

# KIC 011144765

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011144765-01	OBS	No	426.788754	284.988013	1142.2	14.706	32.3	37.0	1.00	5780	6.57	0.81
011144765-03	OBS	No	509.981930	494.733325	1204.8	13.174	16.2	3.8	1.00	5780	4.38	0.64
011144765-04	OBS	No	246.823782	149.683240	63.1	15.000	15.9	-1.0	1.00	5780	0.79	1.69

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011144765-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011144765-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011144765-04	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

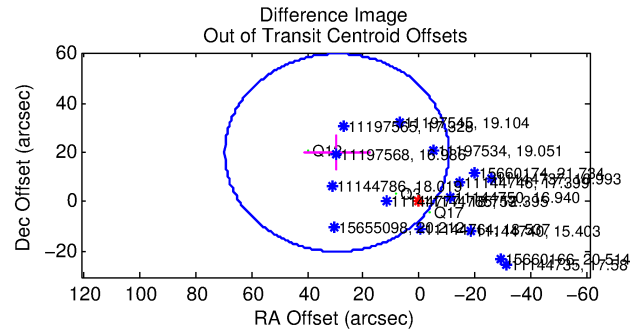
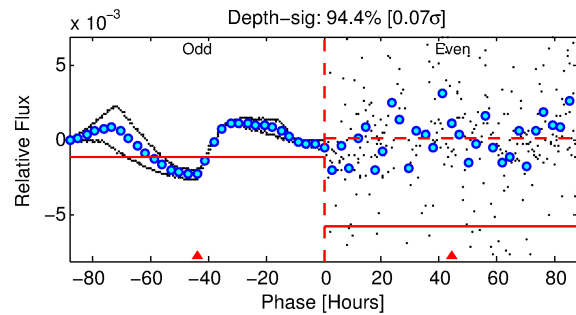
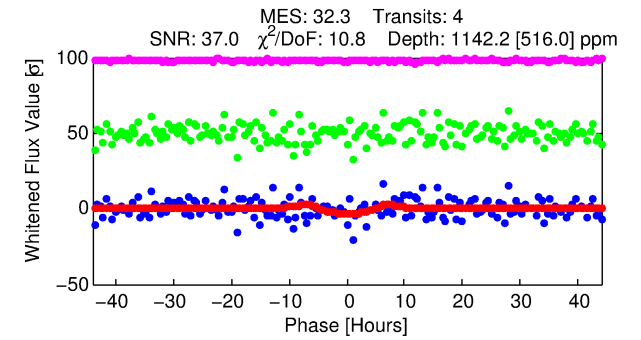
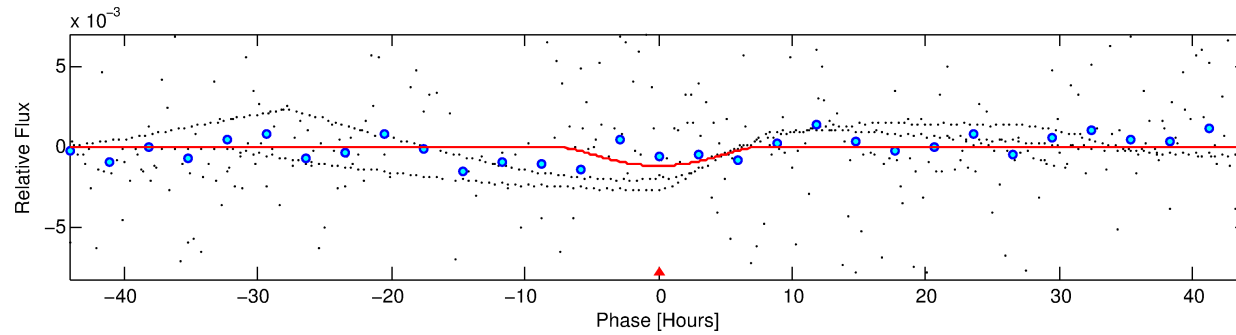
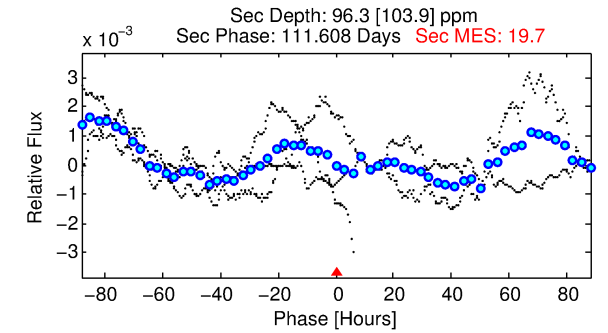
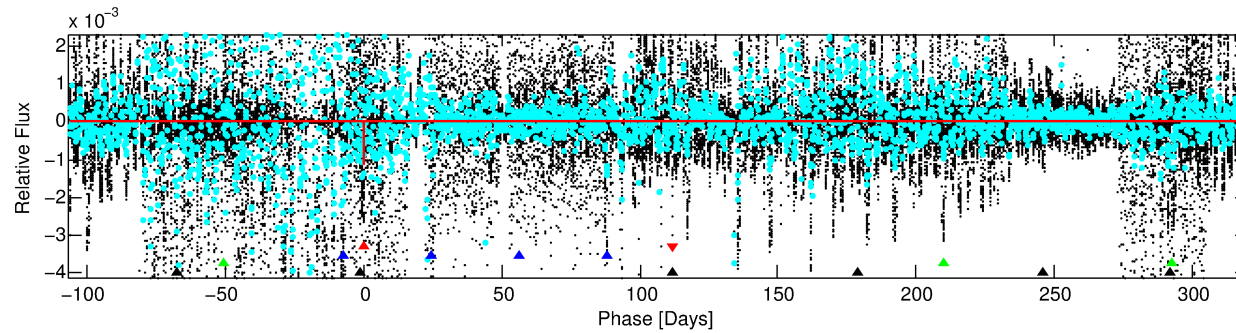
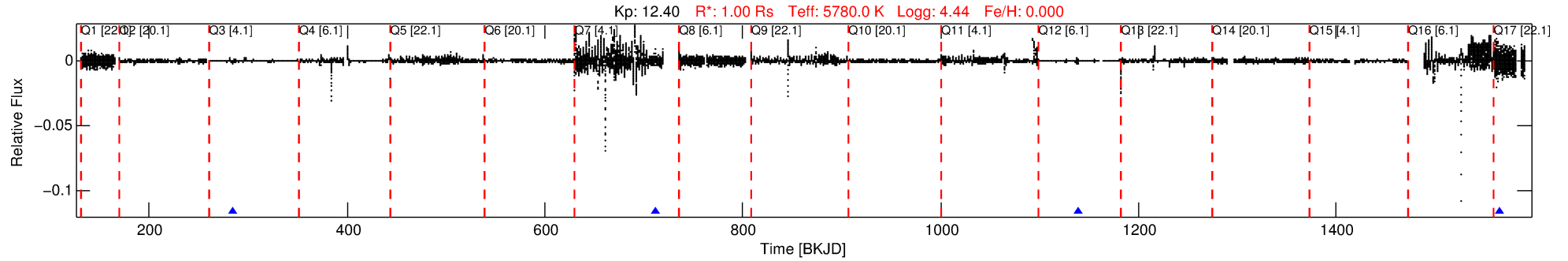
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011144765-01

No Significant Match Found

# DV One-Page Summary

KIC: 11144765 Candidate: 1 of 4 Period: 426.789 d



## DV Fit Results:

Period = 426.78875 [0.01134] d  
Epoch = 284.9880 [0.0188] BKJD  
Rp/R\* = 0.0602 [0.0691]  
a/R\* = 78.08 [19.74]  
b = 1.00 [0.08]  
Seff = 0.81 [0.00]  
Teq = 242 [0] K  
Rp = 6.57 [7.54] Re  
a = 1.1096 [0.0000] AU  
Ag = 1512.17 [3835.74] [0.39σ]  
Teff = 2334 [1480] K [1.41σ]

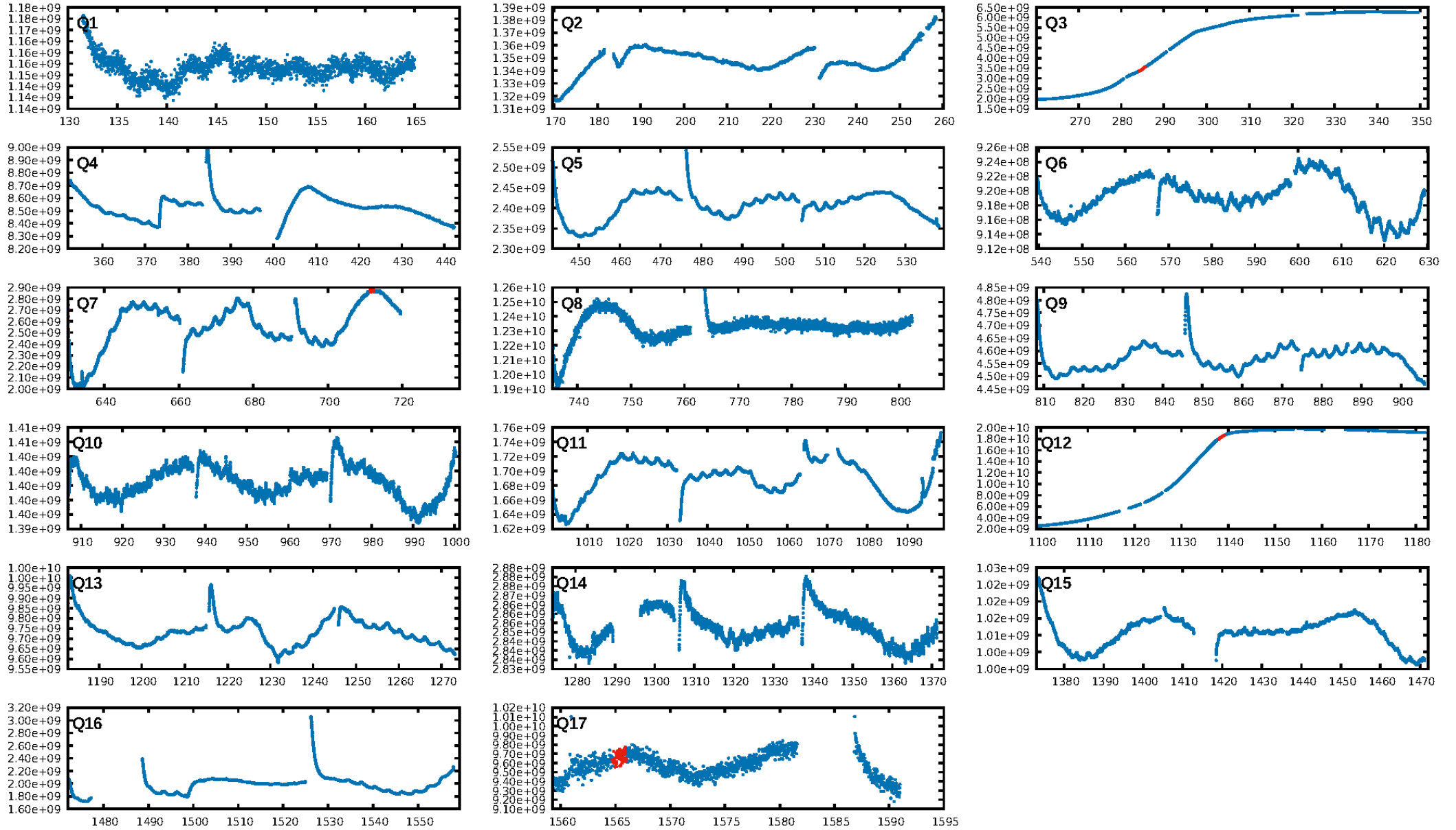
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [38.97σ]  
LongPeriod-sig: 100.0% [101.13σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: 5.38e-20  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -1.125  
Centroid-sig: N/A  
Centroid-so: 6.383 arcsec [1.47σ]  
OotOffset-rm: 35.524 arcsec [2.66σ]  
OotOffset-st: 0/1/1/1 [3]  
KicOffset-rm: 44.448 arcsec [3.87σ]  
KicOffset-st: 0/1/1/1 [3]  
DiffImageQuality-fgm: 0.00 [0/3]  
DiffImageOverlap-fno: 0.67 [2/3]

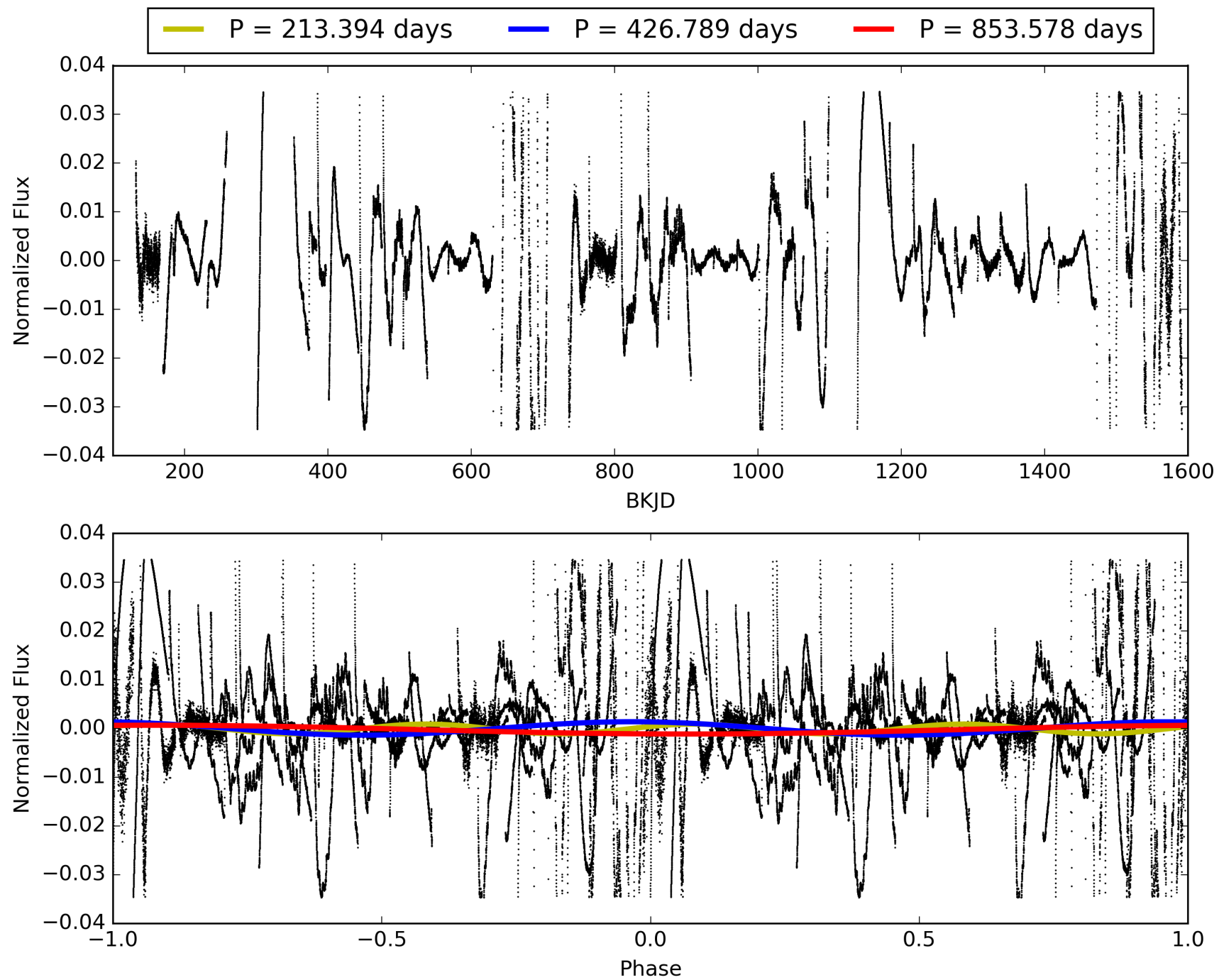
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011144765-01, PDC Light Curves

