

KIC 008684359

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})
008684359-01	OBS	No	1.315049	132.350903	0.2	2.292	10.3	0.0	2.96	8404	0.15	45755.56
008684359-02	OBS	No	0.657535	132.092244	367.3	1.500	8.1	-1.0	2.96	8404	5.76	115294.27

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008684359-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008684359-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS

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

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

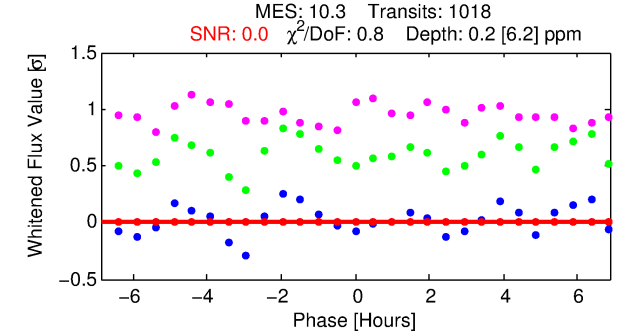
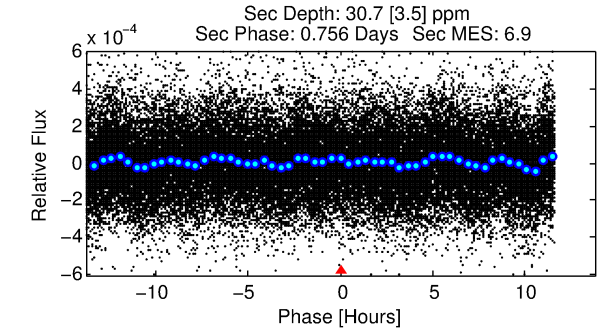
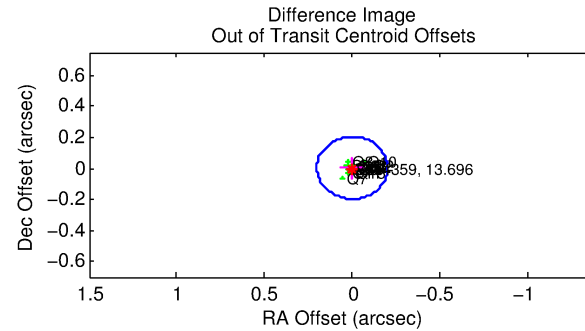
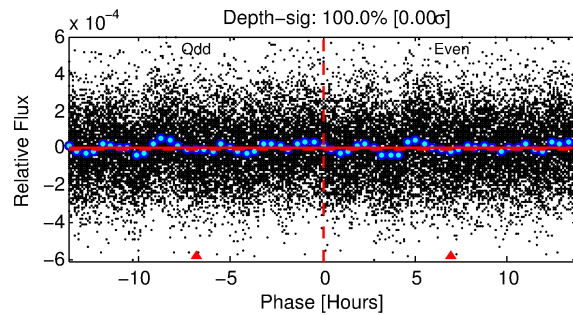
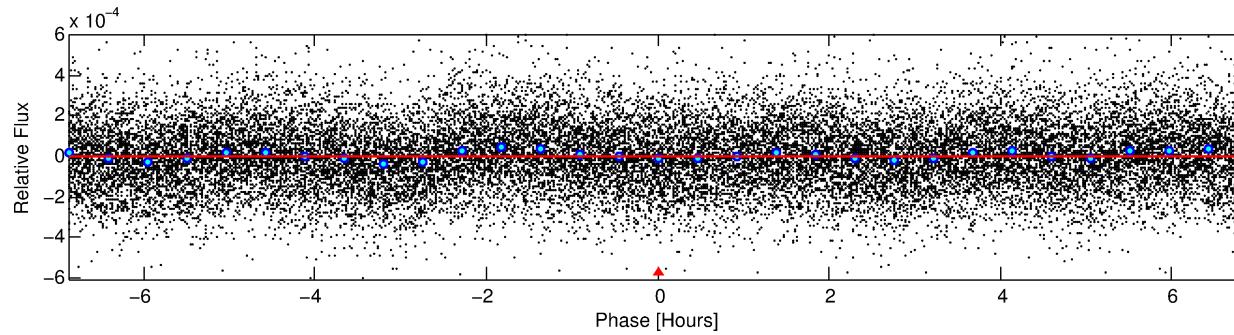
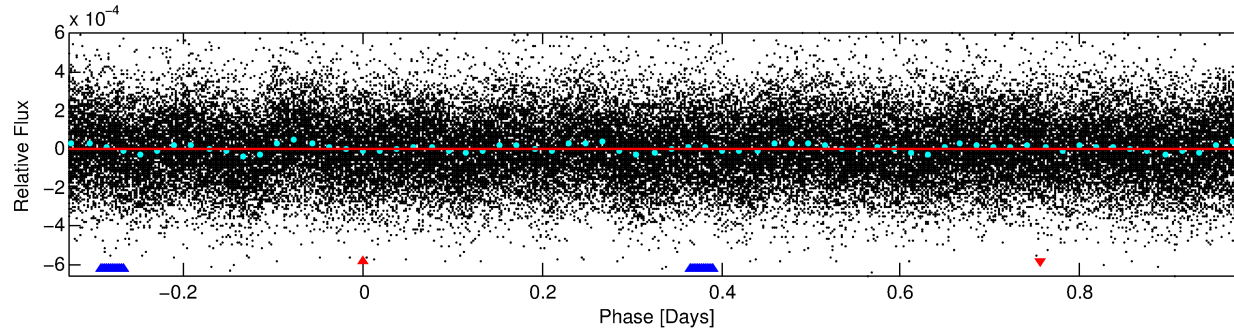
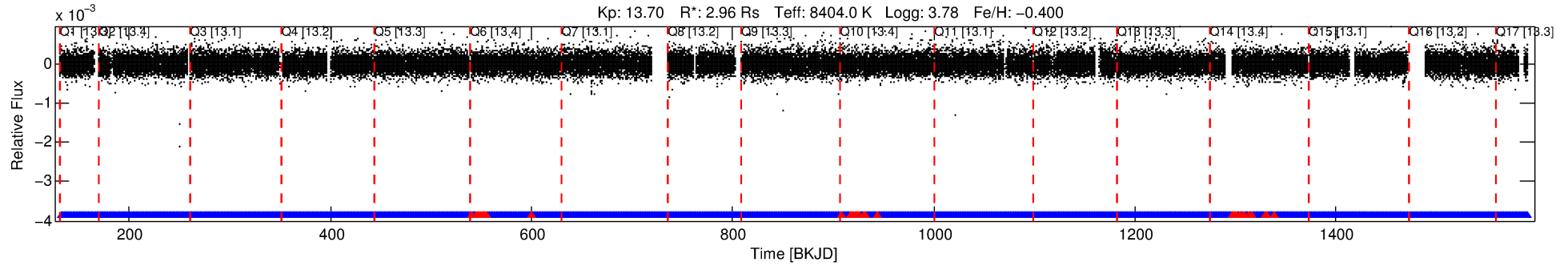
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008684359-01

No Significant Match Found

DV One-Page Summary

KIC: 8684359 Candidate: 1 of 2 Period: 1.315 d



DV Fit Results:

Period = 1.31505 [0.00549] d
Epoch = 132.3509 [0.9446] BKJD
Rp/R* = 0.0005 [0.0074]
a/R* = 2.48 [23.59]
b = 0.85 [4.04]
Seff = 45755.56 [19276.24]
Teq = 3729 [393] K
Rp = 0.15 [2.39] Re
a = 0.0293 [0.0078] AU
Ag = 665.05 [21567.16] [0.03σ]
Teffp = 29281 [237398] K [0.11σ]

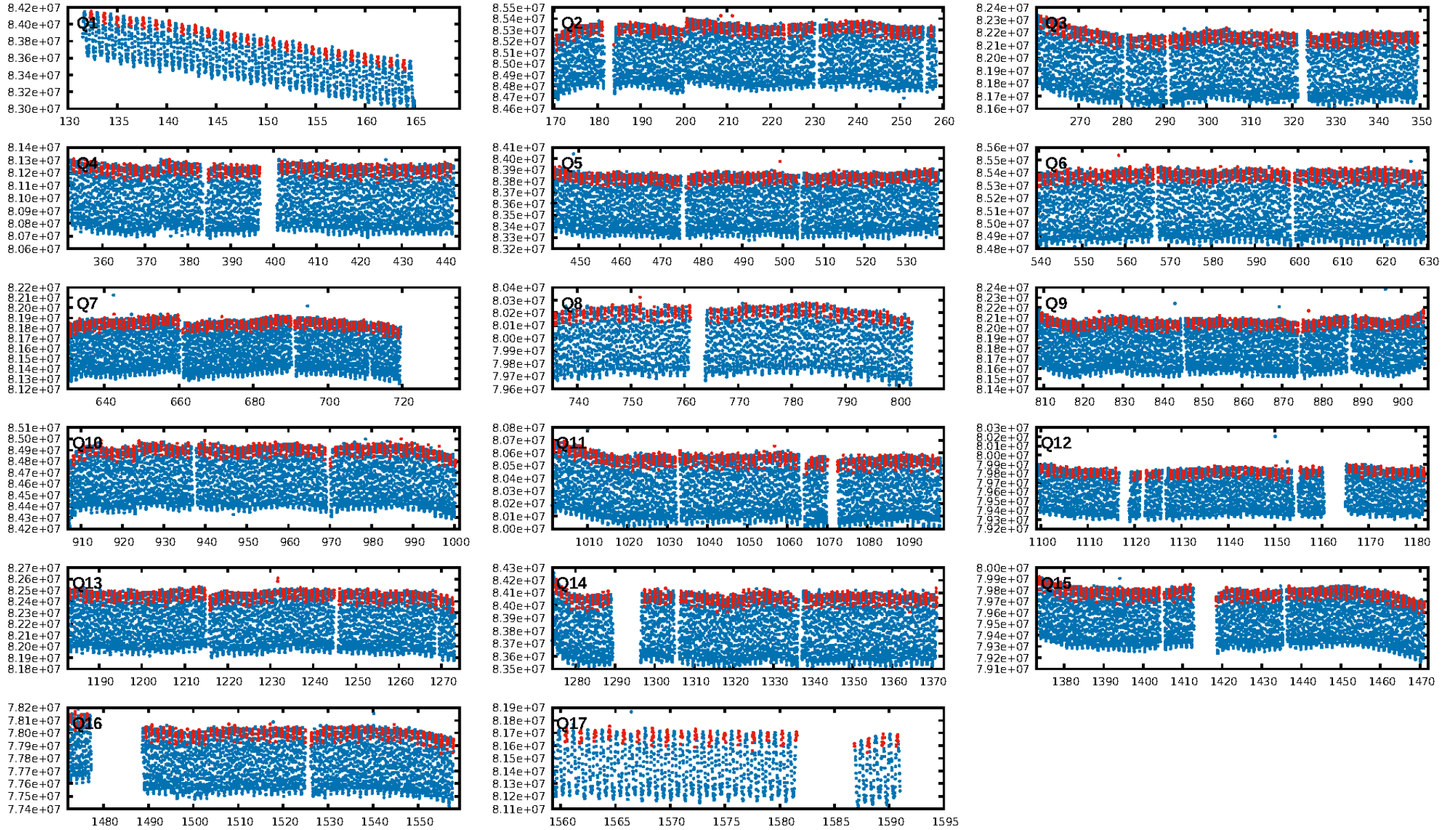
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.76σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.33e-22
RollingBand-fgt: 0.96 [936/972]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.005 arcsec [0.07σ]
KicOffset-rm: 0.055 arcsec [0.81σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 0.00 [0/17]

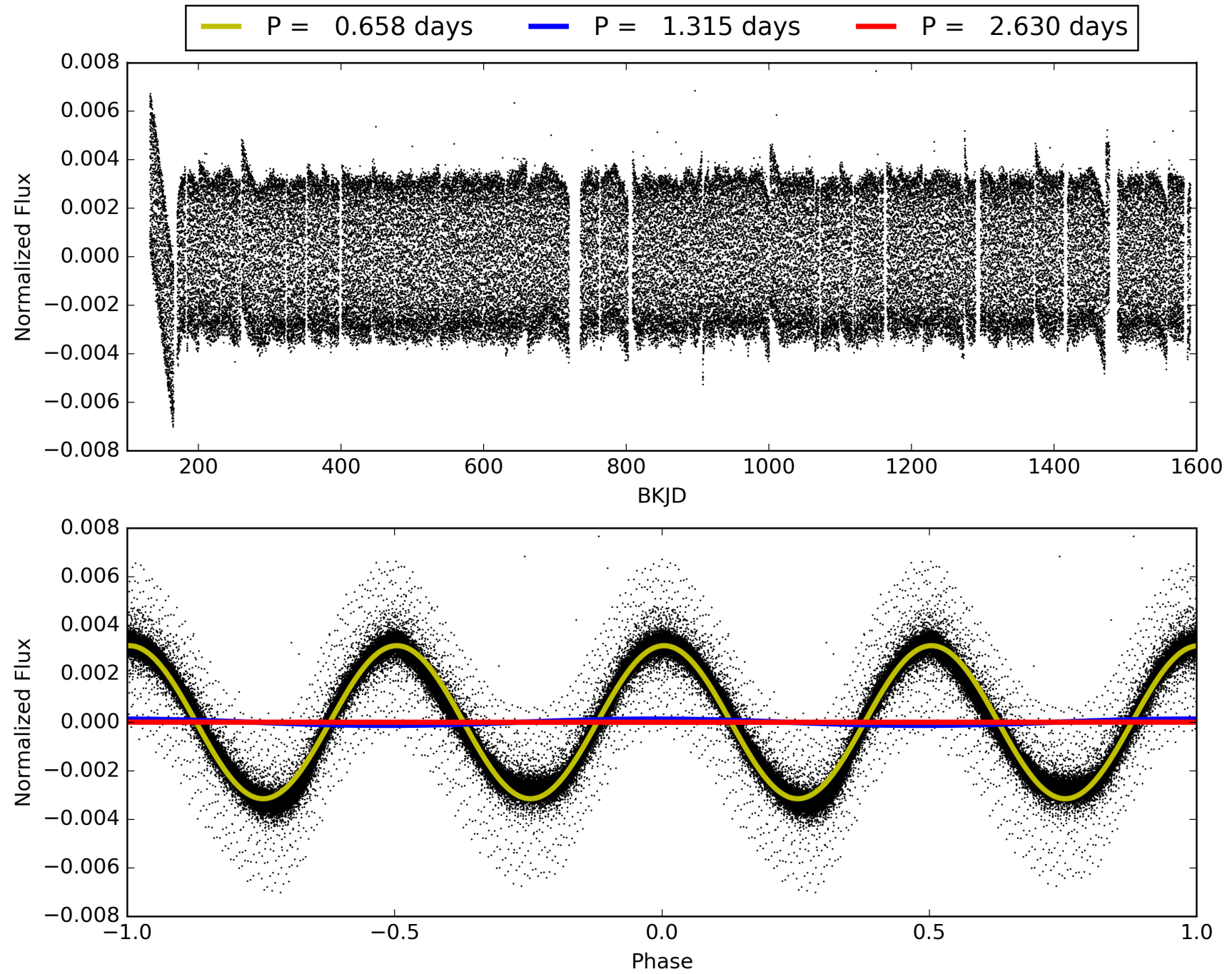
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008684359-01, PDC Light Curves

