

# KIC 011661803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011661803-01	OBS	8060.01	372.087077	404.899629	2489.5	3.587	19.9	19.8	1.09	6289	9.22	1.51
011661803-02	OBS	8060.02	363.447672	411.193981	2024.6	5.417	18.5	17.5	1.09	6289	8.55	1.56
011661803-03	OBS	No	372.083900	413.558967	2321.2	3.542	17.8	18.1	1.09	6289	9.79	1.51
011661803-04	OBS	No	380.740273	385.232183	1895.4	3.279	17.0	16.7	1.09	6289	5.31	1.47
011661803-05	OBS	No	372.083773	396.254015	2283.4	3.682	16.8	17.9	1.09	6289	9.72	1.51
011661803-06	OBS	No	372.083136	387.601083	2145.4	3.732	17.4	17.3	1.09	6289	8.10	1.51
011661803-07	OBS	No	372.079361	422.220950	2363.3	3.340	15.9	16.7	1.09	6289	8.59	1.51
011661803-08	OBS	No	363.418186	393.900840	1727.5	3.000	14.4	-1.0	1.09	6289	4.56	1.56

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011661803-01	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES
011661803-02	OBS	FP	0.00	0	1	1	0	DEEP_V_SHAPED—HAS_SEC_TCE—HALO_GHOST
011661803-03	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_TER_DV—MOD_TER_ALT—SAME_NTL_PERIOD
011661803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
011661803-05	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD
011661803-06	OBS	FP	0.00	1	0	1	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET
011661803-07	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_FEW_DIFFS
011661803-08	OBS	FP	0.01	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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

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

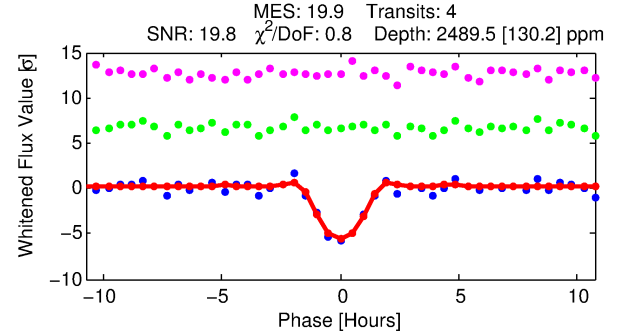
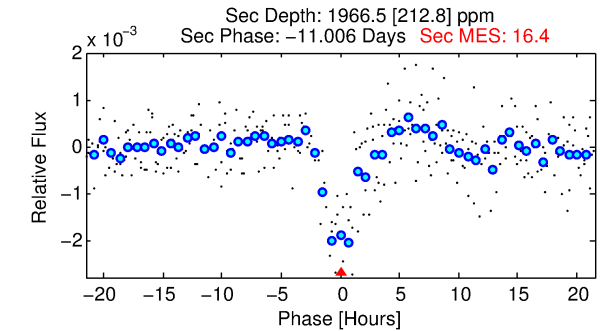
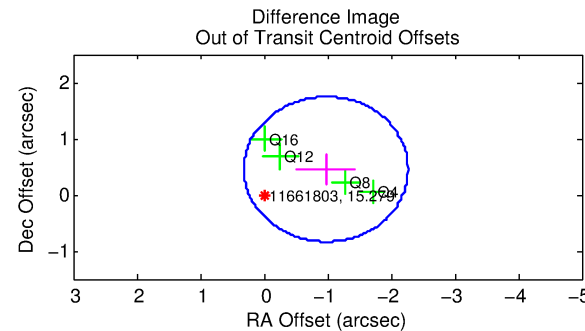
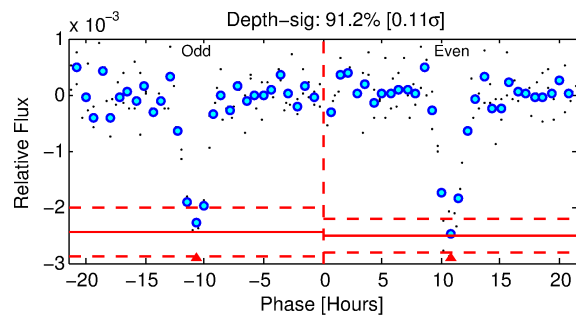
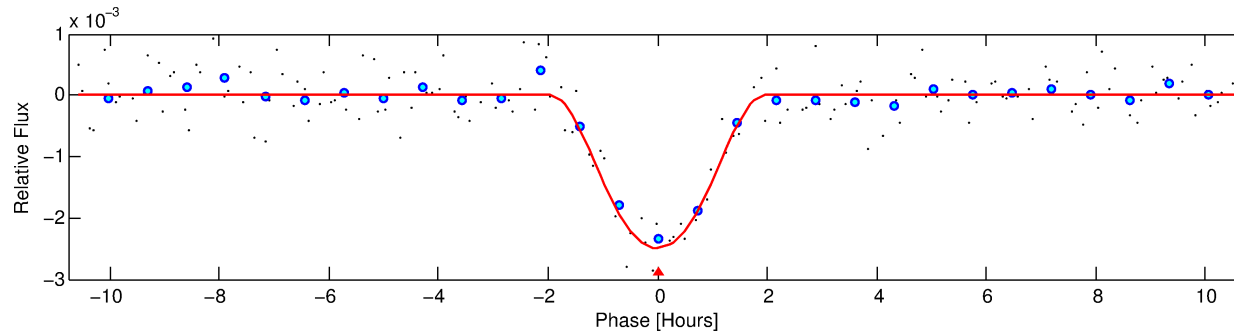
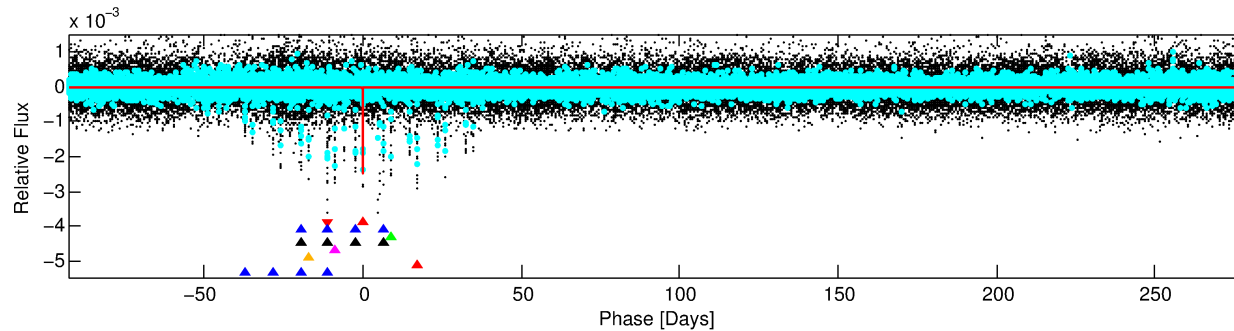
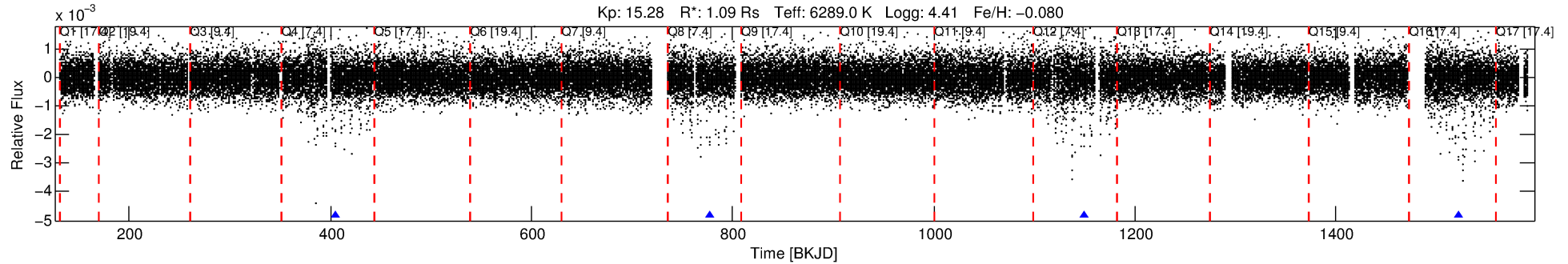
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011661803-01

No Significant Match Found

# DV One-Page Summary

KIC: 11661803 Candidate: 1 of 8 Period: 372.087 d



## DV Fit Results:

Period = 372.08708 [0.00186] d  
Epoch = 404.8996 [0.0032] BKJD  
Rp/R\* = 0.0773 [0.1073]  
a/R\* = 339.56 [120.53]  
b = 0.99 [0.17]  
Seff = 1.51 [0.65]  
Teq = 283 [31] K  
Rp = 9.22 [13.19] Re  
a = 1.0525 [0.2999] AU  
Ag = 14093.75 [39564.31] [0.36 $\sigma$ ]  
Teffp = 4763 [3313] K [1.35 $\sigma$ ]

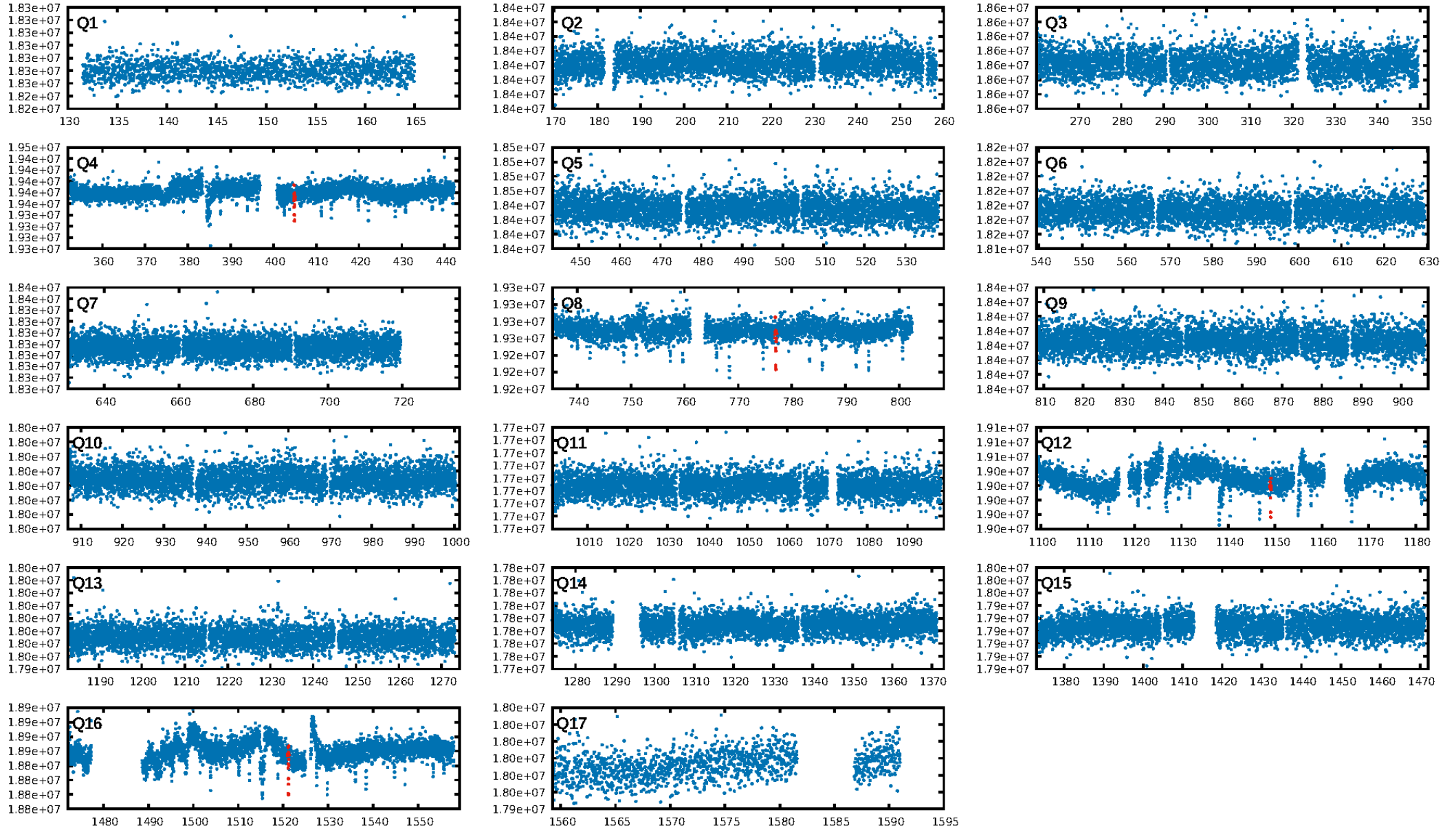
## DV Diagnostic Results:

ShortPeriod-sig: 1.2% [0.02 $\sigma$ ]  
LongPeriod-sig: 100.0% [42.73 $\sigma$ ]  
ModelChiSquare2-sig: 71.6%  
ModelChiSquareGof-sig: 99.3%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.55  
Centroid-sig: 0.0%  
Centroid-so: 2.246 arcsec [2.94 $\sigma$ ]  
OotOffset-rm: 1.077 arcsec [2.50 $\sigma$ ]  
KicOffset-rm: 1.077 arcsec [2.43 $\sigma$ ]  
OotOffset-st: 0/0/4/0 [4]  
KicOffset-st: 0/0/4/0 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [4/4]

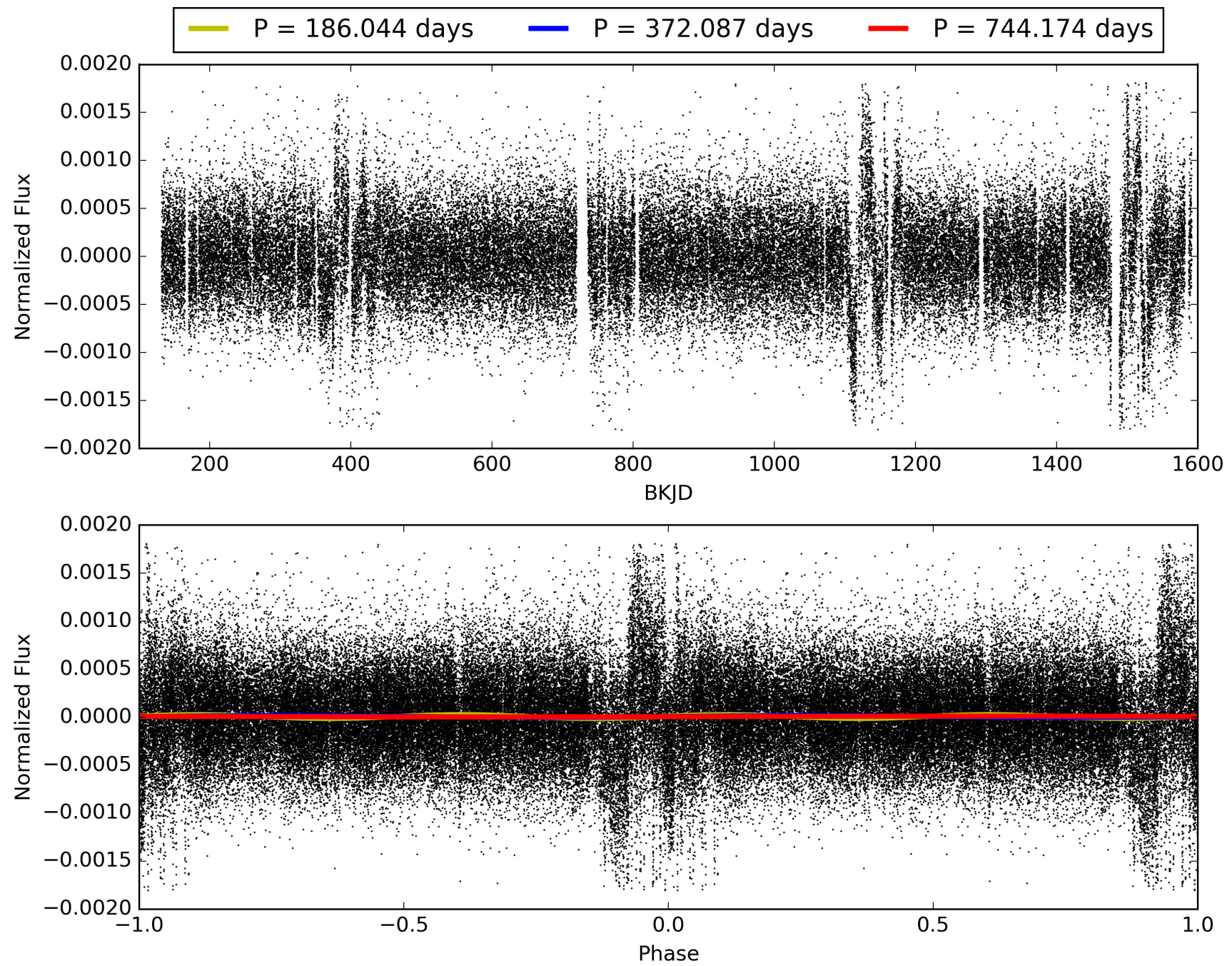
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:52:49 Z

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

# TCE 011661803-01, PDC Light Curves



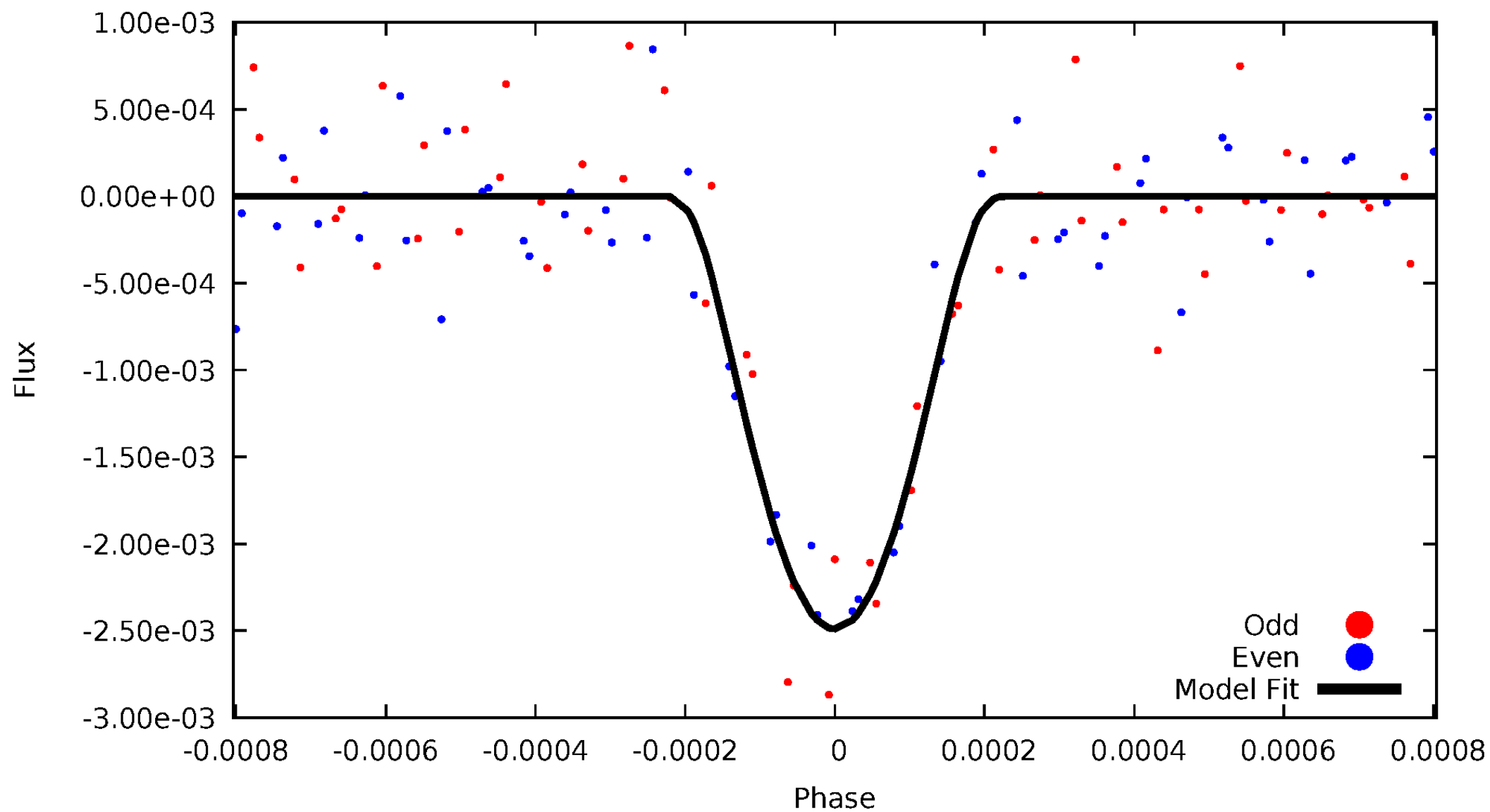
# TCE 011661803-01





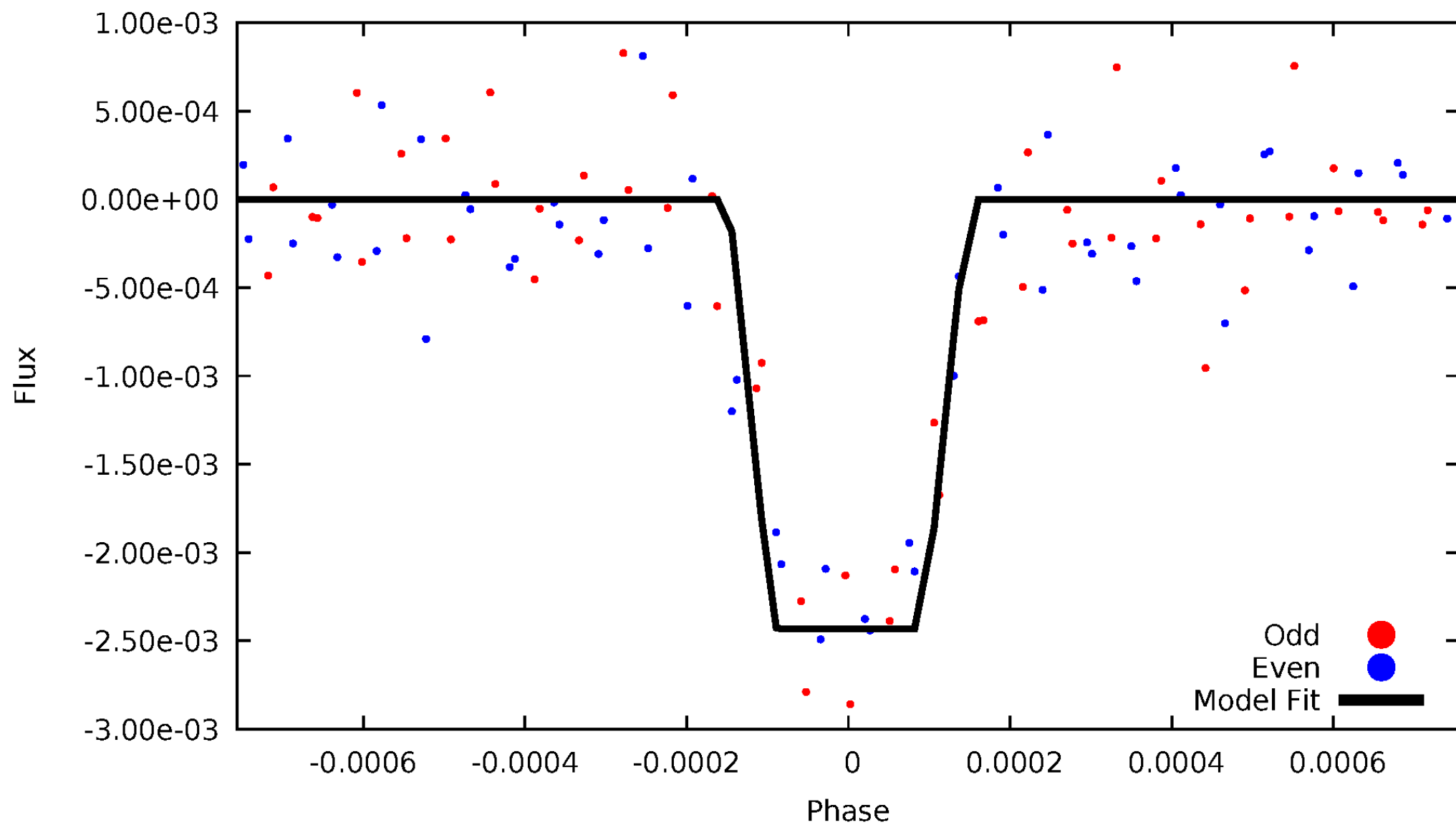
# DV Odd/Even

TCE 011661803-01

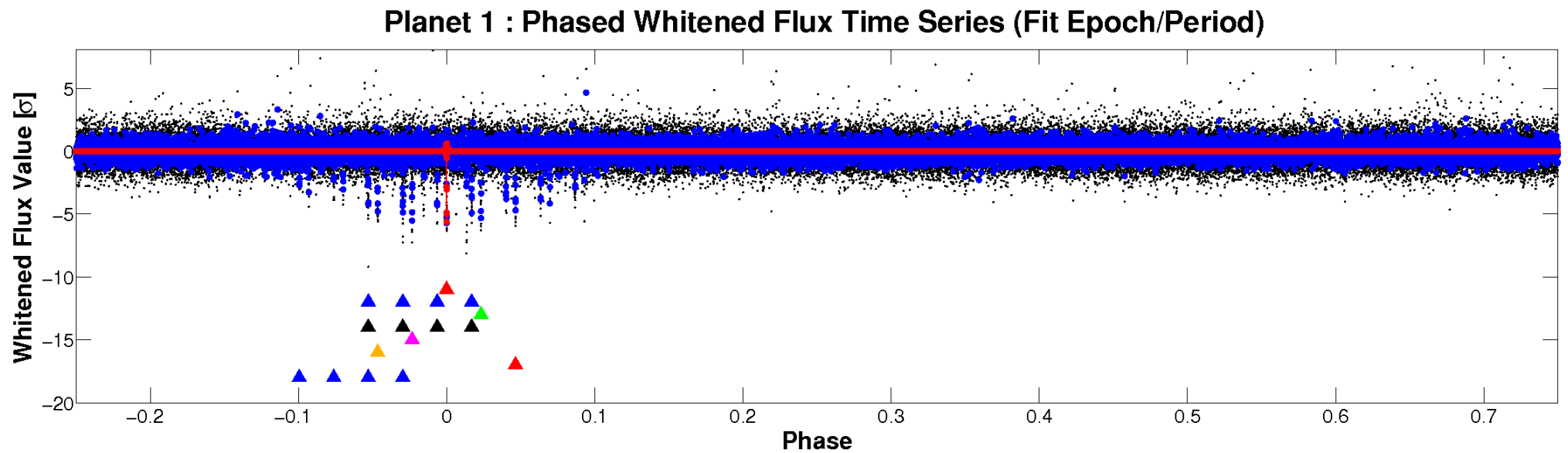
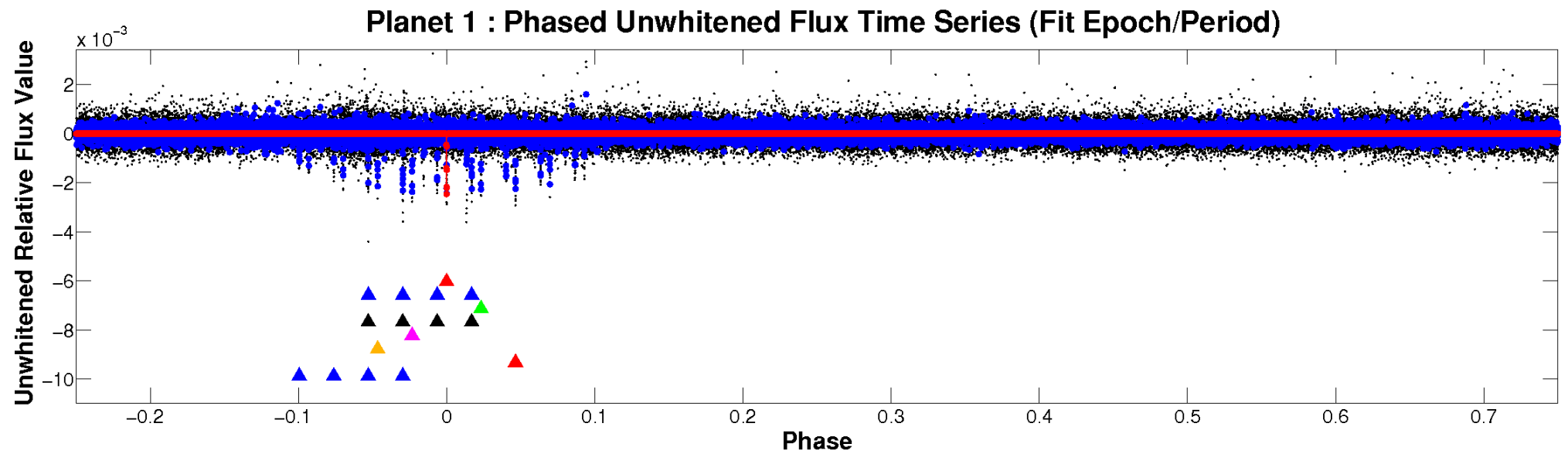


# ALT Odd/Even

TCE 011661803-01

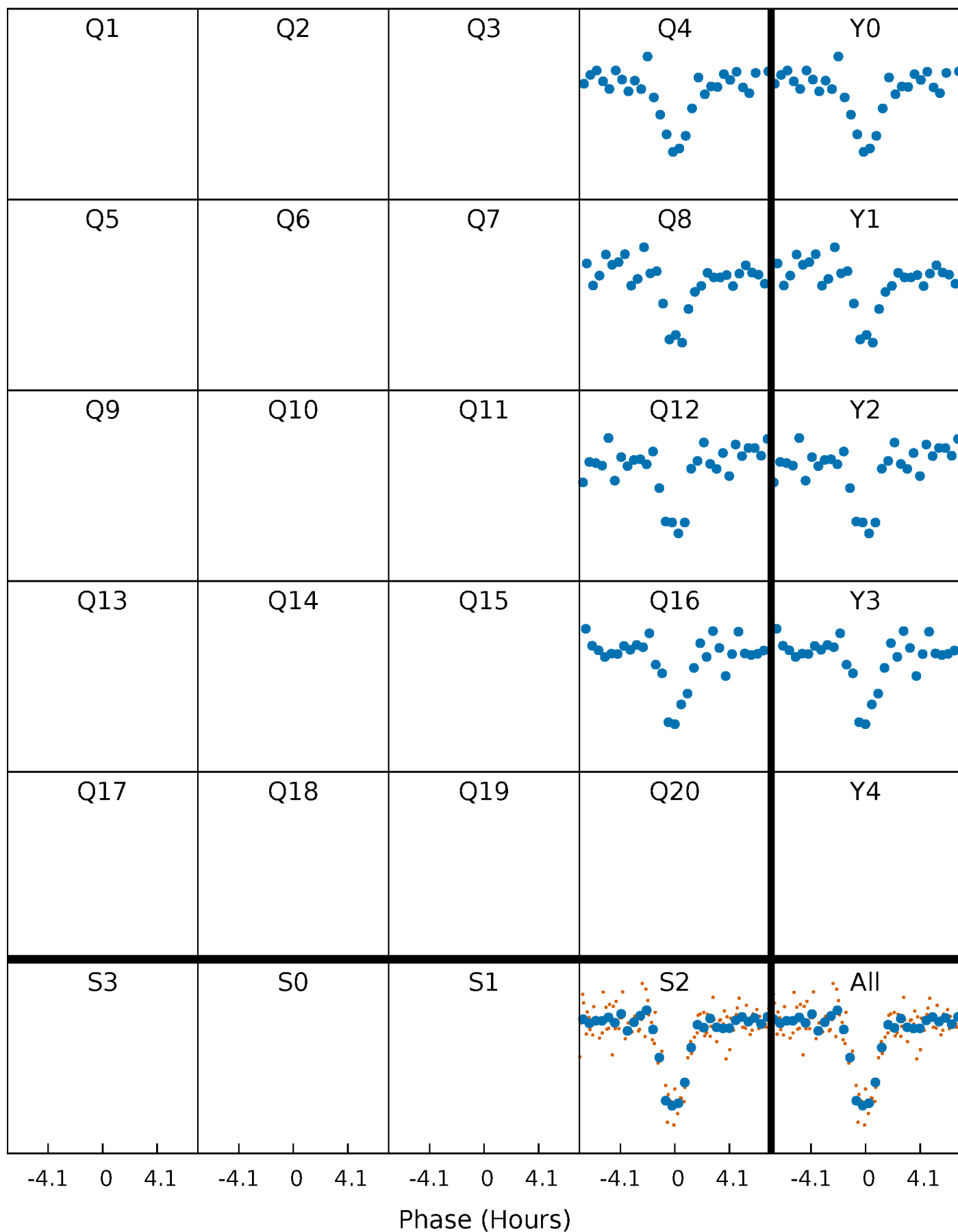


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

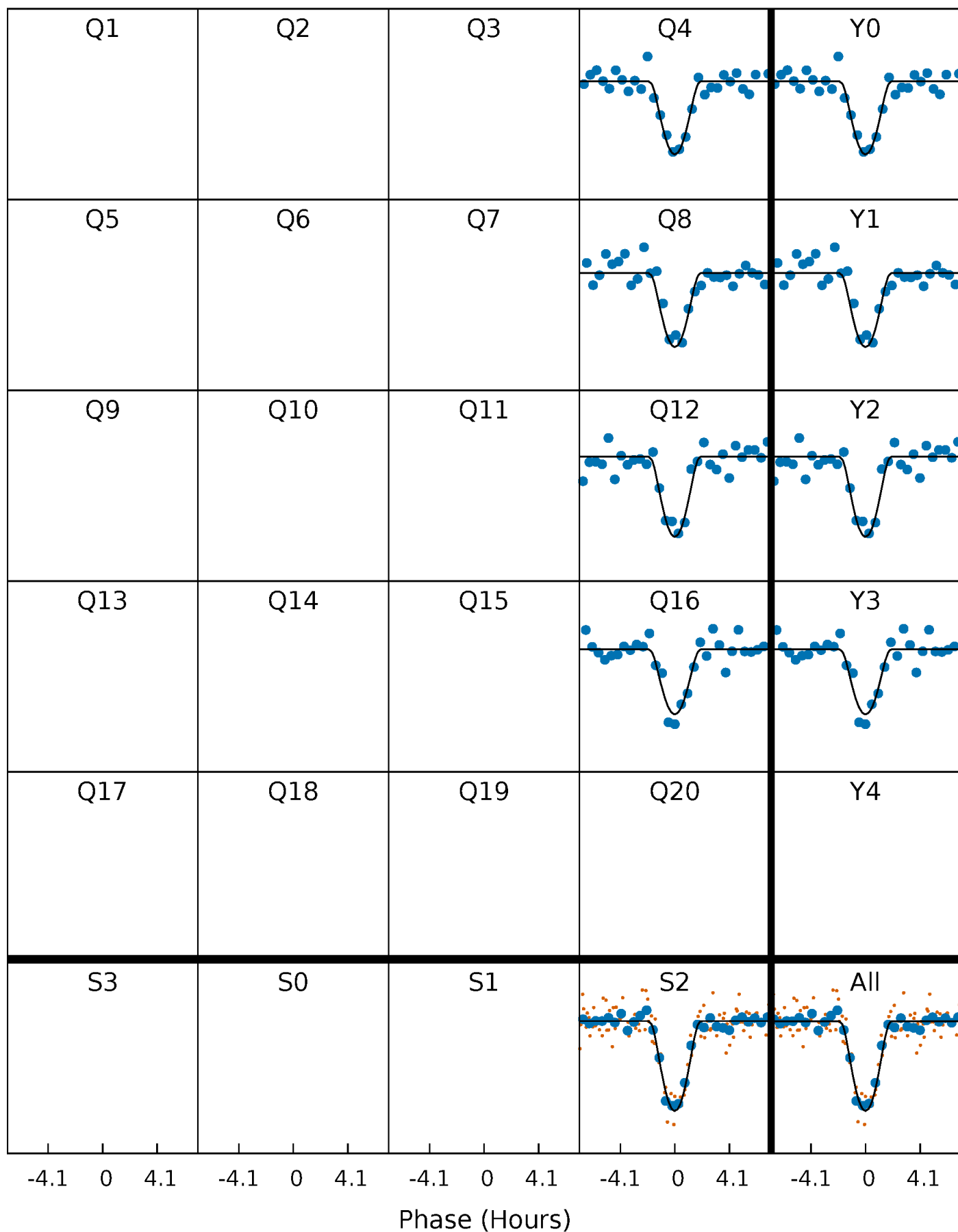
TCE 011661803-01 P=372.087078 Days  $T_0=404.899629$  (BKJD)





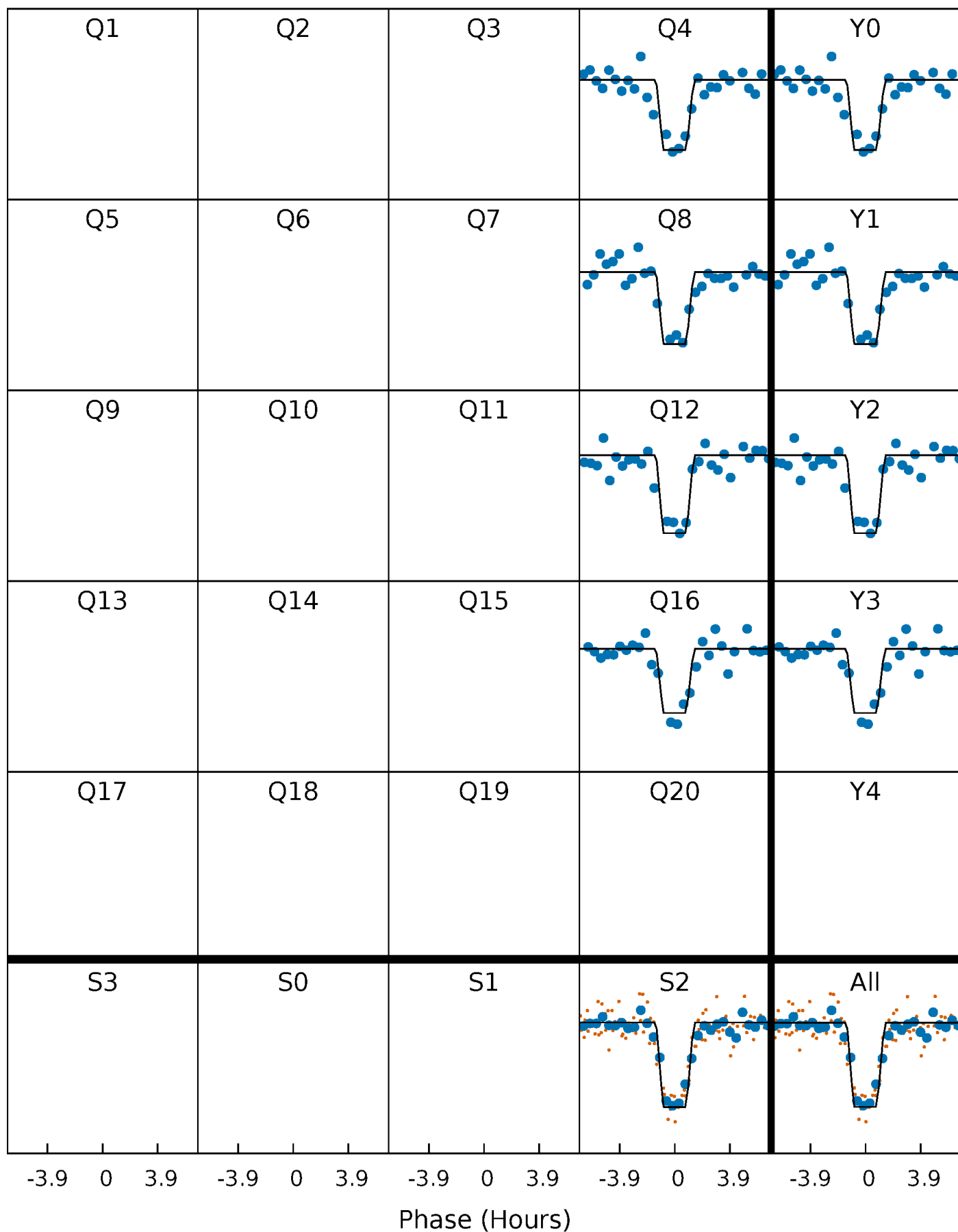
# DV Quarter-Phased Transit Curves

TCE 011661803-01 P=372.087078 Days  $T_0=404.899629$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

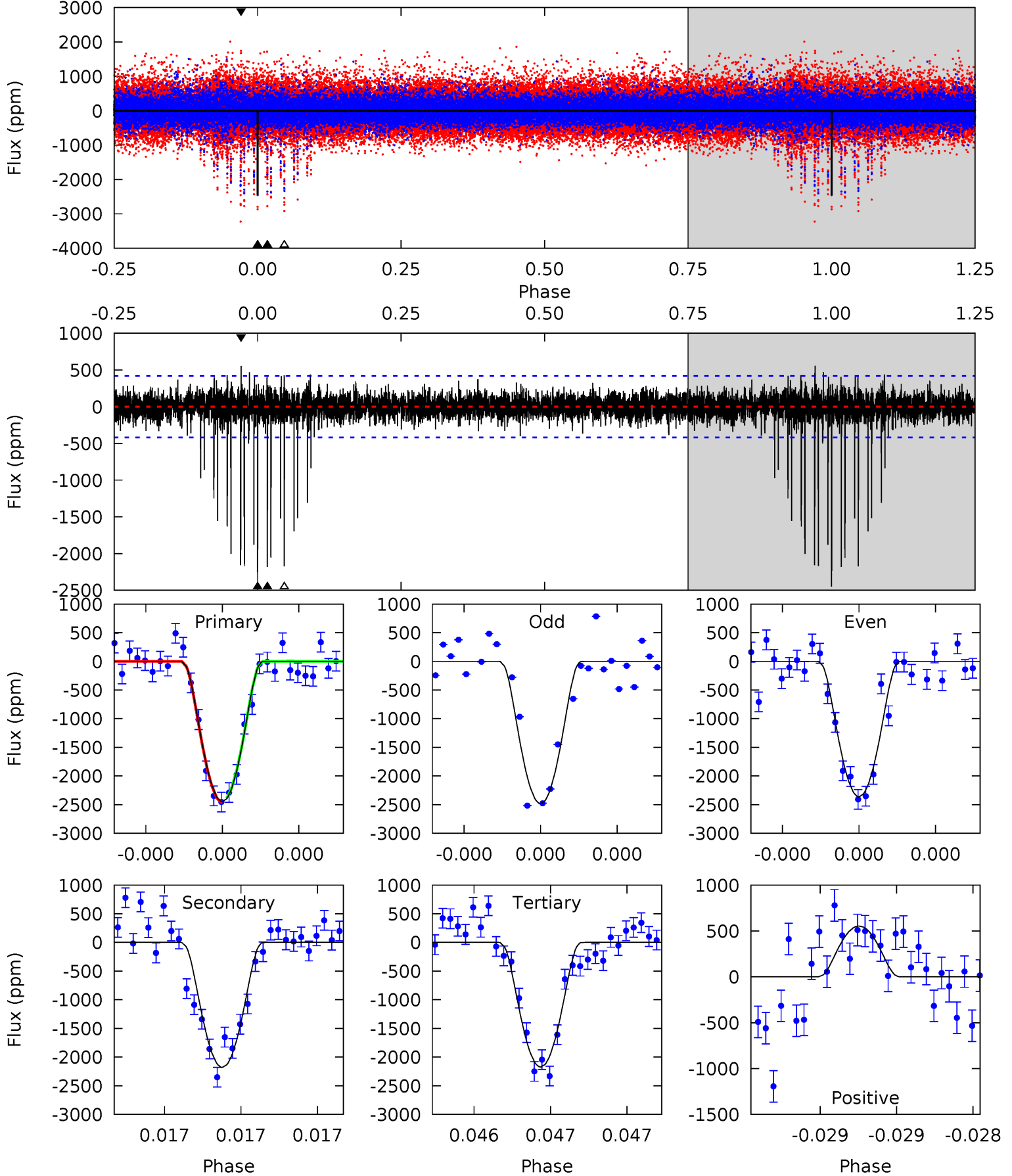
TCE 011661803-01 P=372.084438 Days  $T_0=404.903652$  (BKJD)



# DV Model-Shift Uniqueness Test

011661803-01,  $P = 372.087078$  Days,  $E = 32.812551$  Days

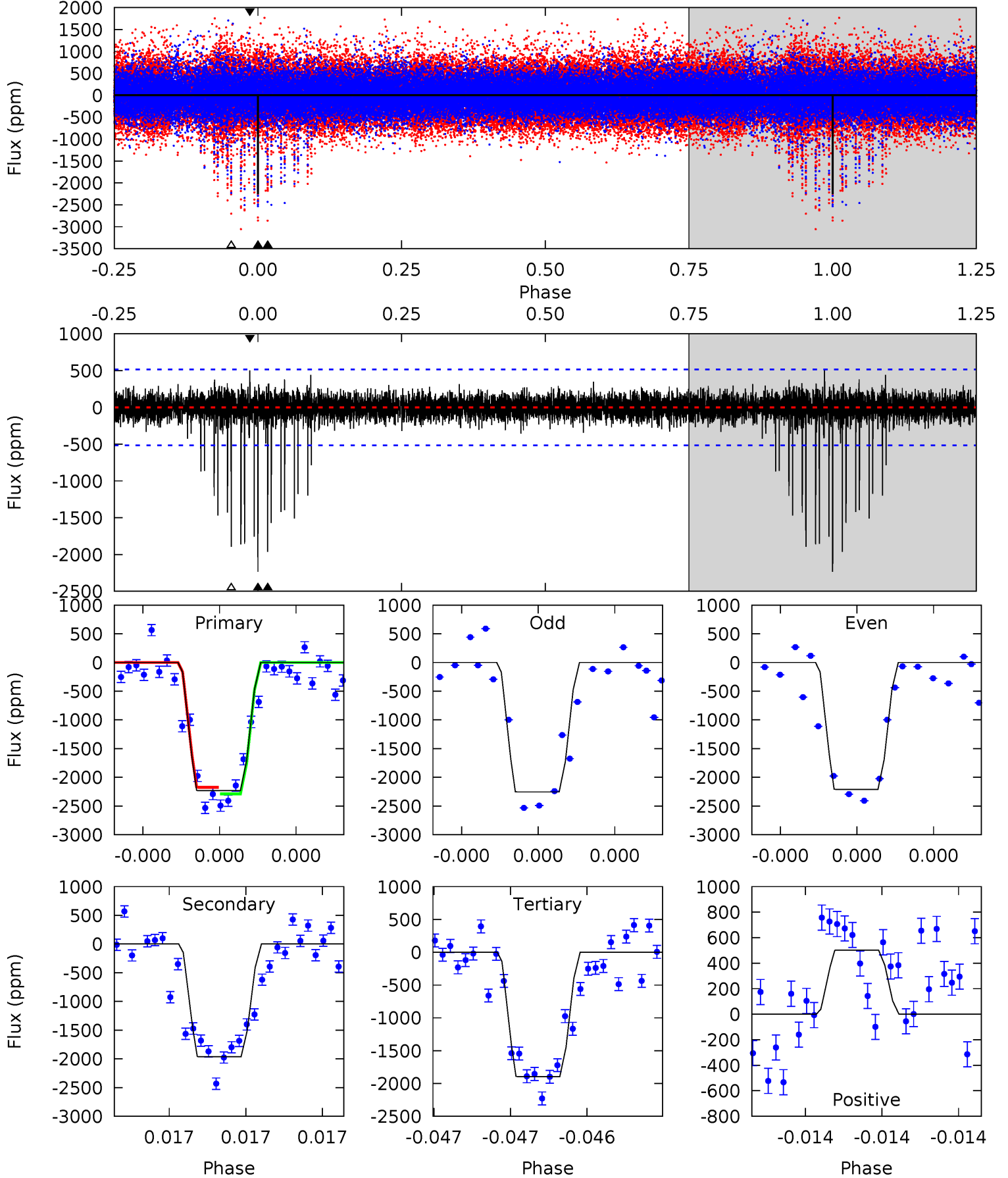
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.8	29.2	29.1	7.41	5.61	3.53	2.02	3.68	25.4	0.10	21.8	0.81	1.01	0.18	0.50



# Alt Model-Shift Uniqueness Test

011661803-01, P = 372.084438 Days, E = 32.819214 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
24.5	21.5	20.8	5.51	5.66	3.62	1.44	3.70	19.0	0.73	16.0	0.25	1.01	0.18	0.64





### Stellar Parameters For KIC 011661803

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6289^{+174}_{-240}$	$4.411^{+0.072}_{-0.217}$	$-0.080^{+0.250}_{-0.300}$	$1.093^{+0.379}_{-0.126}$	$1.121^{+0.171}_{-0.140}$	$1.210^{+0.364}_{-0.658}$
	+3%/-4%	+2%/-5%	+312%/-375%	+35%/-12%	+15%/-12%	+30%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011661803-01 / KOI 8060.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2181 \pm 75$	$13.69^{+11.79}_{-9.32}$	$399^{+32}_{-20}$	$4325^{+3010}_{-857}$	$7214^{+63241}_{-5179}$
Alt.	$-1962 \pm 91$	$11.00^{+11.47}_{-7.39}$	$400^{+30}_{-22}$	$4570^{+3415}_{-977}$	$9706^{+82468}_{-7319}$

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

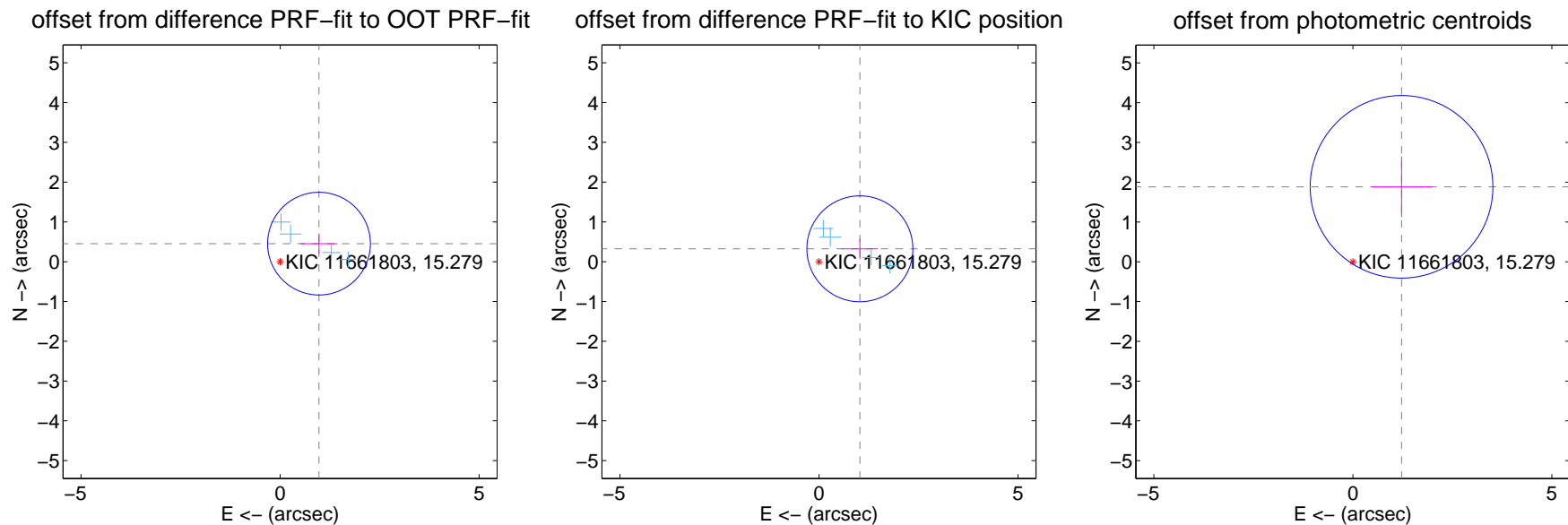
## DV Centroid Data

Supplemental centroid analysis for 011661803-01. Kepler magnitude: 15.28. Transit SNR 19.77

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.077 \pm 0.430$	2.50	$-0.977 \pm 0.459$	$0.454 \pm 0.256$
PRF-fit source offset from KIC position	$1.077 \pm 0.444$	2.43	$-1.027 \pm 0.458$	$0.324 \pm 0.256$
photometric centroid source offset	$2.25 \pm 0.77$	2.94	$-1.22 \pm 0.77$	$1.88 \pm 0.76$



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

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



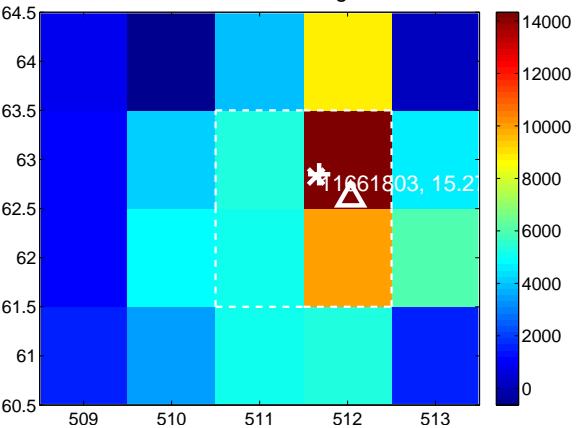
Q3 no difference image



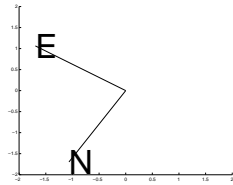
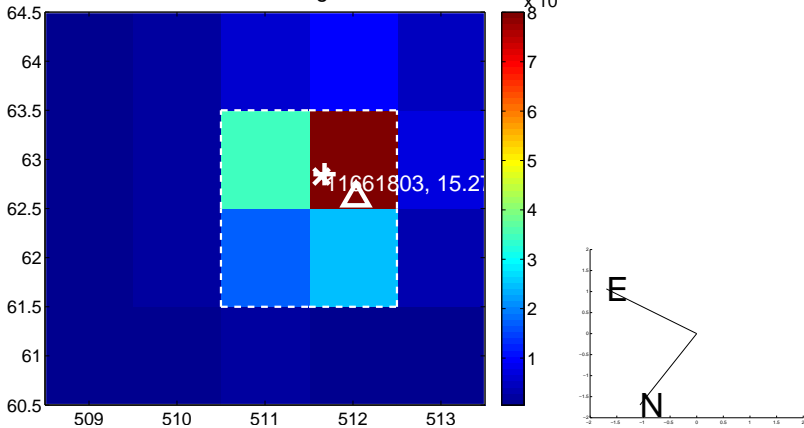
Q3 no OOT image



Q4 difference image



Q4 OOT image



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

Q5 no difference image



Q5 no OOT image



Q6 no difference image



Q6 no OOT image



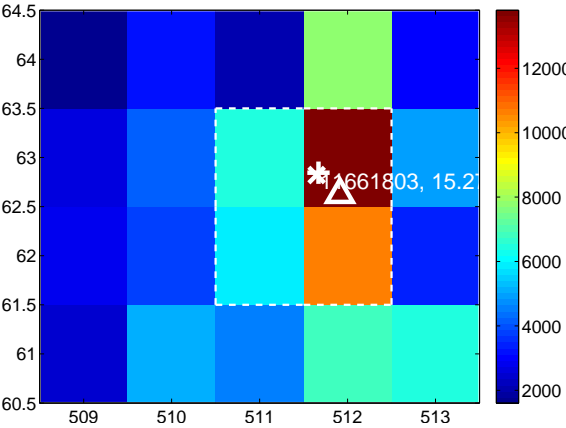
Q7 no difference image



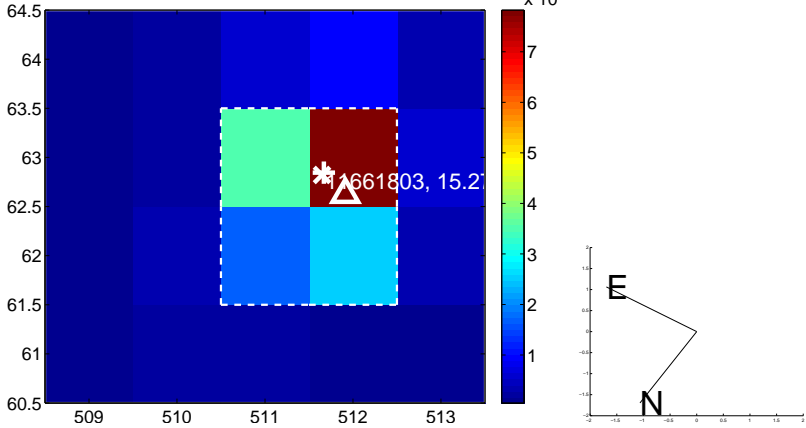
Q7 no OOT image



Q8 difference image

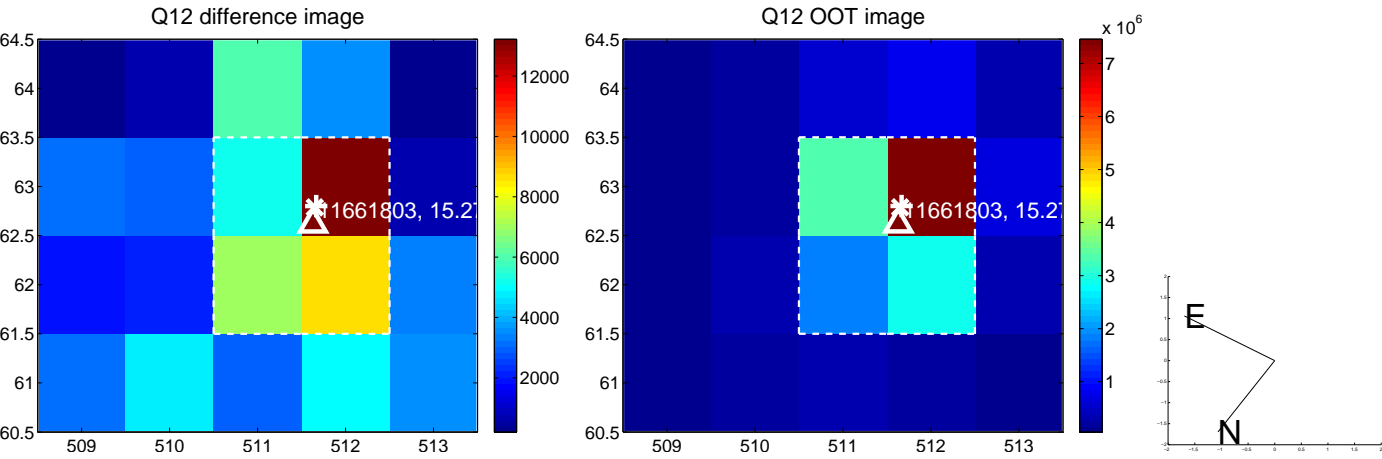
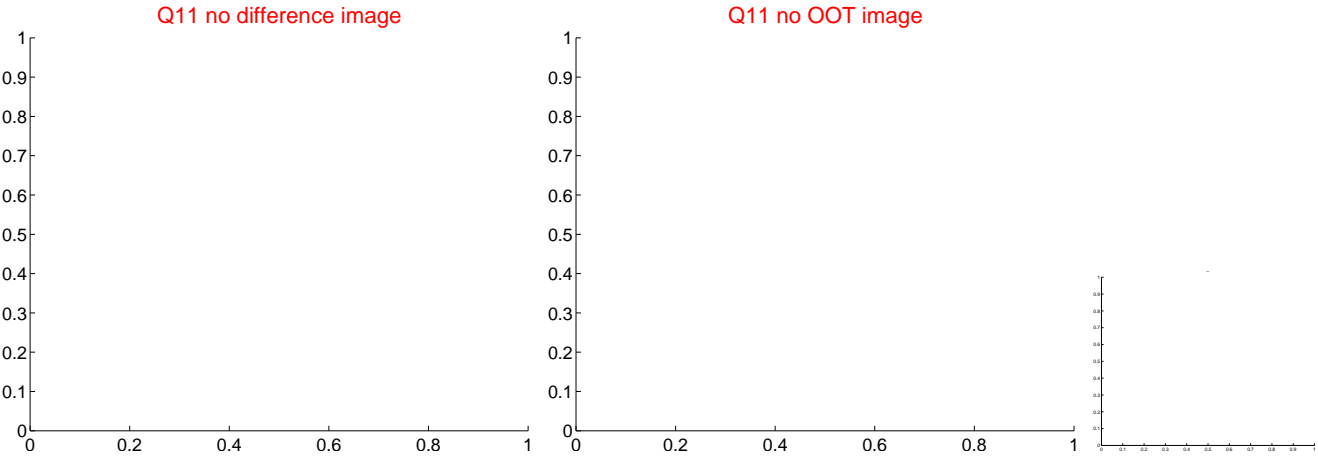
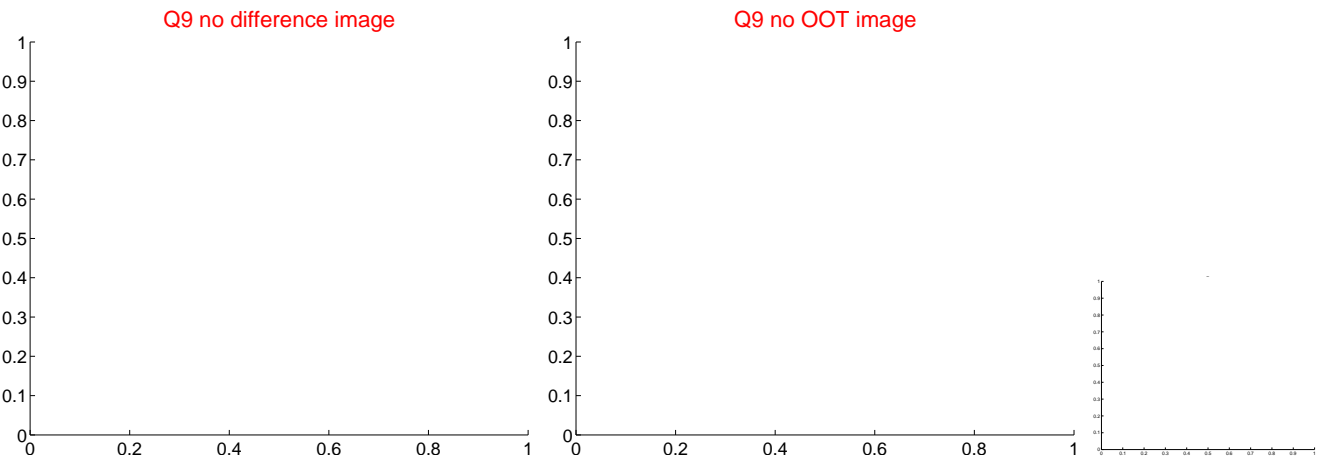


Q8 OOT image

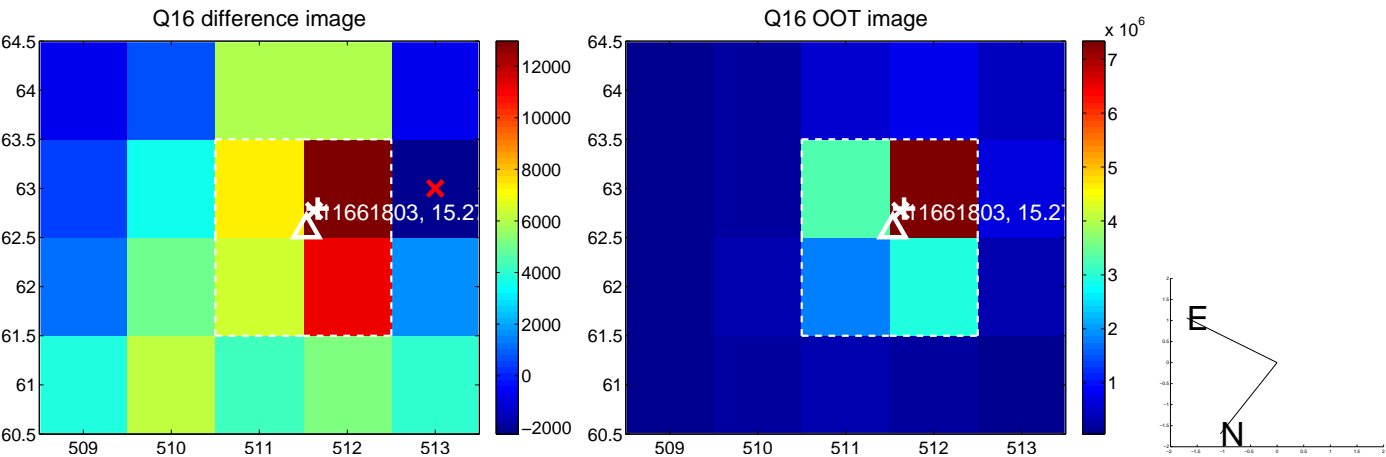




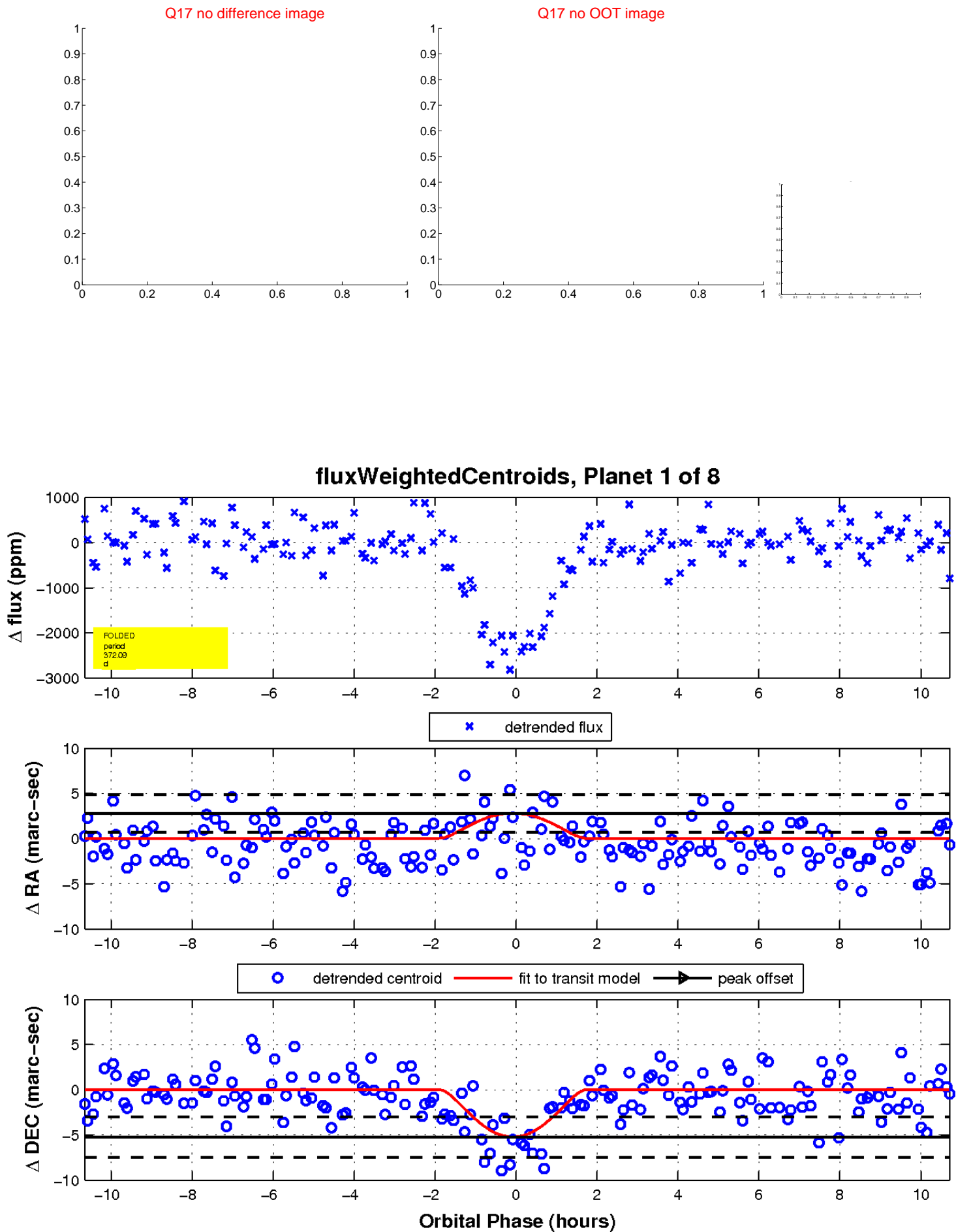
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

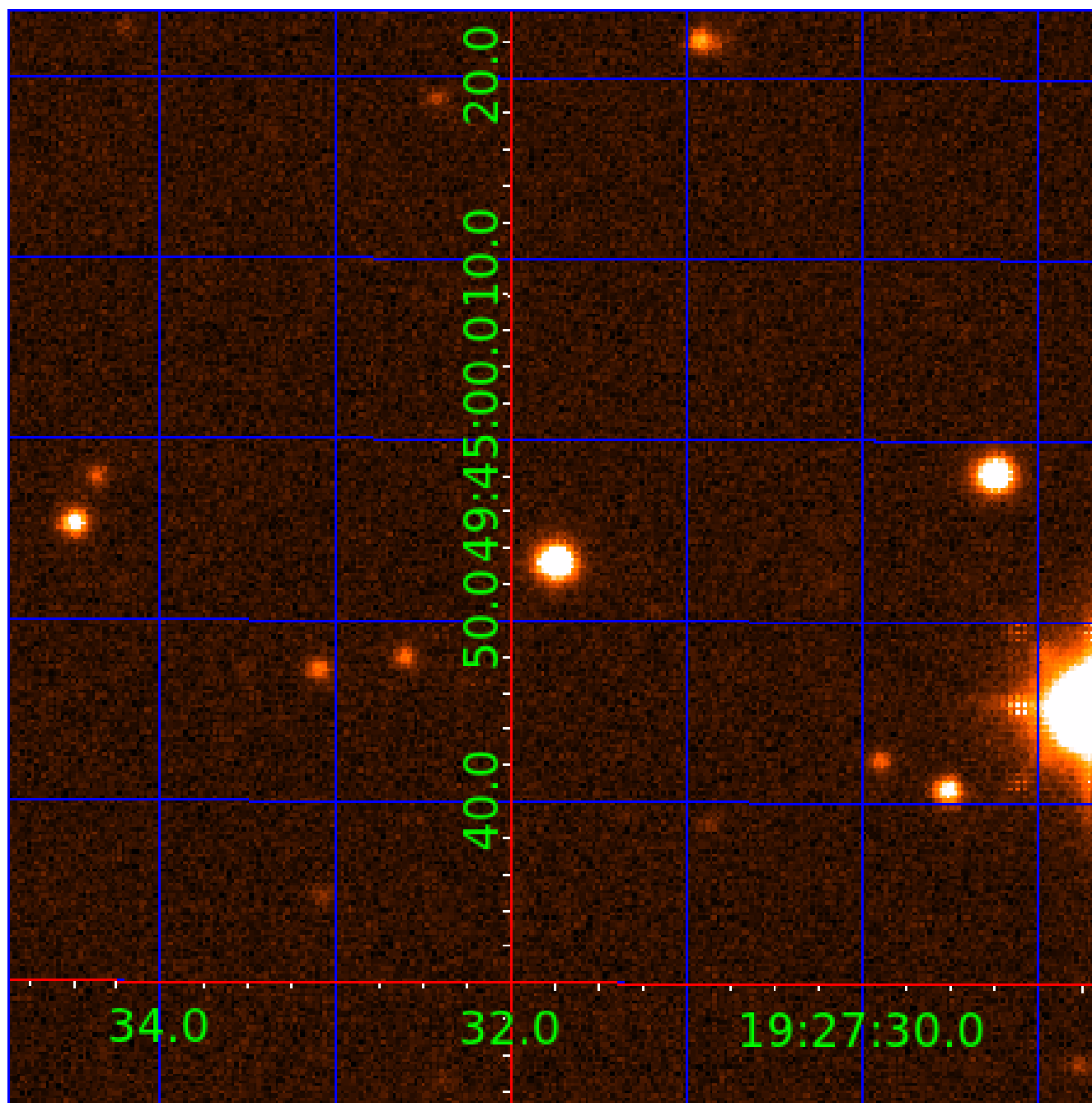


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 011661803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011661803-01	OBS	8060.01	372.087077	404.899629	2489.5	3.587	19.9	19.8	1.09	6289	9.22	1.51
011661803-02	OBS	8060.02	363.447672	411.193981	2024.6	5.417	18.5	17.5	1.09	6289	8.55	1.56
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011661803-07	OBS	No	372.079361	422.220950	2363.3	3.340	15.9	16.7	1.09	6289	8.59	1.51
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011661803-01	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES
011661803-02	OBS	FP	0.00	0	1	1	0	DEEP_V_SHAPED—HAS_SEC_TCE—HALO_GHOST
011661803-03	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_TER_DV—MOD_TER_ALT—SAME_NTL_PERIOD
011661803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
011661803-05	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD
011661803-06	OBS	FP	0.00	1	0	1	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET
011661803-07	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_FEW_DIFFS
011661803-08	OBS	FP	0.01	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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