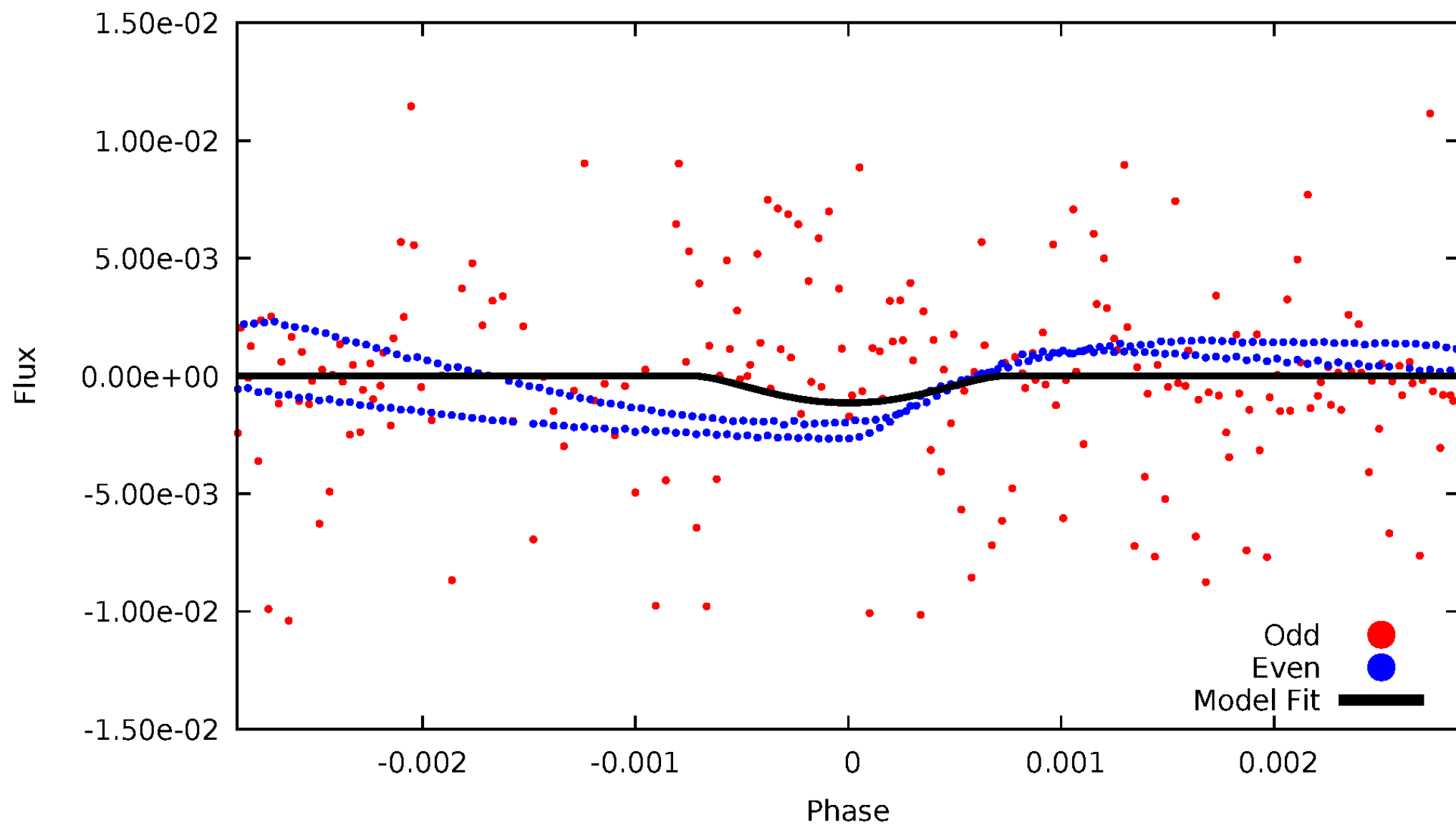


TCE 011144765-01



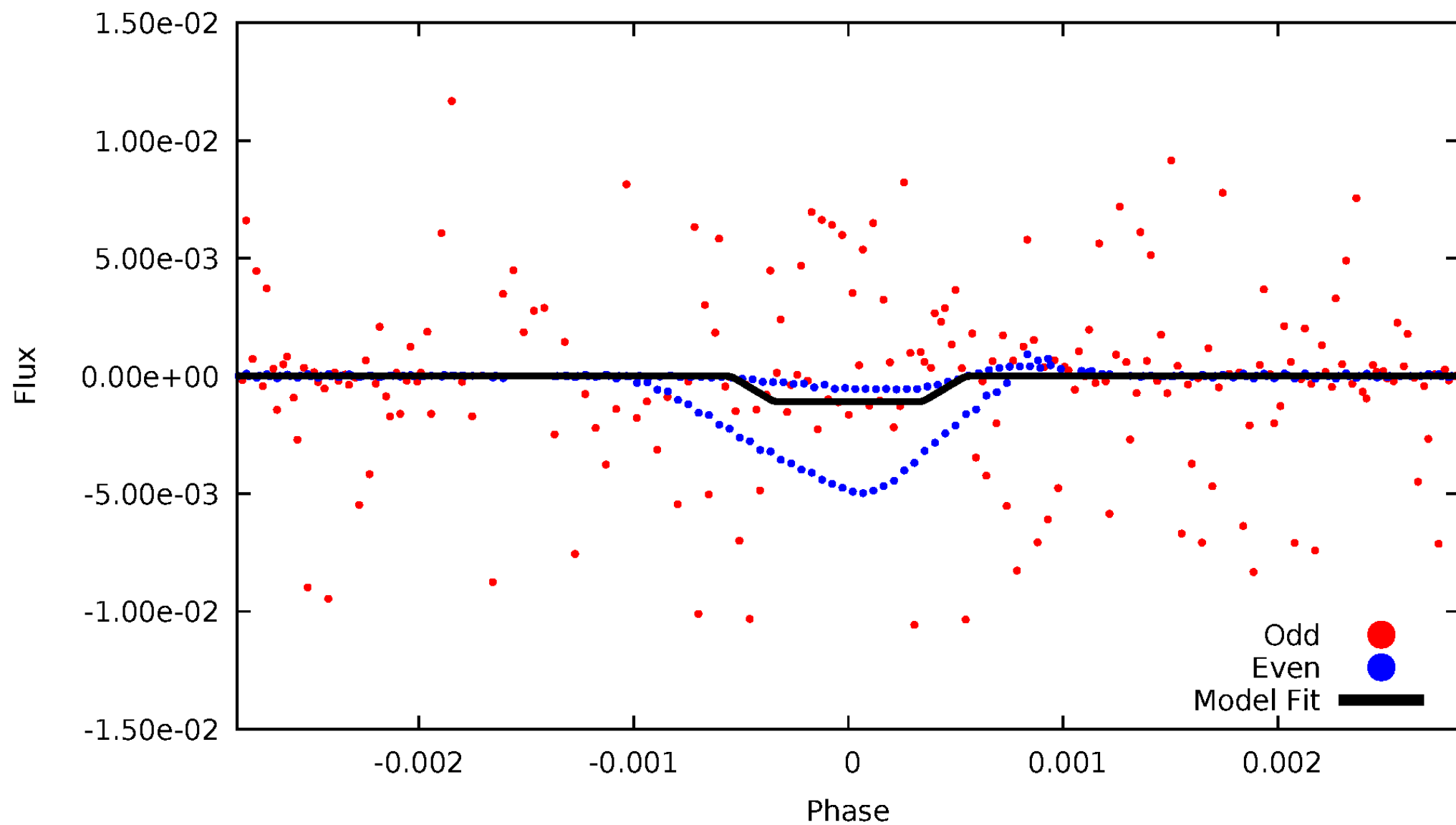
# DV Odd/Even

TCE 011144765-01



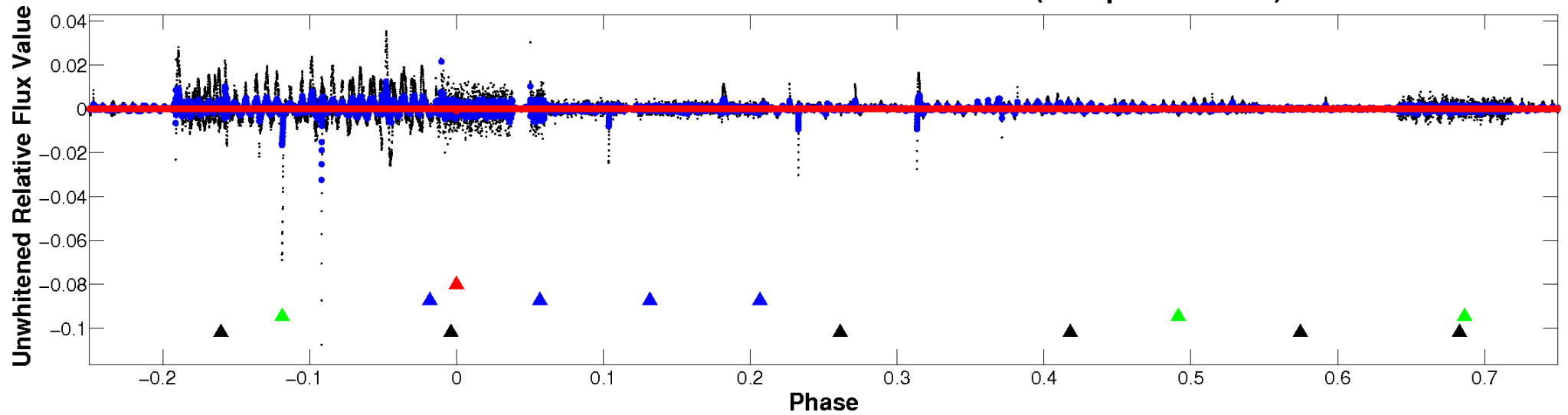
# ALT Odd/Even

TCE 011144765-01

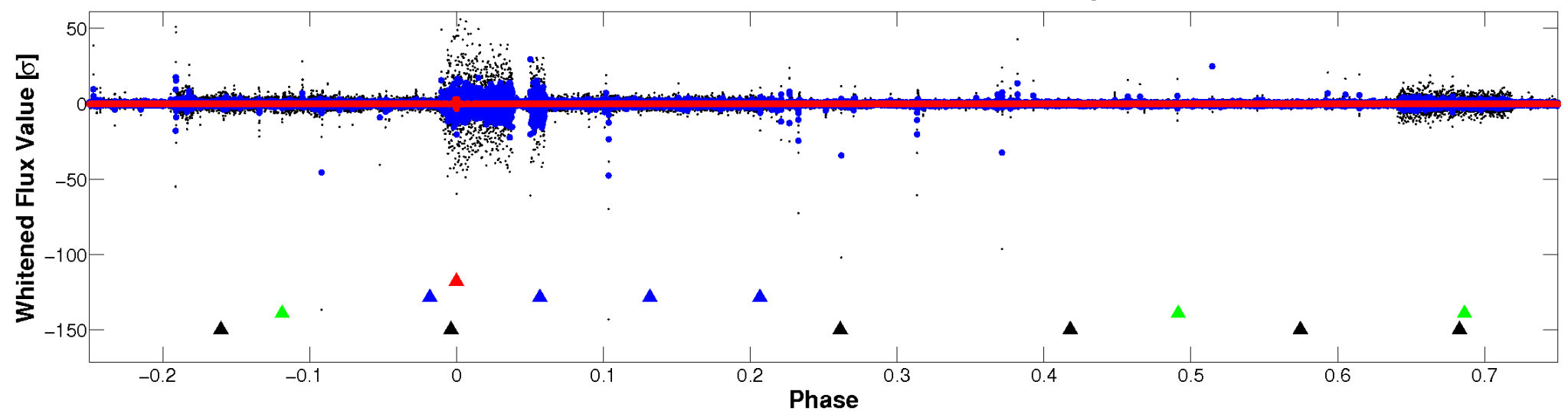


# Non-Whitened Vs. Whitened Light Curve

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

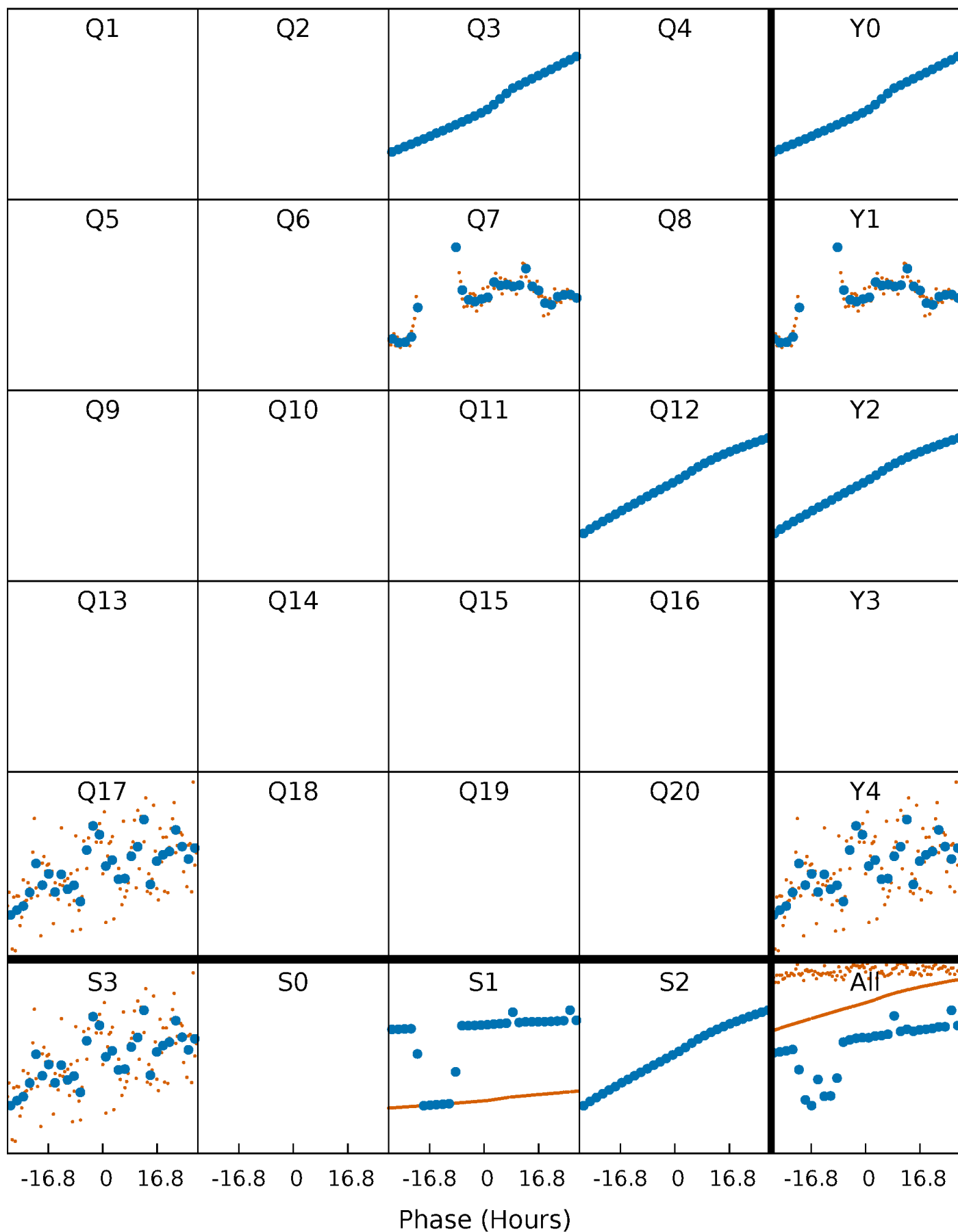


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

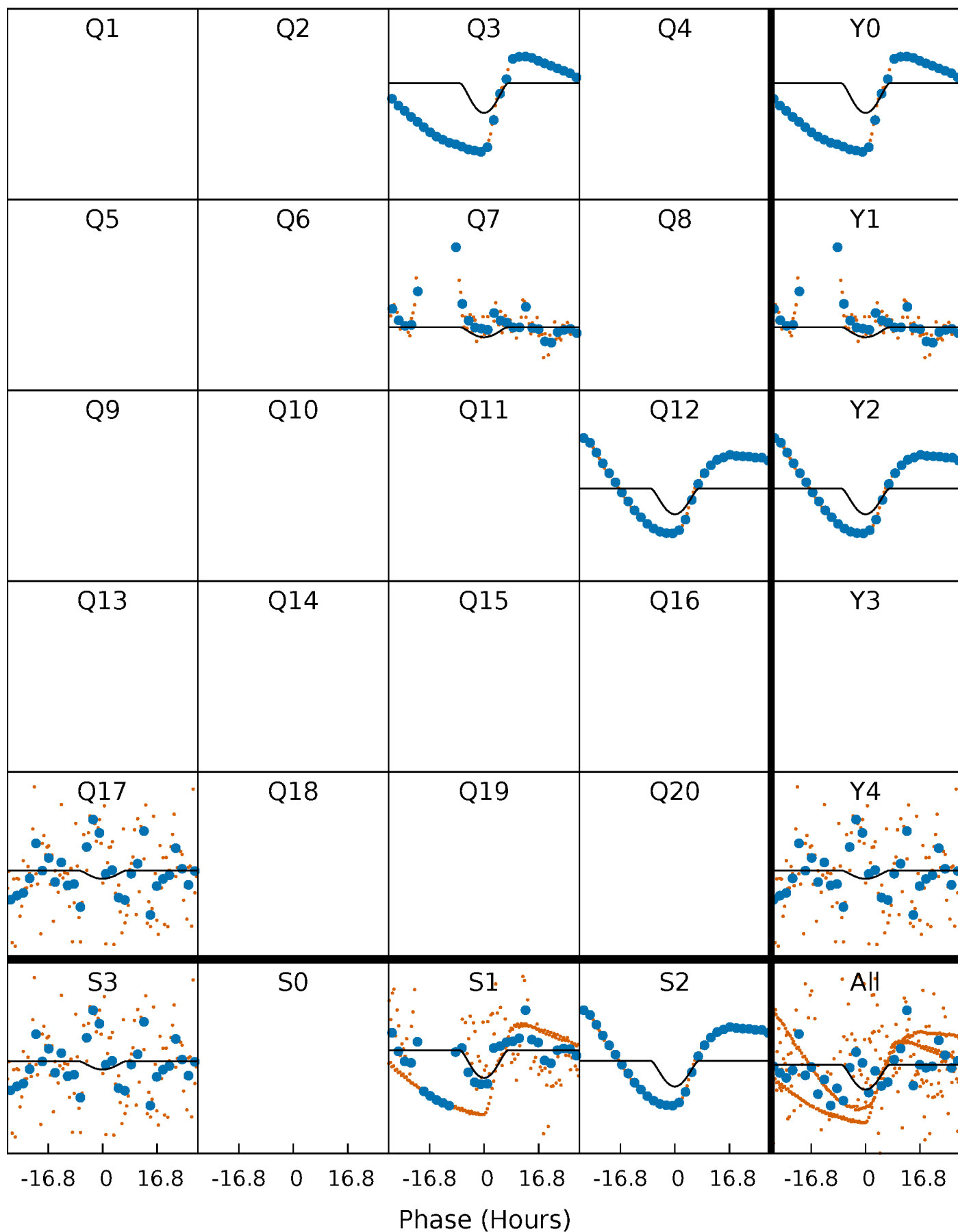
TCE 011144765-01 P=426.788754 Days  $T_0=284.988013$  (BKJD)





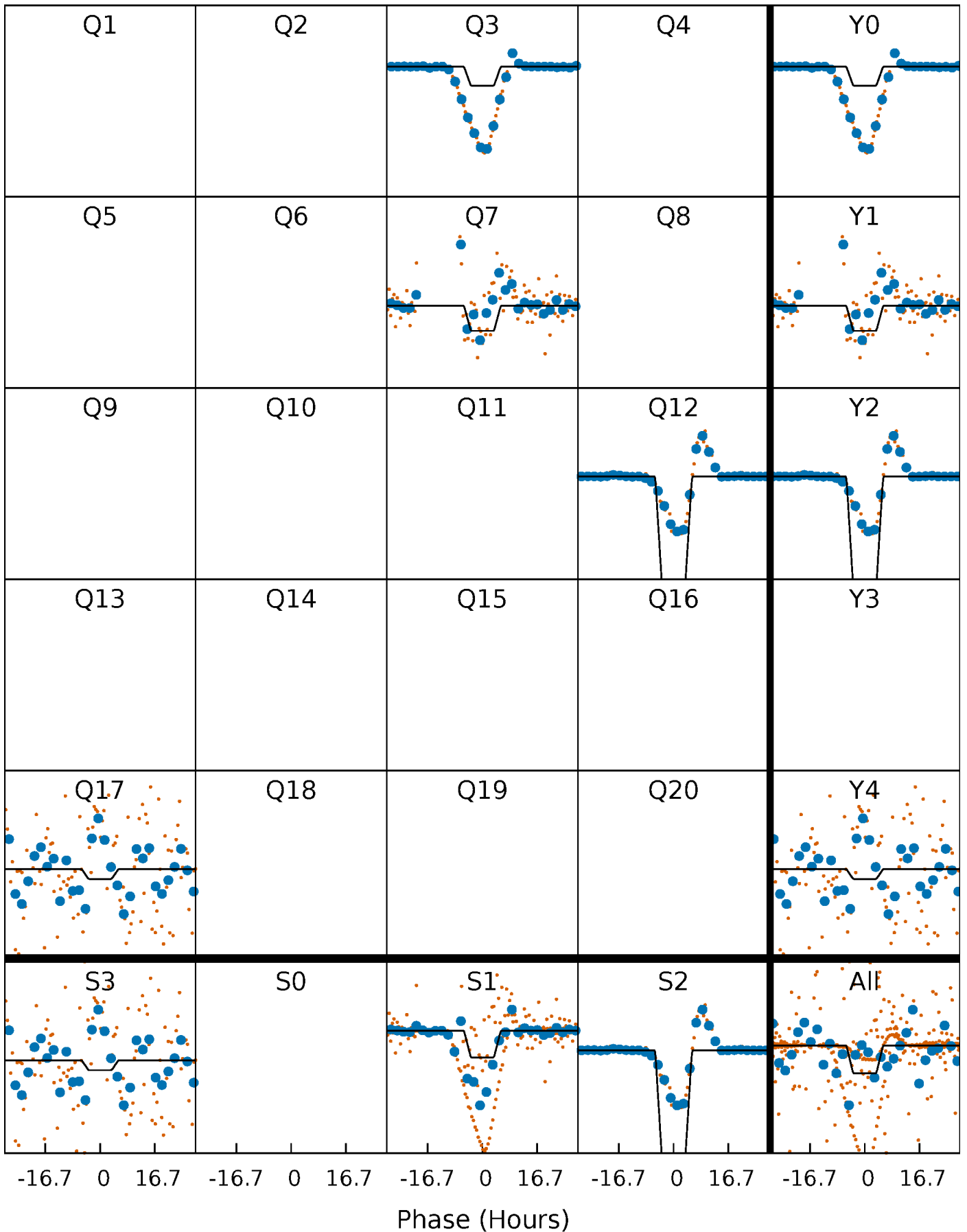
# DV Quarter-Phased Transit Curves

TCE 011144765-01 P=426.788754 Days  $T_0=284.988013$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

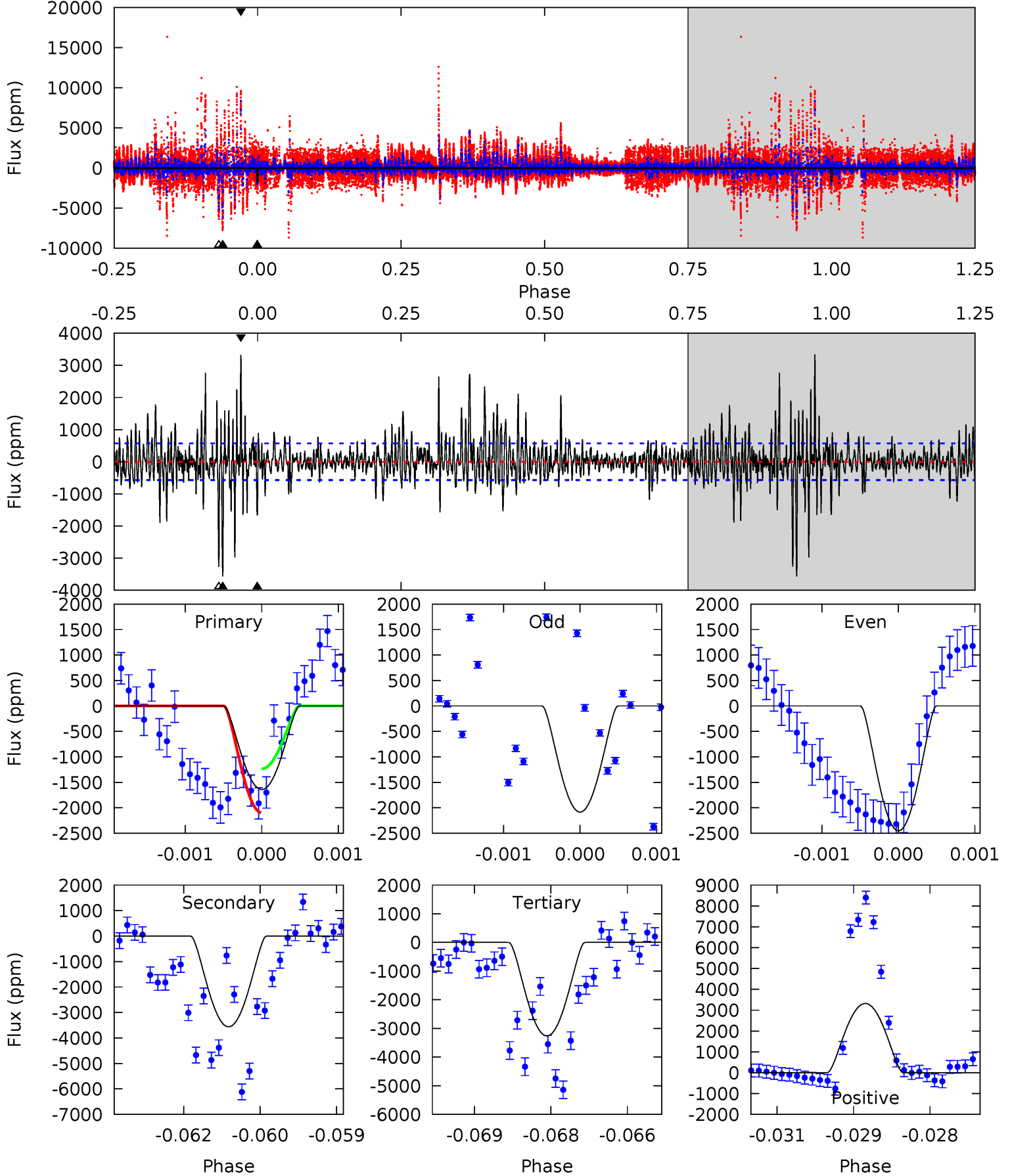
TCE 011144765-01 P=426.761712 Days  $T_0=284.980830$  (BKJD)



# DV Model-Shift Uniqueness Test

011144765-01, P = 426.788754 Days, E = 284.988013 Days

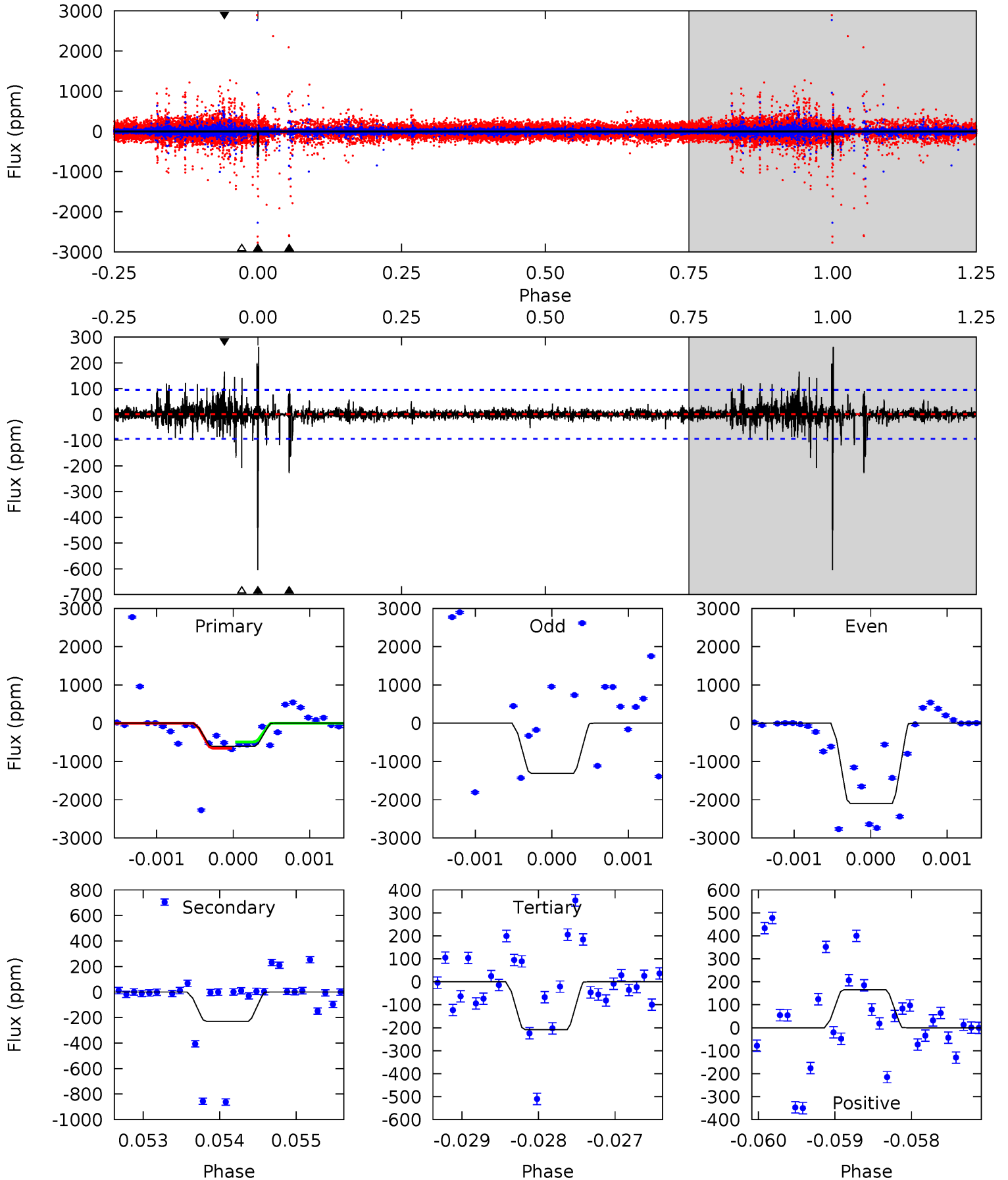
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	33.7	30.8	31.4	5.38	3.18	4.70	-15.3	-15.9	2.84	2.27	0.73	0.52	0.48	4.14



# Alt Model-Shift Uniqueness Test

011144765-01, P = 426.761712 Days, E = 284.980830 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
34.5	13.1	11.9	9.44	5.43	3.26	0.97	22.7	25.1	1.19	3.65	6.55	1.38	0.30	4.55



### Stellar Parameters For KIC 011144765

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

### Secondary Eclipse Parameters for KIC 011144765-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-3563 \pm 106$	$8.02^{+7.19}_{-4.87}$	$339^{+15}_{-15}$	$5276^{+3411}_{-1191}$	$37586^{+199491}_{-27081}$
Alt.	$-229 \pm 17$	$7.01^{+6.14}_{-4.74}$	$339^{+15}_{-17}$	$3374^{+1617}_{-584}$	$3158^{+25924}_{-2285}$

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

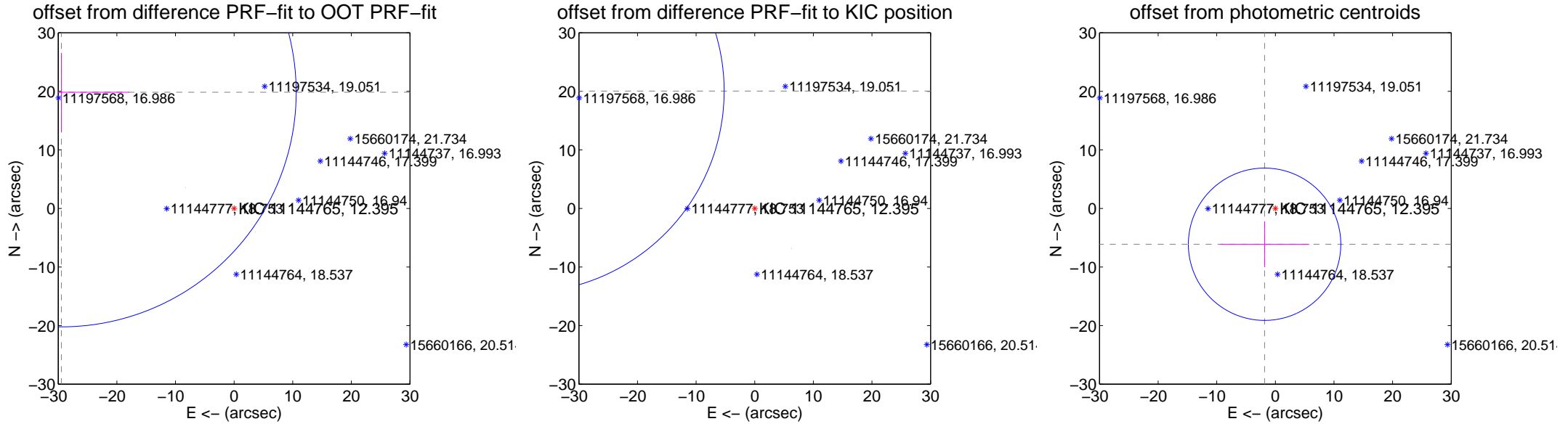
## DV Centroid Data

Supplemental centroid analysis for 011144765-01. Kepler magnitude: 12.39. Transit SNR 37.01

There are 0 quarters with good PRF difference image offsets

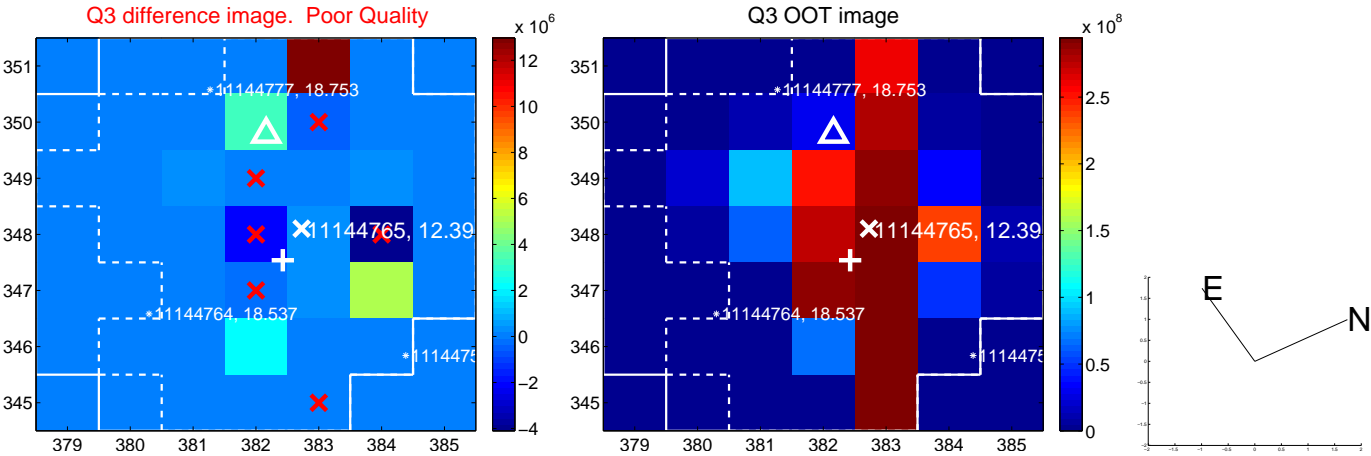
The OOT PRF centroid is offset from the target star catalog position by about 3.86 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$35.524 \pm 13.353$	2.66	$29.466 \pm 11.585$	$19.842 \pm 6.704$
PRF-fit source offset from KIC position	$44.448 \pm 11.485$	3.87	$39.675 \pm 9.923$	$20.037 \pm 5.830$
photometric centroid source offset	$6.38 \pm 4.33$	1.47	$1.84 \pm 7.63$	$-6.11 \pm 3.90$



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.

