

KIC 008620684

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})
008620684-01	OBS	No	326.265106	377.012871	446.6	11.261	10.1	8.9	1.47	7282	3.53	5.11
008620684-02	OBS	No	0.819428	132.317444	245.0	2.000	8.3	-1.0	1.47	7282	2.34	14960.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008620684-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER LPP_DV LPP_ALT ALL_TRANS_CHASES MOD_NONUNIQ_ALT INCONSISTENT_TRANS CENT_FEW_DIFFS
008620684-02	OBS	FP	0.00	1	0	1	0	LPP_DV LPP_ALT CENT_NOFITS HALO_GHOST

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

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

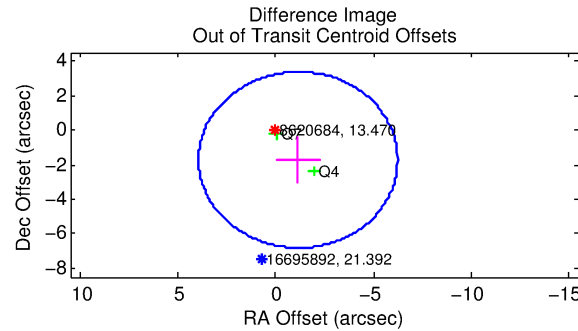
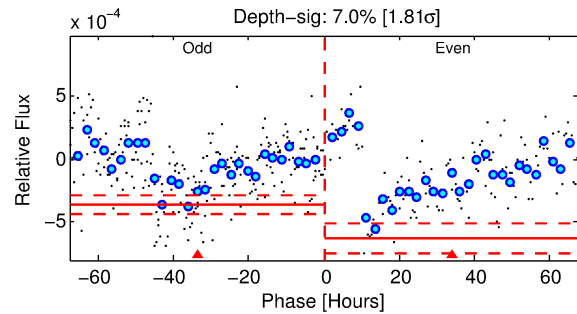
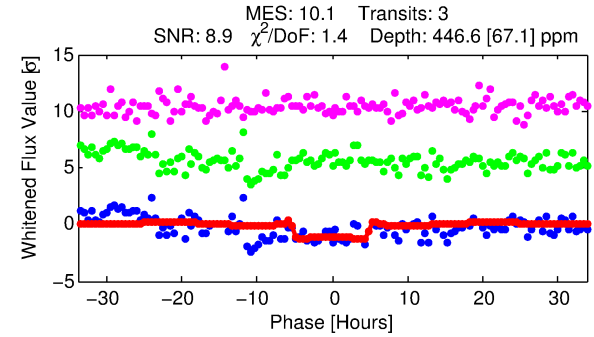
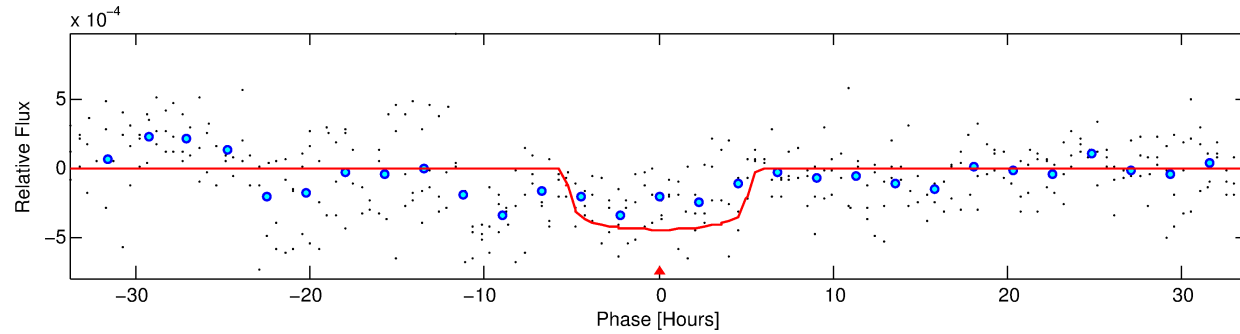
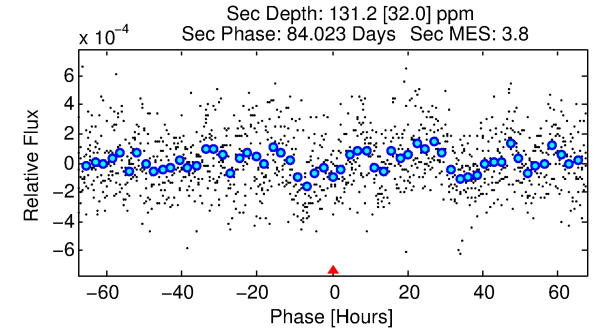
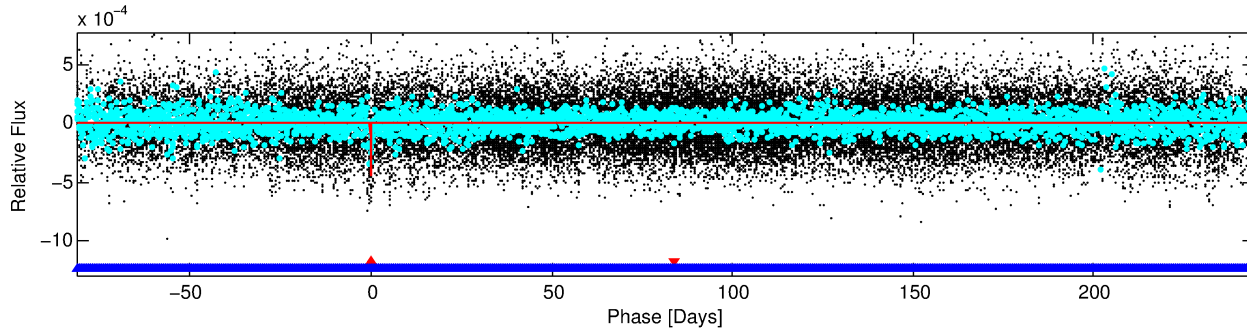
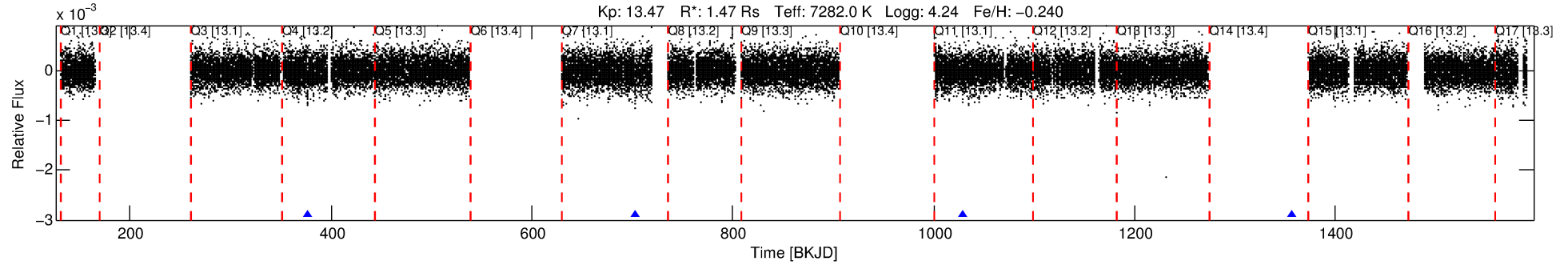
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008620684-01

No Significant Match Found

DV One-Page Summary

KIC: 8620684 Candidate: 1 of 2 Period: 326.265 d



DV Fit Results:

Period = 326.26511 [0.01165] d
Epoch = 377.0129 [0.0157] BKJD
Rp/R* = 0.0220 [0.0027]
a/R* = 118.70 [63.68]
b = 0.87 [0.15]
Seff = 5.11 [2.11]
Teq = 383 [40] K
Rp = 3.53 [1.24] Re
a = 1.0331 [0.2774] AU
Ag = 6170.30 [3158.57] [1.95σ]
Teffp = 5253 [502] K [9.66σ]

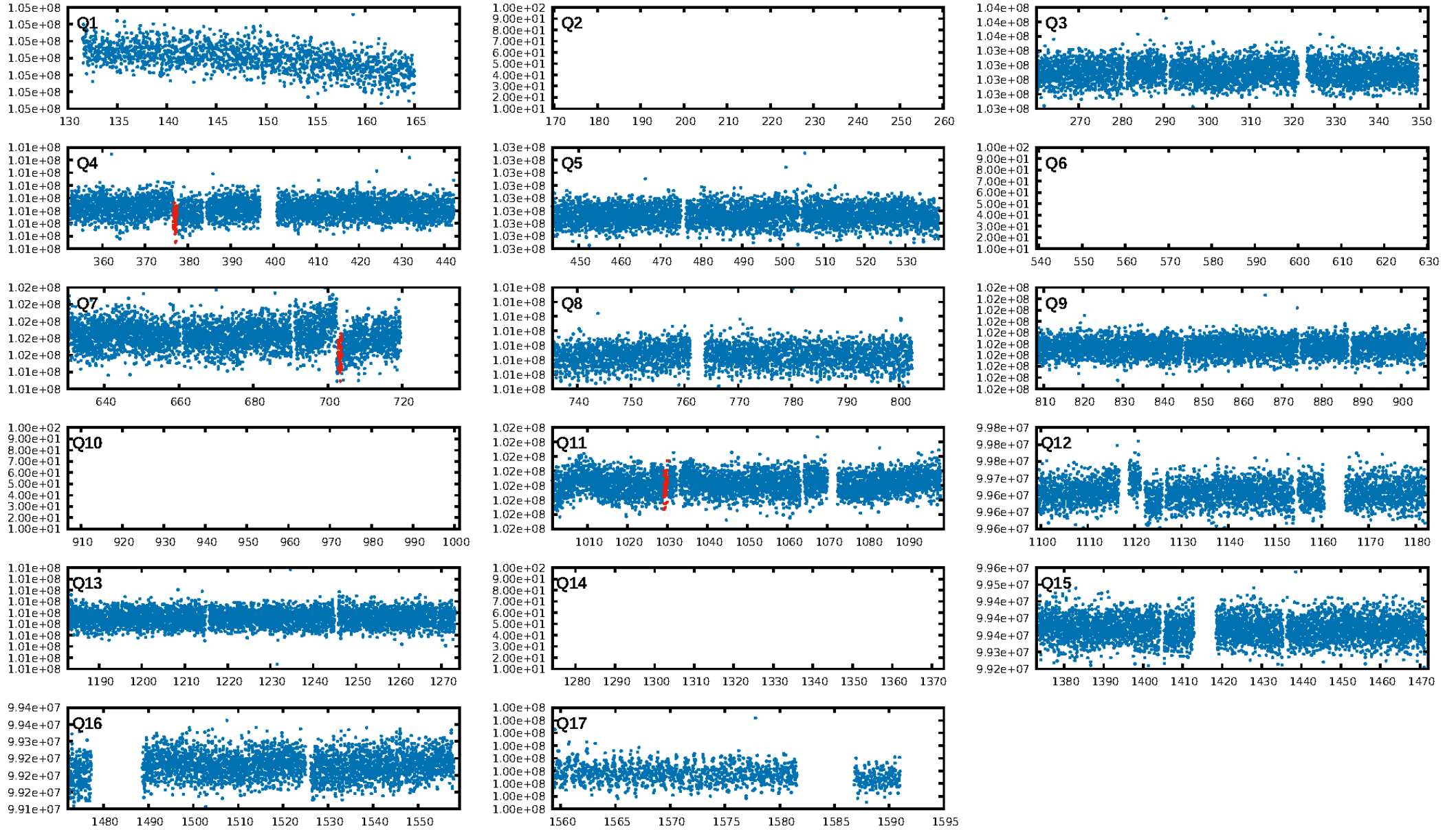
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [682.95σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 92.7%
Bootstrap-pfa: 1.47e-19
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.18
Centroid-sig: 10.6%
Centroid-so: 0.927 arcsec [1.21σ]
OotOffset-rm: 2.074 arcsec [1.22σ]
KicOffset-rm: 2.032 arcsec [1.81σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.00 [0/2]

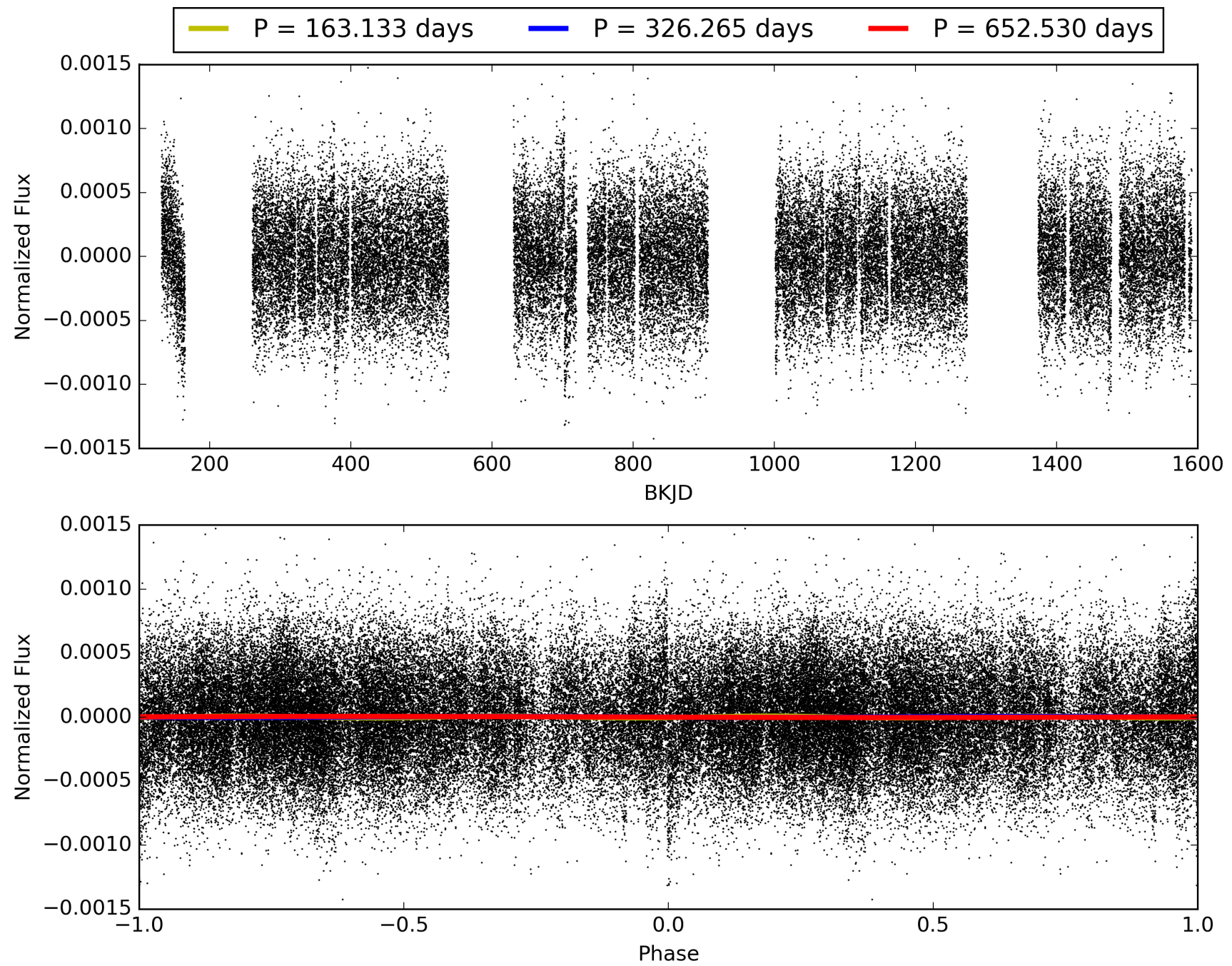
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:31:11 Z

