

# KIC 008749284

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008749284-01	OBS	No	277.953370	256.222612	1189.8	15.569	25.8	3.8	4.40	4632	18.13	11.76
008749284-03	OBS	No	514.963912	514.973002	396.3	4.224	18.6	2.2	4.40	4632	8.36	5.17
008749284-04	OBS	No	382.311908	426.649929	528.1	5.000	21.7	-1.0	4.40	4632	9.66	7.69

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008749284-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_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
008749284-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008749284-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

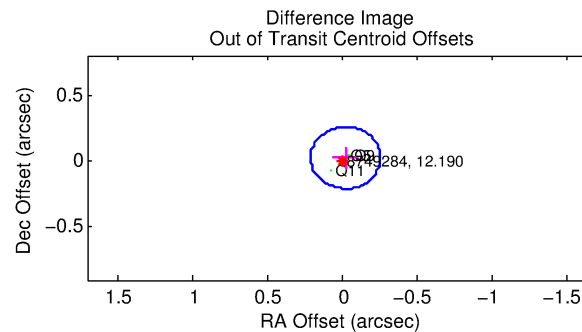
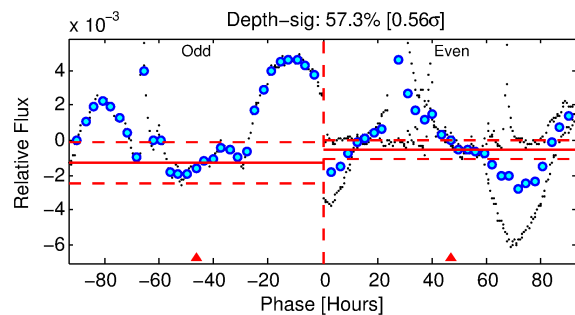
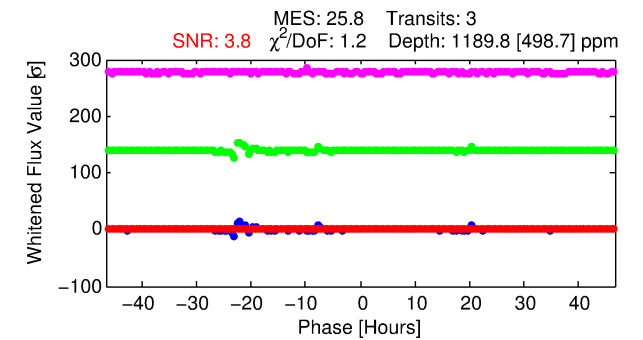
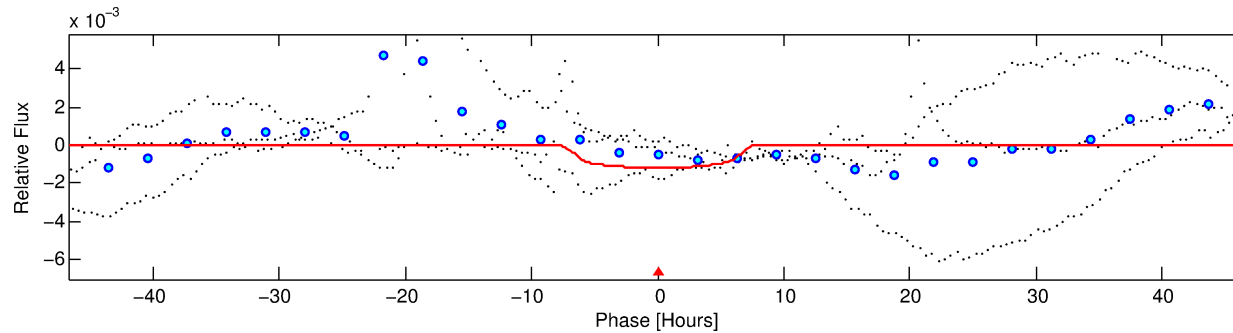
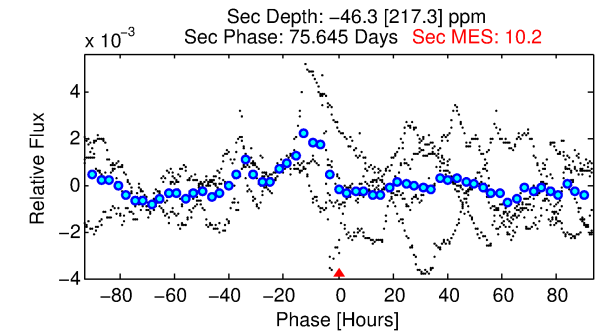
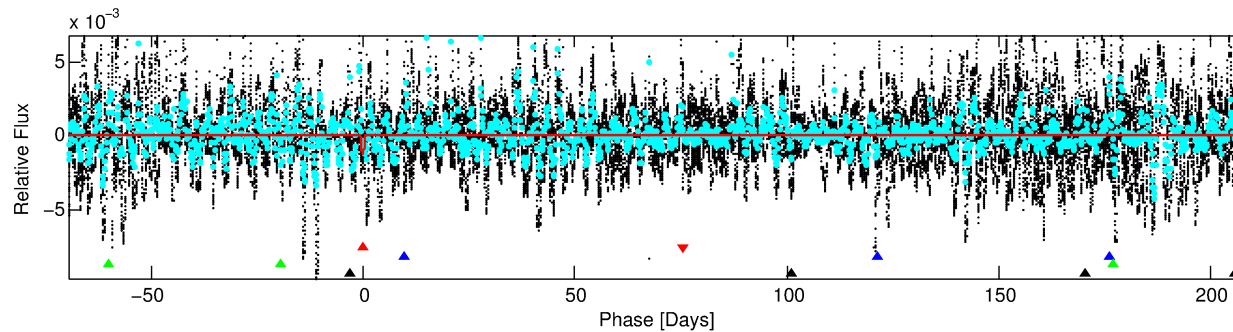
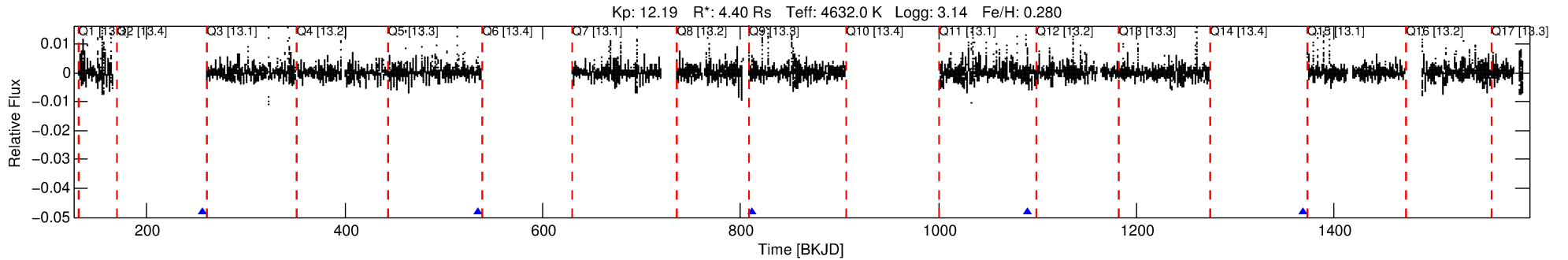
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008749284-01

No Significant Match Found

# DV One-Page Summary

KIC: 8749284 Candidate: 1 of 4 Period: 277.953 d



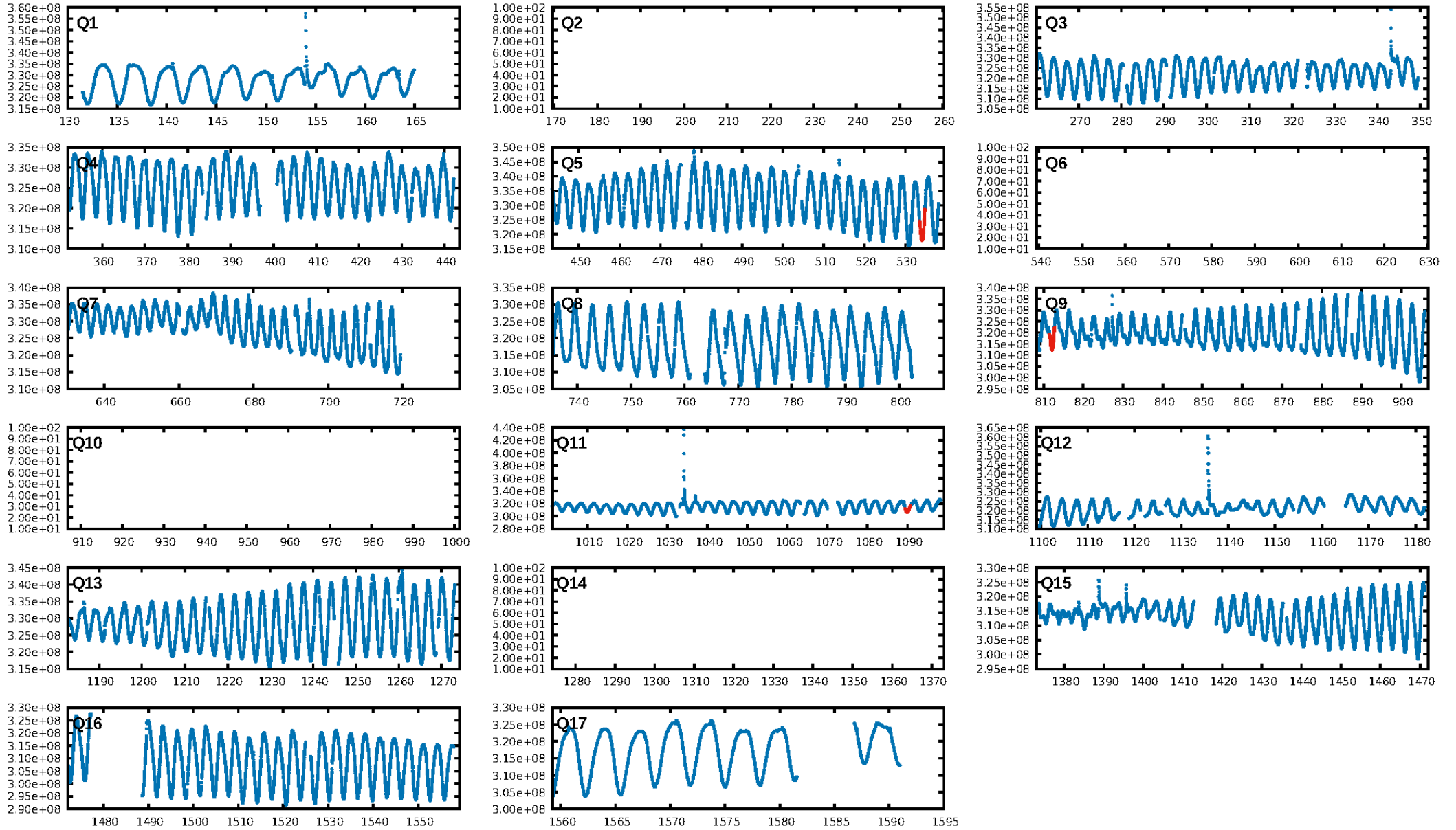
## DV Fit Results:

Period = 277.95337 [0.01655] d  
Epoch = 256.2226 [0.0358] BKJD  
Rp/R\* = 0.0377 [0.0082]  
a/R\* = 77.17 [15.39]  
b = 0.87 [0.06]  
Seff = 11.76 [3.59]  
Teq = 472 [36] K  
Rp = 18.13 [5.66] Re  
a = 0.8245 [0.1633] AU  
Ag = N/A  
Teffp = N/A

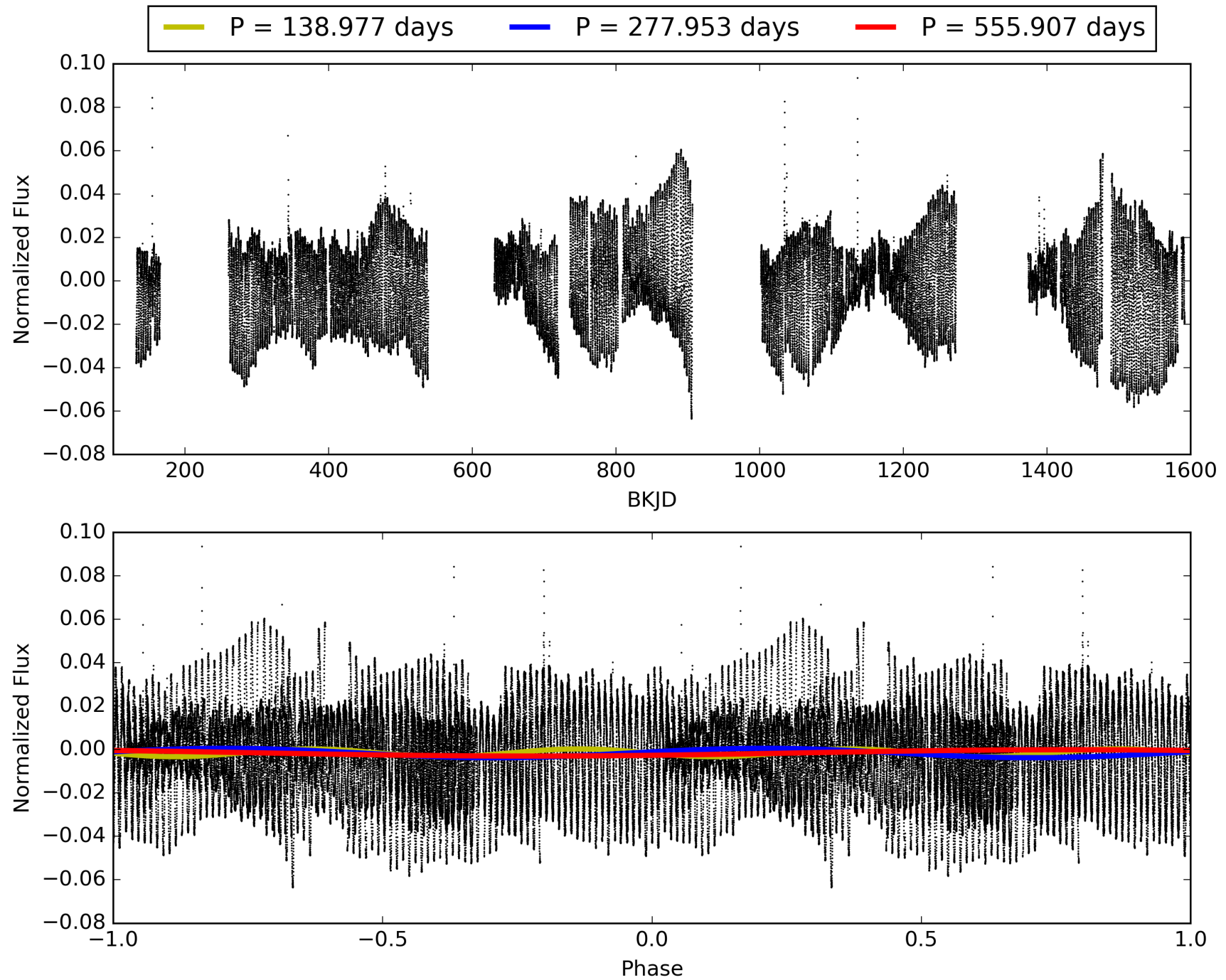
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [153.16 $\sigma$ ]  
ModelChiSquare2-sig: 64.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.107  
Centroid-sig: 64.4%  
Centroid-so: 0.314 arcsec [1.58 $\sigma$ ]  
OotOffset-rm: 0.036 arcsec [0.46 $\sigma$ ]  
KicOffset-rm: 0.187 arcsec [2.29 $\sigma$ ]  
OotOffset-st: 0/1/0/2 [3]  
KicOffset-st: 0/1/0/2 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 008749284-01, PDC Light Curves

