

# KIC 010793443

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010793443-01	OBS	No	532.152144	144.152363	1201.1	5.782	13.9	6.9	0.99	5853	3.58	0.66
010793443-02	OBS	No	503.531603	414.238660	430.2	0.800	15.0	1.8	0.99	5853	2.70	0.71
010793443-04	OBS	No	472.422334	446.862268	1363.6	8.104	13.2	8.3	0.99	5853	3.98	0.78
010793443-05	OBS	No	484.304479	415.347447	1149.2	7.251	11.5	6.7	0.99	5853	3.98	0.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010793443-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010793443-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010793443-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010793443-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

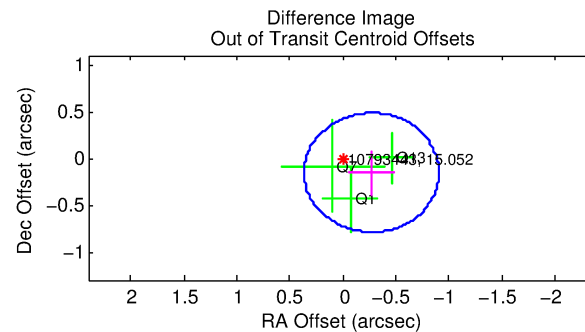
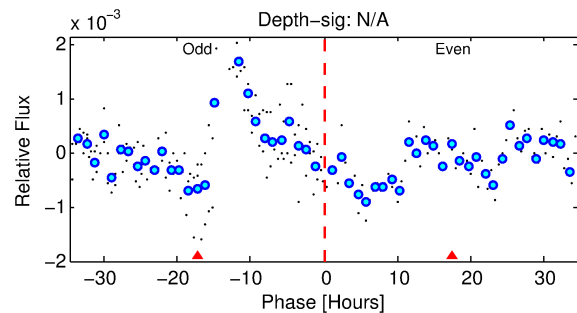
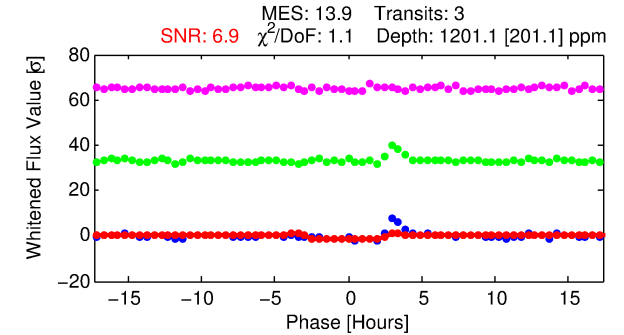
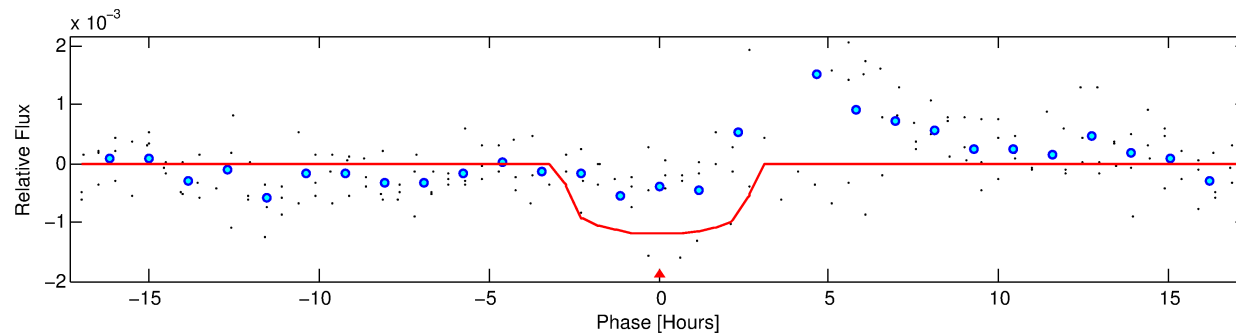
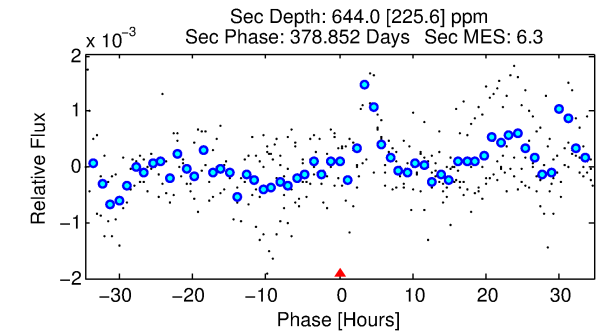
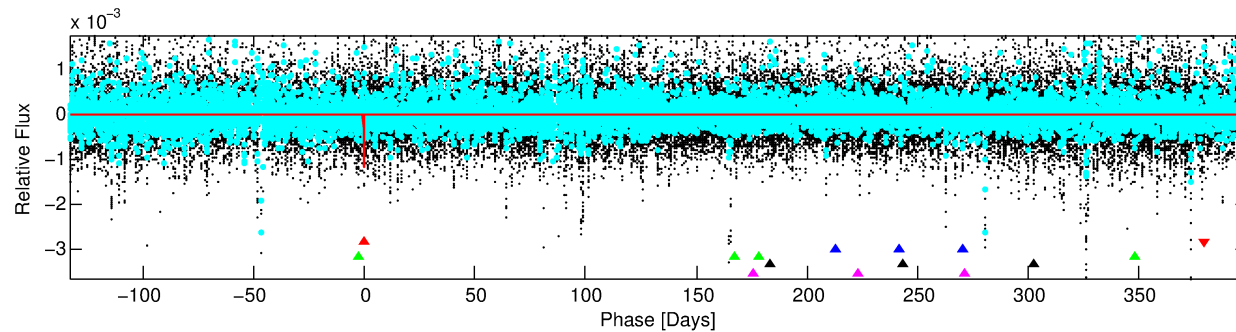
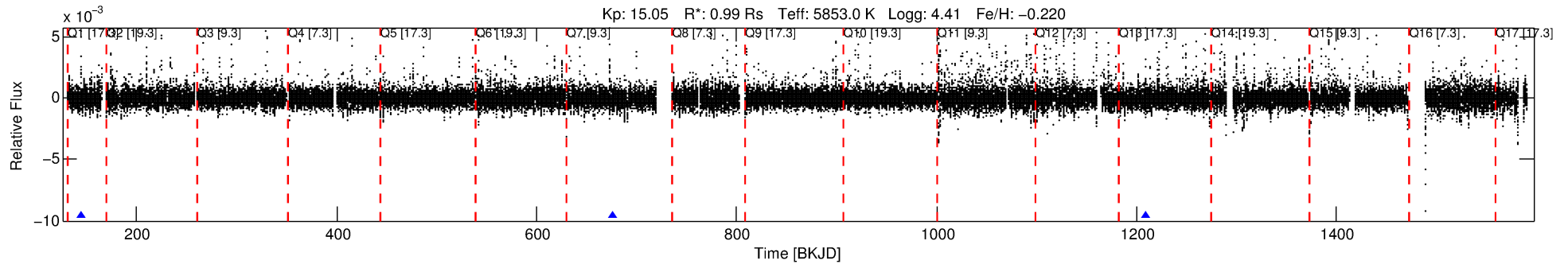
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010793443-01

No Significant Match Found

# DV One-Page Summary

KIC: 10793443 Candidate: 1 of 5 Period: 532.152 d



## DV Fit Results:

Period = 532.15214 [0.00556] d  
Epoch = 144.1524 [0.0066] BKJD  
Rp/R\* = 0.0331 [0.0803]  
a/R\* = 595.28 [6686.24]  
b = 0.59 [12.46]  
Seff = 0.66 [0.24]  
Teq = 230 [21] K  
Rp = 3.58 [8.74] Re  
a = 1.2467 [0.2960] AU  
Ag = 43056.60 [210106.17] [0.20σ]  
Teffp = 5127 [6241] K [0.78σ]

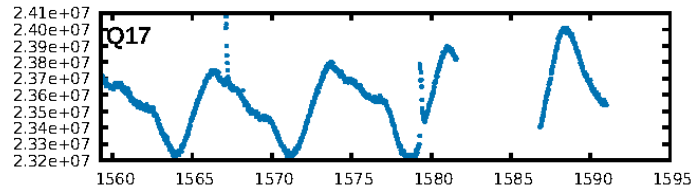
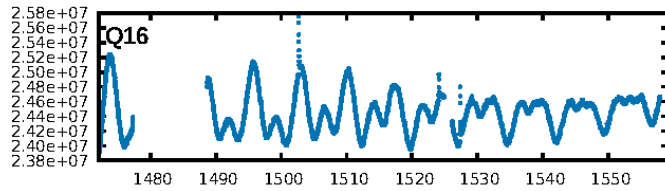
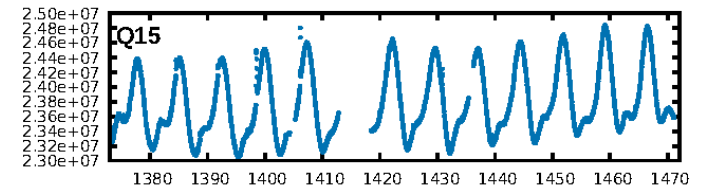
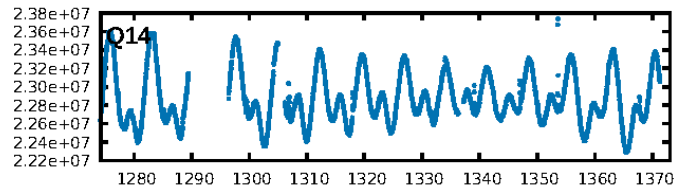
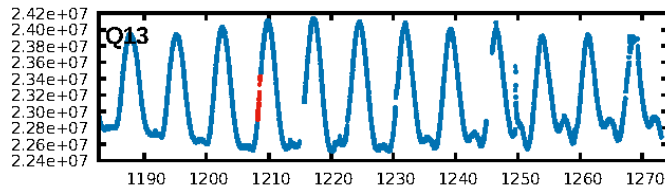
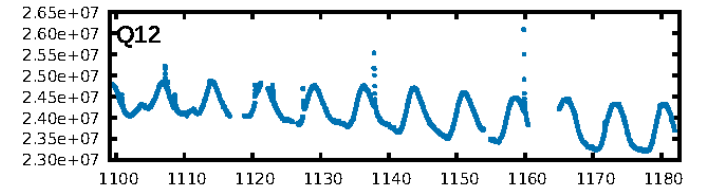
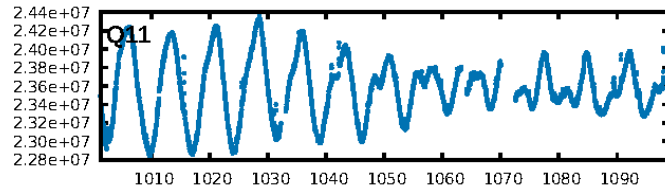
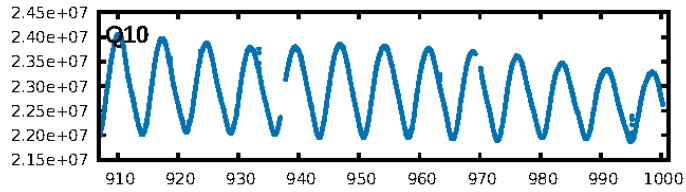
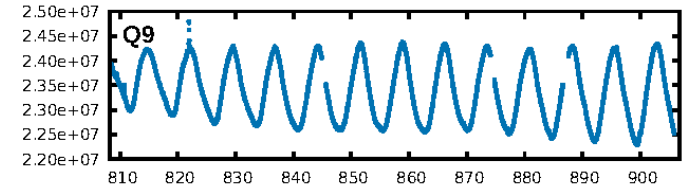
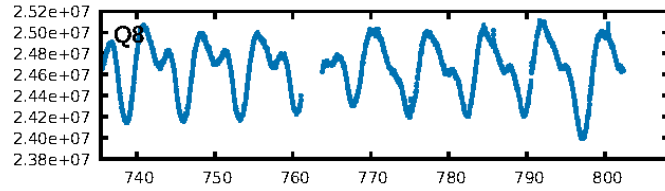
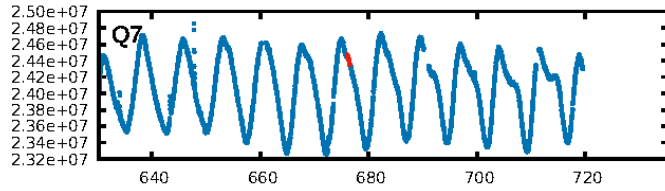
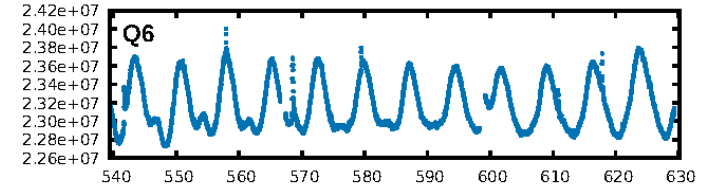
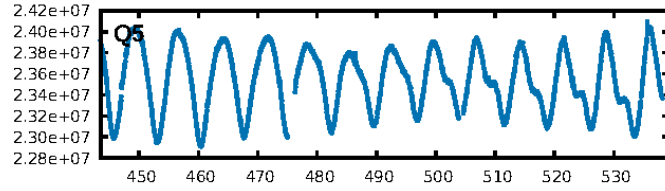
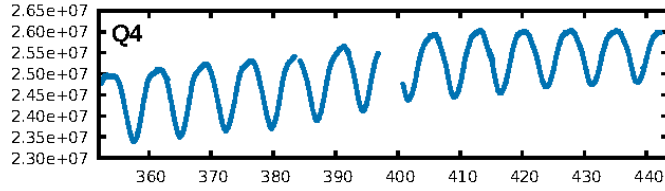
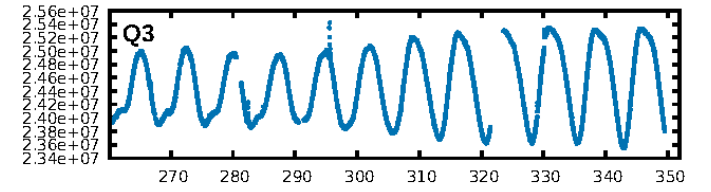
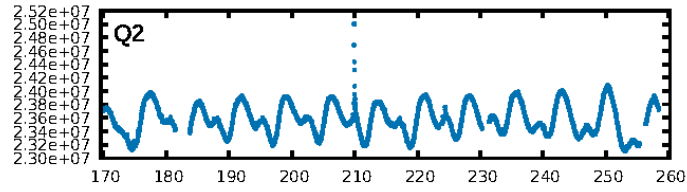
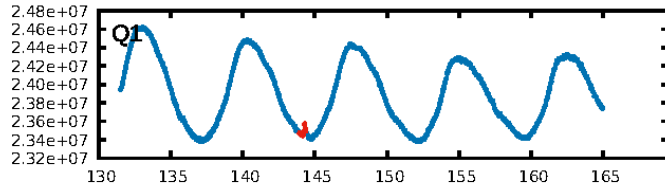
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [117.68σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 48.5%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 3.18  
Centroid-sig: 50.0%  
Centroid-so: 0.818 arcsec [1.03σ]  
OotOffset-rm: 0.312 arcsec [1.47σ]  
OotOffset-st: 0/1/0/2 [3]  
KicOffset-rm: 0.480 arcsec [2.16σ]  
KicOffset-st: 0/1/0/2 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

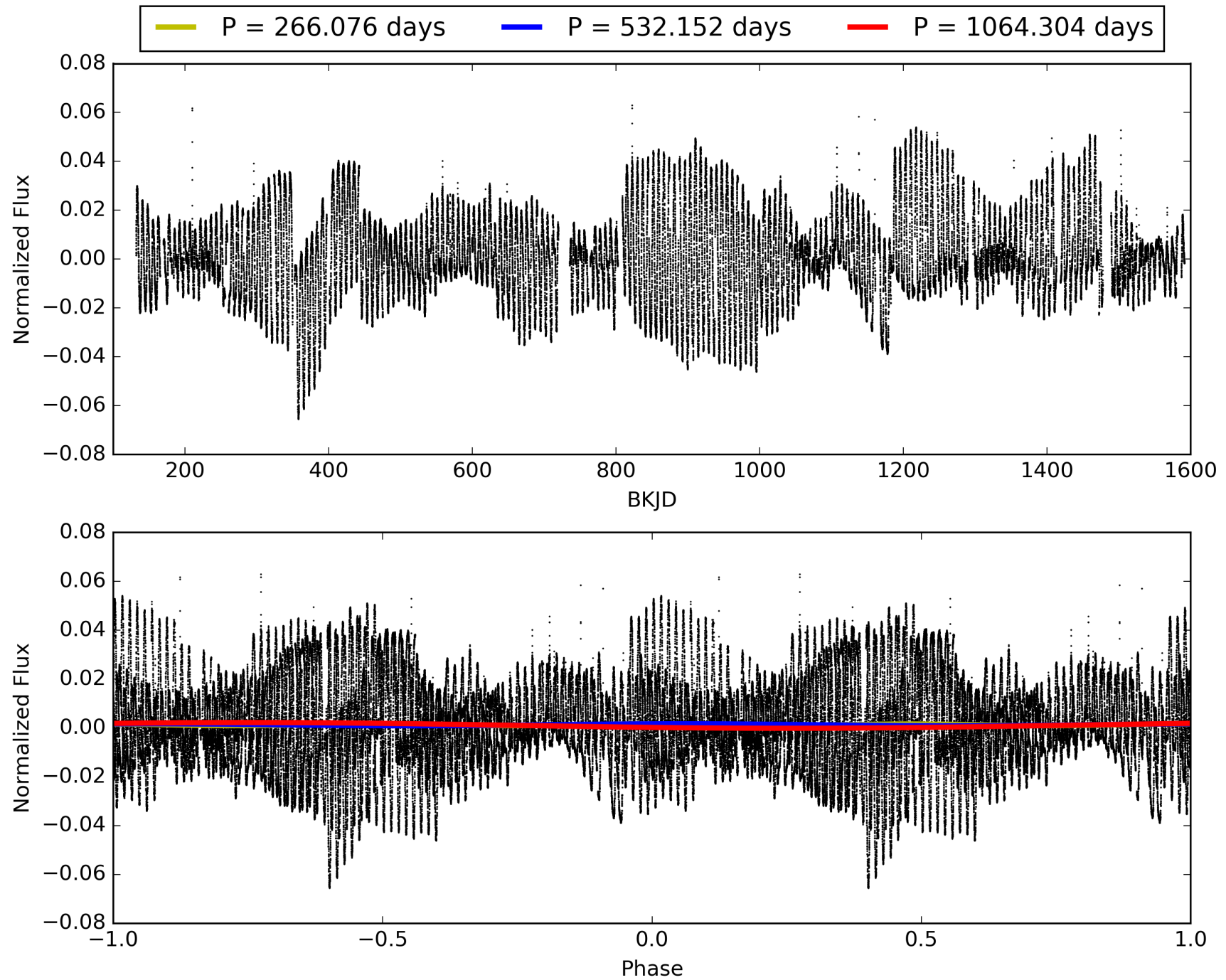
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:59:16 Z

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

# TCE 010793443-01, PDC Light Curves

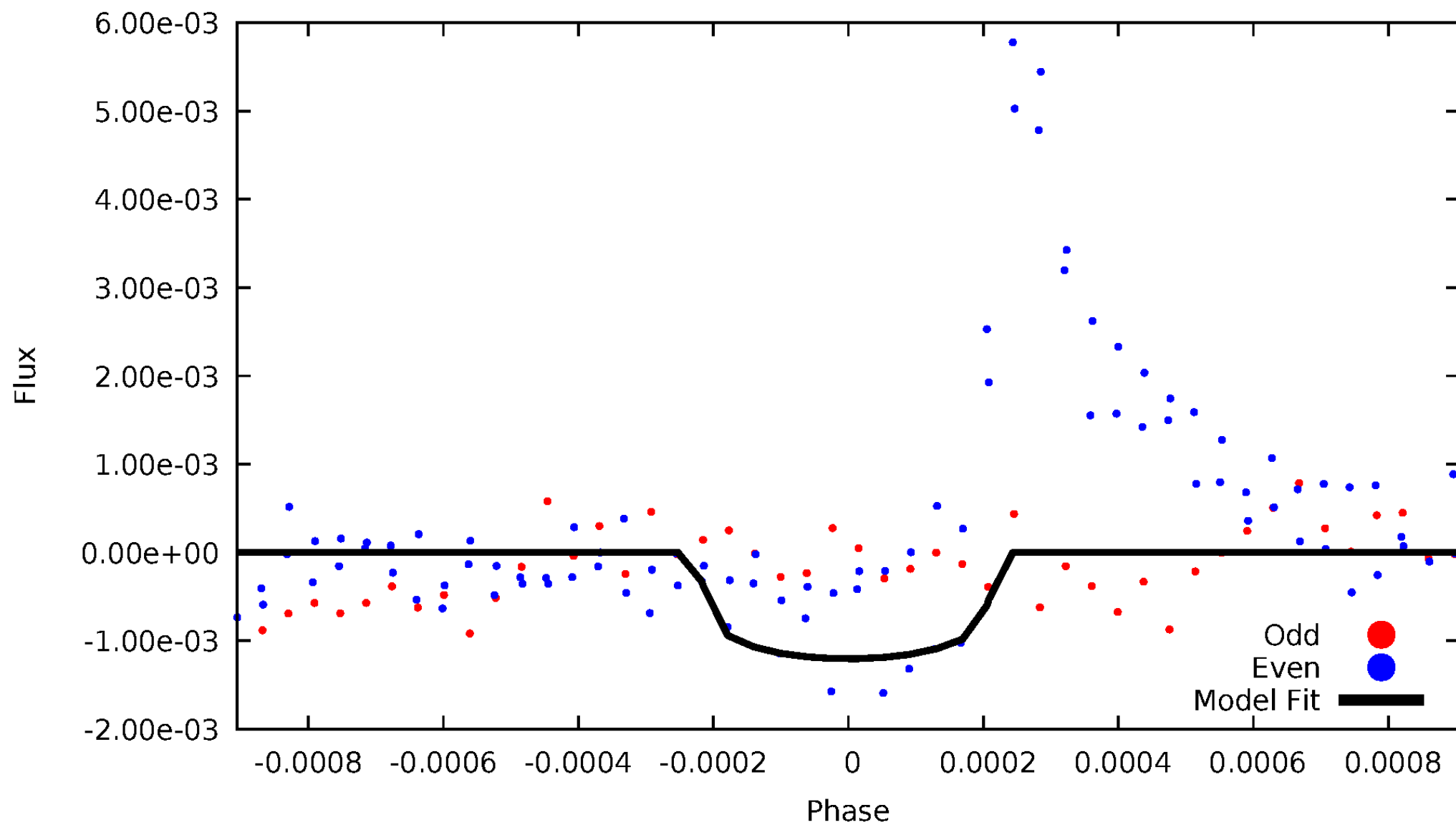


TCE 010793443-01



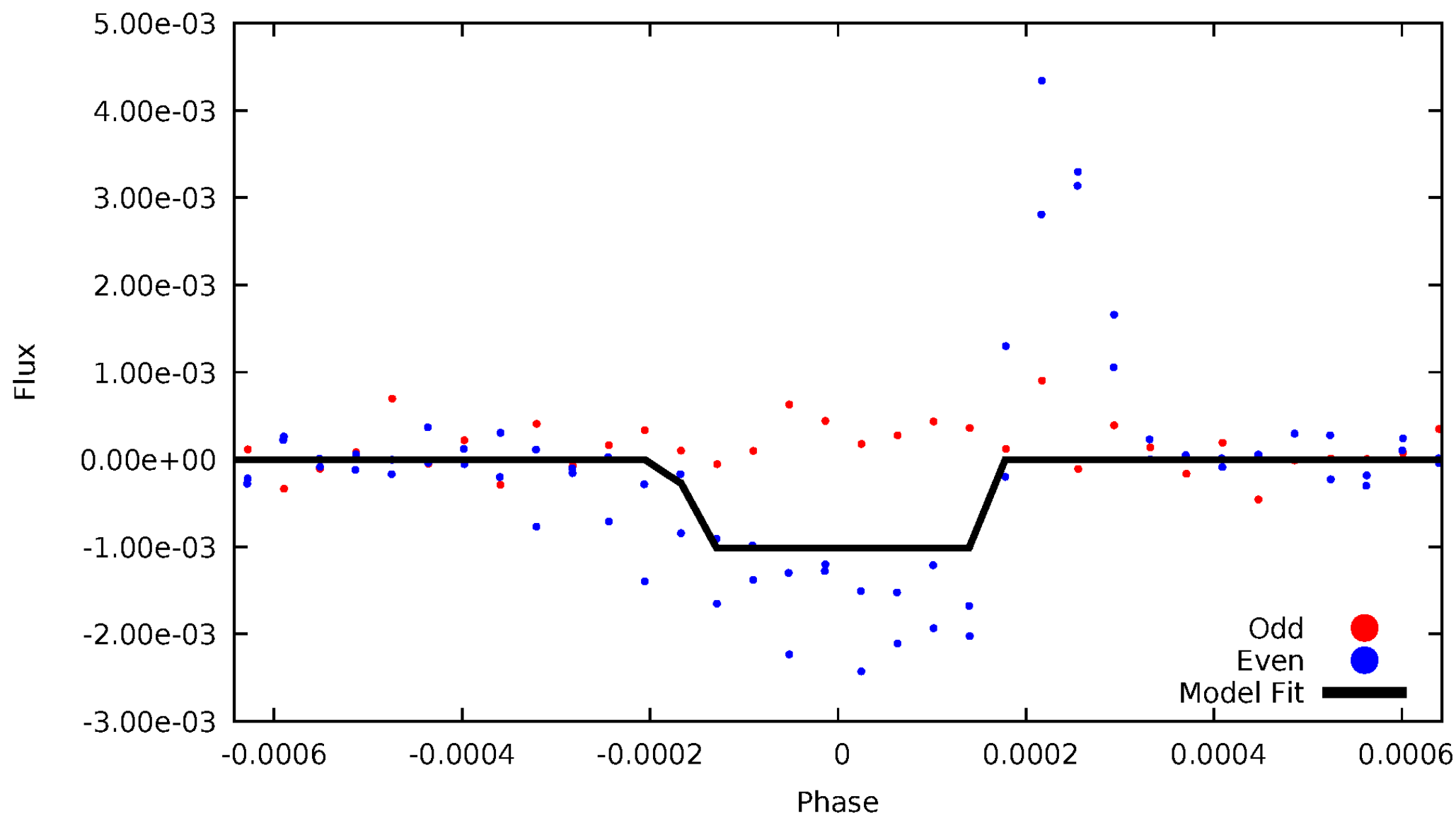
# DV Odd/Even

TCE 010793443-01



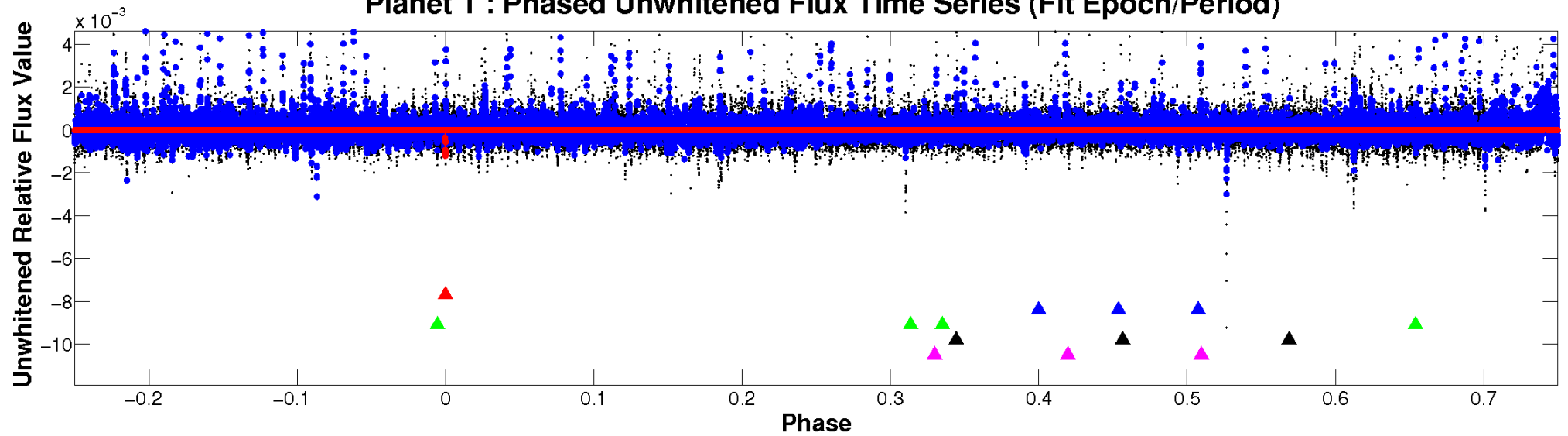
# ALT Odd/Even

TCE 010793443-01

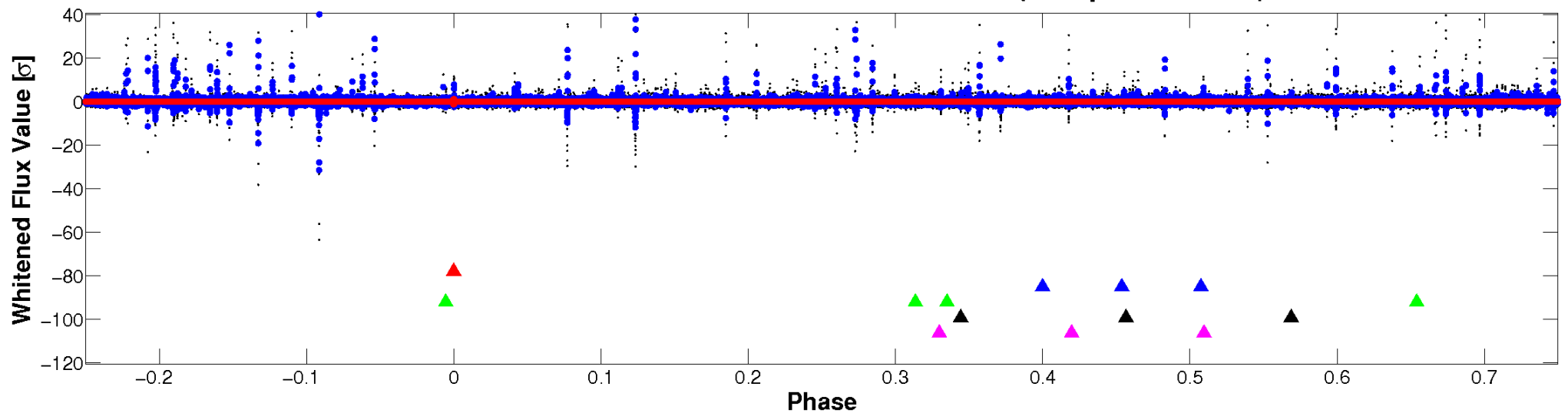


# Non-Whitened Vs. Whitened Light Curve

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

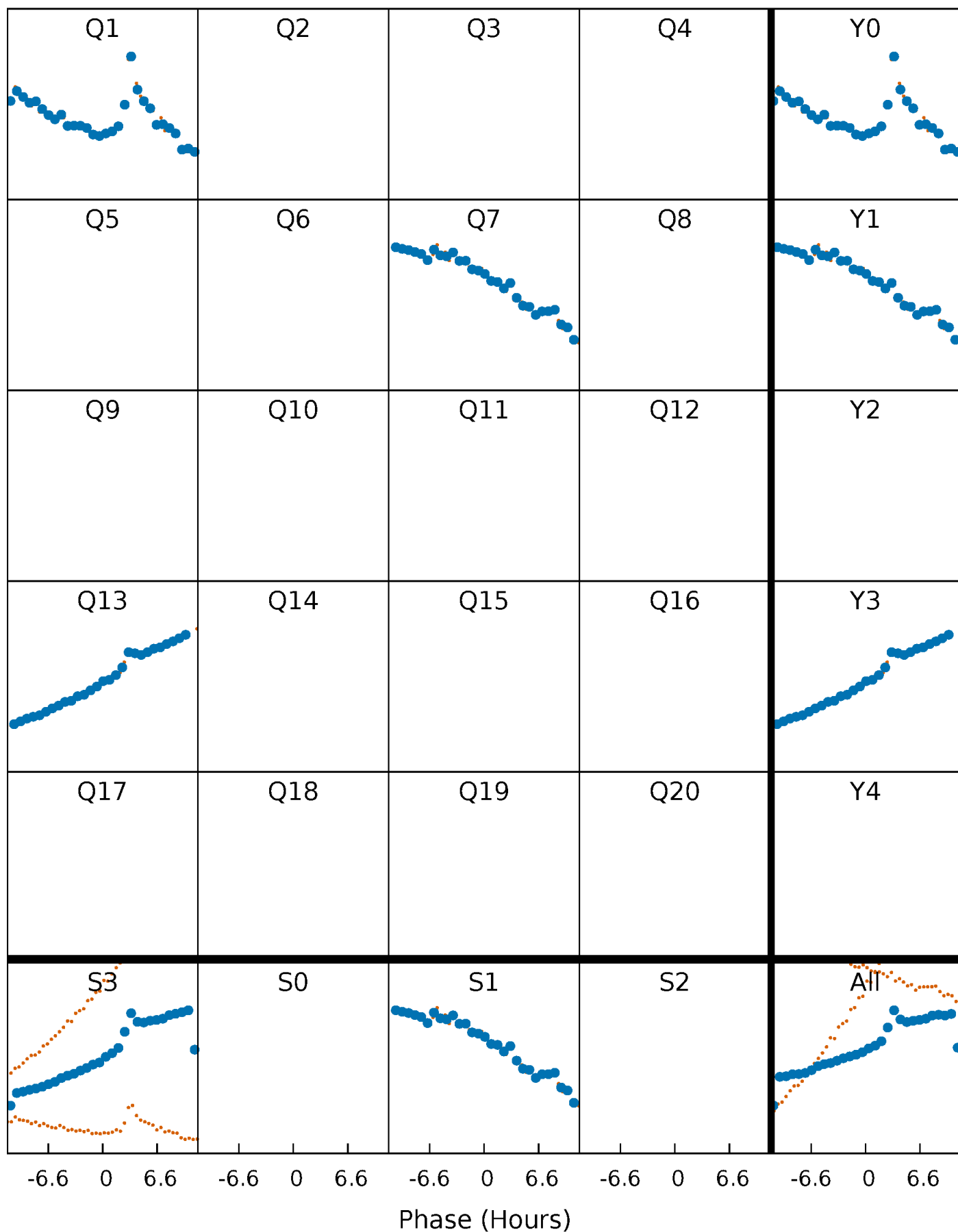


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

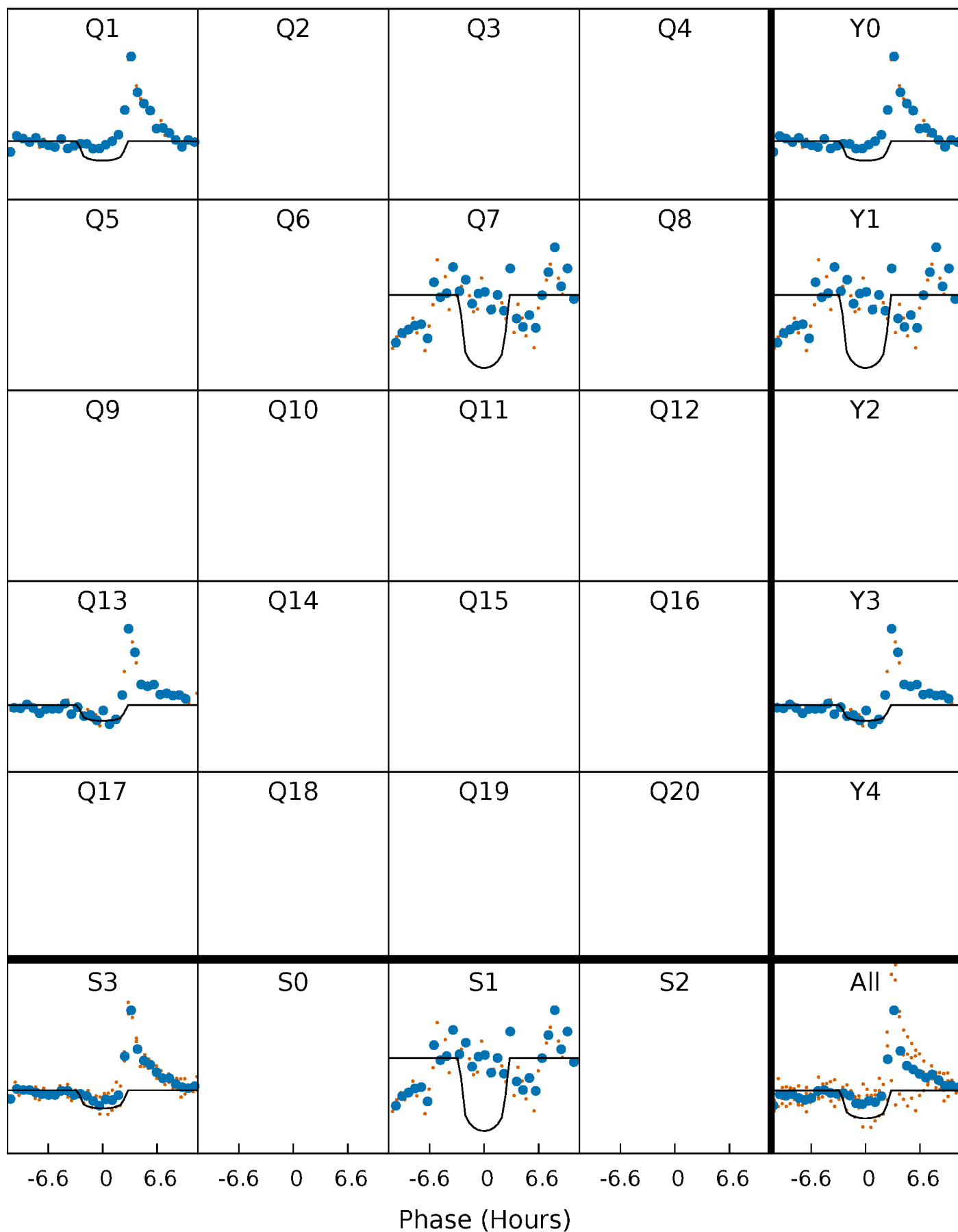
TCE 010793443-01 P=532.152144 Days  $T_0=144.152363$  (BKJD)