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

TCE 008620684-01, PDC Light Curves

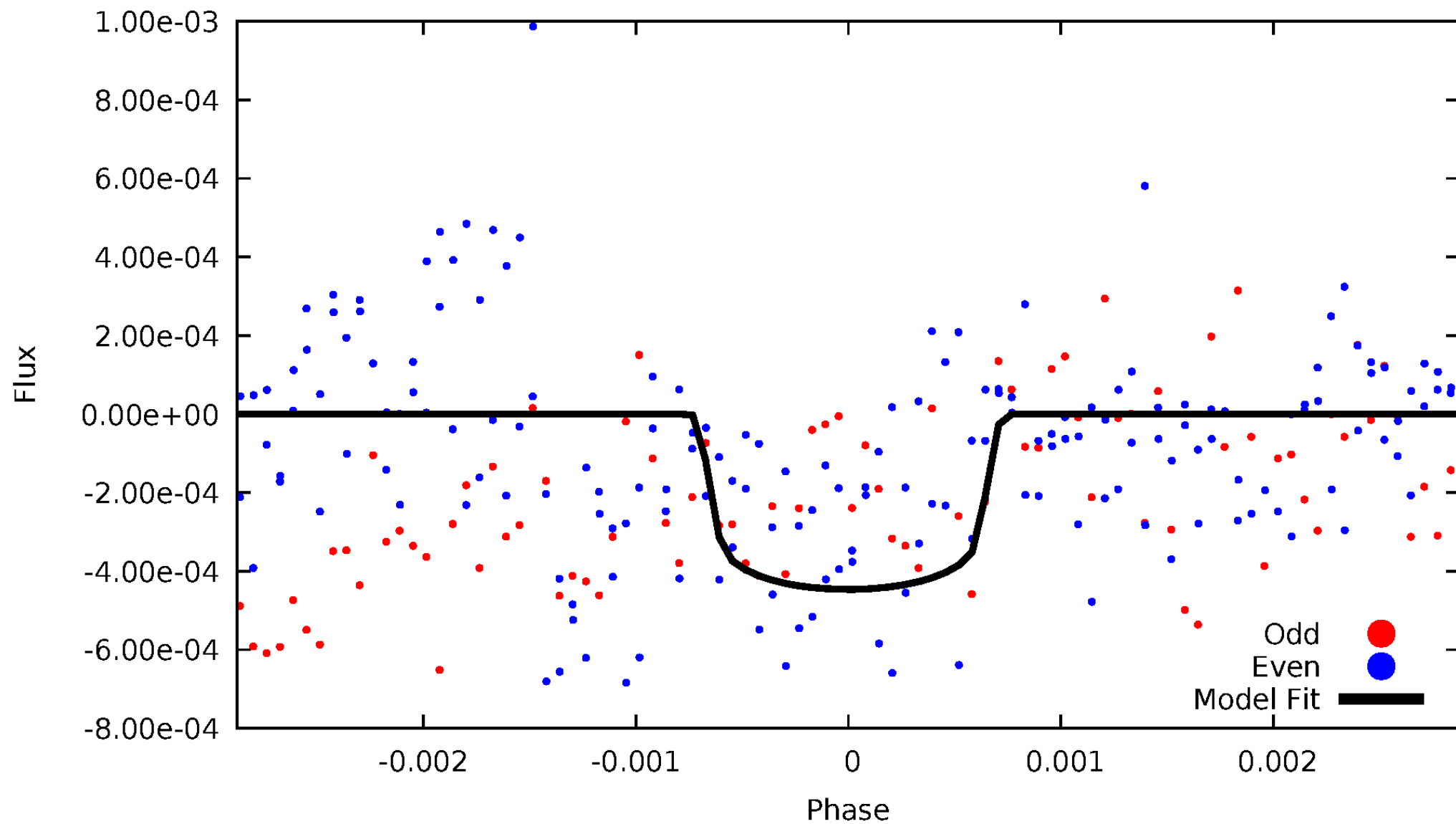


TCE 008620684-01



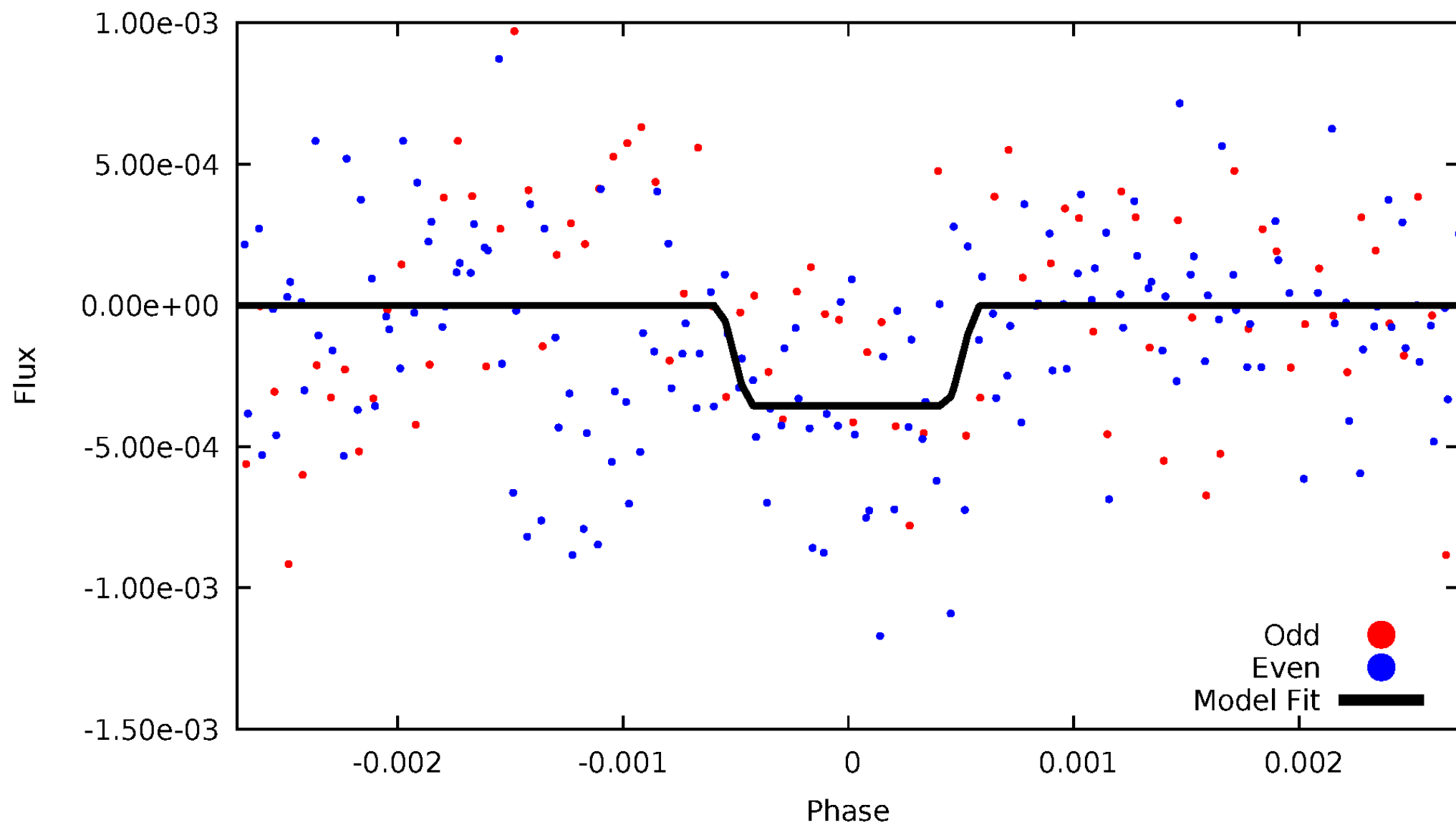
DV Odd/Even

TCE 008620684-01

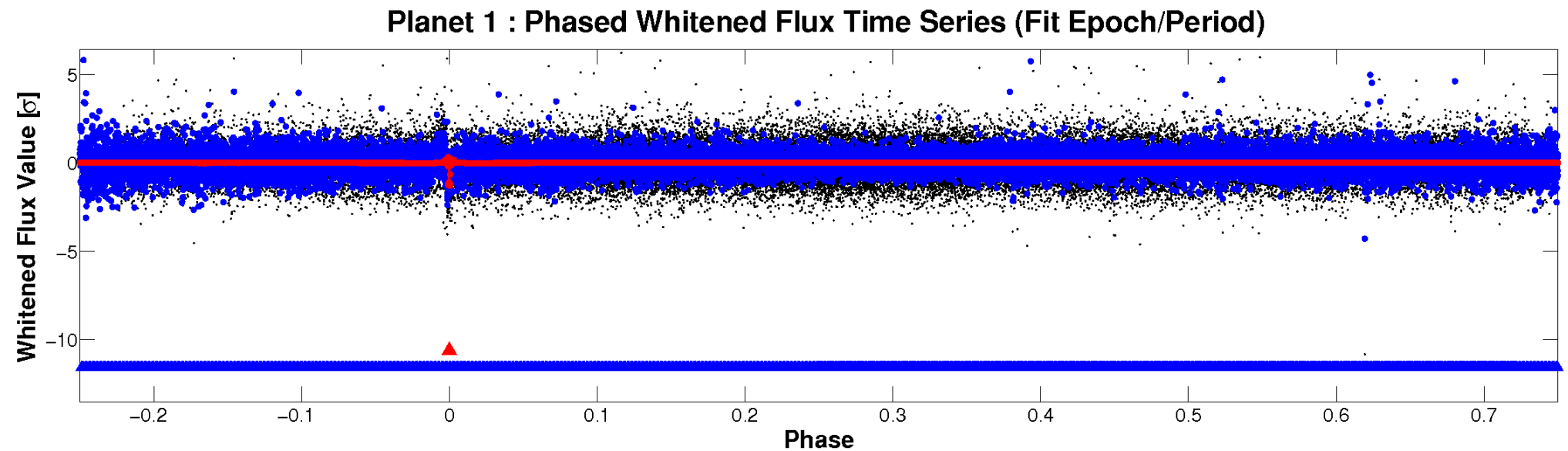
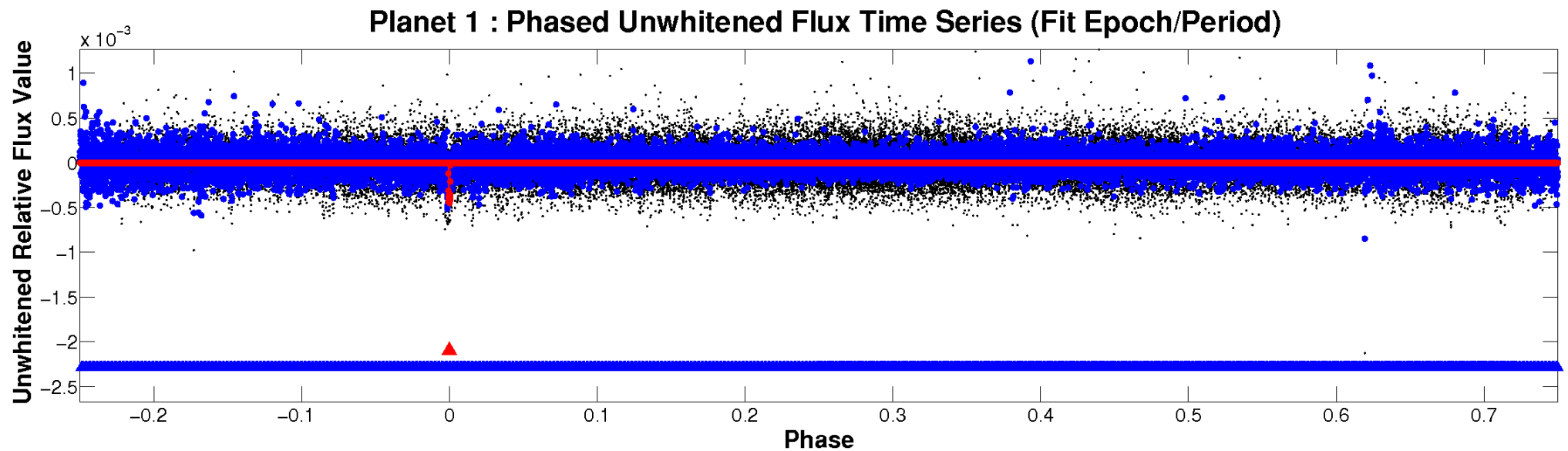


ALT Odd/Even

TCE 008620684-01



Non-Whitened Vs. Whitened Light Curve



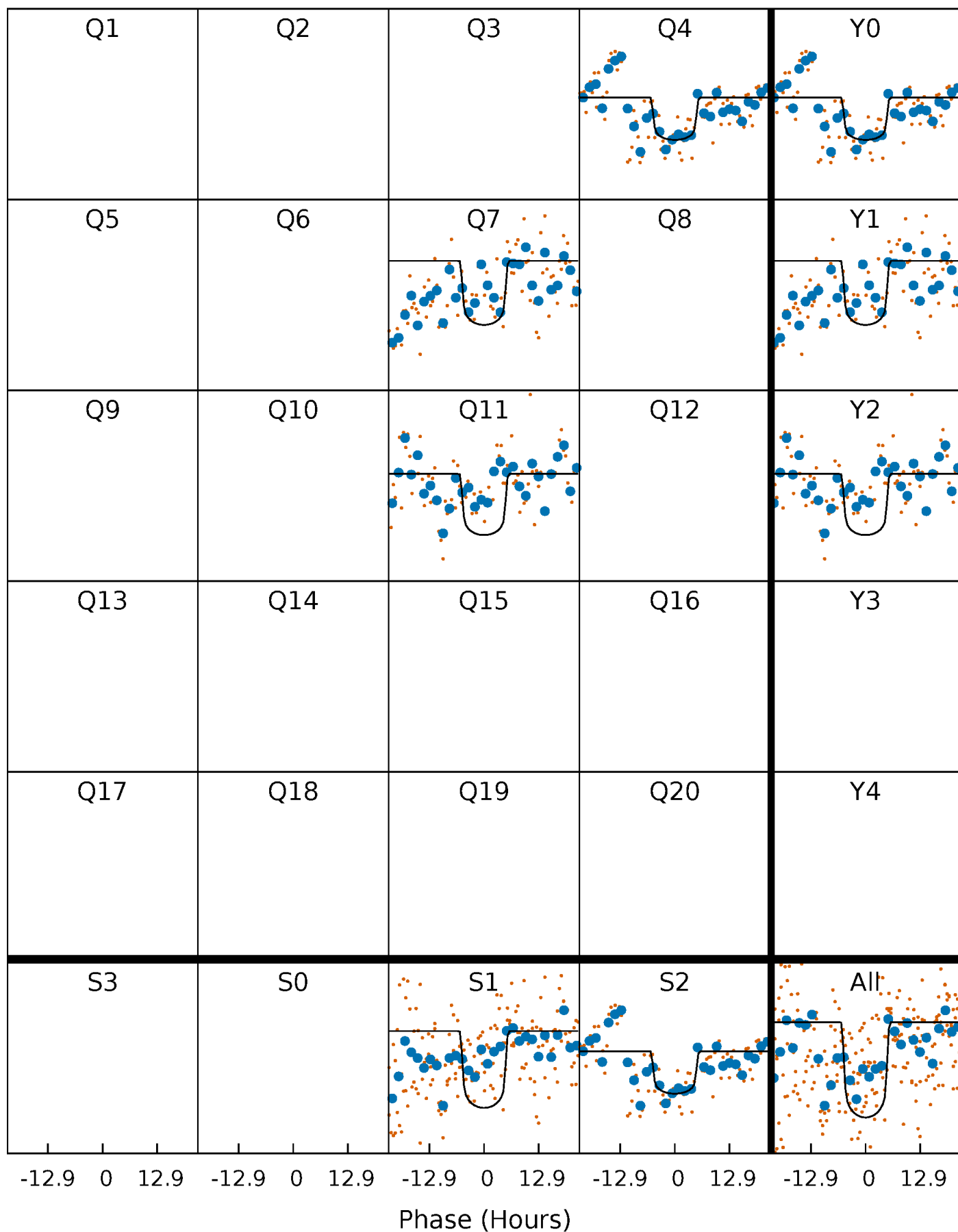
PDC Quarter-Phased Transit Curves

TCE 008620684-01 P=326.265106 Days $T_0=377.012871$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 008620684-01 P=326.265106 Days $T_0=377.012871$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