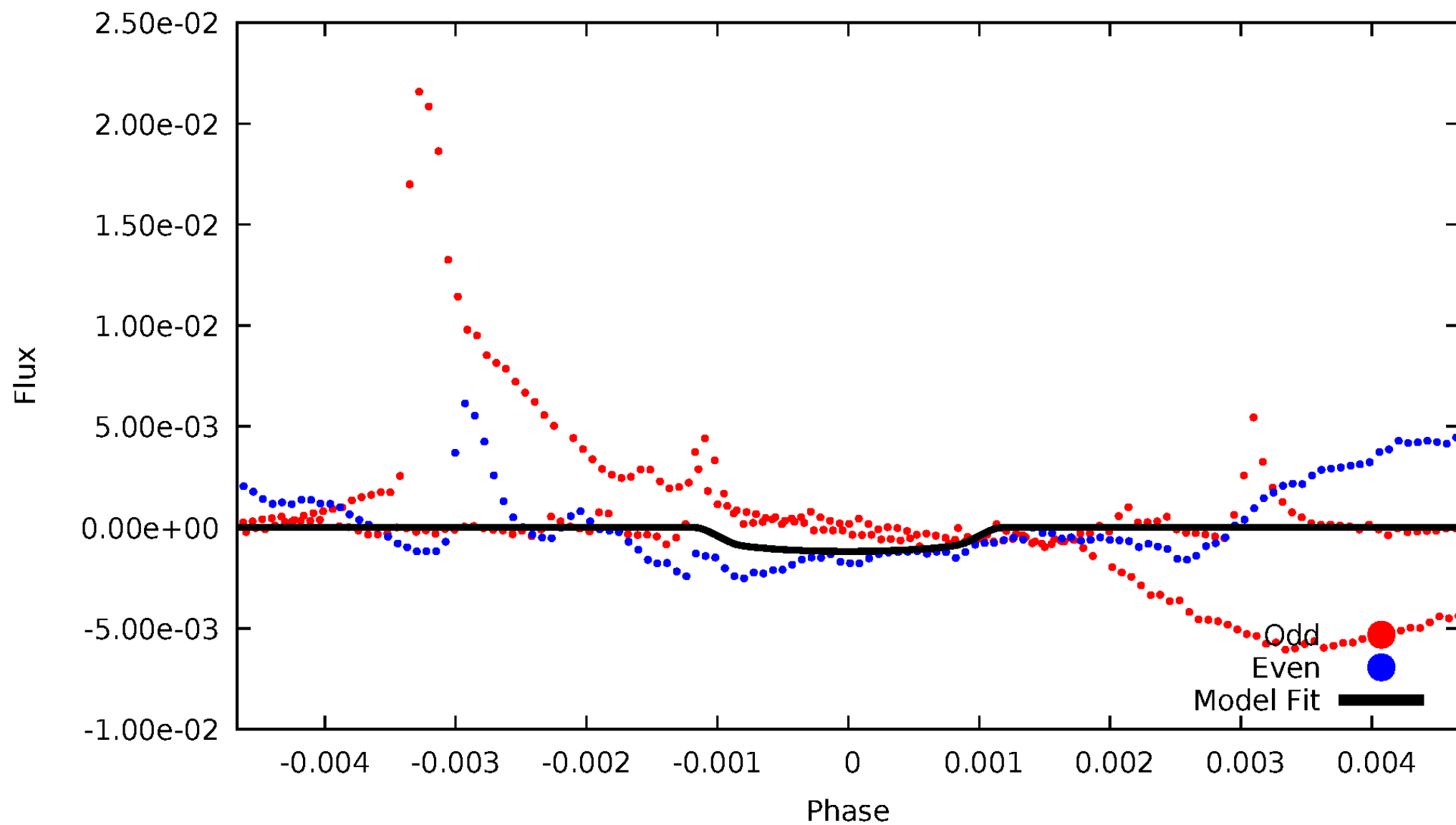


# TCE 008749284-01



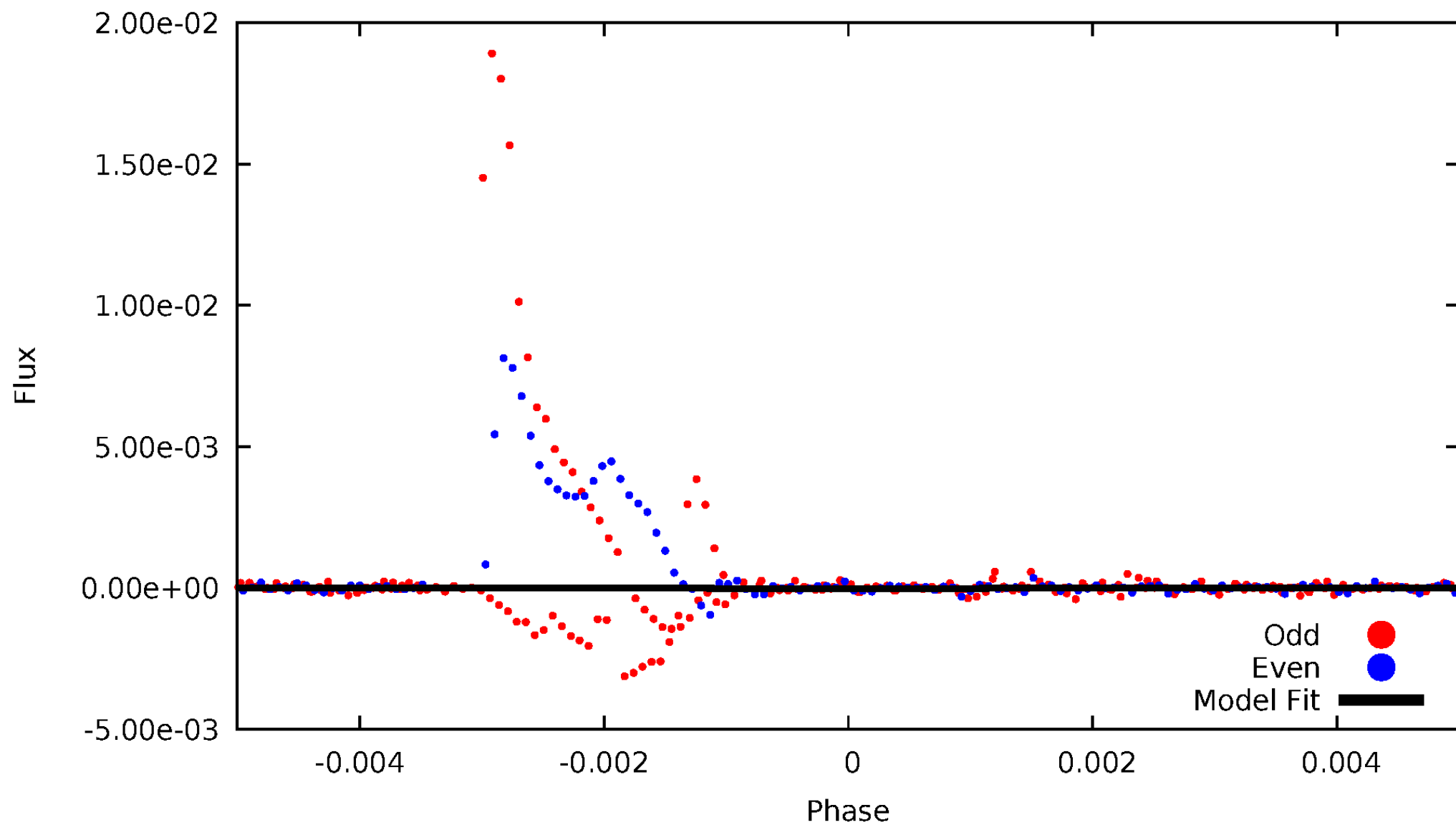
# DV Odd/Even

TCE 008749284-01



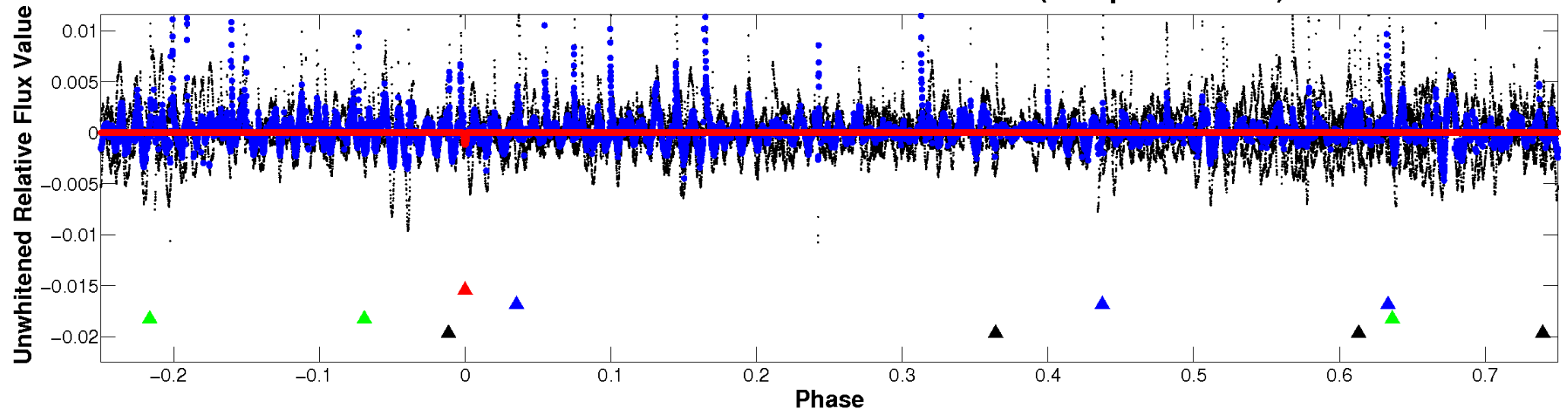
# ALT Odd/Even

TCE 008749284-01

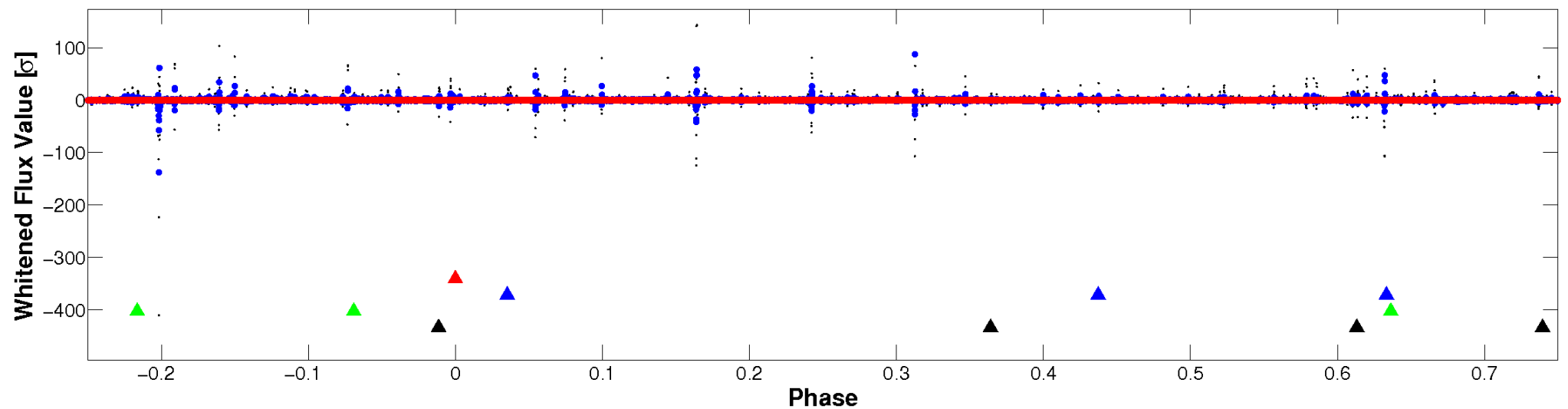


# Non-Whitened Vs. Whitened Light Curve

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

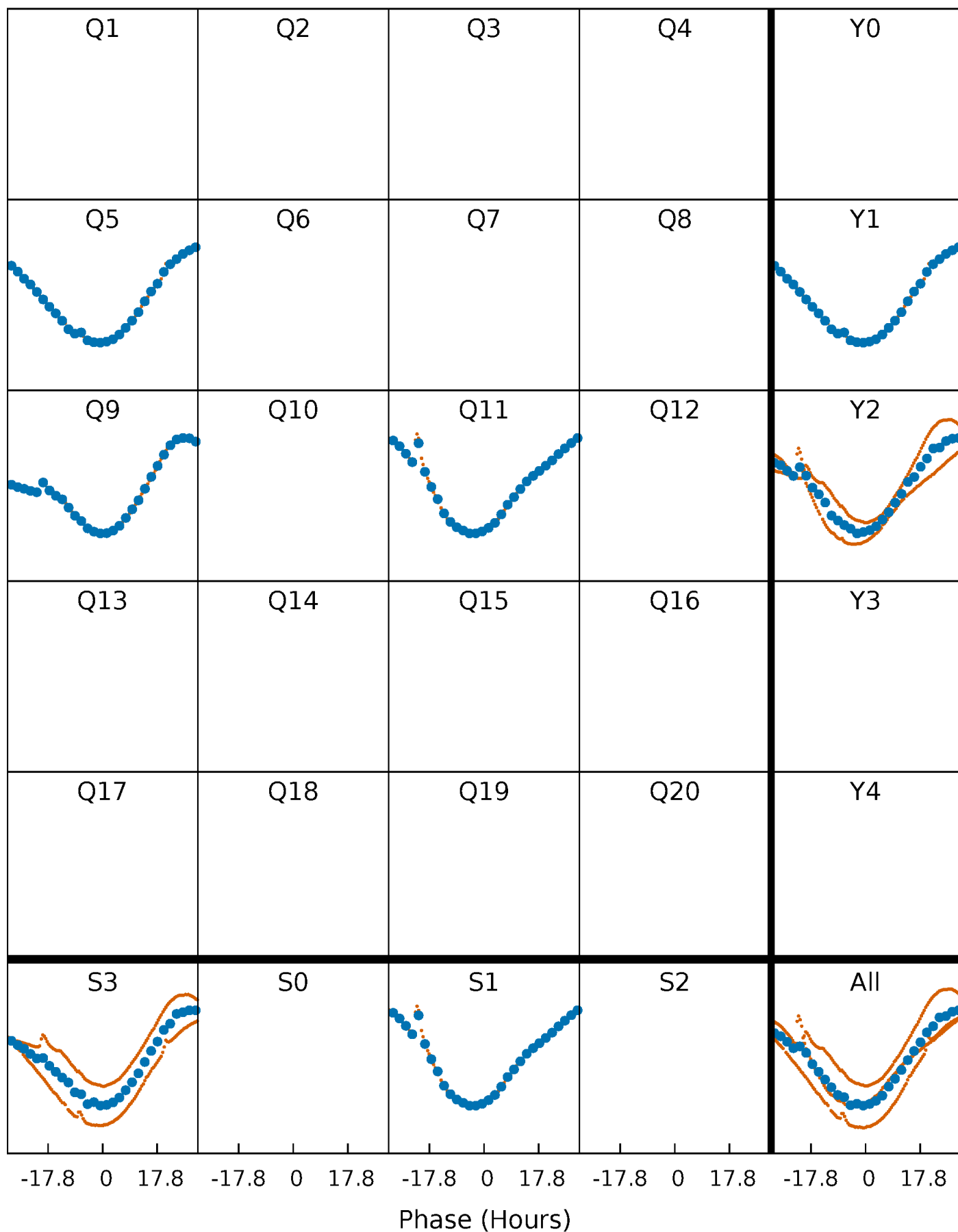


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

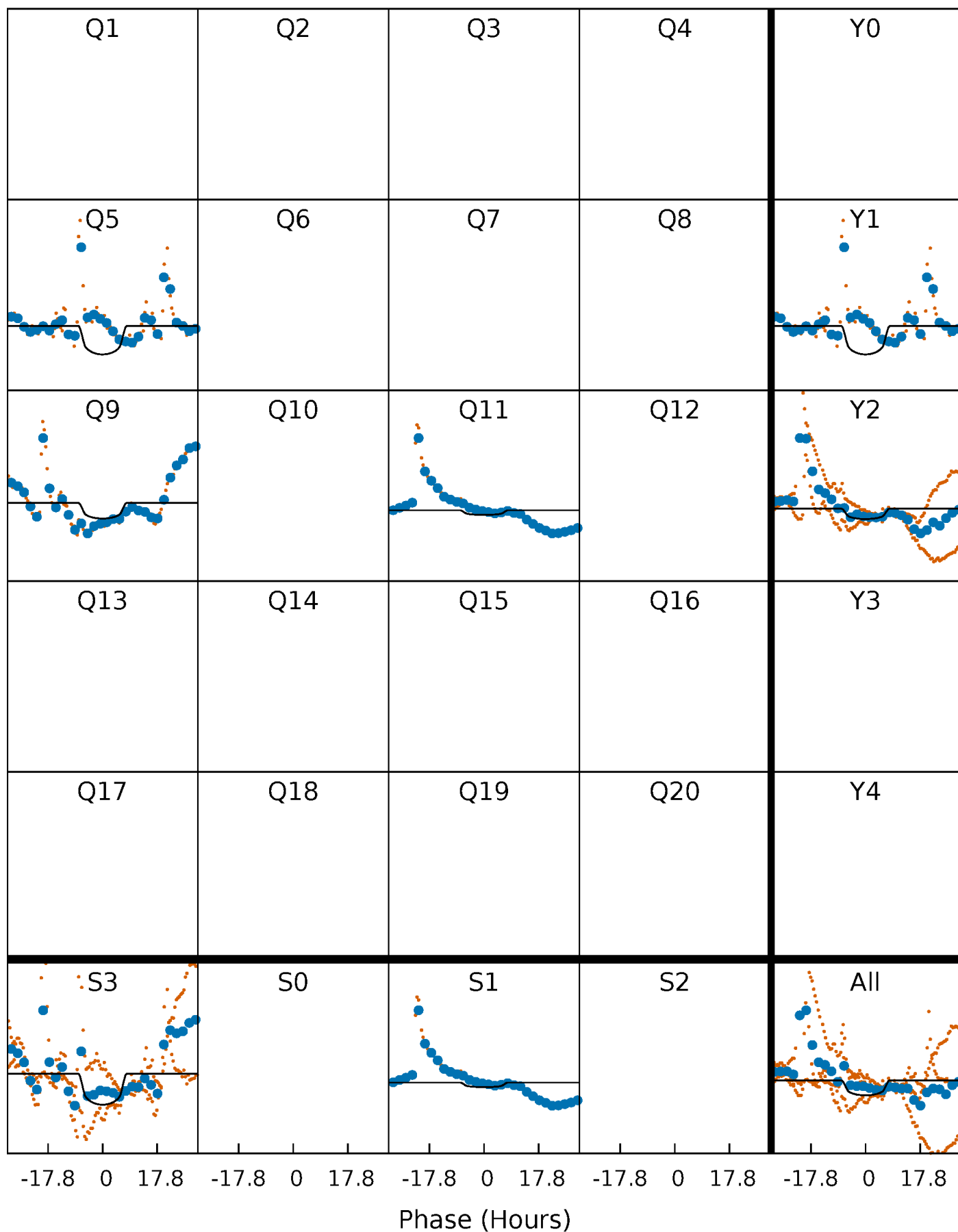
TCE 008749284-01     $P=277.953370$  Days     $T_0=256.222612$  (BKJD)





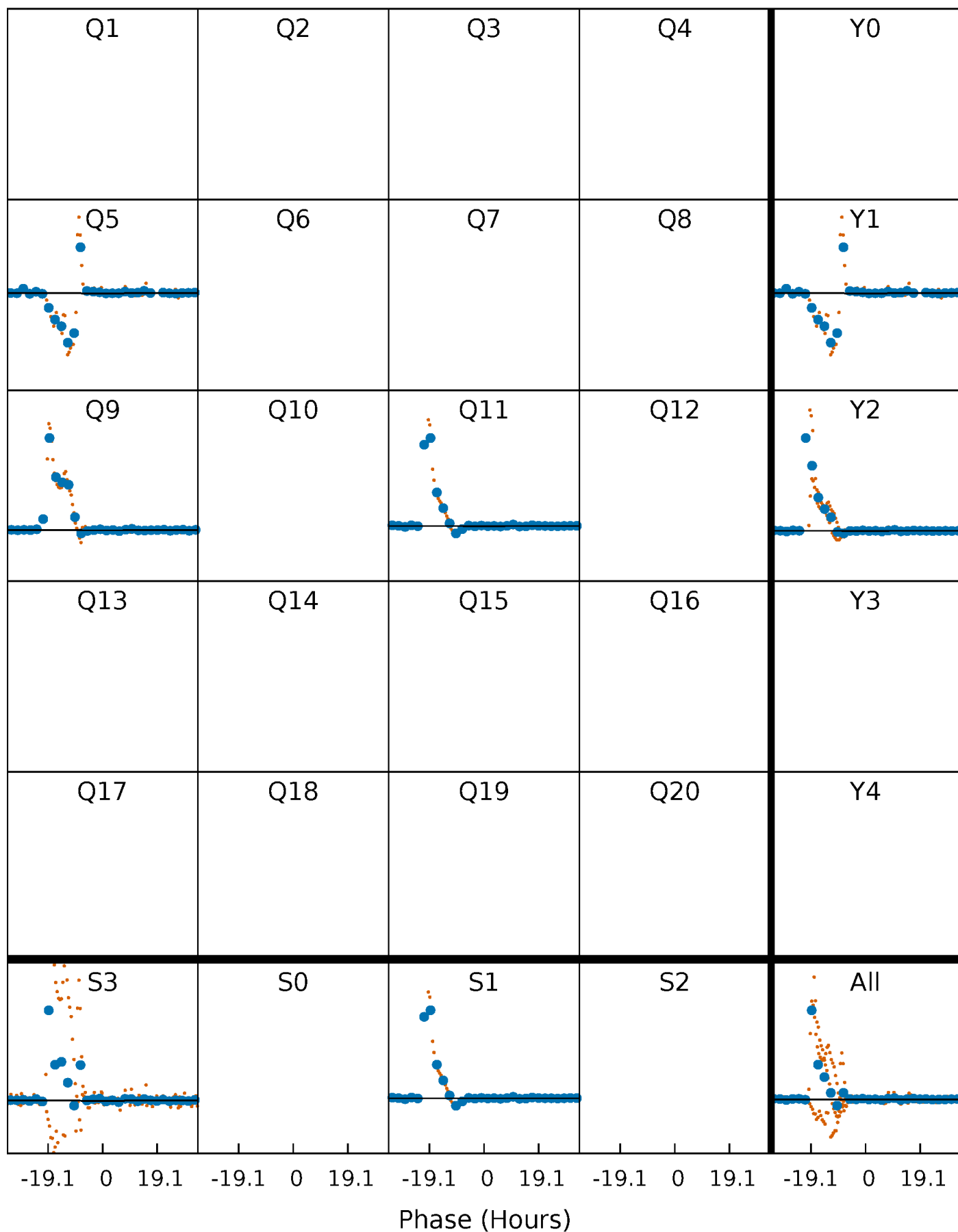
# DV Quarter-Phased Transit Curves

TCE 008749284-01     $P=277.953370$  Days     $T_0=256.222612$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

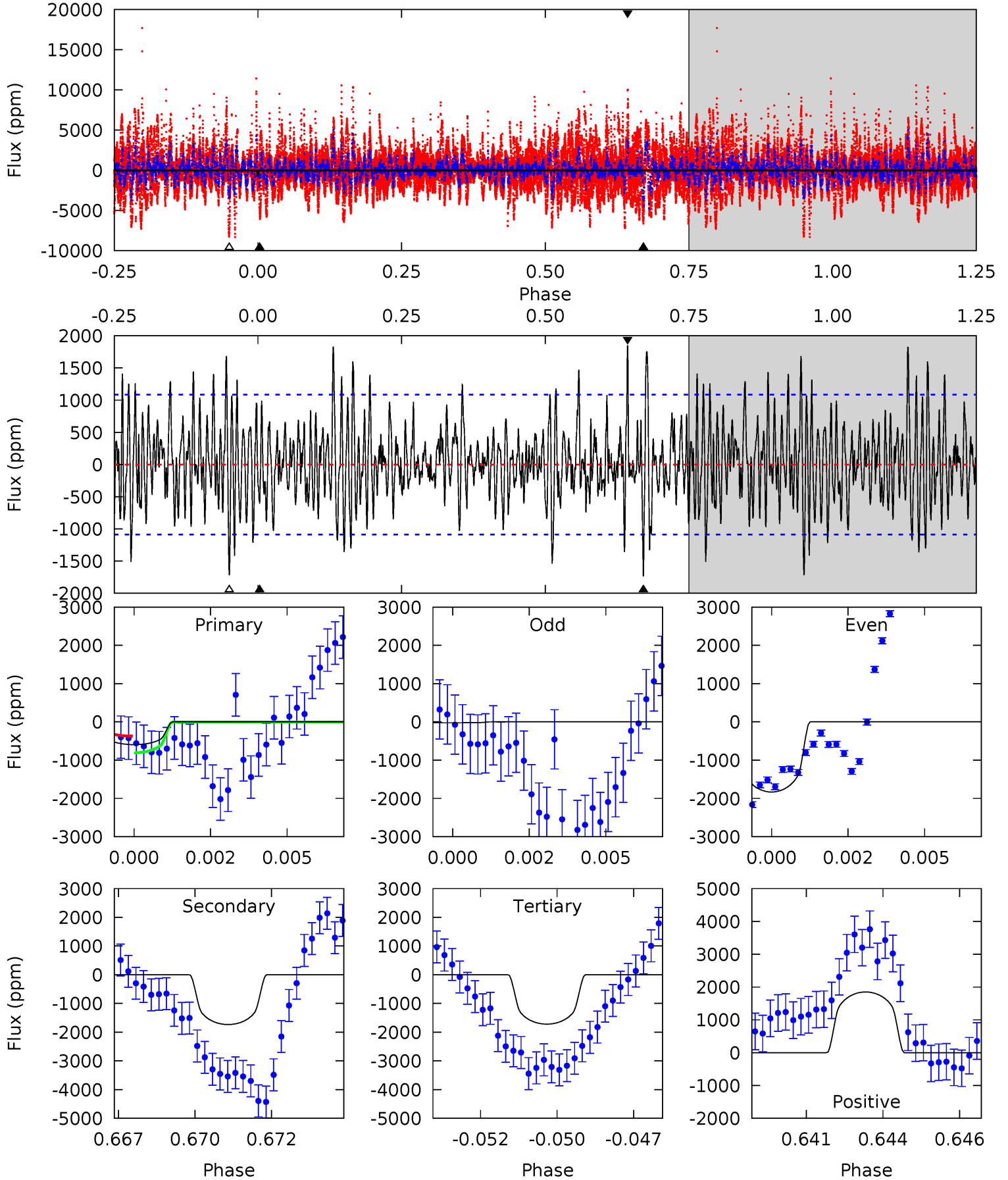
TCE 008749284-01     $P=277.882794$  Days     $T_0=256.334236$  (BKJD)



# DV Model-Shift Uniqueness Test

008749284-01, P = 277.953370 Days, E = 256.222612 Days

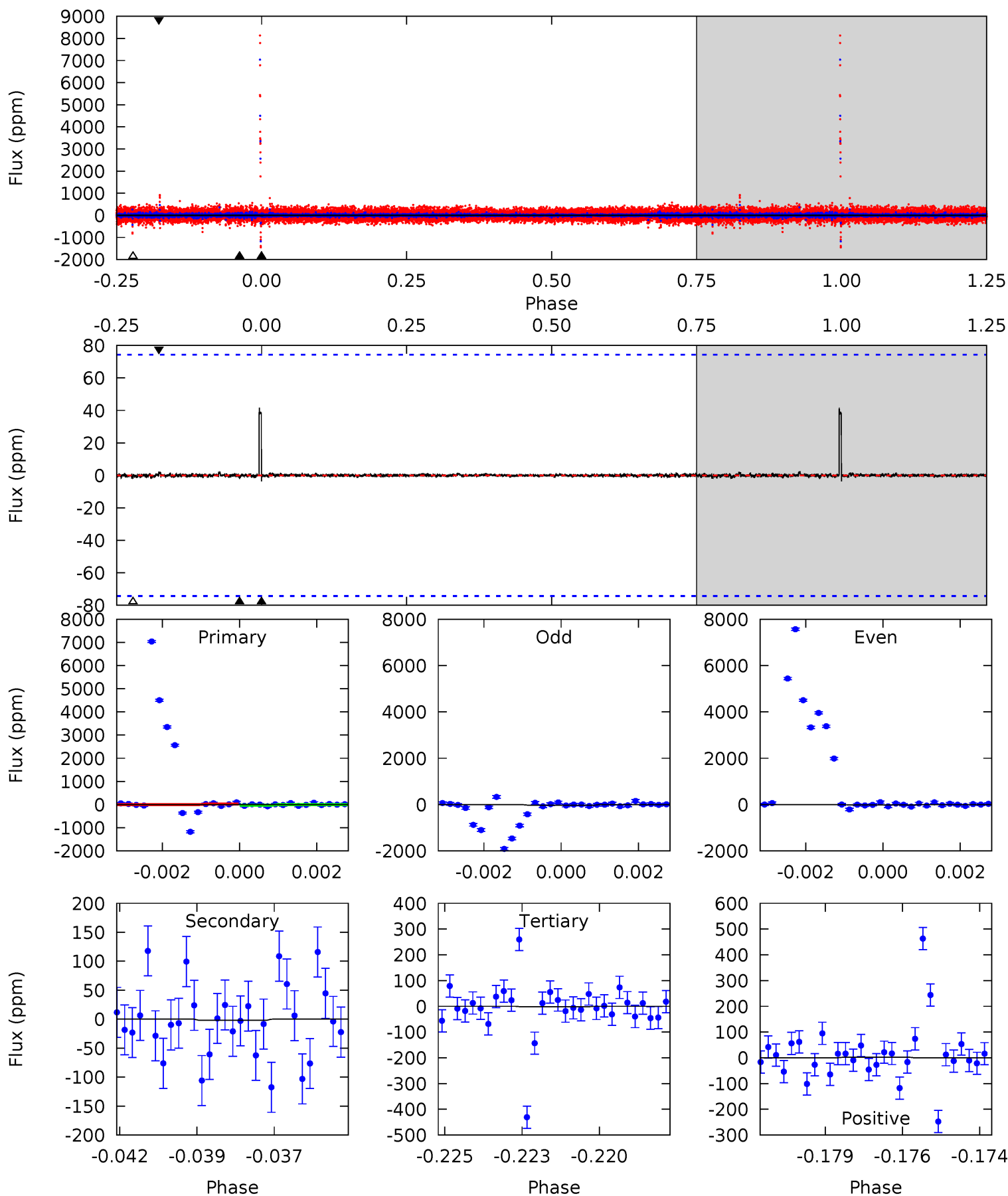
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.90	8.45	8.38	9.01	5.30	3.04	2.45	-5.48	-6.12	0.07	-0.56	3.97	4.05	0.52	1.05



# Alt Model-Shift Uniqueness Test

008749284-01,  $P = 277.882794$  Days,  $E = 256.334236$  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
0.26	0.14	0.14	0.15	5.29	3.03	0.09	0.12	0.11	0.00	-0.01	0.10	-0.58	0.92	0.05



### Stellar Parameters For KIC 008749284

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4632^{+60}_{-46}$	$3.136^{+0.170}_{-0.139}$	$0.280^{+0.100}_{-0.100}$	$4.403^{+0.984}_{-0.716}$	$0.966^{+0.109}_{-0.014}$	$0.016^{+0.012}_{-0.007}$
	+1%/-1%	+5%/-4%	+36%/-36%	+22%/-16%	+11%/-1%	+76%/-44%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 008749284-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1735 \pm 205$	$17.78^{+4.54}_{-4.43}$	$656^{+38}_{-32}$	$4854^{+601}_{-394}$	$2088^{+1681}_{-773}$
Alt.	$-2 \pm 14$	$3.65^{+3.19}_{-2.48}$	$657^{+37}_{-31}$	$2614^{+1560}_{-6382}$	$45^{+975}_{-530}$

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

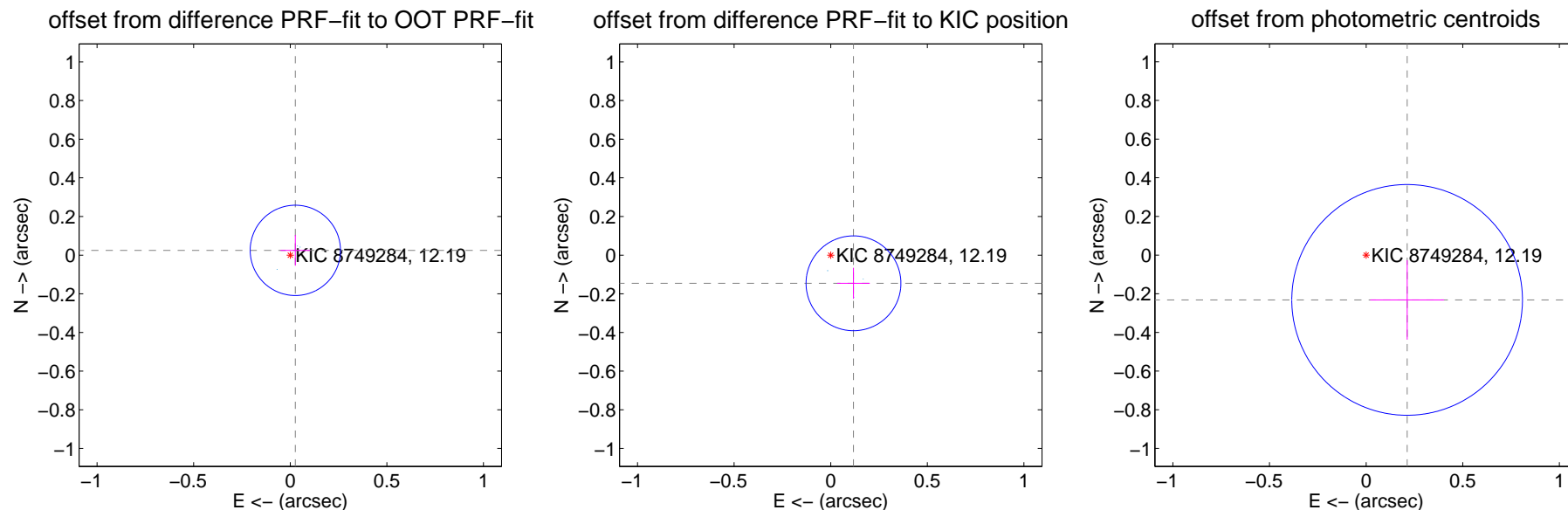
## DV Centroid Data

Supplemental centroid analysis for 008749284-01. Kepler magnitude: 12.19. Transit SNR 3.84