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

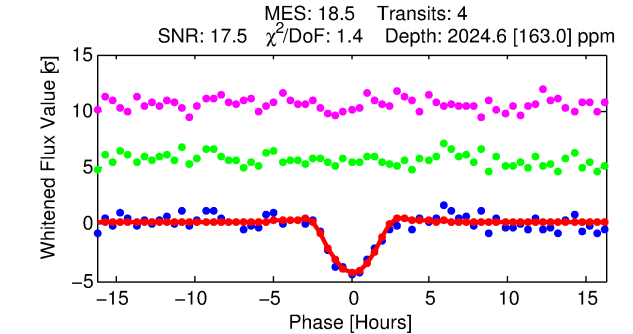
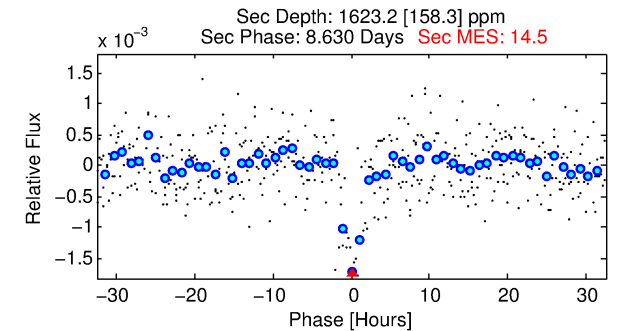
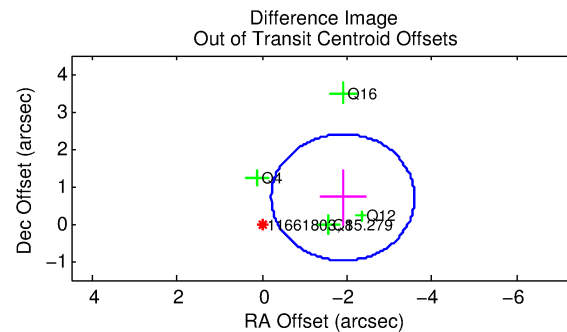
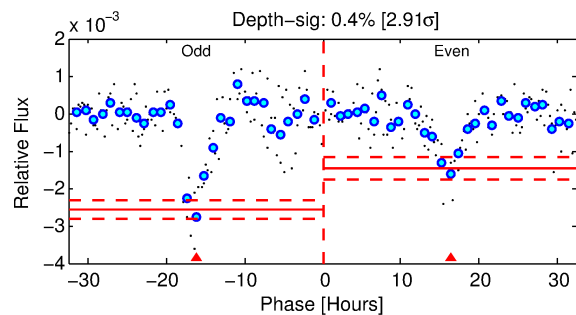
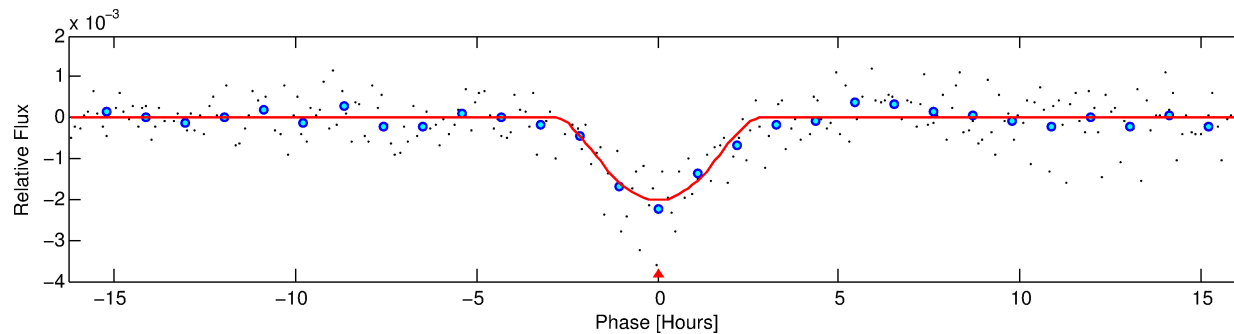
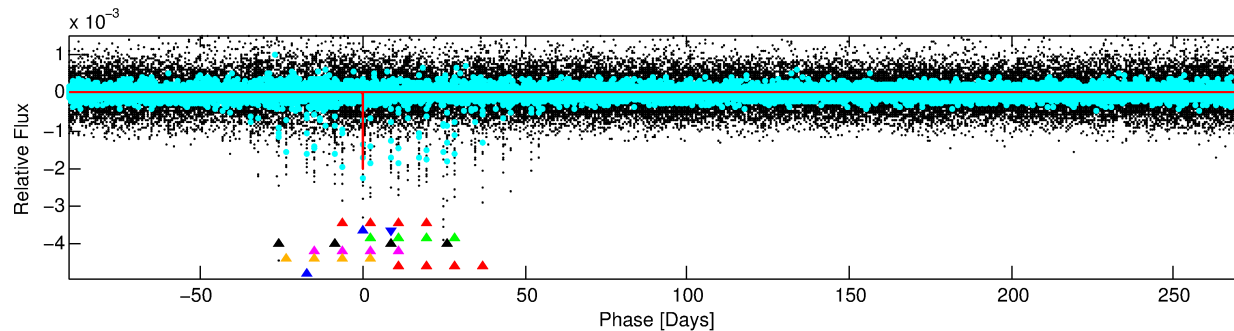
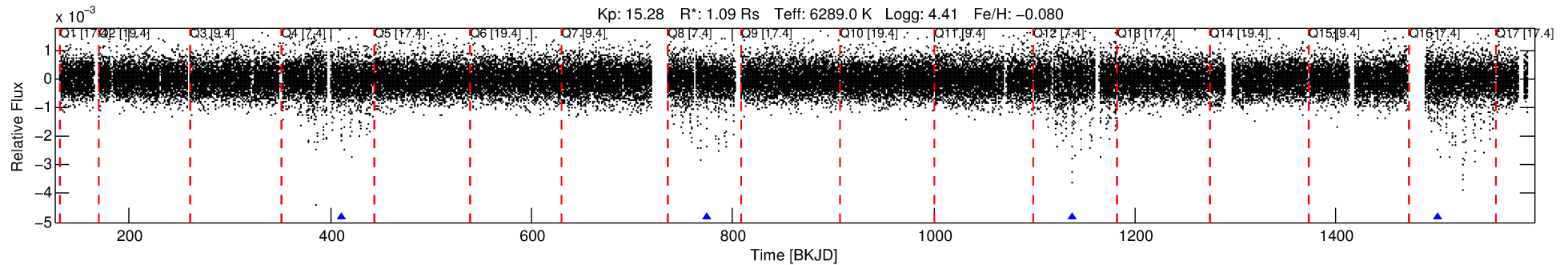
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011661803-02

No Significant Match Found

# DV One-Page Summary

KIC: 11661803 Candidate: 2 of 8 Period: 363.448 d



## DV Fit Results:

Period = 363.44767 [0.00417] d  
Epoch = 411.1940 [0.0067] BKJD  
Rp/R\* = 0.0717 [0.1689]  
a/R\* = 207.66 [121.14]  
b = 0.99 [0.26]  
Seff = 1.56 [0.68]  
Teq = 285 [31] K  
Rp = 8.55 [20.36] Re  
a = 1.0361 [0.2952] AU  
Ag = 13109.08 [61994.57] [0.21 $\sigma$ ]  
Teffp = 4714 [5556] K [0.80 $\sigma$ ]

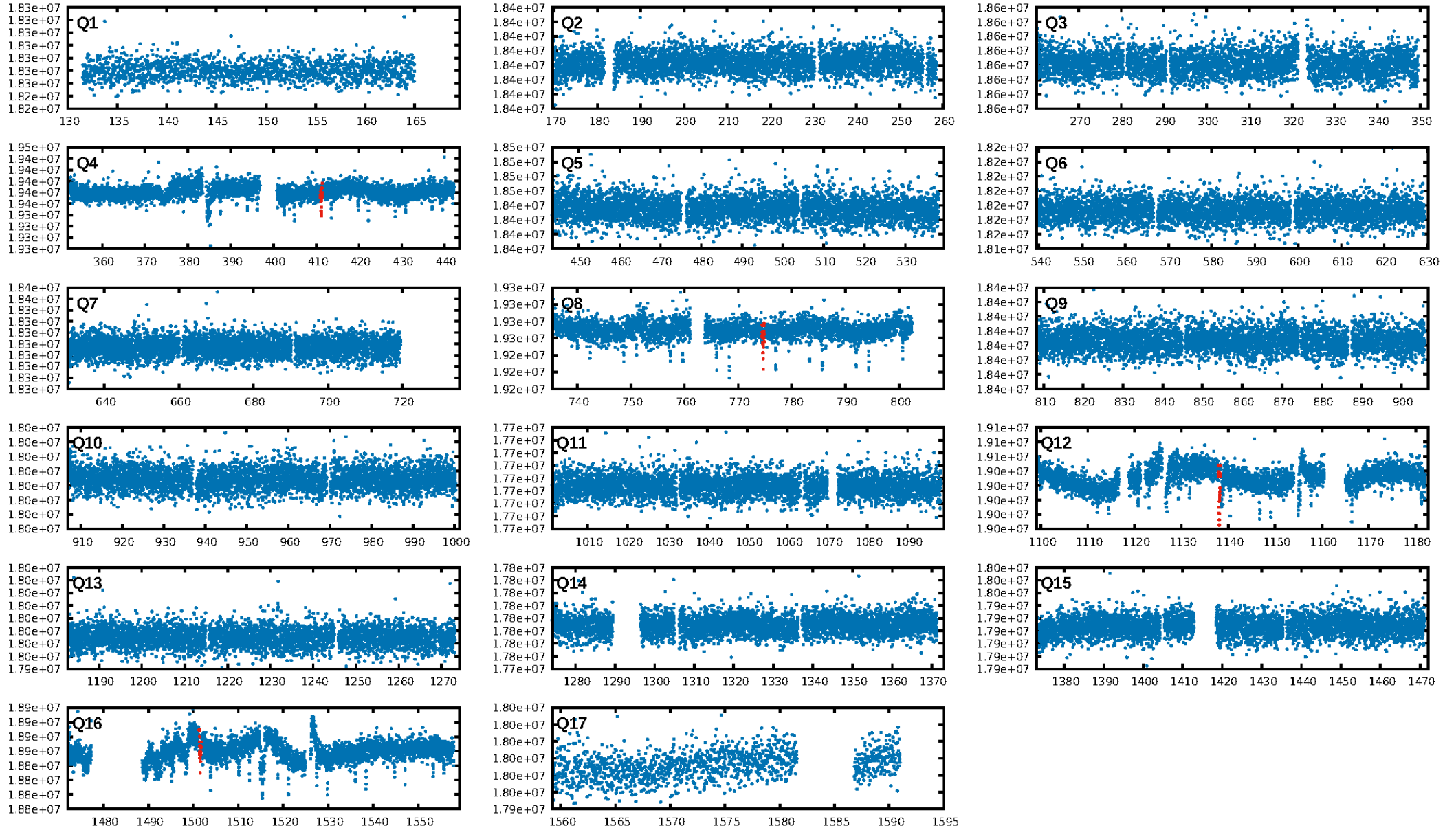
## DV Diagnostic Results:

ShortPeriod-sig: 9.1% [0.11 $\sigma$ ]  
LongPeriod-sig: 100.0% [32.55 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 64.5%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.2455  
Centroid-sig: 0.0%  
Centroid-so: 4.095 arcsec [4.86 $\sigma$ ]  
OotOffset-rm: 2.035 arcsec [3.61 $\sigma$ ]  
KicOffset-rm: 2.050 arcsec [3.74 $\sigma$ ]  
OotOffset-st: 0/0/4/0 [4]  
KicOffset-st: 0/0/4/0 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 1.00 [4/4]

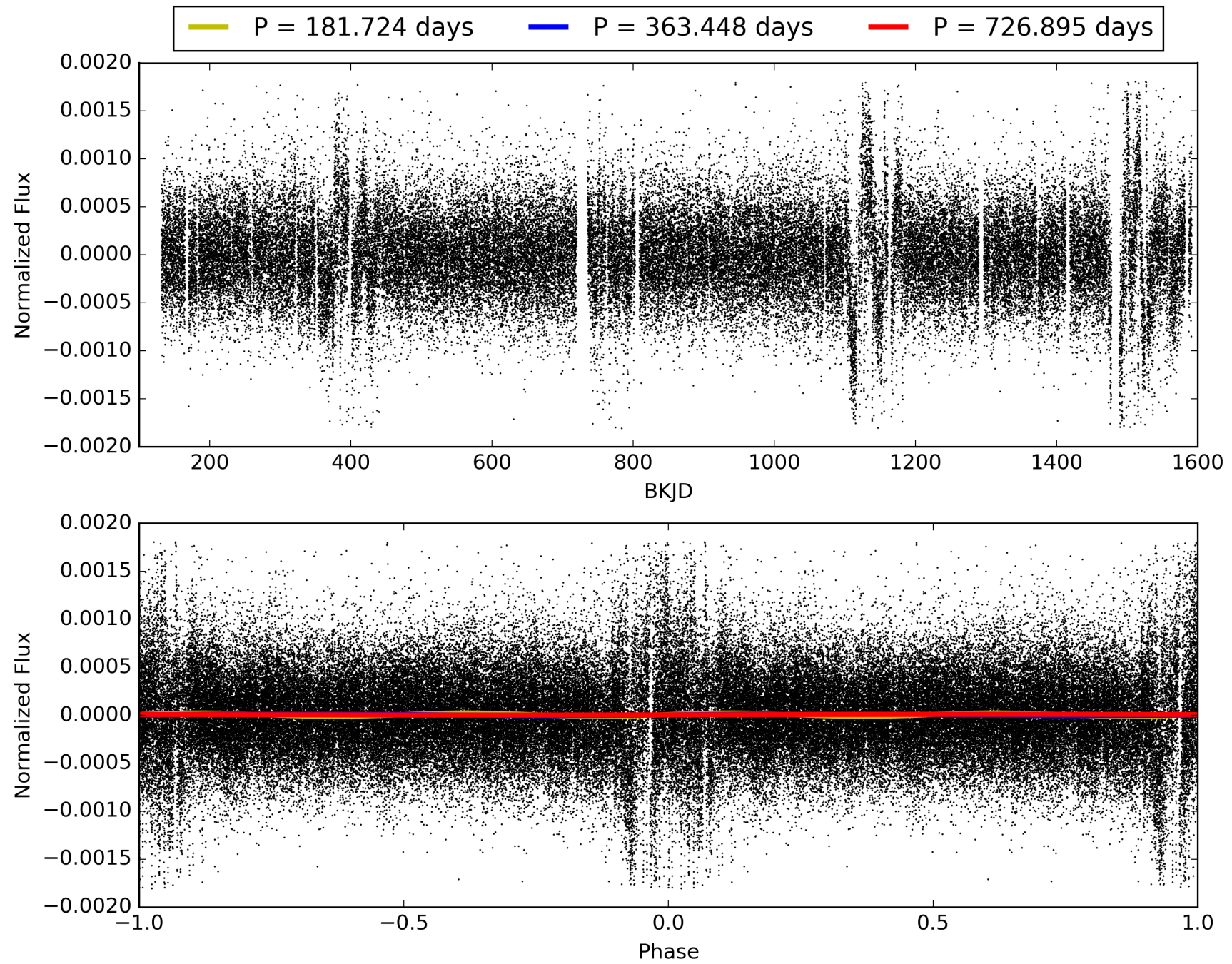
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:53:02 Z

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

# TCE 011661803-02, PDC Light Curves

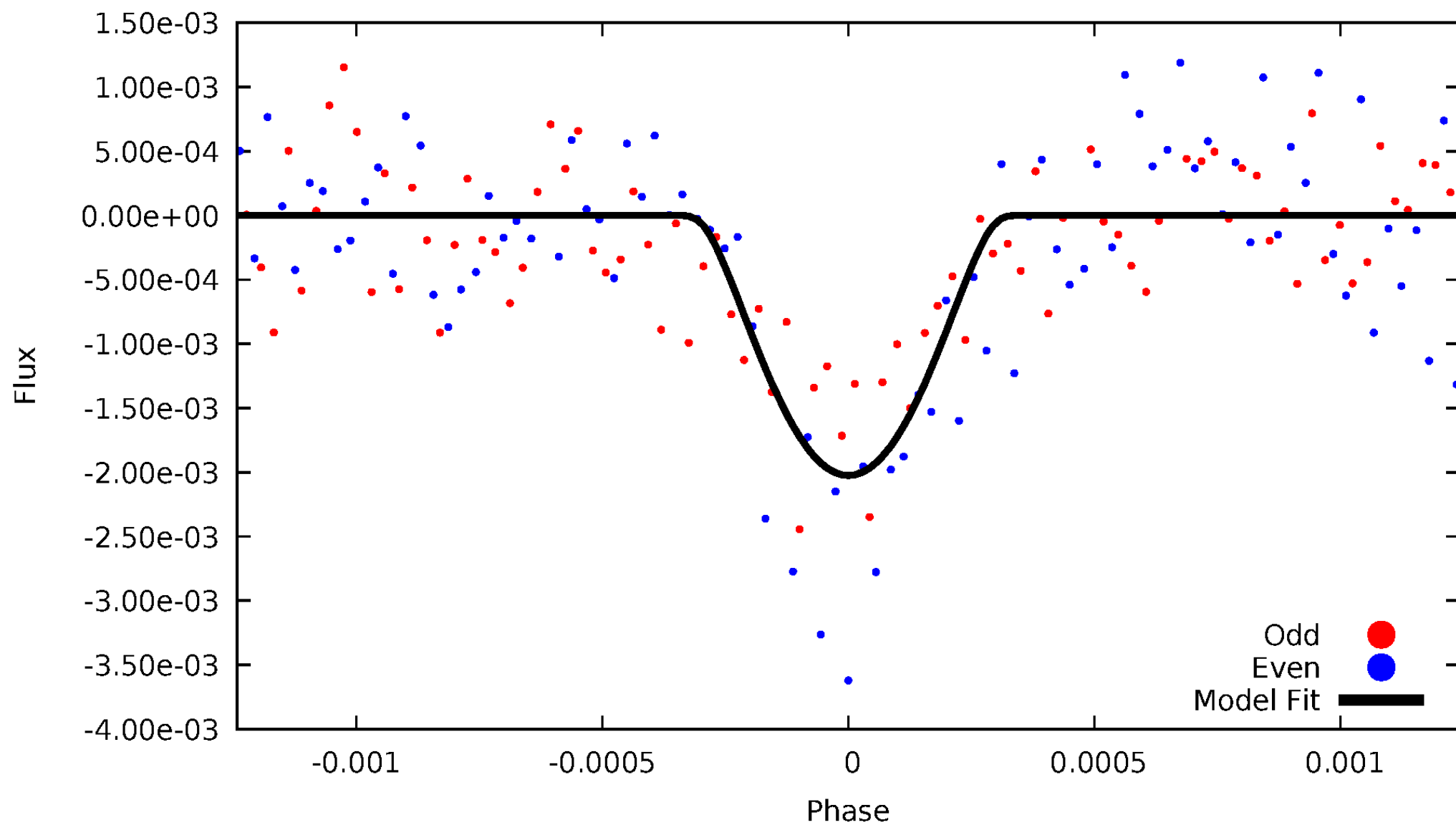


TCE 011661803-02



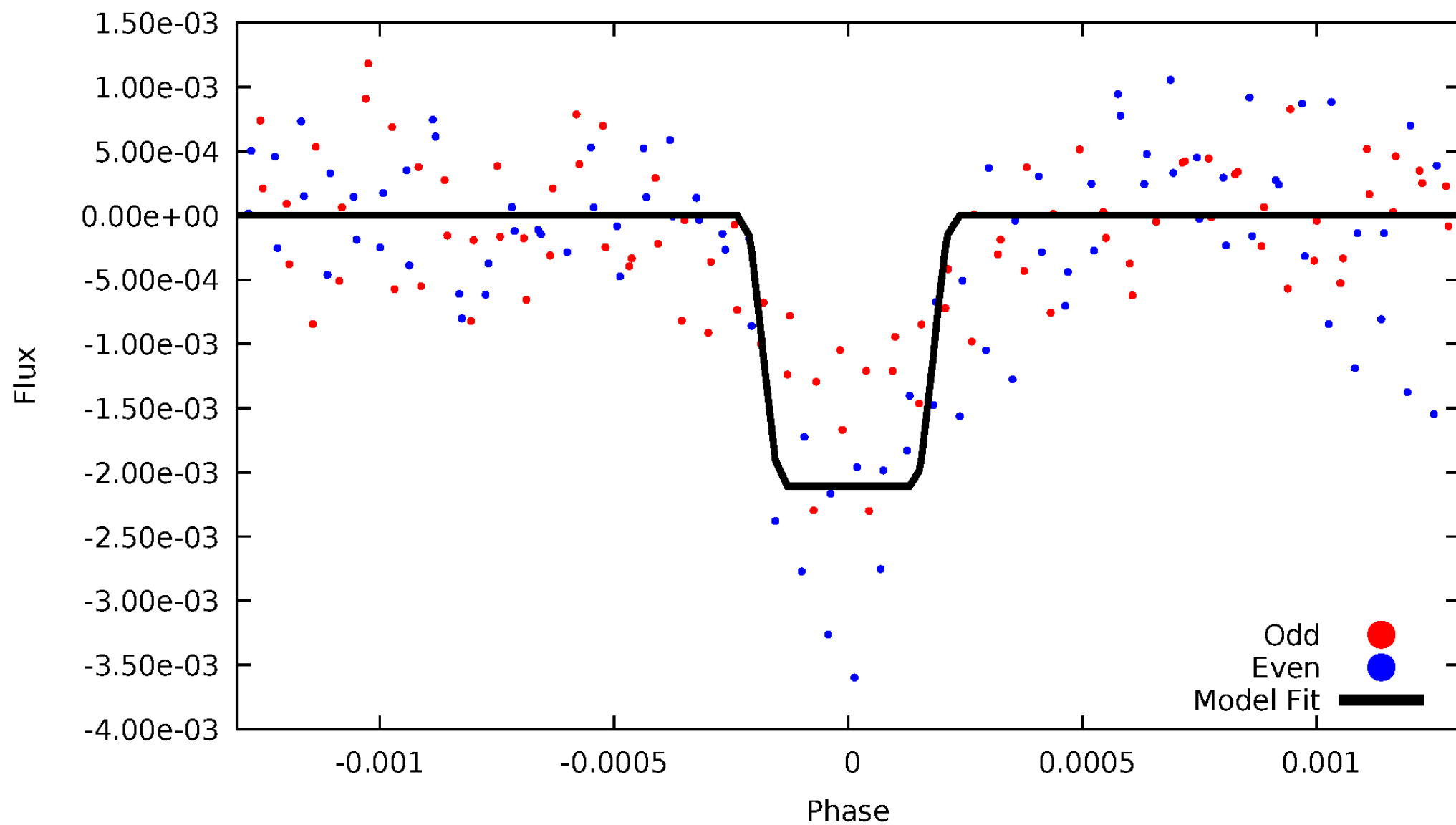
# DV Odd/Even

TCE 011661803-02



# ALT Odd/Even

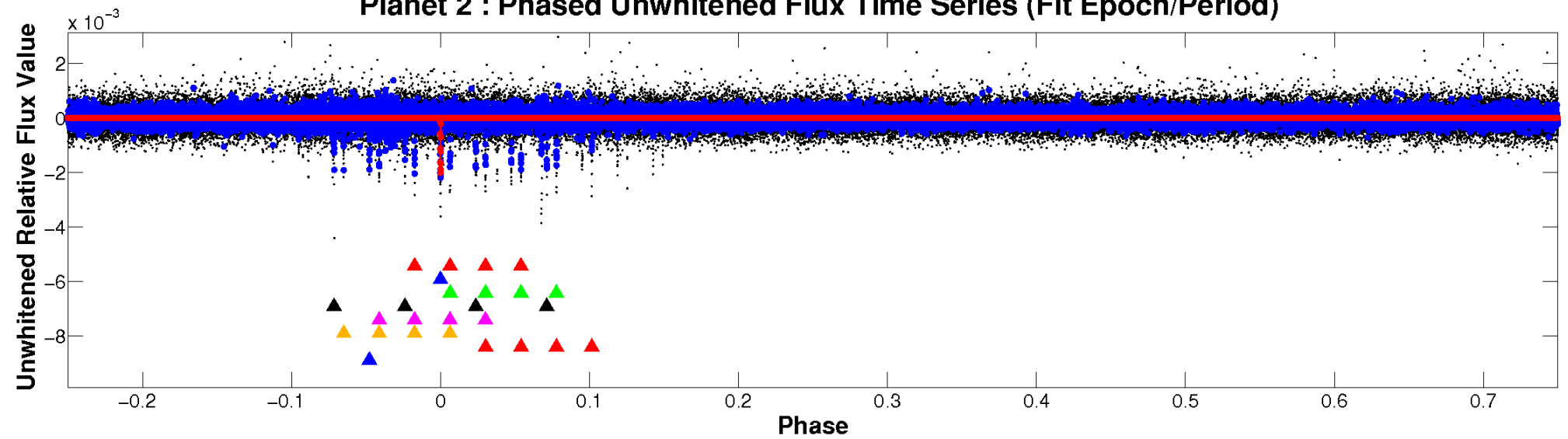
TCE 011661803-02



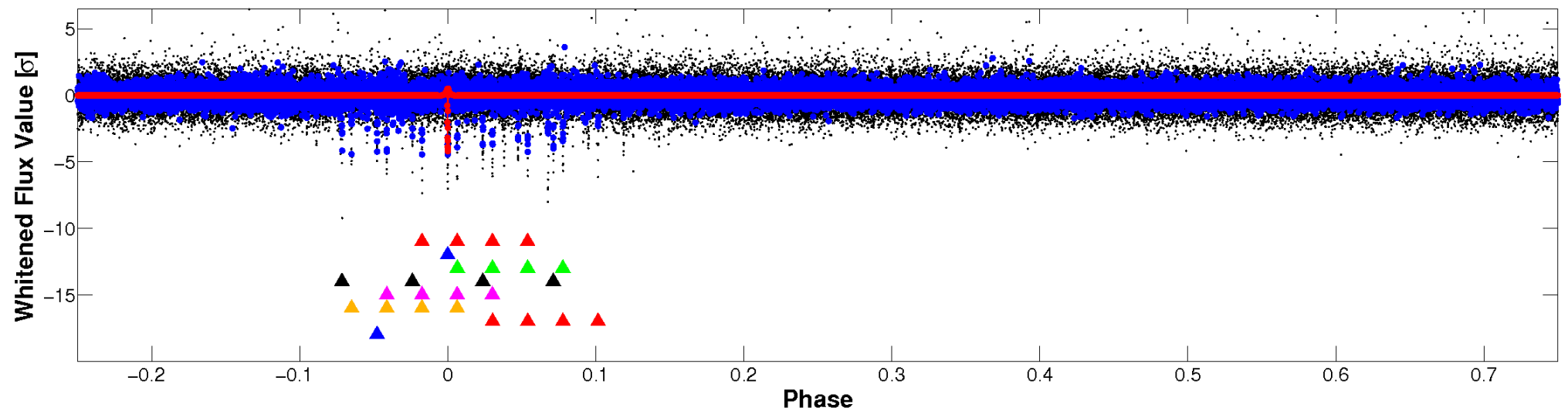


# Non-Whitened Vs. Whitened Light Curve

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



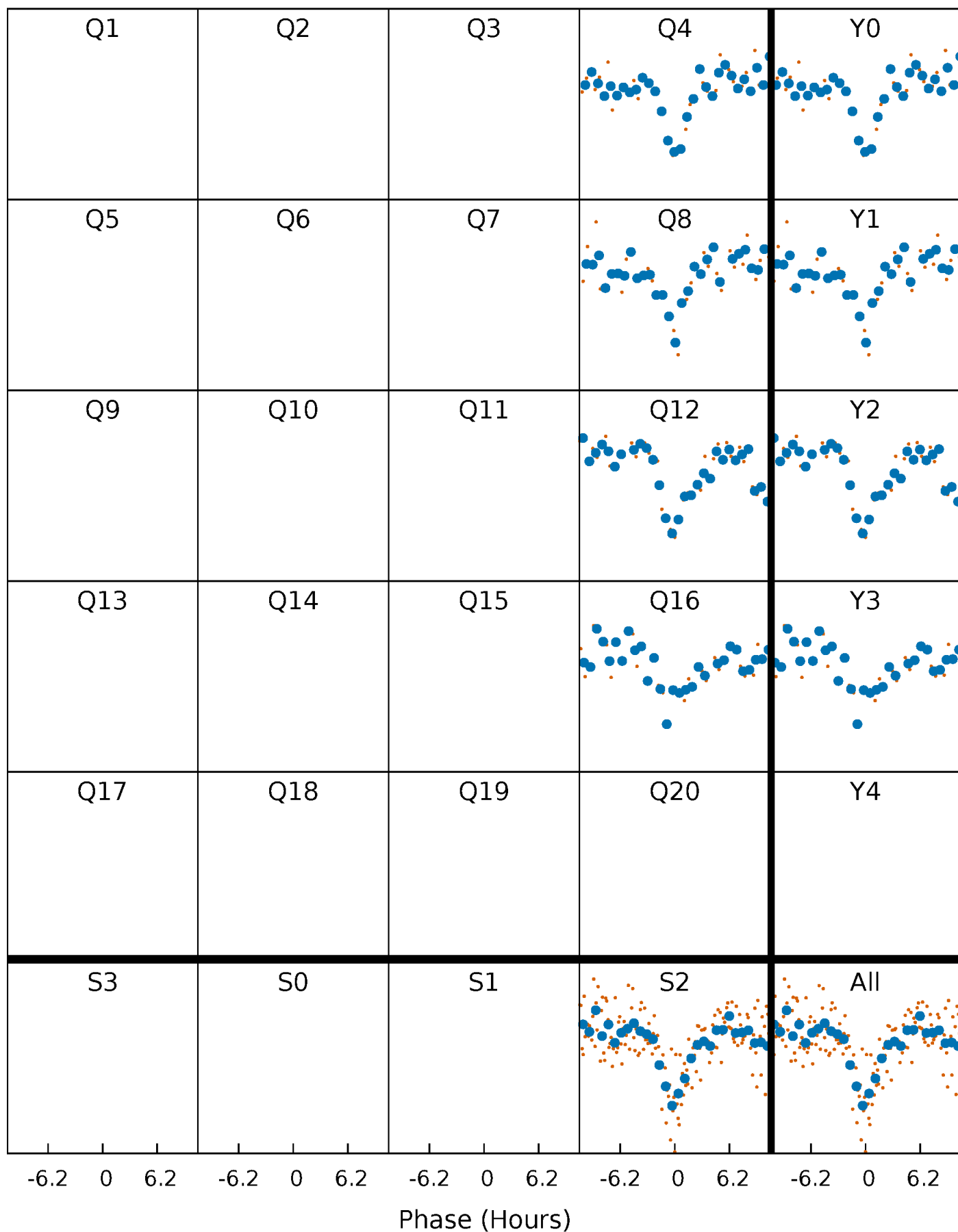
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





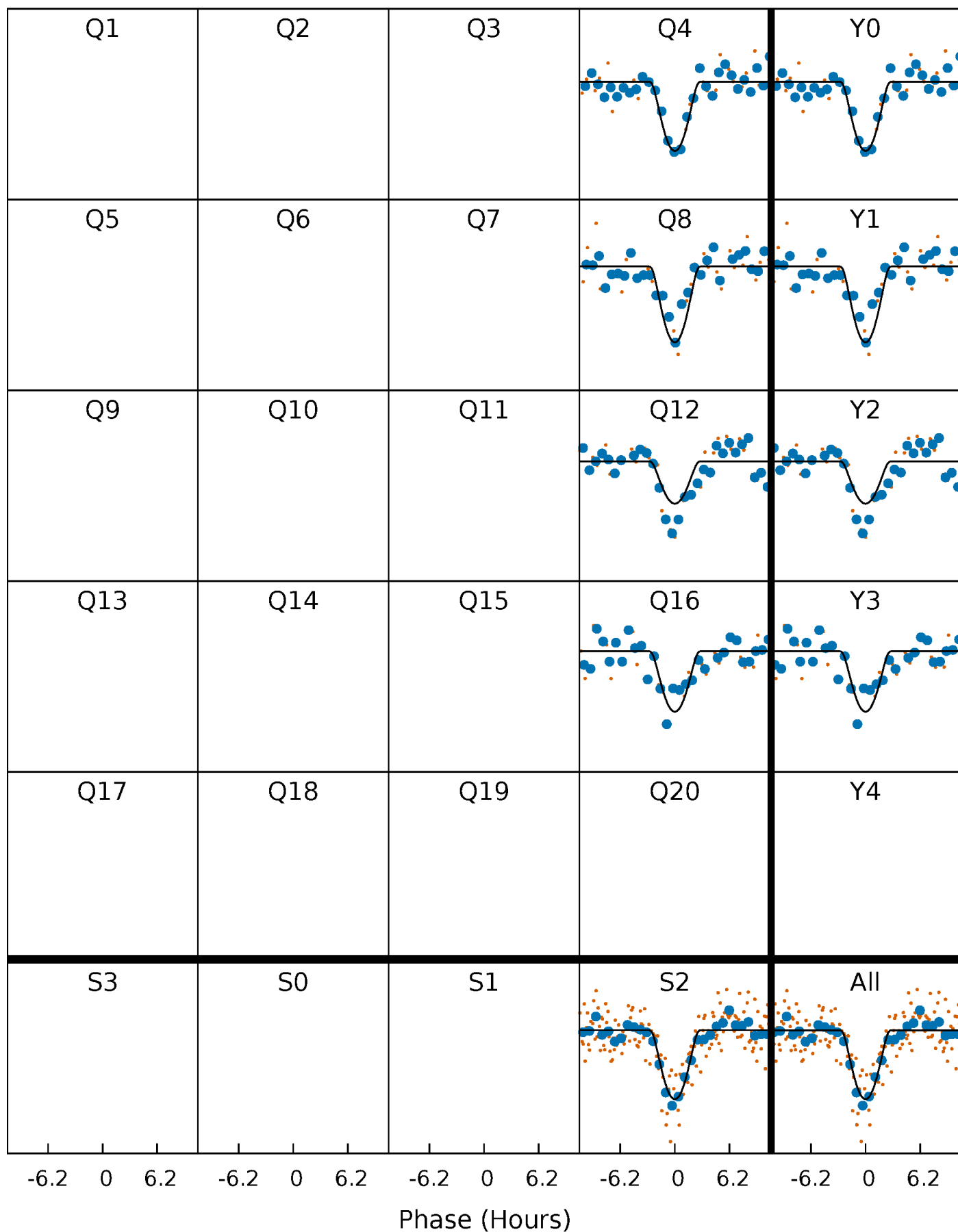
# PDC Quarter-Phased Transit Curves

TCE 011661803-02     $P=363.447672$  Days     $T_0=411.193981$  (BKJD)



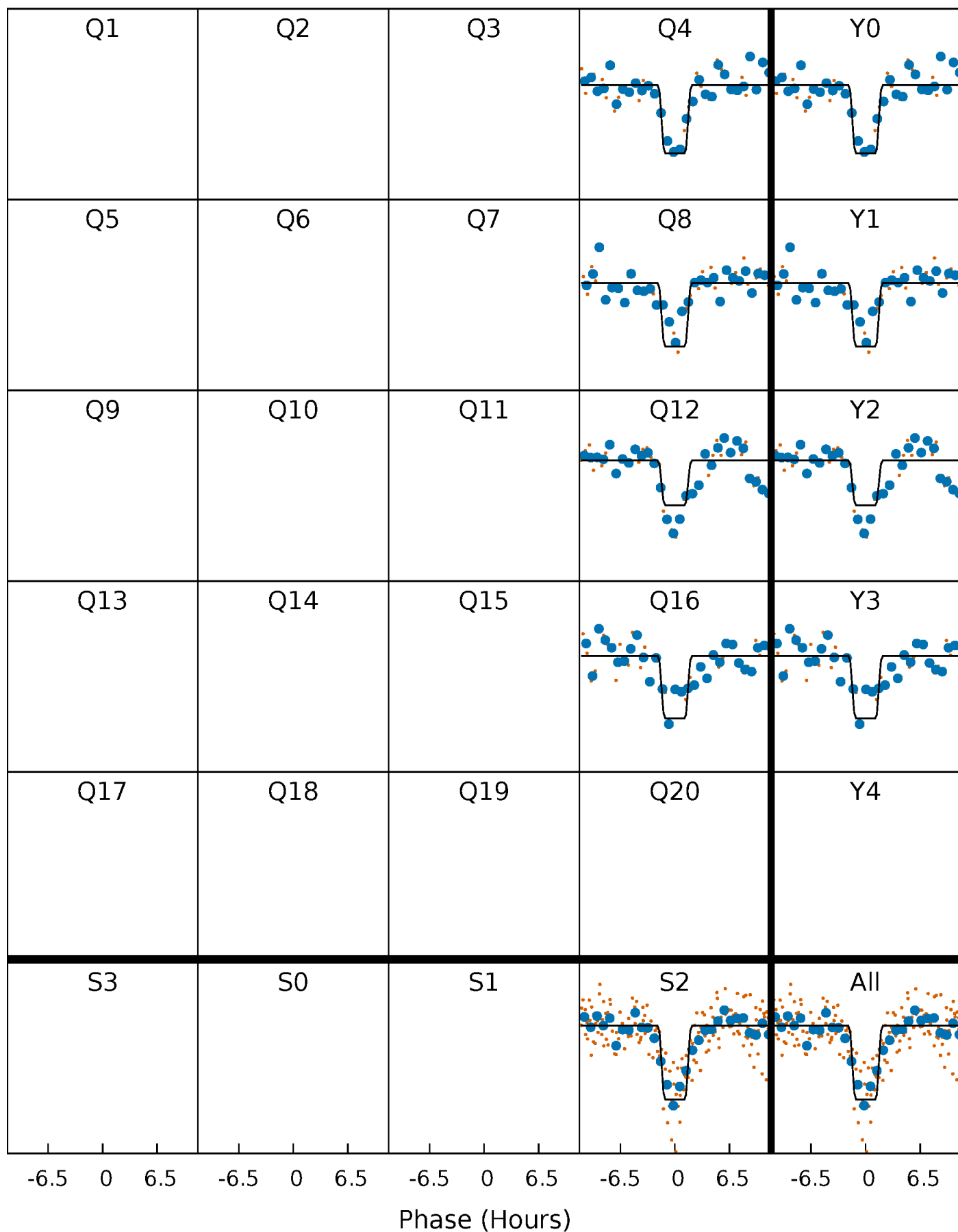
# DV Quarter-Phased Transit Curves

TCE 011661803-02     $P=363.447672$  Days     $T_0=411.193981$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

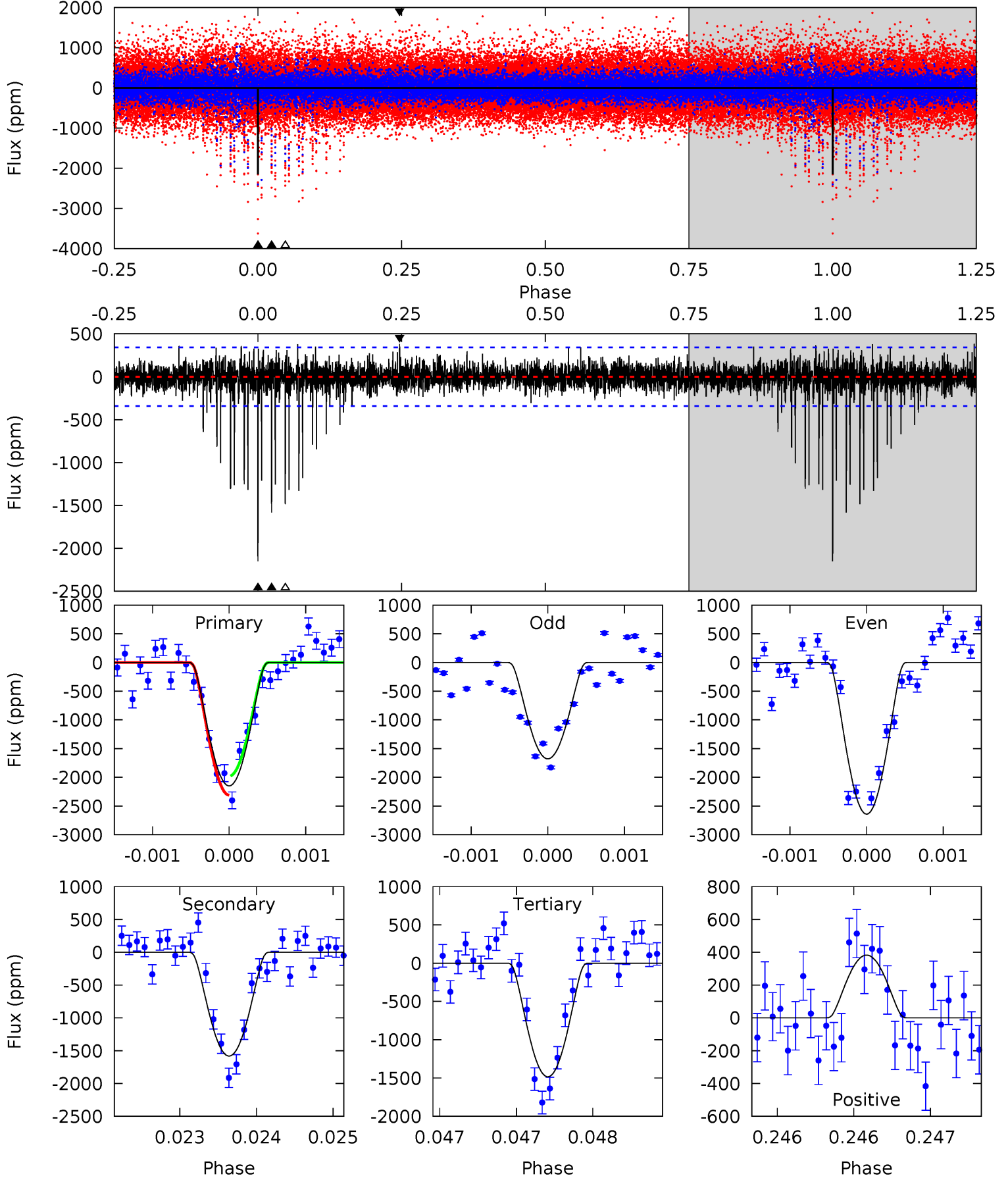
TCE 011661803-02     $P=363.443246$  Days     $T_0=411.198081$  (BKJD)



# DV Model-Shift Uniqueness Test

011661803-02, P = 363.447672 Days, E = 47.746309 Days

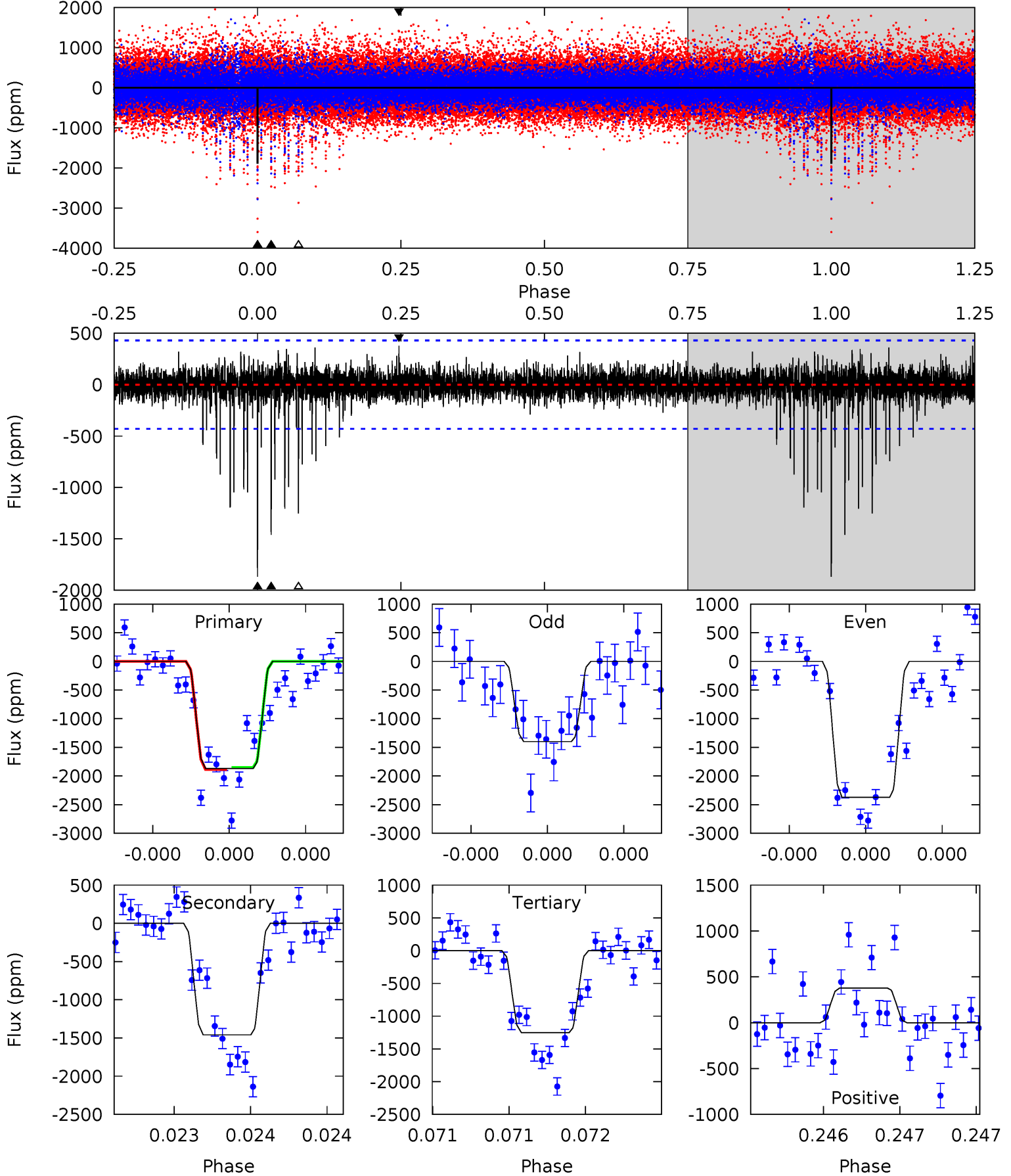
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.9	25.7	24.1	6.20	5.53	3.41	1.98	10.8	28.7	1.58	19.5	7.77	1.13	0.15	2.71



# Alt Model-Shift Uniqueness Test

011661803-02, P = 363.443246 Days, E = 47.754835 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
24.3	19.0	16.3	4.92	5.60	3.53	1.35	8.02	19.4	2.70	14.1	6.45	1.13	0.17	0.23



### Stellar Parameters For KIC 011661803

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6289^{+174}_{-240}$	$4.411^{+0.072}_{-0.217}$	$-0.080^{+0.250}_{-0.300}$	$1.093^{+0.379}_{-0.126}$	$1.121^{+0.171}_{-0.140}$	$1.210^{+0.364}_{-0.658}$
	+3%/-4%	+2%/-5%	+312%/-375%	+35%/-12%	+15%/-12%	+30%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011661803-02 / KOI 8060.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1583 \pm 62$	$17.99^{+15.76}_{-11.64}$	$404^{+31}_{-23}$	$3700^{+1960}_{-653}$	$2863^{+19983}_{-2074}$
Alt.	$-1459 \pm 77$	$16.92^{+18.17}_{-12.10}$	$401^{+31}_{-20}$	$3731^{+2365}_{-755}$	$3088^{+33246}_{-2394}$

$T_{max}$  = 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

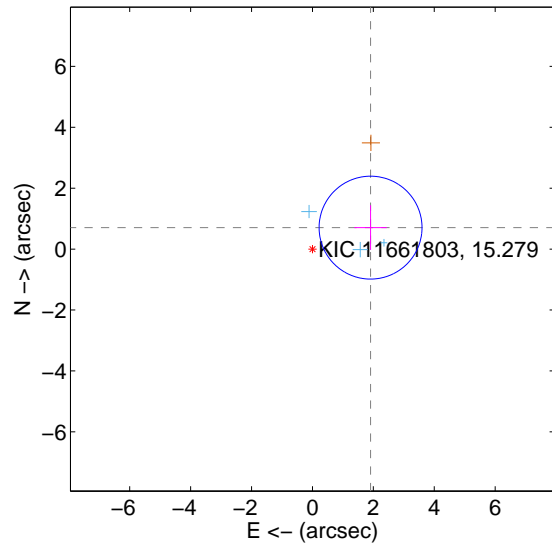
Supplemental centroid analysis for 011661803-02. Kepler magnitude: 15.28. Transit SNR 17.53

There are 3 quarters with good PRF difference image offsets

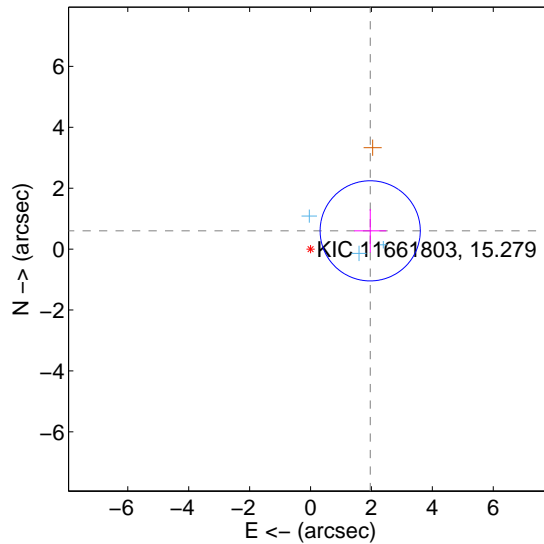
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.035 \pm 0.563$	3.61	$-1.909 \pm 0.536$	$0.705 \pm 0.735$
PRF-fit source offset from KIC position	$2.050 \pm 0.548$	3.74	$-1.960 \pm 0.530$	$0.600 \pm 0.714$
photometric centroid source offset	$4.10 \pm 0.84$	4.86	$-2.41 \pm 0.86$	$3.31 \pm 0.83$

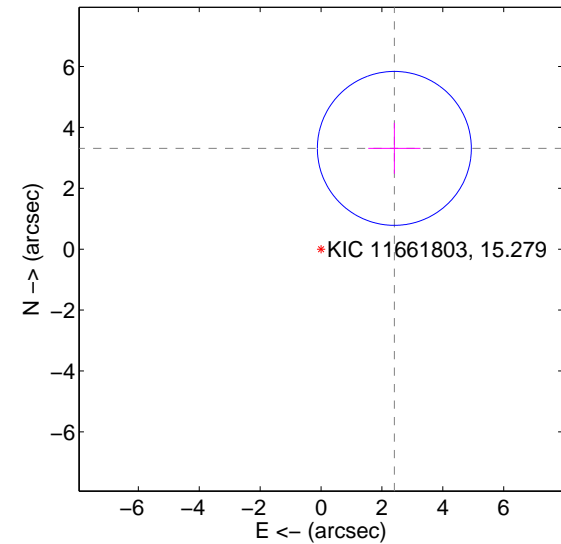
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

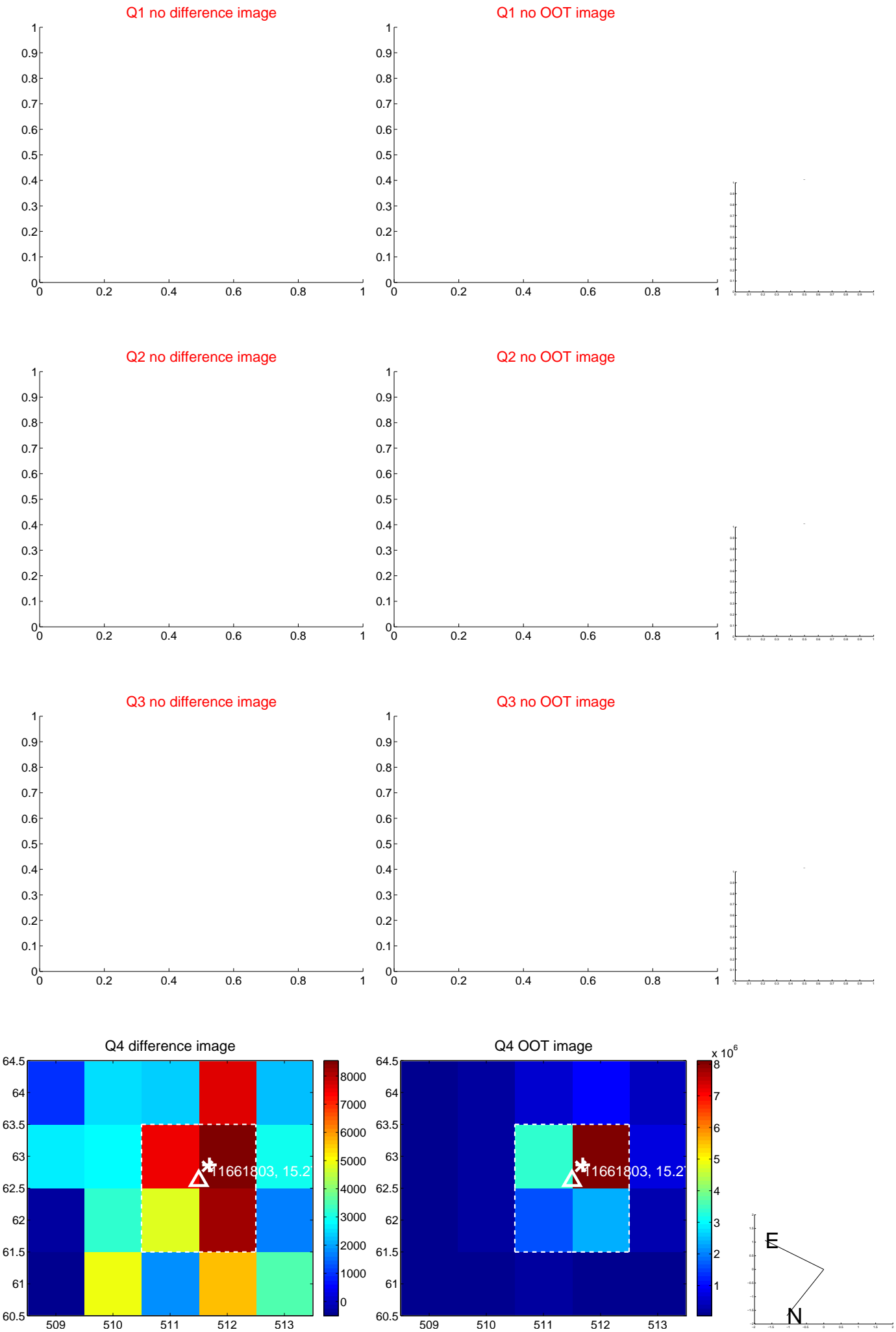


offset from photometric centroids



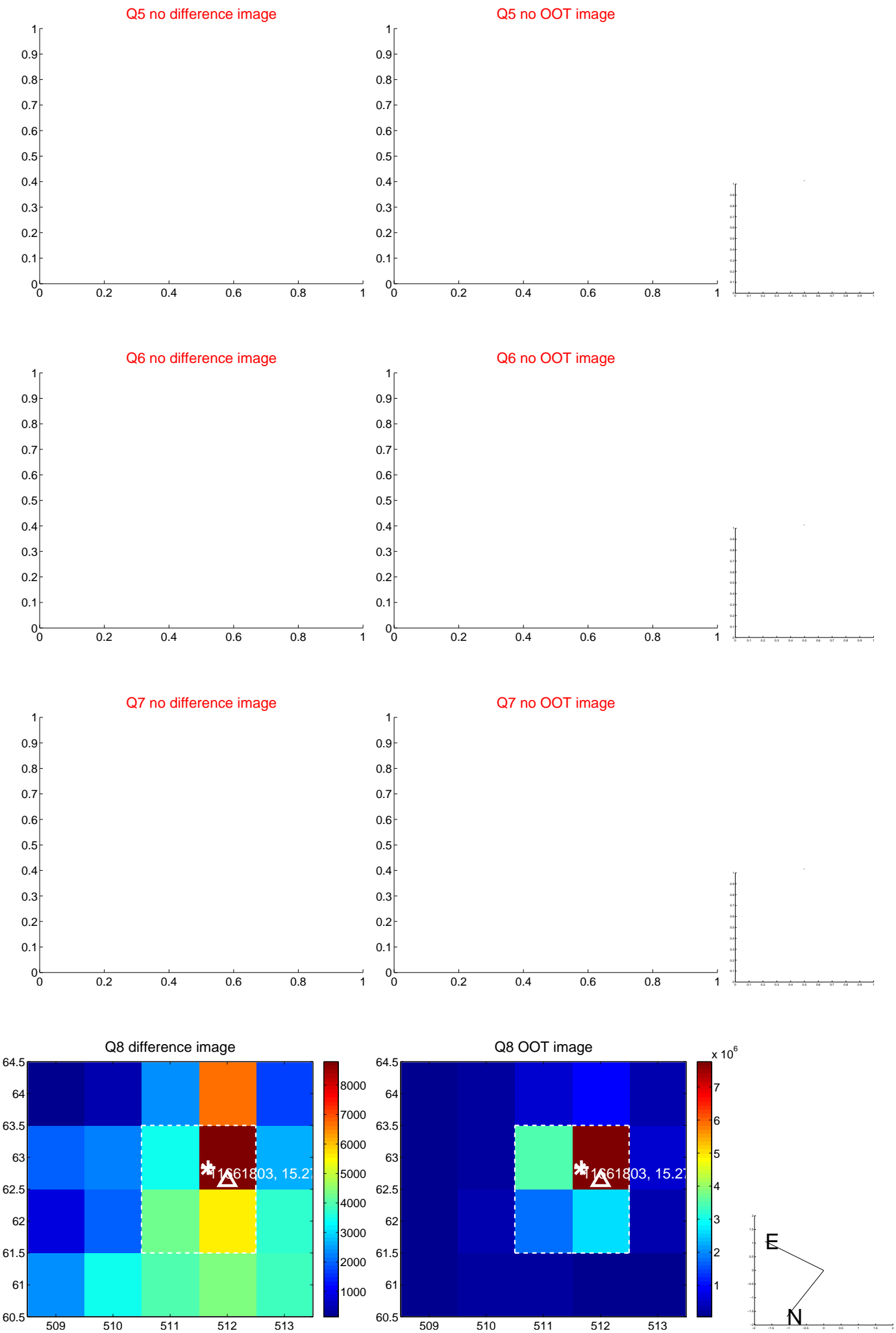
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

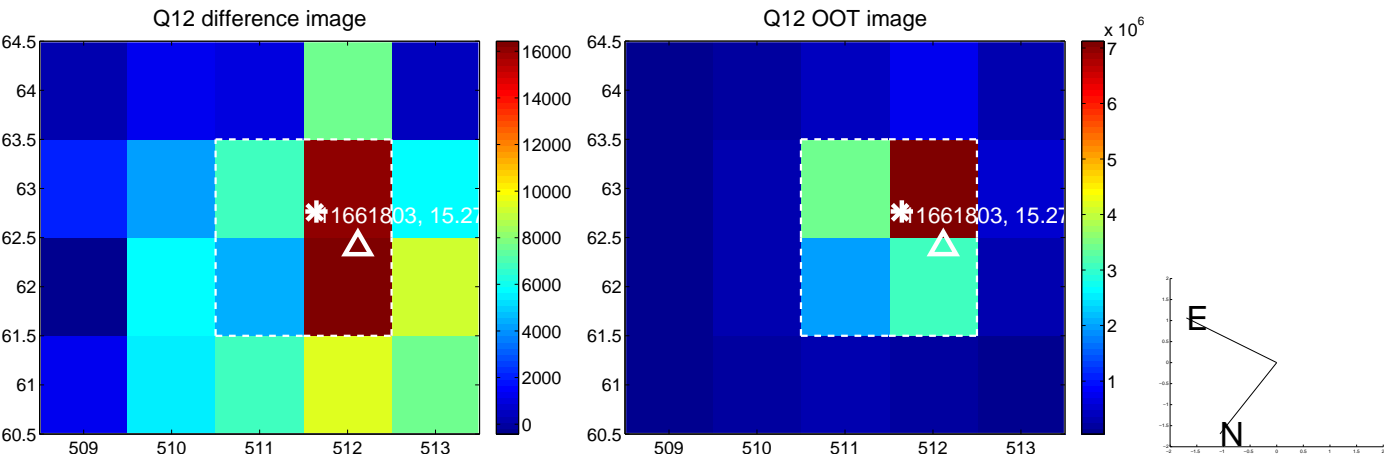




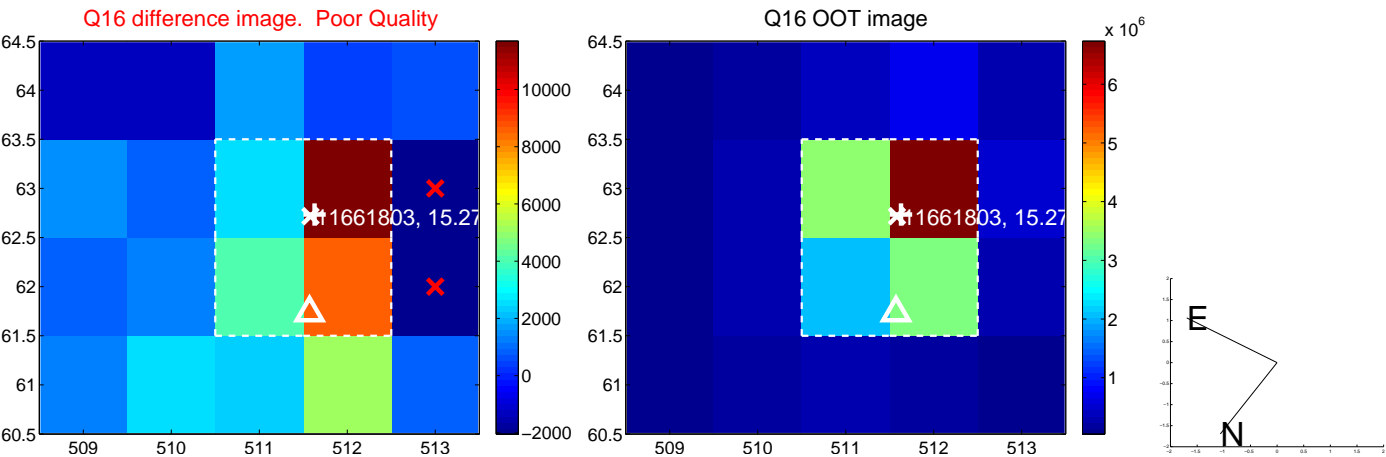
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



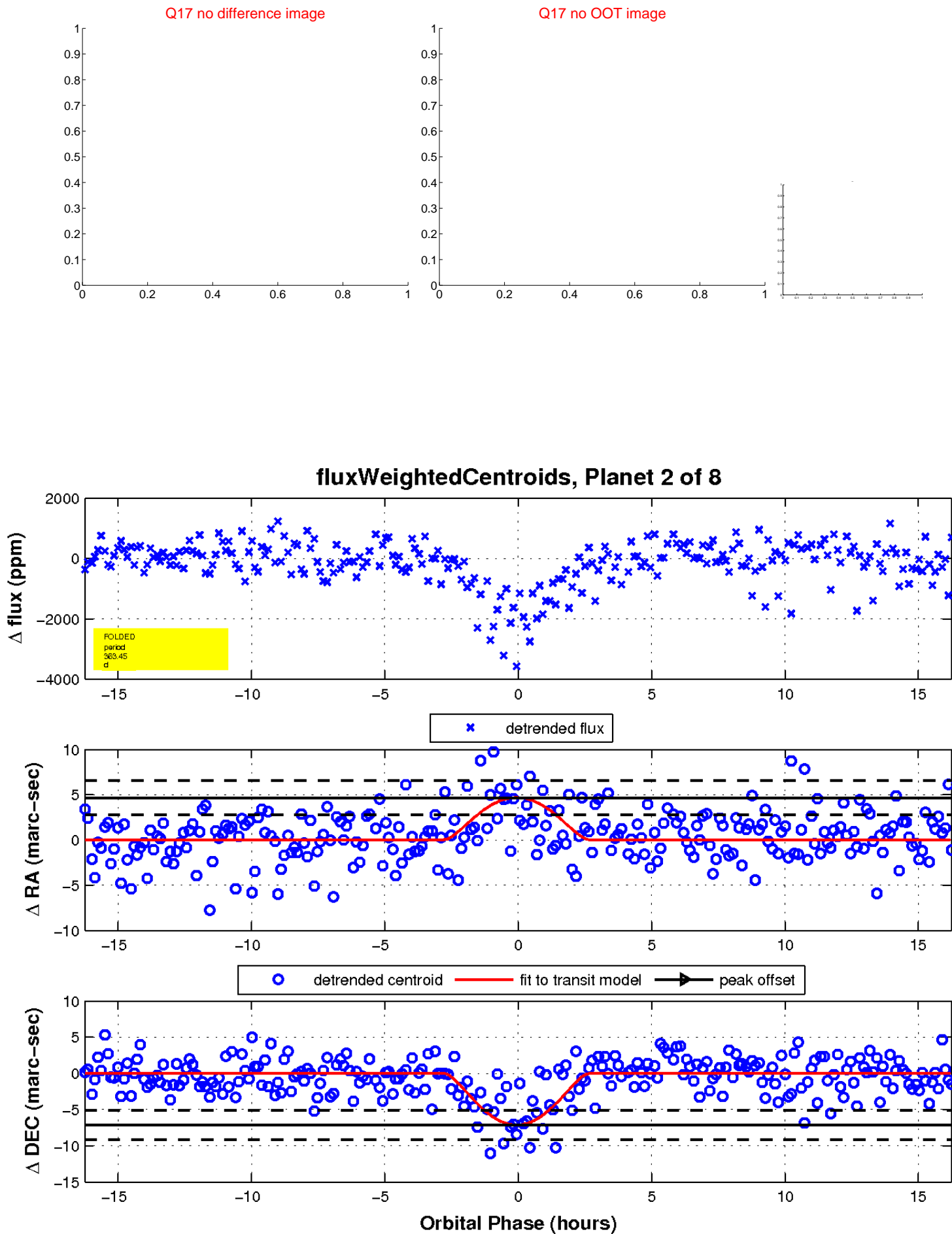
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

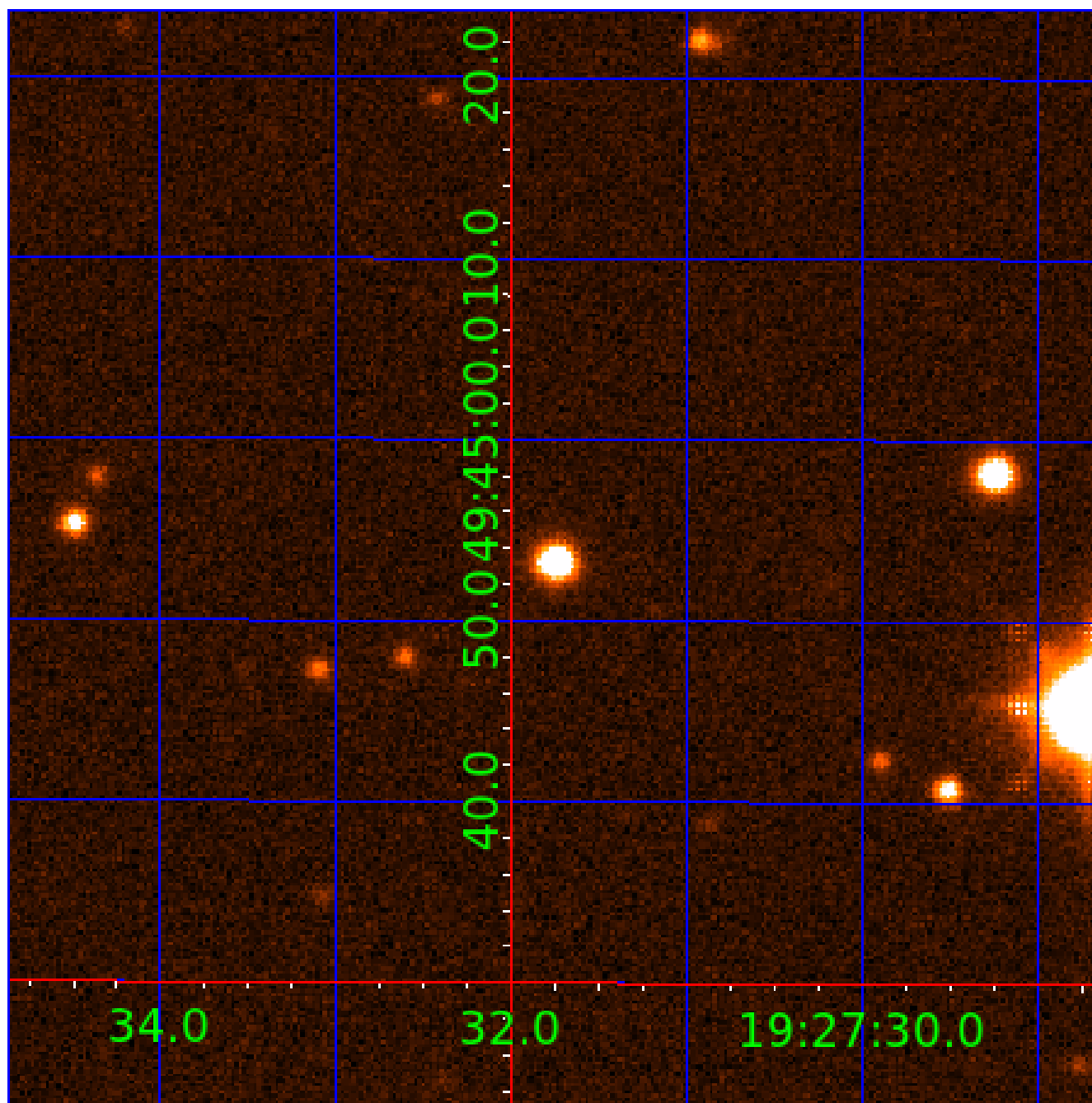


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 011661803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011661803-01	OBS	8060.01	372.087077	404.899629	2489.5	3.587	19.9	19.8	1.09	6289	9.22	1.51
011661803-02	OBS	8060.02	363.447672	411.193981	2024.6	5.417	18.5	17.5	1.09	6289	8.55	1.56
011661803-03	OBS	No	372.083900	413.558967	2321.2	3.542	17.8	18.1	1.09	6289	9.79	1.51
011661803-04	OBS	No	380.740273	385.232183	1895.4	3.279	17.0	16.7	1.09	6289	5.31	1.47
011661803-05	OBS	No	372.083773	396.254015	2283.4	3.682	16.8	17.9	1.09	6289	9.72	1.51
011661803-06	OBS	No	372.083136	387.601083	2145.4	3.732	17.4	17.3	1.09	6289	8.10	1.51
011661803-07	OBS	No	372.079361	422.220950	2363.3	3.340	15.9	16.7	1.09	6289	8.59	1.51
011661803-08	OBS	No	363.418186	393.900840	1727.5	3.000	14.4	-1.0	1.09	6289	4.56	1.56

