

# KIC 007740188

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007740188-01	OBS	No	379.028666	317.082480	1691.1	9.547	24.5	8.5	4.73	4918	23.71	12.20
007740188-02	OBS	No	669.648737	202.581999	1751.7	4.303	63.5	8.5	4.73	4918	19.36	5.71
007740188-03	OBS	No	374.090327	332.419499	37.3	0.698	19.5	0.3	4.73	4918	3.19	12.41
007740188-04	OBS	No	391.862501	435.493021	1183.6	2.932	19.0	8.0	4.73	4918	16.28	11.67
007740188-05	OBS	No	467.090748	143.505494	802.4	4.500	24.8	-1.0	4.73	4918	13.02	9.23

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007740188-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007740188-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS
007740188-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007740188-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
007740188-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

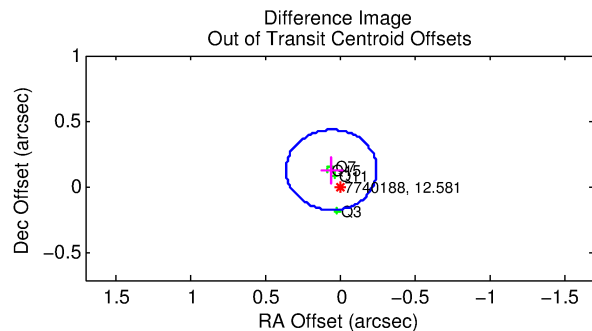
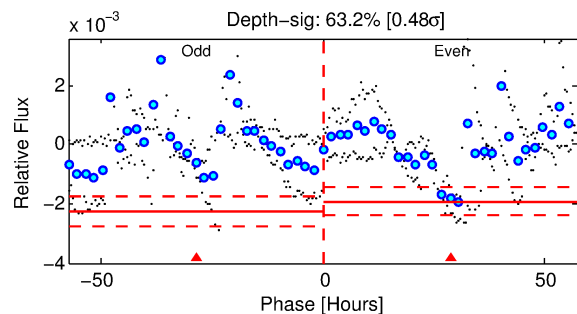
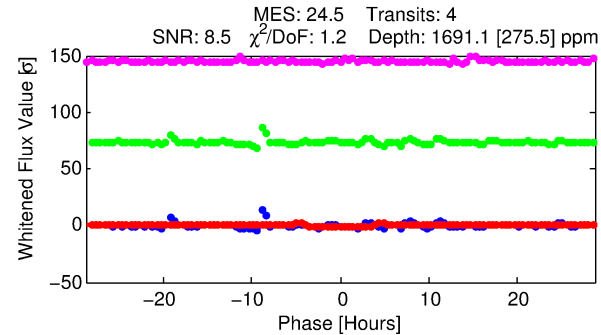
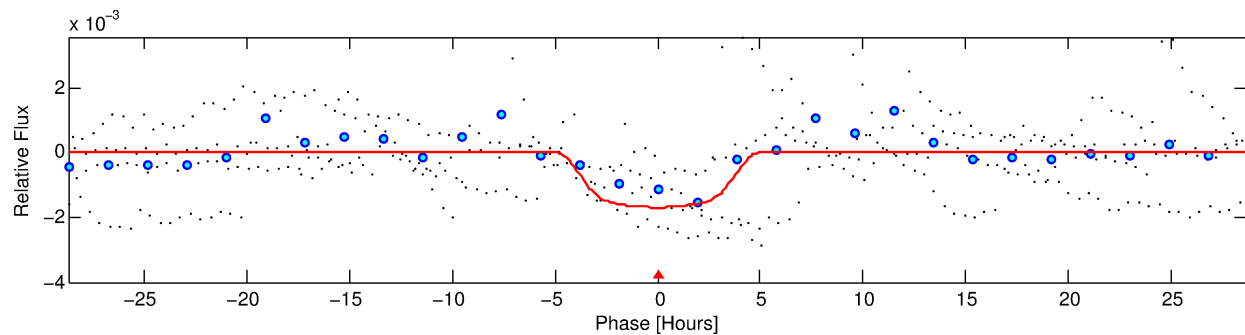
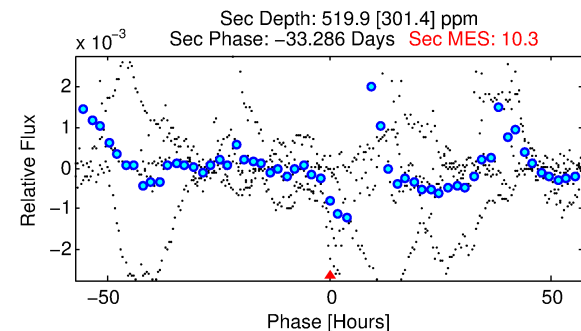
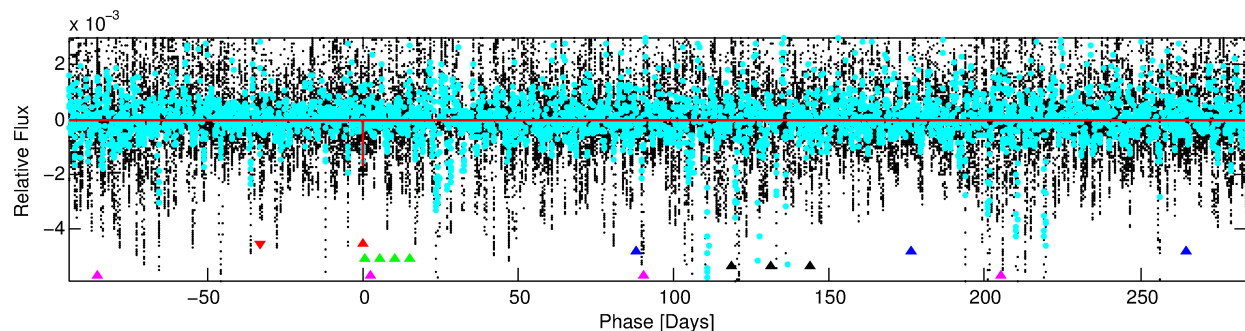
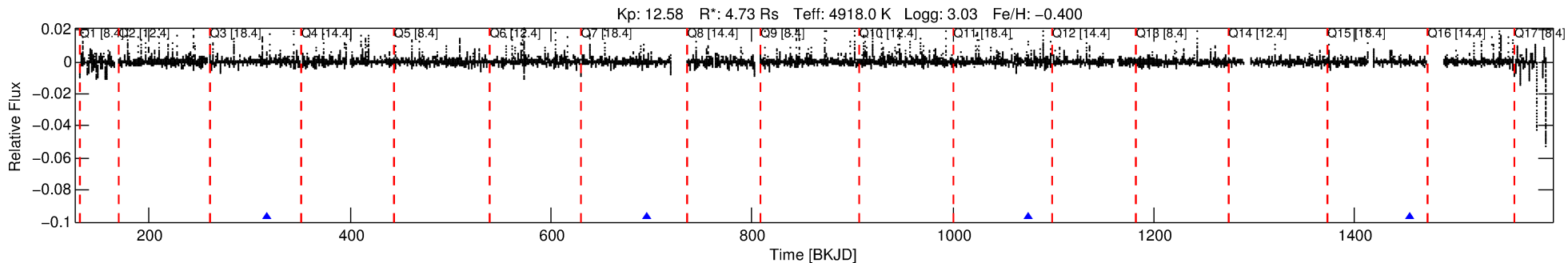
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007740188-01

No Significant Match Found

# DV One-Page Summary

KIC: 7740188 Candidate: 1 of 5 Period: 379.029 d



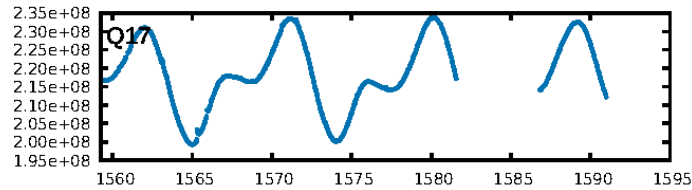
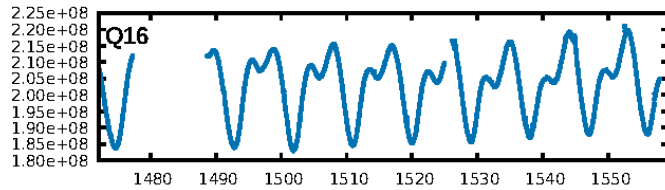
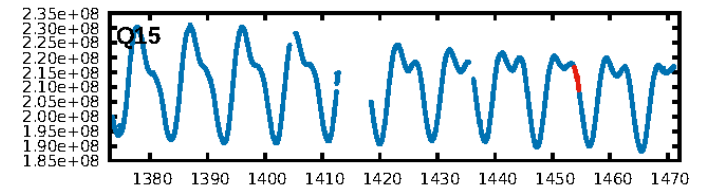
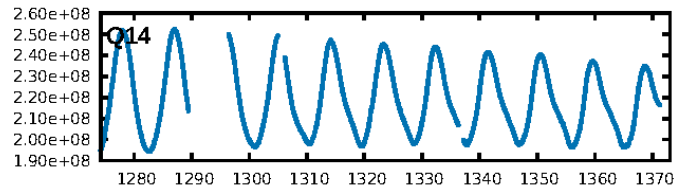
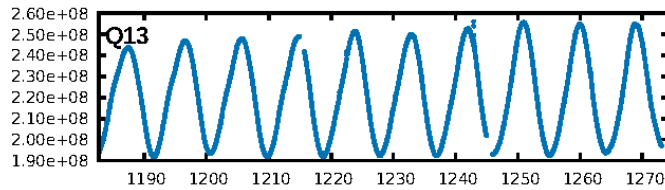
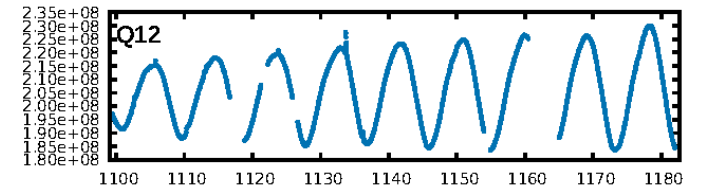
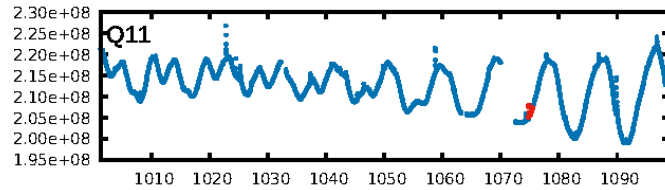
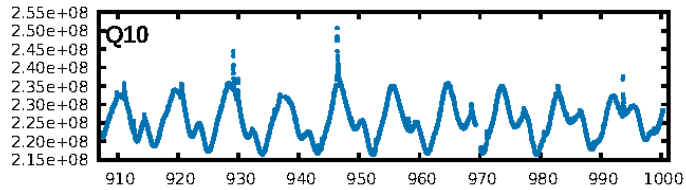
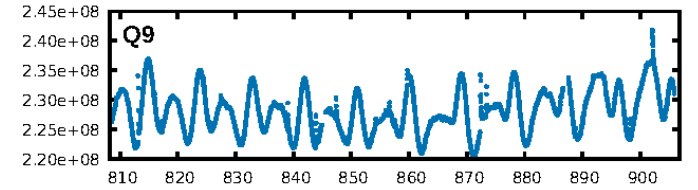
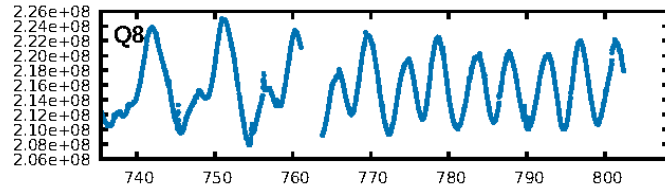
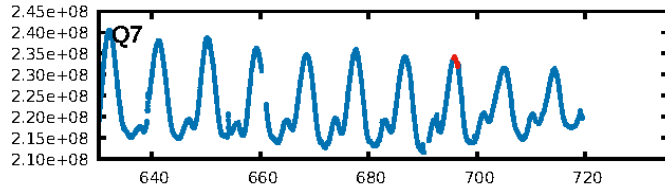
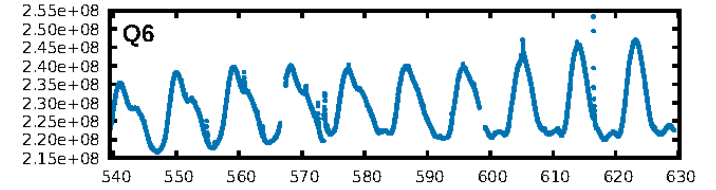
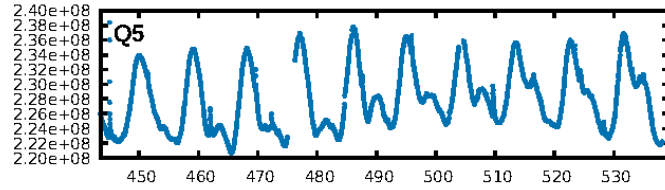
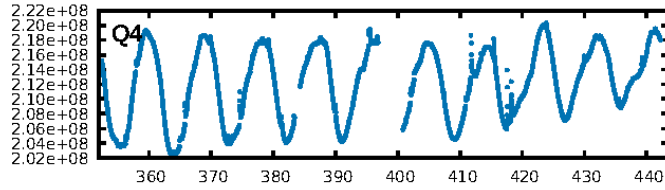
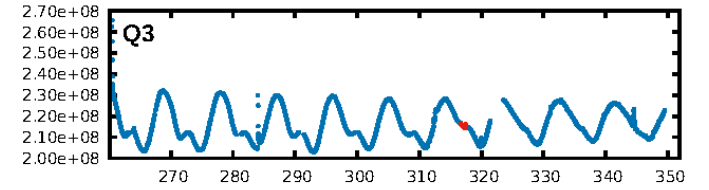
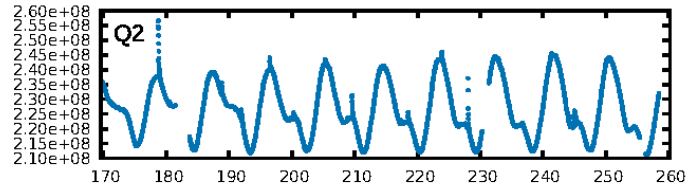
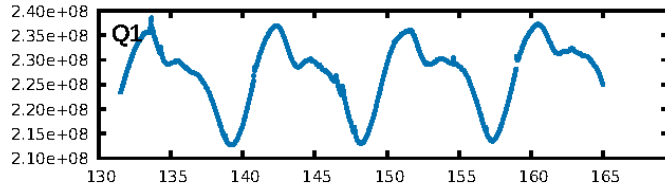
## DV Fit Results:

Period = 379.02867 [0.00531] d  
Epoch = 317.0825 [0.0097] BKJD  
Rp/R\* = 0.0460 [0.0041]  
a/R\* = 160.02 [16.96]  
b = 0.90 [0.02]  
Seff = 12.20 [8.72]  
Teff = 477 [85] K  
Rp = 23.71 [14.29] Re  
a = 0.9799 [0.4825] AU  
Ag = 488.48 [454.24] [1.07σ]  
Teffp = 3464 [536] K [5.50σ]

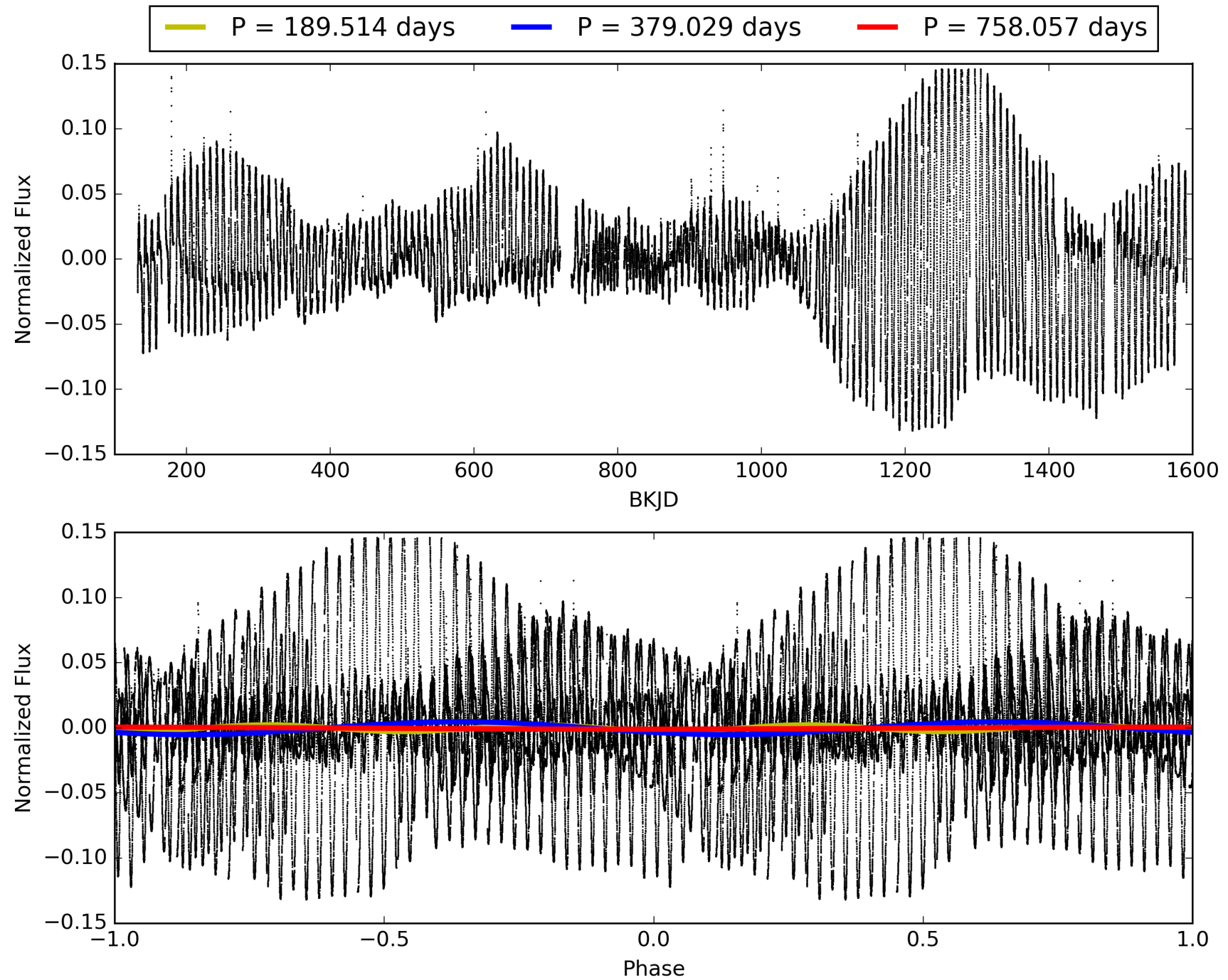
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.38σ]  
LongPeriod-sig: 100.0% [30.84σ]  
ModelChiSquare2-sig: 1.3%  
ModelChiSquareGof-sig: 79.7%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 1.174  
Centroid-sig: 38.3%  
Centroid-so: 0.303 arcsec [2.21σ]  
OotOffset-rm: 0.143 arcsec [1.41σ]  
OotOffset-st: 0/4/0/0 [4]  
KicOffset-rm: 0.189 arcsec [1.83σ]  
KicOffset-st: 0/4/0/0 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 0.75 [3/4]

# TCE 007740188-01, PDC Light Curves



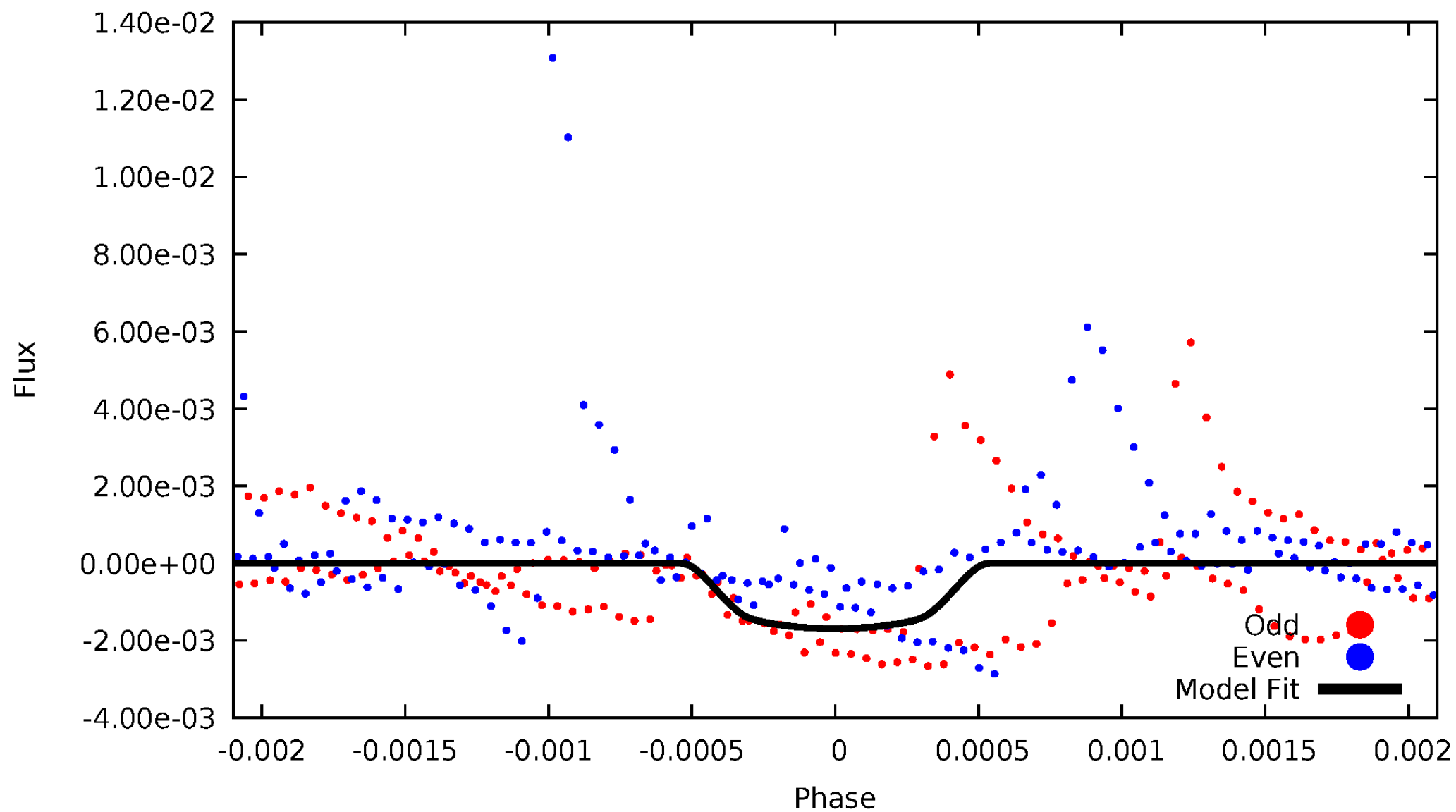
# TCE 007740188-01





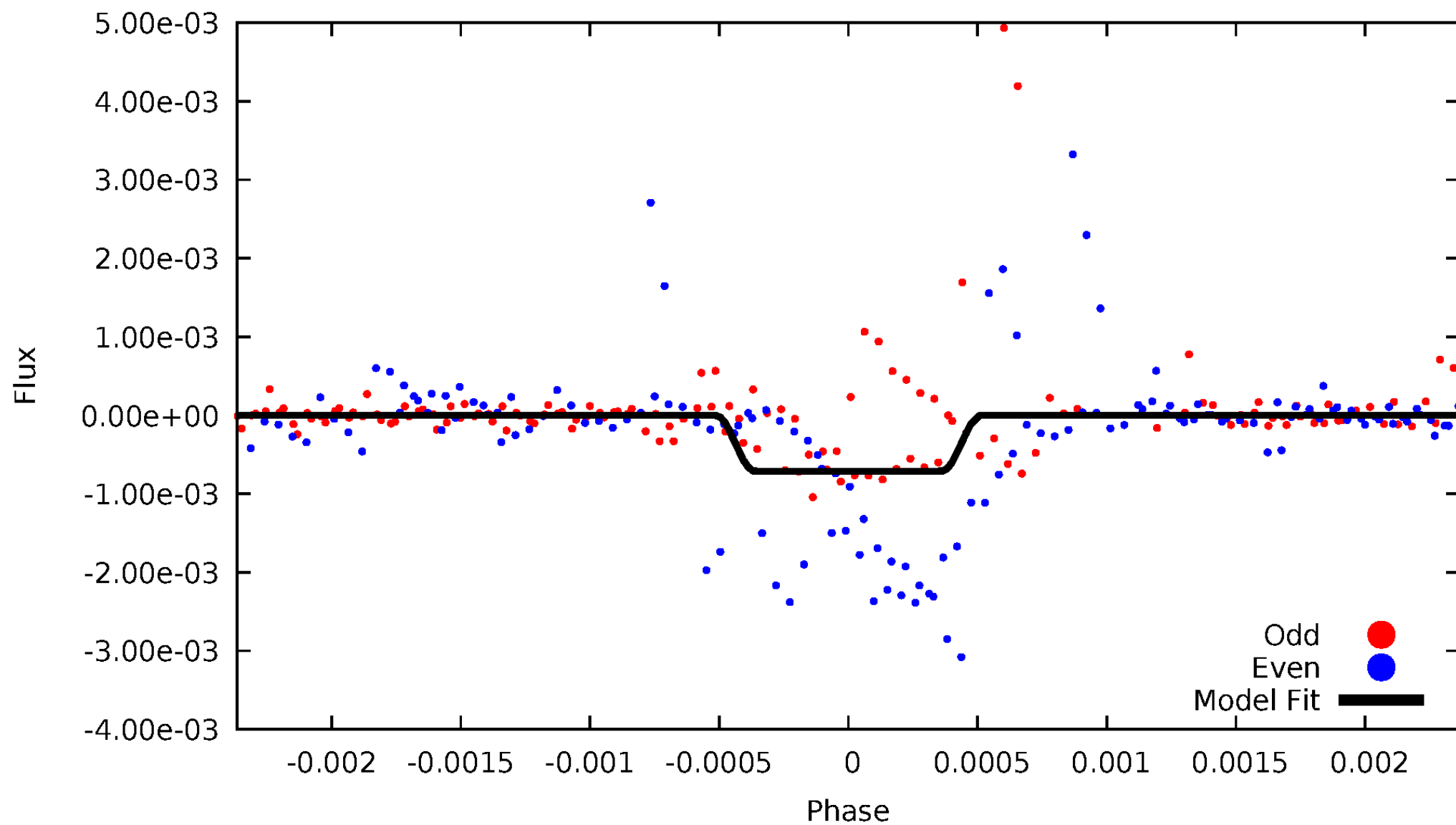
# DV Odd/Even

TCE 007740188-01



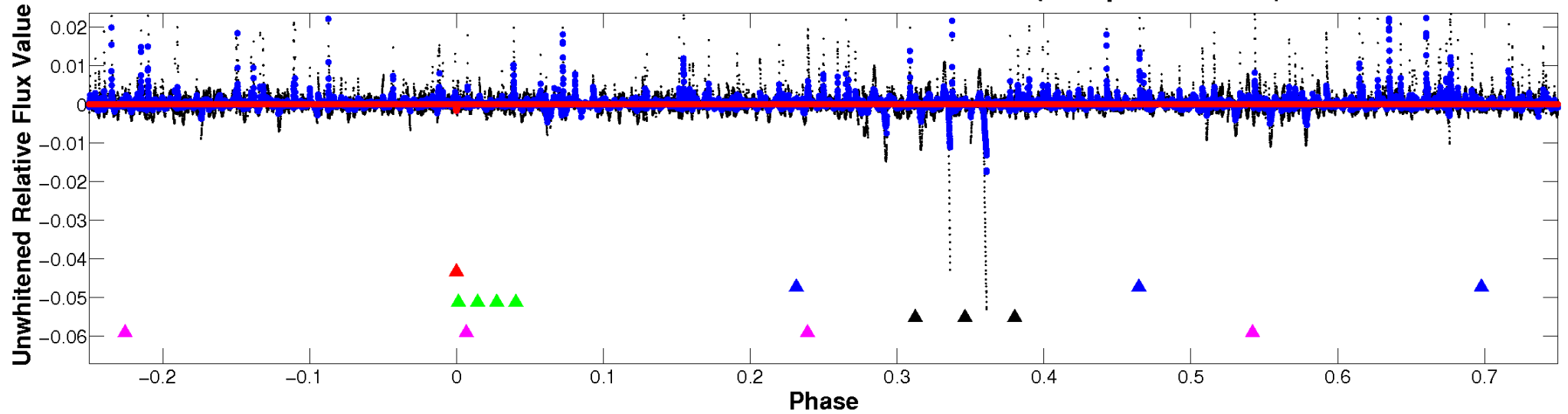
# ALT Odd/Even

TCE 007740188-01

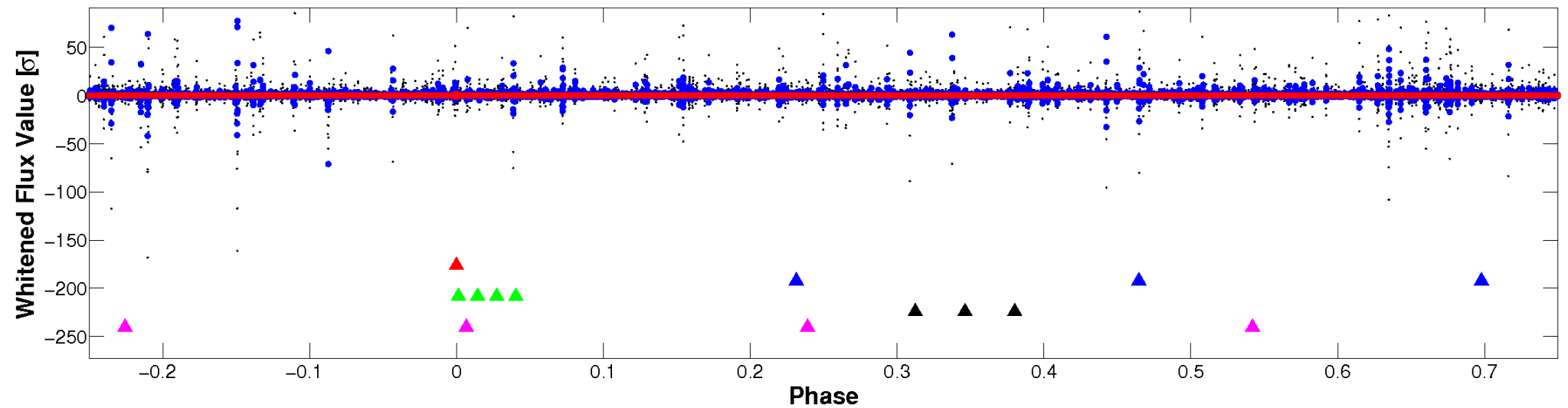


# Non-Whitened Vs. Whitened Light Curve

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

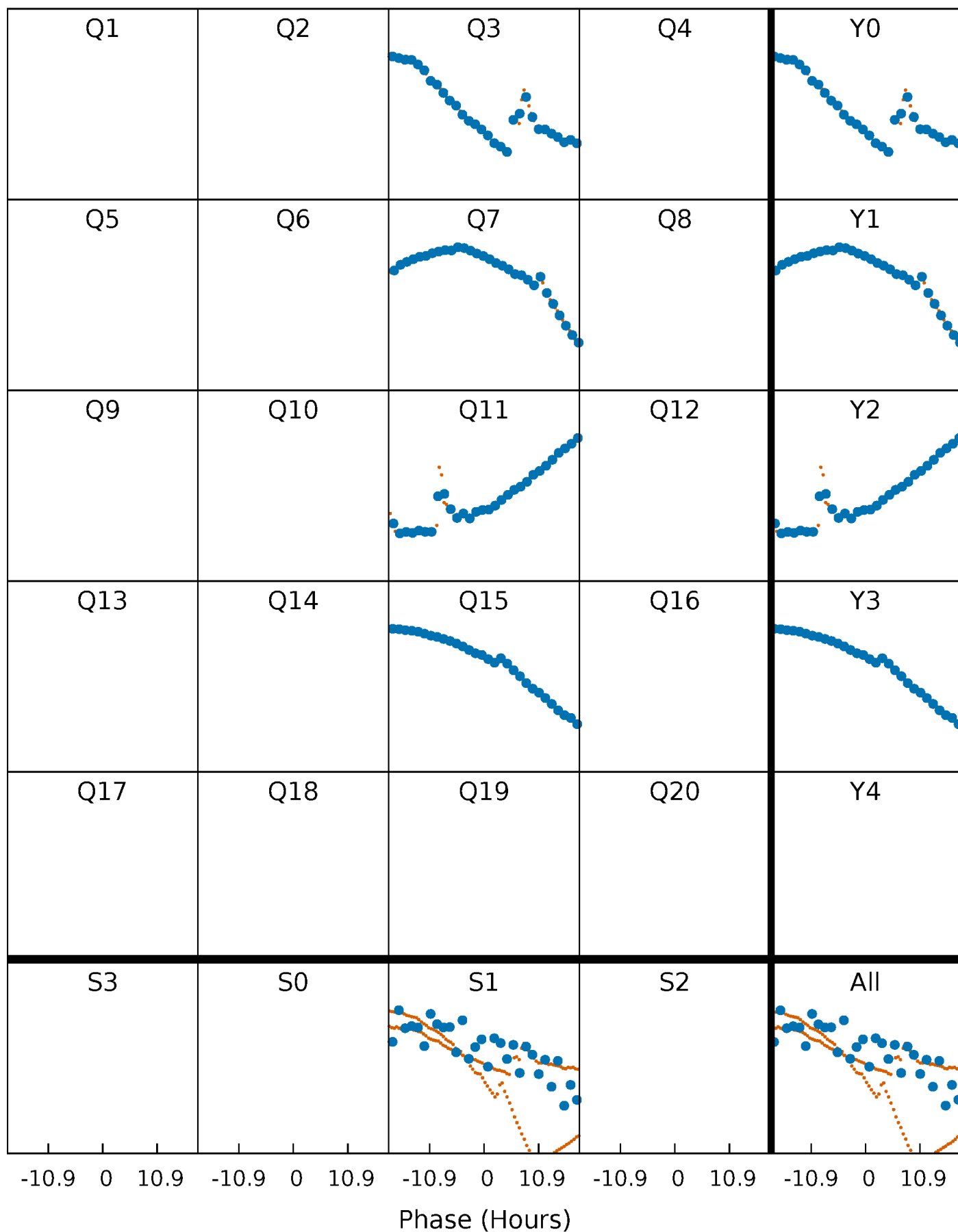


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



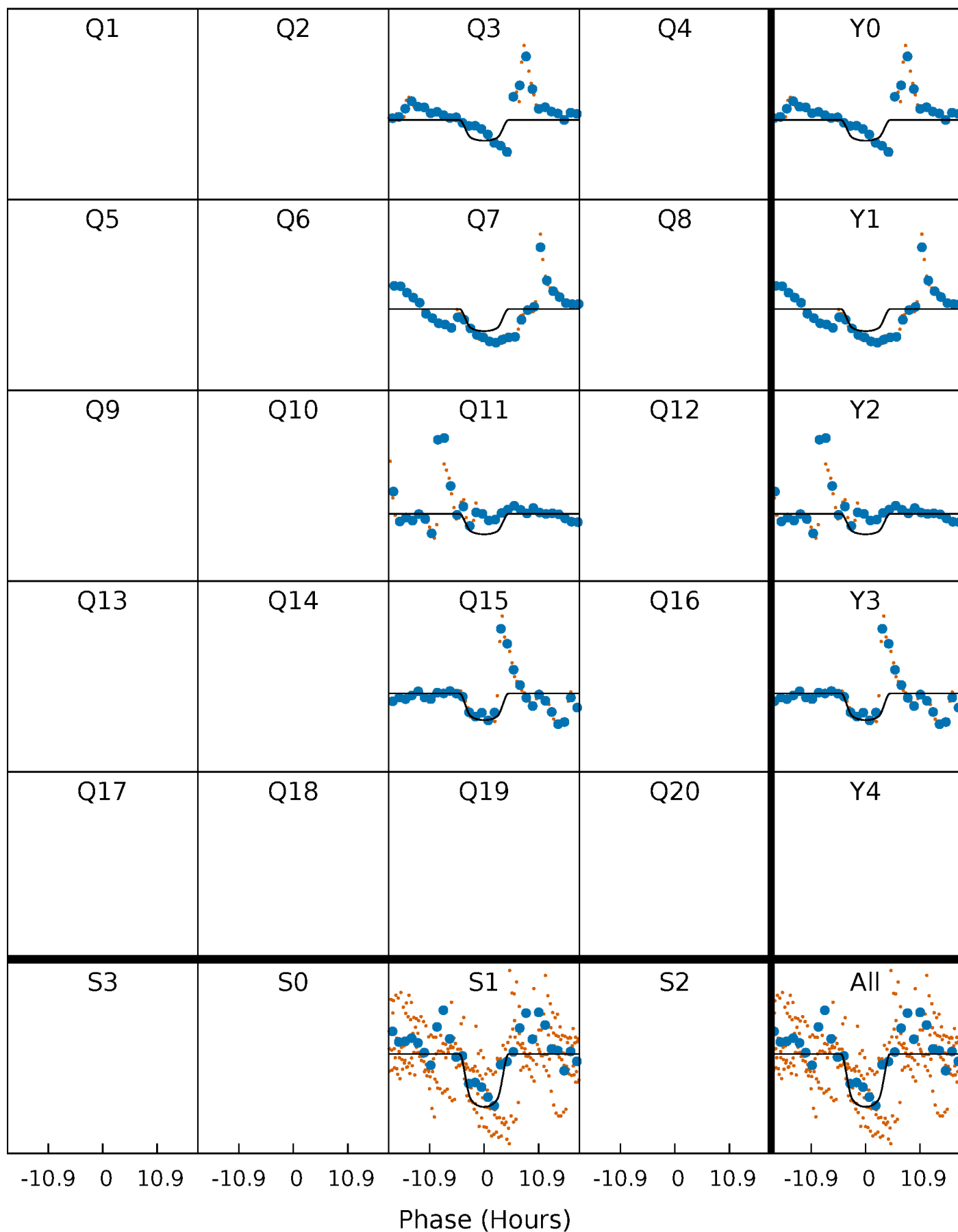
# PDC Quarter-Phased Transit Curves

TCE 007740188-01 P=379.028666 Days  $T_0=317.082480$  (BKJD)



# DV Quarter-Phased Transit Curves

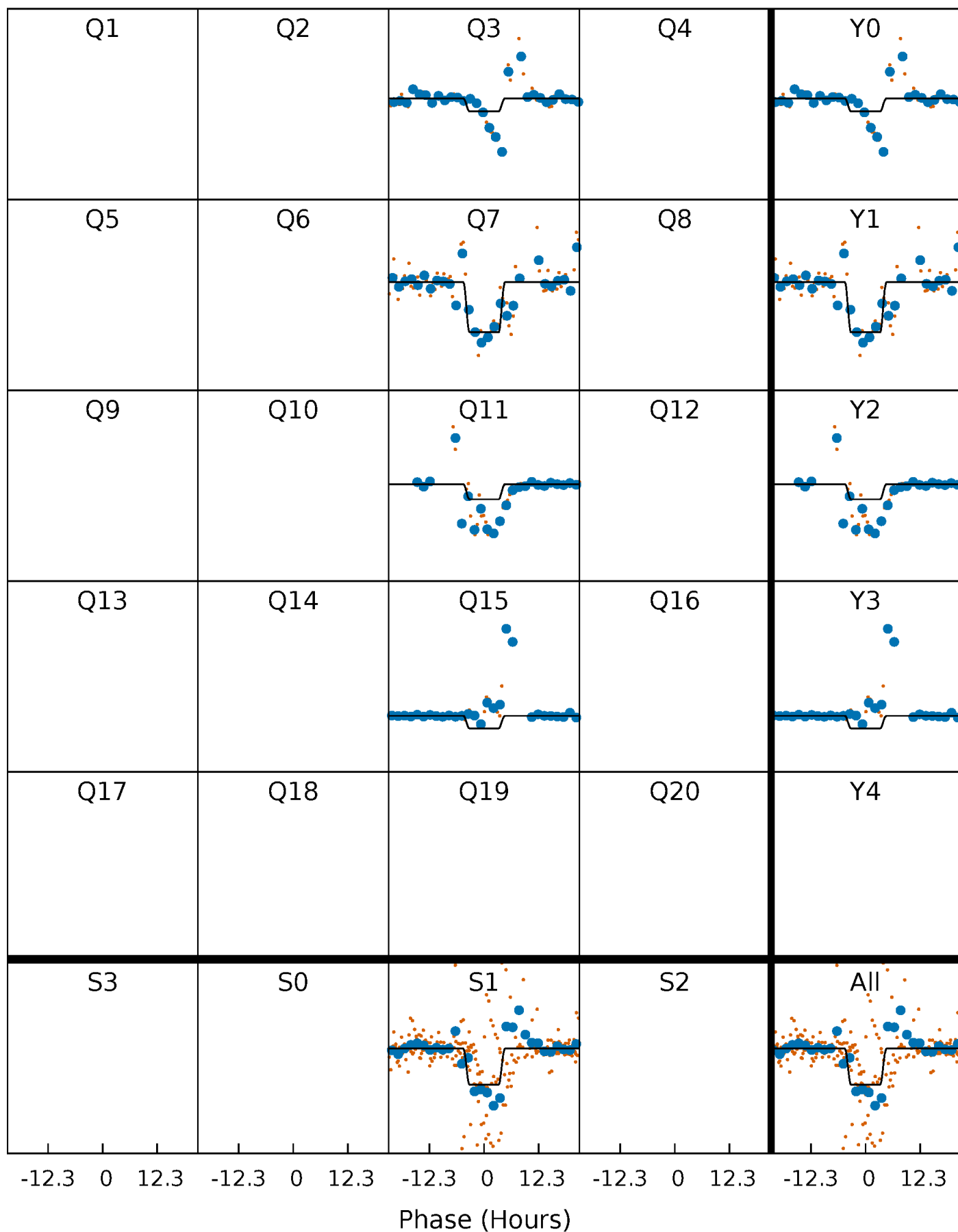
TCE 007740188-01 P=379.028666 Days  $T_0=317.082480$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

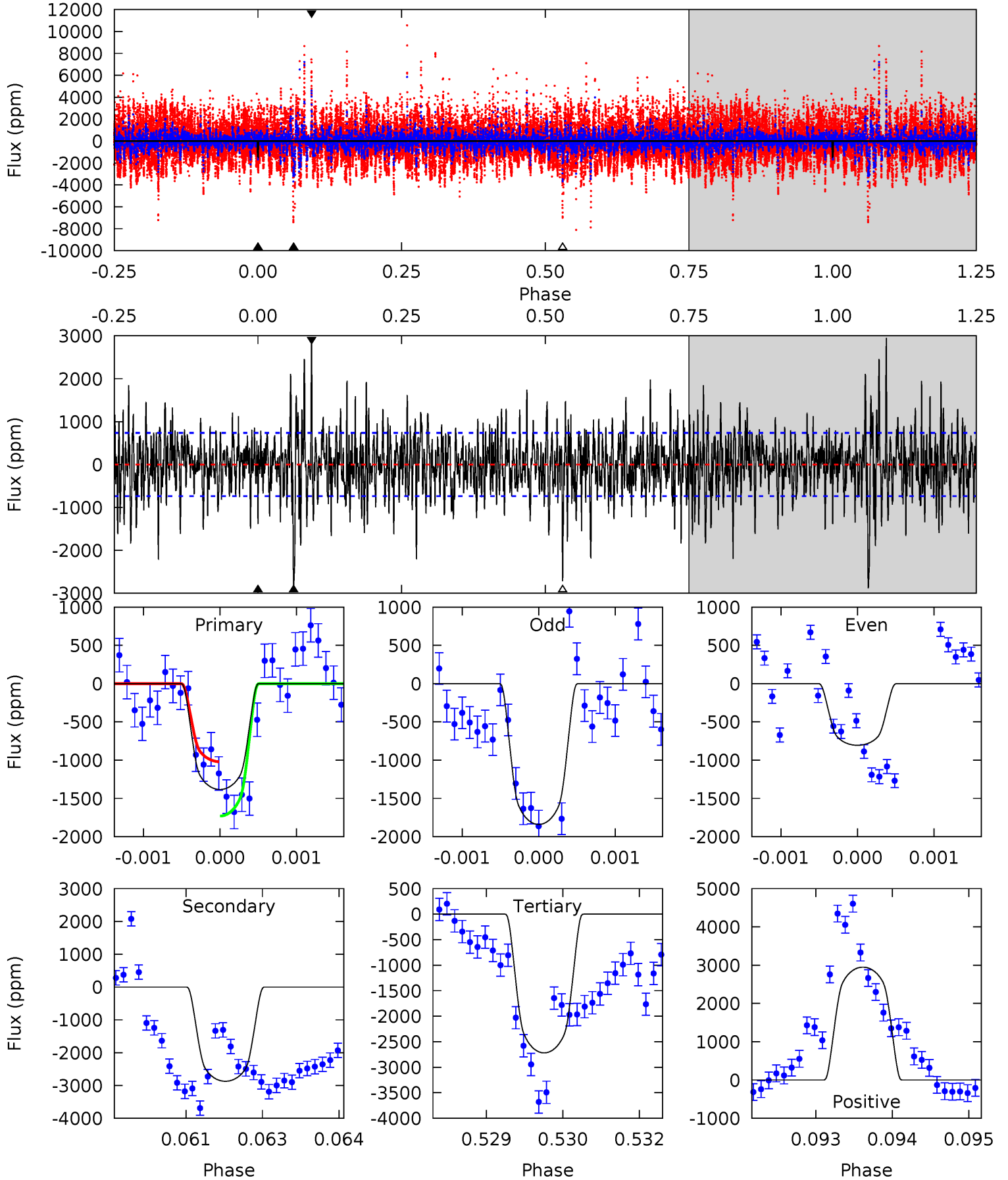
TCE 007740188-01 P=378.994860 Days  $T_0=317.127788$  (BKJD)