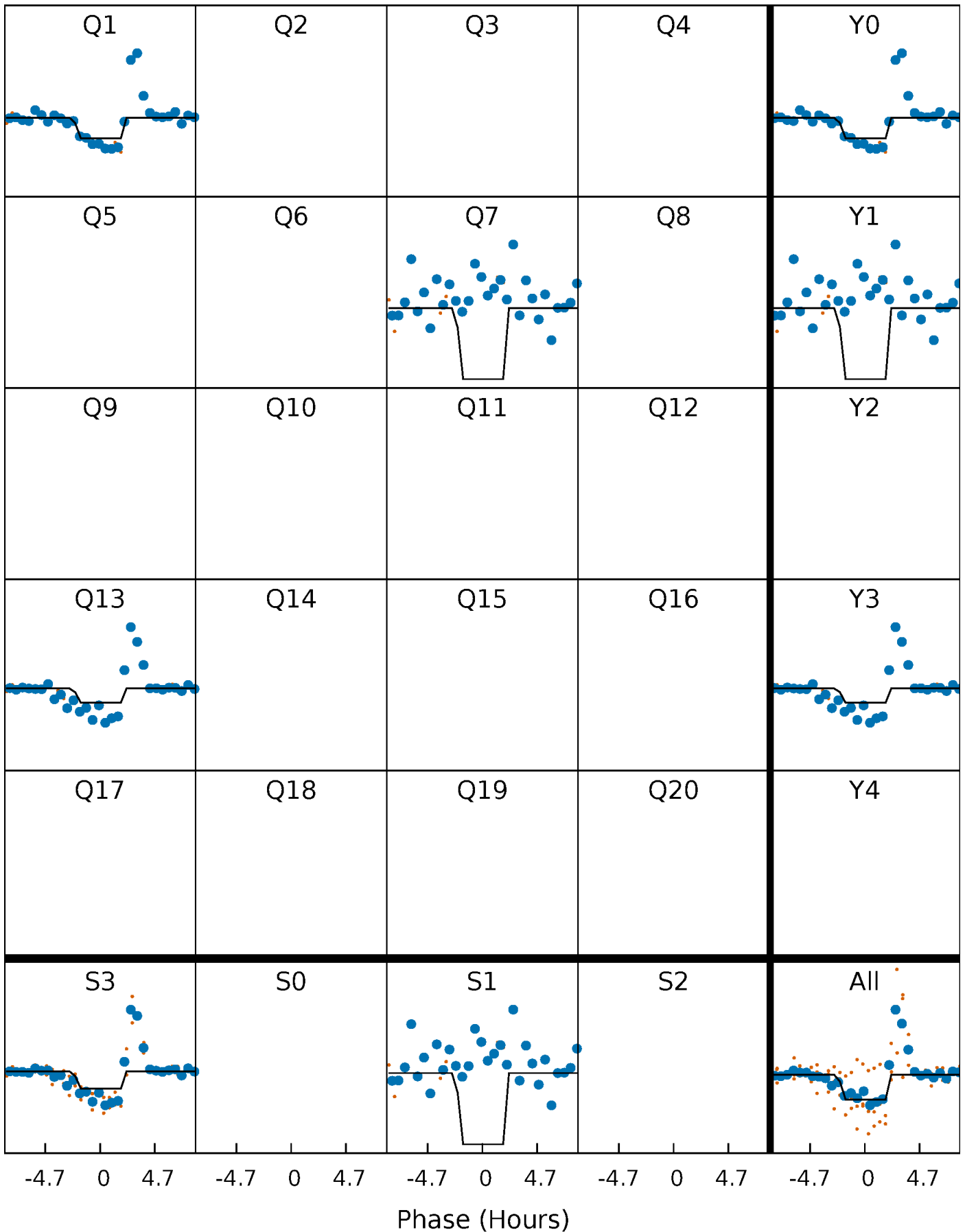
# DV Quarter-Phased Transit Curves

TCE 010793443-01 P=532.152144 Days  $T_0=144.152363$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

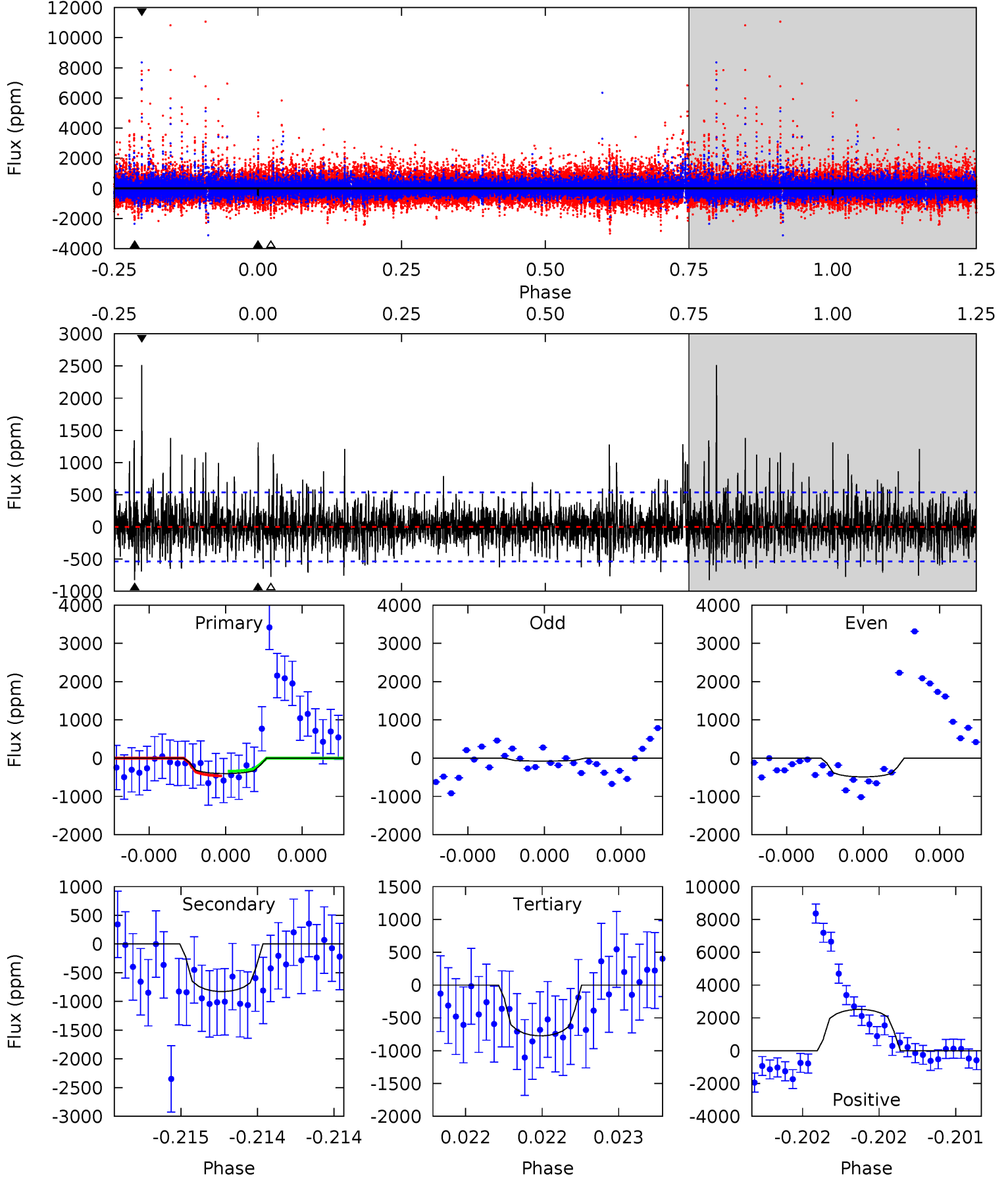
TCE 010793443-01 P=532.151203 Days  $T_0=144.168476$  (BKJD)



# DV Model-Shift Uniqueness Test

010793443-01, P = 532.152144 Days, E = 144.152363 Days

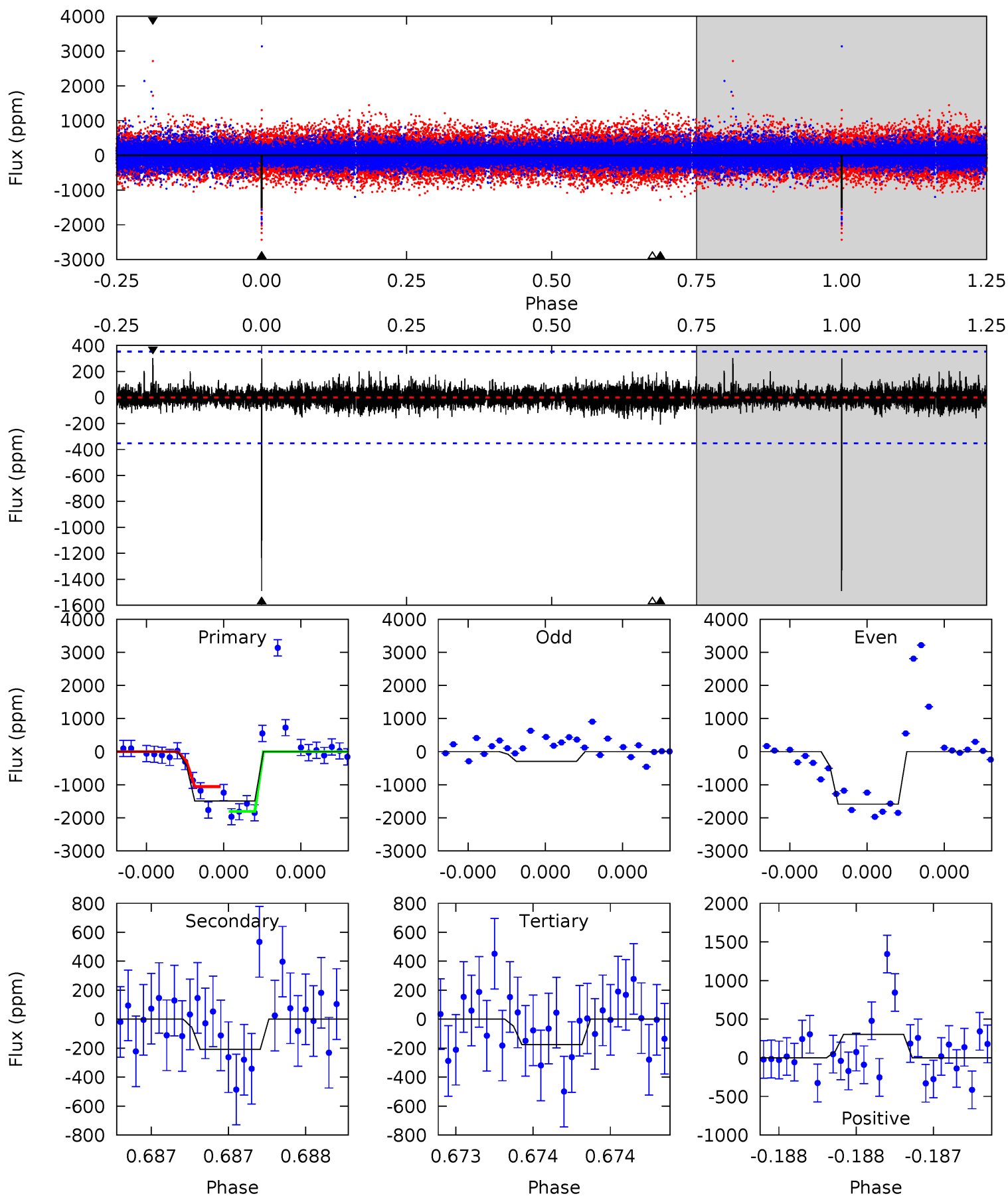
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.20	8.63	8.06	26.2	5.59	3.50	2.33	-3.86	-22.0	0.56	-17.6	1.24	4.60	0.75	0.63



# Alt Model-Shift Uniqueness Test

010793443-01, P = 532.151203 Days, E = 144.168476 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.8	3.32	2.80	4.84	5.64	3.58	0.63	21.0	19.0	0.53	-1.52	11.3	0.74	0.17	6.06



### Stellar Parameters For KIC 010793443

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5853^{+174}_{-174}$	$4.406^{+0.124}_{-0.186}$	$-0.220^{+0.300}_{-0.300}$	$0.991^{+0.282}_{-0.152}$	$0.914^{+0.121}_{-0.099}$	$1.321^{+0.652}_{-0.662}$
	+3%/-3%	+3%/-4%	+136%/-136%	+28%/-15%	+13%/-11%	+49%/-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 010793443-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-827 \pm 96$	$7.53^{+7.15}_{-5.10}$	$322^{+24}_{-18}$	$4049^{+2643}_{-774}$	$12163^{+106880}_{-8916}$
Alt.	$-208 \pm 63$	$7.36^{+7.67}_{-4.93}$	$324^{+25}_{-18}$	$3273^{+1566}_{-592}$	$3242^{+24524}_{-2499}$

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

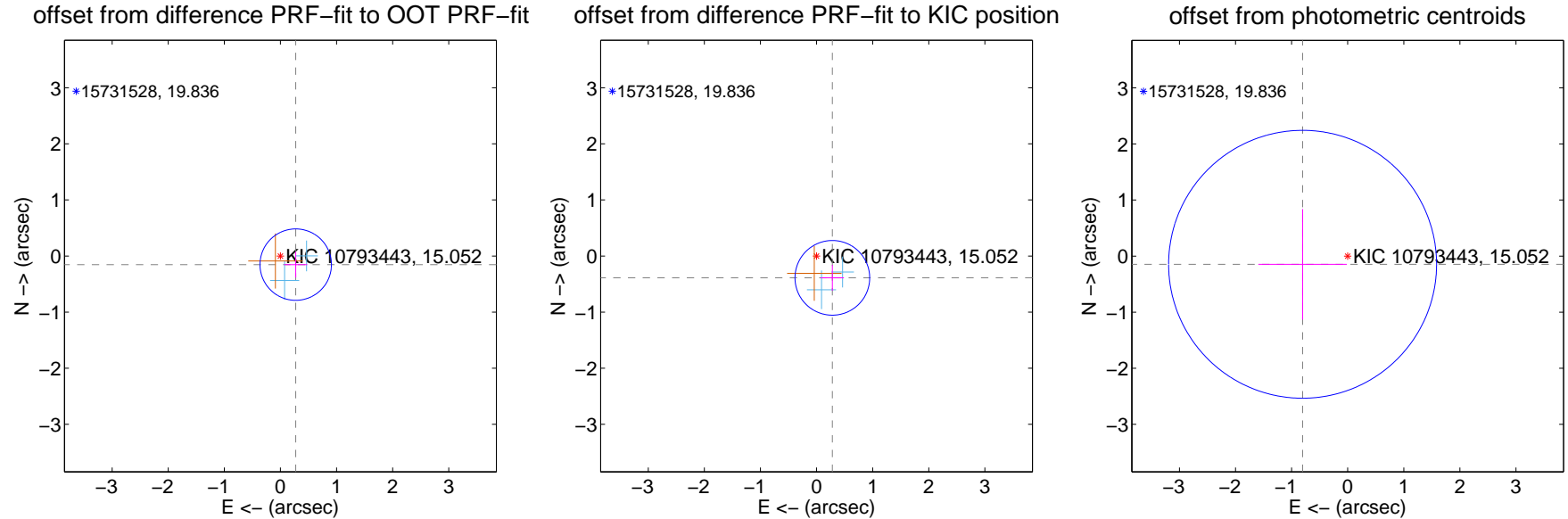
## DV Centroid Data

Supplemental centroid analysis for 010793443-01. Kepler magnitude: 15.05. Transit SNR 6.86

There are 2 quarters with good PRF difference image offsets

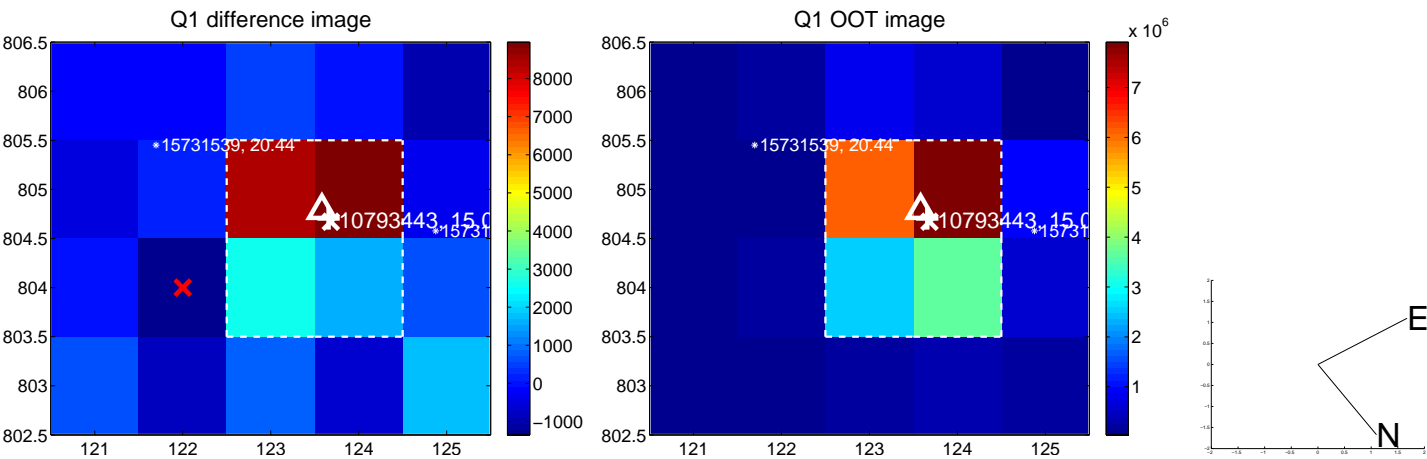
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.312 \pm 0.212$	1.47	$-0.272 \pm 0.206$	$-0.153 \pm 0.230$
PRF-fit source offset from KIC position	$0.480 \pm 0.222$	2.16	$-0.281 \pm 0.206$	$-0.389 \pm 0.230$
photometric centroid source offset	$0.82 \pm 0.80$	1.03	$0.80 \pm 0.79$	$-0.15 \pm 0.99$



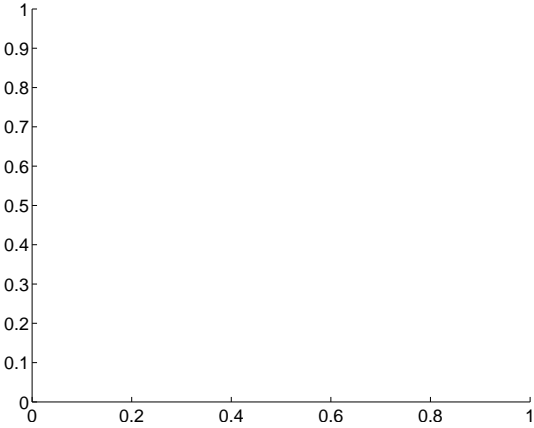
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

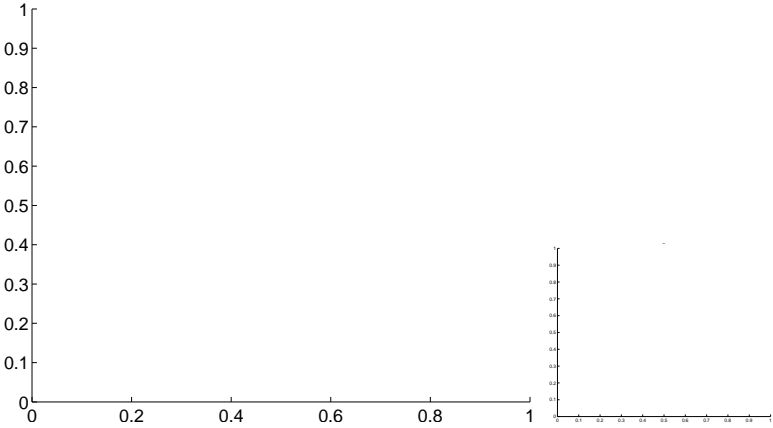


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Q5 no difference image



Q5 no OOT image



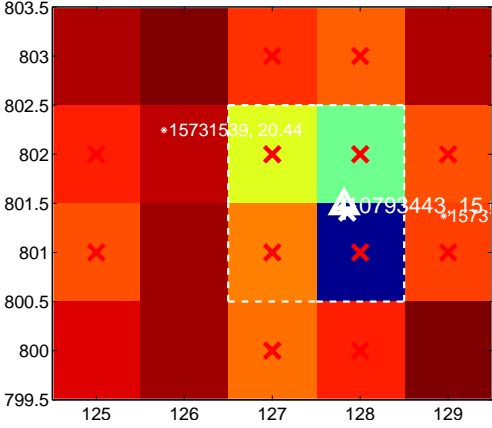
Q6 no difference image



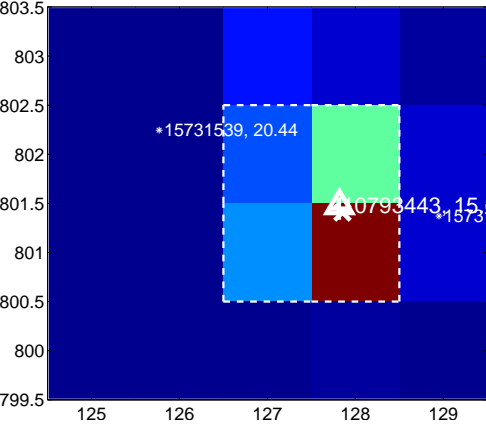
Q6 no OOT image



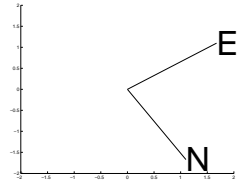
Q7 difference image. Poor Quality



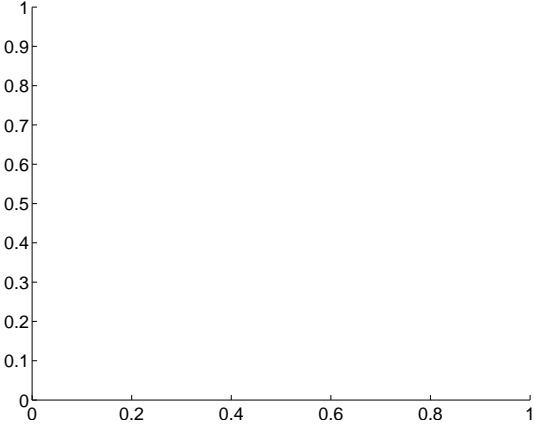
Q7 OOT image



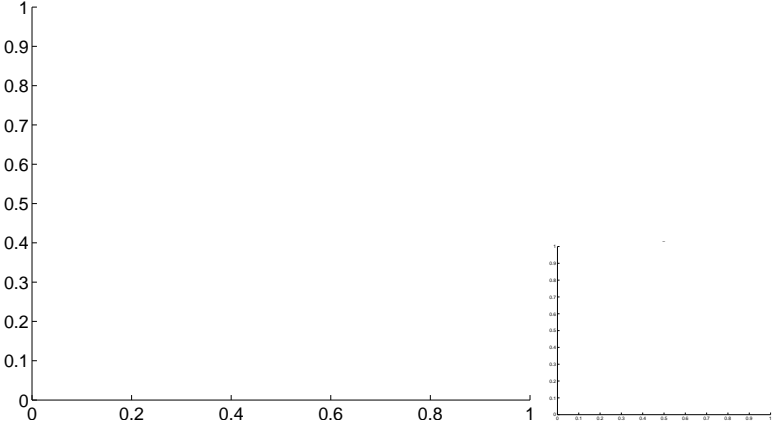
$\times 10^6$



Q8 no difference image



Q8 no OOT image

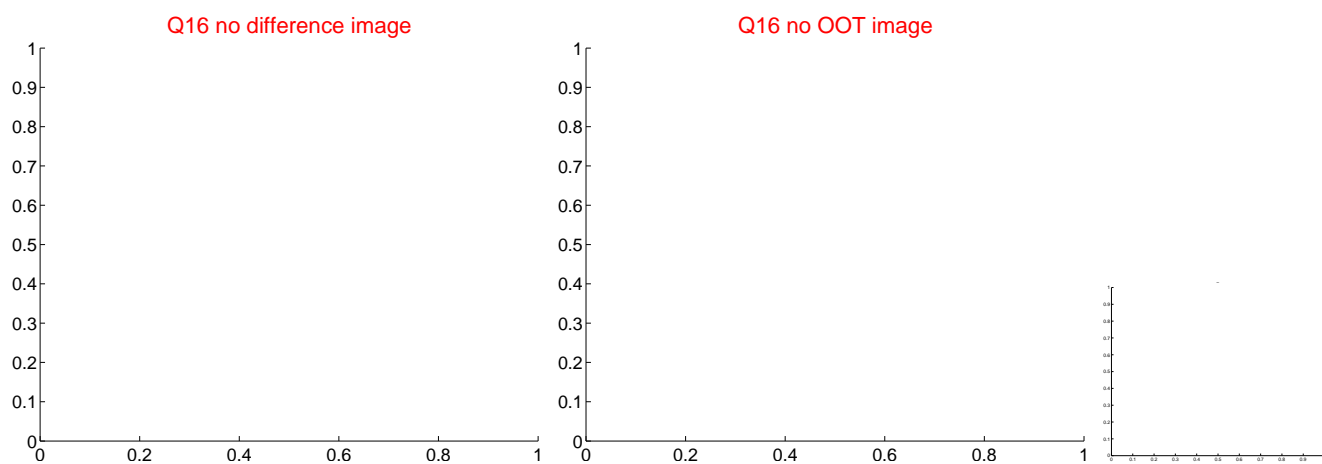
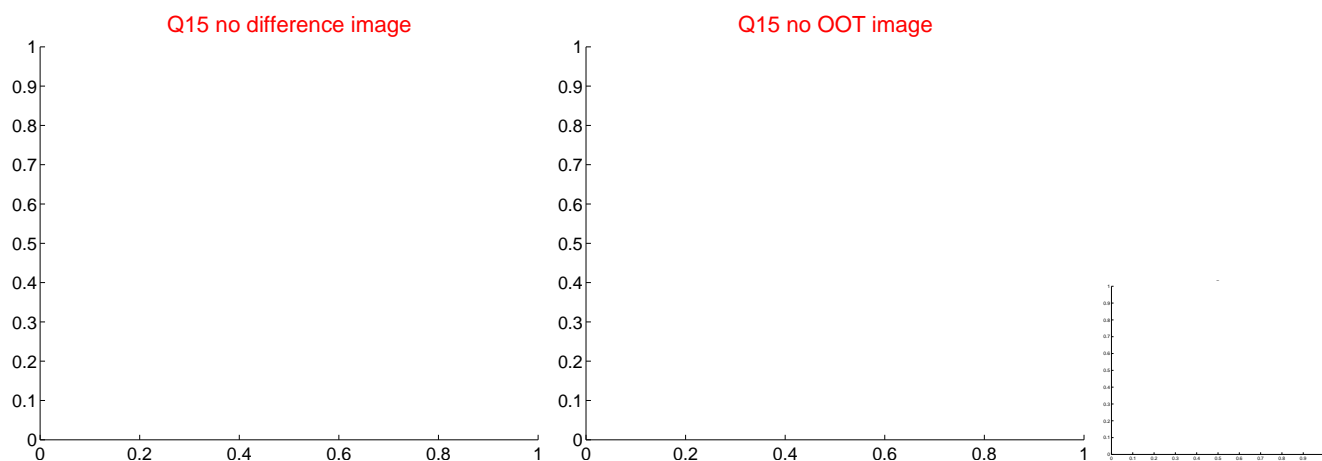
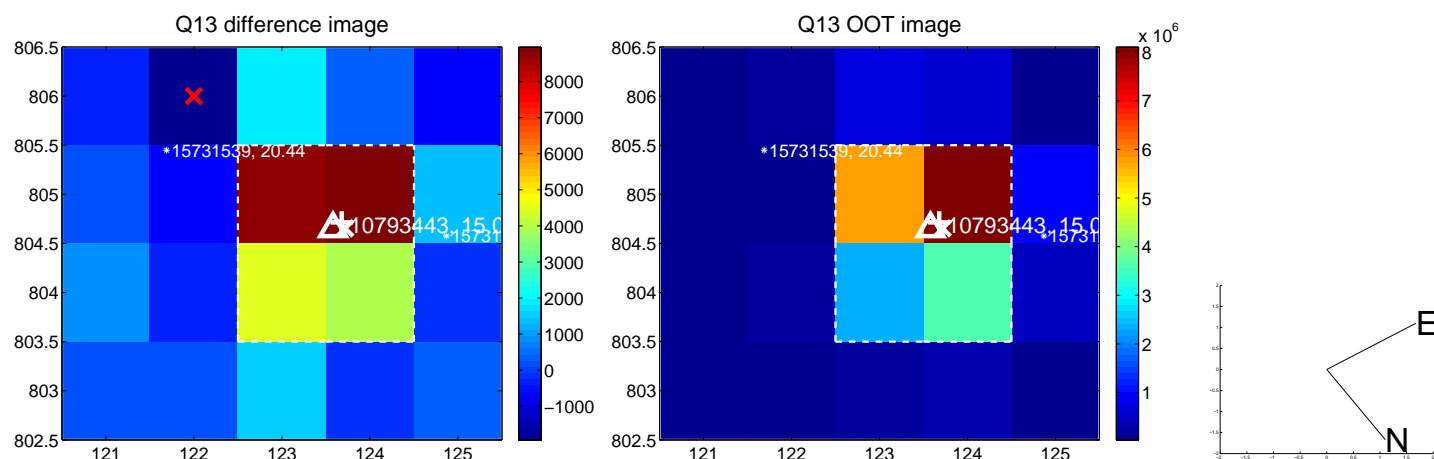




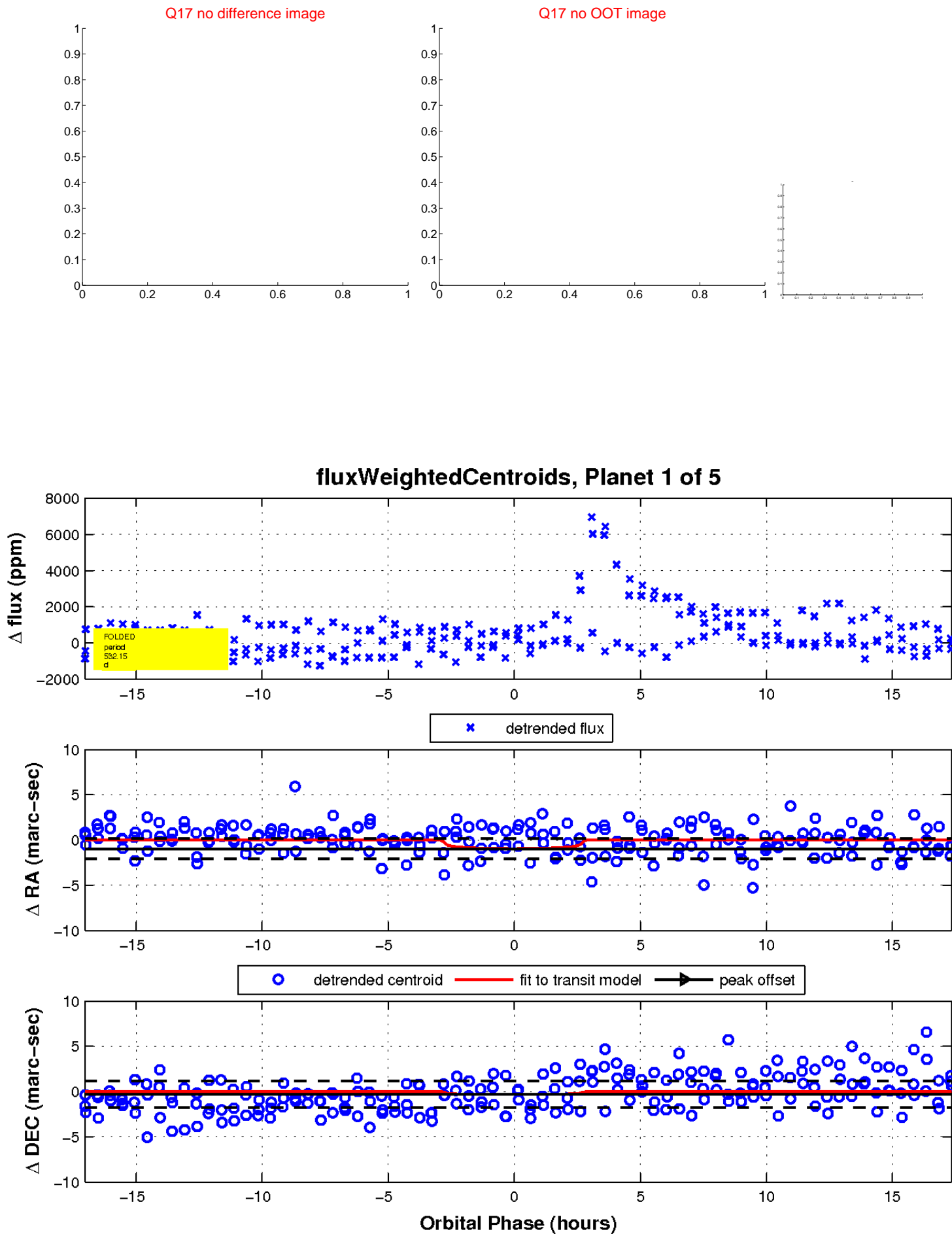
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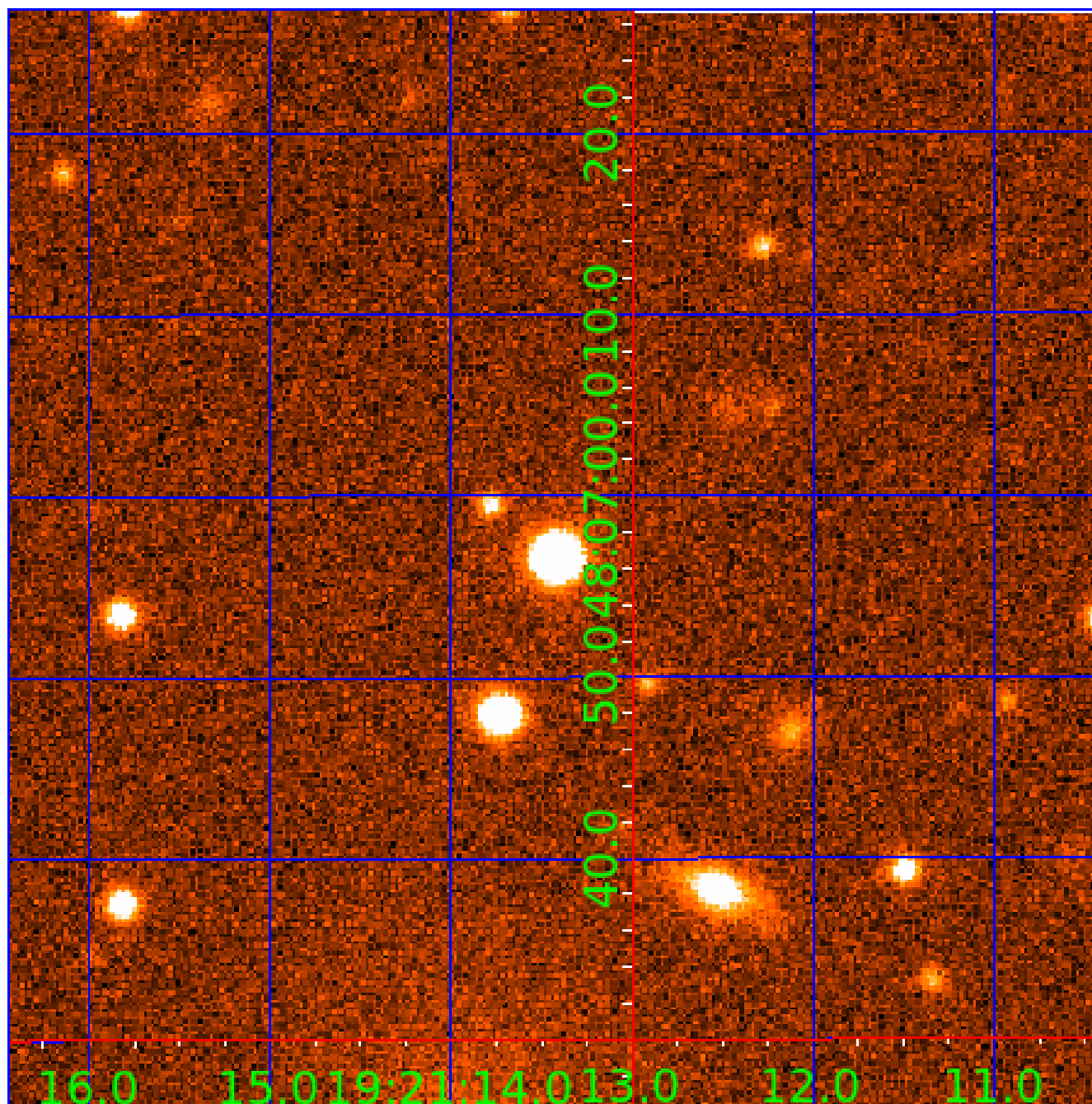


