

# KIC 008365739

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008365739-01	OBS	3722.01	2.389281	132.033369	20693.7	5.040	424.3	356.8	0.96	5594	17.18	753.03
008365739-02	OBS	No	2.389286	133.225661	1299.6	4.164	35.5	38.1	0.96	5594	4.15	753.03
008365739-03	OBS	No	124.578631	211.287018	1482.7	5.000	12.4	-1.0	0.96	5594	3.67	3.87
008365739-04	OBS	No	571.622090	213.814013	1900.0	3.450	9.5	4.2	0.96	5594	4.63	0.51
008365739-05	OBS	No	109.366908	186.456837	2358.6	3.500	11.3	-1.0	0.96	5594	4.63	4.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008365739-01	OBS	FP	0.21	0	1	0	0	SWEET_EB—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
008365739-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
008365739-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
008365739-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008365739-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008365739-01

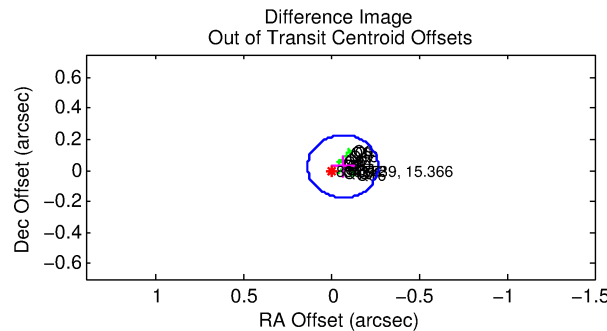
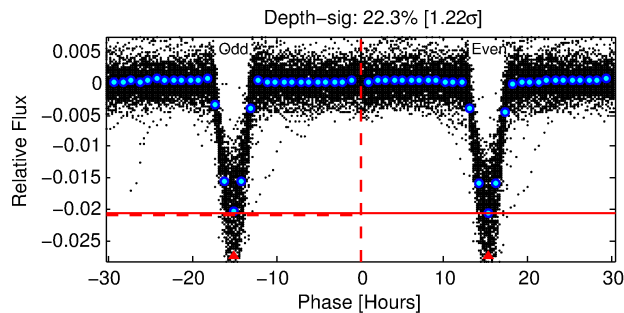
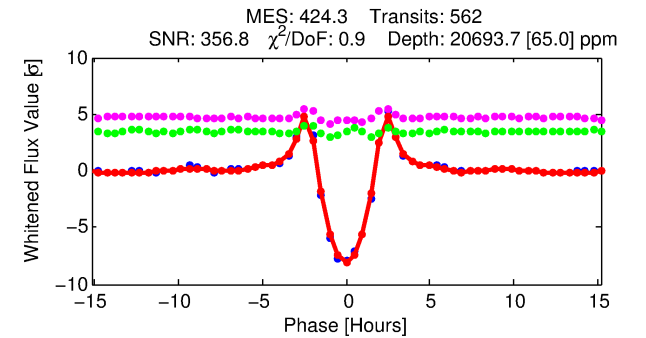
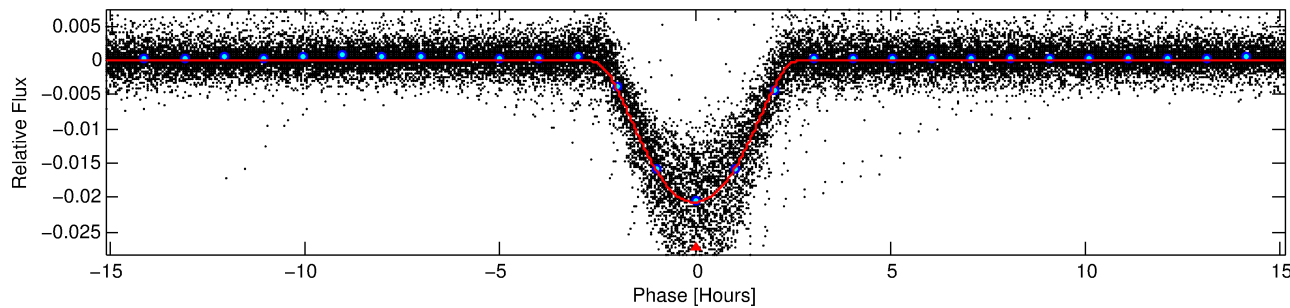
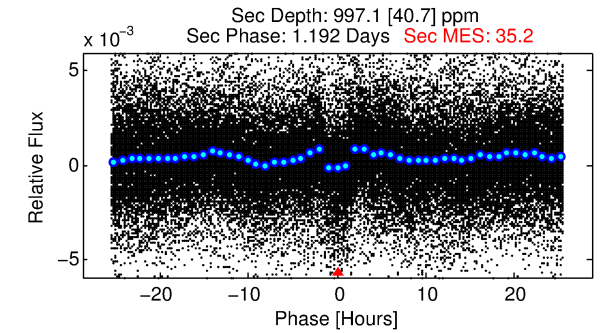
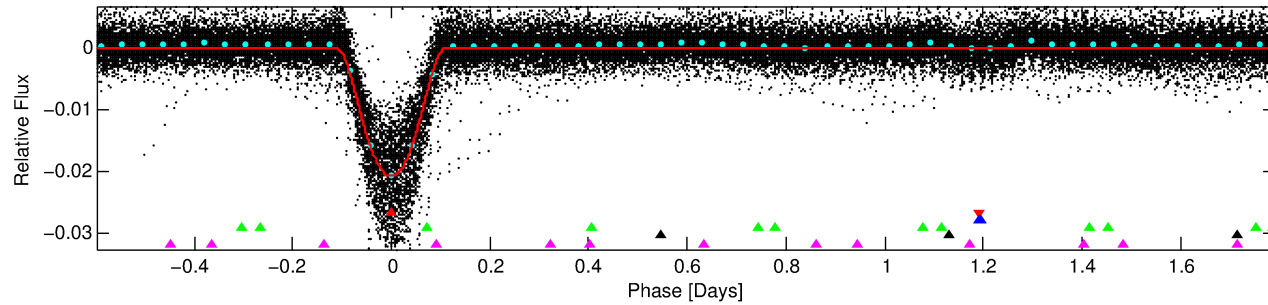
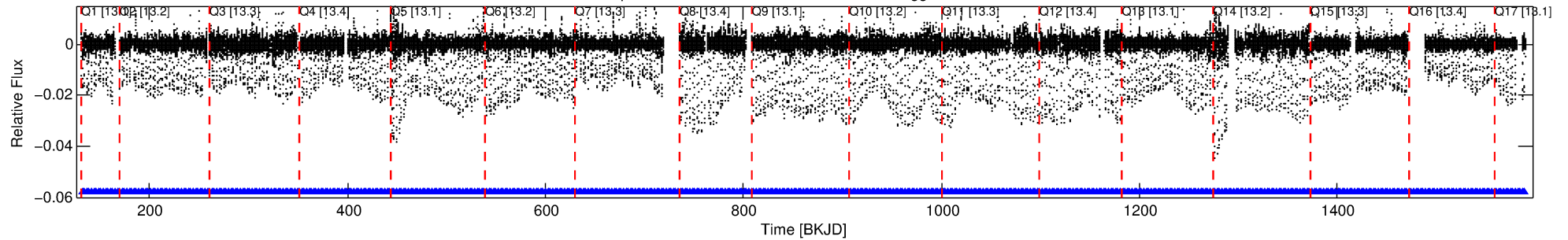
No Significant Match Found

# DV One-Page Summary

KIC: 8365739 Candidate: 1 of 5 Period: 2.389 d

KOI: K03722 Corr: No Ephemeris Match

Kp: 15.37 R\*: 0.96 Rs Teff: 5594.0 K Logg: 4.39 Fe/H: -0.200



## DV Fit Results:

Period = 2.38928 [0.00000] d  
Epoch = 132.0334 [0.0001] BKJD  
Rp/R\* = 0.1633 [0.0011]  
a/R\* = 2.92 [0.01]  
b = 0.88 [0.00]  
Seff = 753.03 [273.19]  
Teq = 1336 [121] K  
Rp = 17.18 [4.80] Re  
a = 0.0329 [0.0077] AU  
Ag = 2.01 [0.69] [1.46σ]  
Teffp = 2460 [79] K [7.78σ]

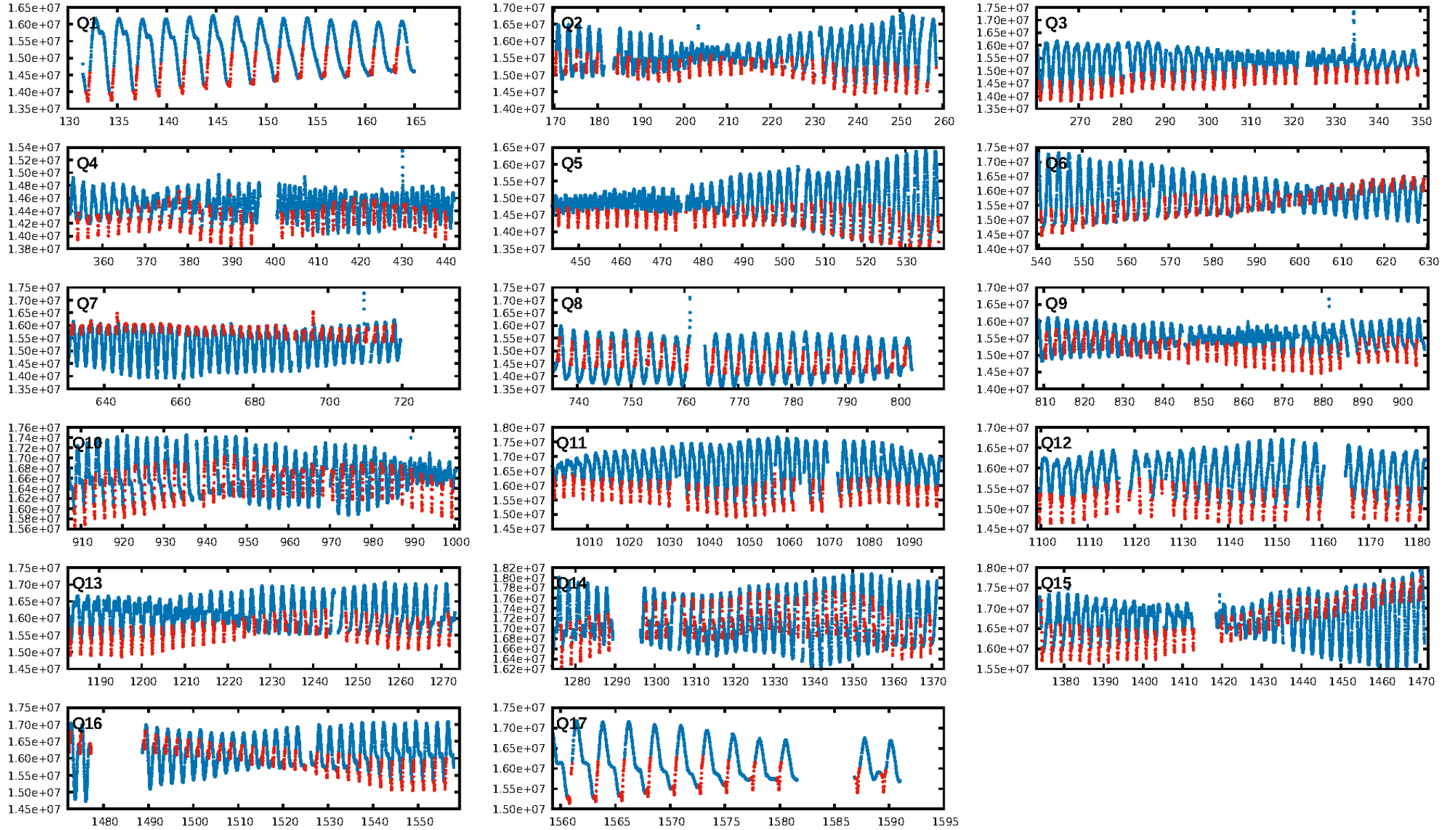
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [537/537]  
GhostDiagnostic-chr: 2.227  
Centroid-sig: 0.0%  
Centroid-so: 0.414 arcsec [36.41σ]  
OotOffset-rm: 0.070 arcsec [1.04σ]  
KicOffset-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]

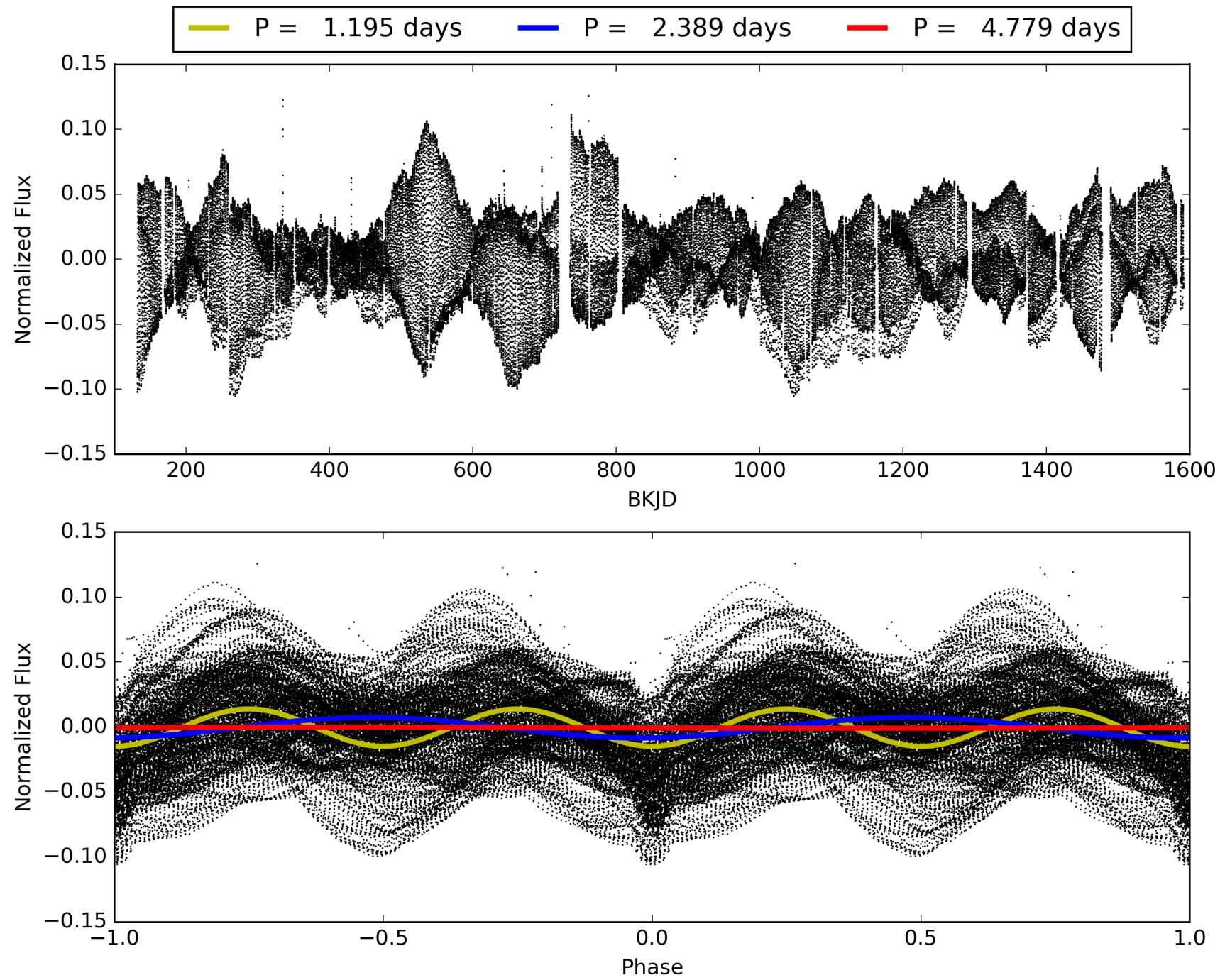
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:07:53 Z

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

# TCE 008365739-01, PDC Light Curves



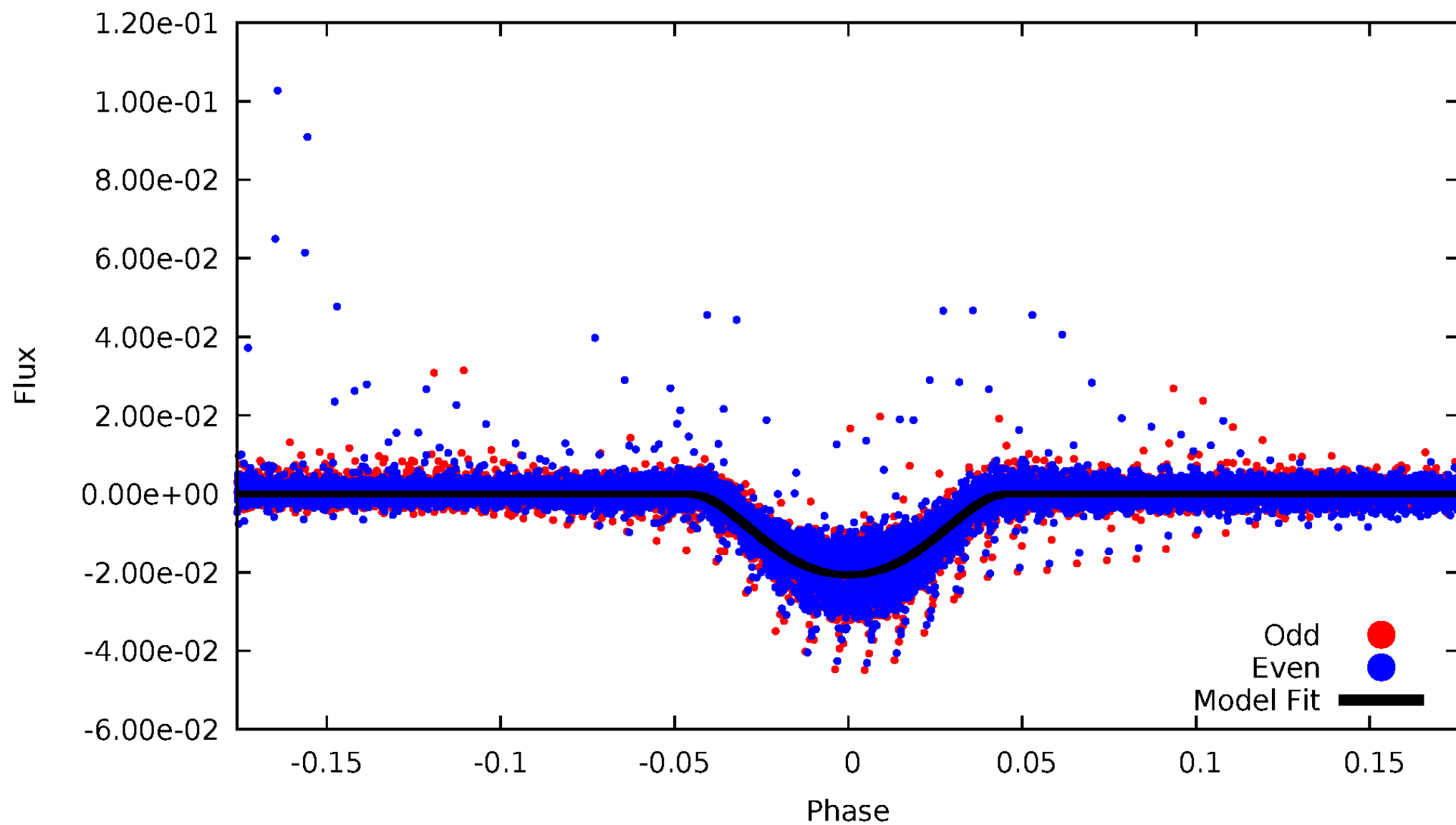
TCE 008365739-01





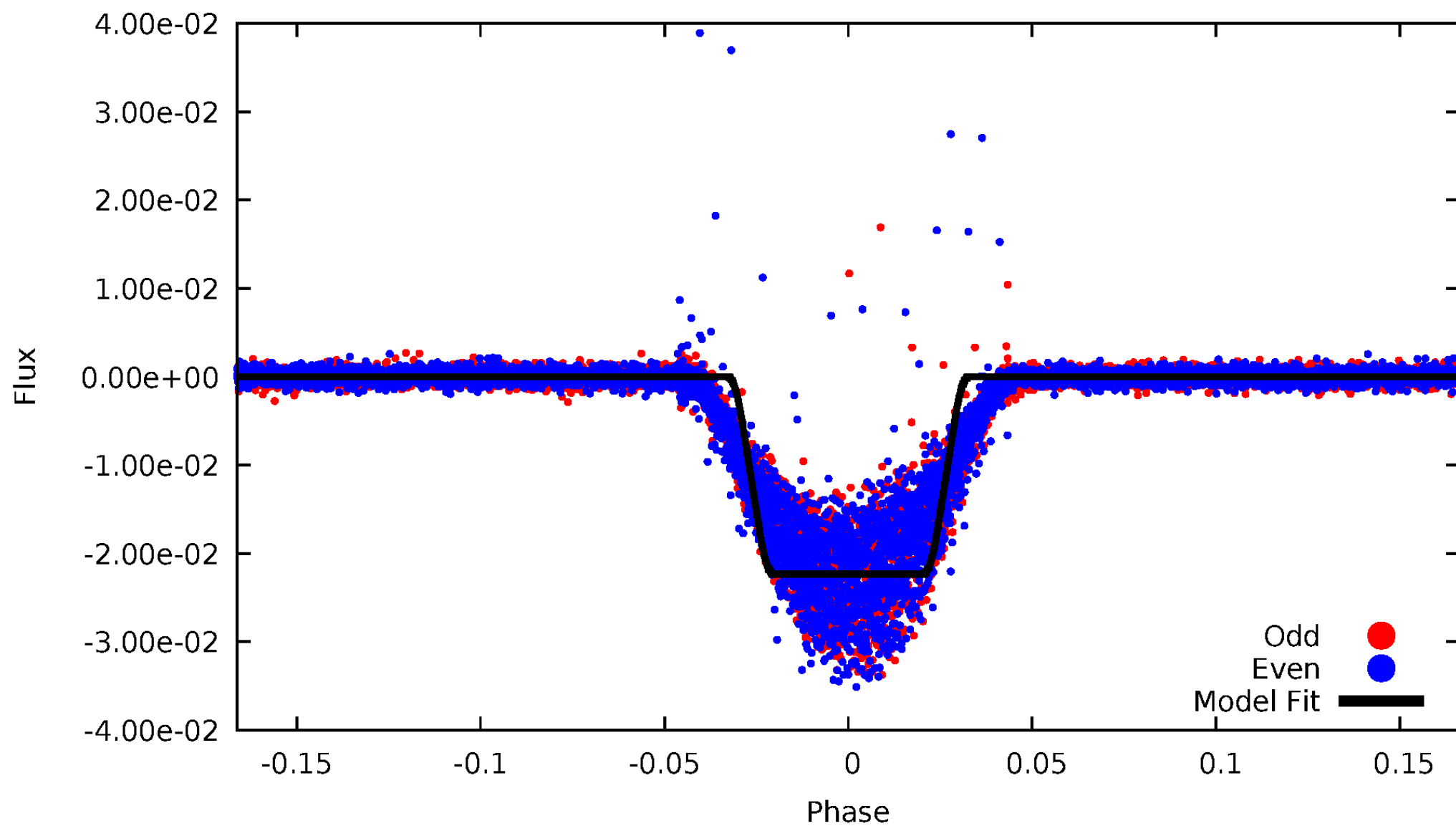
# DV Odd/Even

TCE 008365739-01



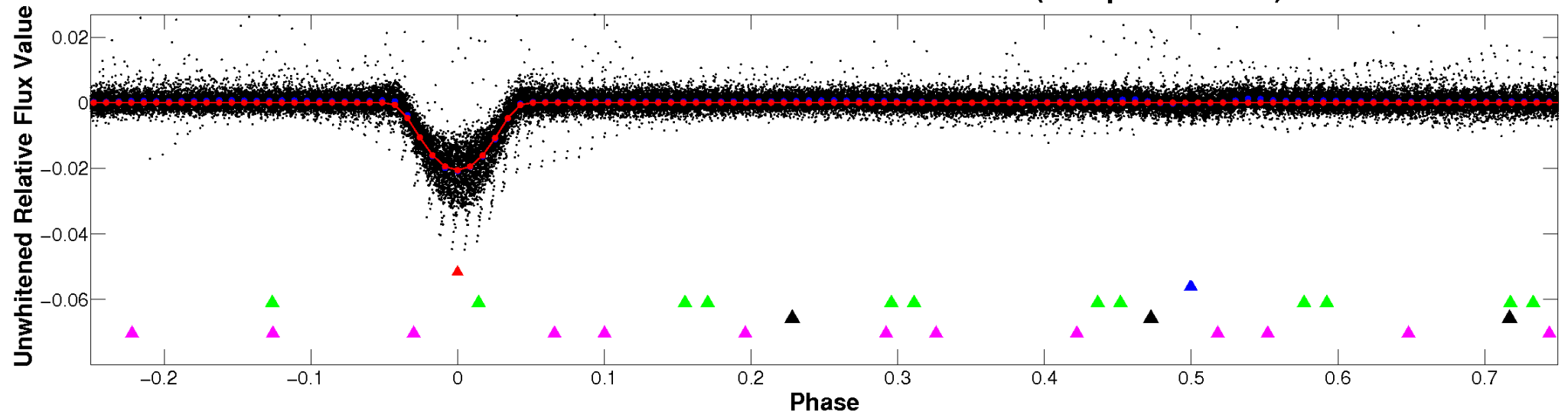
# ALT Odd/Even

TCE 008365739-01

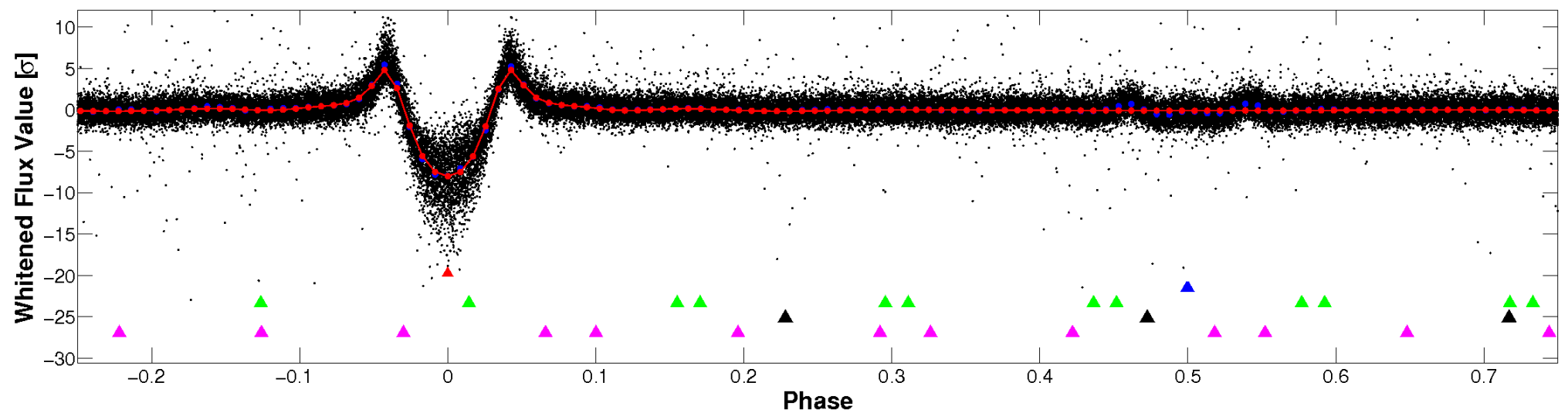


# Non-Whitened Vs. Whitened Light Curve

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

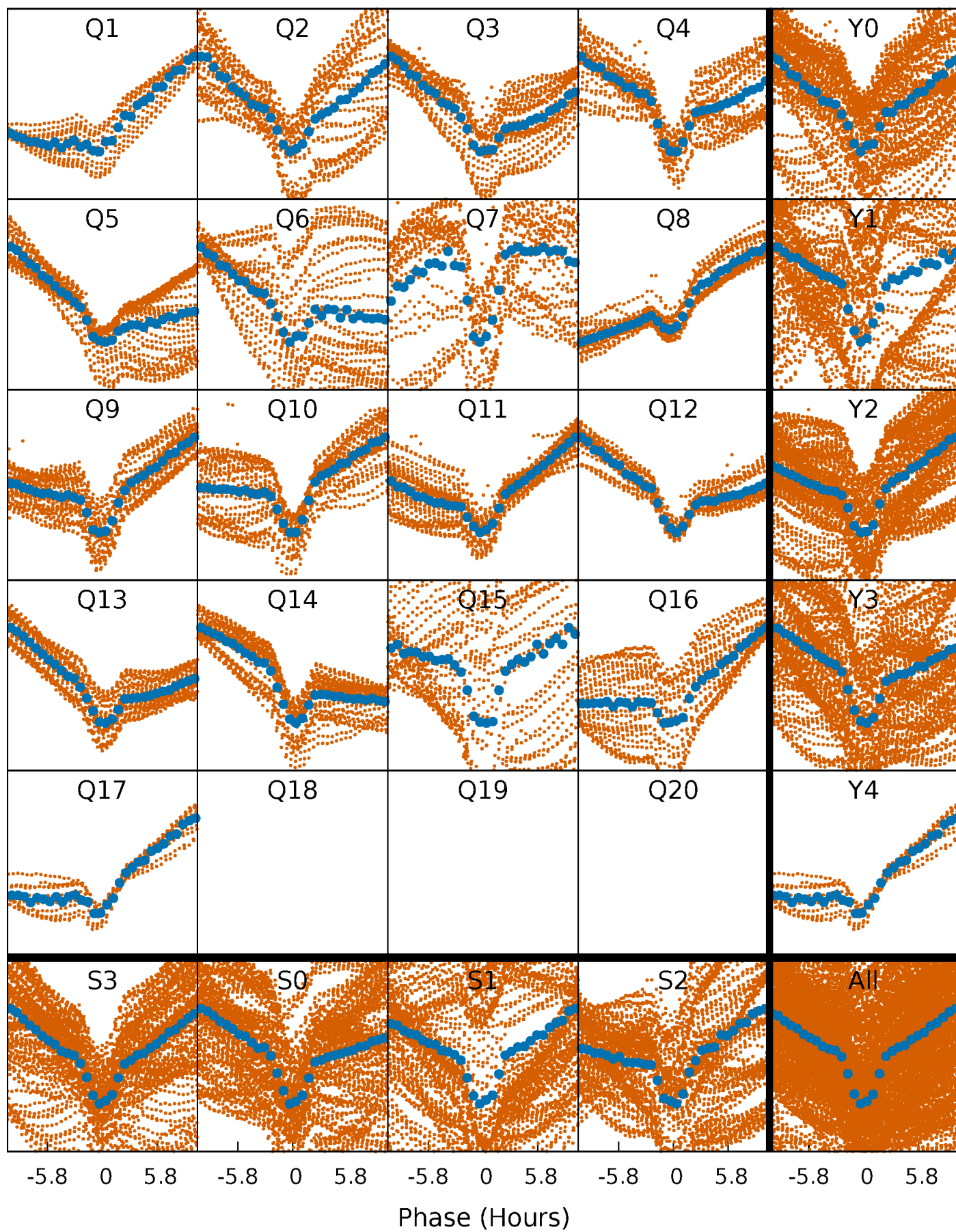


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

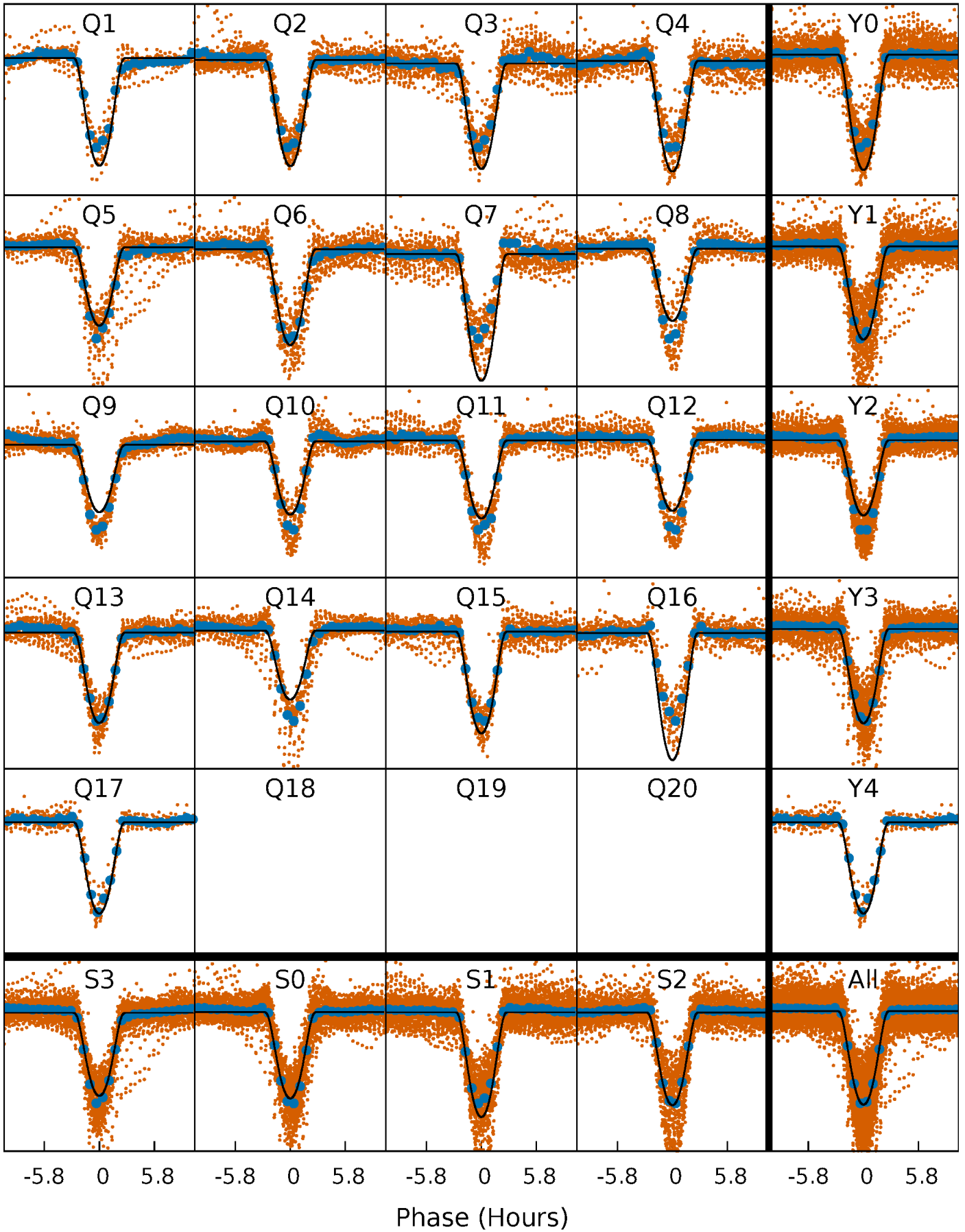
TCE 008365739-01 P= 2.389281 Days  $T_0=132.033369$  (BKJD)





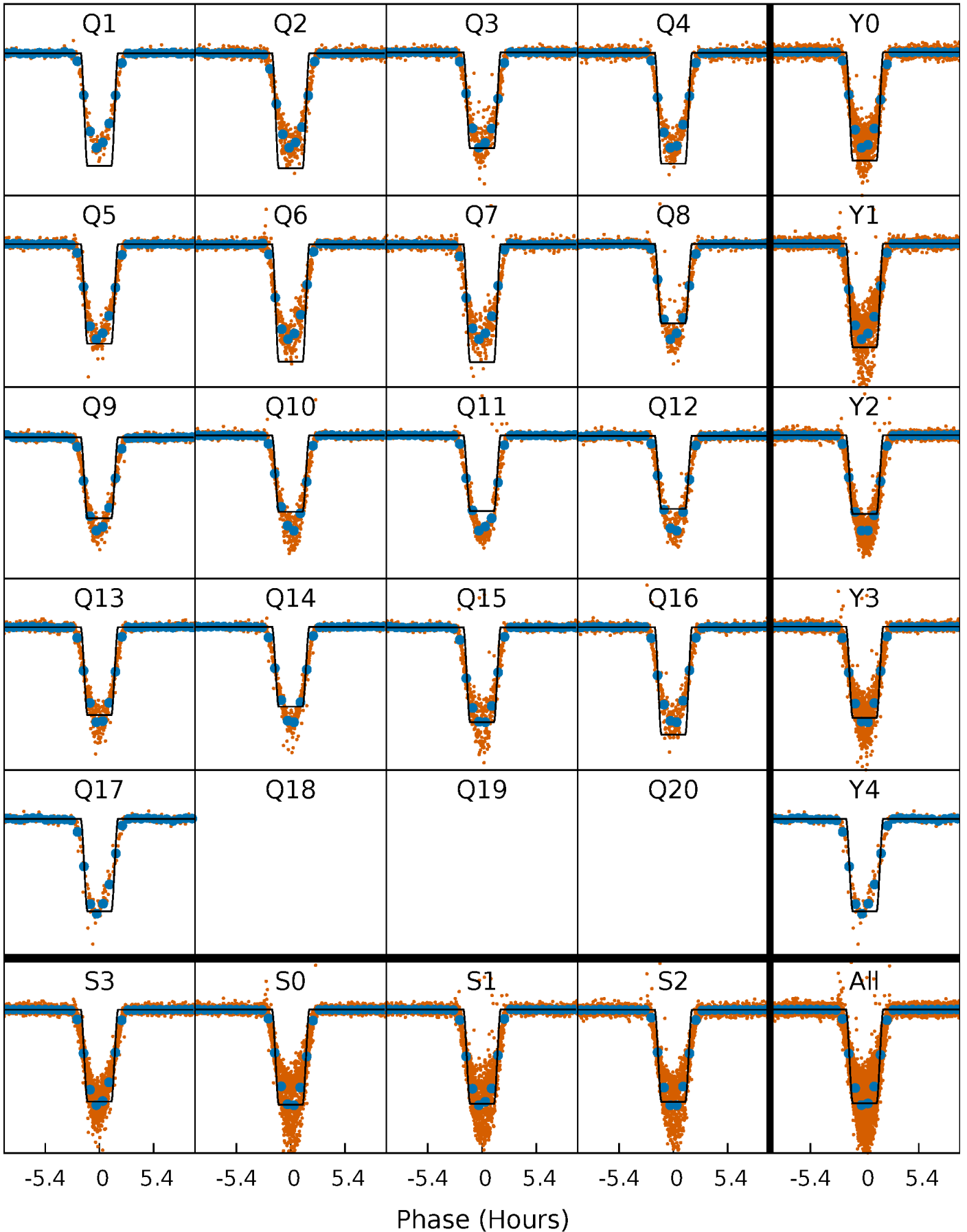
# DV Quarter-Phased Transit Curves

TCE 008365739-01 P= 2.389281 Days  $T_0=132.033369$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

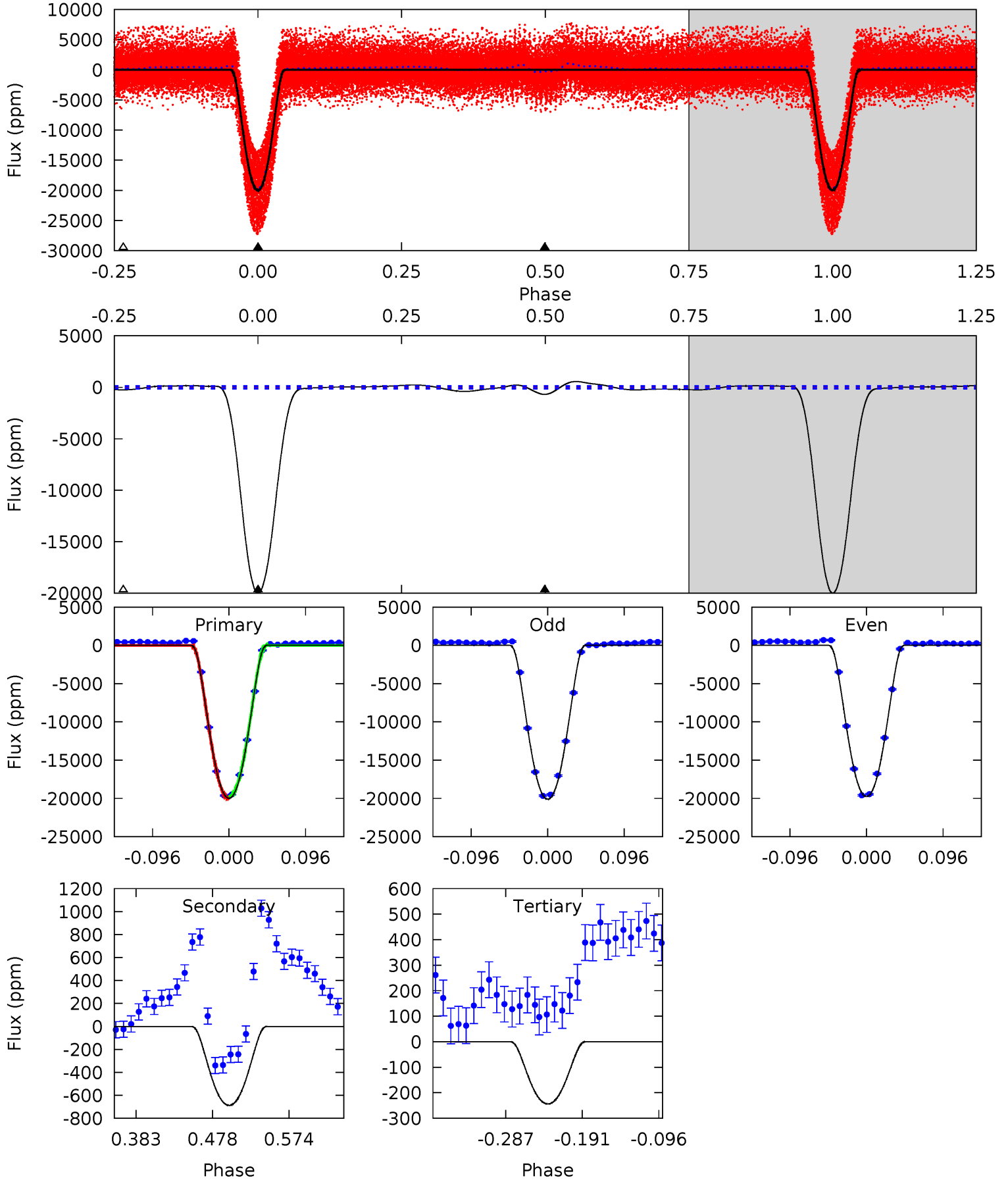
TCE 008365739-01 P= 2.389294 Days  $T_0=132.028816$  (BKJD)



# DV Model-Shift Uniqueness Test

008365739-01, P = 2.389281 Days, E = 129.644088 Days

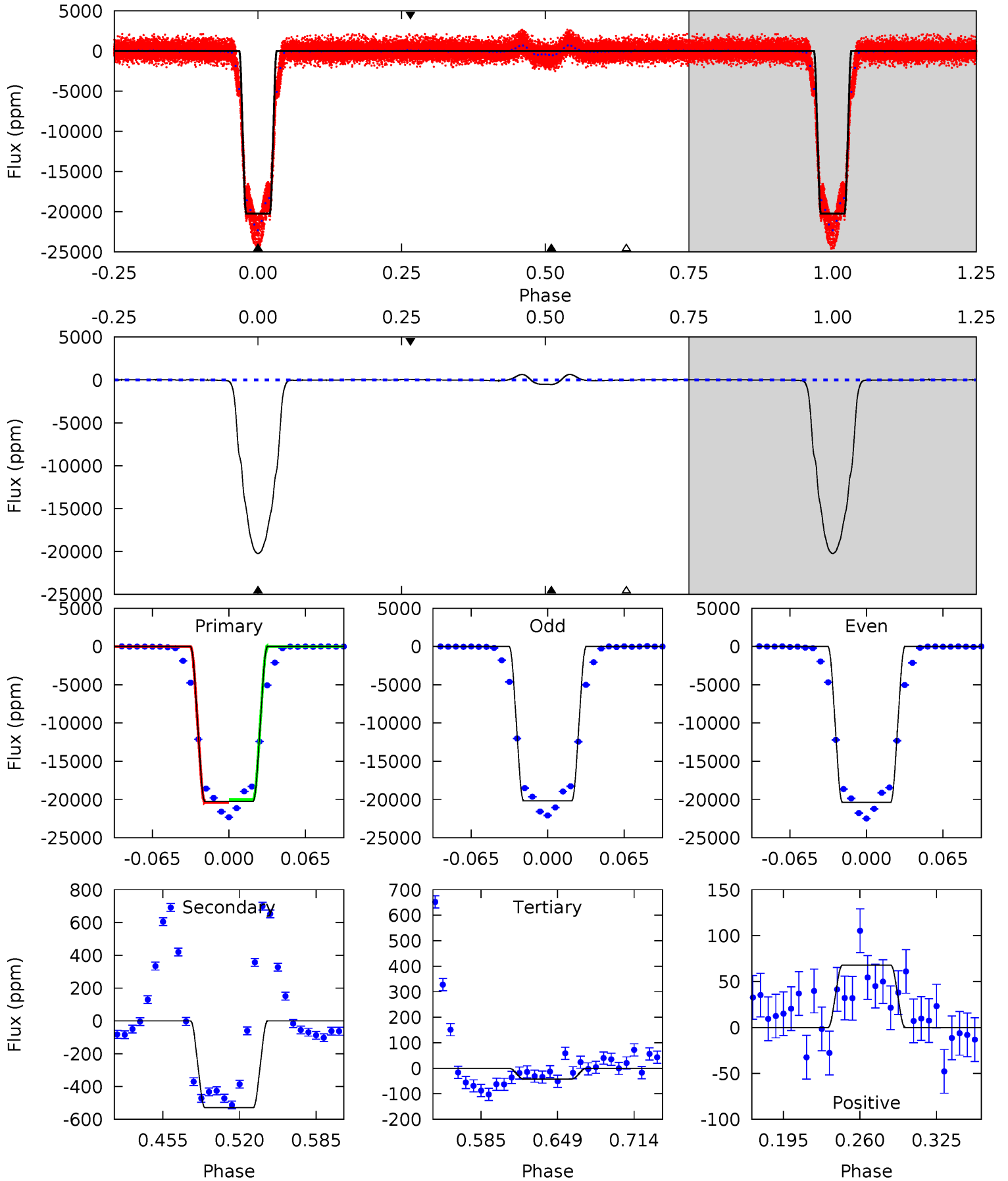
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
815.1	28.0	9.94	0	4.57	1.67	7.15	805.2	815.1	18.1	28.0	7.18	1.03	0.03	5.86



# Alt Model-Shift Uniqueness Test

008365739-01, P = 2.389294 Days, E = 129.639522 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
1606	42.0	3.33	5.39	4.65	1.85	3.00	1602	1600	38.7	36.6	8.34	1.01	0.03	0





### Stellar Parameters For KIC 008365739

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5594^{+169}_{-152}$	$4.390^{+0.153}_{-0.187}$	$-0.200^{+0.300}_{-0.300}$	$0.964^{+0.269}_{-0.166}$	$0.832^{+0.123}_{-0.066}$	$1.307^{+0.912}_{-0.616}$
	+3%/-3%	+3%/-4%	+150%/-150%	+28%/-17%	+15%/-8%	+70%/-47%
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 008365739-01 / KOI 3722.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-687 \pm 25$	$17.25^{+2.80}_{-1.79}$	$1871^{+146}_{-107}$	$2834^{+58}_{-62}$	$1.385^{+0.333}_{-0.336}$
Alt.	$-529 \pm 13$	$15.88^{+2.67}_{-1.77}$	$1878^{+144}_{-116}$	$2793^{+53}_{-66}$	$1.259^{+0.320}_{-0.308}$

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

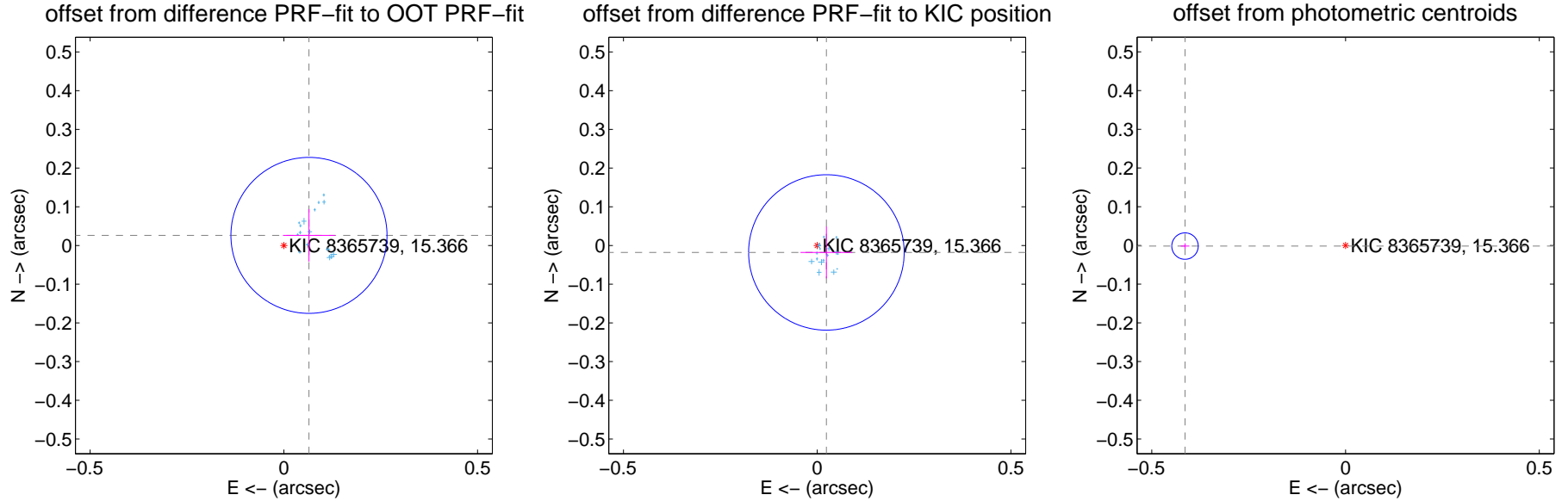
## DV Centroid Data

Supplemental centroid analysis for 008365739-01. Kepler magnitude: 15.37. Transit SNR 356.76

