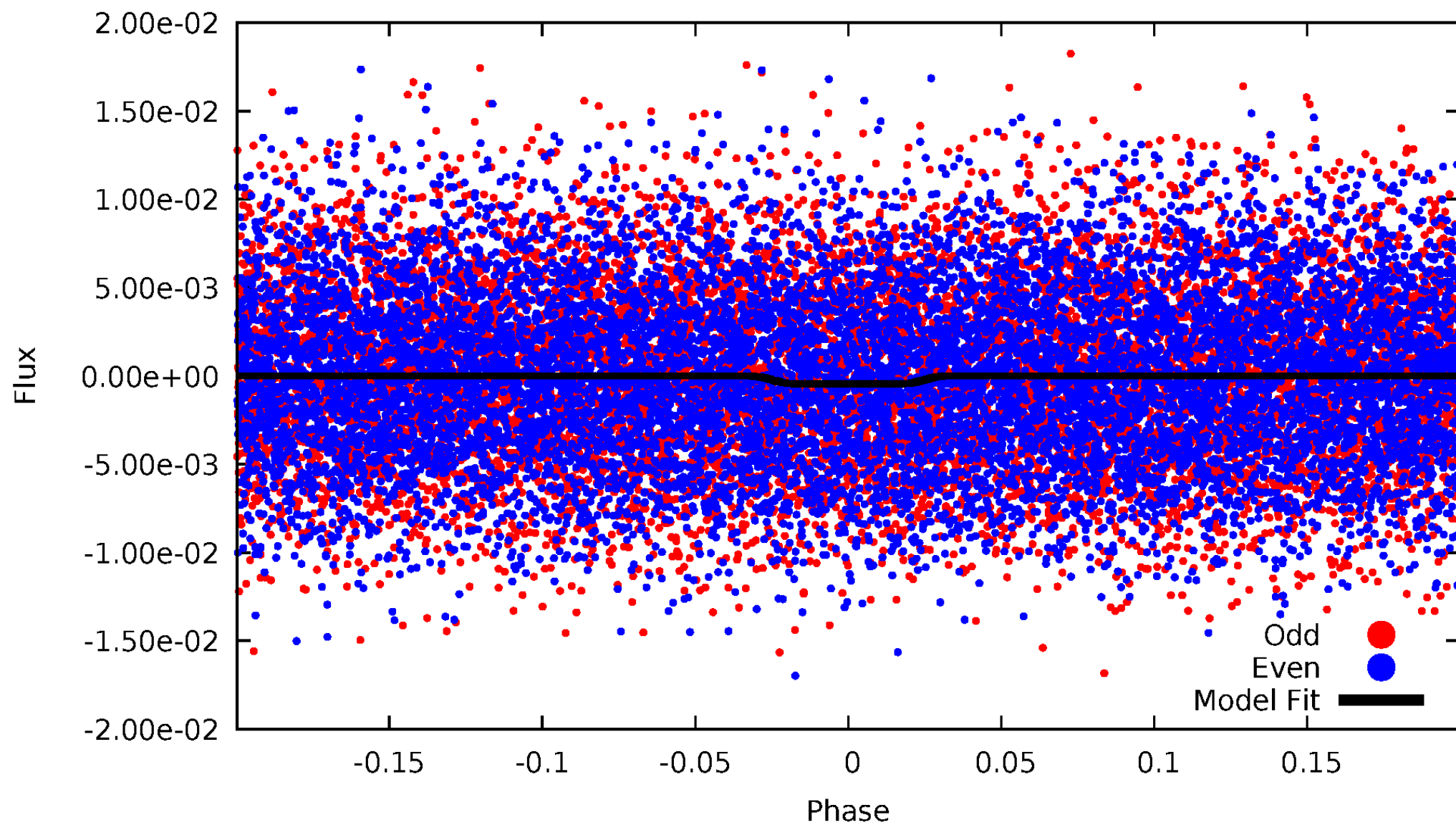
DV Odd/Even

TCE 003968961-01



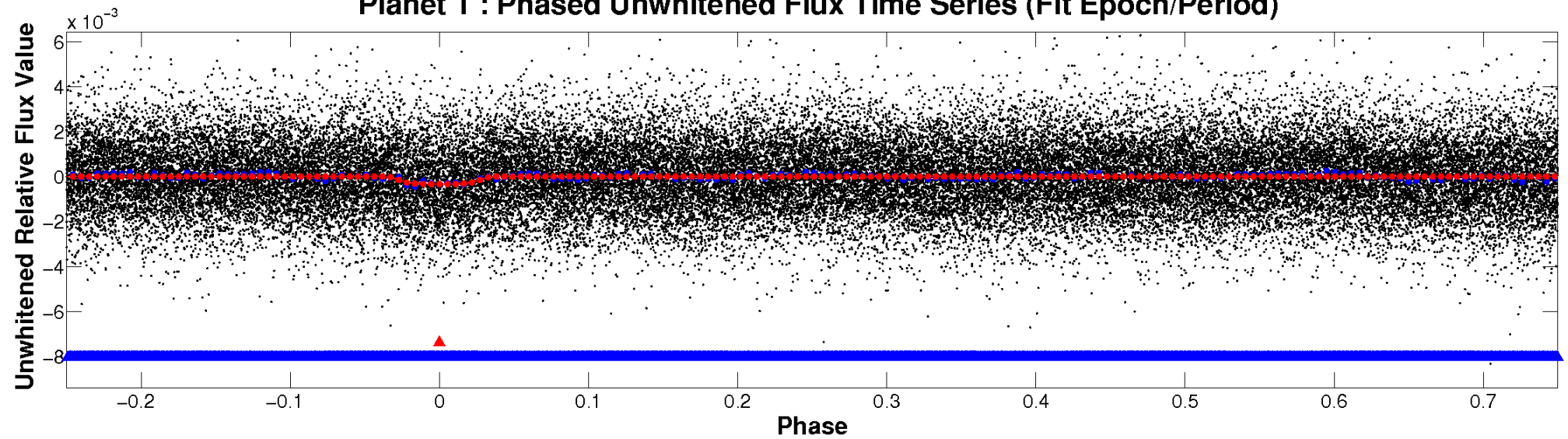
ALT Odd/Even

TCE 003968961-01

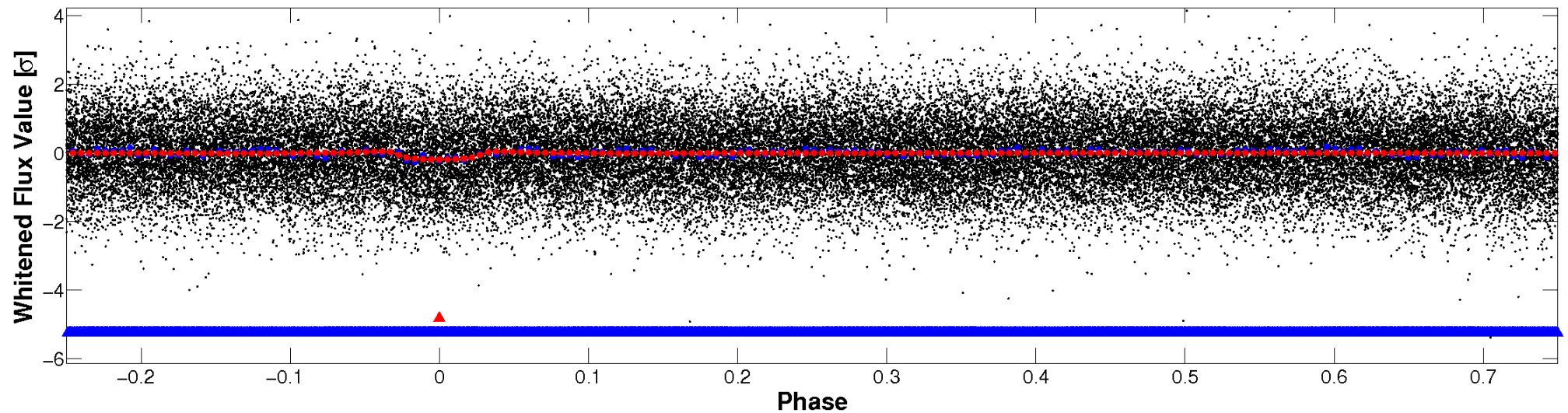


Non-Whitened Vs. Whitened Light Curve

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

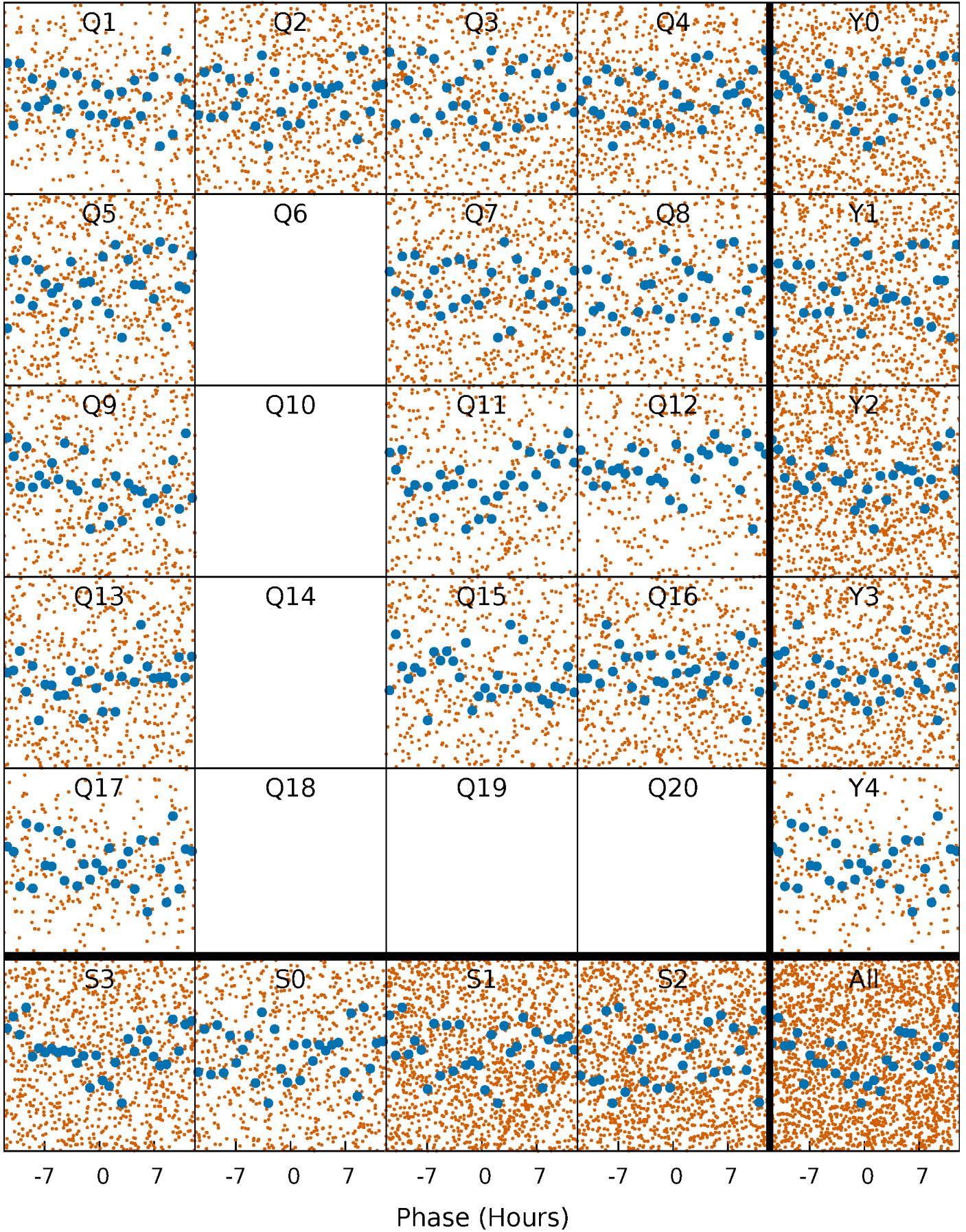


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



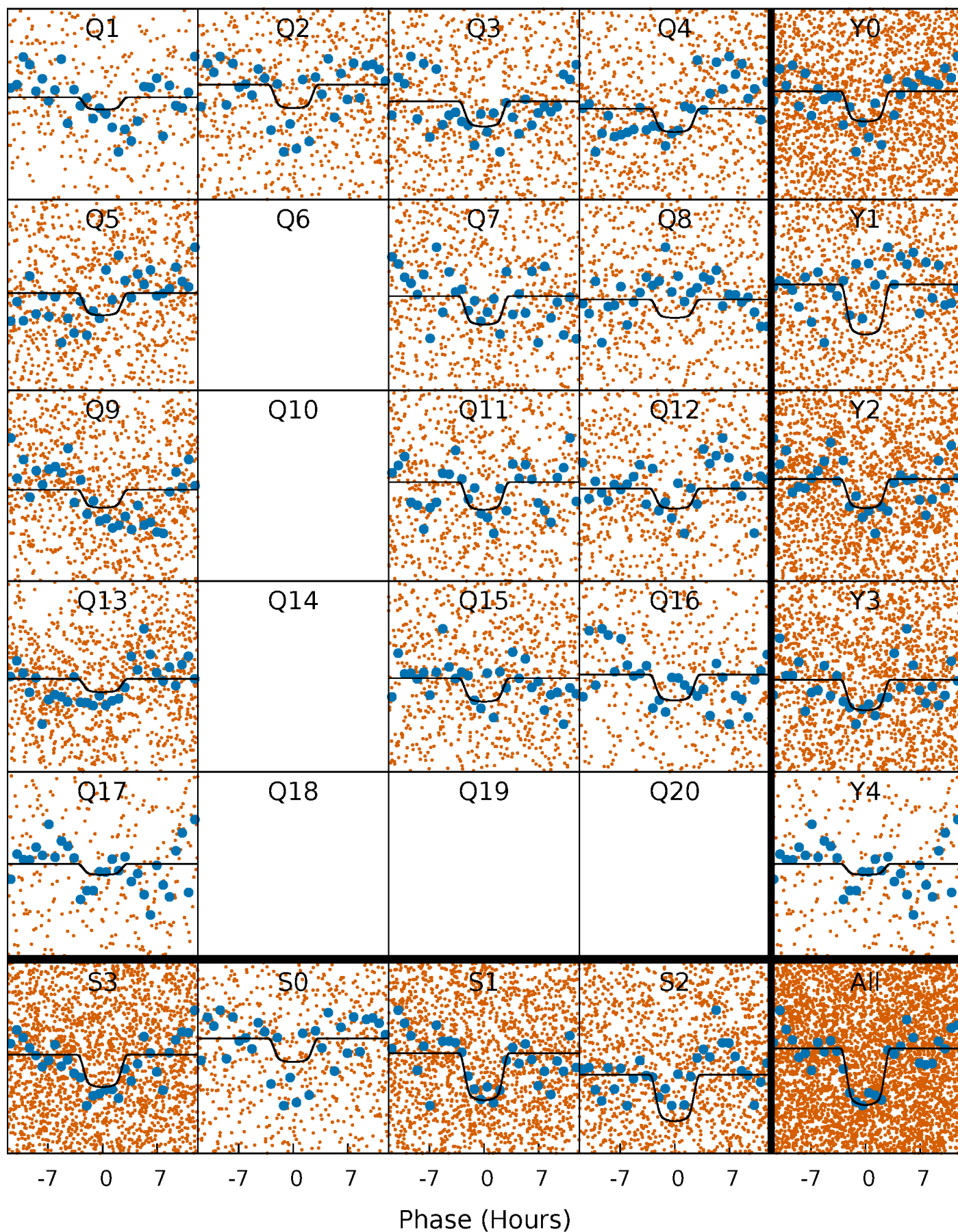
PDC Quarter-Phased Transit Curves

TCE 003968961-01 P= 3.742434 Days $T_0=133.947794$ (BKJD)



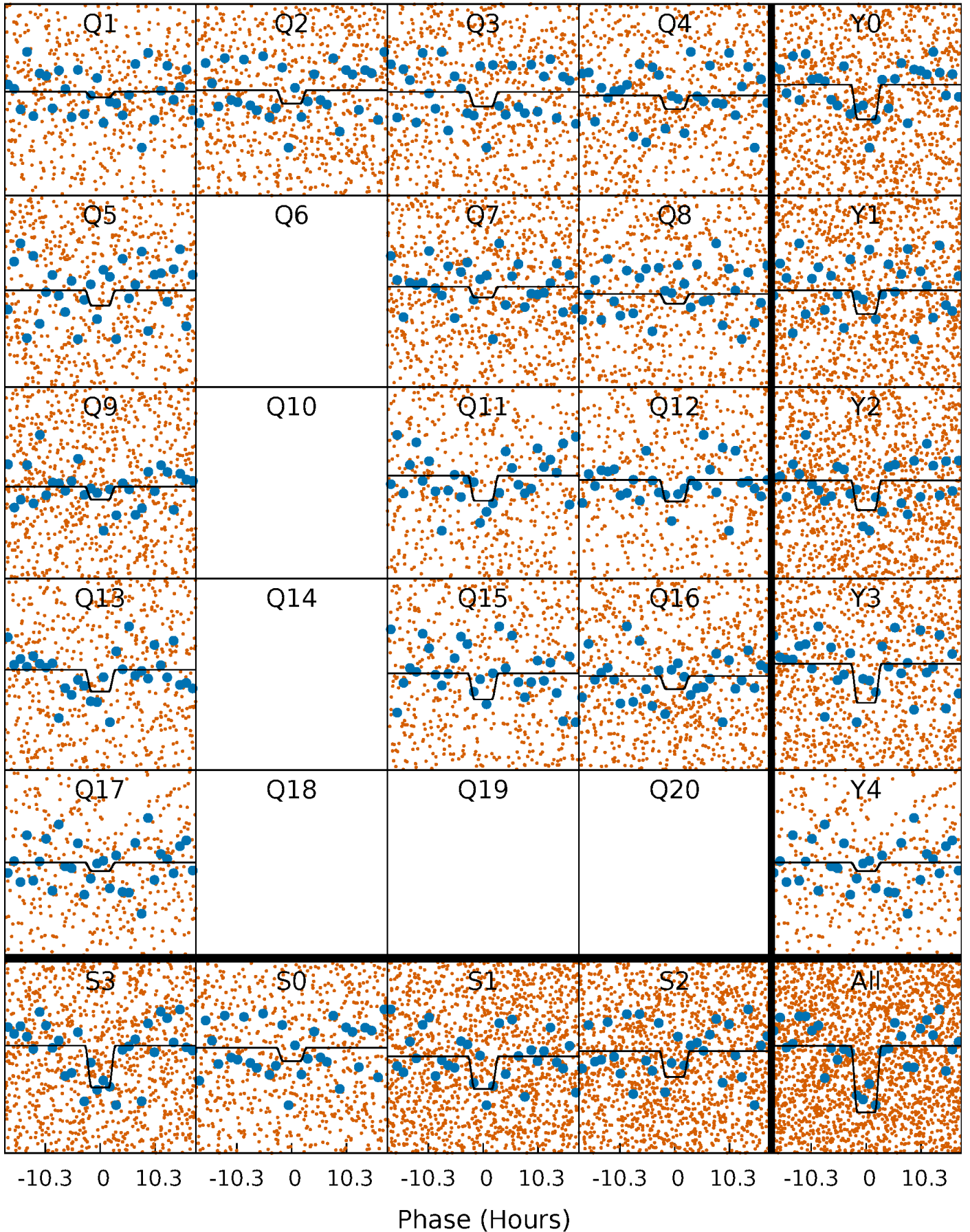
DV Quarter-Phased Transit Curves

TCE 003968961-01 P= 3.742434 Days $T_0=133.947794$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