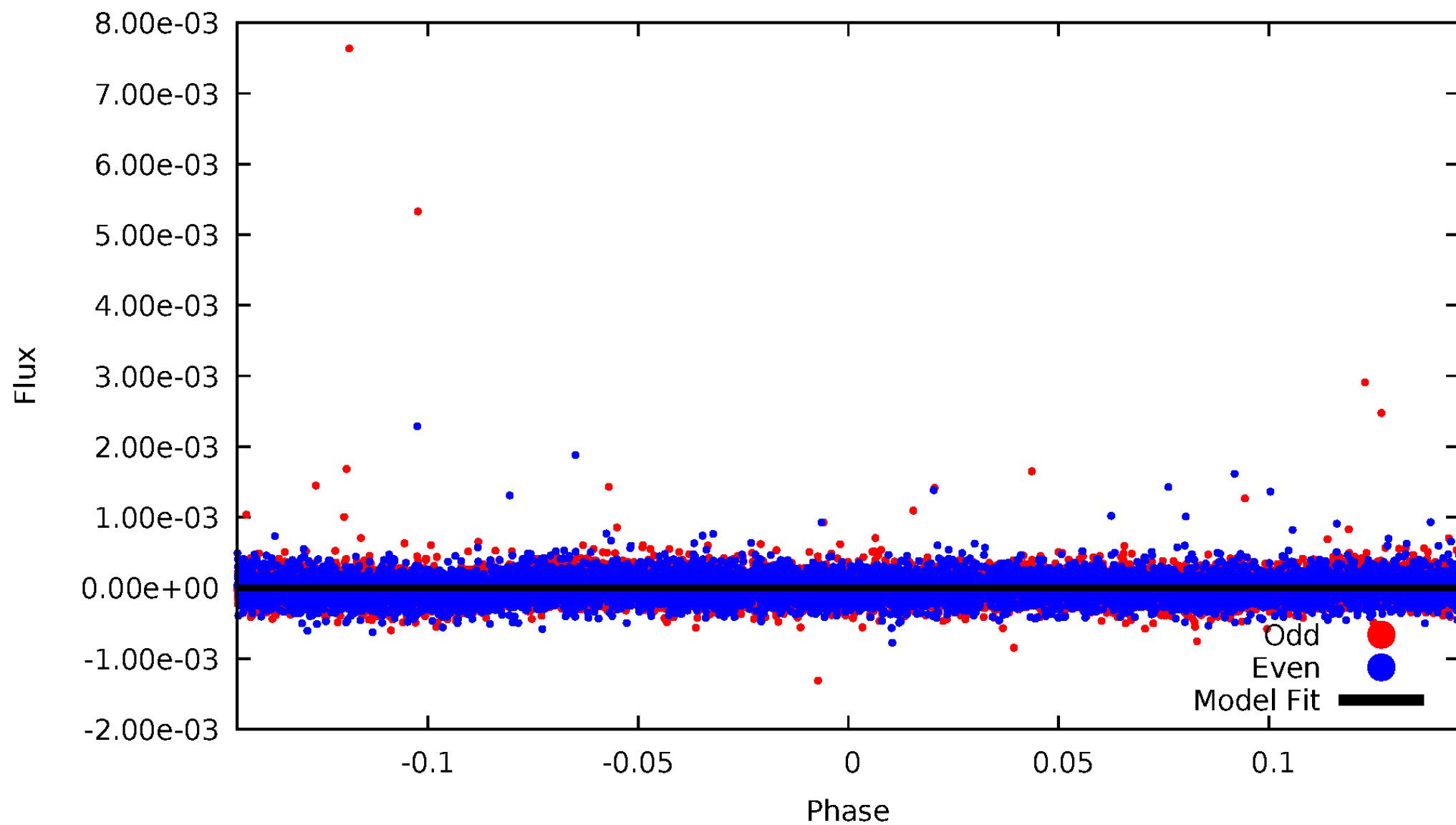


TCE 008684359-01



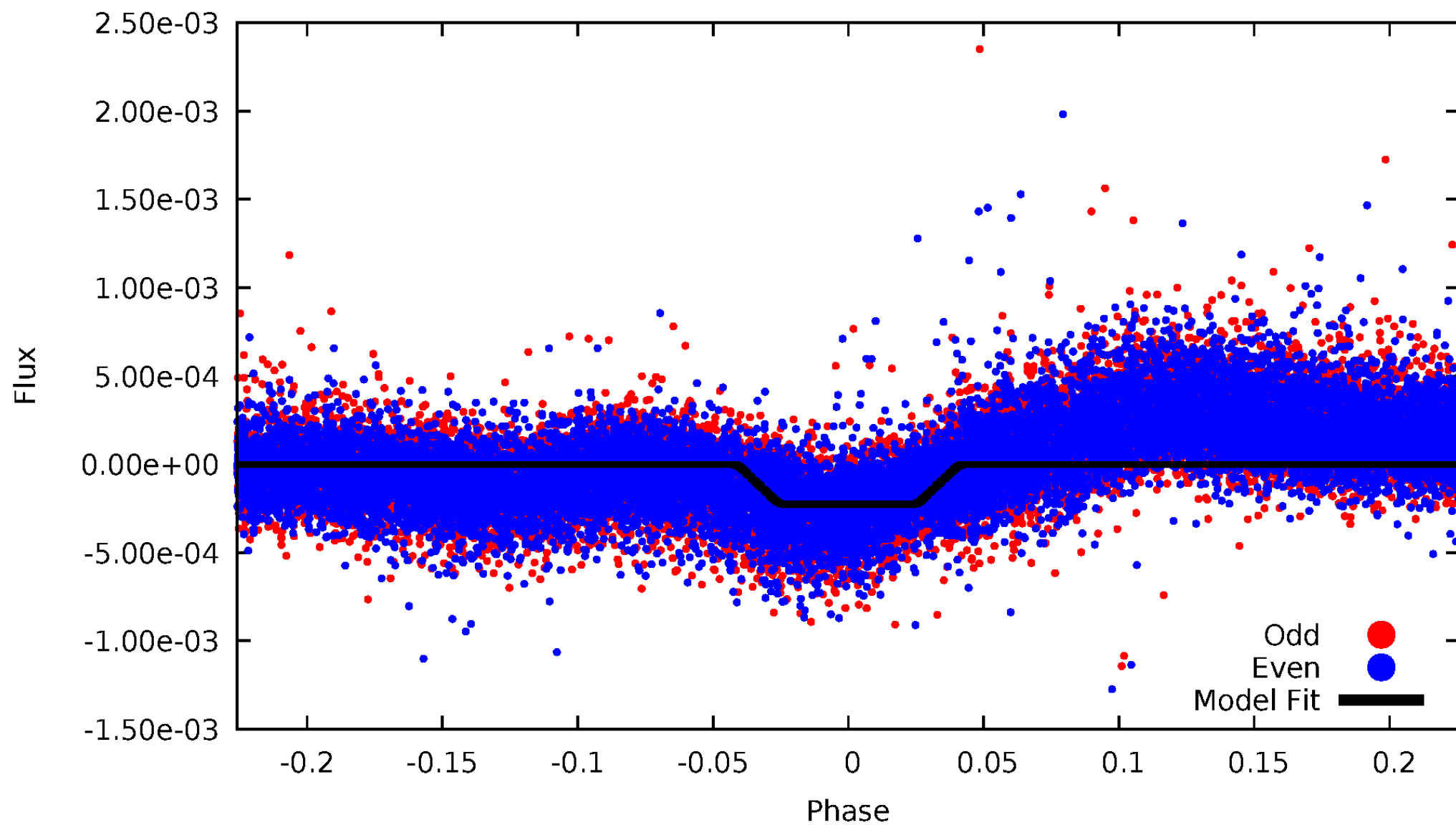
DV Odd/Even

TCE 008684359-01



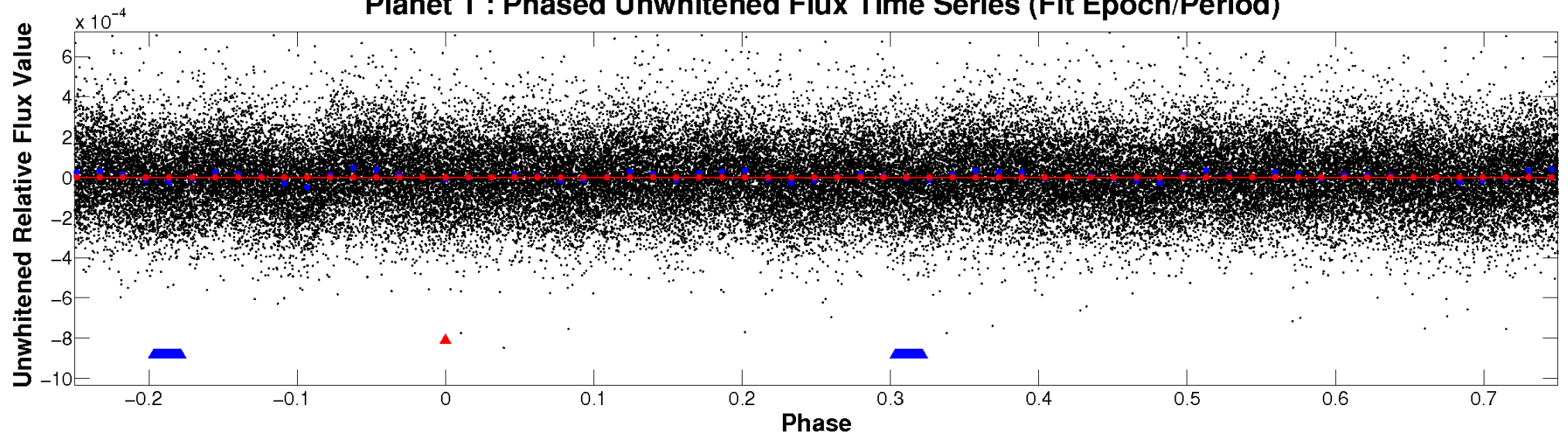
ALT Odd/Even

TCE 008684359-01

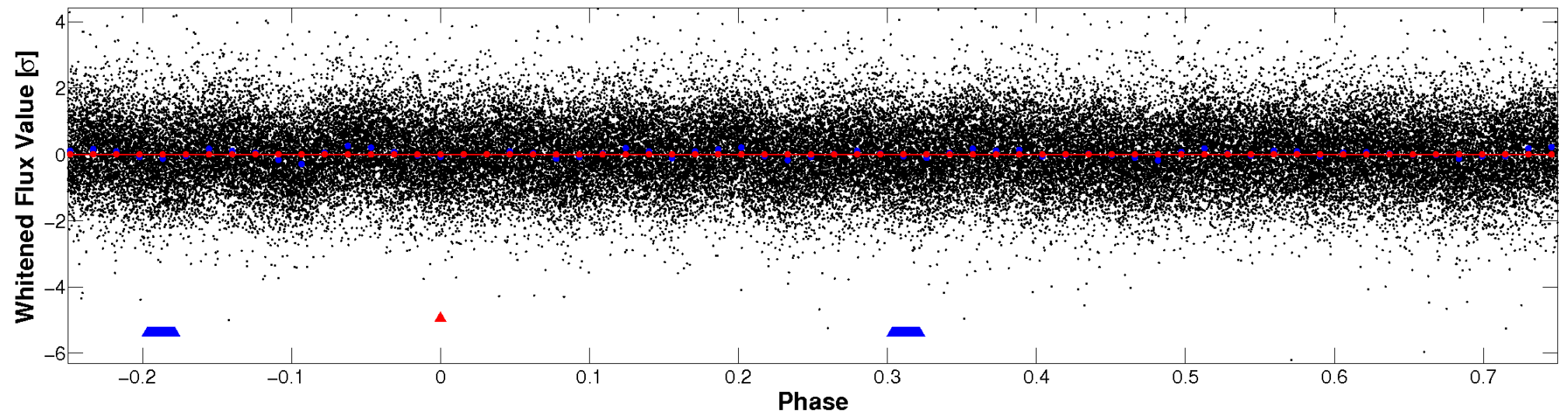


Non-Whitened Vs. Whitened Light Curve

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

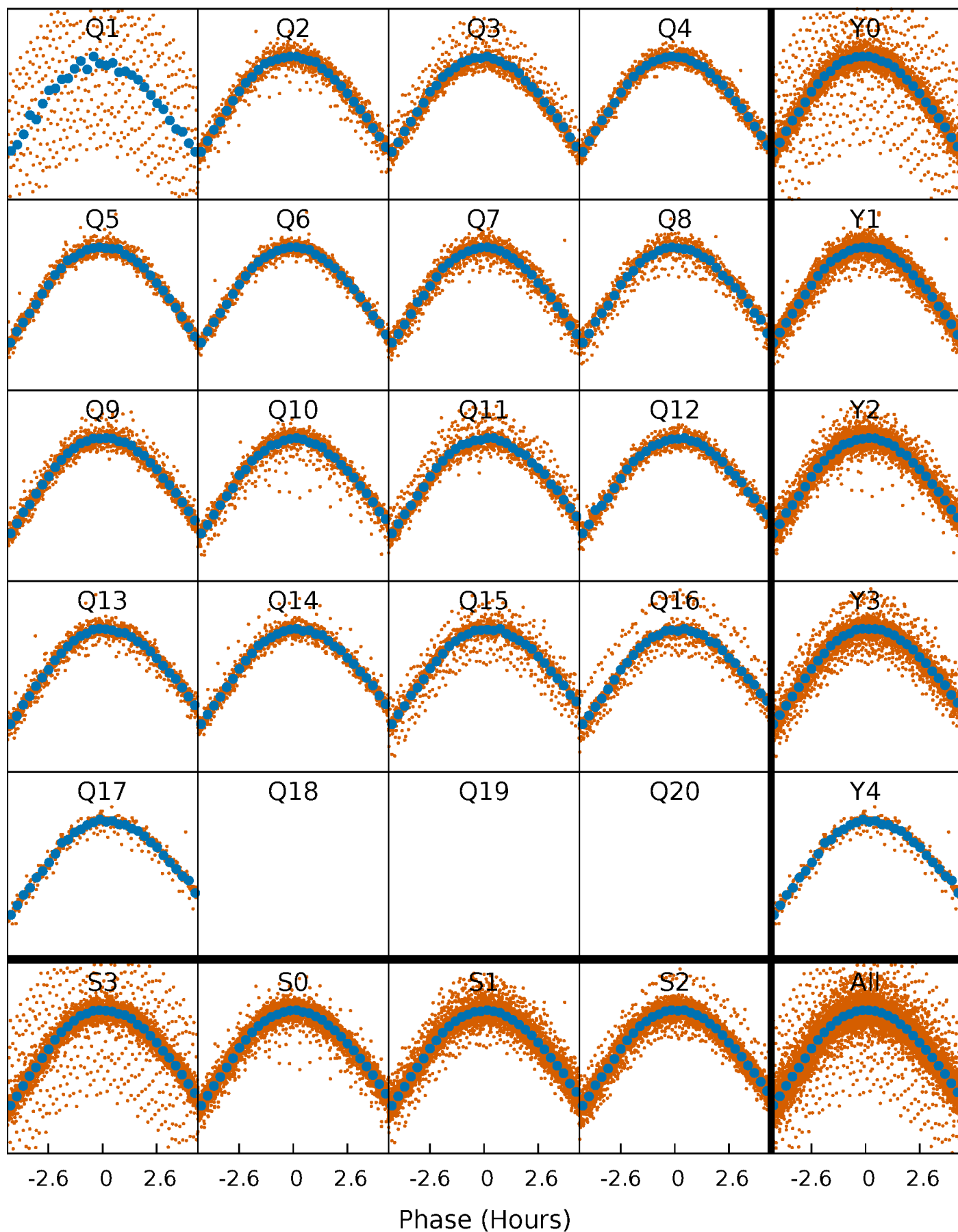


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



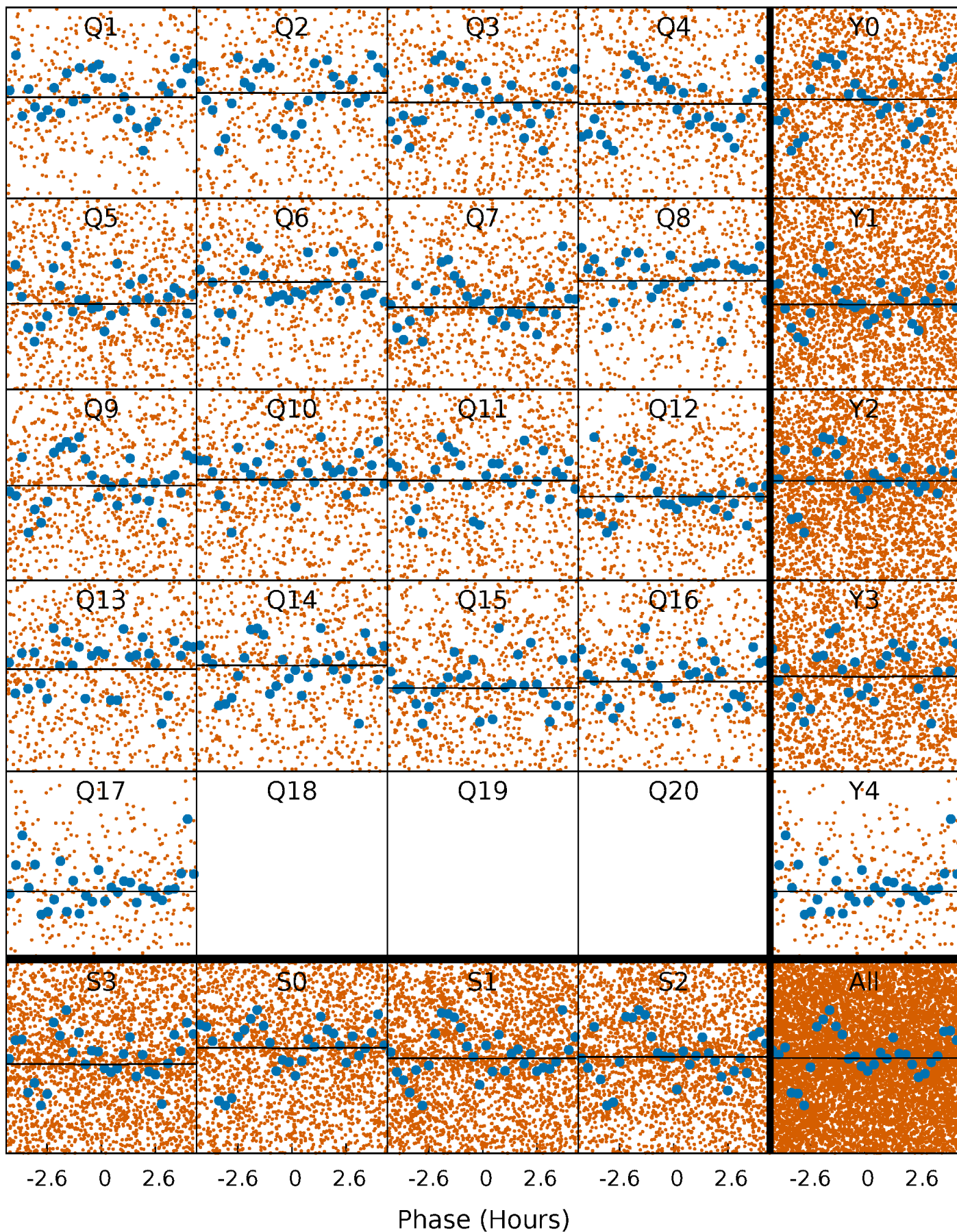
PDC Quarter-Phased Transit Curves

TCE 008684359-01 P= 1.315049 Days $T_0=132.350903$ (BKJD)



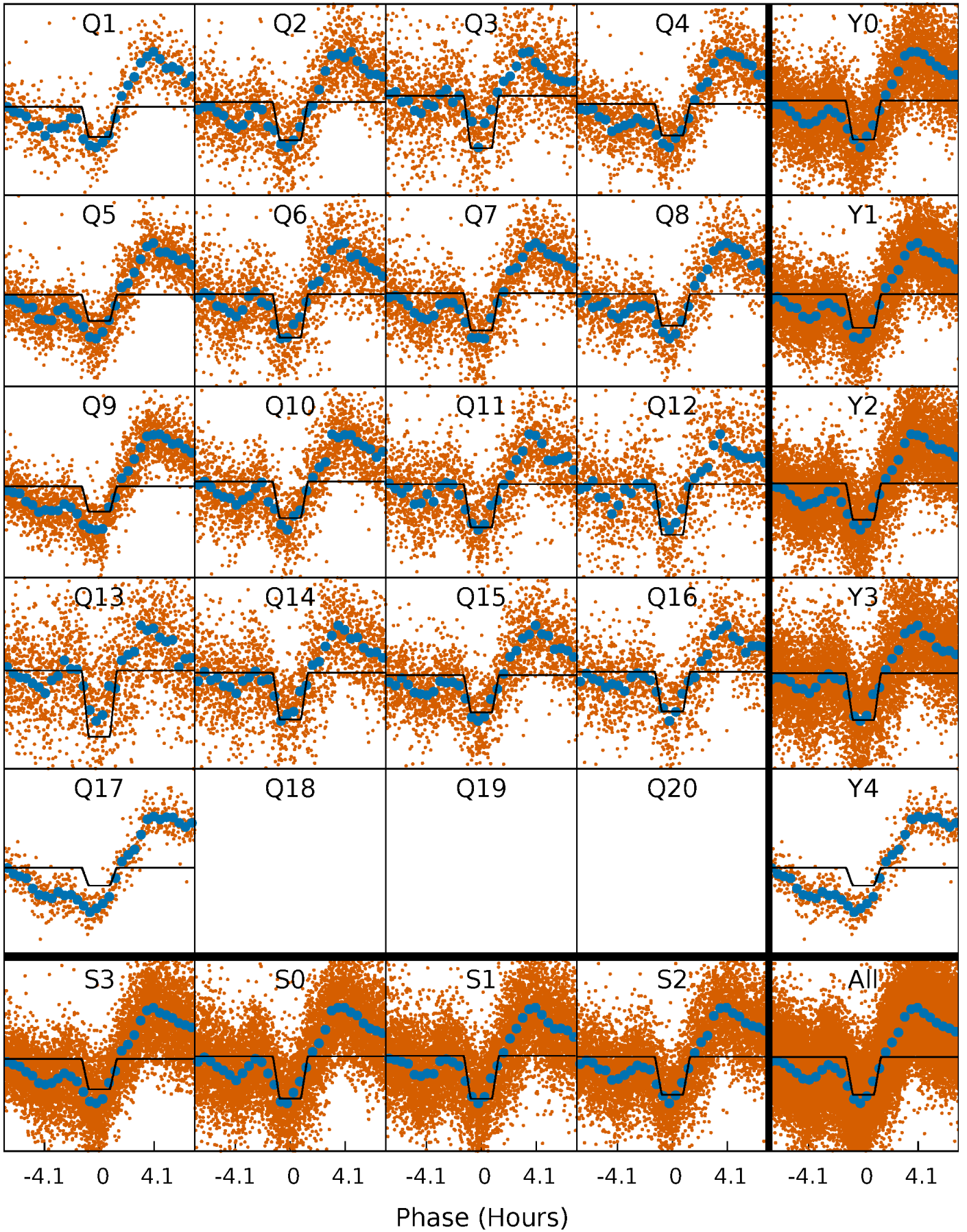
DV Quarter-Phased Transit Curves

TCE 008684359-01 P= 1.315049 Days $T_0=132.350903$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

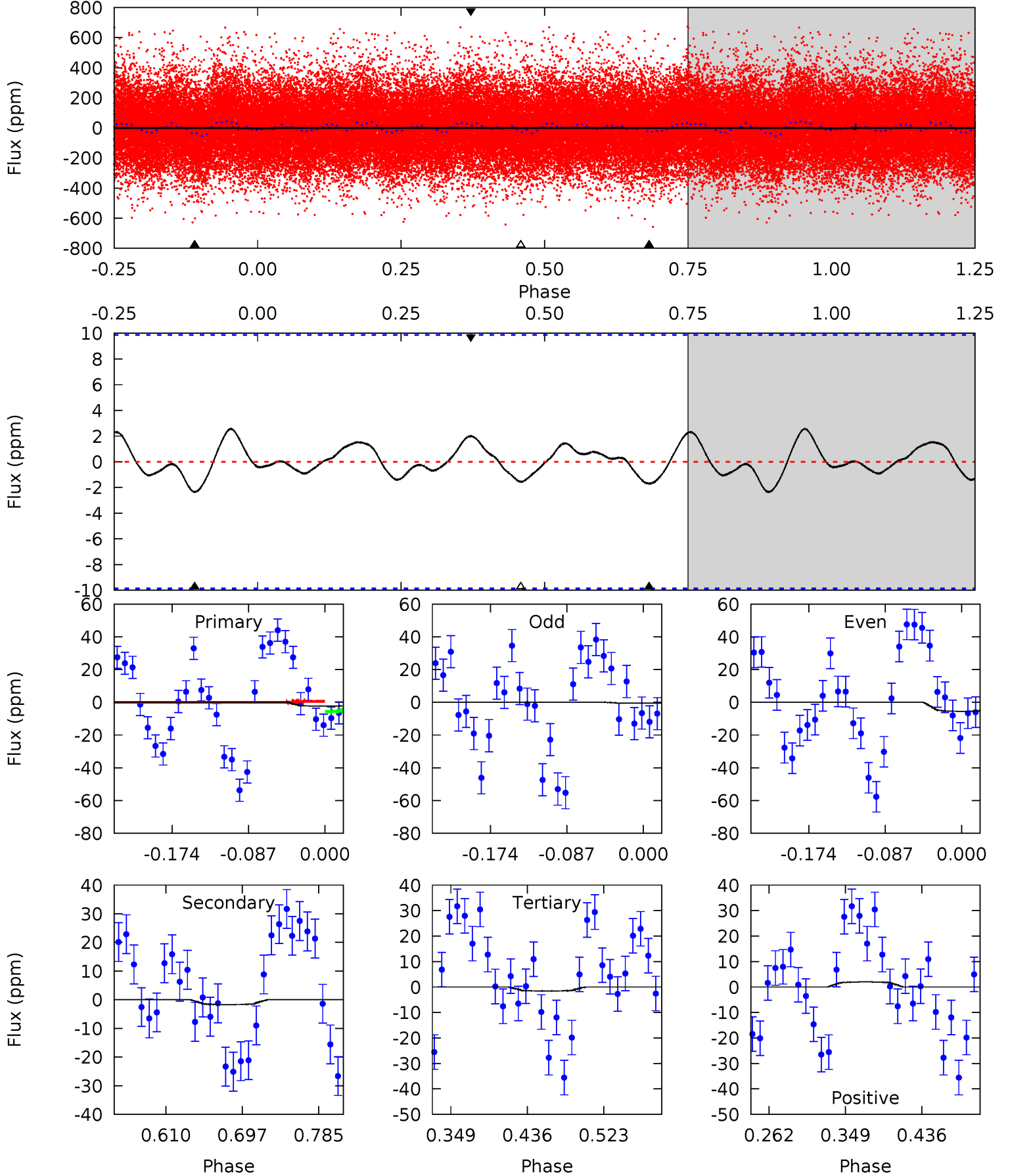
TCE 008684359-01 P= 1.315060 Days $T_0=132.113386$ (BKJD)



DV Model-Shift Uniqueness Test

008684359-01, P = 1.315049 Days, E = 131.035854 Days

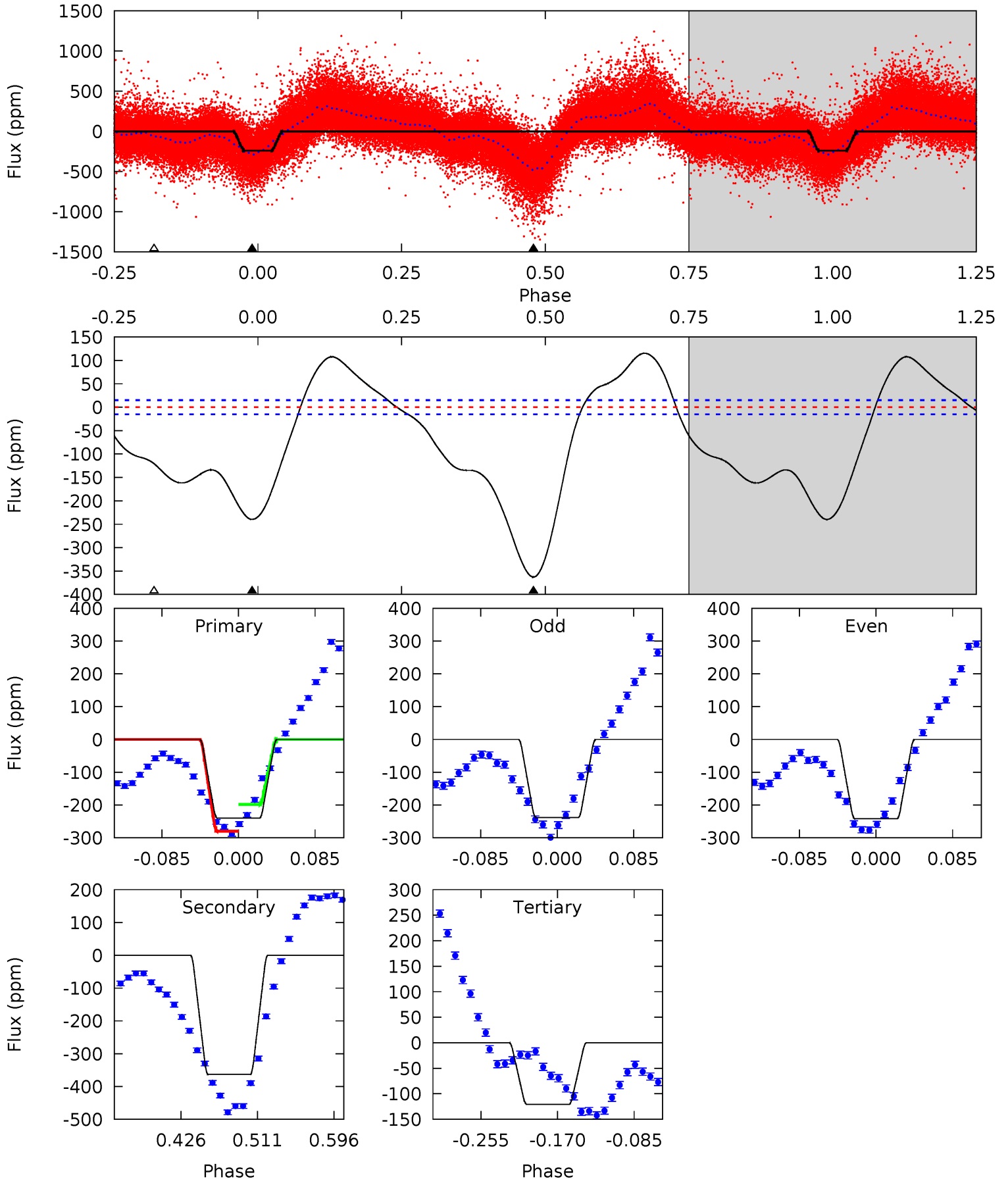
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.09	0.79	0.72	0.93	4.59	1.71	0.42	0.37	0.16	0.07	-0.14	1.17	0.42	0.52	1.17



