

# KIC 007258024

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007258024-01	OBS	No	371.744468	388.125625	8907.9	35.612	9.4	17.7	1.14	6082	19.31	1.52
007258024-02	OBS	No	378.726678	363.017297	10914.3	35.491	10.3	18.2	1.14	6082	21.25	1.48
007258024-03	OBS	No	371.684995	377.443574	8288.5	33.793	9.5	13.9	1.14	6082	18.57	1.52

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007258024-01	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007258024-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007258024-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

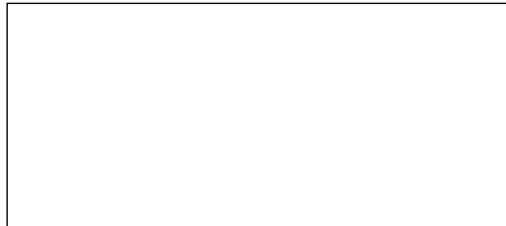
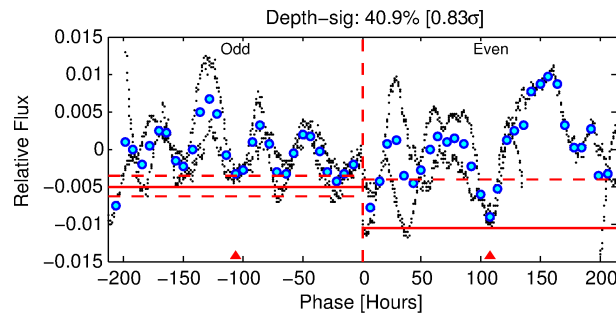
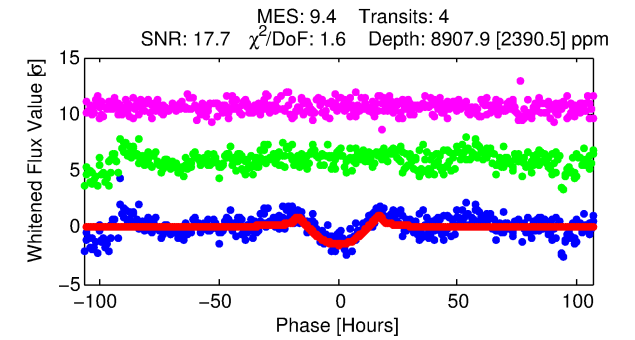
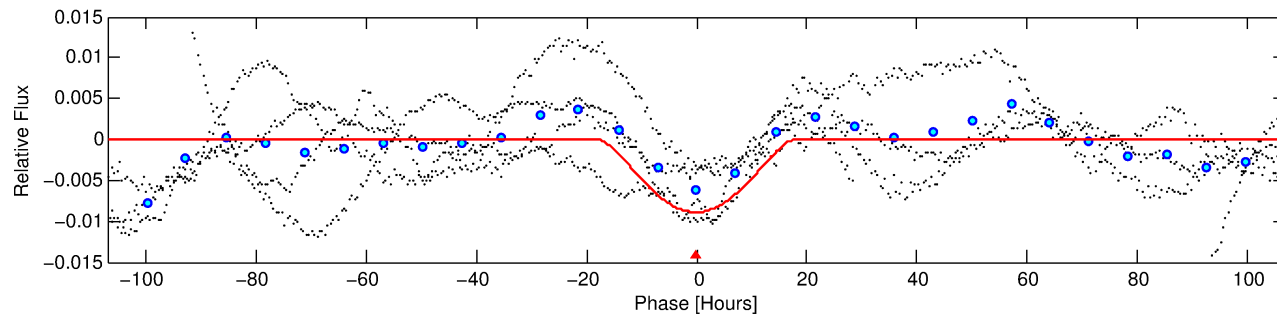
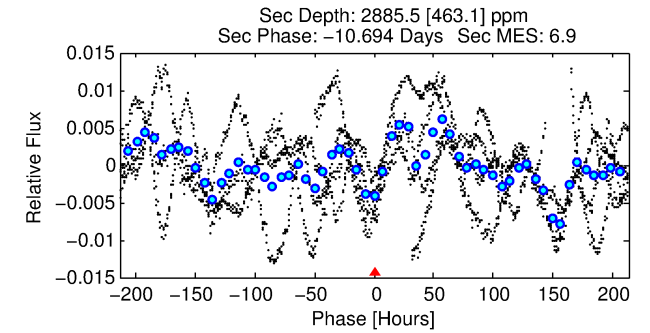
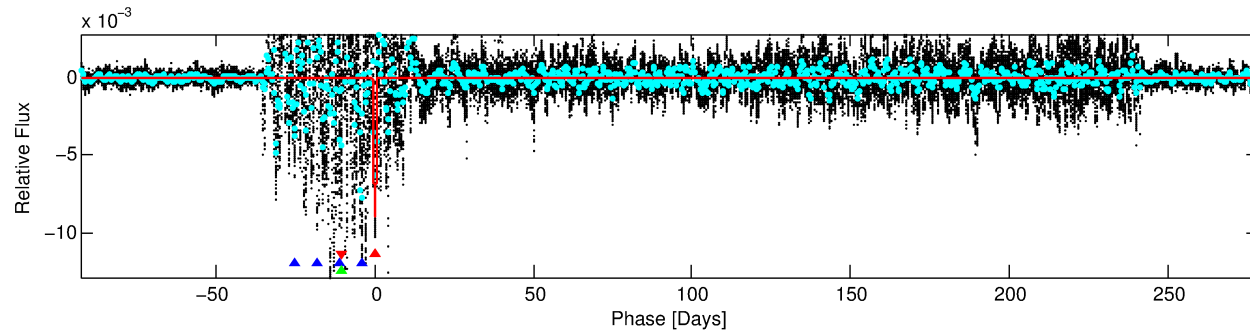
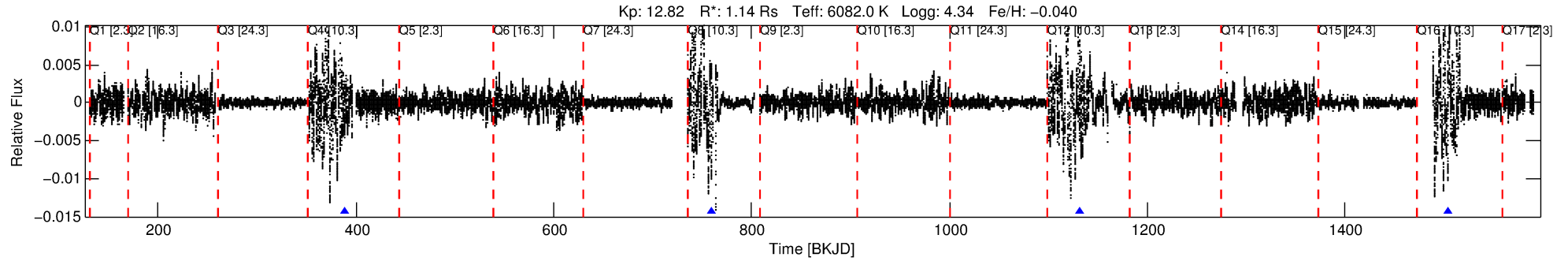
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007258024-01

No Significant Match Found

# DV One-Page Summary

KIC: 7258024 Candidate: 1 of 3 Period: 371.744 d



## DV Fit Results:

Period = 371.74447 [0.01884] d  
Epoch = 388.1256 [0.0319] BKJD  
Rp/R\* = 0.1550 [0.1658]  
a/R\* = 46.10 [6.87]  
b = 1.00 [0.21]  
Seff = 1.52 [0.61]  
Teq = 283 [29] K  
Rp = 19.31 [21.52] Re  
a = 1.0264 [0.2685] AU  
Ag = 4482.81 [9770.54] [0.46σ]  
Teffp = 3581 [1925] K [1.71σ]

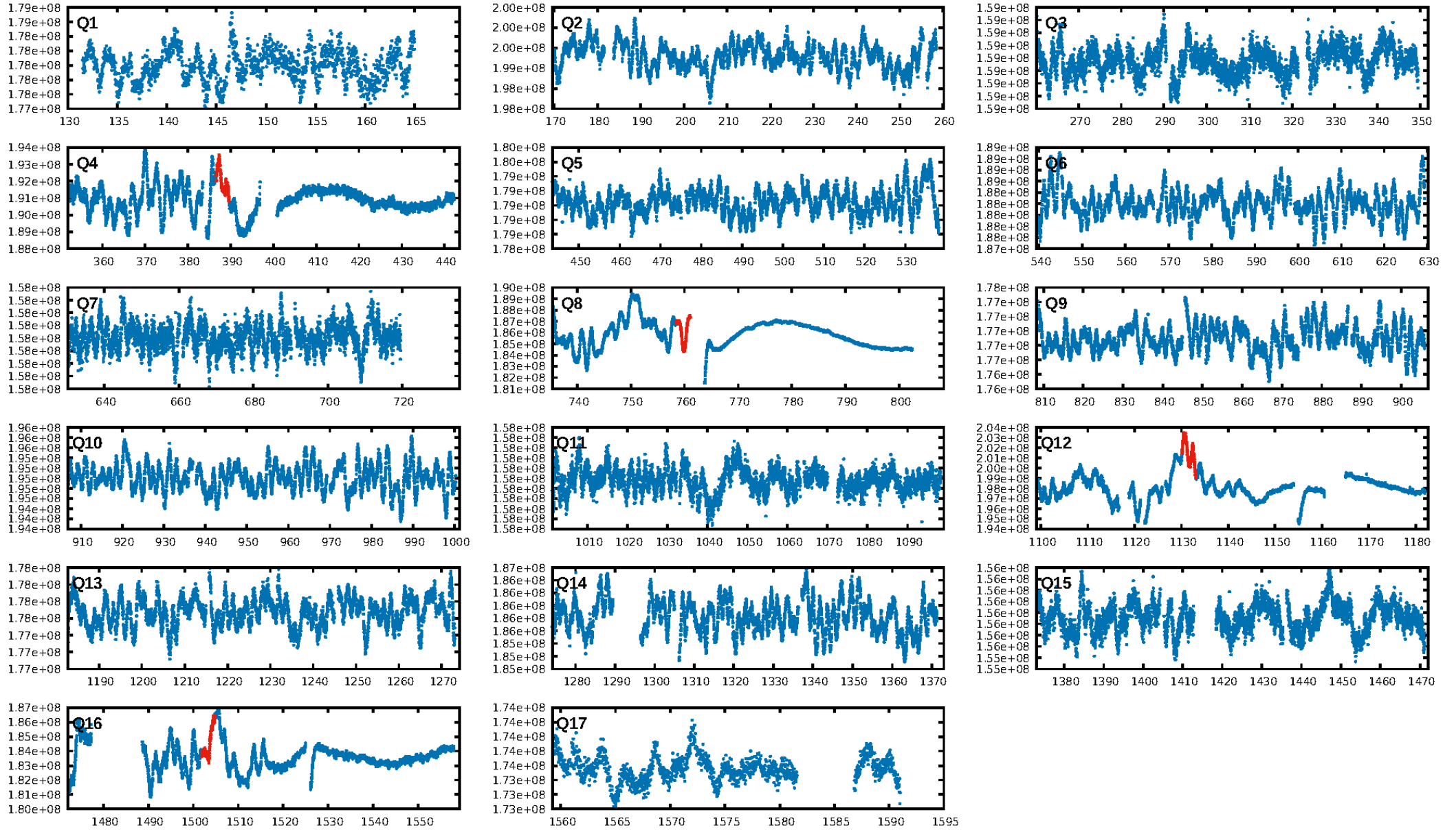
## DV Diagnostic Results:

ShortPeriod-sig: 2.3% [0.03σ]  
LongPeriod-sig: 99.9% [3.33σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 52.8%  
Bootstrap-pfa: 5.43e-12  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 6.039  
Centroid-sig: 0.0%  
Centroid-so: 2.627 arcsec [14.96σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0 [0]  
KicOffset-st: 0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [1/1]

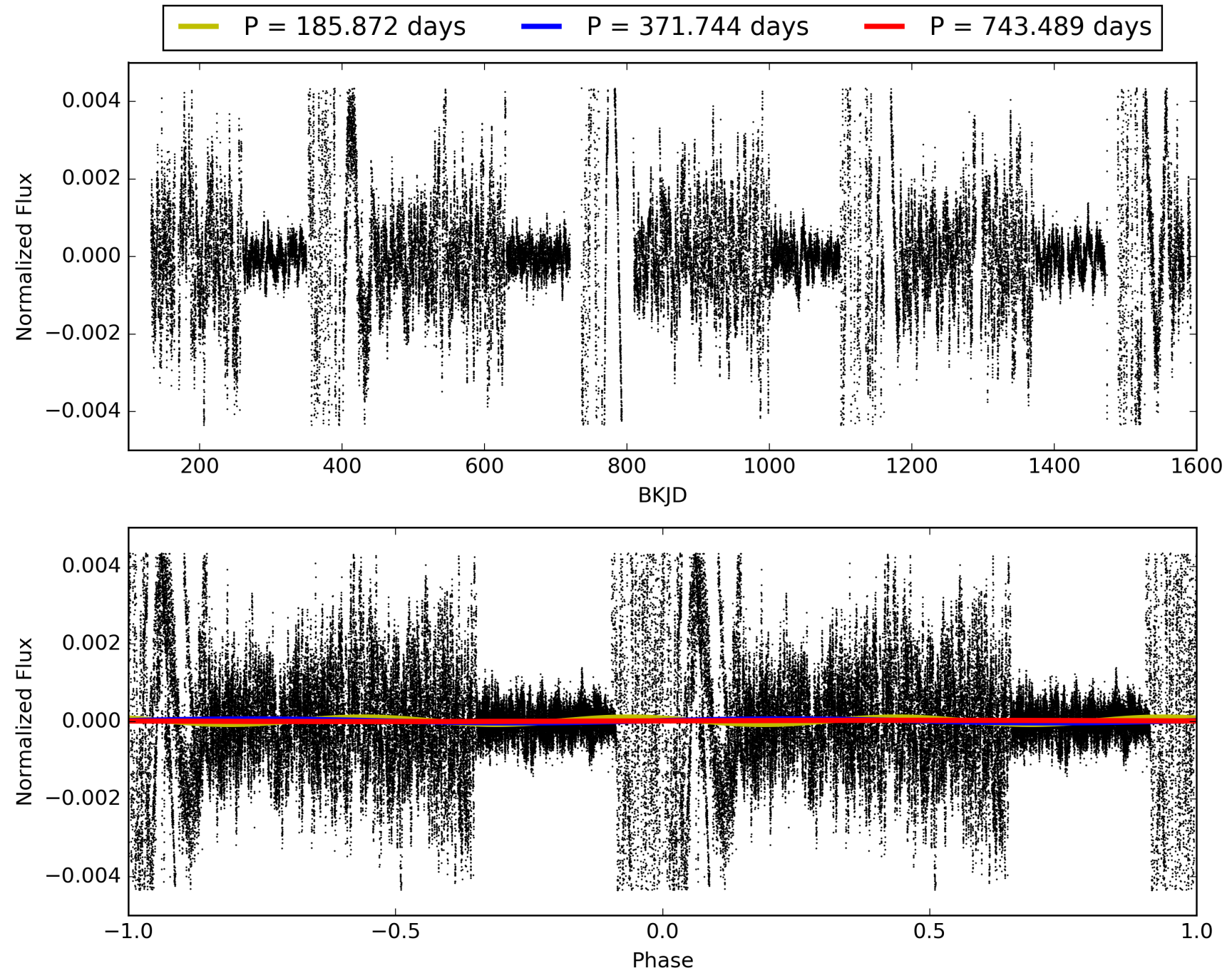
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:12:32 Z