There are 3 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	$0.036 \pm 0.078$	0.46	$-0.026 \pm 0.077$	$0.025 \pm 0.079$
PRF-fit source offset from KIC position	$0.187 \pm 0.082$	2.29	$-0.118 \pm 0.084$	$-0.146 \pm 0.080$
photometric centroid source offset	$0.31 \pm 0.20$	1.58	$-0.21 \pm 0.19$	$-0.23 \pm 0.21$

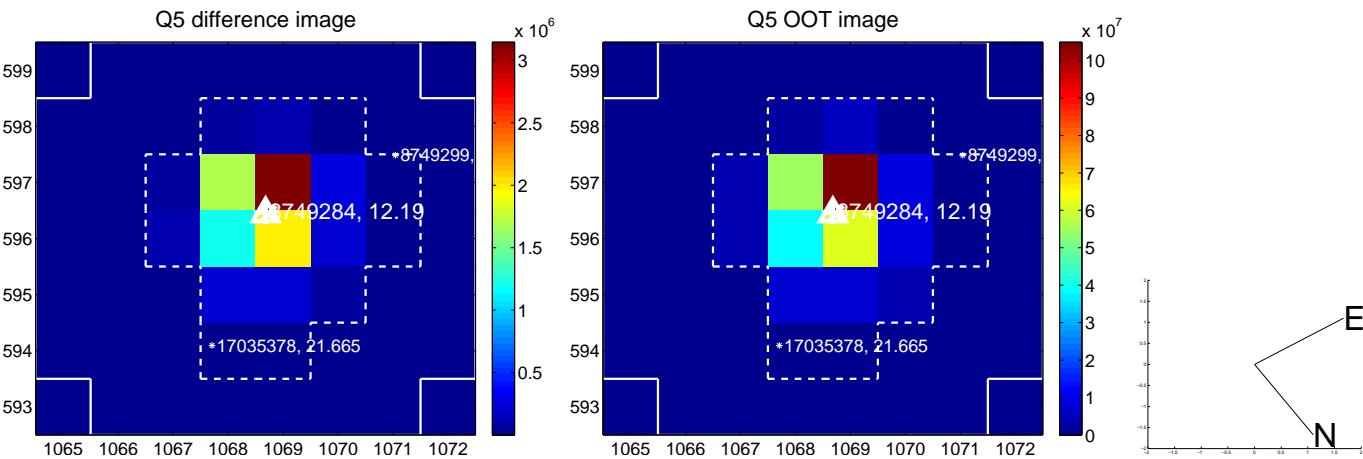


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

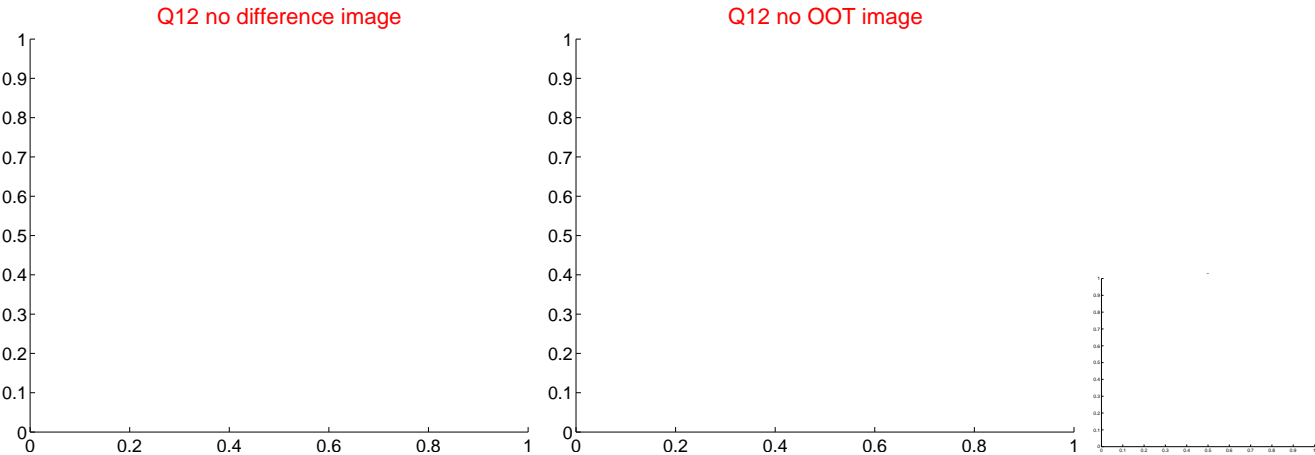
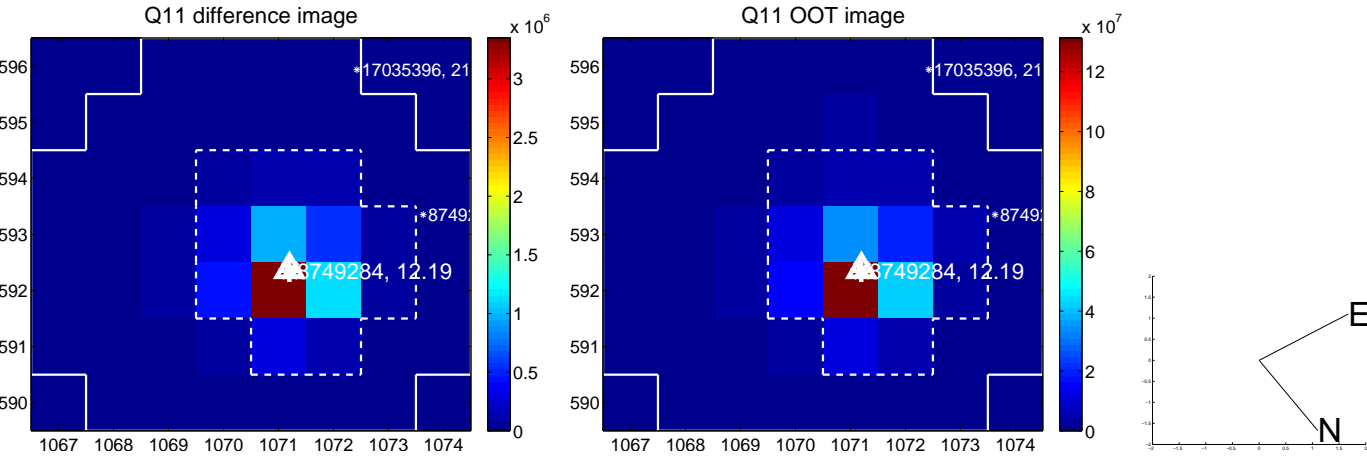
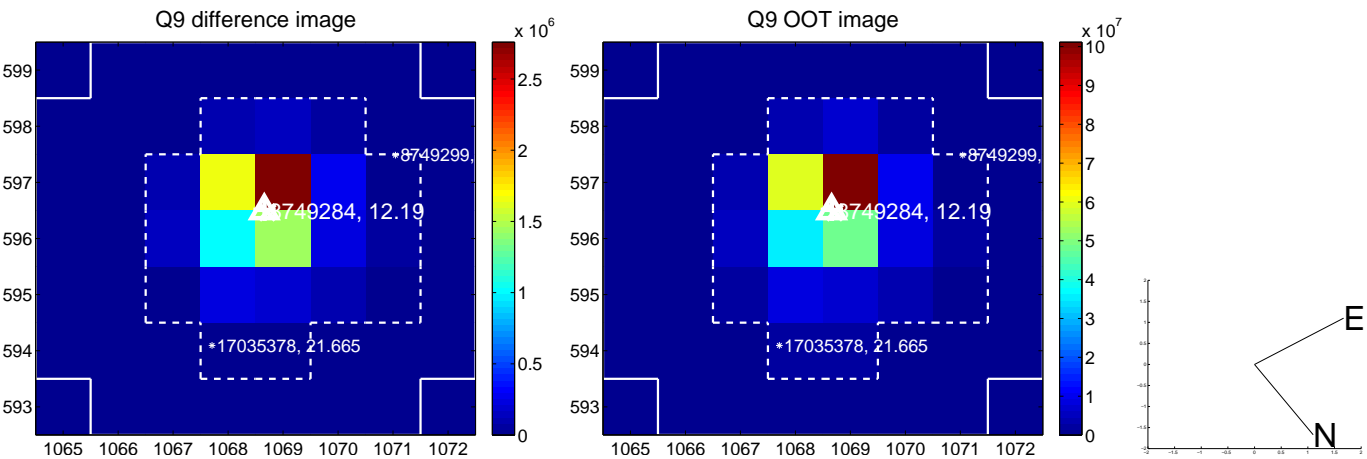


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





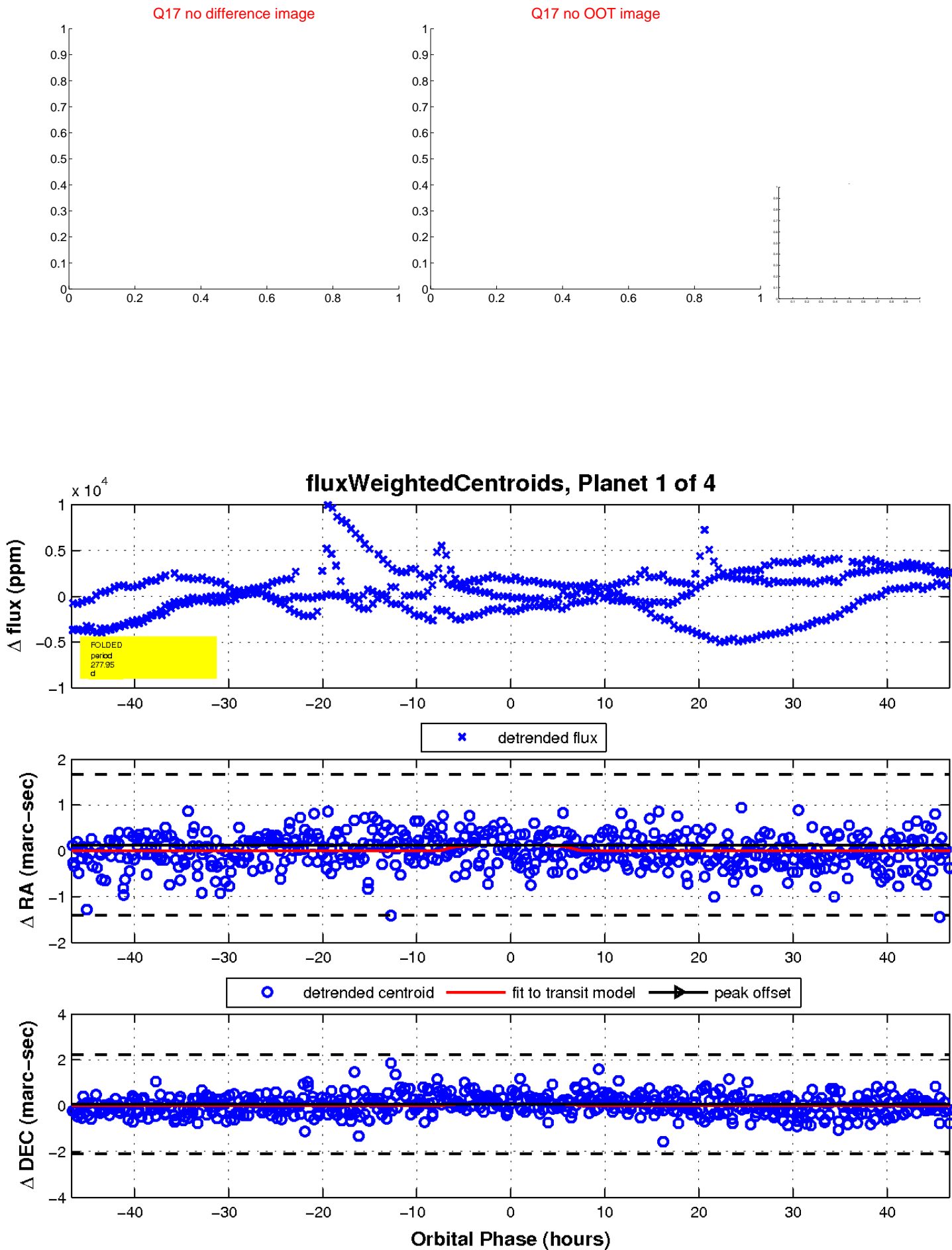
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



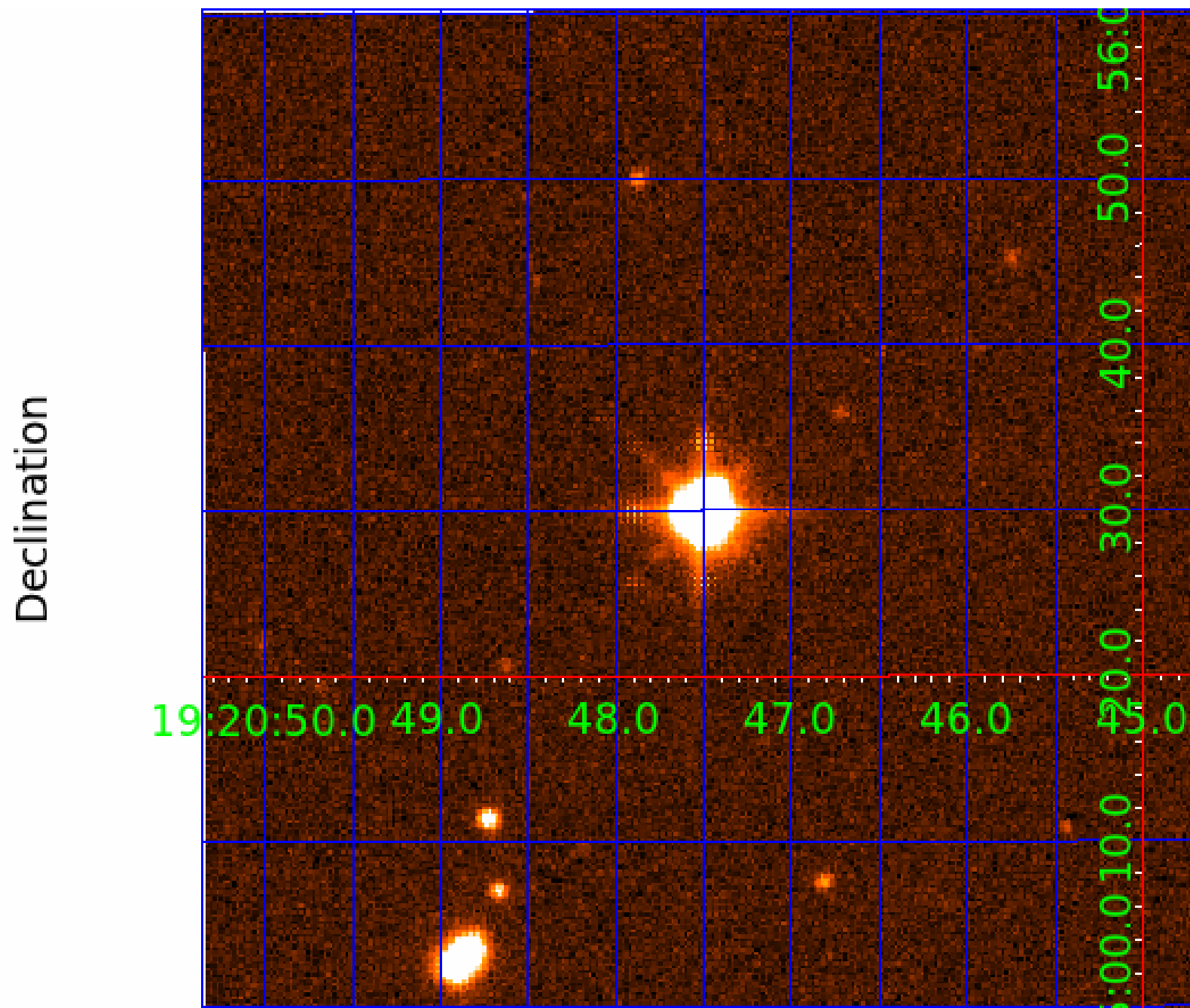
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 008749284

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008749284-01	OBS	No	277.953370	256.222612	1189.8	15.569	25.8	3.8	4.40	4632	18.13	11.76
008749284-03	OBS	No	514.963912	514.973002	396.3	4.224	18.6	2.2	4.40	4632	8.36	5.17
008749284-04	OBS	No	382.311908	426.649929	528.1	5.000	21.7	-1.0	4.40	4632	9.66	7.69

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008749284-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_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
008749284-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008749284-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

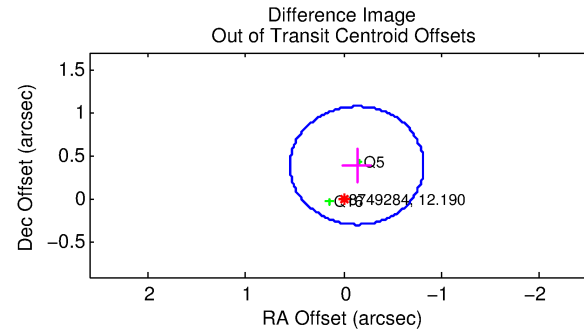
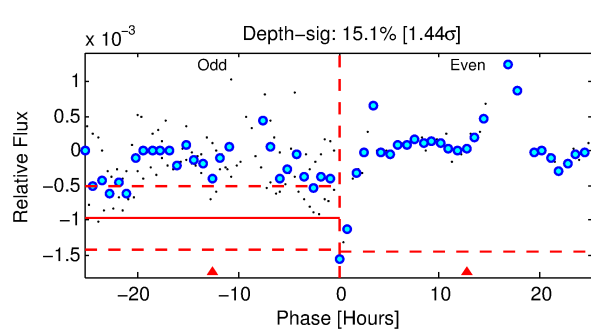
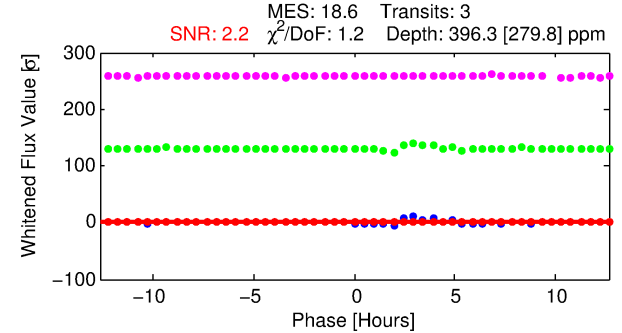
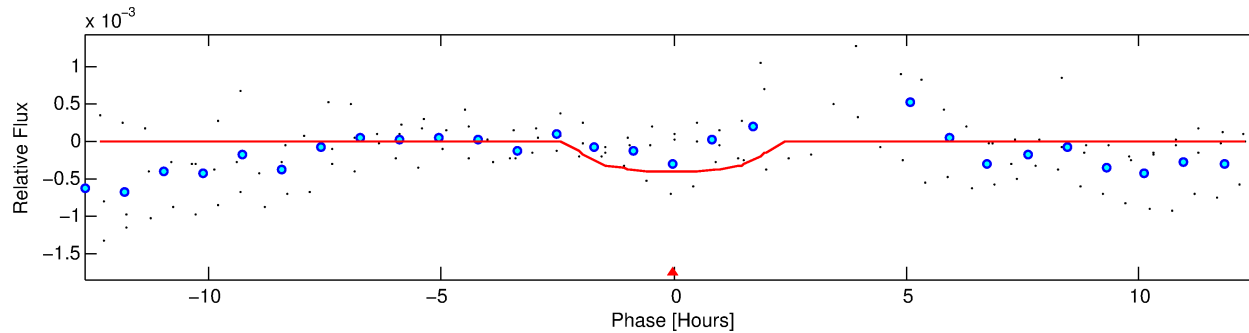
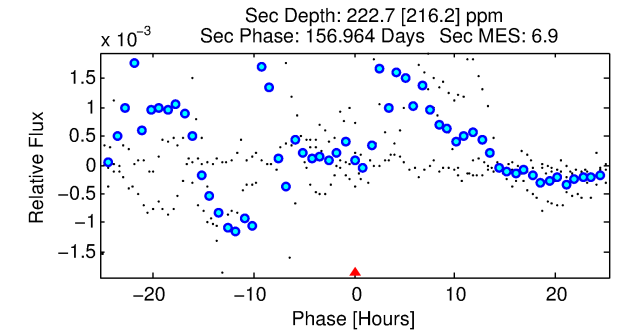
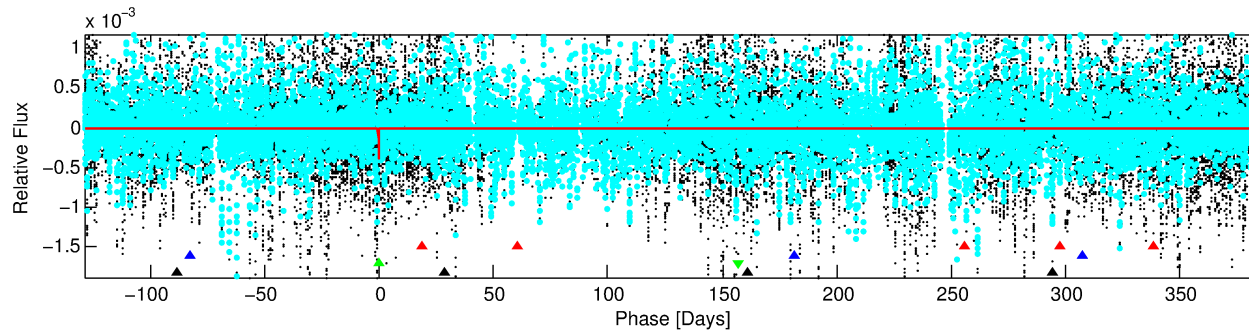
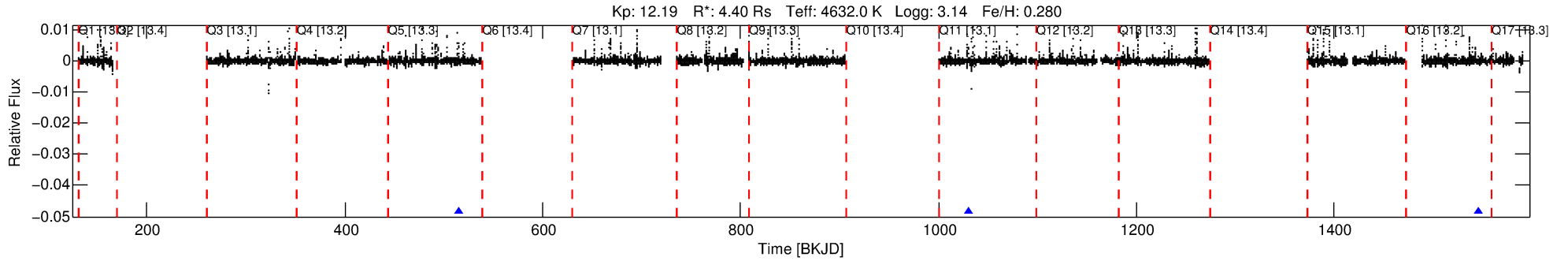
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008749284-03