There are 17 quarters with good PRF difference image offsets

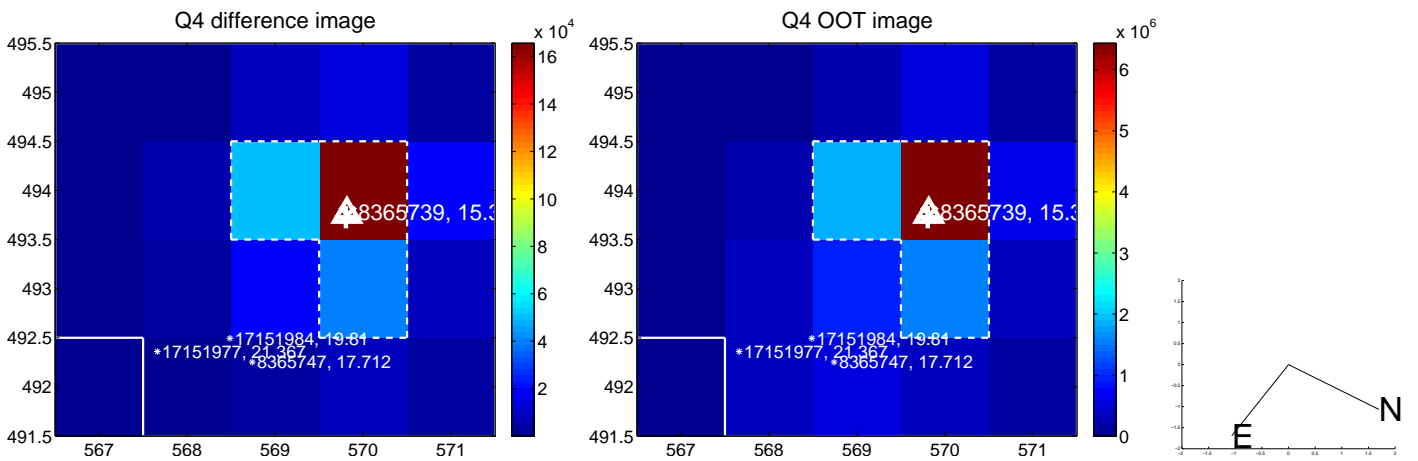
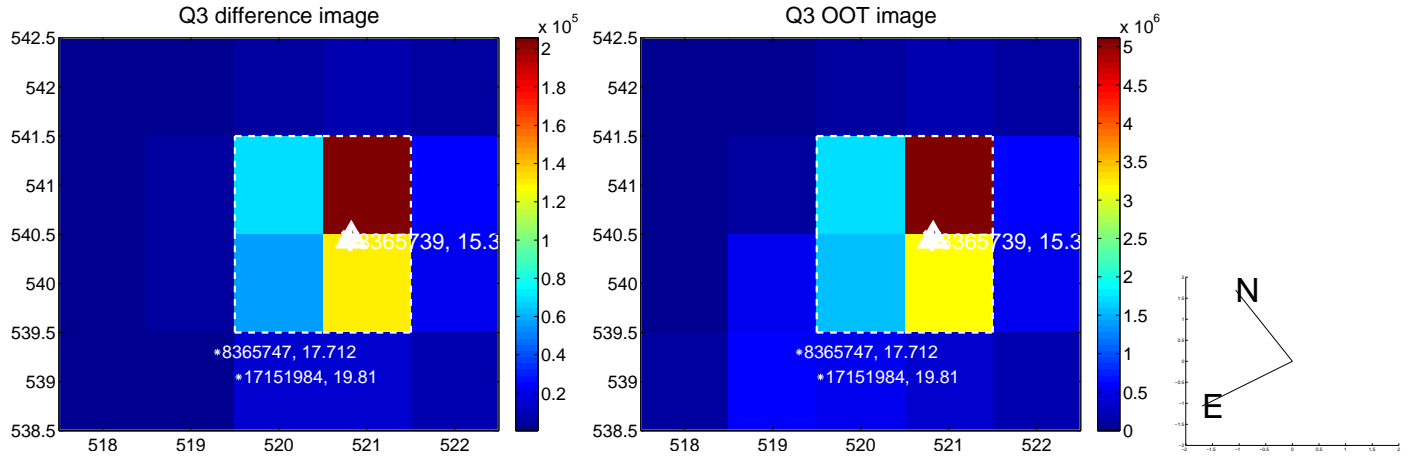
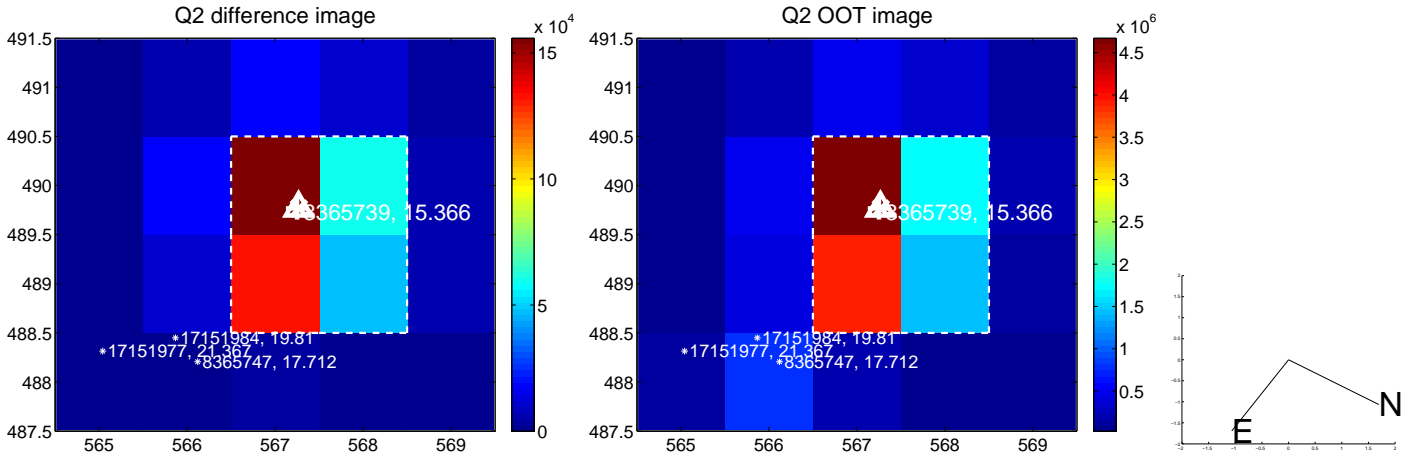
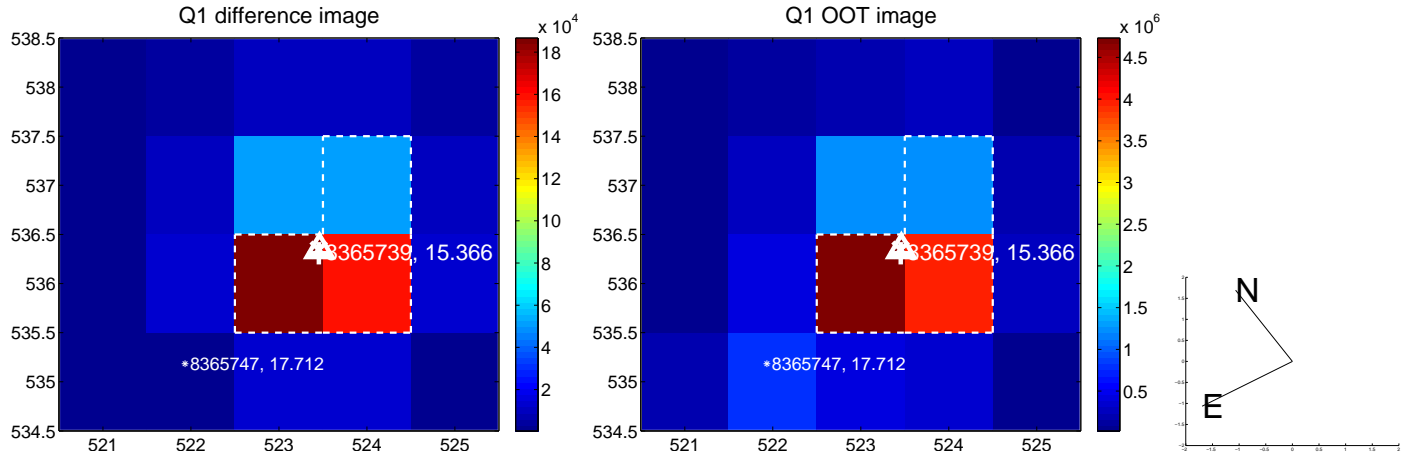
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.070 \pm 0.067$	1.04	$-0.065 \pm 0.067$	$0.026 \pm 0.068$
PRF-fit source offset from KIC position	$0.030 \pm 0.067$	0.45	$-0.024 \pm 0.067$	$-0.018 \pm 0.067$
photometric centroid source offset	$0.41 \pm 0.01$	36.41	$0.41 \pm 0.01$	$-0.00 \pm 0.01$

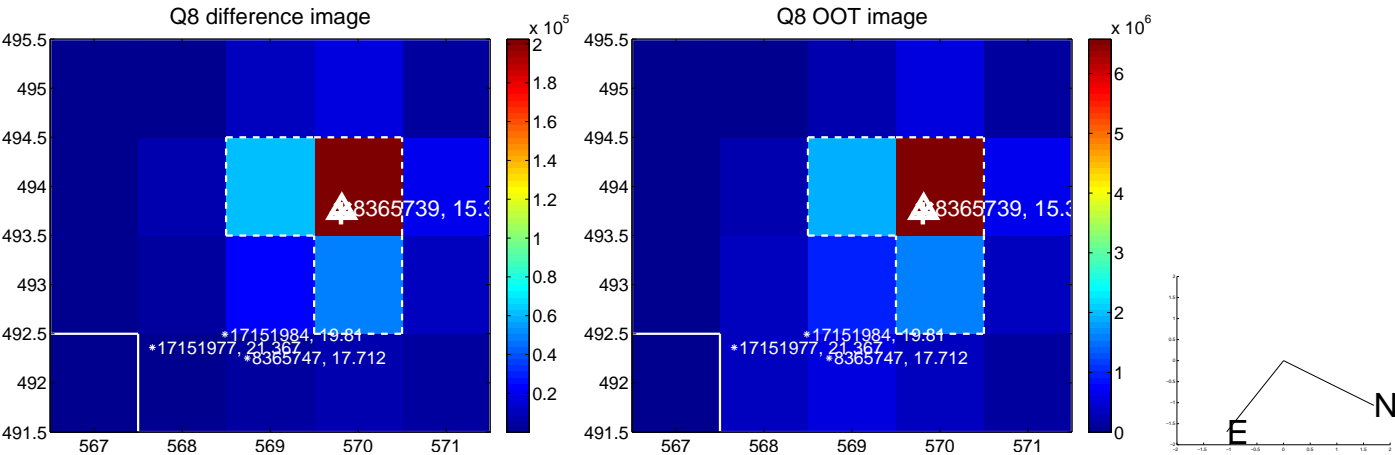
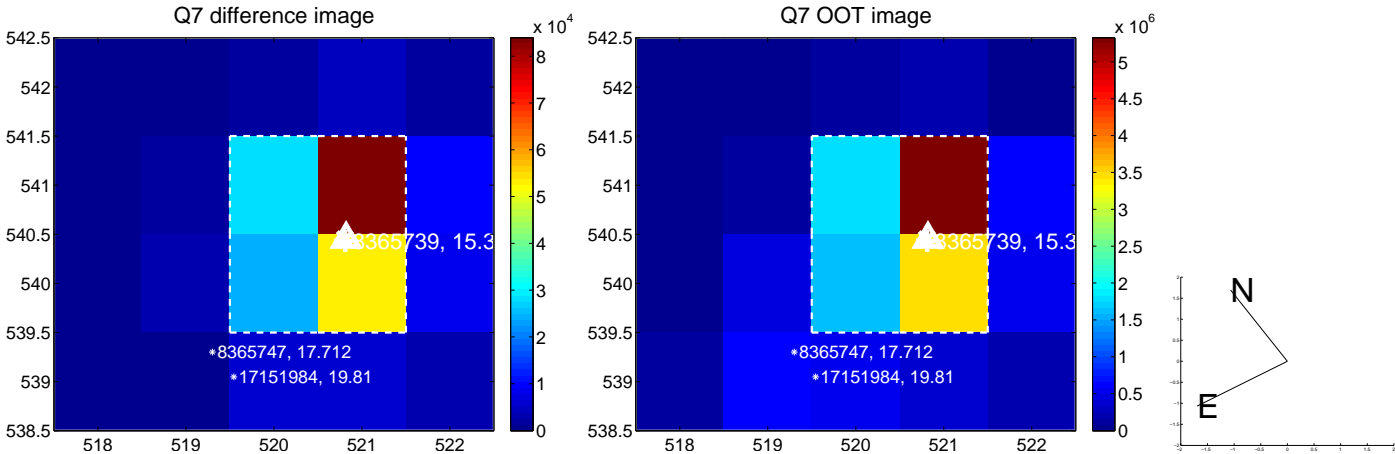
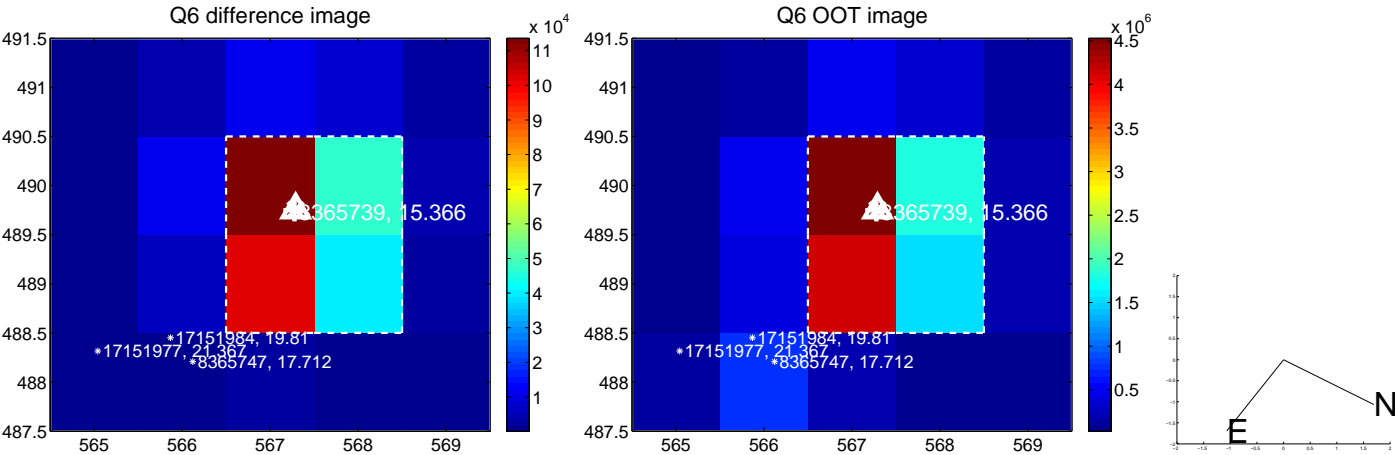
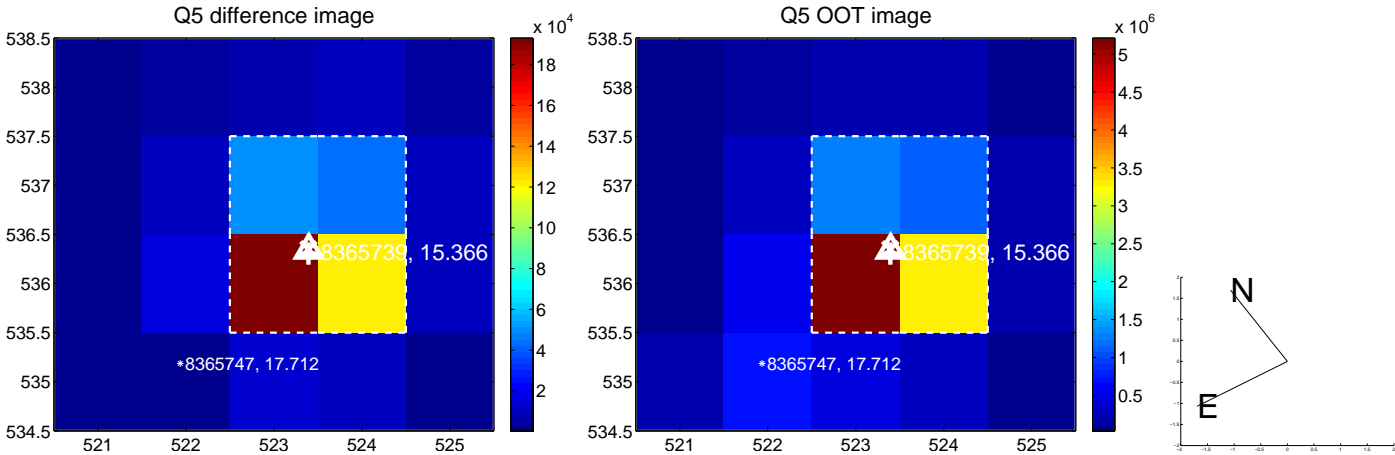


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

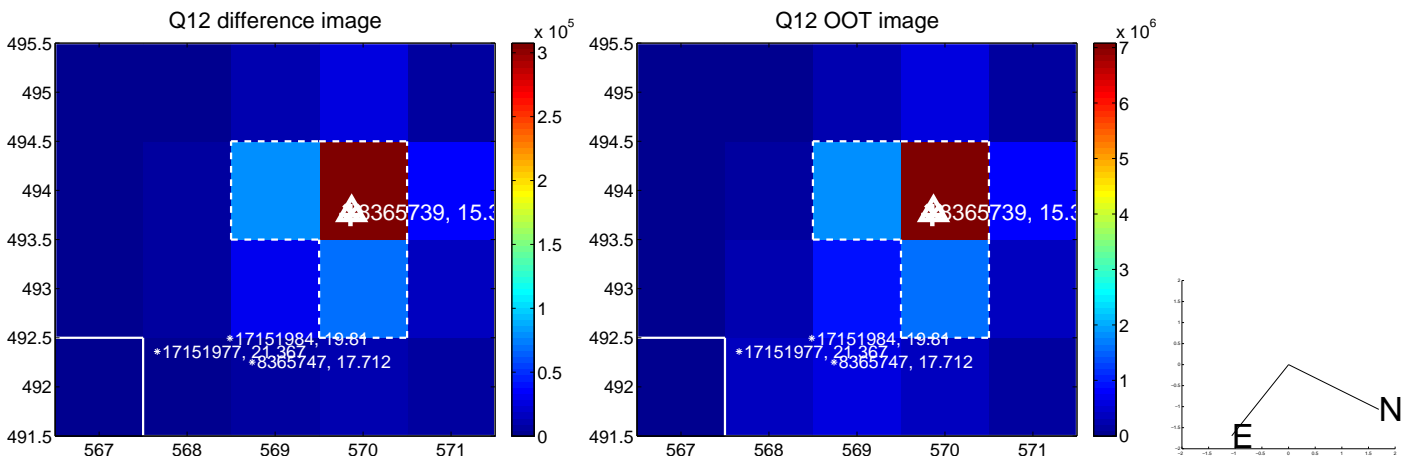
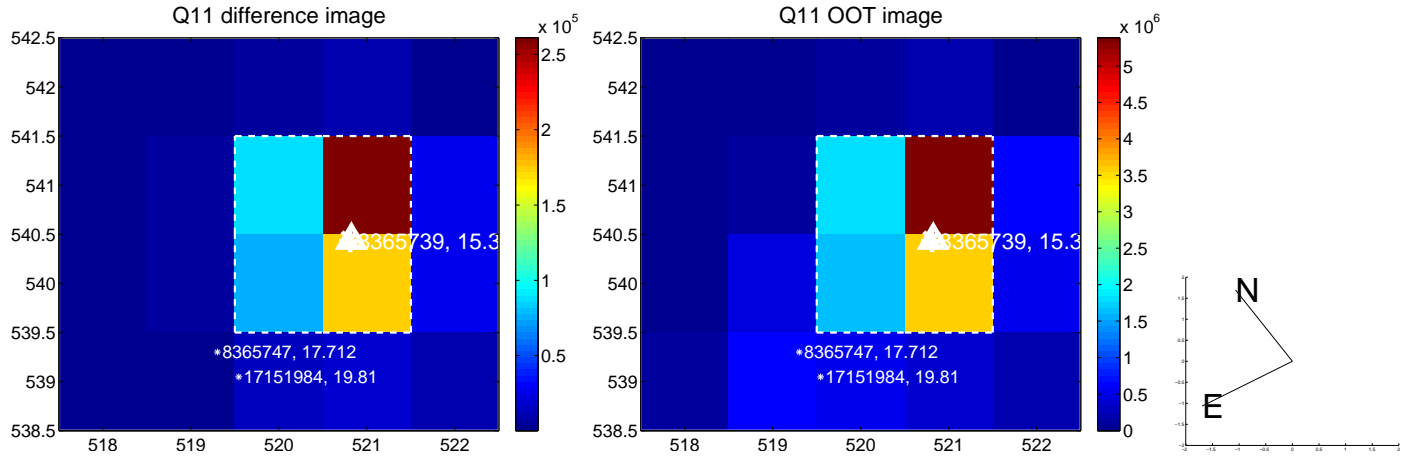
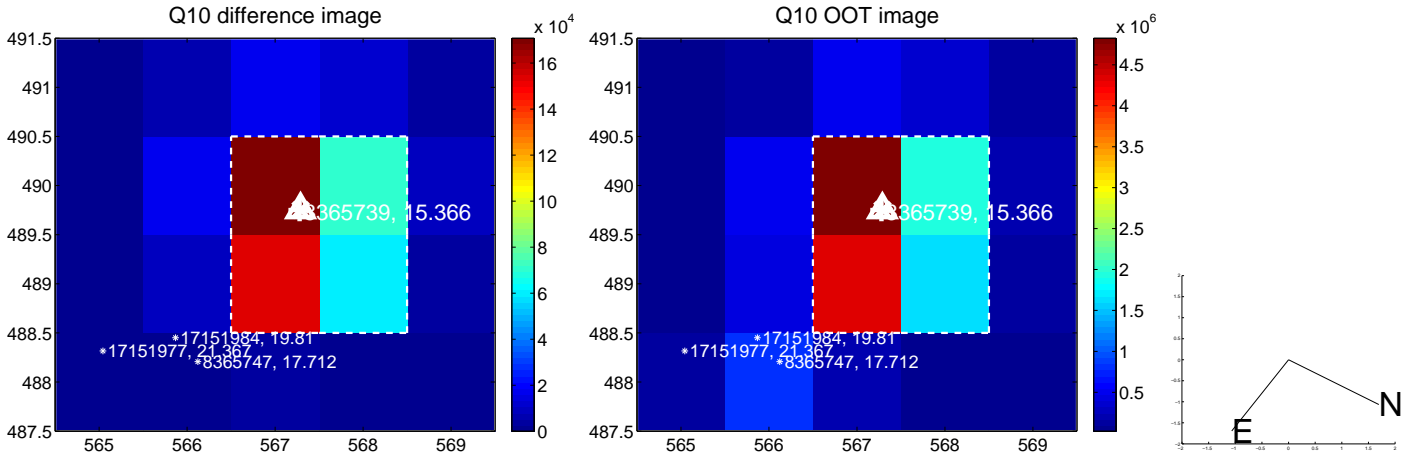
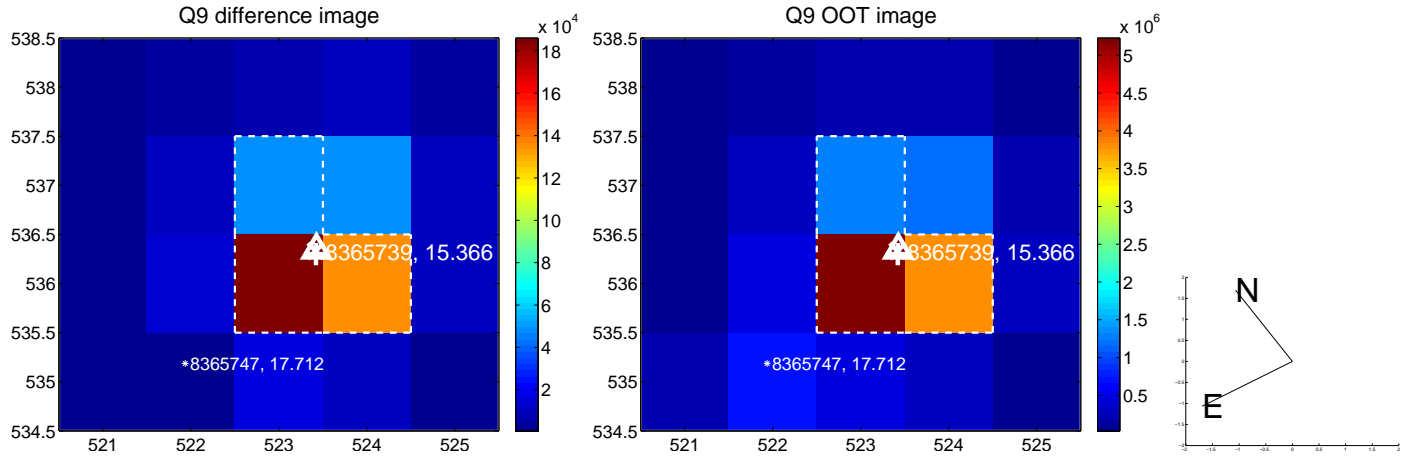


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

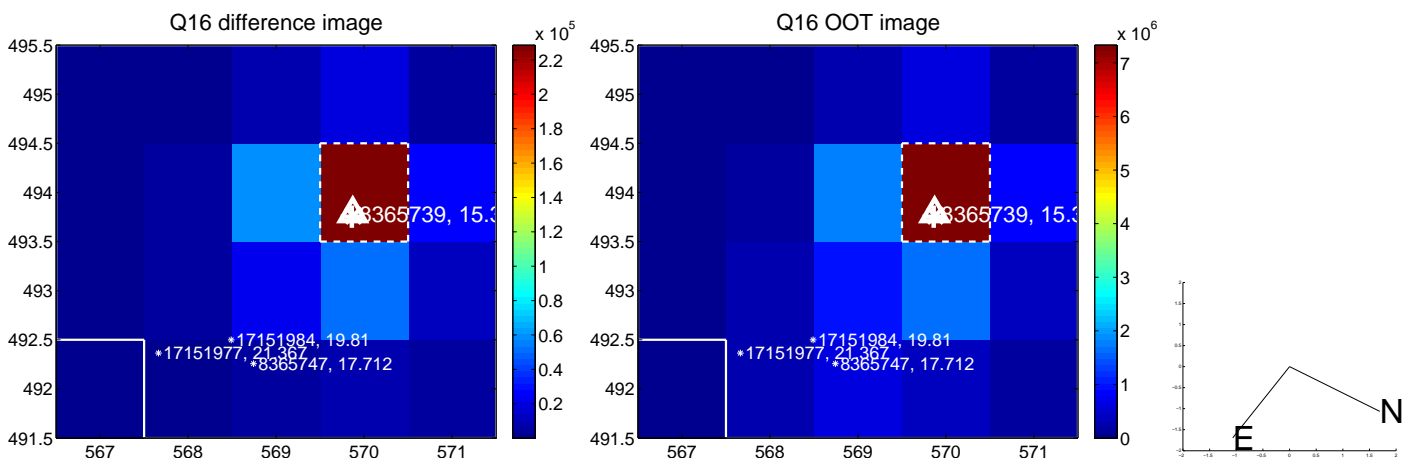
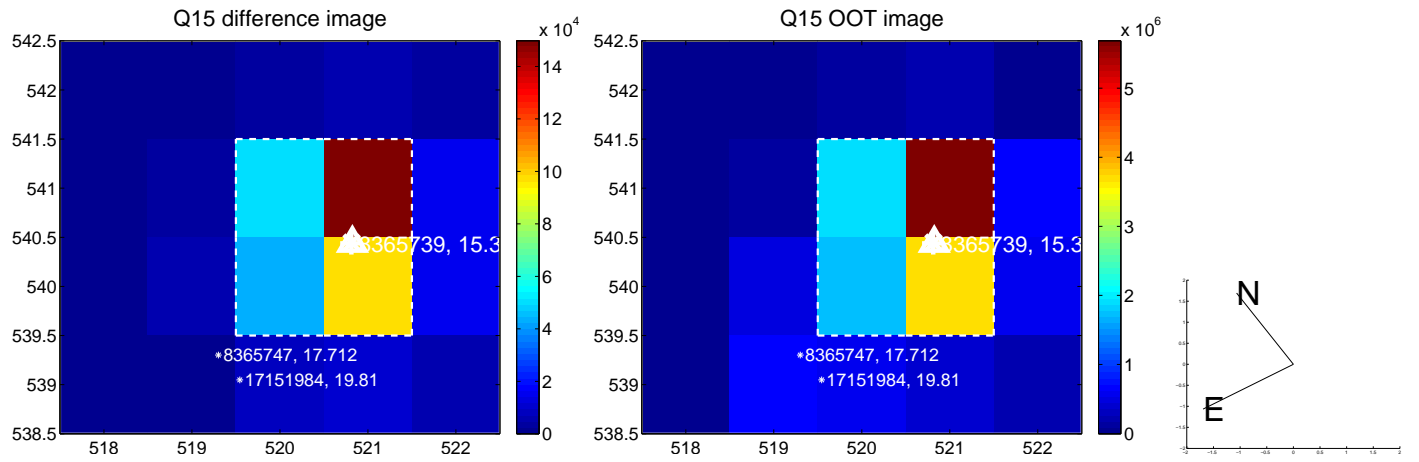
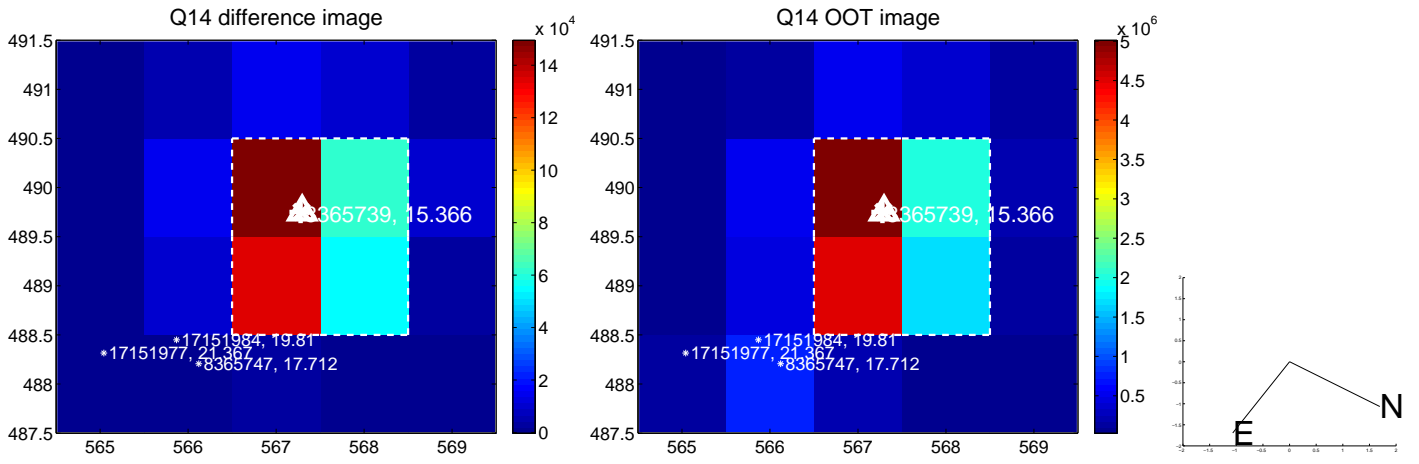
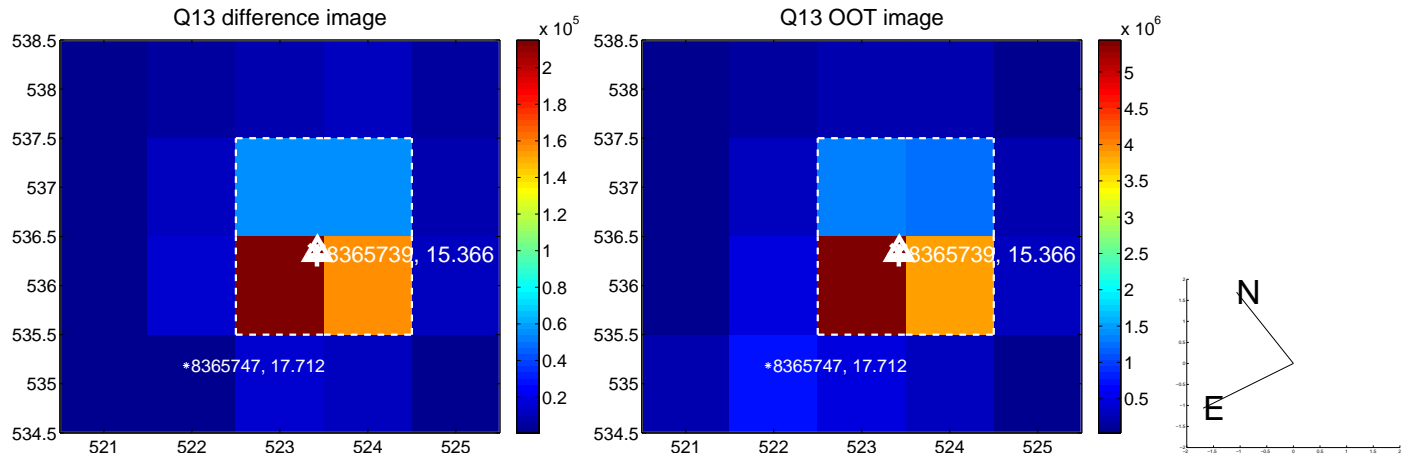




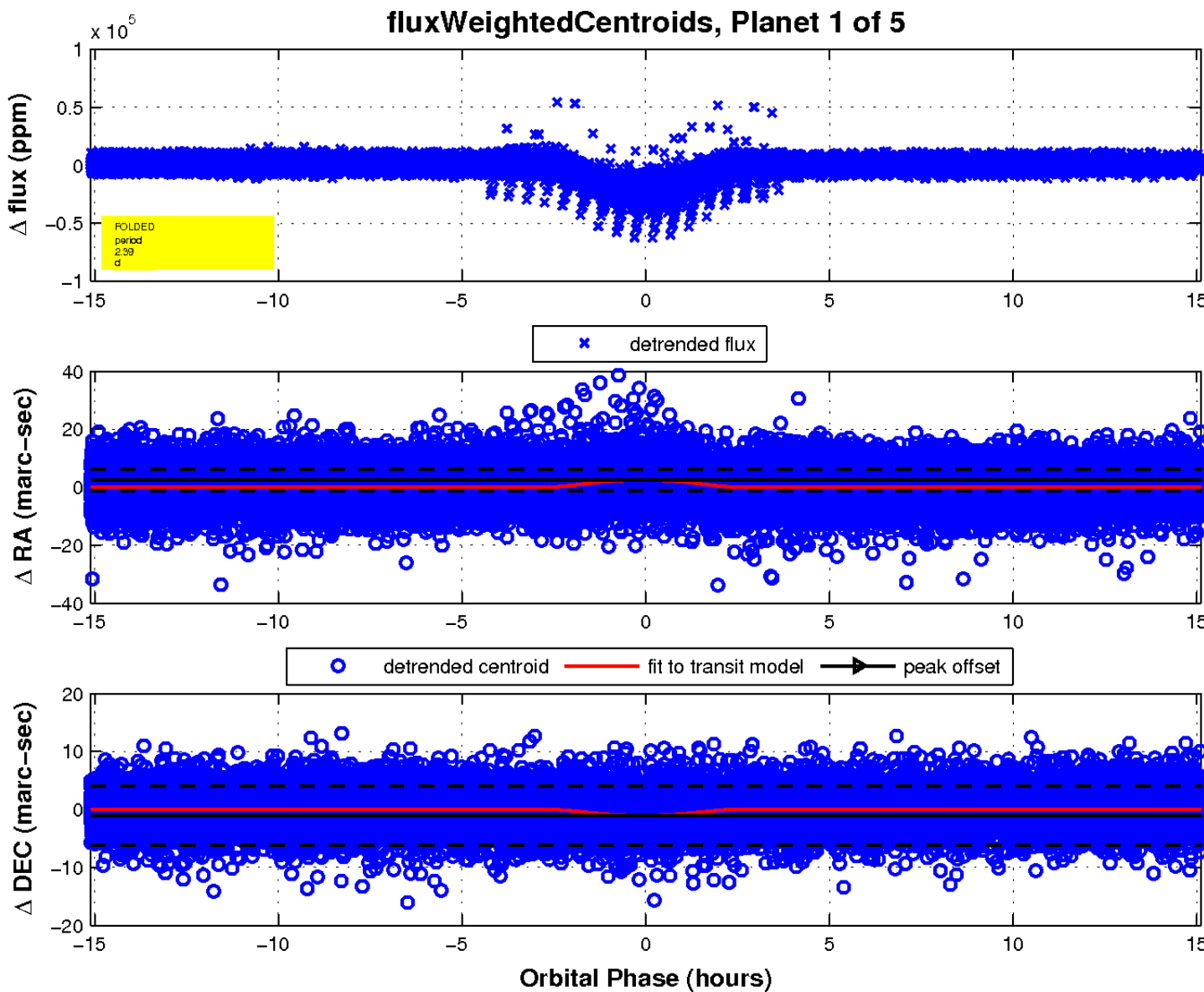
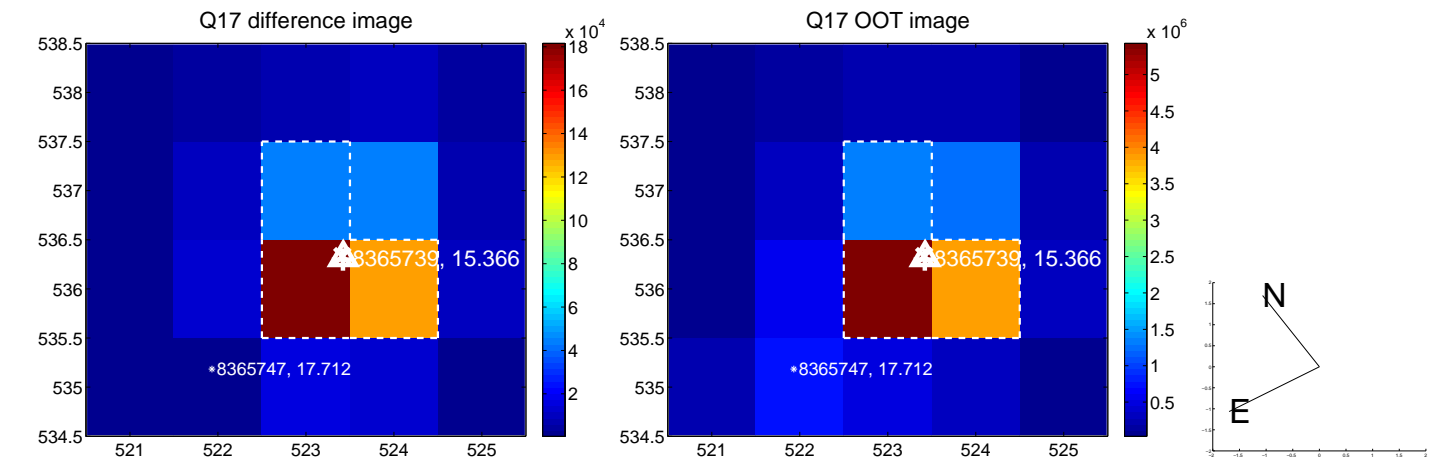
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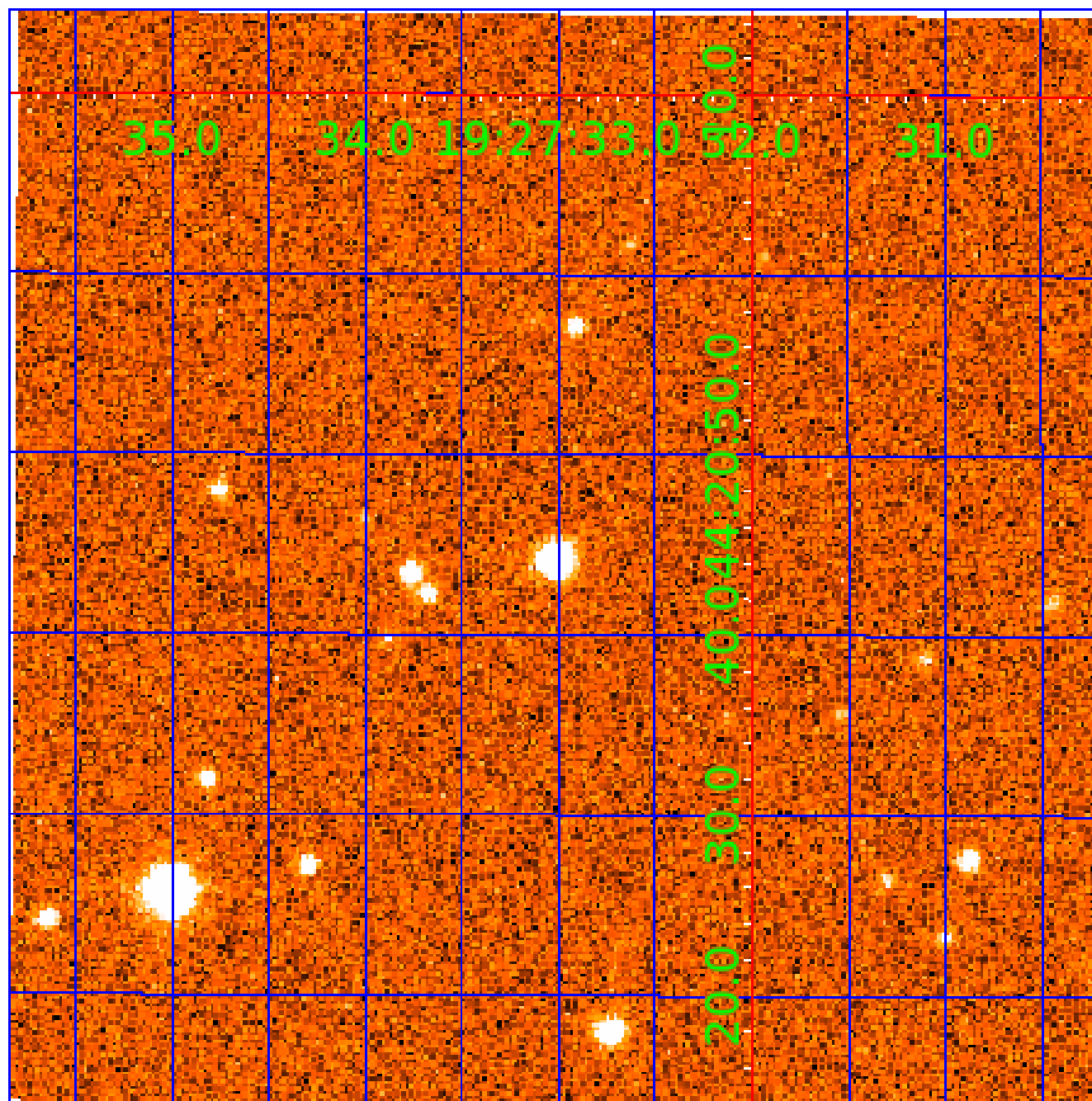


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# UKIRT Image

Declination





# KIC 008365739

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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008365739-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
008365739-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
008365739-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008365739-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

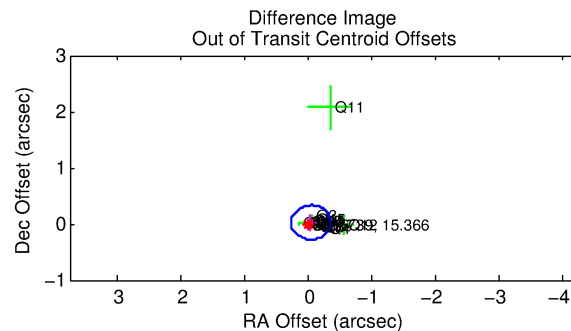
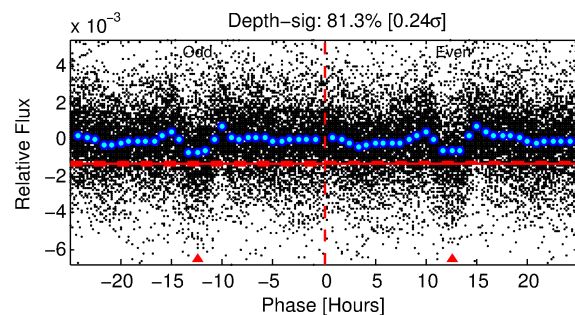
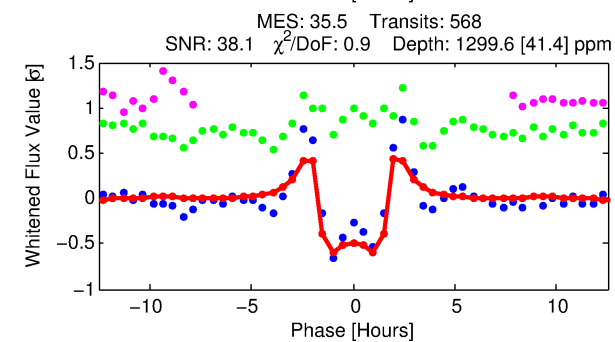
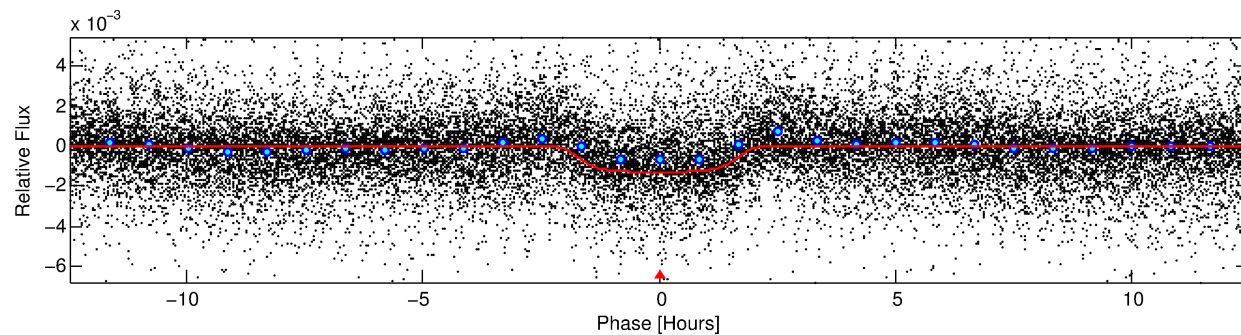
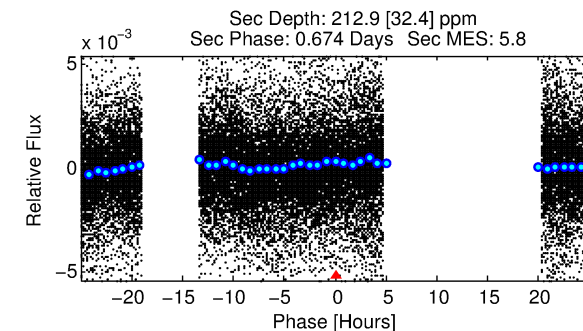
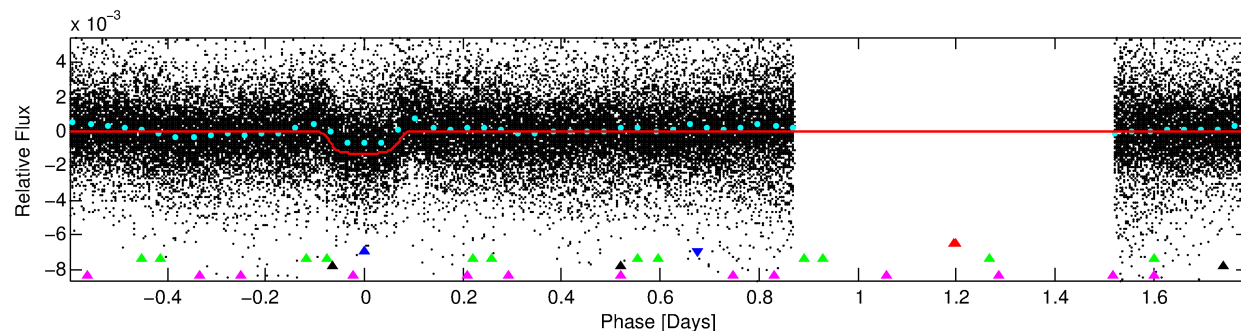
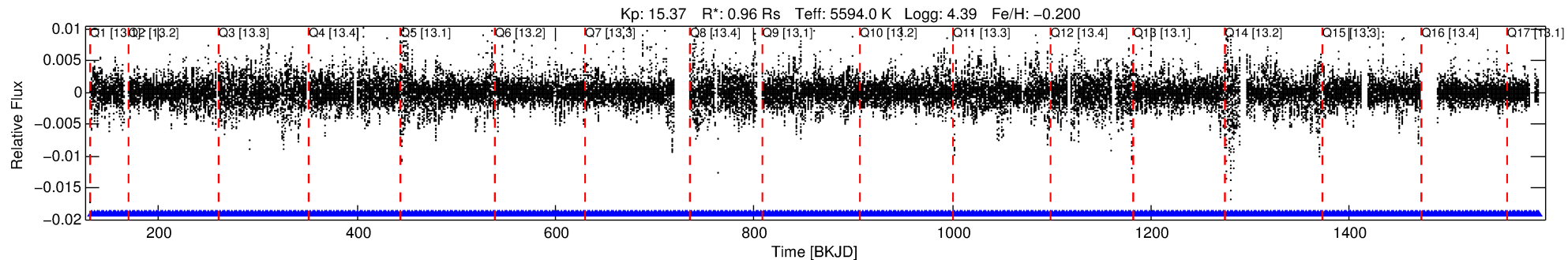
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008365739-02

No Significant Match Found

# DV One-Page Summary

KIC: 8365739 Candidate: 2 of 5 Period: 2.389 d  
KOI: K03722 Corr: No Ephemeris Match



## DV Fit Results:

Period = 2.38929 [0.00000] d  
Epoch = 133.2257 [0.0007] BKJD  
Rp/R\* = 0.0394 [0.0008]  
a/R\* = 2.47 [0.10]  
b = 0.90 [0.01]  
Seff = 753.03 [273.19]  
Teq = 1336 [121] K  
Rp = 4.15 [1.16] Re  
a = 0.0329 [0.0077] AU  
Ag = 7.36 [2.78] [2.29σ]  
Teffp = 3402 [169] K [9.93σ]

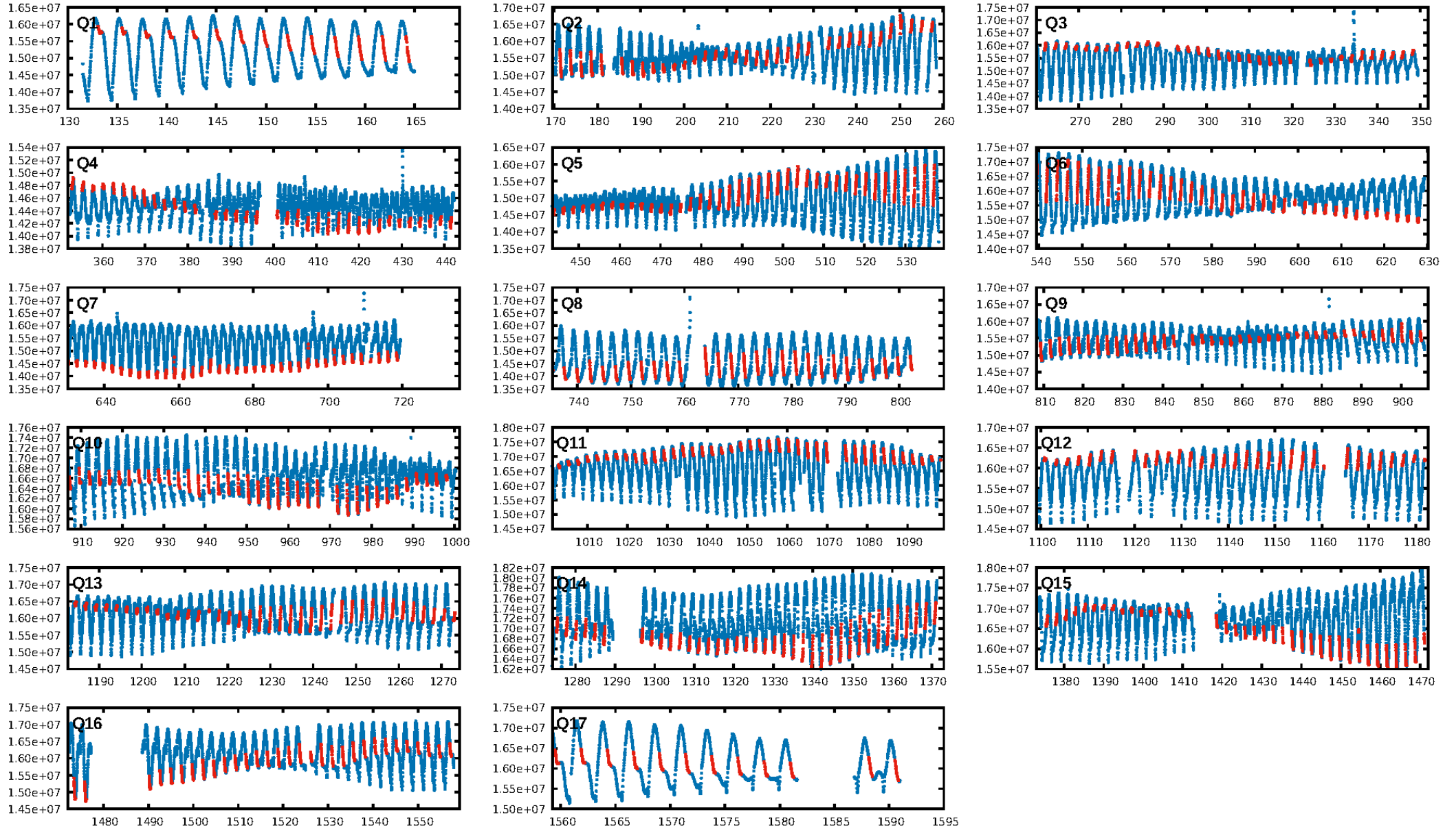
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [471.99σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [542/542]  
GhostDiagnostic-chr: -4.876  
Centroid-sig: 0.0%  
Centroid-so: 0.452 arcsec [2.98σ]  
OotOffset-rm: 0.046 arcsec [0.45σ]  
KicOffset-rm: 0.025 arcsec [0.19σ]  
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]