# DV Model-Shift Uniqueness Test

007740188-01, P = 379.028666 Days, E = 317.082480 Days

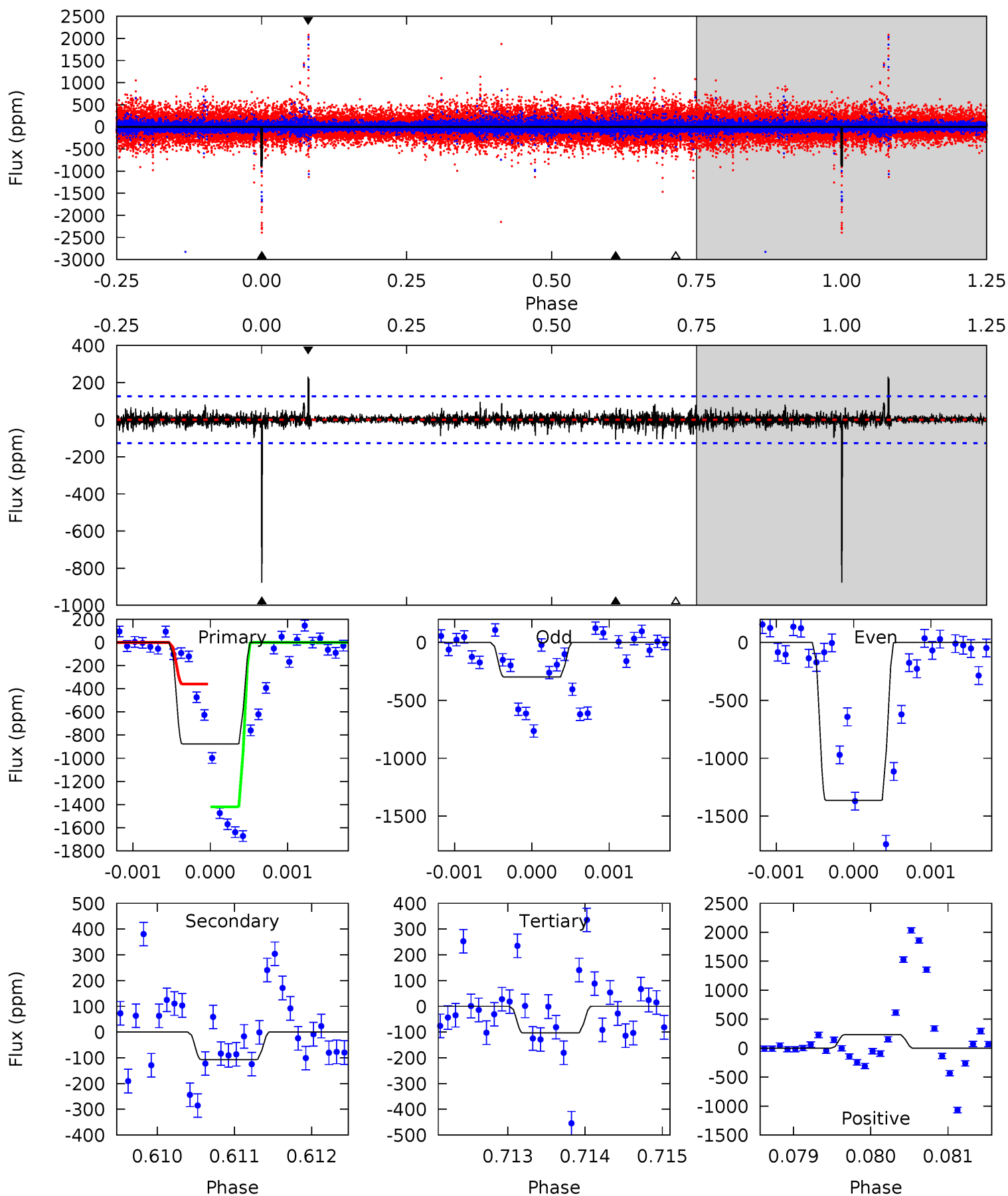
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	21.2	20.1	21.8	5.44	3.27	4.34	-9.87	-11.6	1.13	-0.57	2.46	1.14	0.51	2.67



# Alt Model-Shift Uniqueness Test

007740188-01, P = 378.994860 Days, E = 317.127788 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
37.8	4.60	4.44	9.98	5.45	3.29	0.79	33.4	27.9	0.16	-5.38	19.2	0.92	0.21	0



### Stellar Parameters For KIC 007740188

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4918^{+149}_{-1}$	$3.030^{+0.379}_{-0.310}$	$-0.400^{+0.300}_{-0.200}$	$4.727^{+2.817}_{-1.517}$	$0.873^{+0.354}_{-0.042}$	$0.012^{+0.027}_{-0.008}$
	+3%/-0%	+13%/-10%	+75%/-50%	+60%/-32%	+41%/-5%	+235%/-66%
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 007740188-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-2872 \pm 135$	$23.99^{+7.43}_{-5.71}$	$657^{+91}_{-75}$	$5260^{+293}_{-276}$	$2814^{+2044}_{-1096}$
Alt.	$-107 \pm 23$	$14.03^{+5.26}_{-3.70}$	$662^{+85}_{-78}$	$3476^{+249}_{-238}$	$303^{+274}_{-145}$

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

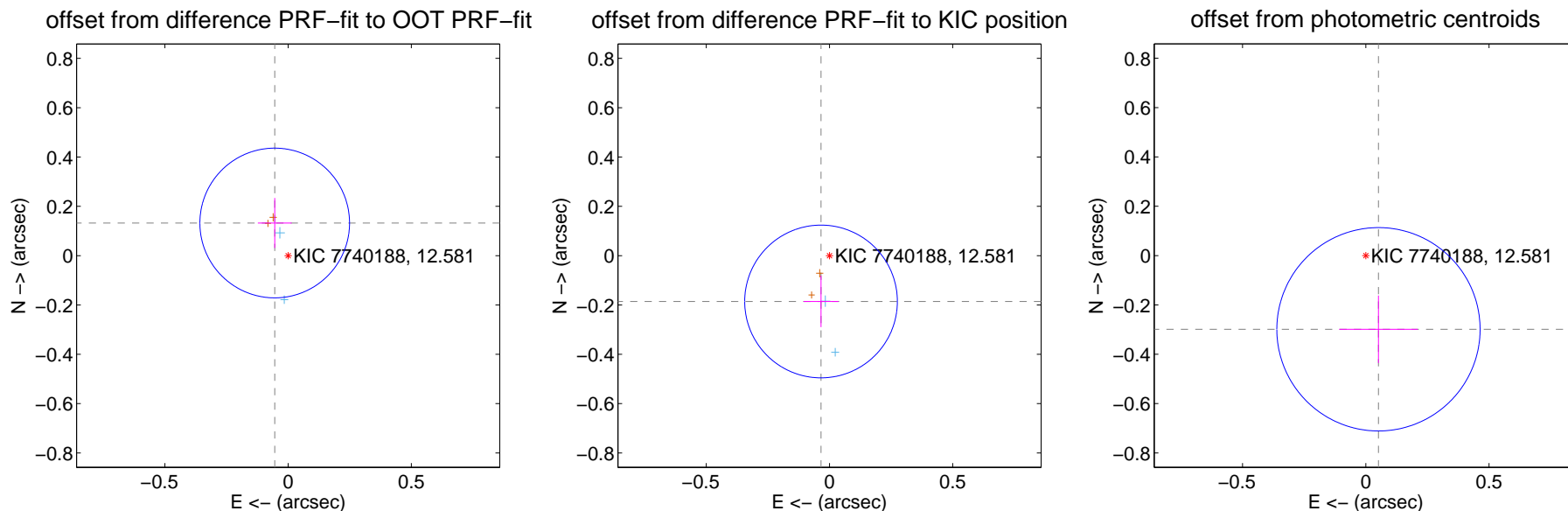
## DV Centroid Data

Supplemental centroid analysis for 007740188-01. Kepler magnitude: 12.58. Transit SNR 8.53

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	$0.143 \pm 0.101$	1.41	$0.054 \pm 0.069$	$0.132 \pm 0.101$
PRF-fit source offset from KIC position	$0.189 \pm 0.103$	1.83	$0.034 \pm 0.071$	$-0.186 \pm 0.104$
photometric centroid source offset	$0.30 \pm 0.14$	2.21	$-0.05 \pm 0.16$	$-0.30 \pm 0.14$



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.

Q1 no difference image



Q1 no OOT image



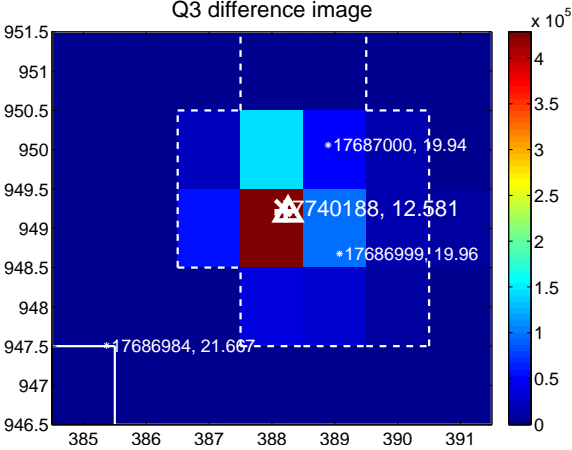
Q2 no difference image



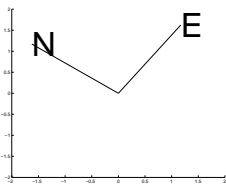
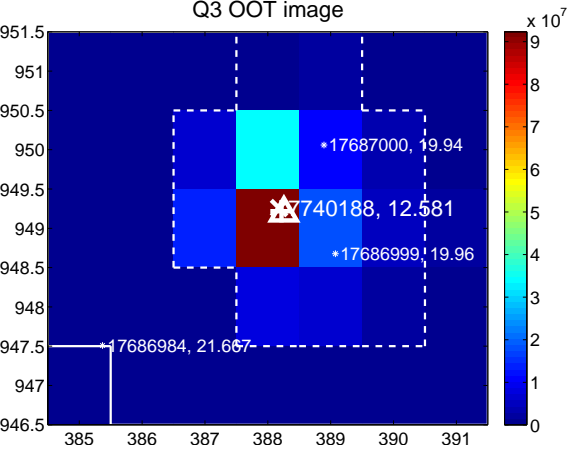
Q2 no OOT image



Q3 difference image



Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

Q5 no difference image



Q5 no OOT image



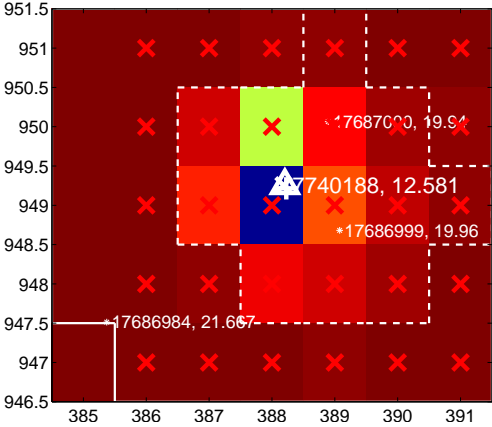
Q6 no difference image



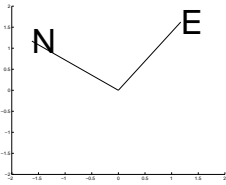
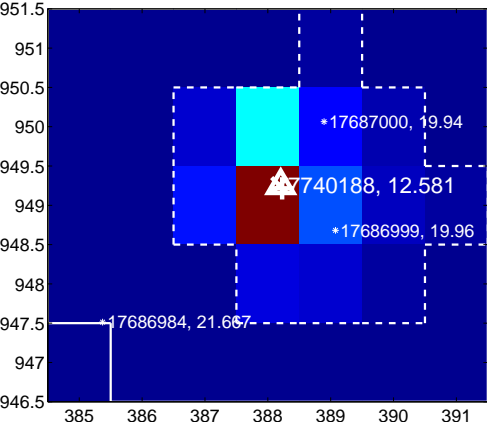
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



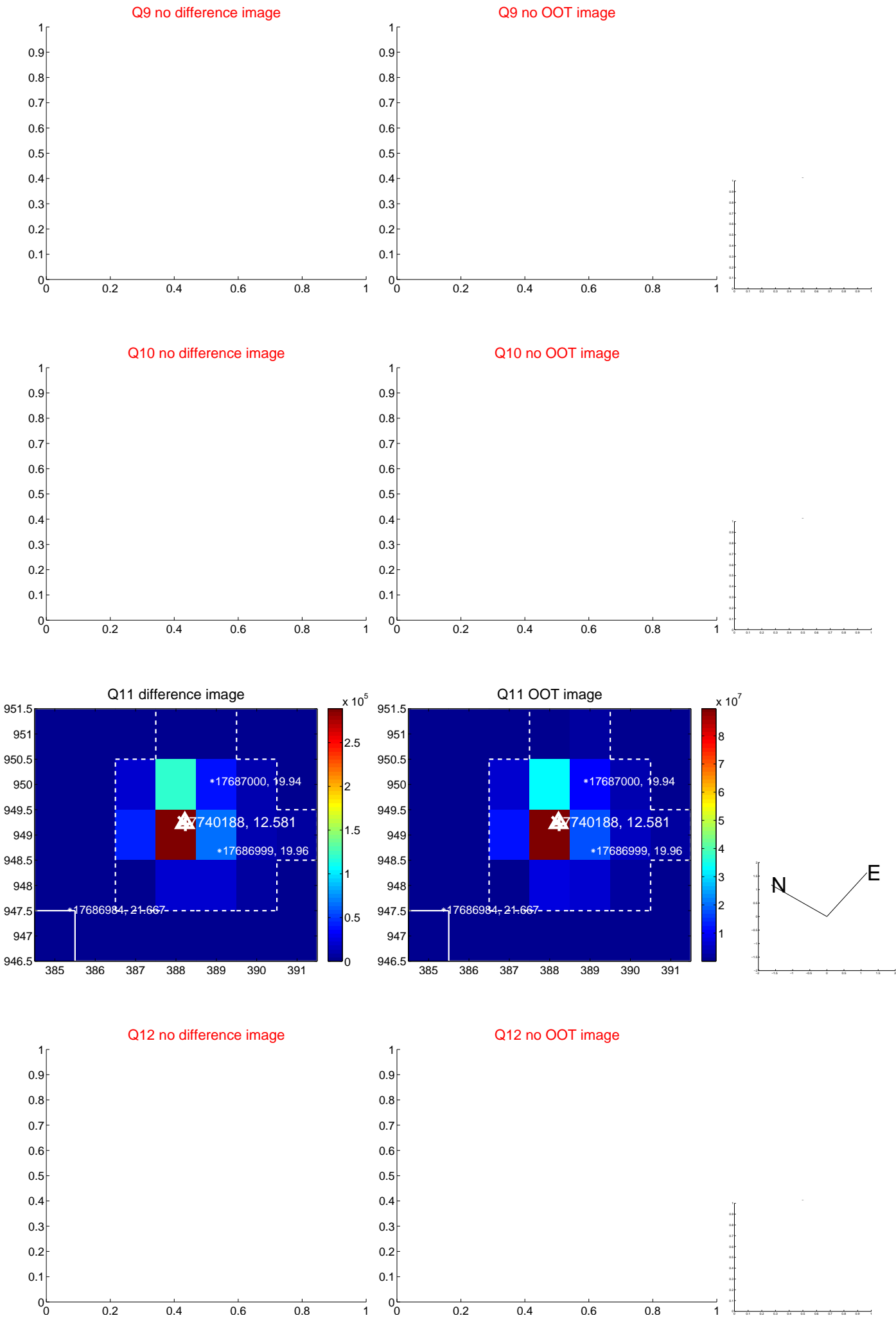
Q8 no difference image



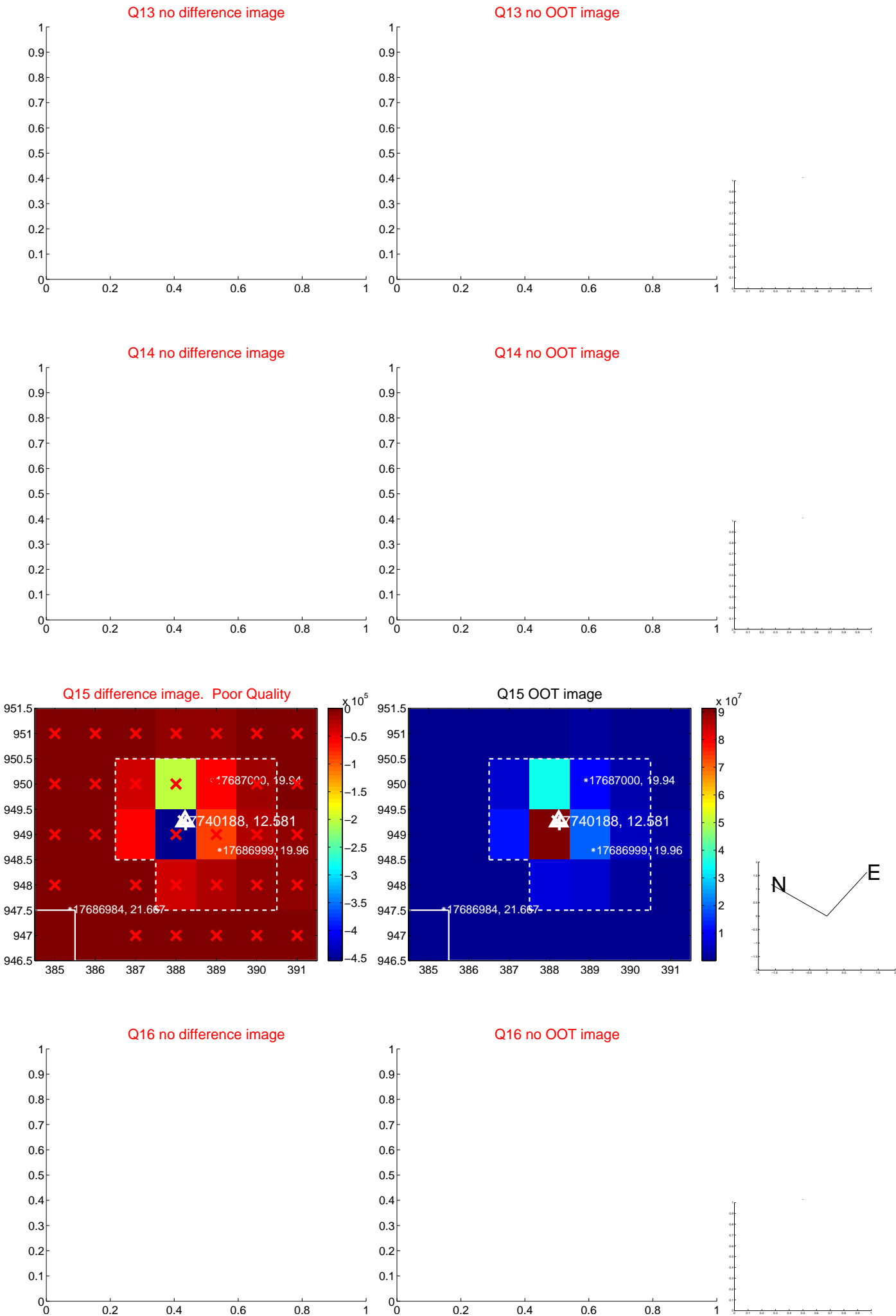
Q8 no OOT image



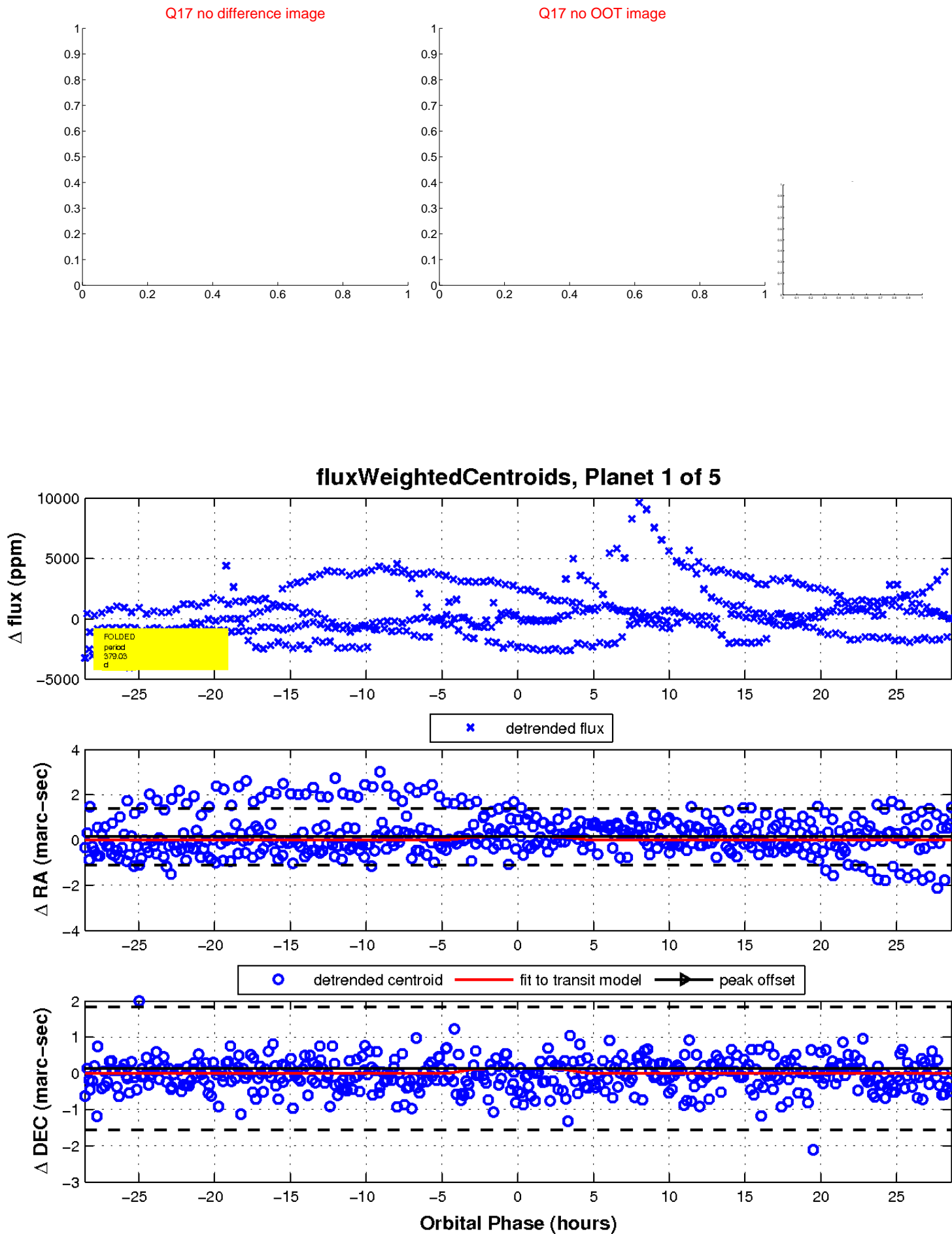
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white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



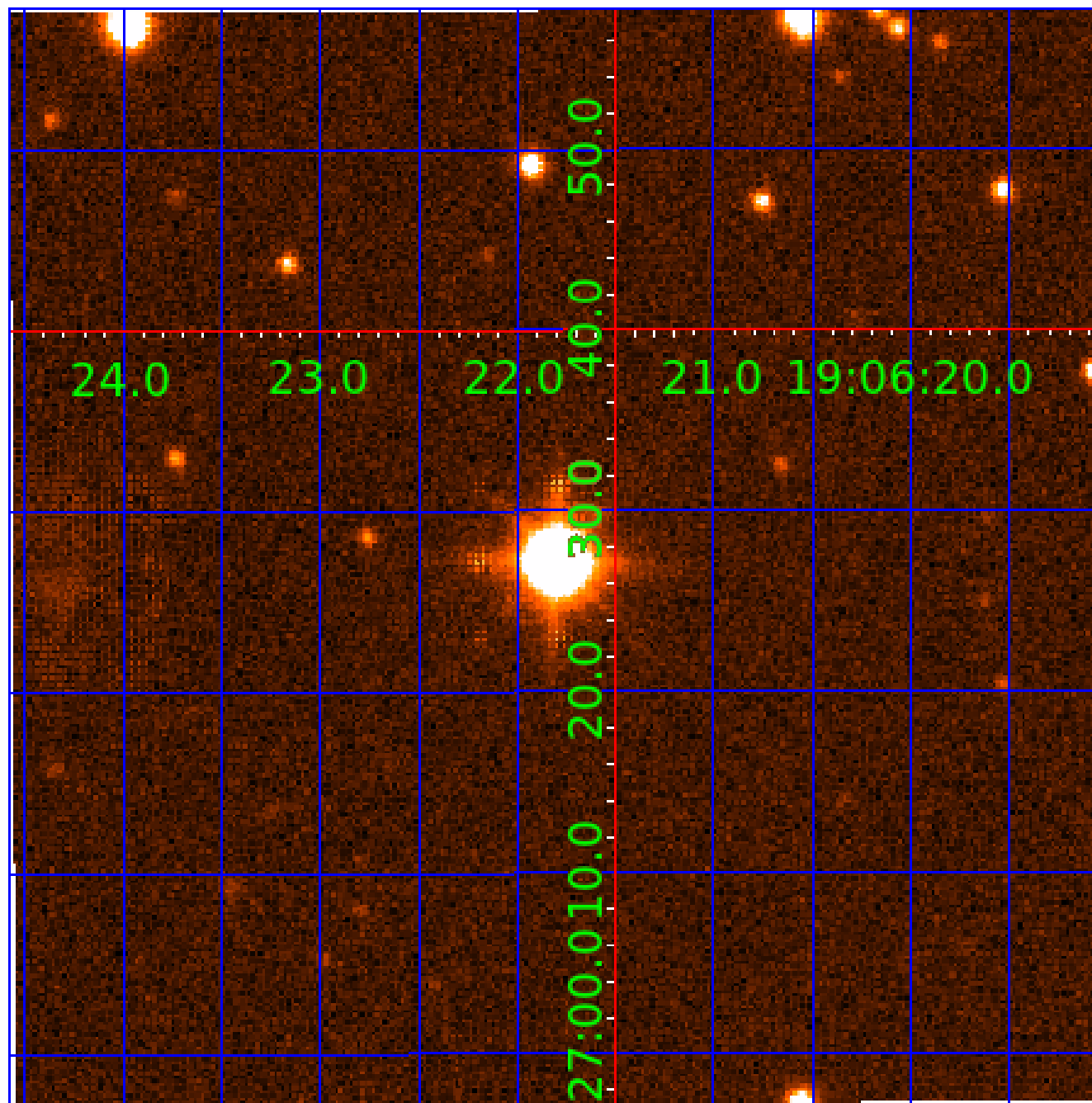
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UKIRT Image

Declination



# KIC 007740188

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007740188-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS
007740188-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
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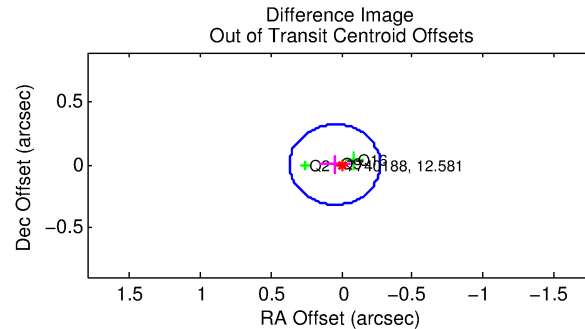
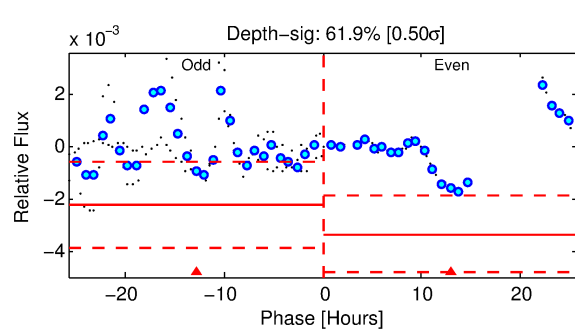
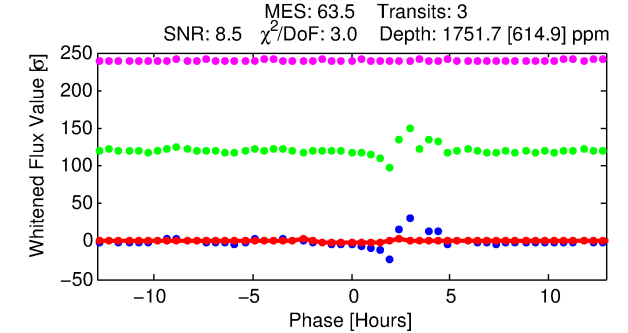
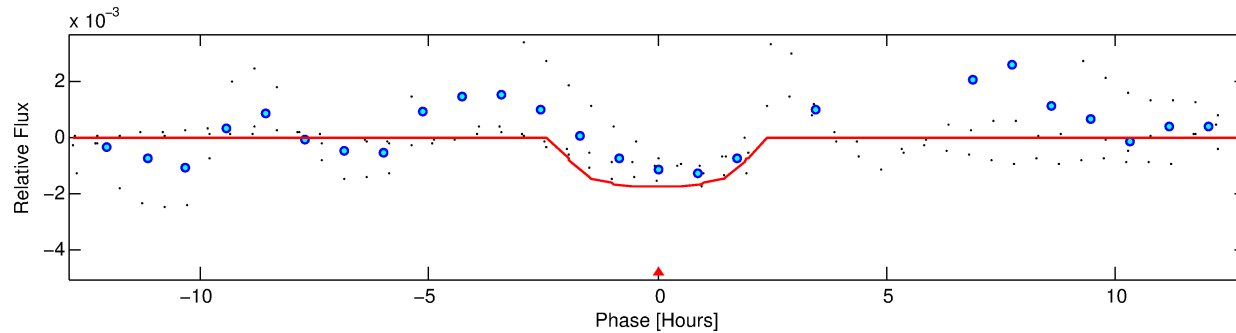
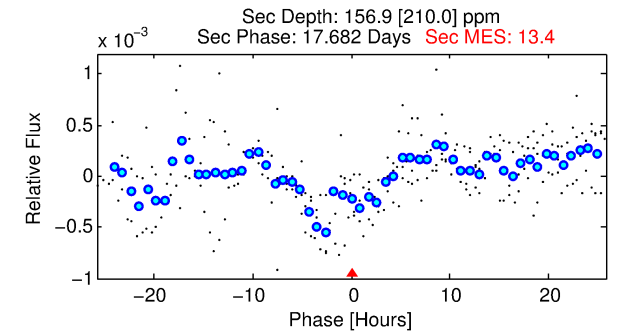
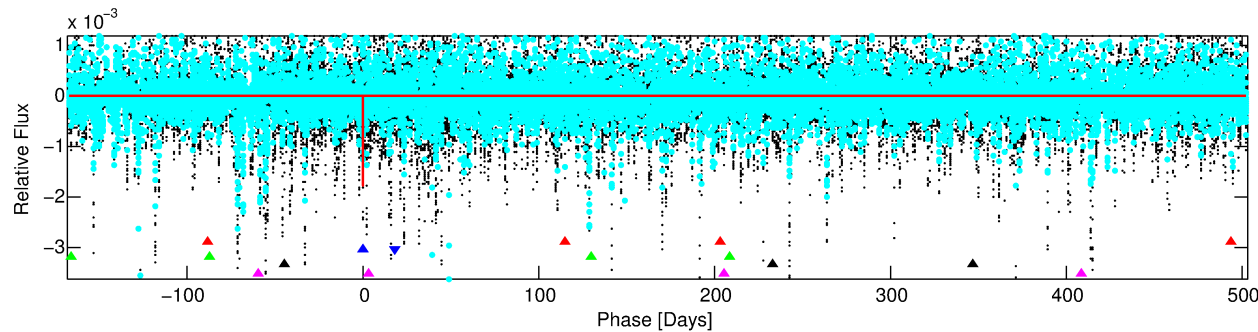
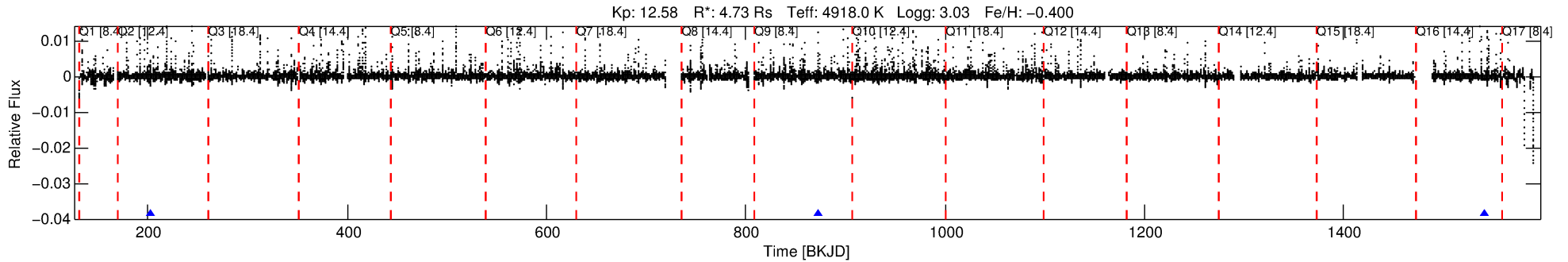
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007740188-02

No Significant Match Found

# DV One-Page Summary

KIC: 7740188 Candidate: 2 of 5 Period: 669.649 d



## DV Fit Results:

Period = 669.64874 [0.00600] d  
Epoch = 202.5820 [0.0089] BKJD  
Rp/R\* = 0.0375 [0.3531]  
a/R\* = 1201.46 [39747.79]  
b = 0.24 [135.00]  
Seff = 5.71 [4.08]  
Teff = 394 [70] K  
Rp = 19.36 [182.51] Re  
a = 1.4321 [0.7052] AU  
Ag = 472.39 [8917.73] [0.05σ]  
Teffp = 2841 [13400] K [0.18σ]

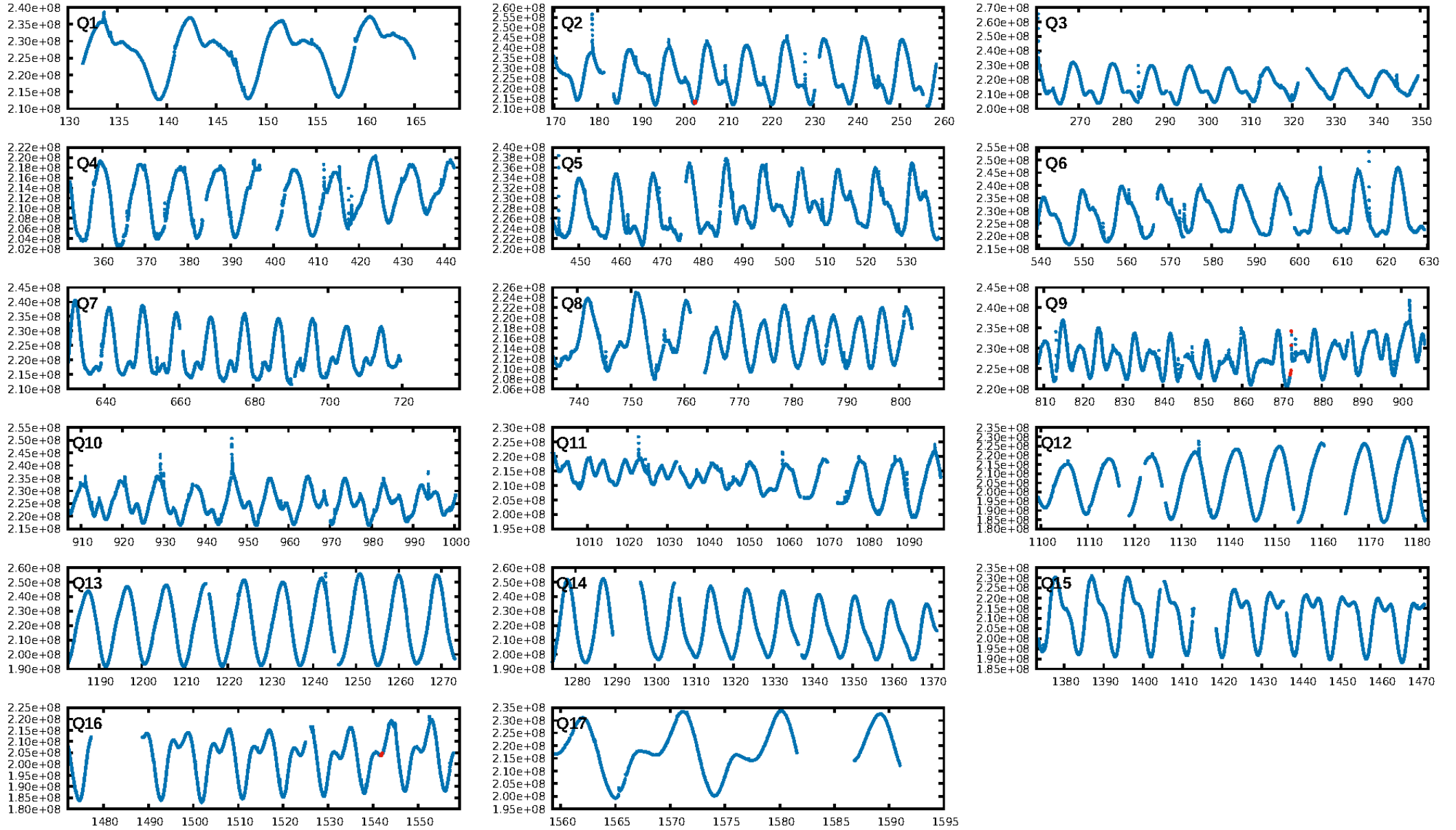
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [780.81σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 37.5%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.813  
Centroid-sig: 26.3%  
Centroid-so: 0.255 arcsec [1.38σ]  
OotOffset-rm: 0.047 arcsec [0.44σ]  
OotOffset-st: 1/0/1/1 [3]  
KicOffset-rm: 0.297 arcsec [4.16σ]  
KicOffset-st: 1/0/1/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

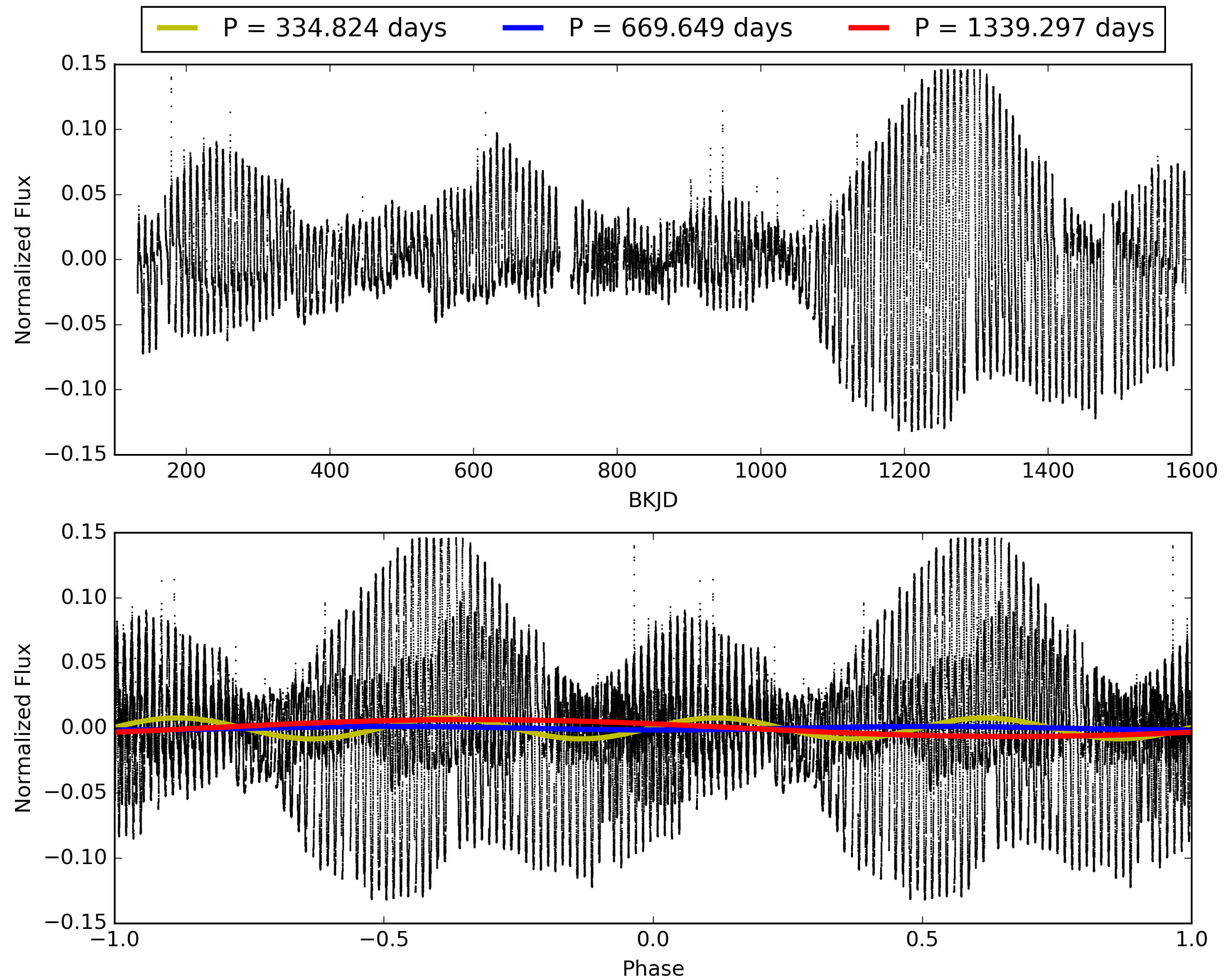
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:31:54 Z

