

# KIC 006365076

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006365076-01	OBS	No	324.392917	407.658072	1038.9	3.027	18.4	4.9	1.20	6157	4.02	2.05
006365076-03	OBS	No	282.540345	386.869464	1798.0	6.339	14.6	5.0	1.20	6157	5.07	2.46
006365076-04	OBS	No	581.848767	203.884409	2984.9	6.161	13.2	6.5	1.20	6157	6.57	0.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006365076-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006365076-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006365076-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

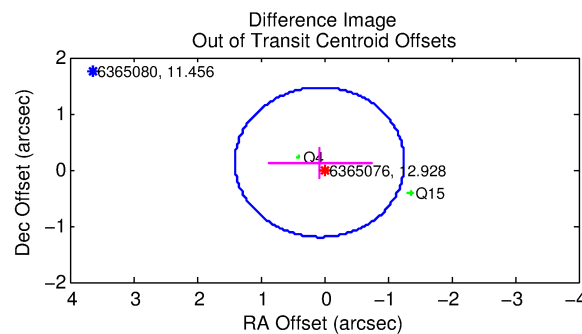
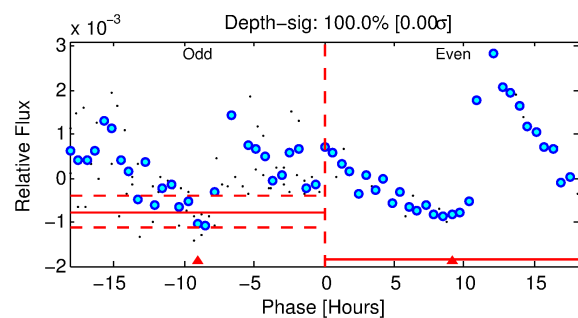
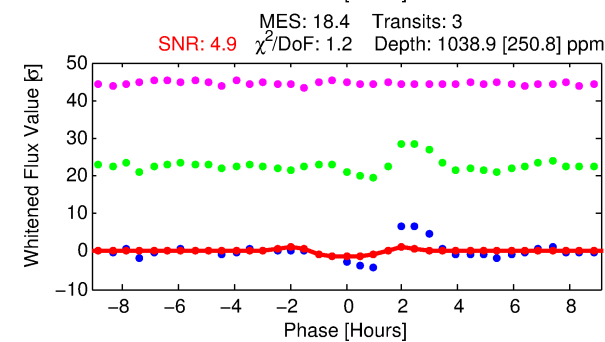
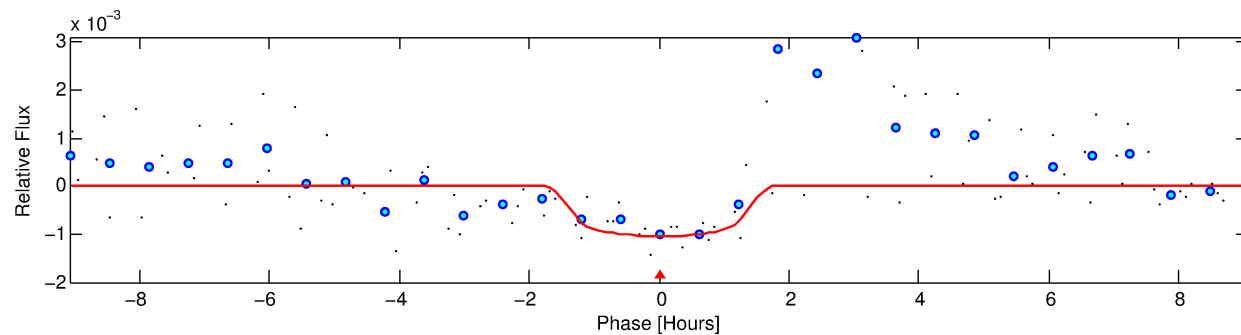
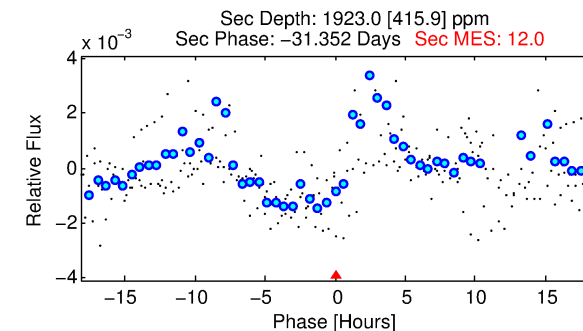
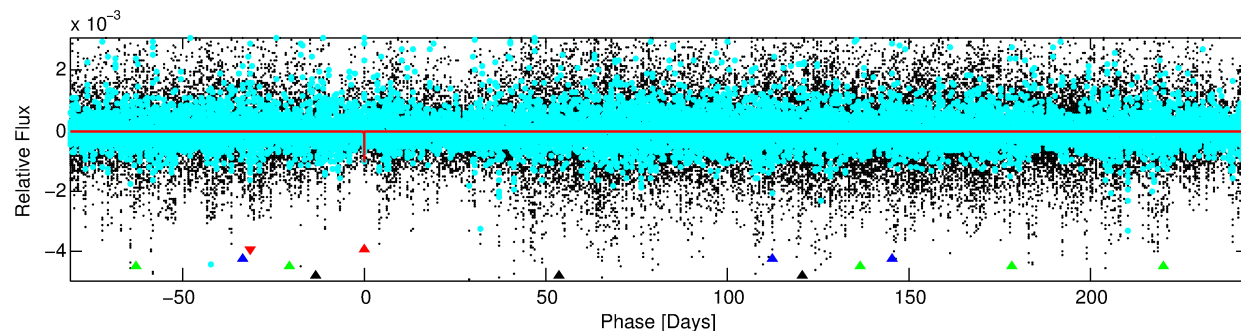
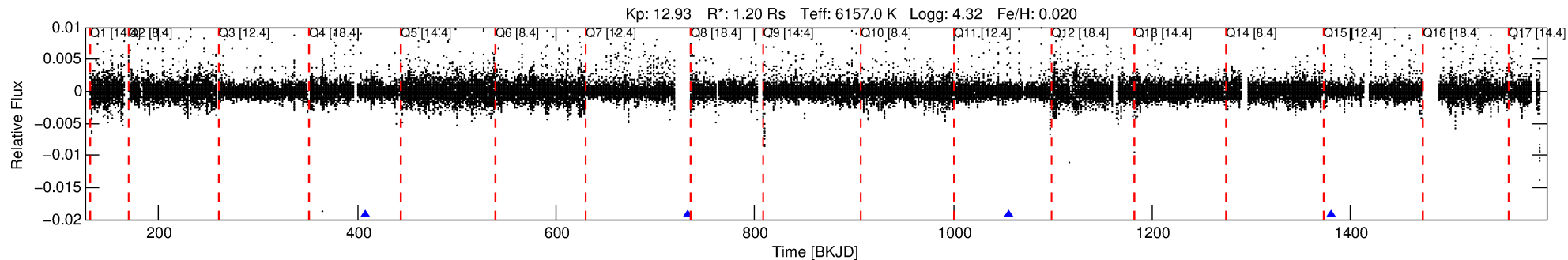
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006365076-01

No Significant Match Found

# DV One-Page Summary

KIC: 6365076 Candidate: 1 of 4 Period: 324.393 d



## DV Fit Results:

Period = 324.39292 [0.00510] d  
Epoch = 407.6581 [0.0118] BKJD  
Rp/R\* = 0.0308 [0.0658]  
a/R\* = 693.76 [7173.45]  
b = 0.59 [11.57]  
Seff = 2.05 [0.47]  
Teq = 305 [17] K  
Rp = 4.02 [8.63] Re  
a = 0.9487 [0.1425] AU  
Ag = 58833.38 [252148.88] [0.23σ]  
Teff = 7347 [7862] K [0.90σ]

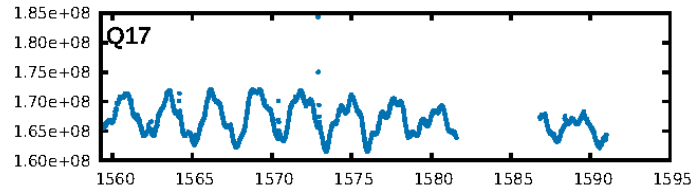
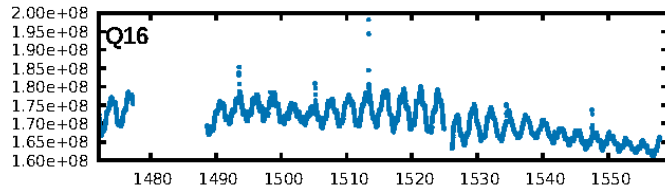
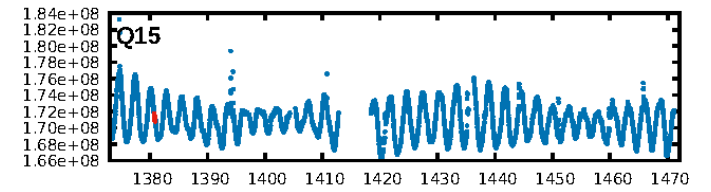
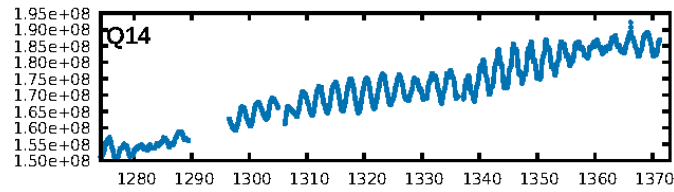
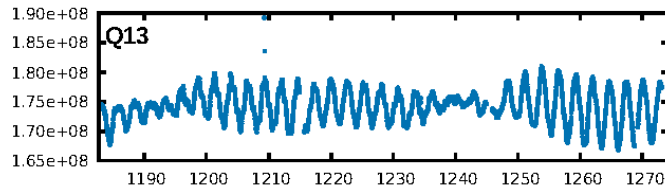
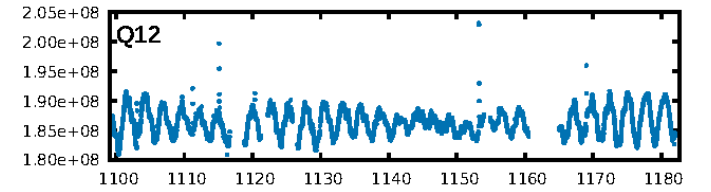
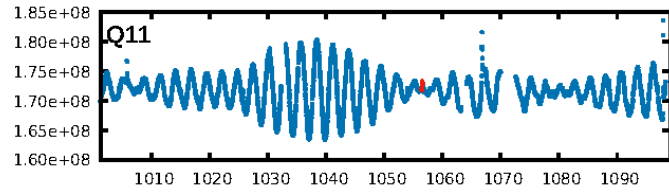
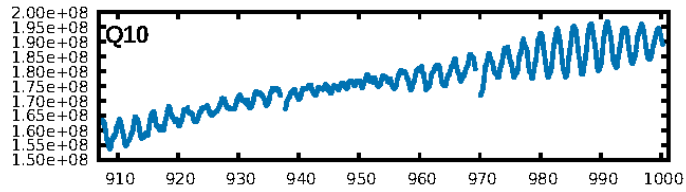
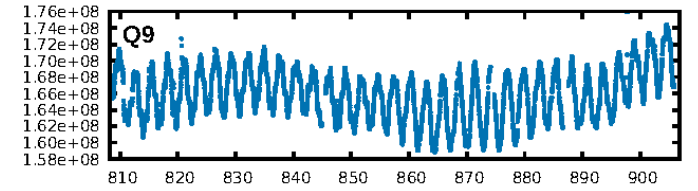
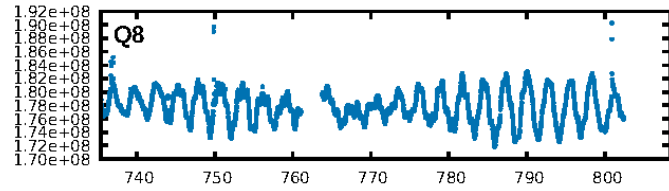
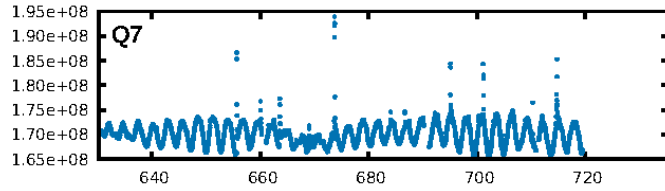
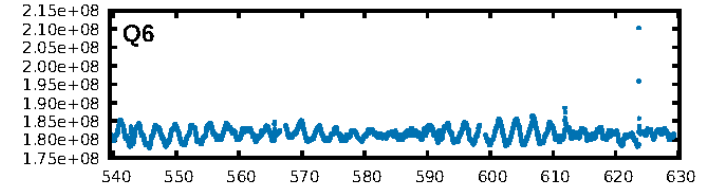
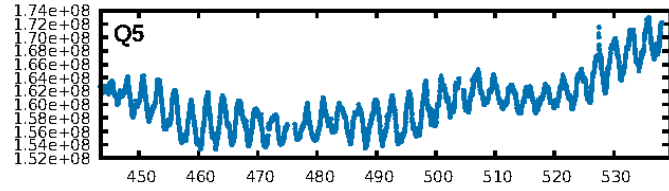
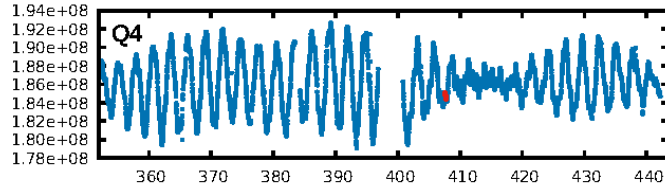
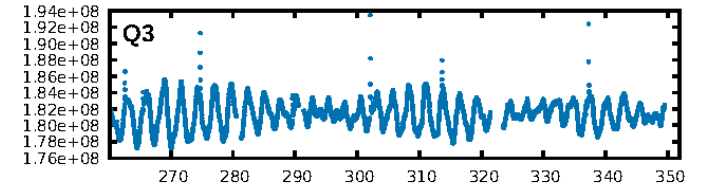
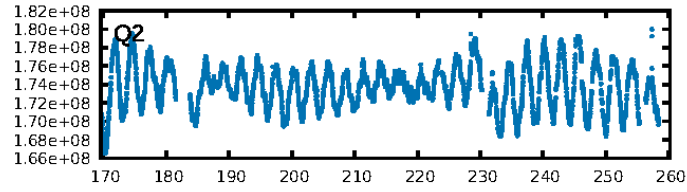
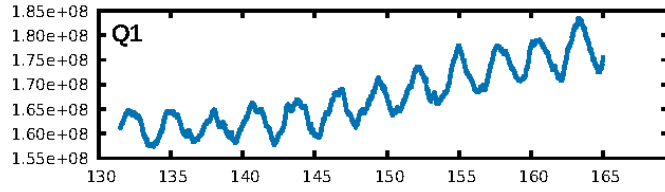
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [142.99σ]  
LongPeriod-sig: 100.0% [94.43σ]  
ModelChiSquare2-sig: 8.5%  
ModelChiSquareGof-sig: 86.4%  
Bootstrap-pfa: 3.12e-15  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.468  
**Centroid-sig: 0.0%**  
Centroid-so: 0.972 arcsec [1.34σ]  
OotOffset-rm: 0.148 arcsec [0.33σ]  
KicOffset-rm: 3.528 arcsec [2.15σ]  
OotOffset-st: 0/1/1/0 [2]  
KicOffset-st: 0/1/1/0 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [3/3]

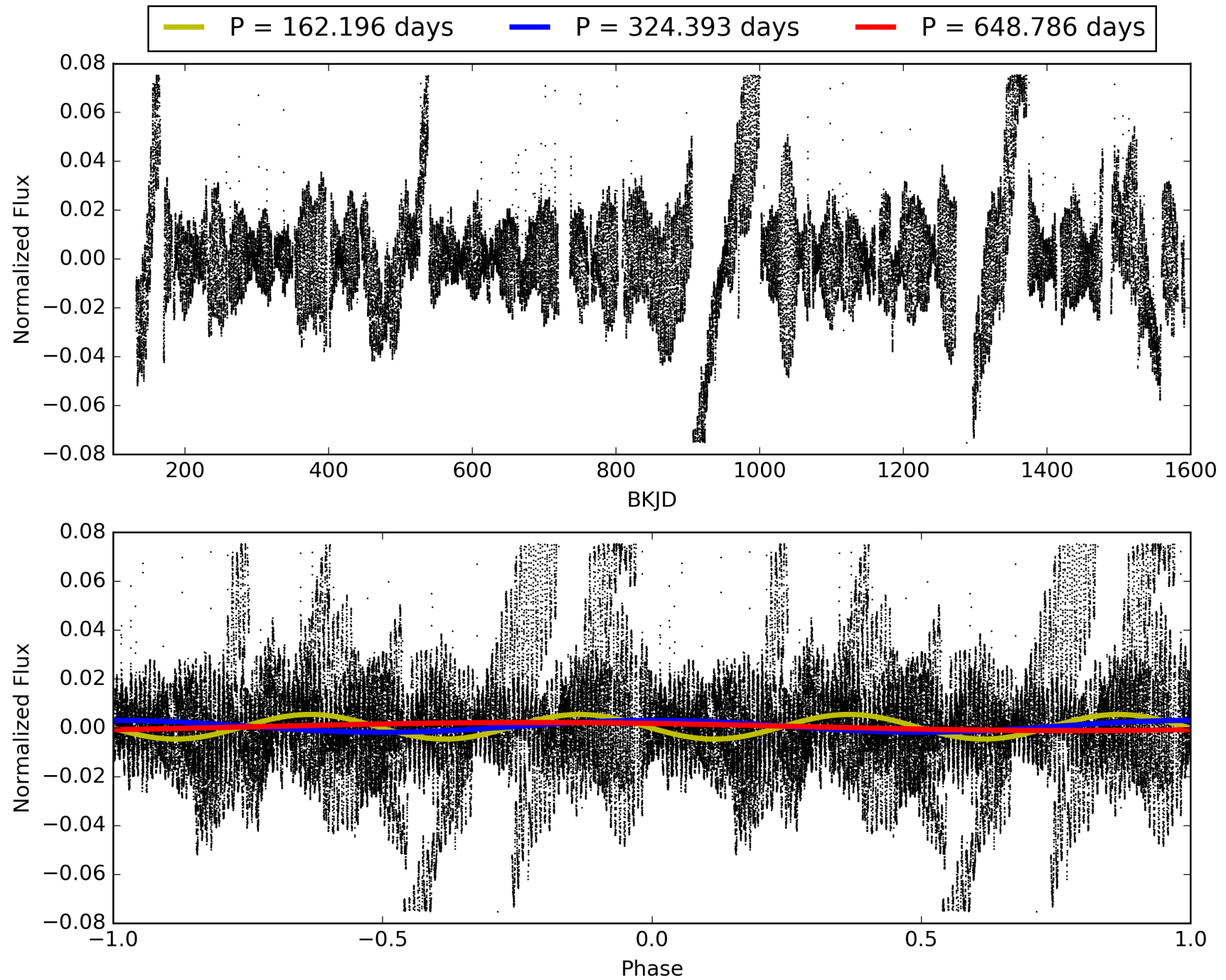
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:06:02 Z