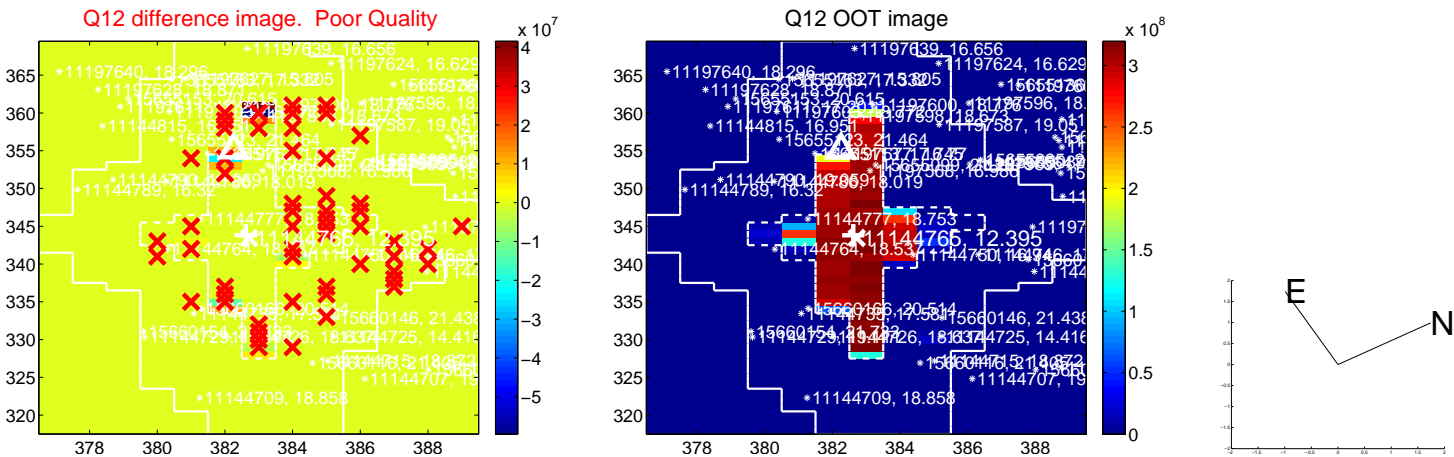


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





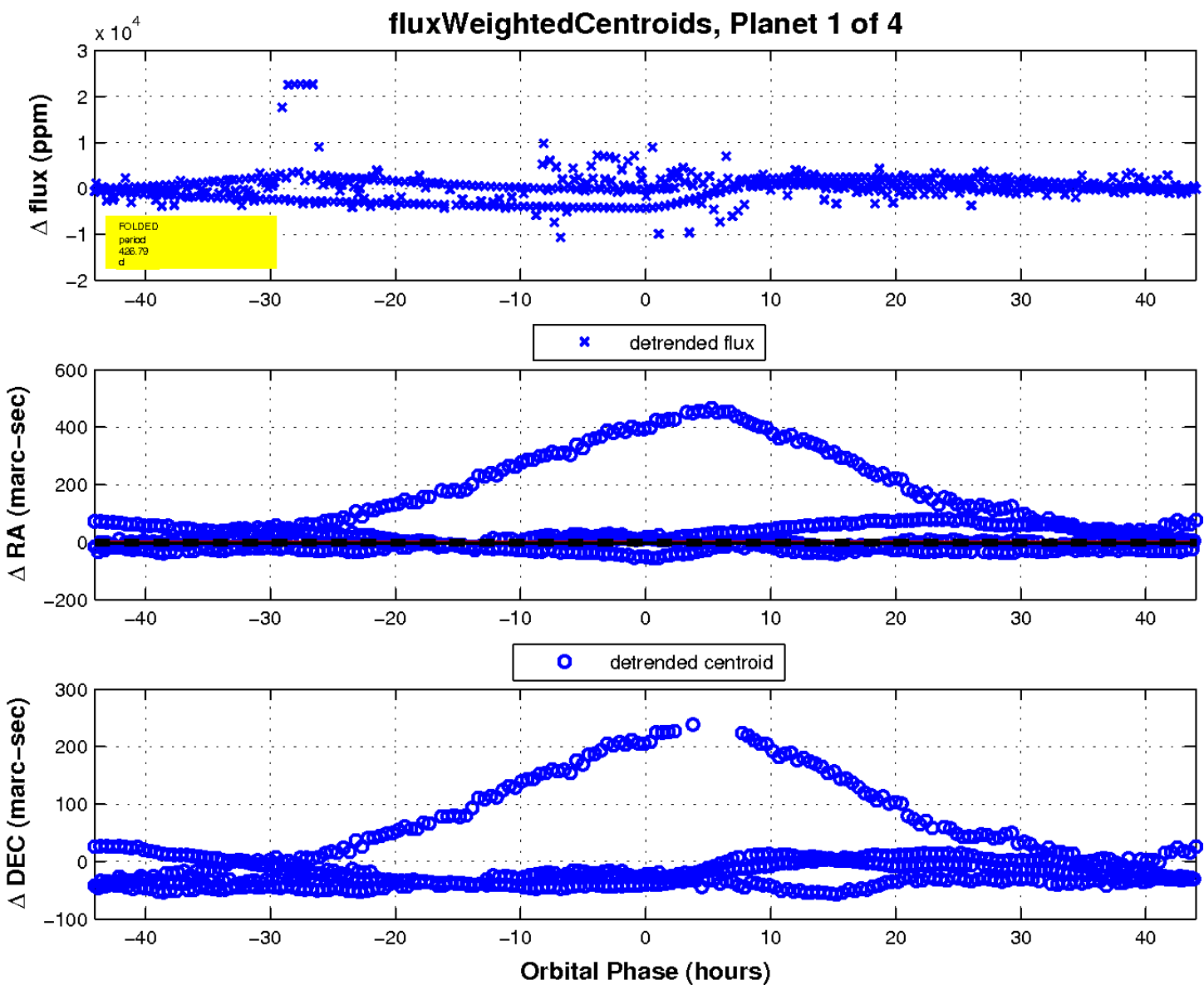
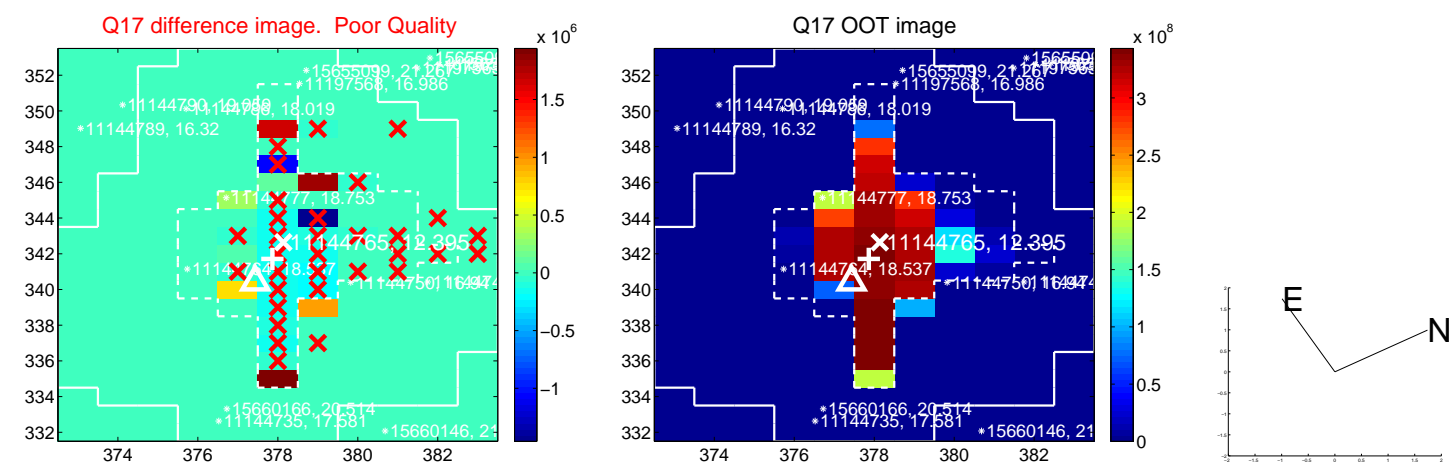
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

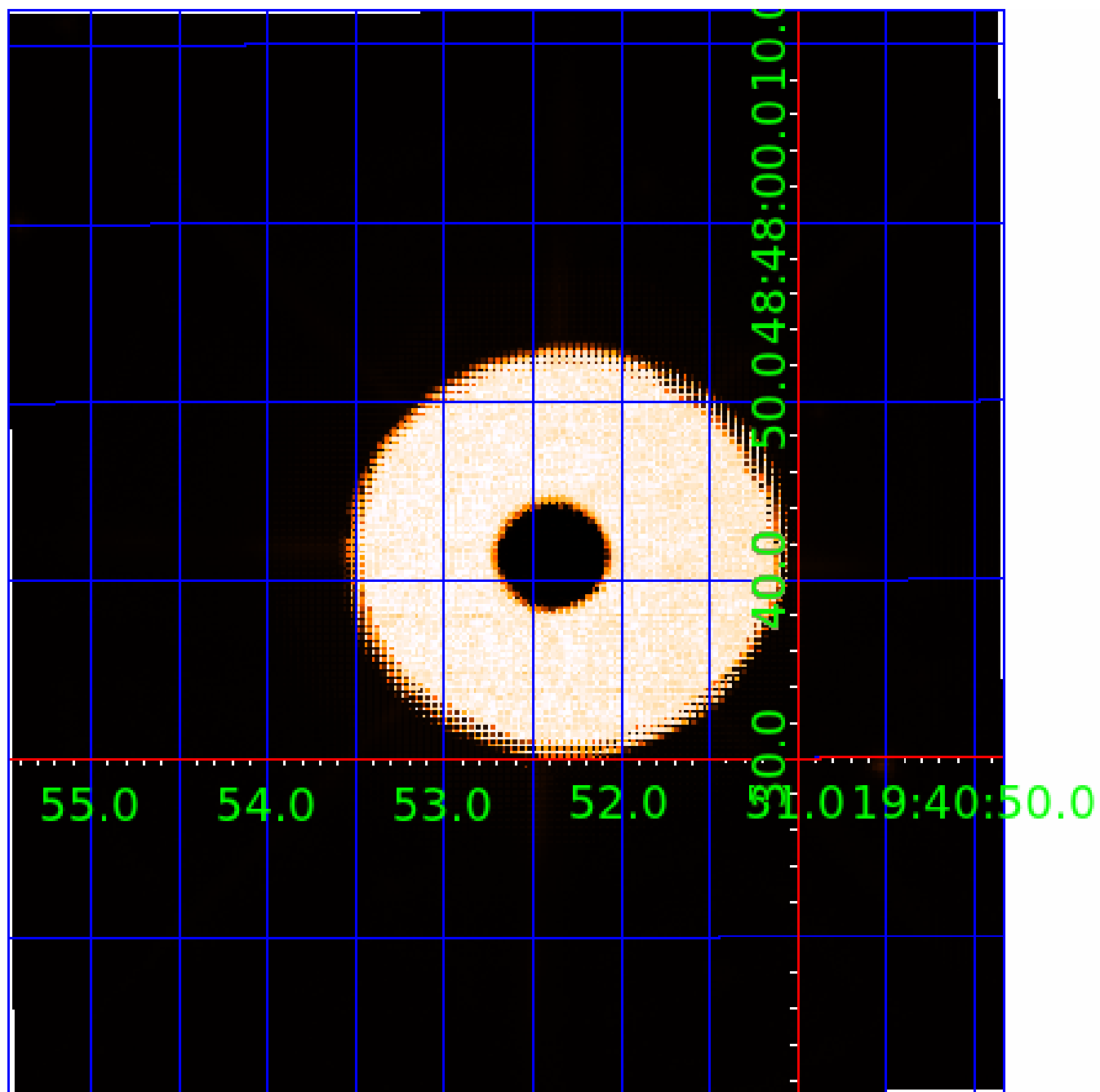


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 011144765

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011144765-01	OBS	No	426.788754	284.988013	1142.2	14.706	32.3	37.0	1.00	5780	6.57	0.81
011144765-03	OBS	No	509.981930	494.733325	1204.8	13.174	16.2	3.8	1.00	5780	4.38	0.64
011144765-04	OBS	No	246.823782	149.683240	63.1	15.000	15.9	-1.0	1.00	5780	0.79	1.69

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011144765-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011144765-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011144765-04	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

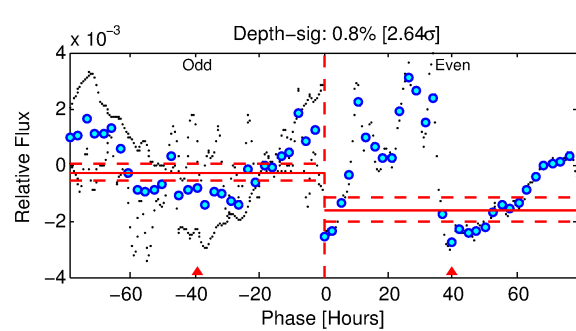
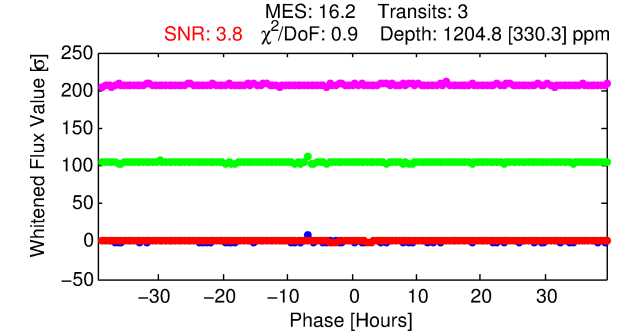
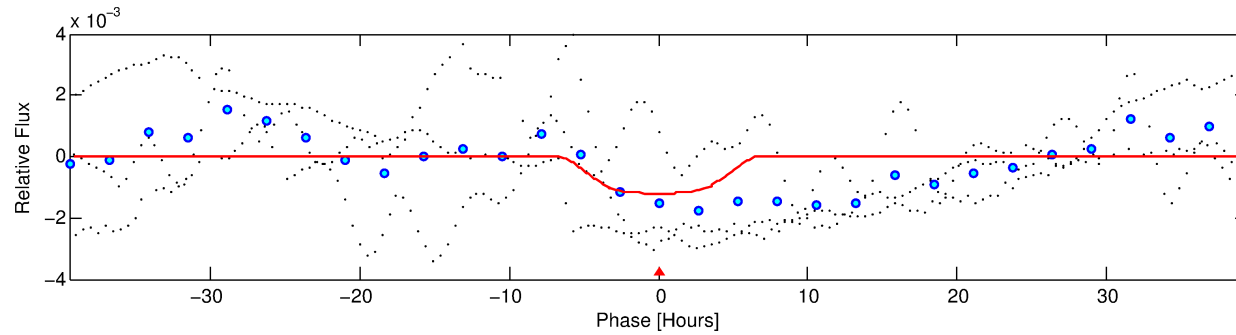
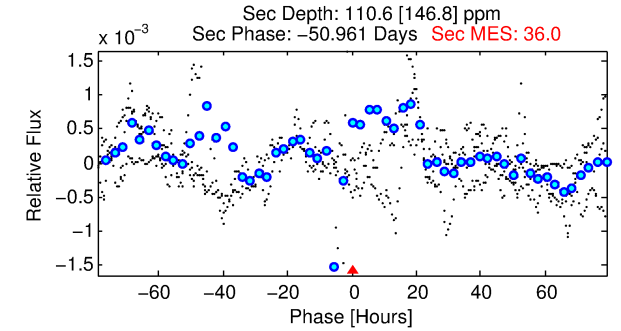
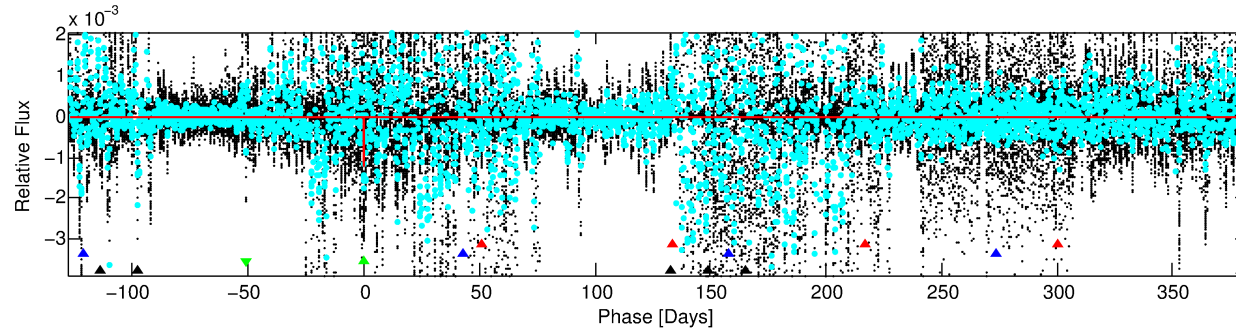
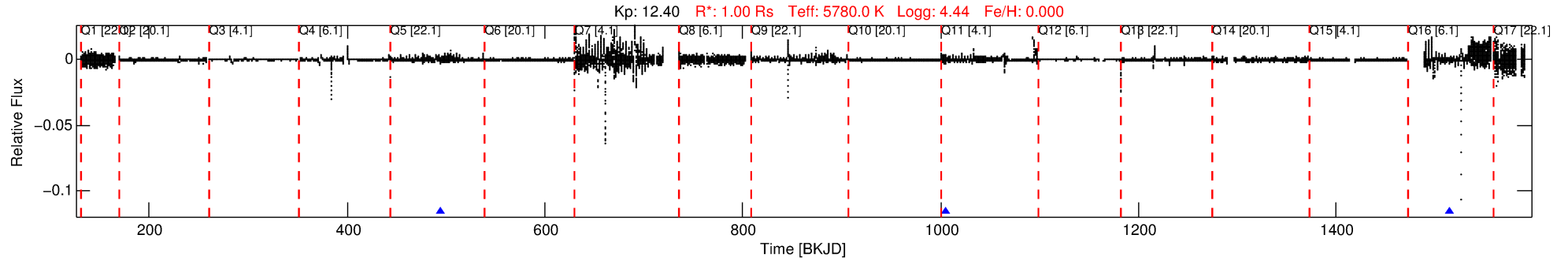
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011144765-03

No Significant Match Found

# DV One-Page Summary

KIC: 11144765 Candidate: 3 of 4 Period: 509.982 d



## DV Fit Results:

Period = 509.98193 [0.01775] d  
Epoch = 494.7333 [0.0138] BKJD  
Rp/R\* = 0.0402 [0.0054]  
a/R\* = 128.88 [11.51]  
b = 0.94 [0.01]  
Seff = 0.64 [0.00]  
Teq = 228 [0] K  
Rp = 4.38 [0.59] Re  
a = 1.2495 [0.0000] AU  
Ag = 4947.05 [6701.78] [0.74σ]  
Teffp = 2958 [1002] K [2.72σ]