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

# TCE 007740188-02, PDC Light Curves



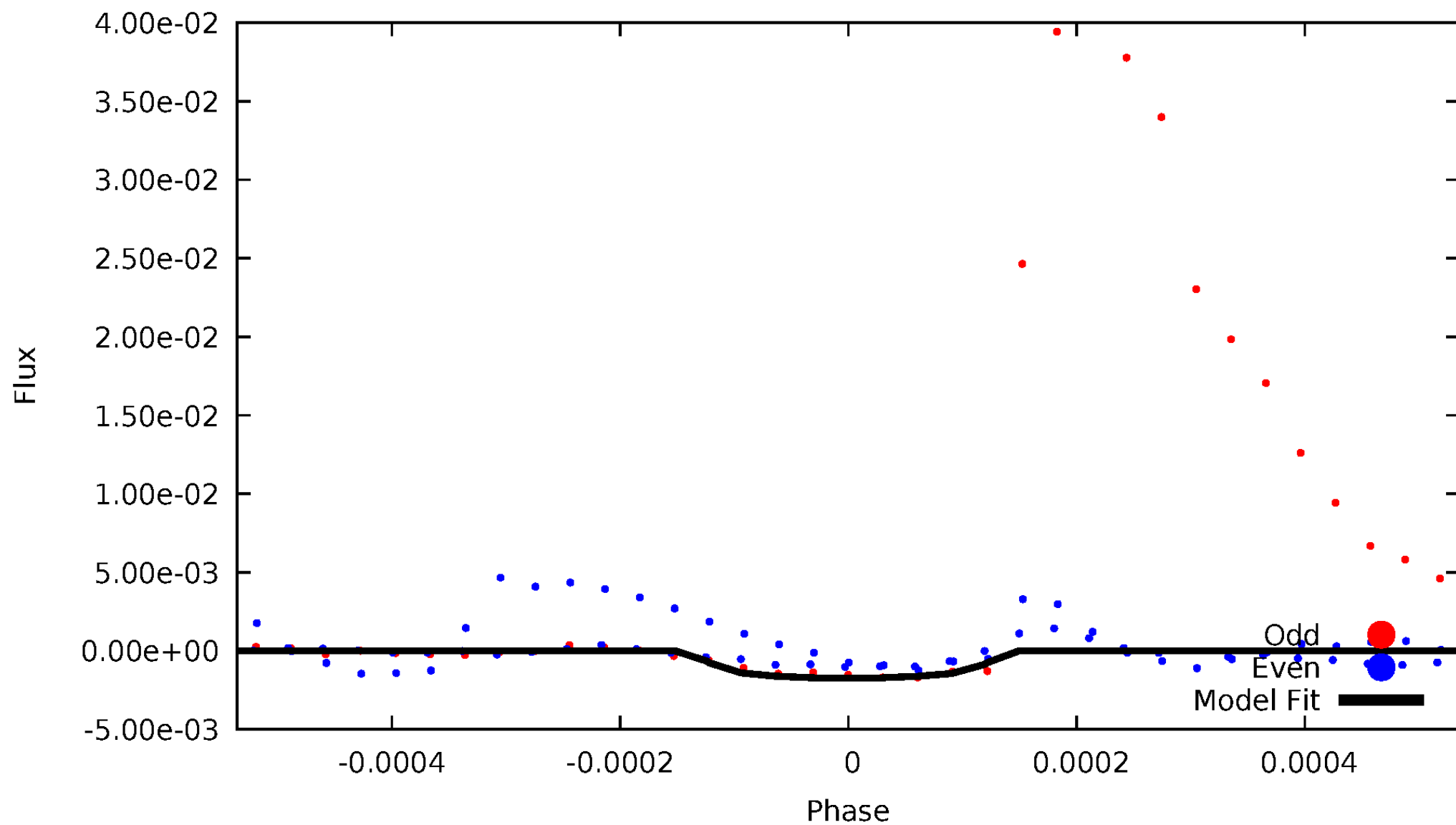
# TCE 007740188-02





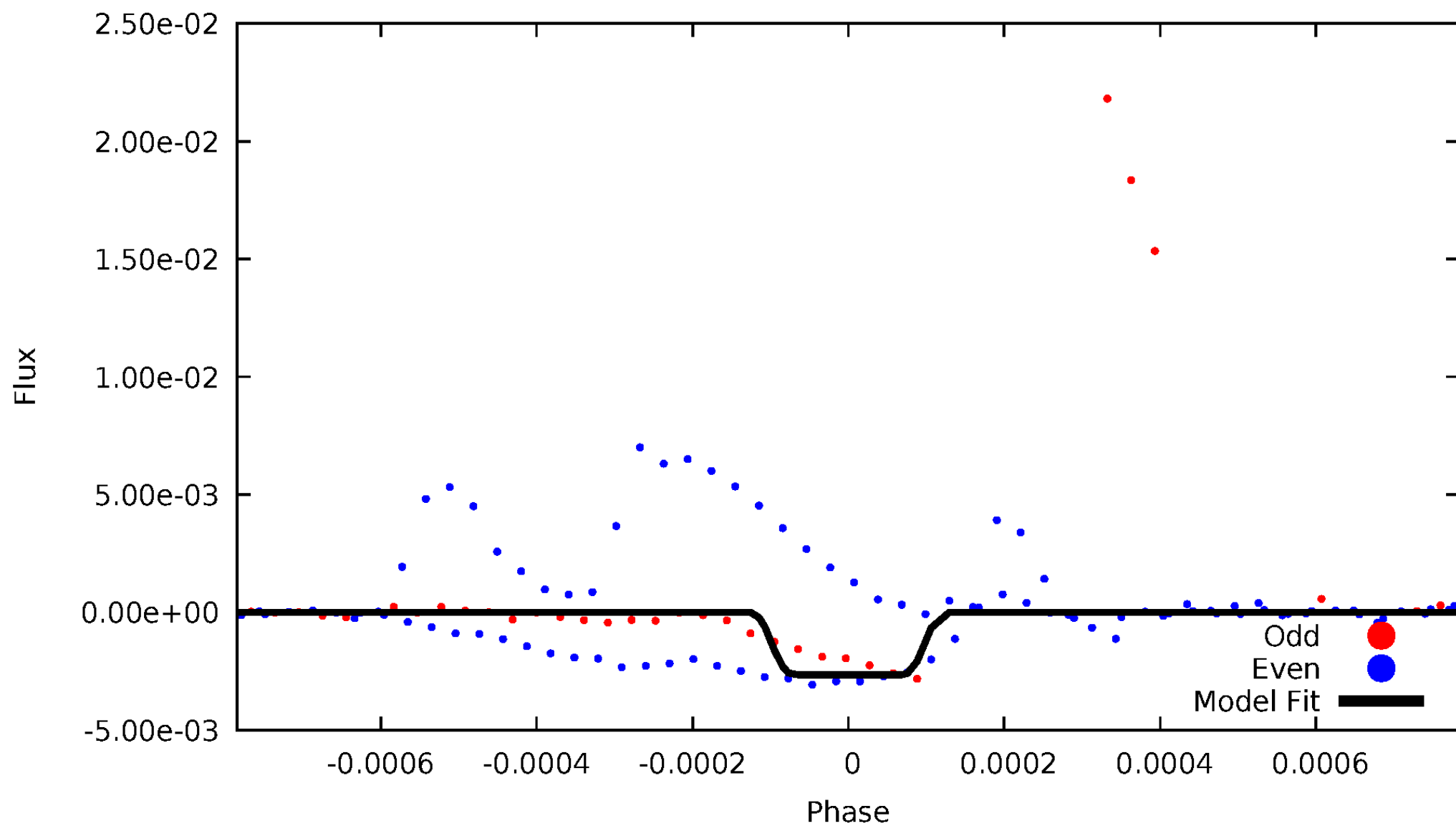
# DV Odd/Even

TCE 007740188-02



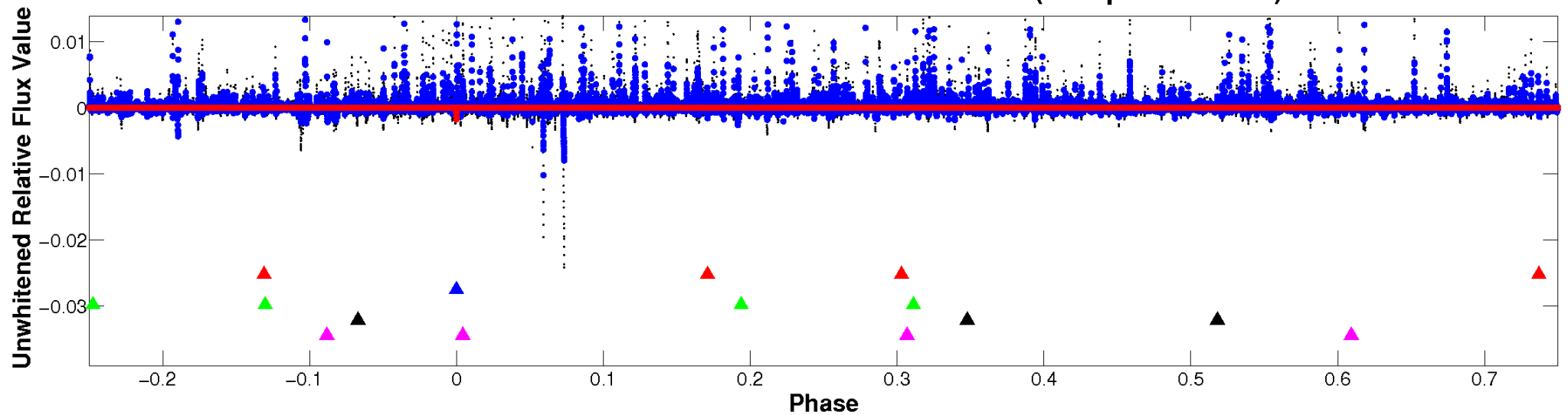
# ALT Odd/Even

TCE 007740188-02

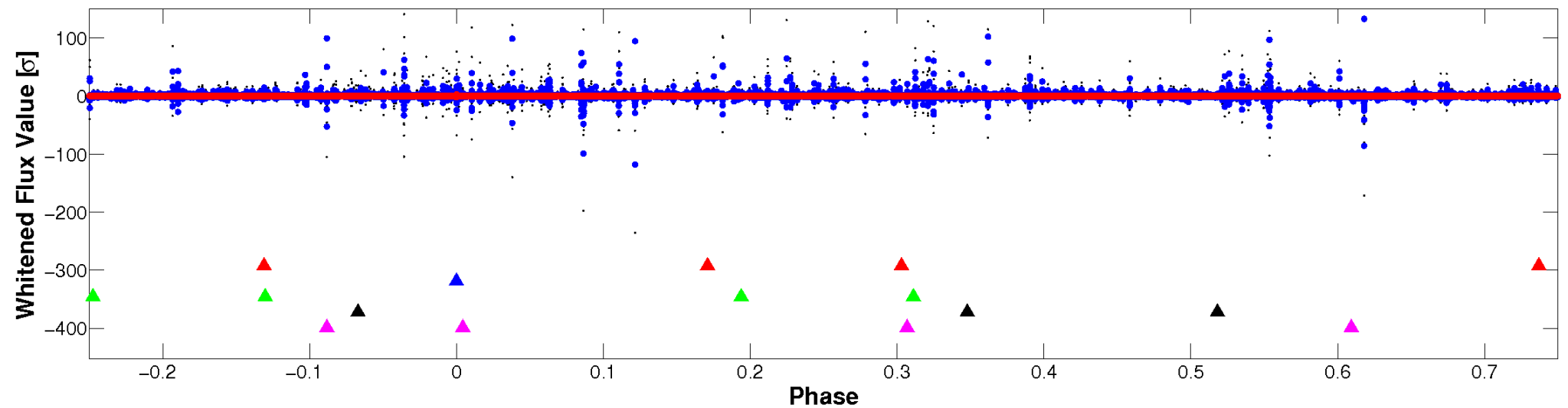


# Non-Whitened Vs. Whitened Light Curve

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

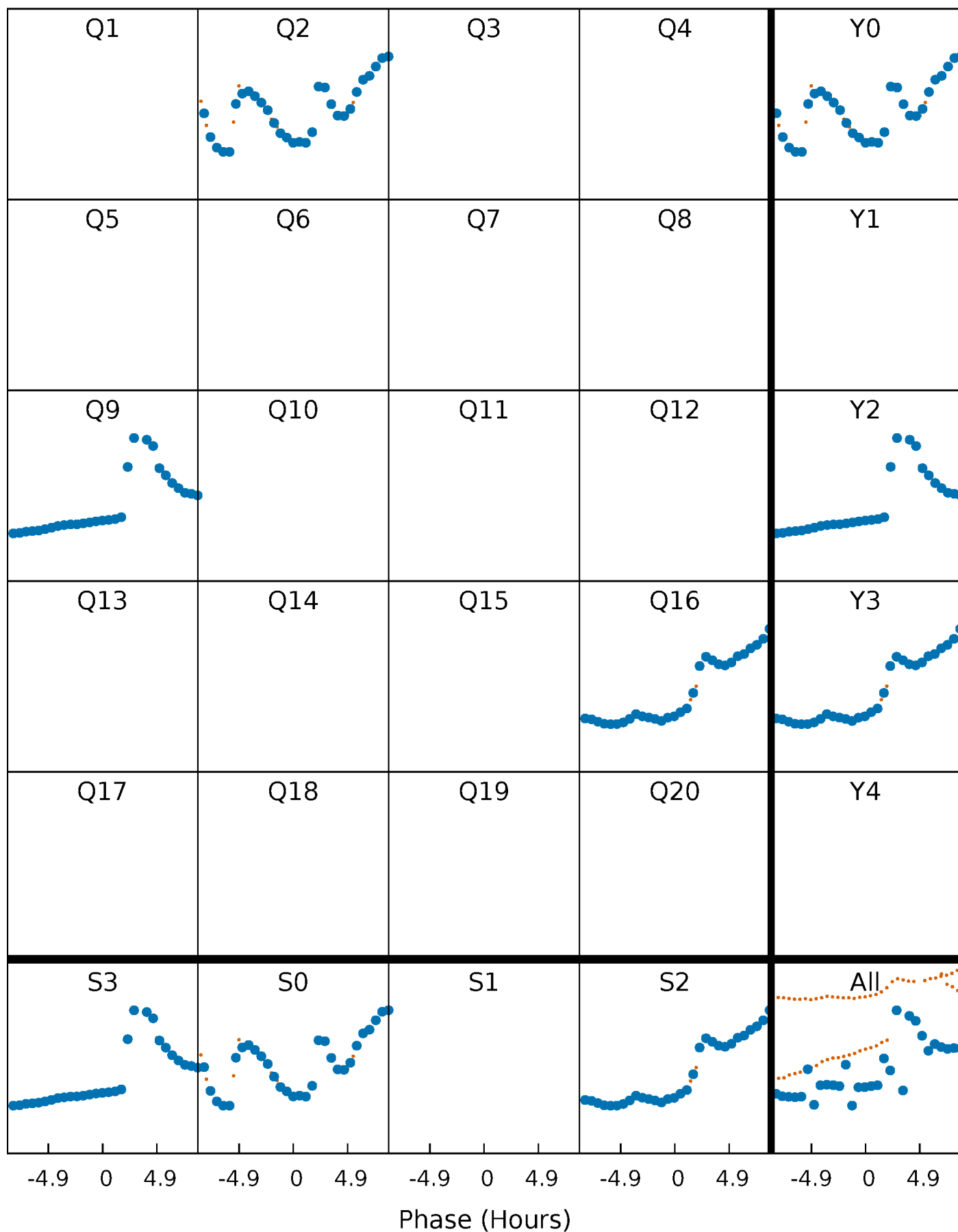


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



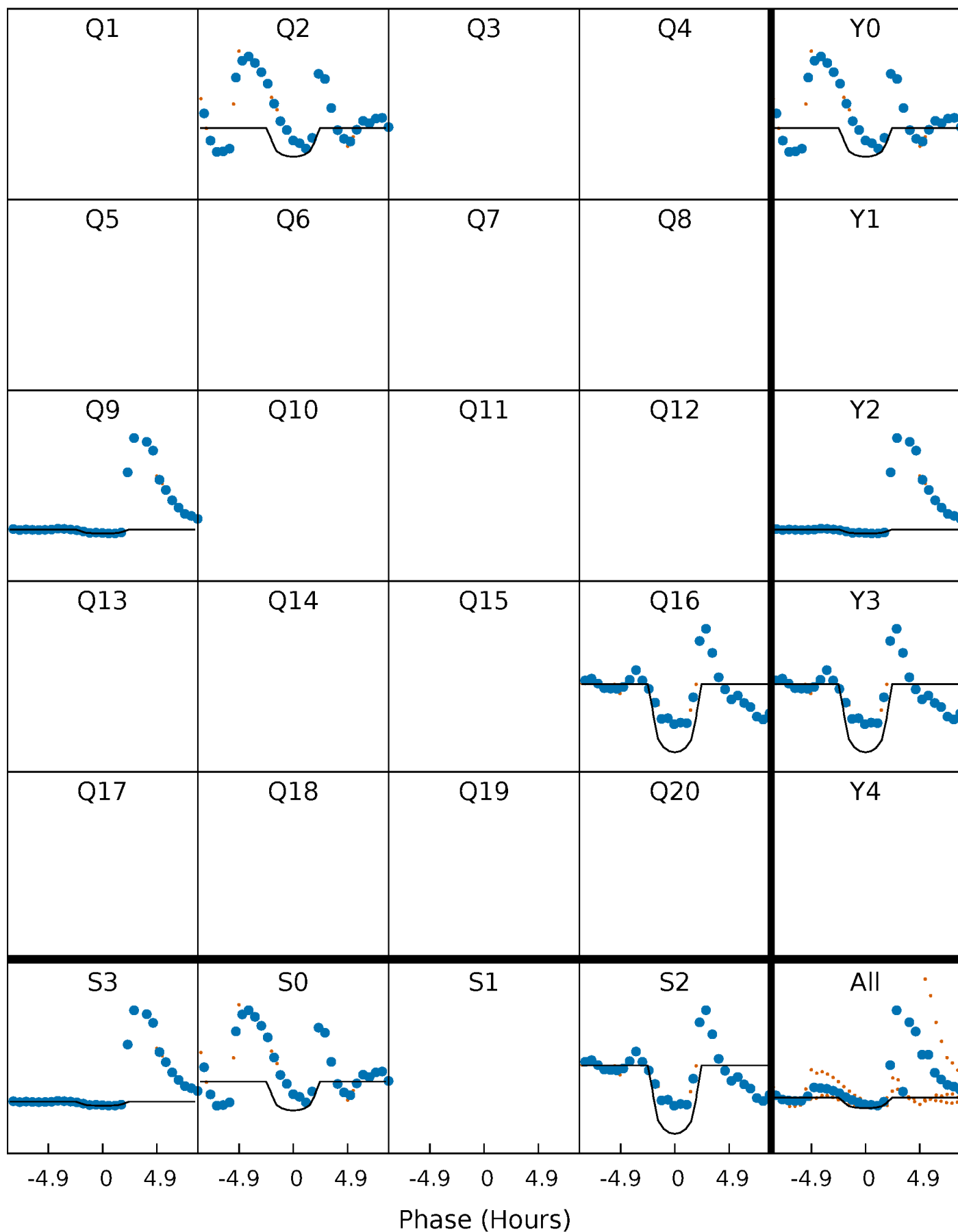
# PDC Quarter-Phased Transit Curves

TCE 007740188-02 P=669.648737 Days  $T_0=202.581999$  (BKJD)



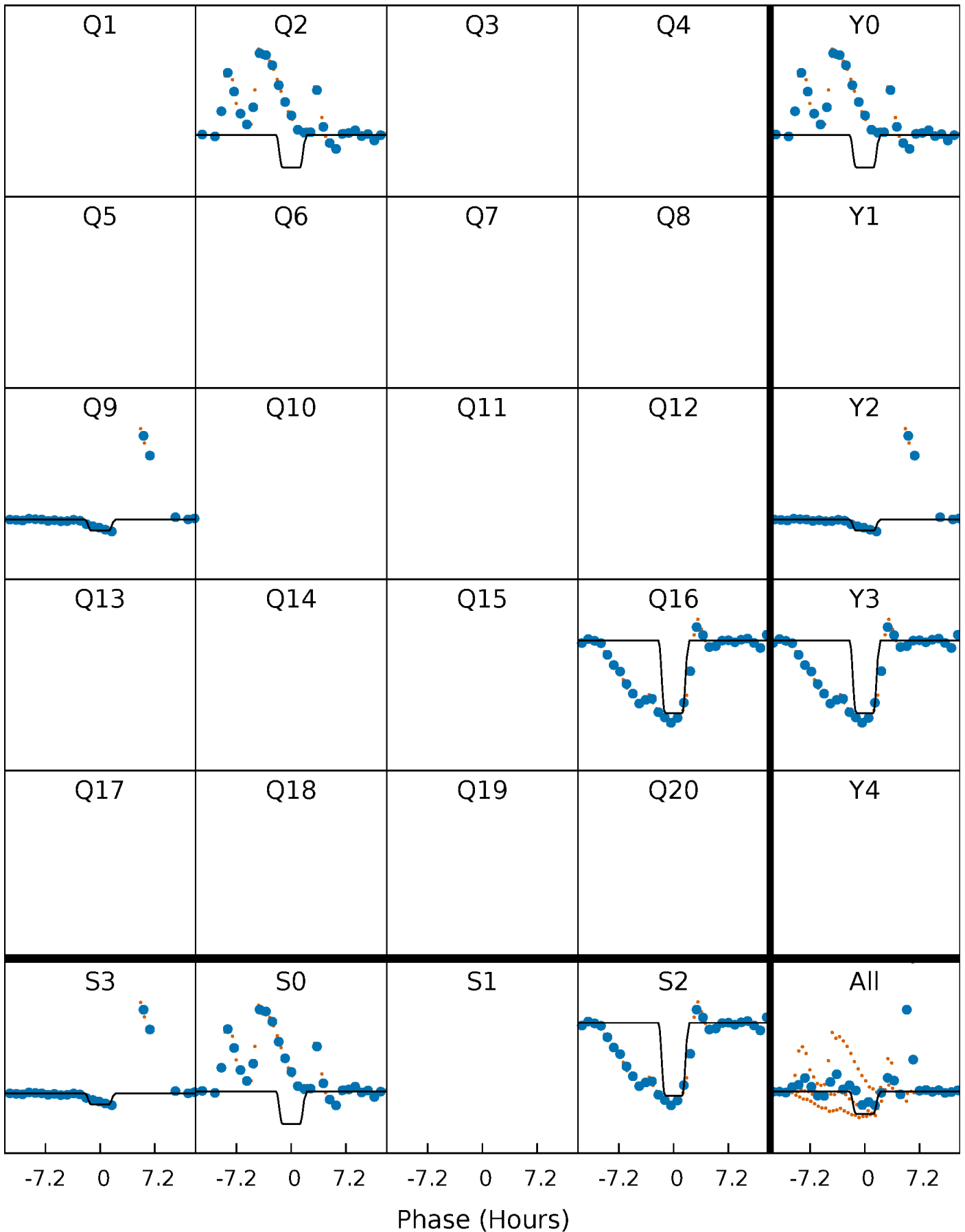
# DV Quarter-Phased Transit Curves

TCE 007740188-02 P=669.648737 Days  $T_0=202.581999$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

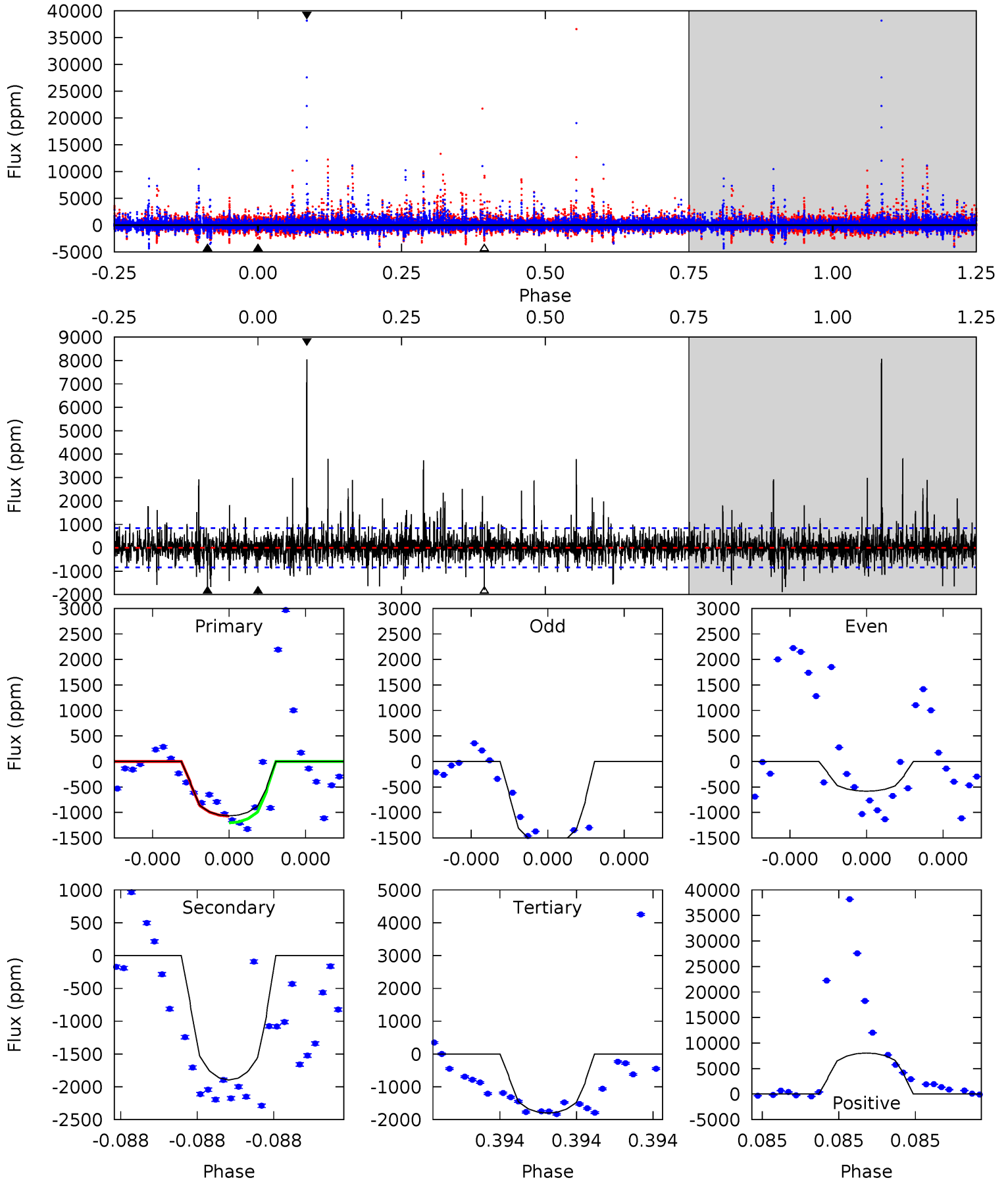
TCE 007740188-02 P=669.655440 Days  $T_0=202.556909$  (BKJD)



# DV Model-Shift Uniqueness Test

007740188-02, P = 669.648737 Days, E = 202.581999 Days

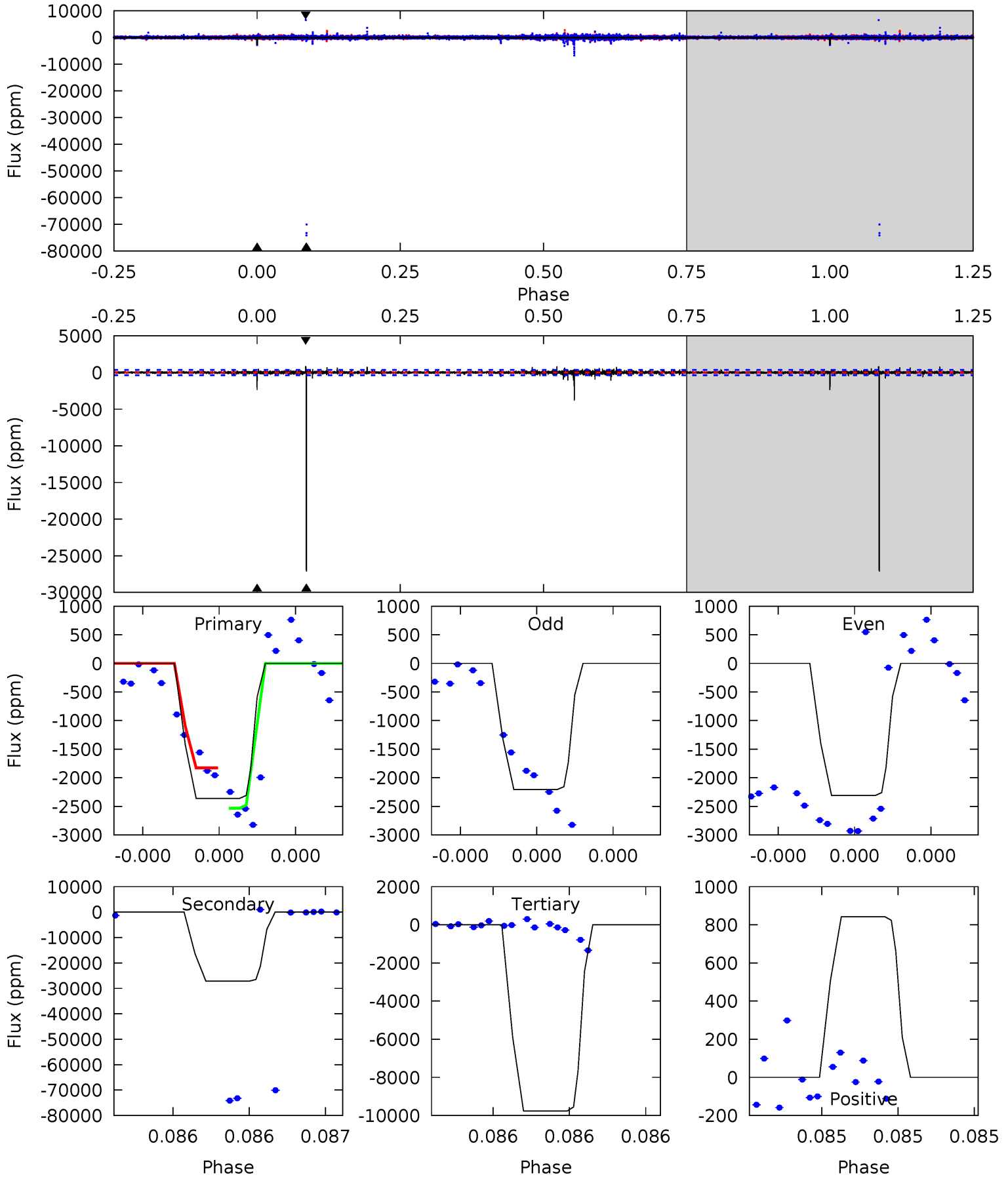
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.22	12.8	12.2	54.5	5.70	3.67	2.63	-4.97	-47.3	0.64	-41.7	1.38	1.02	0.81	0.45



# Alt Model-Shift Uniqueness Test

007740188-02, P = 669.655440 Days, E = 202.556909 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
37.4	430.3	154.9	13.4	5.72	3.70	3.36	-117.5	24.1	275.4	416.9	0.67	0.53	0.03	5.53





### Stellar Parameters For KIC 007740188

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4918^{+149}_{-1}$	$3.030^{+0.379}_{-0.310}$	$-0.400^{+0.300}_{-0.200}$	$4.727^{+2.817}_{-1.517}$	$0.873^{+0.354}_{-0.042}$	$0.012^{+0.027}_{-0.008}$
	+3%/-0%	+13%/-10%	+75%/-50%	+60%/-32%	+41%/-5%	+235%/-66%
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 007740188-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1895 \pm 148$	$127.90^{+155.56}_{-90.07}$	$547^{+72}_{-62}$	$2765^{+1237}_{-446}$	$143^{+1463}_{-114}$
Alt.	$-27127 \pm 63$	$136.01^{+159.45}_{-91.60}$	$545^{+74}_{-62}$	$4170^{+2539}_{-934}$	$1884^{+16134}_{-1481}$

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

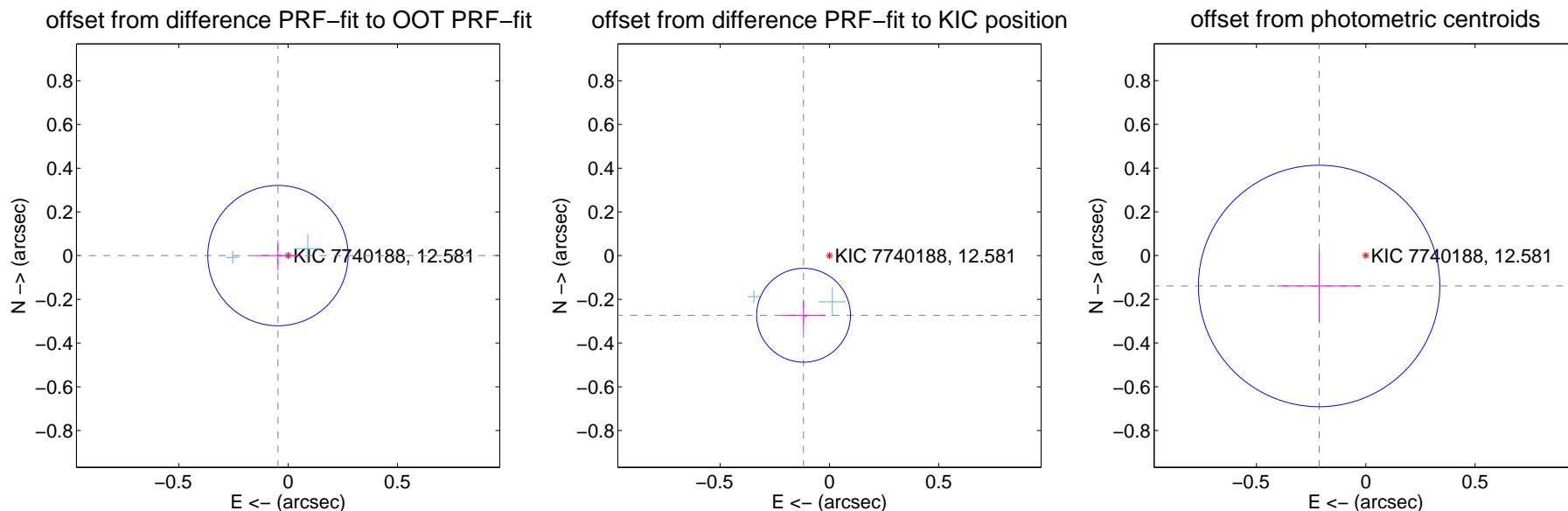
## DV Centroid Data

Supplemental centroid analysis for 007740188-02. Kepler magnitude: 12.58. Transit SNR 8.52

There are 3 quarters with good PRF difference image offsets

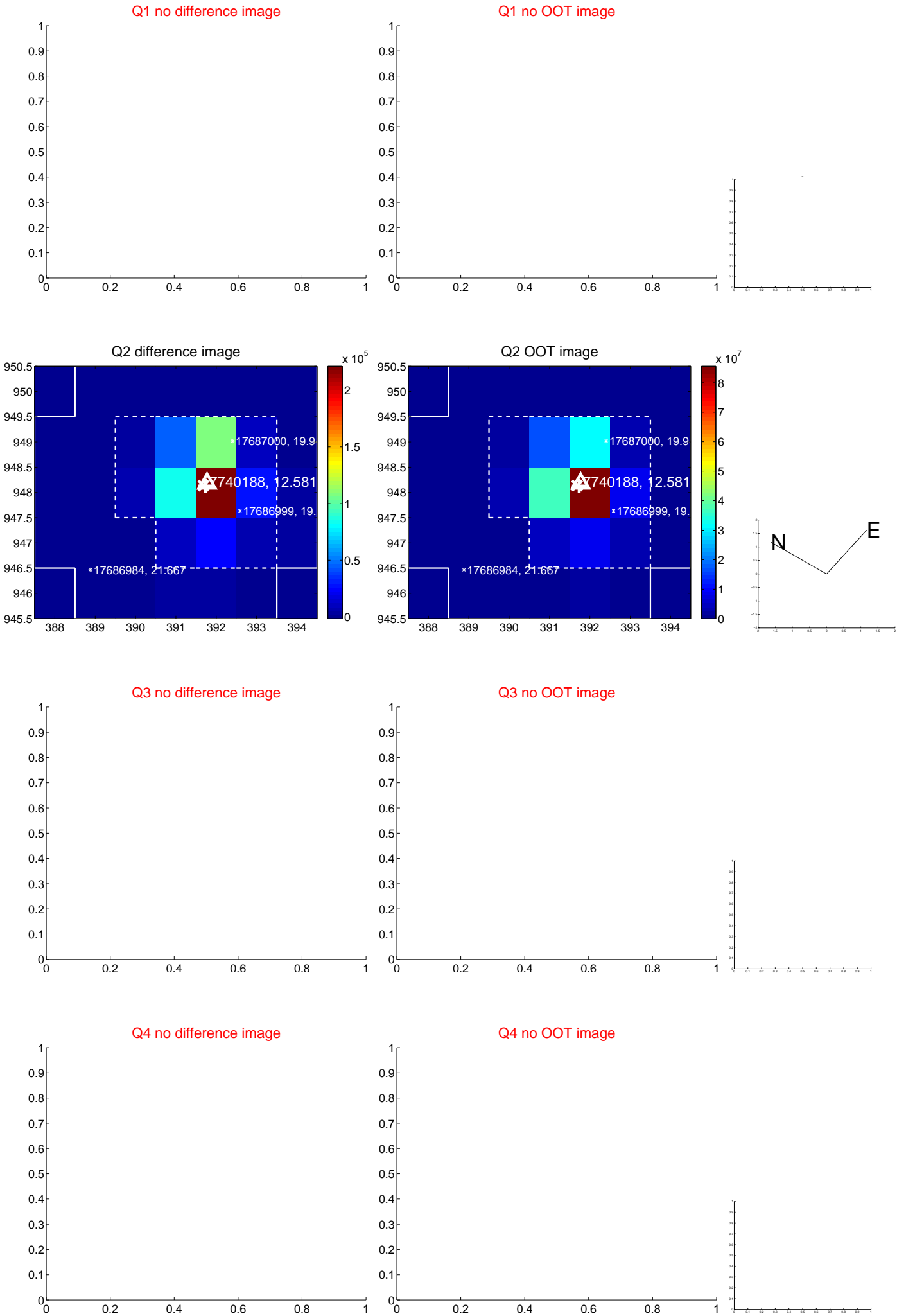
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.047 \pm 0.107$	0.44	$0.047 \pm 0.107$	$0.000 \pm 0.068$
PRF-fit source offset from KIC position	<b><math>0.297 \pm 0.072</math></b>	<b>4.16</b>	$0.119 \pm 0.102$	$-0.273 \pm 0.070$
photometric centroid source offset	$0.25 \pm 0.18$	1.38	$0.21 \pm 0.19$	$-0.14 \pm 0.17$



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.