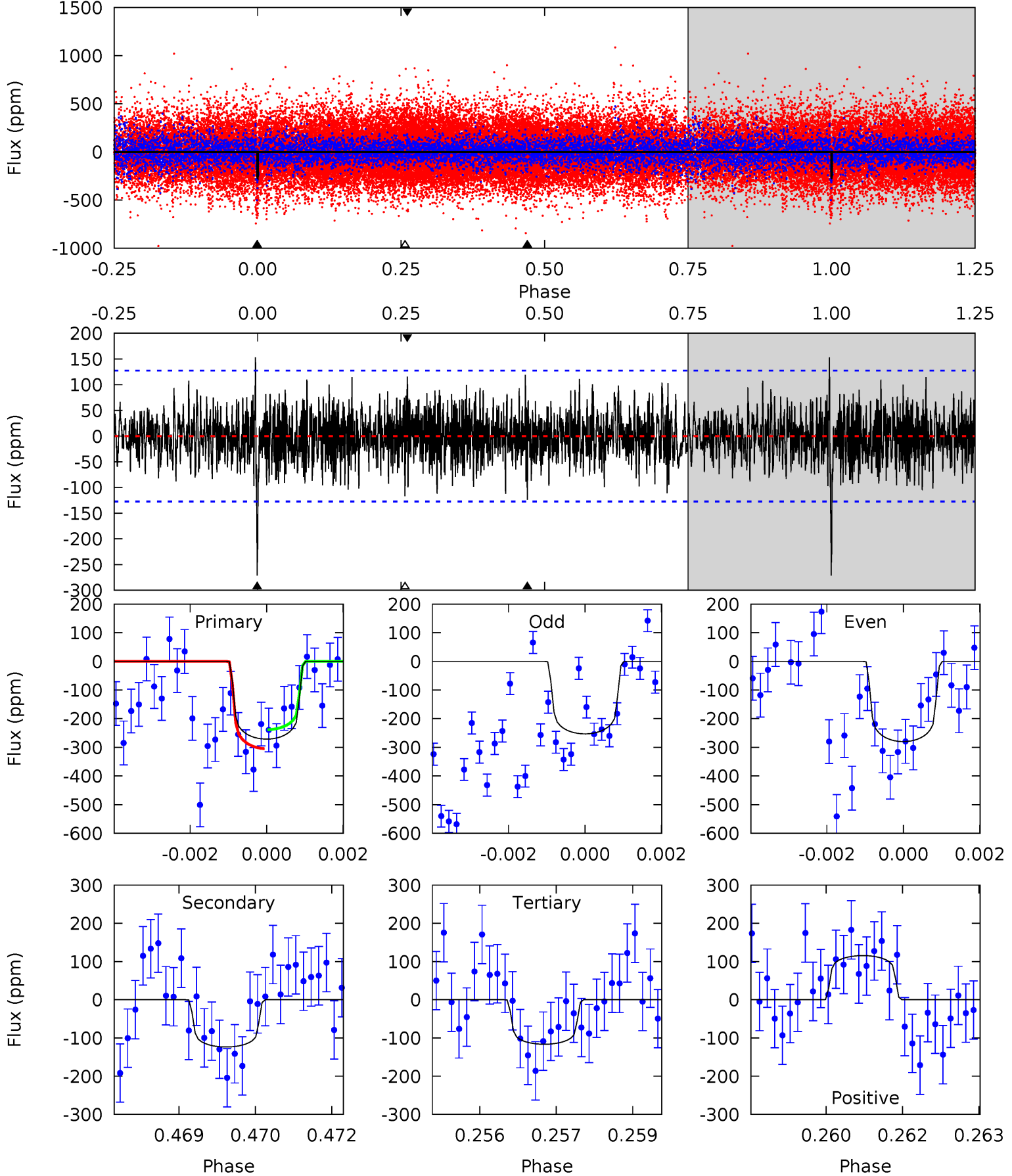
TCE 008620684-01 P=326.242219 Days $T_0=377.034392$ (BKJD)



DV Model-Shift Uniqueness Test

008620684-01, P = 326.265106 Days, E = 50.747765 Days

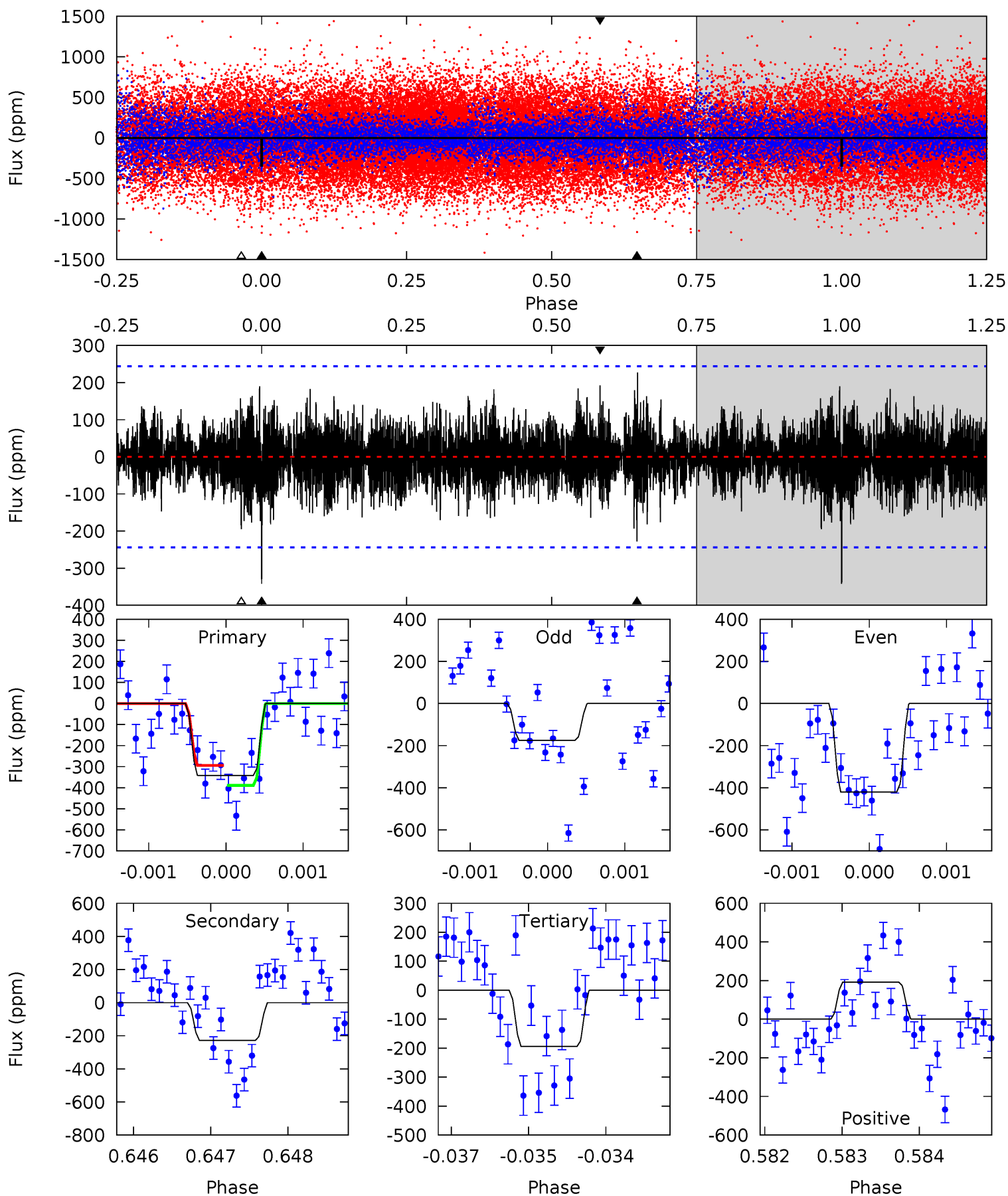
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	5.23	4.92	4.88	5.38	3.17	1.57	6.55	6.58	0.31	0.34	0.53	1.07	0.36	1.40



Alt Model-Shift Uniqueness Test

008620684-01, P = 326.242219 Days, E = 50.792173 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.60	5.07	4.32	4.28	5.43	3.25	1.32	3.28	3.32	0.75	0.79	2.57	1.23	0.40	1.05



Stellar Parameters For KIC 008620684

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7282^{+228}_{-304}	$4.243^{+0.093}_{-0.201}$	$-0.240^{+0.250}_{-0.350}$	$1.471^{+0.485}_{-0.224}$	$1.387^{+0.219}_{-0.219}$	$0.614^{+0.298}_{-0.317}$
	+3%/-4%	+2%/-5%	+104%/-146%	+33%/-15%	+16%/-16%	+49%/-52%
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 008620684-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-124 ± 24	$3.62^{+0.80}_{-0.56}$	541^{+46}_{-31}	5142^{+422}_{-349}	5386^{+2449}_{-1856}
Alt.	-228 ± 45	$3.07^{+0.65}_{-0.51}$	542^{+38}_{-34}	6408^{+693}_{-589}	13632^{+7178}_{-4773}

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

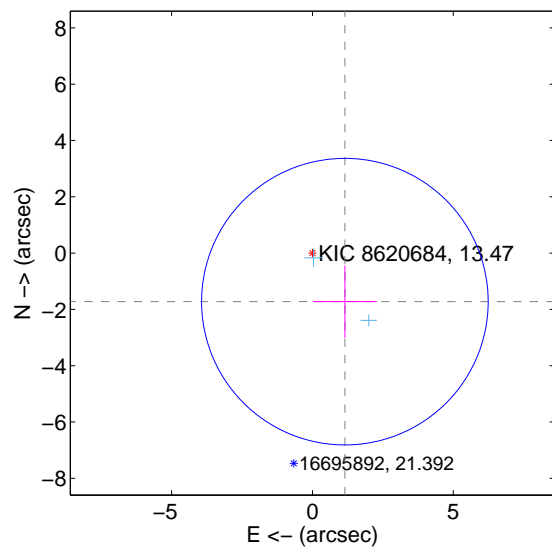
Supplemental centroid analysis for 008620684-01. Kepler magnitude: 13.47. Transit SNR 8.86

There are 2 quarters with good PRF difference image offsets

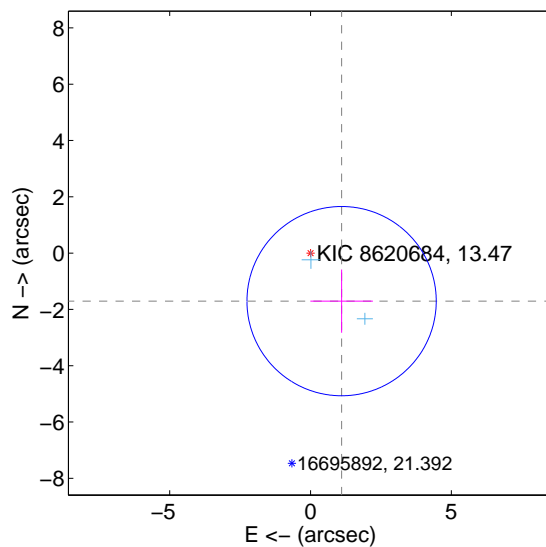
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.074 ± 1.696	1.22	-1.152 ± 1.134	-1.725 ± 1.284
PRF-fit source offset from KIC position	2.032 ± 1.121	1.81	-1.104 ± 1.111	-1.706 ± 1.125
photometric centroid source offset	0.93 ± 0.76	1.21	0.56 ± 0.72	0.73 ± 0.79

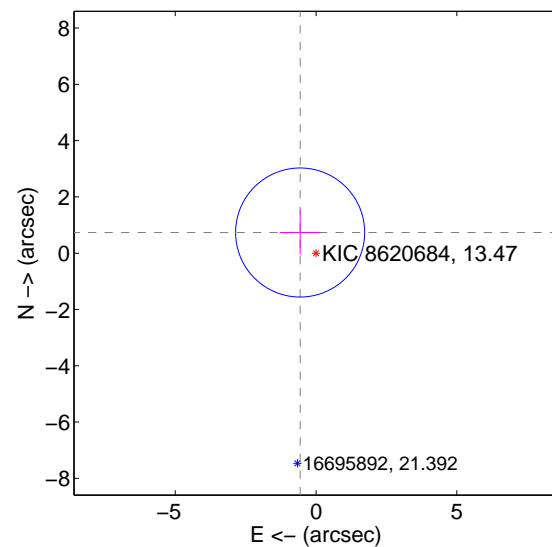
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



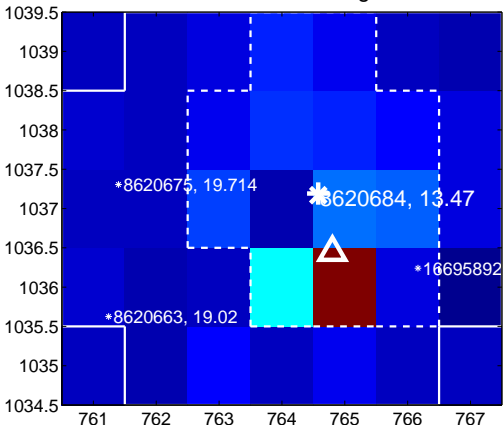
Q3 no difference image



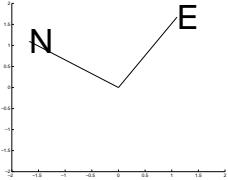
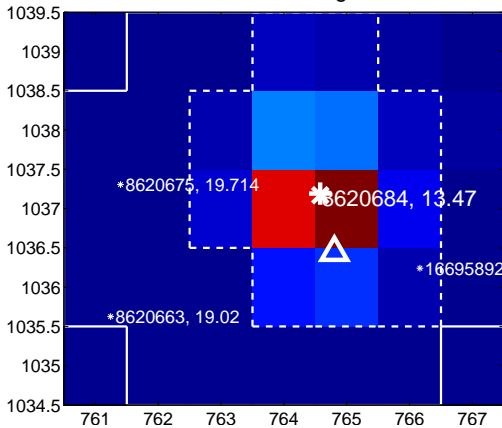
Q3 no OOT image