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

# TCE 007258024-01, PDC Light Curves

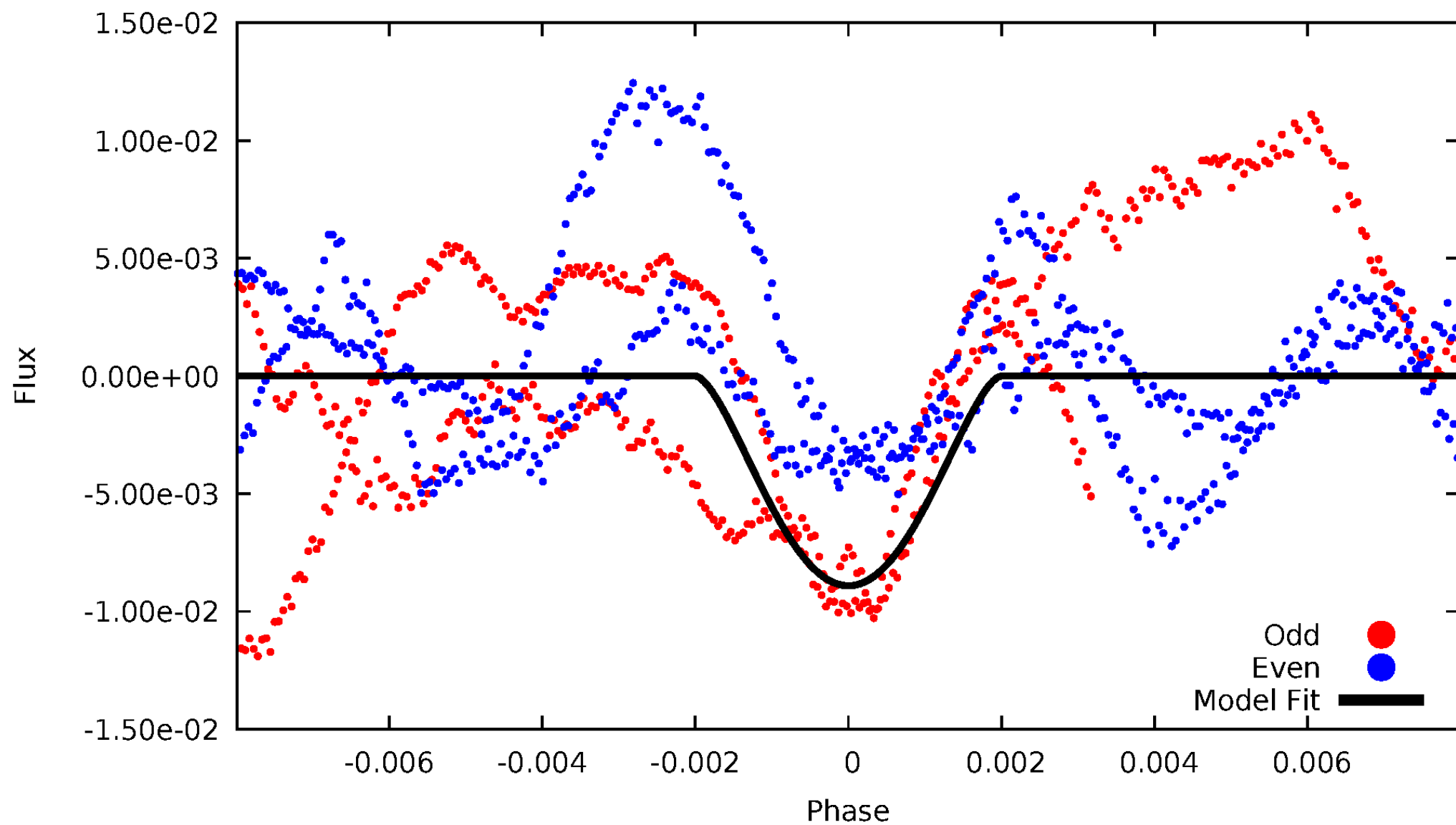


TCE 007258024-01



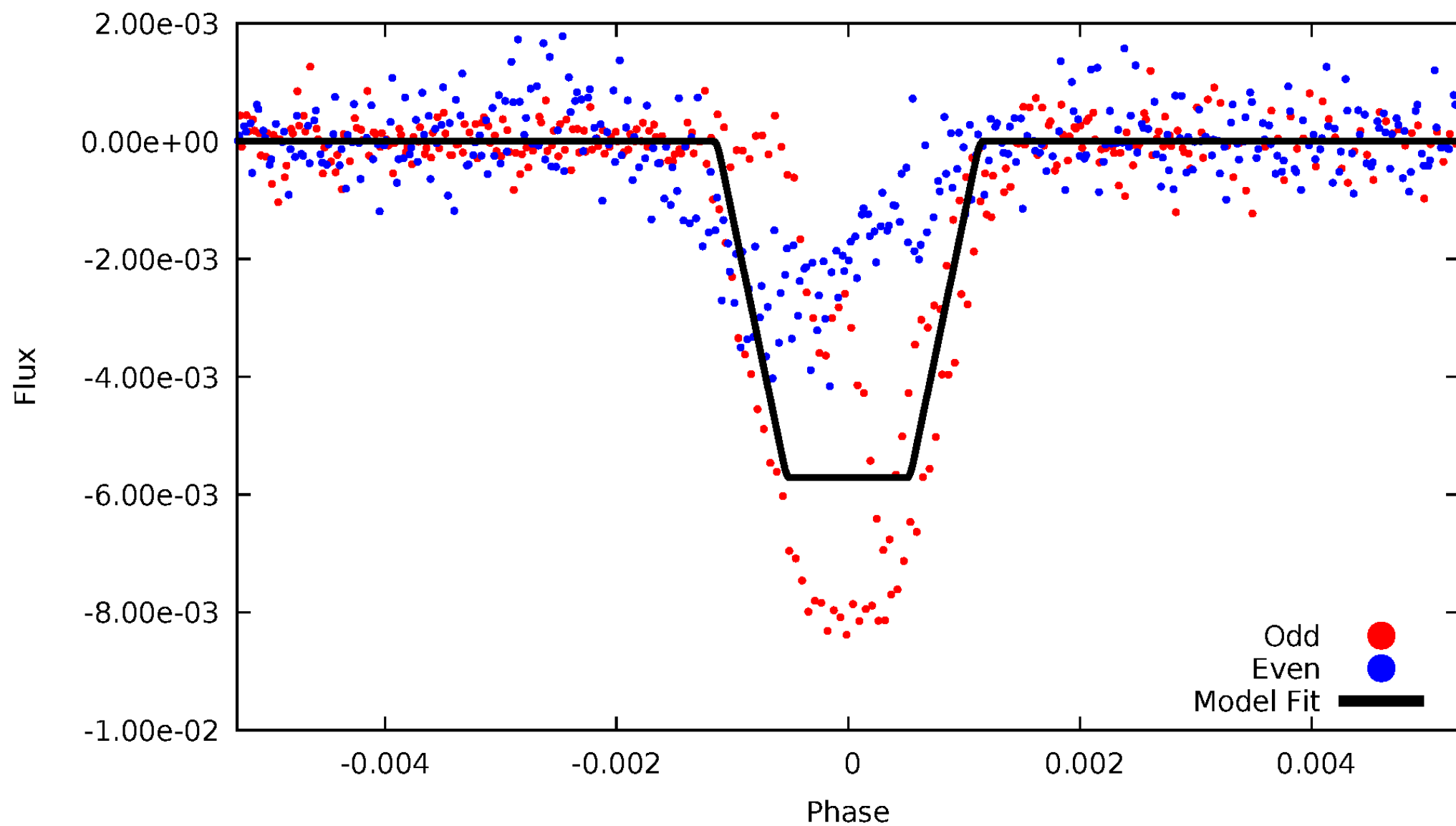
# DV Odd/Even

TCE 007258024-01



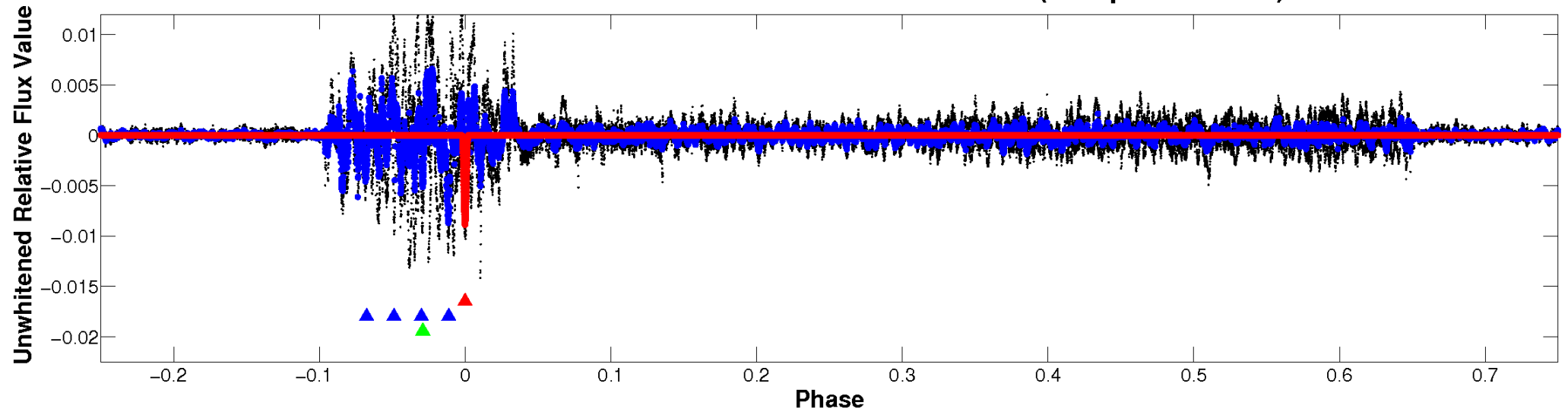
# ALT Odd/Even

TCE 007258024-01

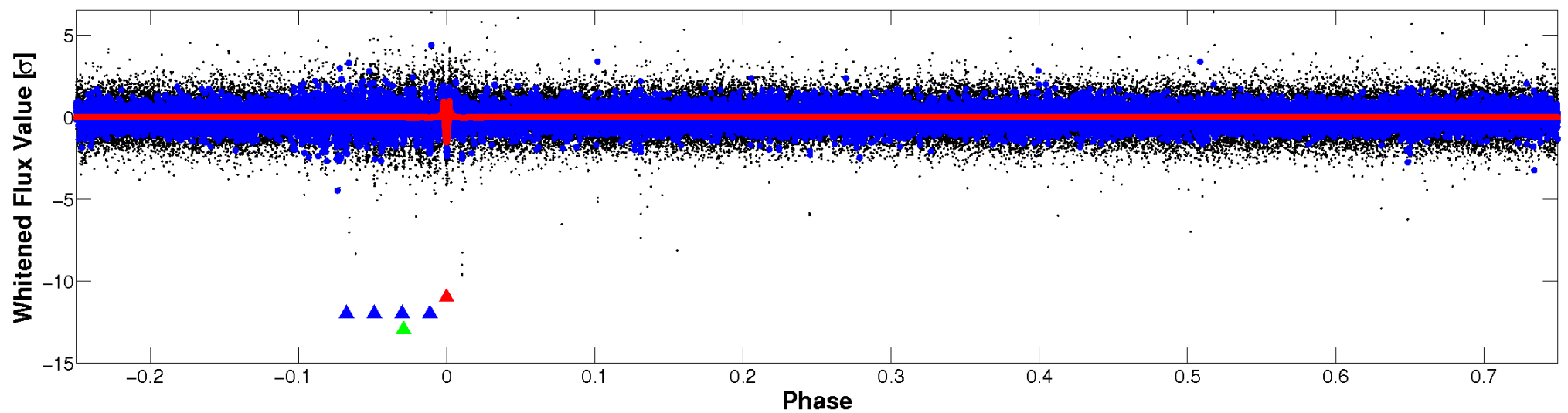


# Non-Whitened Vs. Whitened Light Curve

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



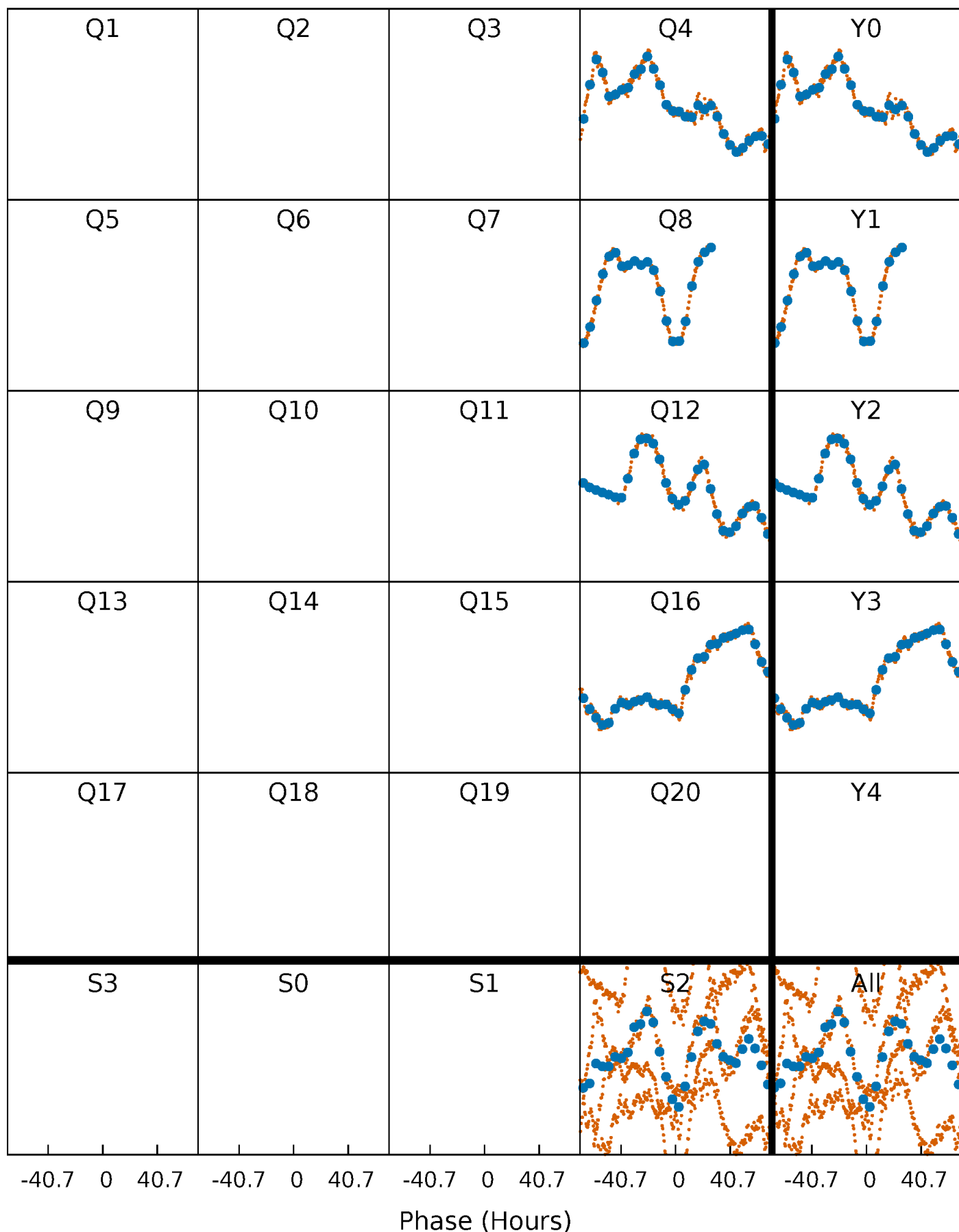
Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

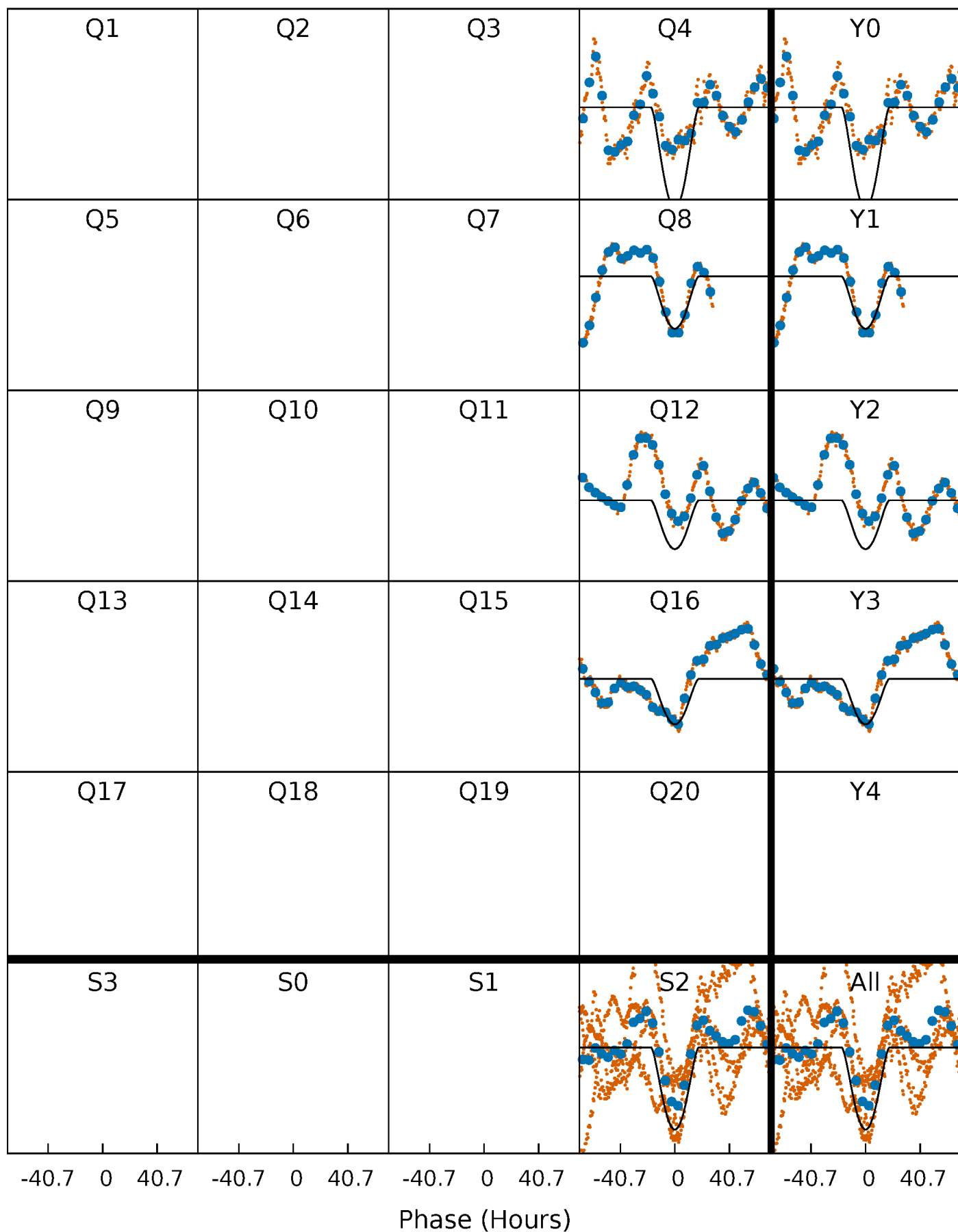
TCE 007258024-01 P=371.744468 Days  $T_0=388.125625$  (BKJD)





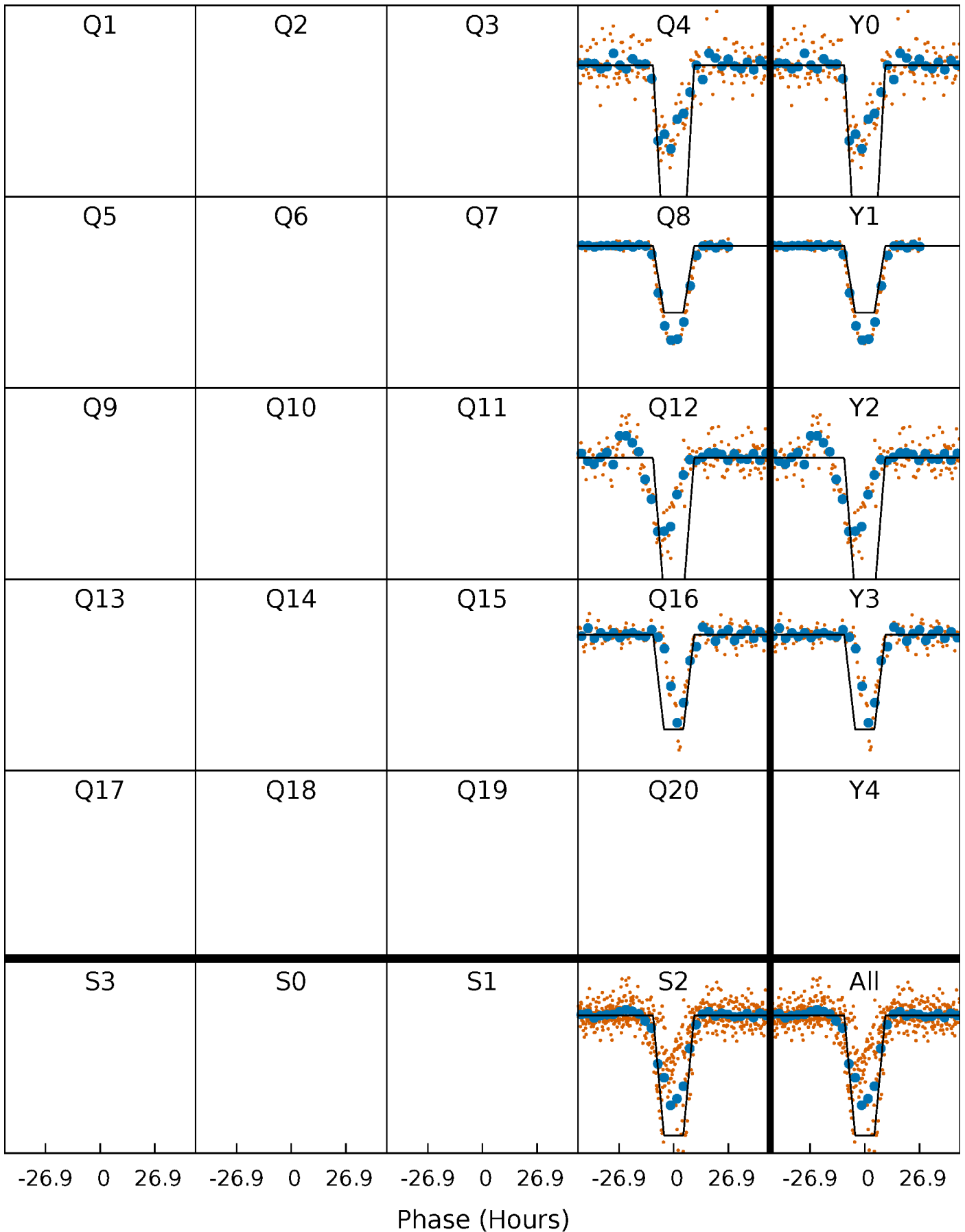
# DV Quarter-Phased Transit Curves

TCE 007258024-01 P=371.744468 Days  $T_0=388.125625$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

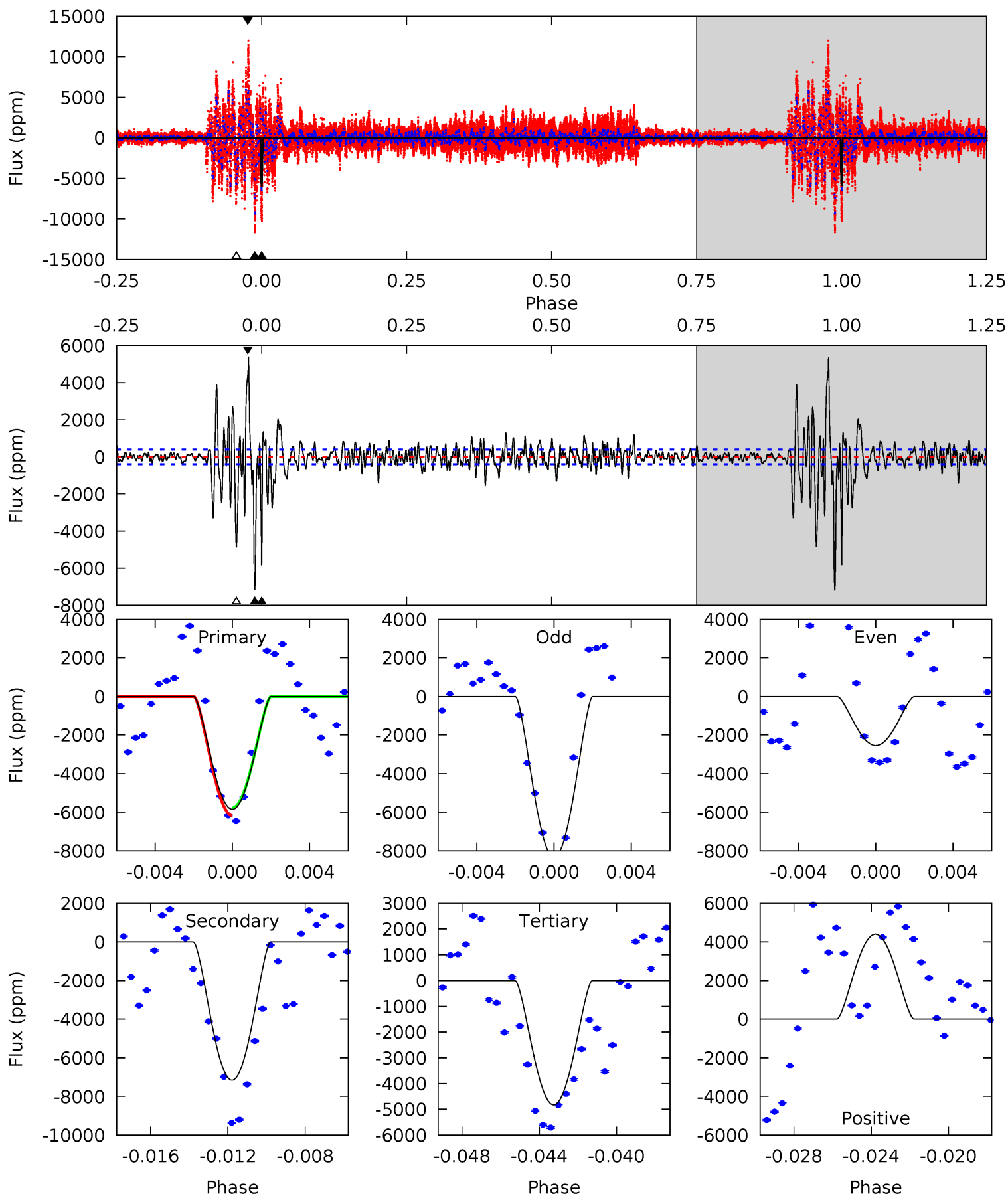
TCE 007258024-01 P=371.740946 Days  $T_0=388.147857$  (BKJD)



# DV Model-Shift Uniqueness Test

007258024-01, P = 371.744468 Days, E = 16.381157 Days

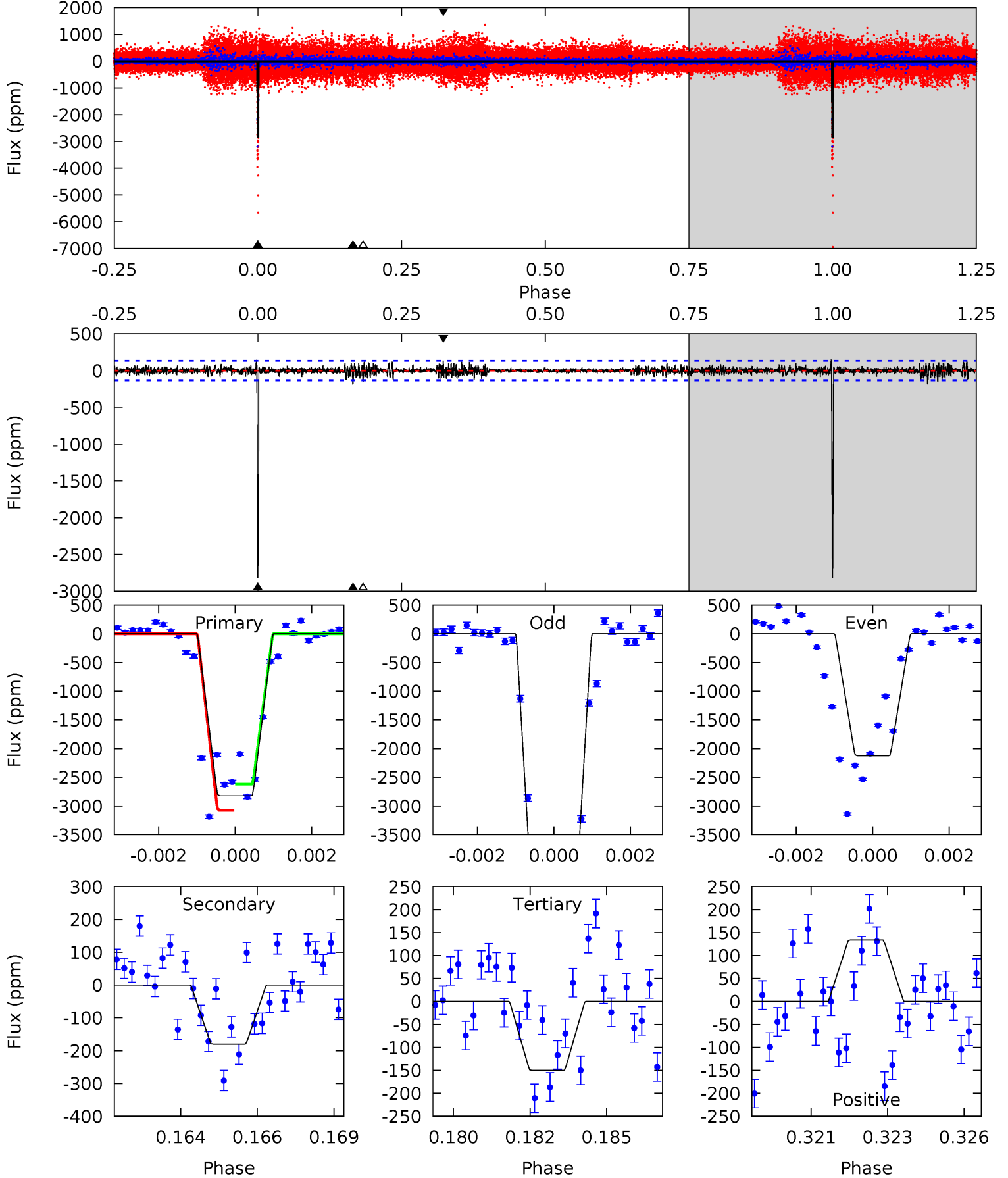
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
77.1	94.4	63.7	58.1	5.20	2.88	8.68	13.4	19.0	30.7	36.4	32.0	0.93	0.43	2.59