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011661803-01	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES
011661803-02	OBS	FP	0.00	0	1	1	0	DEEP_V_SHAPED—HAS_SEC_TCE—HALO_GHOST
011661803-03	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_TER_DV—MOD_TER_ALT—SAME_NTL_PERIOD
011661803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
011661803-05	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD
011661803-06	OBS	FP	0.00	1	0	1	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET
011661803-07	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_FEW_DIFFS
011661803-08	OBS	FP	0.01	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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

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

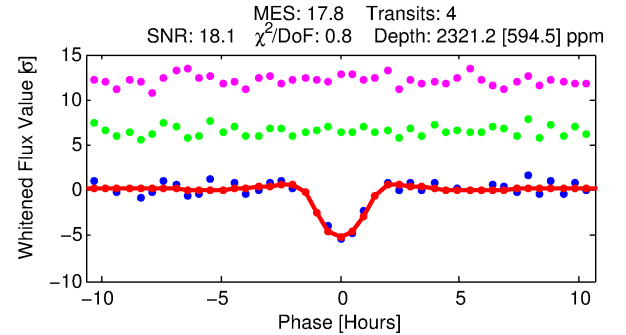
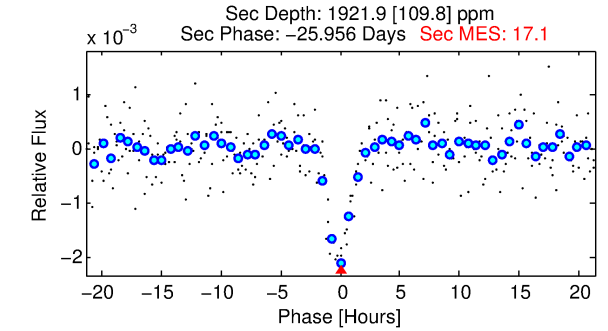
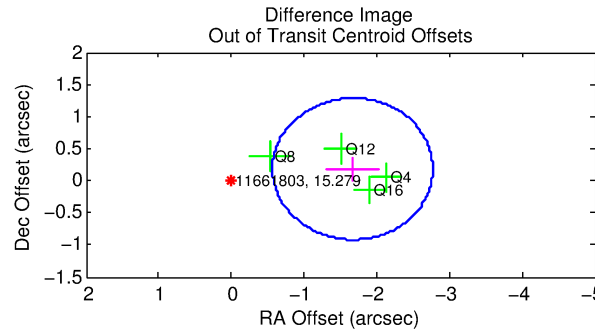
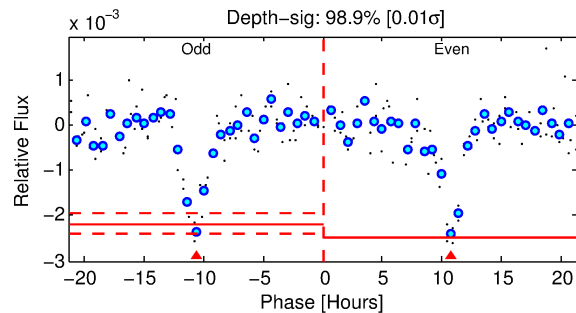
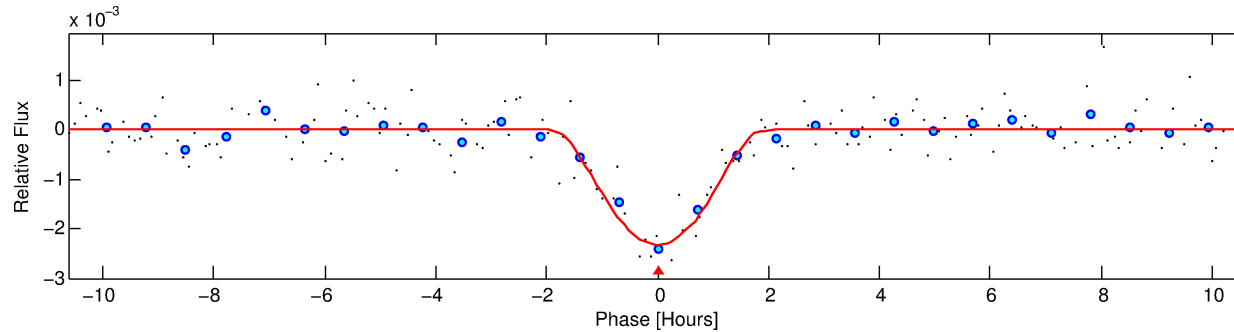
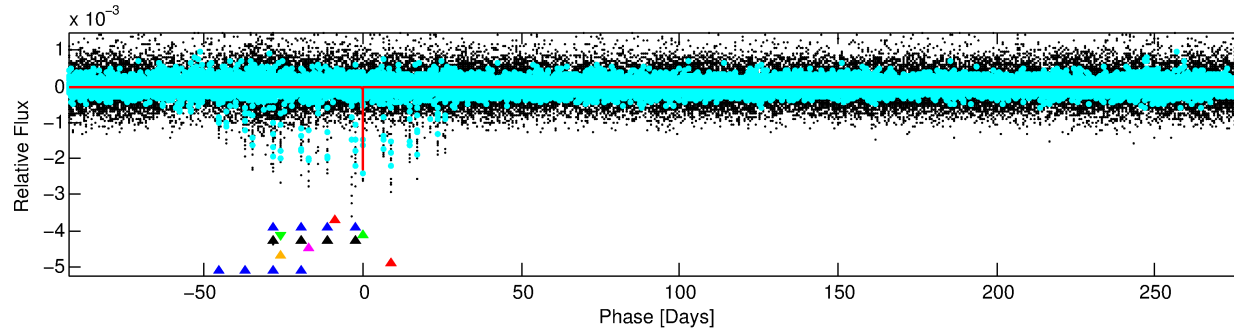
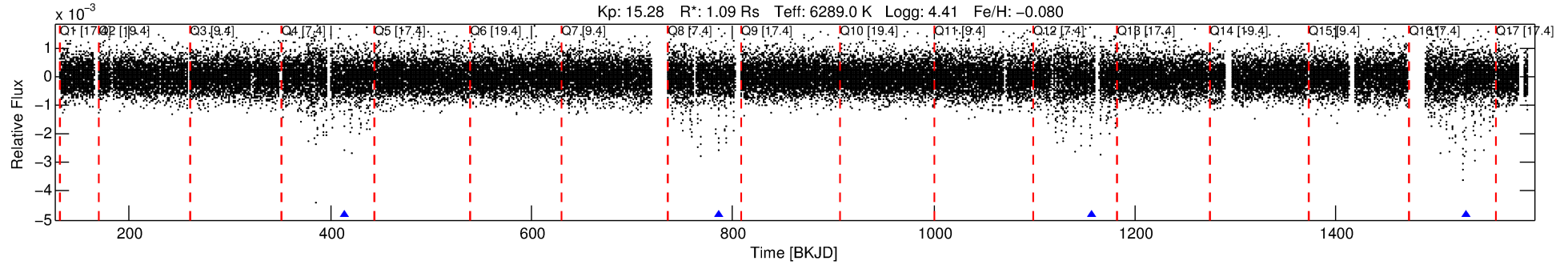
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011661803-03

No Significant Match Found

# DV One-Page Summary

KIC: 11661803 Candidate: 3 of 8 Period: 372.084 d



## DV Fit Results:

Period = 372.08390 [0.00201] d  
Epoch = 413.5590 [0.0034] BKJD  
Rp/R\* = 0.0820 [0.2033]  
a/R\* = 332.14 [178.31]  
b = 1.00 [0.30]  
Seff = 1.51 [0.65]  
Teq = 283 [31] K  
Rp = 9.79 [24.49] Re  
a = 1.0525 [0.2999] AU  
Ag = 12229.63 [60826.89] [0.20 $\sigma$ ]  
Teff = 4597 [5700] K [0.76 $\sigma$ ]

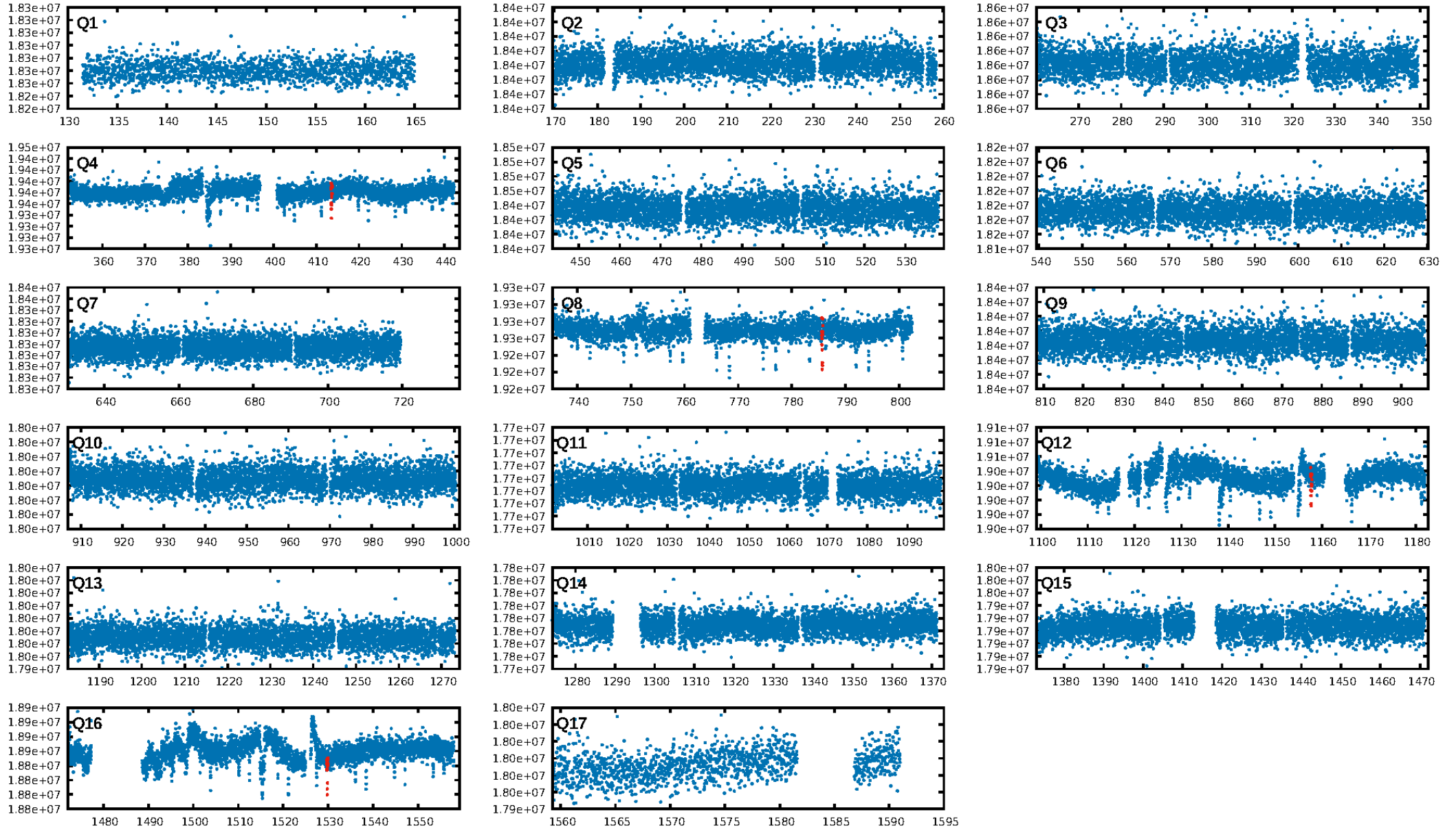
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 $\sigma$ ]  
LongPeriod-sig: 1.2% [0.02 $\sigma$ ]  
ModelChiSquare2-sig: 94.5%  
ModelChiSquareGof-sig: 99.7%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.5233  
Centroid-sig: 0.0%  
Centroid-so: 2.282 arcsec [2.62 $\sigma$ ]  
OotOffset-rm: 1.677 arcsec [4.56 $\sigma$ ]  
KicOffset-rm: 1.723 arcsec [4.51 $\sigma$ ]  
OotOffset-st: 0/0/4/0 [4]  
KicOffset-st: 0/0/4/0 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [4/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:53:18 Z

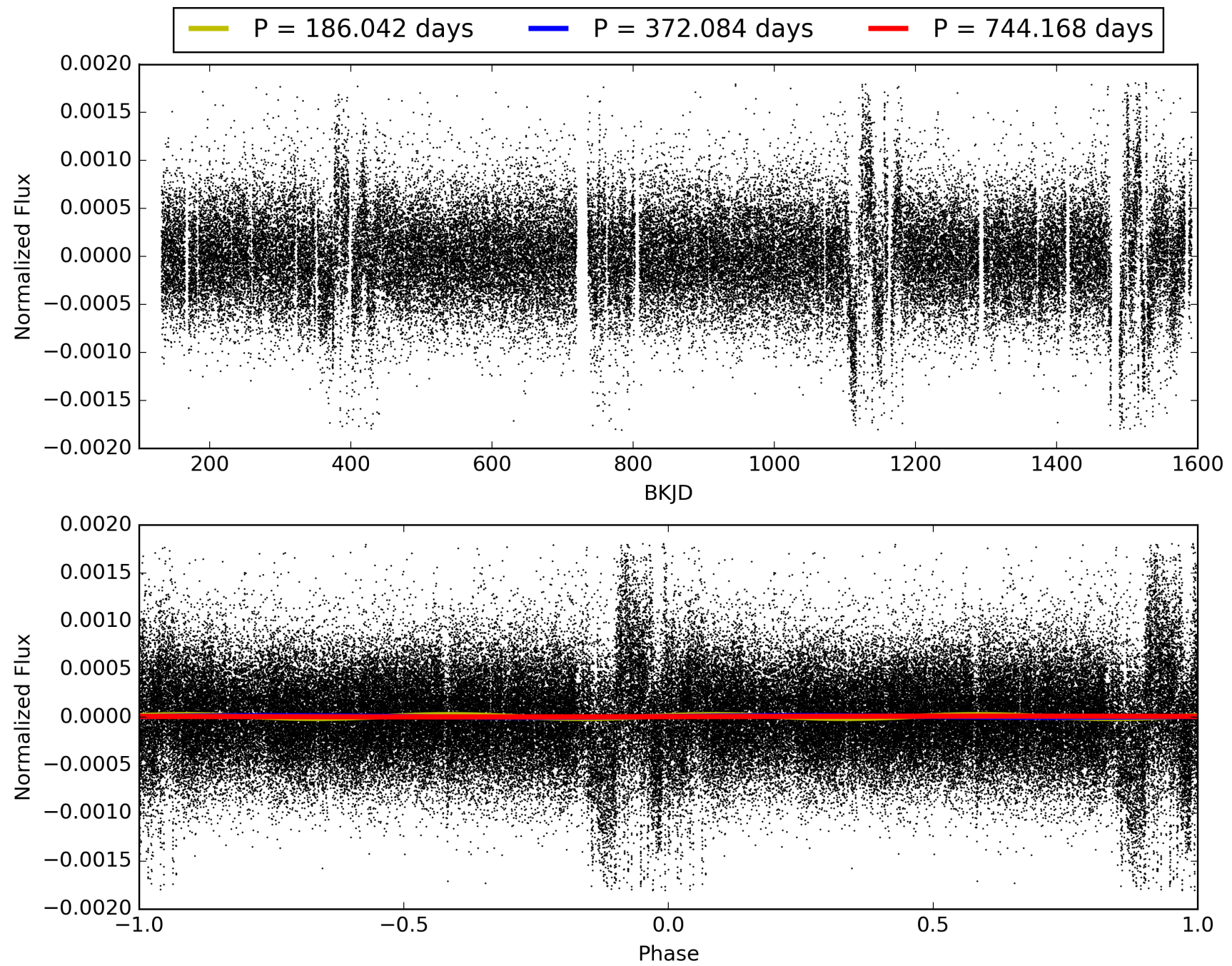
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011661803-03, PDC Light Curves



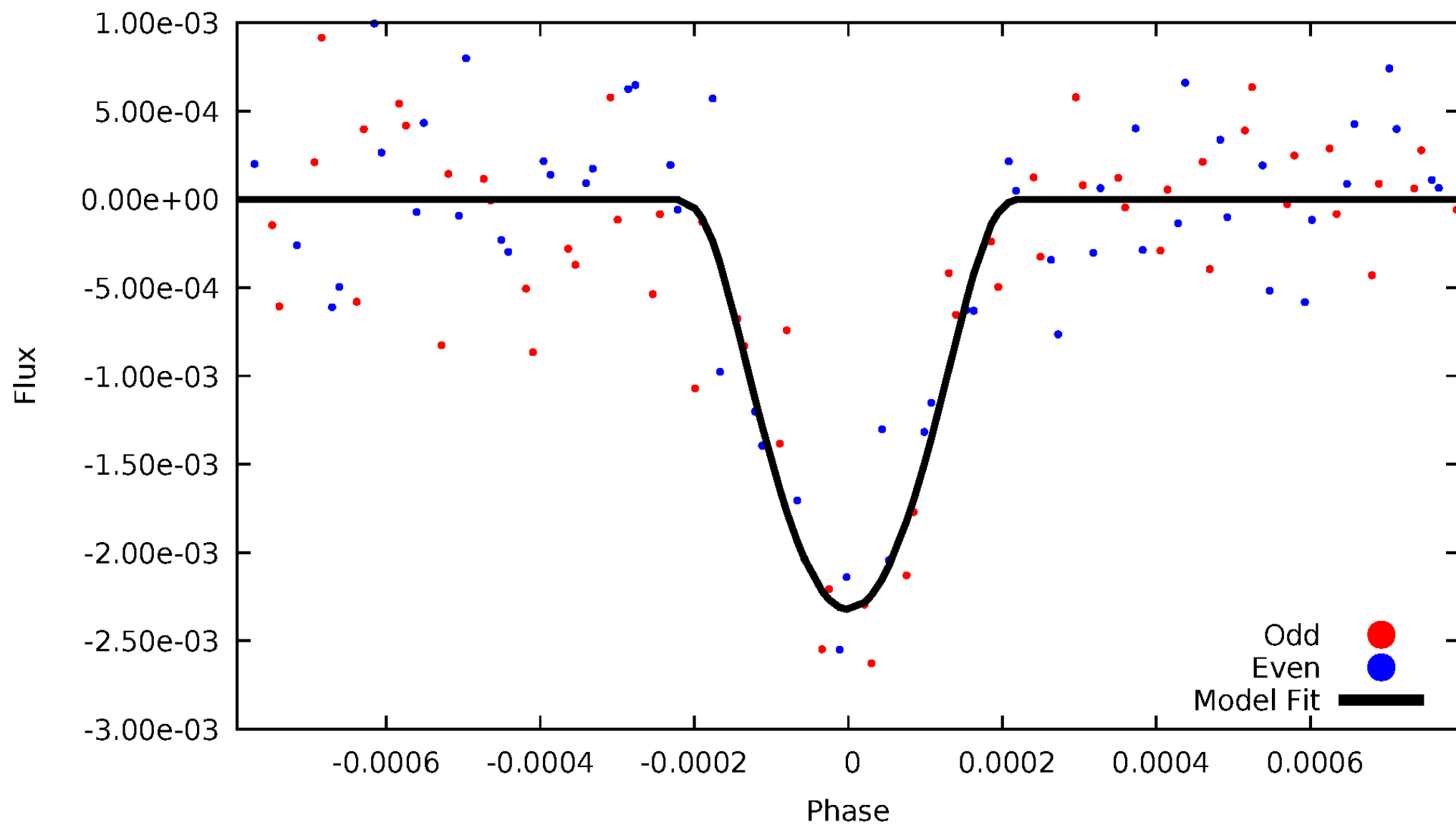


TCE 011661803-03



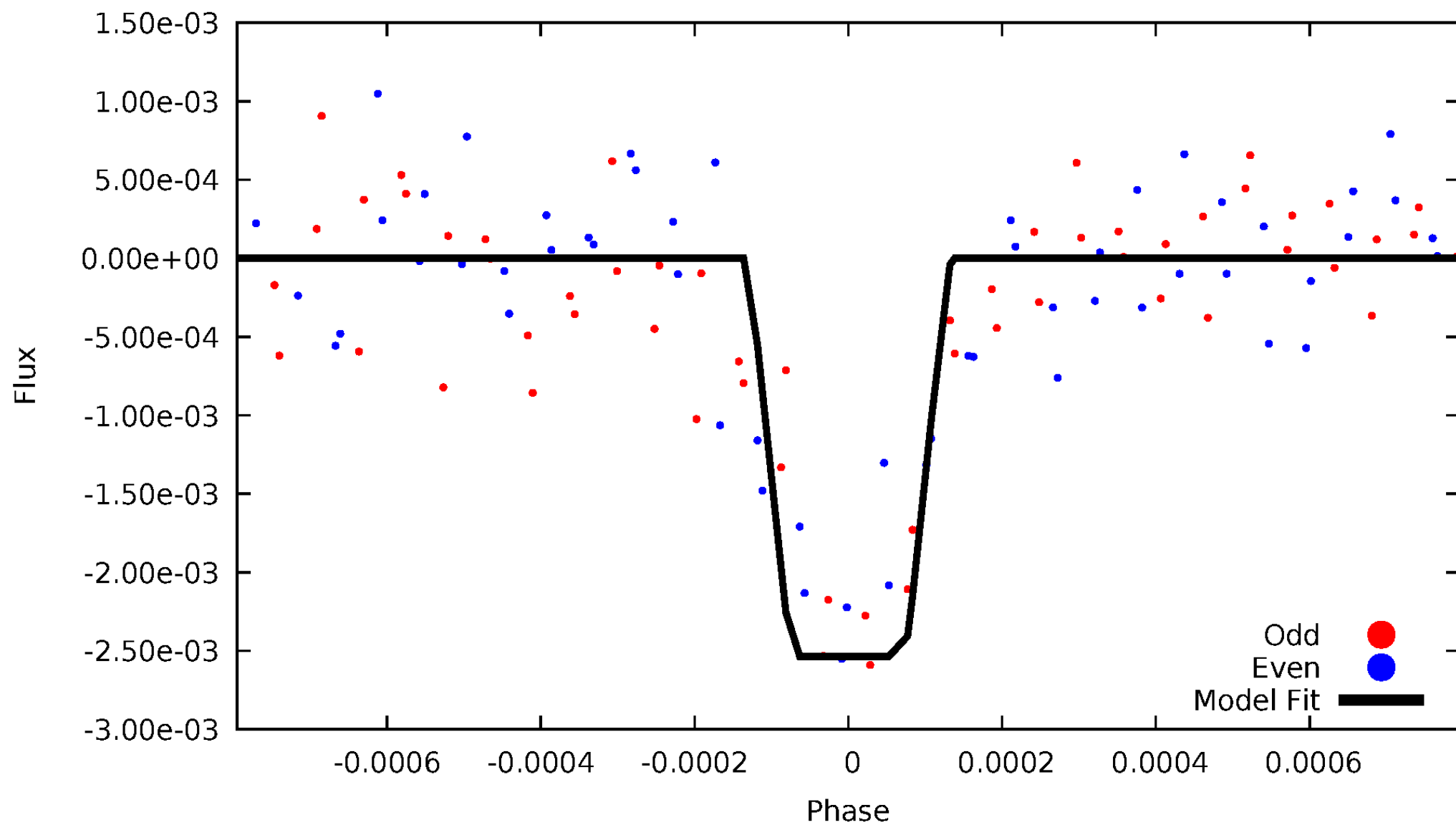
# DV Odd/Even

TCE 011661803-03

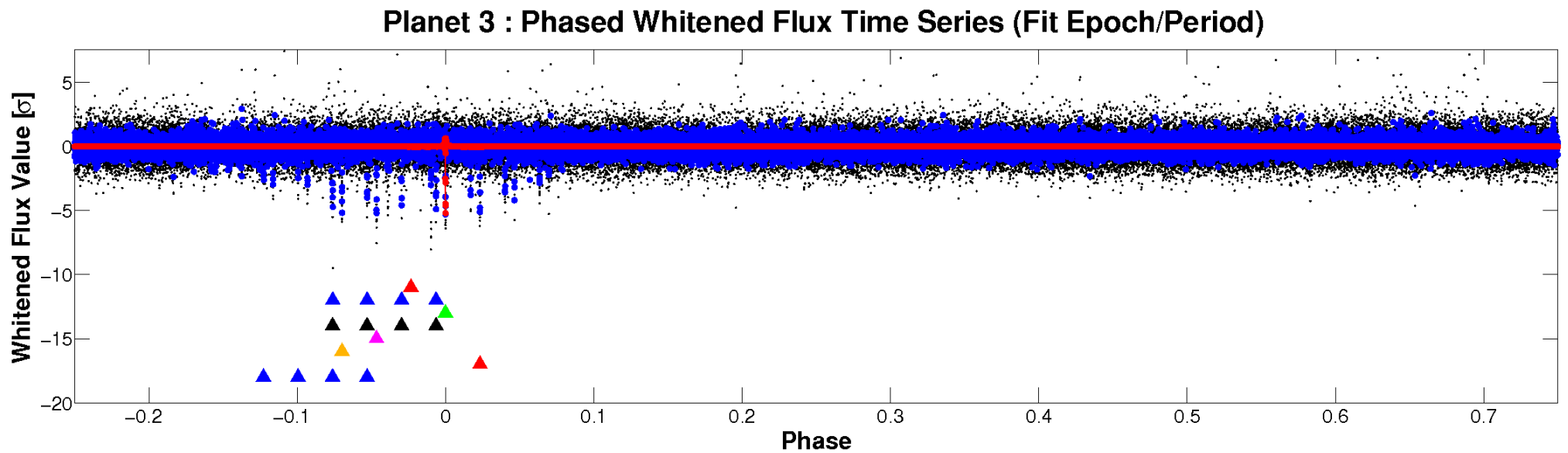
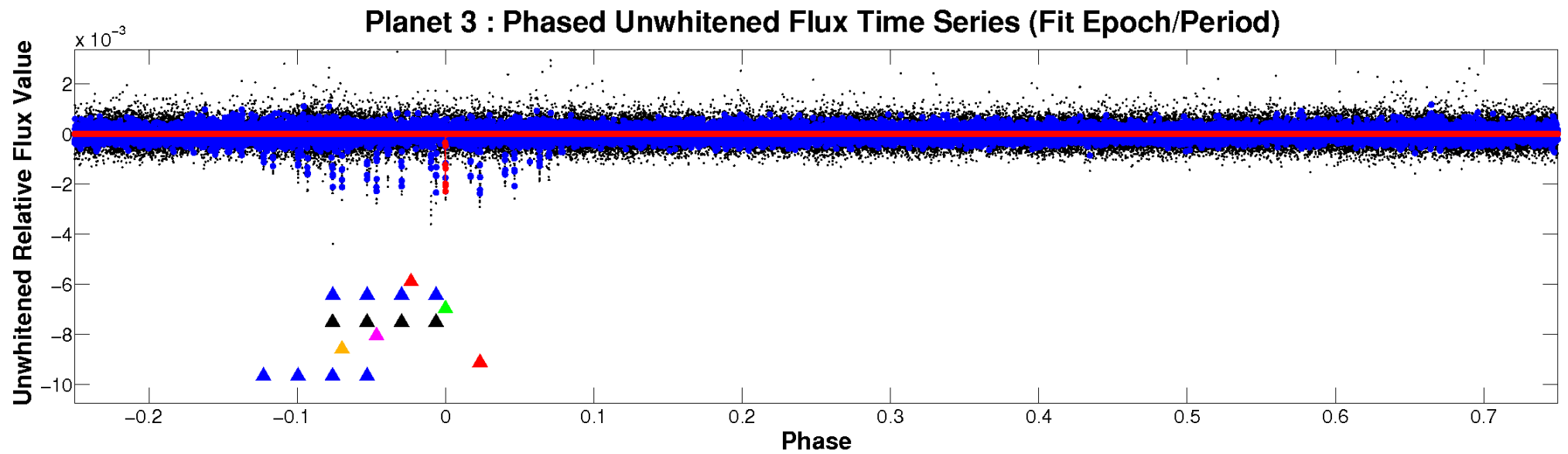


# ALT Odd/Even

TCE 011661803-03

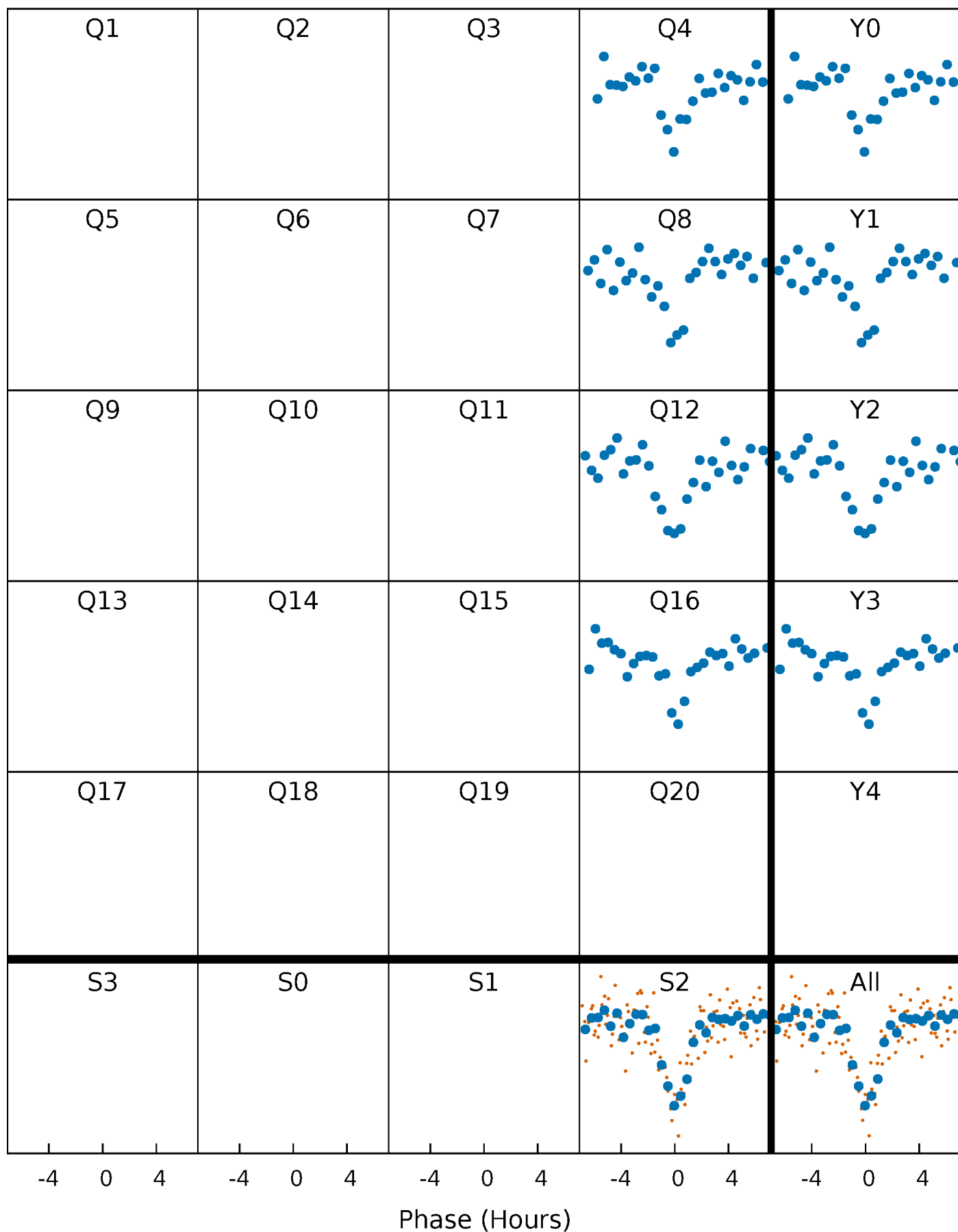


# Non-Whitened Vs. Whitened Light Curve



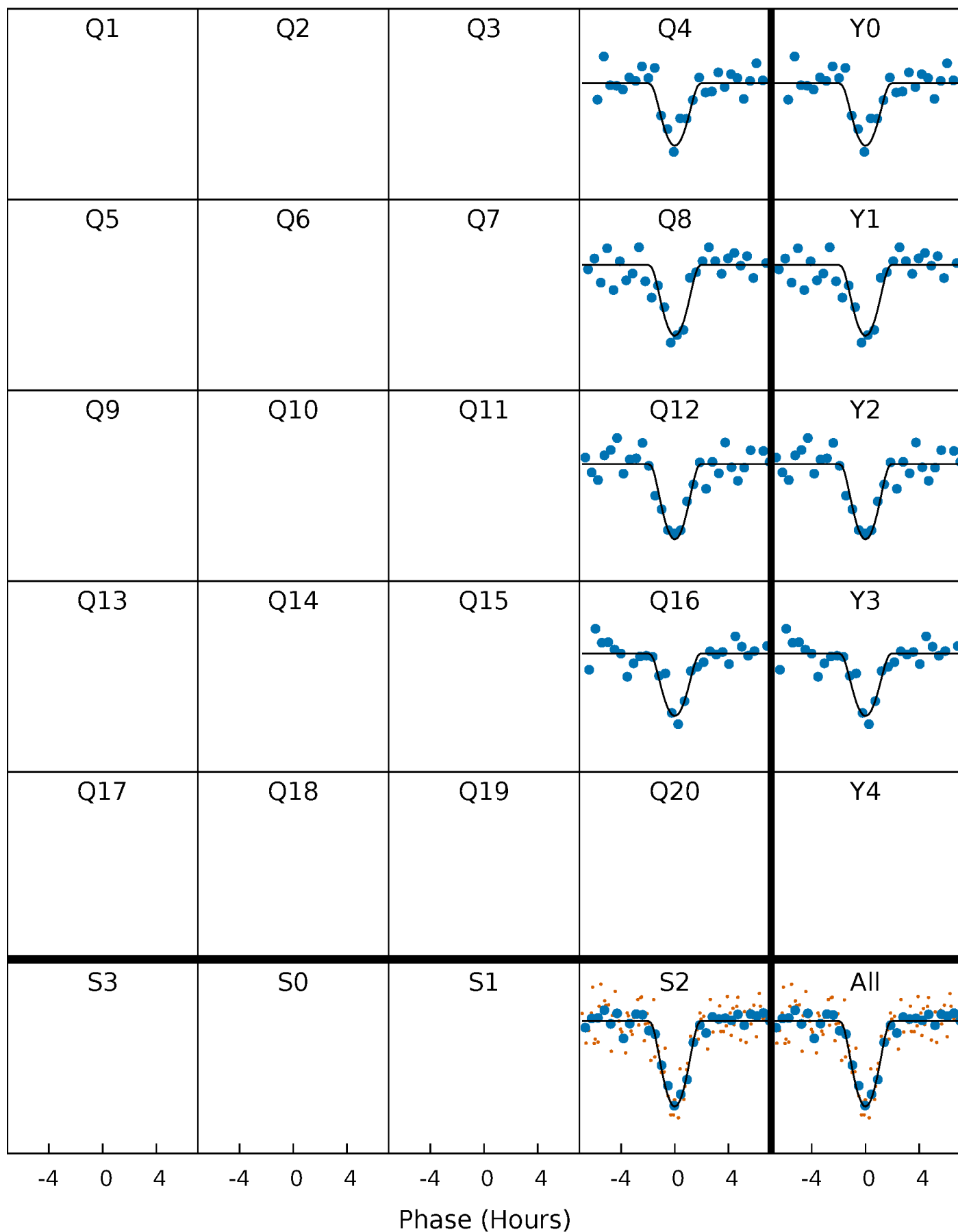
# PDC Quarter-Phased Transit Curves

TCE 011661803-03     $P=372.083900$  Days     $T_0=413.558967$  (BKJD)



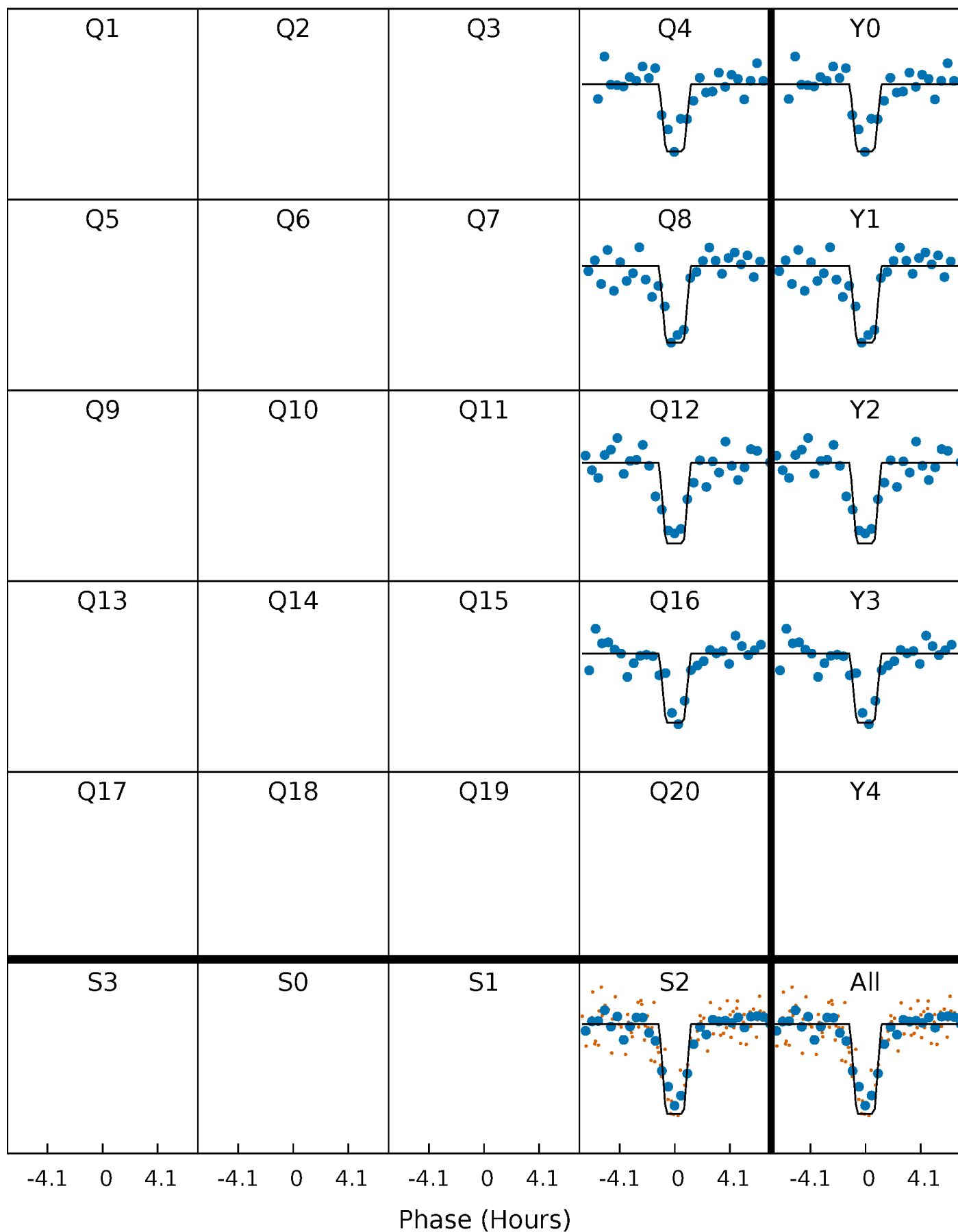
# DV Quarter-Phased Transit Curves

TCE 011661803-03     $P=372.083900$  Days     $T_0=413.558967$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

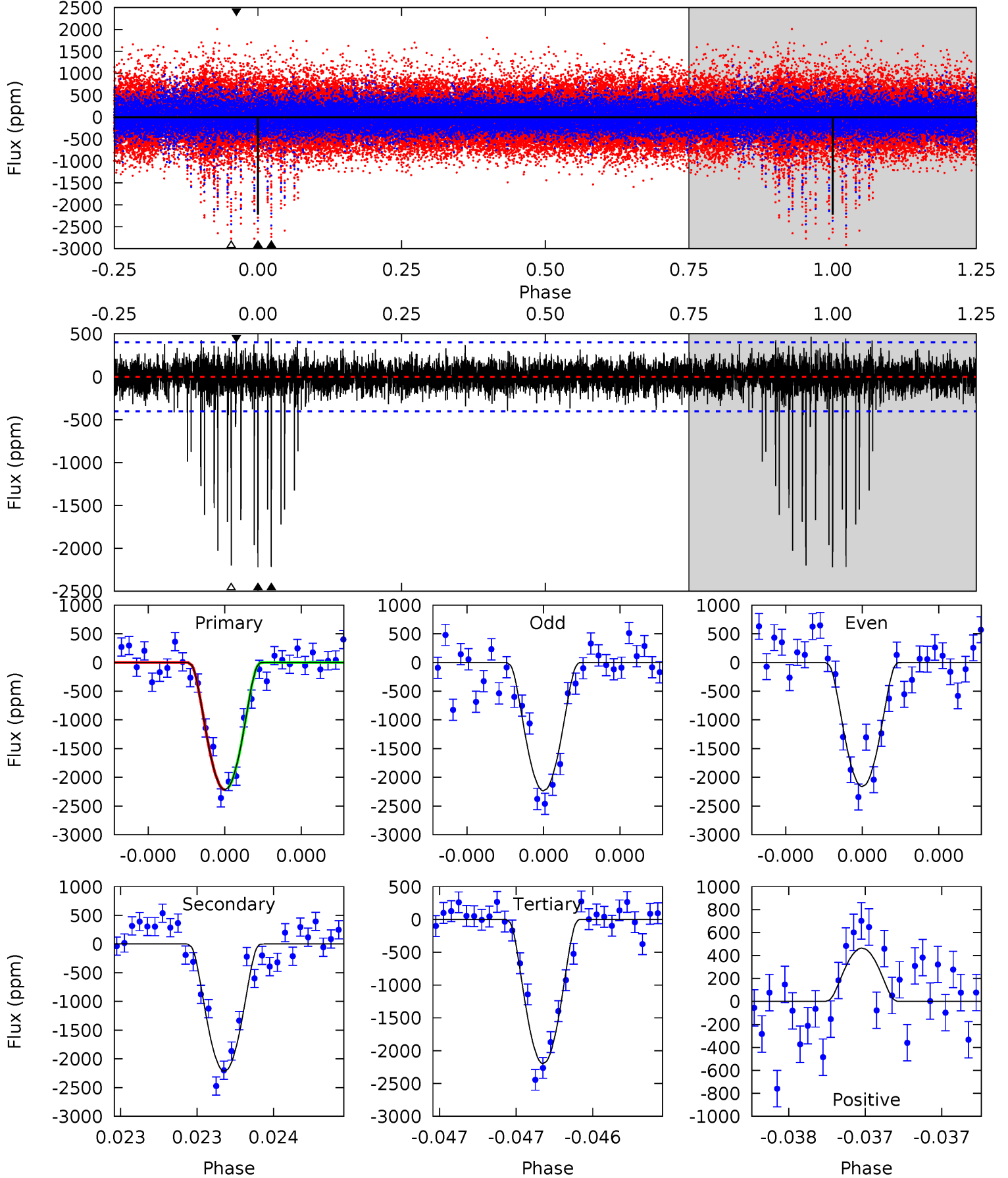
TCE 011661803-03     $P=372.084438$  Days     $T_0=413.557875$  (BKJD)



# DV Model-Shift Uniqueness Test

011661803-03, P = 372.083900 Days, E = 41.475067 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
30.9	30.8	30.6	6.46	5.59	3.50	1.98	0.27	24.4	0.23	24.4	0.51	1.00	0.17	0.23

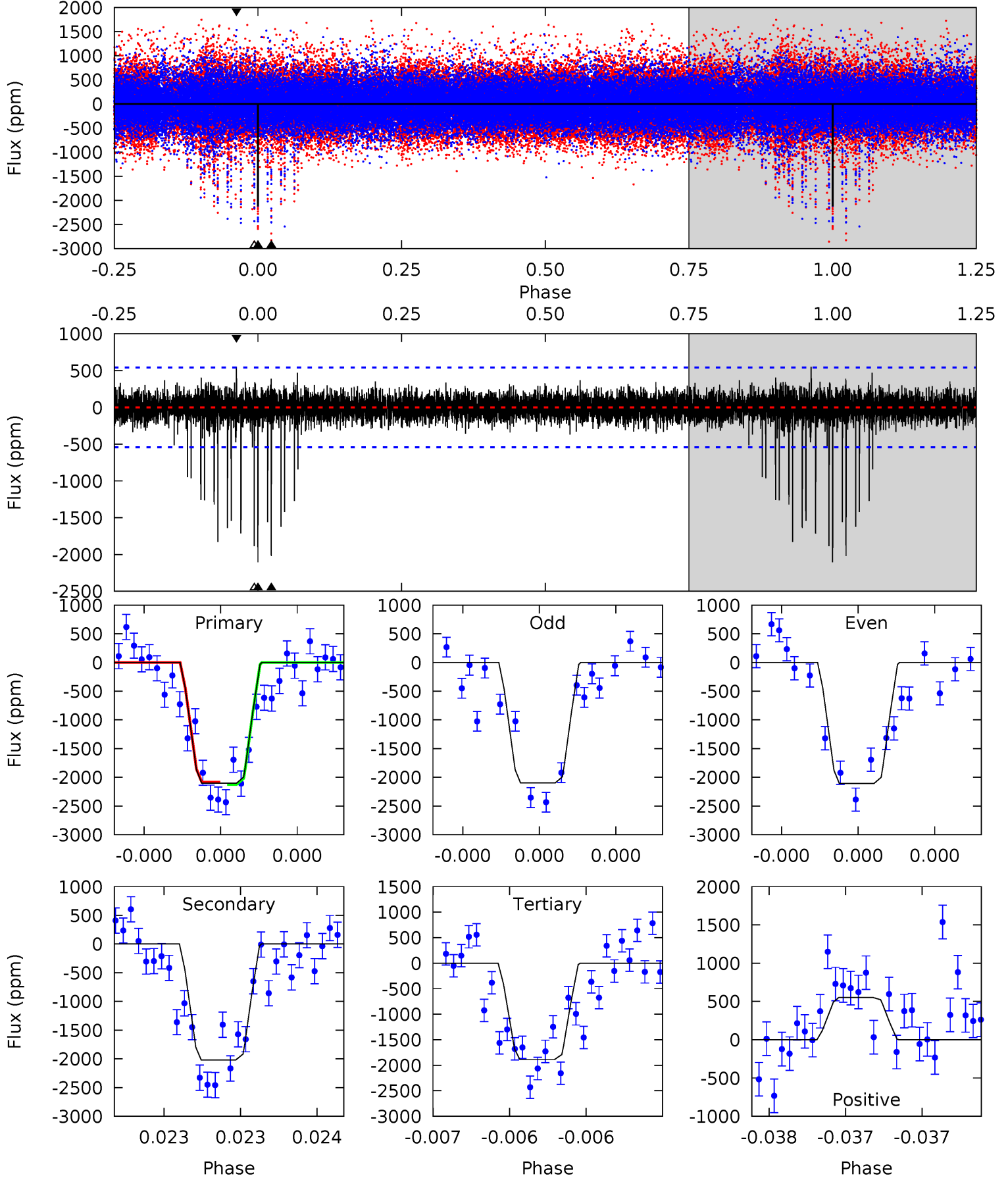




# Alt Model-Shift Uniqueness Test

011661803-03, P = 372.084438 Days, E = 41.473437 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
22.0	21.1	19.8	5.77	5.69	3.66	1.39	2.25	16.3	1.36	15.4	0.05	1.00	0.21	0.22



### Stellar Parameters For KIC 011661803

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6289^{+174}_{-240}$	$4.411^{+0.072}_{-0.217}$	$-0.080^{+0.250}_{-0.300}$	$1.093^{+0.379}_{-0.126}$	$1.121^{+0.171}_{-0.140}$	$1.210^{+0.364}_{-0.658}$
	+3%/-4%	+2%/-5%	+312%/-375%	+35%/-12%	+15%/-12%	+30%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011661803-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2217 \pm 72$	$21.78^{+22.15}_{-14.56}$	$402^{+32}_{-22}$	$3672^{+1906}_{-691}$	$2922^{+23219}_{-2232}$
Alt.	$-2018 \pm 95$	$20.04^{+21.25}_{-14.27}$	$400^{+29}_{-21}$	$3764^{+2389}_{-779}$	$3122^{+32731}_{-2407}$

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

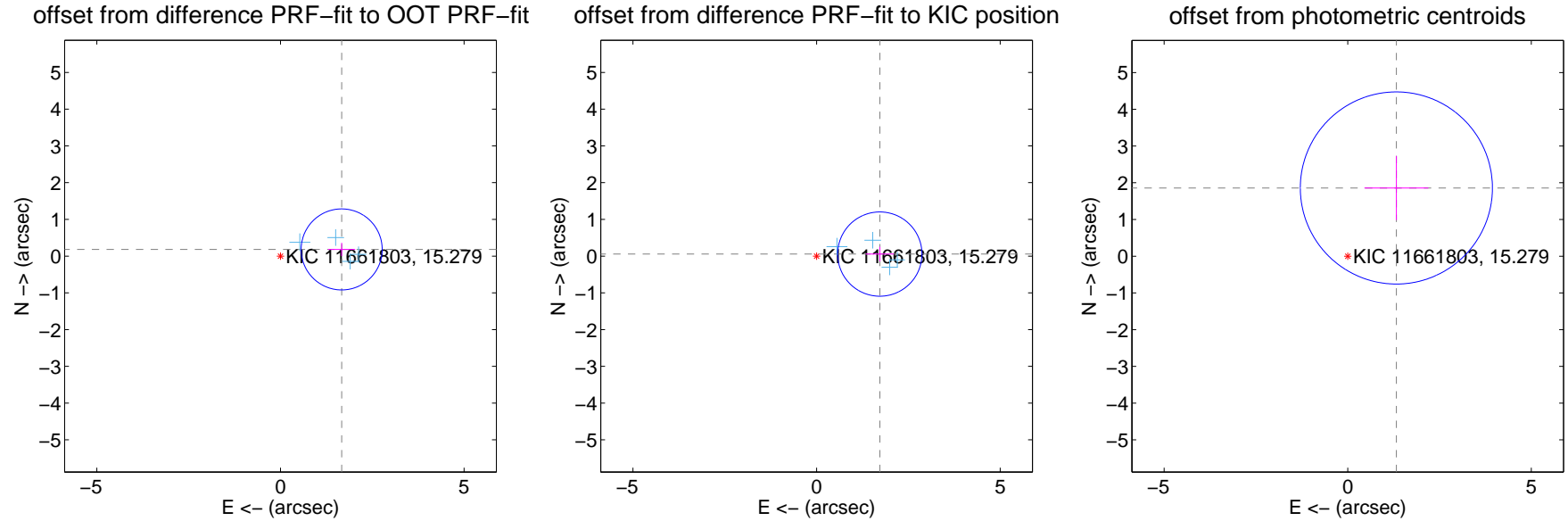
## DV Centroid Data

Supplemental centroid analysis for 011661803-03. Kepler magnitude: 15.28. Transit SNR 18.10

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>1.677 <math>\pm</math> 0.368</b>	<b>4.56</b>	-1.667 $\pm$ 0.369	0.183 $\pm$ 0.181
PRF-fit source offset from KIC position	<b>1.723 <math>\pm</math> 0.382</b>	<b>4.51</b>	-1.722 $\pm$ 0.383	0.056 $\pm$ 0.200
photometric centroid source offset	2.28 $\pm$ 0.87	2.62	-1.33 $\pm$ 0.87	1.86 $\pm$ 0.87



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

Q1 no difference image



Q1 no OOT image



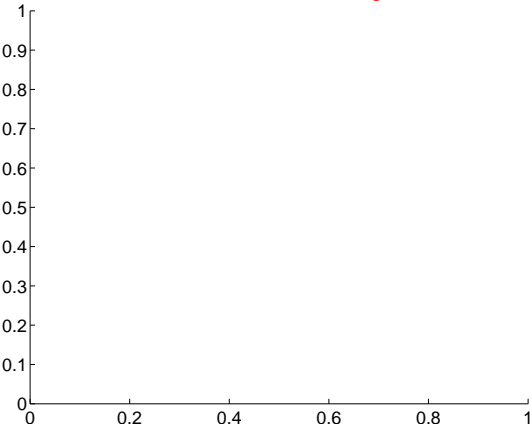
Q2 no difference image



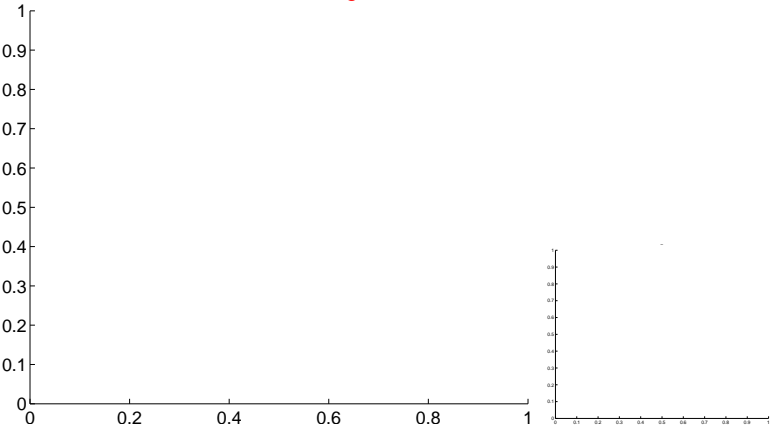
Q2 no OOT image



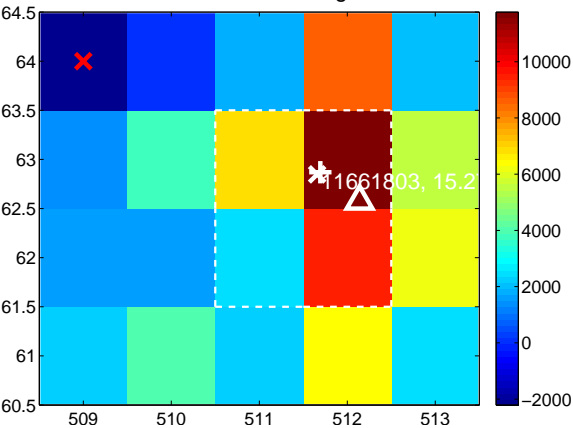
Q3 no difference image



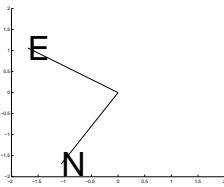
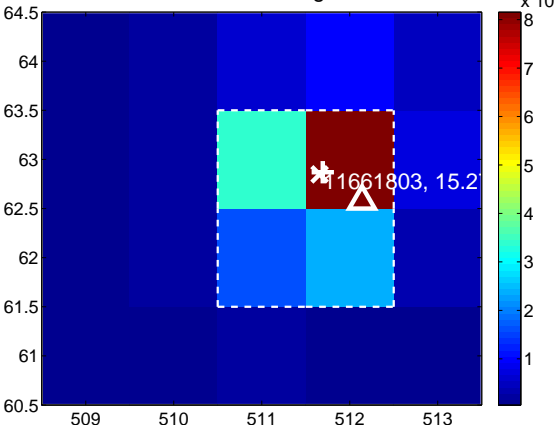
Q3 no OOT image



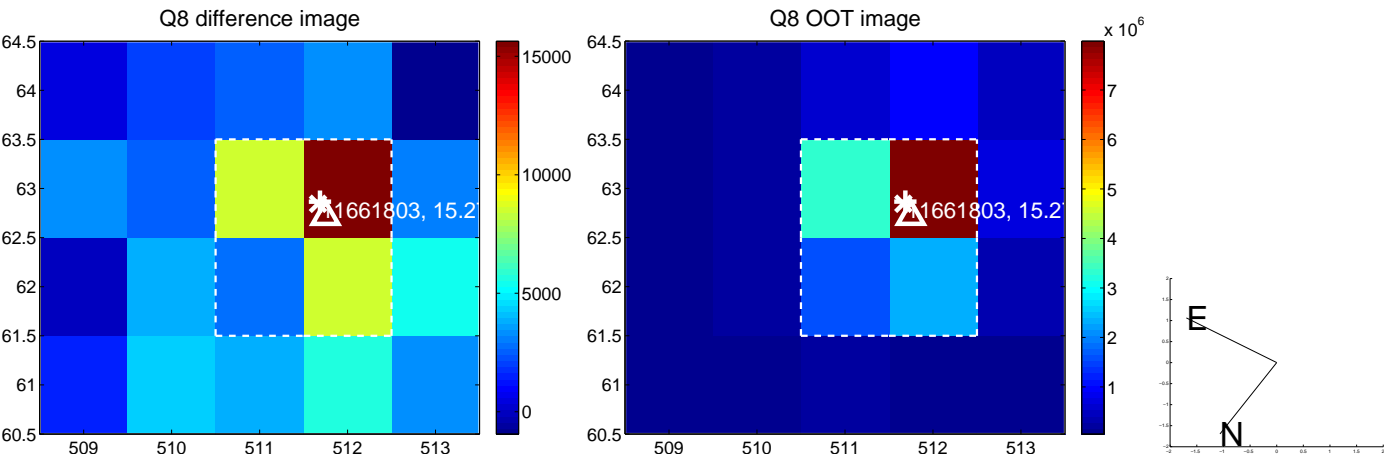
Q4 difference image



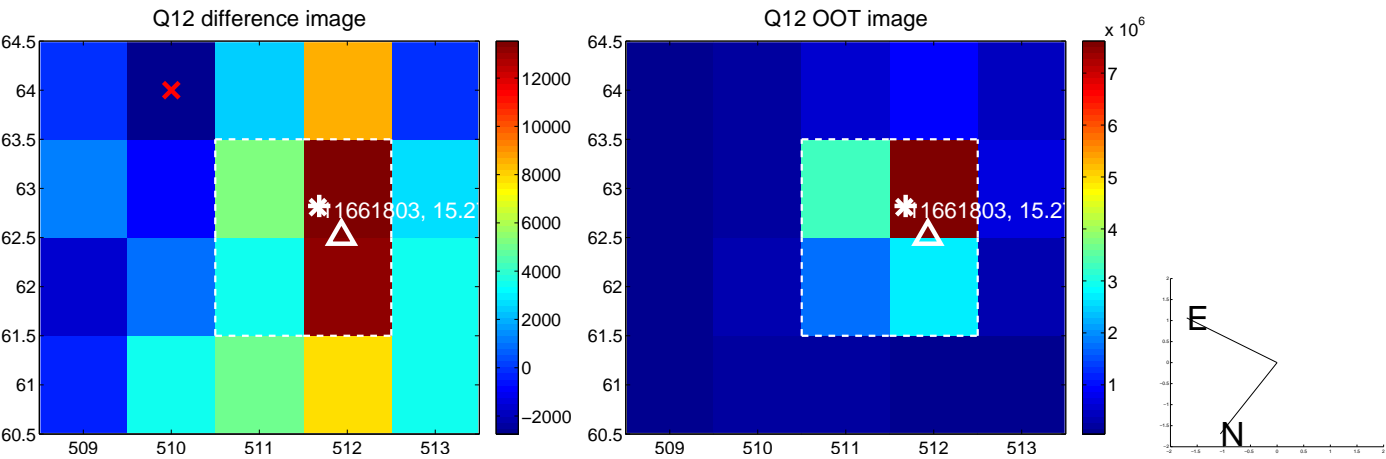
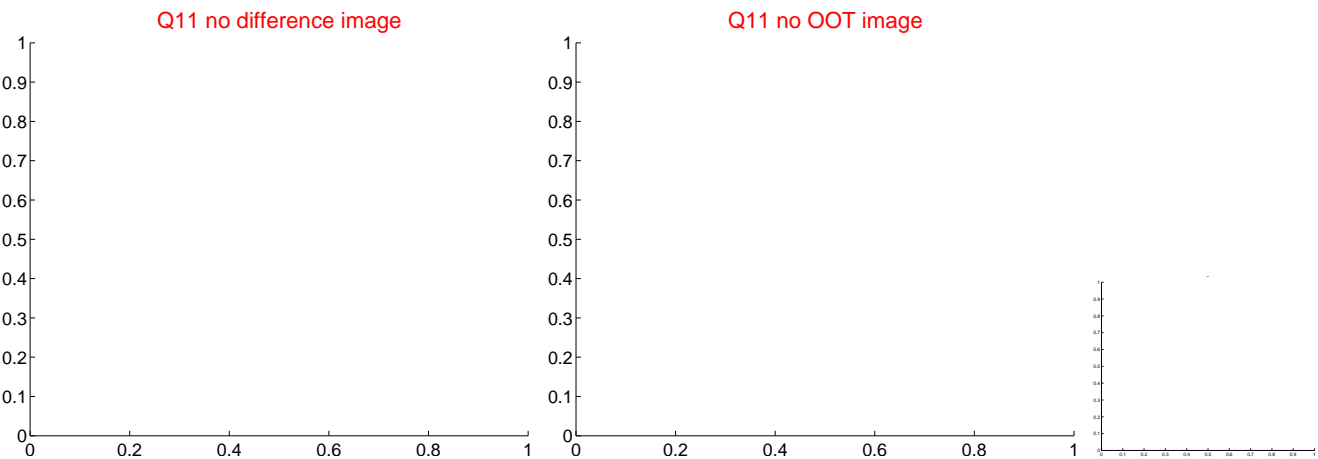
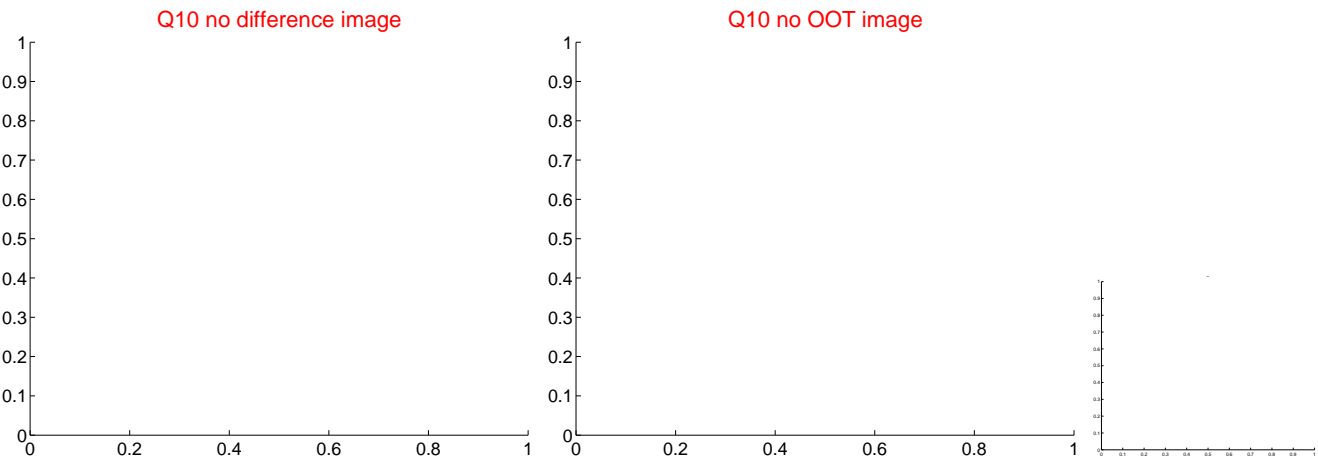
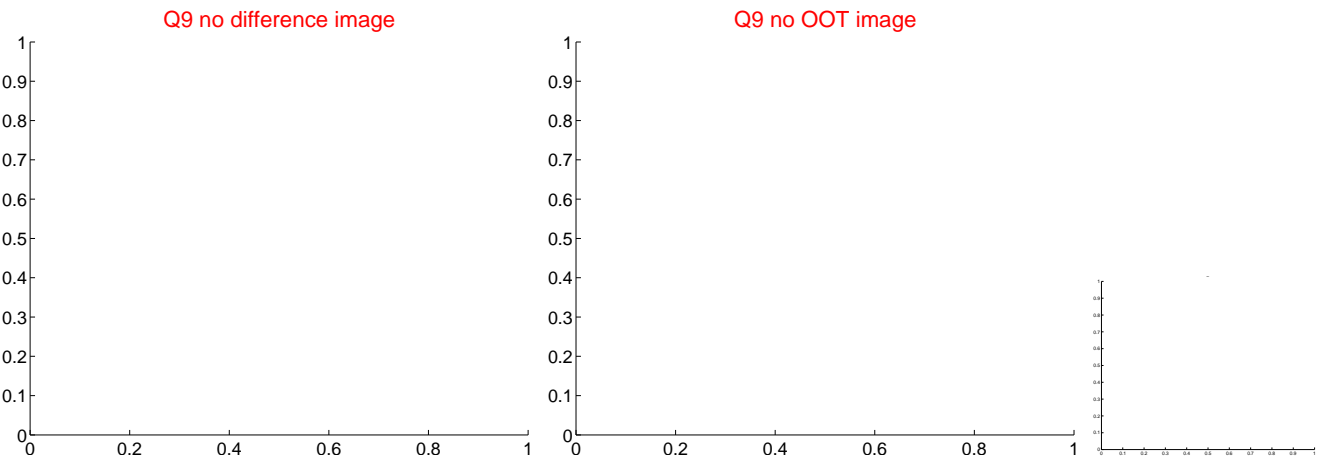
Q4 OOT image



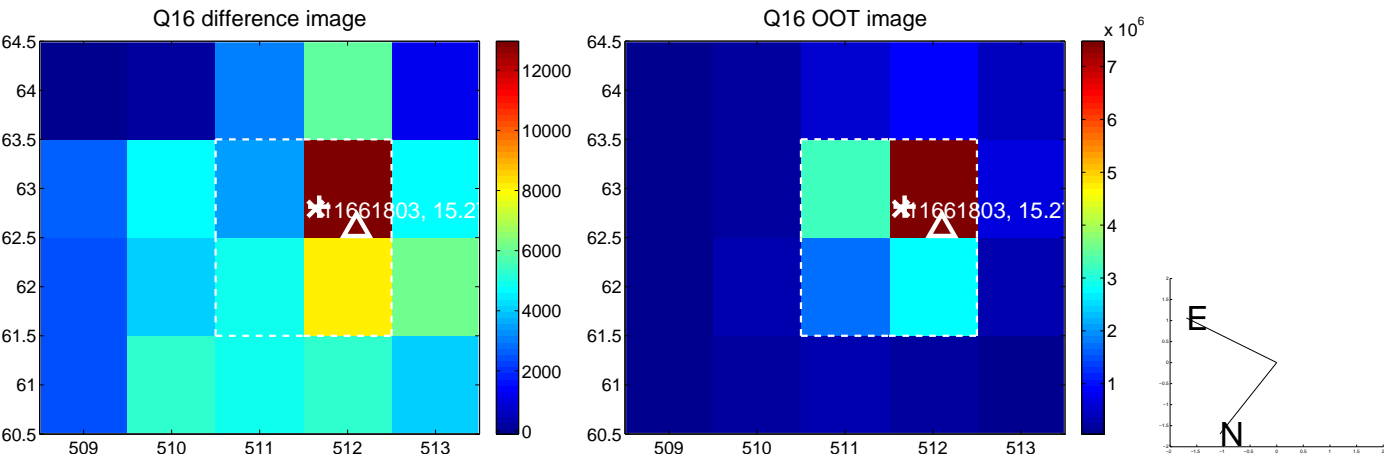
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



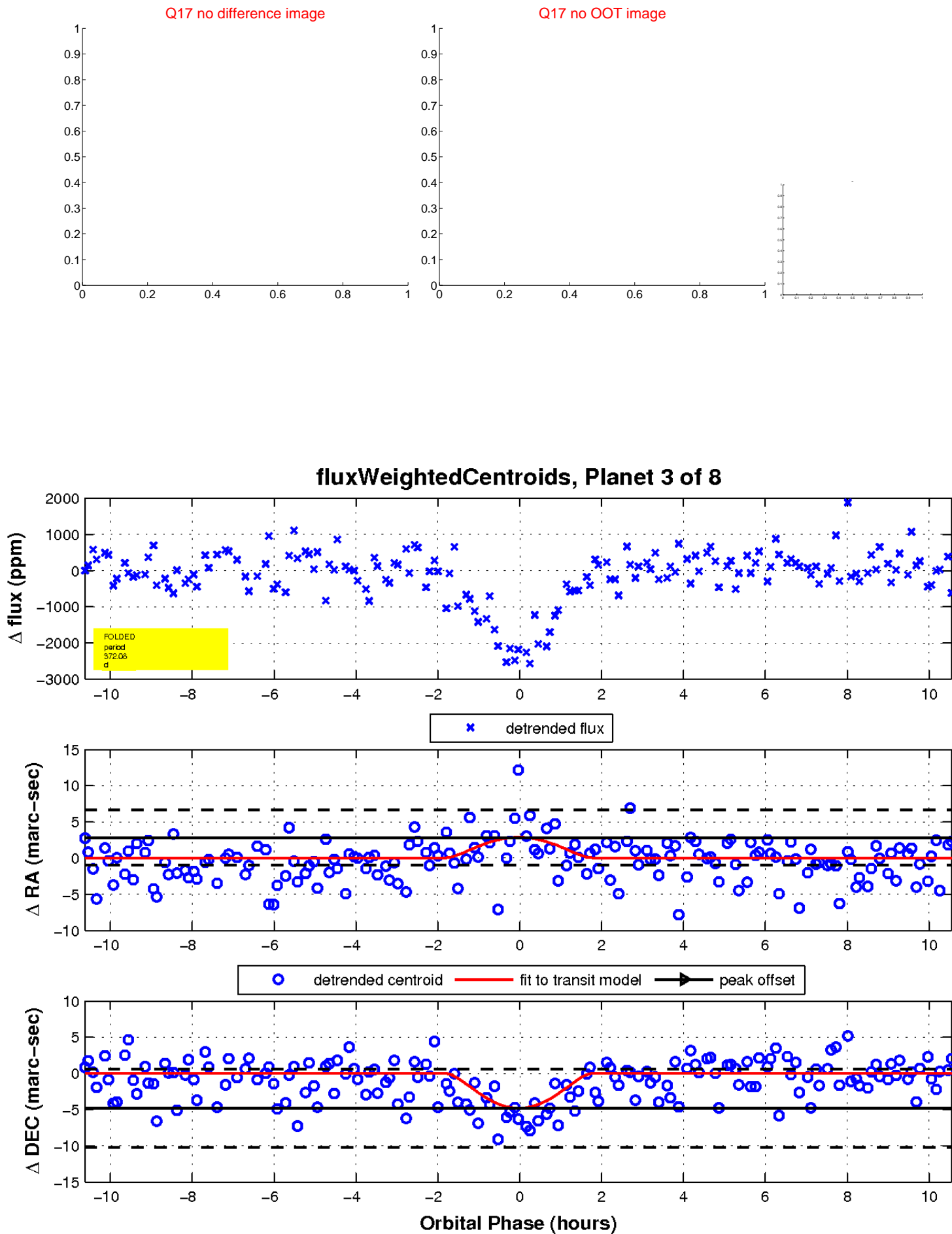
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