Q4 difference image



Q4 OOT image



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

Q5 no difference image



Q5 no OOT image



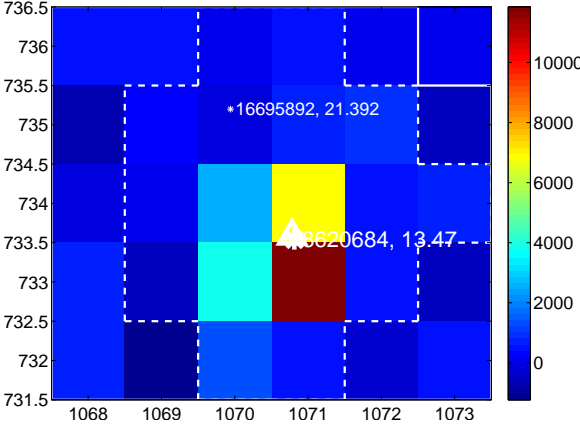
Q6 no difference image



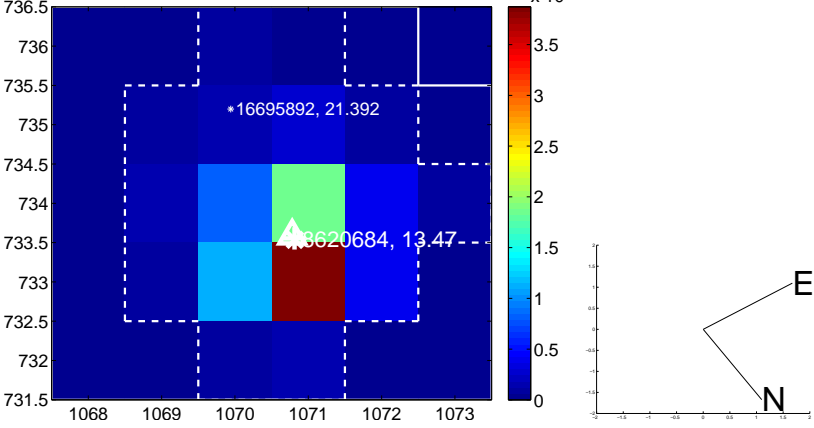
Q6 no OOT image



Q7 difference image



Q7 OOT image



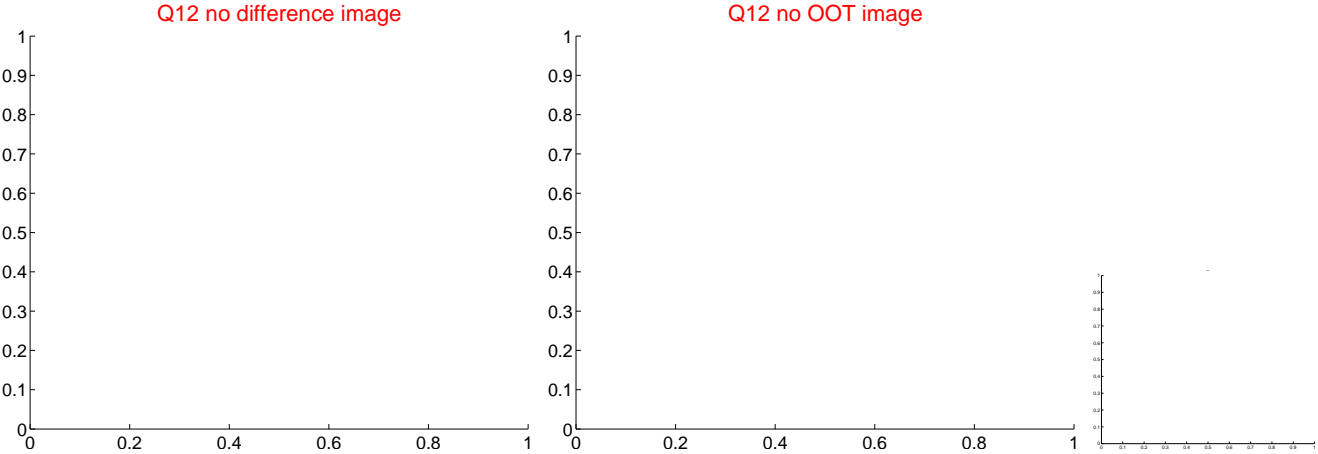
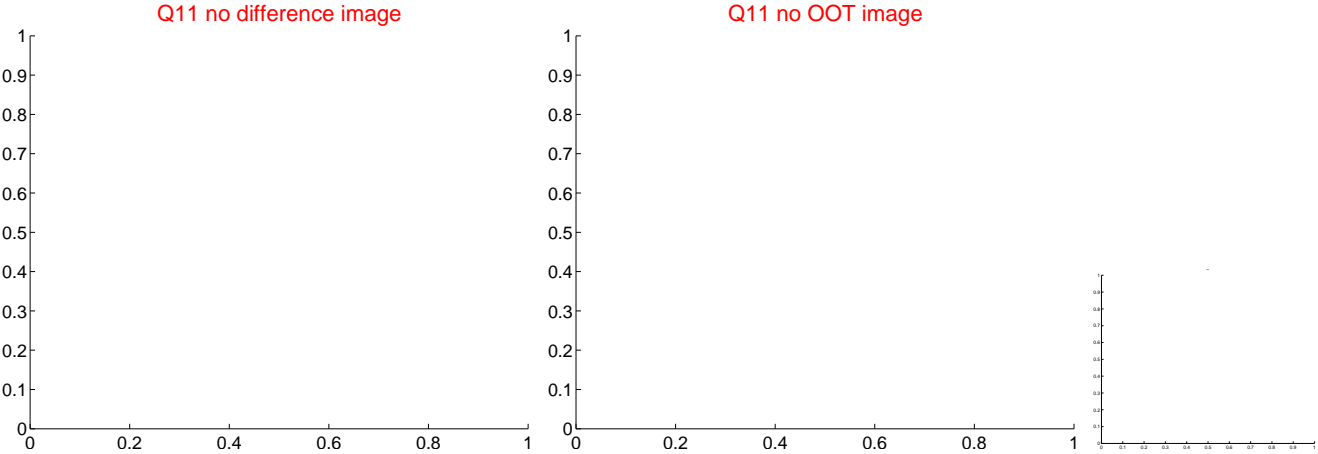
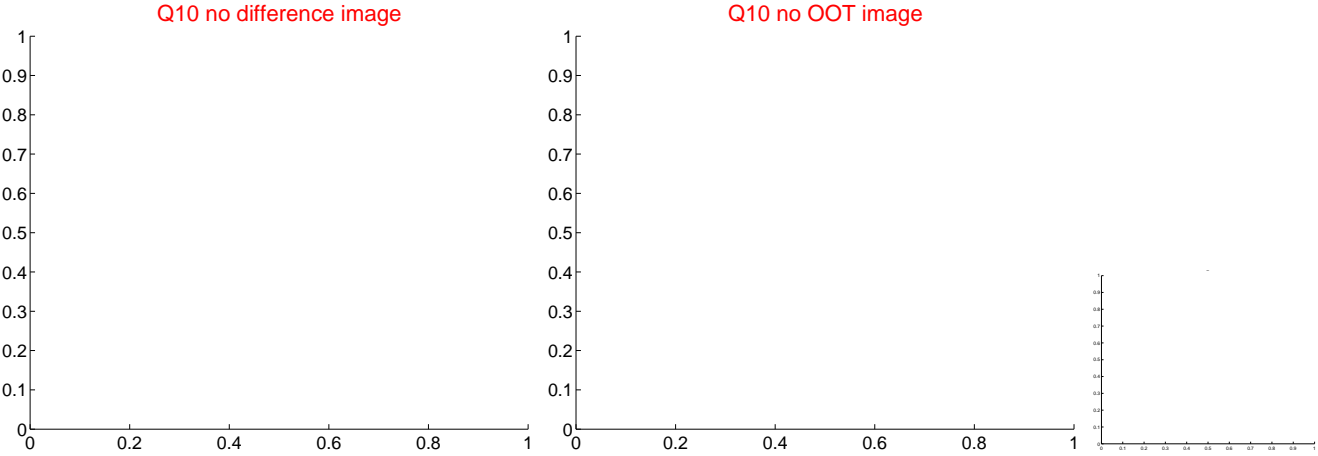
Q8 no difference image



Q8 no OOT image



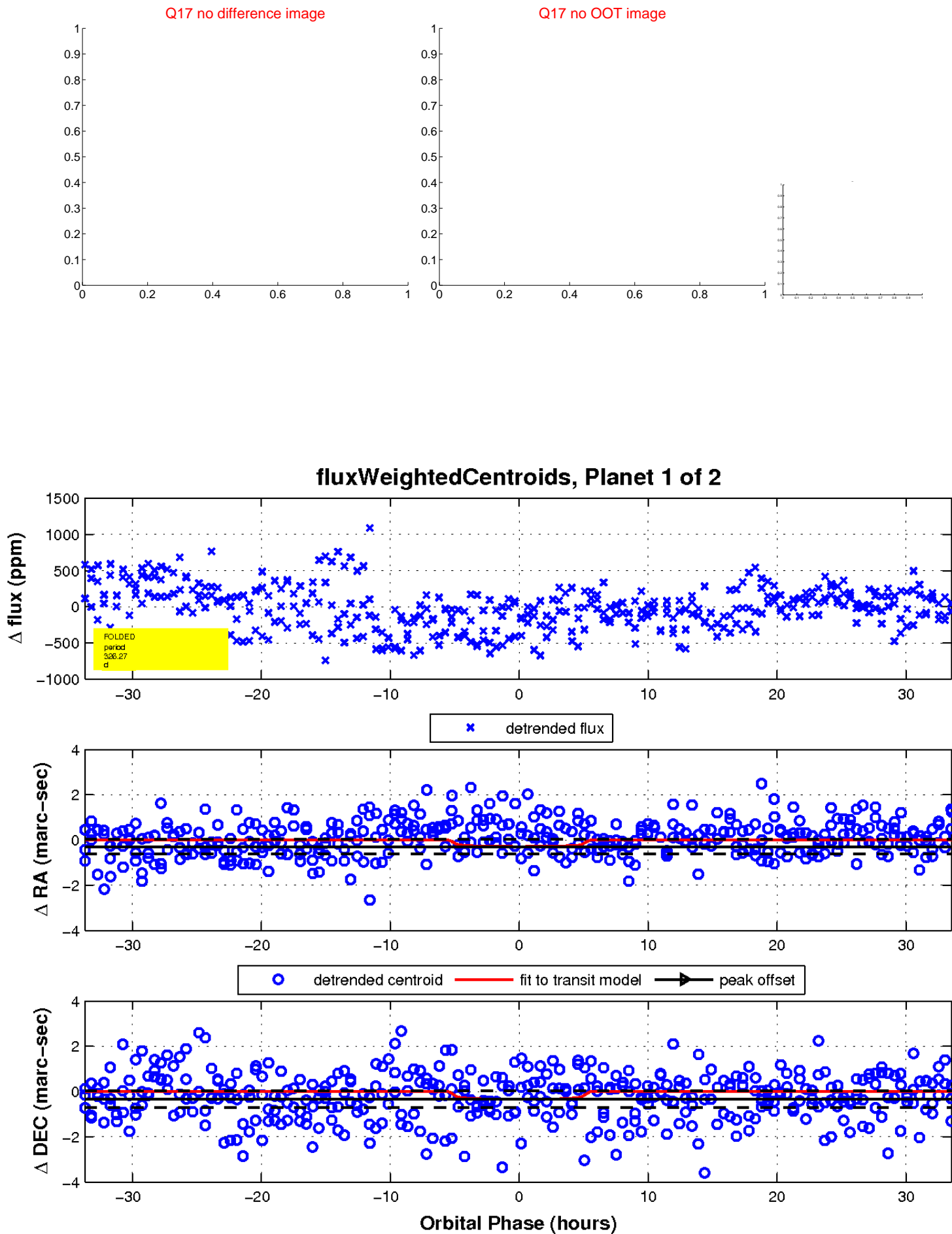
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

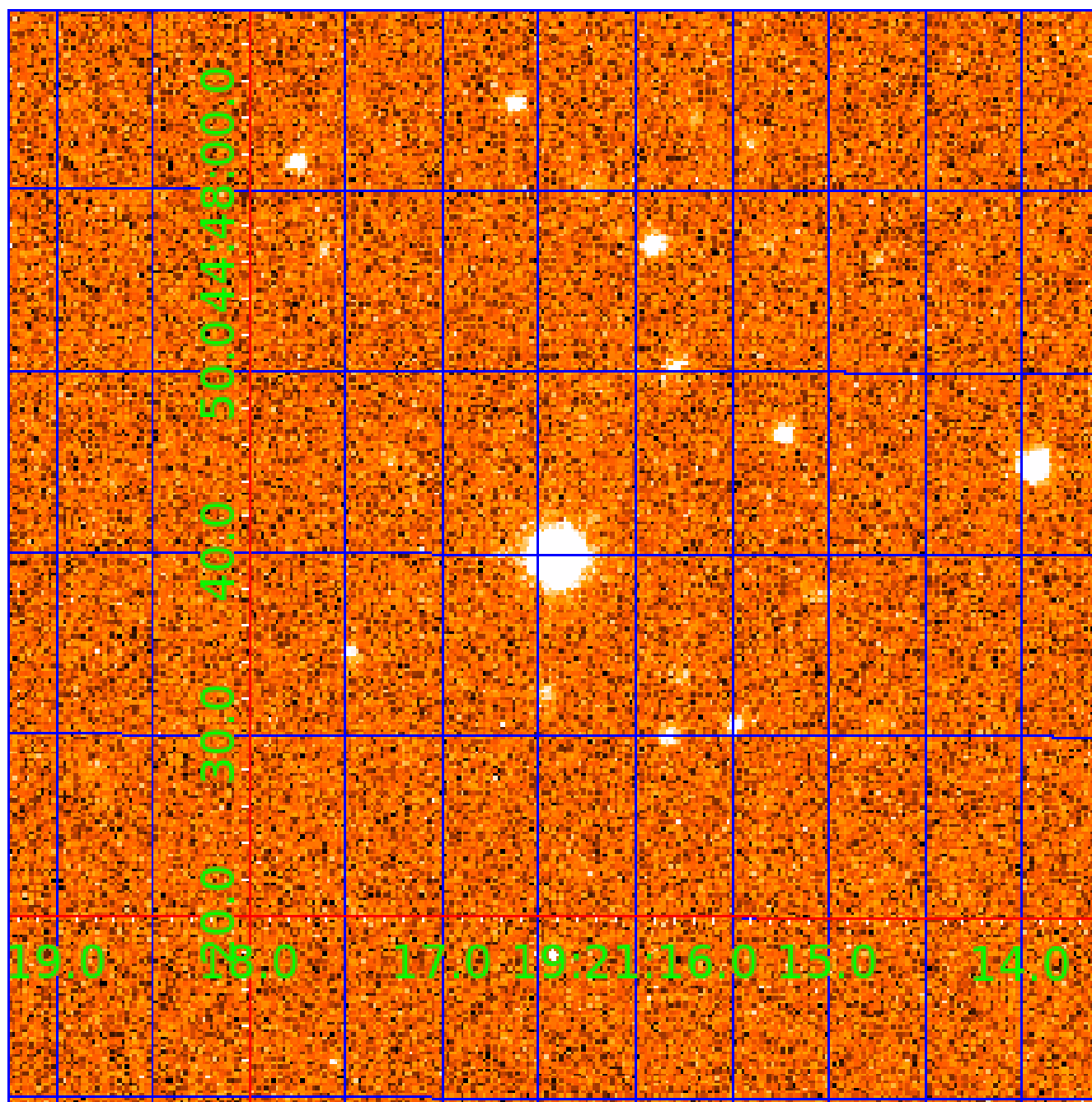


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008620684

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})
008620684-01	OBS	No	326.265106	377.012871	446.6	11.261	10.1	8.9	1.47	7282	3.53	5.11
008620684-02	OBS	No	0.819428	132.317444	245.0	2.000	8.3	-1.0	1.47	7282	2.34	14960.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008620684-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008620684-02	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_NOFITS—HALO_GHOST

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

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

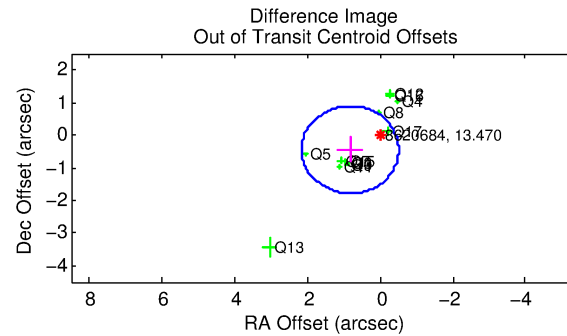
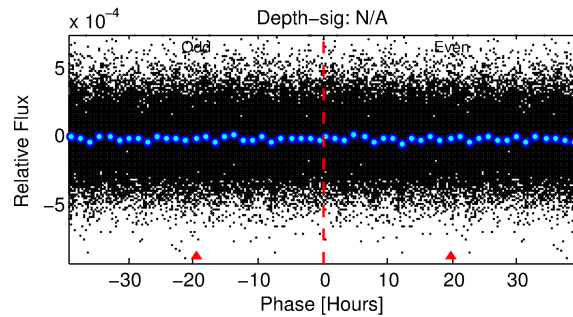
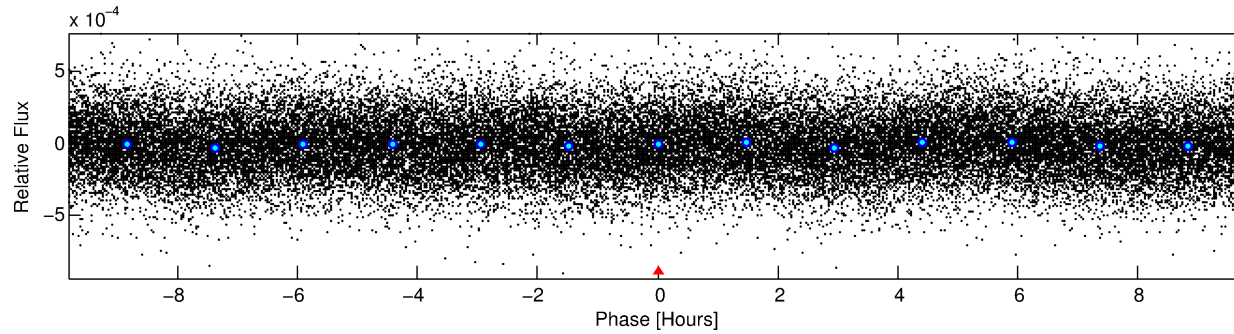
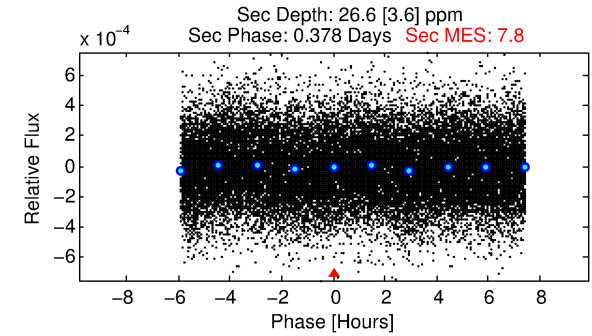
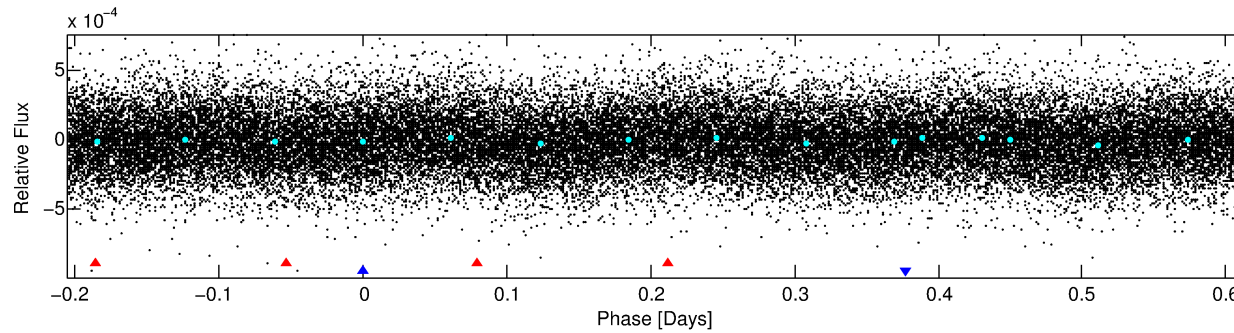
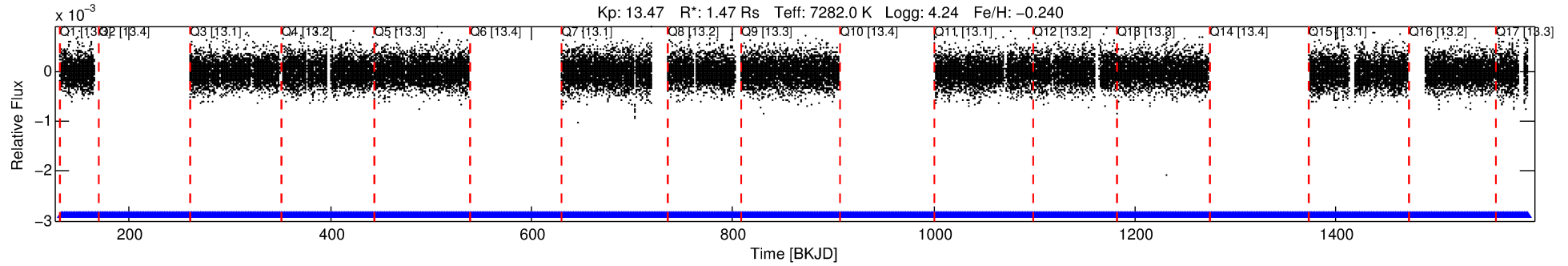
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008620684-02