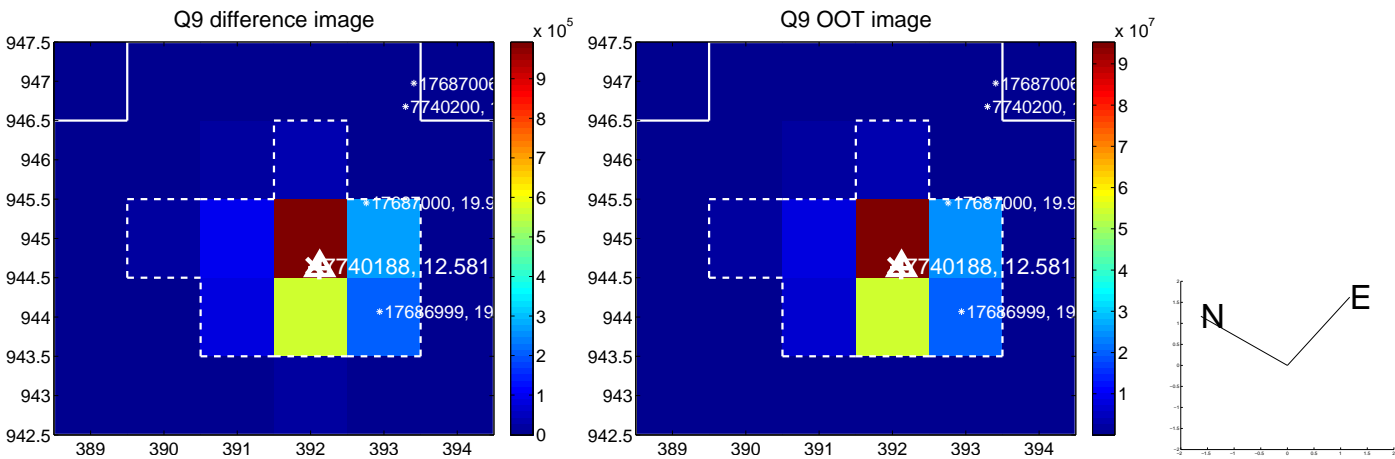
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



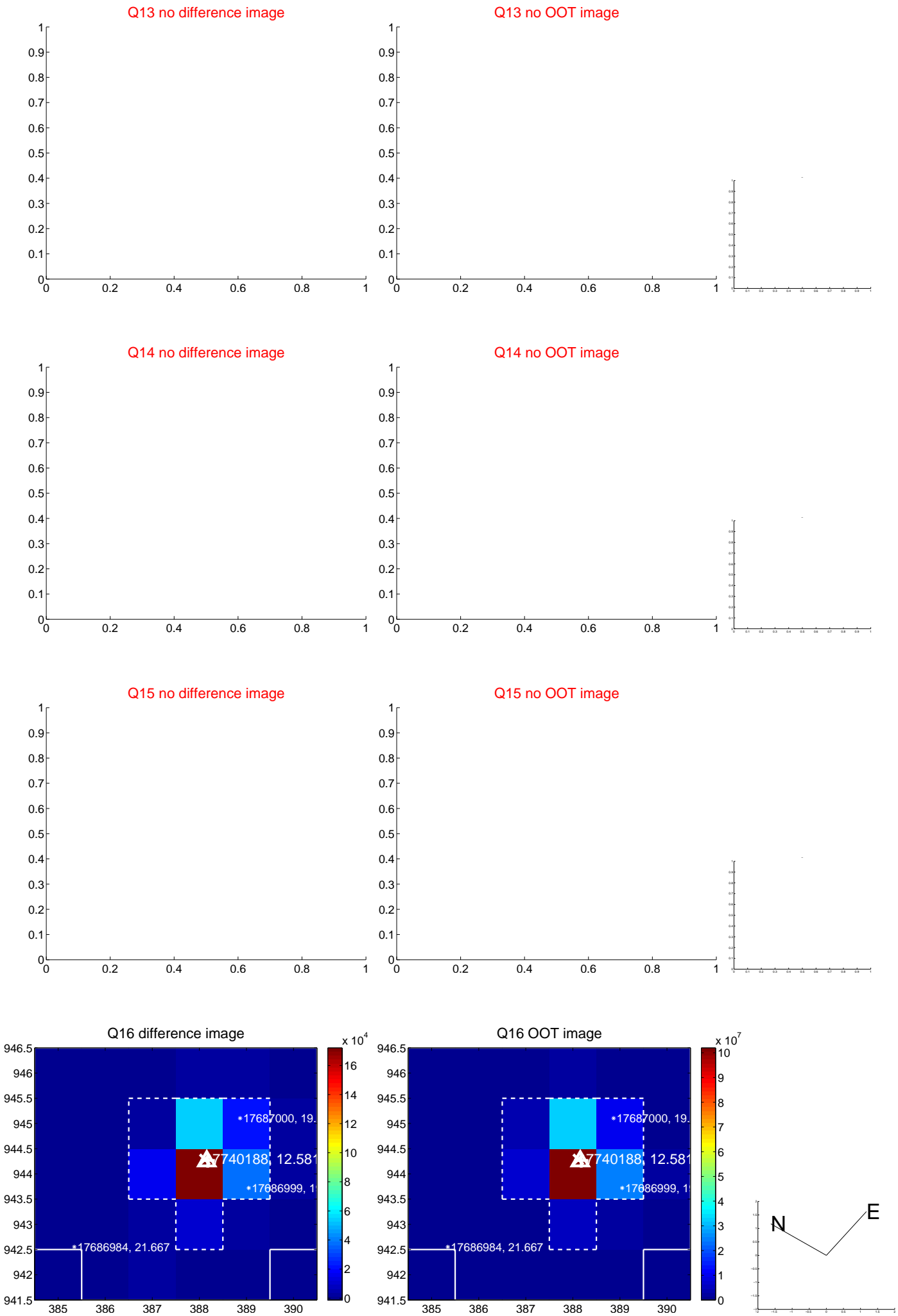
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



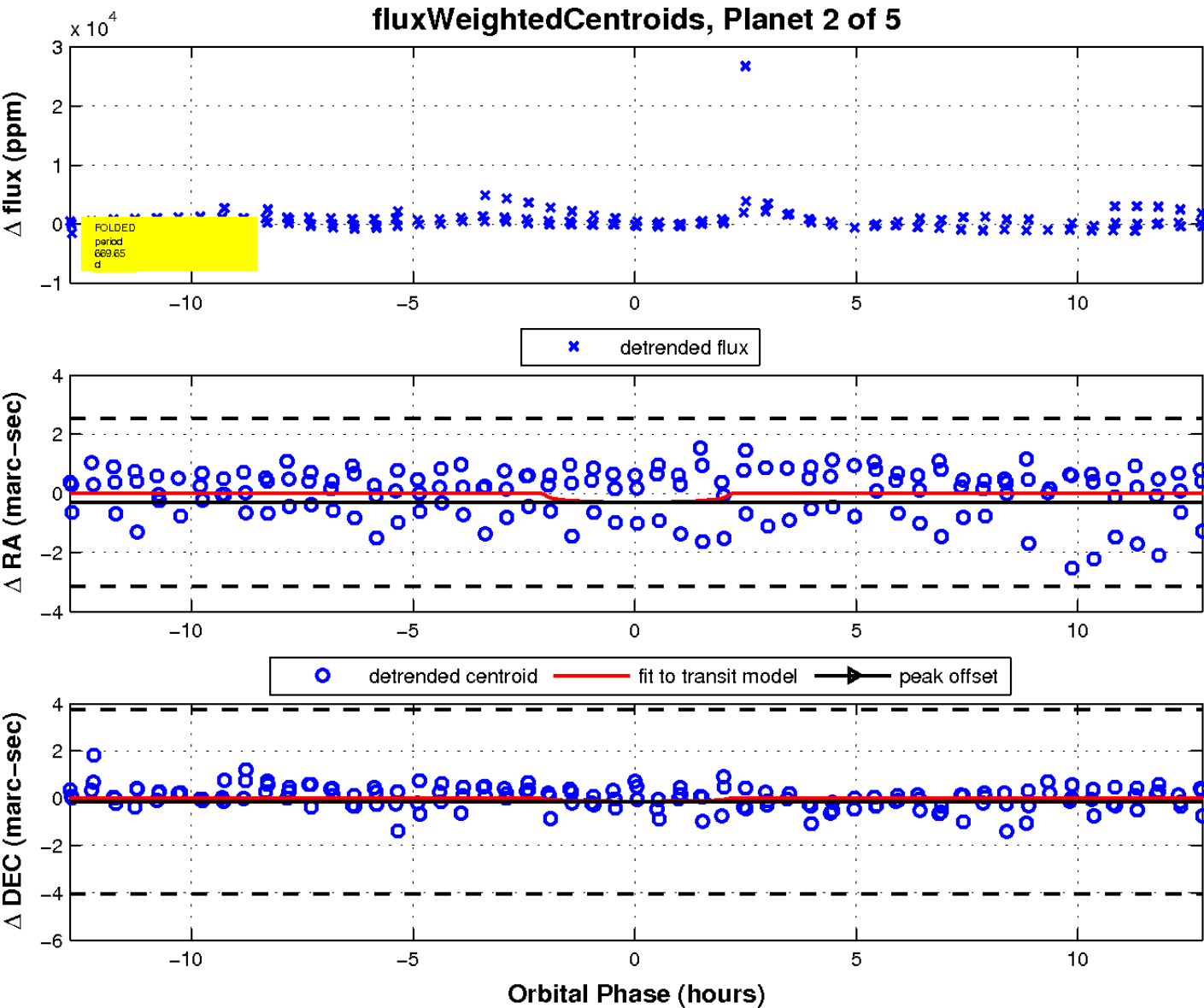
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

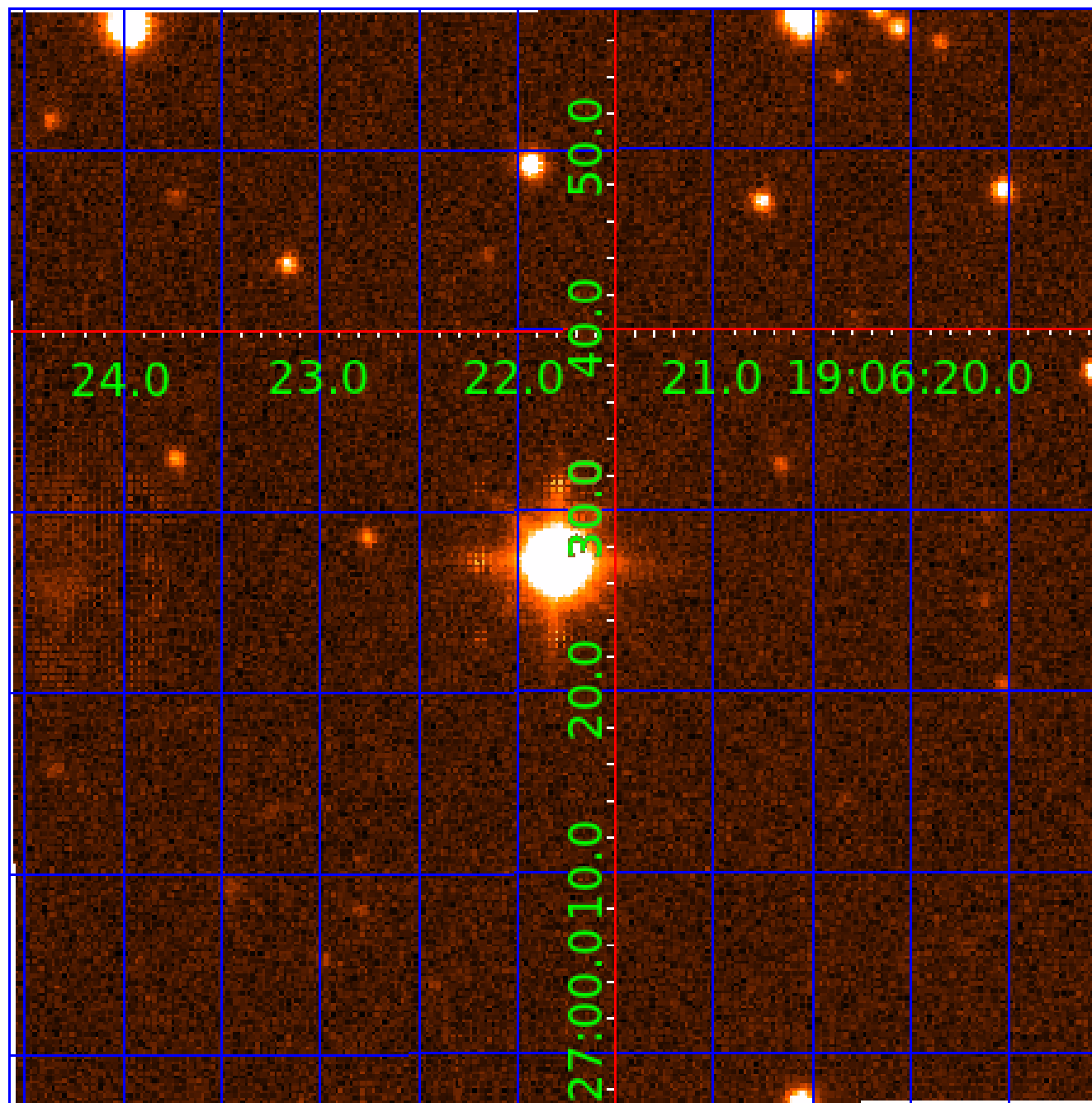


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007740188

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007740188-01	OBS	No	379.028666	317.082480	1691.1	9.547	24.5	8.5	4.73	4918	23.71	12.20
007740188-02	OBS	No	669.648737	202.581999	1751.7	4.303	63.5	8.5	4.73	4918	19.36	5.71
007740188-03	OBS	No	374.090327	332.419499	37.3	0.698	19.5	0.3	4.73	4918	3.19	12.41
007740188-04	OBS	No	391.862501	435.493021	1183.6	2.932	19.0	8.0	4.73	4918	16.28	11.67
007740188-05	OBS	No	467.090748	143.505494	802.4	4.500	24.8	-1.0	4.73	4918	13.02	9.23

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007740188-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007740188-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS
007740188-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007740188-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
007740188-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

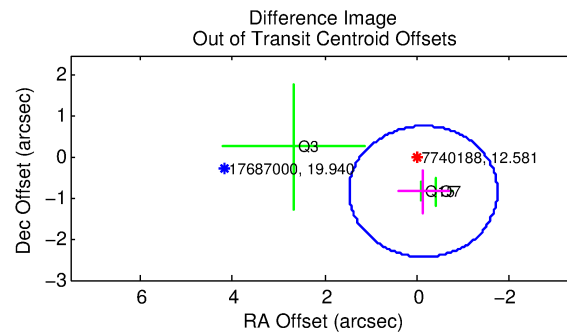
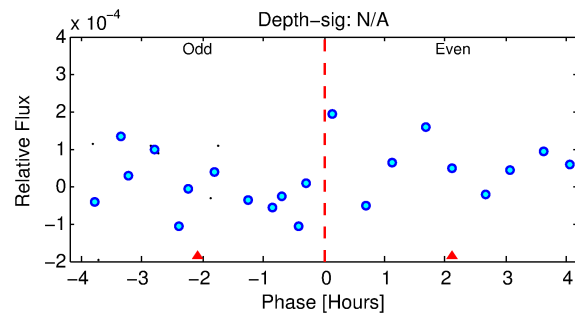
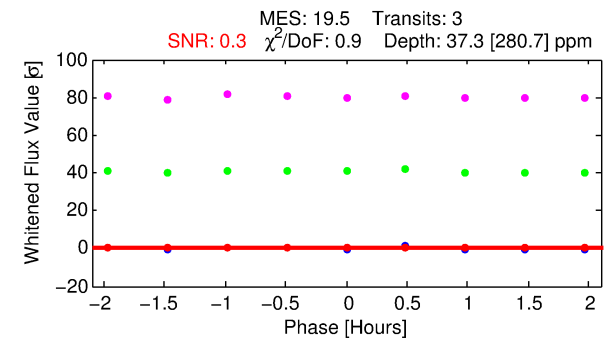
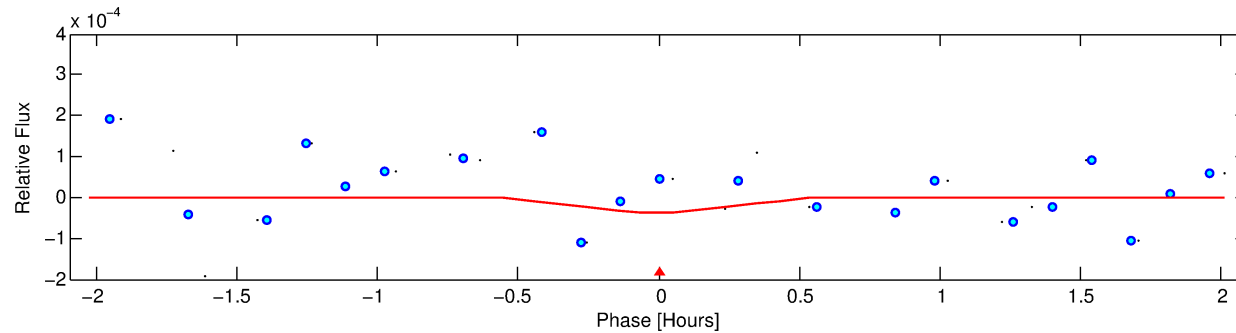
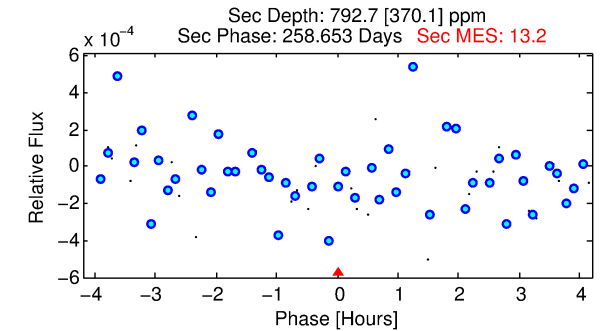
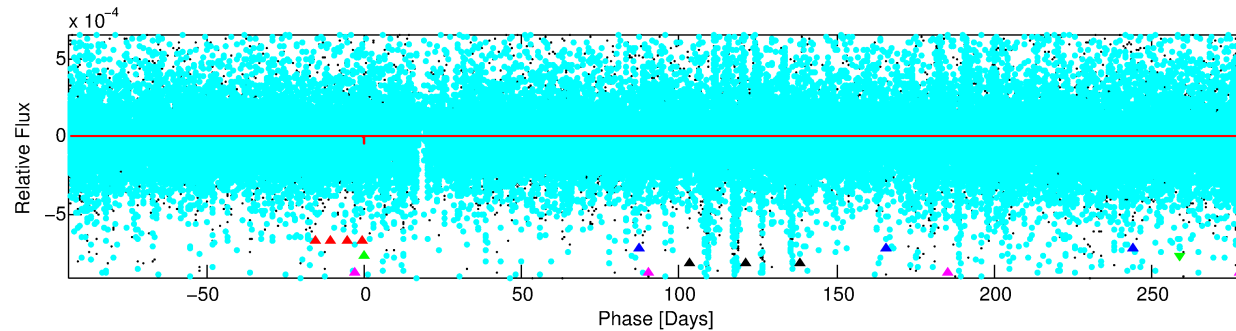
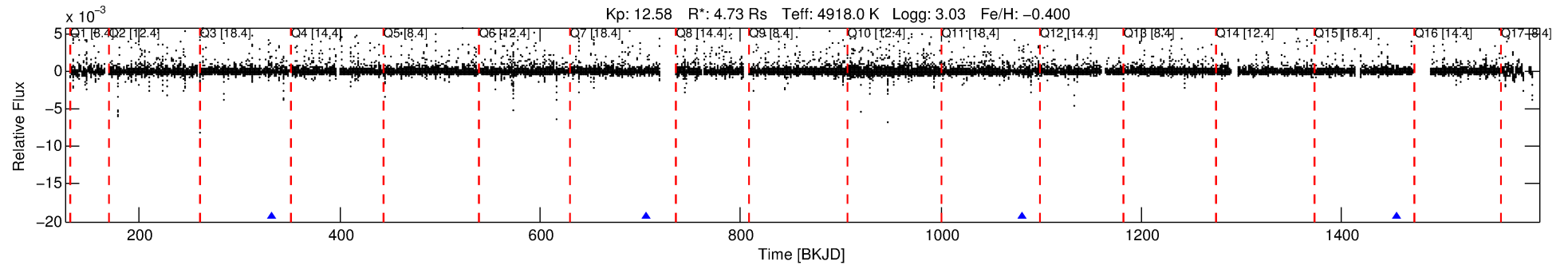
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007740188-03

No Significant Match Found

# DV One-Page Summary

KIC: 7740188 Candidate: 3 of 5 Period: 374.090 d



## DV Fit Results:

Period = 374.09033 [0.14406] d  
Epoch = 332.4195 [0.0973] BKJD  
Rp/R\* = 0.0062 [0.3678]  
a/R\* = 2923.71 [552549.54]  
b = 0.71 [145.57]  
Seff = 12.41 [8.87]  
Teq = 479 [86] K  
Rp = 3.18 [189.75] Re  
a = 0.9714 [0.4783] AU  
Ag = 40573.23 [4834618.55] [0.01]  
Teffp = 10502 [312846] K [0.03]

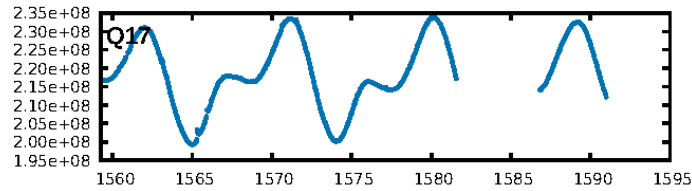
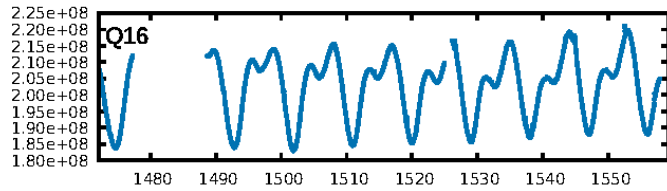
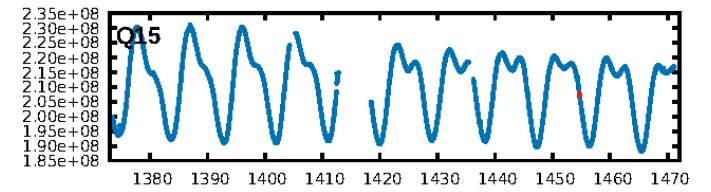
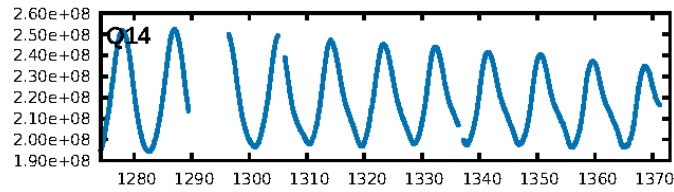
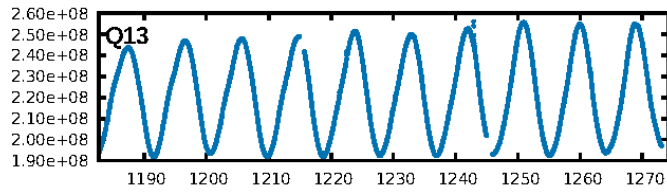
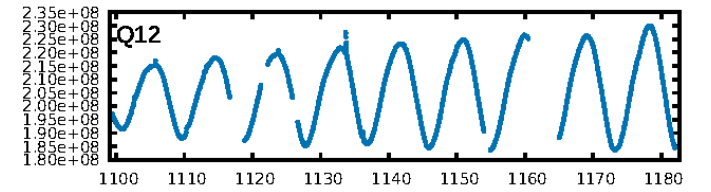
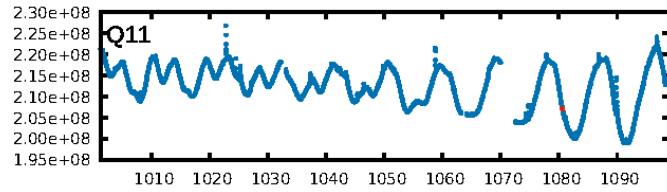
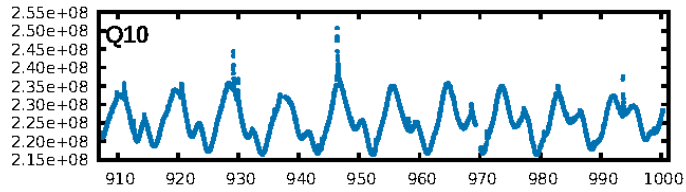
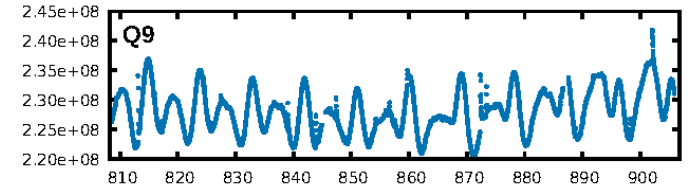
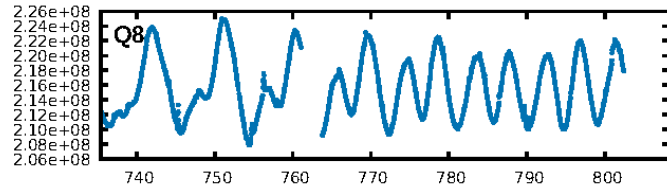
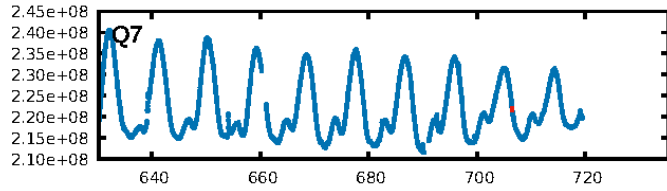
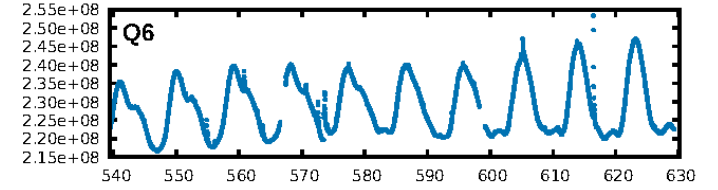
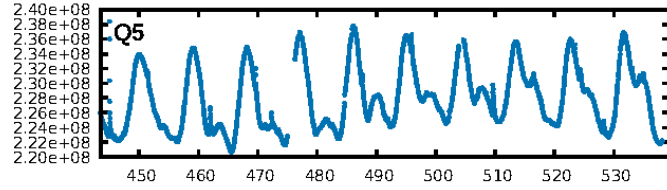
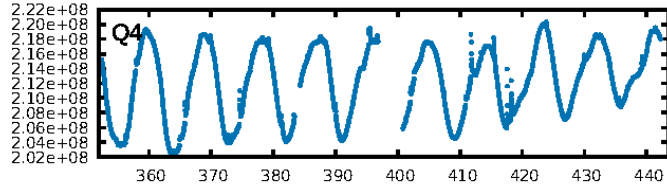
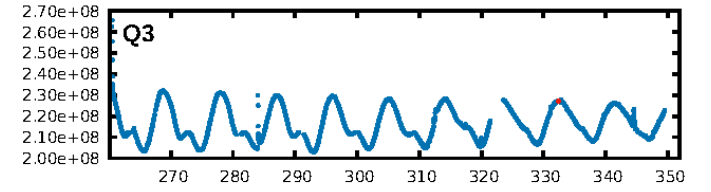
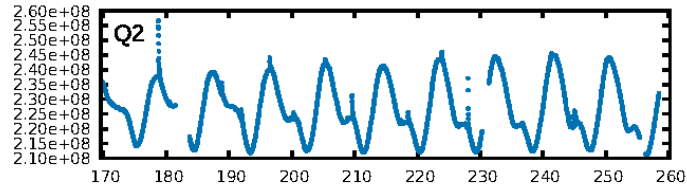
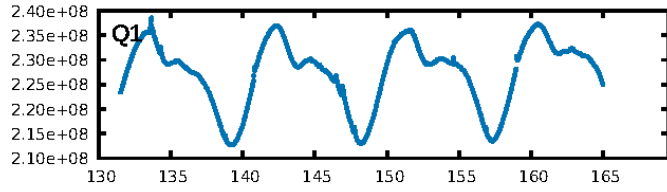
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [12.38]  
ModelChiSquare2-sig: 36.2%  
ModelChiSquareGof-sig: 85.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.2142  
Centroid-sig: 31.7%  
Centroid-so: 9.889 arcsec [0.58]  
OotOffset-rm: 0.844 arcsec [1.58]  
OotOffset-st: 0/3/0/0 [3]  
KicOffset-rm: 1.102 arcsec [2.06]  
KicOffset-st: 0/3/0/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

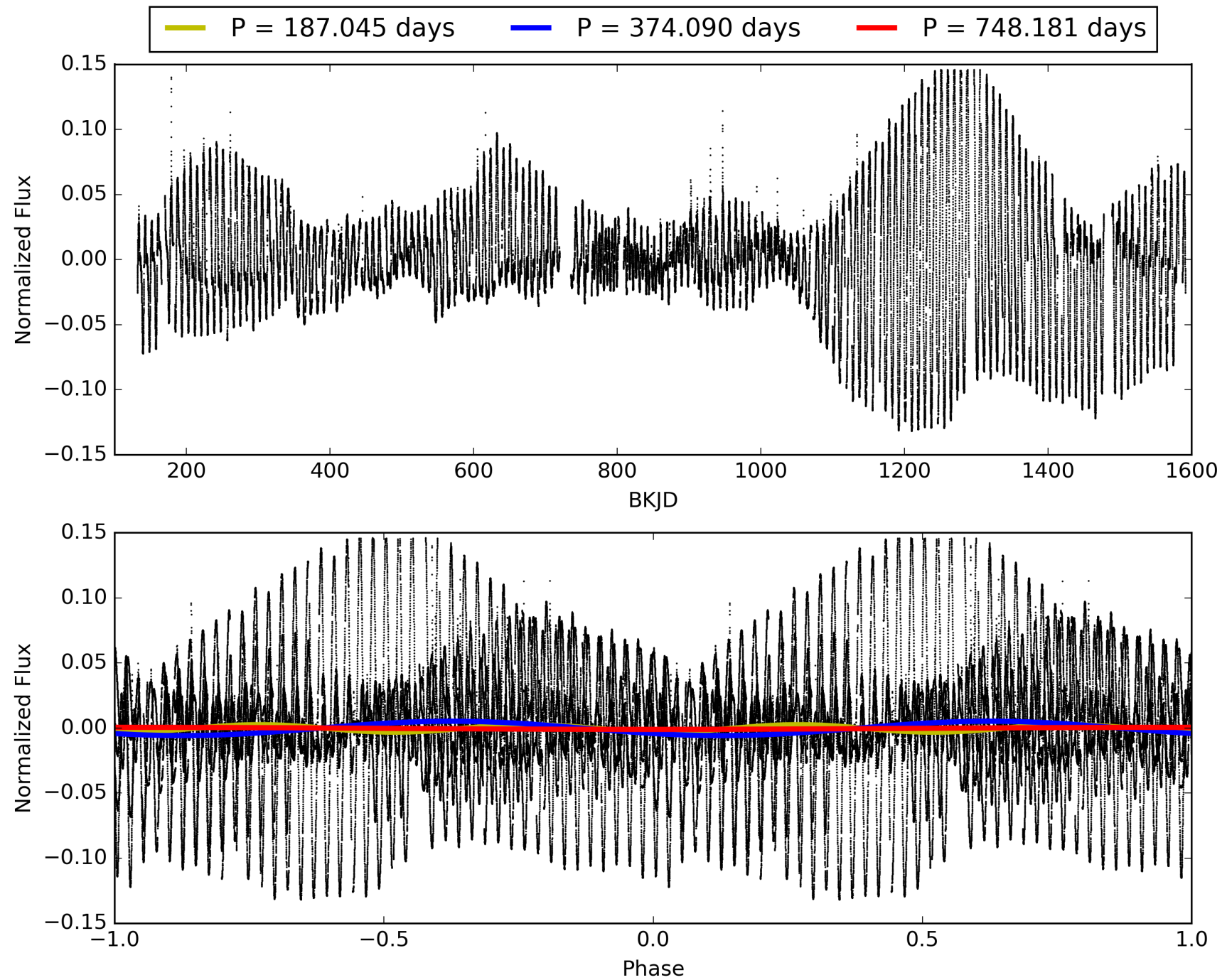
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:32:53 Z

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

# TCE 007740188-03, PDC Light Curves

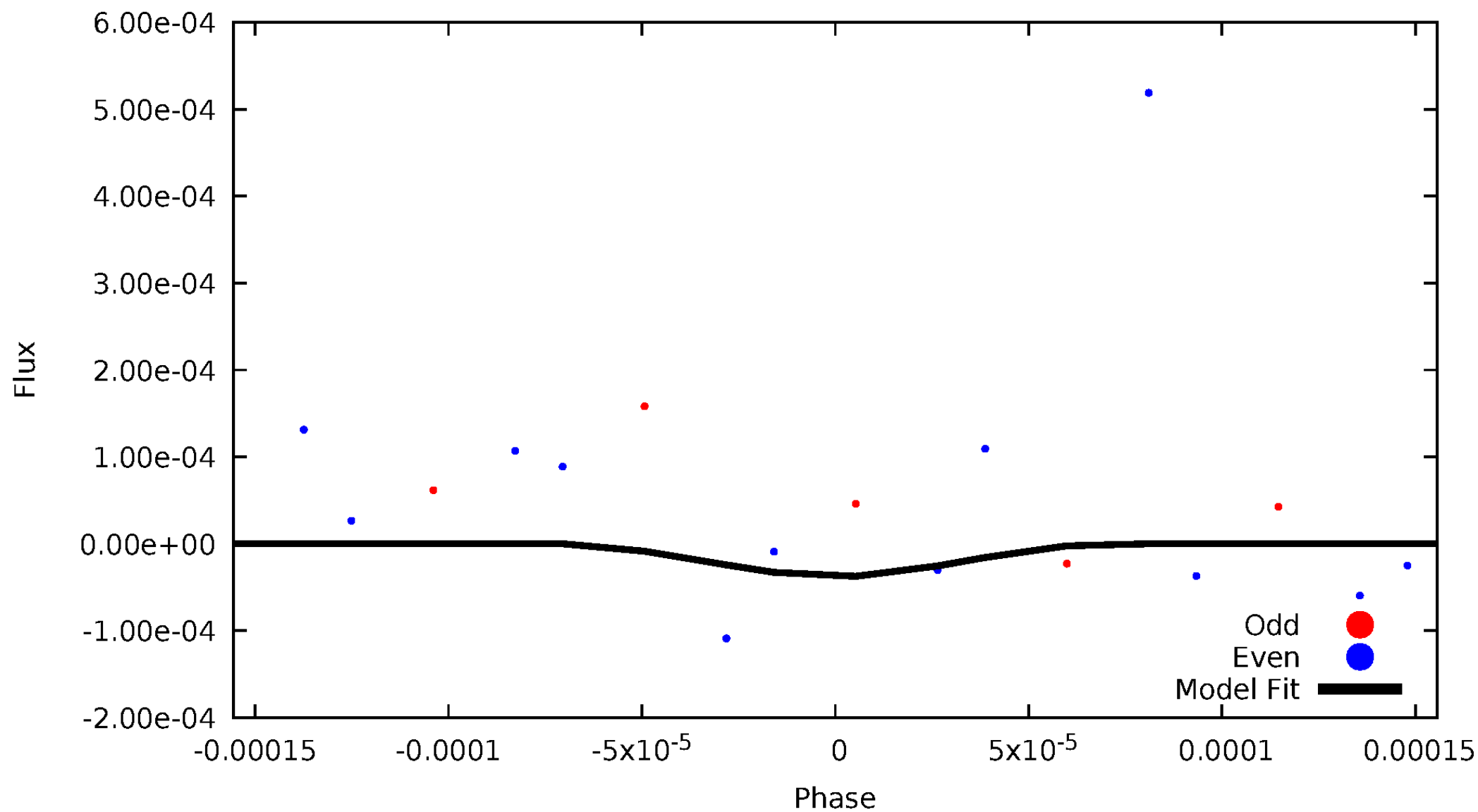


# TCE 007740188-03



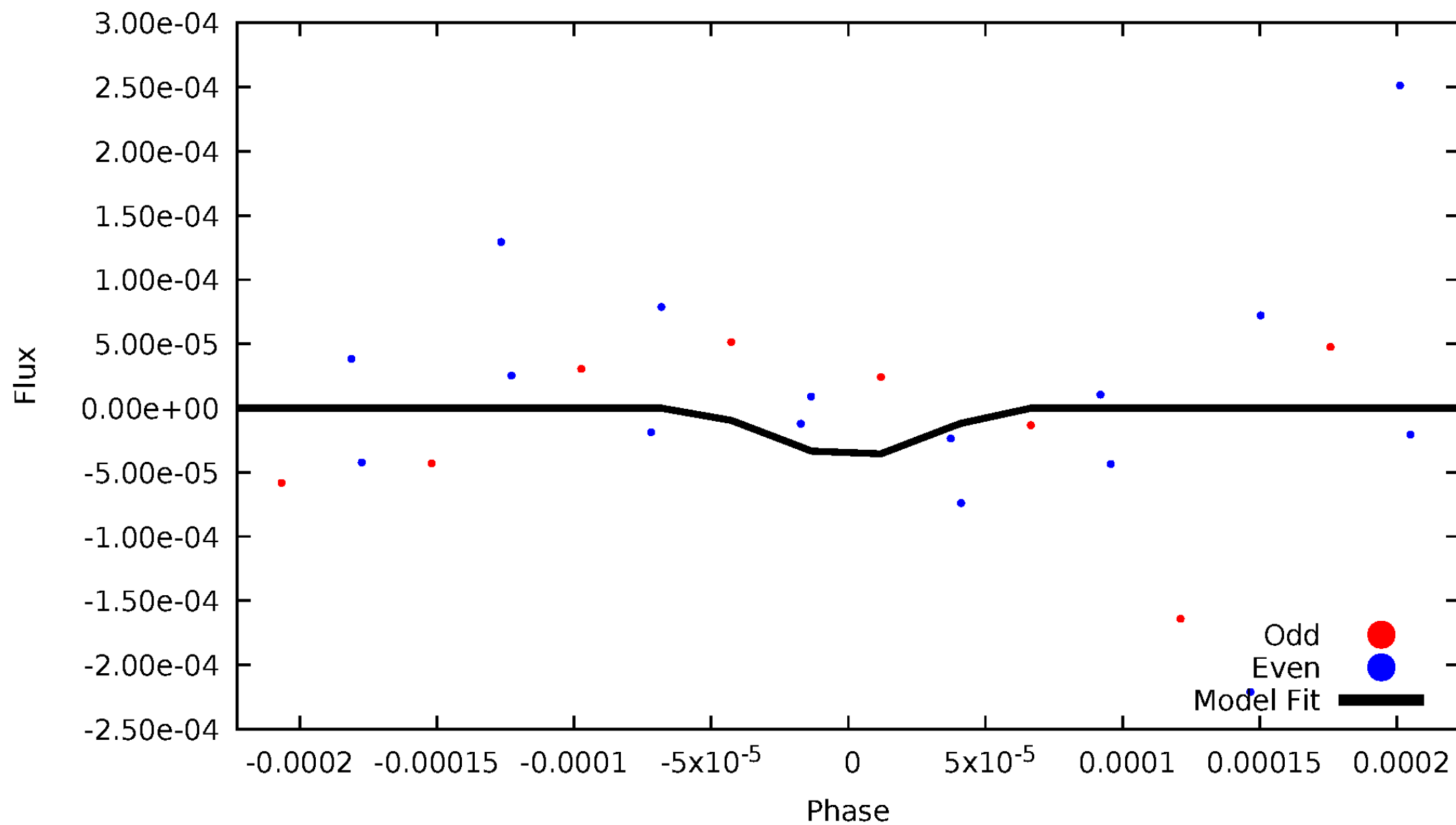
# DV Odd/Even

TCE 007740188-03



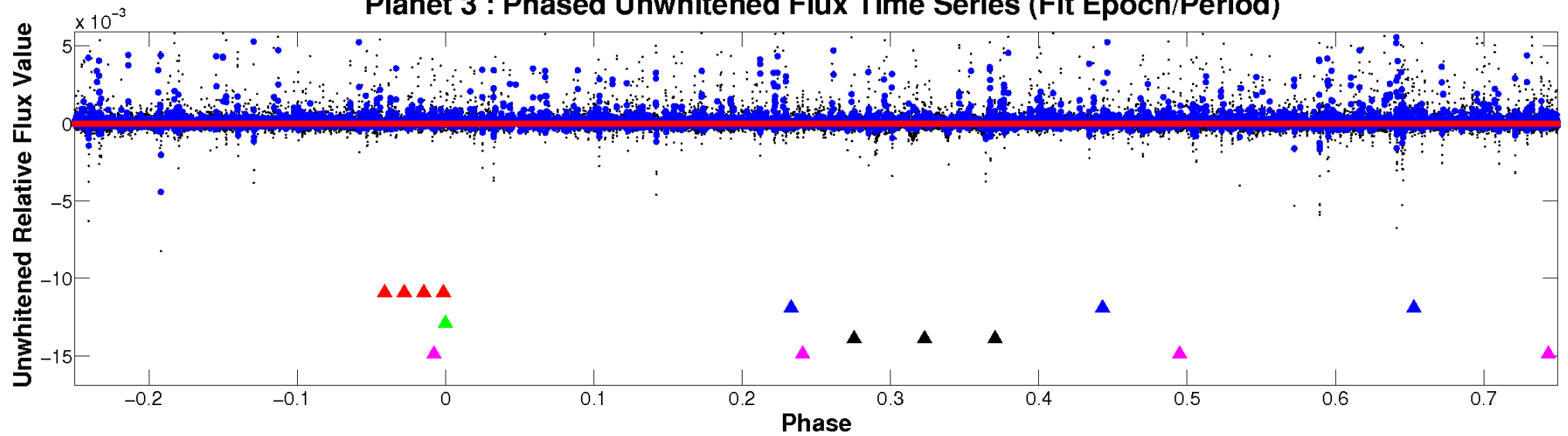
# ALT Odd/Even

TCE 007740188-03

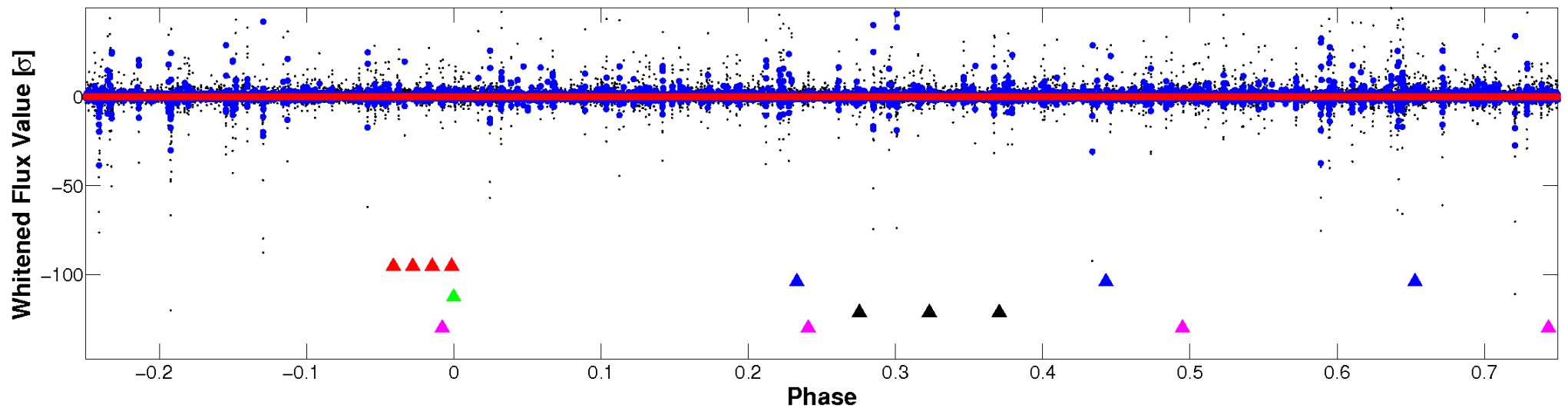


# Non-Whitened Vs. Whitened Light Curve

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

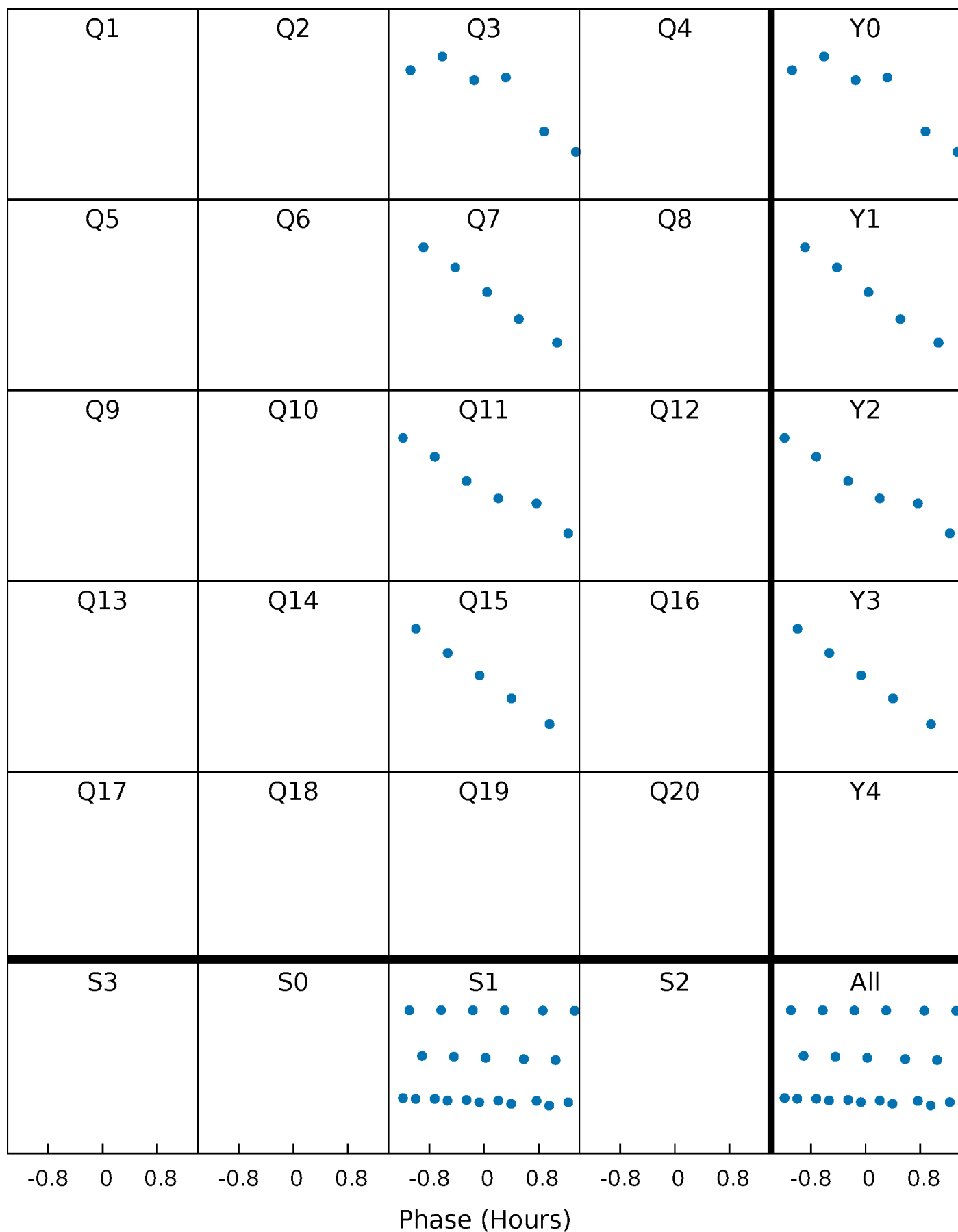


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

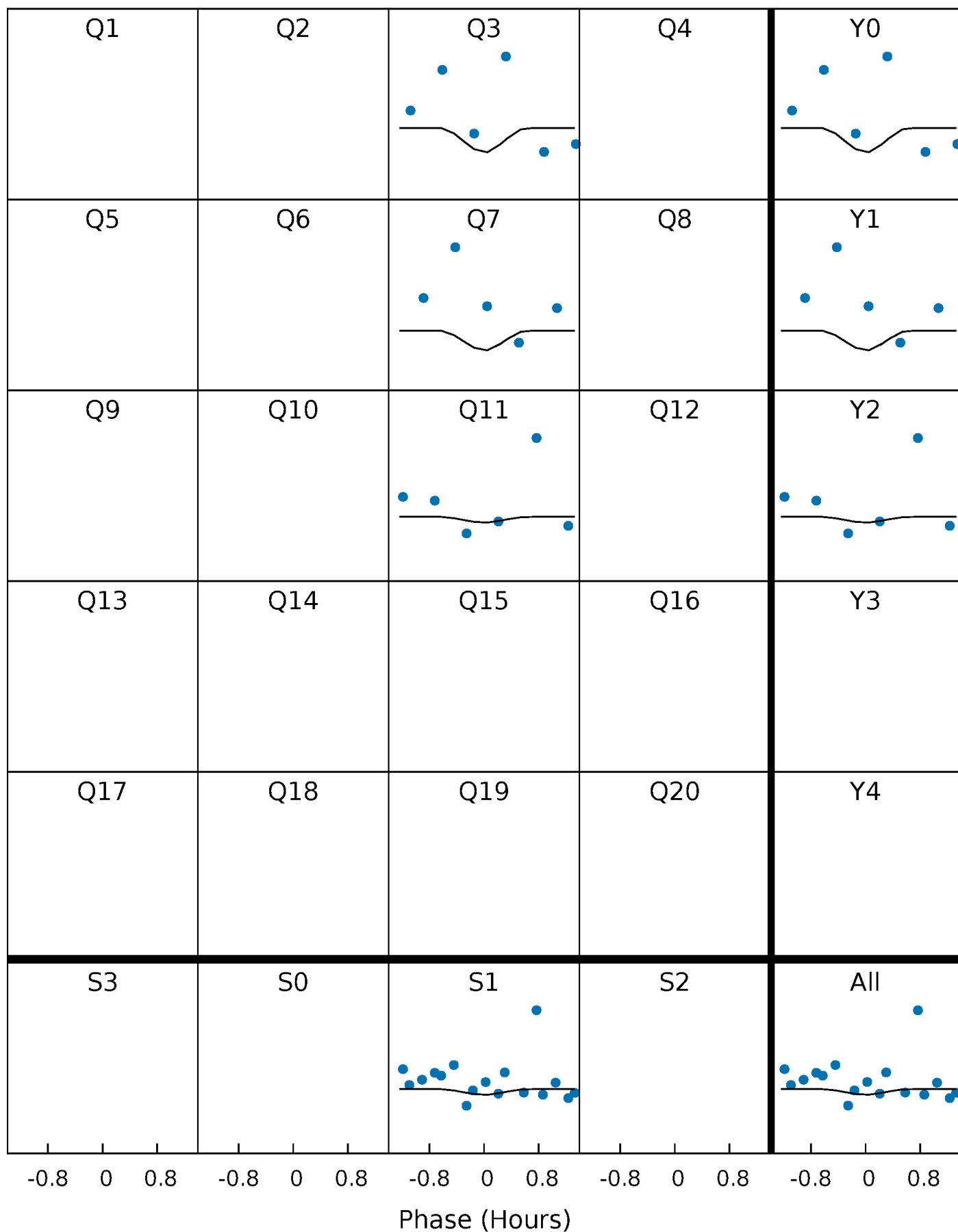
TCE 007740188-03 P=374.090327 Days  $T_0=332.419499$  (BKJD)