Alt Model-Shift Uniqueness Test

008684359-01, P = 1.315060 Days, E = 130.798326 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
72.4	109.6	36.4	0	4.60	1.72	27.7	36.0	72.4	73.2	109.6	0.48	1.02	0.24	12.3



Stellar Parameters For KIC 008684359

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8404^{+67}_{-92}	$3.781^{+0.243}_{-0.027}$	$-0.400^{+0.100}_{-0.200}$	$2.960^{+0.149}_{-0.847}$	$1.933^{+0.044}_{-0.266}$	$0.105^{+0.165}_{-0.010}$
	+1%/-1%	+6%/-1%	+25%/-50%	+5%/-29%	+2%/-14%	+157%/-9%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 008684359-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2 ± 2	$1.53^{+1.70}_{-1.15}$	5108^{+155}_{-409}	-3416^{+10294}_{-974}	$0.210^{+3.072}_{-0.254}$
Alt.	-363 ± 3	$4.40^{+2.36}_{-2.14}$	5109^{+148}_{-368}	9972^{+6865}_{-2449}	$8.923^{+23.630}_{-5.191}$

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

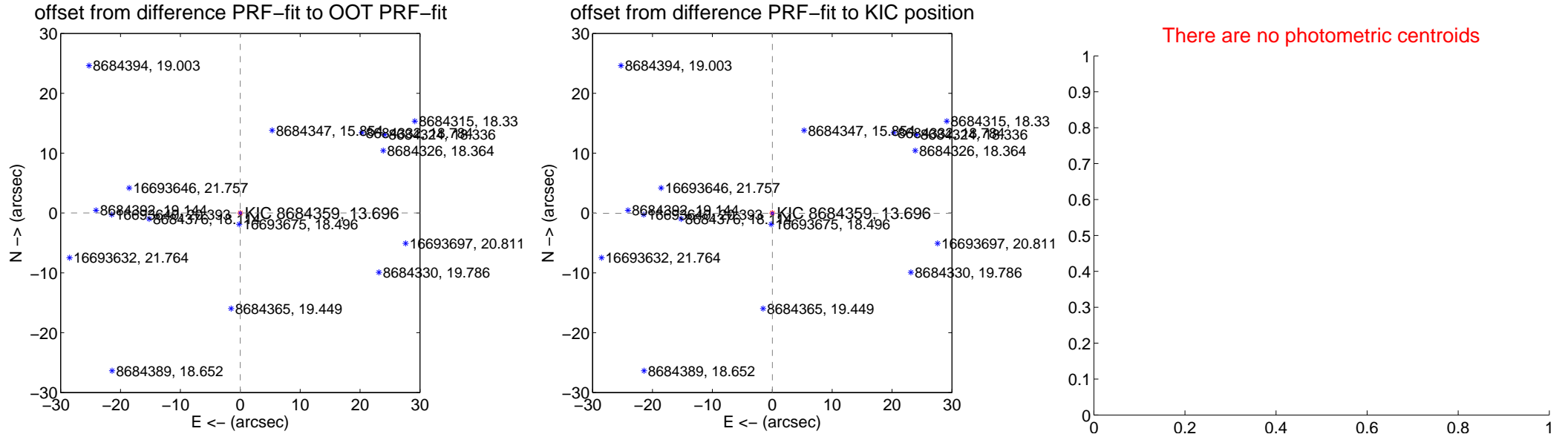
DV Centroid Data

Supplemental centroid analysis for 008684359-01. Kepler magnitude: 13.70. Transit SNR 0.04

There are 0 quarters with good PRF difference image offsets

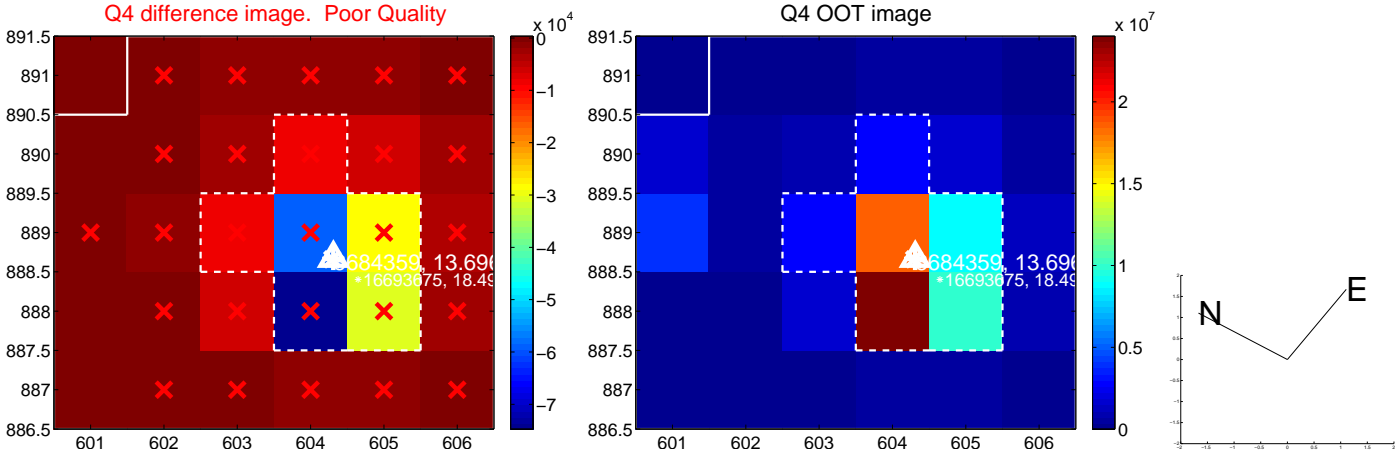
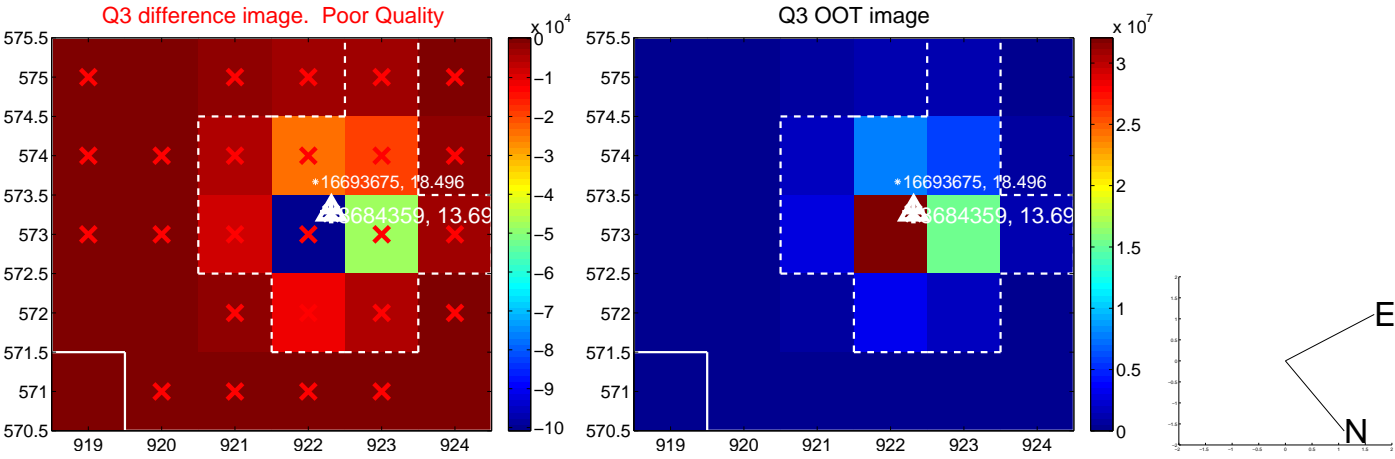
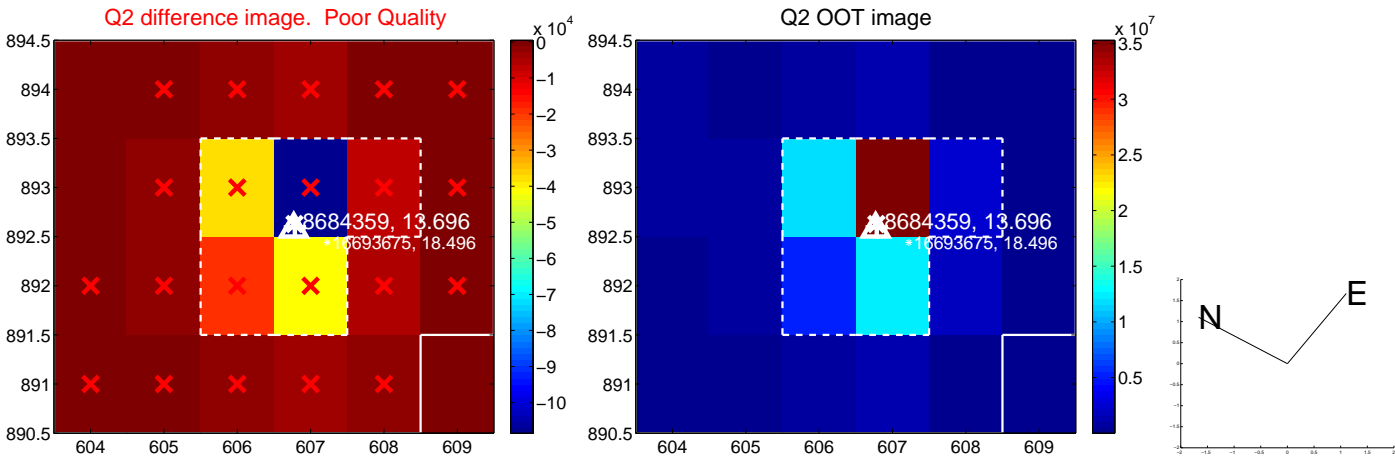
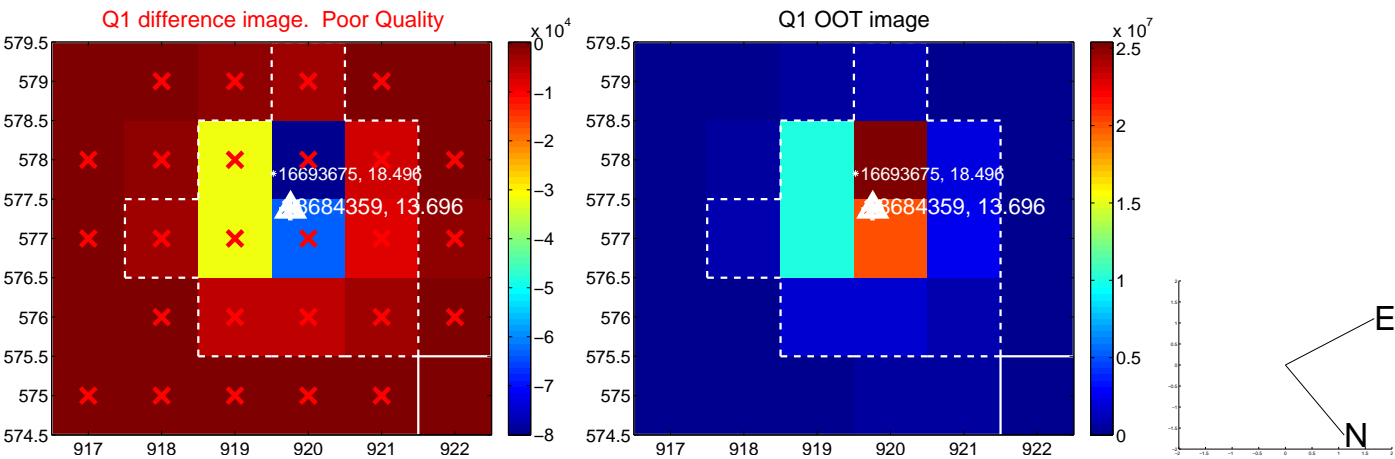
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.005 ± 0.067	0.07	0.001 ± 0.067	0.005 ± 0.067
PRF-fit source offset from KIC position	0.055 ± 0.068	0.81	-0.019 ± 0.071	-0.051 ± 0.068
photometric centroid source offset	—	—	—	—

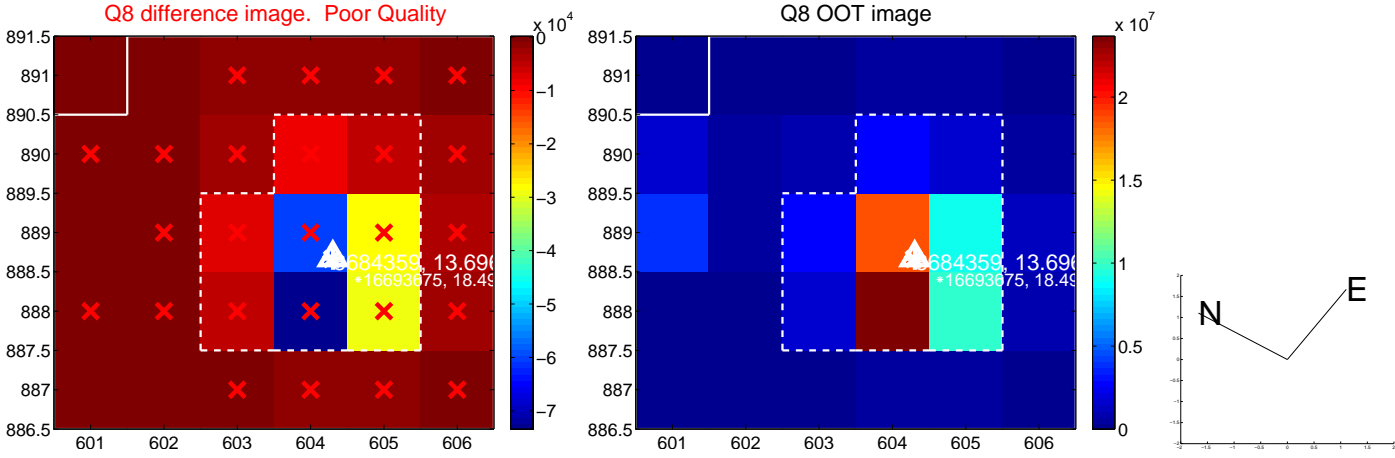
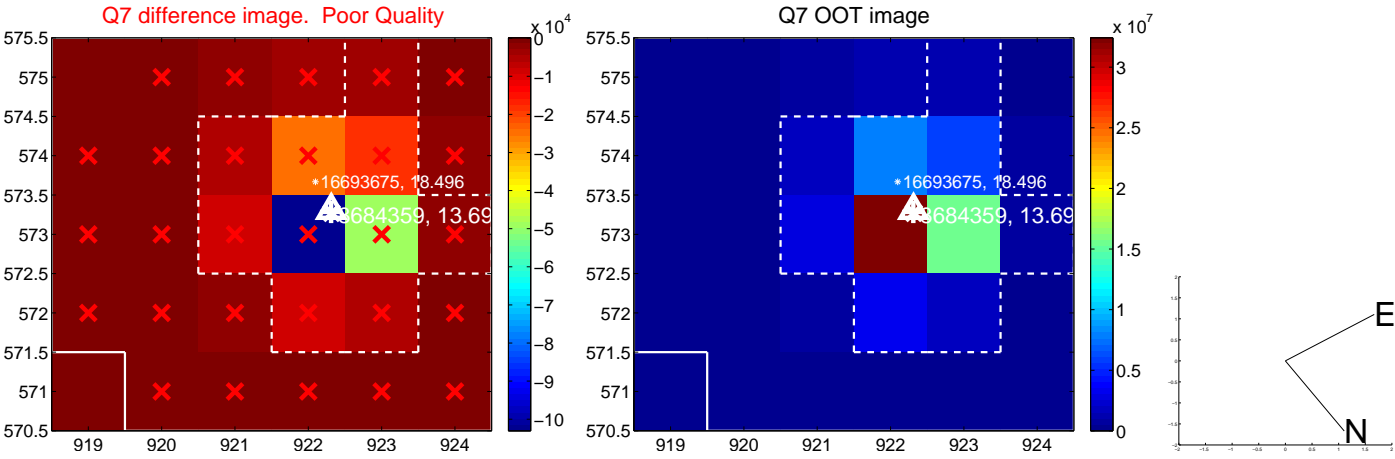
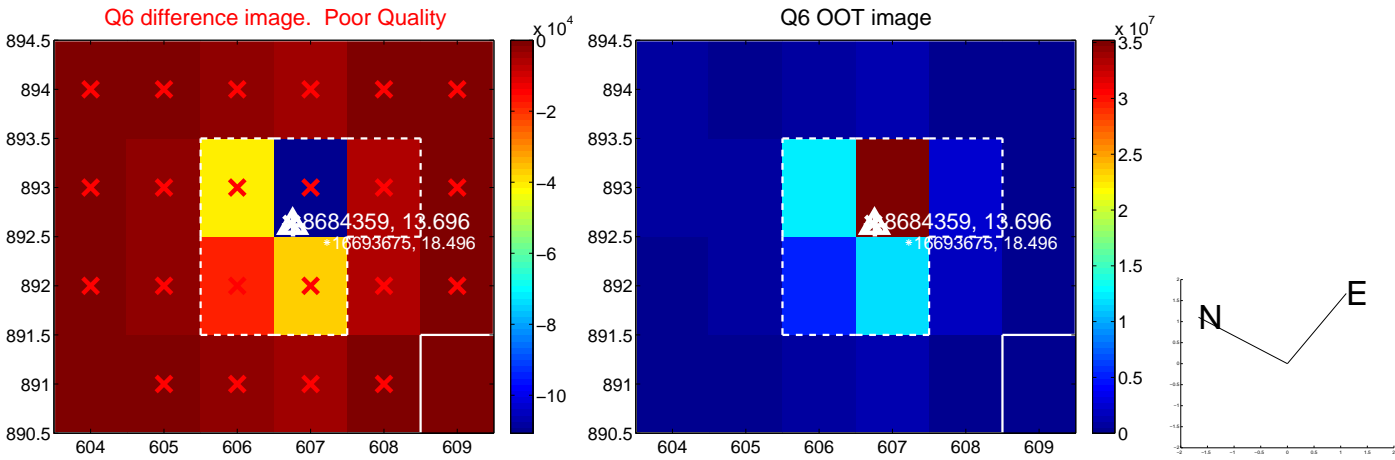
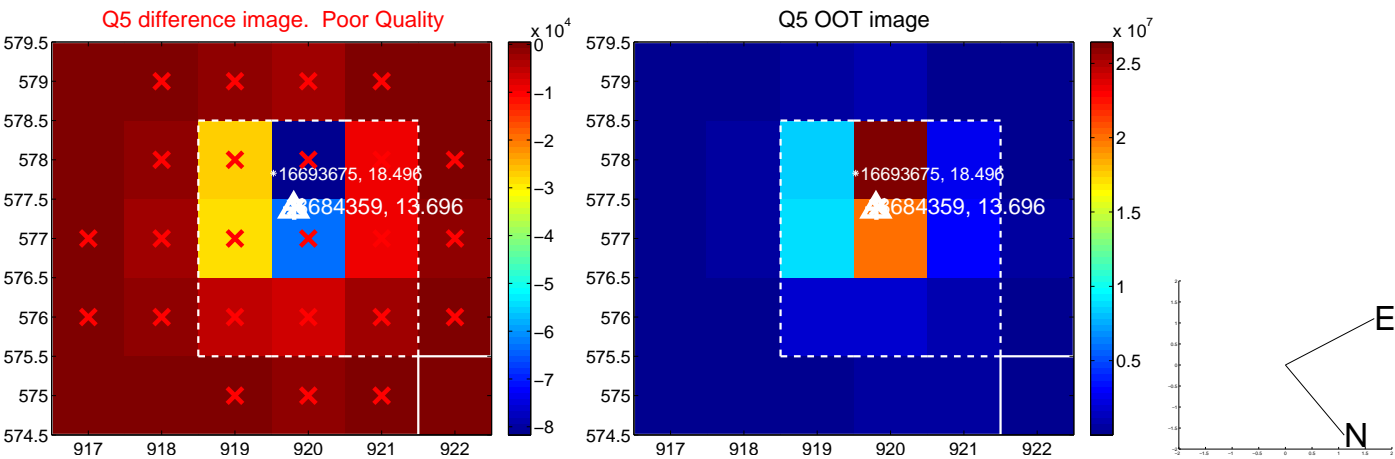


