

# KIC 007676676

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007676676-01	OBS	No	373.410857	330.099023	1817.1	16.864	21.8	7.1	4.20	4905	23.89	9.59
007676676-03	OBS	No	294.185642	373.781142	1221.4	6.935	22.0	6.9	4.20	4905	14.24	13.18
007676676-04	OBS	No	408.338746	165.463256	1179.2	4.175	16.5	7.3	4.20	4905	15.81	8.51
007676676-07	OBS	No	242.336798	343.901912	840.7	4.351	17.1	5.9	4.20	4905	11.80	17.07
007676676-08	OBS	No	318.967872	283.134820	1238.2	10.500	24.2	-1.0	4.20	4905	14.33	11.83

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007676676-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
007676676-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007676676-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
007676676-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS— HALO_GHOST
007676676-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

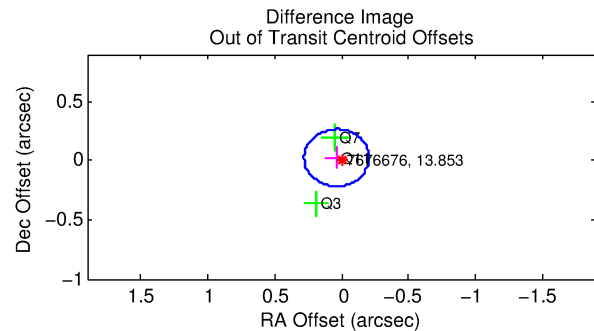
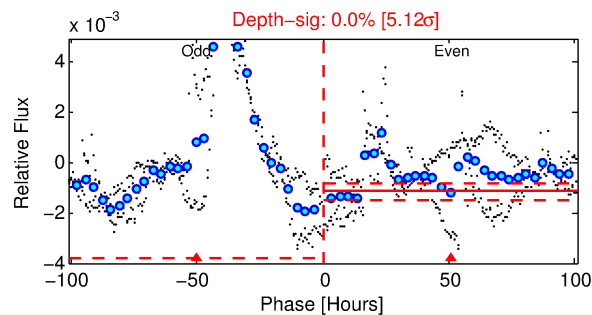
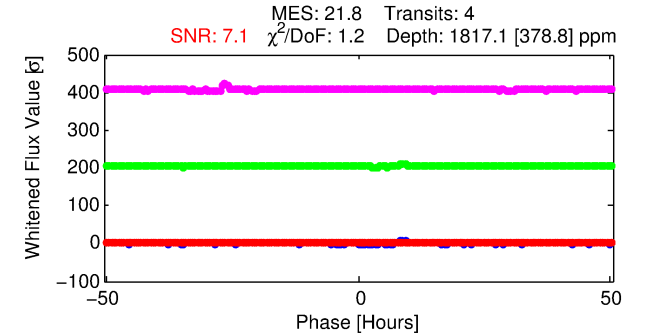
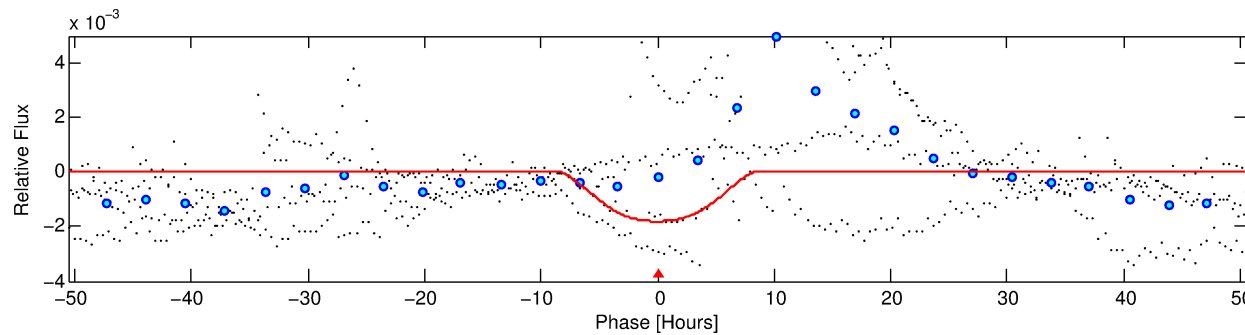
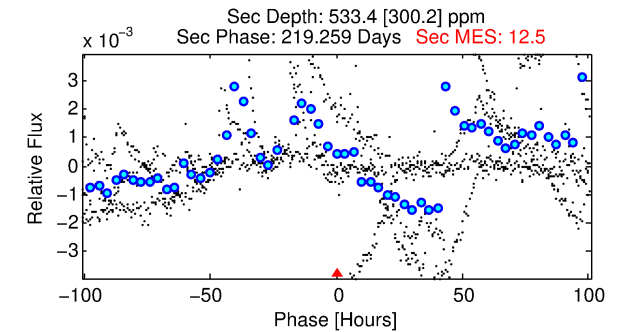
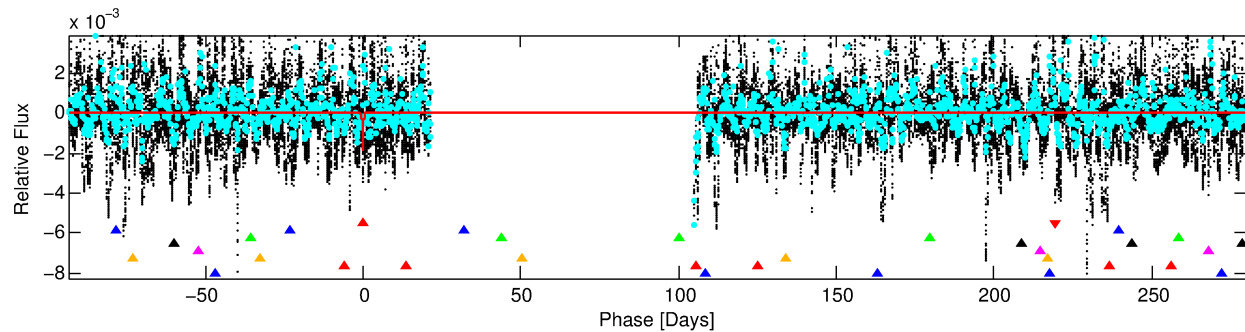
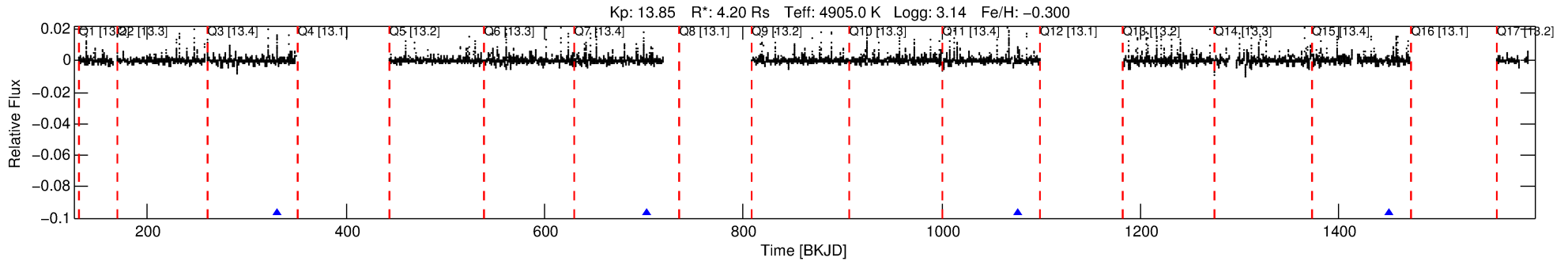
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007676676-01

No Significant Match Found

# DV One-Page Summary

KIC: 7676676 Candidate: 1 of 8 Period: 373.411 d



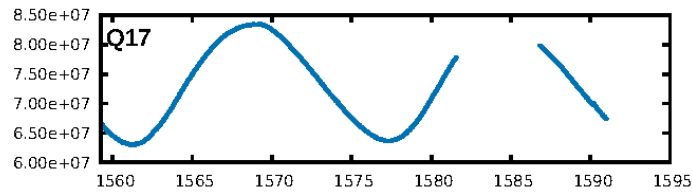
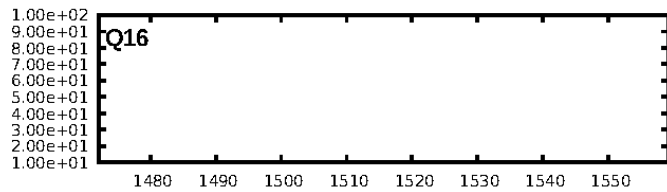
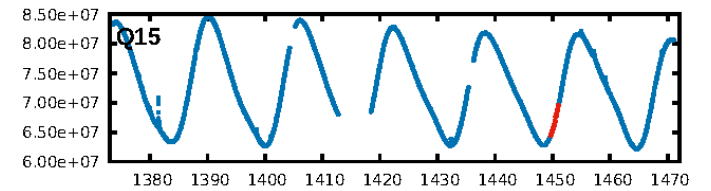
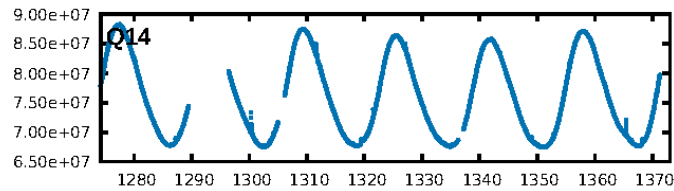
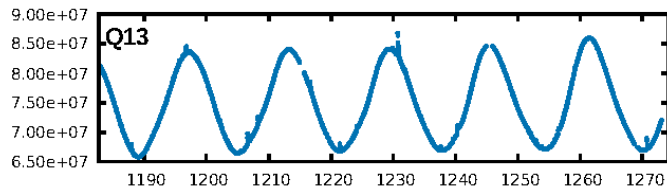
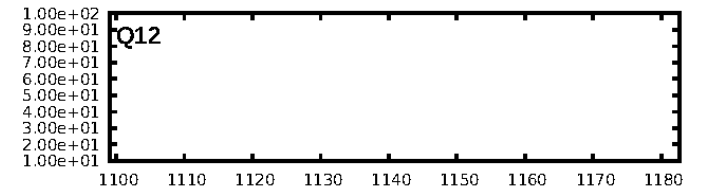
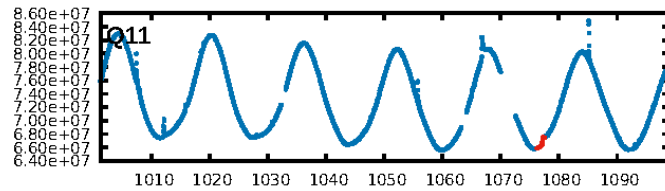
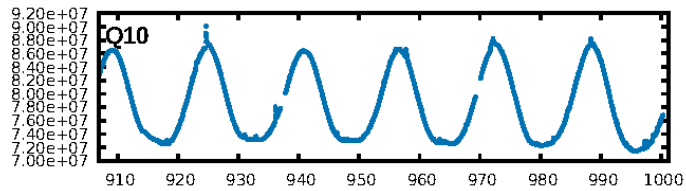
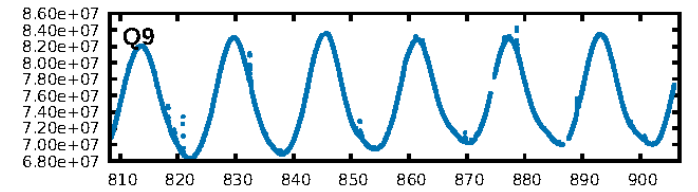
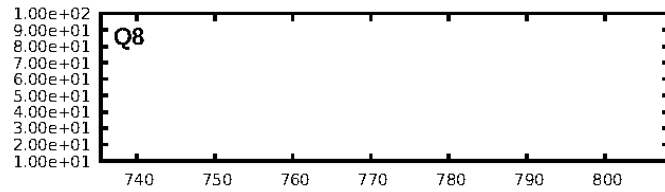
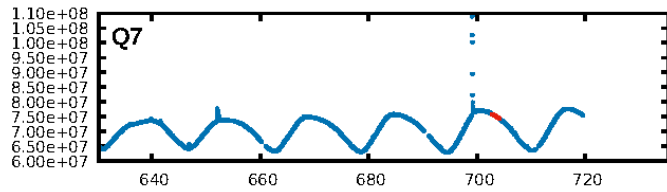
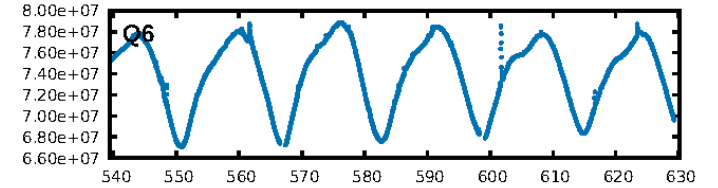
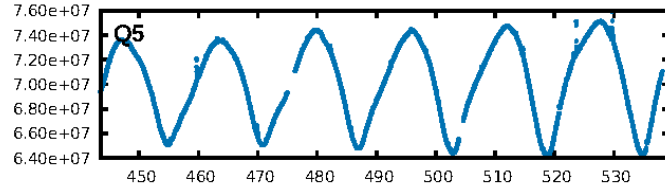
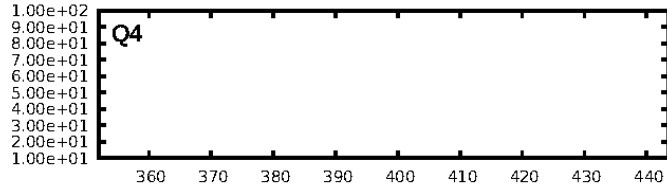
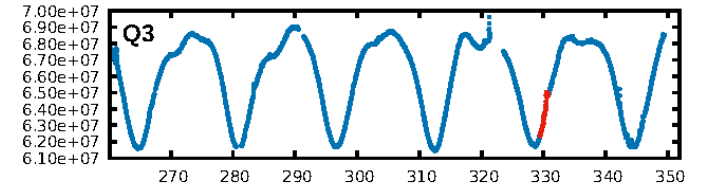
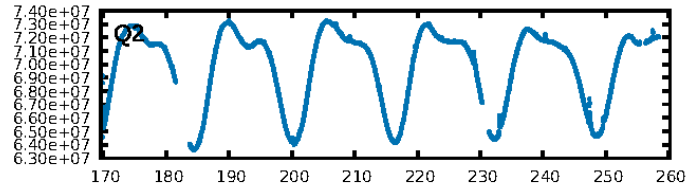
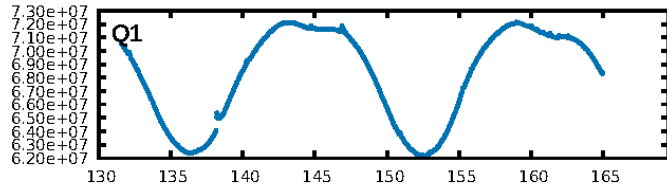
## DV Fit Results:

Period = 373.41086 [0.01532] d  
Epoch = 330.0990 [0.0297] BKJD  
Rp/R\* = 0.0522 [0.0088]  
a/R\* = 76.17 [8.77]  
b = 0.95 [0.02]  
Seff = 9.59 [6.62]  
Teq = 449 [77] K  
Rp = 23.89 [14.12] Re  
a = 0.9762 [0.4603] AU  
Ag = 489.81 [462.43] [1.06 $\sigma$ ]  
Teffp = 3264 [544] K [5.12 $\sigma$ ]

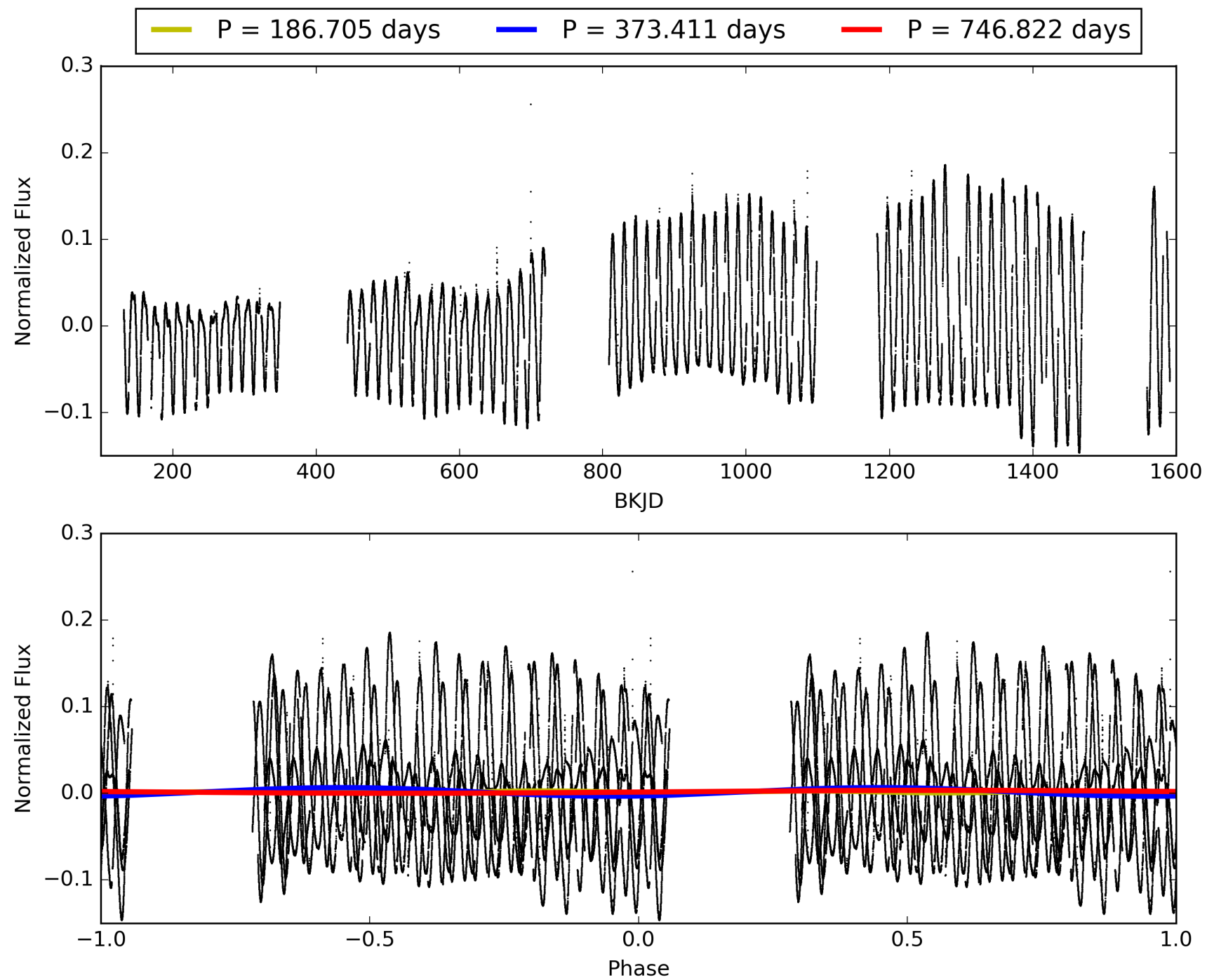
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [65.77 $\sigma$ ]  
LongPeriod-sig: 100.0% [48.25 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 98.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.3367  
Centroid-sig: 2.3%  
Centroid-so: 0.331 arcsec [1.17 $\sigma$ ]  
OotOffset-rm: 0.046 arcsec [0.57 $\sigma$ ]  
OotOffset-st: 0/3/0/0 [3]  
KicOffset-rm: 0.278 arcsec [3.41 $\sigma$ ]  
KicOffset-st: 0/3/0/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 007676676-01, PDC Light Curves

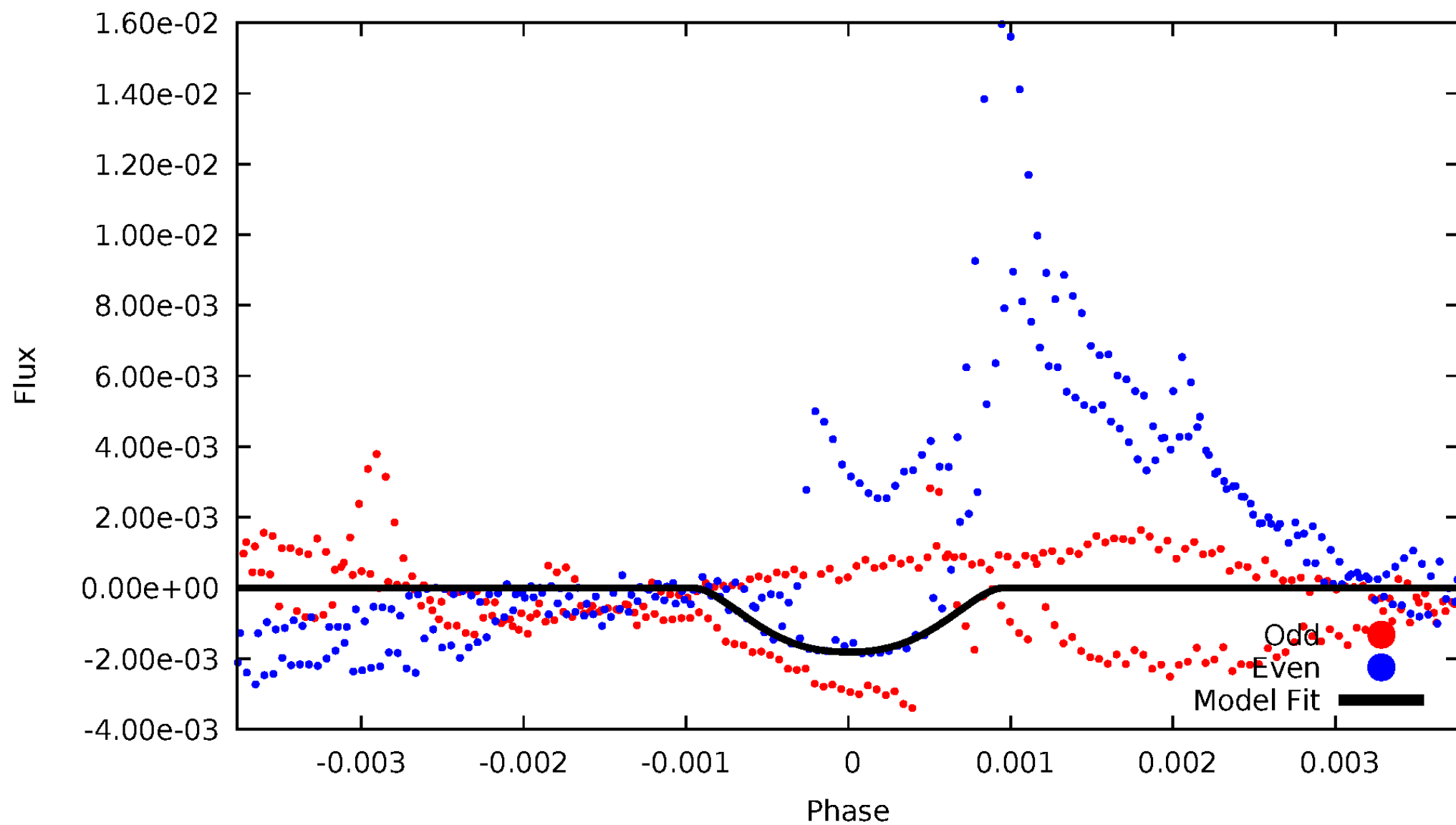


TCE 007676676-01



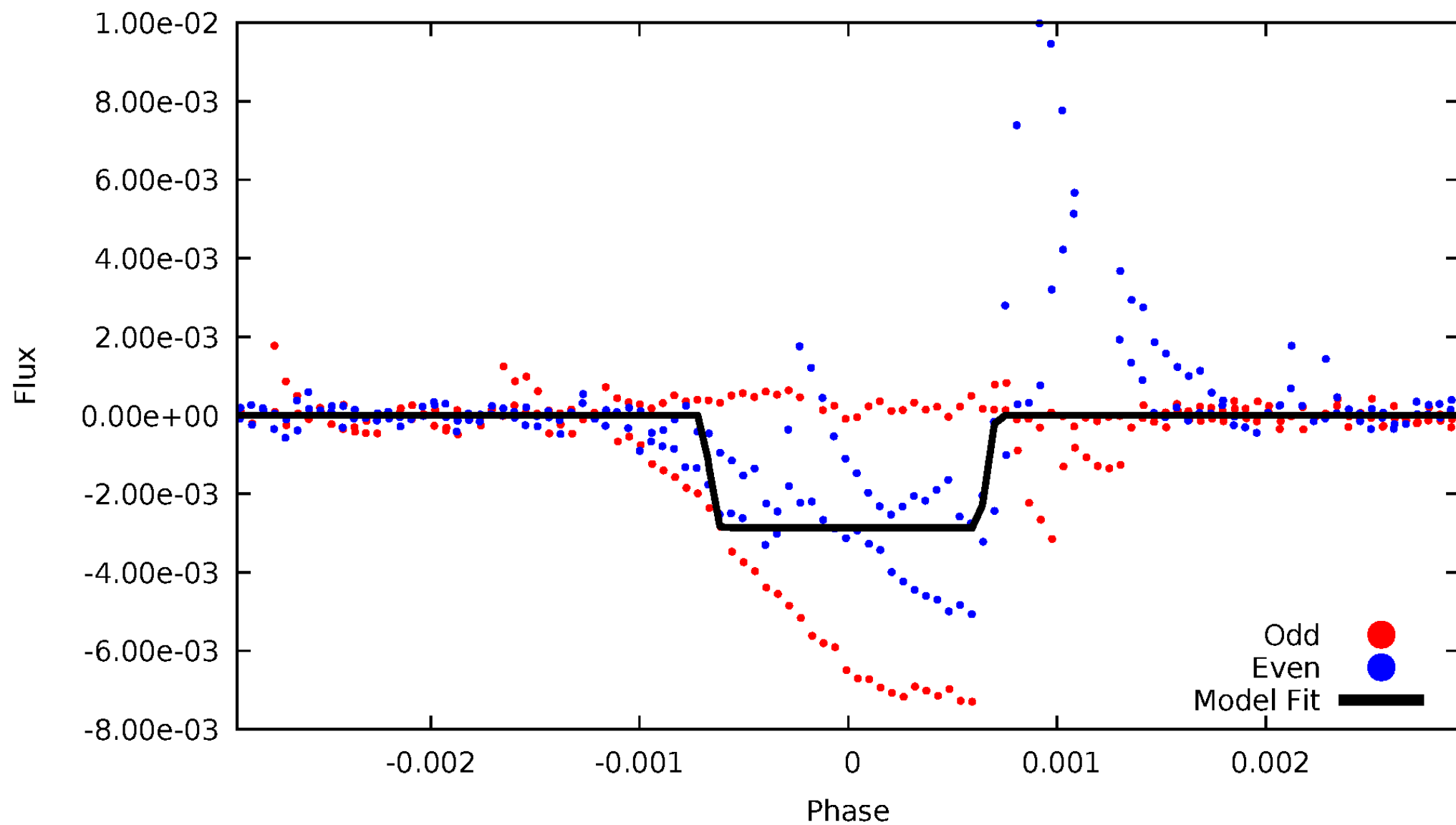
# DV Odd/Even

TCE 007676676-01



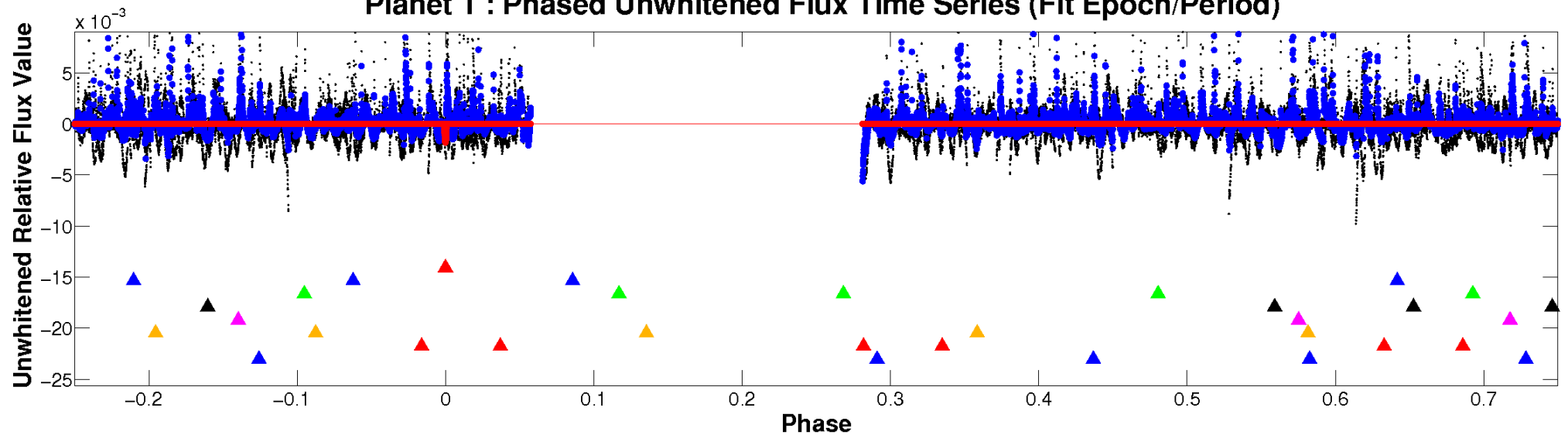
# ALT Odd/Even

TCE 007676676-01

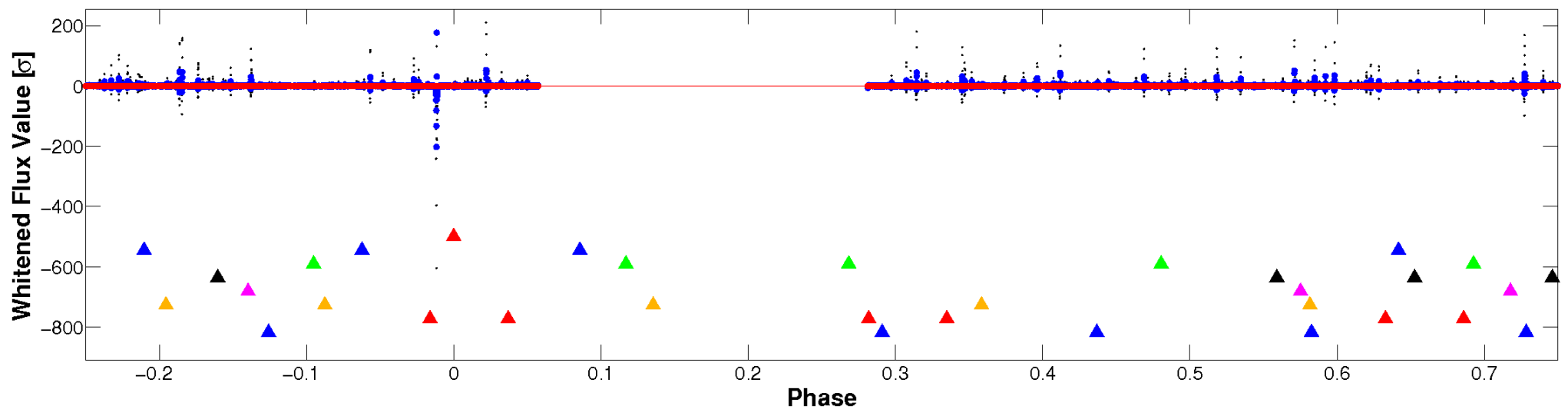


# Non-Whitened Vs. Whitened Light Curve

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

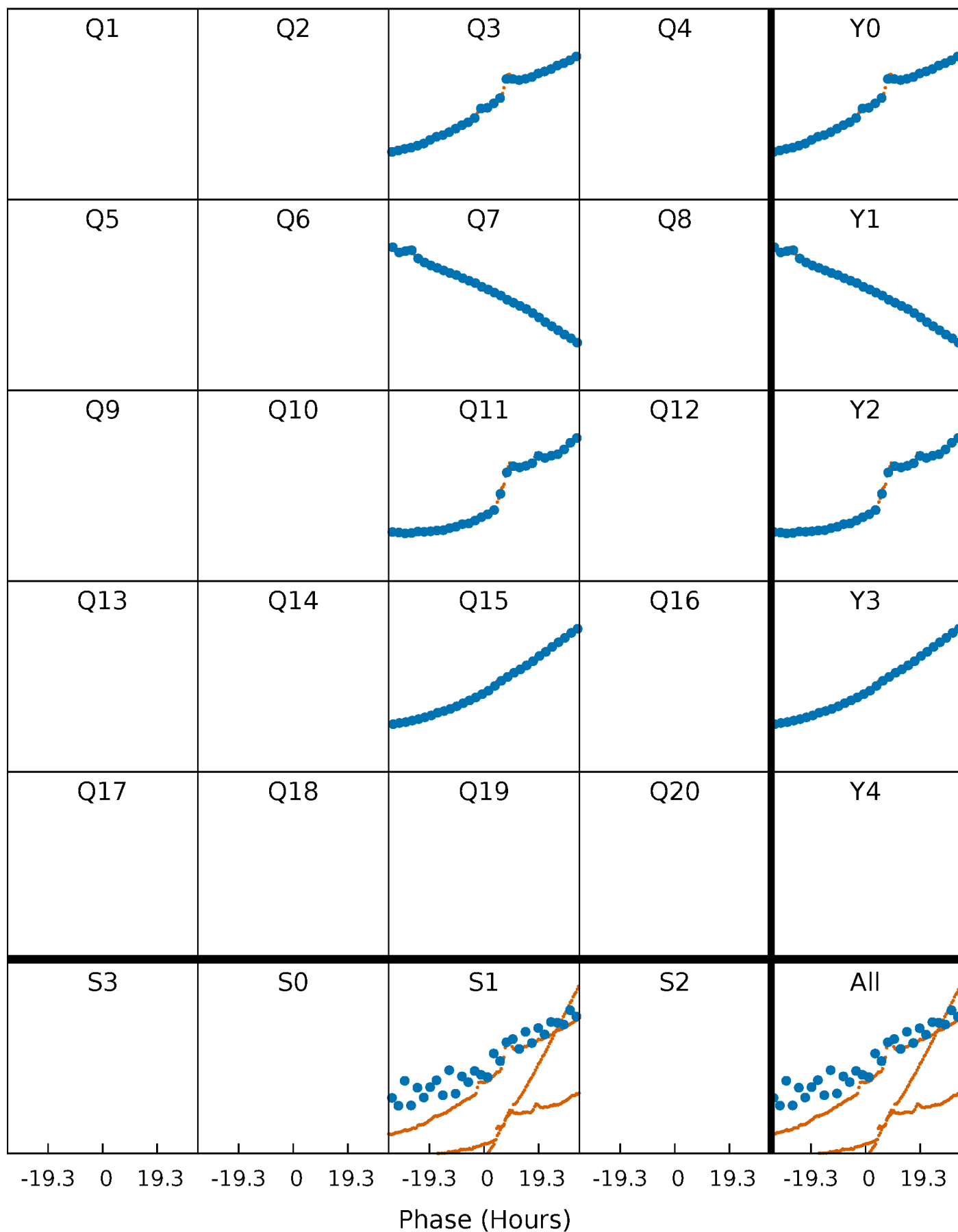


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



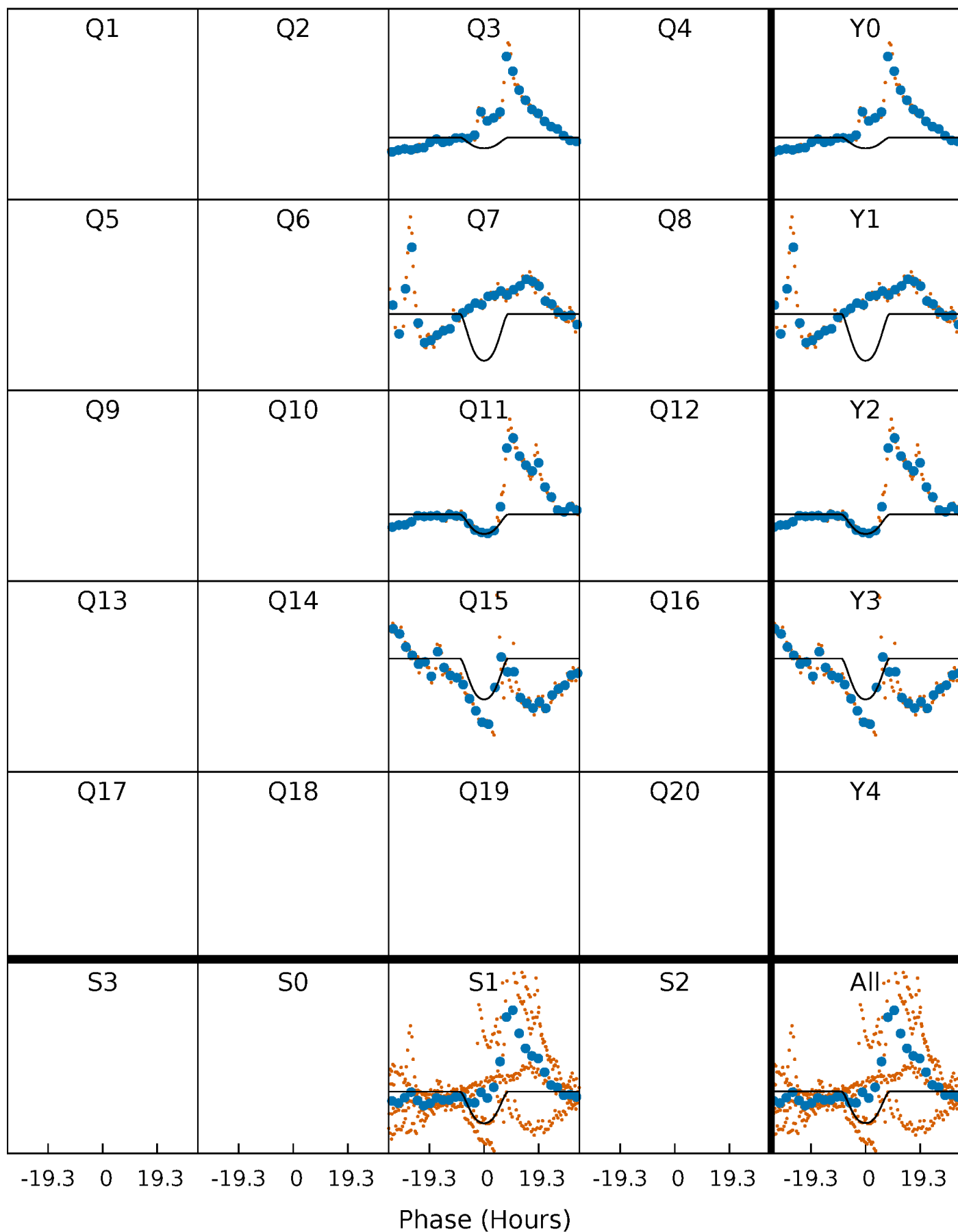
# PDC Quarter-Phased Transit Curves

TCE 007676676-01 P=373.410857 Days  $T_0=330.099023$  (BKJD)



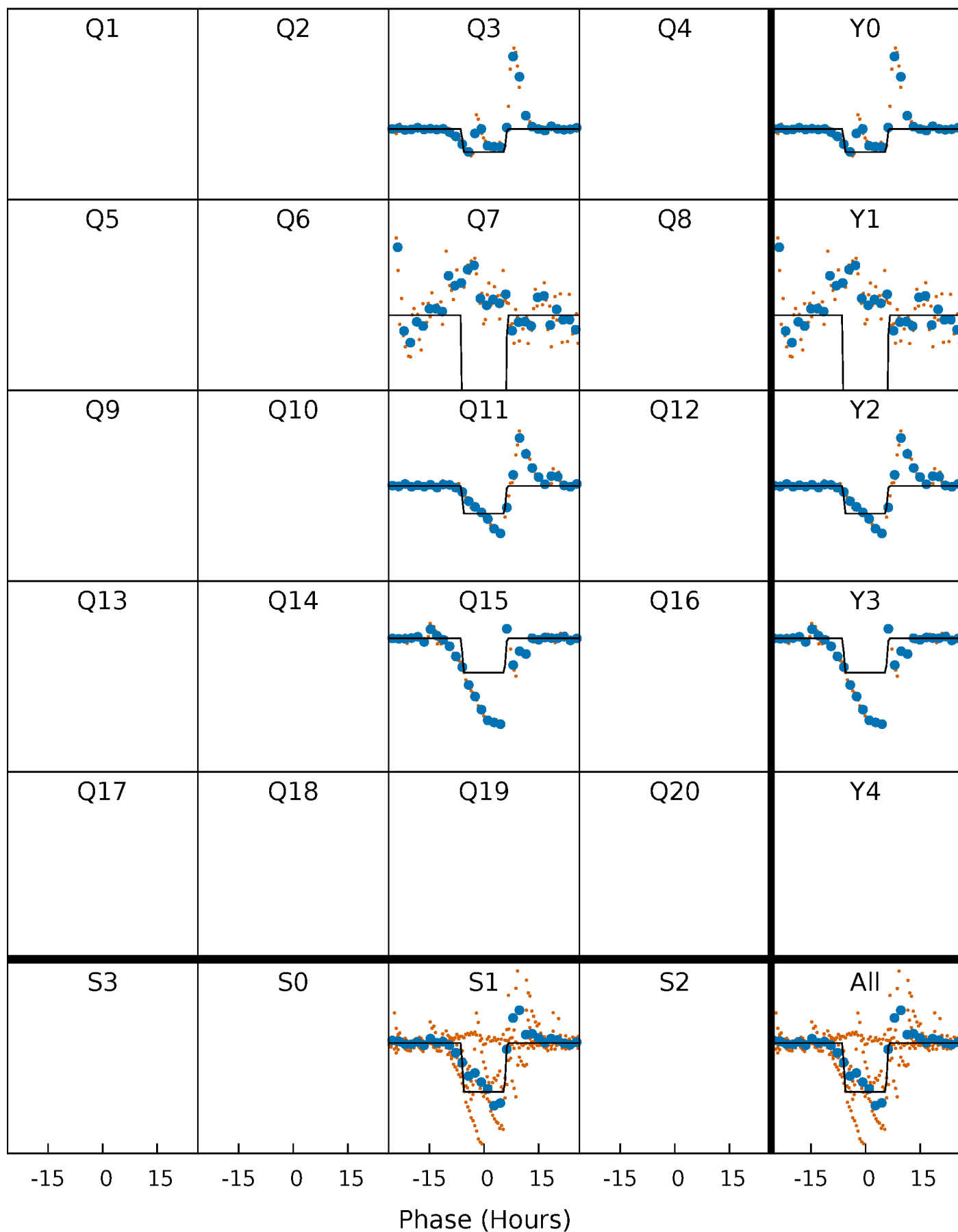
# DV Quarter-Phased Transit Curves

TCE 007676676-01 P=373.410857 Days  $T_0=330.099023$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

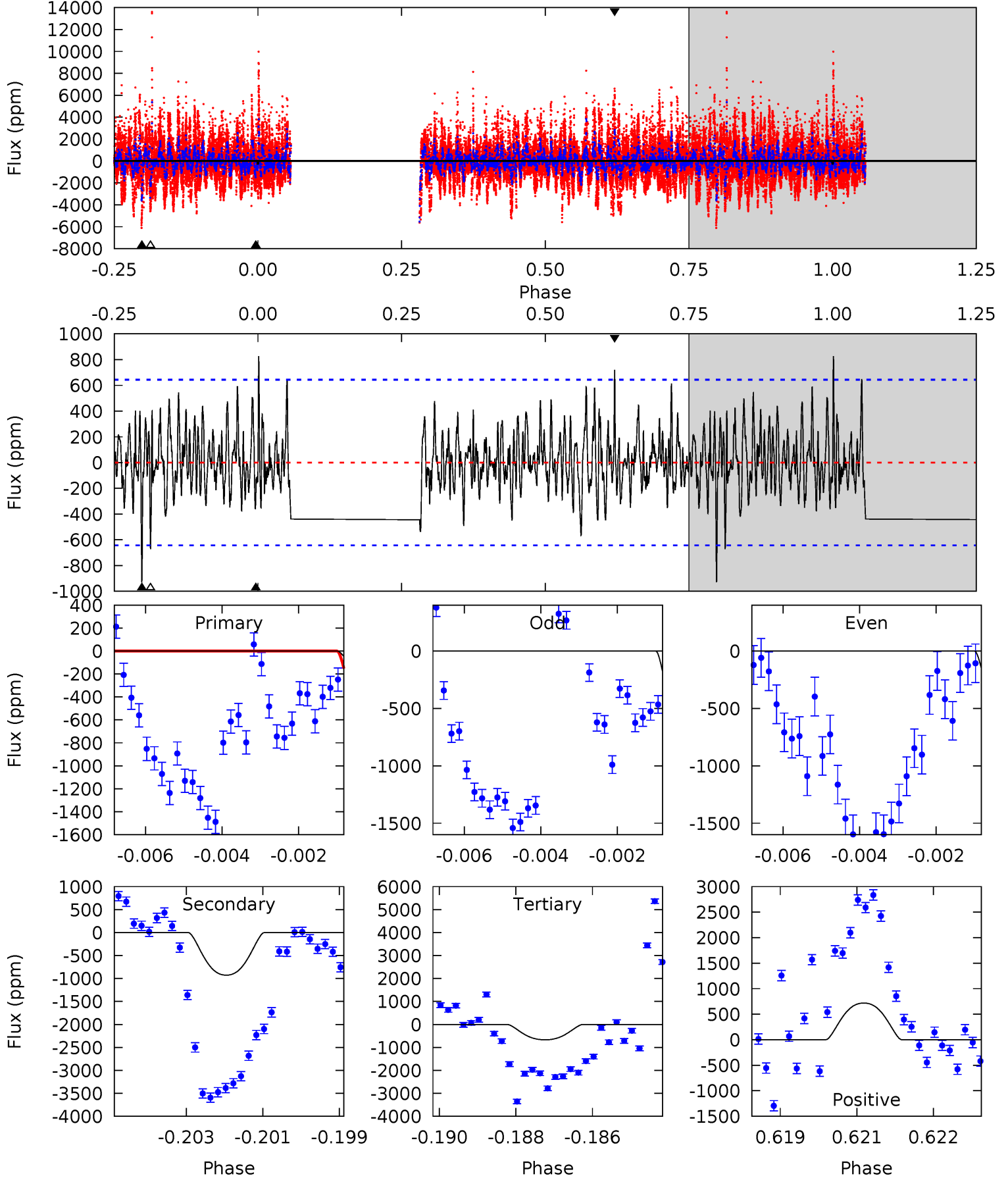
TCE 007676676-01 P=373.382442 Days  $T_0=330.110197$  (BKJD)



# DV Model-Shift Uniqueness Test

007676676-01,  $P = 373.410857$  Days,  $E = 330.099023$  Days

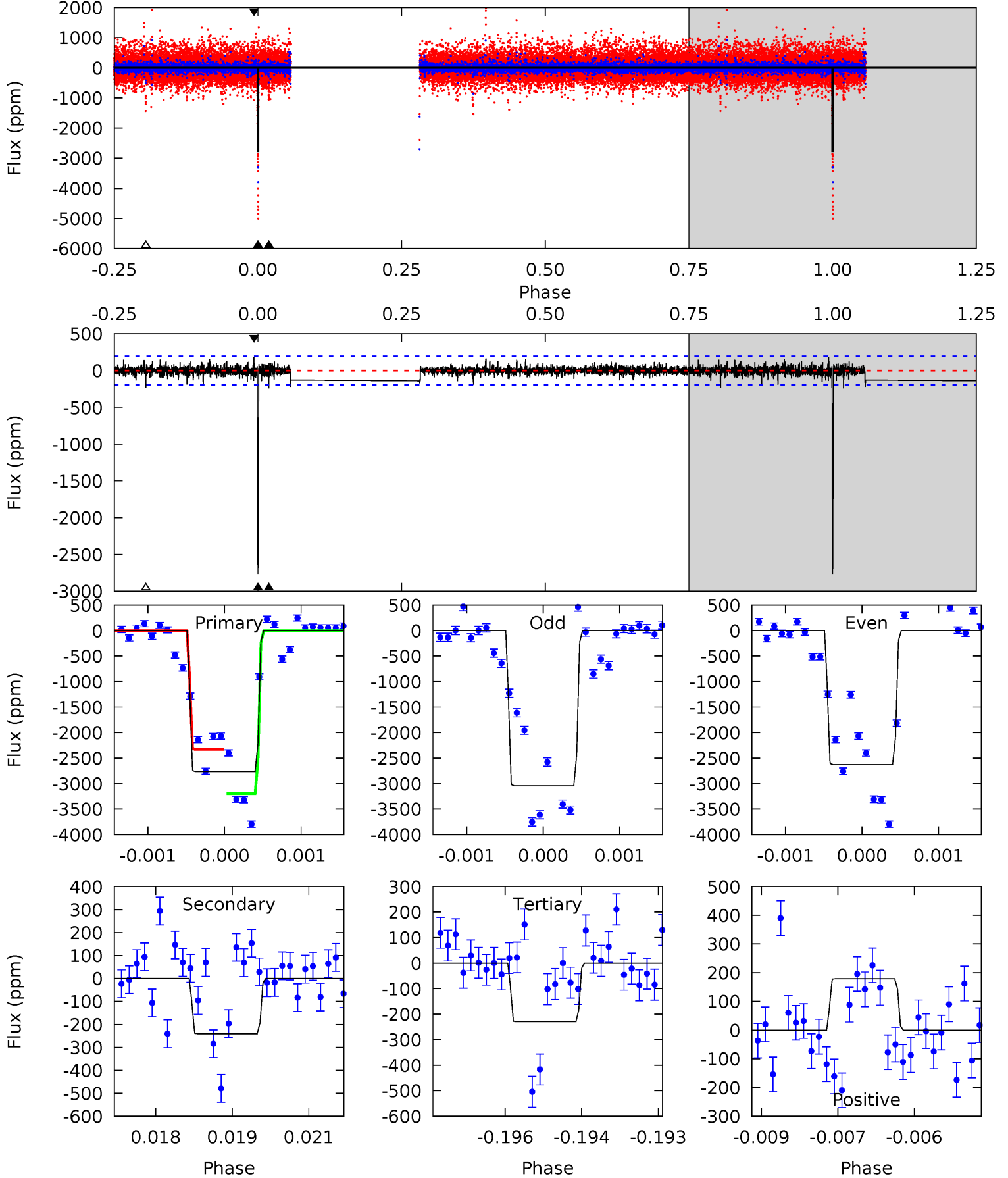
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.15	7.69	5.55	5.96	5.33	3.10	1.64	-3.40	-3.81	2.15	1.74	0.54	0.11	0.47	2.41