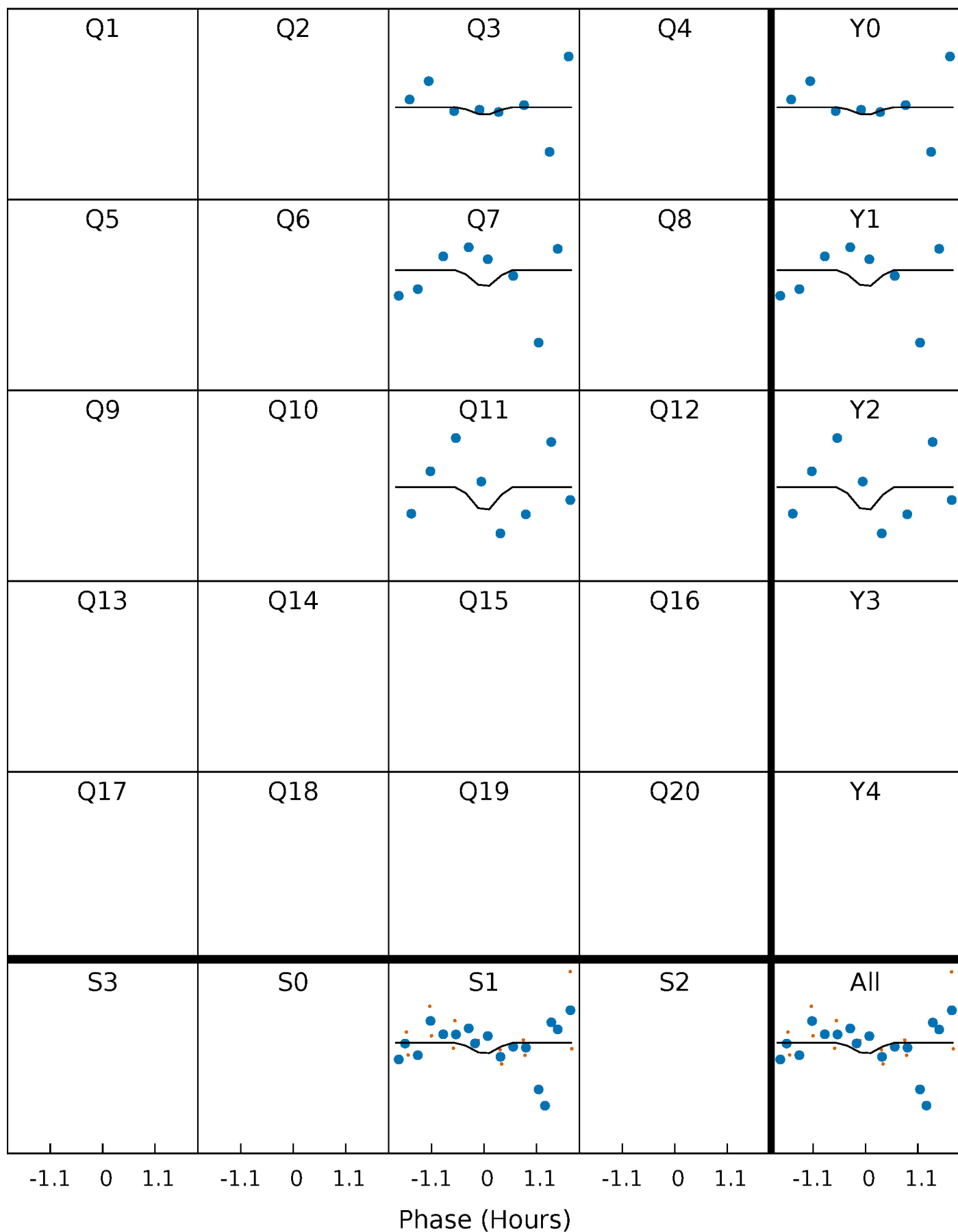
# DV Quarter-Phased Transit Curves

TCE 007740188-03 P=374.090327 Days  $T_0=332.419499$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

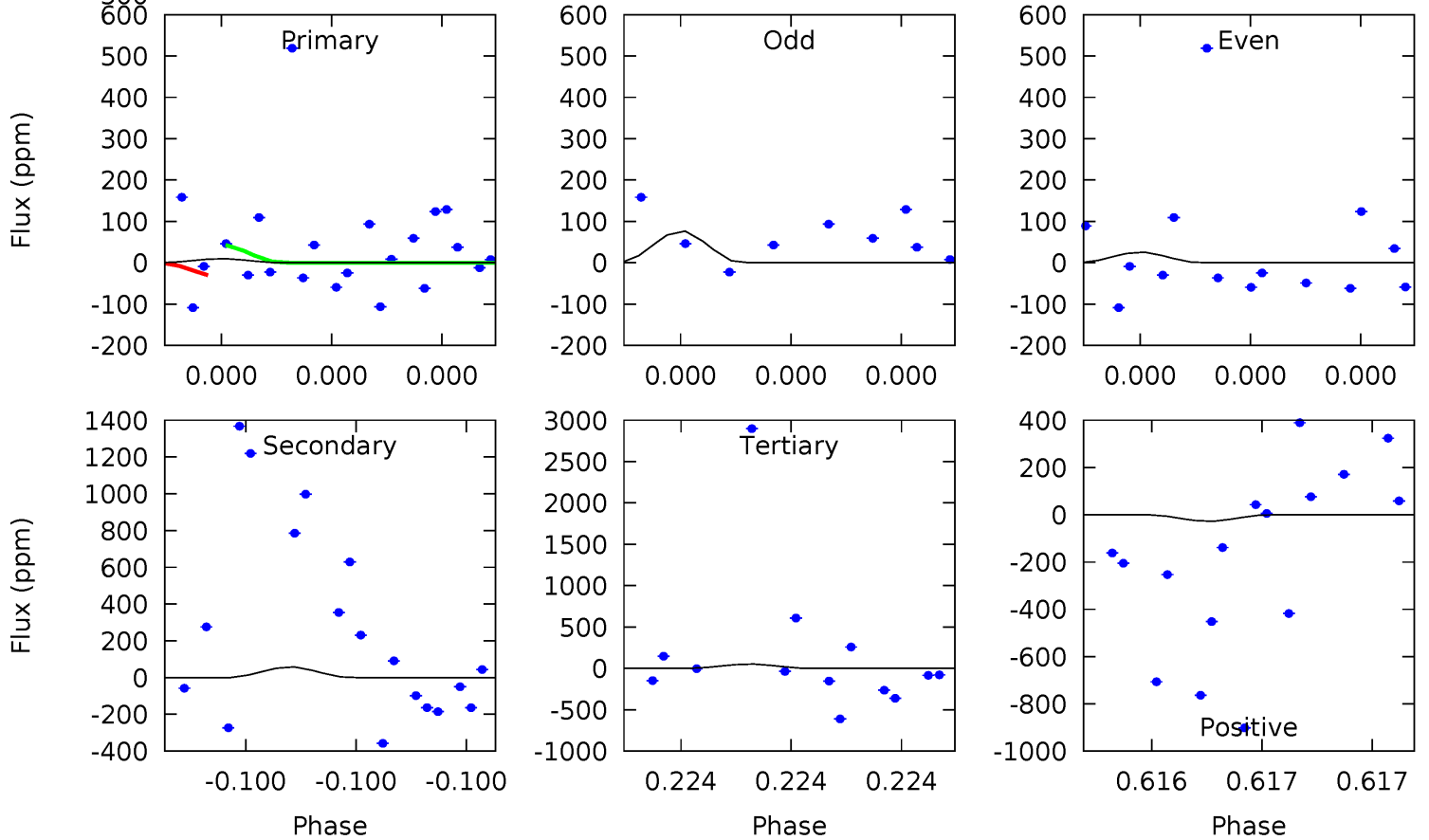
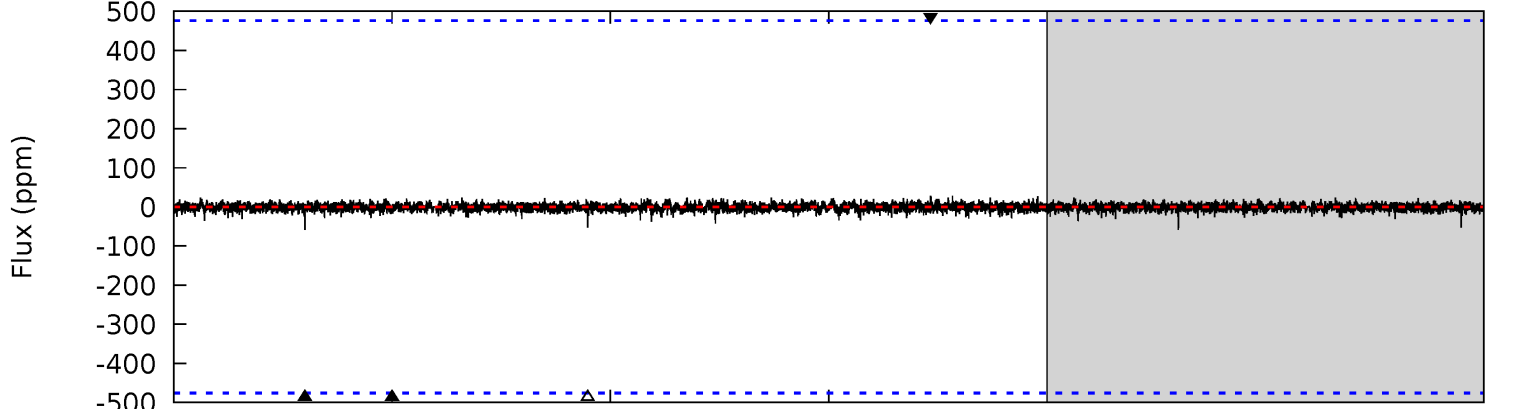
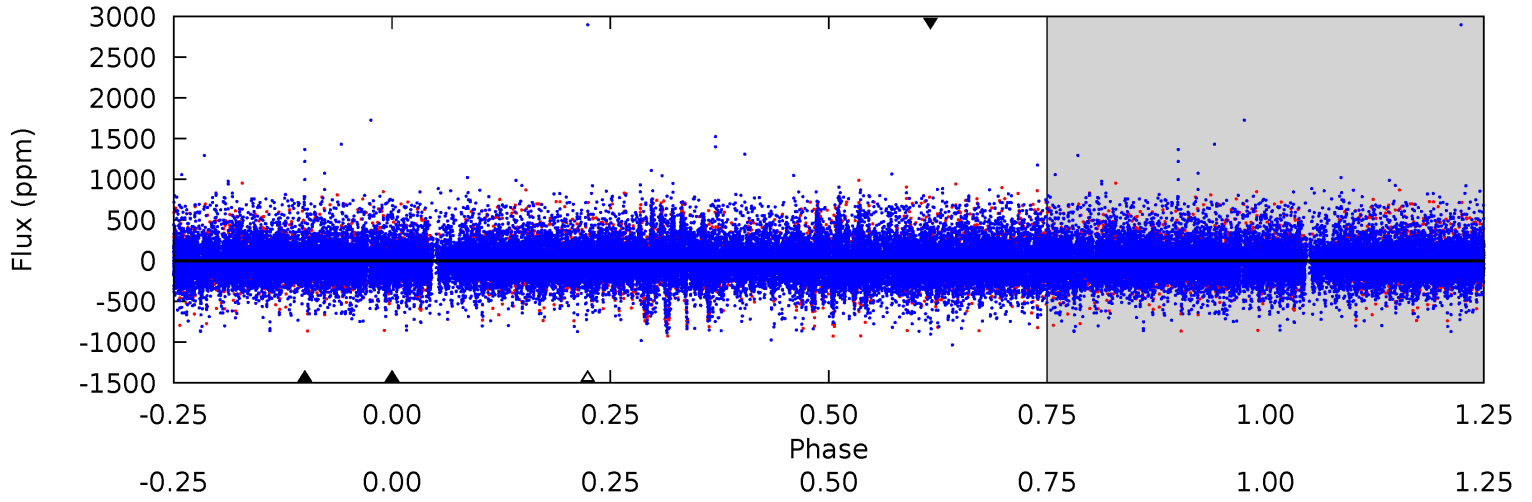
TCE 007740188-03 P=374.128189 Days  $T_0=332.481336$  (BKJD)



# DV Model-Shift Uniqueness Test

007740188-03, P = 374.090327 Days, E = 332.419499 Days

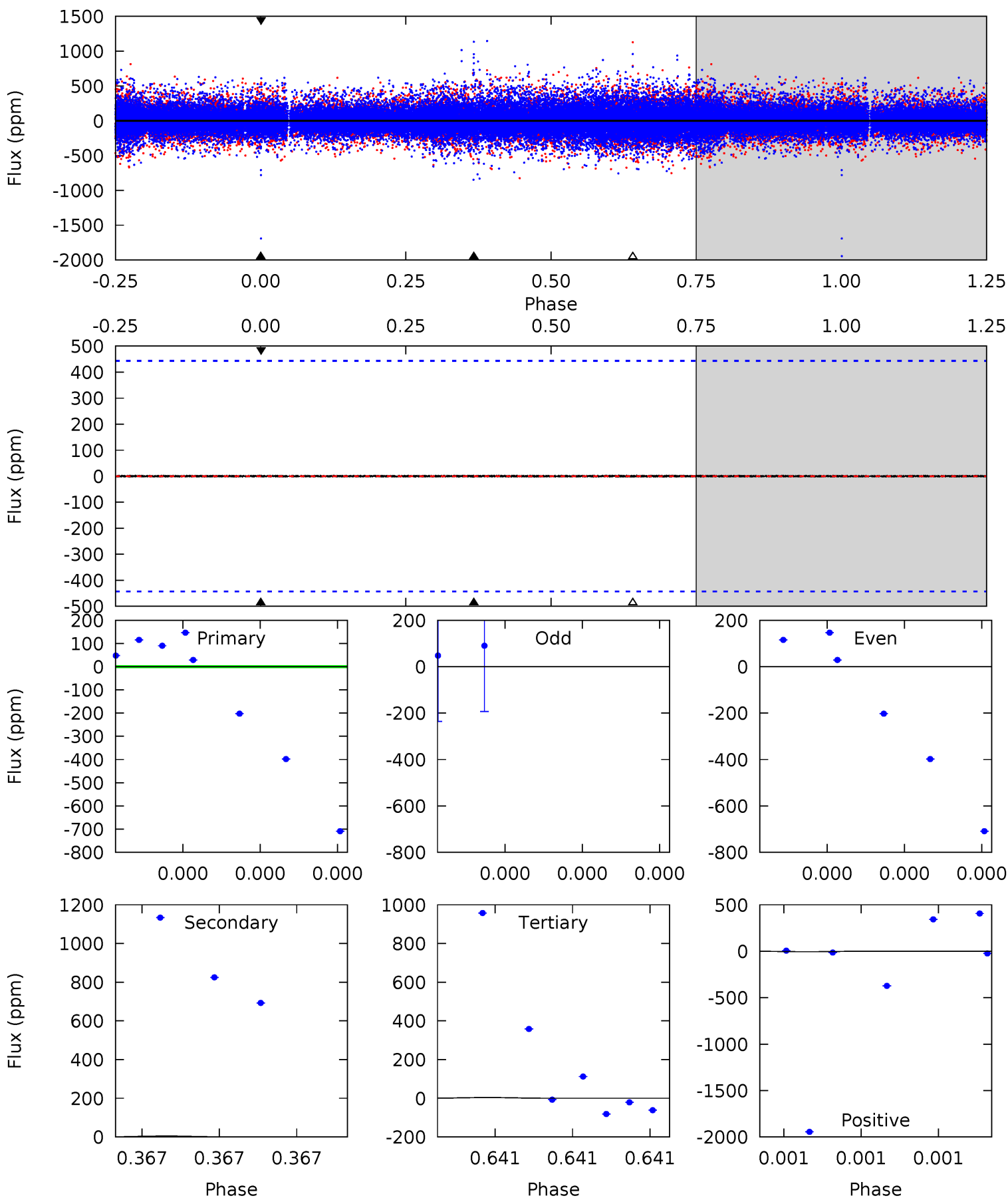
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.12	0.71	0.64	0.34	5.80	3.83	0.08	-0.52	-0.22	0.07	0.37	0.23	0.11	0.33	0.07



# Alt Model-Shift Uniqueness Test

007740188-03, P = 374.128189 Days, E = 332.481336 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0.06	0.05	0.06	5.88	3.93	0.01	-0.05	-0.06	0.01	-0.00	0.09	0.07	0.51	0.01



### Stellar Parameters For KIC 007740188

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4918^{+149}_{-1}$	$3.030^{+0.379}_{-0.310}$	$-0.400^{+0.300}_{-0.200}$	$4.727^{+2.817}_{-1.517}$	$0.873^{+0.354}_{-0.042}$	$0.012^{+0.027}_{-0.008}$
	+3%/-0%	+13%/-10%	+75%/-50%	+60%/-32%	+41%/-5%	+235%/-66%
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 007740188-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-58 \pm 82$	$128.08^{+156.64}_{-86.44}$	$660^{+87}_{-69}$	$1733^{+549}_{-3475}$	$1.138^{+14.575}_{-1.500}$
Alt.	$-5 \pm 75$	$122.91^{+146.76}_{-84.11}$	$661^{+89}_{-71}$	$-1551^{+3617}_{-460}$	$0.118^{+5.527}_{-4.183}$

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

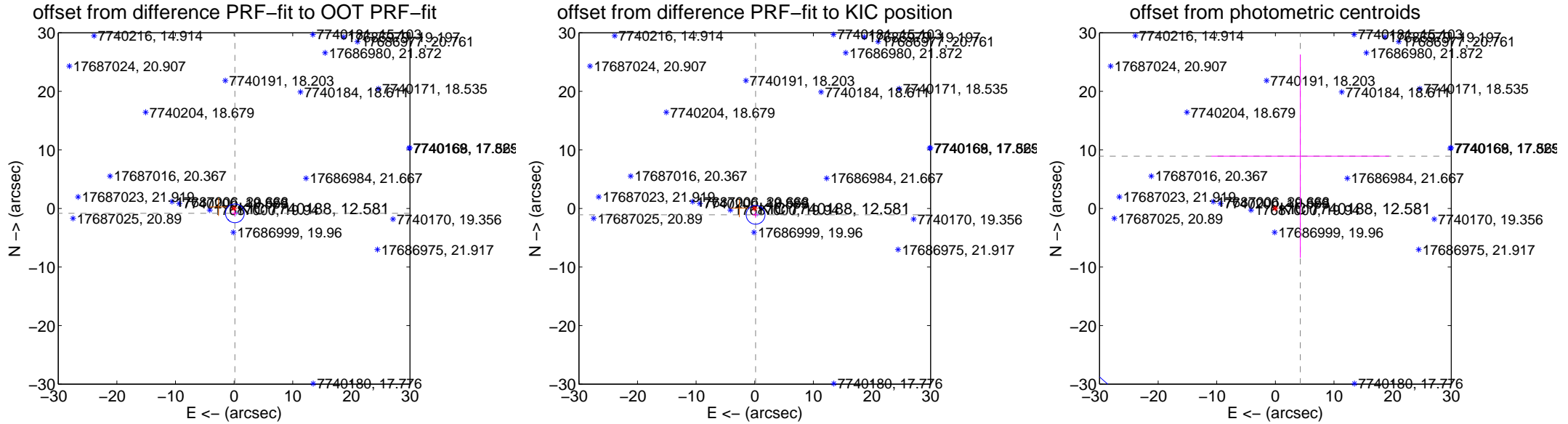
# DV Centroid Data

Supplemental centroid analysis for 007740188-03. Kepler magnitude: 12.58. Transit SNR 0.33

There are 1 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.844 \pm 0.534$	1.58	$-0.134 \pm 0.543$	$-0.833 \pm 0.534$
PRF-fit source offset from KIC position	$1.102 \pm 0.534$	2.06	$-0.148 \pm 0.543$	$-1.092 \pm 0.534$
photometric centroid source offset	$9.89 \pm 16.98$	0.58	$-4.25 \pm 15.16$	$8.93 \pm 17.36$



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

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

Q1 no difference image



Q1 no OOT image



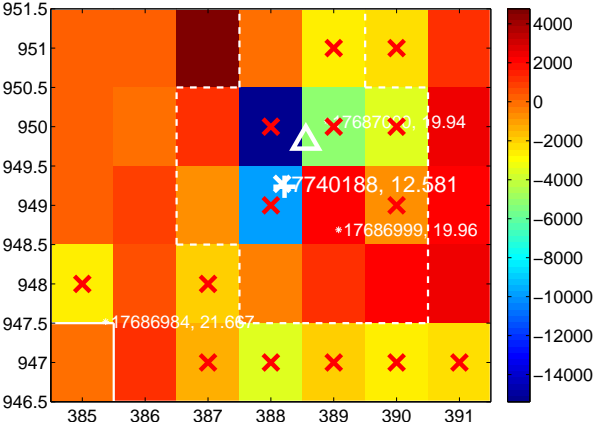
Q2 no difference image



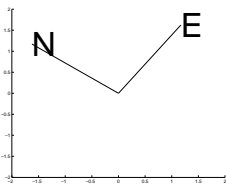
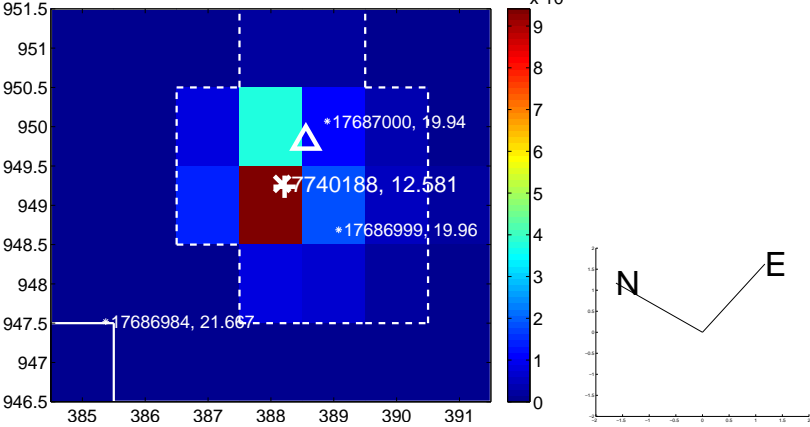
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

Q5 no difference image



Q5 no OOT image



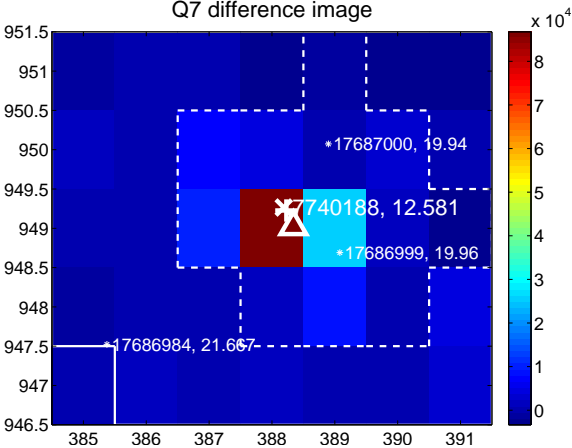
Q6 no difference image



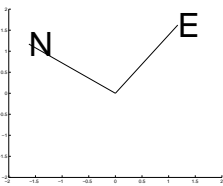
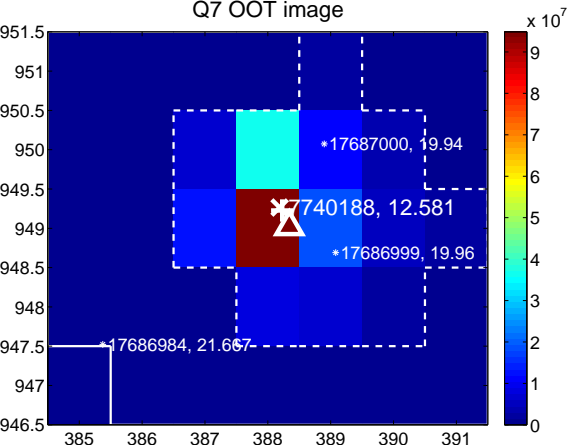
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image



Q8 no OOT image

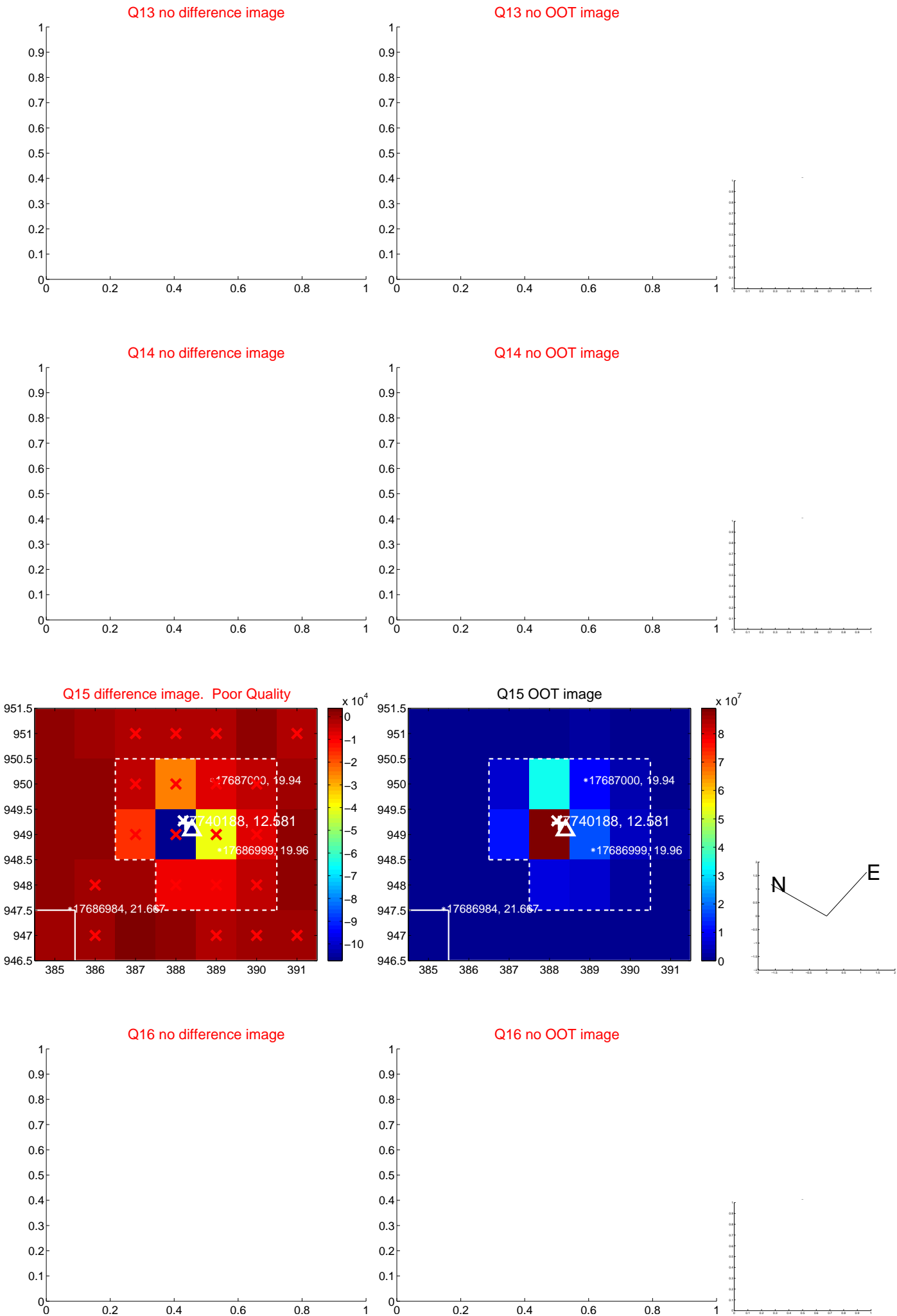




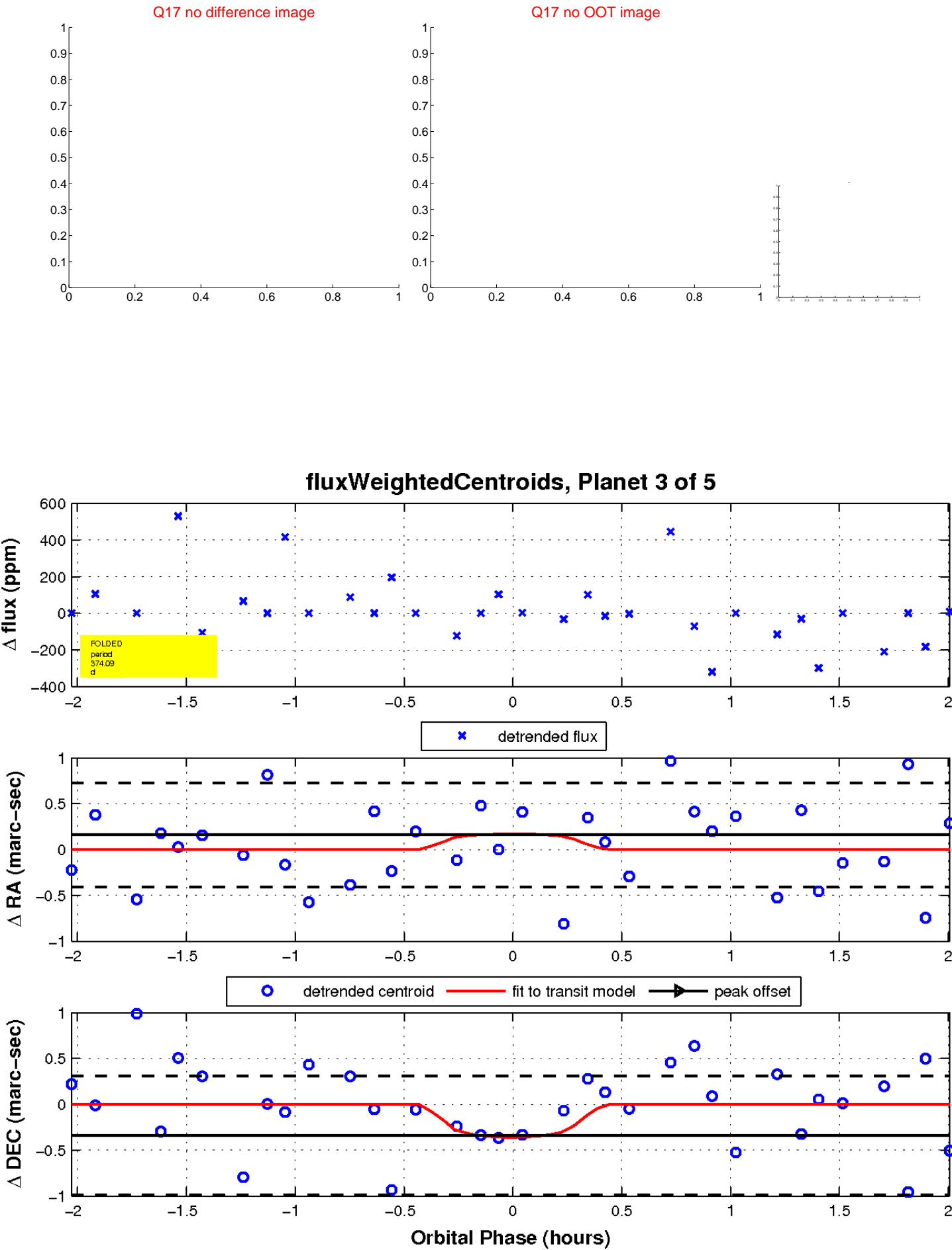
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

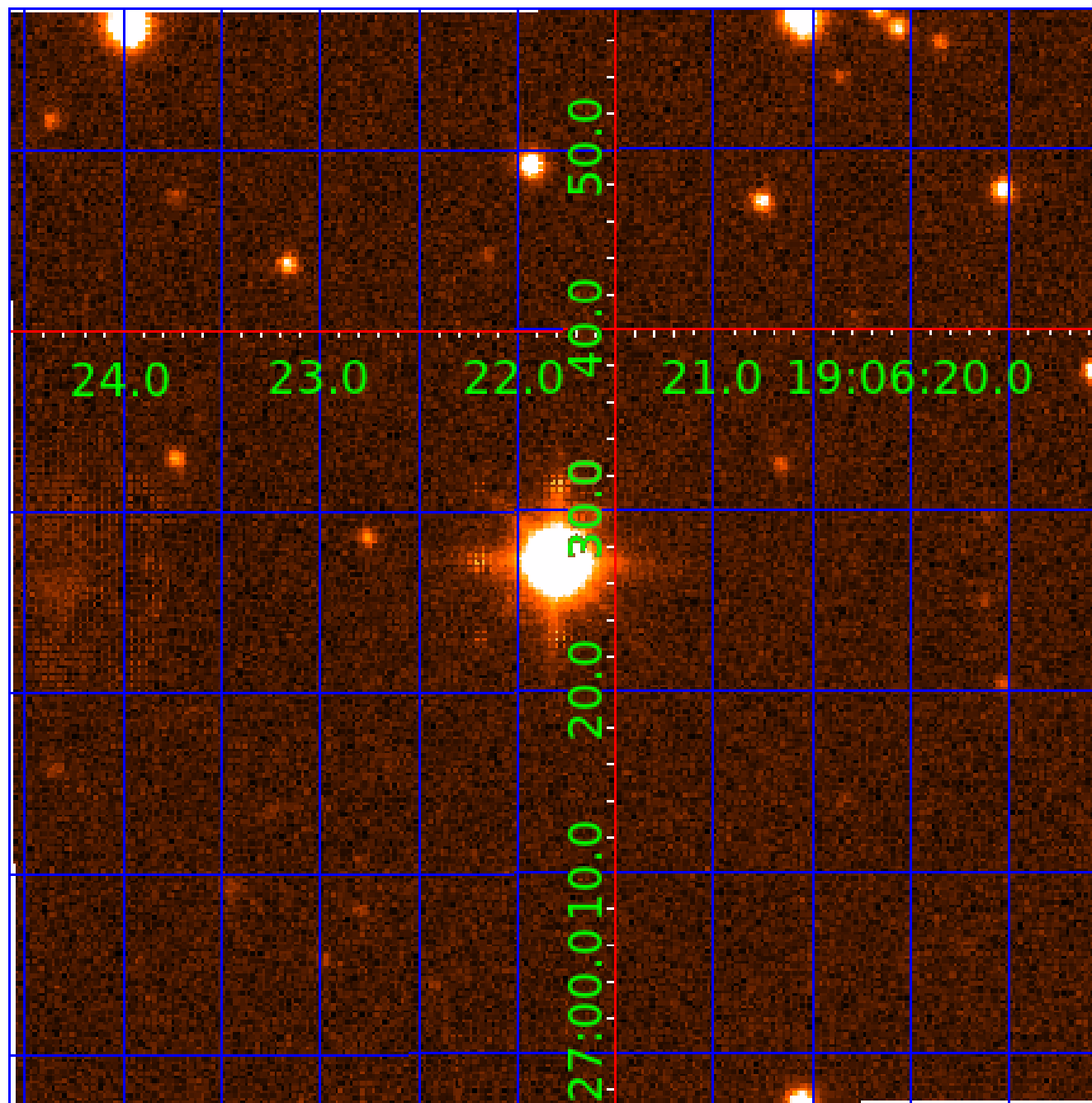


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007740188

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007740188-01	OBS	No	379.028666	317.082480	1691.1	9.547	24.5	8.5	4.73	4918	23.71	12.20
007740188-02	OBS	No	669.648737	202.581999	1751.7	4.303	63.5	8.5	4.73	4918	19.36	5.71
007740188-03	OBS	No	374.090327	332.419499	37.3	0.698	19.5	0.3	4.73	4918	3.19	12.41
007740188-04	OBS	No	391.862501	435.493021	1183.6	2.932	19.0	8.0	4.73	4918	16.28	11.67
007740188-05	OBS	No	467.090748	143.505494	802.4	4.500	24.8	-1.0	4.73	4918	13.02	9.23

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007740188-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007740188-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS
007740188-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007740188-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
007740188-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

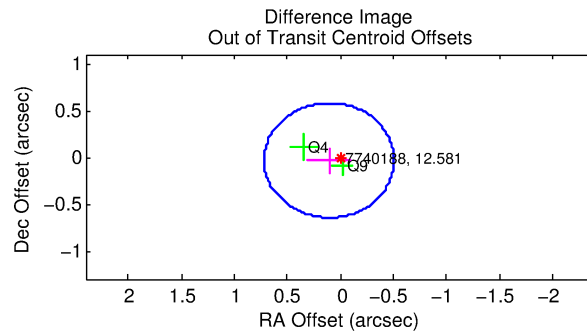
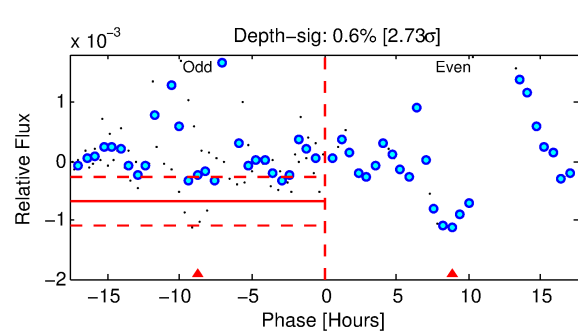
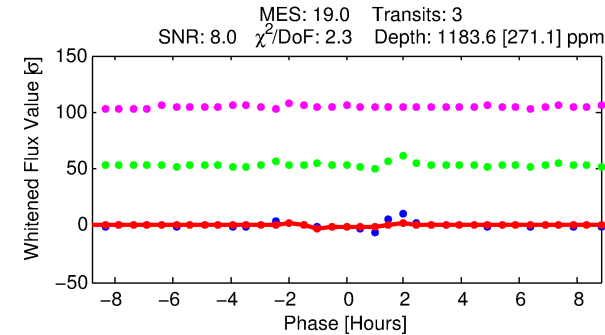
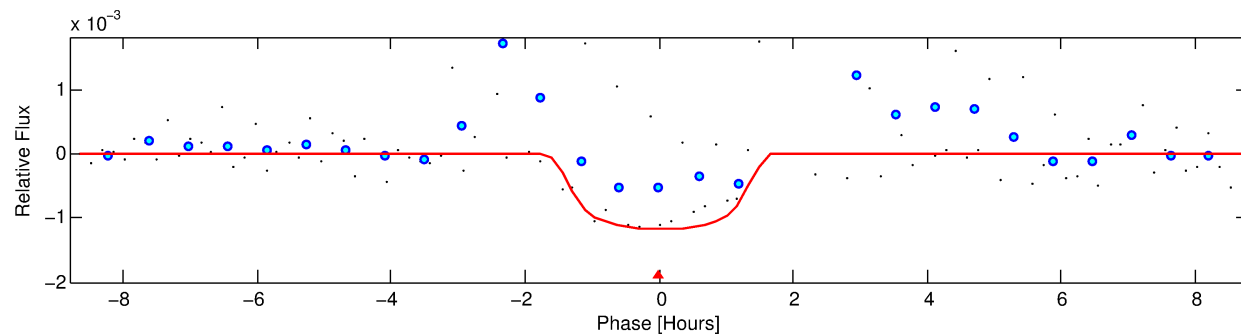
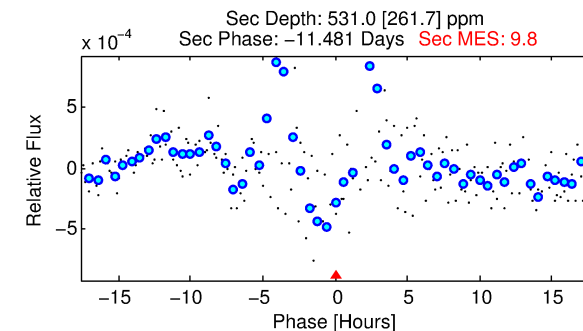
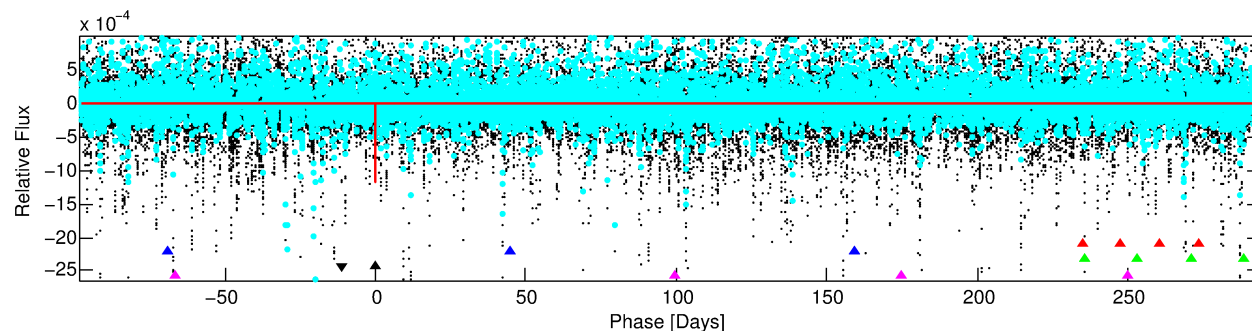
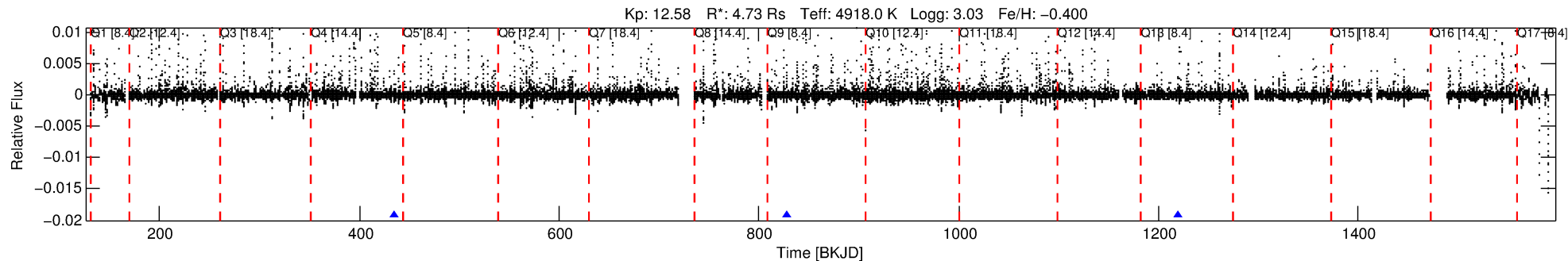
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007740188-04

No Significant Match Found

# DV One-Page Summary

KIC: 7740188 Candidate: 4 of 5 Period: 391.863 d



## DV Fit Results:

Period = 391.86250 [0.00483] d  
Epoch = 435.4930 [0.0063] BKJD  
Rp/R\* = 0.0316 [0.0696]  
a/R\* = 953.06 [7391.19]  
b = 0.44 [14.46]  
Seff = 11.67 [8.34]  
Teq = 471 [84] K  
Rp = 16.28 [37.21] Re  
a = 1.0019 [0.4934] AU  
Ag = 1106.47 [4974.73] [0.22σ]  
Teffp = 4202 [4667] K [0.80σ]