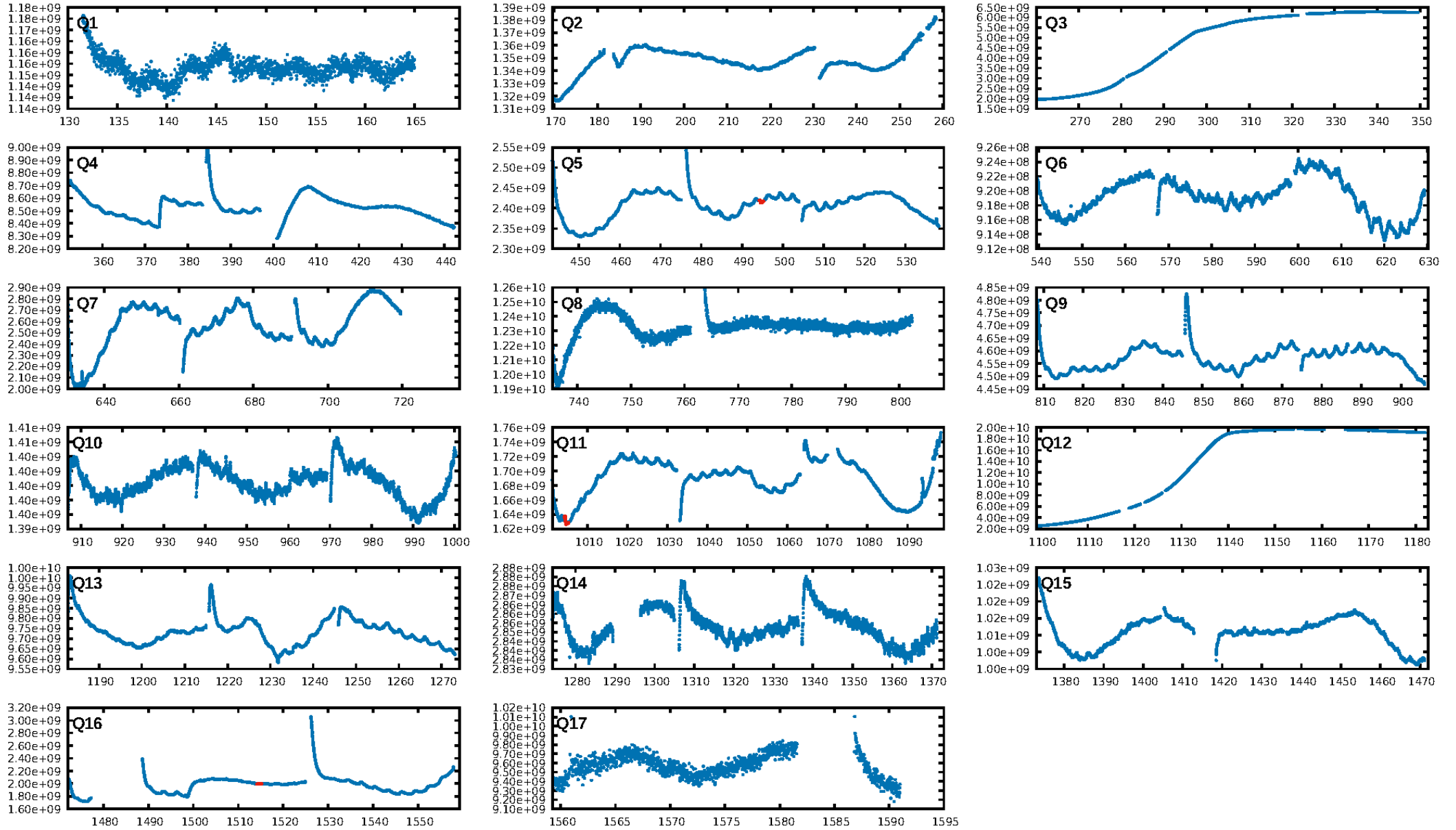
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [101.13σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 30.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.14e-07  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.2821  
Centroid-sig: N/A  
Centroid-so: 4.593 arcsec [2.48σ]  
OotOffset-rm: 3.886 arcsec [57.14σ]  
KicOffset-rm: 3.519 arcsec [51.75σ]  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
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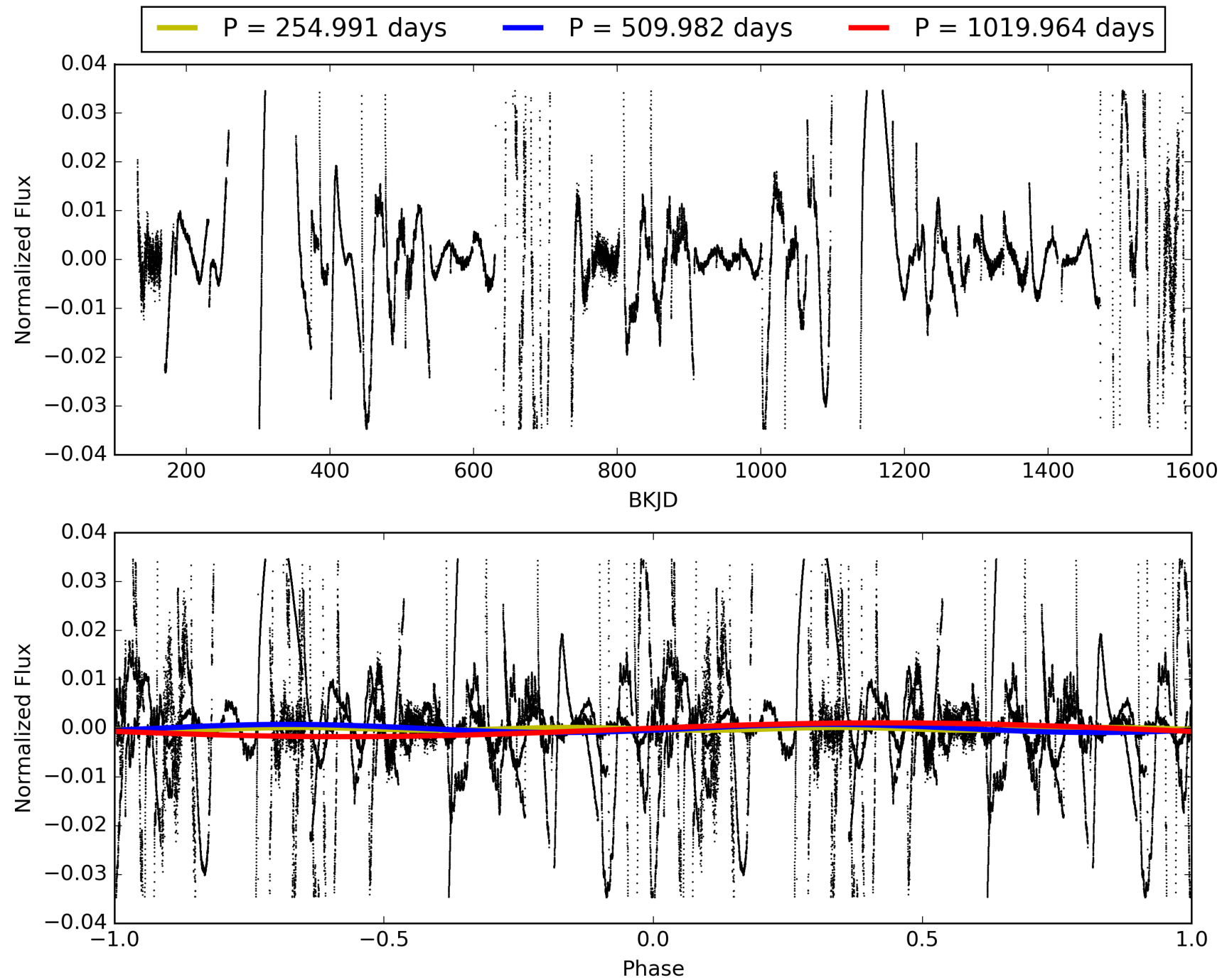
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 03:48:41 Z

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

# TCE 011144765-03, PDC Light Curves



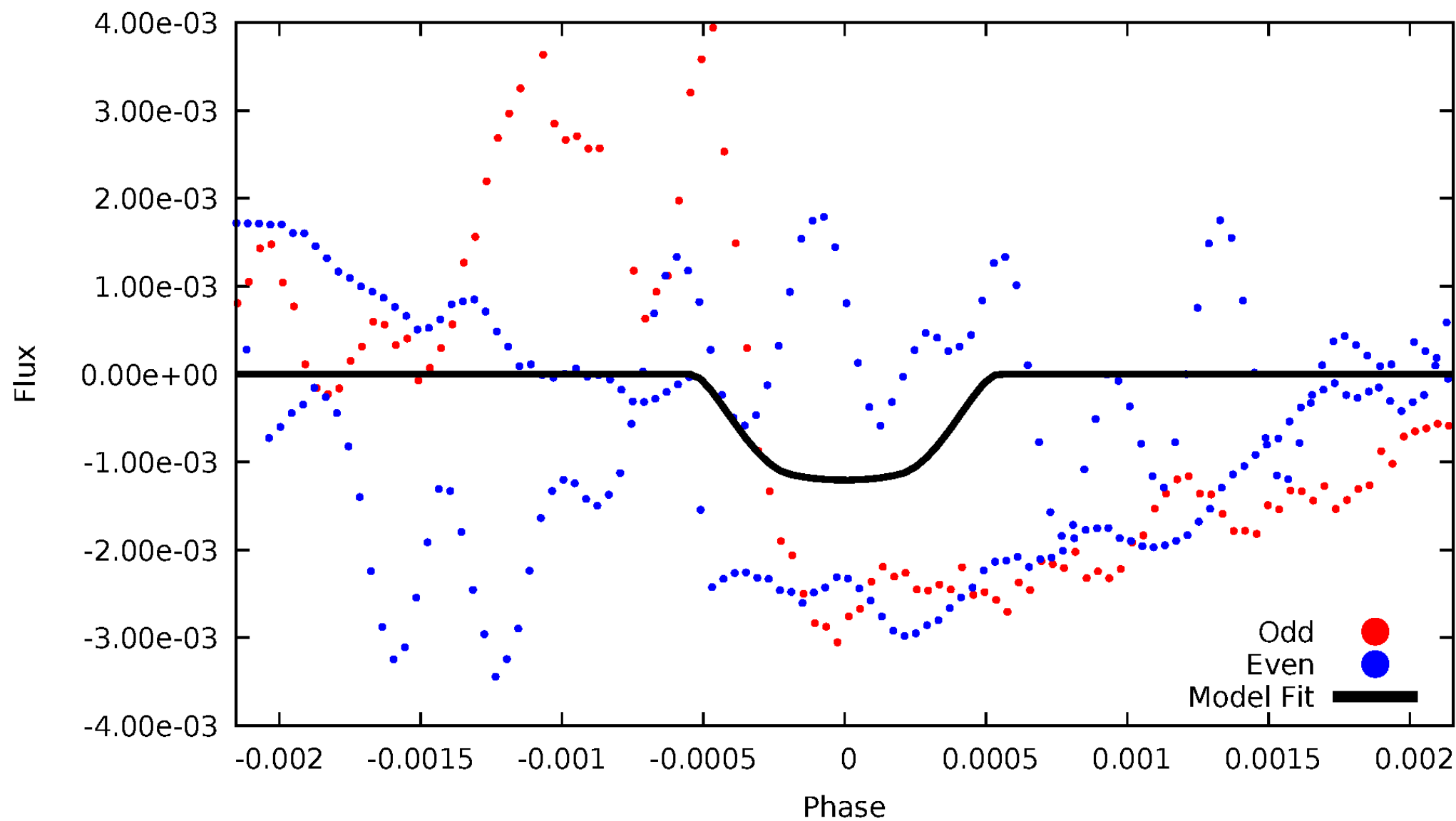
TCE 011144765-03





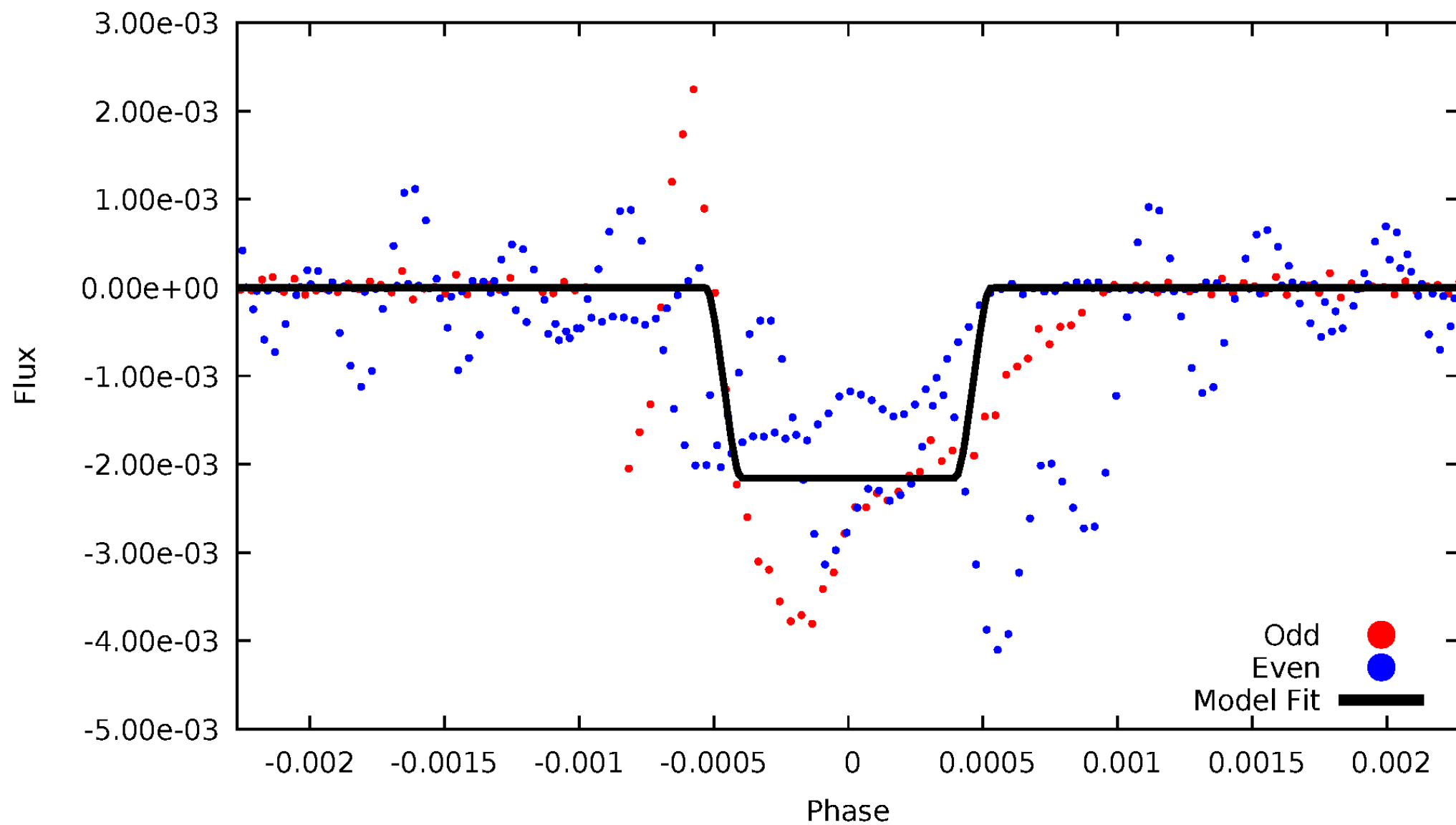
# DV Odd/Even

TCE 011144765-03



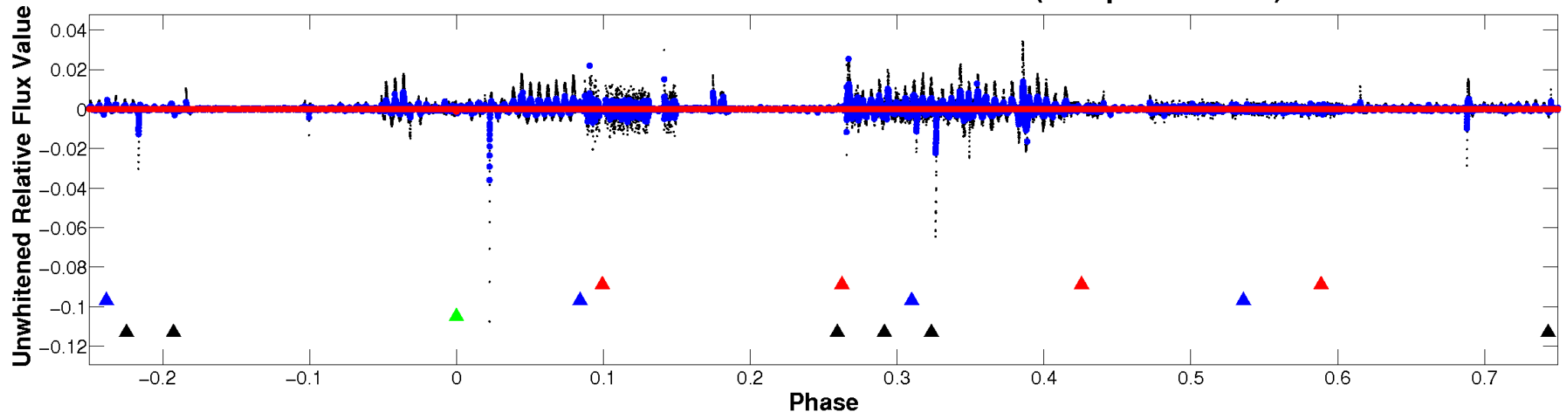
# ALT Odd/Even

TCE 011144765-03

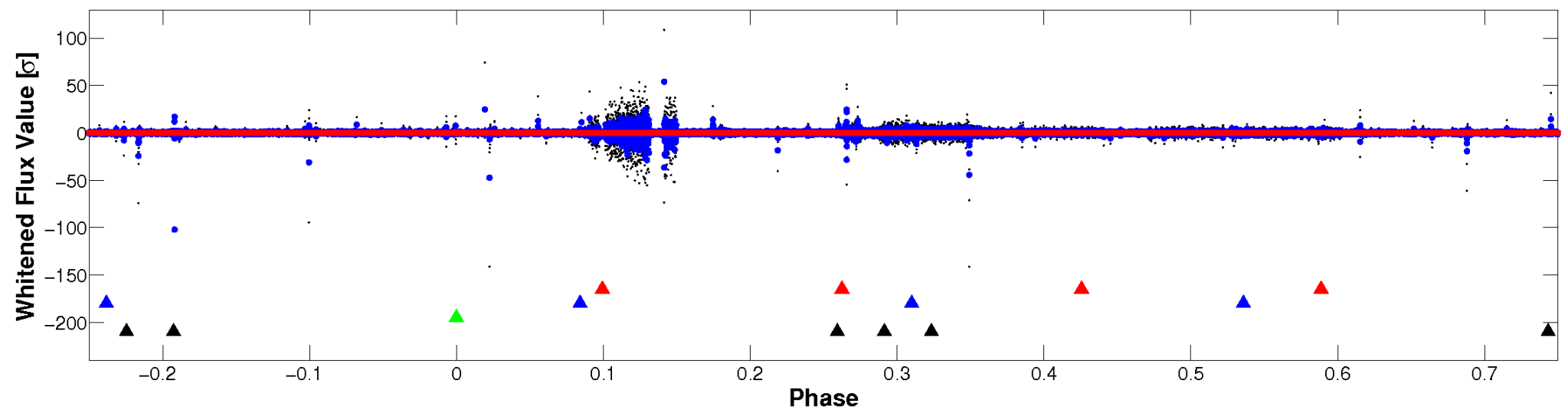


# Non-Whitened Vs. Whitened Light Curve

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

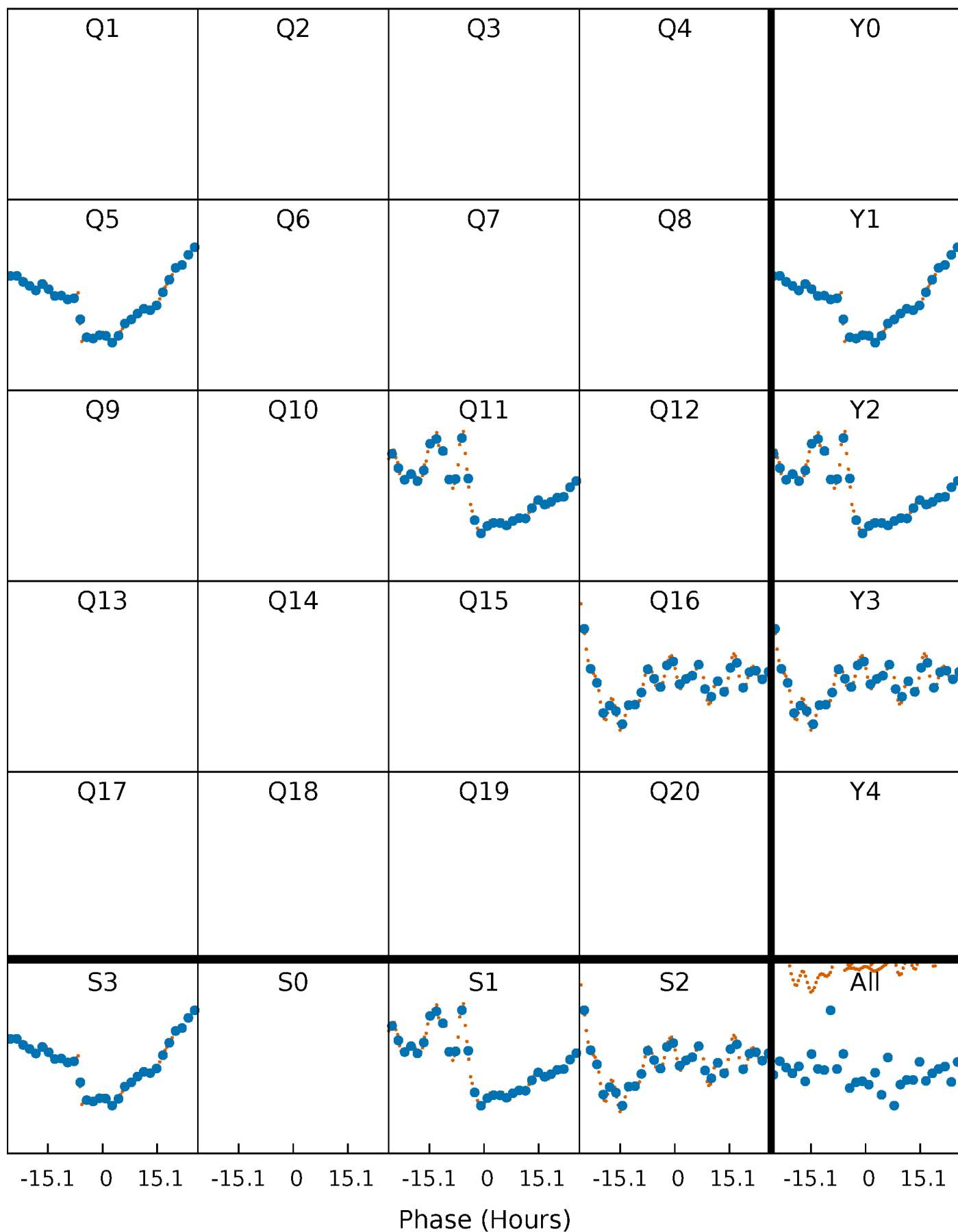


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



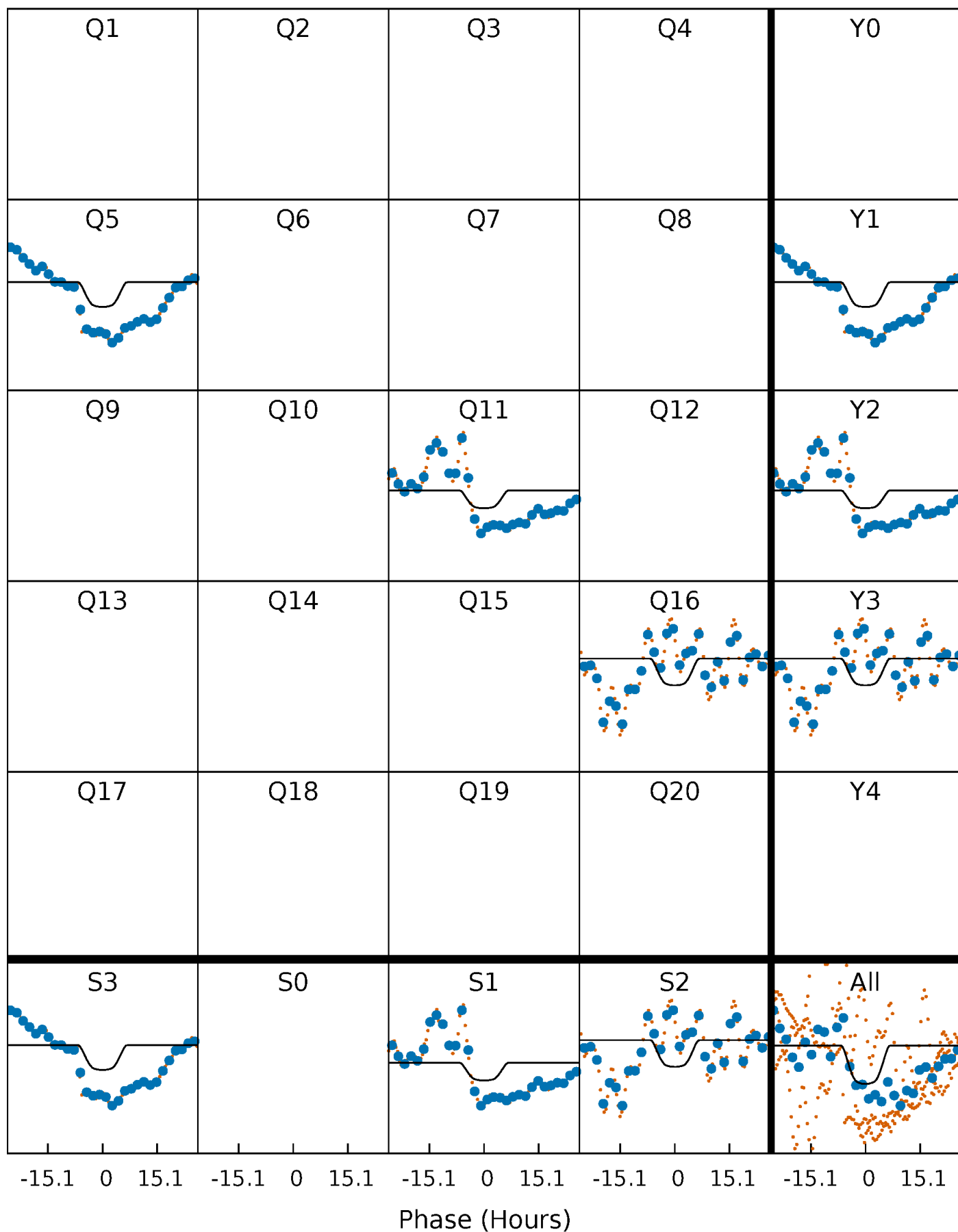
# PDC Quarter-Phased Transit Curves

TCE 011144765-03     $P=509.981930$  Days     $T_0=494.733325$  (BKJD)