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

# TCE 006365076-01, PDC Light Curves

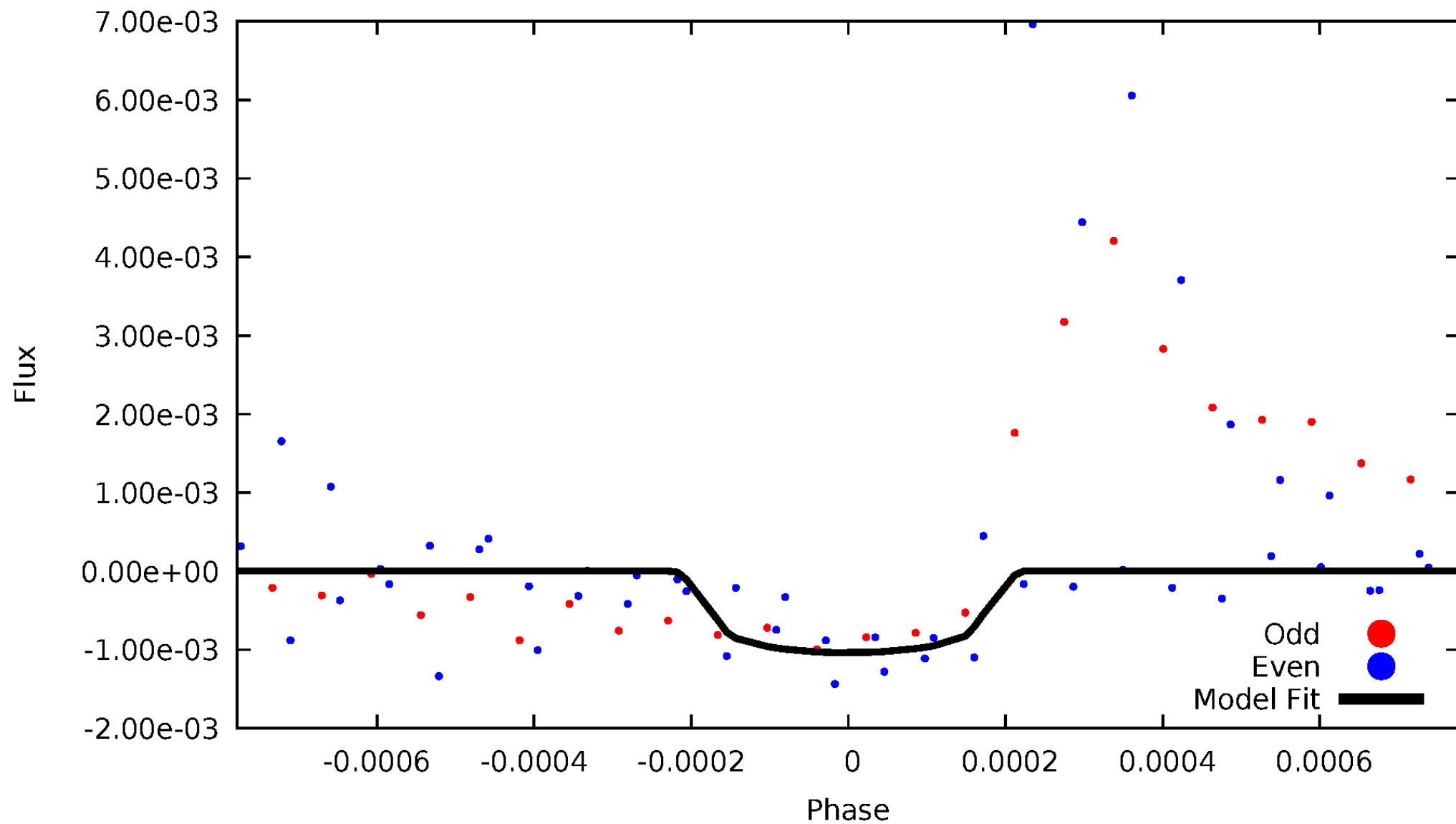


TCE 006365076-01



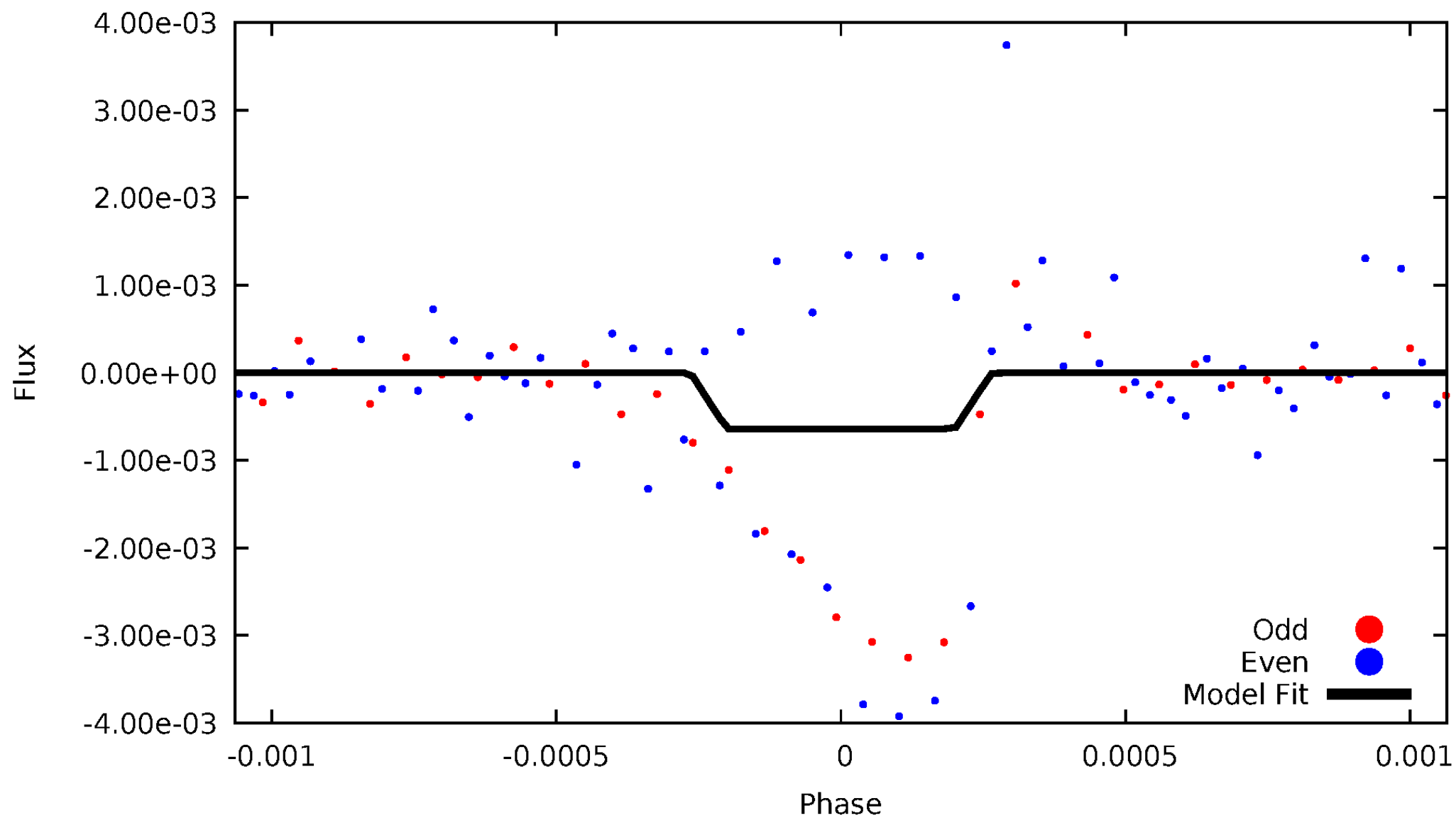
# DV Odd/Even

TCE 006365076-01



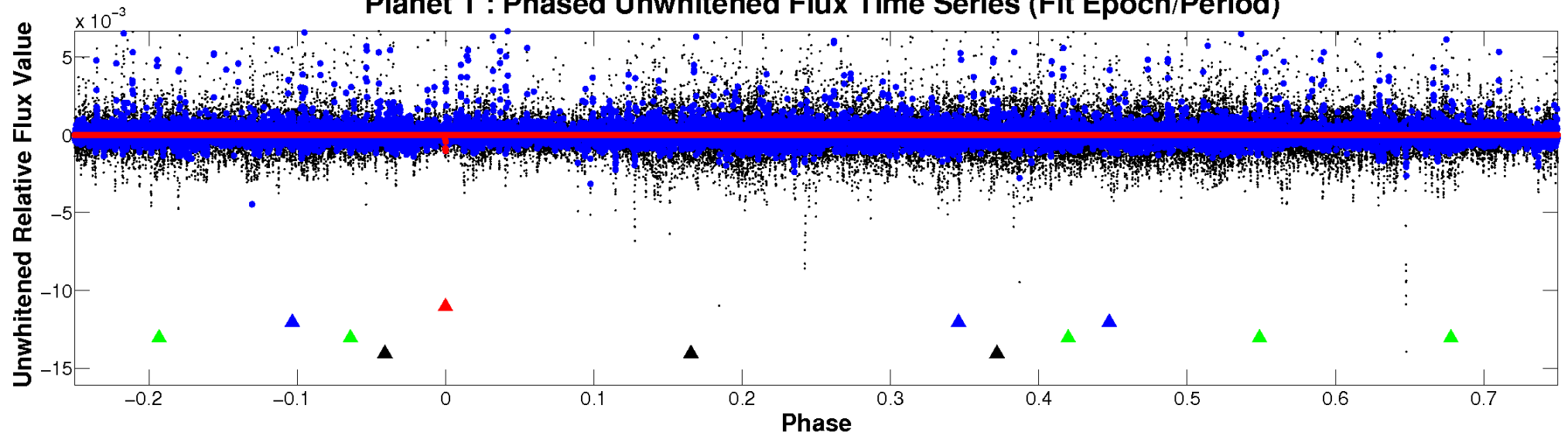
# ALT Odd/Even

TCE 006365076-01

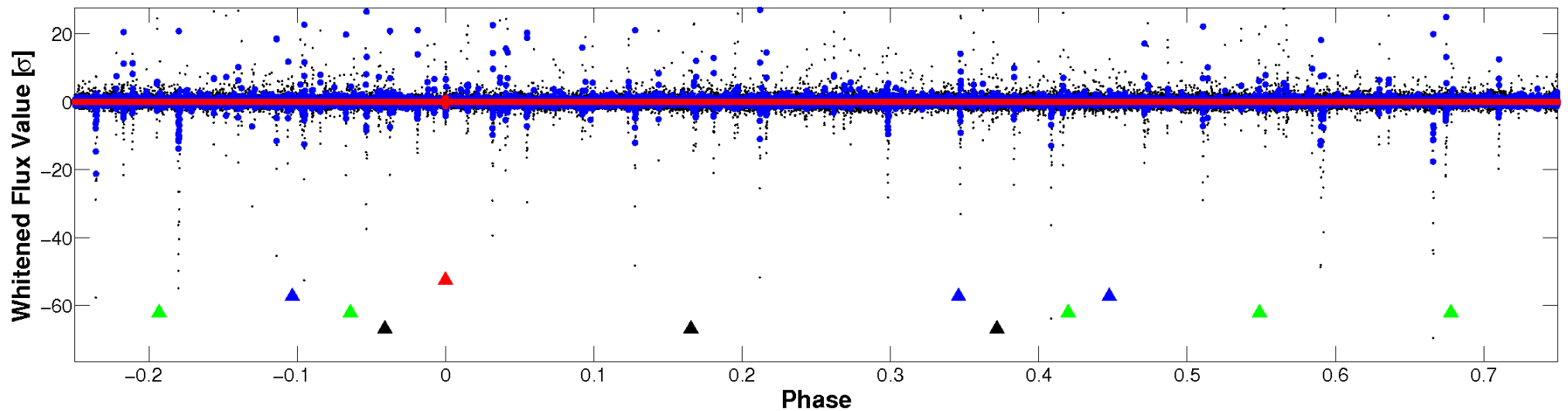


# Non-Whitened Vs. Whitened Light Curve

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

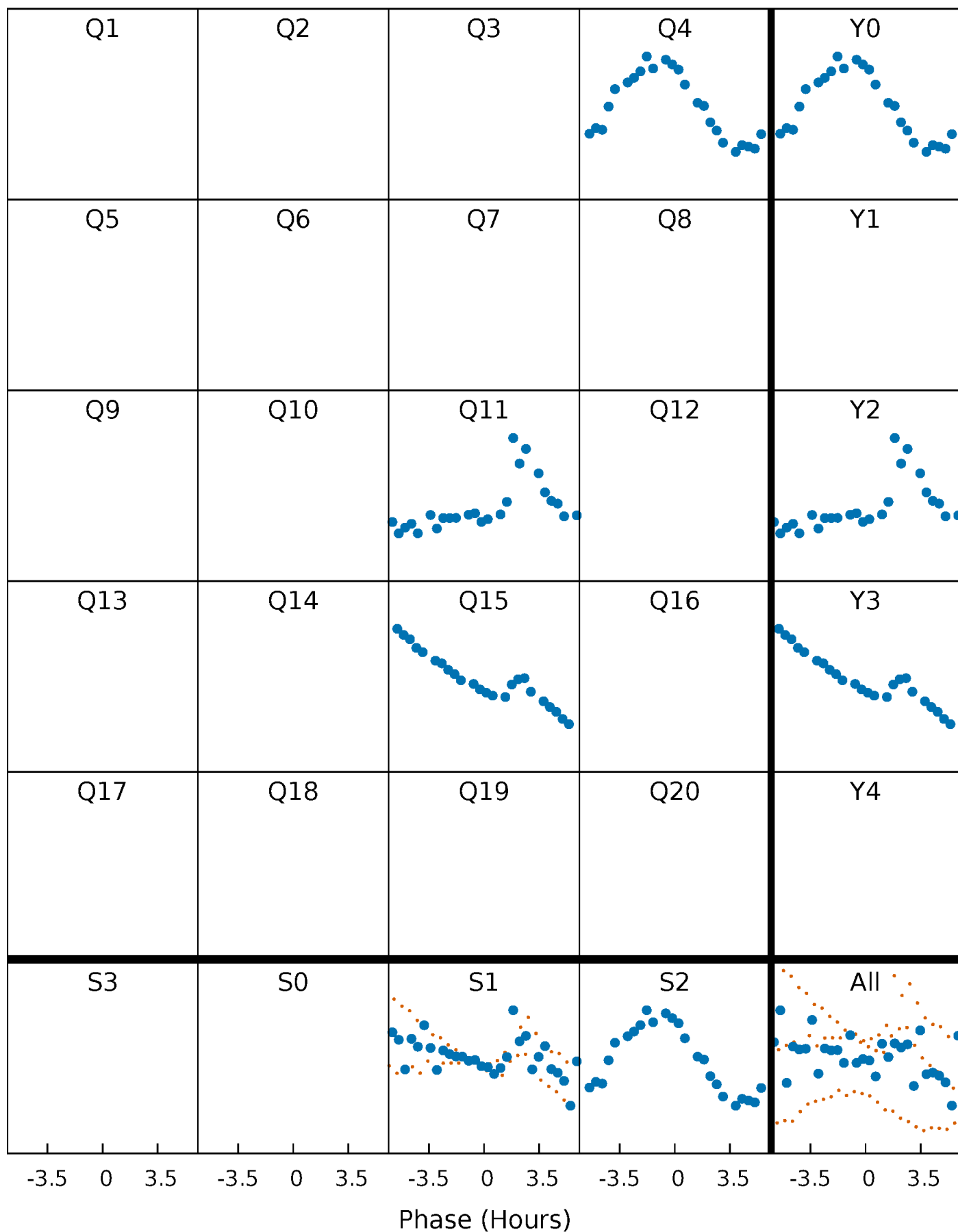


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

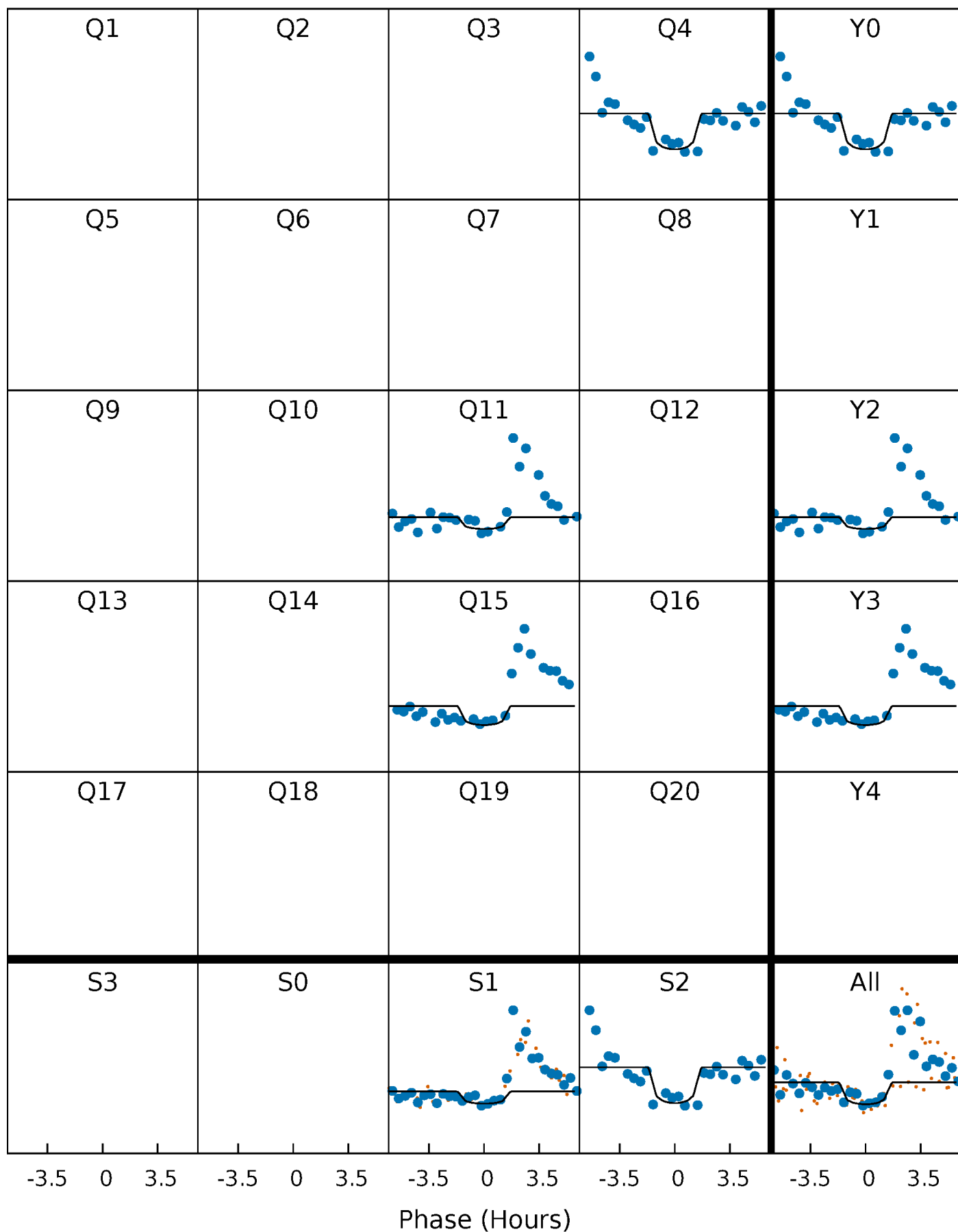
TCE 006365076-01 P=324.392917 Days  $T_0=407.658072$  (BKJD)





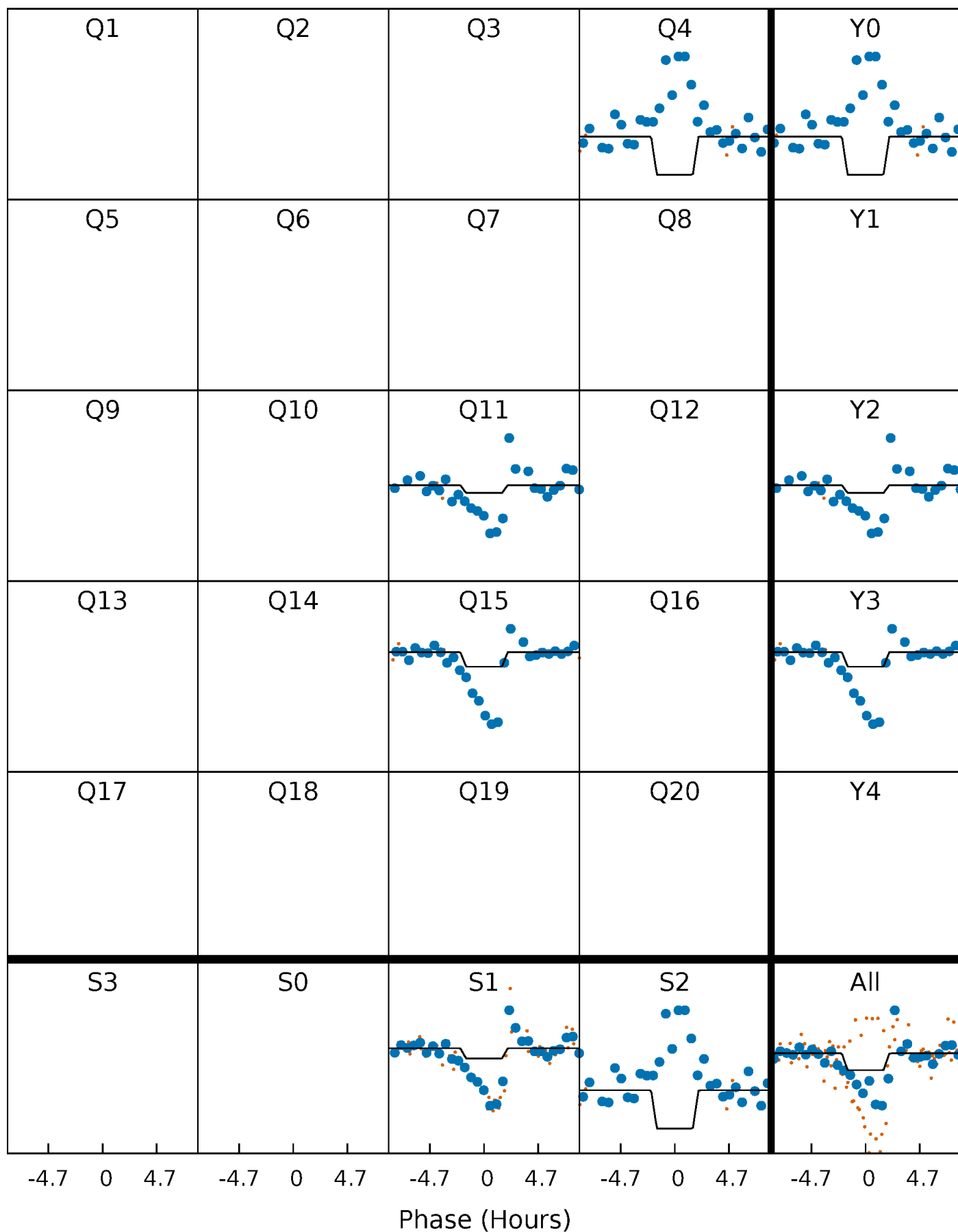
# DV Quarter-Phased Transit Curves

TCE 006365076-01 P=324.392917 Days  $T_0=407.658072$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

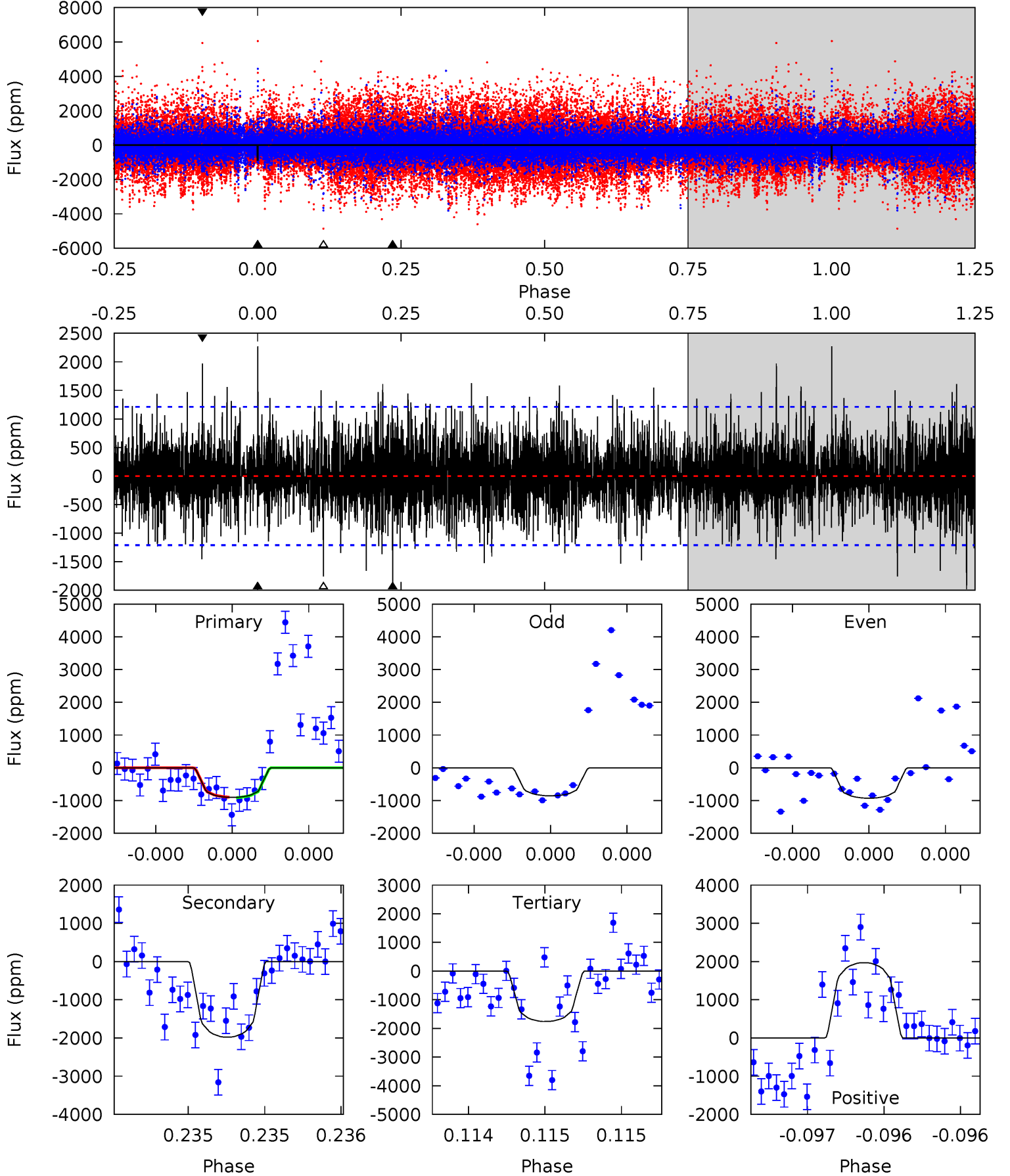
TCE 006365076-01 P=324.400737 Days  $T_0=407.624109$  (BKJD)



# DV Model-Shift Uniqueness Test

006365076-01, P = 324.392917 Days, E = 83.265155 Days

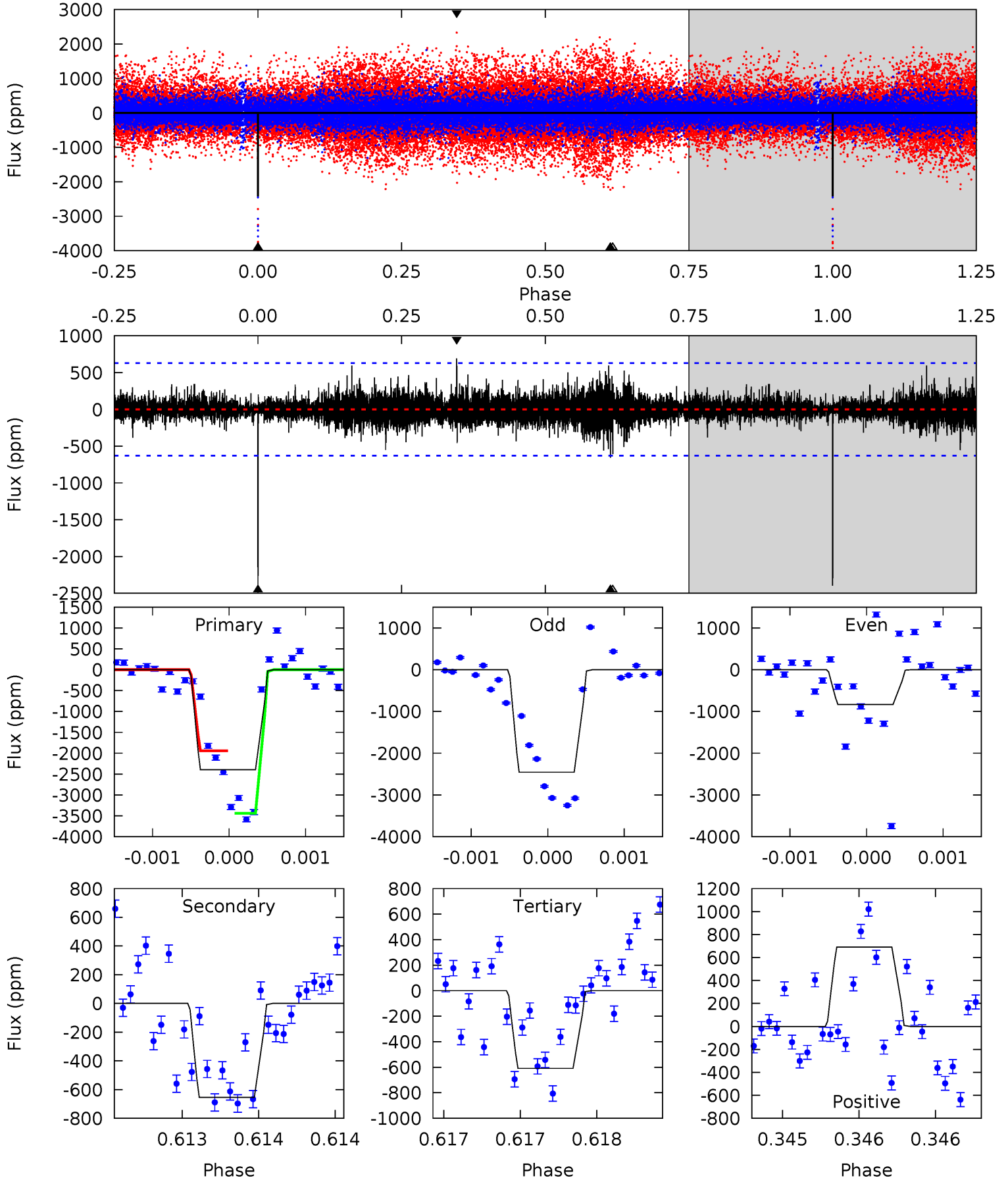
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.18	9.15	8.12	9.11	5.60	3.51	1.96	-3.94	-4.93	1.03	0.04	0.12	1.05	0.53	0.04



# Alt Model-Shift Uniqueness Test

006365076-01, P = 324.400737 Days, E = 83.223372 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
21.2	5.79	5.38	6.12	5.56	3.47	0.98	15.8	15.1	0.40	-0.33	7.94	0.59	0.22	6.41



### Stellar Parameters For KIC 006365076

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$6157^{+80}_{-86}$	$4.316^{+0.088}_{-0.121}$	$0.020^{+0.150}_{-0.150}$	$1.197^{+0.212}_{-0.130}$	$1.079^{+0.107}_{-0.058}$	$0.885^{+0.317}_{-0.326}$
	+1%/-1%	+2%/-3%	+750%/-750%	+18%/-11%	+10%/-5%	+36%/-37%
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 006365076-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1979 \pm 216$	$7.60^{+7.35}_{-5.06}$	$427^{+20}_{-16}$	$5455^{+4943}_{-1284}$	$16912^{+147714}_{-12498}$
Alt.	$-654 \pm 113$	$7.72^{+7.44}_{-5.03}$	$428^{+17}_{-15}$	$4300^{+2634}_{-863}$	$5460^{+39919}_{-4058}$

$T_{max}$  = 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

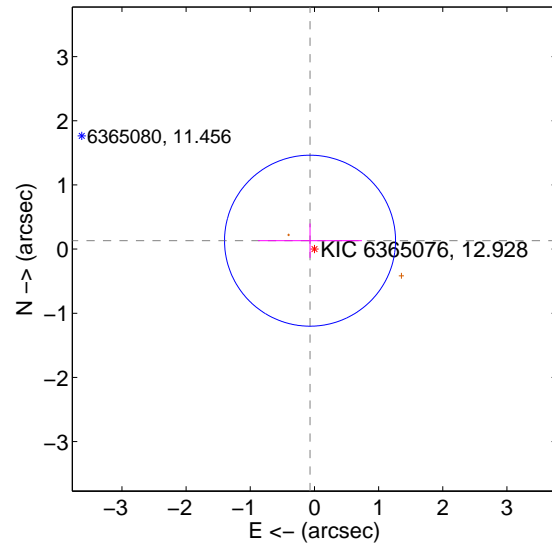
Supplemental centroid analysis for 006365076-01. Kepler magnitude: 12.93. Transit SNR 4.91

There are 0 quarters with good PRF difference image offsets

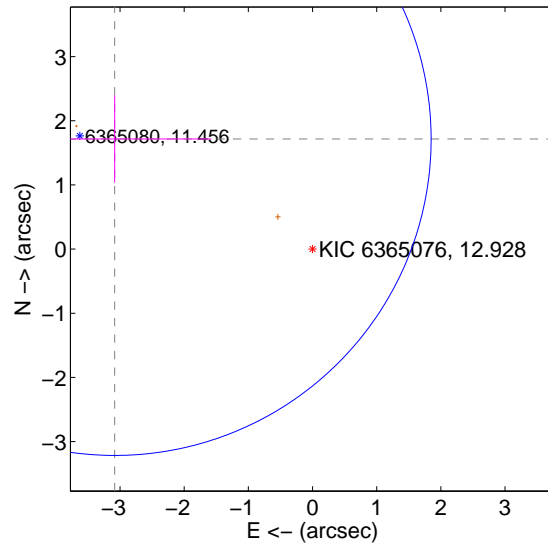
The OOT PRF centroid is offset from the target star catalog position by about 2.11 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.148 \pm 0.444$	0.33	$0.069 \pm 0.808$	$0.131 \pm 0.268$
PRF-fit source offset from KIC position	$3.528 \pm 1.644$	2.15	$3.083 \pm 1.504$	$1.716 \pm 0.680$
photometric centroid source offset	$0.97 \pm 0.72$	1.34	$0.63 \pm 0.88$	$-0.74 \pm 0.58$

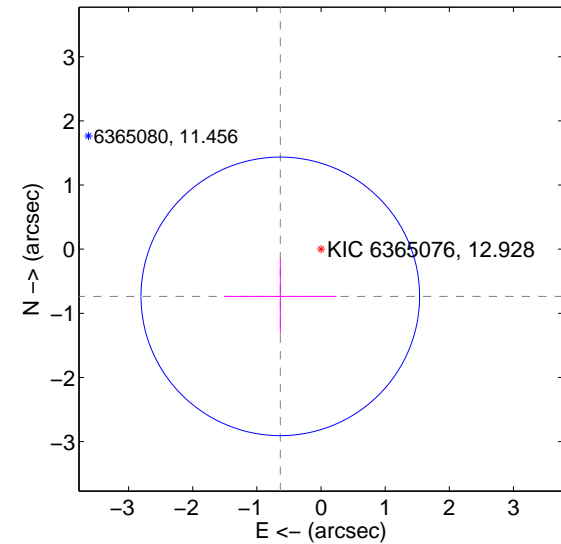
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



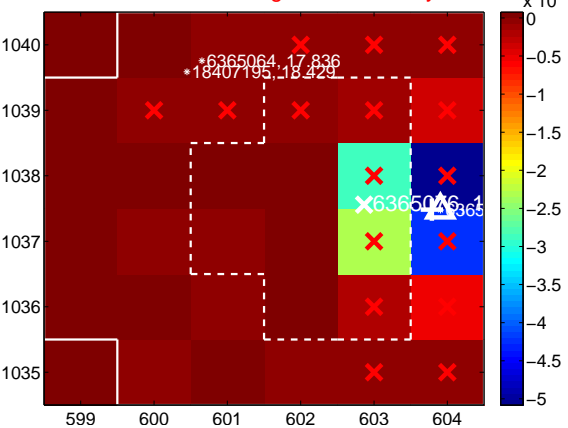
Q3 no difference image



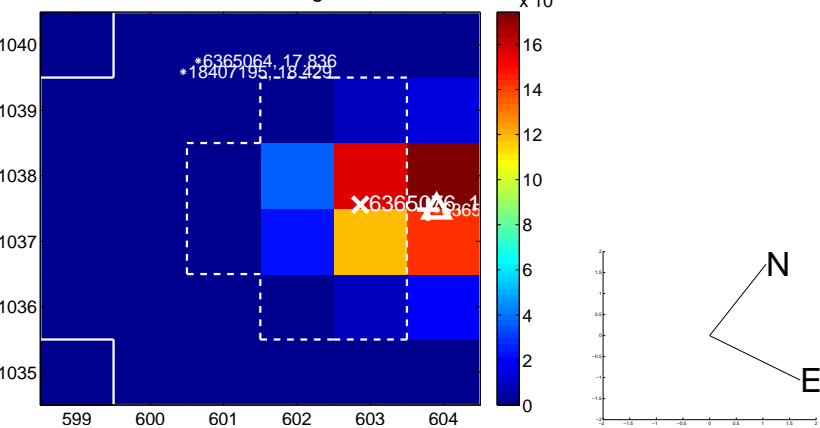
Q3 no OOT image



Q4 difference image. Poor Quality



Q4 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.