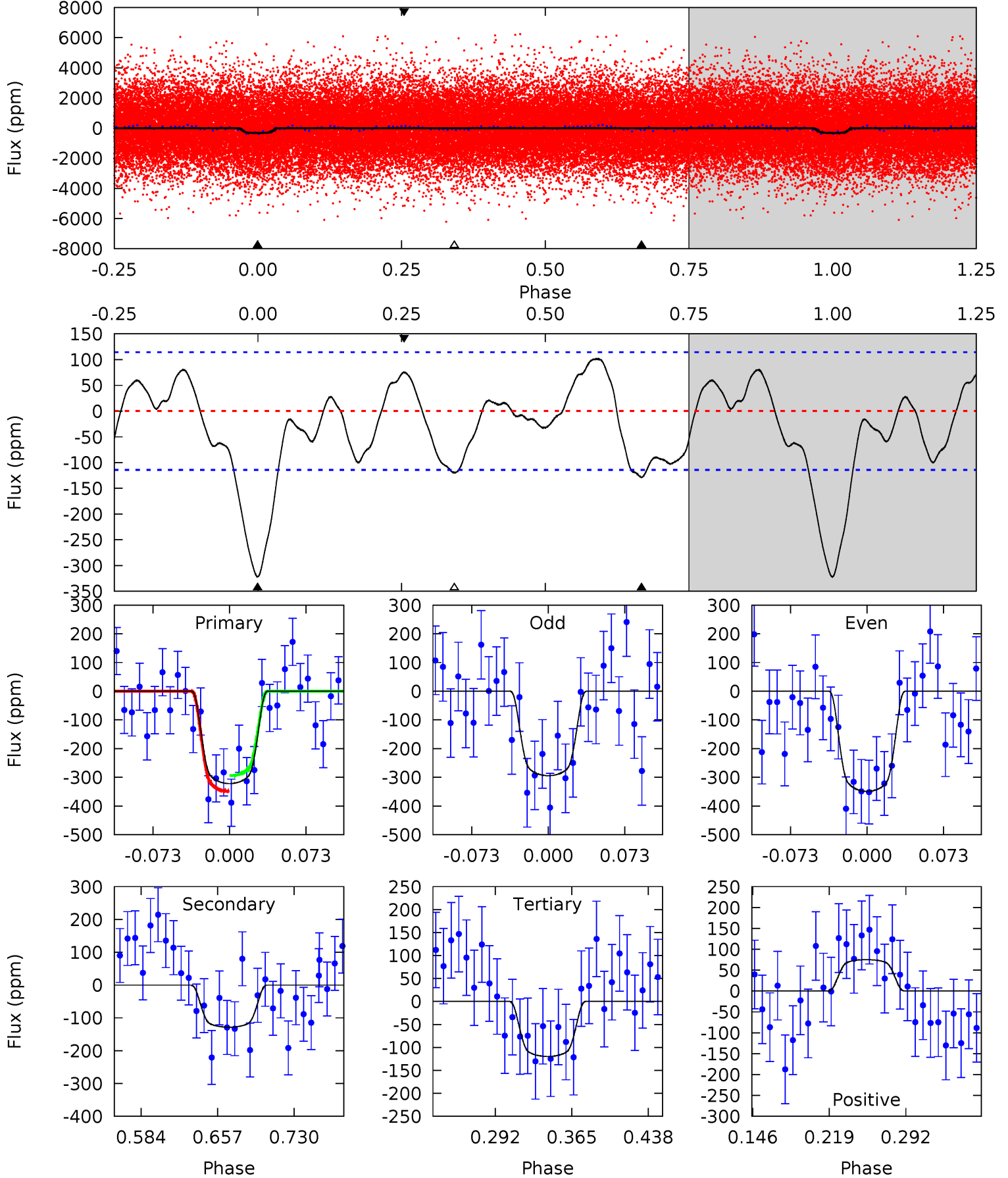
TCE 003968961-01 P= 3.742515 Days $T_0=133.934123$ (BKJD)



DV Model-Shift Uniqueness Test

003968961-01, P = 3.742434 Days, E = 130.205360 Days

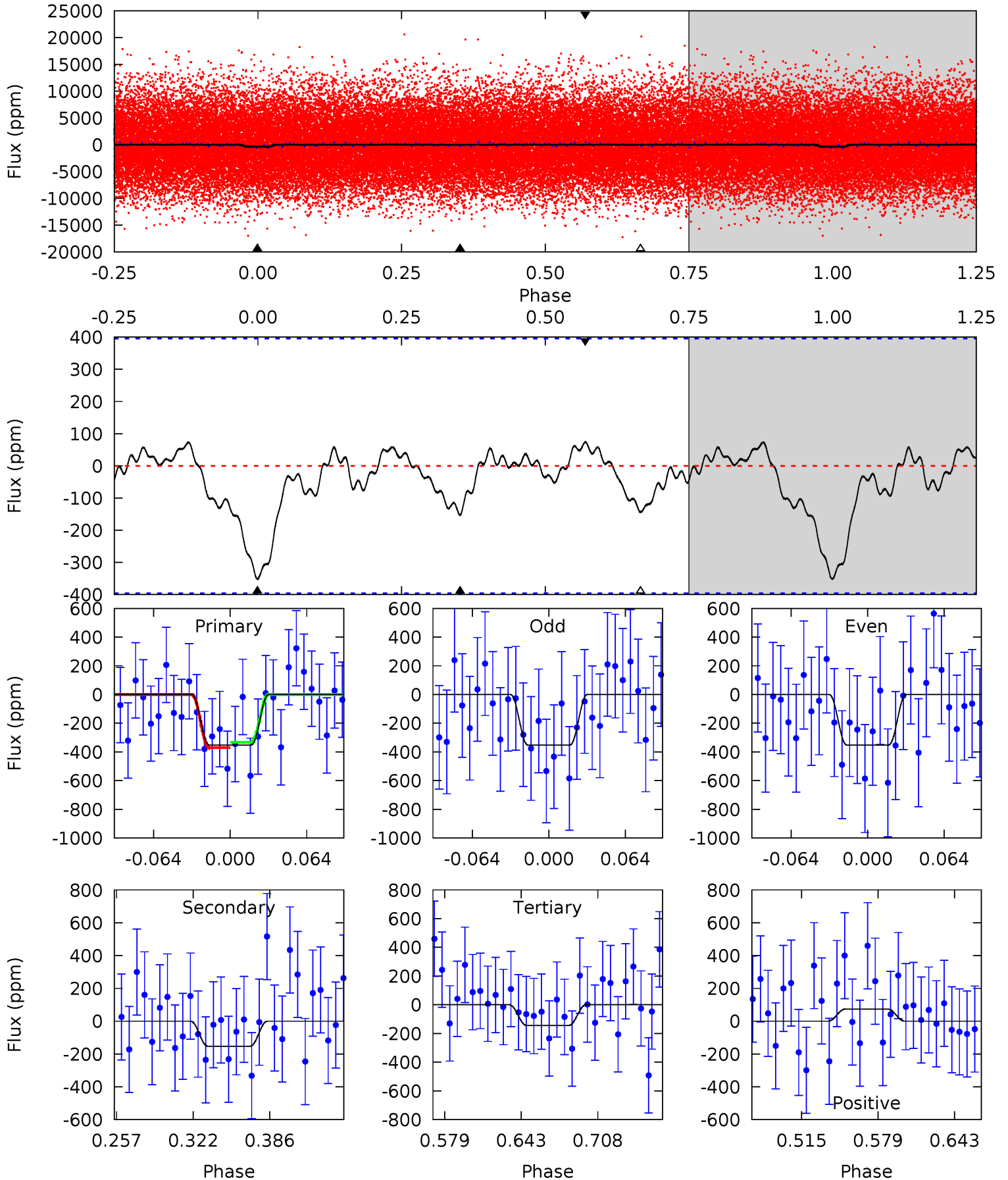
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	5.21	4.85	3.04	4.63	1.79	2.20	8.19	10.00	0.35	2.16	1.11	0.82	0.24	1.11



Alt Model-Shift Uniqueness Test

003968961-01, P = 3.742515 Days, E = 130.191608 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.14	1.81	1.69	0.87	4.66	1.85	0.61	2.45	3.27	0.11	0.94	0.00	0.86	0.17	0.22



Stellar Parameters For KIC 003968961

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7286^{+228}_{-304}	$4.112^{+0.158}_{-0.175}$	$-0.220^{+0.250}_{-0.350}$	$1.755^{+0.528}_{-0.384}$	$1.454^{+0.219}_{-0.241}$	$0.379^{+0.360}_{-0.187}$
	+3%/-4%	+4%/-4%	+114%/-159%	+30%/-22%	+15%/-17%	+95%/-49%
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 003968961-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-128 ± 25	$3.92^{+0.70}_{-0.58}$	2574^{+186}_{-189}	5351^{+369}_{-366}	13^{+6}_{-4}
Alt.	-154 ± 85	$4.02^{+0.68}_{-0.62}$	2567^{+195}_{-175}	5464^{+717}_{-921}	14^{+11}_{-8}

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

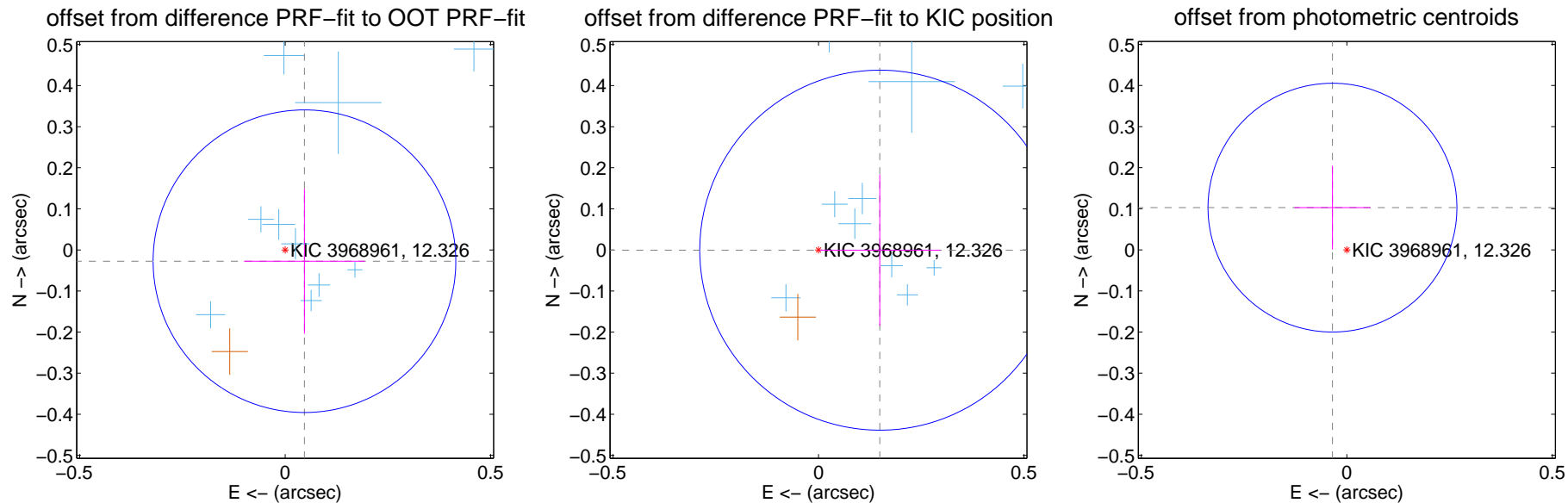
DV Centroid Data

Supplemental centroid analysis for 003968961-01. Kepler magnitude: 12.33. Transit SNR 8.68

There are 13 quarters with good PRF difference image offsets

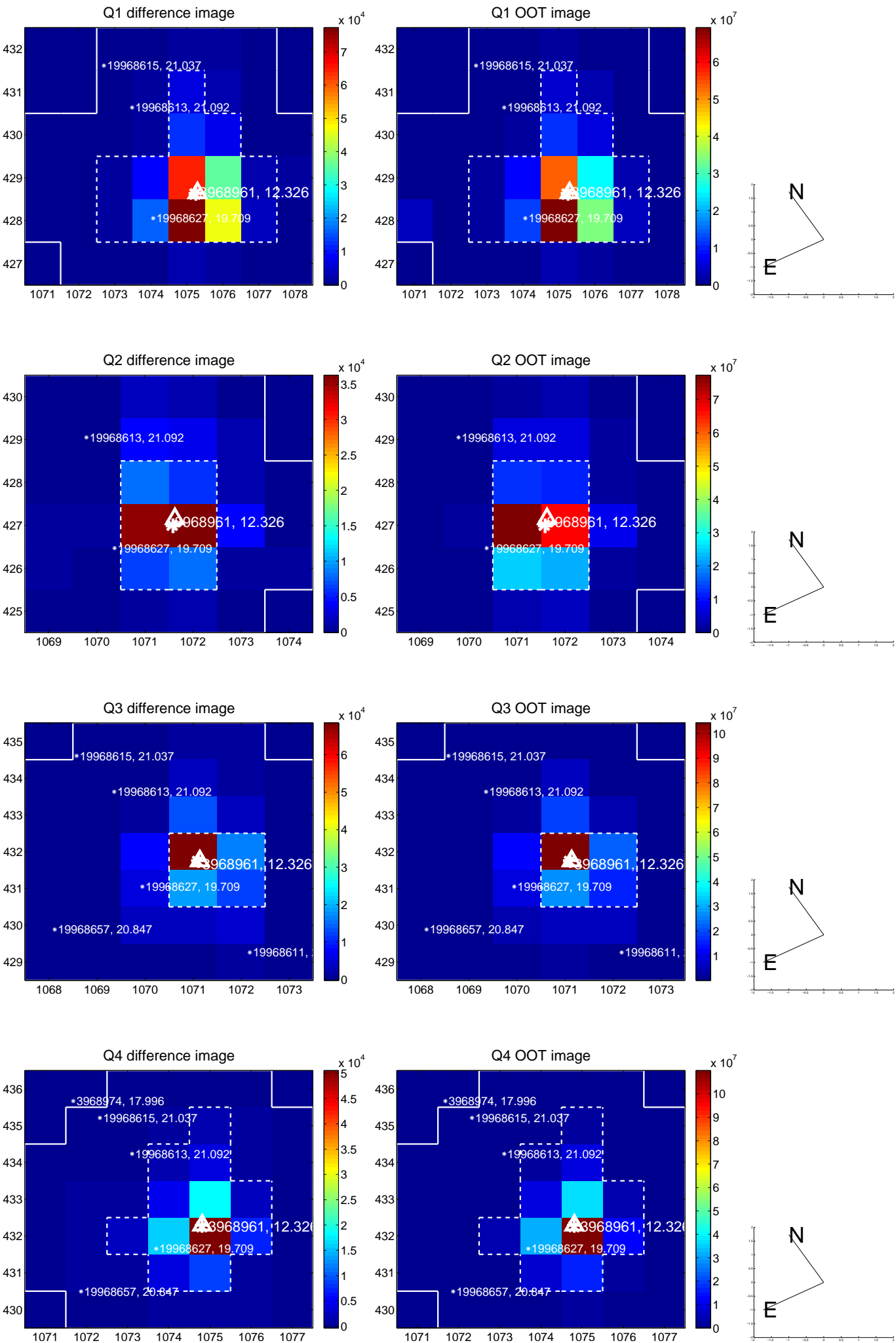
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.054 ± 0.123	0.44	-0.047 ± 0.147	-0.027 ± 0.177
PRF-fit source offset from KIC position	0.149 ± 0.146	1.02	-0.149 ± 0.146	-0.001 ± 0.184
photometric centroid source offset	0.11 ± 0.10	1.08	0.03 ± 0.09	0.10 ± 0.10

