

# KIC 008953257

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008953257-01	OBS	1383.01	3.221784	132.920132	46550.5	3.337	3035.9	2655.1	1.04	6250	25.12	802.76
008953257-02	OBS	No	3.221755	134.537222	760.0	2.409	49.7	55.0	1.04	6250	3.37	802.77
008953257-03	OBS	No	317.688013	316.601854	843.5	18.926	8.1	4.5	1.04	6250	3.29	1.76

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008953257-01	OBS	FP	0.38	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
008953257-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
008953257-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

**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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008953257-01

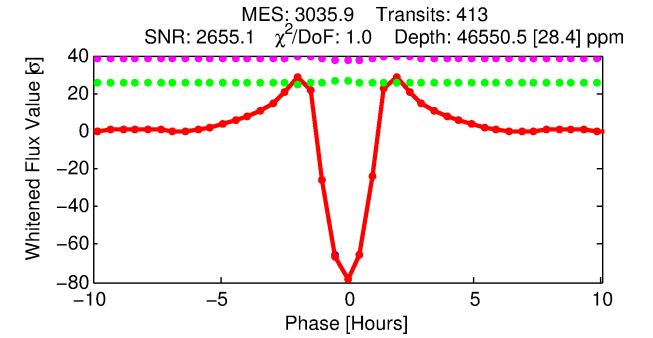
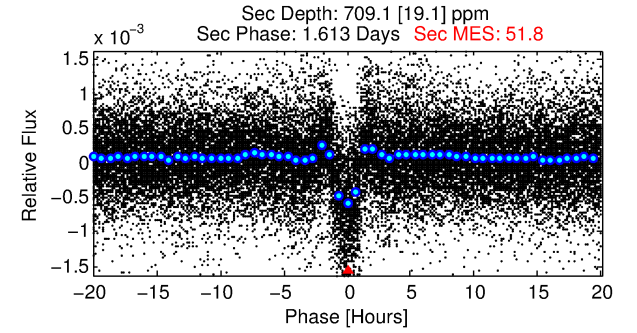
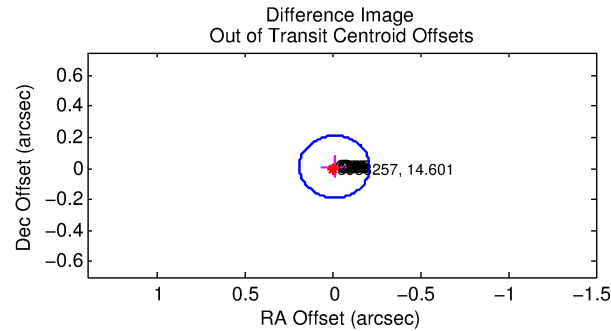
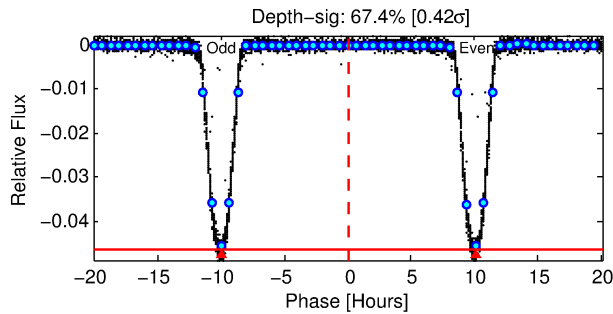
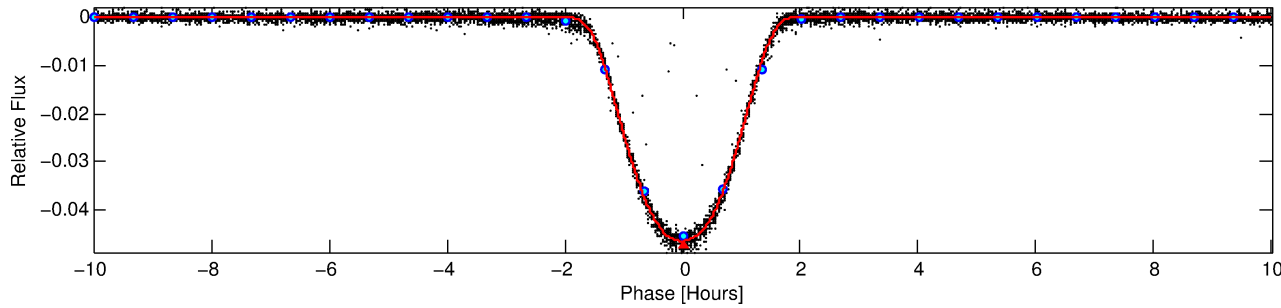
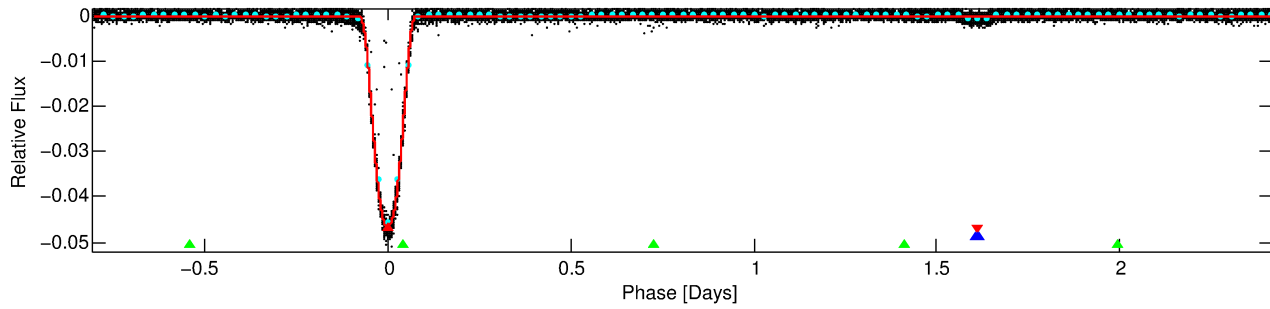
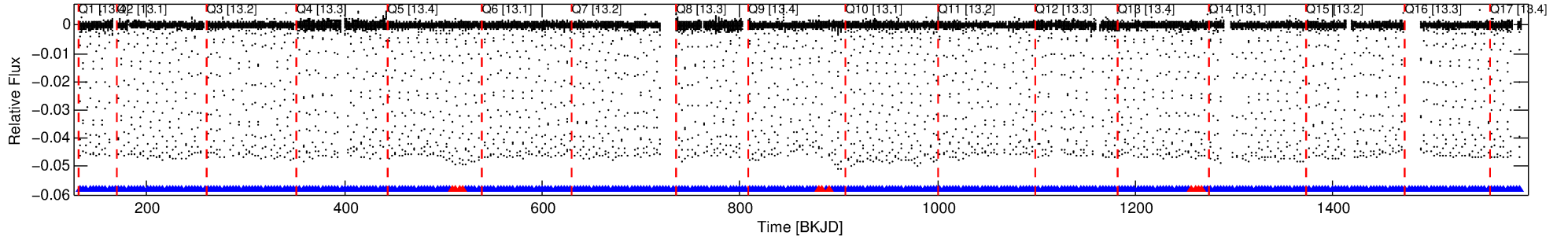
No Significant Match Found

# DV One-Page Summary

KIC: 8953257 Candidate: 1 of 3 Period: 3.222 d

KOI: K01383.01 Corr: 0.998

Kp: 14.60 R\*: 1.04 Rs Teff: 6250.0 K Logg: 4.41 Fe/H: -0.260



## DV Fit Results:

Period = 3.22178 [0.00000] d  
Epoch = 132.9201 [0.0000] BKJD  
Rp/R\* = 0.2211 [0.0001]  
a/R\* = 7.00 [0.00]  
b = 0.78 [0.00]  
Seff = 802.76 [319.16]  
Teq = 1357 [135] K  
Rp = 25.12 [7.87] Re  
a = 0.0430 [0.0112] AU  
Ag = 1.14 [0.43] [0.33σ]  
Teffp = 2169 [73] K [5.29σ]

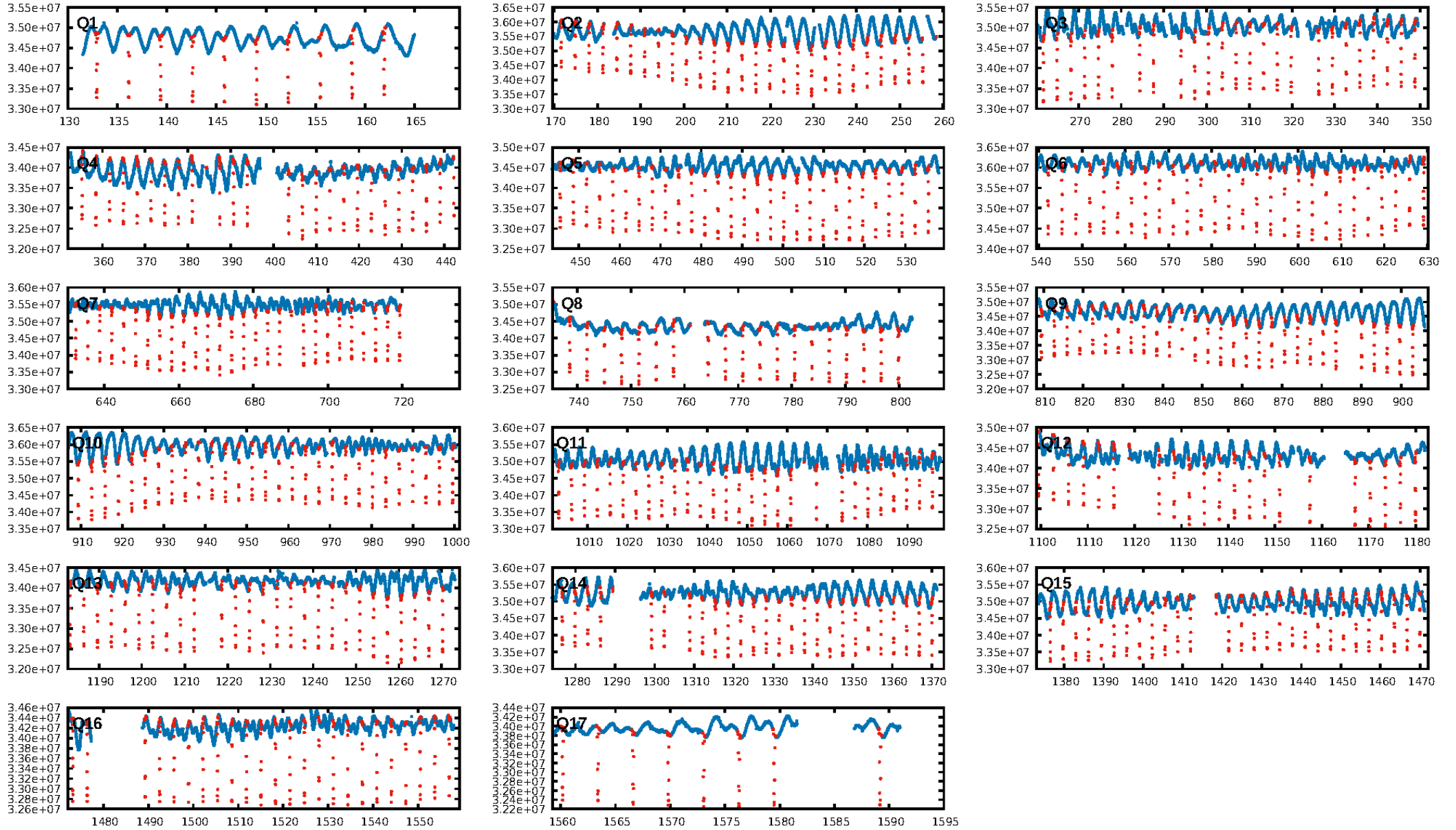
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [392.71σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.97 [384/395]  
GhostDiagnostic-chr: 2.835  
Centroid-sig: 0.0%  
Centroid-so: 0.074 arcsec [30.03σ]  
OotOffset-rm: 0.014 arcsec [0.22σ]  
KicOffset-rm: 0.131 arcsec [1.91σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

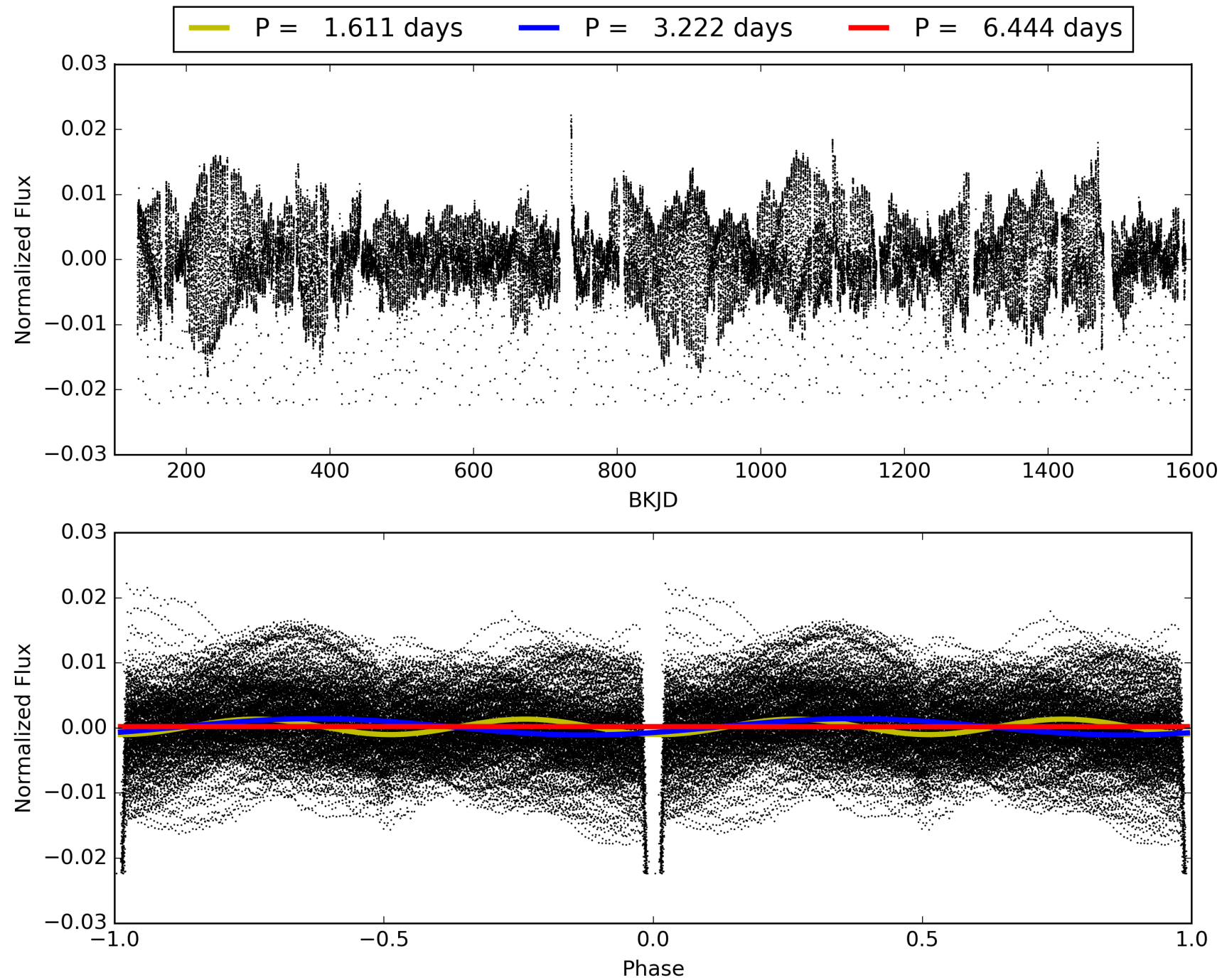
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:16:37 Z

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

# TCE 008953257-01, PDC Light Curves

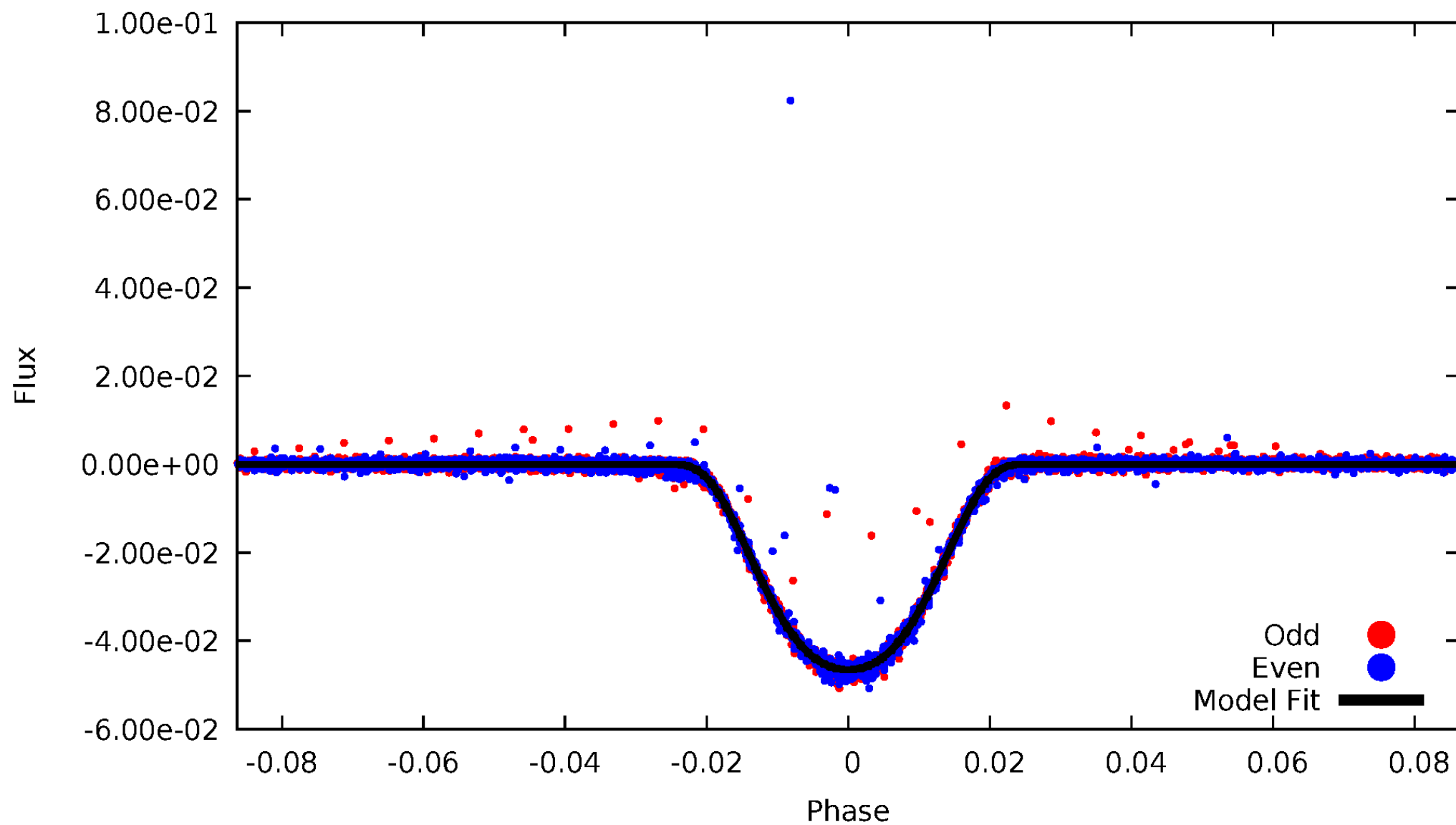


TCE 008953257-01



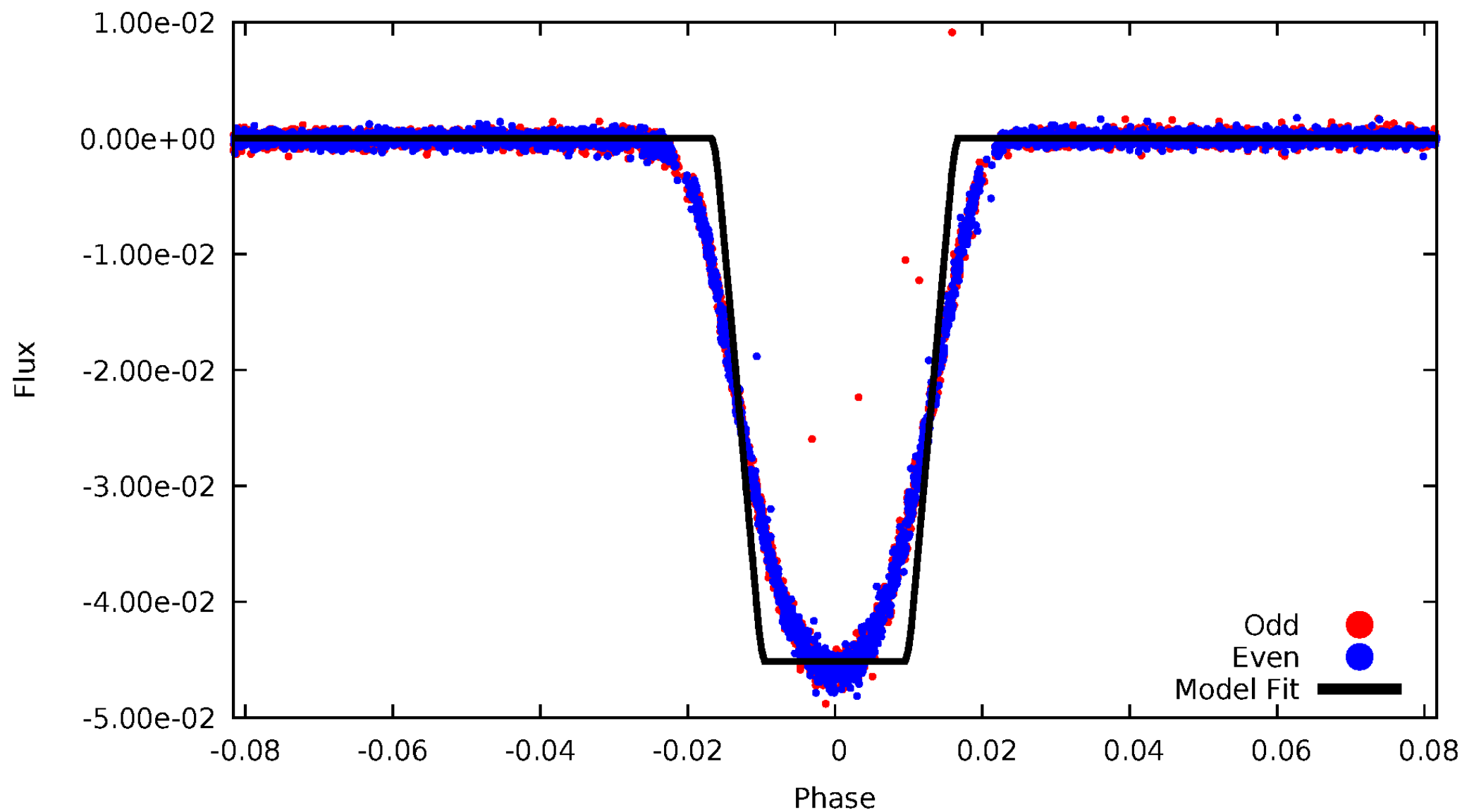
# DV Odd/Even

TCE 008953257-01



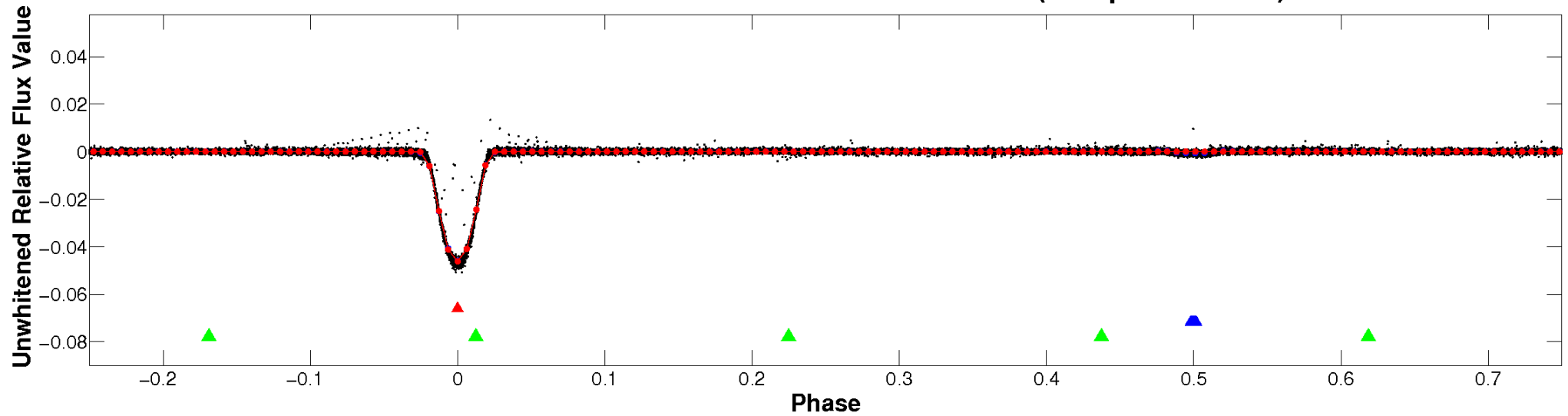
# ALT Odd/Even

TCE 008953257-01

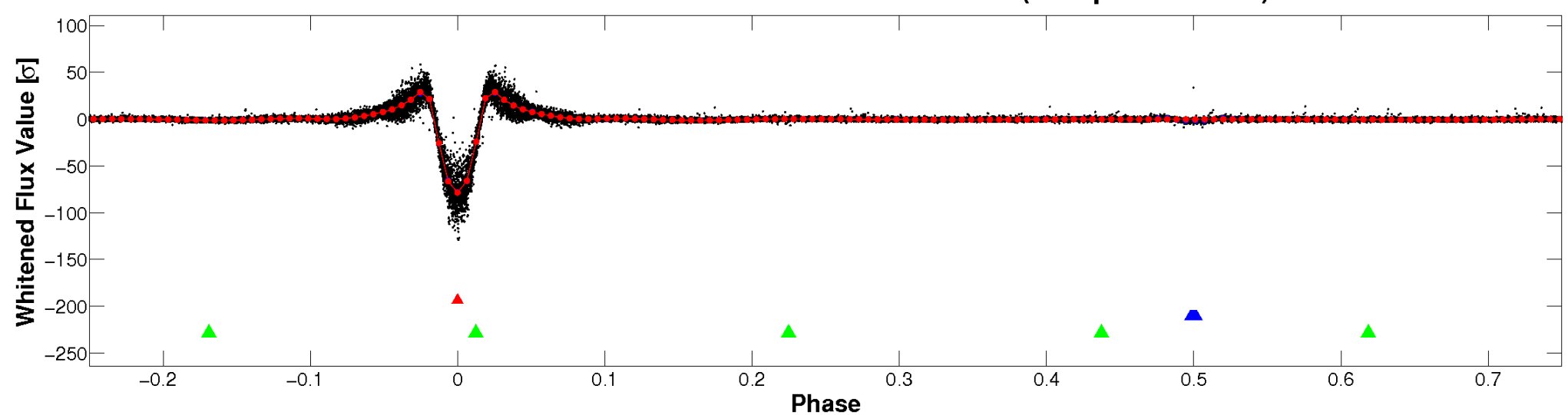


# Non-Whitened Vs. Whitened Light Curve

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

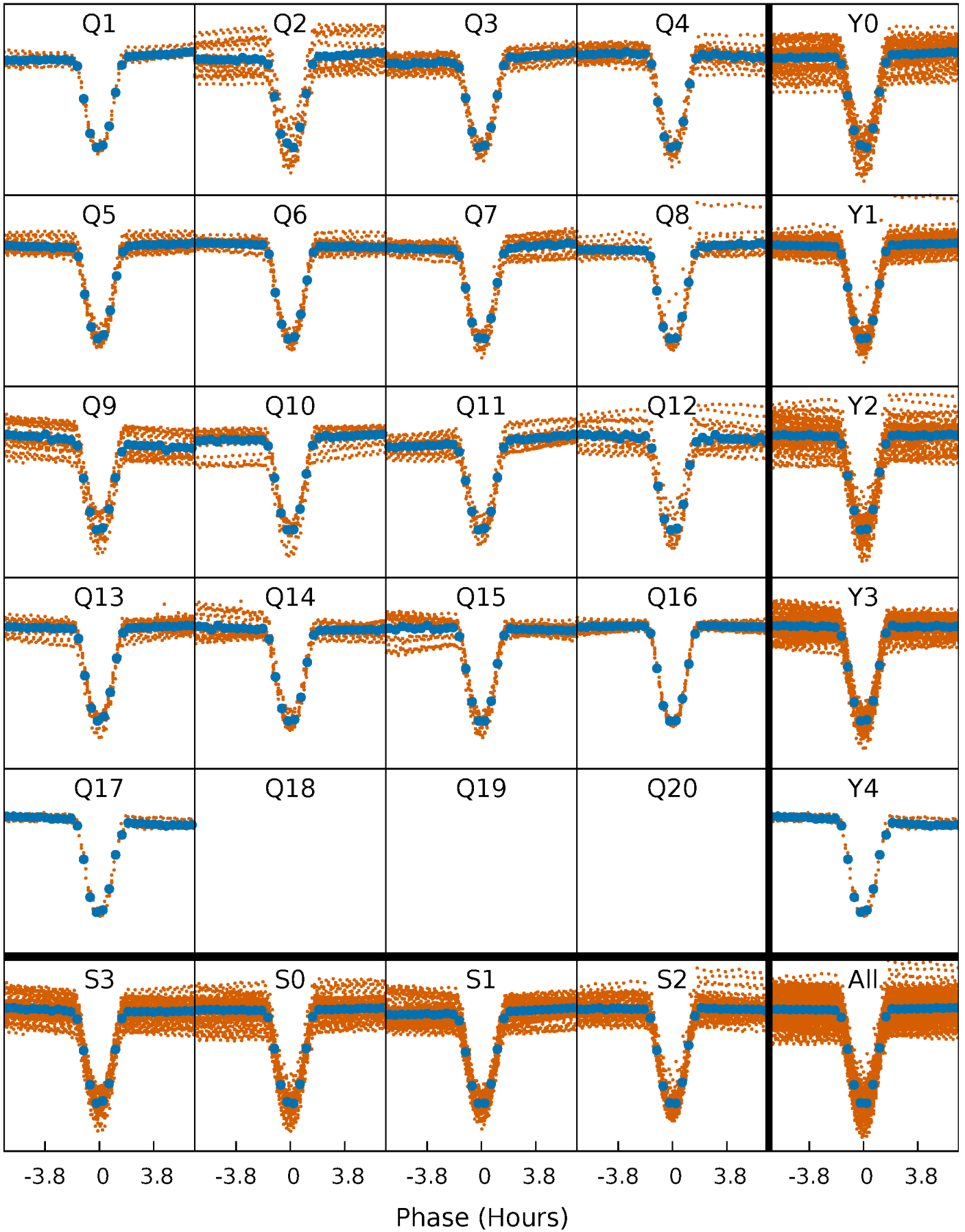


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

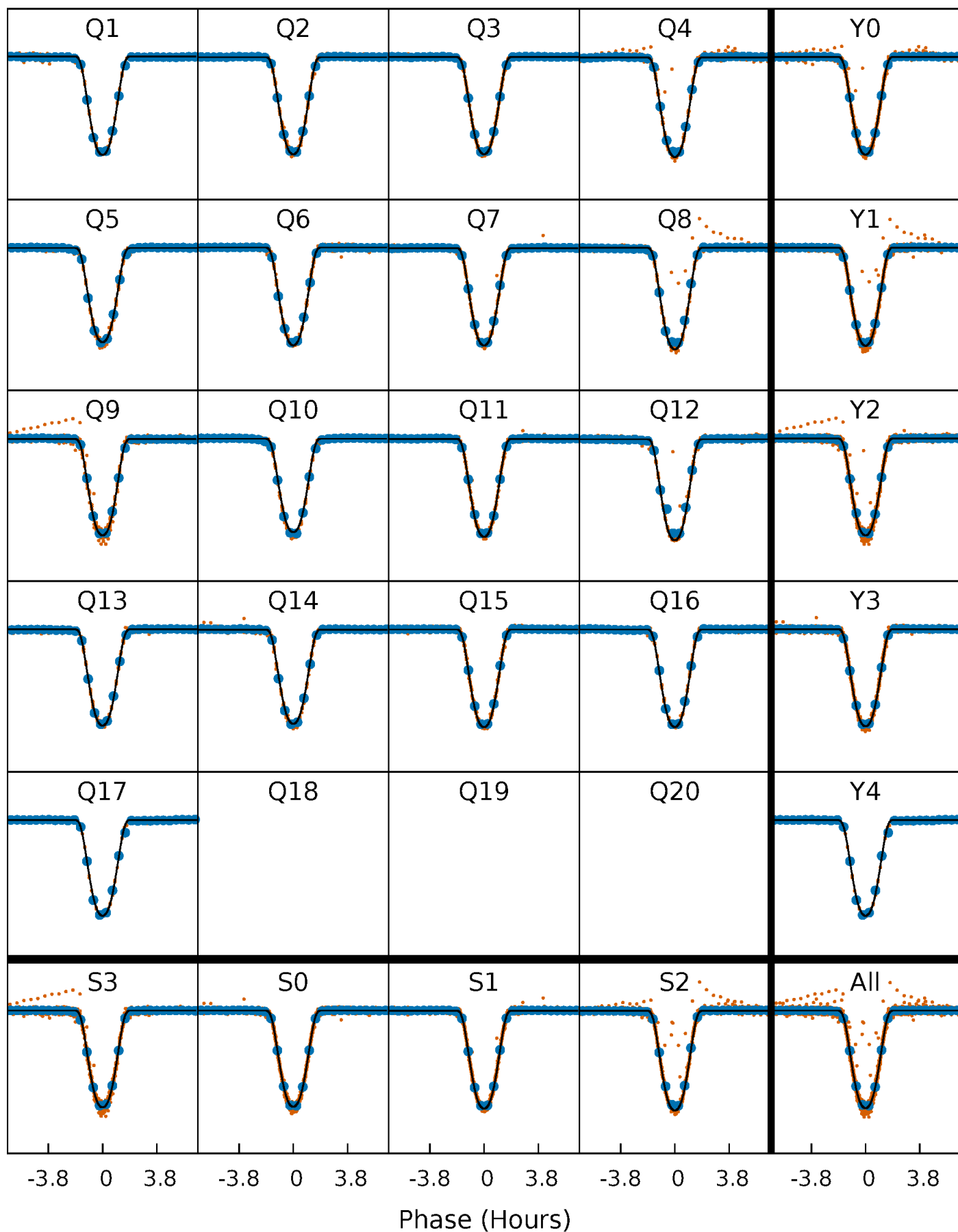
TCE 008953257-01 P= 3.221784 Days  $T_0=132.920132$  (BKJD)