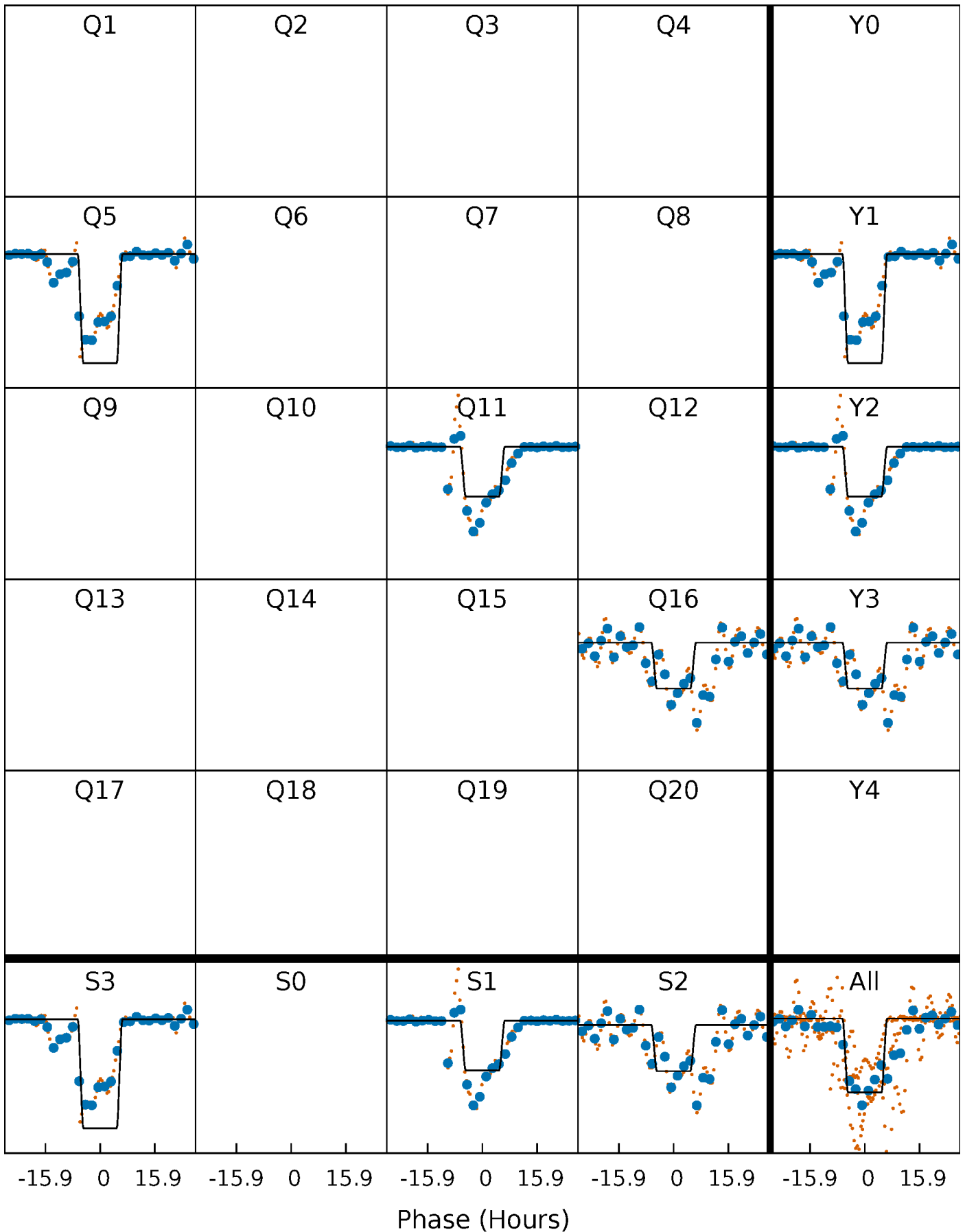
# DV Quarter-Phased Transit Curves

TCE 011144765-03     $P=509.981930$  Days     $T_0=494.733325$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

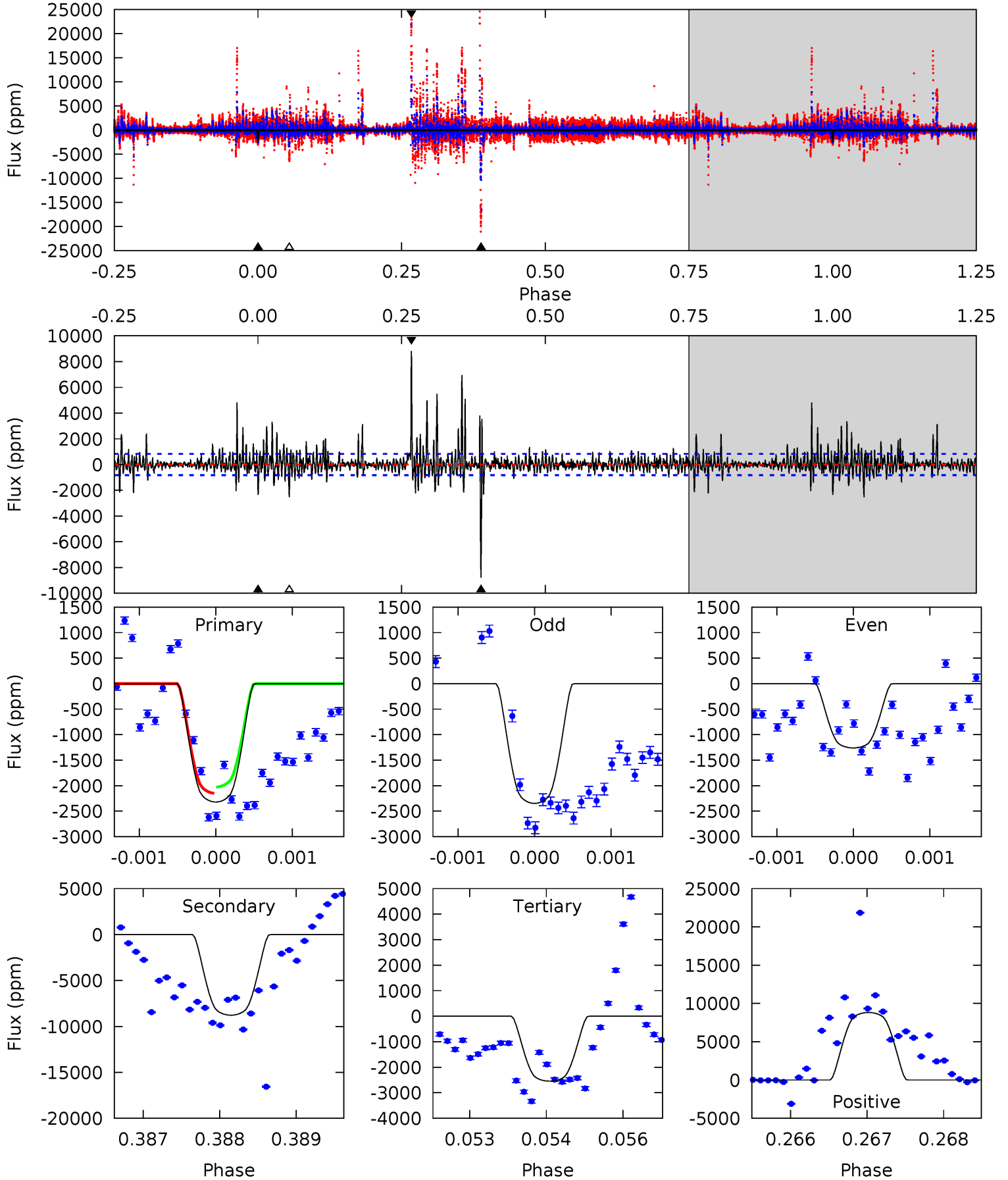
TCE 011144765-03 P=510.035280 Days  $T_0=494.735727$  (BKJD)



# DV Model-Shift Uniqueness Test

011144765-03, P = 509.981930 Days, E = 494.733325 Days

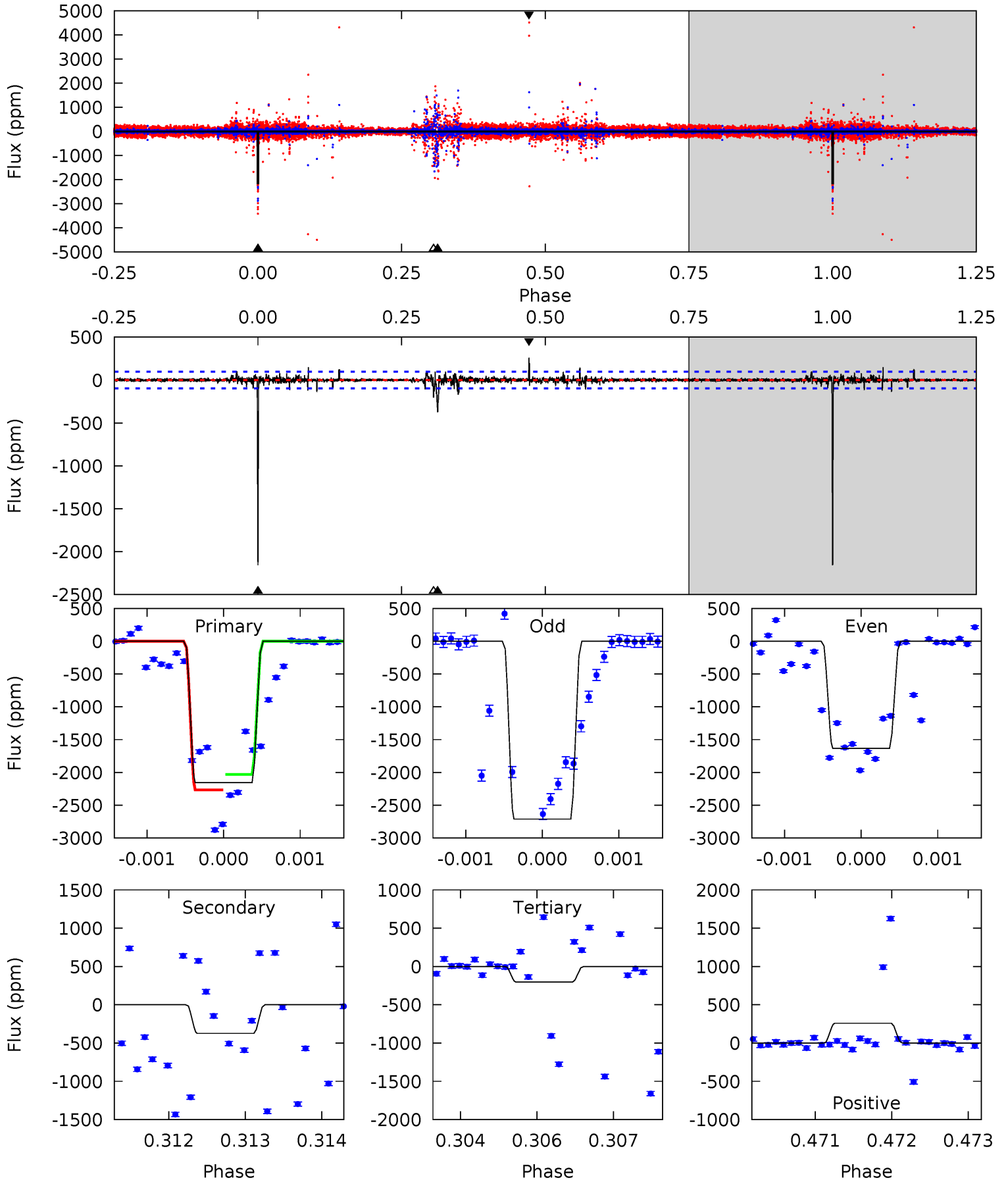
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	57.6	16.7	57.9	5.44	3.27	4.44	-1.48	-42.7	40.9	-0.26	2.45	0.69	0.50	0.40



# Alt Model-Shift Uniqueness Test

011144765-03, P = 510.035280 Days, E = 494.735727 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
121.9	21.1	11.5	14.6	5.44	3.27	0.98	110.4	107.3	9.61	6.52	17.3	1.05	0.11	6.29





### Stellar Parameters For KIC 011144765

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

### Secondary Eclipse Parameters for KIC 011144765-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-8779 \pm 152$	$4.36^{+0.68}_{-0.63}$	$319^{+16}_{-14}$	$9474^{+1186}_{-858}$	$398229^{+149258}_{-96829}$
Alt.	$-373 \pm 18$	$5.03^{+0.69}_{-0.68}$	$318^{+15}_{-15}$	$4045^{+209}_{-187}$	$12601^{+4237}_{-2806}$

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

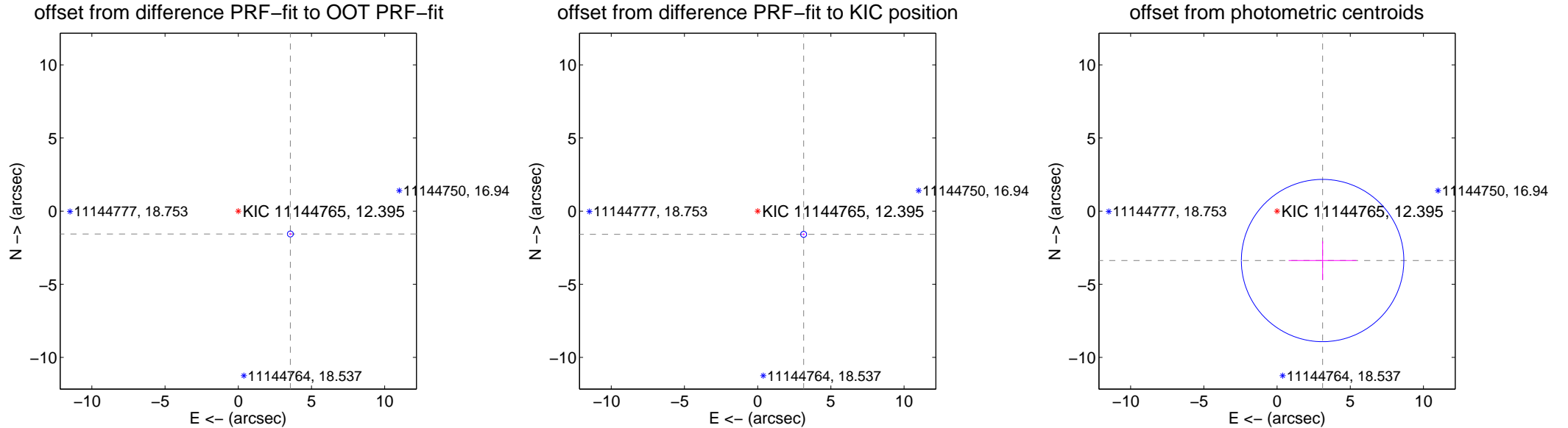
## DV Centroid Data

Supplemental centroid analysis for 011144765-03. Kepler magnitude: 12.39. Transit SNR 3.79

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.42 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.886 \pm 0.068$	57.14	$-3.558 \pm 0.068$	$-1.563 \pm 0.068$
PRF-fit source offset from KIC position	$3.519 \pm 0.068$	51.75	$-3.141 \pm 0.068$	$-1.587 \pm 0.068$
photometric centroid source offset	$4.59 \pm 1.85$	2.48	$-3.11 \pm 2.32$	$-3.38 \pm 1.33$

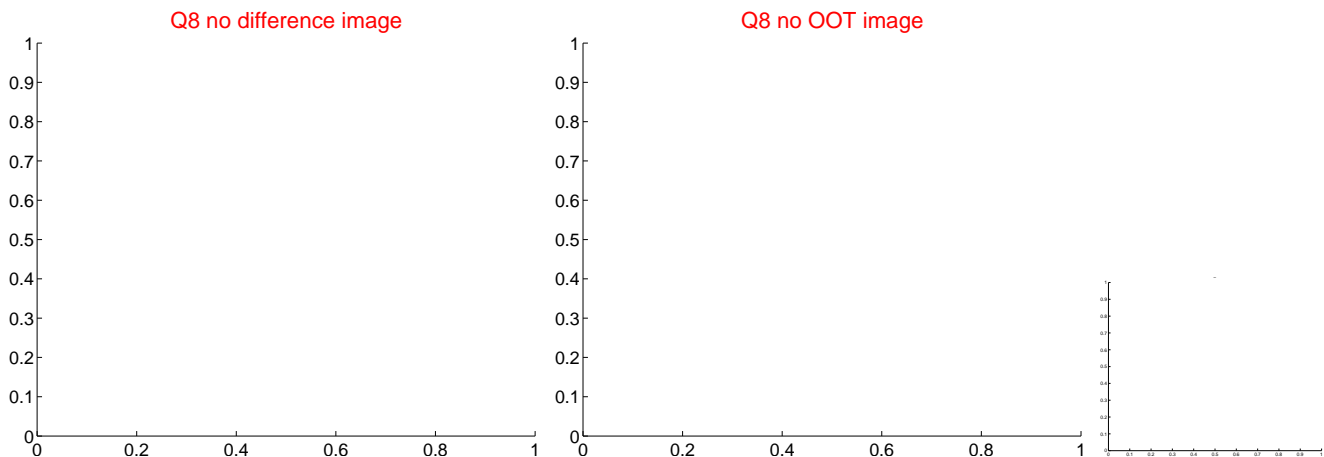
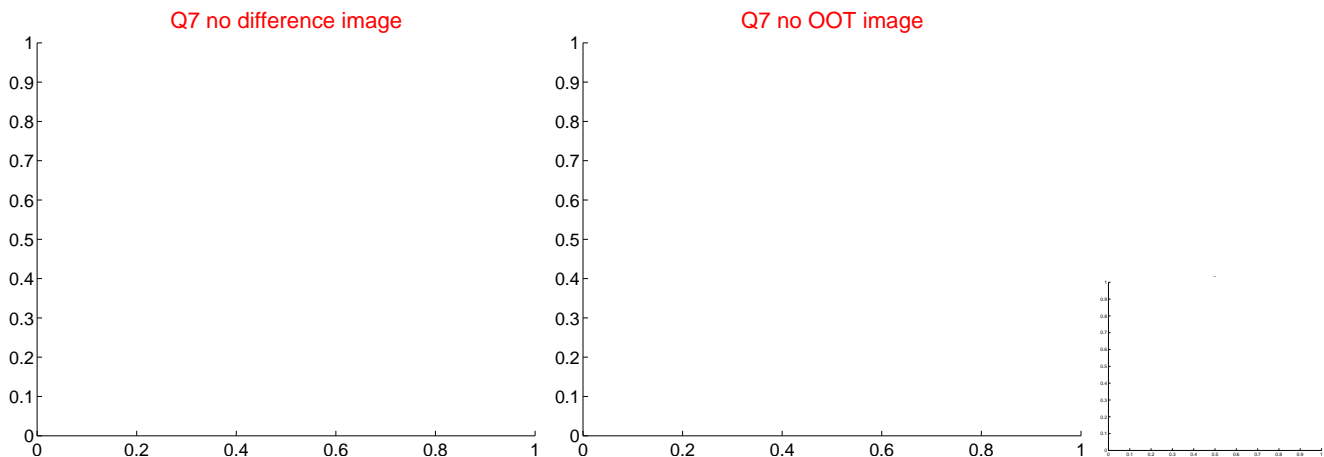
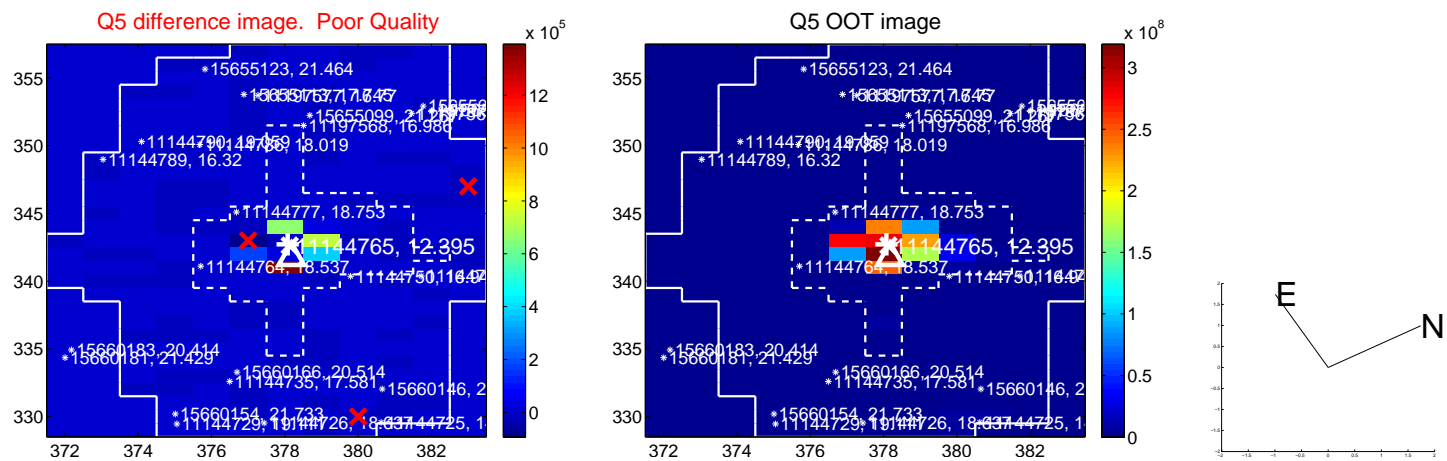