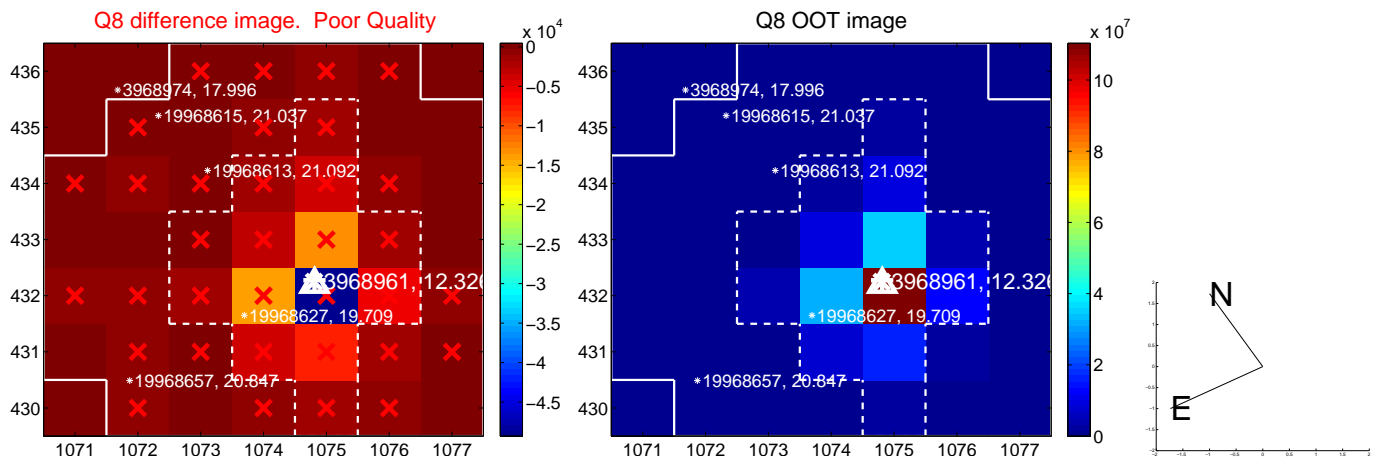
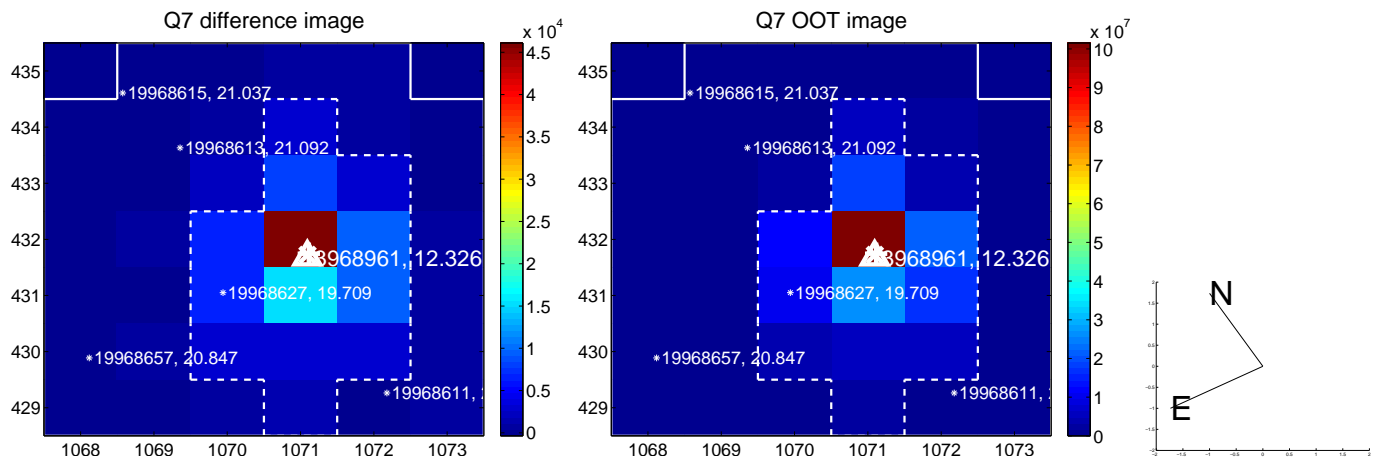
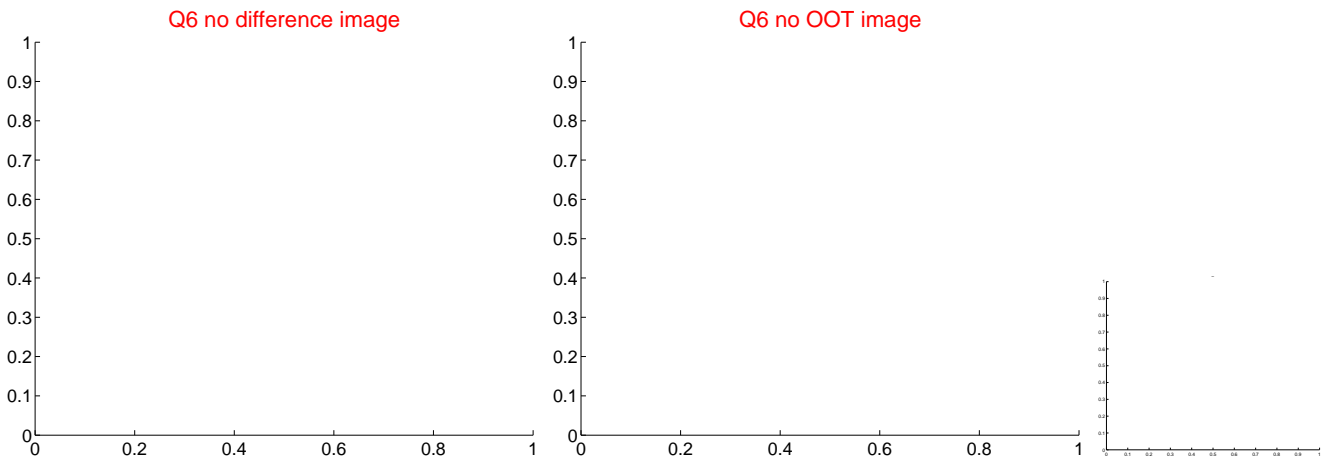
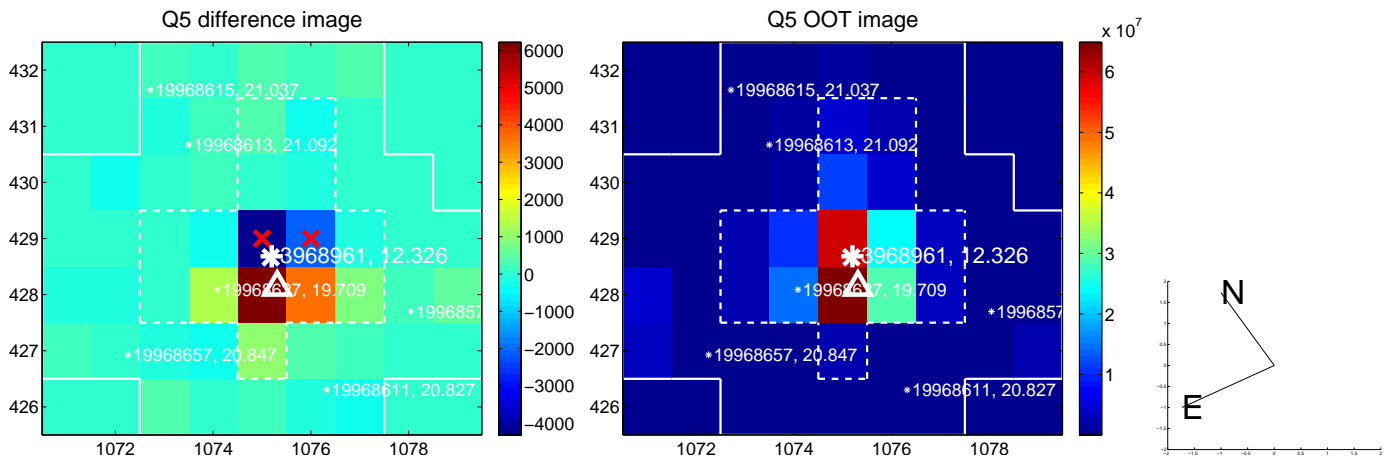


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

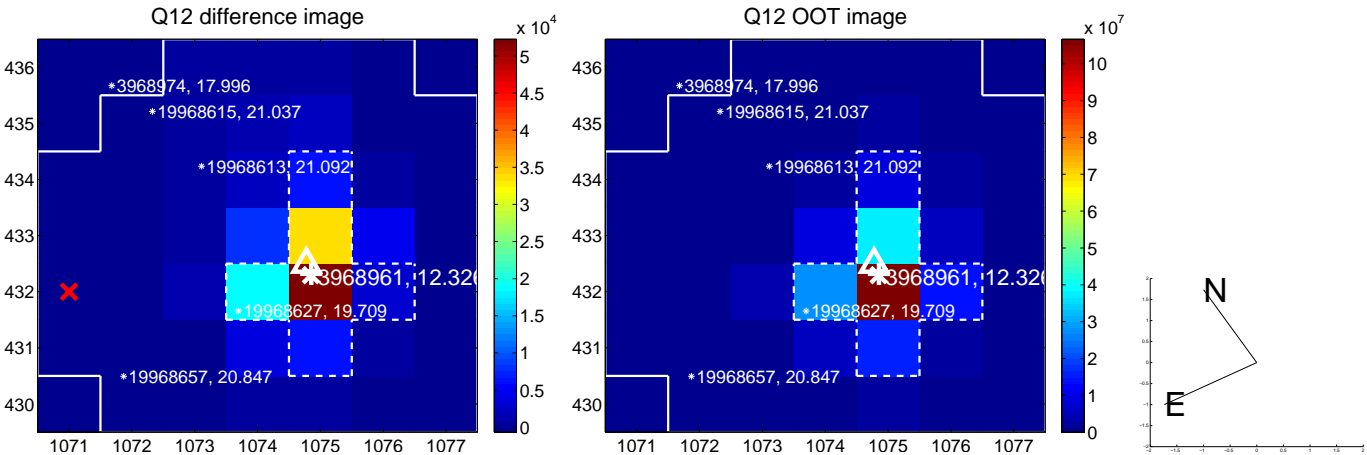
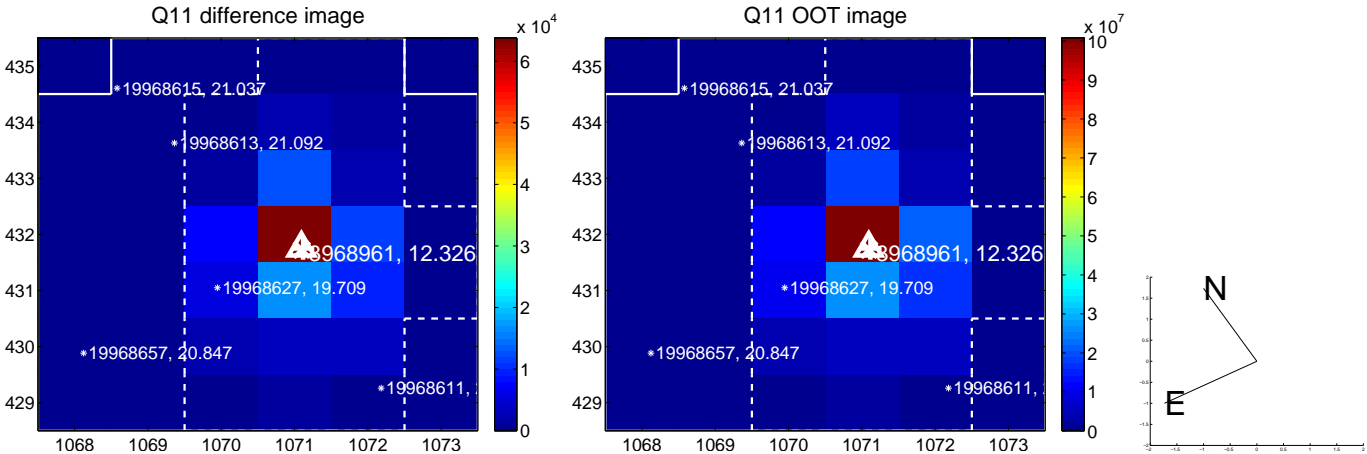
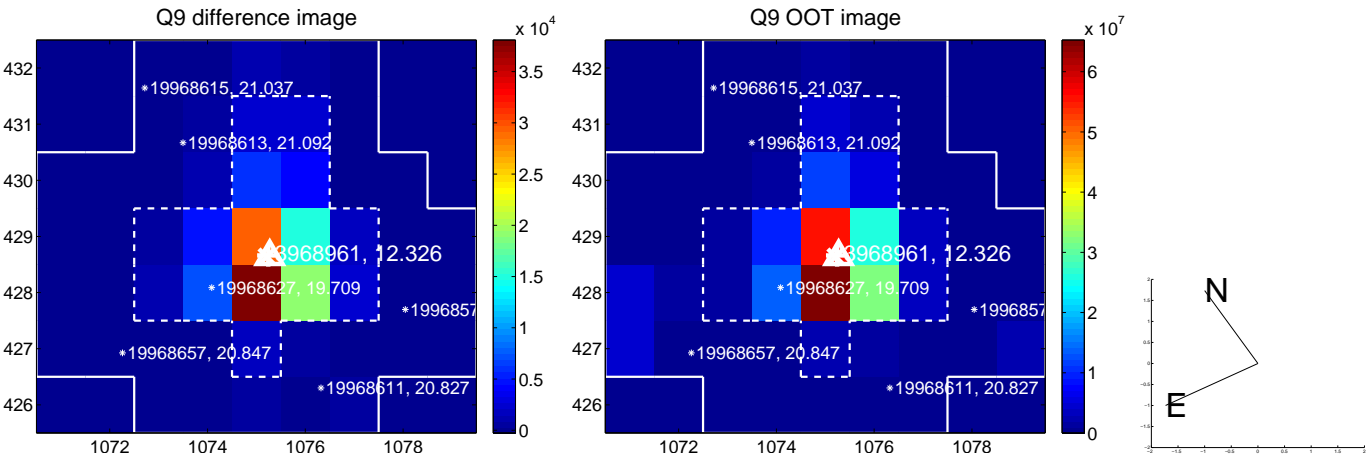
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



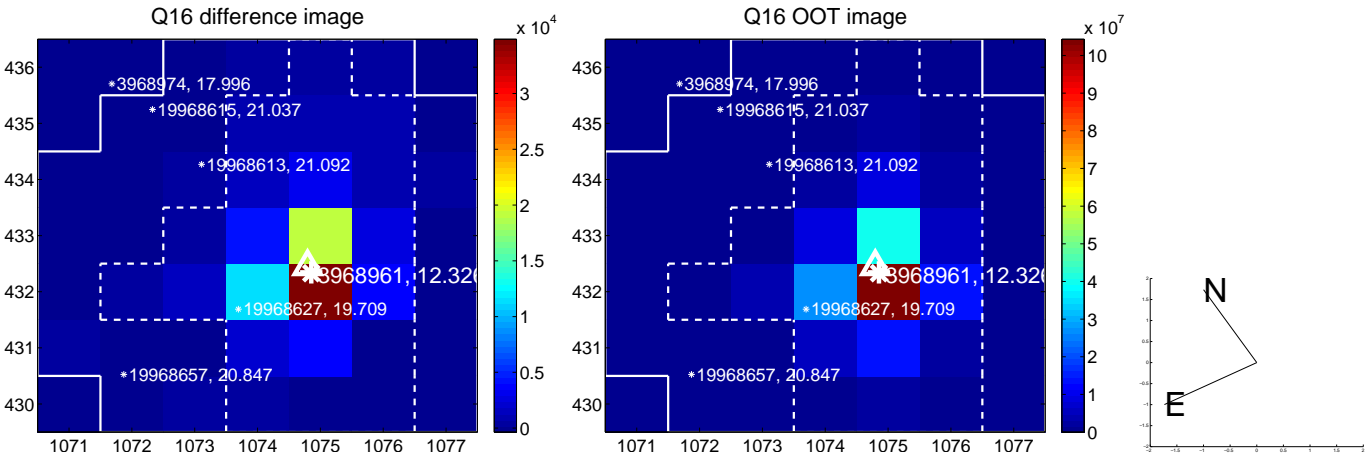
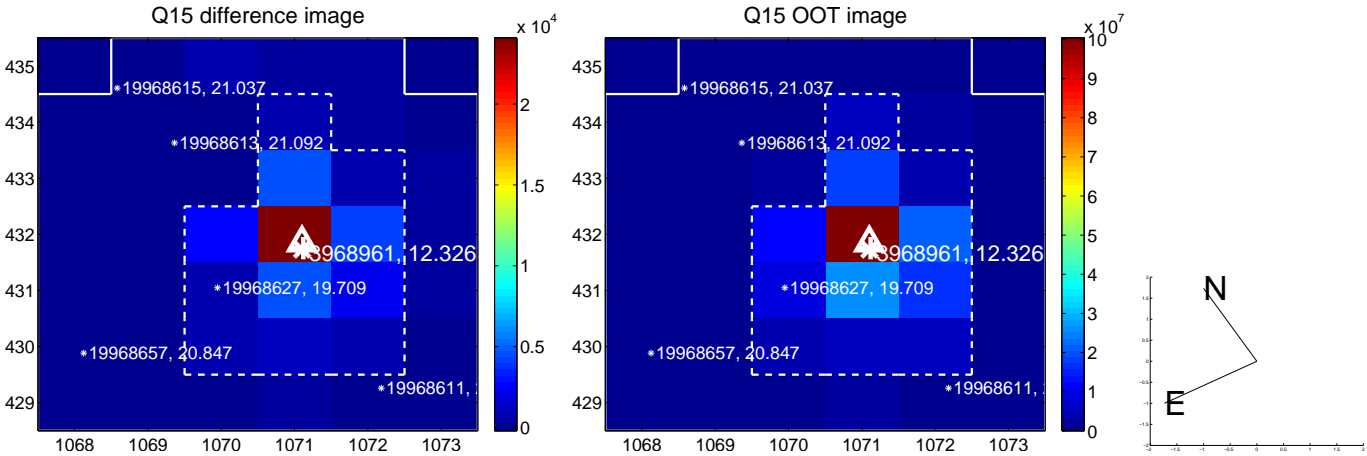
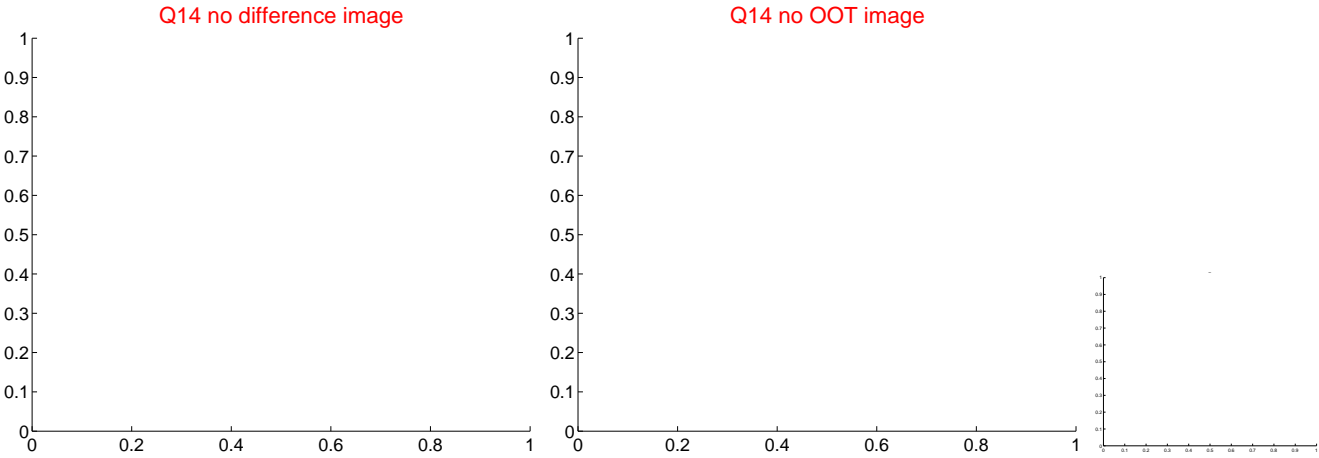
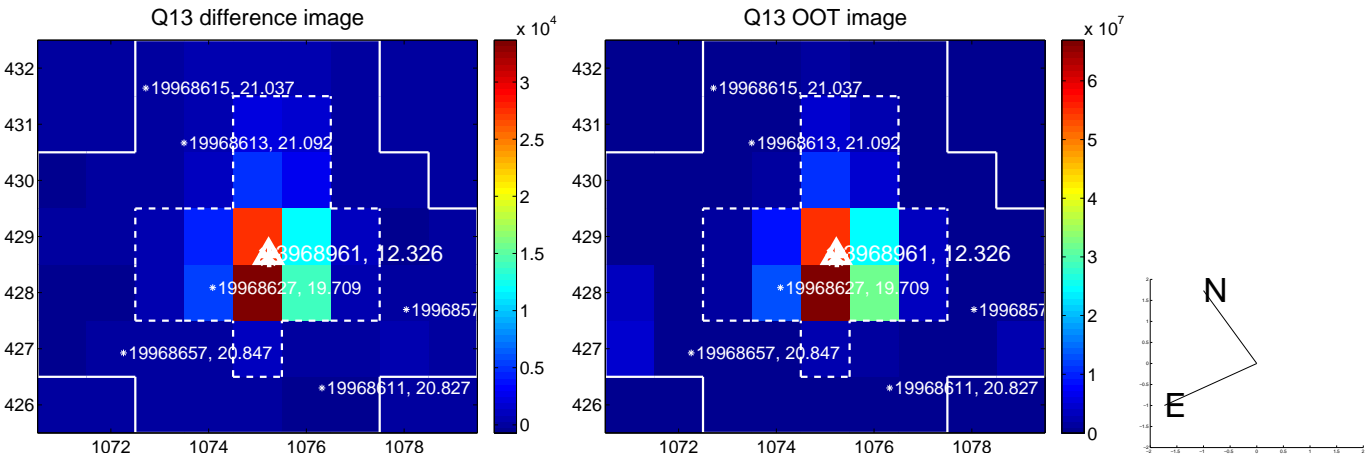
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