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

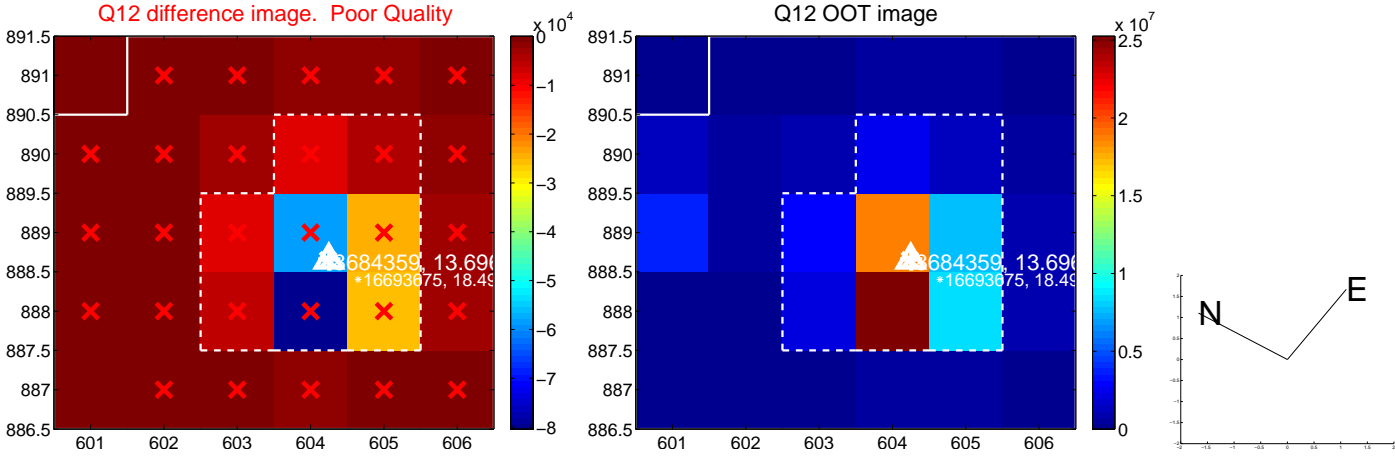
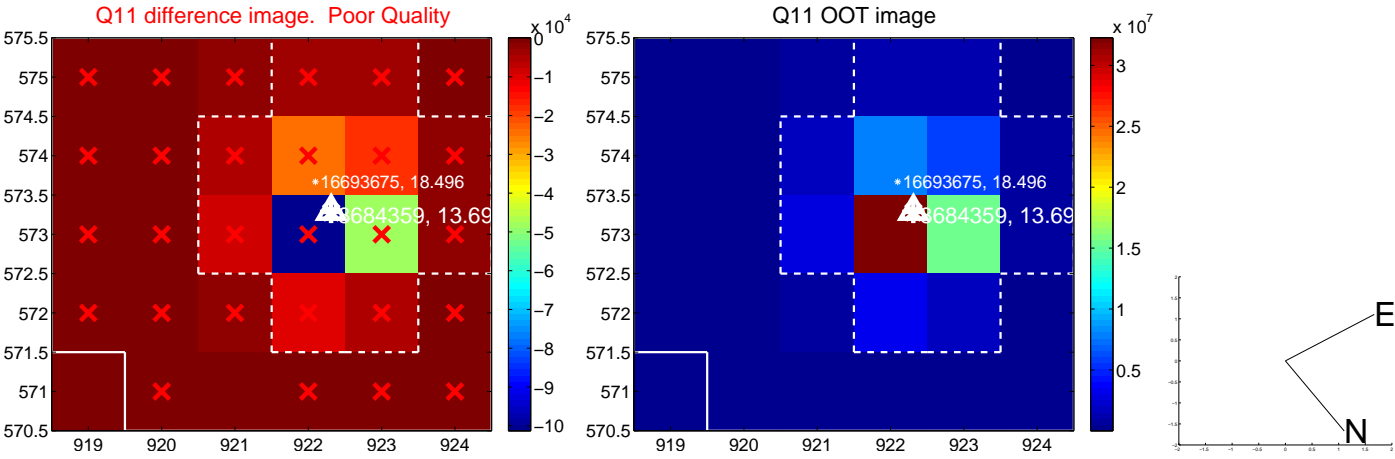
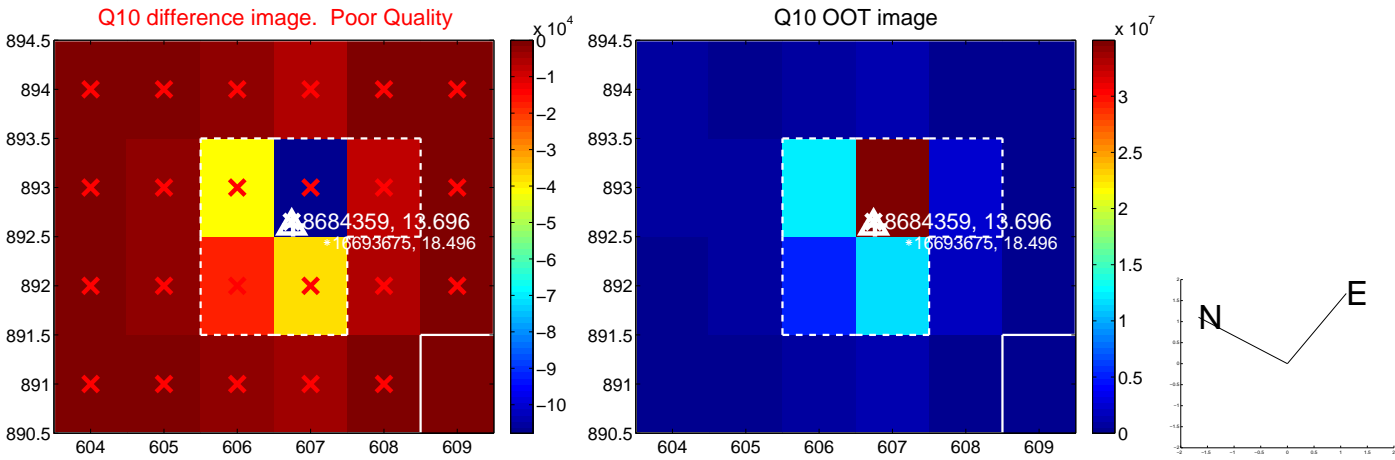
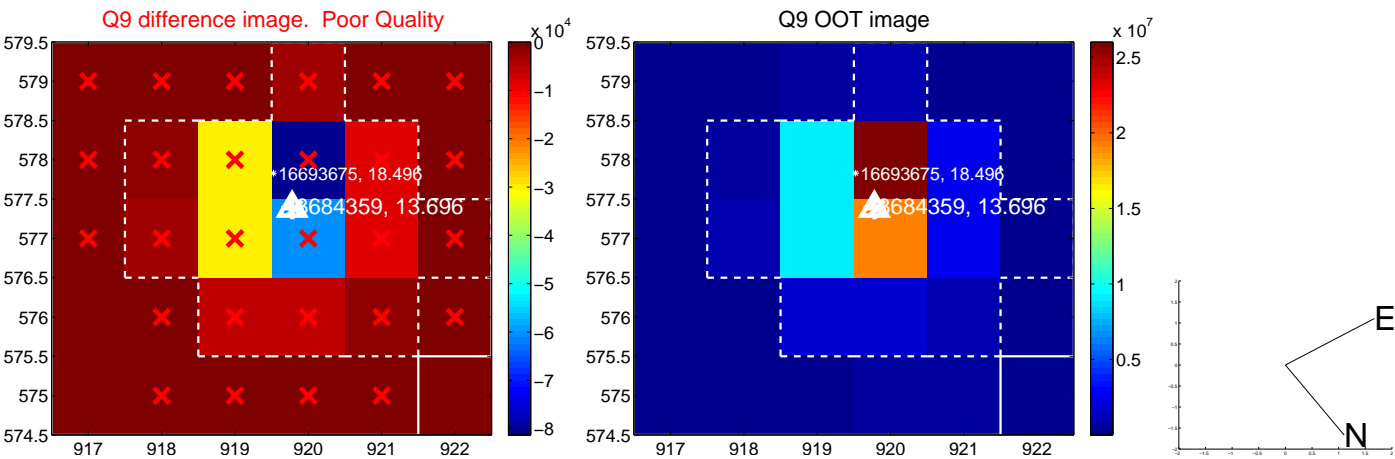
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



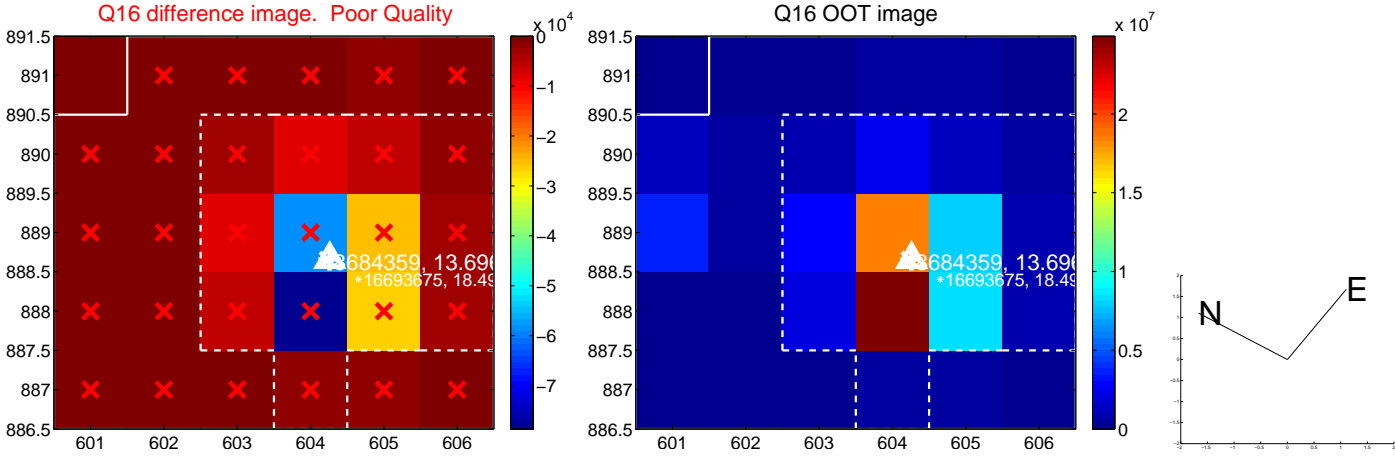
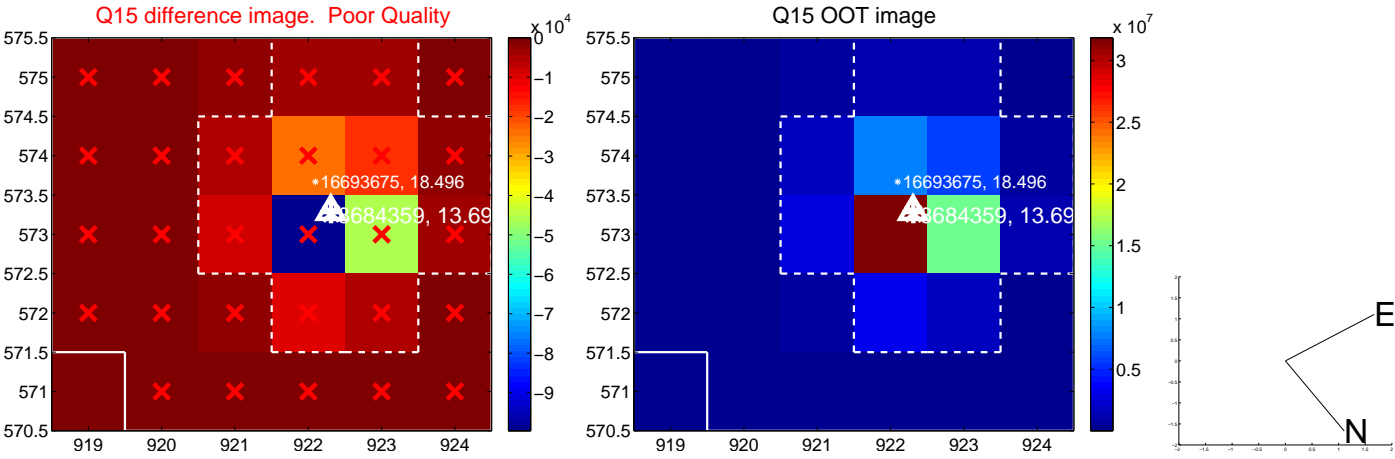
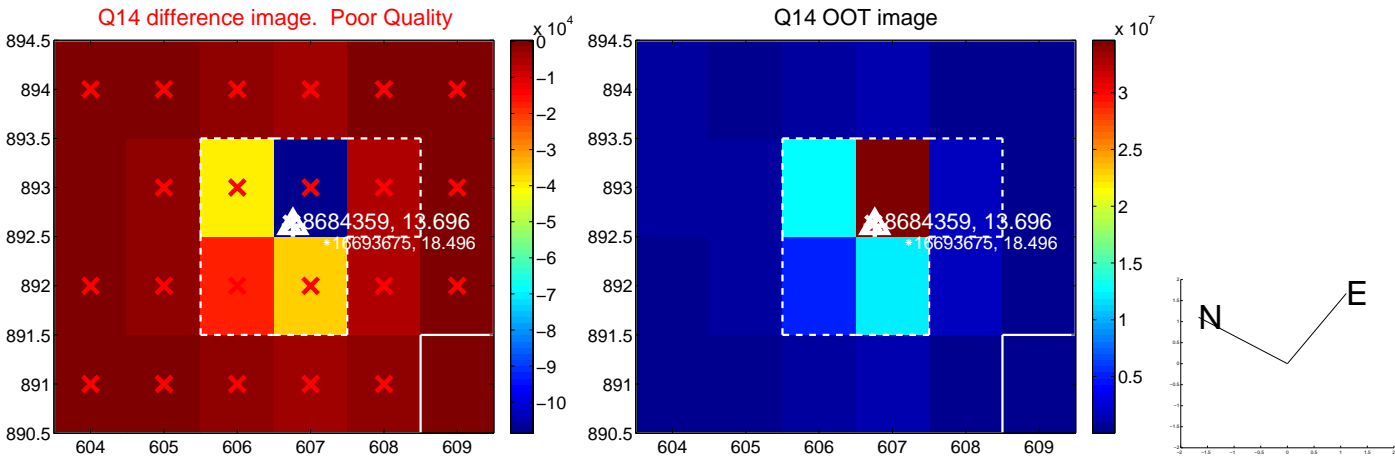
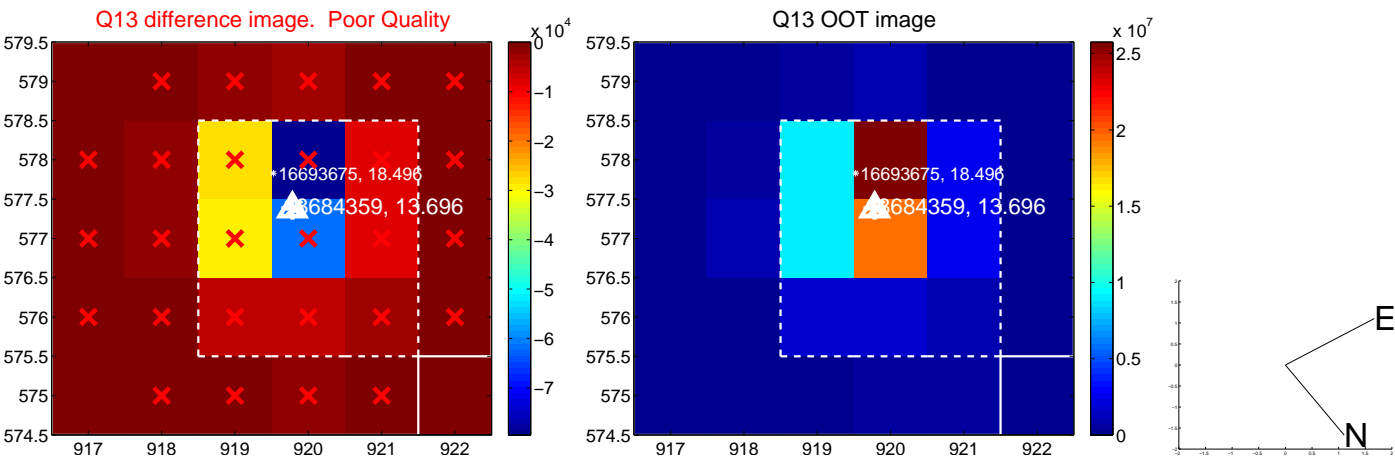
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



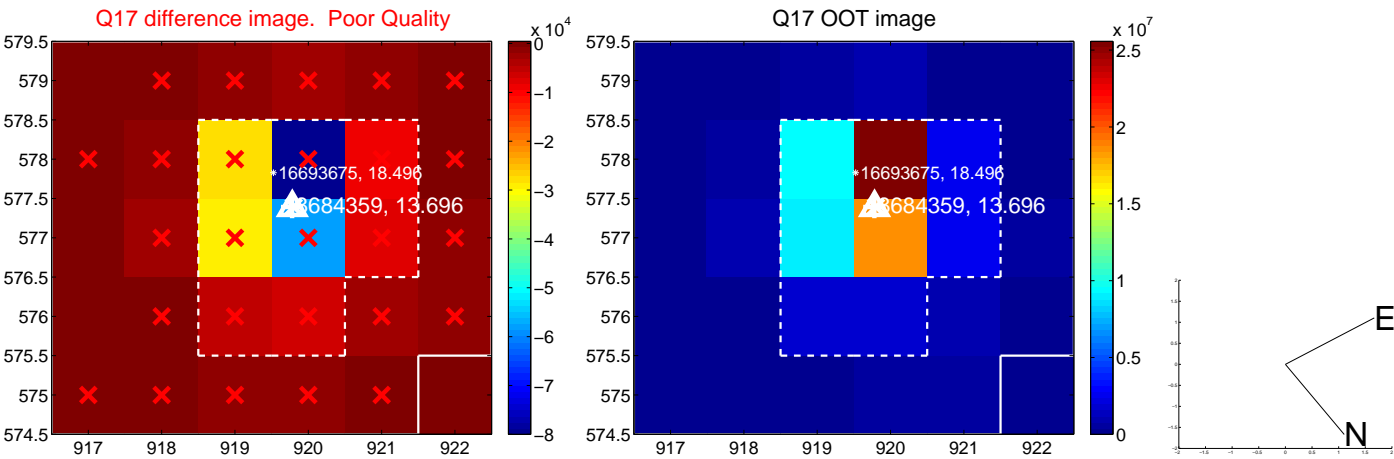
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



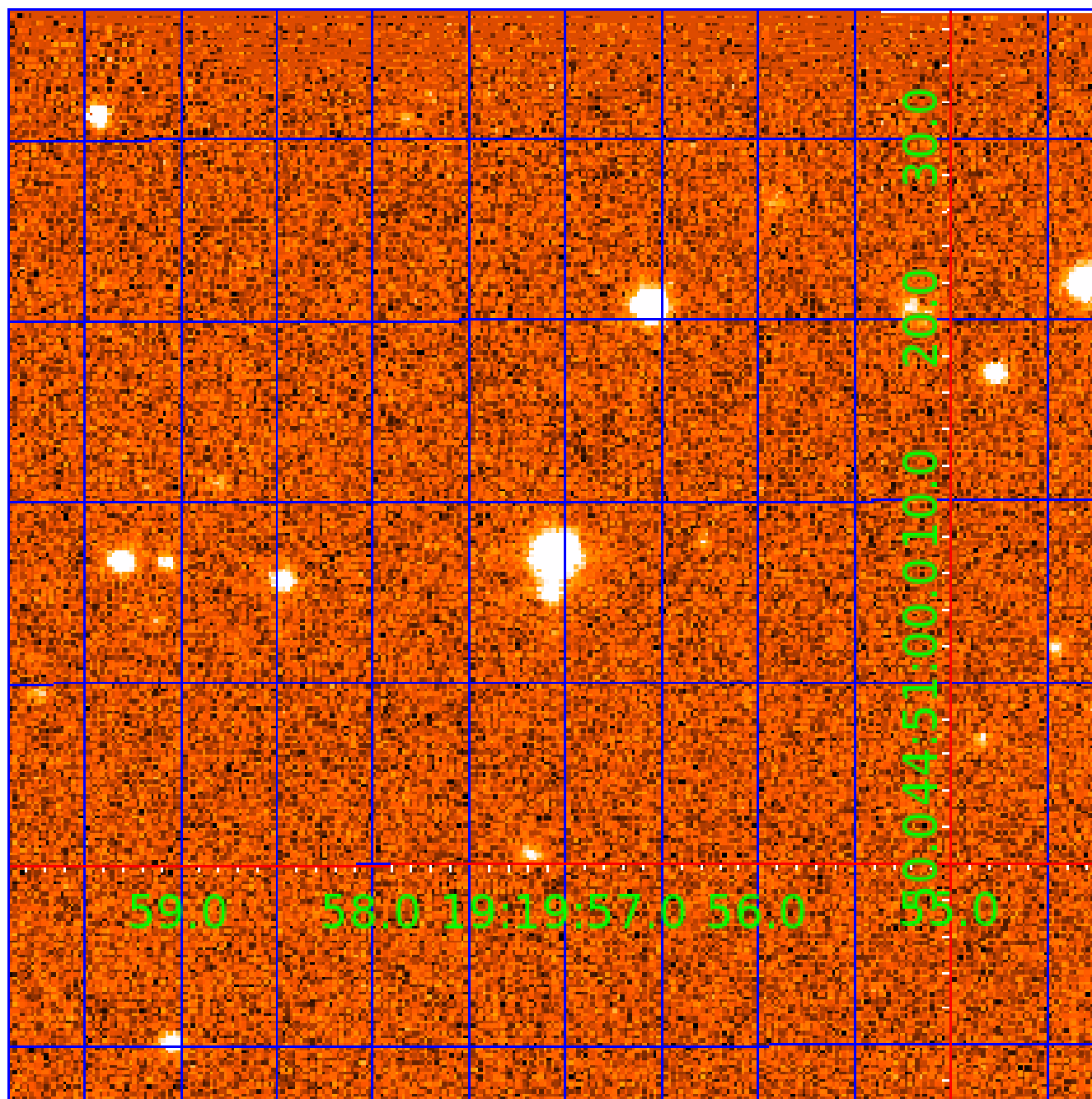
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 008684359