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



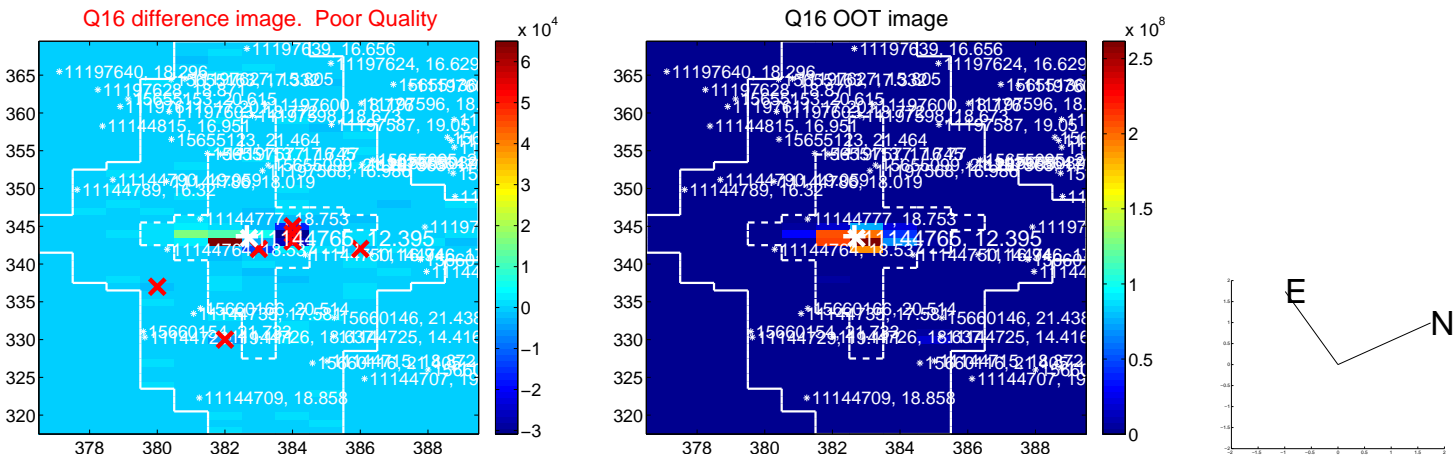
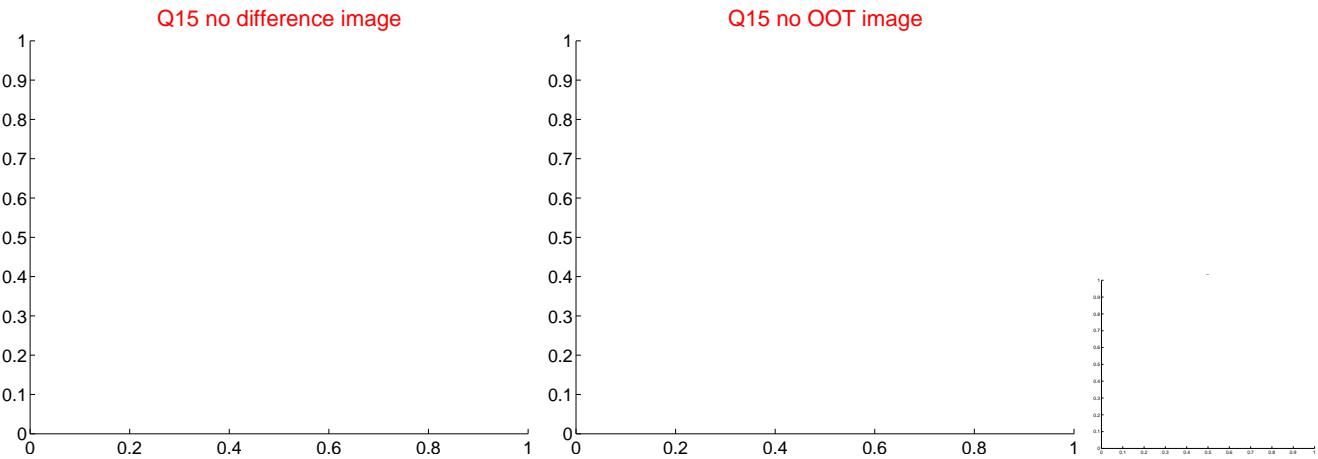
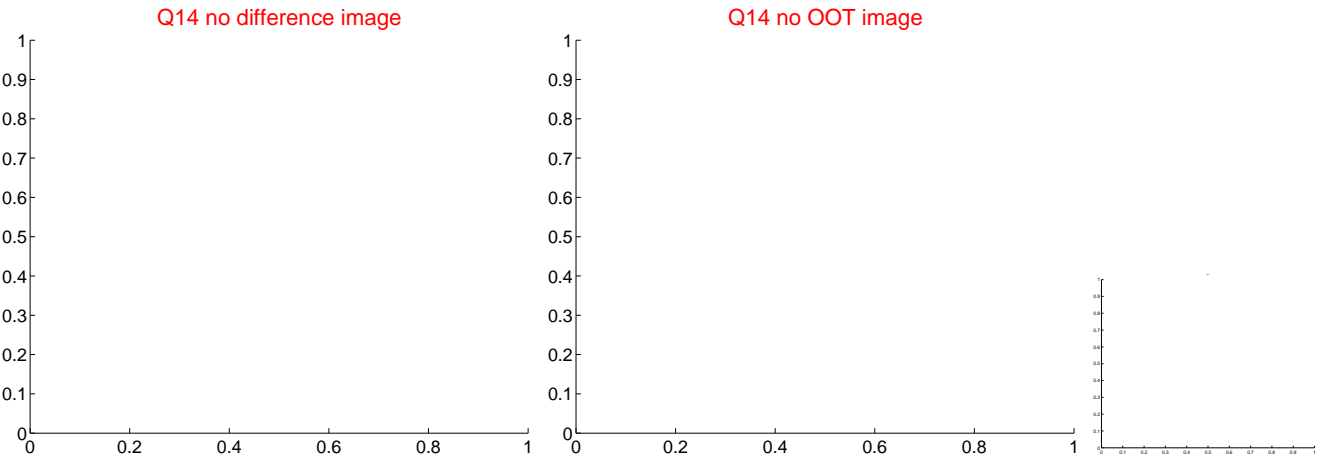
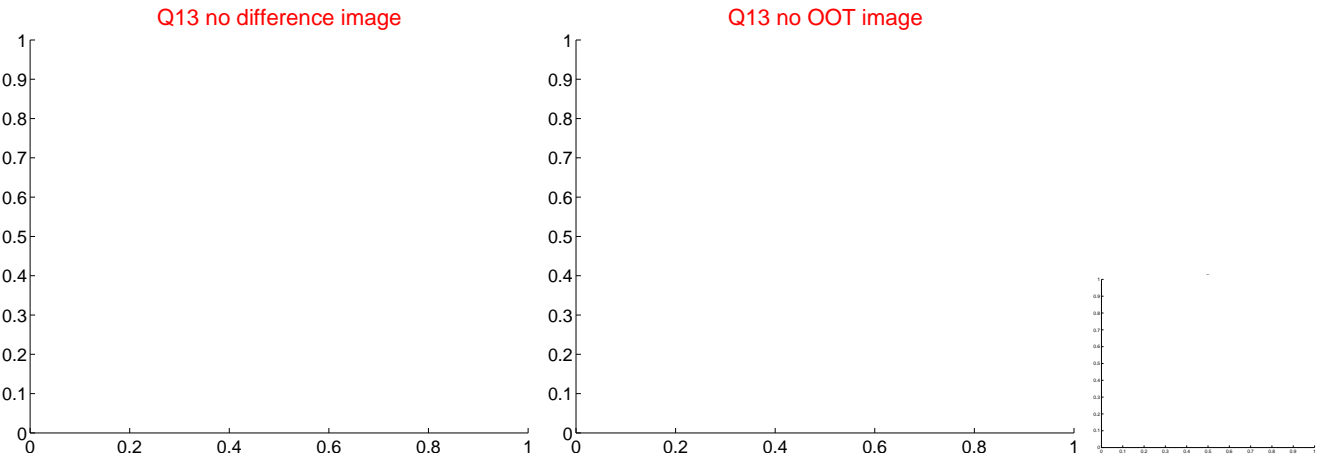
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



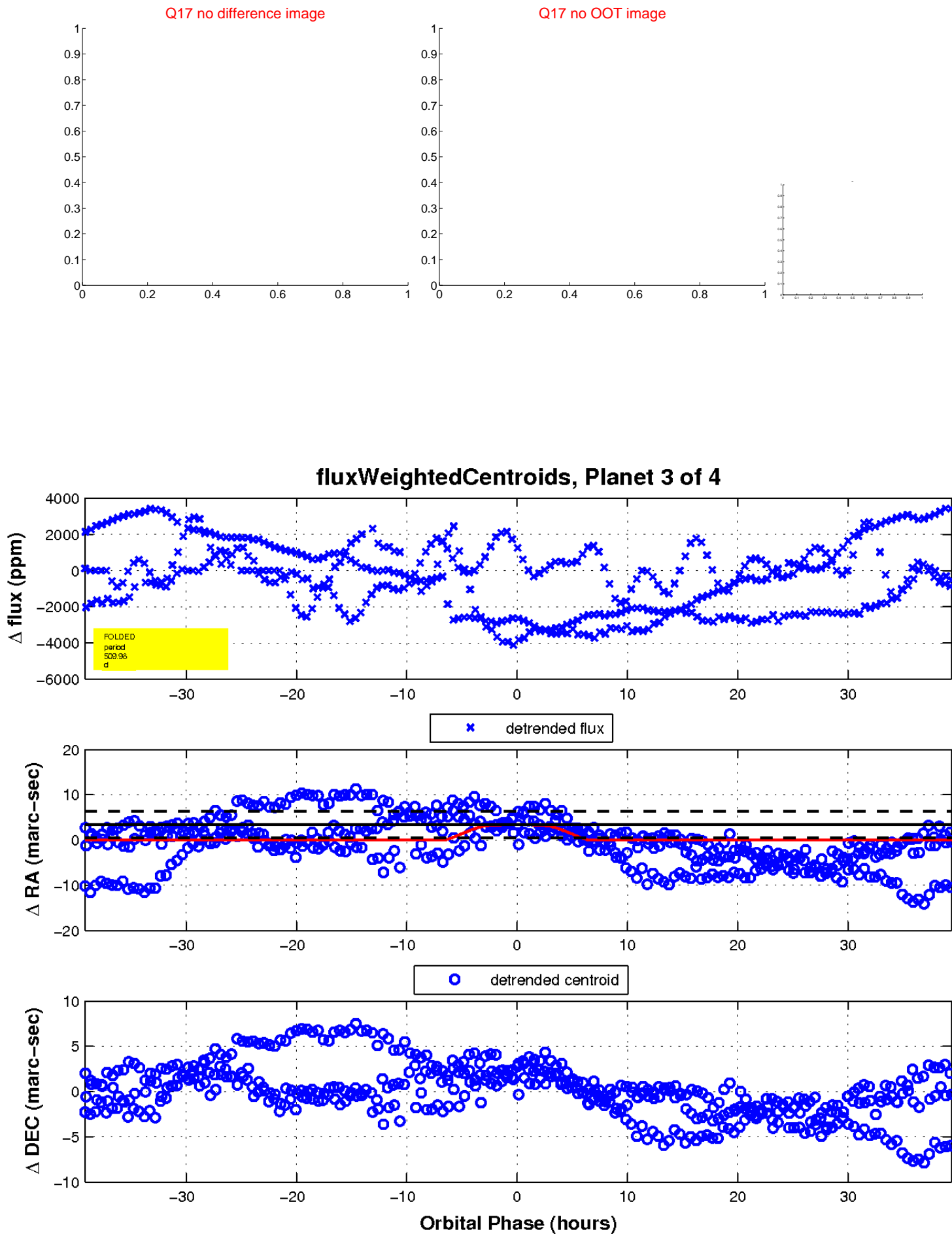
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

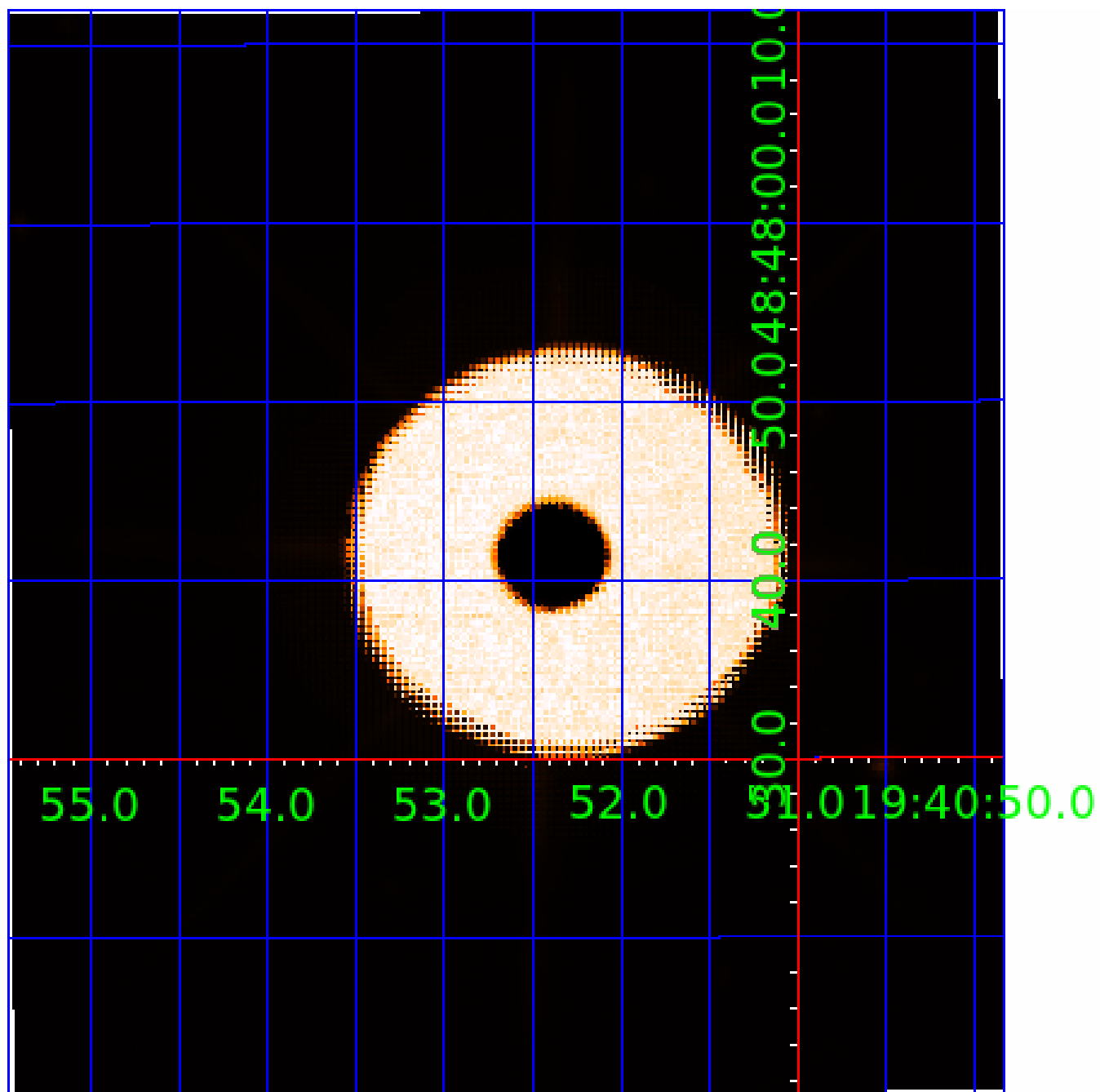


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 011144765

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011144765-01	OBS	No	426.788754	284.988013	1142.2	14.706	32.3	37.0	1.00	5780	6.57	0.81
011144765-03	OBS	No	509.981930	494.733325	1204.8	13.174	16.2	3.8	1.00	5780	4.38	0.64
011144765-04	OBS	No	246.823782	149.683240	63.1	15.000	15.9	-1.0	1.00	5780	0.79	1.69

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011144765-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
011144765-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011144765-04	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

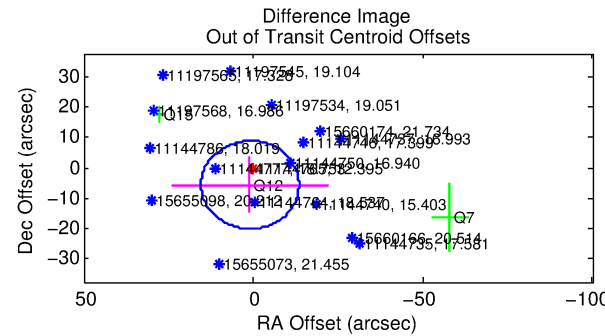
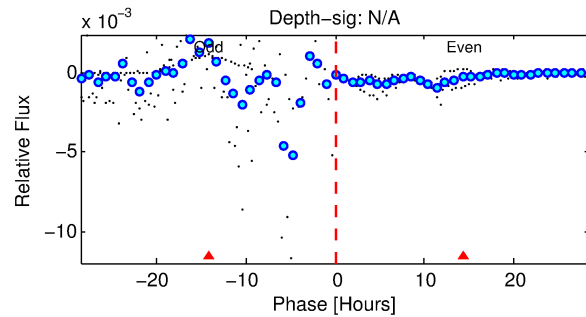
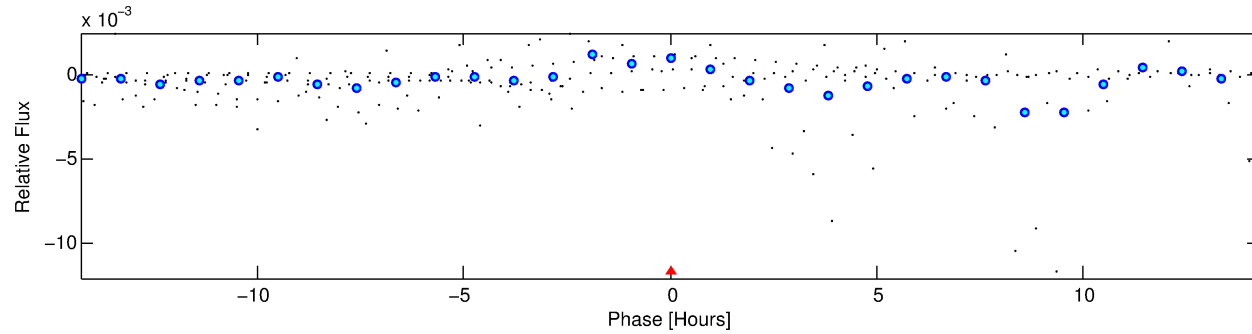
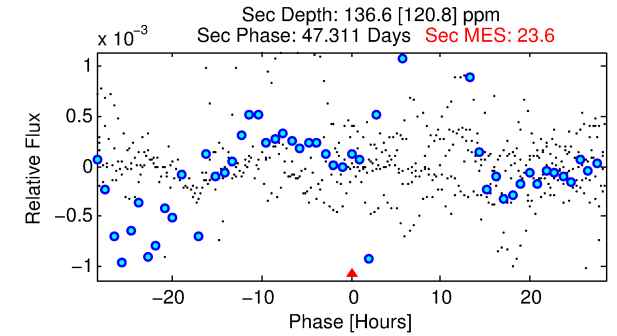
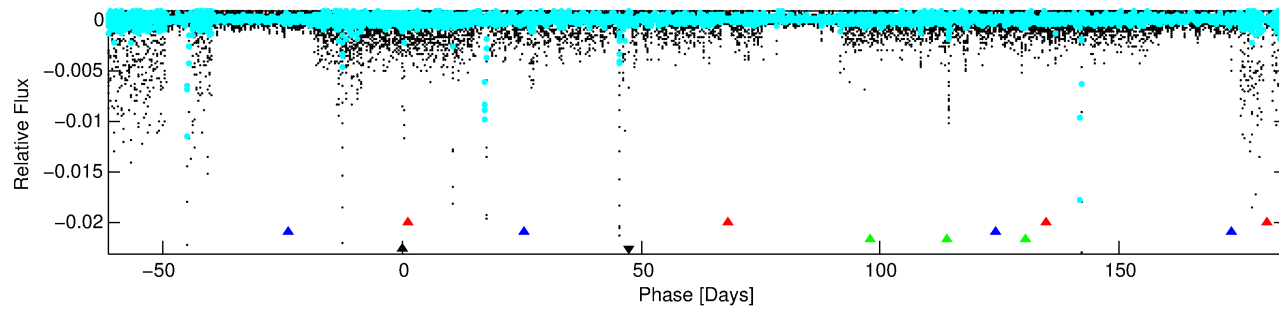
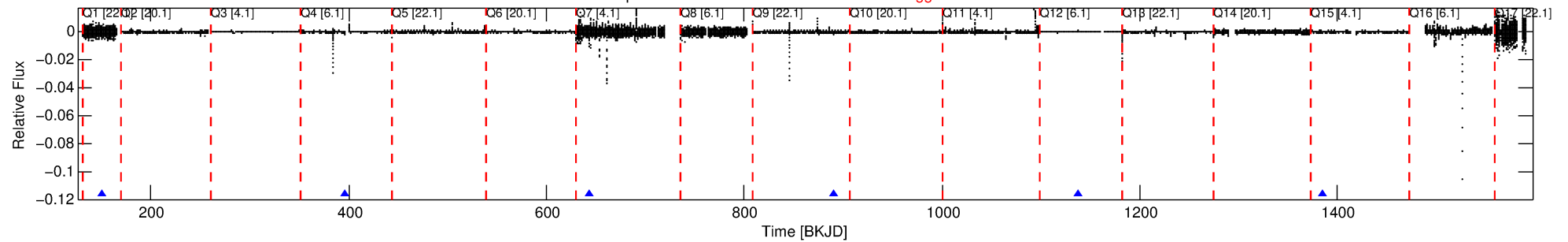
Ephemeris Match Information For 011144765-04

No Significant Match Found

# DV One-Page Summary

KIC: 11144765 Candidate: 4 of 4 Period: 246.824 d

Kp: 12.40 R\*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



## TPS TCE Results:

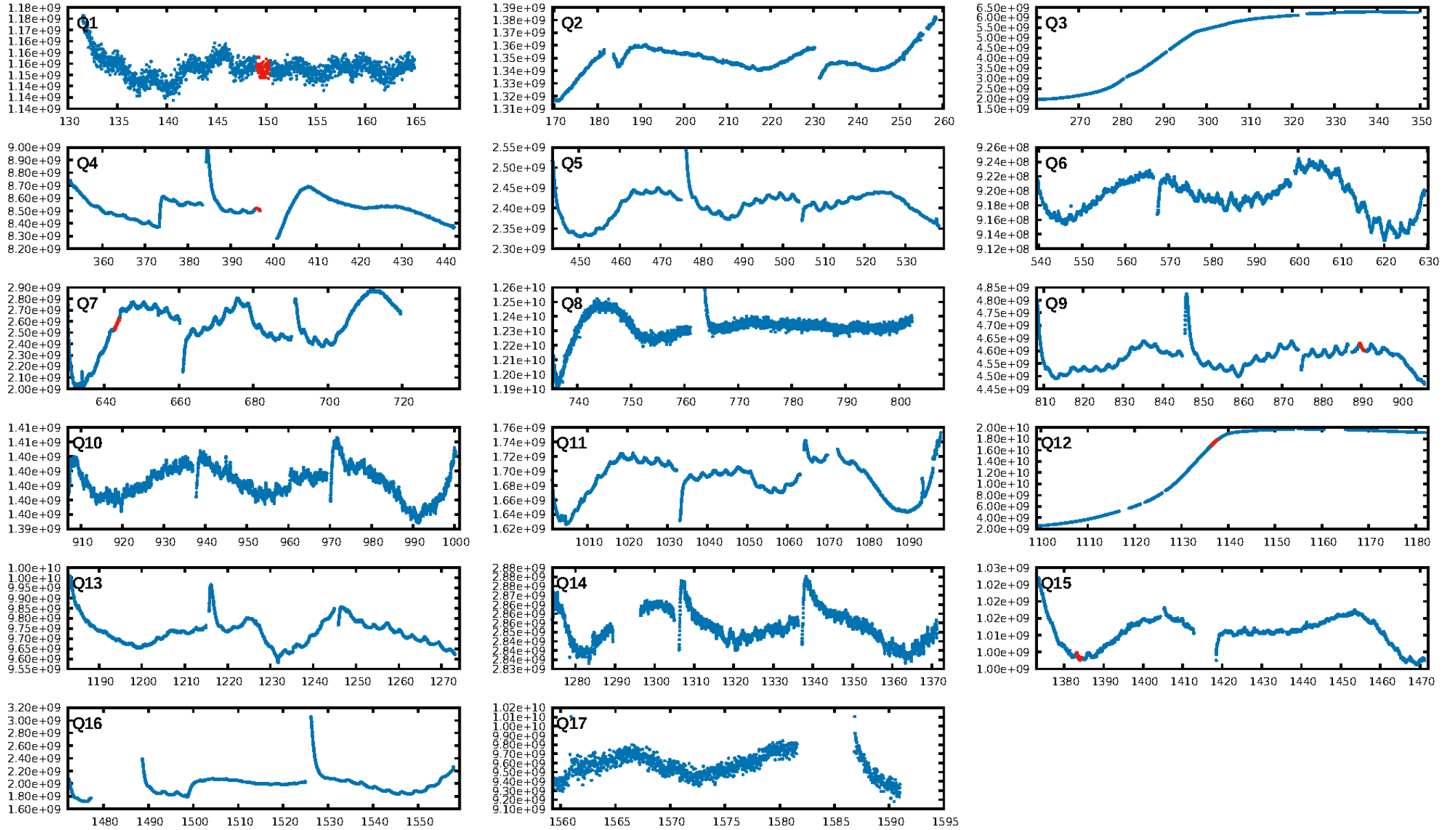
Period = 246.82378 d  
Epoch = 149.6832 BKJD

DV fit results are unavailable

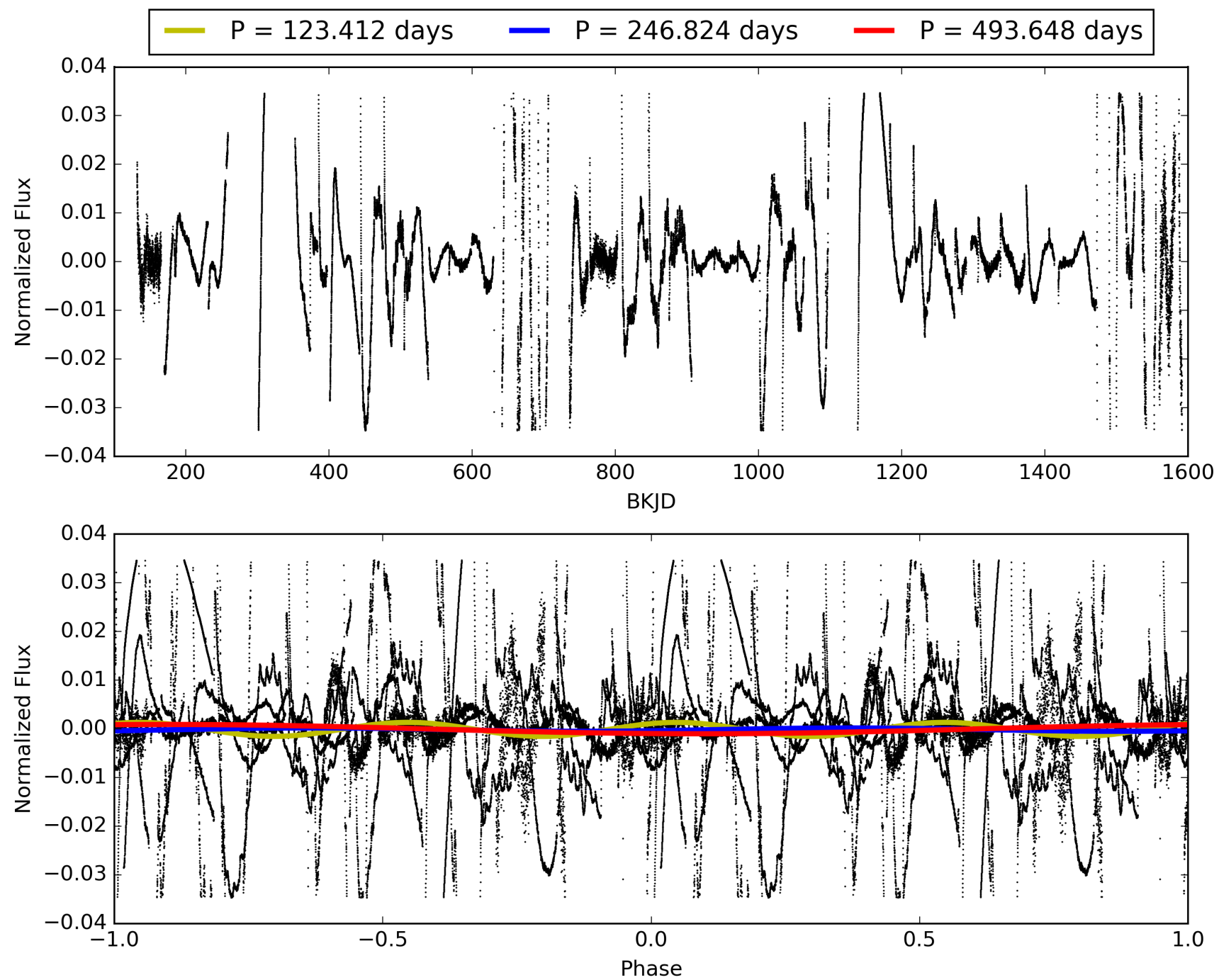
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [178.39σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.25e-08  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -0.5151  
Centroid-sig: N/A  
Centroid-so: 0.353 arcsec [15.70σ]  
OotOffset-rm: 5.779 arcsec [1.19σ]  
KicOffset-rm: 5.917 arcsec [1.46σ]  
OotOffset-st: 0/2/1/0 [3]  
KicOffset-st: 0/2/1/0 [3]  
DiffImageQuality-fgm: 0.00 [0/3]  
DiffImageOverlap-fno: 1.00 [5/5]