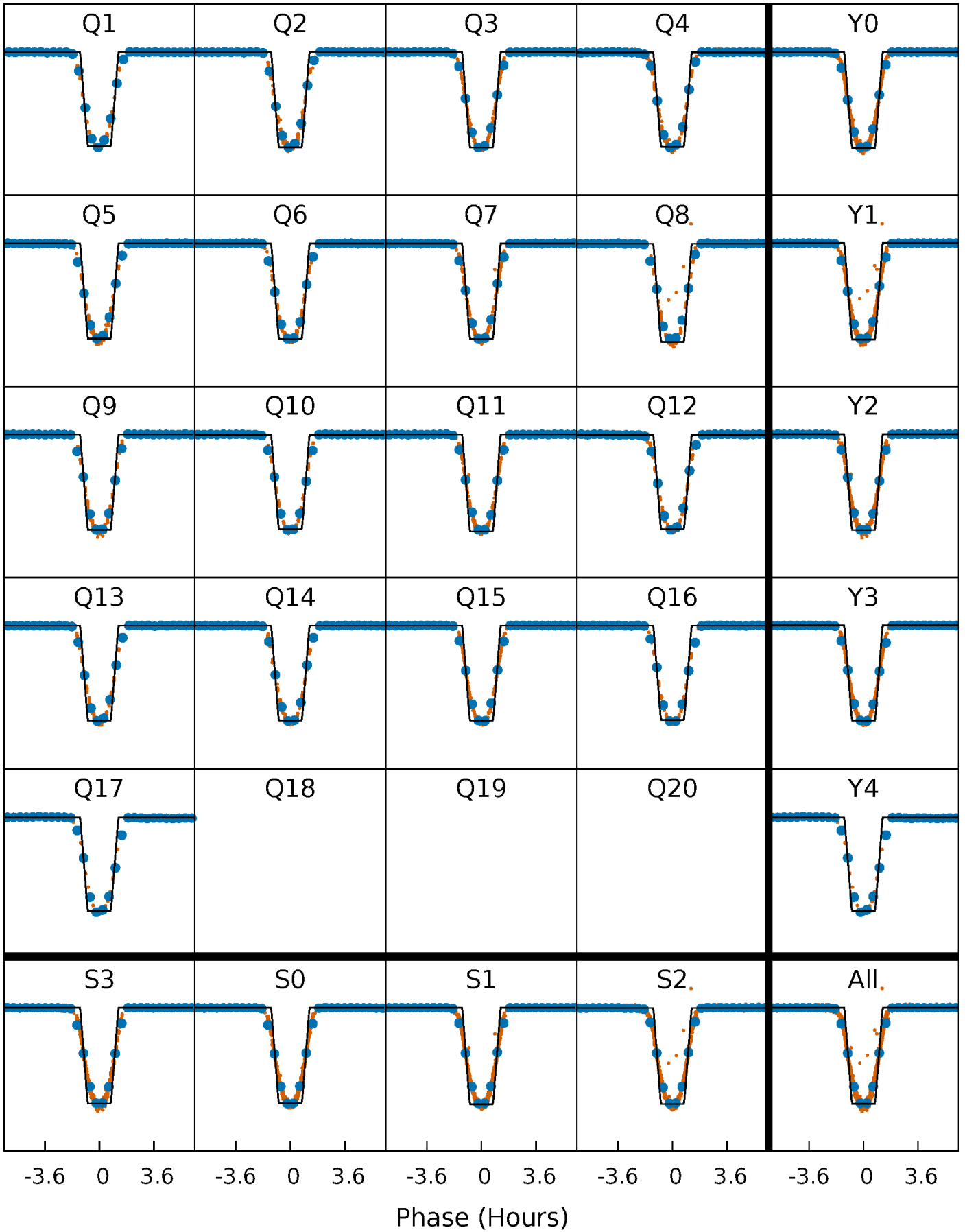
# DV Quarter-Phased Transit Curves

TCE 008953257-01 P= 3.221784 Days  $T_0=132.920132$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

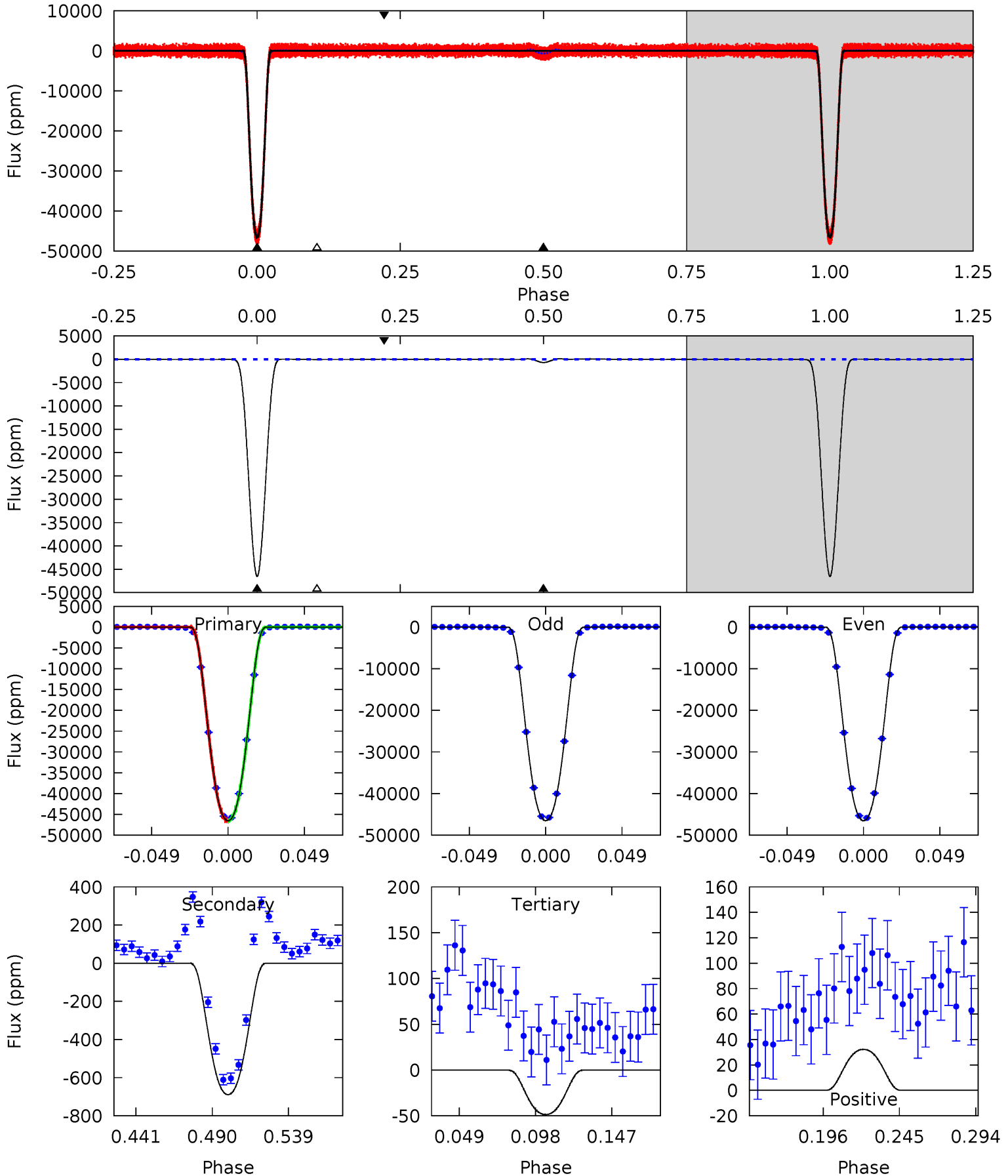
TCE 008953257-01     $P = 3.221779$  Days     $T_0 = 132.921297$  (BKJD)



# DV Model-Shift Uniqueness Test

008953257-01, P = 3.221784 Days, E = 129.698348 Days

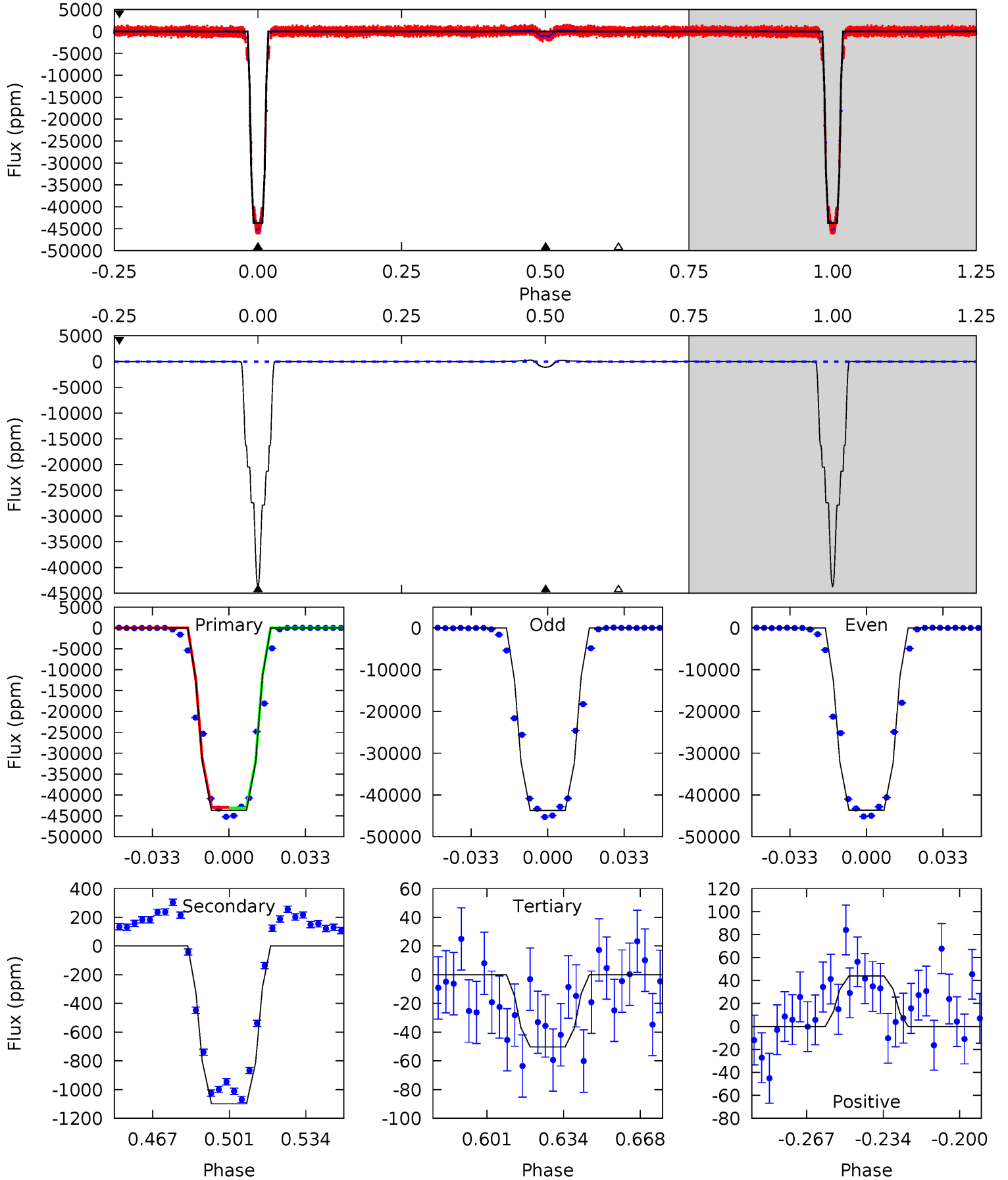
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5591	82.8	5.83	3.87	4.71	1.97	3.22	5585	5587	77.0	78.9	0.30	1.00	0.00	1.74



# Alt Model-Shift Uniqueness Test

008953257-01, P = 3.221779 Days, E = 129.699518 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4046	101.8	4.66	4.07	4.79	2.13	3.51	4041	4041	97.1	97.7	1.73	1.00	0.01	6.29



### Stellar Parameters For KIC 008953257

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6250^{+169}_{-206}$	$4.411^{+0.087}_{-0.203}$	$-0.260^{+0.250}_{-0.300}$	$1.041^{+0.326}_{-0.140}$	$1.013^{+0.158}_{-0.115}$	$1.267^{+0.483}_{-0.676}$
	+3%/-3%	+2%/-5%	+96%/-115%	+31%/-13%	+16%/-11%	+38%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008953257-01 / KOI 1383.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-689 \pm 8$	$25.73^{+4.39}_{-2.33}$	$1922^{+148}_{-99}$	$2735^{+55}_{-68}$	$1.052^{+0.189}_{-0.275}$
Alt.	$-1099 \pm 11$	$24.18^{+4.88}_{-1.76}$	$1922^{+158}_{-109}$	$3017^{+53}_{-60}$	$1.849^{+0.309}_{-0.509}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

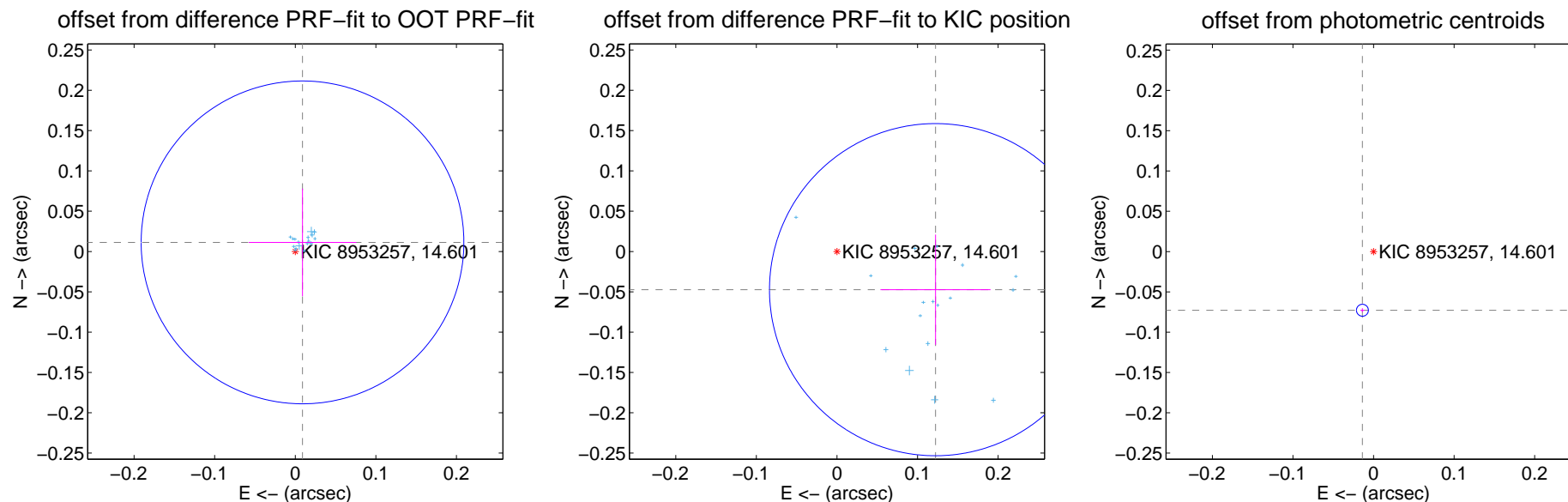
## DV Centroid Data

Supplemental centroid analysis for 008953257-01. Kepler magnitude: 14.60. Transit SNR 2655.14

There are 17 quarters with good PRF difference image offsets

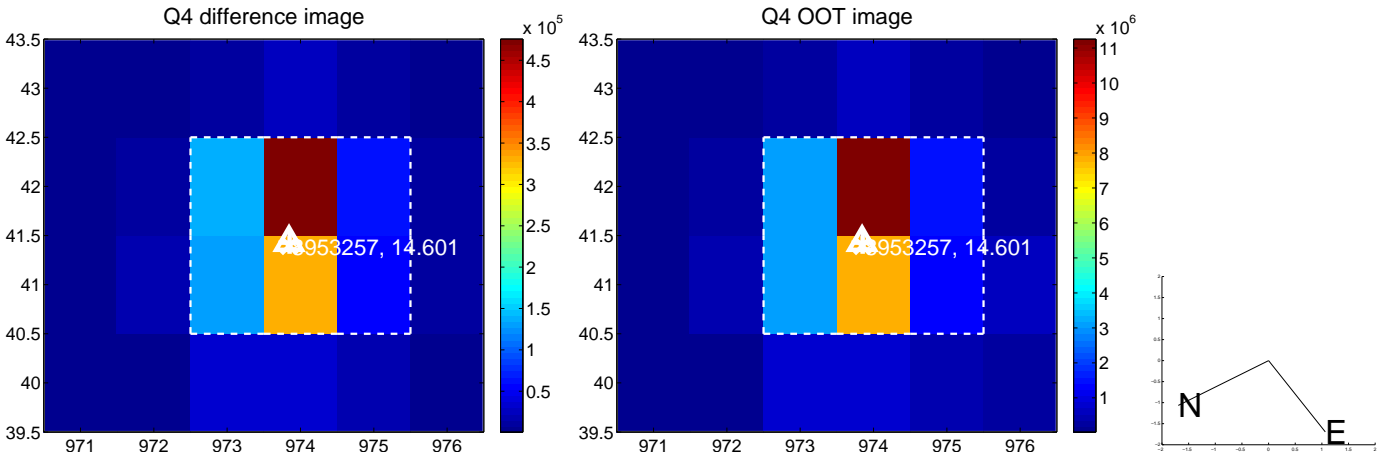
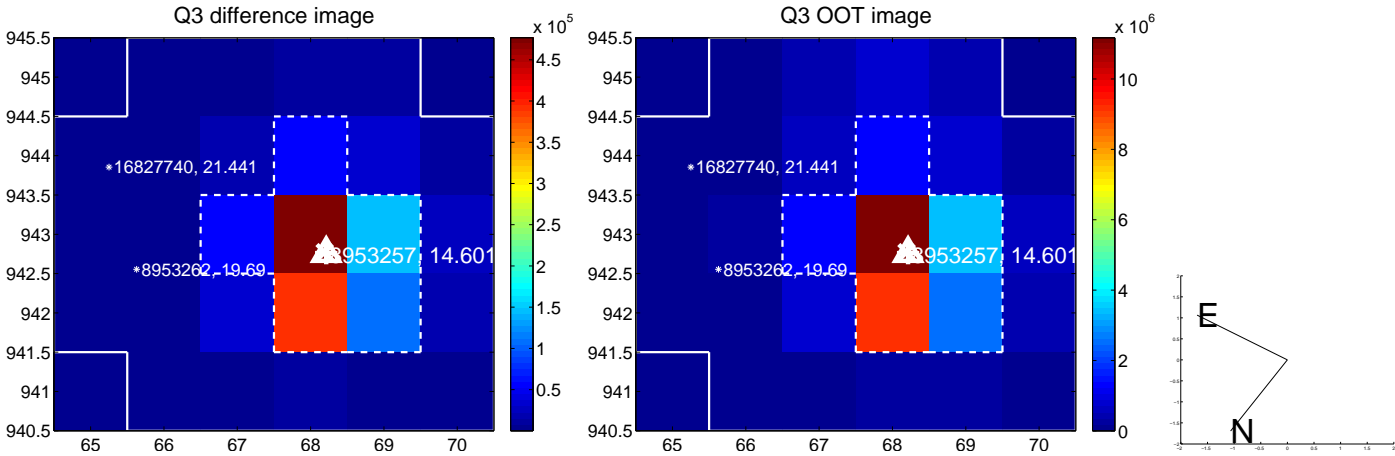
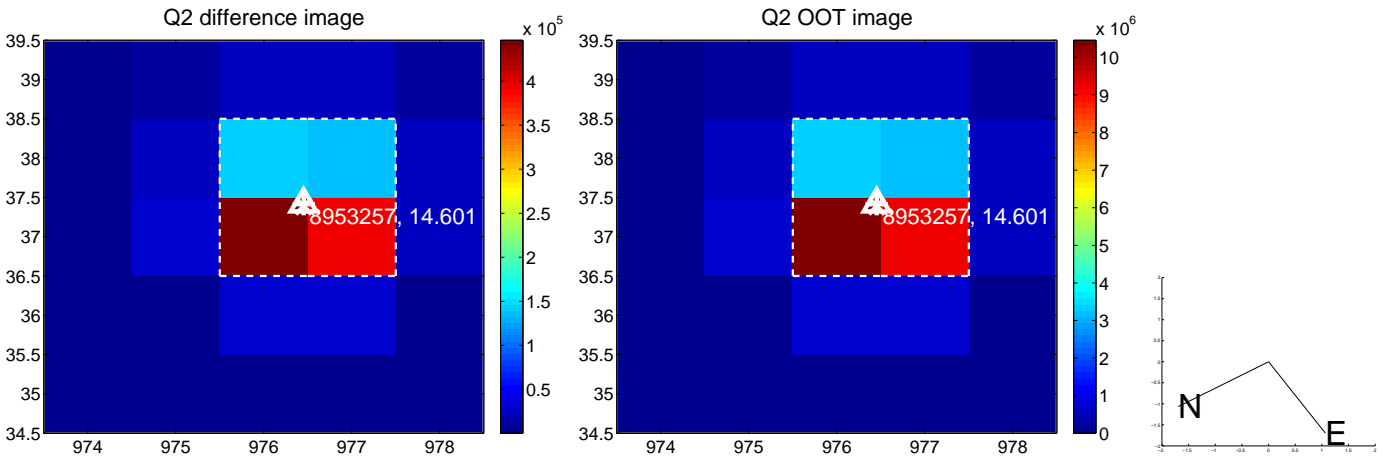
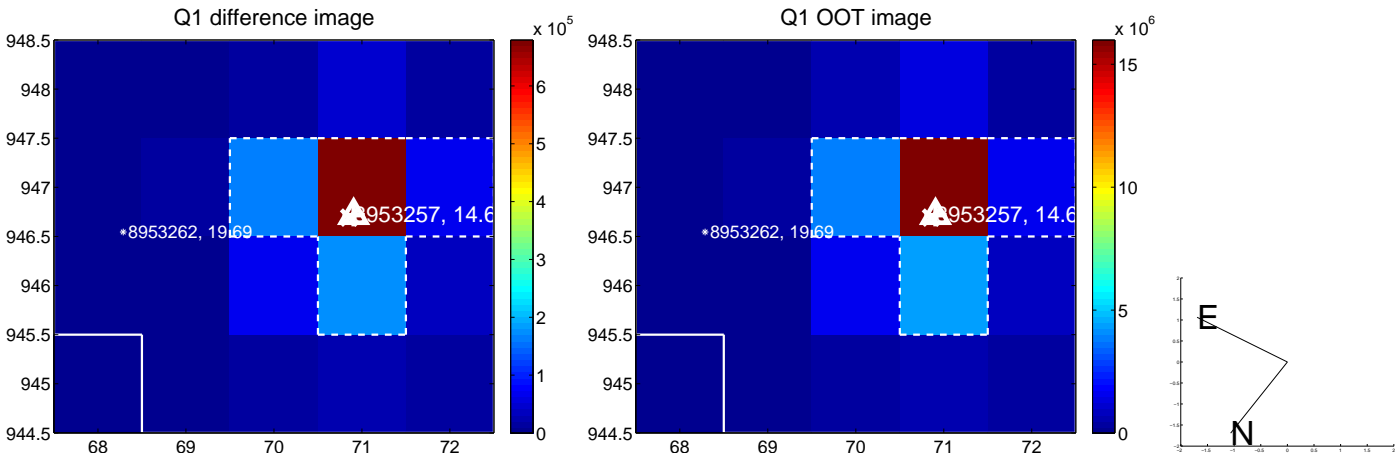
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.014 \pm 0.067$	0.22	$-0.009 \pm 0.067$	$0.011 \pm 0.067$
PRF-fit source offset from KIC position	$0.131 \pm 0.069$	1.91	$-0.122 \pm 0.068$	$-0.047 \pm 0.068$
photometric centroid source offset	$0.07 \pm 0.00$	30.03	$0.01 \pm 0.00$	$-0.07 \pm 0.00$

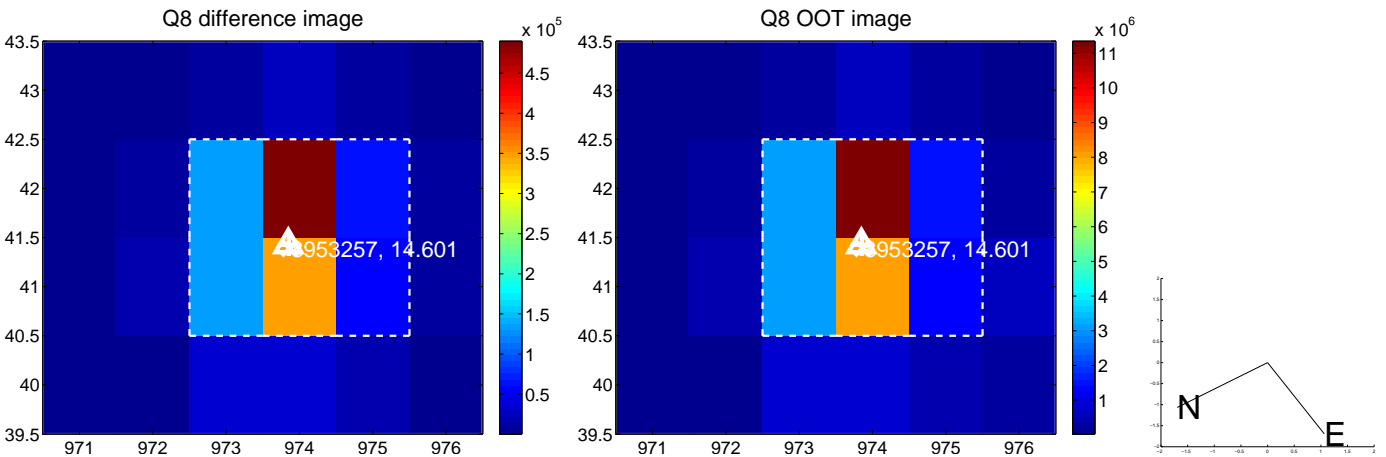
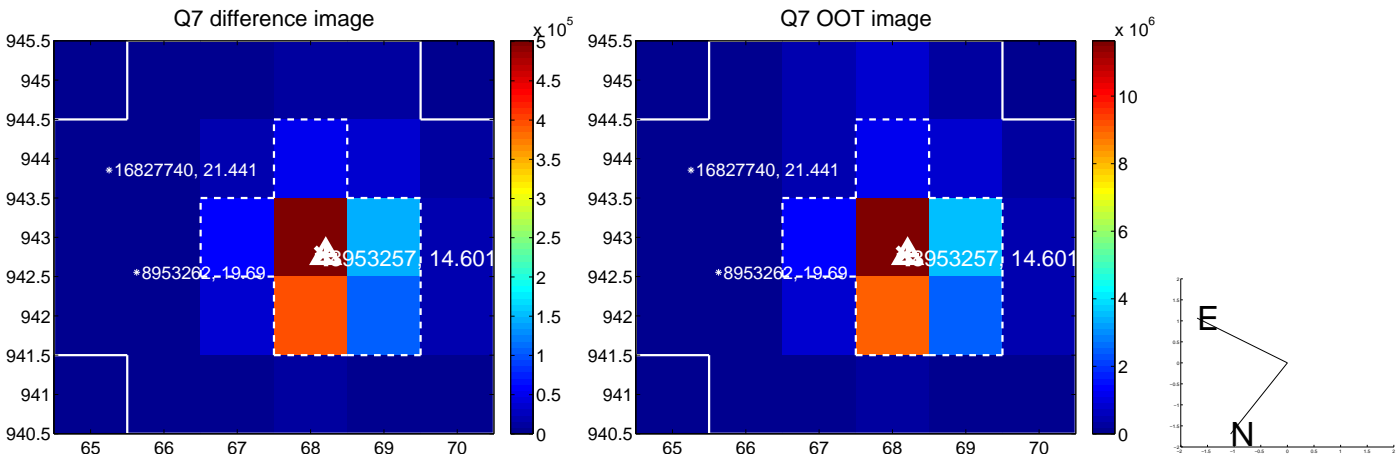
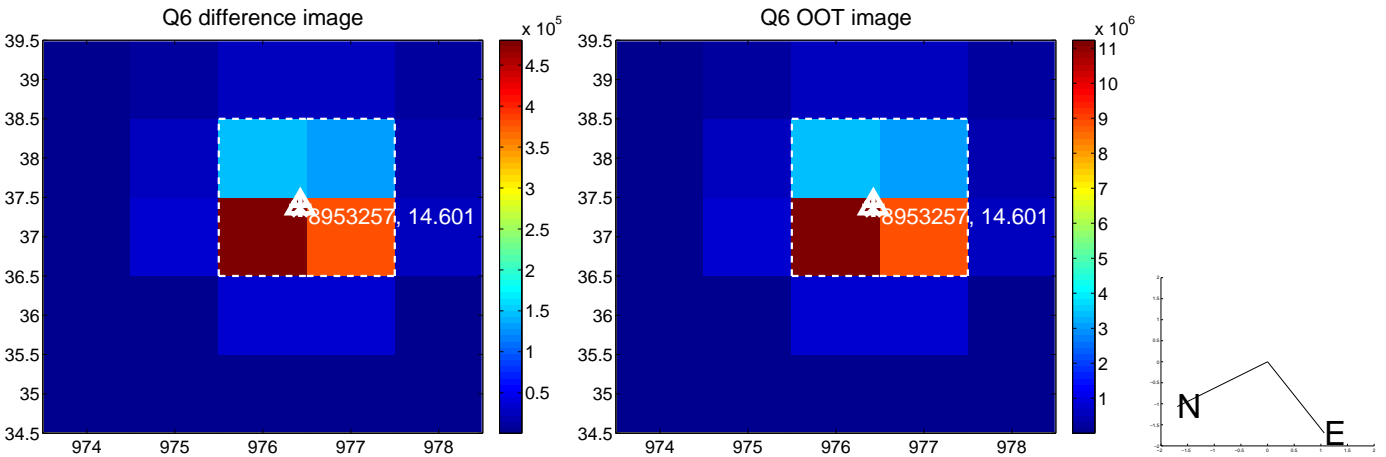
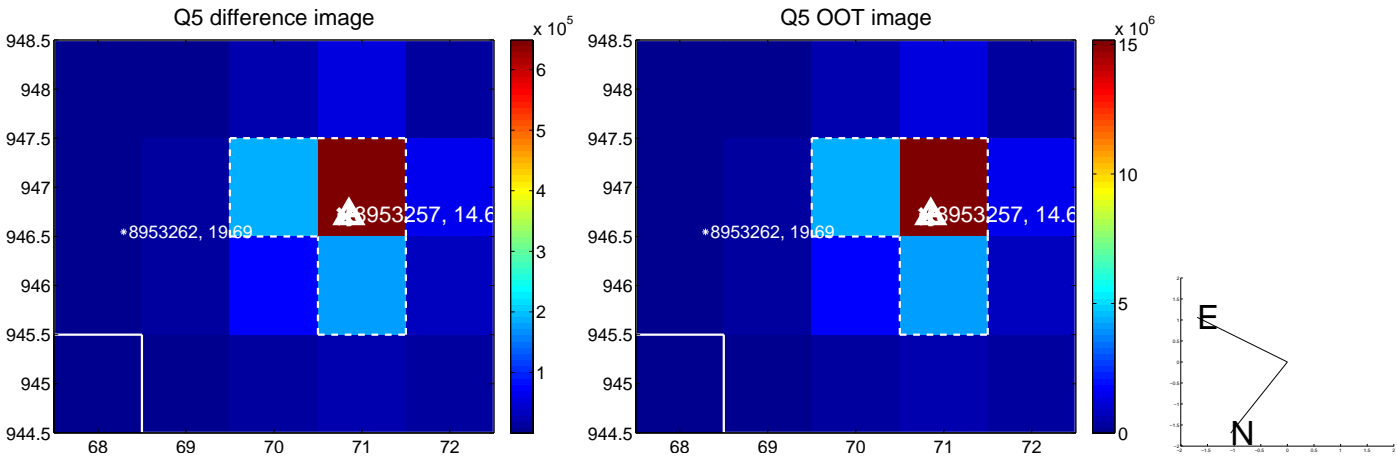