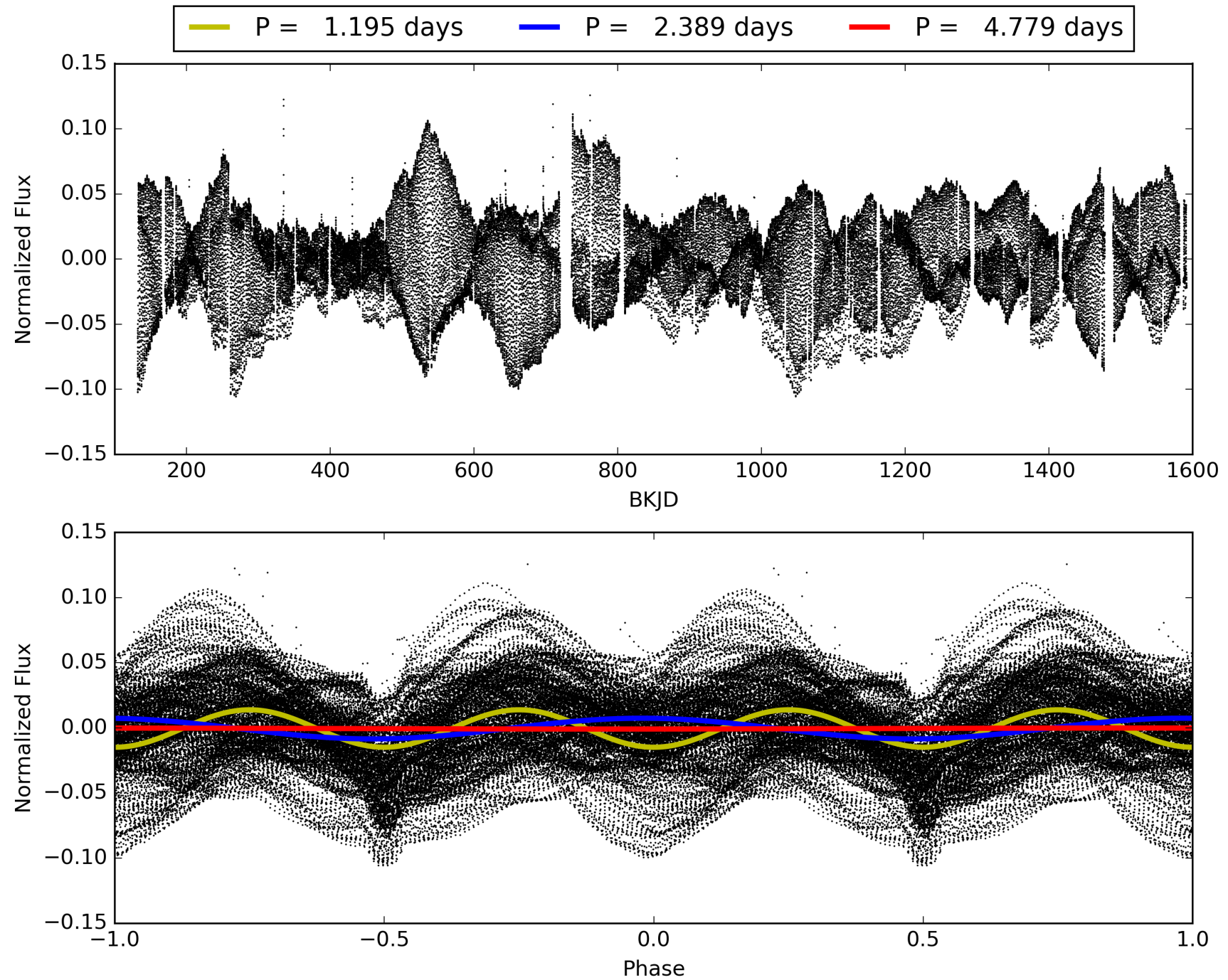
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:08:02 Z

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

# TCE 008365739-02, PDC Light Curves

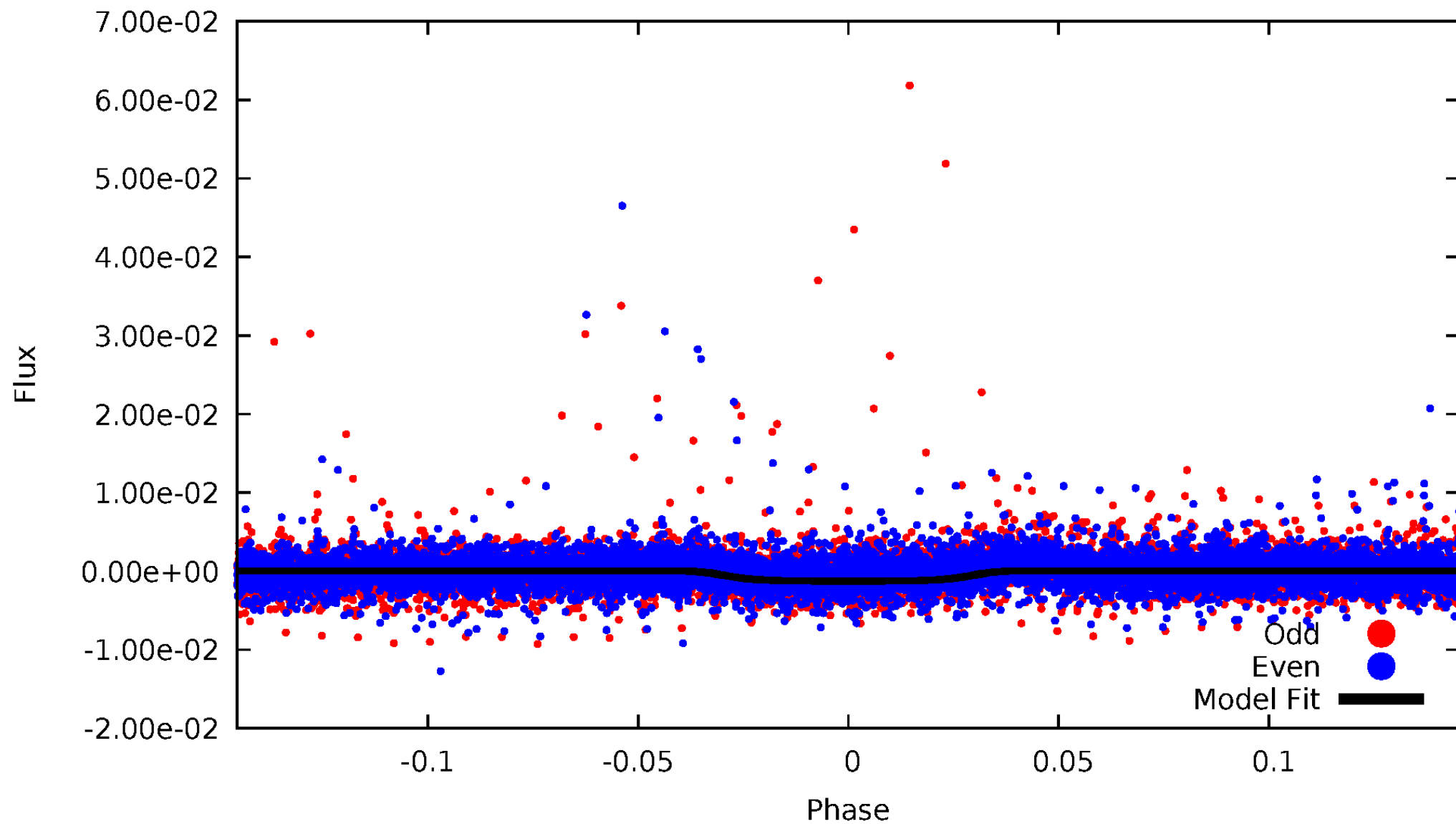


TCE 008365739-02



# DV Odd/Even

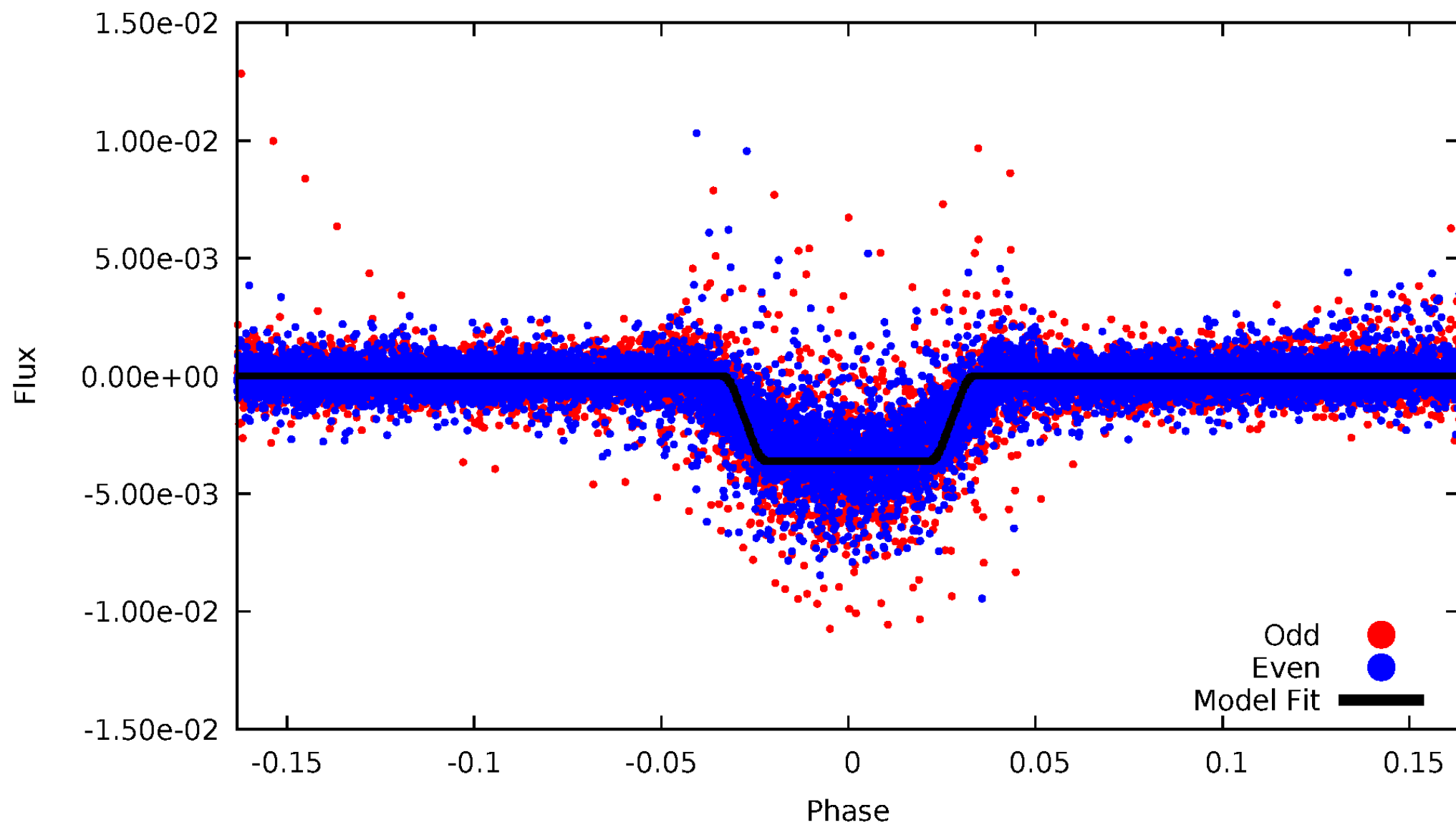
TCE 008365739-02





# ALT Odd/Even

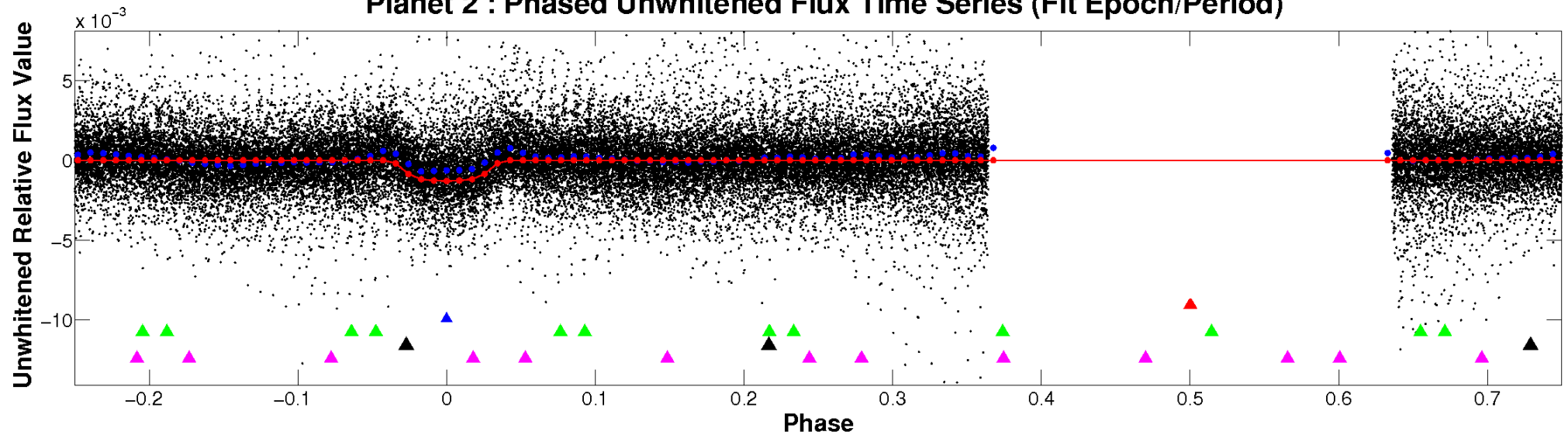
TCE 008365739-02



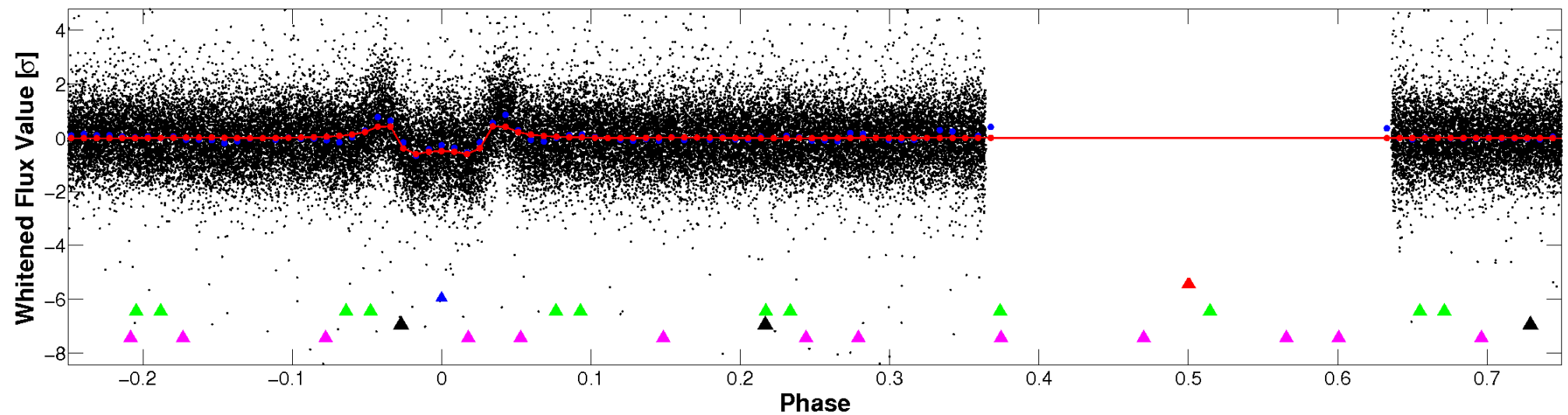


# Non-Whitened Vs. Whitened Light Curve

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

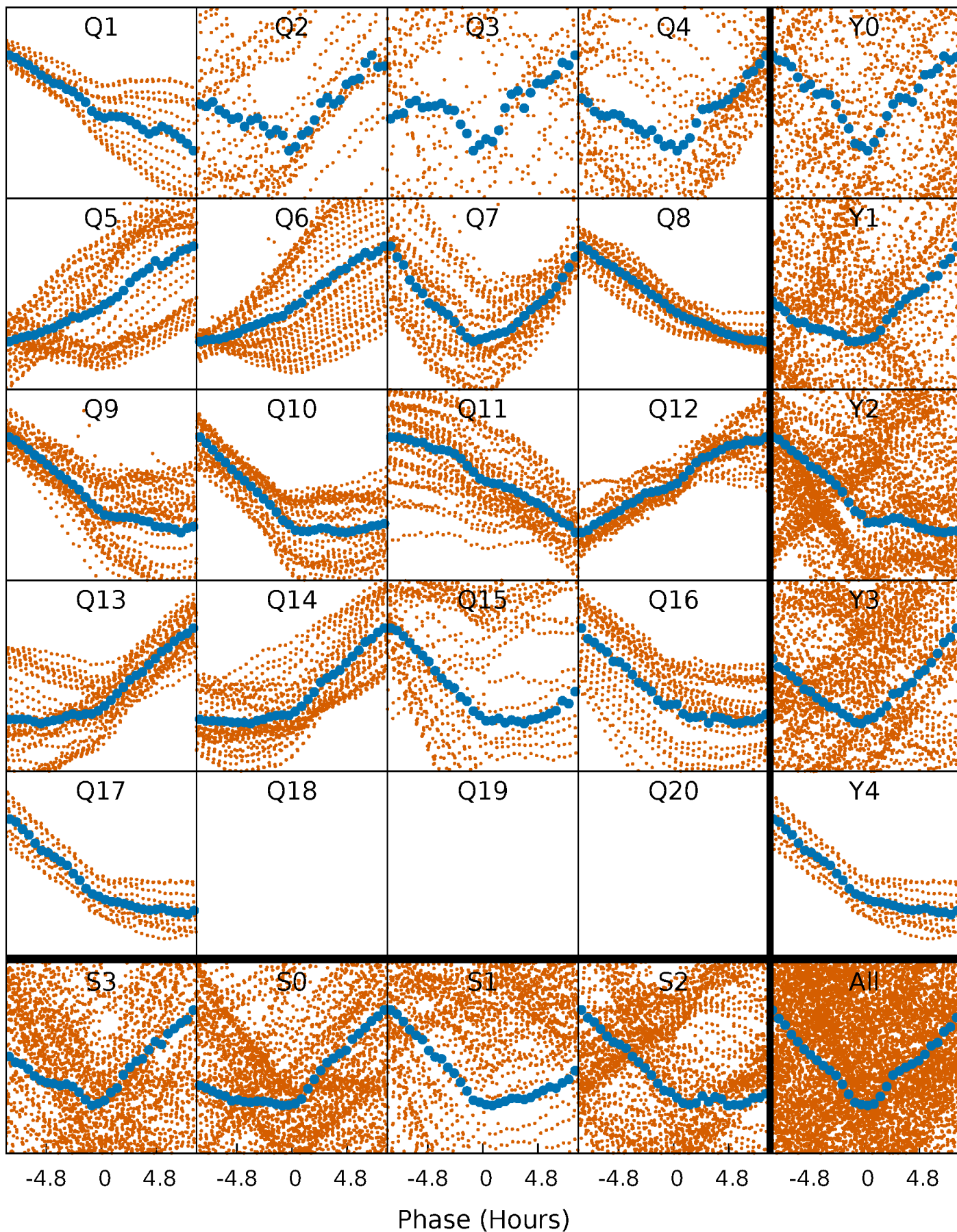


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



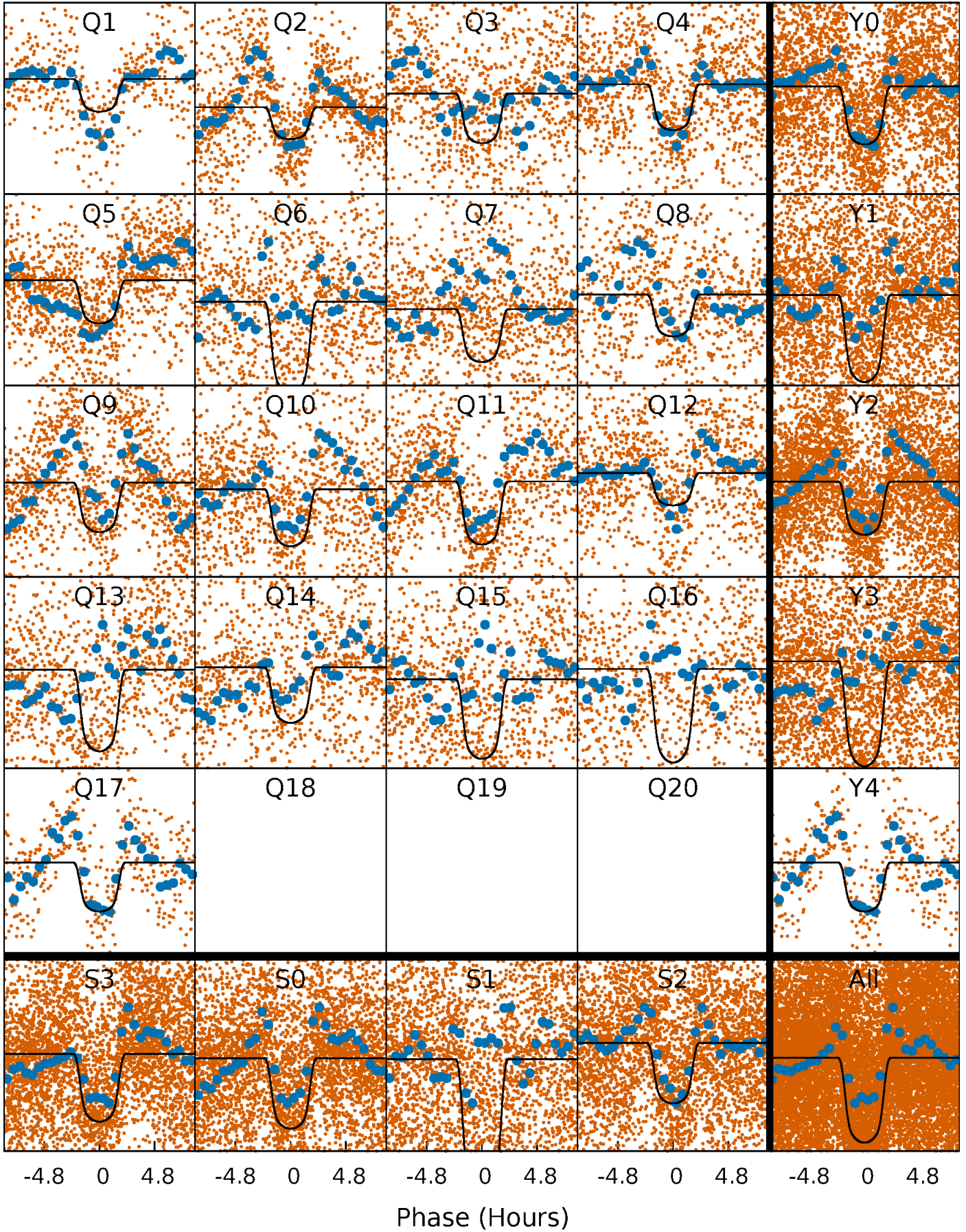
# PDC Quarter-Phased Transit Curves

TCE 008365739-02   P= 2.389286 Days    $T_0=133.225661$  (BKJD)



# DV Quarter-Phased Transit Curves

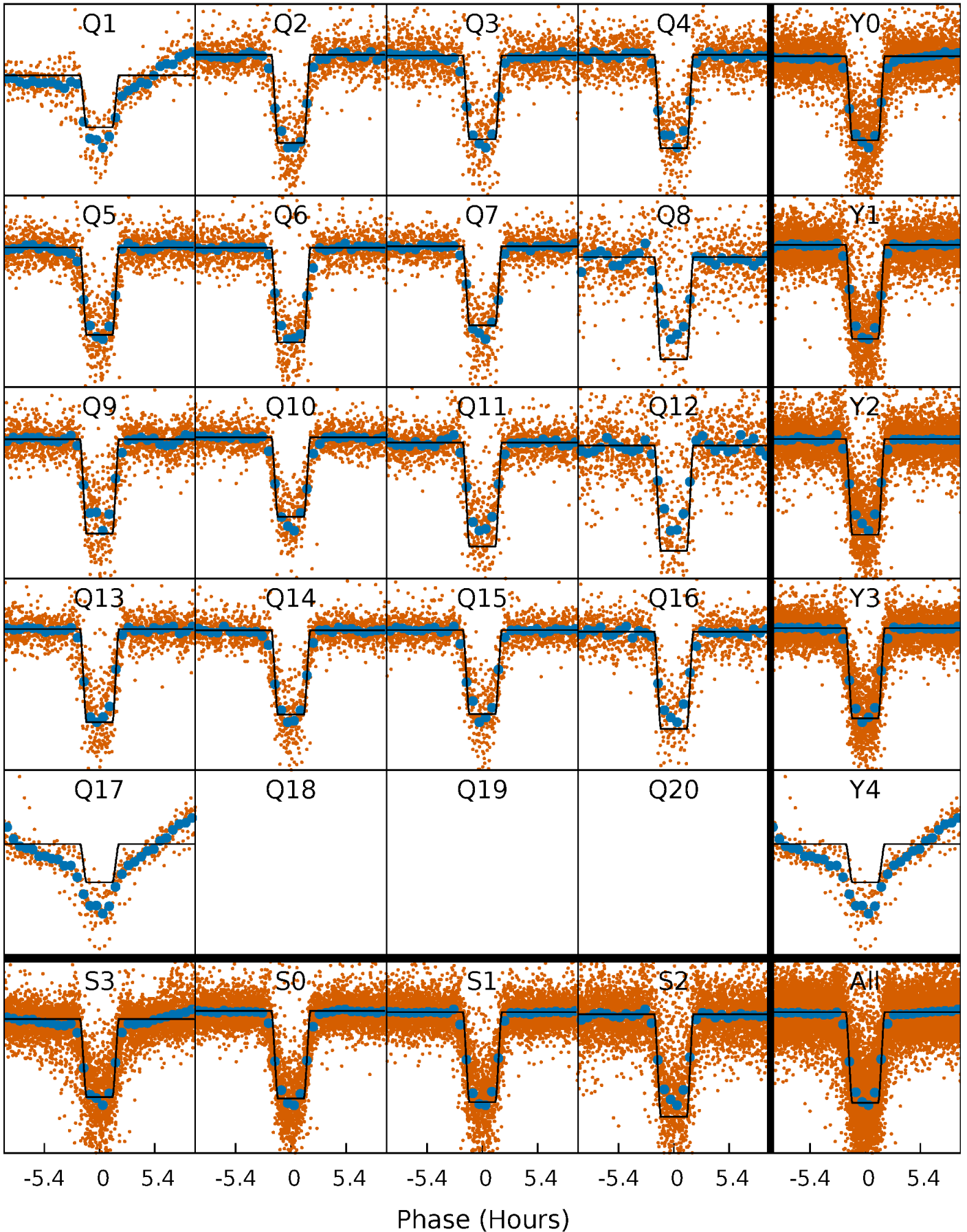
TCE 008365739-02 P= 2.389286 Days  $T_0=133.225661$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

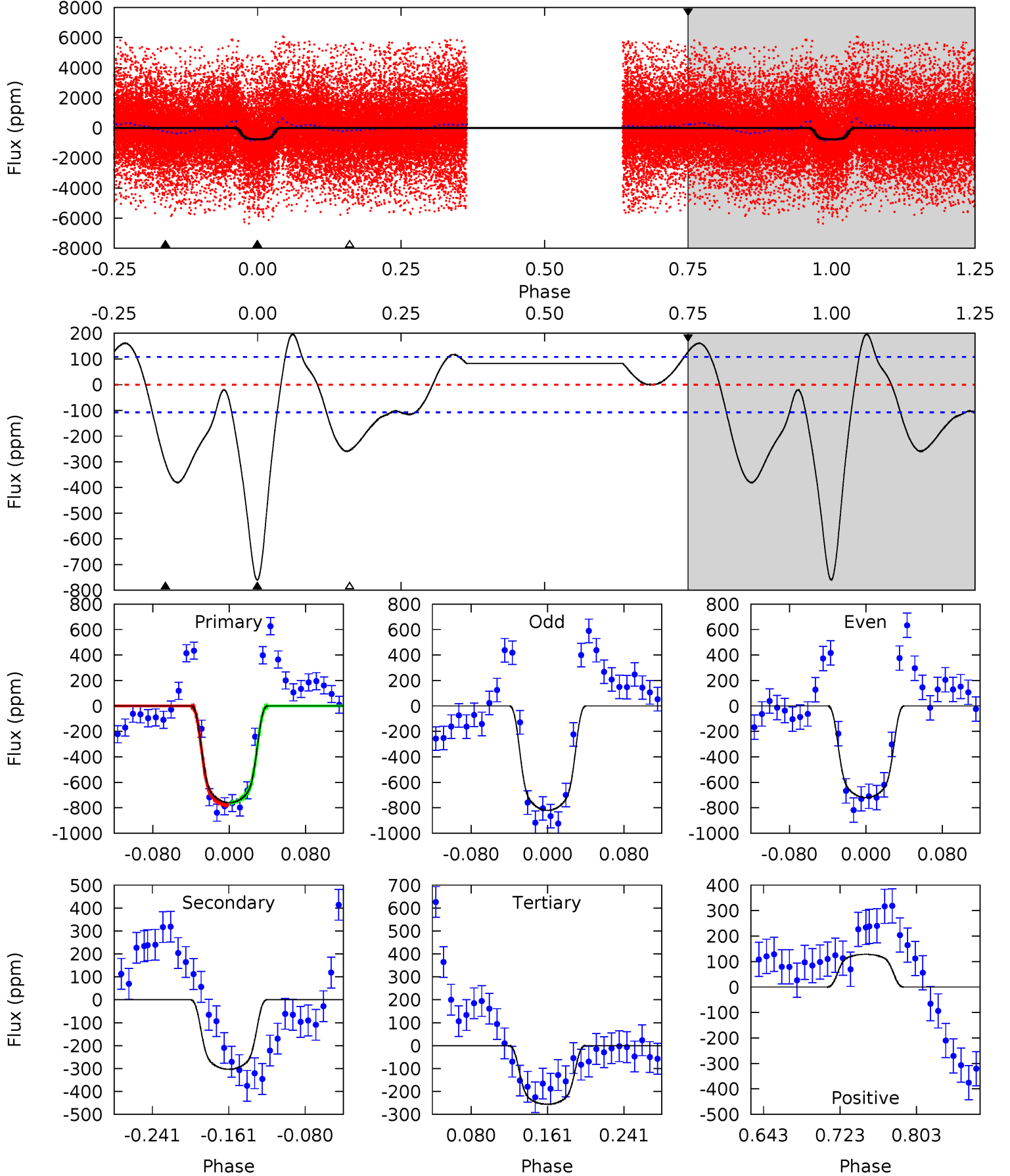
TCE 008365739-02   P= 2.389294 Days    $T_0=133.225372$  (BKJD)



# DV Model-Shift Uniqueness Test

008365739-02, P = 2.389286 Days, E = 130.836375 Days

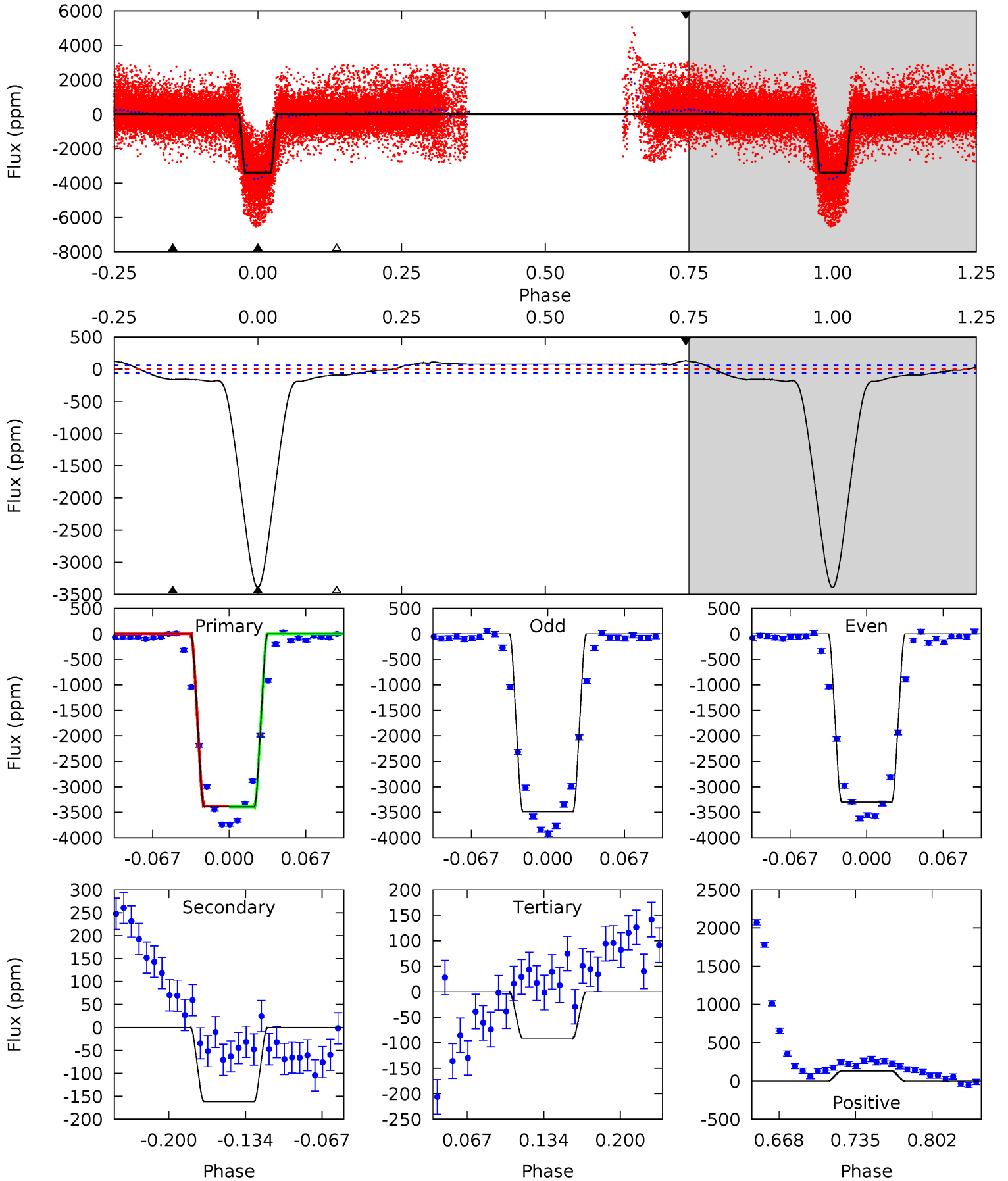
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.4	12.9	10.9	5.48	4.61	1.75	4.90	21.5	26.9	2.01	7.46	2.17	0.72	0.21	0.44



# Alt Model-Shift Uniqueness Test

008365739-02, P = 2.389294 Days, E = 130.836078 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
276.1	13.2	7.40	10.6	4.65	1.83	8.06	268.7	265.5	5.76	2.58	7.78	0.99	0.04	0.55



### Stellar Parameters For KIC 008365739

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5594^{+169}_{-152}$	$4.390^{+0.153}_{-0.187}$	$-0.200^{+0.300}_{-0.300}$	$0.964^{+0.269}_{-0.166}$	$0.832^{+0.123}_{-0.066}$	$1.307^{+0.912}_{-0.616}$
	+3%/-3%	+3%/-4%	+150%/-150%	+28%/-17%	+15%/-8%	+70%/-47%
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 008365739-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-303 \pm 23$	$4.15^{+0.69}_{-0.41}$	$1870^{+140}_{-112}$	$3998^{+107}_{-107}$	$10^{+3}_{-3}$
Alt.	$-162 \pm 12$	$6.32^{+1.02}_{-0.61}$	$1875^{+135}_{-119}$	$3105^{+75}_{-69}$	$2.378^{+0.598}_{-0.559}$

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

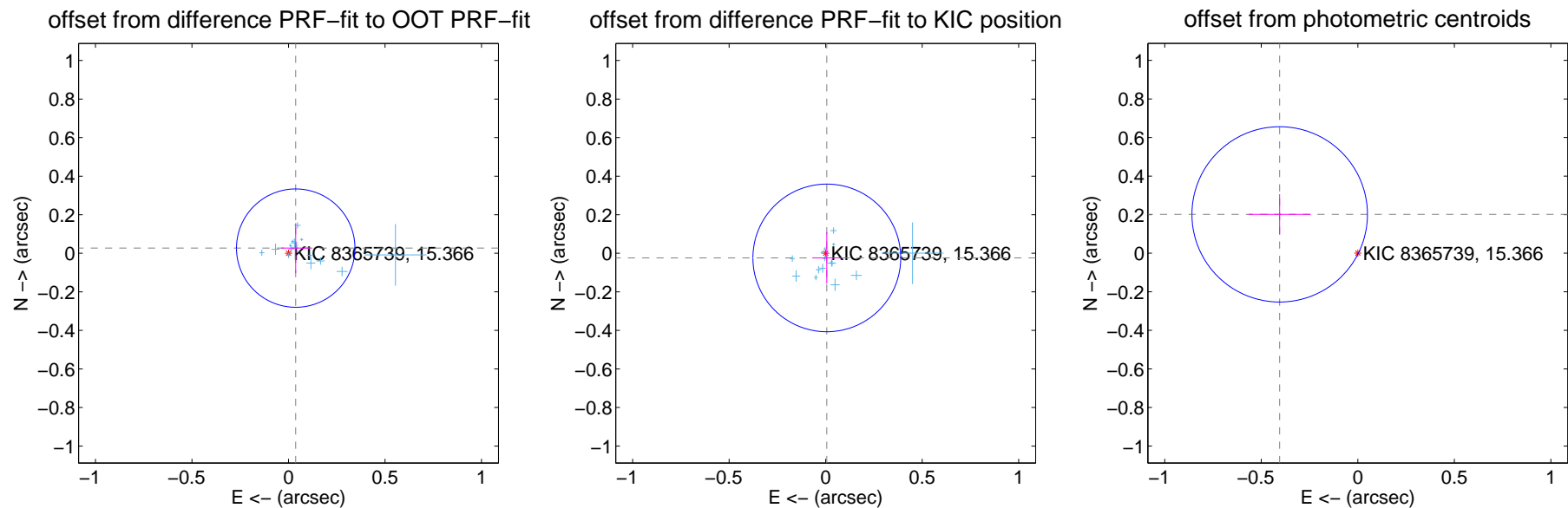
## DV Centroid Data

Supplemental centroid analysis for 008365739-02. Kepler magnitude: 15.37. Transit SNR 38.11

There are 17 quarters with good PRF difference image offsets

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

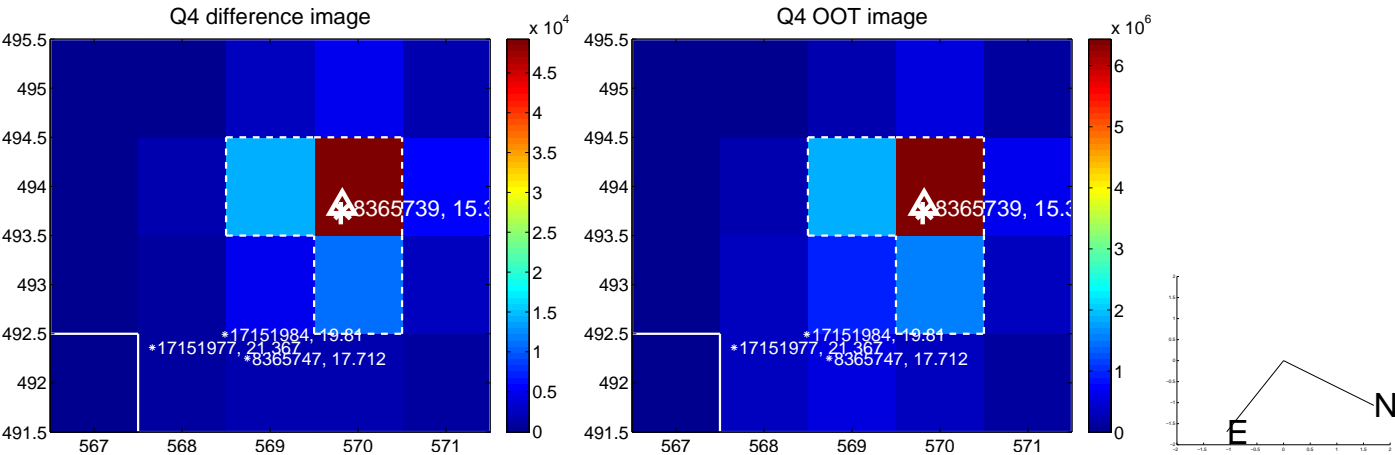
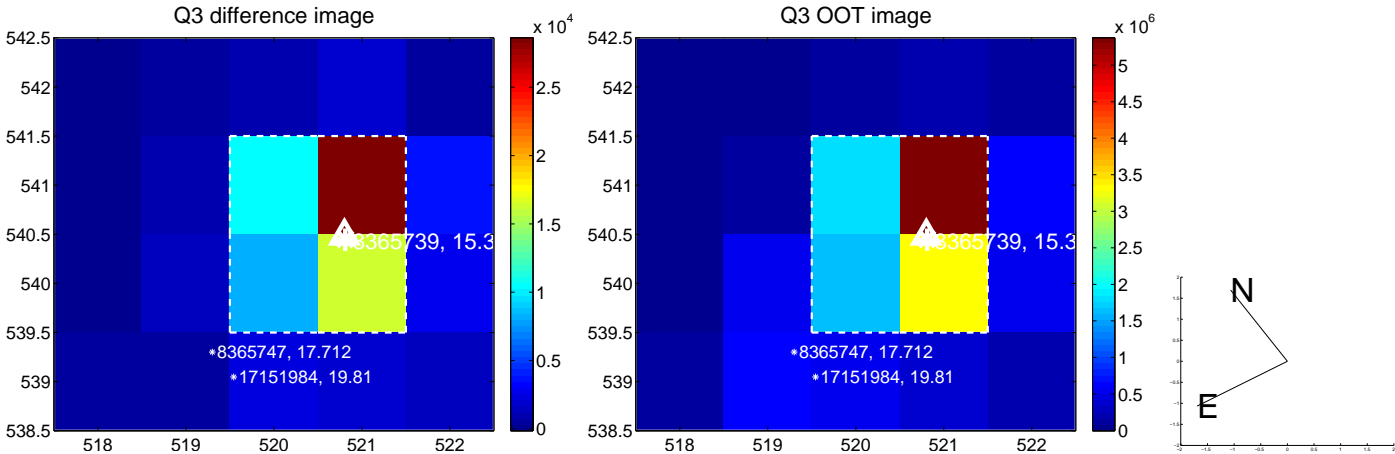
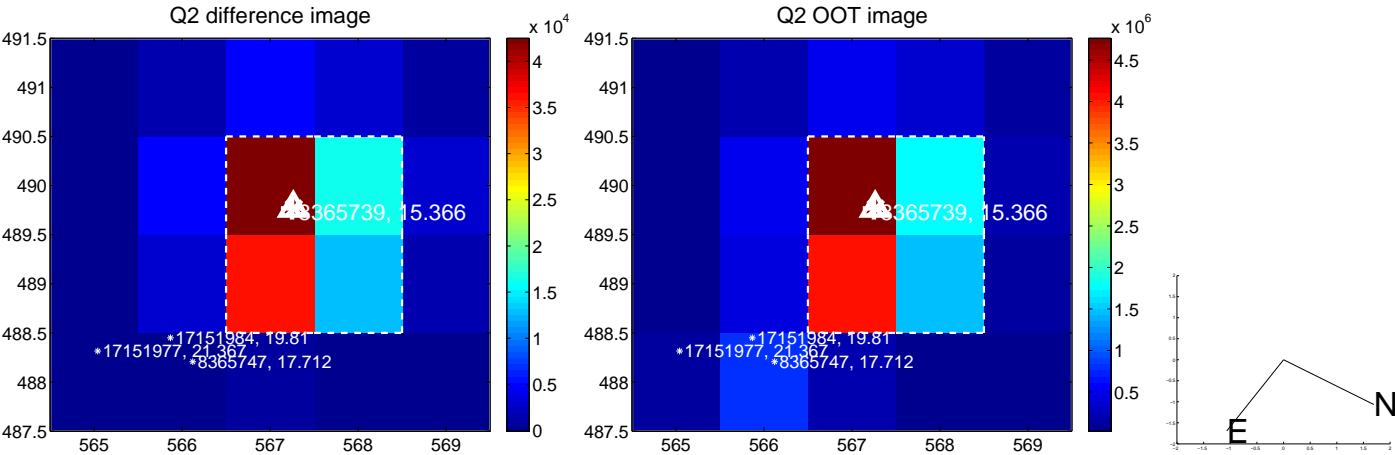
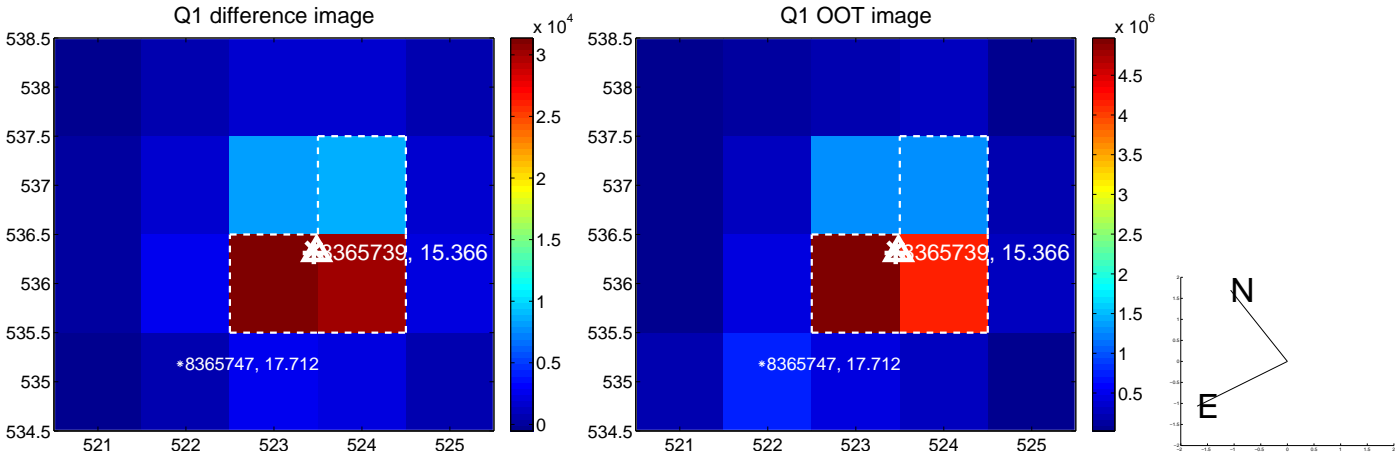
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.046 \pm 0.102$	0.45	$-0.037 \pm 0.076$	$0.027 \pm 0.130$
PRF-fit source offset from KIC position	$0.025 \pm 0.128$	0.19	$-0.006 \pm 0.075$	$-0.024 \pm 0.133$
photometric centroid source offset	$0.45 \pm 0.15$	2.98	$0.40 \pm 0.16$	$0.20 \pm 0.10$



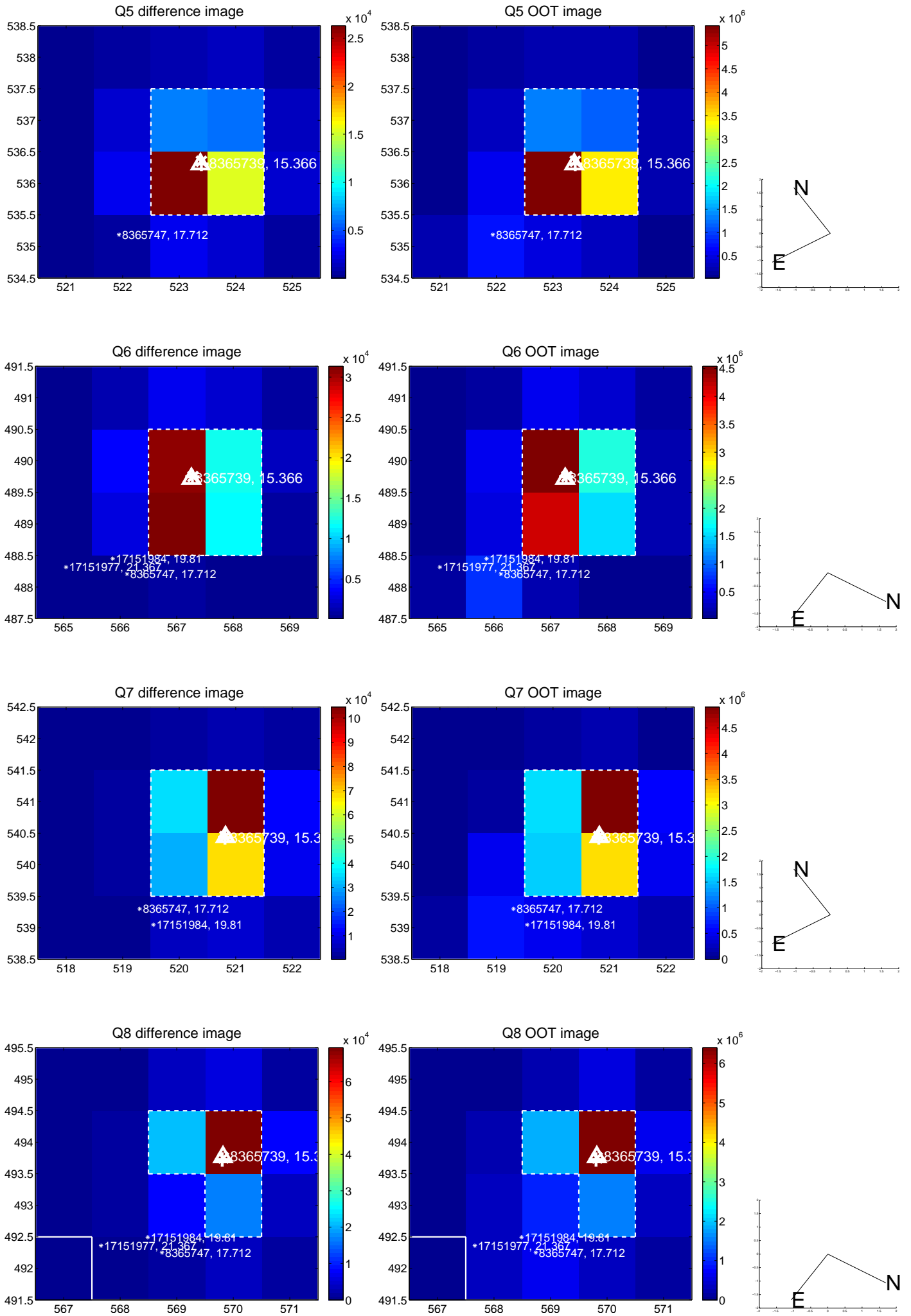
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