# Alt Model-Shift Uniqueness Test

007676676-01, P = 373.382442 Days, E = 330.110197 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
76.5	6.65	6.34	4.95	5.38	3.18	1.01	70.1	71.5	0.31	1.71	6.82	1.07	0.06	0



### Stellar Parameters For KIC 007676676

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4905^{+148}_{-111}$	$3.141^{+0.368}_{-0.301}$	$-0.300^{+0.300}_{-0.200}$	$4.198^{+2.378}_{-1.280}$	$0.891^{+0.337}_{-0.037}$	$0.017^{+0.037}_{-0.012}$
	+3%/-2%	+12%/-10%	+100%/-67%	+57%/-30%	+38%/-4%	+220%/-69%
Source	KIC0	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 007676676-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-928 \pm 121$	$24.20^{+8.56}_{-5.92}$	$623^{+78}_{-65}$	$3985^{+309}_{-242}$	$862^{+701}_{-381}$
Alt.	$-241 \pm 36$	$24.38^{+8.54}_{-5.68}$	$619^{+87}_{-57}$	$3200^{+199}_{-167}$	$225^{+155}_{-99}$

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

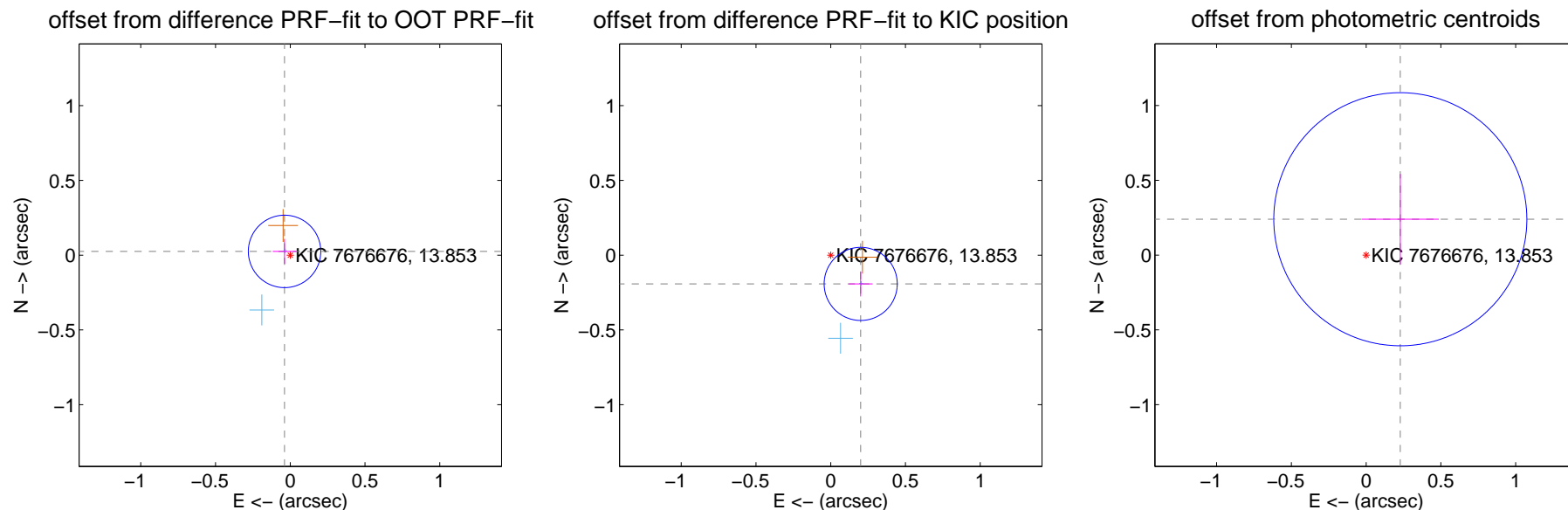
## DV Centroid Data

Supplemental centroid analysis for 007676676-01. Kepler magnitude: 13.85. Transit SNR 7.06

There are 2 quarters with good PRF difference image offsets

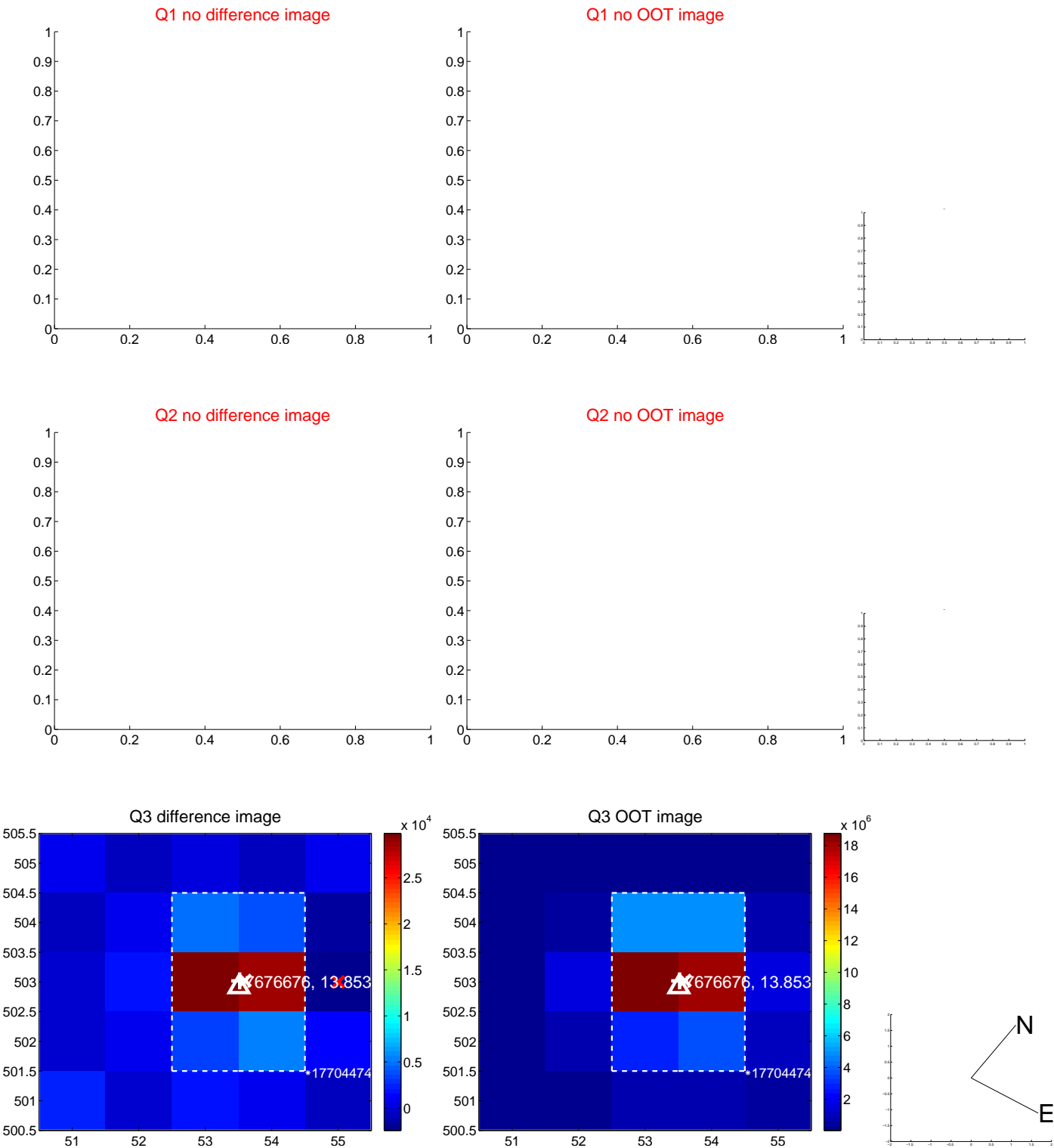
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.046 \pm 0.081$	0.57	$0.038 \pm 0.079$	$0.025 \pm 0.084$
PRF-fit source offset from KIC position	<b><math>0.278 \pm 0.081</math></b>	<b>3.41</b>	$-0.201 \pm 0.079$	$-0.192 \pm 0.084$
photometric centroid source offset	$0.33 \pm 0.28$	1.17	$-0.23 \pm 0.26$	$0.24 \pm 0.30$

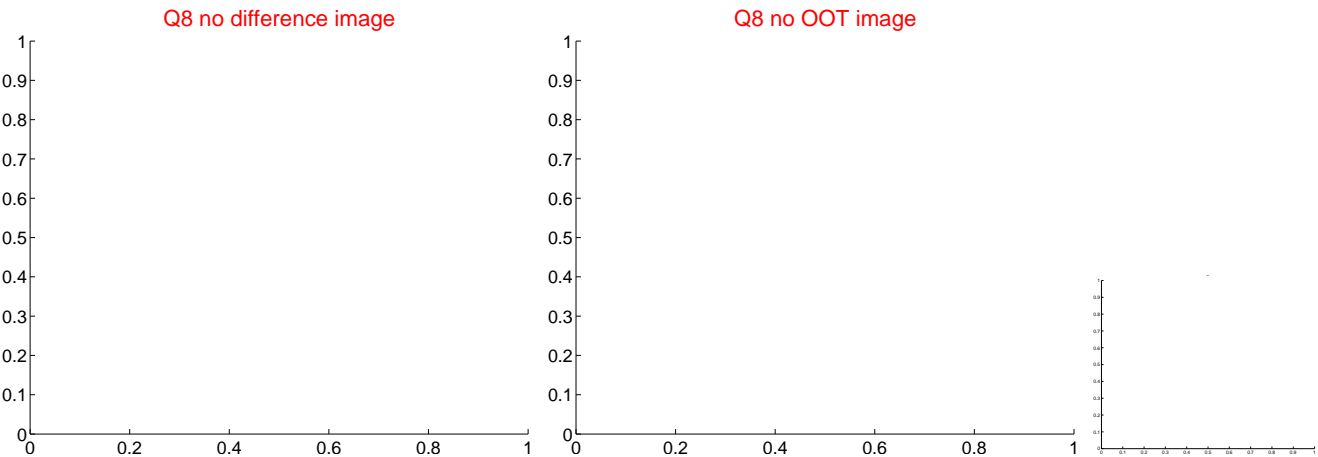
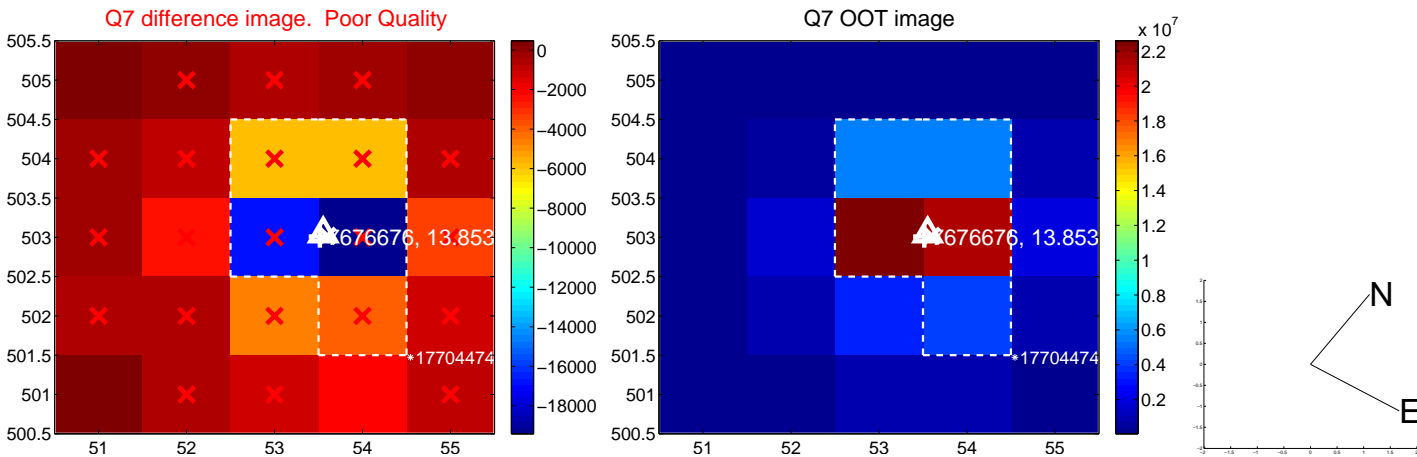
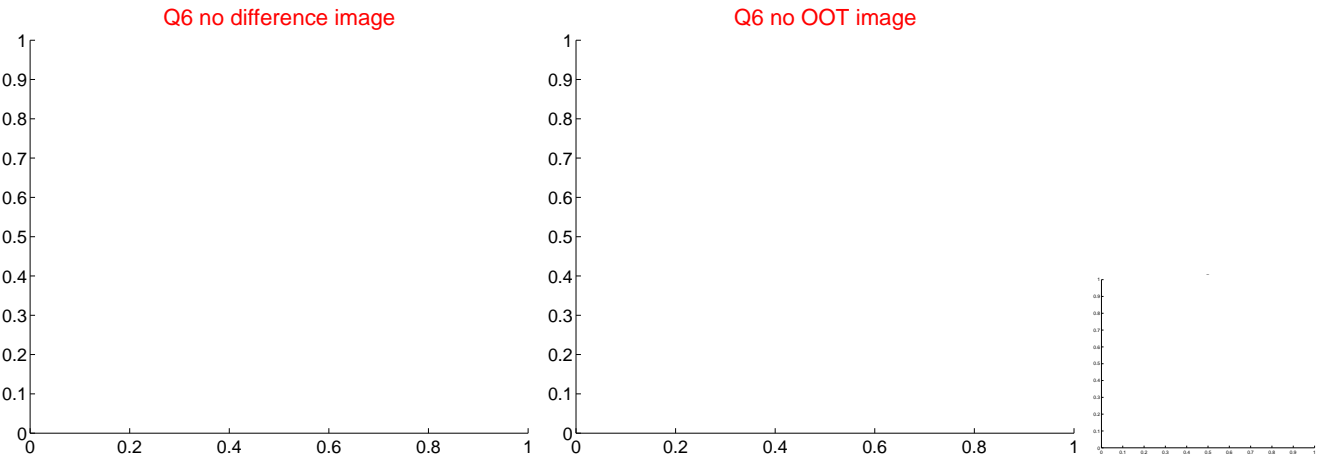
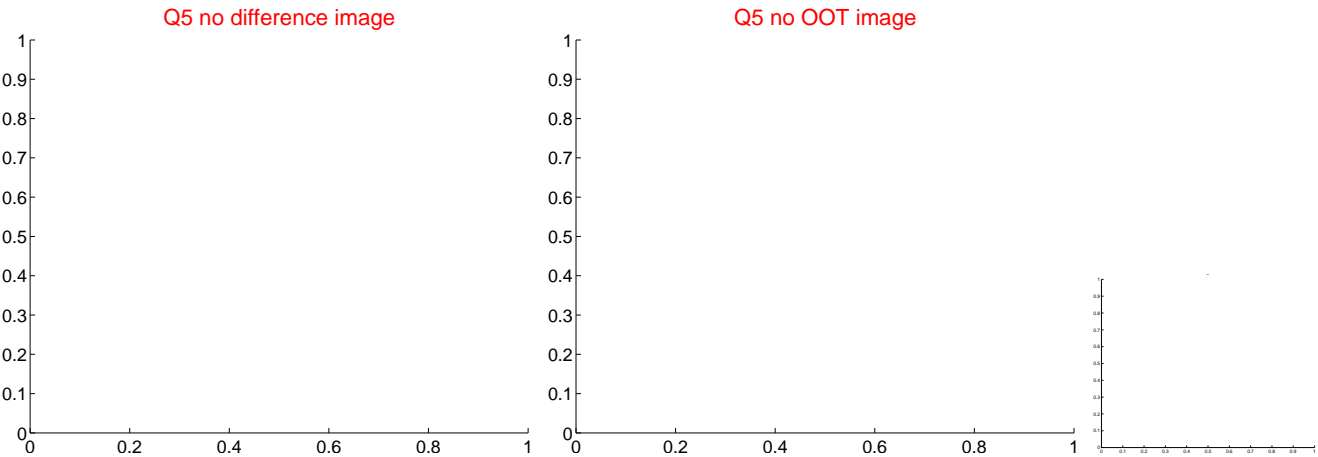


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

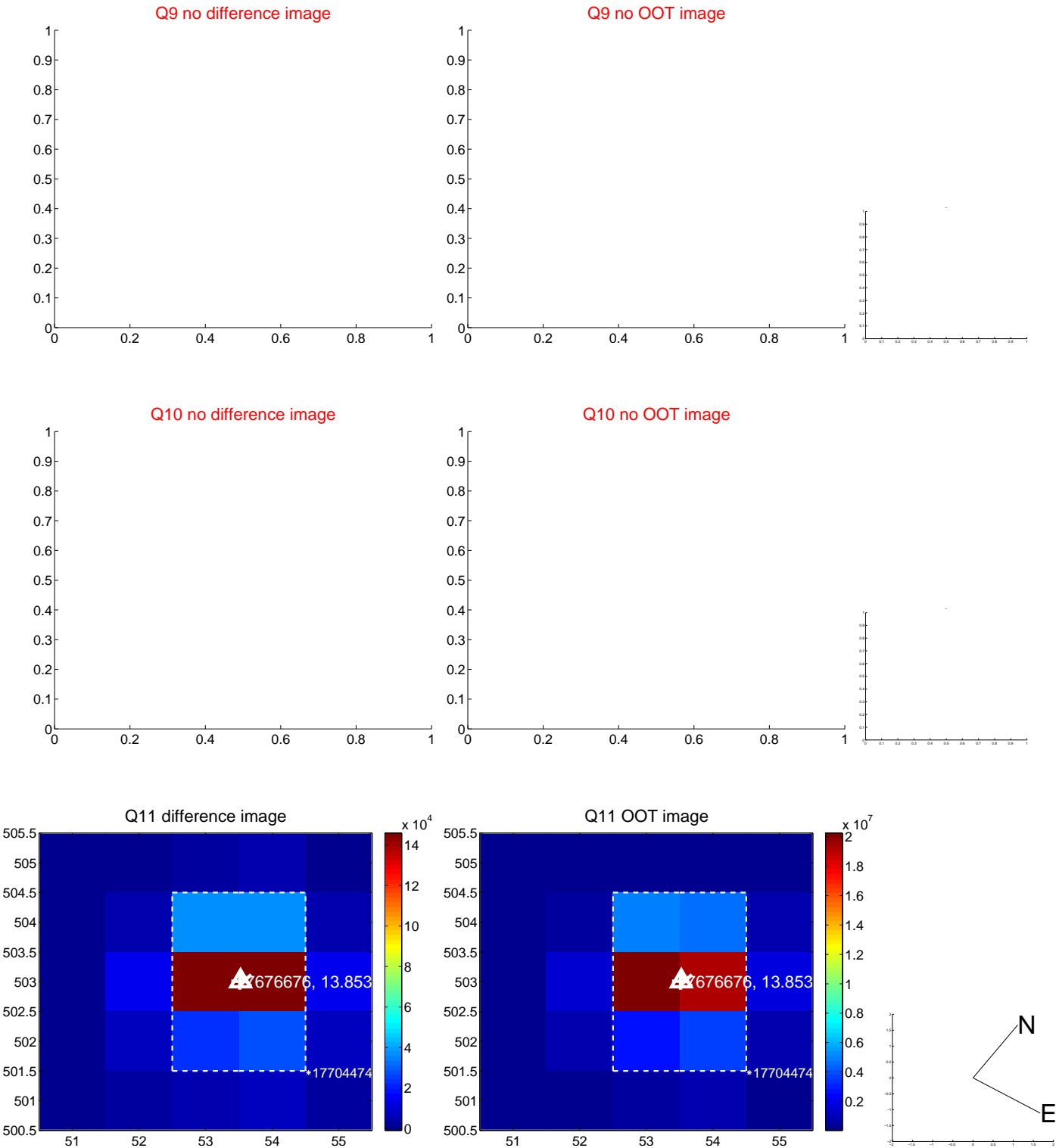
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



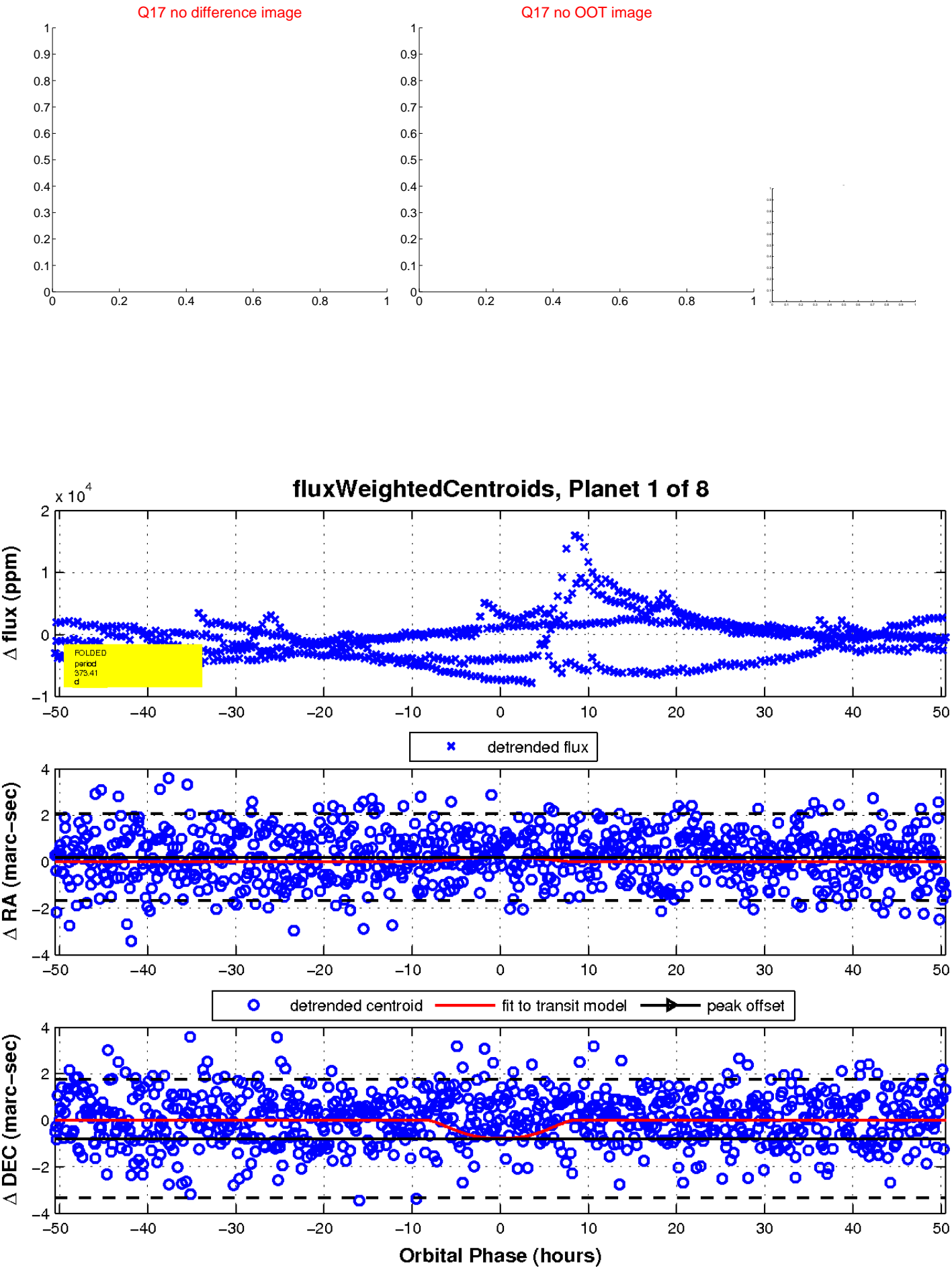
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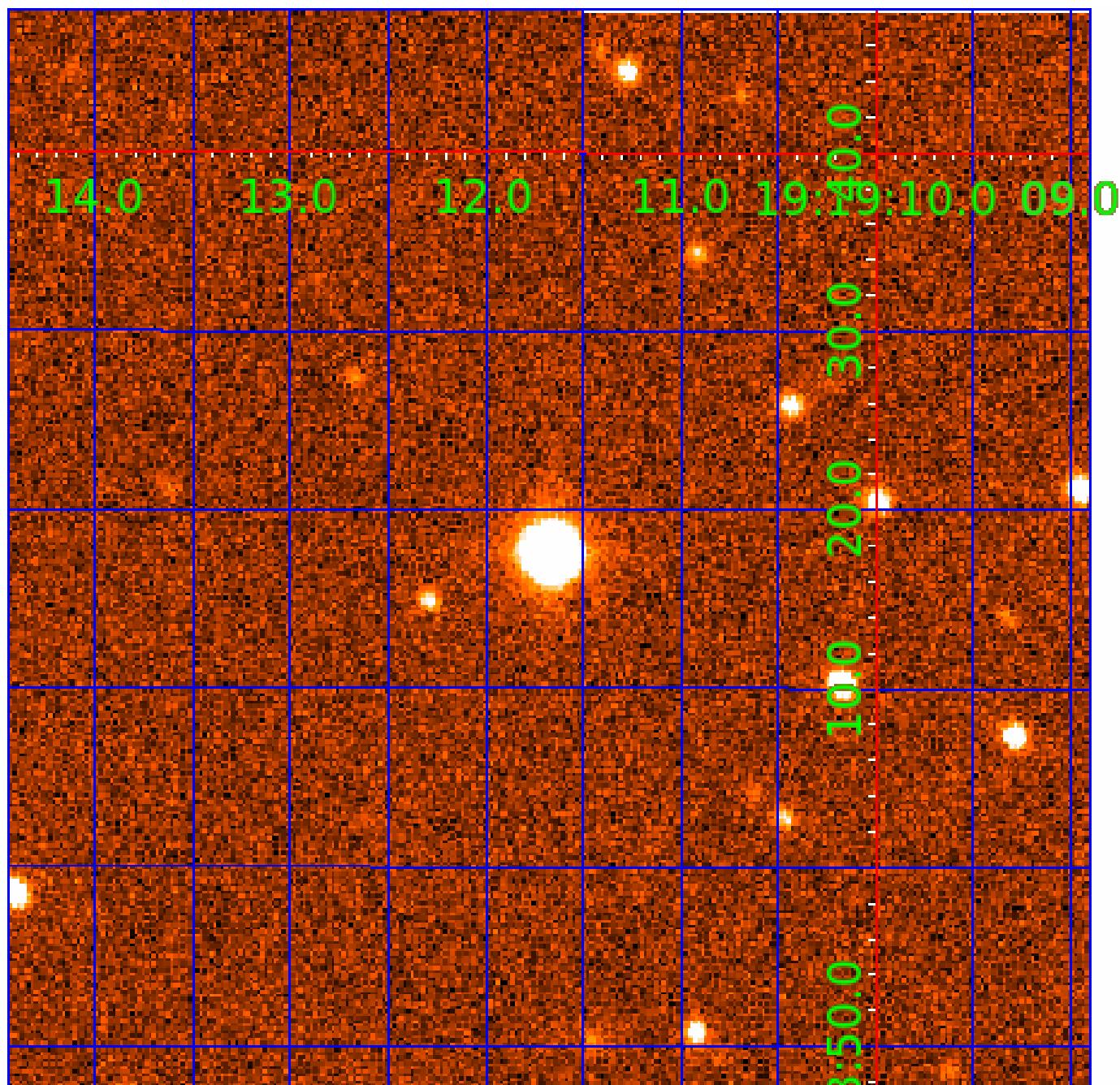


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UKIRT Image

Declination



# KIC 007676676

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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007676676-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
007676676-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS— HALO_GHOST
007676676-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

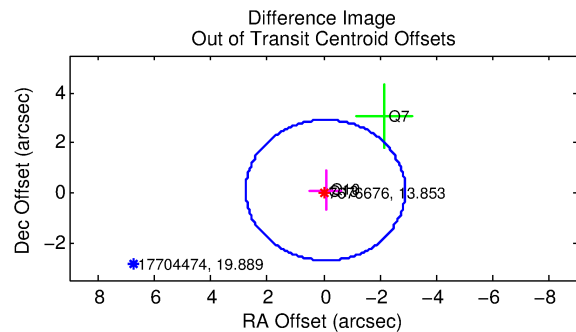
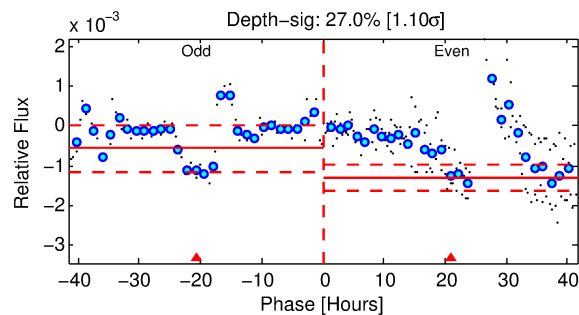
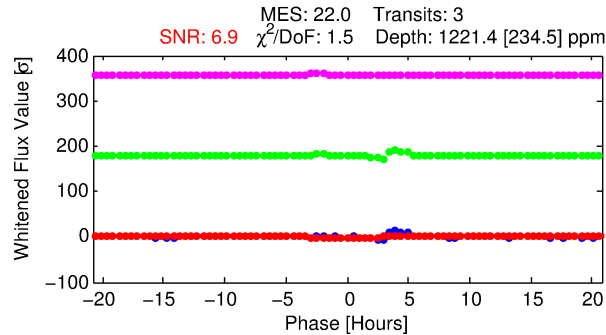
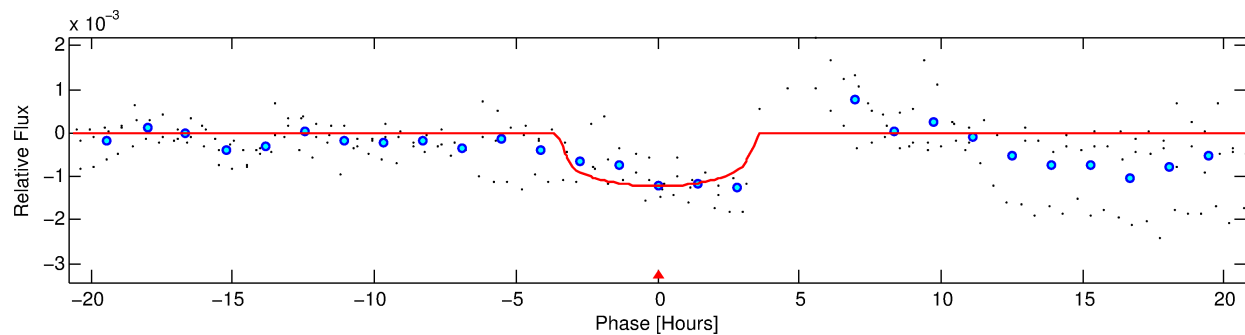
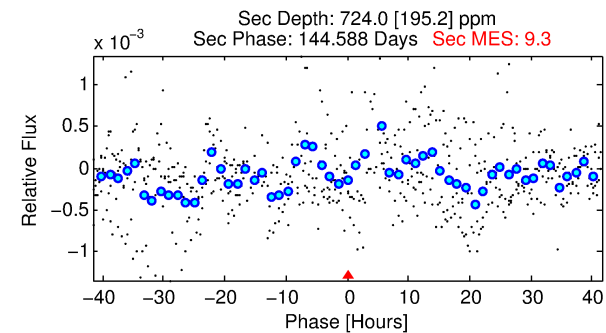
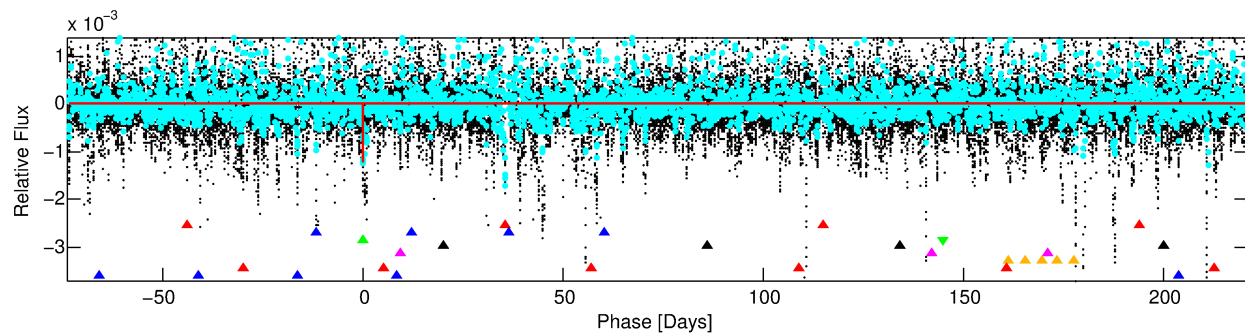
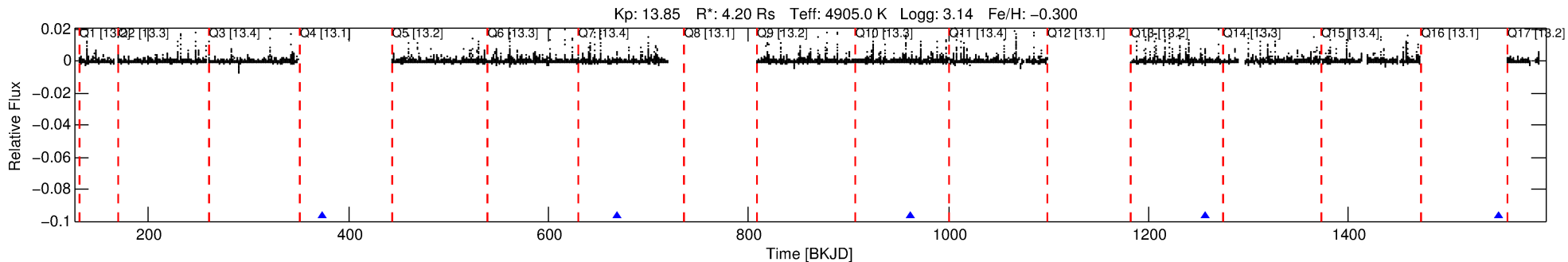
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007676676-03

No Significant Match Found

# DV One-Page Summary

KIC: 7676676 Candidate: 3 of 8 Period: 294.186 d



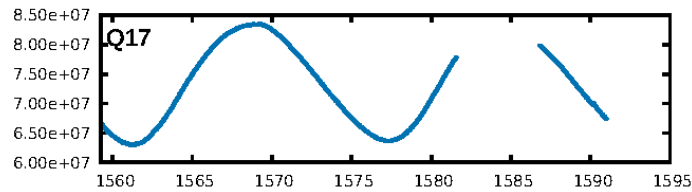
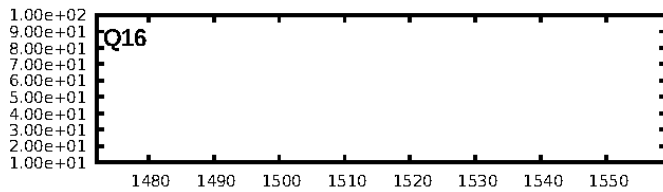
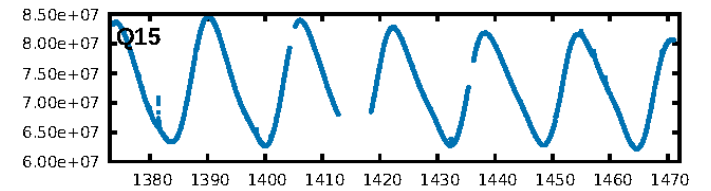
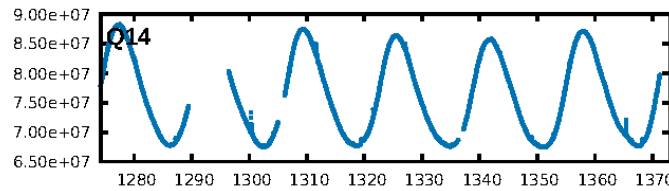
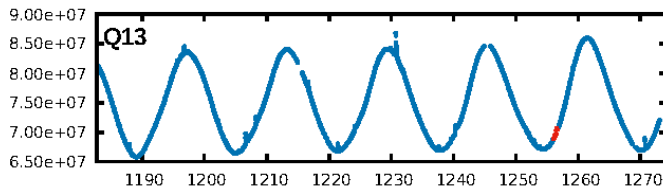
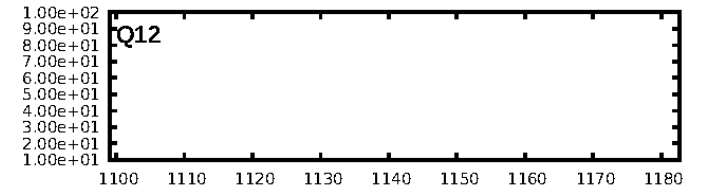
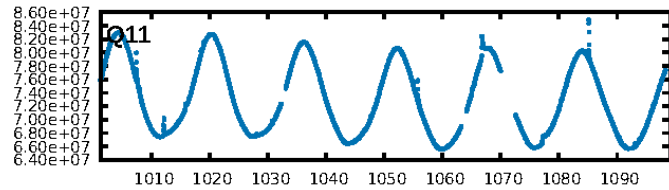
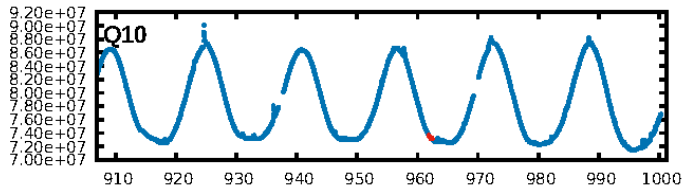
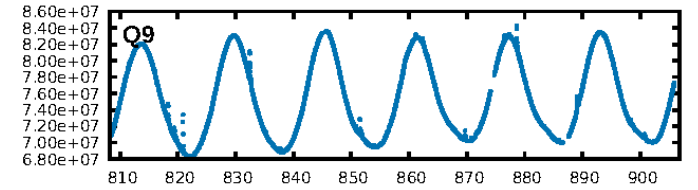
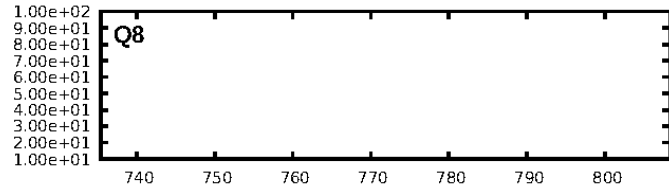
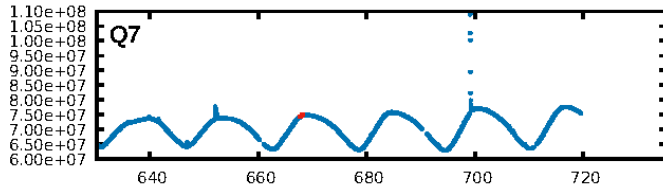
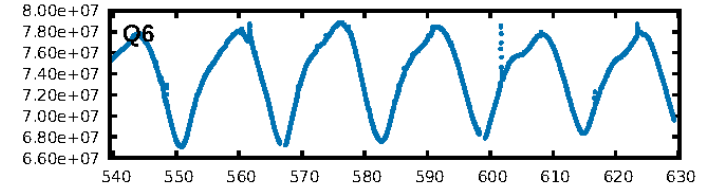
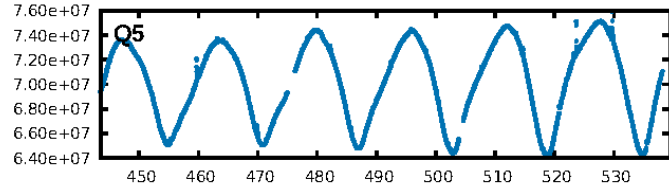
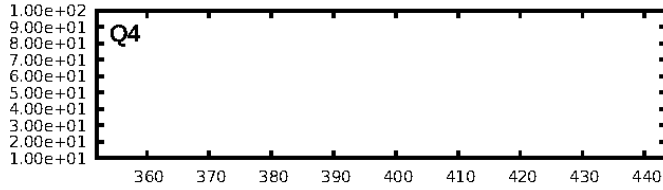
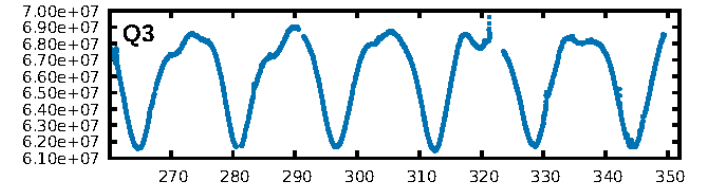
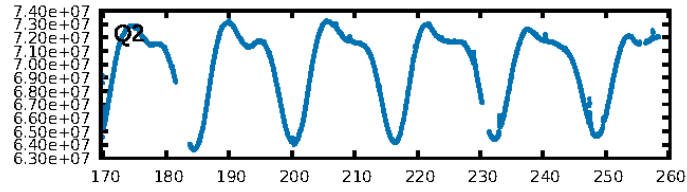
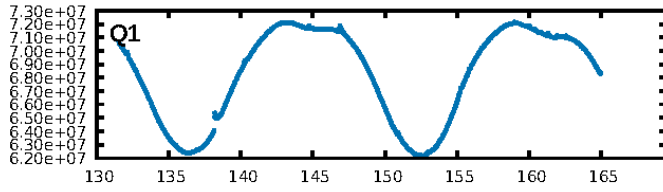
## DV Fit Results:

Period = 294.18564 [0.00588] d  
Epoch = 373.7811 [0.0125] BKJD  
Rp/R\* = 0.0311 [0.0416]  
a/R\* = 331.98 [1532.15]  
b = 0.12 [39.23]  
Seff = 13.18 [9.10]  
Teq = 486 [84] K  
Rp = 14.24 [20.71] Re  
a = 0.8327 [0.3927] AU  
Ag = 1362.03 [3782.11] [0.36 $\sigma$ ]  
Teffp = 4564 [3075] K [1.33 $\sigma$ ]

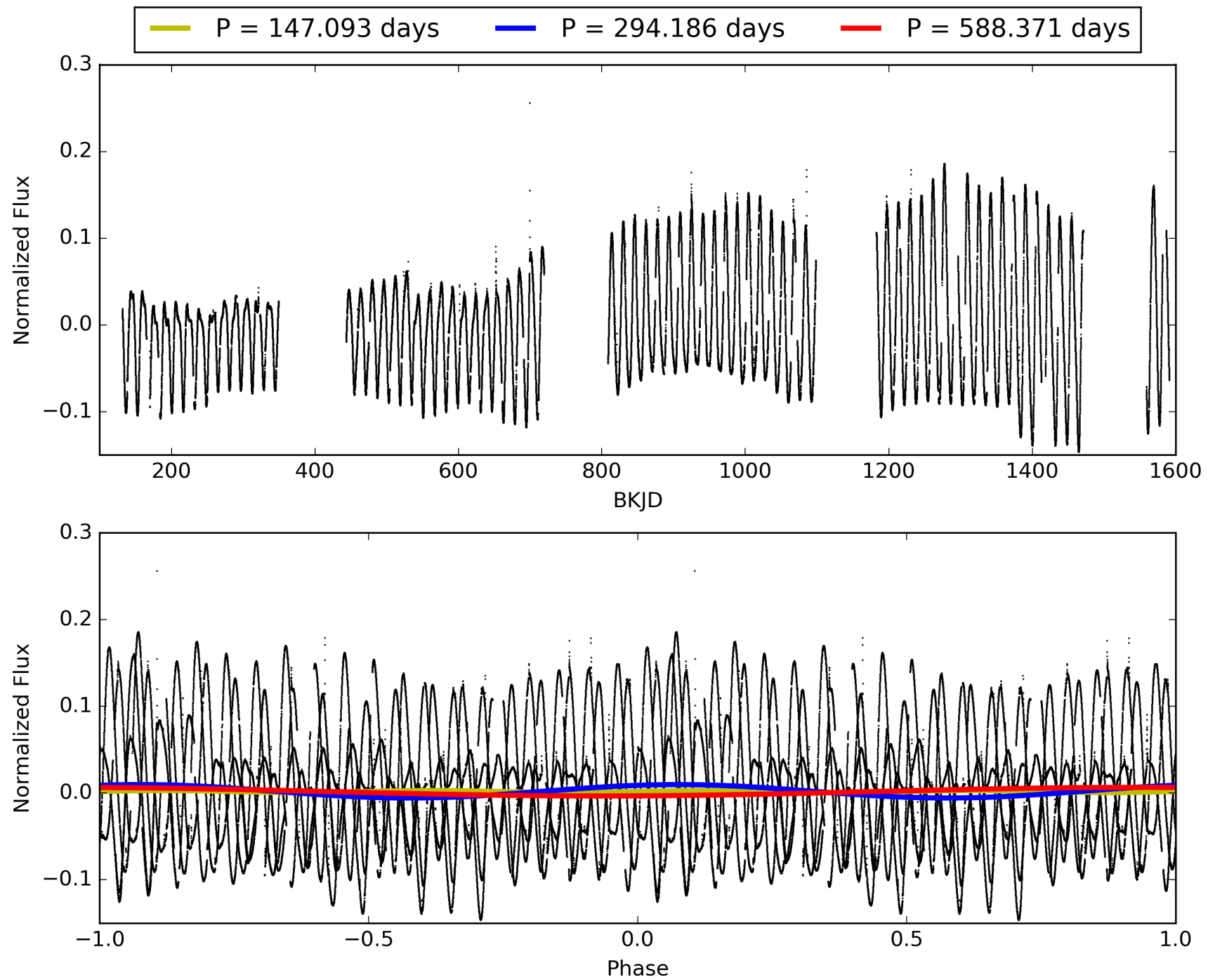
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.89 $\sigma$ ]  
LongPeriod-sig: 100.0% [50.62 $\sigma$ ]  
ModelChiSquare2-sig: 30.5%  
ModelChiSquareGof-sig: 45.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: -0.2709**  
Centroid-sig: 3.9%  
Centroid-so: 0.878 arcsec [2.07 $\sigma$ ]  
OotOffset-rm: 0.116 arcsec [0.12 $\sigma$ ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-rm: 0.190 arcsec [0.55 $\sigma$ ]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 007676676-03, PDC Light Curves