No Significant Match Found

# DV One-Page Summary

KIC: 8749284 Candidate: 3 of 4 Period: 514.964 d



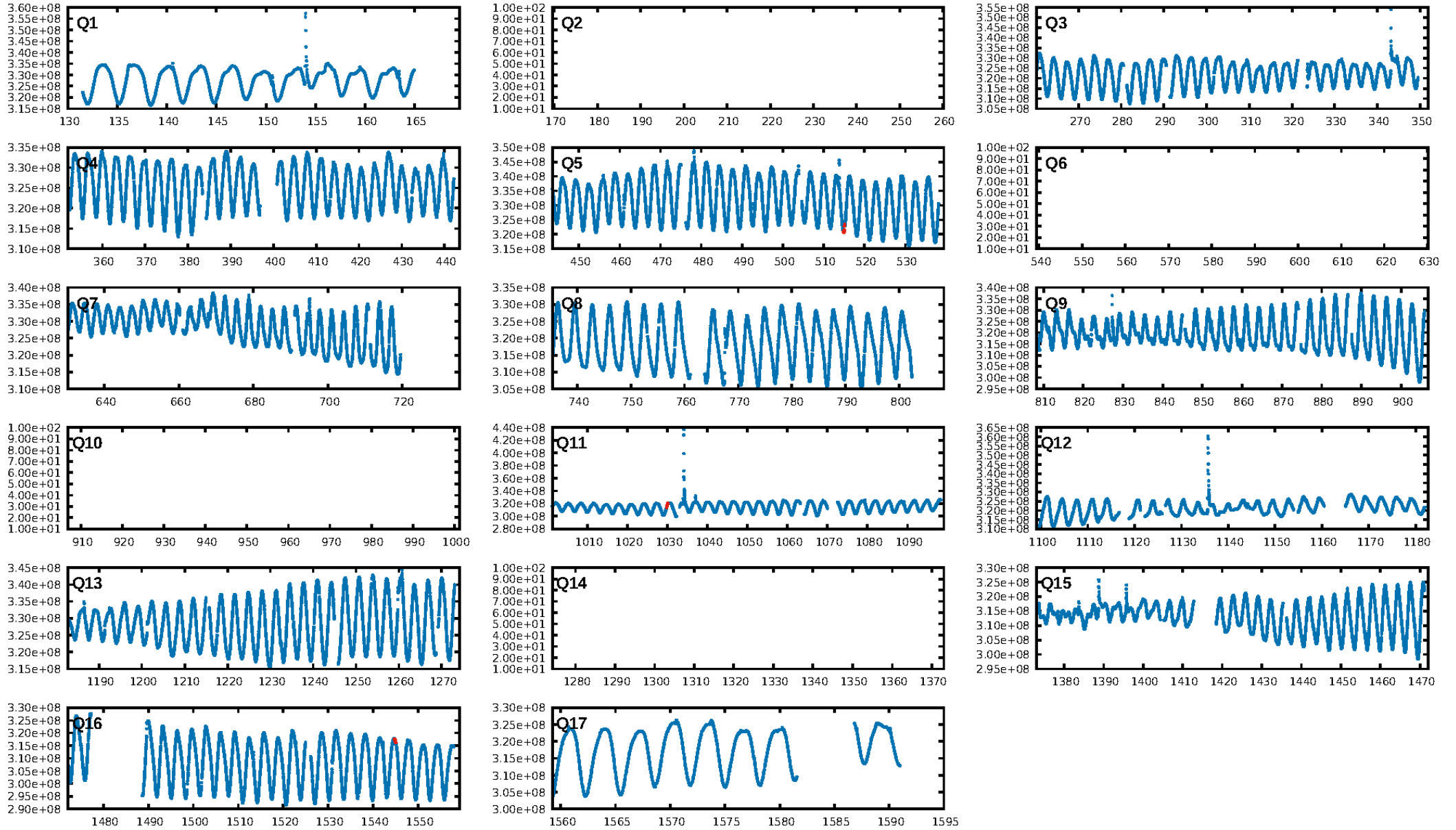
## DV Fit Results:

Period = 514.96391 [0.01319] d  
Epoch = 514.9730 [0.0167] BKJD  
Rp/R\* = 0.0174 [0.0936]  
a/R\* = 947.43 [15042.42]  
b = 0.02 [904.96]  
Seff = 5.17 [1.58]  
Teq = 384 [29] K  
Rp = 8.36 [45.00] Re  
a = 1.2437 [0.2463] AU  
Ag = 2711.85 [29299.76] [0.09 $\sigma$ ]  
Teffp = 4290 [11583] K [0.34 $\sigma$ ]

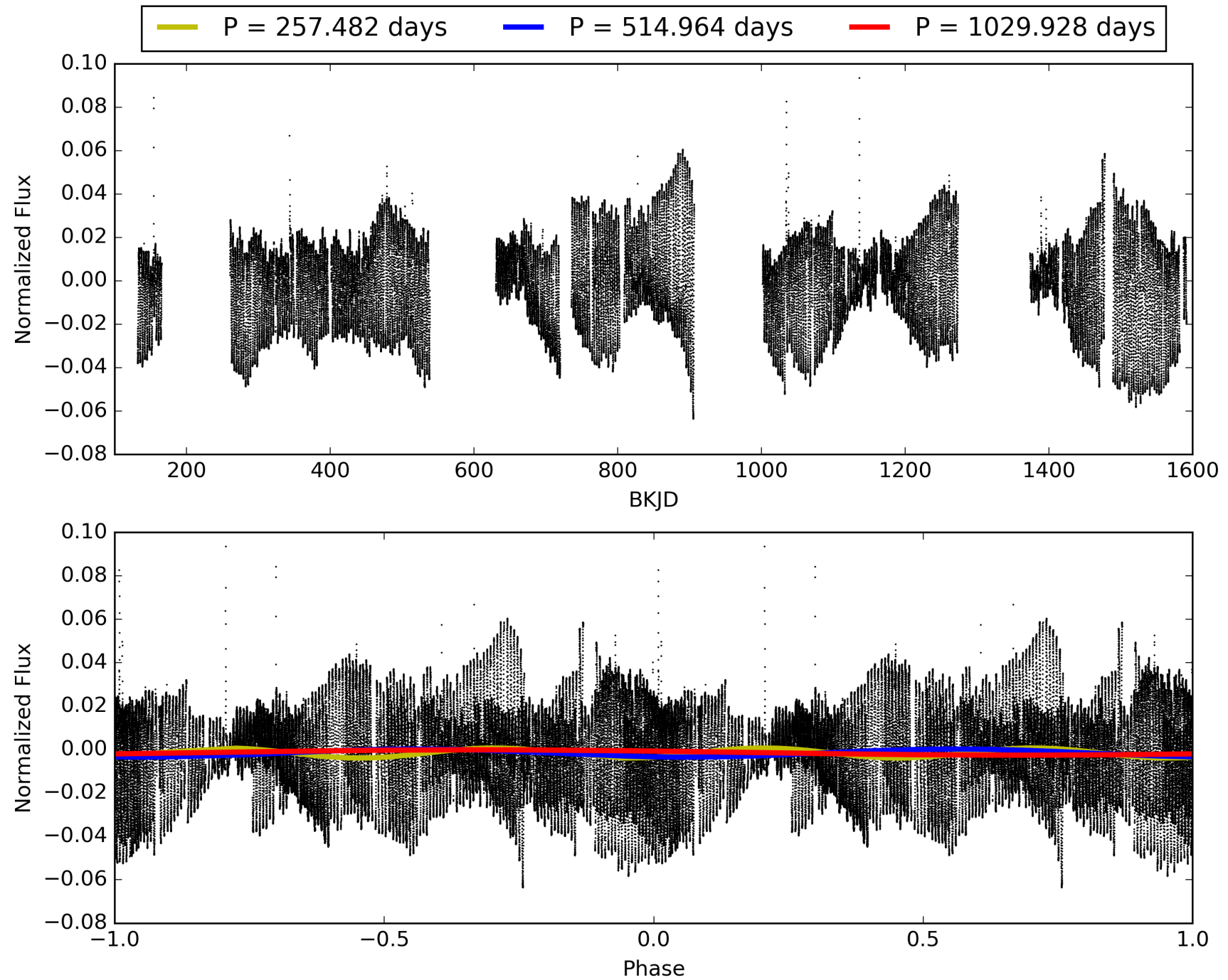
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [418.75 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 4.1%  
ModelChiSquareGof-sig: 83.2%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.6372  
Centroid-sig: 32.4%  
Centroid-so: 0.732 arcsec [0.95 $\sigma$ ]  
OotOffset-rm: 0.412 arcsec [1.81 $\sigma$ ]  
OotOffset-st: 0/0/1/1 [2]  
KicOffset-rm: 0.348 arcsec [1.99 $\sigma$ ]  
KicOffset-st: 0/0/1/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

# TCE 008749284-03, PDC Light Curves



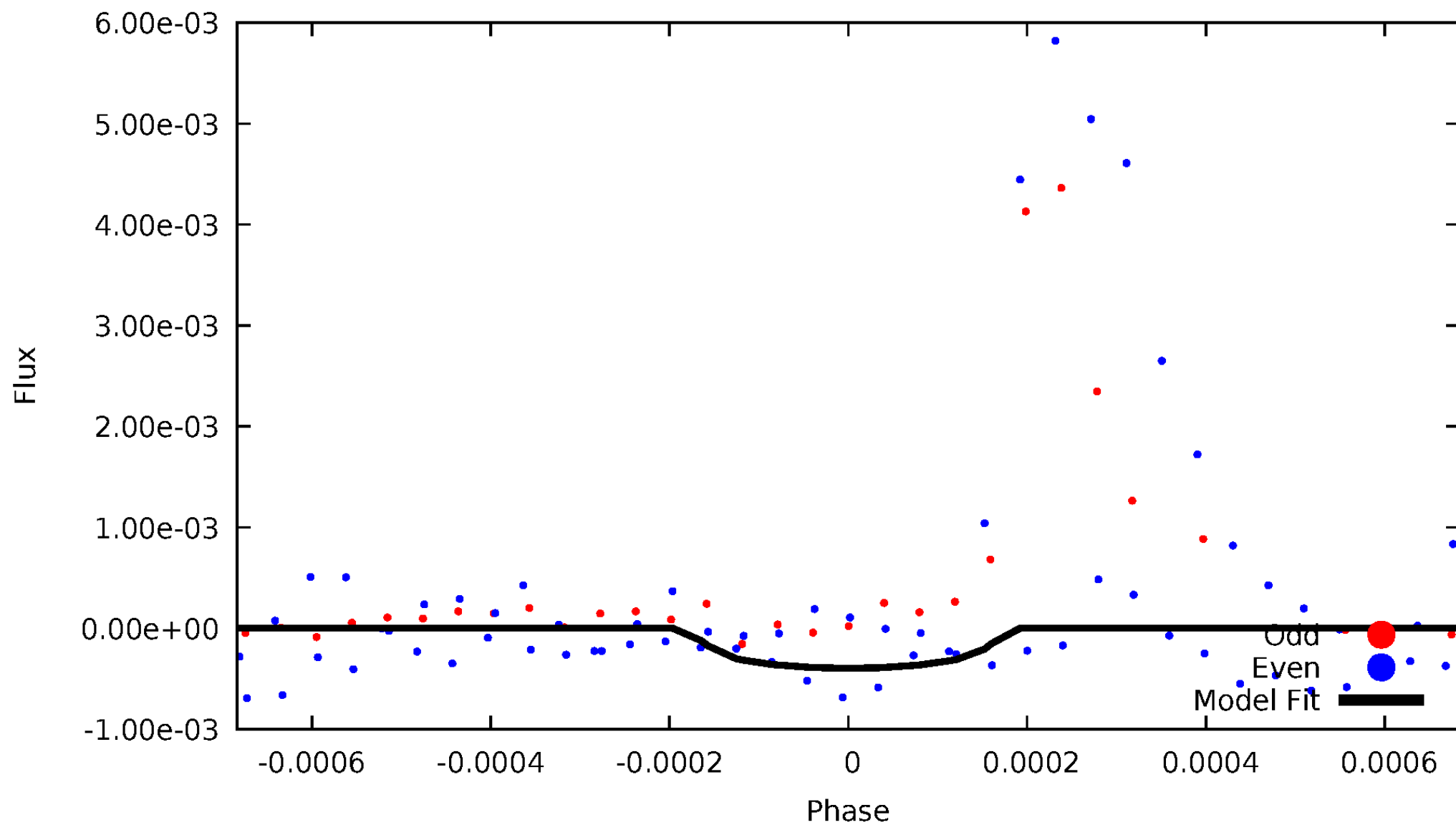
TCE 008749284-03





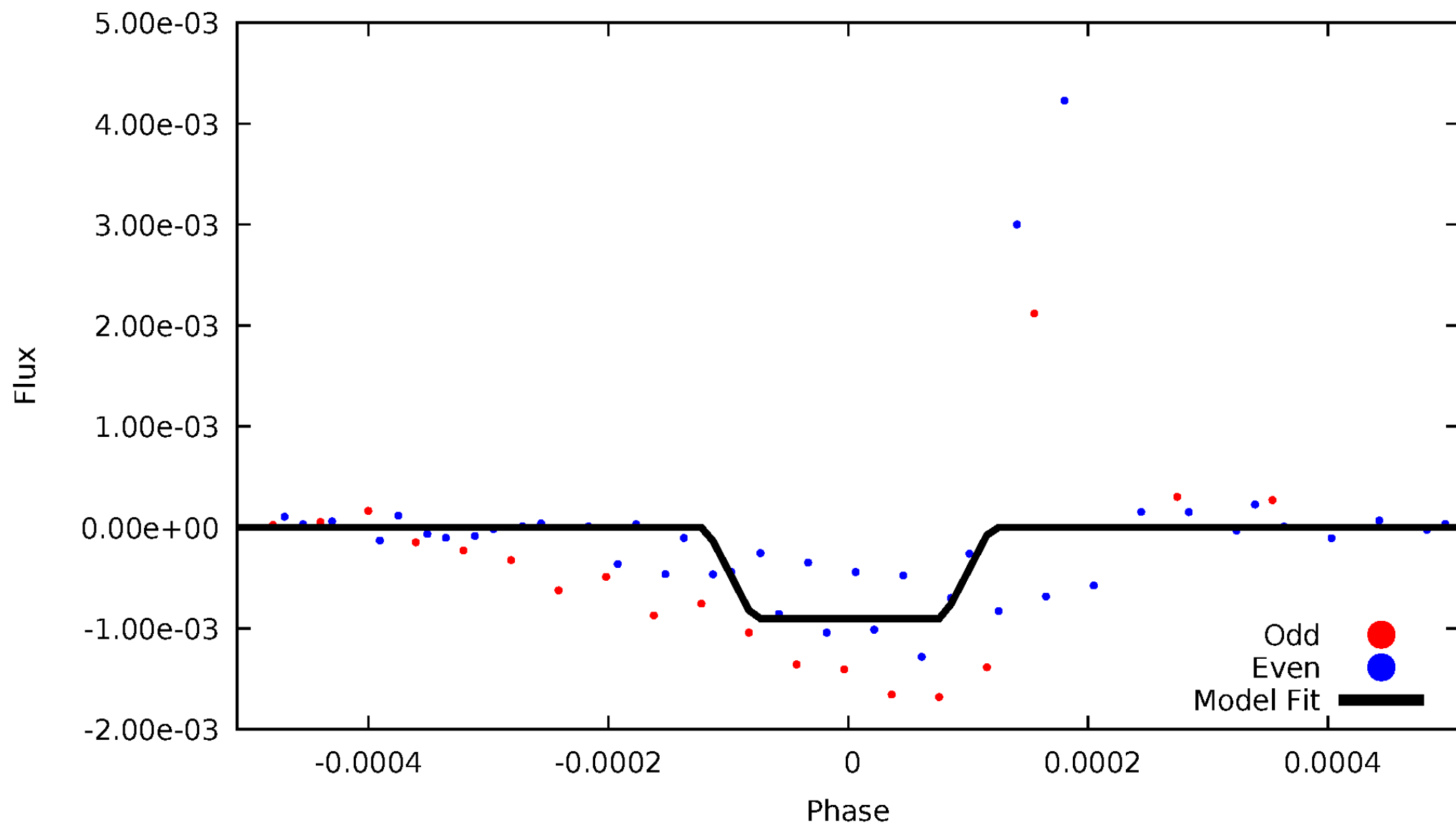
# DV Odd/Even

TCE 008749284-03



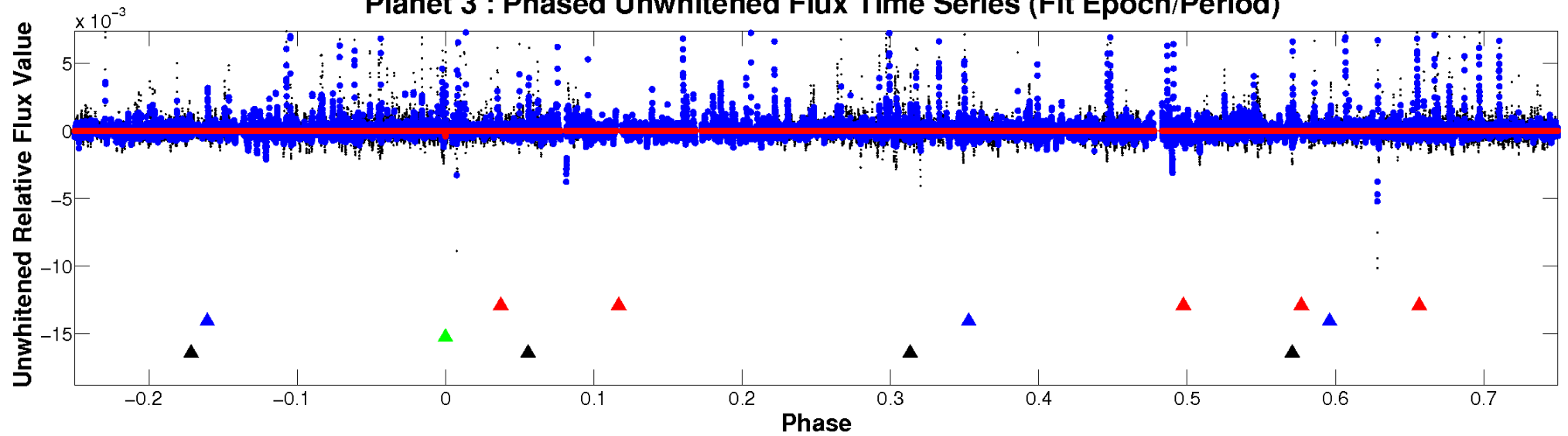
# ALT Odd/Even

TCE 008749284-03

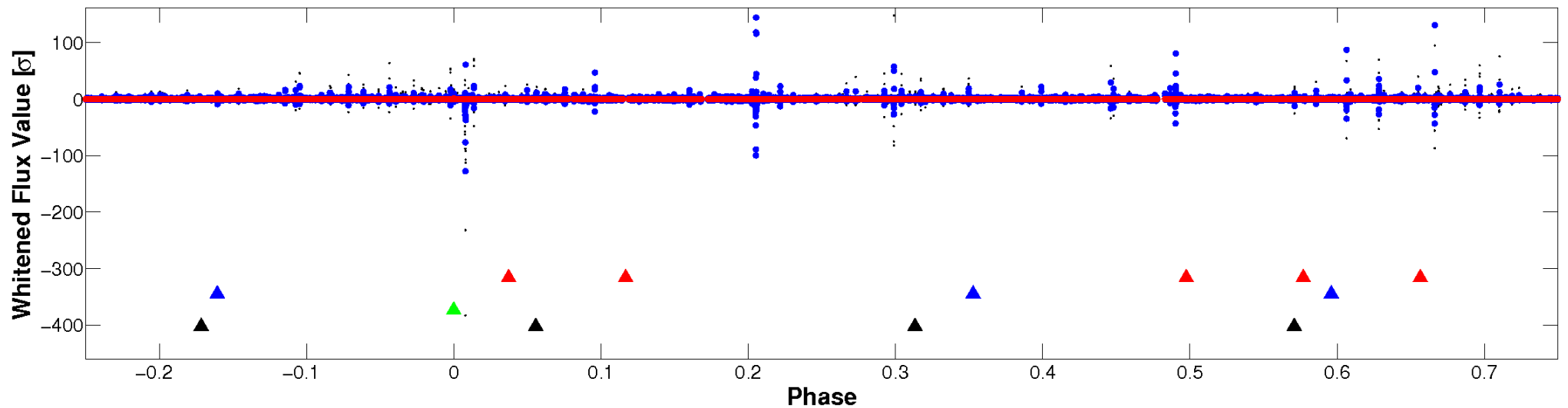


# Non-Whitened Vs. Whitened Light Curve

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

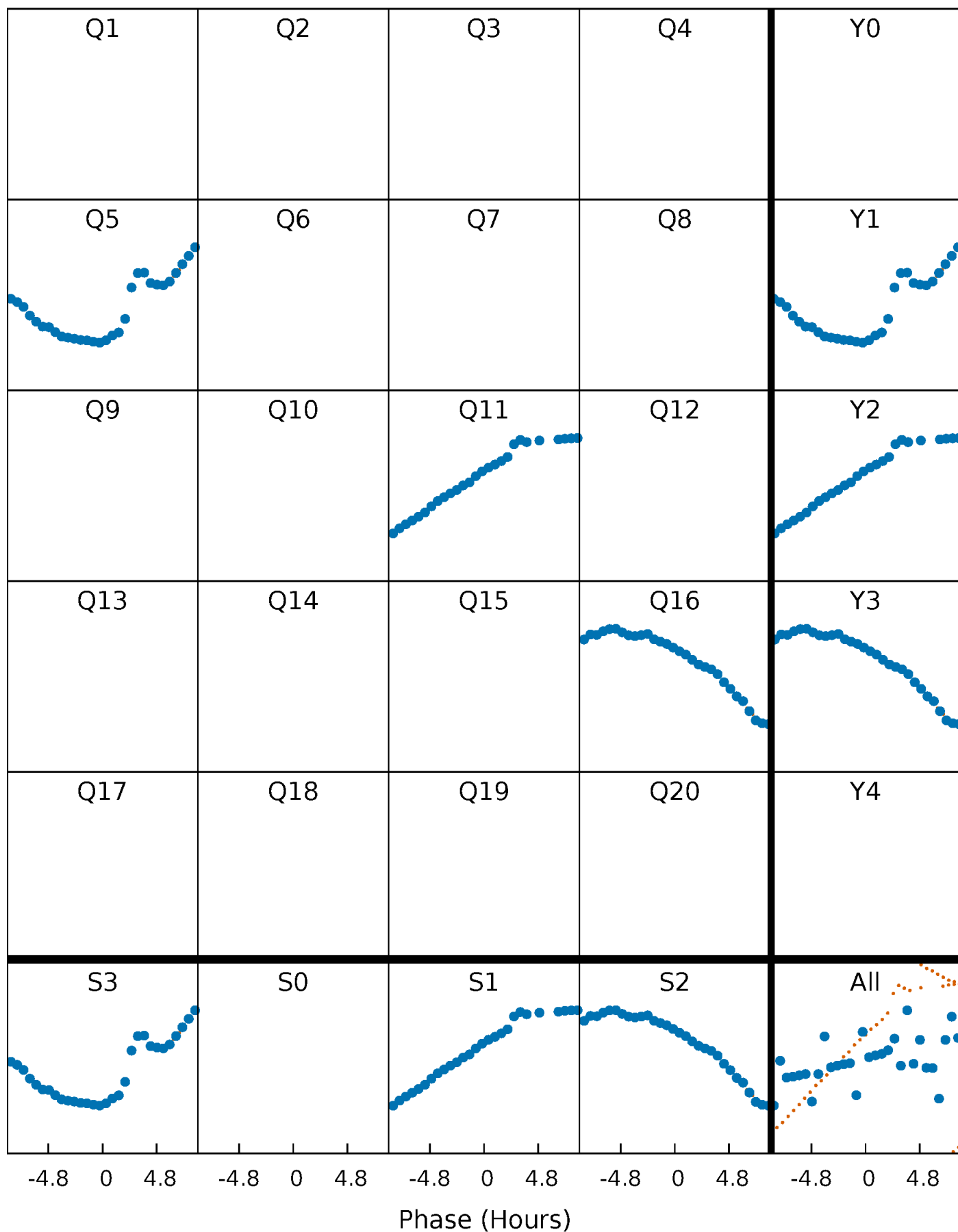


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



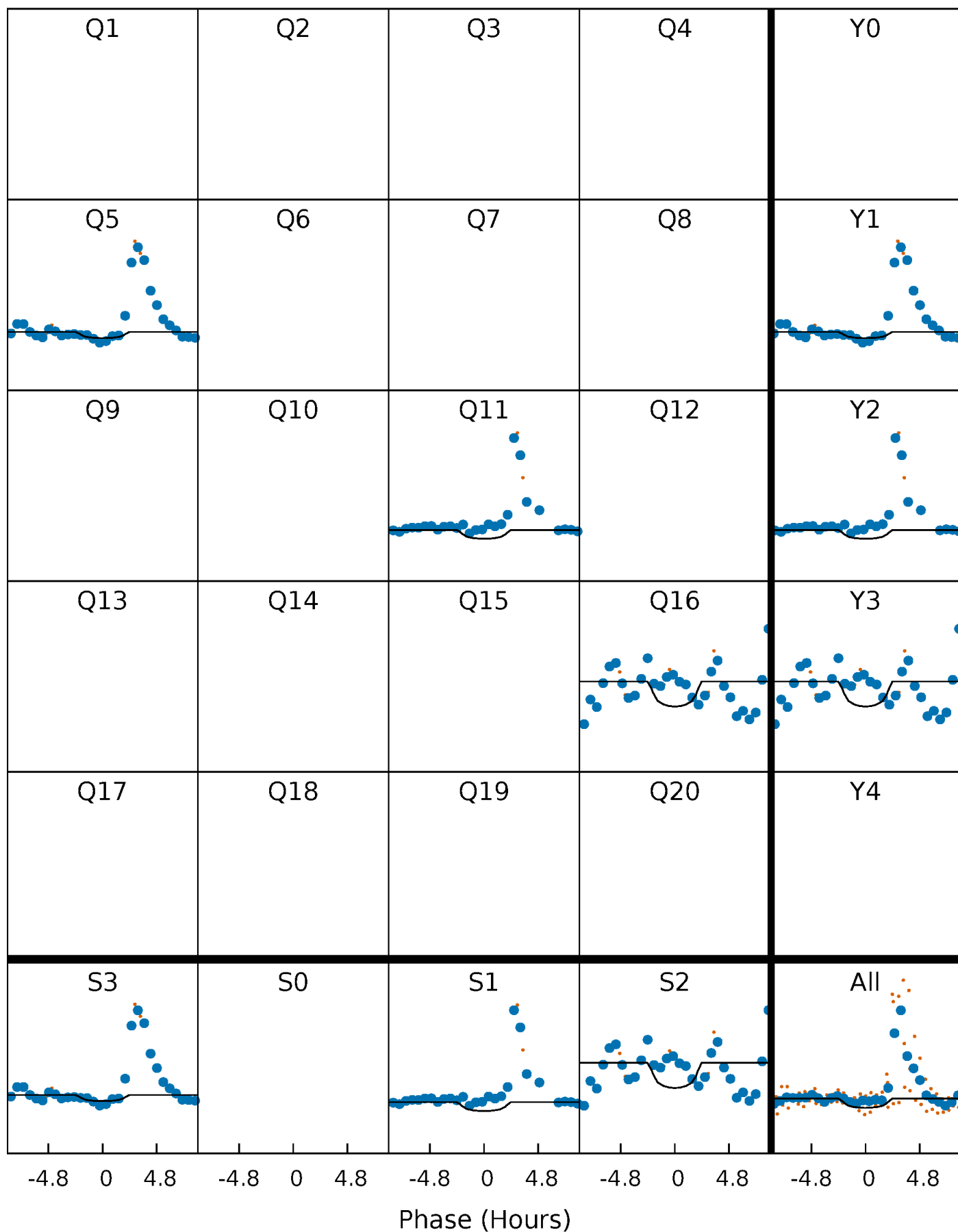
# PDC Quarter-Phased Transit Curves

TCE 008749284-03     $P=514.963912$  Days     $T_0=514.973002$  (BKJD)