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UKIRT Image

Declination



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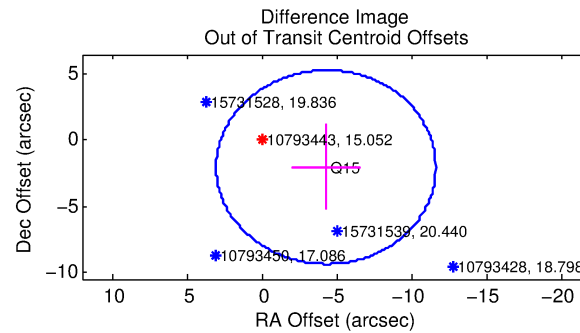
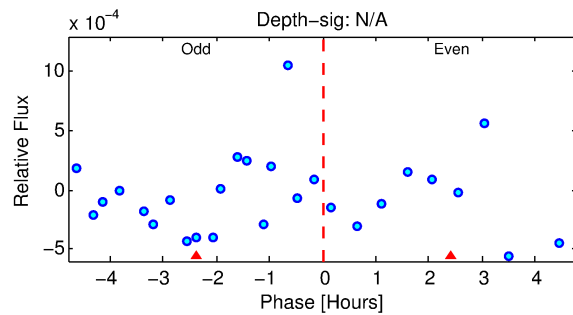
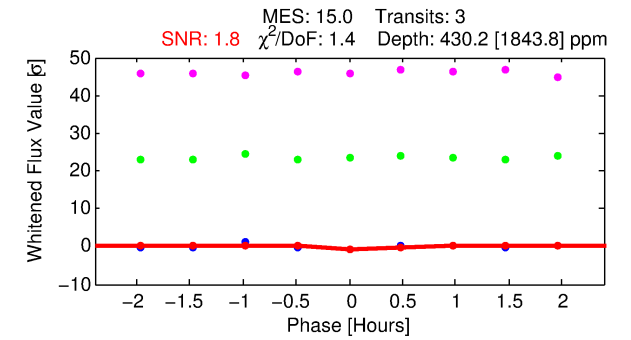
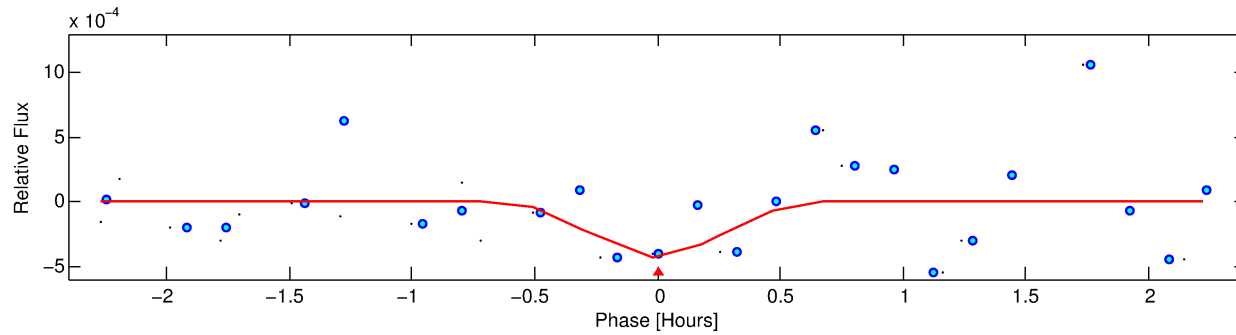
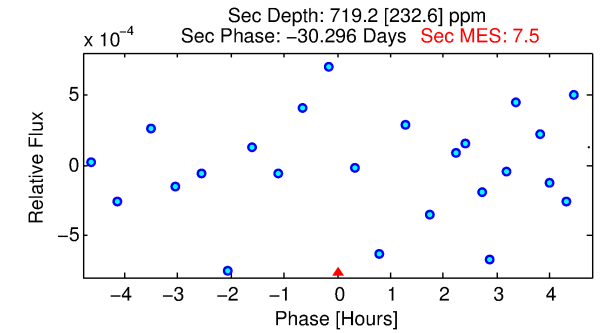
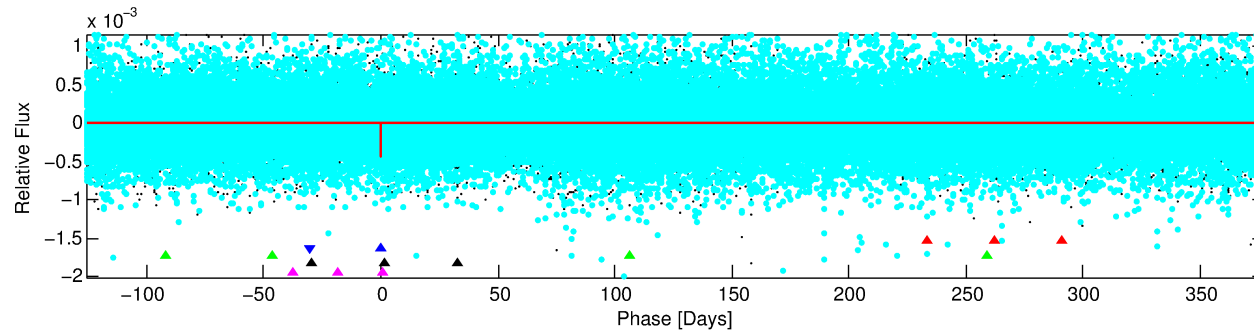
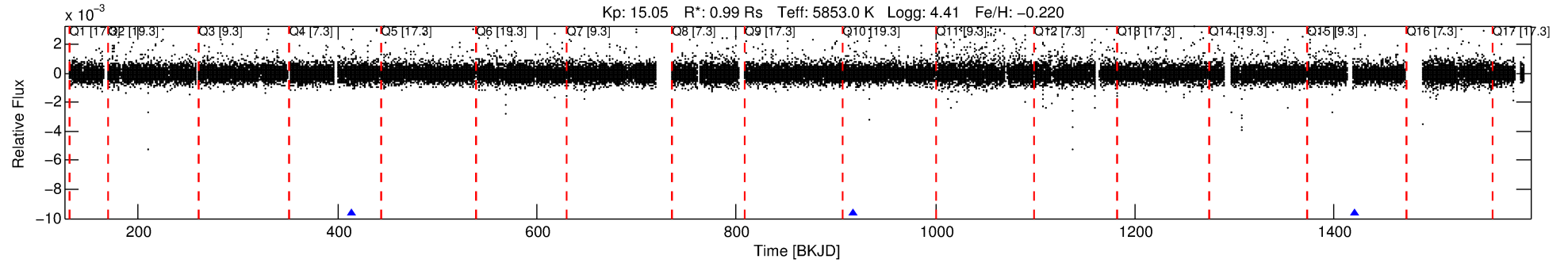
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010793443-02

No Significant Match Found

# DV One-Page Summary

KIC: 10793443 Candidate: 2 of 5 Period: 503.532 d



## DV Fit Results:

Period = 503.53160 [0.01272] d  
Epoch = 414.2387 [0.0143] BKJD  
Rp/R\* = 0.0249 [0.2086]  
a/R\* = 1768.39 [57439.40]  
b = 0.96 [3.18]  
Seff = 0.72 [0.26]  
Teq = 234 [21] K  
Rp = 2.70 [22.57] Re  
a = 1.2016 [0.2853] AU  
Ag = 78509.07 [1313399.12] [0.06σ]  
Teffp = 6069 [25377] K [0.23σ]

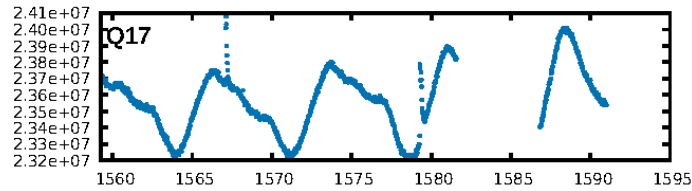
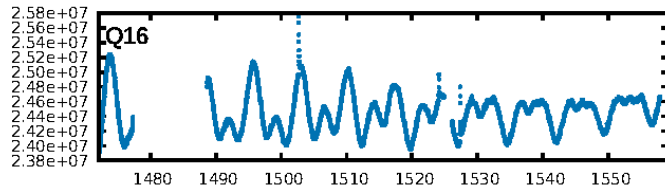
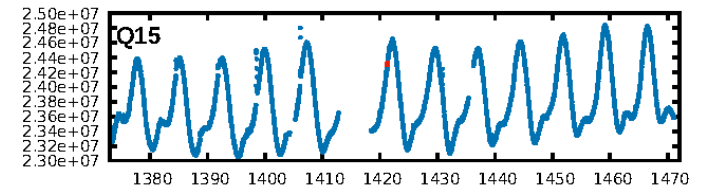
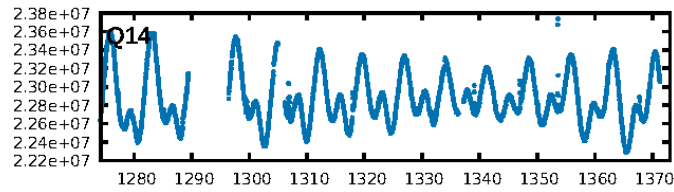
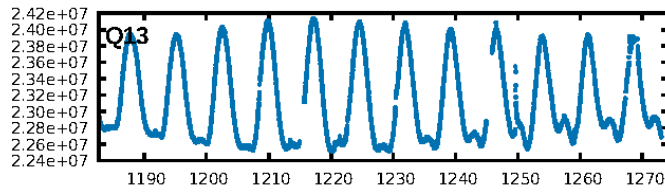
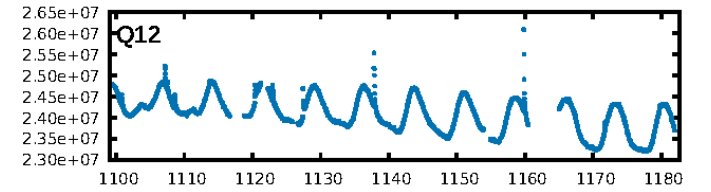
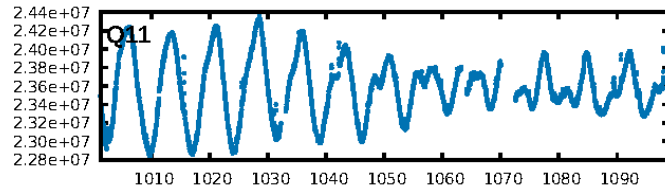
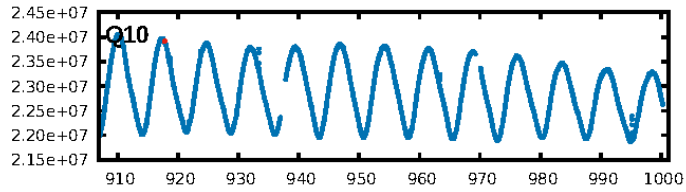
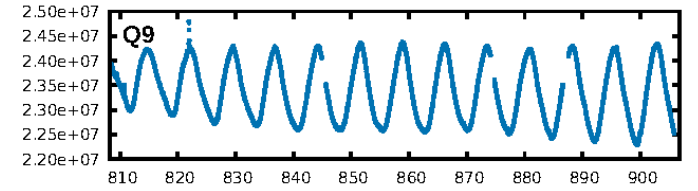
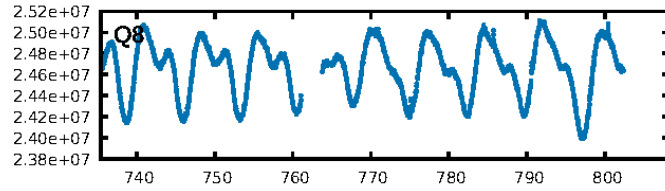
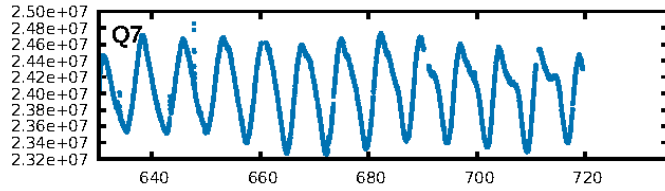
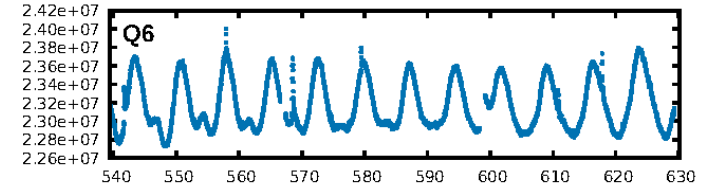
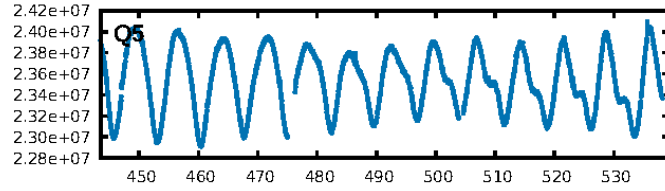
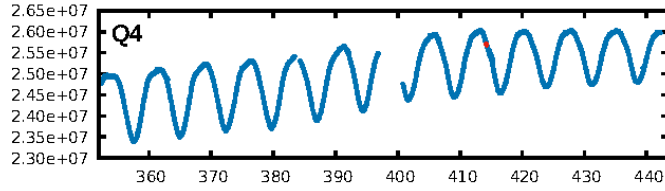
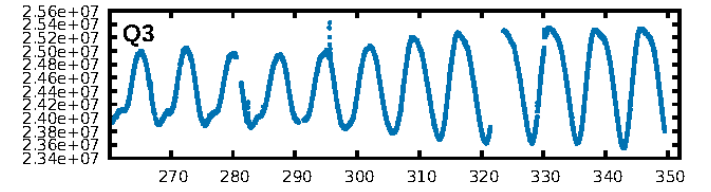
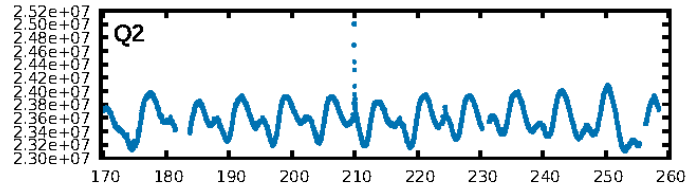
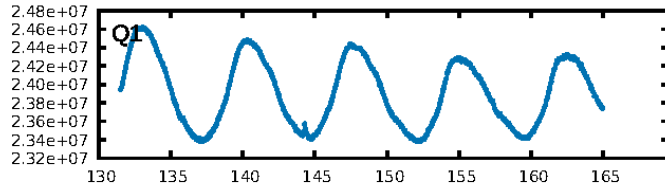
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [63.26σ]  
LongPeriod-sig: 100.0% [117.68σ]  
ModelChiSquare2-sig: 23.9%  
ModelChiSquareGof-sig: 84.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.374  
Centroid-sig: 90.6%  
Centroid-so: 1.850 arcsec [0.29σ]  
OotOffset-rm: 4.768 arcsec [1.95σ]  
KicOffset-rm: 4.915 arcsec [1.99σ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [2/2]

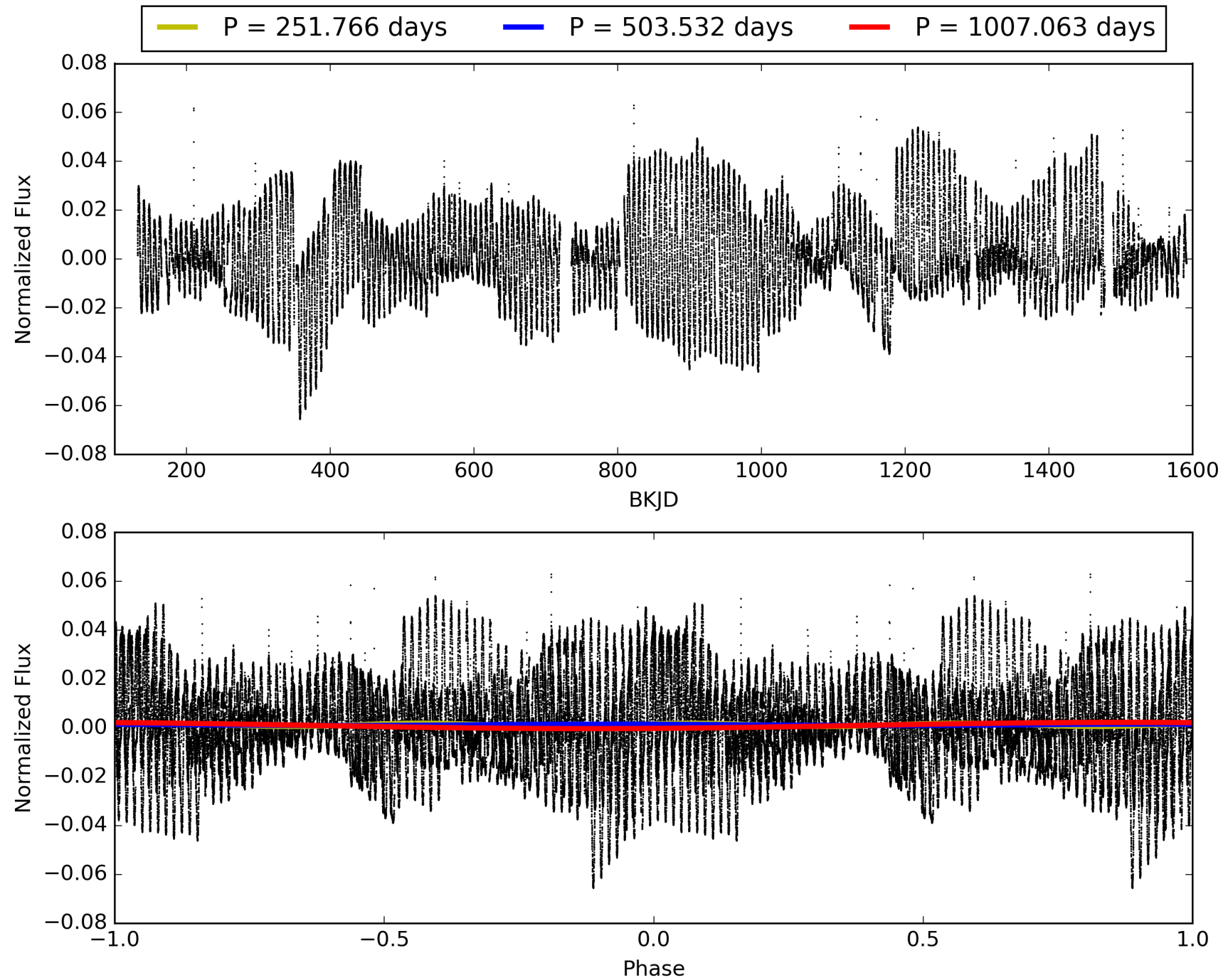
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:00:23 Z

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

# TCE 010793443-02, PDC Light Curves



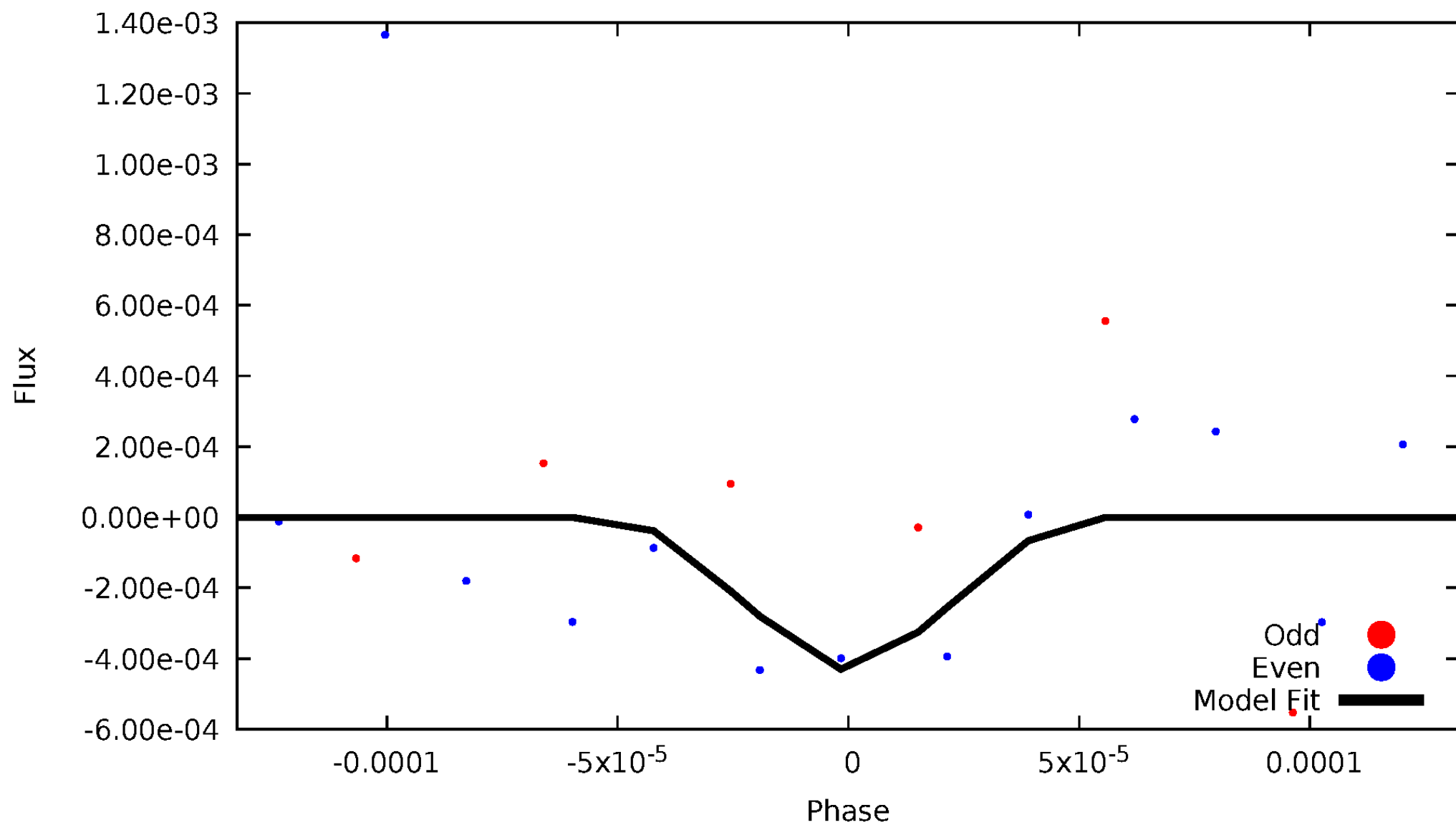
# TCE 010793443-02





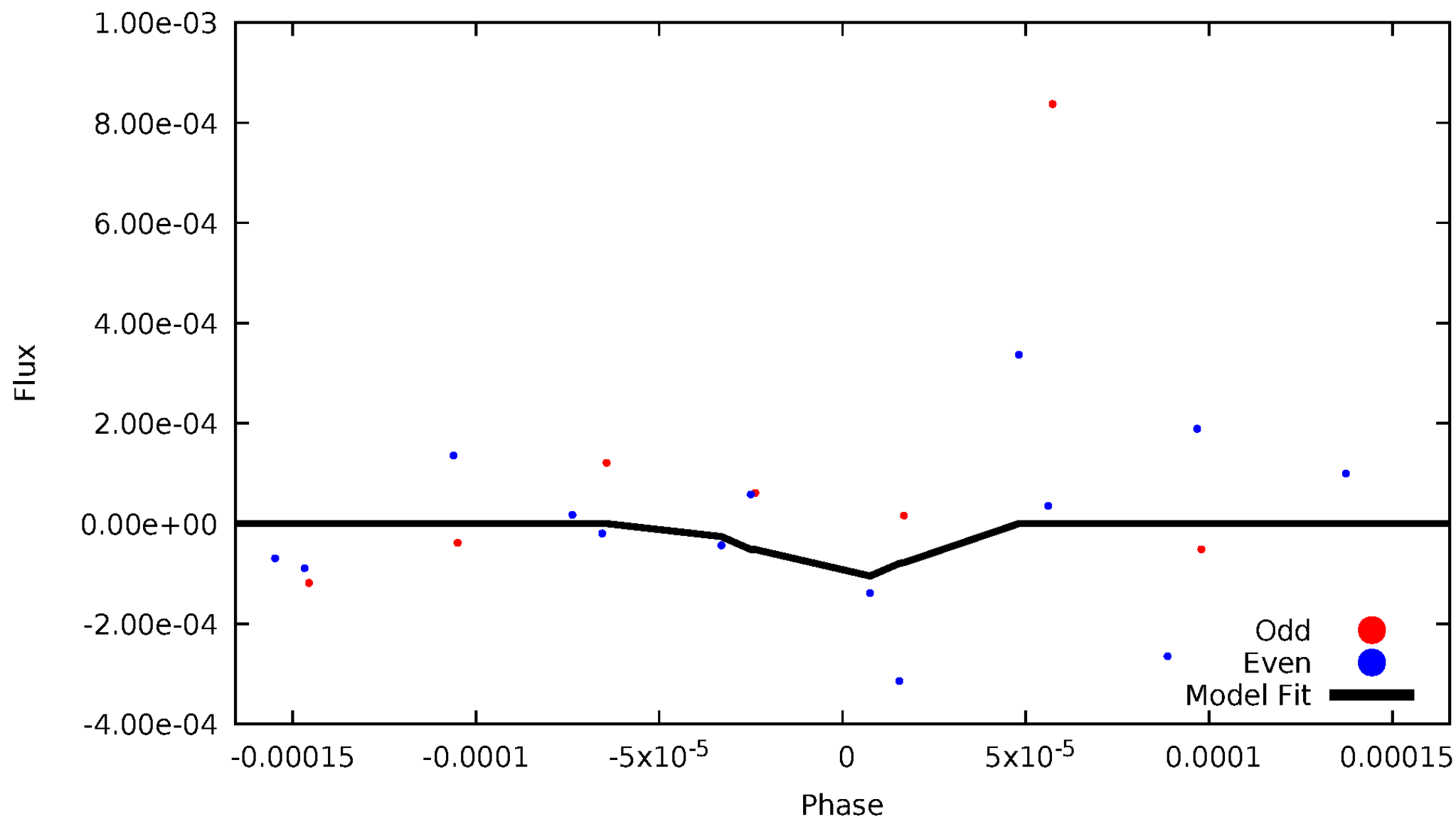
# DV Odd/Even

TCE 010793443-02



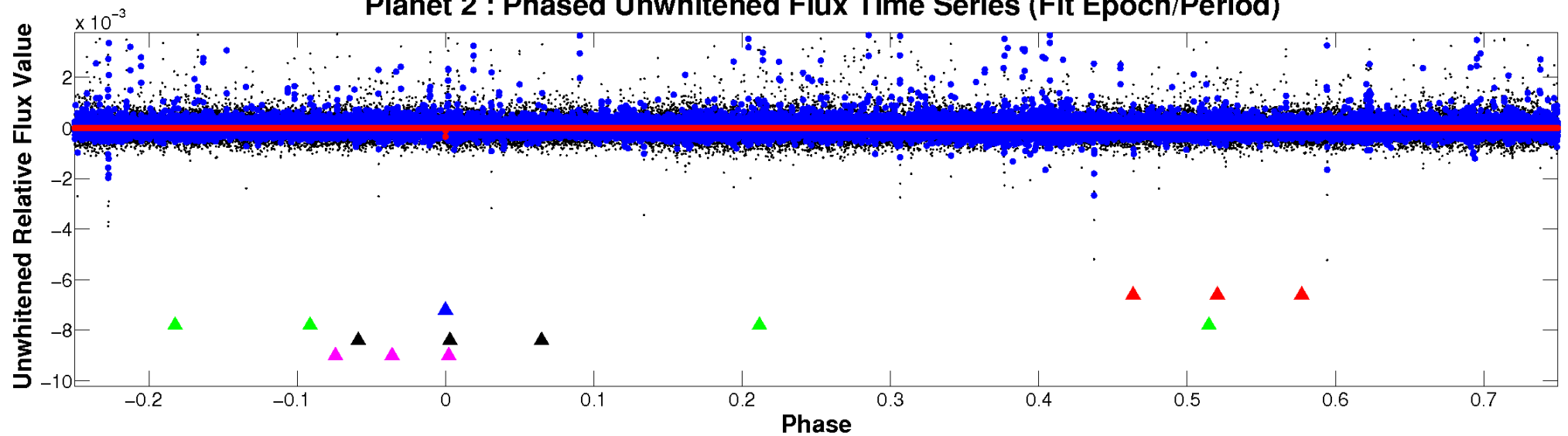
# ALT Odd/Even

TCE 010793443-02

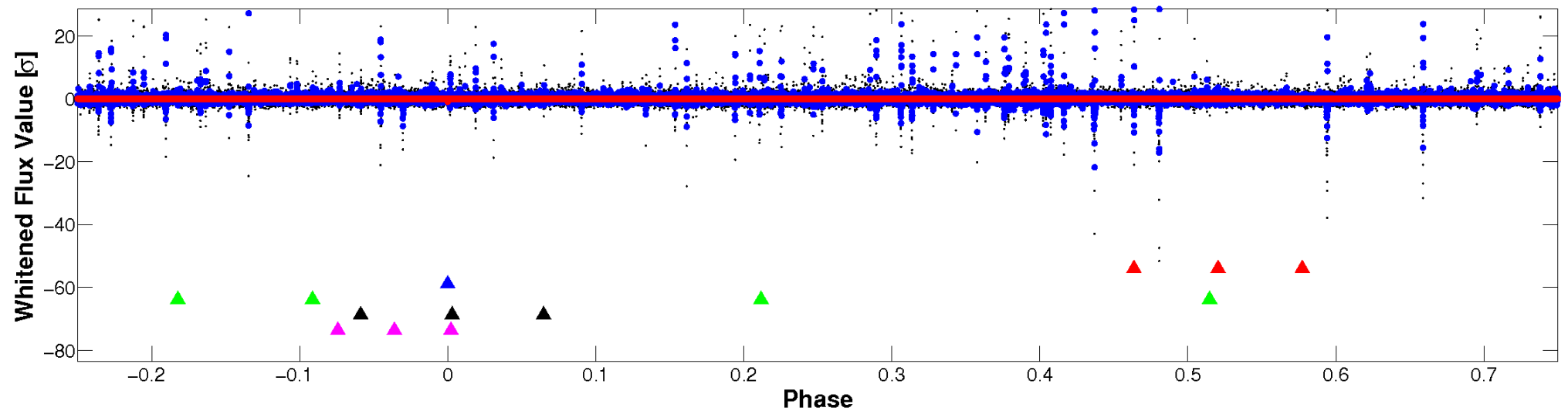


# Non-Whitened Vs. Whitened Light Curve

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

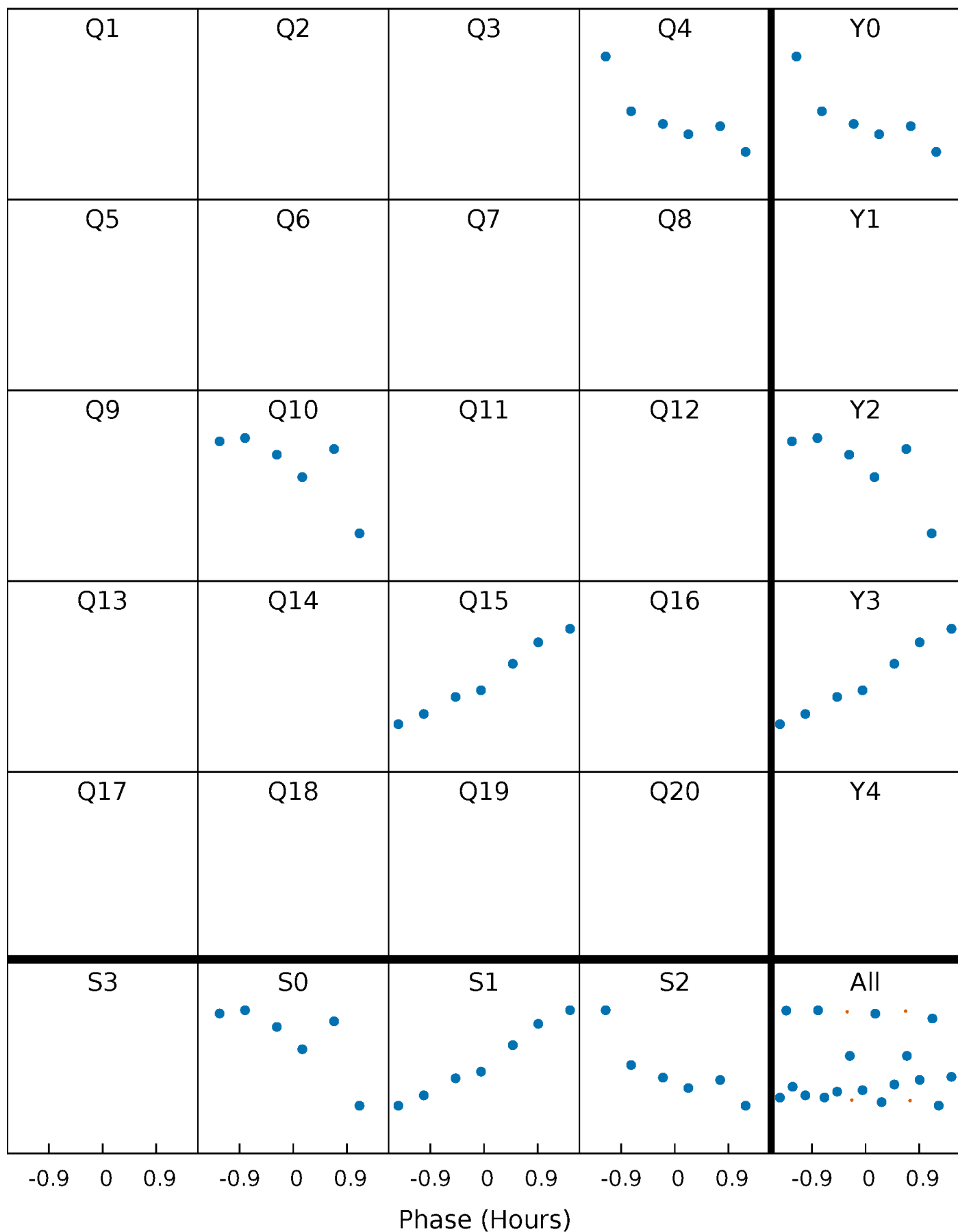


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



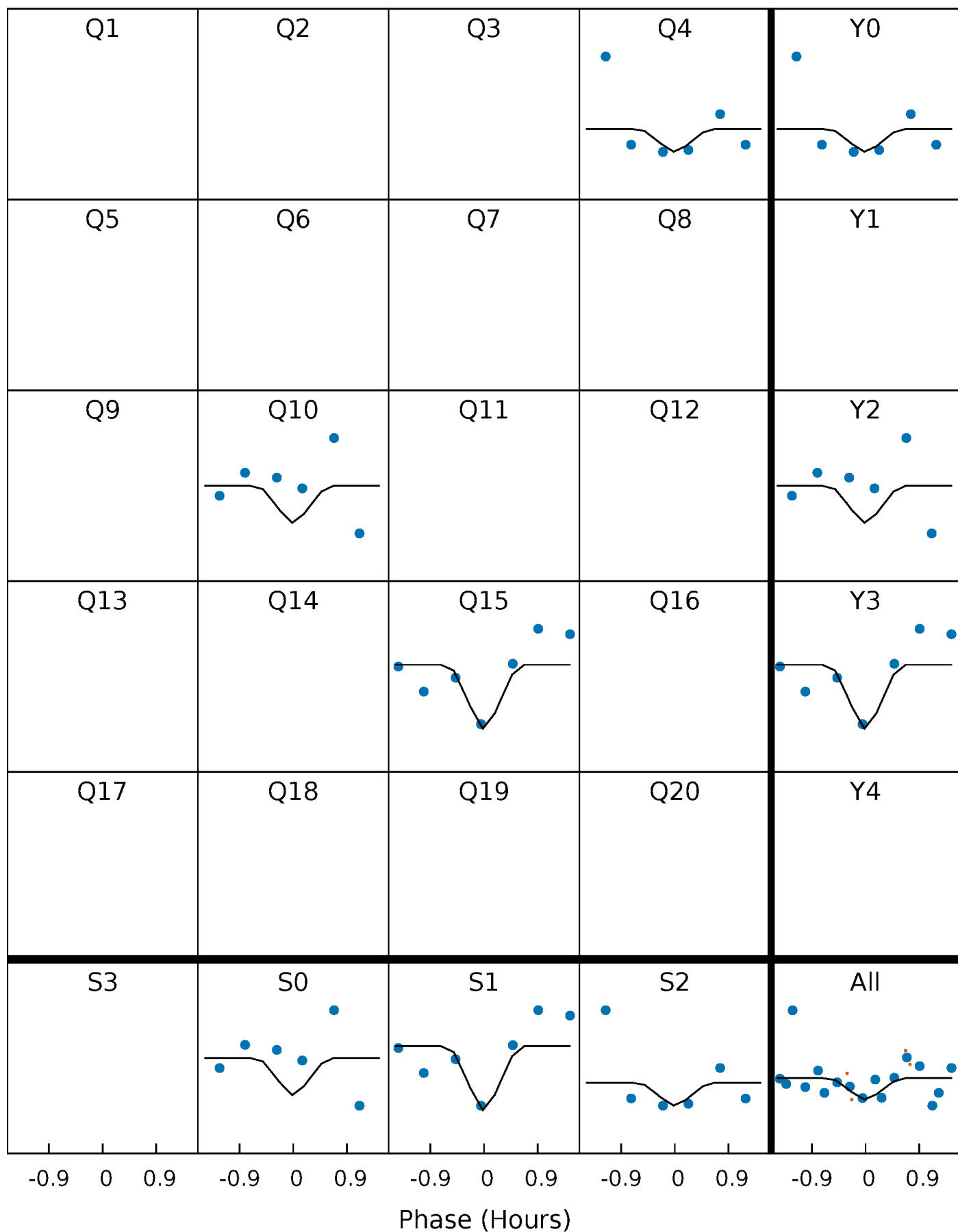
# PDC Quarter-Phased Transit Curves

TCE 010793443-02 P=503.531603 Days  $T_0=414.238660$  (BKJD)