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

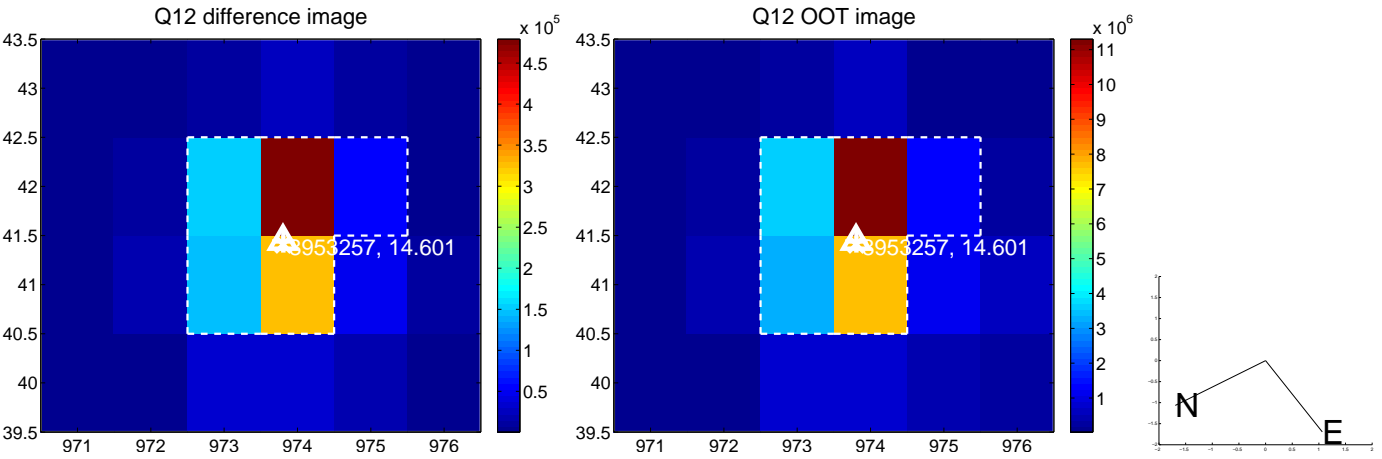
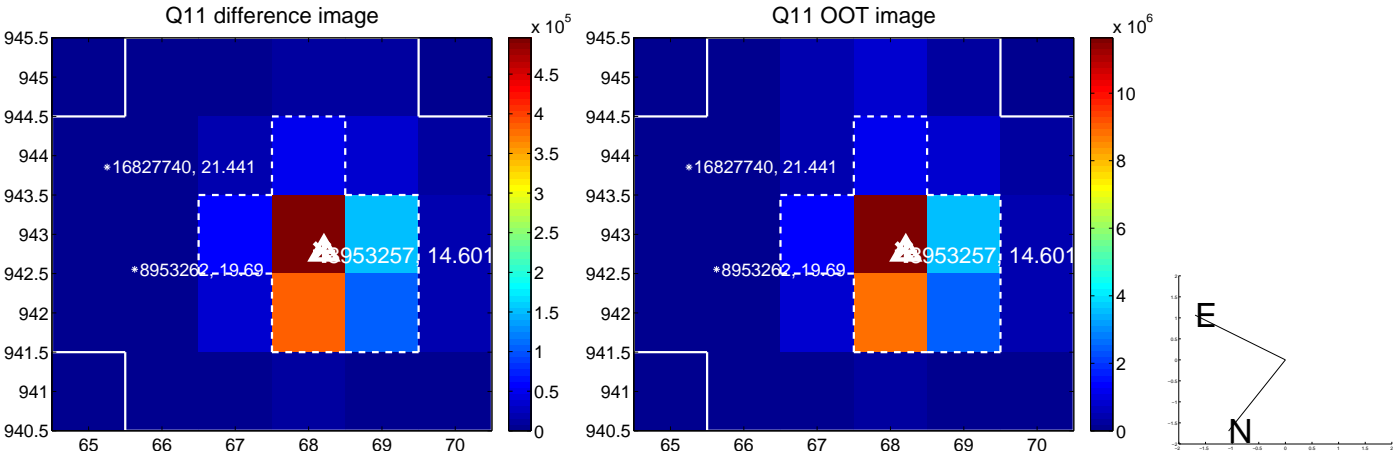
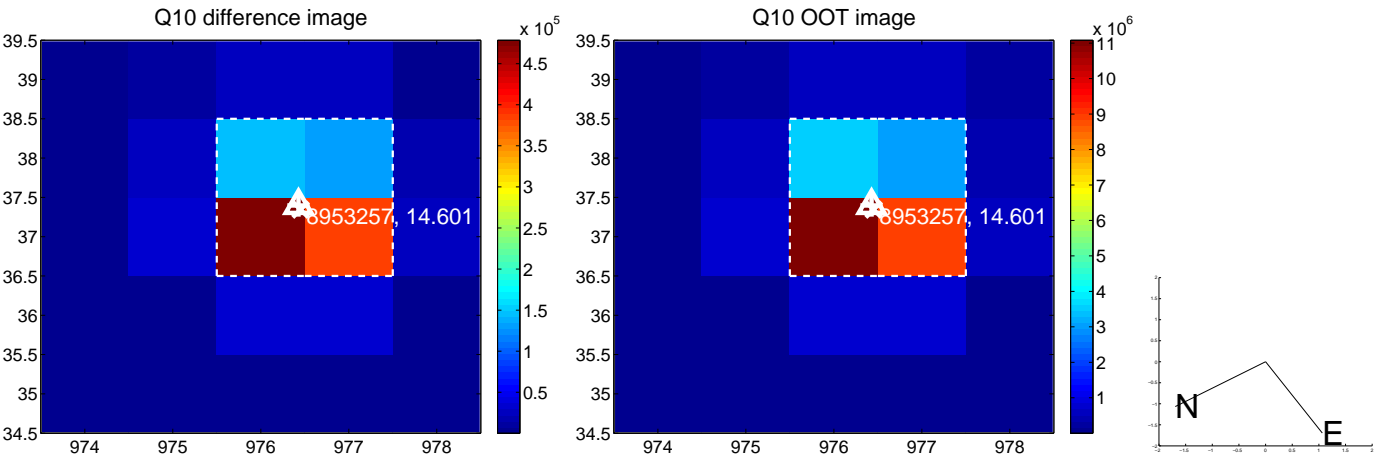
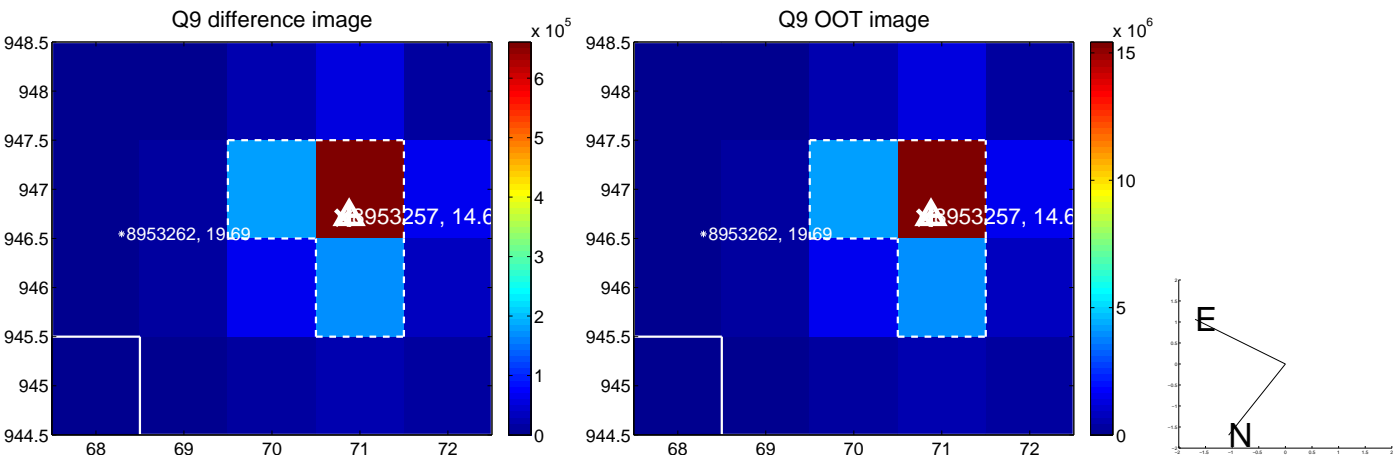


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

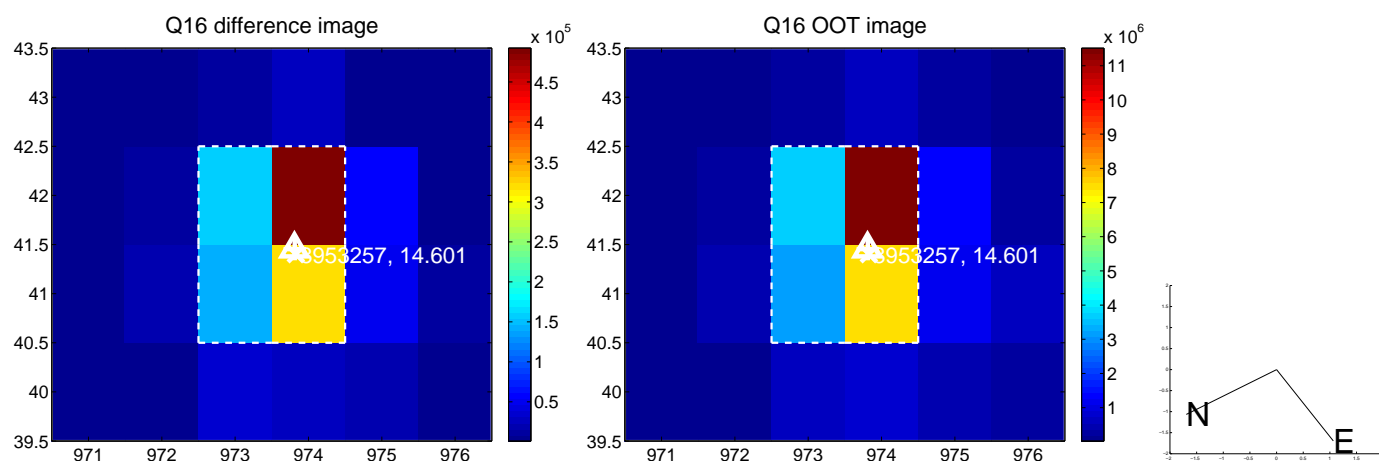
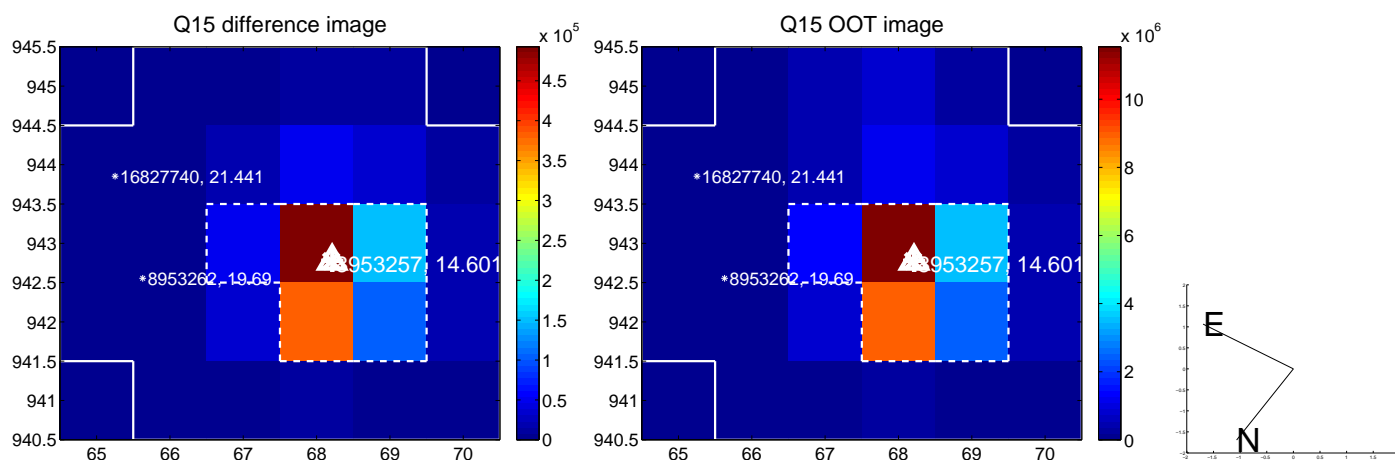
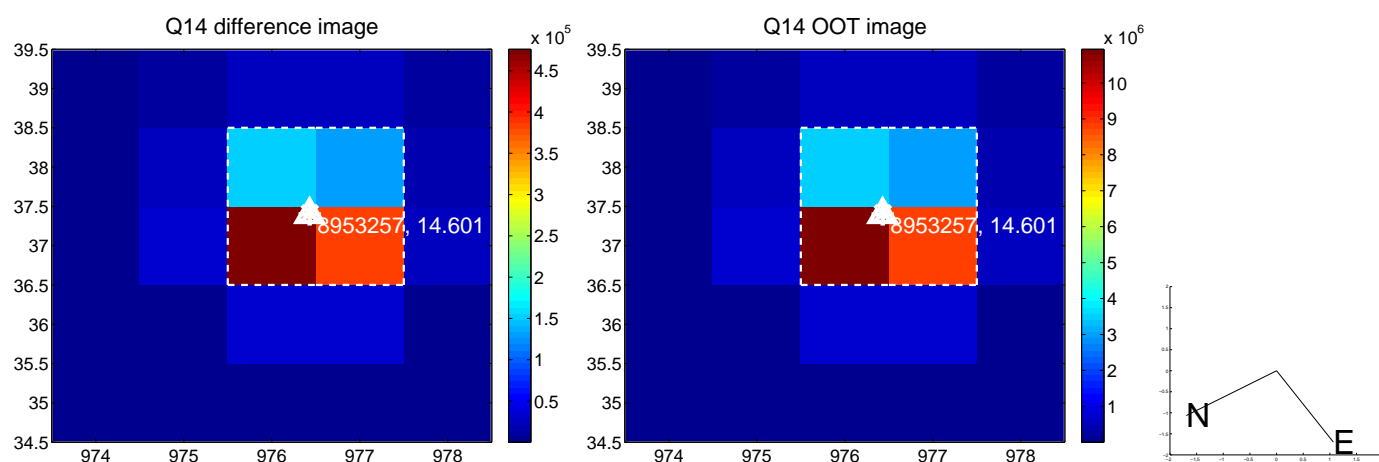
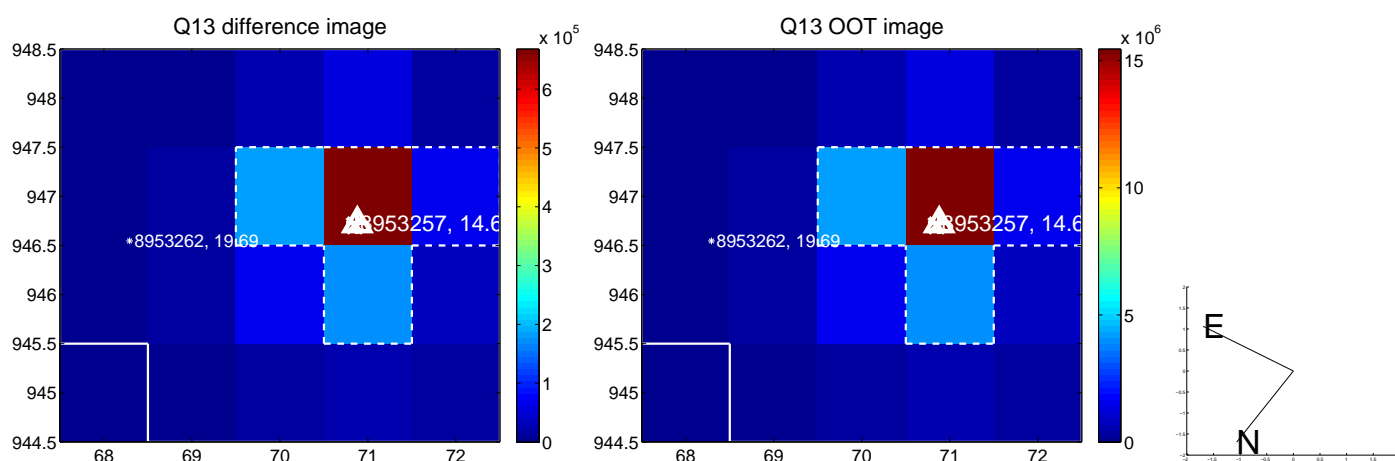




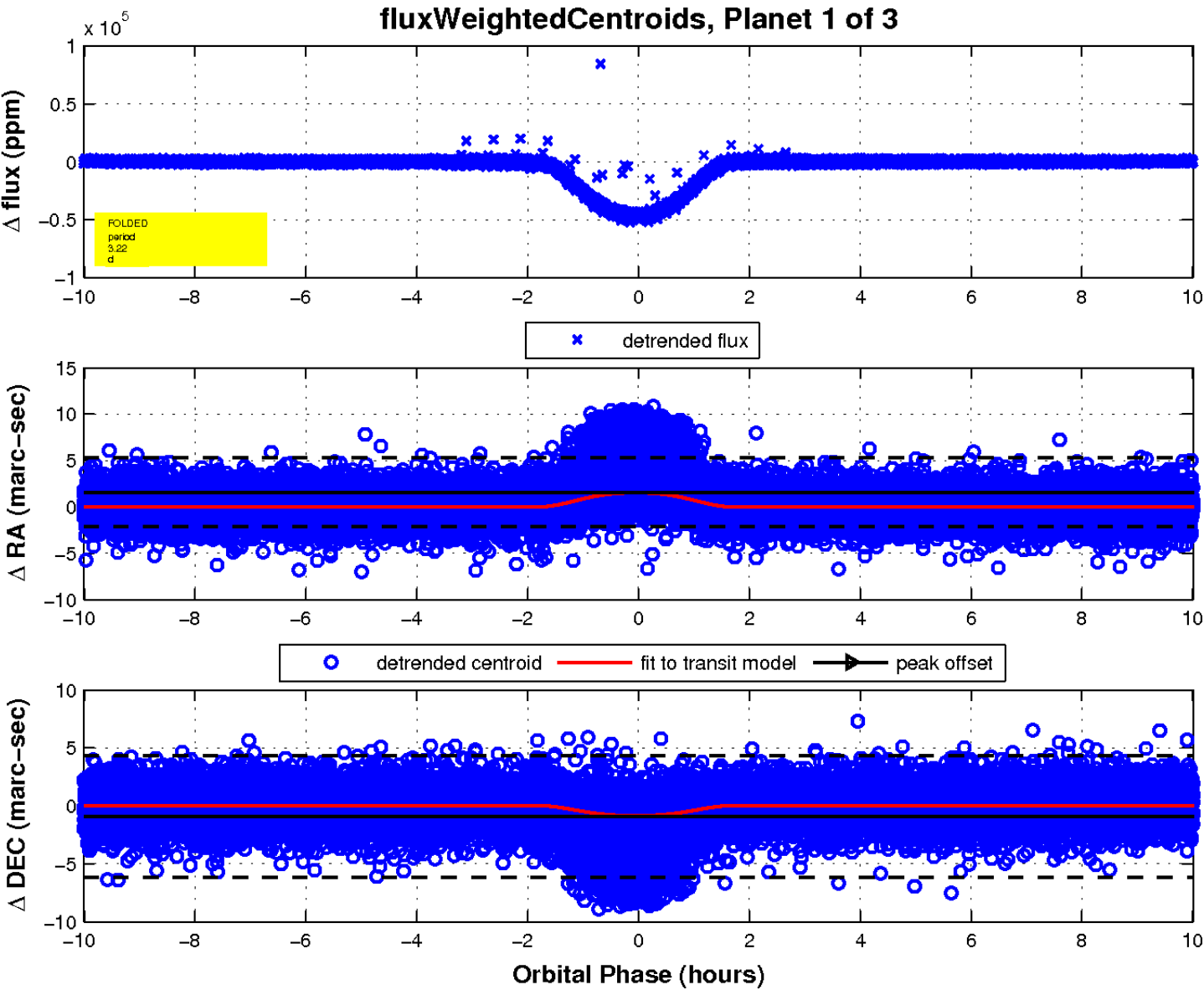
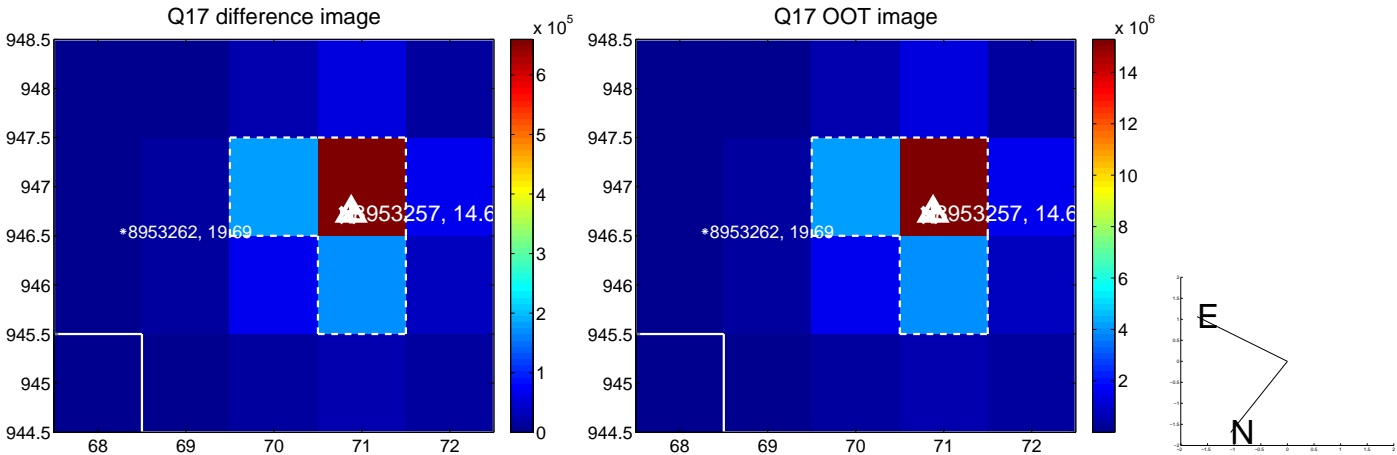
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

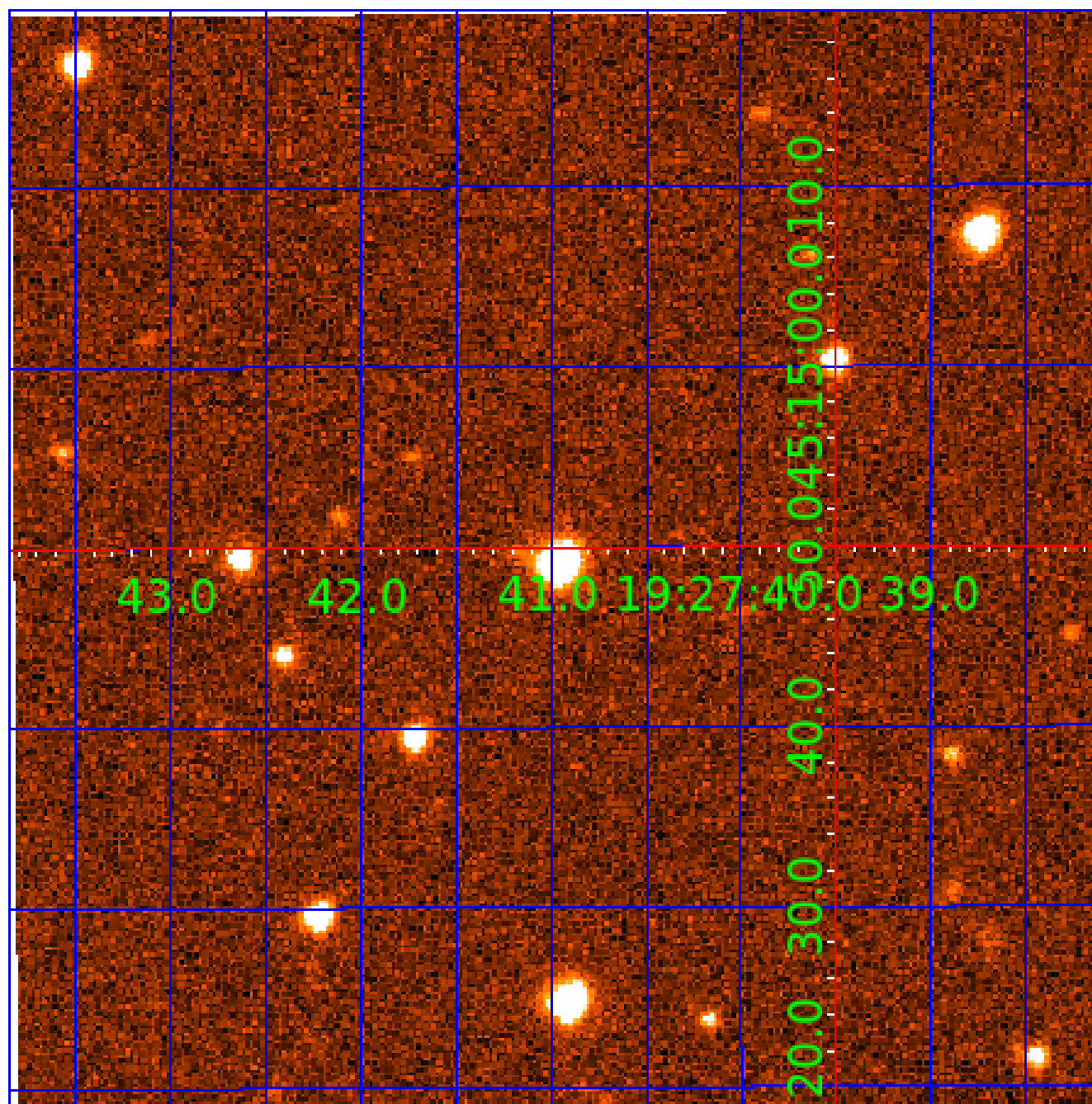


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# UKIRT Image

Declination



# KIC 008953257

## Q1-17 DR25 TCE Parameters

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008953257-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
008953257-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

**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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

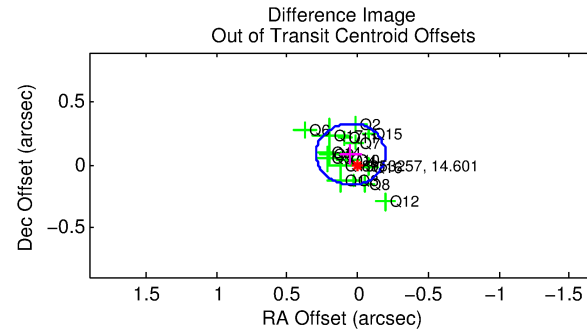
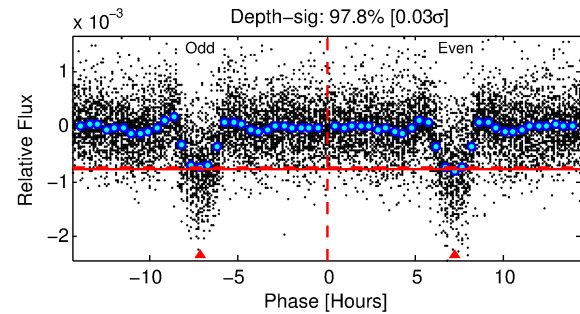
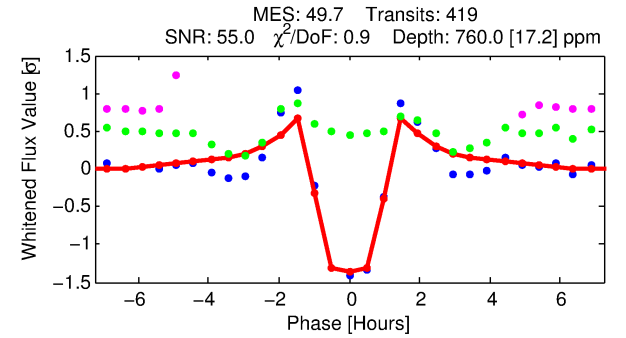
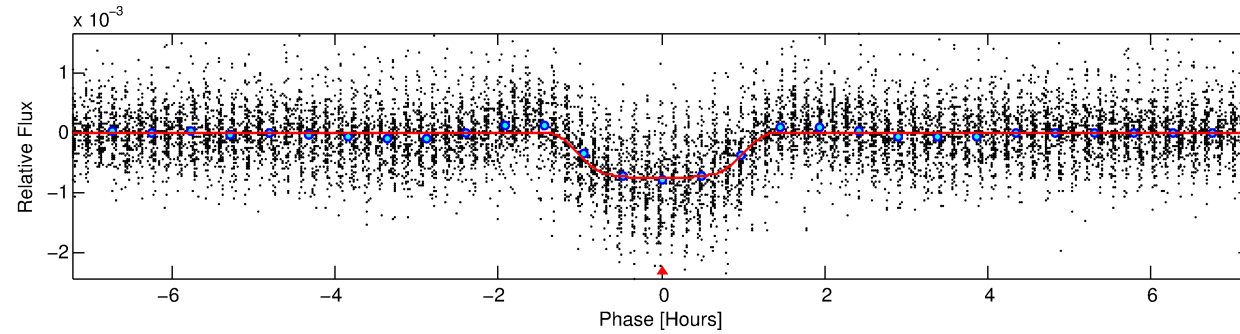
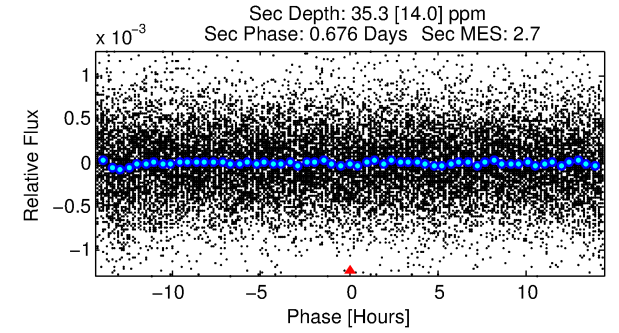
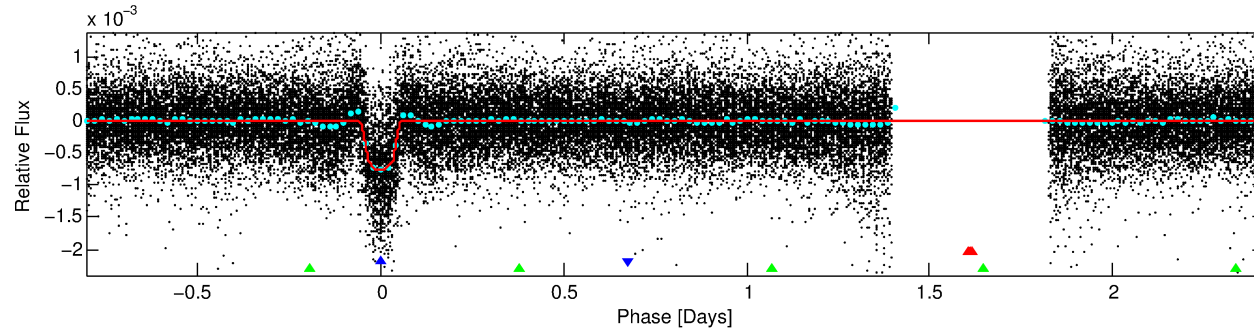
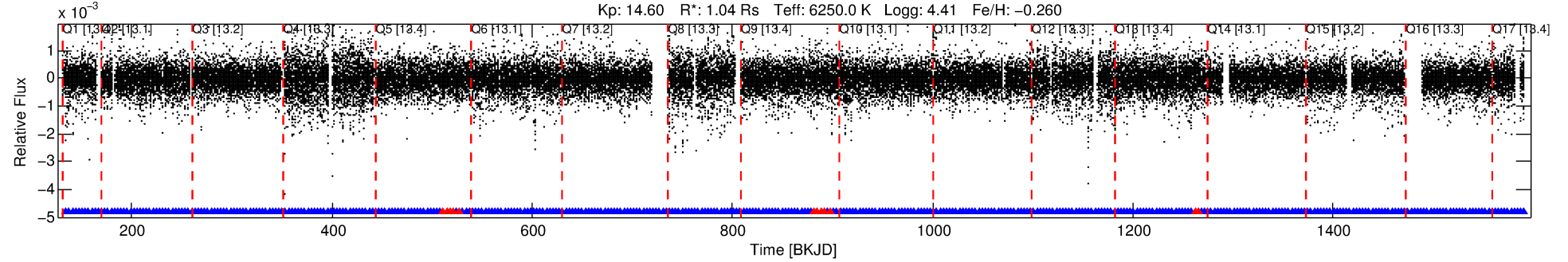
## Ephemeris Match Information For 008953257-02