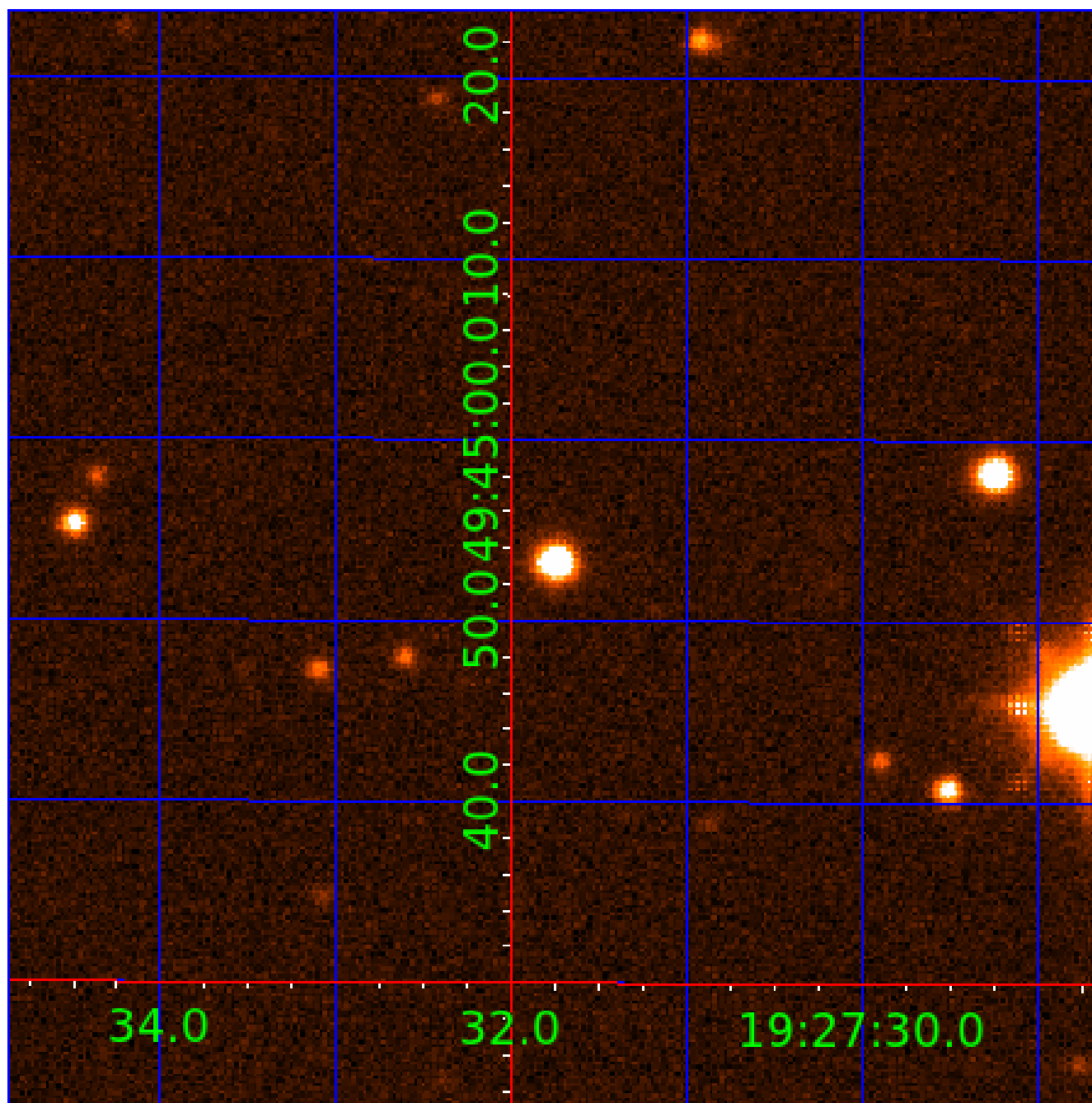
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 011661803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011661803-01	OBS	8060.01	372.087077	404.899629	2489.5	3.587	19.9	19.8	1.09	6289	9.22	1.51
011661803-02	OBS	8060.02	363.447672	411.193981	2024.6	5.417	18.5	17.5	1.09	6289	8.55	1.56
011661803-03	OBS	No	372.083900	413.558967	2321.2	3.542	17.8	18.1	1.09	6289	9.79	1.51
011661803-04	OBS	No	380.740273	385.232183	1895.4	3.279	17.0	16.7	1.09	6289	5.31	1.47
011661803-05	OBS	No	372.083773	396.254015	2283.4	3.682	16.8	17.9	1.09	6289	9.72	1.51
011661803-06	OBS	No	372.083136	387.601083	2145.4	3.732	17.4	17.3	1.09	6289	8.10	1.51
011661803-07	OBS	No	372.079361	422.220950	2363.3	3.340	15.9	16.7	1.09	6289	8.59	1.51
011661803-08	OBS	No	363.418186	393.900840	1727.5	3.000	14.4	-1.0	1.09	6289	4.56	1.56

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011661803-01	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES
011661803-02	OBS	FP	0.00	0	1	1	0	DEEP_V_SHAPED—HAS_SEC_TCE—HALO_GHOST
011661803-03	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_TER_DV—MOD_TER_ALT—SAME_NTL_PERIOD
011661803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
011661803-05	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD
011661803-06	OBS	FP	0.00	1	0	1	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET
011661803-07	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_FEW_DIFFS
011661803-08	OBS	FP	0.01	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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

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

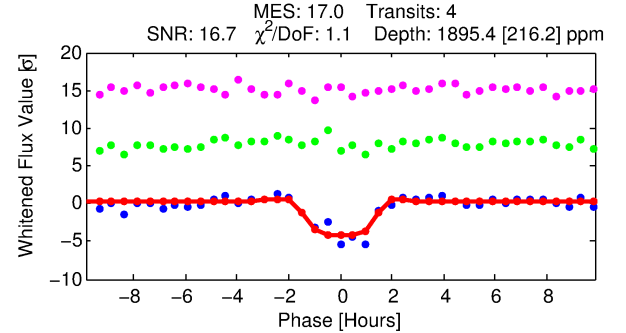
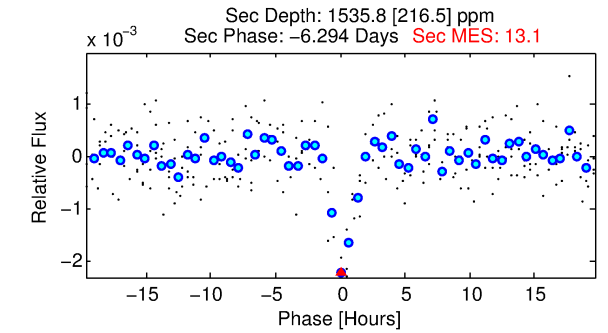
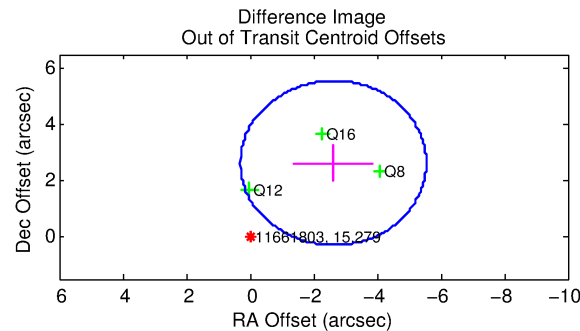
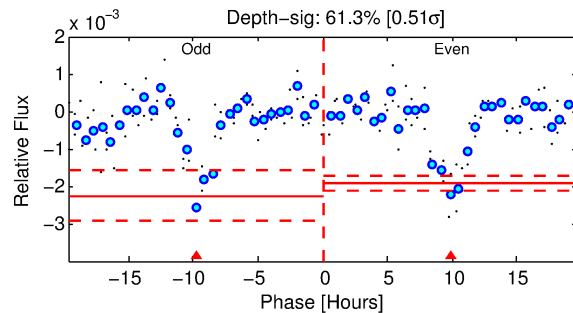
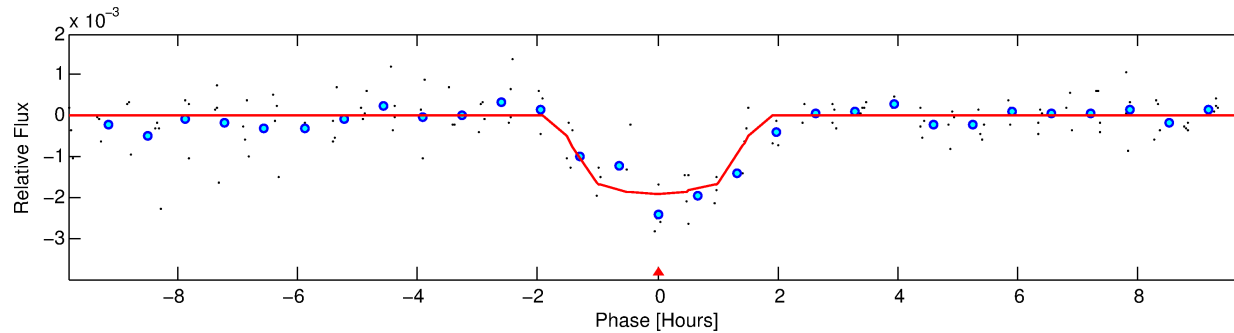
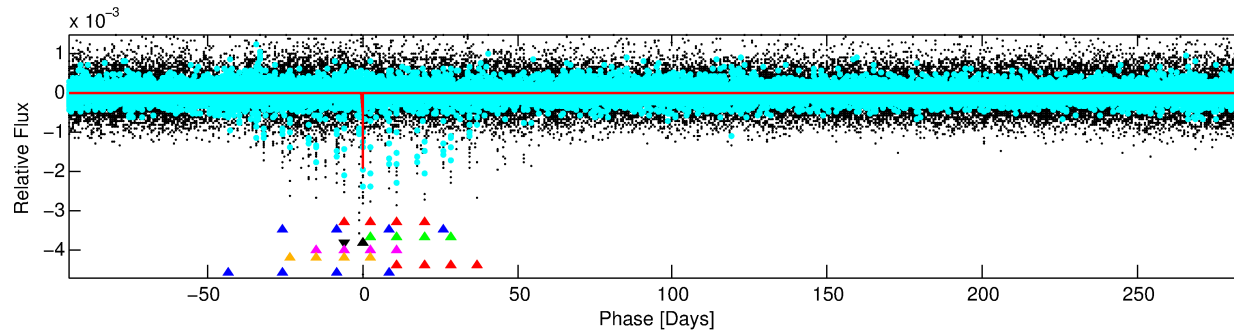
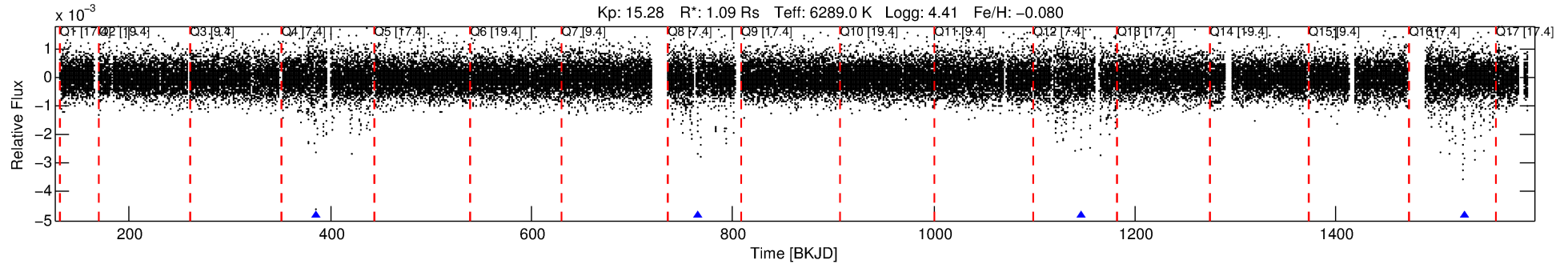
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011661803-04

No Significant Match Found

# DV One-Page Summary

KIC: 11661803 Candidate: 4 of 8 Period: 380.740 d



## DV Fit Results:

Period = 380.74027 [0.00225] d  
Epoch = 385.2322 [0.0043] BKJD  
Rp/R\* = 0.0445 [0.1039]  
a/R\* = 578.30 [6933.06]  
b = 0.82 [4.99]  
Seff = 1.47 [0.64]  
Teq = 281 [30] K  
Rp = 5.31 [12.53] Re  
a = 1.0687 [0.3045] AU  
Ag = 34281.37 [160866.04] [0.21 $\sigma$ ]  
Teffp = 5903 [6903] K [0.81 $\sigma$ ]

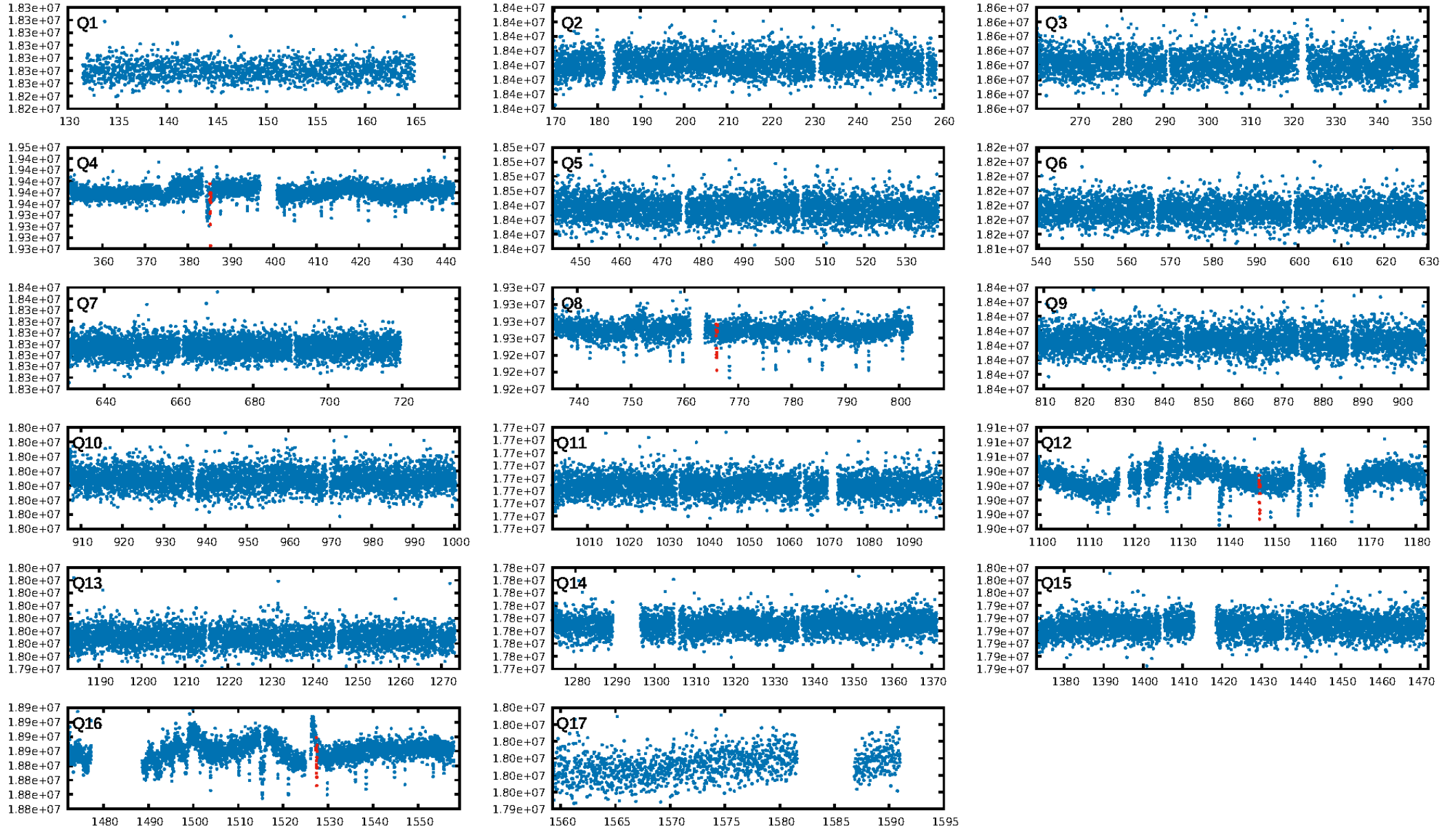
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [42.73 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 57.4%  
ModelChiSquareGof-sig: 63.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.4264  
Centroid-sig: 0.0%  
Centroid-so: 2.450 arcsec [2.77 $\sigma$ ]  
OotOffset-rm: 3.716 arcsec [3.81 $\sigma$ ]  
KicOffset-rm: 3.669 arcsec [3.72 $\sigma$ ]  
OotOffset-st: 0/0/3/0 [3]  
KicOffset-st: 0/0/3/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

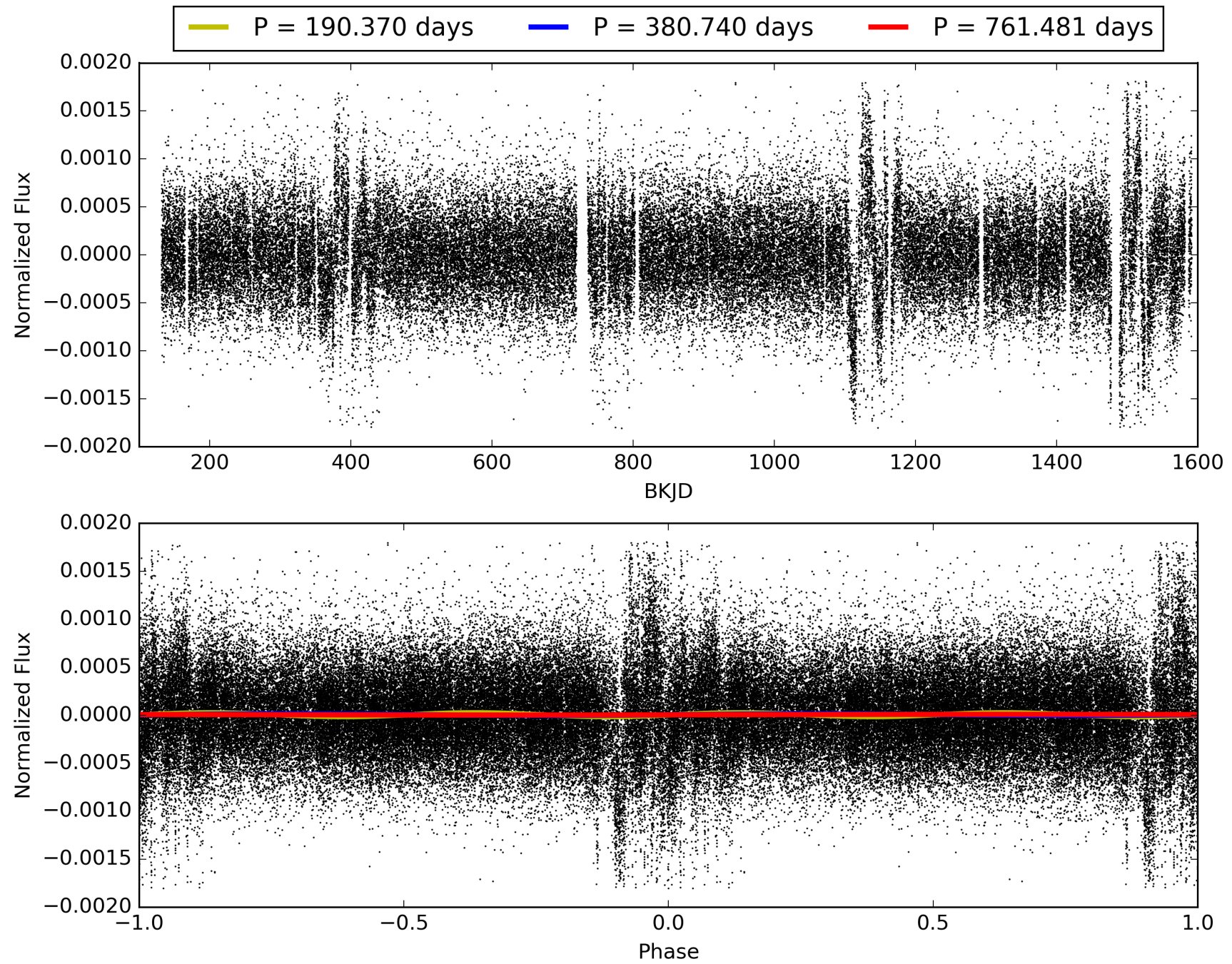
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:53:36 Z

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

# TCE 011661803-04, PDC Light Curves

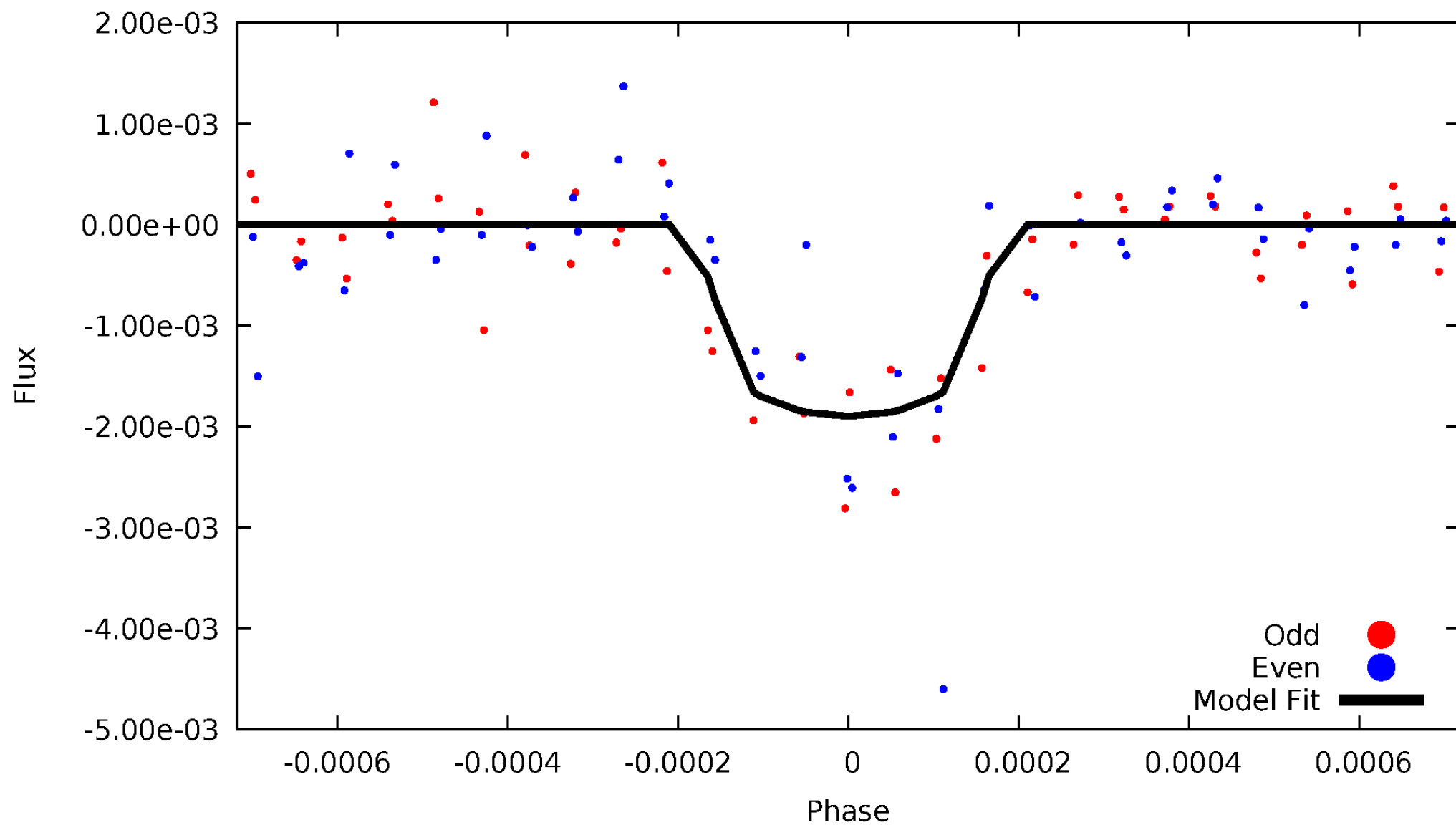


TCE 011661803-04



# DV Odd/Even

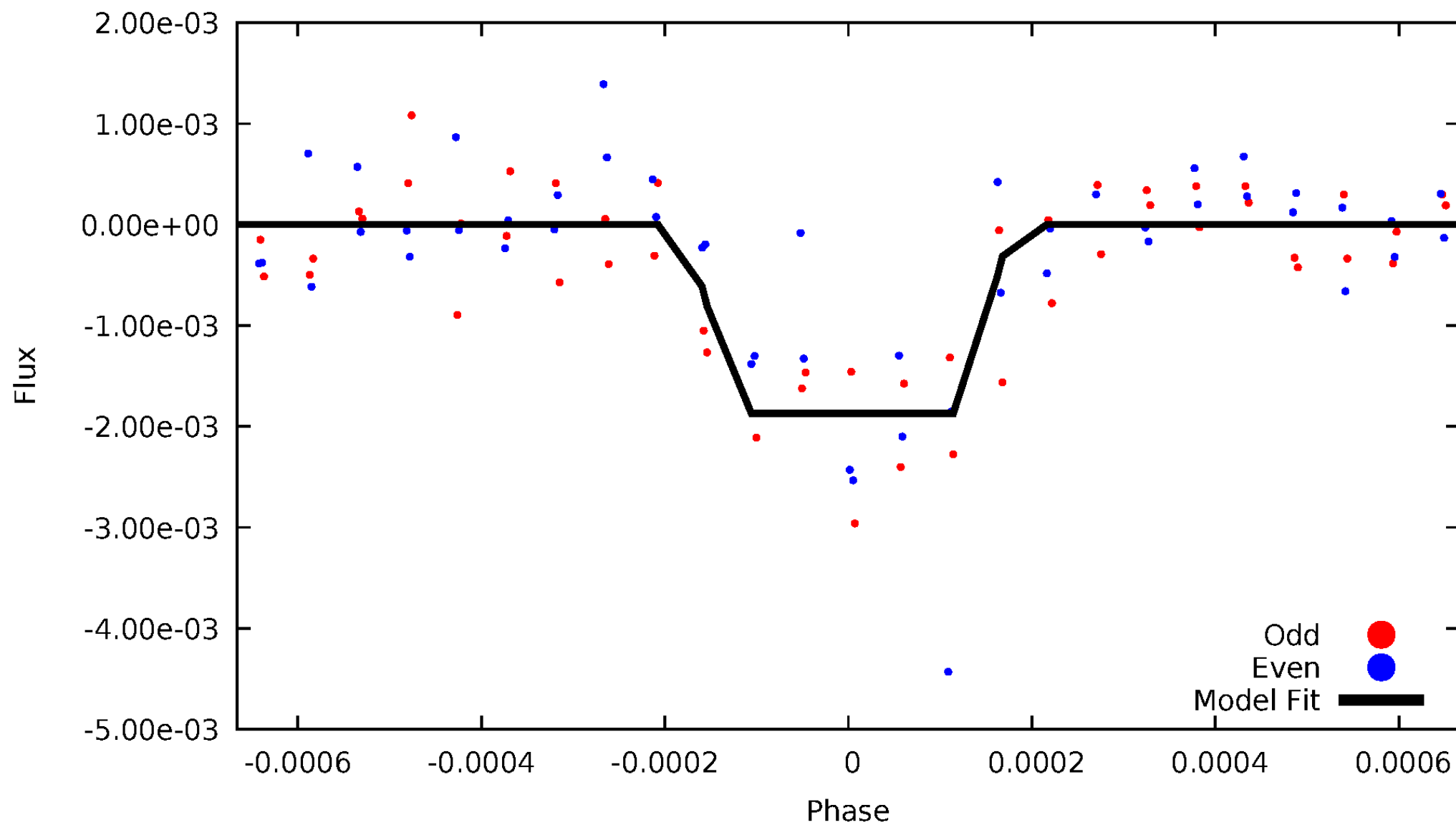
TCE 011661803-04





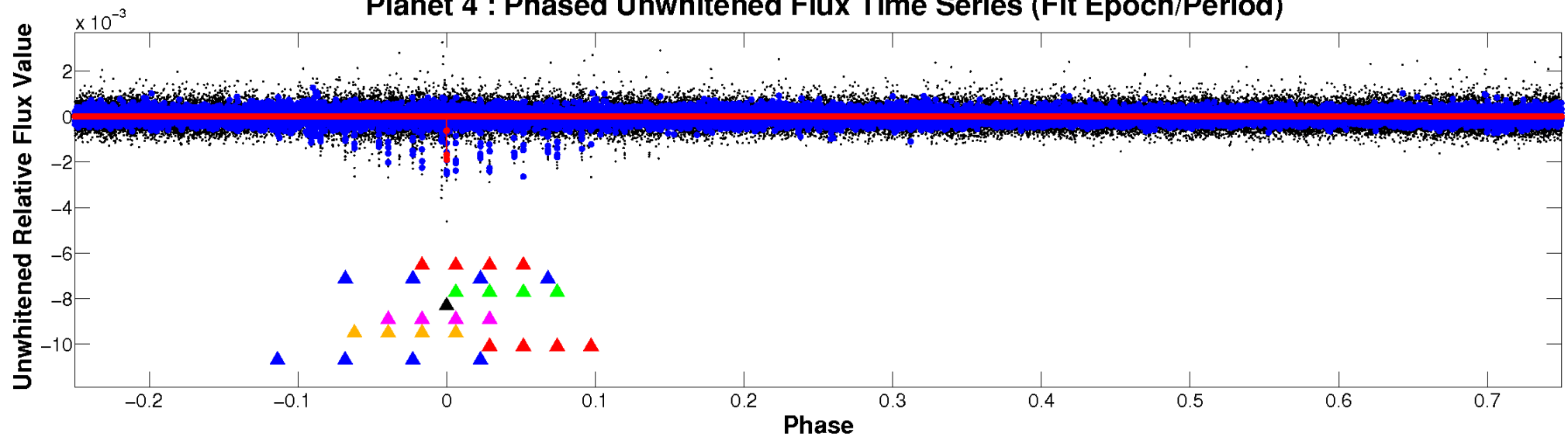
# ALT Odd/Even

TCE 011661803-04

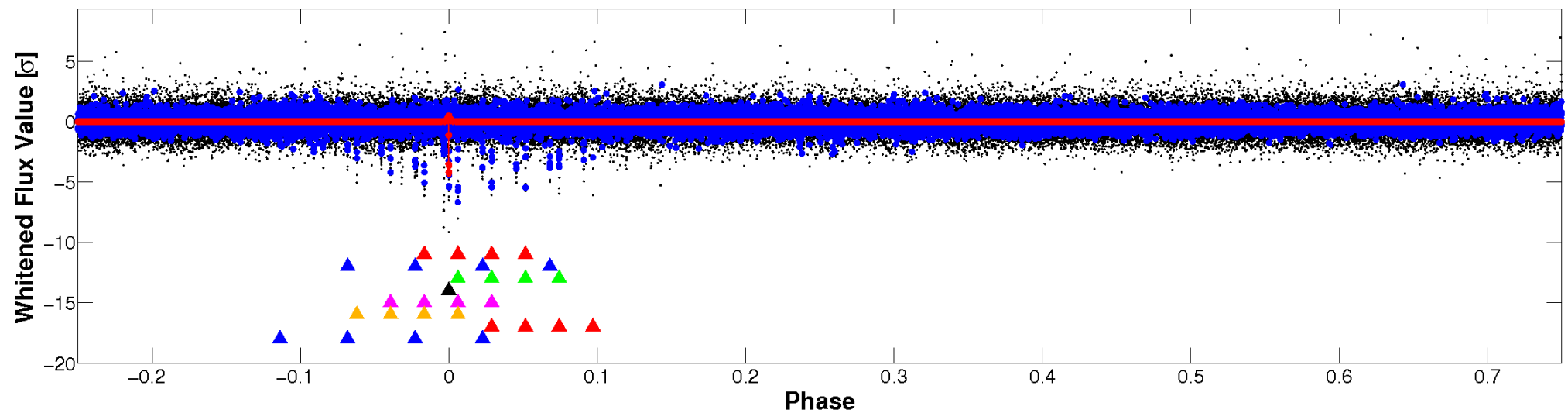


# Non-Whitened Vs. Whitened Light Curve

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



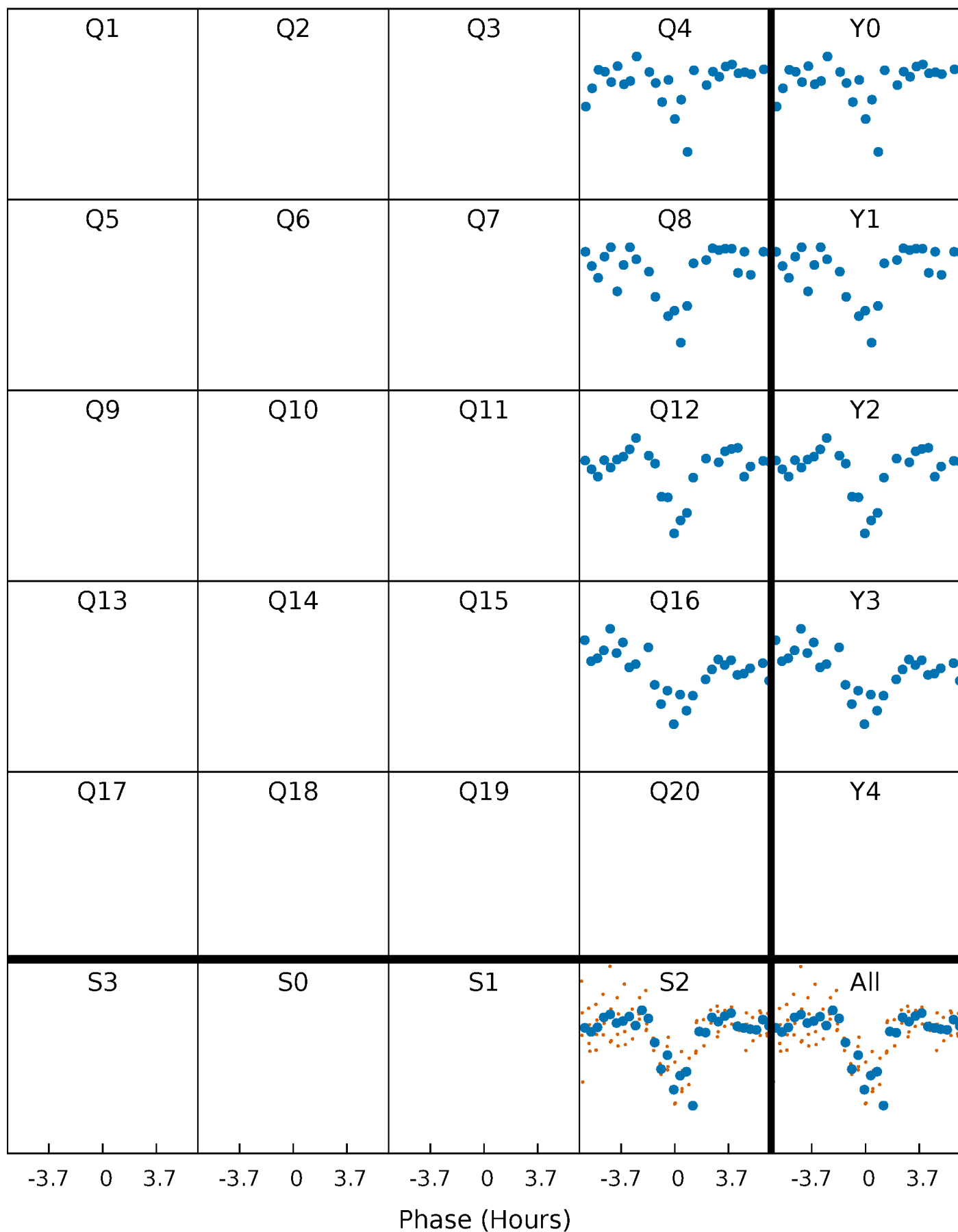
## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)





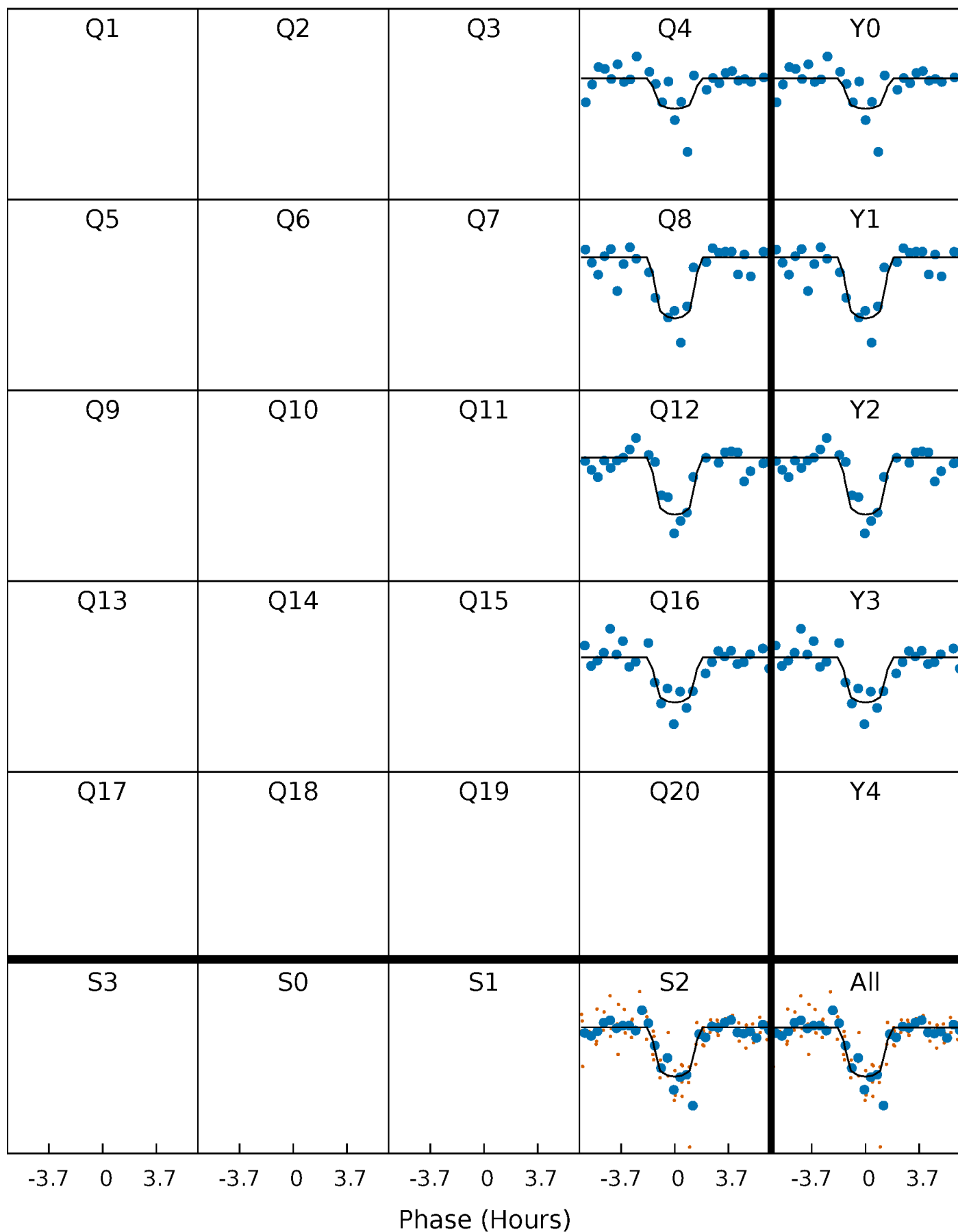
# PDC Quarter-Phased Transit Curves

TCE 011661803-04     $P=380.740273$  Days     $T_0=385.232183$  (BKJD)



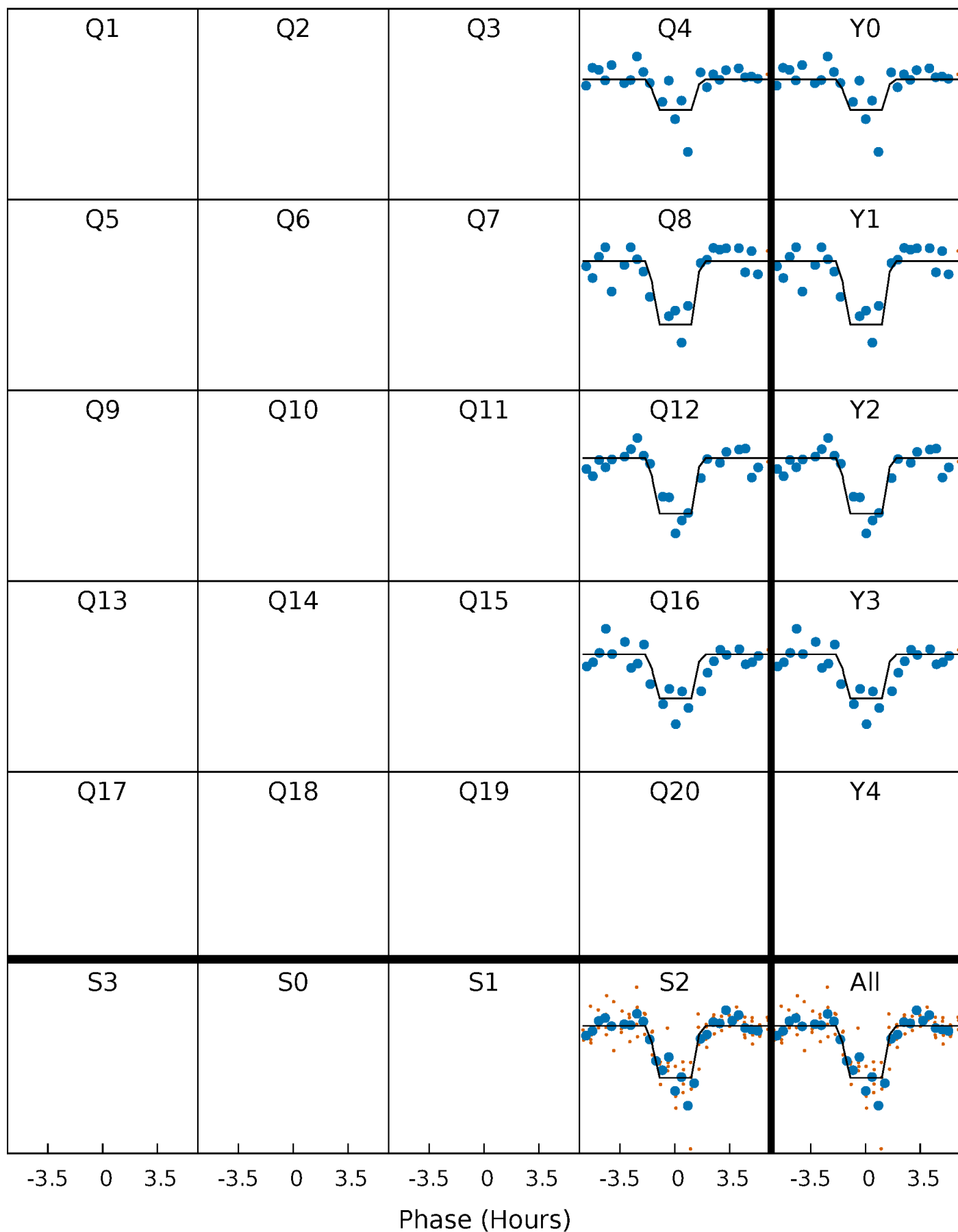
# DV Quarter-Phased Transit Curves

TCE 011661803-04     $P=380.740273$  Days     $T_0=385.232183$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

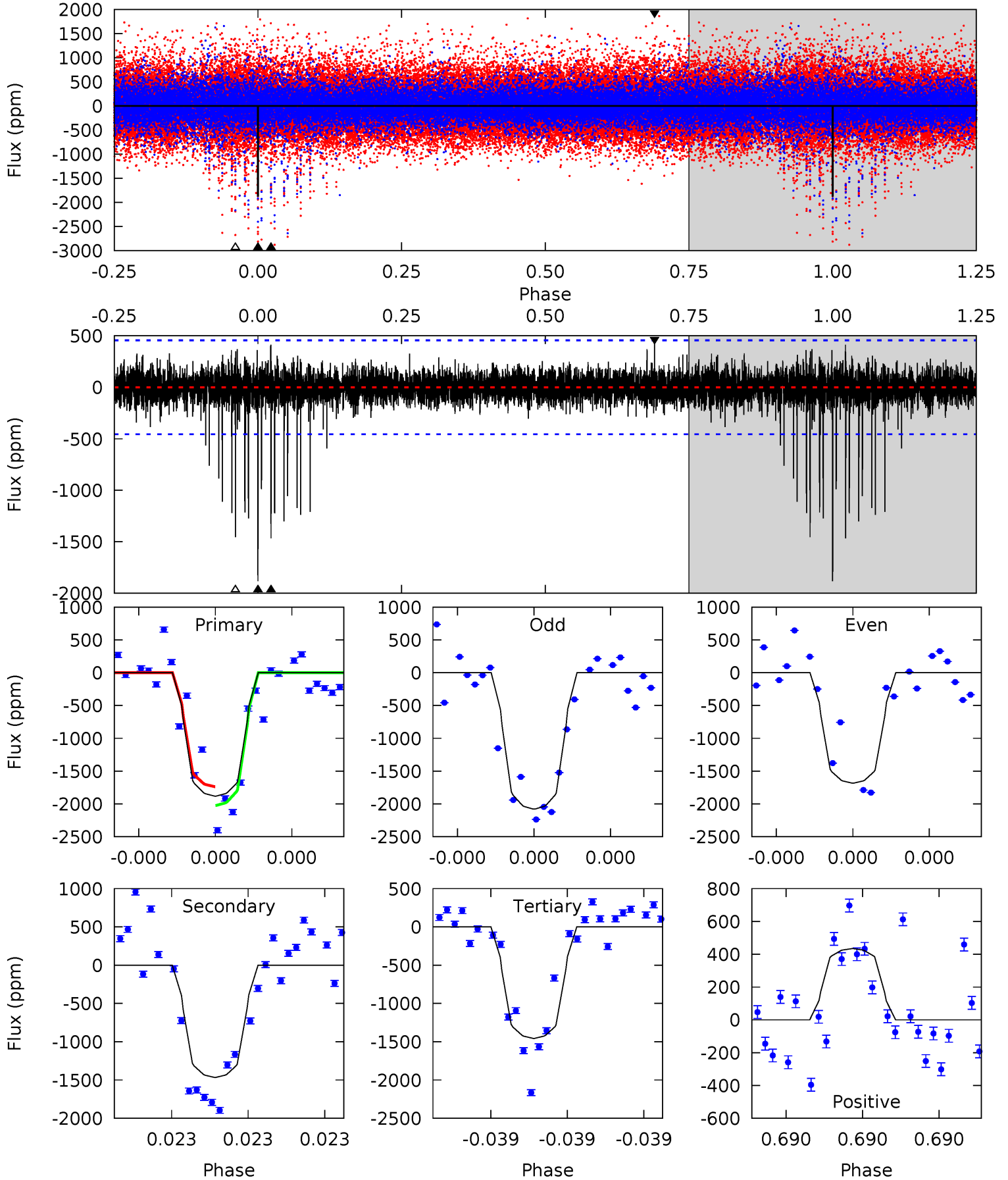
TCE 011661803-04     $P=380.738523$  Days     $T_0=385.233221$  (BKJD)



# DV Model-Shift Uniqueness Test

011661803-04, P = 380.740273 Days, E = 4.491910 Days

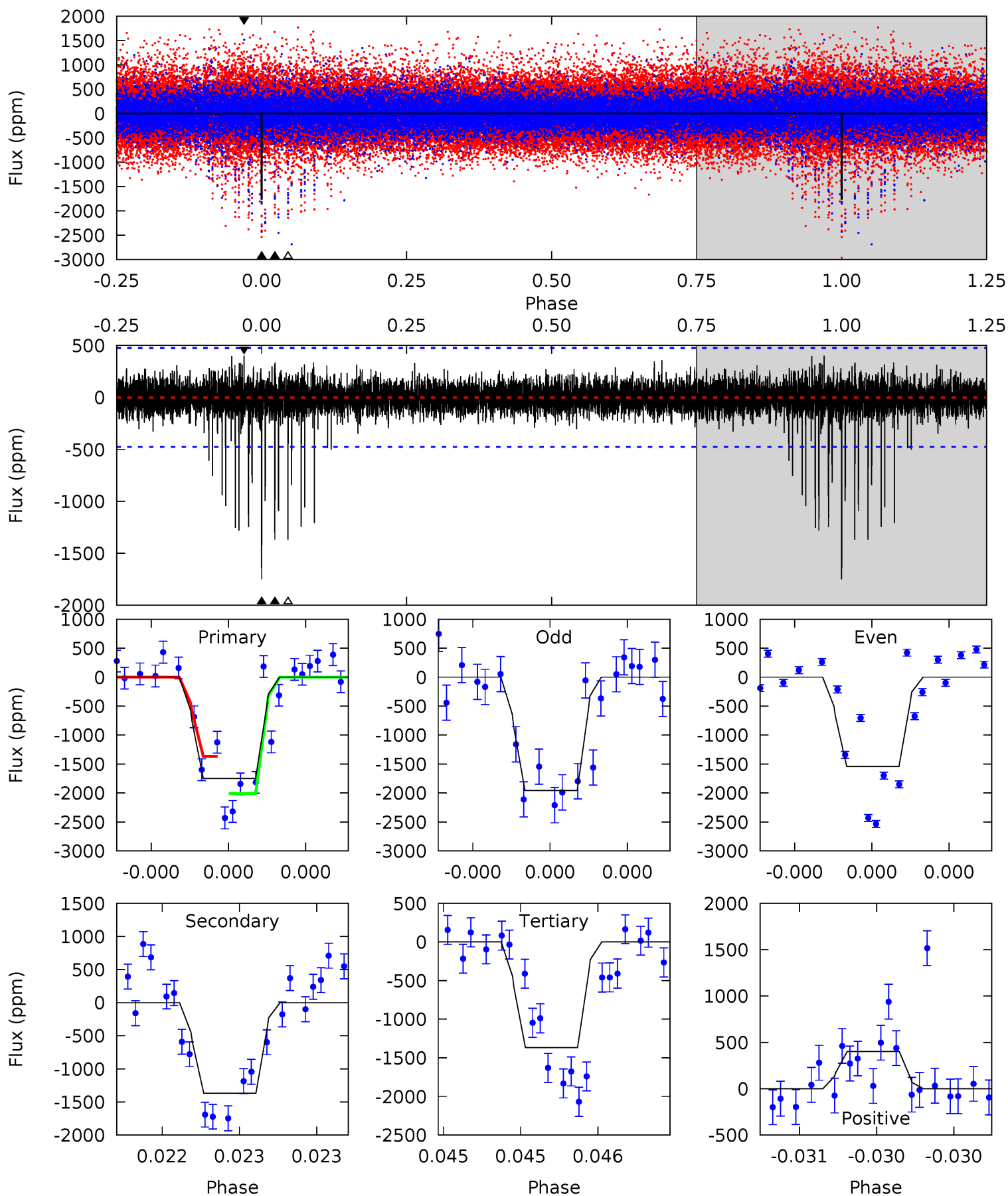
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.2	18.1	18.0	5.36	5.62	3.56	1.42	5.25	17.9	0.12	12.7	2.43	0.99	0.19	1.77



# Alt Model-Shift Uniqueness Test

011661803-04, P = 380.738523 Days, E = 4.494698 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
20.8	16.2	16.2	4.76	5.65	3.59	1.32	4.54	16.0	0.00	11.5	2.44	1.03	0.19	3.71



### Stellar Parameters For KIC 011661803

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6289^{+174}_{-240}$	$4.411^{+0.072}_{-0.217}$	$-0.080^{+0.250}_{-0.300}$	$1.093^{+0.379}_{-0.126}$	$1.121^{+0.171}_{-0.140}$	$1.210^{+0.364}_{-0.658}$
	+3%/-4%	+2%/-5%	+312%/-375%	+35%/-12%	+15%/-12%	+30%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011661803-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1466 \pm 81$	$11.27^{+11.27}_{-7.76}$	$398^{+31}_{-21}$	$4339^{+3171}_{-918}$	$7181^{+63306}_{-5412}$
Alt.	$-1368 \pm 84$	$10.89^{+12.12}_{-7.73}$	$399^{+32}_{-22}$	$4330^{+3277}_{-951}$	$7168^{+75370}_{-5527}$

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

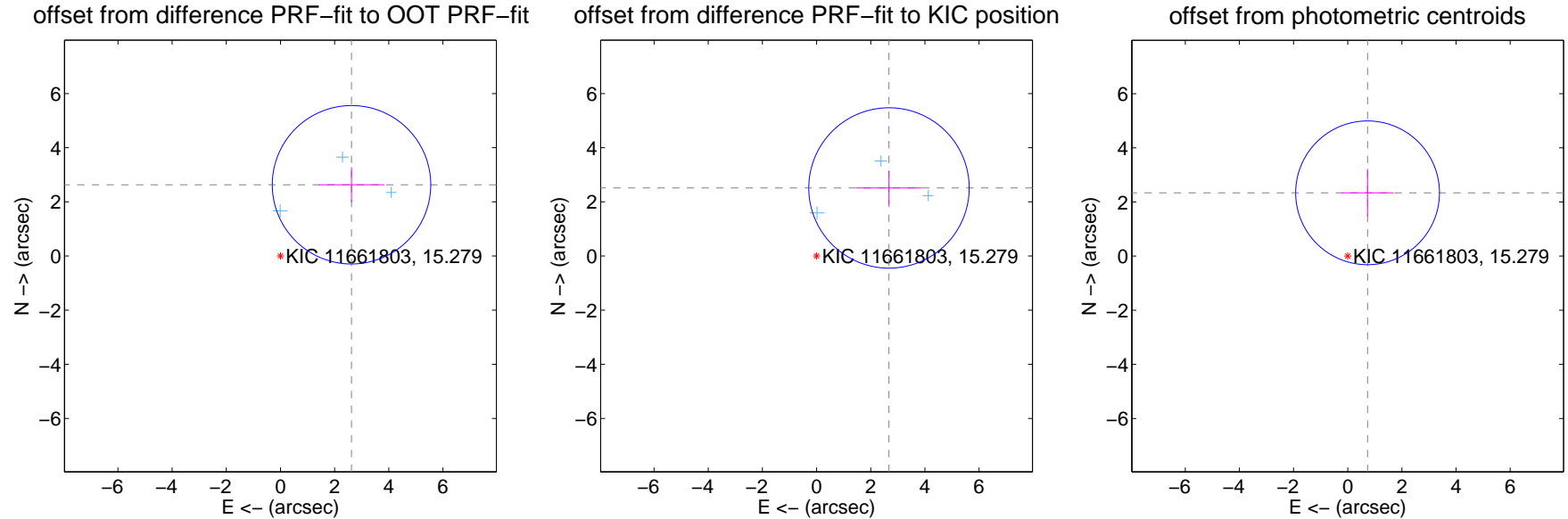
## DV Centroid Data

Supplemental centroid analysis for 011661803-04. Kepler magnitude: 15.28. Transit SNR 16.70

There are 3 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.716 \pm 0.975$	3.81	$-2.624 \pm 1.220$	$2.631 \pm 0.646$
PRF-fit source offset from KIC position	$3.669 \pm 0.987$	3.72	$-2.673 \pm 1.220$	$2.514 \pm 0.627$
photometric centroid source offset	$2.45 \pm 0.89$	2.77	$-0.73 \pm 0.96$	$2.34 \pm 0.88$



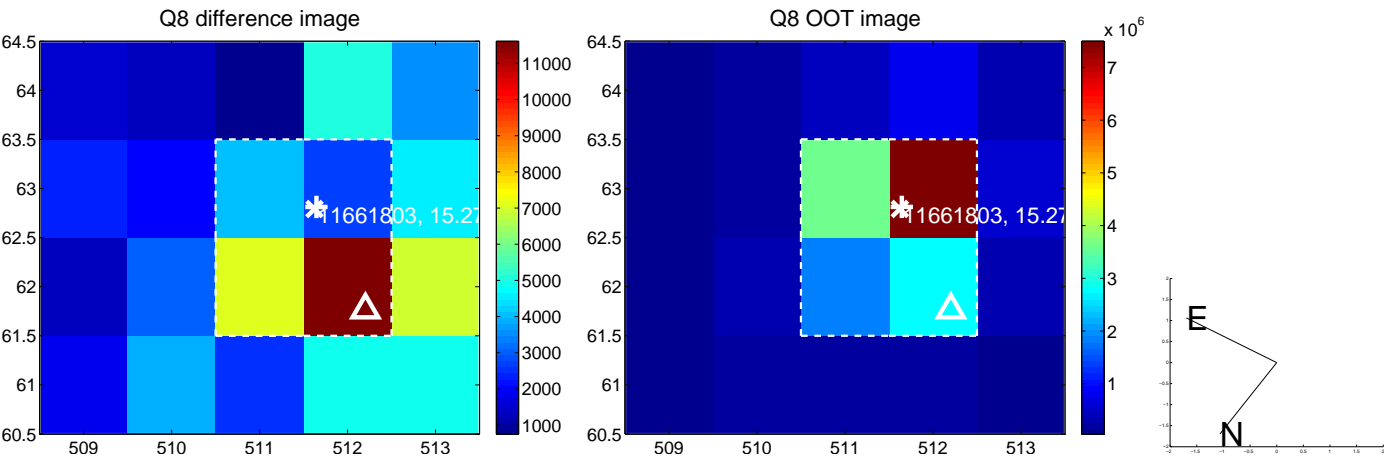
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

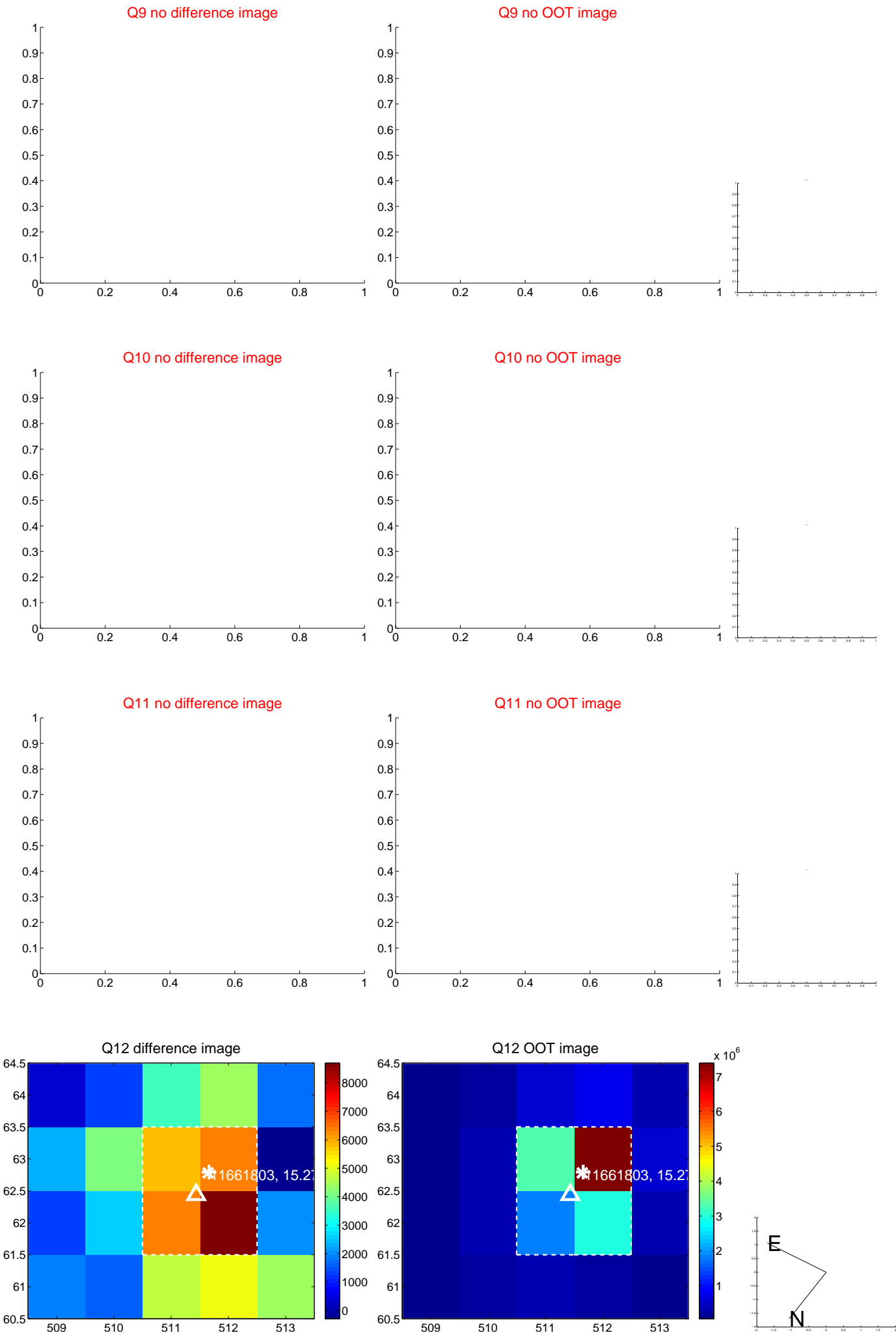




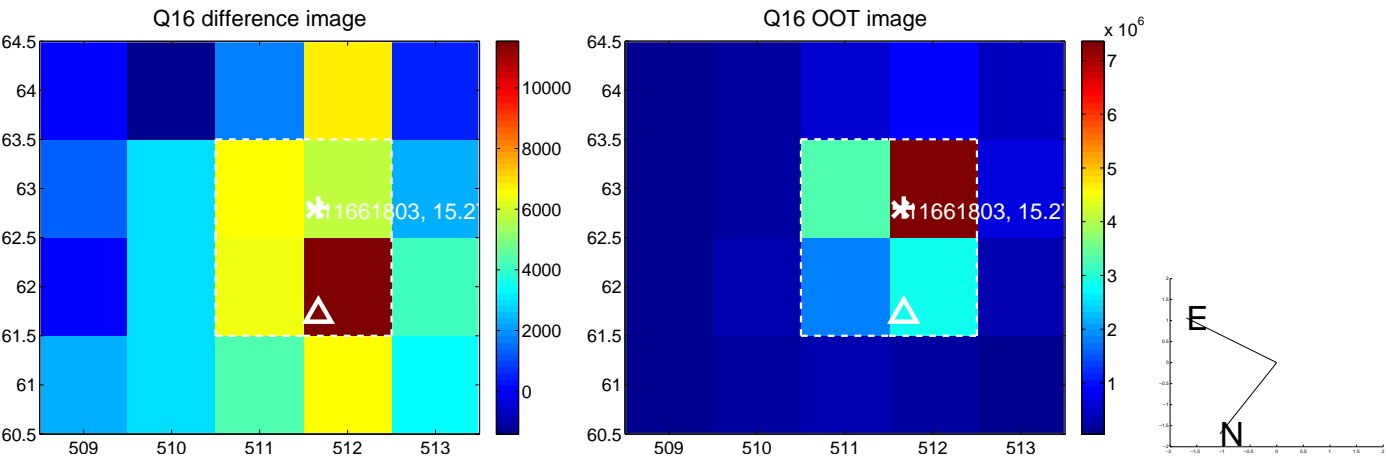
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



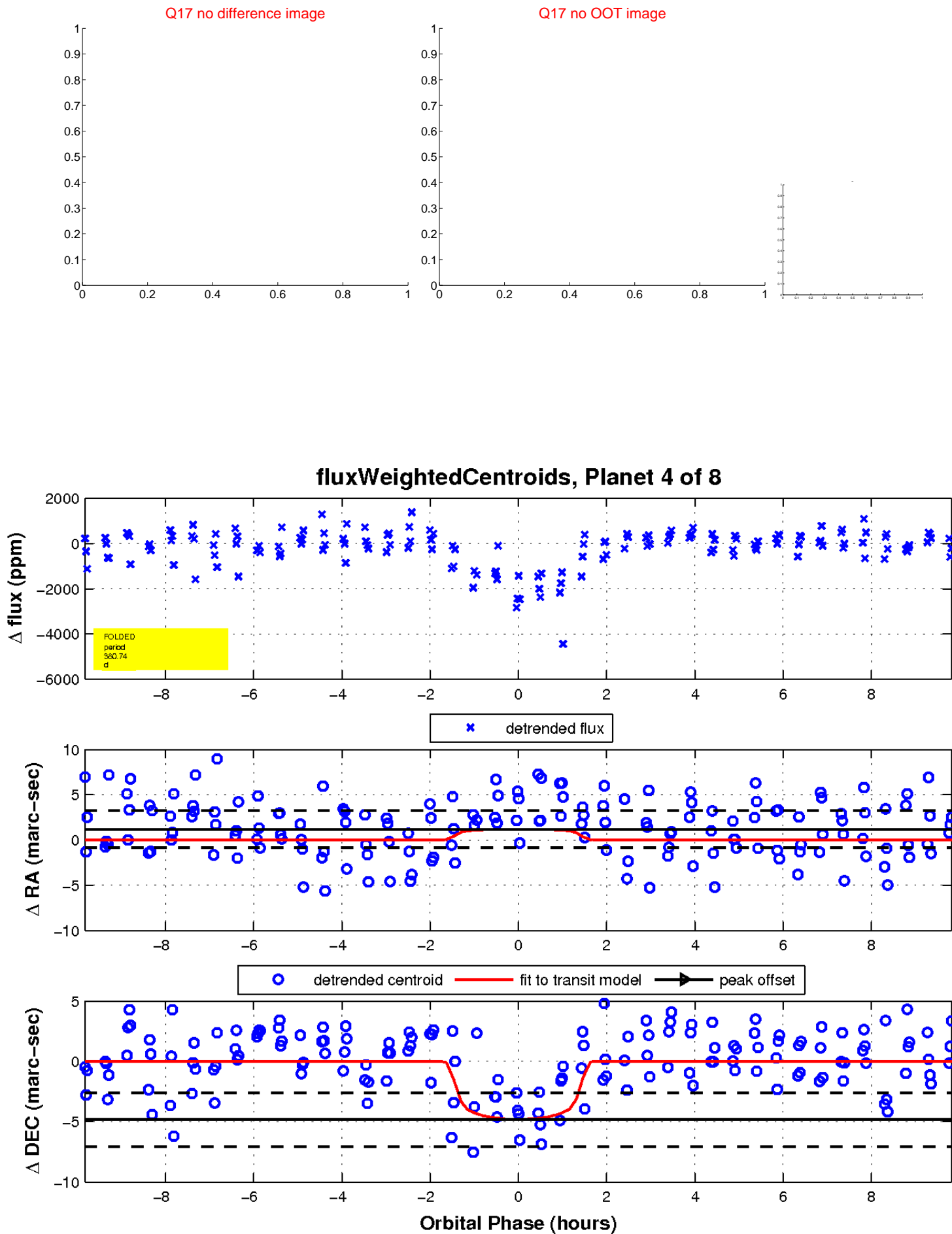
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

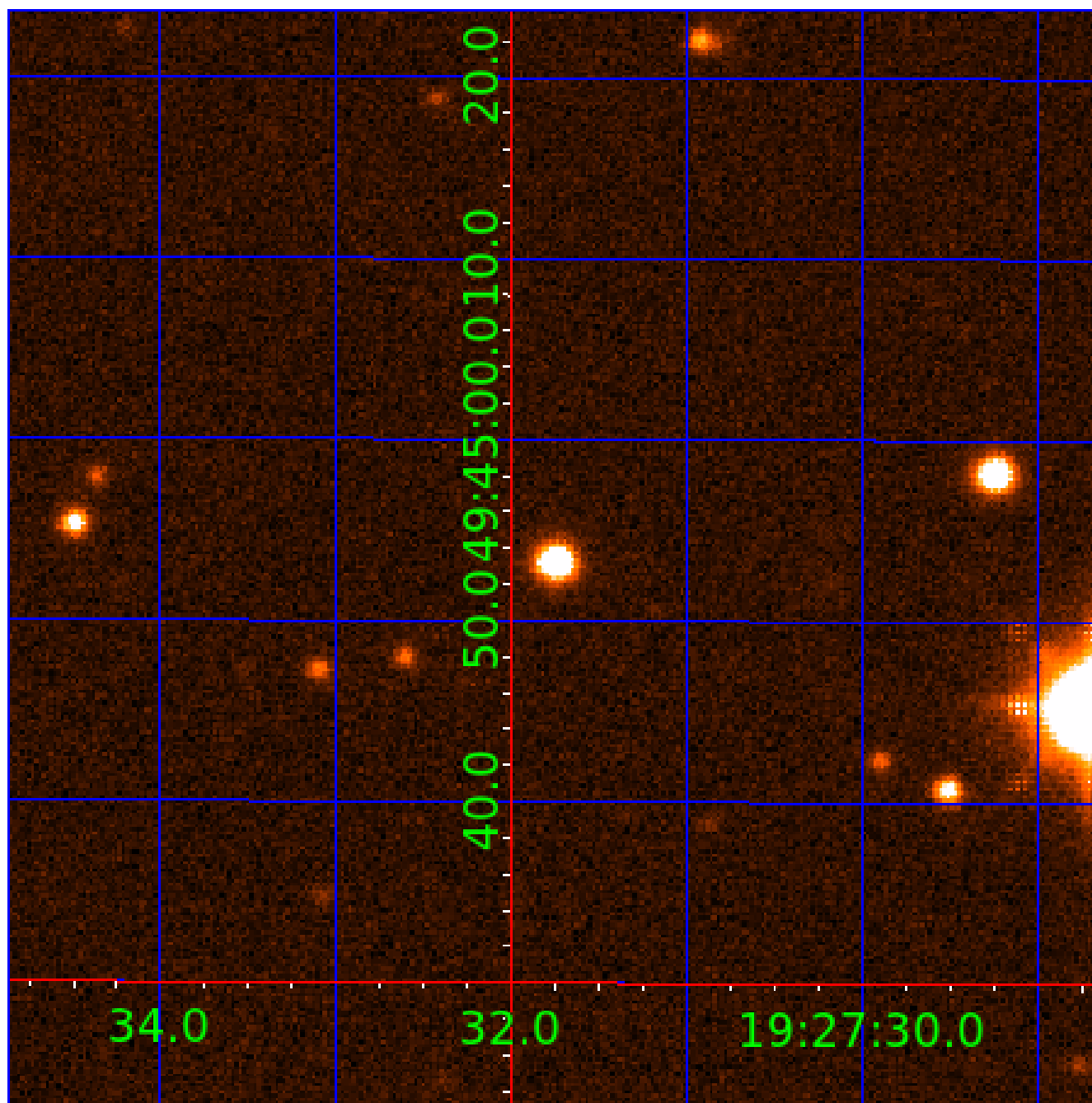


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 011661803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011661803-01	OBS	8060.01	372.087077	404.899629	2489.5	3.587	19.9	19.8	1.09	6289	9.22	1.51
011661803-02	OBS	8060.02	363.447672	411.193981	2024.6	5.417	18.5	17.5	1.09	6289	8.55	1.56
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011661803-06	OBS	No	372.083136	387.601083	2145.4	3.732	17.4	17.3	1.09	6289	8.10	1.51
011661803-07	OBS	No	372.079361	422.220950	2363.3	3.340	15.9	16.7	1.09	6289	8.59	1.51
011661803-08	OBS	No	363.418186	393.900840	1727.5	3.000	14.4	-1.0	1.09	6289	4.56	1.56

## Robovetter Results

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011661803-02	OBS	FP	0.00	0	1	1	0	DEEP_V_SHAPED—HAS_SEC_TCE—HALO_GHOST
011661803-03	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_TER_DV—MOD_TER_ALT—SAME_NTL_PERIOD
011661803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
011661803-05	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD
011661803-06	OBS	FP	0.00	1	0	1	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET
011661803-07	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_FEW_DIFFS
011661803-08	OBS	FP	0.01	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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