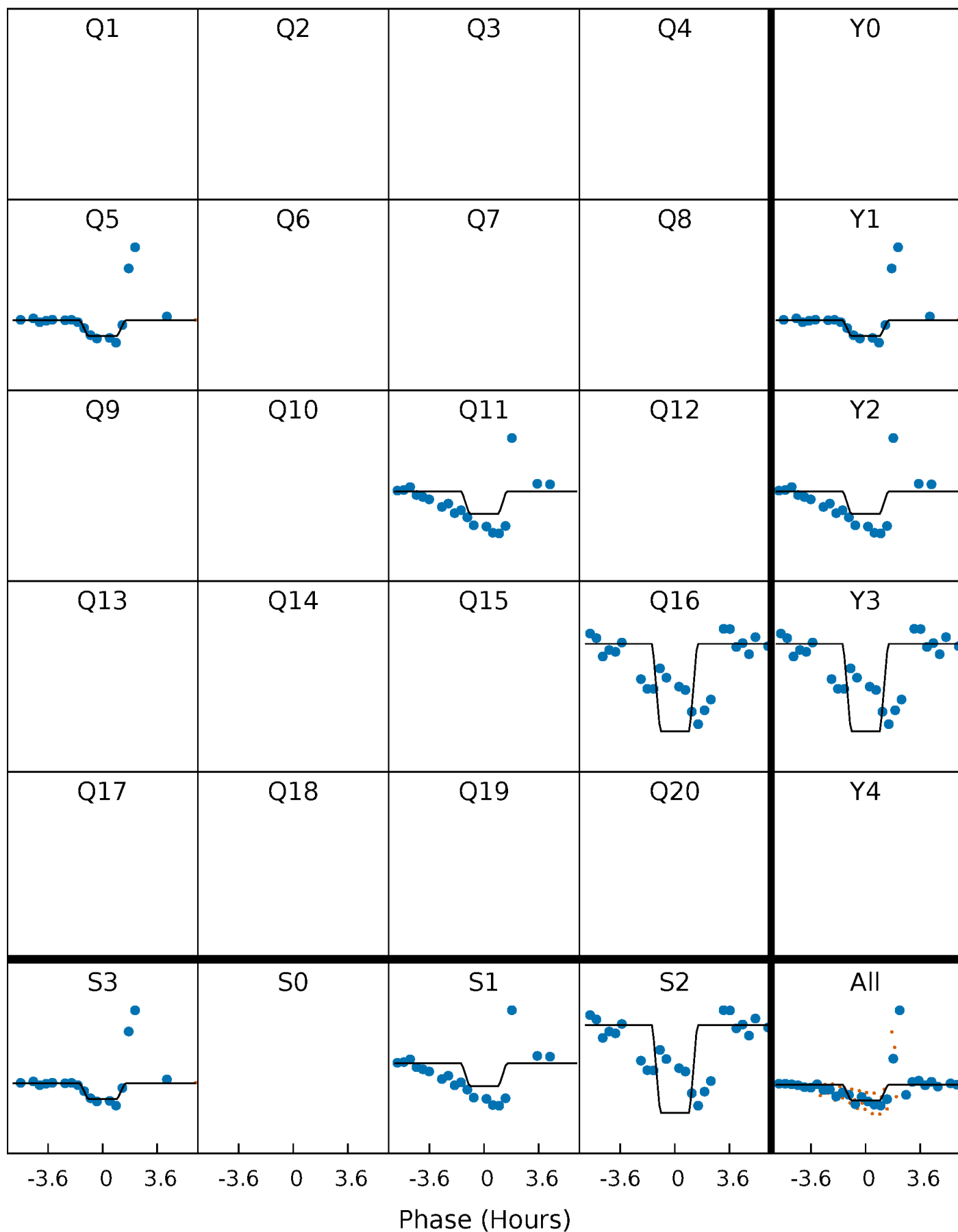
# DV Quarter-Phased Transit Curves

TCE 008749284-03     $P=514.963912$  Days     $T_0=514.973002$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

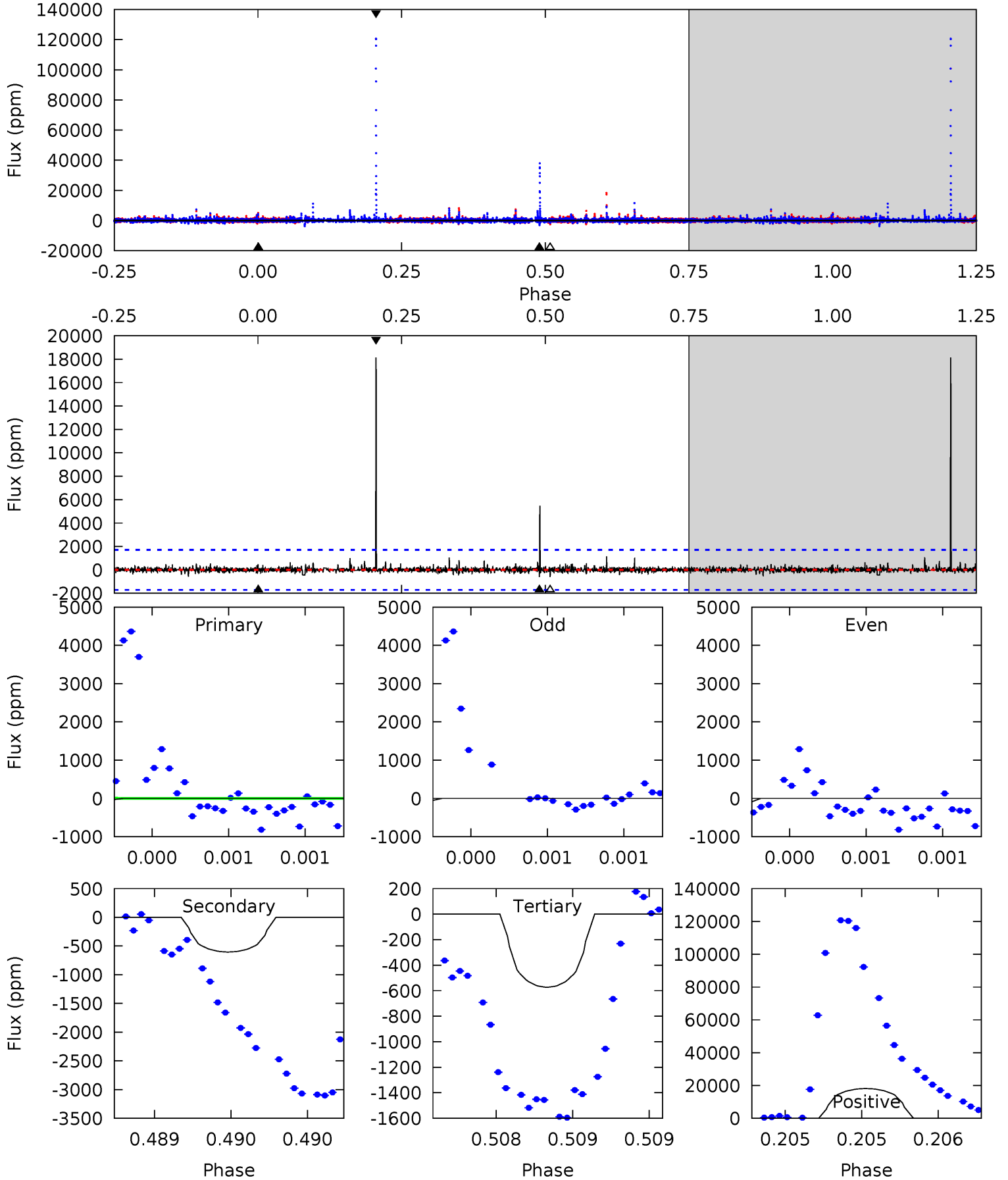
TCE 008749284-03 P=514.959768 Days  $T_0=514.999512$  (BKJD)



# DV Model-Shift Uniqueness Test

008749284-03, P = 514.963912 Days, E = 0.009090 Days

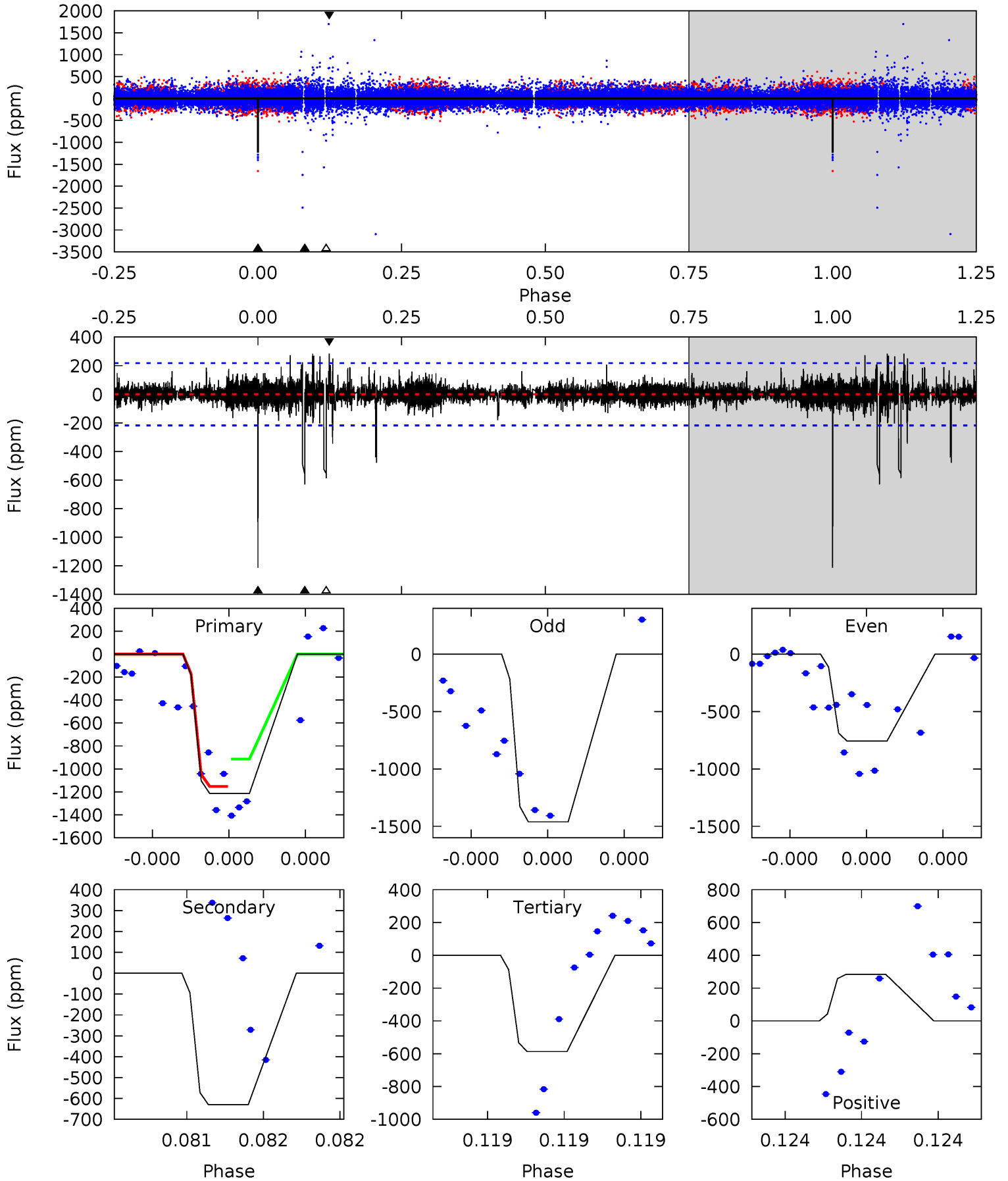
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.27	1.99	1.89	59.8	5.65	3.60	1.27	-1.62	-59.6	0.10	-57.8	0.12	2.38	0.97	0.56



# Alt Model-Shift Uniqueness Test

008749284-03, P = 514.959768 Days, E = 0.039744 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
31.8	16.5	15.4	7.43	5.71	3.69	0.98	16.4	24.4	1.12	9.07	7.47	0.97	0.19	2.90





### Stellar Parameters For KIC 008749284

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4632^{+60}_{-46}$	$3.136^{+0.170}_{-0.139}$	$0.280^{+0.100}_{-0.100}$	$4.403^{+0.984}_{-0.716}$	$0.966^{+0.109}_{-0.014}$	$0.016^{+0.012}_{-0.007}$
	+1%/-1%	+5%/-4%	+36%/-36%	+22%/-16%	+11%/-1%	+76%/-44%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 008749284-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-605 \pm 303$	$34.09^{+40.72}_{-23.60}$	$534^{+29}_{-25}$	$3159^{+1573}_{-609}$	$382^{+3831}_{-303}$
Alt.	$-629 \pm 38$	$35.17^{+39.23}_{-23.78}$	$533^{+33}_{-27}$	$3196^{+1549}_{-579}$	$449^{+3734}_{-345}$

$T_{max}$  = 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

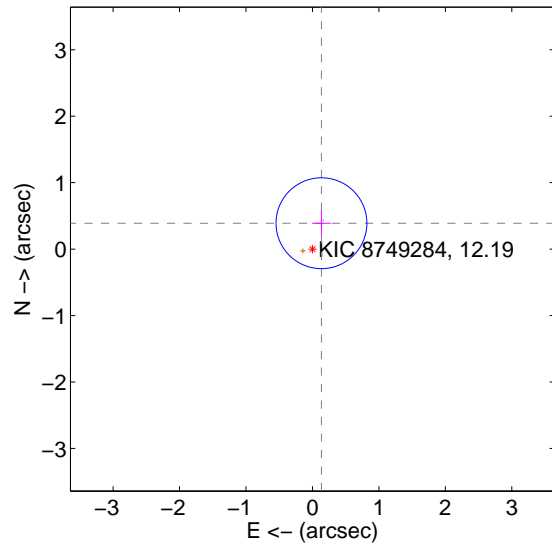
Supplemental centroid analysis for 008749284-03. Kepler magnitude: 12.19. Transit SNR 2.16

There are 1 quarters with good PRF difference image offsets

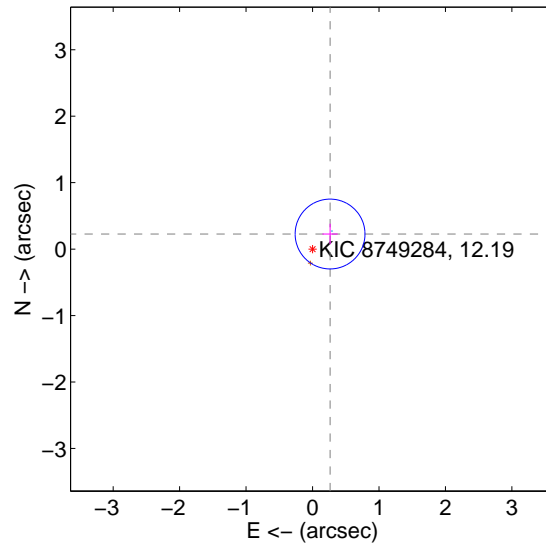
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.412 \pm 0.228$	1.81	$-0.136 \pm 0.142$	$0.389 \pm 0.199$
PRF-fit source offset from KIC position	$0.348 \pm 0.175$	1.99	$-0.264 \pm 0.115$	$0.227 \pm 0.154$
photometric centroid source offset	$0.73 \pm 0.77$	0.95	$0.50 \pm 0.77$	$-0.54 \pm 0.77$

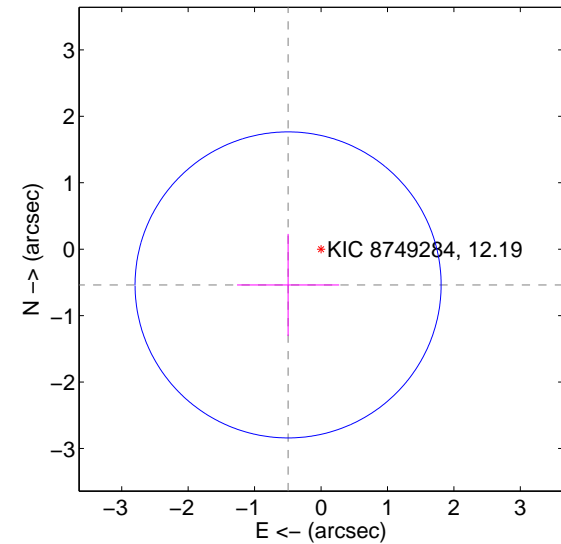
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

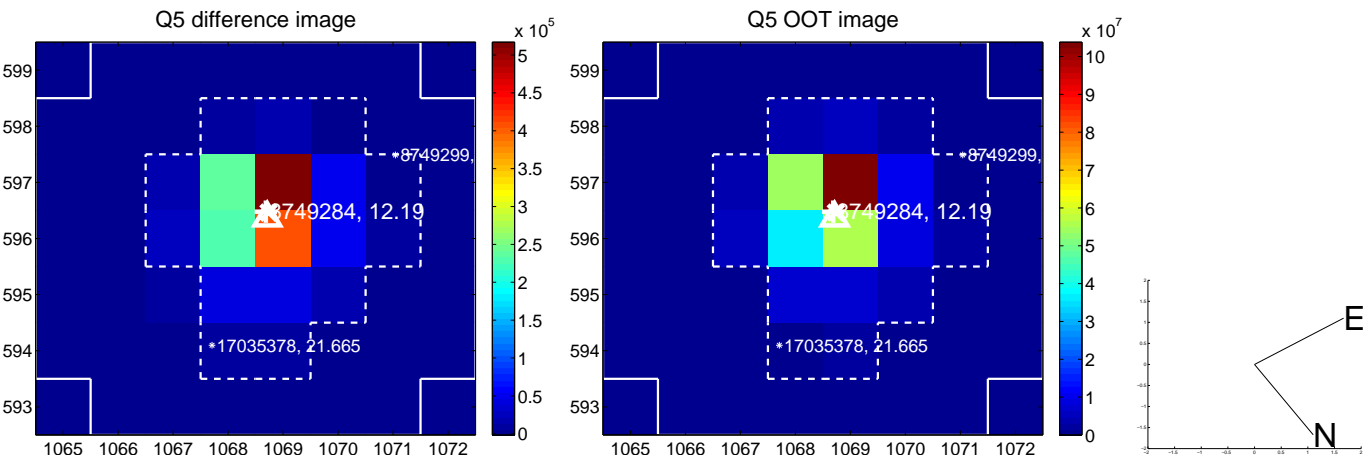


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



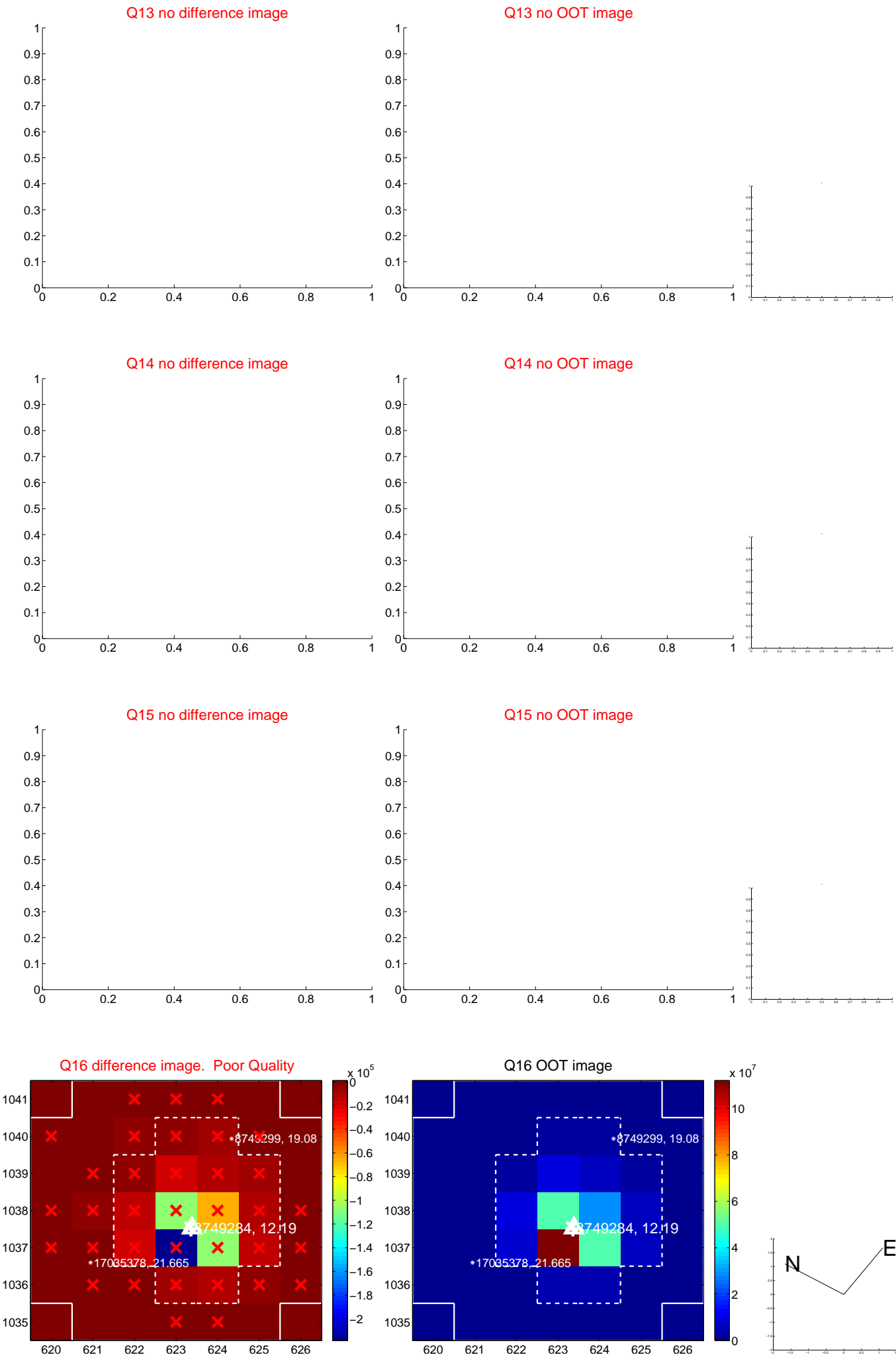
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