No Significant Match Found

# DV One-Page Summary

KIC: 8953257 Candidate: 2 of 3 Period: 3.222 d

KOI: K01383 Corr: No Ephemeris Match



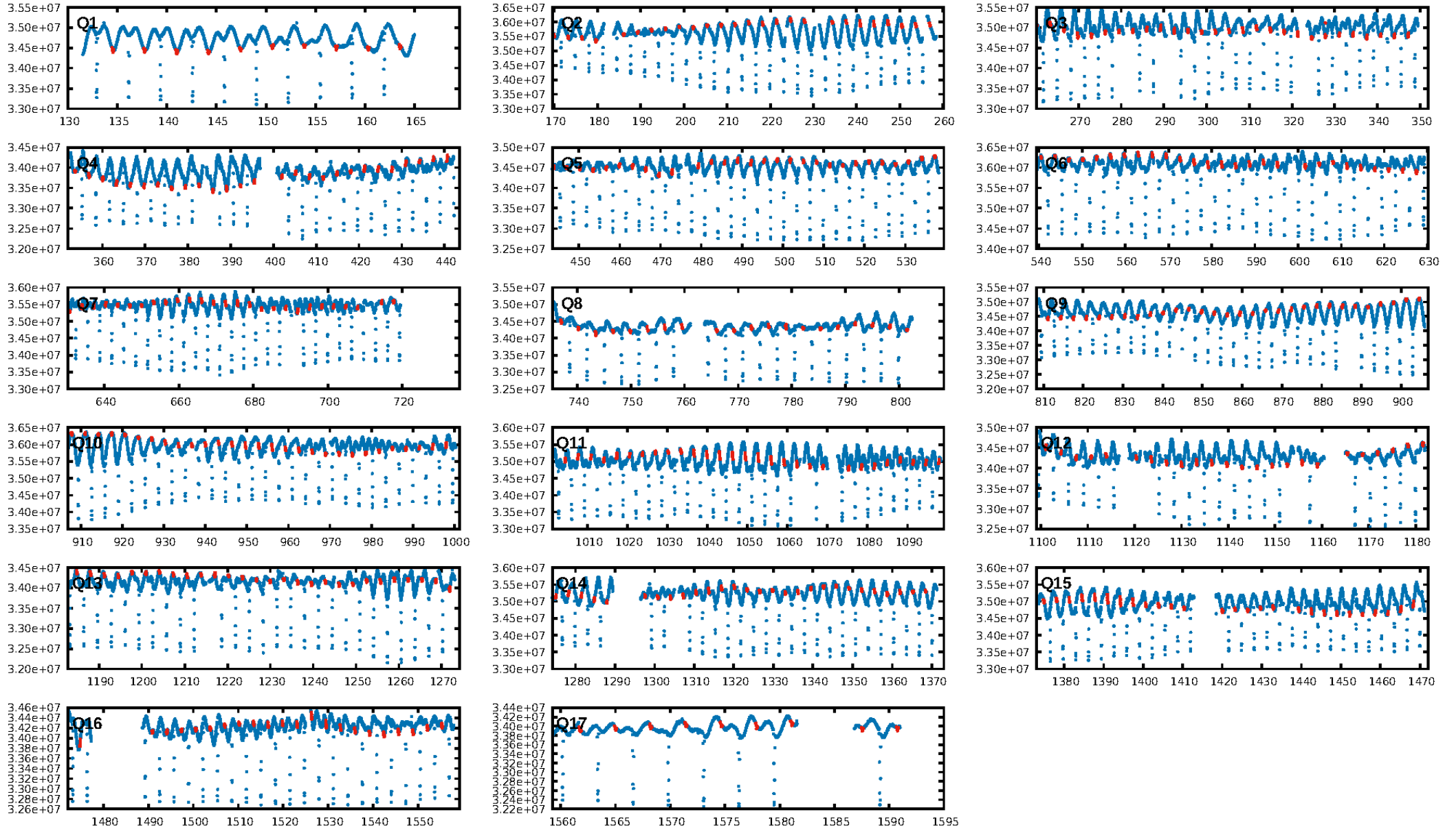
## DV Fit Results:

Period = 3.22175 [0.00000] d  
Epoch = 134.5372 [0.0005] BKJD  
Rp/R\* = 0.0297 [0.0010]  
a/R\* = 5.19 [0.81]  
b = 0.90 [0.03]  
Seff = 802.77 [319.17]  
Teff = 1357 [135] K  
Rp = 3.37 [1.06] Re  
a = 0.0430 [0.0112] AU  
Ag = 3.16 [1.74] [1.24σ]  
Teffp = 2797 [296] K [4.42σ]

## DV Diagnostic Results:

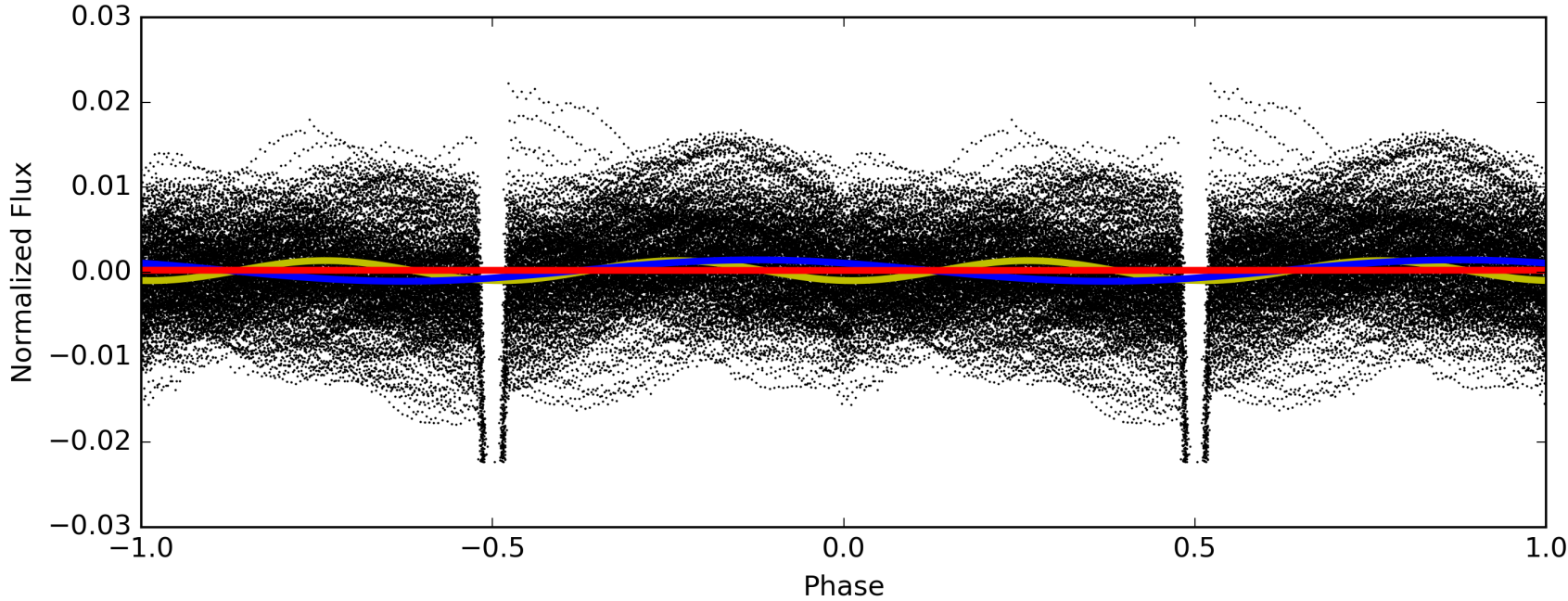
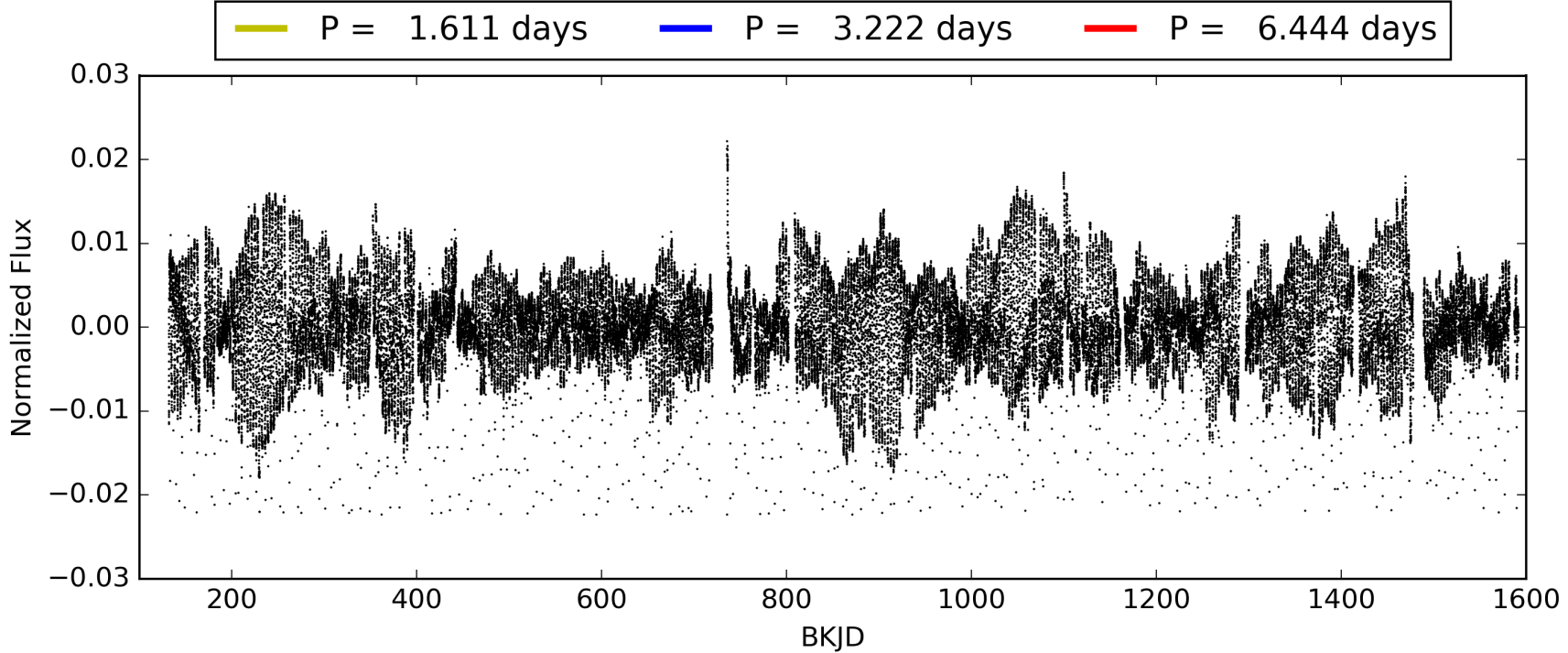
ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.97 [388/400]  
GhostDiagnostic-chr: 1.61  
Centroid-sig: 2.2%  
Centroid-so: 0.149 arcsec [1.03σ]  
OotOffset-rm: 0.097 arcsec [1.19σ]  
KicOffset-rm: 0.072 arcsec [0.93σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008953257-02, PDC Light Curves





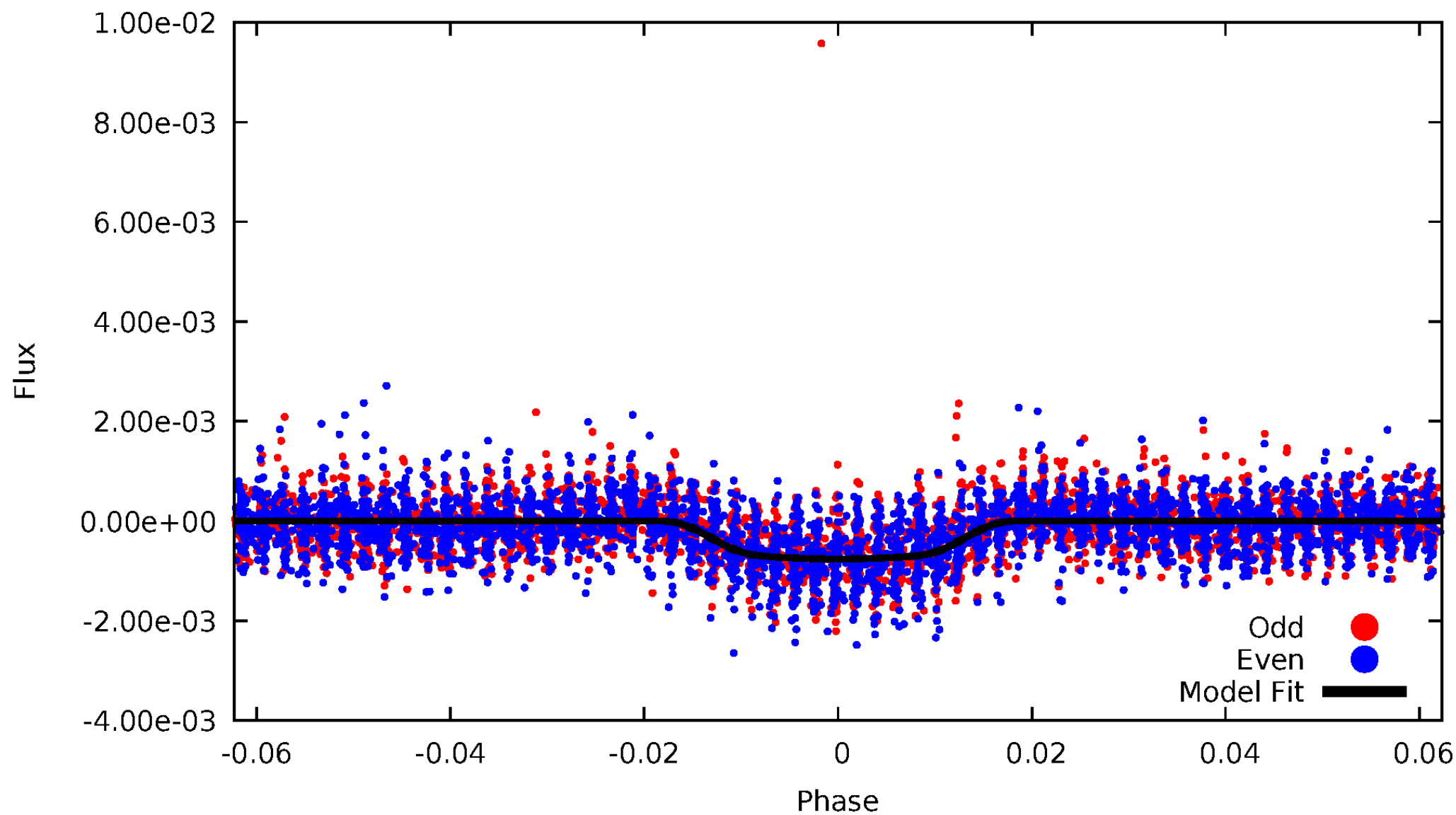
TCE 008953257-02





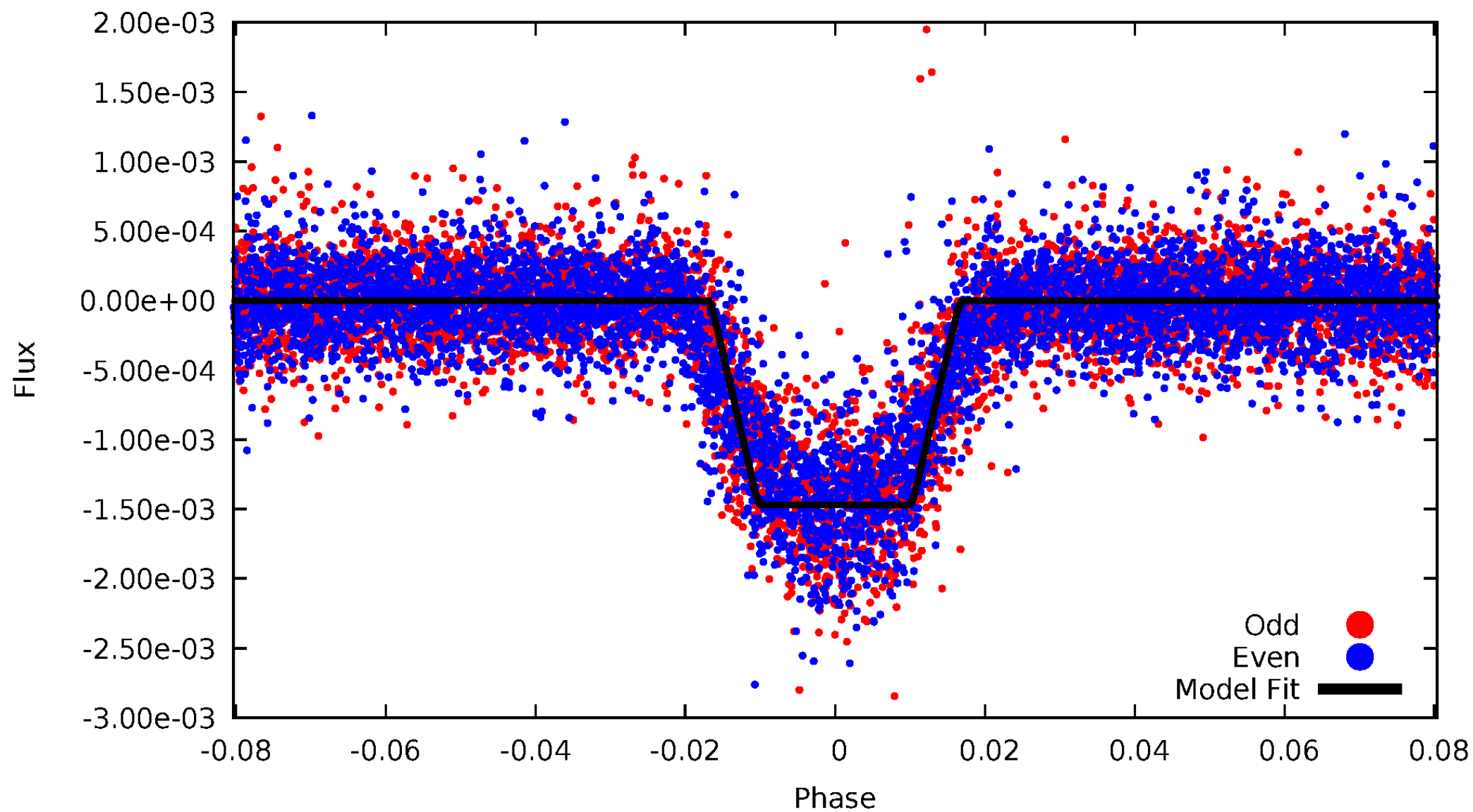
# DV Odd/Even

TCE 008953257-02



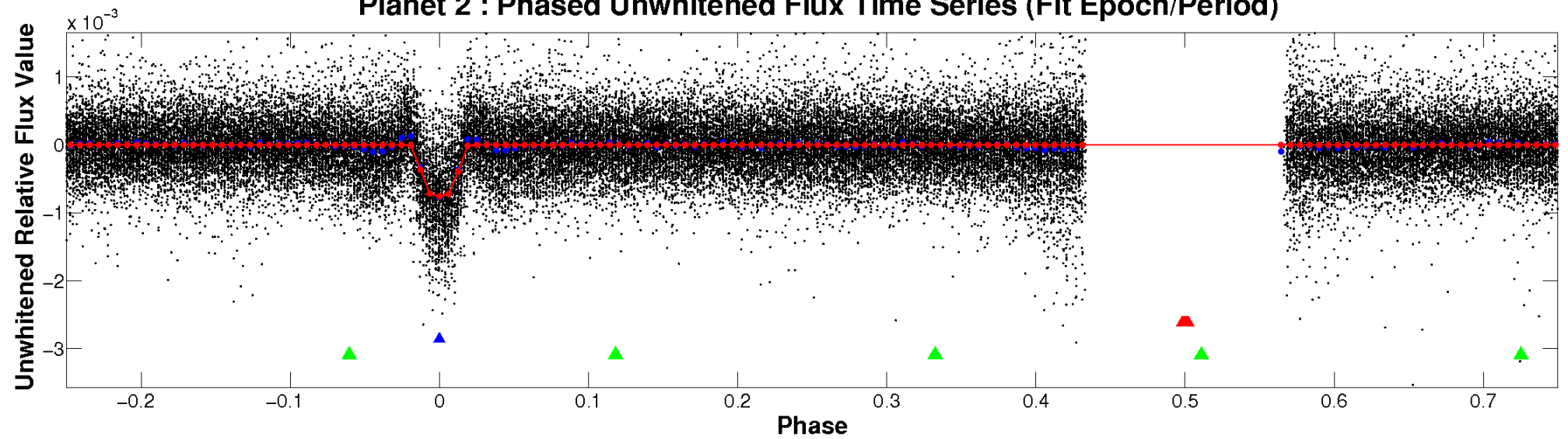
# ALT Odd/Even

TCE 008953257-02

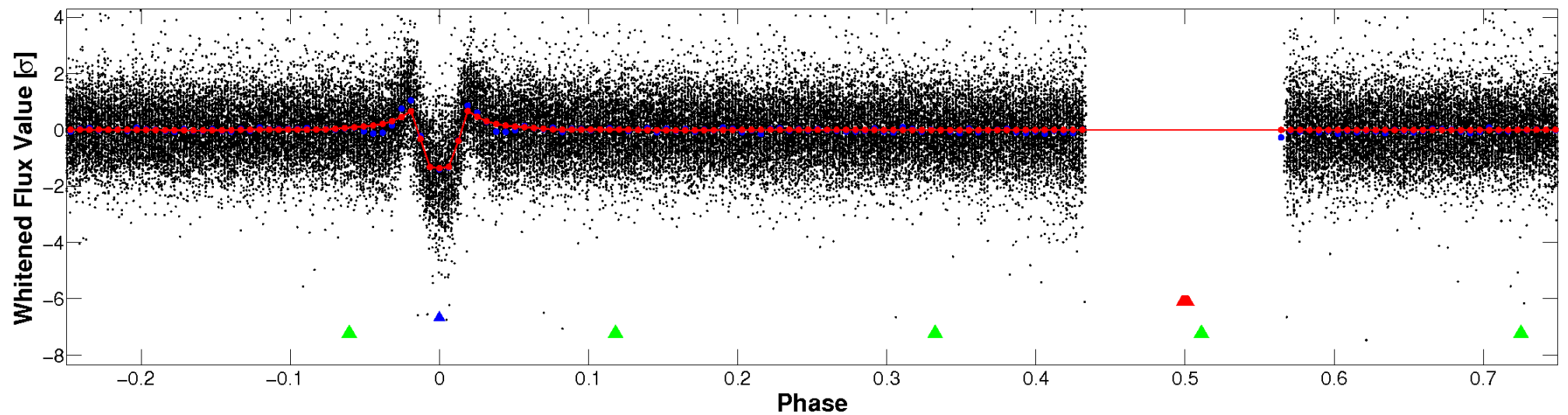


# Non-Whitened Vs. Whitened Light Curve

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

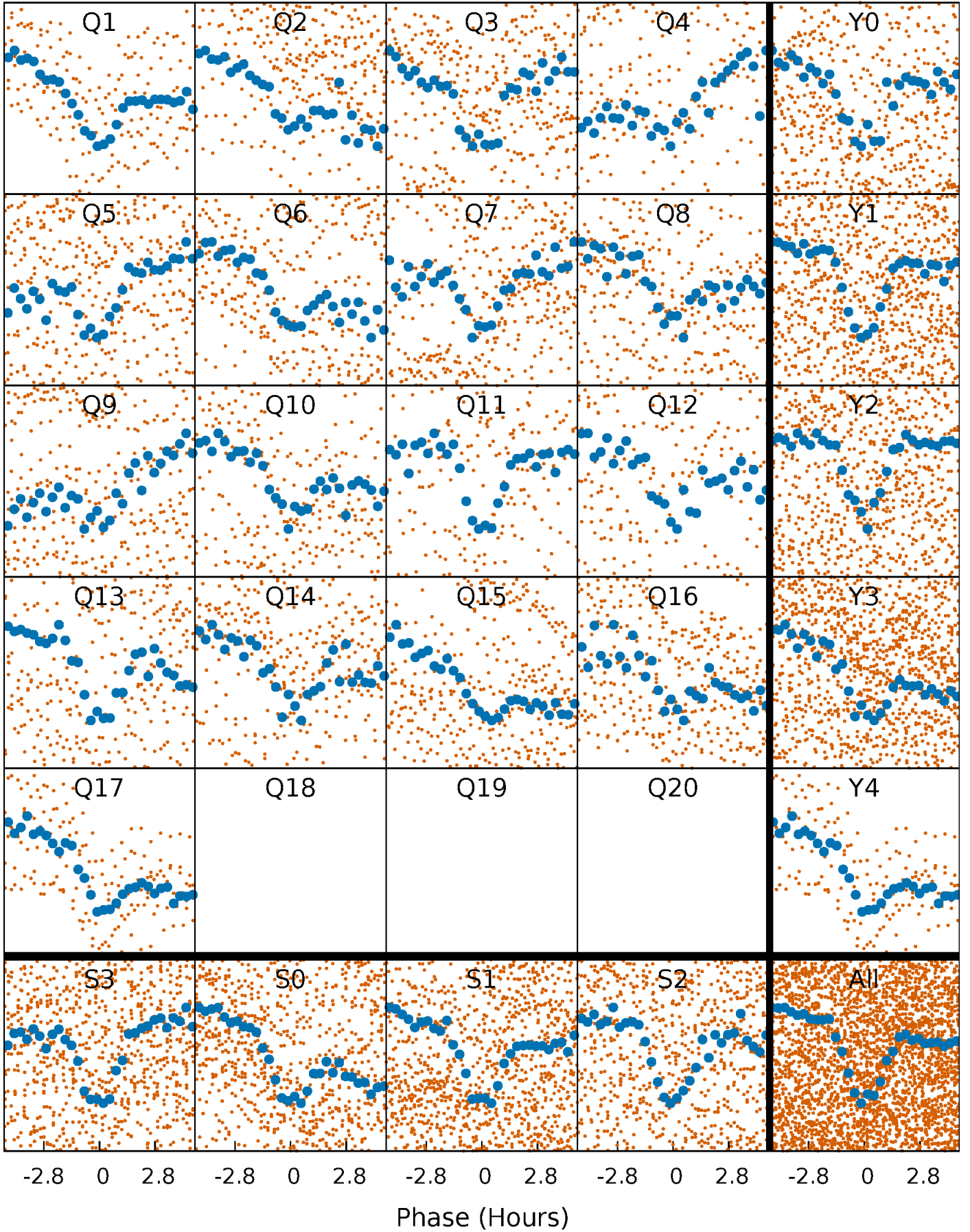


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



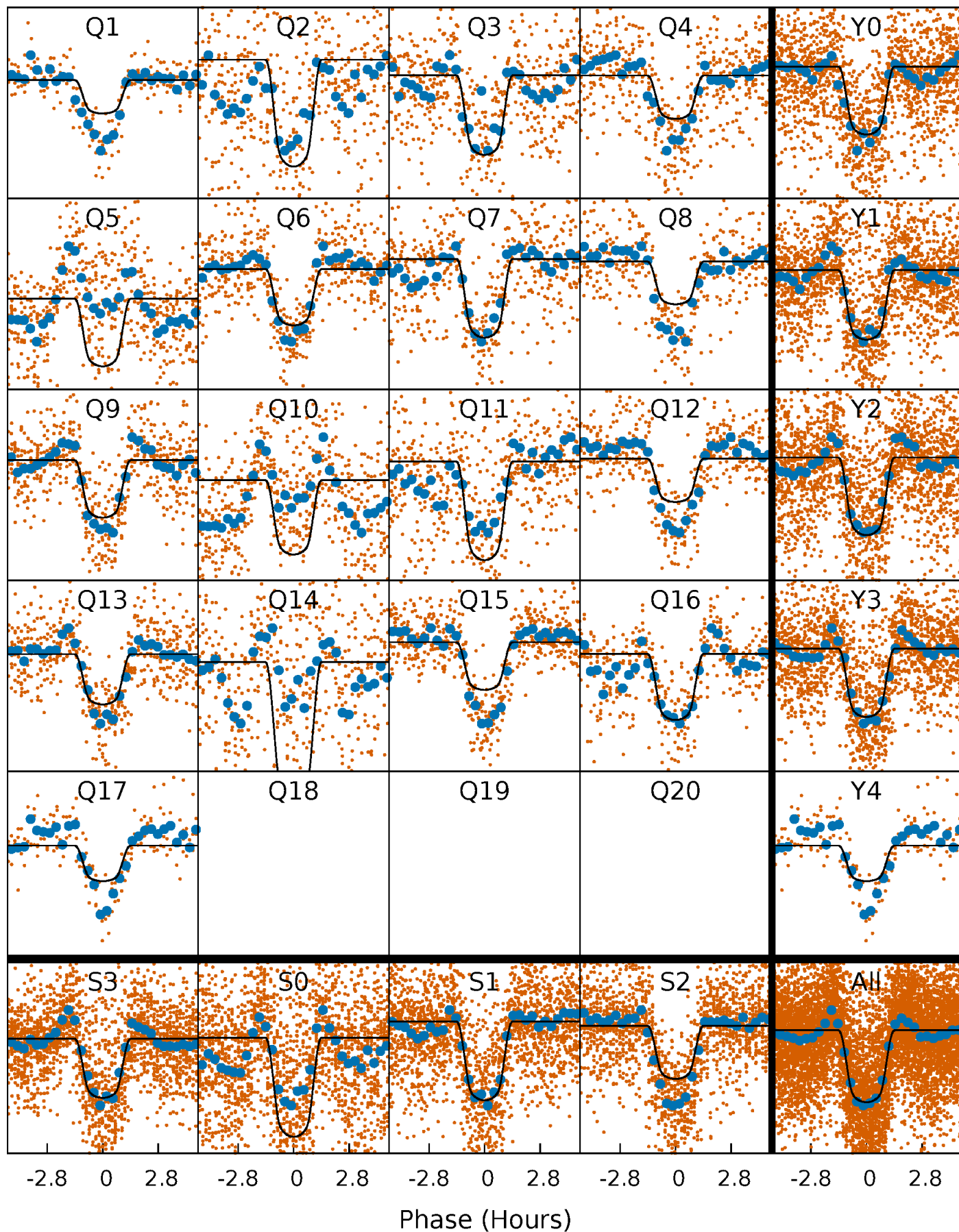
# PDC Quarter-Phased Transit Curves

TCE 008953257-02   P= 3.221755 Days    $T_0=134.537222$  (BKJD)