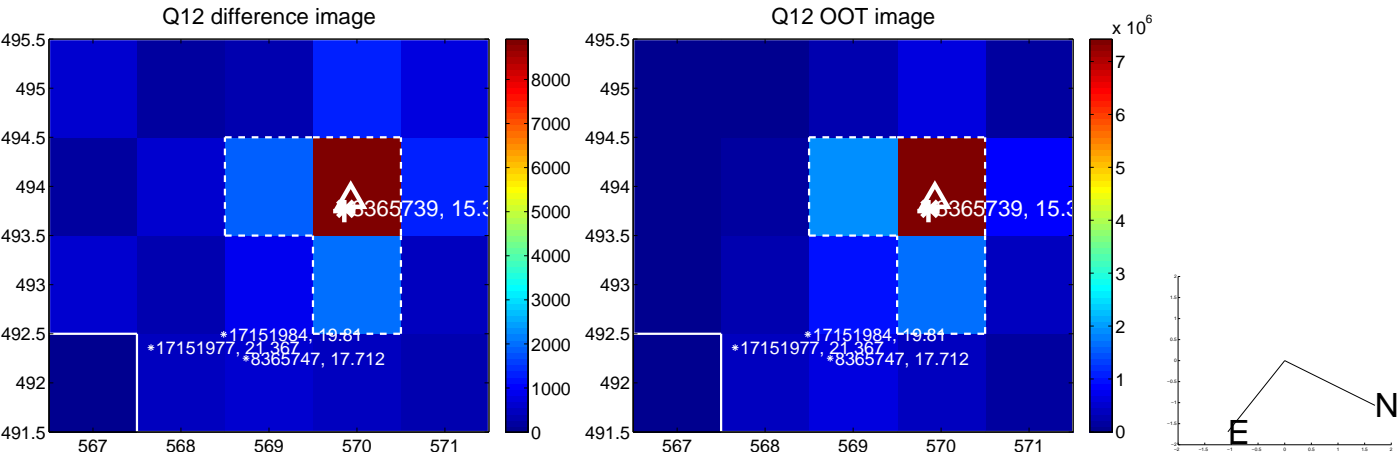
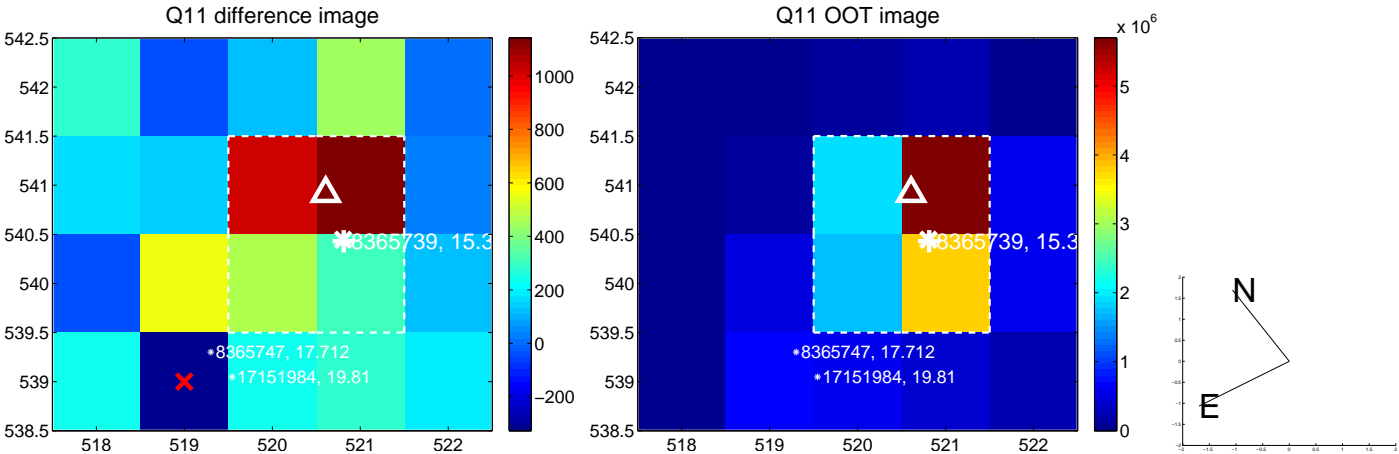
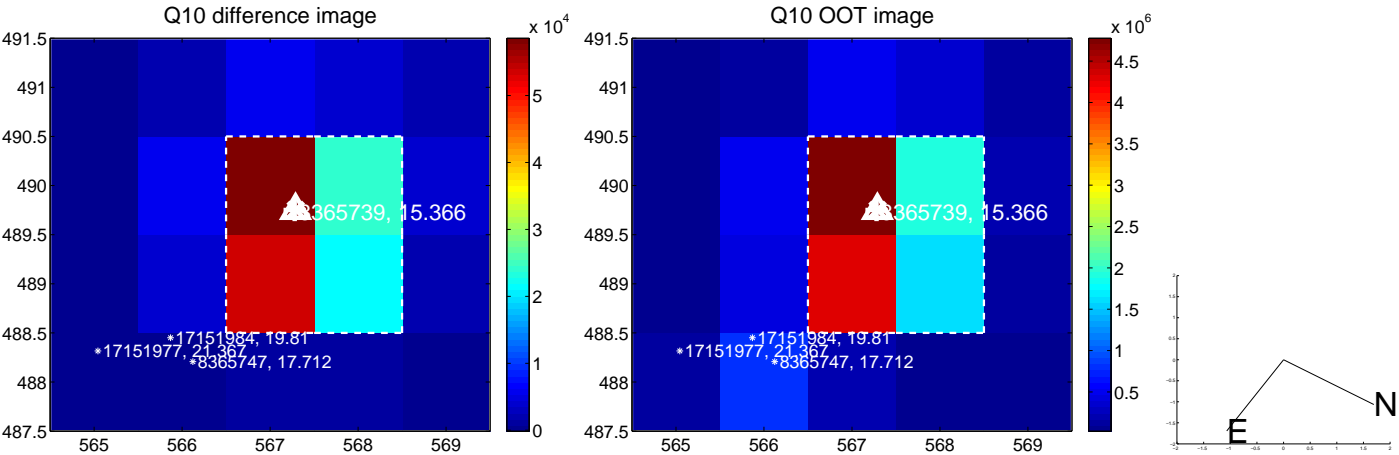
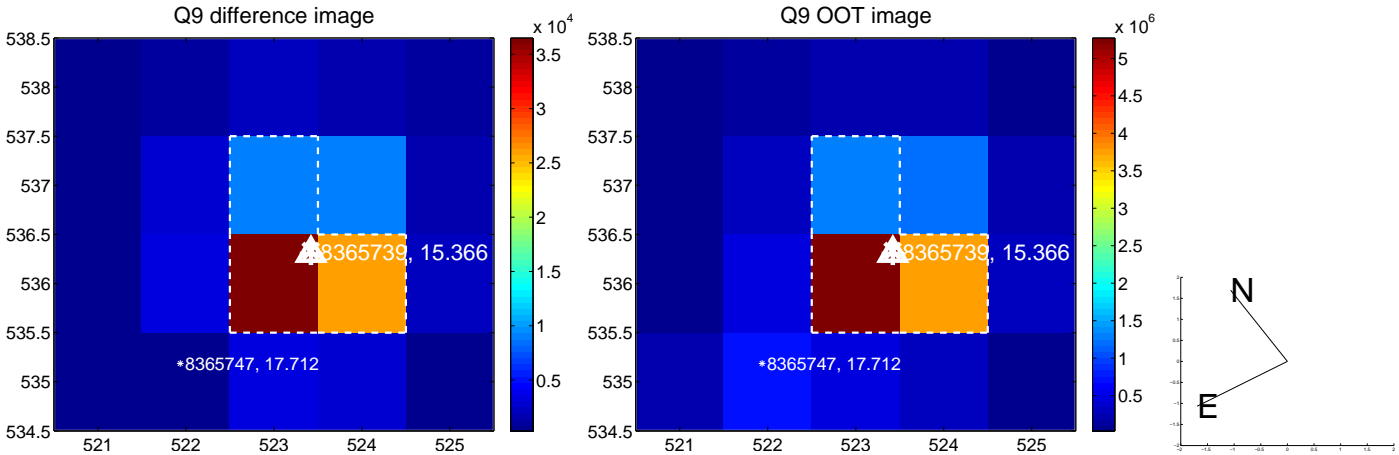
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



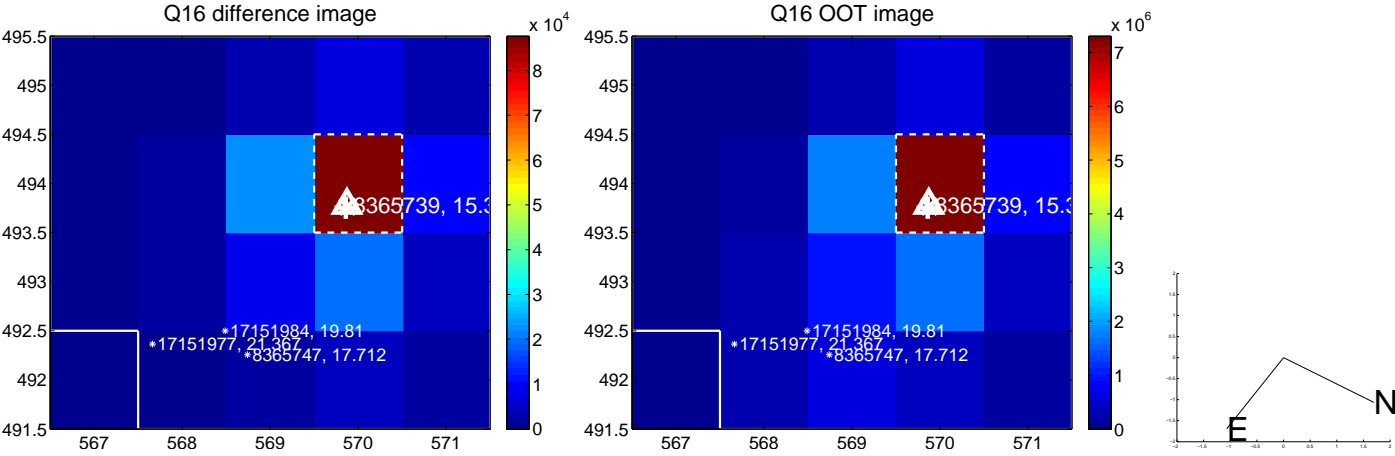
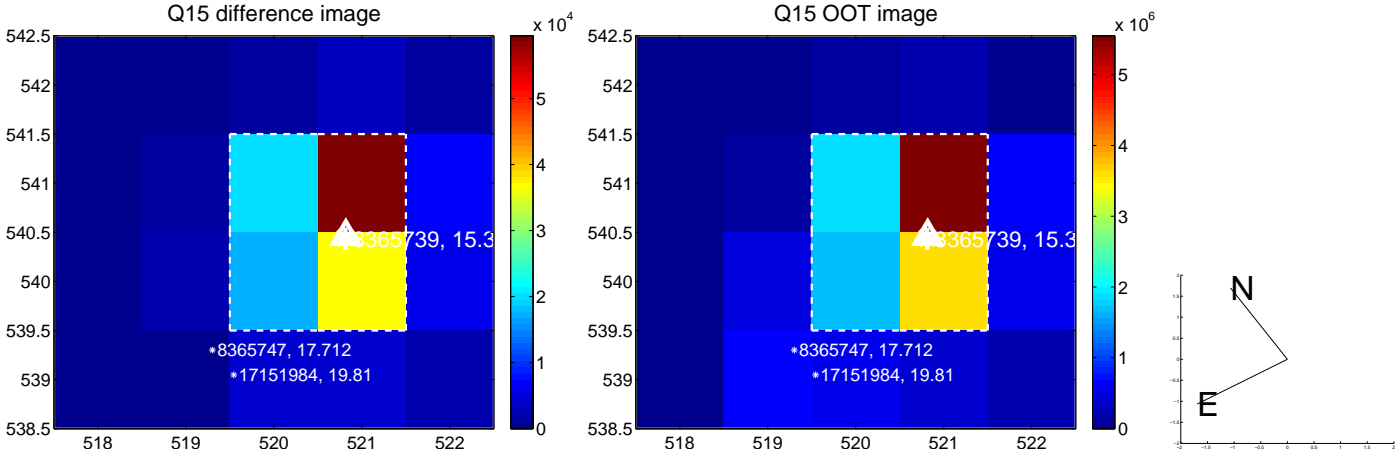
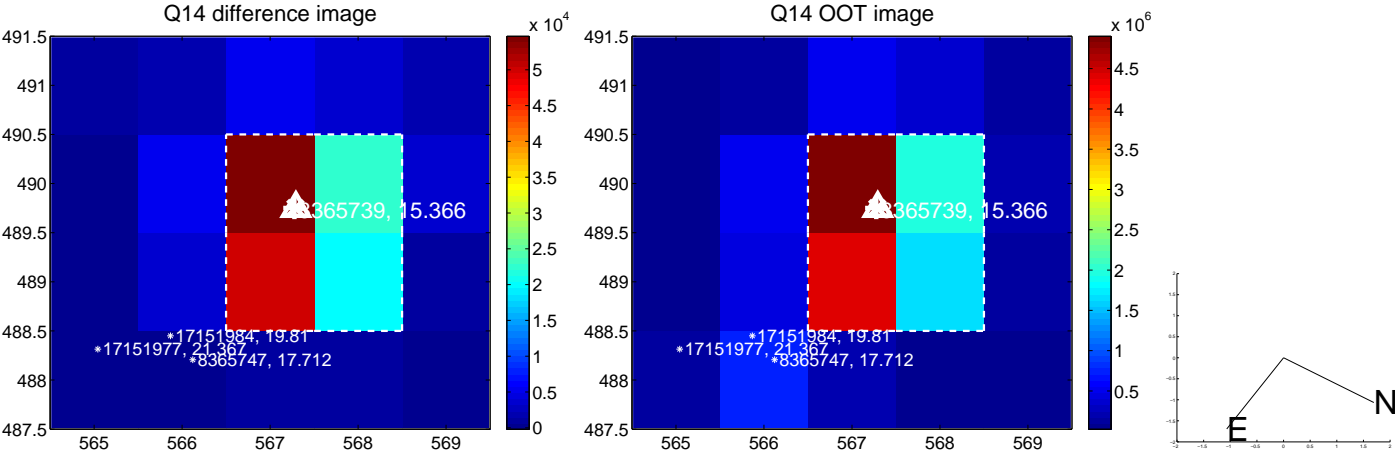
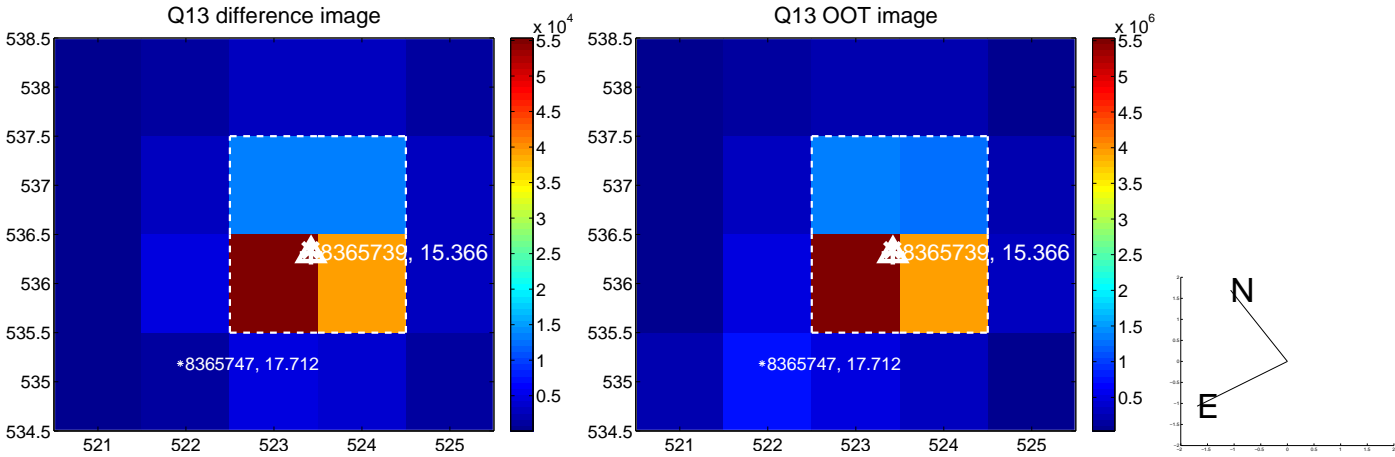
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



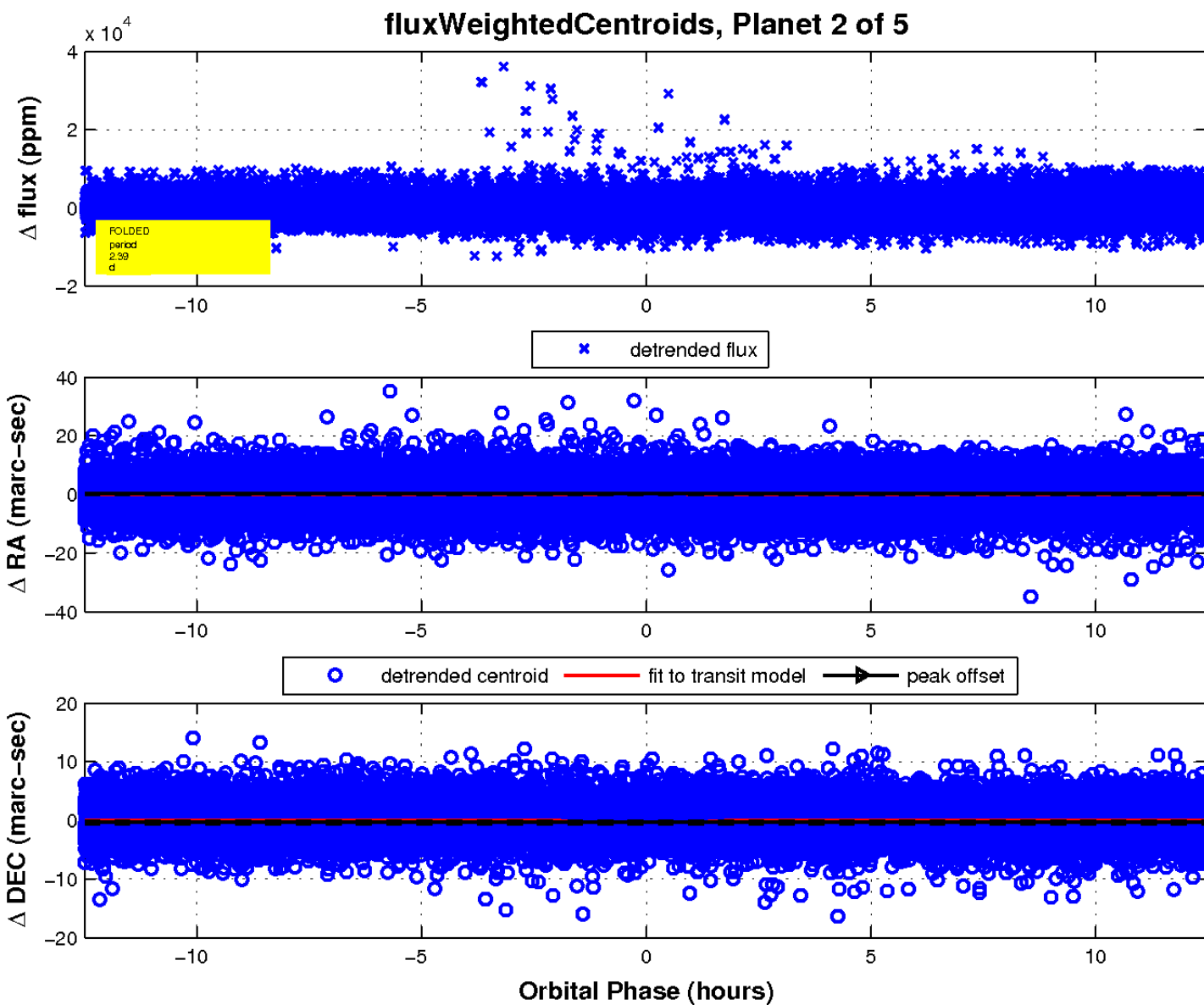
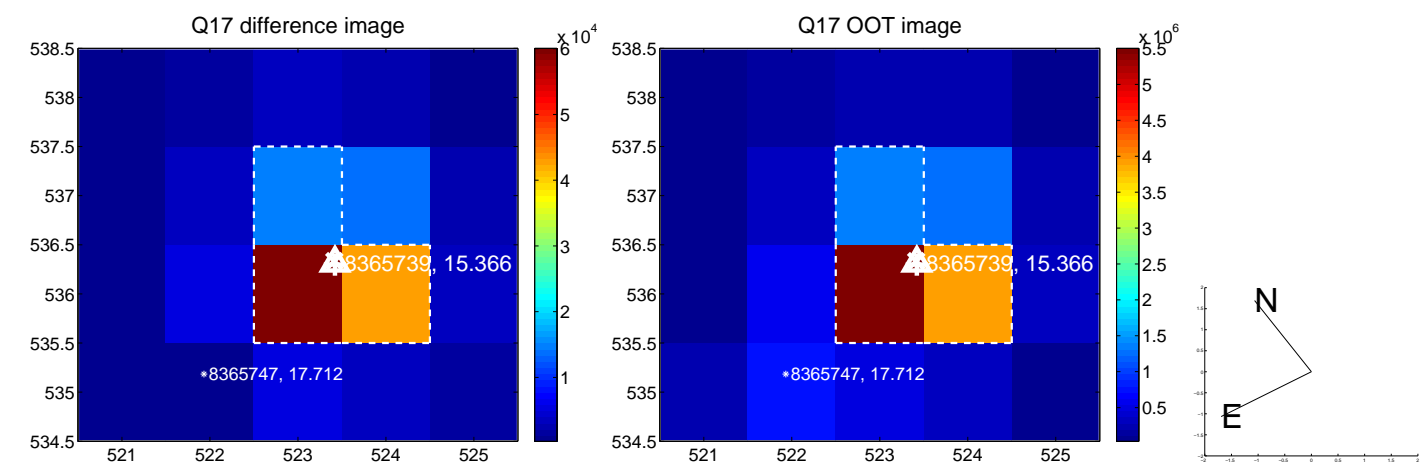
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



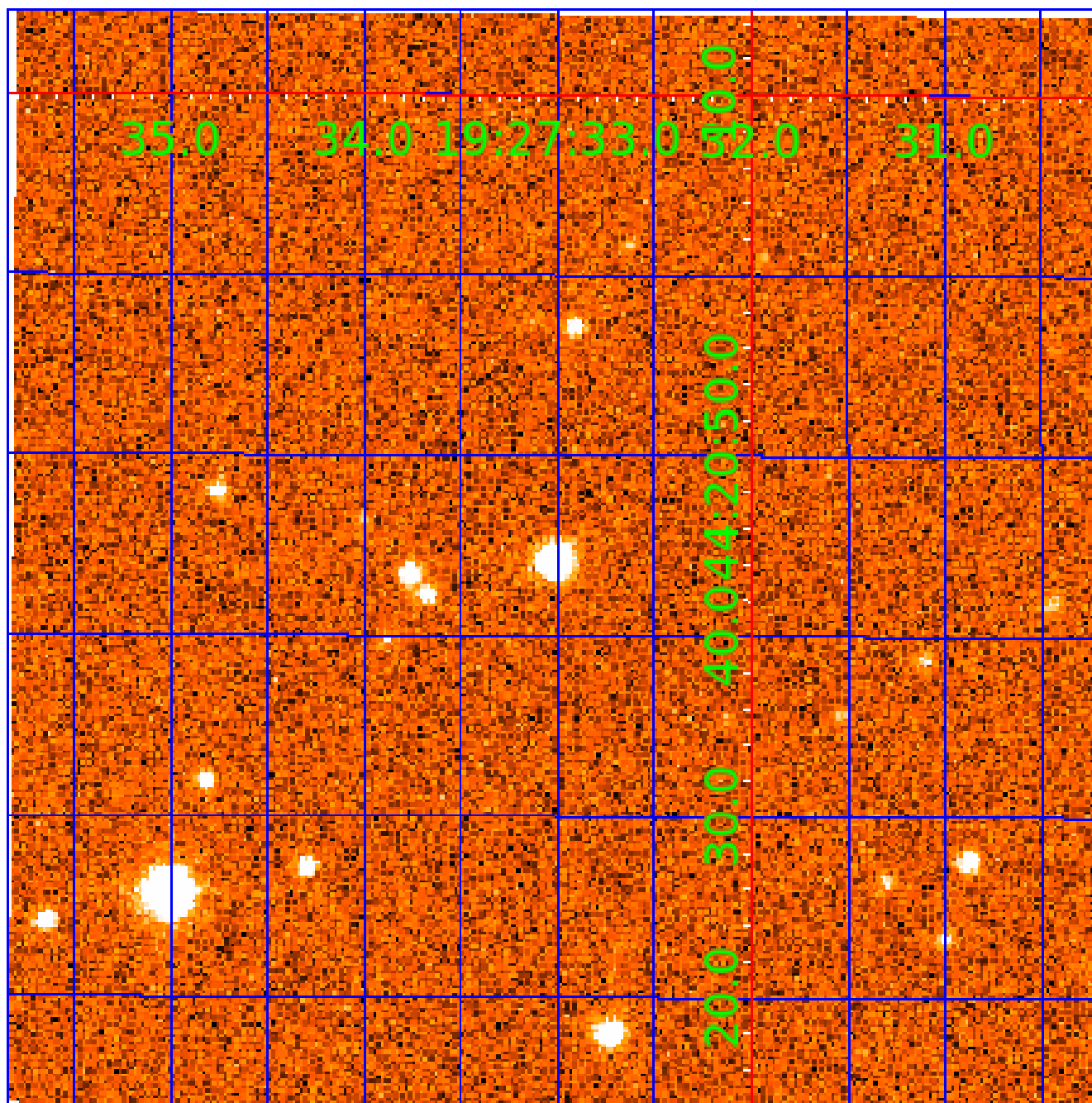
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 008365739

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008365739-01	OBS	3722.01	2.389281	132.033369	20693.7	5.040	424.3	356.8	0.96	5594	17.18	753.03
008365739-02	OBS	No	2.389286	133.225661	1299.6	4.164	35.5	38.1	0.96	5594	4.15	753.03
008365739-03	OBS	No	124.578631	211.287018	1482.7	5.000	12.4	-1.0	0.96	5594	3.67	3.87
008365739-04	OBS	No	571.622090	213.814013	1900.0	3.450	9.5	4.2	0.96	5594	4.63	0.51
008365739-05	OBS	No	109.366908	186.456837	2358.6	3.500	11.3	-1.0	0.96	5594	4.63	4.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008365739-01	OBS	FP	0.21	0	1	0	0	SWEET_EB—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
008365739-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
008365739-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
008365739-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008365739-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008365739-03

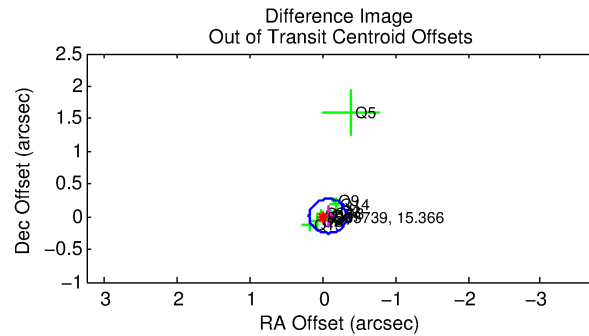
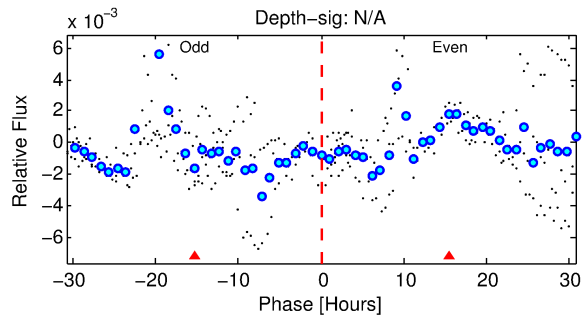
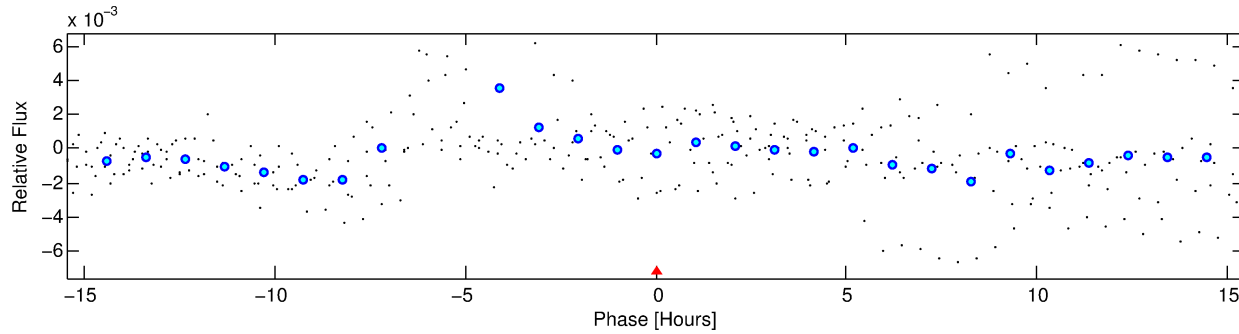
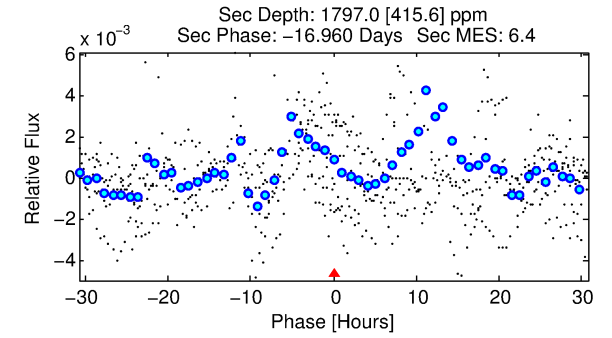
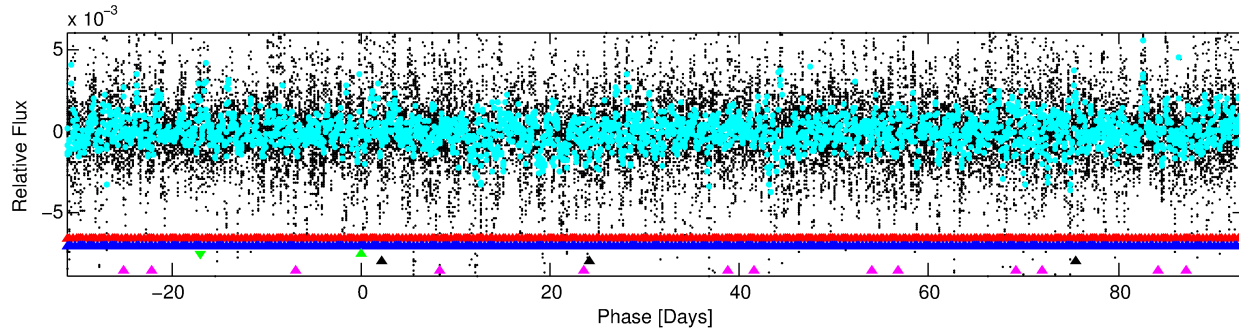
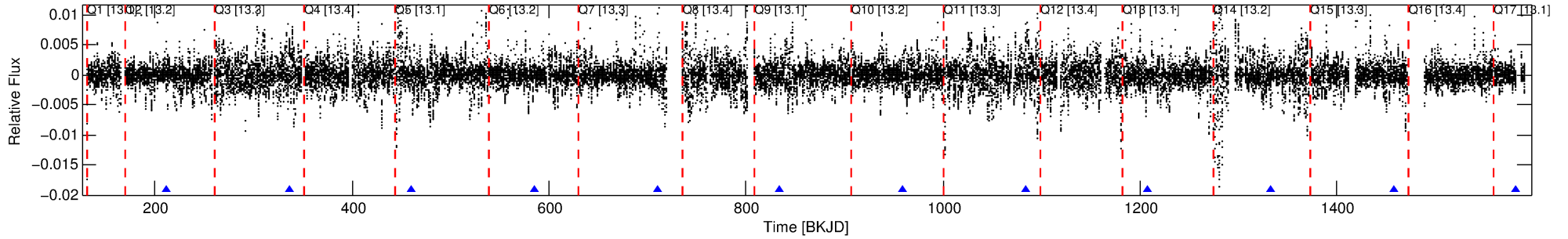
No Significant Match Found

# DV One-Page Summary

KIC: 8365739 Candidate: 3 of 5 Period: 124.579 d

KOI: K03722 Corr: No Ephemeris Match

Kp: 15.37 R\*: 0.96 Rs Teff: 5594.0 K Logg: 4.39 Fe/H: -0.200



## TPS TCE Results:

Period = 124.57863 d  
Epoch = 211.2870 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

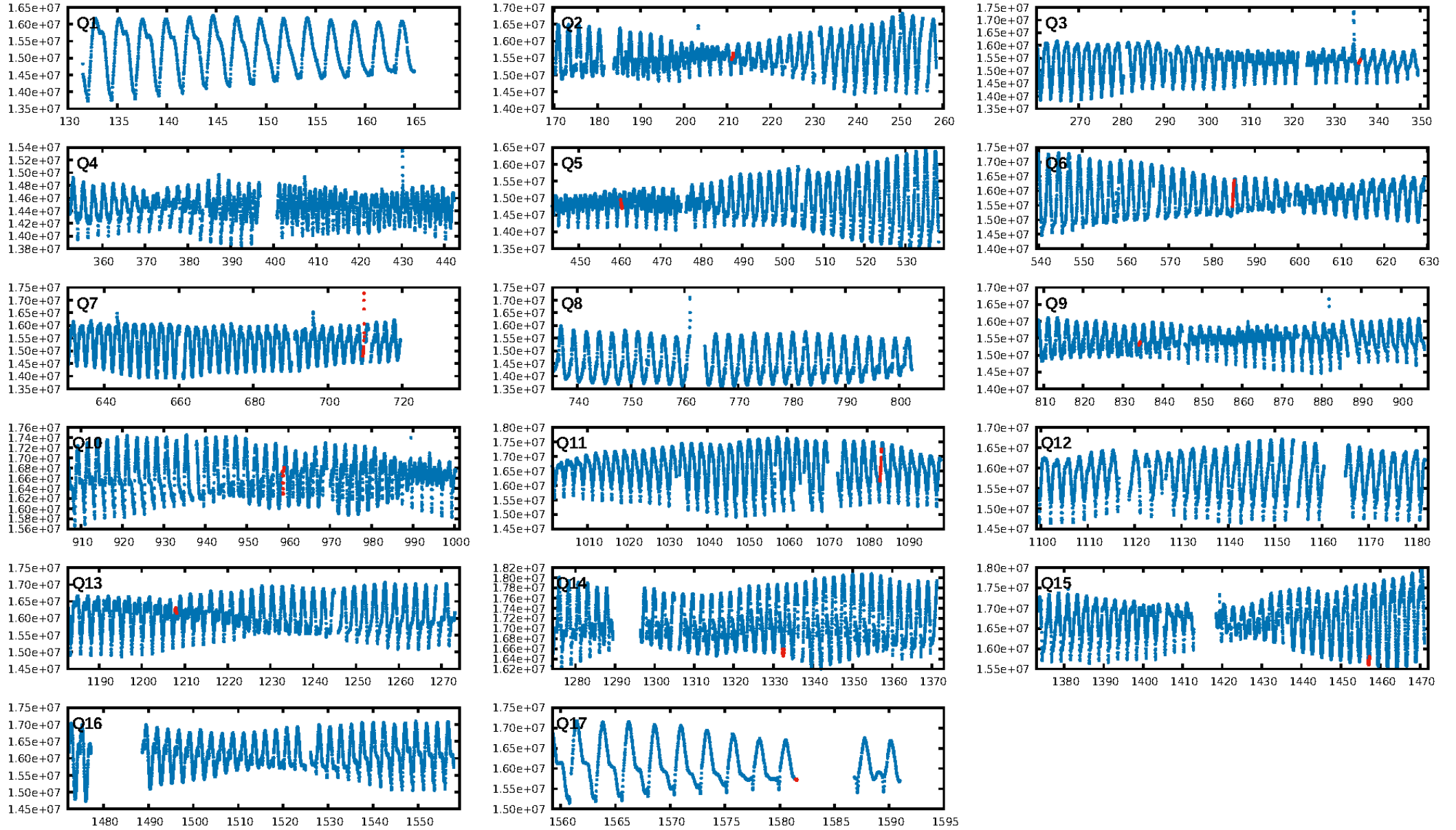
ShortPeriod-sig: 100.0% [59.82σ]  
LongPeriod-sig: 100.0% [1766.09σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: 2.116  
Centroid-sig: 43.3%  
Centroid-so: 2.367 arcsec [1.33σ]  
OotOffset-rm: 0.075 arcsec [0.86σ]  
KicOffset-rm: 0.055 arcsec [0.72σ]  
OotOffset-st: 4/4/0/3 [11]  
KicOffset-st: 4/4/0/3 [11]  
DiffImageQuality-fgm: 0.73 [8/11]  
DiffImageOverlap-fno: 0.18 [2/11]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:08:11 Z

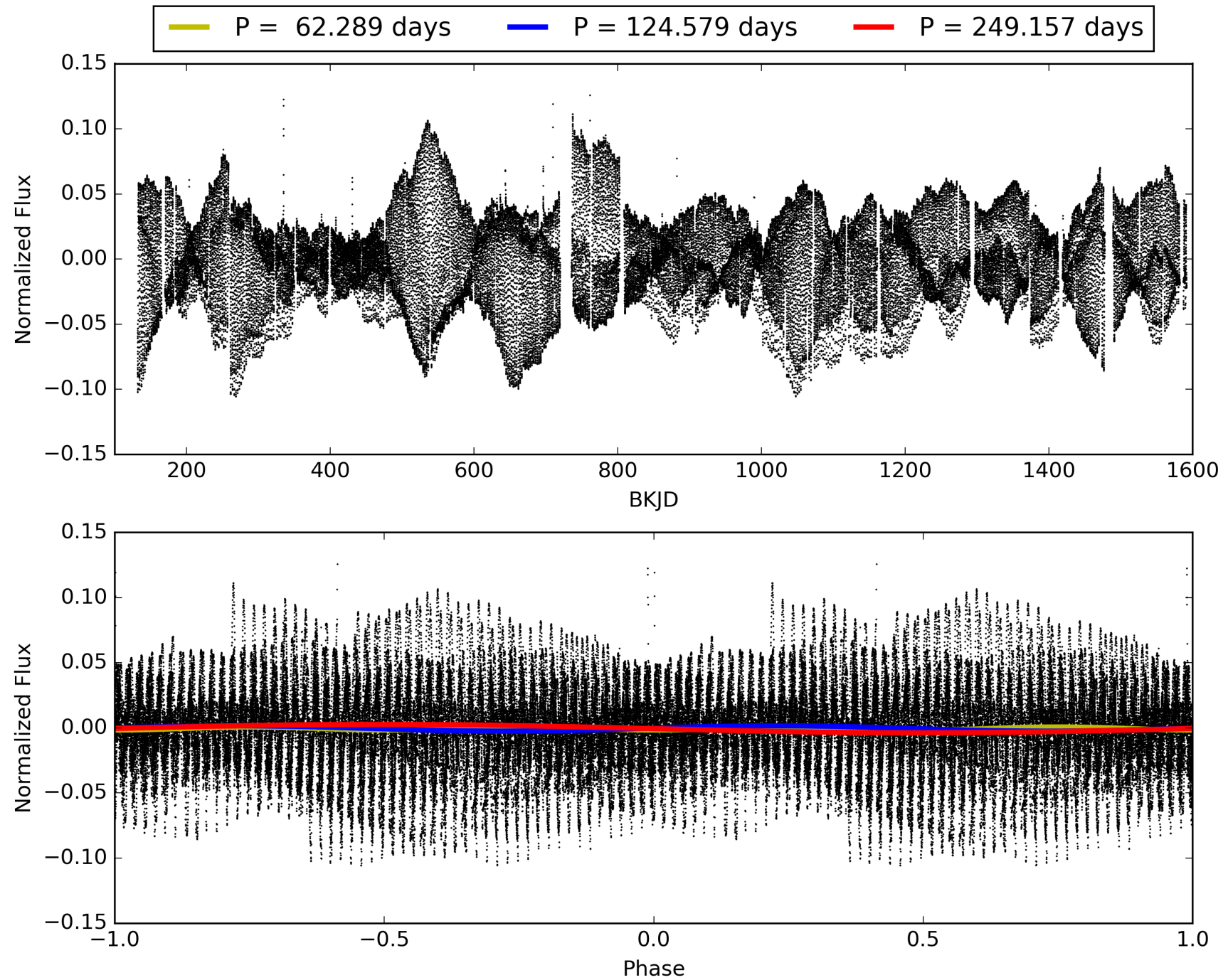
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 008365739-03, PDC Light Curves

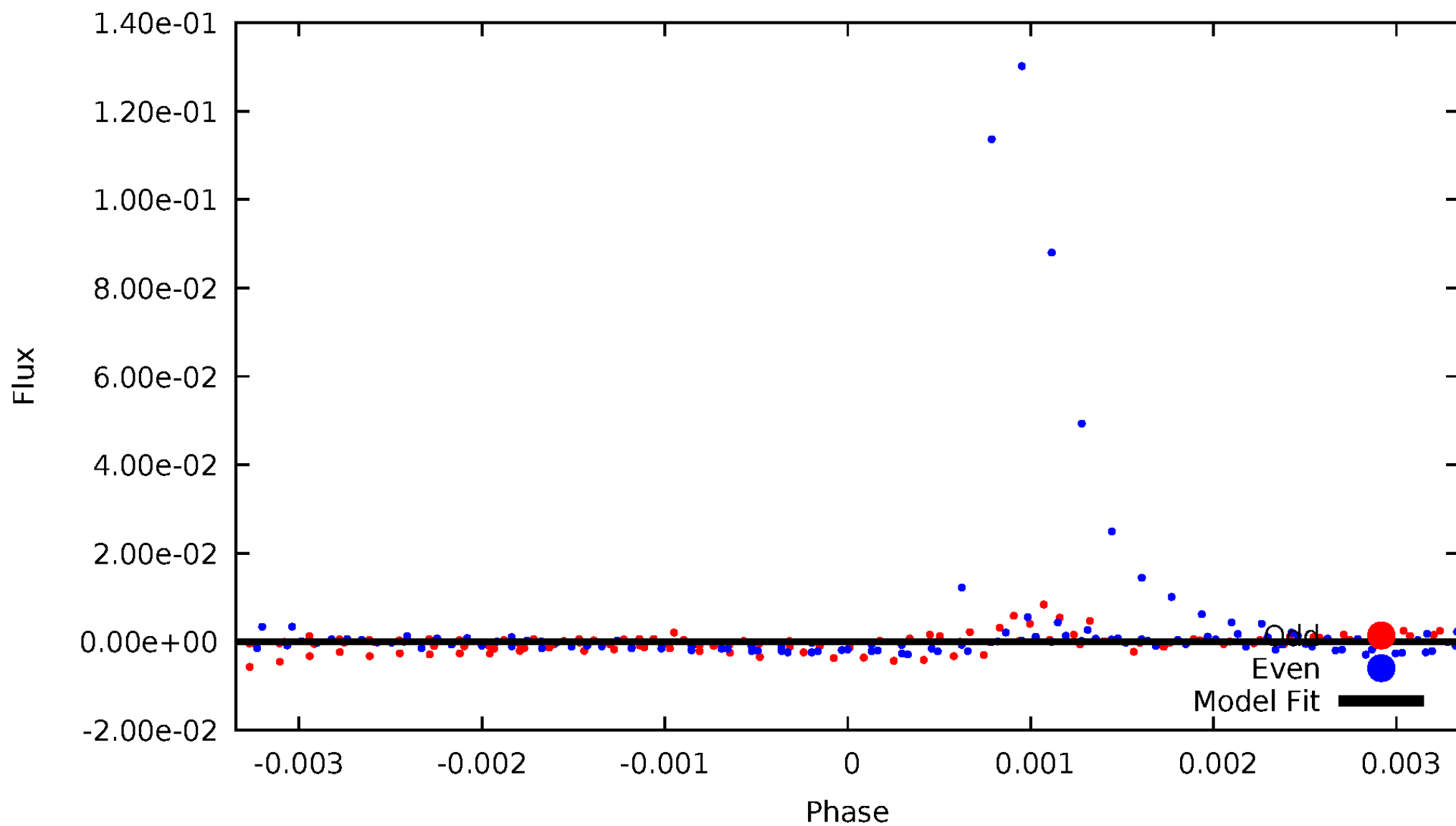


TCE 008365739-03



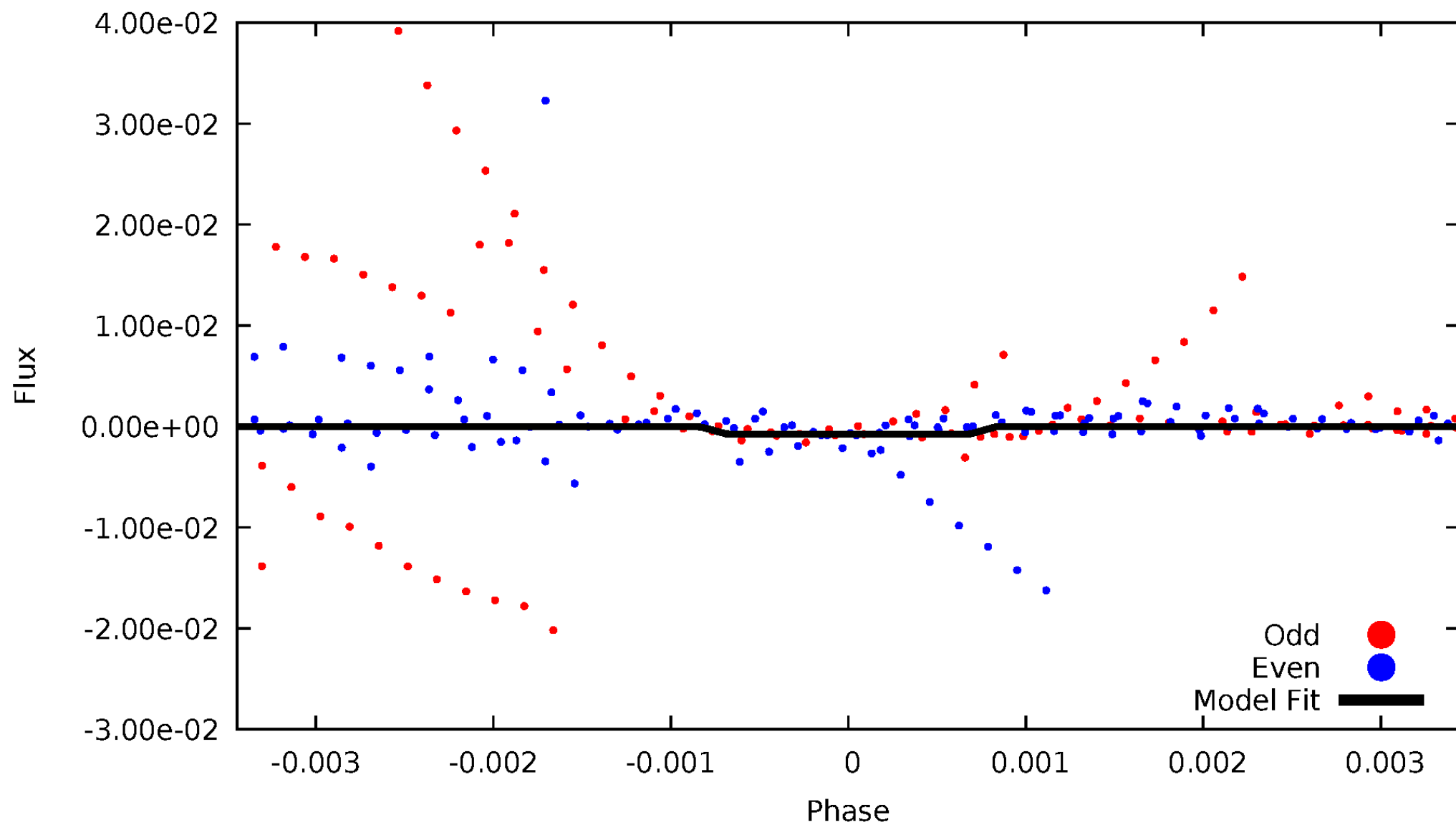
# DV Odd/Even

TCE 008365739-03



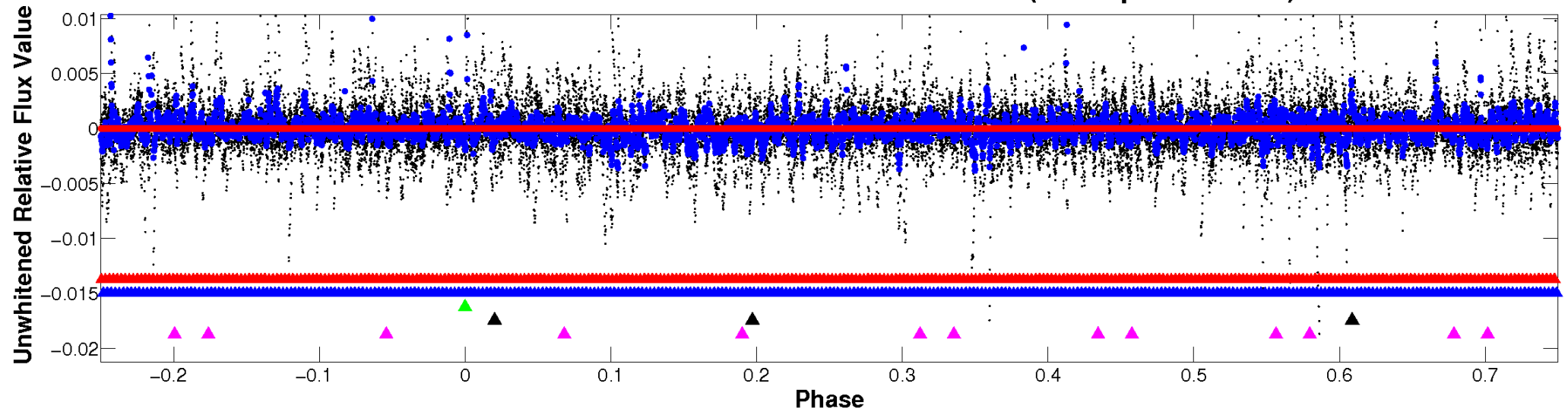
ALT Odd/Even

TCE 008365739-03

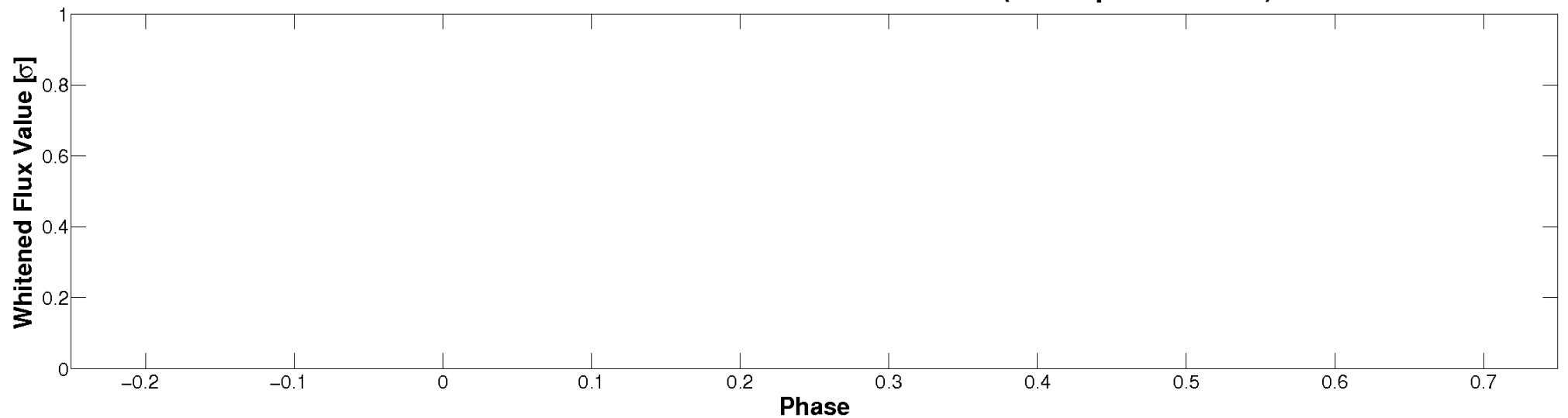


# Non-Whitened Vs. Whitened Light Curve

**Planet 3 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

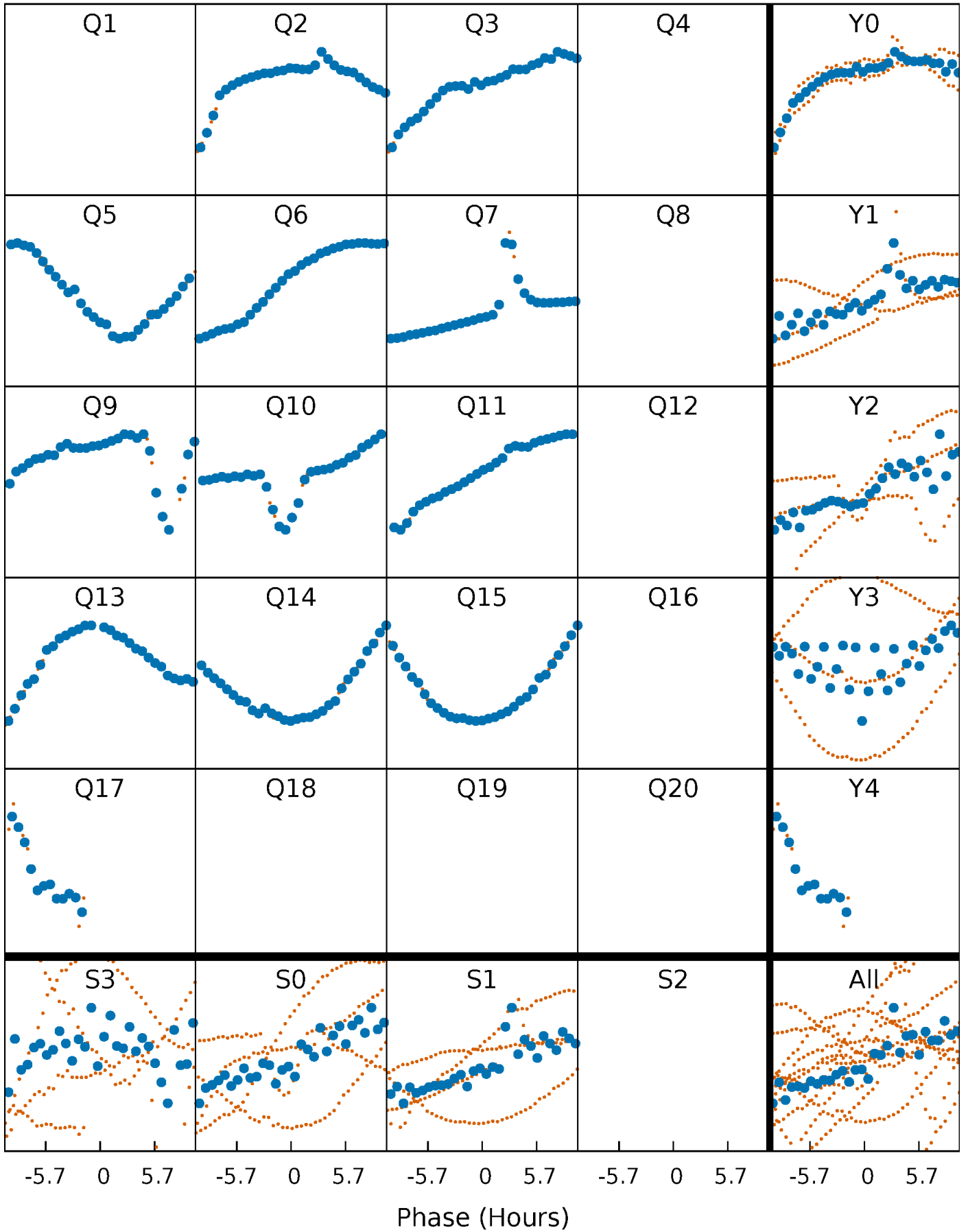


**Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



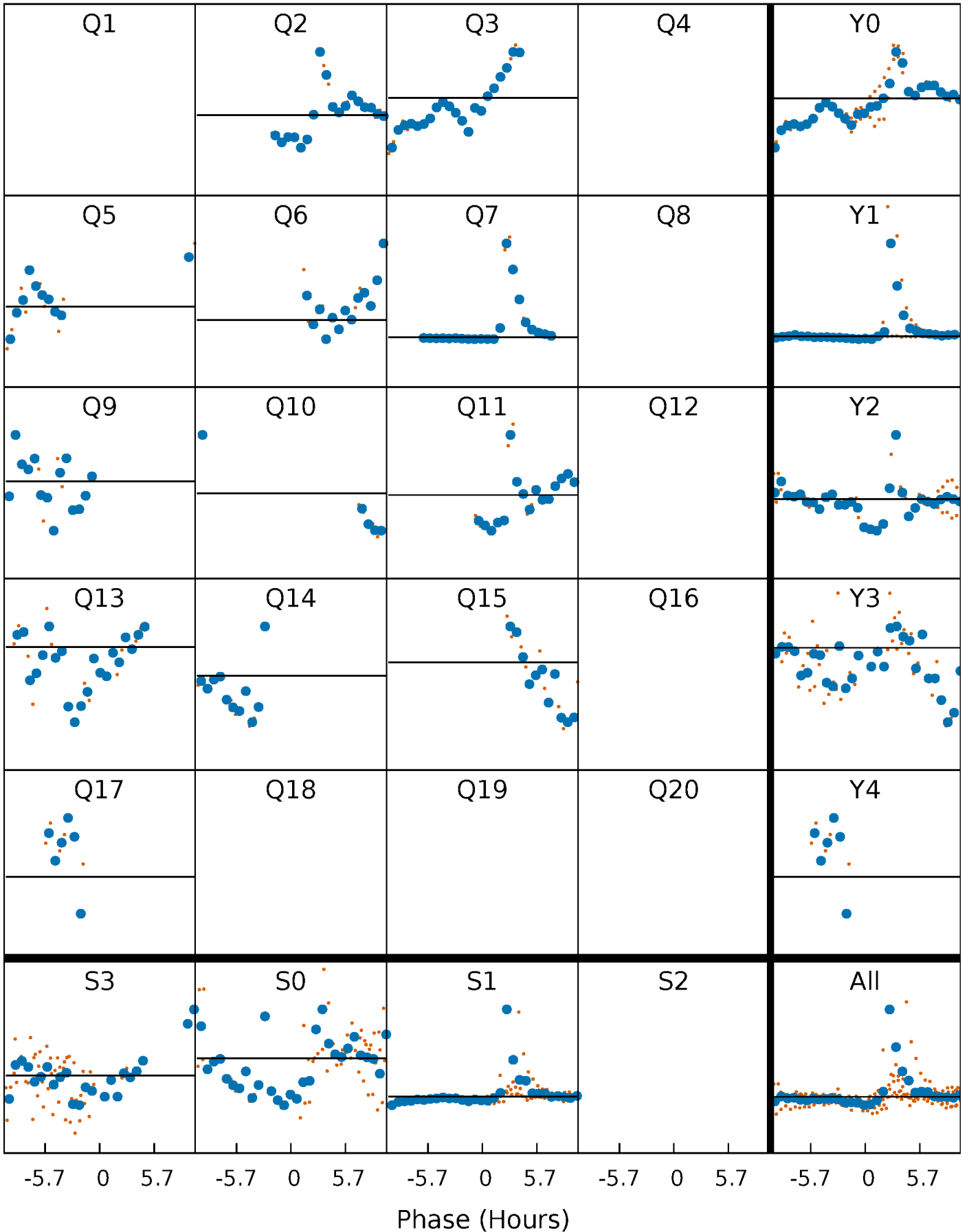
# PDC Quarter-Phased Transit Curves

TCE 008365739-03 P=124.578631 Days  $T_0=211.287018$  (BKJD)