# Alt Model-Shift Uniqueness Test

007258024-01, P = 371.740946 Days, E = 16.406911 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
112.3	7.16	5.97	5.32	5.30	3.05	1.13	106.4	107.0	1.20	1.84	92.3	1.37	0.05	0



### Stellar Parameters For KIC 007258024

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6082^{+184}_{-202}$	$4.341^{+0.112}_{-0.208}$	$-0.040^{+0.250}_{-0.300}$	$1.142^{+0.355}_{-0.191}$	$1.043^{+0.167}_{-0.125}$	$0.985^{+0.584}_{-0.492}$
	+3%/-3%	+3%/-5%	+625%/-750%	+31%/-17%	+16%/-12%	+59%/-50%
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 007258024-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-7160 \pm 76$	$25.88^{+19.63}_{-16.96}$	$402^{+29}_{-27}$	$4221^{+2492}_{-752}$	$6376^{+44901}_{-4352}$
Alt.	$-180 \pm 25$	$18.80^{+16.99}_{-12.36}$	$400^{+28}_{-23}$	$2647^{+954}_{-382}$	$288^{+2226}_{-209}$

$T_{max}$  = 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 007258024-01. Kepler magnitude: 12.82. Transit SNR 17.71

There are 0 quarters with good PRF difference image offsets

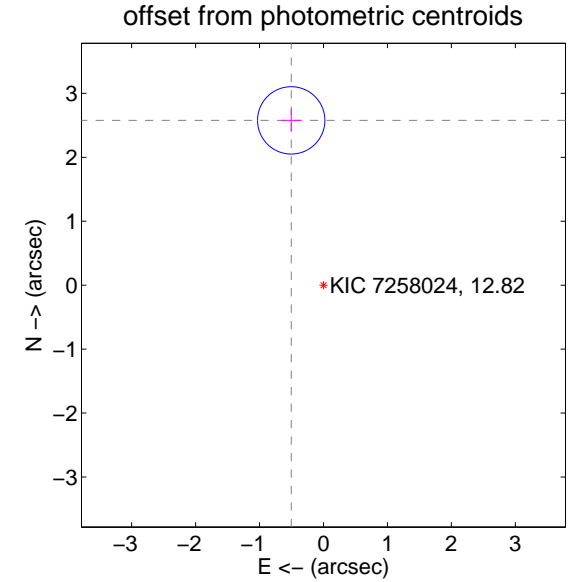
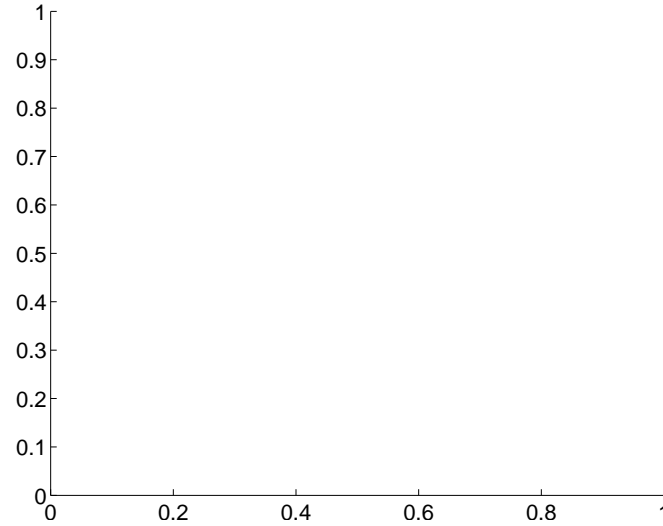
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$2.63 \pm 0.18$	$14.96$	$0.50 \pm 0.16$	$2.58 \pm 0.18$

There is no PRF-fit offset from OOT-fit

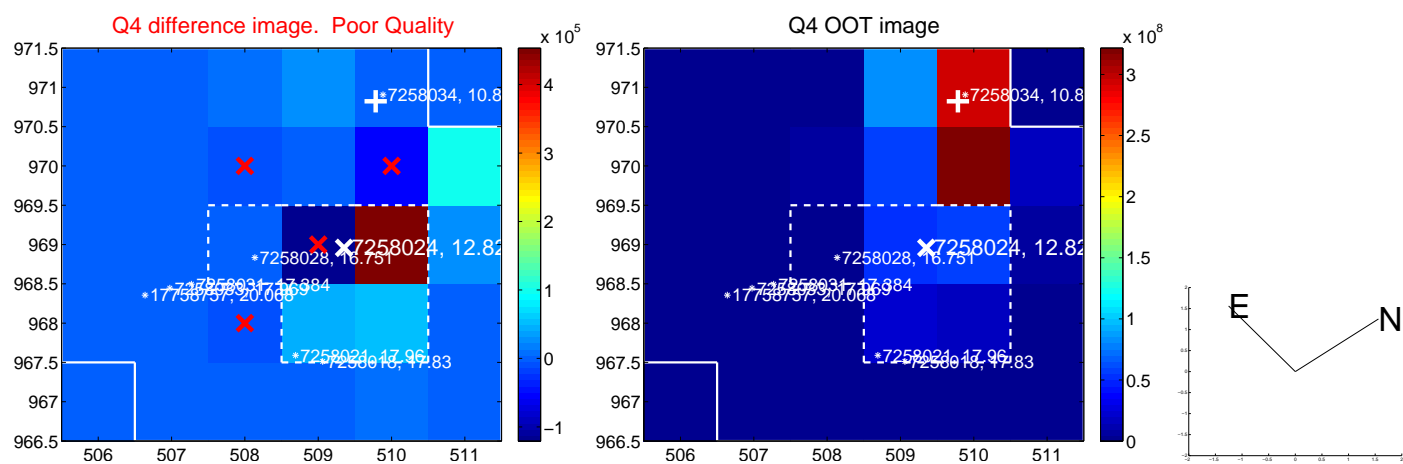
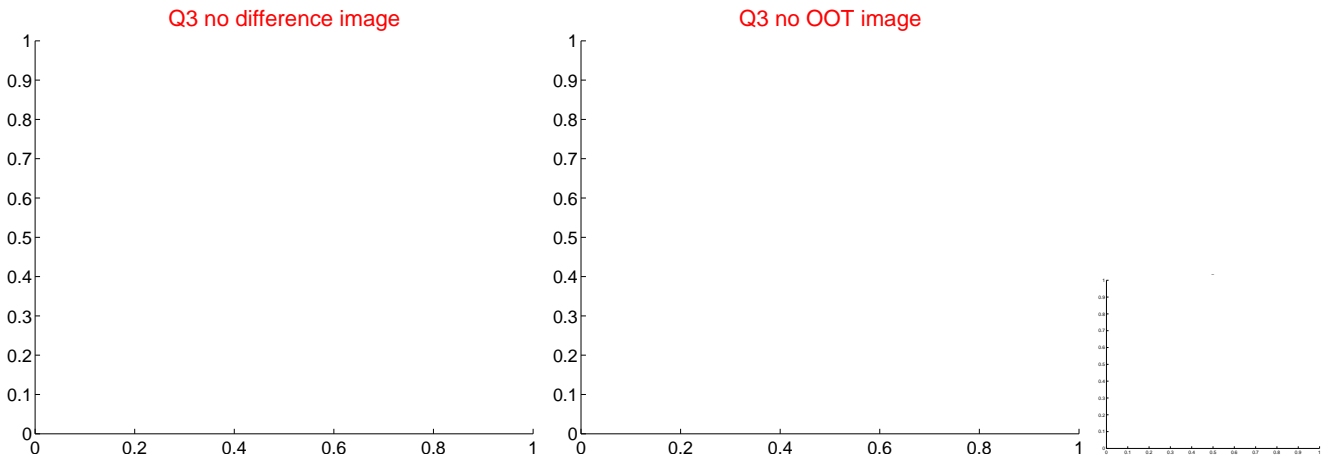
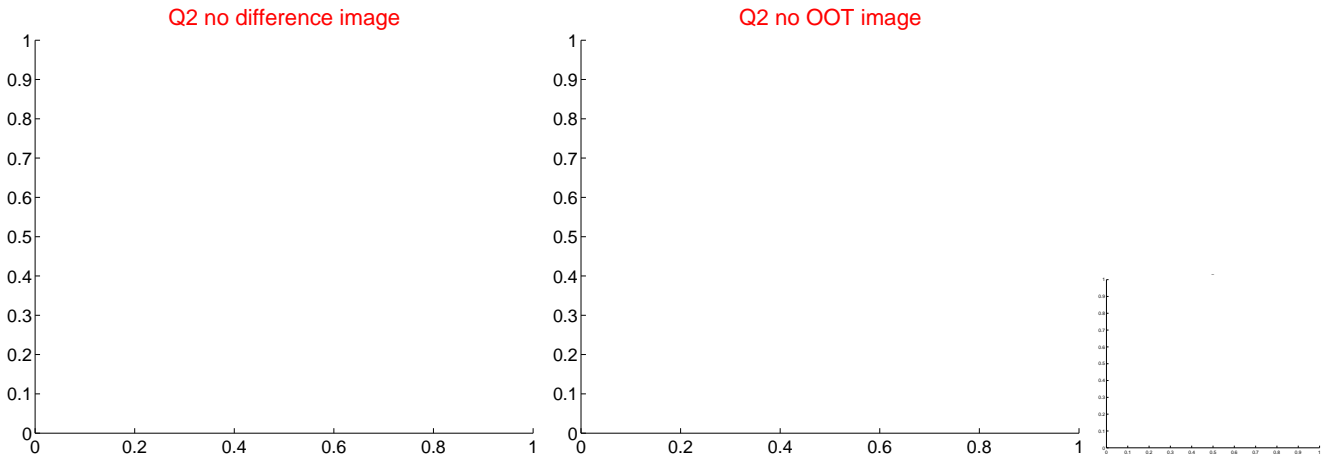


There is no PRF-fit offset from KIC



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.



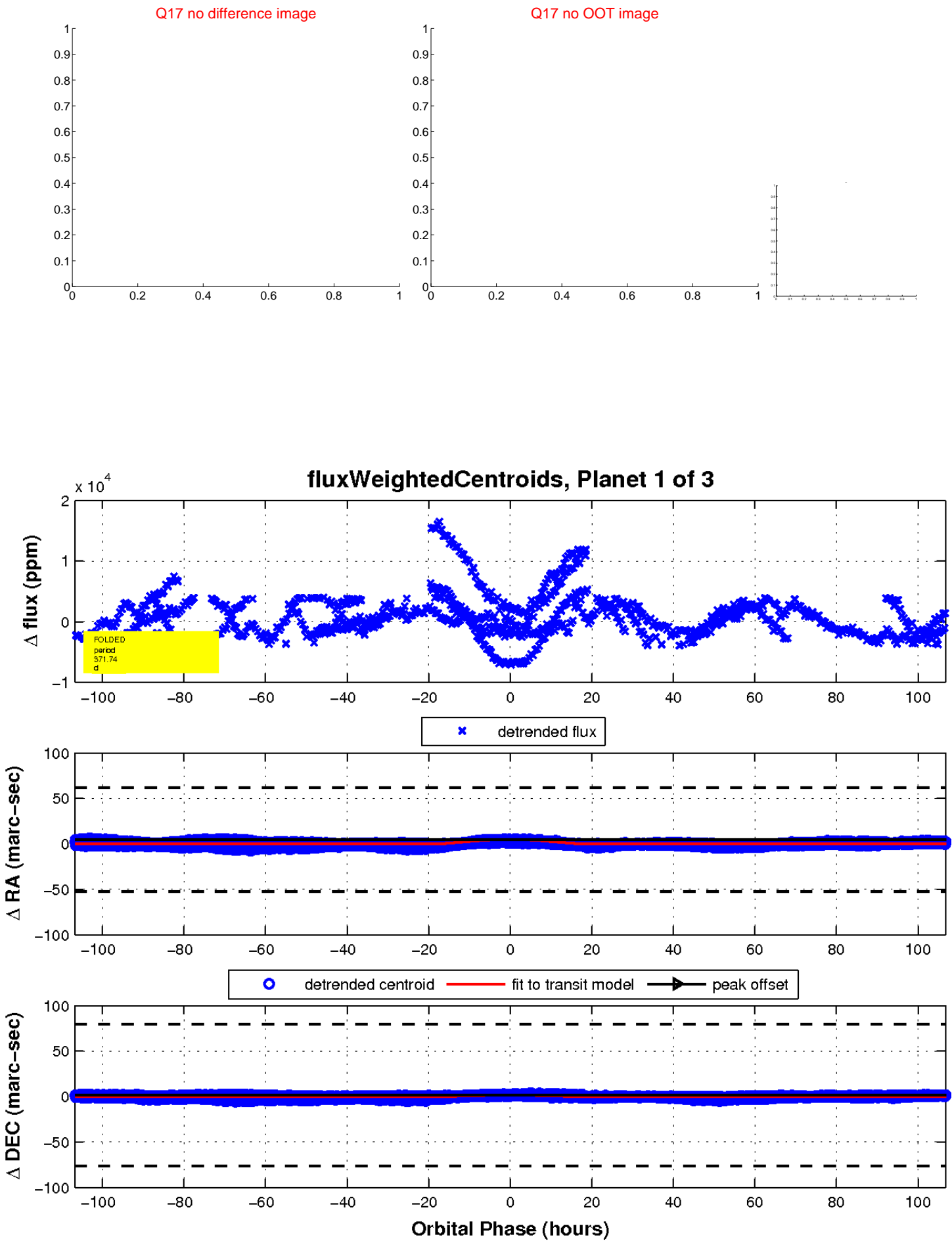
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



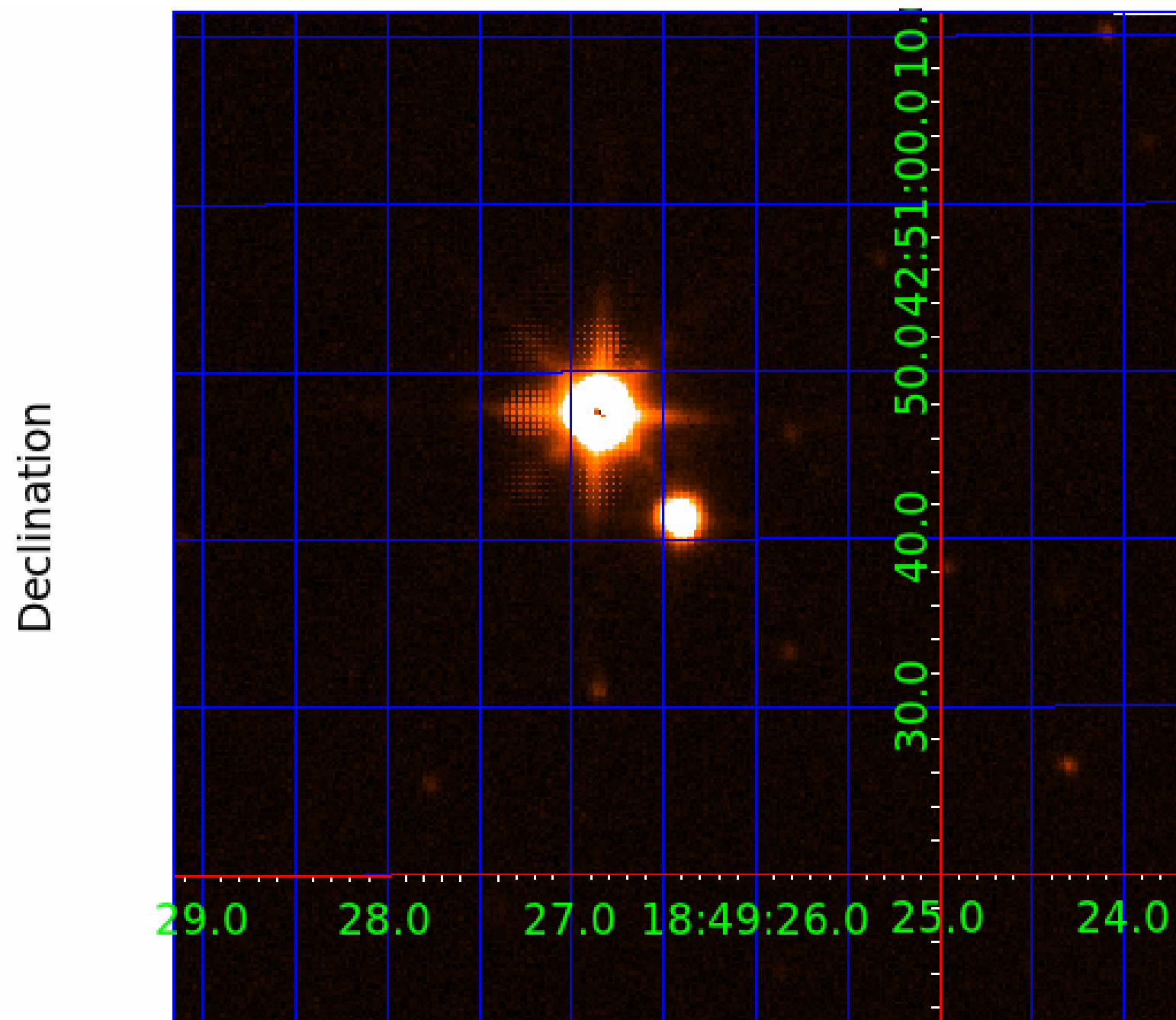
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 007258024

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007258024-01	OBS	No	371.744468	388.125625	8907.9	35.612	9.4	17.7	1.14	6082	19.31	1.52
007258024-02	OBS	No	378.726678	363.017297	10914.3	35.491	10.3	18.2	1.14	6082	21.25	1.48
007258024-03	OBS	No	371.684995	377.443574	8288.5	33.793	9.5	13.9	1.14	6082	18.57	1.52

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007258024-01	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007258024-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007258024-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

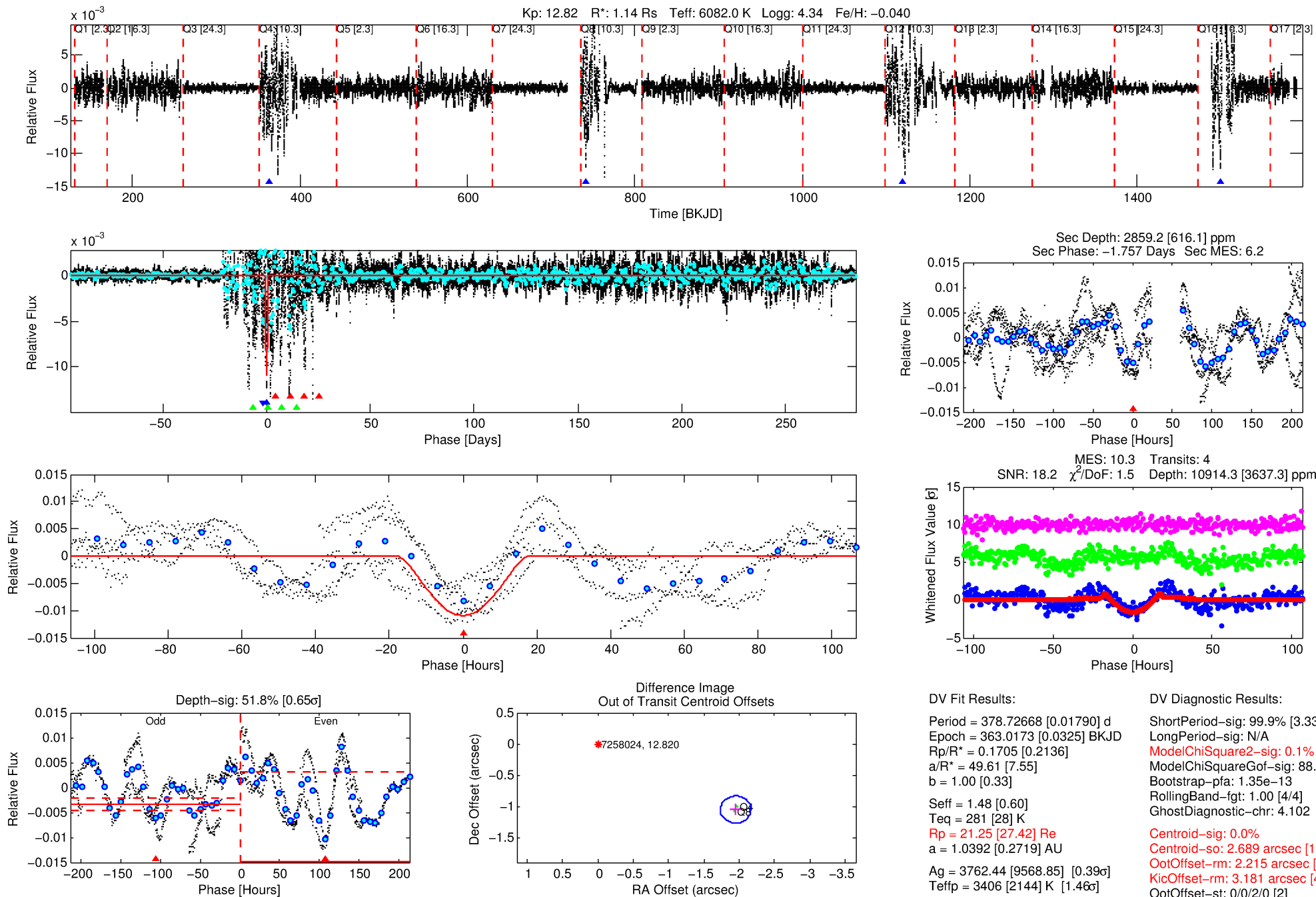
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007258024-02

No Significant Match Found

# DV One-Page Summary

KIC: 7258024 Candidate: 2 of 3 Period: 378.727 d



## DV Fit Results:

Period = 378.72668 [0.01790] d  
Epoch = 363.0173 [0.0325] BKJD  
Rp/R\* = 0.1705 [0.2136]  
a/R\* = 49.61 [7.55]  
b = 1.00 [0.33]  
Seff = 1.48 [0.60]  
Teq = 281 [28] K  
Rp = 21.25 [27.42] Re  
a = 1.0392 [0.2719] AU  
Ag = 3762.44 [9568.85] [0.39 $\sigma$ ]  
Teffp = 3406 [2144] K [1.46 $\sigma$ ]