Q9 no difference image



Q9 no OOT image



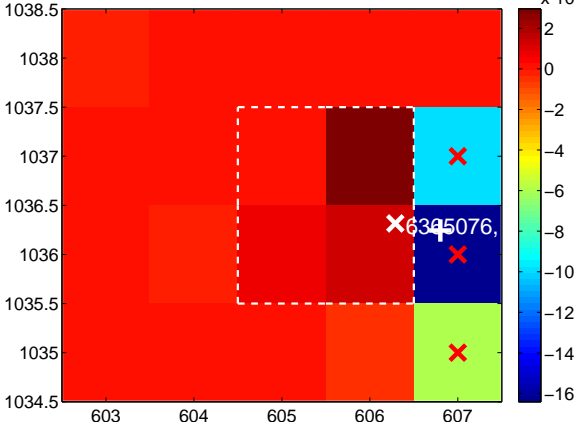
Q10 no difference image



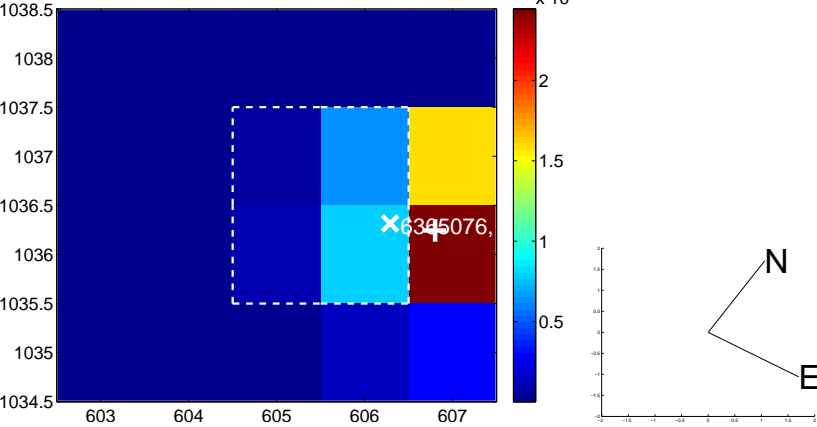
Q10 no OOT image



Q11 difference image. Poor Quality



Q11 OOT image



Q12 no difference image



Q12 no OOT image



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

Q13 no difference image



Q13 no OOT image



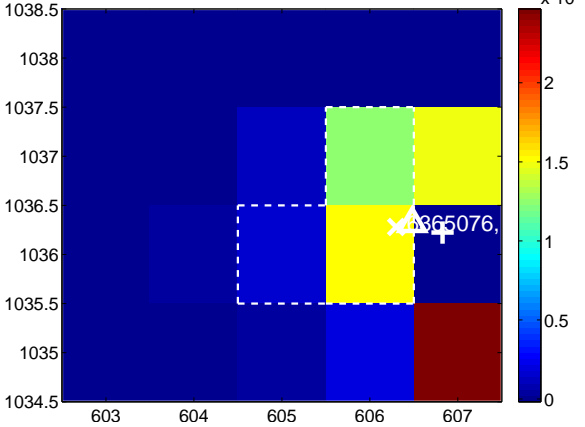
Q14 no difference image



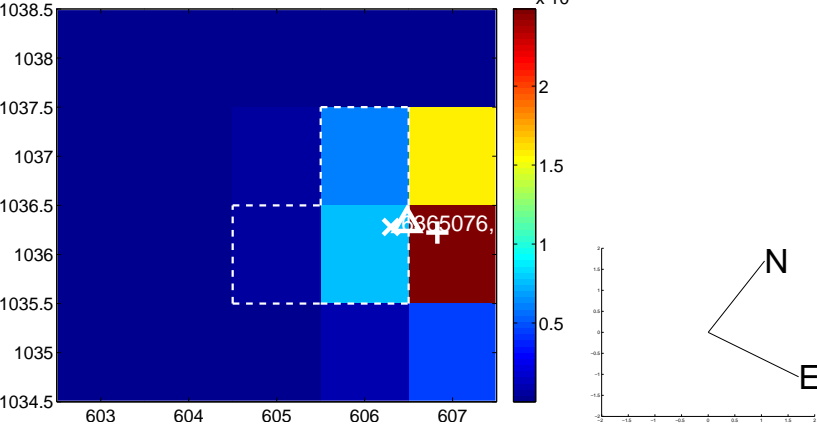
Q14 no OOT image



Q15 difference image. Poor Quality



Q15 OOT image



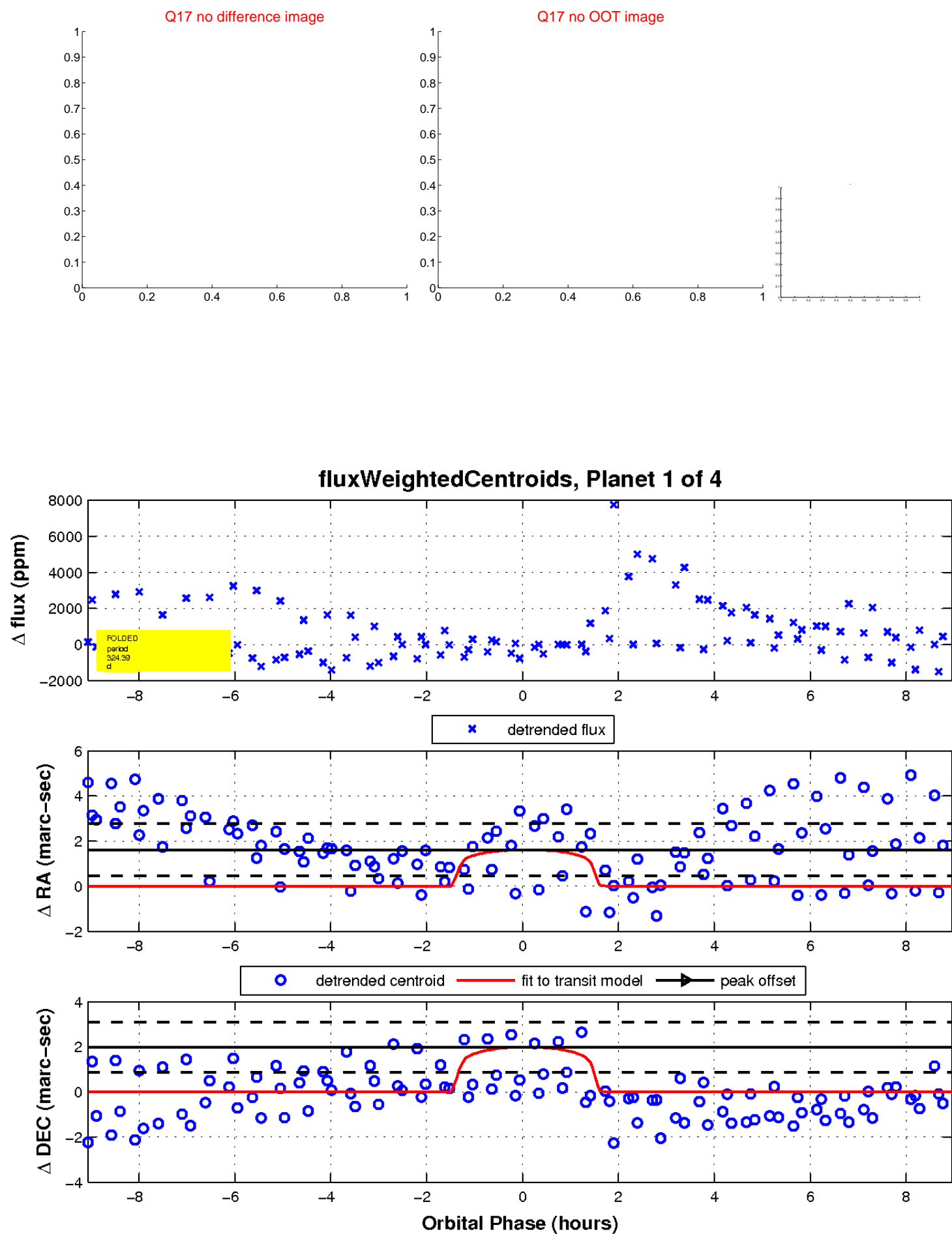
Q16 no difference image



Q16 no OOT image

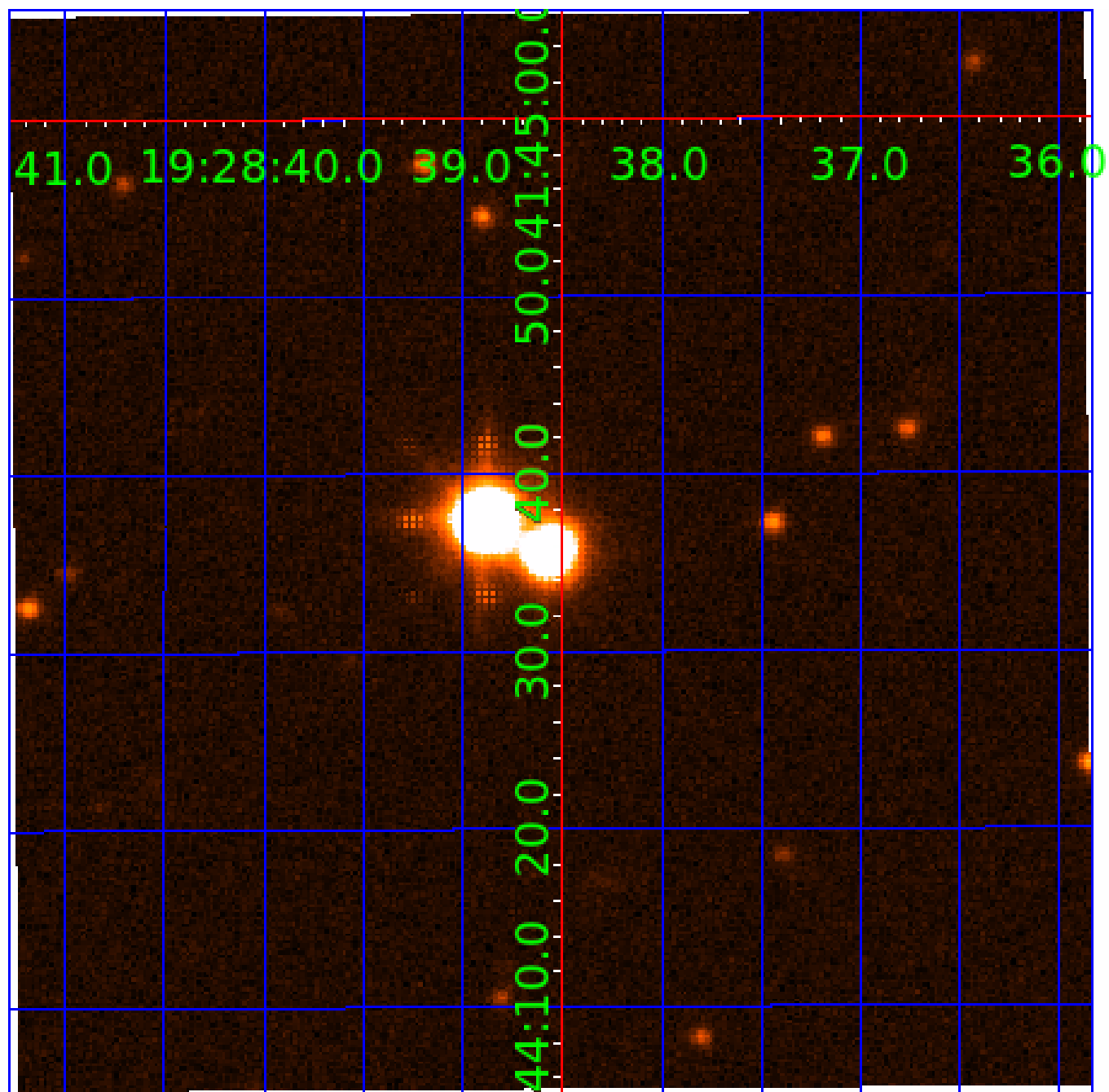


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006365076

## 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
006365076-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006365076-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006365076-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

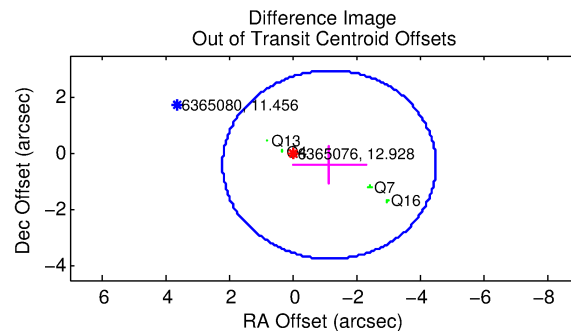
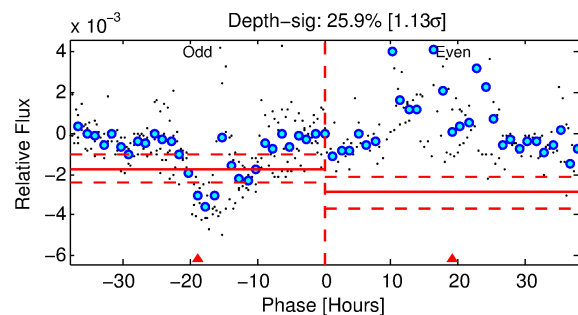
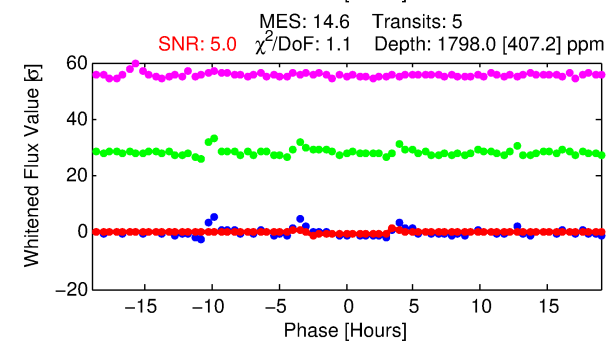
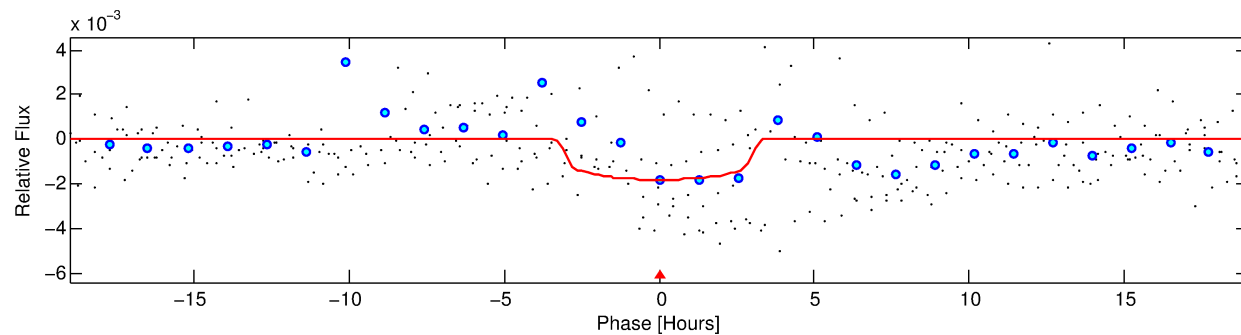
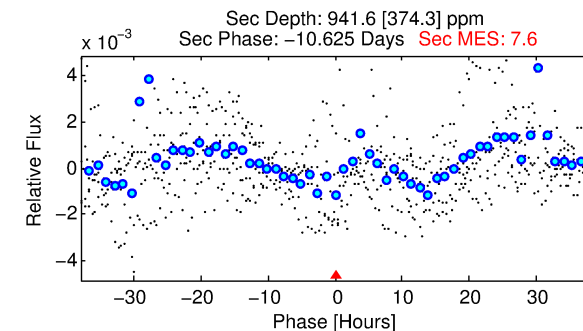
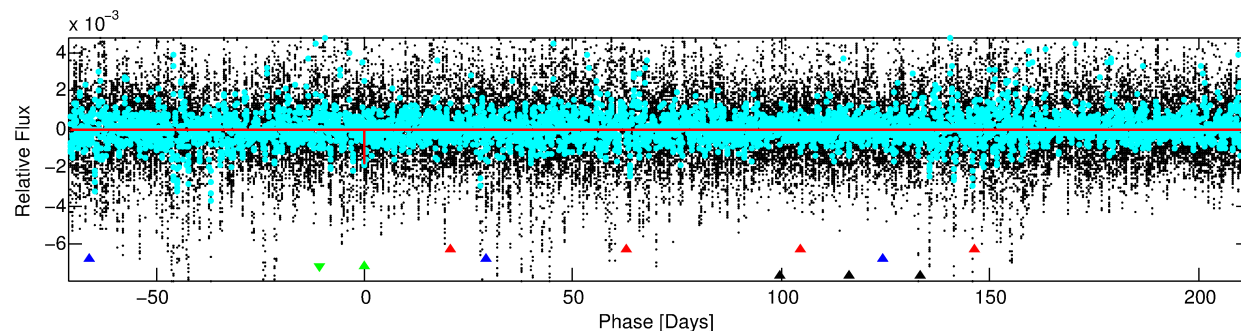
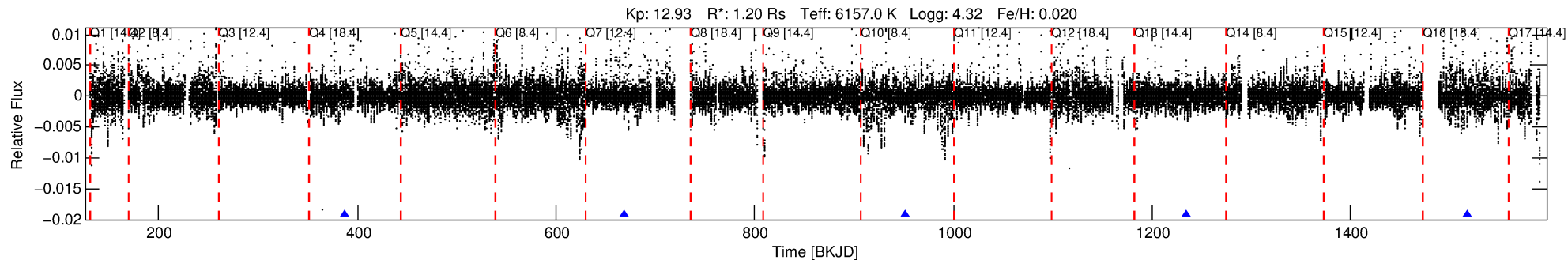
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006365076-03

No Significant Match Found

# DV One-Page Summary

KIC: 6365076 Candidate: 3 of 4 Period: 282.540 d



## DV Fit Results:

Period = 282.54035 [0.00278] d  
Epoch = 386.8695 [0.0068] BKJD  
Rp/R\* = 0.0388 [0.0276]  
a/R\* = 353.31 [1160.21]  
b = 0.05 [66.24]  
Seff = 2.46 [0.56]  
Teq = 319 [18] K  
Rp = 5.06 [3.72] Re  
a = 0.8653 [0.1300] AU  
Ag = 15117.42 [22611.17] [0.67σ]  
Teff = 5477 [2027] K [2.54σ]

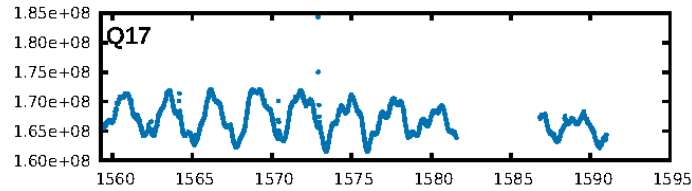
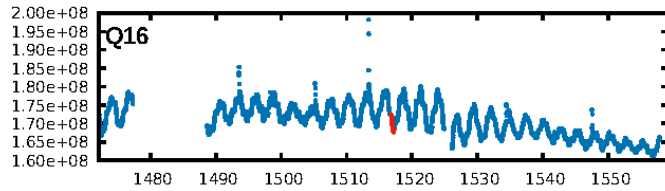
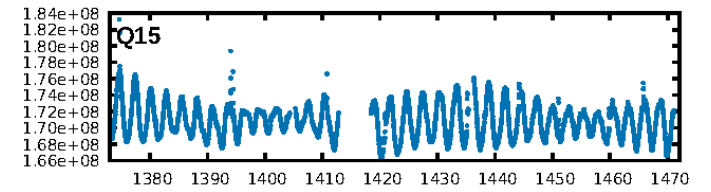
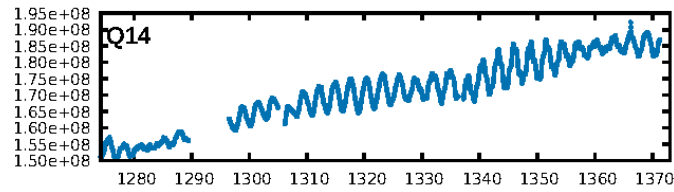
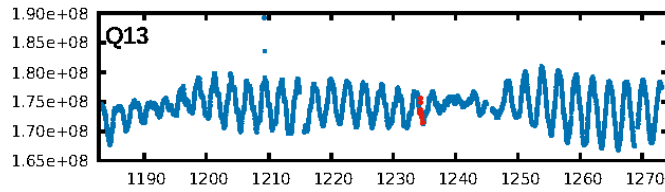
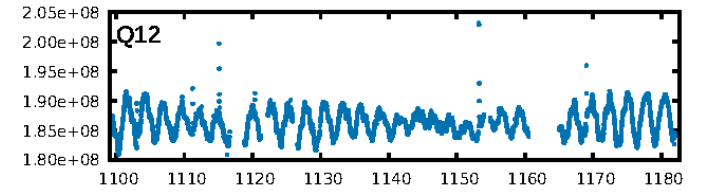
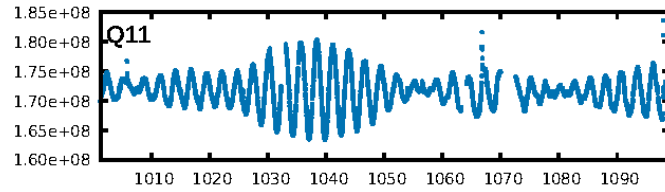
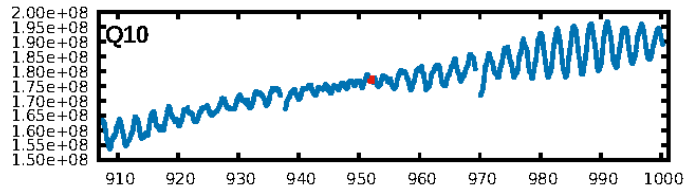
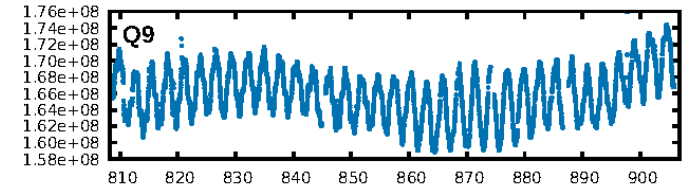
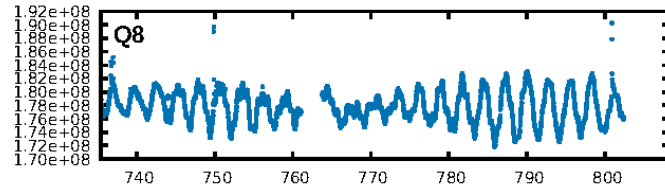
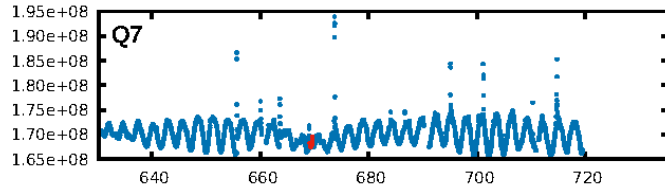
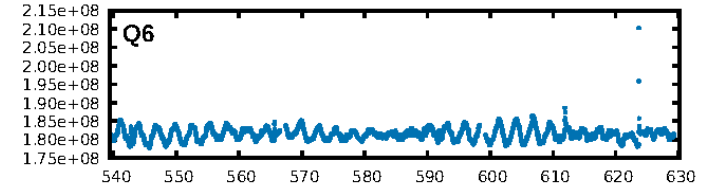
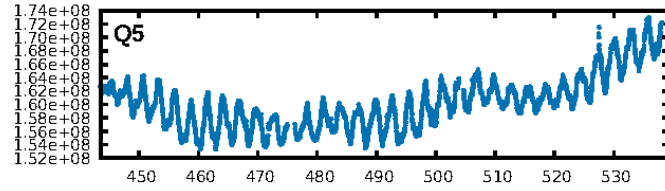
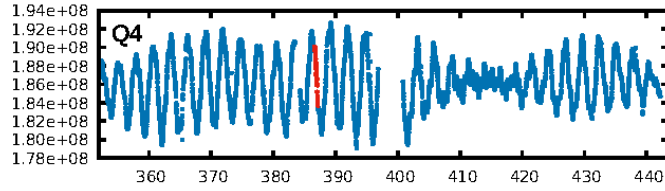
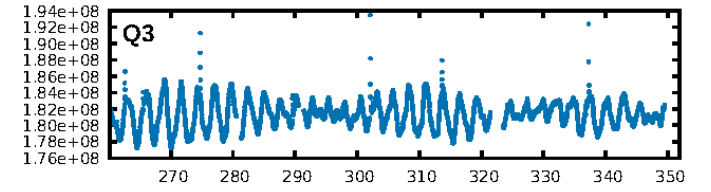
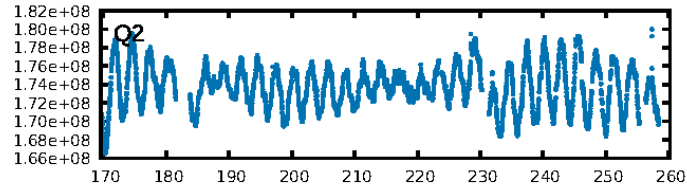
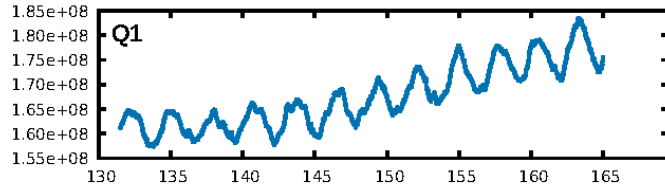
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [142.99σ]  
ModelChiSquare2-sig: 44.5%  
ModelChiSquareGof-sig: 98.7%  
**Bootstrap-pfa: 3.88e-11**  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 8.148  
**Centroid-sig: 0.0%**  
Centroid-so: 1.010 arcsec [1.69σ]  
OotOffset-rm: 1.230 arcsec [1.10σ]  
KicOffset-rm: 2.437 arcsec [2.36σ]  
OotOffset-st: 0/1/2/1 [4]  
KicOffset-st: 0/1/2/1 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 1.00 [5/5]