No Significant Match Found

DV One-Page Summary

KIC: 8620684 Candidate: 2 of 2 Period: 0.819 d



TPS TCE Results:

Period = 0.81943 d
Epoch = 132.3174 BKJD

DV fit results are unavailable

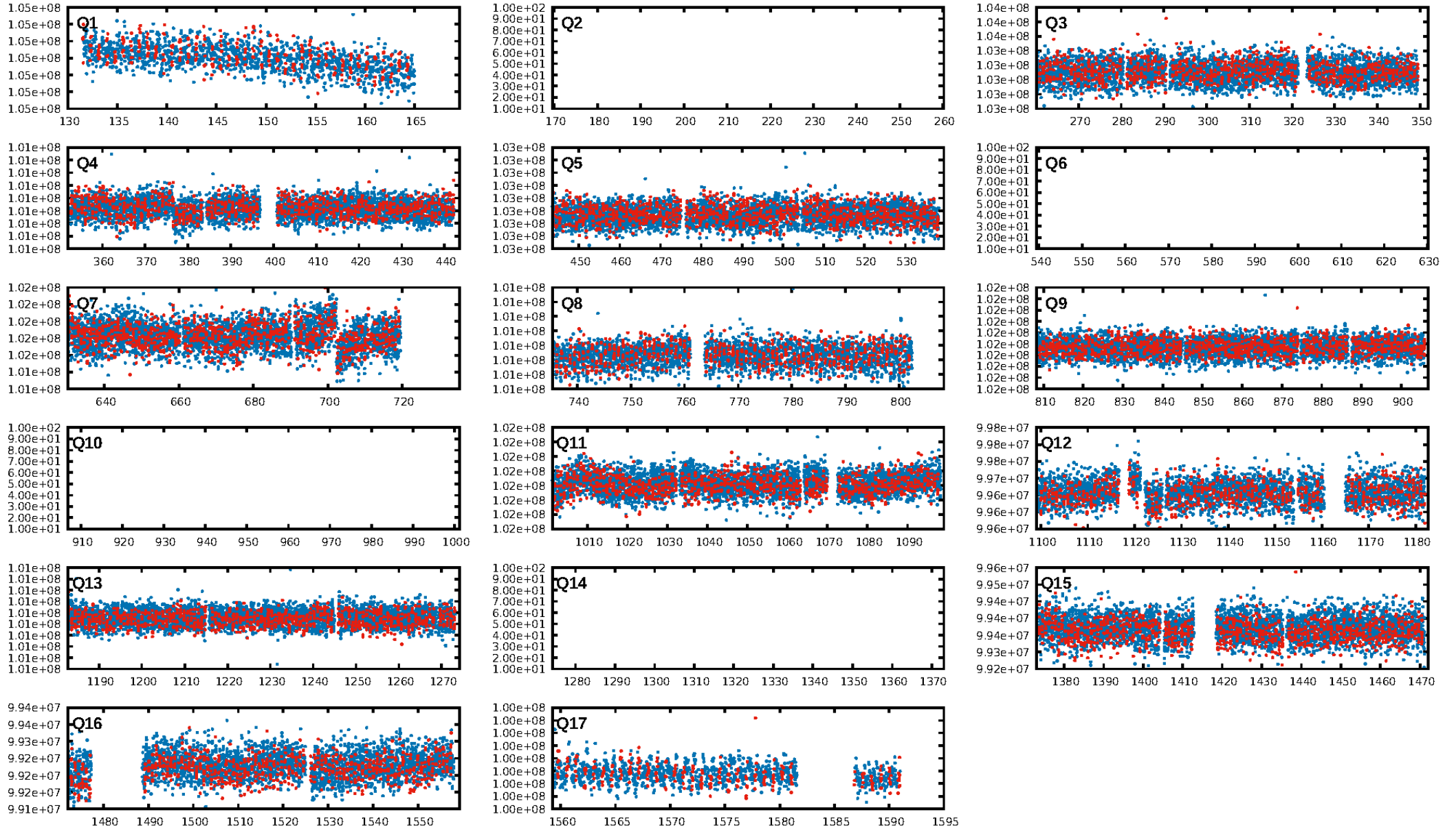
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [682.95σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.23e-15
RollingBand-fgt: 1.00 [1138/1138]
GhostDiagnostic-chr: -0.1515
Centroid-sig: 10.4%
Centroid-so: 0.143 arcsec [1.10σ]
OotOffset-rm: 0.938 arcsec [2.10σ]
KicOffset-rm: 0.968 arcsec [2.36σ]
OotOffset-st: 0/4/4/4 [12]
KicOffset-st: 0/4/4/4 [12]
DiffImageQuality-fgm: 0.92 [11/12]
DiffImageOverlap-fno: 1.00 [13/13]

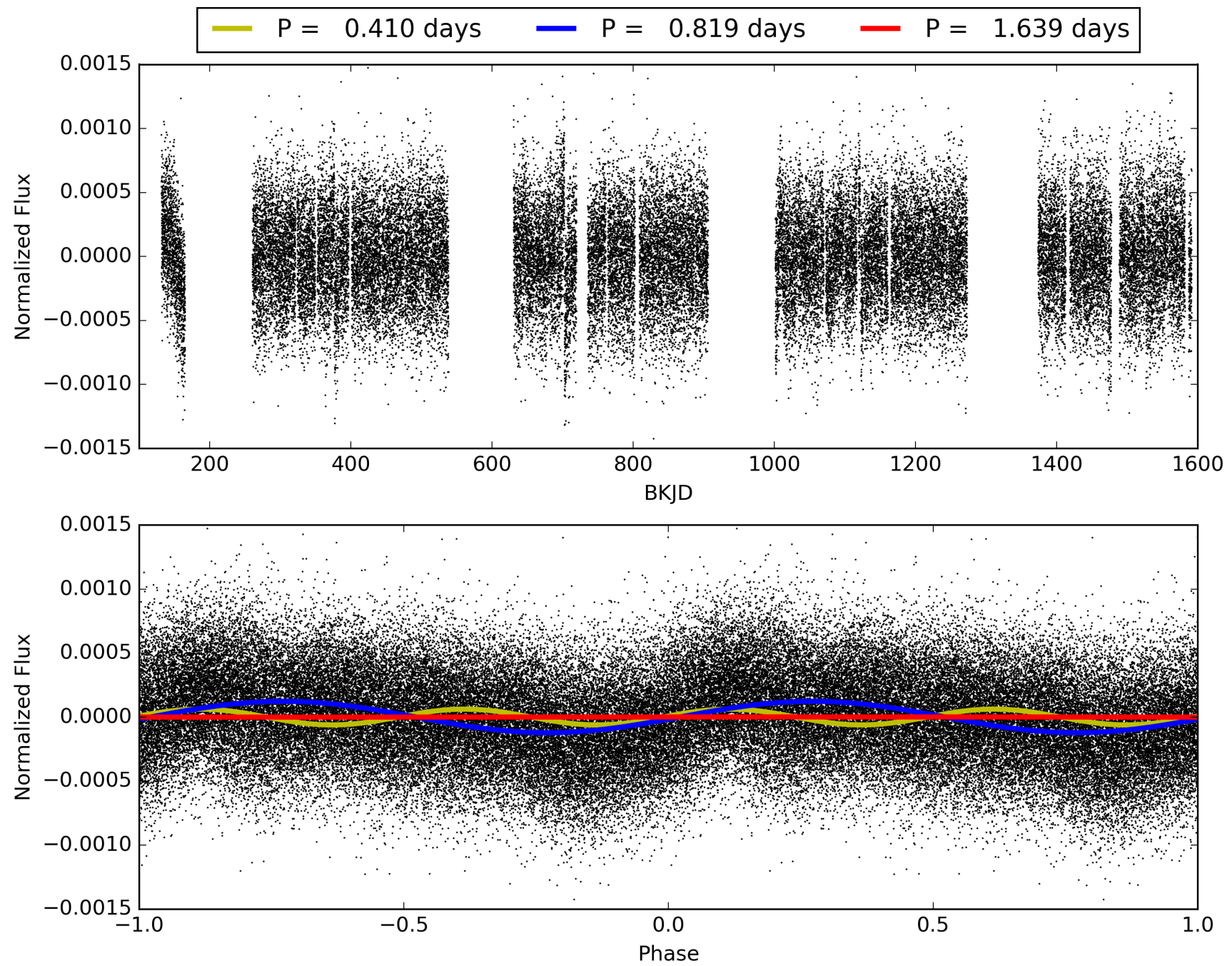
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:31:19 Z