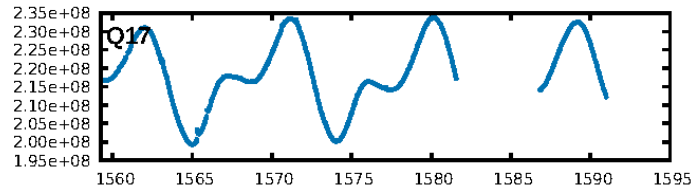
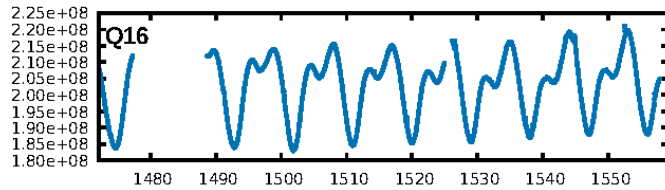
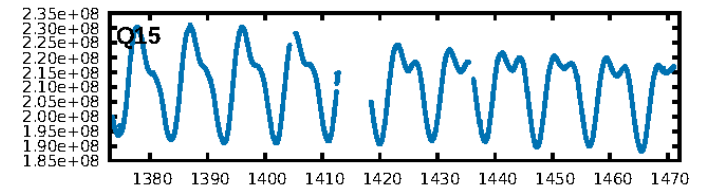
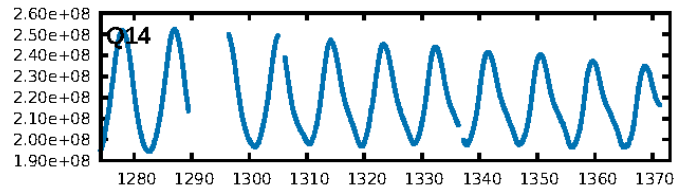
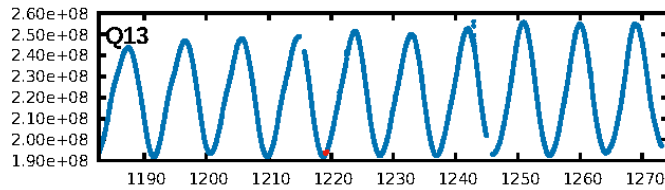
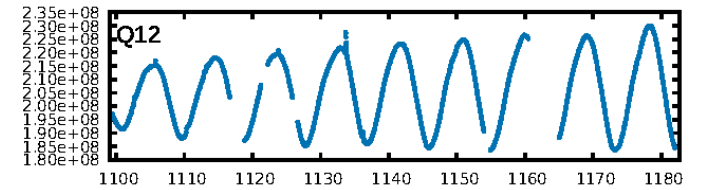
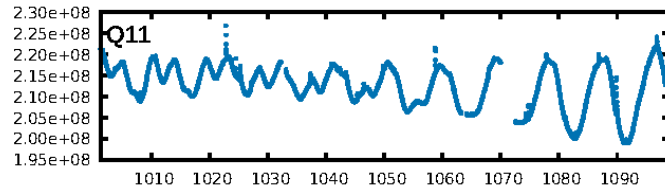
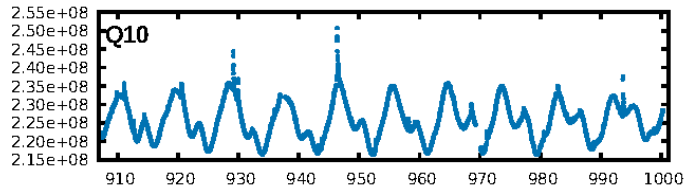
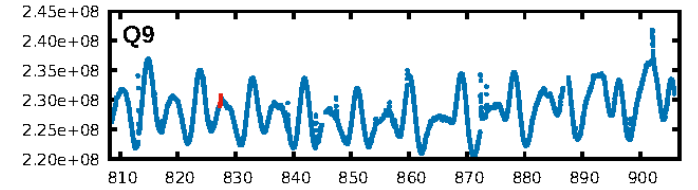
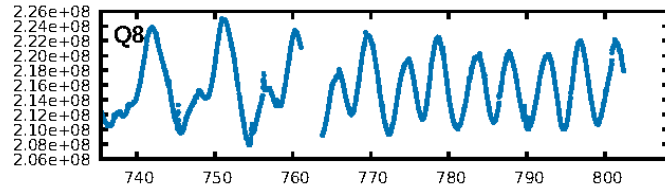
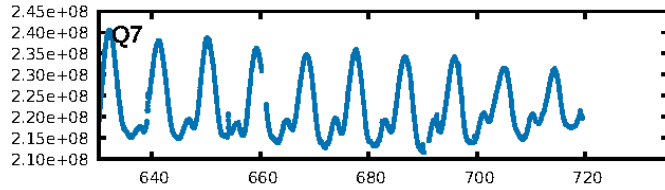
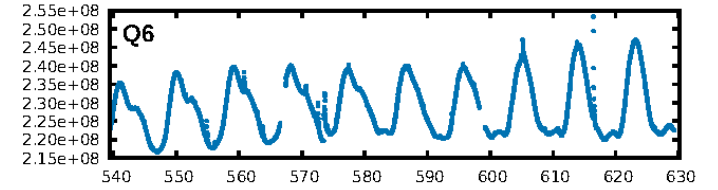
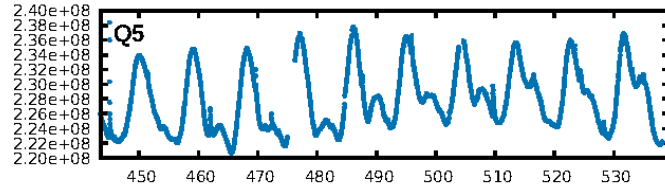
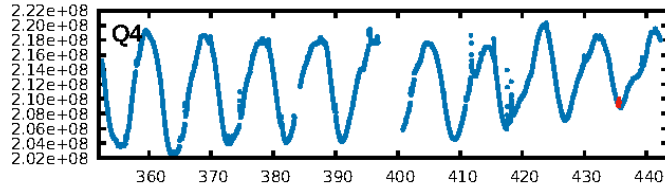
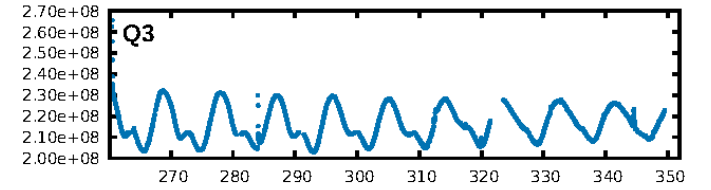
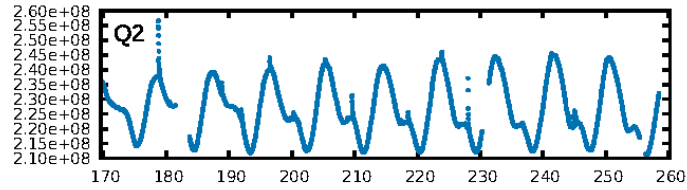
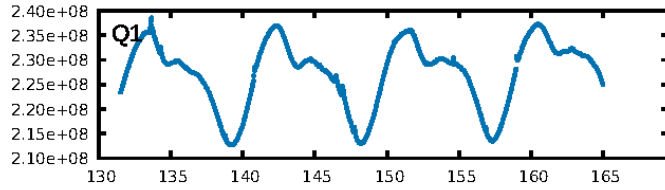
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [30.84σ]  
LongPeriod-sig: 100.0% [336.15σ]  
ModelChiSquare2-sig: 0.8%  
ModelChiSquareGof-sig: 23.8%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.644  
Centroid-sig: 66.6%  
Centroid-so: 0.316 arcsec [1.22σ]  
OotOffset-rm: 0.111 arcsec [0.54σ]  
KicOffset-rm: 0.308 arcsec [1.68σ]  
OotOffset-st: 0/0/1/1 [2]  
KicOffset-st: 0/0/1/1 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

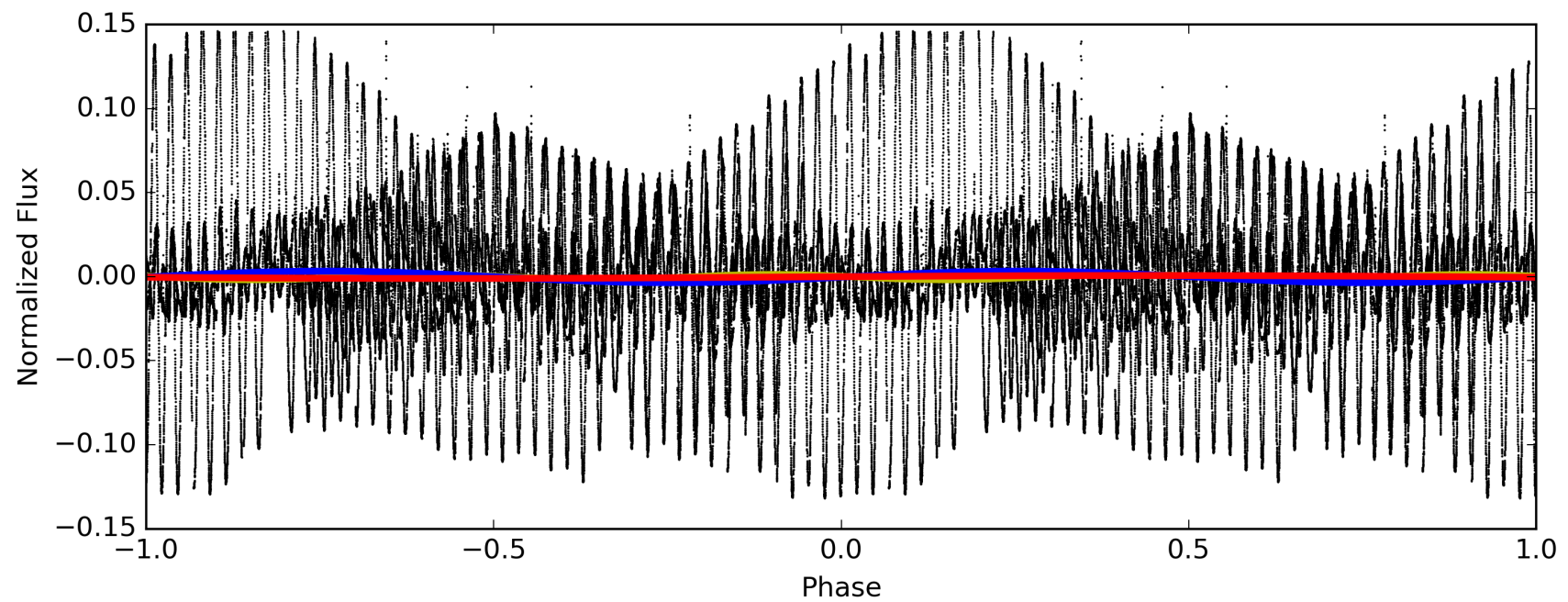
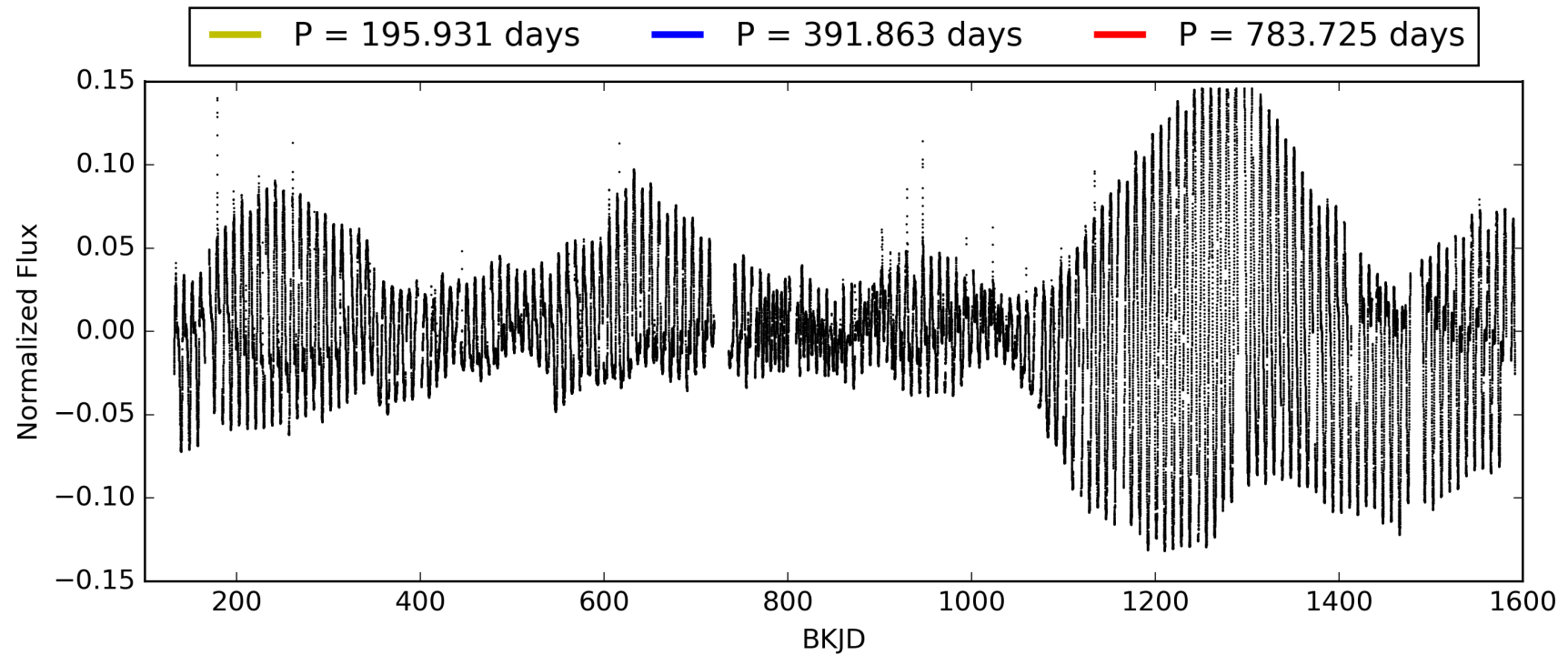
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:33:13 Z

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

# TCE 007740188-04, PDC Light Curves



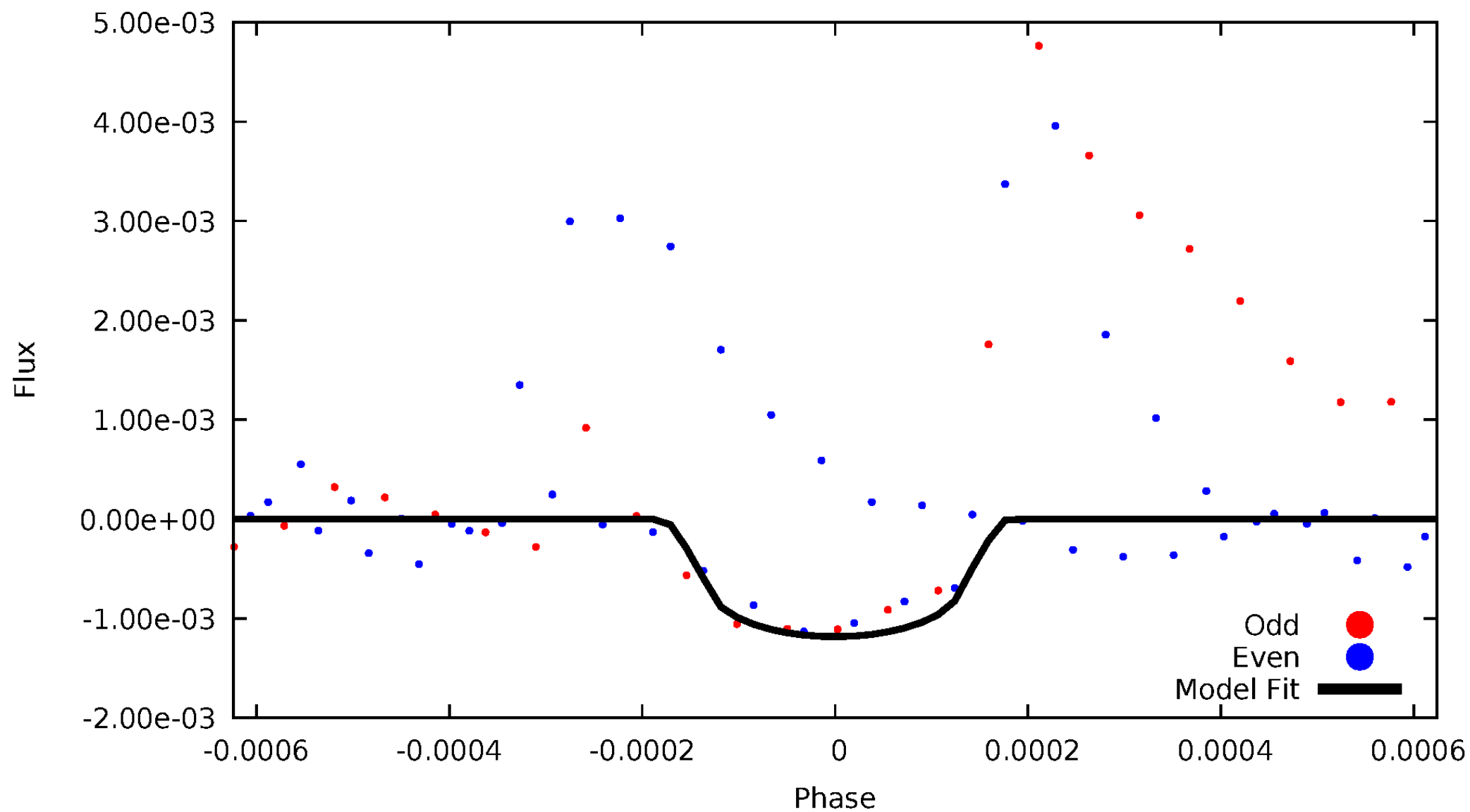
TCE 007740188-04





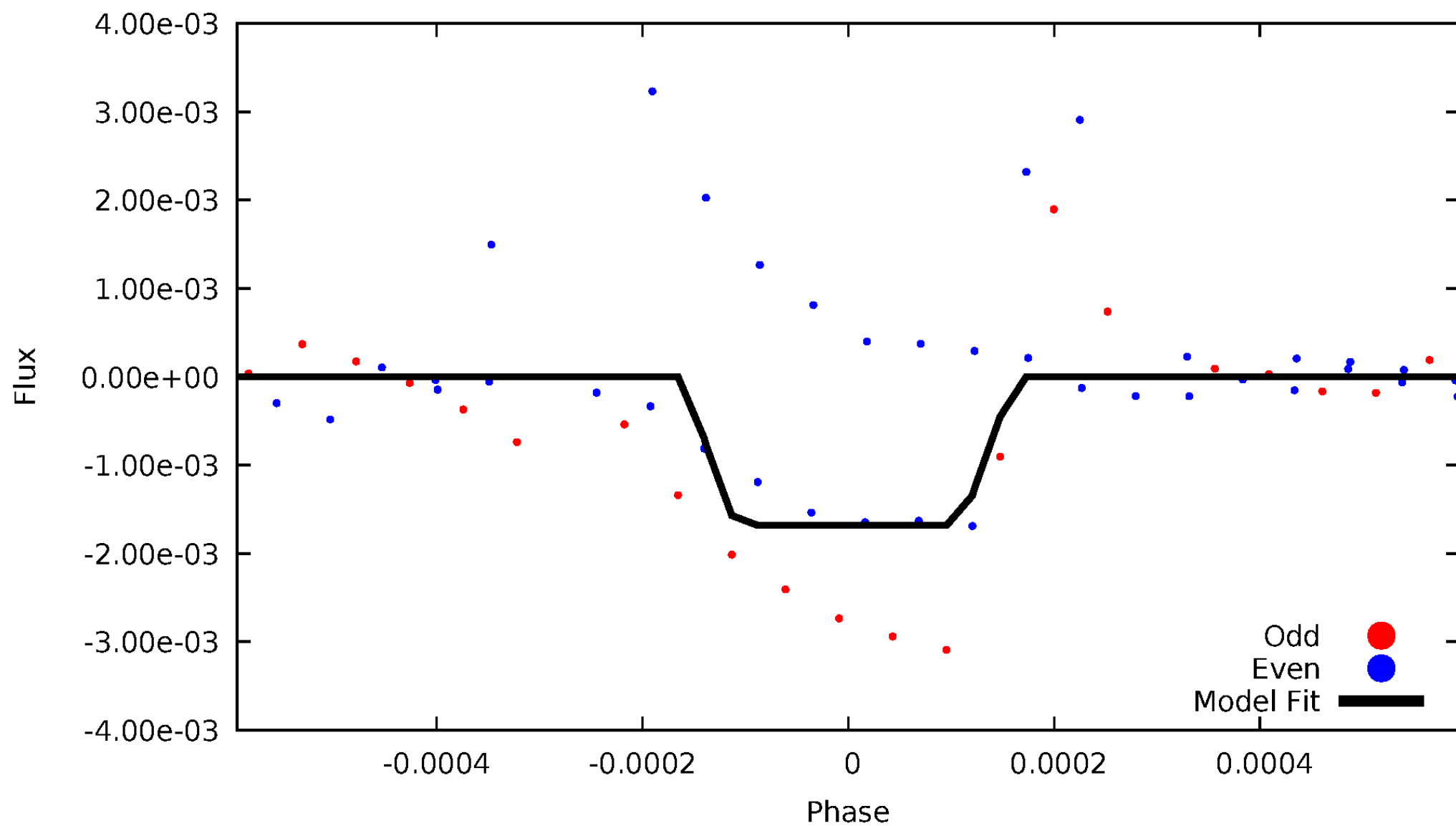
# DV Odd/Even

TCE 007740188-04



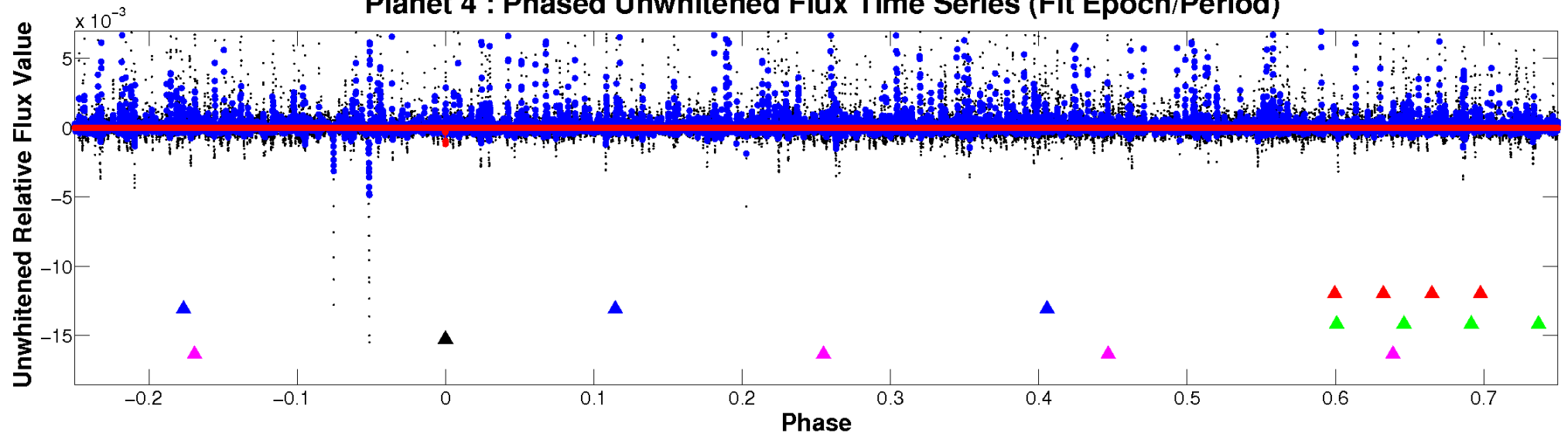
# ALT Odd/Even

TCE 007740188-04

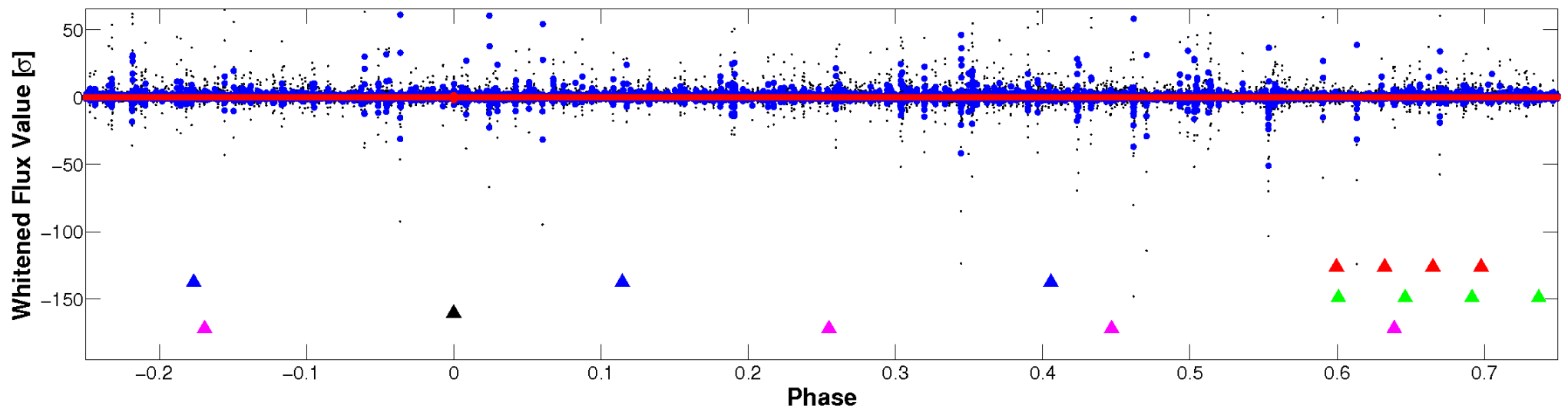


# Non-Whitened Vs. Whitened Light Curve

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

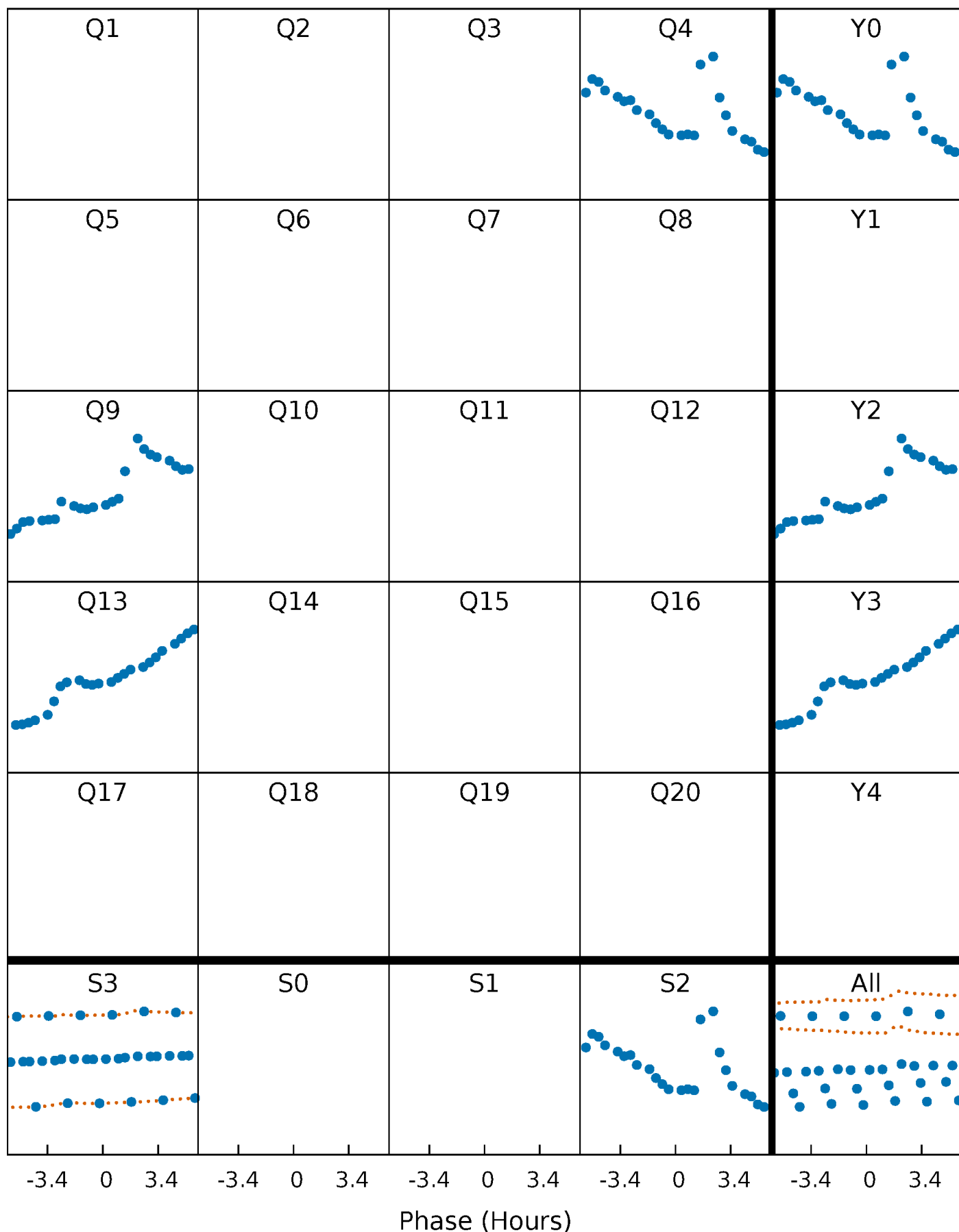


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



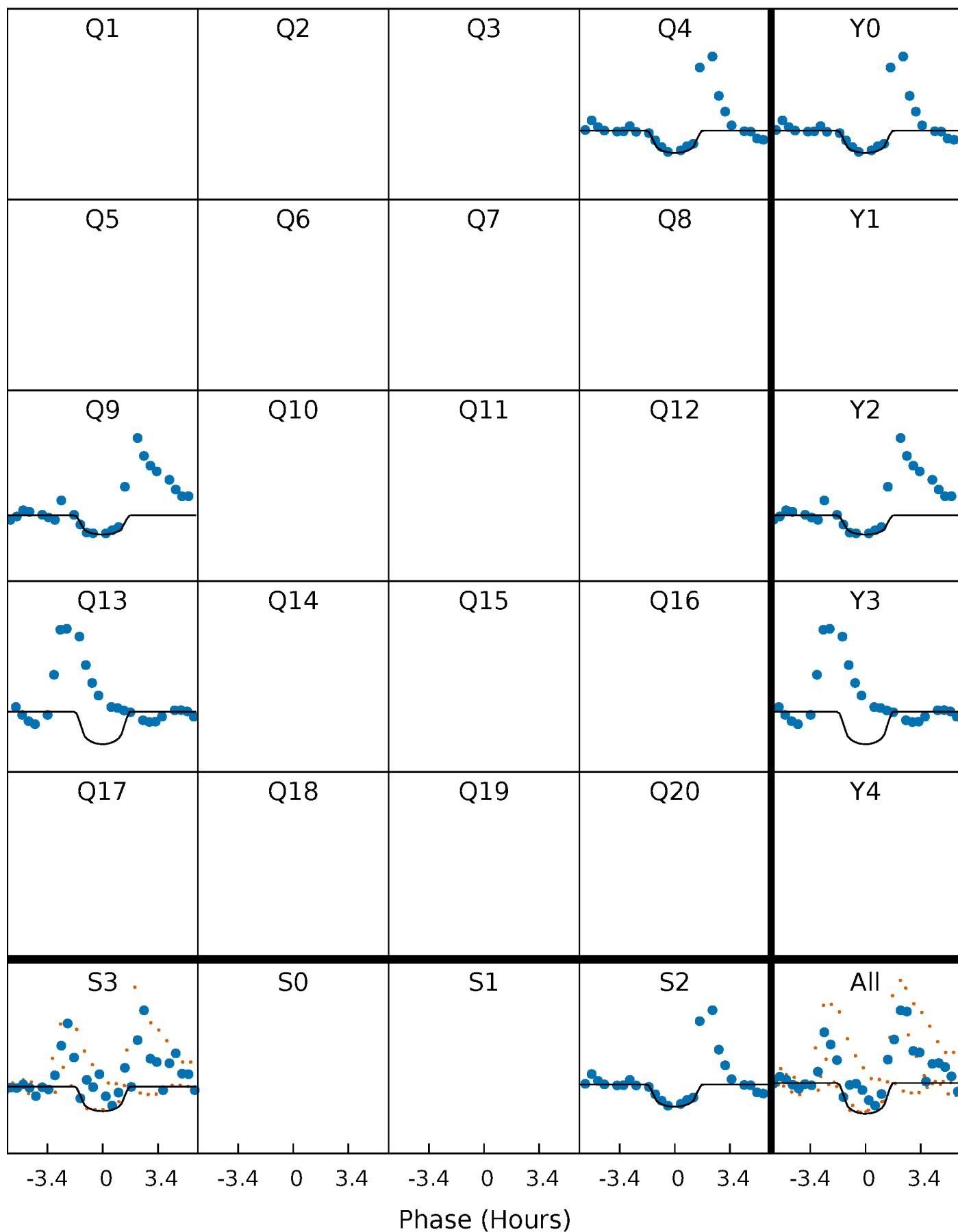
# PDC Quarter-Phased Transit Curves

TCE 007740188-04 P=391.862501 Days  $T_0=435.493021$  (BKJD)



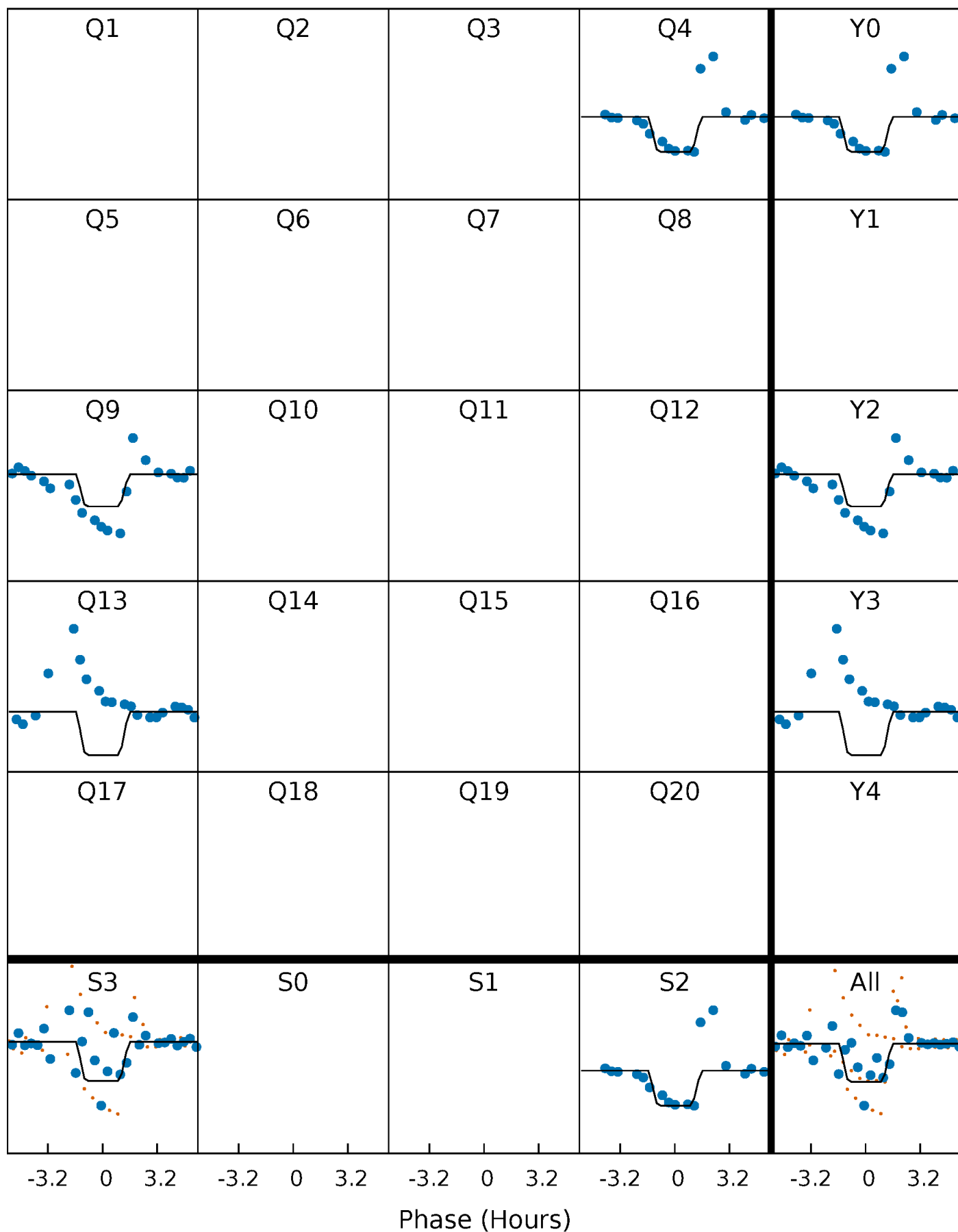
# DV Quarter-Phased Transit Curves

TCE 007740188-04     $P=391.862501$  Days     $T_0=435.493021$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

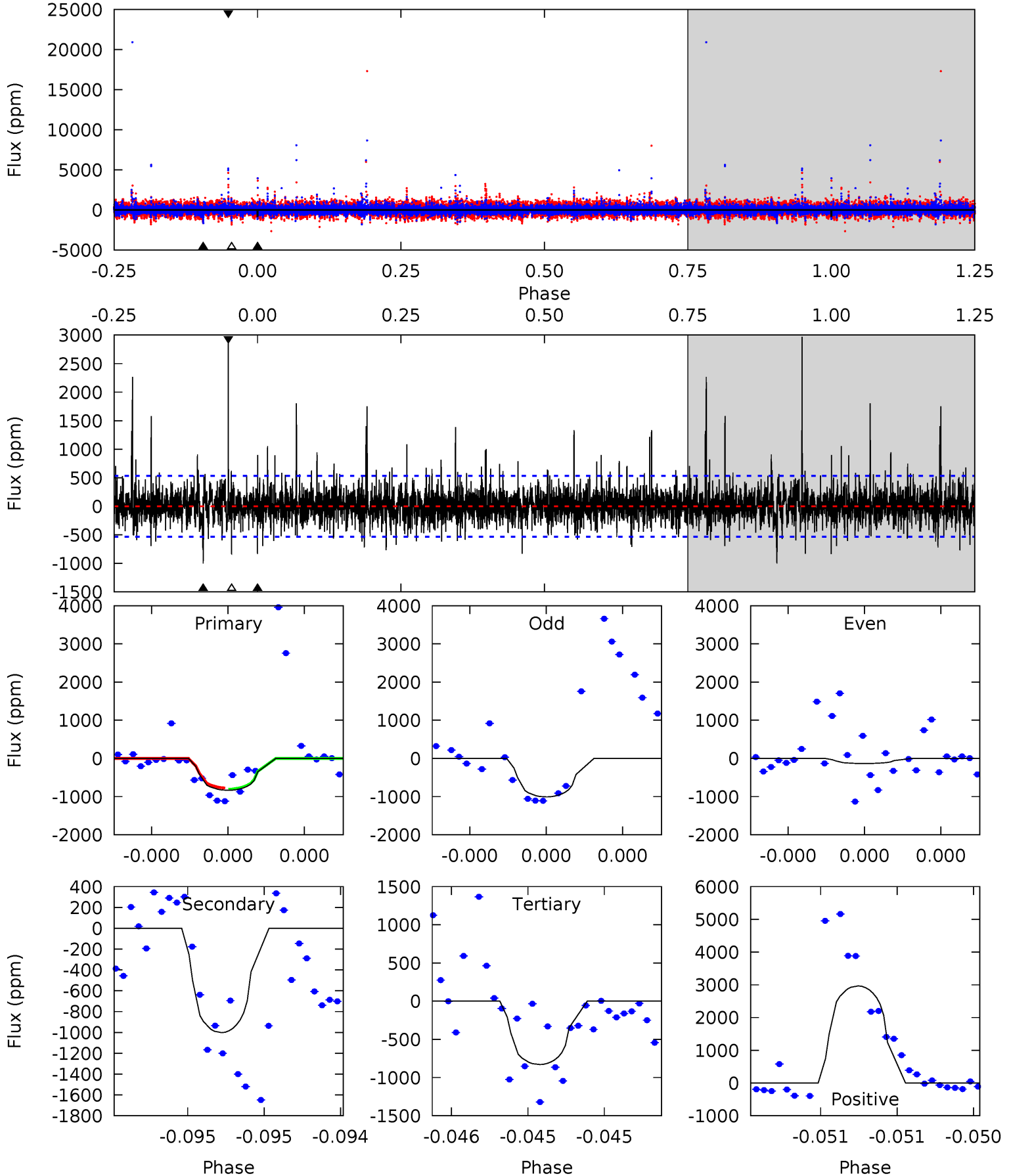
TCE 007740188-04 P=391.865693 Days  $T_0=435.494367$  (BKJD)



# DV Model-Shift Uniqueness Test

007740188-04, P = 391.862501 Days, E = 43.630520 Days

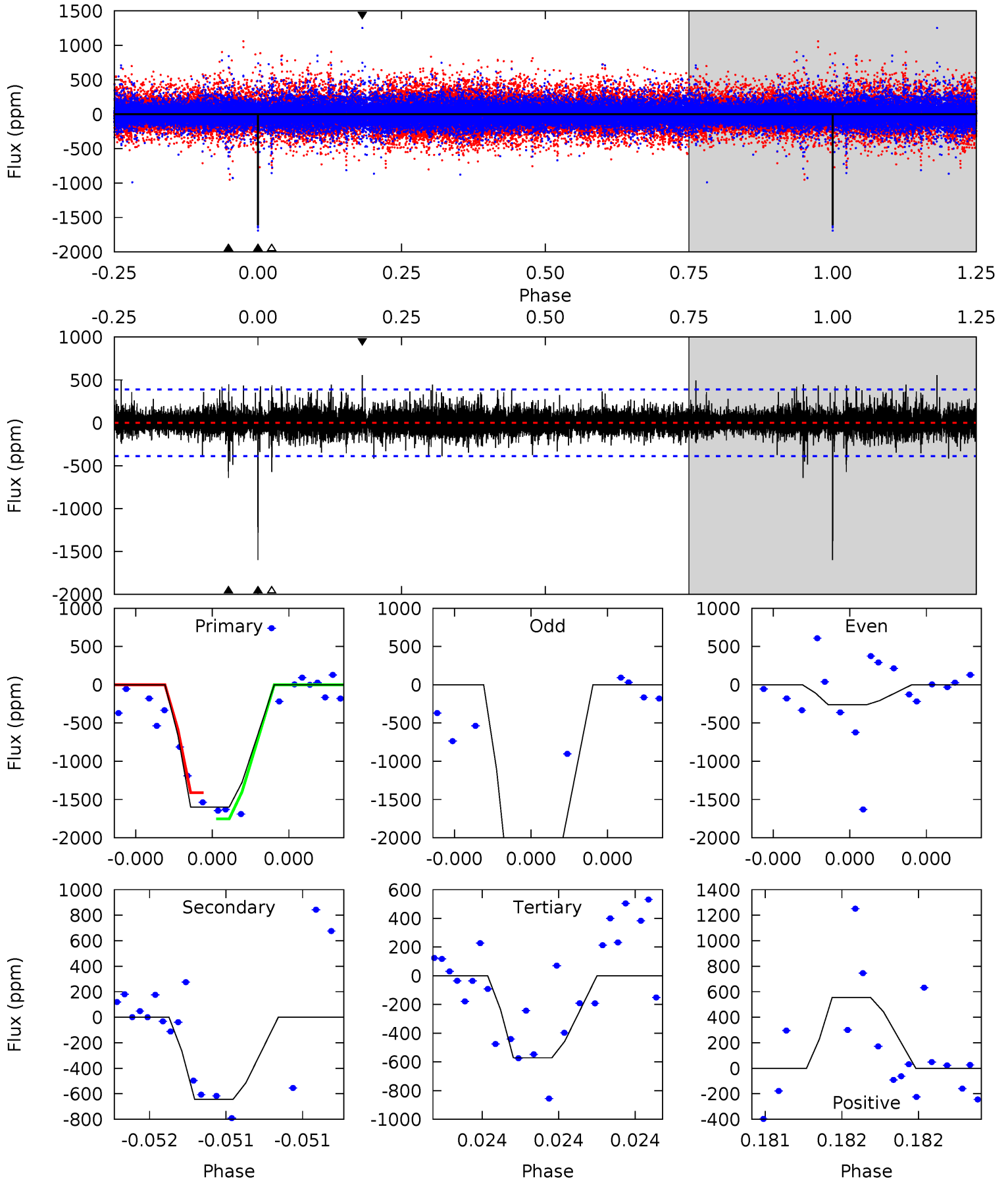
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.82	10.6	8.76	31.3	5.63	3.56	2.07	0.06	-22.5	1.82	-20.7	2.34	0.42	0.75	0.17