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

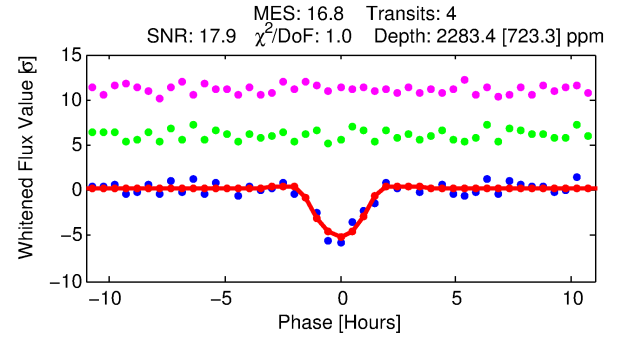
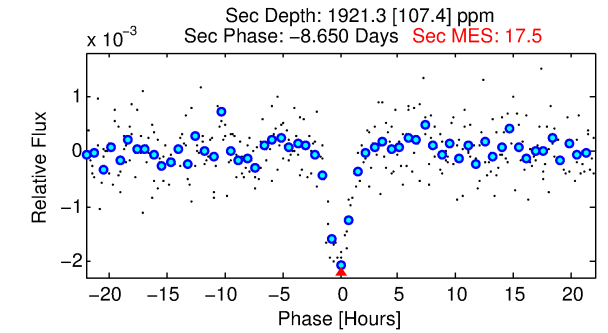
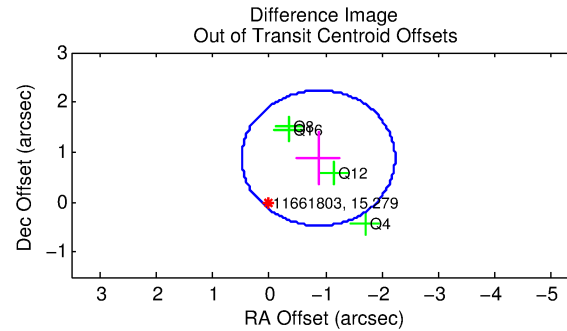
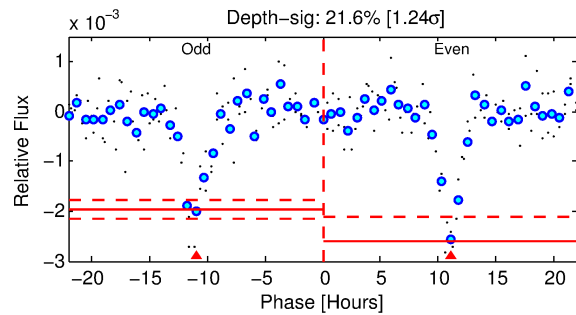
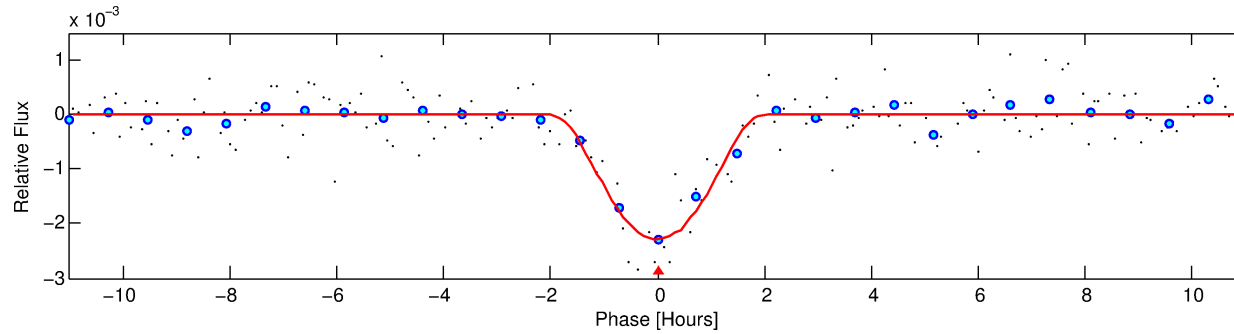
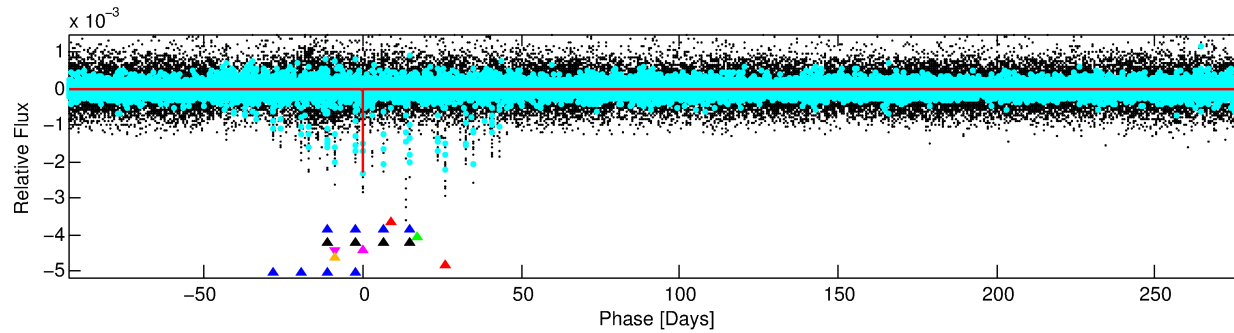
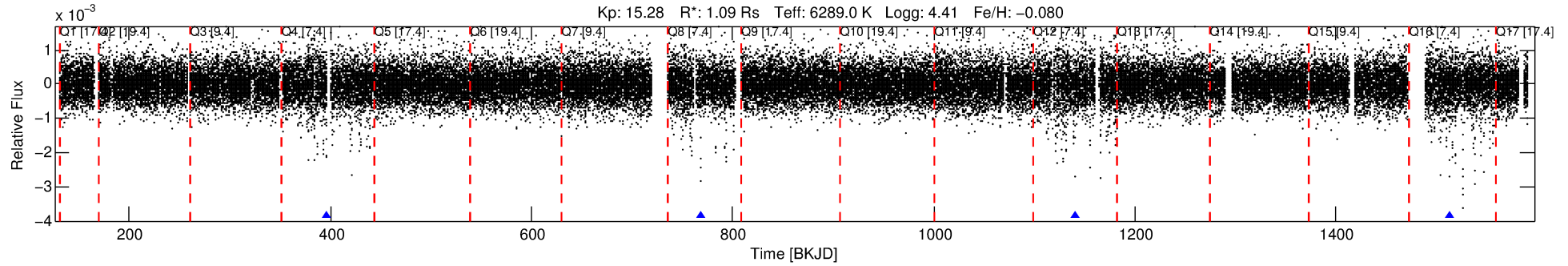
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011661803-05

No Significant Match Found

# DV One-Page Summary

KIC: 11661803 Candidate: 5 of 8 Period: 372.084 d



## DV Fit Results:

Period = 372.08377 [0.00240] d  
Epoch = 396.2540 [0.0039] BKJD  
Rp/R\* = 0.0815 [0.2308]  
a/R\* = 318.38 [196.00]  
b = 1.00 [0.35]  
Seff = 1.51 [0.65]  
Teq = 283 [31] K  
Rp = 9.72 [27.74] Re  
a = 1.0525 [0.2999] AU  
Ag = 12393.25 [70387.50] [0.18 $\sigma$ ]  
Teffp = 4612 [6535] K [0.66 $\sigma$ ]

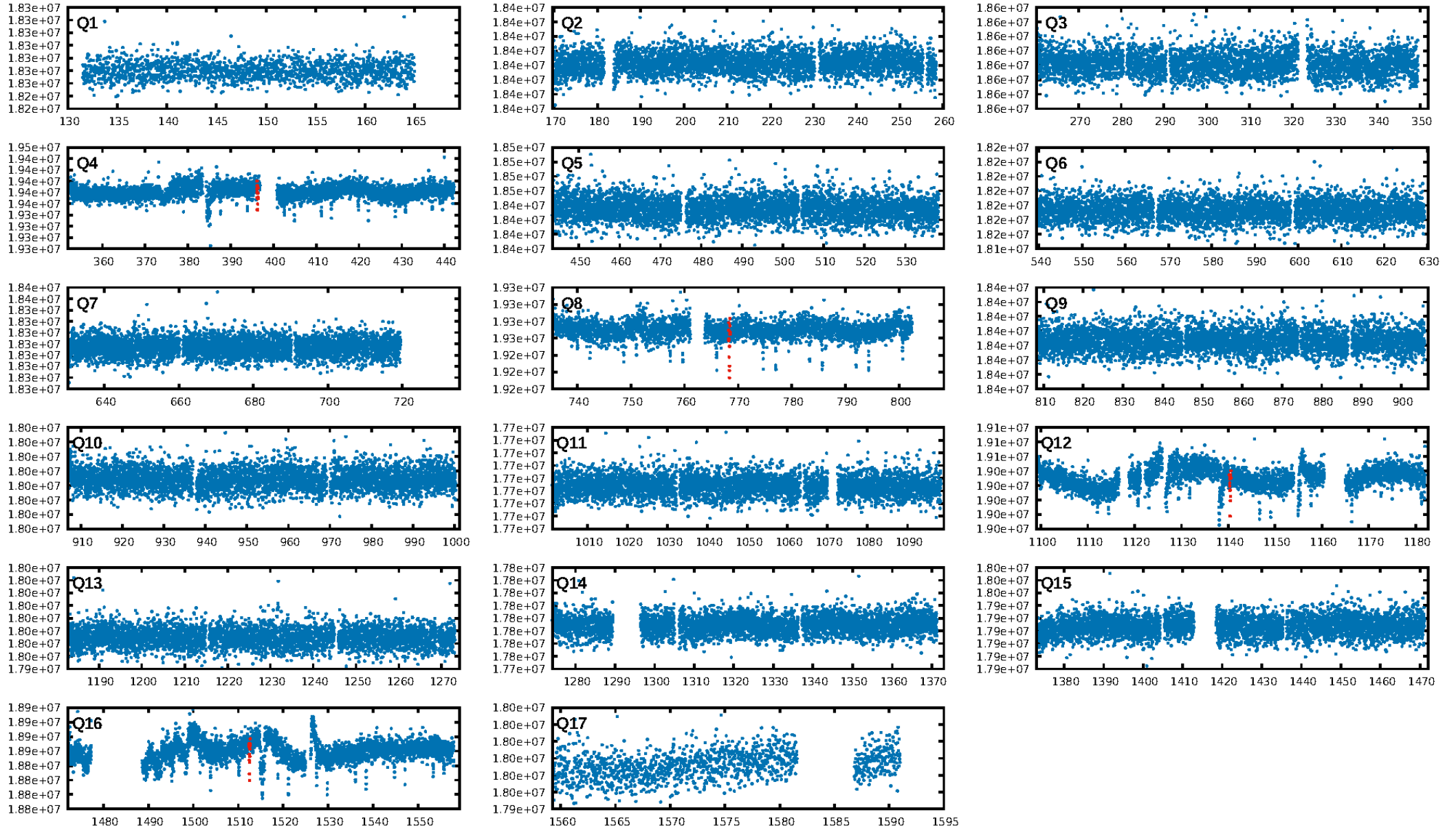
## DV Diagnostic Results:

ShortPeriod-sig: 0.2% [0.00 $\sigma$ ]  
LongPeriod-sig: 0.0% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: 45.2%  
ModelChiSquareGof-sig: 92.5%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.7122  
Centroid-sig: 0.0%  
Centroid-so: 2.066 arcsec [2.51 $\sigma$ ]  
OotOffset-rm: 1.241 arcsec [2.75 $\sigma$ ]  
KicOffset-rm: 1.201 arcsec [2.75 $\sigma$ ]  
OotOffset-st: 0/0/4/0 [4]  
KicOffset-st: 0/0/4/0 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [4/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:53:52 Z

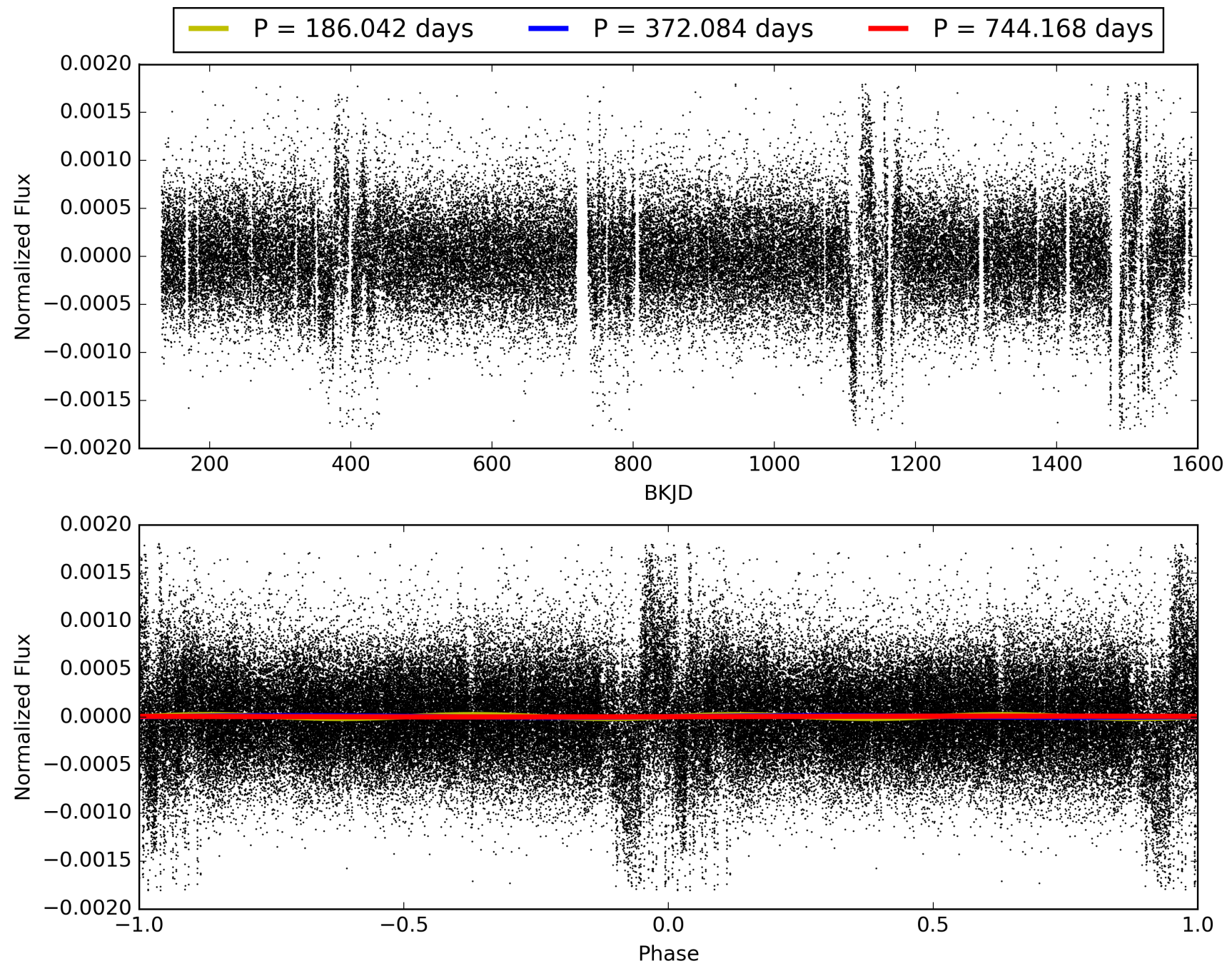
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011661803-05, PDC Light Curves



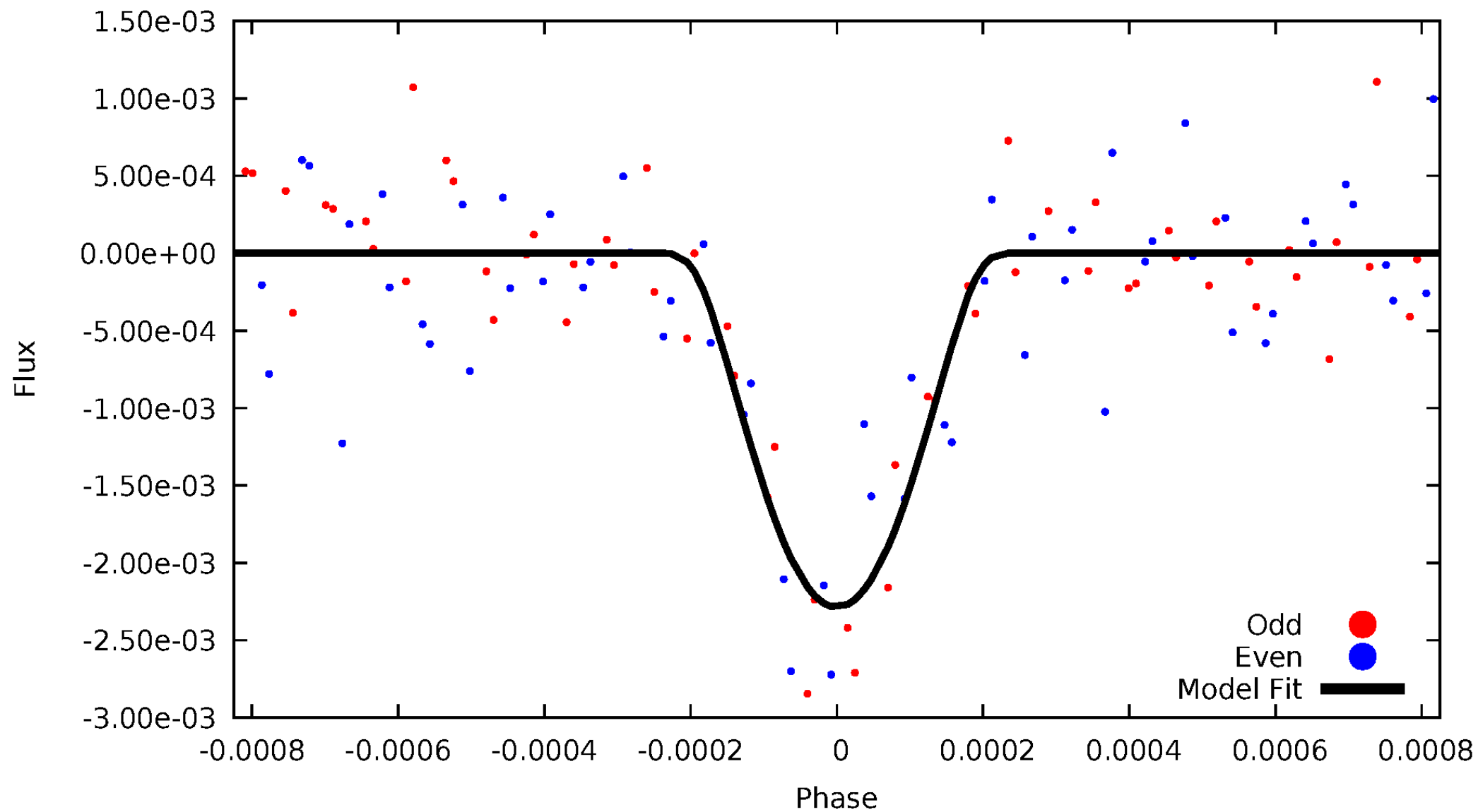


TCE 011661803-05



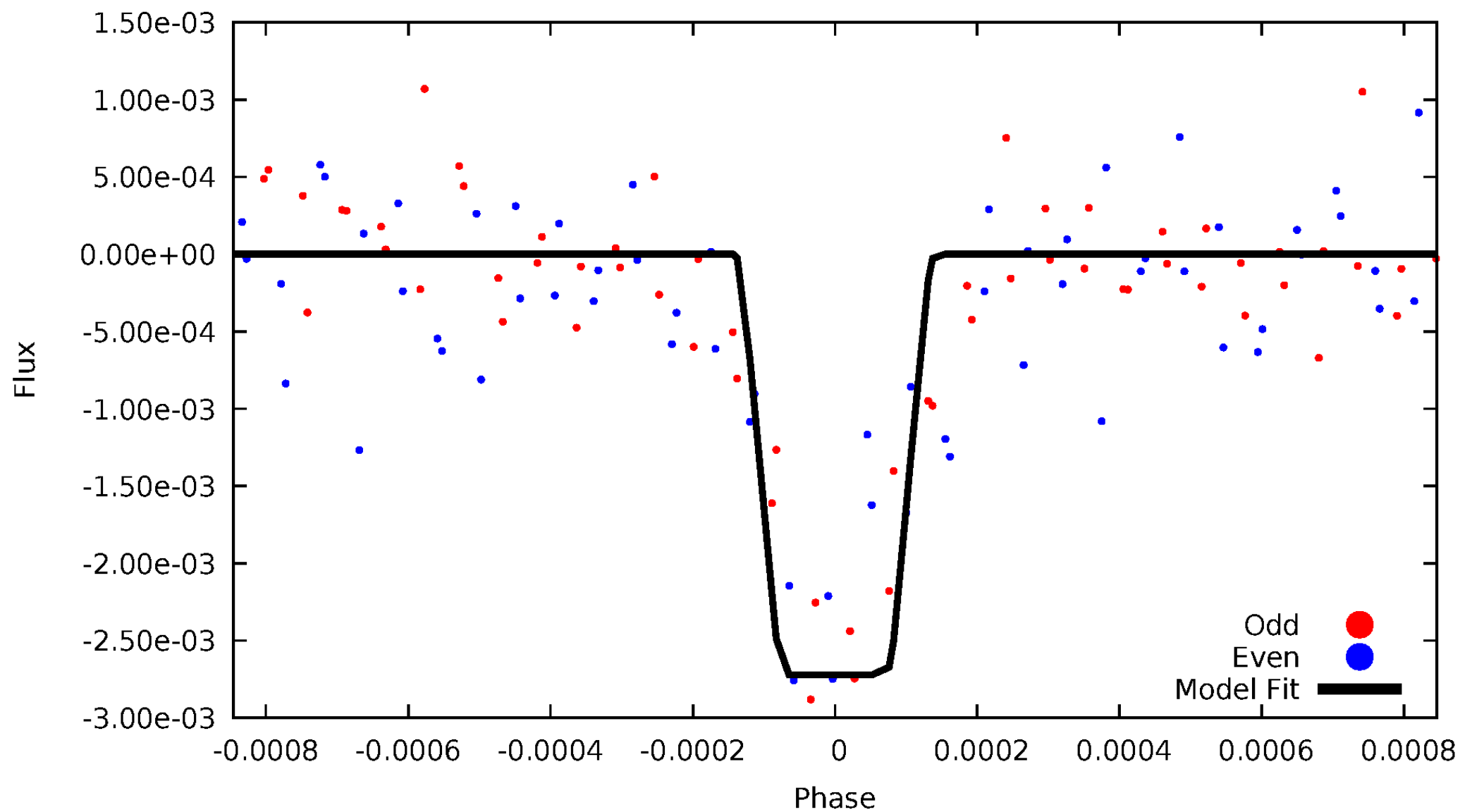
# DV Odd/Even

TCE 011661803-05



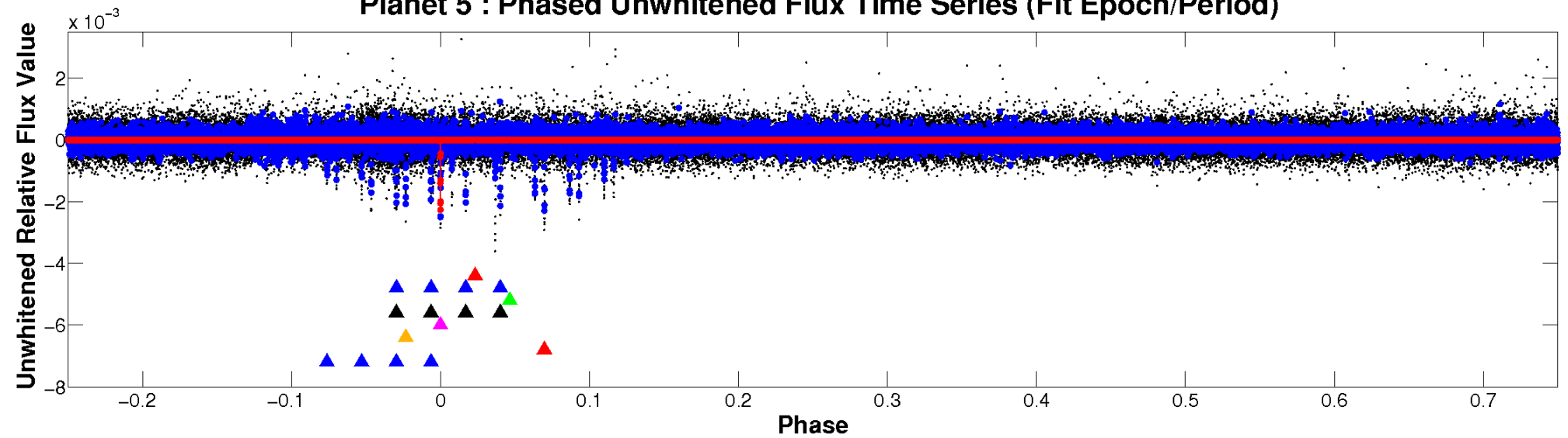
# ALT Odd/Even

TCE 011661803-05

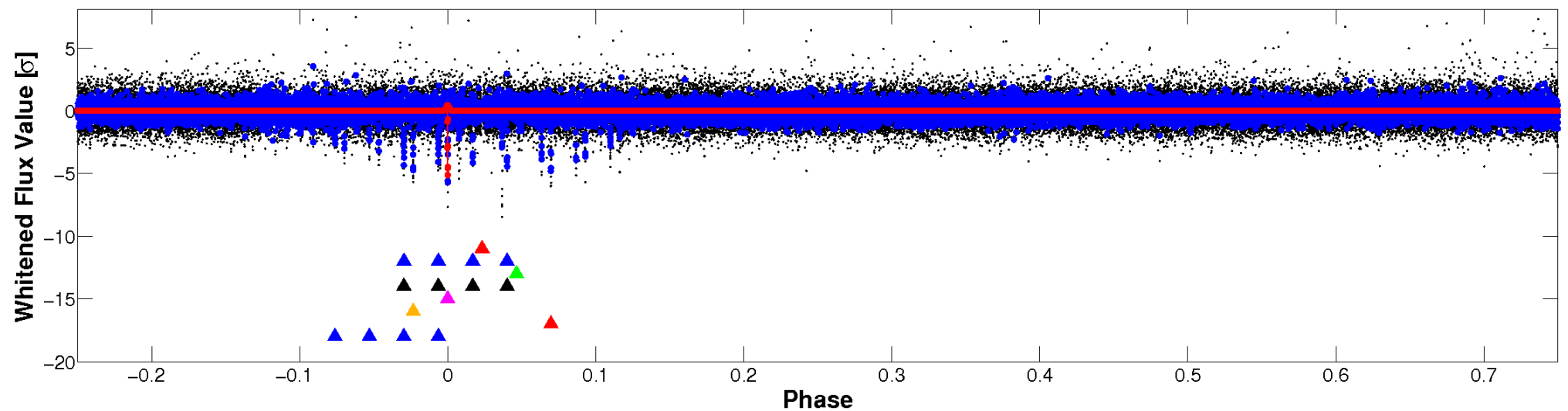


# Non-Whitened Vs. Whitened Light Curve

## Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

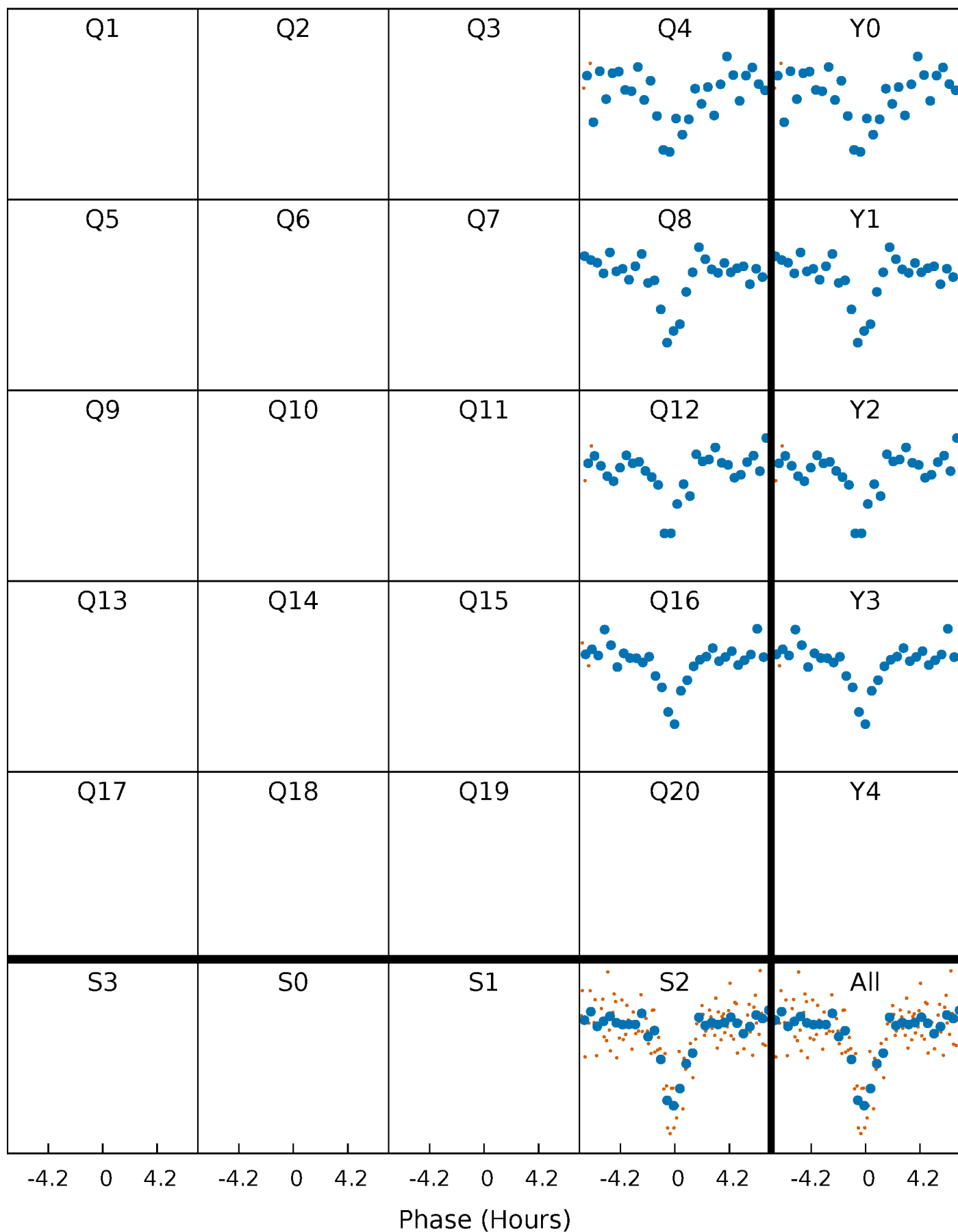


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



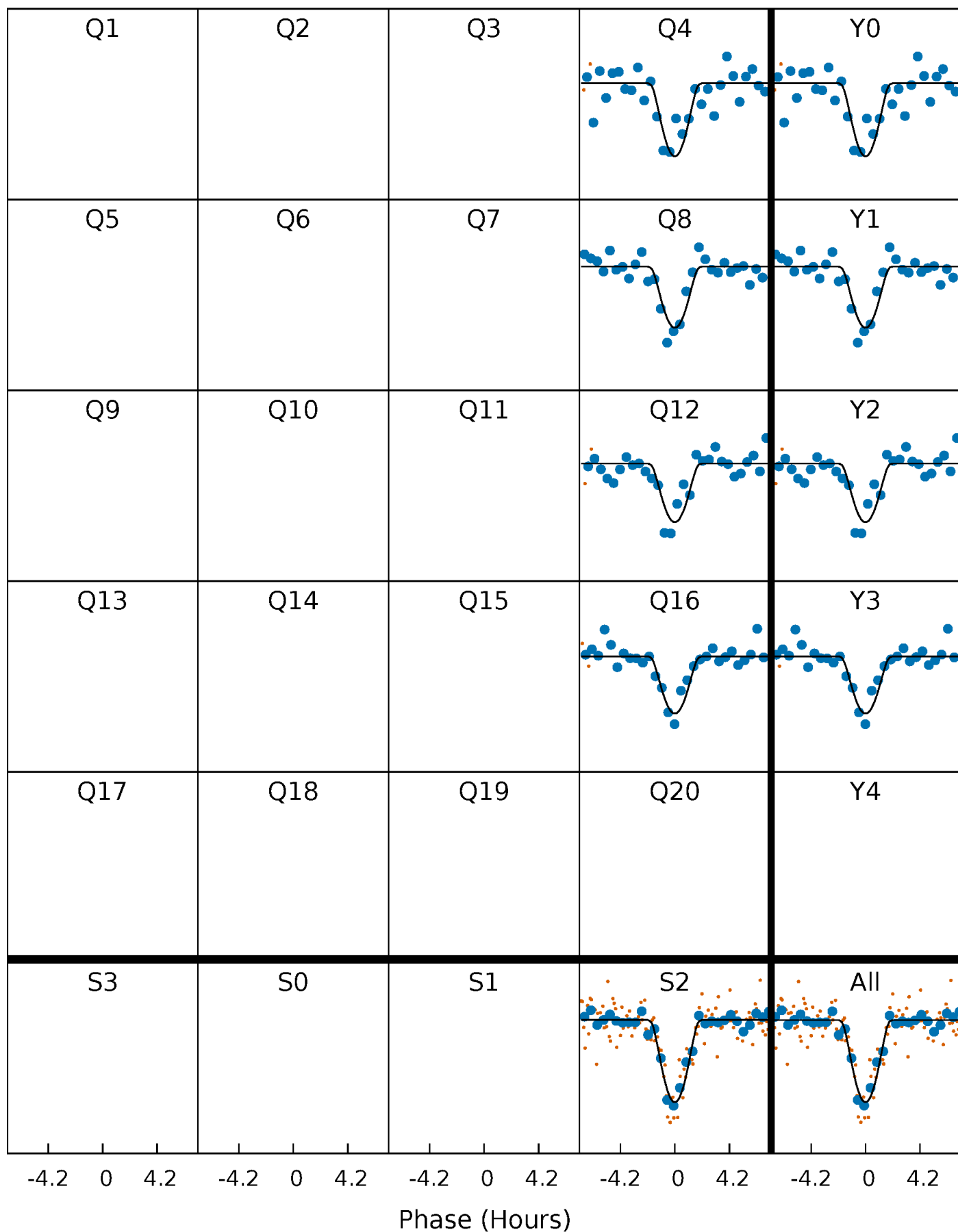
# PDC Quarter-Phased Transit Curves

TCE 011661803-05     $P=372.083773$  Days     $T_0=396.254014$  (BKJD)



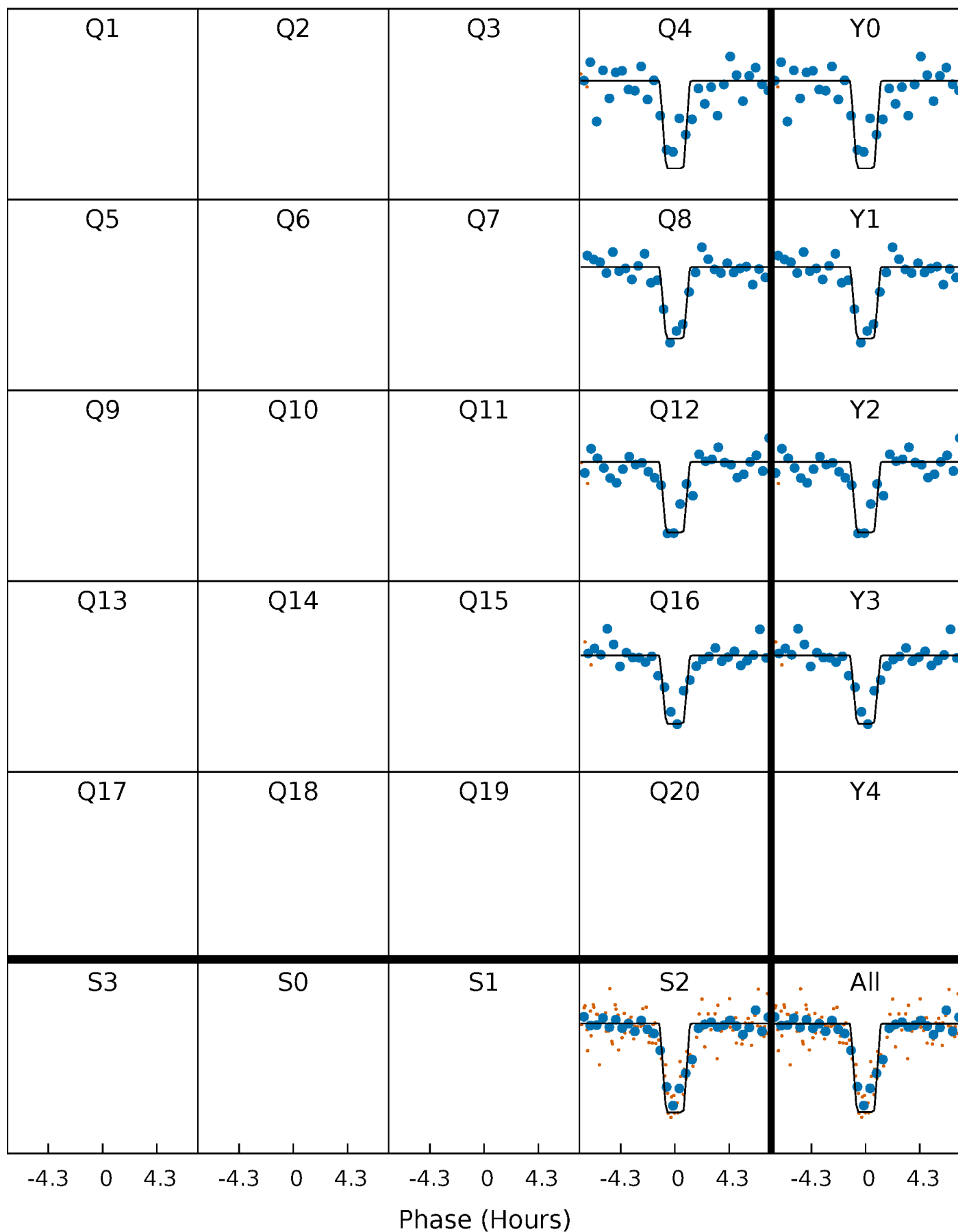
# DV Quarter-Phased Transit Curves

TCE 011661803-05     $P=372.083773$  Days     $T_0=396.254014$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

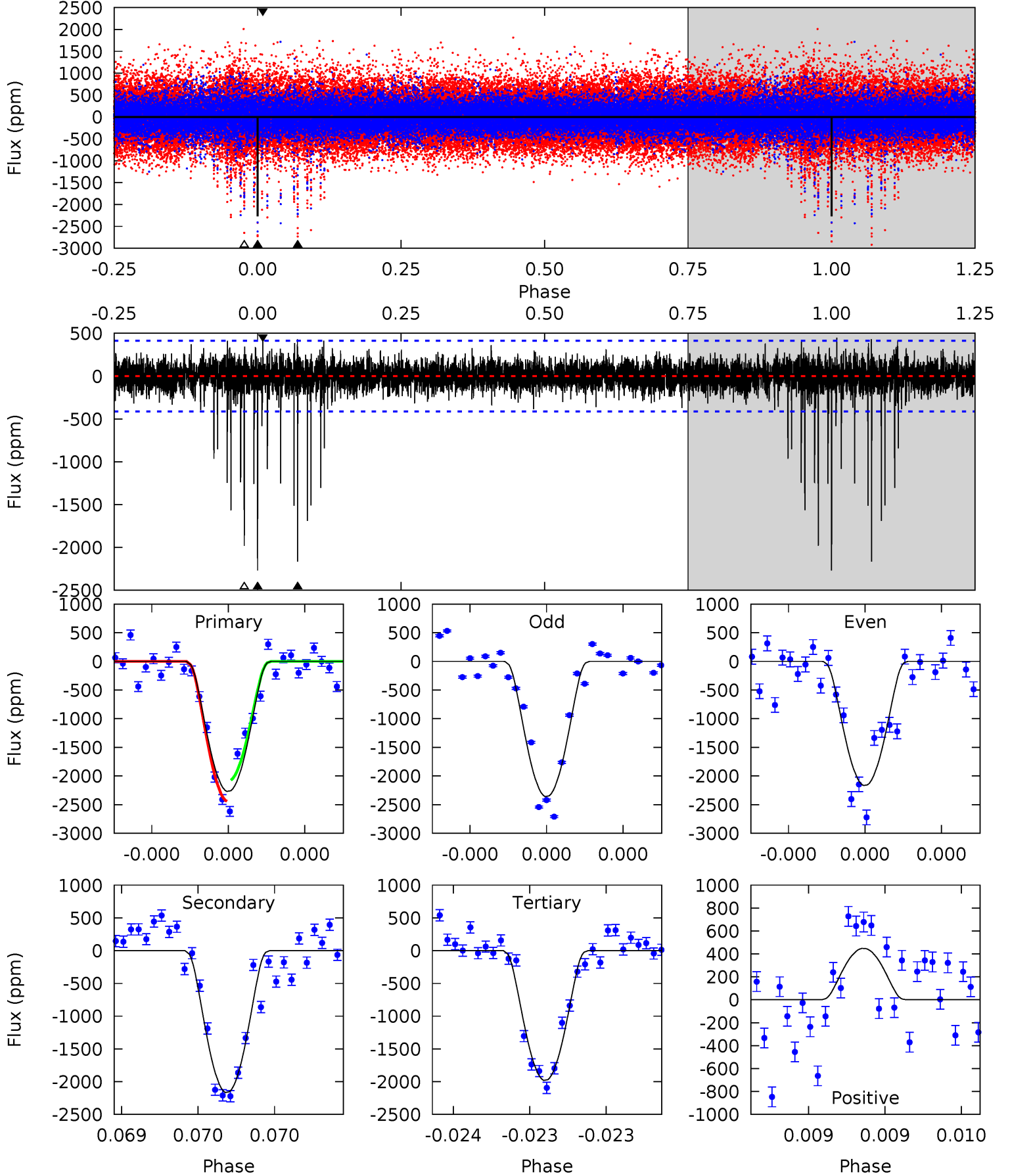
TCE 011661803-05     $P=372.084438$  Days     $T_0=396.251053$  (BKJD)



# DV Model-Shift Uniqueness Test

011661803-05,  $P = 372.083773$  Days,  $E = 24.170241$  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
30.8	29.4	26.9	6.08	5.60	3.53	1.77	3.91	24.7	2.50	23.3	1.31	1.00	0.16	2.51

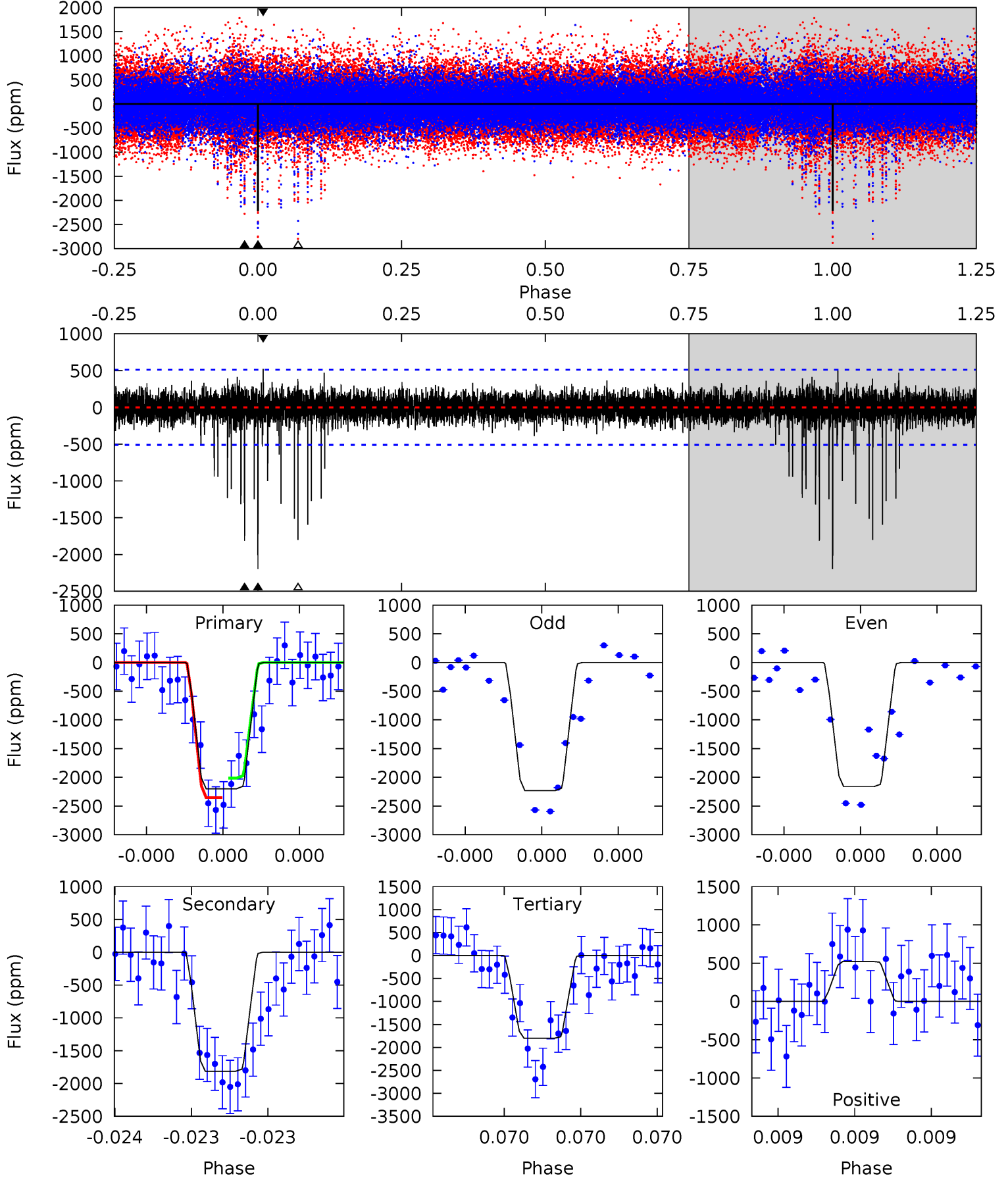




# Alt Model-Shift Uniqueness Test

011661803-05, P = 372.084438 Days, E = 24.166615 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
24.4	20.1	20.0	5.79	5.67	3.62	1.38	4.41	18.6	0.14	14.3	0.40	1.01	0.19	1.88



### Stellar Parameters For KIC 011661803

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6289^{+174}_{-240}$	$4.411^{+0.072}_{-0.217}$	$-0.080^{+0.250}_{-0.300}$	$1.093^{+0.379}_{-0.126}$	$1.121^{+0.171}_{-0.140}$	$1.210^{+0.364}_{-0.658}$
	+3%/-4%	+2%/-5%	+312%/-375%	+35%/-12%	+15%/-12%	+30%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011661803-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2166 \pm 74$	$21.97^{+24.22}_{-15.14}$	$400^{+34}_{-22}$	$3627^{+2204}_{-703}$	$2606^{+24639}_{-1996}$
Alt.	$-1814 \pm 90$	$23.12^{+23.23}_{-15.73}$	$402^{+33}_{-23}$	$3491^{+1782}_{-638}$	$2054^{+17468}_{-1536}$

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

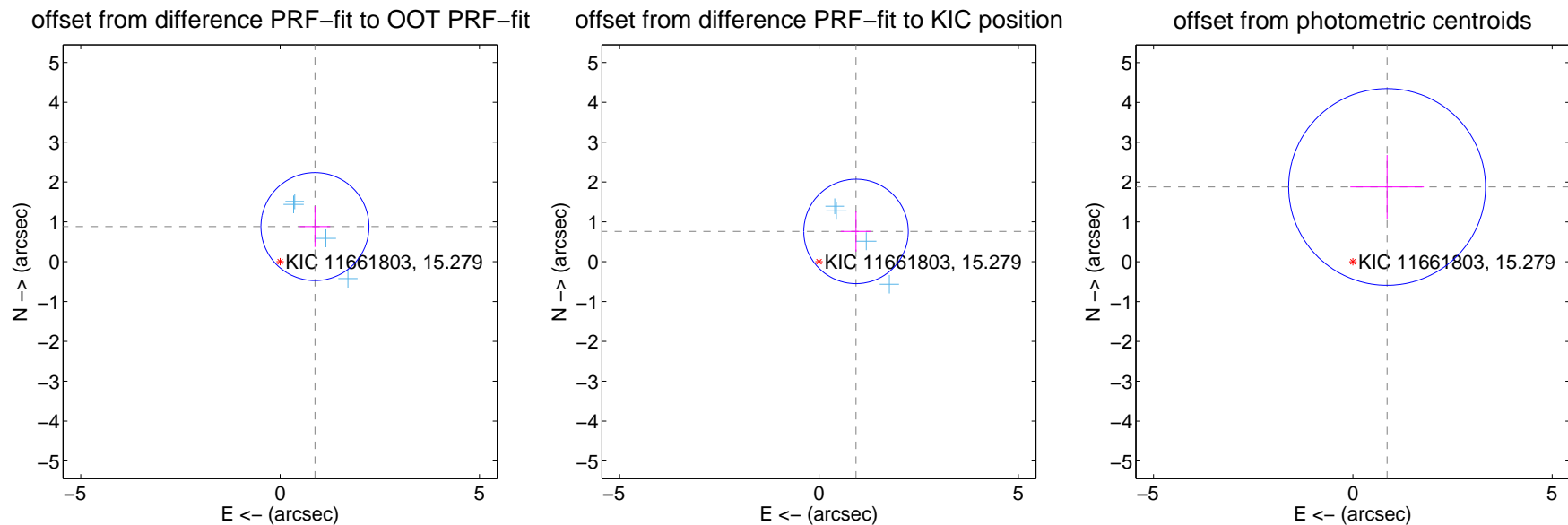
## DV Centroid Data

Supplemental centroid analysis for 011661803-05. Kepler magnitude: 15.28. Transit SNR 17.94

There are 4 quarters with good PRF difference image offsets

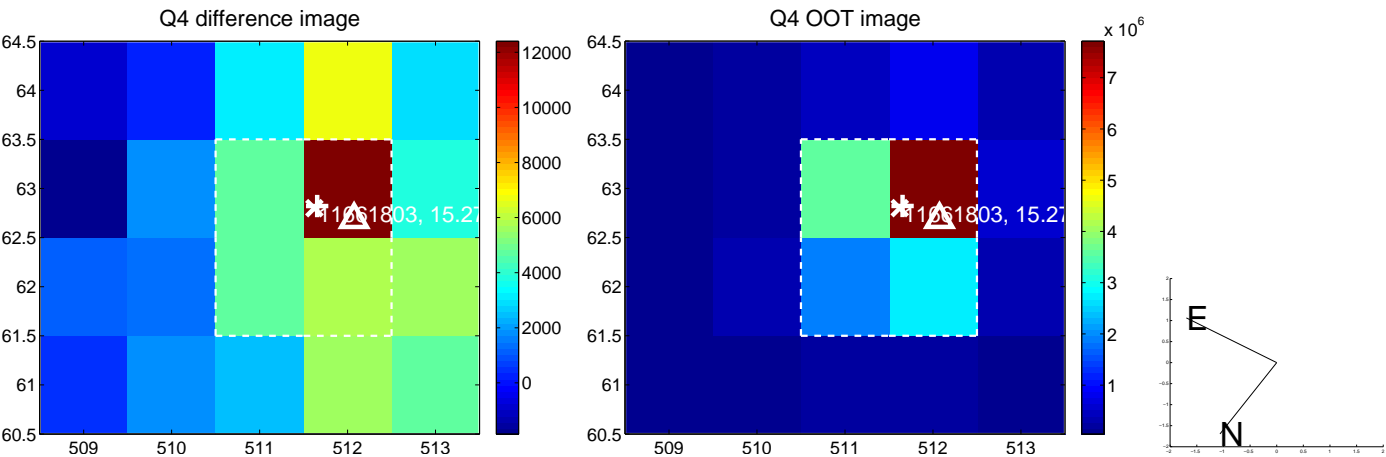
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.241 \pm 0.452$	2.75	$-0.874 \pm 0.382$	$0.881 \pm 0.511$
PRF-fit source offset from KIC position	$1.201 \pm 0.437$	2.75	$-0.929 \pm 0.382$	$0.761 \pm 0.508$
photometric centroid source offset	$2.07 \pm 0.82$	2.51	$-0.86 \pm 0.92$	$1.88 \pm 0.80$

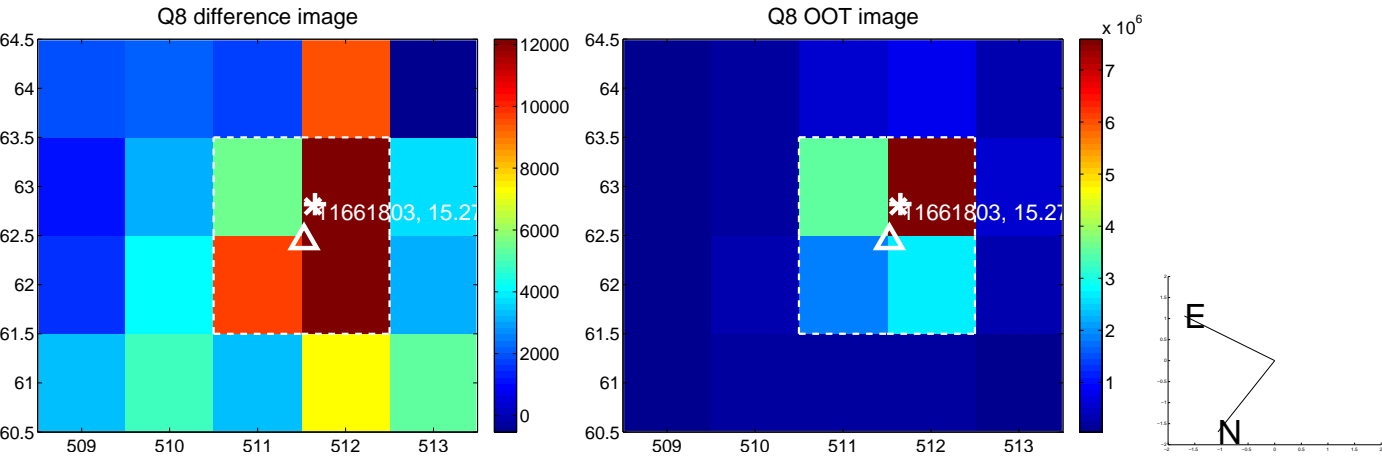
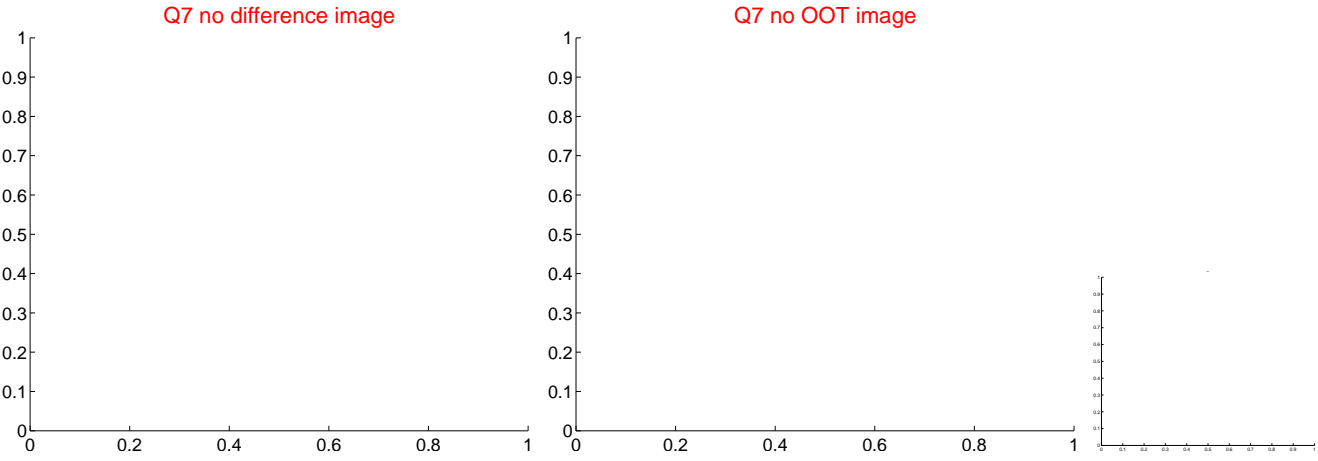
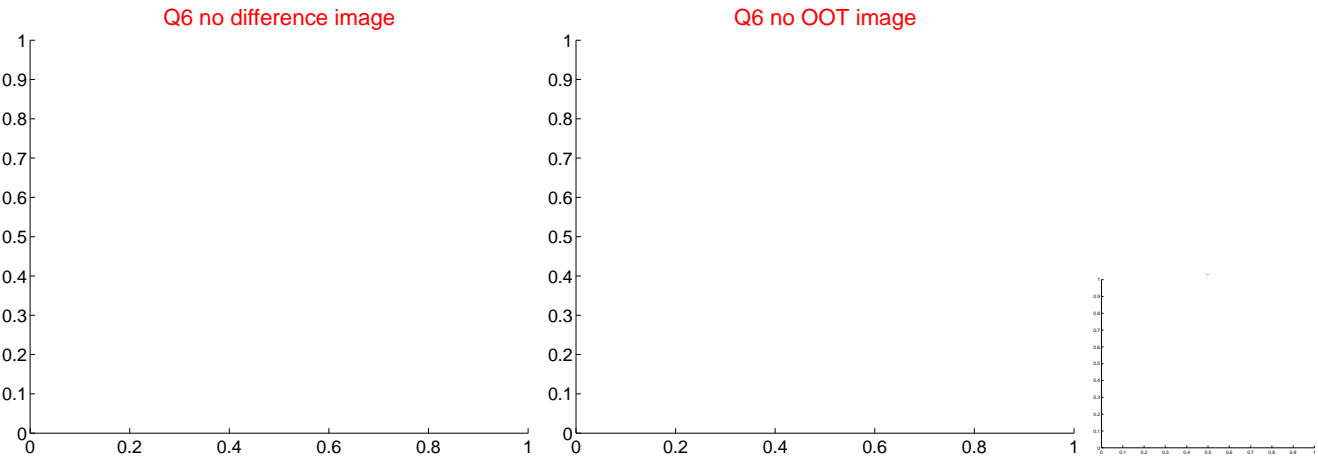
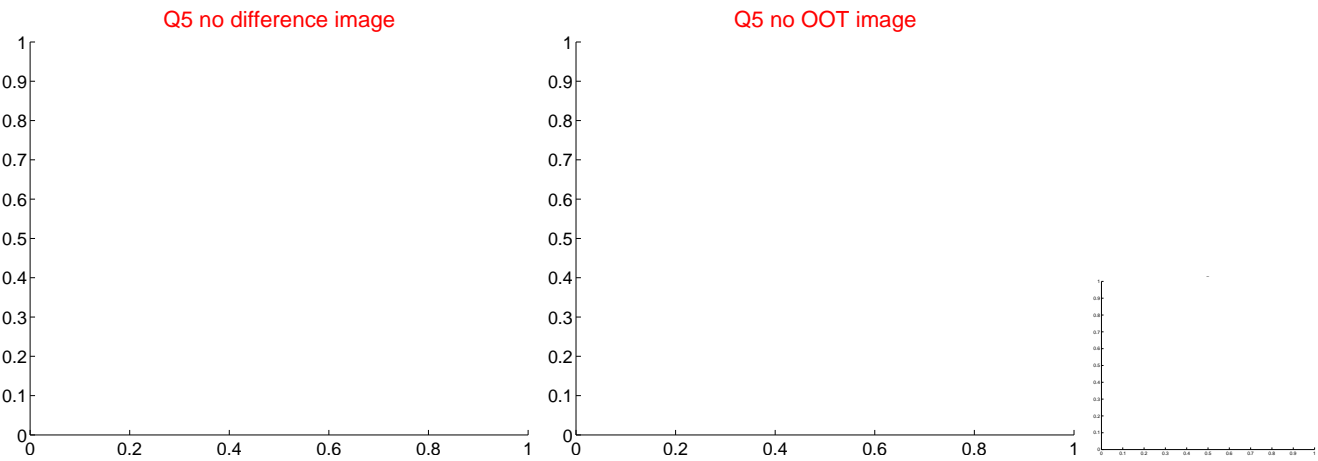


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

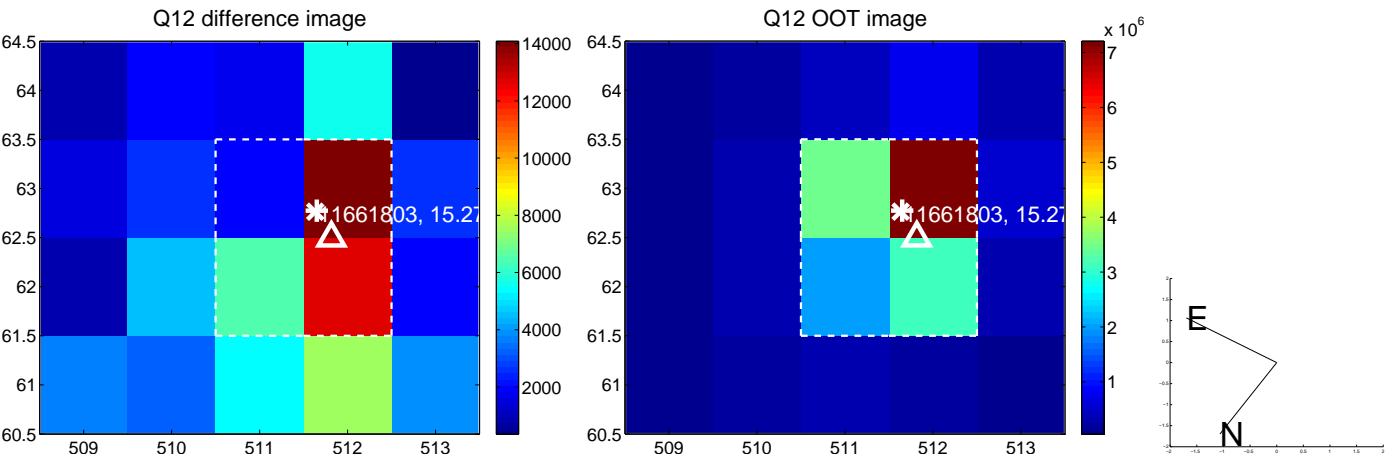
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



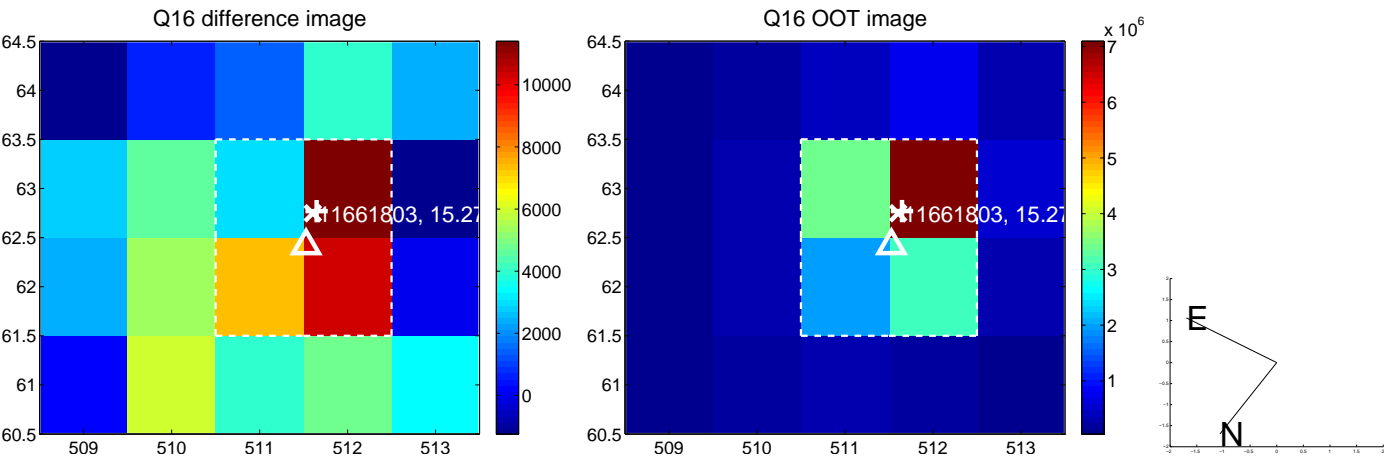
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



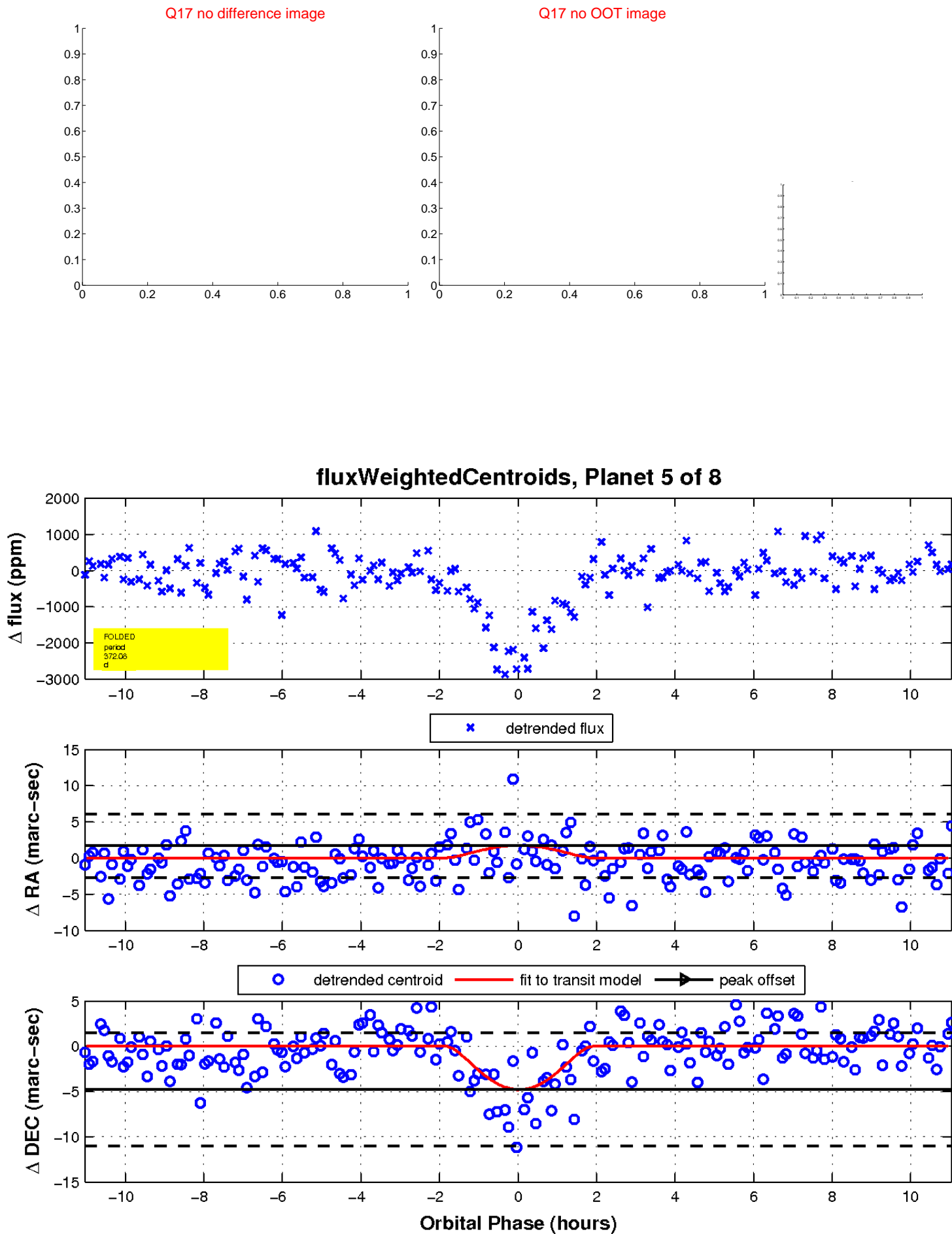
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



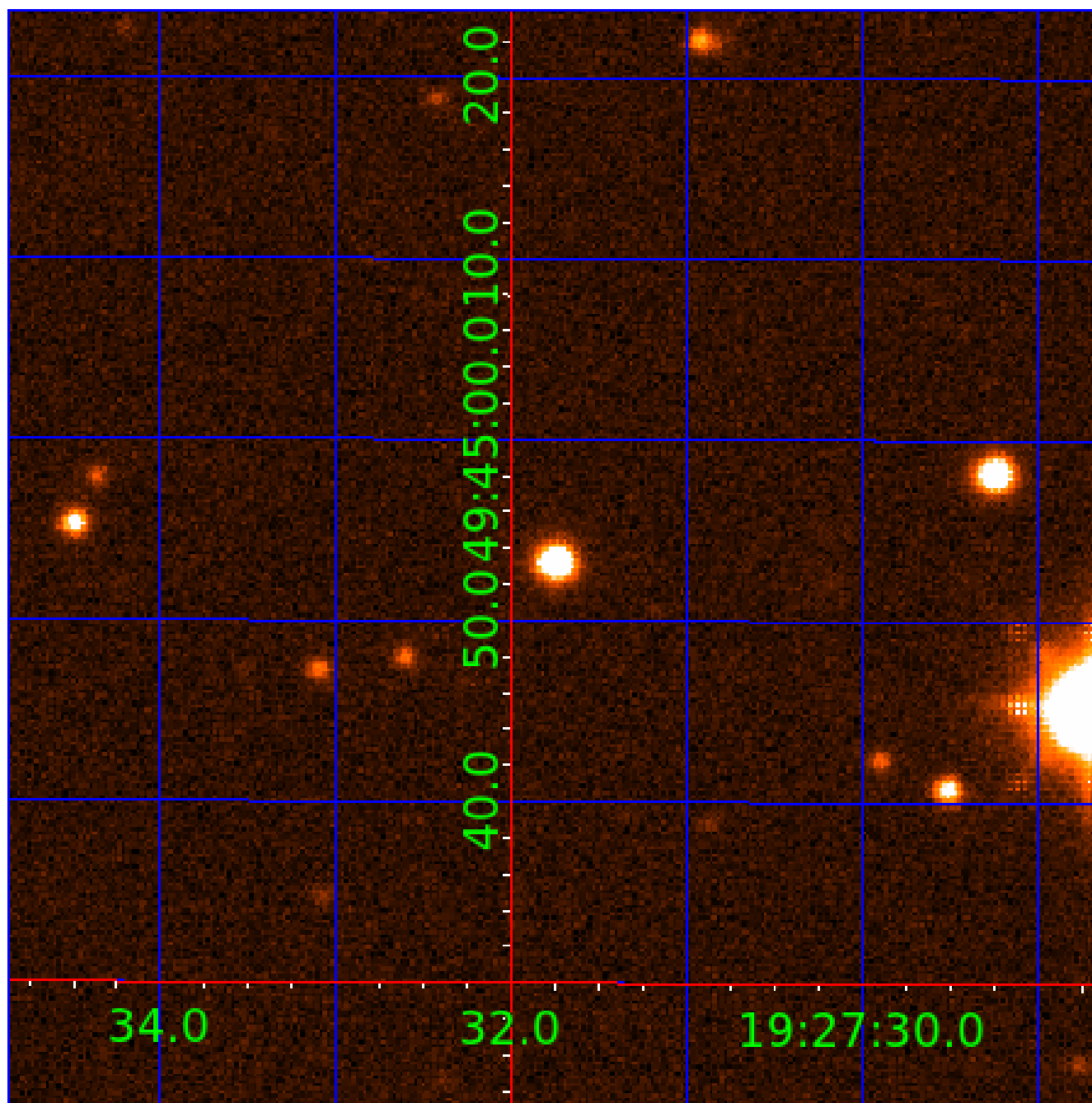
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 011661803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011661803-01	OBS	8060.01	372.087077	404.899629	2489.5	3.587	19.9	19.8	1.09	6289	9.22	1.51
011661803-02	OBS	8060.02	363.447672	411.193981	2024.6	5.417	18.5	17.5	1.09	6289	8.55	1.56
011661803-03	OBS	No	372.083900	413.558967	2321.2	3.542	17.8	18.1	1.09	6289	9.79	1.51
011661803-04	OBS	No	380.740273	385.232183	1895.4	3.279	17.0	16.7	1.09	6289	5.31	1.47
011661803-05	OBS	No	372.083773	396.254015	2283.4	3.682	16.8	17.9	1.09	6289	9.72	1.51
011661803-06	OBS	No	372.083136	387.601083	2145.4	3.732	17.4	17.3	1.09	6289	8.10	1.51
011661803-07	OBS	No	372.079361	422.220950	2363.3	3.340	15.9	16.7	1.09	6289	8.59	1.51
011661803-08	OBS	No	363.418186	393.900840	1727.5	3.000	14.4	-1.0	1.09	6289	4.56	1.56

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011661803-01	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES
011661803-02	OBS	FP	0.00	0	1	1	0	DEEP_V_SHAPED—HAS_SEC_TCE—HALO_GHOST
011661803-03	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_TER_DV—MOD_TER_ALT—SAME_NTL_PERIOD
011661803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
011661803-05	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD
011661803-06	OBS	FP	0.00	1	0	1	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET
011661803-07	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_FEW_DIFFS
011661803-08	OBS	FP	0.01	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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