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

TCE 008620684-02, PDC Light Curves

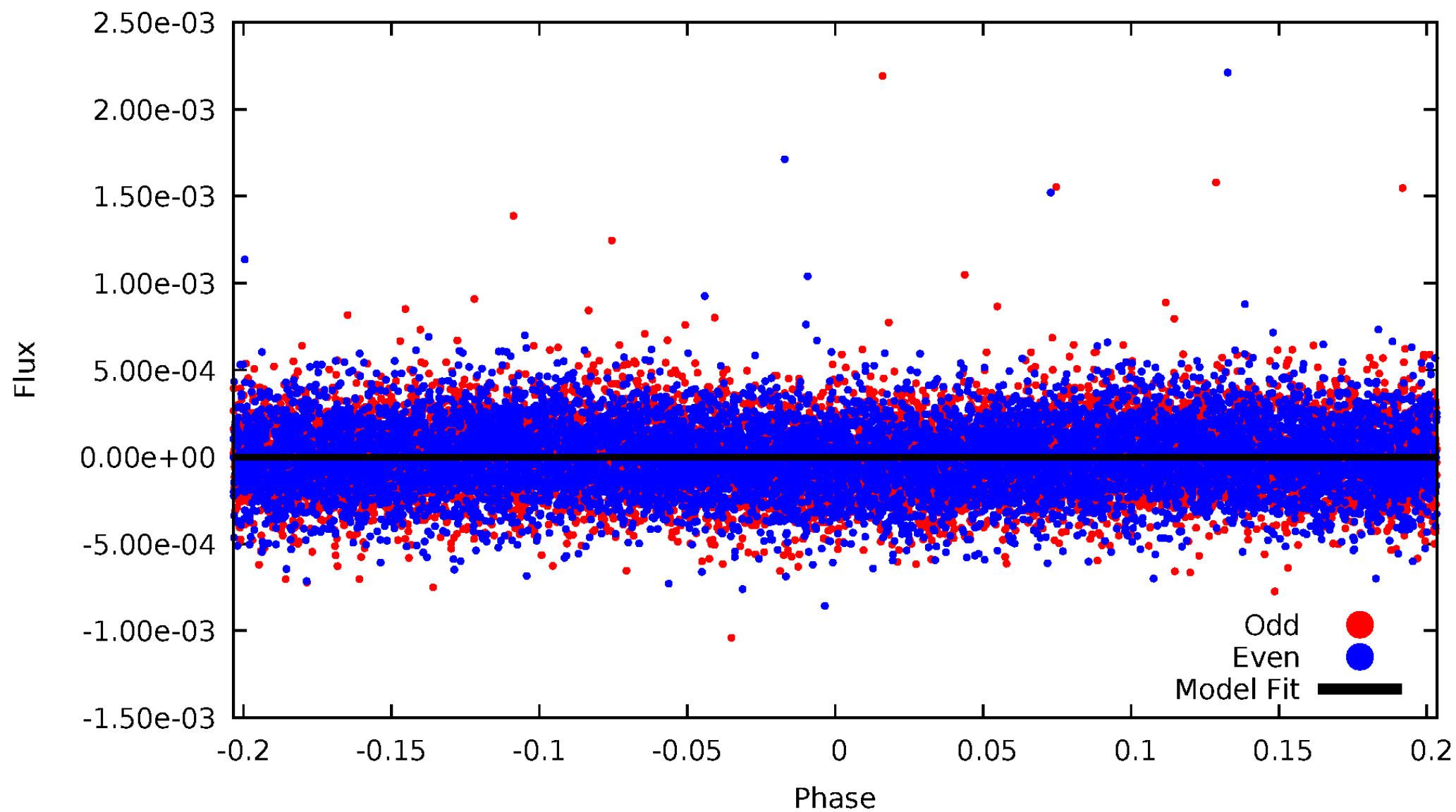


TCE 008620684-02



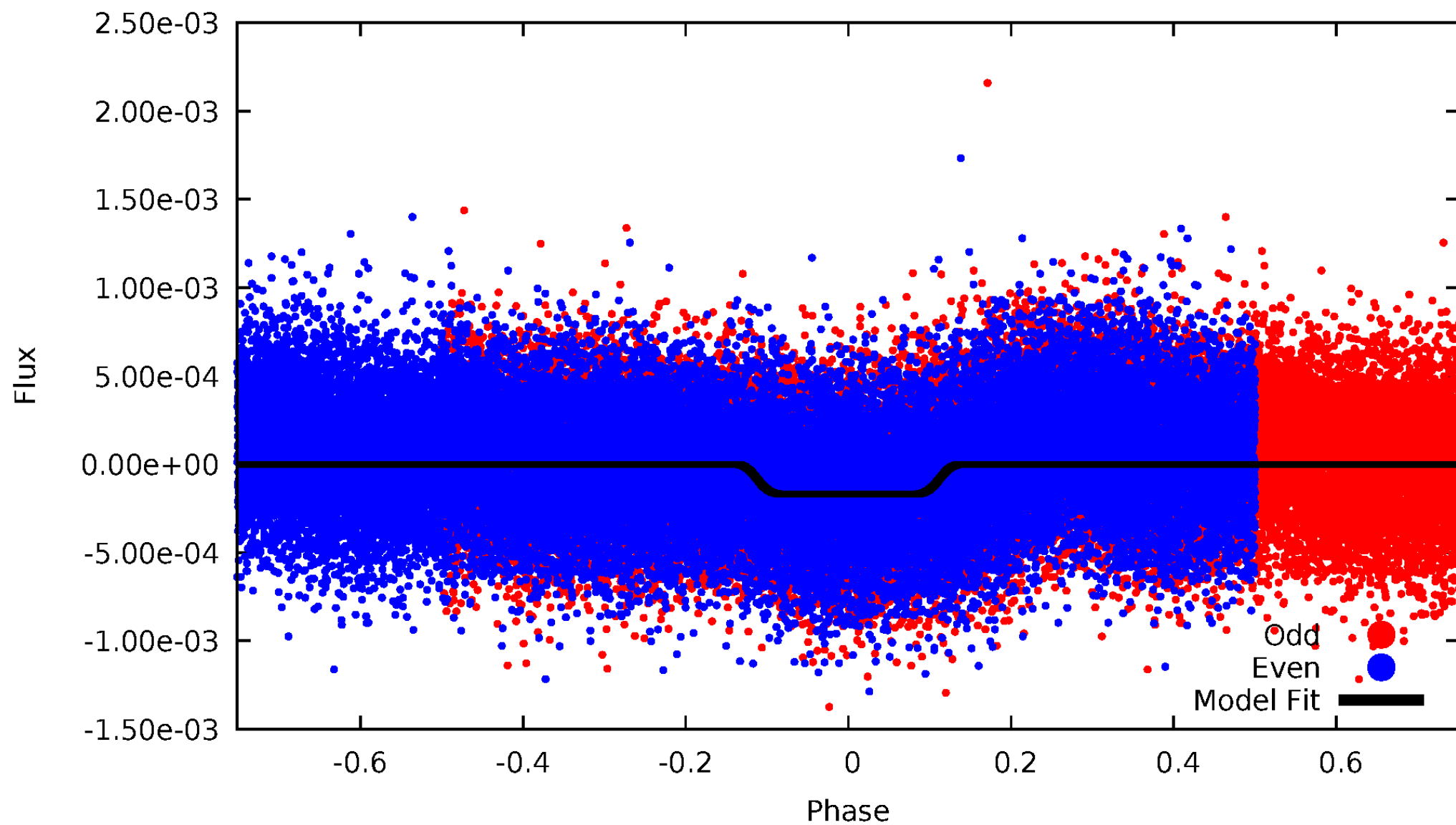
DV Odd/Even

TCE 008620684-02



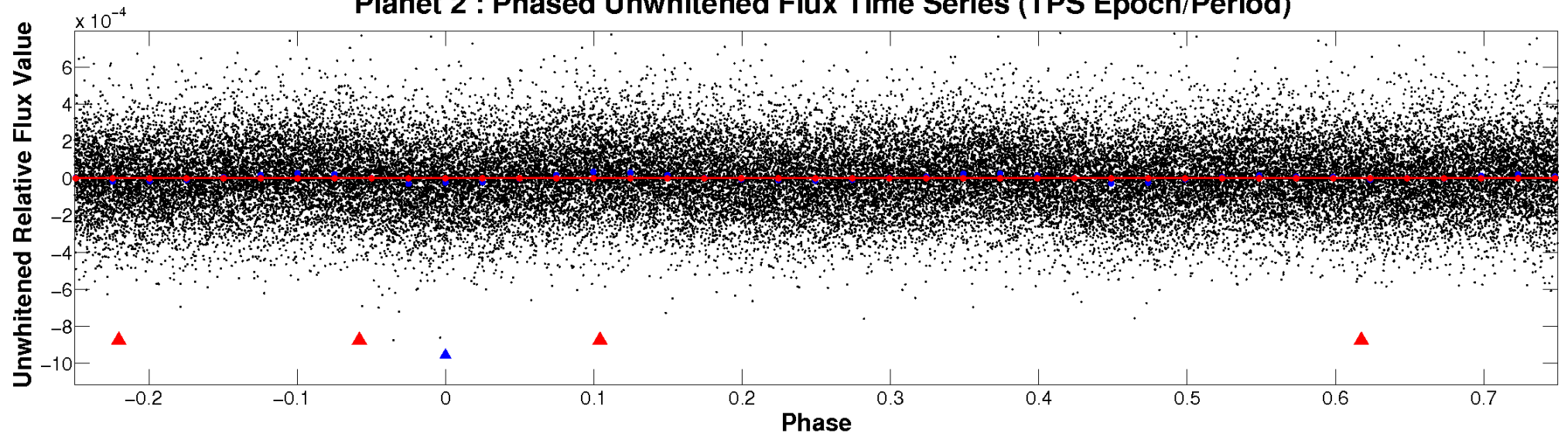
ALT Odd/Even

TCE 008620684-02

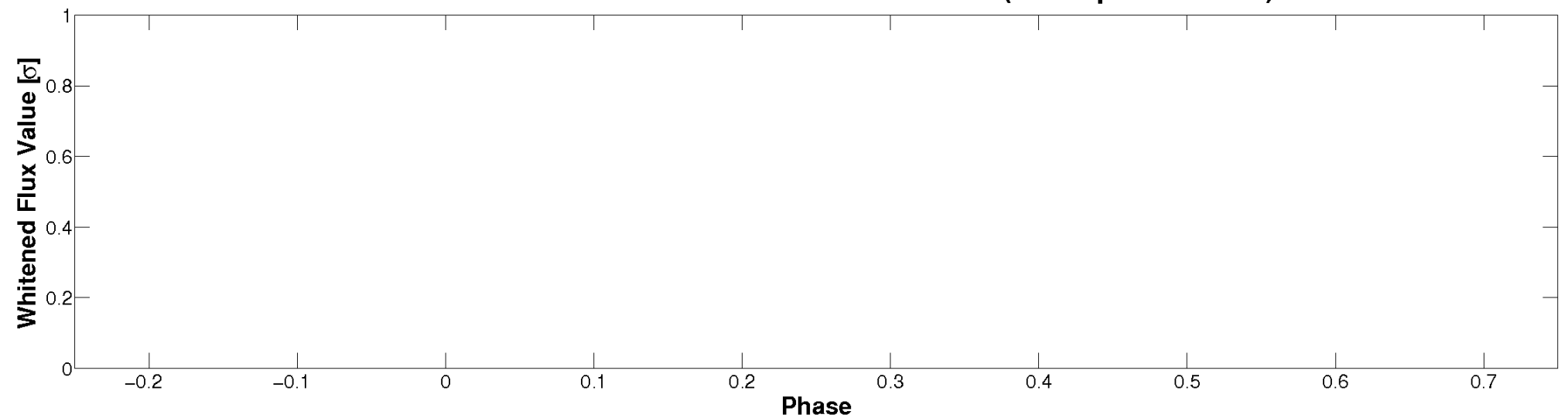


Non-Whitened Vs. Whitened Light Curve

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

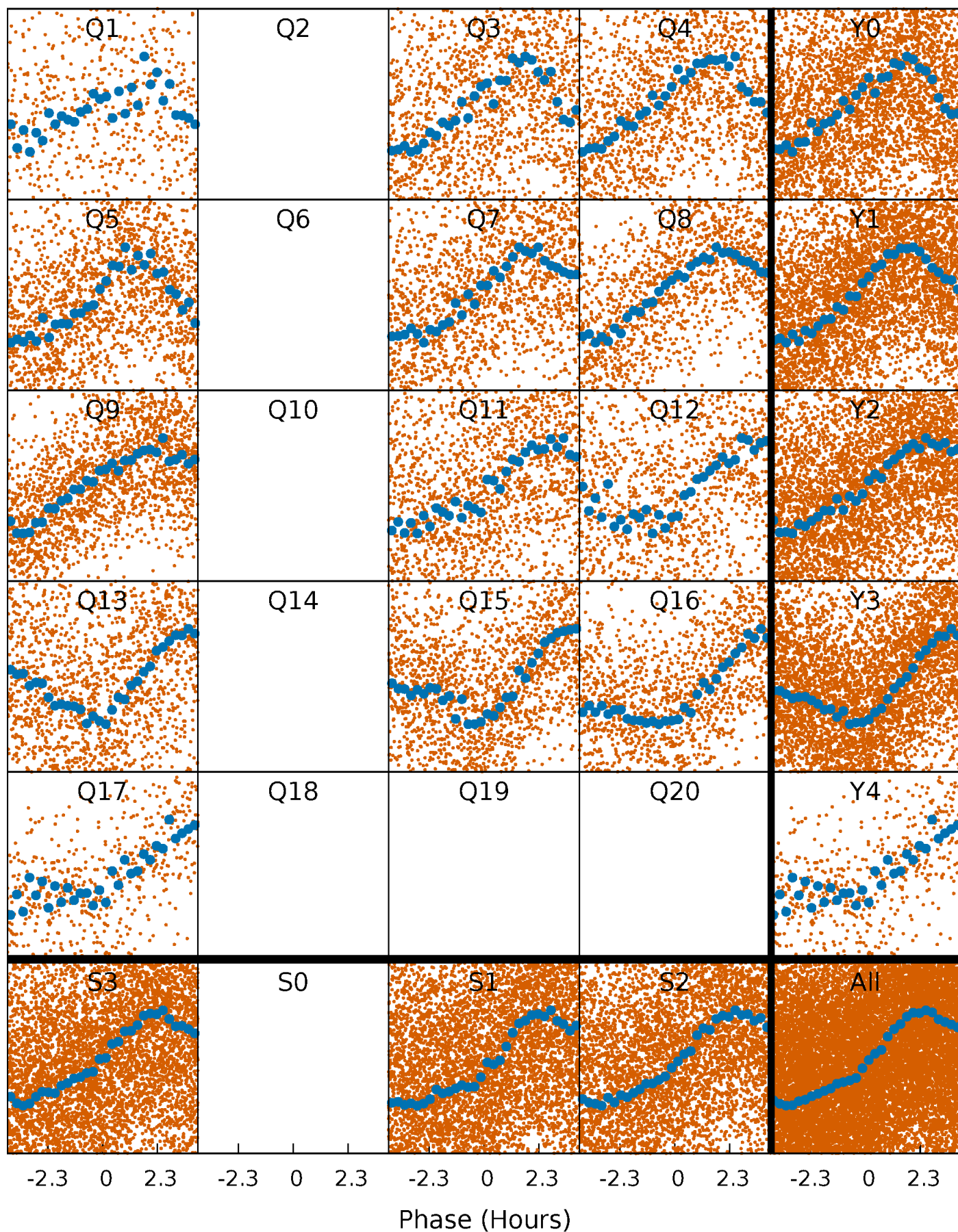


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



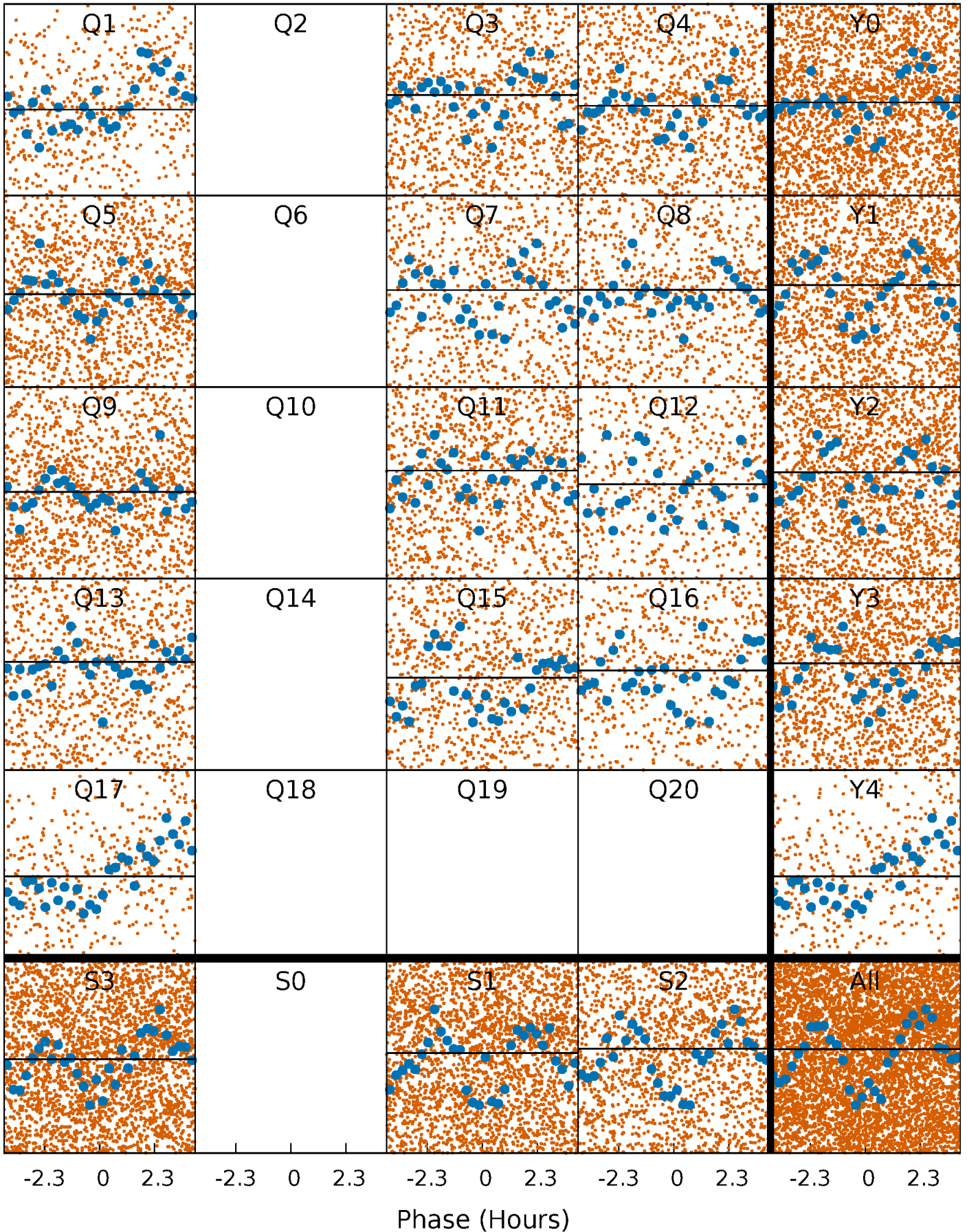
PDC Quarter-Phased Transit Curves

TCE 008620684-02 P= 0.819428 Days $T_0=132.317444$ (BKJD)



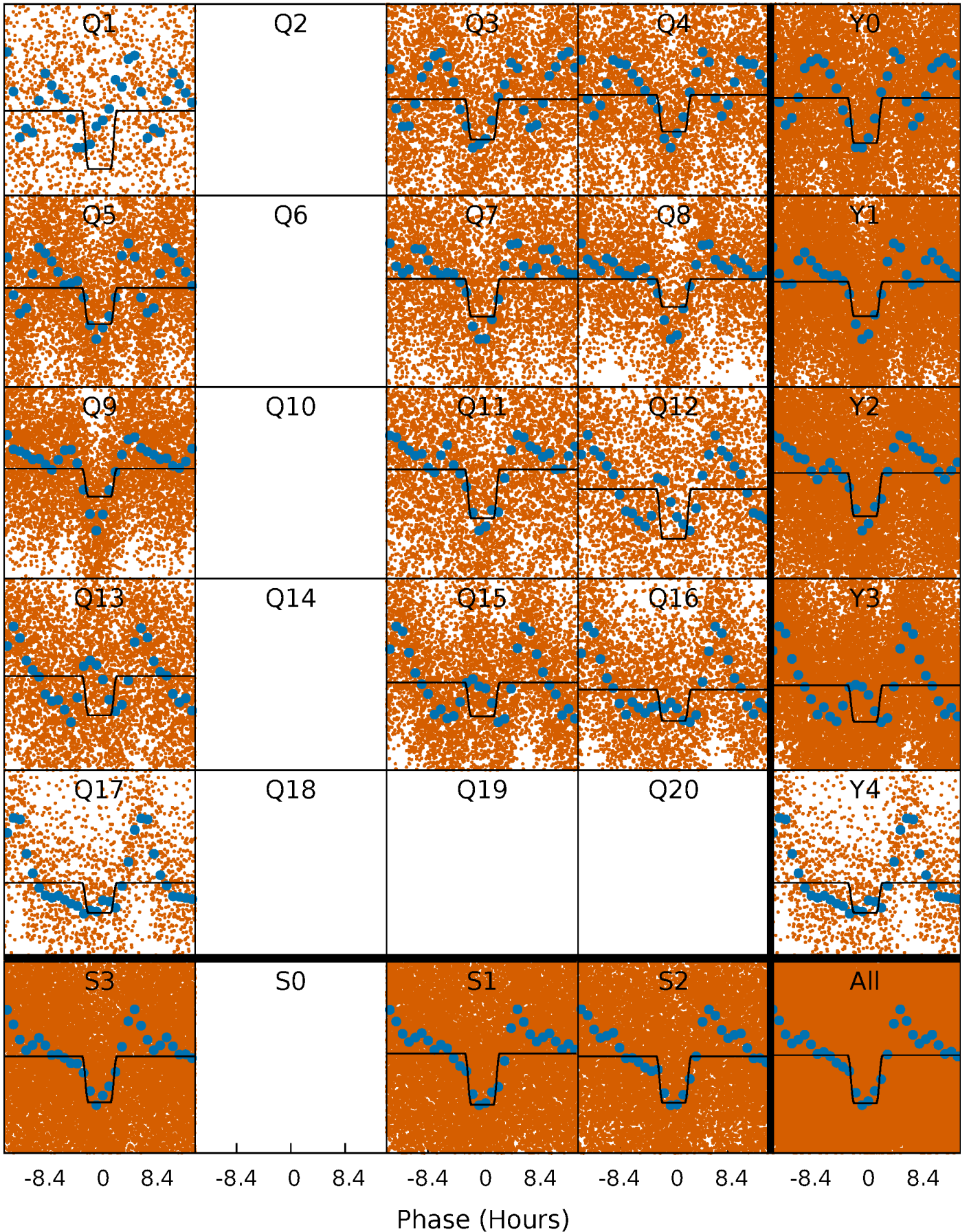
DV Quarter-Phased Transit Curves

TCE 008620684-02 P= 0.819428 Days $T_0=132.317444$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