## DV Diagnostic Results:

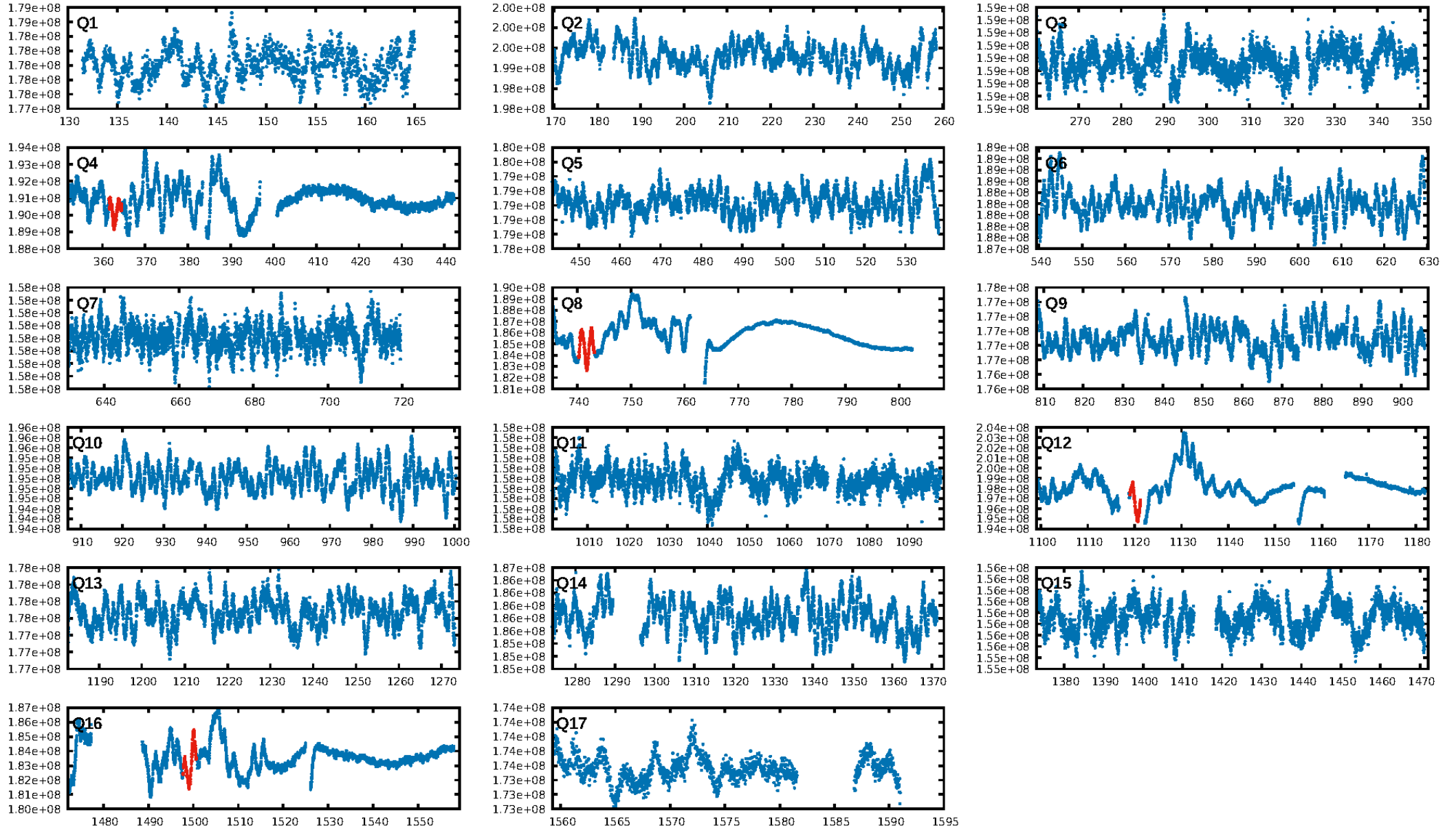
ShortPeriod-sig: 99.9% [3.33 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.1%  
ModelChiSquareGof-sig: 88.3%  
Bootstrap-pfa: 1.35e-13  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 4.102  
Centroid-sig: 0.0%  
Centroid-so: 2.689 arcsec [19.01 $\sigma$ ]  
OotOffset-rm: 2.215 arcsec [30.79 $\sigma$ ]  
KicOffset-rm: 3.181 arcsec [43.43 $\sigma$ ]  
OotOffset-st: 0/0/2/0 [2]  
KicOffset-st: 0/0/2/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:12:39 Z

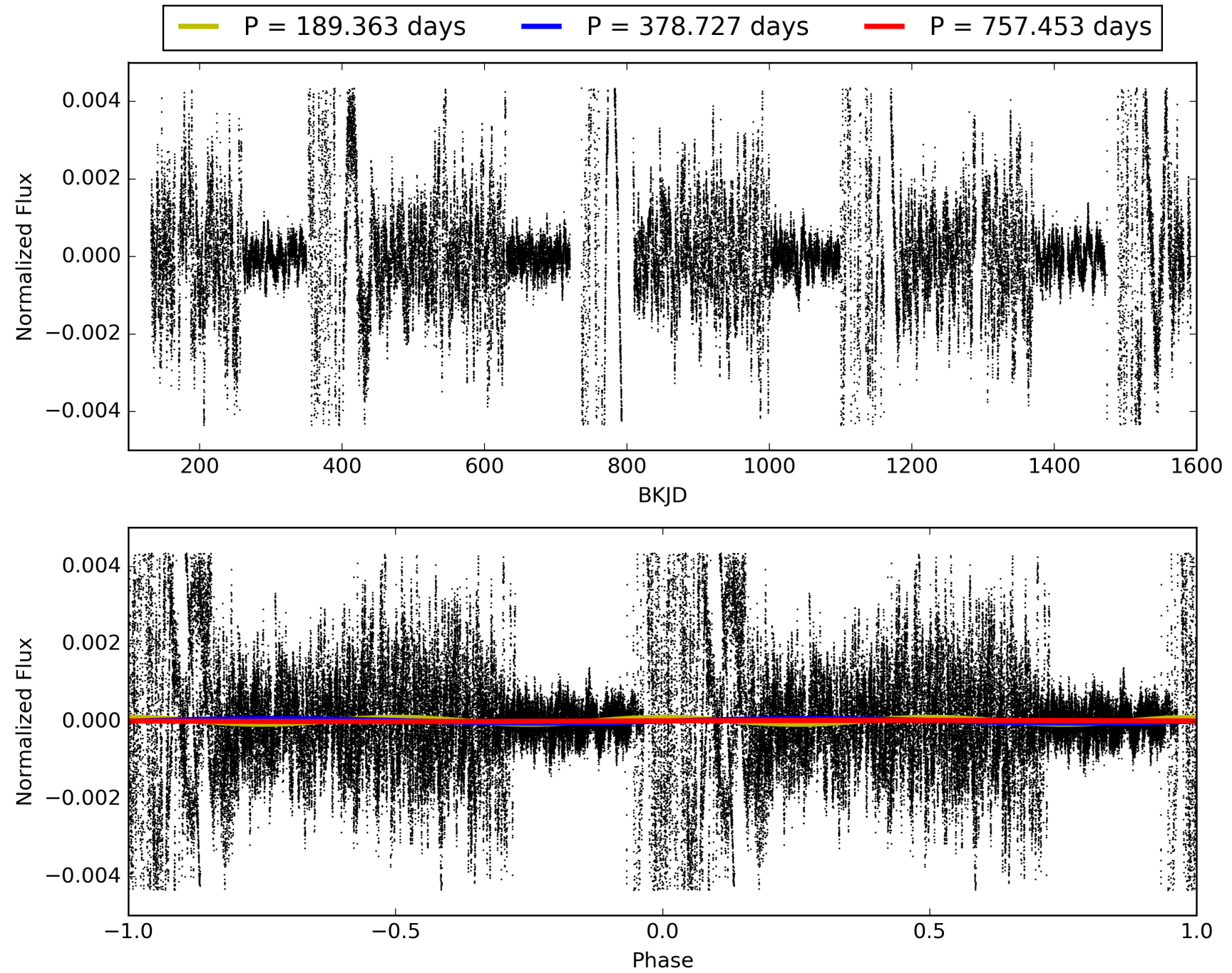
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 007258024-02, PDC Light Curves

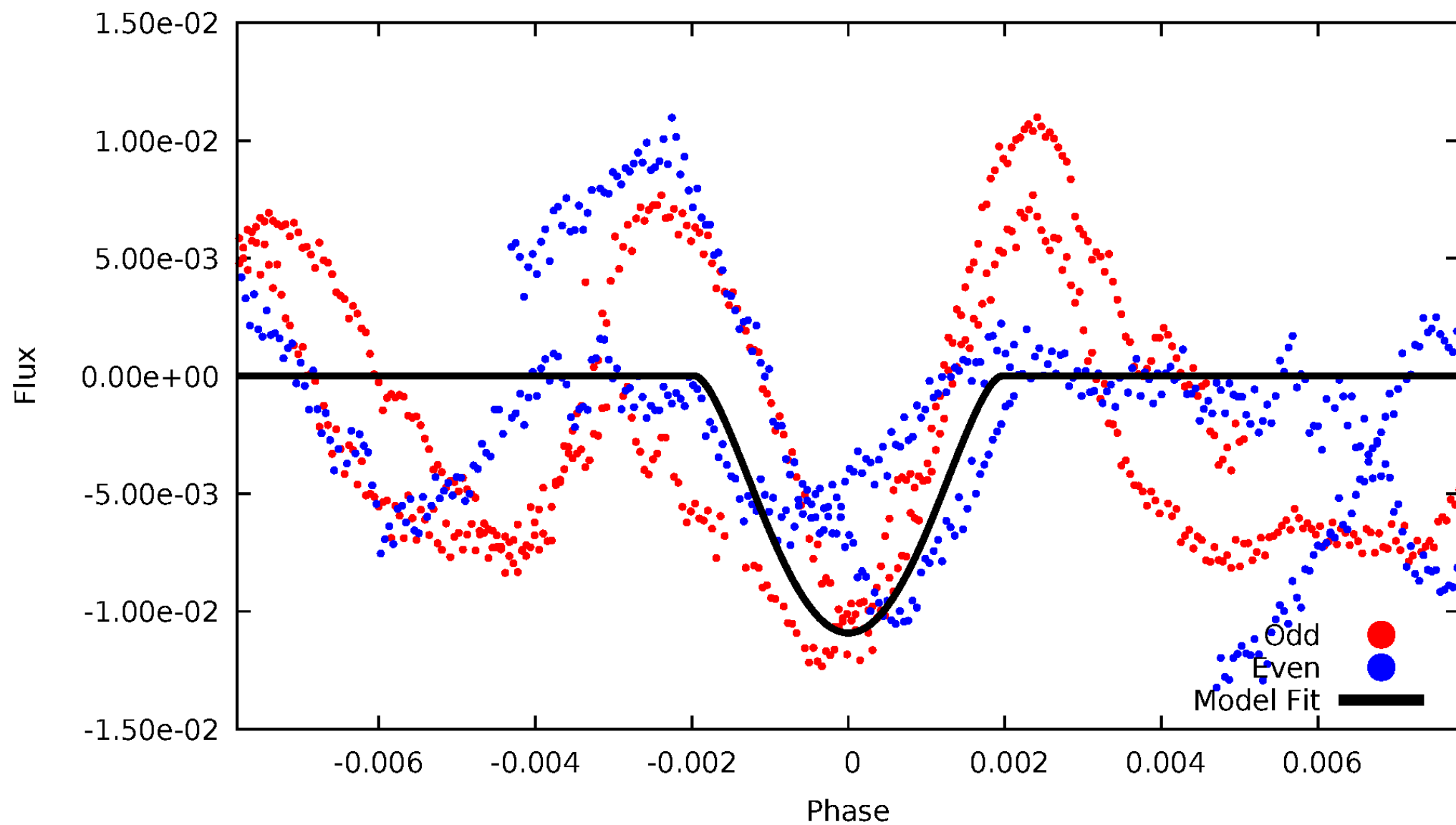


TCE 007258024-02



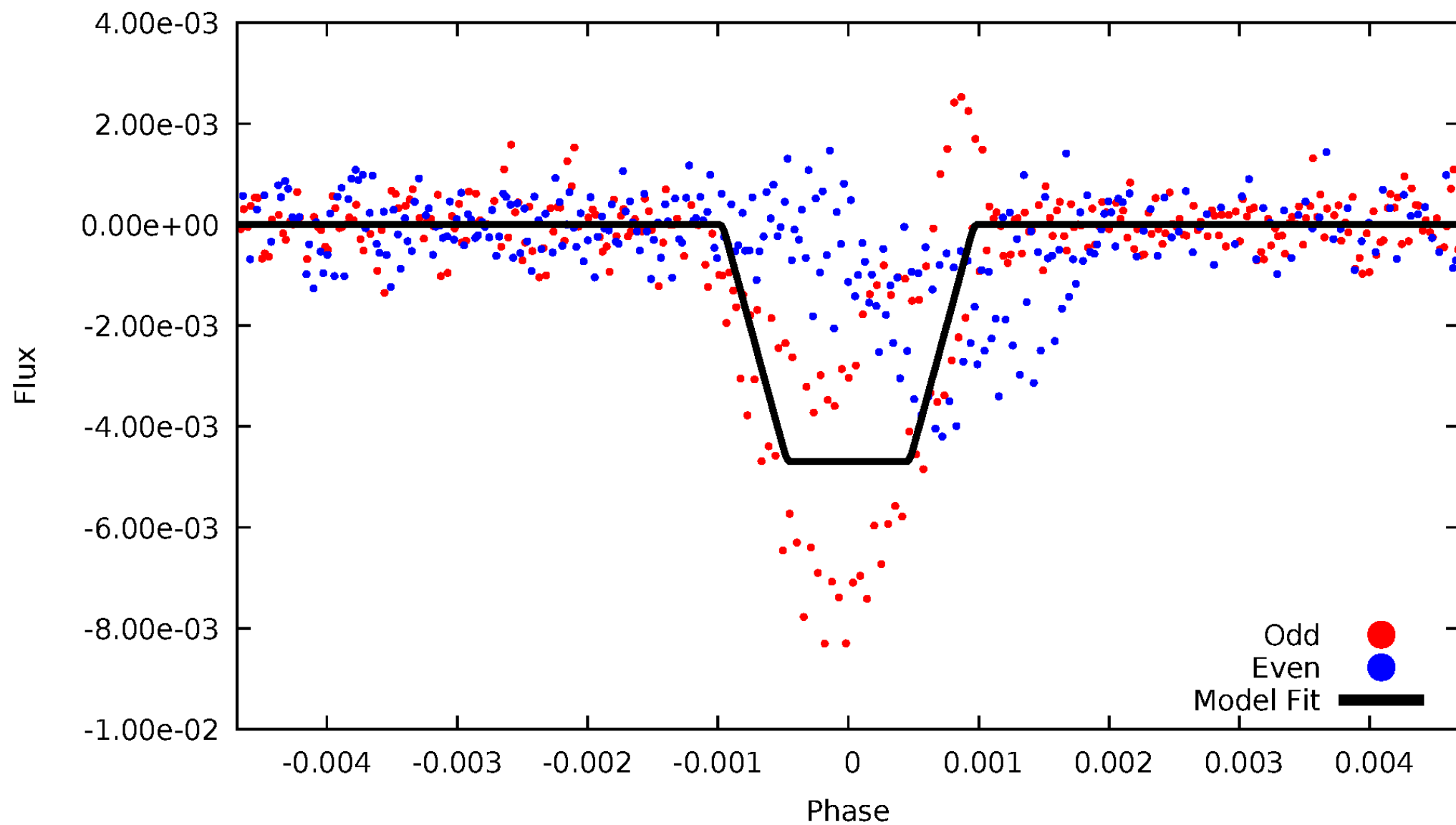
# DV Odd/Even

TCE 007258024-02



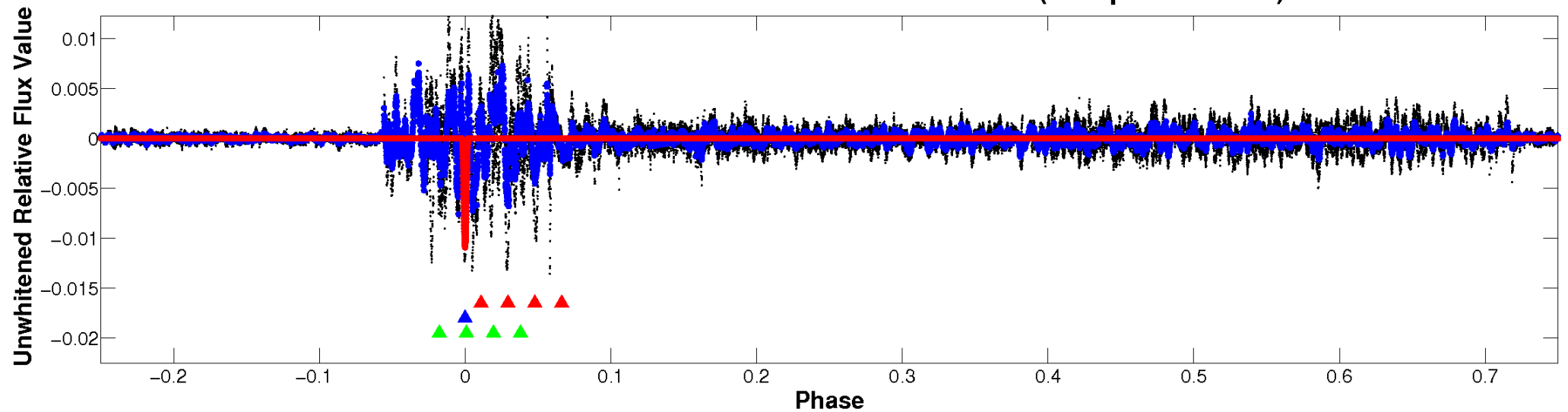
# ALT Odd/Even

TCE 007258024-02

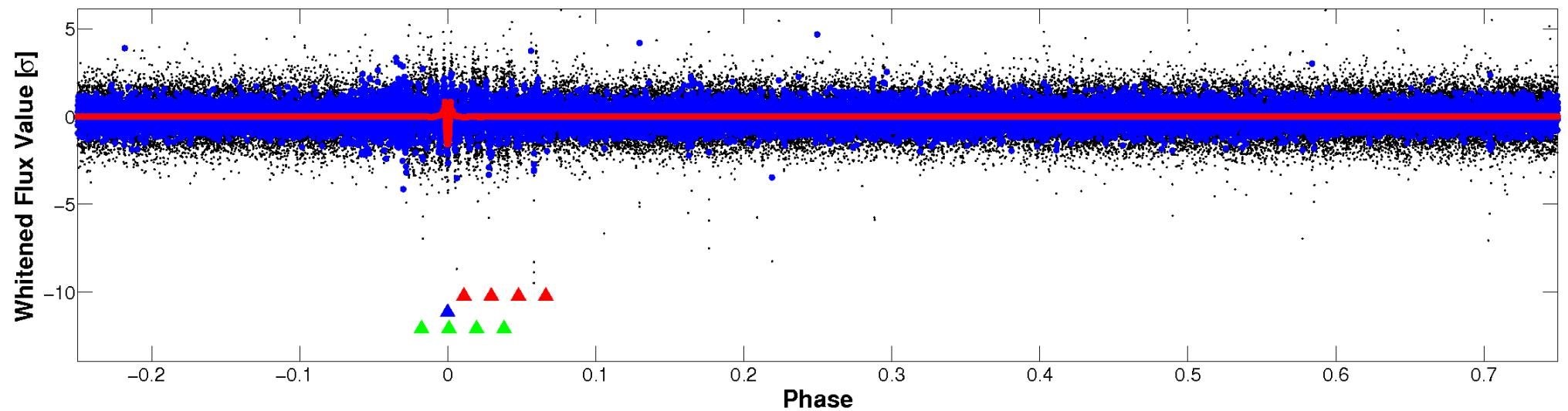


# Non-Whitened Vs. Whitened Light Curve

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

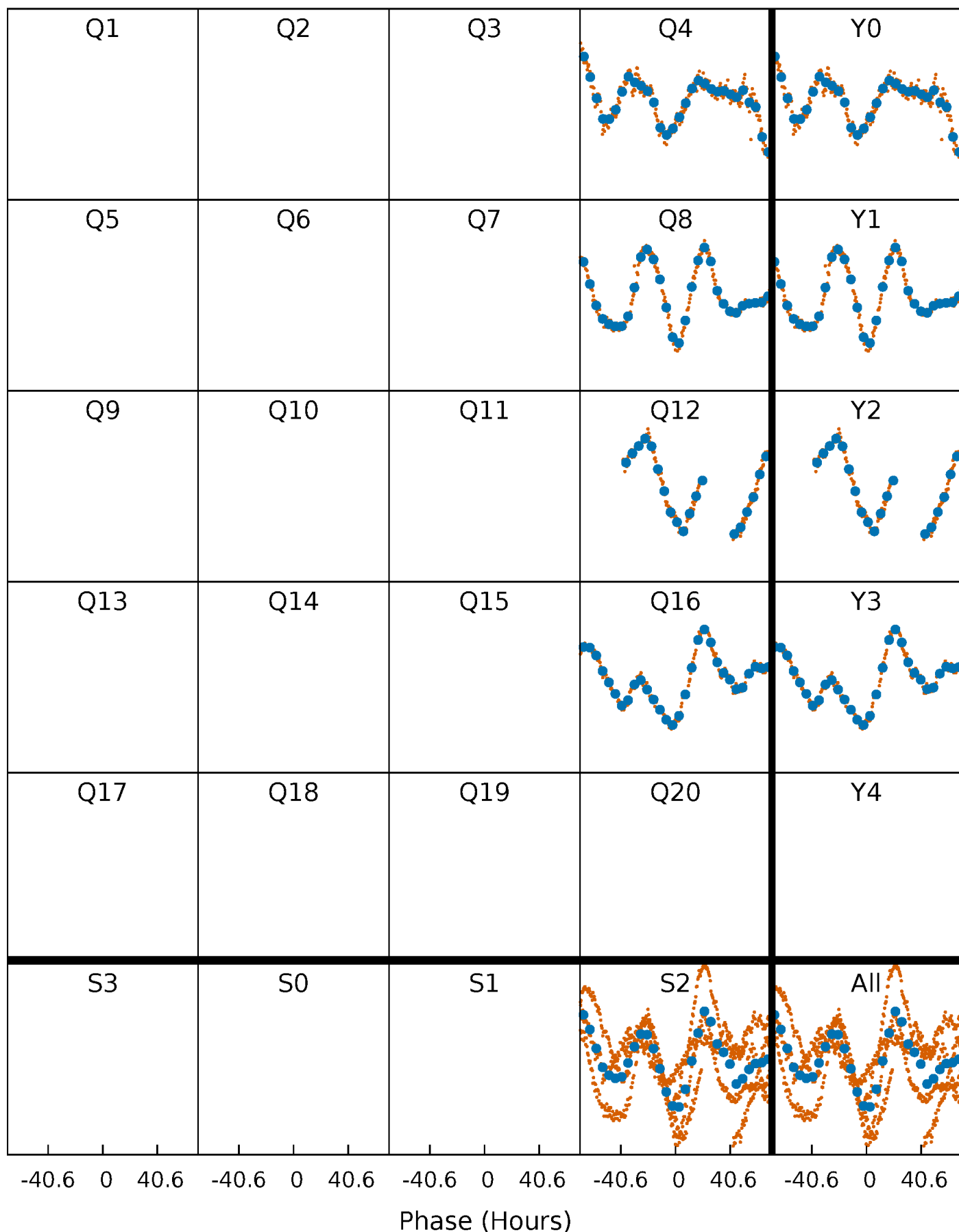


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



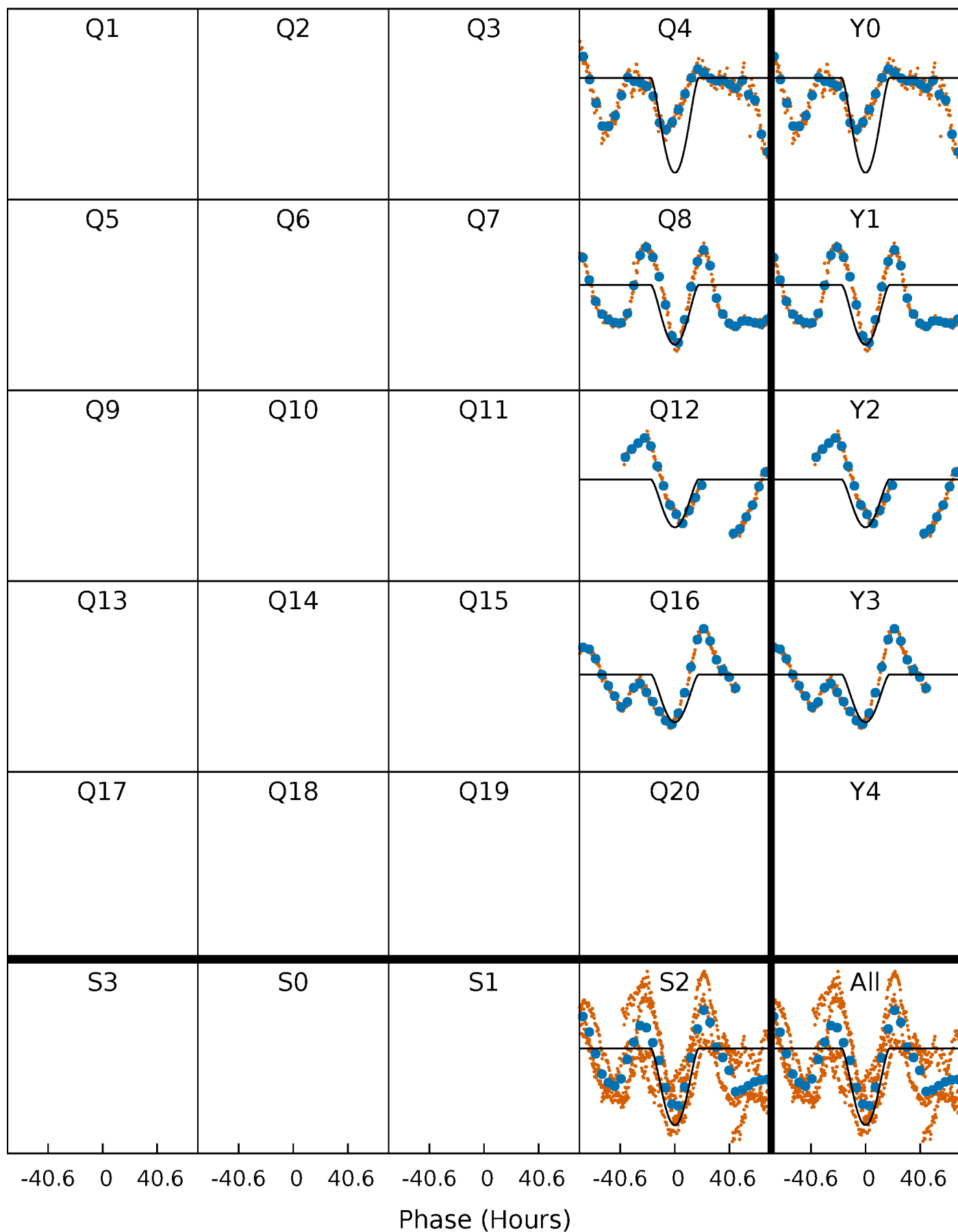
# PDC Quarter-Phased Transit Curves

TCE 007258024-02 P=378.726678 Days  $T_0=363.017297$  (BKJD)