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})
008684359-01	OBS	No	1.315049	132.350903	0.2	2.292	10.3	0.0	2.96	8404	0.15	45755.56
008684359-02	OBS	No	0.657535	132.092244	367.3	1.500	8.1	-1.0	2.96	8404	5.76	115294.27

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008684359-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008684359-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS

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

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

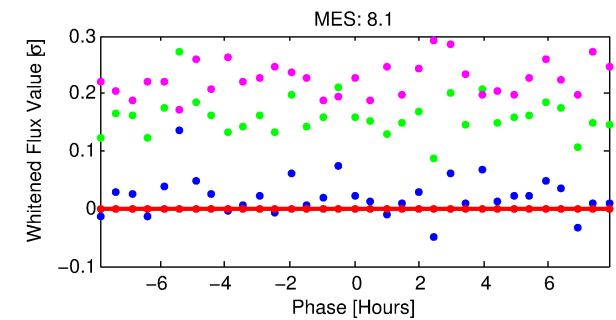
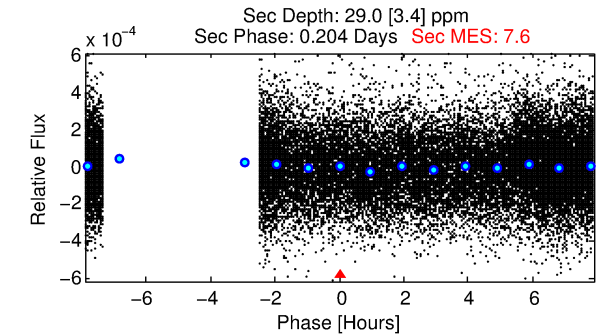
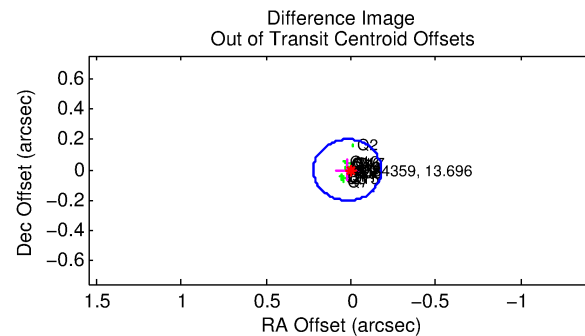
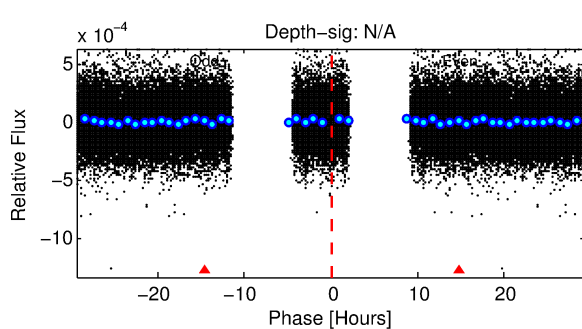
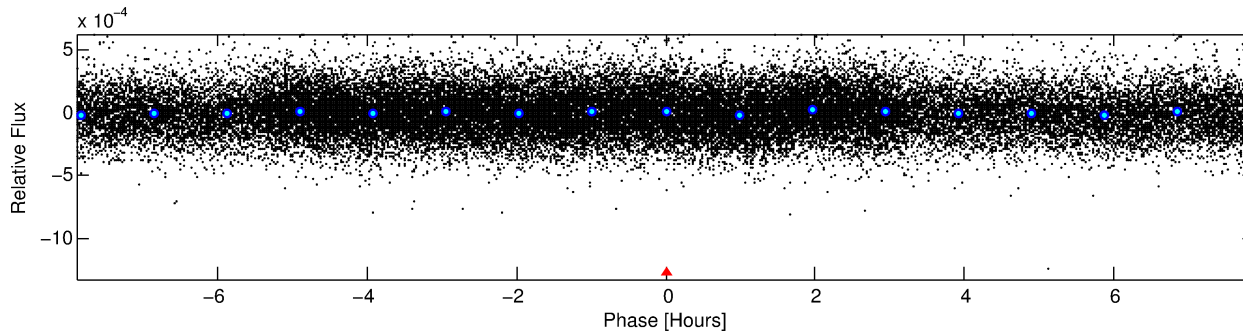
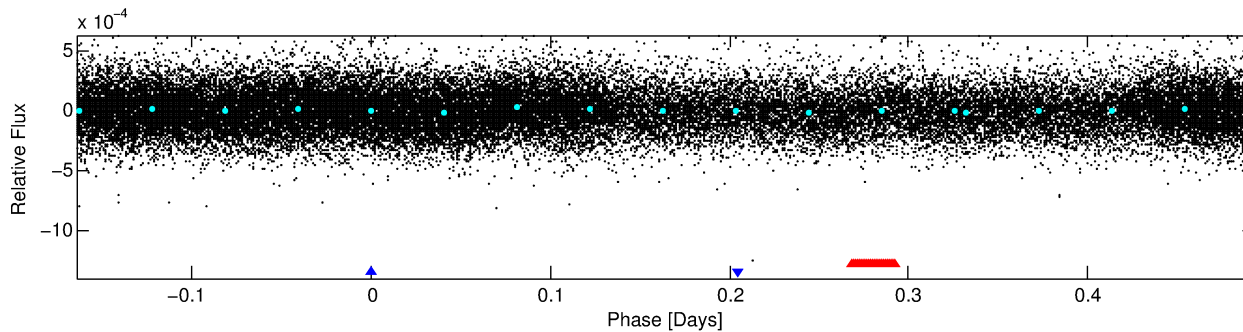
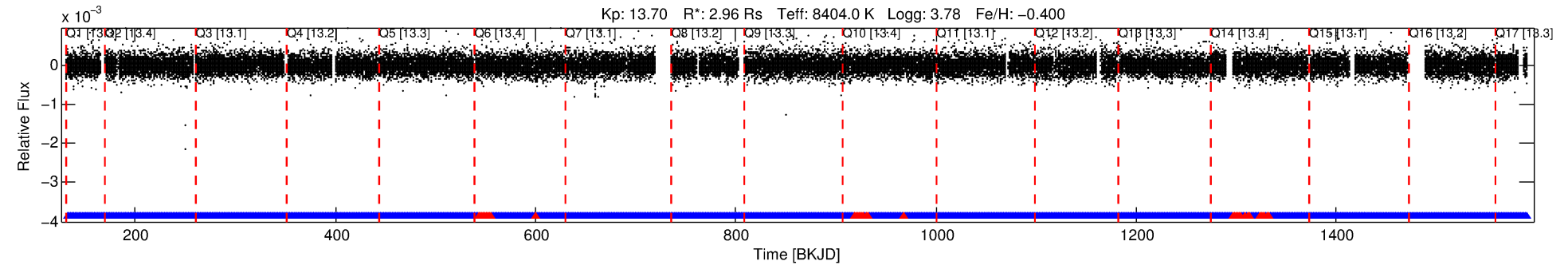
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008684359-02

No Significant Match Found

DV One-Page Summary

KIC: 8684359 Candidate: 2 of 2 Period: 0.658 d



TPS TCE Results:

Period = 0.65754 d
Epoch = 132.0922 BKJD

DV fit results are unavailable

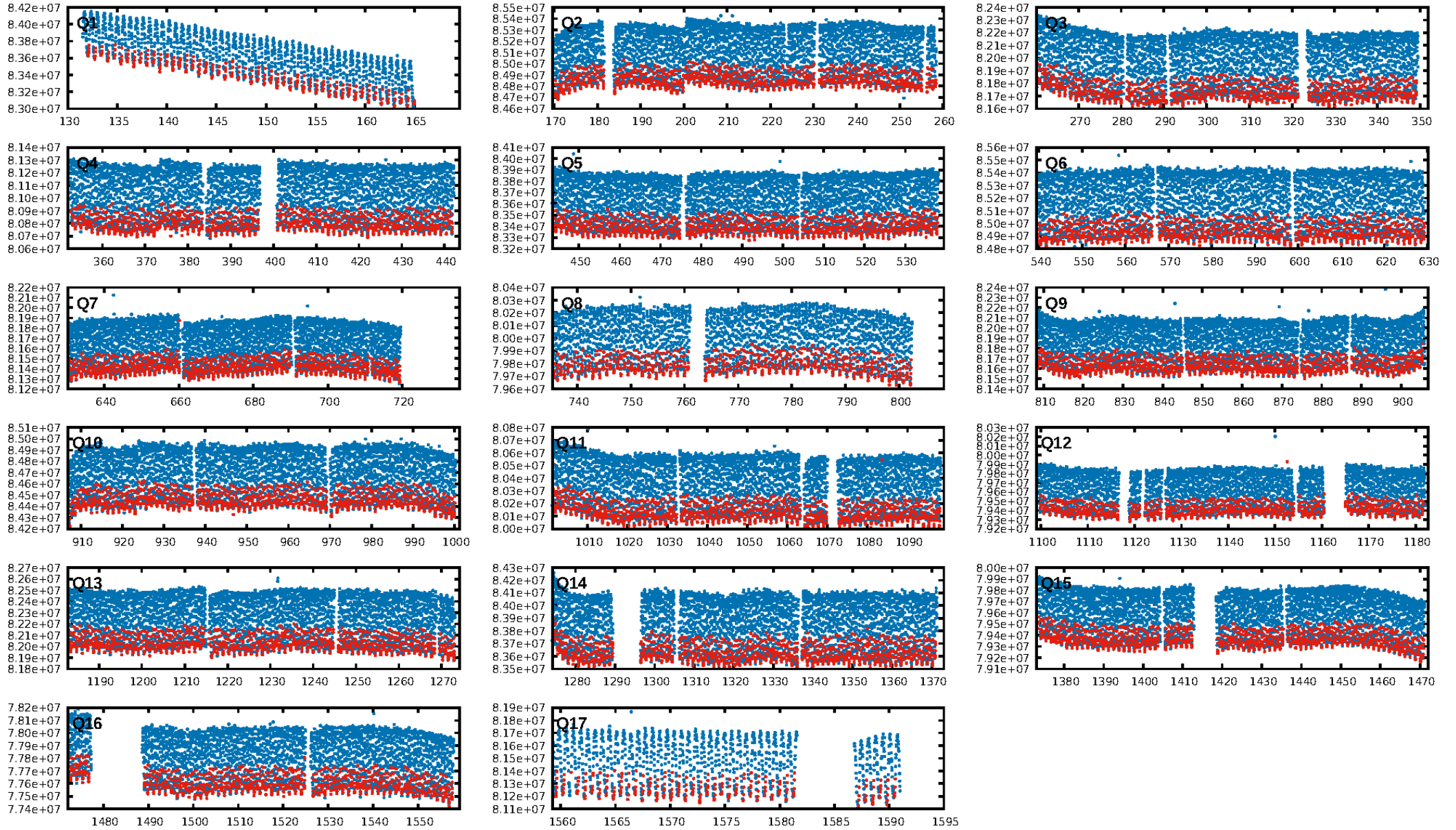
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [5.76σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.35e-14
RollingBand-fgt: 0.97 [1901/1952]
GhostDiagnostic-chr: 0.2808
Centroid-sig: 24.7%
Centroid-so: 0.024 arcsec [0.72σ]
OotOffset-rm: 0.023 arcsec [0.34σ]
KicOffset-rm: 0.051 arcsec [0.74σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

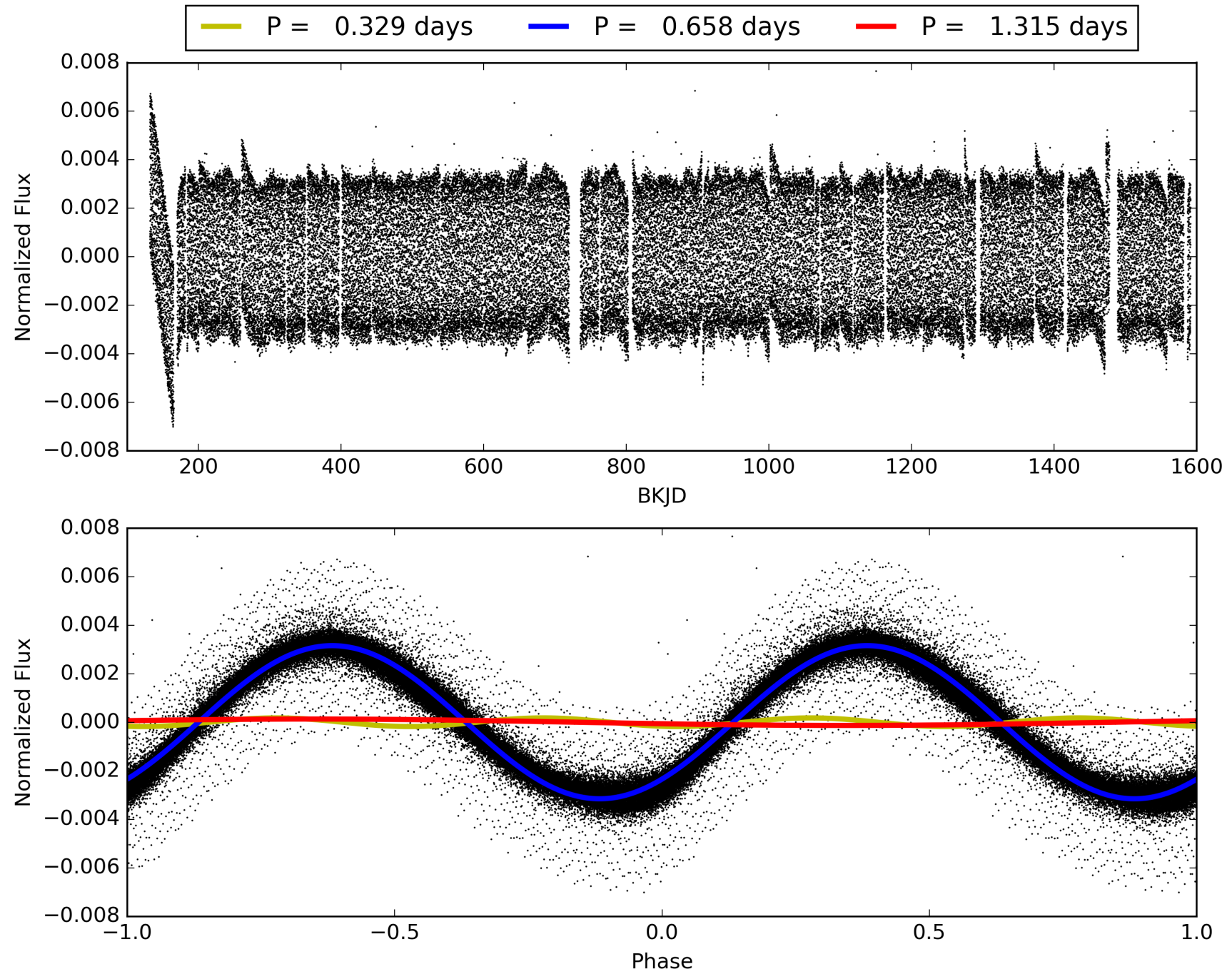
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:49:13 Z