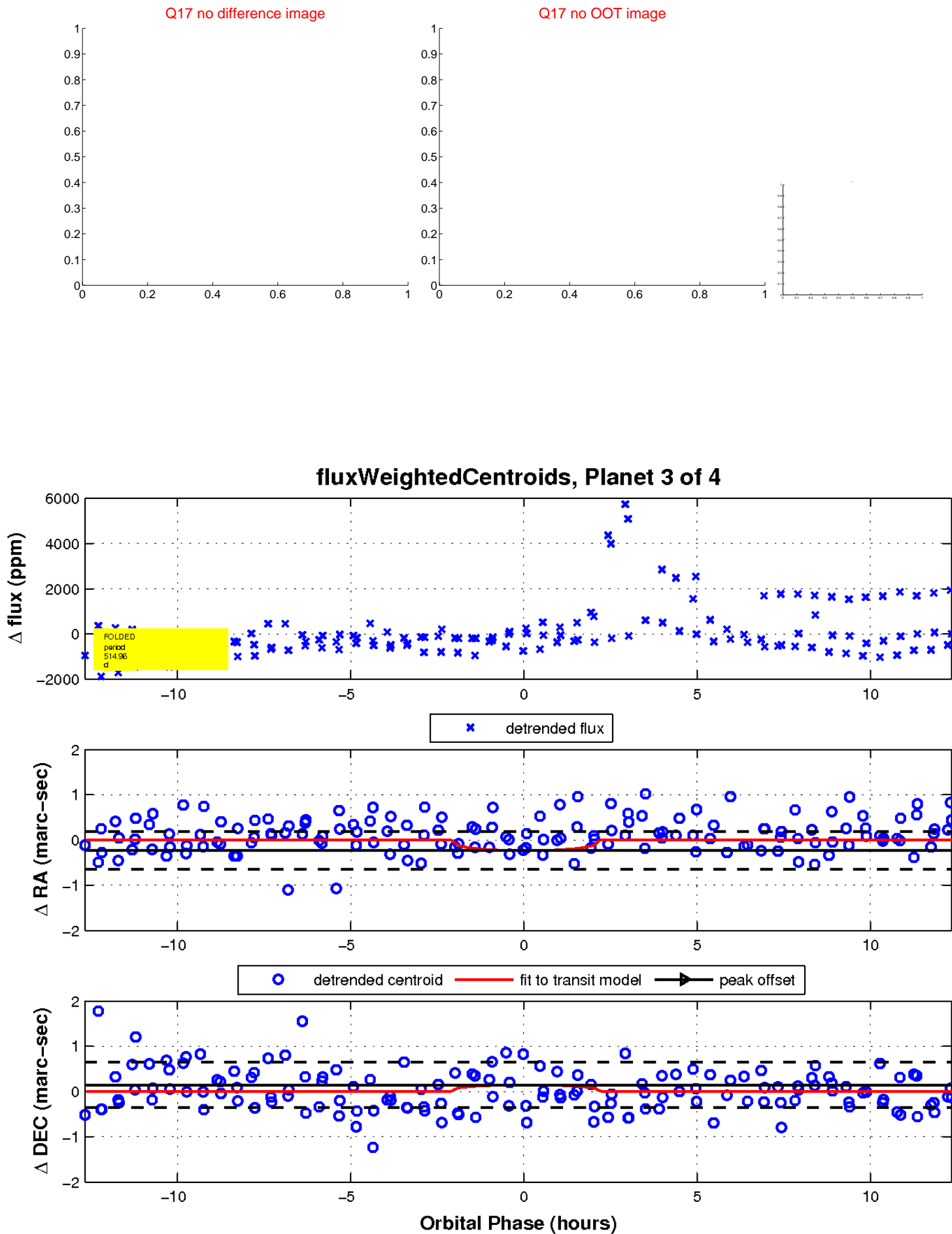
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



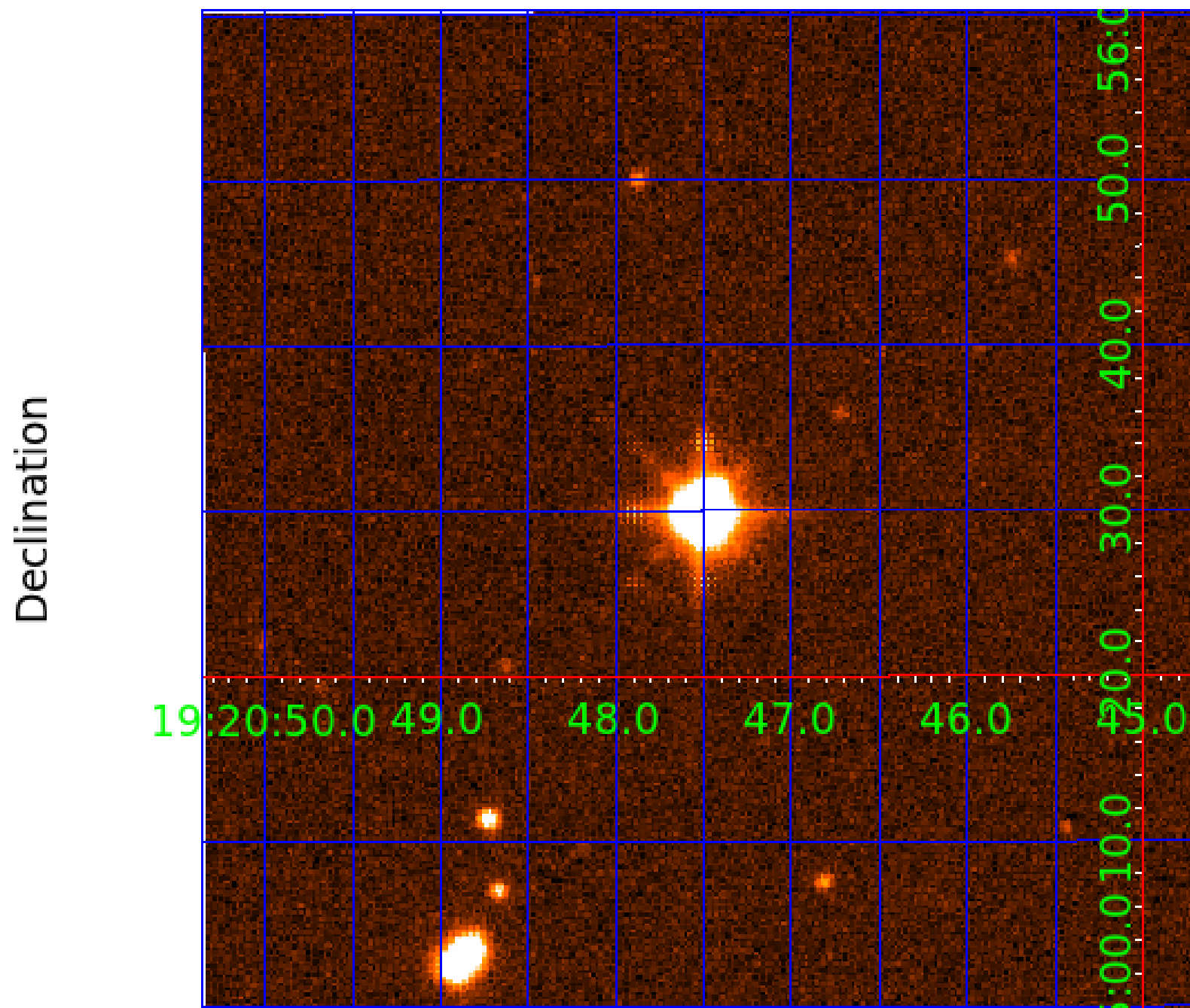
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





# KIC 008749284

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008749284-01	OBS	No	277.953370	256.222612	1189.8	15.569	25.8	3.8	4.40	4632	18.13	11.76
008749284-03	OBS	No	514.963912	514.973002	396.3	4.224	18.6	2.2	4.40	4632	8.36	5.17
008749284-04	OBS	No	382.311908	426.649929	528.1	5.000	21.7	-1.0	4.40	4632	9.66	7.69

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008749284-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_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
008749284-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008749284-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

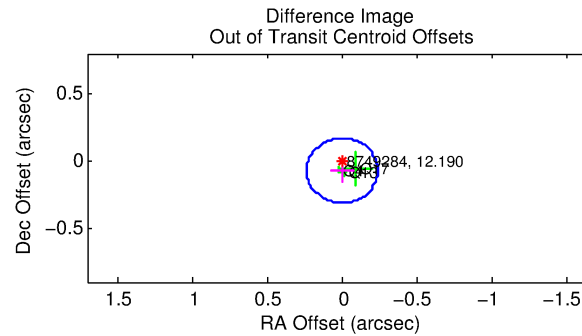
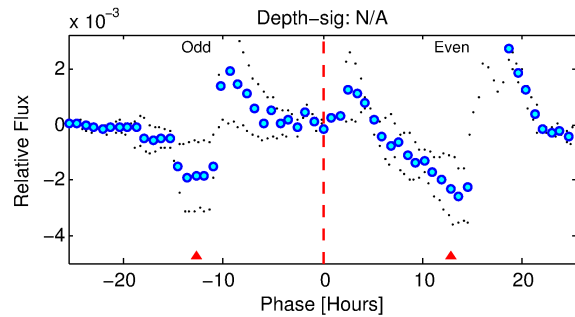
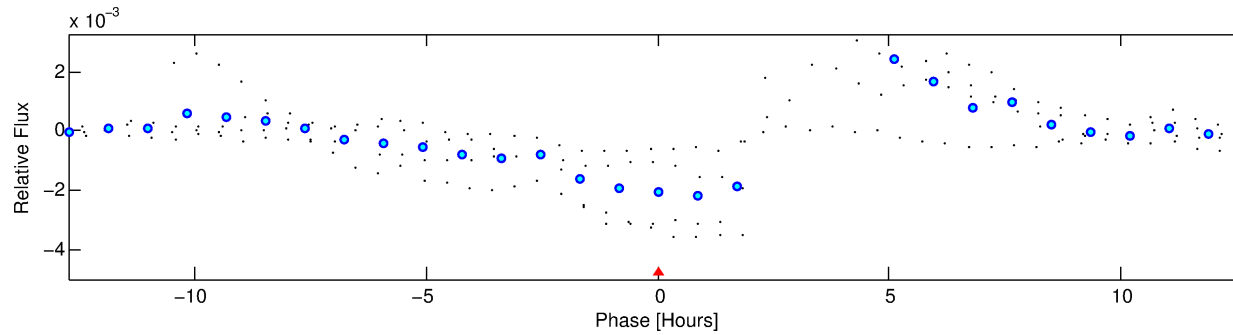
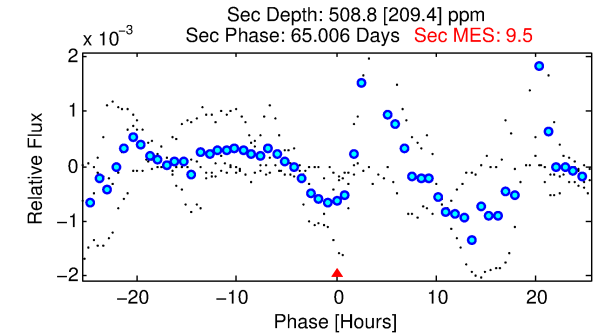
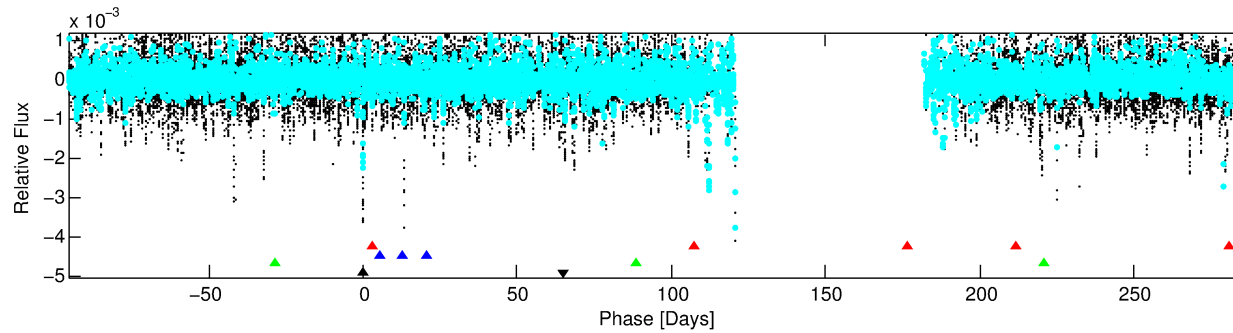
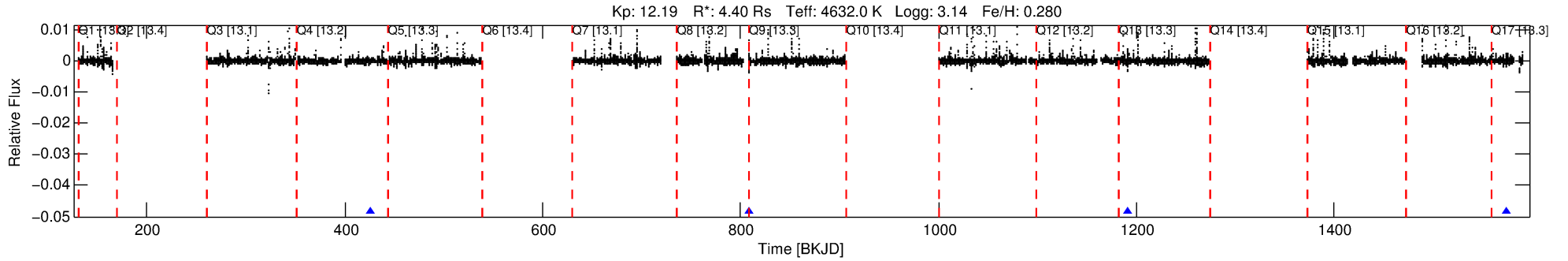
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008749284-04

No Significant Match Found

# DV One-Page Summary

KIC: 8749284 Candidate: 4 of 4 Period: 382.312 d



## TPS TCE Results:

Period = 382.31191 d  
Epoch = 426.6499 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

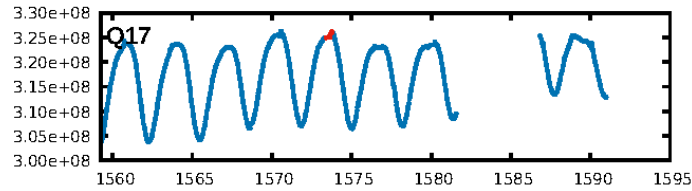
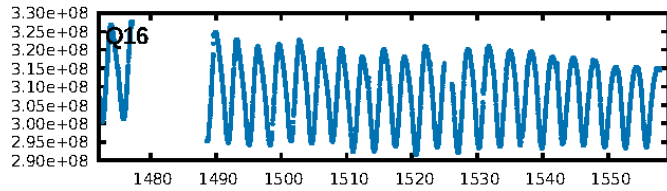
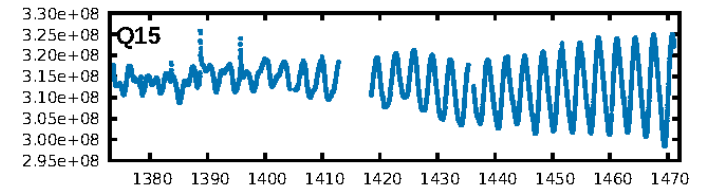
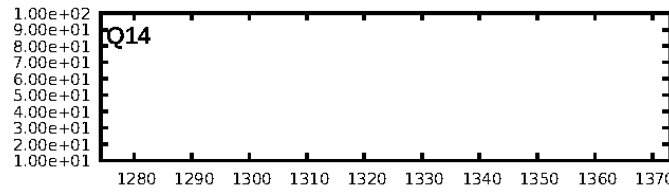
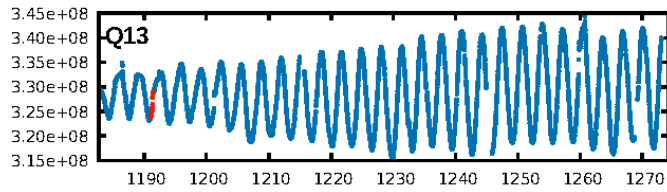
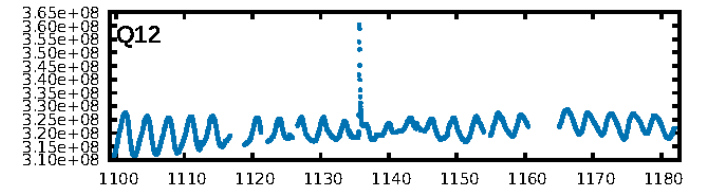
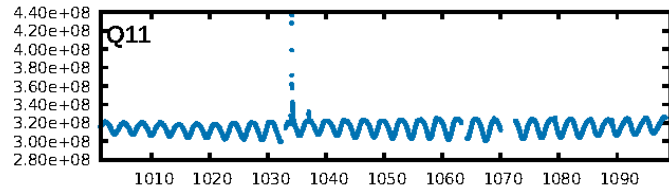
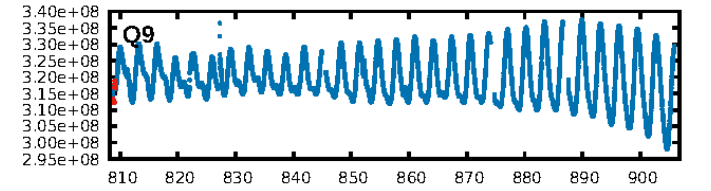
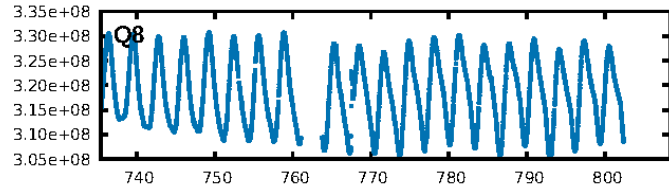
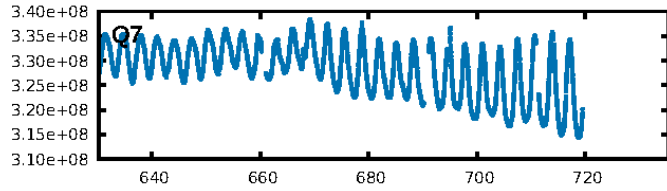
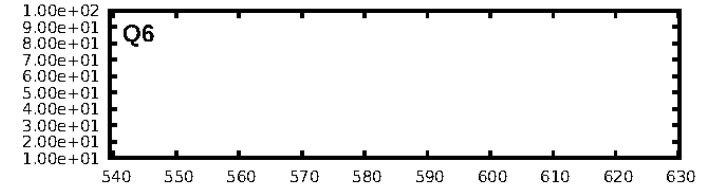
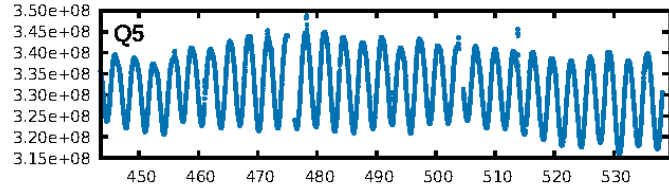
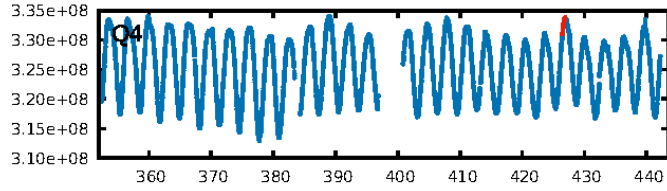
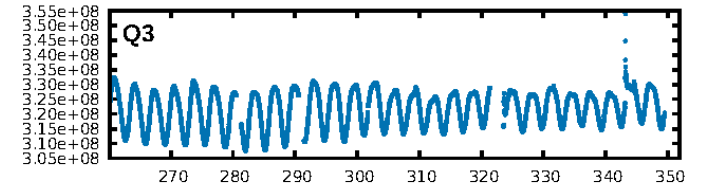
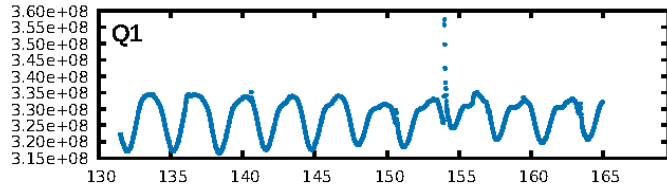
ShortPeriod-sig: 100.0% [153.16 $\sigma$ ]  
LongPeriod-sig: 100.0% [23.08 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.191

Centroid-sig: 54.8%  
Centroid-so: 0.194 arcsec [2.72 $\sigma$ ]  
OotOffset-rm: 0.071 arcsec [0.89 $\sigma$ ]  
OotOffset-st: 0/0/1/2 [3]  
KicOffset-rm: 0.241 arcsec [3.05 $\sigma$ ]  
KicOffset-st: 0/0/1/2 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

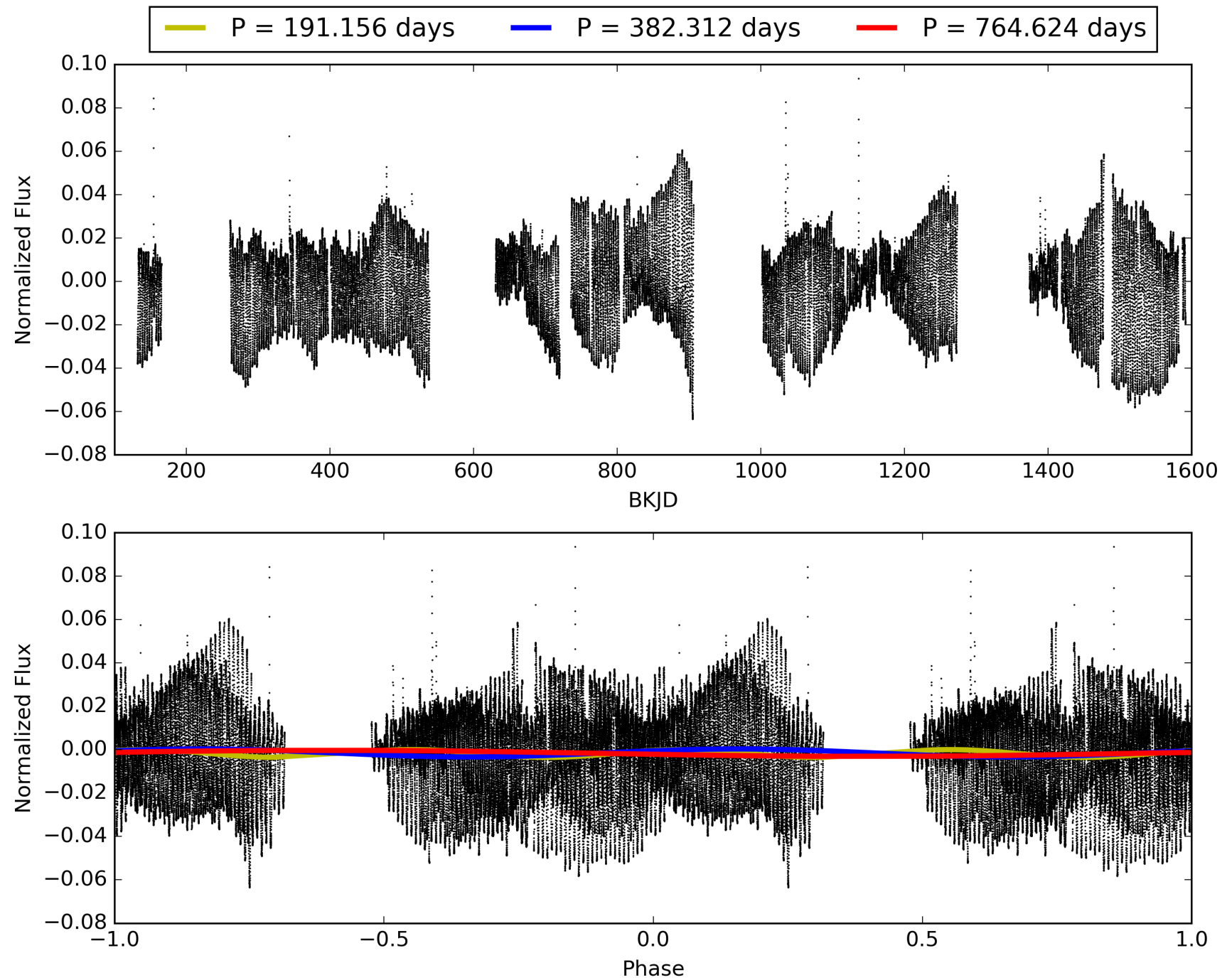
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:23:16 Z