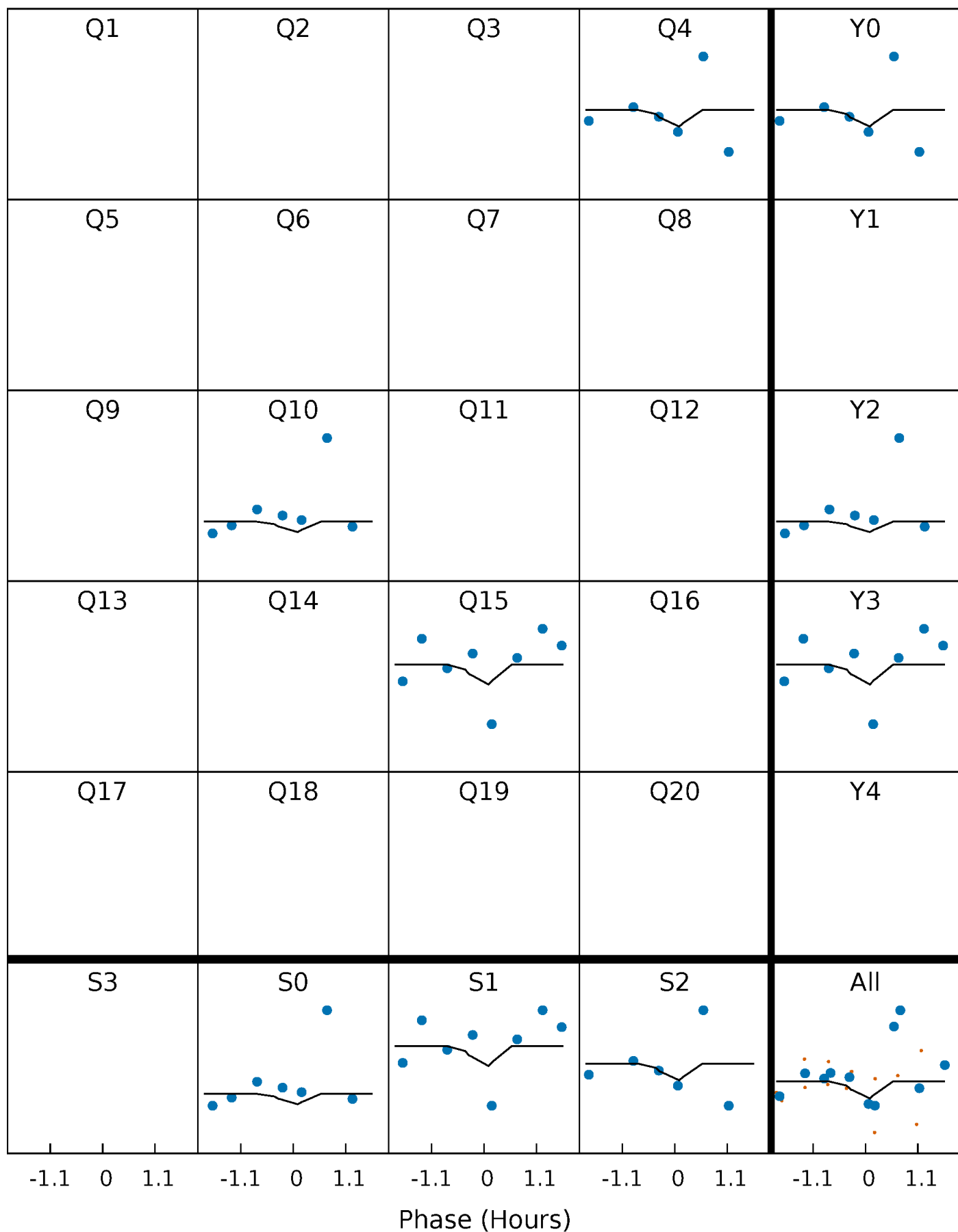
# DV Quarter-Phased Transit Curves

TCE 010793443-02 P=503.531603 Days  $T_0=414.238660$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

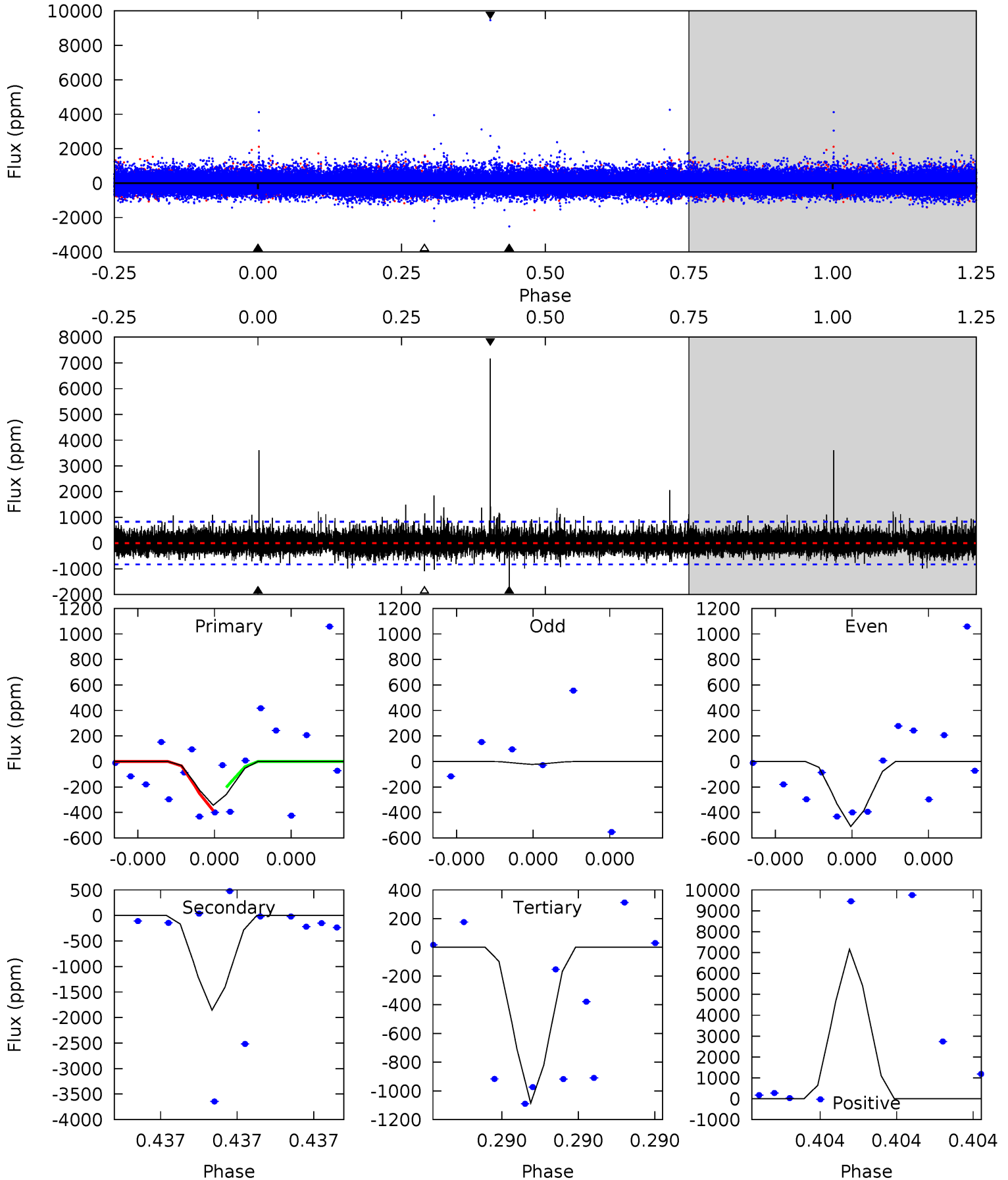
TCE 010793443-02 P=503.523785 Days  $T_0=414.245653$  (BKJD)



# DV Model-Shift Uniqueness Test

010793443-02, P = 503.531603 Days, E = 414.238660 Days

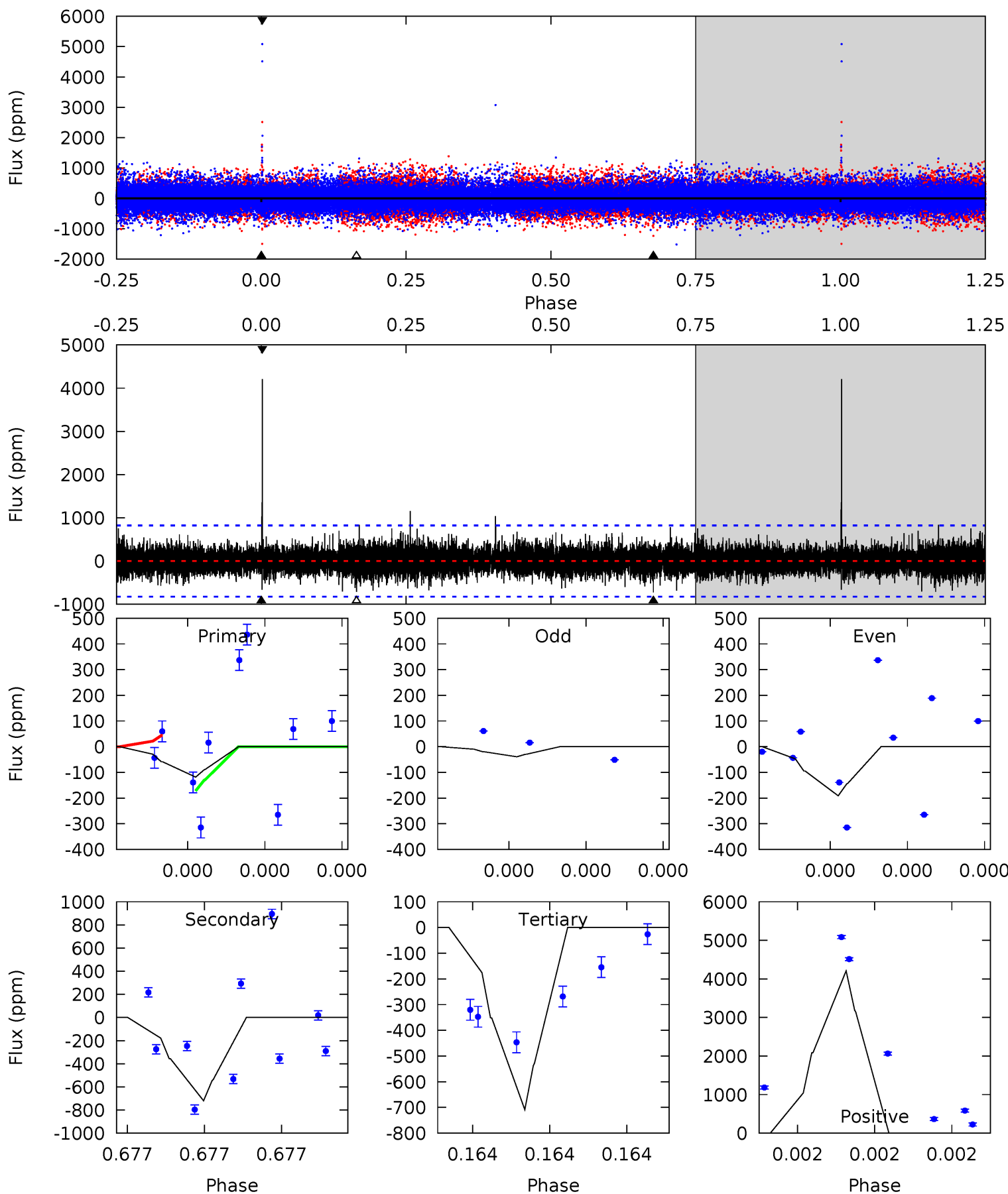
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.42	13.1	7.67	50.6	5.85	3.90	1.61	-5.24	-48.2	5.44	-37.5	1.08	0.87	0.79	0.65



# Alt Model-Shift Uniqueness Test

010793443-02, P = 503.523785 Days, E = 414.245653 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
0.85	5.16	5.08	30.2	5.90	3.97	1.13	-4.23	-29.3	0.08	-25.0	0.53	0.81	0.85	0.41





### Stellar Parameters For KIC 010793443

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5853^{+174}_{-174}$	$4.406^{+0.124}_{-0.186}$	$-0.220^{+0.300}_{-0.300}$	$0.991^{+0.282}_{-0.152}$	$0.914^{+0.121}_{-0.099}$	$1.321^{+0.652}_{-0.662}$
	+3%/-3%	+3%/-4%	+136%/-136%	+28%/-15%	+13%/-11%	+49%/-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 010793443-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1855 \pm 142$	$16.85^{+16.97}_{-11.69}$	$331^{+23}_{-19}$	$3584^{+2022}_{-674}$	$5126^{+49192}_{-3826}$
Alt.	$-720 \pm 140$	$16.19^{+17.62}_{-10.85}$	$331^{+23}_{-20}$	$3104^{+1474}_{-531}$	$2181^{+18024}_{-1695}$

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

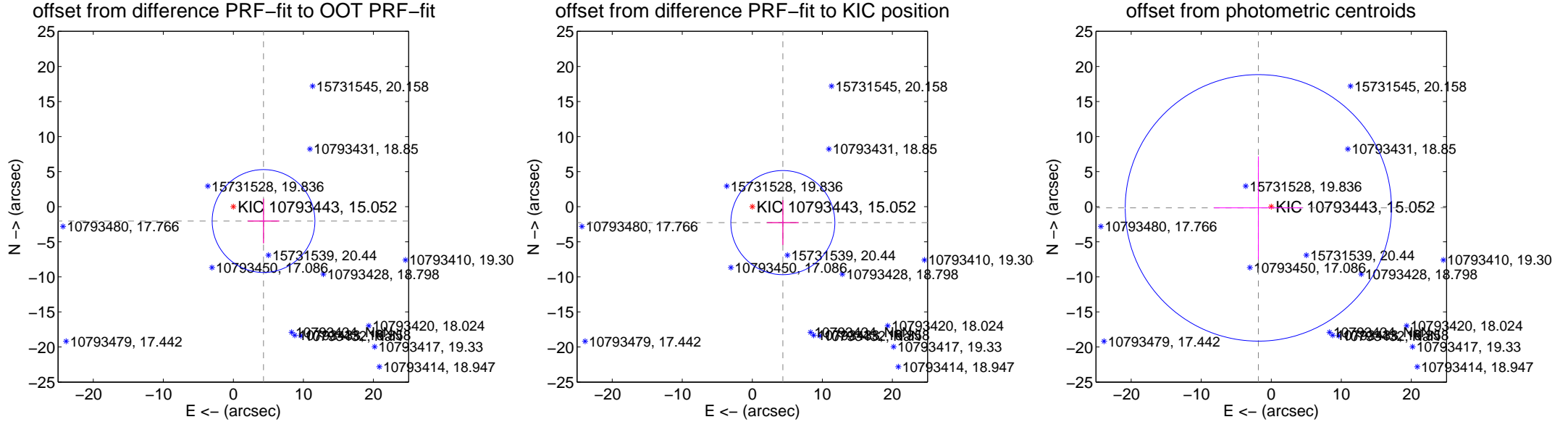
## DV Centroid Data

Supplemental centroid analysis for 010793443-02. Kepler magnitude: 15.05. Transit SNR 1.84

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.768 \pm 2.444$	1.95	$-4.311 \pm 2.247$	$-2.039 \pm 3.181$
PRF-fit source offset from KIC position	$4.915 \pm 2.475$	1.99	$-4.363 \pm 2.247$	$-2.264 \pm 3.181$
photometric centroid source offset	$1.85 \pm 6.33$	0.29	$1.84 \pm 6.33$	$-0.17 \pm 7.35$



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.

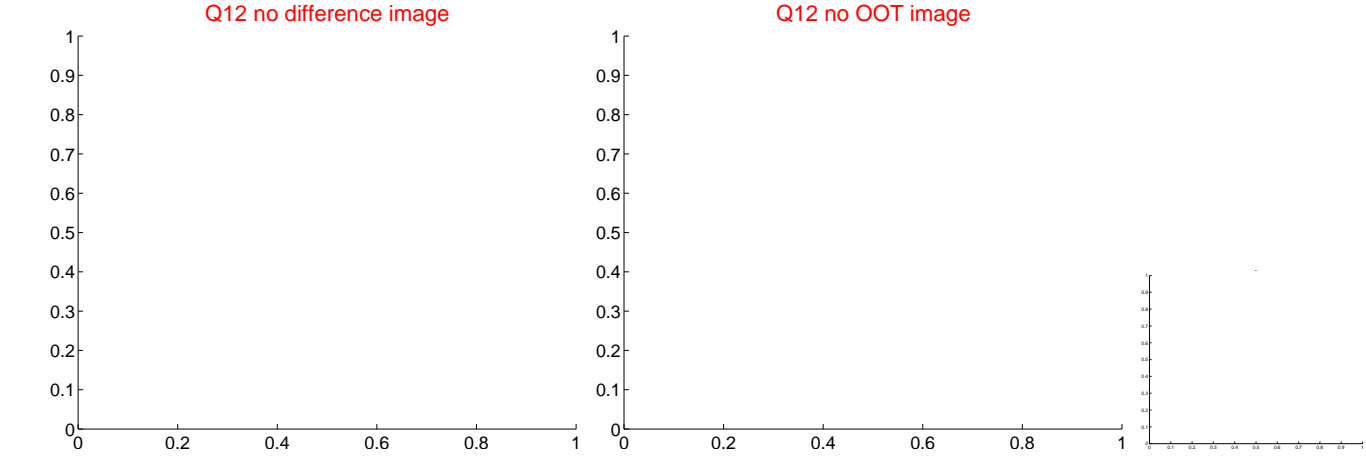
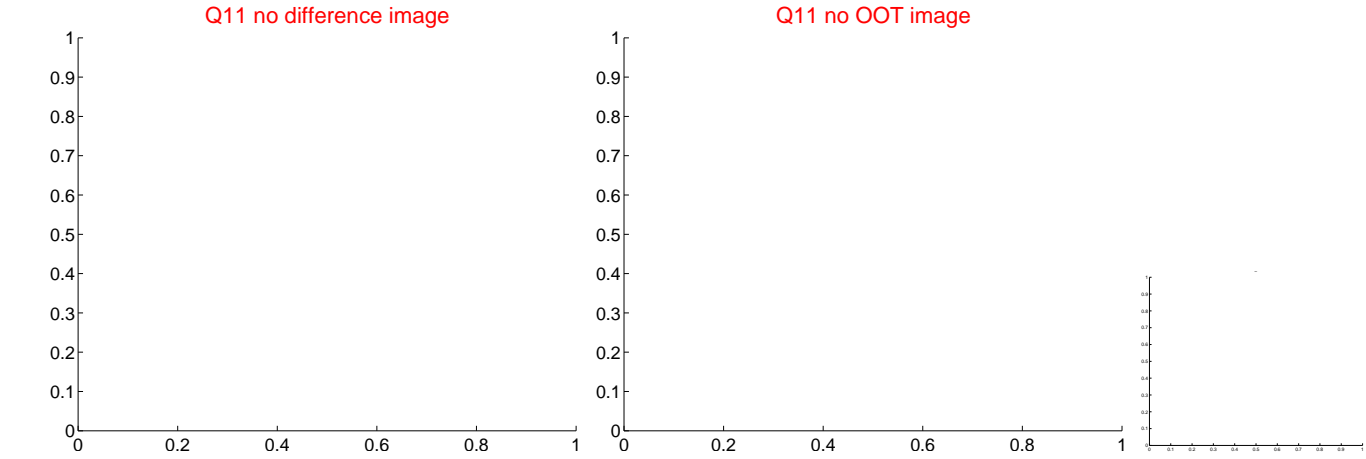
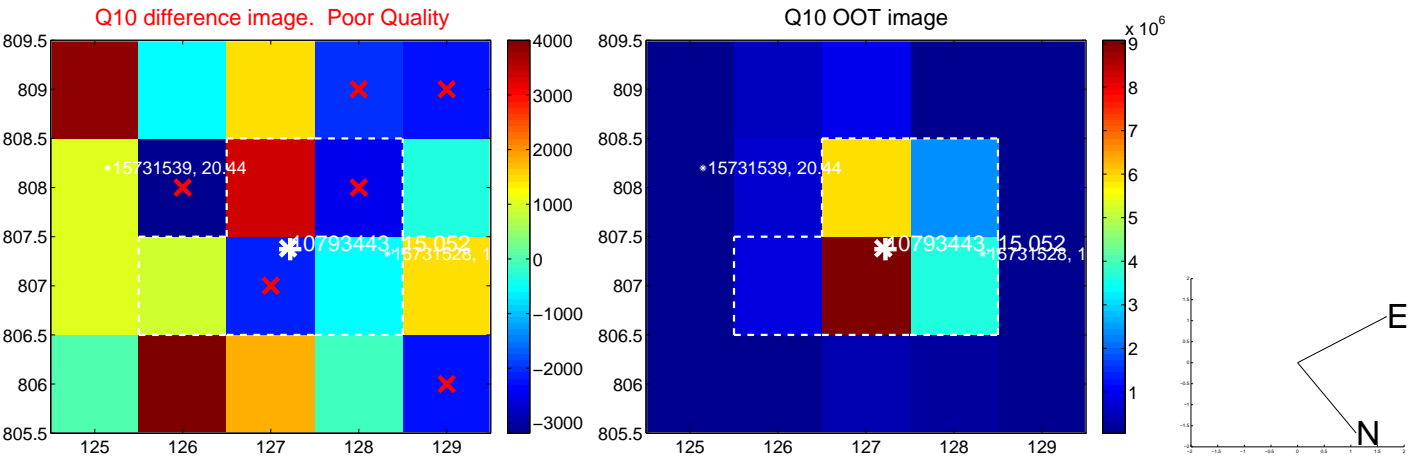
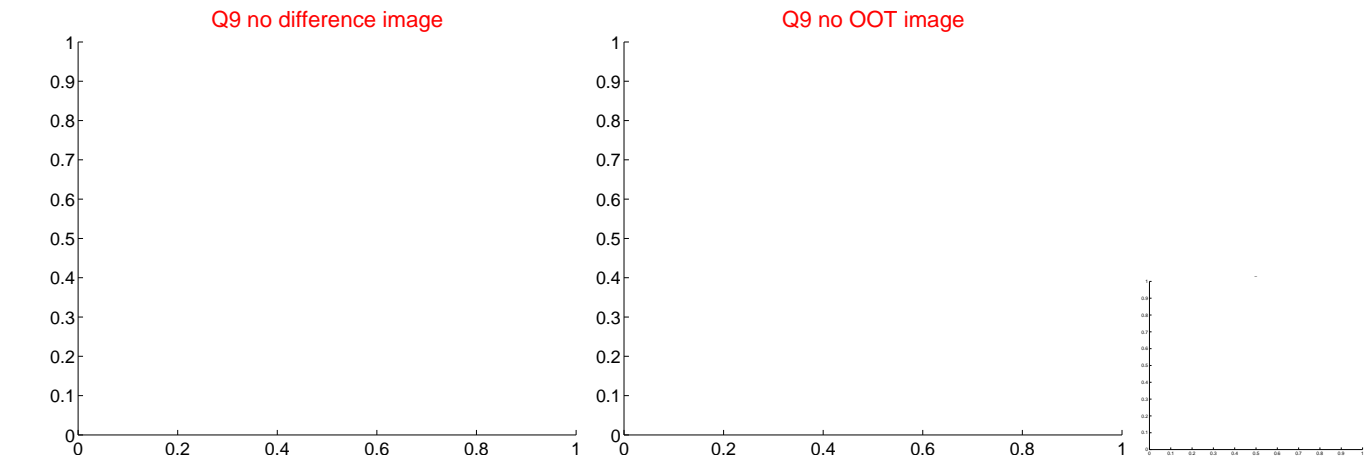
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.

Q13 no difference image



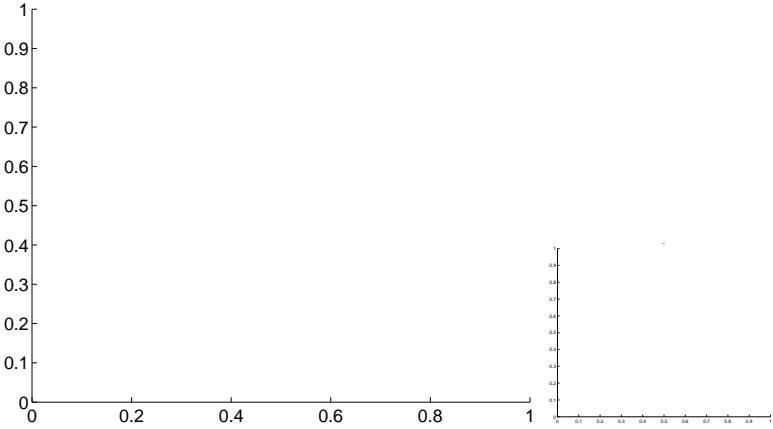
Q13 no OOT image



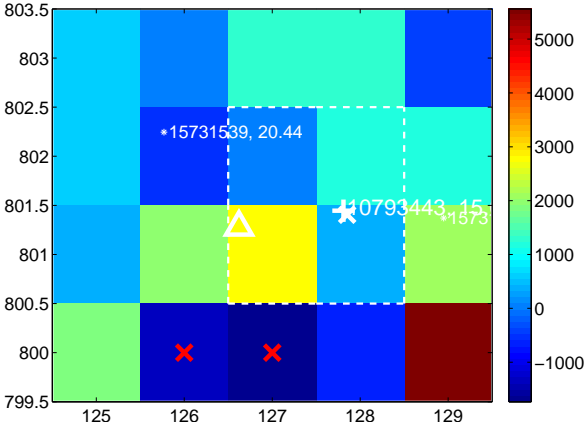
Q14 no difference image



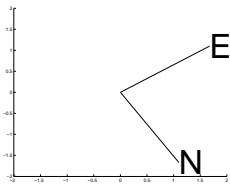
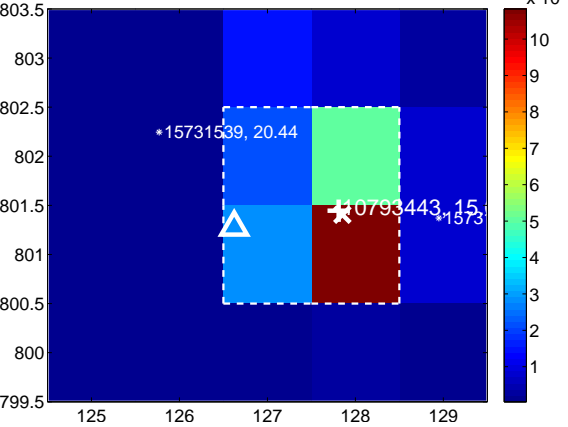
Q14 no OOT image



Q15 difference image. Poor Quality



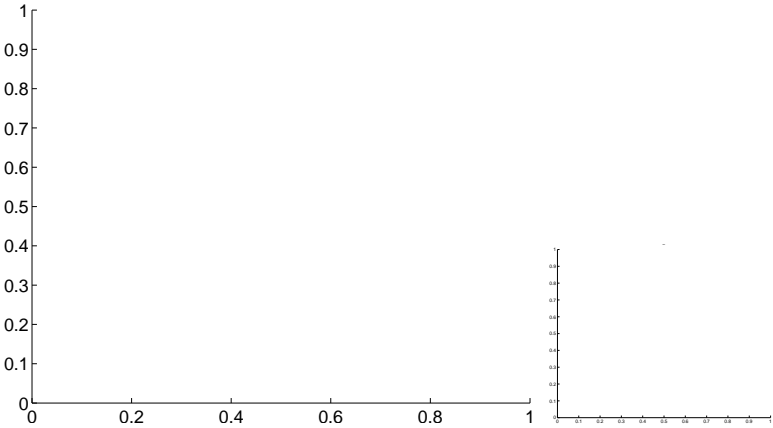
Q15 OOT image



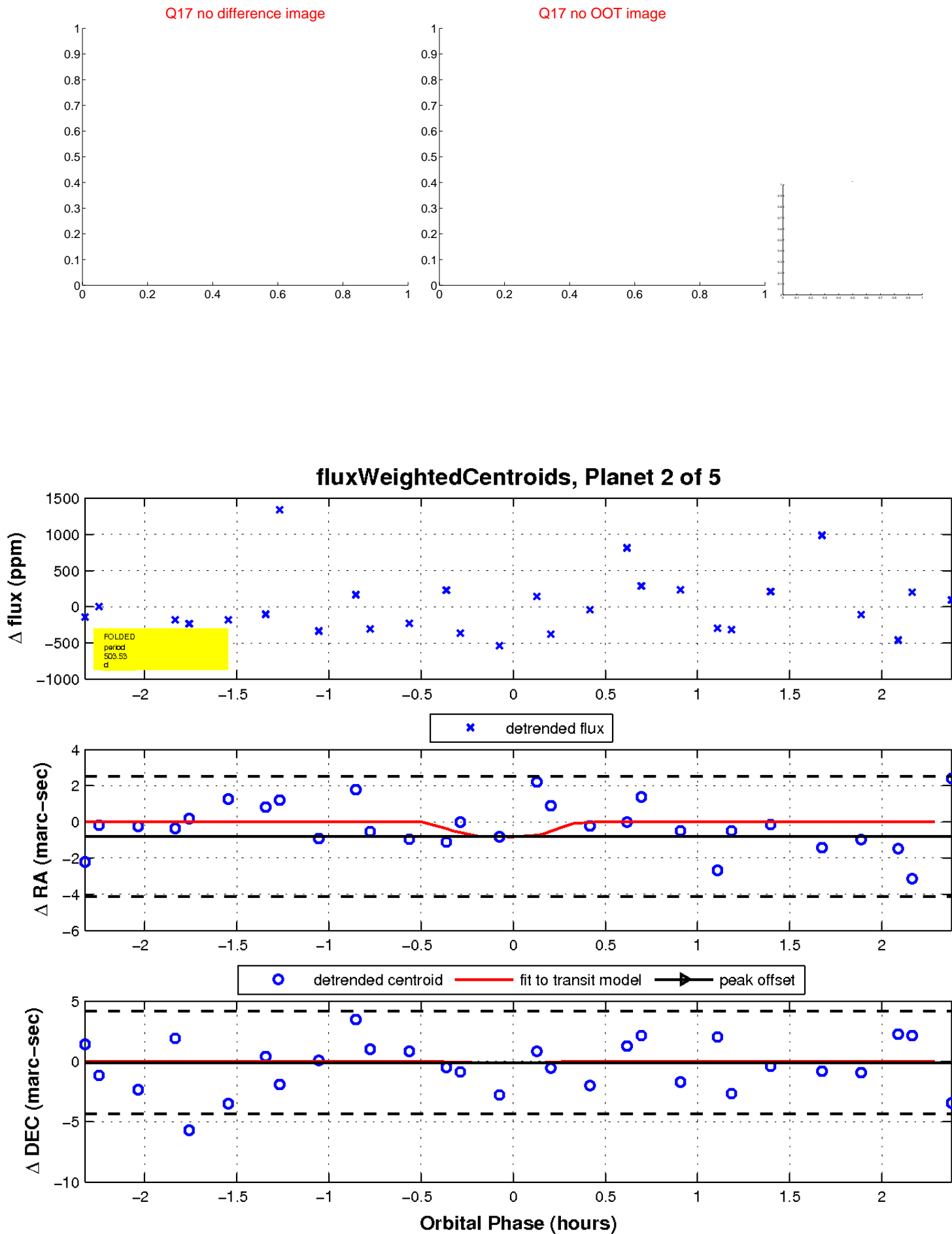
Q16 no difference image



Q16 no OOT image

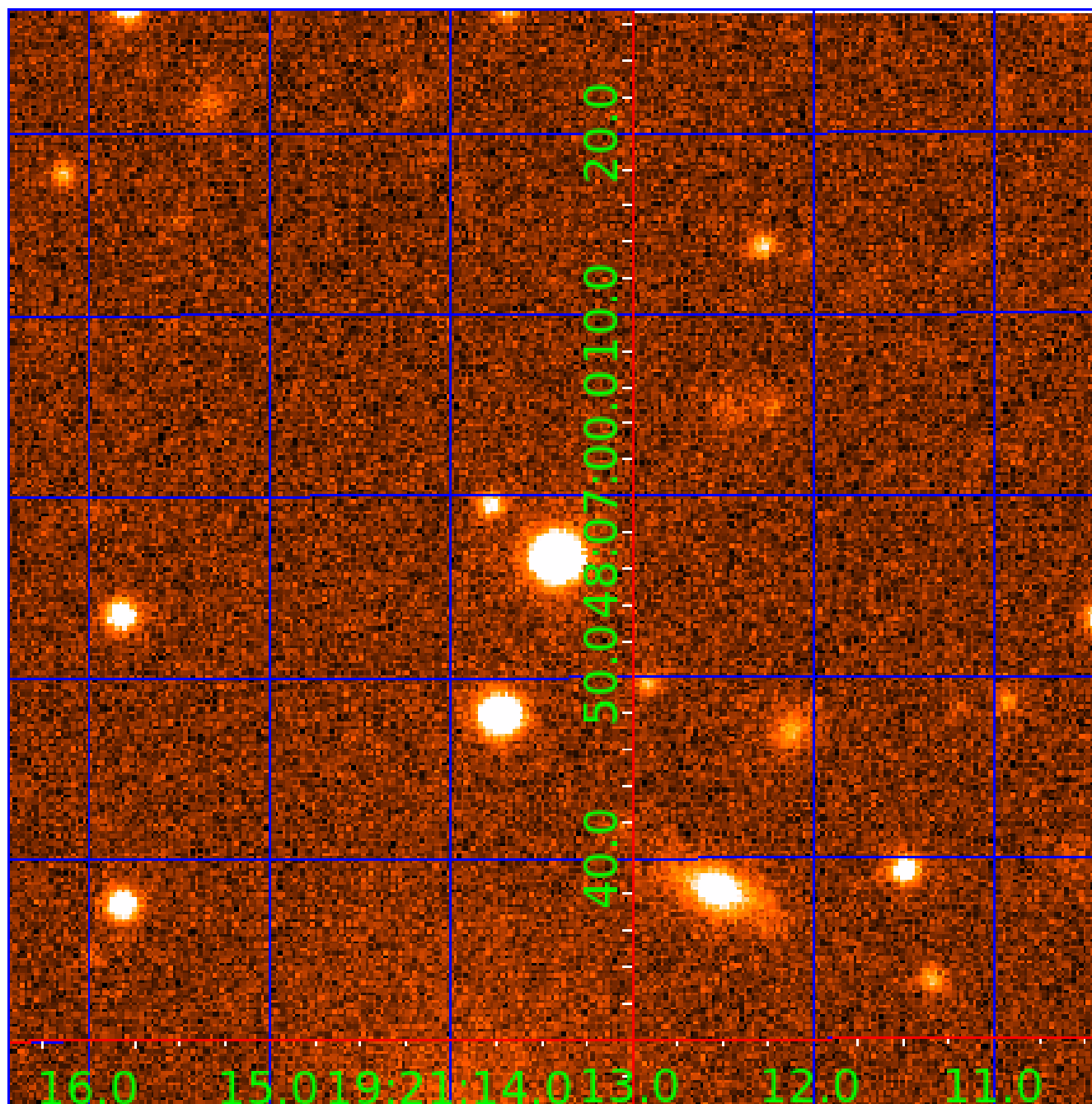


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 010793443

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010793443-01	OBS	No	532.152144	144.152363	1201.1	5.782	13.9	6.9	0.99	5853	3.58	0.66
010793443-02	OBS	No	503.531603	414.238660	430.2	0.800	15.0	1.8	0.99	5853	2.70	0.71
010793443-04	OBS	No	472.422334	446.862268	1363.6	8.104	13.2	8.3	0.99	5853	3.98	0.78
010793443-05	OBS	No	484.304479	415.347447	1149.2	7.251	11.5	6.7	0.99	5853	3.98	0.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010793443-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010793443-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010793443-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010793443-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