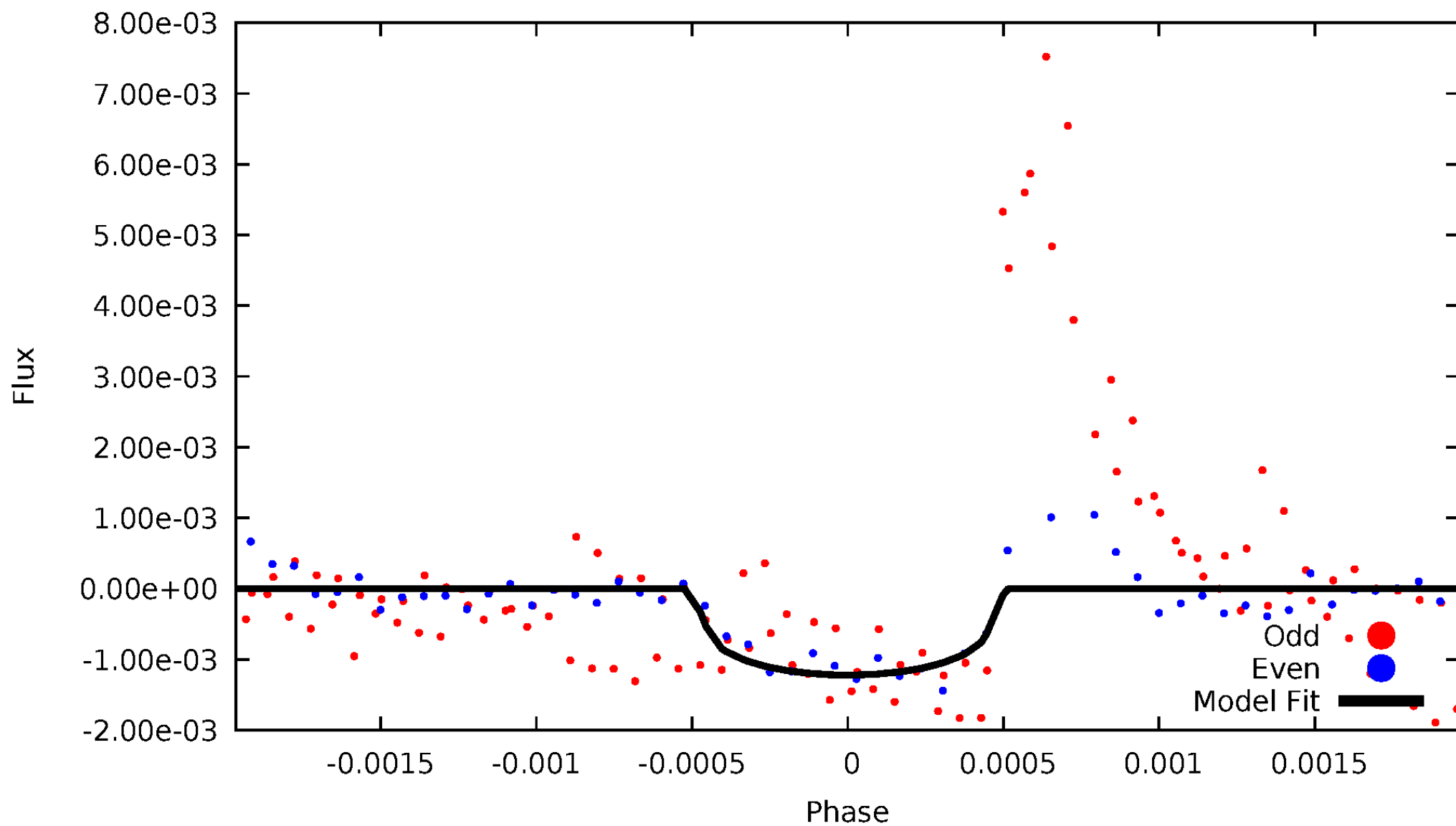


TCE 007676676-03



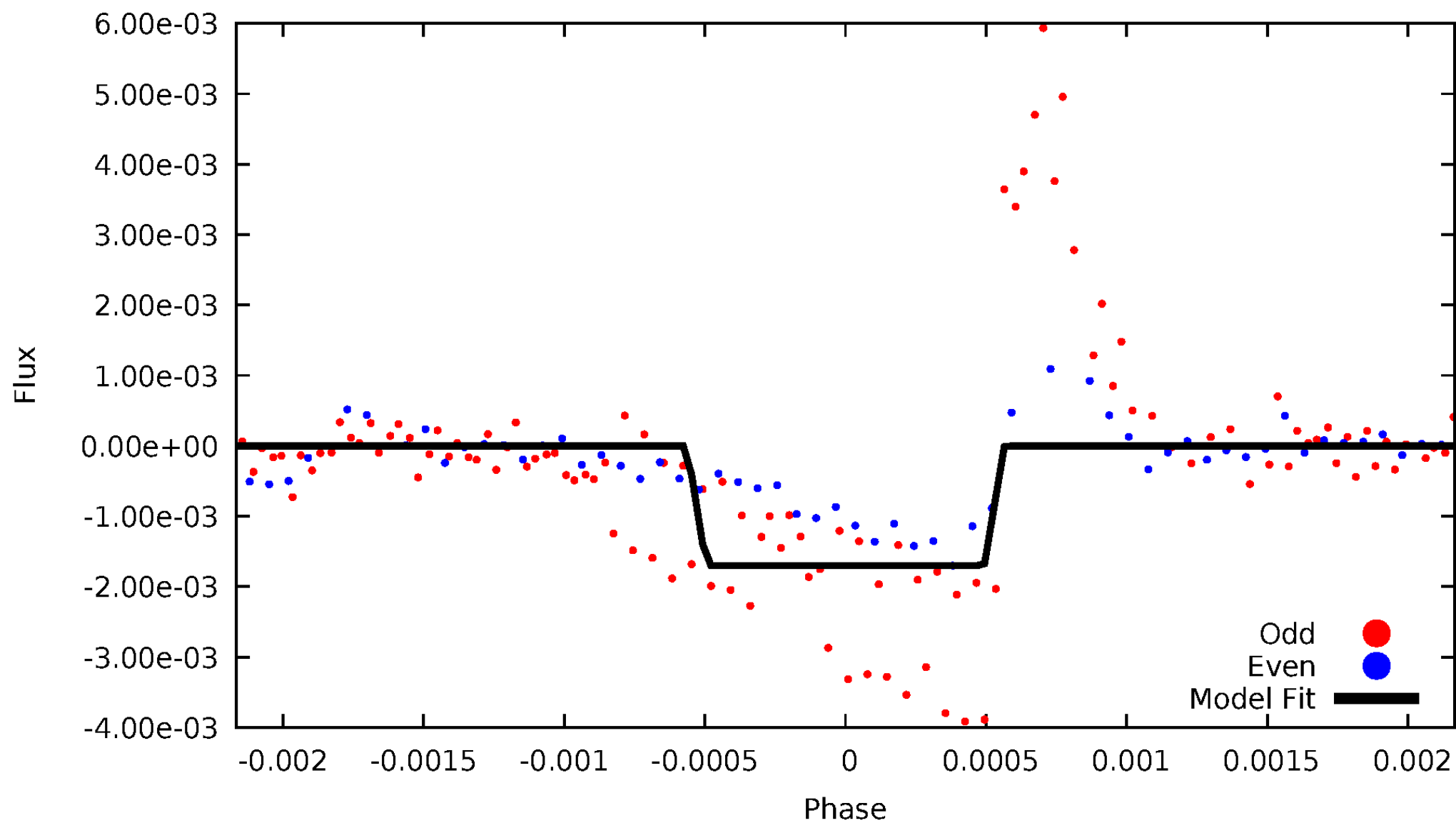
# DV Odd/Even

TCE 007676676-03



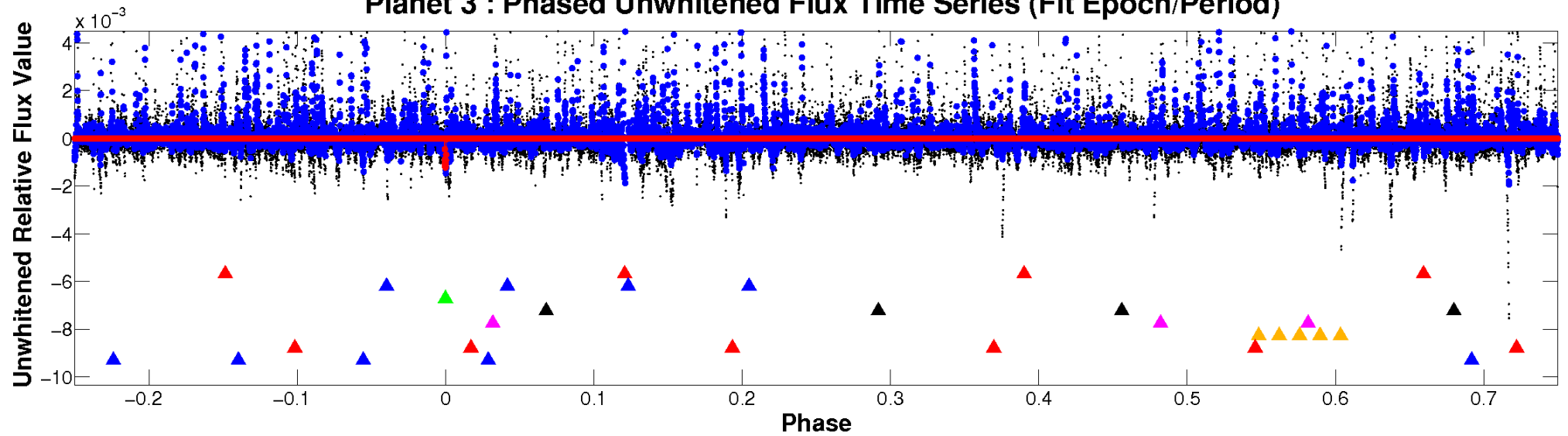
# ALT Odd/Even

TCE 007676676-03

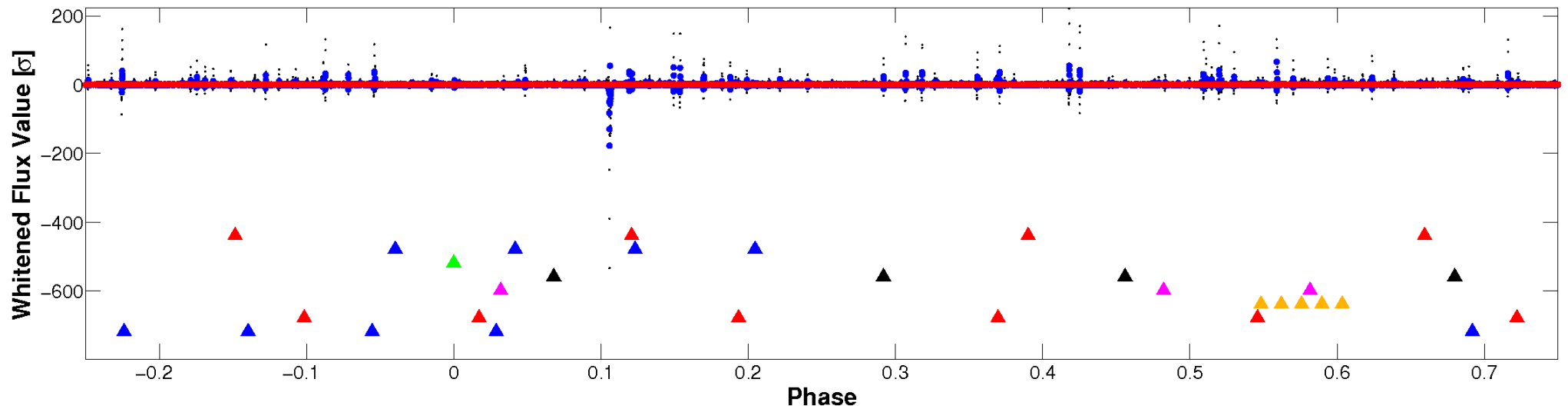


# Non-Whitened Vs. Whitened Light Curve

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

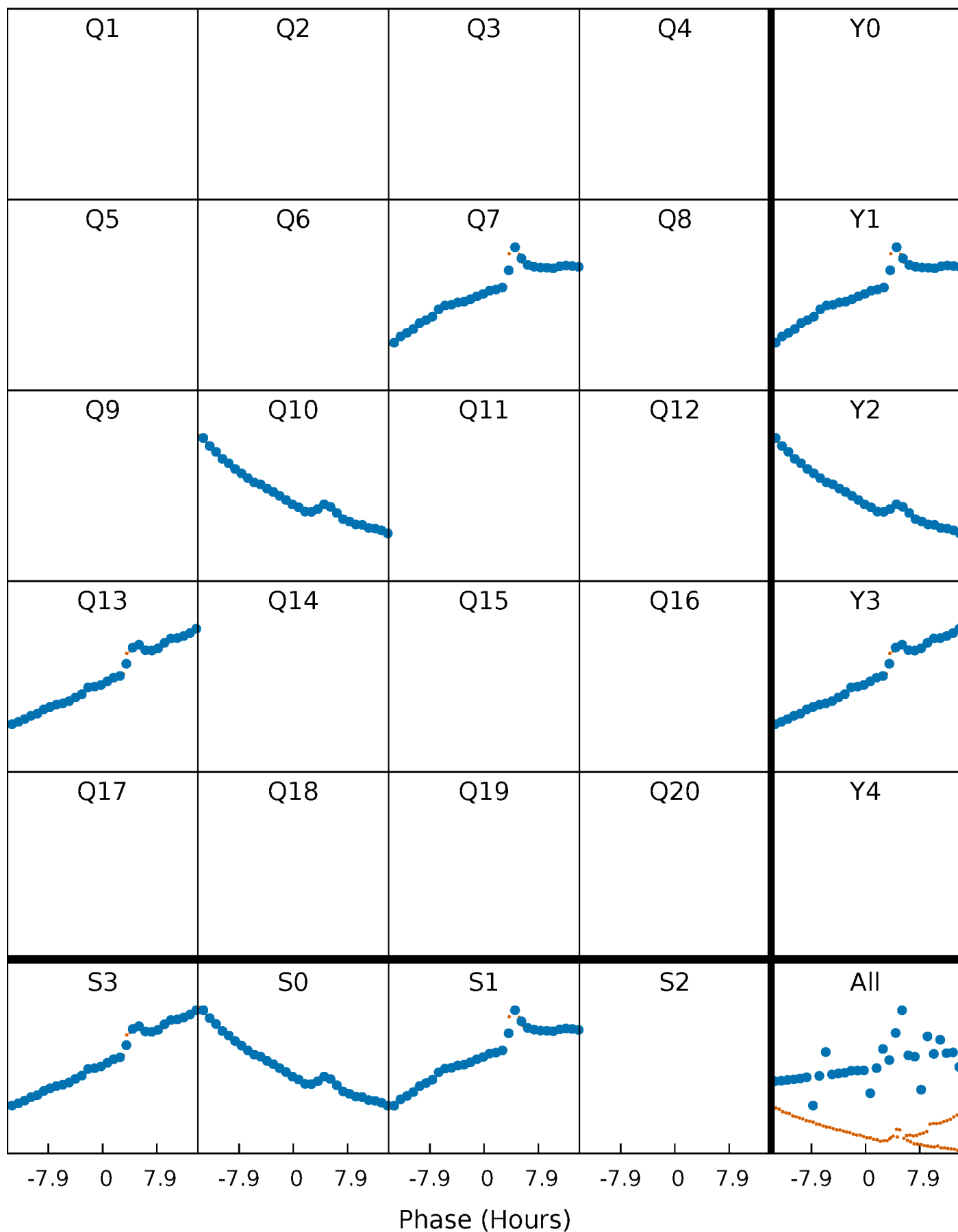


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



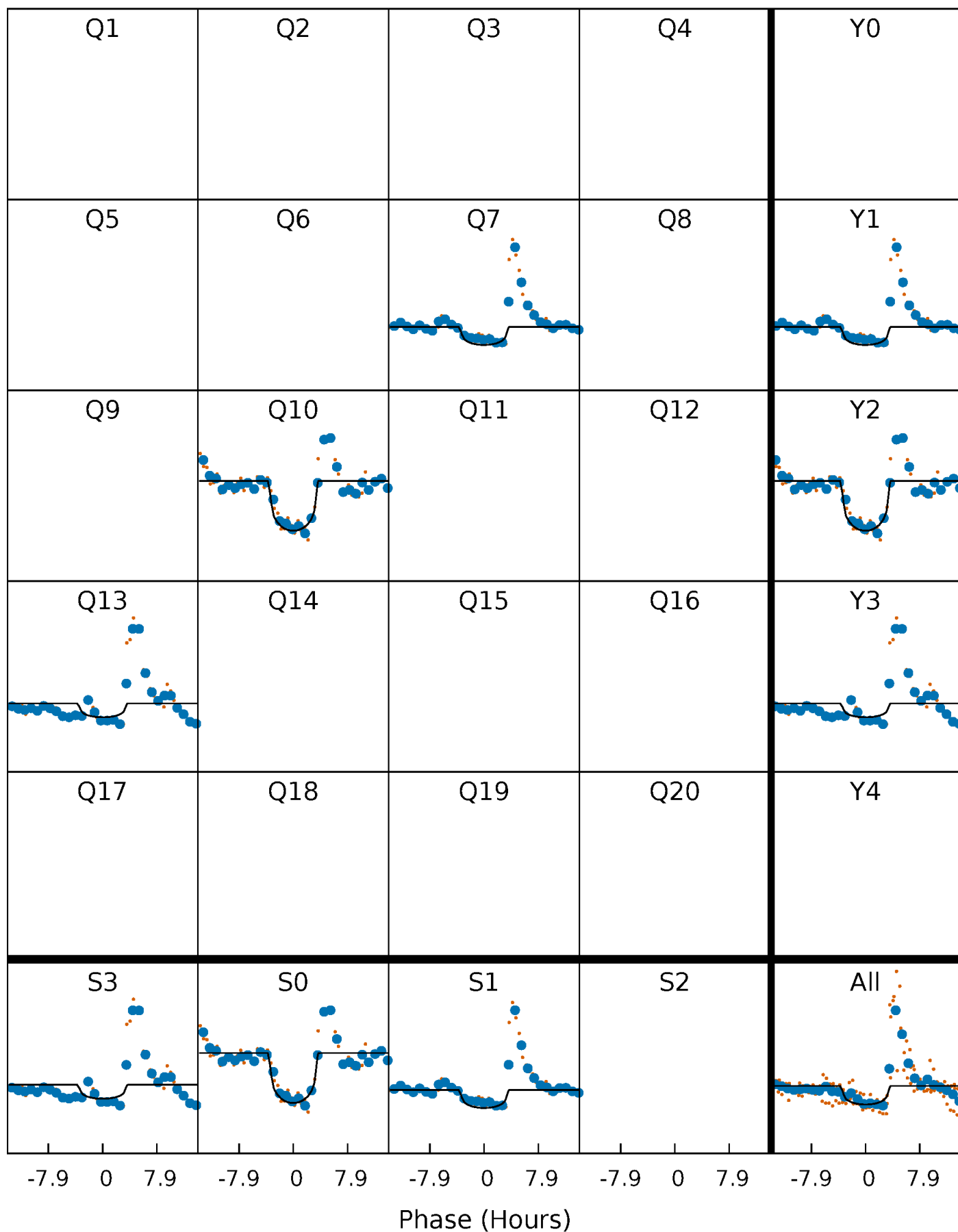
# PDC Quarter-Phased Transit Curves

TCE 007676676-03 P=294.185642 Days  $T_0=373.781142$  (BKJD)



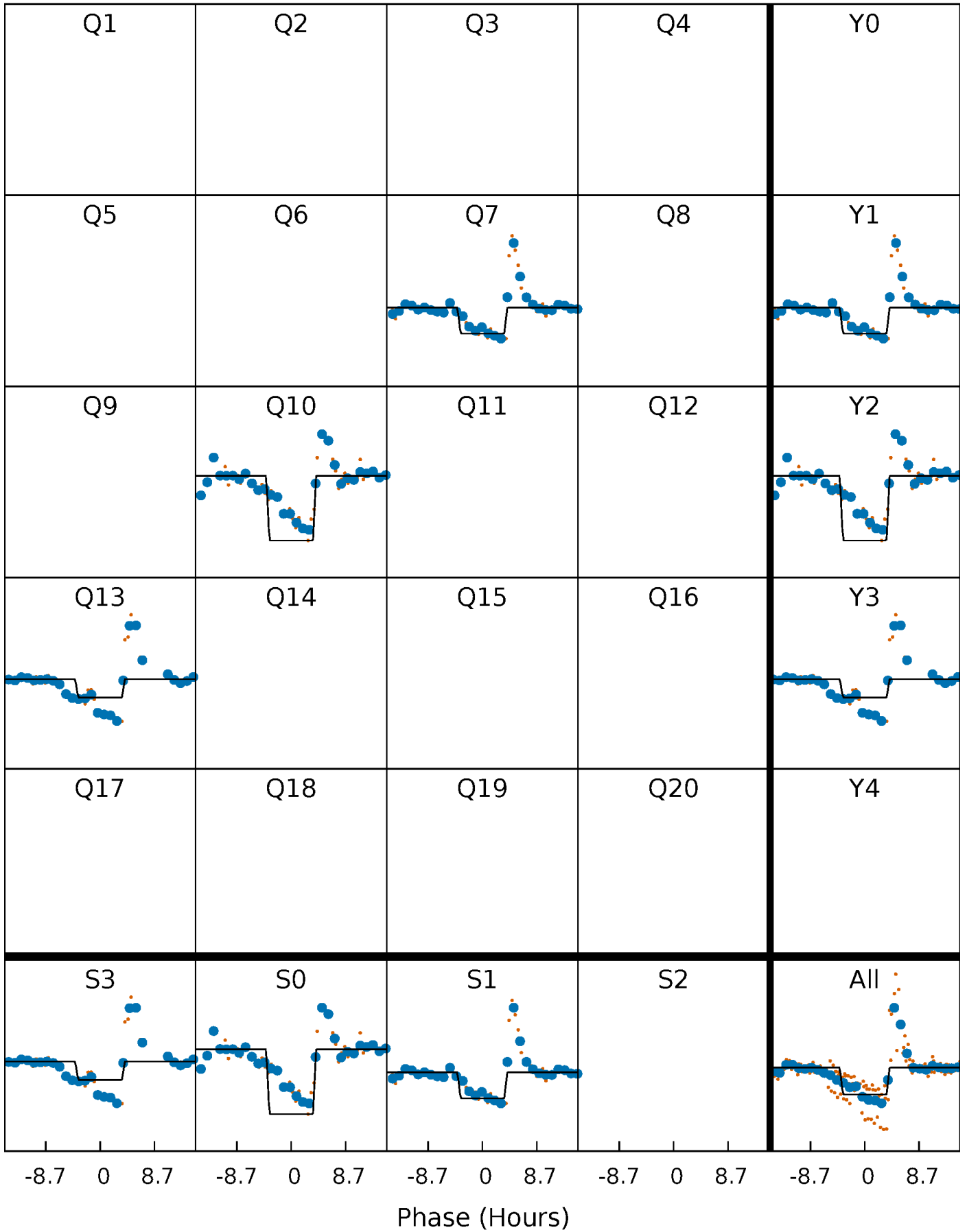
# DV Quarter-Phased Transit Curves

TCE 007676676-03     $P=294.185642$  Days     $T_0=373.781142$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

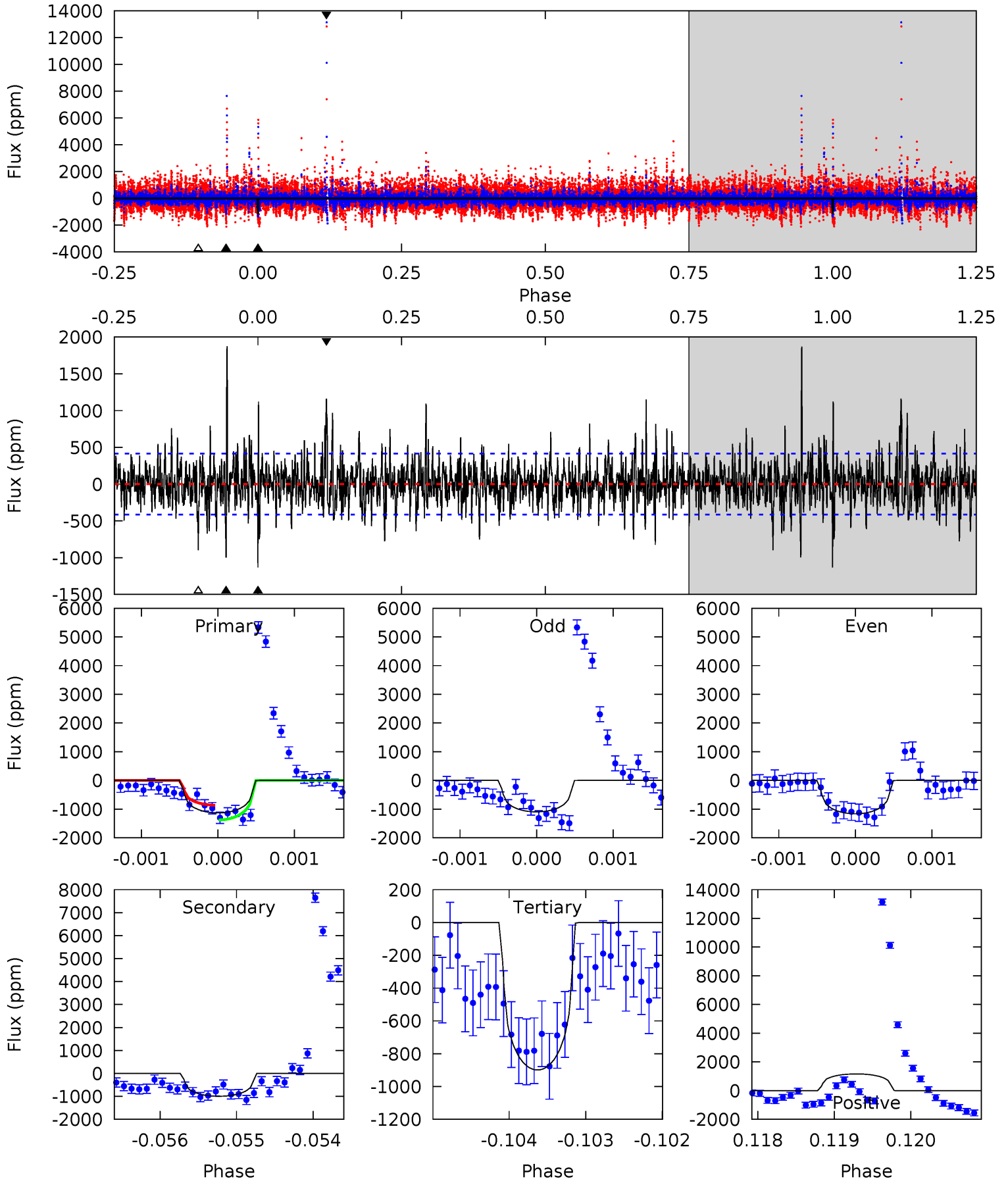
TCE 007676676-03 P=294.188775 Days  $T_0=373.752286$  (BKJD)



# DV Model-Shift Uniqueness Test

007676676-03, P = 294.185642 Days, E = 79.595500 Days

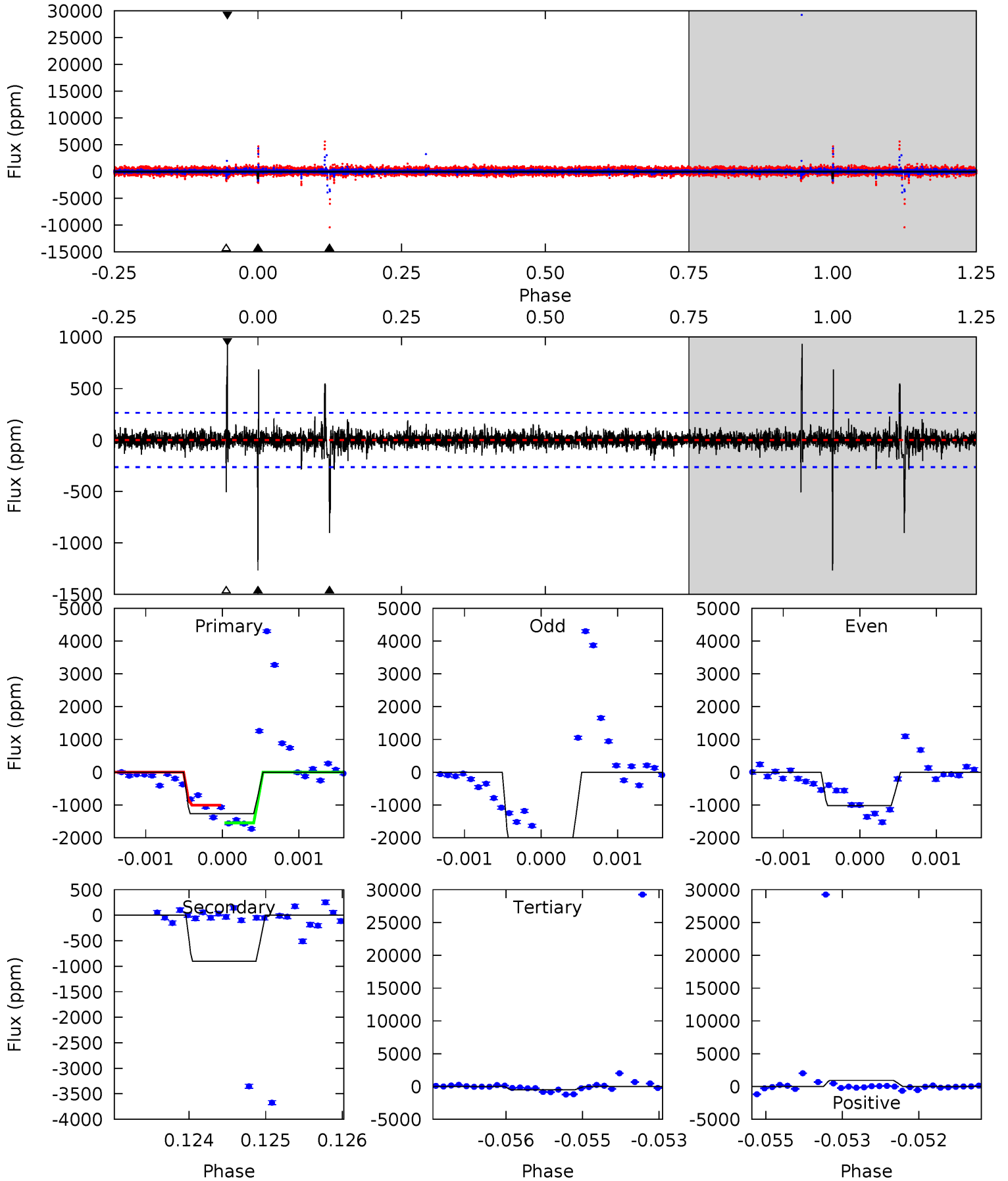
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	13.1	11.8	15.3	5.44	3.28	2.99	3.07	-0.39	1.27	-2.19	0.21	0.96	0.62	3.41



# Alt Model-Shift Uniqueness Test

007676676-03, P = 294.188775 Days, E = 79.563511 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
26.1	18.6	10.4	19.2	5.43	3.25	1.06	15.7	6.90	8.19	-0.58	10.6	1.17	0.42	5.44



### Stellar Parameters For KIC 007676676

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4905^{+148}_{-111}$	$3.141^{+0.368}_{-0.301}$	$-0.300^{+0.300}_{-0.200}$	$4.198^{+2.378}_{-1.280}$	$0.891^{+0.337}_{-0.037}$	$0.017^{+0.037}_{-0.012}$
	+3%/-2%	+12%/-10%	+100%/-67%	+57%/-30%	+38%/-4%	+220%/-69%
Source	KIC0	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 007676676-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-996 \pm 76$	$19.79^{+20.23}_{-12.49}$	$670^{+93}_{-73}$	$4322^{+2601}_{-851}$	$1024^{+6935}_{-775}$
Alt.	$-904 \pm 49$	$22.57^{+20.48}_{-13.97}$	$668^{+87}_{-67}$	$4028^{+1885}_{-695}$	$731^{+3962}_{-538}$

$T_{\text{max}}$  = 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

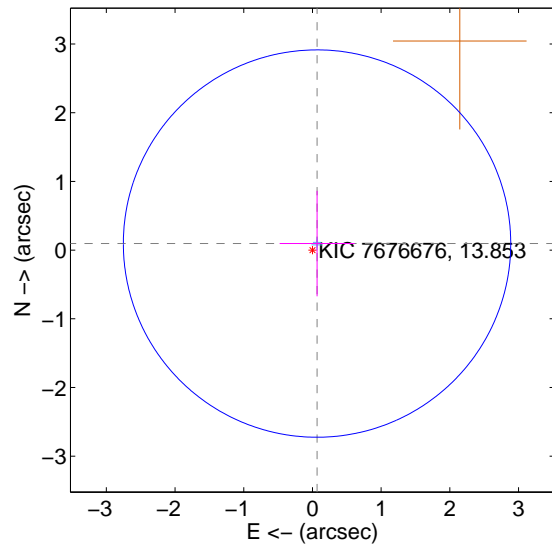
Supplemental centroid analysis for 007676676-03. Kepler magnitude: 13.85. Transit SNR 6.90

There are 2 quarters with good PRF difference image offsets

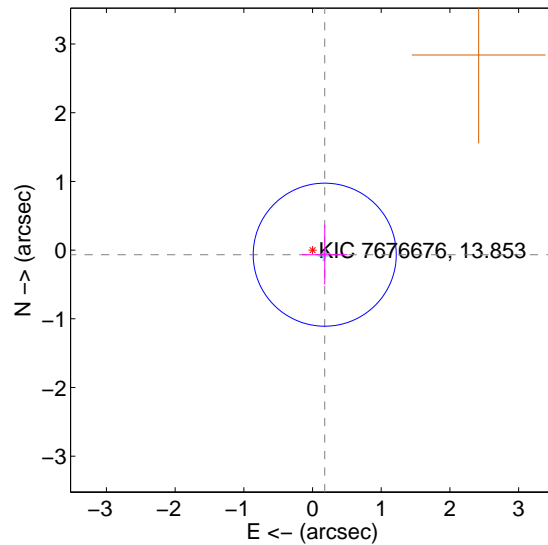
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.116 \pm 0.940$	0.12	$-0.067 \pm 0.545$	$0.095 \pm 0.768$
PRF-fit source offset from KIC position	$0.190 \pm 0.347$	0.55	$-0.178 \pm 0.333$	$-0.067 \pm 0.436$
photometric centroid source offset	$0.88 \pm 0.42$	2.07	$-0.88 \pm 0.42$	$0.00 \pm 0.46$

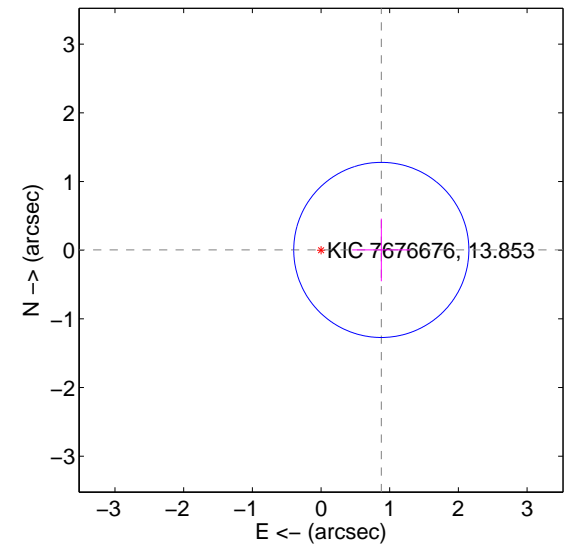
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

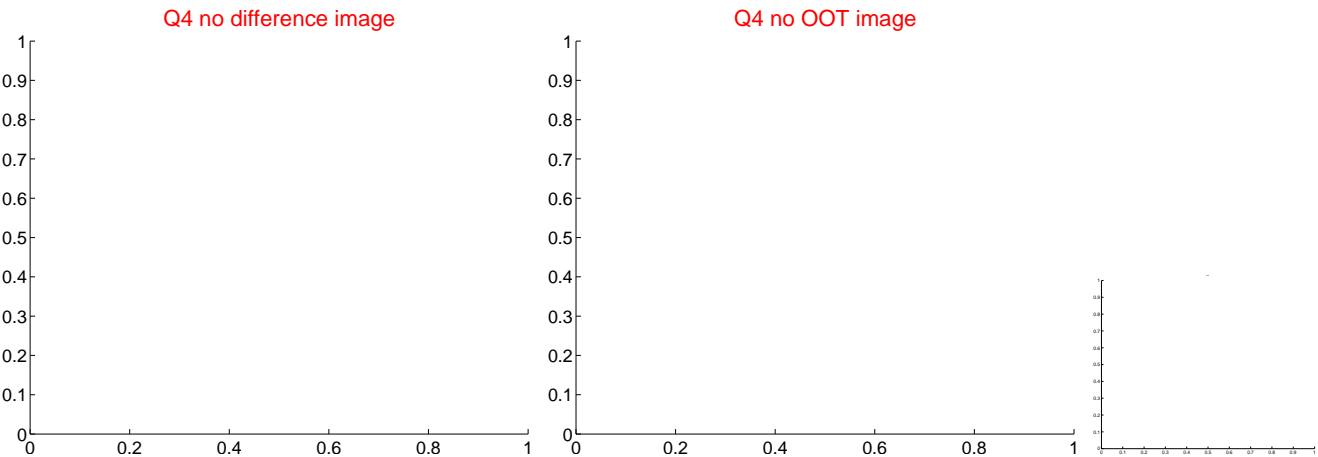
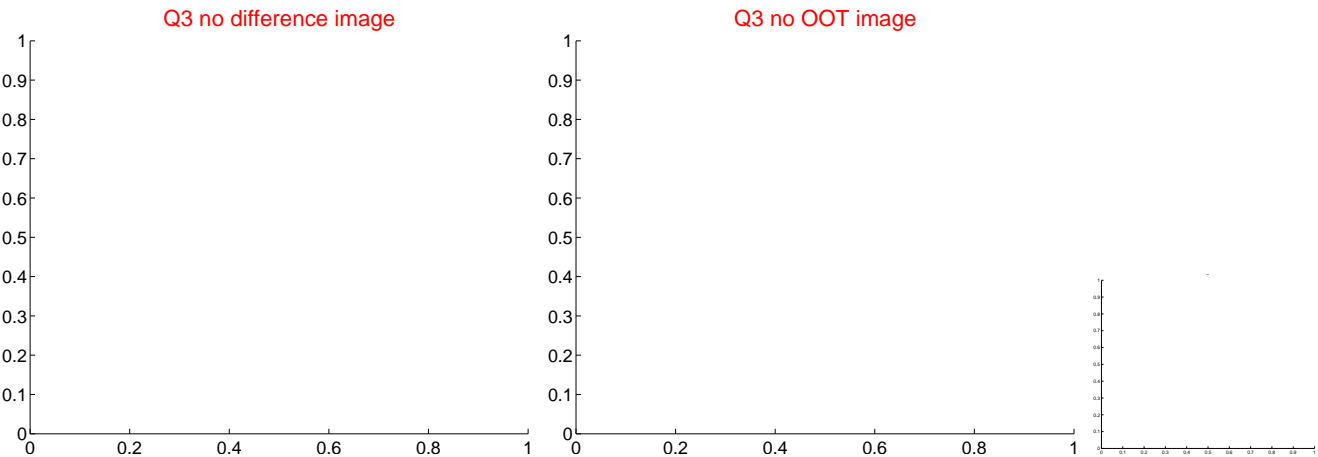
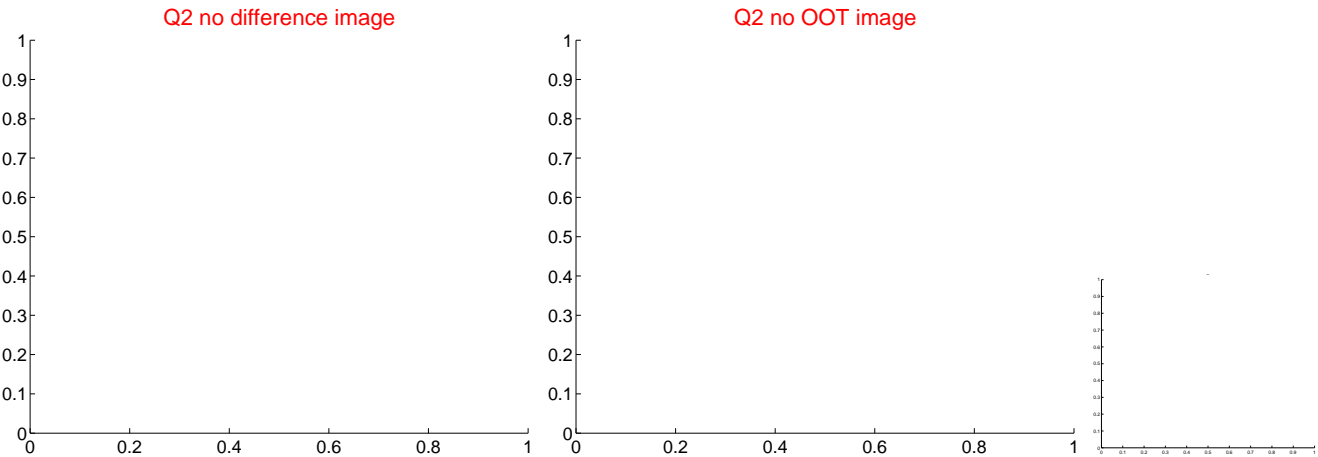
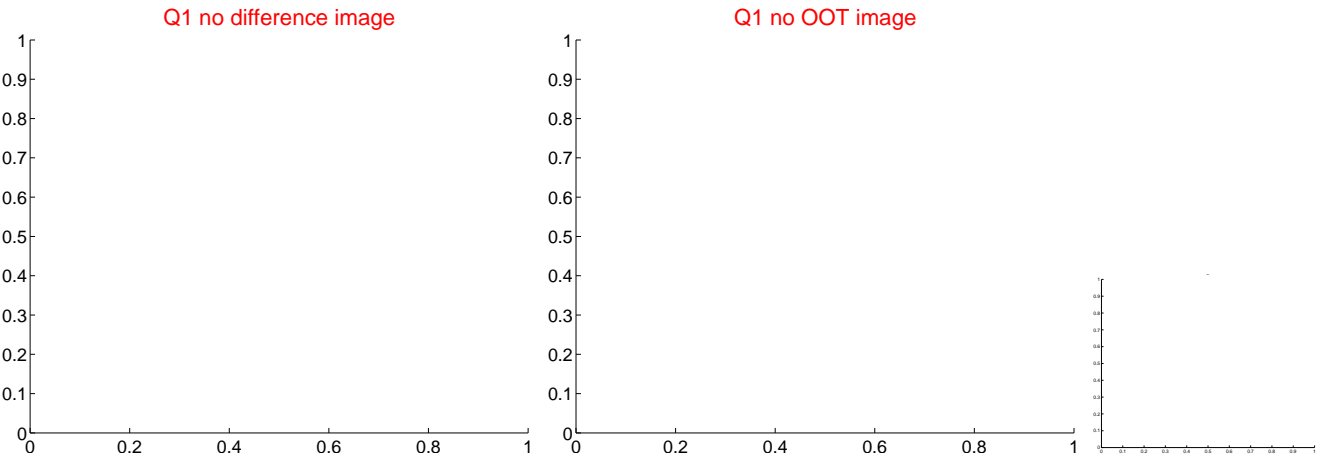


offset from photometric centroids

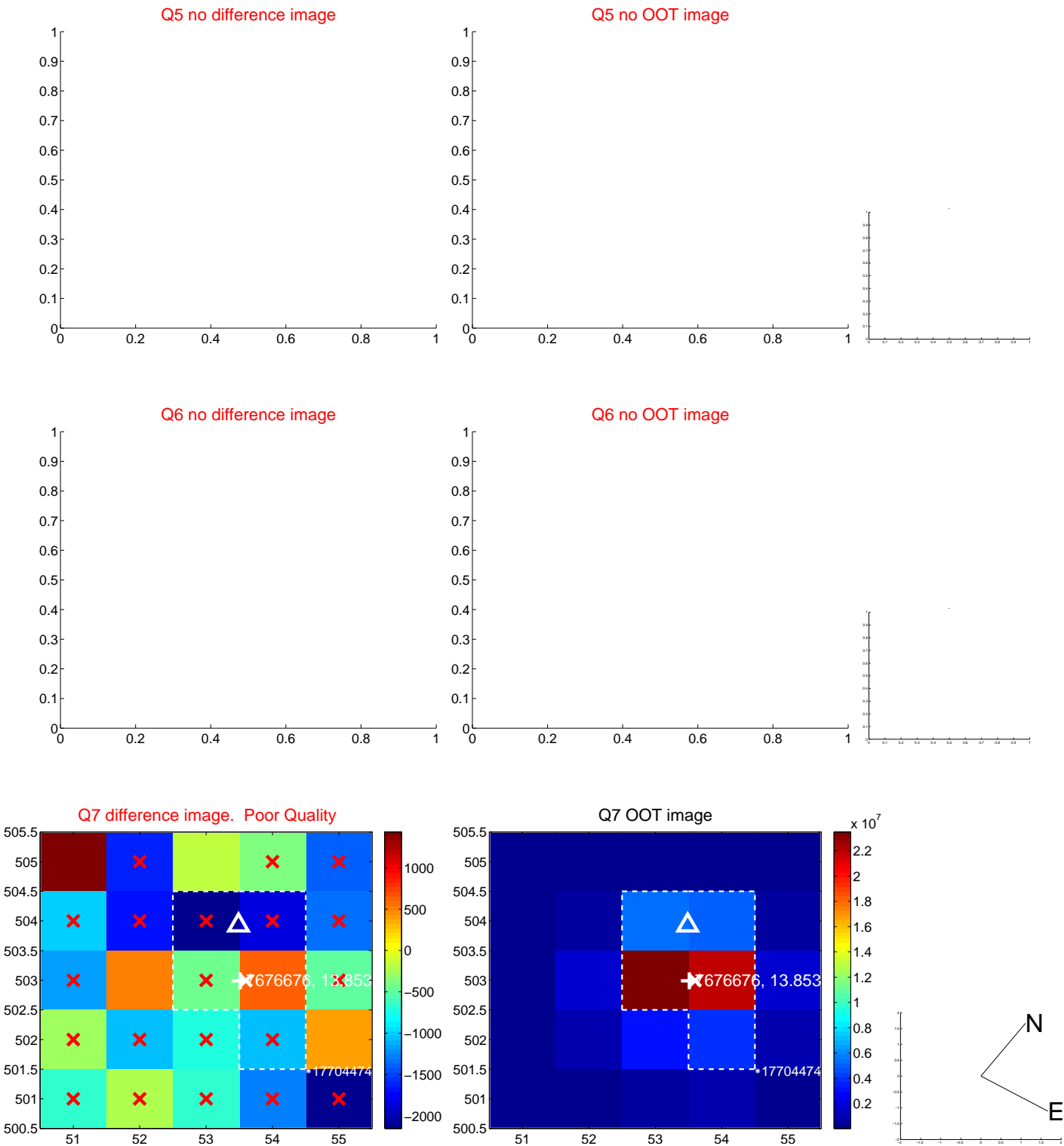


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

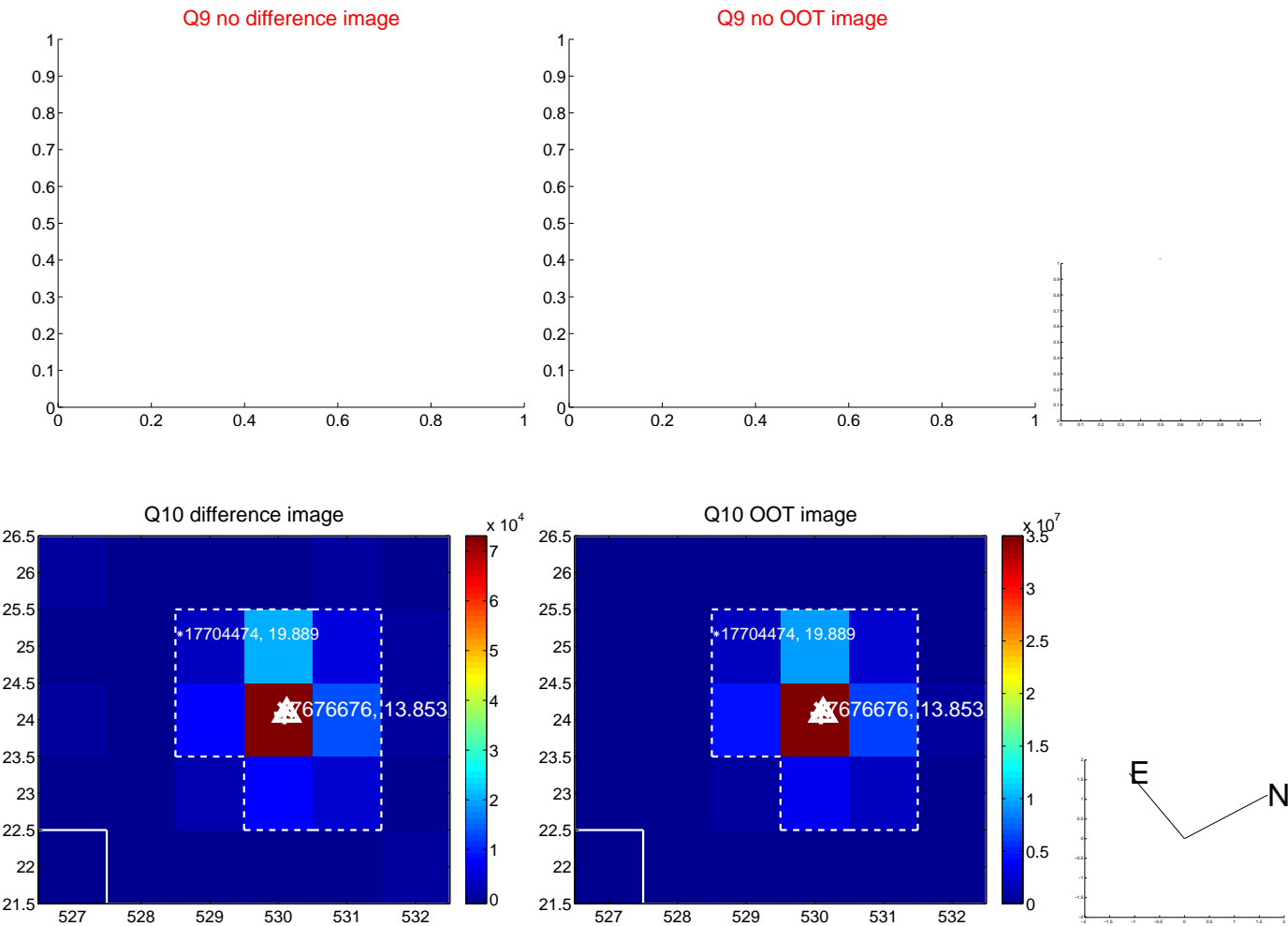
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