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

TCE 008684359-02, PDC Light Curves

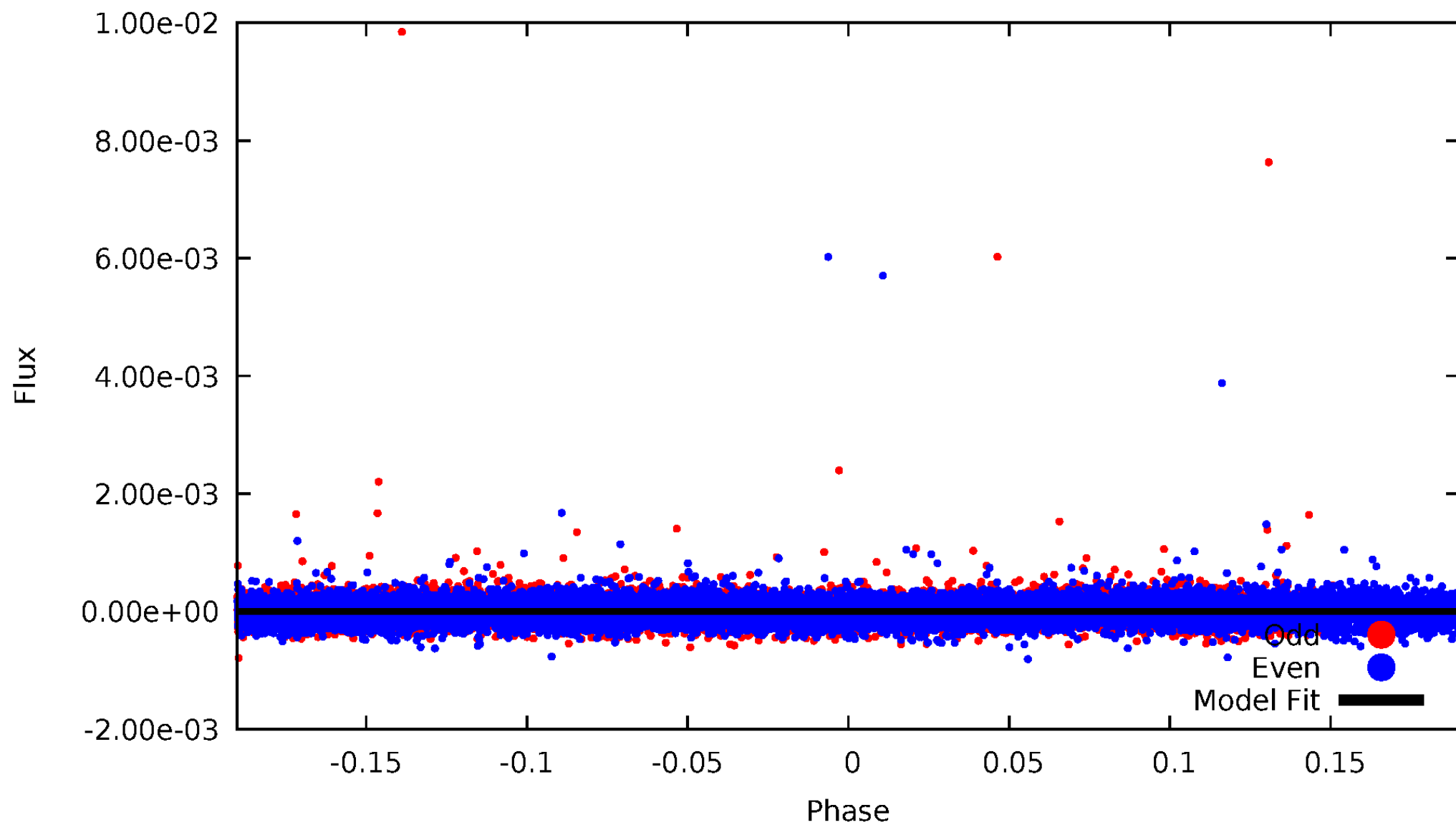


TCE 008684359-02



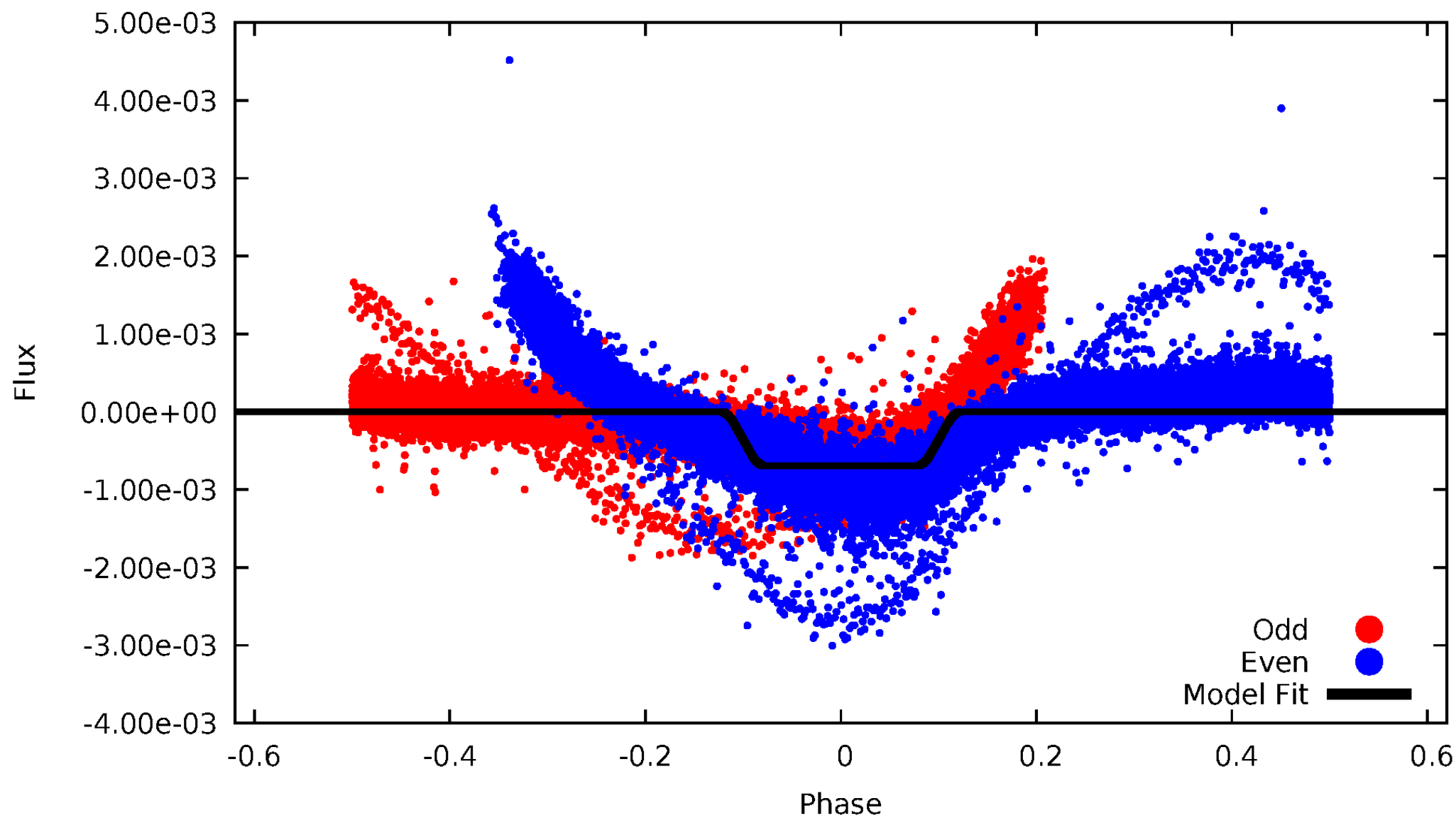
DV Odd/Even

TCE 008684359-02



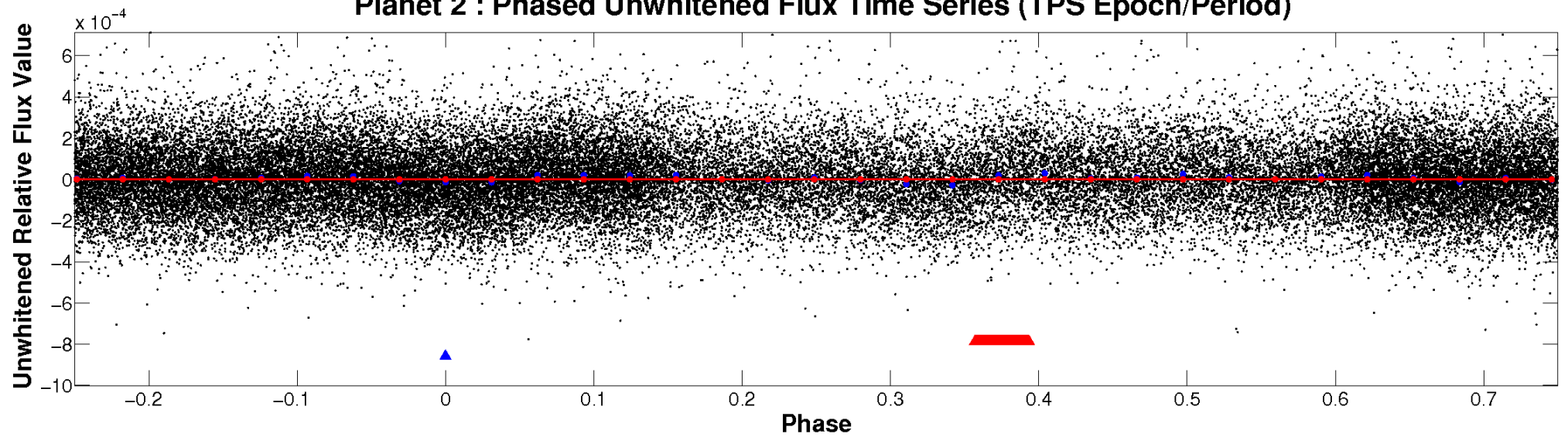
ALT Odd/Even

TCE 008684359-02

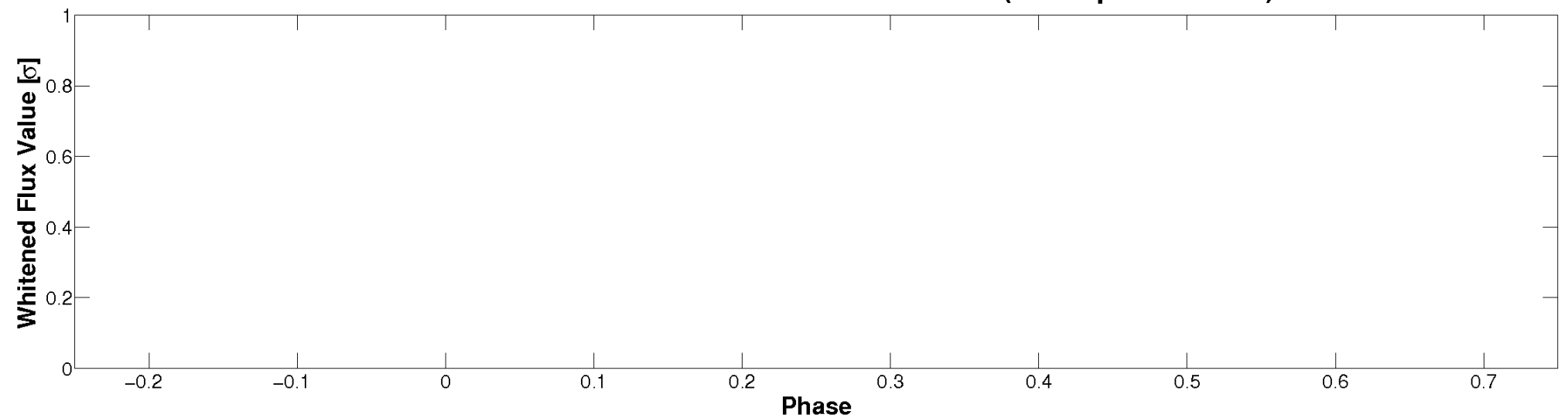


Non-Whitened Vs. Whitened Light Curve

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

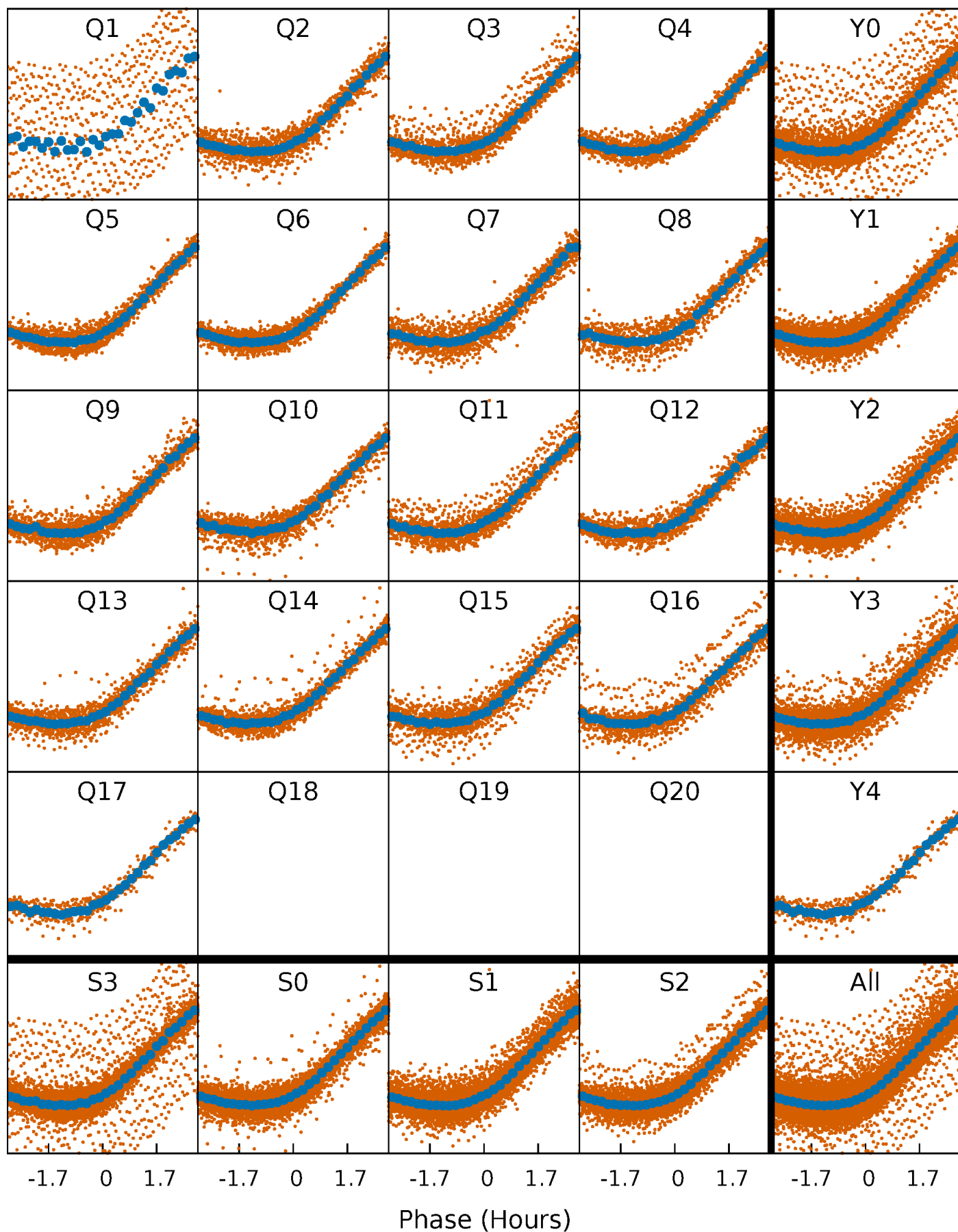


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



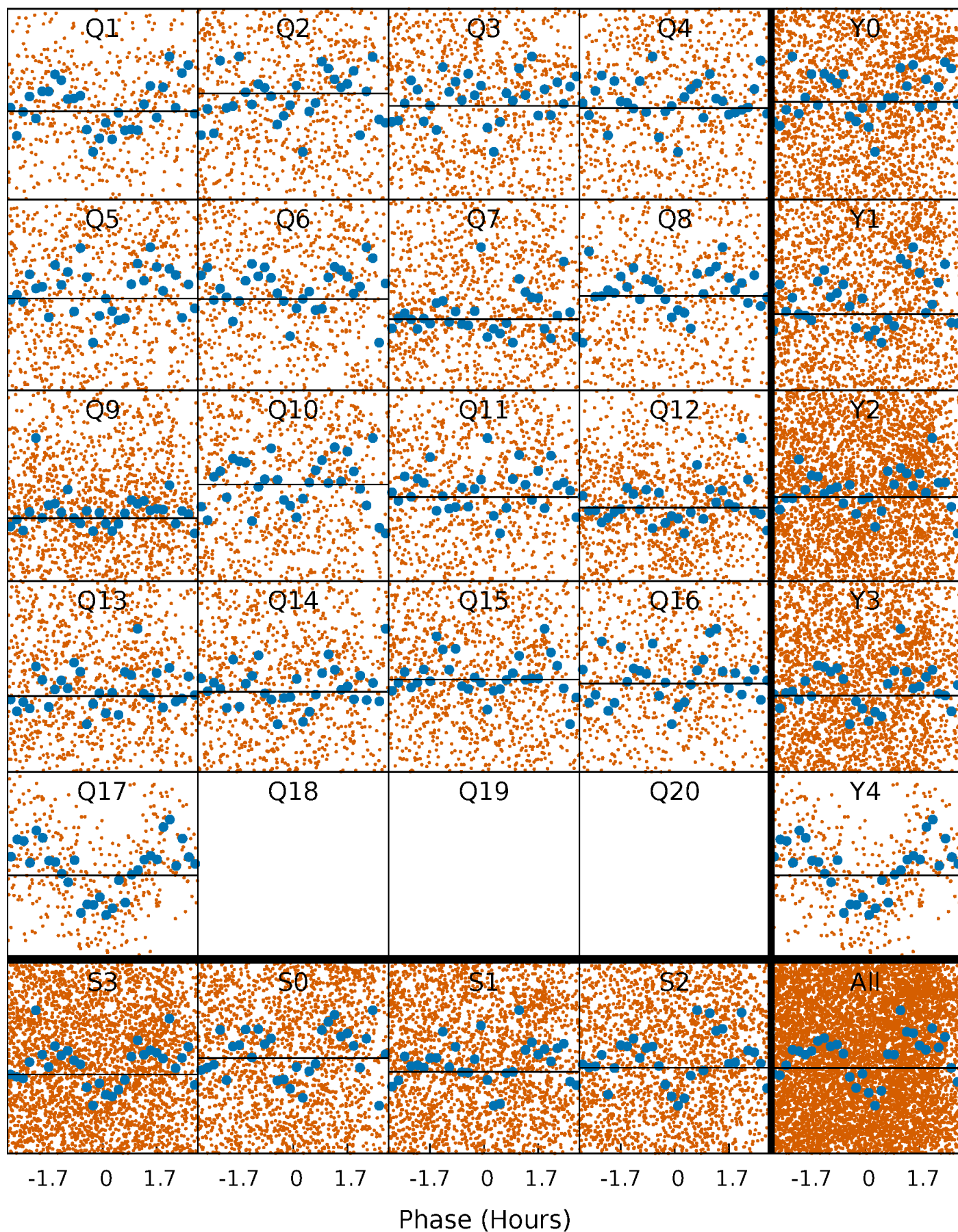
PDC Quarter-Phased Transit Curves

TCE 008684359-02 P= 0.657535 Days $T_0=132.092244$ (BKJD)



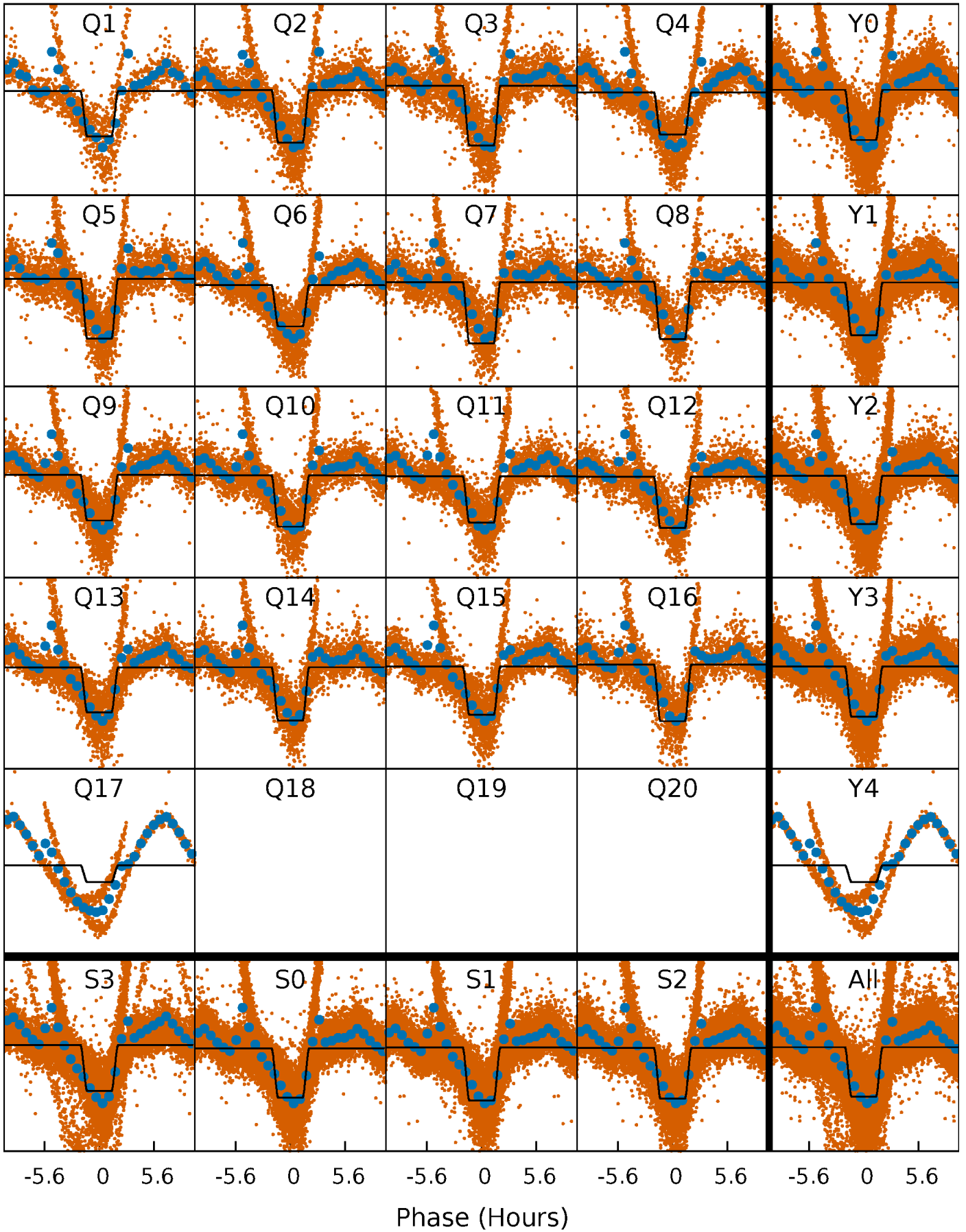
DV Quarter-Phased Transit Curves

TCE 008684359-02 P= 0.657535 Days $T_0=132.092244$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

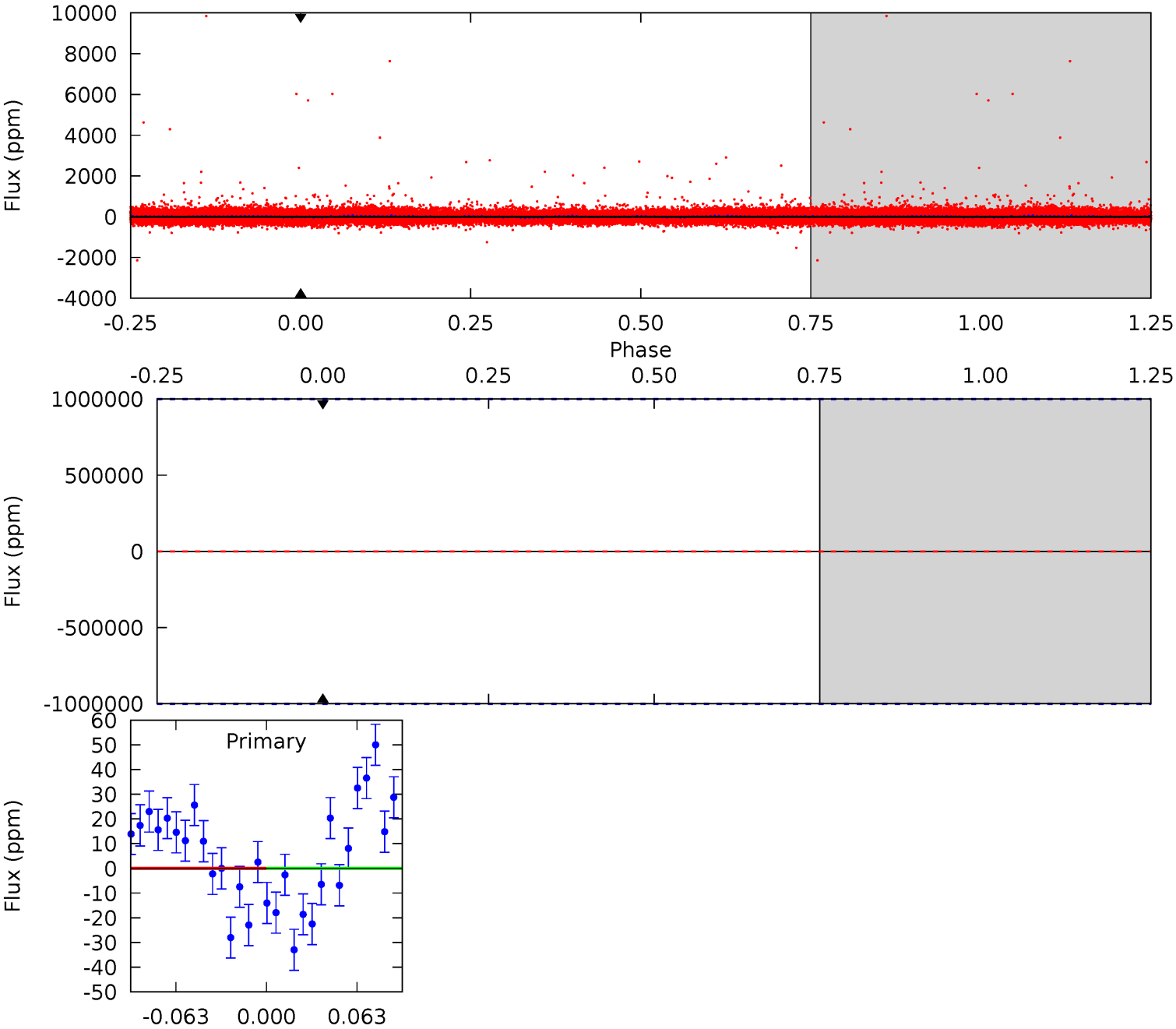
TCE 008684359-02 P= 0.657535 Days $T_0=132.059076$ (BKJD)



DV Model-Shift Uniqueness Test

008684359-02, P = 0.657535 Days, E = 131.434709 Days

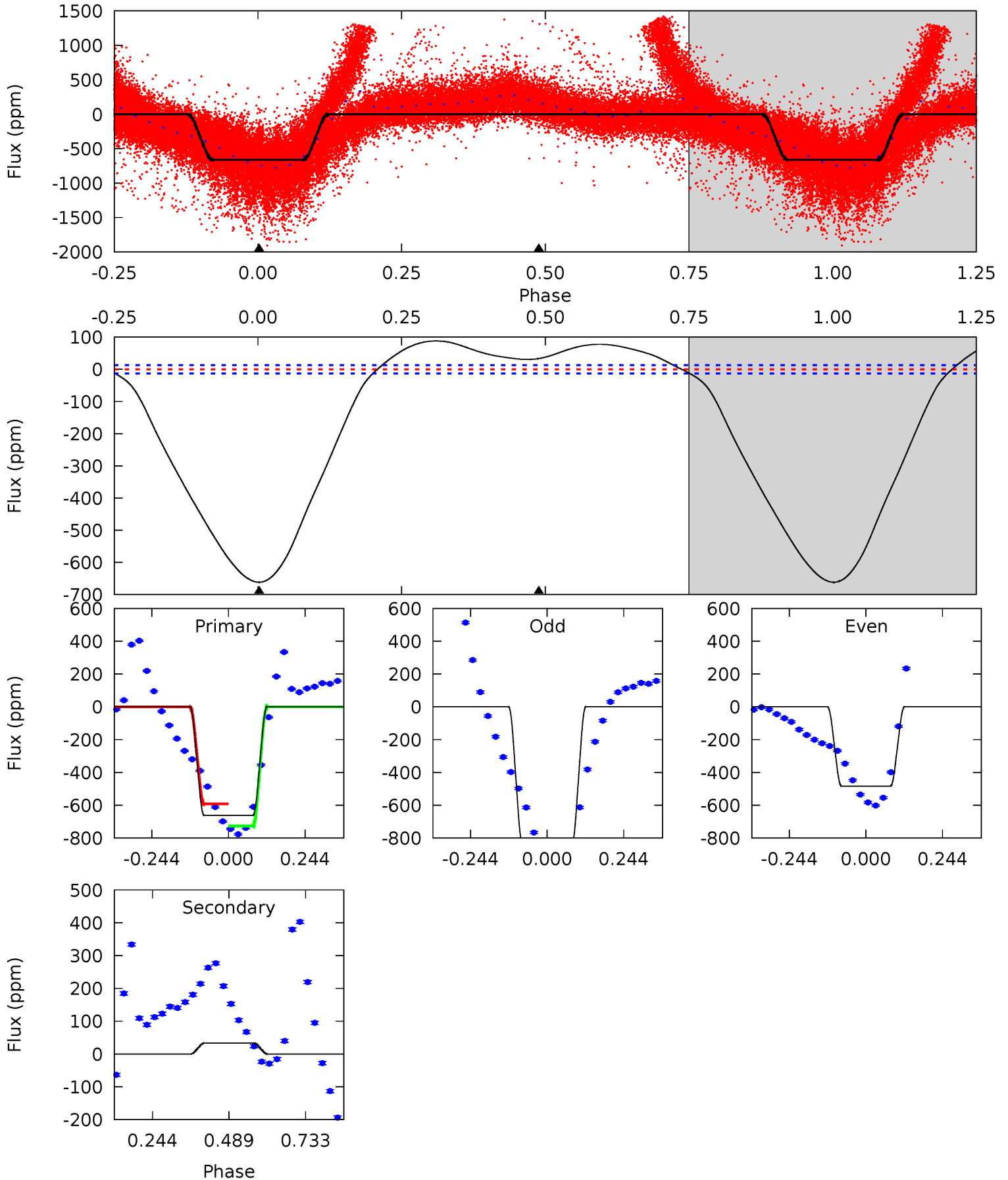
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008684359-02, P = 0.657535 Days, E = 131.401541 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
220.4	-11.1	0	0	4.37	1.16	9.72	220.4	220.4	-11.1	-11.1	62.8	1.13	0.12	29.4