# DV Quarter-Phased Transit Curves

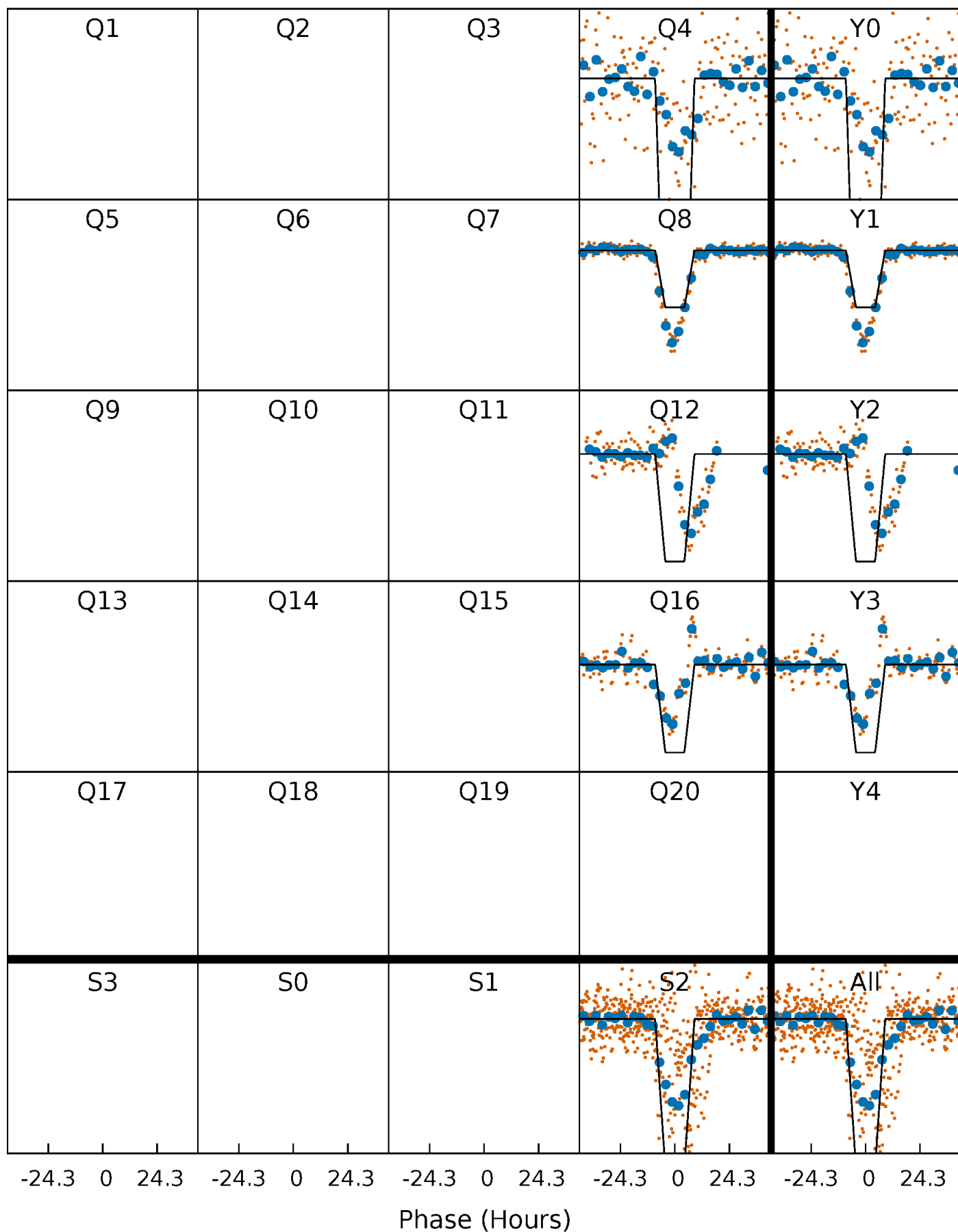
TCE 007258024-02 P=378.726678 Days  $T_0=363.017297$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

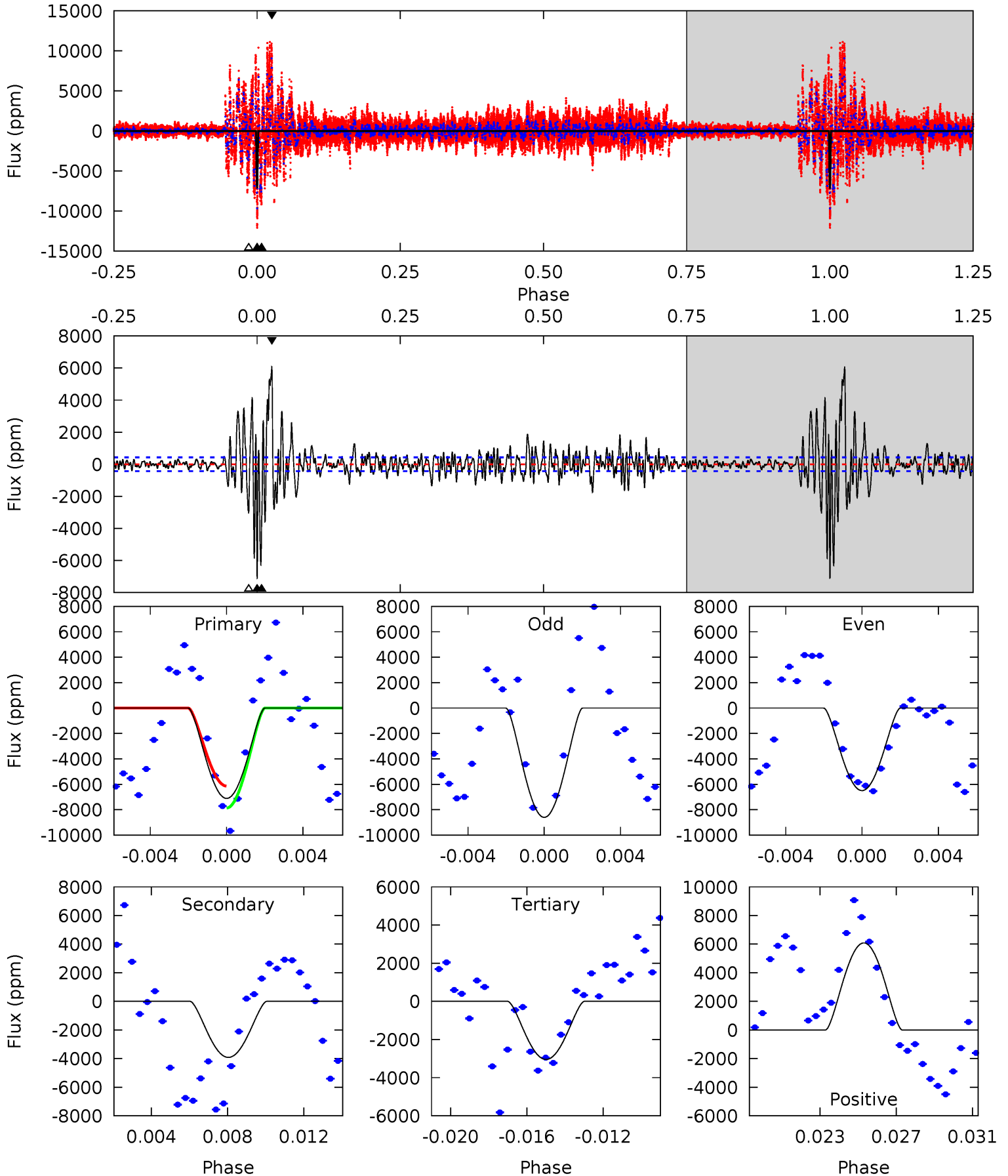
TCE 007258024-02 P=378.620244 Days  $T_0=363.247603$  (BKJD)



# DV Model-Shift Uniqueness Test

007258024-02, P = 378.726678 Days, E = 363.017297 Days

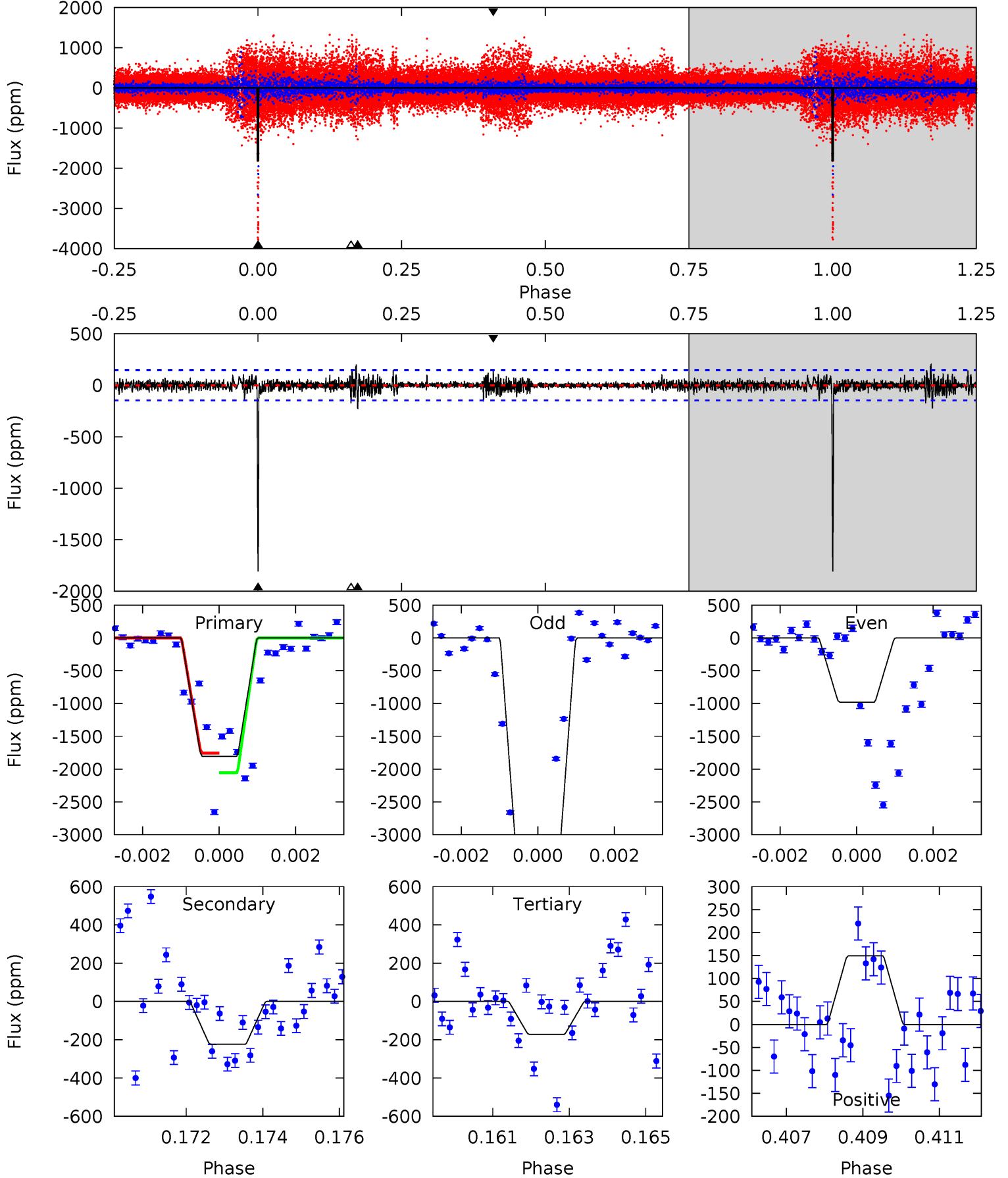
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
85.7	47.2	36.7	73.4	5.20	2.89	9.36	49.0	12.3	10.5	-26.2	12.0	0.97	0.46	10.7



# Alt Model-Shift Uniqueness Test

007258024-02, P = 378.620244 Days, E = 363.247603 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
65.6	8.12	6.27	5.42	5.33	3.10	1.08	59.3	60.2	1.86	2.70	62.6	1.71	0.10	5.33



### Stellar Parameters For KIC 007258024

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6082^{+184}_{-202}$	$4.341^{+0.112}_{-0.208}$	$-0.040^{+0.250}_{-0.300}$	$1.142^{+0.355}_{-0.191}$	$1.043^{+0.167}_{-0.125}$	$0.985^{+0.584}_{-0.492}$
	+3%/-3%	+3%/-5%	+625%/-750%	+31%/-17%	+16%/-12%	+59%/-50%
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 007258024-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-3916 \pm 83$	$29.84^{+25.46}_{-17.85}$	$397^{+30}_{-22}$	$3621^{+1464}_{-621}$	$2630^{+13043}_{-1855}$
Alt.	$-224 \pm 28$	$21.52^{+22.52}_{-14.95}$	$397^{+31}_{-24}$	$2603^{+1040}_{-390}$	$278^{+2720}_{-209}$

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

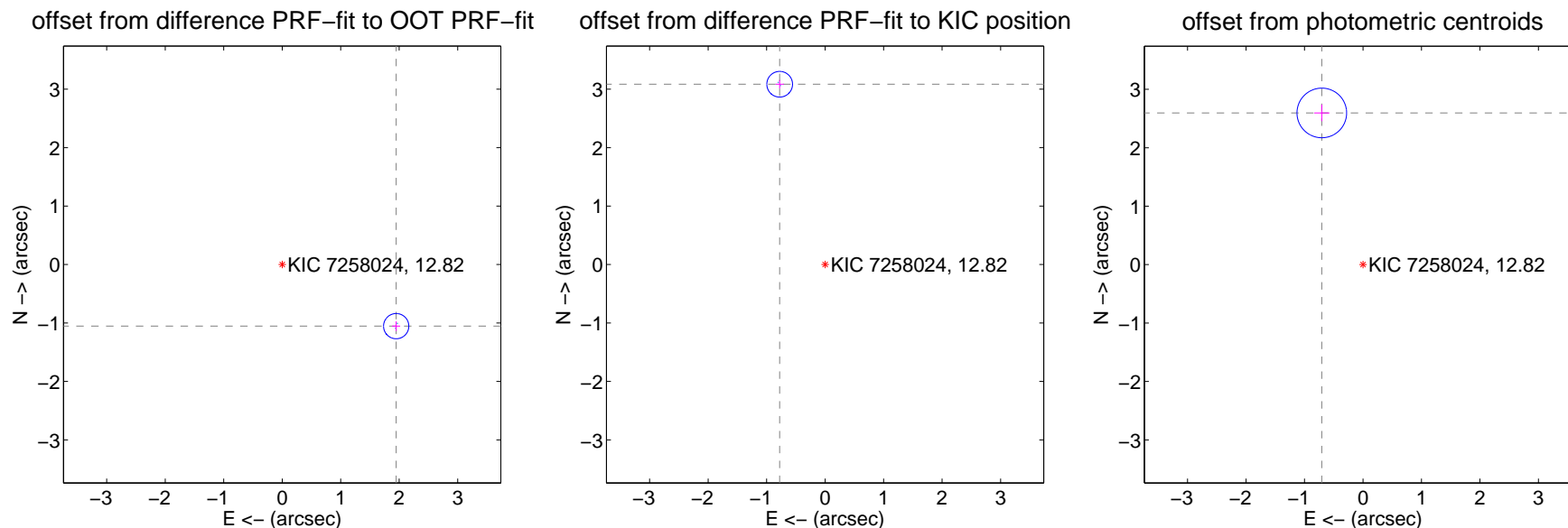
## DV Centroid Data

Supplemental centroid analysis for 007258024-02. Kepler magnitude: 12.82. Transit SNR 18.20

There are 2 quarters with good PRF difference image offsets

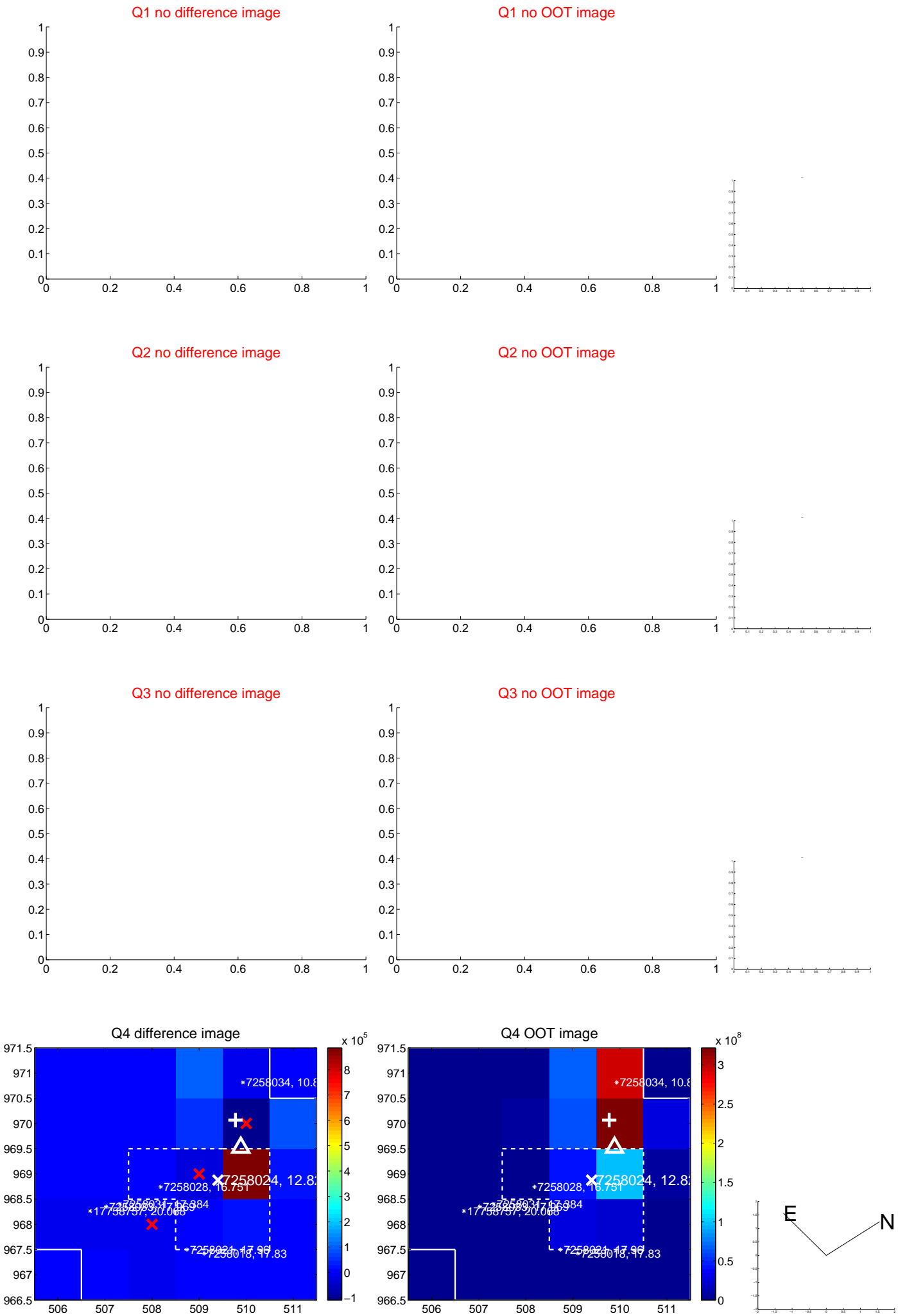
The OOT PRF centroid is offset from the target star catalog position by about 4.95 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.215 \pm 0.072$	30.79	$-1.948 \pm 0.069$	$-1.054 \pm 0.082$
PRF-fit source offset from KIC position	$3.181 \pm 0.073$	43.43	$0.777 \pm 0.070$	$3.084 \pm 0.073$
photometric centroid source offset	$2.69 \pm 0.14$	19.01	$0.70 \pm 0.13$	$2.60 \pm 0.14$