# DV Quarter-Phased Transit Curves

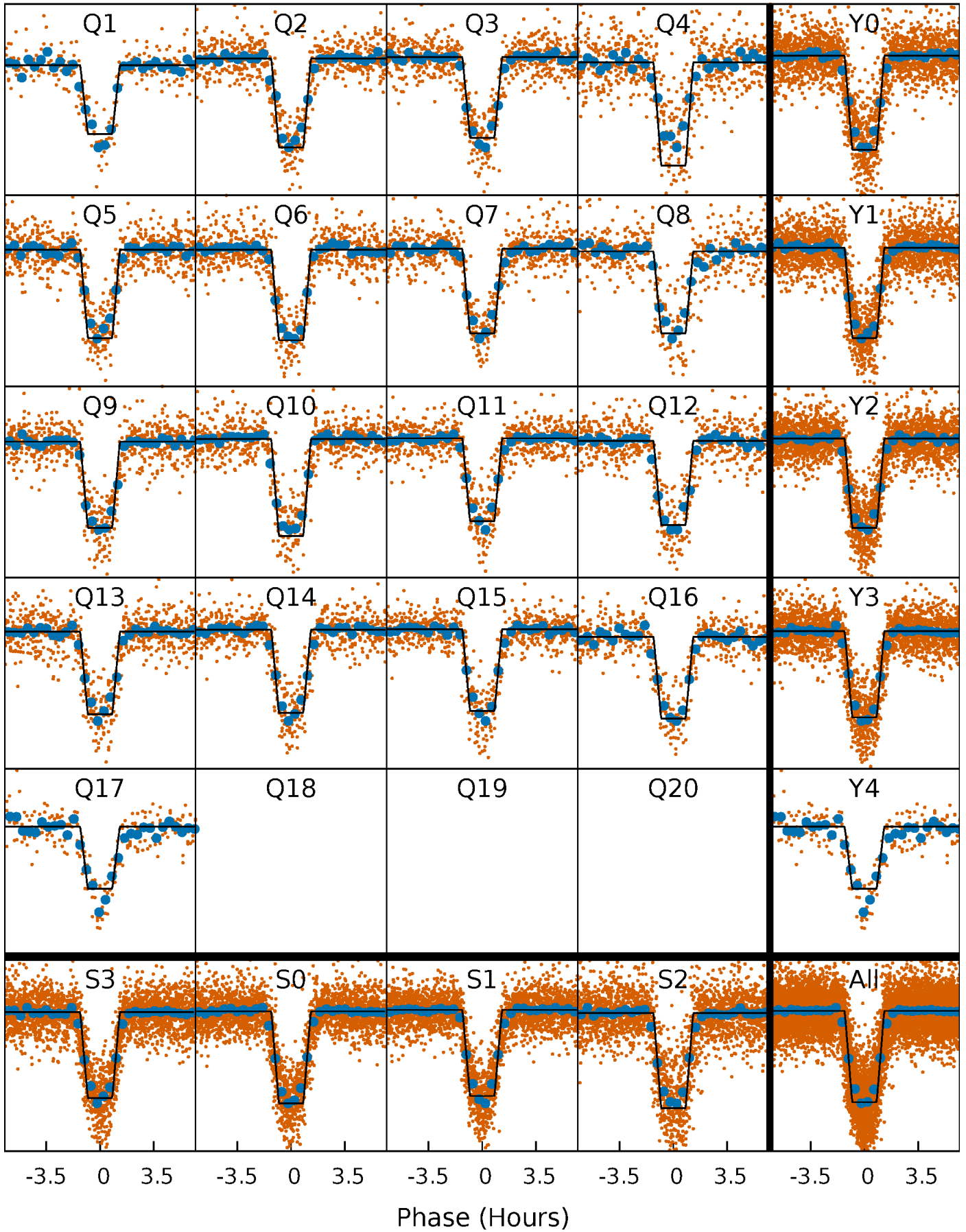
TCE 008953257-02   P= 3.221755 Days    $T_0=134.537222$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

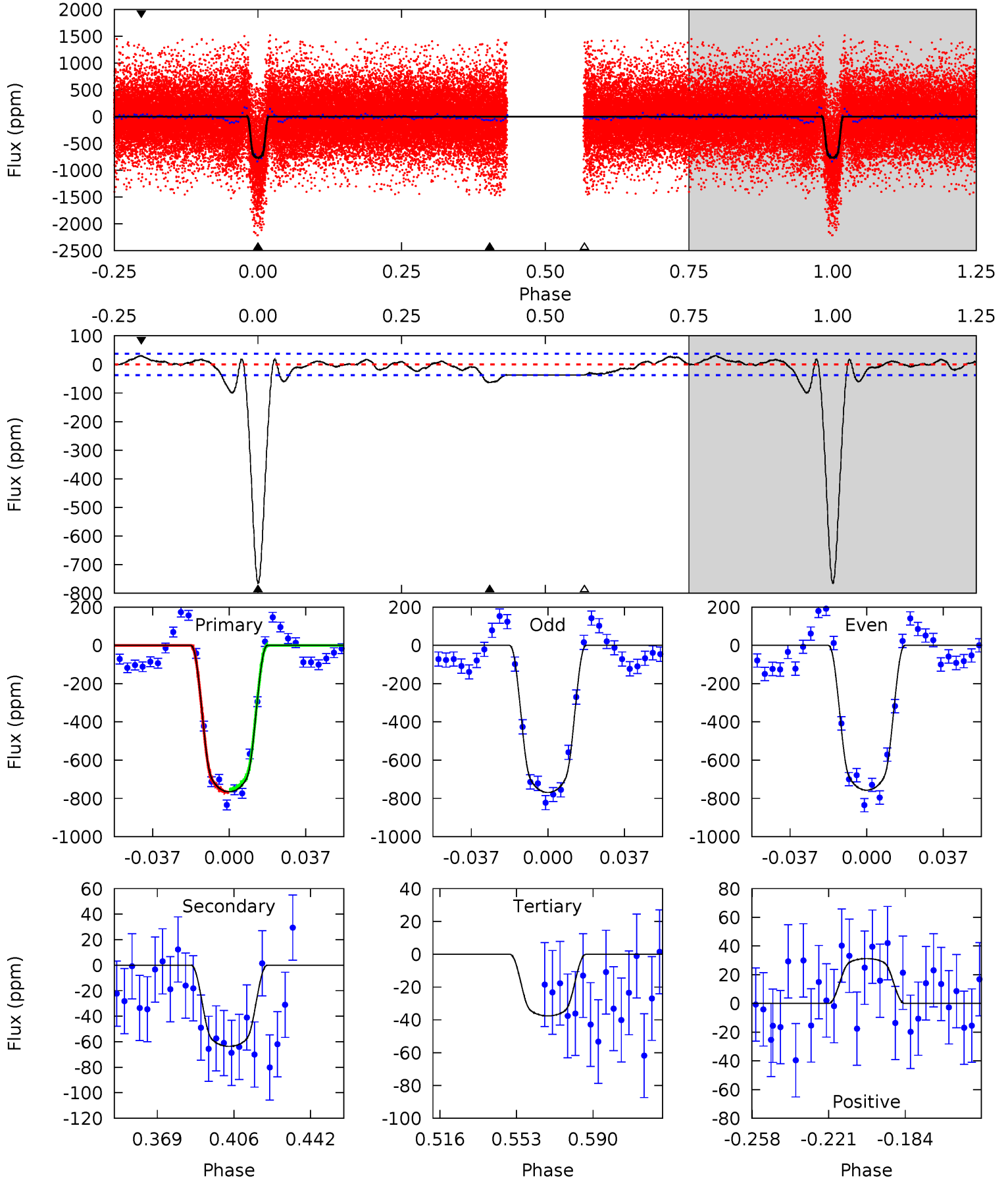
TCE 008953257-02   P= 3.221779 Days    $T_0=134.532422$  (BKJD)



# DV Model-Shift Uniqueness Test

008953257-02, P = 3.221755 Days, E = 131.315467 Days

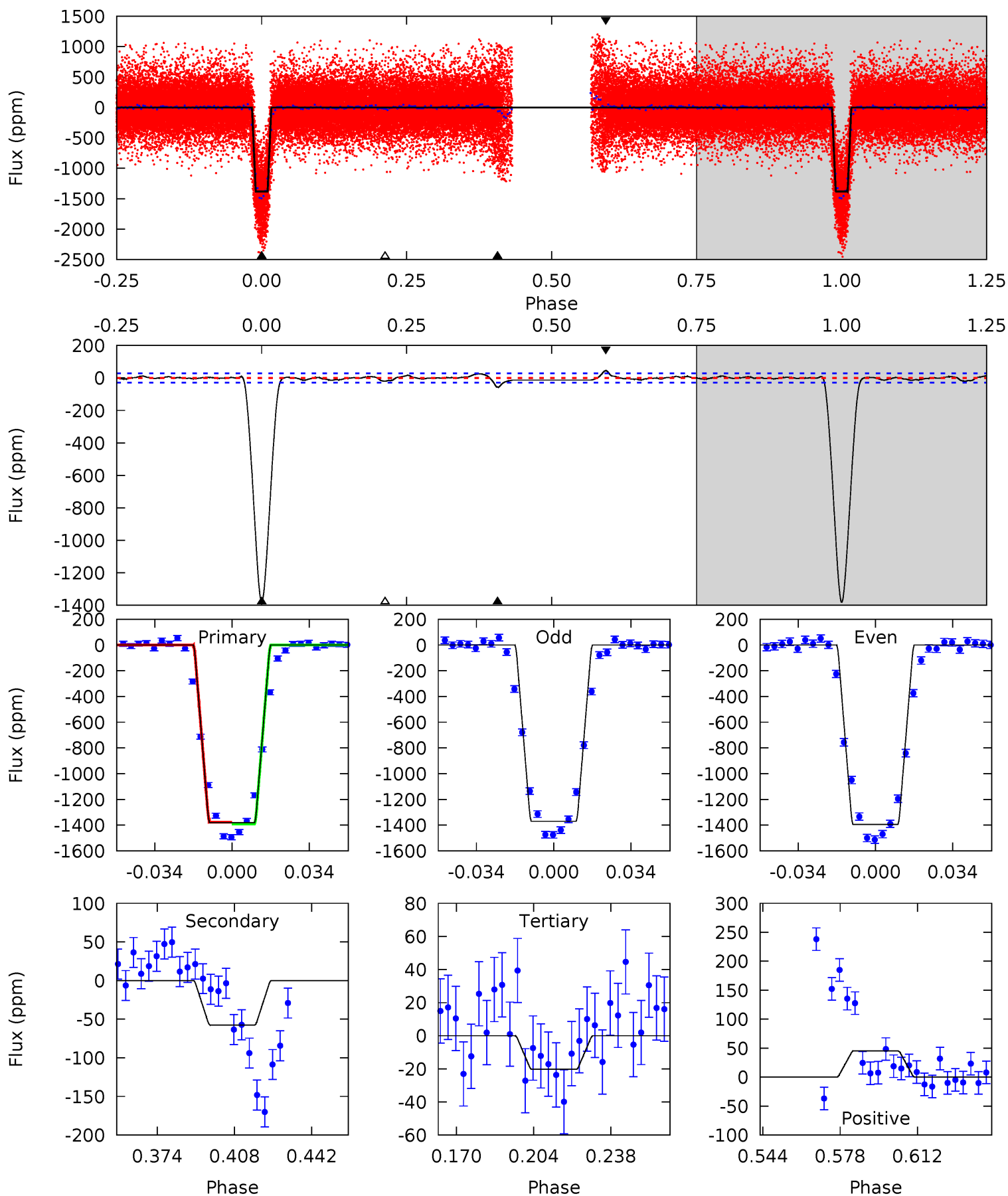
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
98.0	8.15	4.81	4.00	4.77	2.09	2.82	93.2	94.0	3.34	4.15	0.79	0.99	0.04	0.99



# Alt Model-Shift Uniqueness Test

008953257-02, P = 3.221779 Days, E = 131.310643 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
232.6	9.69	3.42	7.60	4.79	2.12	1.42	229.2	225.0	6.27	2.09	2.05	0.99	0.03	1.12





### Stellar Parameters For KIC 008953257

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6250^{+169}_{-206}$	$4.411^{+0.087}_{-0.203}$	$-0.260^{+0.250}_{-0.300}$	$1.041^{+0.326}_{-0.140}$	$1.013^{+0.158}_{-0.115}$	$1.267^{+0.483}_{-0.676}$
	+3%/-3%	+2%/-5%	+96%/-115%	+31%/-13%	+16%/-11%	+38%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008953257-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-64 \pm 8$	$3.43^{+0.55}_{-0.31}$	$1925^{+126}_{-96}$	$3624^{+124}_{-119}$	$5.294^{+1.388}_{-1.328}$
Alt.	$-58 \pm 6$	$4.47^{+0.76}_{-0.43}$	$1925^{+141}_{-102}$	$3267^{+90}_{-91}$	$2.863^{+0.737}_{-0.704}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

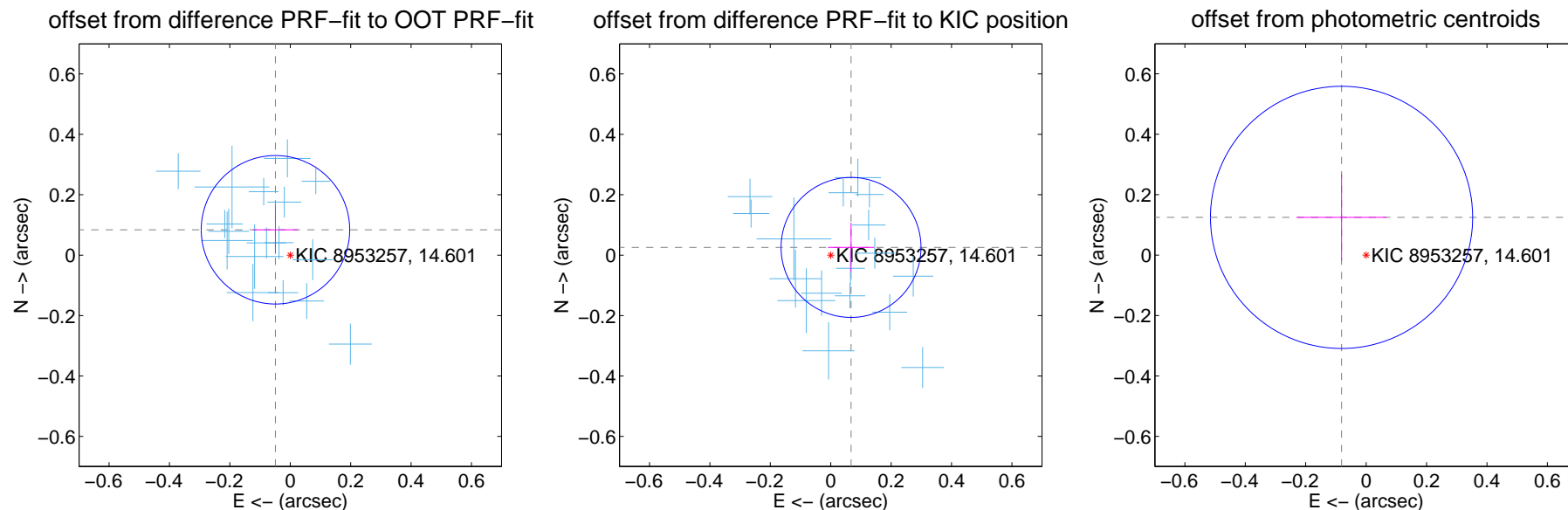
## DV Centroid Data

Supplemental centroid analysis for 008953257-02. Kepler magnitude: 14.60. Transit SNR 55.03

There are 17 quarters with good PRF difference image offsets

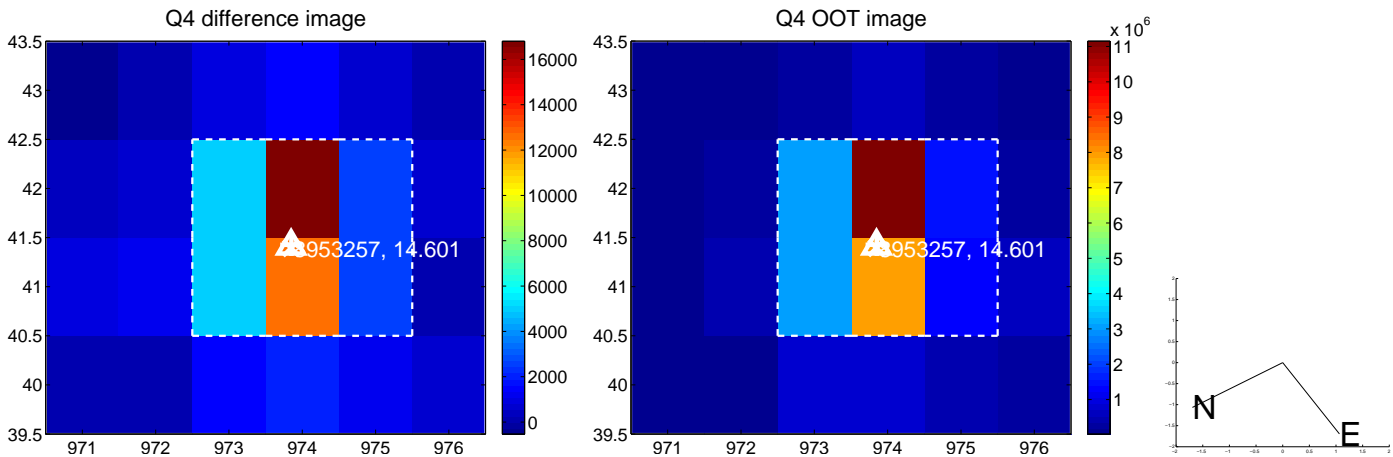
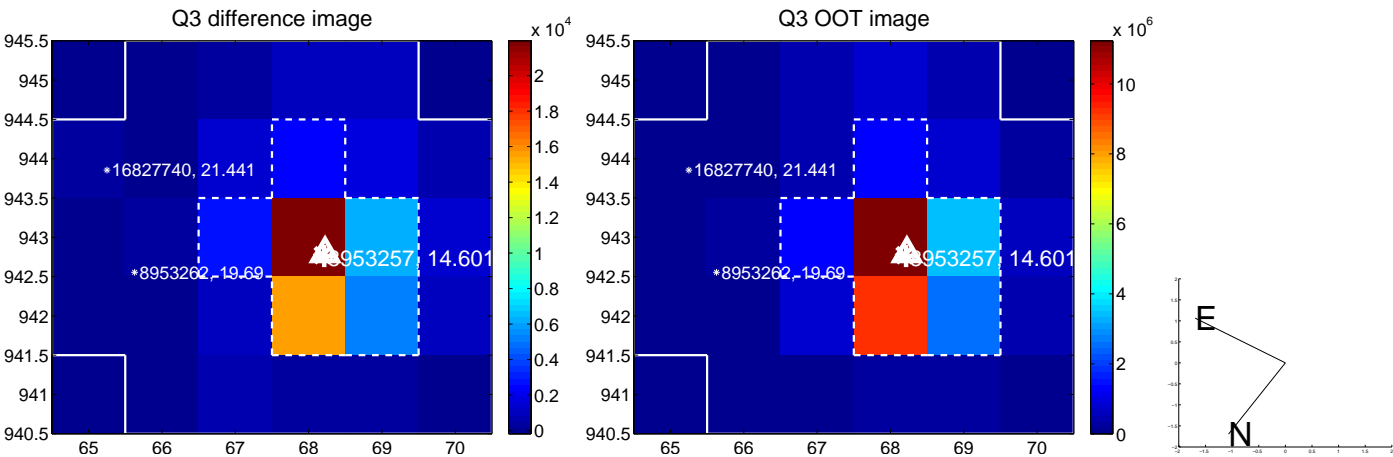
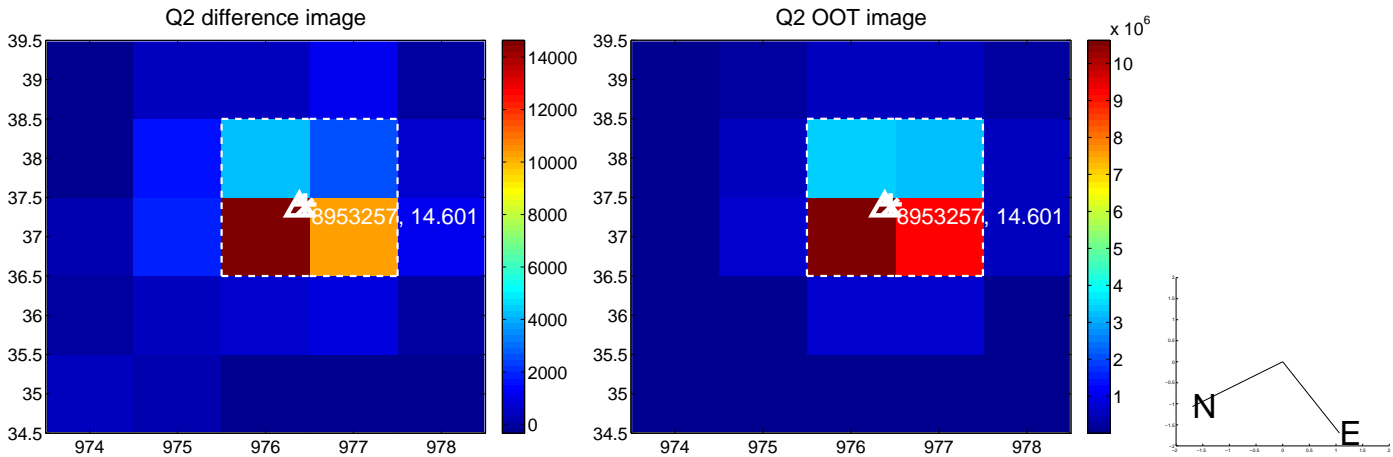
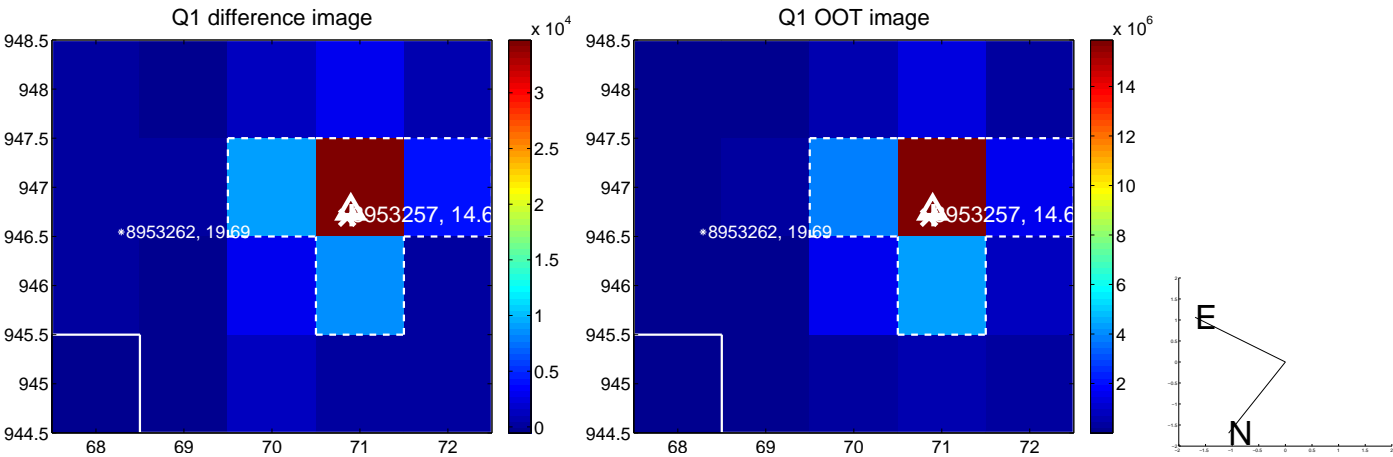
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.097 \pm 0.082$	1.19	$0.049 \pm 0.074$	$0.084 \pm 0.079$
PRF-fit source offset from KIC position	$0.072 \pm 0.077$	0.93	$-0.067 \pm 0.077$	$0.026 \pm 0.082$
photometric centroid source offset	$0.15 \pm 0.14$	1.03	$0.08 \pm 0.15$	$0.12 \pm 0.14$

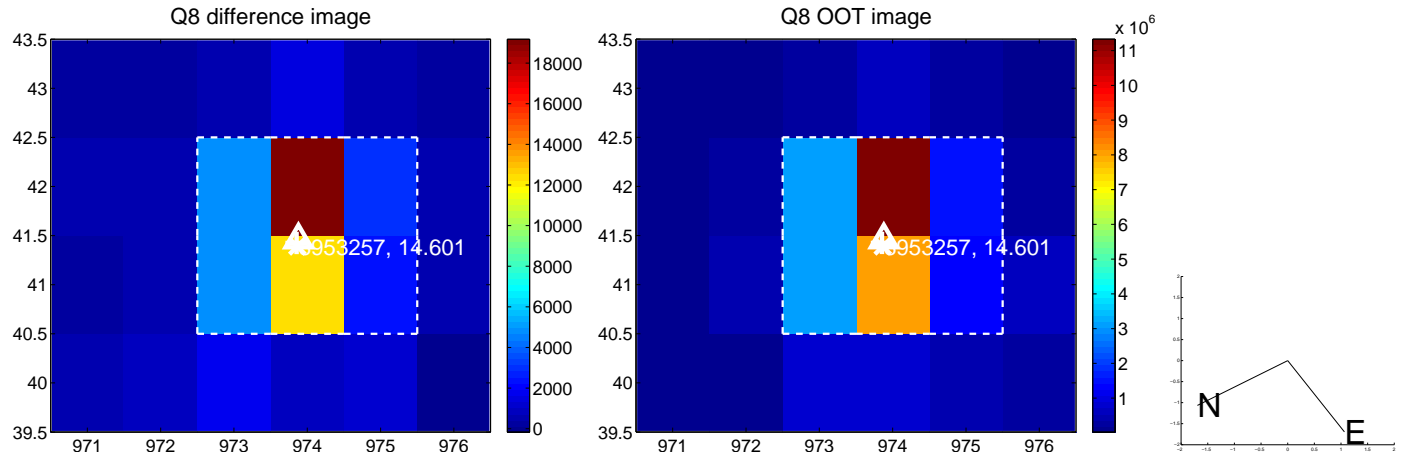
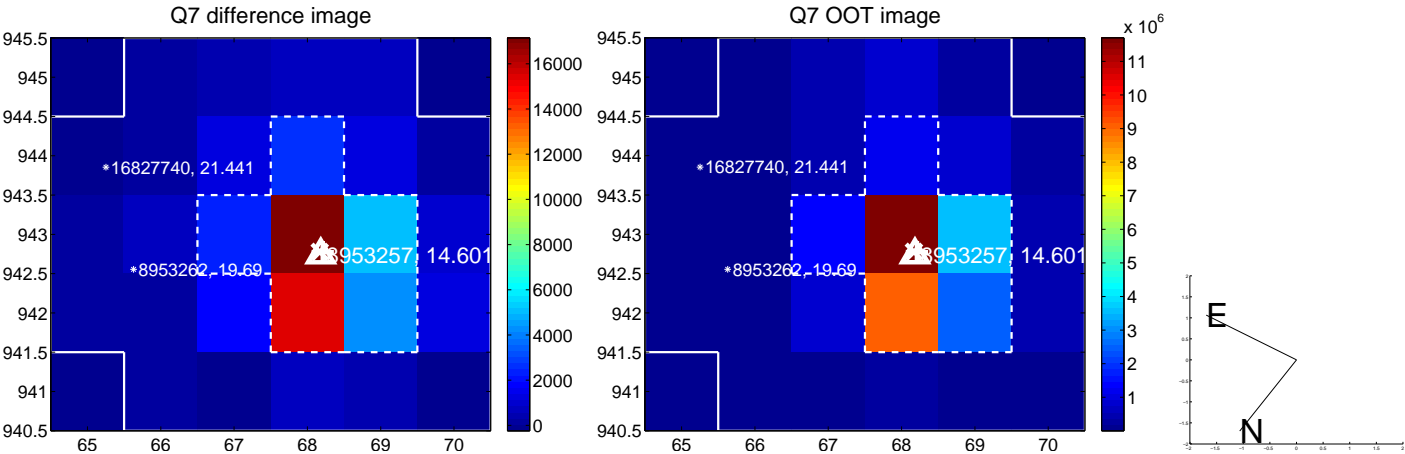
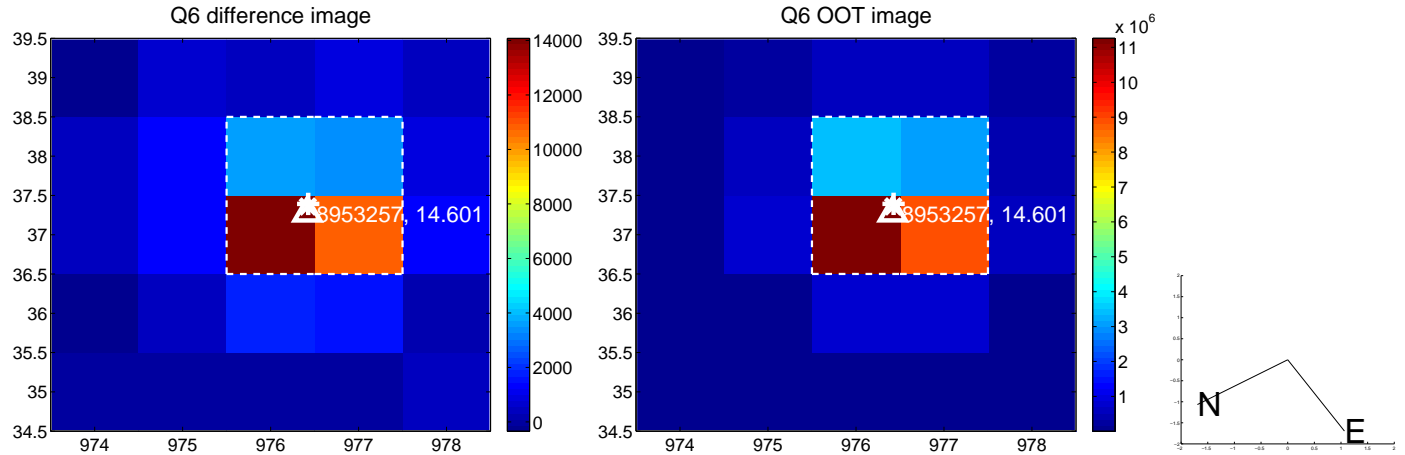
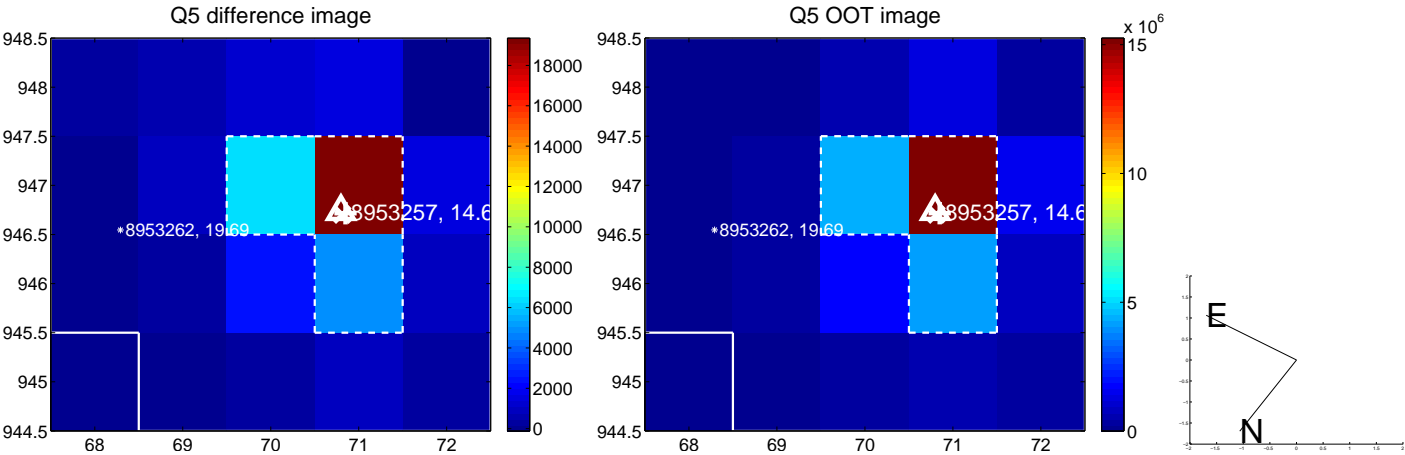