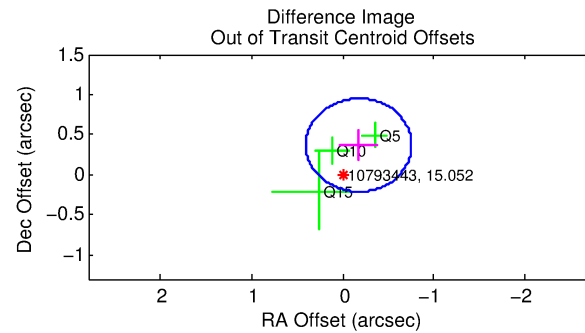
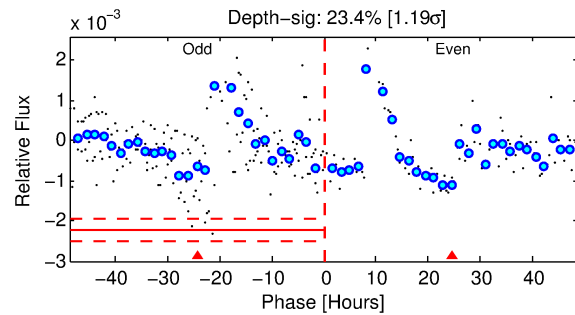
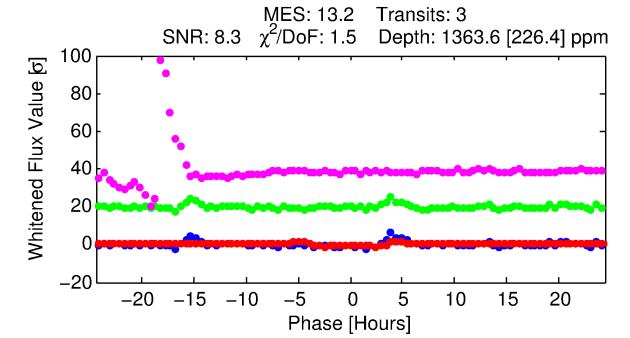
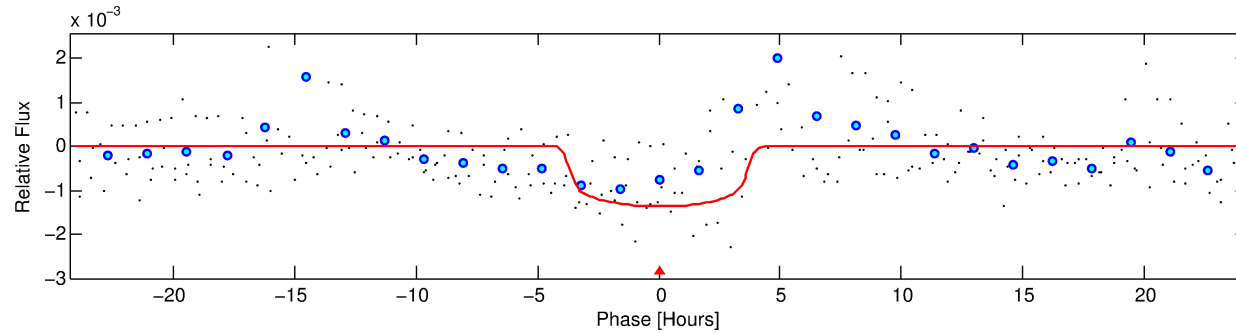
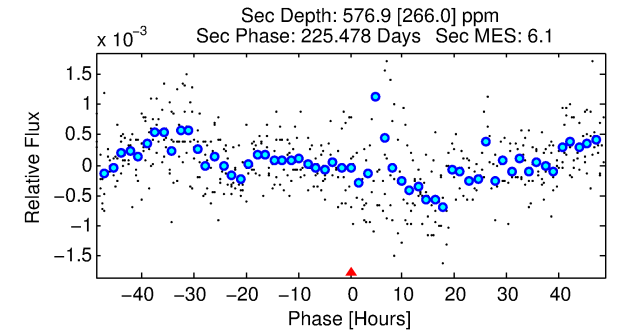
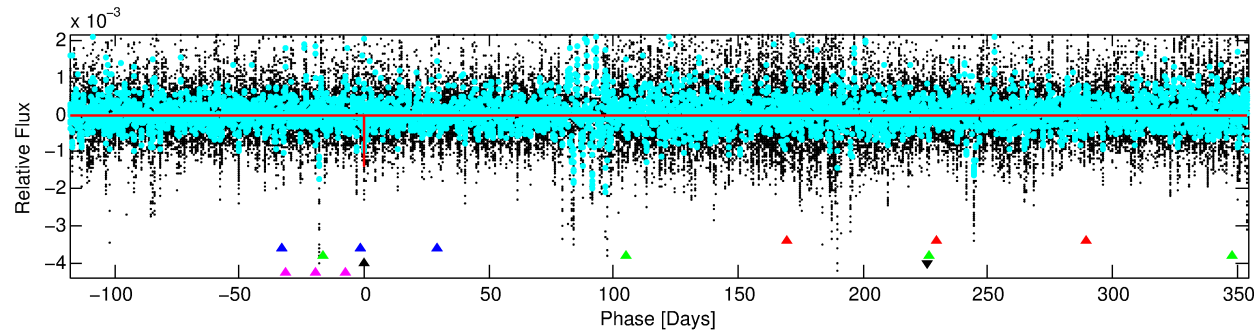
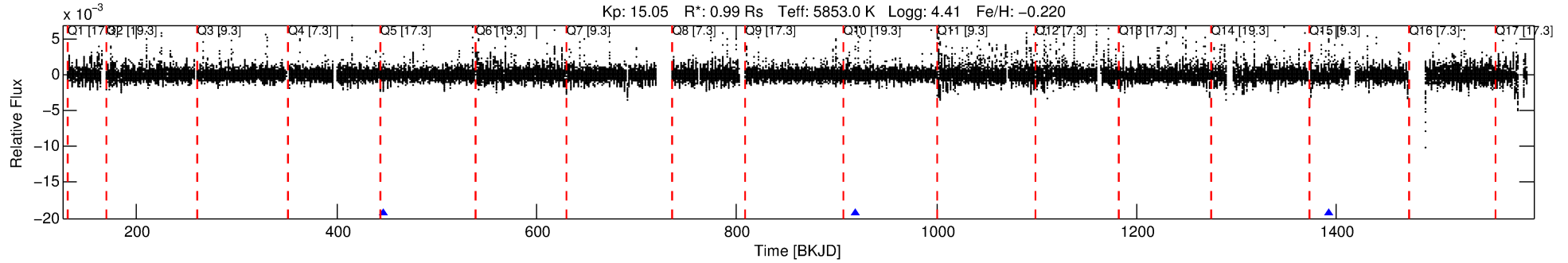
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010793443-04

No Significant Match Found

# DV One-Page Summary

KIC: 10793443 Candidate: 4 of 5 Period: 472.422 d



## DV Fit Results:

Period = 472.42233 [0.00781] d  
Epoch = 446.8623 [0.0098] BKJD  
Rp/R\* = 0.0368 [0.0075]  
a/R\* = 316.27 [249.93]  
b = 0.76 [0.45]  
Seff = 0.78 [0.28]  
Teq = 240 [22] K  
Rp = 3.98 [1.39] Re  
a = 1.1516 [0.2734] AU  
Ag = 26549.32 [18679.72] [1.42 $\sigma$ ]  
Teffp = 4727 [740] K [6.07 $\sigma$ ]

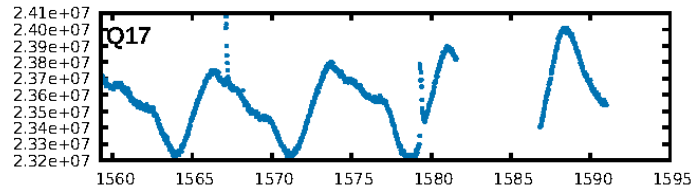
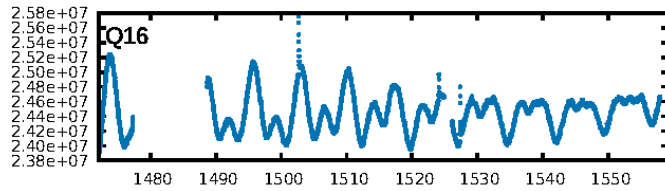
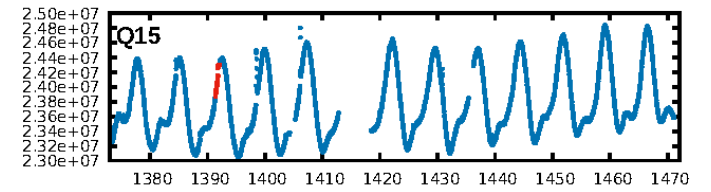
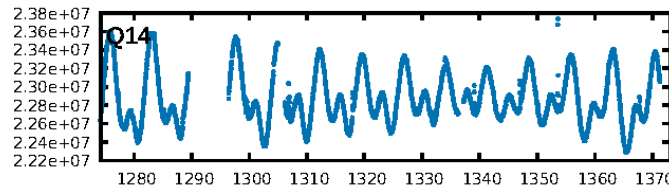
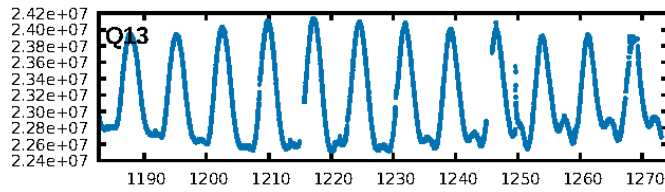
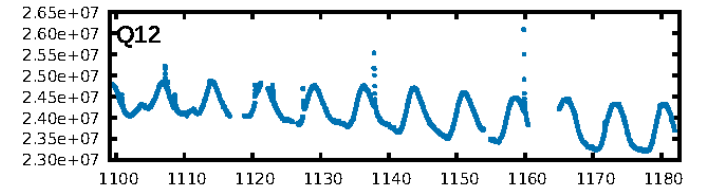
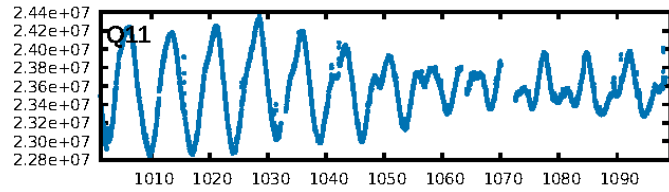
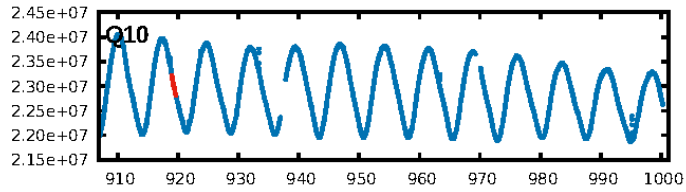
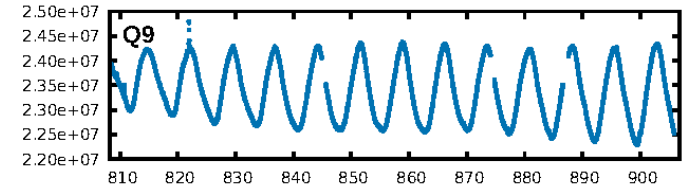
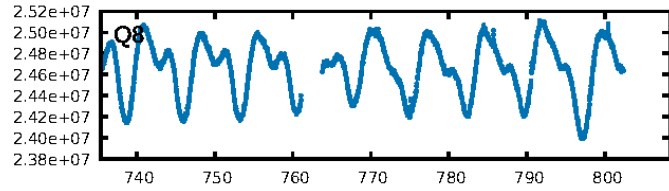
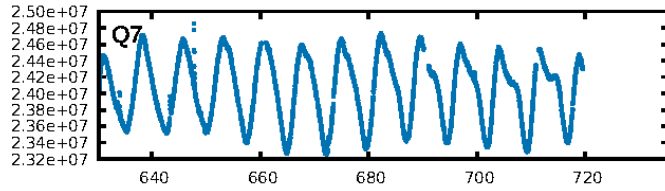
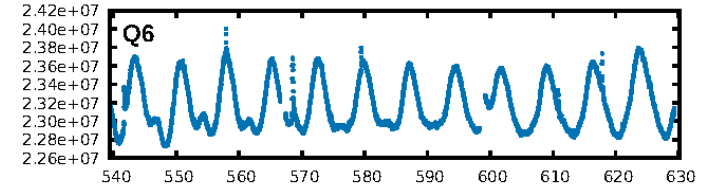
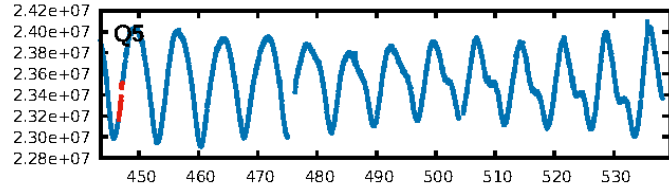
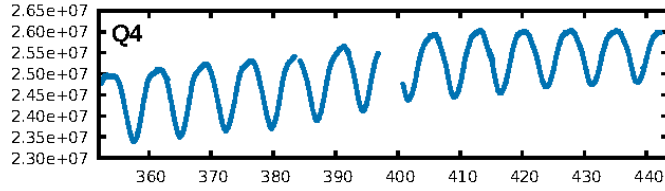
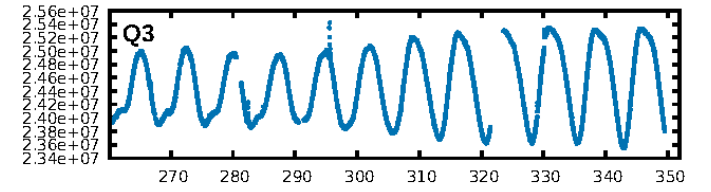
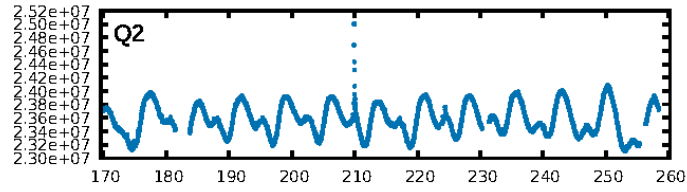
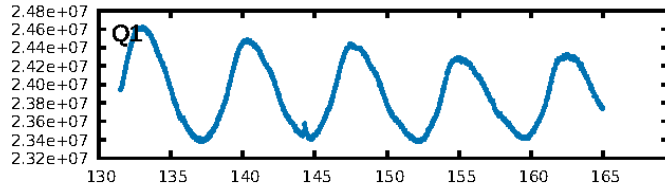
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [321.38 $\sigma$ ]  
LongPeriod-sig: 100.0% [26.23 $\sigma$ ]  
ModelChiSquare2-sig: 0.1%  
ModelChiSquareGof-sig: 42.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.2611  
Centroid-sig: 30.4%  
Centroid-so: 0.740 arcsec [1.16 $\sigma$ ]  
OotOffset-rm: 0.408 arcsec [2.11 $\sigma$ ]  
KicOffset-rm: 0.390 arcsec [1.59 $\sigma$ ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

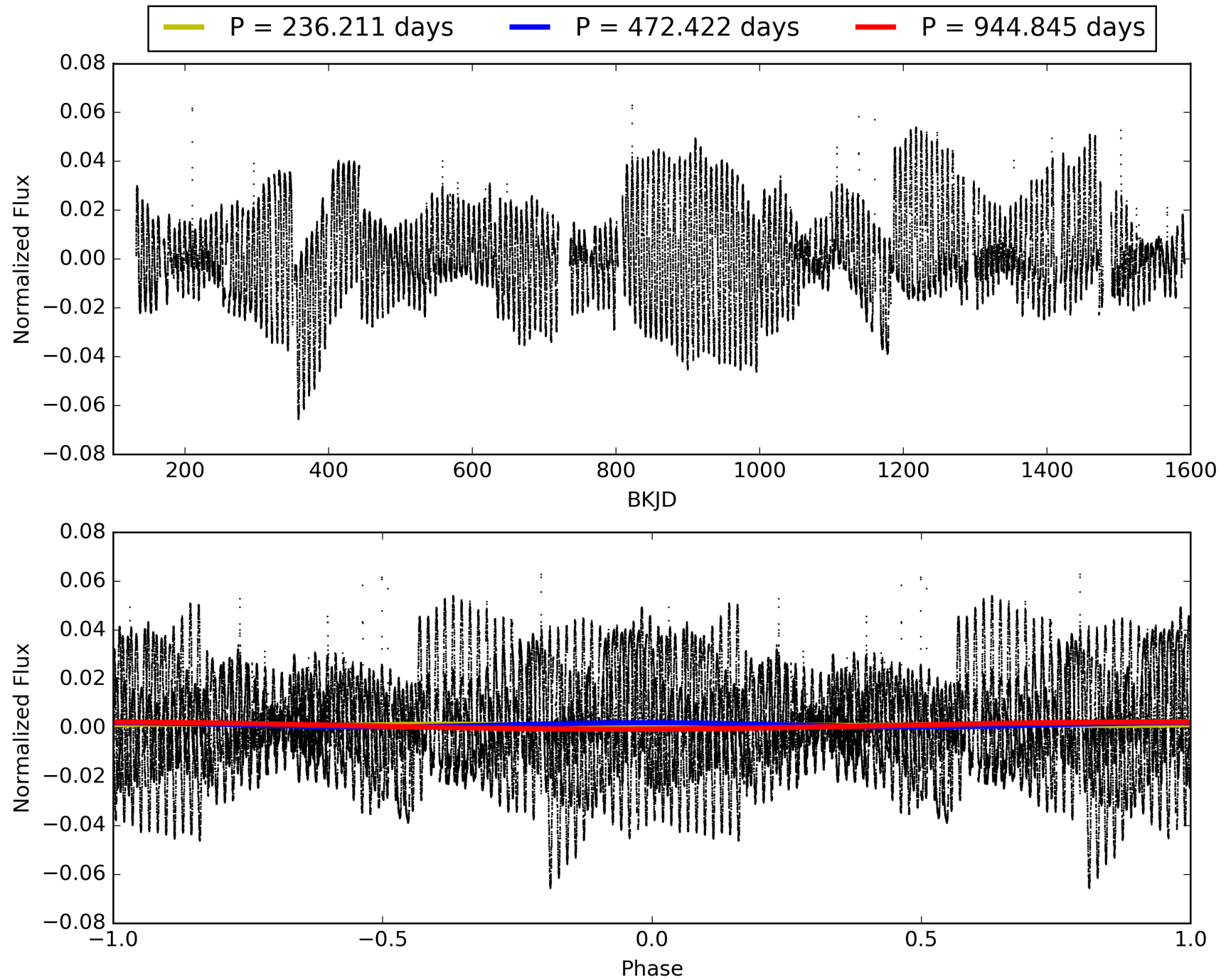
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:00:51 Z

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

# TCE 010793443-04, PDC Light Curves

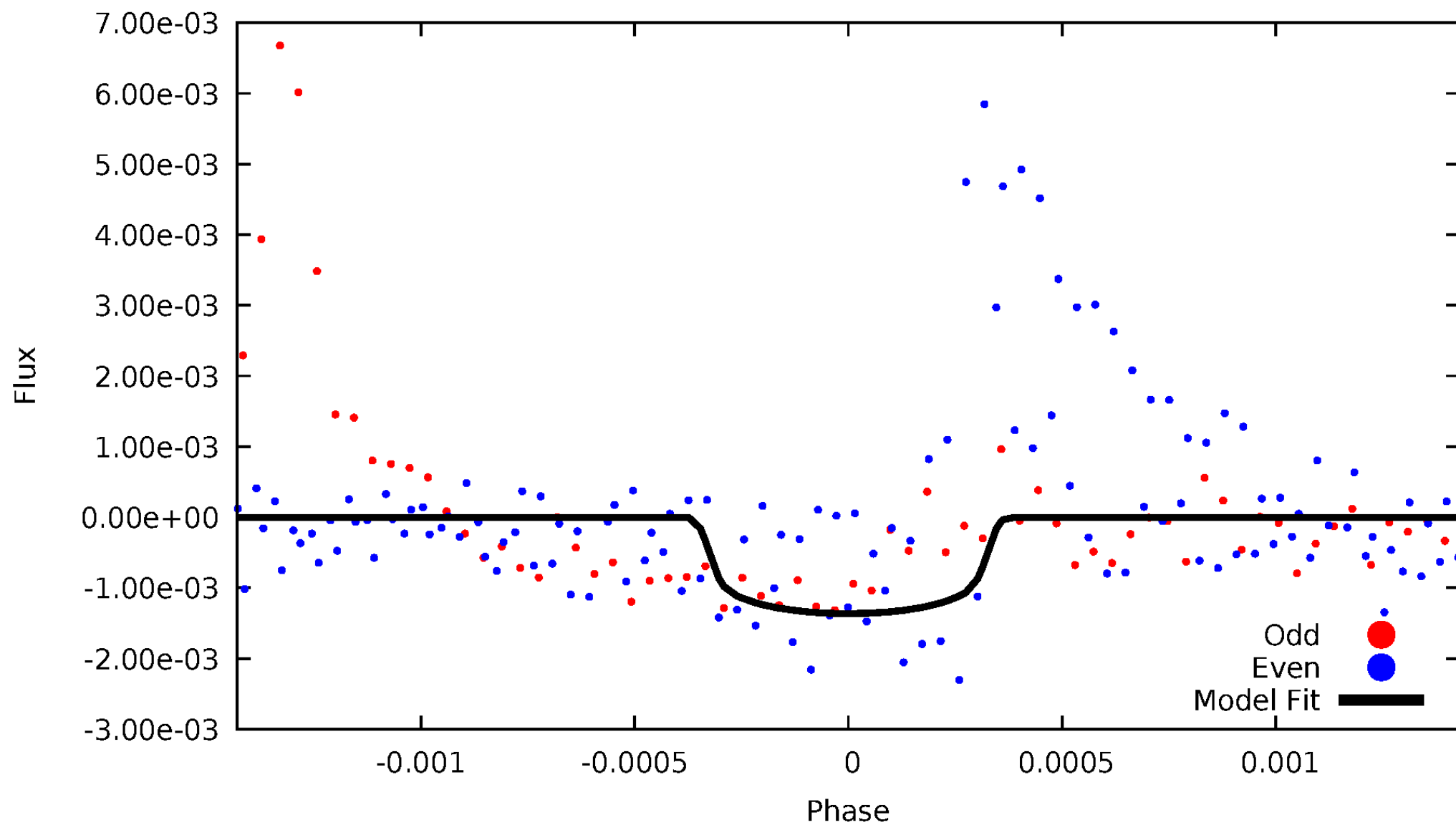


TCE 010793443-04



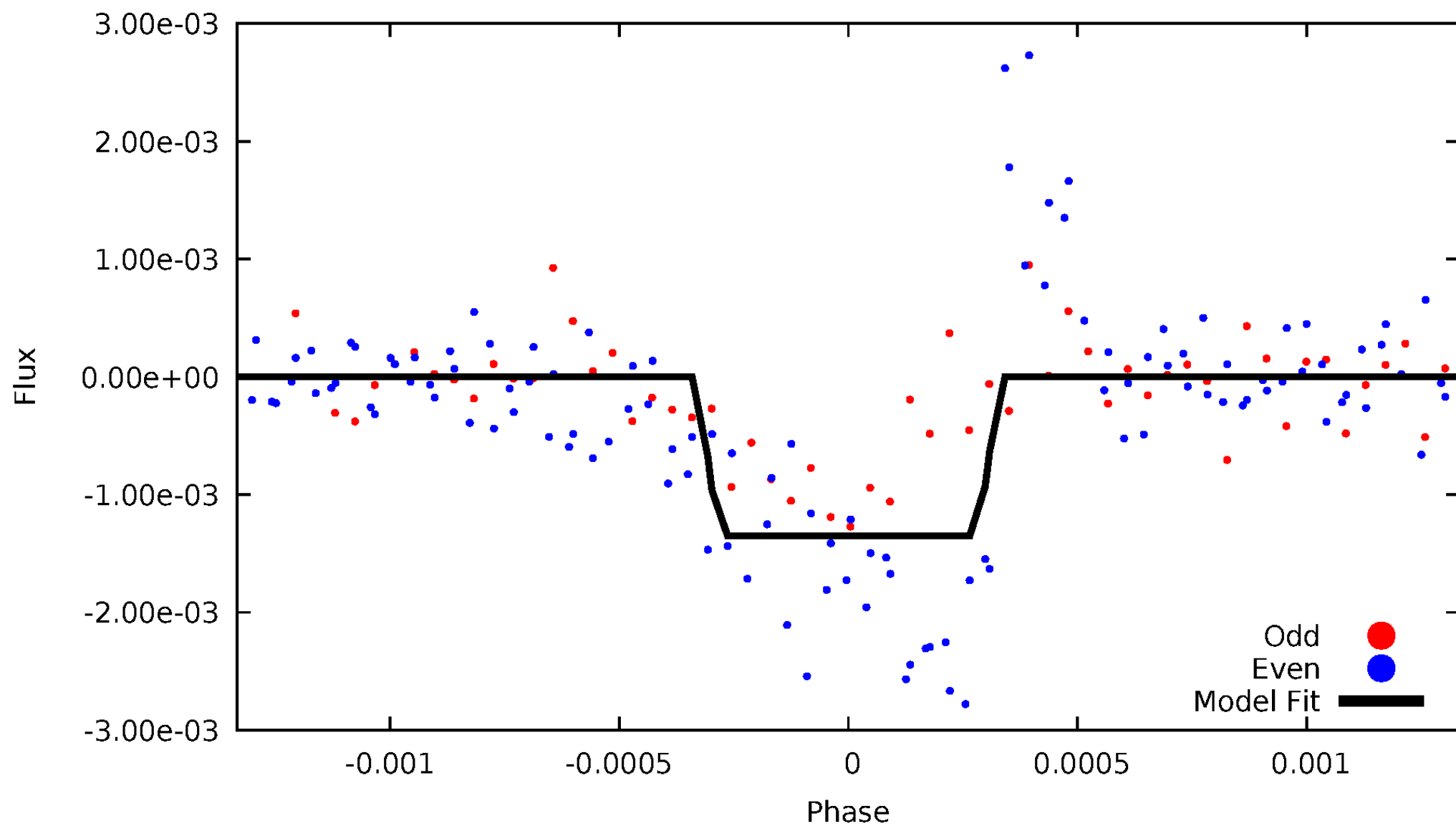
# DV Odd/Even

TCE 010793443-04



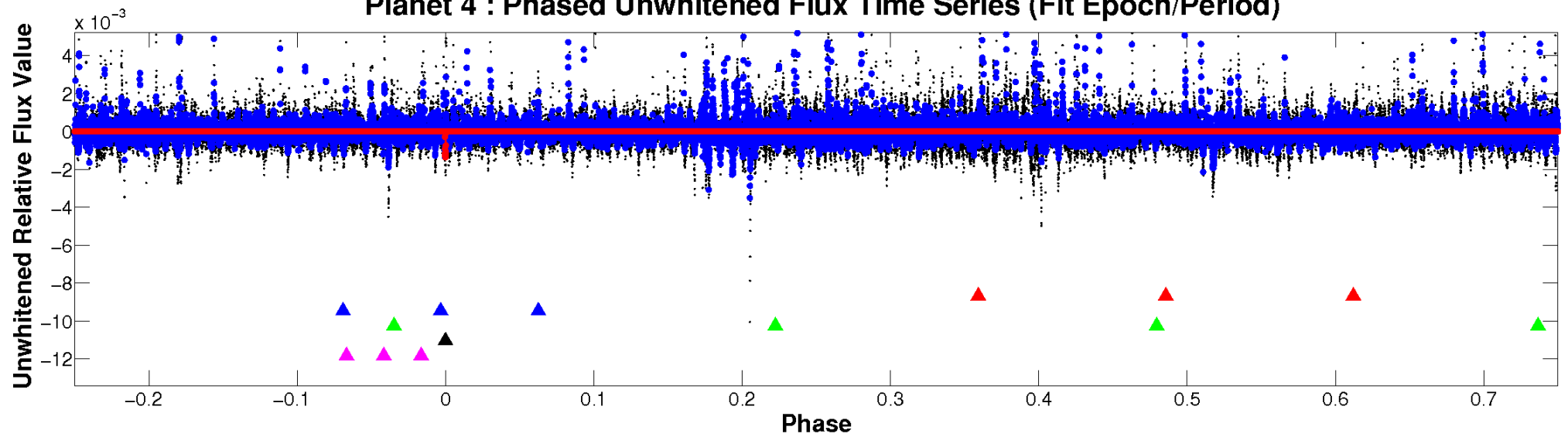
# ALT Odd/Even

TCE 010793443-04

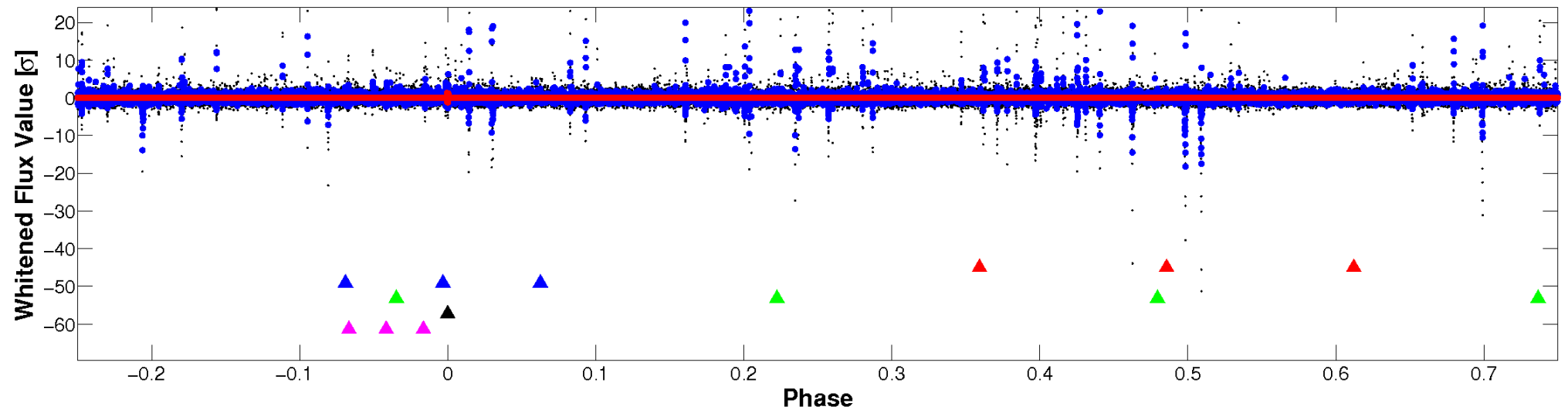


# Non-Whitened Vs. Whitened Light Curve

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

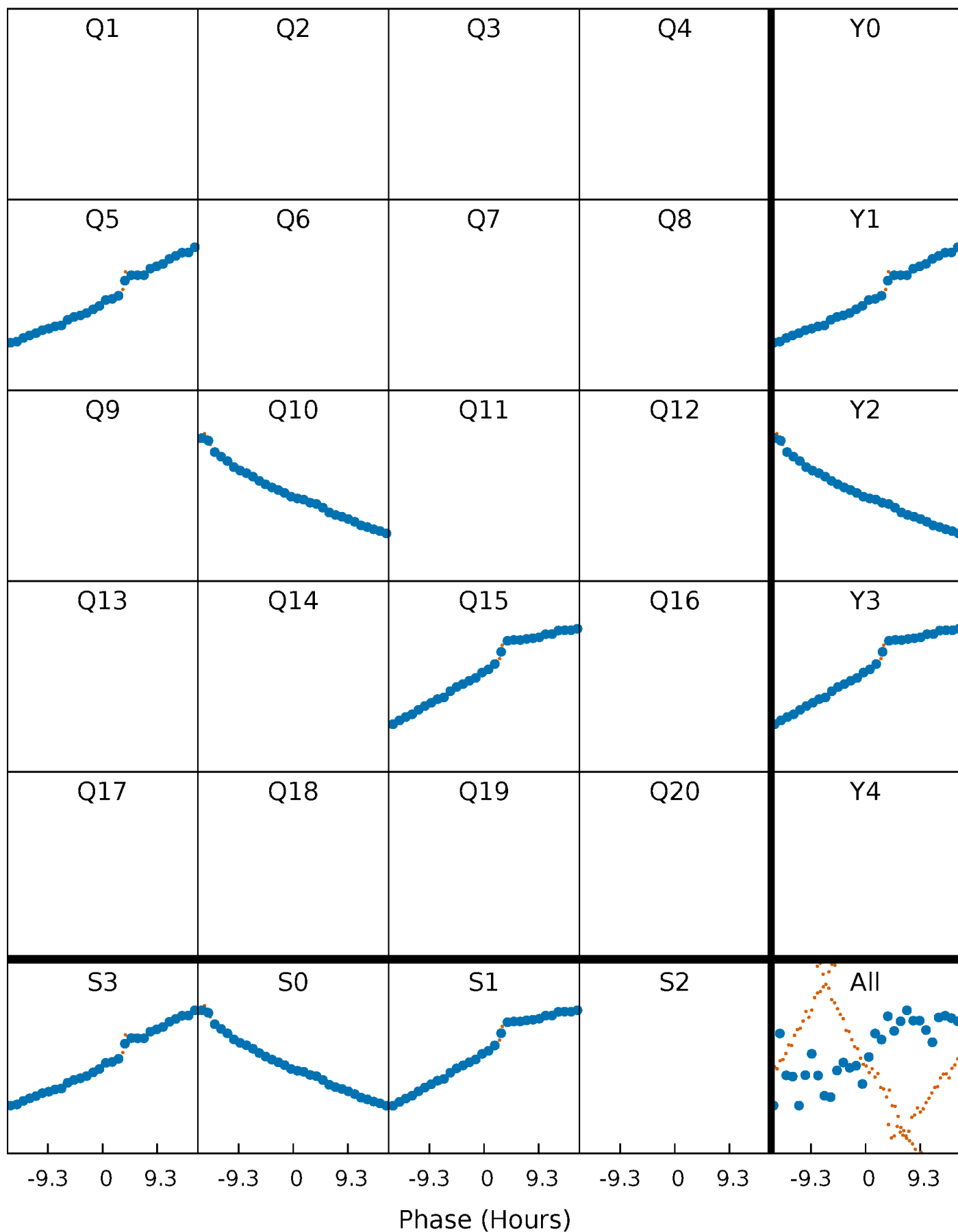


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

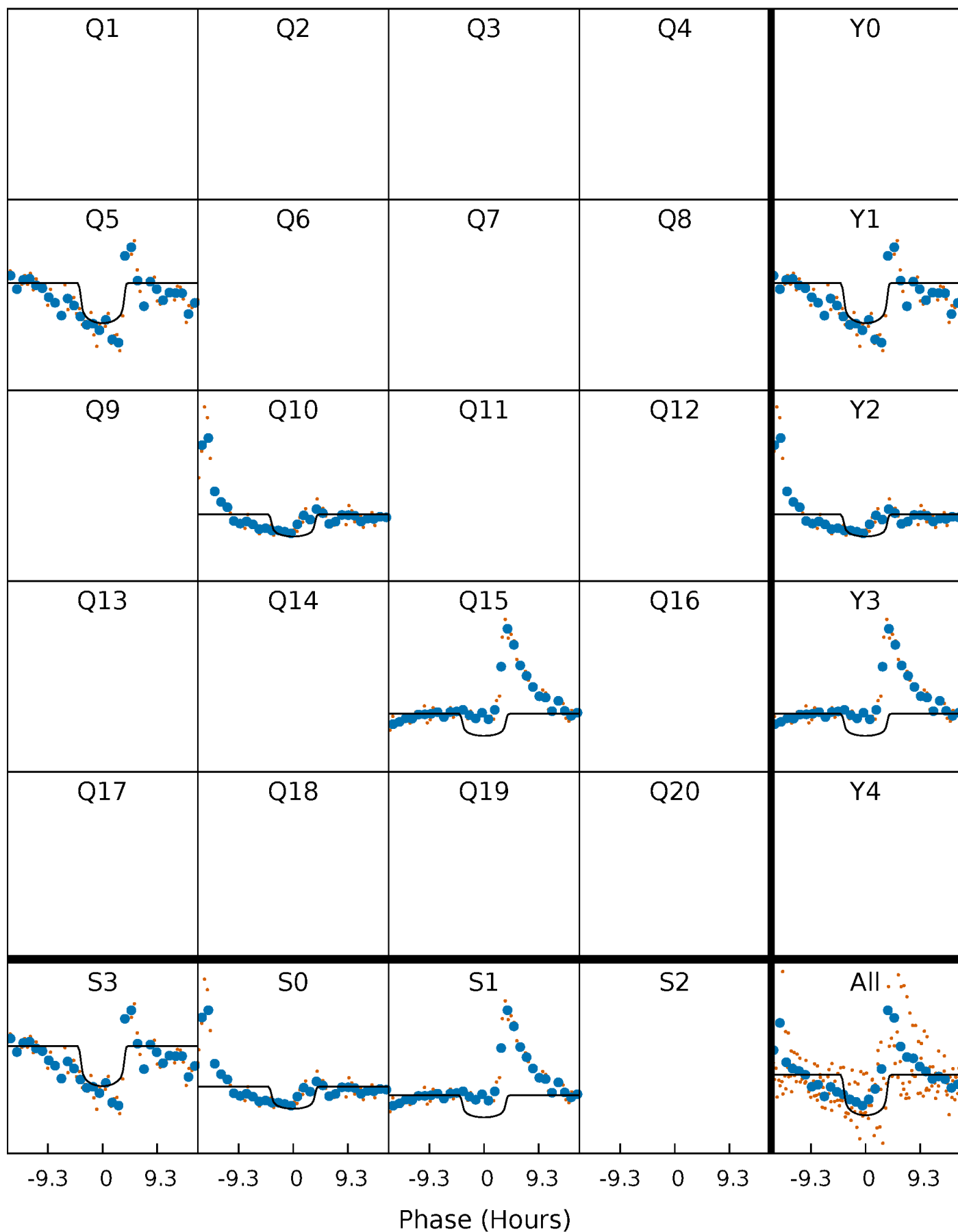
TCE 010793443-04     $P=472.422334$  Days     $T_0=446.862268$  (BKJD)