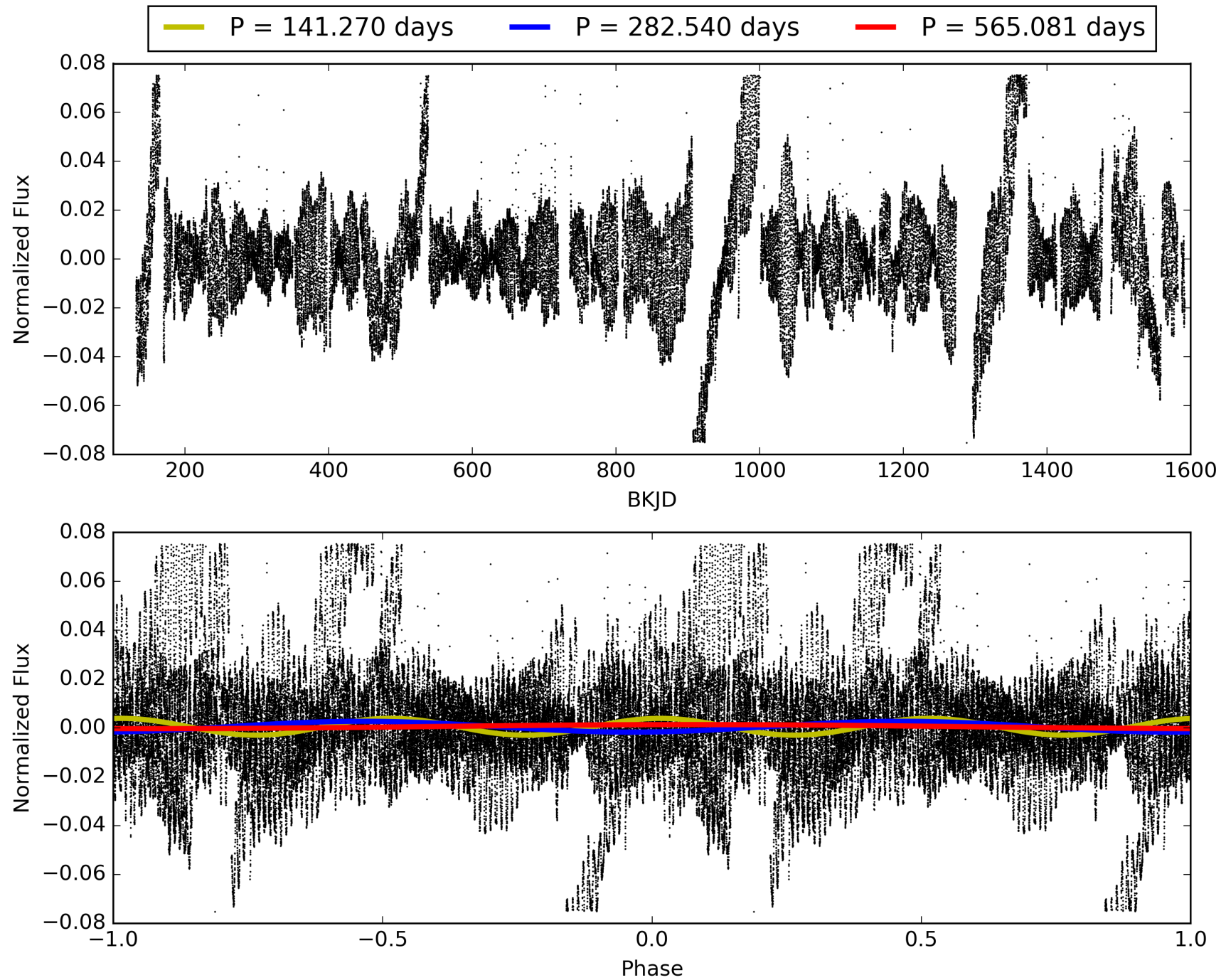
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:06:20 Z

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

# TCE 006365076-03, PDC Light Curves



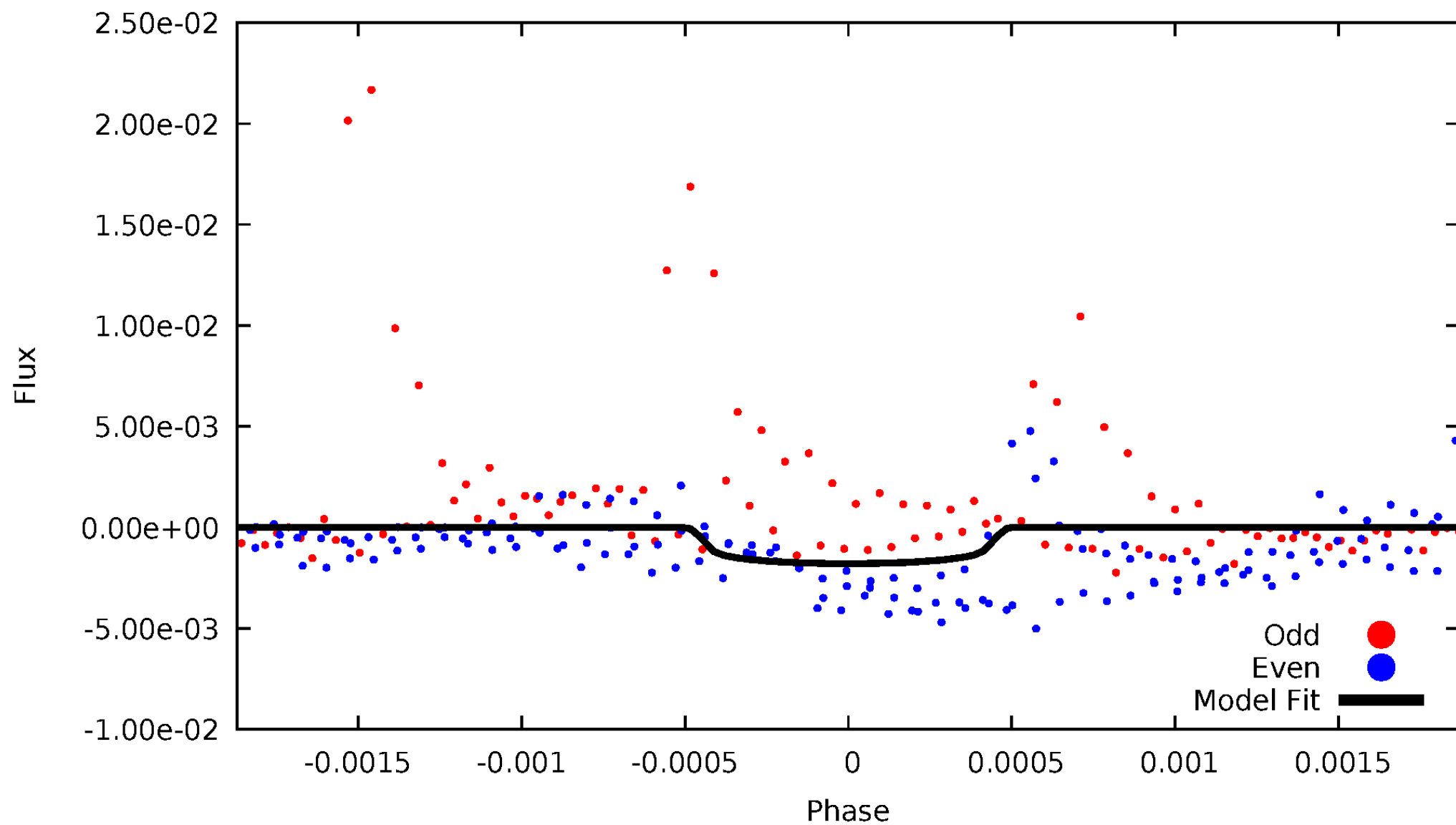
# TCE 006365076-03





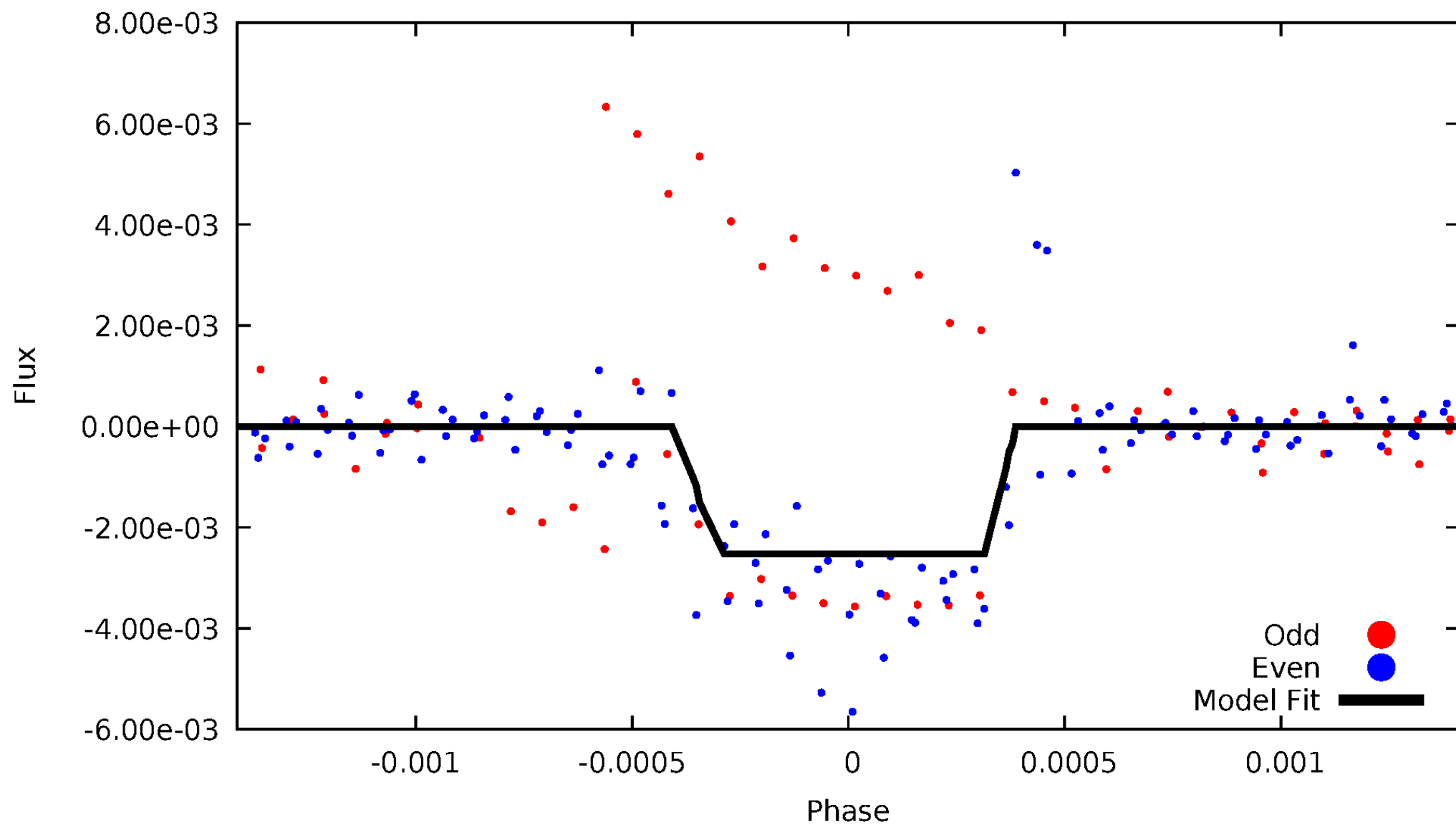
# DV Odd/Even

TCE 006365076-03



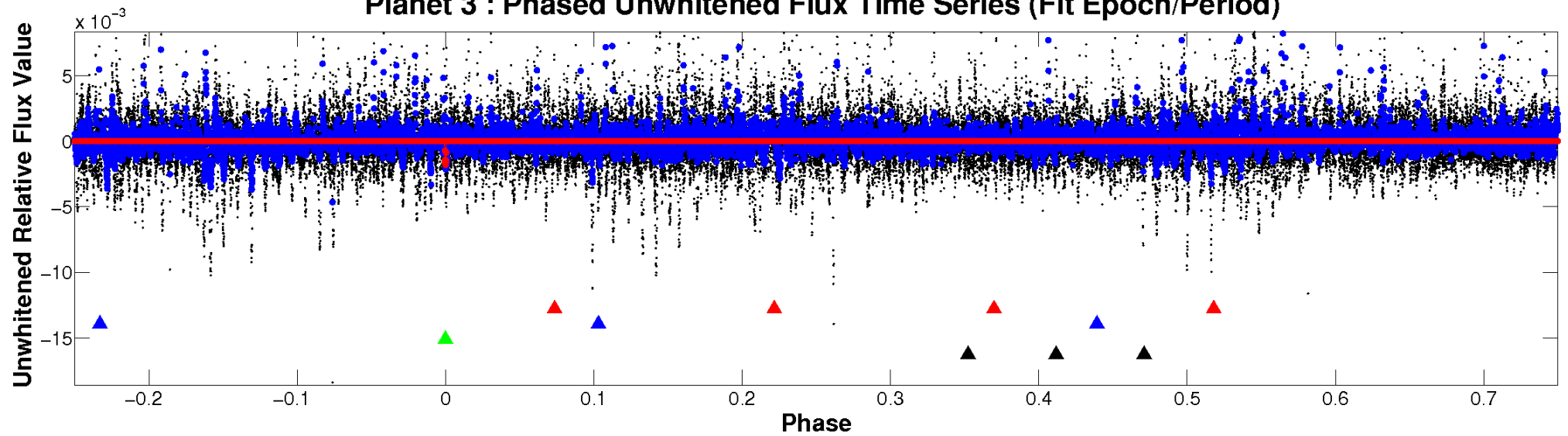
# ALT Odd/Even

TCE 006365076-03

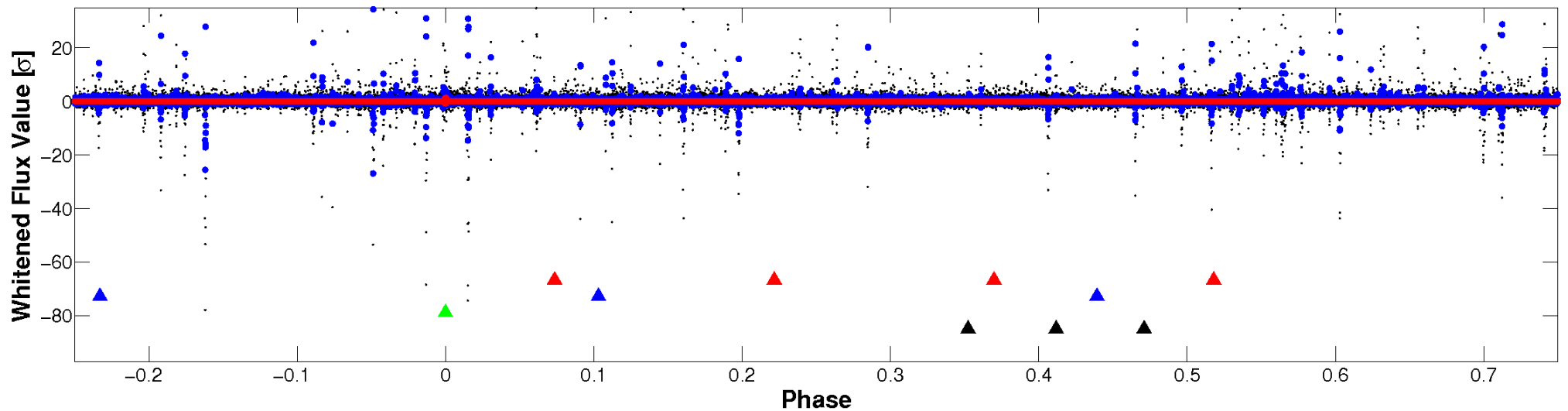


# Non-Whitened Vs. Whitened Light Curve

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

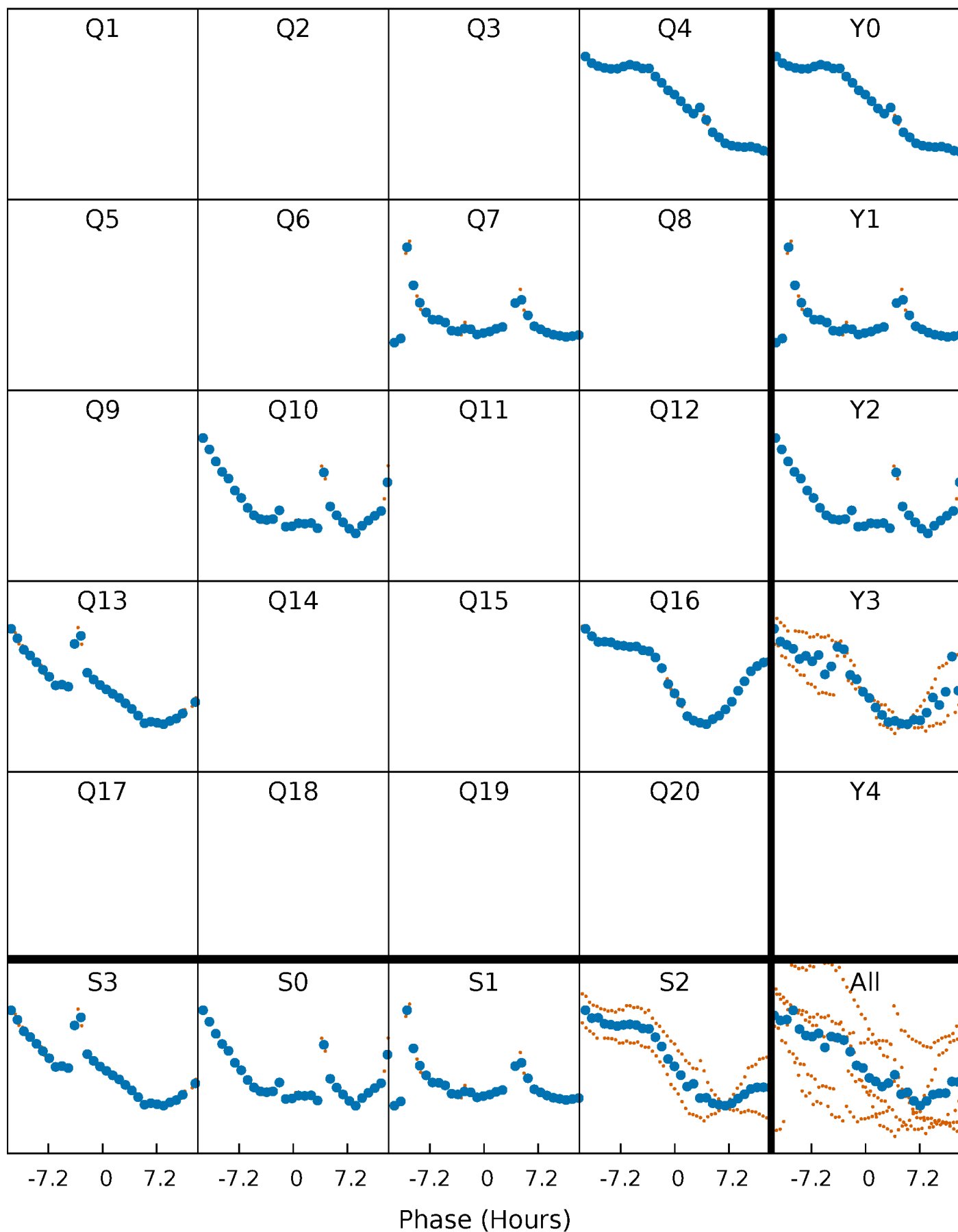


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



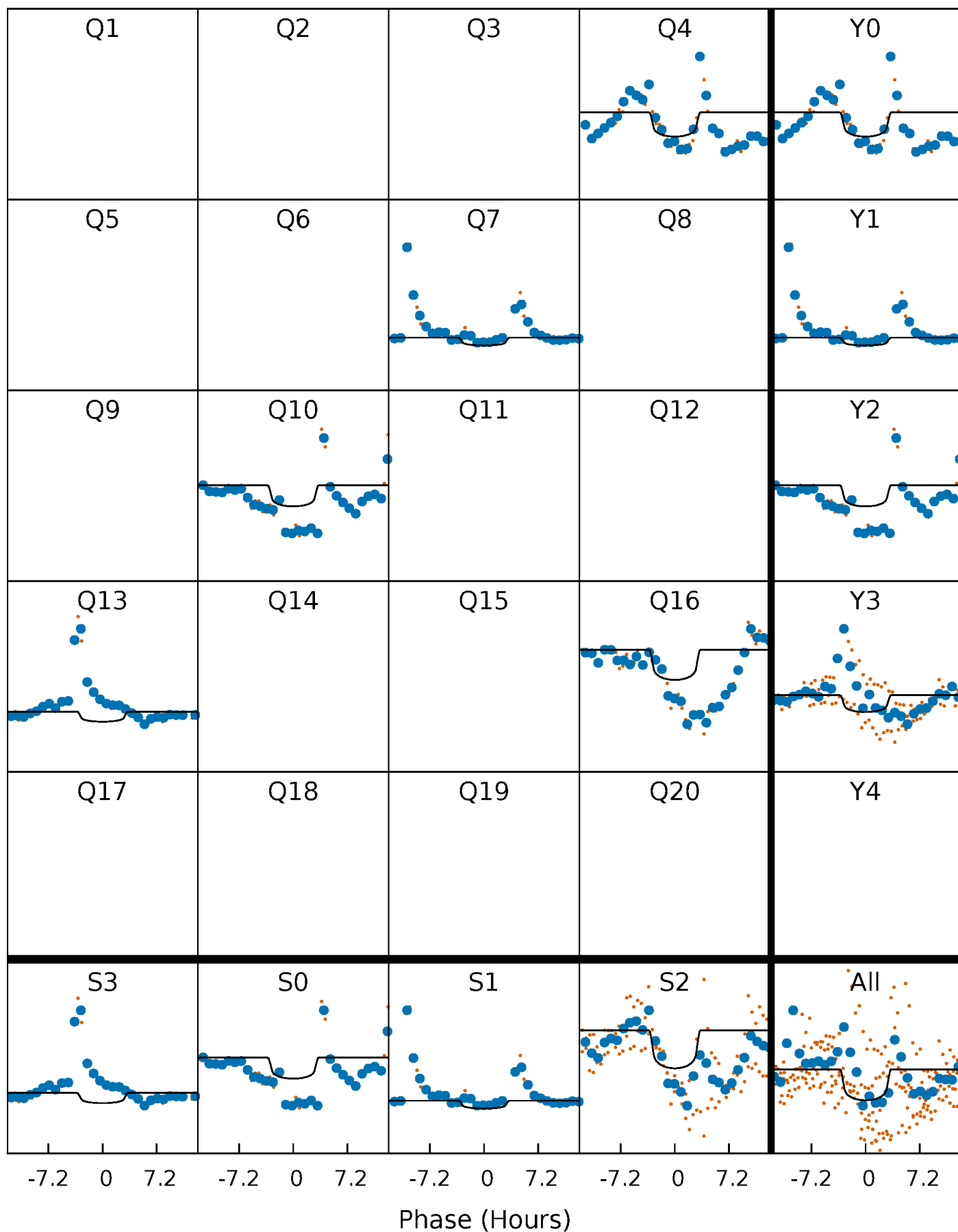
# PDC Quarter-Phased Transit Curves

TCE 006365076-03     $P=282.540346$  Days     $T_0=386.869464$  (BKJD)



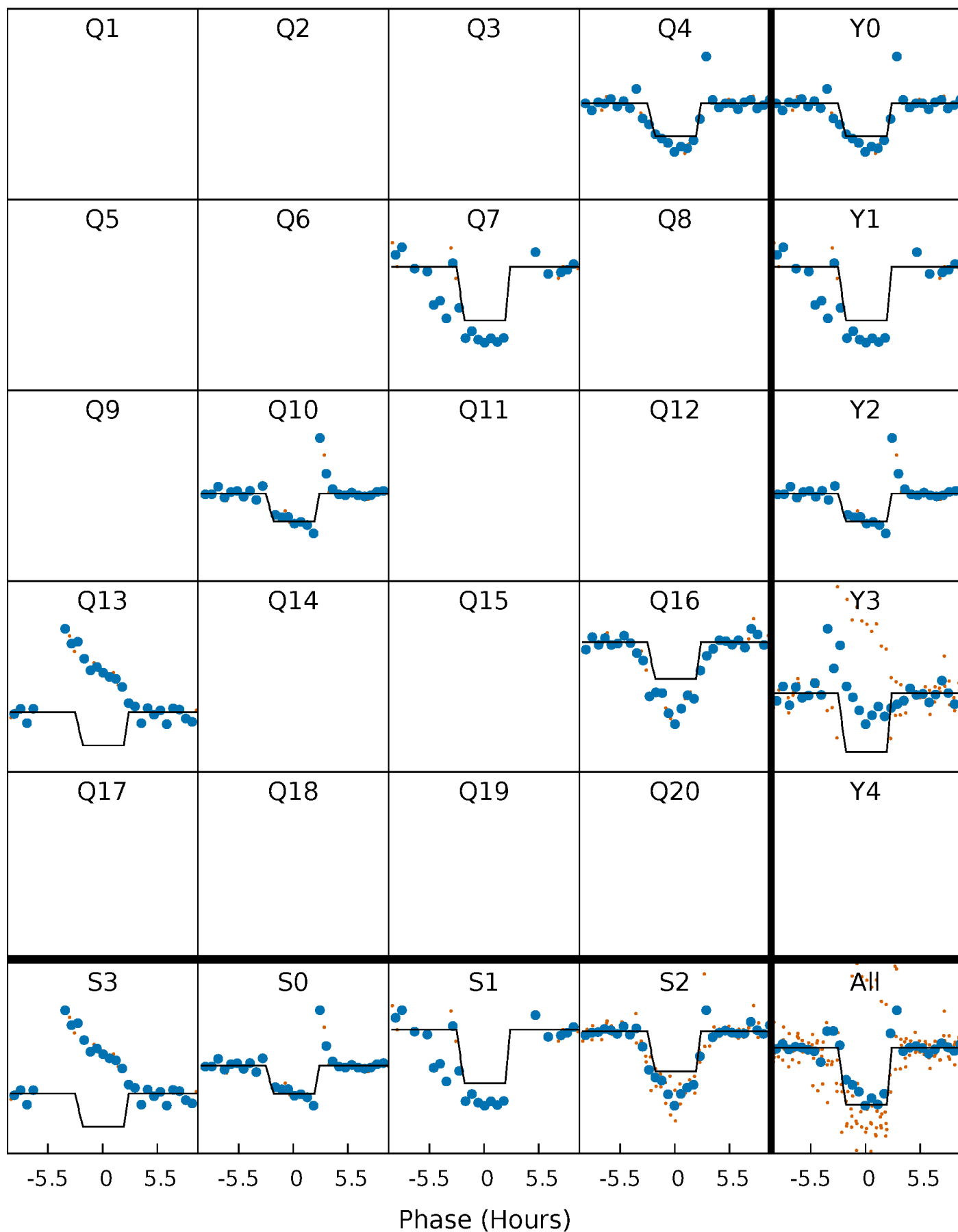
# DV Quarter-Phased Transit Curves

TCE 006365076-03     $P=282.540346$  Days     $T_0=386.869464$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