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

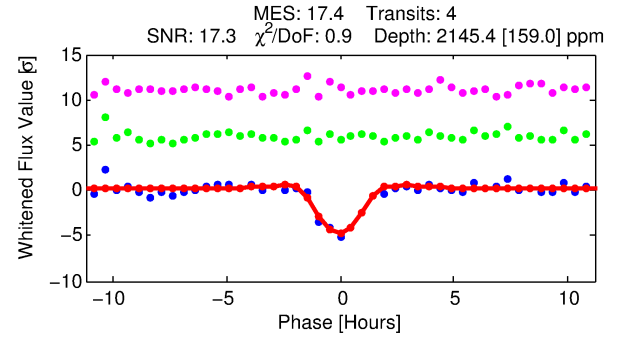
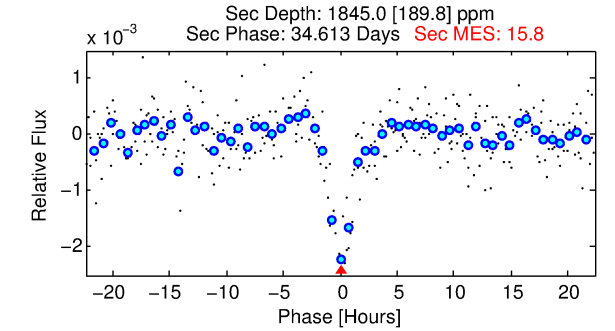
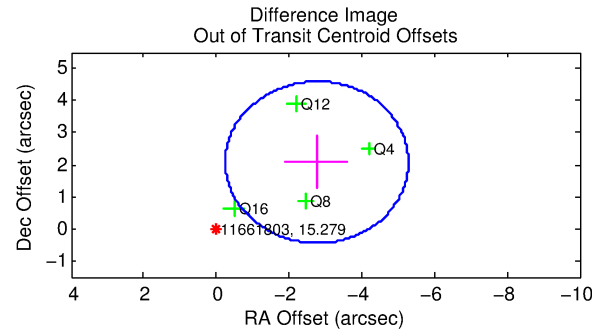
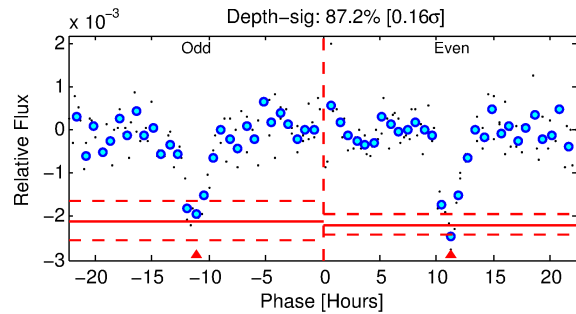
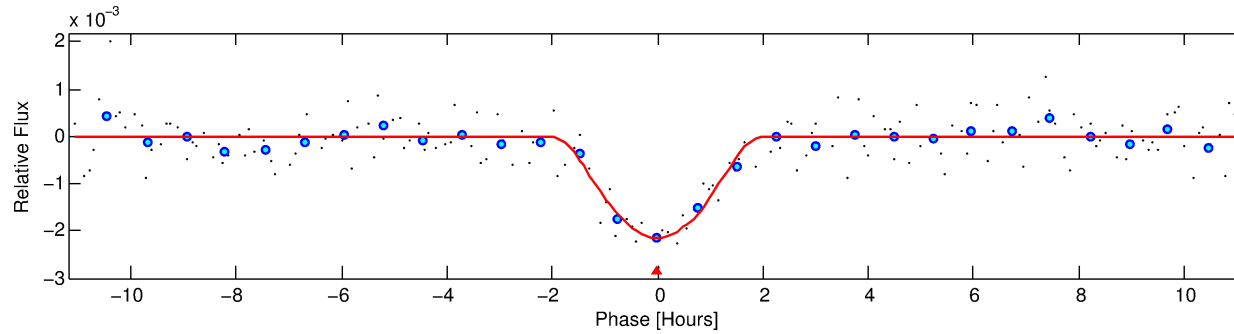
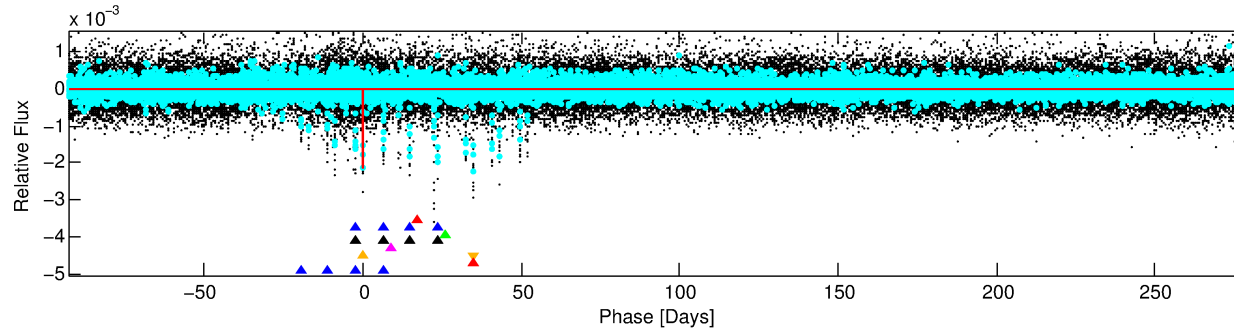
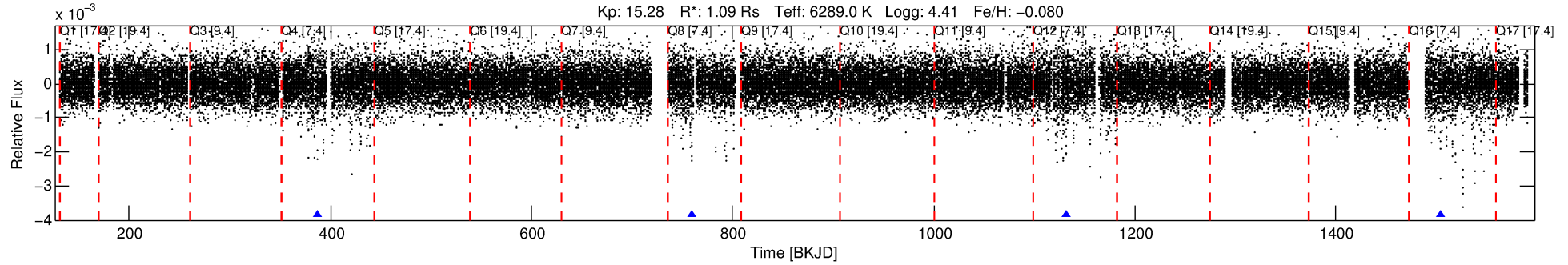
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011661803-06

No Significant Match Found

# DV One-Page Summary

KIC: 11661803 Candidate: 6 of 8 Period: 372.083 d



## DV Fit Results:

Period = 372.08314 [0.00250] d  
Epoch = 387.6011 [0.0039] BKJD  
Rp/R\* = 0.0679 [0.1057]  
a/R\* = 319.11 [147.52]  
b = 0.98 [0.18]  
Seff = 1.51 [0.65]  
Teq = 283 [31] K  
Rp = 8.10 [12.91] Re  
a = 1.0525 [0.2999] AU  
Ag = 17140.27 [53820.86] [0.32 $\sigma$ ]  
Teffp = 5002 [3898] K [1.21 $\sigma$ ]

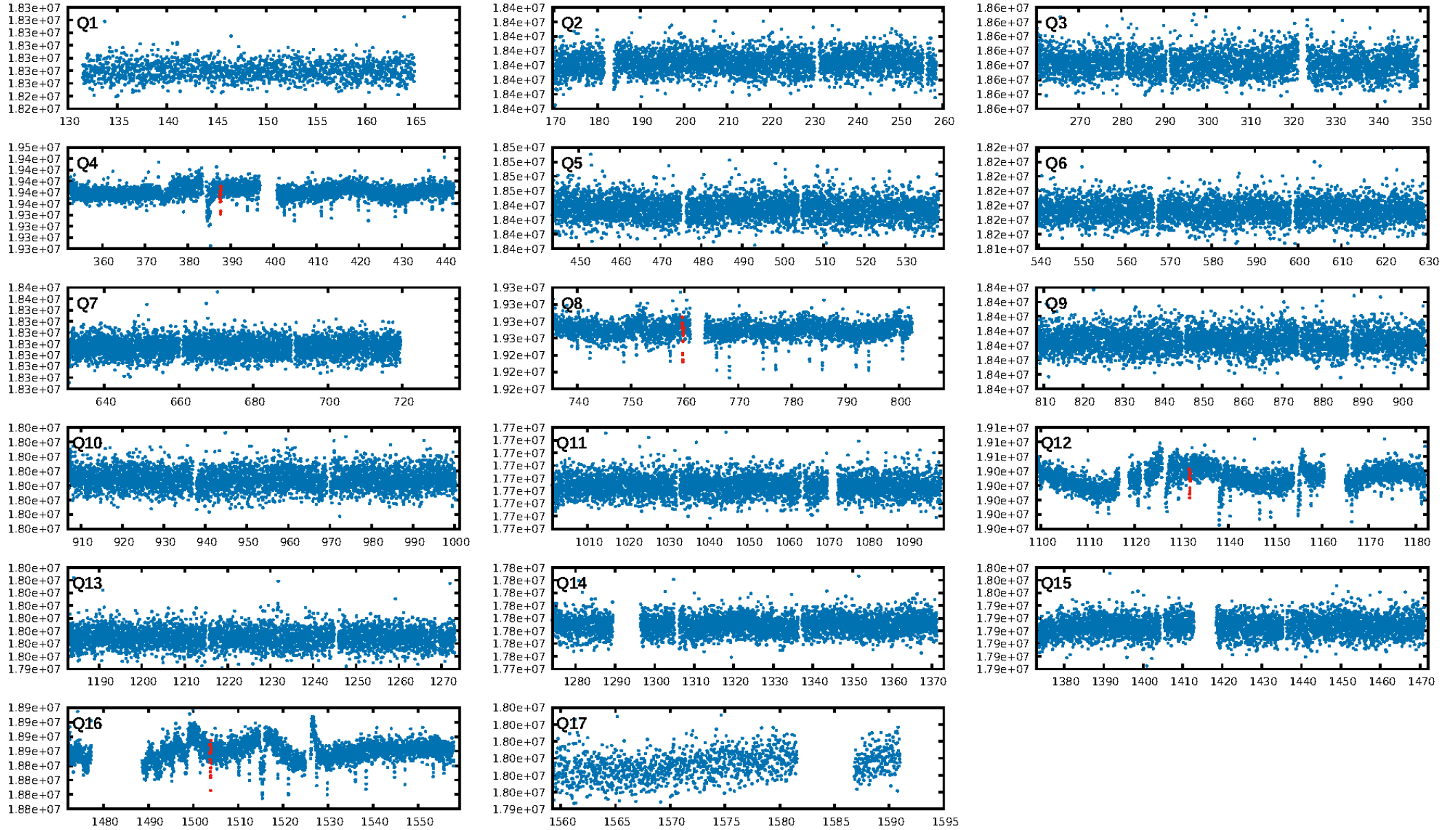
## DV Diagnostic Results:

ShortPeriod-sig: 1.4% [0.02 $\sigma$ ]  
**LongPeriod-sig: 0.2% [0.00 $\sigma$ ]**  
ModelChiSquare2-sig: 90.2%  
ModelChiSquareGof-sig: 99.6%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 1.058  
Centroid-sig: 0.0%  
**Centroid-so: 3.942 arcsec [4.36 $\sigma$ ]**  
**OotOffset-rm: 3.454 arcsec [4.11 $\sigma$ ]**  
**KicOffset-rm: 3.436 arcsec [4.06 $\sigma$ ]**  
OotOffset-st: 0/0/4/0 [4]  
KicOffset-st: 0/0/4/0 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 1.00 [4/4]

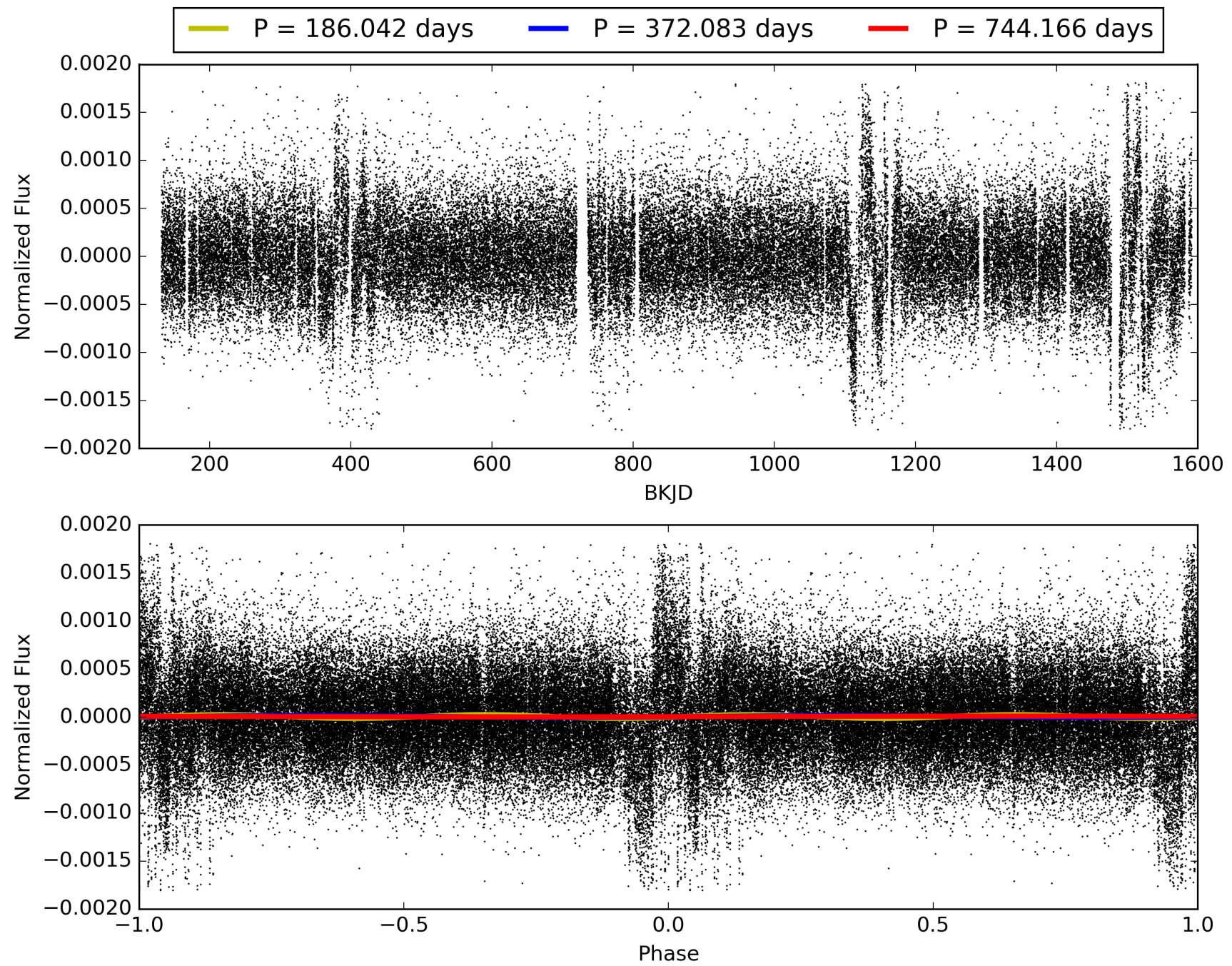
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:54:08 Z

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

# TCE 011661803-06, PDC Light Curves

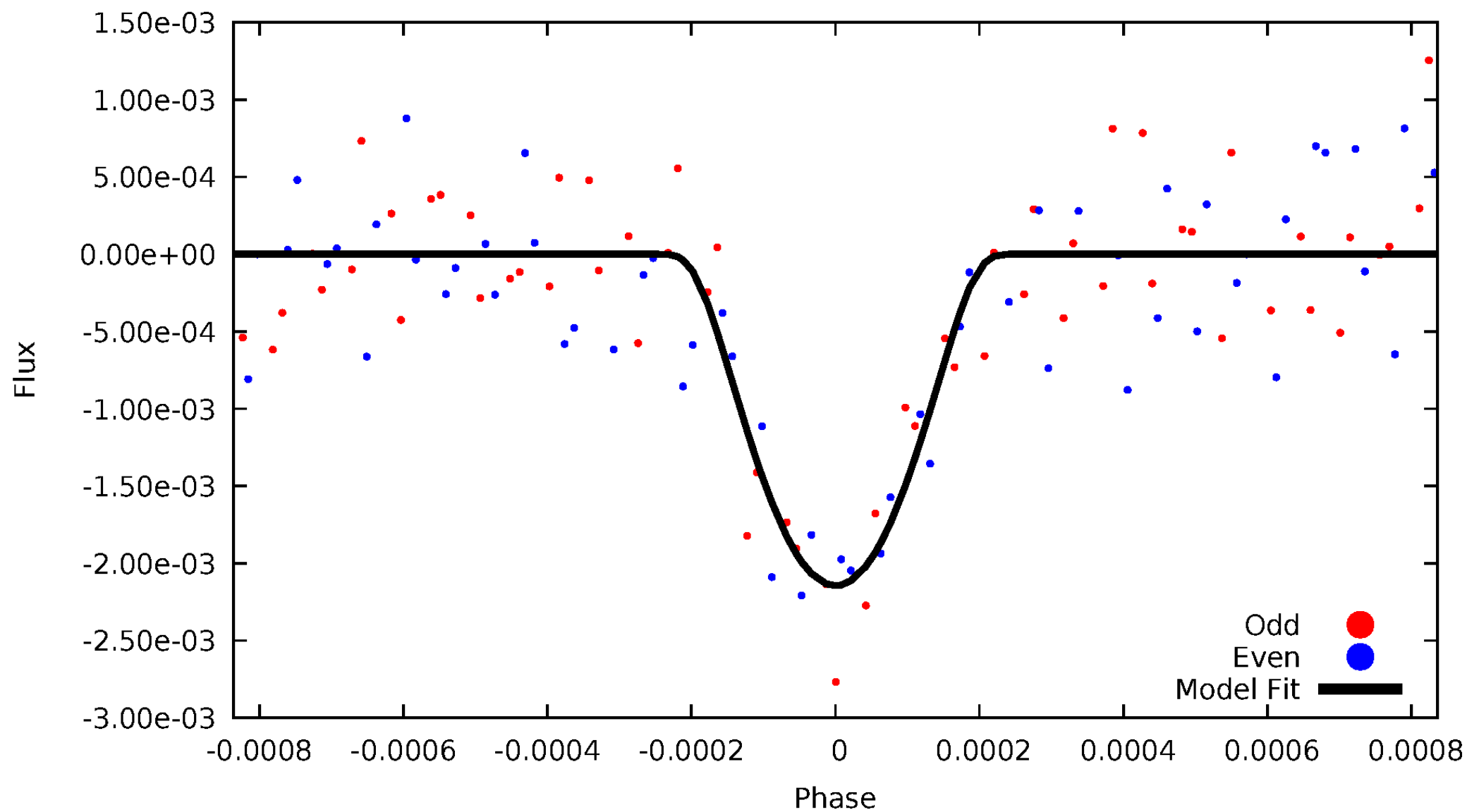


TCE 011661803-06



# DV Odd/Even

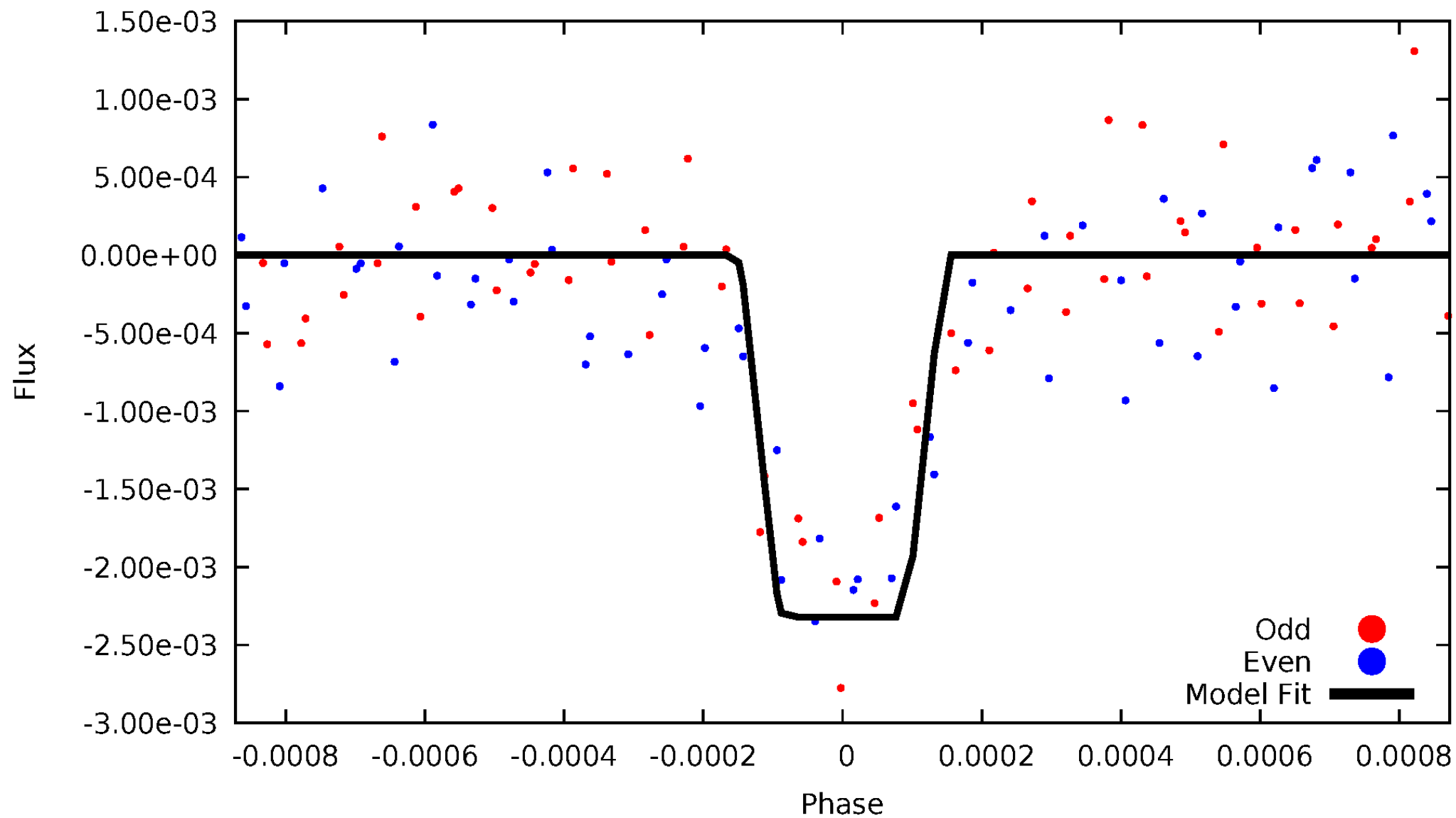
TCE 011661803-06





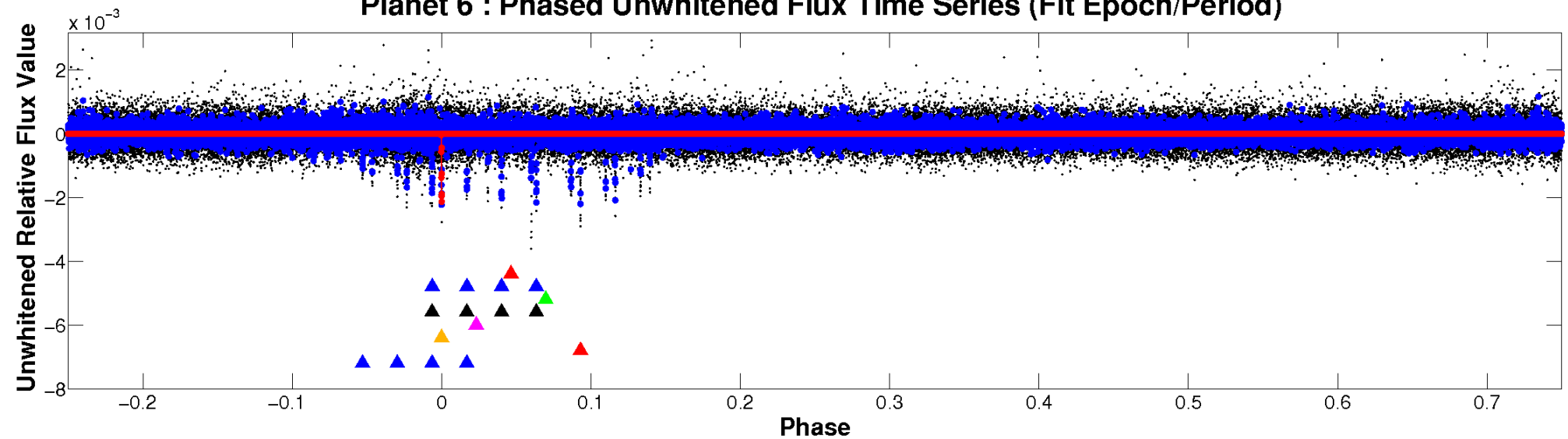
# ALT Odd/Even

TCE 011661803-06

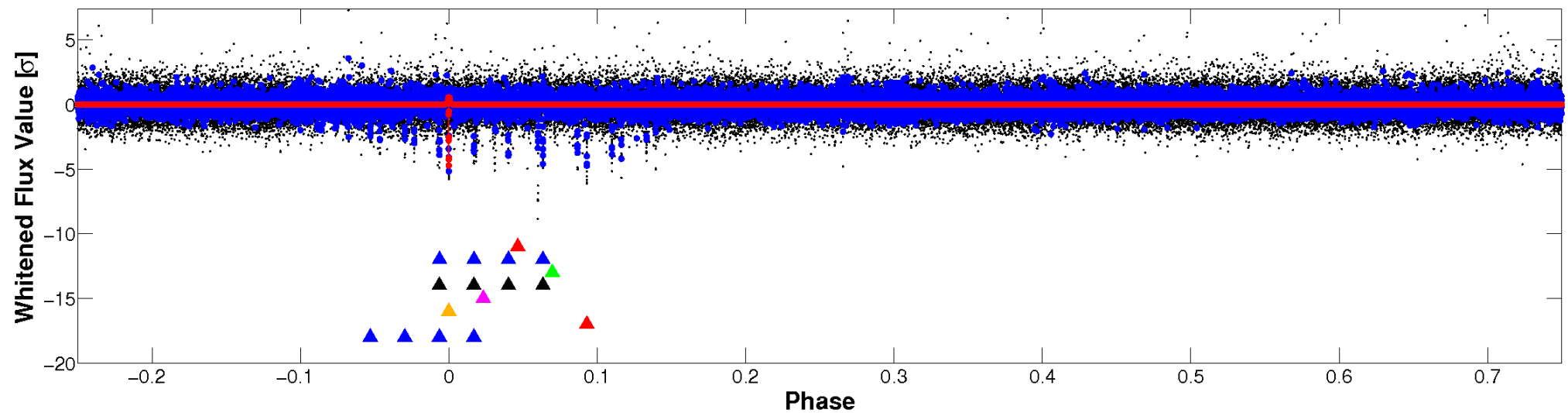


# Non-Whitened Vs. Whitened Light Curve

## Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



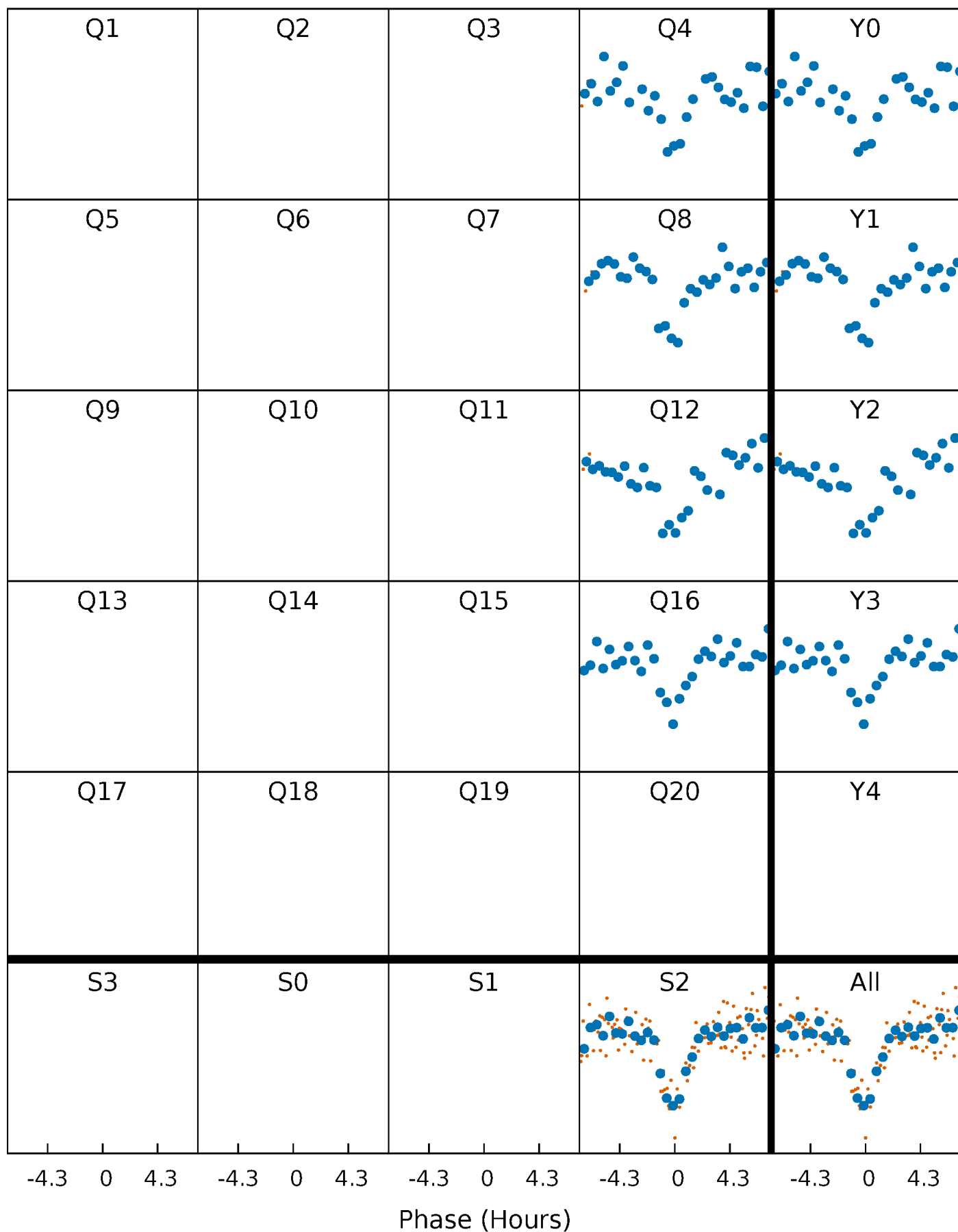
## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)





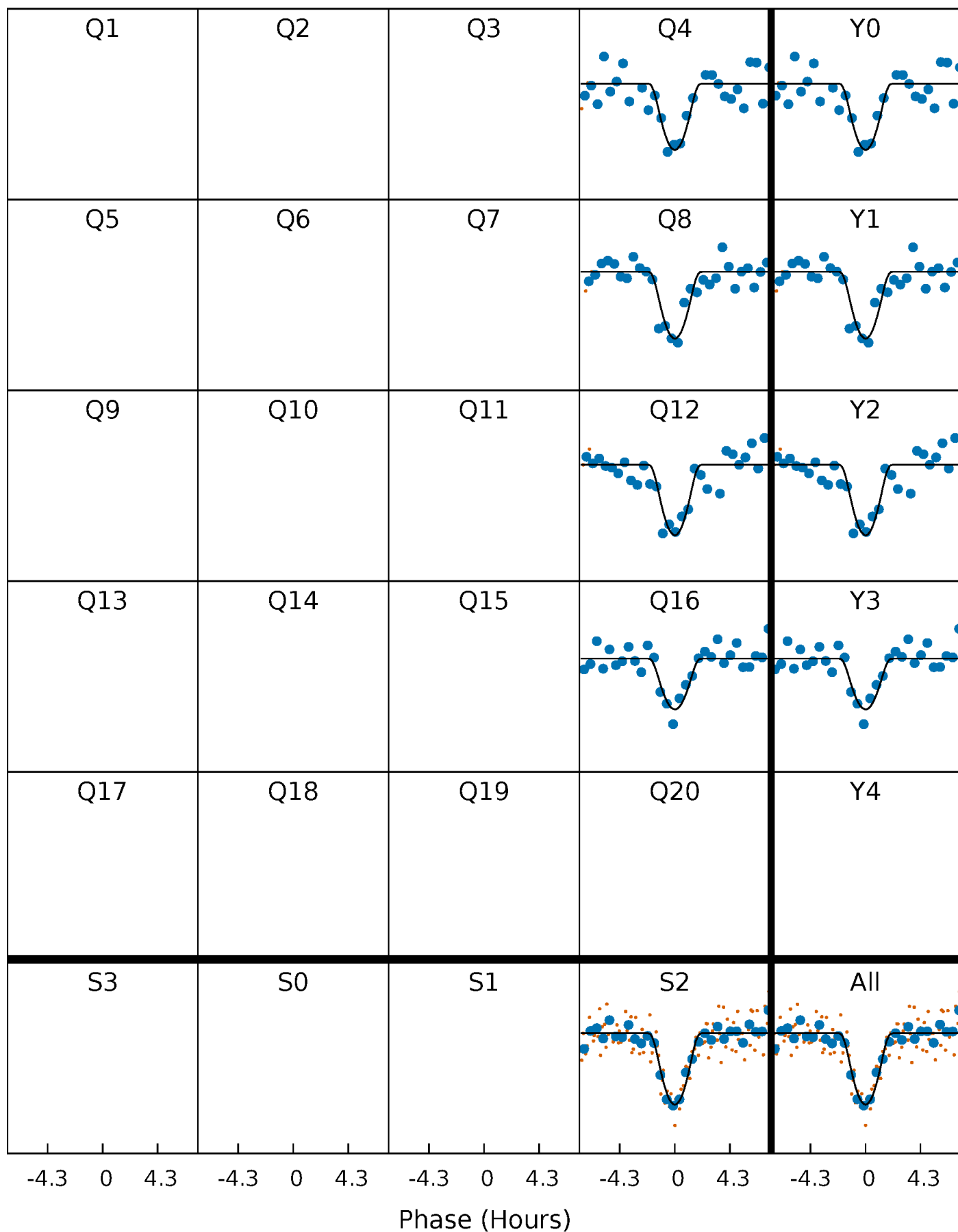
# PDC Quarter-Phased Transit Curves

TCE 011661803-06 P=372.083136 Days  $T_0=387.601083$  (BKJD)



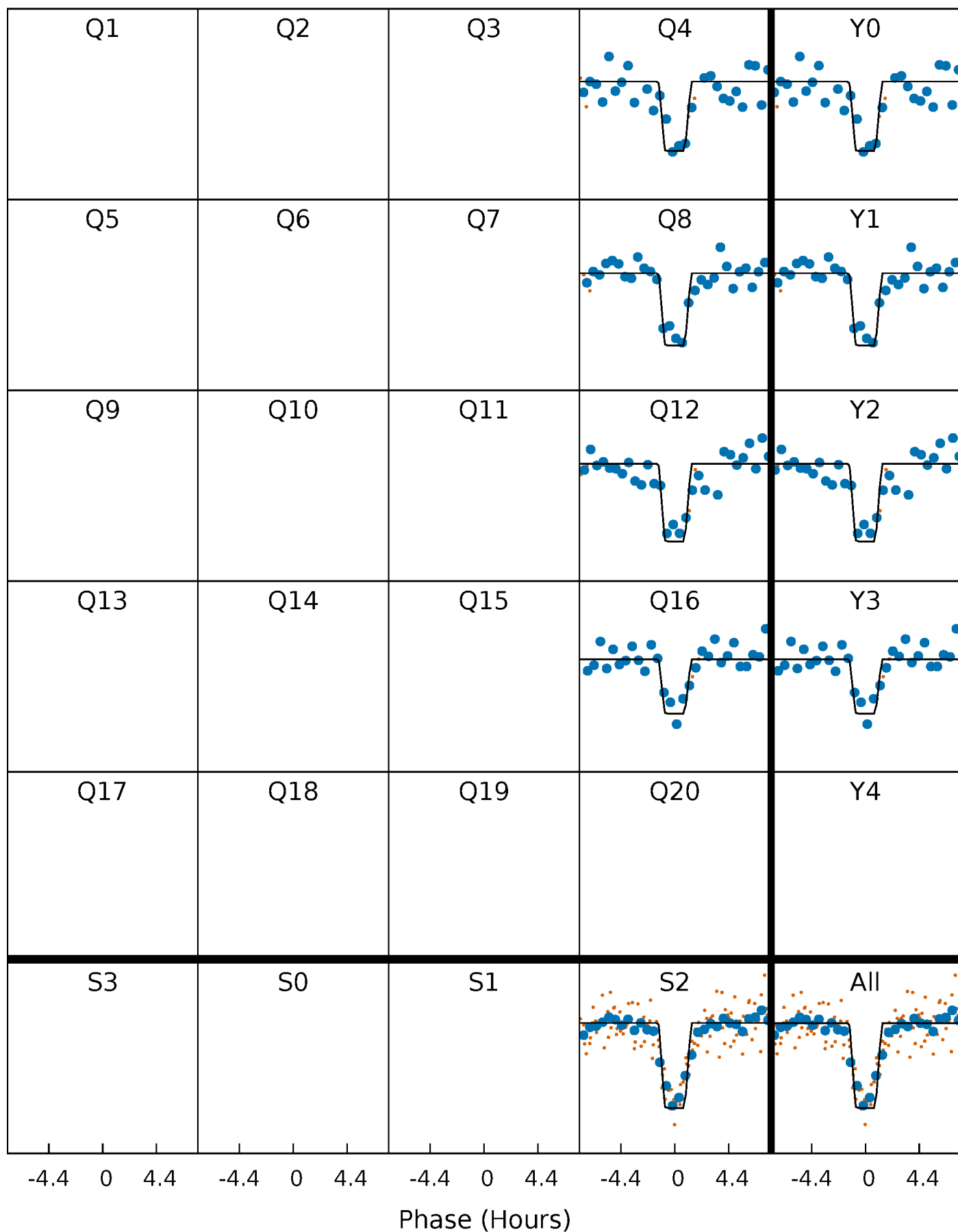
# DV Quarter-Phased Transit Curves

TCE 011661803-06 P=372.083136 Days  $T_0=387.601083$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

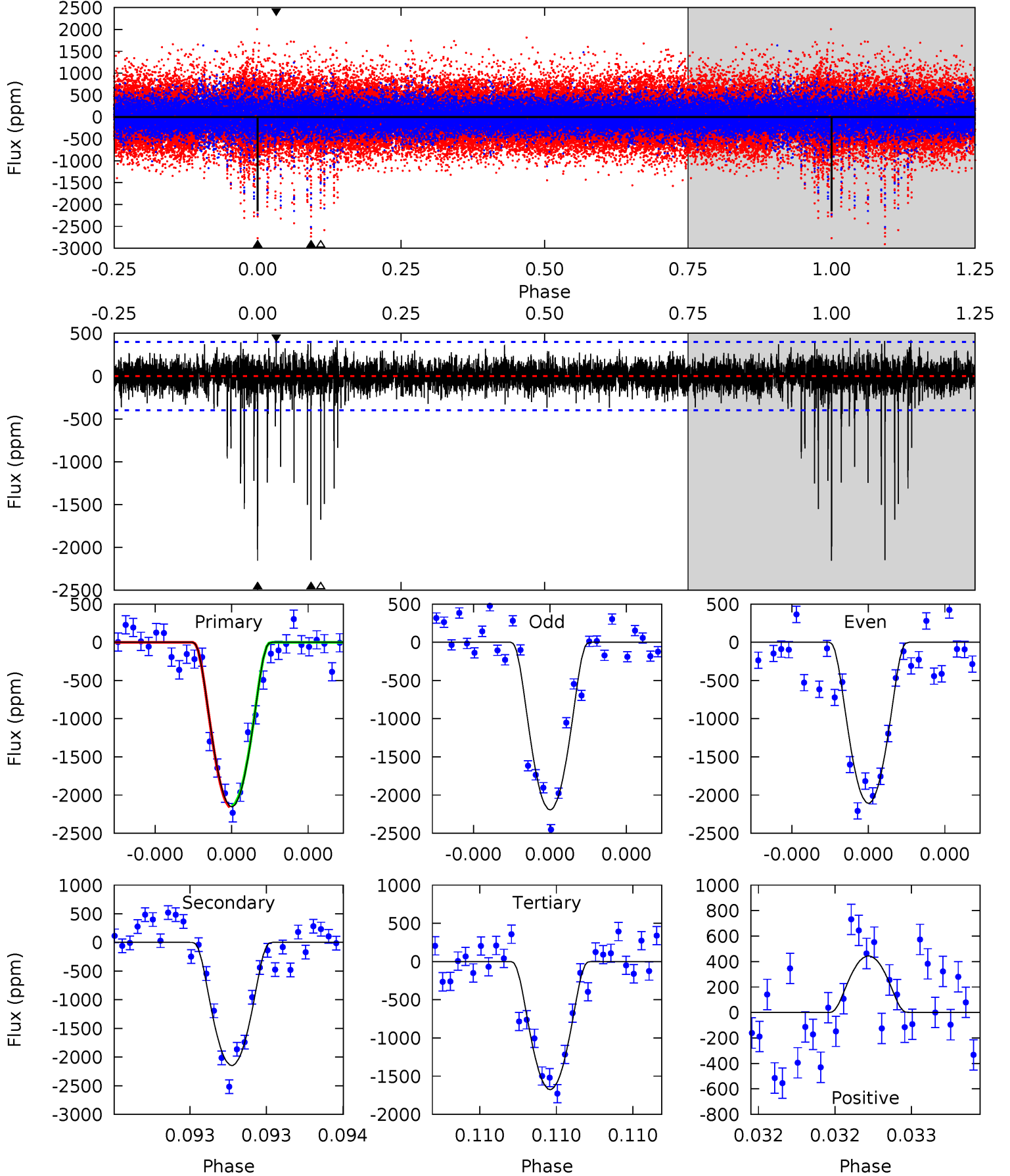
TCE 011661803-06 P=372.084438 Days  $T_0=387.598322$  (BKJD)



# DV Model-Shift Uniqueness Test

011661803-06, P = 372.083136 Days, E = 15.517947 Days

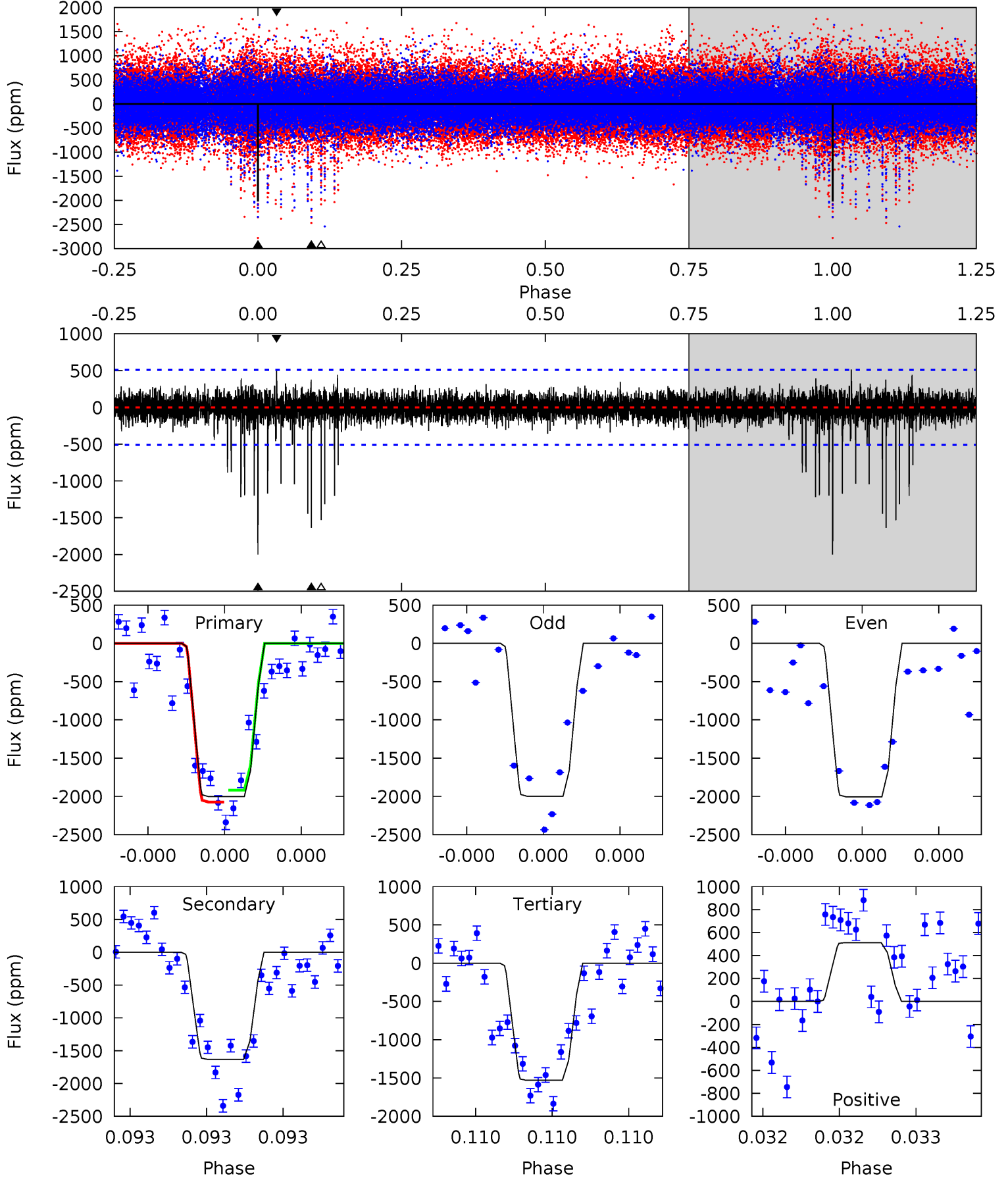
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.2	30.1	23.5	6.22	5.59	3.51	1.77	6.70	24.0	6.61	23.9	0.60	0.99	0.17	0.16



# Alt Model-Shift Uniqueness Test

011661803-06, P = 372.084438 Days, E = 15.513884 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
22.2	18.1	17.0	5.69	5.66	3.62	1.29	5.23	16.5	1.14	12.4	0.04	1.00	0.20	0.86



### Stellar Parameters For KIC 011661803

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6289^{+174}_{-240}$	$4.411^{+0.072}_{-0.217}$	$-0.080^{+0.250}_{-0.300}$	$1.093^{+0.379}_{-0.126}$	$1.121^{+0.171}_{-0.140}$	$1.210^{+0.364}_{-0.658}$
	+3%/-4%	+2%/-5%	+312%/-375%	+35%/-12%	+15%/-12%	+30%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011661803-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2147 \pm 71$	$12.71^{+12.45}_{-8.62}$	$401^{+30}_{-22}$	$4427^{+3063}_{-876}$	$8344^{+66217}_{-6226}$
Alt.	$-1633 \pm 90$	$11.34^{+11.29}_{-7.55}$	$402^{+30}_{-22}$	$4384^{+3011}_{-910}$	$7561^{+60012}_{-5624}$

$T_{max}$  = 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

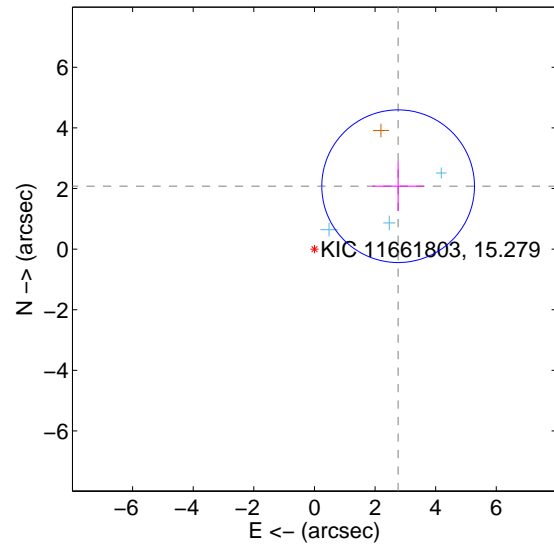
Supplemental centroid analysis for 011661803-06. Kepler magnitude: 15.28. Transit SNR 17.34

There are 3 quarters with good PRF difference image offsets

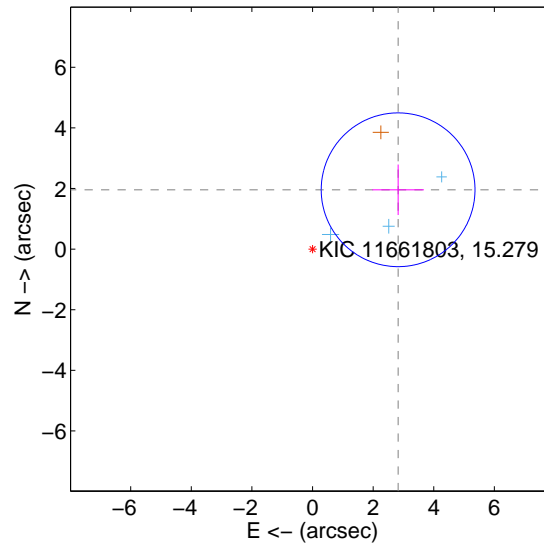
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.454 \pm 0.839$	4.11	$-2.761 \pm 0.852$	$2.075 \pm 0.818$
PRF-fit source offset from KIC position	$3.436 \pm 0.846$	4.06	$-2.824 \pm 0.851$	$1.957 \pm 0.835$
photometric centroid source offset	$3.94 \pm 0.90$	4.36	$-2.15 \pm 0.97$	$3.31 \pm 0.88$

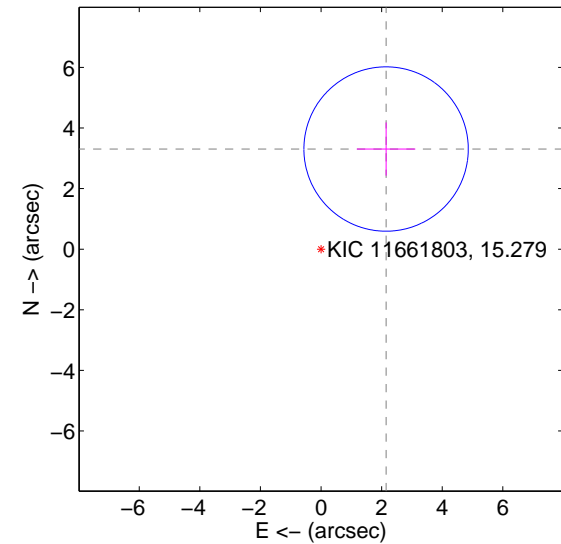
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

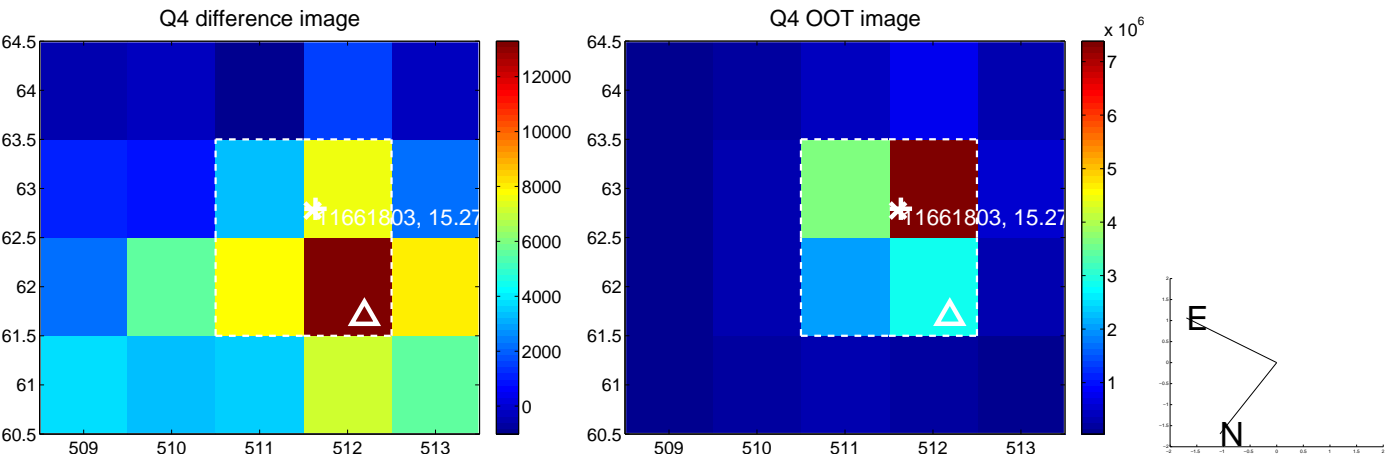
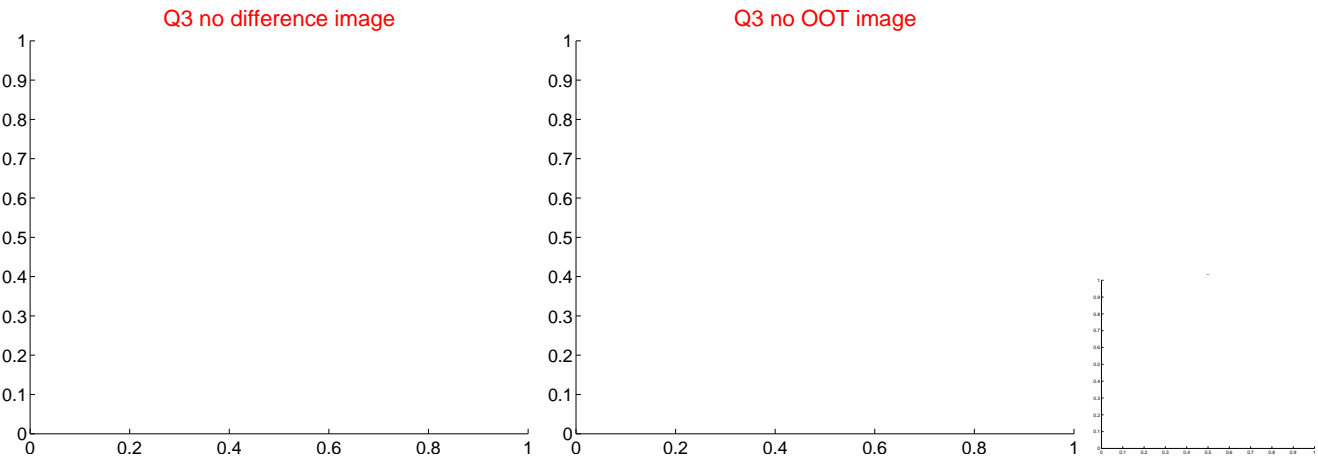
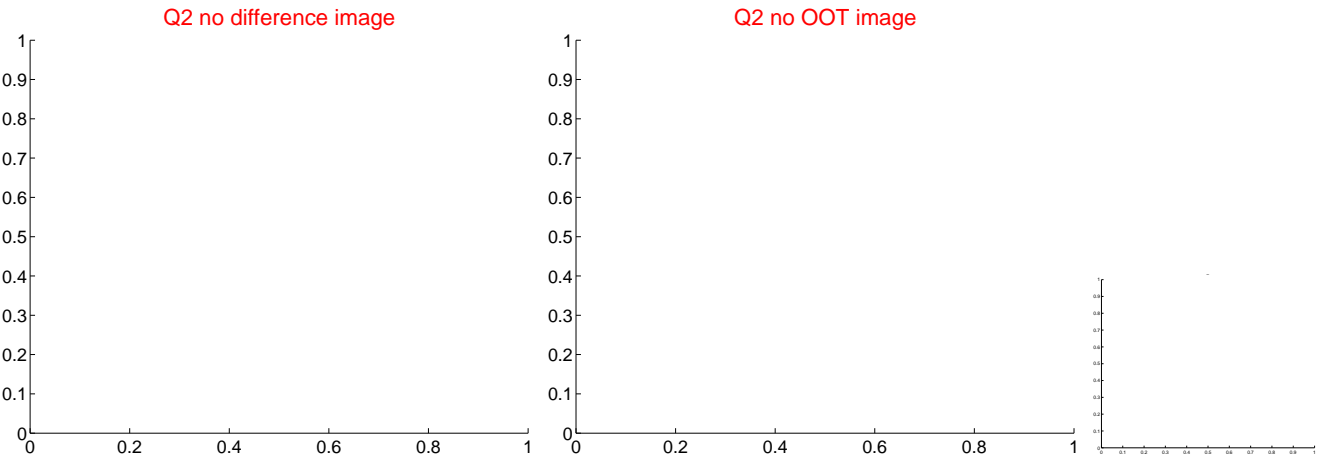
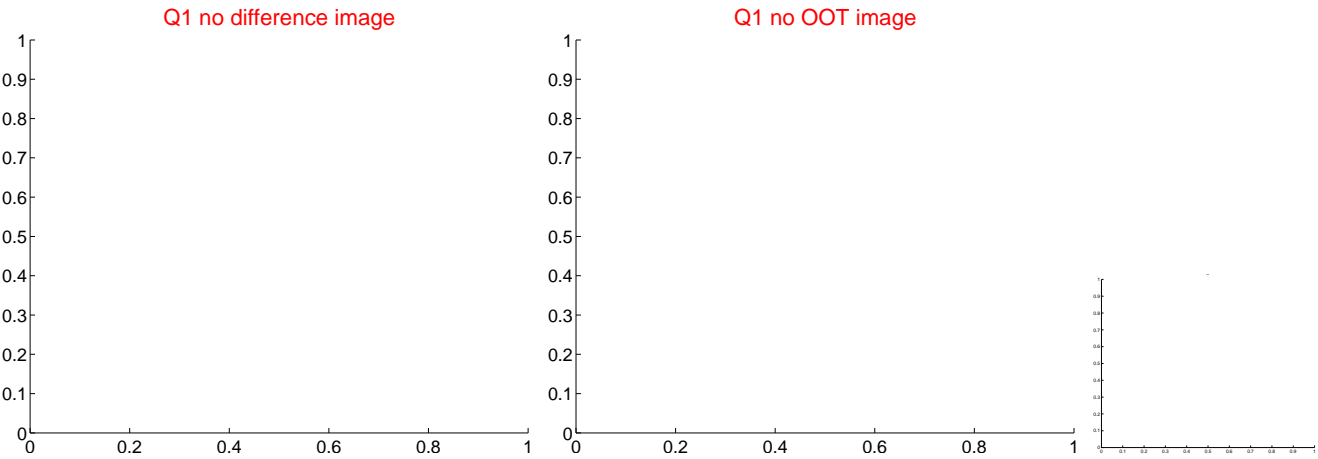


offset from photometric centroids



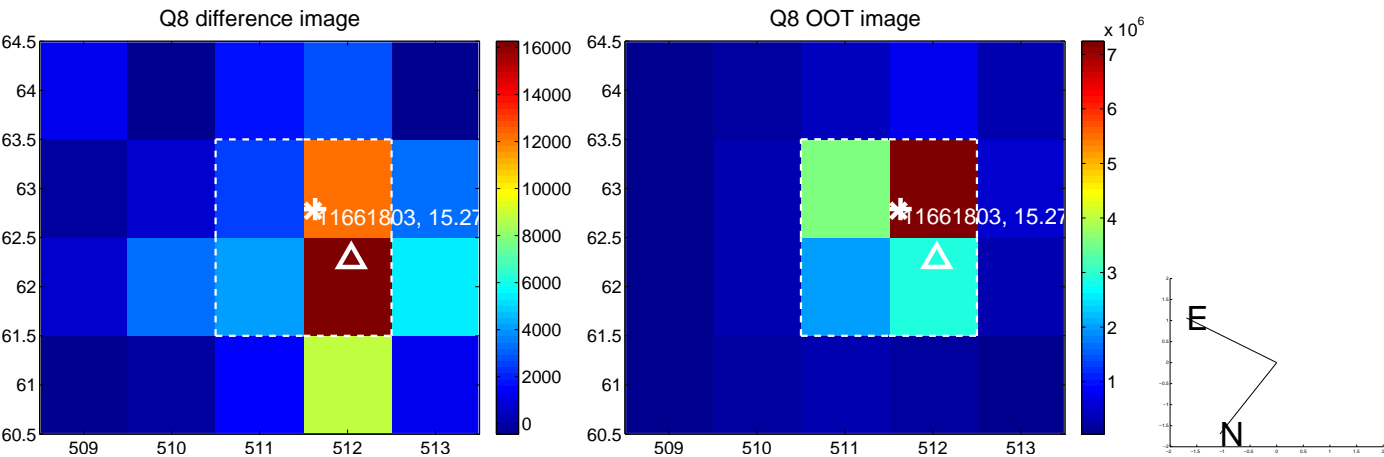
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

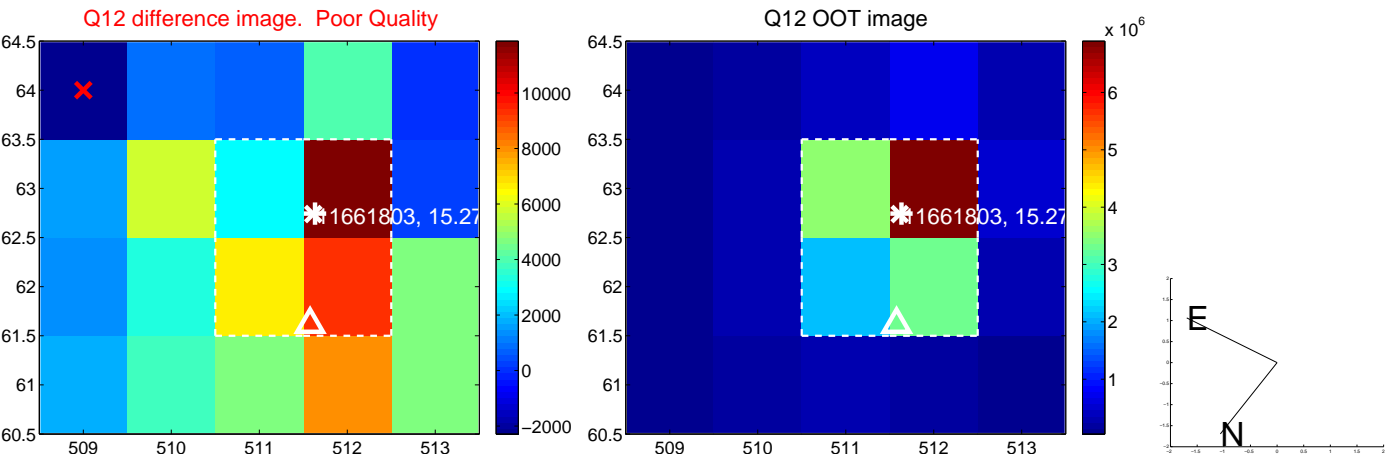




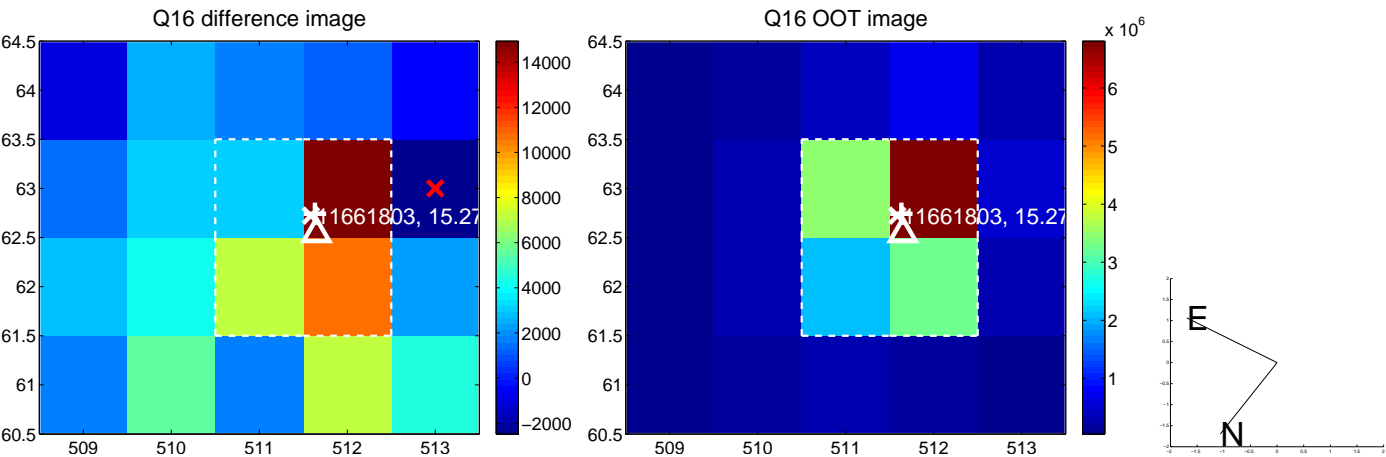
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



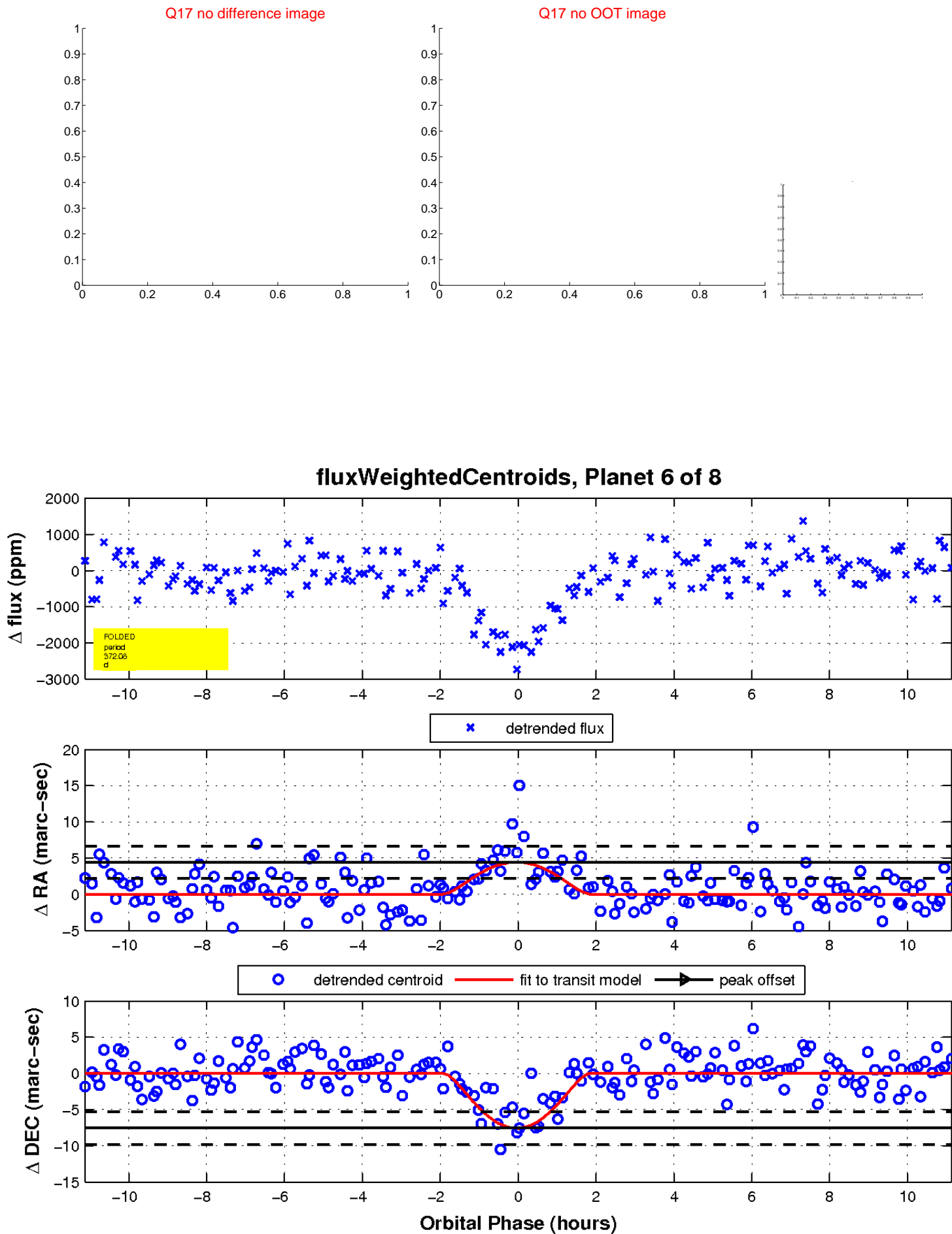
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

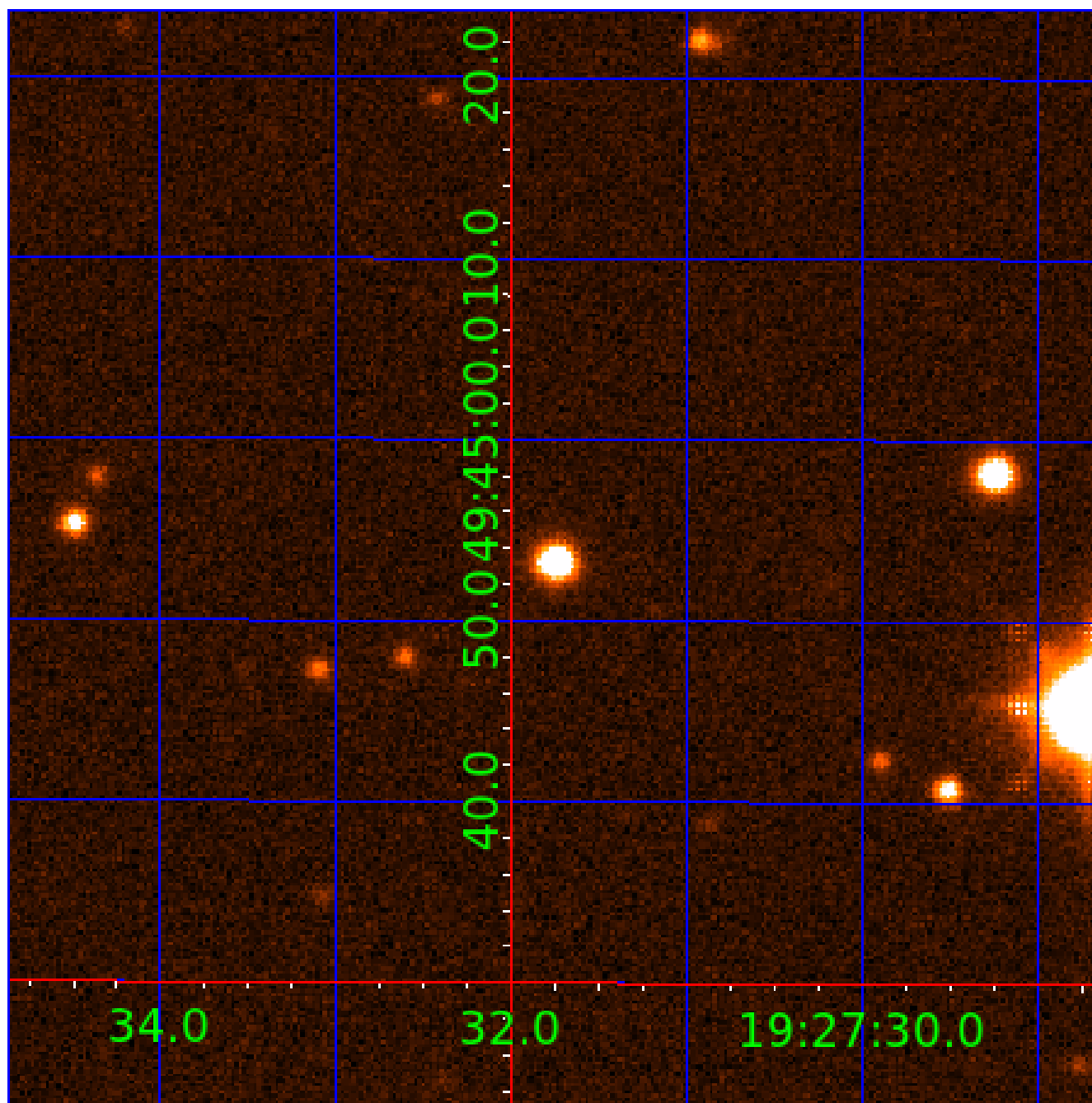


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 011661803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011661803-01	OBS	8060.01	372.087077	404.899629	2489.5	3.587	19.9	19.8	1.09	6289	9.22	1.51
011661803-02	OBS	8060.02	363.447672	411.193981	2024.6	5.417	18.5	17.5	1.09	6289	8.55	1.56
011661803-03	OBS	No	372.083900	413.558967	2321.2	3.542	17.8	18.1	1.09	6289	9.79	1.51
011661803-04	OBS	No	380.740273	385.232183	1895.4	3.279	17.0	16.7	1.09	6289	5.31	1.47
011661803-05	OBS	No	372.083773	396.254015	2283.4	3.682	16.8	17.9	1.09	6289	9.72	1.51
011661803-06	OBS	No	372.083136	387.601083	2145.4	3.732	17.4	17.3	1.09	6289	8.10	1.51
011661803-07	OBS	No	372.079361	422.220950	2363.3	3.340	15.9	16.7	1.09	6289	8.59	1.51
011661803-08	OBS	No	363.418186	393.900840	1727.5	3.000	14.4	-1.0	1.09	6289	4.56	1.56