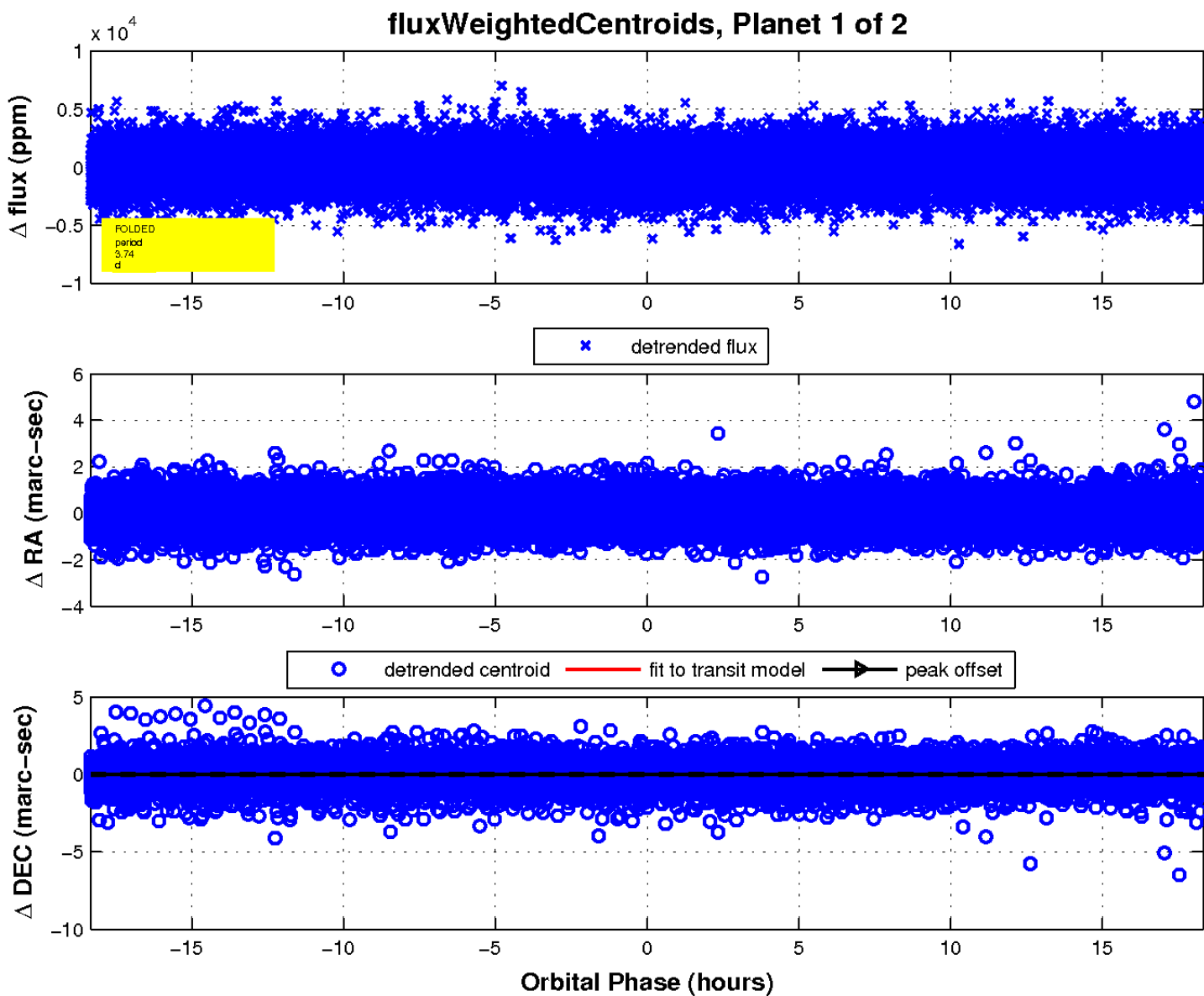
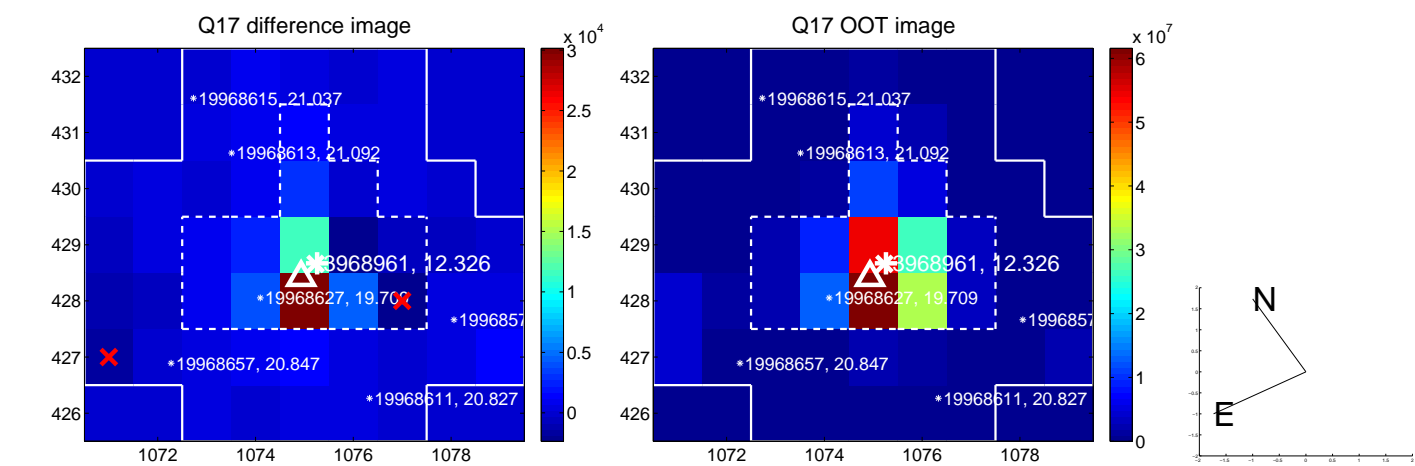
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



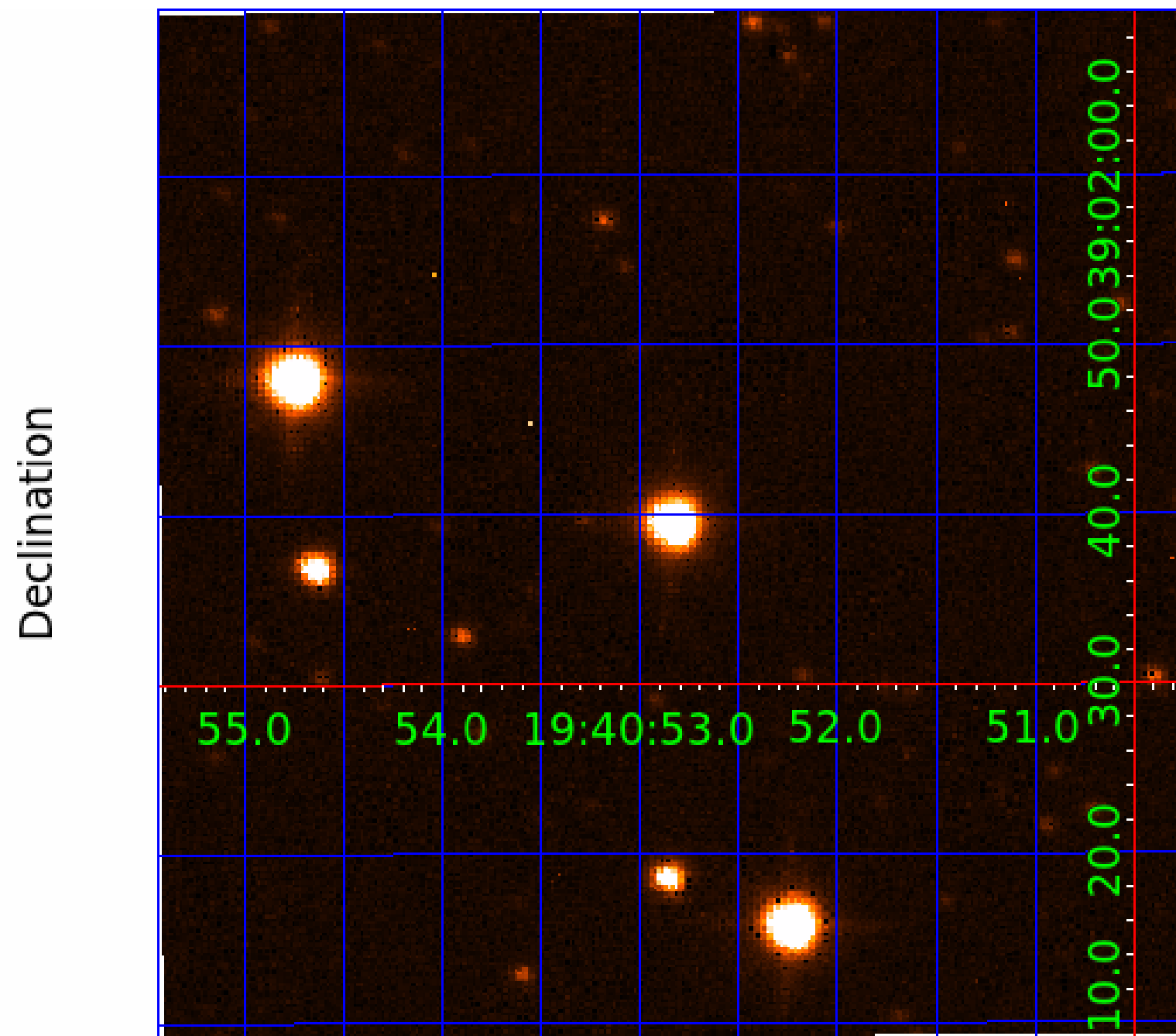
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003968961

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})
003968961-01	OBS	No	3.742434	133.947794	332.3	6.111	8.1	8.7	1.75	7286	3.94	2721.64
003968961-02	OBS	No	0.623041	131.553187	214.8	0.576	7.5	5.2	1.75	7286	2.74	29717.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003968961-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
003968961-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

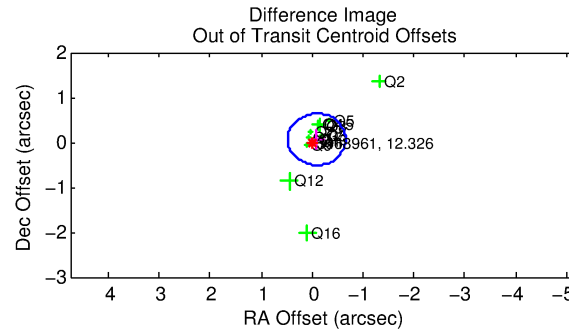
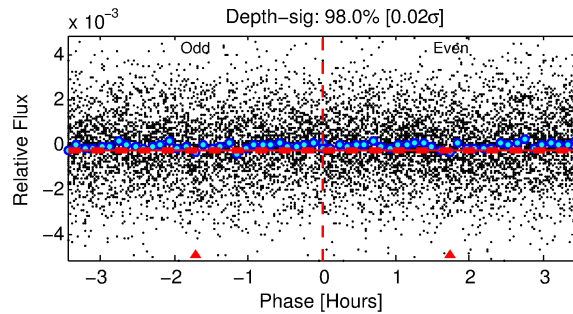
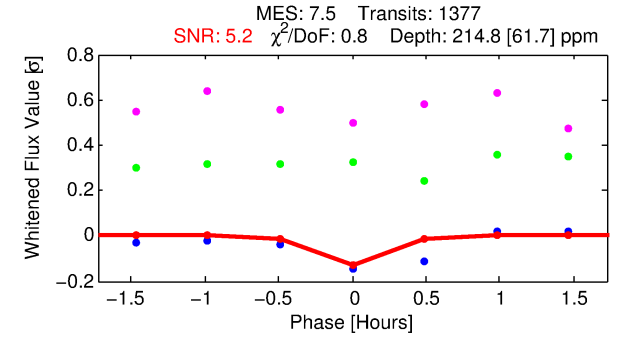
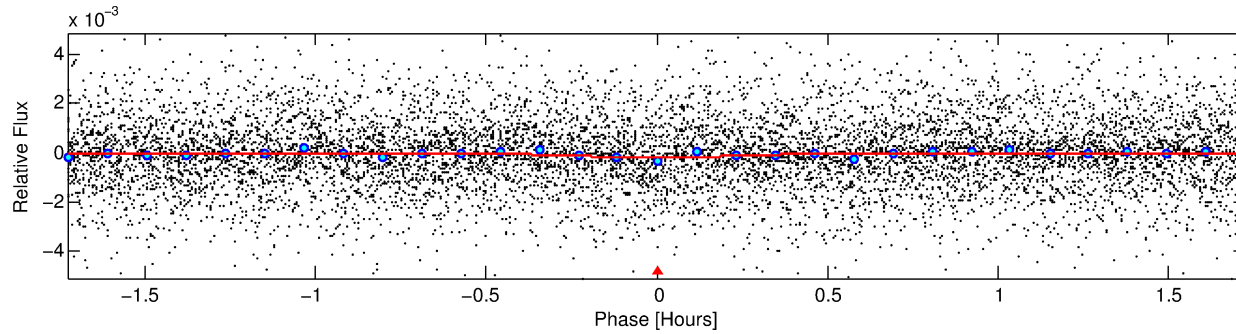
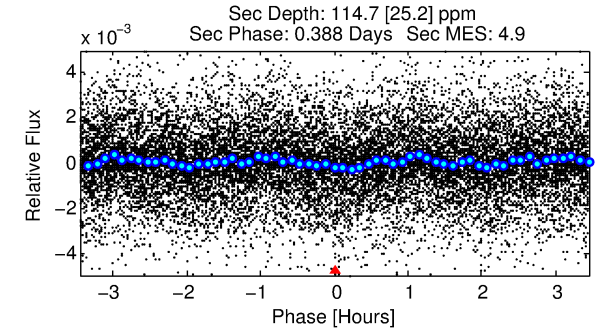
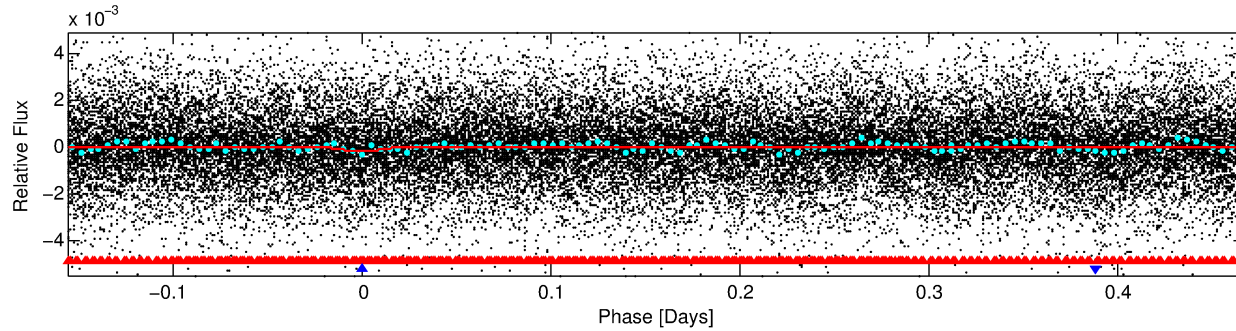
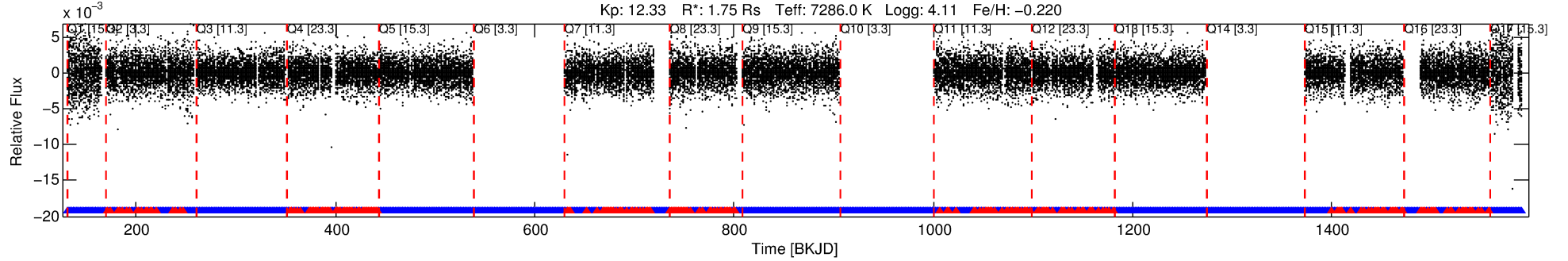
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003968961-02

No Significant Match Found

DV One-Page Summary

KIC: 3968961 Candidate: 2 of 2 Period: 0.623 d



DV Fit Results:

Period = 0.62304 [0.00002] d
Epoch = 131.5532 [0.0022] BKJD
Rp/R* = 0.0143 [0.0137]
a/R* = 7.36 [41.98]
b = 0.50 [8.88]
Seff = 29717.59 [11129.11]
Teq = 3348 [313] K
Rp = 2.74 [2.75] Re
a = 0.0162 [0.0039] AU
Ag = 2.20 [4.31] [0.28σ]
Teffp = 6303 [3053] K [0.96σ]

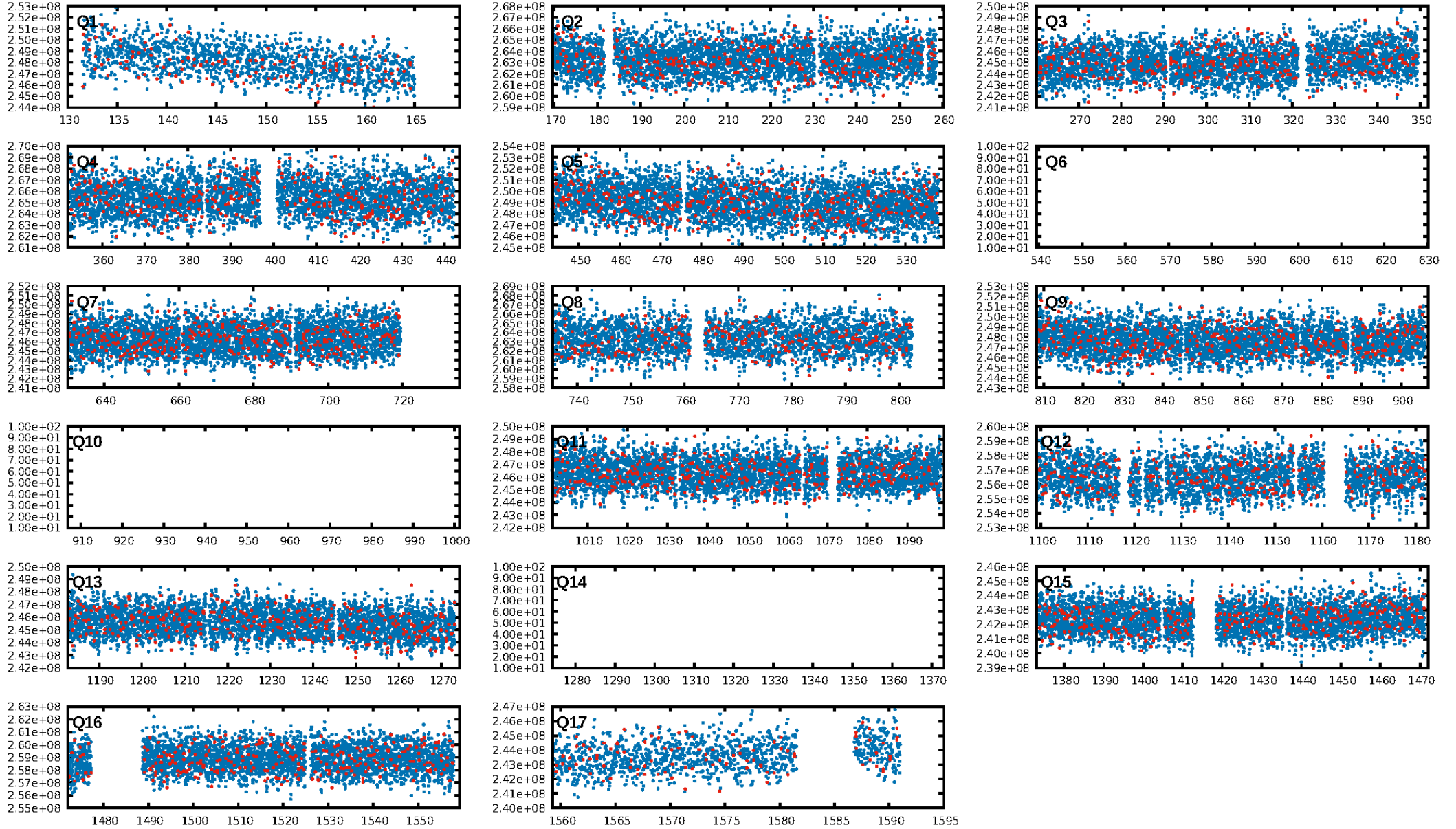
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [12.20σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.65e-13
RollingBand-fgt: 0.77 [1006/1302]
GhostDiagnostic-chr: 3.578
Centroid-sig: N/A
Centroid-so: 0.161 arcsec [1.01σ]
OotOffset-rm: 0.111 arcsec [0.58σ]
KicOffset-rm: 0.213 arcsec [1.41σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.50 [7/14]
DiffImageOverlap-fno: 1.00 [14/14]