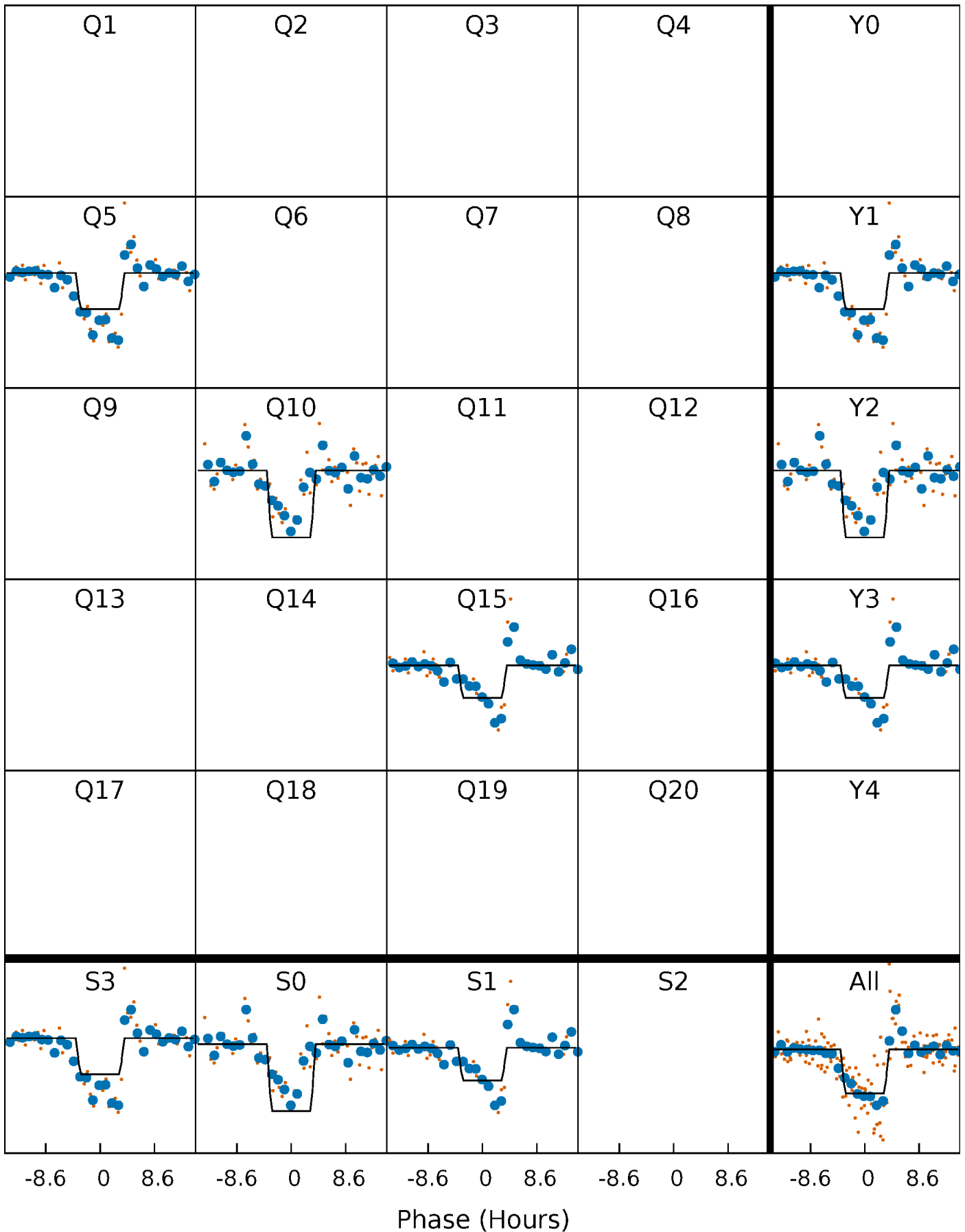
# DV Quarter-Phased Transit Curves

TCE 010793443-04     $P=472.422334$  Days     $T_0=446.862268$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

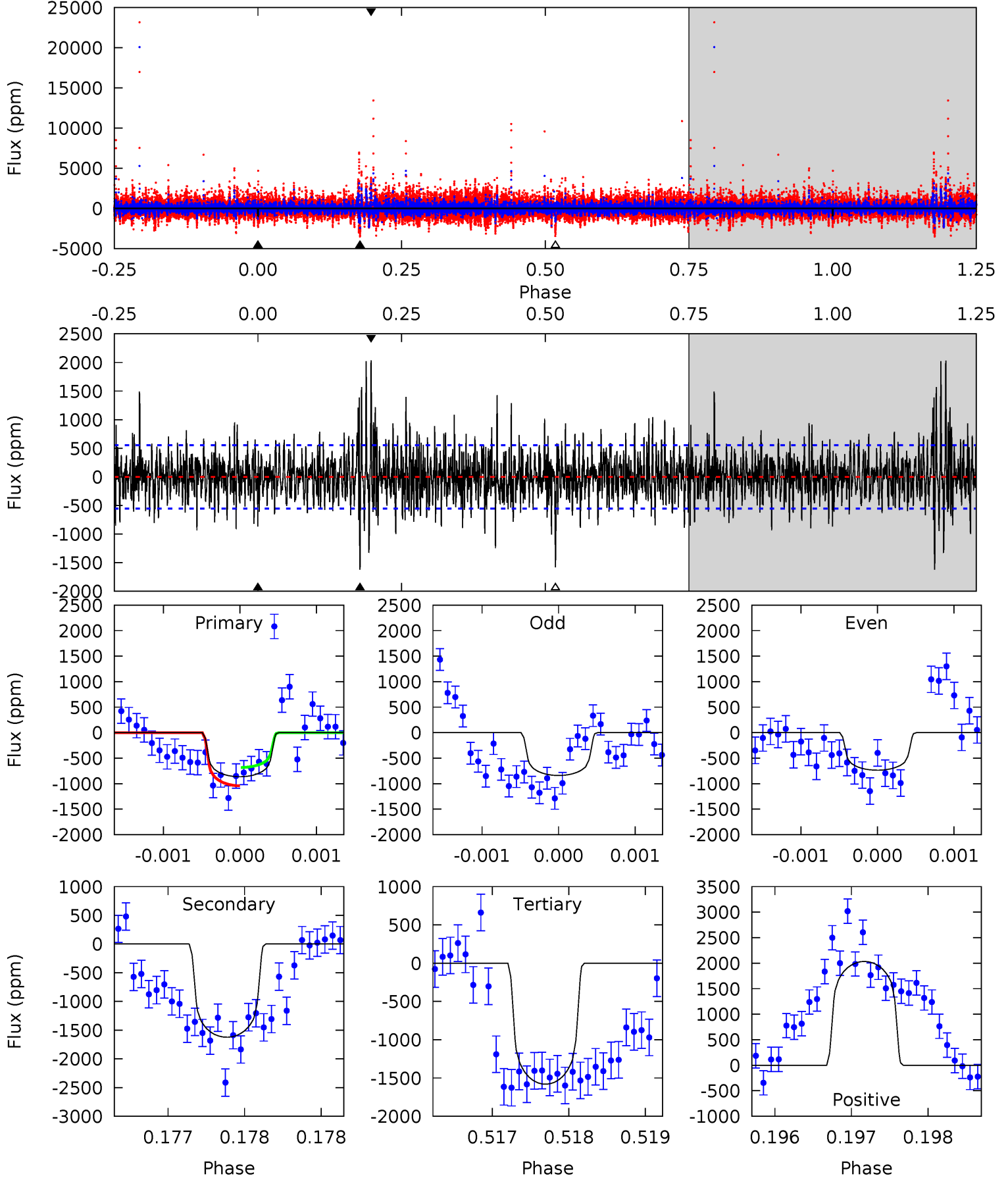
TCE 010793443-04     $P=472.403474$  Days     $T_0=446.863941$  (BKJD)



# DV Model-Shift Uniqueness Test

010793443-04, P = 472.422334 Days, E = 446.862268 Days

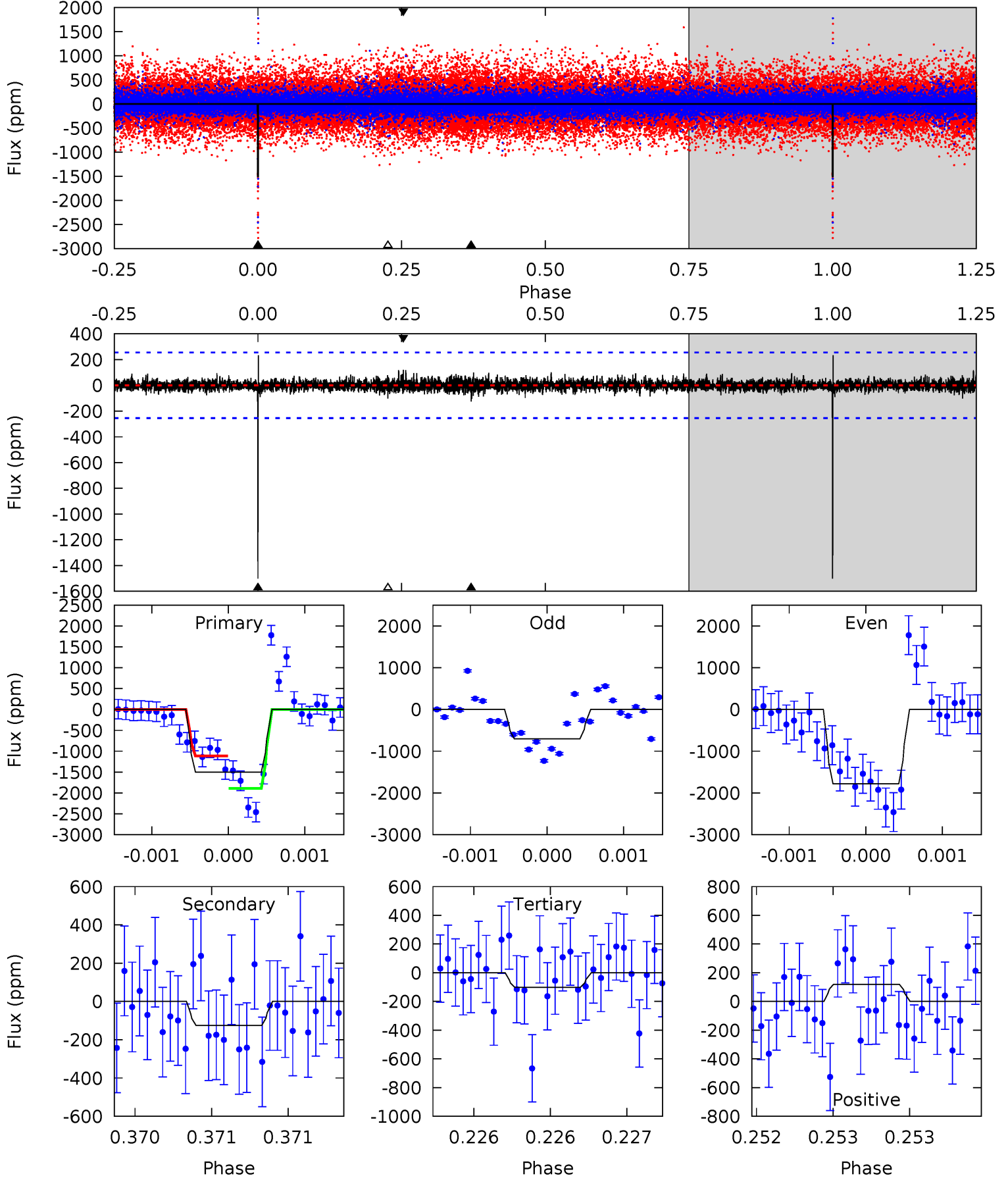
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.59	16.1	15.7	20.2	5.50	3.37	3.31	-7.11	-11.6	0.42	-4.08	0.33	0.77	0.56	1.80



# Alt Model-Shift Uniqueness Test

010793443-04, P = 472.403474 Days, E = 446.863941 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.6	2.72	2.21	2.61	5.54	3.42	0.50	30.4	30.0	0.51	0.12	11.9	0.93	0.13	8.50



### Stellar Parameters For KIC 010793443

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5853^{+174}_{-174}$	$4.406^{+0.124}_{-0.186}$	$-0.220^{+0.300}_{-0.300}$	$0.991^{+0.282}_{-0.152}$	$0.914^{+0.121}_{-0.099}$	$1.321^{+0.652}_{-0.662}$
	+3%/-3%	+3%/-4%	+136%/-136%	+28%/-15%	+13%/-11%	+49%/-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 010793443-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1623 \pm 101$	$4.03^{+1.04}_{-0.95}$	$336^{+24}_{-18}$	$6109^{+845}_{-546}$	$72687^{+51121}_{-25078}$
Alt.	$-125 \pm 46$	$4.00^{+1.12}_{-0.85}$	$337^{+27}_{-19}$	$3648^{+358}_{-308}$	$5334^{+4534}_{-2367}$

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

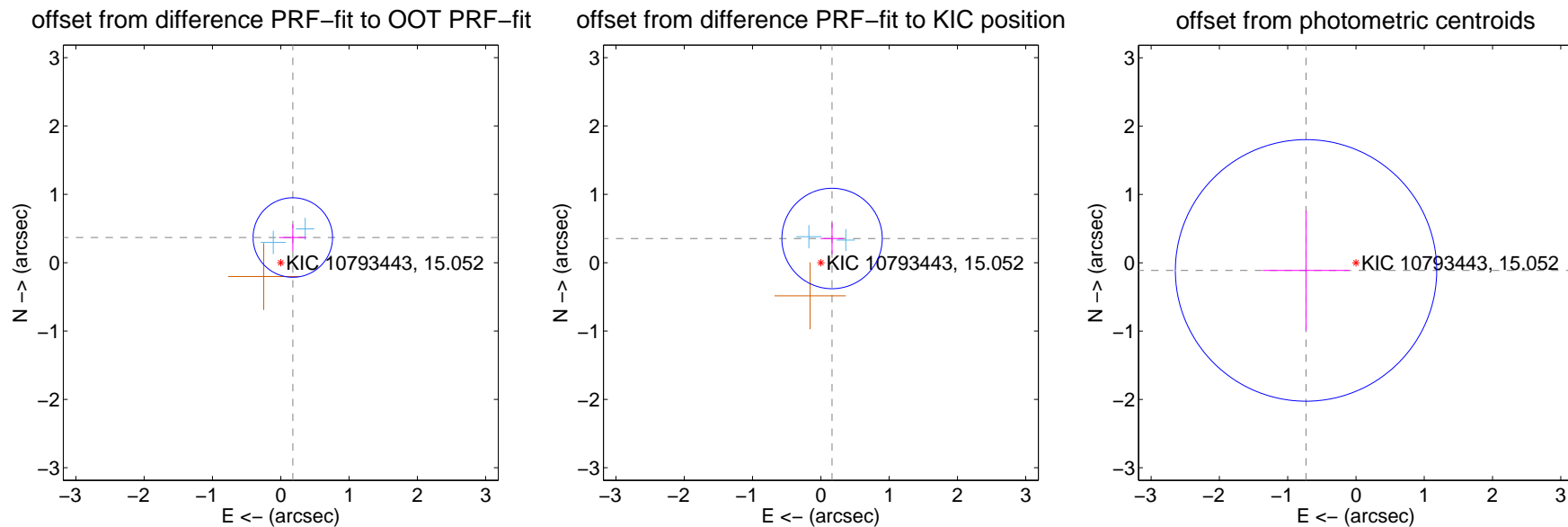
## DV Centroid Data

Supplemental centroid analysis for 010793443-04. Kepler magnitude: 15.05. Transit SNR 8.28

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.408 \pm 0.194$	2.11	$-0.177 \pm 0.201$	$0.368 \pm 0.192$
PRF-fit source offset from KIC position	$0.390 \pm 0.245$	1.59	$-0.164 \pm 0.167$	$0.354 \pm 0.228$
photometric centroid source offset	$0.74 \pm 0.64$	1.16	$0.73 \pm 0.63$	$-0.11 \pm 0.88$

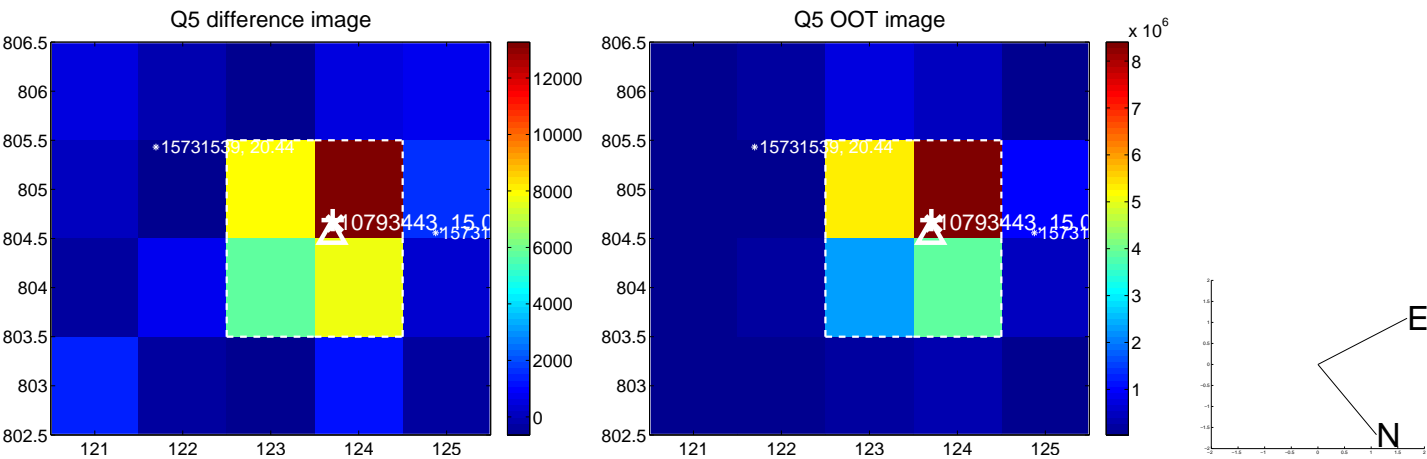


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

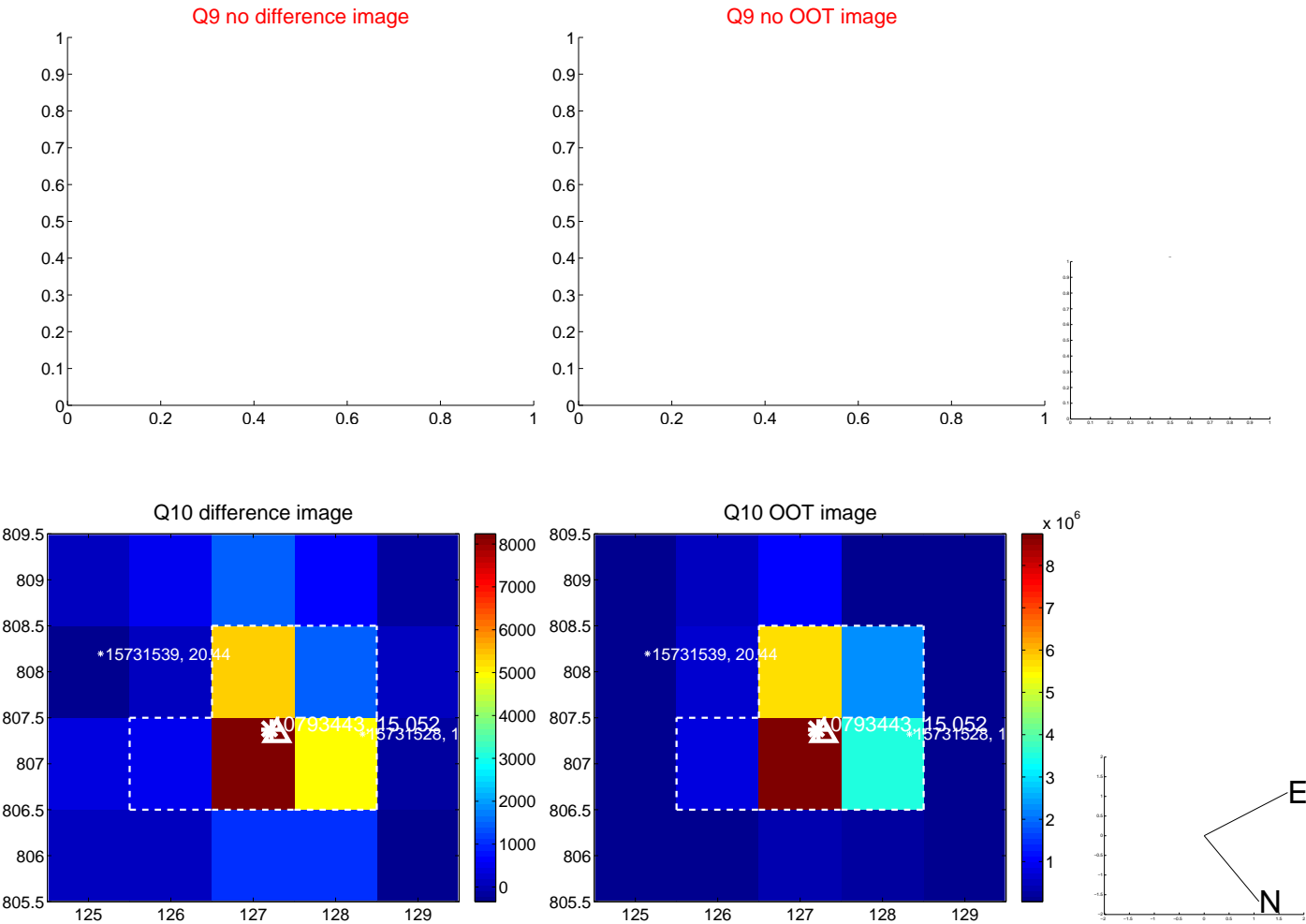


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.





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



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

Q13 no difference image



Q13 no OOT image



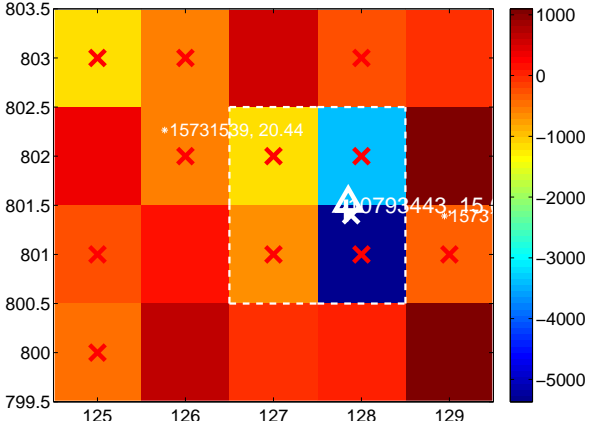
Q14 no difference image



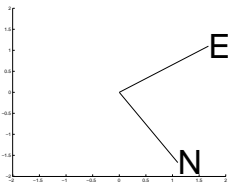
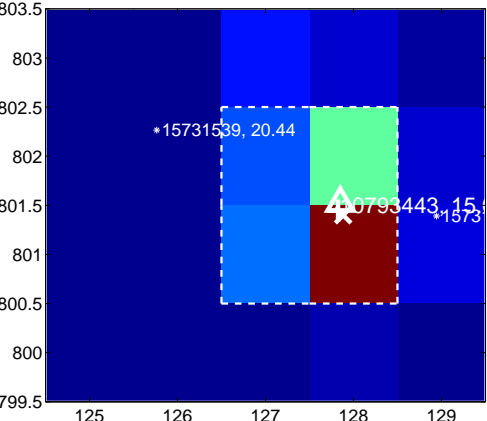
Q14 no OOT image



Q15 difference image. Poor Quality



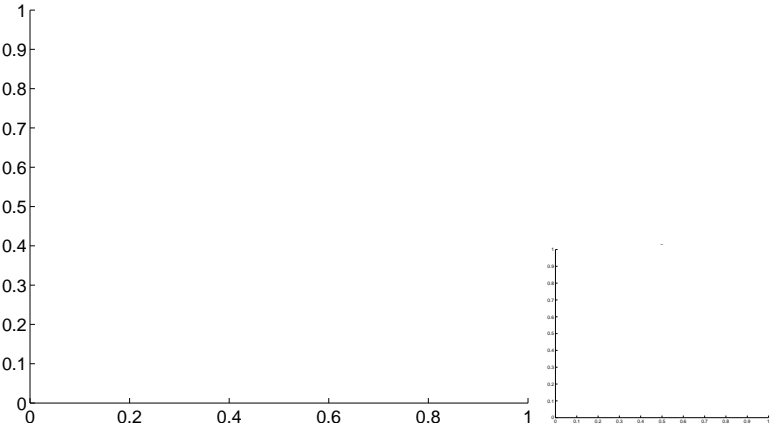
Q15 OOT image



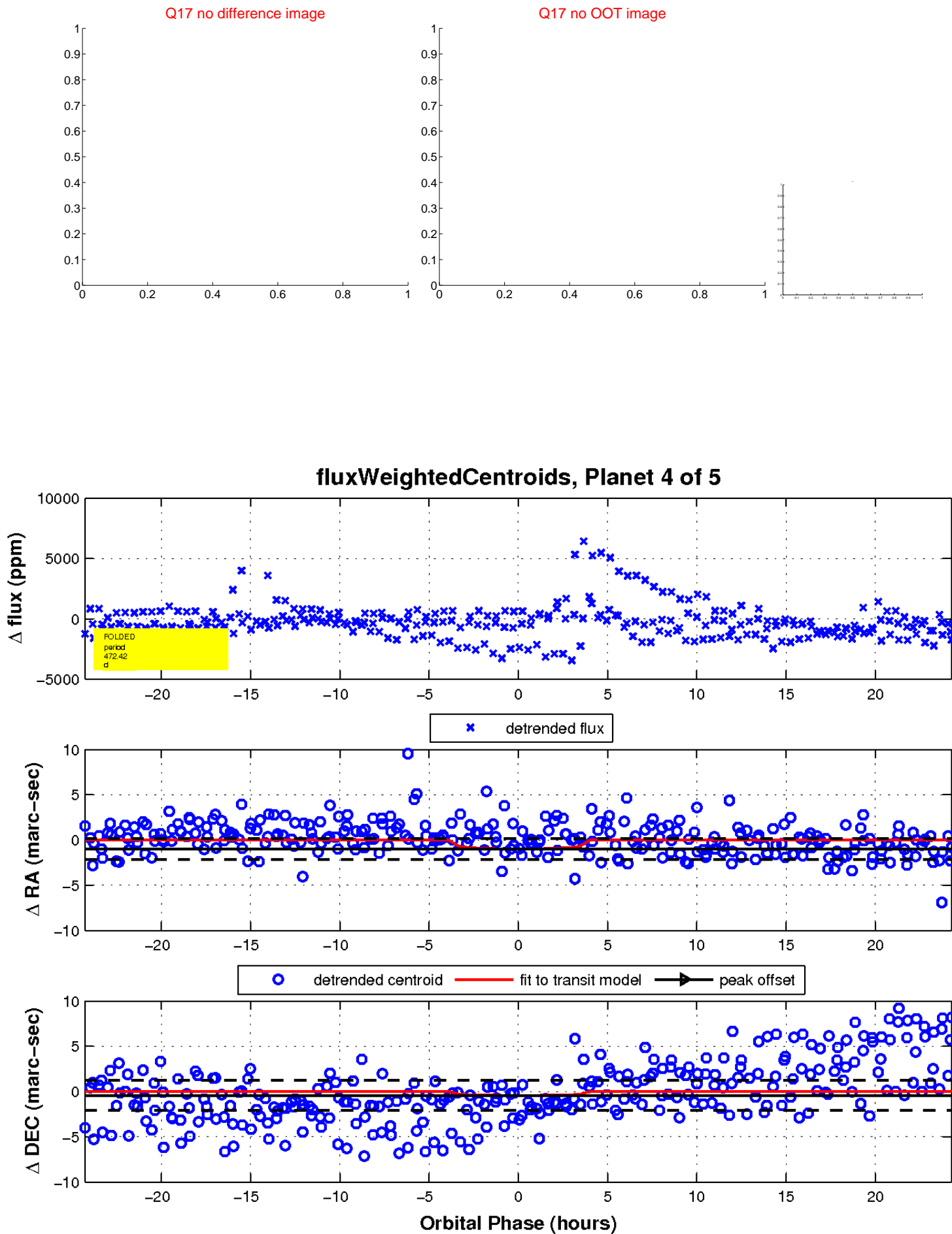
Q16 no difference image



Q16 no OOT image

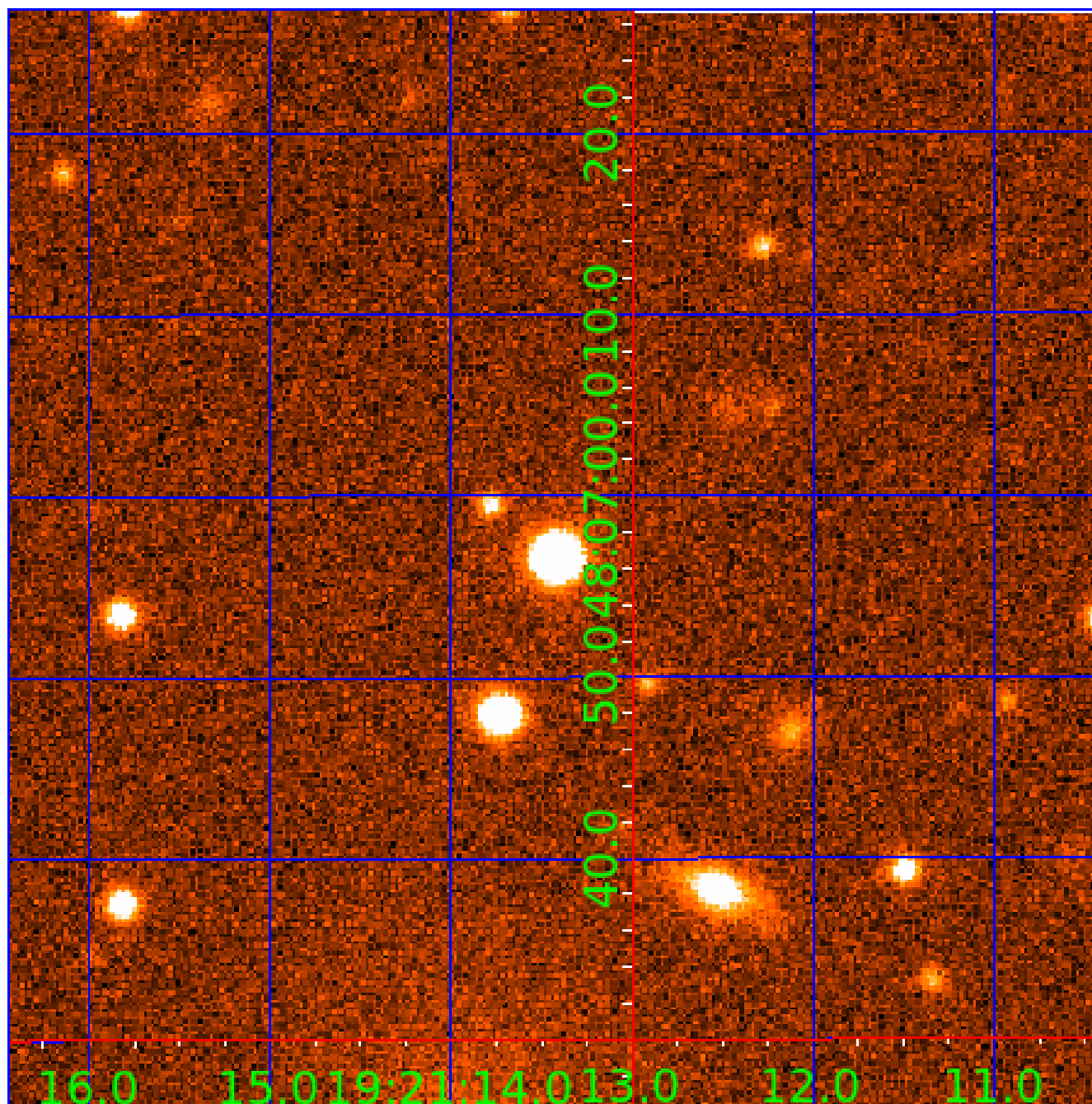


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 010793443

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010793443-01	OBS	No	532.152144	144.152363	1201.1	5.782	13.9	6.9	0.99	5853	3.58	0.66
010793443-02	OBS	No	503.531603	414.238660	430.2	0.800	15.0	1.8	0.99	5853	2.70	0.71
010793443-04	OBS	No	472.422334	446.862268	1363.6	8.104	13.2	8.3	0.99	5853	3.98	0.78
010793443-05	OBS	No	484.304479	415.347447	1149.2	7.251	11.5	6.7	0.99	5853	3.98	0.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010793443-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010793443-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010793443-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010793443-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