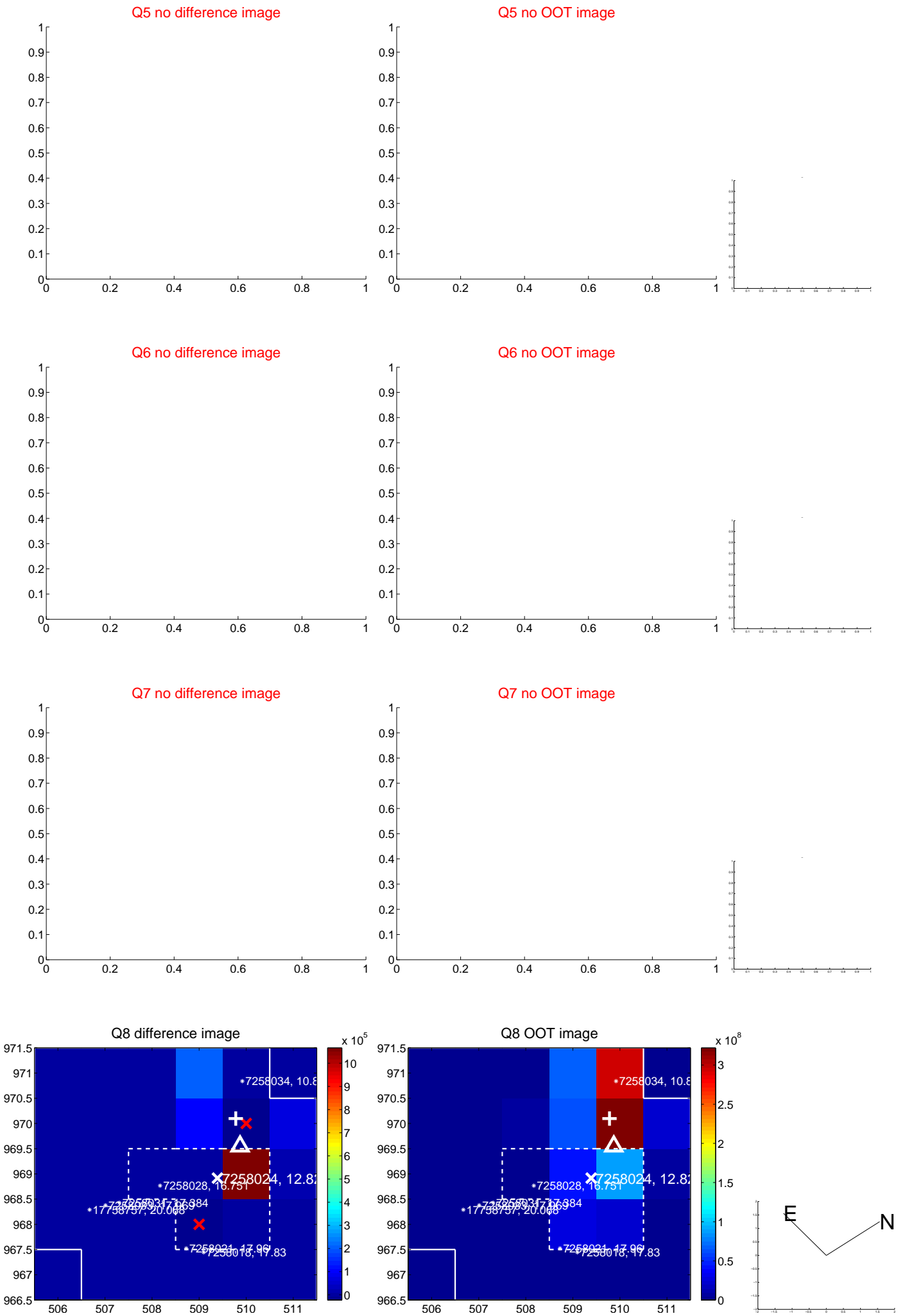


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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



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





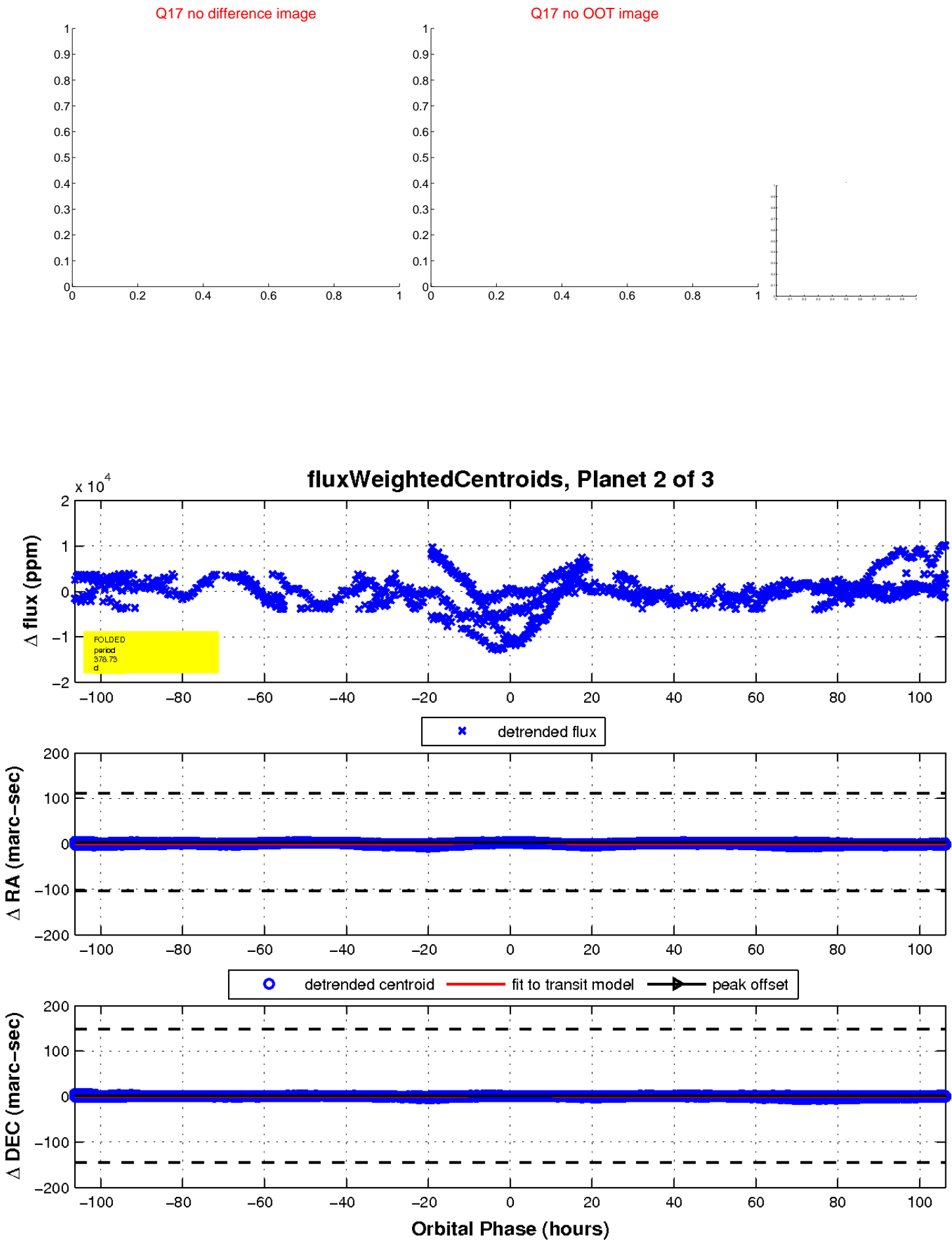
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



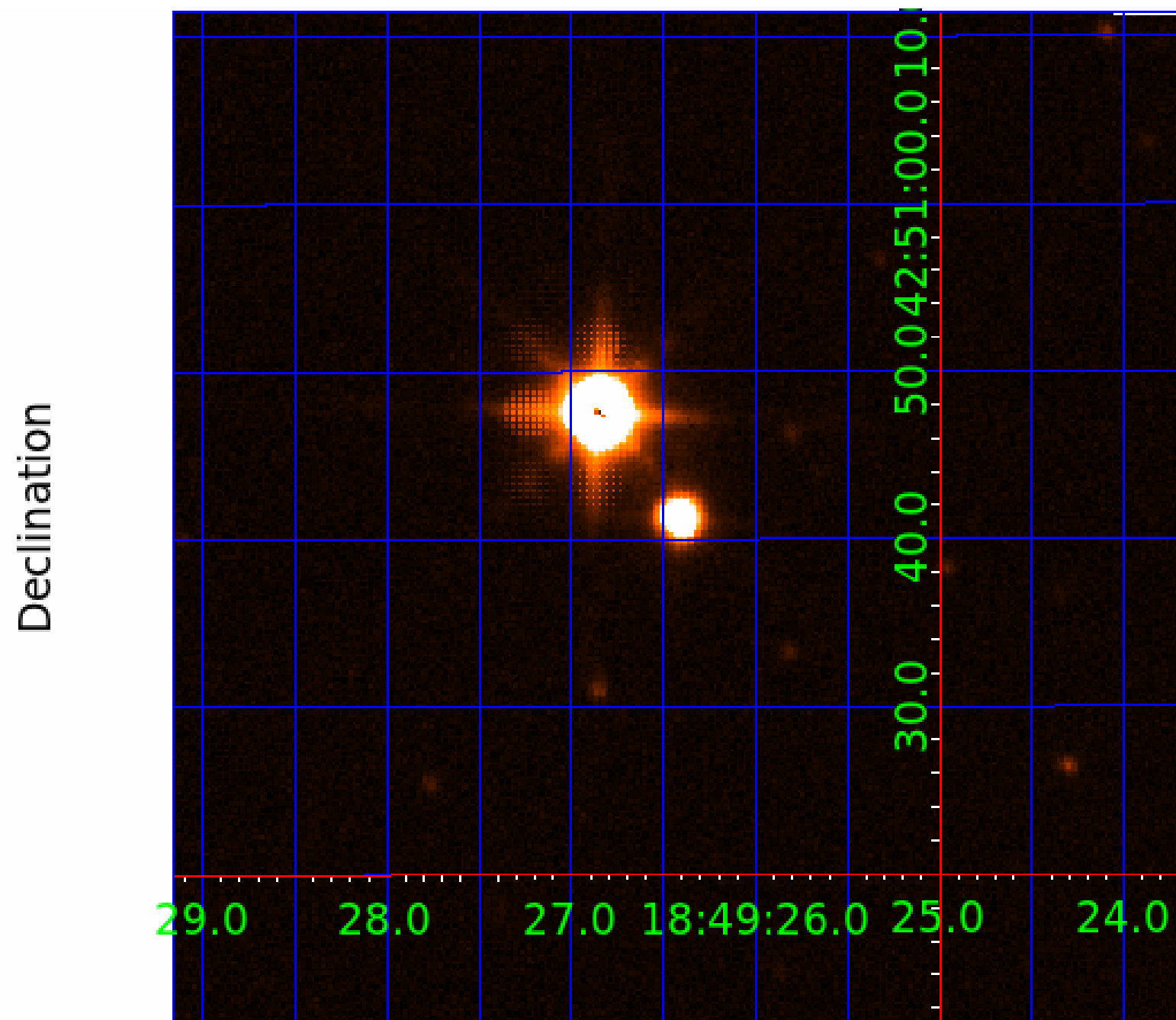
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 007258024

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007258024-01	OBS	No	371.744468	388.125625	8907.9	35.612	9.4	17.7	1.14	6082	19.31	1.52
007258024-02	OBS	No	378.726678	363.017297	10914.3	35.491	10.3	18.2	1.14	6082	21.25	1.48
007258024-03	OBS	No	371.684995	377.443574	8288.5	33.793	9.5	13.9	1.14	6082	18.57	1.52

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007258024-01	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007258024-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007258024-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

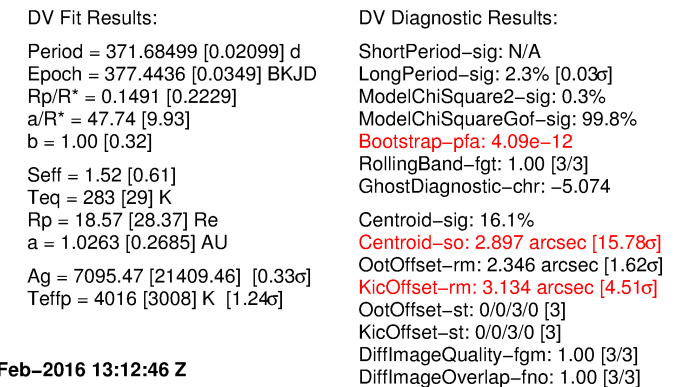
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

## Ephemeris Match Information For 007258024-03

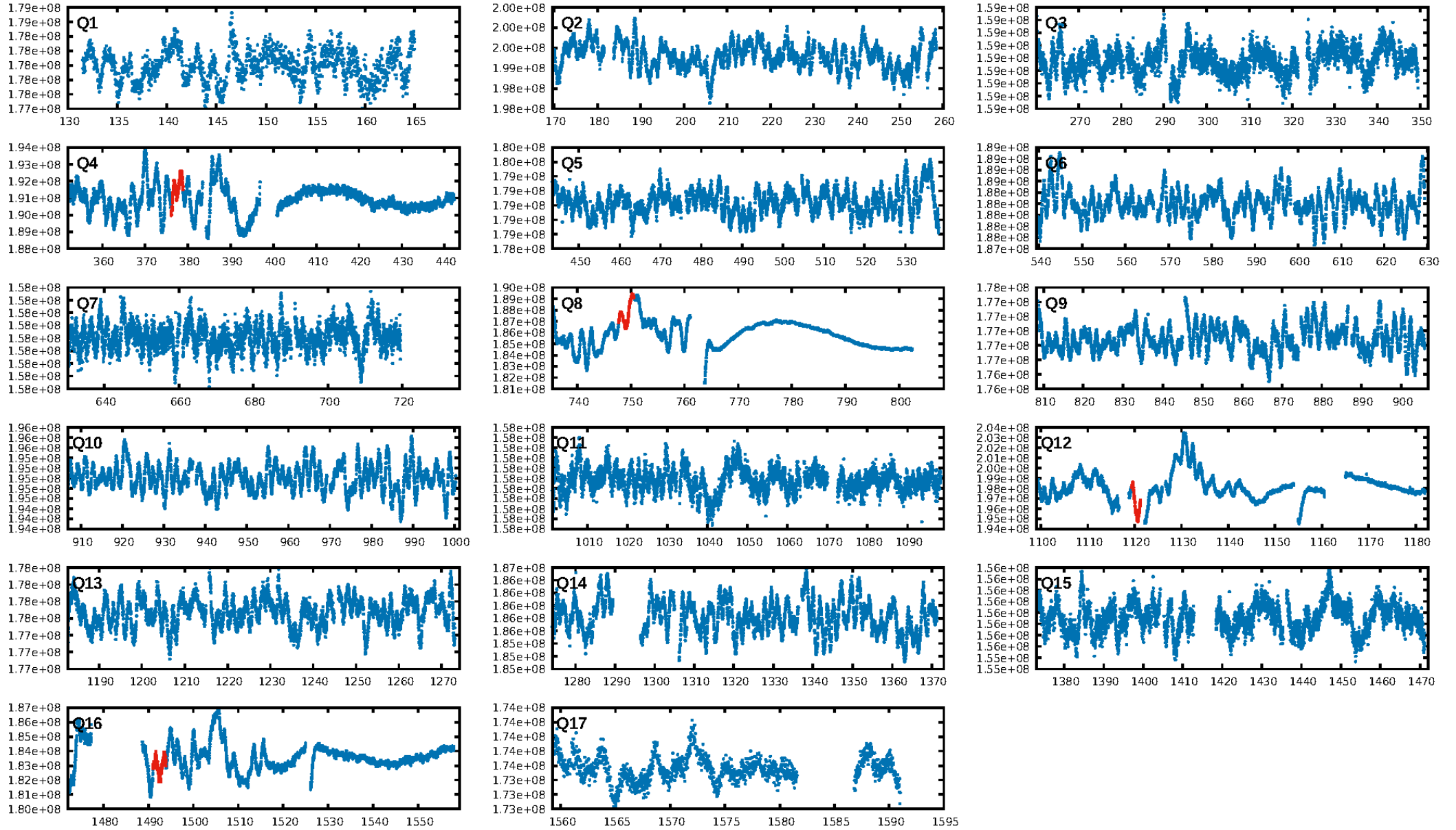
No Significant Match Found

KIC: 7258024    Candidate: 3 of 3    Period: 371.685 d

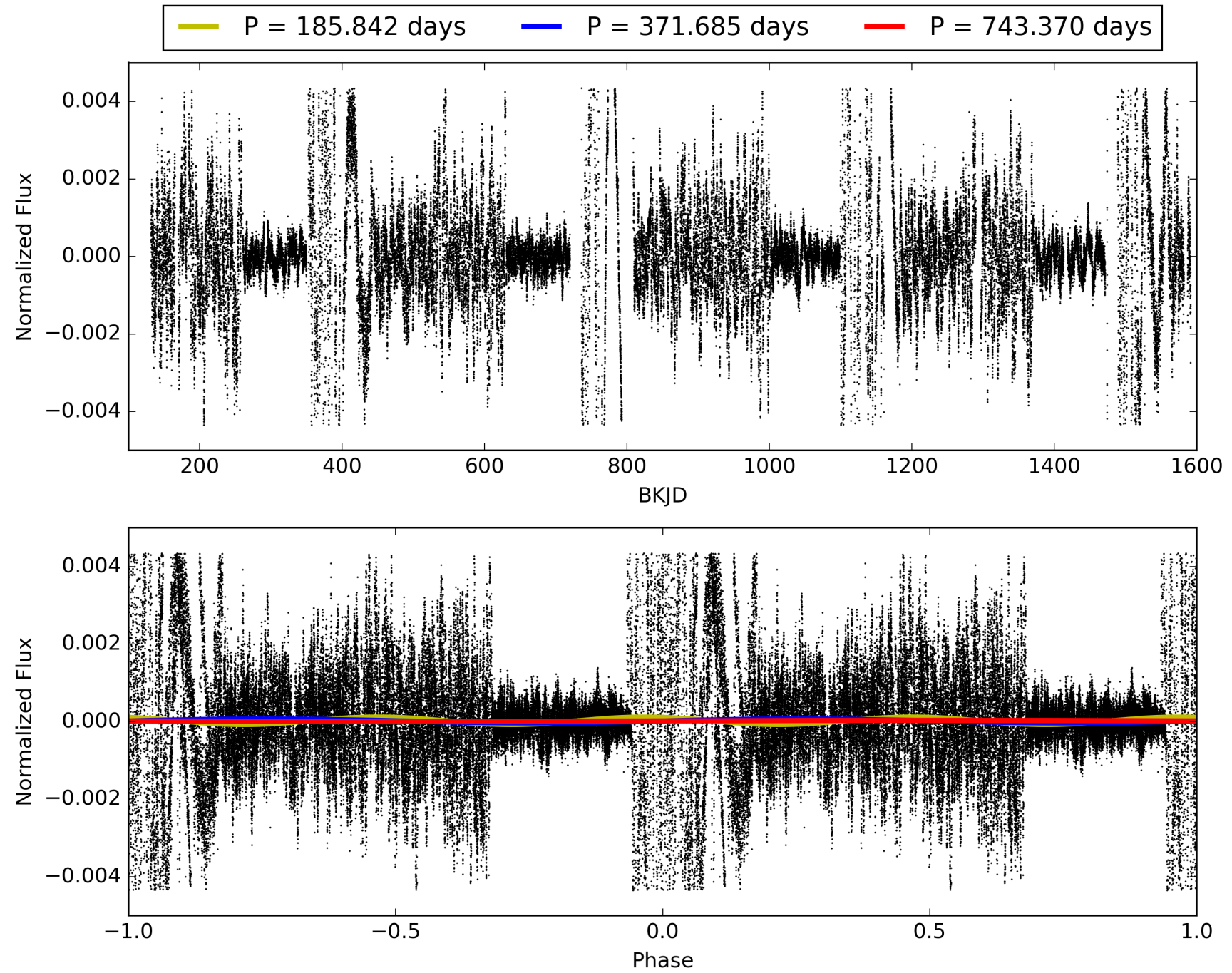


Software Revision: [svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958](https://murzim/repo/soc/tags/release/9.3.42@60958) -- Date Generated: 01-Feb-2016 13:12:46 Z  
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007258024-03, PDC Light Curves