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011661803-01	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES
011661803-02	OBS	FP	0.00	0	1	1	0	DEEP_V_SHAPED—HAS_SEC_TCE—HALO_GHOST
011661803-03	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_TER_DV—MOD_TER_ALT—SAME_NTL_PERIOD
011661803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
011661803-05	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD
011661803-06	OBS	FP	0.00	1	0	1	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET
011661803-07	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_FEW_DIFFS
011661803-08	OBS	FP	0.01	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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

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

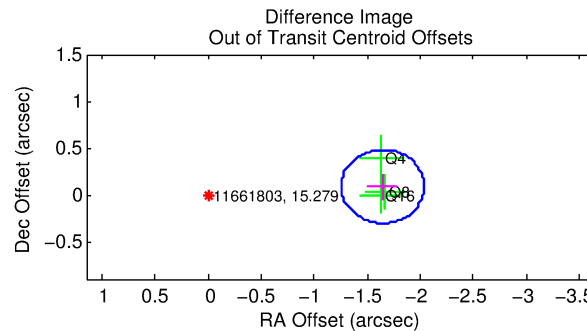
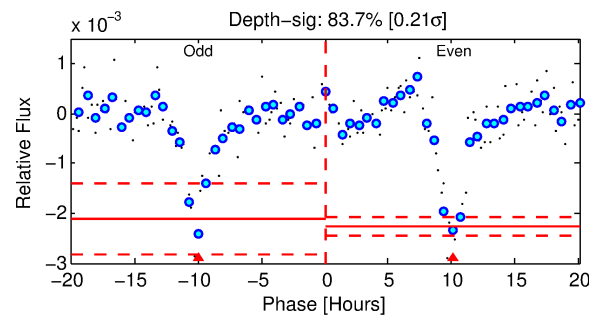
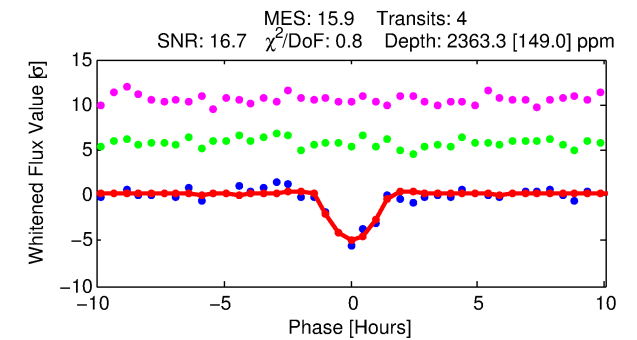
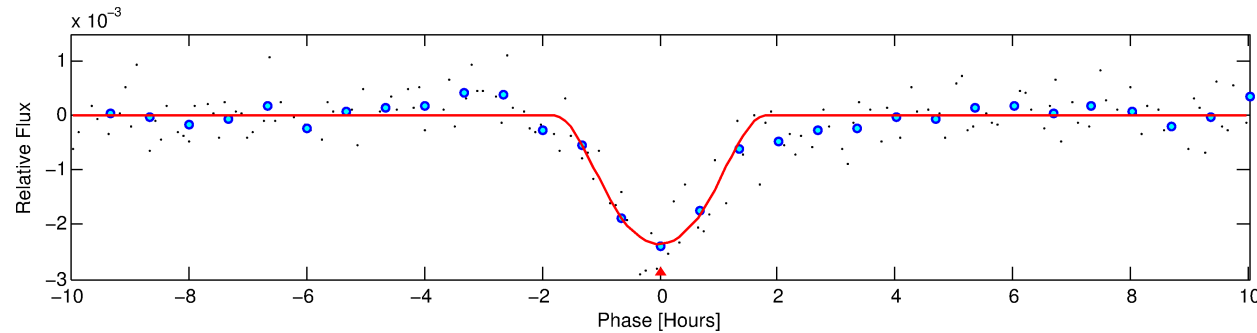
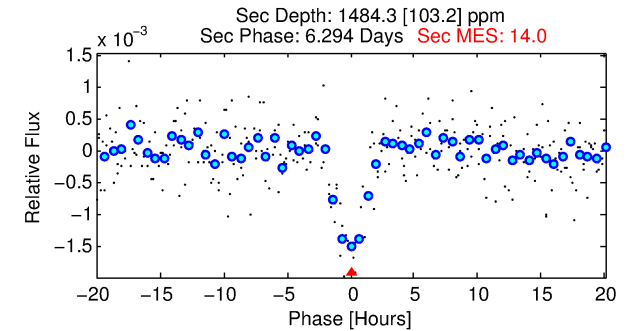
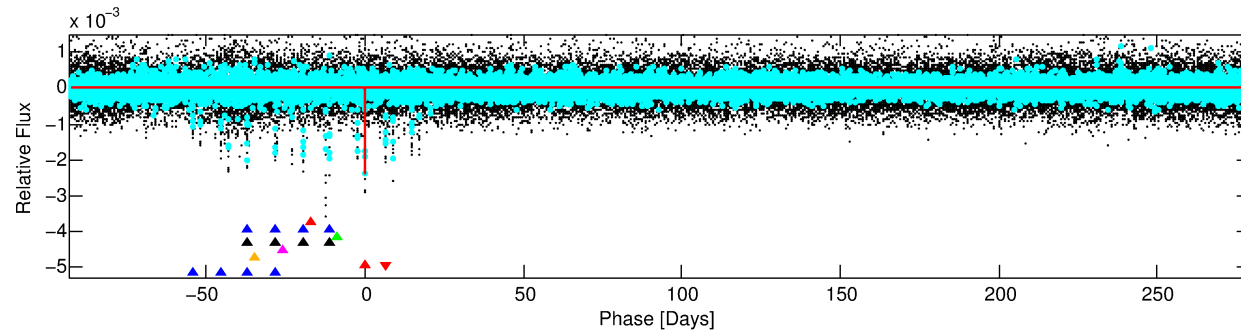
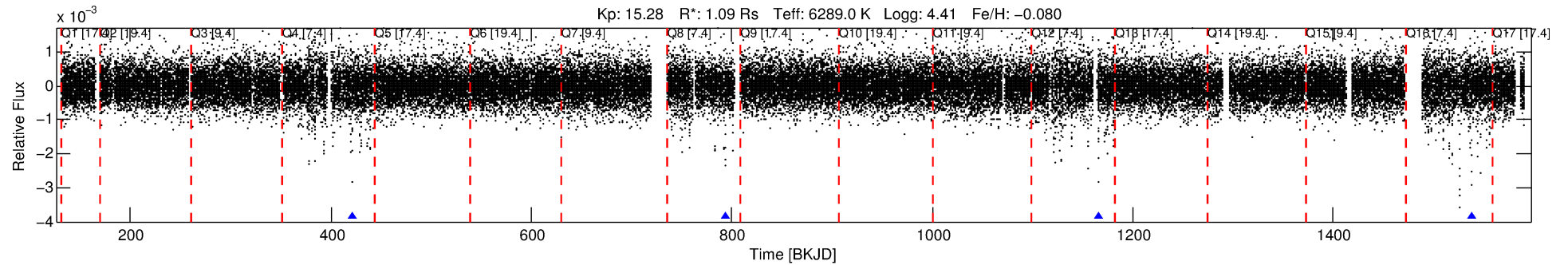
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011661803-07

No Significant Match Found

# DV One-Page Summary

KIC: 11661803 Candidate: 7 of 8 Period: 372.079 d



## DV Fit Results:

Period = 372.07936 [0.00189] d  
Epoch = 422.2210 [0.0035] BKJD  
Rp/R\* = 0.0720 [0.1003]  
a/R\* = 364.22 [145.48]  
b = 0.98 [0.17]  
Seff = 1.51 [0.65]  
Teq = 283 [31] K  
Rp = 8.59 [12.33] Re  
a = 1.0524 [0.2999] AU  
Ag = 12269.25 [34551.77] [0.36σ]  
Teff = 4601 [3210] K [1.35σ]

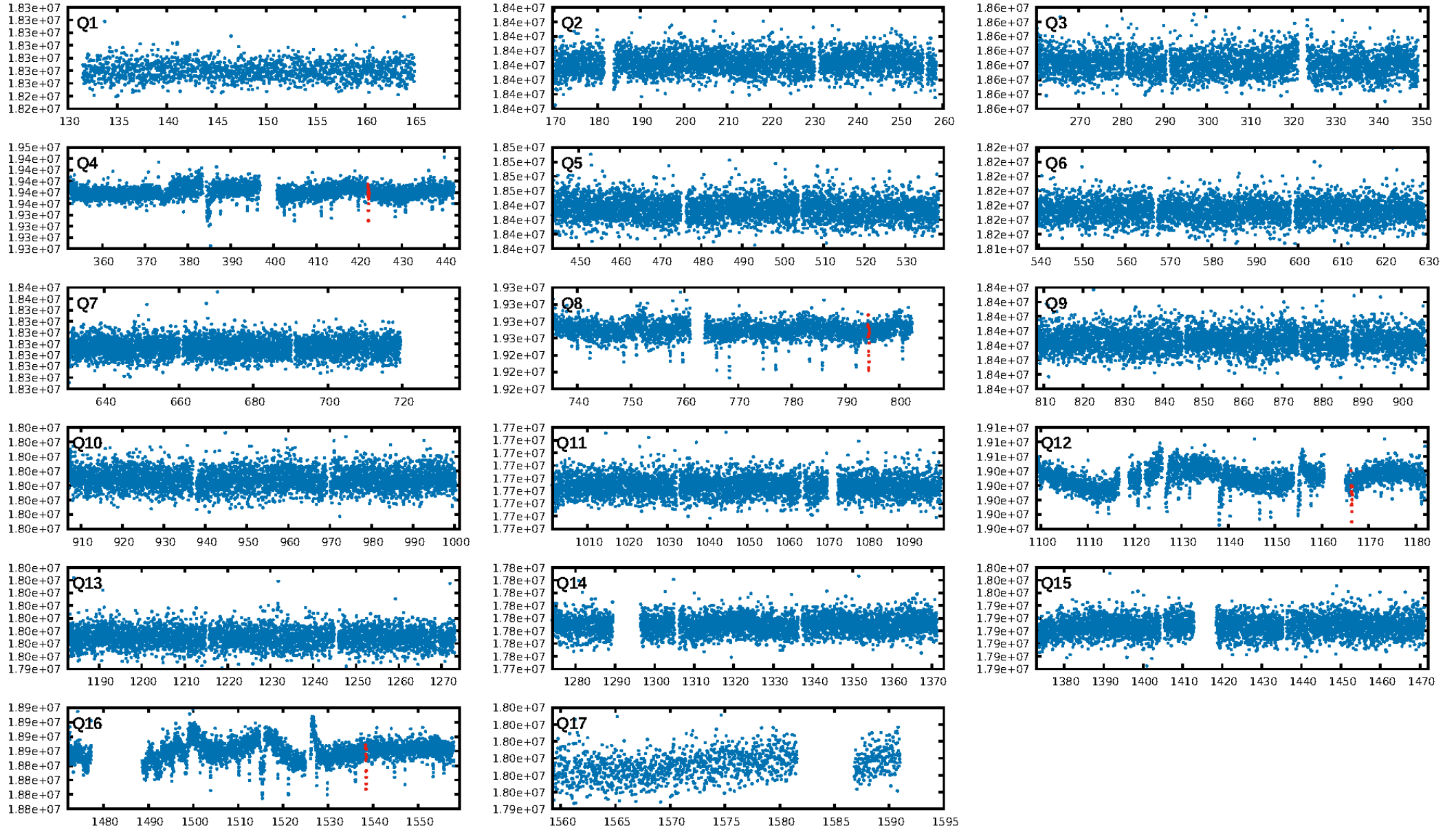
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [32.55σ]  
LongPeriod-sig: 1.4% [0.02σ]  
ModelChiSquare2-sig: 68.2%  
ModelChiSquareGoF-sig: 91.8%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.3579  
Centroid-sig: 0.0%  
Centroid-so: 2.802 arcsec [3.49σ]  
OotOffset-rm: 1.646 arcsec [12.60σ]  
KicOffset-rm: 1.717 arcsec [13.14σ]  
OotOffset-st: 0/0/3/0 [3]  
KicOffset-st: 0/0/3/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:54:25 Z

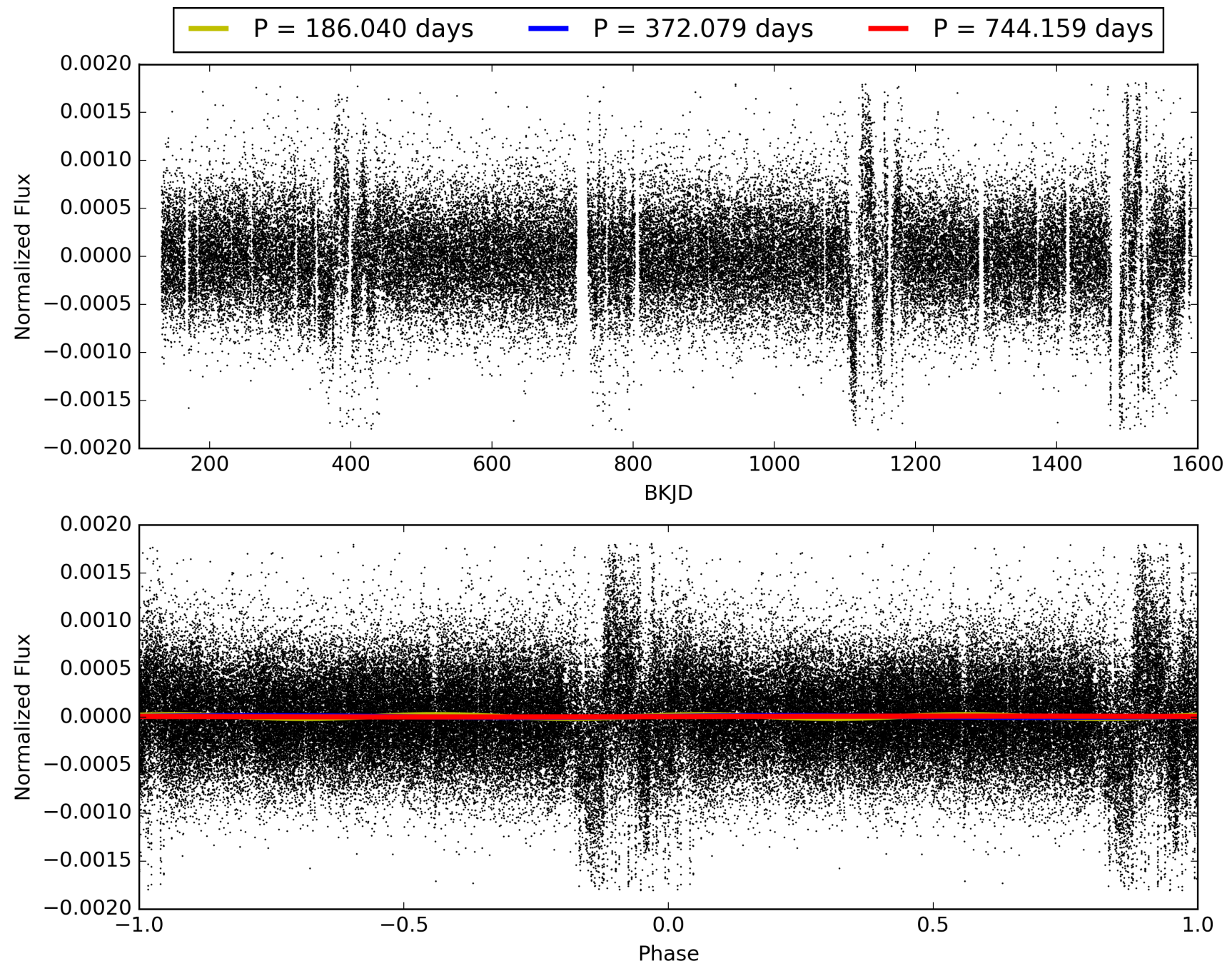
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011661803-07, PDC Light Curves



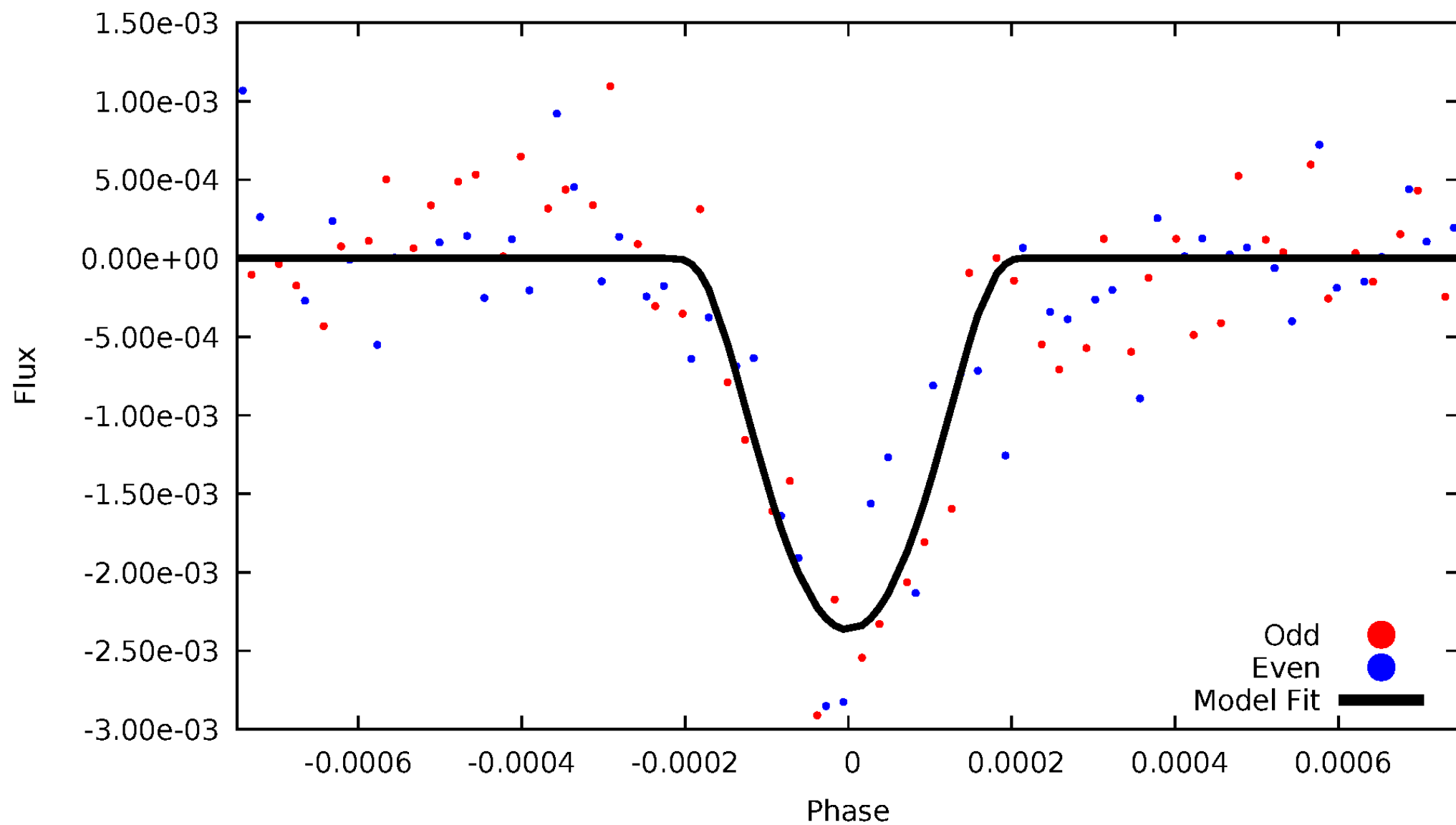


TCE 011661803-07



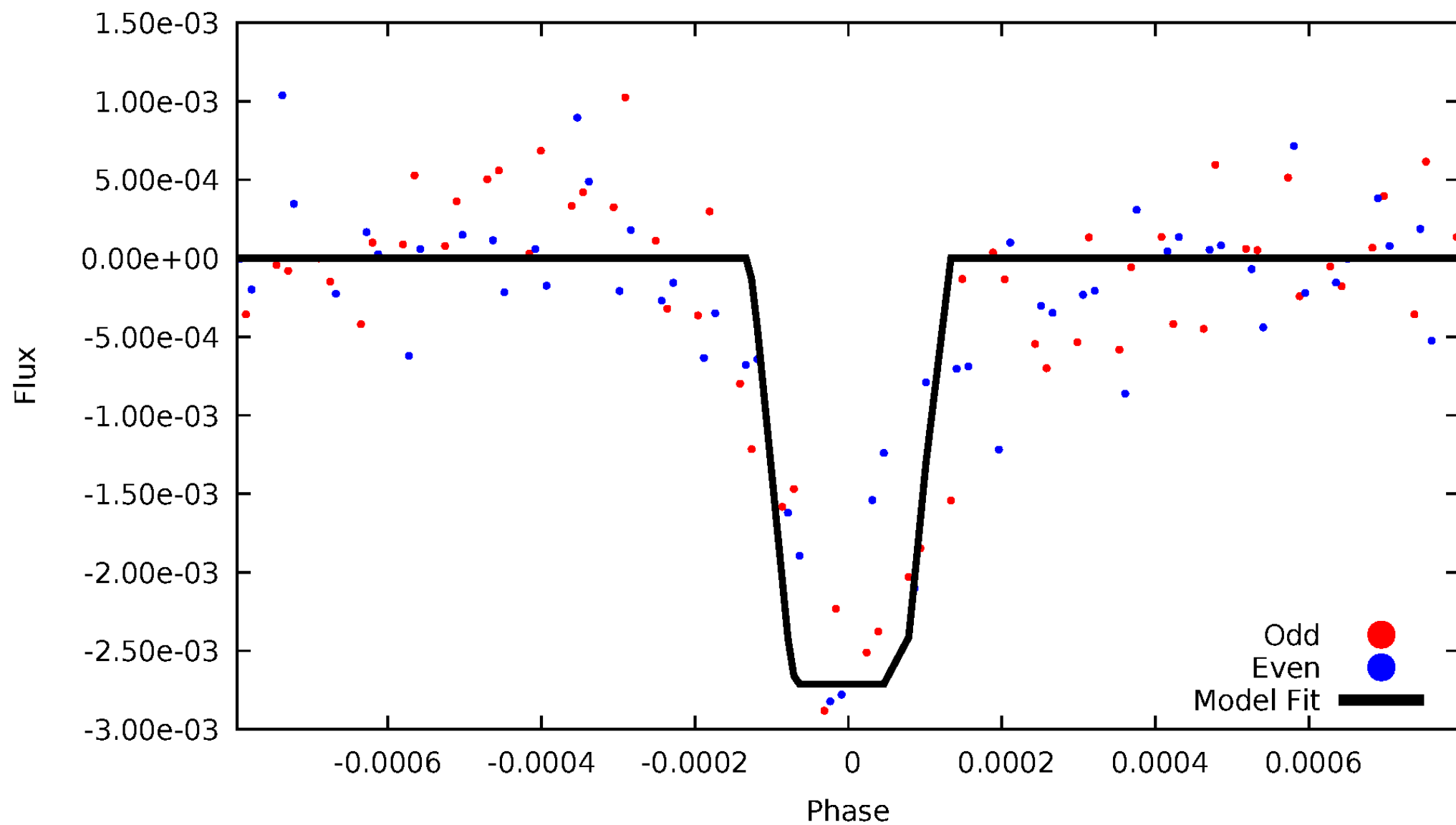
# DV Odd/Even

TCE 011661803-07



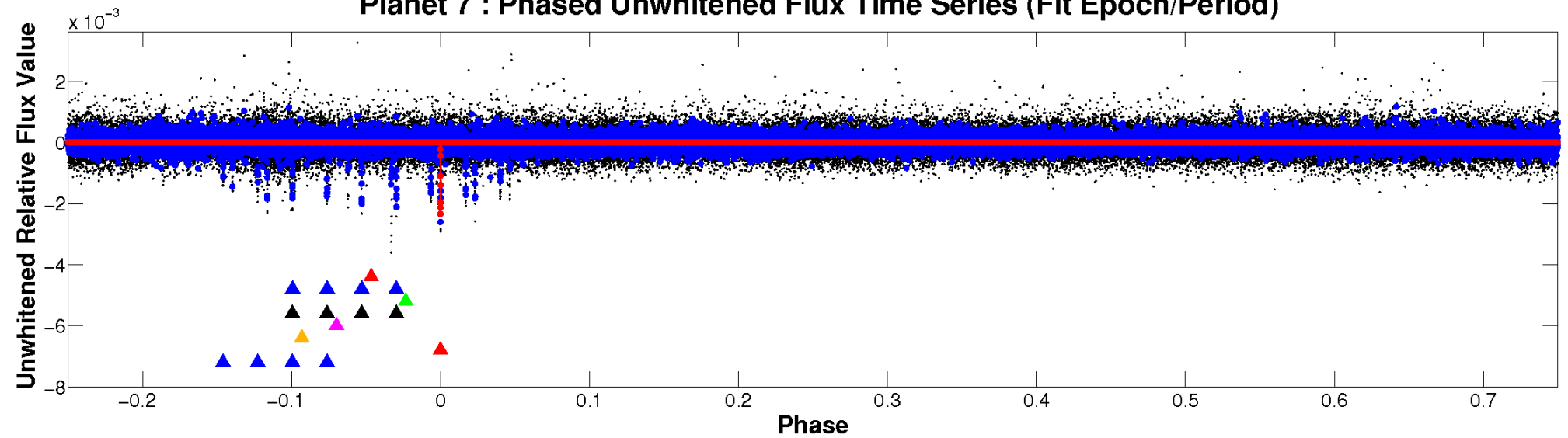
# ALT Odd/Even

TCE 011661803-07

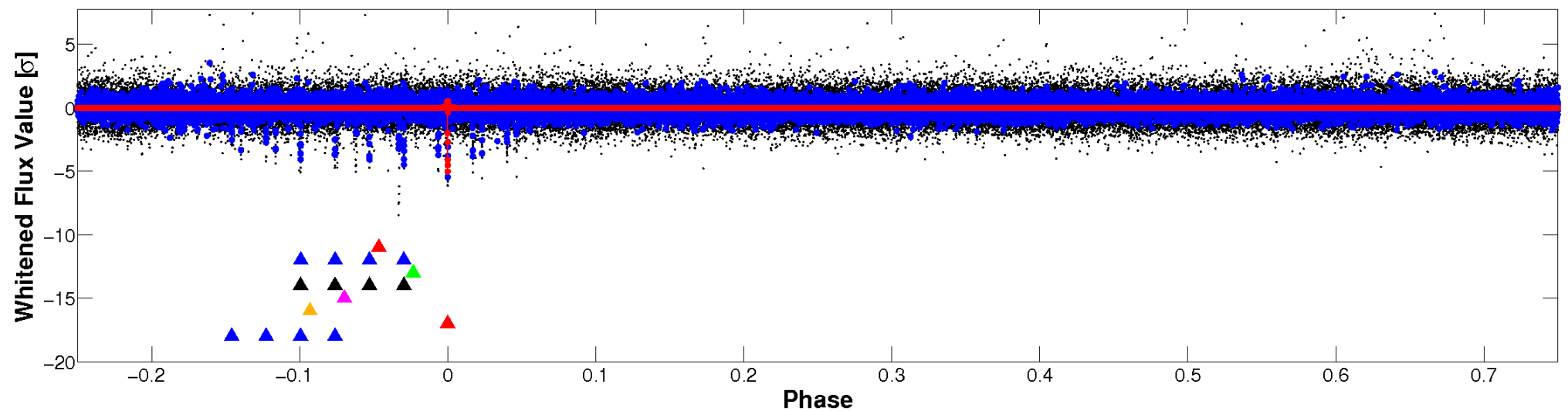


# Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

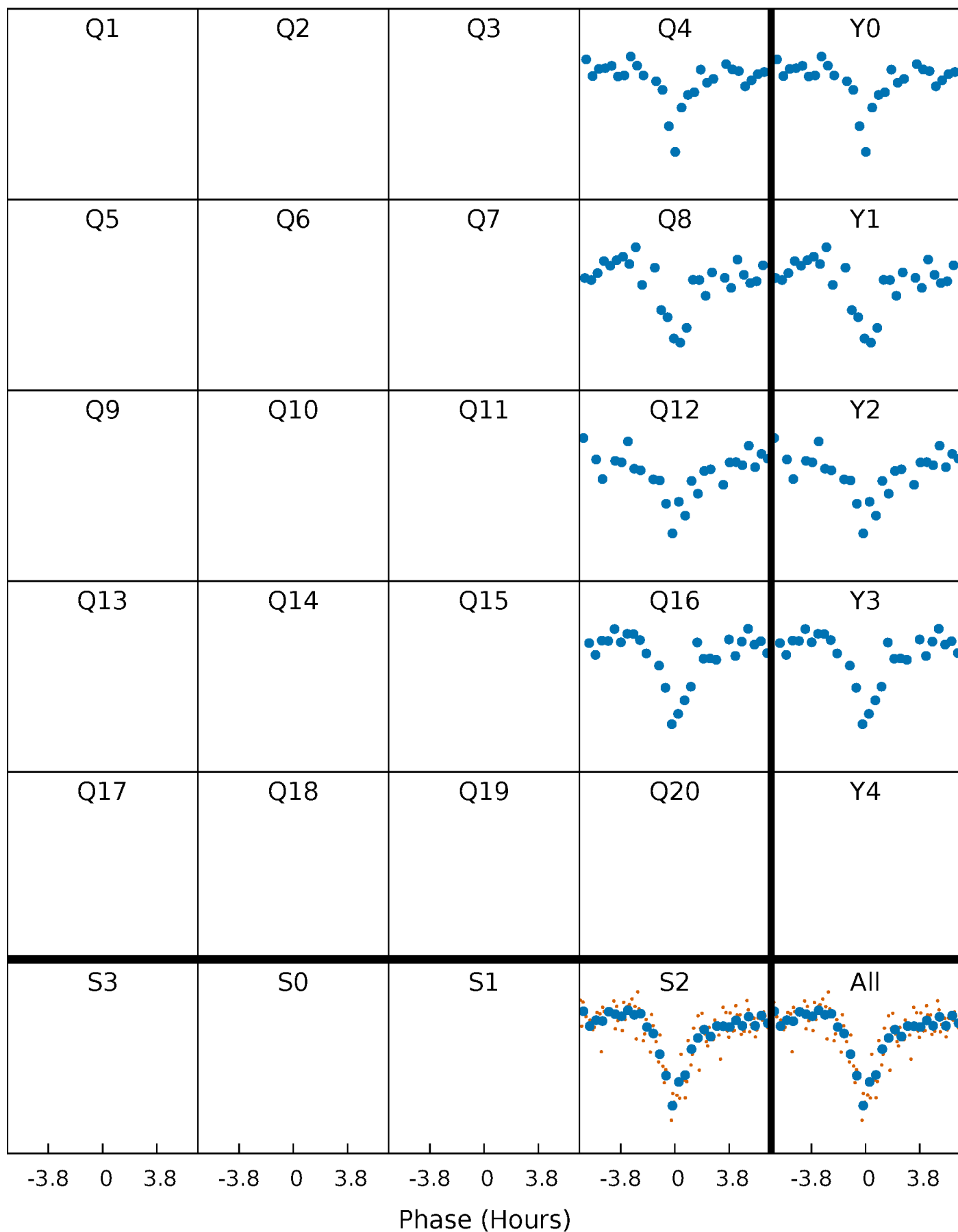


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



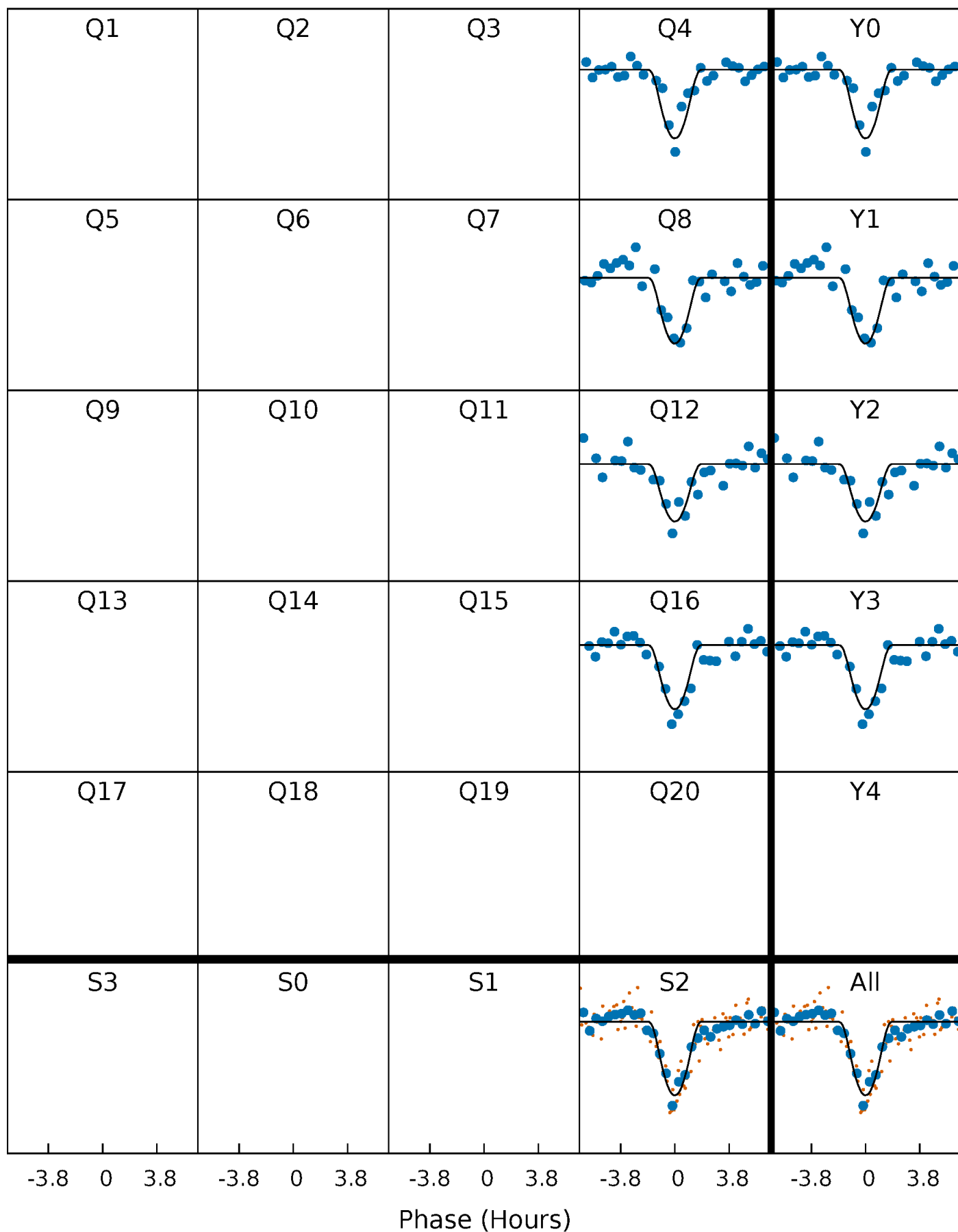
# PDC Quarter-Phased Transit Curves

TCE 011661803-07     $P=372.079361$  Days     $T_0=422.220950$  (BKJD)



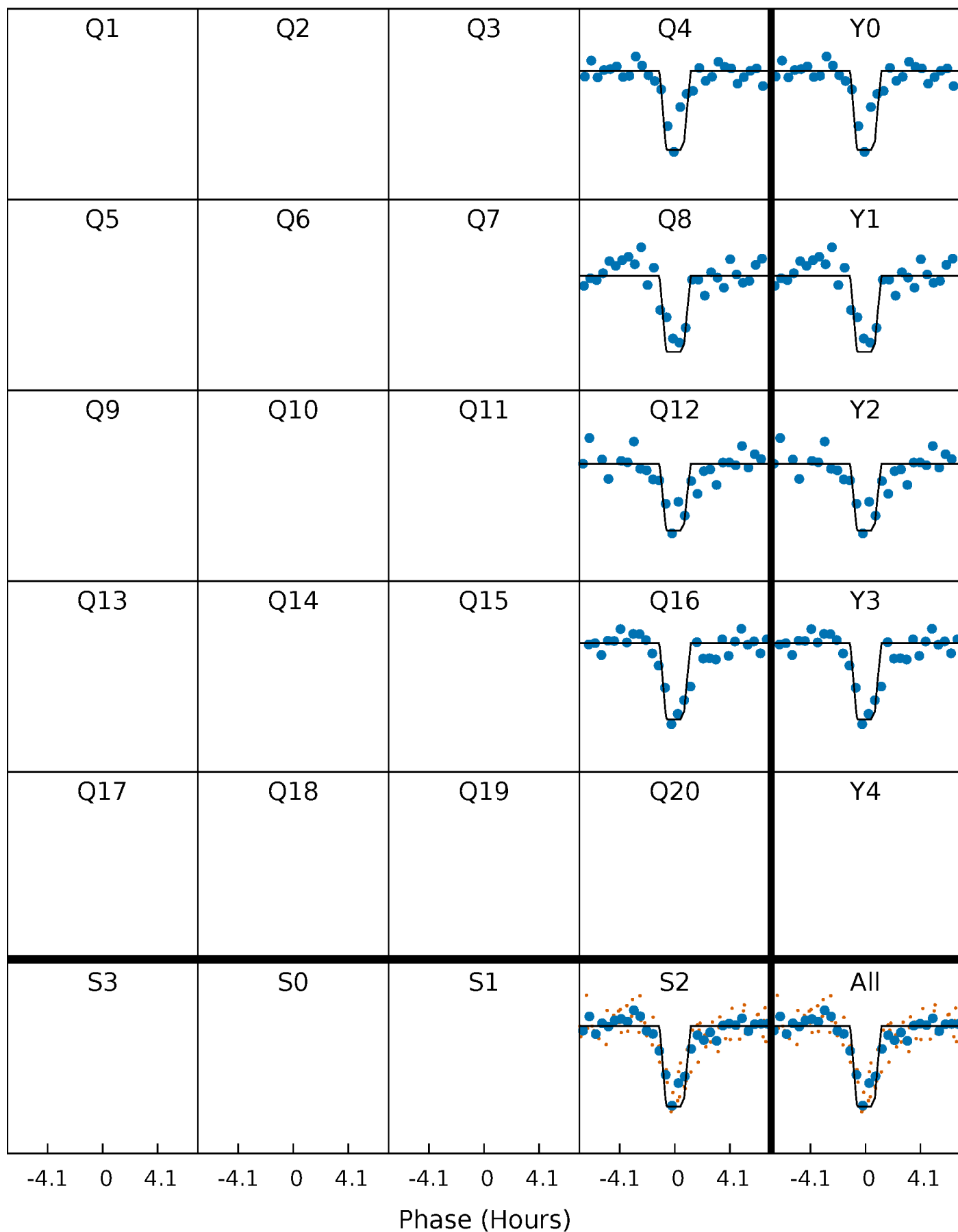
# DV Quarter-Phased Transit Curves

TCE 011661803-07     $P=372.079361$  Days     $T_0=422.220950$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

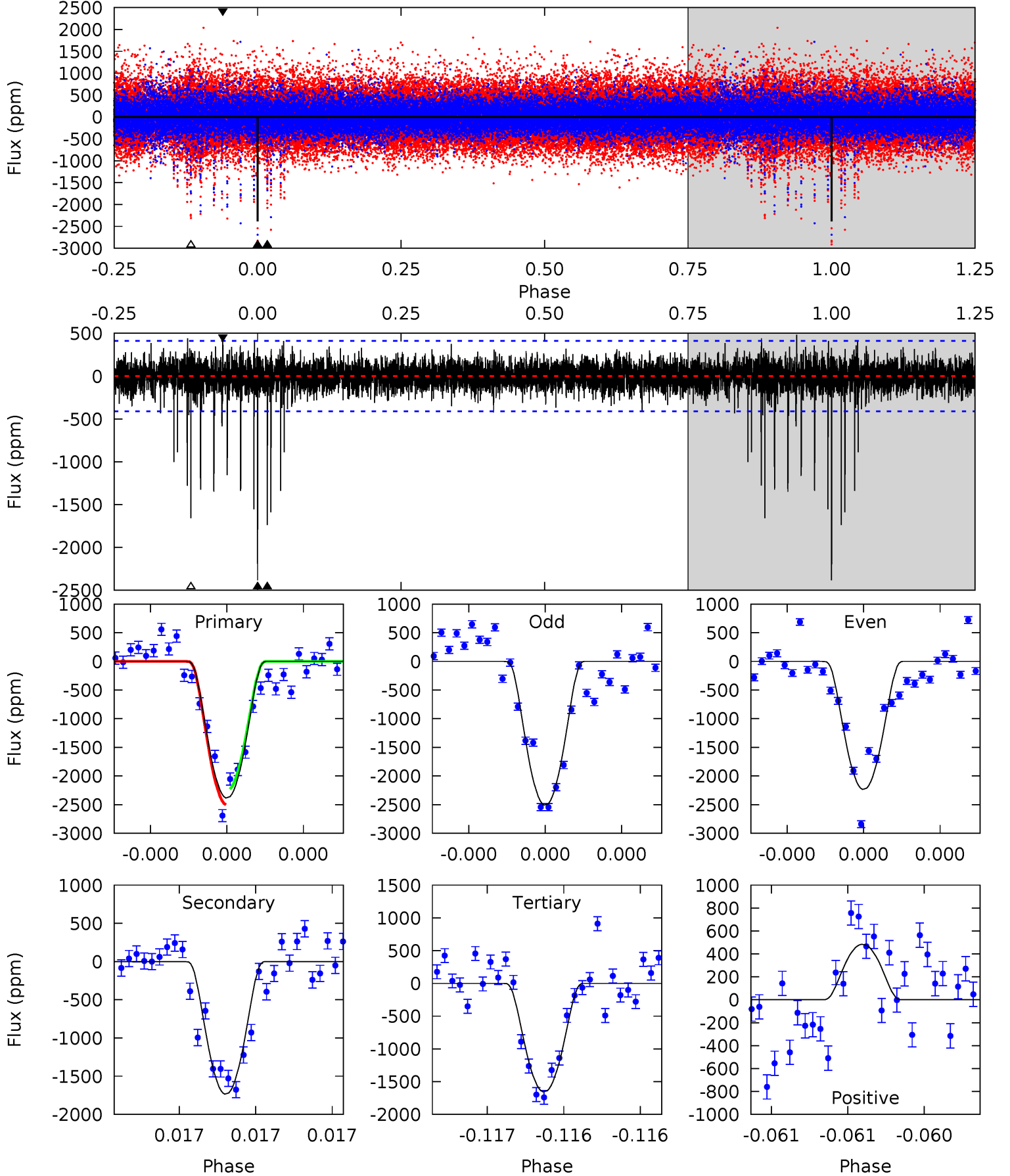
TCE 011661803-07     $P=372.078189$  Days     $T_0=422.221887$  (BKJD)



# DV Model-Shift Uniqueness Test

011661803-07, P = 372.079361 Days, E = 50.141589 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.5	23.7	22.6	6.60	5.61	3.53	1.74	9.93	25.9	1.09	17.1	1.86	1.02	0.17	1.86

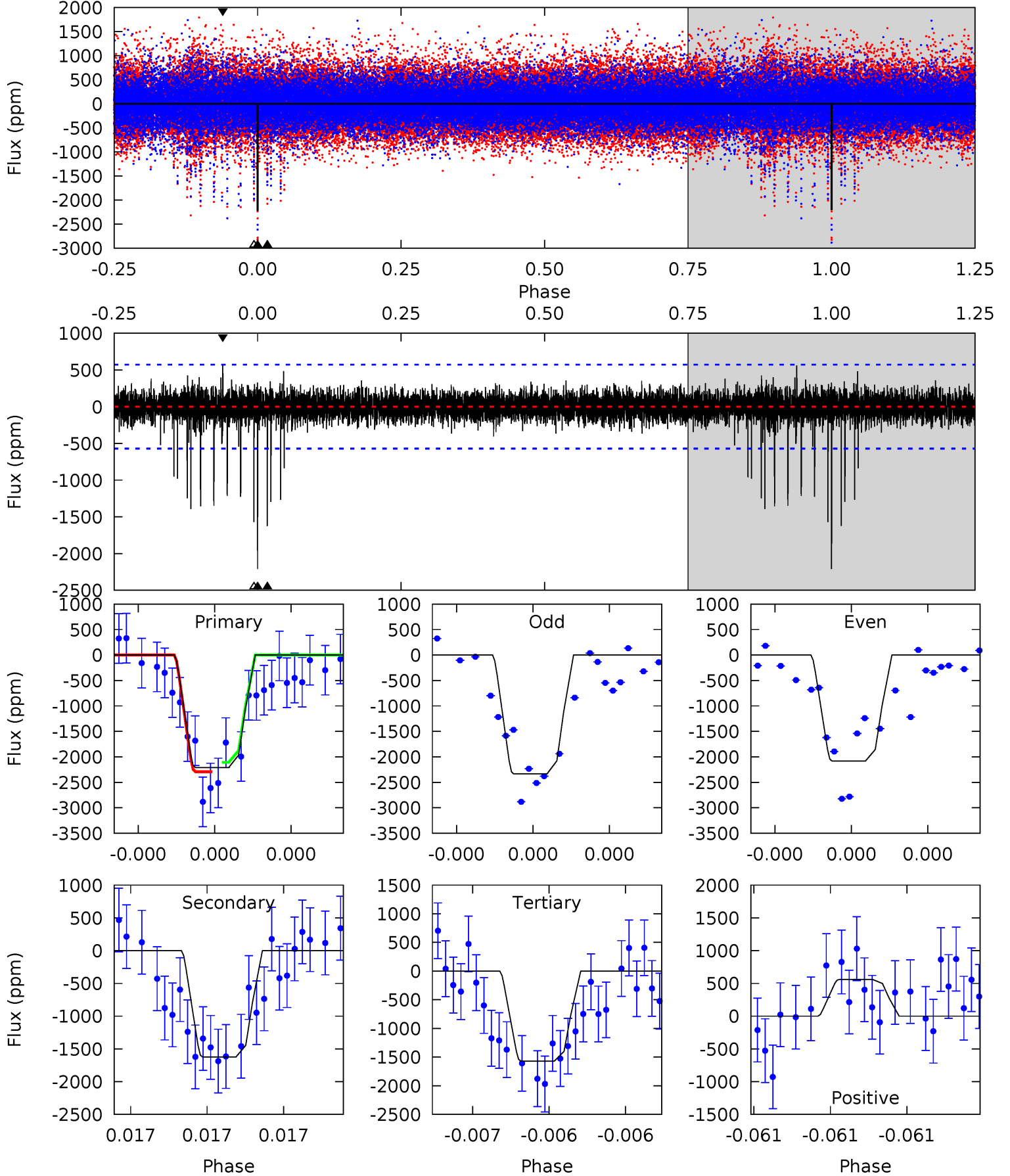




# Alt Model-Shift Uniqueness Test

011661803-07, P = 372.078189 Days, E = 50.143698 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
22.0	16.2	15.6	5.57	5.69	3.66	1.22	6.36	16.4	0.55	10.6	1.28	1.01	0.20	0.91



### Stellar Parameters For KIC 011661803

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6289^{+174}_{-240}$	$4.411^{+0.072}_{-0.217}$	$-0.080^{+0.250}_{-0.300}$	$1.093^{+0.379}_{-0.126}$	$1.121^{+0.171}_{-0.140}$	$1.210^{+0.364}_{-0.658}$
	+3%/-4%	+2%/-5%	+312%/-375%	+35%/-12%	+15%/-12%	+30%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011661803-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1736 \pm 73$	$13.09^{+10.72}_{-8.56}$	$402^{+30}_{-21}$	$4228^{+2534}_{-794}$	$6115^{+43506}_{-4291}$
Alt.	$-1625 \pm 100$	$11.02^{+11.22}_{-7.60}$	$402^{+34}_{-22}$	$4377^{+3270}_{-847}$	$7830^{+72007}_{-5851}$

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

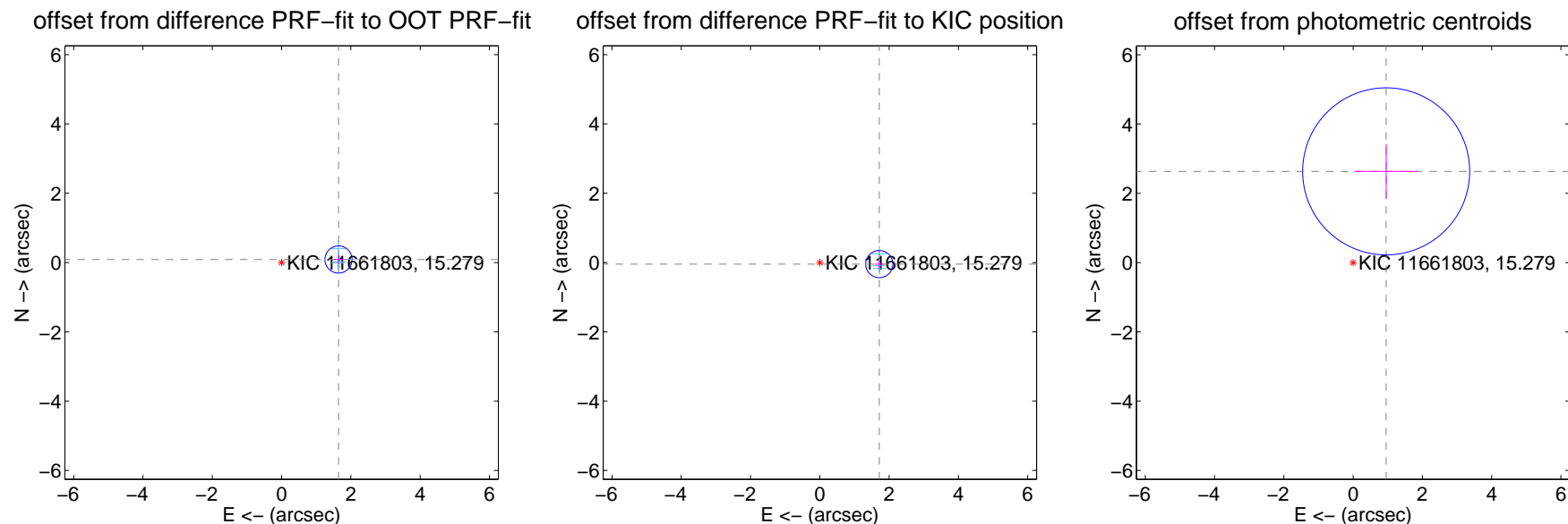
## DV Centroid Data

Supplemental centroid analysis for 011661803-07. Kepler magnitude: 15.28. Transit SNR 16.72

There are 3 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.646 \pm 0.131$	12.60	$-1.643 \pm 0.131$	$0.088 \pm 0.132$
PRF-fit source offset from KIC position	$1.717 \pm 0.131$	13.14	$-1.716 \pm 0.131$	$-0.045 \pm 0.132$
photometric centroid source offset	$2.80 \pm 0.80$	3.49	$-0.95 \pm 0.91$	$2.63 \pm 0.79$



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

Q1 no difference image



Q1 no OOT image



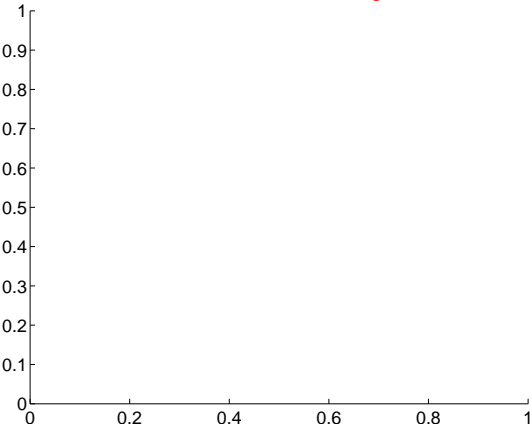
Q2 no difference image



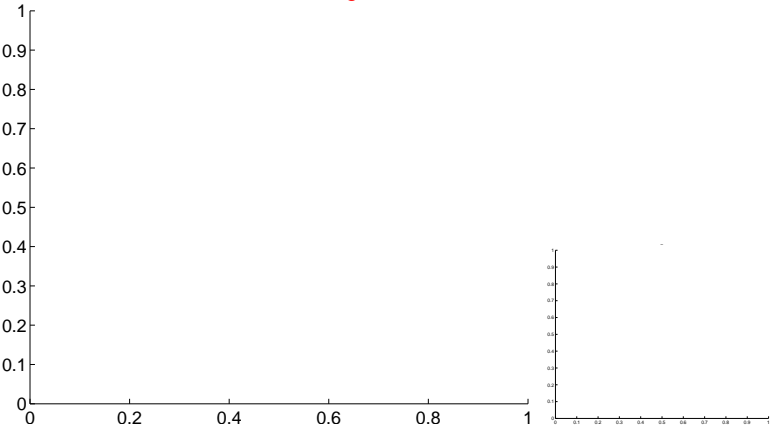
Q2 no OOT image



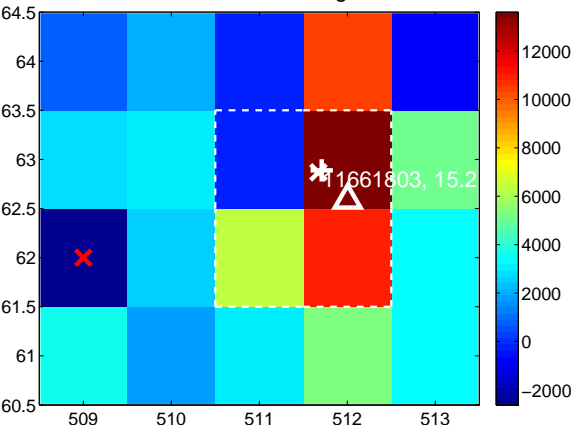
Q3 no difference image



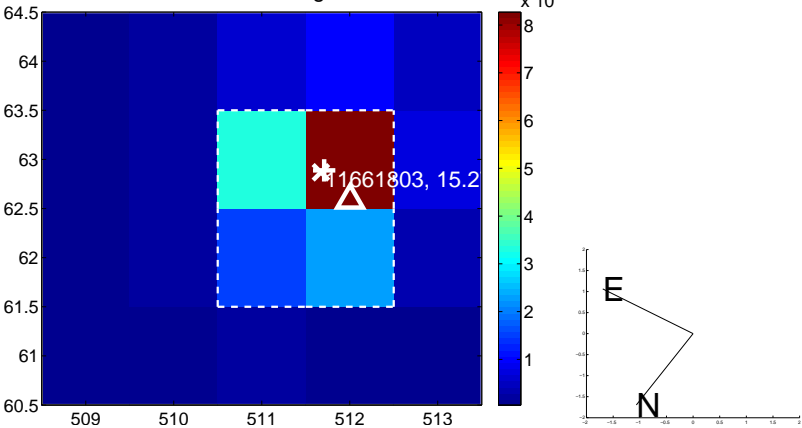
Q3 no OOT image



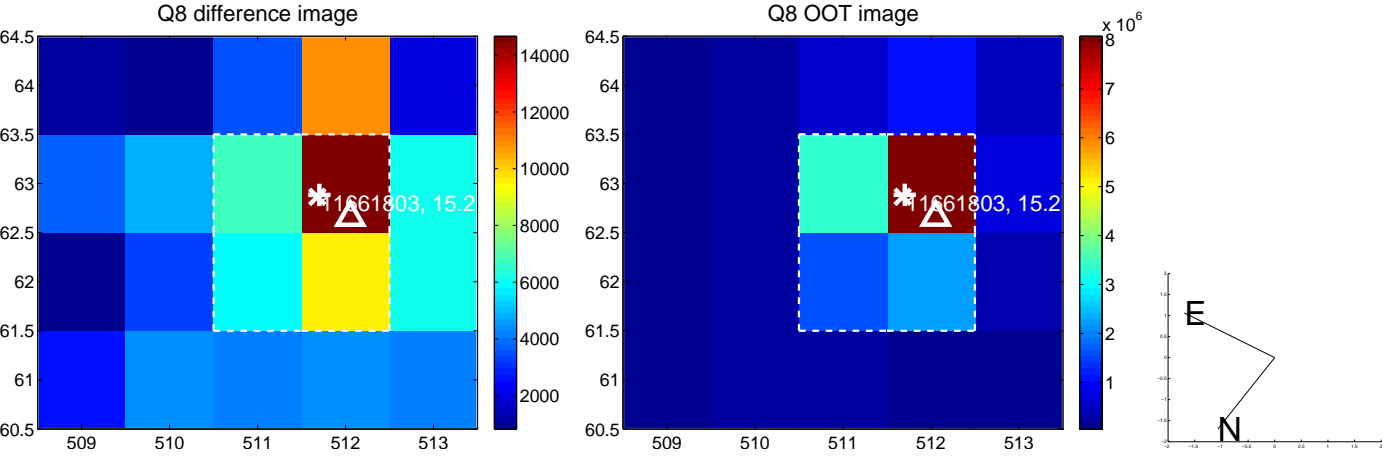
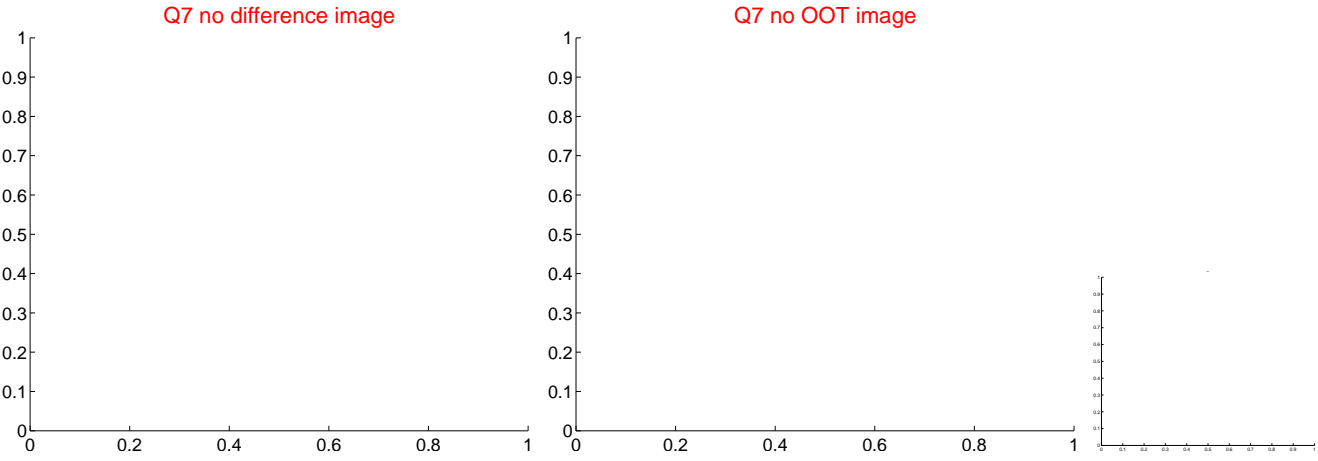
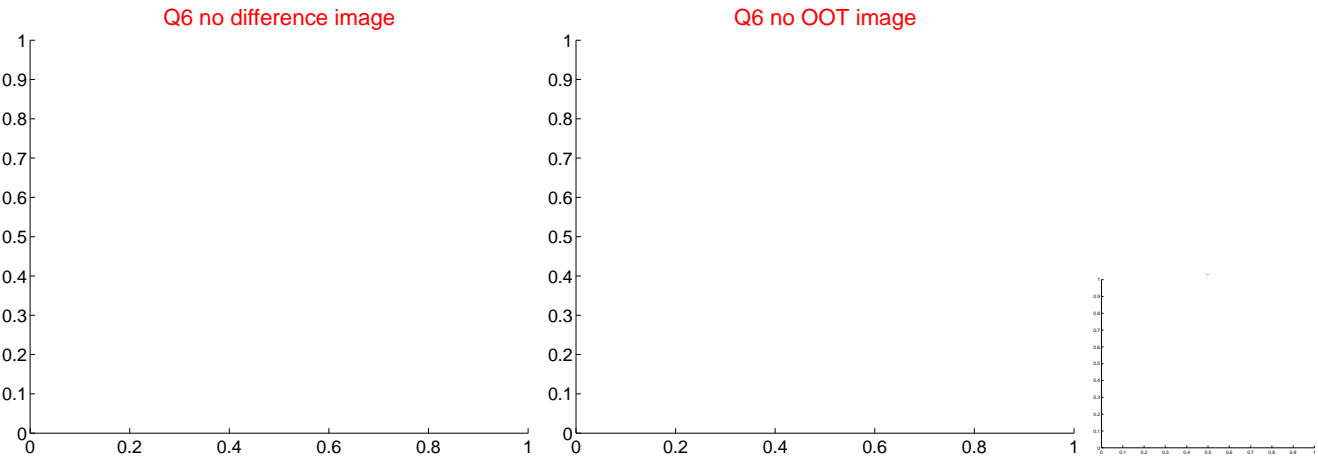
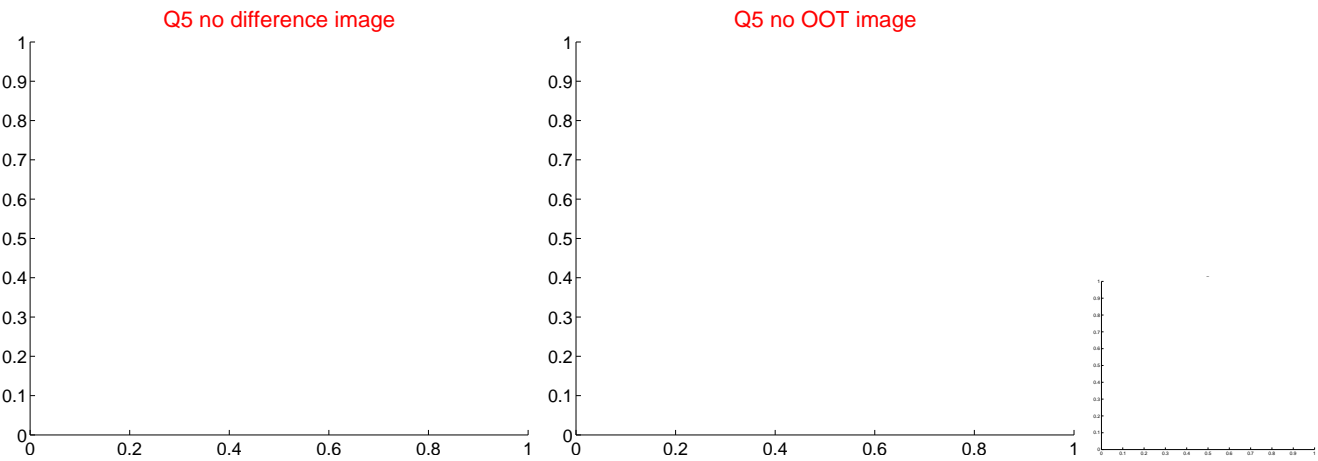
Q4 difference image



Q4 OOT image



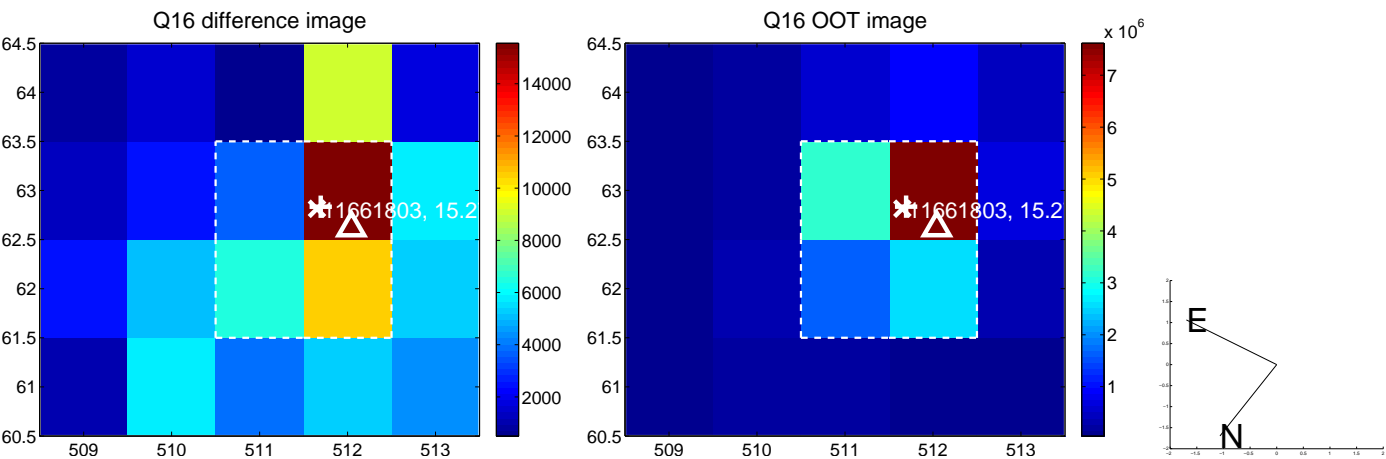
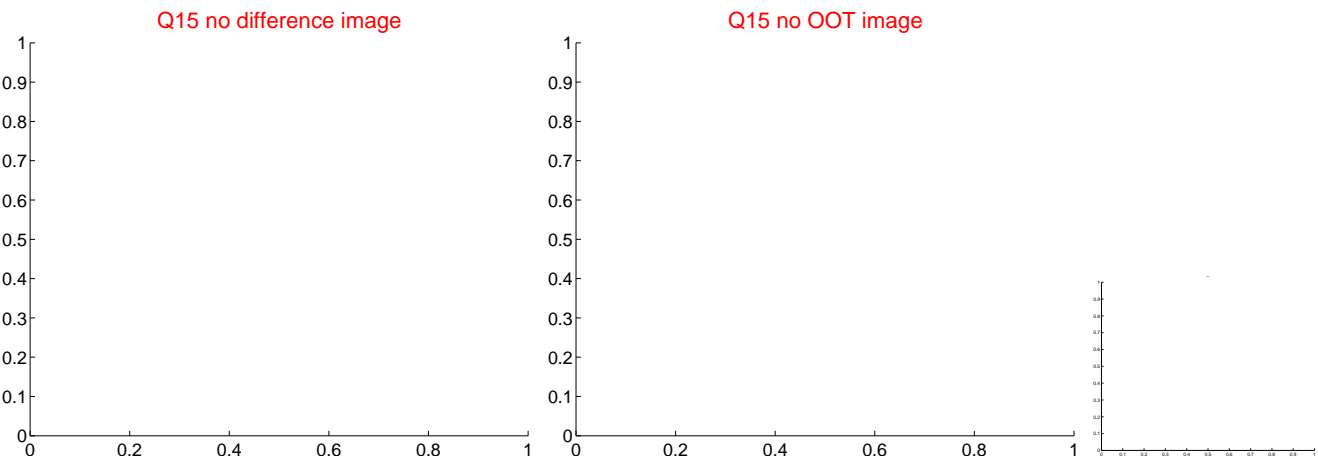
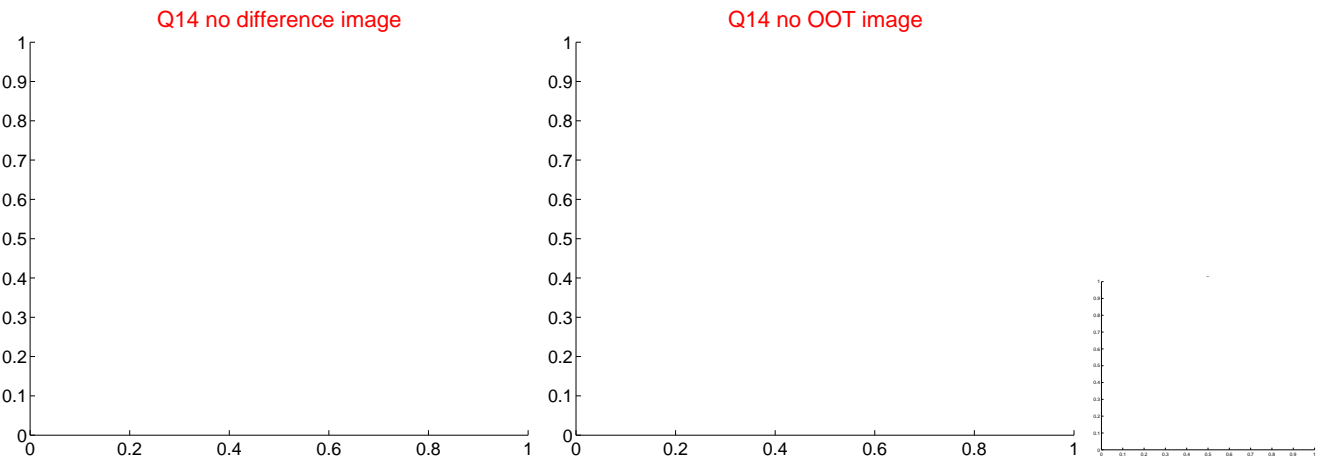
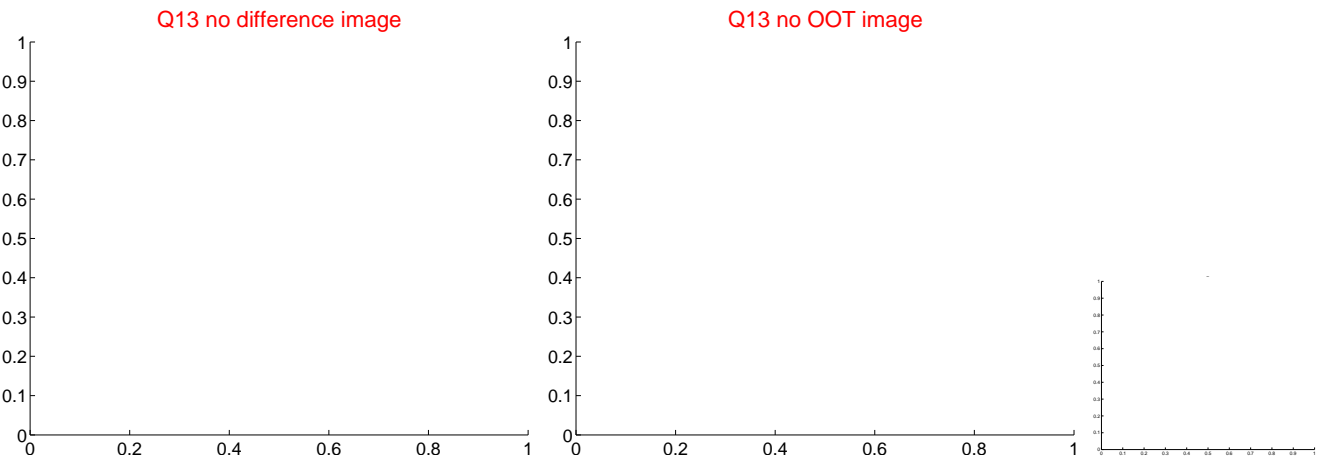
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