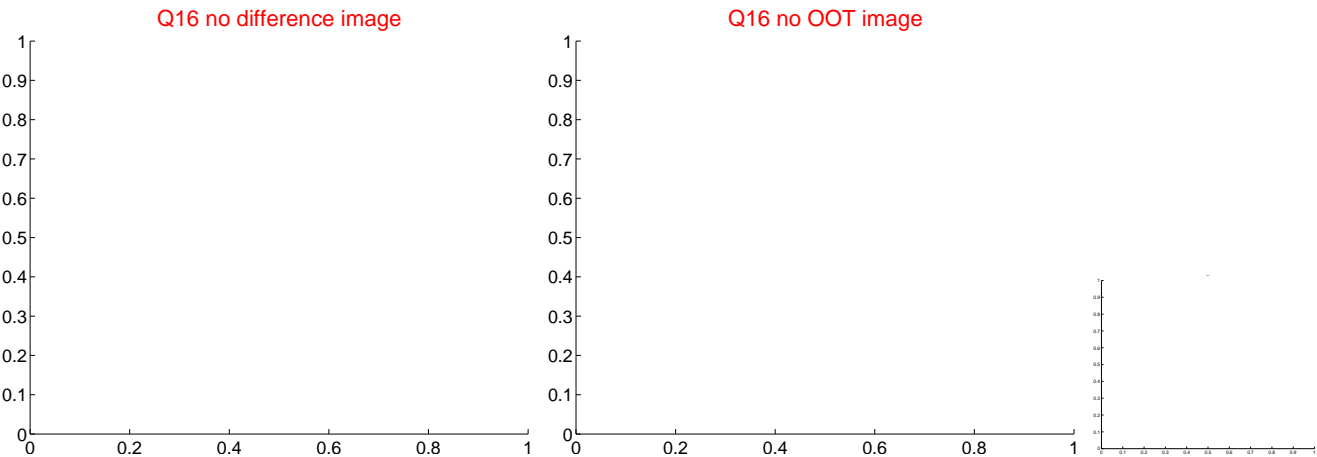
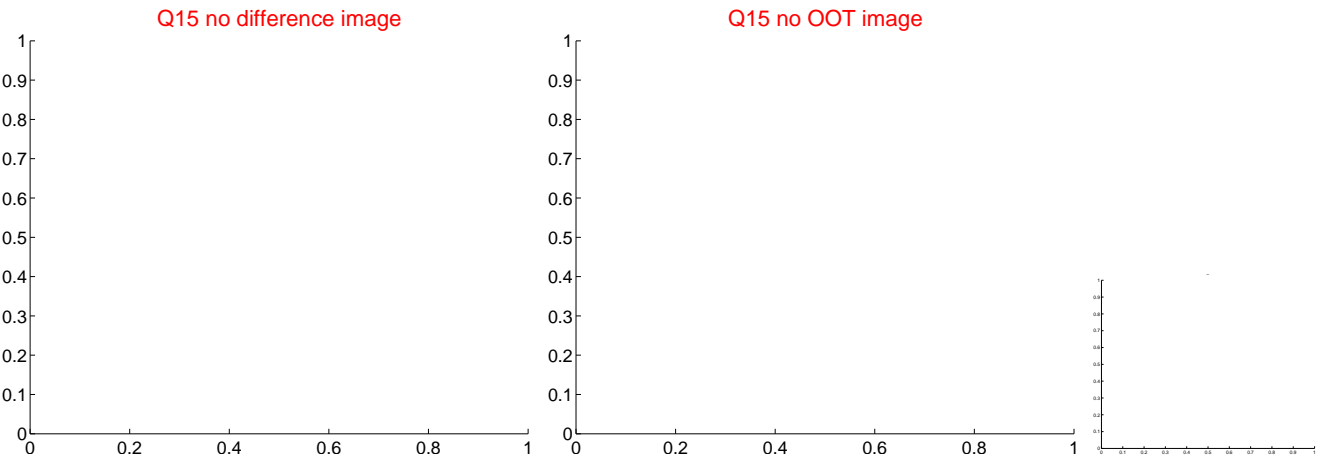
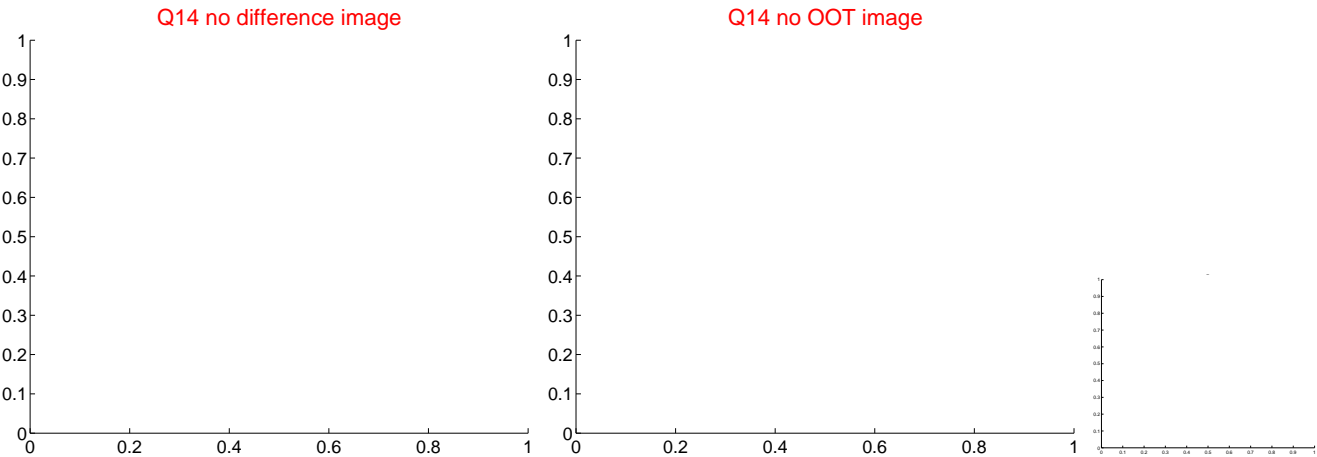
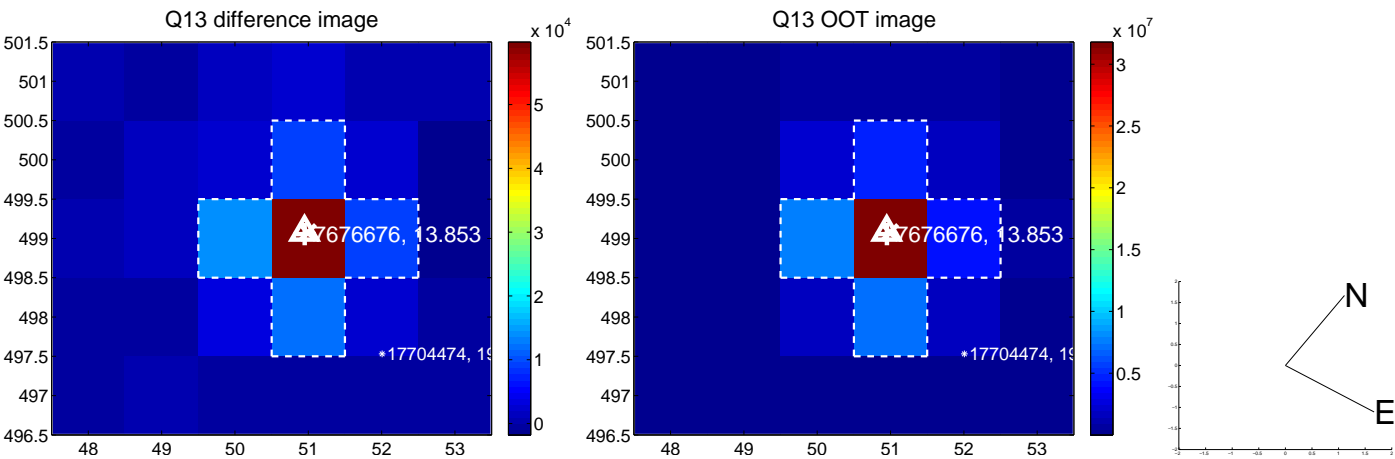
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



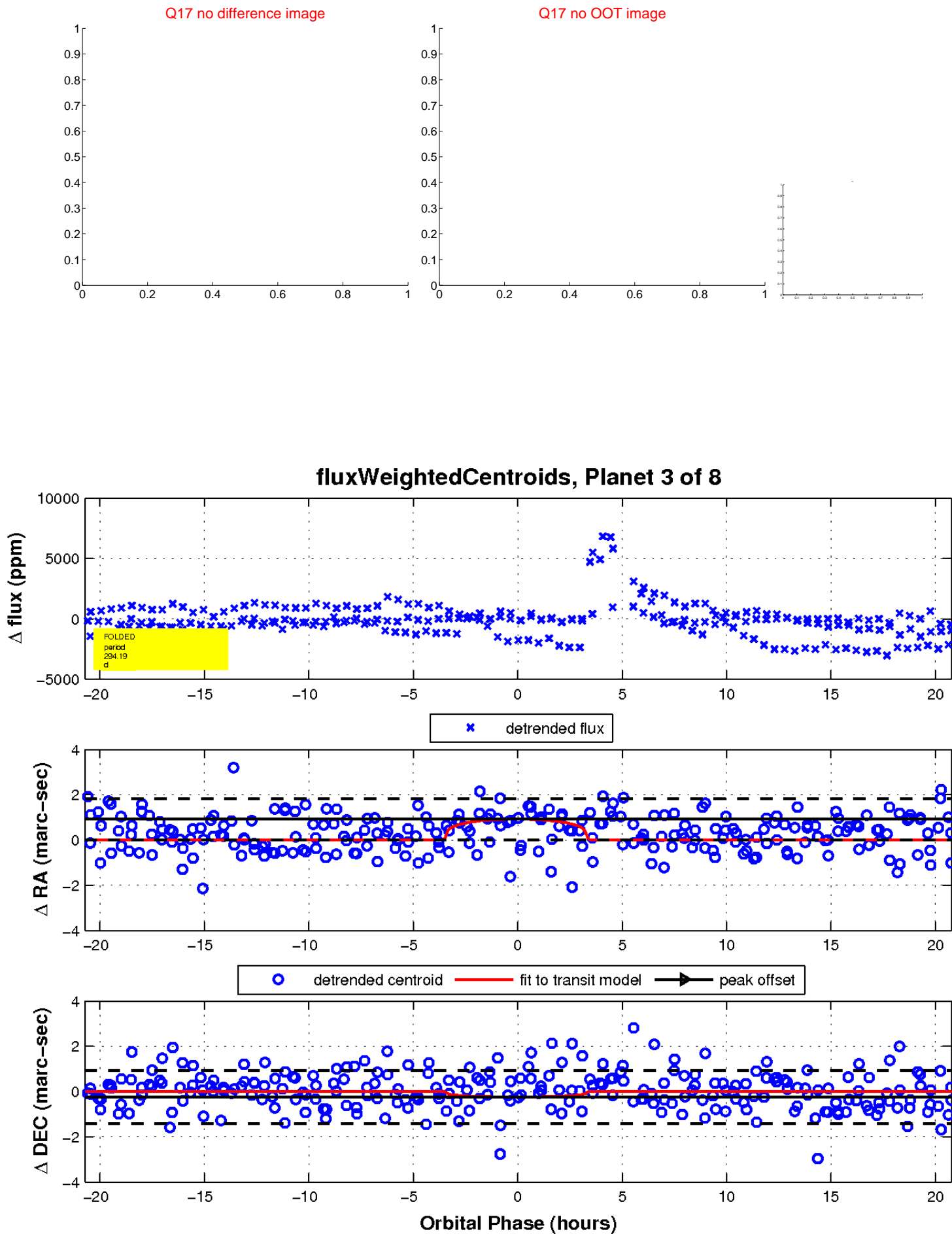
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



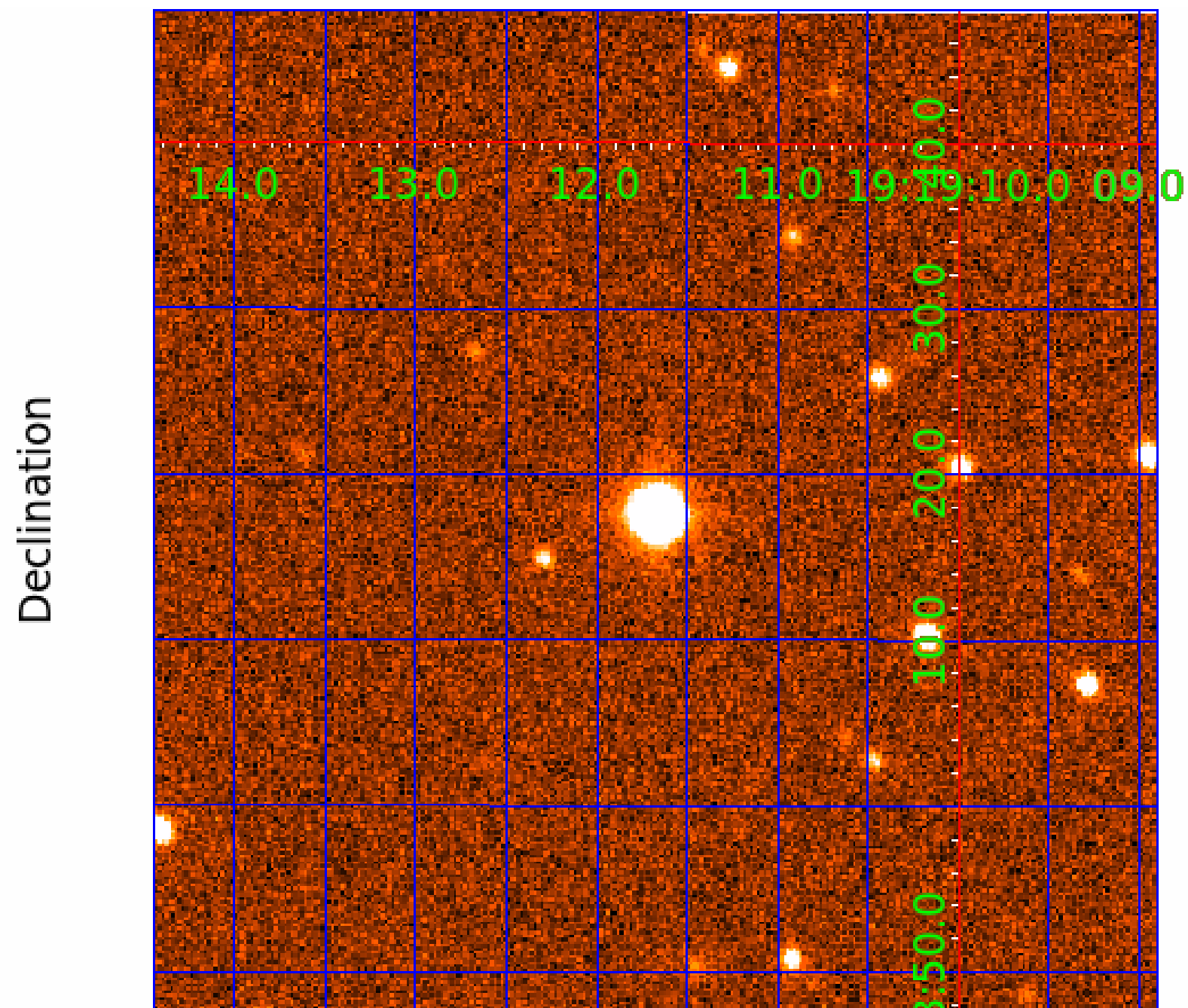
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 007676676

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007676676-01	OBS	No	373.410857	330.099023	1817.1	16.864	21.8	7.1	4.20	4905	23.89	9.59
007676676-03	OBS	No	294.185642	373.781142	1221.4	6.935	22.0	6.9	4.20	4905	14.24	13.18
007676676-04	OBS	No	408.338746	165.463256	1179.2	4.175	16.5	7.3	4.20	4905	15.81	8.51
007676676-07	OBS	No	242.336798	343.901912	840.7	4.351	17.1	5.9	4.20	4905	11.80	17.07
007676676-08	OBS	No	318.967872	283.134820	1238.2	10.500	24.2	-1.0	4.20	4905	14.33	11.83

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007676676-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
007676676-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007676676-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
007676676-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS— HALO_GHOST
007676676-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

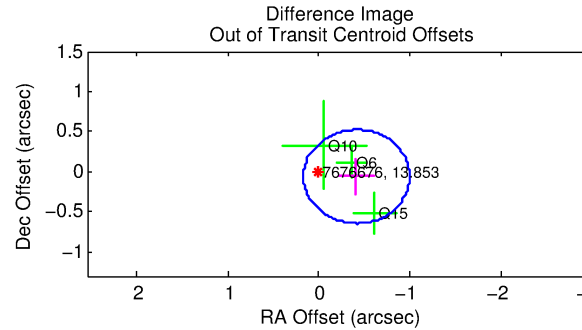
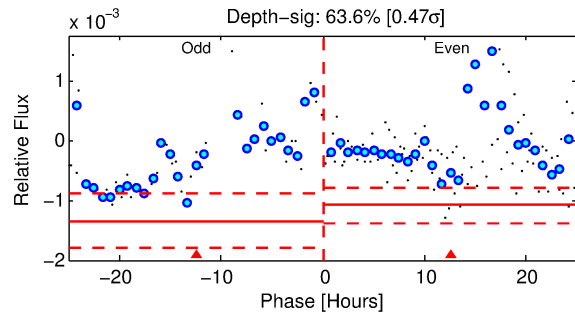
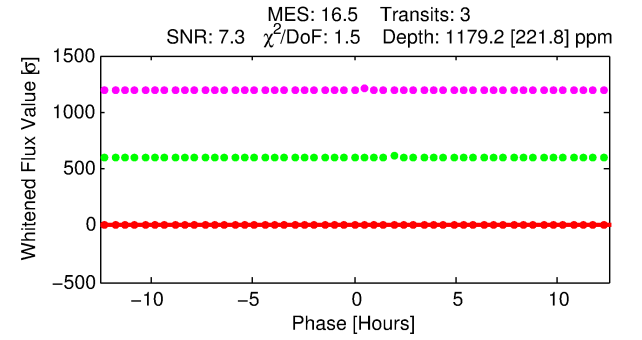
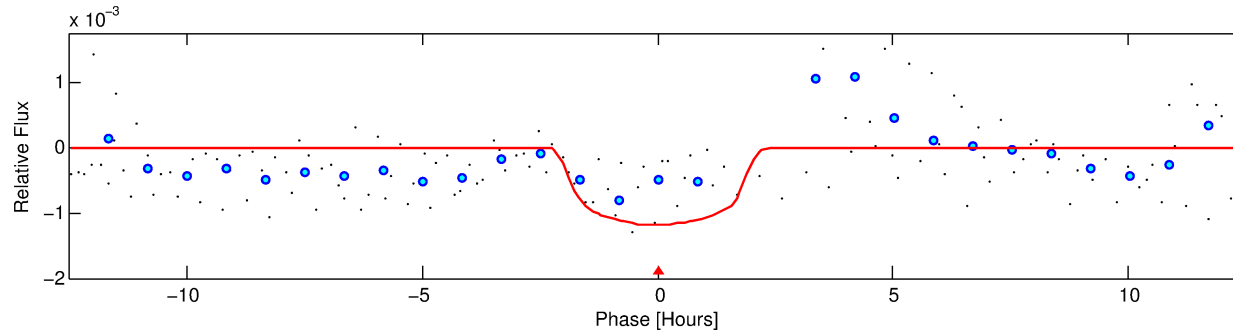
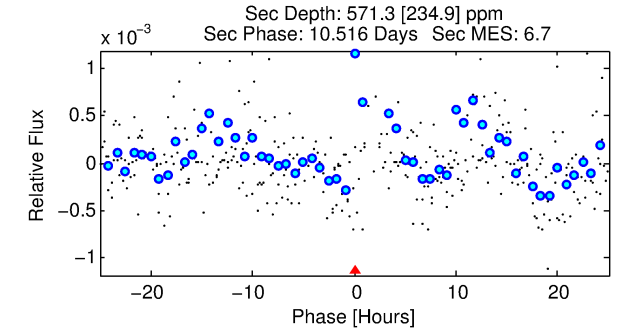
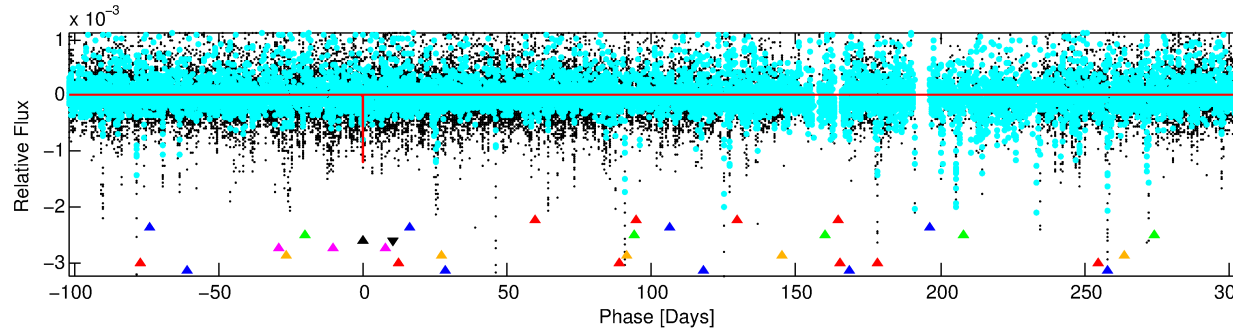
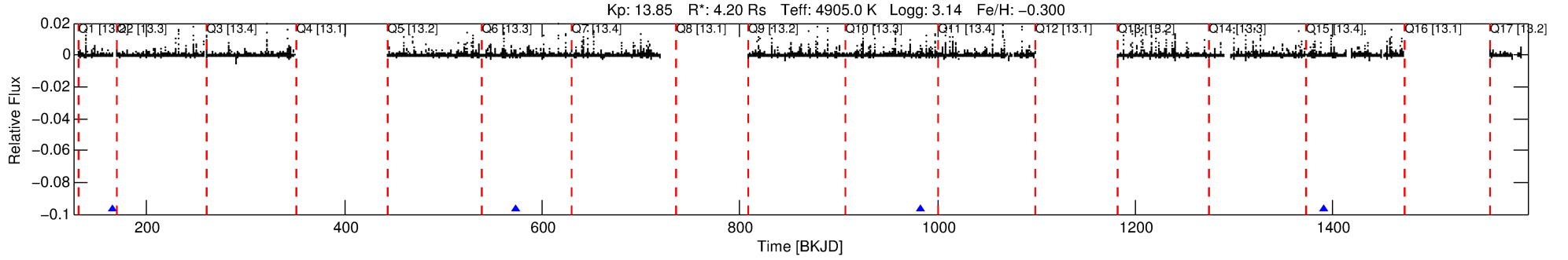
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007676676-04

No Significant Match Found

# DV One-Page Summary

KIC: 7676676 Candidate: 4 of 8 Period: 408.339 d



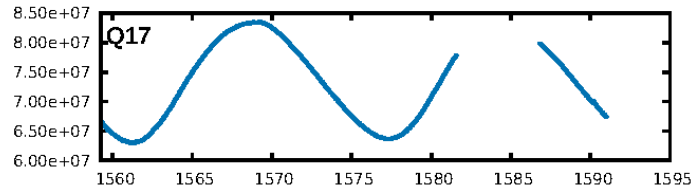
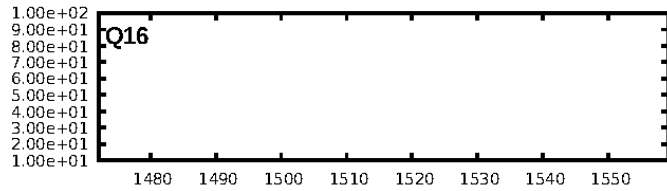
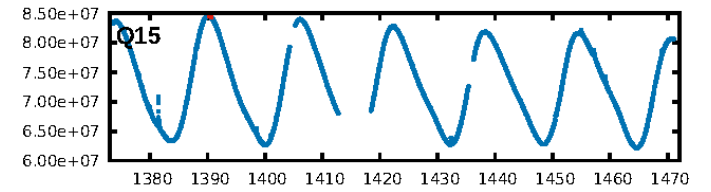
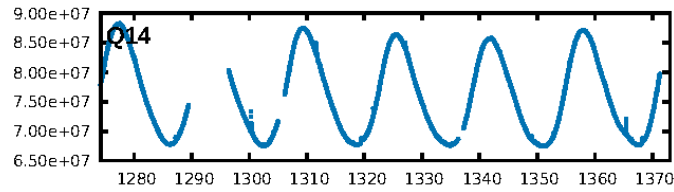
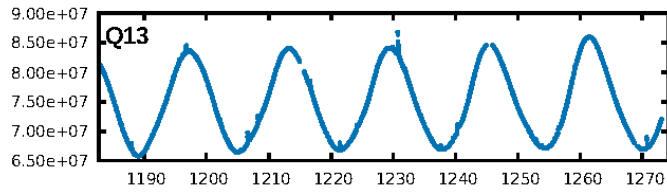
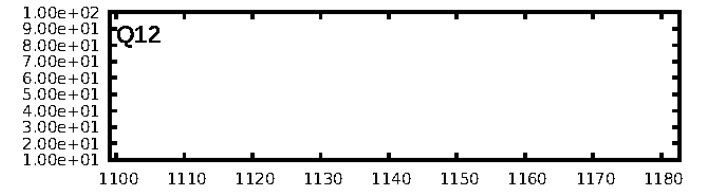
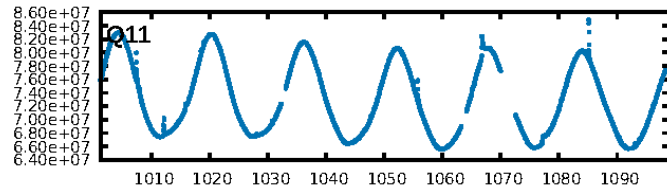
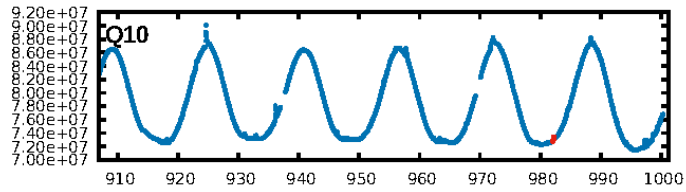
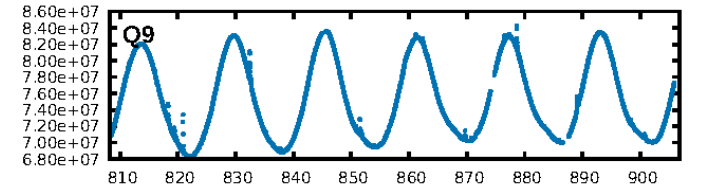
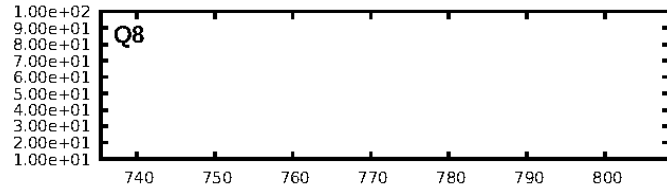
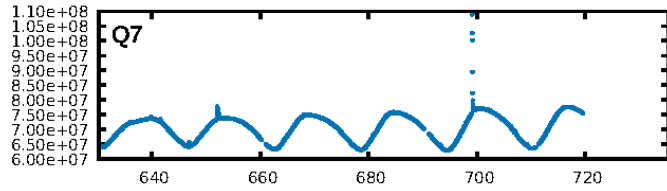
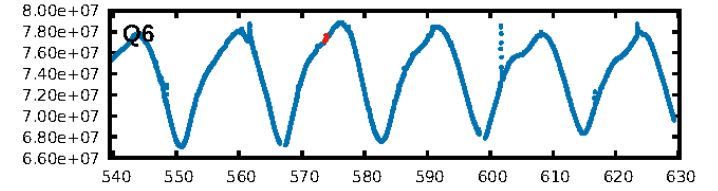
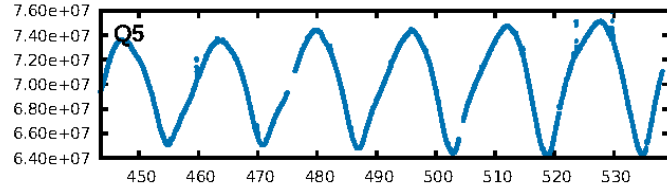
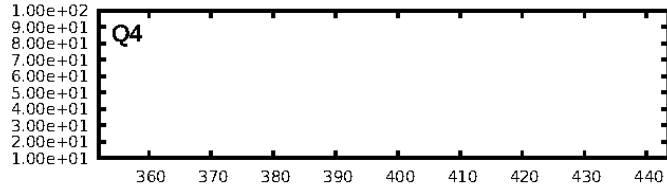
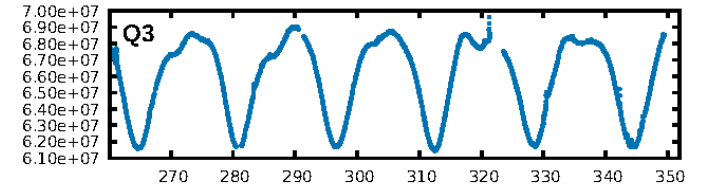
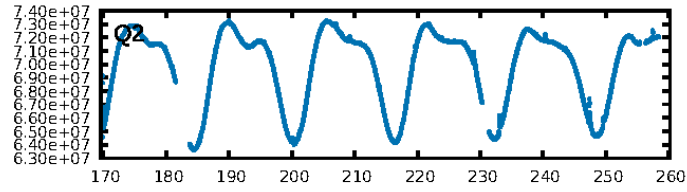
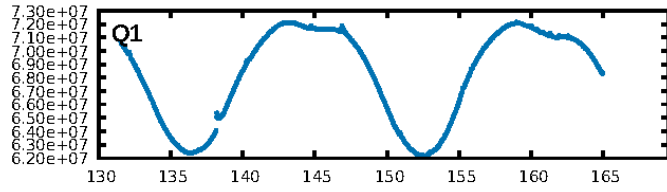
## DV Fit Results:

Period = 408.33875 [0.00608] d  
Epoch = 165.4633 [0.0118] BKJD  
Rp/R\* = 0.0345 [0.0234]  
a/R\* = 522.56 [1238.34]  
b = 0.76 [1.33]  
Seff = 8.51 [5.88]  
Teq = 436 [75] K  
Rp = 15.81 [13.96] Re  
a = 1.0361 [0.4886] AU  
Ag = 1350.29 [2121.02] [0.64 $\sigma$ ]  
Teffp = 4082 [1451] K [2.51 $\sigma$ ]

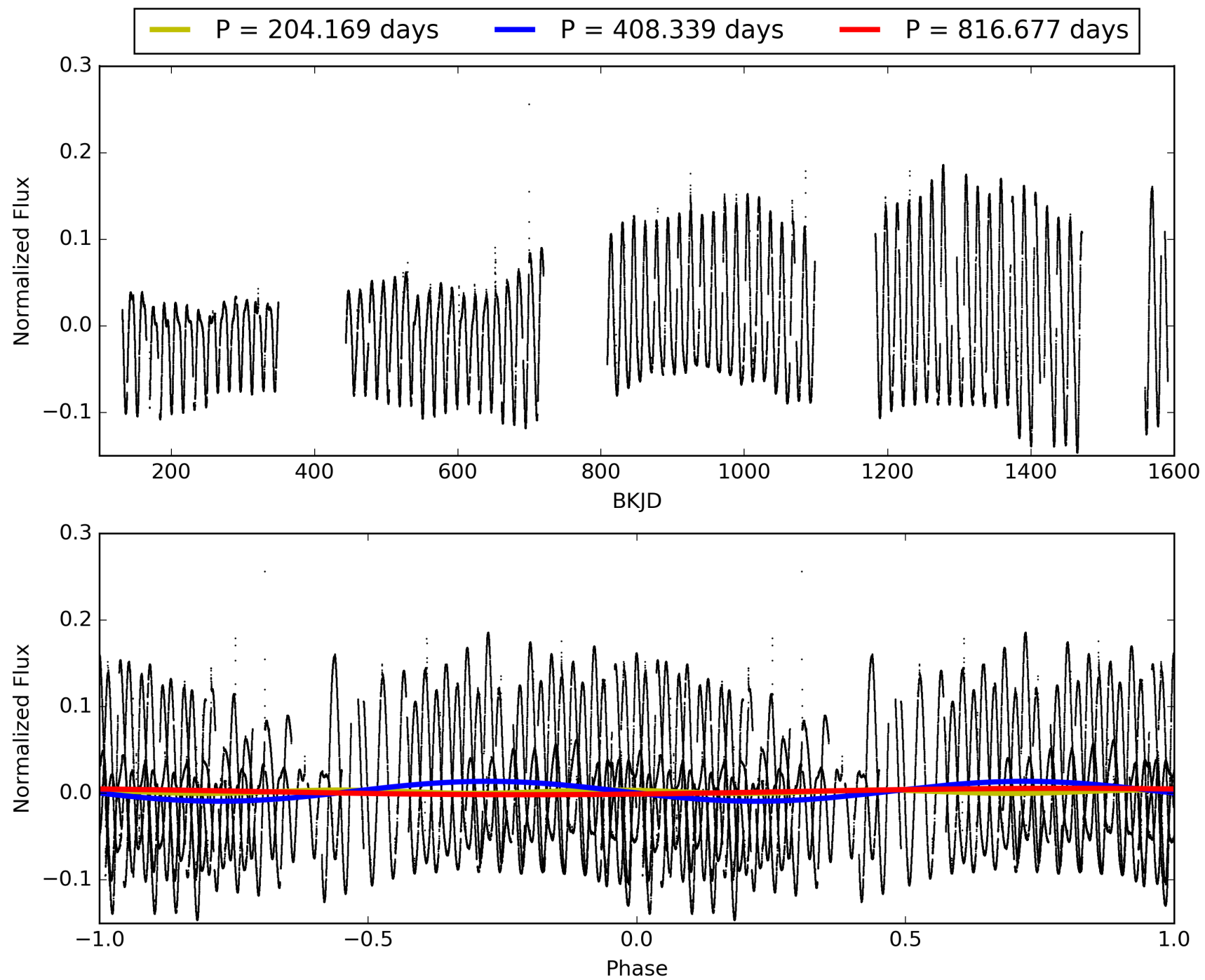
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [48.25 $\sigma$ ]  
LongPeriod-sig: 100.0% [33.96 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 9.8%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 6.264  
Centroid-sig: 32.8%  
Centroid-so: 0.674 arcsec [1.40 $\sigma$ ]  
OotOffset-rm: 0.419 arcsec [2.15 $\sigma$ ]  
OotOffset-st: 2/1/0/0 [3]  
KicOffset-rm: 0.618 arcsec [2.90 $\sigma$ ]  
KicOffset-st: 2/1/0/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 007676676-04, PDC Light Curves

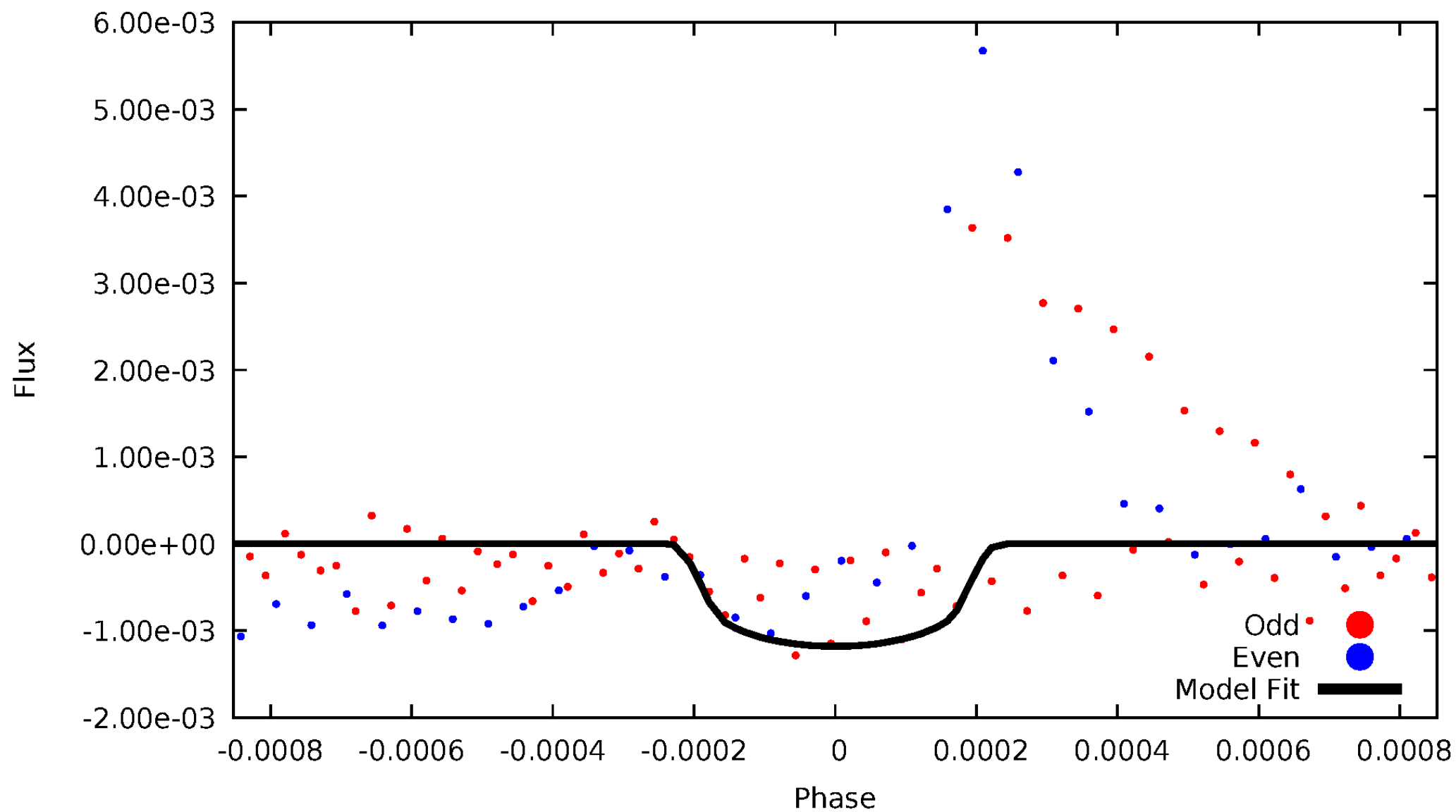


TCE 007676676-04



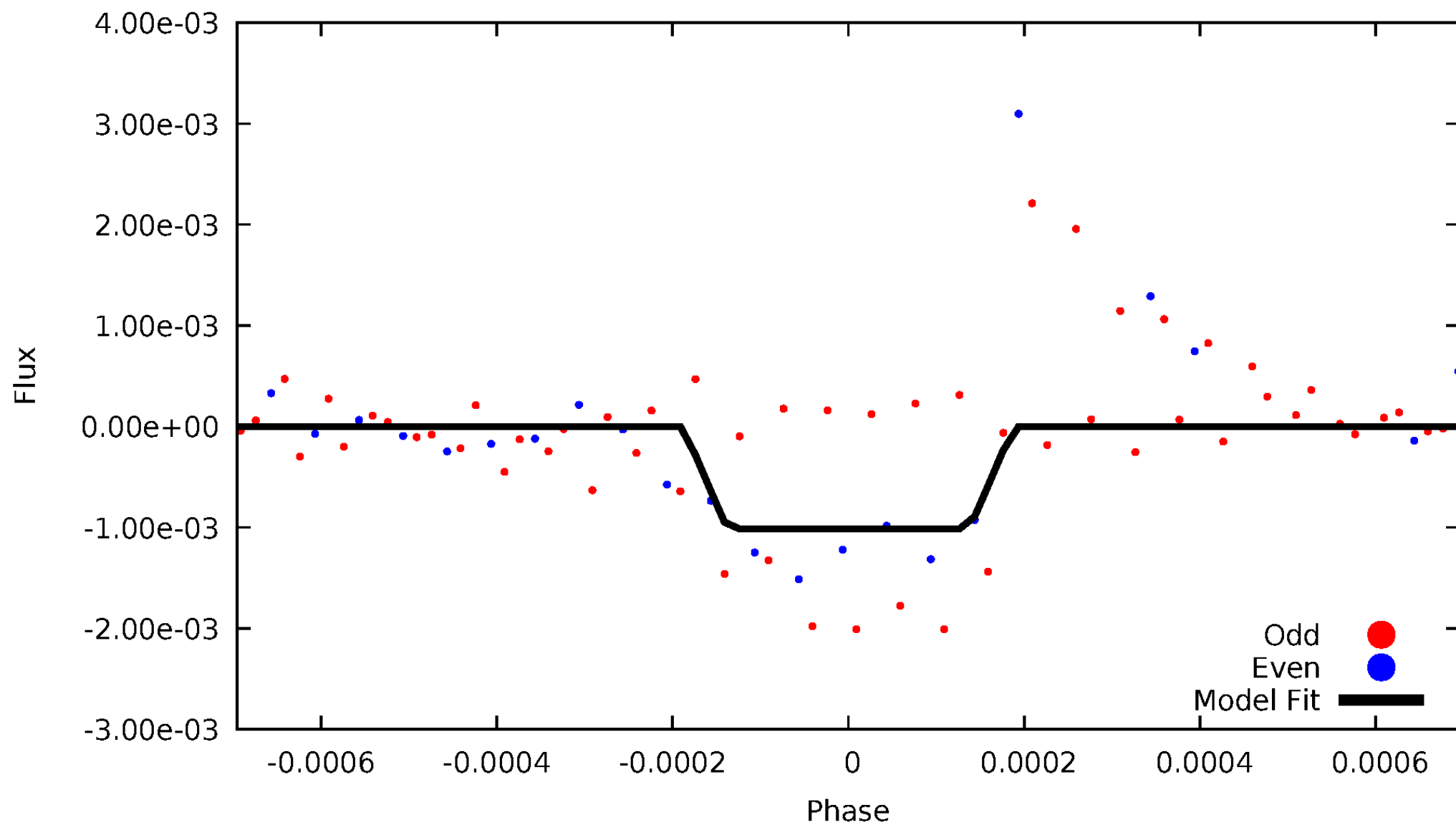
# DV Odd/Even

TCE 007676676-04



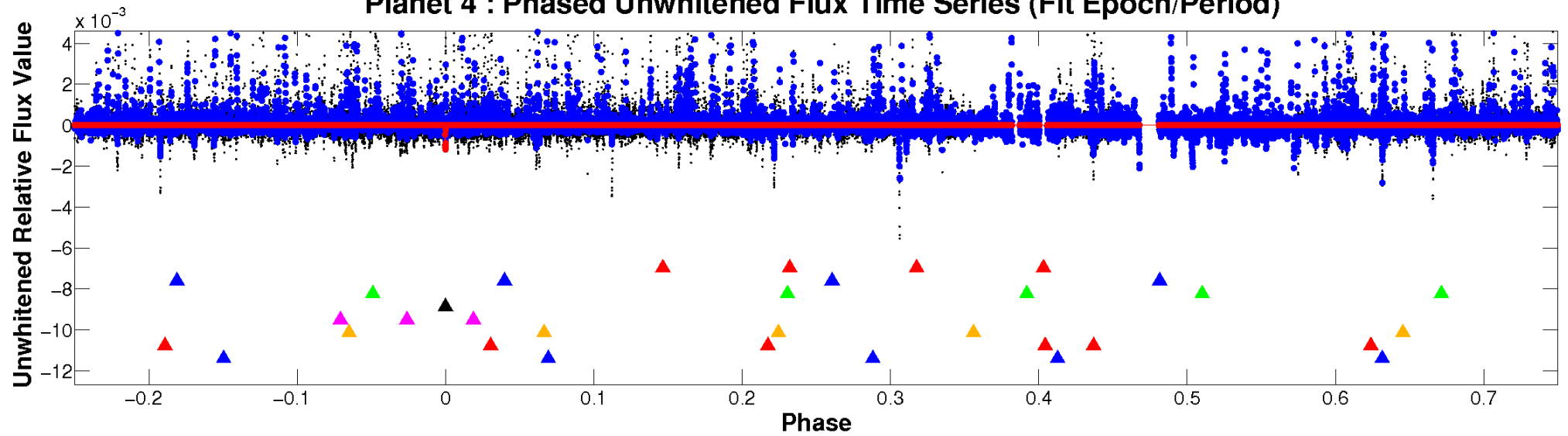
# ALT Odd/Even

TCE 007676676-04

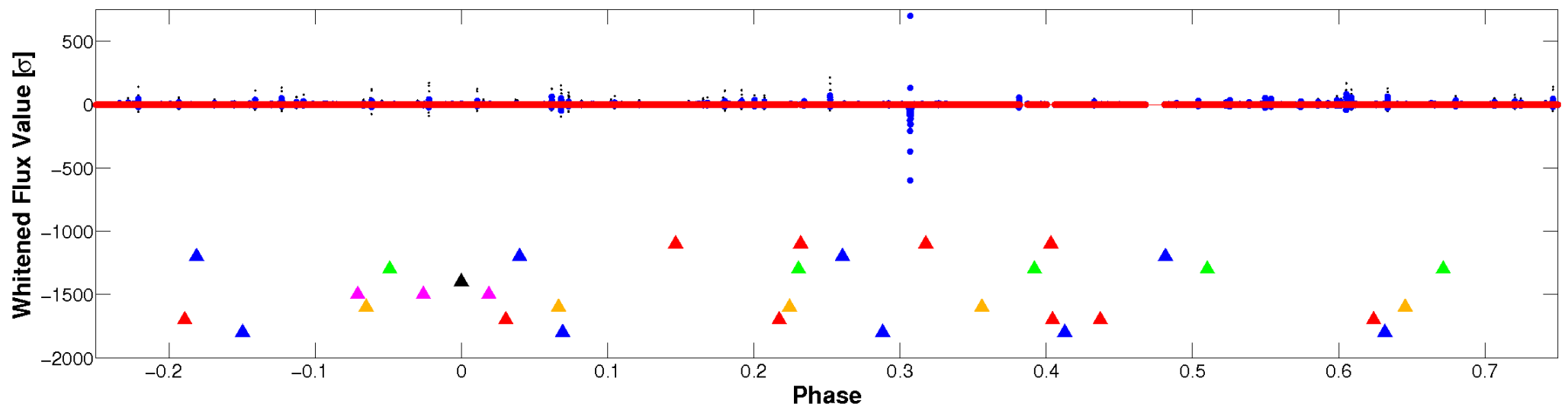


# Non-Whitened Vs. Whitened Light Curve

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

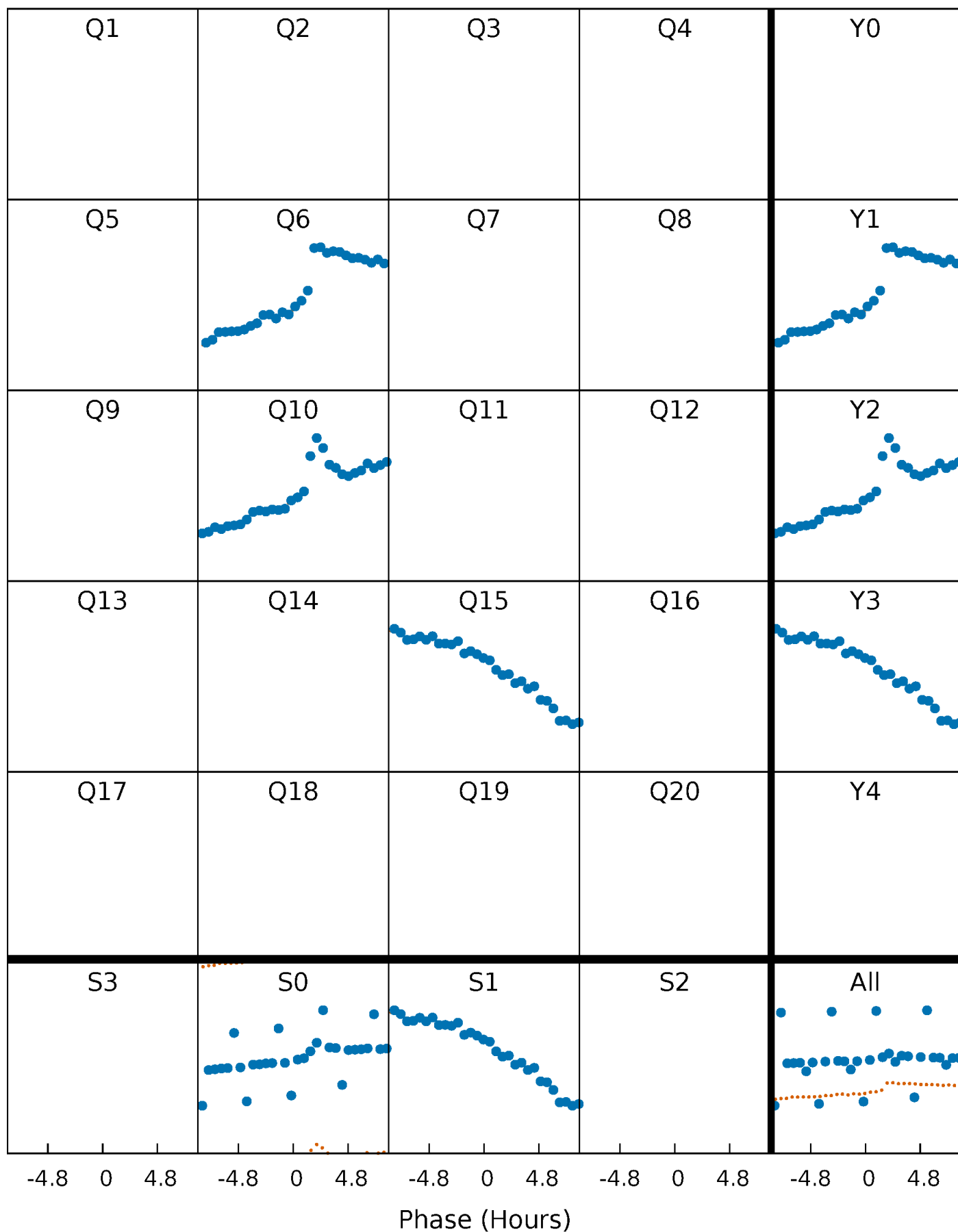


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



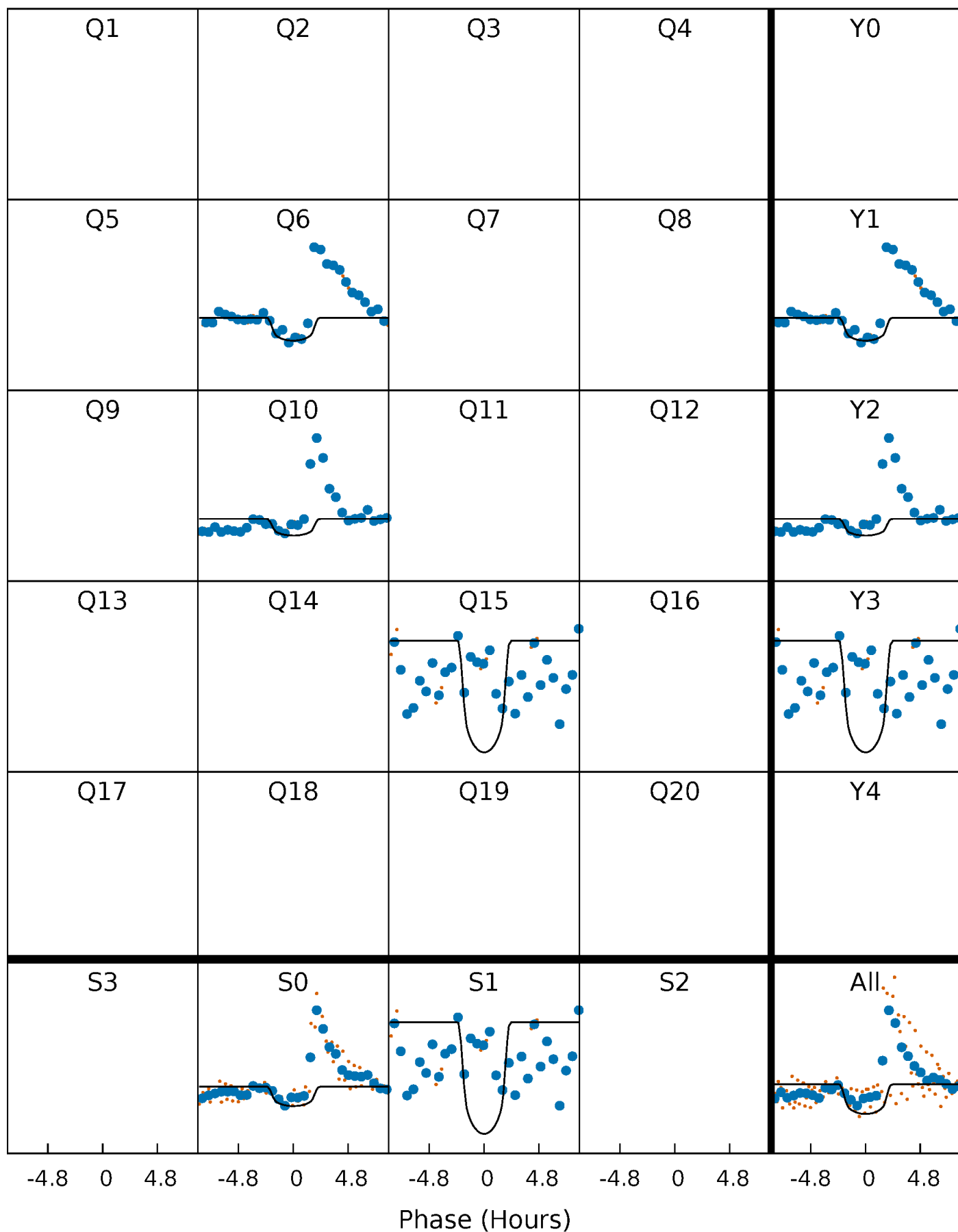
# PDC Quarter-Phased Transit Curves

TCE 007676676-04     $P=408.338746$  Days     $T_0=165.463256$  (BKJD)