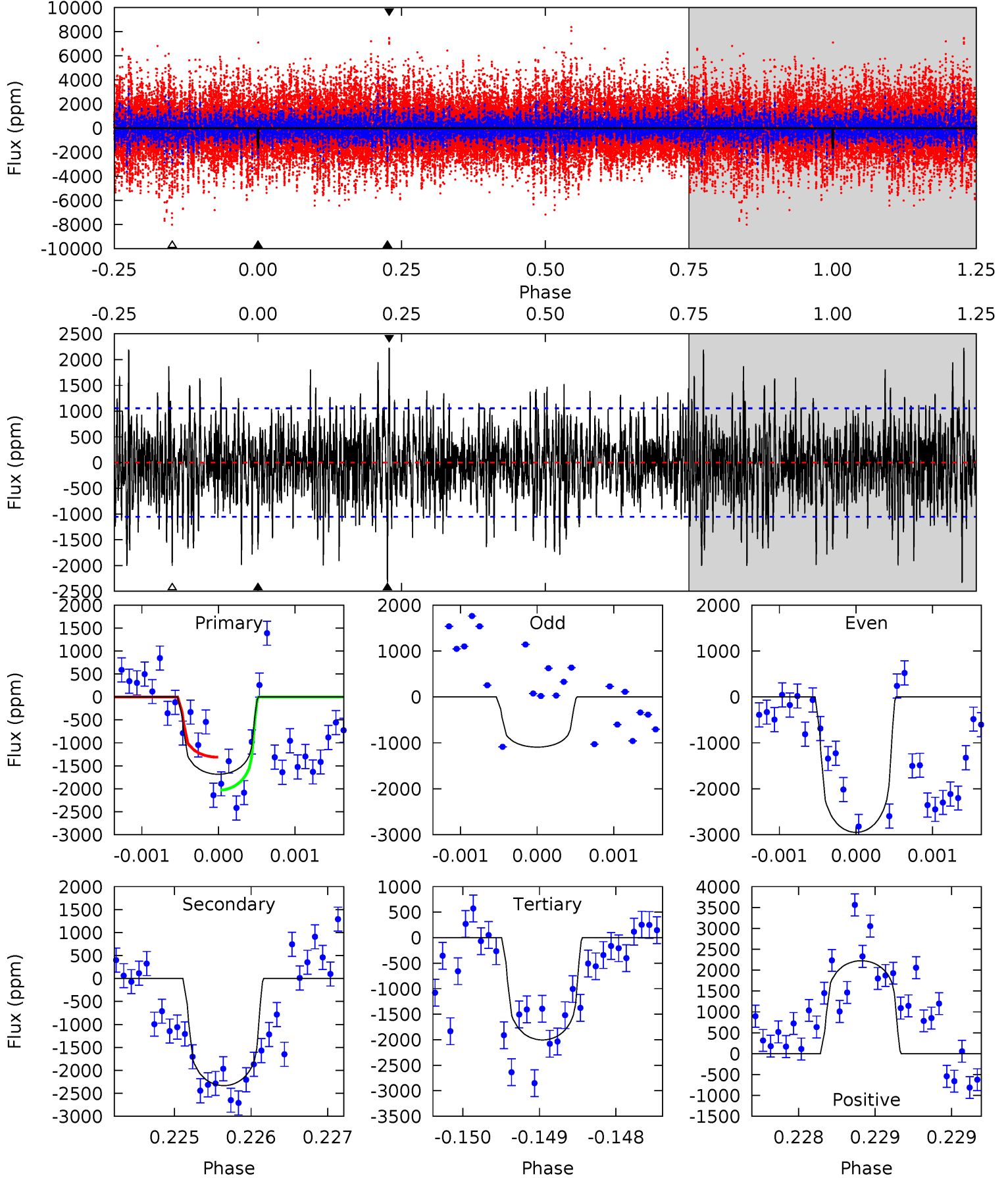
TCE 006365076-03 P=282.555268 Days  $T_0=386.887533$  (BKJD)



# DV Model-Shift Uniqueness Test

006365076-03, P = 282.540346 Days, E = 104.329118 Days

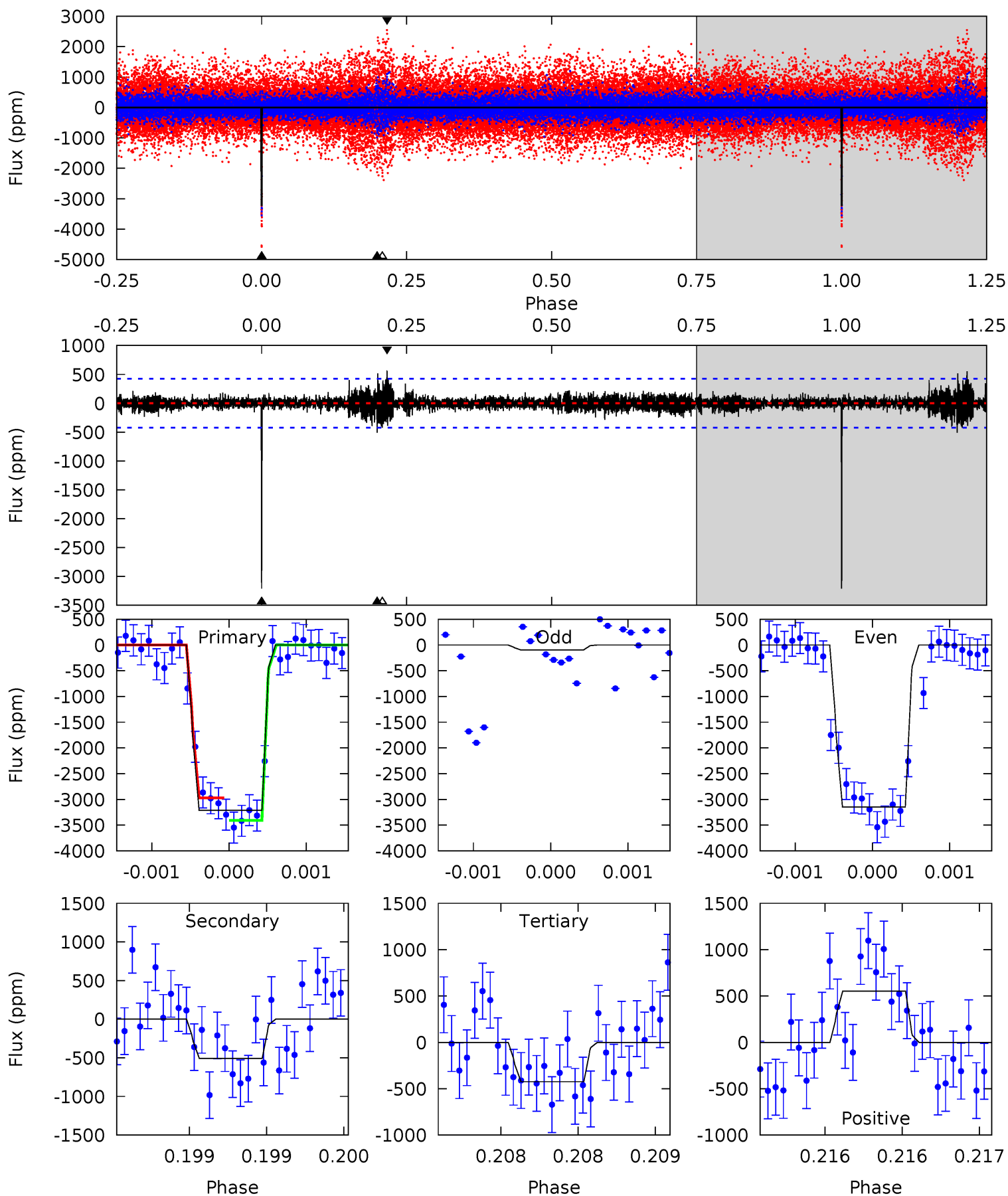
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.74	12.1	10.4	11.5	5.46	3.30	2.89	-1.66	-2.80	1.70	0.56	4.23	0.54	0.49	1.87



# Alt Model-Shift Uniqueness Test

006365076-03, P = 282.555268 Days, E = 104.332265 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
41.8	6.62	5.52	7.19	5.50	3.37	0.98	36.3	34.6	1.10	-0.57	20.9	0.66	0.15	2.85





### Stellar Parameters For KIC 006365076

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6157^{+80}_{-86}$	$4.316^{+0.088}_{-0.121}$	$0.020^{+0.150}_{-0.150}$	$1.197^{+0.212}_{-0.130}$	$1.079^{+0.107}_{-0.058}$	$0.885^{+0.317}_{-0.326}$
	+1%/-1%	+2%/-3%	+750%/-750%	+18%/-11%	+10%/-5%	+36%/-37%
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 006365076-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2332 \pm 193$	$5.53^{+3.86}_{-3.15}$	$448^{+20}_{-16}$	$6722^{+4860}_{-1552}$	$32083^{+141706}_{-21361}$
Alt.	$-508 \pm 77$	$6.93^{+4.01}_{-3.41}$	$447^{+20}_{-15}$	$4274^{+1412}_{-630}$	$4489^{+12429}_{-2790}$

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

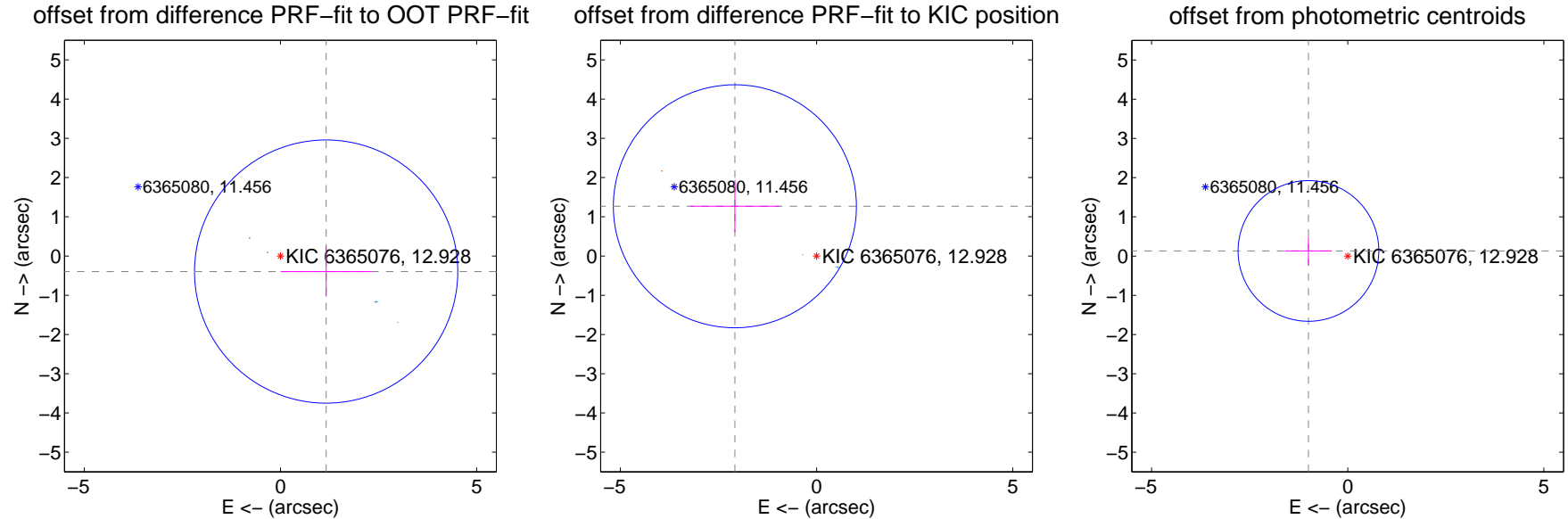
## DV Centroid Data

Supplemental centroid analysis for 006365076-03. Kepler magnitude: 12.93. Transit SNR 5.01

There are 2 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 3.76 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	$1.230 \pm 1.118$	1.10	$-1.164 \pm 1.161$	$-0.396 \pm 0.639$
PRF-fit source offset from KIC position	$2.437 \pm 1.032$	2.36	$2.081 \pm 1.138$	$1.268 \pm 0.666$
photometric centroid source offset	$1.01 \pm 0.60$	1.69	$1.00 \pm 0.60$	$0.13 \pm 0.36$



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



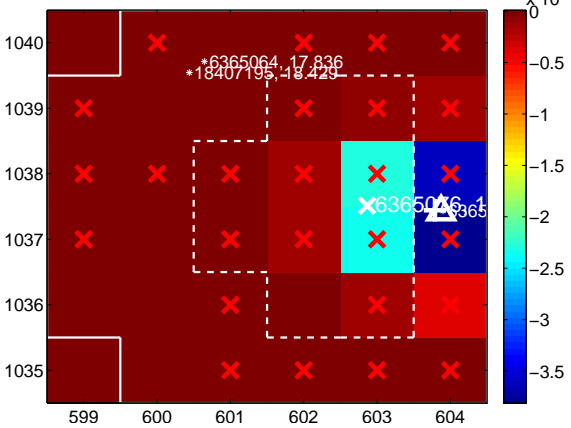
Q3 no difference image



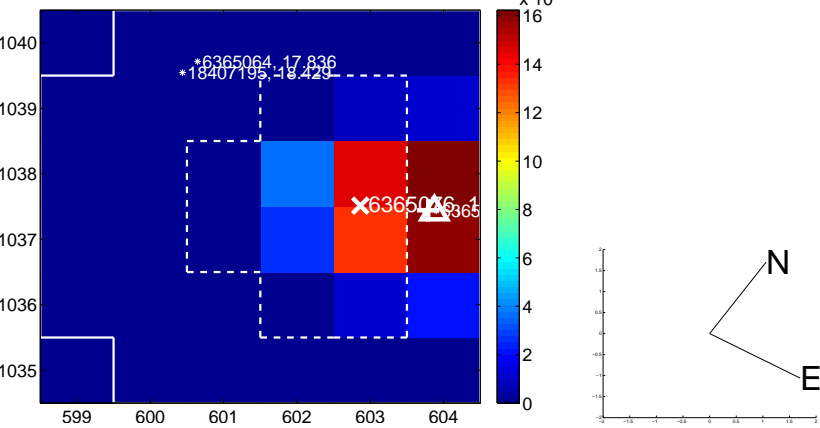
Q3 no OOT image



Q4 difference image. Poor Quality



Q4 OOT image



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

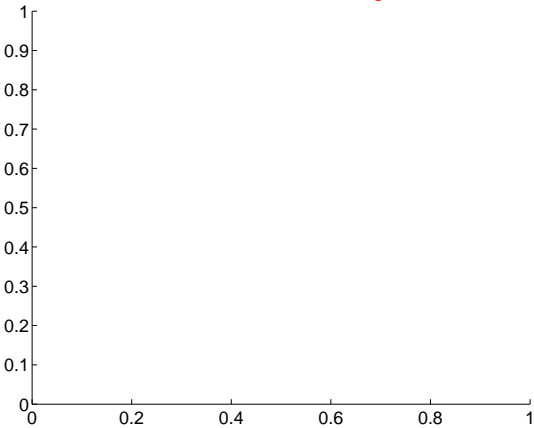
Q5 no difference image



Q5 no OOT image



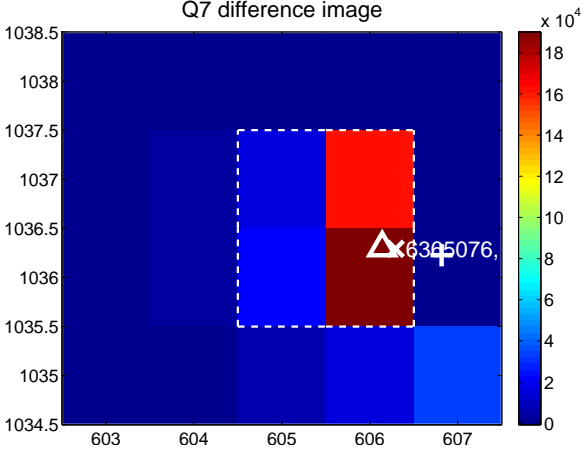
Q6 no difference image



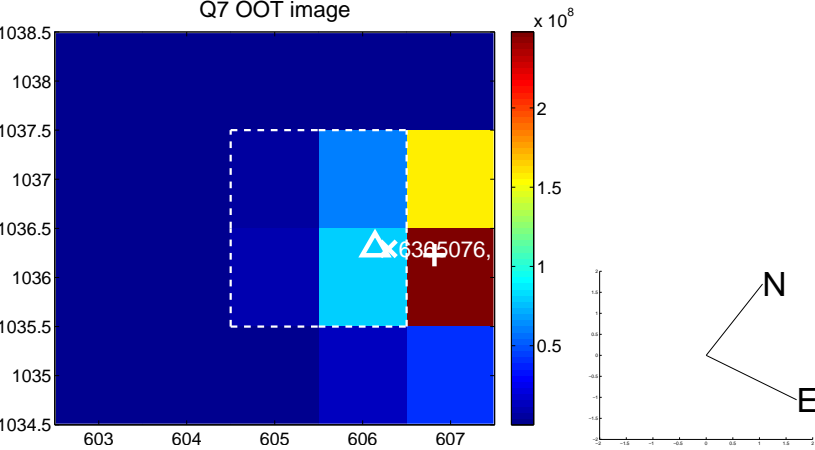
Q6 no OOT image



Q7 difference image



Q7 OOT image



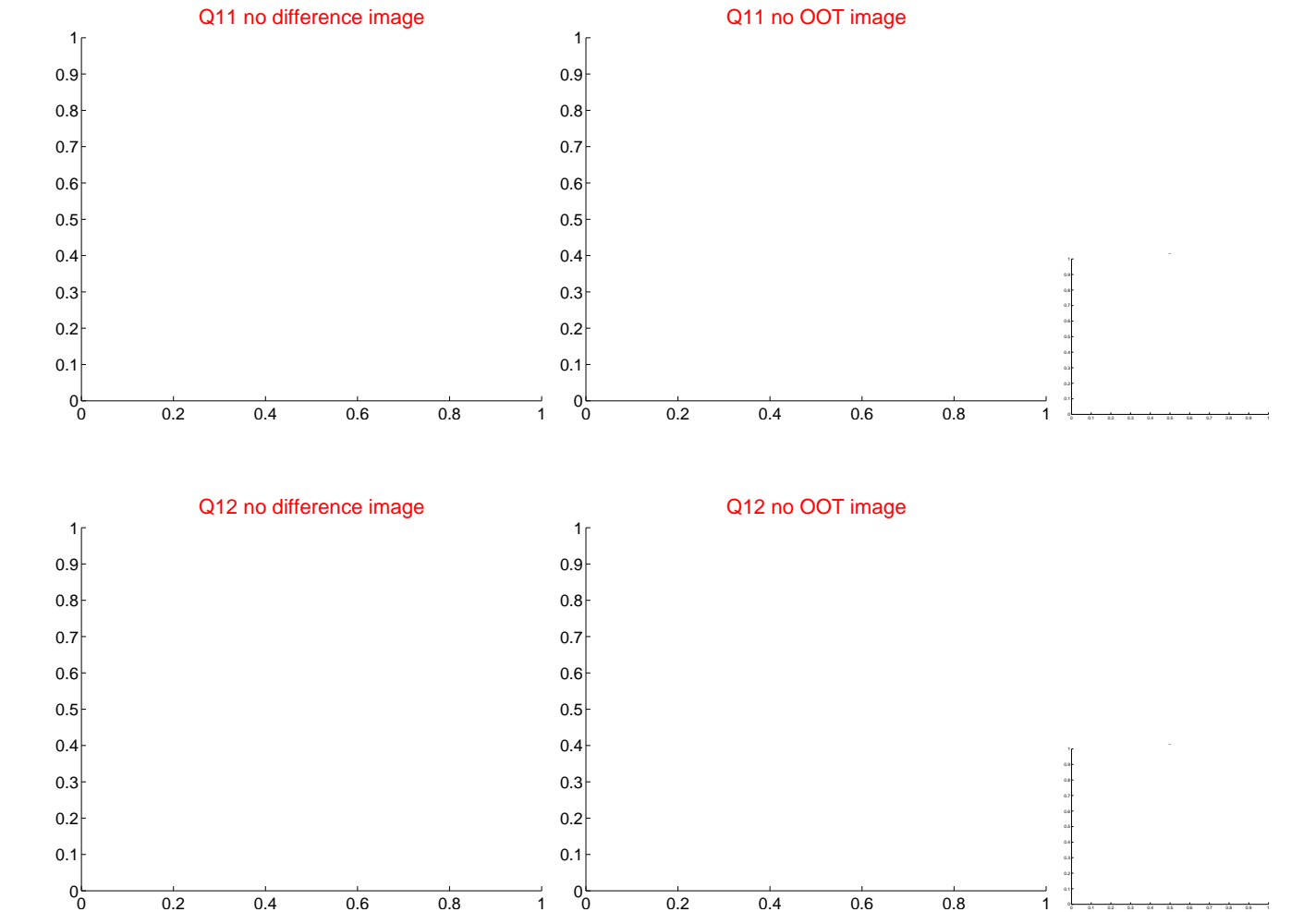
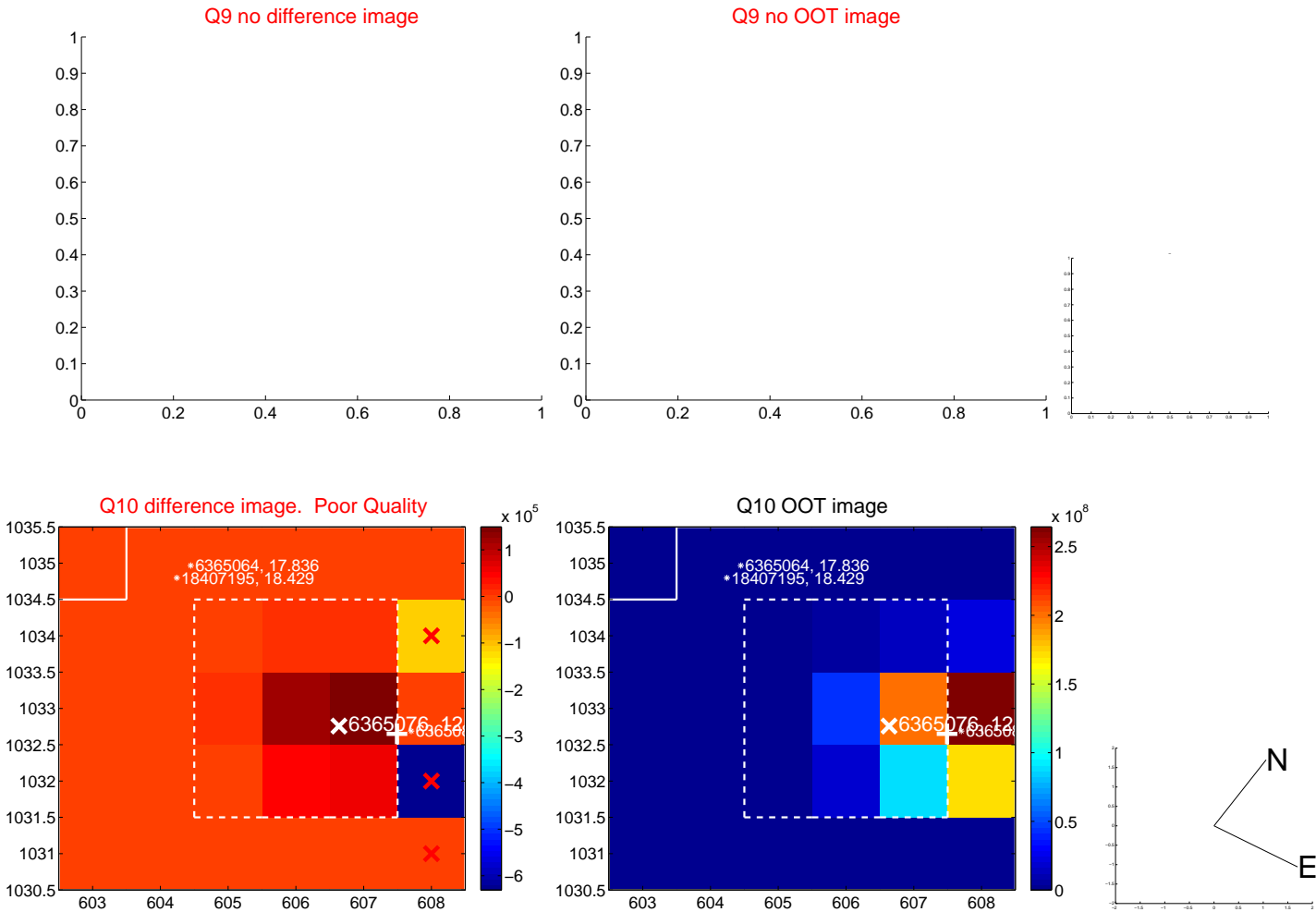
Q8 no difference image