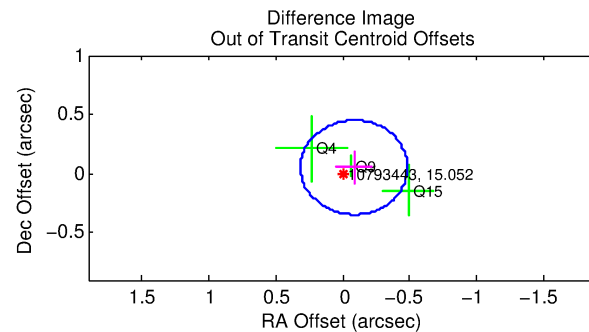
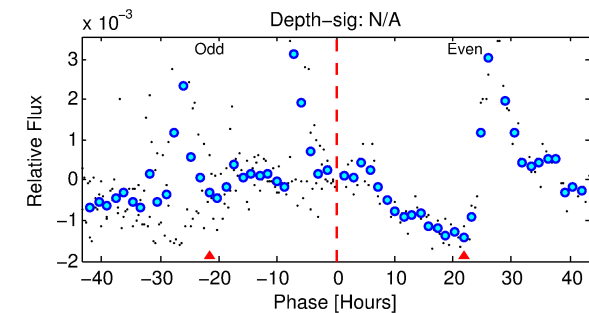
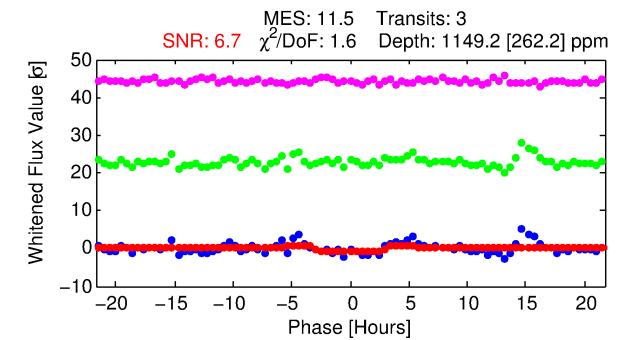
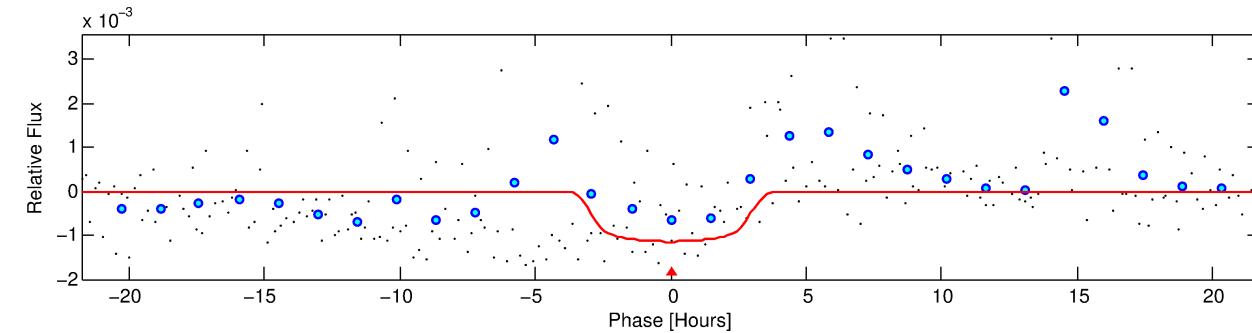
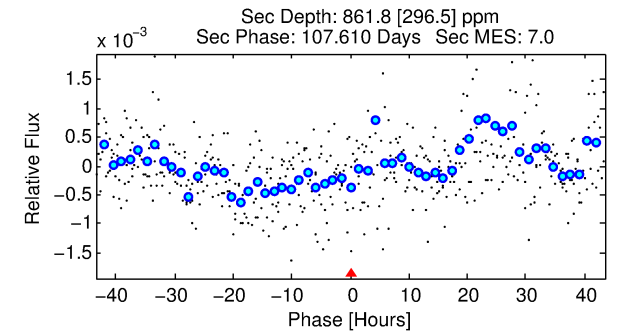
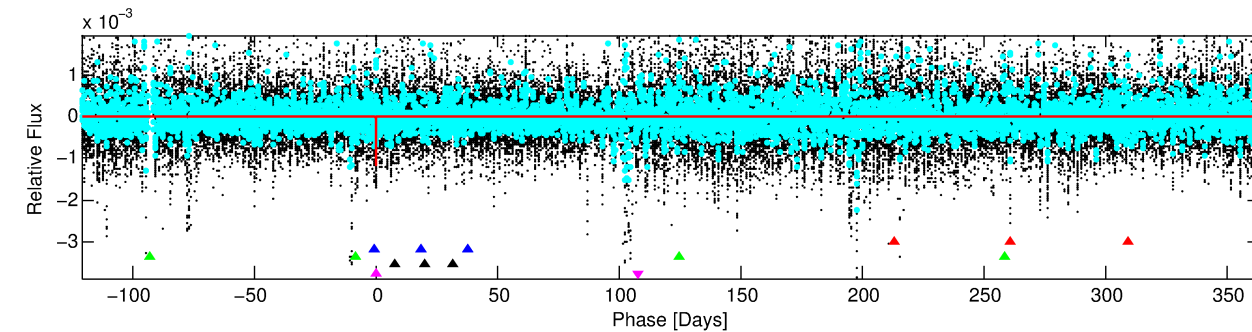
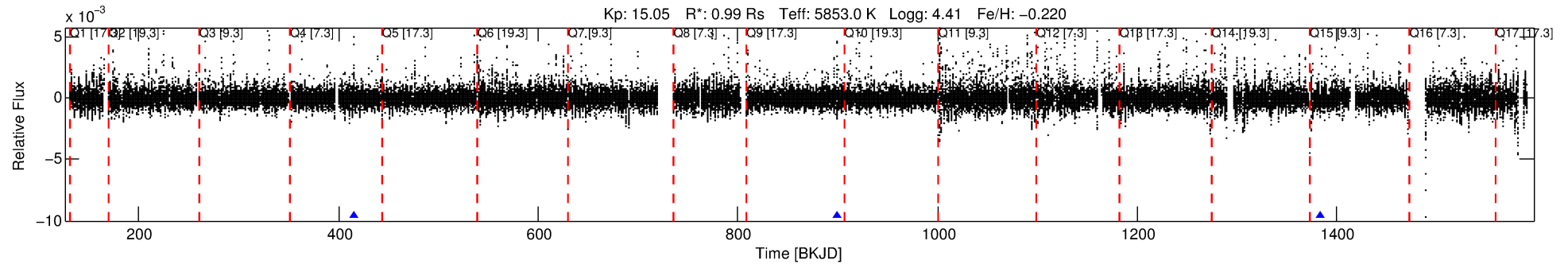
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010793443-05

No Significant Match Found

# DV One-Page Summary

KIC: 10793443 Candidate: 5 of 5 Period: 484.304 d



## DV Fit Results:

Period = 484.30448 [0.01184] d  
Epoch = 415.3474 [0.0159] BKJD  
Rp/R\* = 0.0368 [0.0060]  
a/R\* = 261.94 [116.71]  
b = 0.90 [0.10]  
Seff = 0.75 [0.27]  
Teq = 238 [22] K  
Rp = 3.98 [1.30] Re  
a = 1.1708 [0.2780] AU  
Ag = 41022.30 [23962.64] [1.71 $\sigma$ ]  
Teffp = 5227 [637] K [7.82 $\sigma$ ]

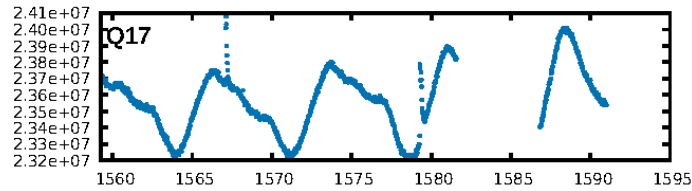
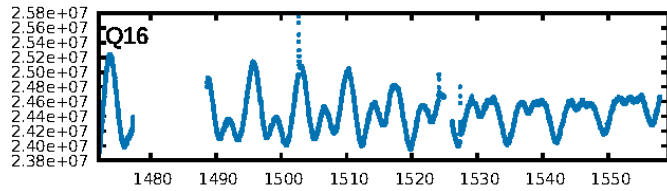
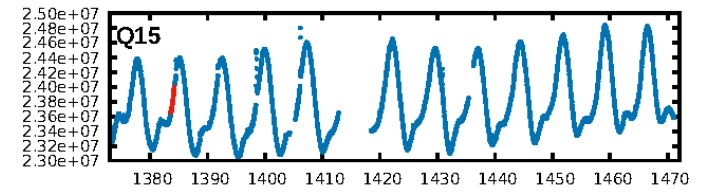
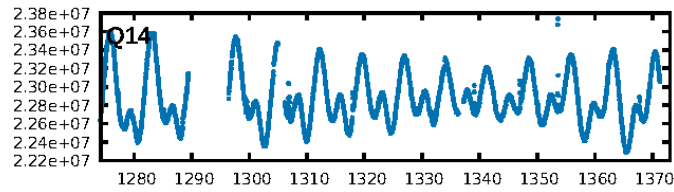
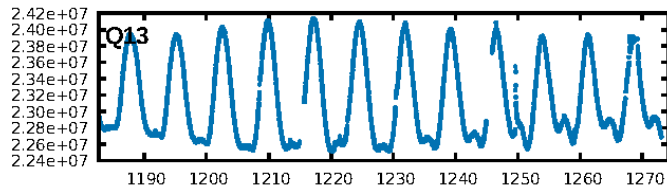
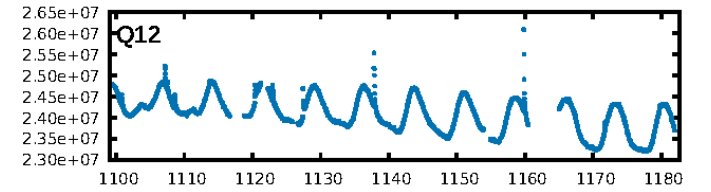
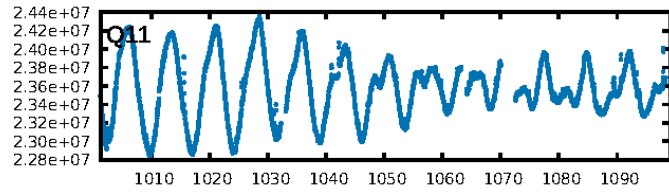
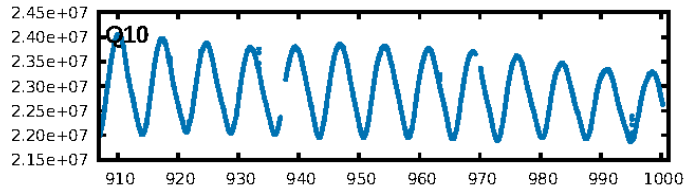
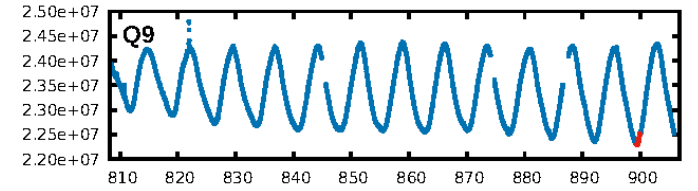
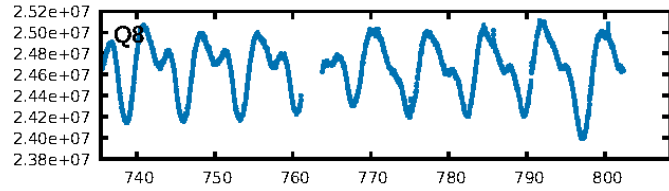
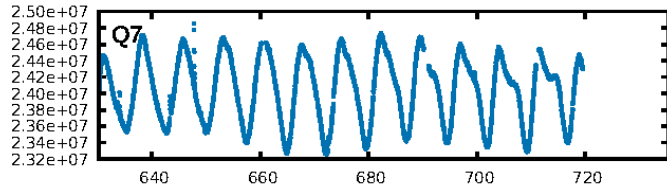
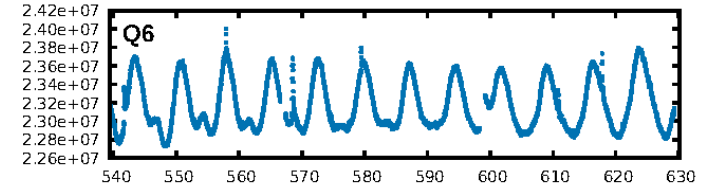
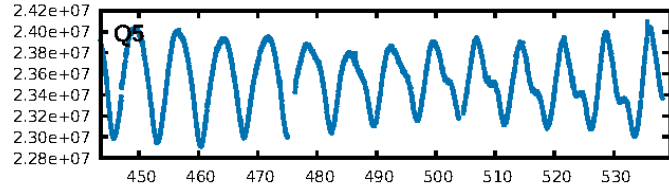
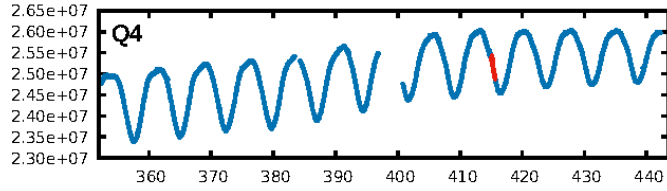
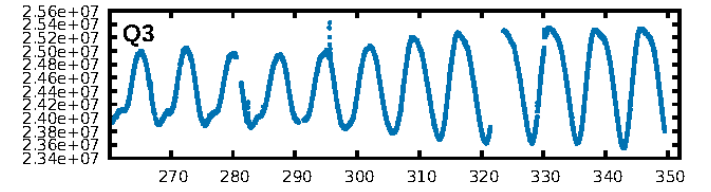
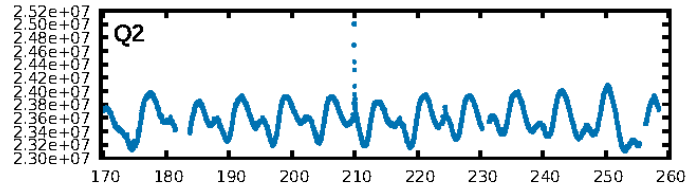
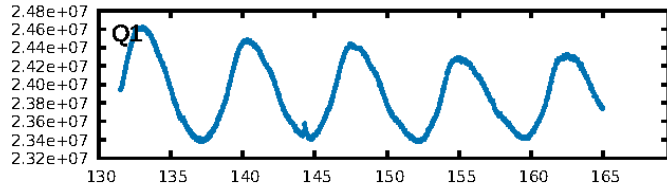
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.23 $\sigma$ ]  
LongPeriod-sig: 100.0% [63.26 $\sigma$ ]  
ModelChiSquare2-sig: 0.1%  
ModelChiSquareGof-sig: 52.6%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.3713  
Centroid-sig: 95.2%  
Centroid-so: 0.228 arcsec [0.18 $\sigma$ ]  
OotOffset-rm: 0.099 arcsec [0.74 $\sigma$ ]  
OotOffset-st: 0/1/1/1 [3]  
KicOffset-rm: 0.215 arcsec [0.86 $\sigma$ ]  
KicOffset-st: 0/1/1/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

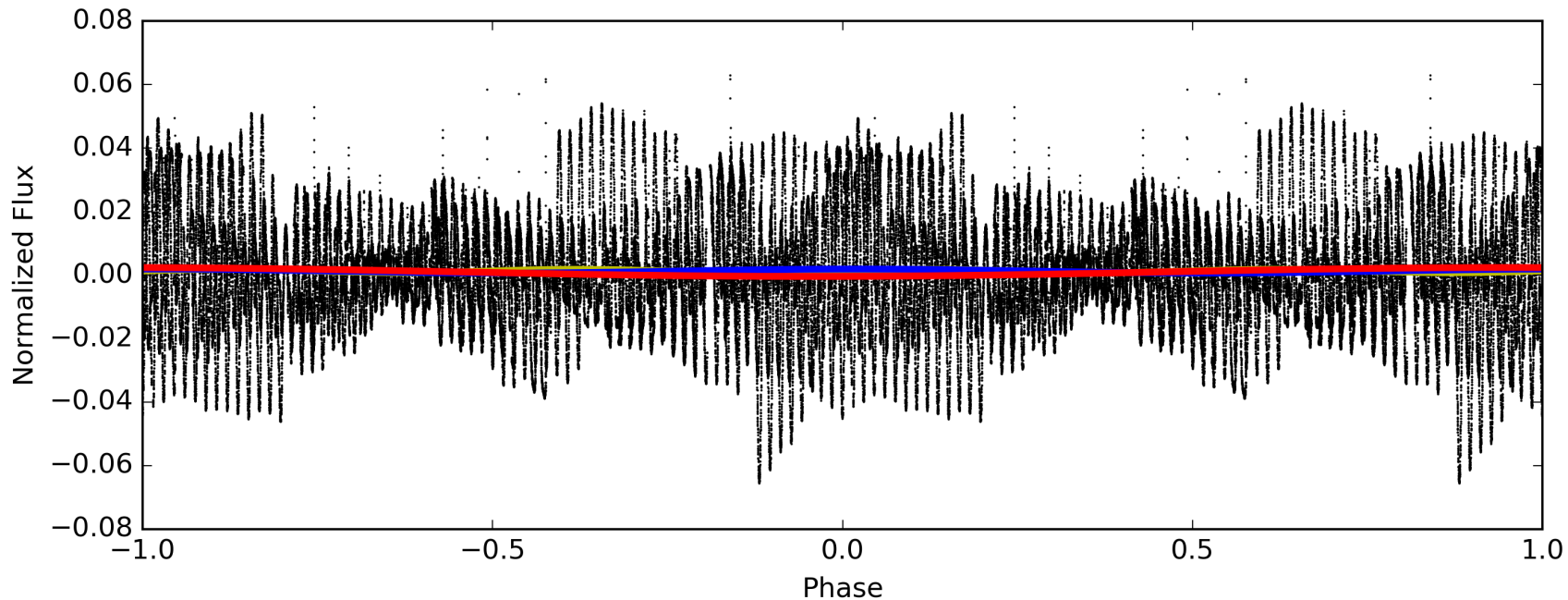
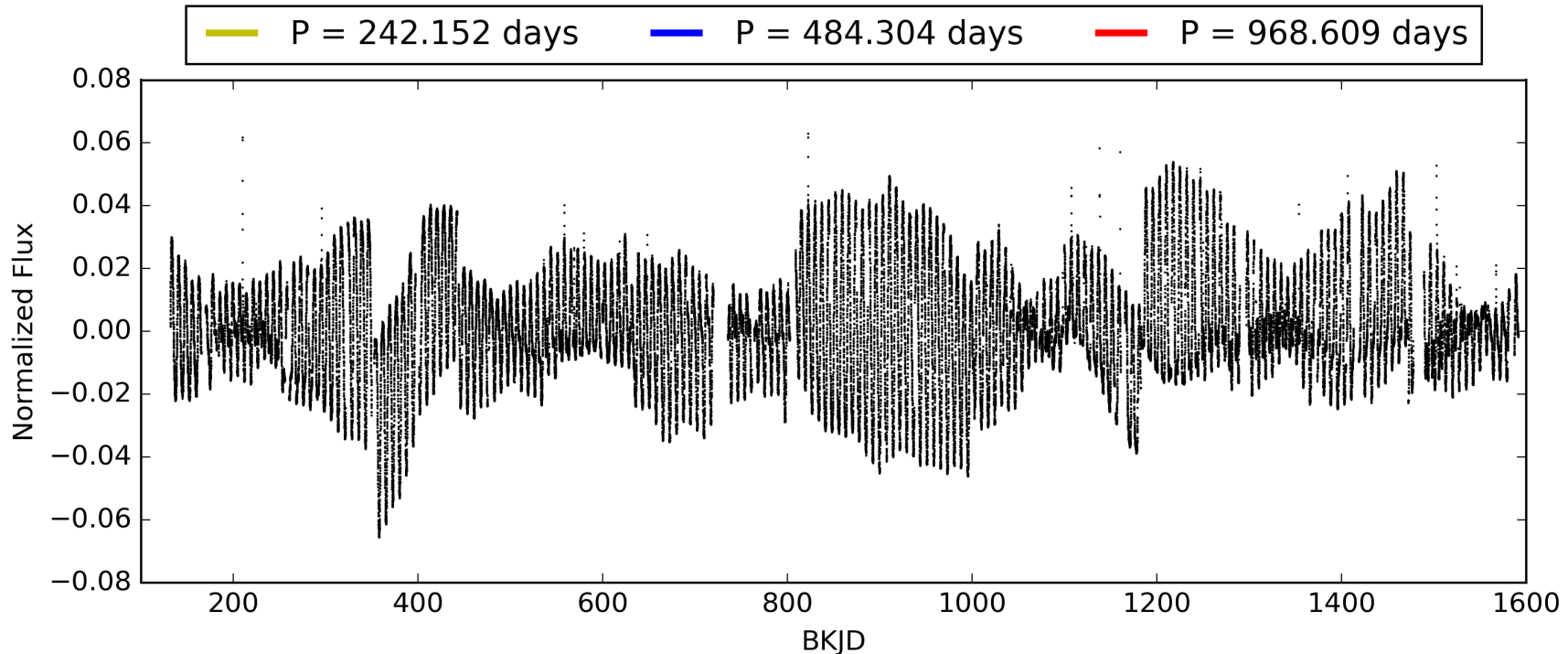
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:01:04 Z

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

# TCE 010793443-05, PDC Light Curves



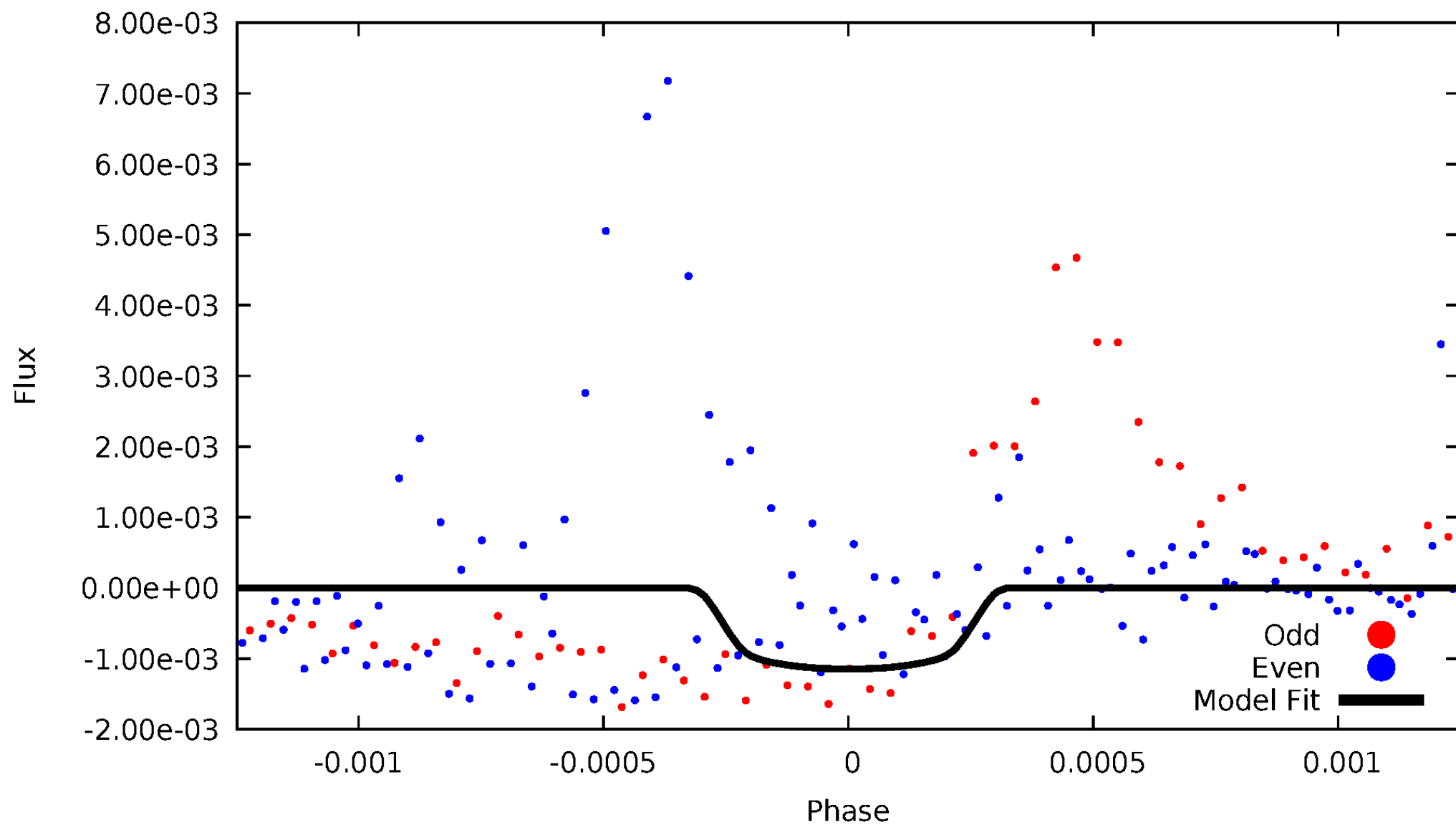
TCE 010793443-05





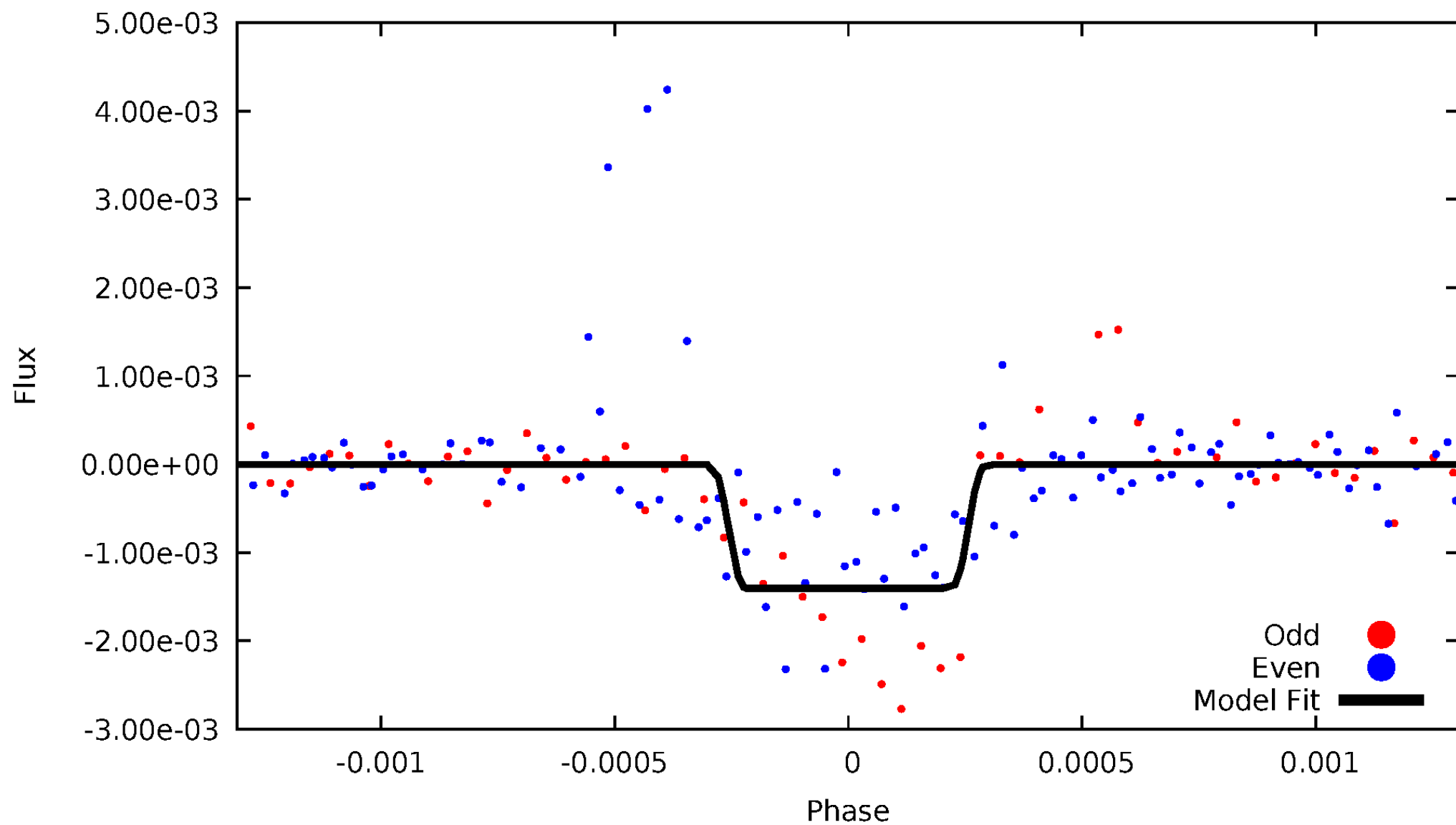
# DV Odd/Even

TCE 010793443-05



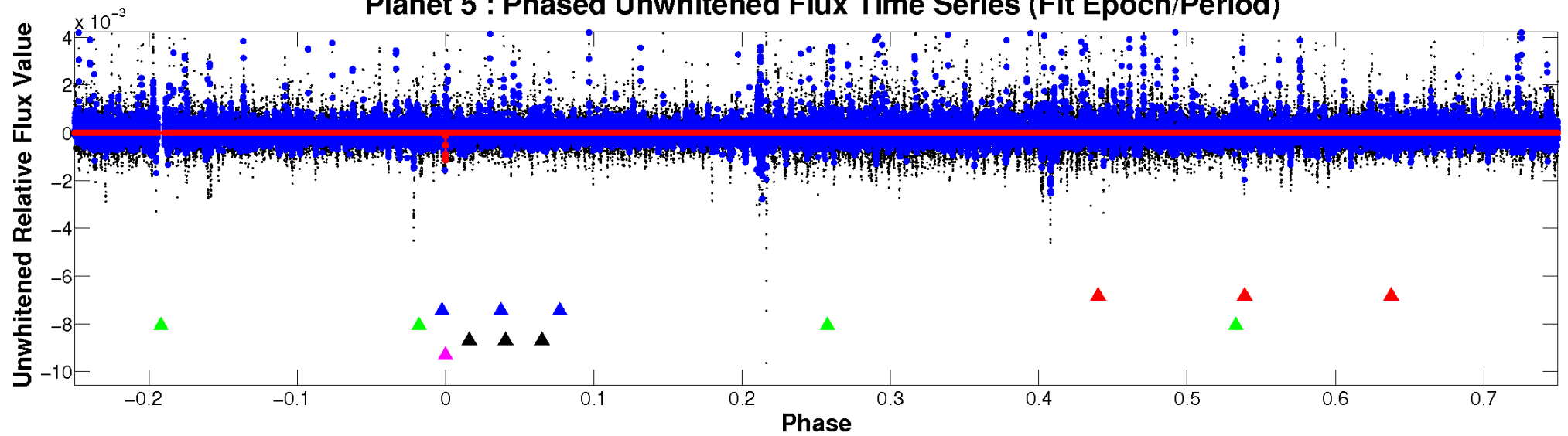
# ALT Odd/Even

TCE 010793443-05

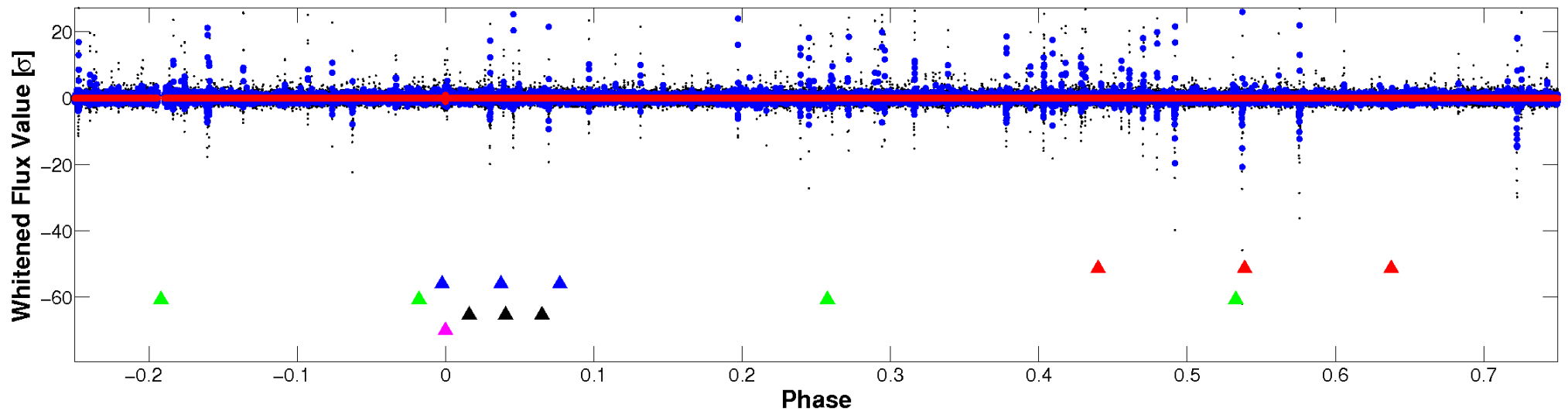


# Non-Whitened Vs. Whitened Light Curve

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

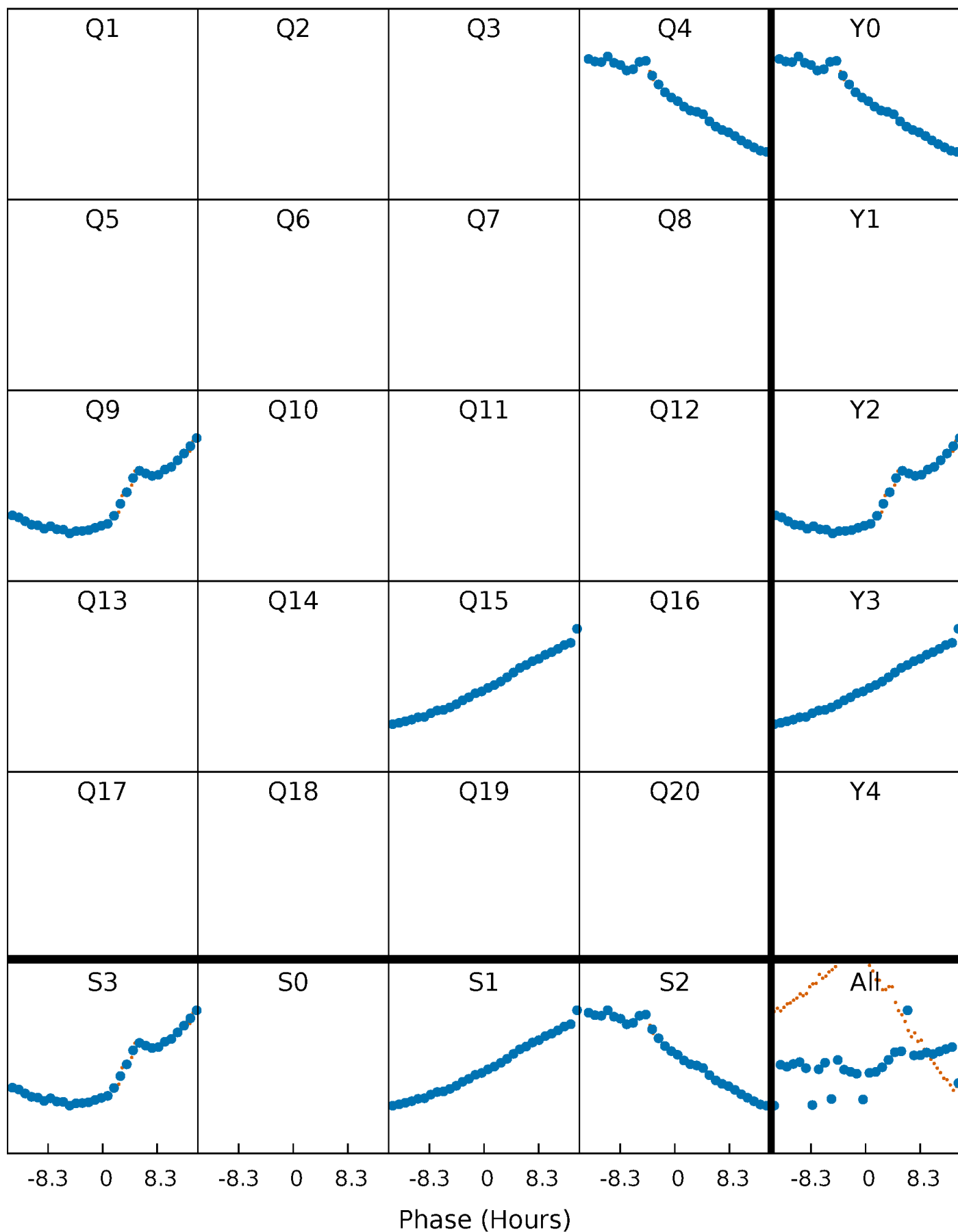


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



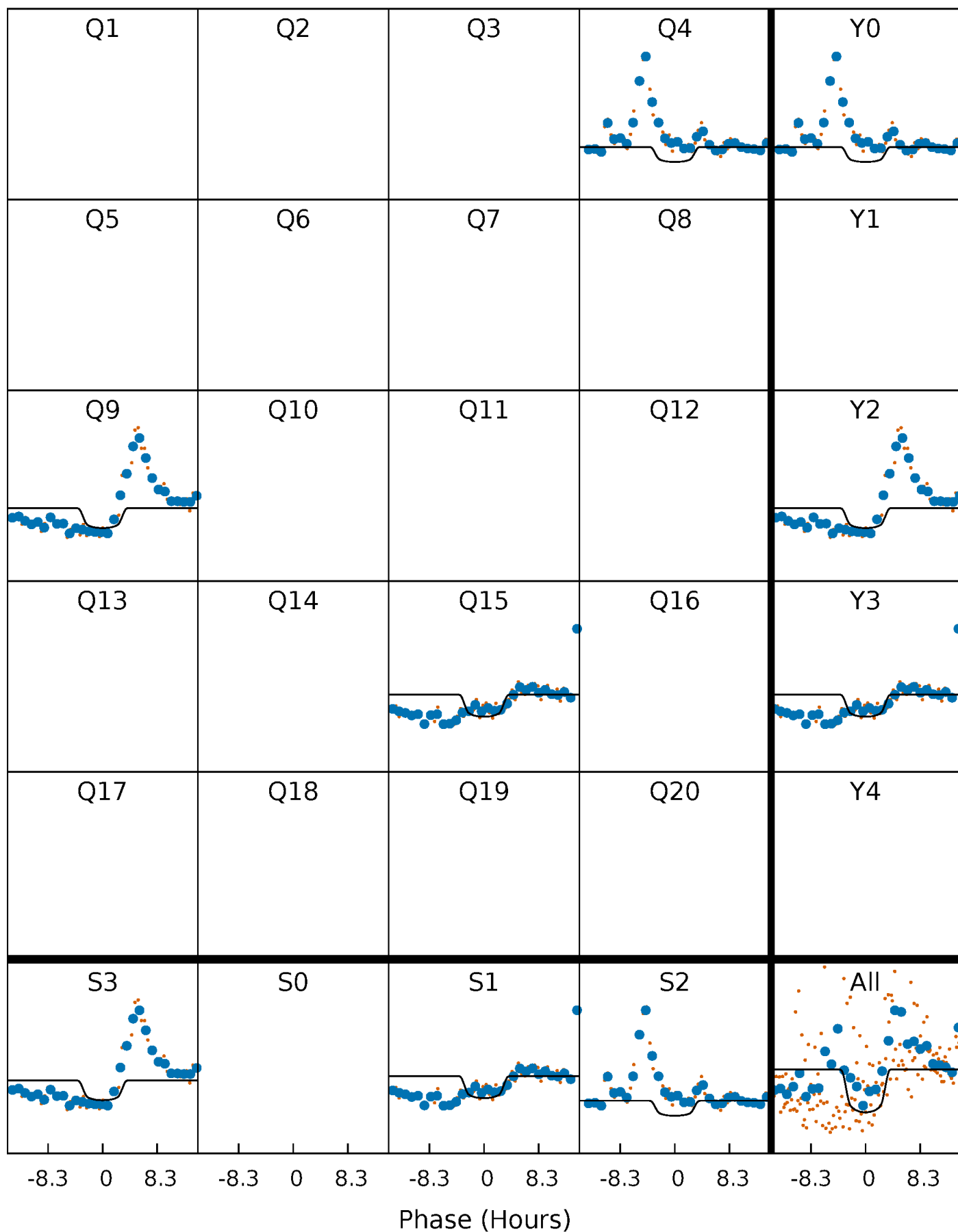
# PDC Quarter-Phased Transit Curves

TCE 010793443-05     $P=484.304479$  Days     $T_0=415.347447$  (BKJD)