Stellar Parameters For KIC 008684359

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	8404^{+67}_{-92}	$3.781^{+0.243}_{-0.027}$	$-0.400^{+0.100}_{-0.200}$	$2.960^{+0.149}_{-0.847}$	$1.933^{+0.044}_{-0.266}$	$0.105^{+0.165}_{-0.010}$
	+1%/-1%	+6%/-1%	+25%/-50%	+5%/-29%	+2%/-14%	+157%/-9%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 008684359-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$22.26^{+22.21}_{-16.18}$	6468^{+160}_{-484}	-6642^{+63994}_{-43540}	$-0.560^{+75.053}_{-58.919}$
Alt.	33 ± 3	$23.29^{+22.22}_{-15.22}$	6454^{+175}_{-445}	-5248^{+296}_{-250}	$-0.011^{+0.009}_{-0.084}$

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 $A_{obs} \gg 1.0$

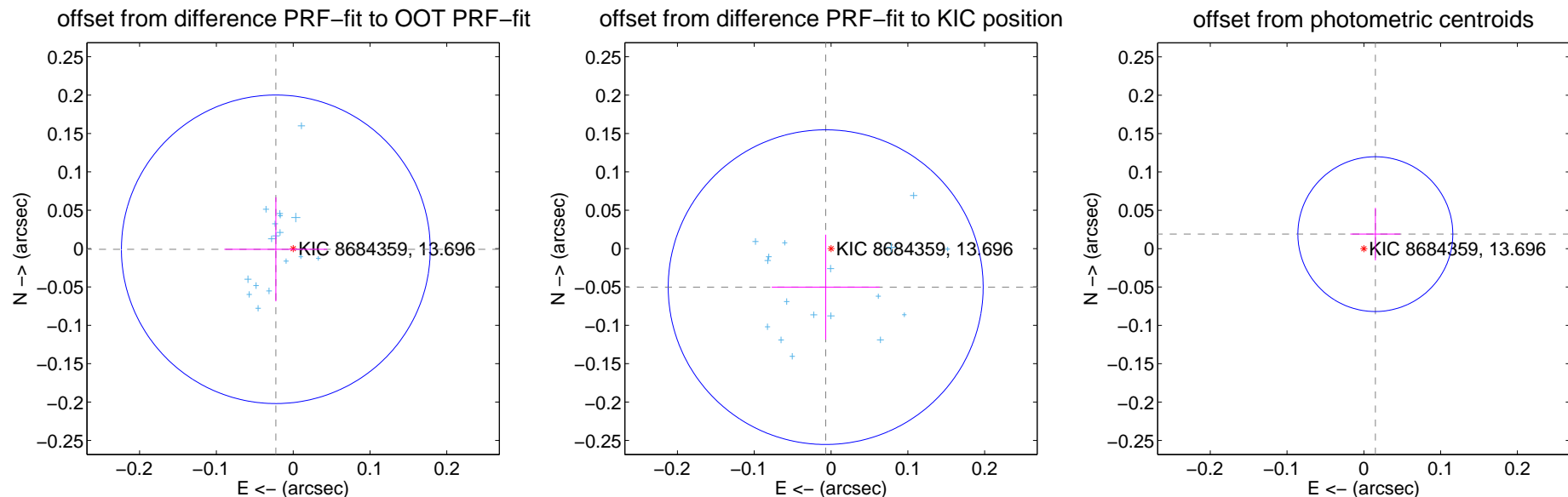
DV Centroid Data

Supplemental centroid analysis for 008684359-02. Kepler magnitude: 13.70. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

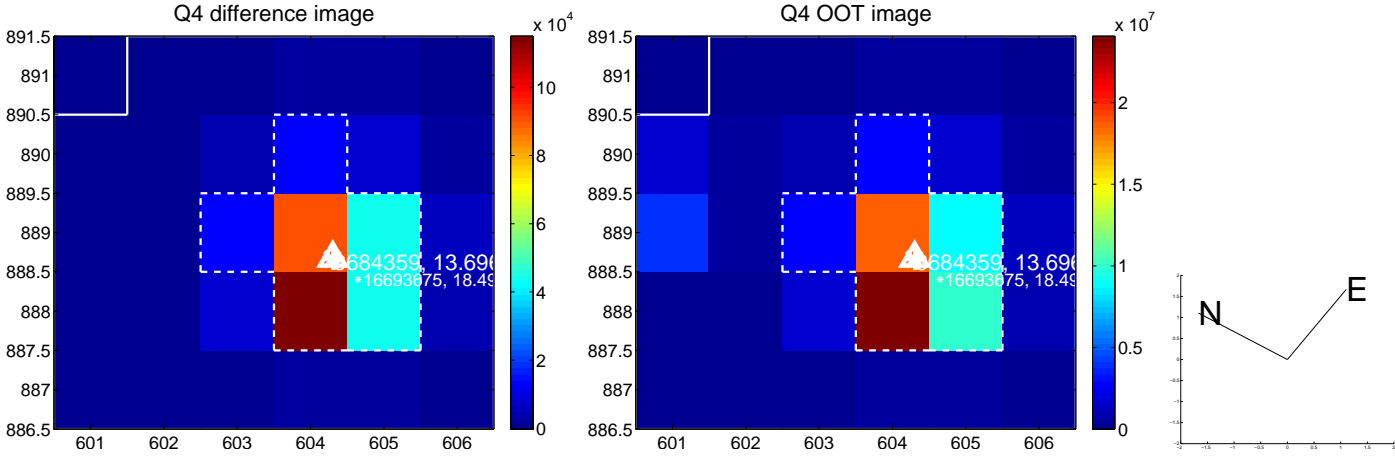
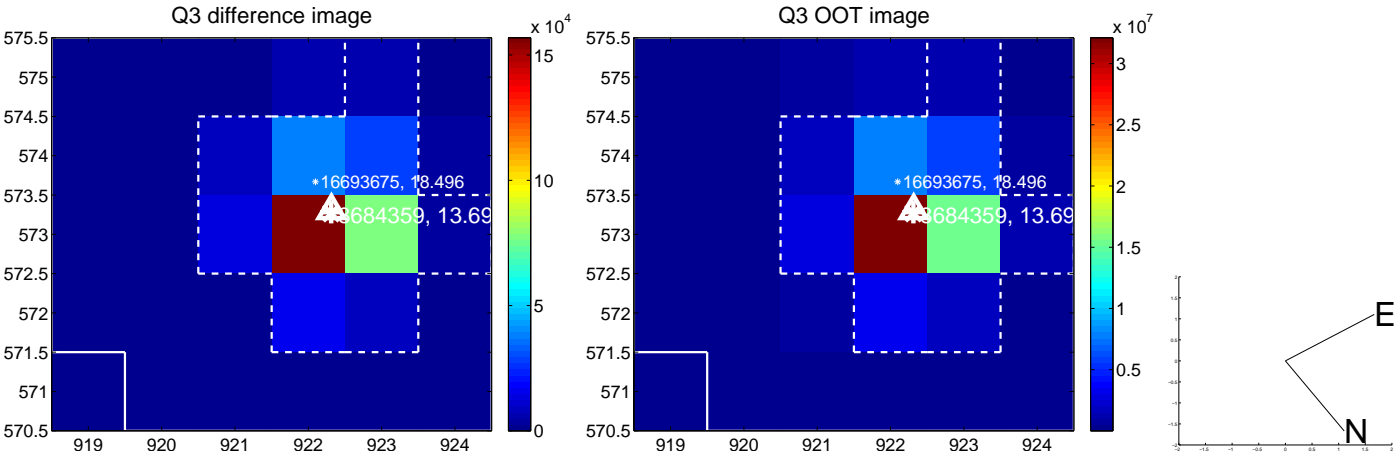
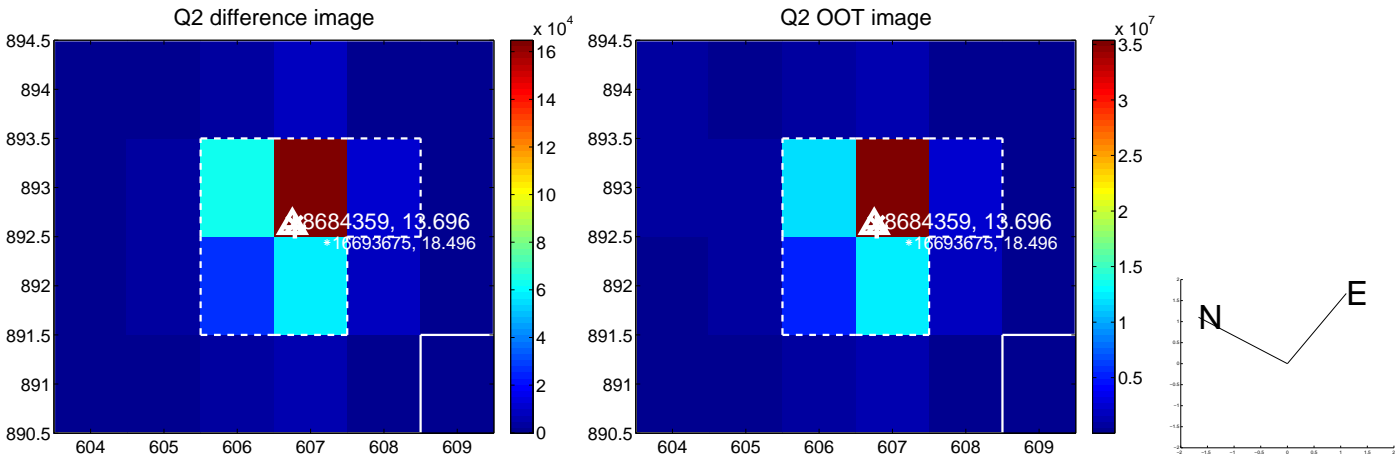
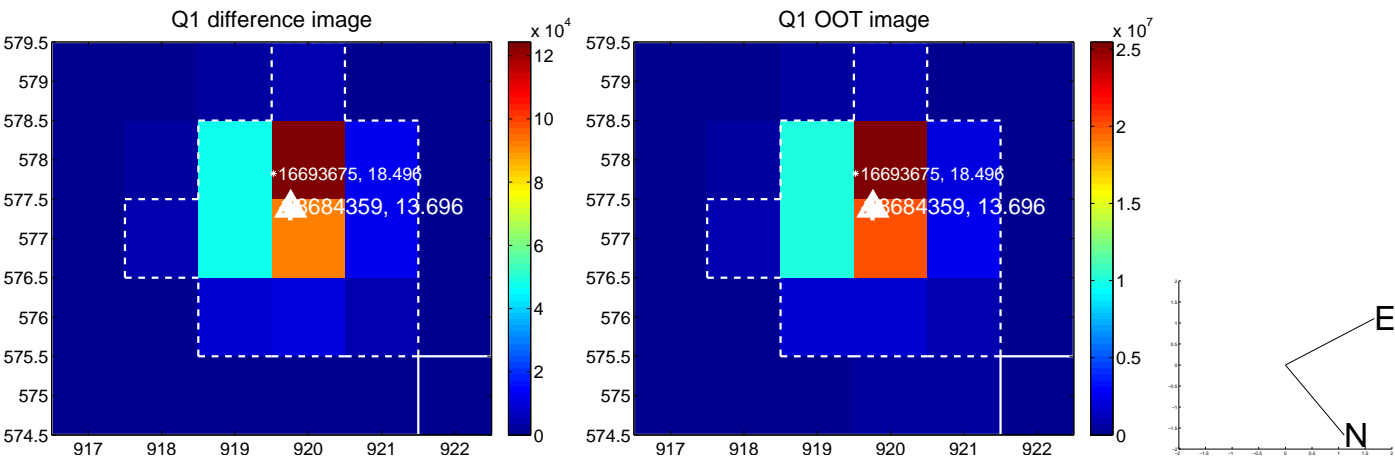
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.023 ± 0.067	0.34	0.023 ± 0.067	-0.001 ± 0.068
PRF-fit source offset from KIC position	0.051 ± 0.068	0.74	0.007 ± 0.070	-0.050 ± 0.068
photometric centroid source offset	0.02 ± 0.03	0.72	-0.01 ± 0.03	0.02 ± 0.03

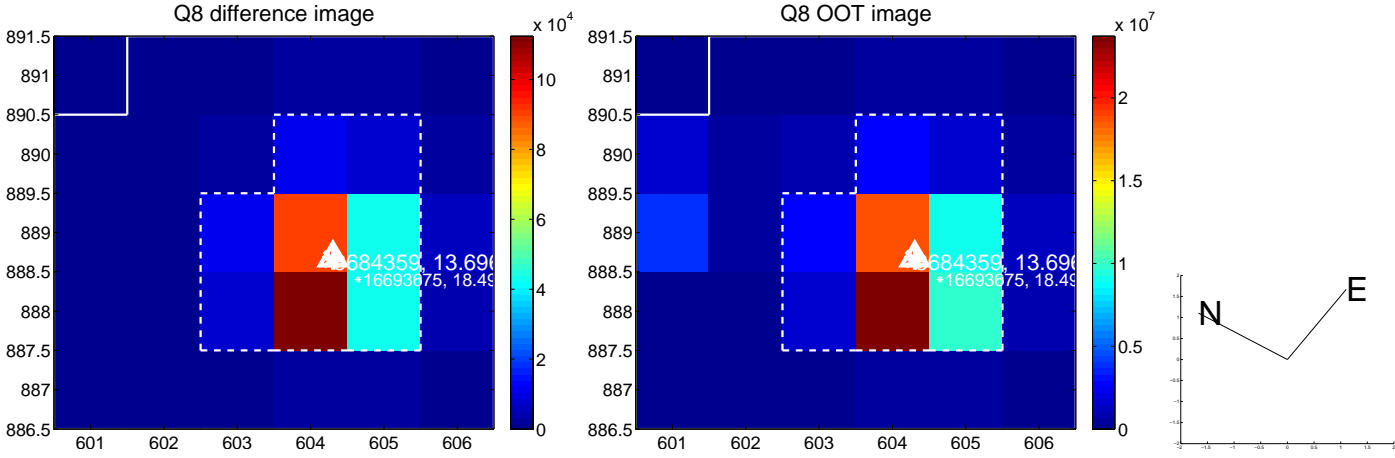
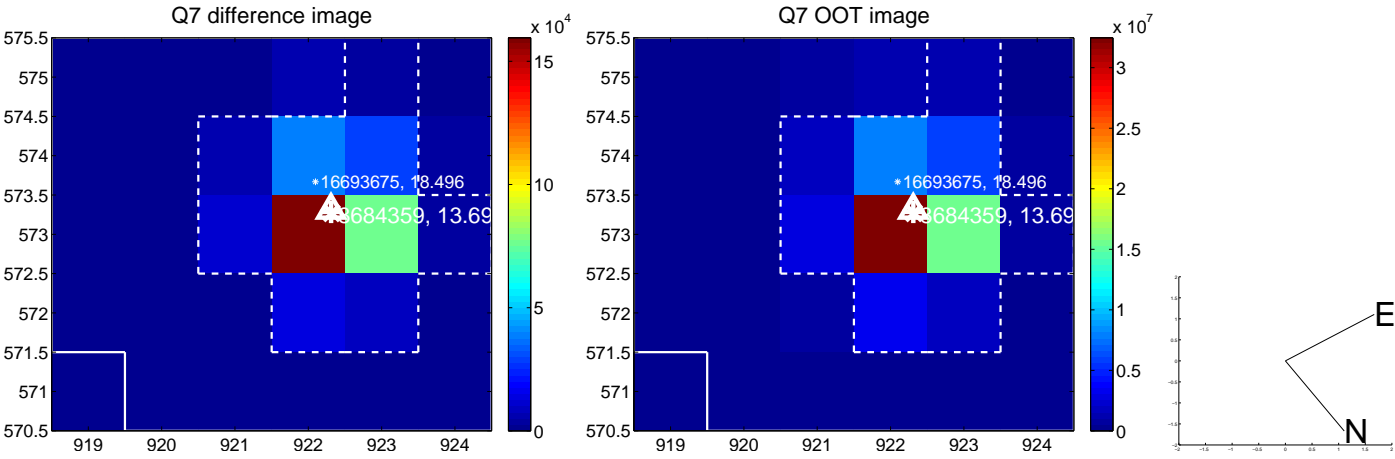
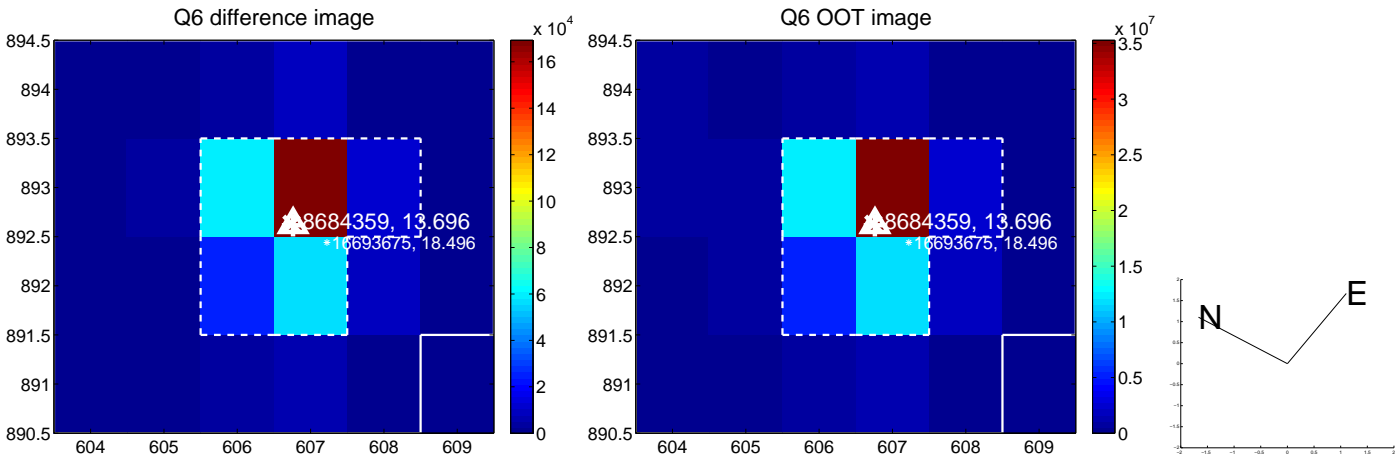
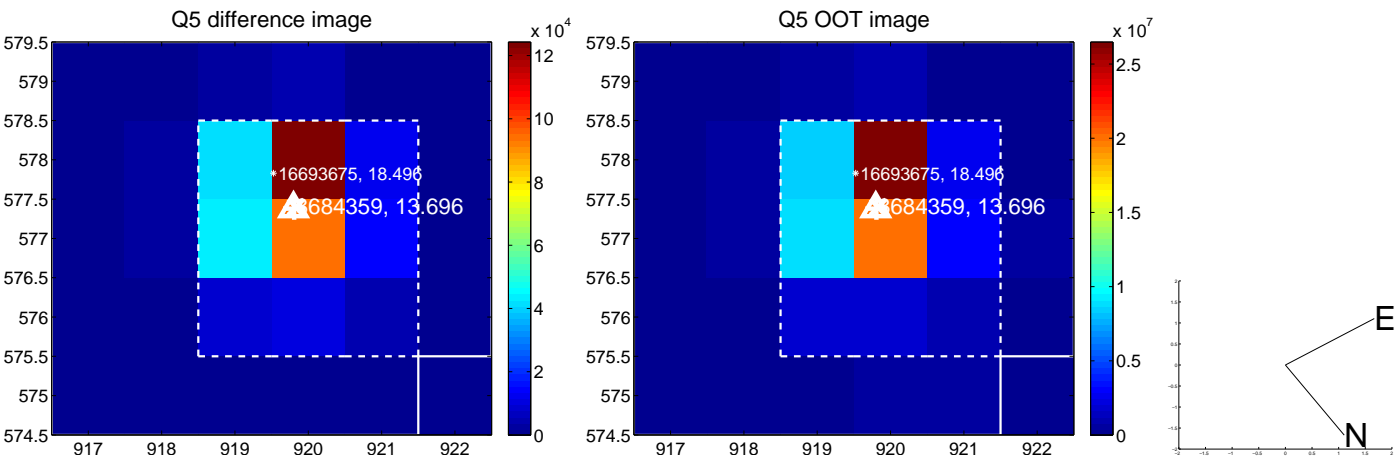