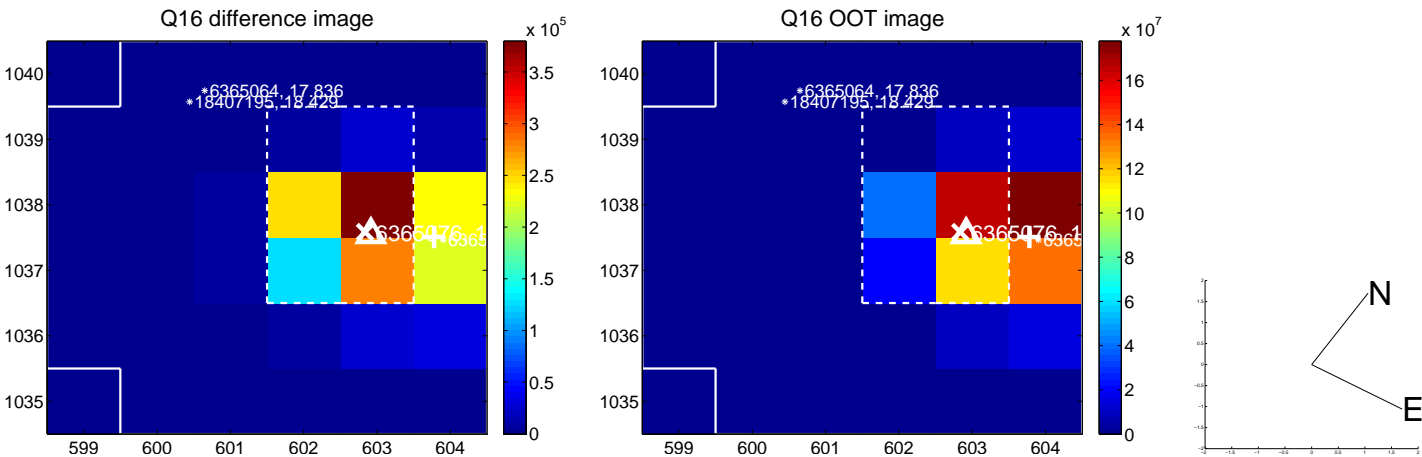
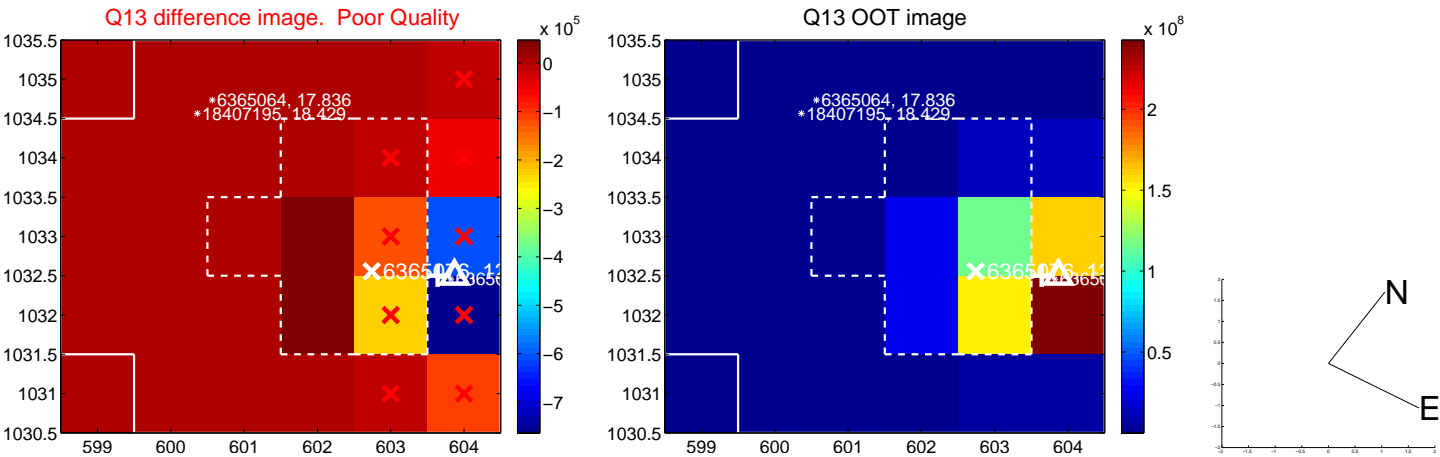
Q8 no OOT image



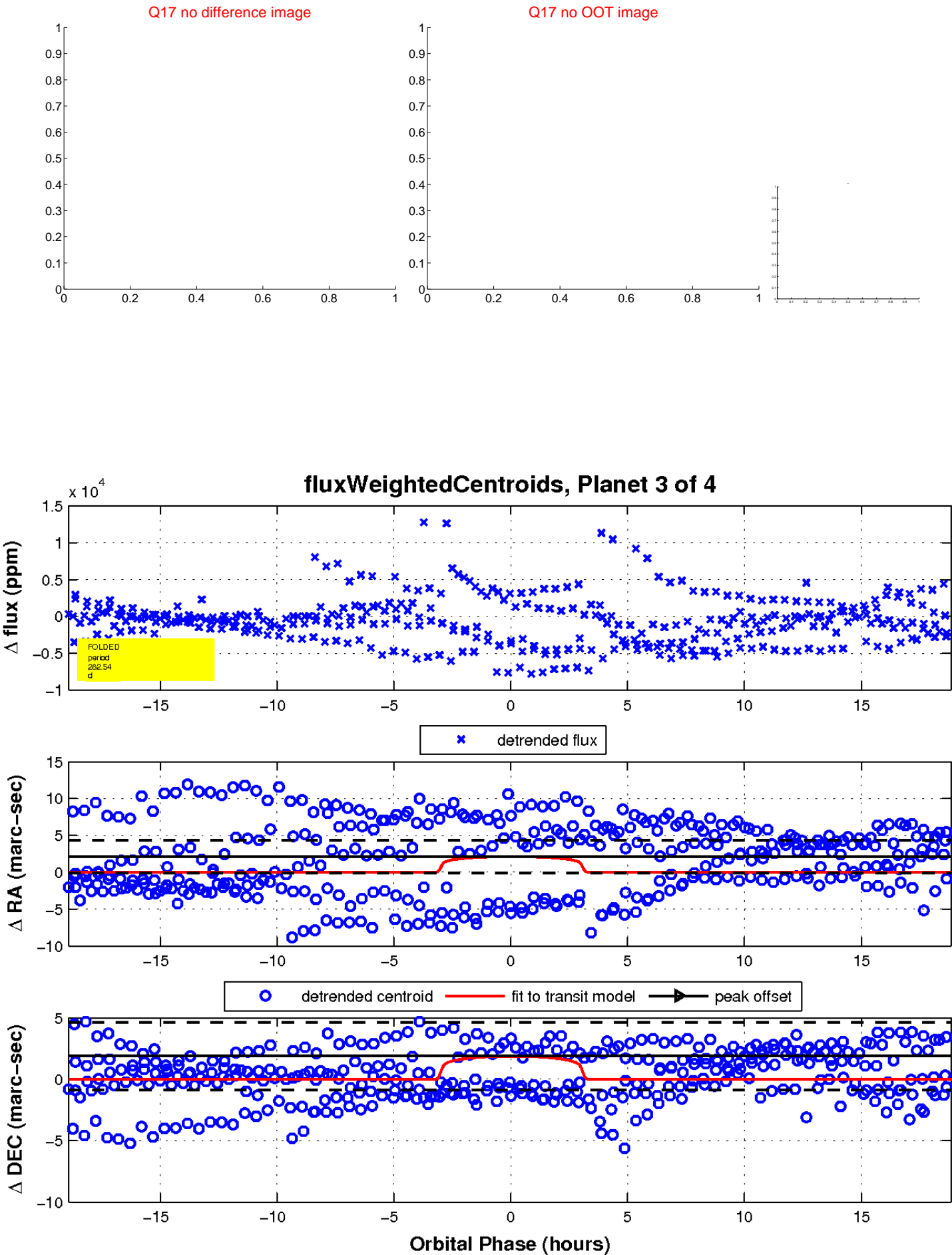
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

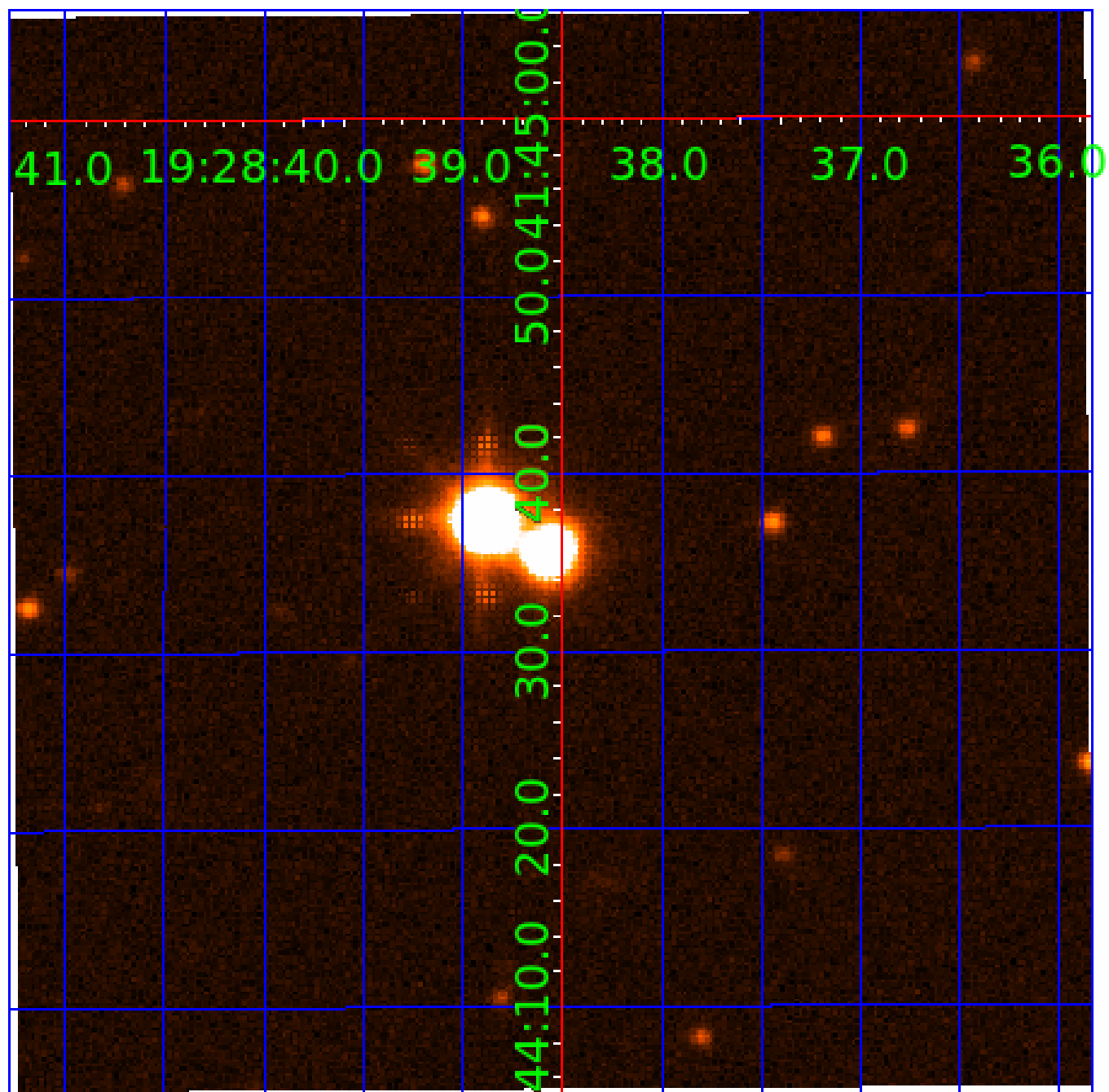


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 006365076

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006365076-01	OBS	No	324.392917	407.658072	1038.9	3.027	18.4	4.9	1.20	6157	4.02	2.05
006365076-03	OBS	No	282.540345	386.869464	1798.0	6.339	14.6	5.0	1.20	6157	5.07	2.46
006365076-04	OBS	No	581.848767	203.884409	2984.9	6.161	13.2	6.5	1.20	6157	6.57	0.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006365076-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006365076-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006365076-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

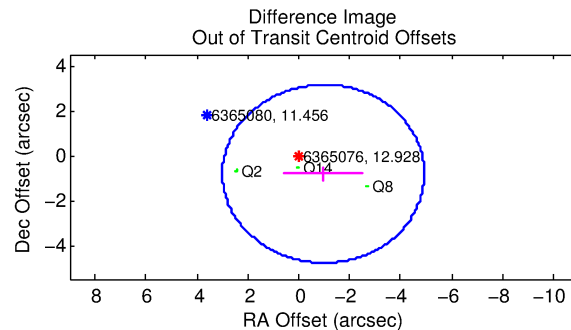
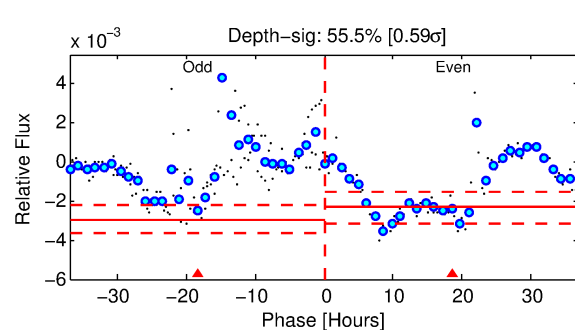
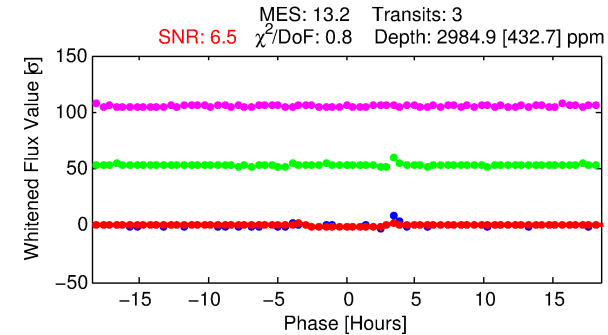
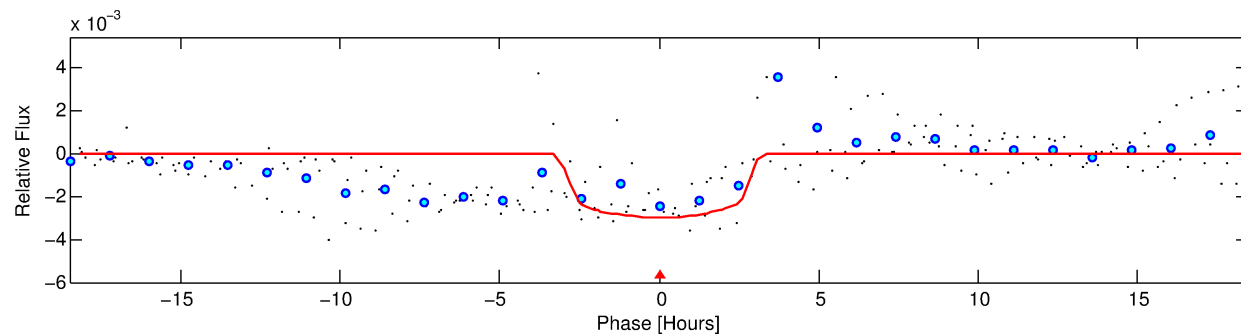
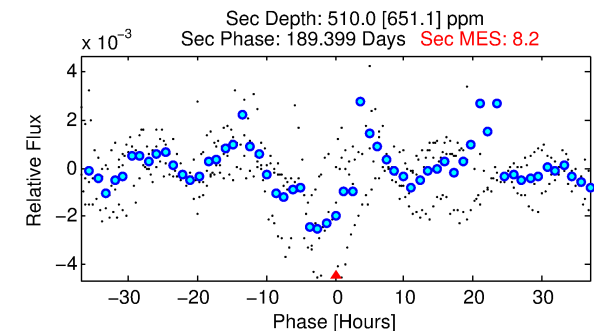
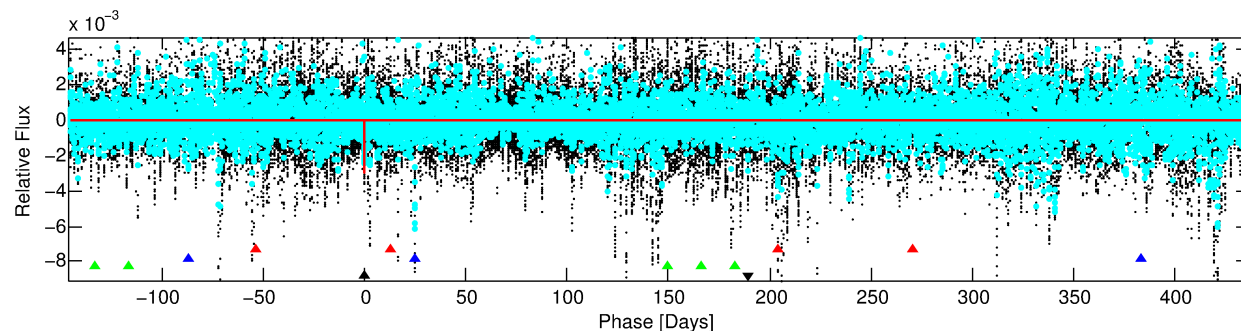
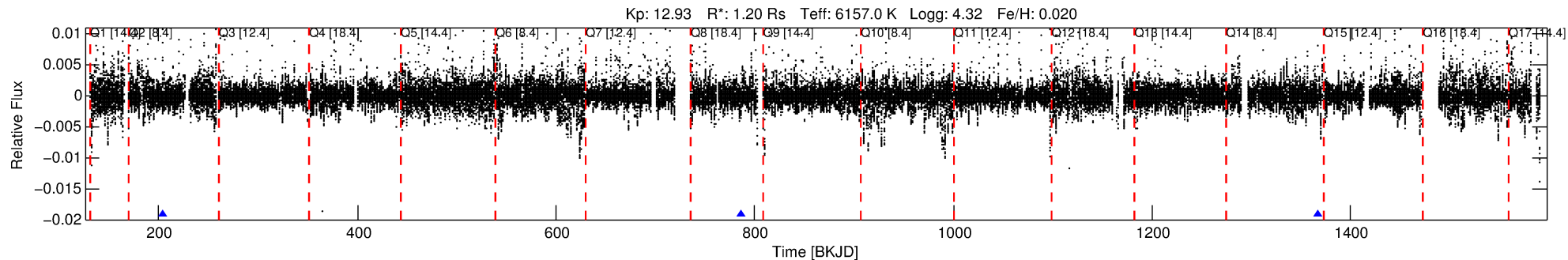
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006365076-04

No Significant Match Found

# DV One-Page Summary

KIC: 6365076 Candidate: 4 of 4 Period: 581.849 d



## DV Fit Results:

Period = 581.84877 [0.00291] d  
Epoch = 203.8844 [0.0041] BKJD  
Rp/R\* = 0.0503 [0.0229]  
a/R\* = 735.89 [1536.44]  
b = 0.25 [7.87]  
Seff = 0.94 [0.21]  
Teq = 251 [14] K  
Rp = 6.57 [3.20] Re  
a = 1.4006 [0.2104] AU  
Ag = 12756.53 [20188.57] [0.63σ]  
Teff = 4126 [1618] K [2.40σ]

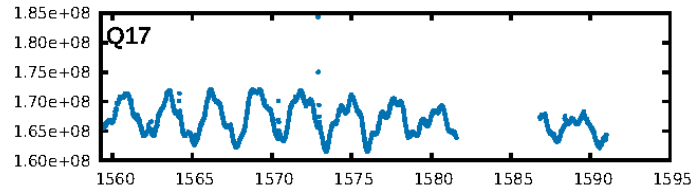
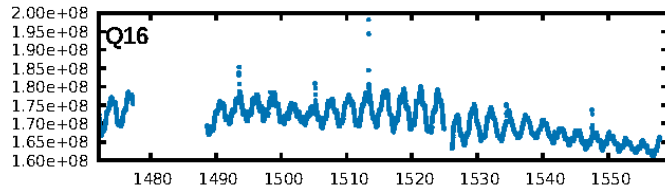
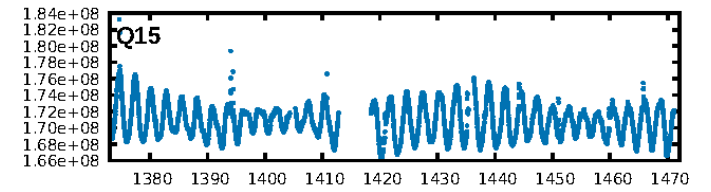
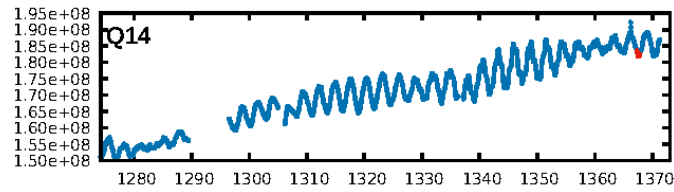
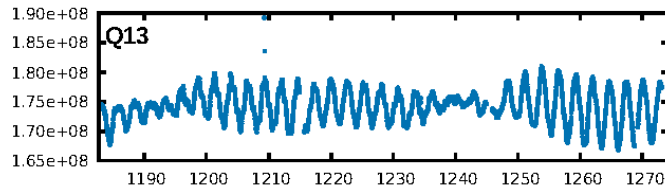
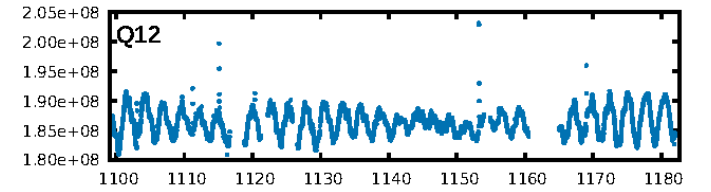
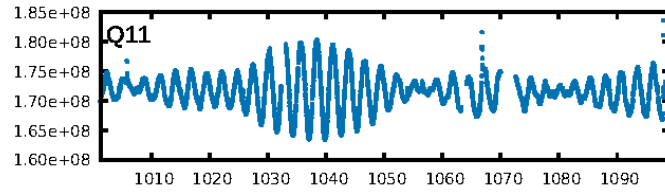
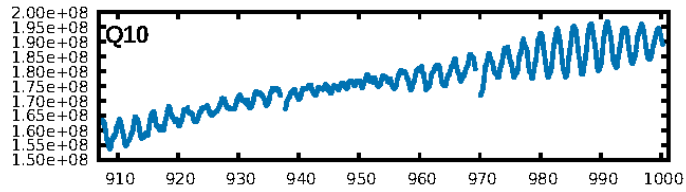
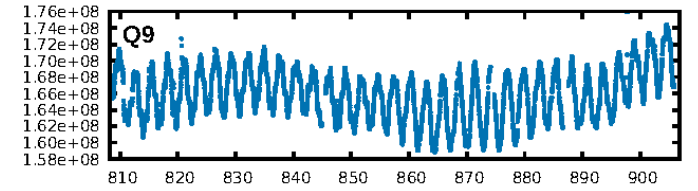
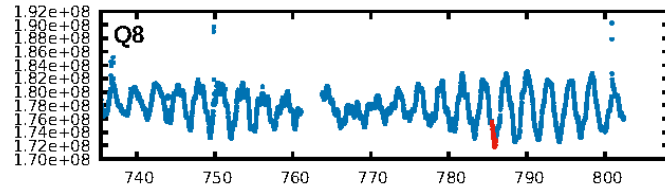
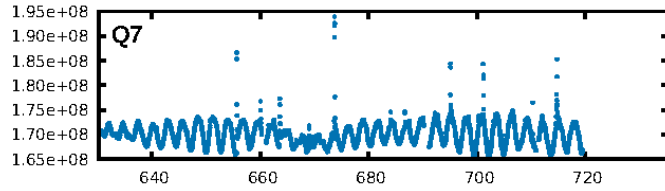
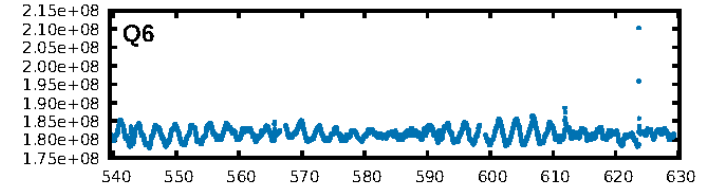
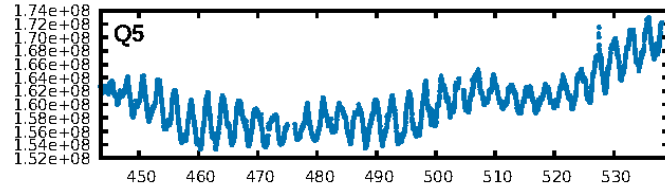
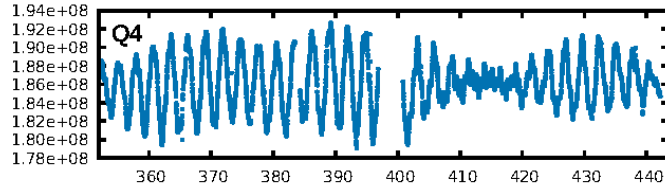
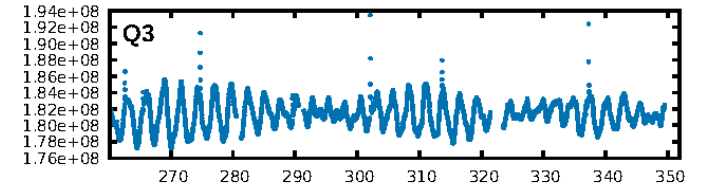
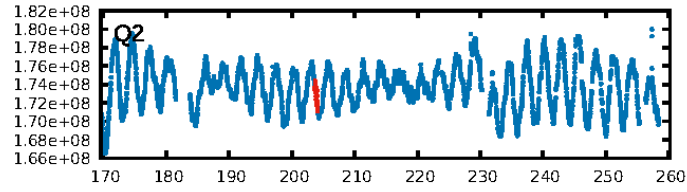
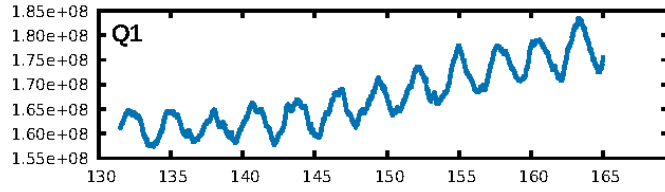
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [71.66σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 27.8%  
ModelChiSquareGof-sig: 95.7%  
**Bootstrap-pfa: 2.08e-08**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.8971  
**Centroid-sig: 0.0%**  
Centroid-so: 1.240 arcsec [2.78σ]  
OotOffset-rm: 1.273 arcsec [0.96σ]  
KicOffset-rm: 2.332 arcsec [2.39σ]  
OotOffset-st: 2/0/1/0 [3]  
KicOffset-st: 2/0/1/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