# Alt Model-Shift Uniqueness Test

007740188-04, P = 391.865693 Days, E = 43.628674 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
23.3	9.37	8.34	8.09	5.66	3.61	1.13	15.0	15.2	1.03	1.28	25.9	0.72	0.26	0





### Stellar Parameters For KIC 007740188

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4918^{+149}_{-1}$	$3.030^{+0.379}_{-0.310}$	$-0.400^{+0.300}_{-0.200}$	$4.727^{+2.817}_{-1.517}$	$0.873^{+0.354}_{-0.042}$	$0.012^{+0.027}_{-0.008}$
	+3%/-0%	+13%/-10%	+75%/-50%	+60%/-32%	+41%/-5%	+235%/-66%
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 007740188-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1002 \pm 95$	$30.88^{+33.78}_{-20.78}$	$651^{+87}_{-68}$	$3884^{+2334}_{-765}$	$609^{+5138}_{-469}$
Alt.	$-642 \pm 69$	$34.43^{+32.26}_{-23.35}$	$649^{+82}_{-73}$	$3466^{+1721}_{-562}$	$328^{+2791}_{-244}$

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

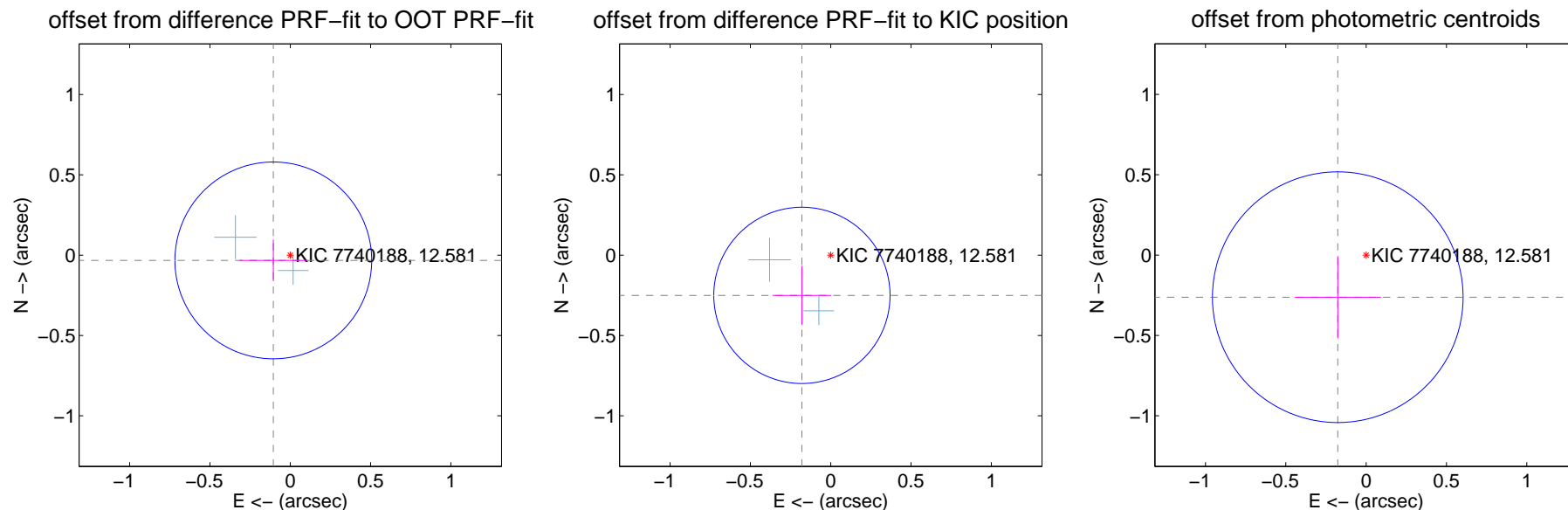
## DV Centroid Data

Supplemental centroid analysis for 007740188-04. Kepler magnitude: 12.58. Transit SNR 8.04

There are 2 quarters with good PRF difference image offsets

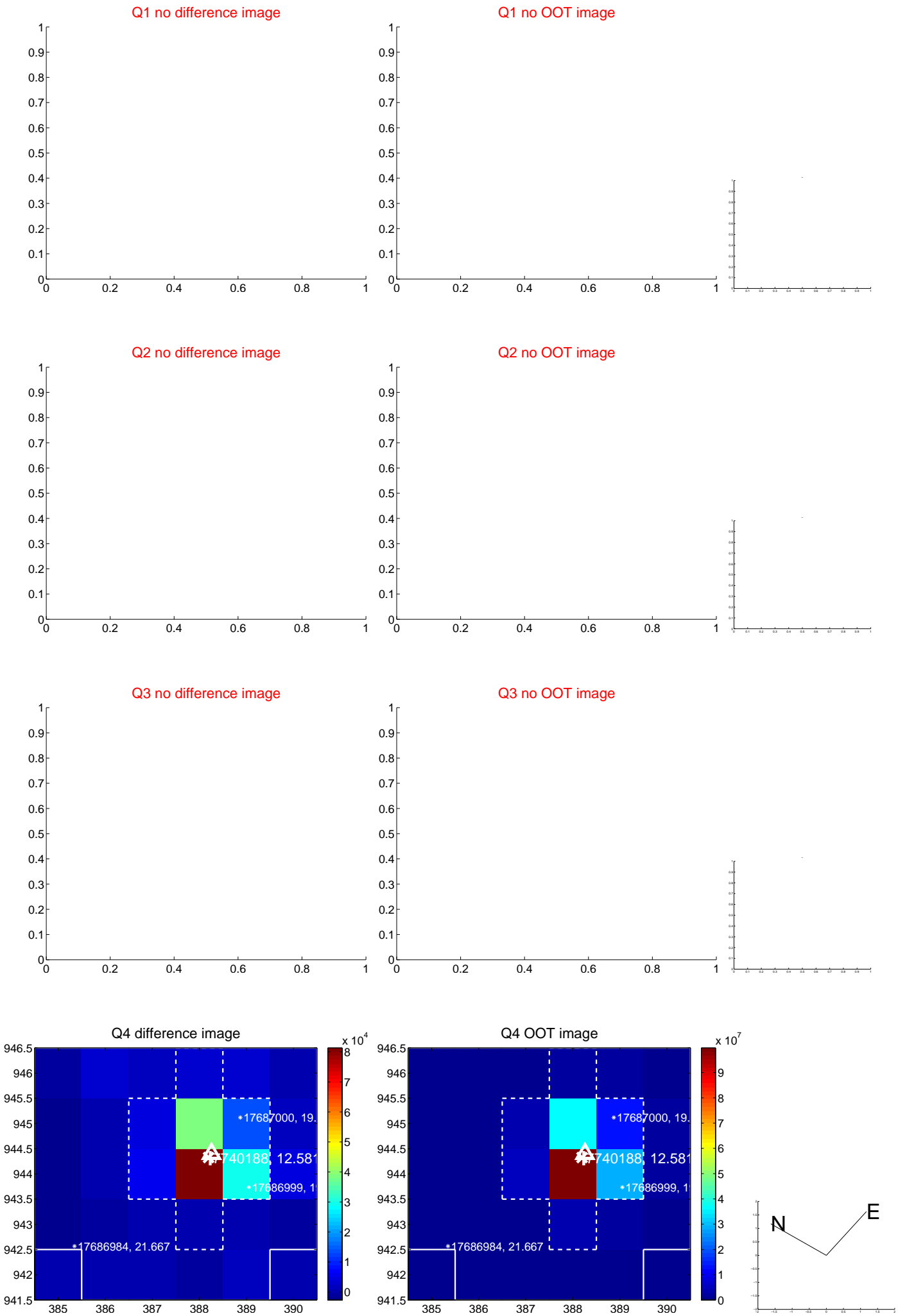
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.111 \pm 0.204$	0.54	$0.106 \pm 0.210$	$-0.033 \pm 0.129$
PRF-fit source offset from KIC position	$0.308 \pm 0.183$	1.68	$0.179 \pm 0.183$	$-0.250 \pm 0.183$
photometric centroid source offset	$0.32 \pm 0.26$	1.22	$0.18 \pm 0.27$	$-0.26 \pm 0.26$



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

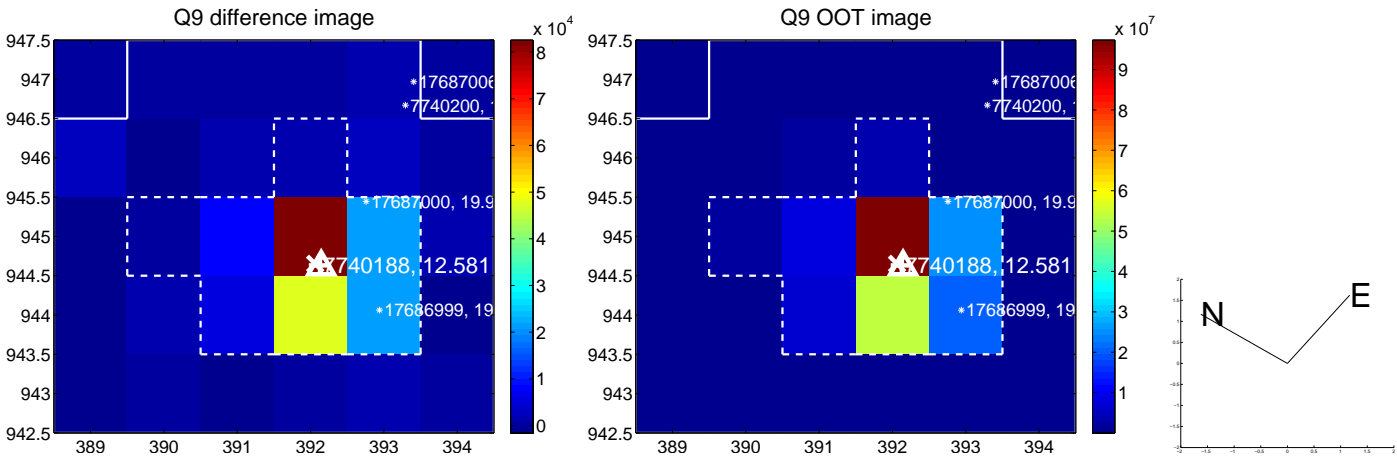
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



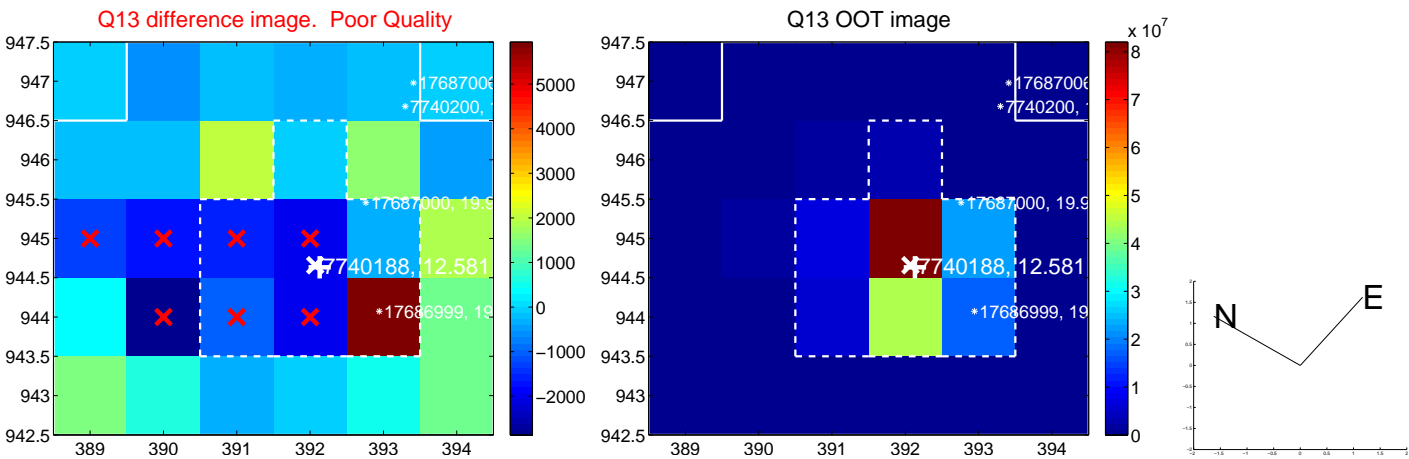
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



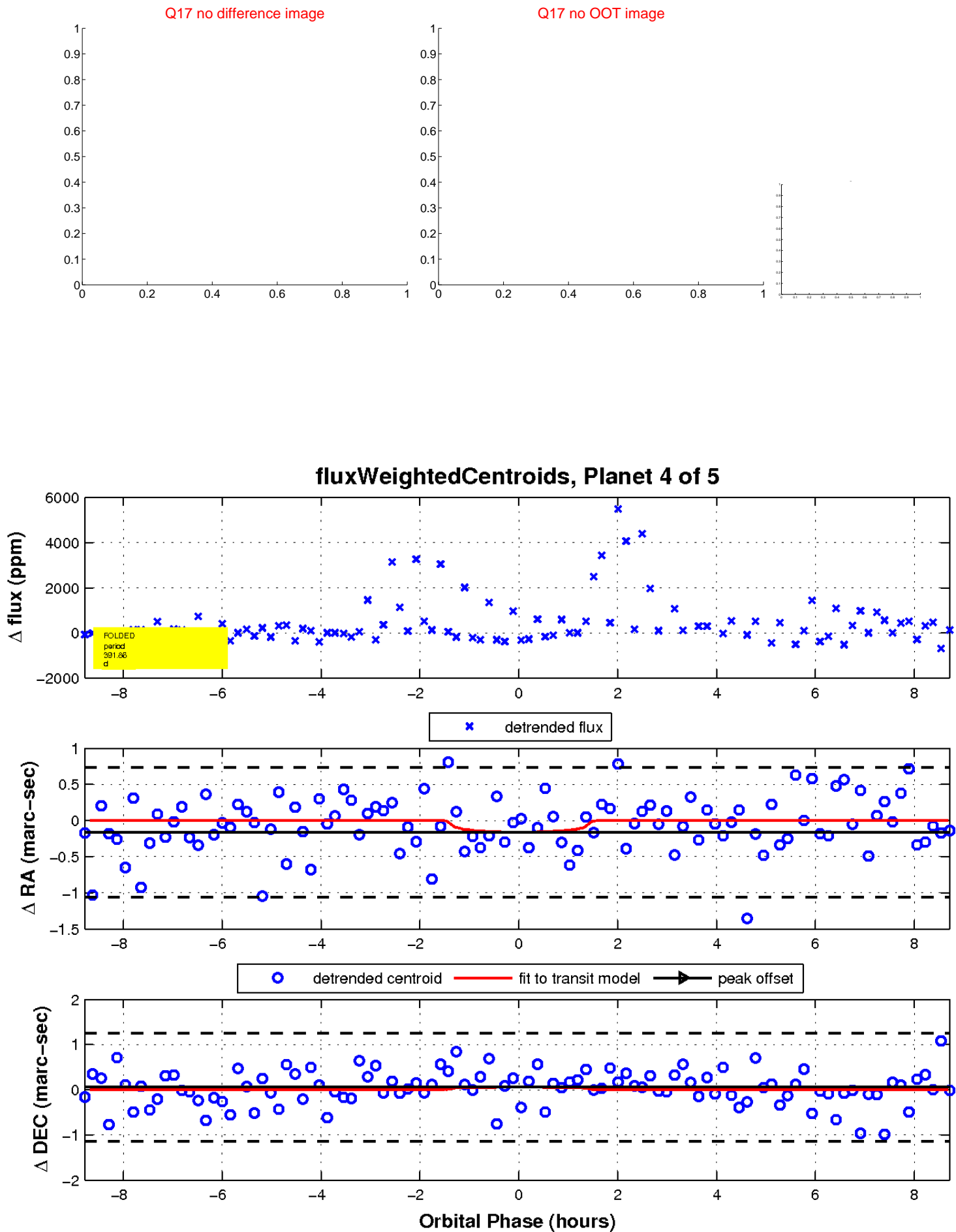
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

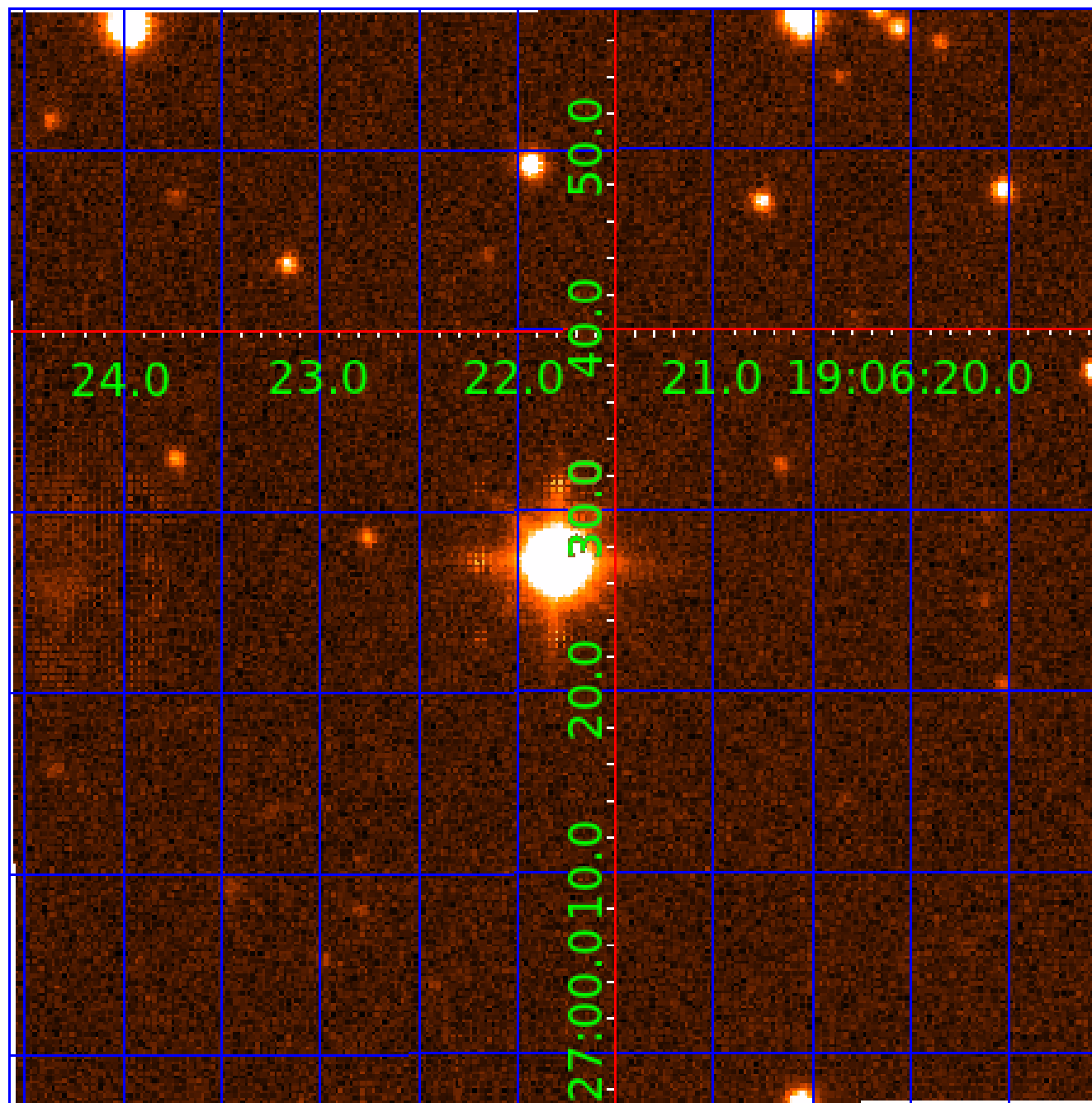


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007740188

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007740188-01	OBS	No	379.028666	317.082480	1691.1	9.547	24.5	8.5	4.73	4918	23.71	12.20
007740188-02	OBS	No	669.648737	202.581999	1751.7	4.303	63.5	8.5	4.73	4918	19.36	5.71
007740188-03	OBS	No	374.090327	332.419499	37.3	0.698	19.5	0.3	4.73	4918	3.19	12.41
007740188-04	OBS	No	391.862501	435.493021	1183.6	2.932	19.0	8.0	4.73	4918	16.28	11.67
007740188-05	OBS	No	467.090748	143.505494	802.4	4.500	24.8	-1.0	4.73	4918	13.02	9.23

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007740188-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007740188-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS
007740188-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007740188-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
007740188-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

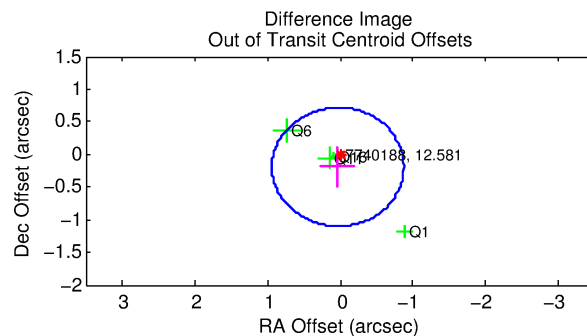
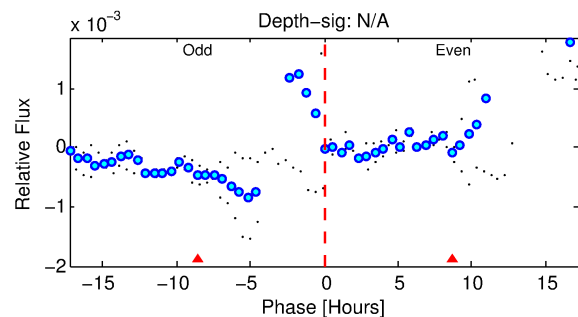
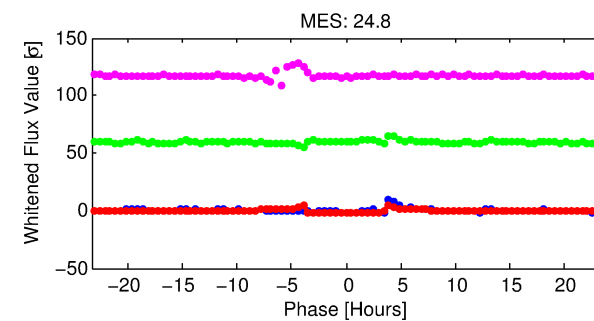
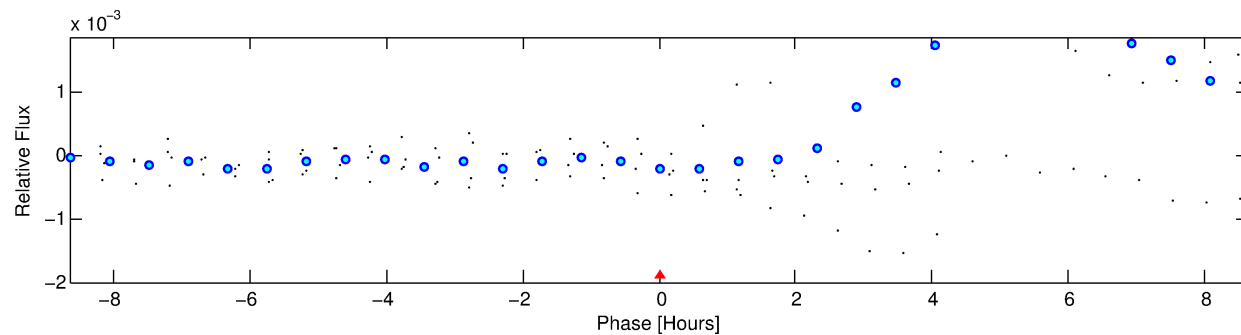
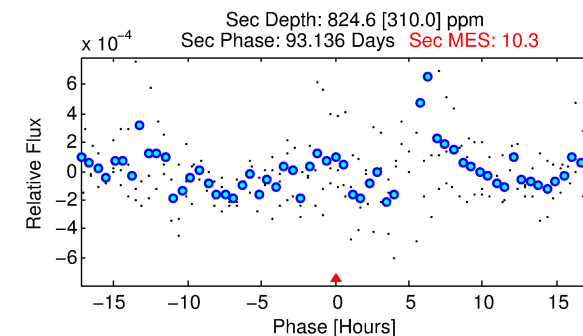
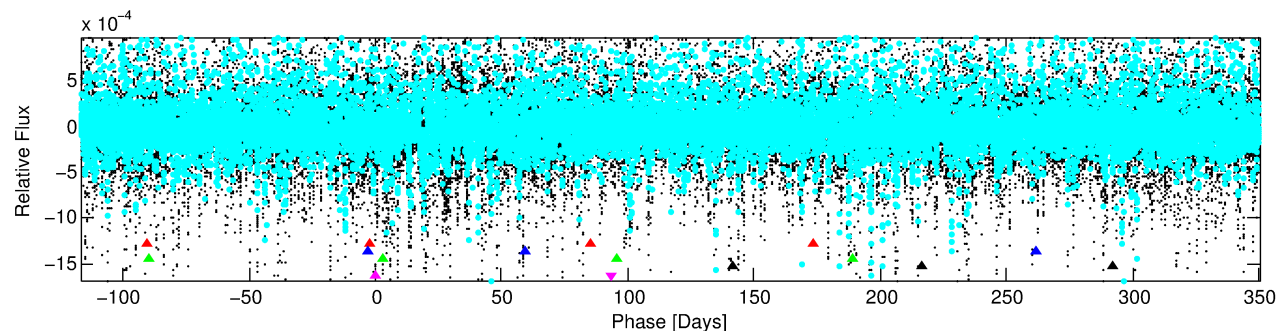
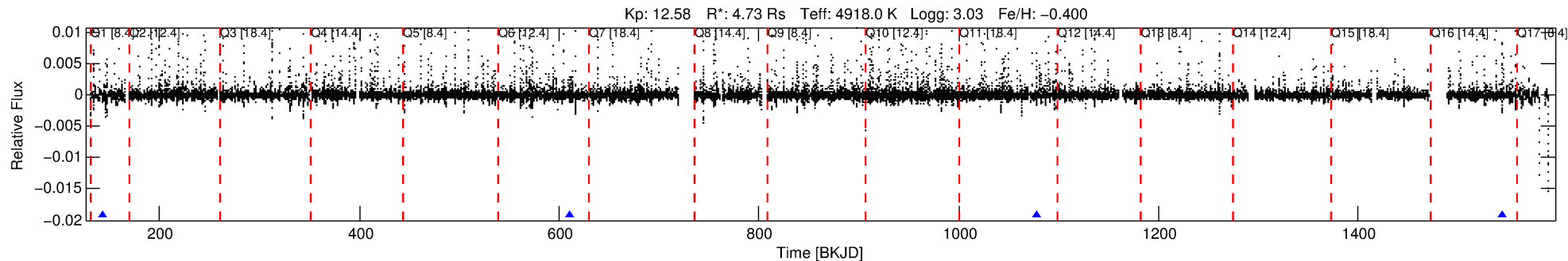
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007740188-05

No Significant Match Found

# DV One-Page Summary

KIC: 7740188 Candidate: 5 of 5 Period: 467.091 d



## TPS TCE Results:

Period = 467.09075 d  
Epoch = 143.5055 BKJD

**DV fit results are unavailable**

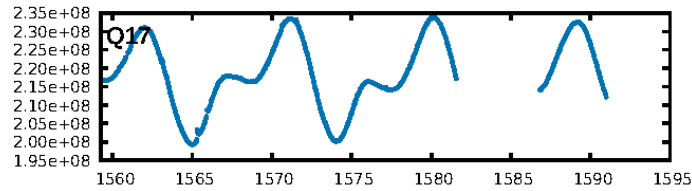
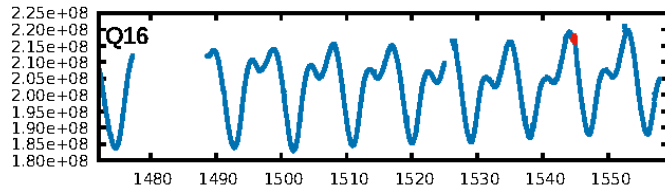
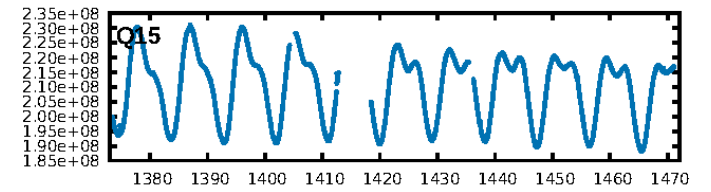
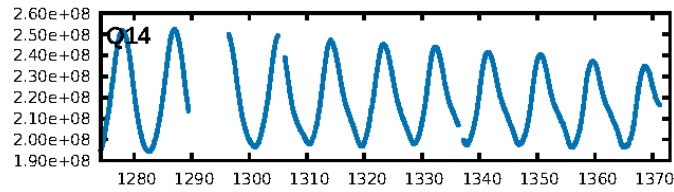
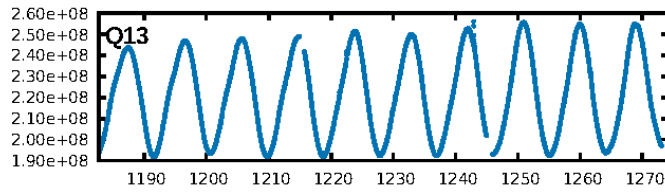
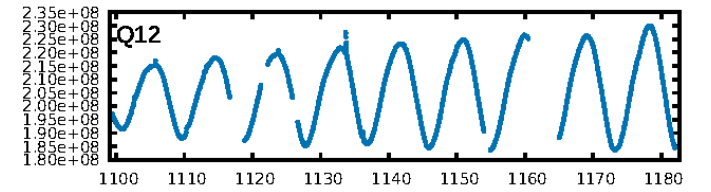
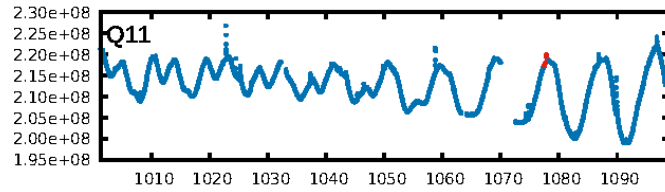
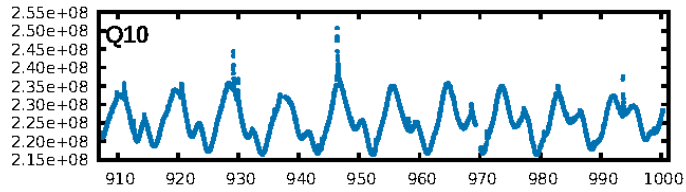
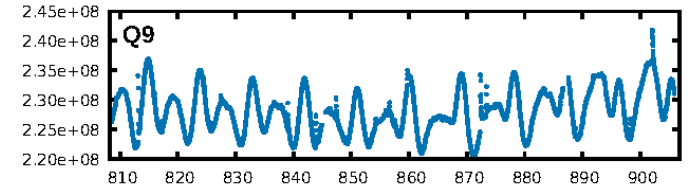
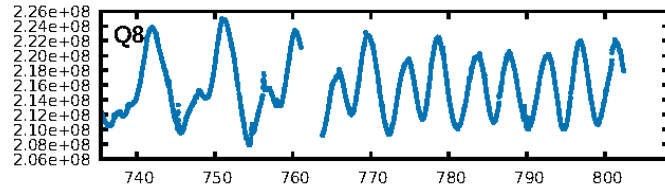
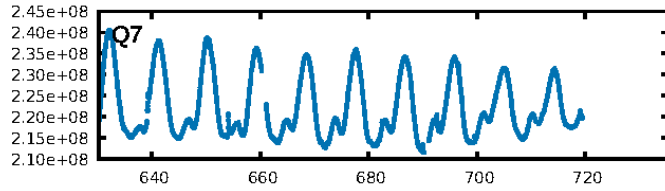
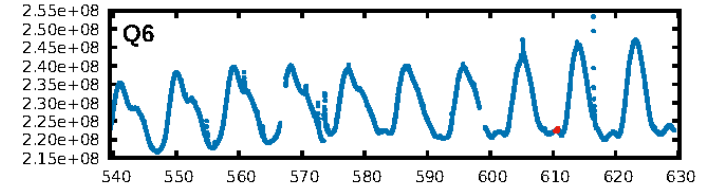
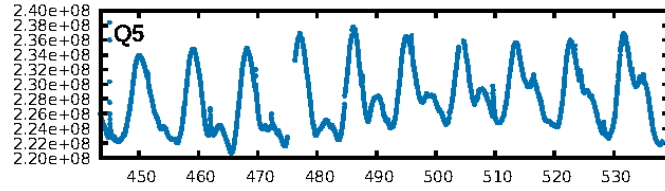
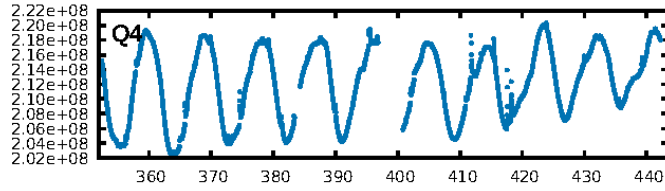
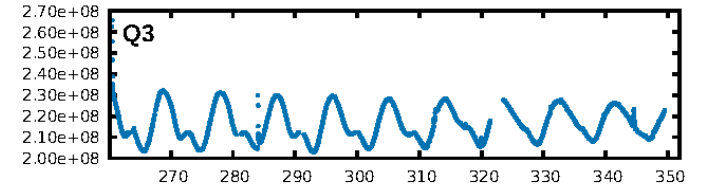
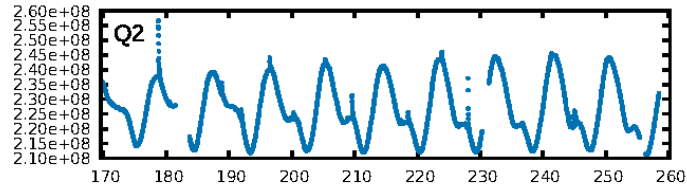
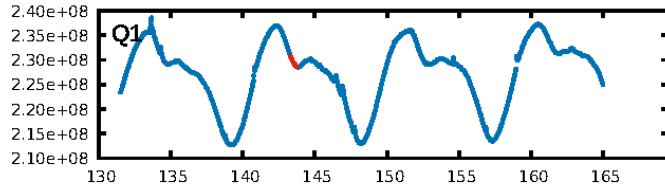
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [336.15 $\sigma$ ]  
LongPeriod-sig: 100.0% [780.81 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.44  
Centroid-sig: 38.8%  
Centroid-so: 0.605 arcsec [0.55 $\sigma$ ]  
OotOffset-rm: 0.194 arcsec [0.64 $\sigma$ ]  
KicOffset-rm: 0.441 arcsec [1.54 $\sigma$ ]  
OotOffset-st: 1/1/1/1 [4]  
KicOffset-st: 1/1/1/1 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [4/4]

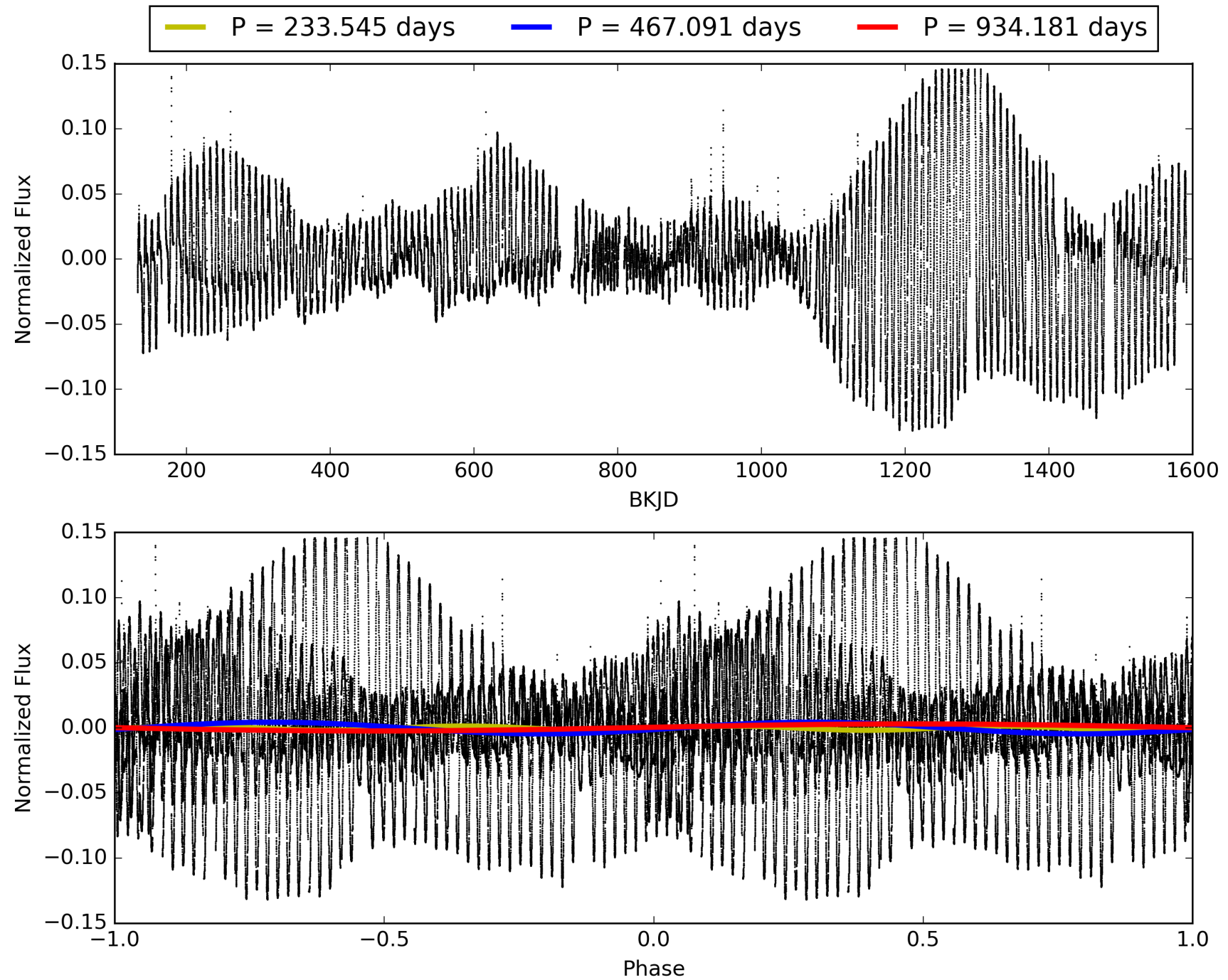
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:33:35 Z