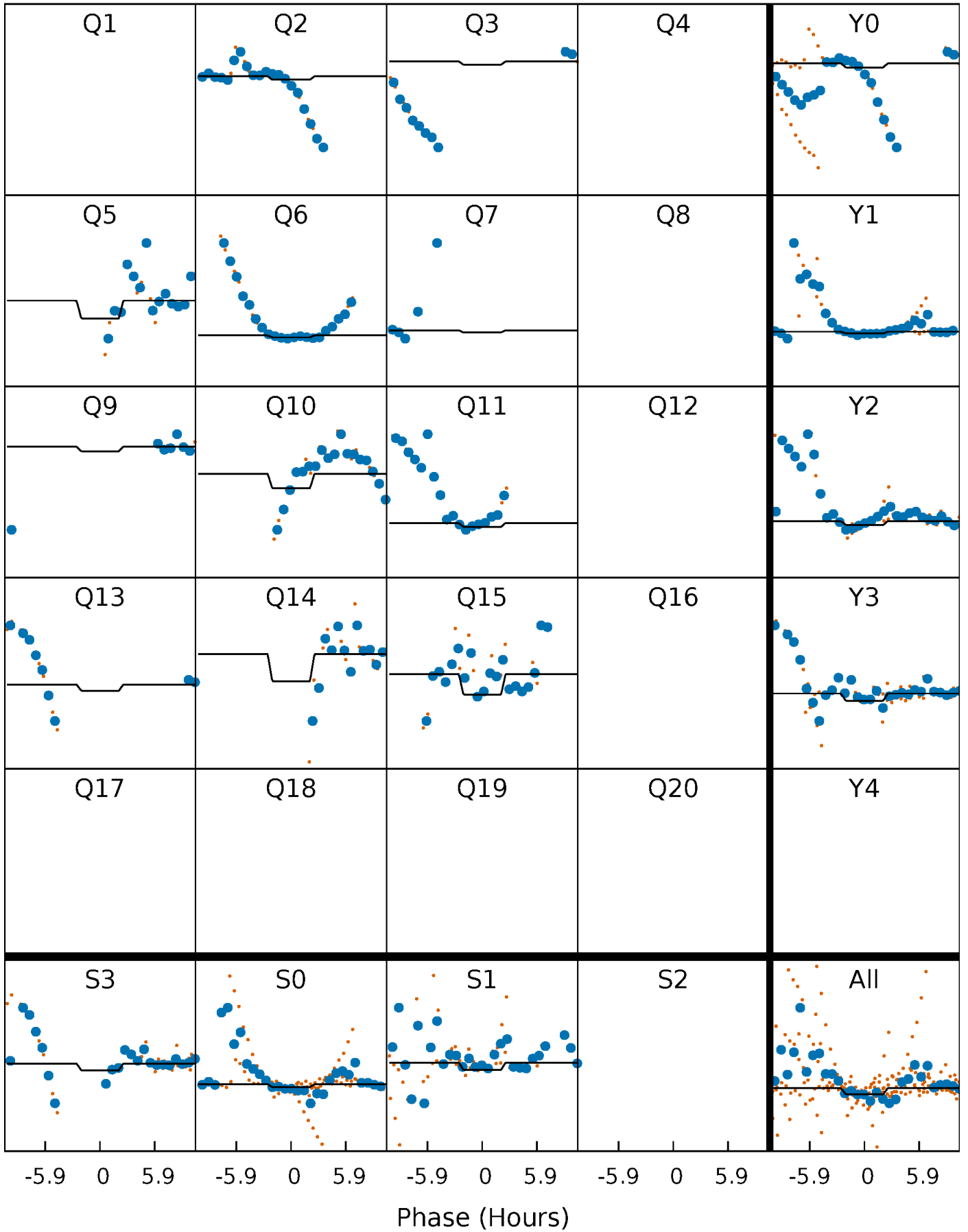
# DV Quarter-Phased Transit Curves

TCE 008365739-03   P=124.578631 Days    $T_0=211.287018$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008365739-03 P=124.578631 Days  $T_0=211.658937$  (BKJD)

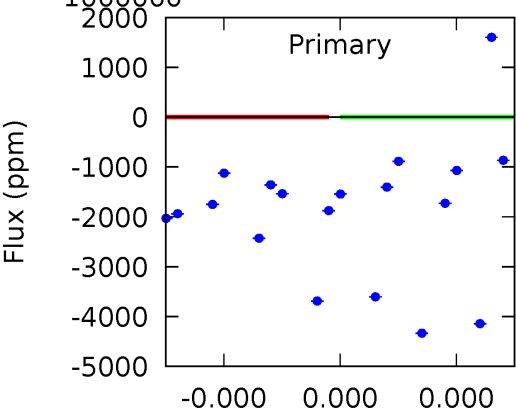
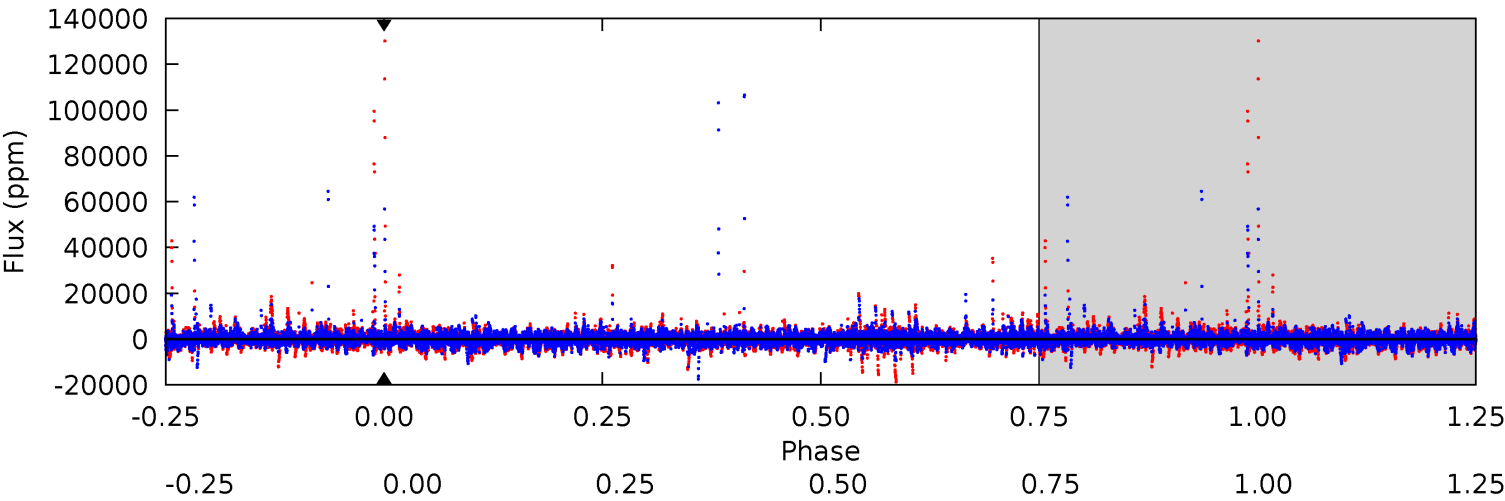




# DV Model-Shift Uniqueness Test

008365739-03, P = 124.578631 Days, E = 86.708387 Days

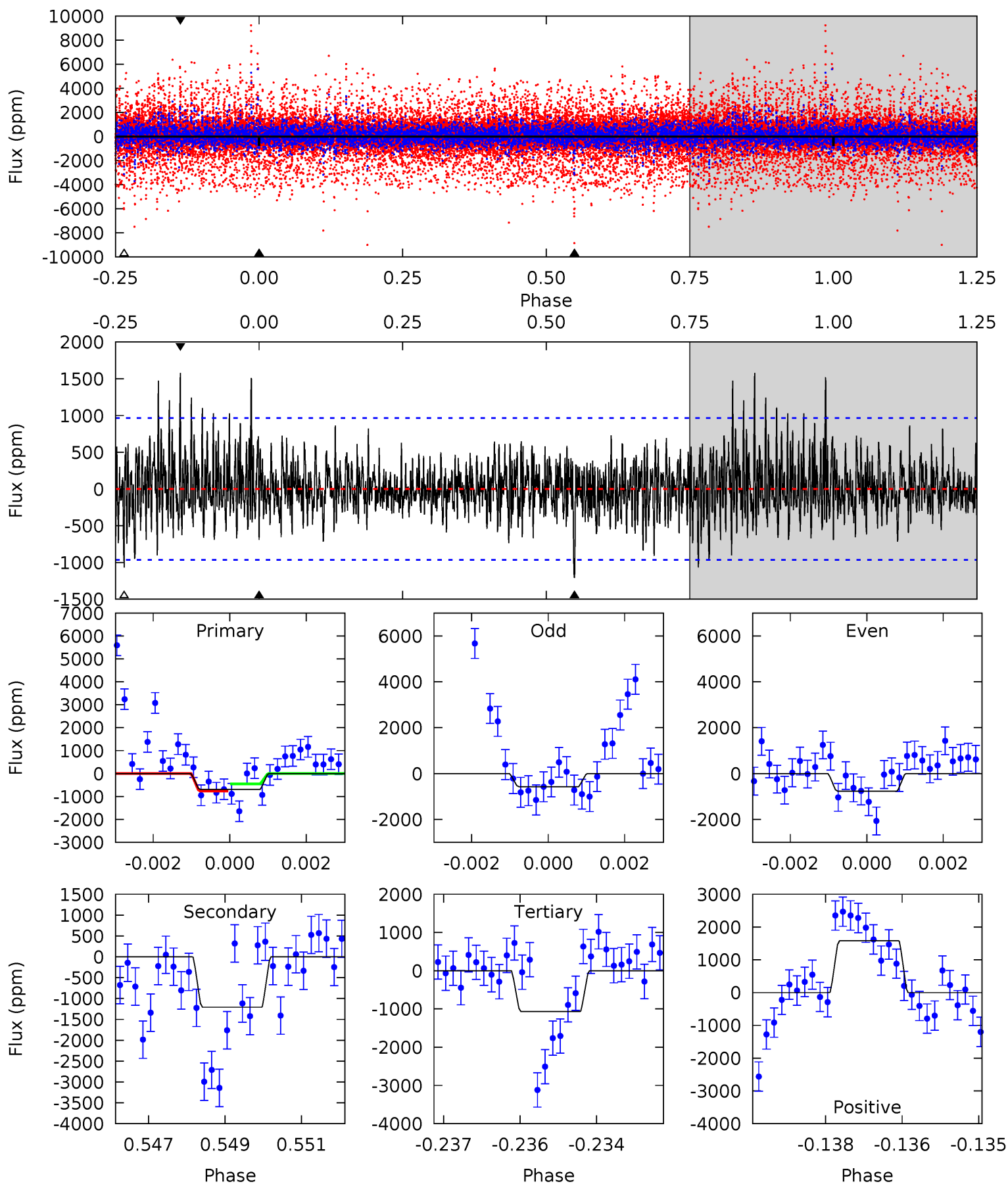
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008365739-03, P = 124.578631 Days, E = 87.080306 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
3.85	6.71	5.93	8.76	5.36	3.14	1.68	-2.08	-4.92	0.78	-2.05	0.37	1.28	0.57	0.87



### Stellar Parameters For KIC 008365739

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5594^{+169}_{-152}$	$4.390^{+0.153}_{-0.187}$	$-0.200^{+0.300}_{-0.300}$	$0.964^{+0.269}_{-0.166}$	$0.832^{+0.123}_{-0.066}$	$1.307^{+0.912}_{-0.616}$
	+3%/-3%	+3%/-4%	+150%/-150%	+28%/-17%	+15%/-8%	+70%/-47%
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 008365739-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$9.45^{+8.08}_{-6.38}$	$502^{+39}_{-31}$	$-4296^{+21378}_{-10410}$	$-2700.247^{+253932.397}_{-176388.593}$
Alt.	$-1208 \pm 180$	$8.04^{+8.78}_{-5.46}$	$500^{+36}_{-29}$	$4076^{+2599}_{-855}$	$2158^{+19165}_{-1650}$

$T_{max}$  = 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

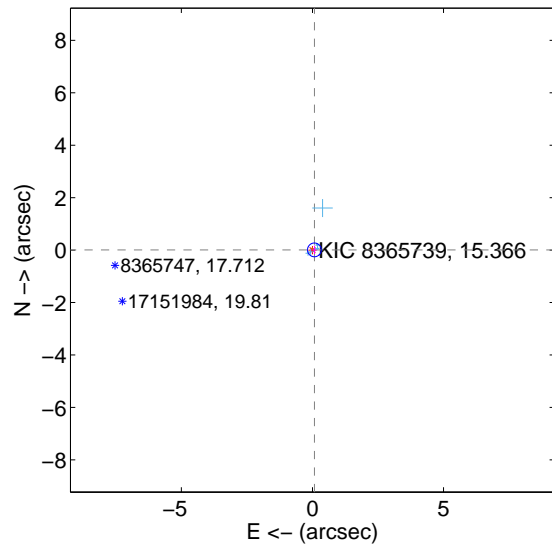
Supplemental centroid analysis for 008365739-03. Kepler magnitude: 15.37. Transit SNR -1.00

There are 8 quarters with good PRF difference image offsets

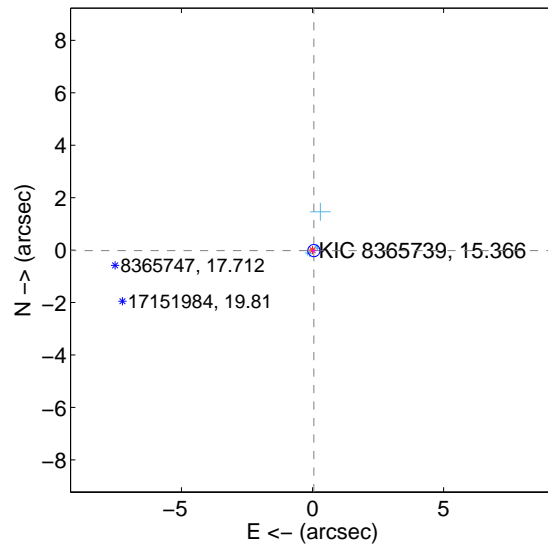
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.075 \pm 0.088$	0.86	$-0.075 \pm 0.079$	$0.008 \pm 0.163$
PRF-fit source offset from KIC position	$0.055 \pm 0.077$	0.72	$-0.052 \pm 0.077$	$-0.020 \pm 0.076$
photometric centroid source offset	$2.37 \pm 1.78$	1.33	$2.36 \pm 1.78$	$-0.19 \pm 0.95$

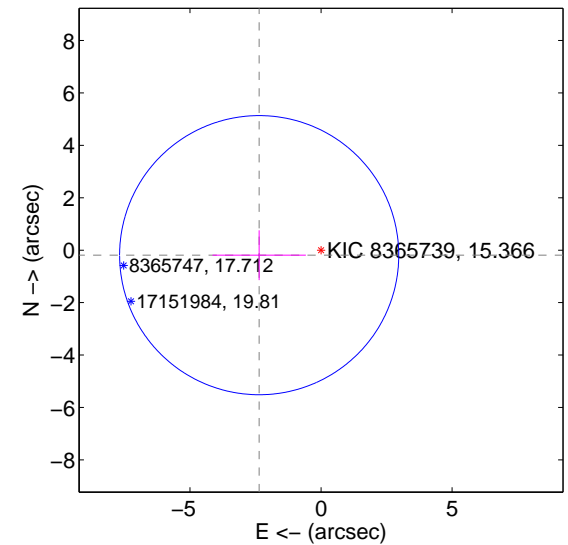
offset from difference PRF-fit to OOT PRF-fit



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.

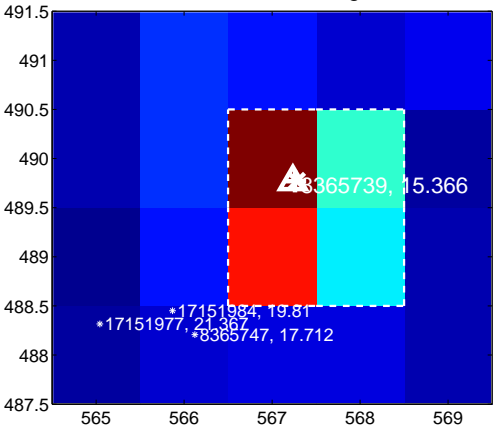
Q1 no difference image



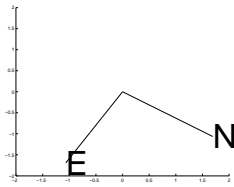
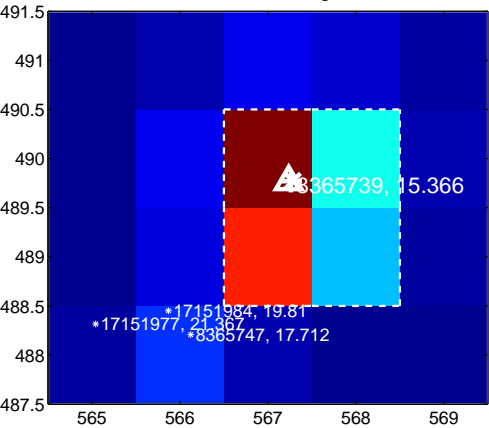
Q1 no OOT image



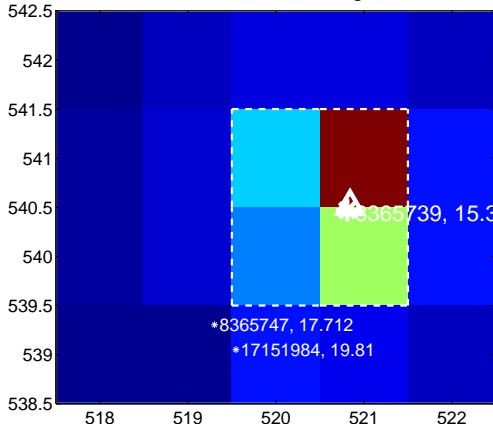
Q2 difference image



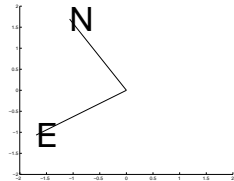
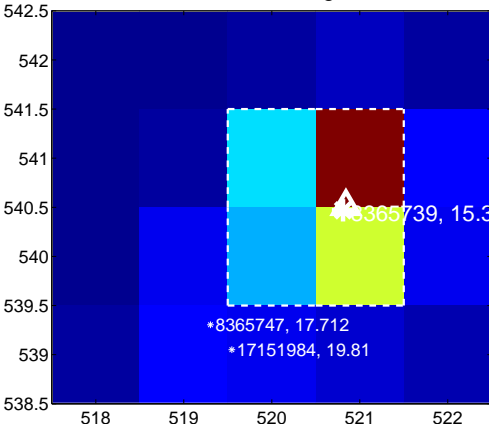
Q2 OOT image



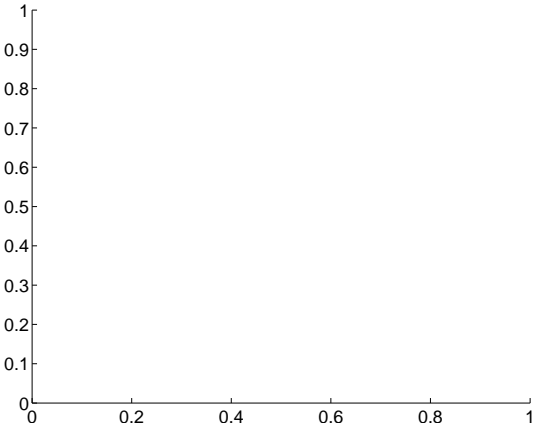
Q3 difference image



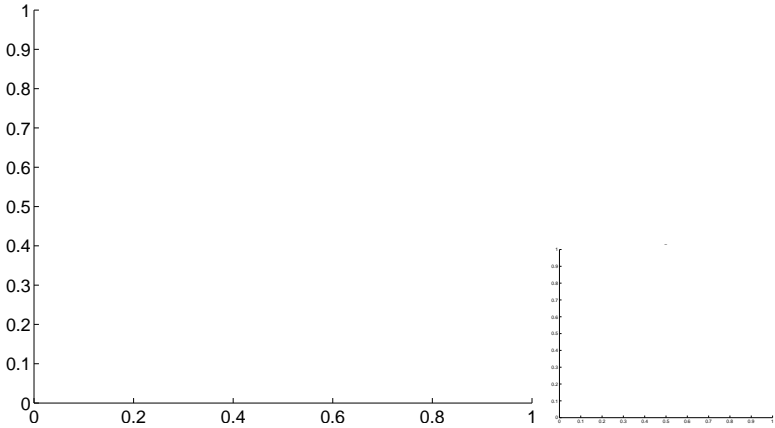
Q3 OOT image



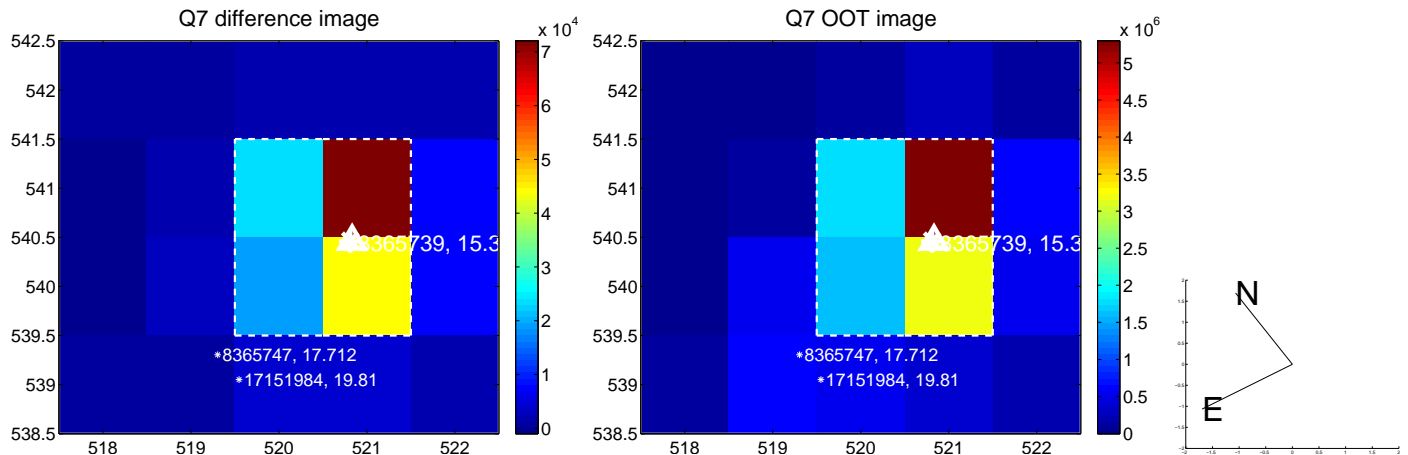
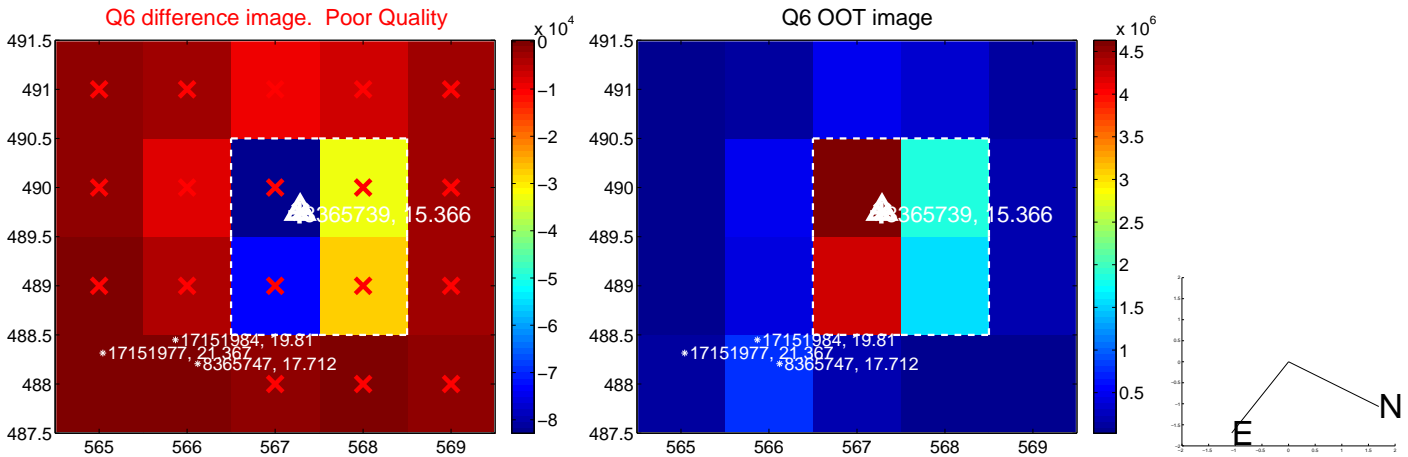
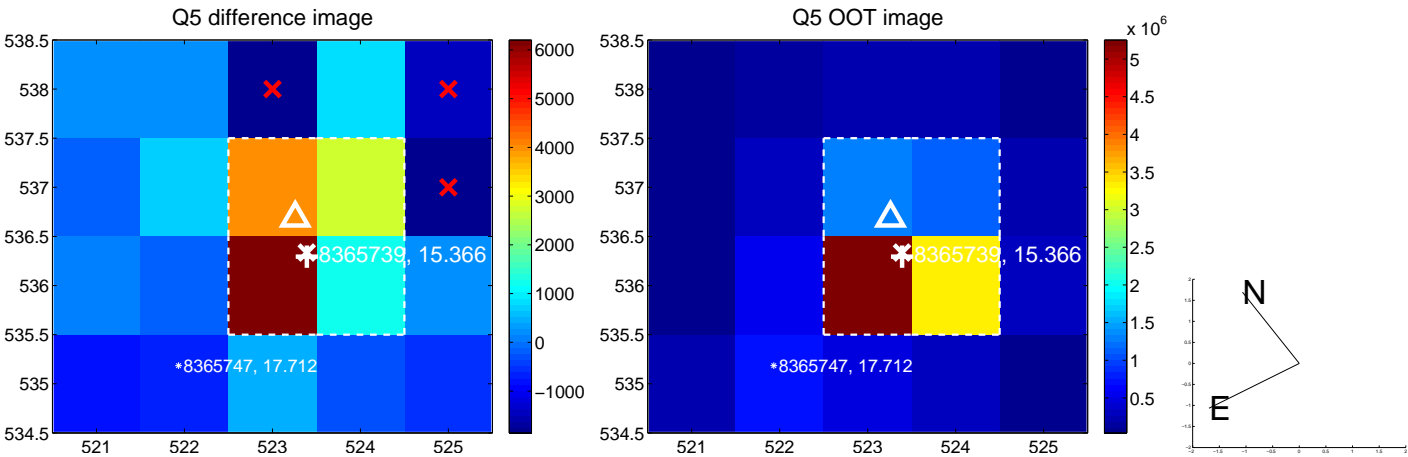
Q4 no difference image



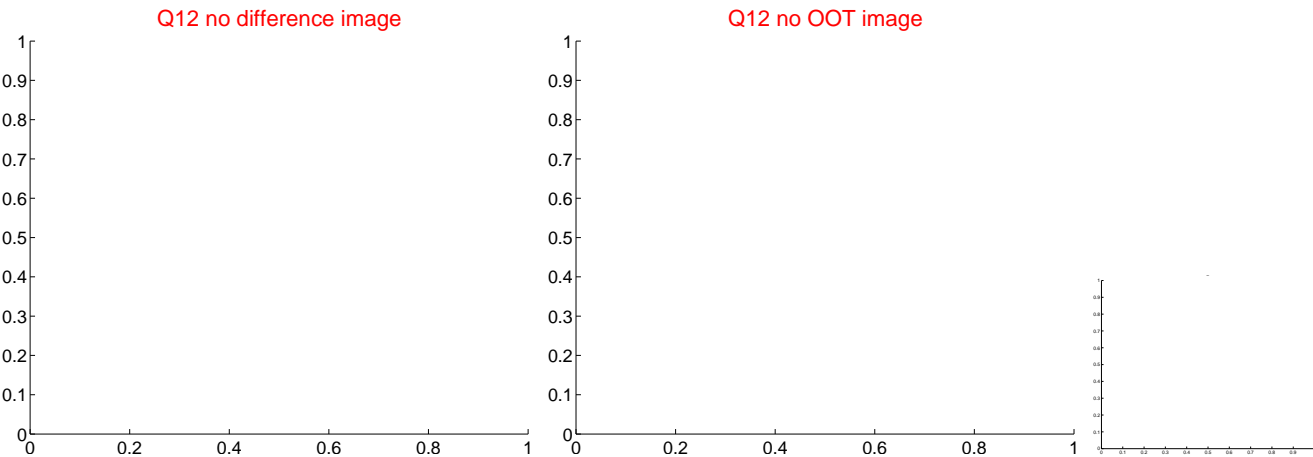
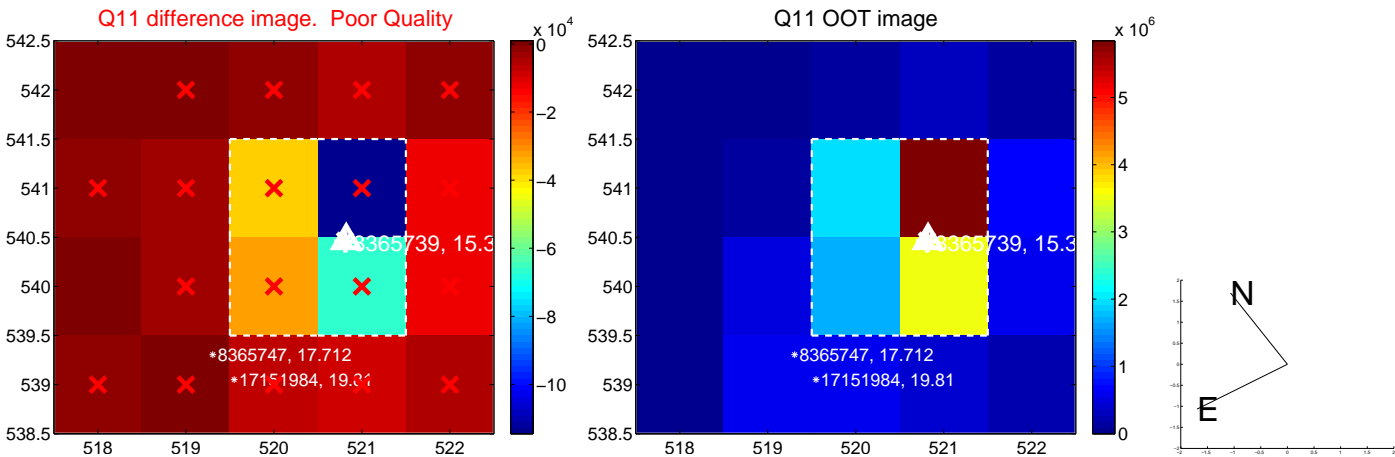
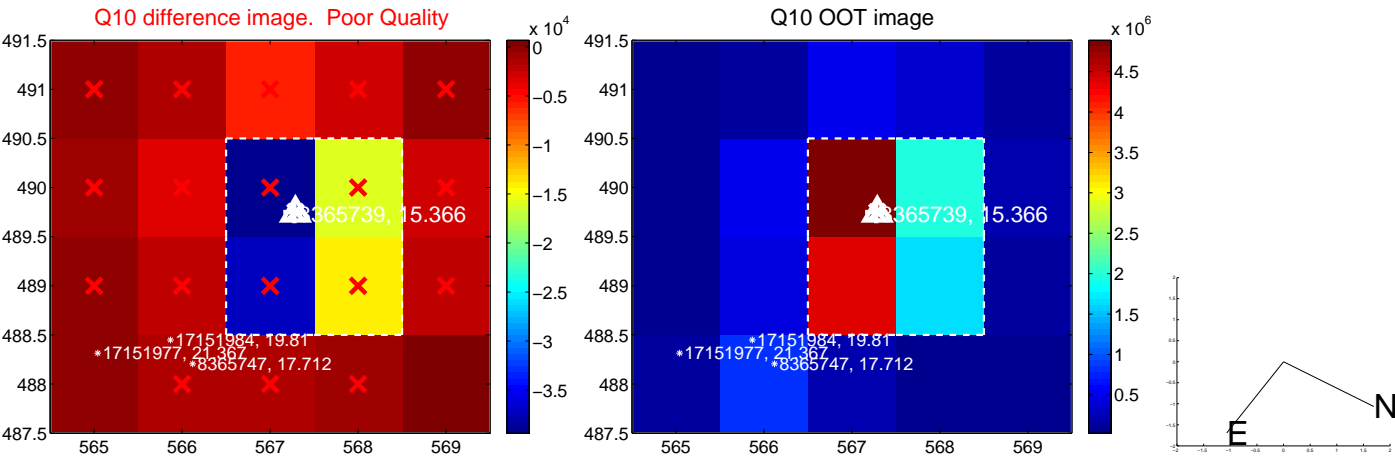
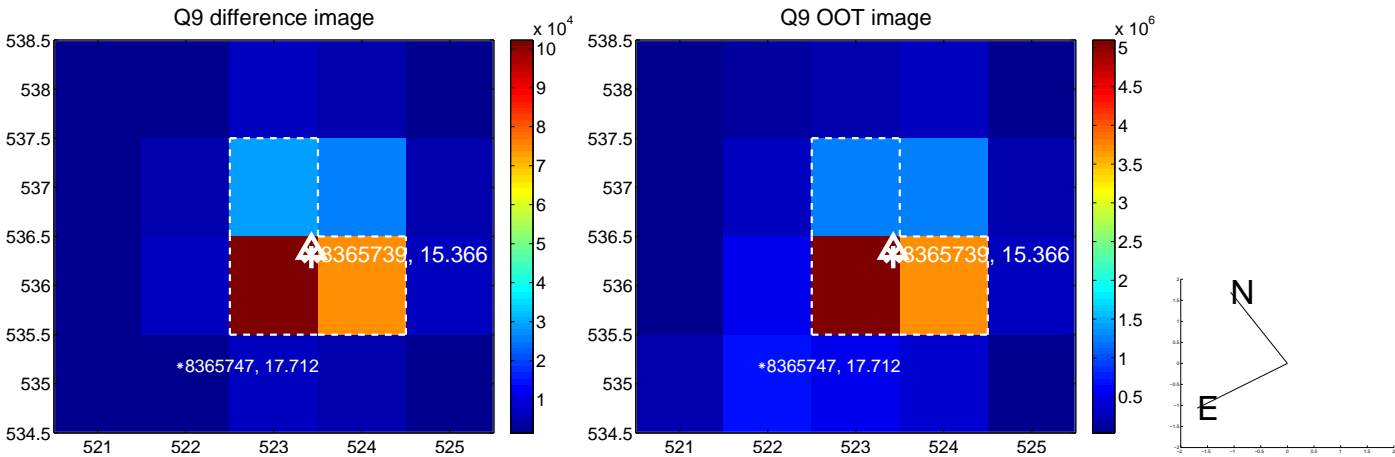
Q4 no OOT image



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

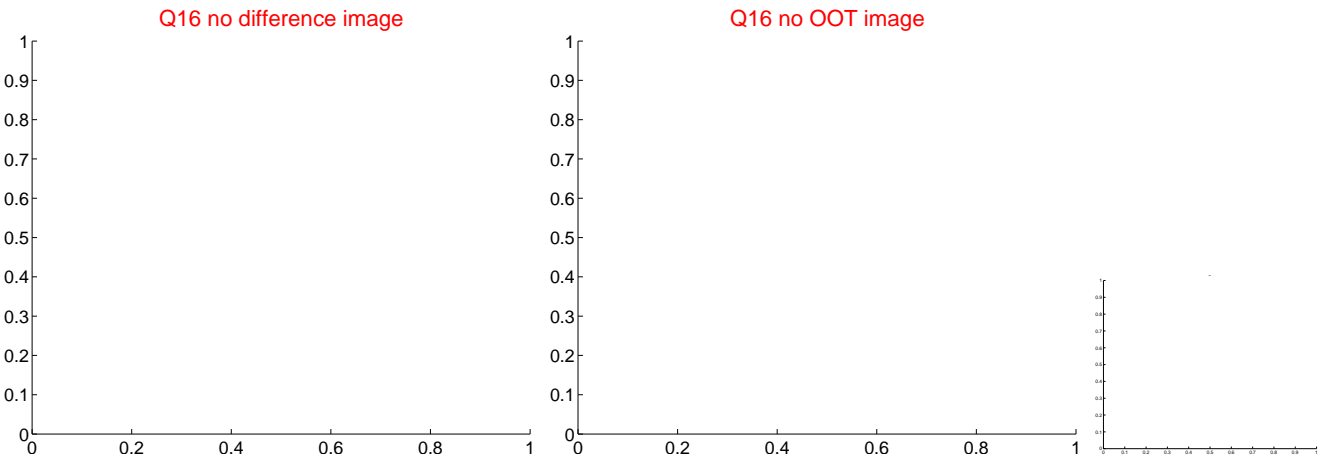
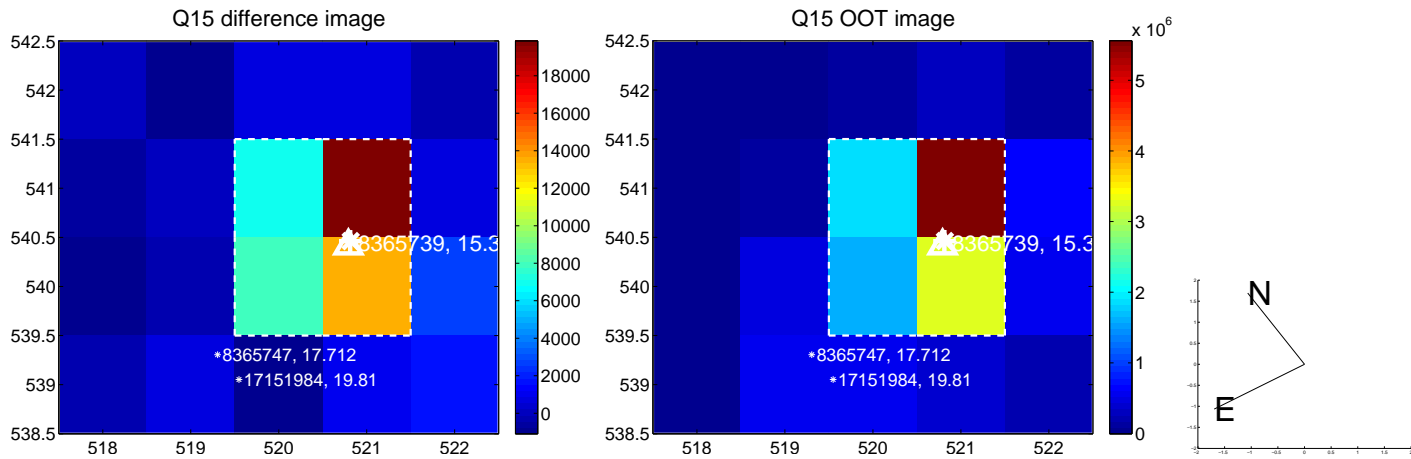
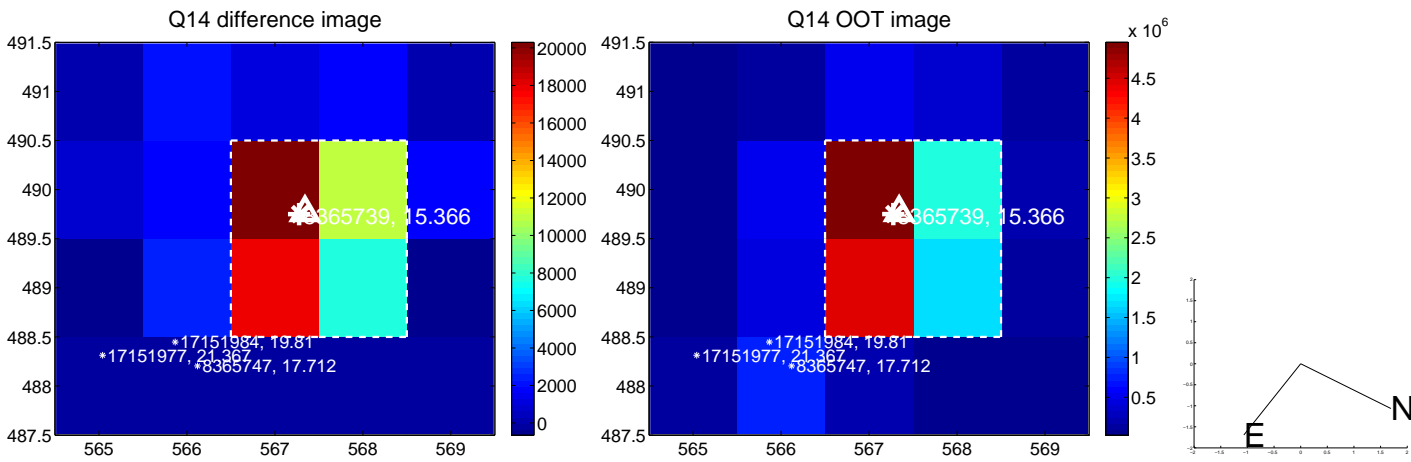
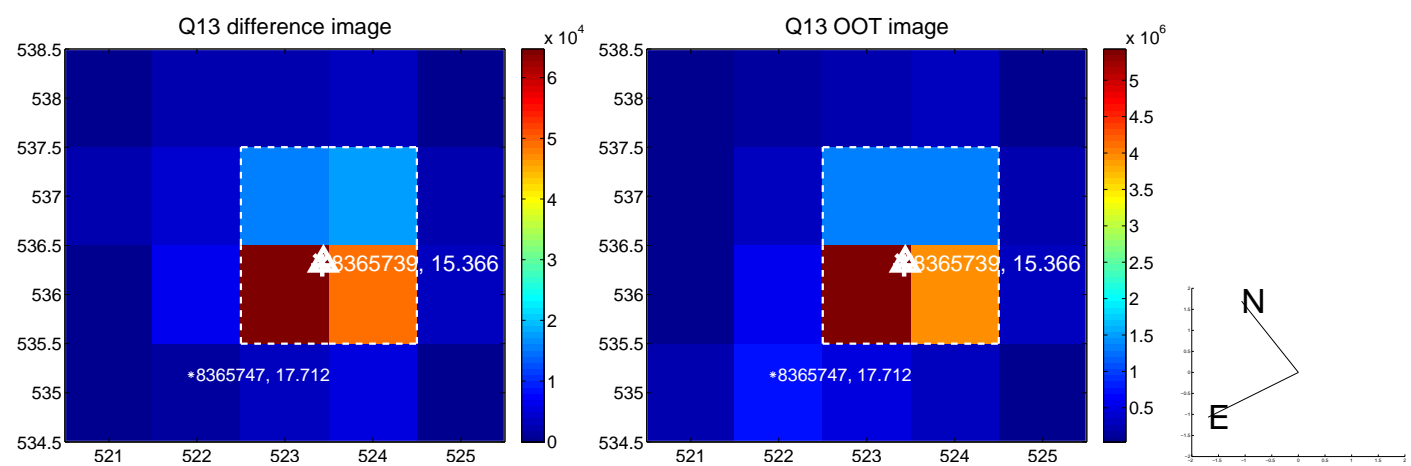


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

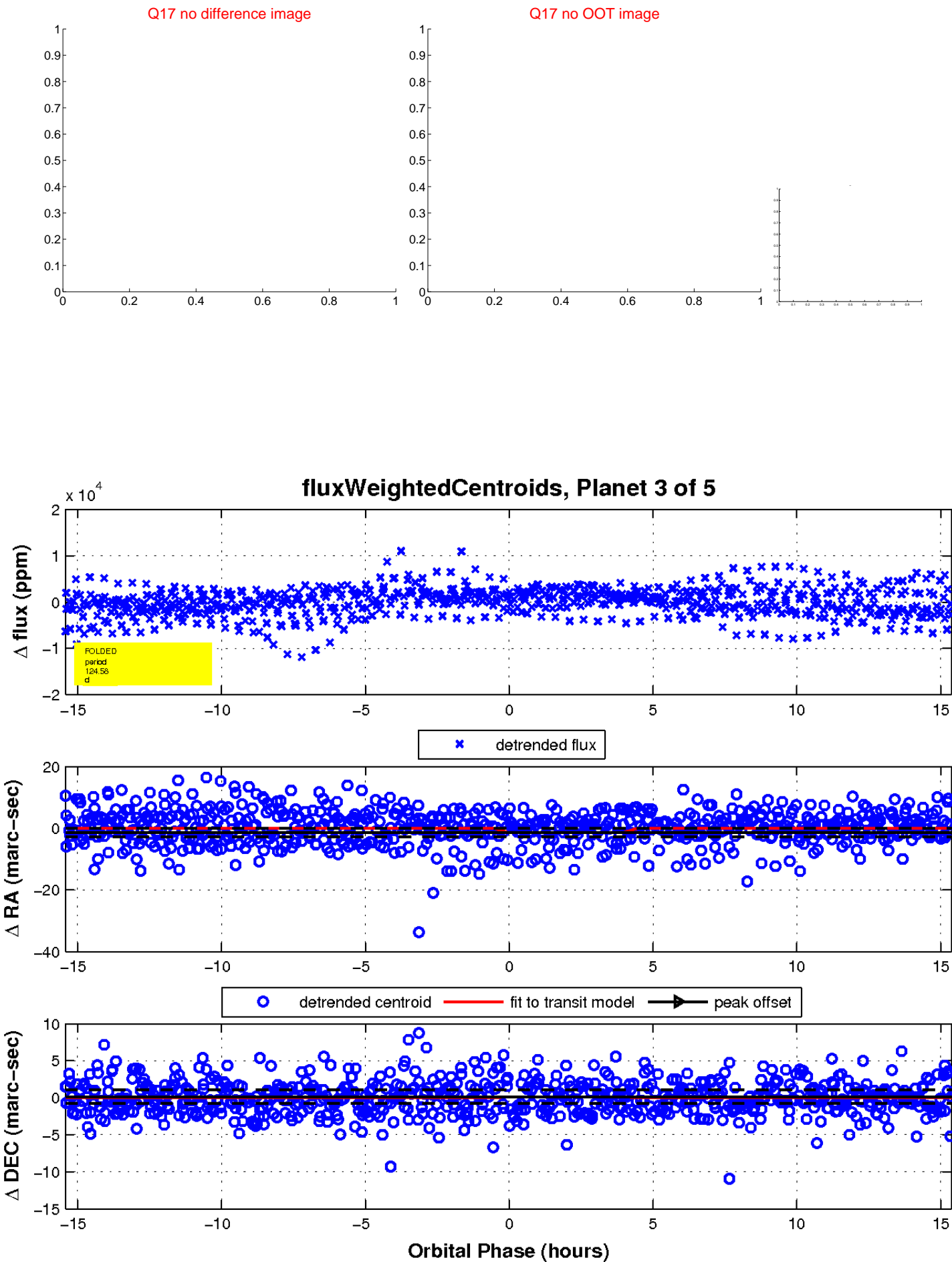




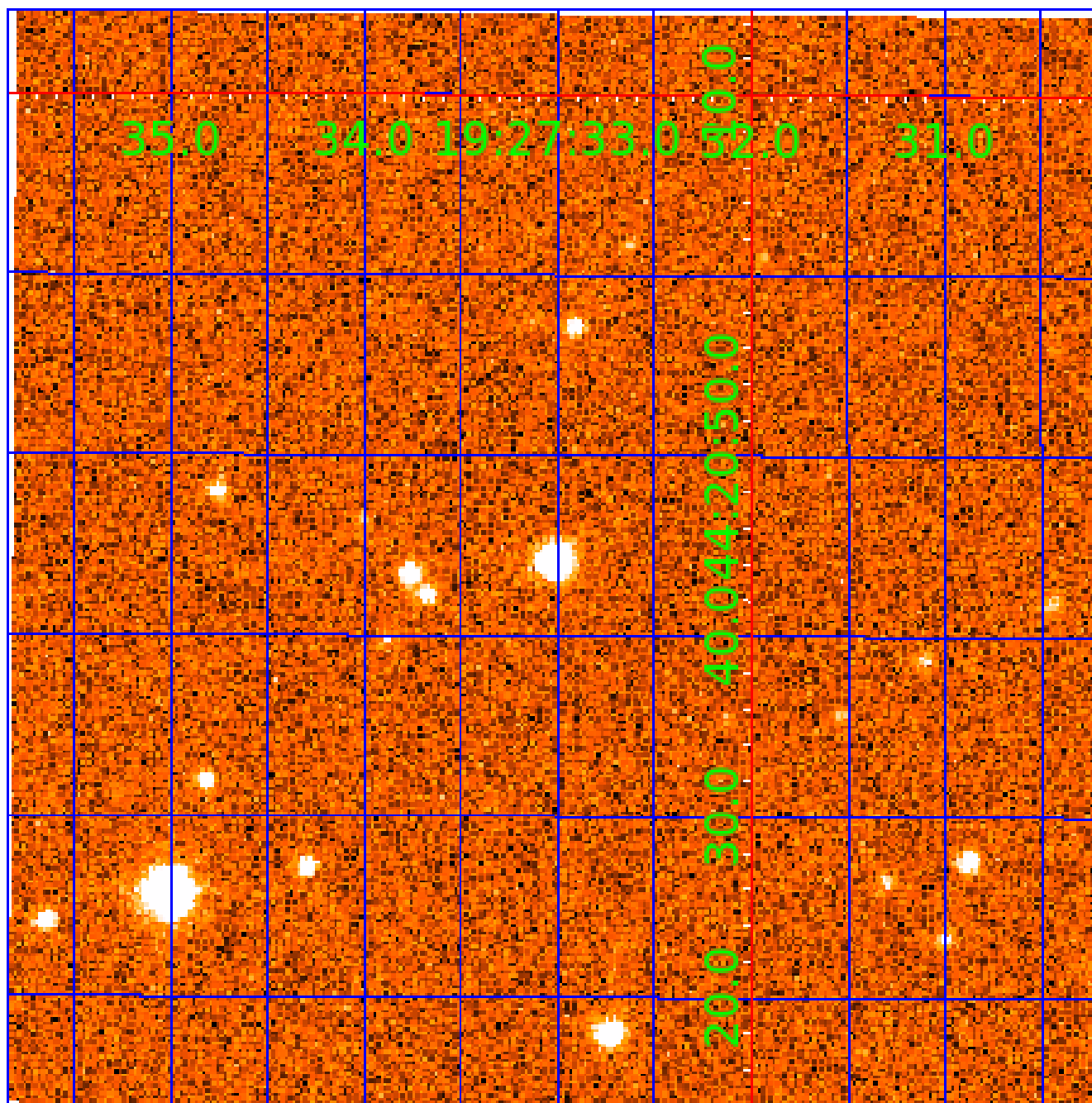
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 008365739