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

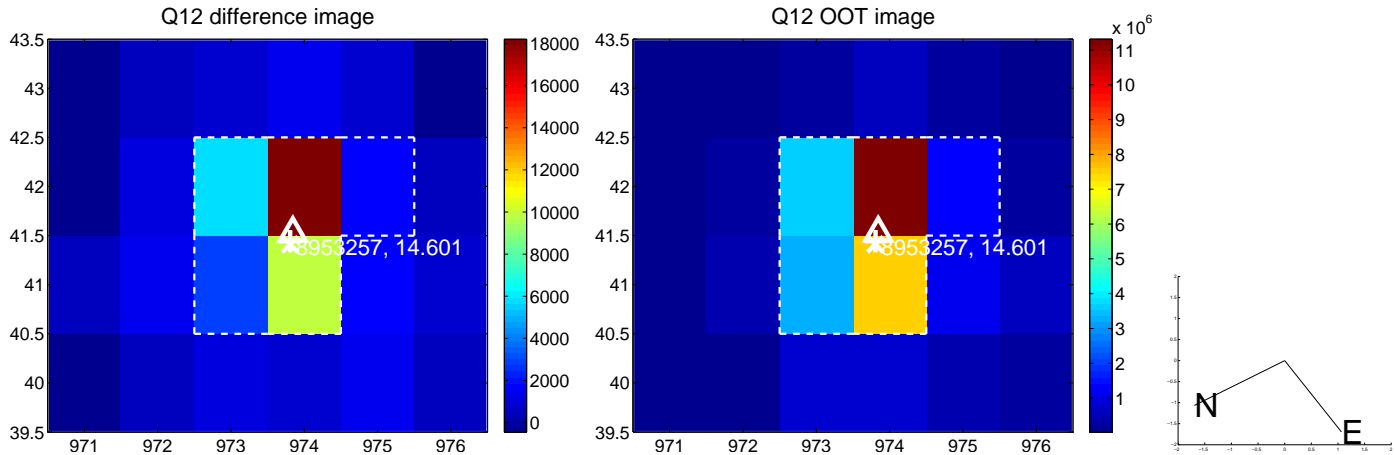
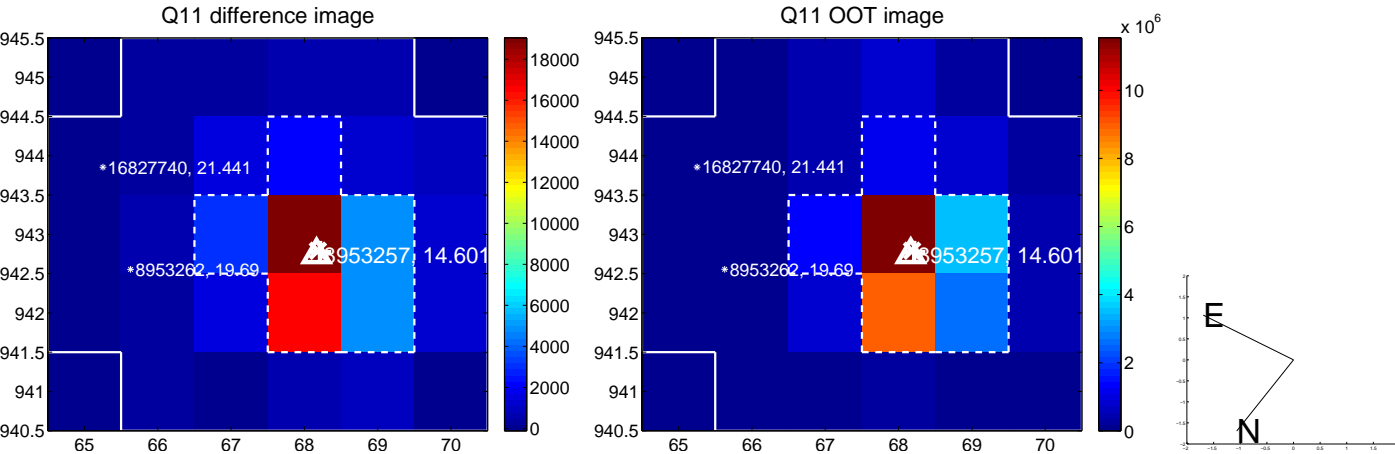
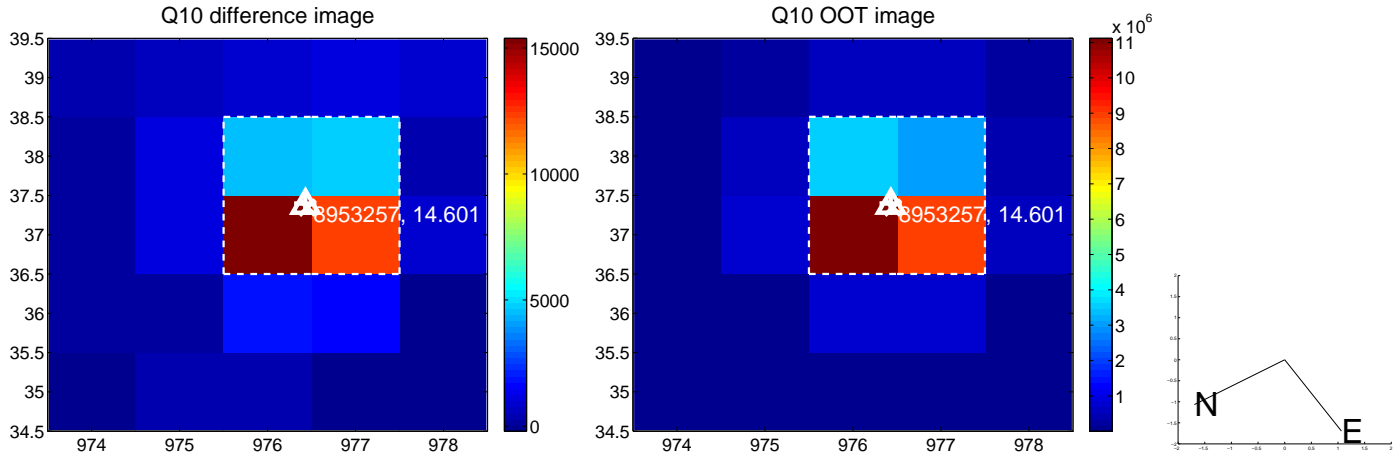
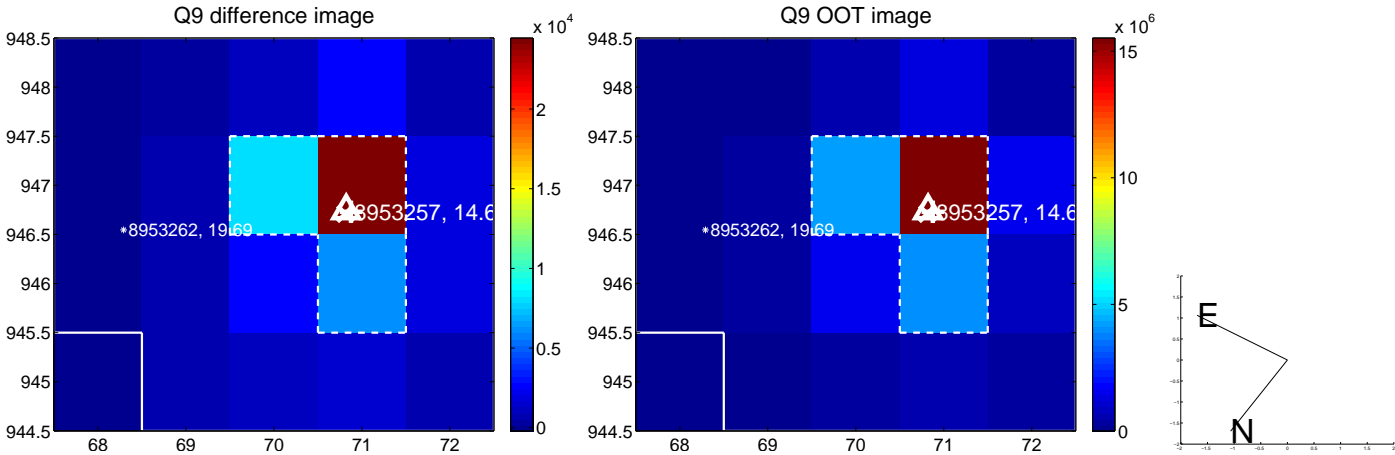
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



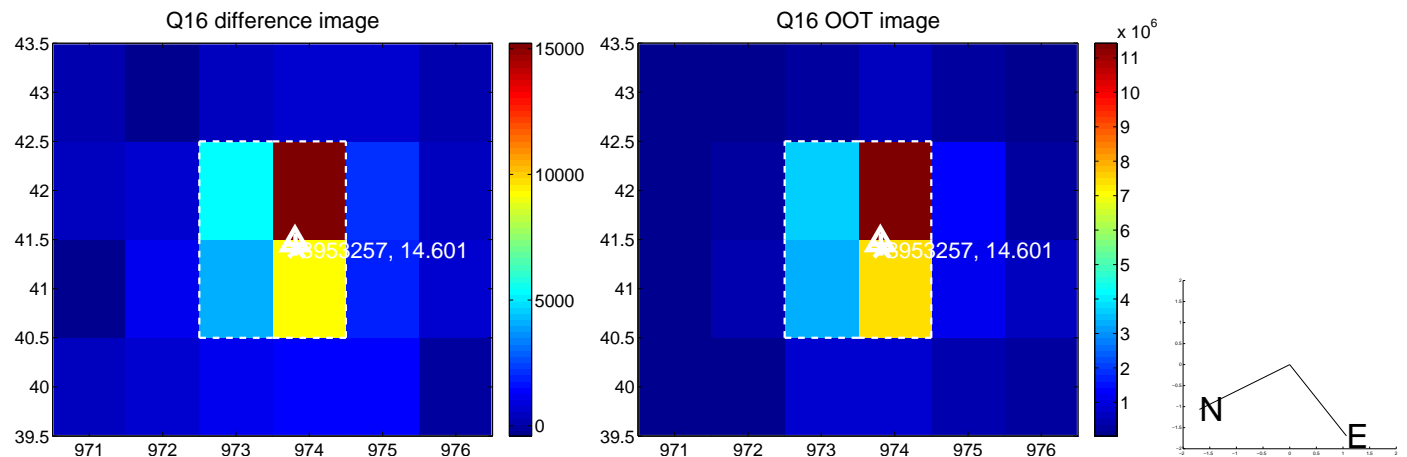
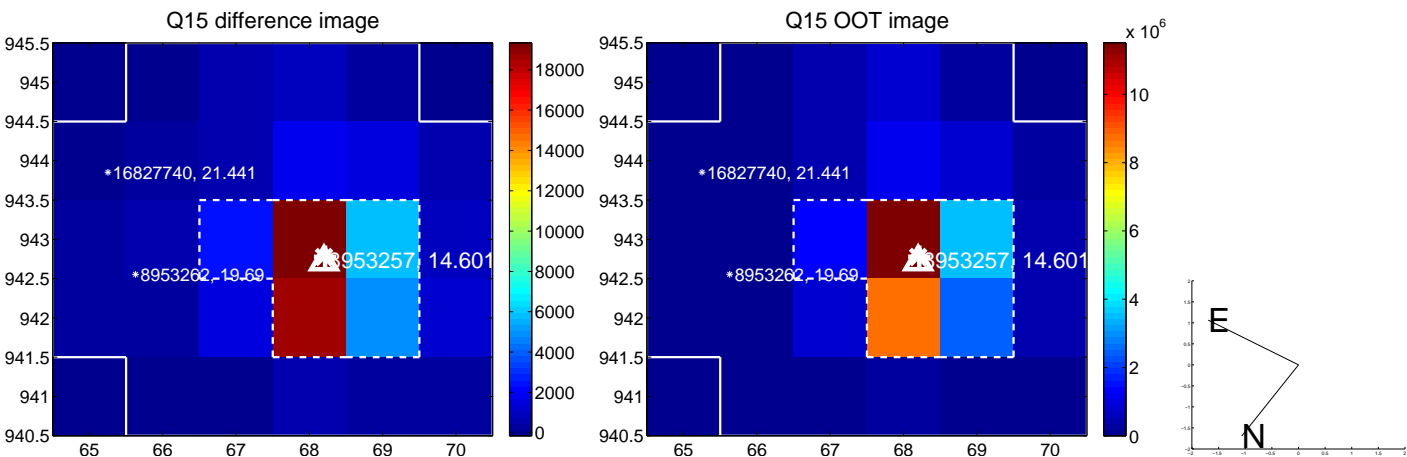
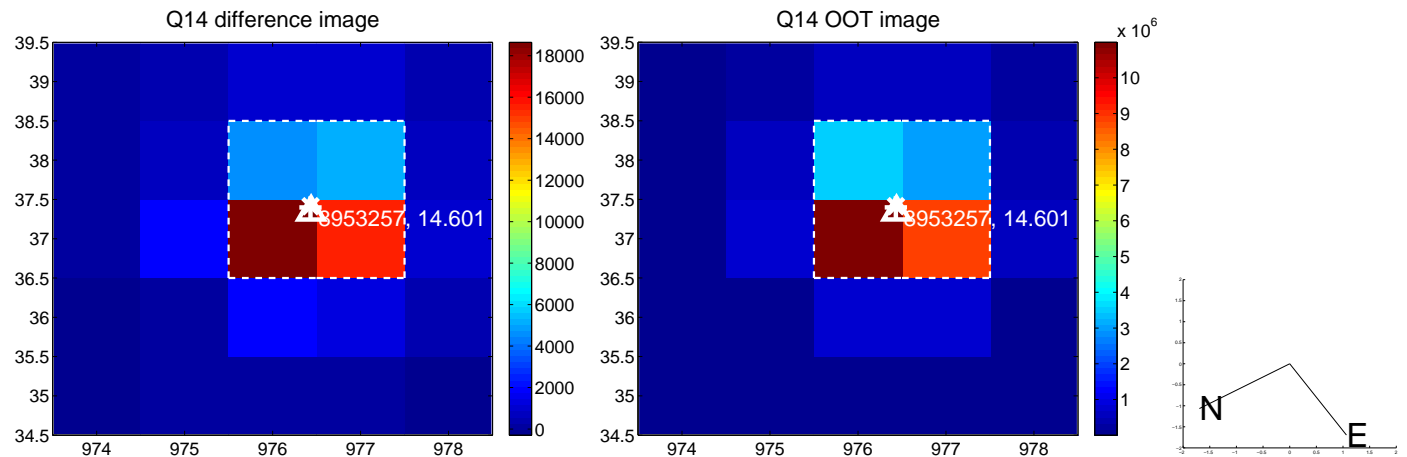
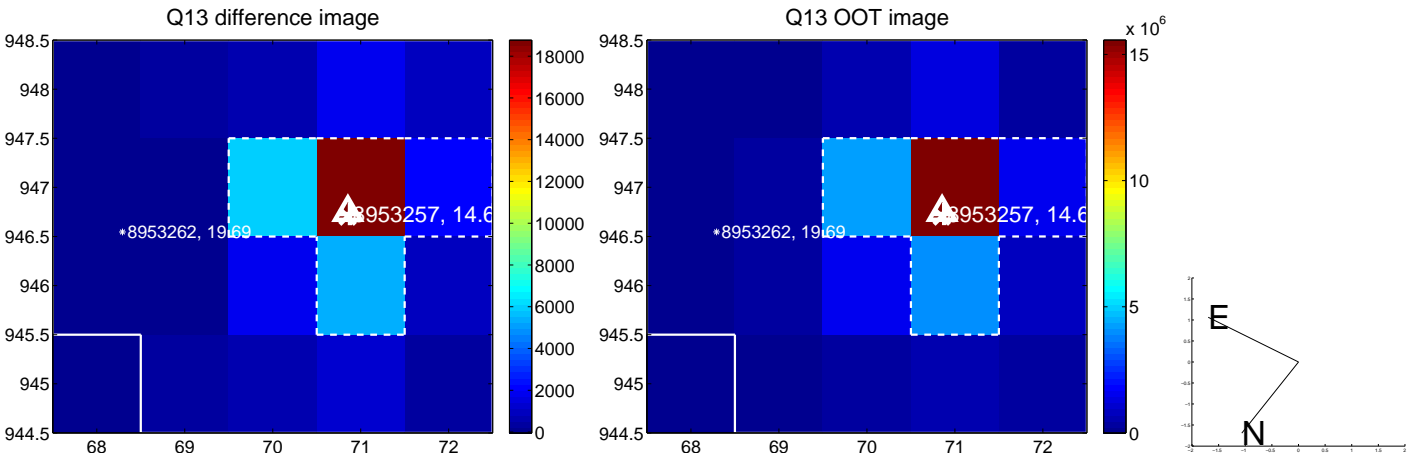
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



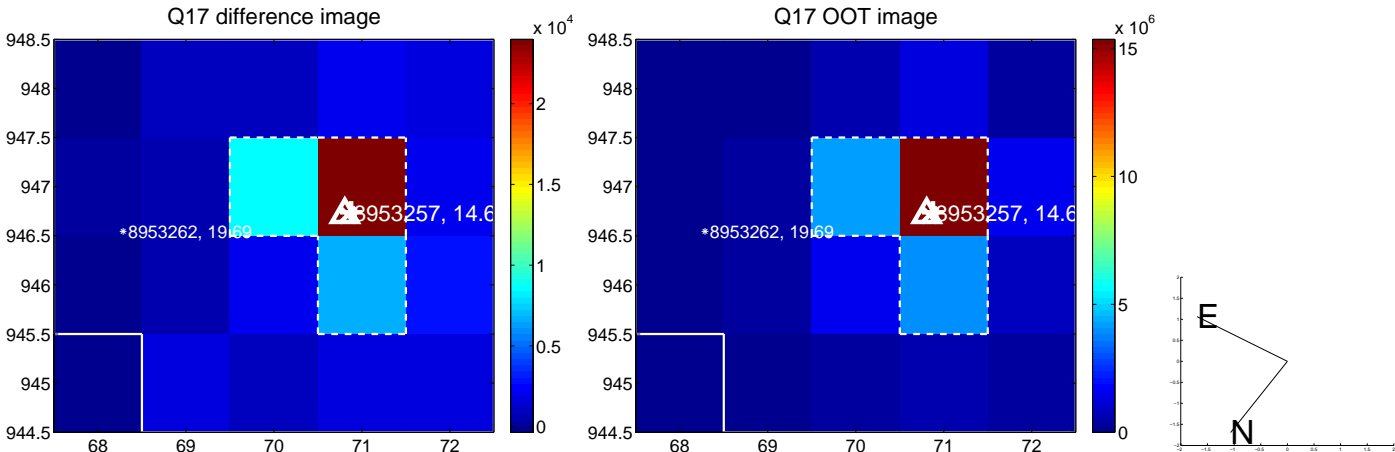
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



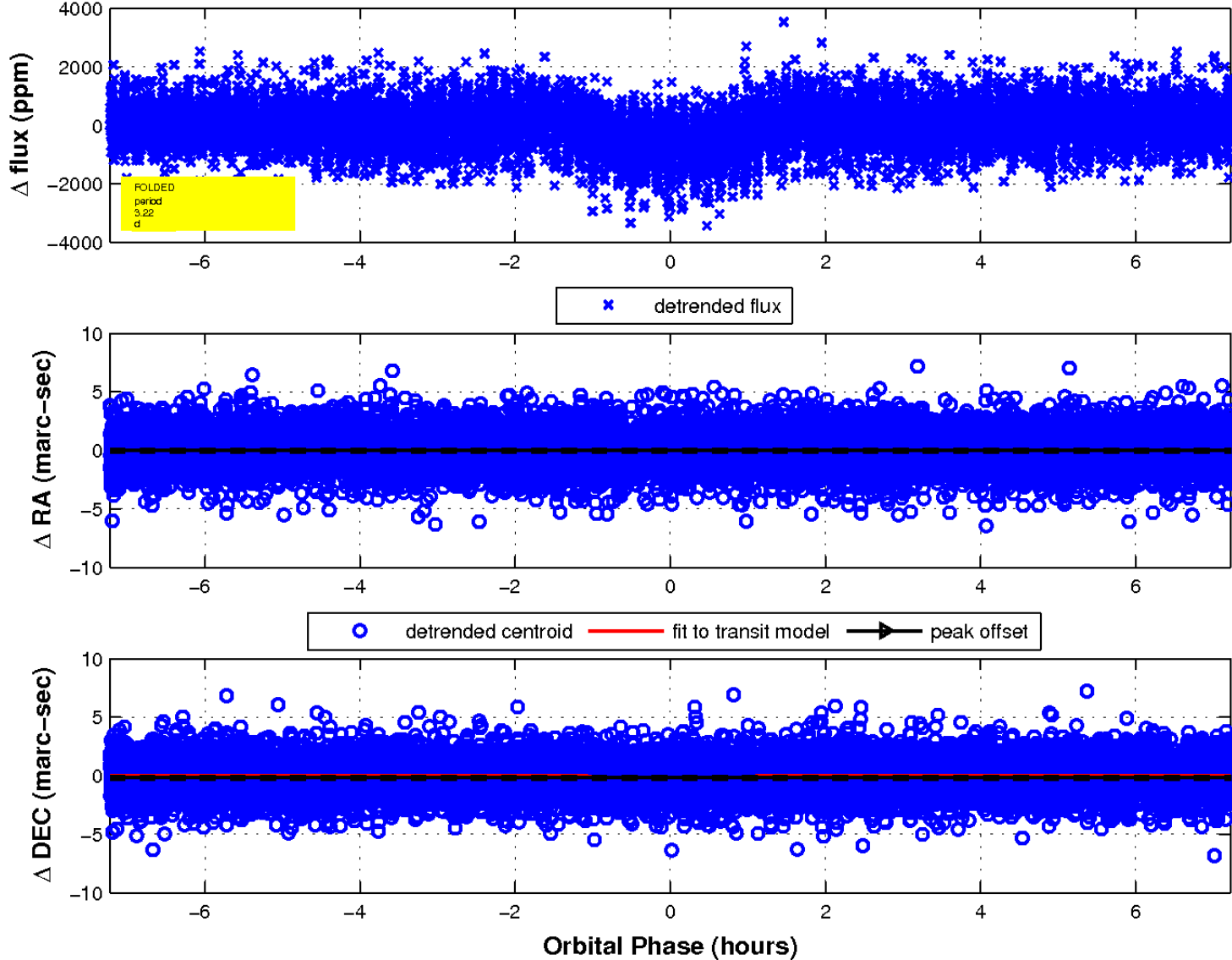
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



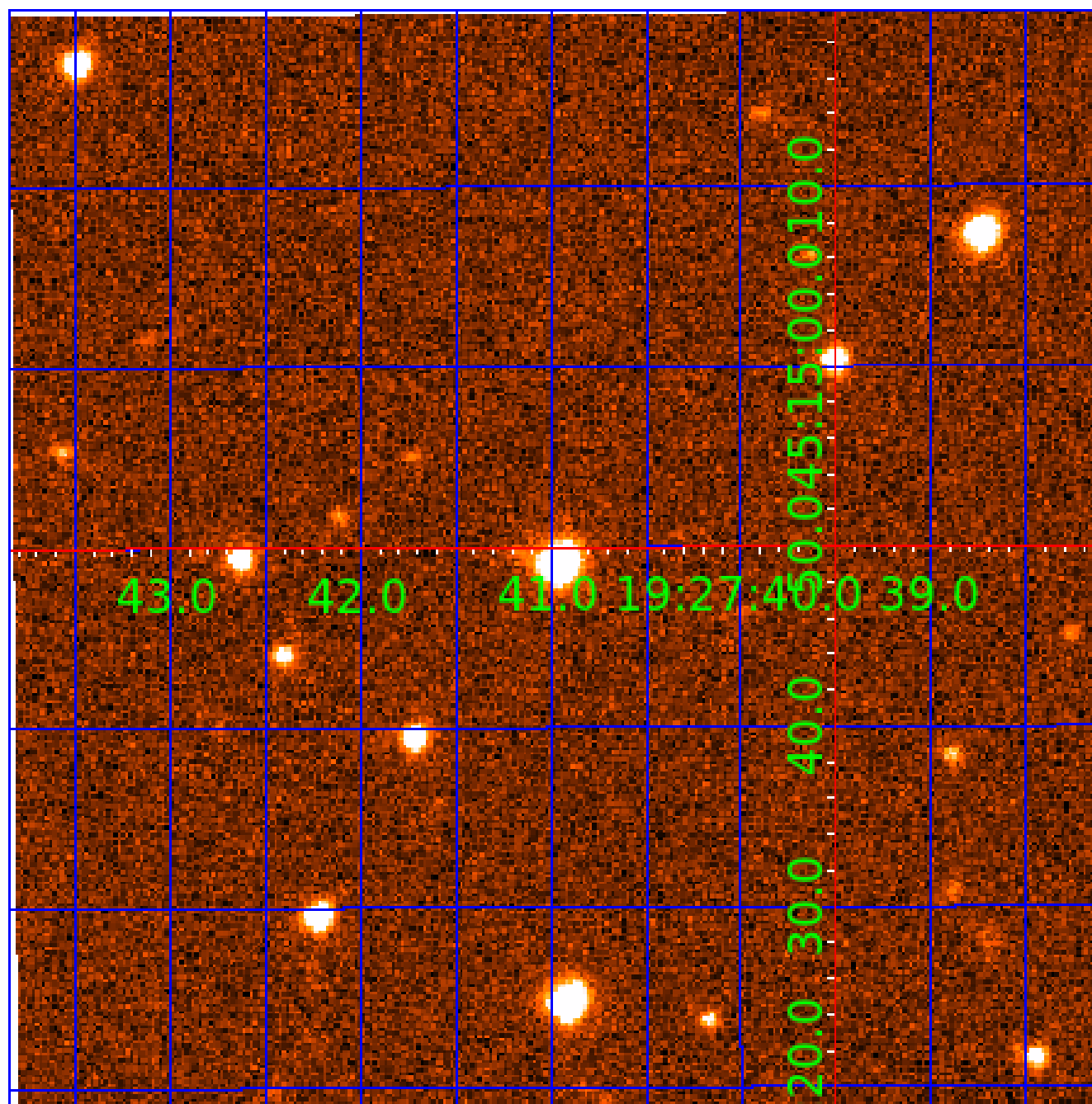
fluxWeightedCentroids, Planet 2 of 3





# UKIRT Image

Declination



# KIC 008953257

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008953257-01	OBS	1383.01	3.221784	132.920132	46550.5	3.337	3035.9	2655.1	1.04	6250	25.12	802.76
008953257-02	OBS	No	3.221755	134.537222	760.0	2.409	49.7	55.0	1.04	6250	3.37	802.77
008953257-03	OBS	No	317.688013	316.601854	843.5	18.926	8.1	4.5	1.04	6250	3.29	1.76

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008953257-01	OBS	FP	0.38	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
008953257-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
008953257-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

**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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

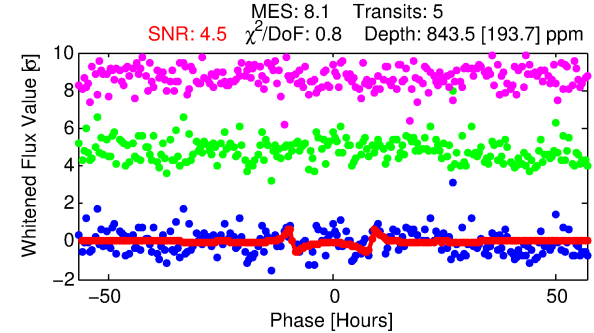
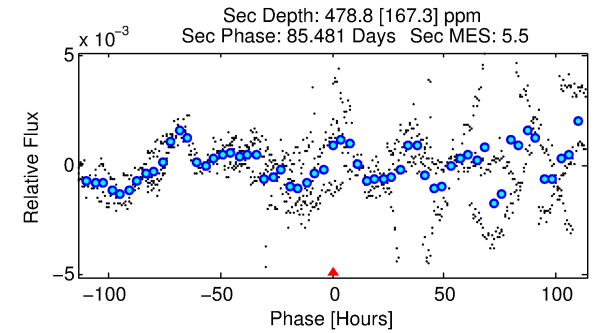
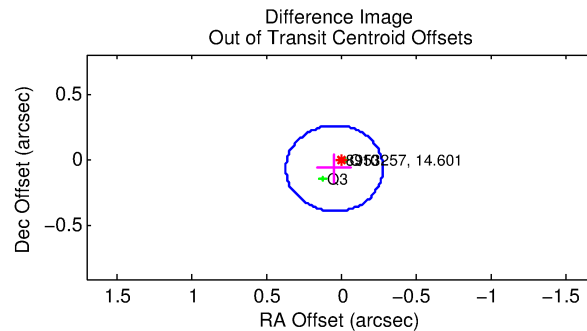
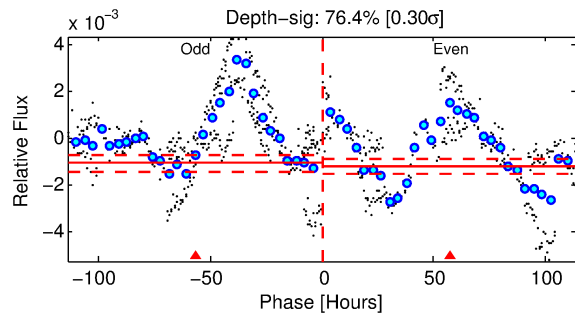
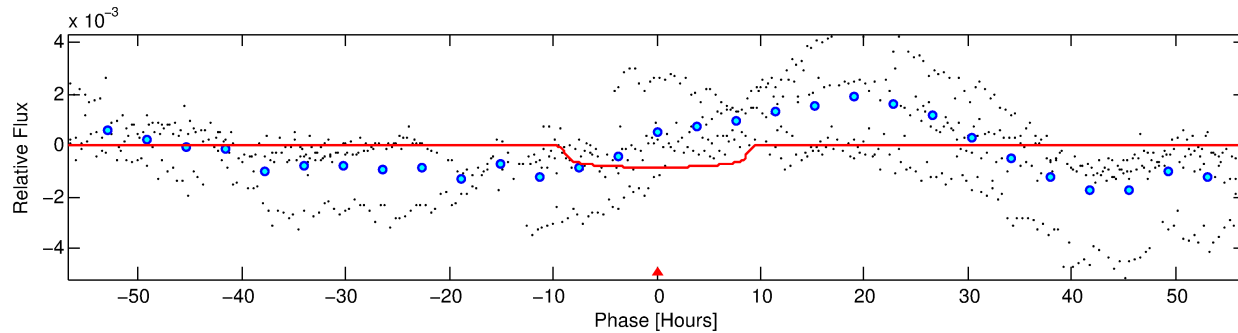
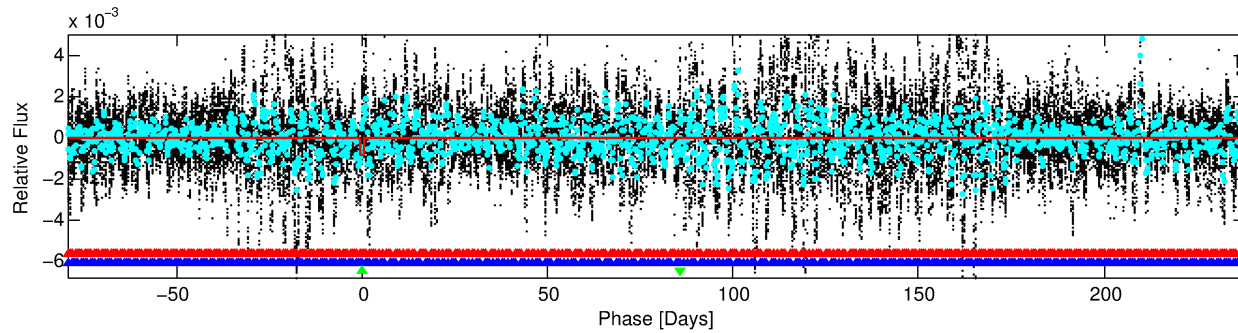
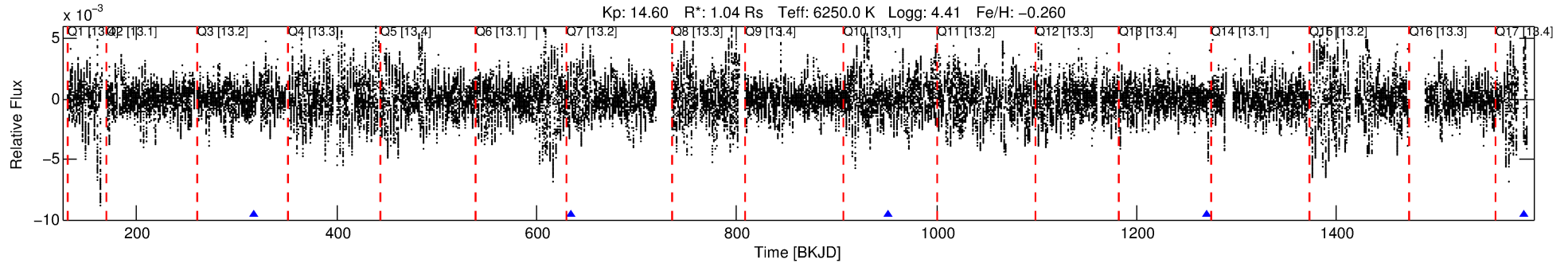
## Ephemeris Match Information For 008953257-03