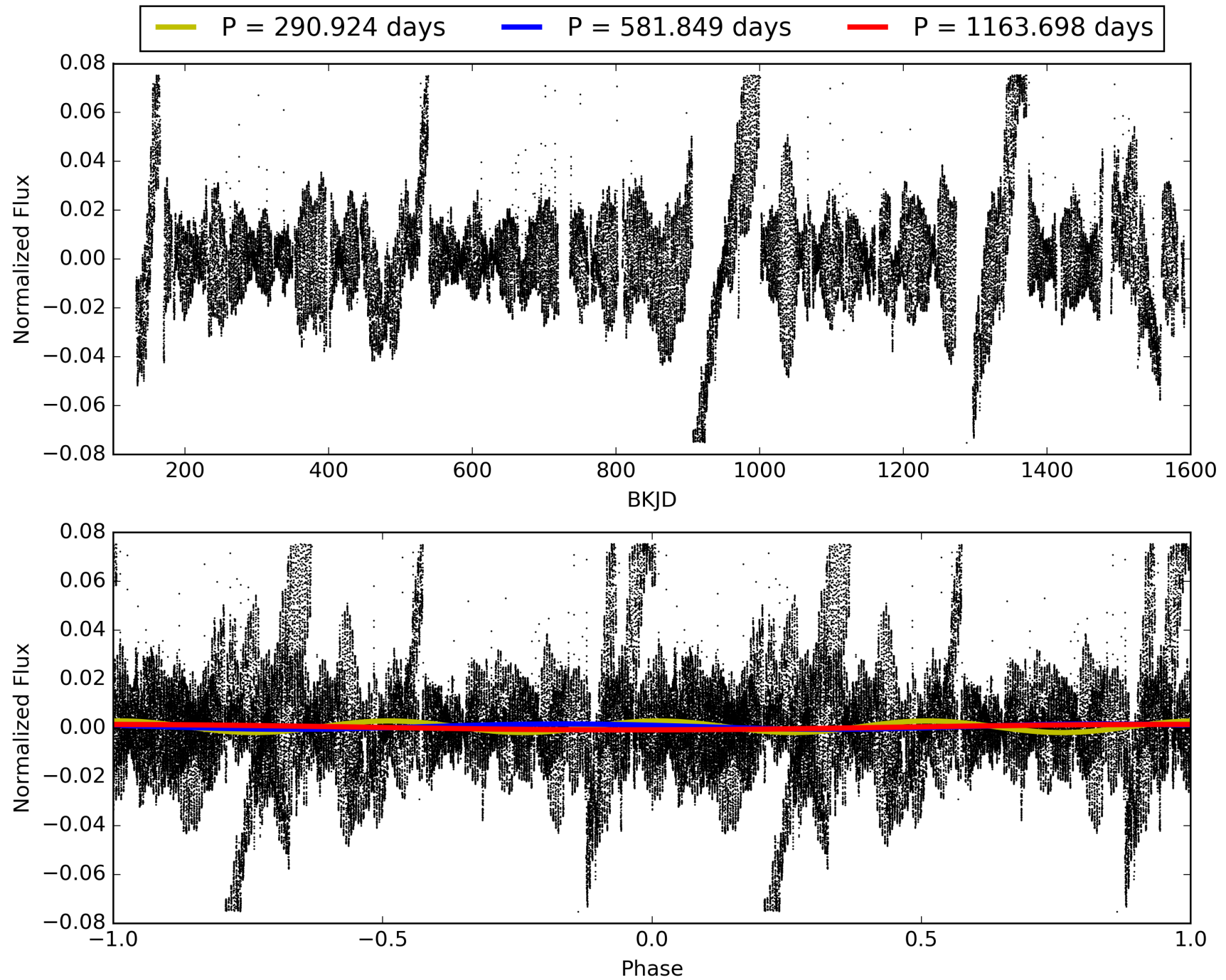
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:06:35 Z

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

# TCE 006365076-04, PDC Light Curves

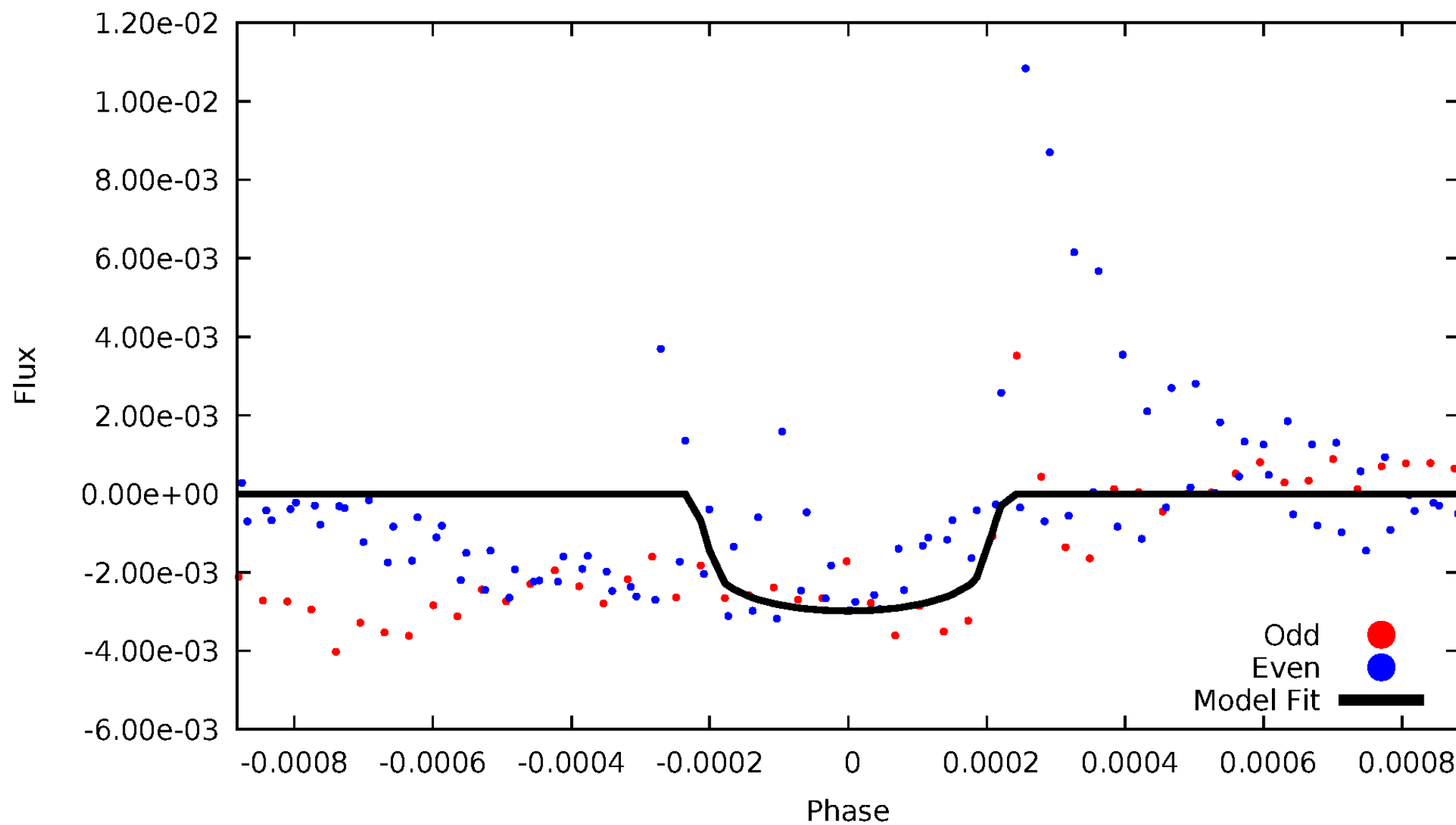


TCE 006365076-04



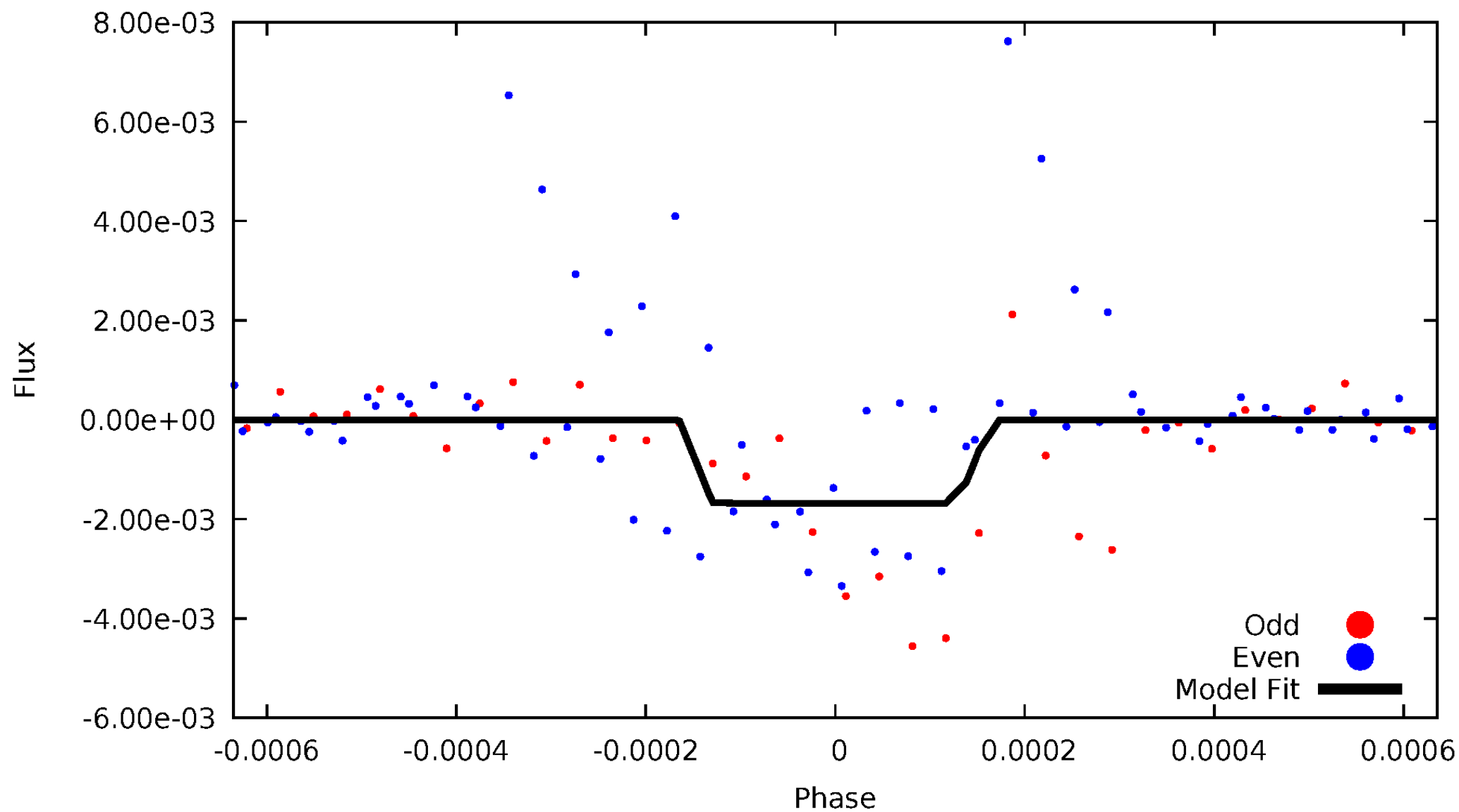
# DV Odd/Even

TCE 006365076-04



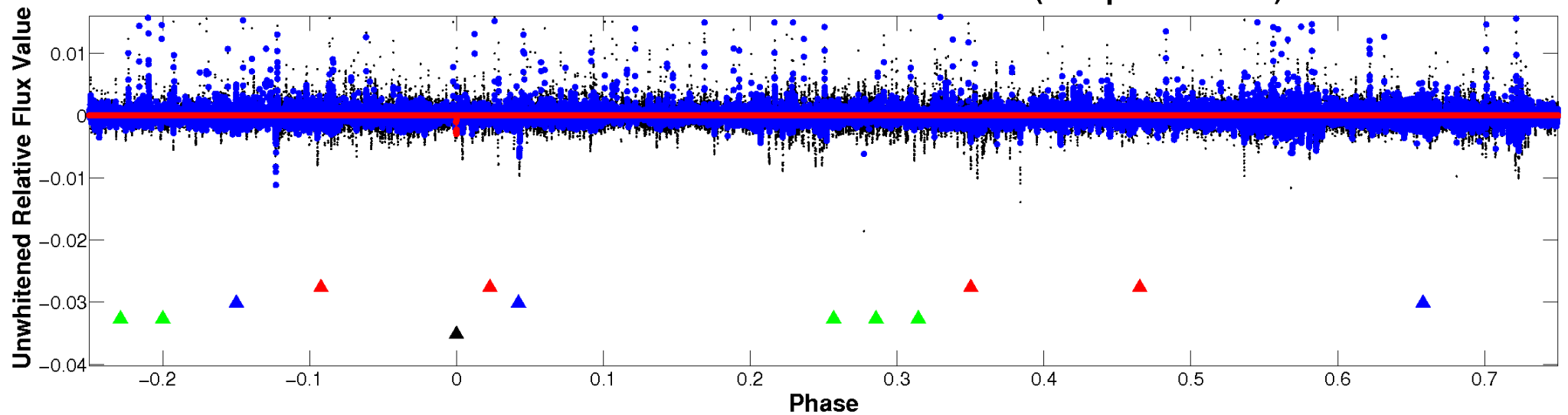
# ALT Odd/Even

TCE 006365076-04

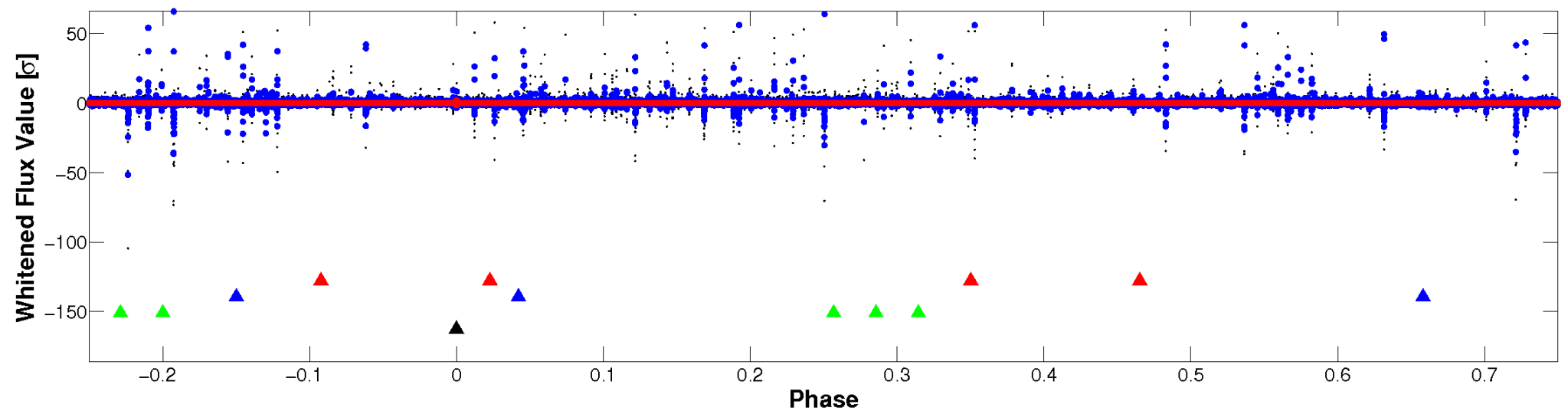


# Non-Whitened Vs. Whitened Light Curve

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

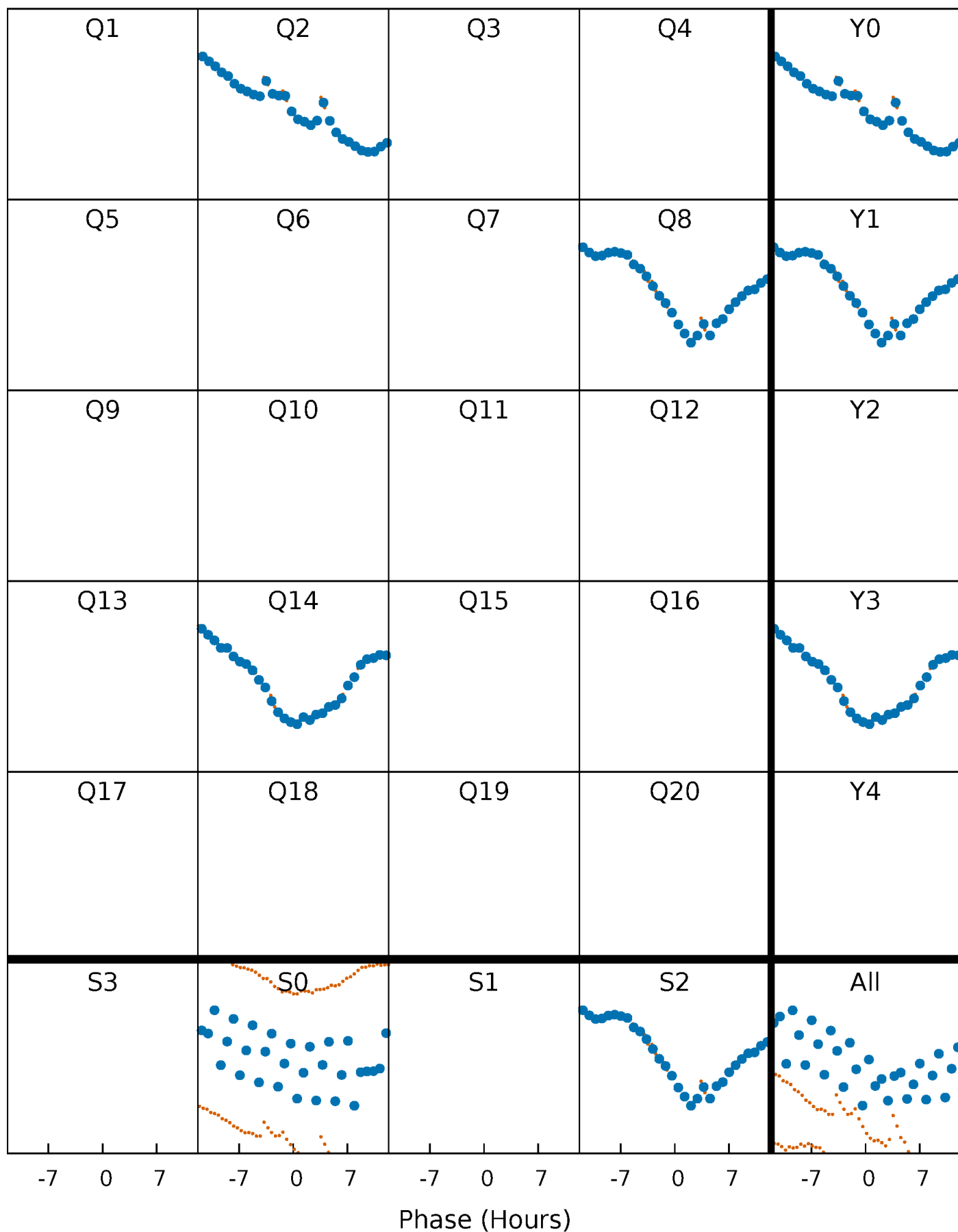


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

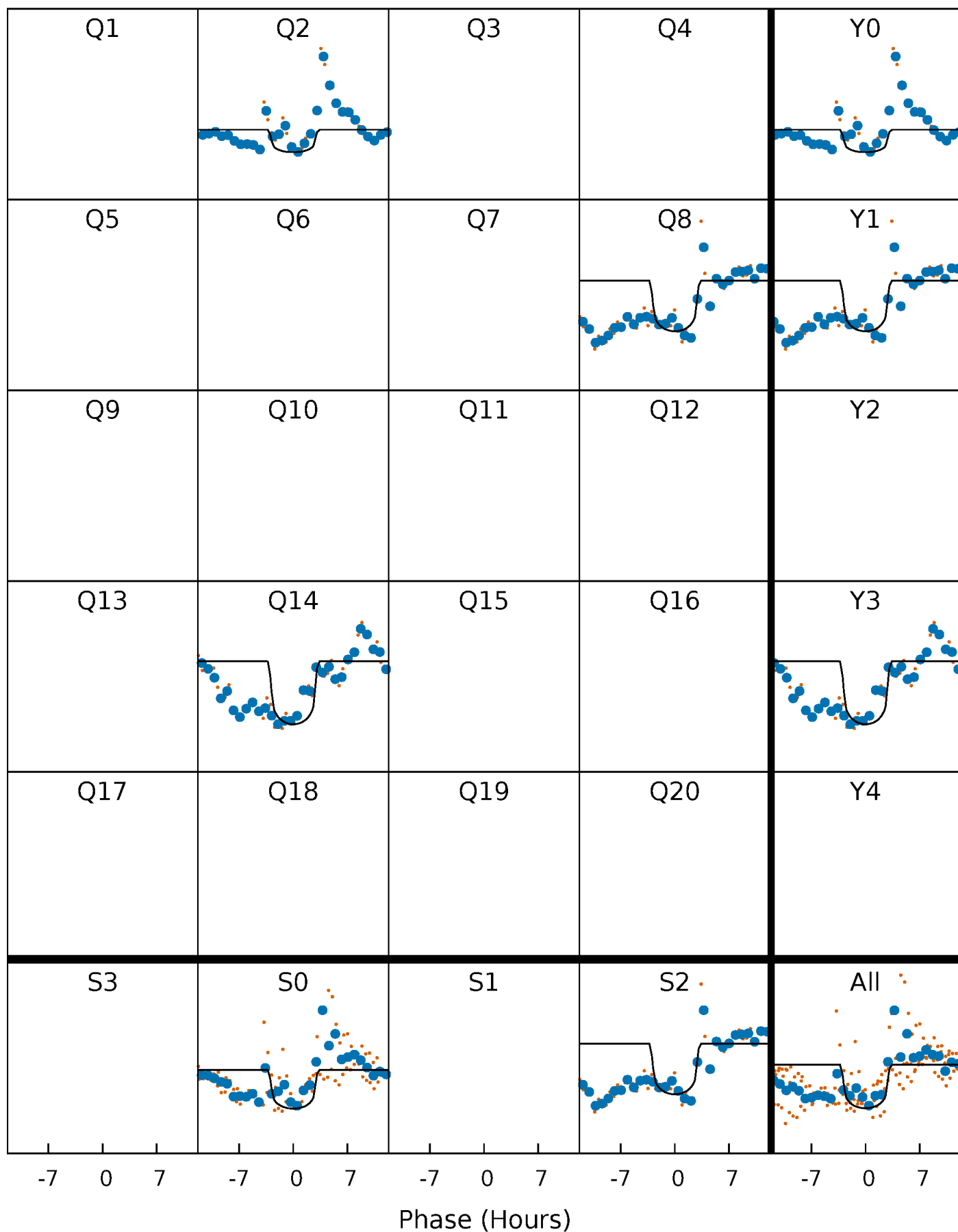
TCE 006365076-04 P=581.848767 Days  $T_0=203.884409$  (BKJD)





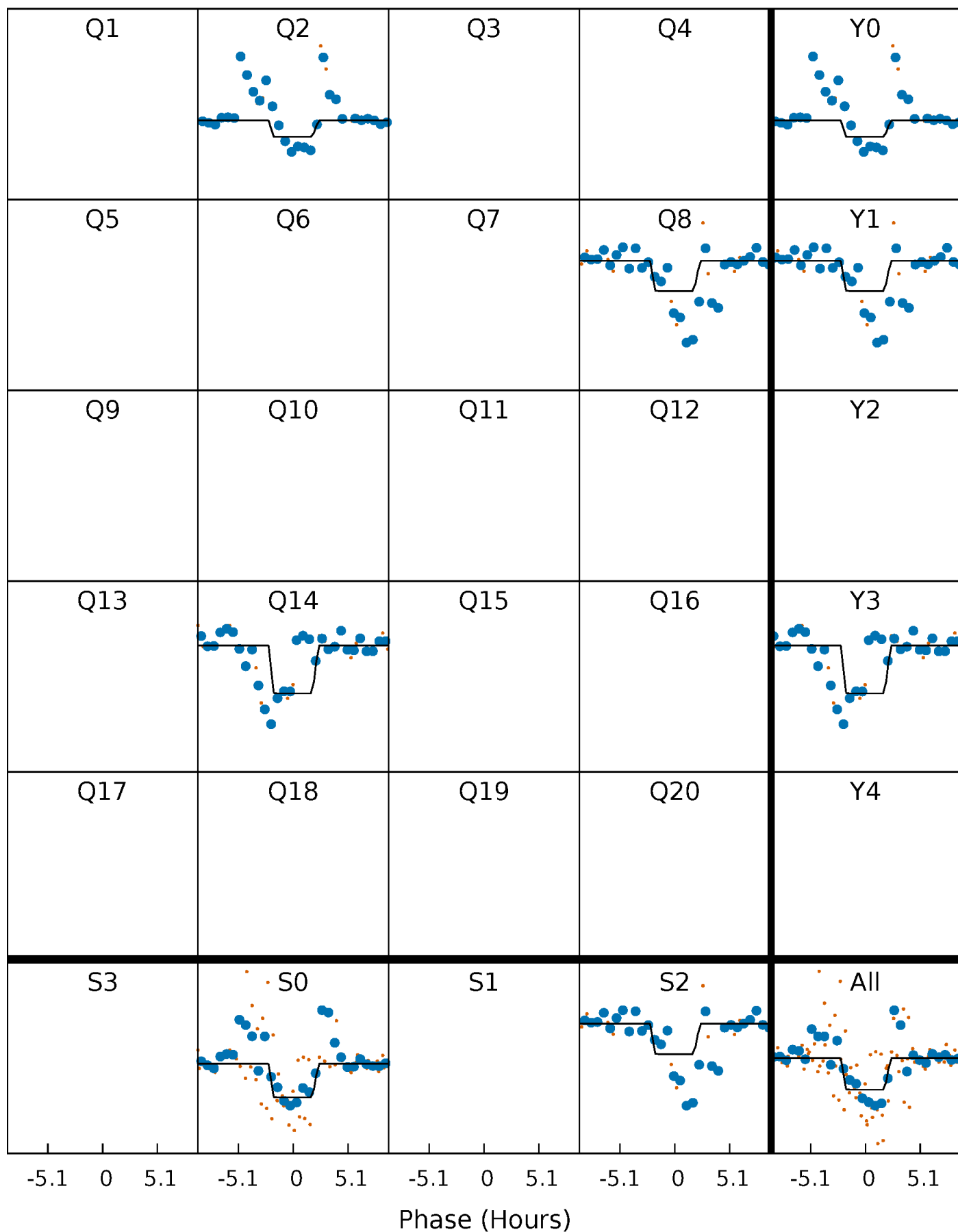
# DV Quarter-Phased Transit Curves

TCE 006365076-04 P=581.848767 Days  $T_0=203.884409$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

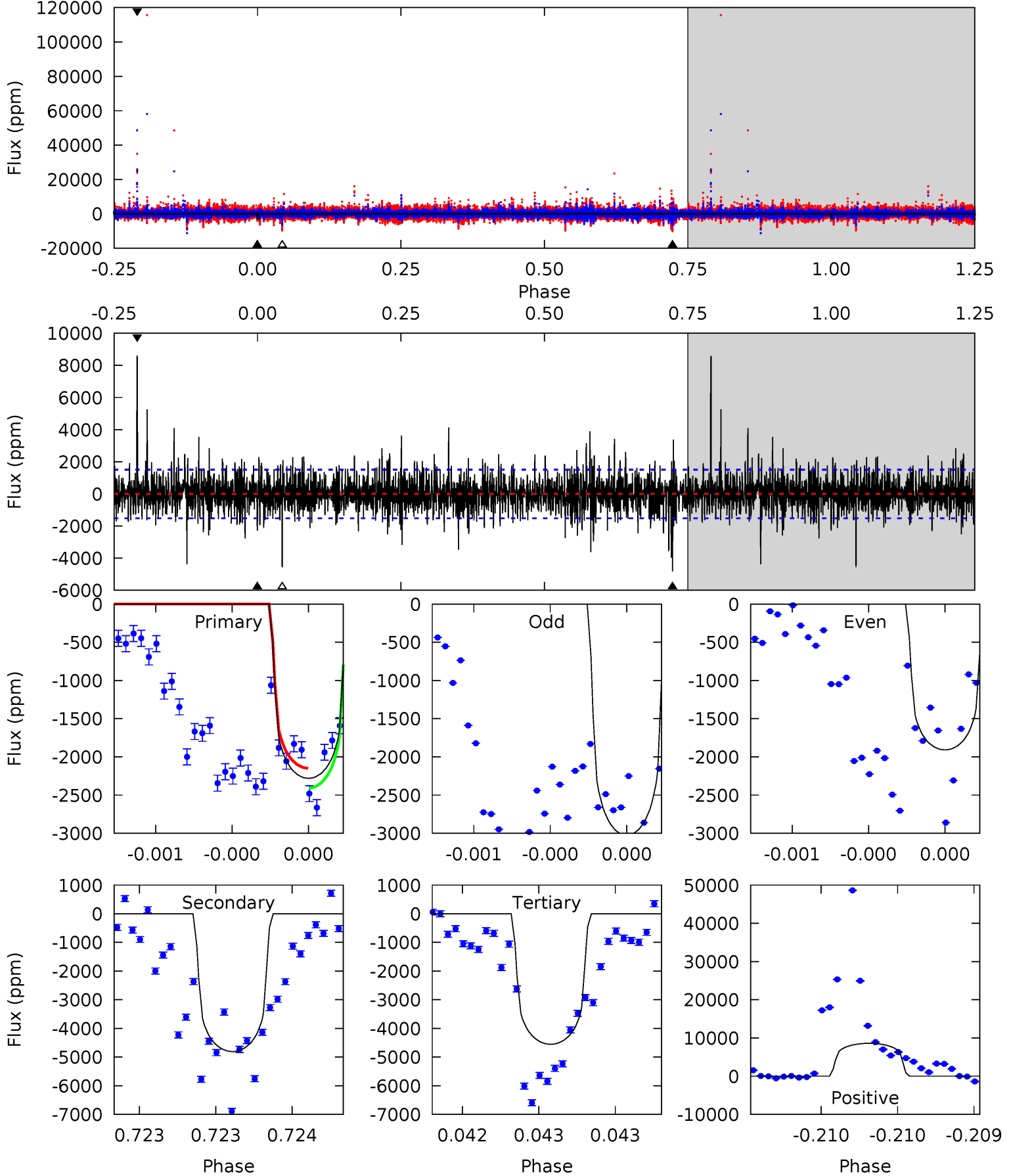
TCE 006365076-04 P=581.838810 Days  $T_0=203.927249$  (BKJD)