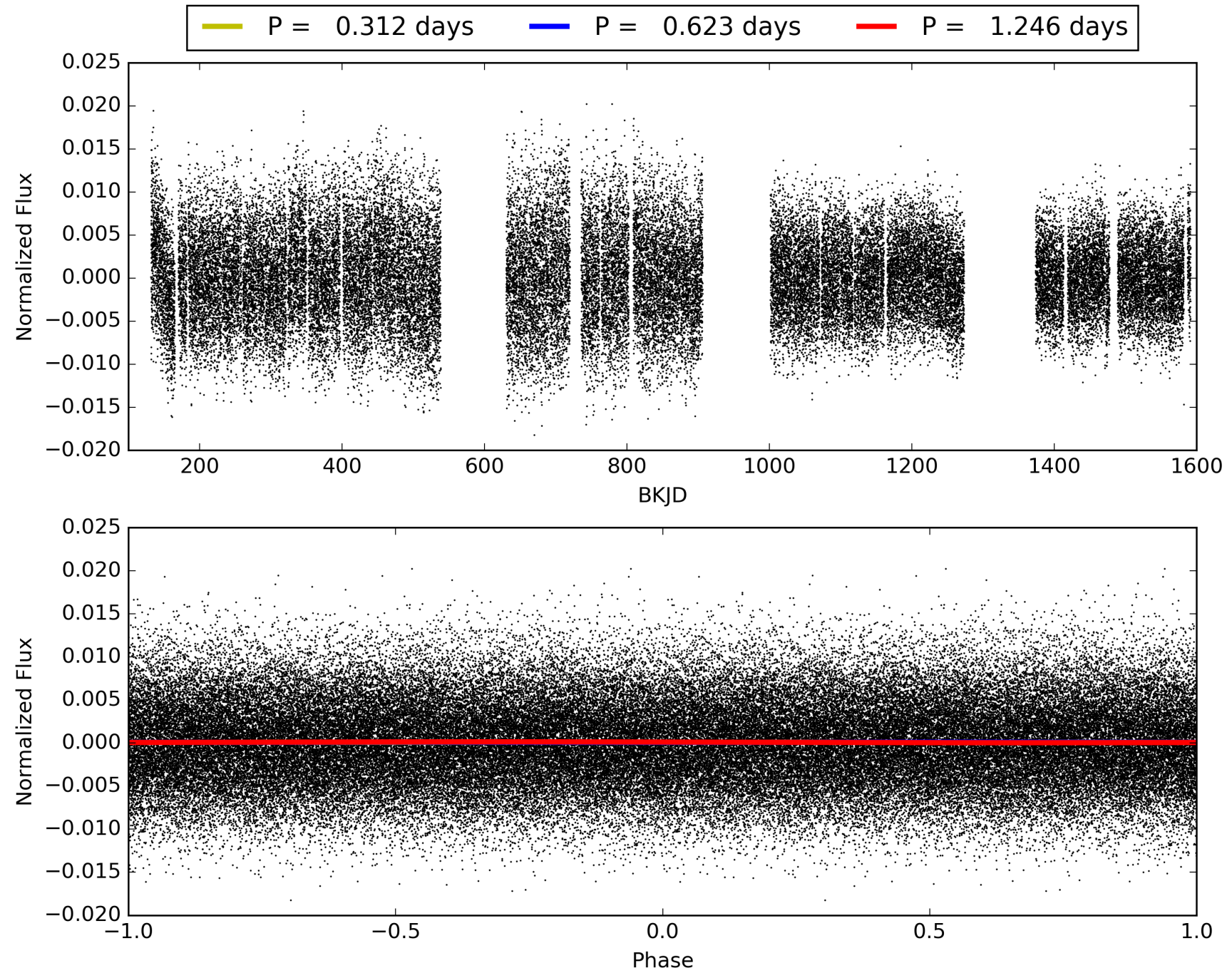
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 09:10:03 Z