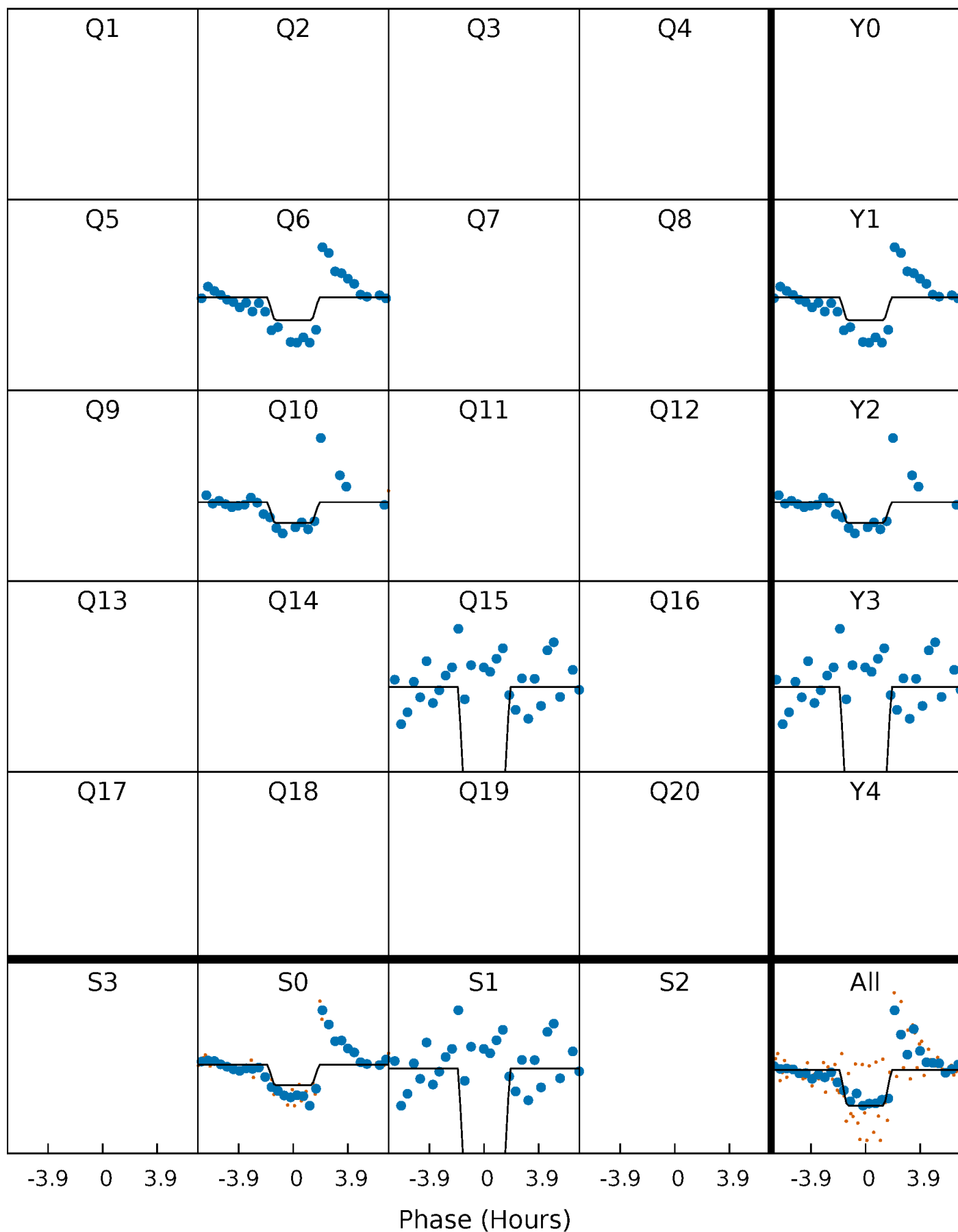
# DV Quarter-Phased Transit Curves

TCE 007676676-04 P=408.338746 Days  $T_0=165.463256$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

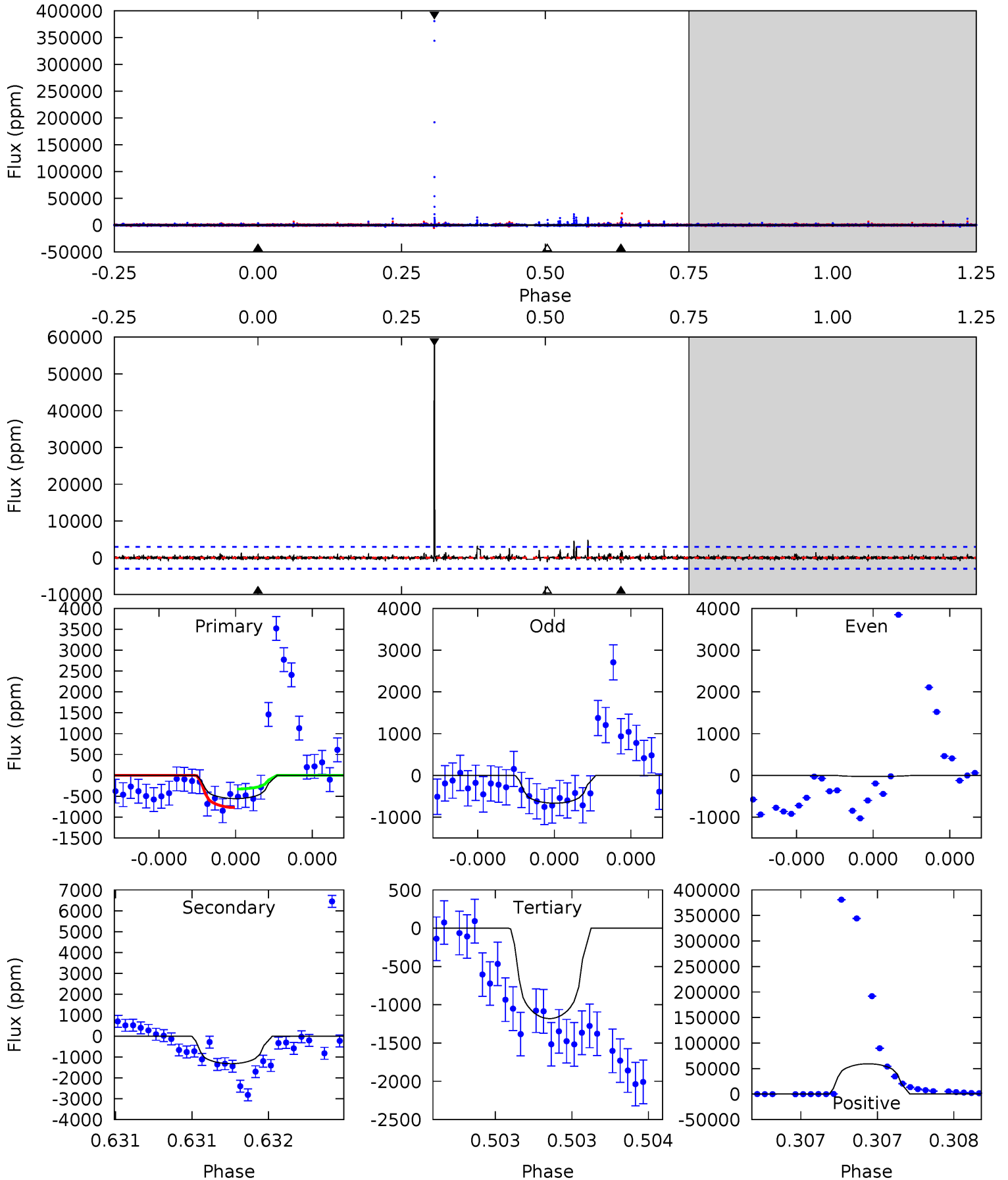
TCE 007676676-04 P=408.330641 Days  $T_0=165.465213$  (BKJD)



# DV Model-Shift Uniqueness Test

007676676-04, P = 408.338746 Days, E = 165.463256 Days

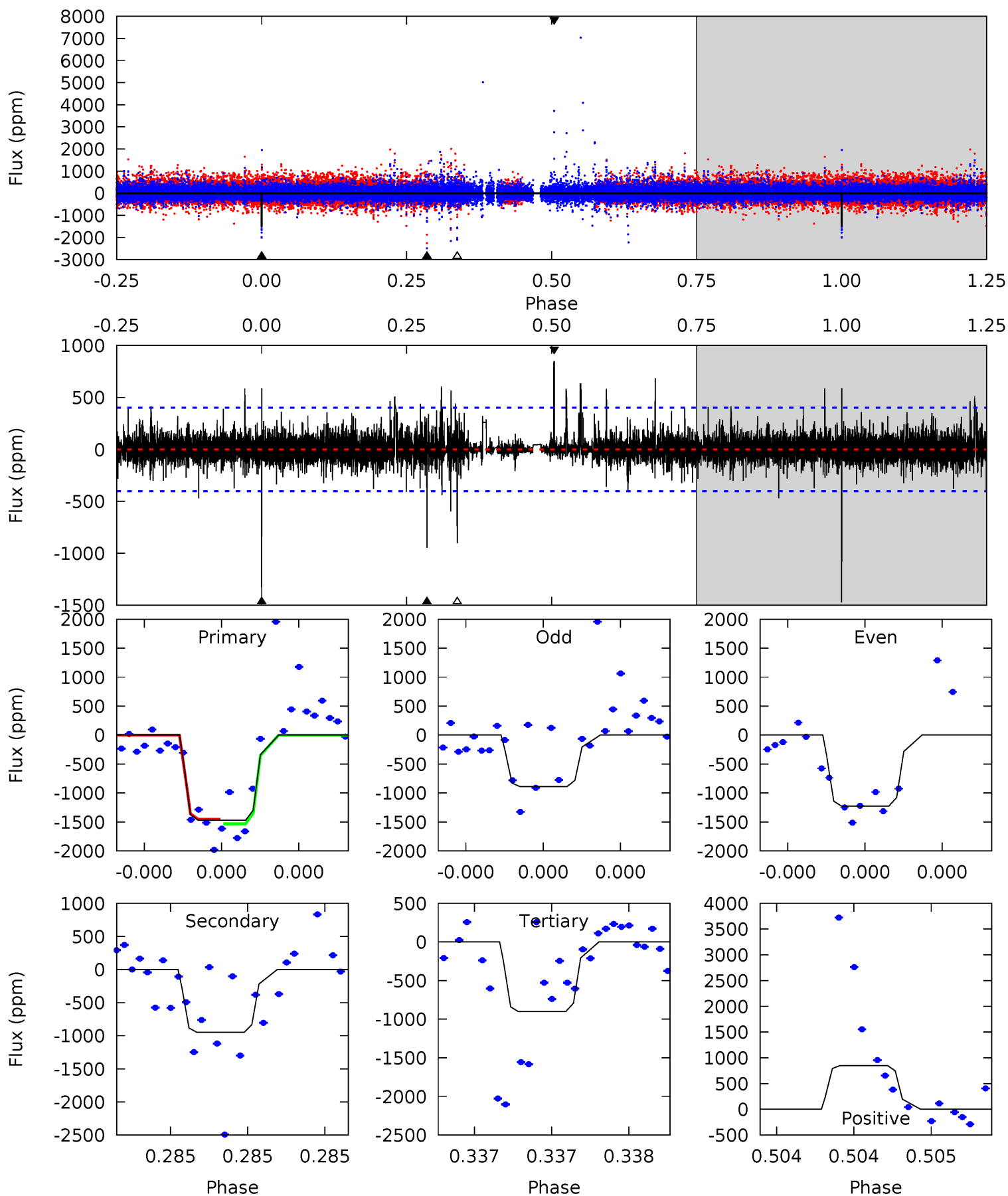
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.04	2.48	2.21	111.4	5.59	3.51	2.15	-1.17	-110.3	0.27	-108.9	0.66	0.91	0.98	0.40



# Alt Model-Shift Uniqueness Test

007676676-04, P = 408.330641 Days, E = 165.465213 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
20.6	13.3	12.6	11.9	5.63	3.57	1.26	8.00	8.72	0.64	1.36	2.41	0.78	0.37	0.54



### Stellar Parameters For KIC 007676676

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4905^{+148}_{-111}$	$3.141^{+0.368}_{-0.301}$	$-0.300^{+0.300}_{-0.200}$	$4.198^{+2.378}_{-1.280}$	$0.891^{+0.337}_{-0.037}$	$0.017^{+0.037}_{-0.012}$
	+3%/-2%	+12%/-10%	+100%/-67%	+57%/-30%	+38%/-4%	+220%/-69%
Source	KIC0	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 007676676-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1323 \pm 533$	$16.42^{+12.83}_{-9.65}$	$600^{+82}_{-68}$	$4924^{+2399}_{-1002}$	$2984^{+13058}_{-2169}$
Alt.	$-946 \pm 71$	$16.21^{+11.34}_{-9.63}$	$603^{+74}_{-60}$	$4647^{+2201}_{-755}$	$2297^{+11929}_{-1496}$

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

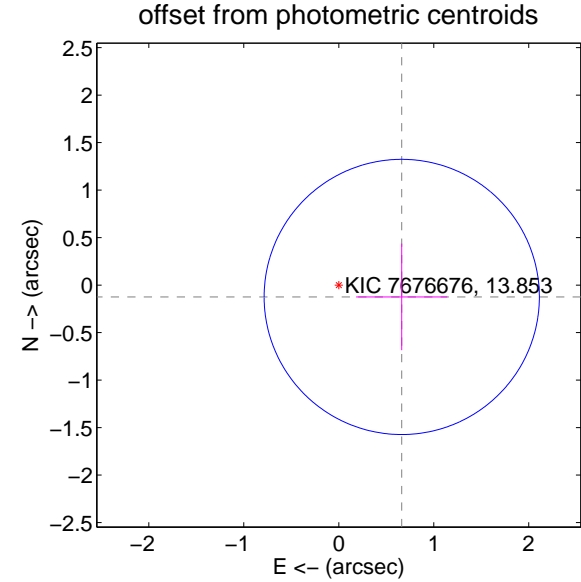
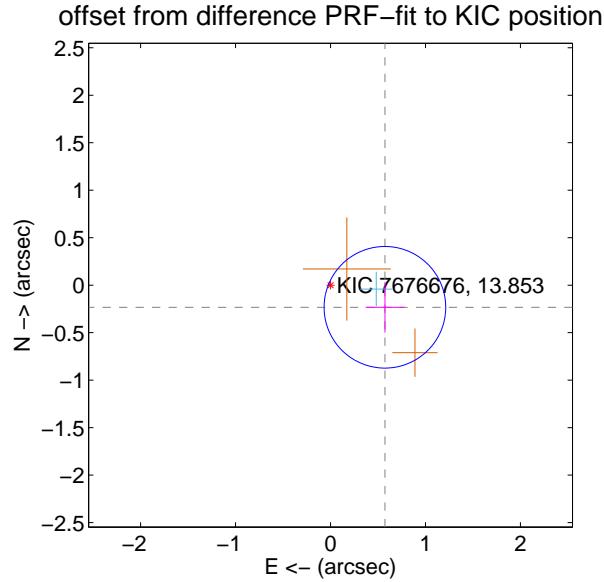
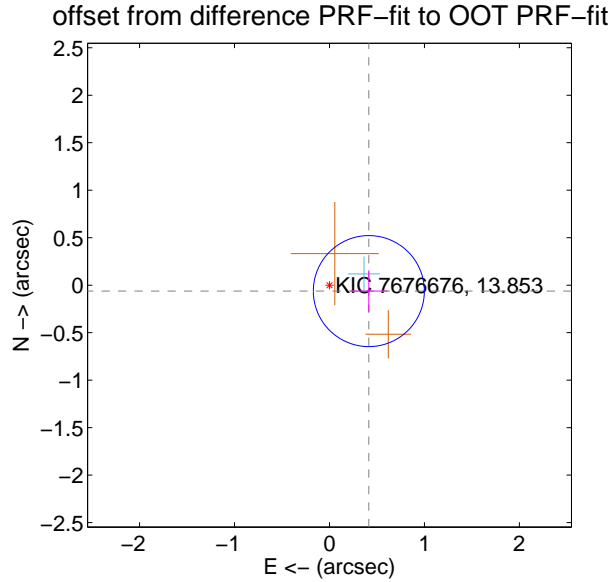
## DV Centroid Data

Supplemental centroid analysis for 007676676-04. Kepler magnitude: 13.85. Transit SNR 7.33

There are 1 quarters with good PRF difference image offsets

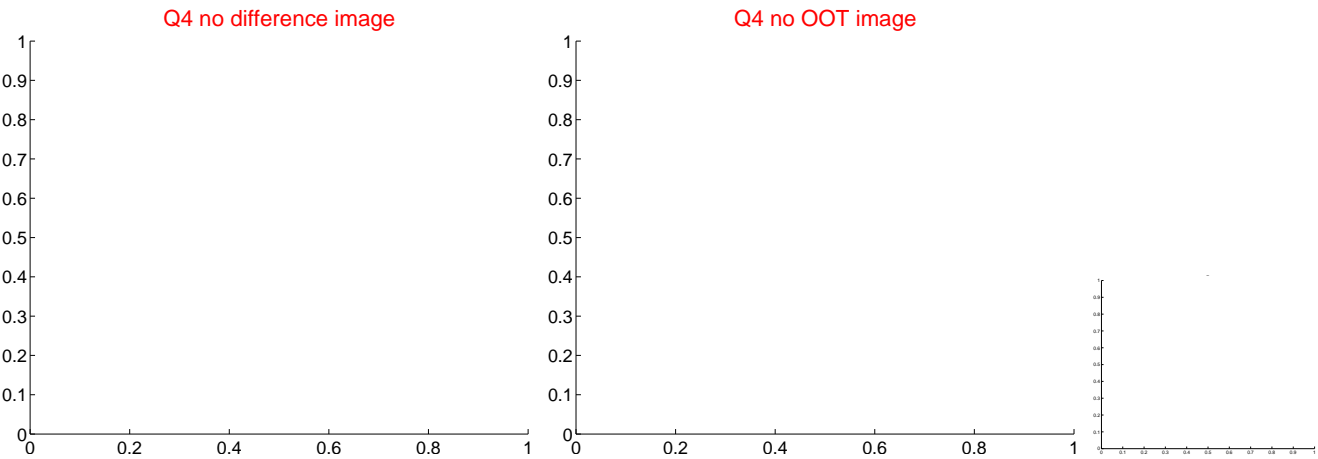
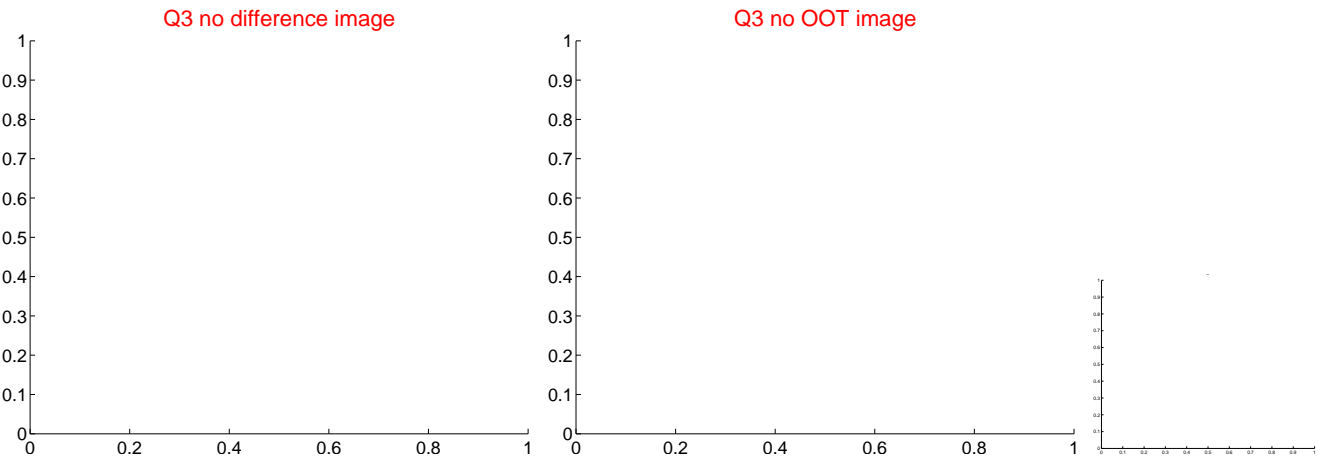
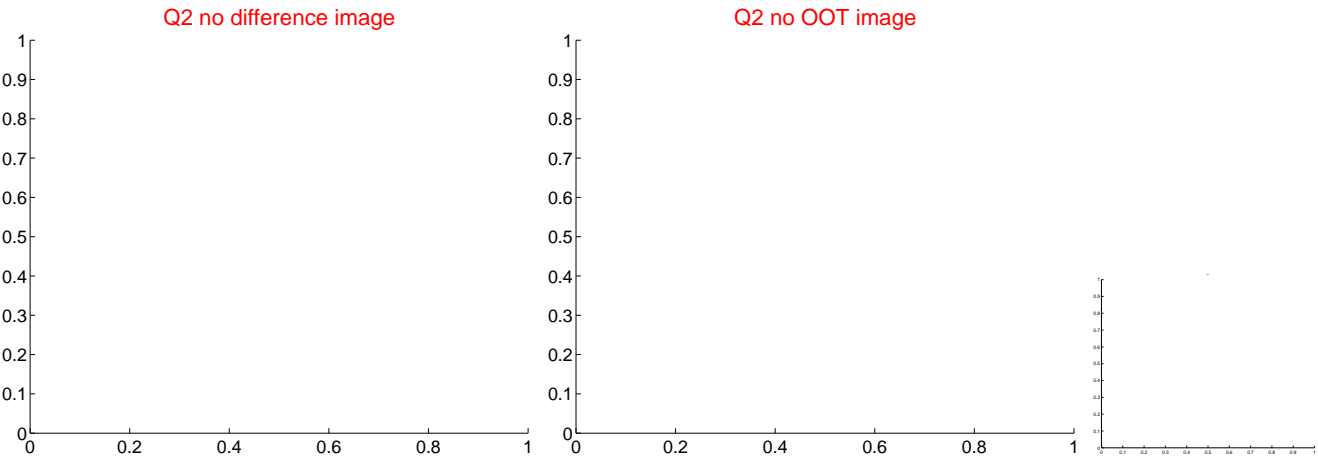
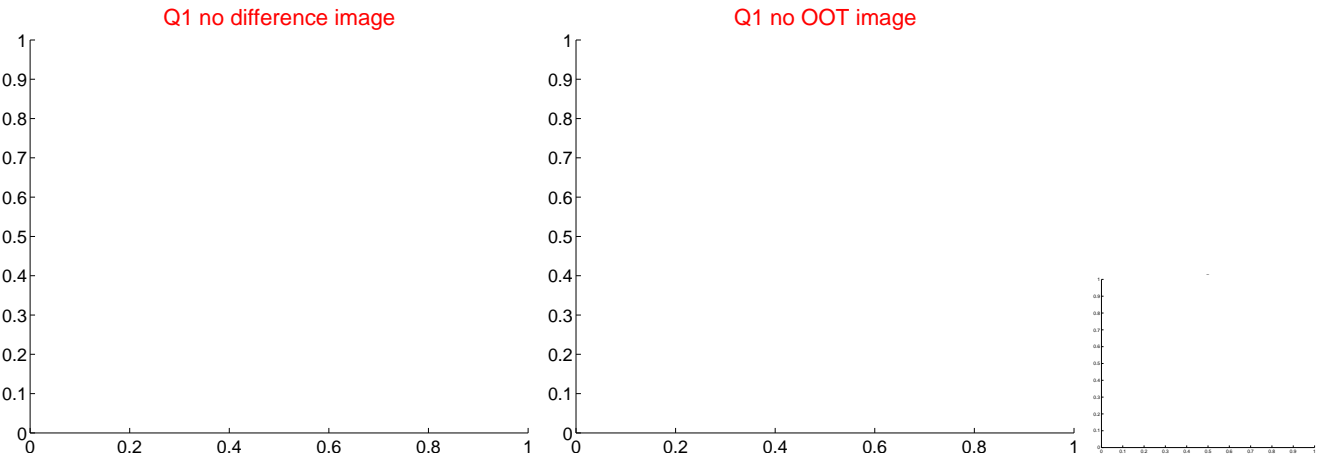
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.419 \pm 0.195$	2.15	$-0.414 \pm 0.194$	$-0.062 \pm 0.219$
PRF-fit source offset from KIC position	$0.618 \pm 0.213$	2.90	$-0.573 \pm 0.203$	$-0.233 \pm 0.267$
photometric centroid source offset	$0.67 \pm 0.48$	1.40	$-0.66 \pm 0.48$	$-0.12 \pm 0.56$

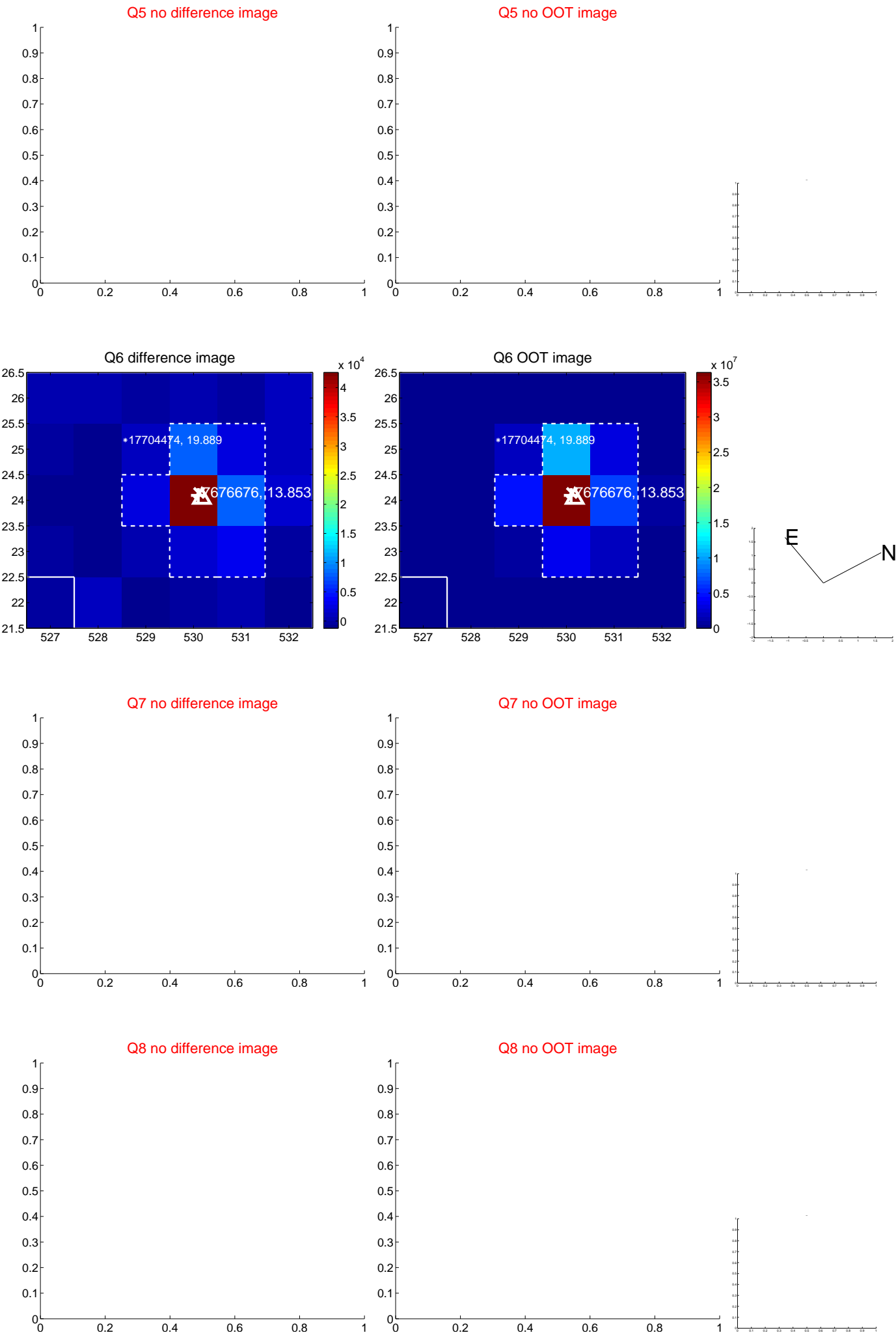


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

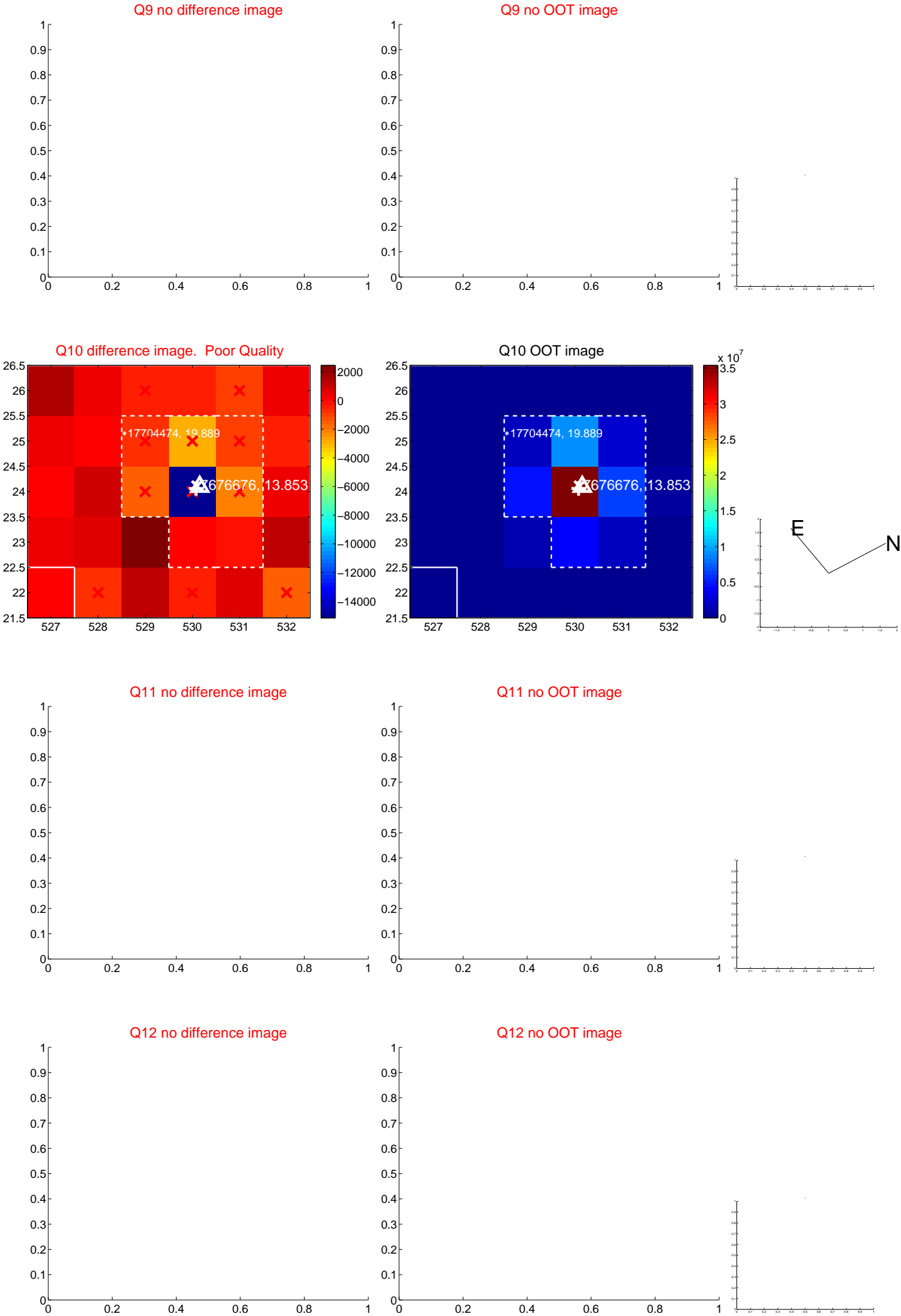
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



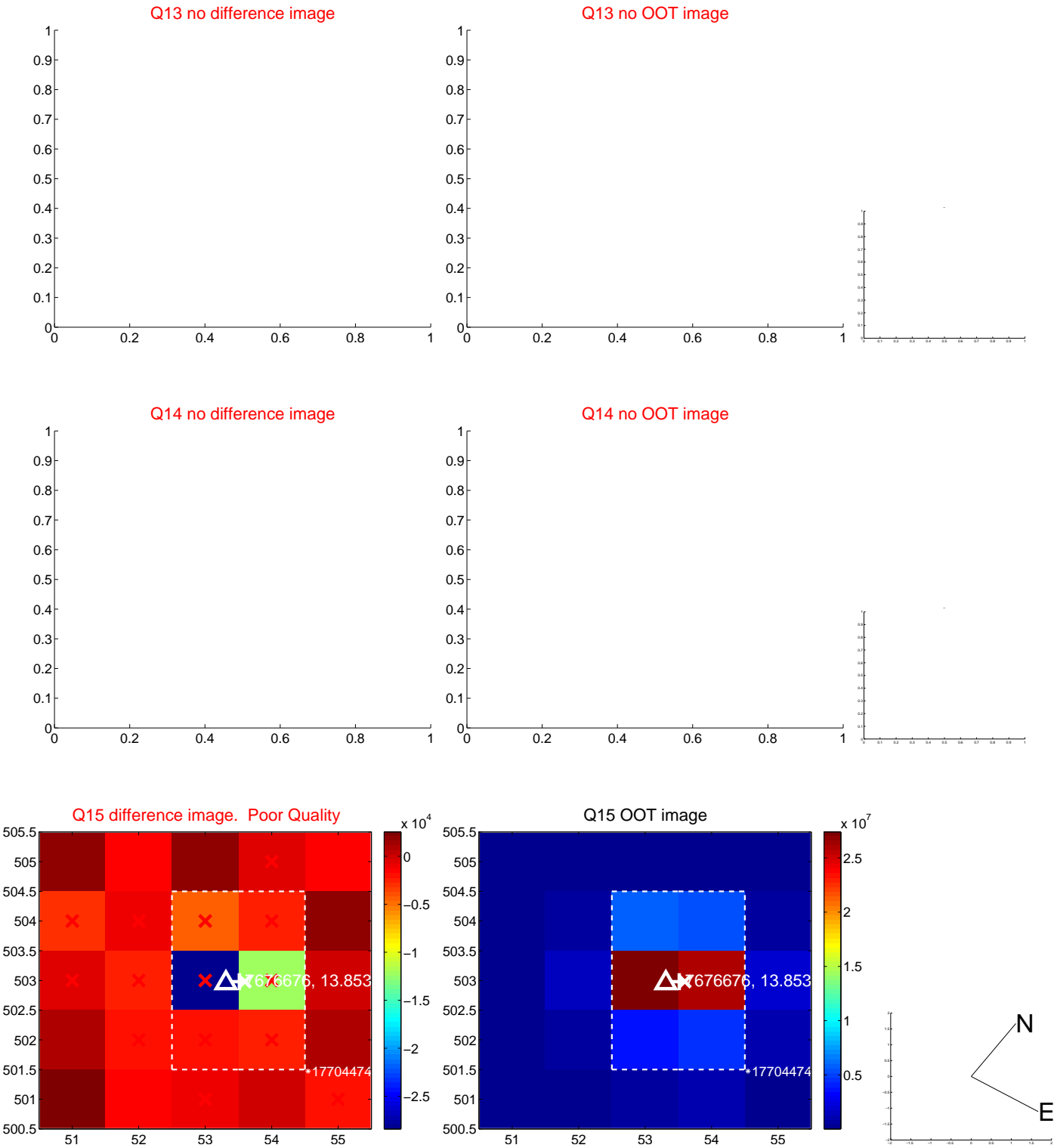
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



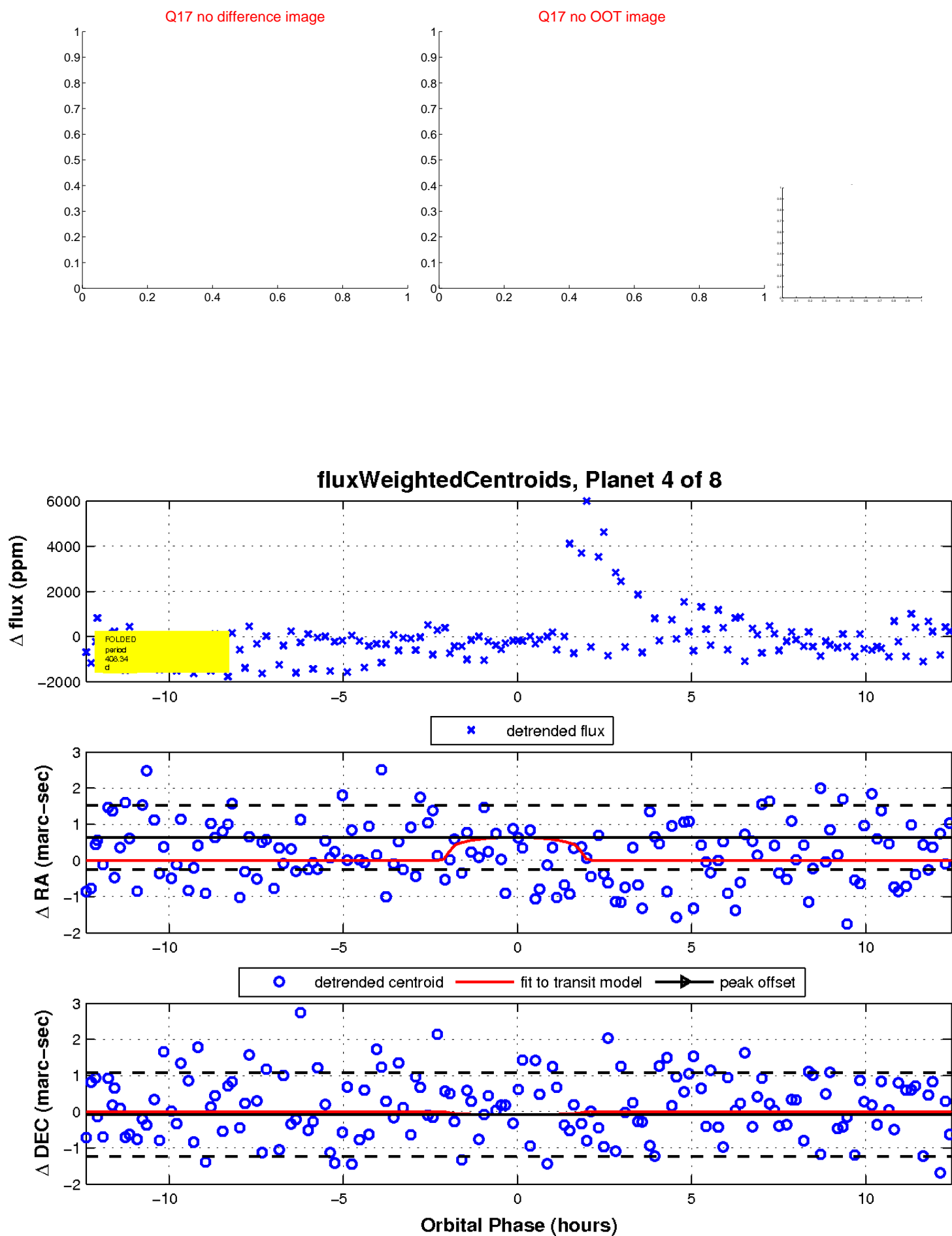
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

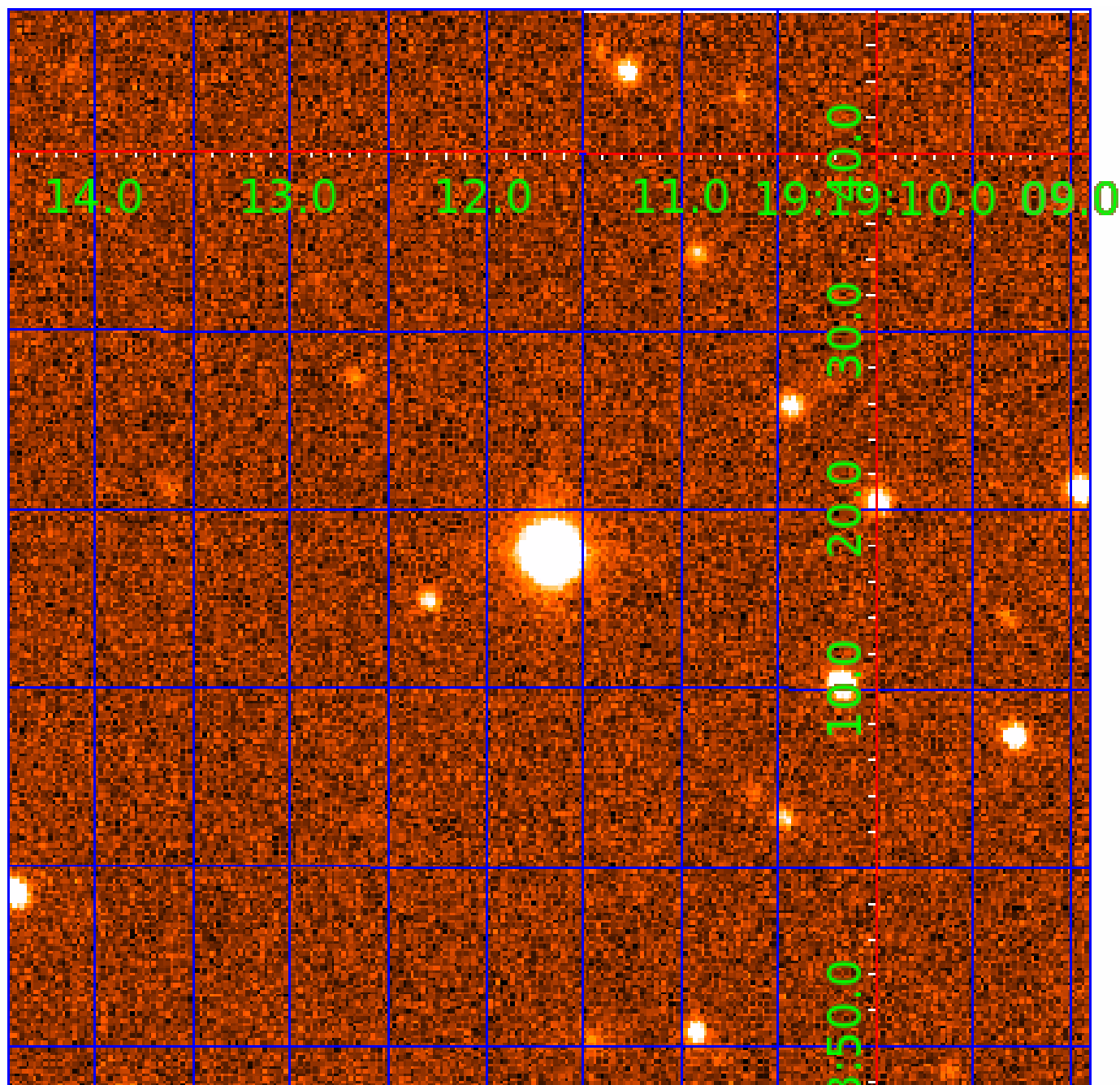


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007676676

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007676676-01	OBS	No	373.410857	330.099023	1817.1	16.864	21.8	7.1	4.20	4905	23.89	9.59
007676676-03	OBS	No	294.185642	373.781142	1221.4	6.935	22.0	6.9	4.20	4905	14.24	13.18
007676676-04	OBS	No	408.338746	165.463256	1179.2	4.175	16.5	7.3	4.20	4905	15.81	8.51
007676676-07	OBS	No	242.336798	343.901912	840.7	4.351	17.1	5.9	4.20	4905	11.80	17.07
007676676-08	OBS	No	318.967872	283.134820	1238.2	10.500	24.2	-1.0	4.20	4905	14.33	11.83

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007676676-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
007676676-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007676676-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
007676676-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS— HALO_GHOST
007676676-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

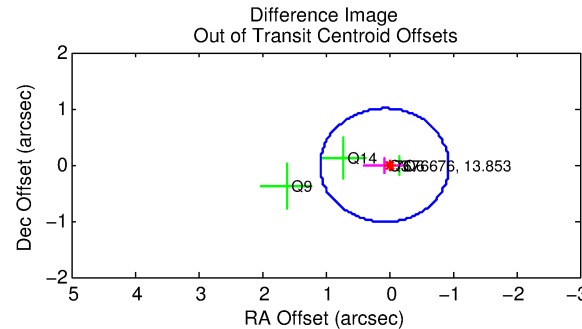
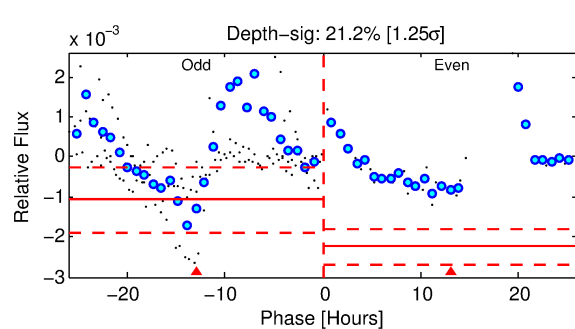
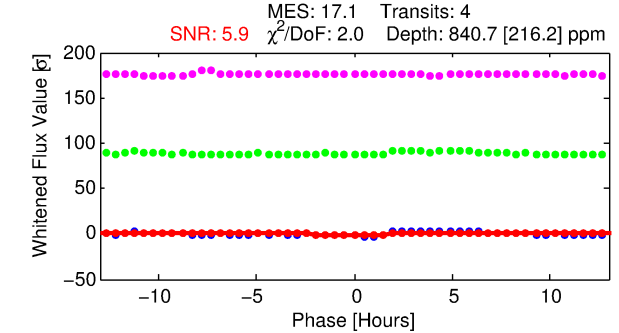
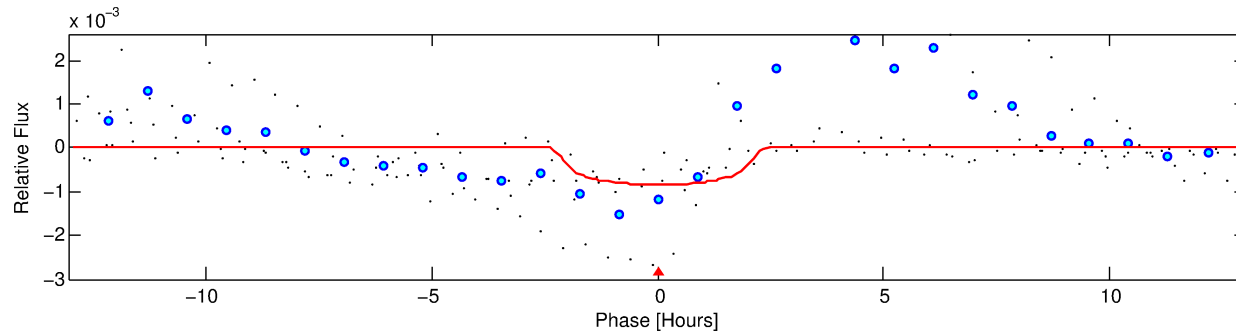
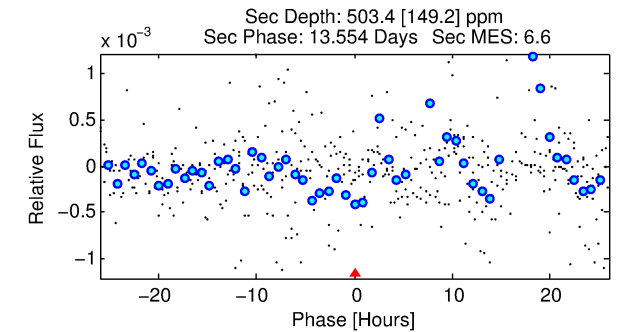
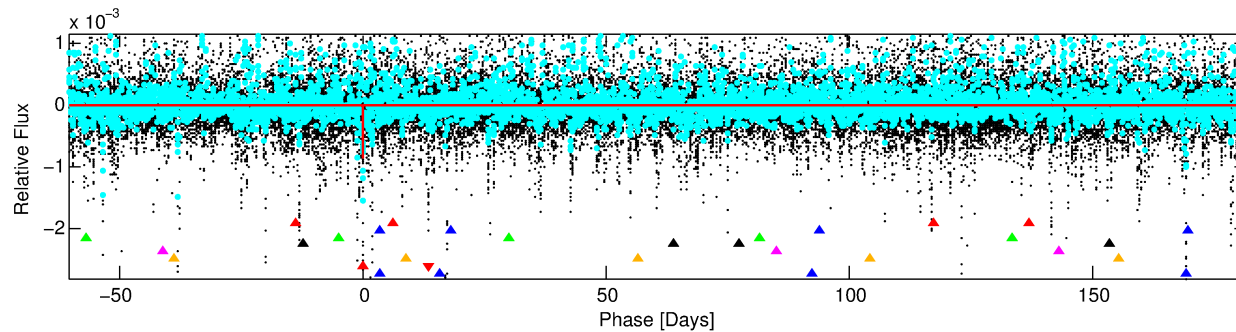
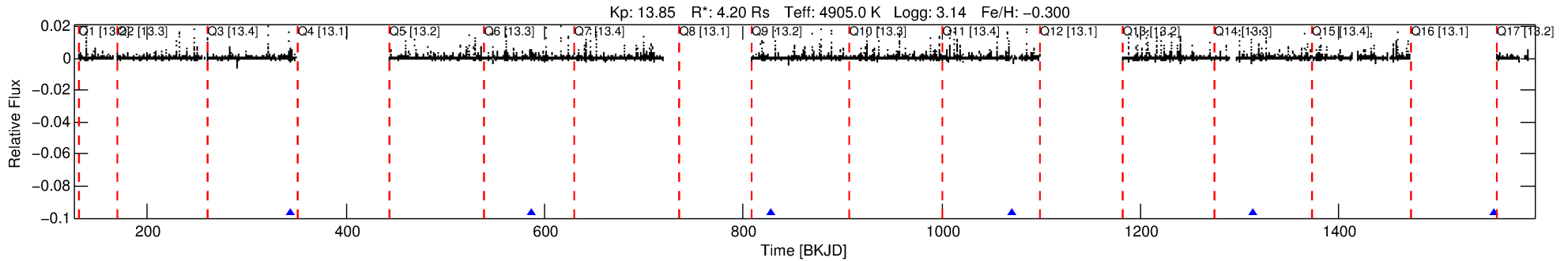
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007676676-07