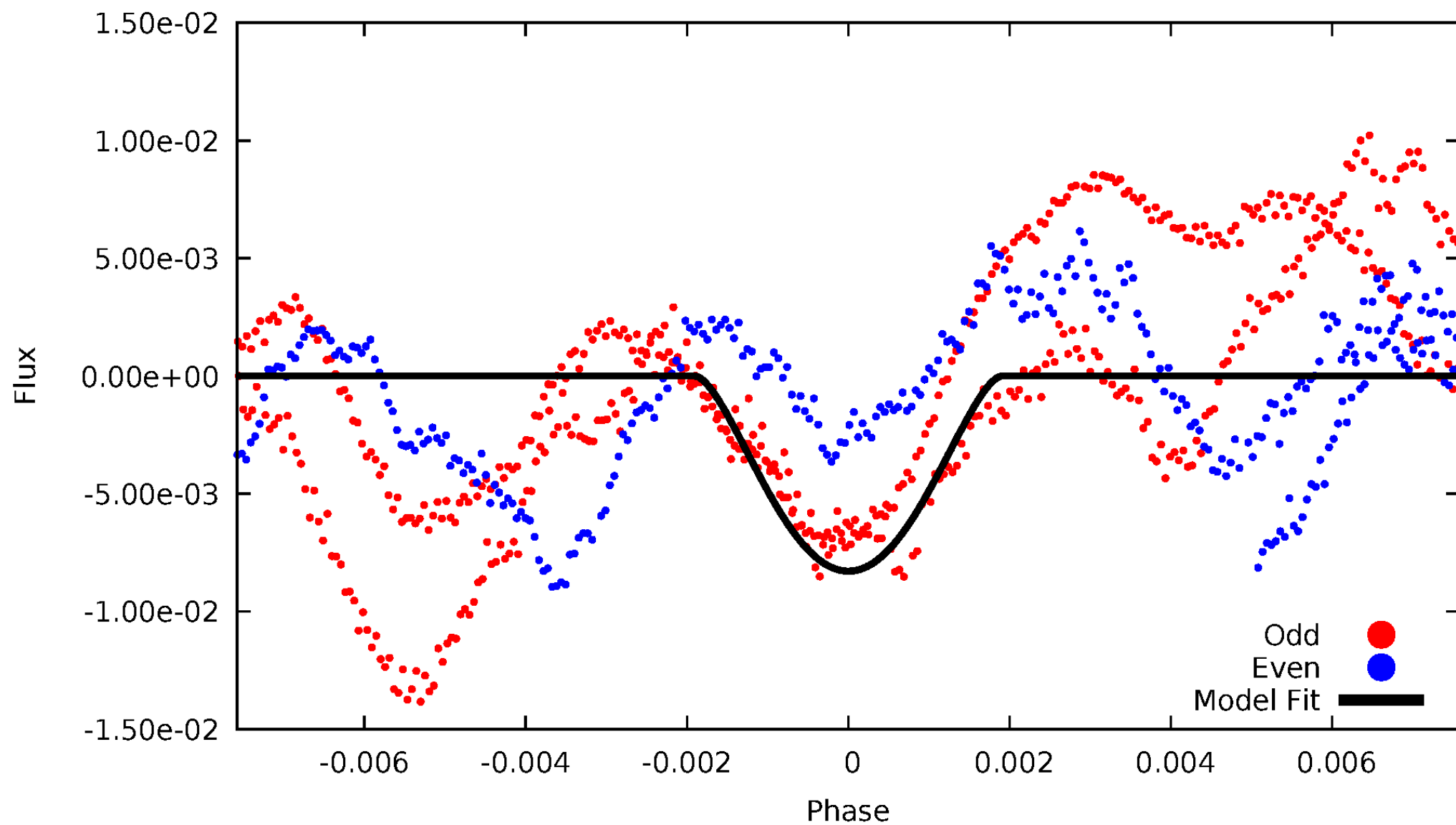
TCE 007258024-03





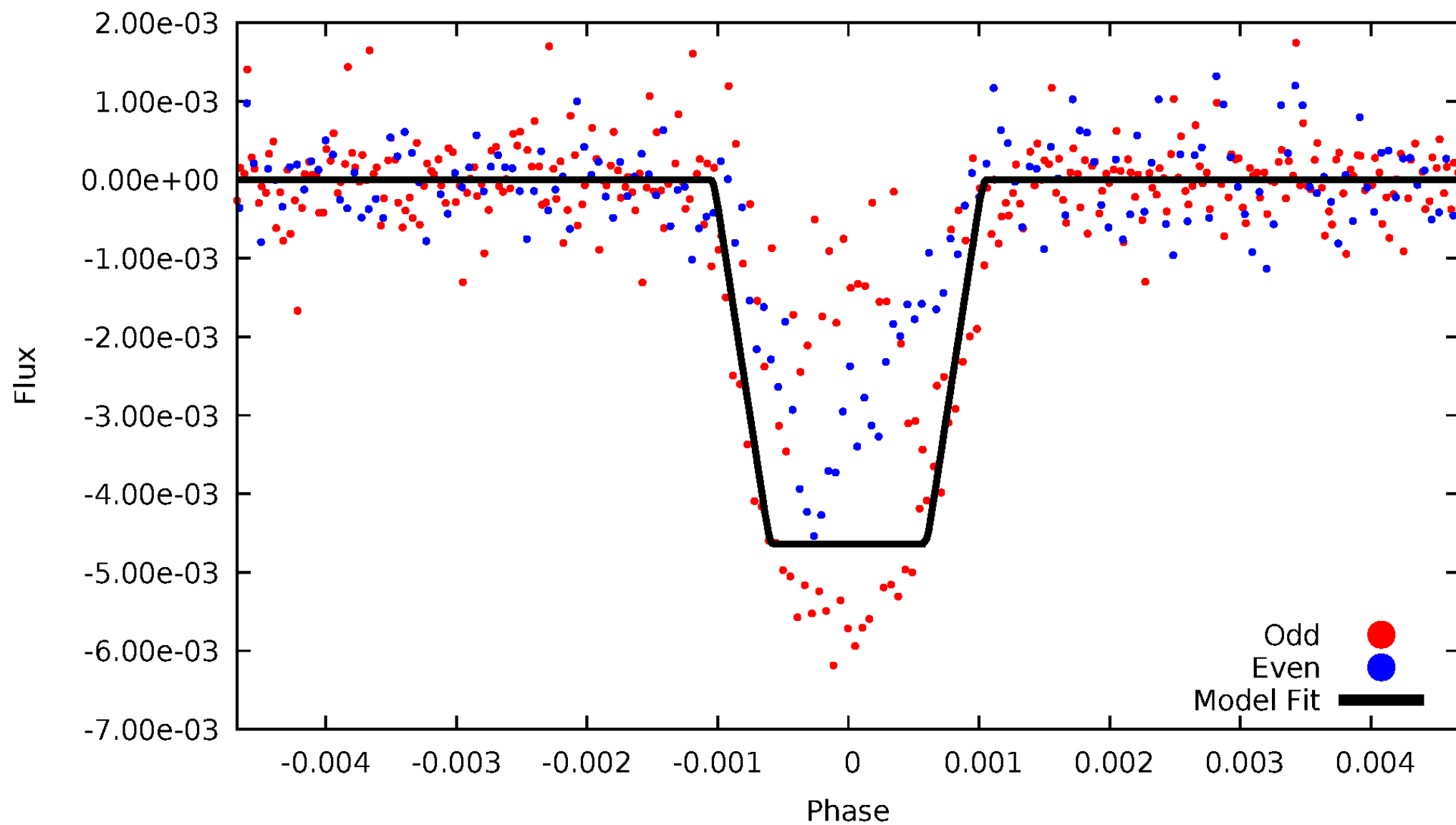
# DV Odd/Even

TCE 007258024-03



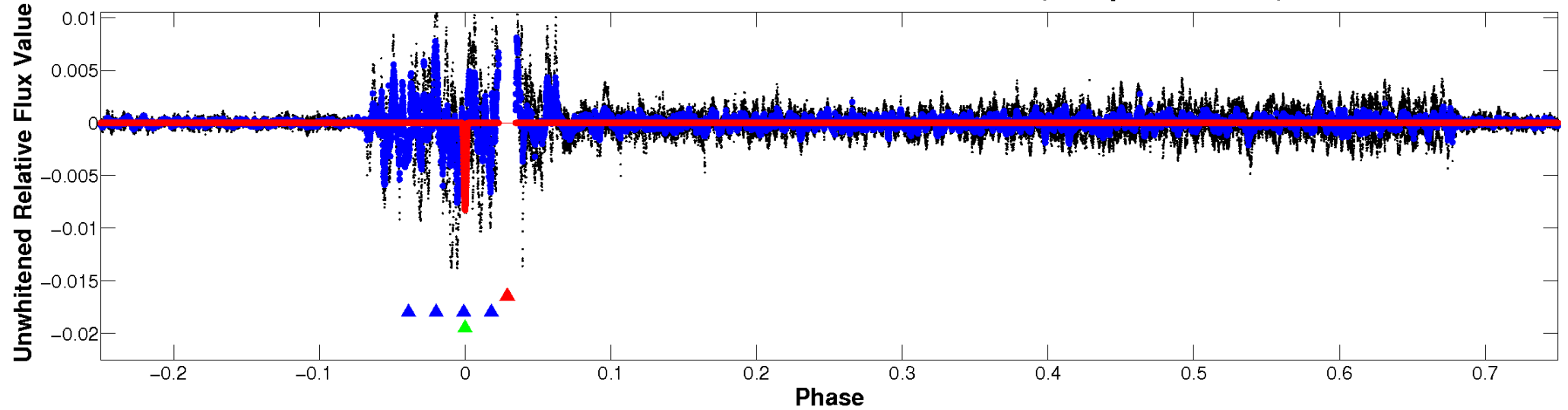
# ALT Odd/Even

TCE 007258024-03

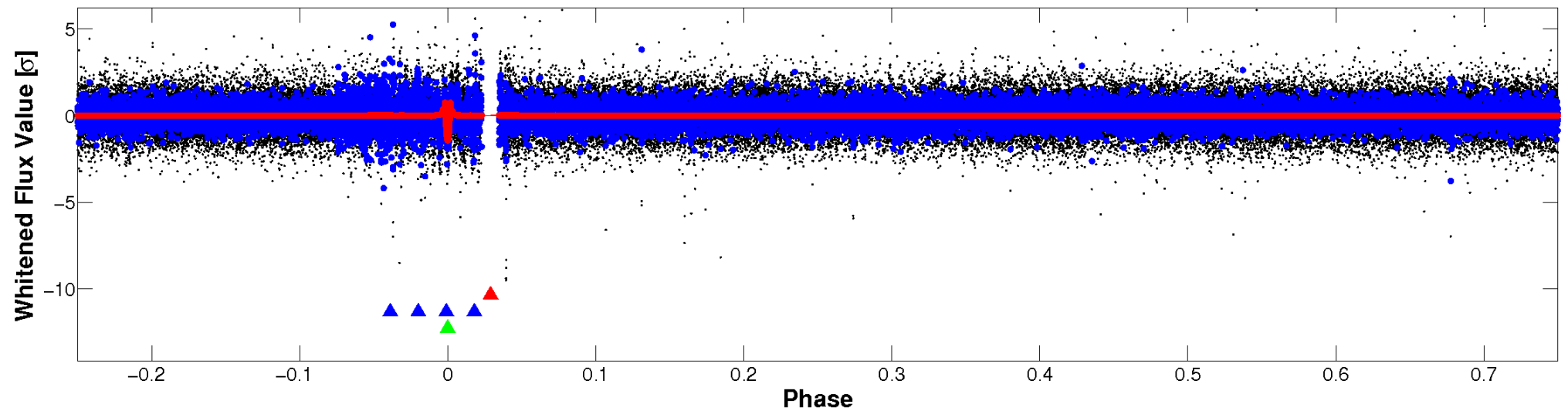


# Non-Whitened Vs. Whitened Light Curve

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

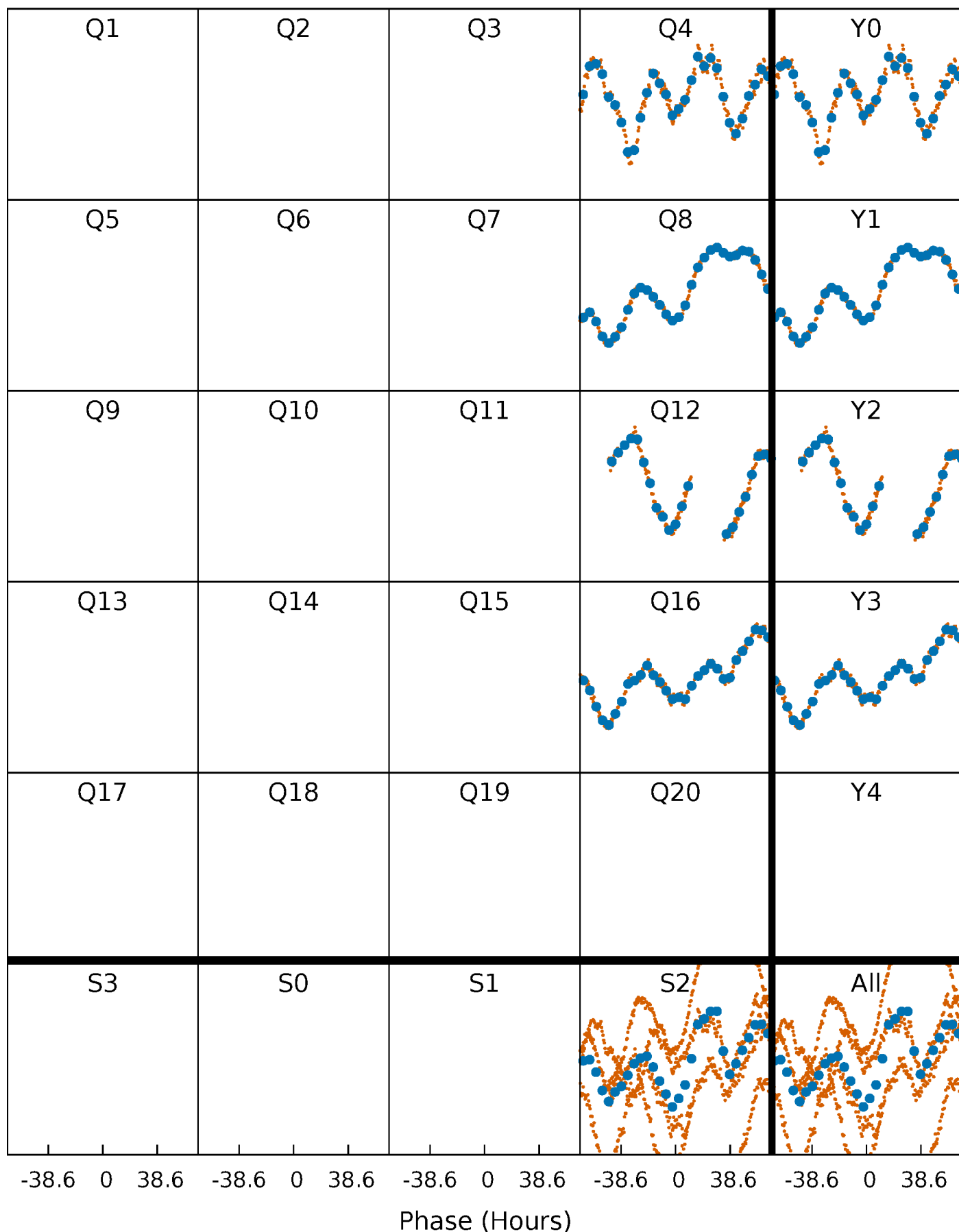


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



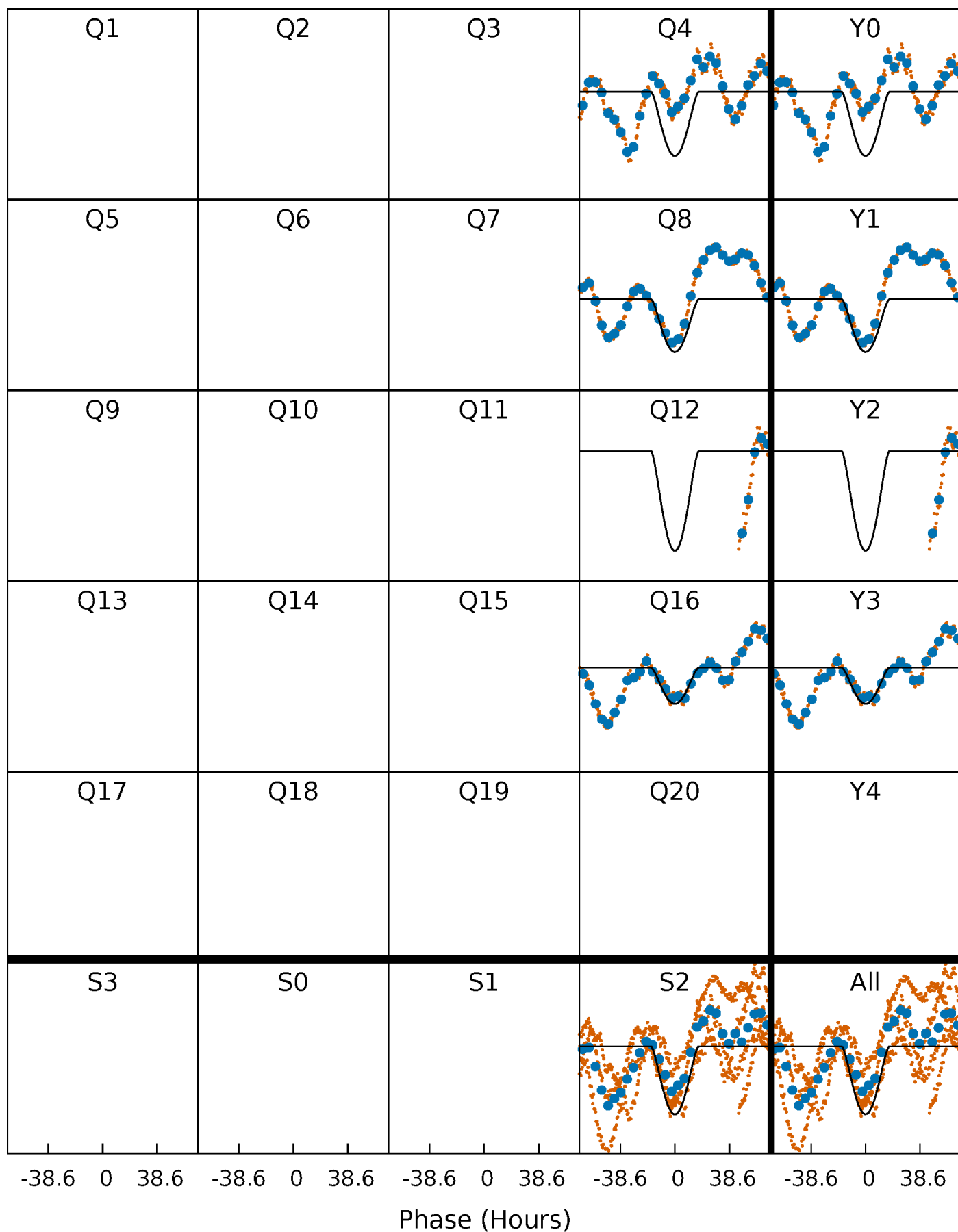
# PDC Quarter-Phased Transit Curves

TCE 007258024-03 P=371.684995 Days  $T_0=377.443574$  (BKJD)



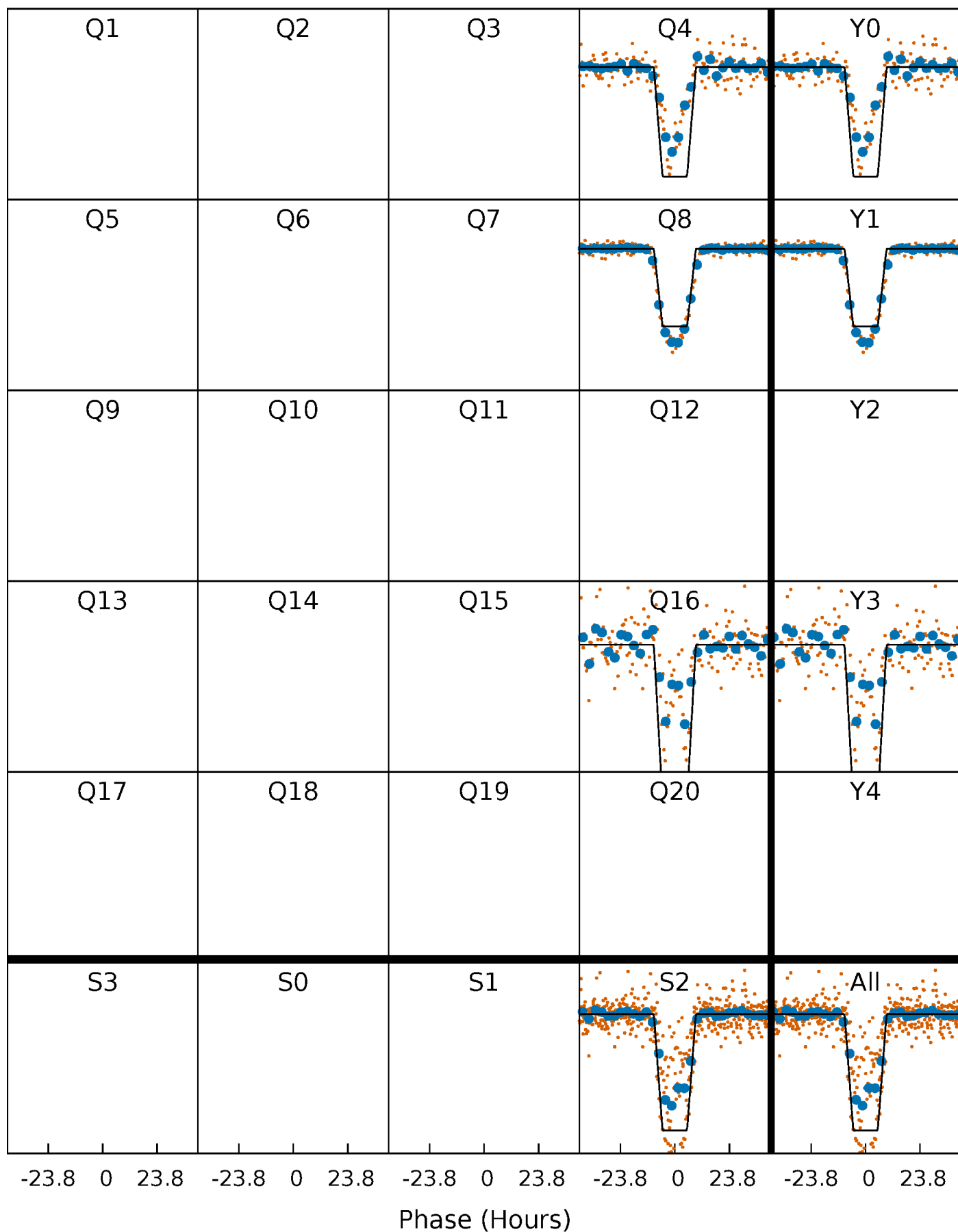
# DV Quarter-Phased Transit Curves

TCE 007258024-03     $P=371.684995$  Days     $T_0=377.443574$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

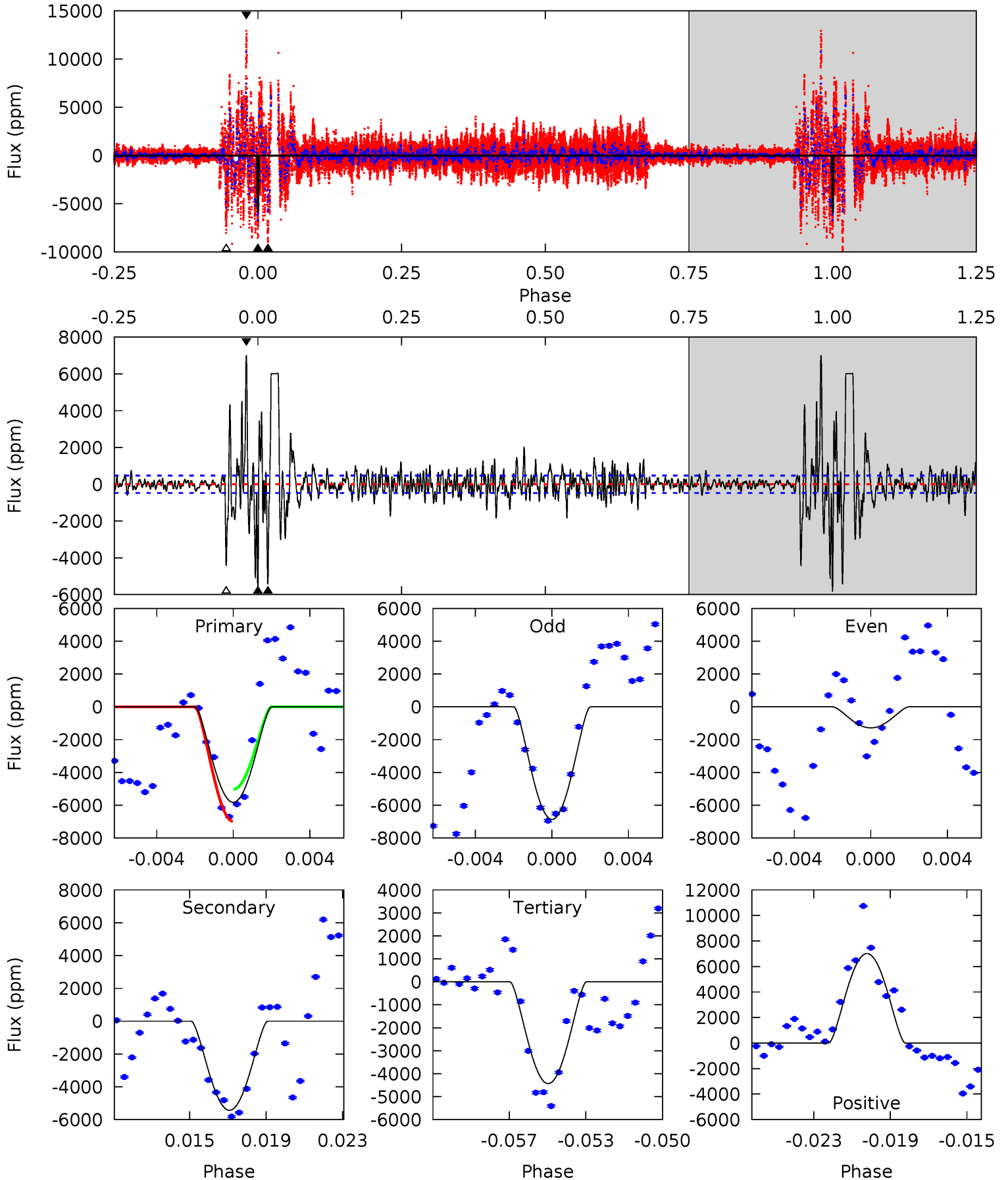
TCE 007258024-03 P=371.693268 Days  $T_0=377.463903$  (BKJD)