No Significant Match Found

# DV One-Page Summary

KIC: 8953257 Candidate: 3 of 3 Period: 317.688 d  
KOI: K01383 Corr: No Ephemeris Match

Kp: 14.60 R\*: 1.04 Rs Teff: 6250.0 K Logg: 4.41 Fe/H: -0.260



## DV Fit Results:

Period = 317.68801 [0.00491] d  
Epoch = 316.6019 [0.0123] BKJD  
Rp/R\* = 0.0290 [0.0041]  
a/R\* = 88.54 [27.49]  
b = 0.76 [0.17]  
Seff = 1.76 [0.70]  
Teq = 294 [29] K  
Rp = 3.30 [1.13] Re  
a = 0.9169 [0.2389] AU  
Ag = 20394.08 [11958.02] [1.71σ]  
Teffp = 5428 [637] K [8.05σ]

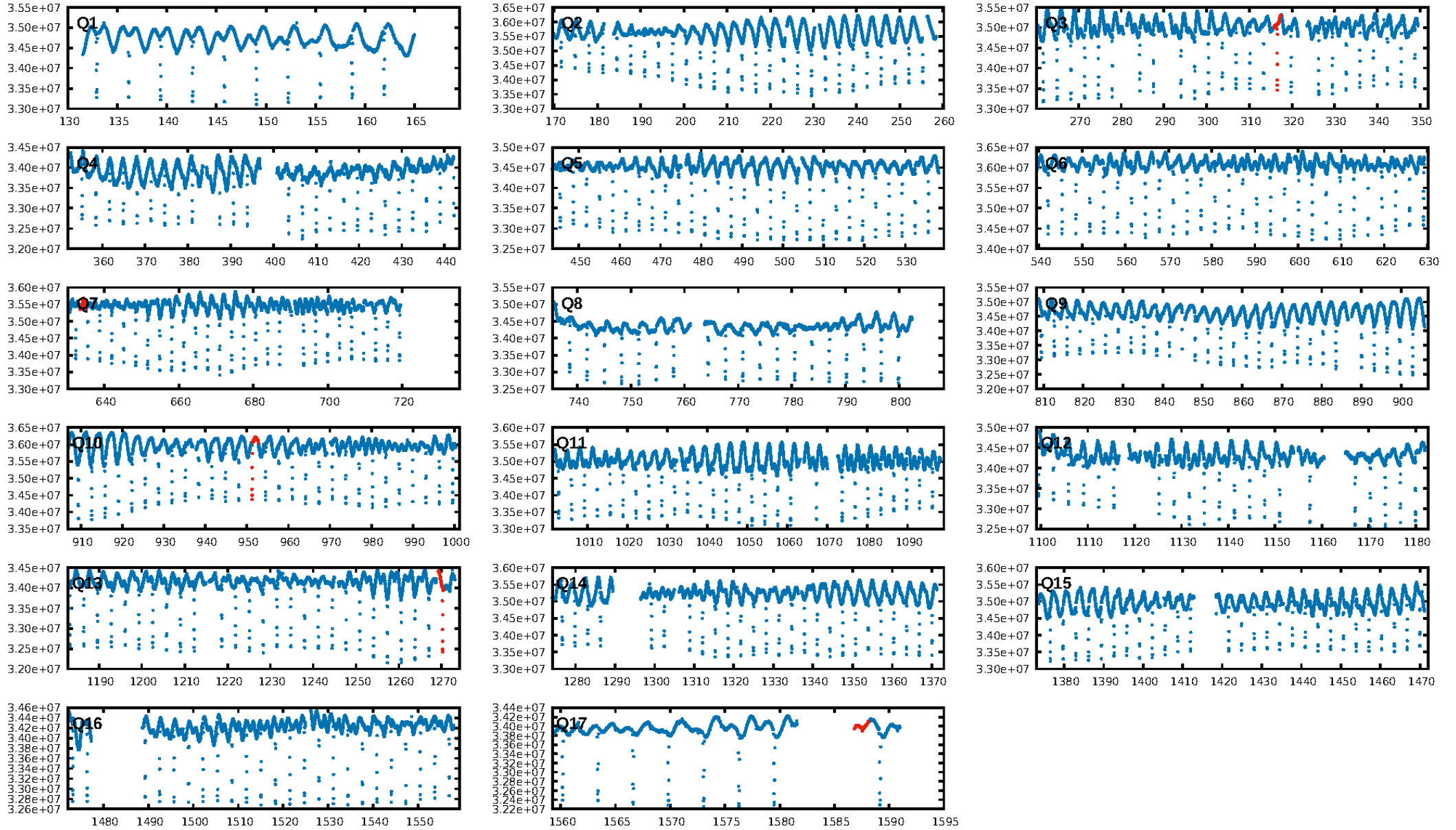
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [392.71σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 73.9%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 3.80e-09**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -1.244  
Centroid-sig: 51.1%  
Centroid-so: 0.239 arcsec [0.48σ]  
OotOffset-rm: 0.076 arcsec [0.70σ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-rm: 0.156 arcsec [1.05σ]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.00 [0/2]

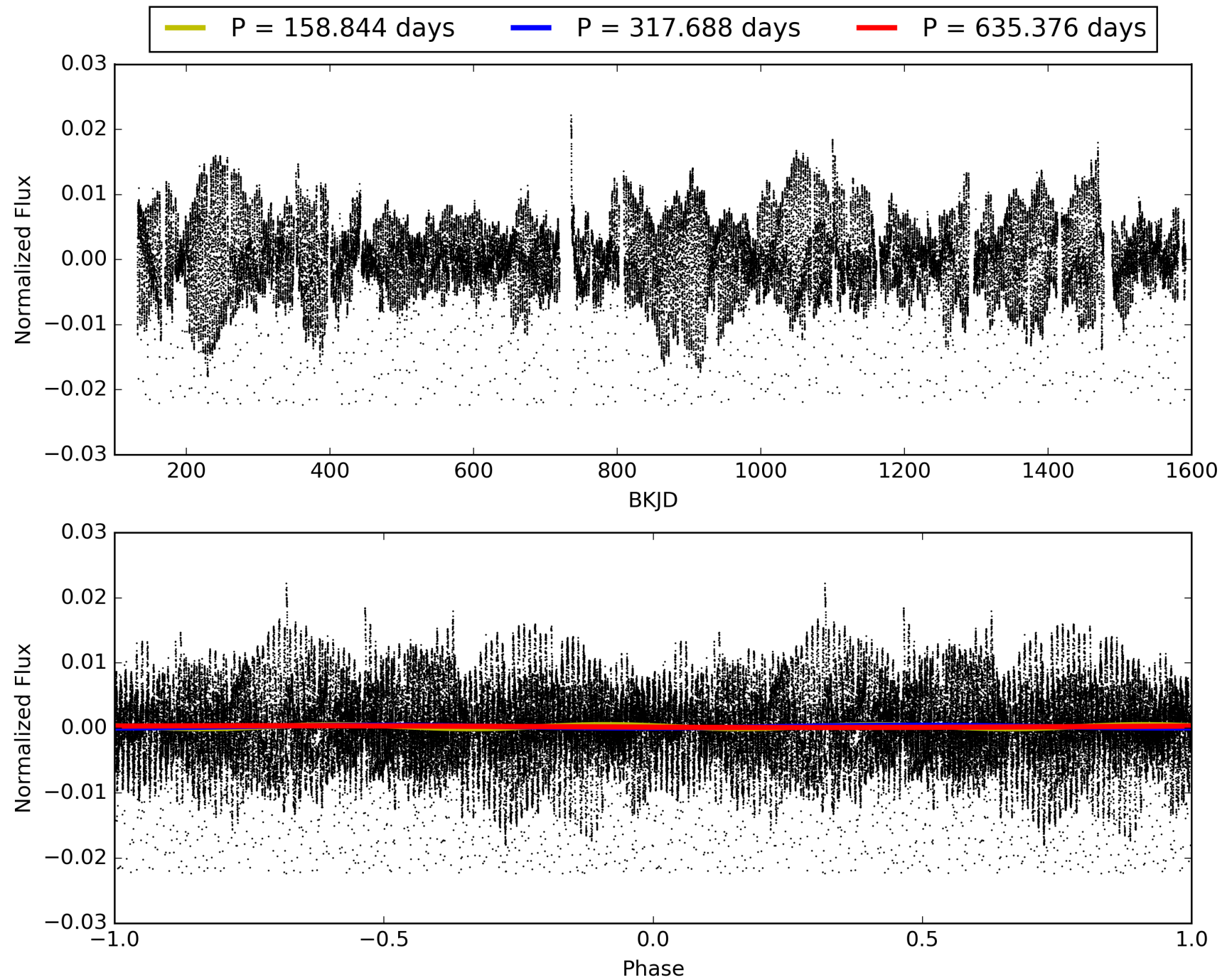
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:16:52 Z

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

# TCE 008953257-03, PDC Light Curves

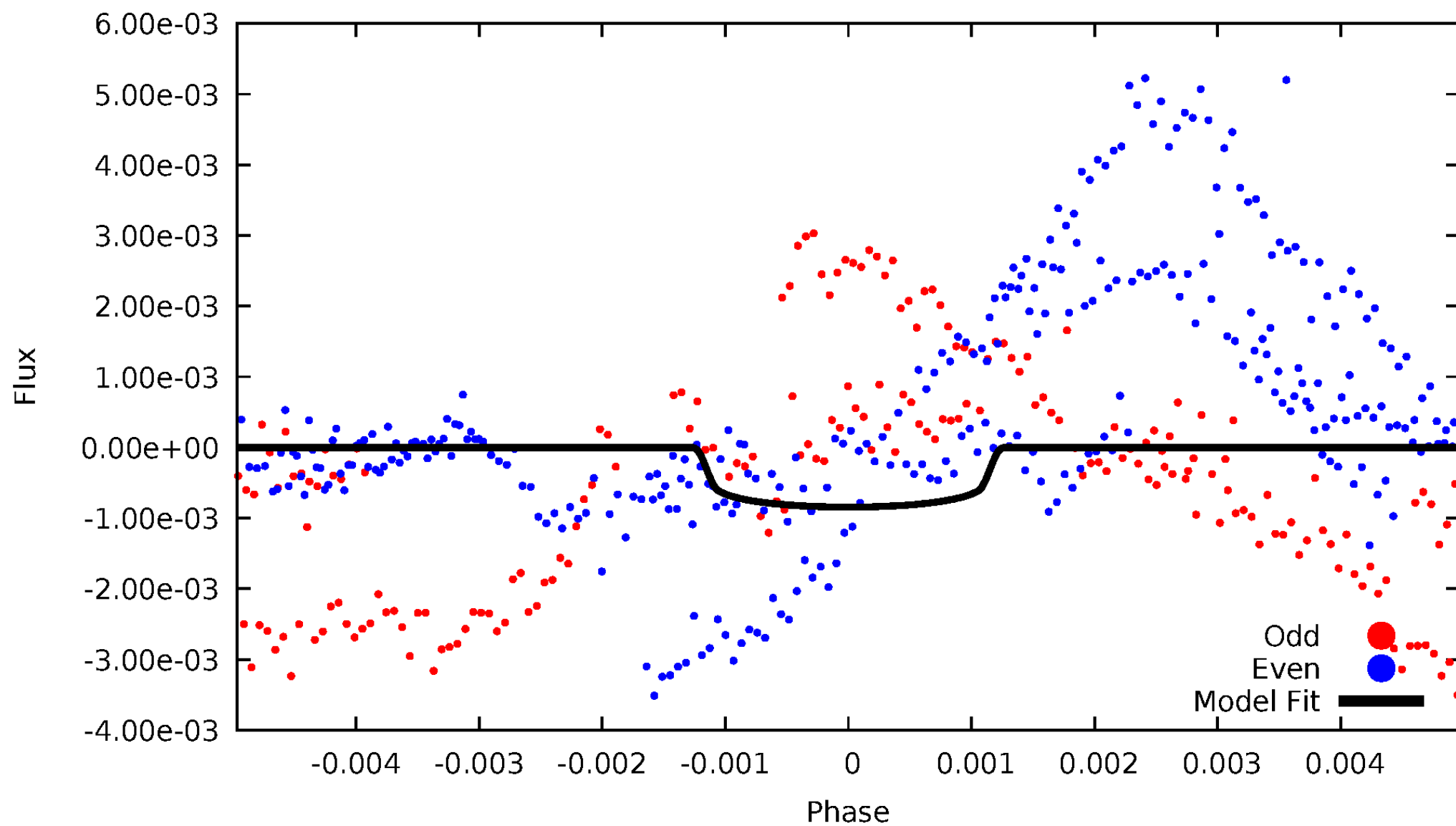


TCE 008953257-03



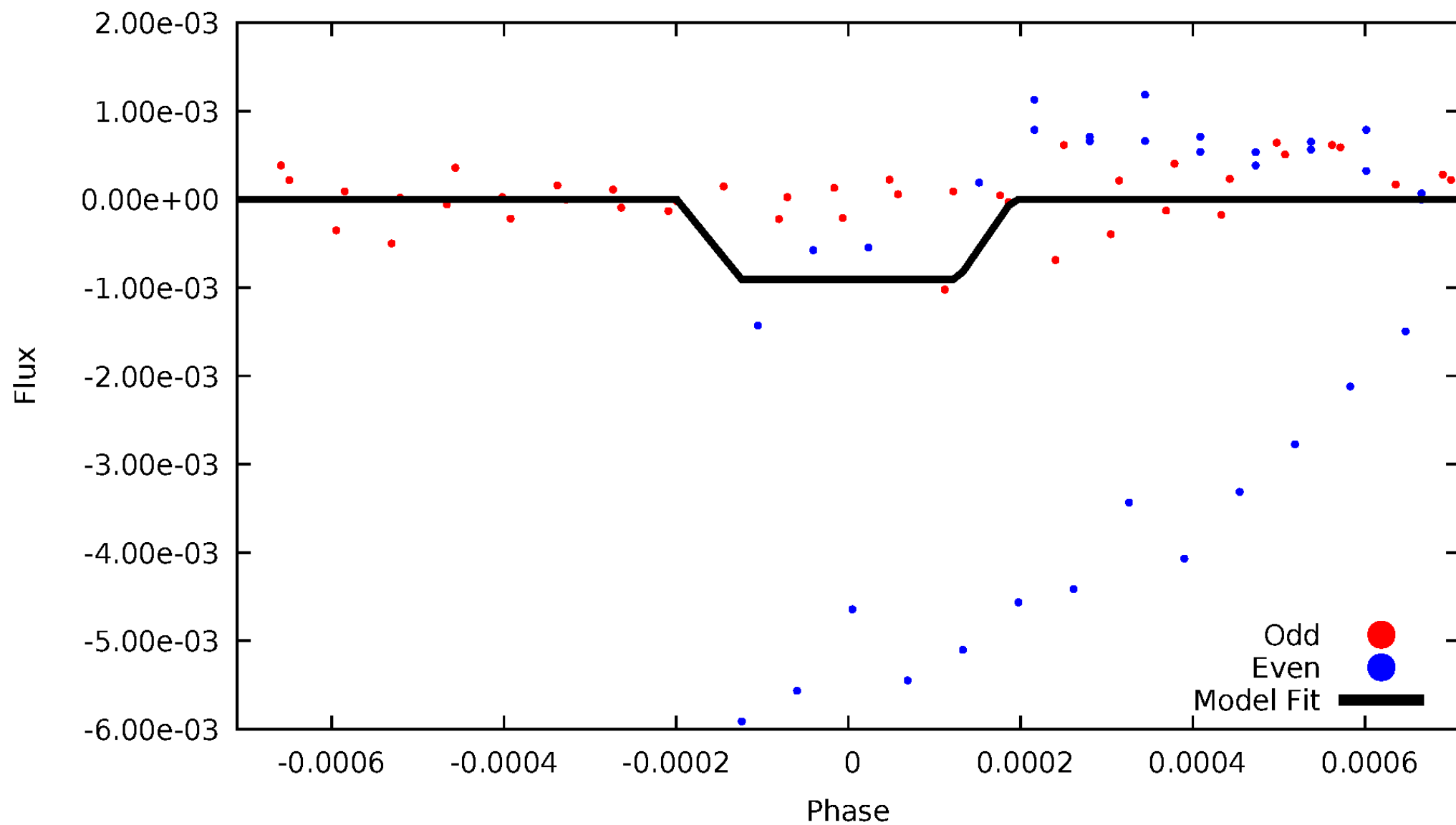
# DV Odd/Even

TCE 008953257-03



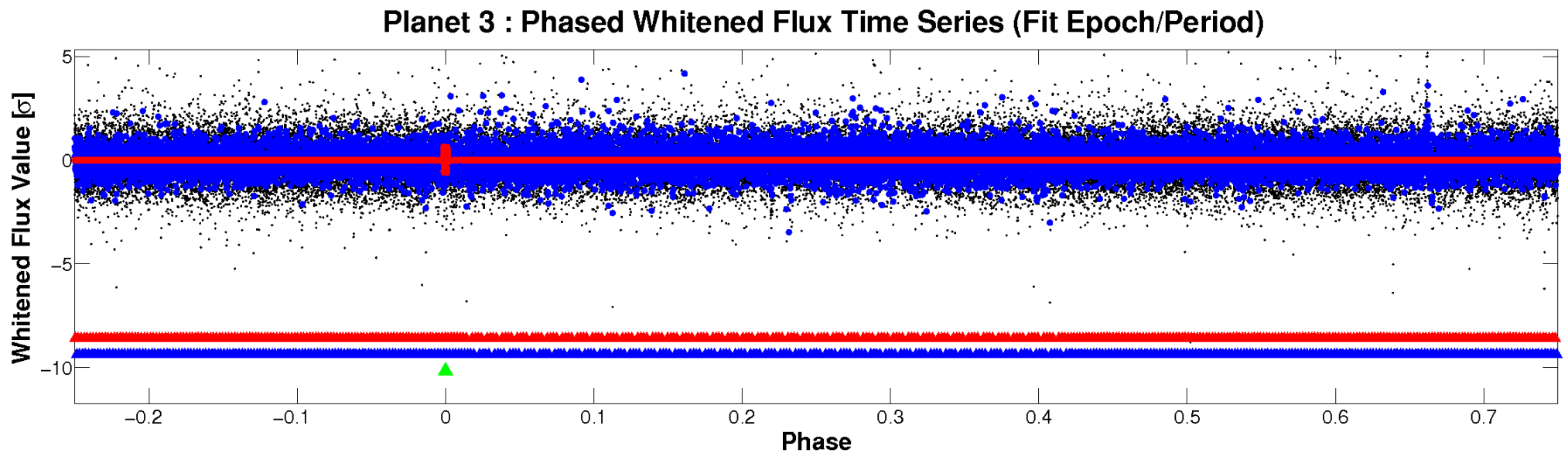
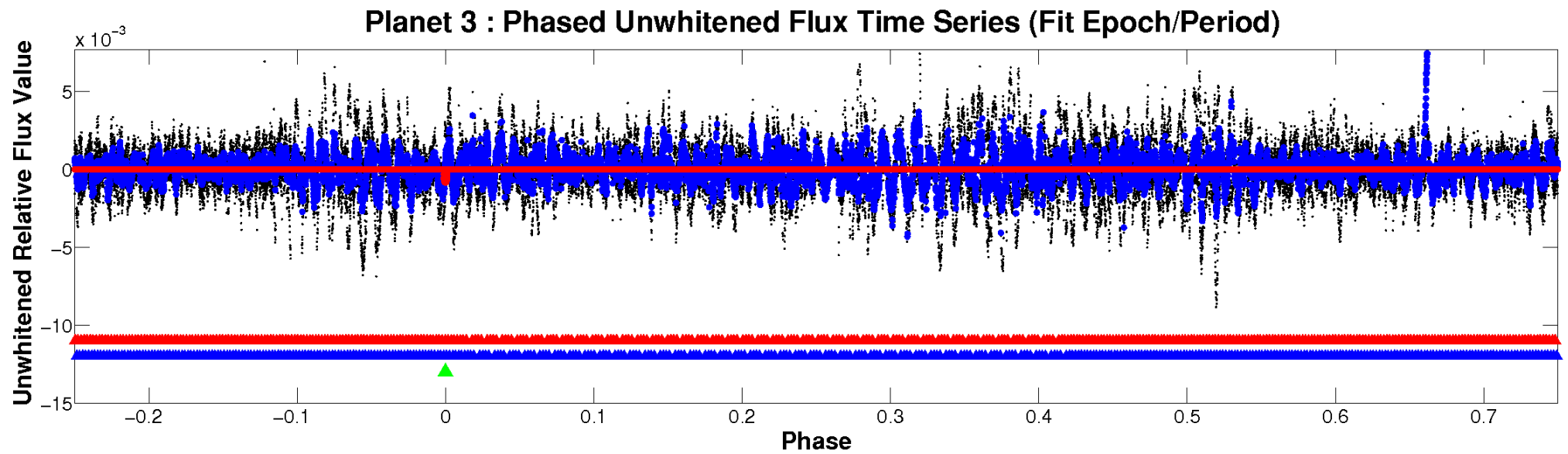
# ALT Odd/Even

TCE 008953257-03



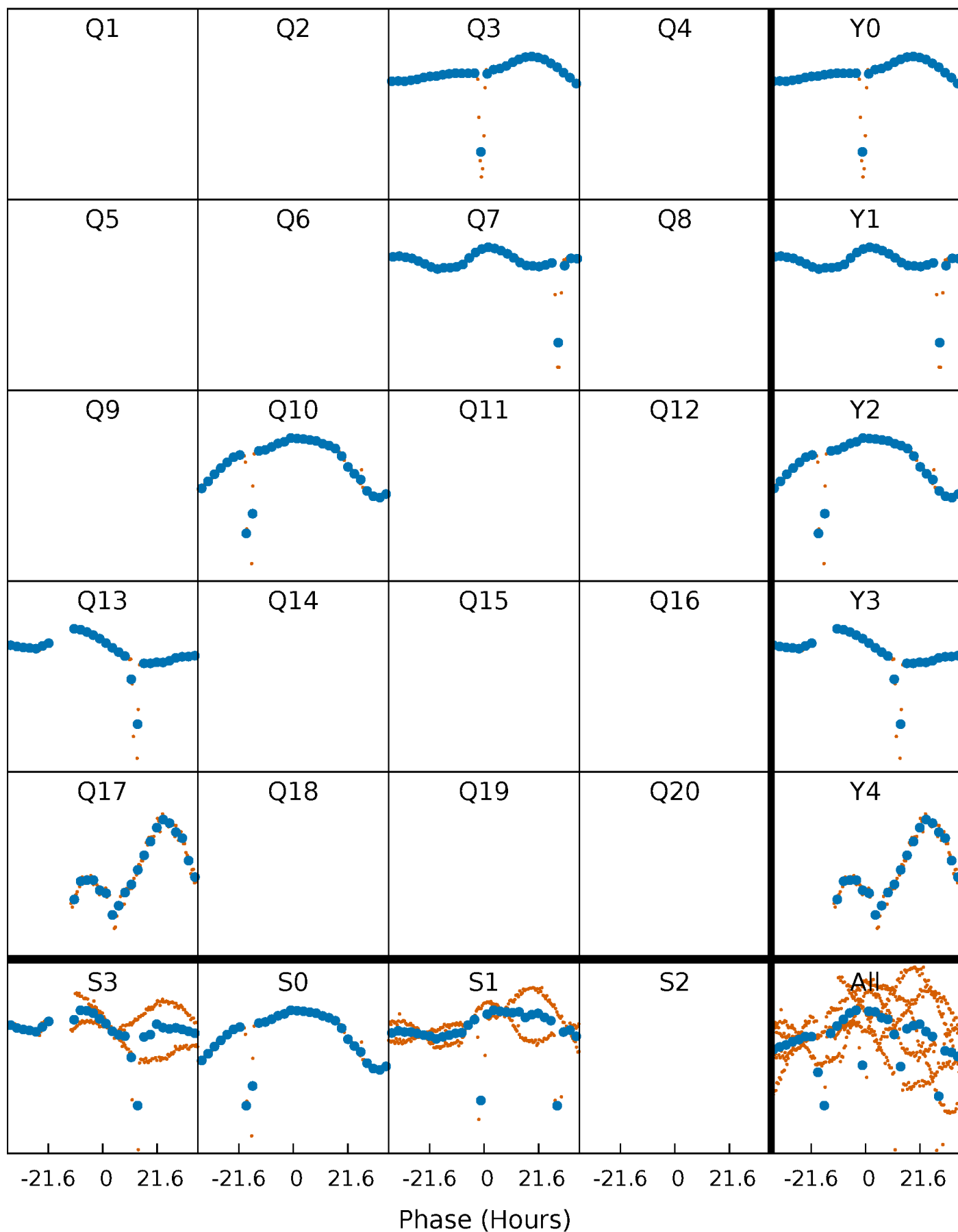


# Non-Whitened Vs. Whitened Light Curve



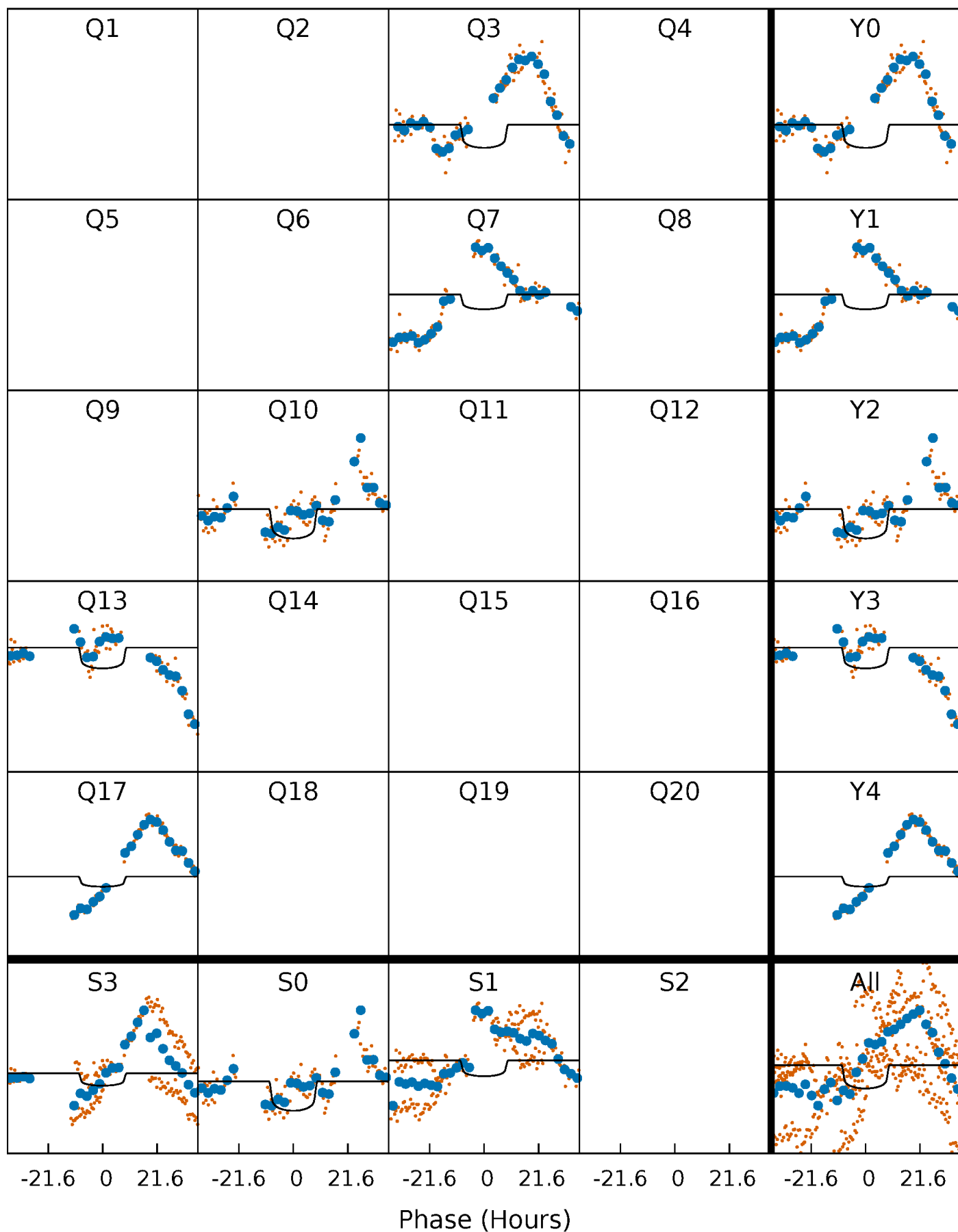
# PDC Quarter-Phased Transit Curves

TCE 008953257-03     $P=317.688013$  Days     $T_0=316.601854$  (BKJD)



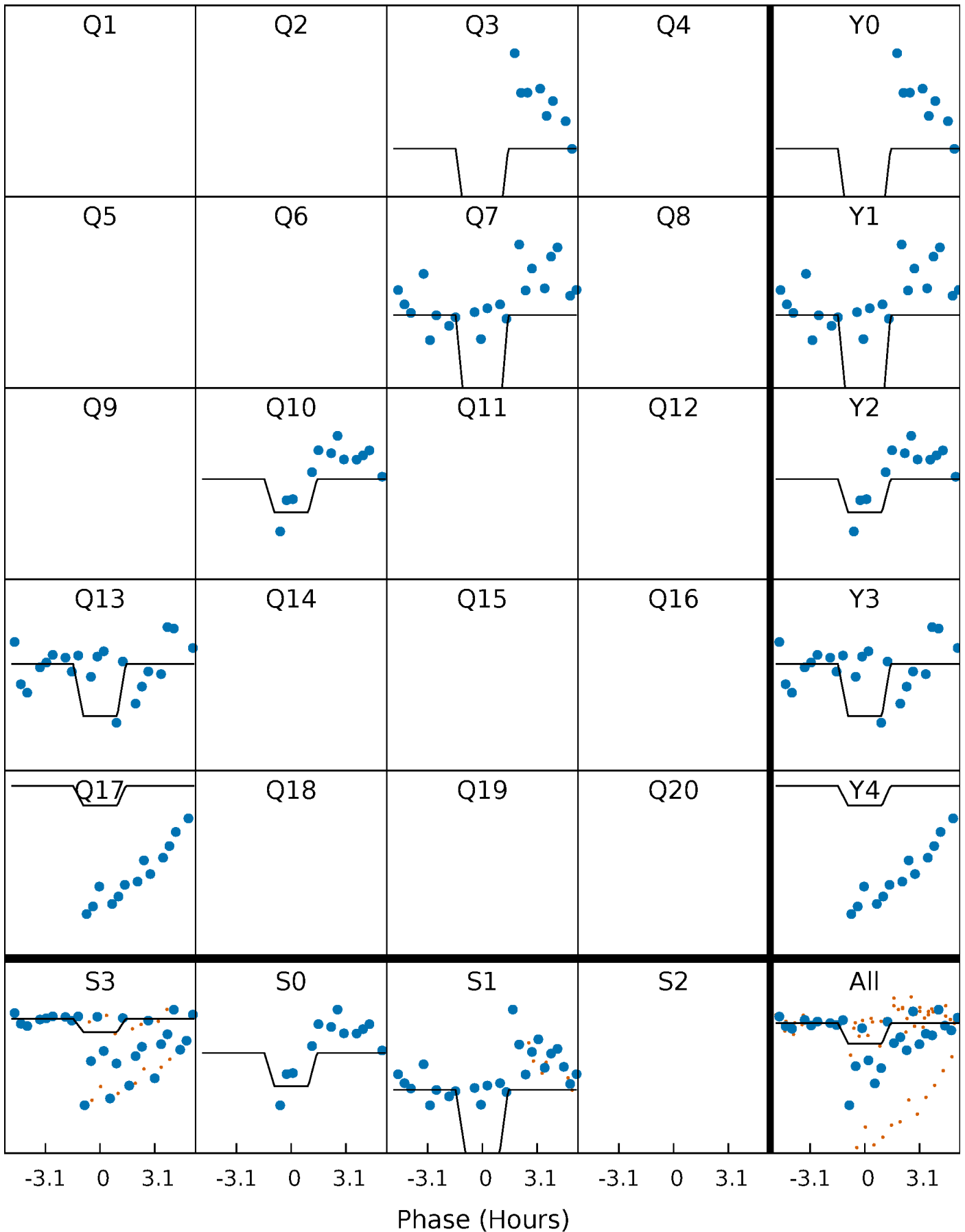
# DV Quarter-Phased Transit Curves

TCE 008953257-03     $P=317.688013$  Days     $T_0=316.601854$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