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

# TCE 008749284-04, PDC Light Curves

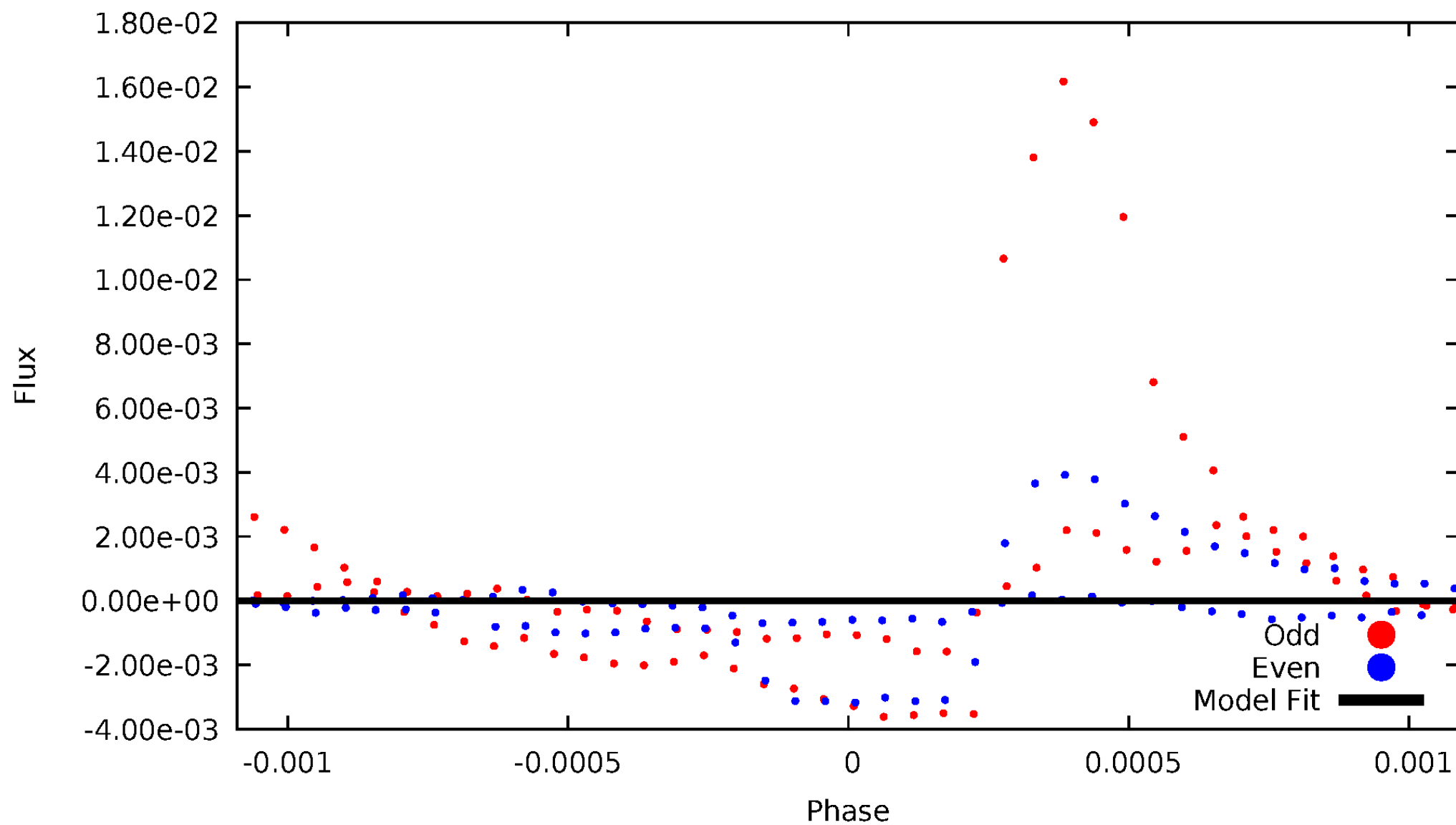


TCE 008749284-04



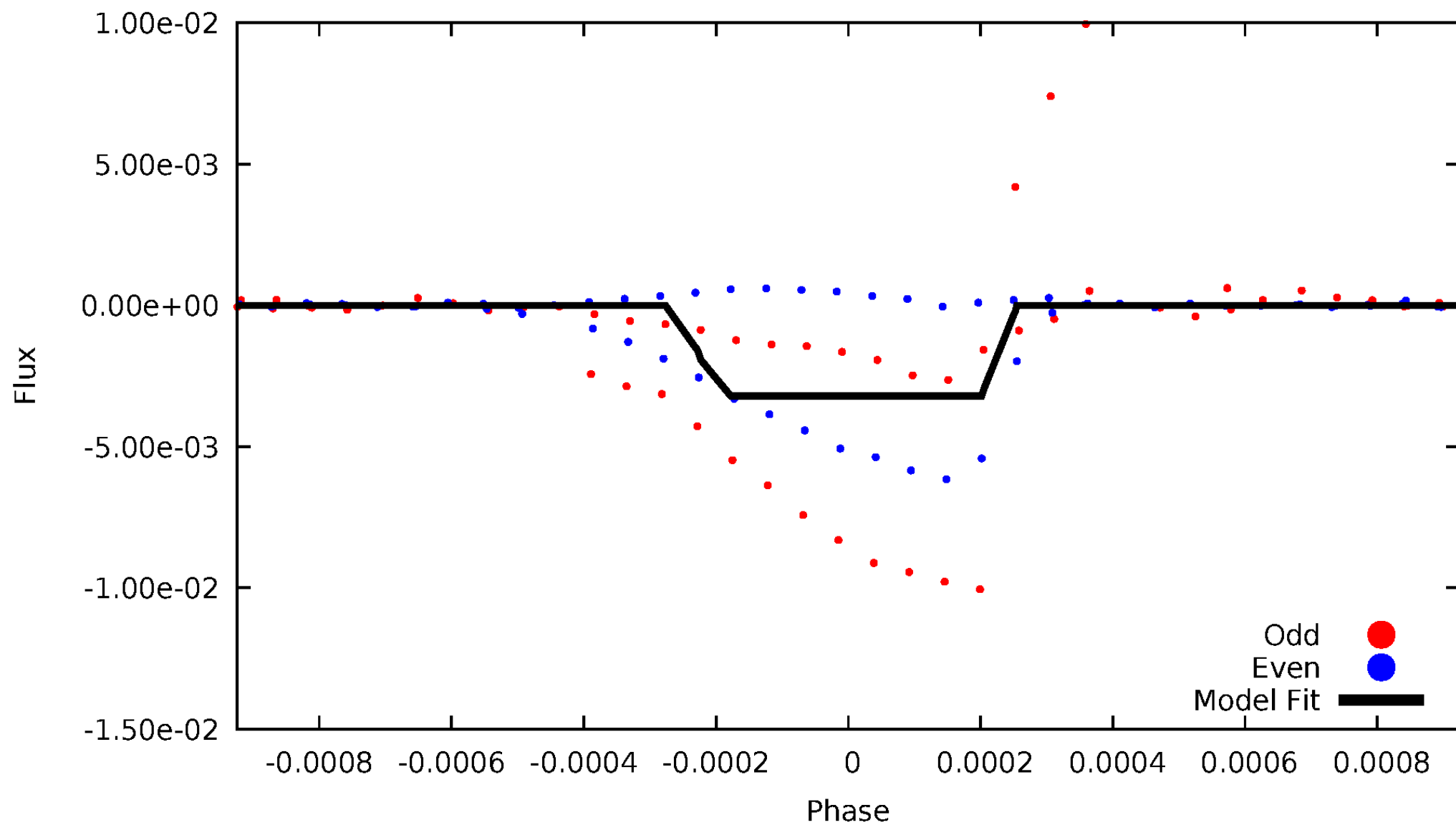
# DV Odd/Even

TCE 008749284-04



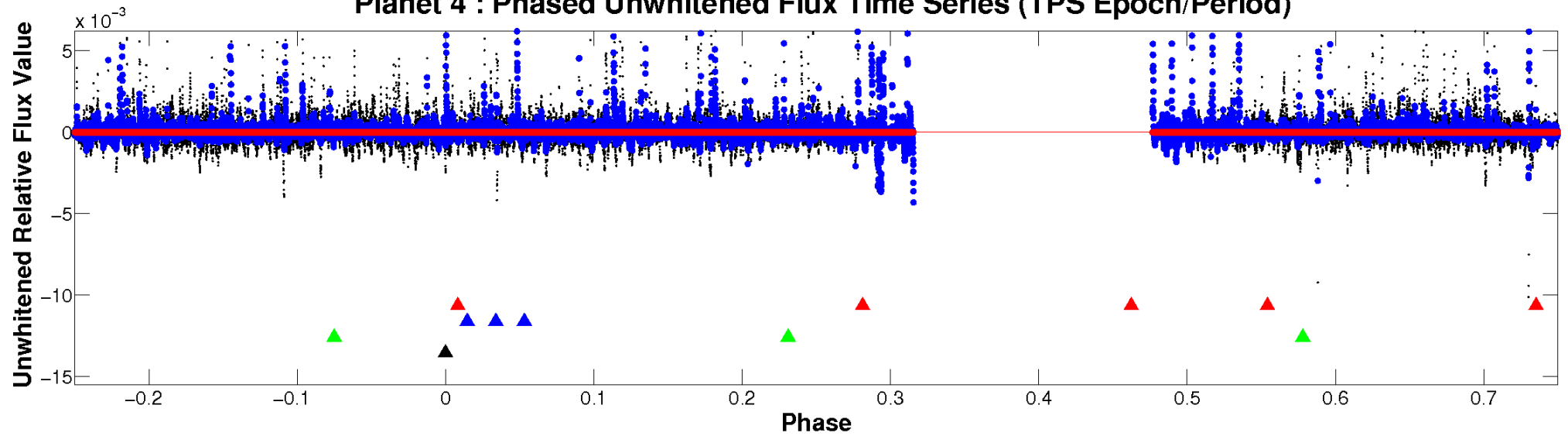
# ALT Odd/Even

TCE 008749284-04

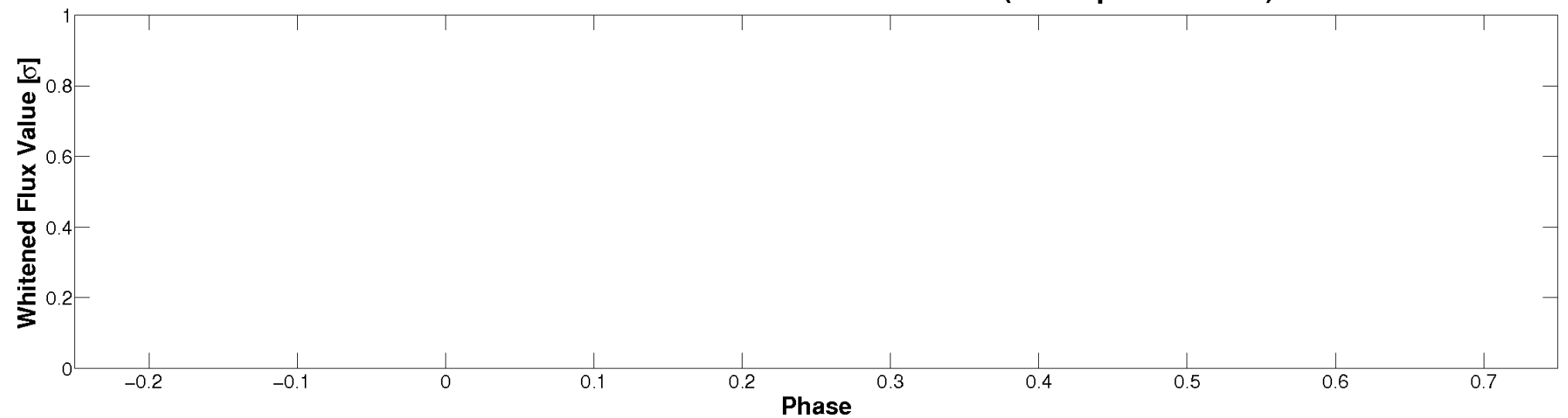


# Non-Whitened Vs. Whitened Light Curve

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

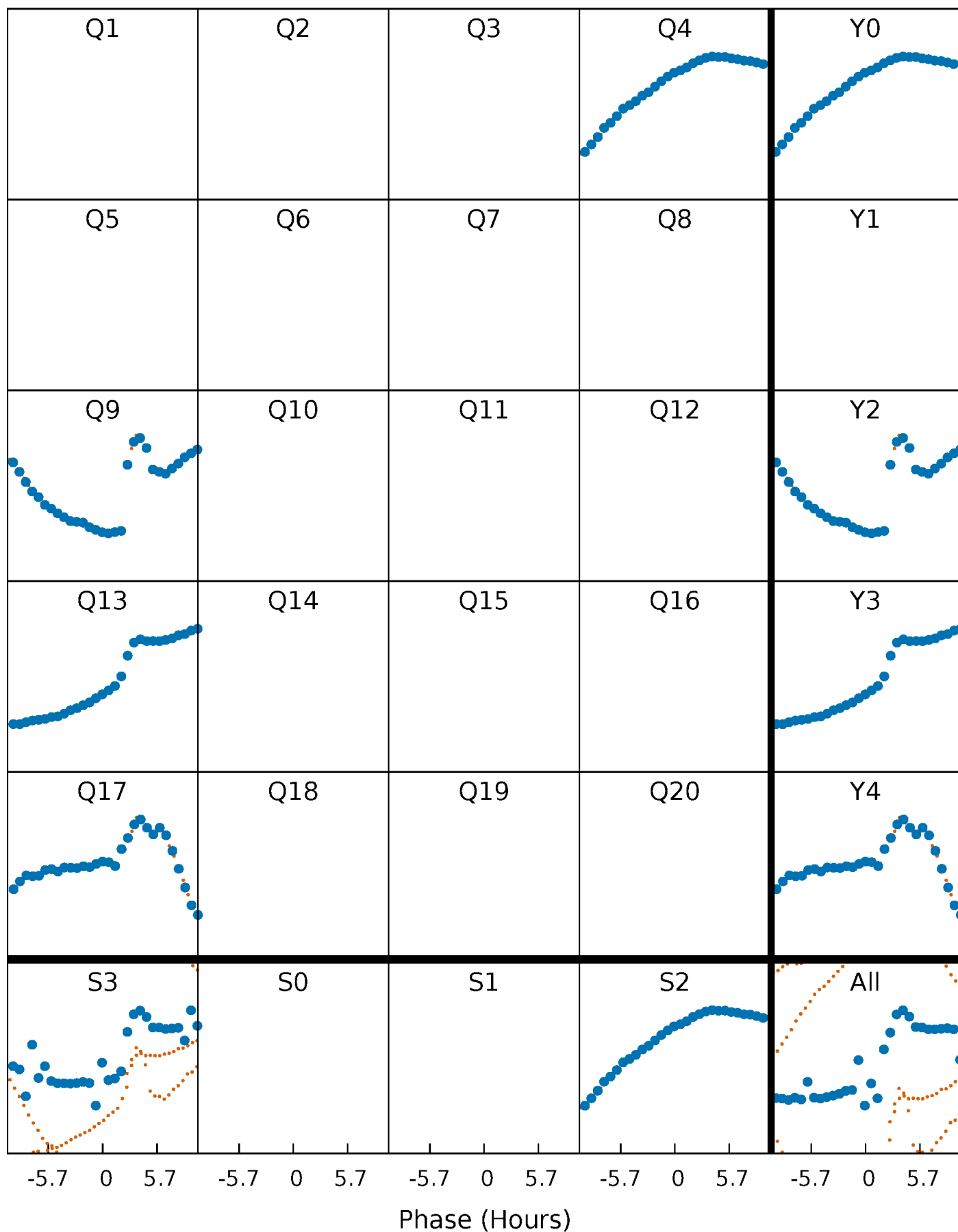


**Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

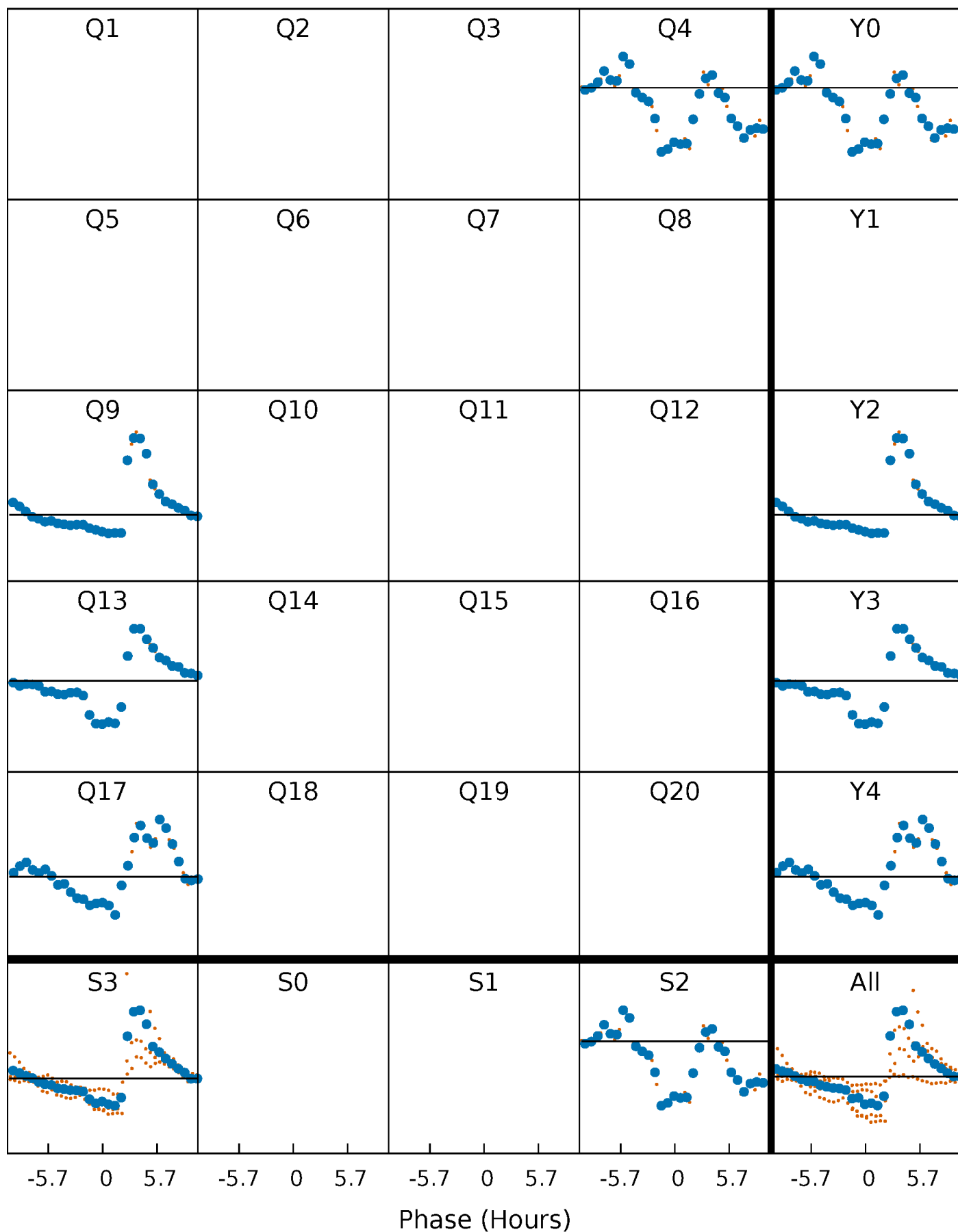
TCE 008749284-04     $P=382.311908$  Days     $T_0=426.649929$  (BKJD)





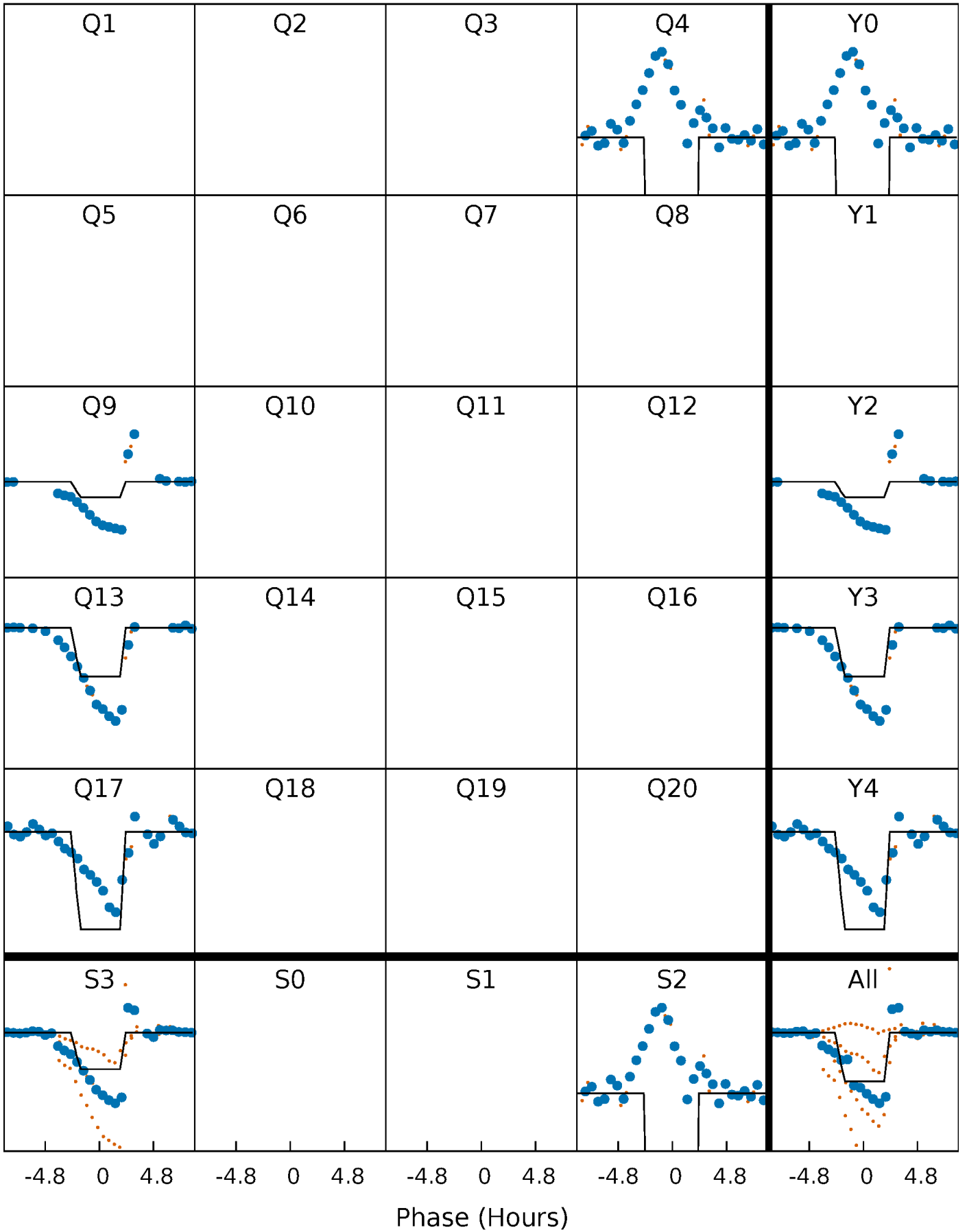
# DV Quarter-Phased Transit Curves

TCE 008749284-04     $P=382.311908$  Days     $T_0=426.649929$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