No Significant Match Found

# DV One-Page Summary

KIC: 7676676 Candidate: 7 of 8 Period: 242.337 d



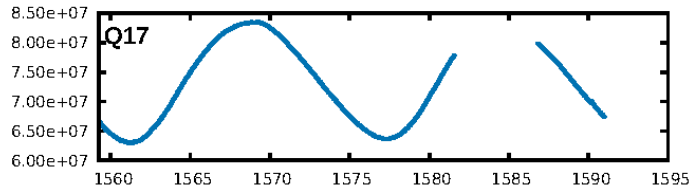
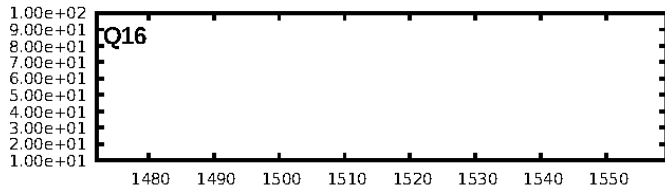
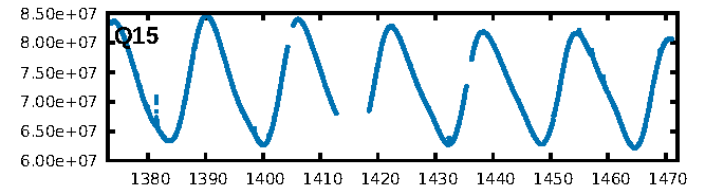
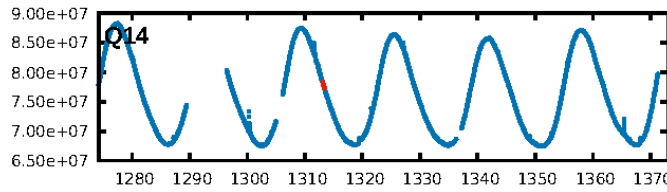
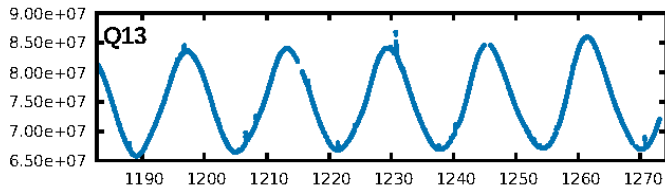
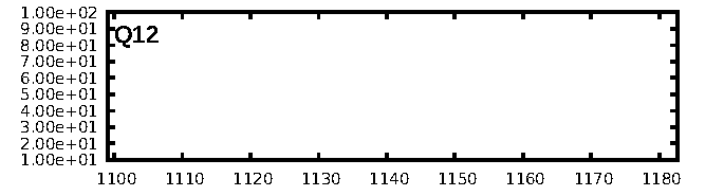
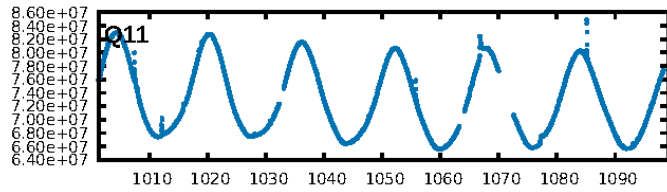
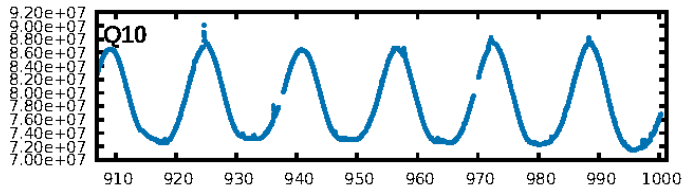
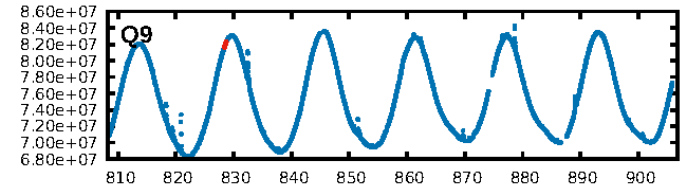
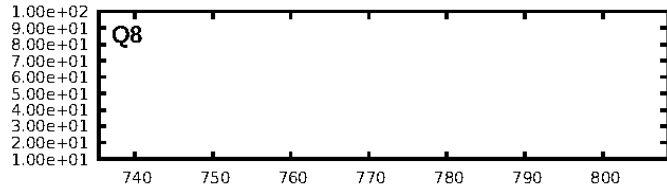
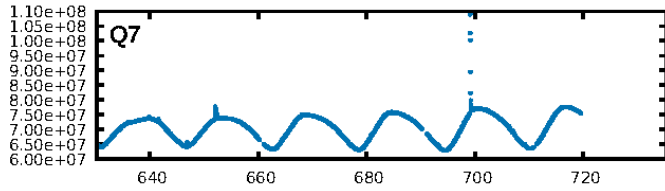
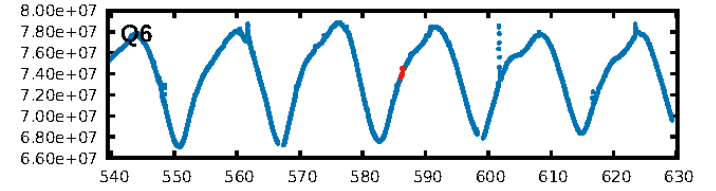
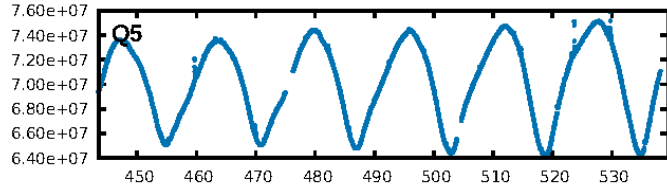
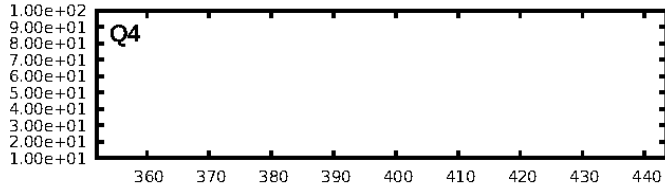
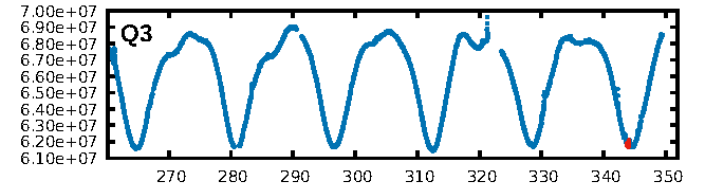
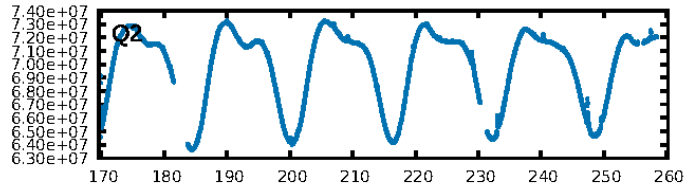
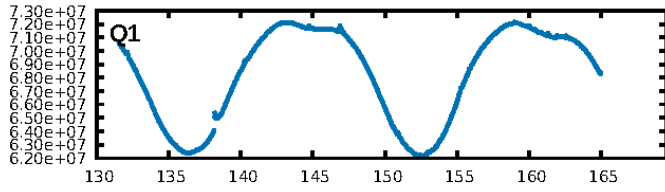
## DV Fit Results:

Period = 242.33680 [0.00360] d  
Epoch = 343.9019 [0.0098] BKJD  
Rp/R\* = 0.0258 [0.1206]  
a/R\* = 435.32 [7044.56]  
b = 0.07 [226.59]  
Seff = 17.07 [11.78]  
Teq = 518 [89] K  
Rp = 11.80 [55.67] Re  
a = 0.7317 [0.3451] AU  
Ag = 1064.44 [9999.16] [0.11σ]  
Teffp = 4577 [10722] K [0.38σ]

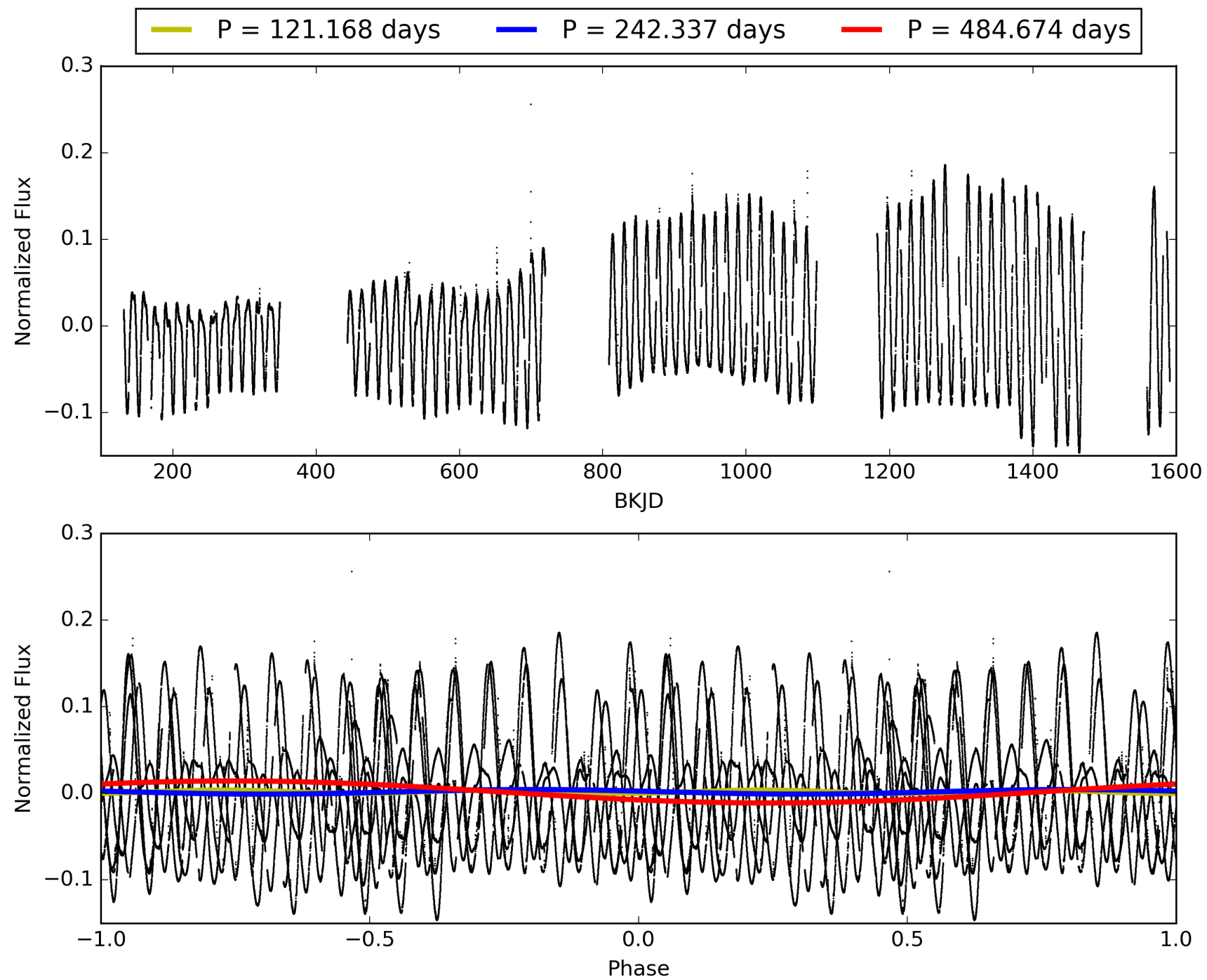
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [73.44σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 9.5%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.007517  
Centroid-sig: 65.2%  
Centroid-so: 0.481 arcsec [0.66σ]  
OotOffset-rm: 0.075 arcsec [0.22σ]  
KicOffset-rm: 0.258 arcsec [1.66σ]  
OotOffset-st: 2/1/0/1 [4]  
KicOffset-st: 2/1/0/1 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 1.00 [4/4]

# TCE 007676676-07, PDC Light Curves

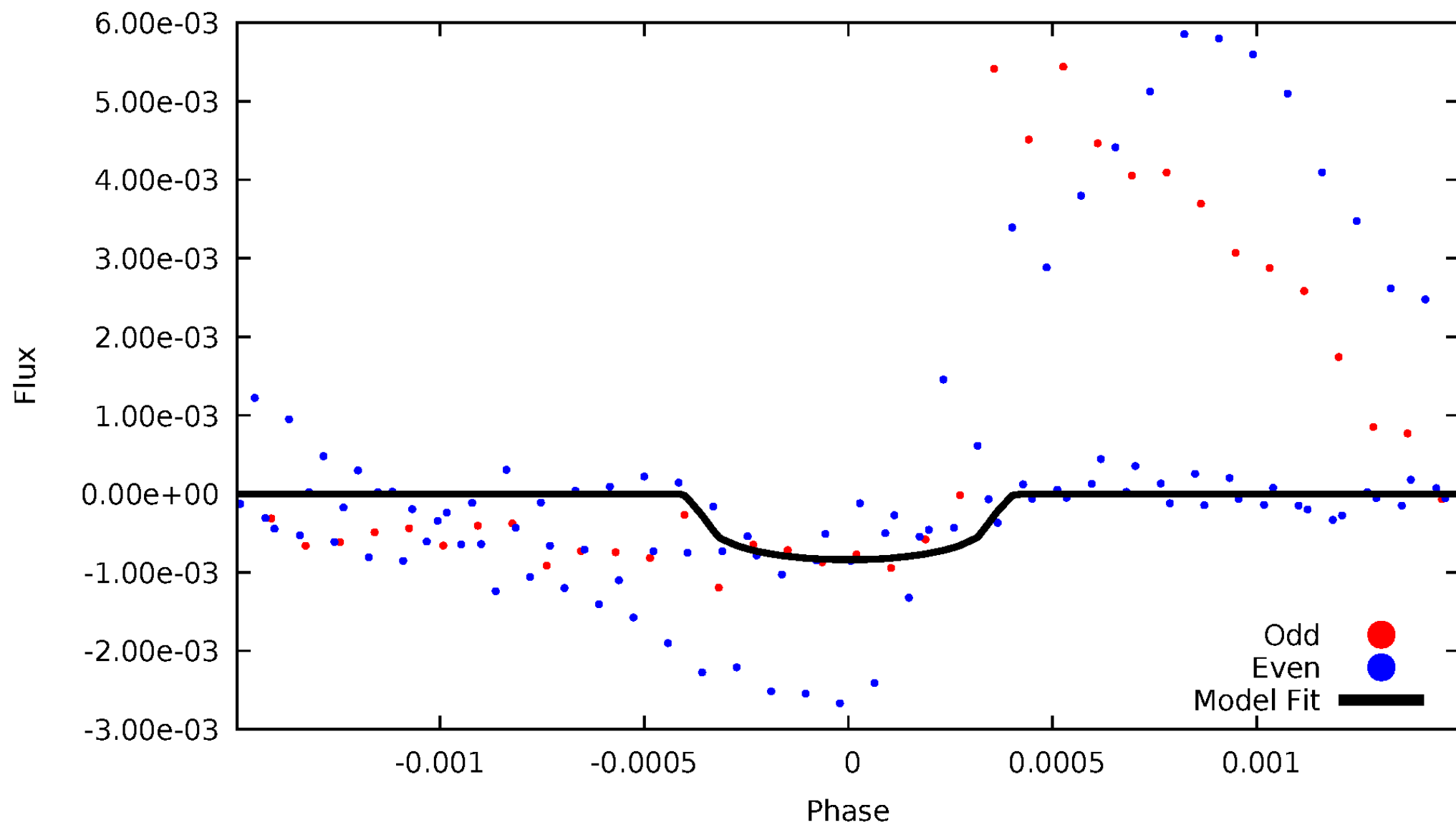


TCE 007676676-07



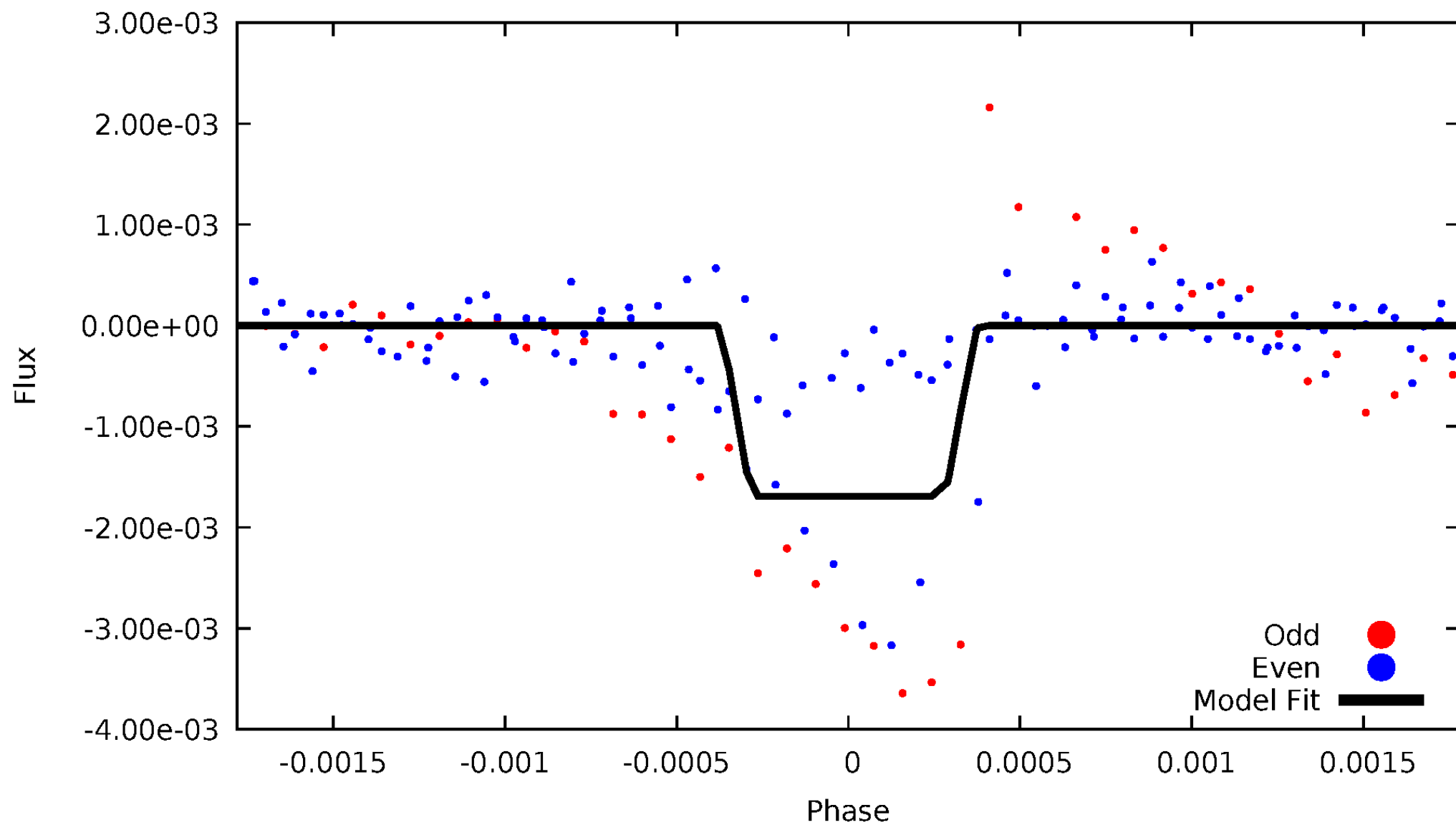
# DV Odd/Even

TCE 007676676-07



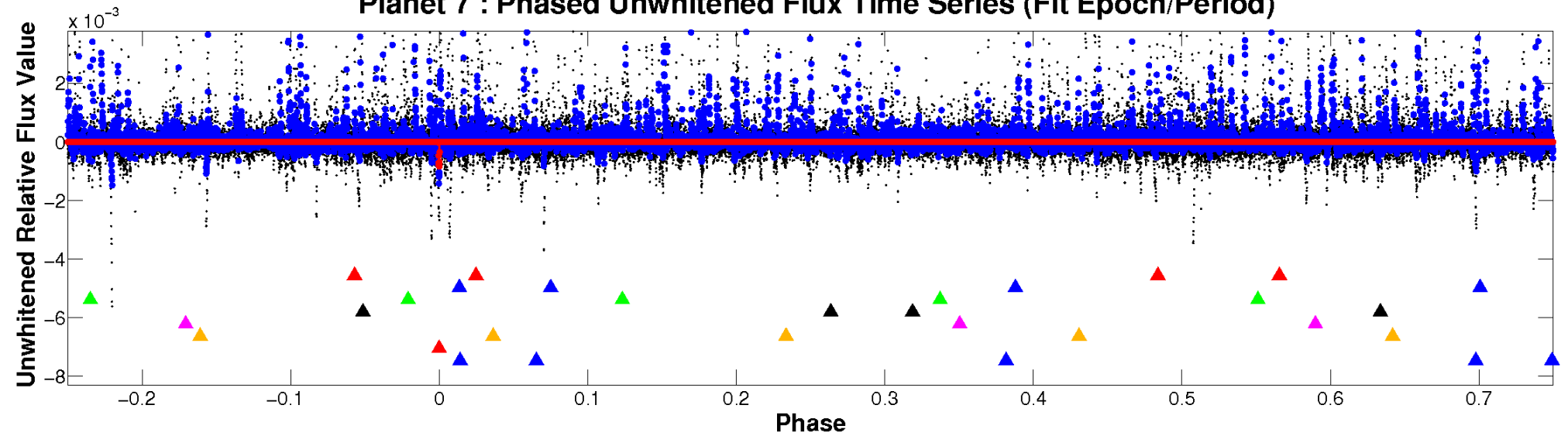
# ALT Odd/Even

TCE 007676676-07

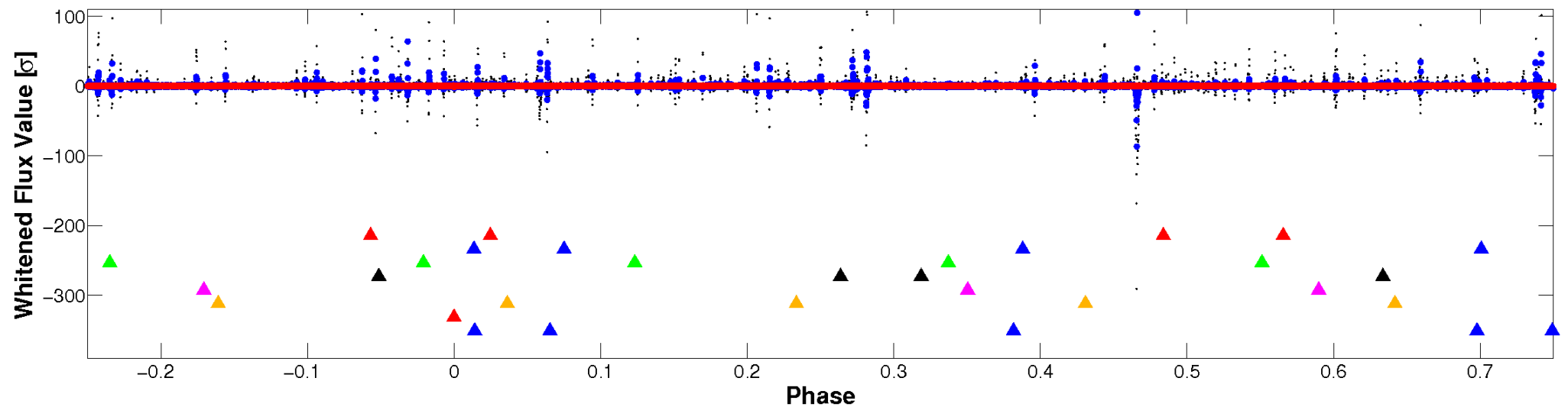


# Non-Whitened Vs. Whitened Light Curve

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

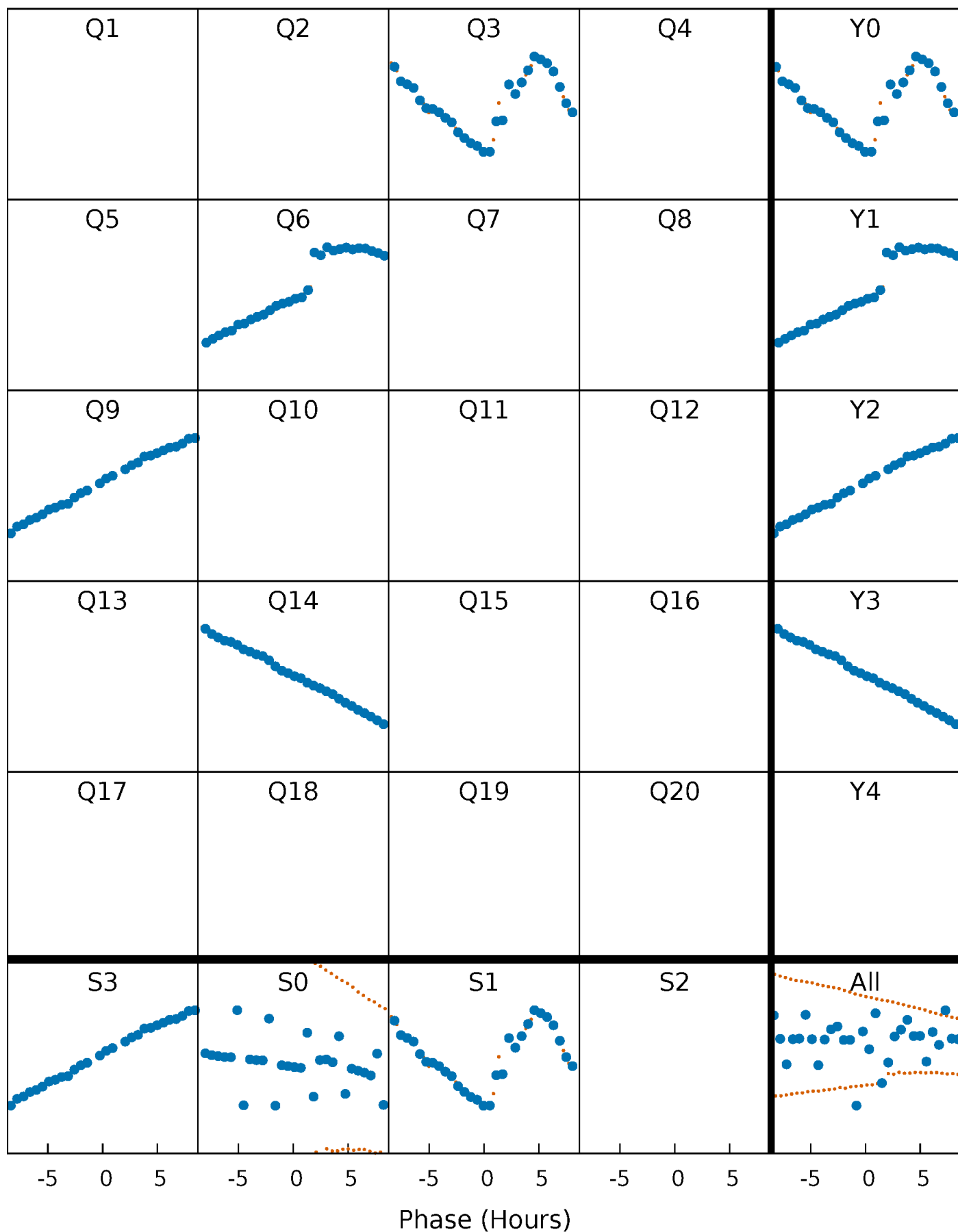


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



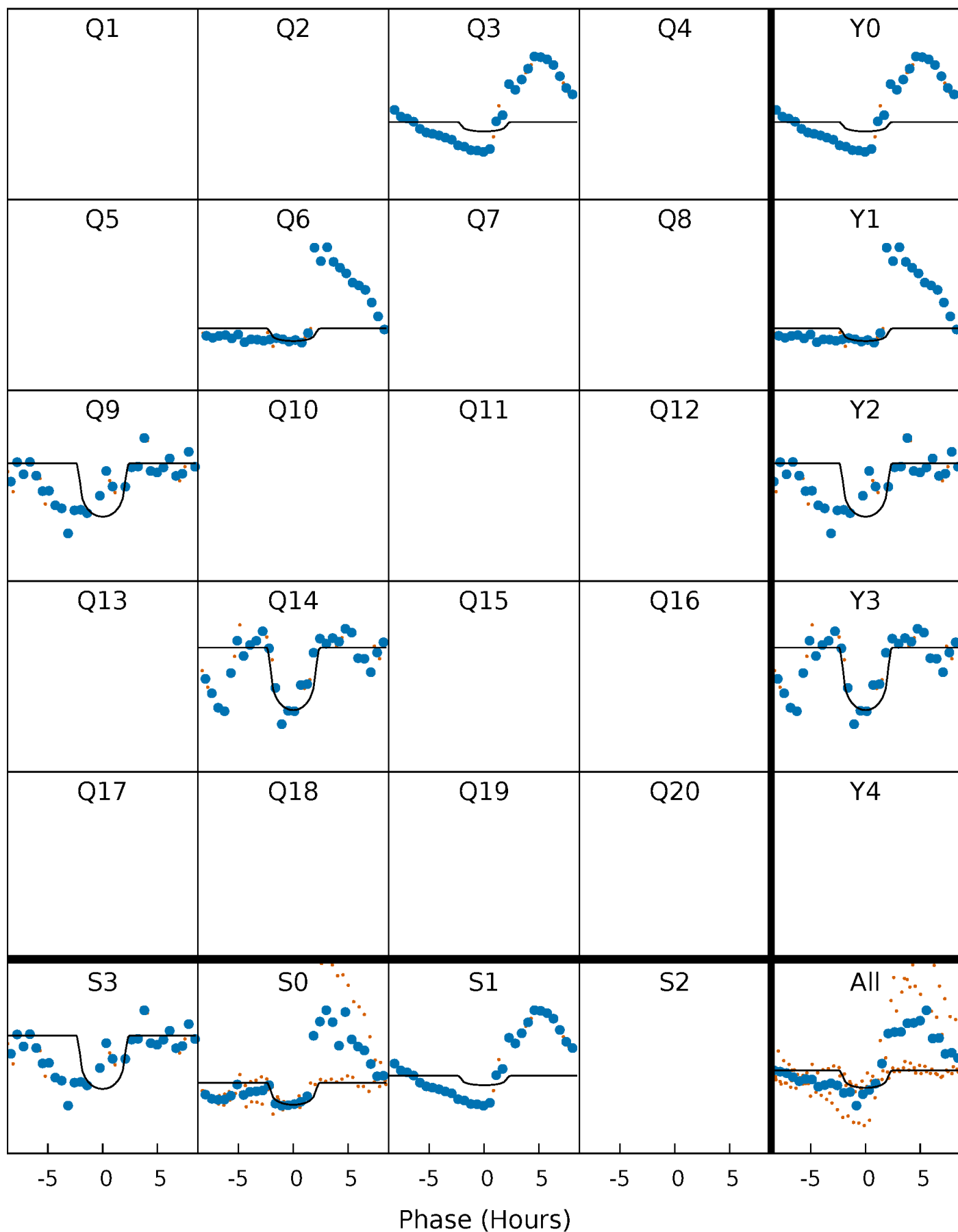
# PDC Quarter-Phased Transit Curves

TCE 007676676-07     $P=242.336798$  Days     $T_0=343.901912$  (BKJD)



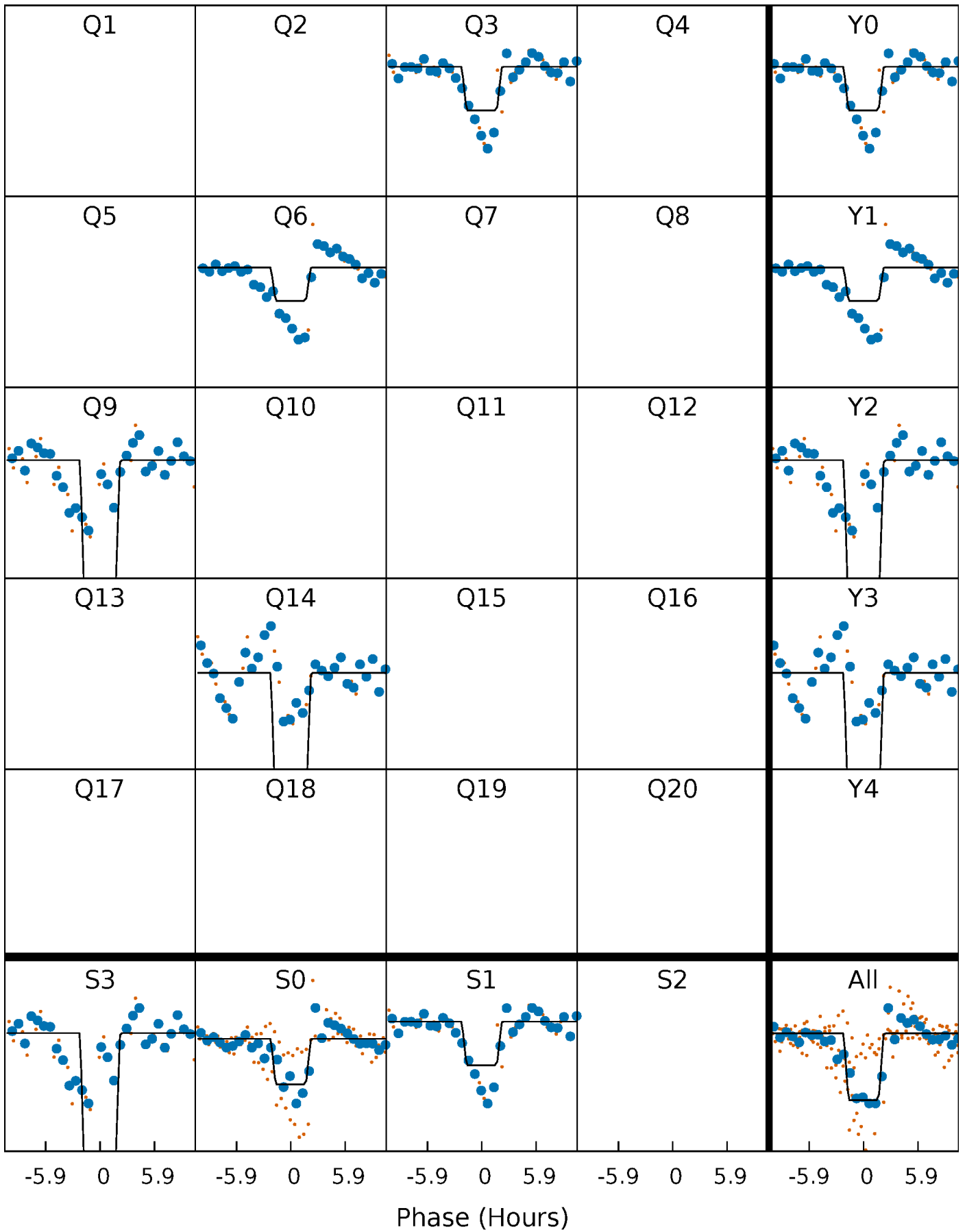
# DV Quarter-Phased Transit Curves

TCE 007676676-07 P=242.336798 Days  $T_0=343.901912$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

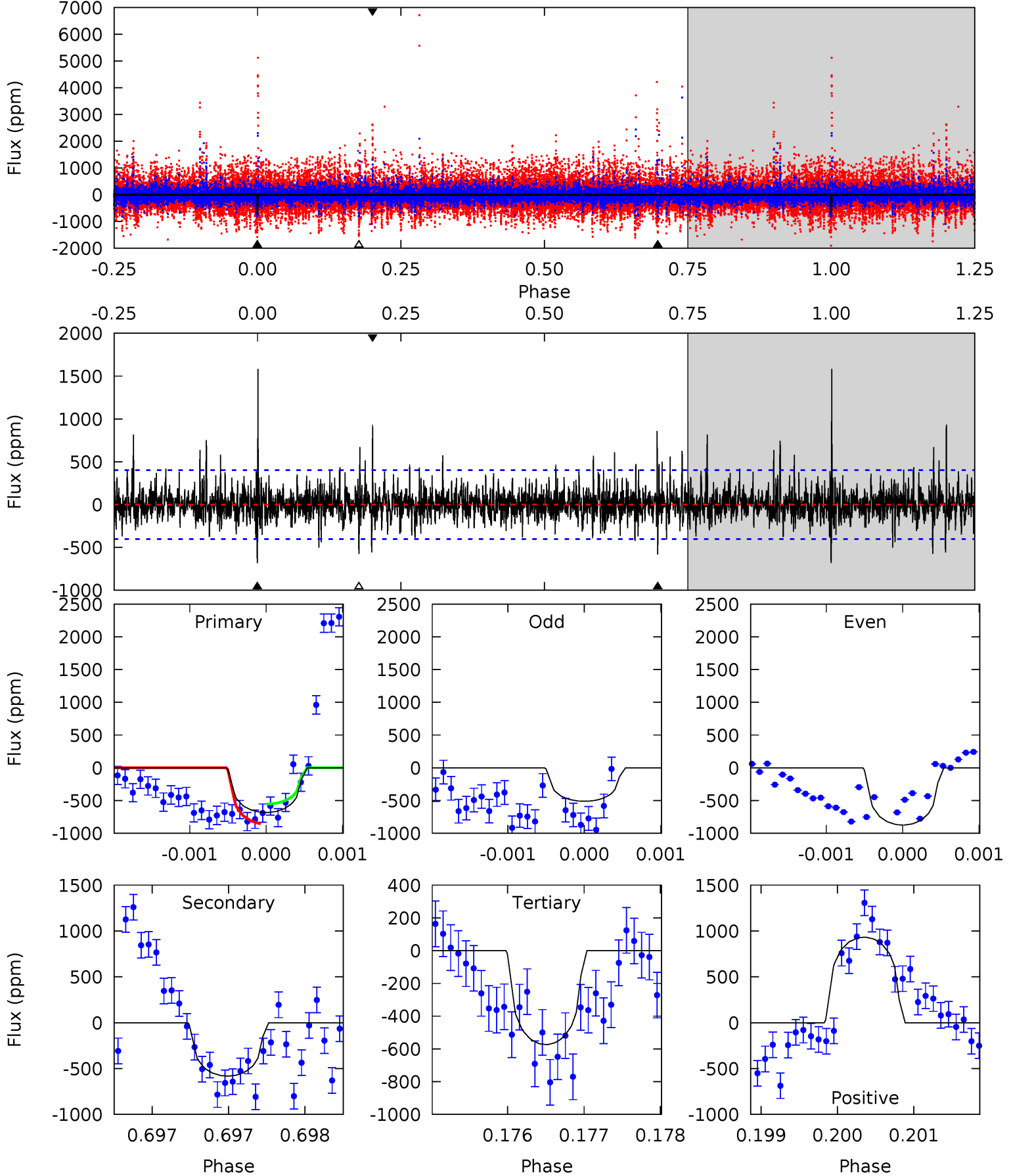
TCE 007676676-07     $P=242.338722$  Days     $T_0=343.887008$  (BKJD)



# DV Model-Shift Uniqueness Test

007676676-07, P = 242.336798 Days, E = 101.565114 Days

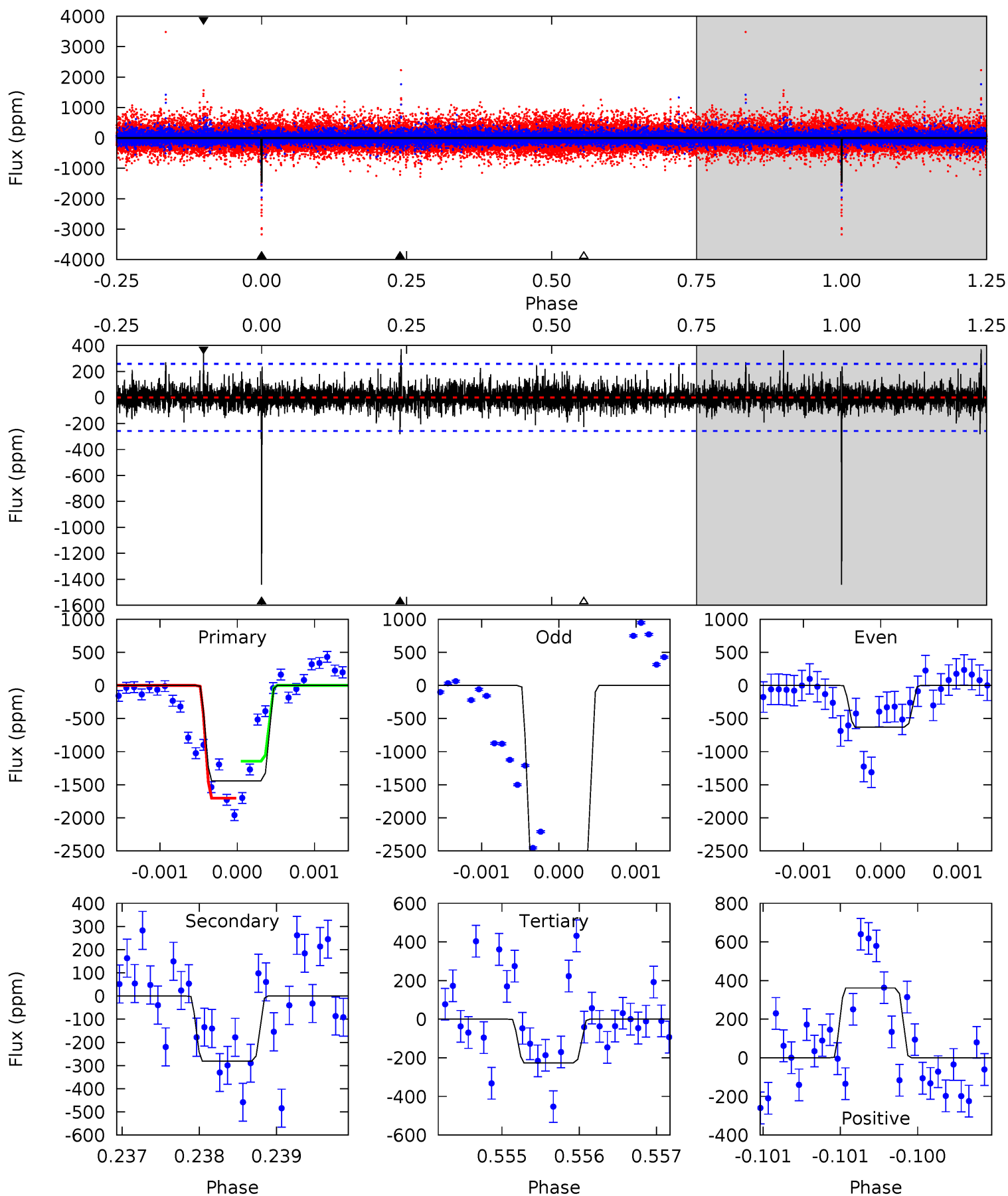
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.31	7.94	7.83	12.7	5.49	3.35	1.85	1.49	-3.41	0.11	-4.78	1.27	1.44	0.70	0



# Alt Model-Shift Uniqueness Test

007676676-07, P = 242.338722 Days, E = 101.548286 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
30.6	5.98	4.81	7.68	5.49	3.36	1.15	25.8	22.9	1.17	-1.70	19.7	1.16	0.20	0



### Stellar Parameters For KIC 007676676

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4905^{+148}_{-111}$	$3.141^{+0.368}_{-0.301}$	$-0.300^{+0.300}_{-0.200}$	$4.198^{+2.378}_{-1.280}$	$0.891^{+0.337}_{-0.037}$	$0.017^{+0.037}_{-0.012}$
	+3%/-2%	+12%/-10%	+100%/-67%	+57%/-30%	+38%/-4%	+220%/-69%
Source	KIC0	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 007676676-07 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-582 \pm 73$	$40.10^{+51.49}_{-29.59}$	$718^{+90}_{-74}$	$3153^{+1863}_{-603}$	$114^{+1534}_{-93}$
Alt.	$-281 \pm 47$	$44.15^{+54.73}_{-30.61}$	$715^{+95}_{-73}$	$2754^{+1126}_{-465}$	$47^{+394}_{-38}$

$T_{\text{max}}$  = 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

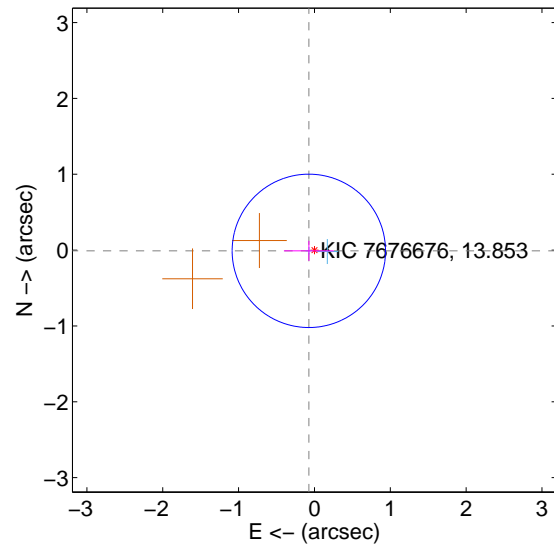
Supplemental centroid analysis for 007676676-07. Kepler magnitude: 13.85. Transit SNR 5.85

There are 2 quarters with good PRF difference image offsets

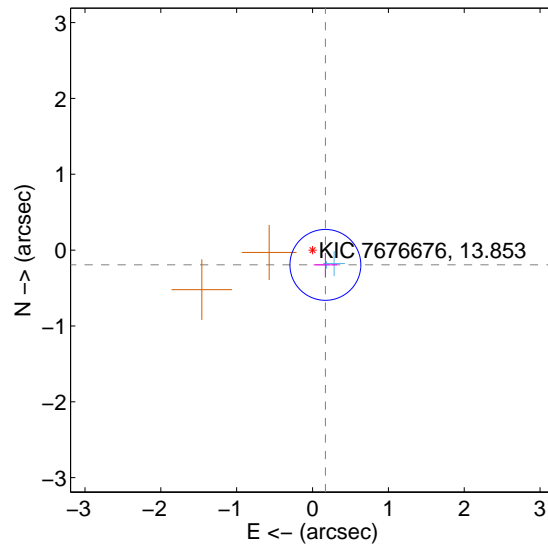
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.075 \pm 0.337$	0.22	$0.074 \pm 0.328$	$-0.010 \pm 0.131$
PRF-fit source offset from KIC position	$0.258 \pm 0.156$	1.66	$-0.169 \pm 0.155$	$-0.195 \pm 0.156$
photometric centroid source offset	$0.48 \pm 0.73$	0.66	$0.16 \pm 0.62$	$-0.45 \pm 0.74$

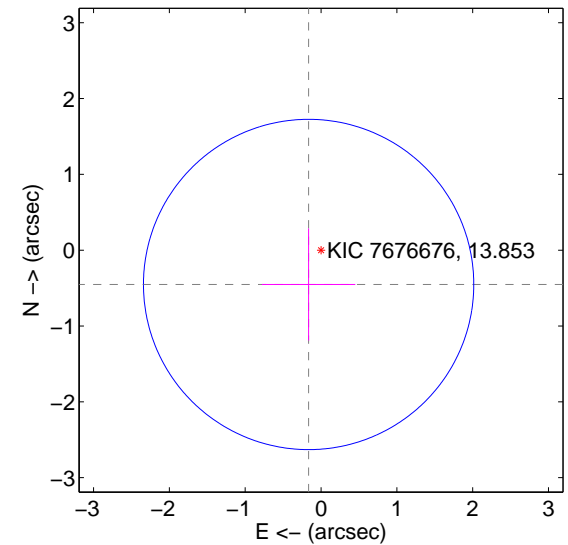
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