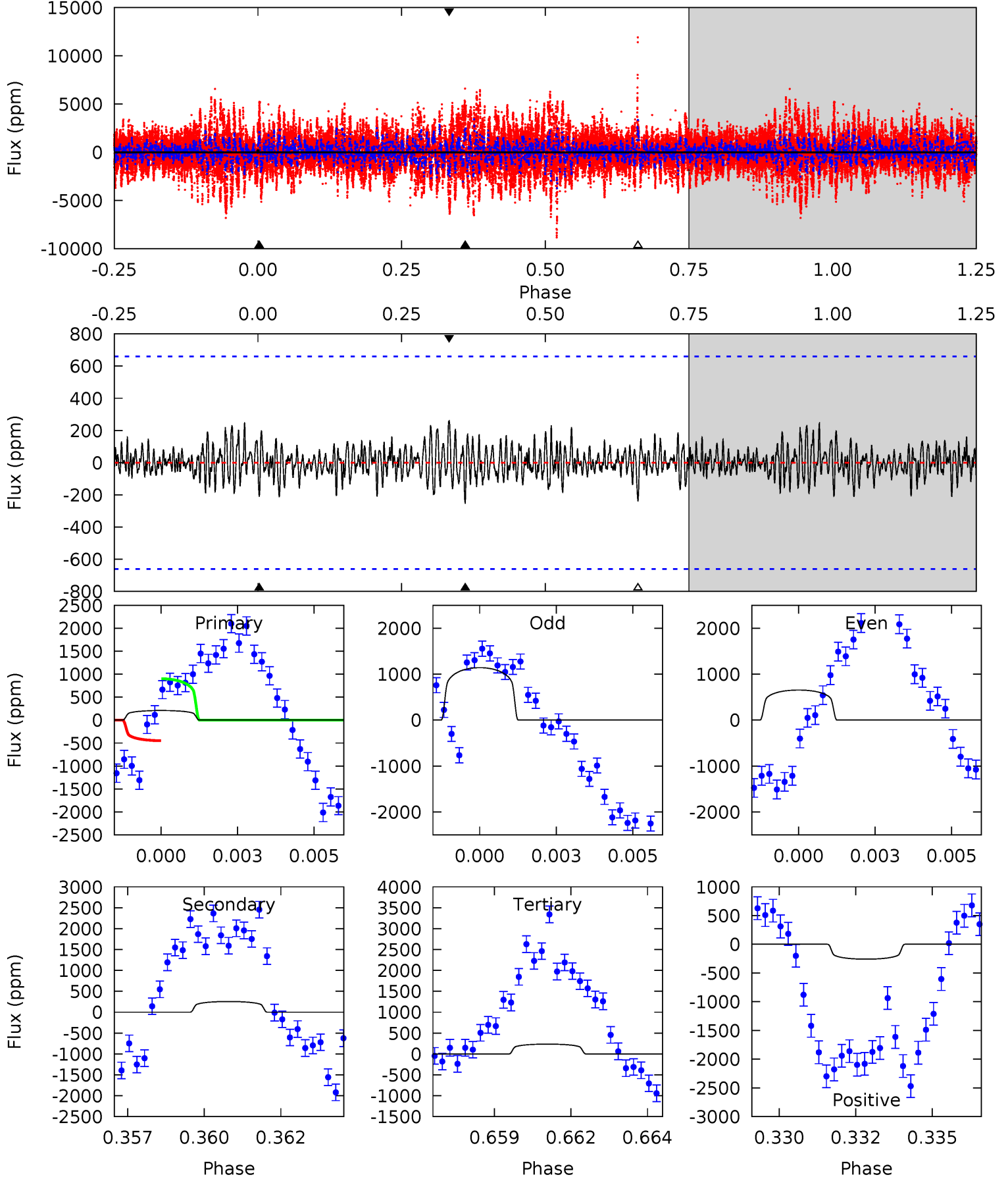
TCE 008953257-03 P=318.183176 Days  $T_0=316.714114$  (BKJD)



# DV Model-Shift Uniqueness Test

008953257-03, P = 317.688013 Days, E = 316.601854 Days

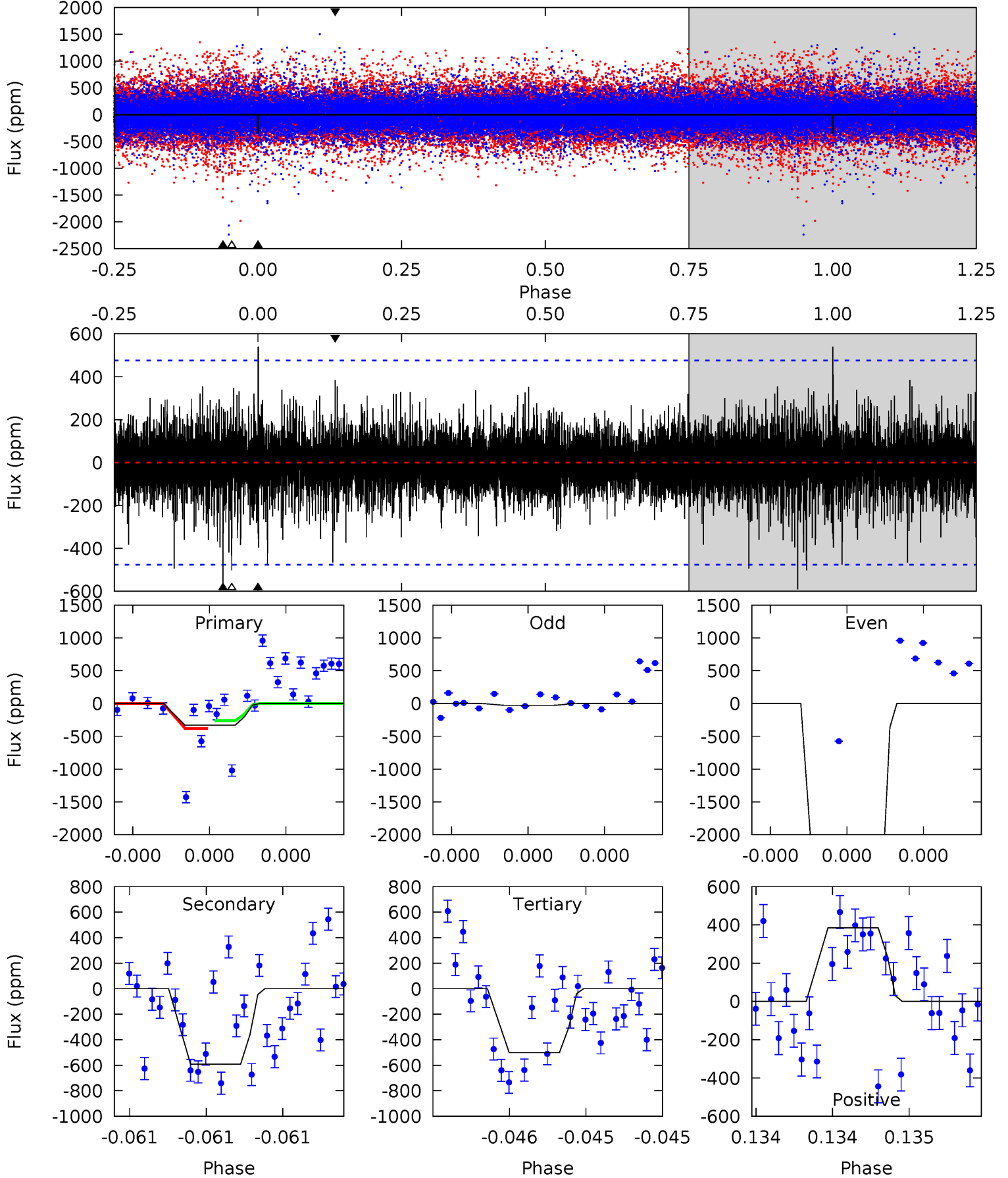
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.66	2.04	1.89	2.07	5.28	3.02	0.62	-0.22	-0.41	0.15	-0.03	1.88	1.83	0.50	1.81



# Alt Model-Shift Uniqueness Test

008953257-03, P = 318.183176 Days, E = 316.714114 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.91	7.01	5.95	4.56	5.64	3.59	1.03	-2.04	-0.65	1.05	2.44	26.7	3.56	0.48	0.70



### Stellar Parameters For KIC 008953257

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6250^{+169}_{-206}$	$4.411^{+0.087}_{-0.203}$	$-0.260^{+0.250}_{-0.300}$	$1.041^{+0.326}_{-0.140}$	$1.013^{+0.158}_{-0.115}$	$1.267^{+0.483}_{-0.676}$
	+3%/-3%	+2%/-5%	+96%/-115%	+31%/-13%	+16%/-11%	+38%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008953257-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-255 \pm 125$	$3.37^{+0.76}_{-0.55}$	$415^{+33}_{-22}$	$4751^{+539}_{-672}$	$9641^{+7028}_{-5438}$
Alt.	$-591 \pm 84$	$3.52^{+0.70}_{-0.57}$	$415^{+32}_{-23}$	$5603^{+472}_{-391}$	$21576^{+9842}_{-6823}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = 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

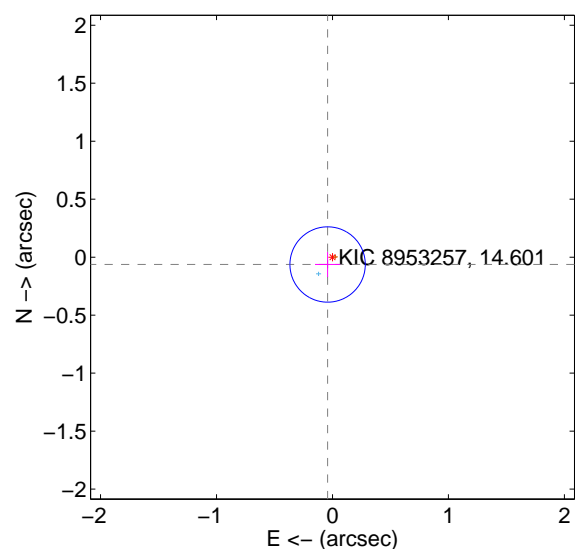
Supplemental centroid analysis for 008953257-03. Kepler magnitude: 14.60. Transit SNR 4.50

There are 1 quarters with good PRF difference image offsets

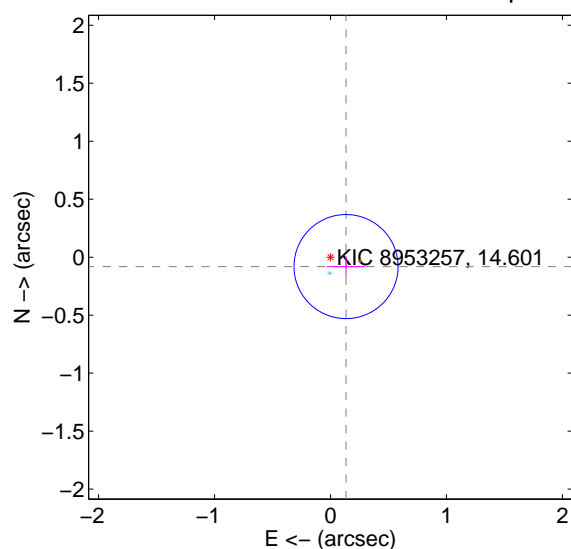
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.076 \pm 0.108$	0.70	$0.042 \pm 0.108$	$-0.063 \pm 0.108$
PRF-fit source offset from KIC position	$0.156 \pm 0.150$	1.05	$-0.134 \pm 0.166$	$-0.081 \pm 0.089$
photometric centroid source offset	$0.24 \pm 0.50$	0.48	$-0.09 \pm 0.58$	$0.22 \pm 0.49$

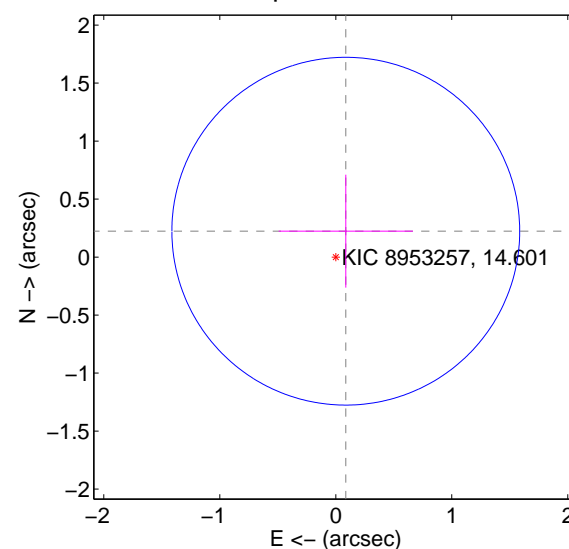
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



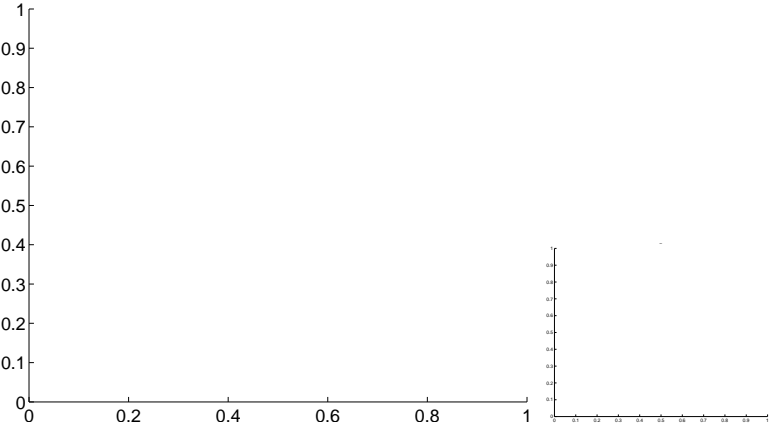
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



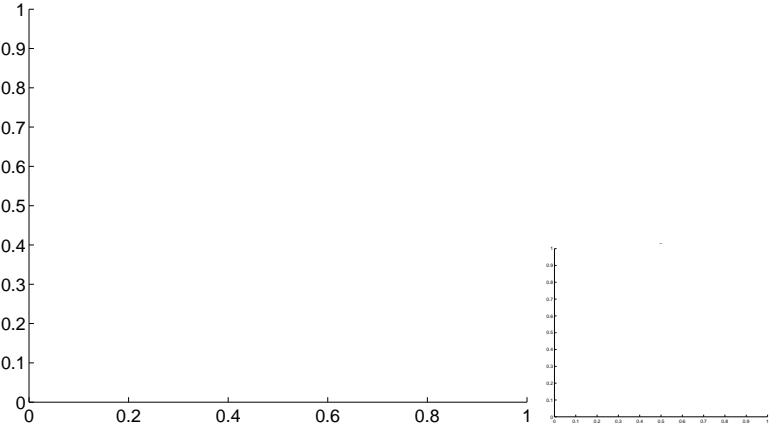
Q1 no OOT image



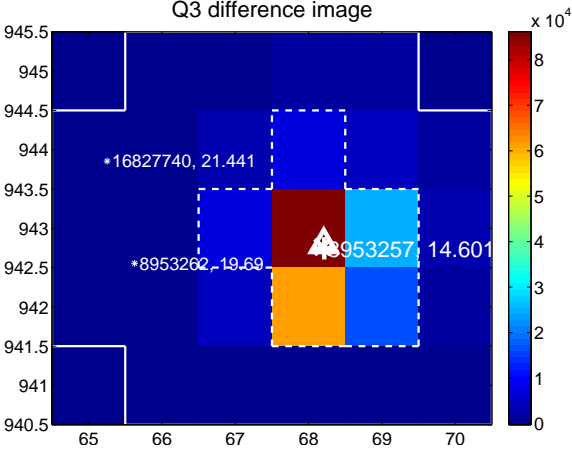
Q2 no difference image



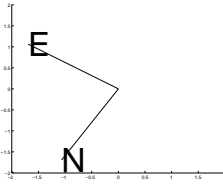
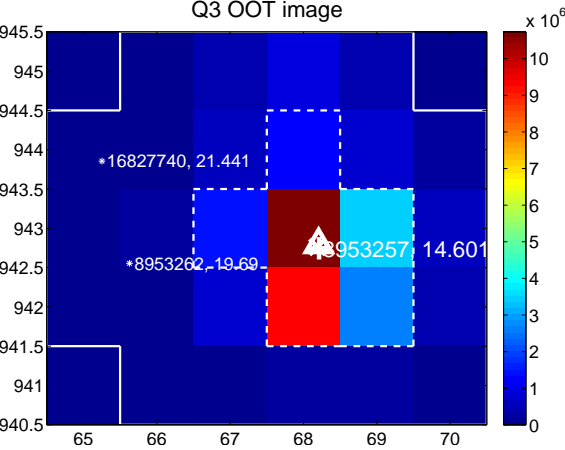
Q2 no OOT image



Q3 difference image



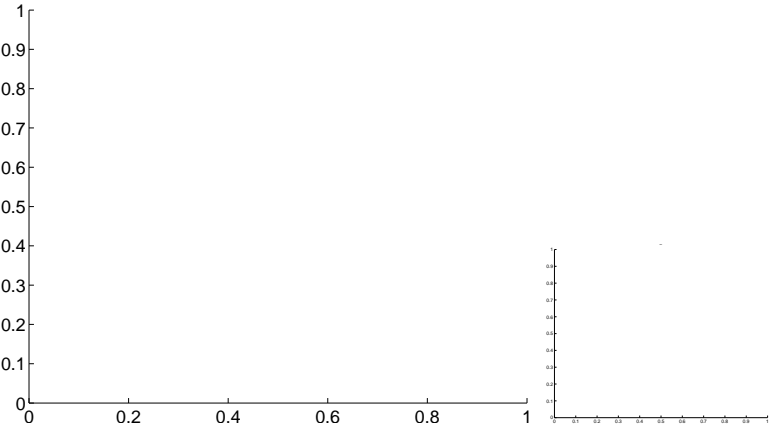
Q3 OOT image



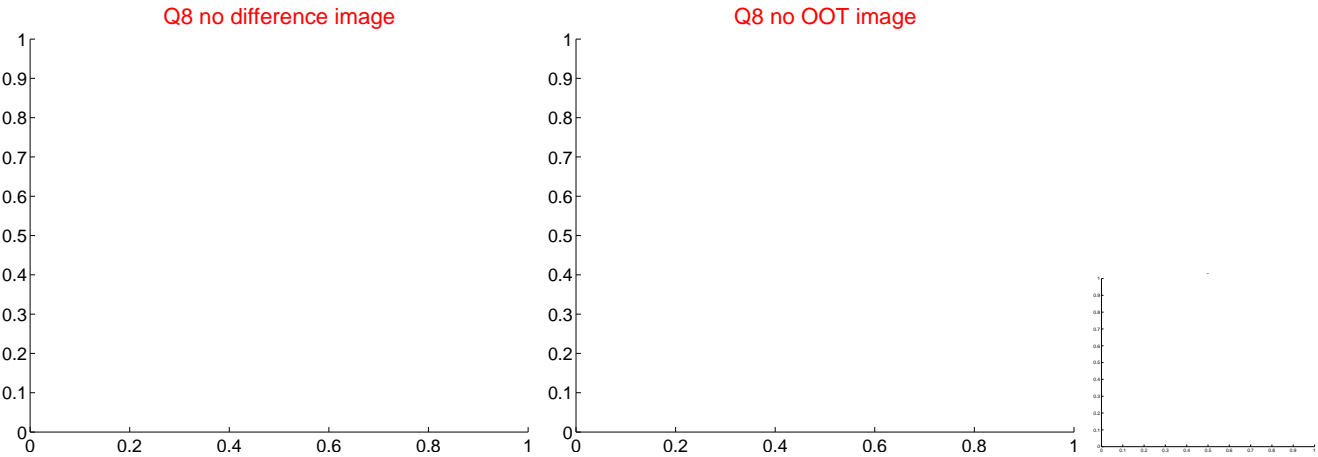
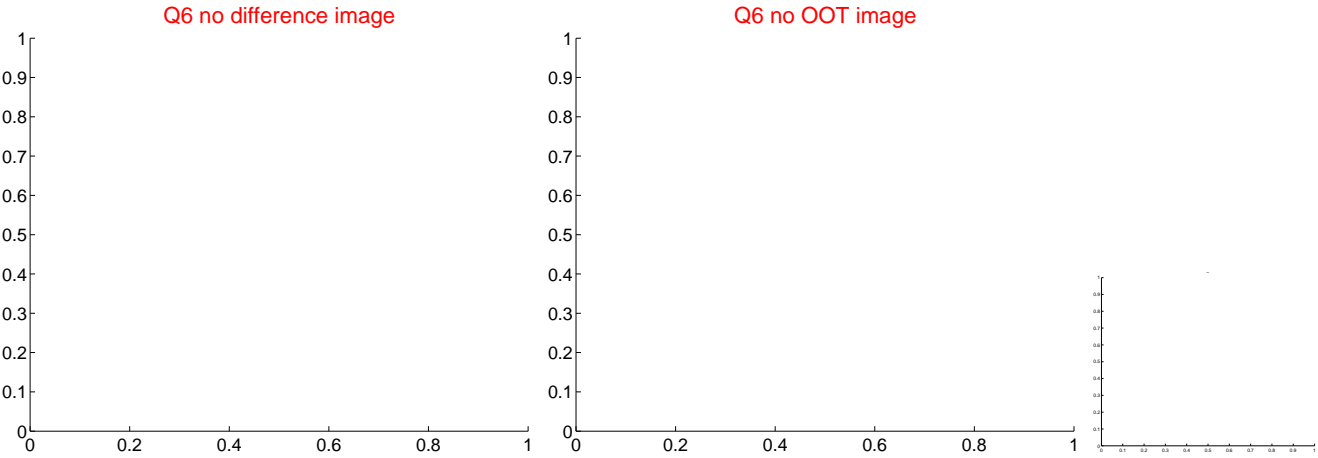
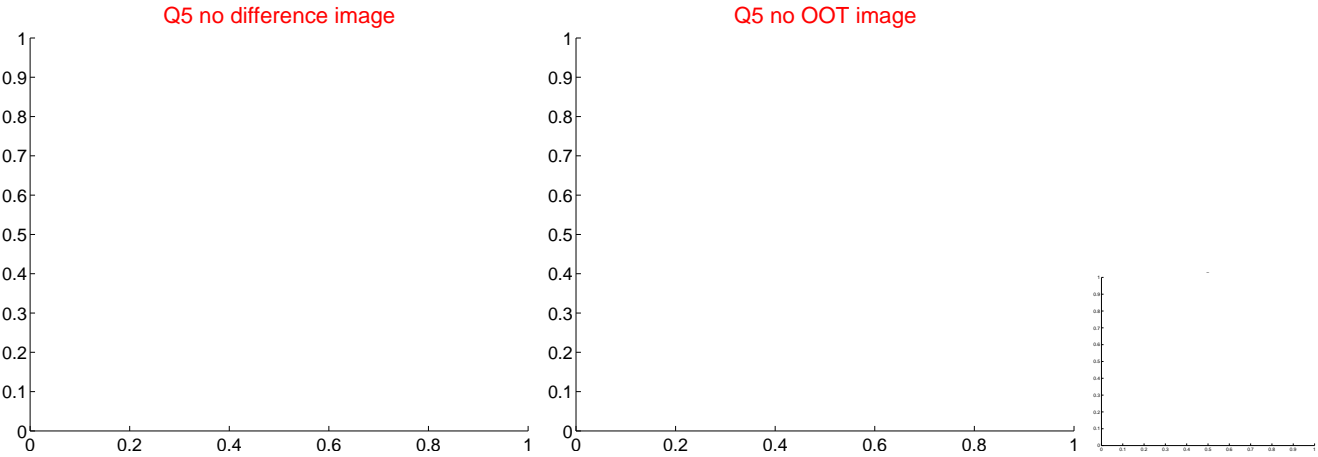
Q4 no difference image



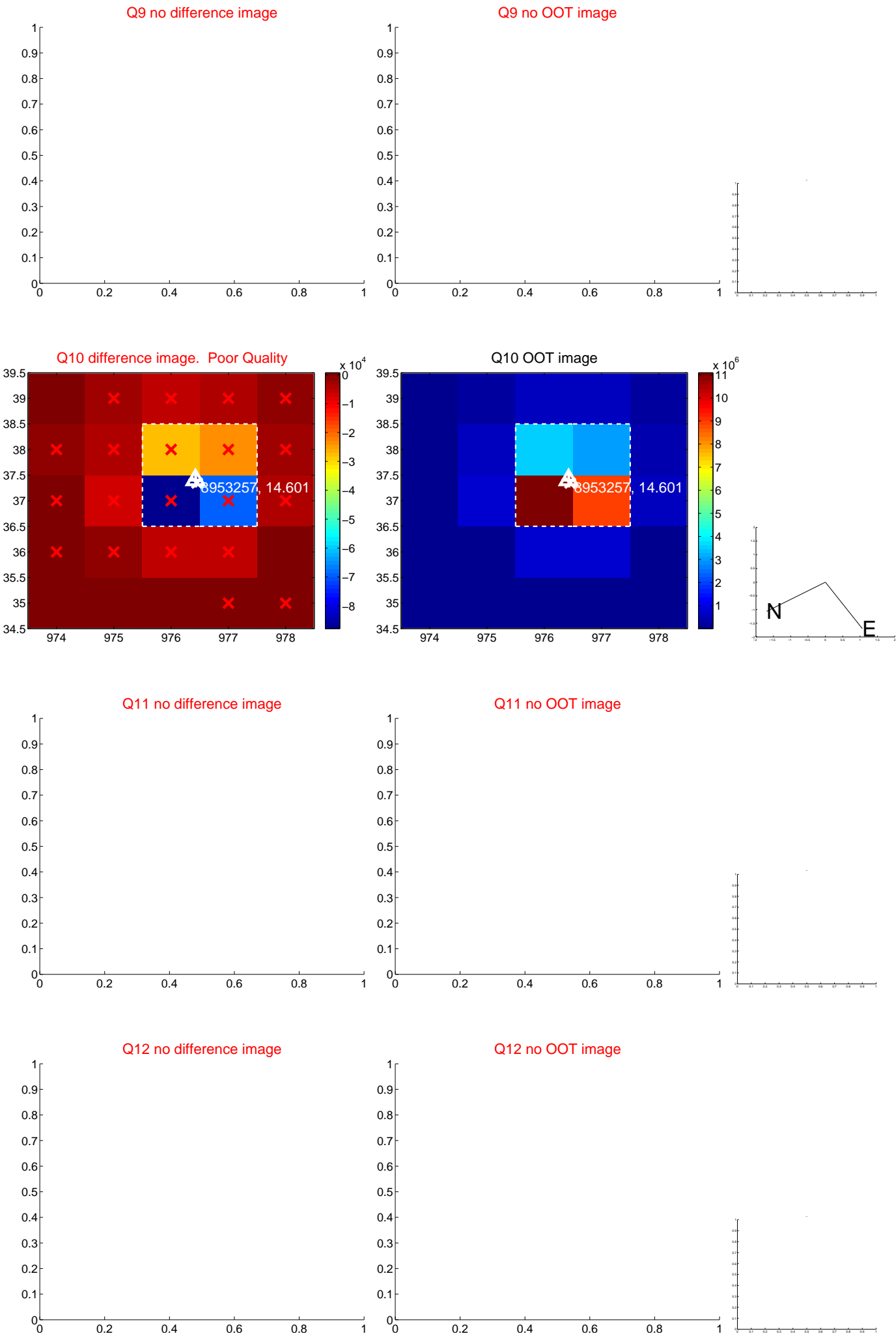
Q4 no OOT image



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



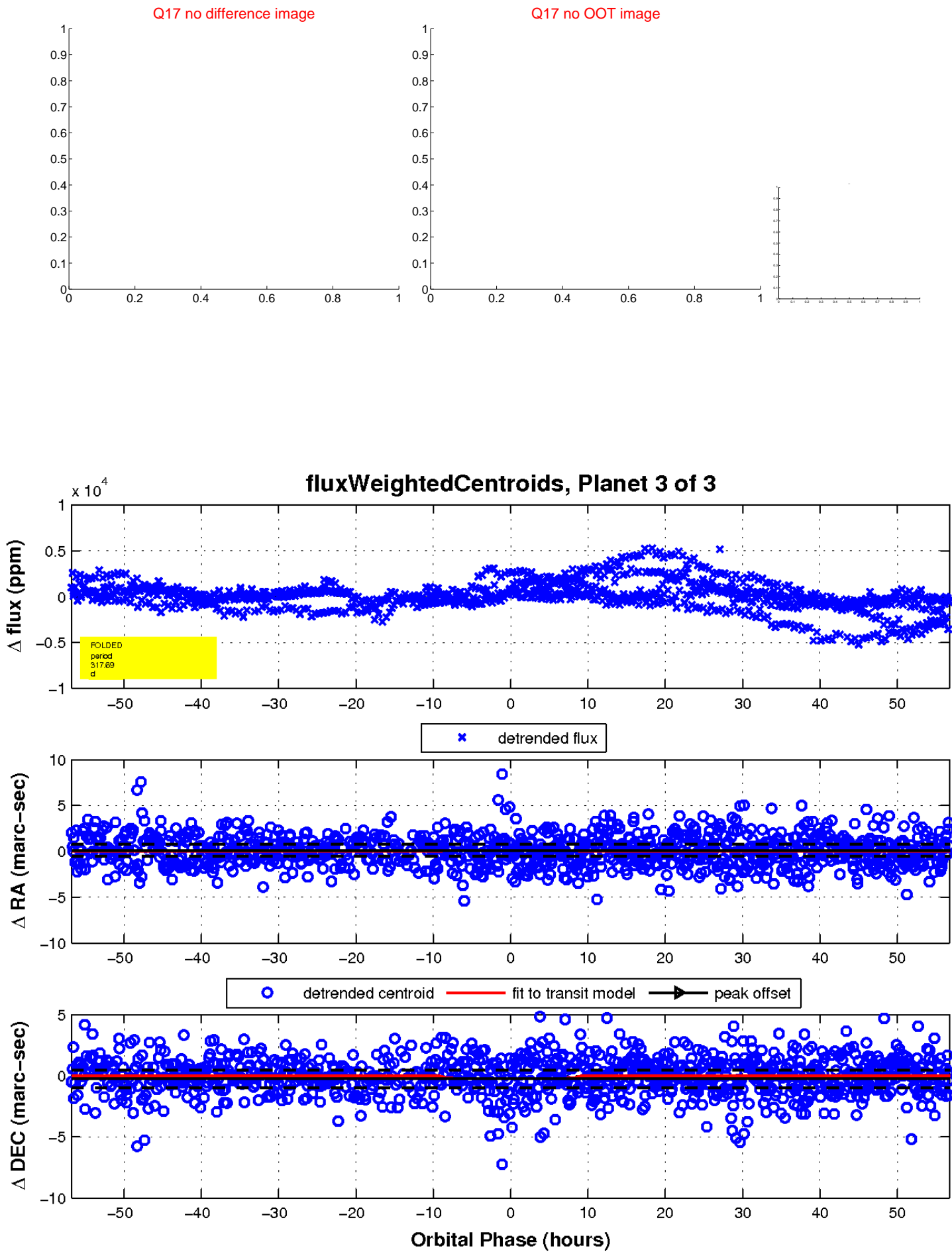
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



# UKIRT Image

Declination