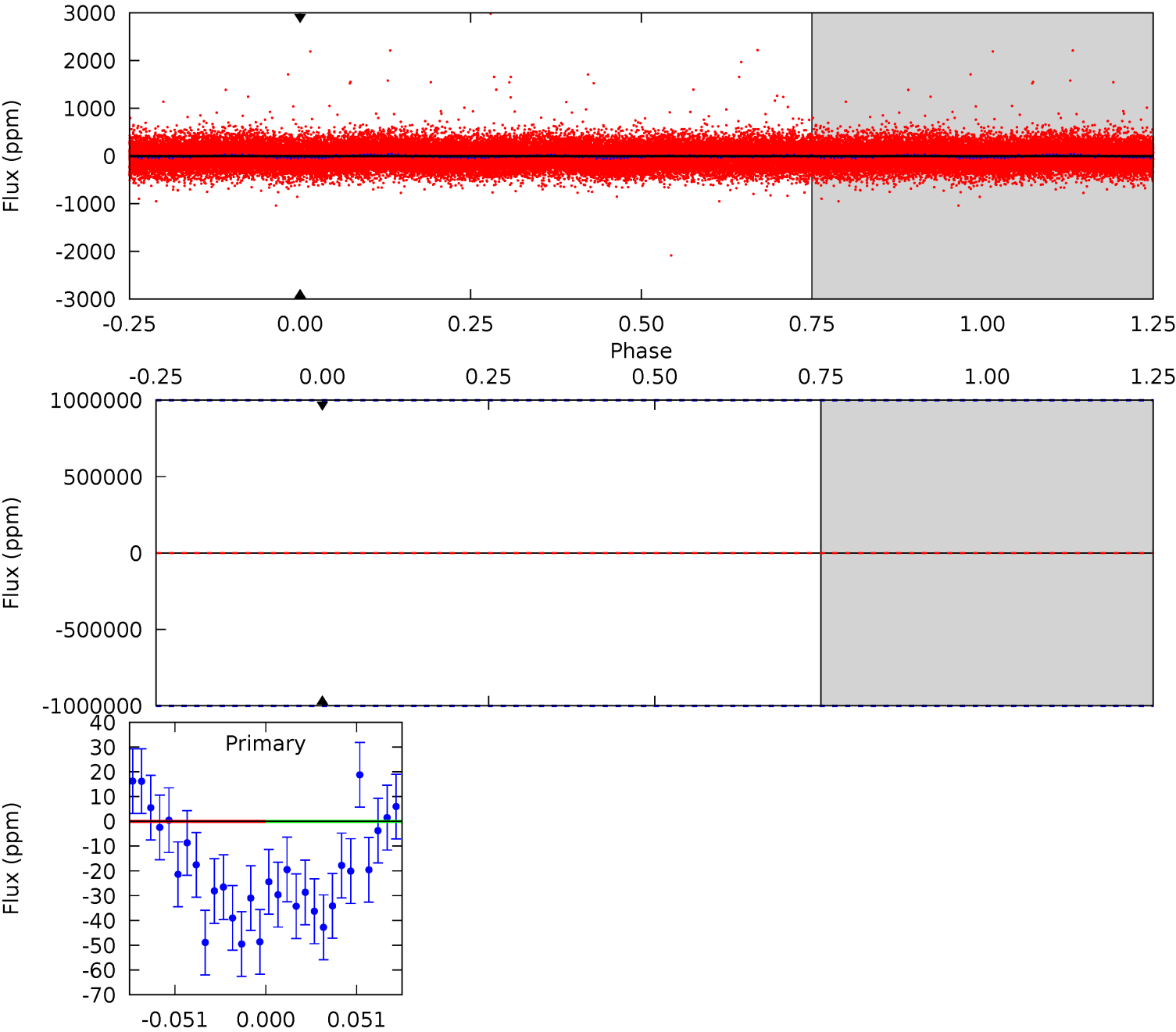
TCE 008620684-02 P= 0.819428 Days $T_0=132.190446$ (BKJD)



DV Model-Shift Uniqueness Test

008620684-02, P = 0.819428 Days, E = 131.498016 Days

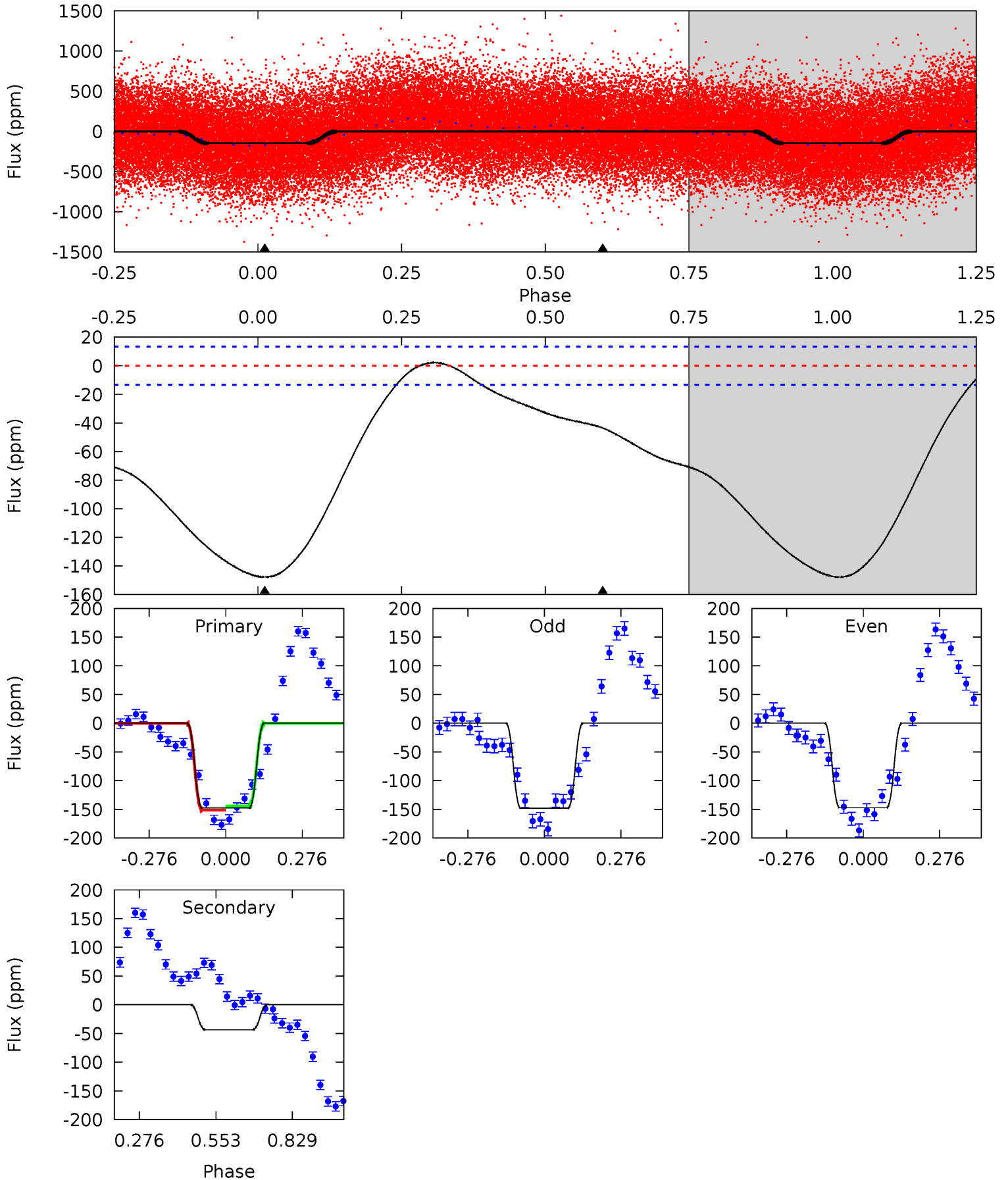
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008620684-02, P = 0.819428 Days, E = 131.371018 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
48.2	14.2	0	0	4.35	1.09	0.81	48.2	48.2	14.2	14.2	0.17	1.03	0.01	1.21



Stellar Parameters For KIC 008620684

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7282^{+228}_{-304}	$4.243^{+0.093}_{-0.201}$	$-0.240^{+0.250}_{-0.350}$	$1.471^{+0.485}_{-0.224}$	$1.387^{+0.219}_{-0.219}$	$0.614^{+0.298}_{-0.317}$
	+3%/-4%	+2%/-5%	+104%/-146%	+33%/-15%	+16%/-16%	+49%/-52%
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 008620684-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$11.65^{+12.22}_{-8.43}$	3991^{+279}_{-247}	-6026^{+46327}_{-33388}	$-3.359^{+269.530}_{-252.343}$
Alt.	-44 ± 3	$12.01^{+12.63}_{-8.46}$	3995^{+314}_{-229}	-3472^{+7318}_{-256}	$0.058^{+0.630}_{-0.044}$

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

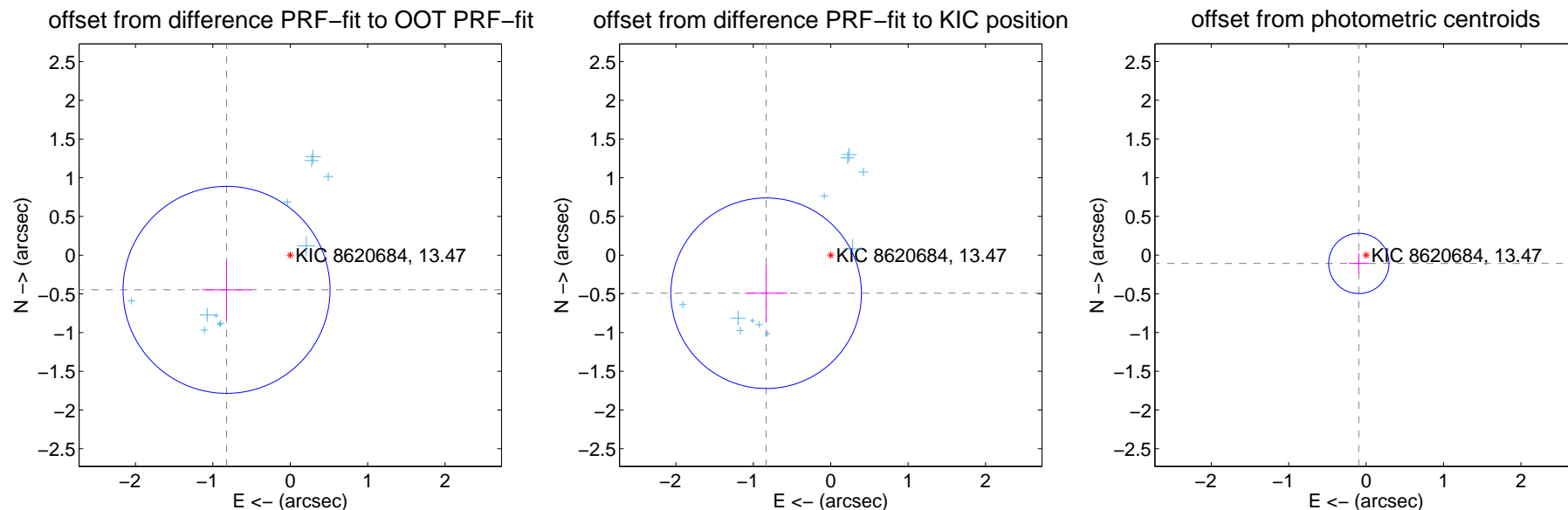
DV Centroid Data

Supplemental centroid analysis for 008620684-02. Kepler magnitude: 13.47. Transit SNR -1.00

There are 11 quarters with good PRF difference image offsets

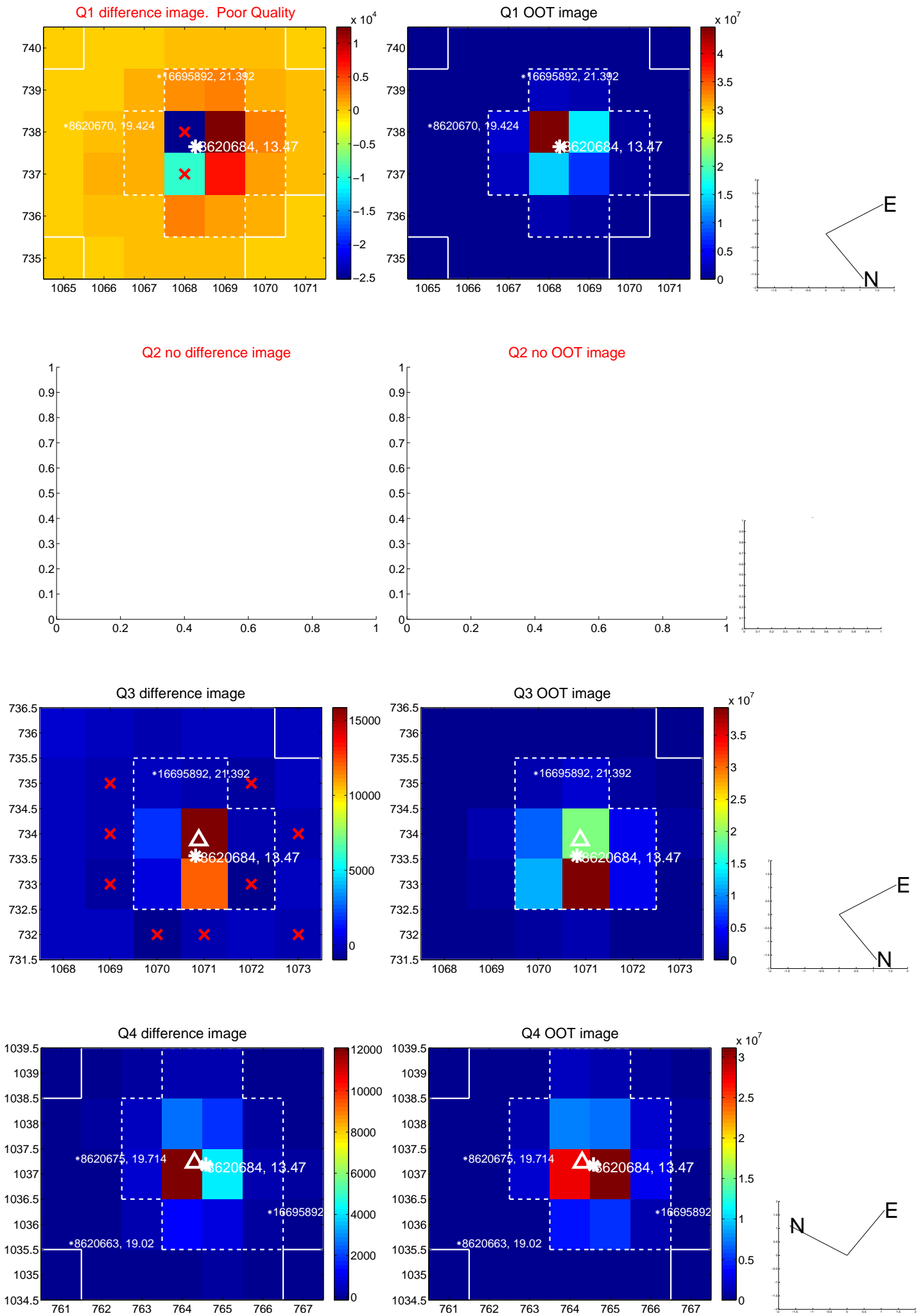
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.938 ± 0.446	2.10	0.823 ± 0.317	-0.448 ± 0.377
PRF-fit source offset from KIC position	0.968 ± 0.410	2.36	0.834 ± 0.274	-0.492 ± 0.371
photometric centroid source offset	0.14 ± 0.13	1.10	0.09 ± 0.13	-0.11 ± 0.13