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

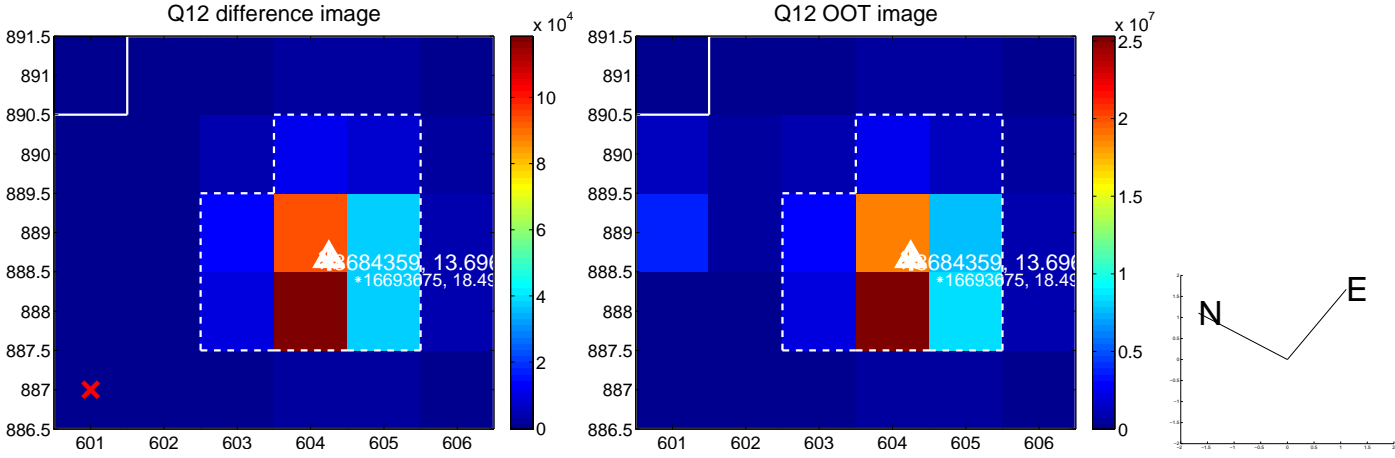
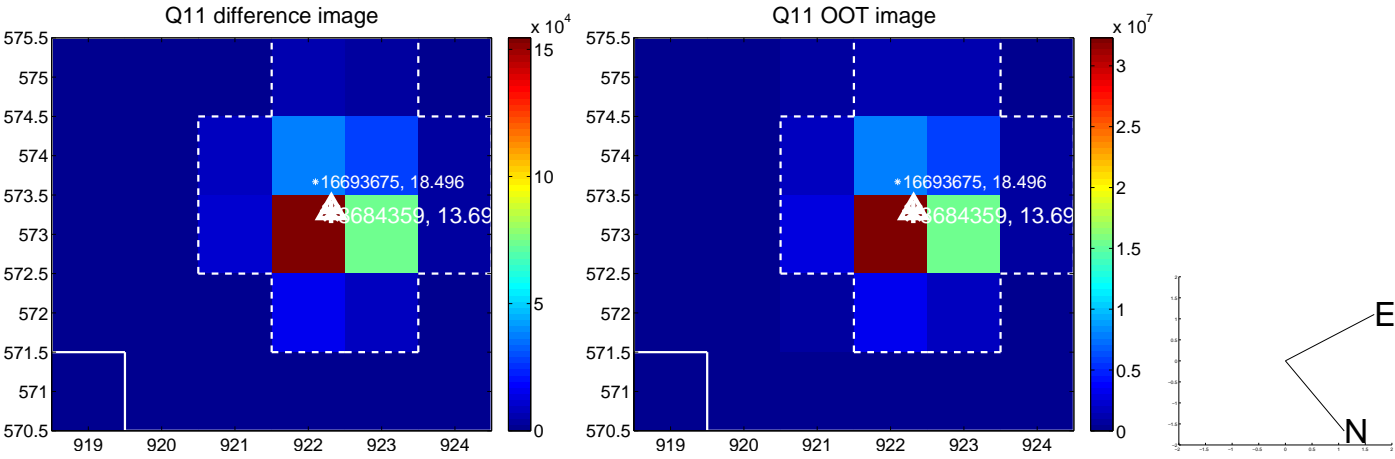
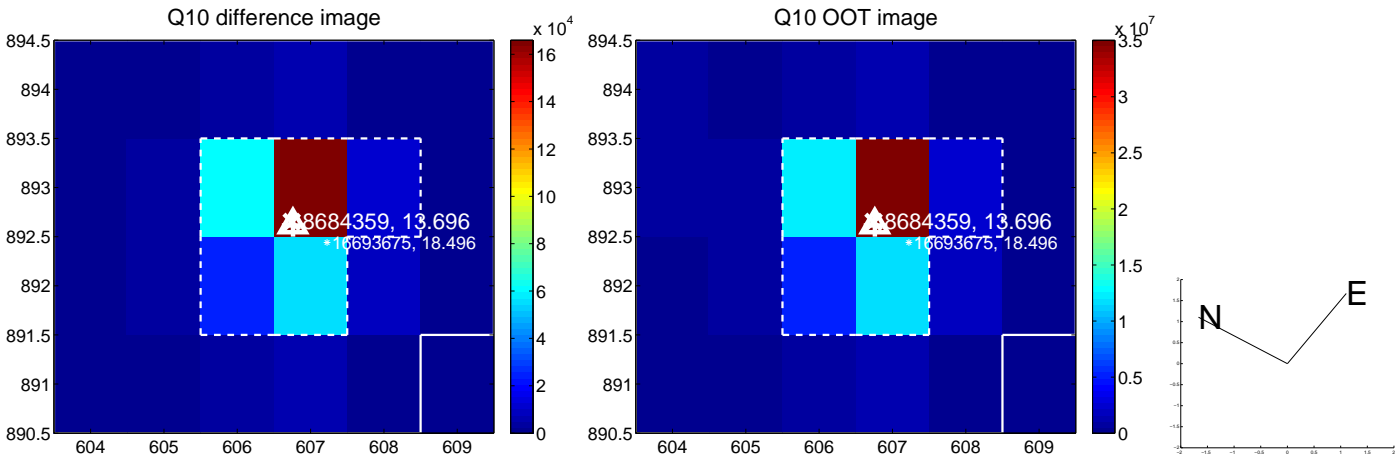
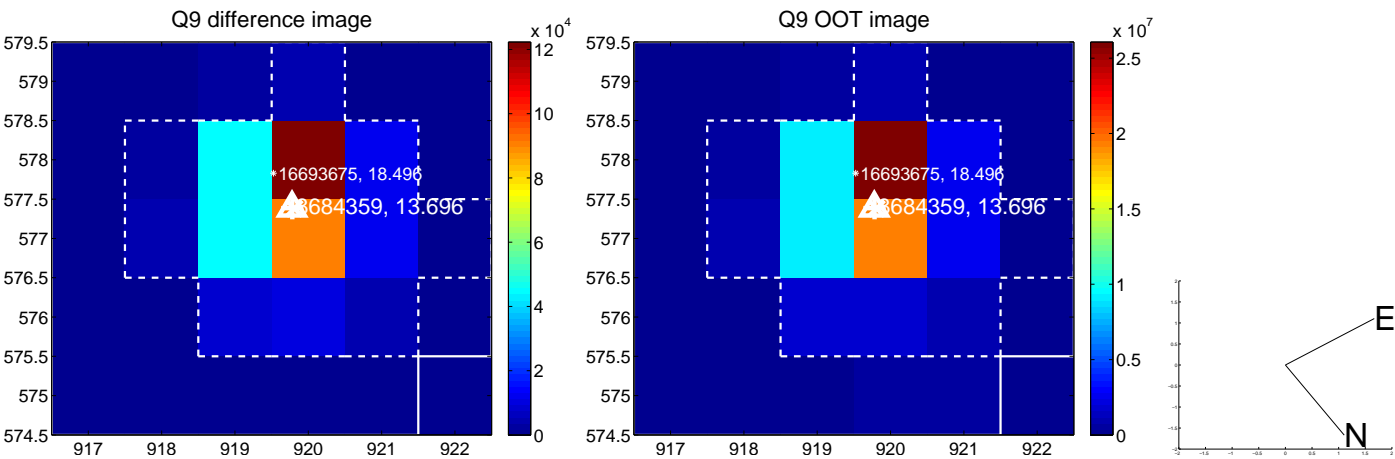
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



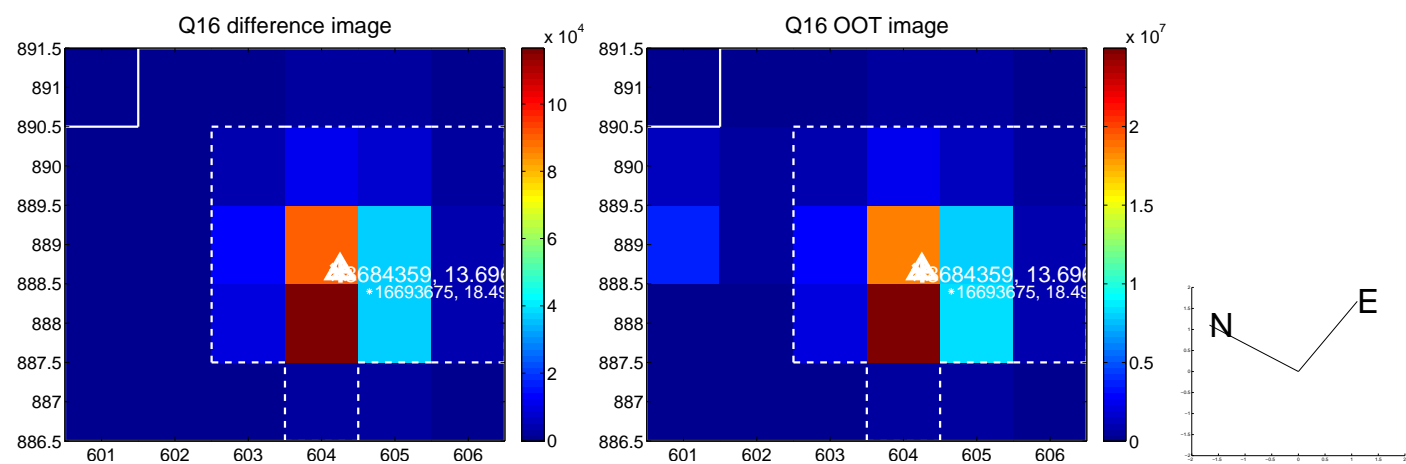
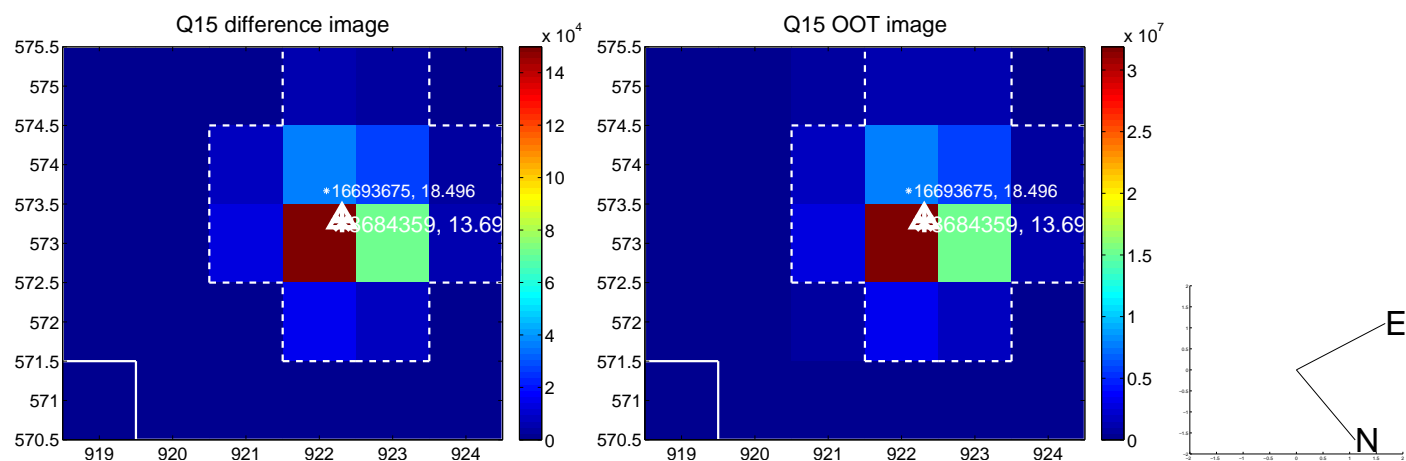
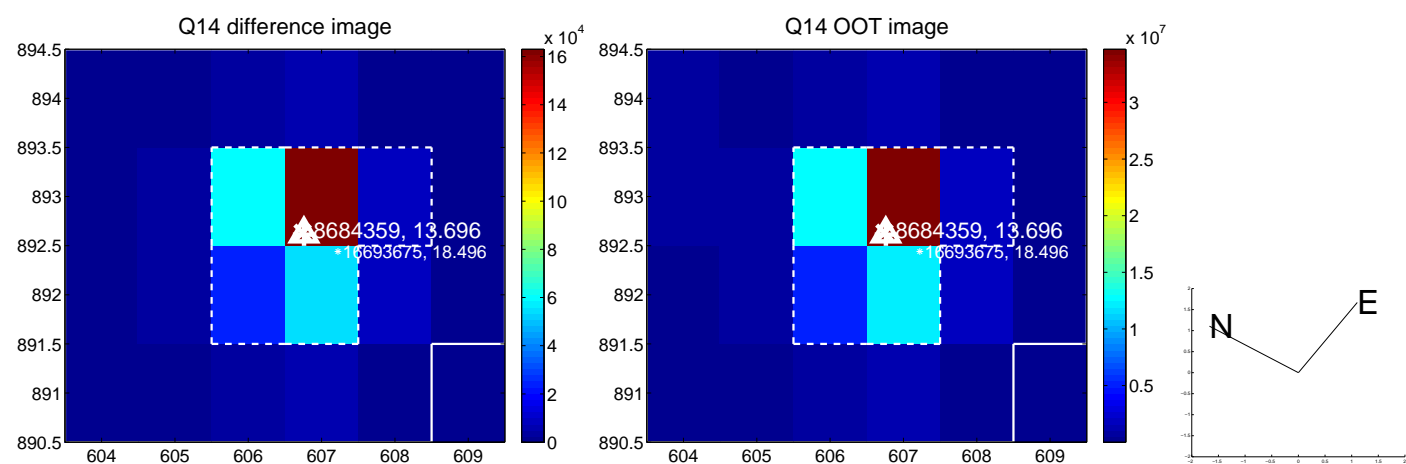
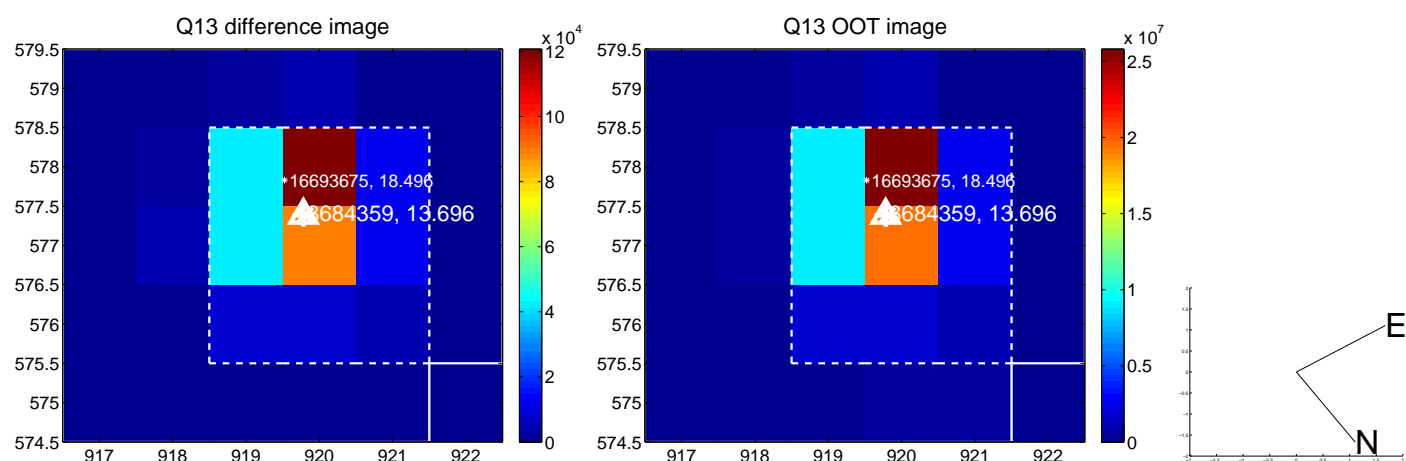
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



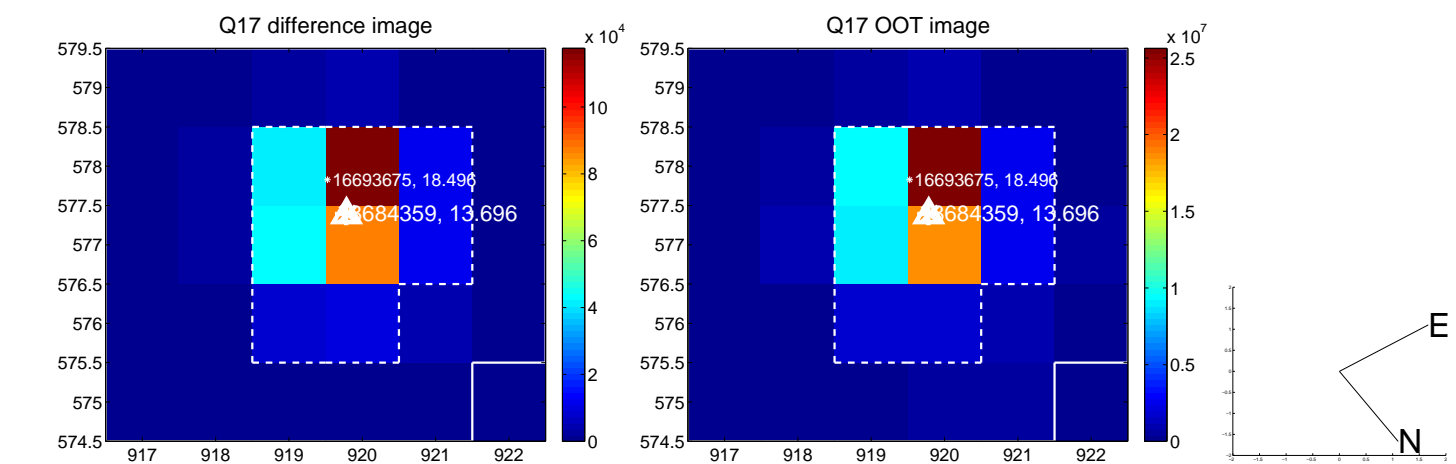
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



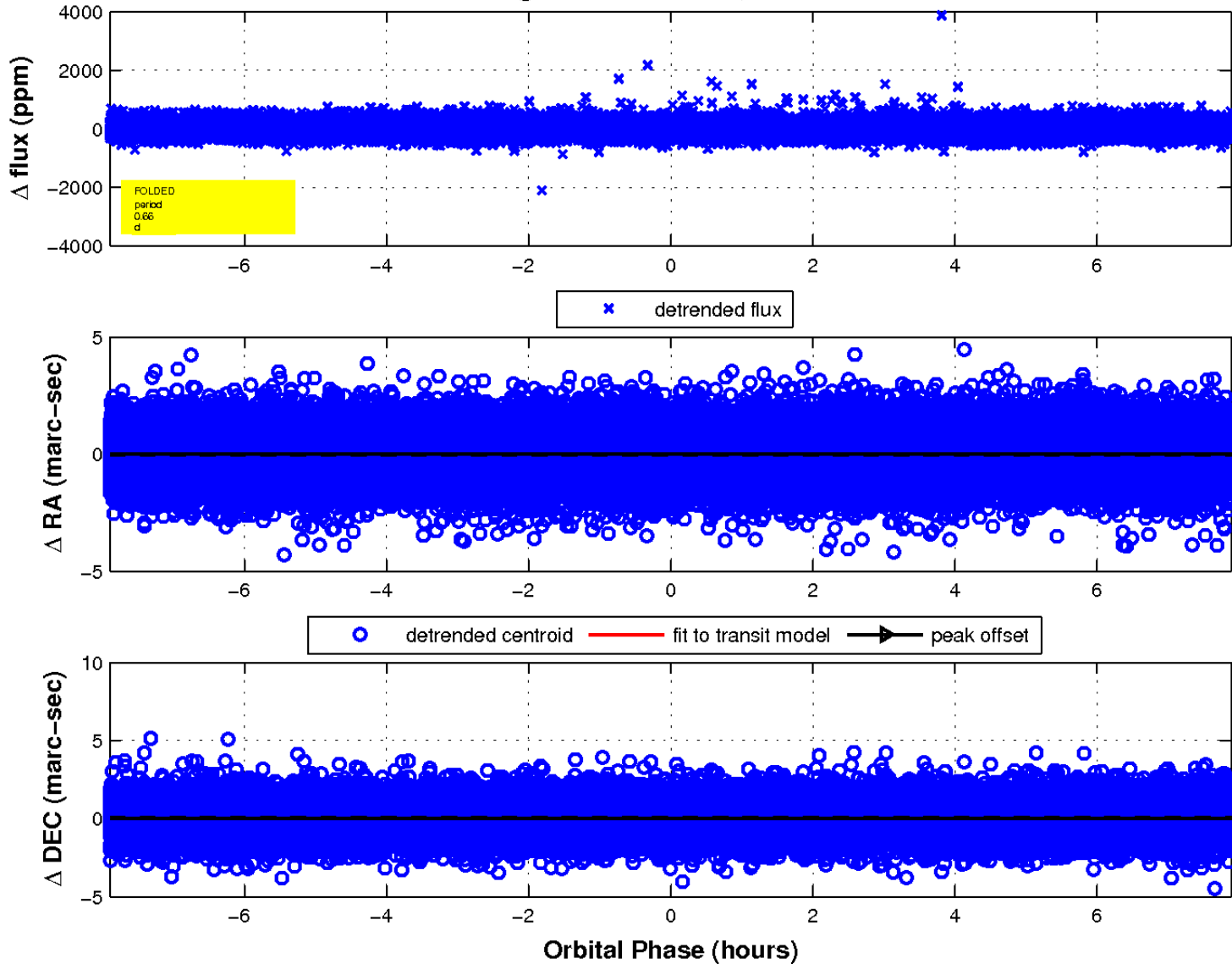
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