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008365739-01	OBS	3722.01	2.389281	132.033369	20693.7	5.040	424.3	356.8	0.96	5594	17.18	753.03
008365739-02	OBS	No	2.389286	133.225661	1299.6	4.164	35.5	38.1	0.96	5594	4.15	753.03
008365739-03	OBS	No	124.578631	211.287018	1482.7	5.000	12.4	-1.0	0.96	5594	3.67	3.87
008365739-04	OBS	No	571.622090	213.814013	1900.0	3.450	9.5	4.2	0.96	5594	4.63	0.51
008365739-05	OBS	No	109.366908	186.456837	2358.6	3.500	11.3	-1.0	0.96	5594	4.63	4.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008365739-01	OBS	FP	0.21	0	1	0	0	SWEET_EB—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
008365739-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
008365739-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
008365739-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008365739-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008365739-04

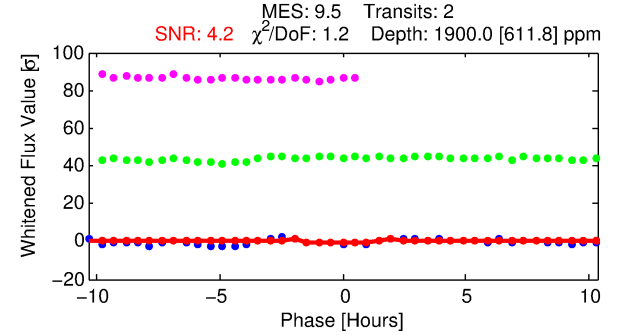
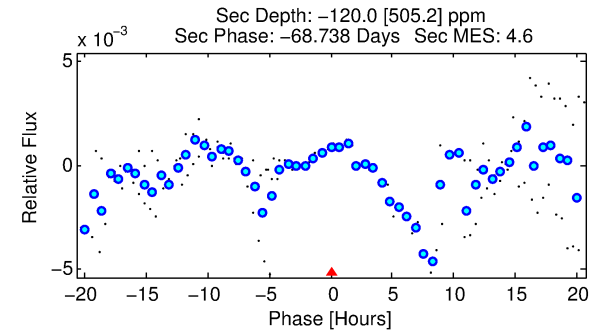
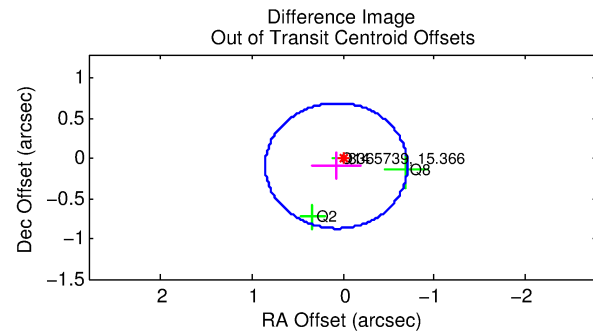
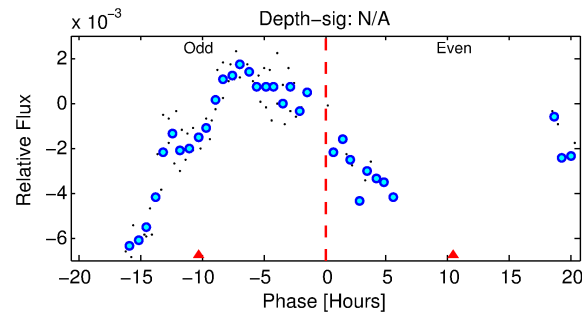
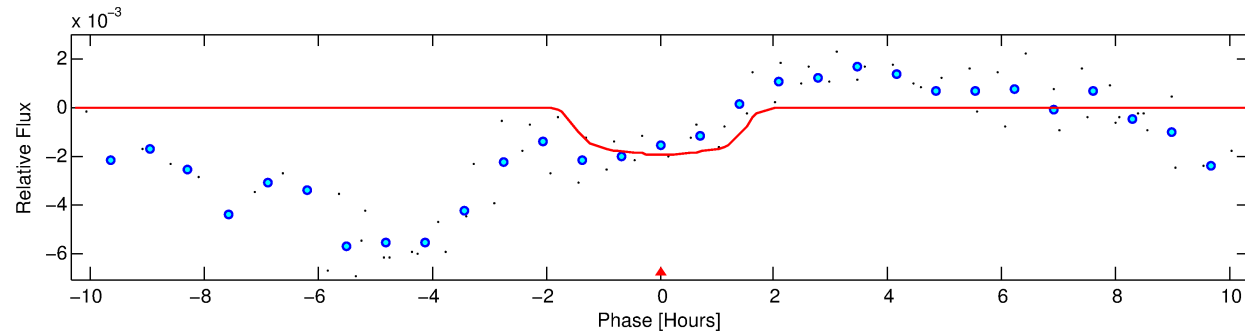
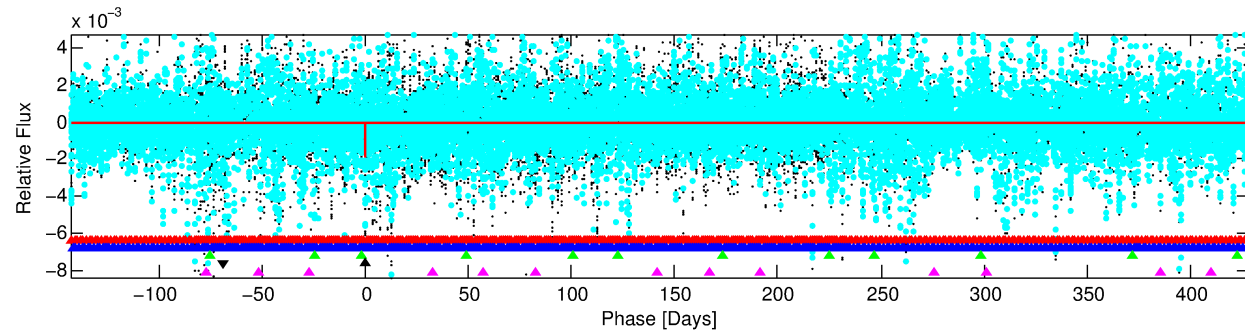
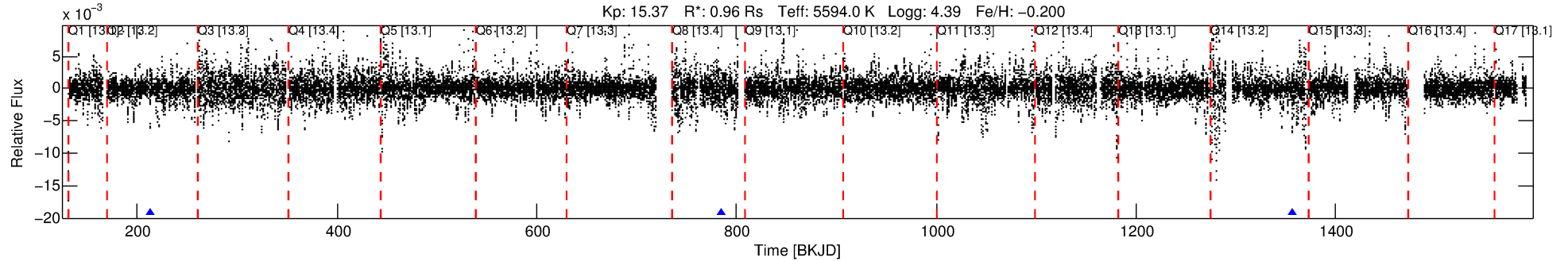
No Significant Match Found

# DV One-Page Summary

KIC: 8365739 Candidate: 4 of 5 Period: 571.622 d

KOI: K03722 Corr: No Ephemeris Match

Kp: 15.37 R\*: 0.96 Rs Teff: 5594.0 K Logg: 4.39 Fe/H: -0.200



## DV Fit Results:

Period = 571.62209 [0.00733] d  
Epoch = 213.8140 [0.0115] BKJD  
Rp/R\* = 0.0440 [0.0371]  
a/R\* = 878.50 [2990.82]  
b = 0.78 [1.73]  
Seff = 0.51 [0.18]  
Teq = 215 [20] K  
Rp = 4.63 [4.11] Re  
a = 1.2681 [0.2980] AU  
Ag = N/A  
Teffp = N/A

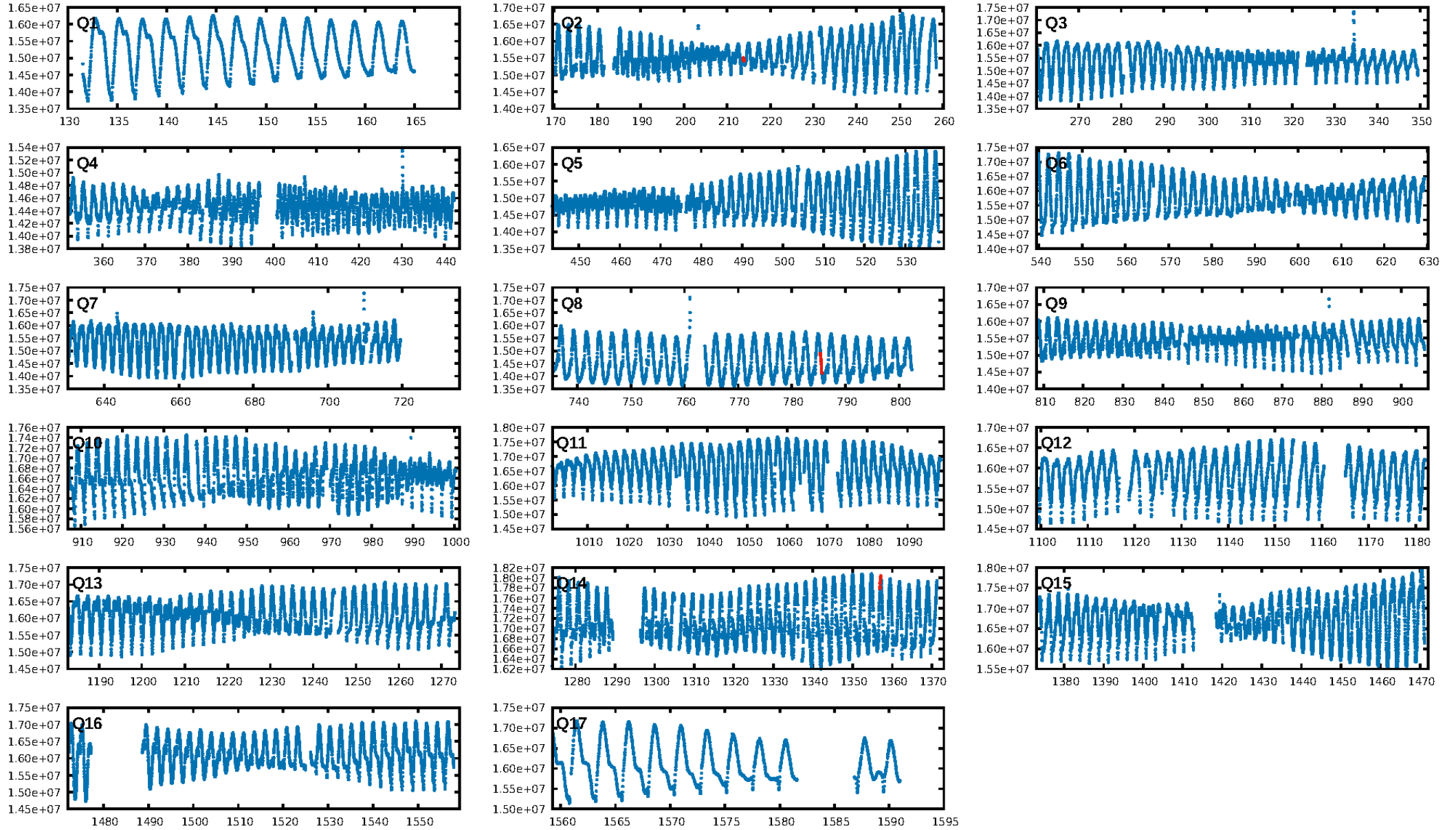
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1766.09σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 27.9%  
ModelChiSquareGof-sig: 98.6%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: -0.1562  
Centroid-sig: 34.0%  
Centroid-so: 0.901 arcsec [0.69σ]  
OotOffset-rm: 0.115 arcsec [0.44σ]  
OotOffset-st: 2/0/1/0 [3]  
KicOffset-rm: 0.169 arcsec [0.89σ]  
KicOffset-st: 2/0/1/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 0.67 [2/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:08:23 Z

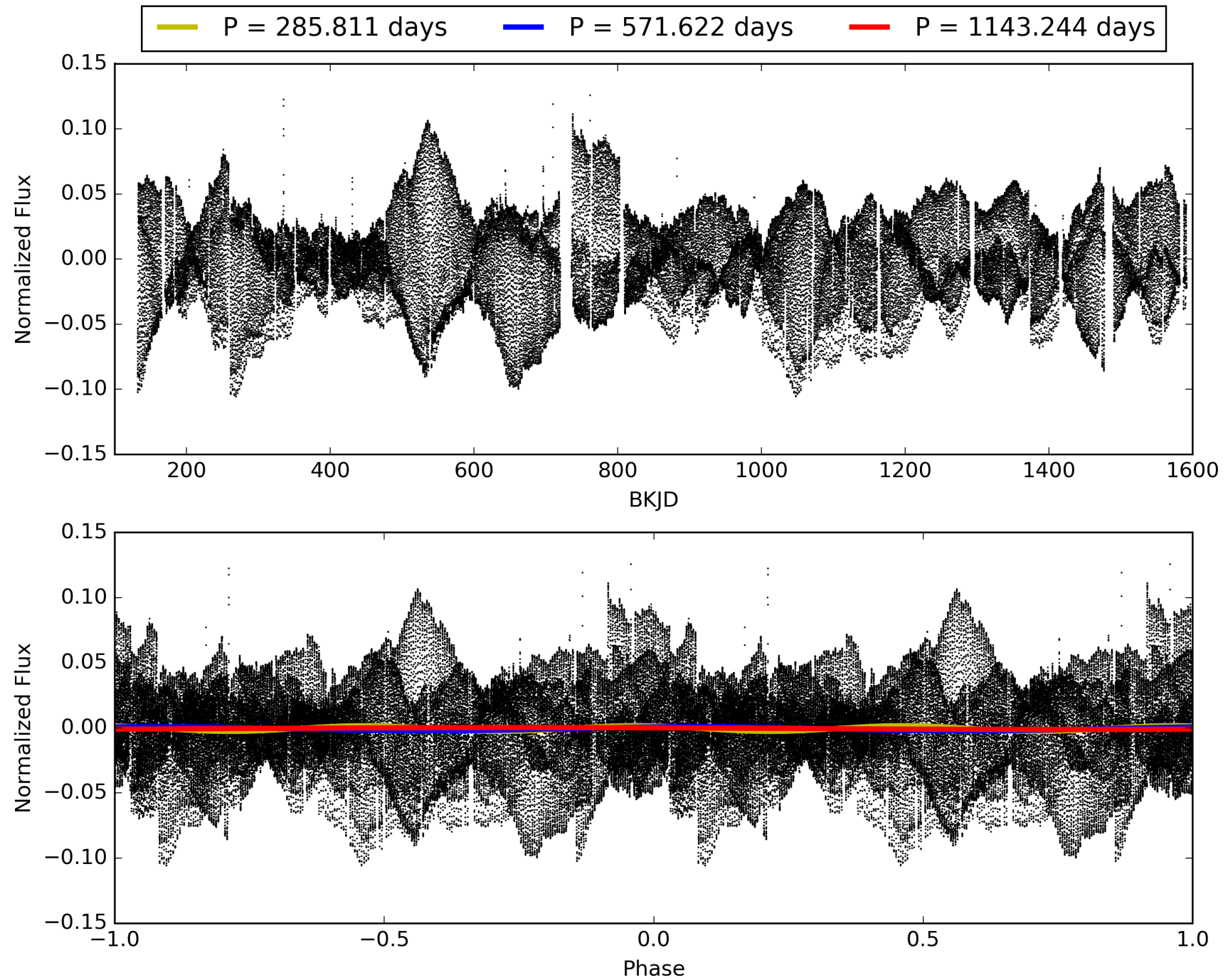
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008365739-04, PDC Light Curves





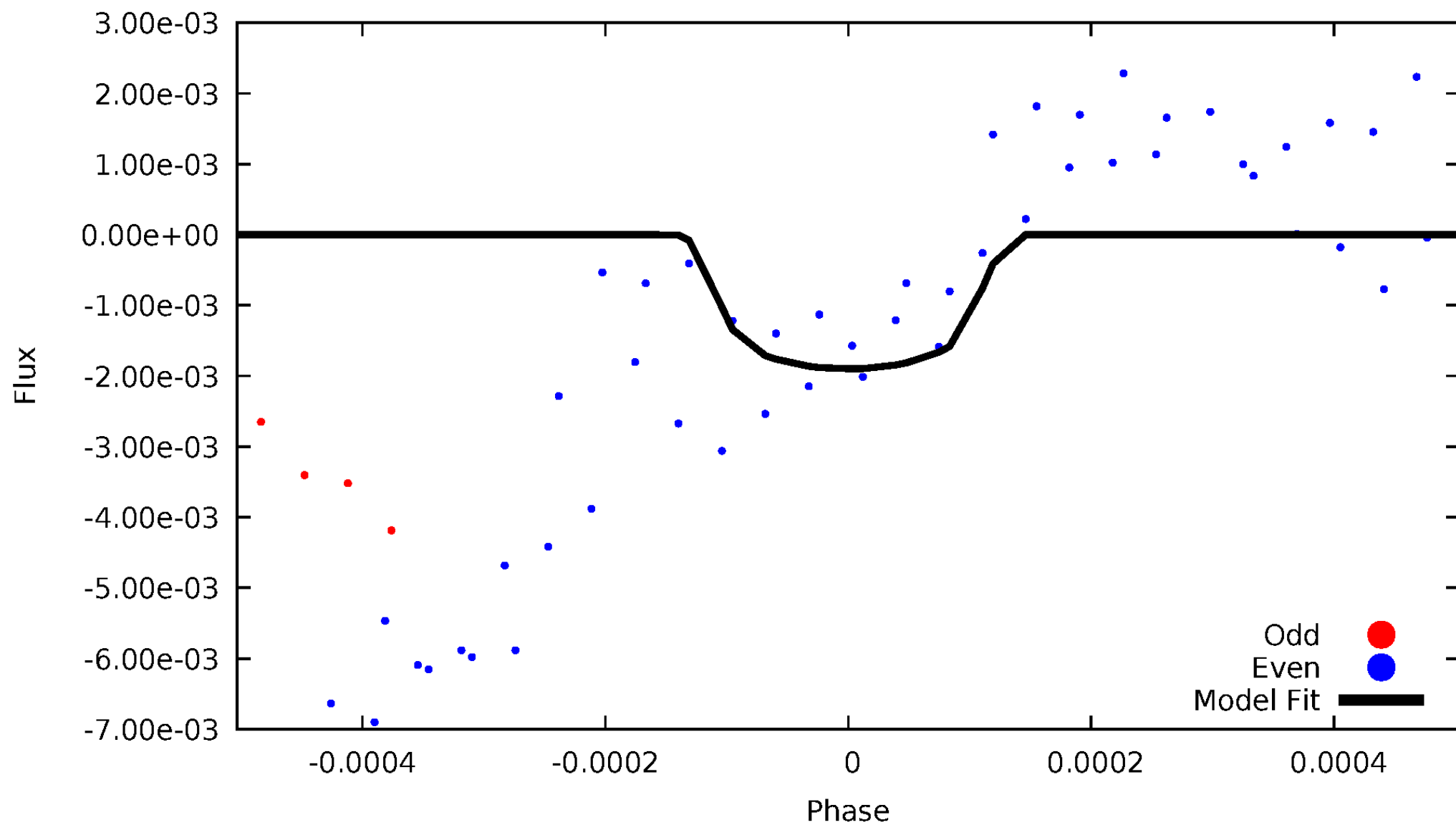
TCE 008365739-04





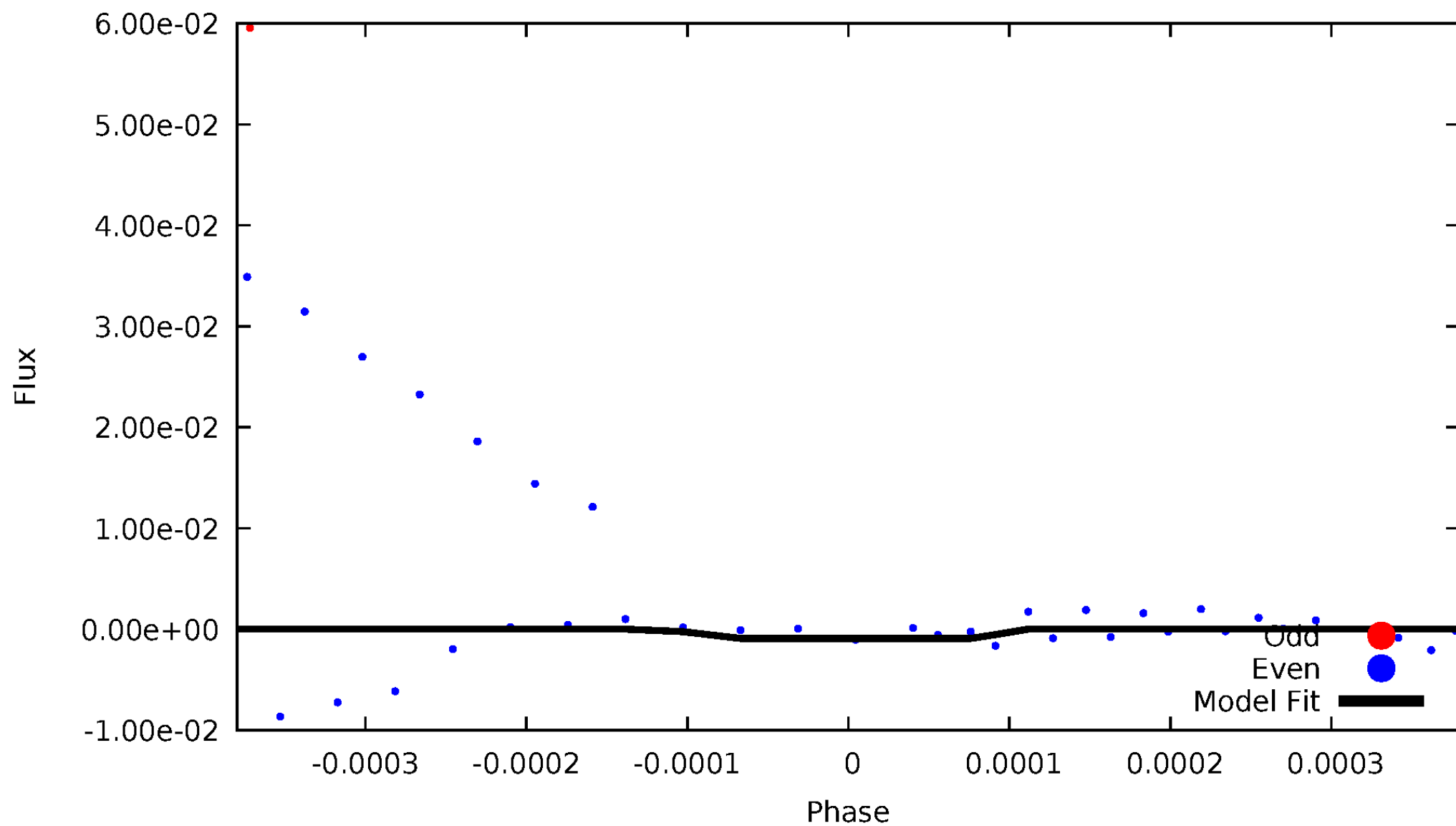
# DV Odd/Even

TCE 008365739-04



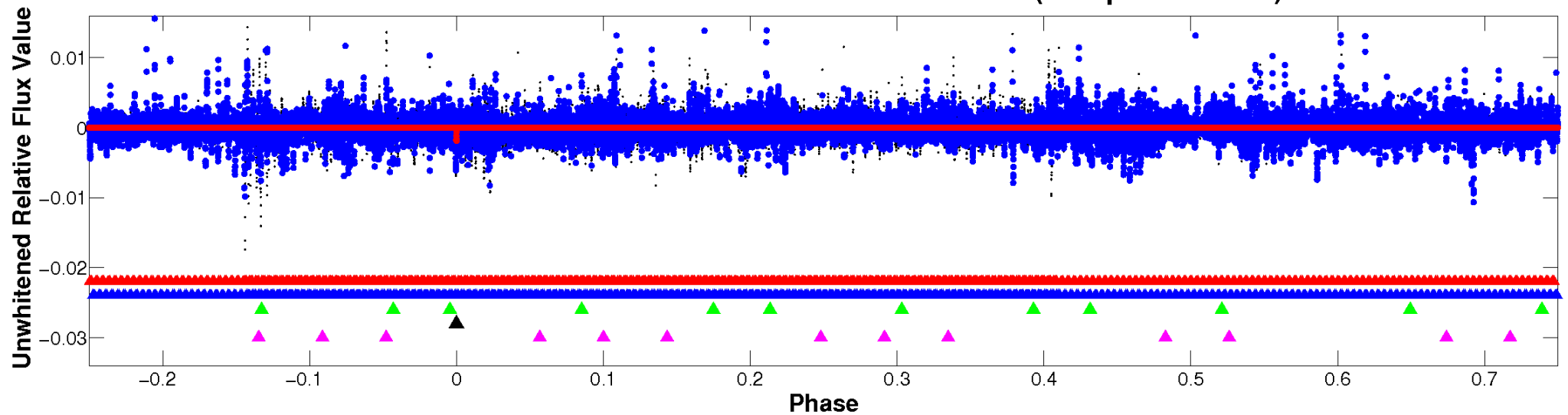
# ALT Odd/Even

TCE 008365739-04

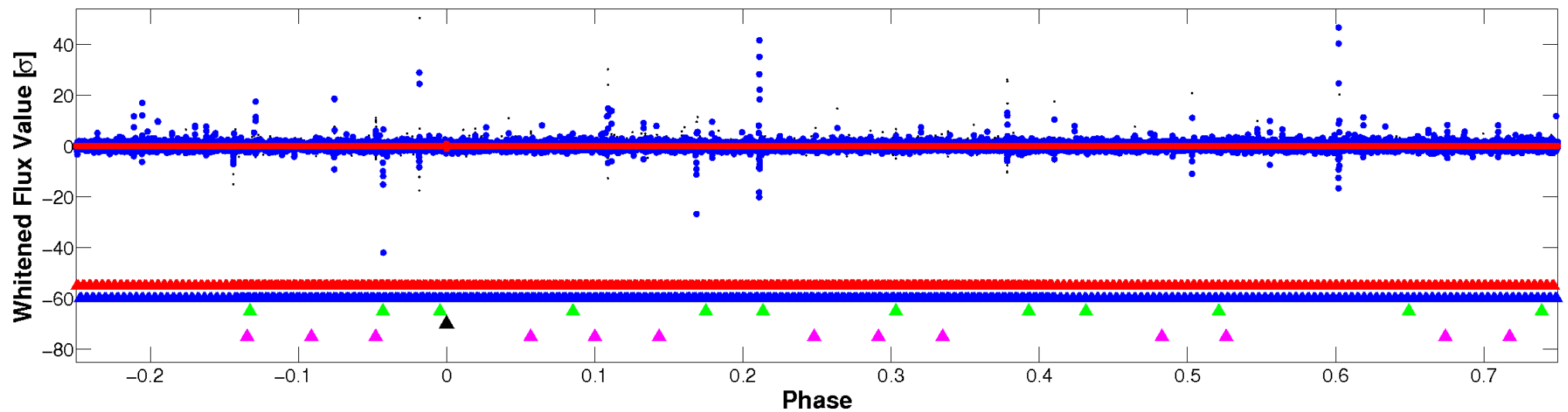


# Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

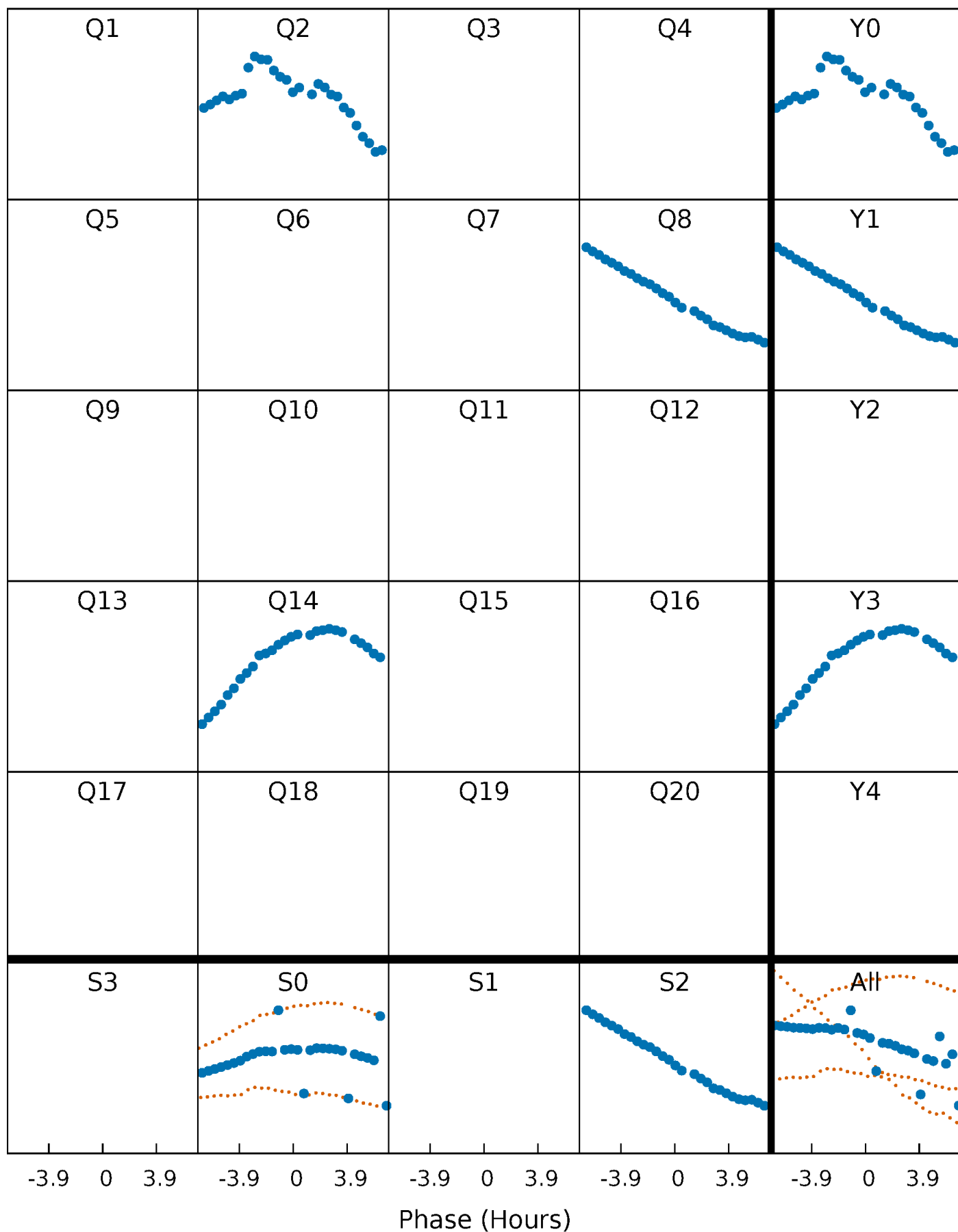


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



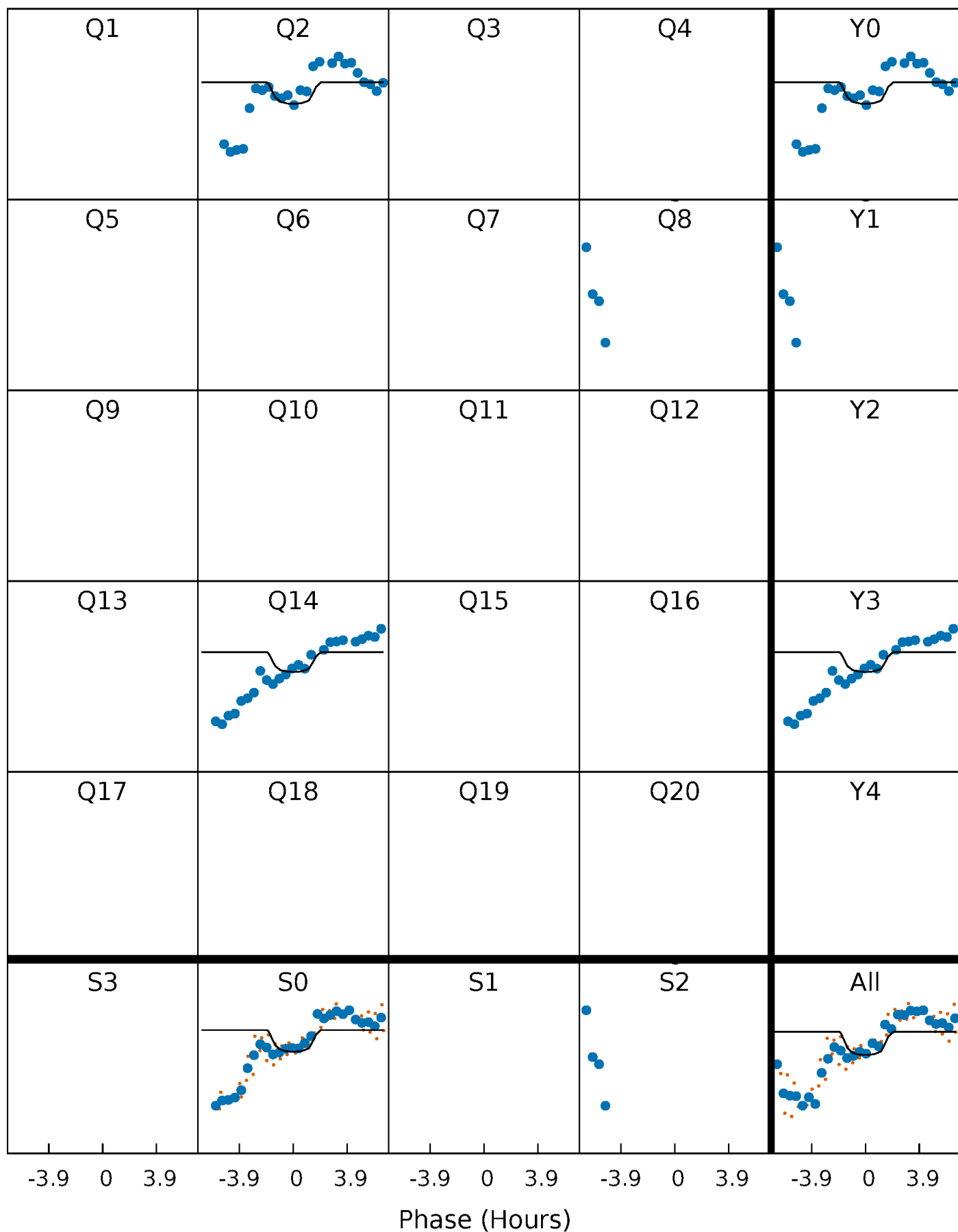
# PDC Quarter-Phased Transit Curves

TCE 008365739-04 P=571.622090 Days  $T_0=213.814013$  (BKJD)



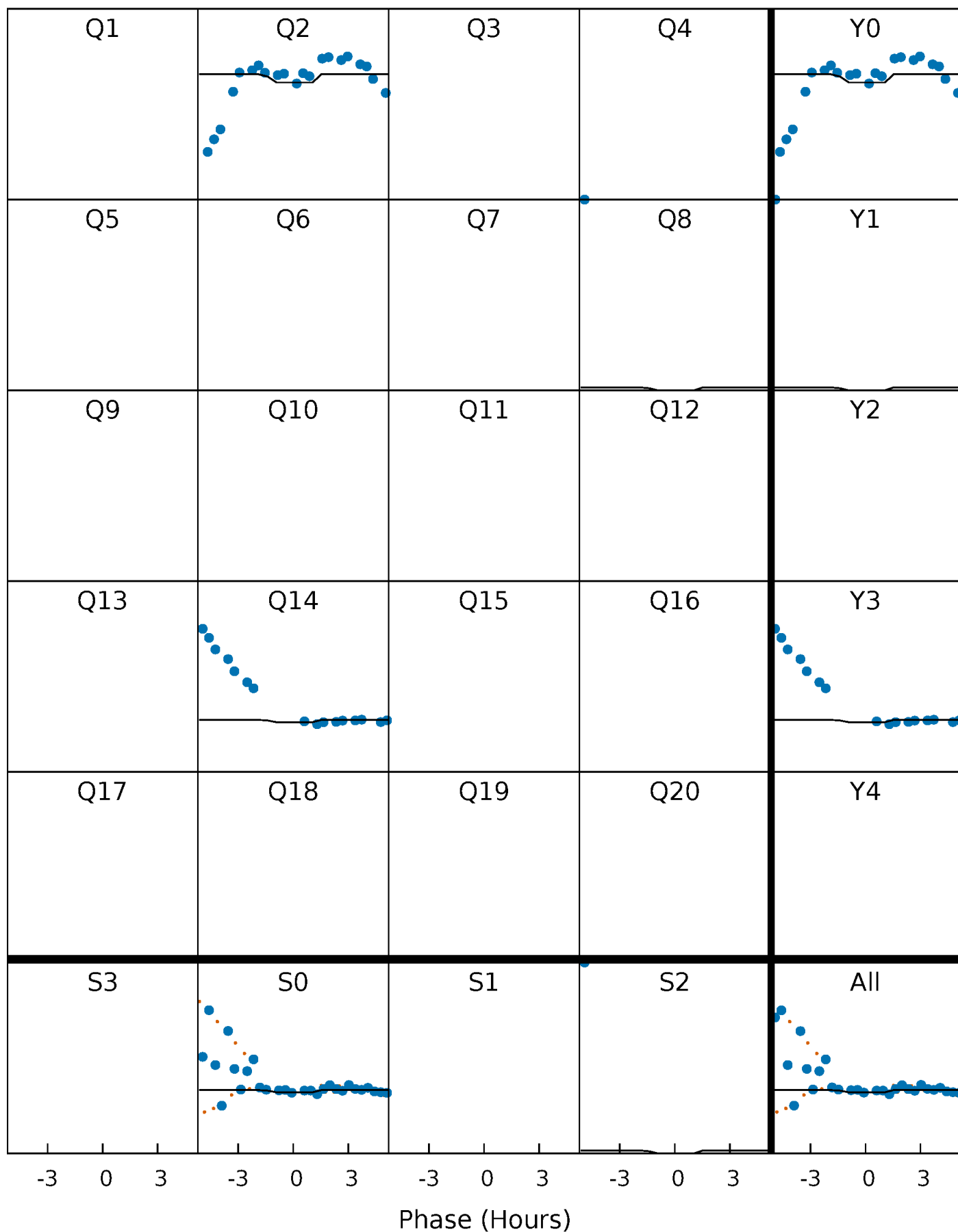
# DV Quarter-Phased Transit Curves

TCE 008365739-04 P=571.622090 Days  $T_0=213.814013$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

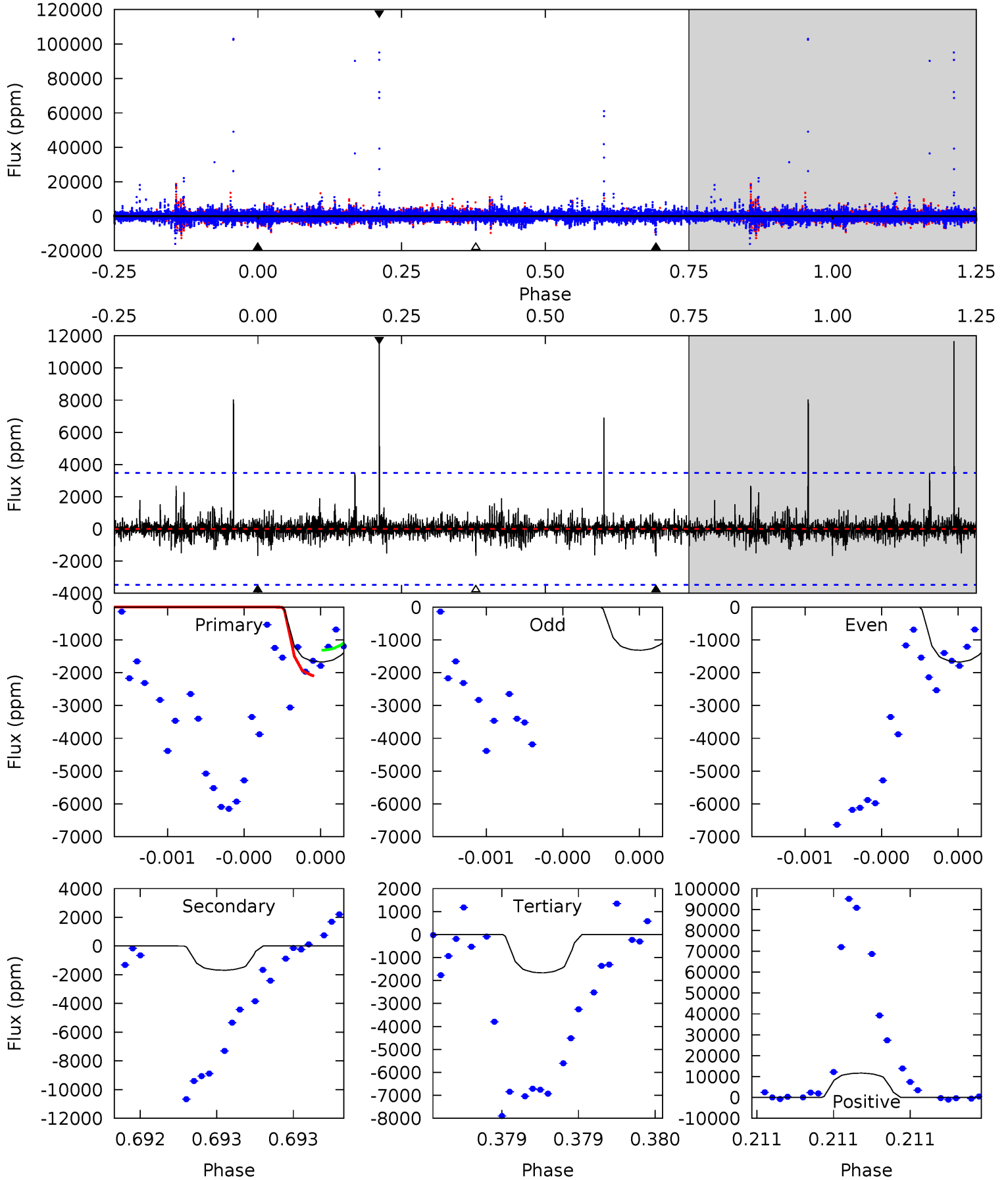
TCE 008365739-04 P=571.615219 Days  $T_0=213.818214$  (BKJD)



# DV Model-Shift Uniqueness Test

008365739-04, P = 571.622090 Days, E = 213.814013 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
2.73	2.75	2.72	19.0	5.68	3.64	0.72	0.01	-16.3	0.03	-16.3	0.37	1.00	0.87	0.63

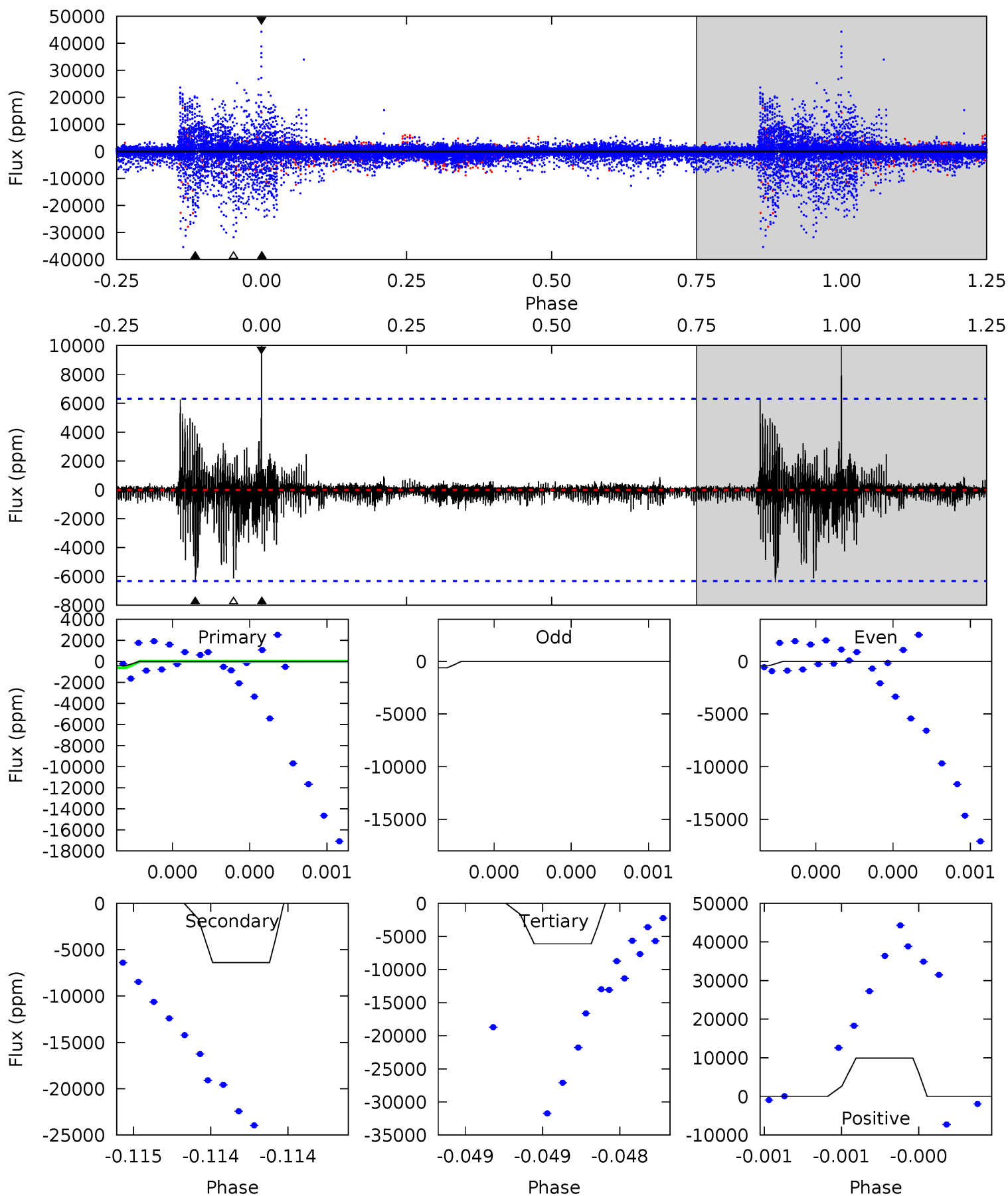




# Alt Model-Shift Uniqueness Test

008365739-04, P = 571.615219 Days, E = 213.818214 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
0.38	5.80	5.56	9.01	5.74	3.73	0.49	-5.18	-8.63	0.24	-3.21	0.13	1.00	0.61	0.23



### Stellar Parameters For KIC 008365739

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5594^{+169}_{-152}$	$4.390^{+0.153}_{-0.187}$	$-0.200^{+0.300}_{-0.300}$	$0.964^{+0.269}_{-0.166}$	$0.832^{+0.123}_{-0.066}$	$1.307^{+0.912}_{-0.616}$
	+3%/-3%	+3%/-4%	+150%/-150%	+28%/-17%	+15%/-8%	+70%/-47%
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 008365739-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1686 \pm 613$	$5.30^{+4.00}_{-2.95}$	$302^{+23}_{-19}$	$5141^{+2680}_{-1101}$	$52631^{+240174}_{-37641}$
Alt.	$-6390 \pm 1101$	$4.16^{+3.60}_{-2.66}$	$303^{+22}_{-16}$	$8328^{+11210}_{-2470}$	$333410^{+2362581}_{-241823}$

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

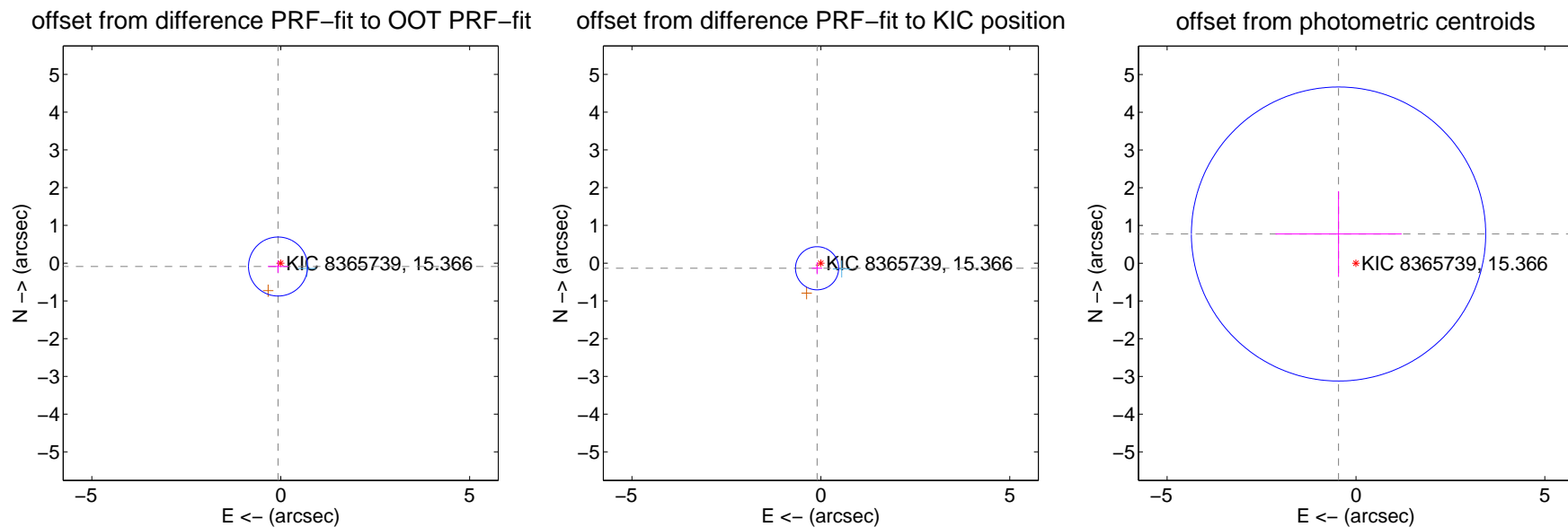
## DV Centroid Data

Supplemental centroid analysis for 008365739-04. Kepler magnitude: 15.37. Transit SNR 4.18