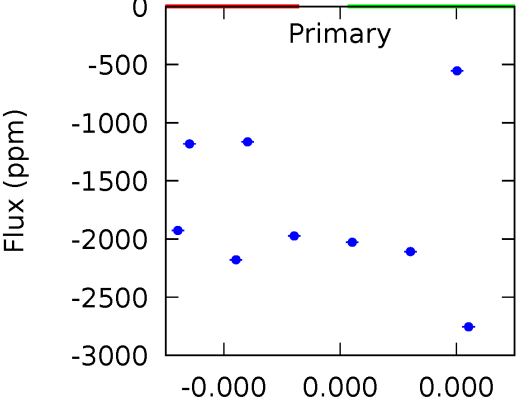
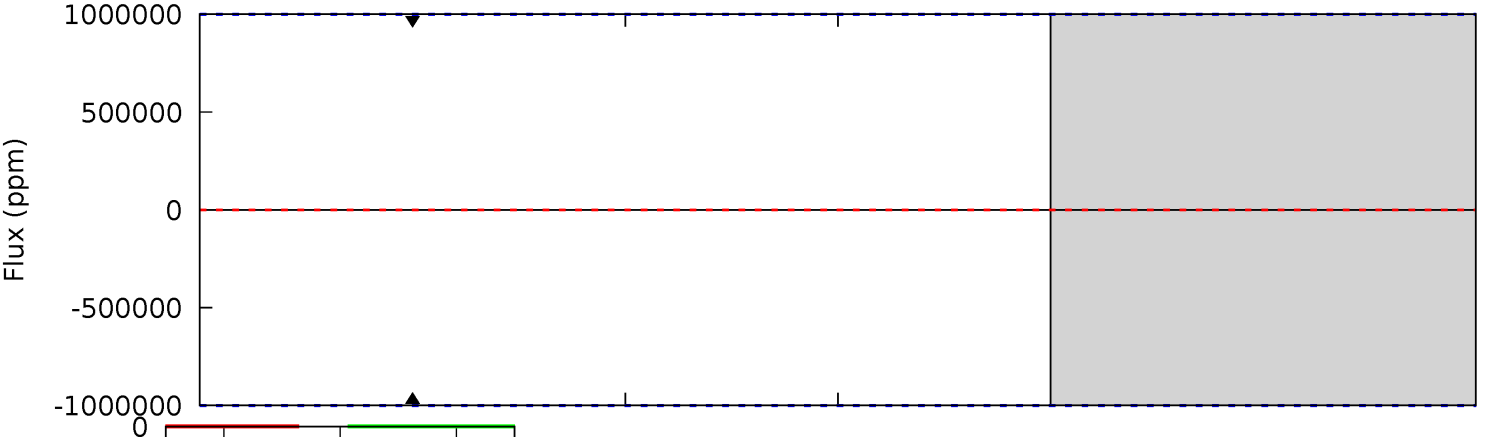
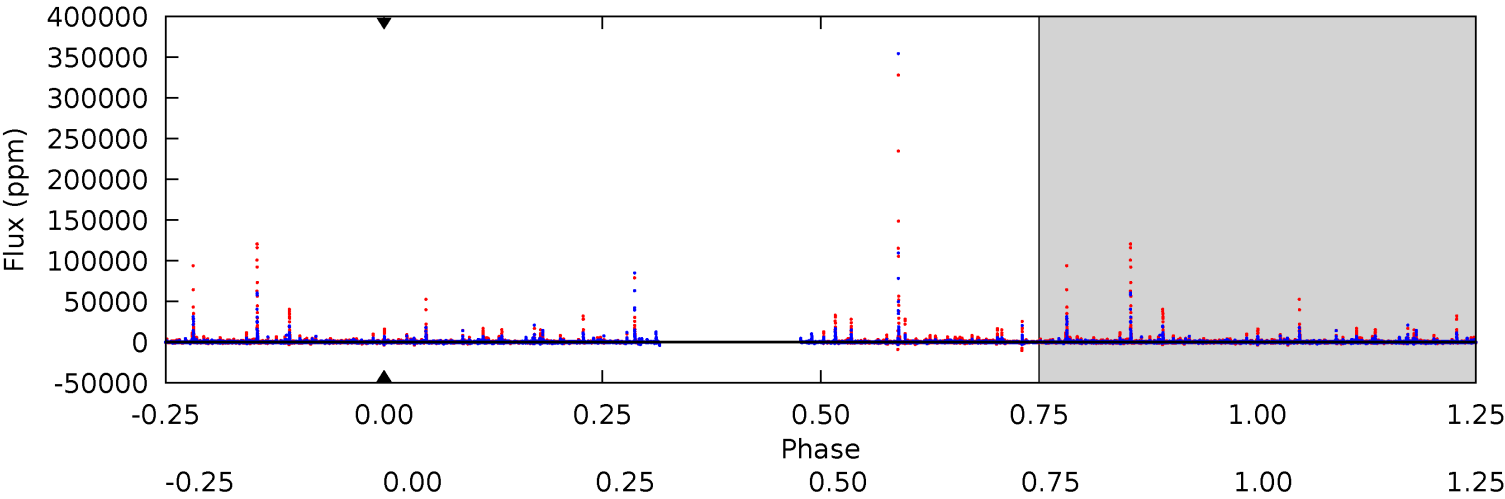
TCE 008749284-04     $P=382.311908$  Days     $T_0=426.659280$  (BKJD)



# DV Model-Shift Uniqueness Test

008749284-04, P = 382.311908 Days, E = 44.338021 Days

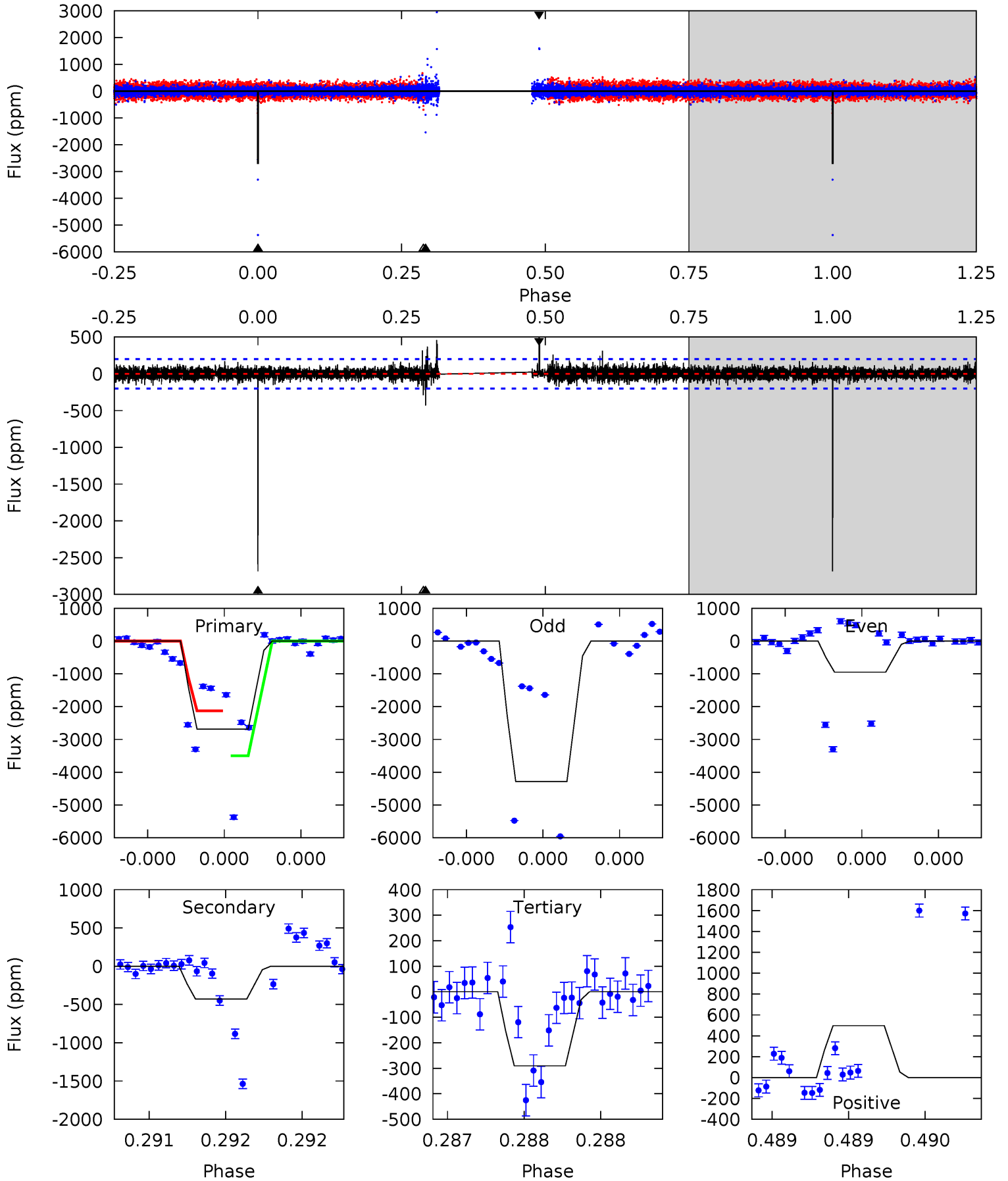
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008749284-04, P = 382.311908 Days, E = 44.347372 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
74.8	12.0	8.09	13.8	5.58	3.49	1.13	66.7	61.0	3.88	-1.88	61.3	1.08	0.16	17.4



### Stellar Parameters For KIC 008749284

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4632^{+60}_{-46}$	$3.136^{+0.170}_{-0.139}$	$0.280^{+0.100}_{-0.100}$	$4.403^{+0.984}_{-0.716}$	$0.966^{+0.109}_{-0.014}$	$0.016^{+0.012}_{-0.007}$
	+1%/-1%	+5%/-4%	+36%/-36%	+22%/-16%	+11%/-1%	+76%/-44%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 008749284-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$33.93^{+37.61}_{-22.47}$	$592^{+32}_{-32}$	$-3793^{+16643}_{-8867}$	$-829.065^{+93149.477}_{-77958.045}$
Alt.	$-429 \pm 36$	$46.29^{+41.54}_{-29.22}$	$593^{+33}_{-30}$	$2838^{+1032}_{-429}$	$120^{+707}_{-88}$

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

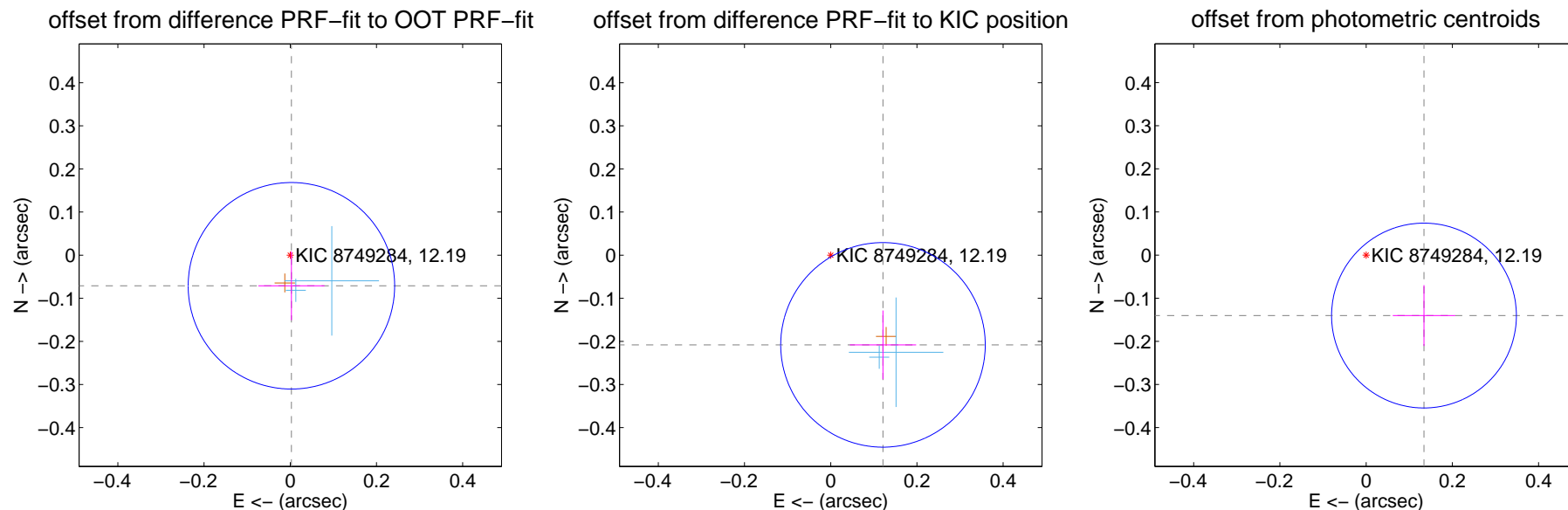
## DV Centroid Data

Supplemental centroid analysis for 008749284-04. Kepler magnitude: 12.19. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

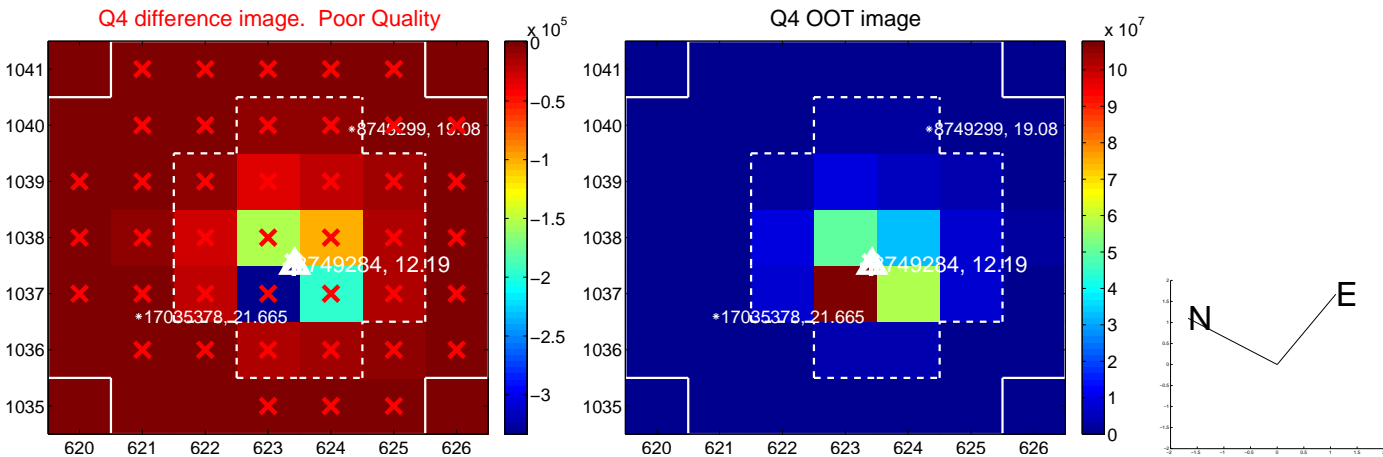
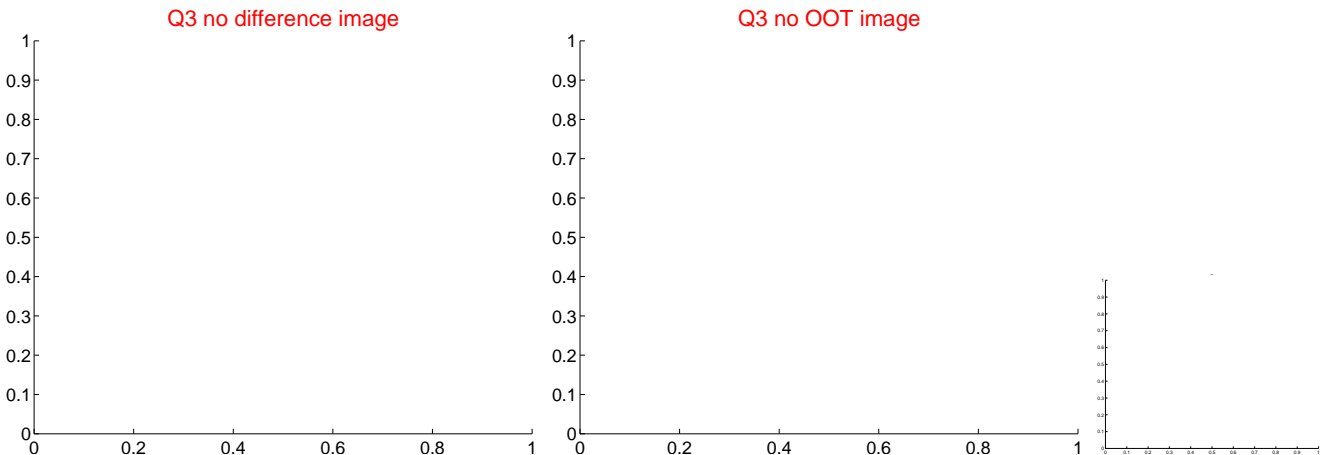
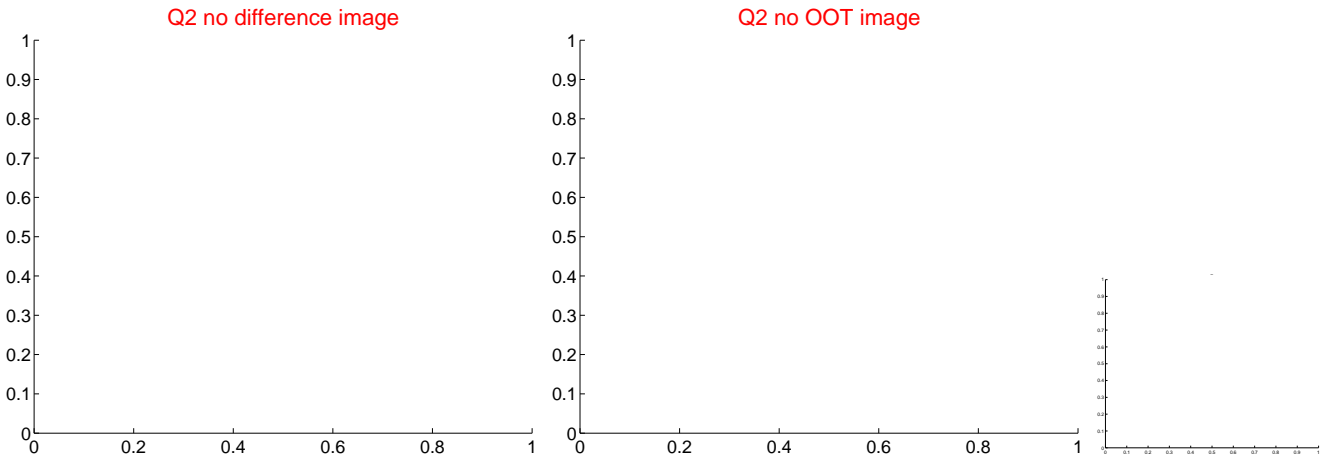
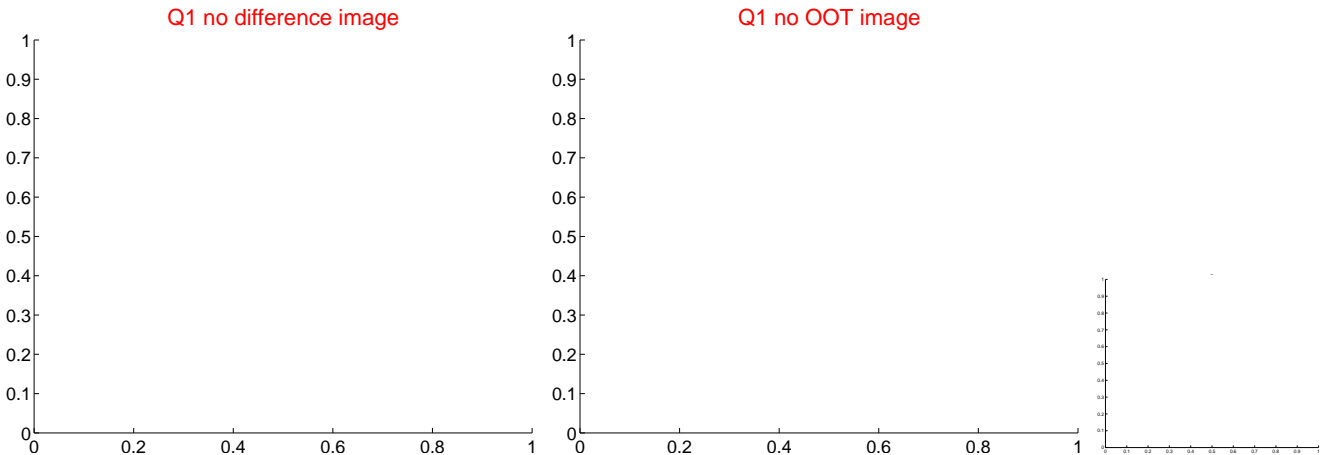
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.071 \pm 0.080$	0.89	$-0.003 \pm 0.077$	$-0.071 \pm 0.080$
PRF-fit source offset from KIC position	<b><math>0.241 \pm 0.079</math></b>	<b>3.05</b>	$-0.121 \pm 0.077$	$-0.208 \pm 0.080$
photometric centroid source offset	$0.19 \pm 0.07$	2.72	$-0.13 \pm 0.07$	$-0.14 \pm 0.07$



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.

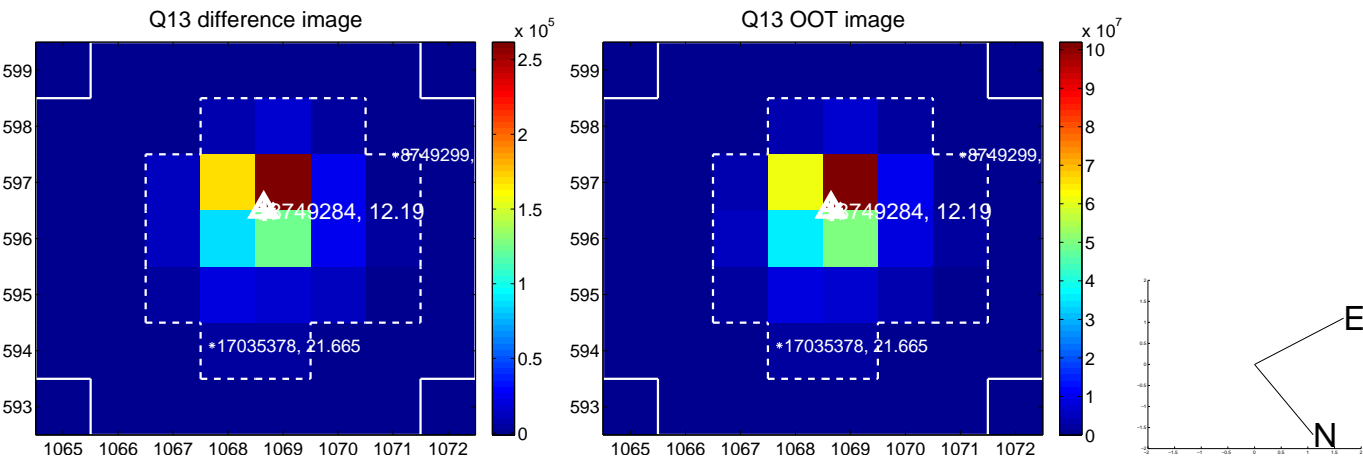




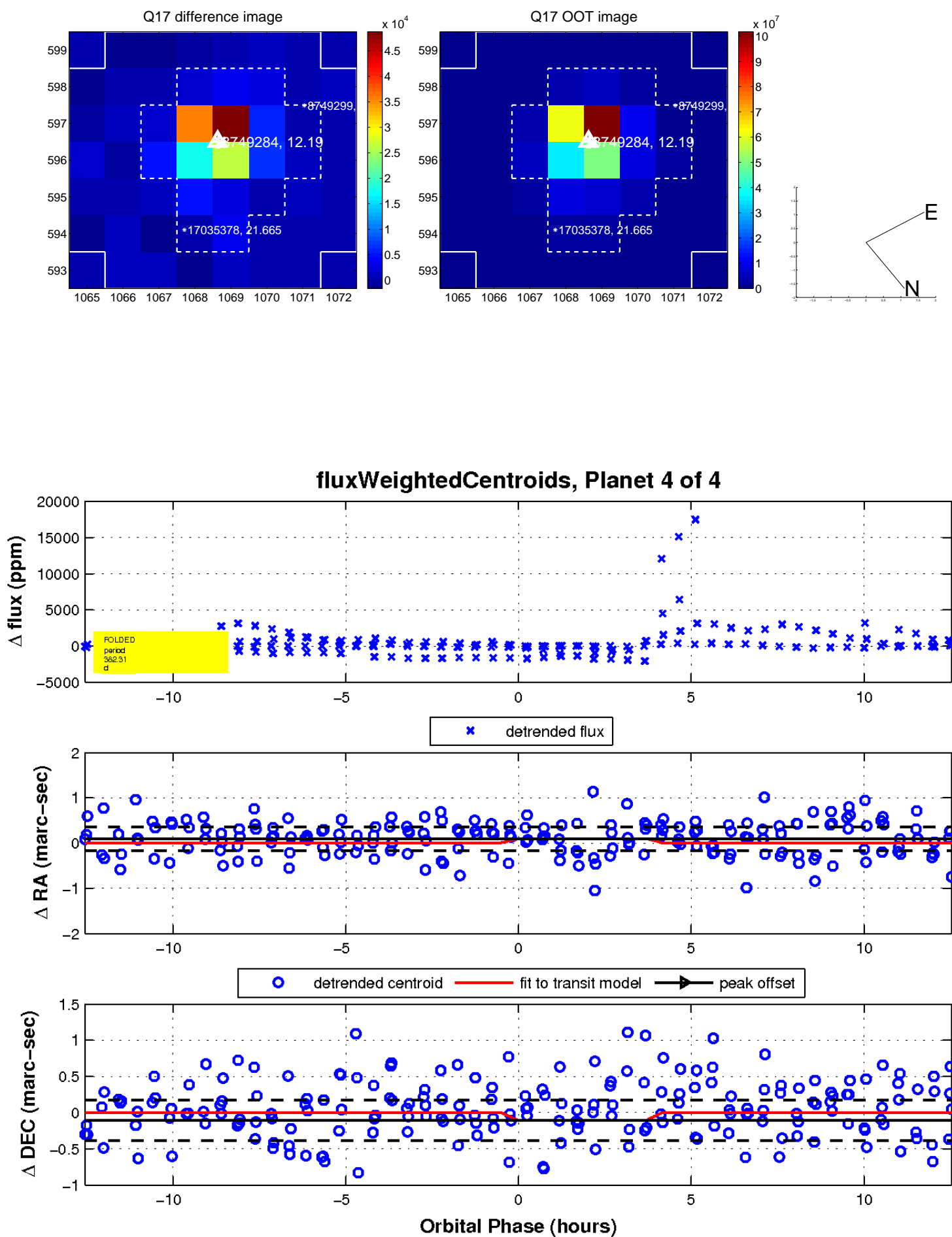
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