# DV Model-Shift Uniqueness Test

007258024-03, P = 371.684995 Days, E = 5.758579 Days

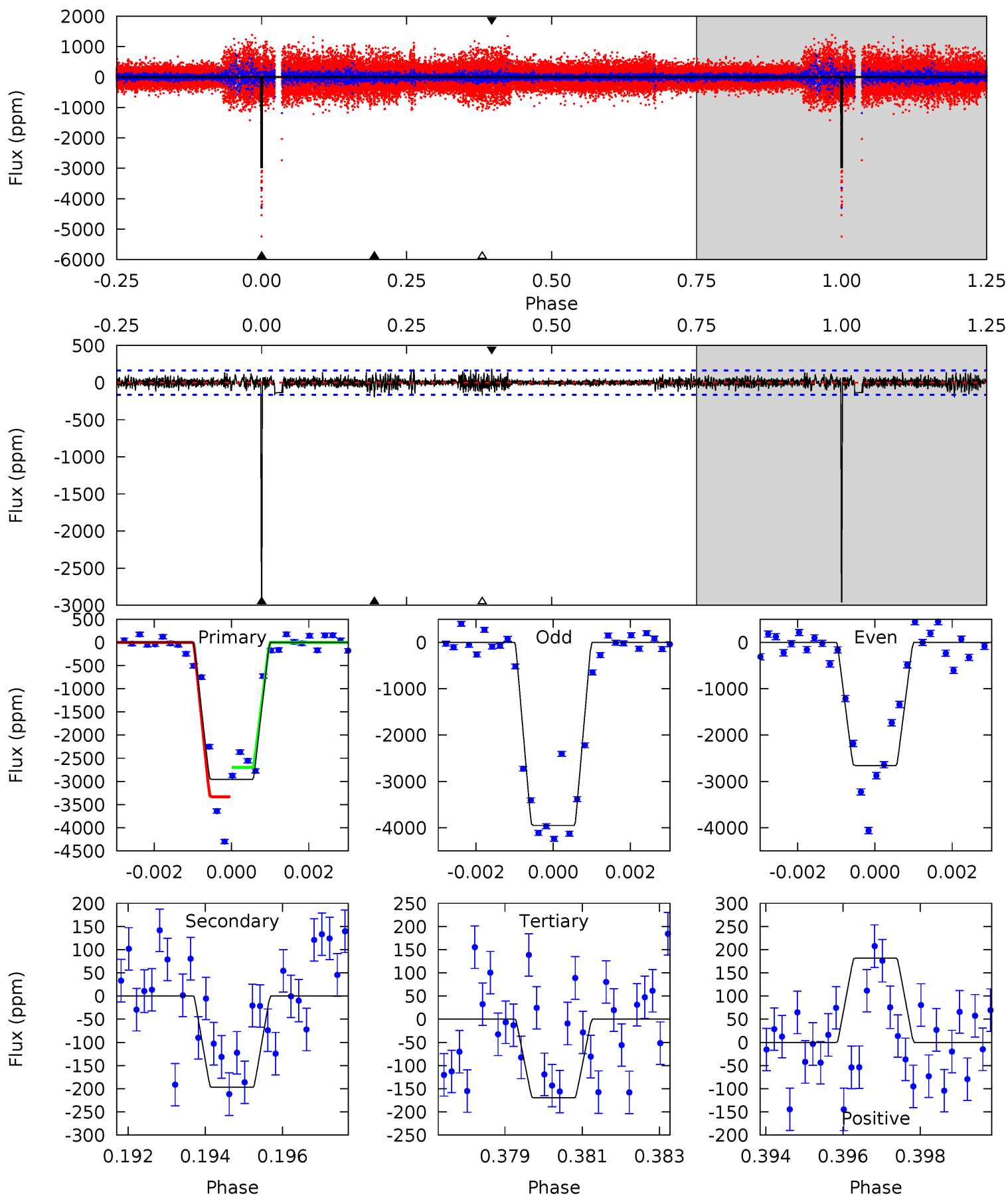
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
64.1	59.8	48.8	77.2	5.21	2.89	7.82	15.3	-13.0	11.0	-17.4	28.1	0.80	0.55	10.7



# Alt Model-Shift Uniqueness Test

007258024-03, P = 371.693268 Days, E = 5.770635 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
95.8	6.38	5.49	5.88	5.32	3.07	1.17	90.3	89.9	0.90	0.50	24.3	1.22	0.06	0





### Stellar Parameters For KIC 007258024

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6082^{+184}_{-202}$	$4.341^{+0.112}_{-0.208}$	$-0.040^{+0.250}_{-0.300}$	$1.142^{+0.355}_{-0.191}$	$1.043^{+0.167}_{-0.125}$	$0.985^{+0.584}_{-0.492}$
	+3%/-3%	+3%/-5%	+625%/-750%	+31%/-17%	+16%/-12%	+59%/-50%
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 007258024-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-5433 \pm 91$	$29.74^{+24.38}_{-18.93}$	$400^{+31}_{-21}$	$3832^{+1914}_{-679}$	$3514^{+22120}_{-2434}$
Alt.	$-197 \pm 31$	$22.52^{+22.43}_{-14.93}$	$401^{+31}_{-22}$	$2558^{+912}_{-373}$	$215^{+1805}_{-159}$

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

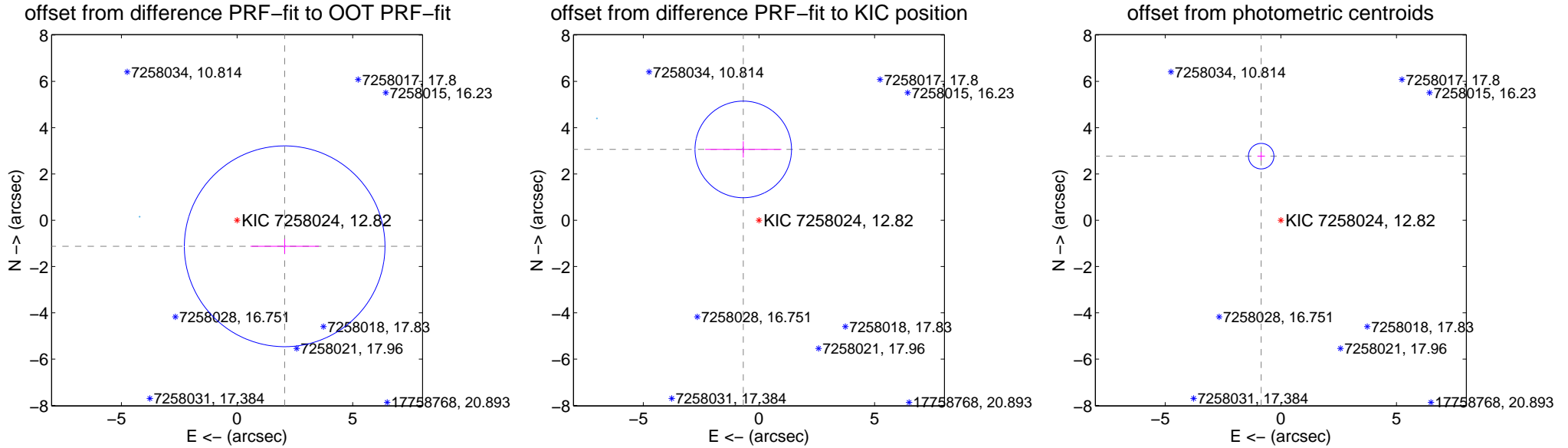
## DV Centroid Data

Supplemental centroid analysis for 007258024-03. Kepler magnitude: 12.82. Transit SNR 13.93

There are 3 quarters with good PRF difference image offsets

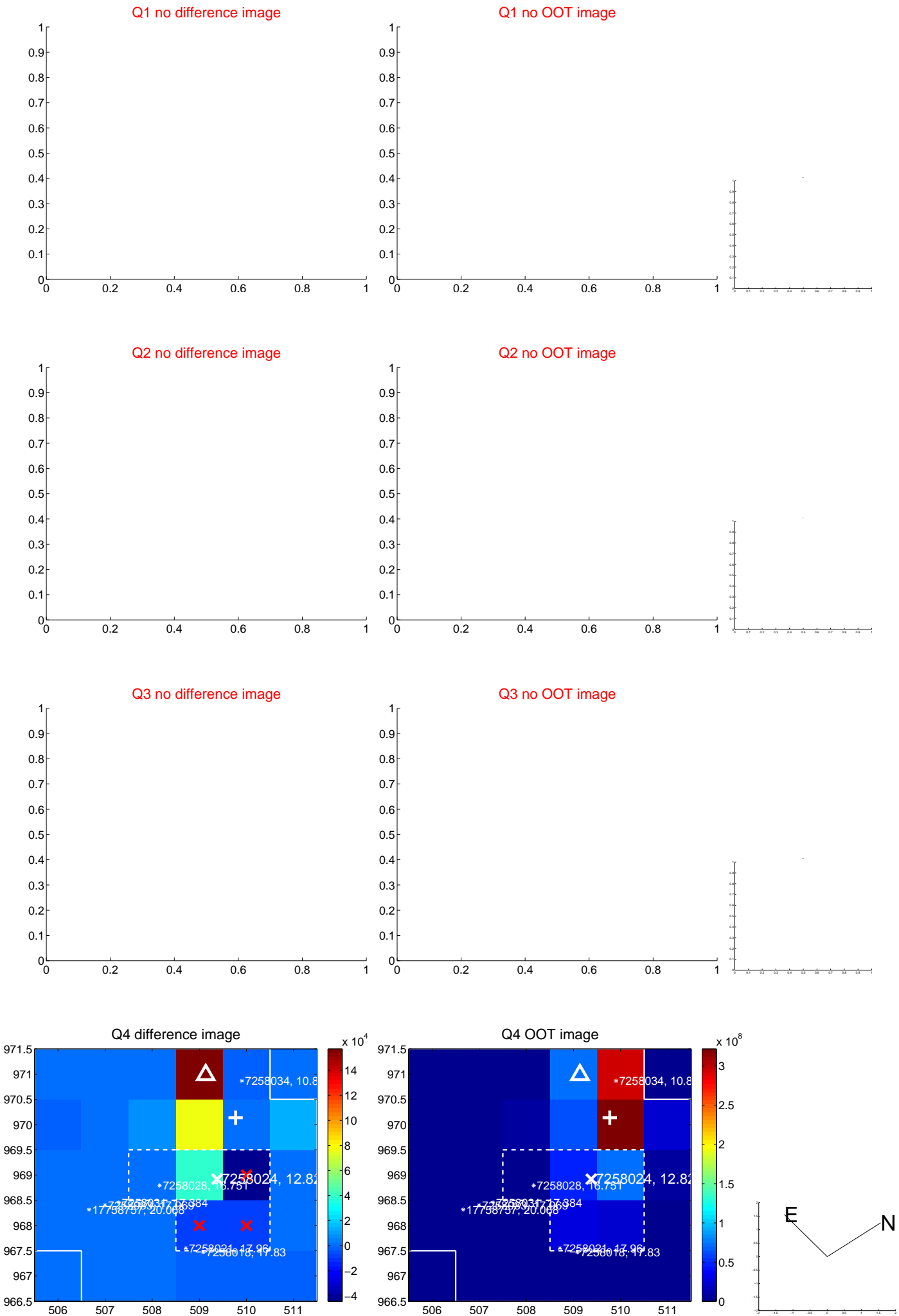
The OOT PRF centroid is offset from the target star catalog position by about 5.04 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.346 \pm 1.446$	1.62	$-2.059 \pm 1.478$	$-1.125 \pm 0.318$
PRF-fit source offset from KIC position	$3.134 \pm 0.696$	4.51	$0.679 \pm 1.646$	$3.060 \pm 0.351$
photometric centroid source offset	$2.90 \pm 0.18$	15.78	$0.85 \pm 0.17$	$2.77 \pm 0.19$

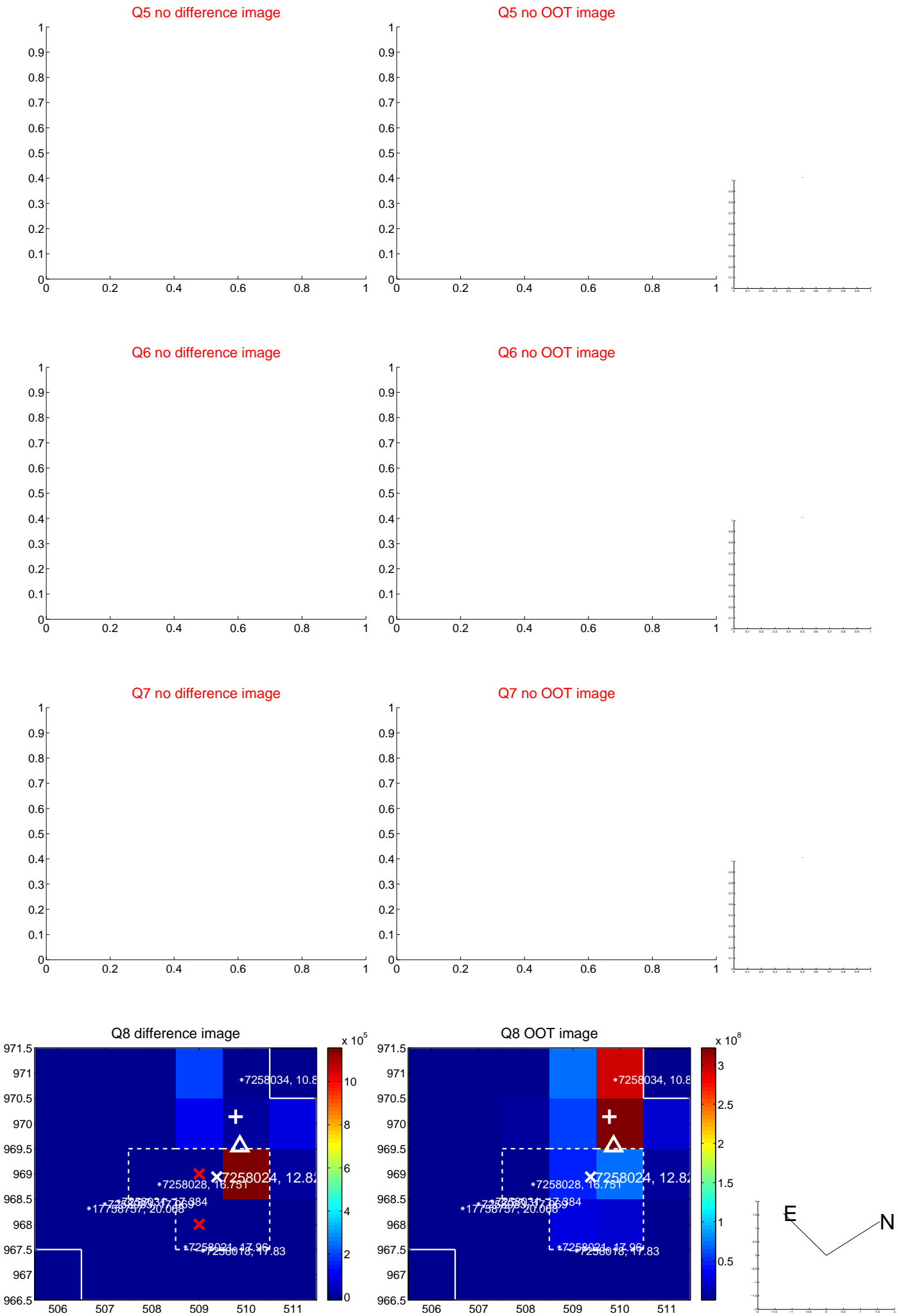


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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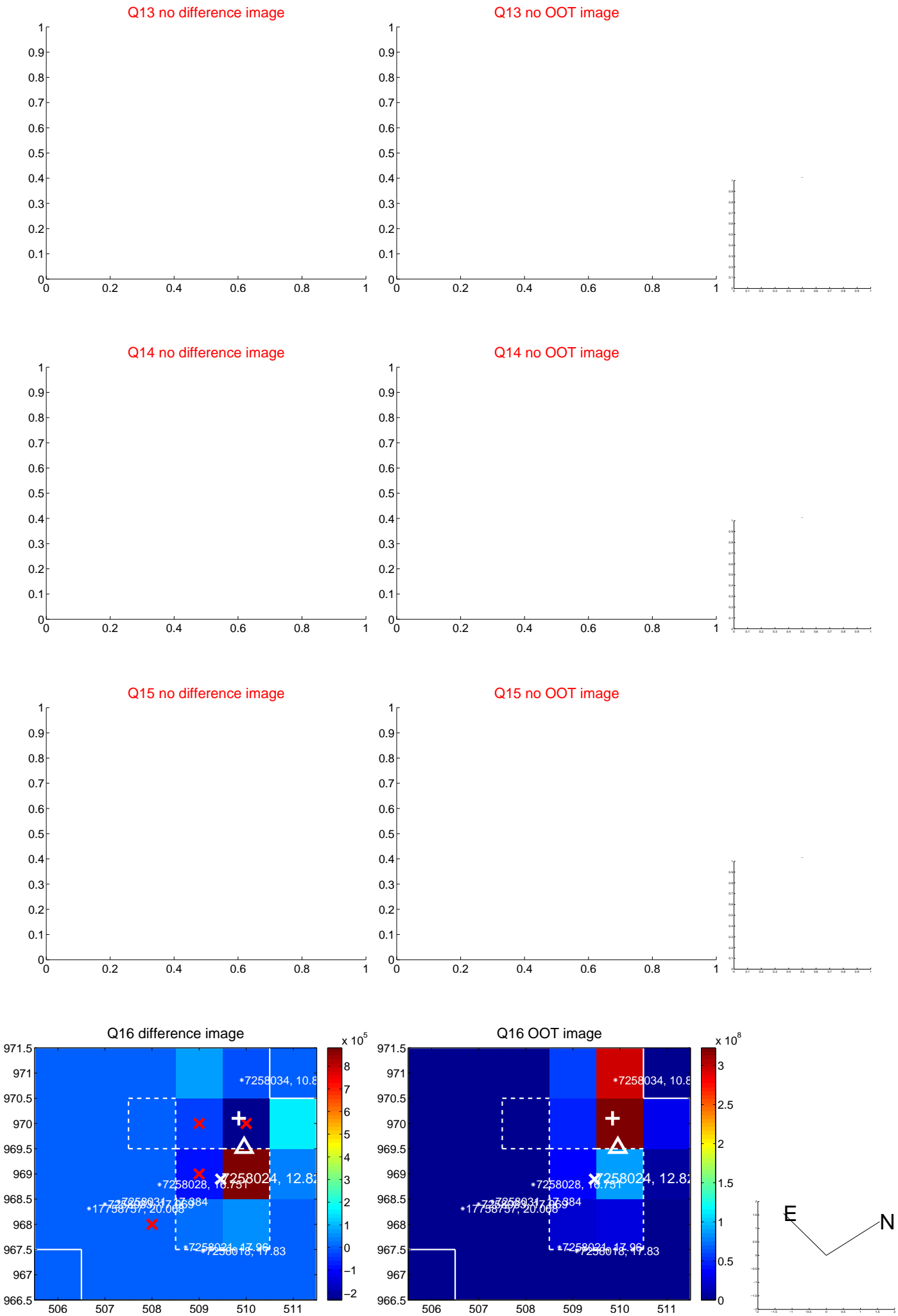
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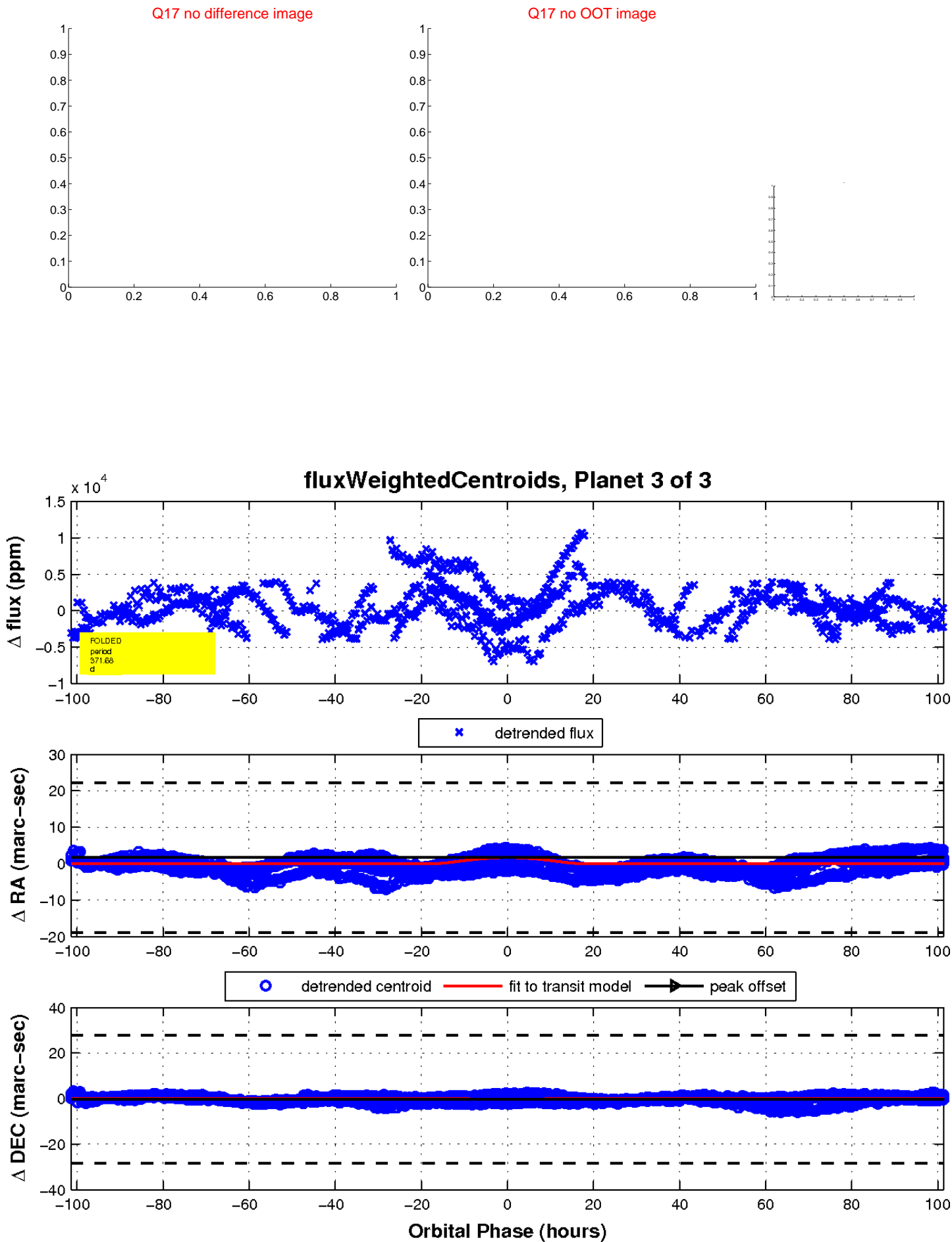
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