There are 1 quarters with good PRF difference image offsets

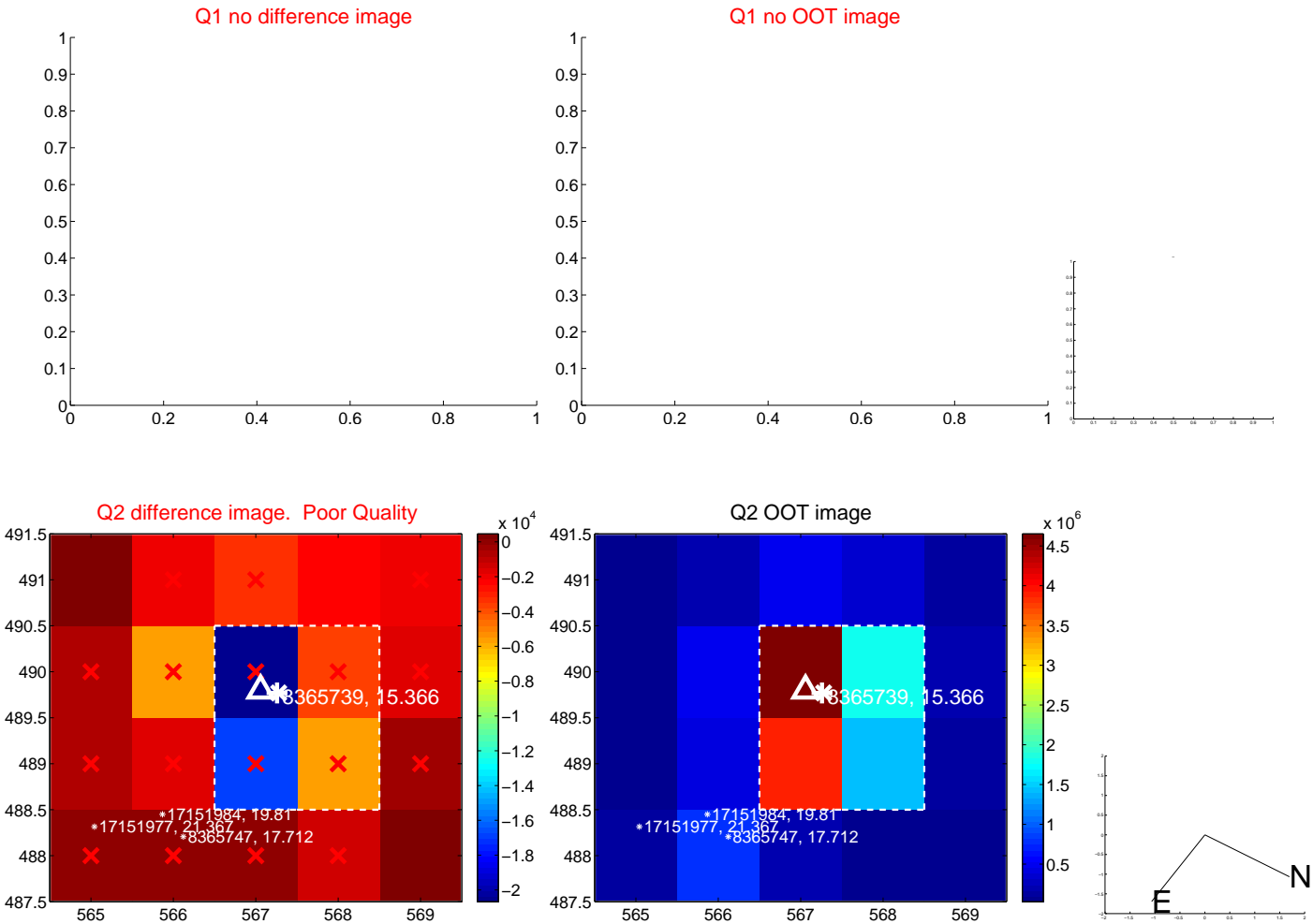
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.115 \pm 0.261$	0.44	$0.072 \pm 0.271$	$-0.090 \pm 0.164$
PRF-fit source offset from KIC position	$0.169 \pm 0.190$	0.89	$0.100 \pm 0.136$	$-0.136 \pm 0.156$
photometric centroid source offset	$0.90 \pm 1.30$	0.69	$0.46 \pm 1.67$	$0.77 \pm 1.14$

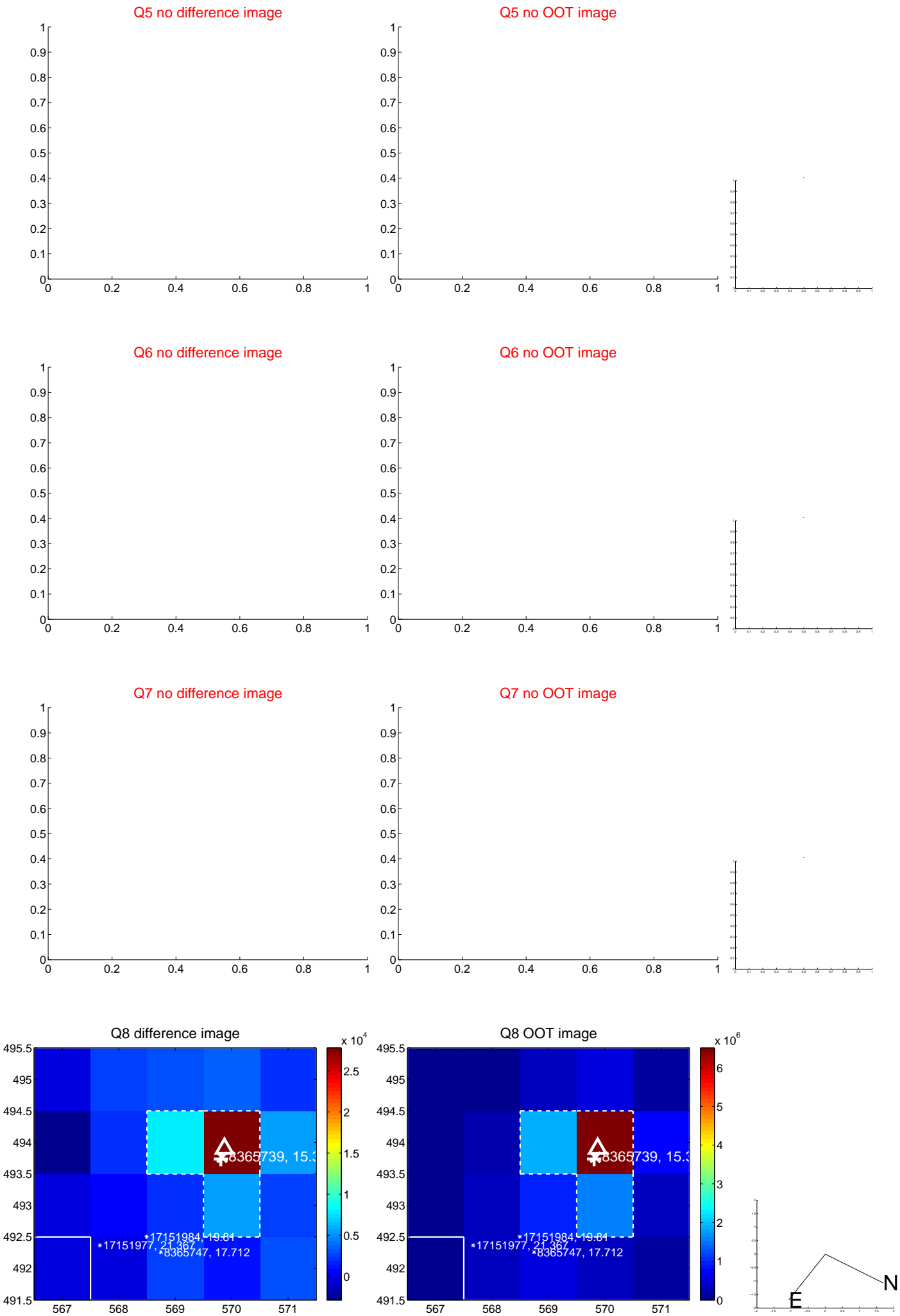


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



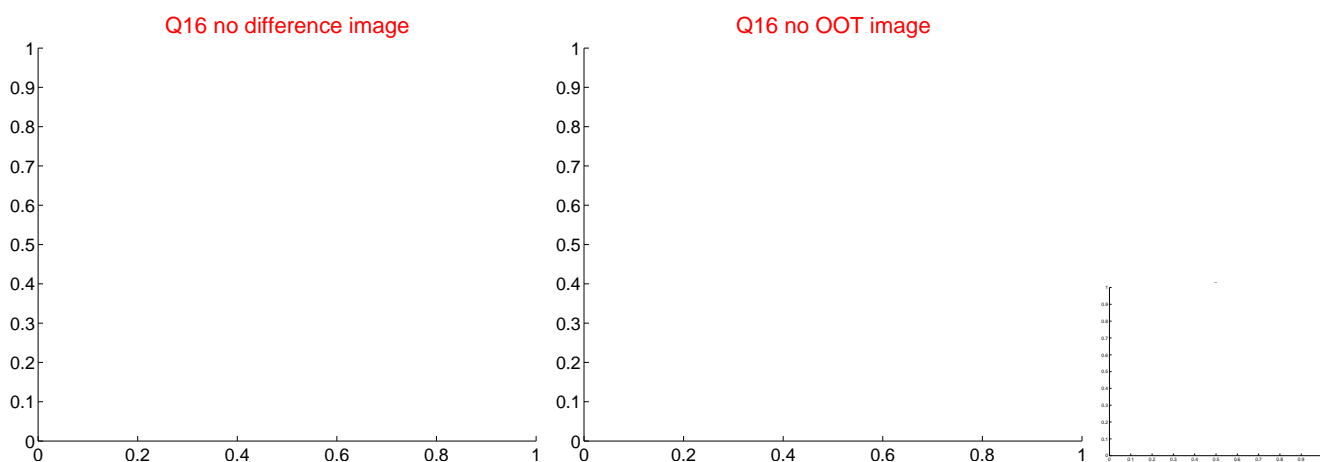
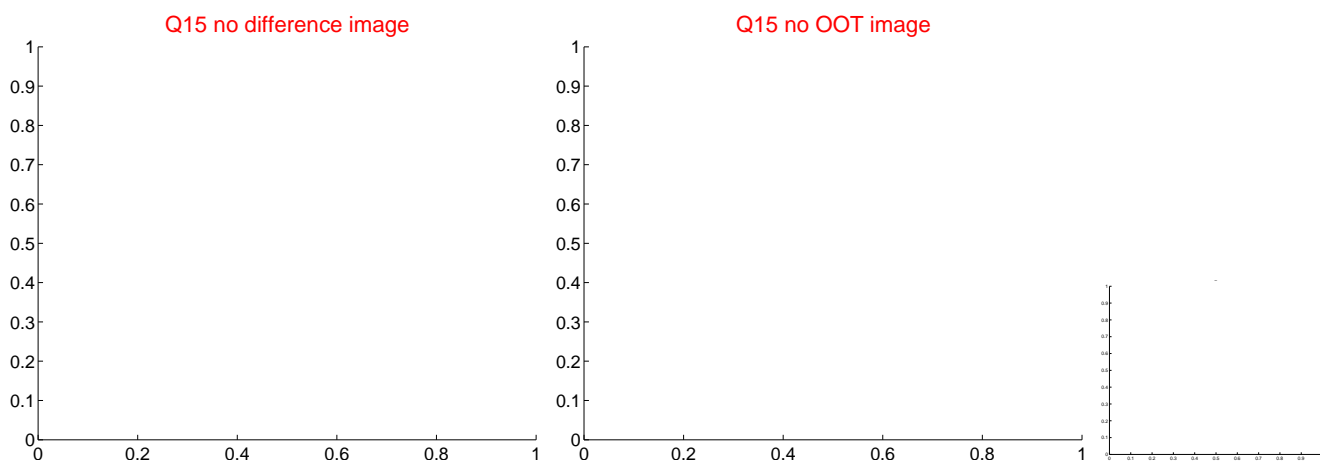
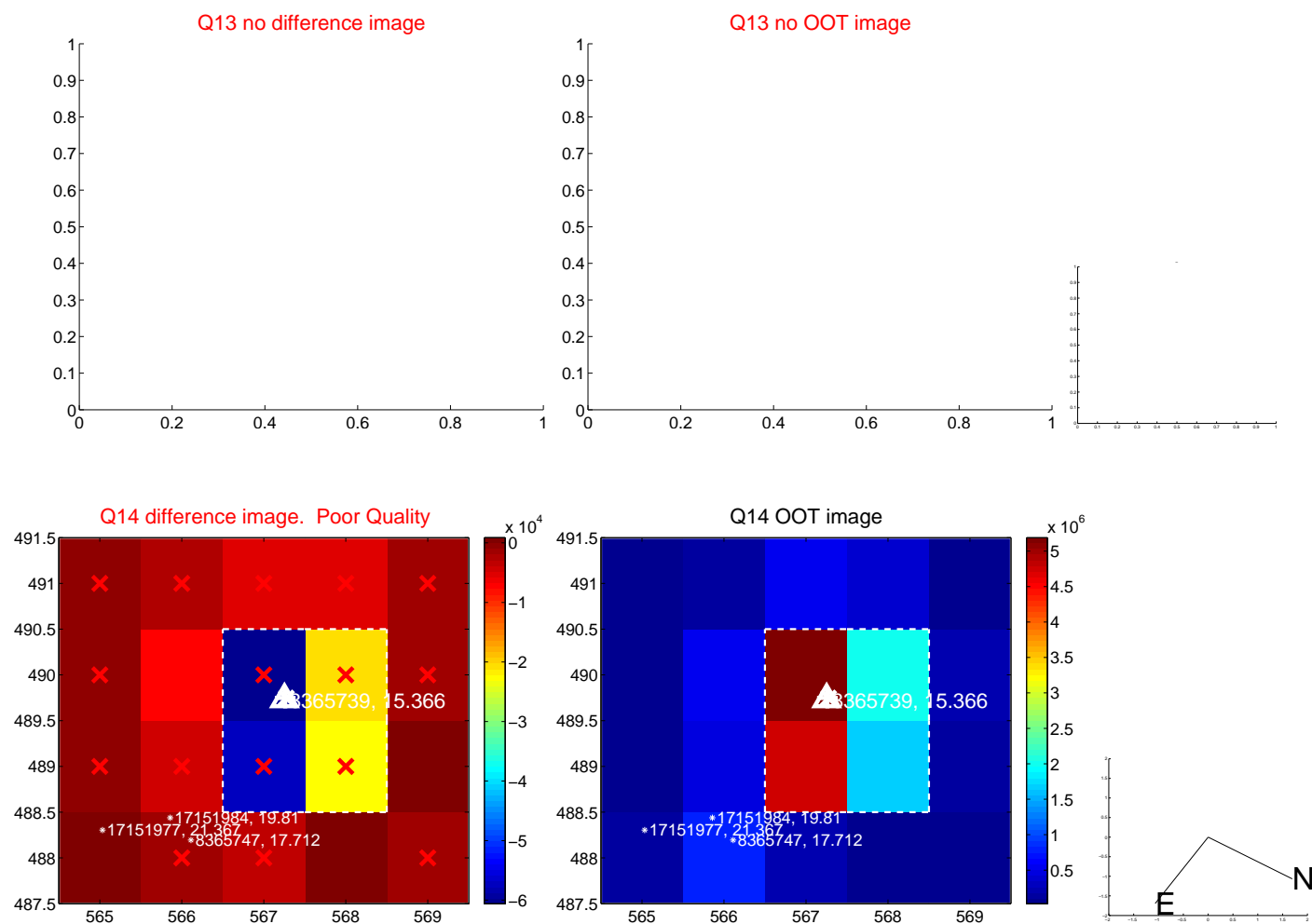
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

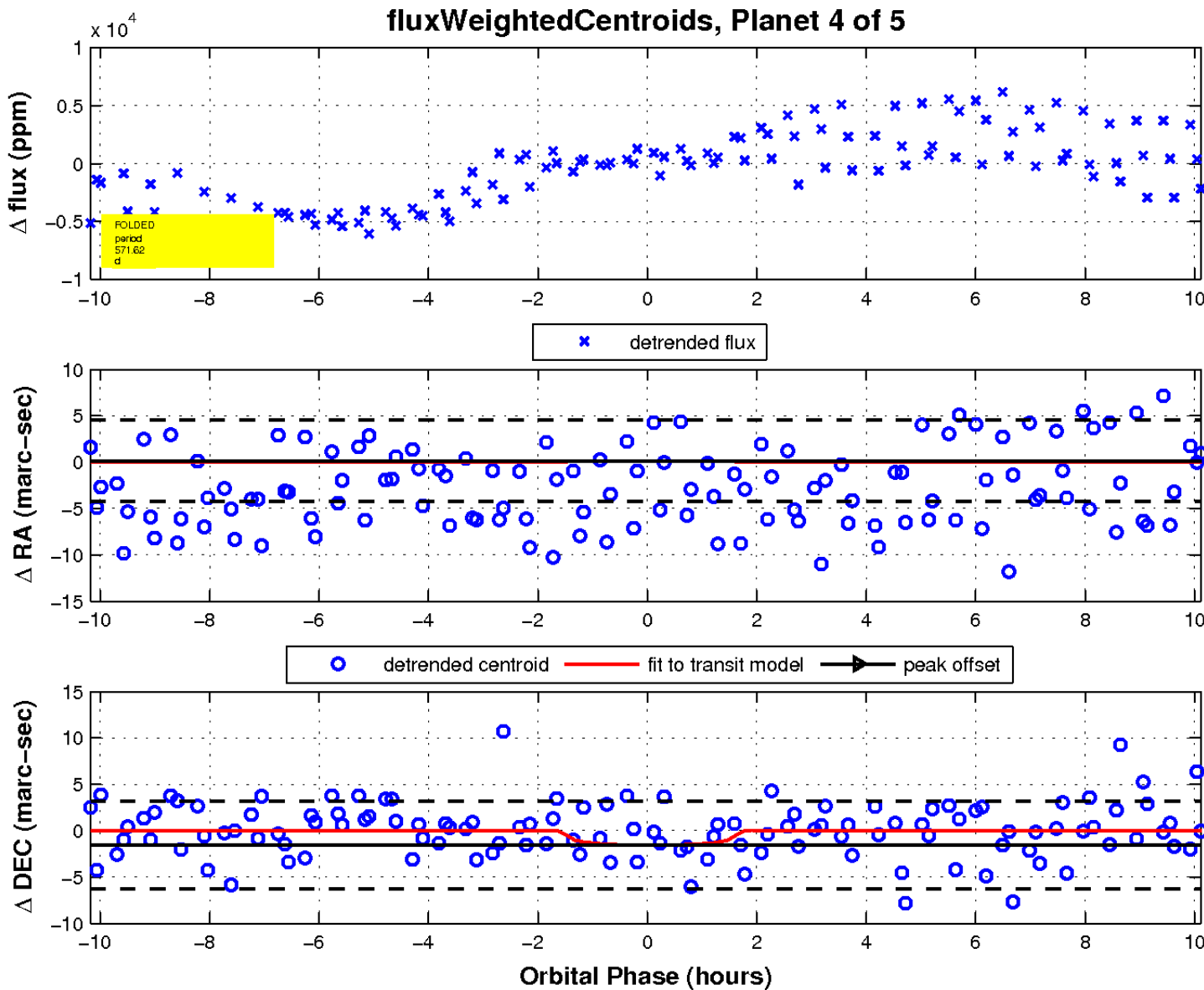




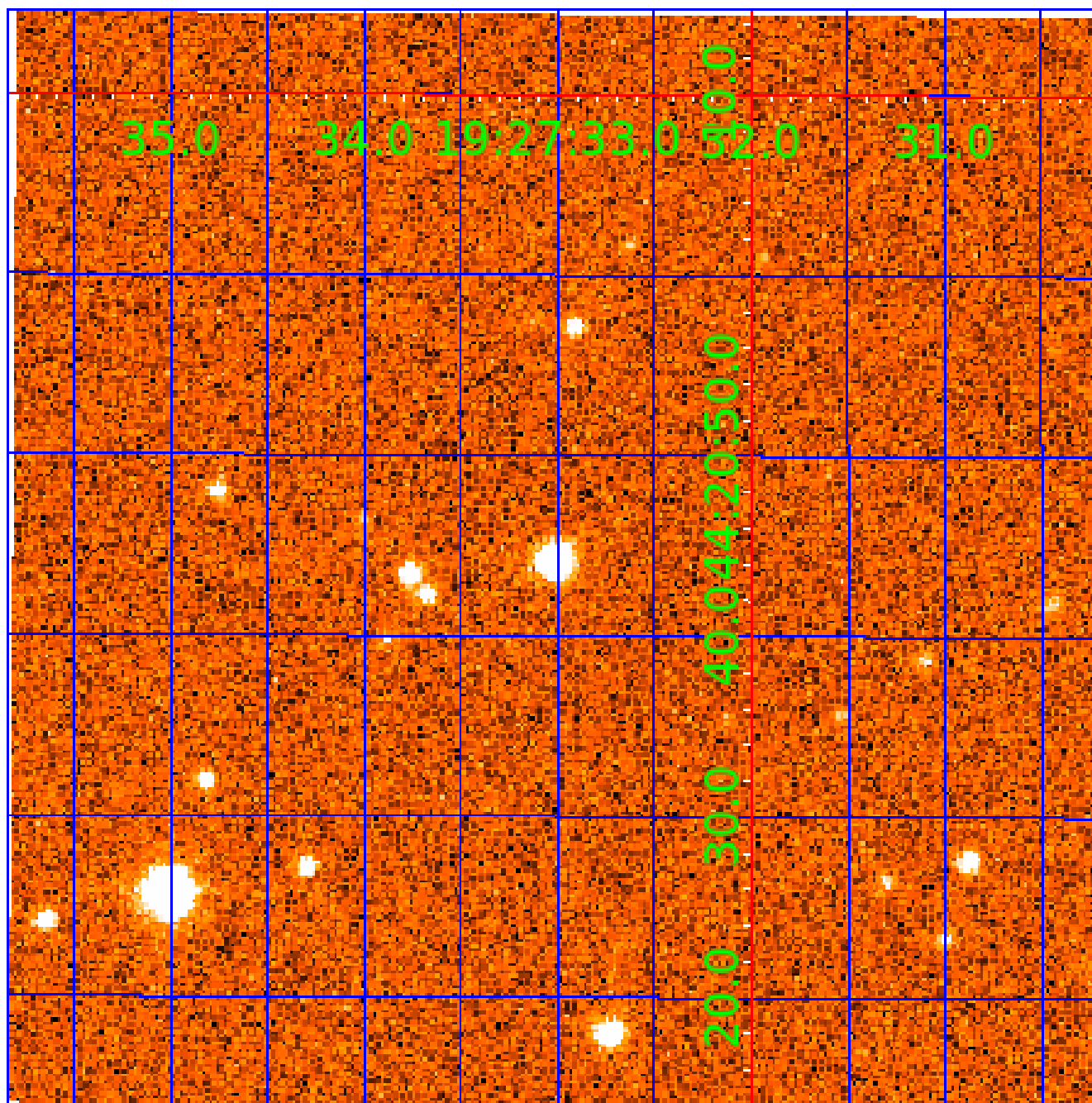
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q17 no difference image

Q17 no OOT image



UKIRT Image



# KIC 008365739

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008365739-01	OBS	3722.01	2.389281	132.033369	20693.7	5.040	424.3	356.8	0.96	5594	17.18	753.03
008365739-02	OBS	No	2.389286	133.225661	1299.6	4.164	35.5	38.1	0.96	5594	4.15	753.03
008365739-03	OBS	No	124.578631	211.287018	1482.7	5.000	12.4	-1.0	0.96	5594	3.67	3.87
008365739-04	OBS	No	571.622090	213.814013	1900.0	3.450	9.5	4.2	0.96	5594	4.63	0.51
008365739-05	OBS	No	109.366908	186.456837	2358.6	3.500	11.3	-1.0	0.96	5594	4.63	4.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008365739-01	OBS	FP	0.21	0	1	0	0	SWEET_EB—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
008365739-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
008365739-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
008365739-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008365739-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008365739-05

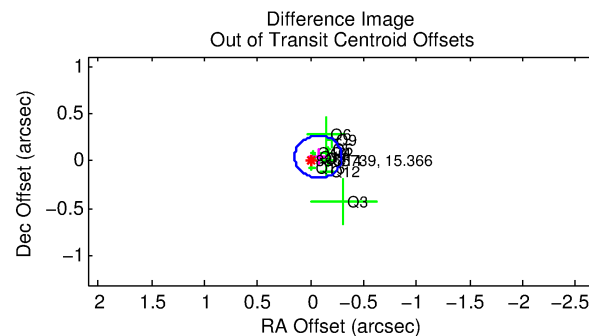
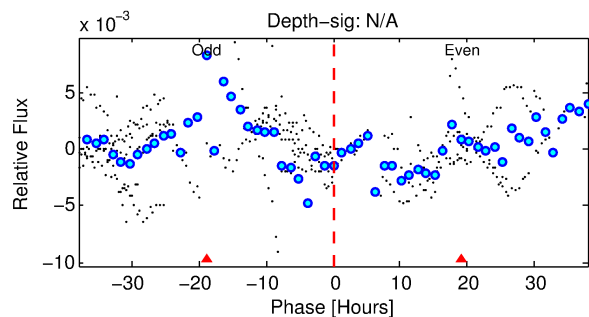
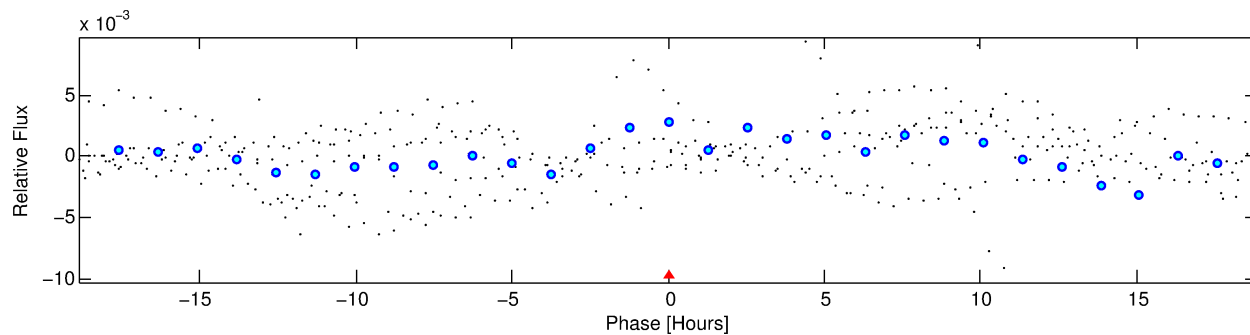
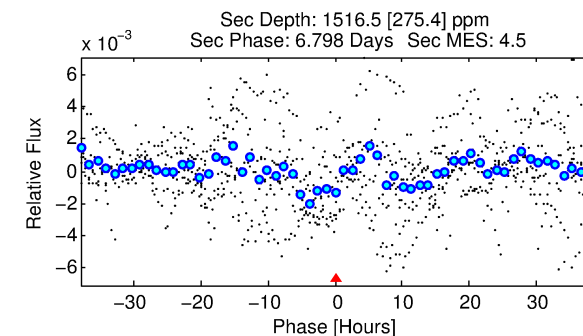
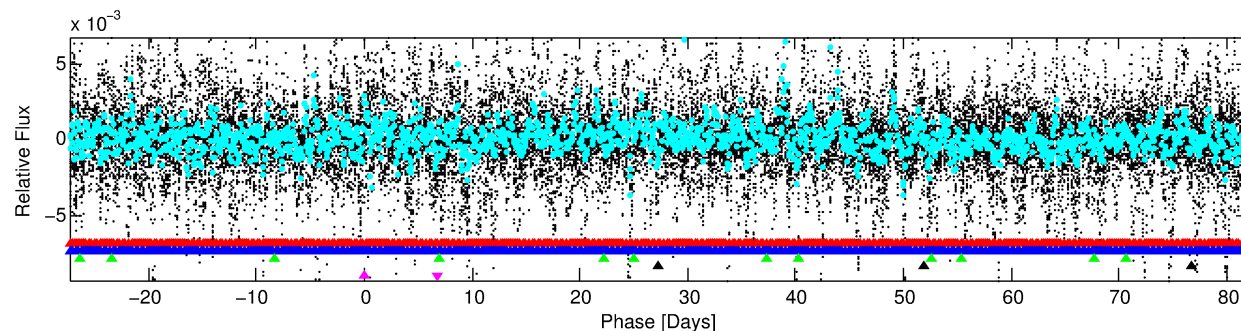
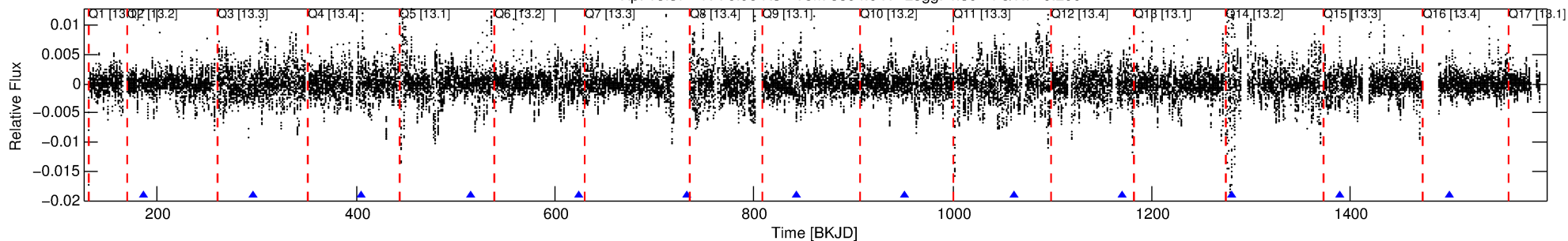
No Significant Match Found

# DV One-Page Summary

KIC: 8365739 Candidate: 5 of 5 Period: 109.367 d

KOI: K03722 Corr: No Ephemeris Match

Kp: 15.37 R\*: 0.96 Rs Teff: 5594.0 K Logg: 4.39 Fe/H: -0.200



## TPS TCE Results:

Period = 109.36691 d  
Epoch = 186.4568 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

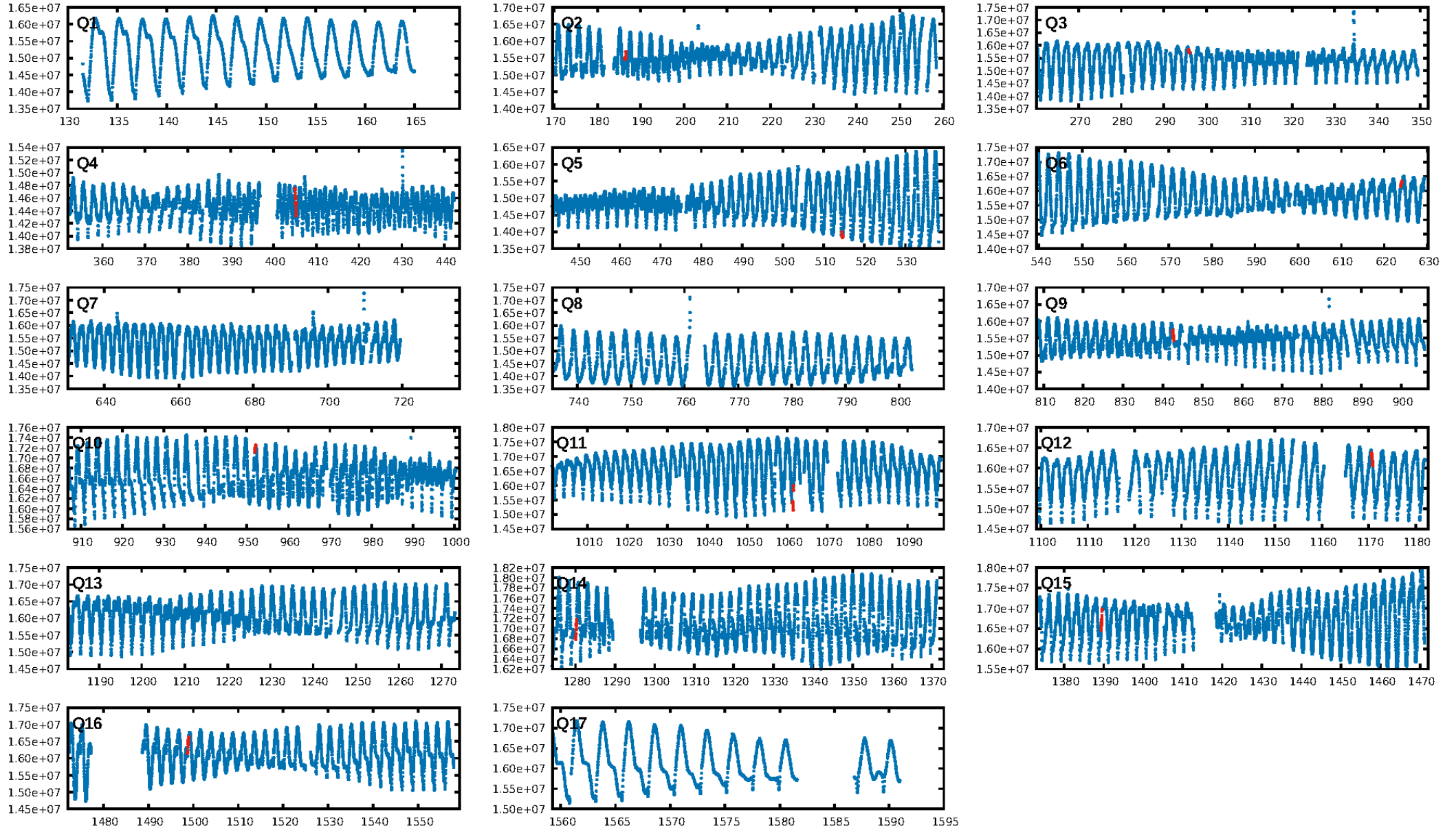
ShortPeriod-sig: 100.0% [471.99σ]  
LongPeriod-sig: 100.0% [59.82σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [9/9]  
GhostDiagnostic-chr: -0.2995

Centroid-sig: 0.5%  
Centroid-so: 2.250 arcsec [1.61σ]  
OotOffset-rm: 0.088 arcsec [1.19σ]  
KicOffset-rm: 0.044 arcsec [0.60σ]  
OotOffset-st: 4/3/2/2 [11]  
KicOffset-st: 4/3/2/2 [11]  
DiffImageQuality-fgm: 0.64 [7/11]  
DiffImageOverlap-fno: 0.00 [0/11]

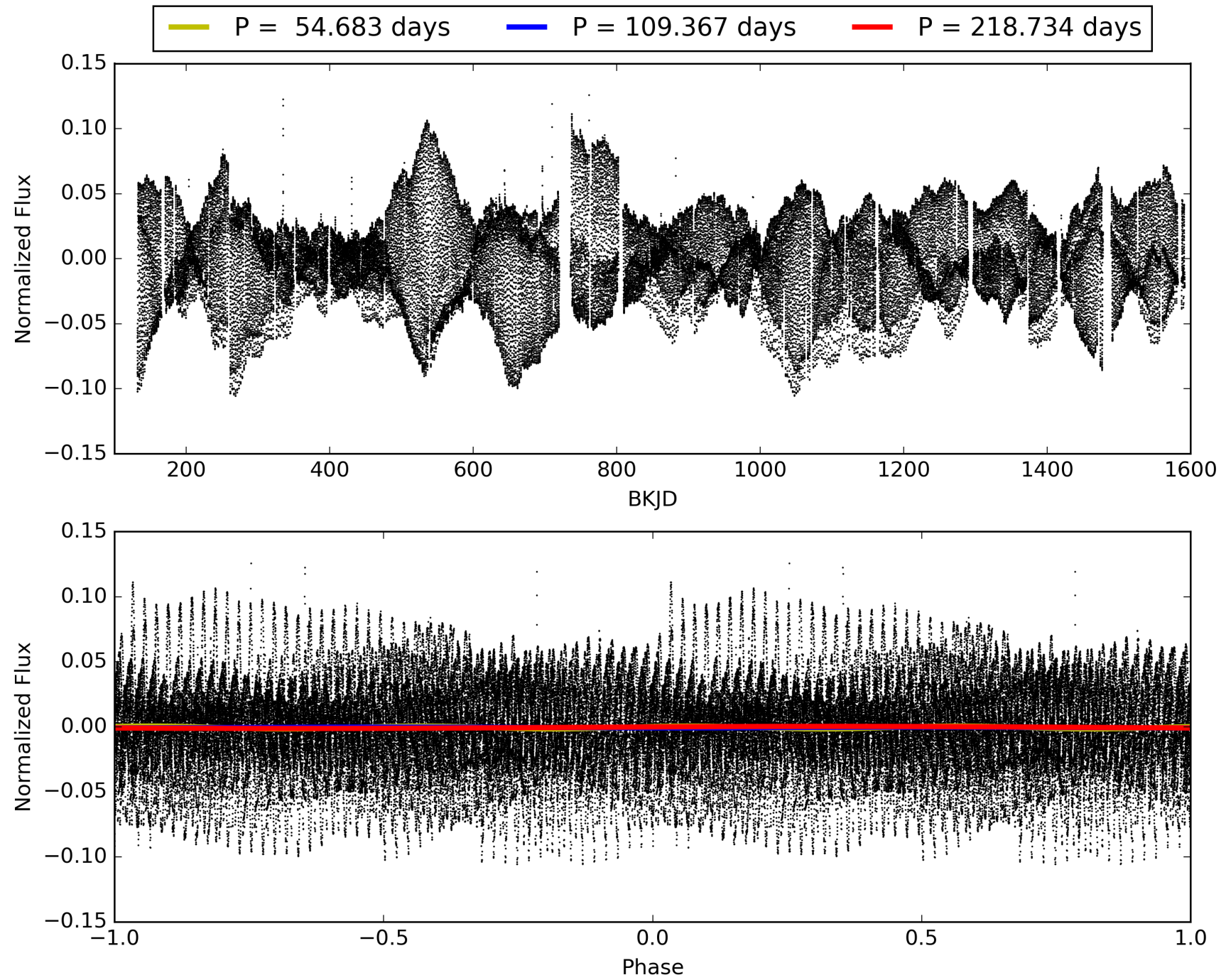
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:08:29 Z

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

# TCE 008365739-05, PDC Light Curves



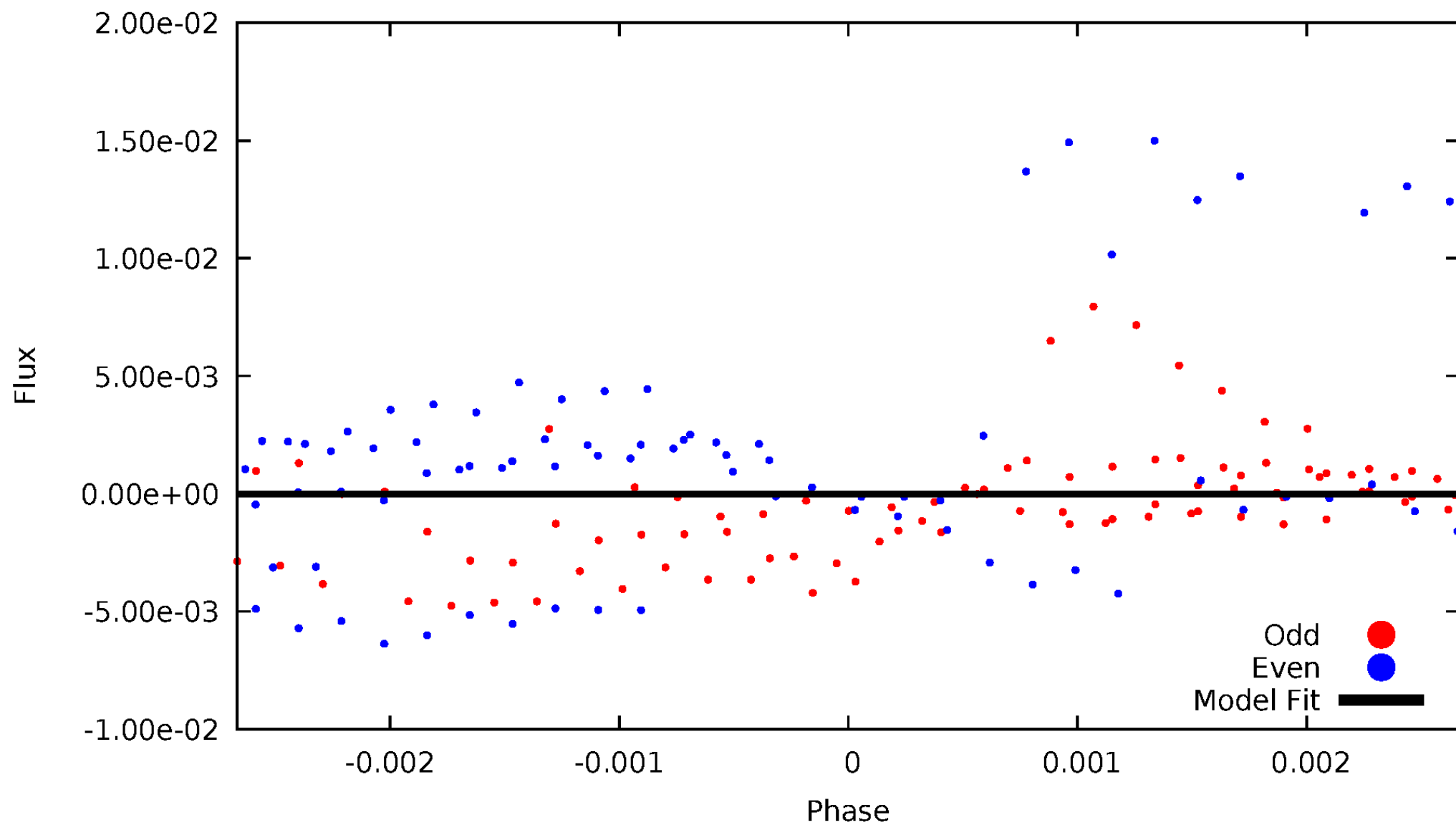
TCE 008365739-05





# DV Odd/Even

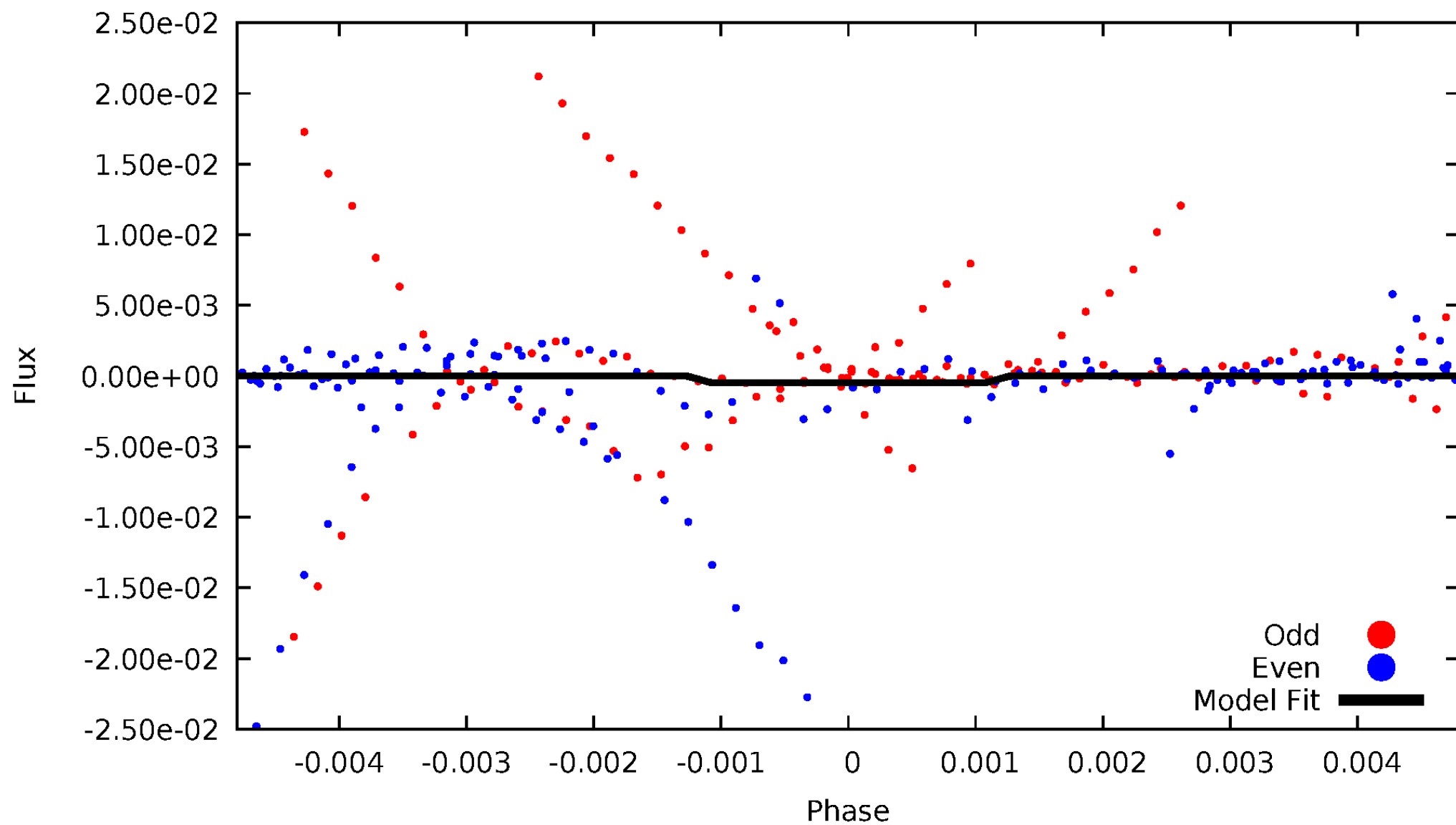
TCE 008365739-05



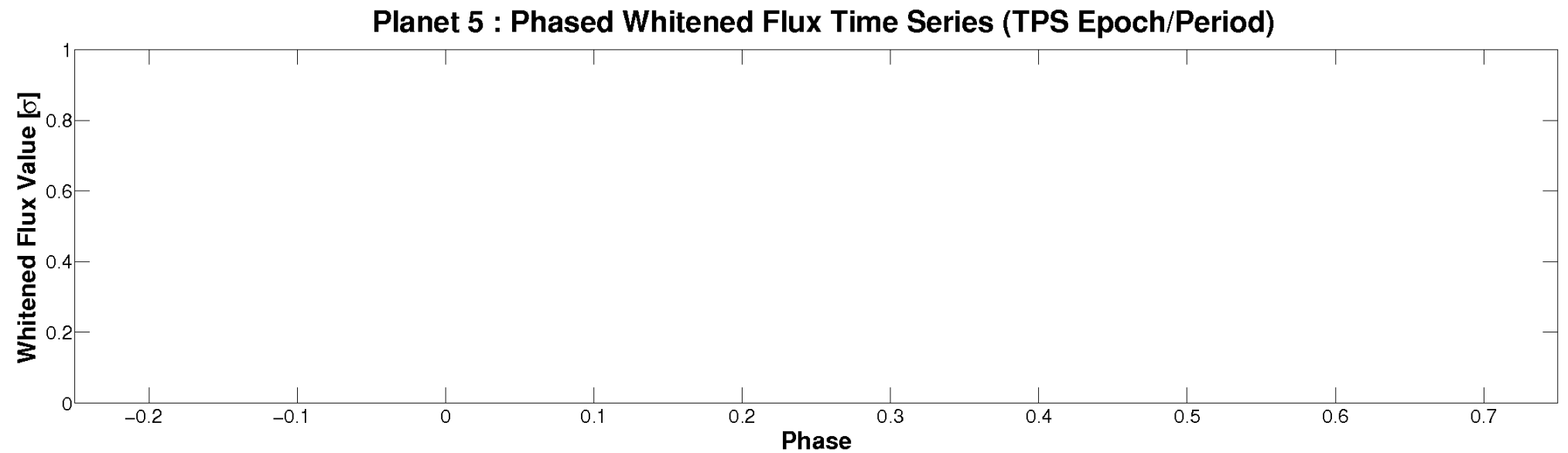
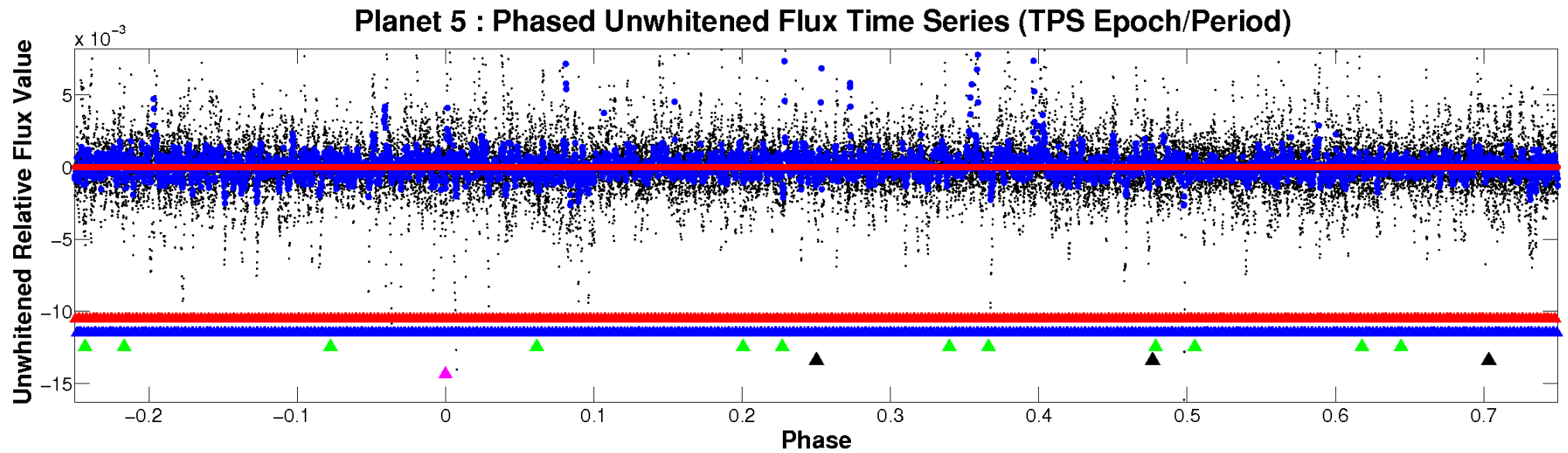