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

TCE 003968961-02, PDC Light Curves

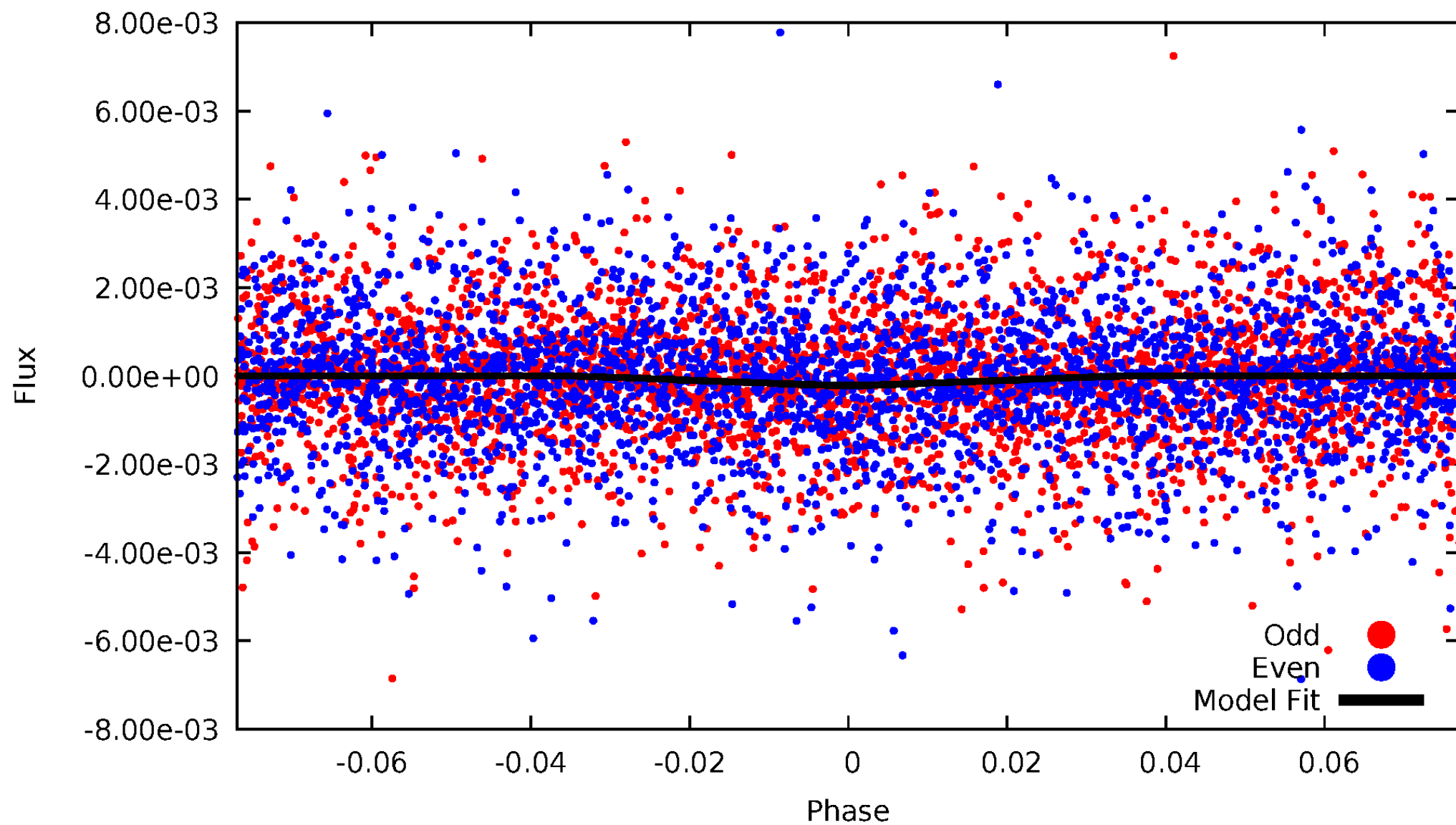


TCE 003968961-02



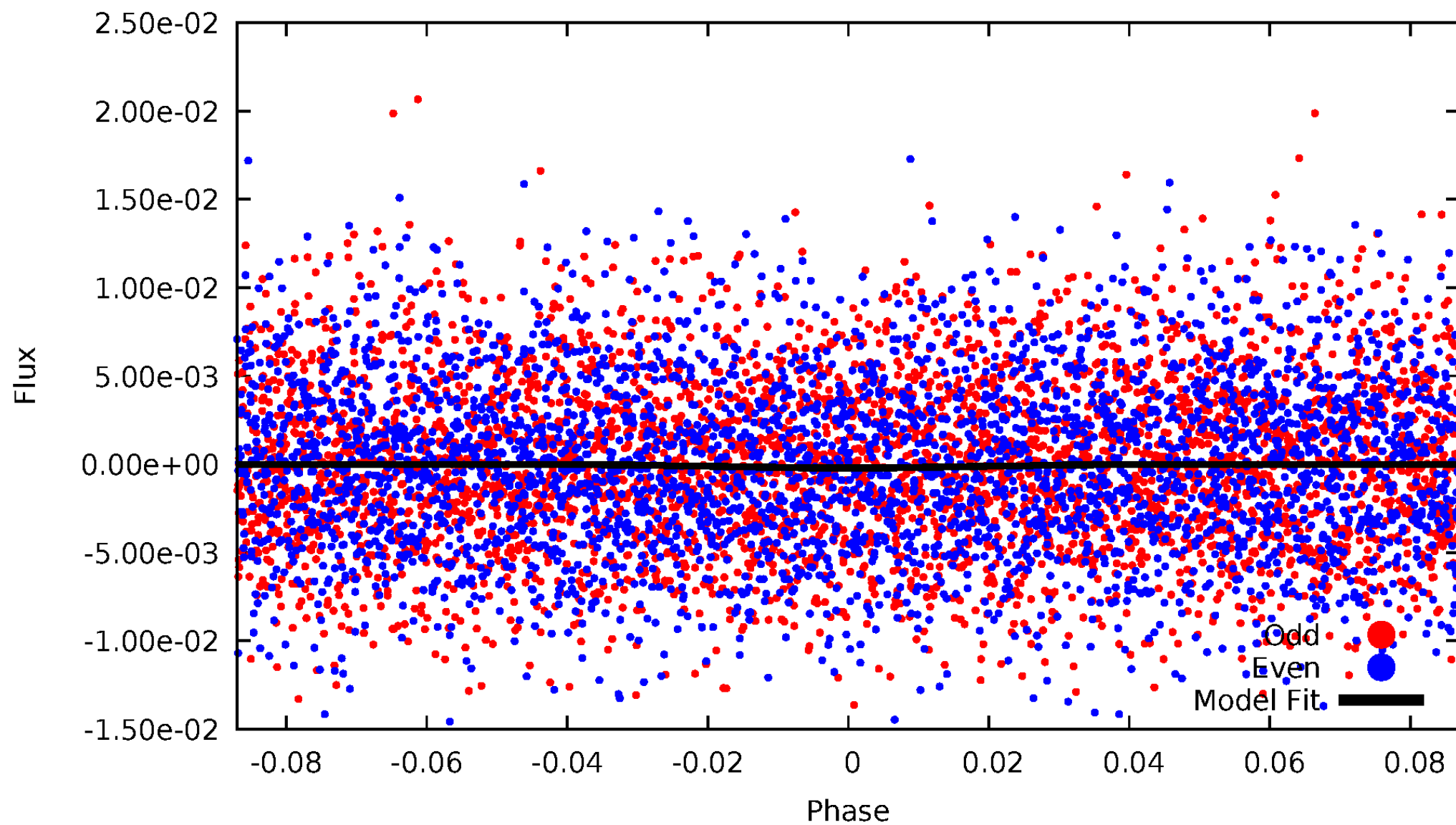
DV Odd/Even

TCE 003968961-02



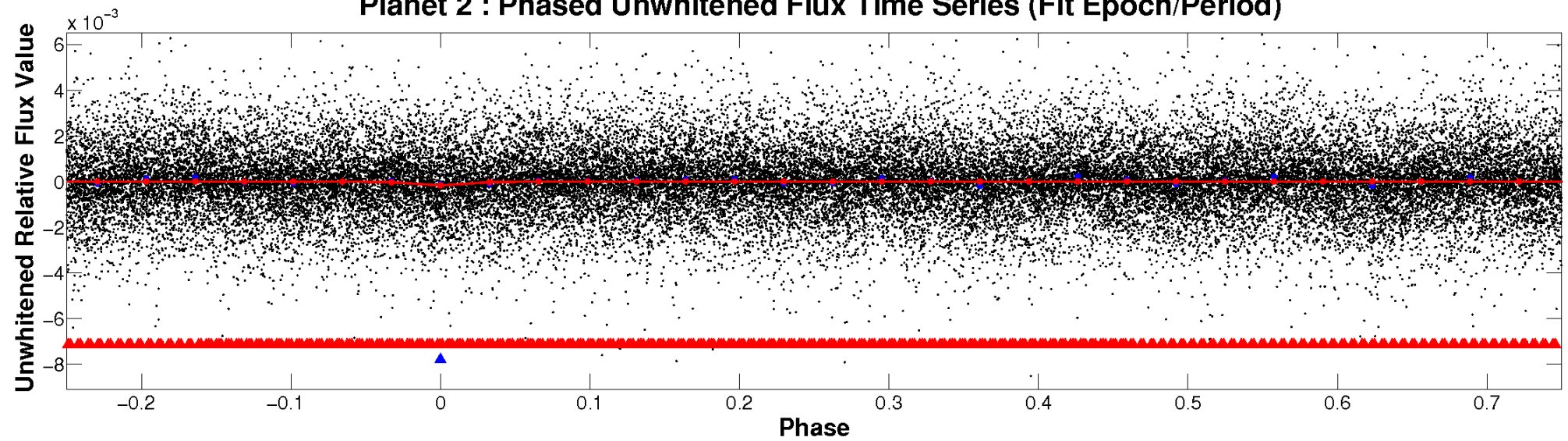
ALT Odd/Even

TCE 003968961-02

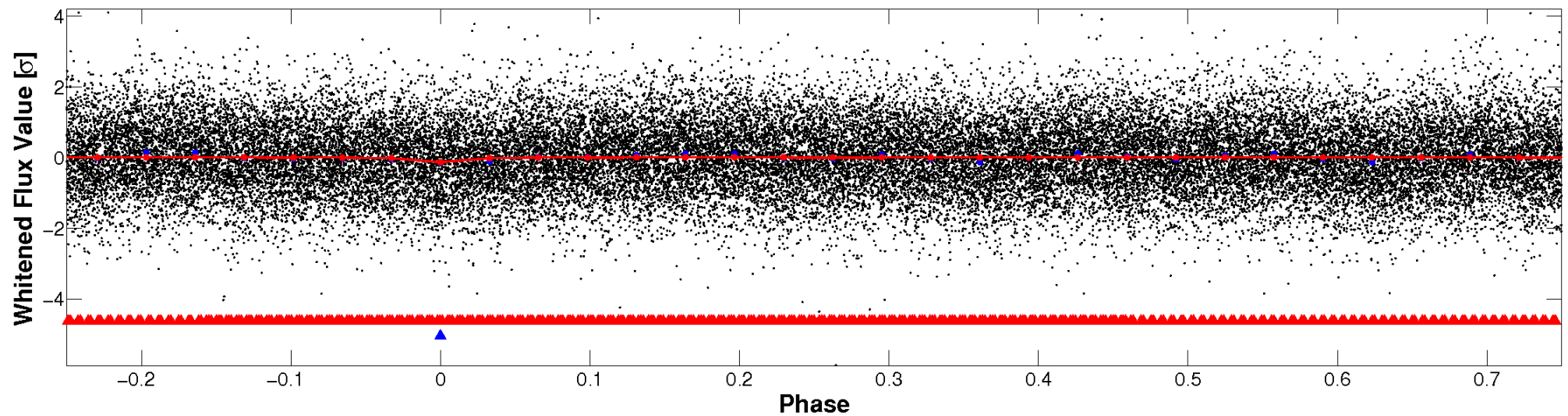


Non-Whitened Vs. Whitened Light Curve

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

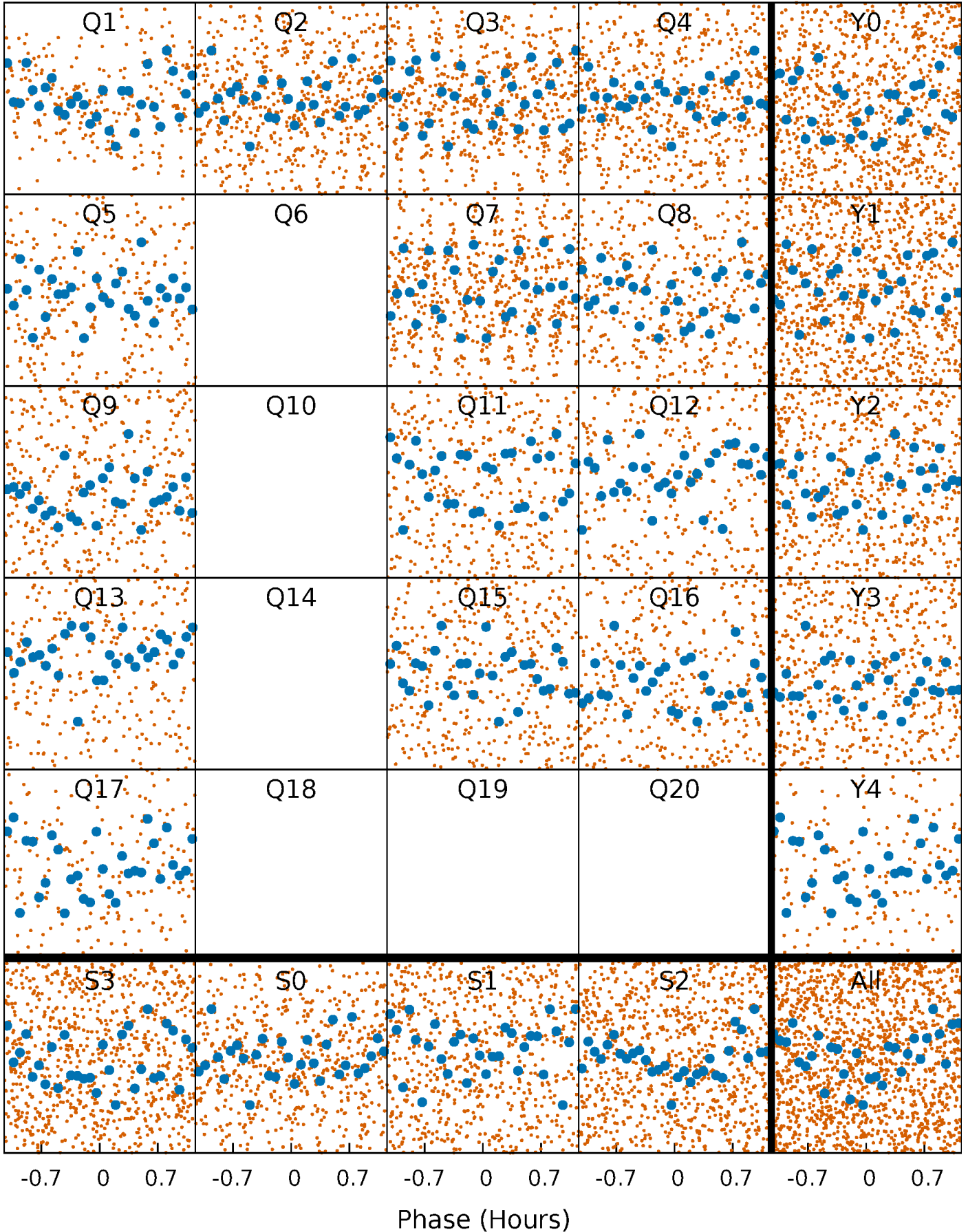


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



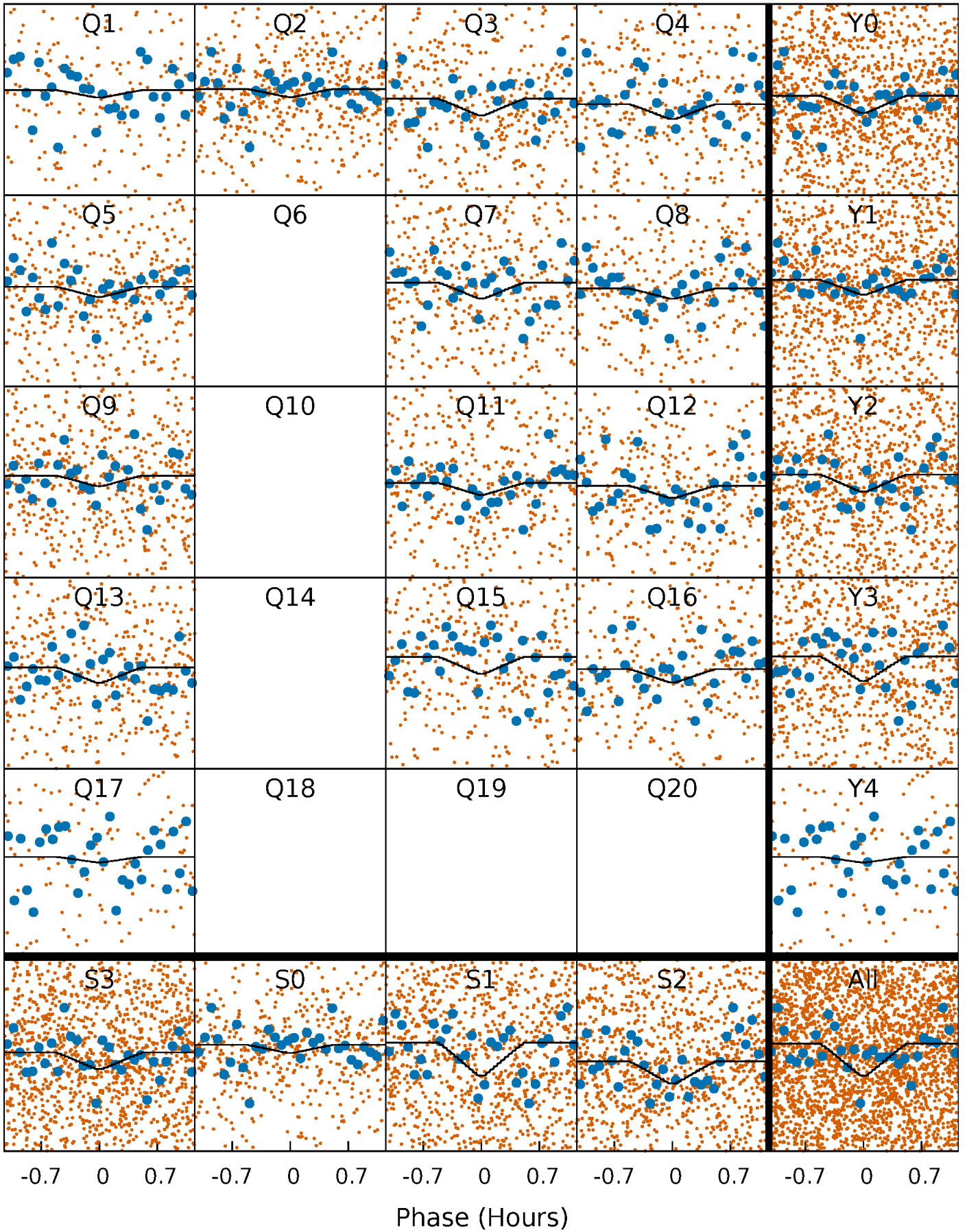
PDC Quarter-Phased Transit Curves

TCE 003968961-02 P= 0.623041 Days $T_0=131.553187$ (BKJD)



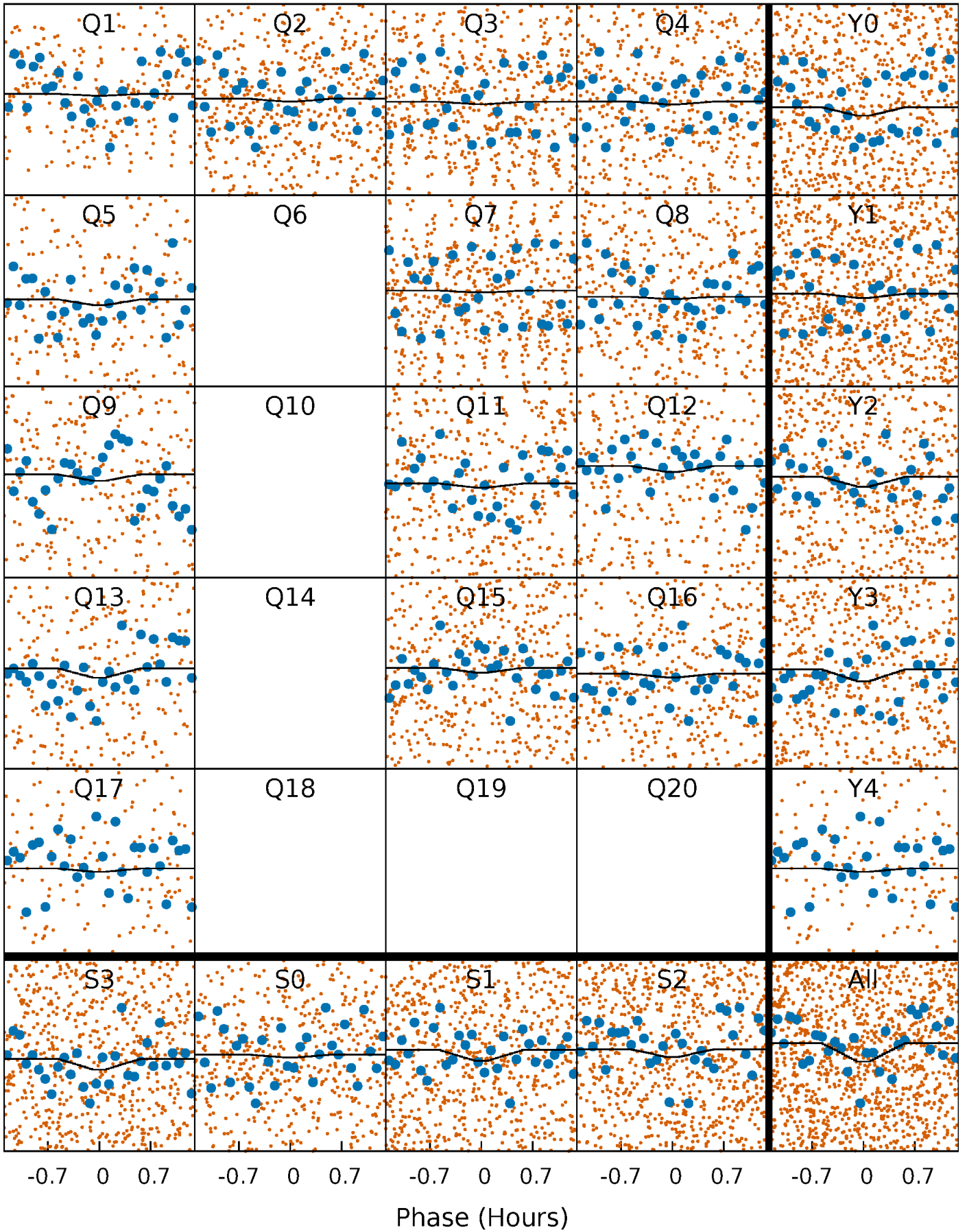
DV Quarter-Phased Transit Curves

TCE 003968961-02 P= 0.623041 Days $T_0=131.553187$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

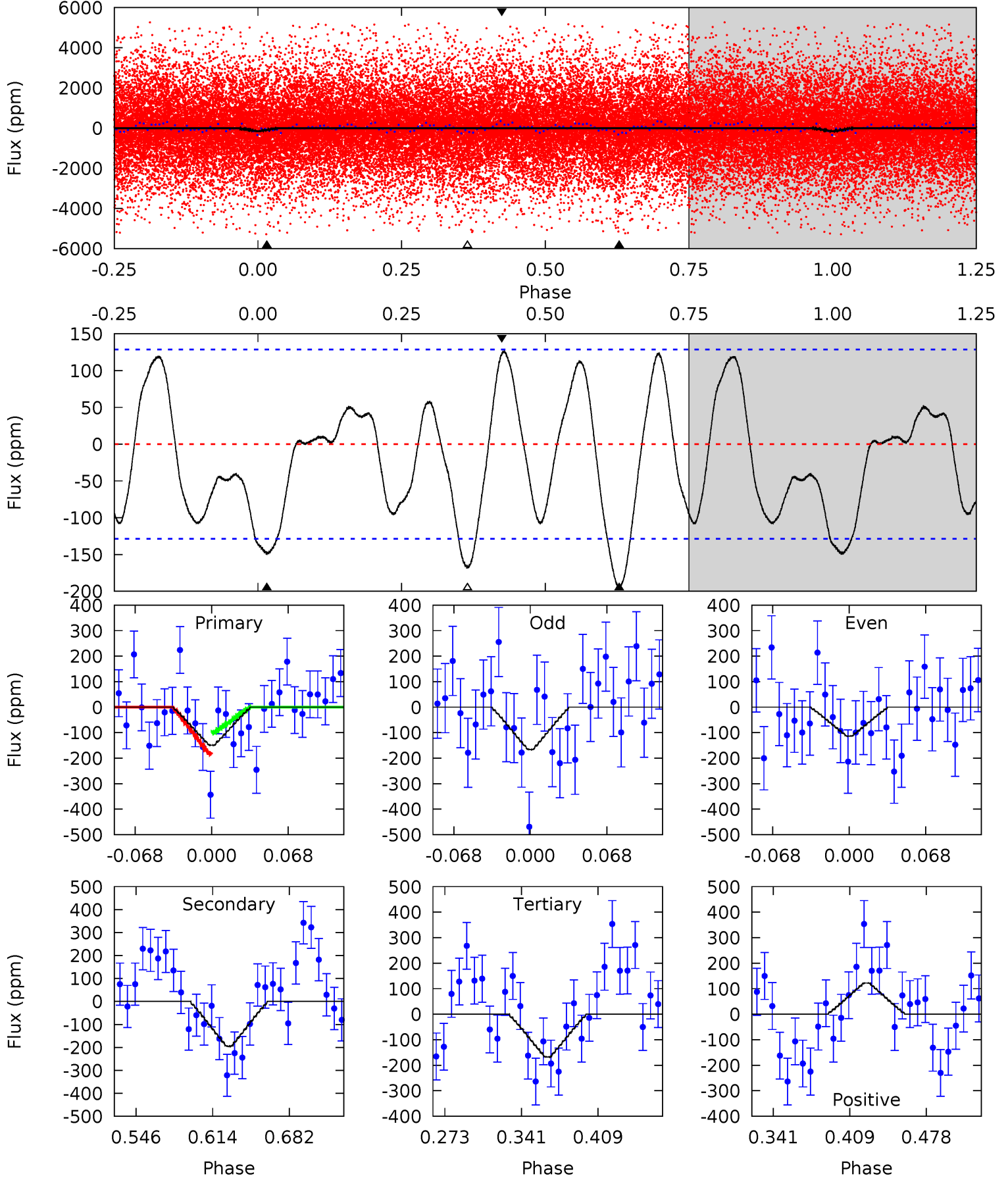
TCE 003968961-02 P= 0.623042 Days $T_0=131.553118$ (BKJD)



DV Model-Shift Uniqueness Test

003968961-02, P = 0.623041 Days, E = 130.930146 Days

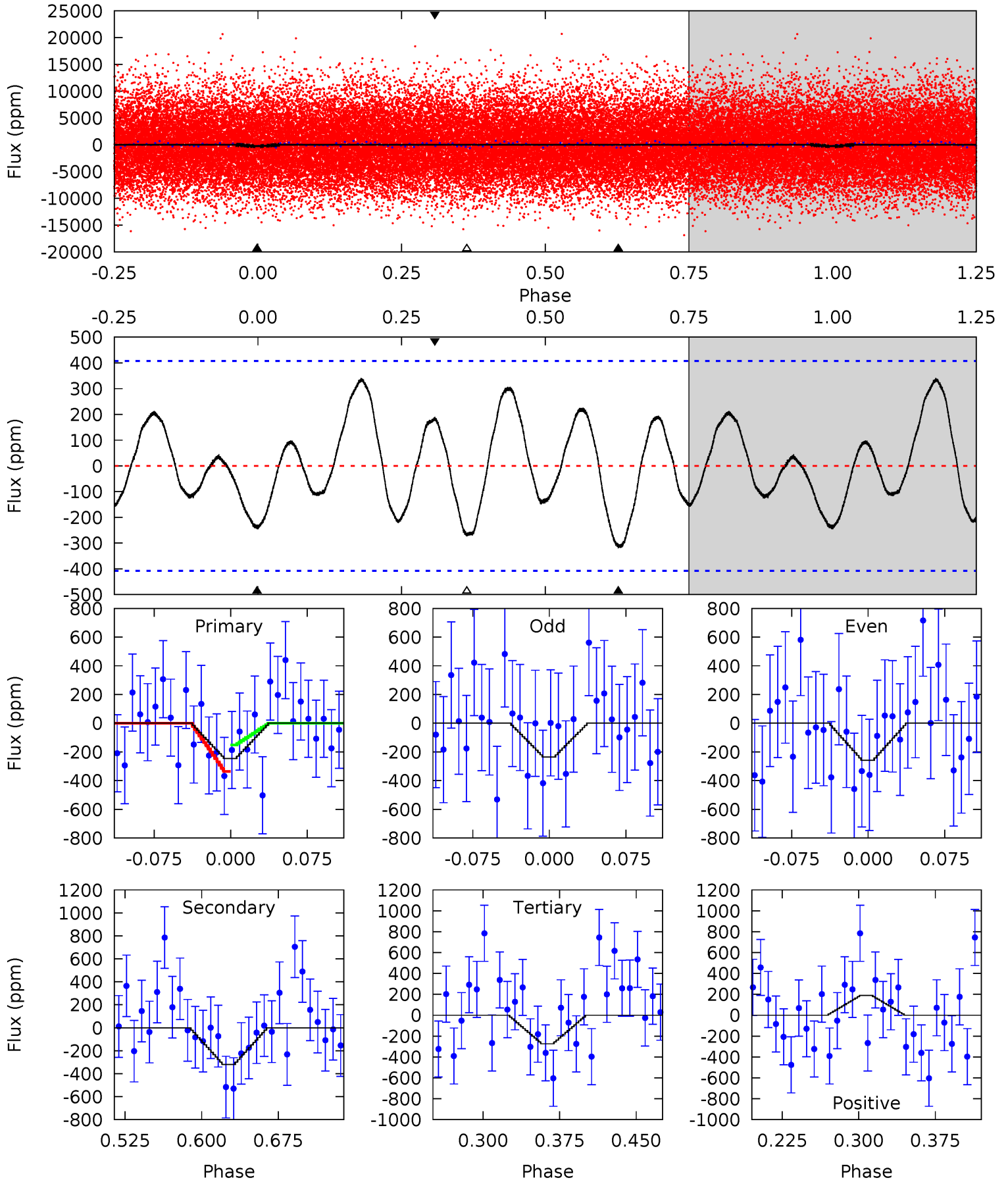
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.39	7.04	6.07	4.42	4.64	1.82	2.67	-0.67	0.98	0.97	2.62	0.95	0.78	0.39	1.52



Alt Model-Shift Uniqueness Test

003968961-02, P = 0.623042 Days, E = 130.930076 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.80	3.63	3.11	2.16	4.62	1.78	1.72	-0.31	0.63	0.52	1.46	0.13	0.66	0.52	1.05



Stellar Parameters For KIC 003968961

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7286^{+228}_{-304}	$4.112^{+0.158}_{-0.175}$	$-0.220^{+0.250}_{-0.350}$	$1.755^{+0.528}_{-0.384}$	$1.454^{+0.219}_{-0.241}$	$0.379^{+0.360}_{-0.187}$
	+3%/-4%	+4%/-4%	+114%/-159%	+30%/-22%	+15%/-17%	+95%/-49%
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 003968961-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-195 ± 28	$3.18^{+2.64}_{-1.97}$	4685^{+364}_{-325}	6318^{+6313}_{-1742}	$2.712^{+15.589}_{-1.899}$
Alt.	-320 ± 88	$3.08^{+2.52}_{-1.84}$	4674^{+379}_{-344}	7457^{+8350}_{-2239}	$4.687^{+23.754}_{-3.287}$

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 $A_{obs} \gg 1.0$

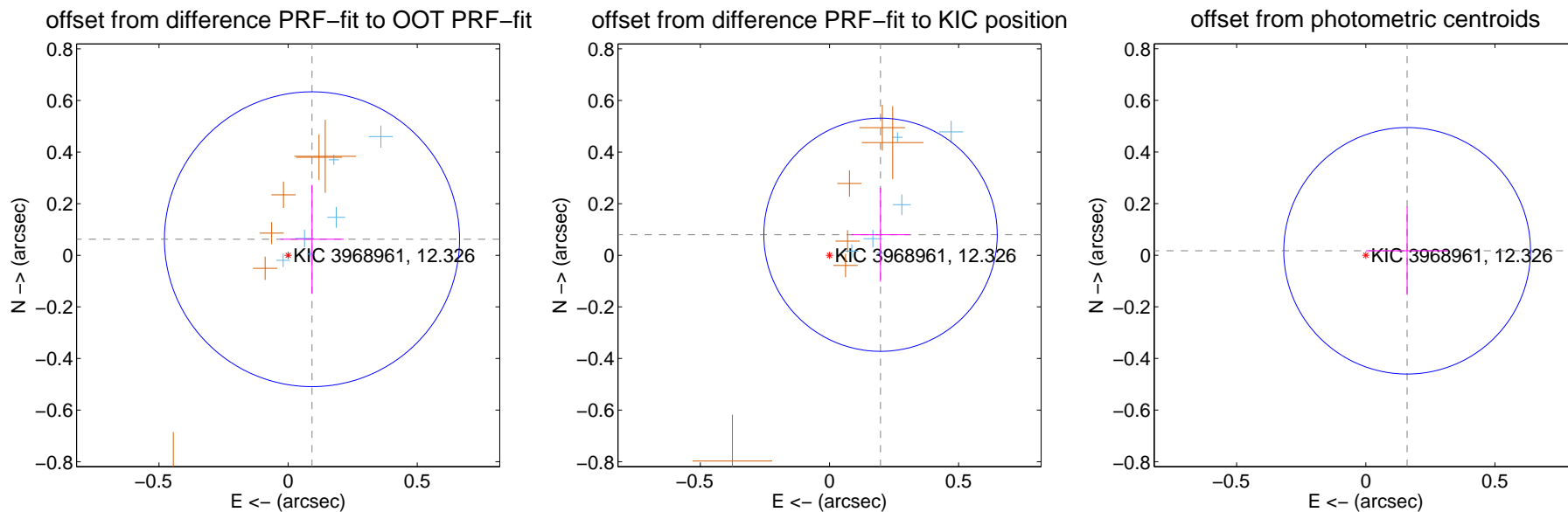
DV Centroid Data

Supplemental centroid analysis for 003968961-02. Kepler magnitude: 12.33. Transit SNR 5.16