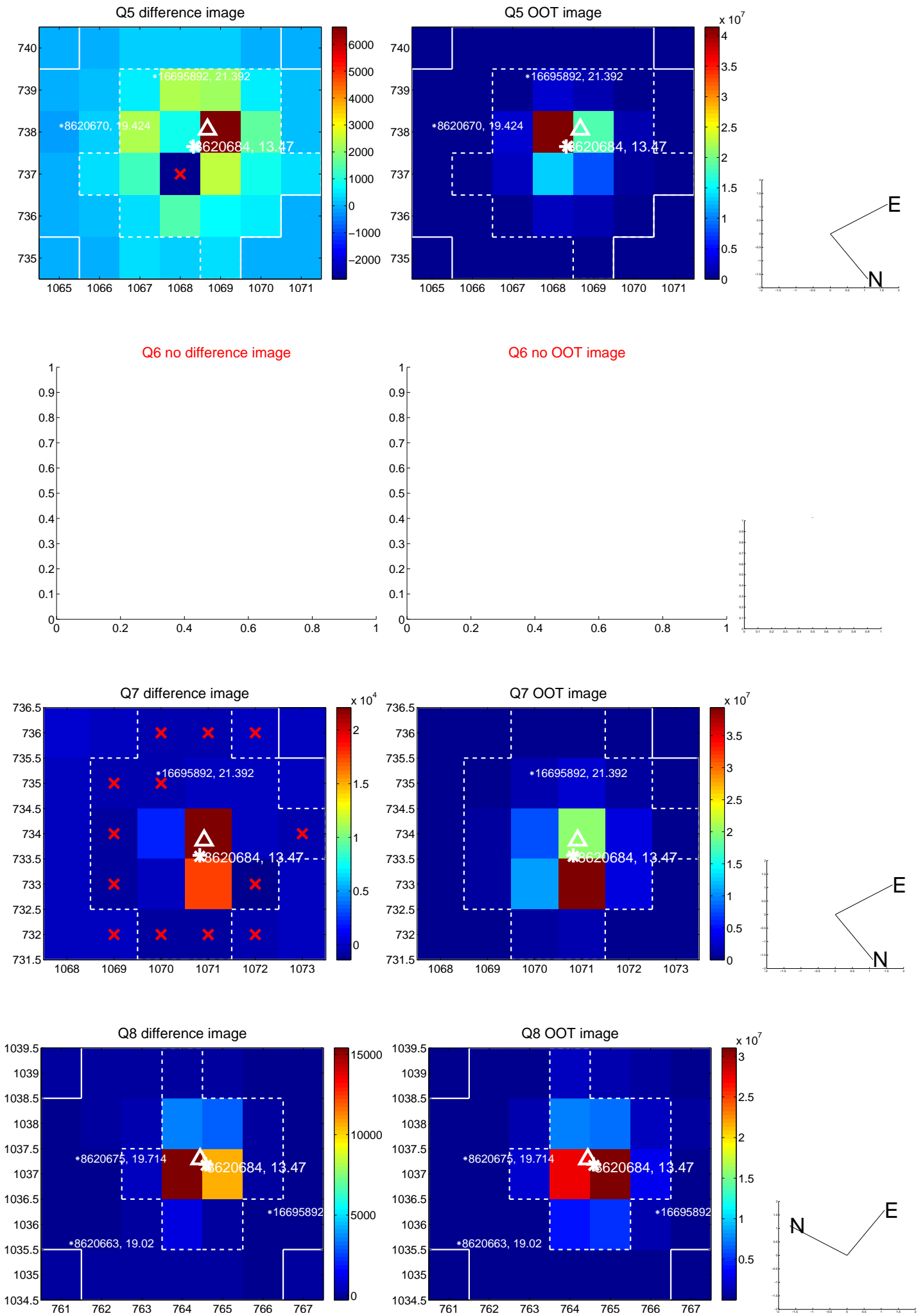


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

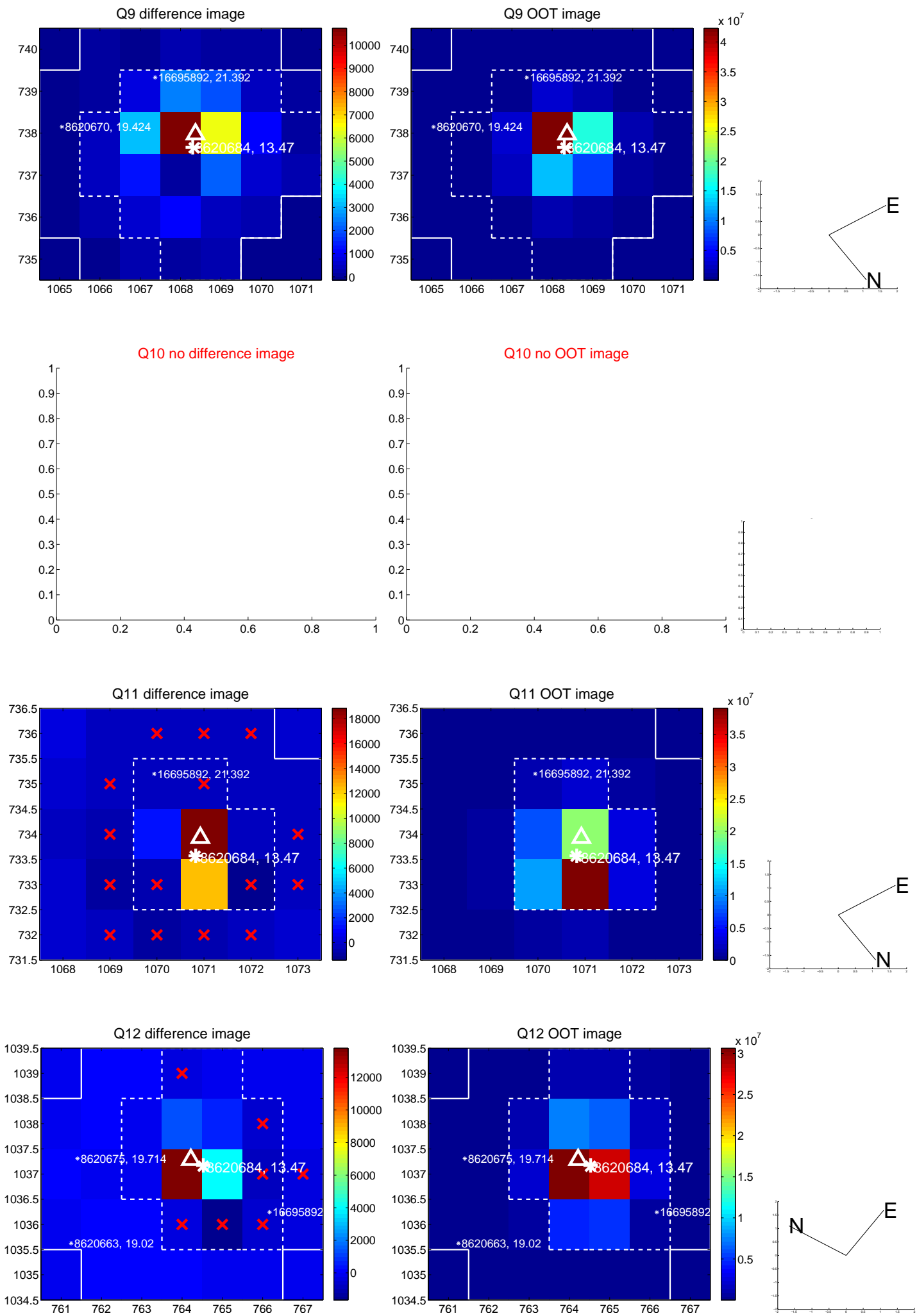
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



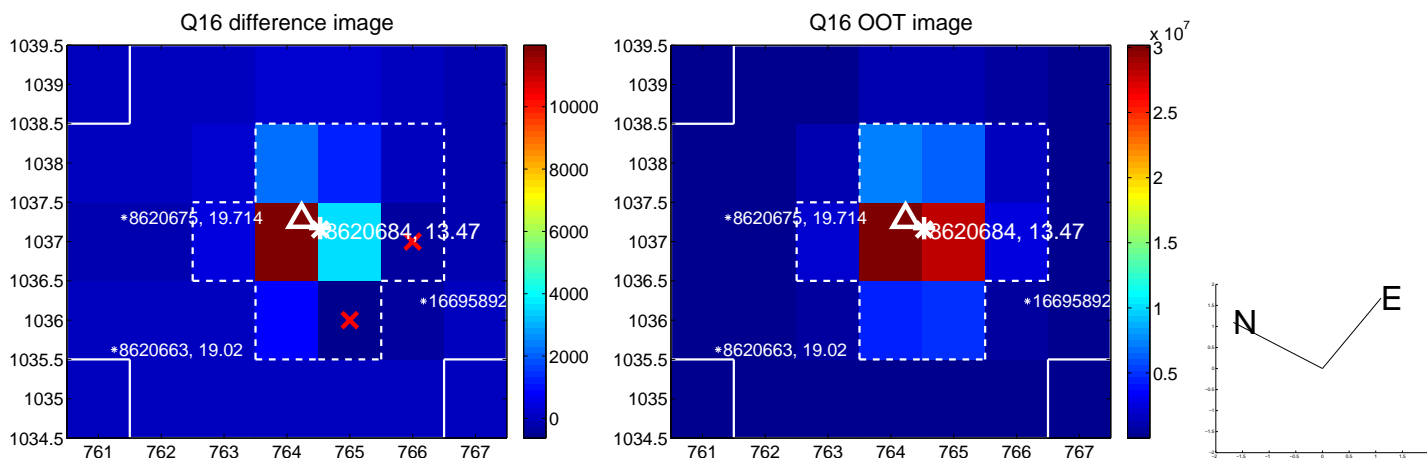
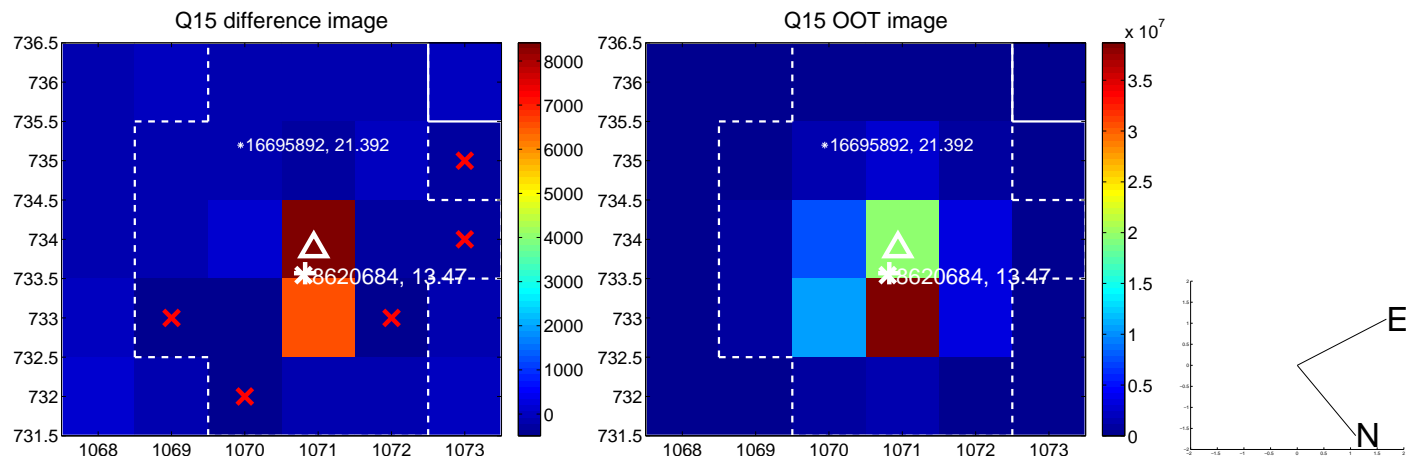
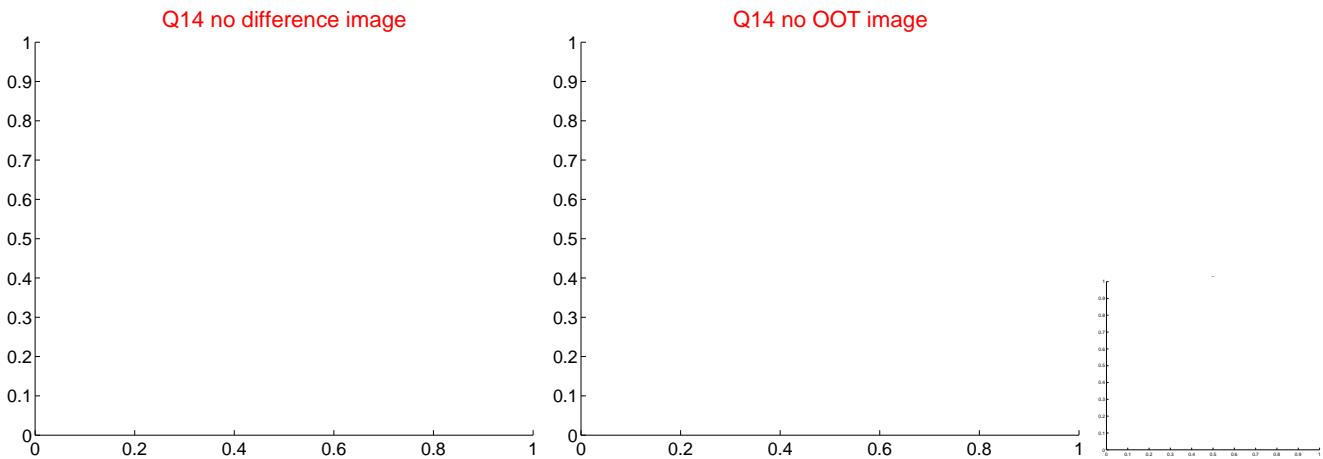
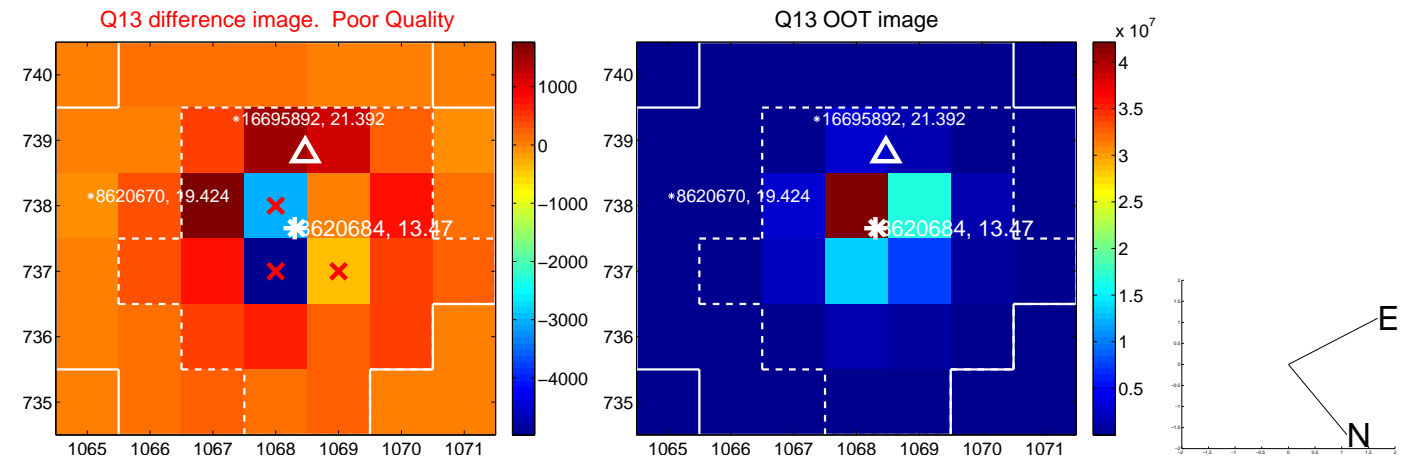
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



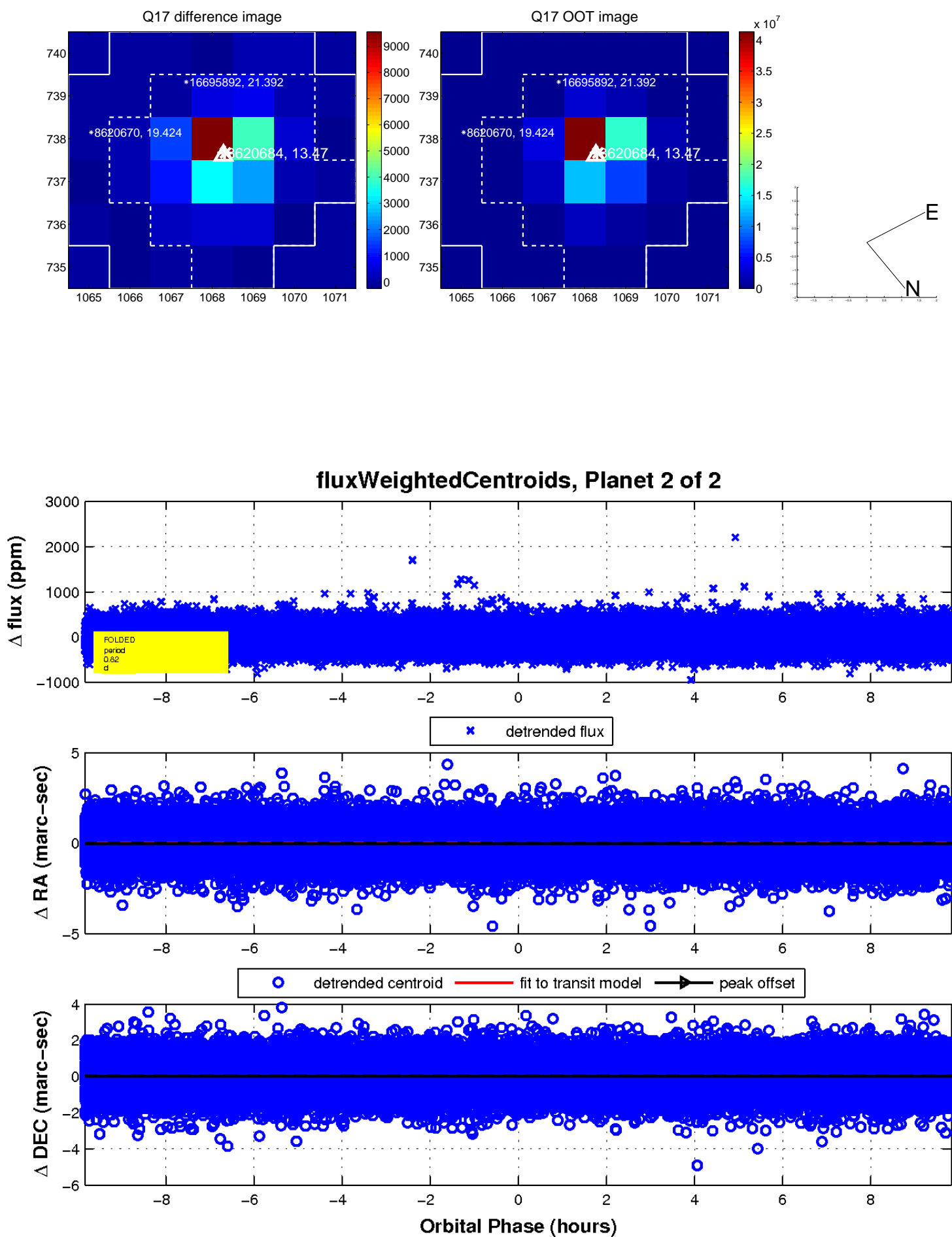
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