# TCE 011144765-04, PDC Light Curves

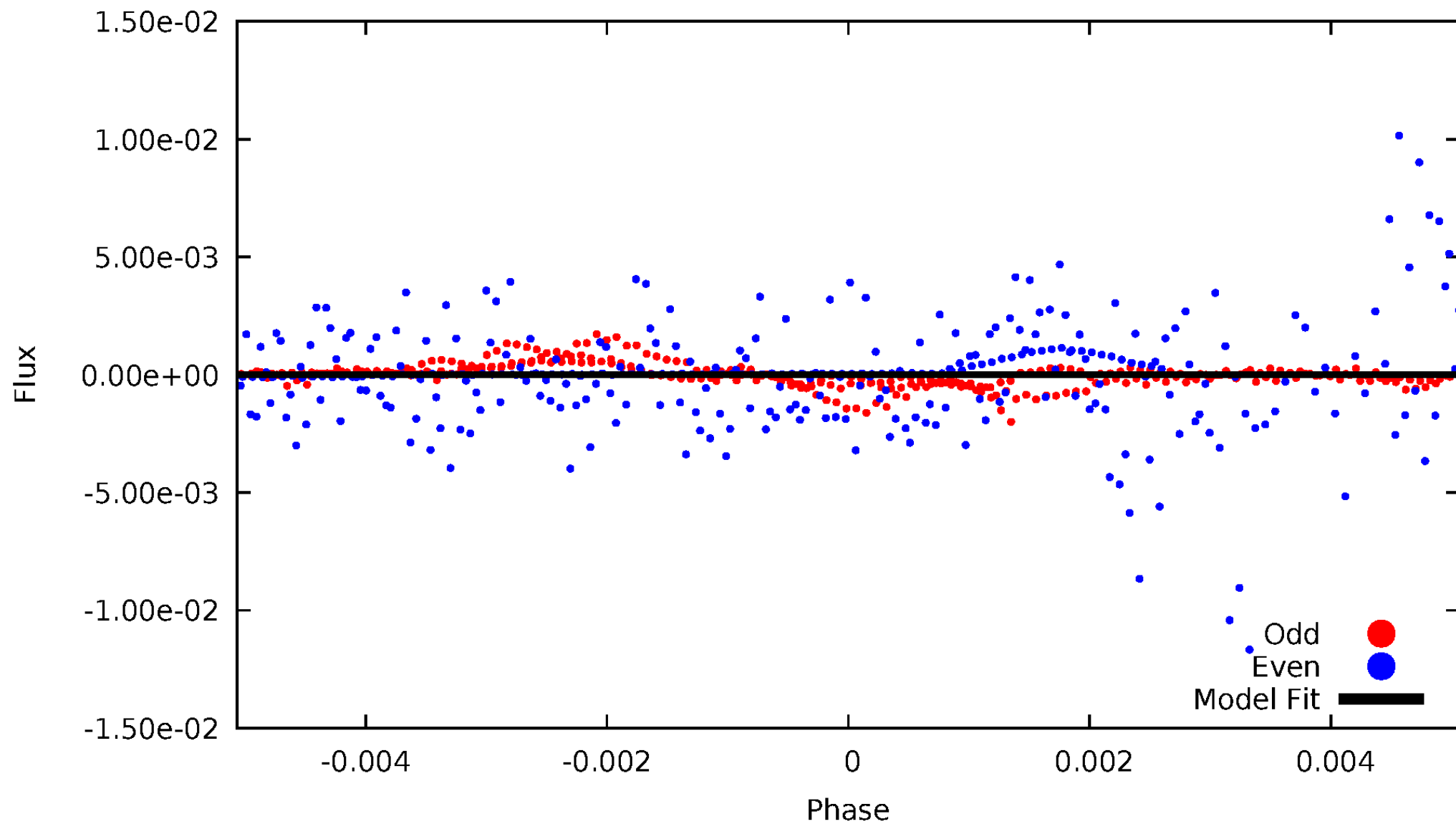


# TCE 011144765-04



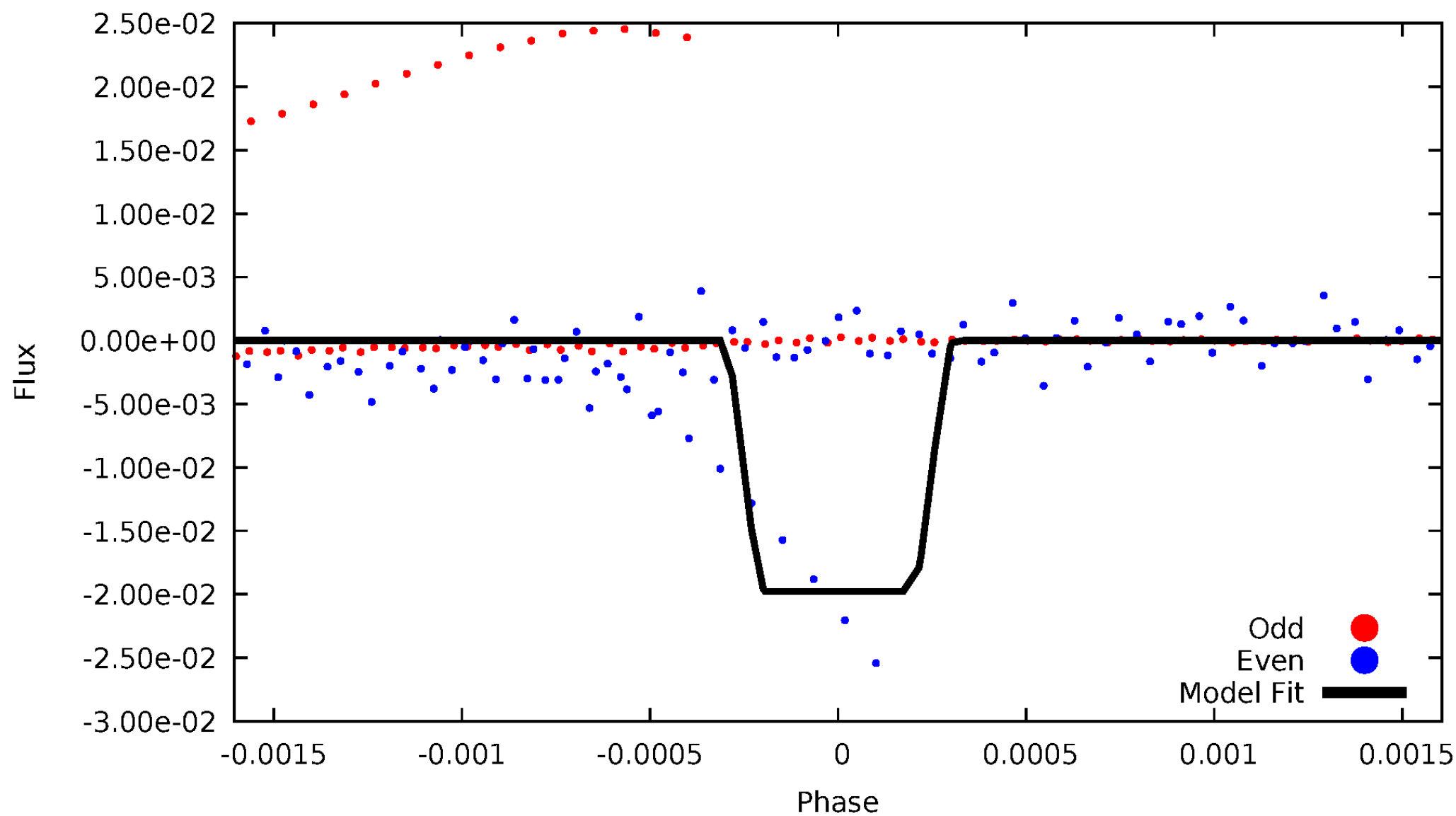
# DV Odd/Even

TCE 011144765-04



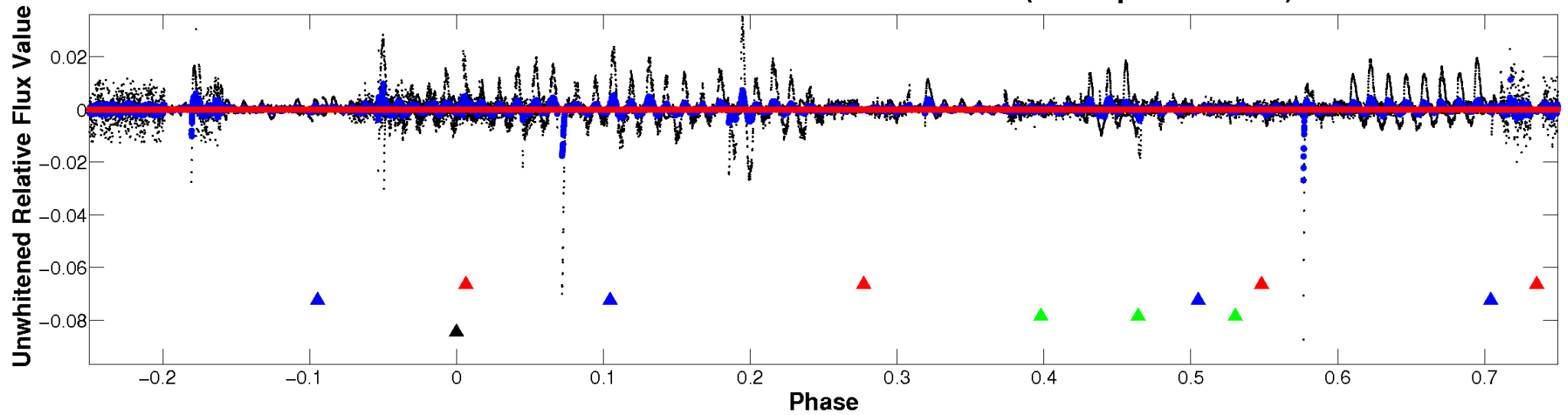
# ALT Odd/Even

TCE 011144765-04



# Non-Whitened Vs. Whitened Light Curve

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

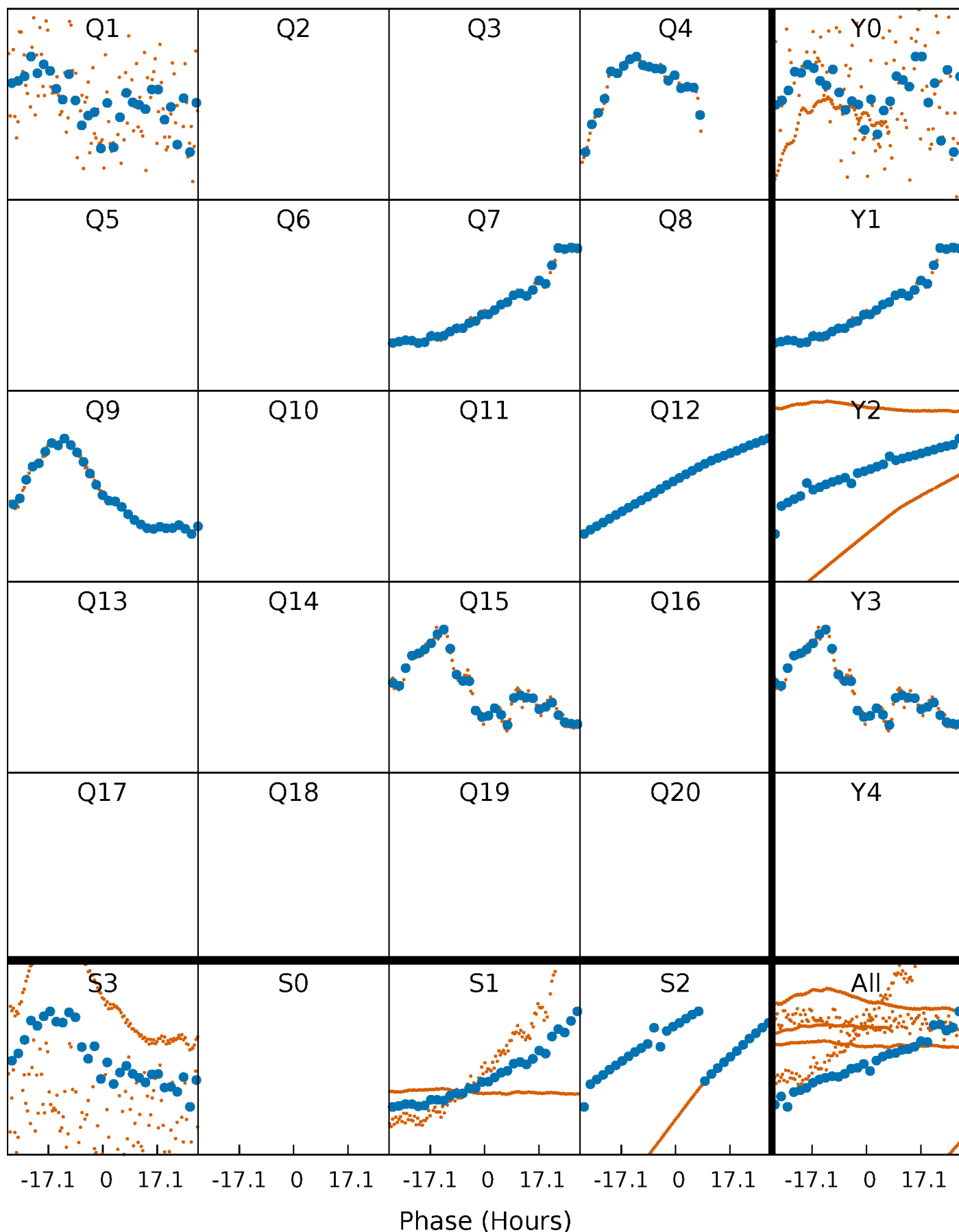


**Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

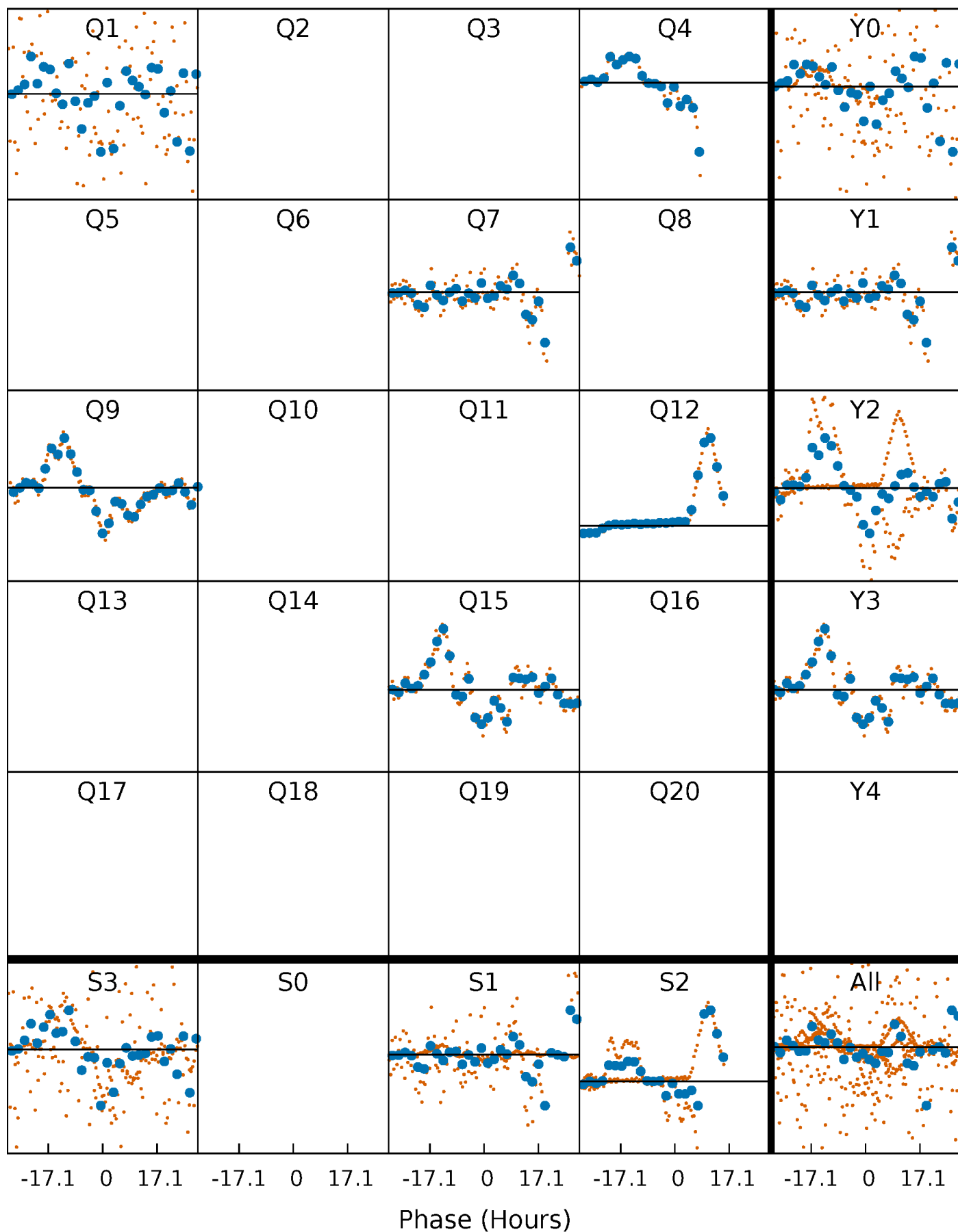
TCE 011144765-04 P=246.823782 Days  $T_0=149.683240$  (BKJD)





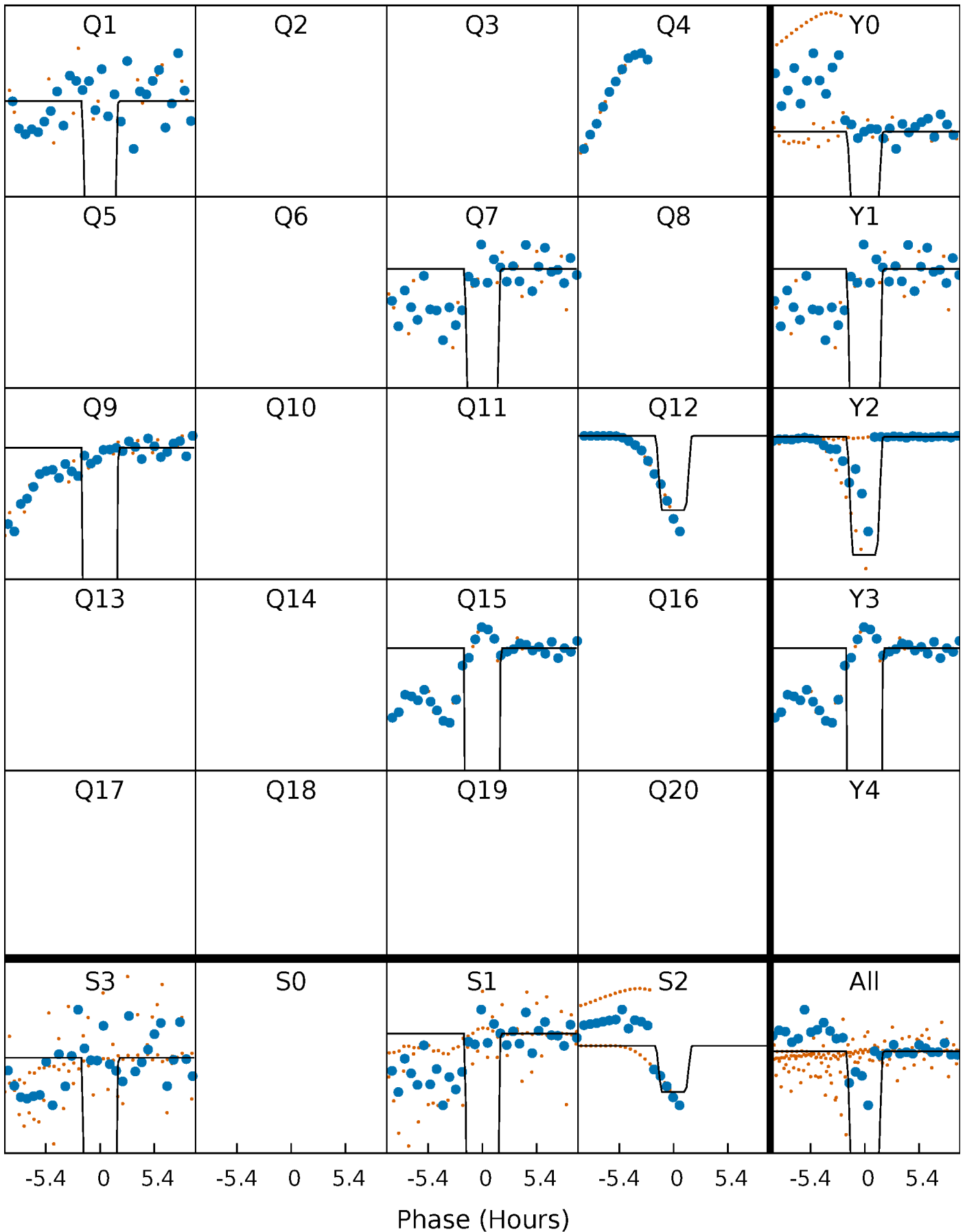
# DV Quarter-Phased Transit Curves

TCE 011144765-04 P=246.823782 Days  $T_0=149.683240$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