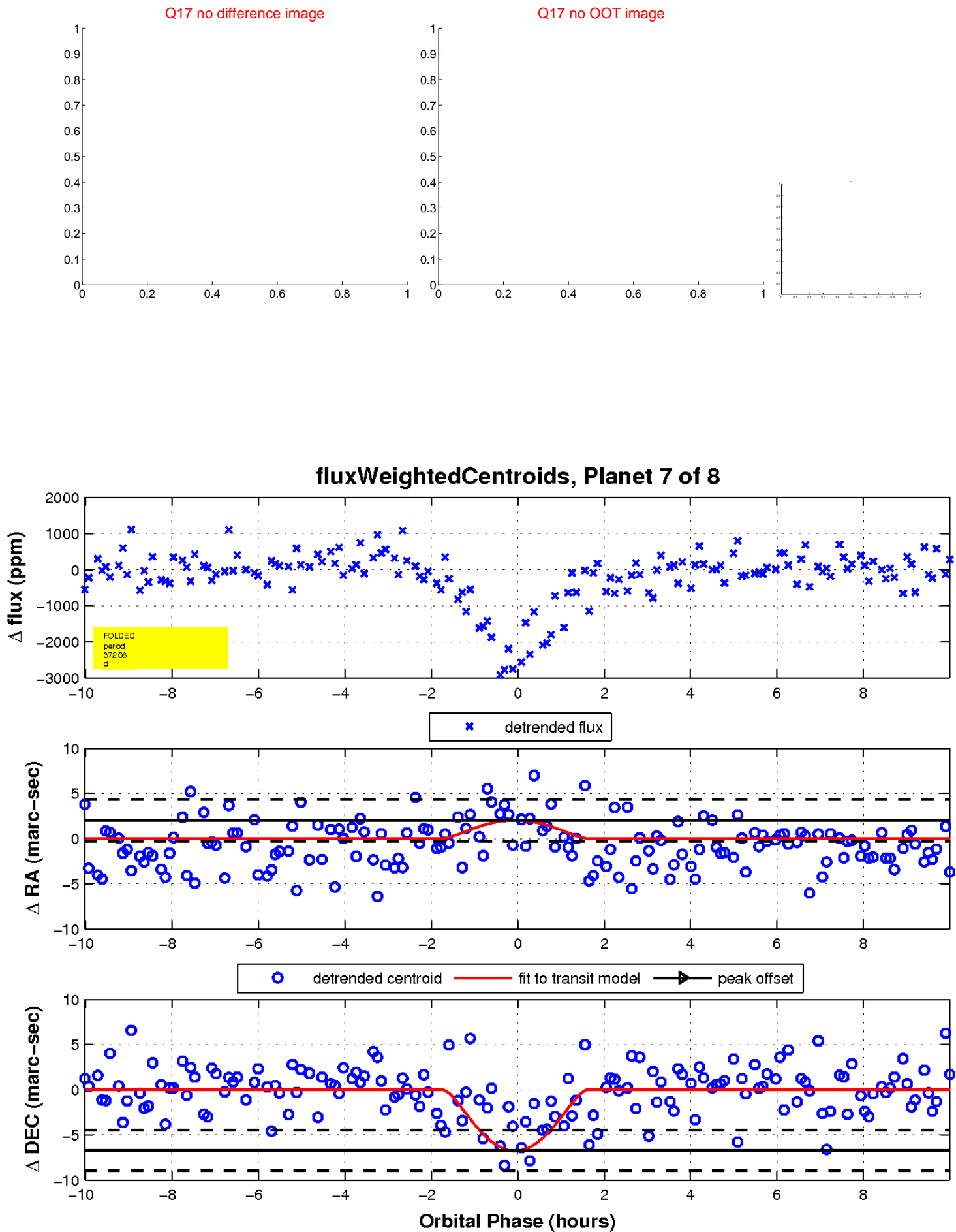
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



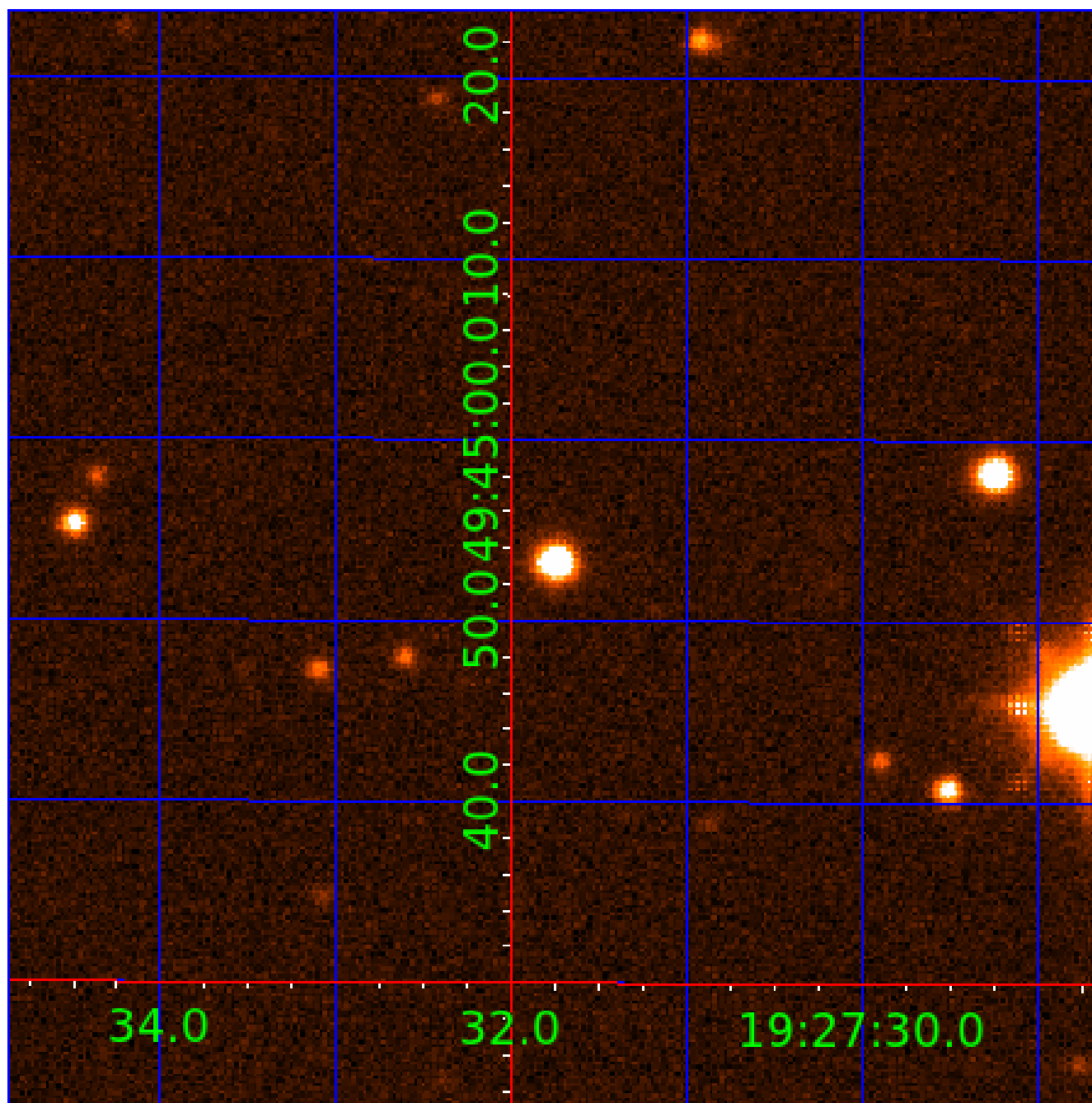
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 011661803

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011661803-01	OBS	8060.01	372.087077	404.899629	2489.5	3.587	19.9	19.8	1.09	6289	9.22	1.51
011661803-02	OBS	8060.02	363.447672	411.193981	2024.6	5.417	18.5	17.5	1.09	6289	8.55	1.56
011661803-03	OBS	No	372.083900	413.558967	2321.2	3.542	17.8	18.1	1.09	6289	9.79	1.51
011661803-04	OBS	No	380.740273	385.232183	1895.4	3.279	17.0	16.7	1.09	6289	5.31	1.47
011661803-05	OBS	No	372.083773	396.254015	2283.4	3.682	16.8	17.9	1.09	6289	9.72	1.51
011661803-06	OBS	No	372.083136	387.601083	2145.4	3.732	17.4	17.3	1.09	6289	8.10	1.51
011661803-07	OBS	No	372.079361	422.220950	2363.3	3.340	15.9	16.7	1.09	6289	8.59	1.51
011661803-08	OBS	No	363.418186	393.900840	1727.5	3.000	14.4	-1.0	1.09	6289	4.56	1.56

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011661803-01	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES
011661803-02	OBS	FP	0.00	0	1	1	0	DEEP_V_SHAPED—HAS_SEC_TCE—HALO_GHOST
011661803-03	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_TER_DV—MOD_TER_ALT—SAME_NTL_PERIOD
011661803-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
011661803-05	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD
011661803-06	OBS	FP	0.00	1	0	1	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET
011661803-07	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_FEW_DIFFS
011661803-08	OBS	FP	0.01	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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

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

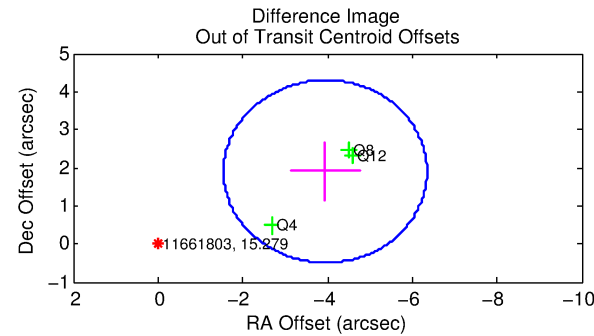
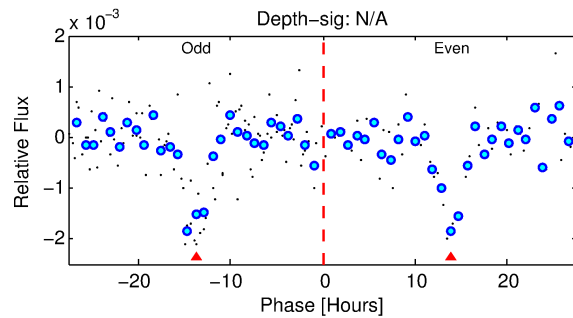
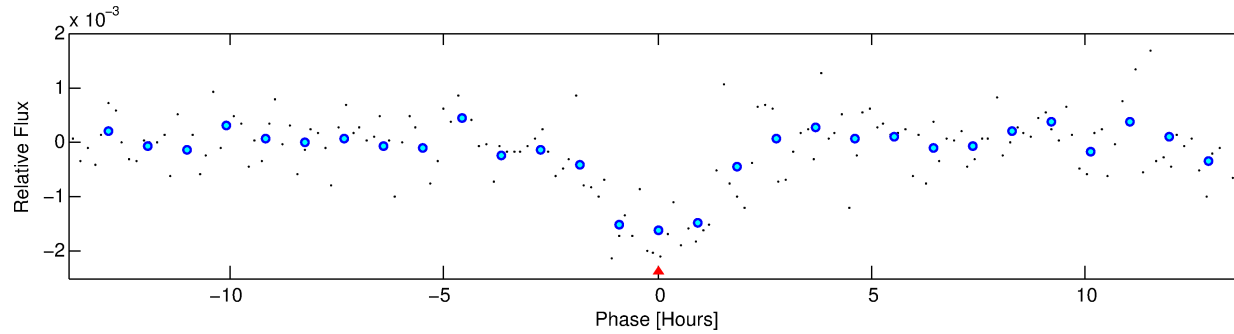
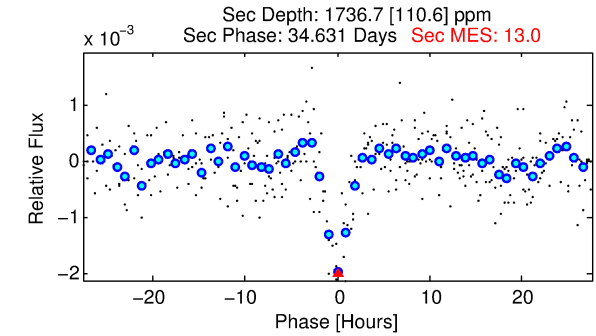
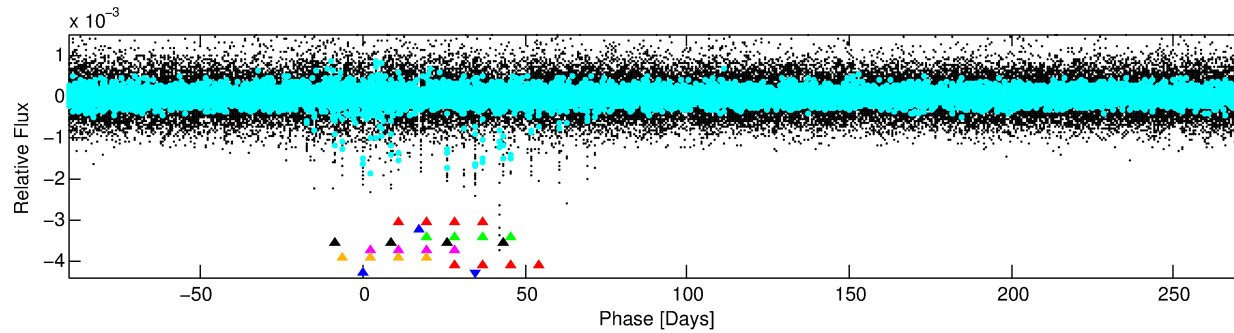
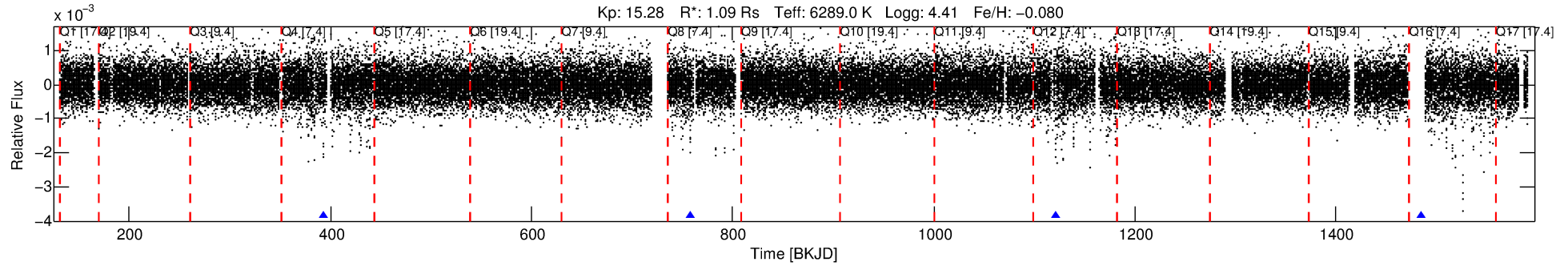
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011661803-08

No Significant Match Found

# DV One-Page Summary

KIC: 11661803 Candidate: 8 of 8 Period: 363.418 d



## TPS TCE Results:

Period = 363.41819 d  
Epoch = 393.9008 BKJD

DV fit results are unavailable

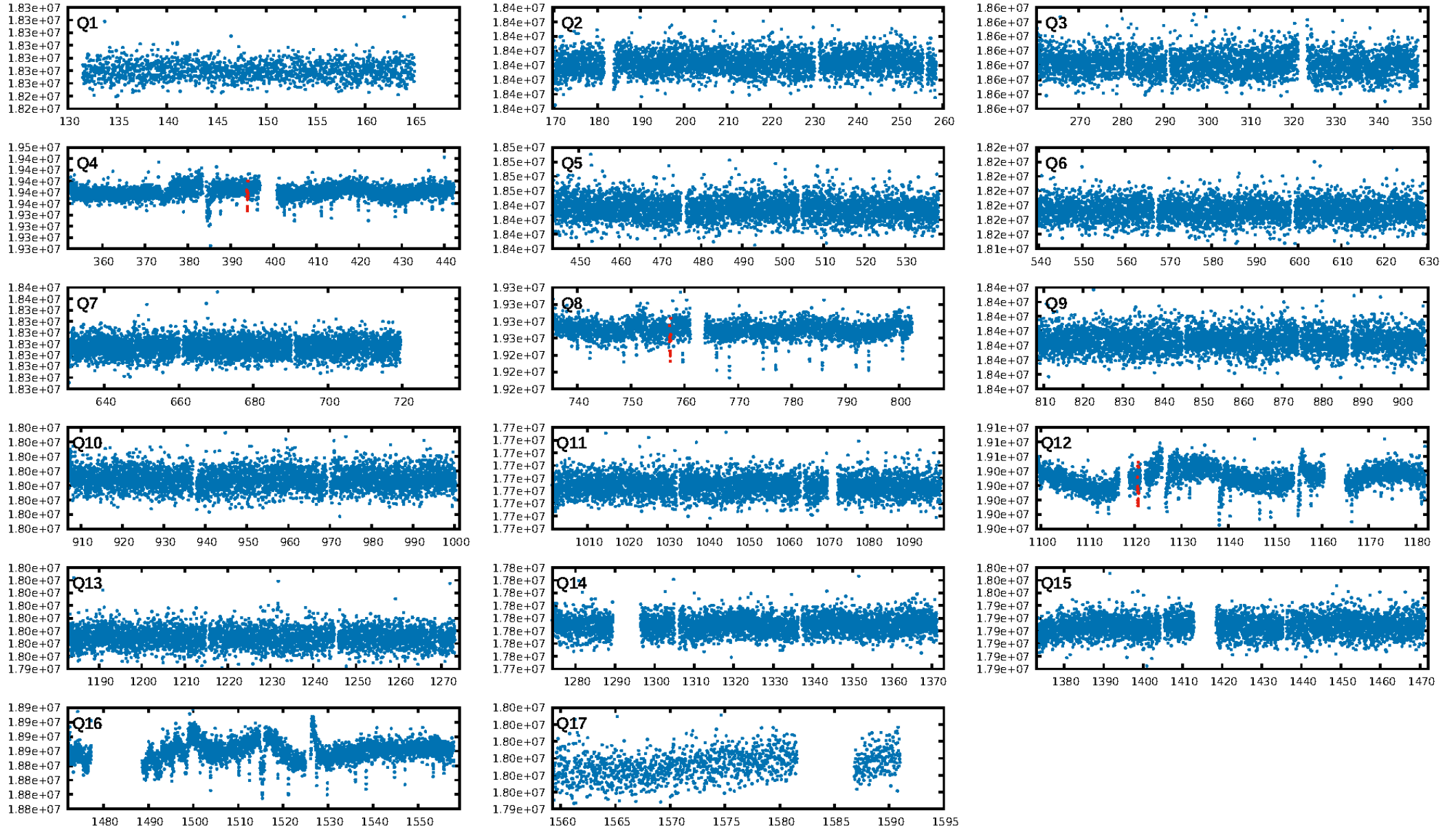
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 9.1% [0.11σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.4178  
Centroid-sig: 0.0%  
Centroid-so: 5.057 arcsec [4.24σ]  
OotOffset-rm: 4.384 arcsec [5.48σ]  
KicOffset-rm: 4.404 arcsec [5.52σ]  
OotOffset-st: 0/0/3/0 [3]  
KicOffset-st: 0/0/3/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

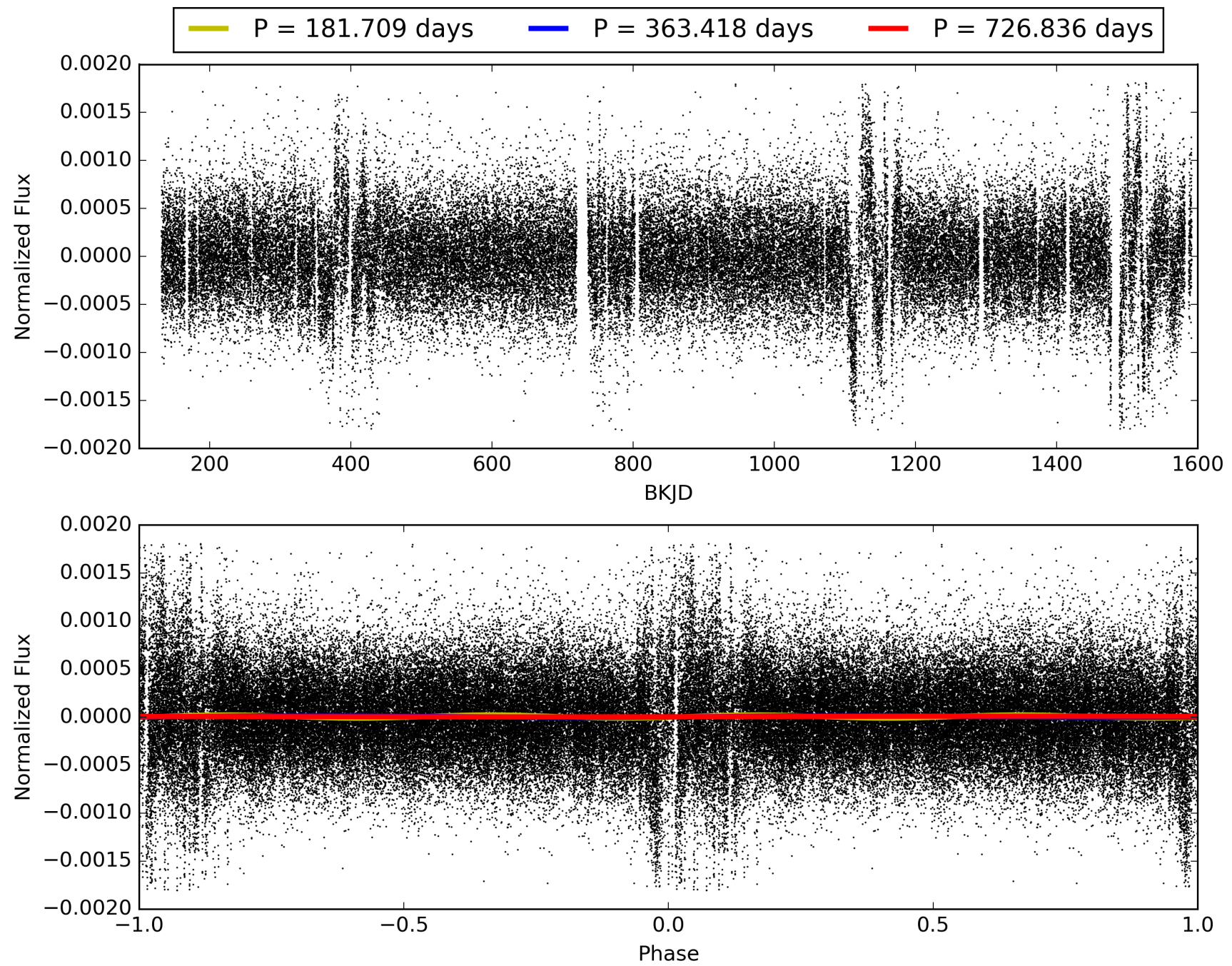
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:54:39 Z

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

# TCE 011661803-08, PDC Light Curves

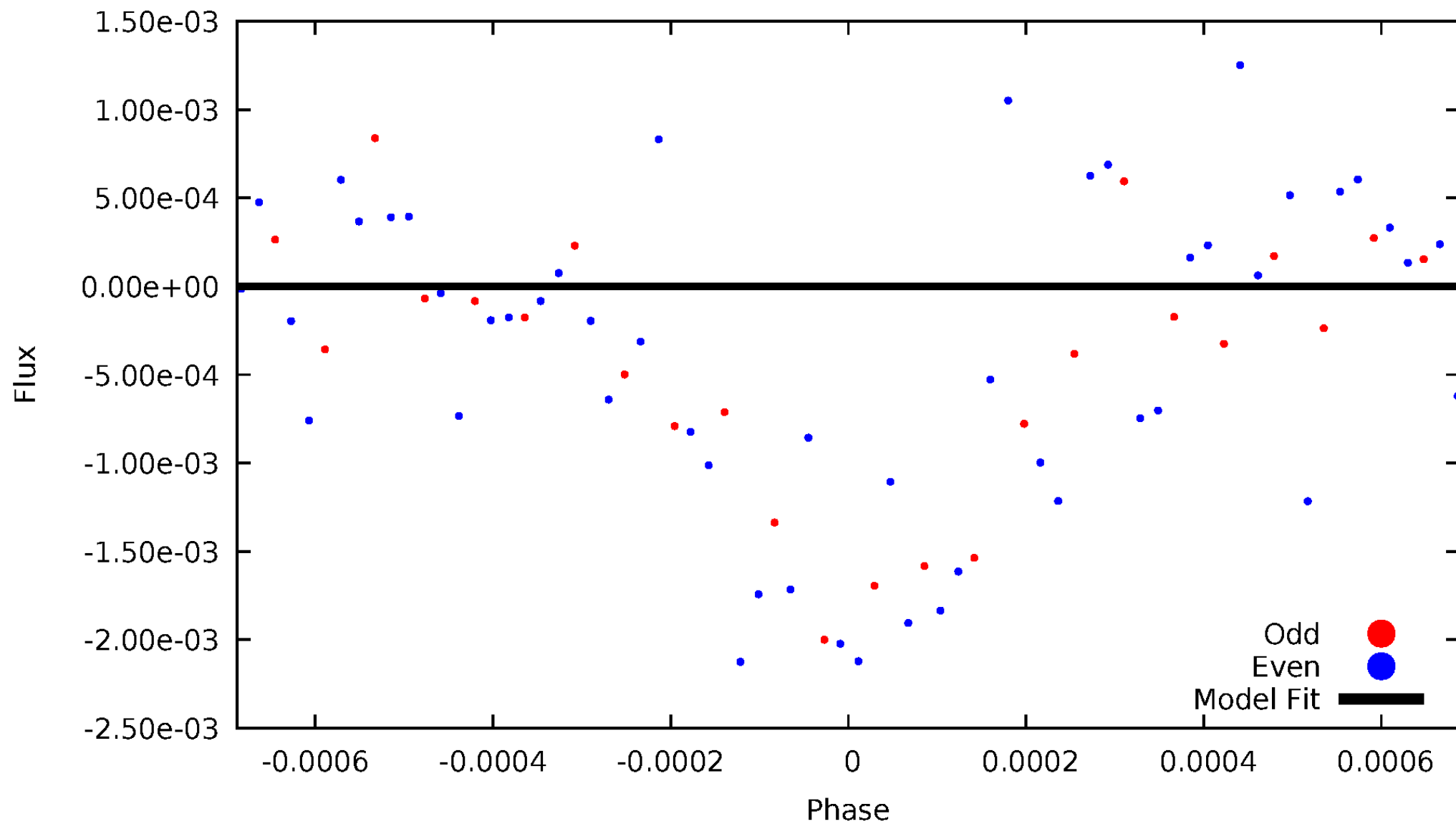


TCE 011661803-08



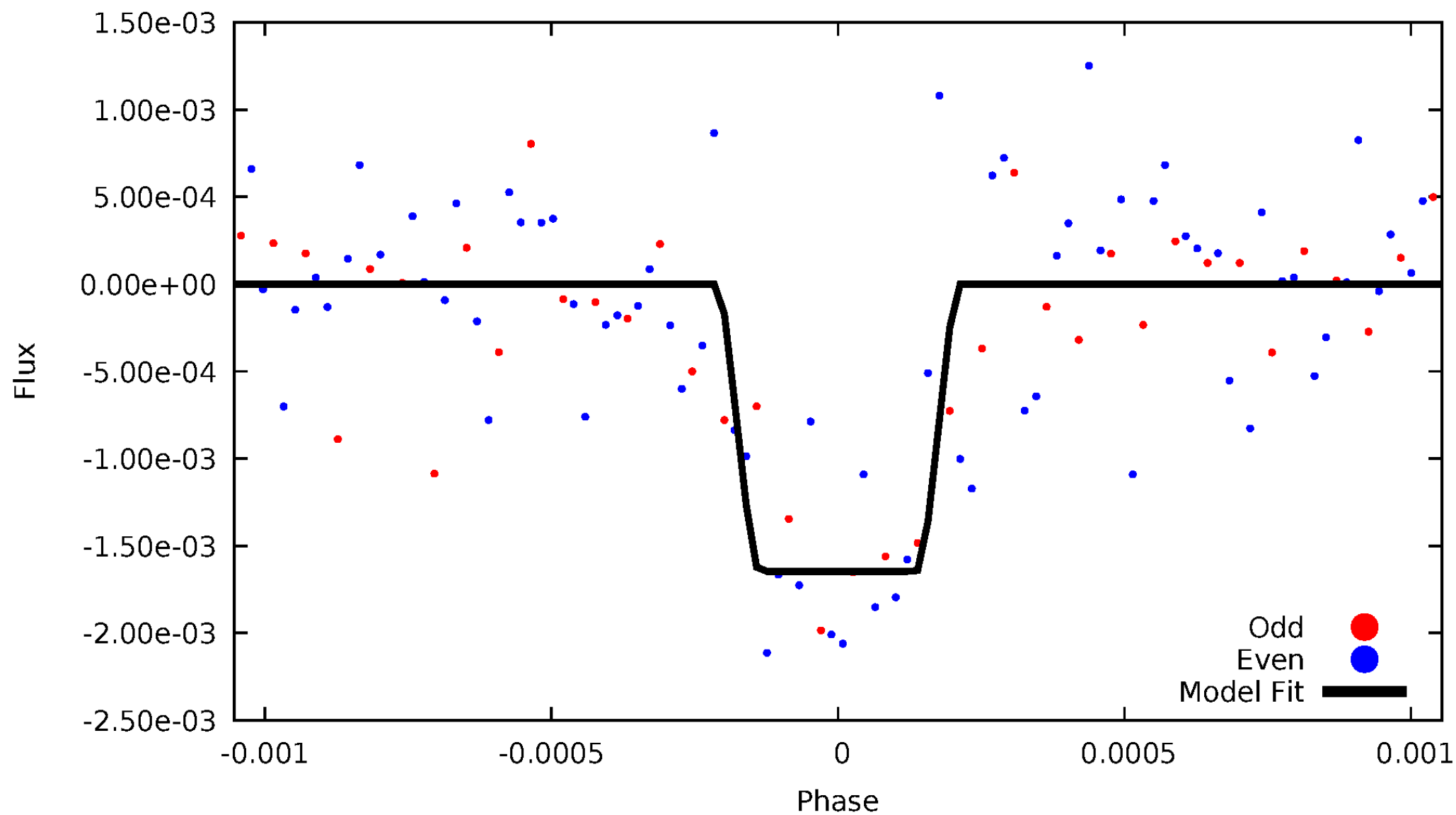
# DV Odd/Even

TCE 011661803-08



# ALT Odd/Even

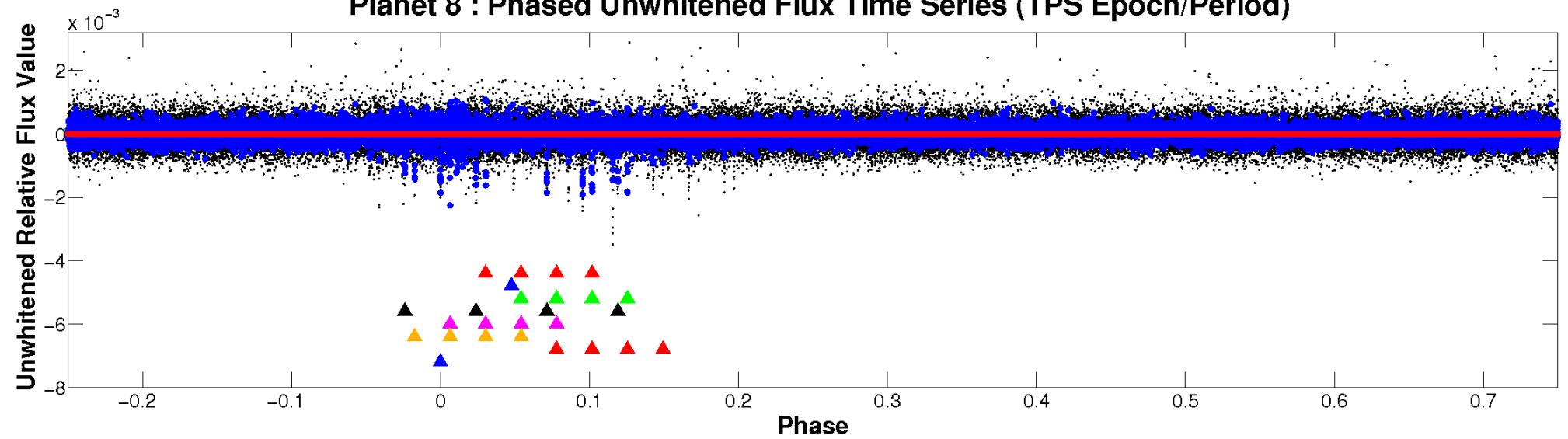
TCE 011661803-08





# Non-Whitened Vs. Whitened Light Curve

**Planet 8 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**



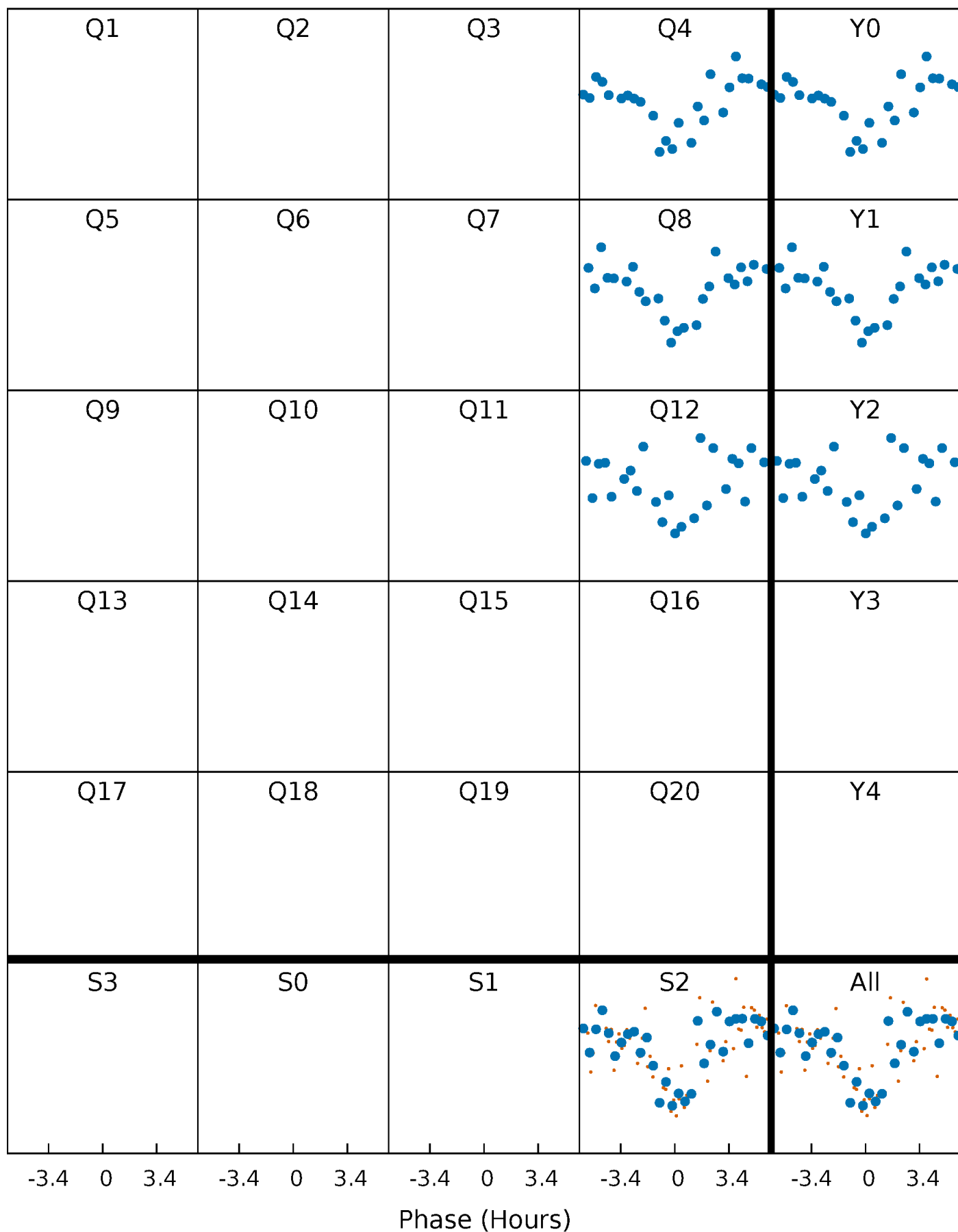
**Planet 8 : Phased Whitened Flux Time Series (TPS Epoch/Period)**





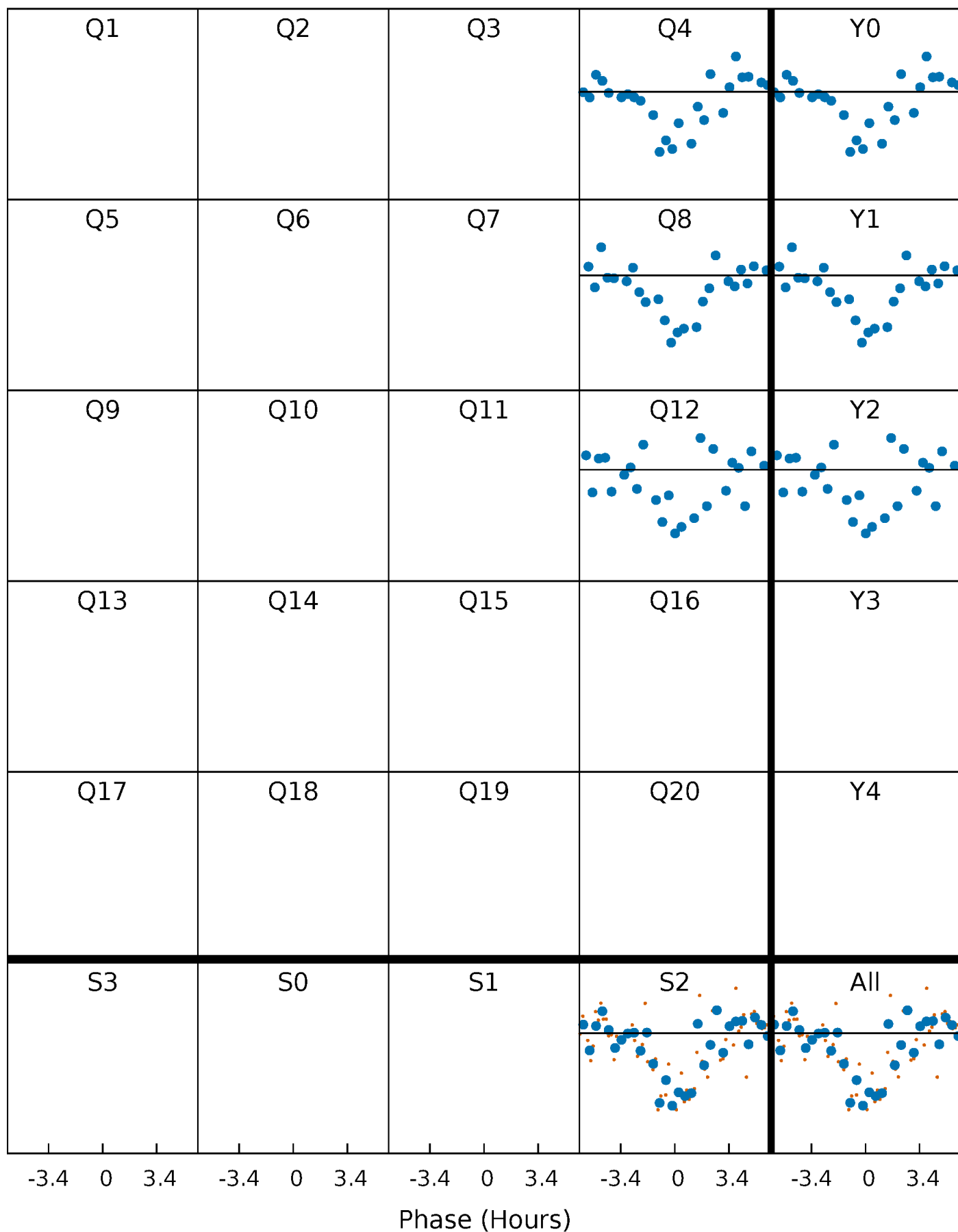
# PDC Quarter-Phased Transit Curves

TCE 011661803-08 P=363.418186 Days  $T_0=393.900840$  (BKJD)



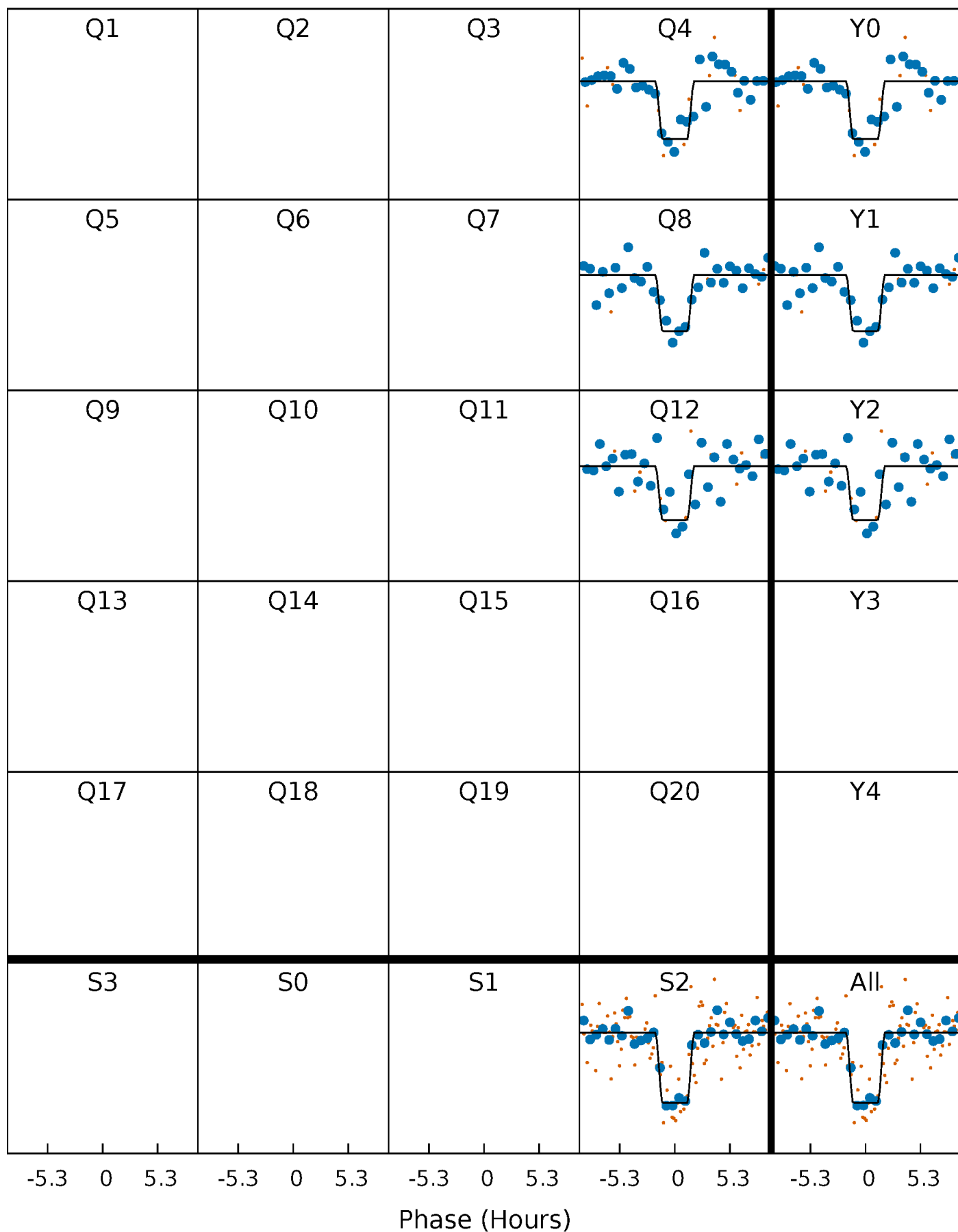
# DV Quarter-Phased Transit Curves

TCE 011661803-08     $P=363.418186$  Days     $T_0=393.900840$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

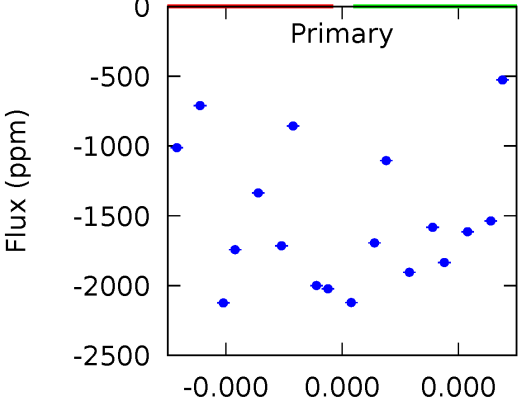
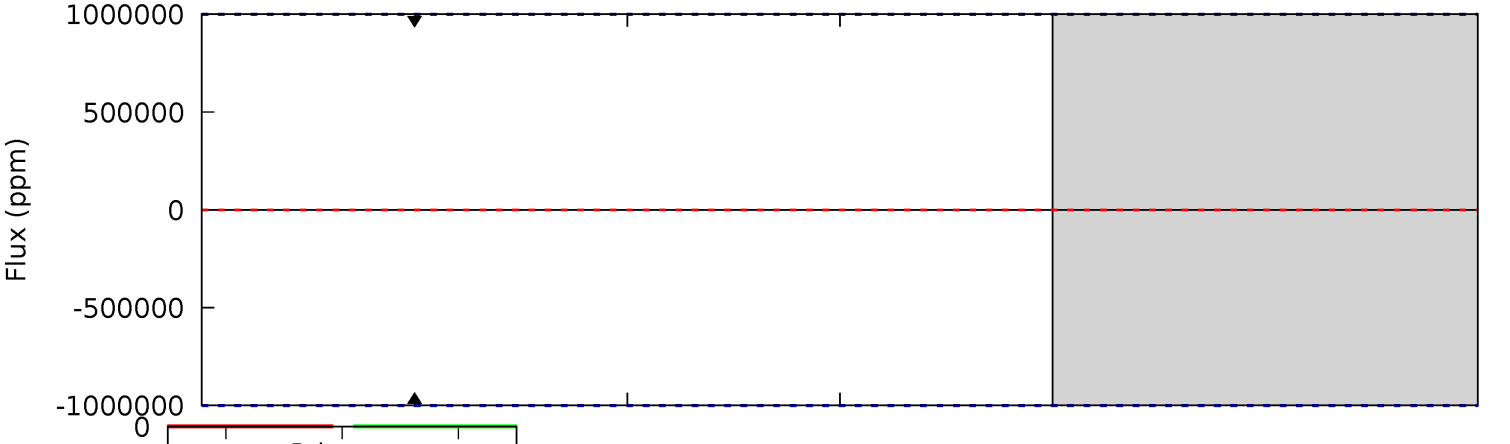
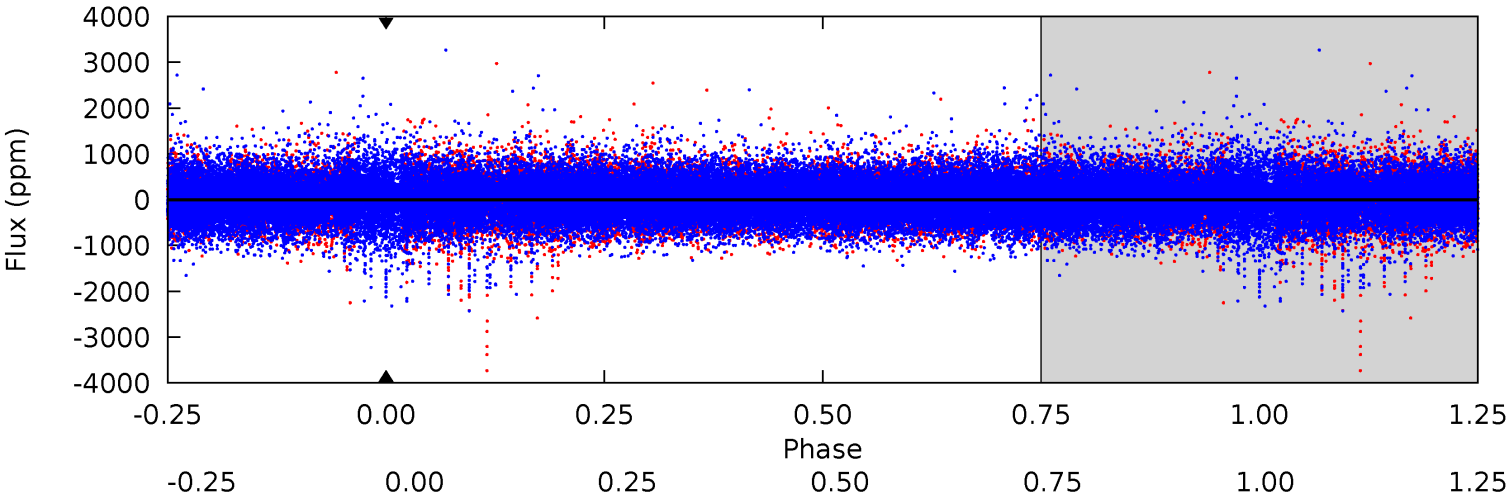
TCE 011661803-08 P=363.418186 Days  $T_0=393.901865$  (BKJD)



# DV Model-Shift Uniqueness Test

011661803-08, P = 363.418186 Days, E = 30.482654 Days

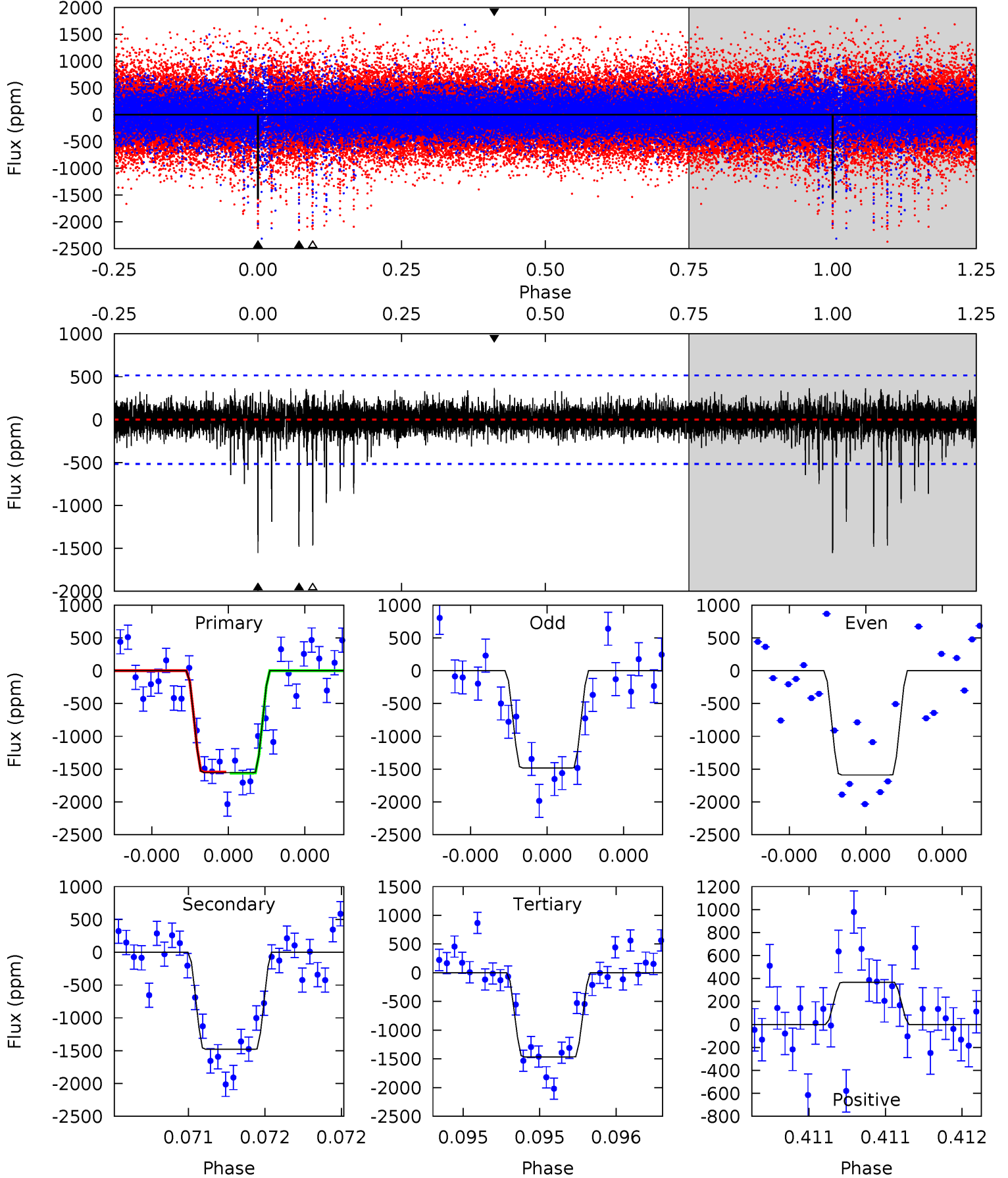
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

011661803-08, P = 363.418186 Days, E = 30.483679 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
16.9	16.1	15.9	3.99	5.61	3.54	1.15	0.95	12.9	0.14	12.1	0.54	1.01	0.19	0.10



### Stellar Parameters For KIC 011661803

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6289^{+174}_{-240}$	$4.411^{+0.072}_{-0.217}$	$-0.080^{+0.250}_{-0.300}$	$1.093^{+0.379}_{-0.126}$	$1.121^{+0.171}_{-0.140}$	$1.210^{+0.364}_{-0.658}$
	+3%/-4%	+2%/-5%	+312%/-375%	+35%/-12%	+15%/-12%	+30%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011661803-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$10.40^{+9.53}_{-6.76}$	$405^{+34}_{-23}$	$-4173^{+27805}_{-17709}$	$-4781.589^{+1144115.098}_{-944884.805}$
Alt.	$-1479 \pm 92$	$10.03^{+10.34}_{-6.89}$	$404^{+32}_{-21}$	$4550^{+3258}_{-1013}$	$8610^{+74341}_{-6511}$

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

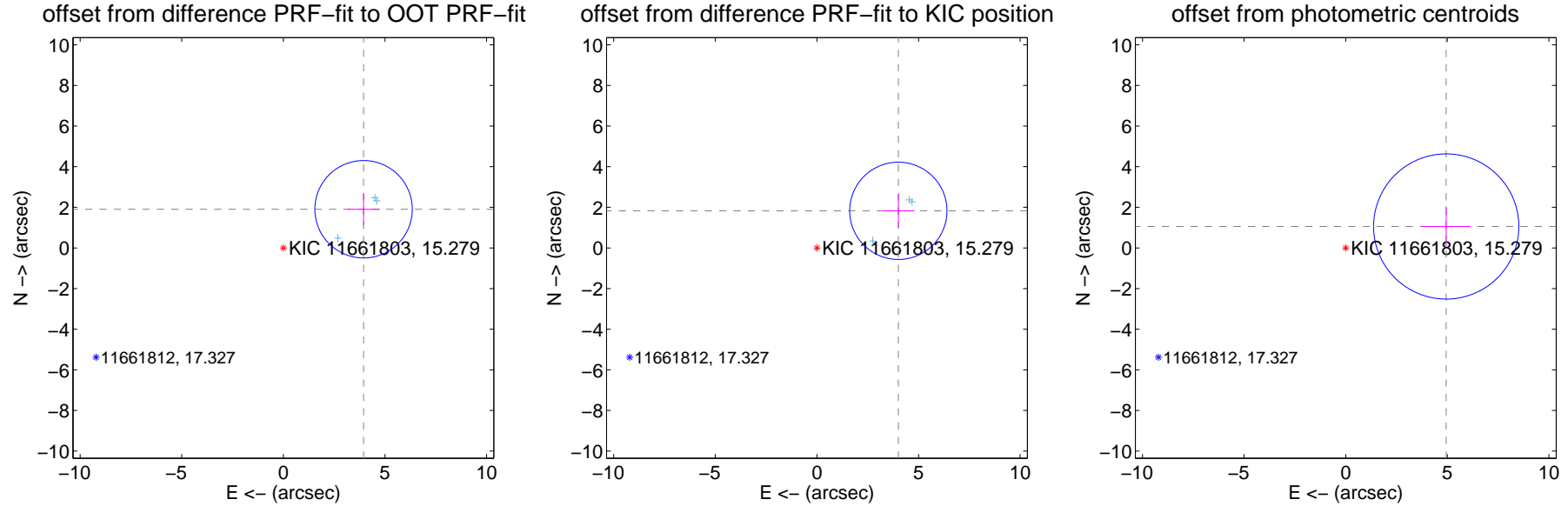
## DV Centroid Data

Supplemental centroid analysis for 011661803-08. Kepler magnitude: 15.28. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

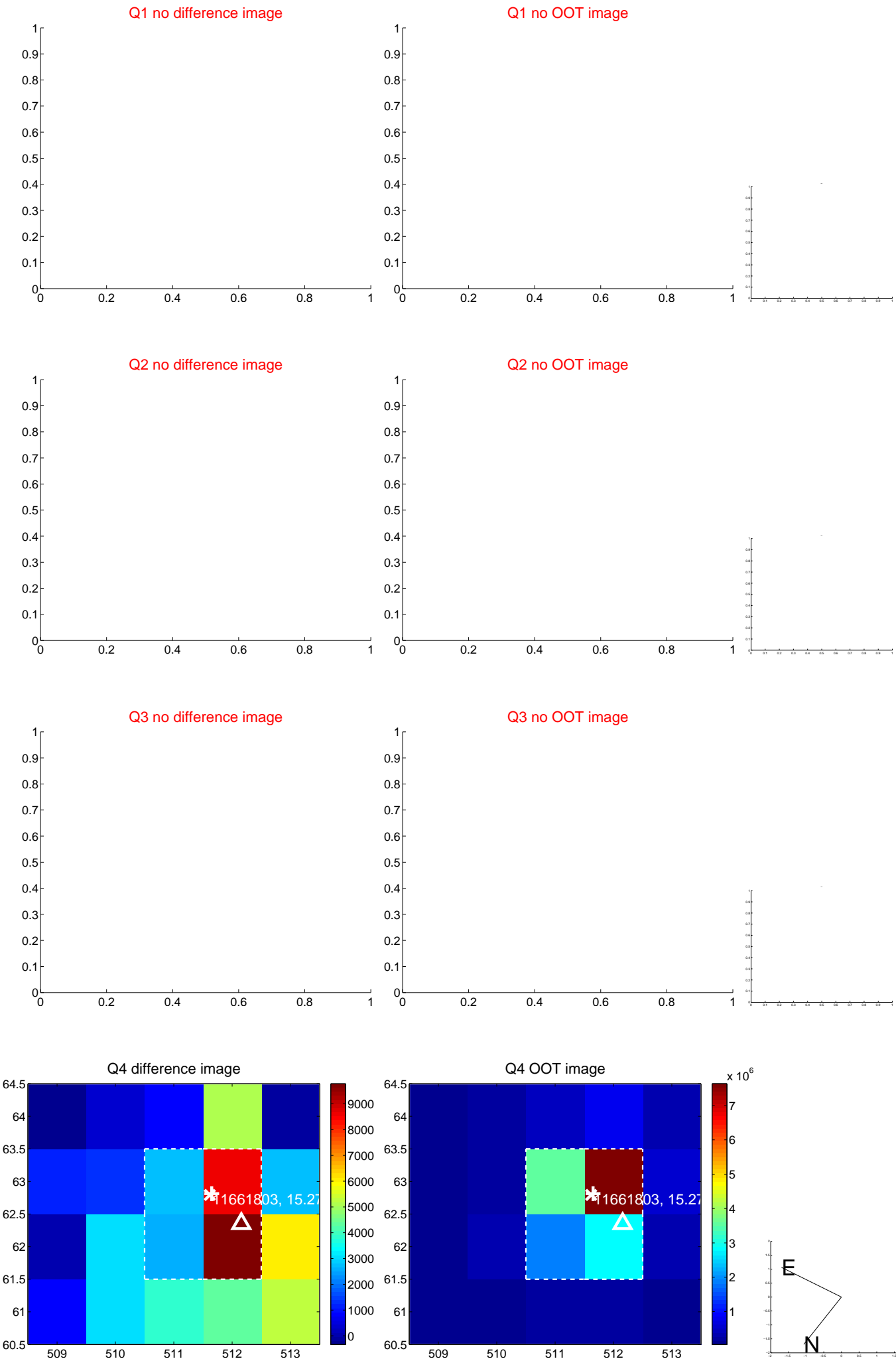
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.384 \pm 0.799$	5.48	$-3.948 \pm 0.806$	$1.905 \pm 0.770$
PRF-fit source offset from KIC position	$4.404 \pm 0.798$	5.52	$-4.007 \pm 0.793$	$1.827 \pm 0.823$
photometric centroid source offset	$5.06 \pm 1.19$	4.24	$-4.95 \pm 1.20$	$1.06 \pm 0.99$



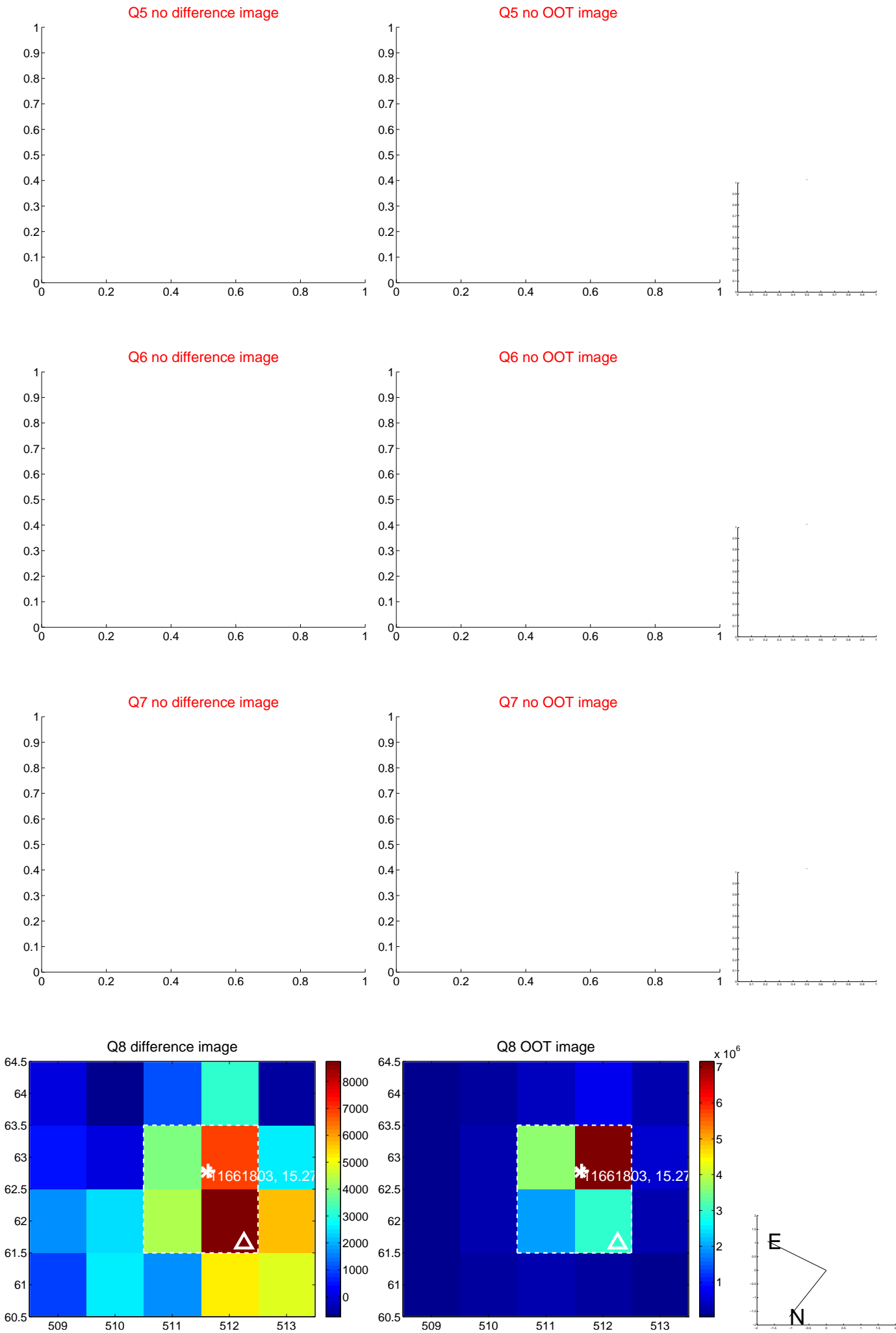
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

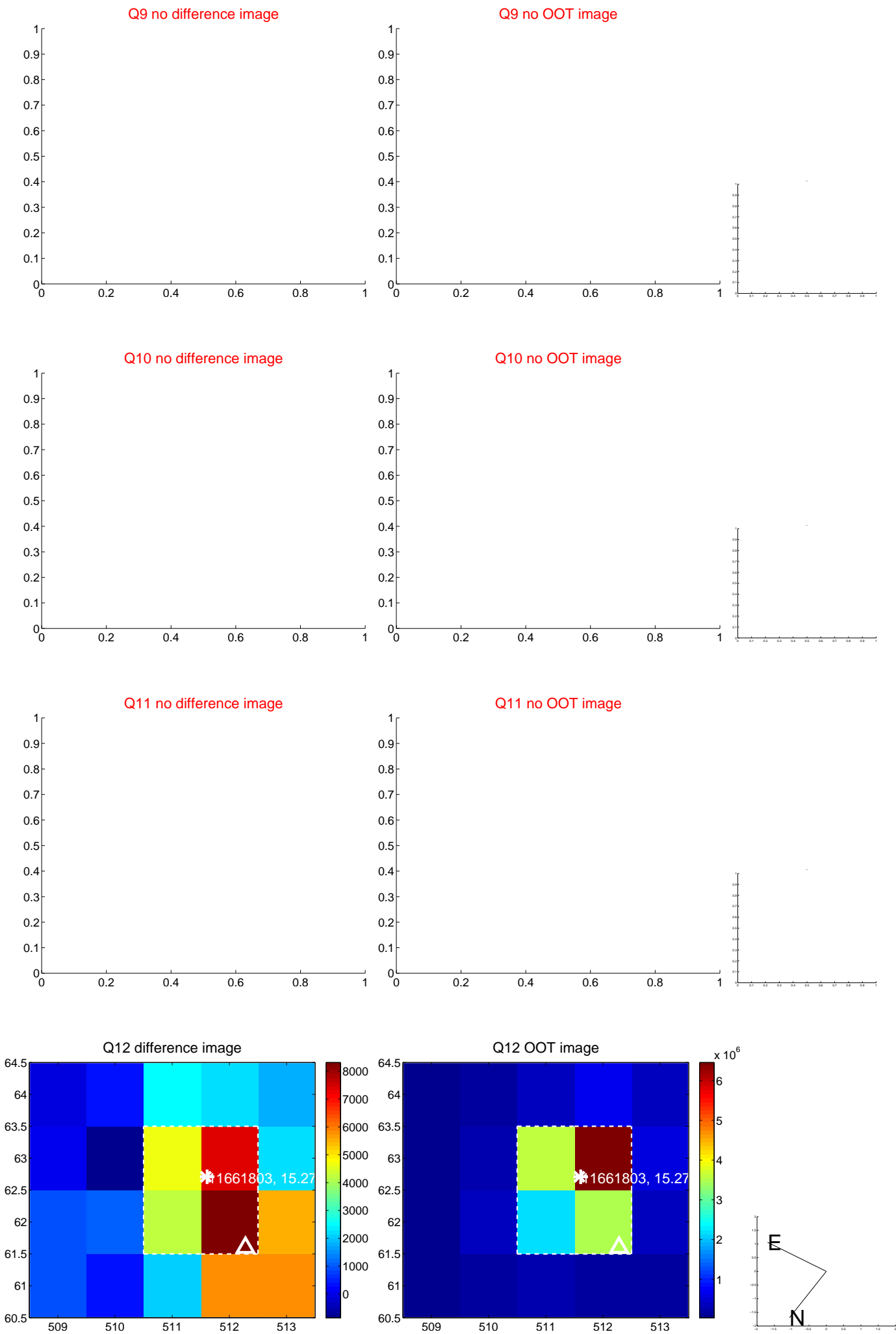




white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



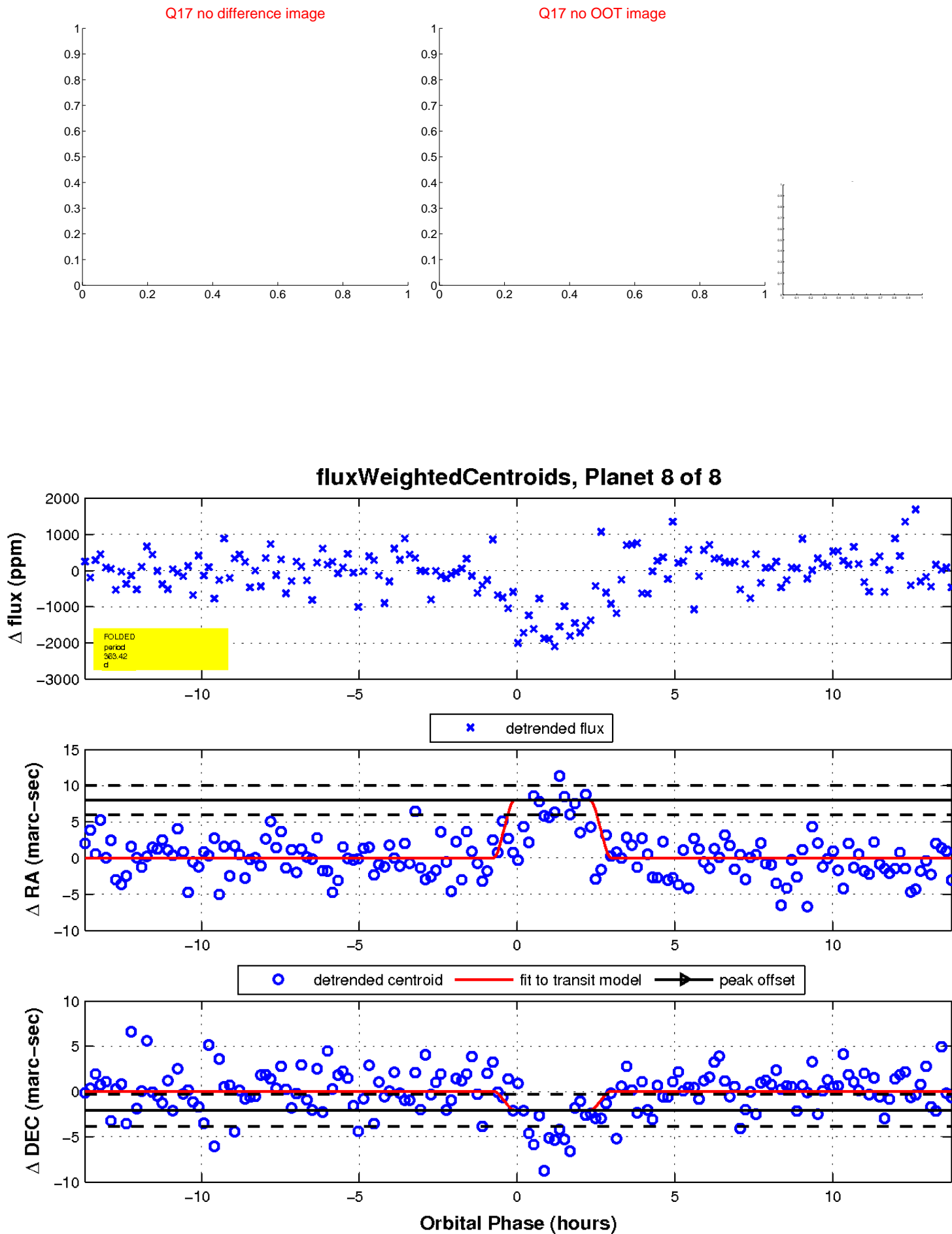
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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.



UKIRT Image

Declination