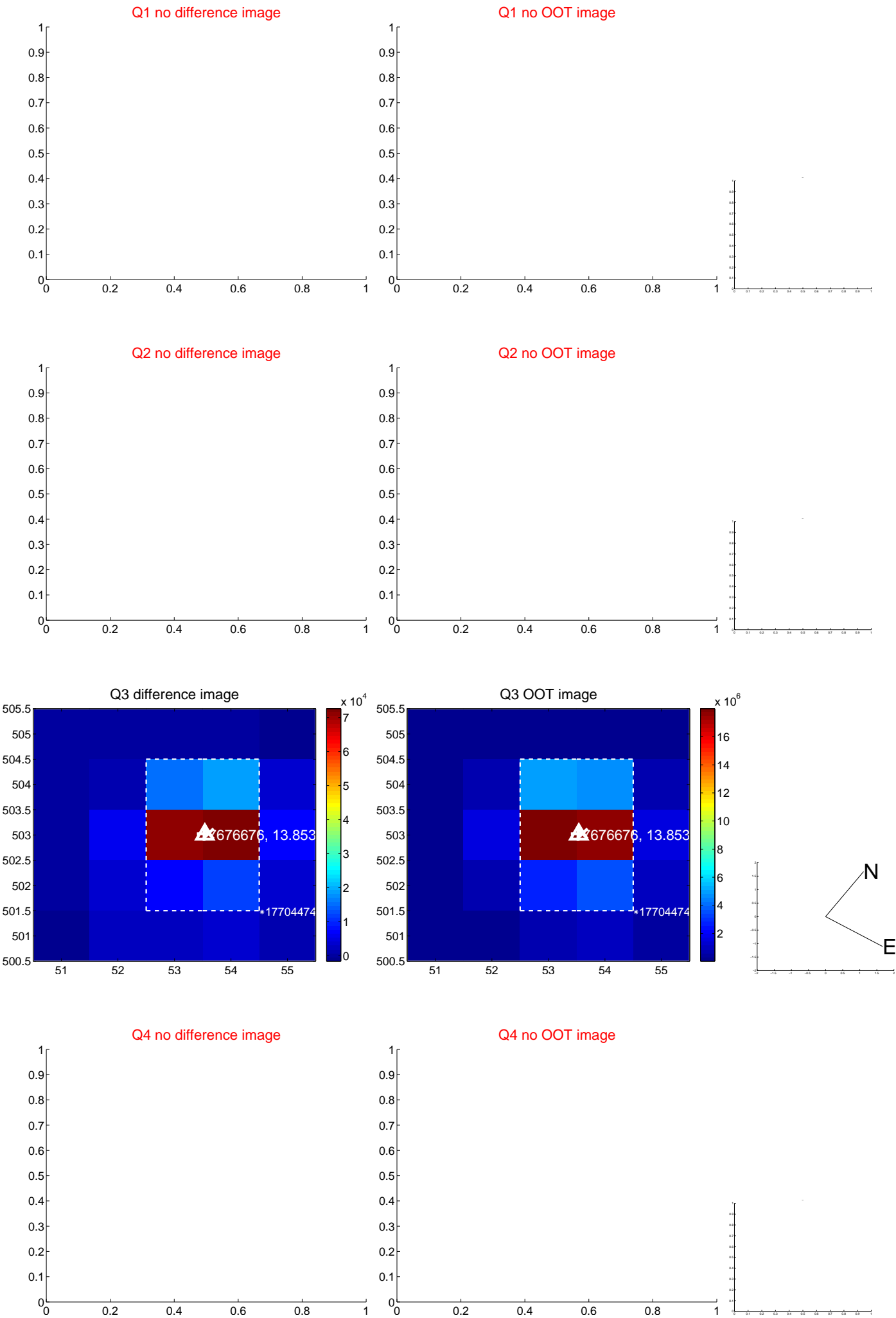


offset from photometric centroids

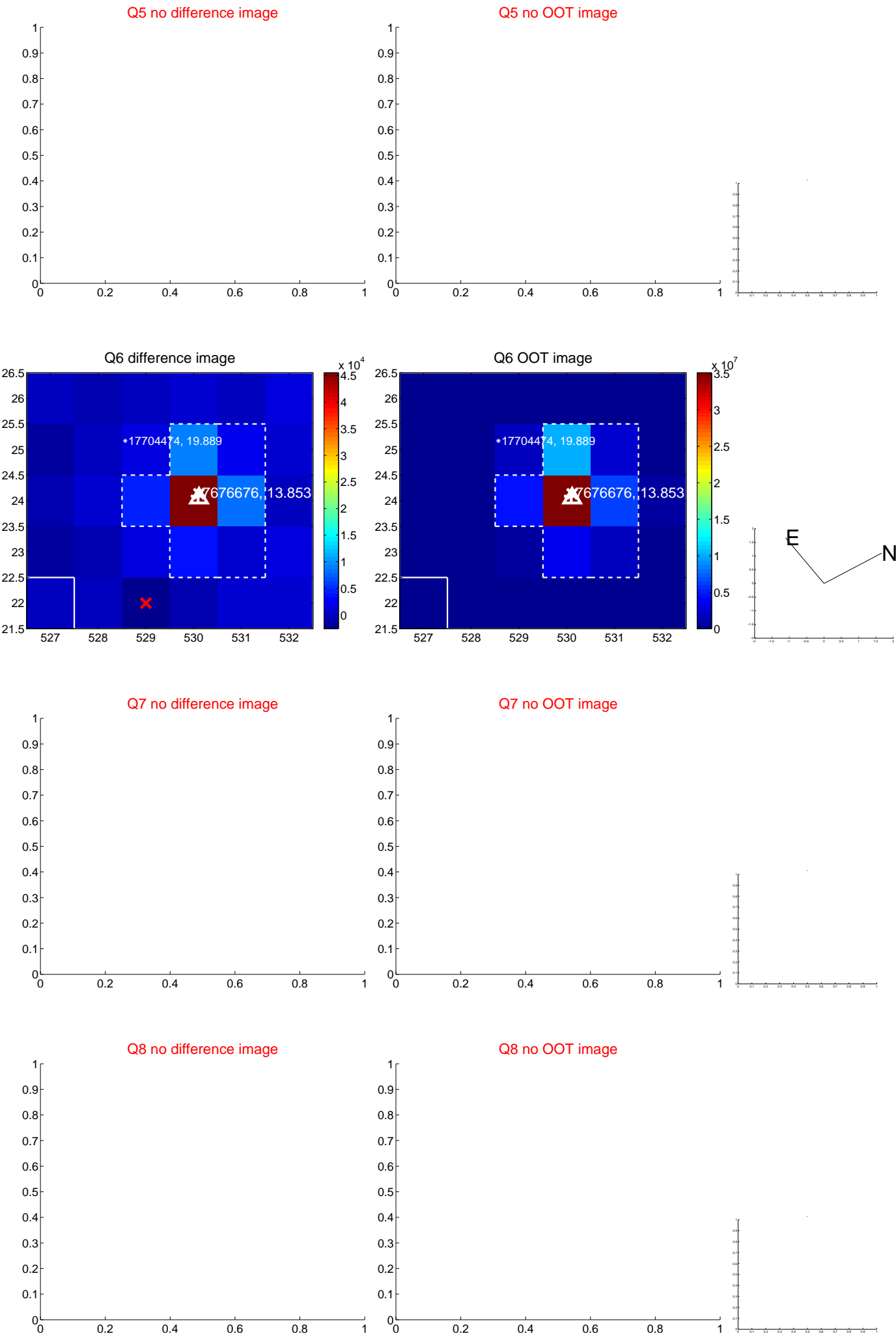


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

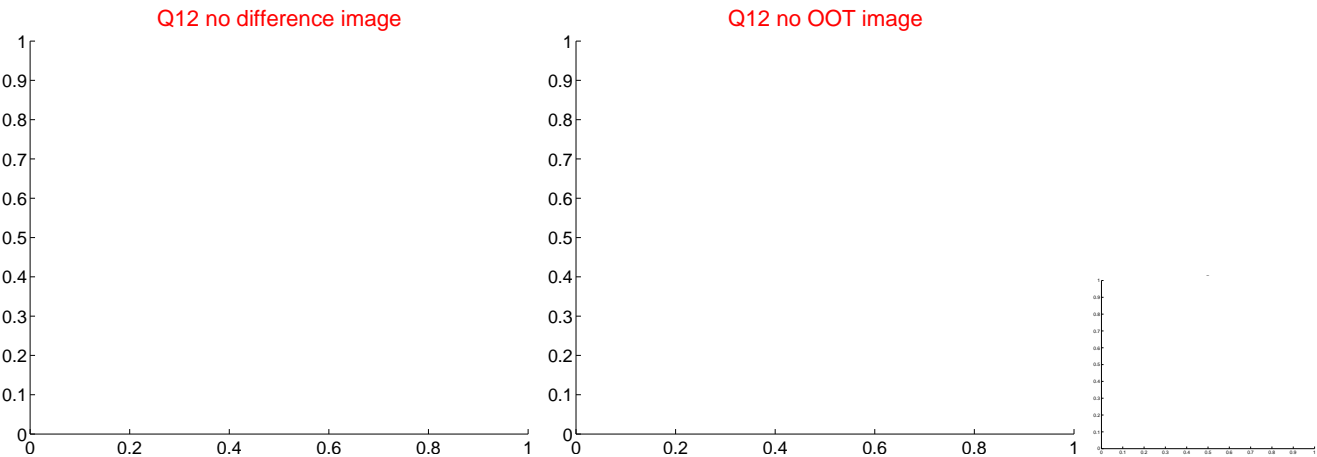
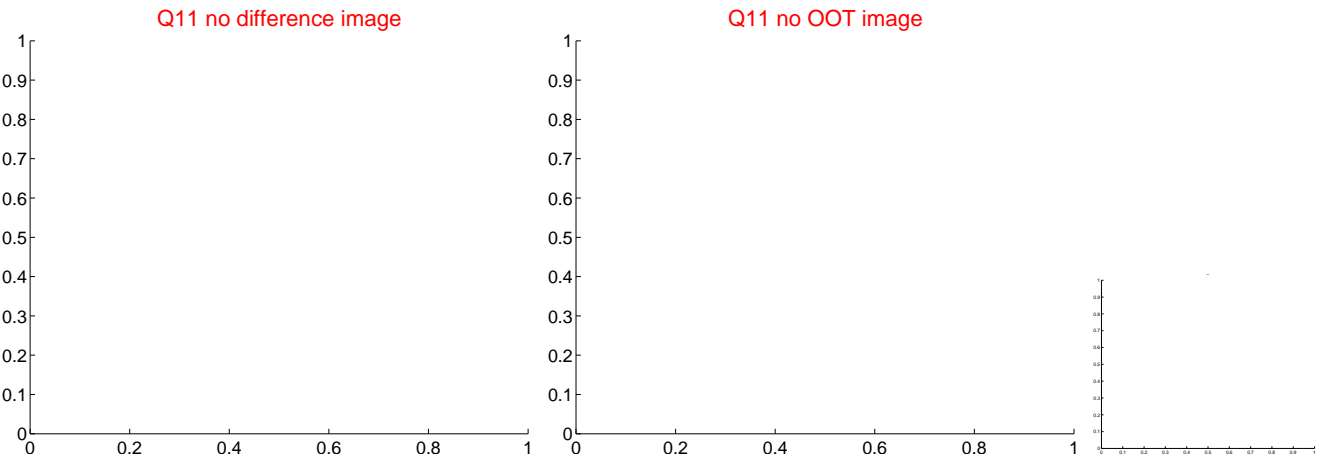
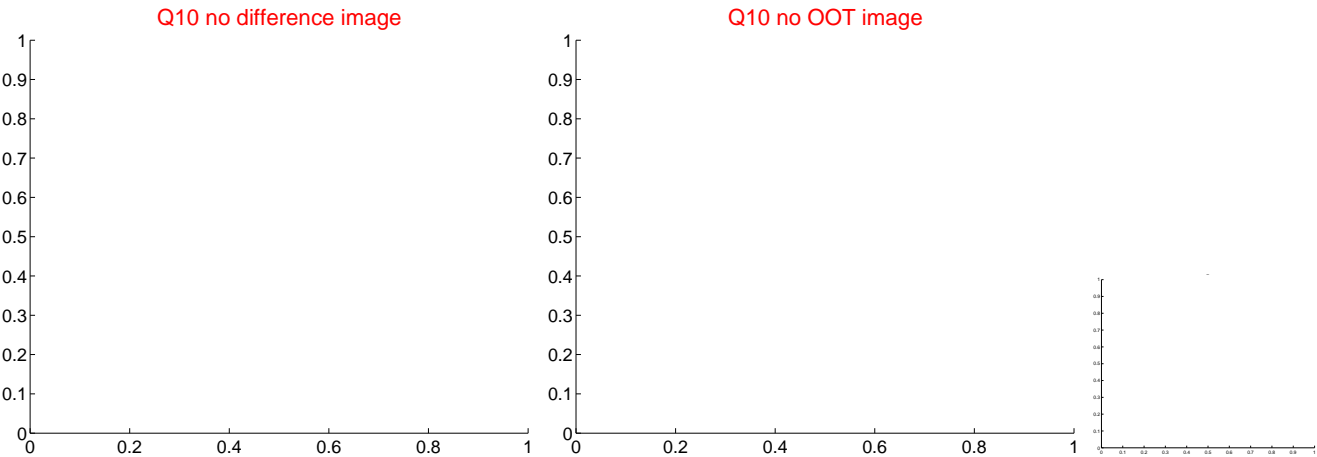
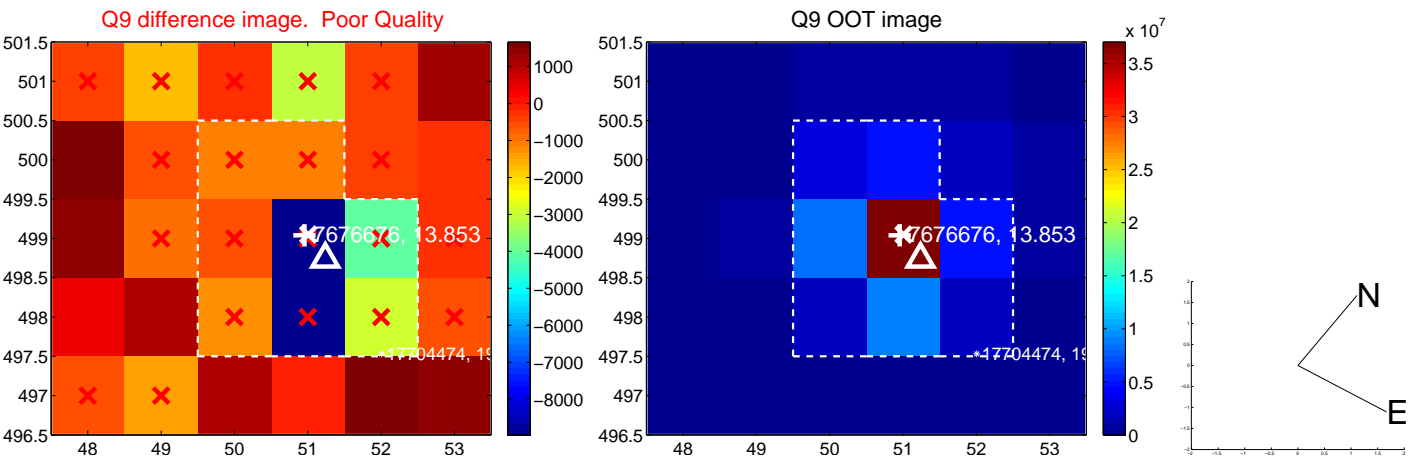
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



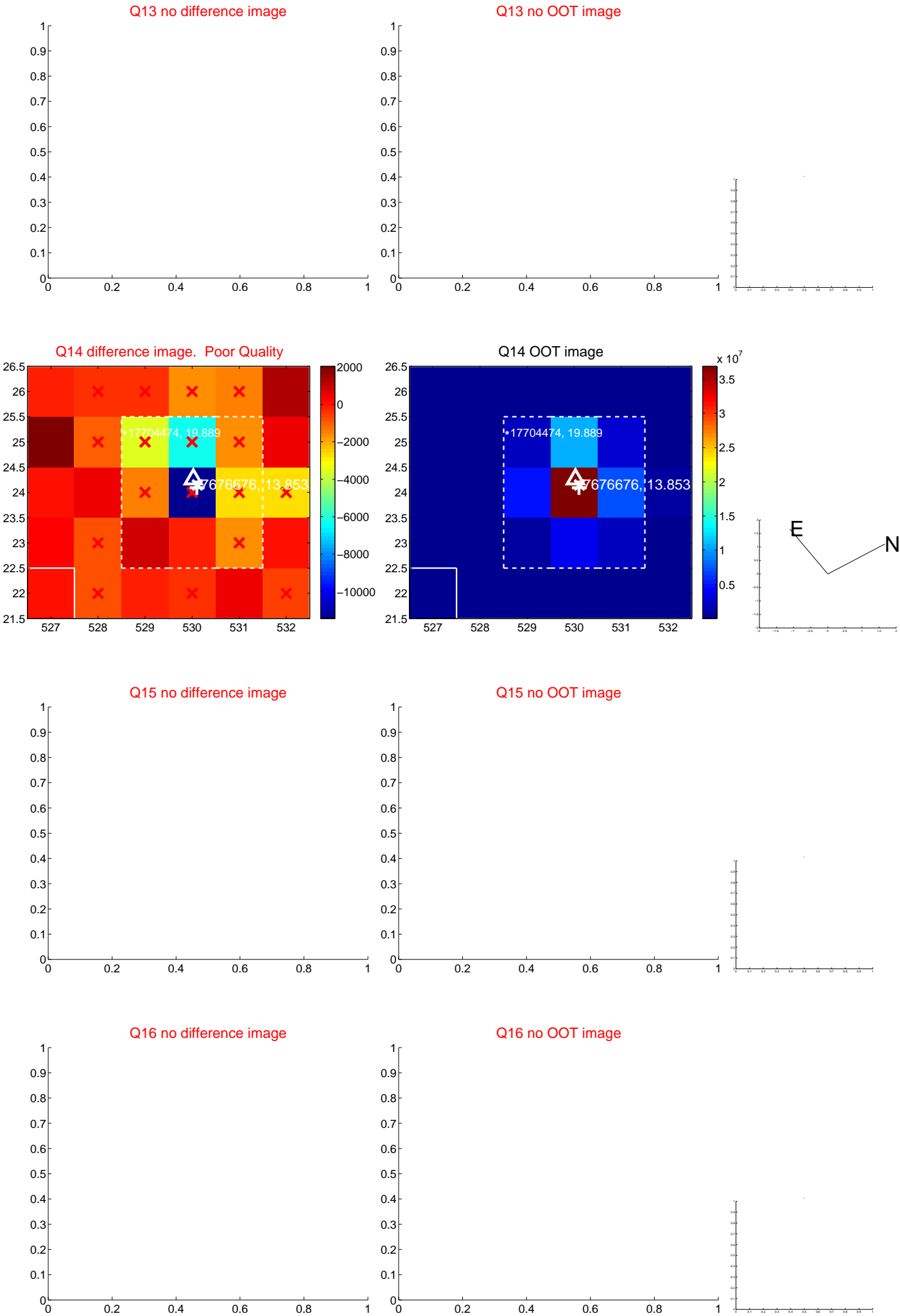
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



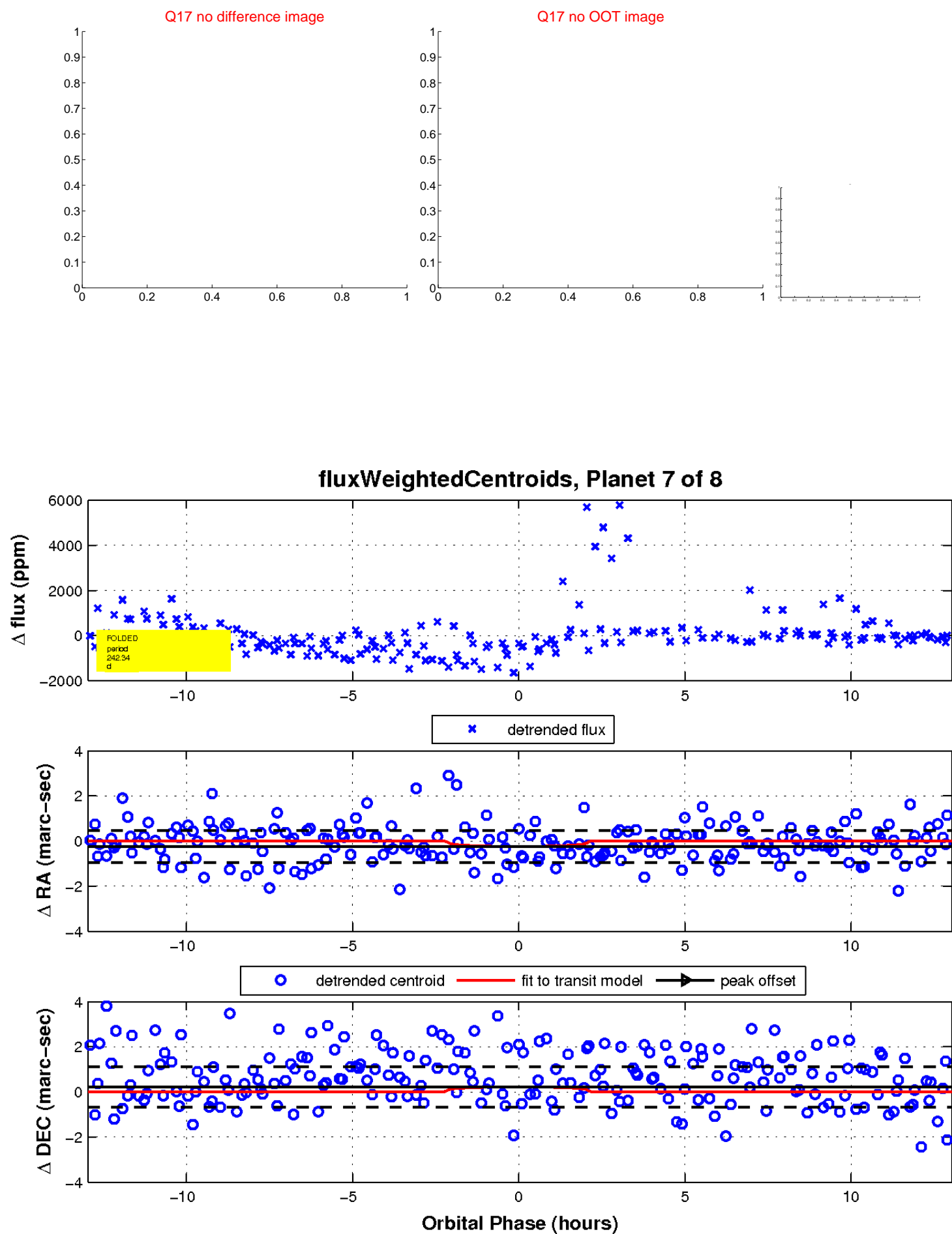
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



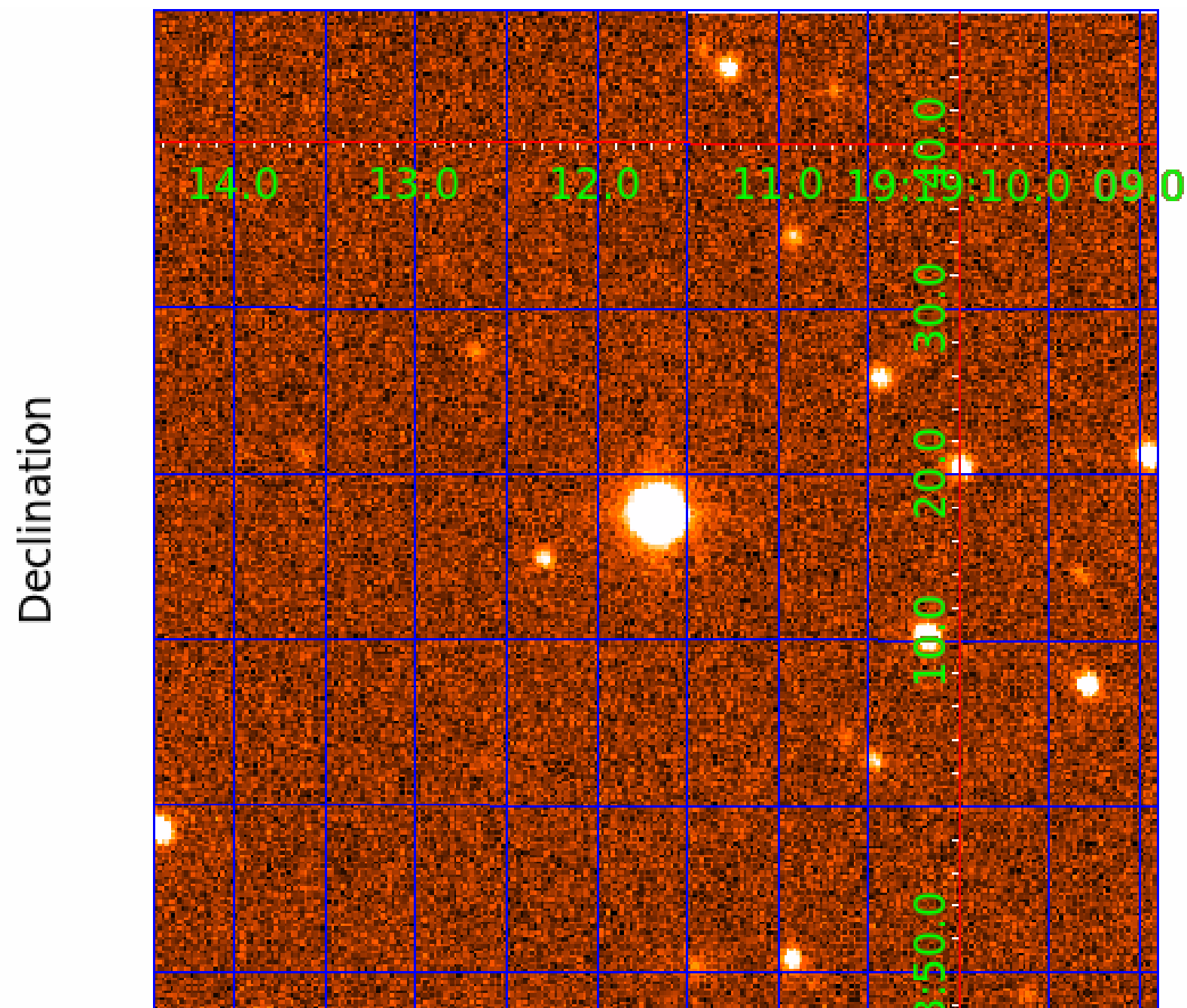
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



UKIRT Image



# KIC 007676676

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007676676-01	OBS	No	373.410857	330.099023	1817.1	16.864	21.8	7.1	4.20	4905	23.89	9.59
007676676-03	OBS	No	294.185642	373.781142	1221.4	6.935	22.0	6.9	4.20	4905	14.24	13.18
007676676-04	OBS	No	408.338746	165.463256	1179.2	4.175	16.5	7.3	4.20	4905	15.81	8.51
007676676-07	OBS	No	242.336798	343.901912	840.7	4.351	17.1	5.9	4.20	4905	11.80	17.07
007676676-08	OBS	No	318.967872	283.134820	1238.2	10.500	24.2	-1.0	4.20	4905	14.33	11.83

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007676676-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
007676676-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007676676-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
007676676-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS— HALO_GHOST
007676676-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

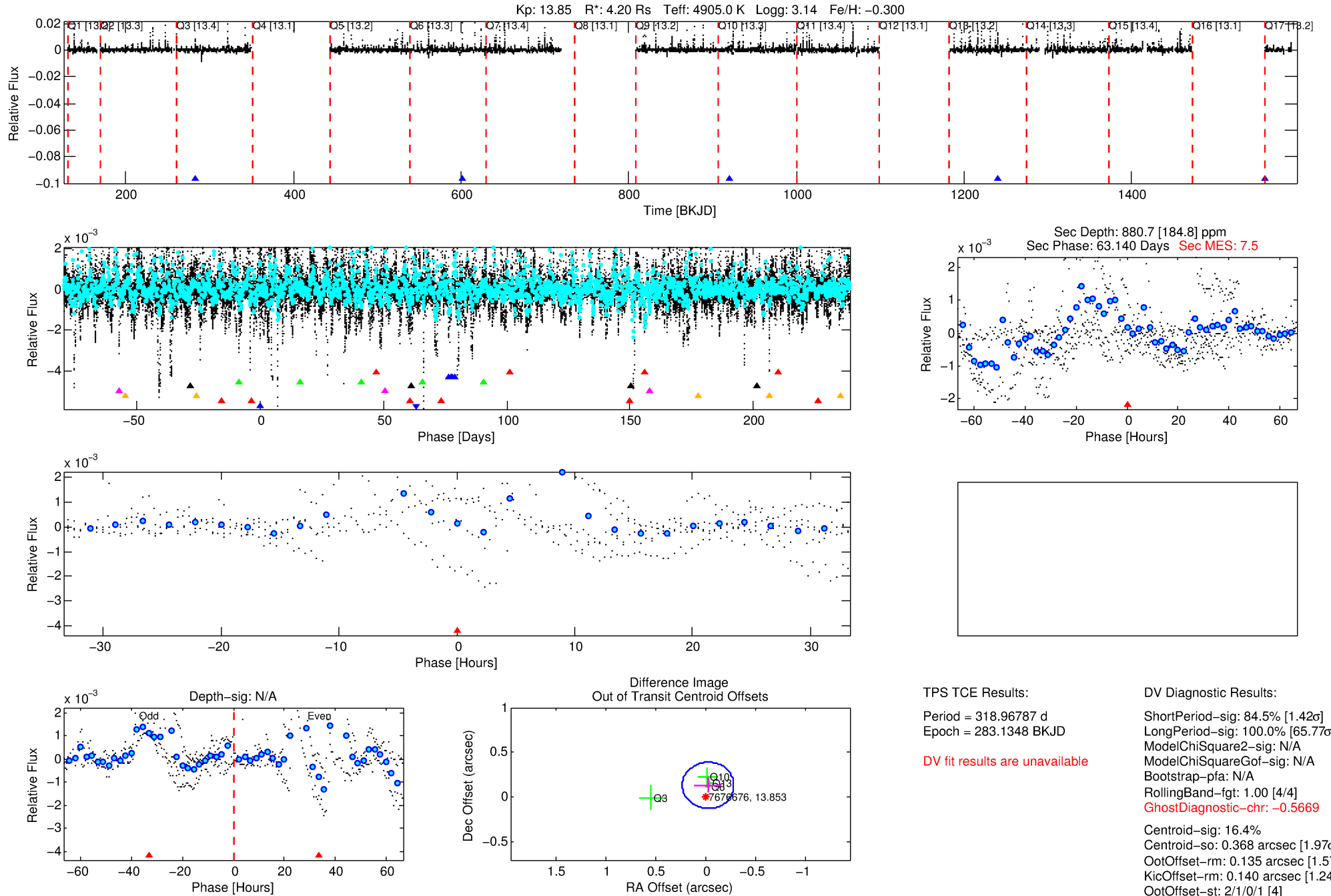
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007676676-08

No Significant Match Found

# DV One-Page Summary

KIC: 7676676 Candidate: 8 of 8 Period: 318.968 d



## TPS TCE Results:

Period = 318.96787 d  
Epoch = 283.1348 BKJD

DV fit results are unavailable

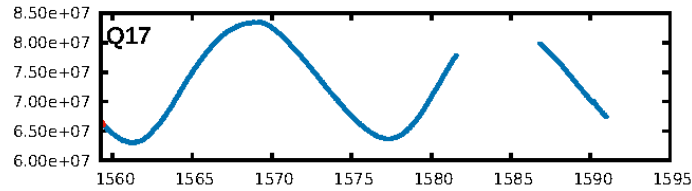
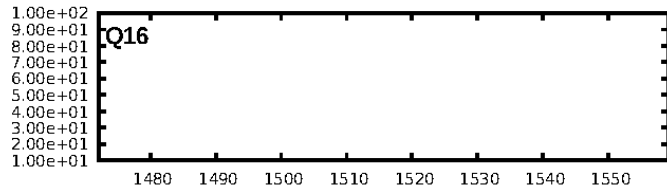
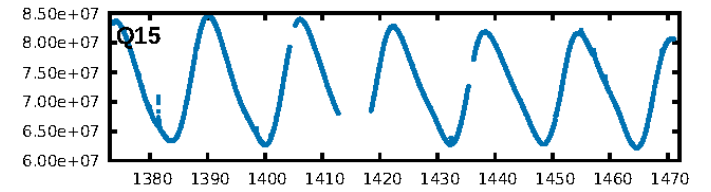
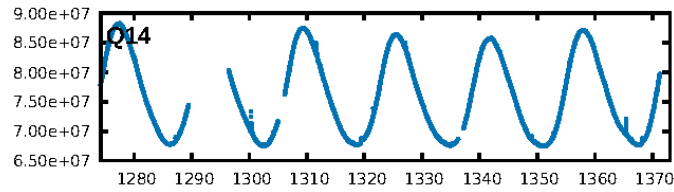
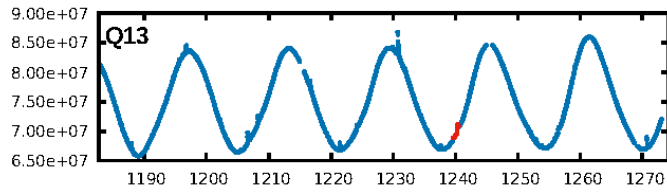
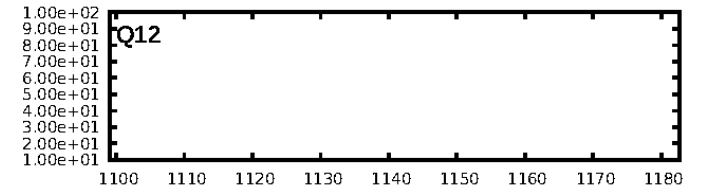
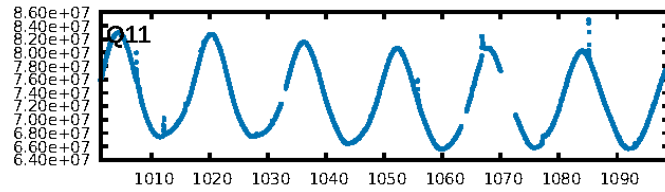
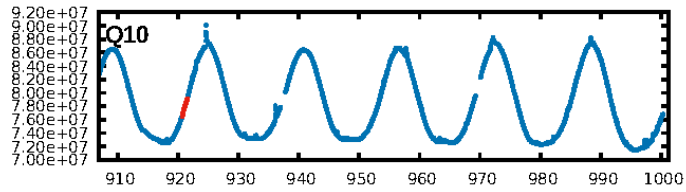
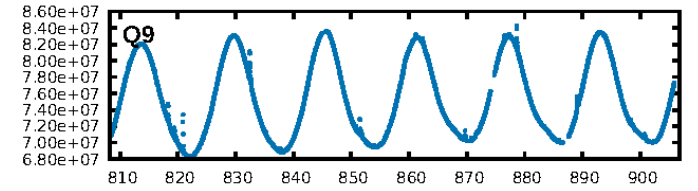
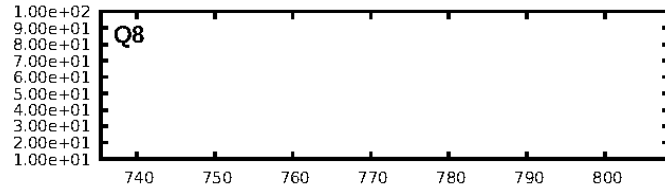
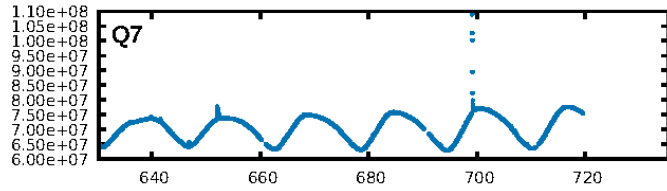
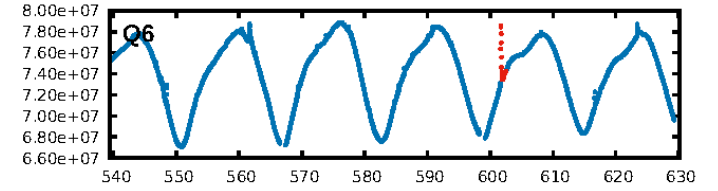
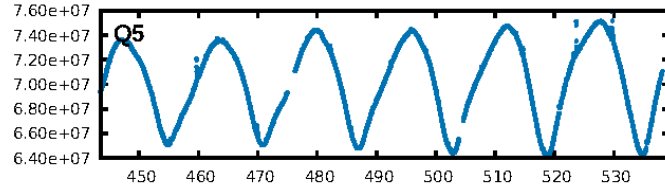
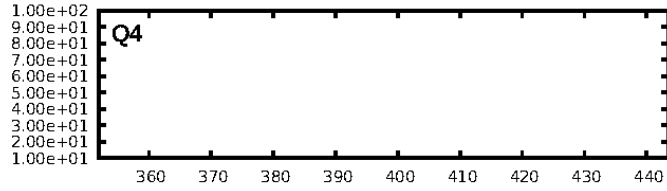
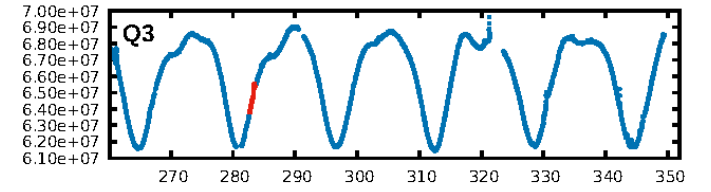
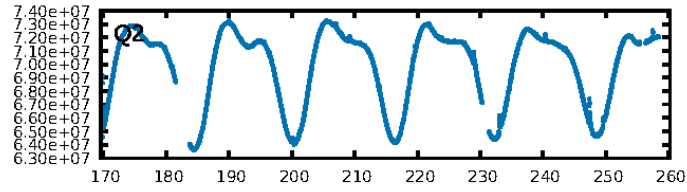
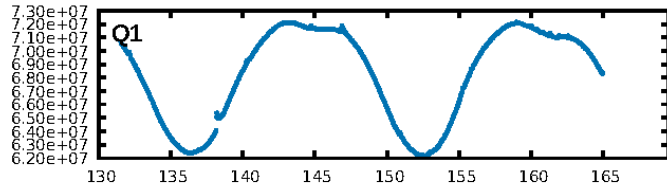
## DV Diagnostic Results:

ShortPeriod-sig: 84.5% [1.42 $\sigma$ ]  
LongPeriod-sig: 100.0% [65.77 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.5669  
Centroid-sig: 16.4%  
Centroid-so: 0.368 arcsec [1.97 $\sigma$ ]  
OotOffset-rm: 0.135 arcsec [1.57 $\sigma$ ]  
KicOffset-rm: 0.140 arcsec [1.24 $\sigma$ ]  
OotOffset-st: 2/1/0/1 [4]  
KicOffset-st: 2/1/0/1 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 1.00 [4/4]

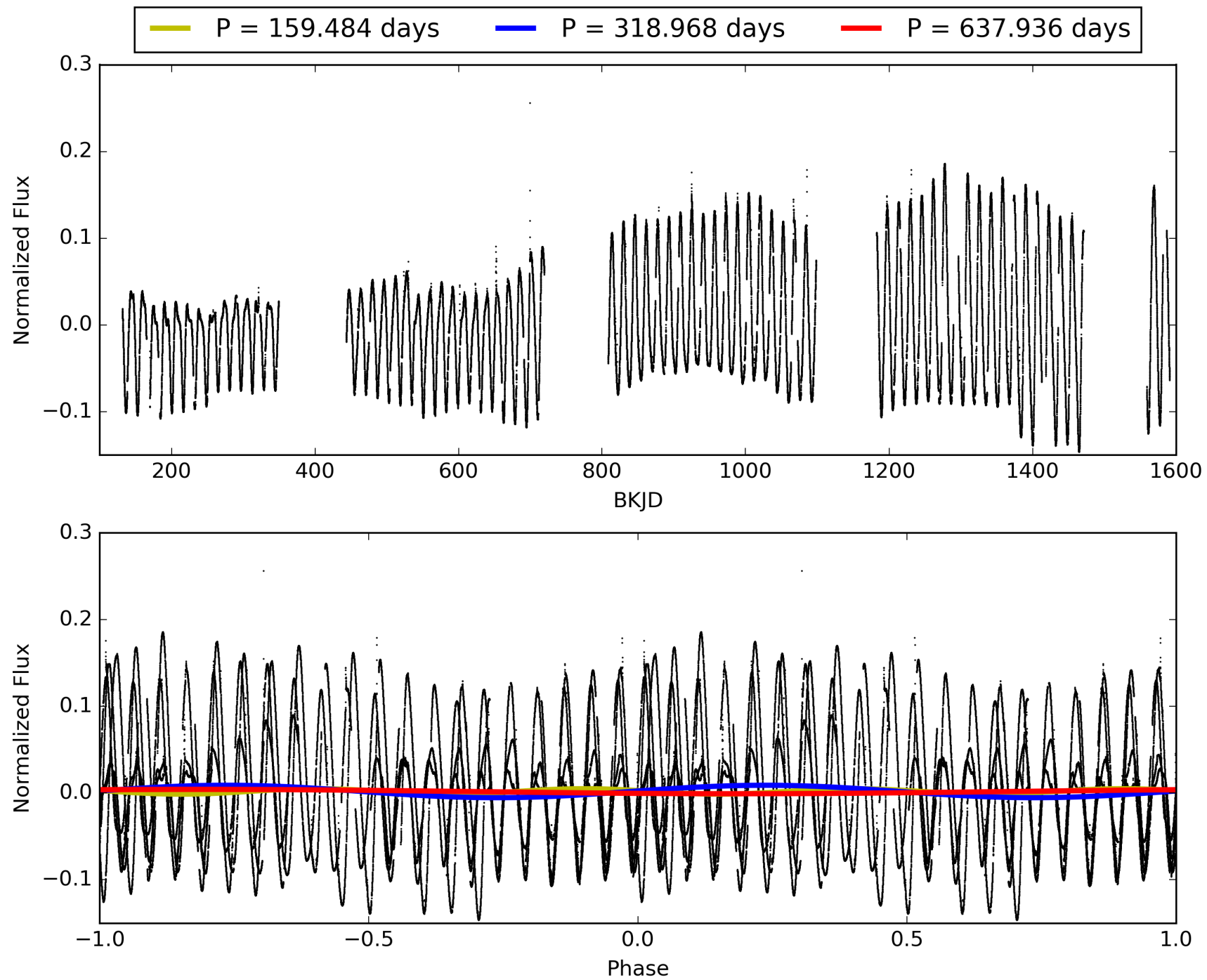
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:11:23 Z