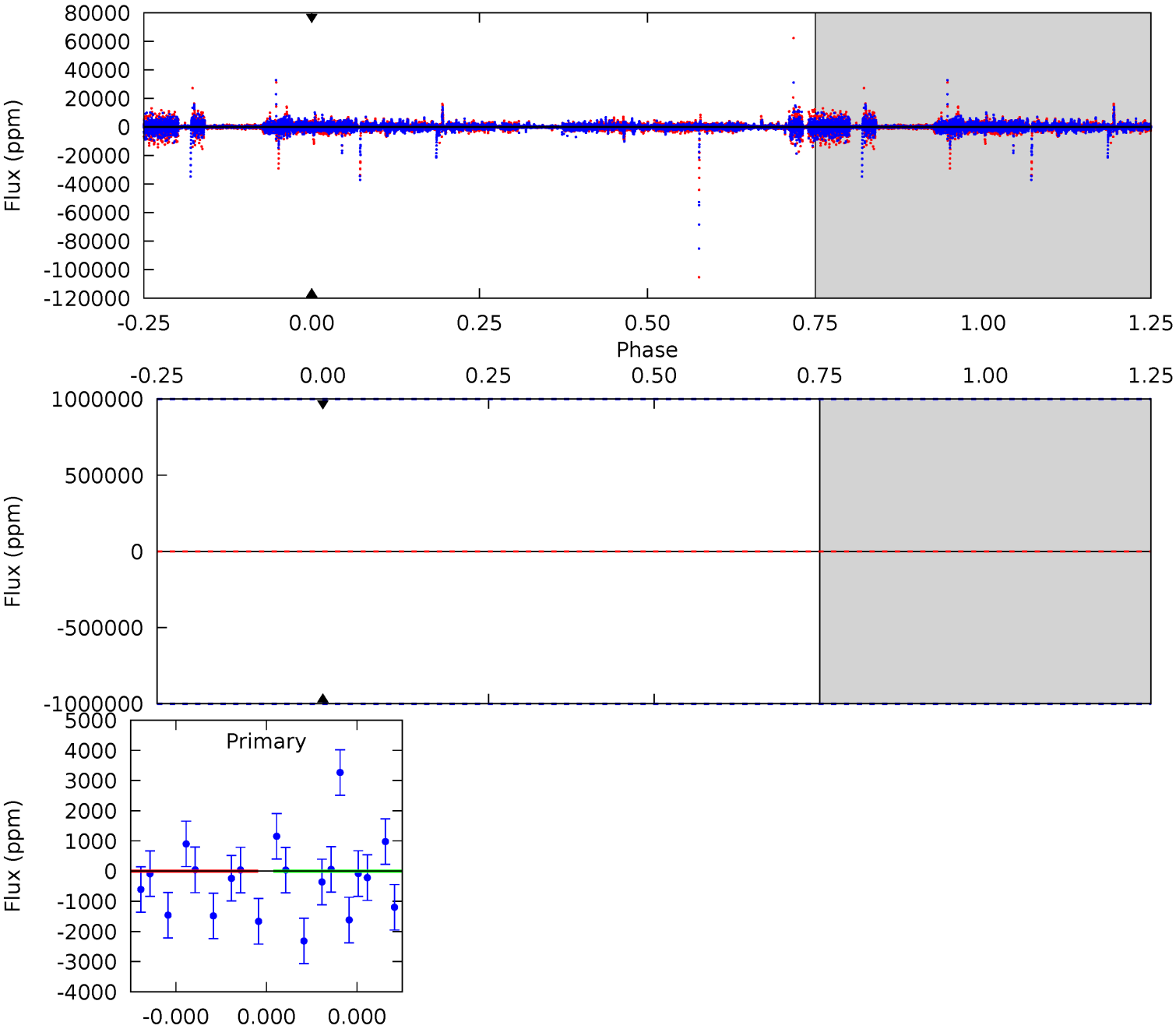
TCE 011144765-04     $P=246.823782$  Days     $T_0=150.115215$  (BKJD)



# DV Model-Shift Uniqueness Test

011144765-04, P = 246.823782 Days, E = 149.683240 Days

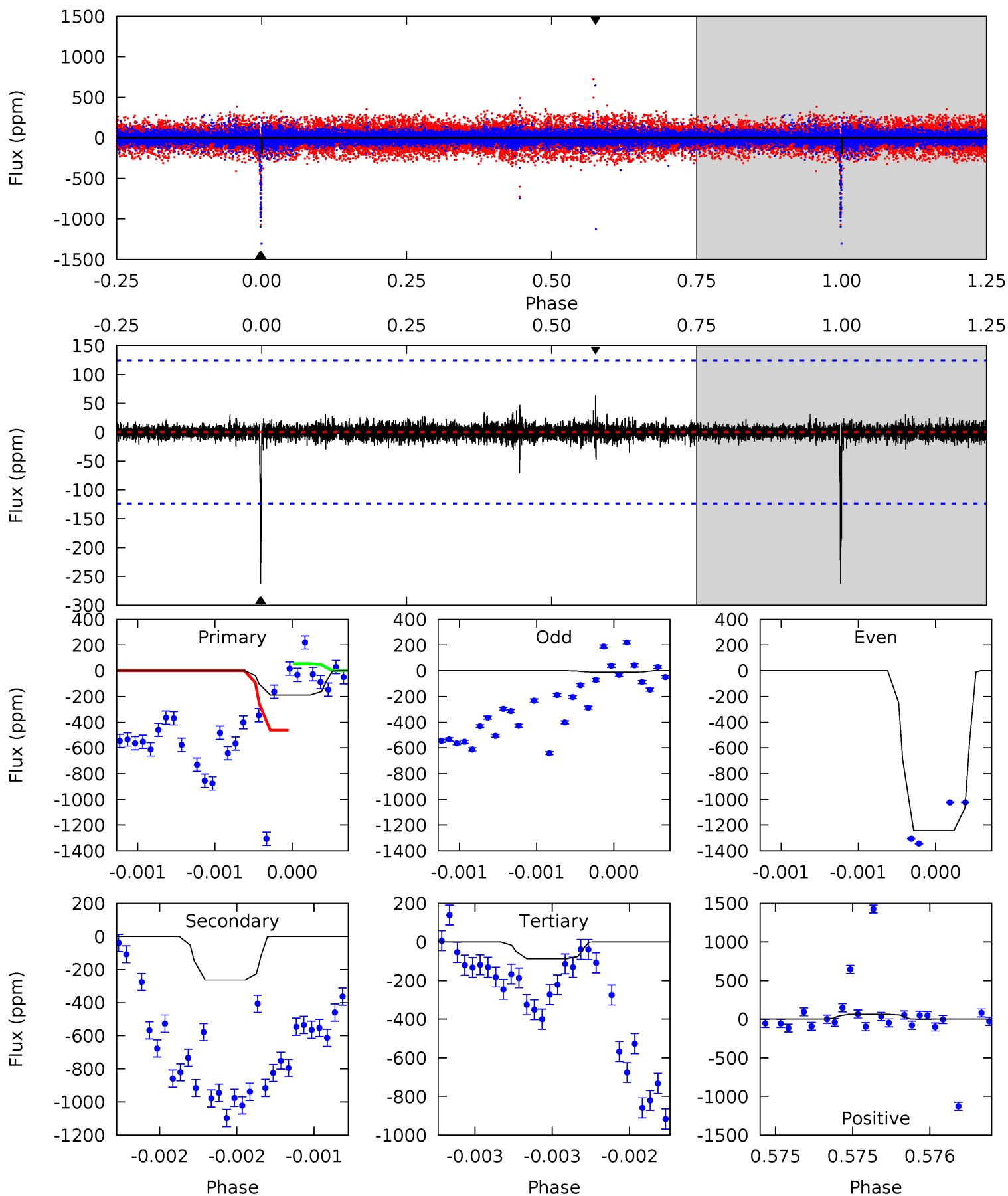
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

011144765-04, P = 246.823782 Days, E = 150.115215 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
8.42	11.8	3.89	2.85	5.55	3.44	0.34	4.53	5.58	7.88	8.92	9.51	29.7	0.19	9.33



### Stellar Parameters For KIC 011144765

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

### Secondary Eclipse Parameters for KIC 011144765-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$7.92^{+8.00}_{-5.38}$	$406^{+19}_{-19}$	$-3426^{+23850}_{-17026}$	$-1722.762^{+812460.371}_{-870681.722}$
Alt.	$-263 \pm 22$	$16.75^{+10.85}_{-9.25}$	$406^{+21}_{-19}$	$2679^{+660}_{-307}$	$302^{+1200}_{-188}$

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

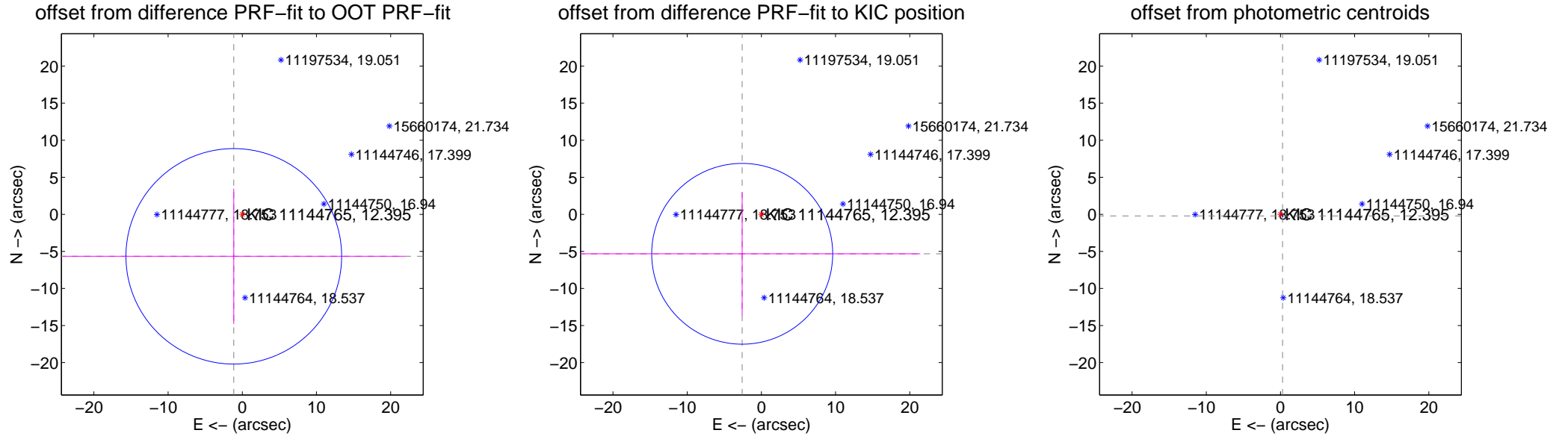
## DV Centroid Data

Supplemental centroid analysis for 011144765-04. Kepler magnitude: 12.39. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

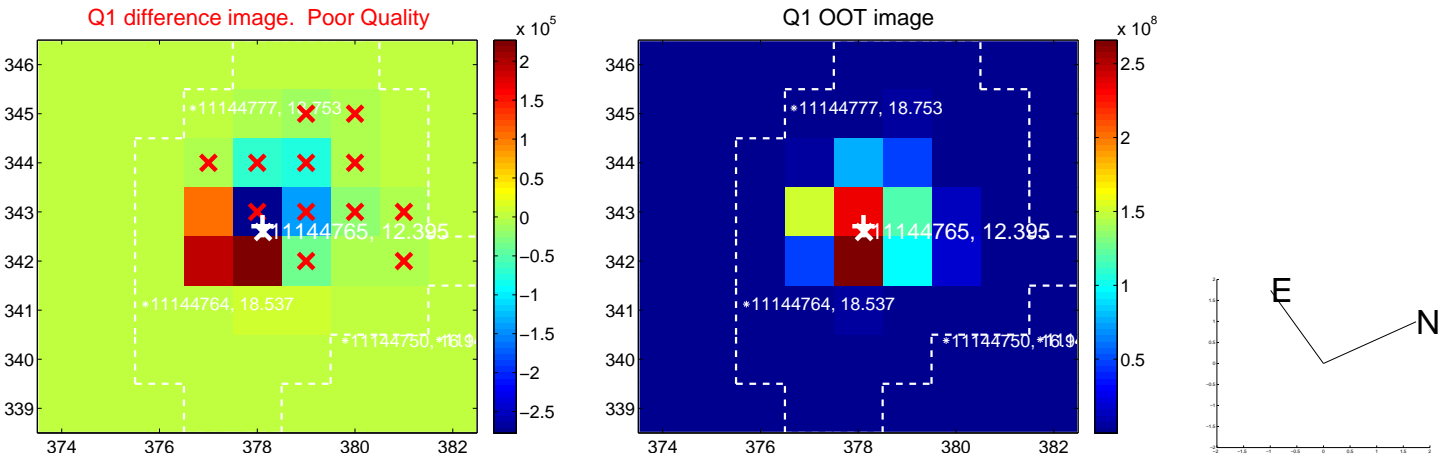
The direct PRF centroid is offset from the target star catalog position by about 1.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.779 \pm 4.845$	1.19	$1.144 \pm 23.070$	$-5.664 \pm 9.129$
PRF-fit source offset from KIC position	$5.917 \pm 4.065$	1.46	$2.585 \pm 24.002$	$-5.323 \pm 8.310$
photometric centroid source offset	$0.35 \pm 0.02$	15.70	$-0.28 \pm 0.02$	$-0.22 \pm 0.02$

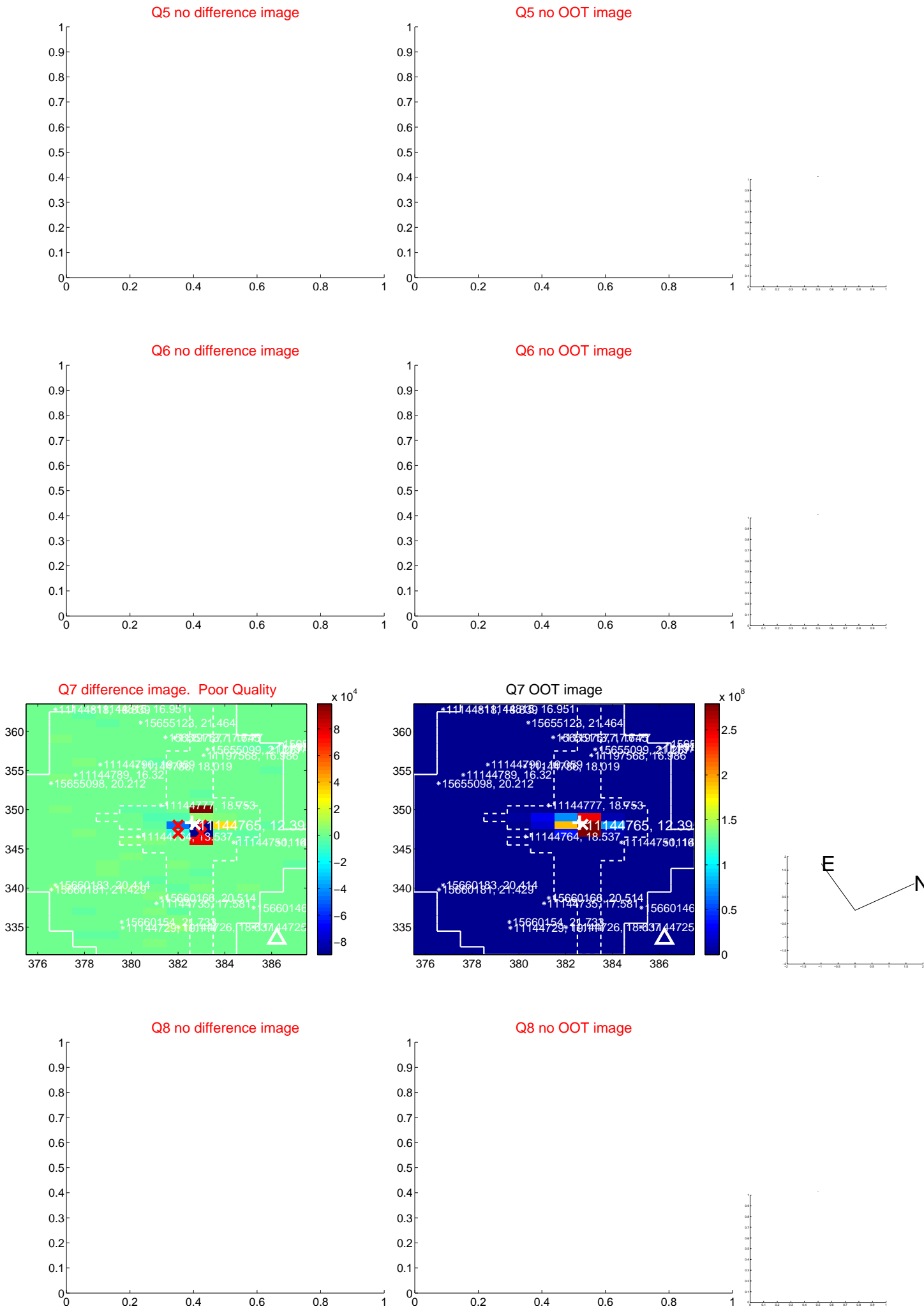


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

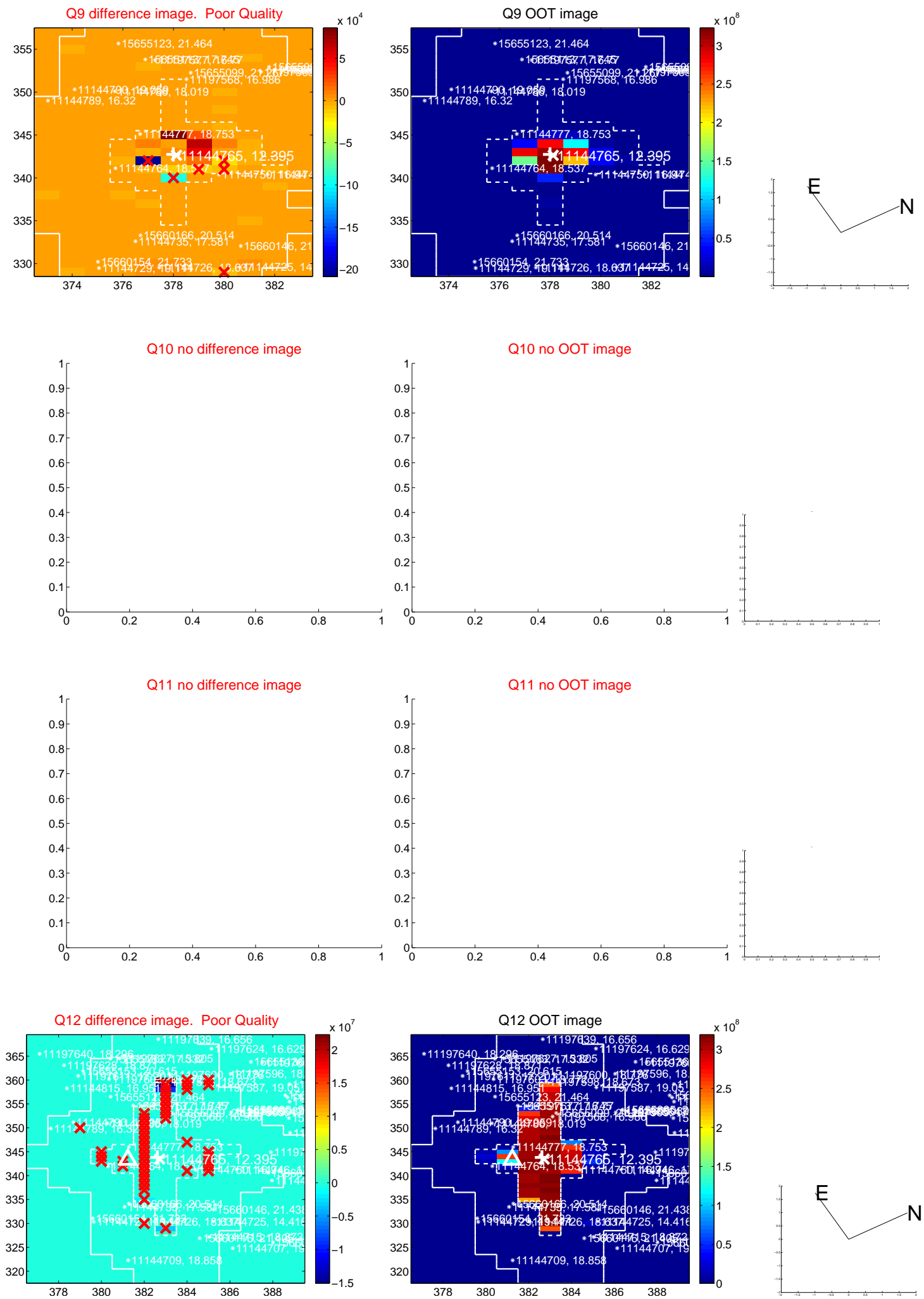


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

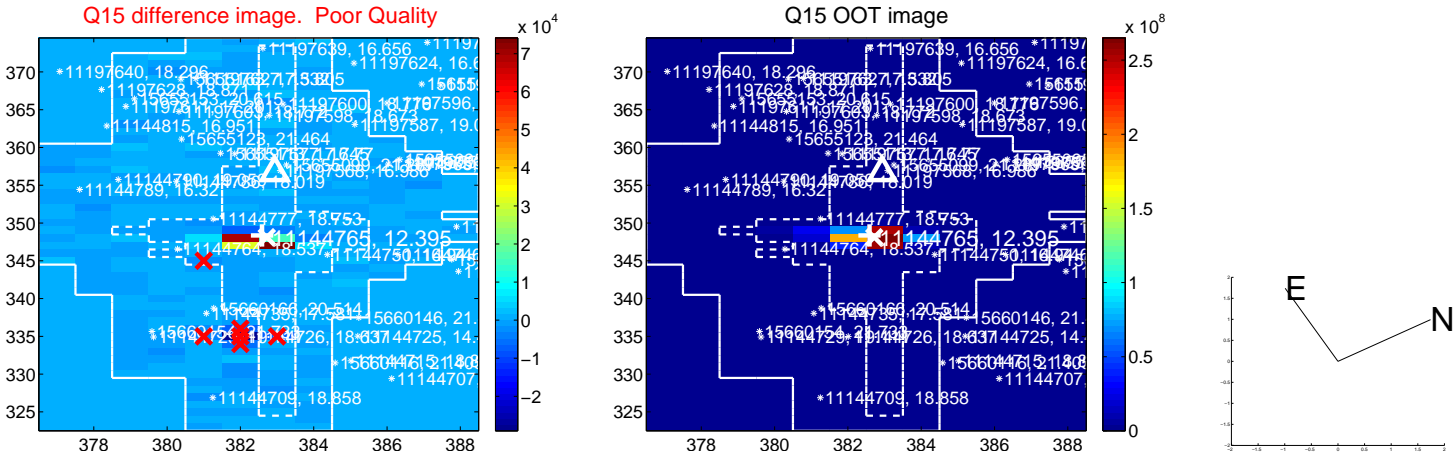




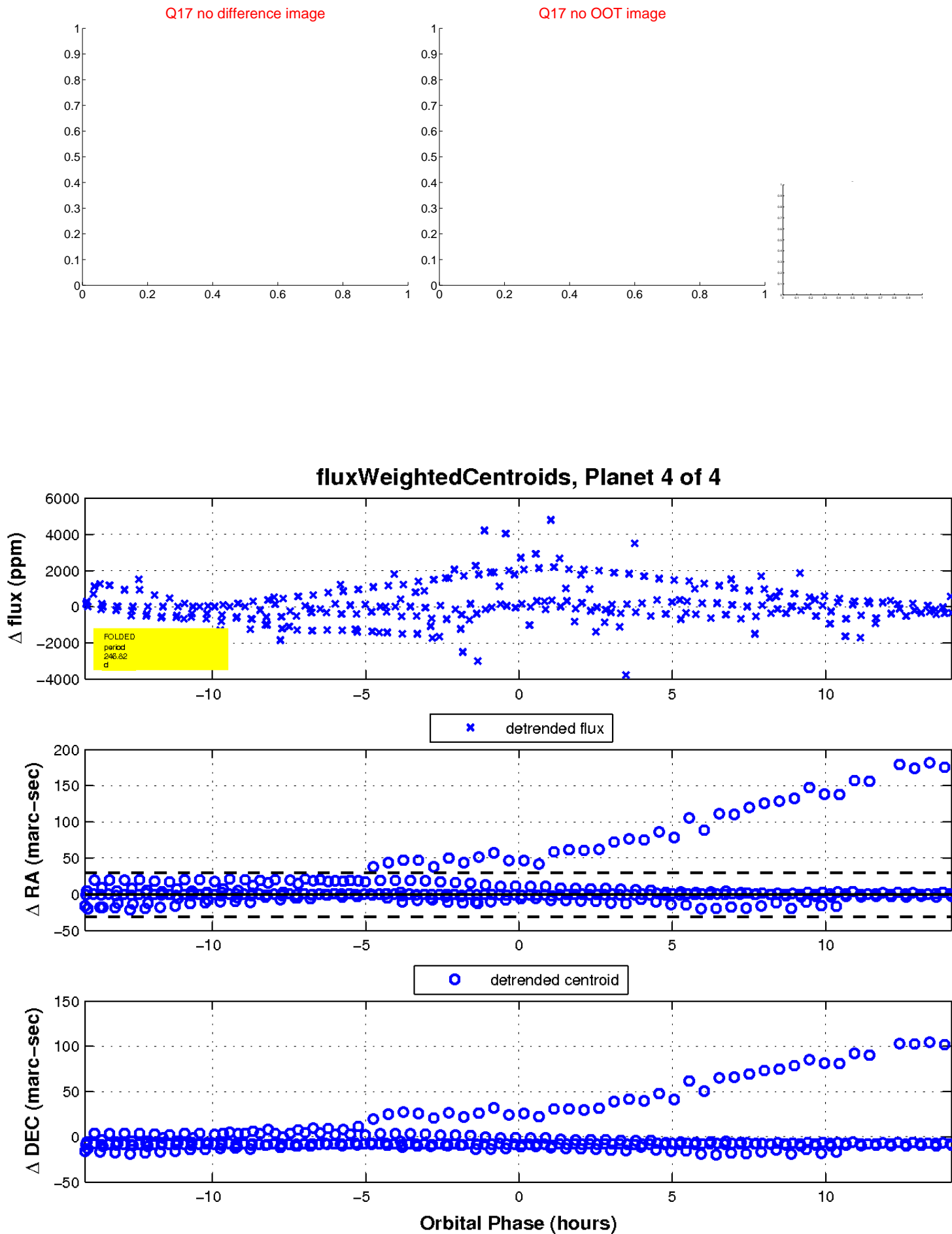
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