# ALT Odd/Even

TCE 008365739-05

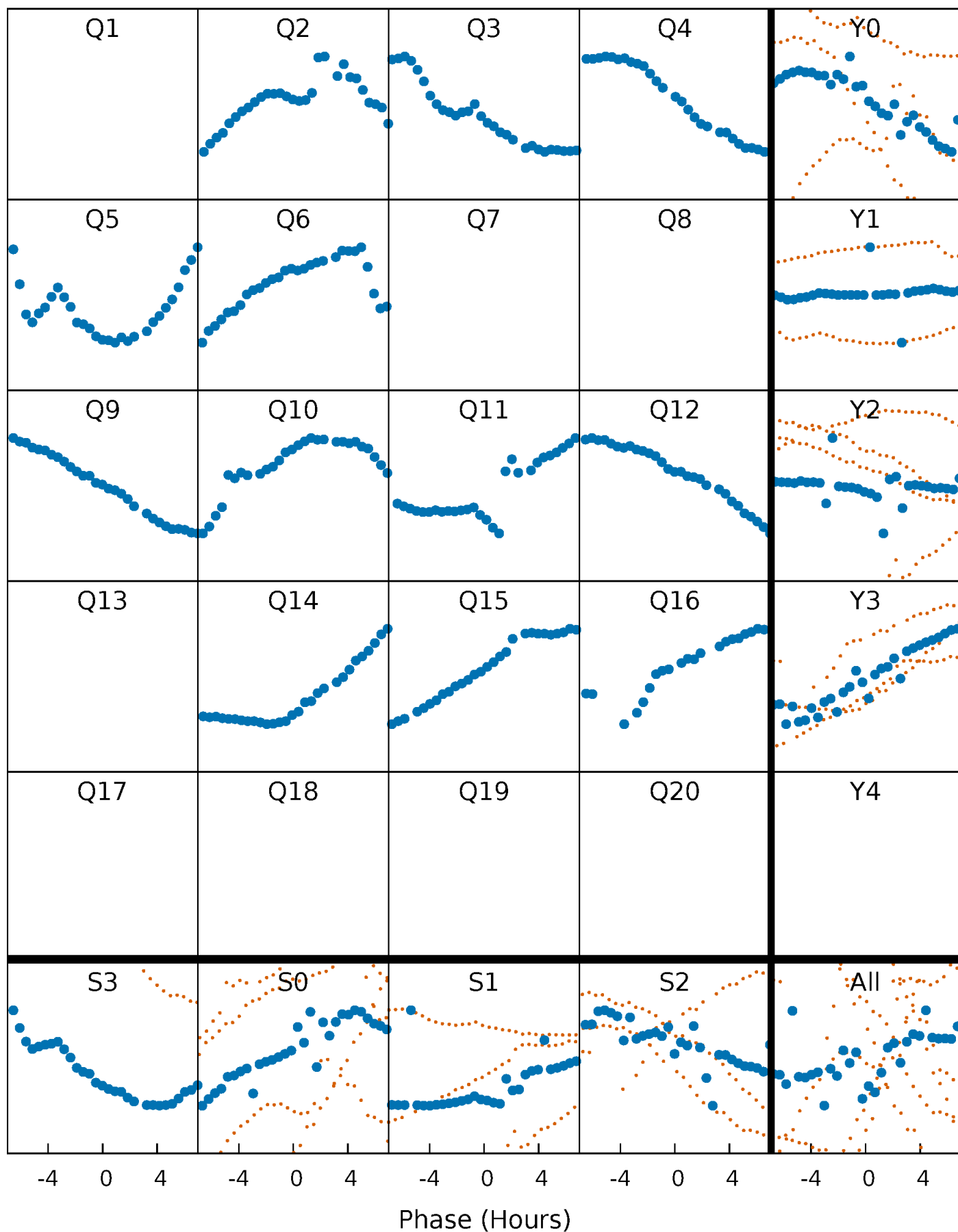


# Non-Whitened Vs. Whitened Light Curve



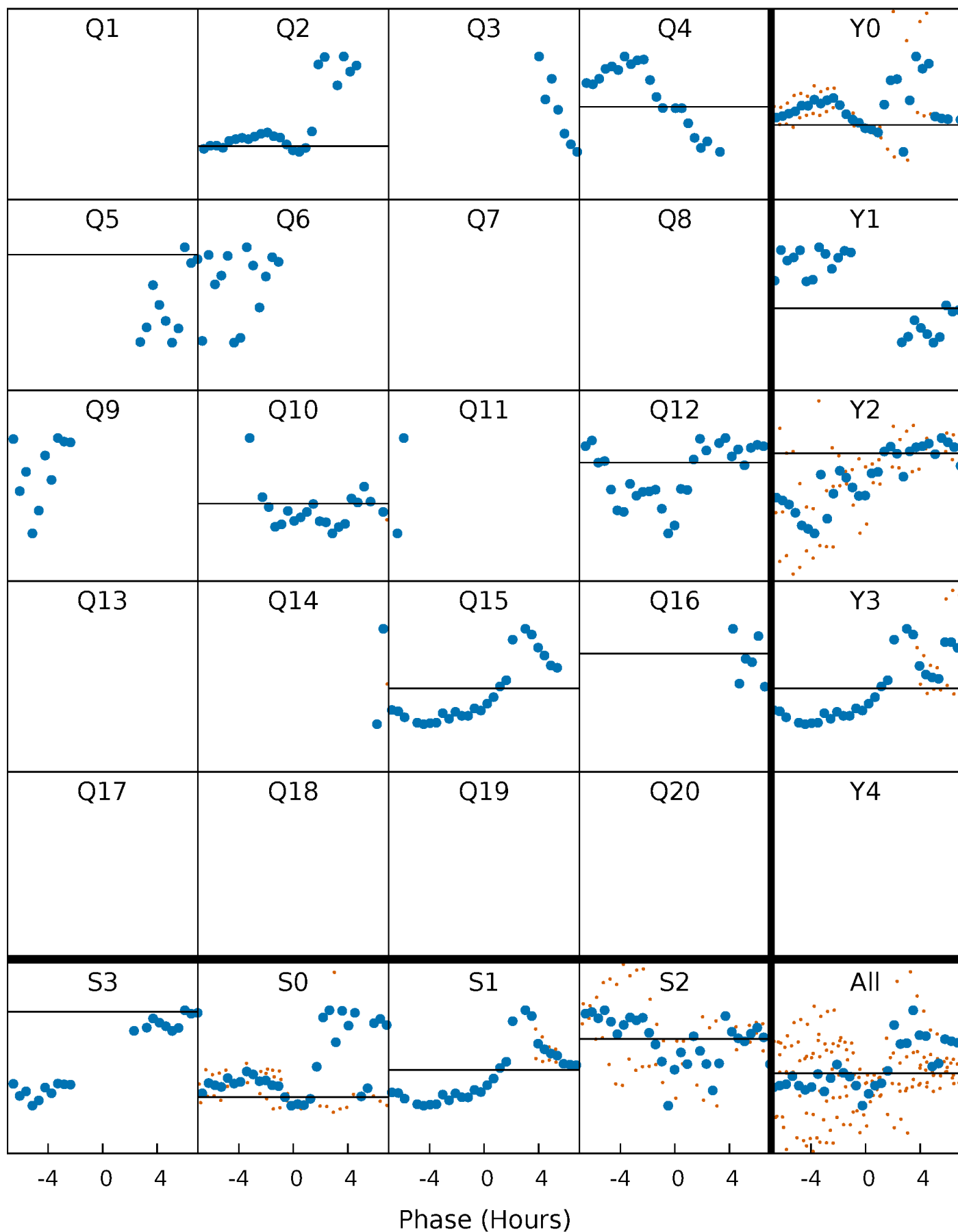
# PDC Quarter-Phased Transit Curves

TCE 008365739-05   P=109.366908 Days    $T_0=186.456837$  (BKJD)



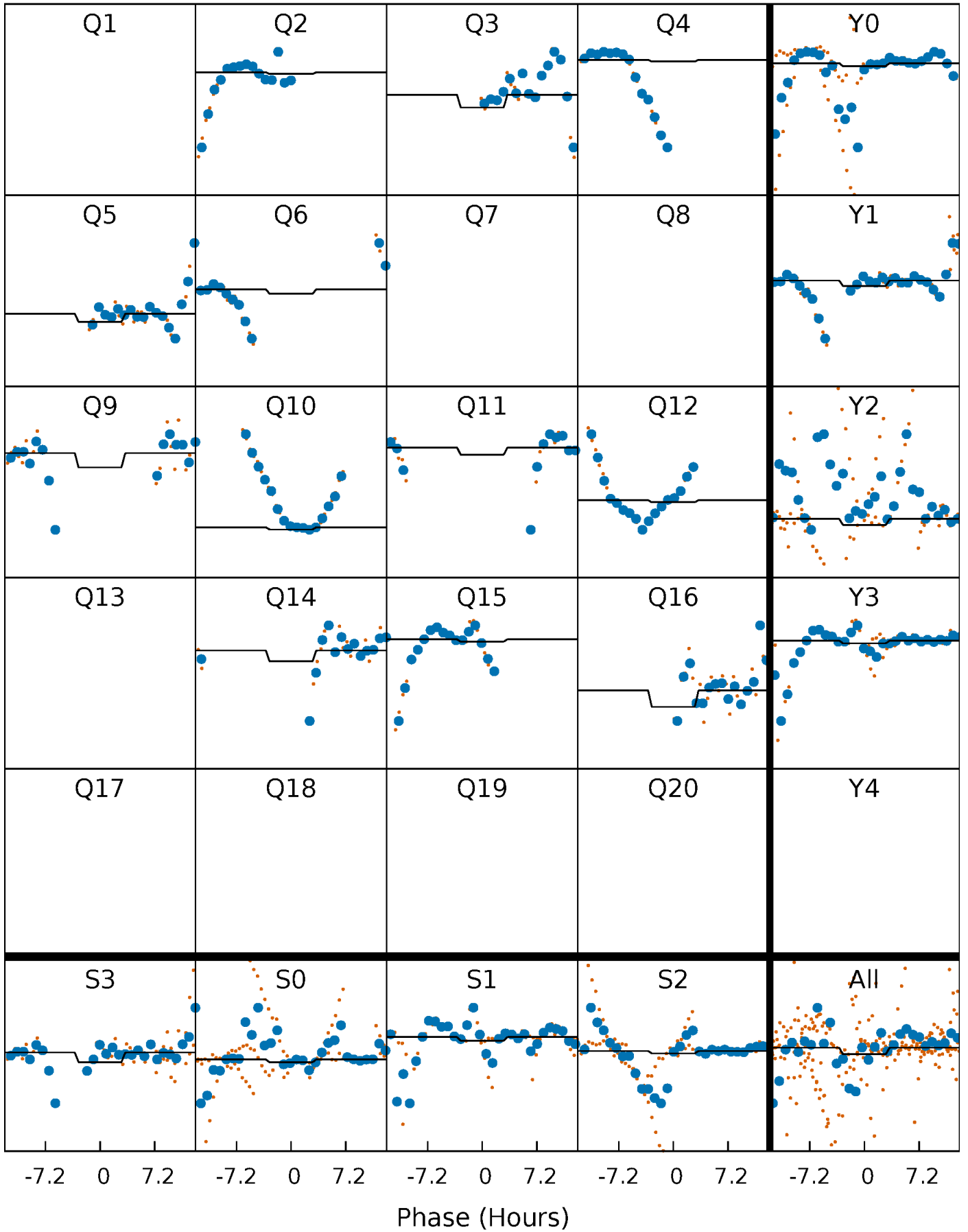
# DV Quarter-Phased Transit Curves

TCE 008365739-05     $P=109.366908$  Days     $T_0=186.456837$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

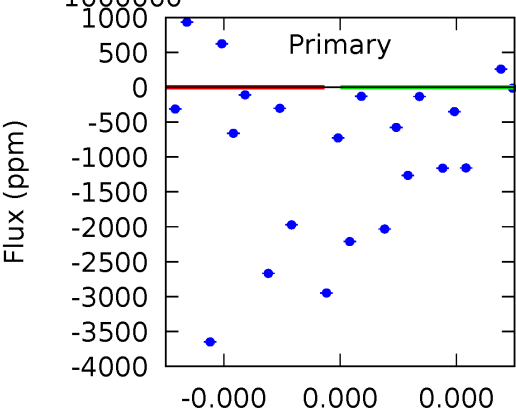
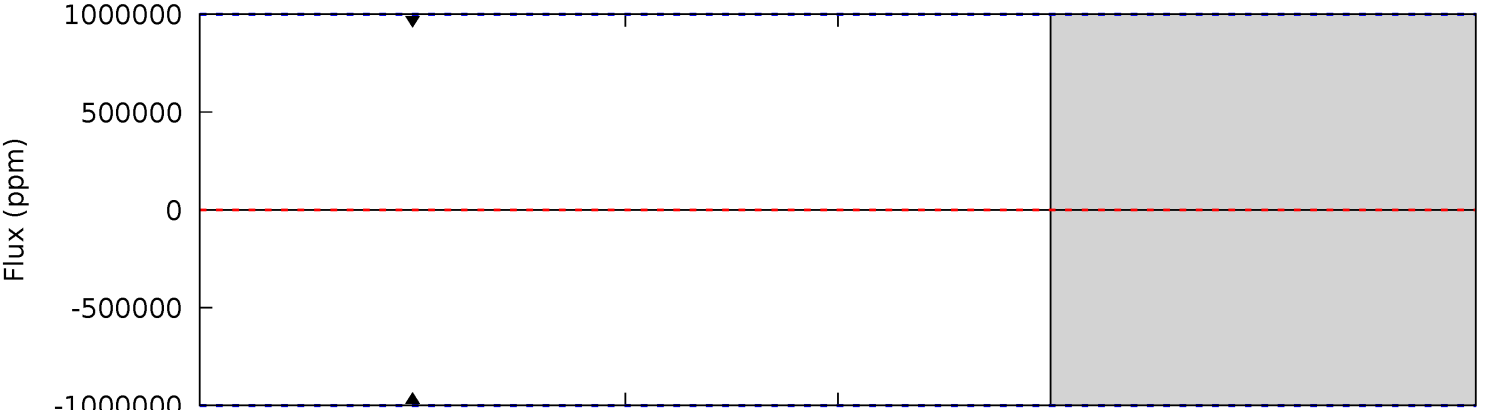
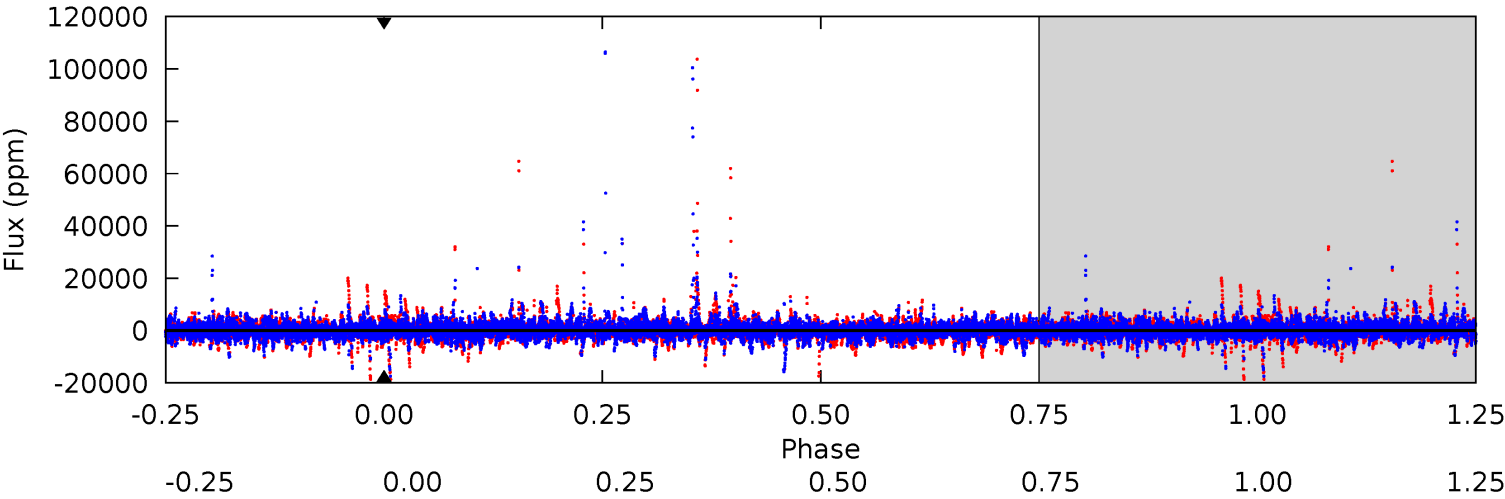
TCE 008365739-05     $P=109.366908$  Days     $T_0=186.621007$  (BKJD)



# DV Model-Shift Uniqueness Test

008365739-05, P = 109.366908 Days, E = 77.089929 Days

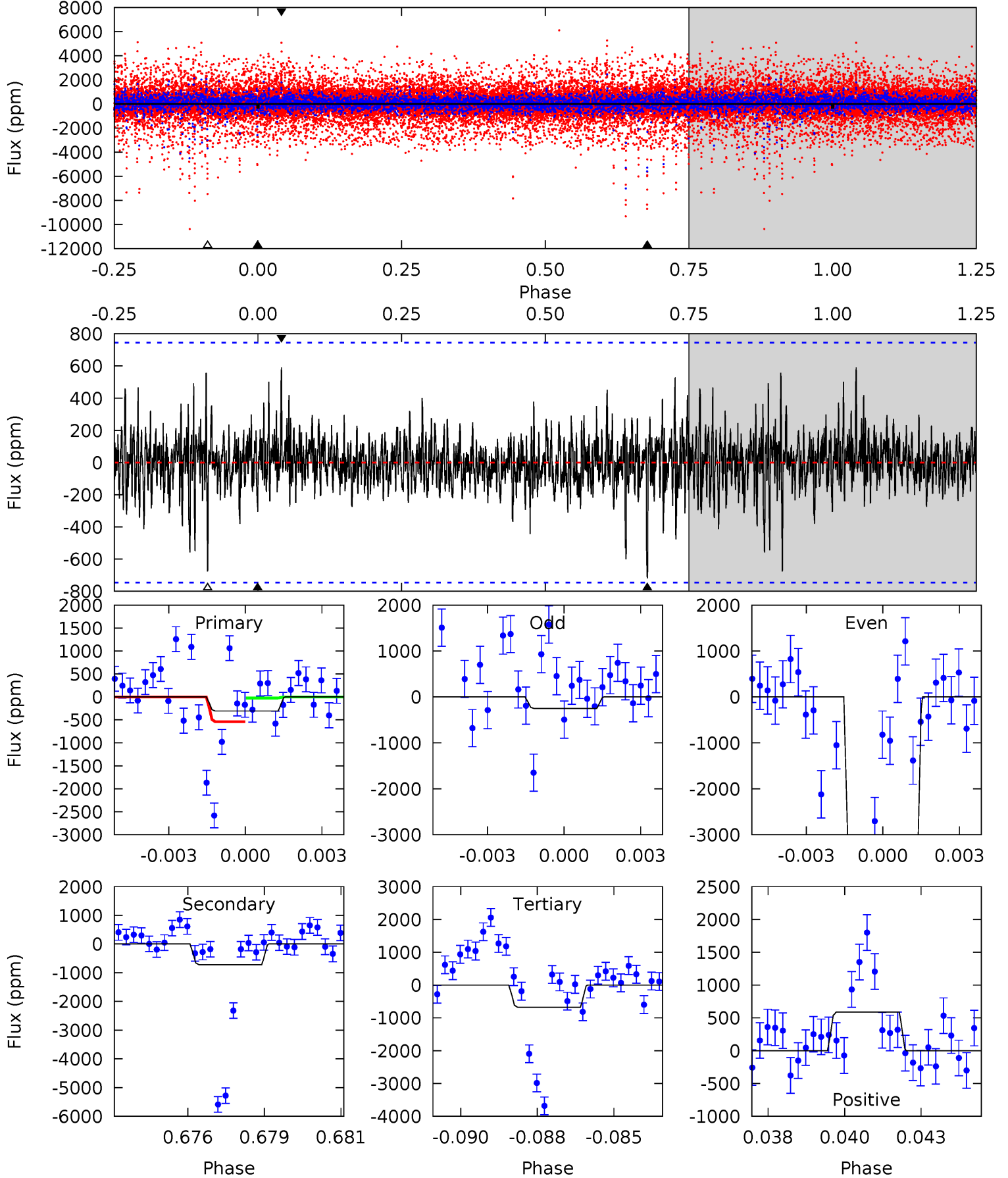
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008365739-05, P = 109.366908 Days, E = 77.254099 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
2.17	5.10	4.79	4.19	5.29	3.02	0.96	-2.63	-2.02	0.30	0.91	8.41	31.5	0.45	1.77



### Stellar Parameters For KIC 008365739

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$5594^{+169}_{-152}$	$4.390^{+0.153}_{-0.187}$	$-0.200^{+0.300}_{-0.300}$	$0.964^{+0.269}_{-0.166}$	$0.832^{+0.123}_{-0.066}$	$1.307^{+0.912}_{-0.616}$
	+3%/-3%	+3%/-4%	+150%/-150%	+28%/-17%	+15%/-8%	+70%/-47%
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 008365739-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$8.91^{+9.75}_{-5.87}$	$524^{+38}_{-32}$	$-4136^{+20537}_{-11811}$	$-2169.549^{+211028.806}_{-190344.675}$
Alt.	$-719 \pm 141$	$8.01^{+7.80}_{-5.49}$	$523^{+41}_{-31}$	$3711^{+2164}_{-693}$	$1070^{+9821}_{-802}$

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



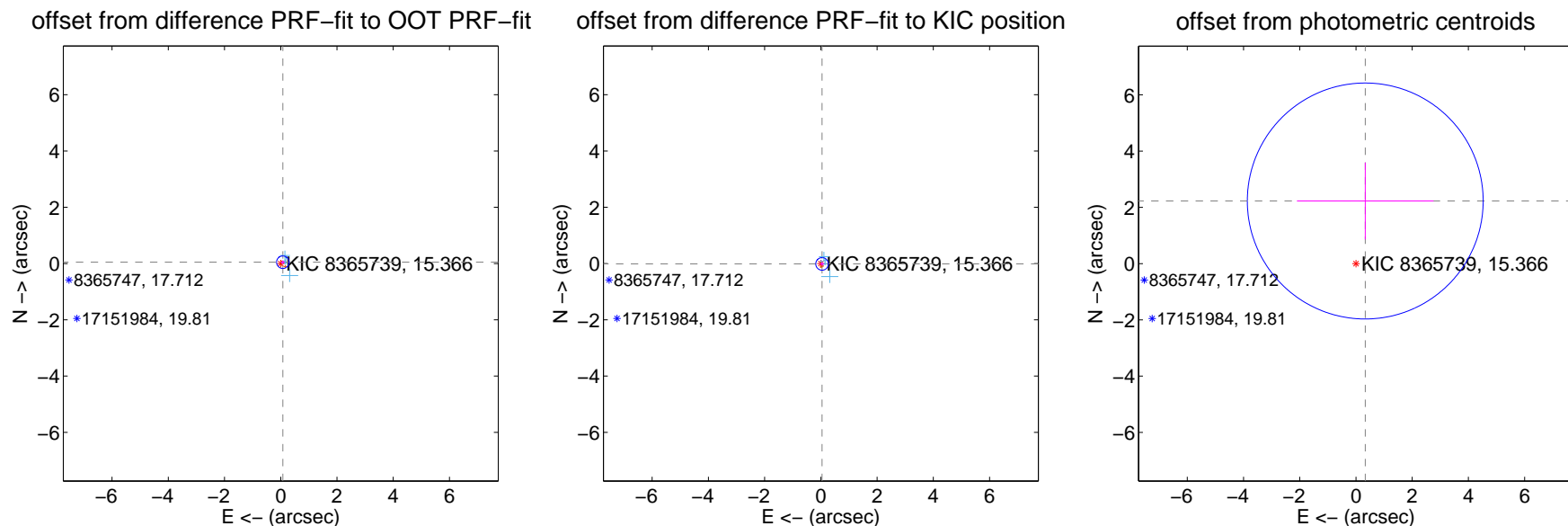
## DV Centroid Data

Supplemental centroid analysis for 008365739-05. Kepler magnitude: 15.37. Transit SNR -1.00

There are 7 quarters with good PRF difference image offsets

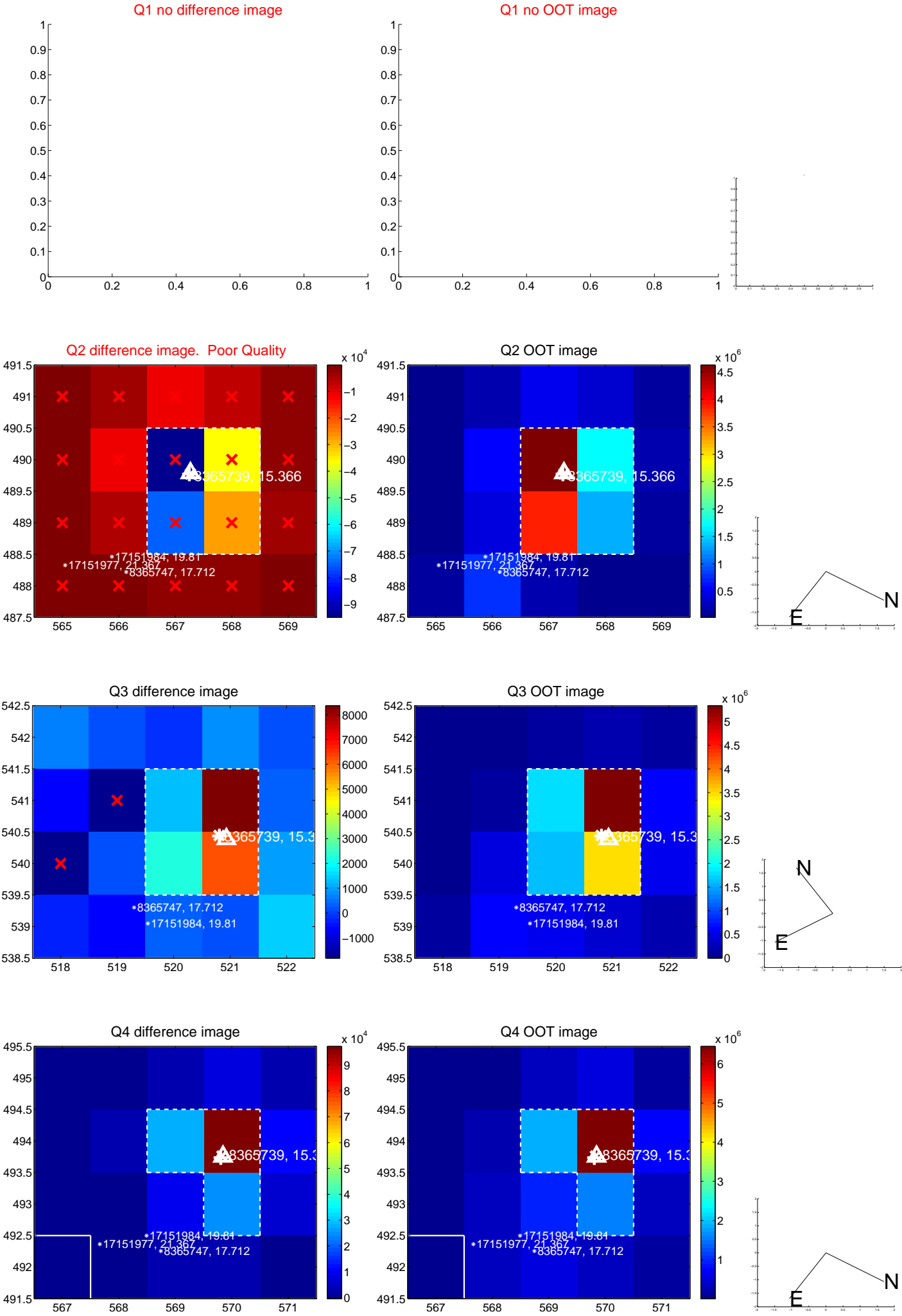
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.088 \pm 0.074$	1.19	$-0.074 \pm 0.075$	$0.048 \pm 0.073$
PRF-fit source offset from KIC position	$0.044 \pm 0.075$	0.60	$-0.042 \pm 0.075$	$-0.013 \pm 0.073$
photometric centroid source offset	$2.25 \pm 1.40$	1.61	$-0.33 \pm 2.43$	$2.23 \pm 1.37$

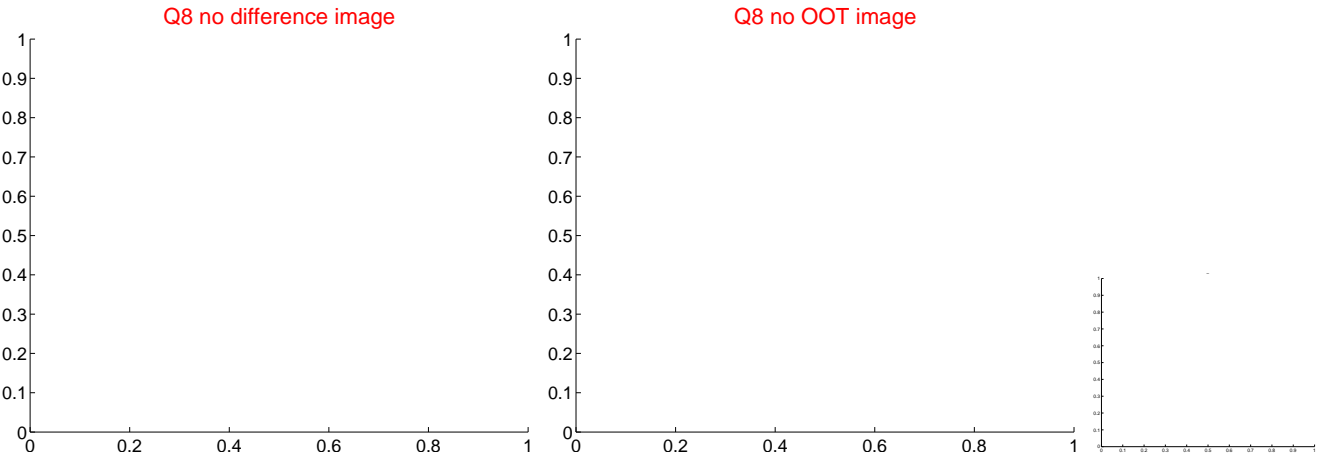
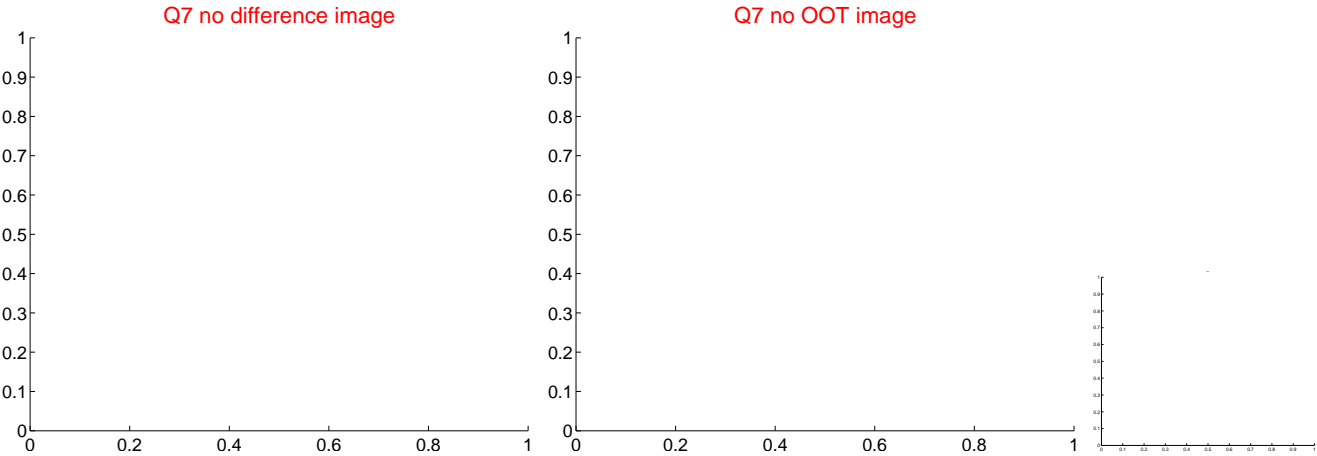
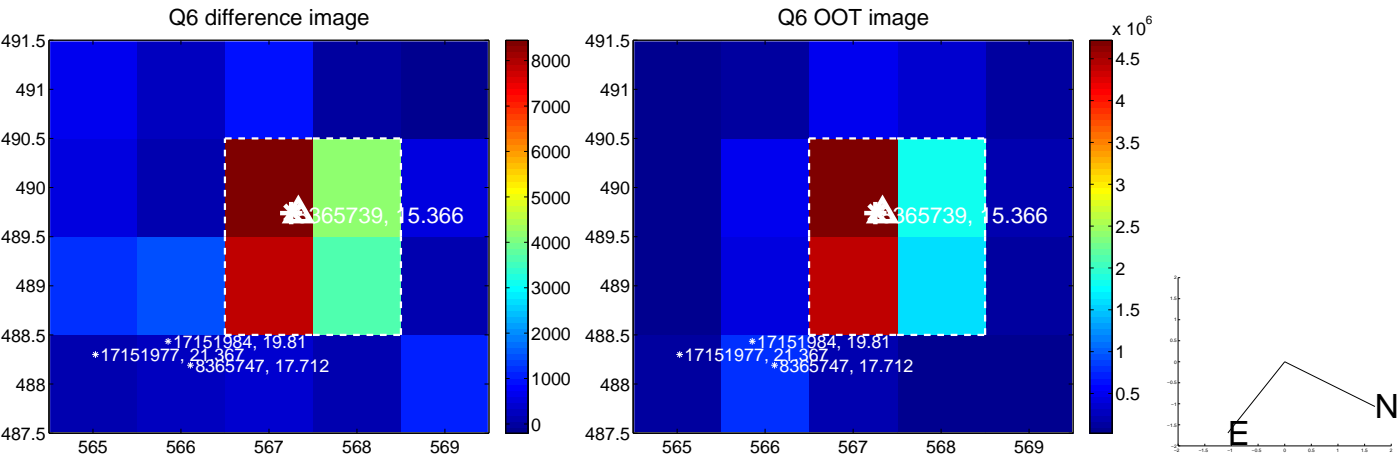
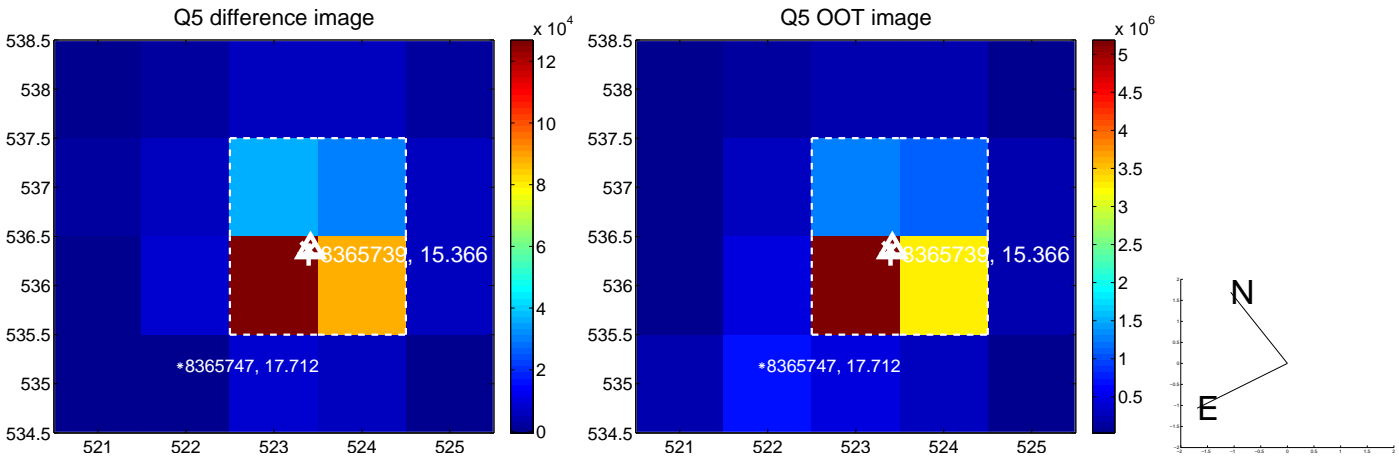


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

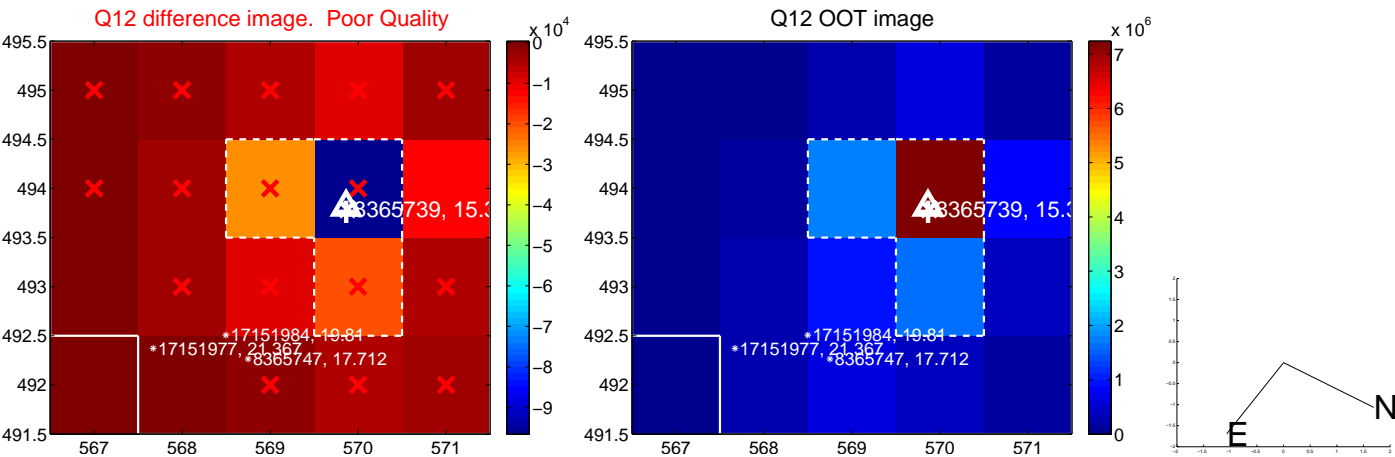
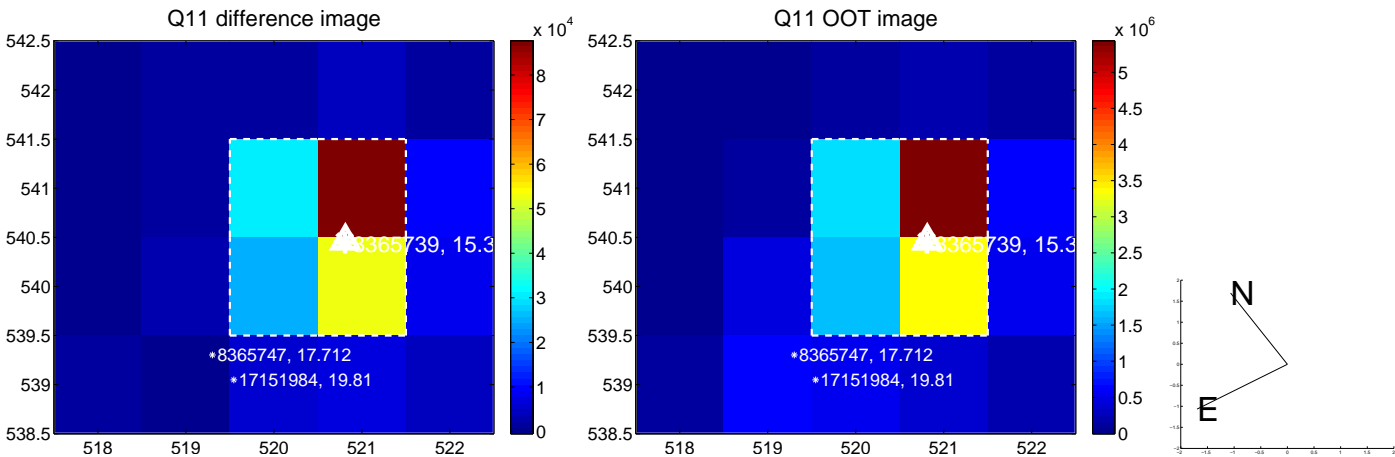
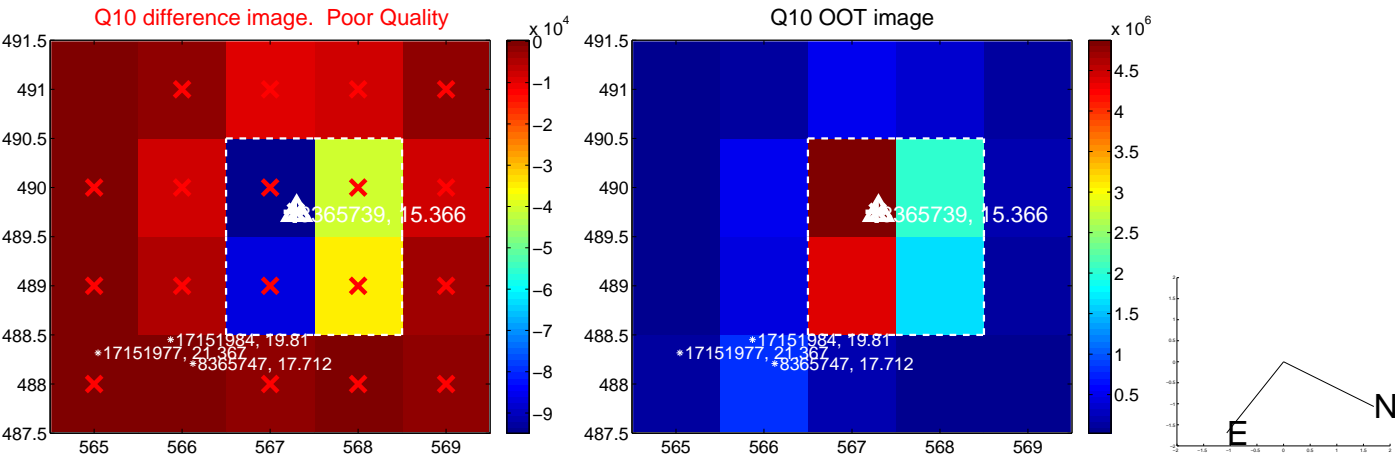
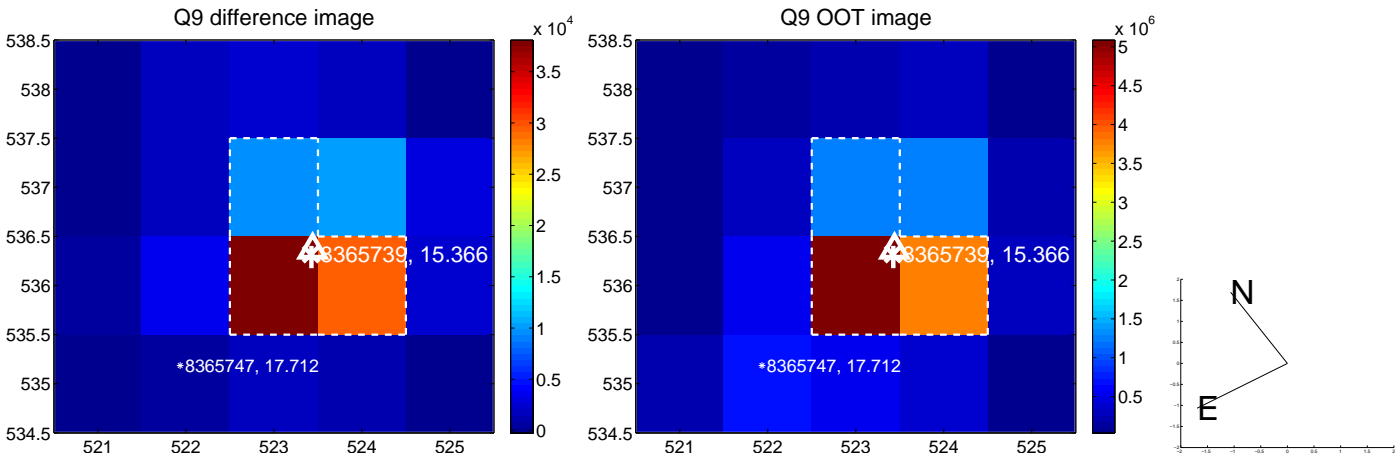
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



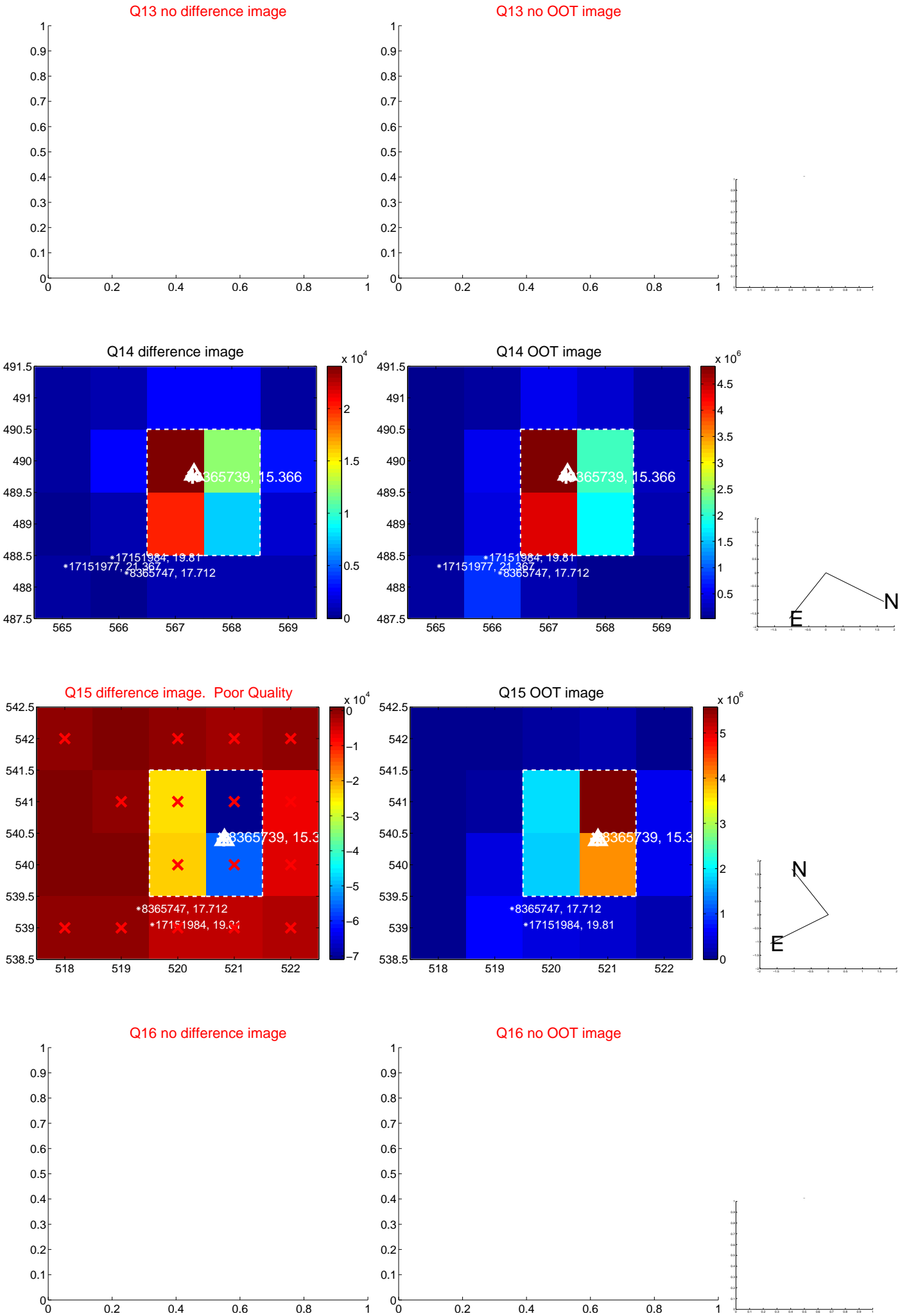
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



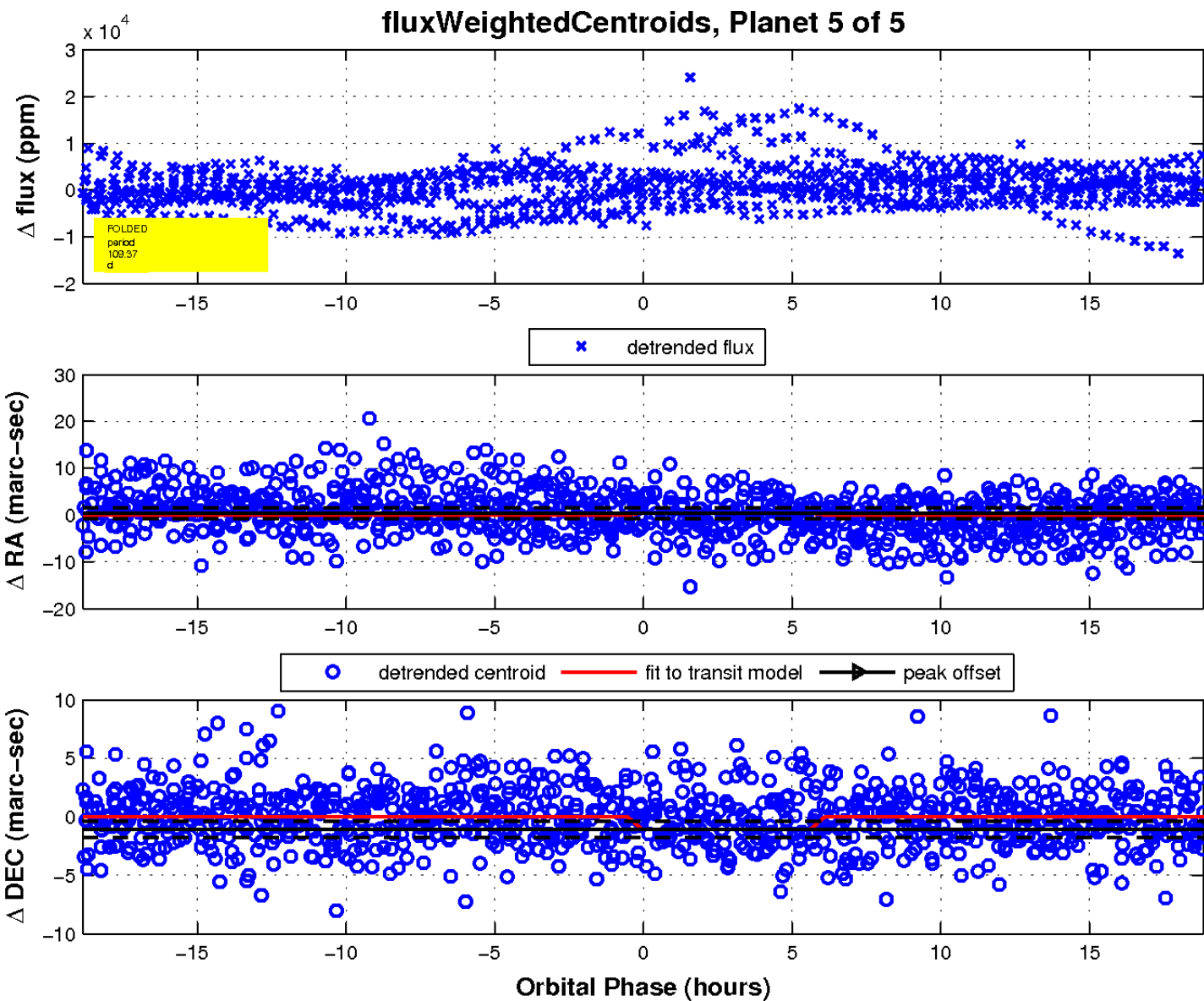
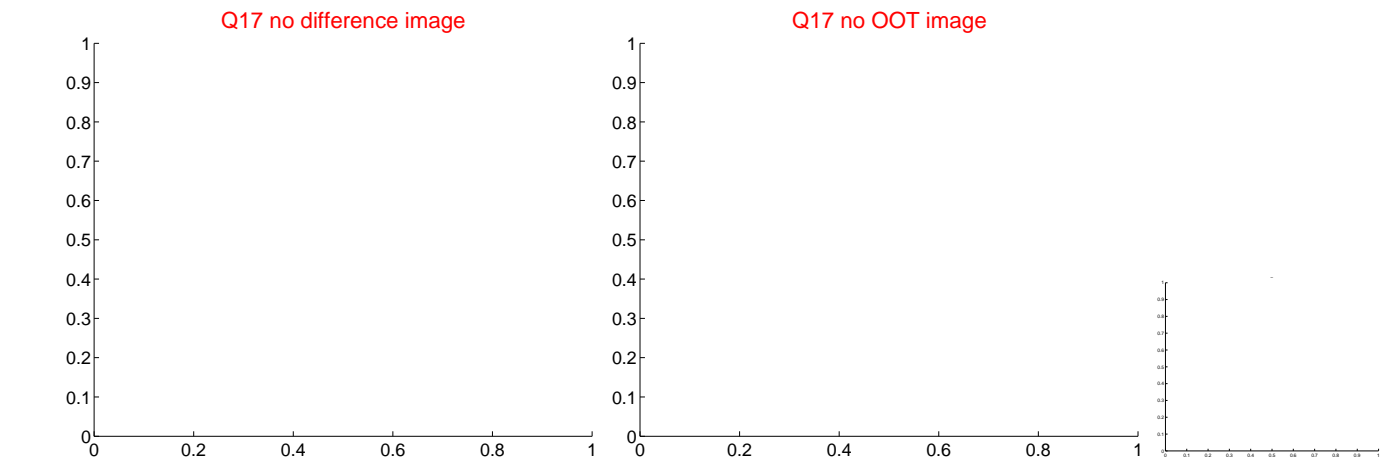
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