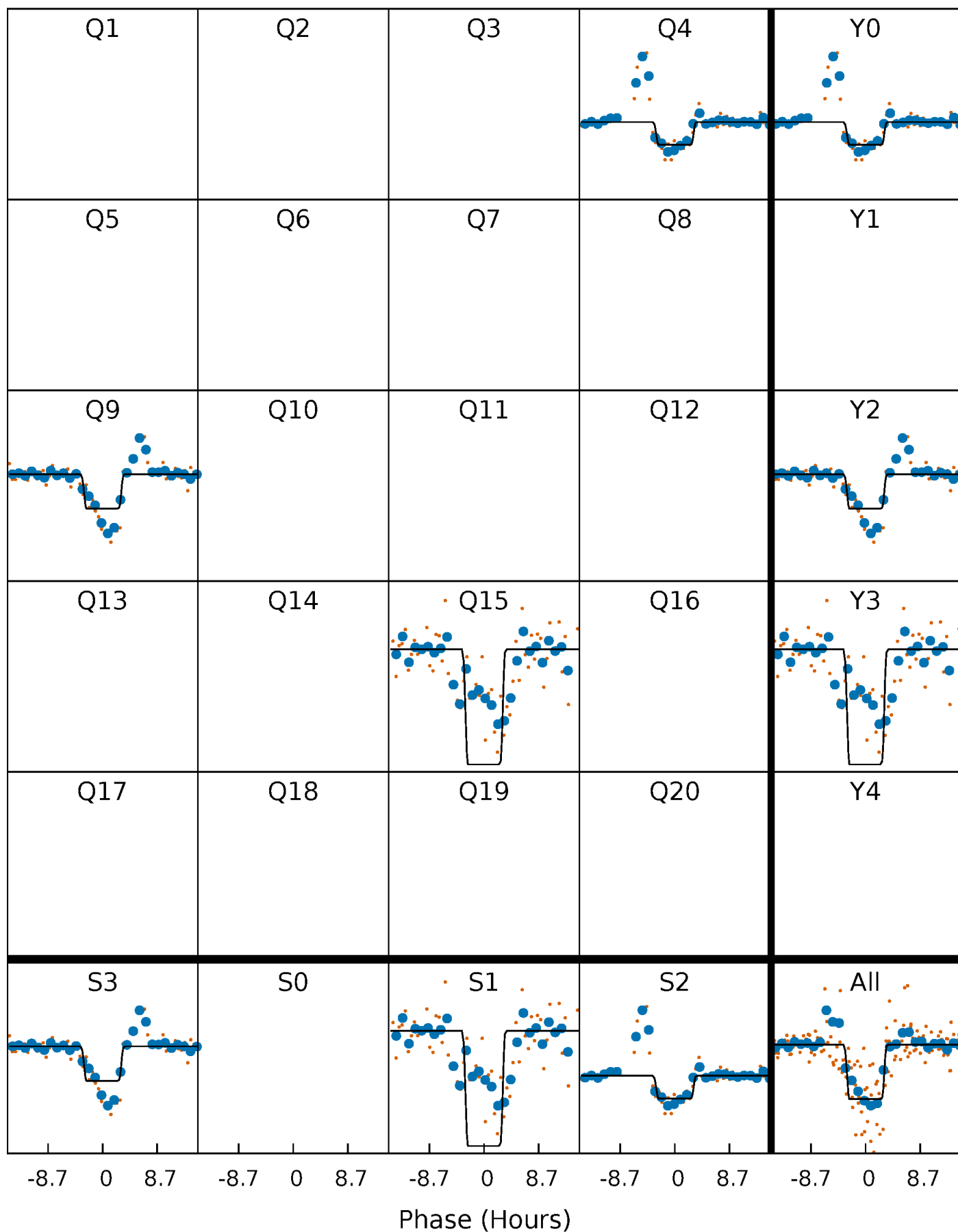
# DV Quarter-Phased Transit Curves

TCE 010793443-05     $P=484.304479$  Days     $T_0=415.347447$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

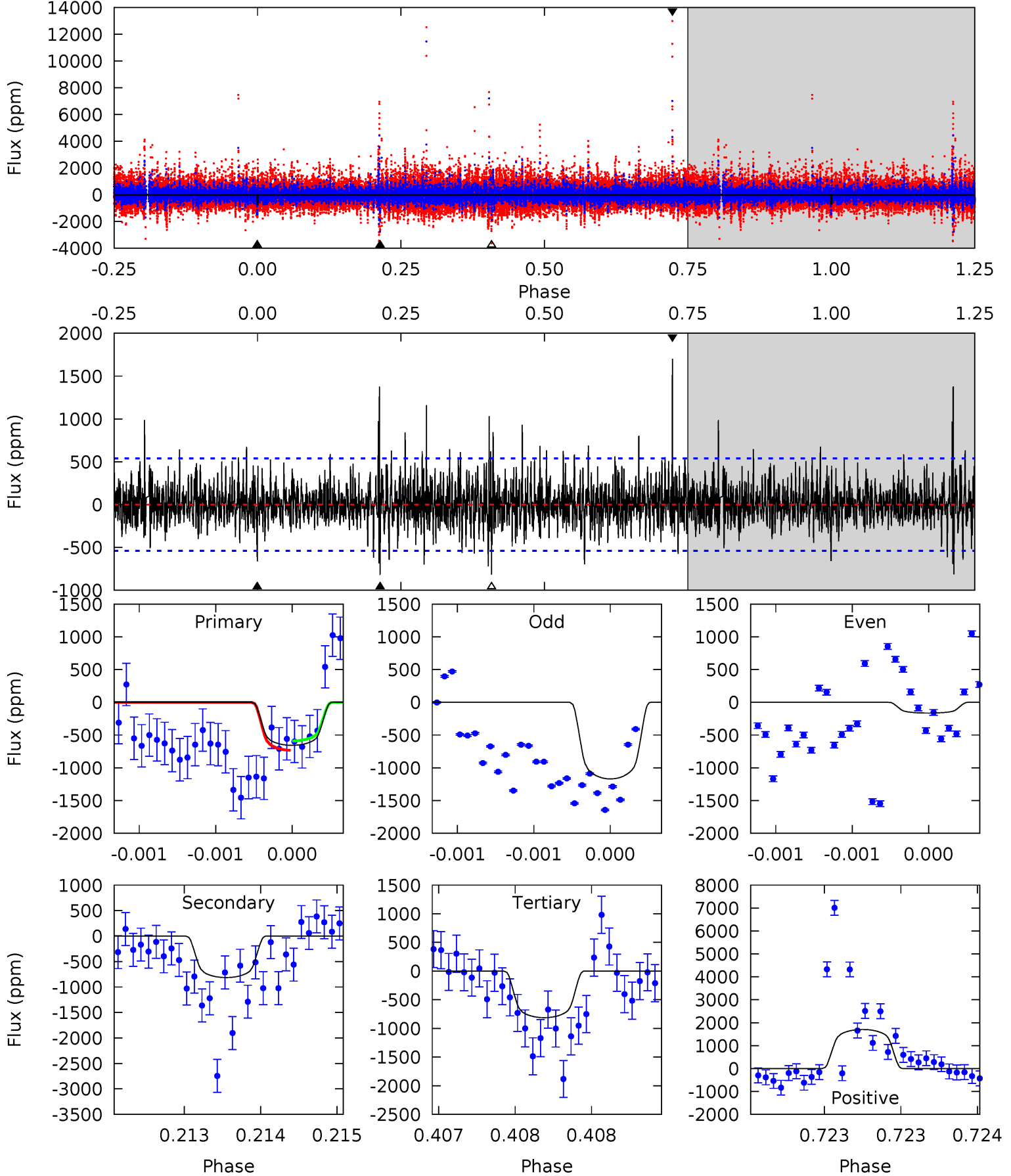
TCE 010793443-05     $P=484.282183$  Days     $T_0=415.356616$  (BKJD)



# DV Model-Shift Uniqueness Test

010793443-05, P = 484.304479 Days, E = 415.347447 Days

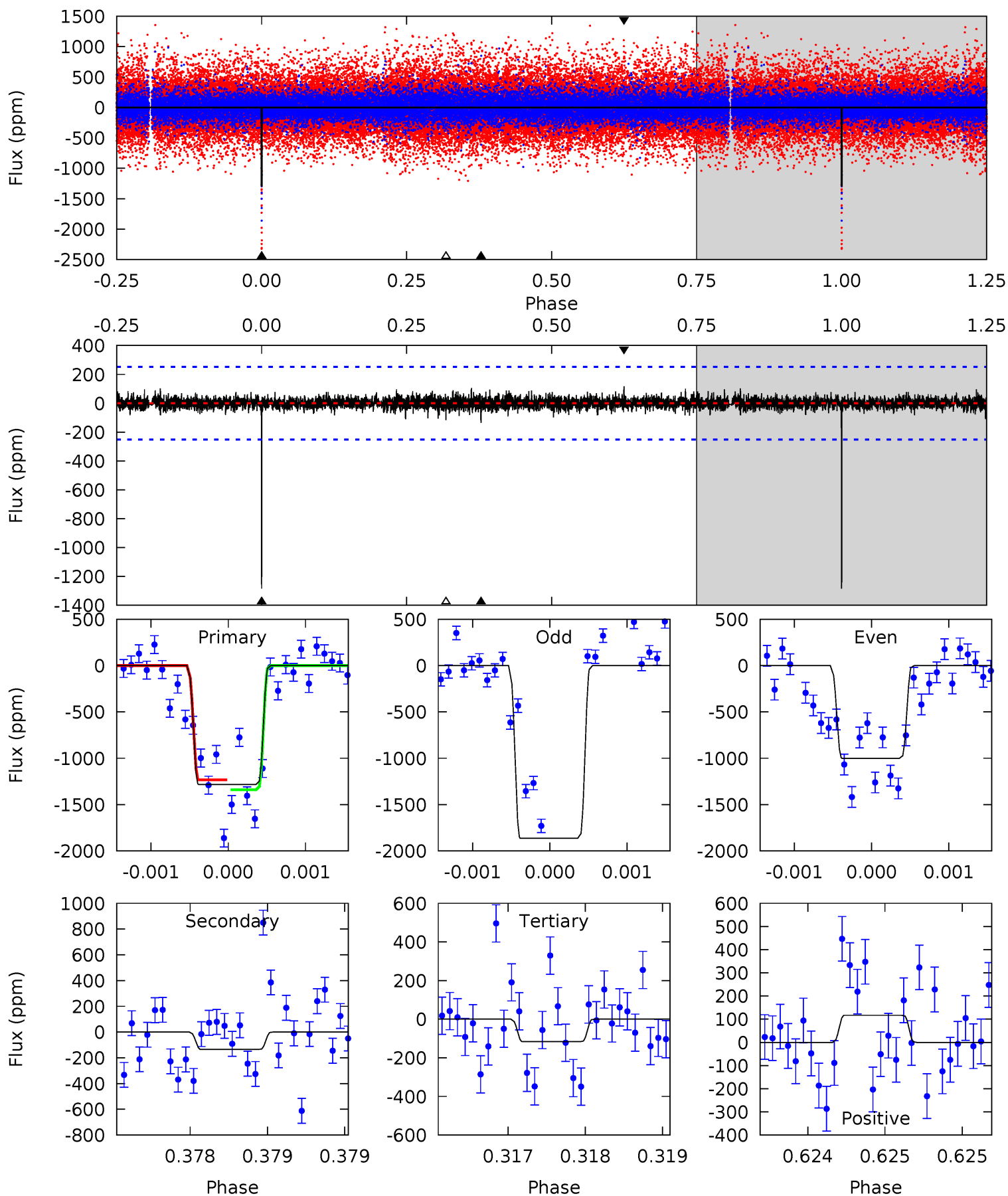
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.75	8.36	8.35	17.5	5.53	3.42	2.04	-1.60	-10.7	0.02	-9.13	3.58	0.57	0.68	0.74



# Alt Model-Shift Uniqueness Test

010793443-05, P = 484.282183 Days, E = 415.356616 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
28.3	2.97	2.57	2.57	5.55	3.45	0.51	25.7	25.7	0.40	0.41	9.18	0.90	0.08	1.20





### Stellar Parameters For KIC 010793443

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5853^{+174}_{-174}$	$4.406^{+0.124}_{-0.186}$	$-0.220^{+0.300}_{-0.300}$	$0.991^{+0.282}_{-0.152}$	$0.914^{+0.121}_{-0.099}$	$1.321^{+0.652}_{-0.662}$
	+3%/-3%	+3%/-4%	+136%/-136%	+28%/-15%	+13%/-11%	+49%/-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 010793443-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-814 \pm 97$	$4.05^{+0.92}_{-0.76}$	$335^{+22}_{-18}$	$5204^{+515}_{-361}$	$37508^{+19240}_{-12595}$
Alt.	$-135 \pm 45$	$4.14^{+0.82}_{-0.78}$	$334^{+25}_{-19}$	$3673^{+323}_{-297}$	$5843^{+4203}_{-2483}$

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

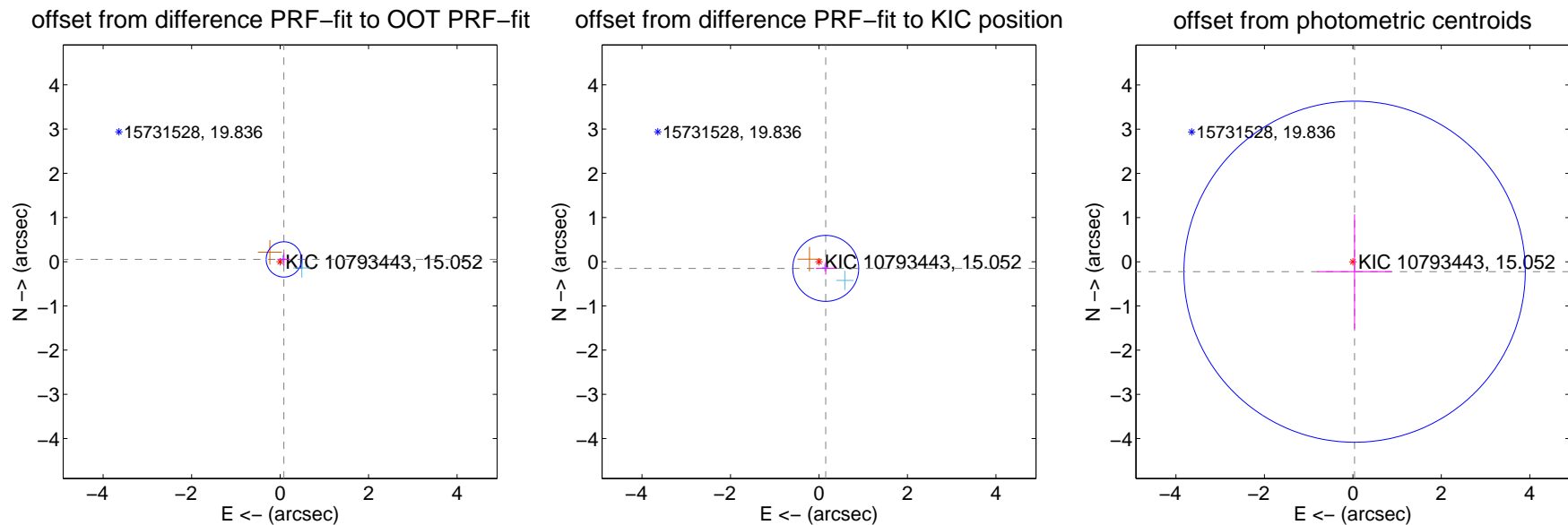
## DV Centroid Data

Supplemental centroid analysis for 010793443-05. Kepler magnitude: 15.05. Transit SNR 6.72

There are 2 quarters with good PRF difference image offsets

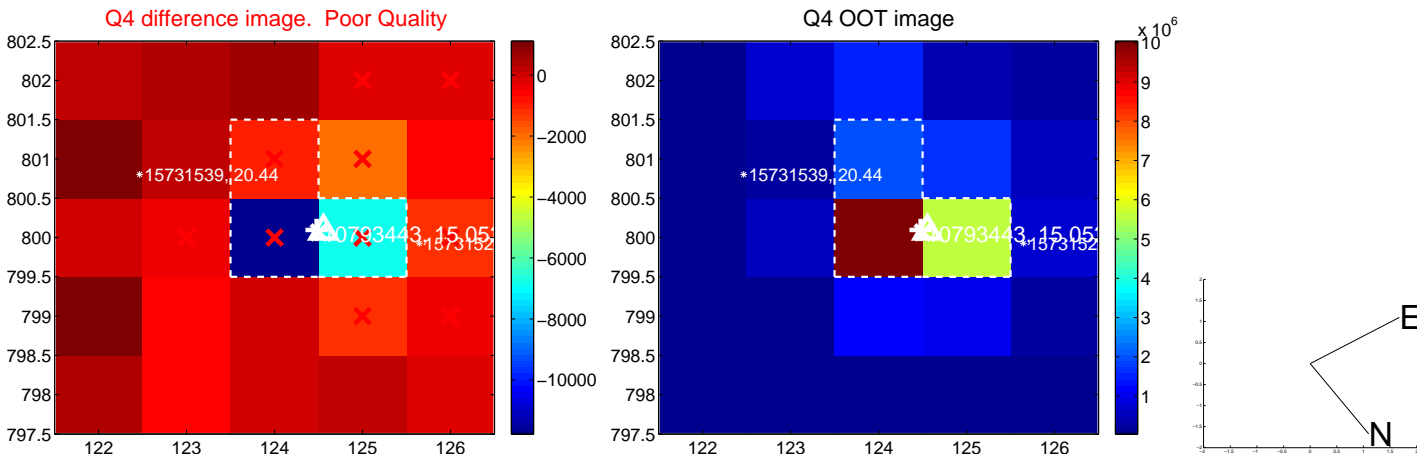
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.099 \pm 0.133$	0.74	$-0.085 \pm 0.131$	$0.051 \pm 0.138$
PRF-fit source offset from KIC position	$0.215 \pm 0.249$	0.86	$-0.153 \pm 0.221$	$-0.151 \pm 0.144$
photometric centroid source offset	$0.23 \pm 1.29$	0.18	$-0.04 \pm 0.84$	$-0.22 \pm 1.30$



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.

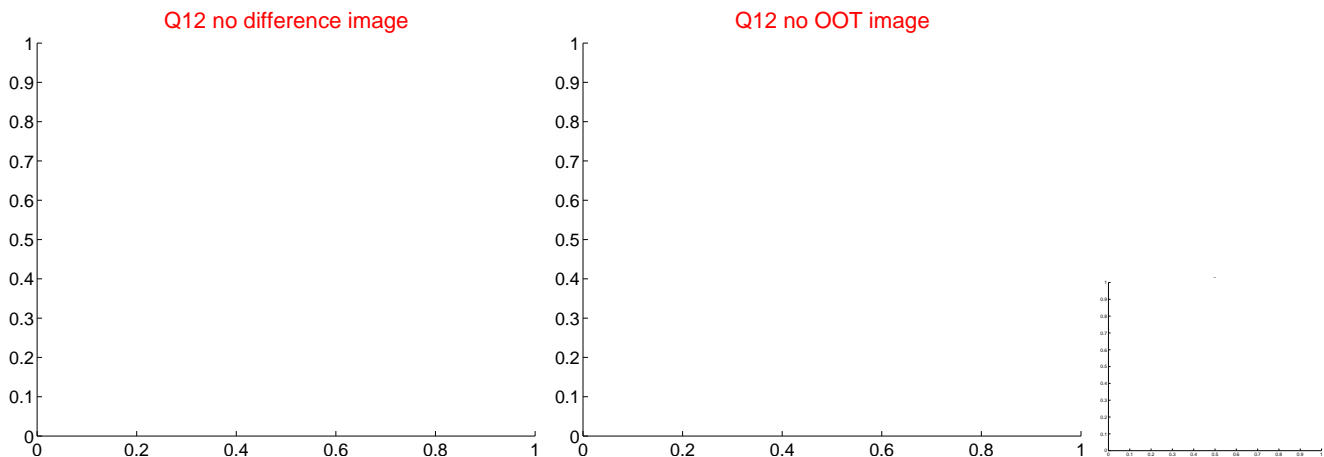
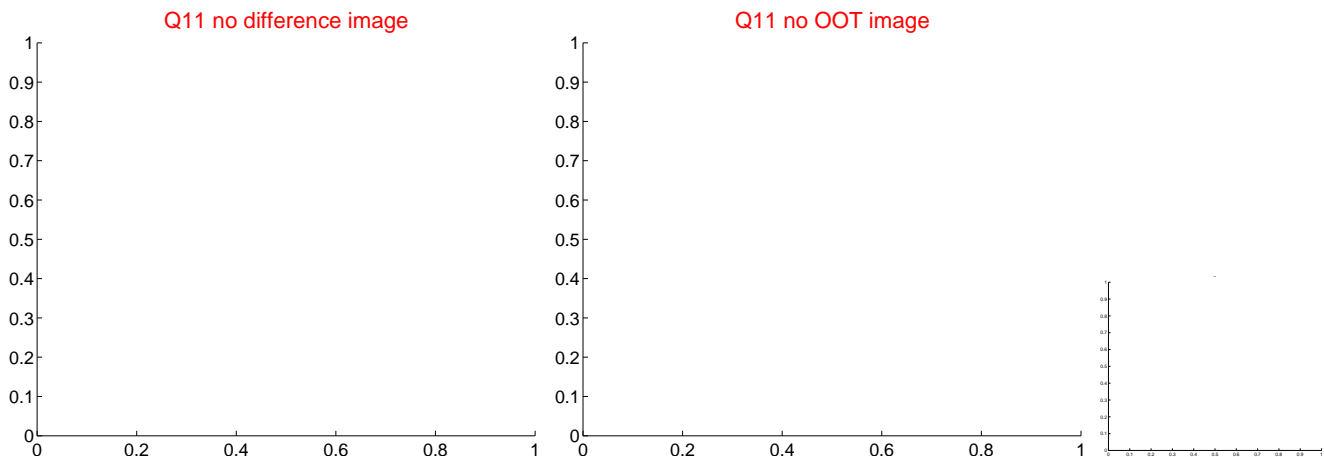
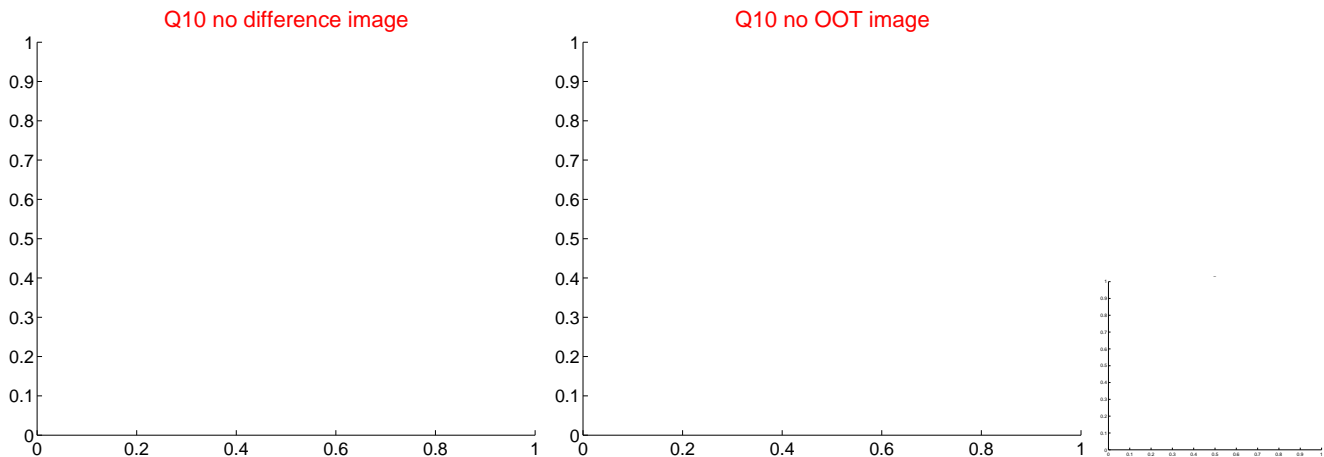
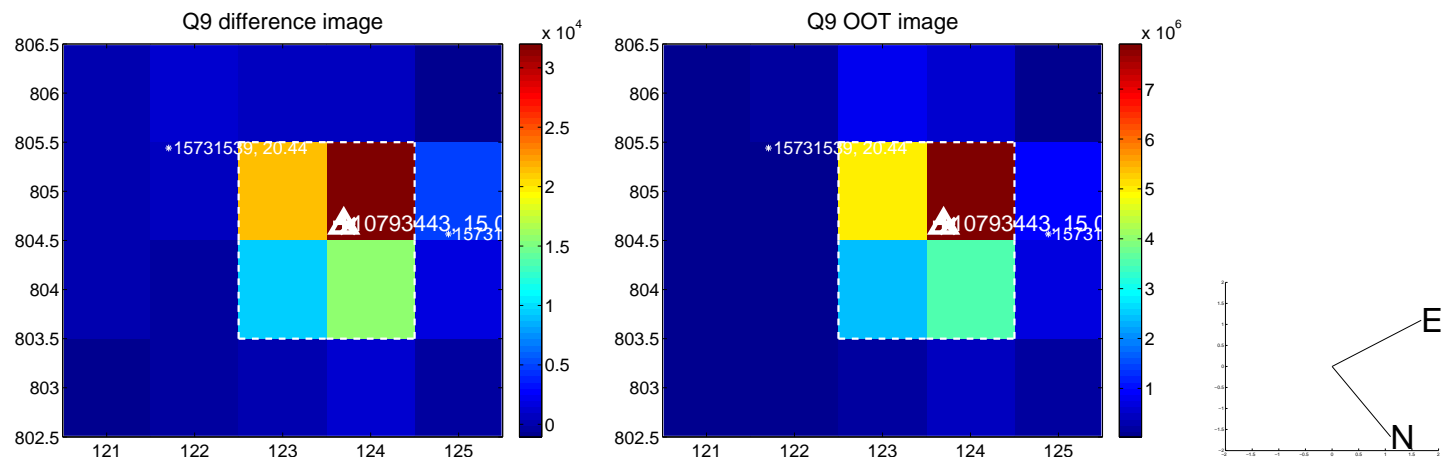
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : 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.

Q13 no difference image



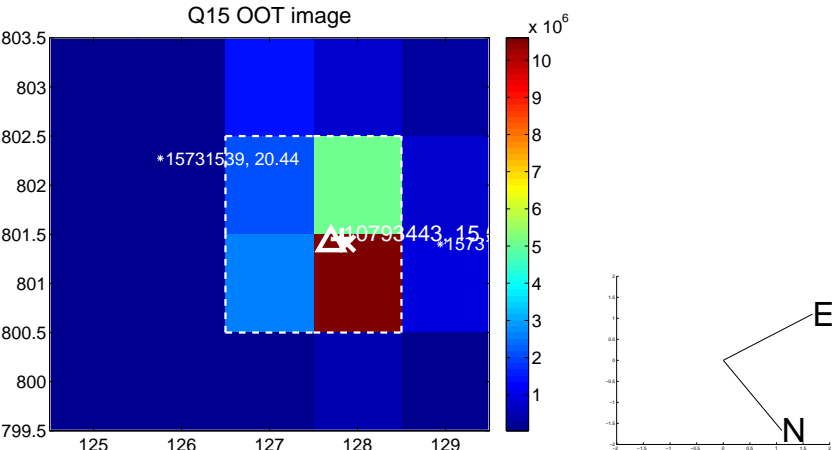
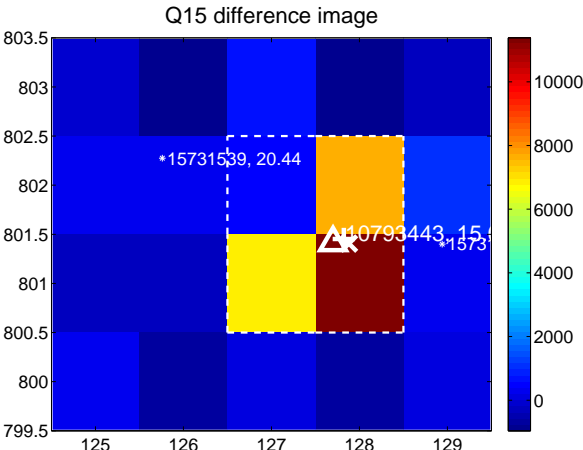
Q13 no OOT image



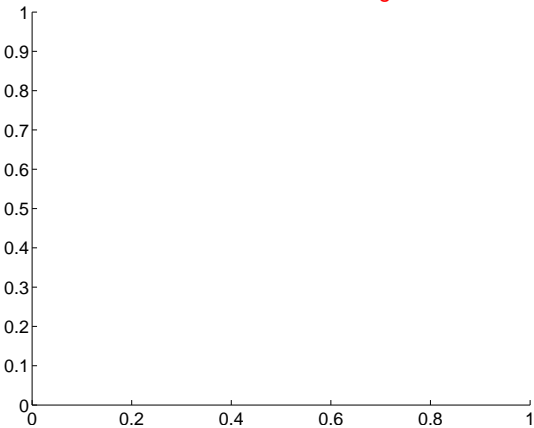
Q14 no difference image



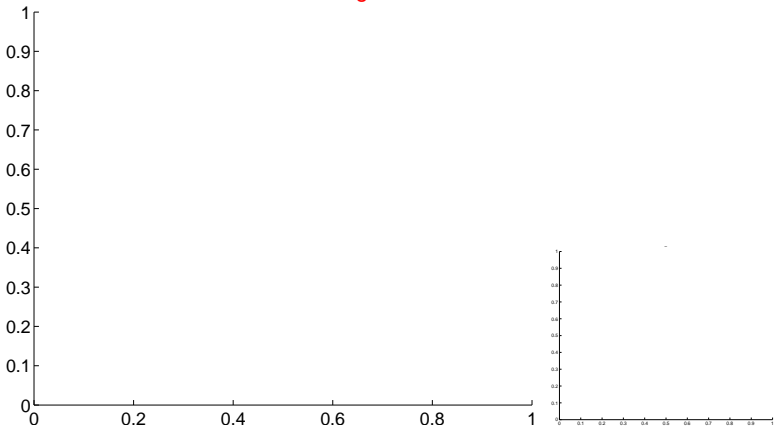
Q14 no OOT image



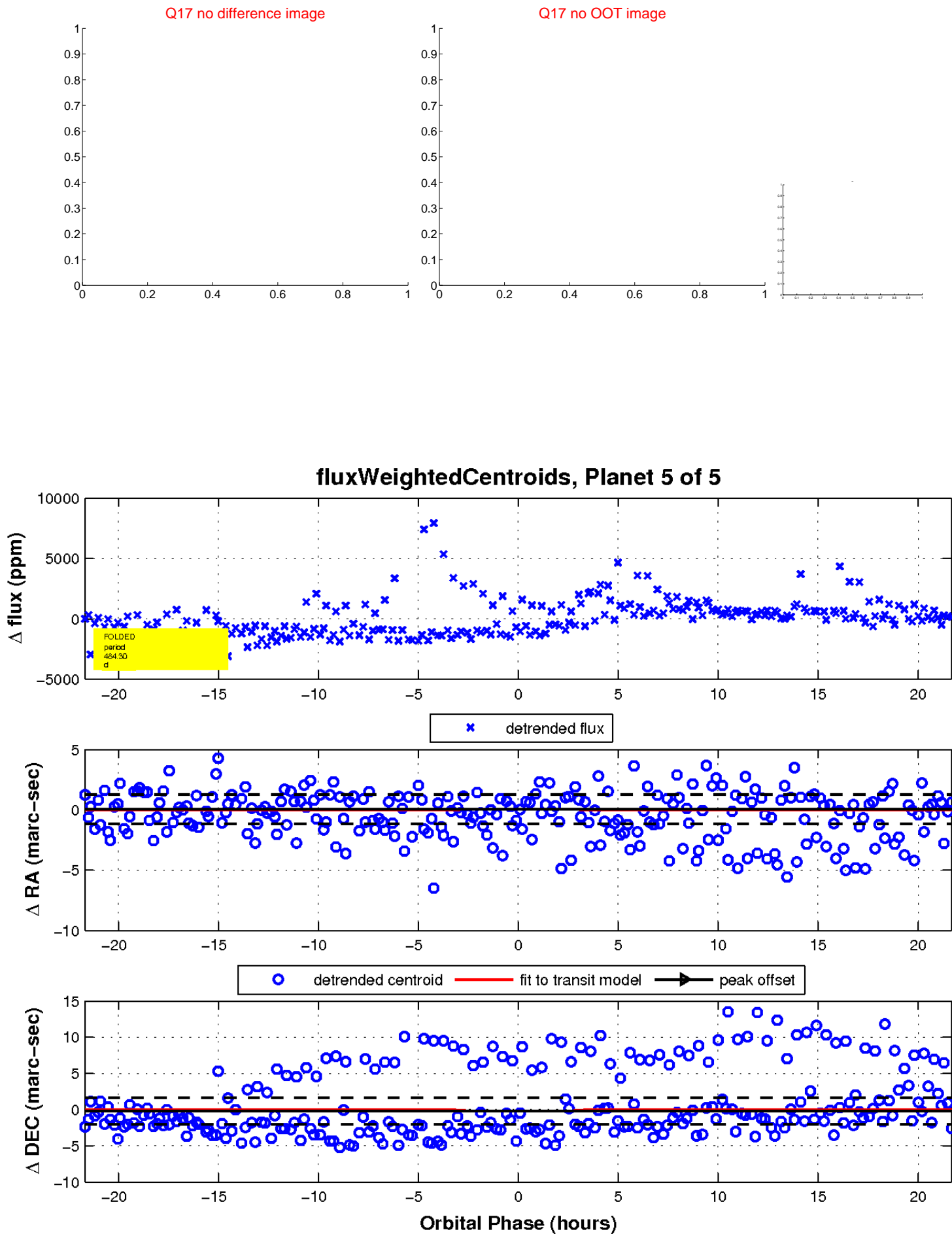
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