There are 7 quarters with good PRF difference image offsets

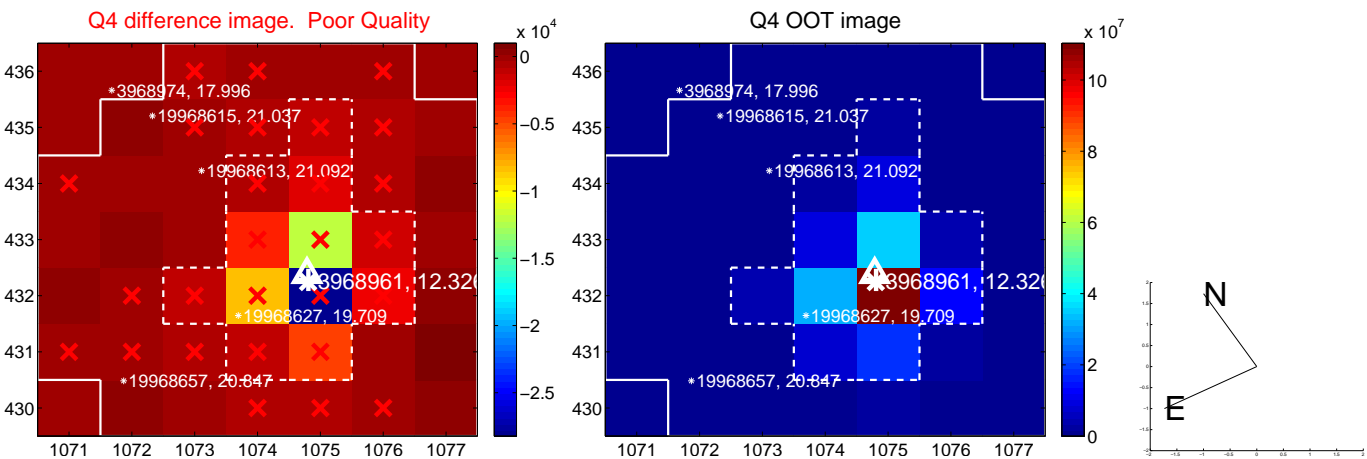
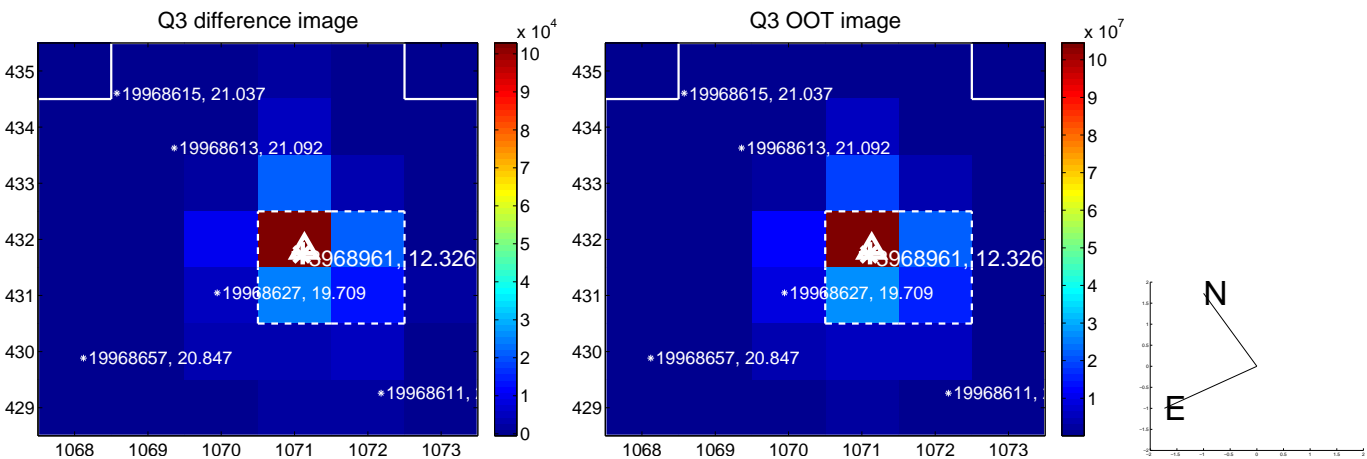
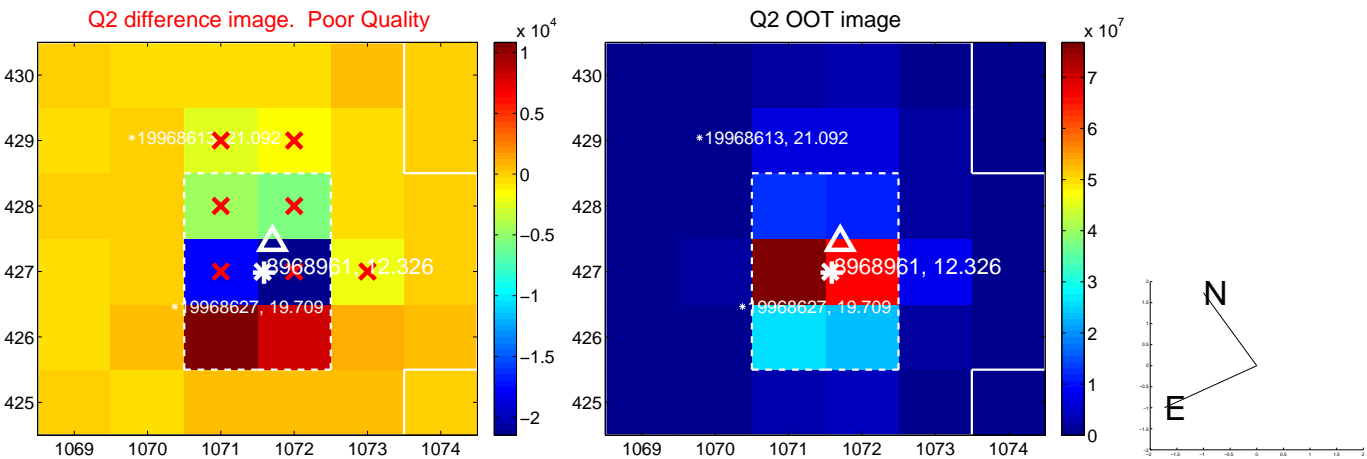
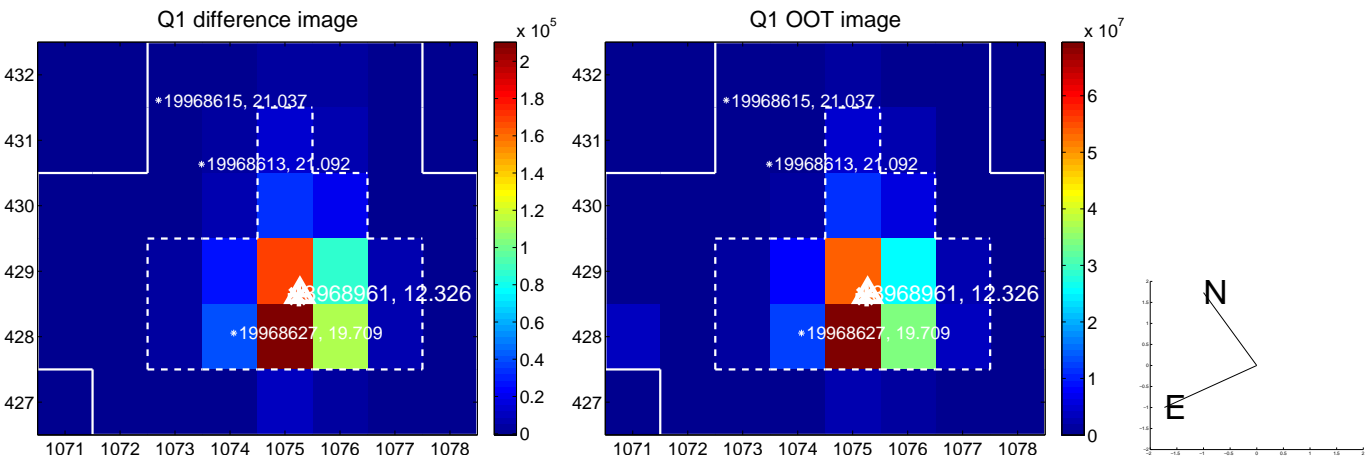
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.111 ± 0.190	0.58	-0.092 ± 0.122	0.062 ± 0.211
PRF-fit source offset from KIC position	0.213 ± 0.151	1.41	-0.198 ± 0.113	0.080 ± 0.182
photometric centroid source offset	0.16 ± 0.16	1.01	-0.16 ± 0.16	0.02 ± 0.17

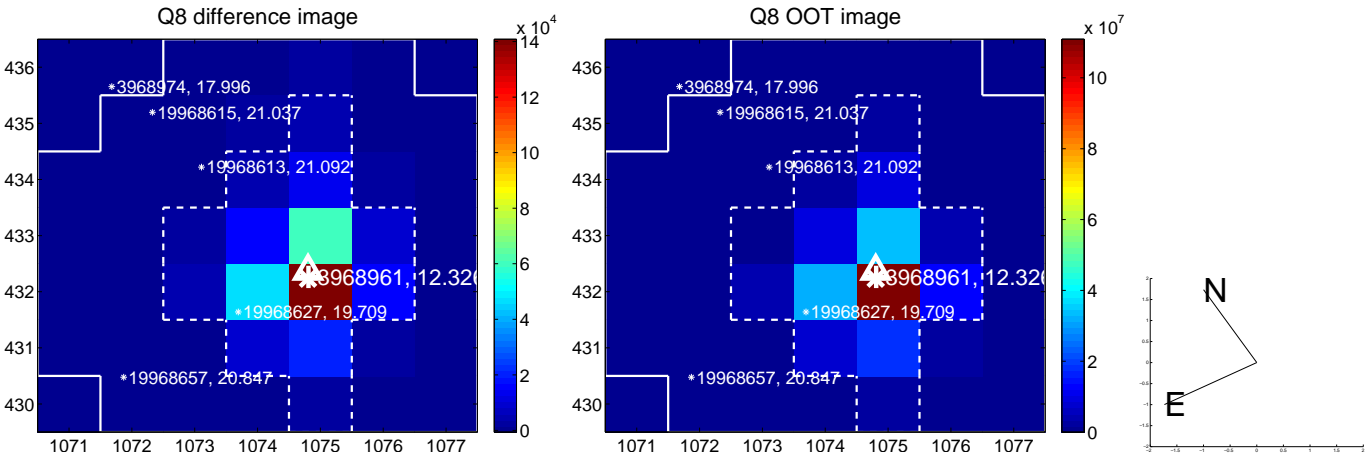
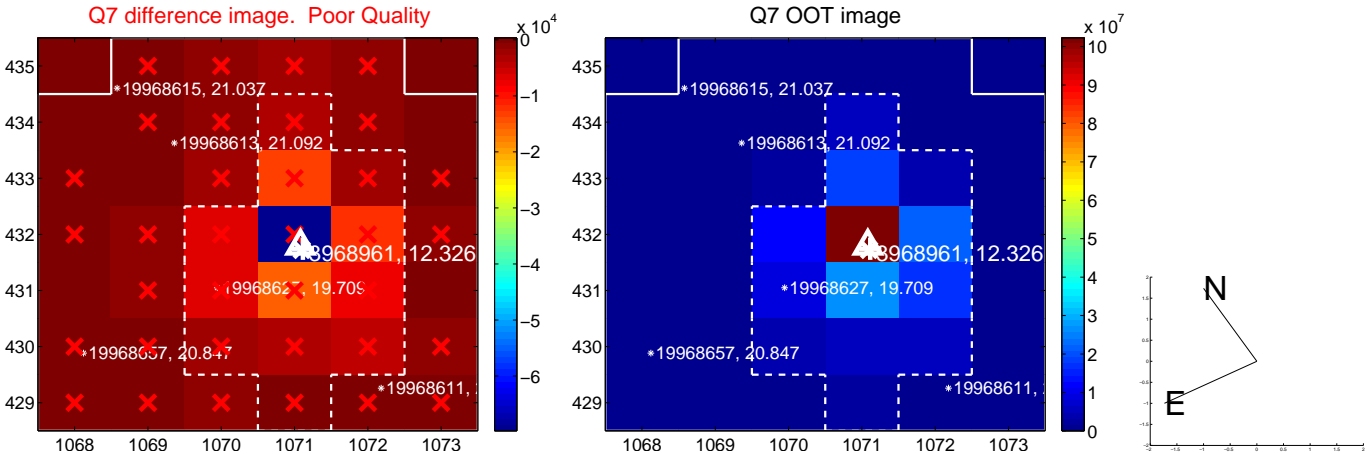
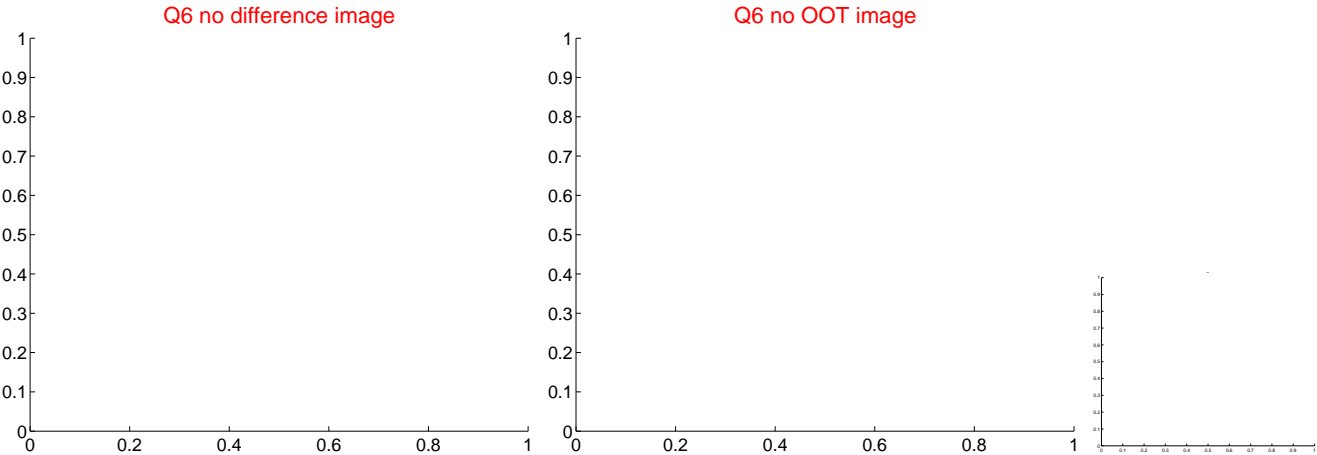
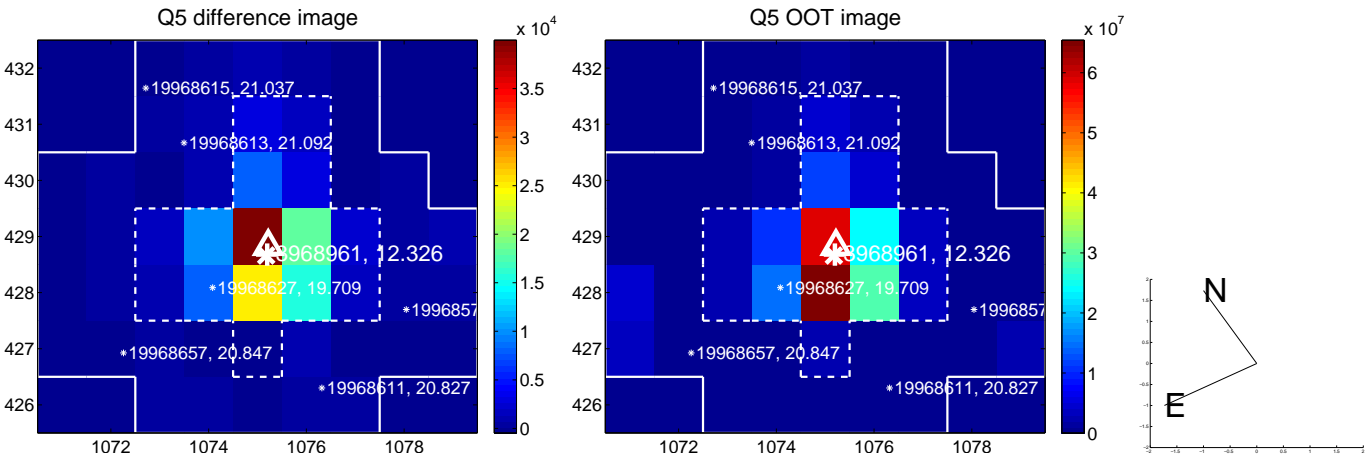