# DV Model-Shift Uniqueness Test

006365076-04, P = 581.848767 Days, E = 203.884409 Days

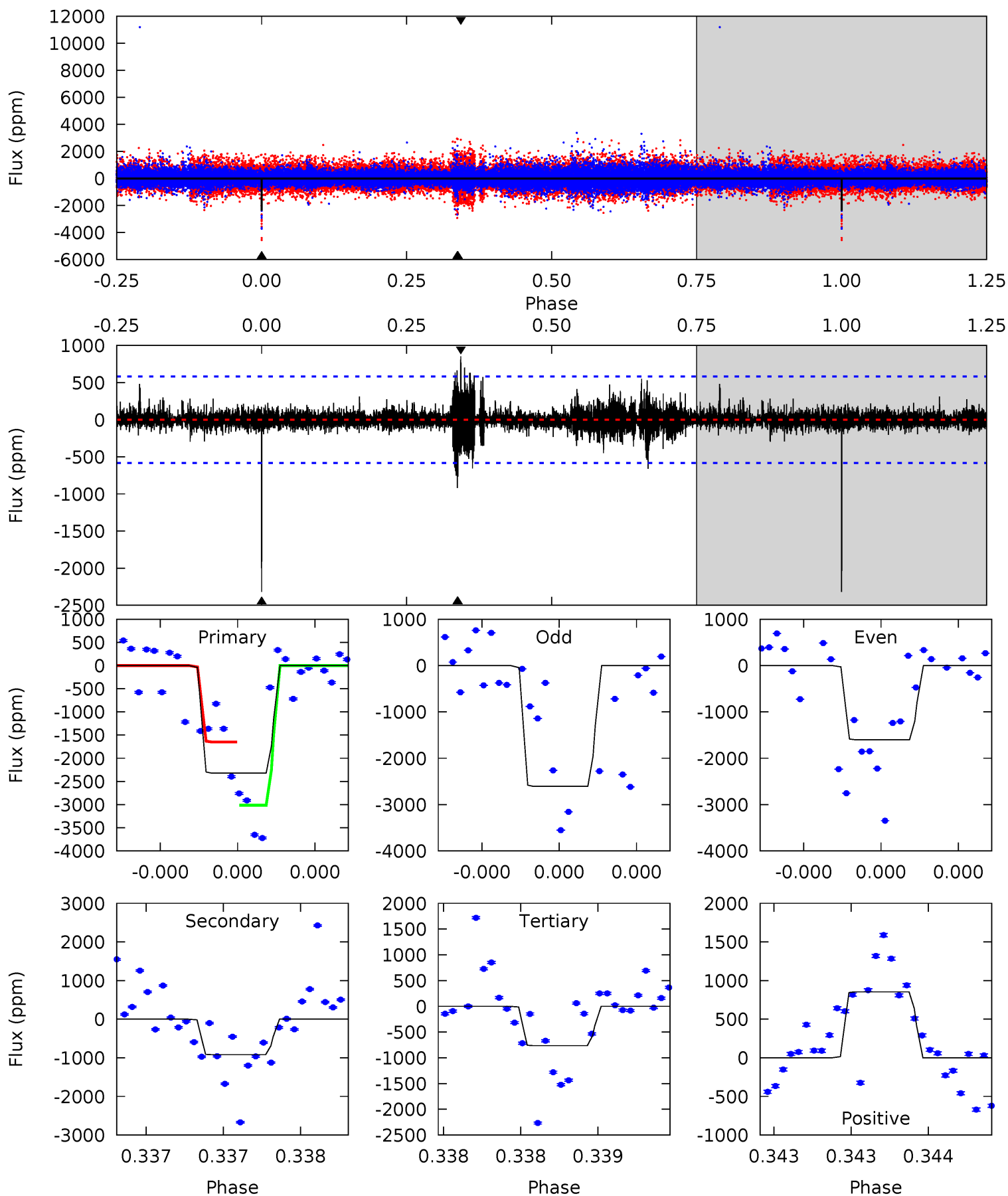
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.42	17.7	16.8	31.7	5.59	3.51	3.13	-8.39	-23.3	0.94	-14.0	1.38	0.90	0.64	0.48



# Alt Model-Shift Uniqueness Test

006365076-04, P = 581.838810 Days, E = 203.927249 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
22.5	8.91	7.40	8.27	5.65	3.60	0.99	15.1	14.2	1.51	0.64	4.60	0.92	0.27	6.46



### Stellar Parameters For KIC 006365076

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6157^{+80}_{-86}$	$4.316^{+0.088}_{-0.121}$	$0.020^{+0.150}_{-0.150}$	$1.197^{+0.212}_{-0.130}$	$1.079^{+0.107}_{-0.058}$	$0.885^{+0.317}_{-0.326}$
	+1%/-1%	+2%/-3%	+750%/-750%	+18%/-11%	+10%/-5%	+36%/-37%
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 006365076-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-4807 \pm 271$	$6.70^{+2.95}_{-2.75}$	$352^{+15}_{-13}$	$7349^{+3054}_{-1340}$	$117826^{+222051}_{-61837}$
Alt.	$-919 \pm 103$	$5.72^{+2.86}_{-3.02}$	$352^{+16}_{-13}$	$5250^{+2451}_{-795}$	$30902^{+102933}_{-17208}$

$T_{\text{max}}$  = 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

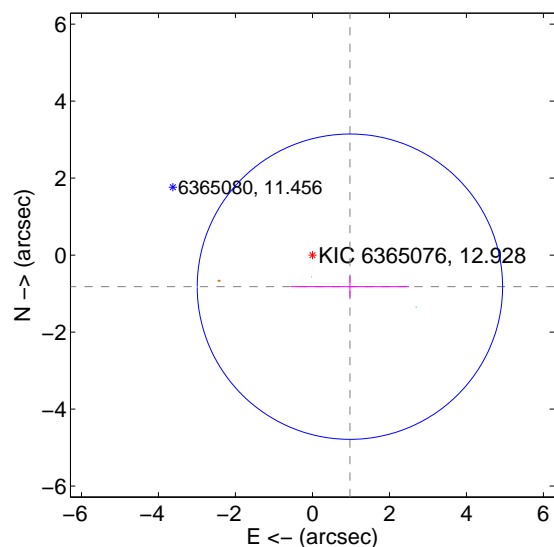
Supplemental centroid analysis for 006365076-04. Kepler magnitude: 12.93. Transit SNR 6.54

There are 2 quarters with good PRF difference image offsets

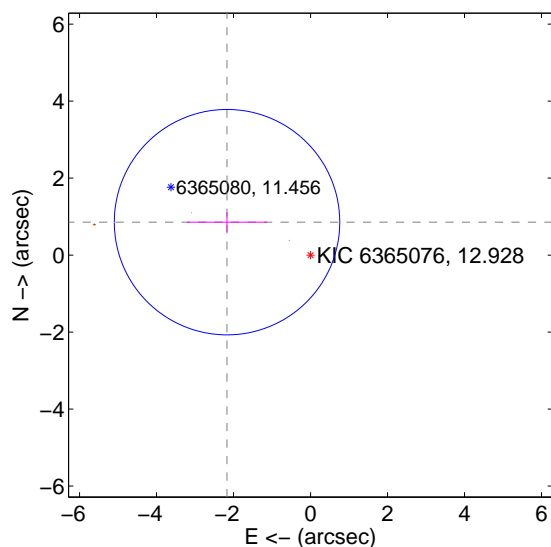
The OOT PRF centroid is offset from the target star catalog position by about 3.49 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.273 \pm 1.322$	0.96	$-0.973 \pm 1.534$	$-0.821 \pm 0.280$
PRF-fit source offset from KIC position	$2.332 \pm 0.976$	2.39	$2.170 \pm 1.044$	$0.856 \pm 0.261$
photometric centroid source offset	$1.24 \pm 0.45$	2.78	$0.98 \pm 0.51$	$0.76 \pm 0.31$

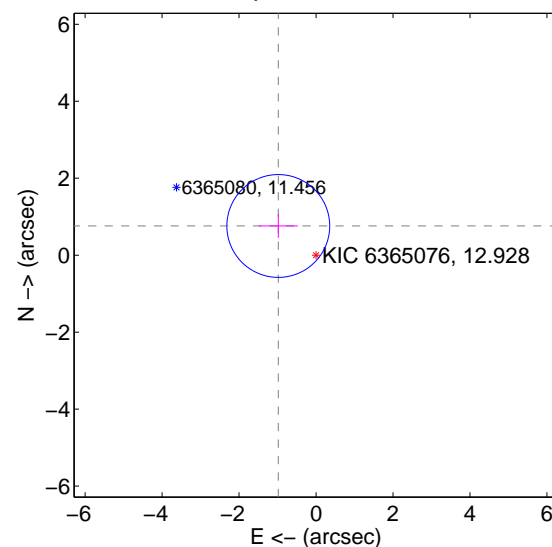
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

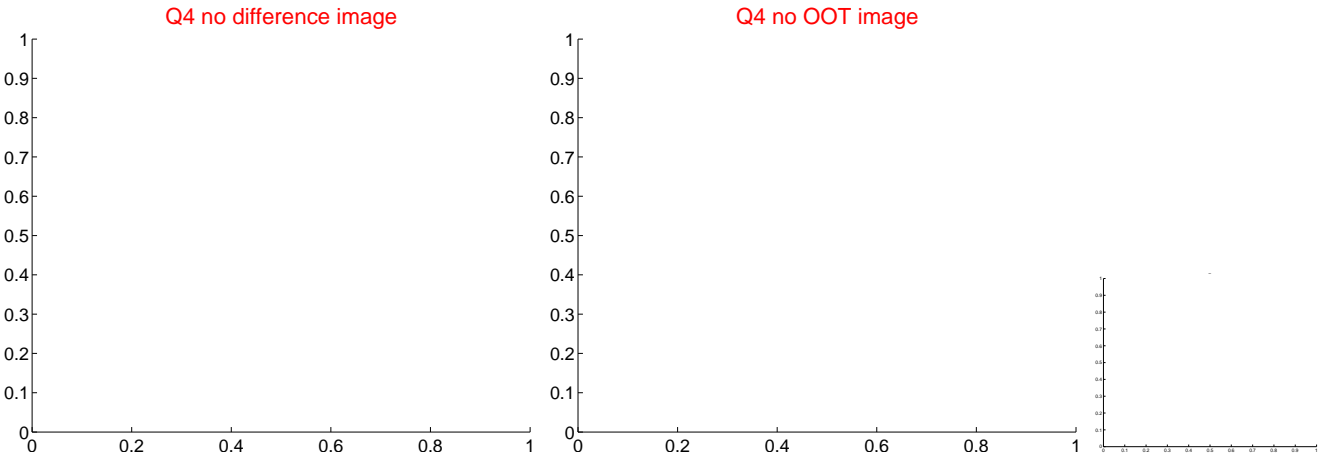
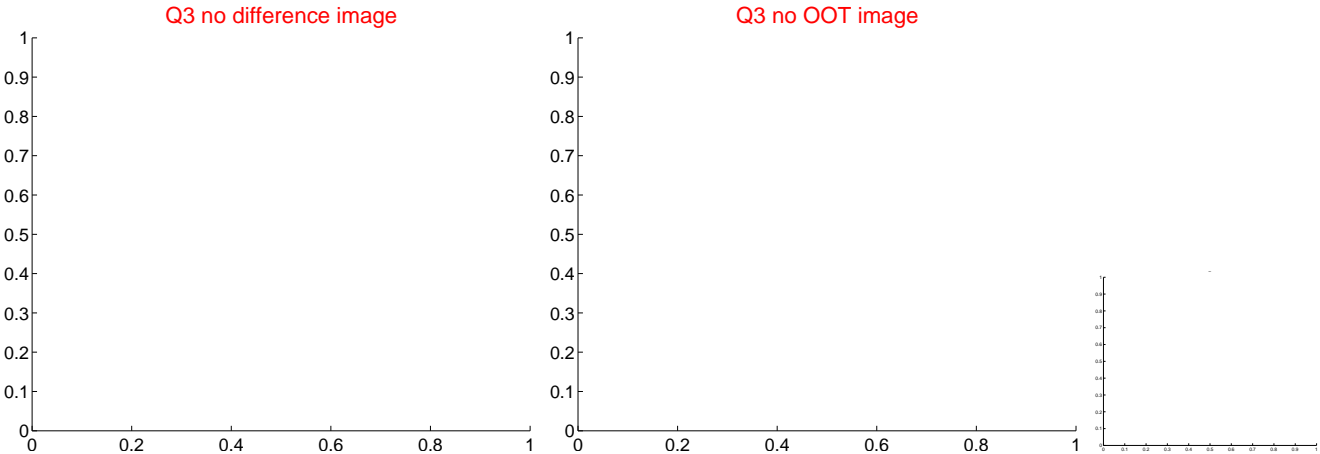
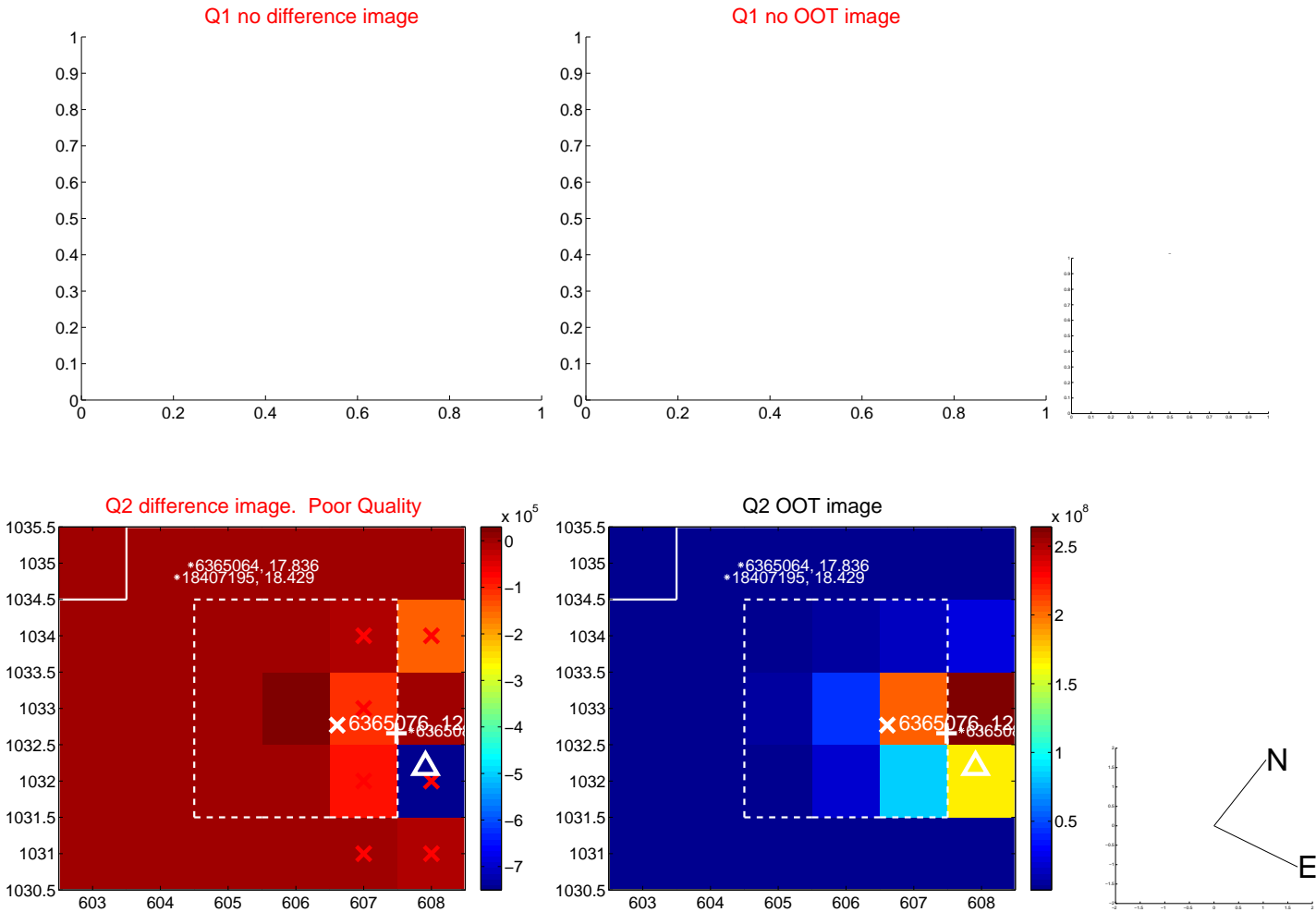


offset from photometric centroids



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.

Q5 no difference image



Q5 no OOT image



Q6 no difference image



Q6 no OOT image



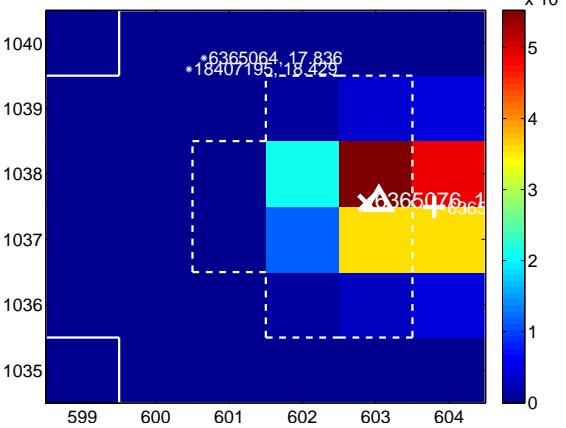
Q7 no difference image



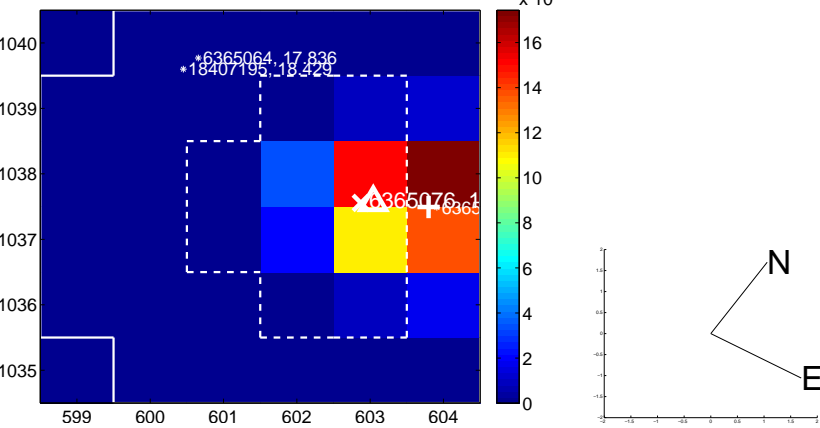
Q7 no OOT image



Q8 difference image



Q8 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.

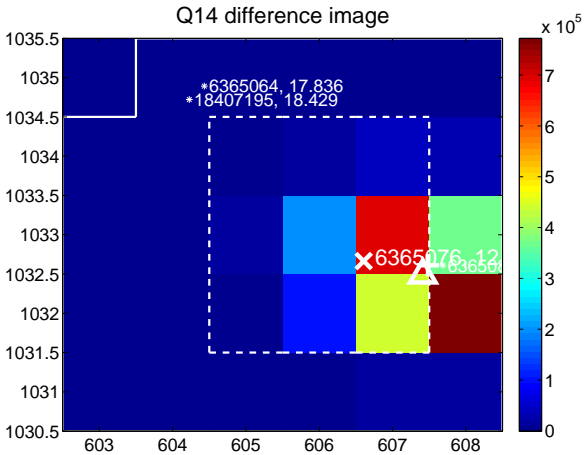
Q13 no difference image



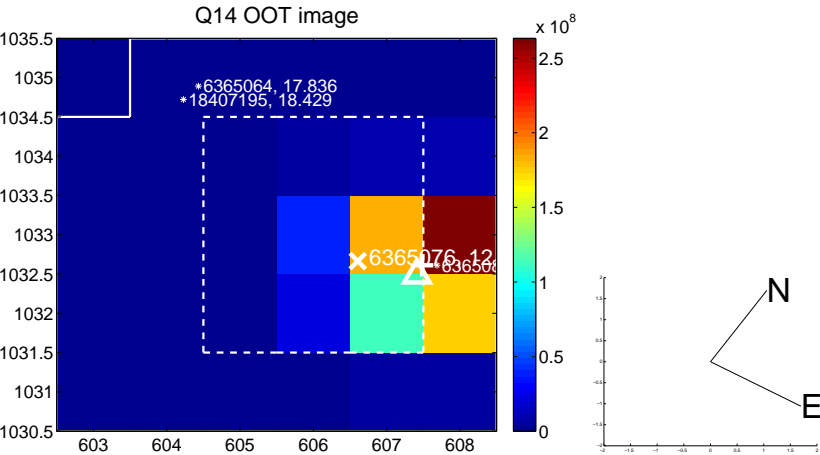
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



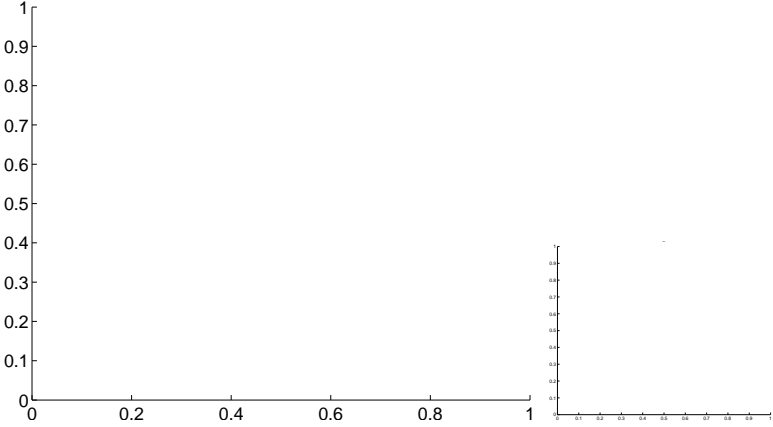
Q15 no OOT image



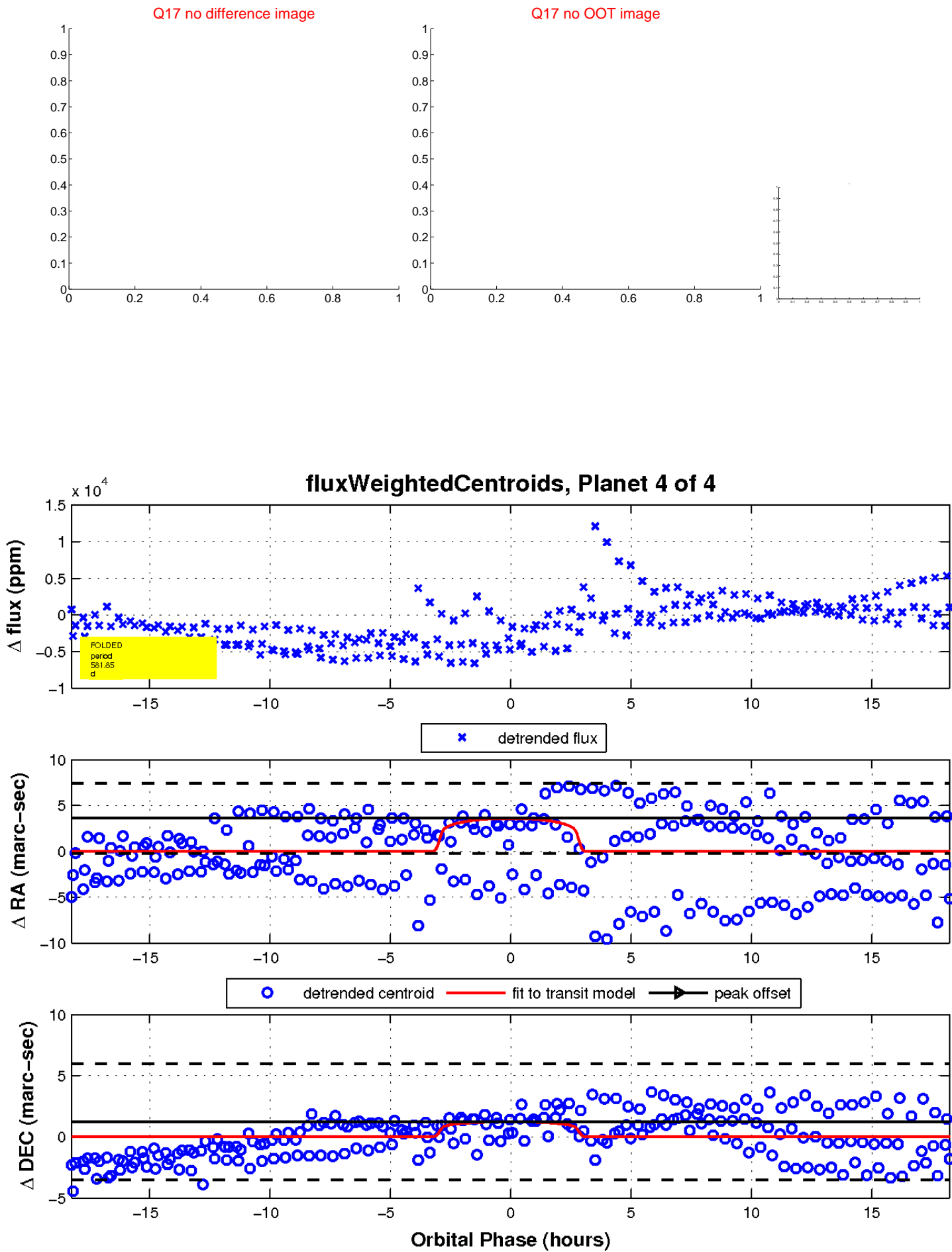
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