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

# TCE 007676676-08, PDC Light Curves

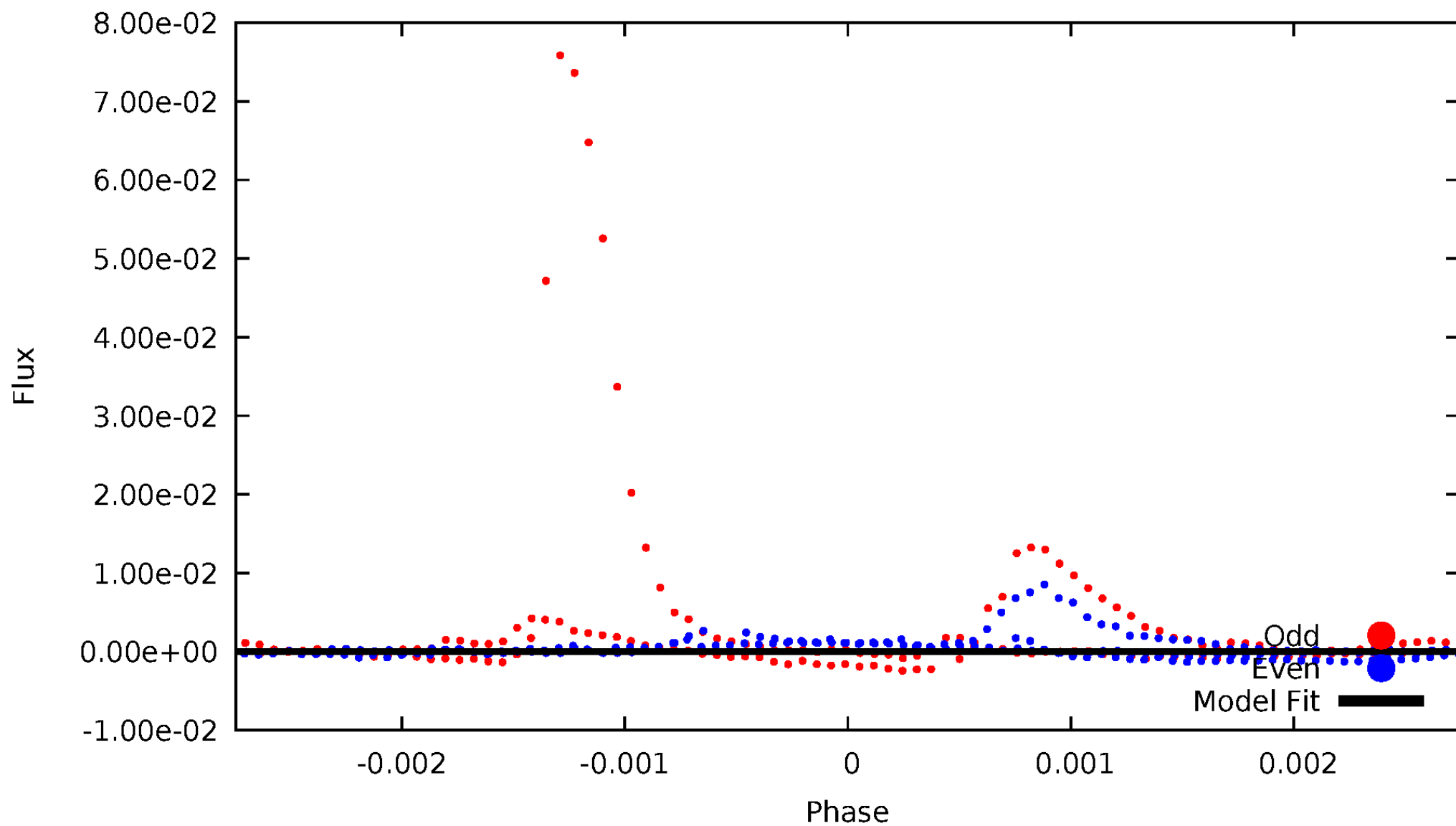


TCE 007676676-08



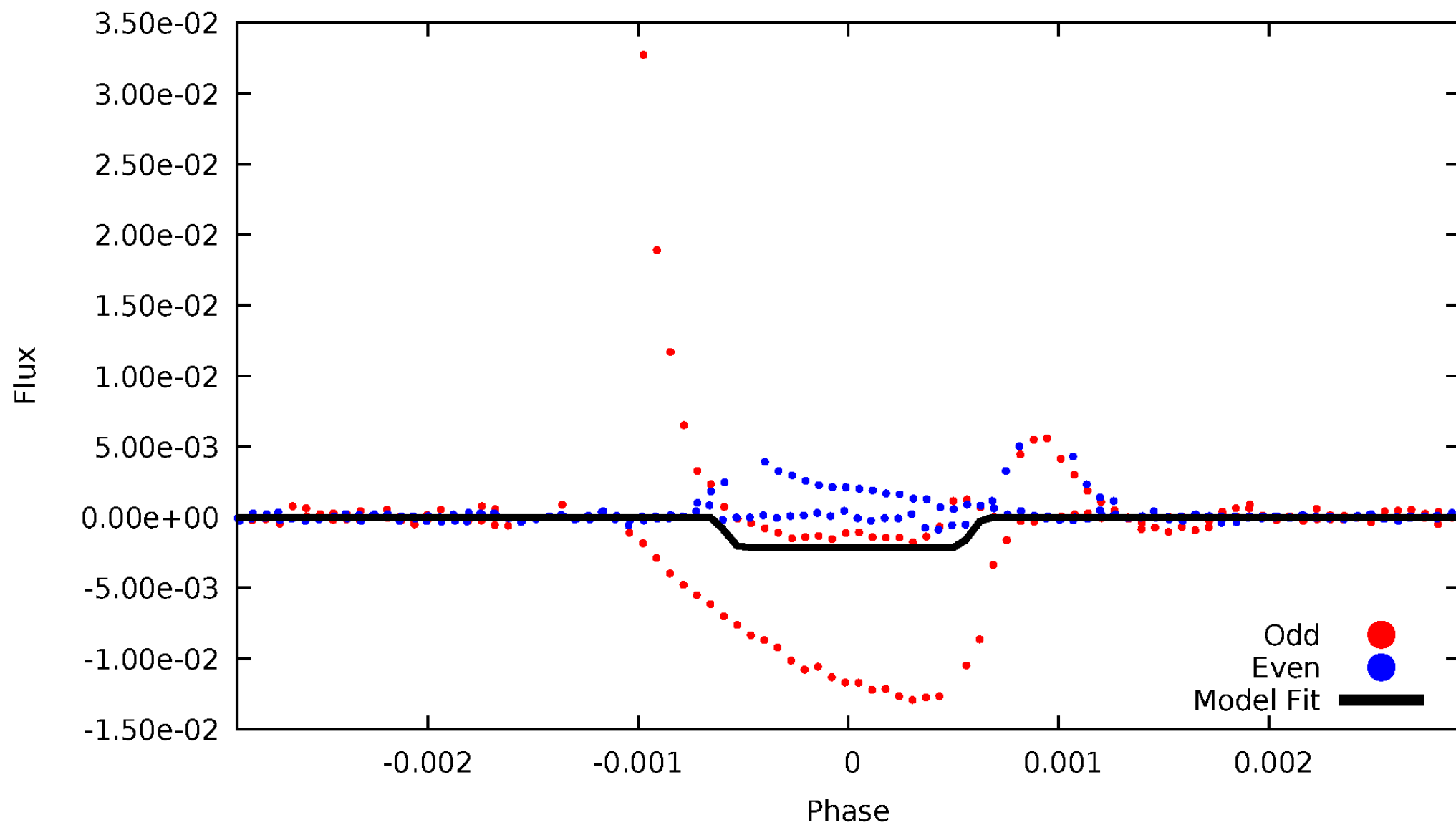
# DV Odd/Even

TCE 007676676-08



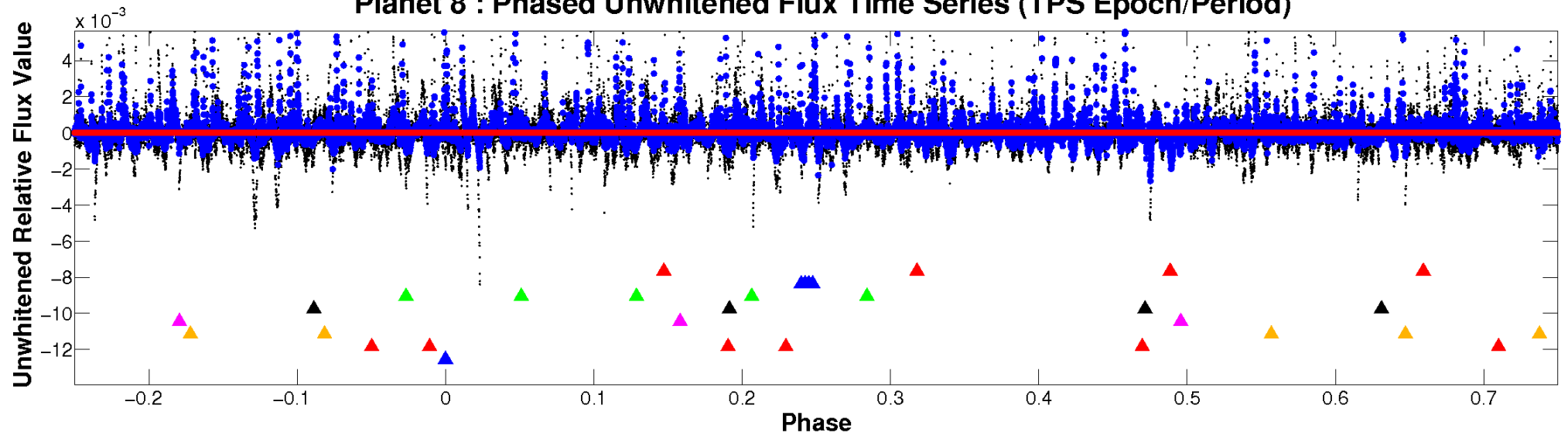
# ALT Odd/Even

TCE 007676676-08

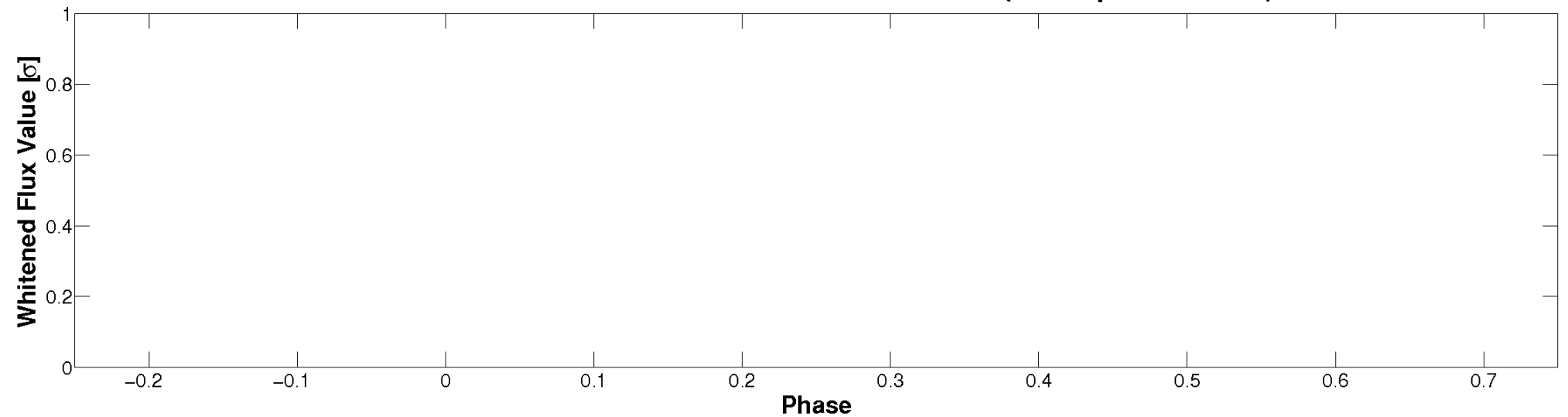


# Non-Whitened Vs. Whitened Light Curve

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

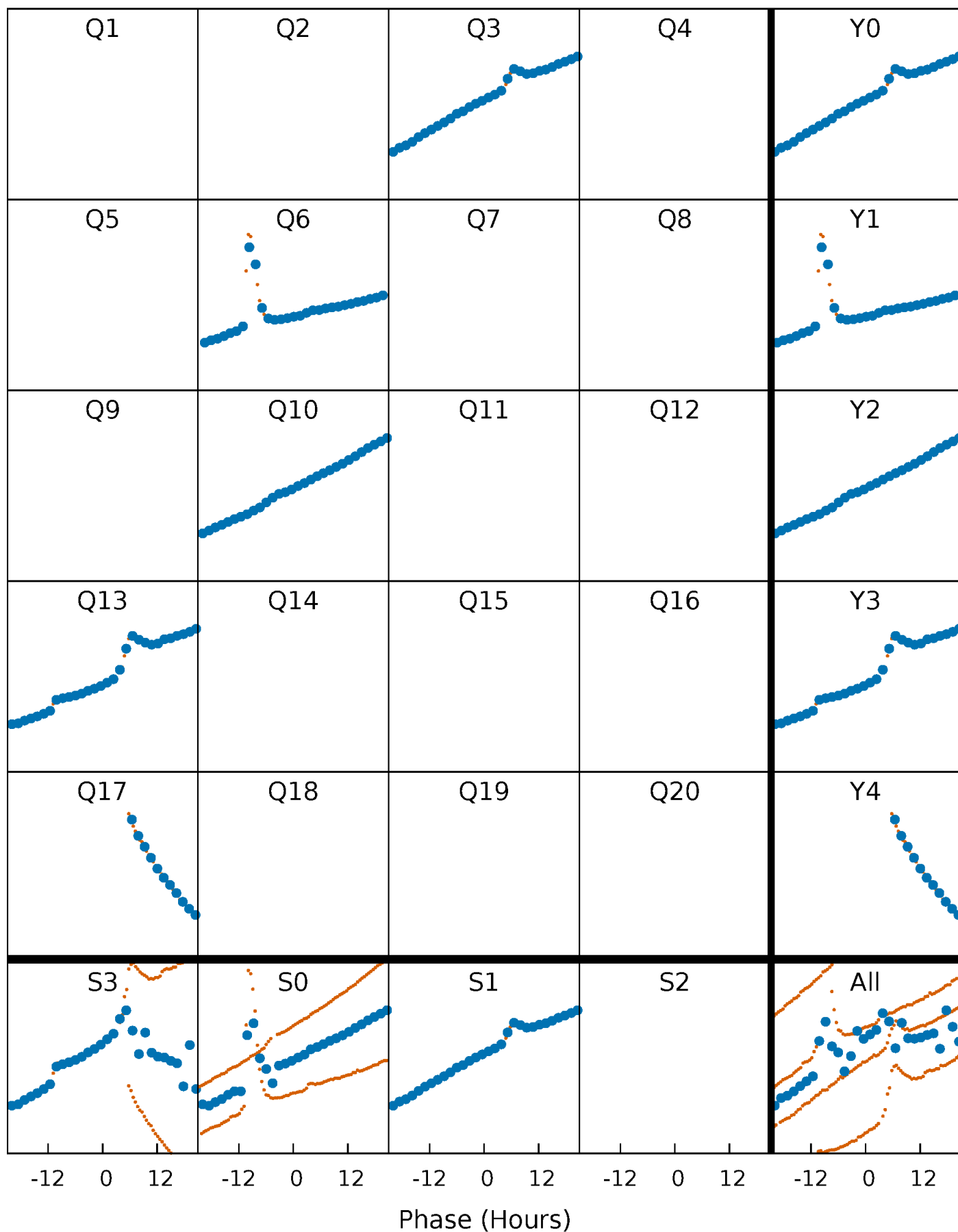


**Planet 8 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



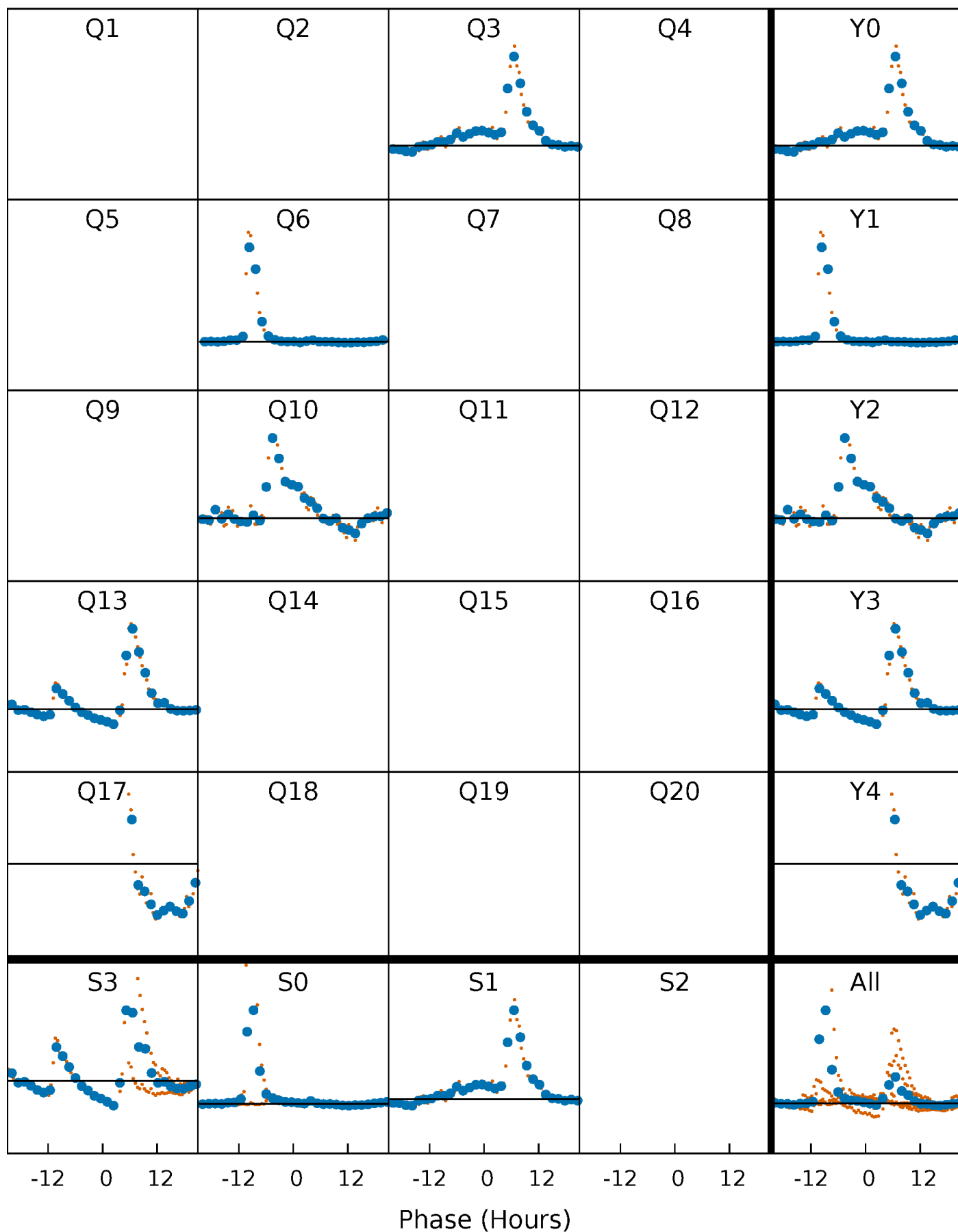
# PDC Quarter-Phased Transit Curves

TCE 007676676-08 P=318.967872 Days  $T_0=283.134820$  (BKJD)



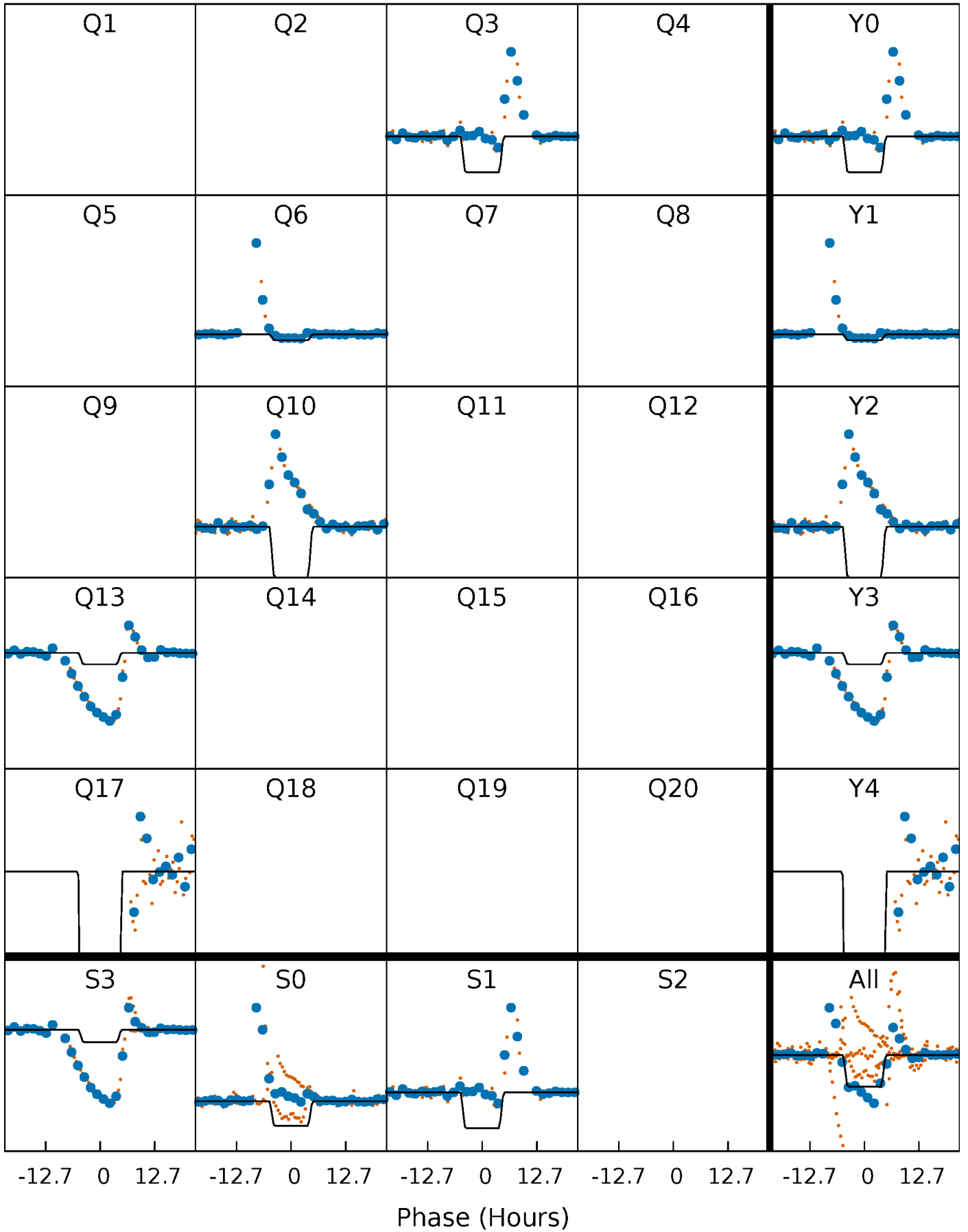
# DV Quarter-Phased Transit Curves

TCE 007676676-08 P=318.967872 Days  $T_0=283.134820$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

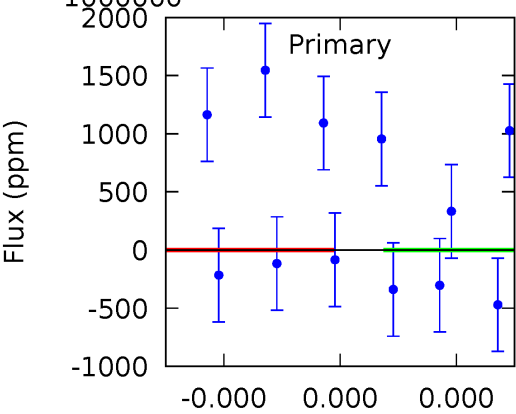
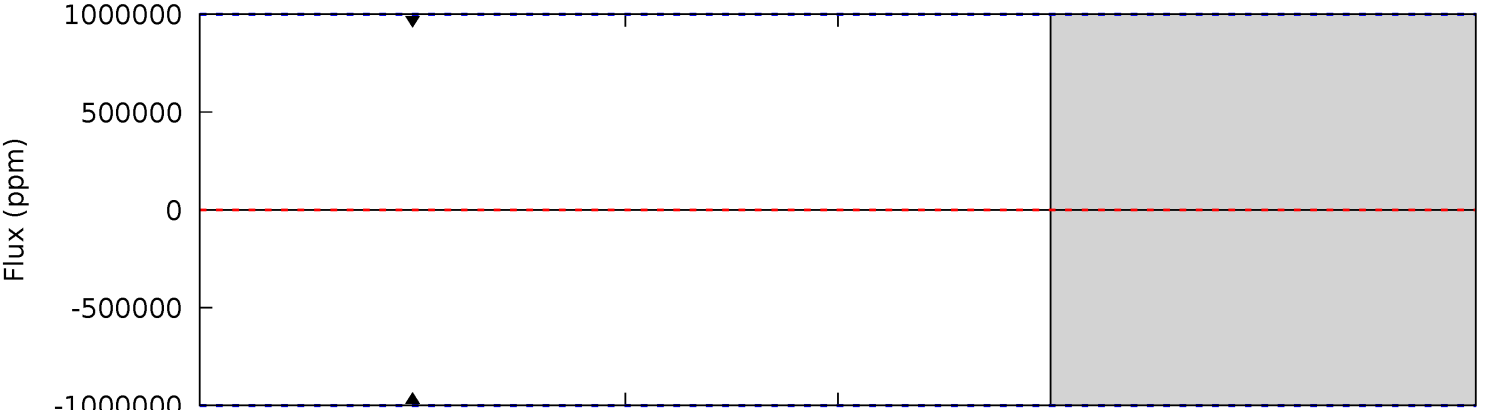
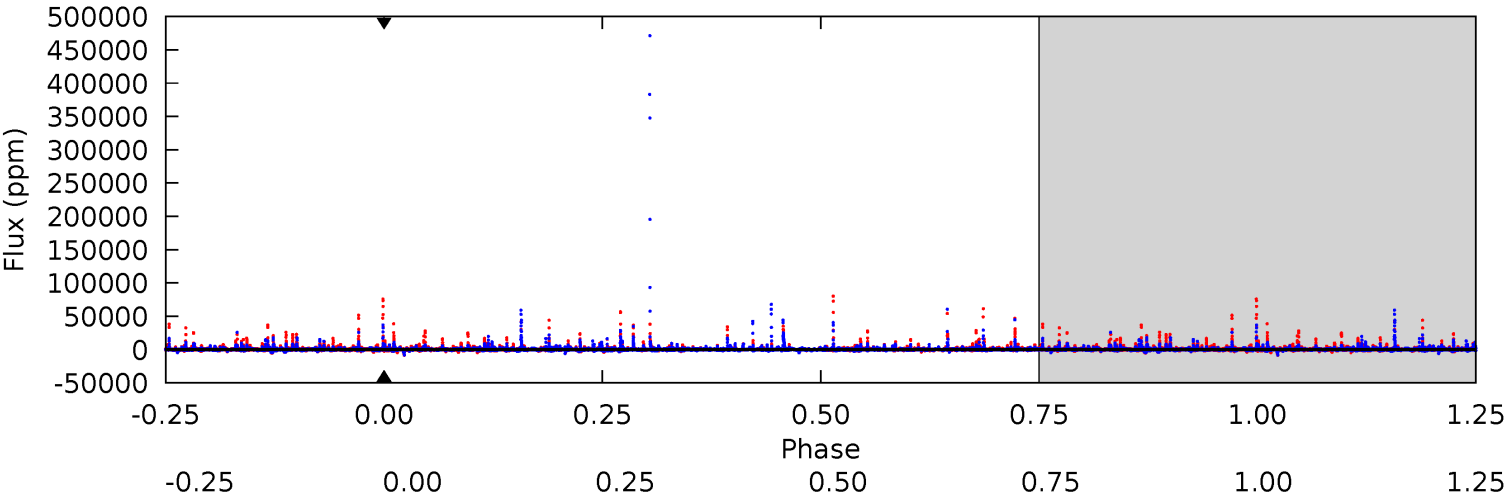
TCE 007676676-08 P=318.967872 Days  $T_0=283.115817$  (BKJD)



# DV Model-Shift Uniqueness Test

007676676-08, P = 318.967872 Days, E = 283.134820 Days

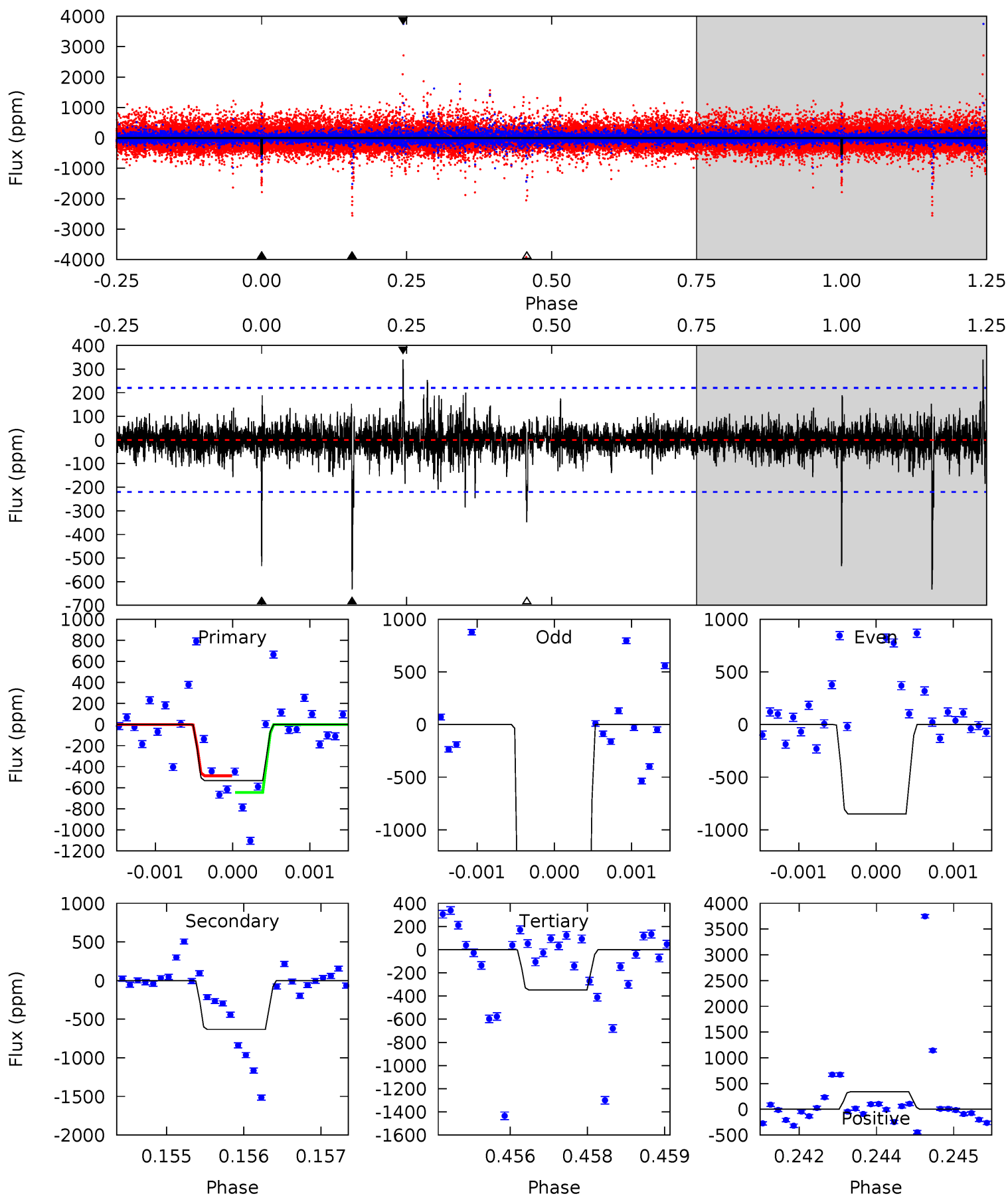
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

007676676-08, P = 318.967872 Days, E = 283.115817 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
13.1	15.5	8.55	8.34	5.41	3.22	1.03	4.53	4.74	6.98	7.19	57.0	5.08	0.35	0



### Stellar Parameters For KIC 007676676

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4905^{+148}_{-111}$	$3.141^{+0.368}_{-0.301}$	$-0.300^{+0.300}_{-0.200}$	$4.198^{+2.378}_{-1.280}$	$0.891^{+0.337}_{-0.037}$	$0.017^{+0.037}_{-0.012}$
	+3%/-2%	+12%/-10%	+100%/-67%	+57%/-30%	+38%/-4%	+220%/-69%
Source	KIC0	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 007676676-08 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$37.93^{+40.72}_{-26.75}$	$655^{+89}_{-71}$	$-3113^{+15826}_{-10688}$	$-151.864^{+54449.875}_{-60978.387}$
Alt.	$-633 \pm 41$	$40.39^{+38.77}_{-27.77}$	$657^{+82}_{-79}$	$3178^{+1609}_{-503}$	$188^{+1665}_{-141}$

$T_{\text{max}}$  = 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

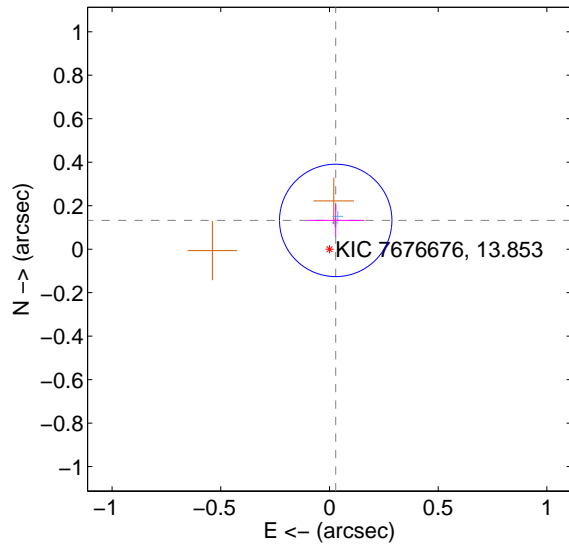
Supplemental centroid analysis for 007676676-08. Kepler magnitude: 13.85. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

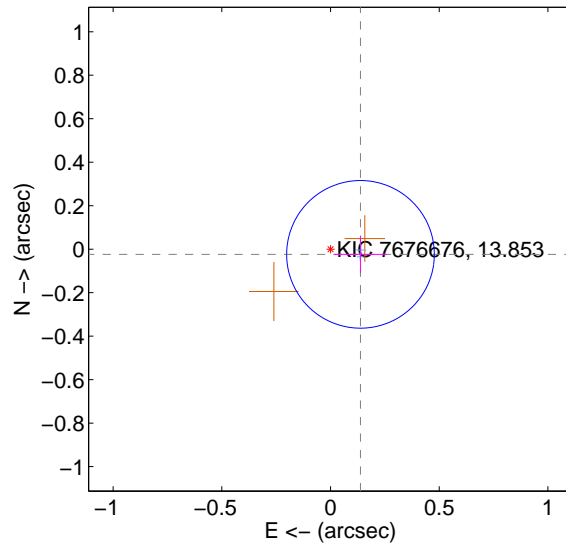
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.135 \pm 0.086$	1.57	$-0.029 \pm 0.132$	$0.132 \pm 0.074$
PRF-fit source offset from KIC position	$0.140 \pm 0.113$	1.24	$-0.138 \pm 0.121$	$-0.024 \pm 0.085$
photometric centroid source offset	$0.37 \pm 0.19$	1.97	$-0.03 \pm 0.16$	$-0.37 \pm 0.19$

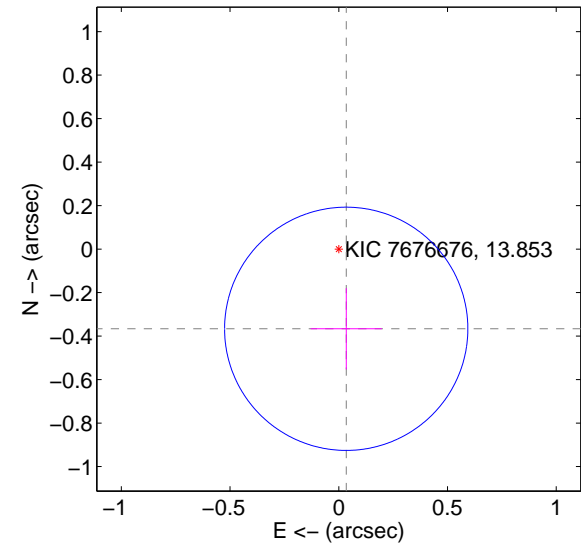
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

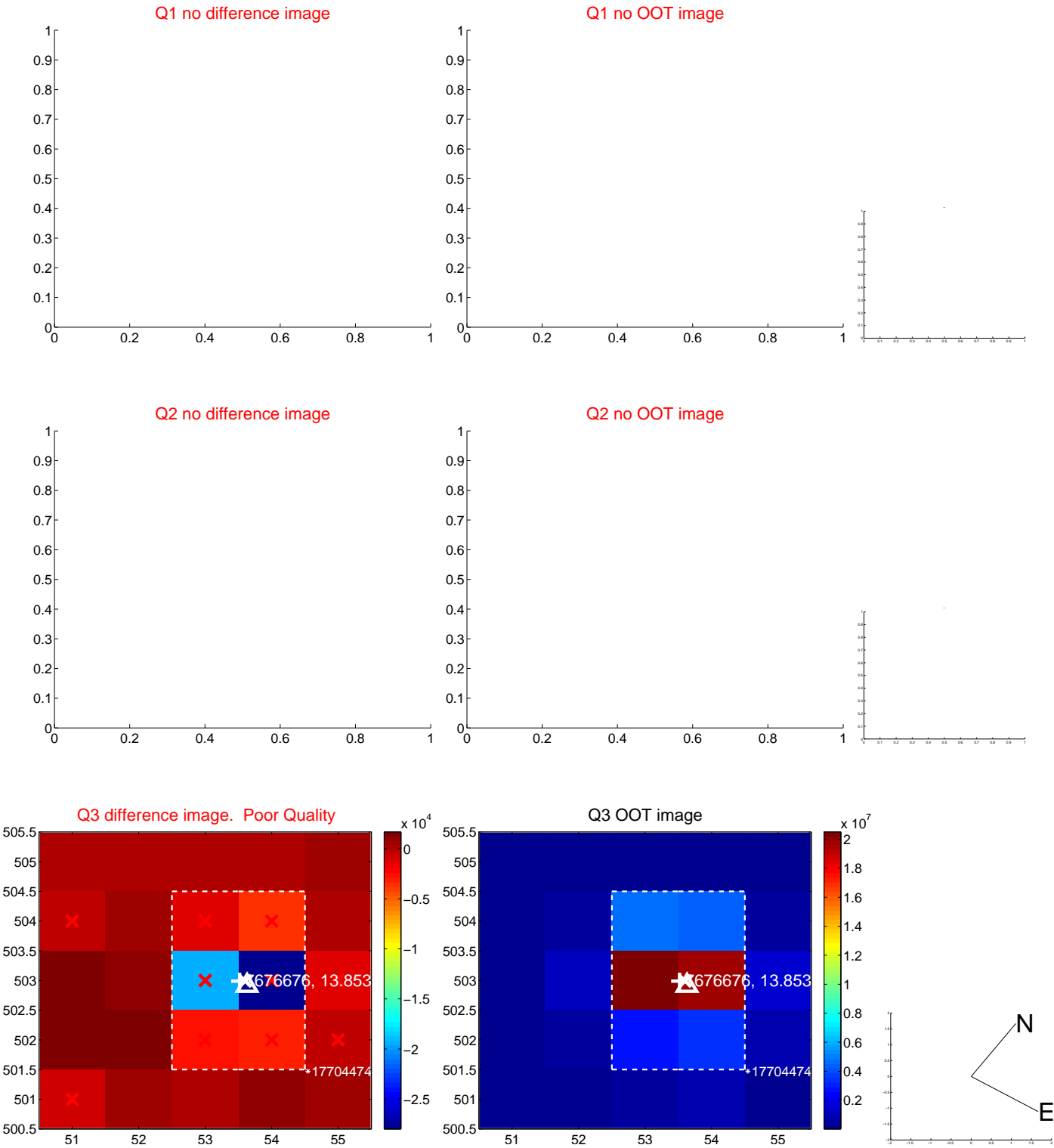


offset from photometric centroids

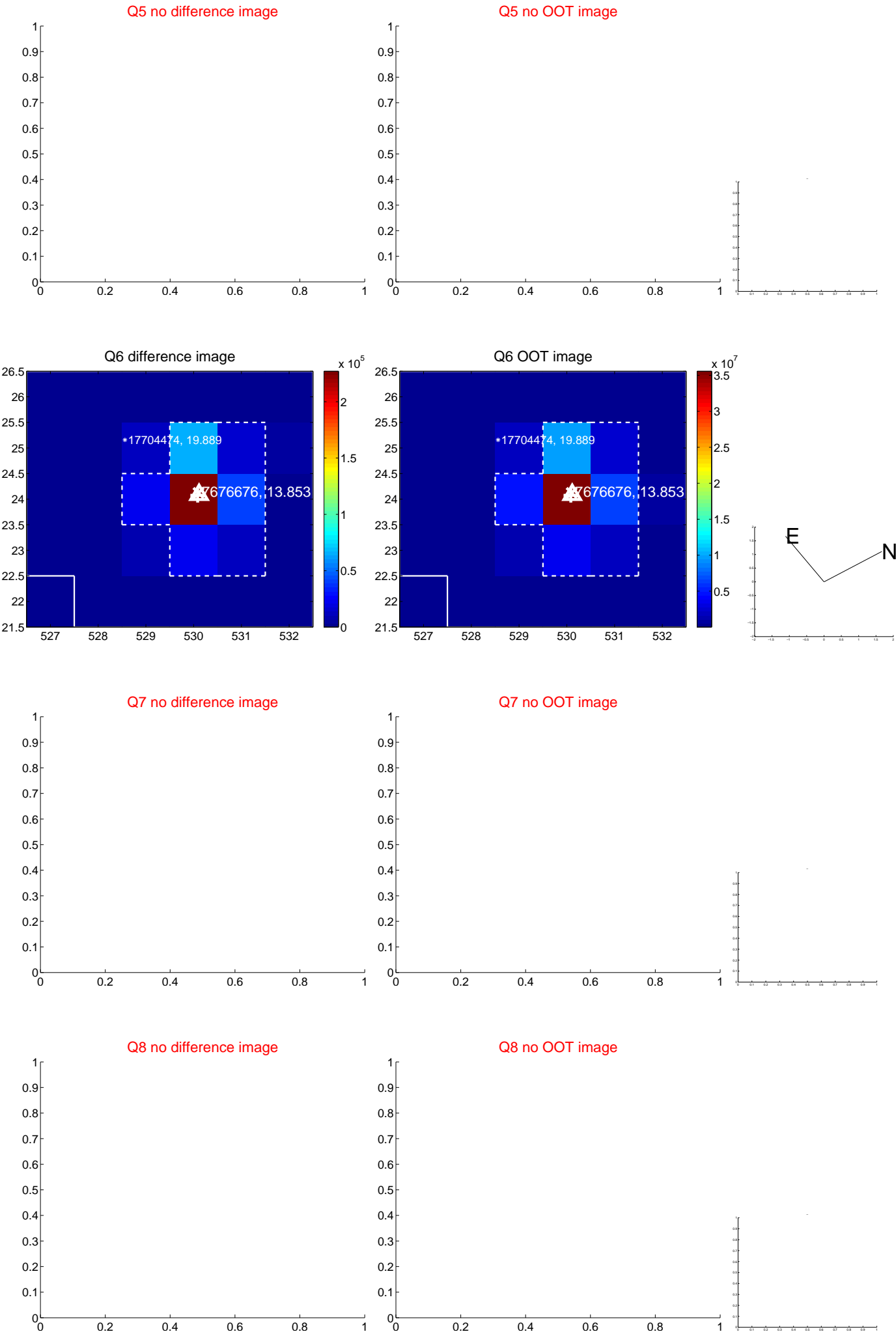


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

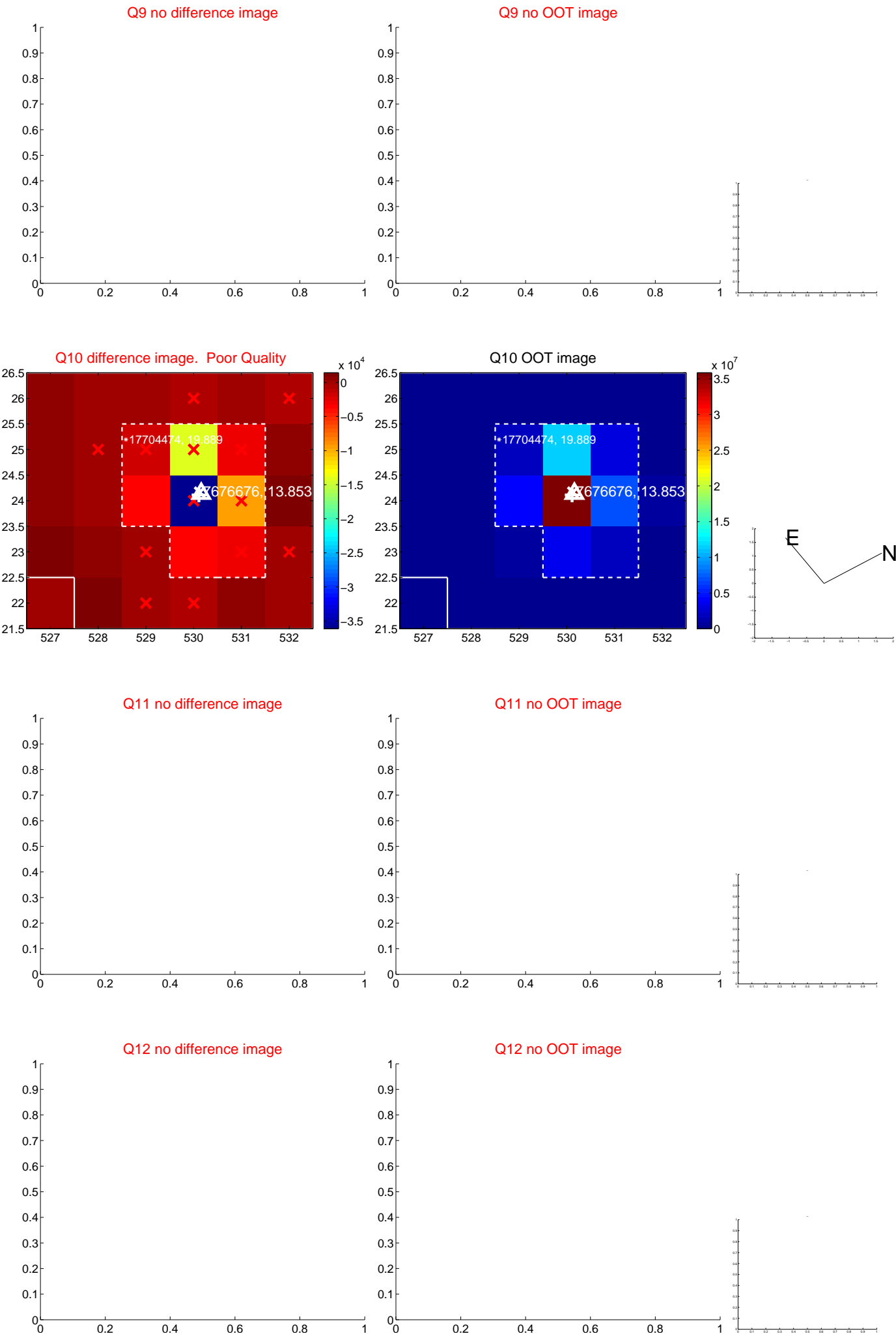
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



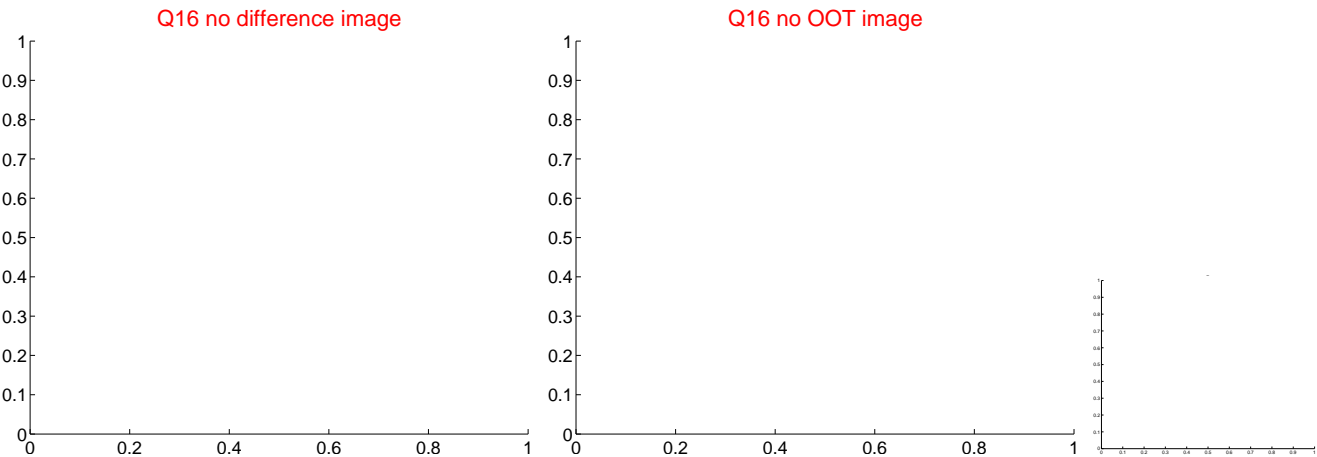
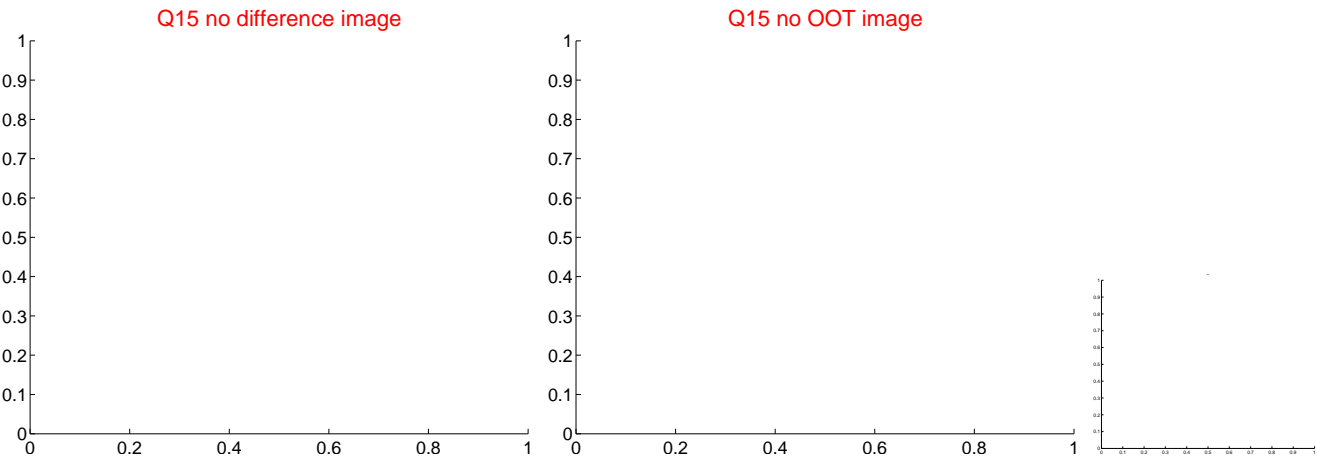
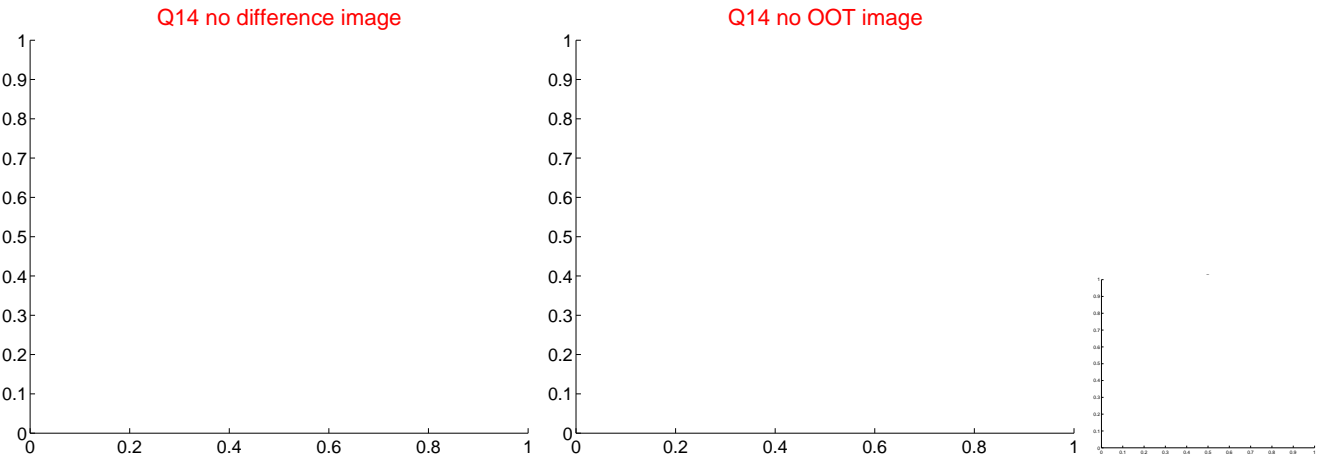
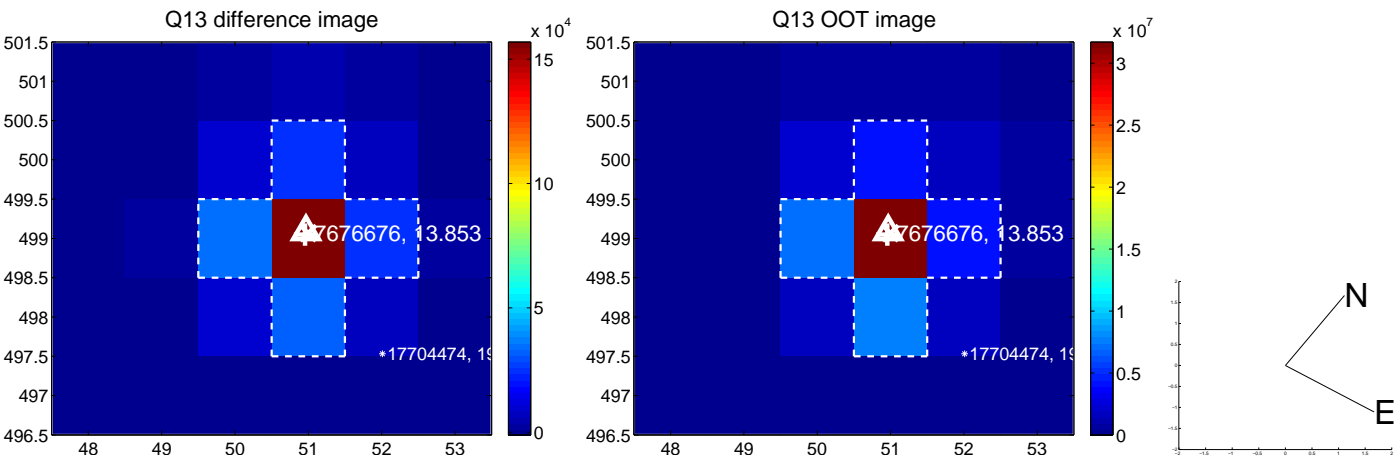
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



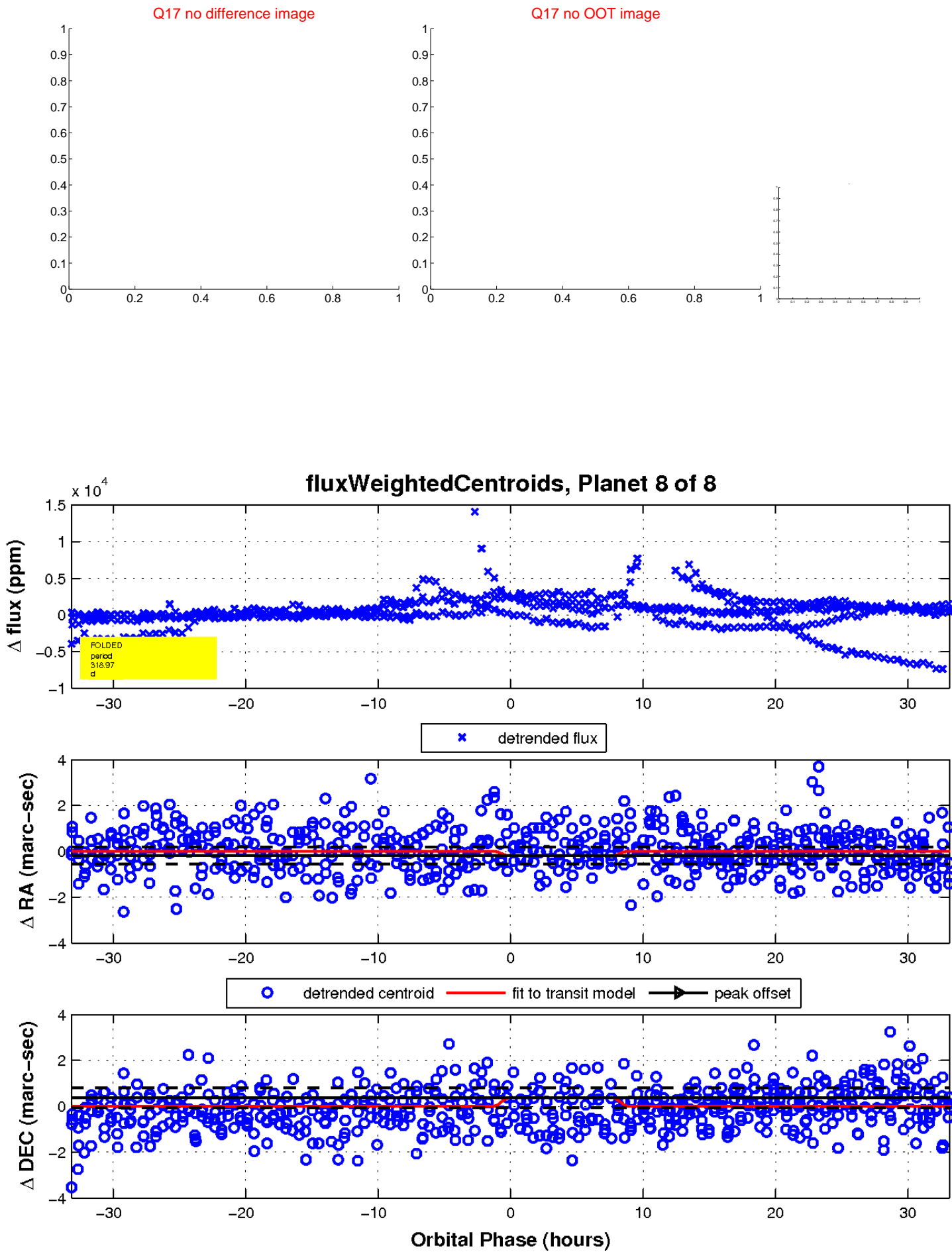
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

Declination