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

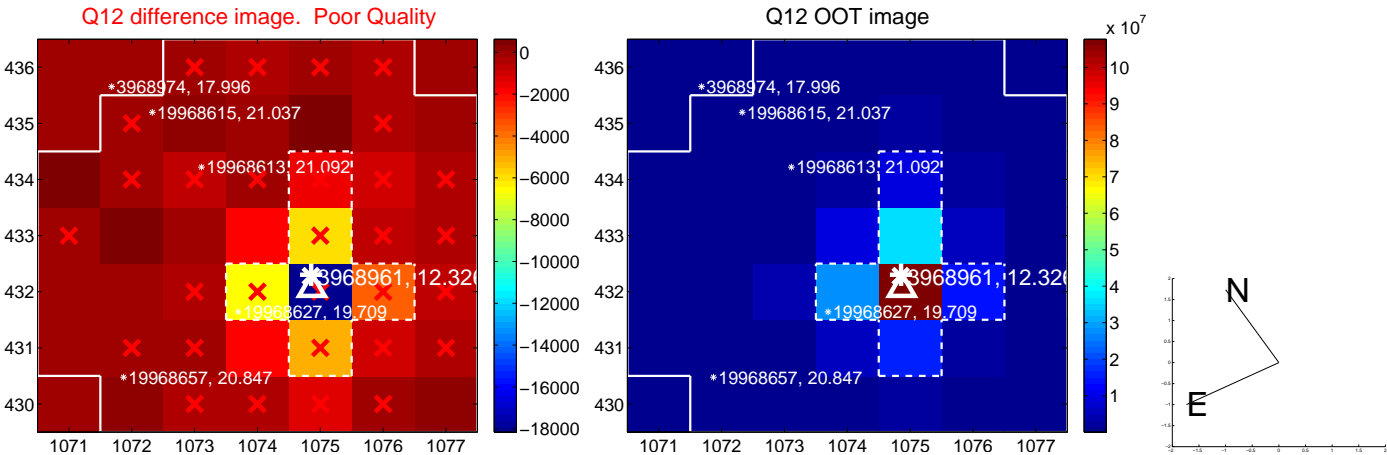
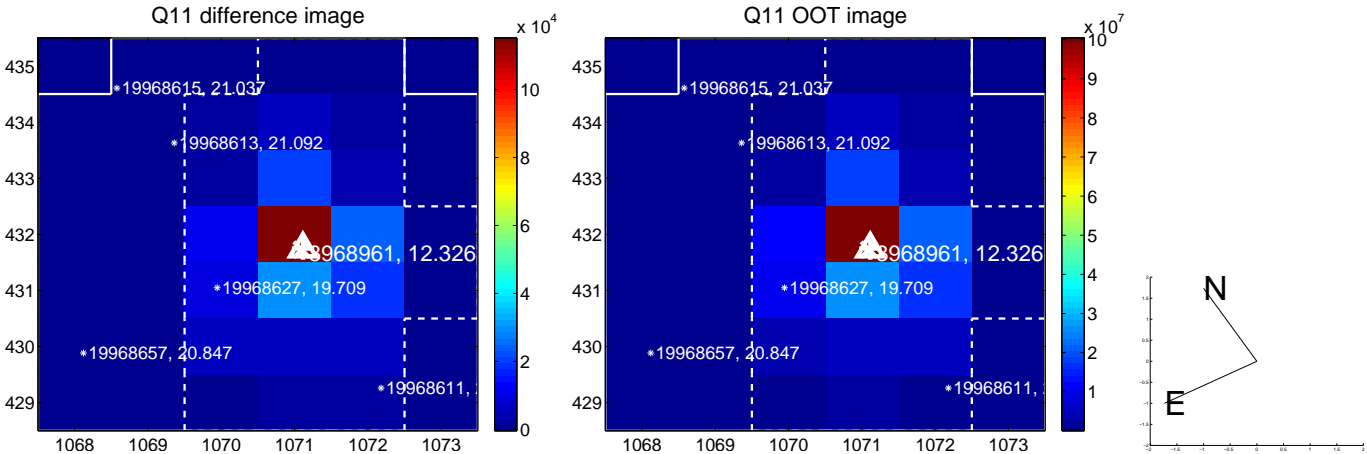
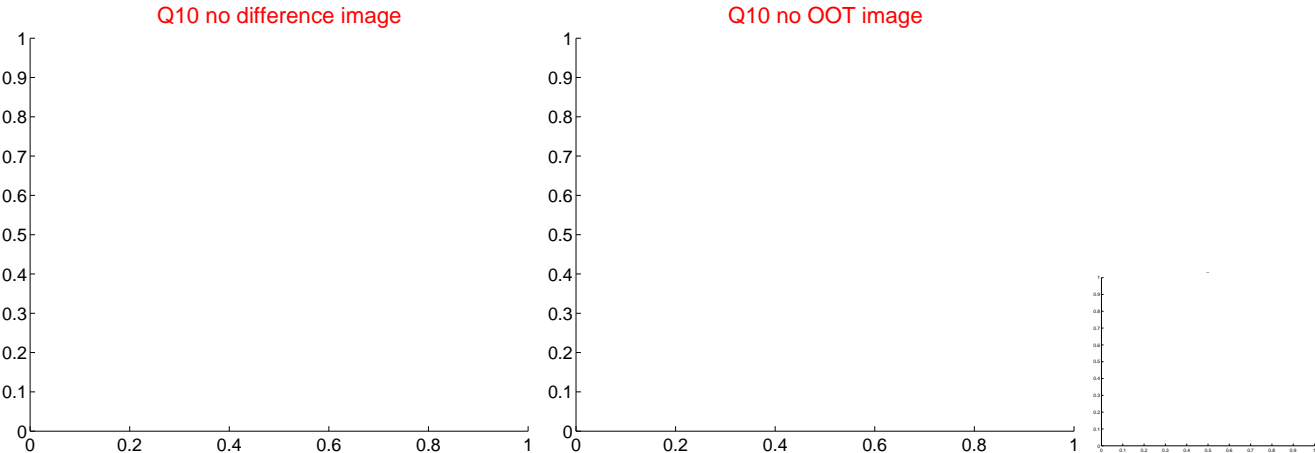
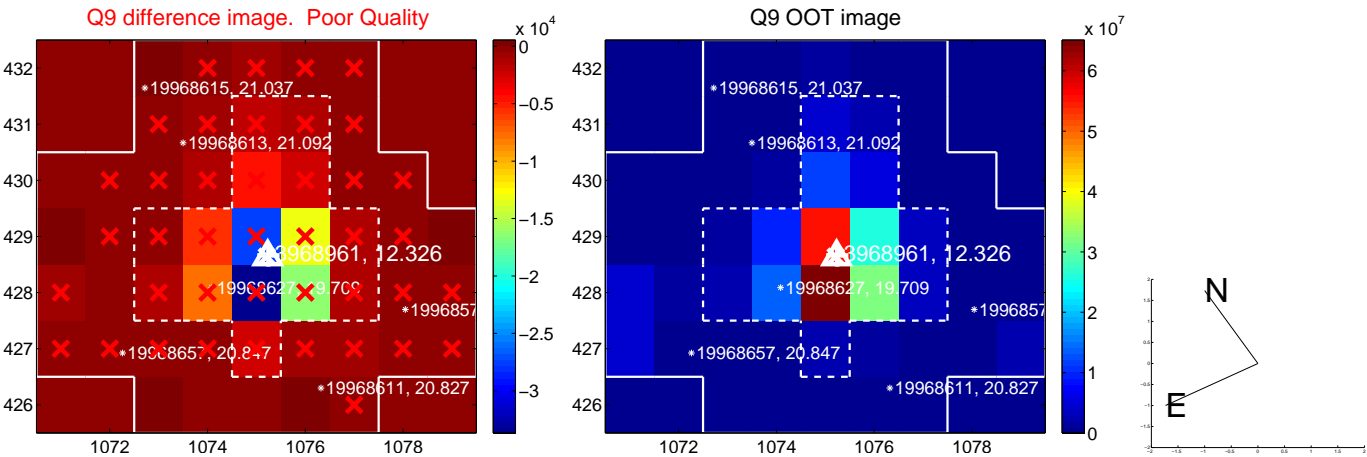
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



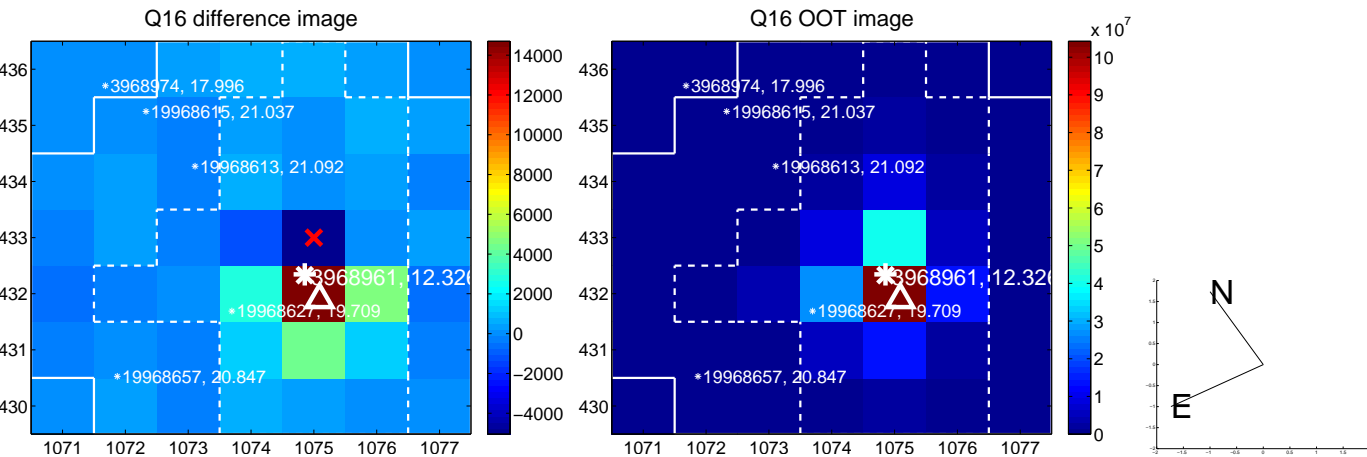
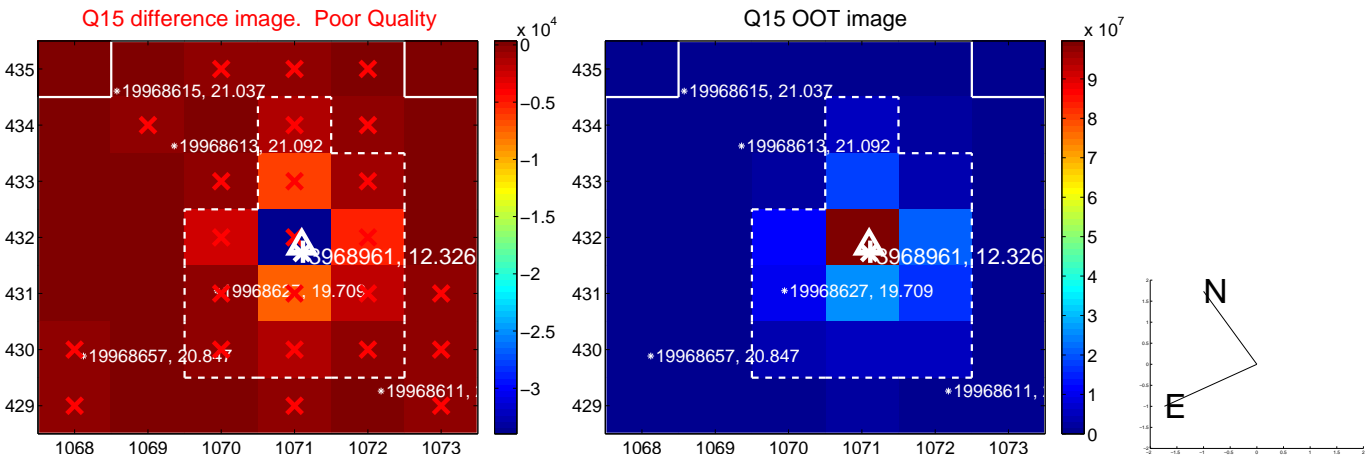
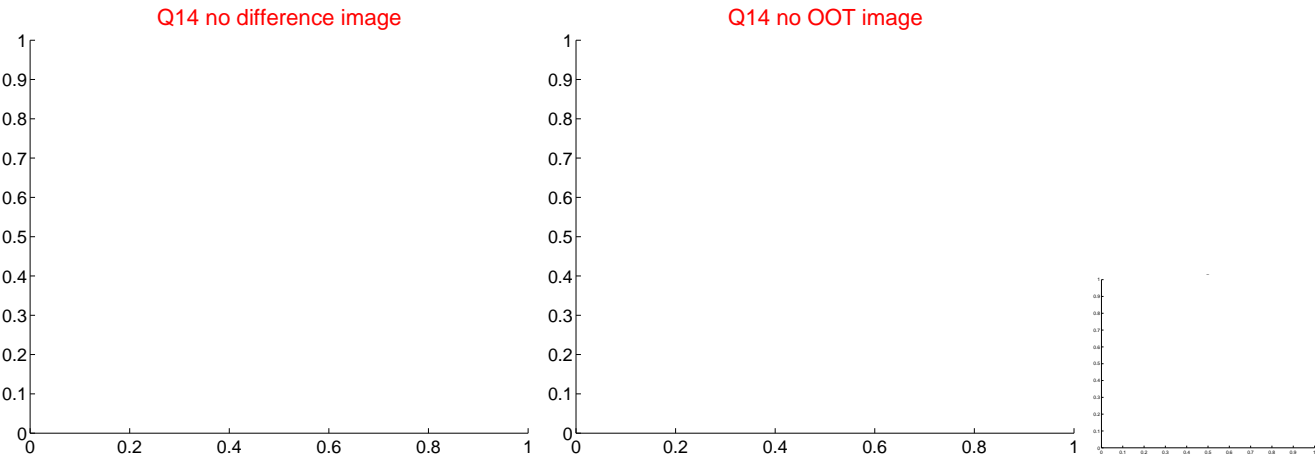
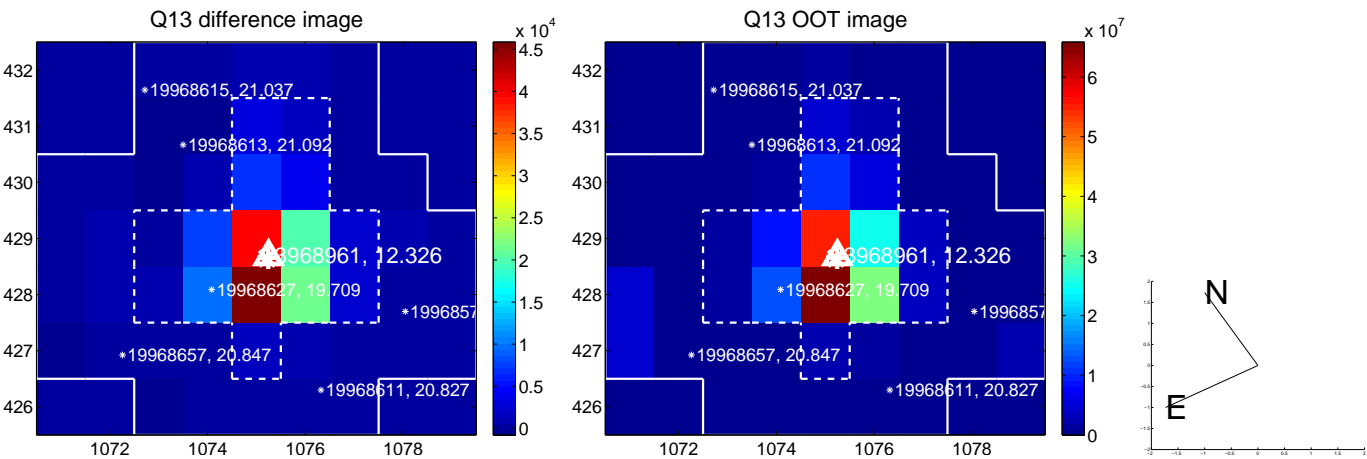
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



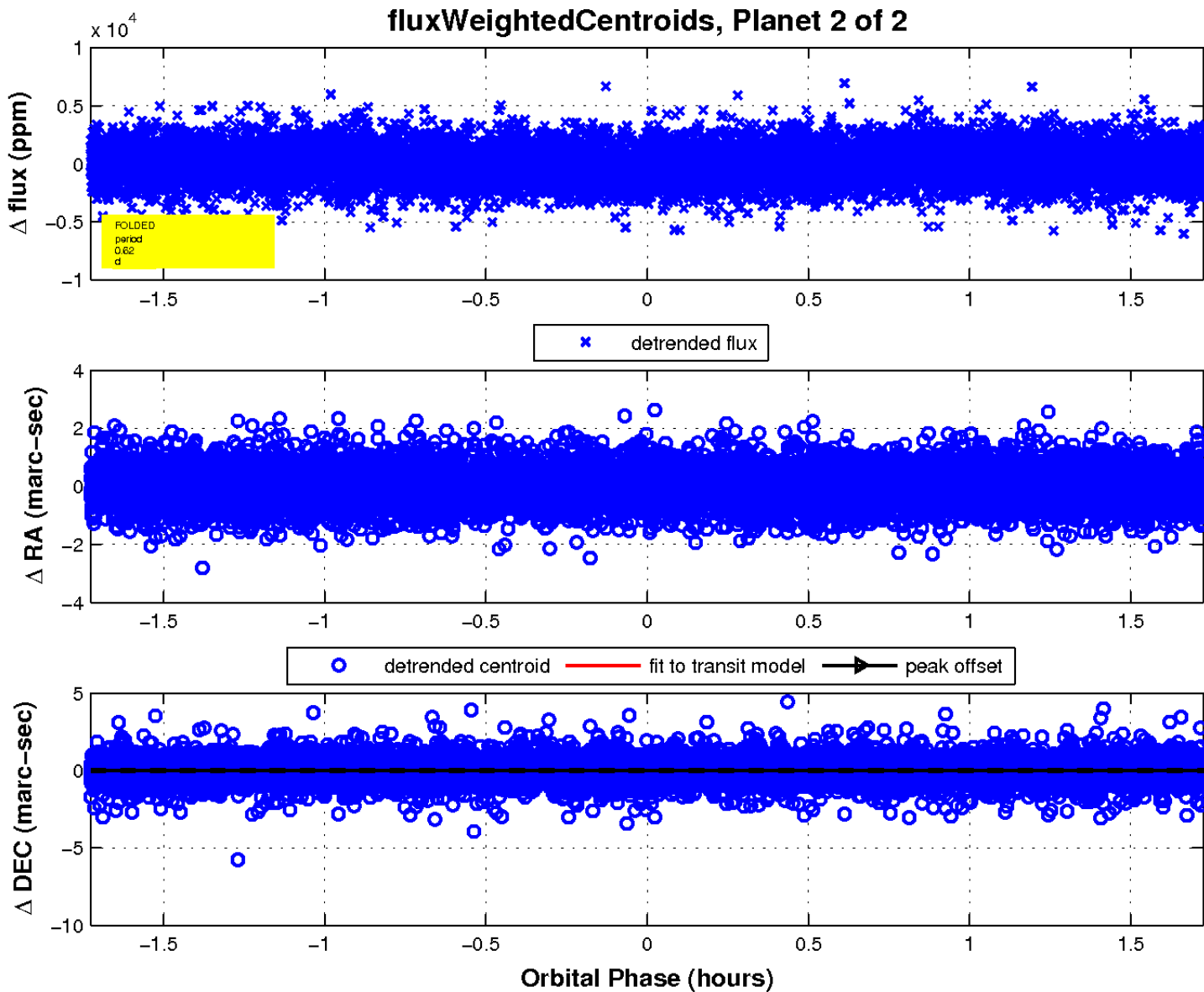
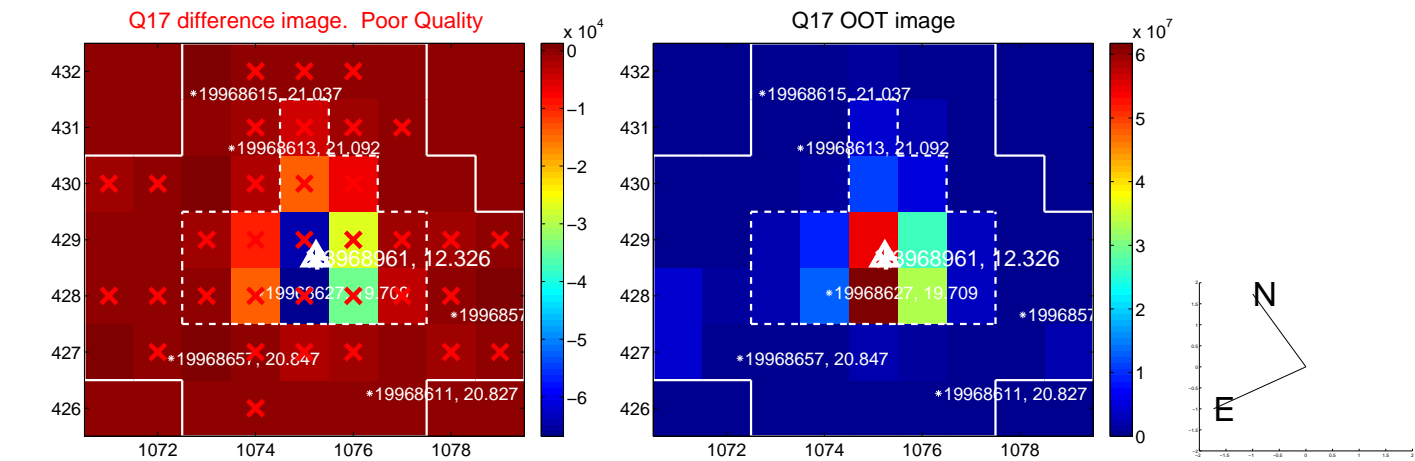
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