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

# TCE 007740188-05, PDC Light Curves

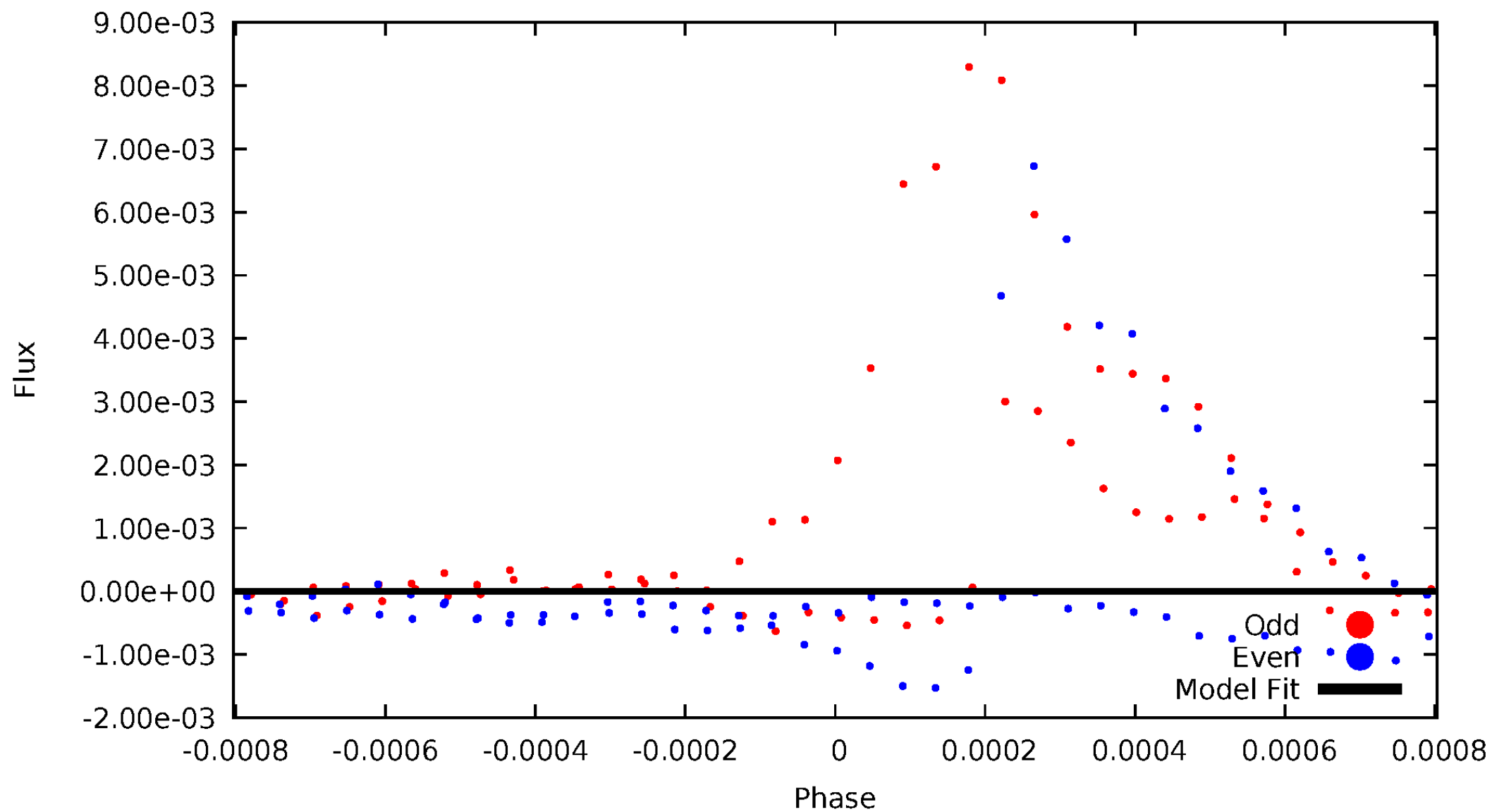


# TCE 007740188-05



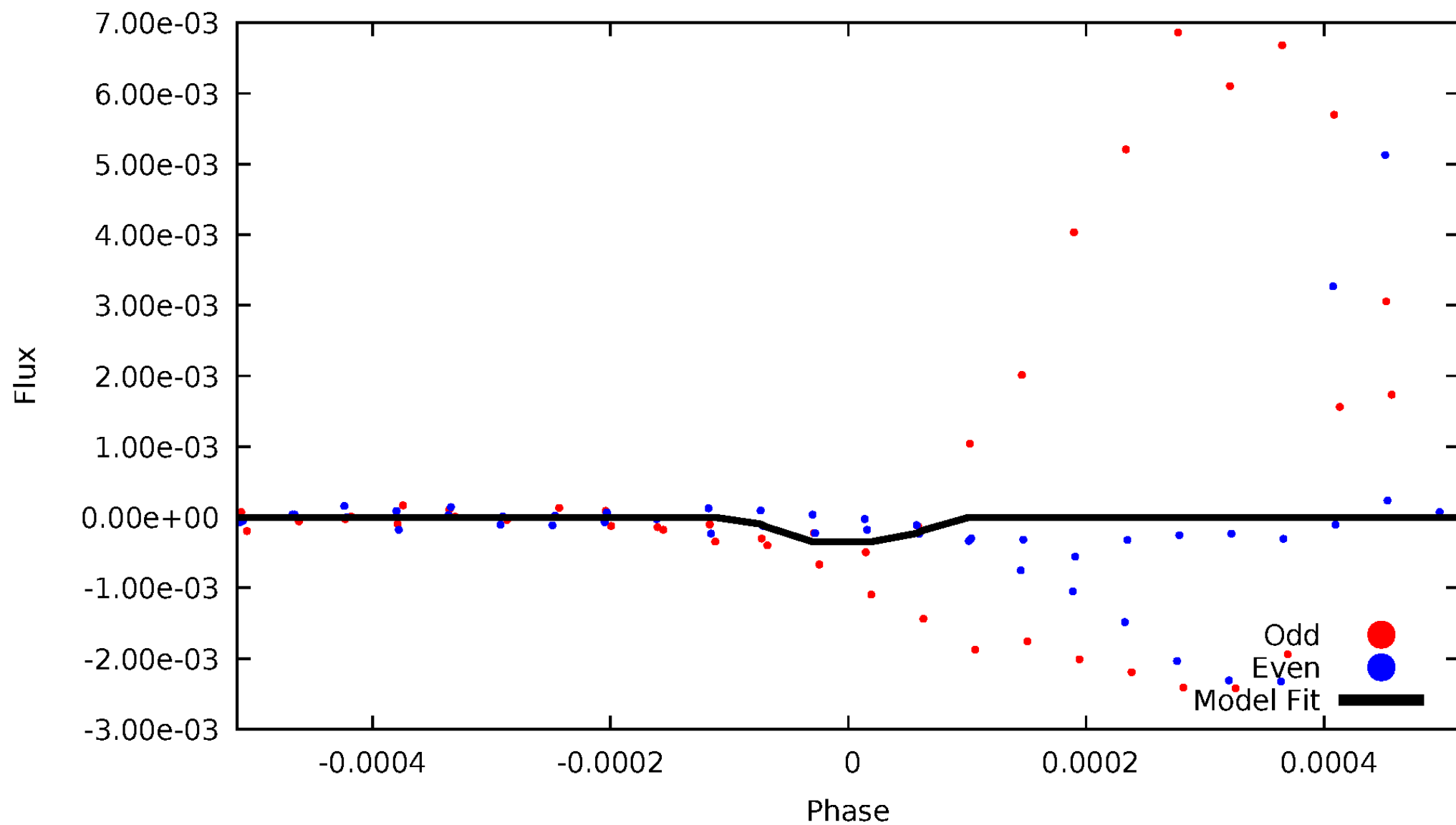
# DV Odd/Even

TCE 007740188-05

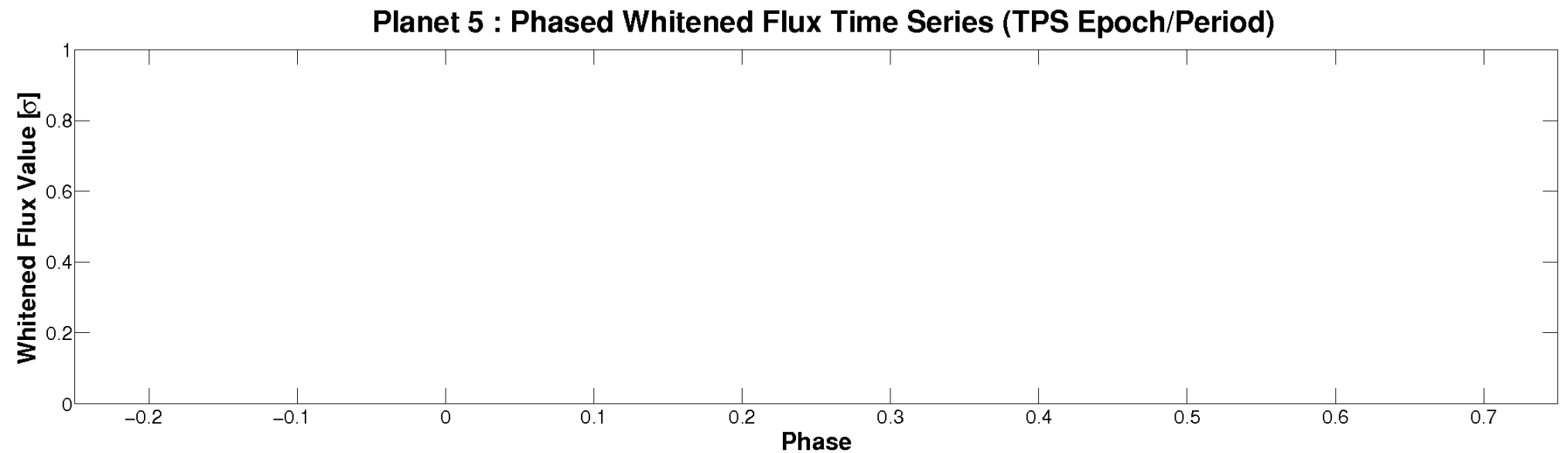
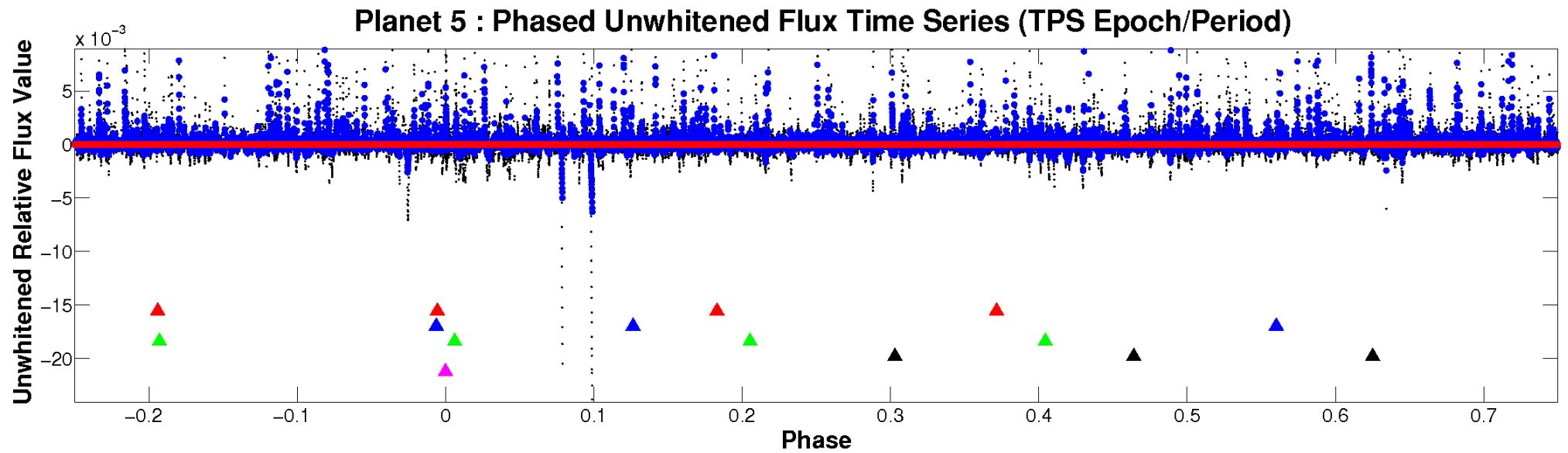


# ALT Odd/Even

TCE 007740188-05

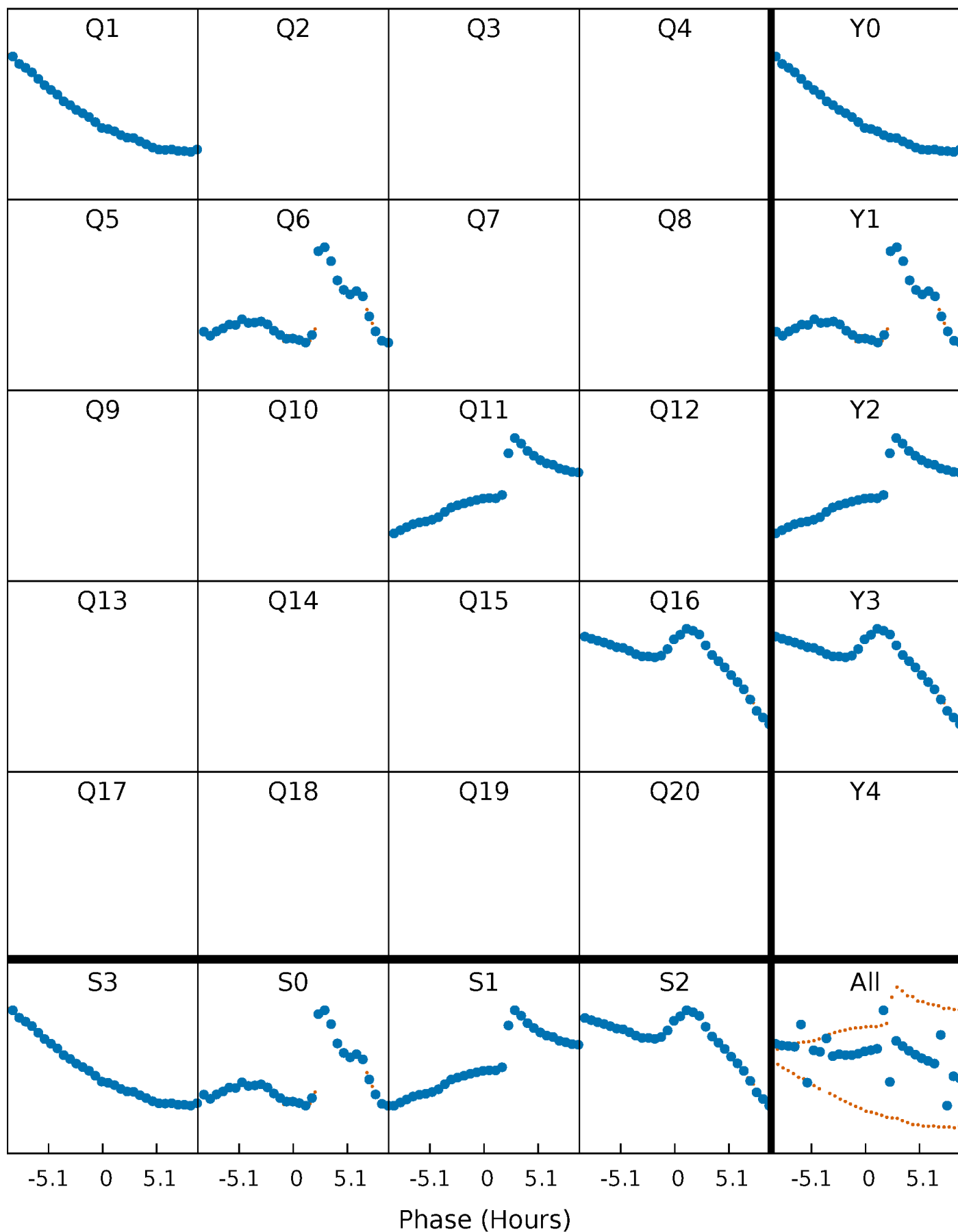


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

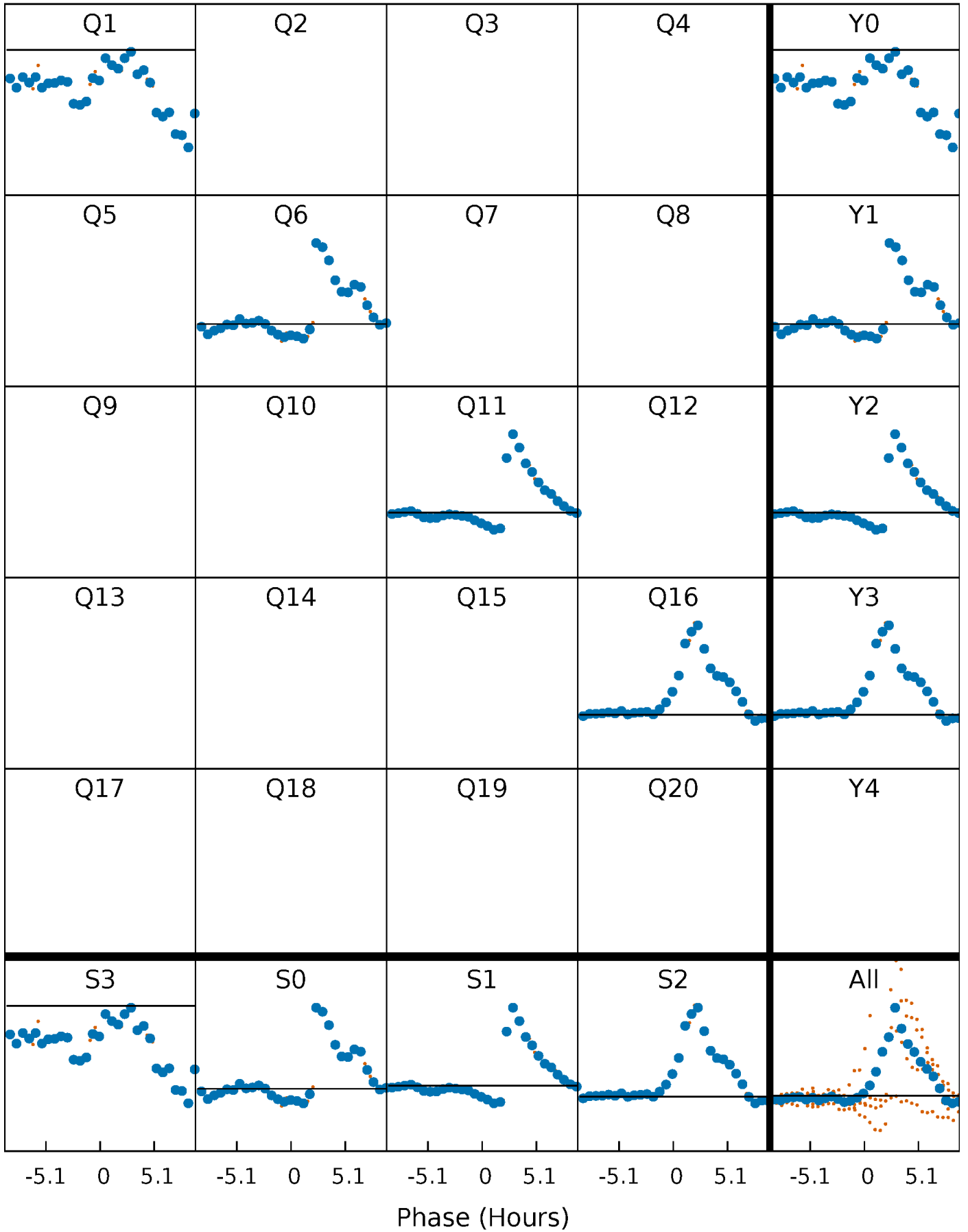
TCE 007740188-05     $P=467.090748$  Days     $T_0=143.505494$  (BKJD)





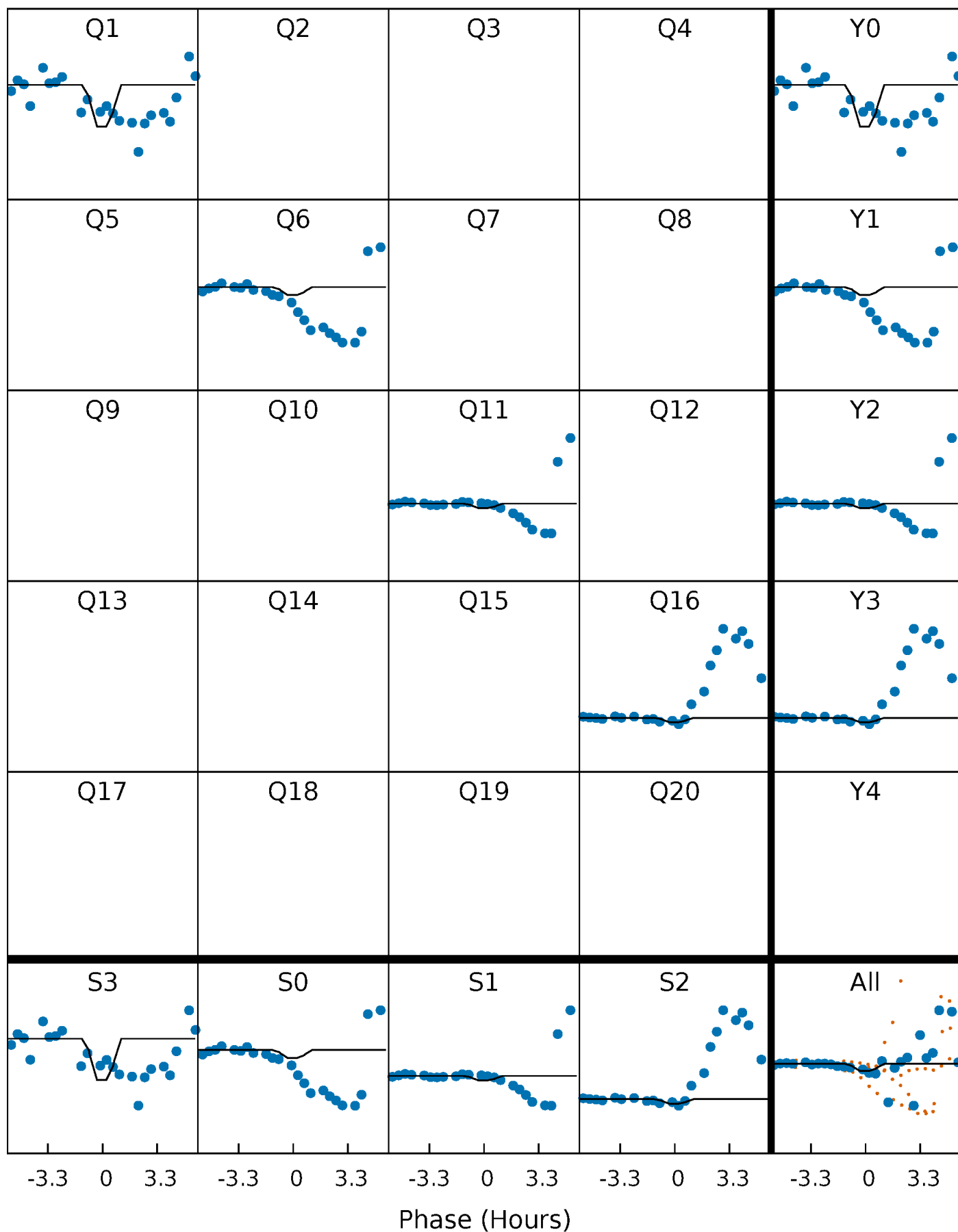
# DV Quarter-Phased Transit Curves

TCE 007740188-05     $P=467.090748$  Days     $T_0=143.505494$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

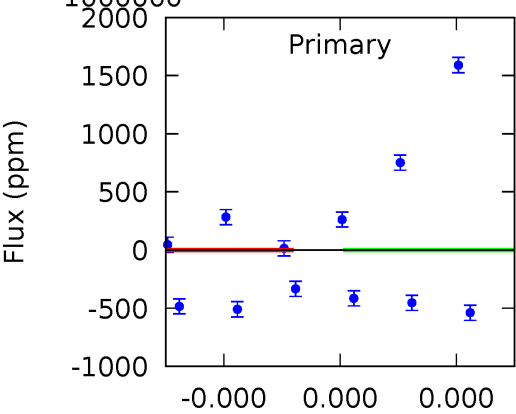
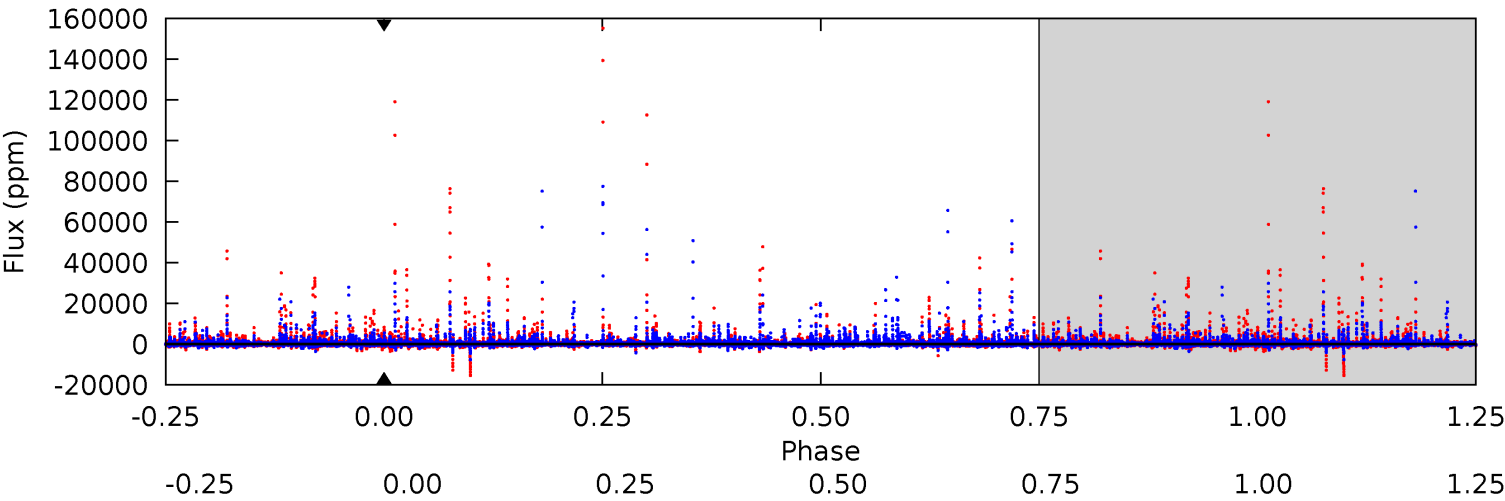
TCE 007740188-05     $P=467.090748$  Days     $T_0=143.418486$  (BKJD)



# DV Model-Shift Uniqueness Test

007740188-05, P = 467.090748 Days, E = 143.505494 Days

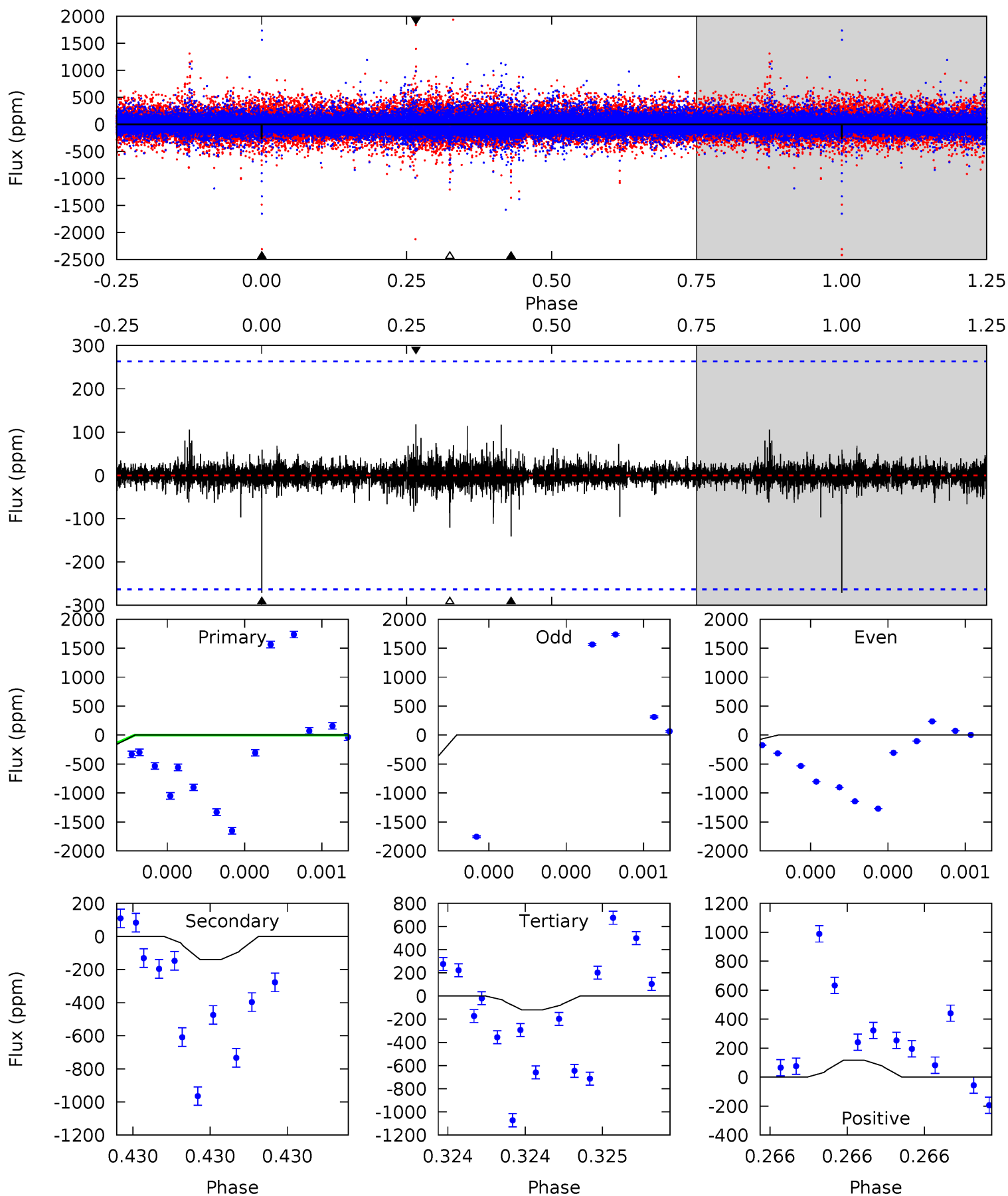
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

007740188-05, P = 467.090748 Days, E = 143.418486 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
5.91	3.07	2.63	2.56	5.75	3.75	0.30	3.29	3.35	0.45	0.51	4.02	1.44	0.30	0.73



### Stellar Parameters For KIC 007740188

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4918^{+149}_{-1}$	$3.030^{+0.379}_{-0.310}$	$-0.400^{+0.300}_{-0.200}$	$4.727^{+2.817}_{-1.517}$	$0.873^{+0.354}_{-0.042}$	$0.012^{+0.027}_{-0.008}$
	+3%/-0%	+13%/-10%	+75%/-50%	+60%/-32%	+41%/-5%	+235%/-66%
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 007740188-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$39.63^{+42.31}_{-26.49}$	$613^{+89}_{-65}$	$3434^{+10493}_{-16027}$	$237^{+85089}_{-79619}$
Alt.	$-141 \pm 46$	$39.83^{+46.79}_{-28.86}$	$613^{+91}_{-69}$	$2668^{+1221}_{-438}$	$66^{+775}_{-53}$

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

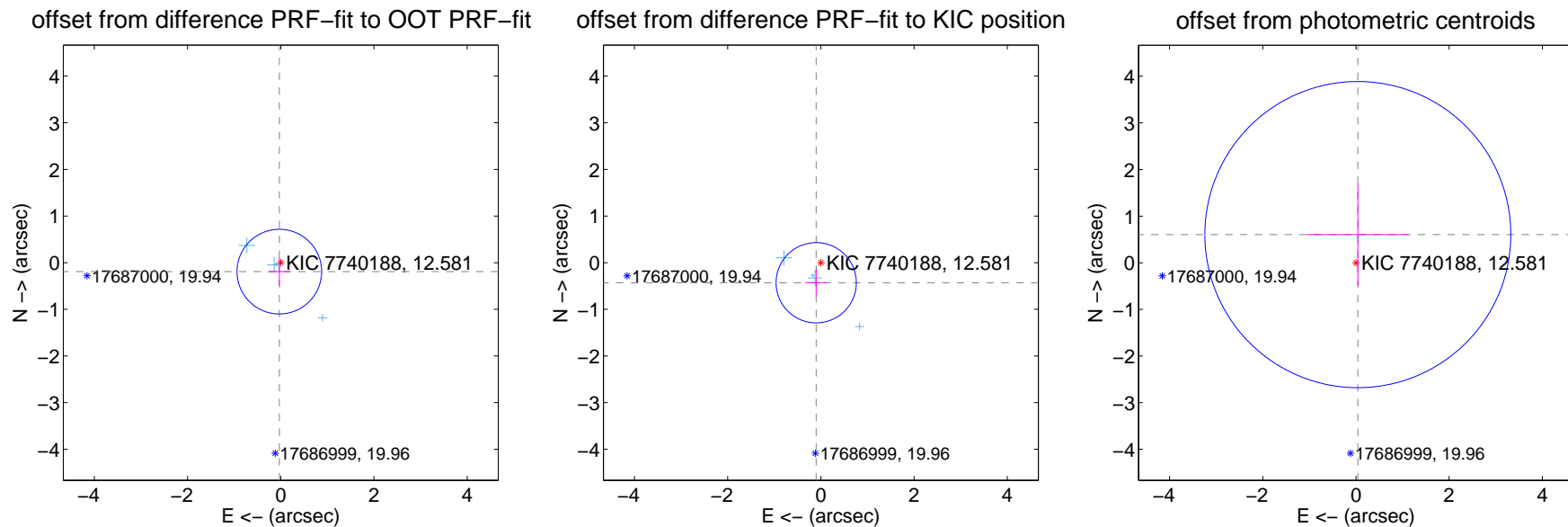
## DV Centroid Data

Supplemental centroid analysis for 007740188-05. Kepler magnitude: 12.58. Transit SNR -1.00

There are 4 quarters with good PRF difference image offsets

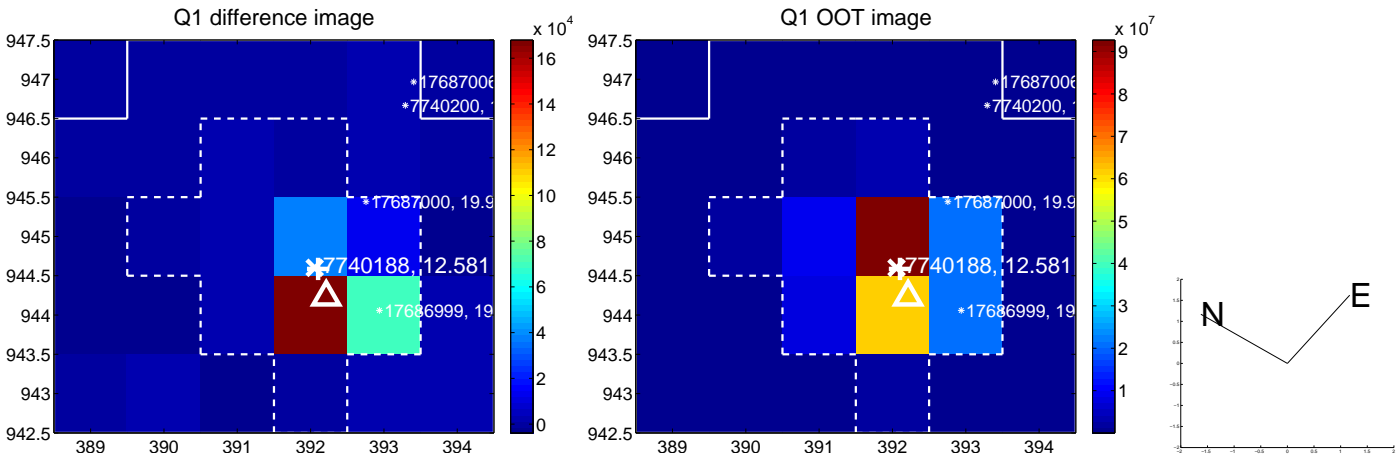
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.194 \pm 0.303$	0.64	$0.030 \pm 0.235$	$-0.192 \pm 0.304$
PRF-fit source offset from KIC position	$0.441 \pm 0.287$	1.54	$0.100 \pm 0.235$	$-0.430 \pm 0.289$
photometric centroid source offset	$0.61 \pm 1.09$	0.55	$-0.04 \pm 1.09$	$0.60 \pm 1.09$

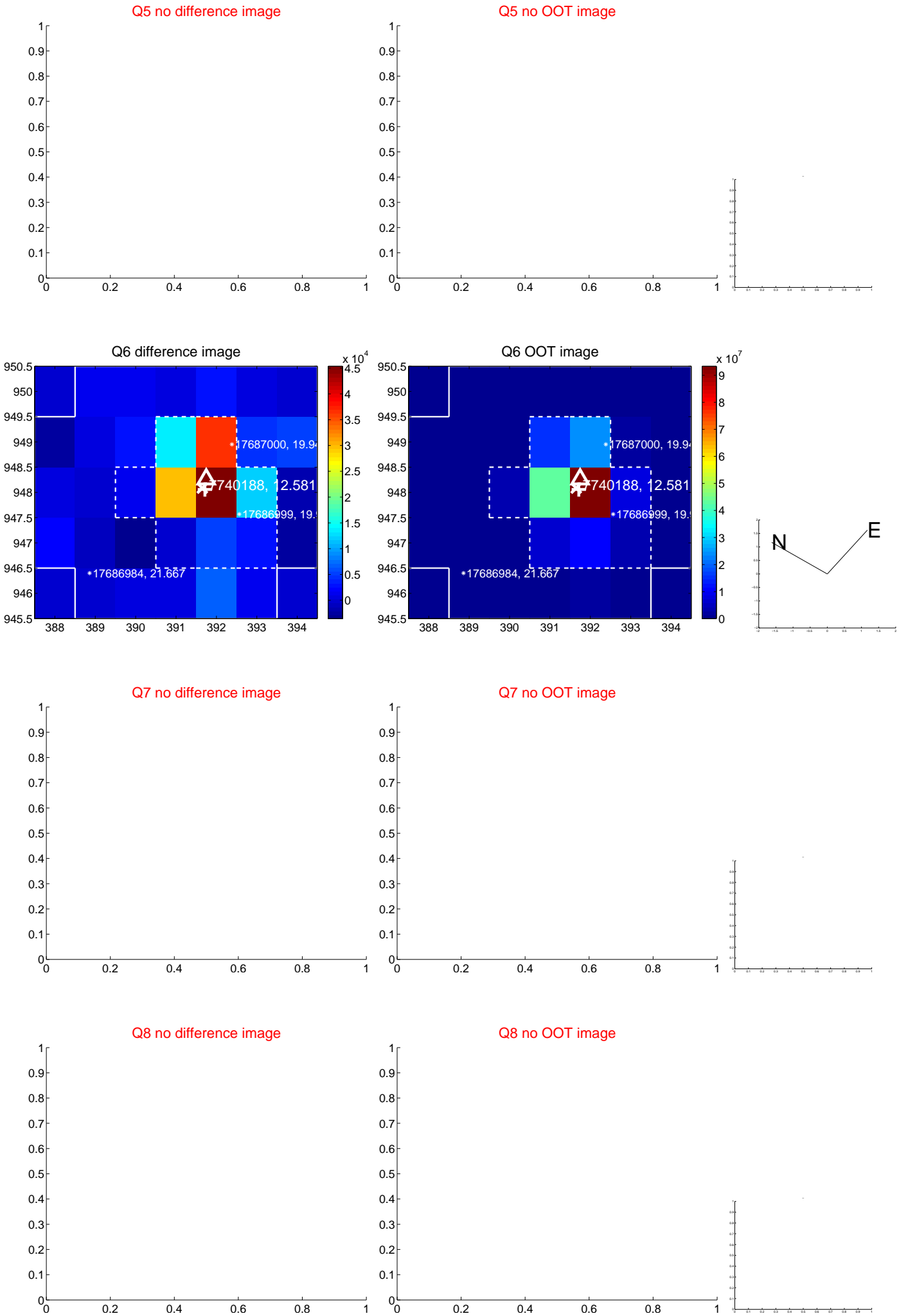


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

Q9 no difference image



Q9 no OOT image



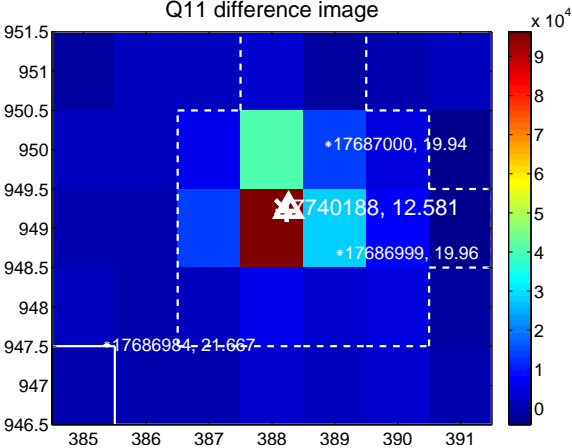
Q10 no difference image



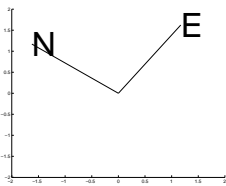
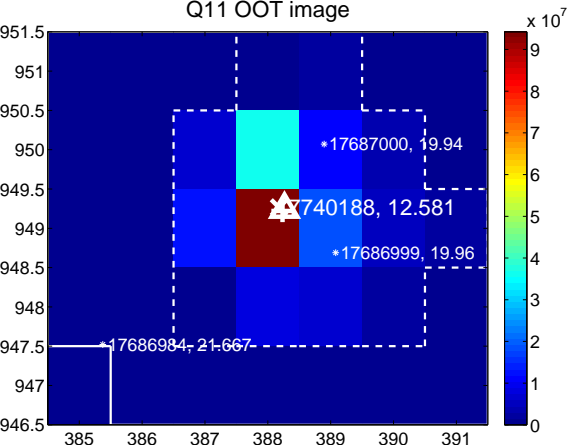
Q10 no OOT image



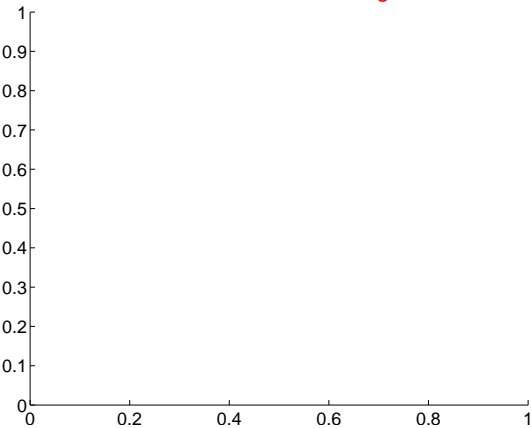
Q11 difference image



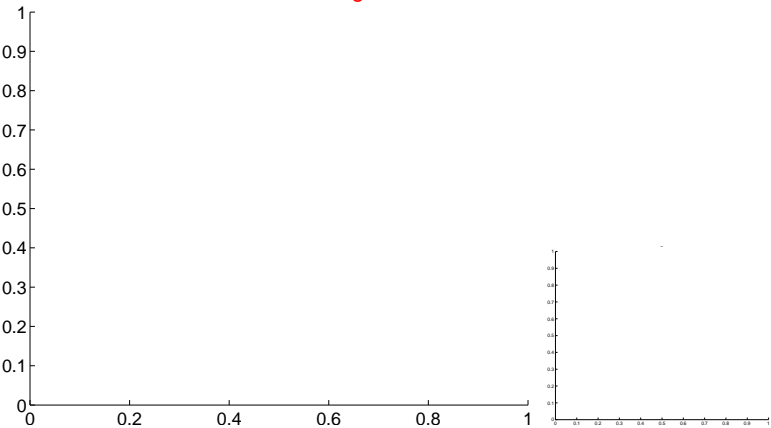
Q11 OOT image



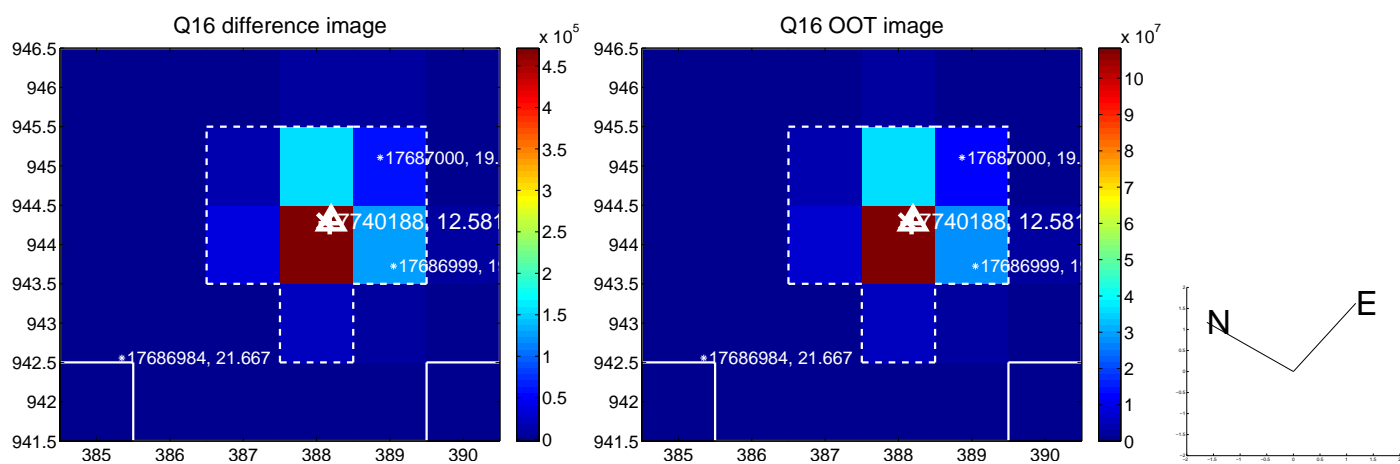
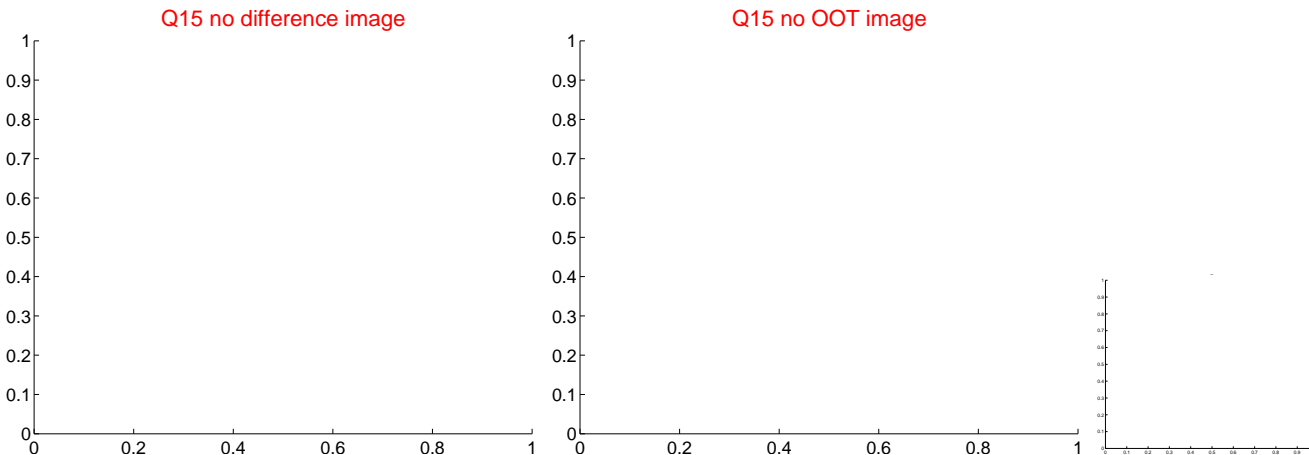
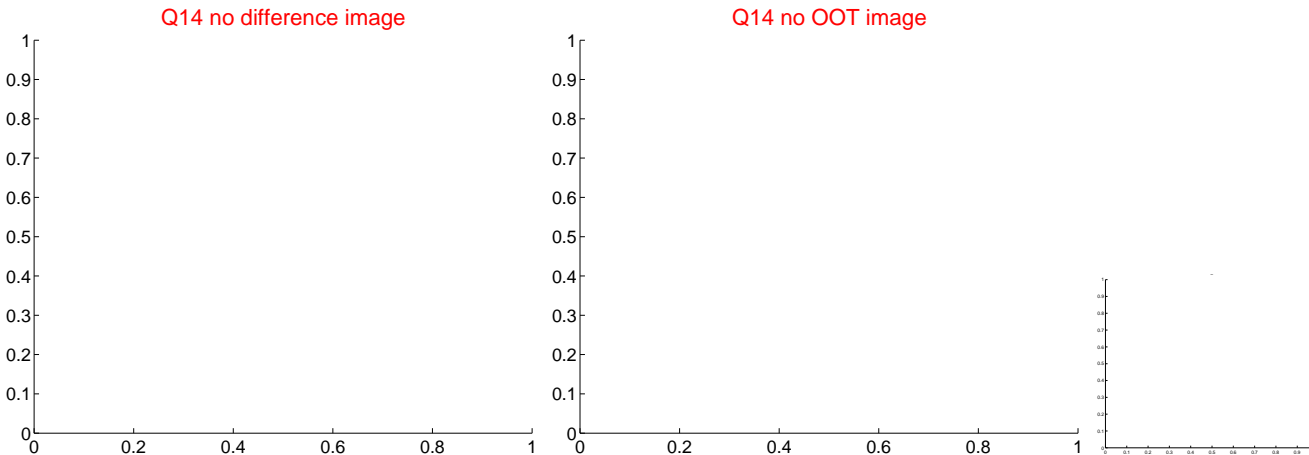
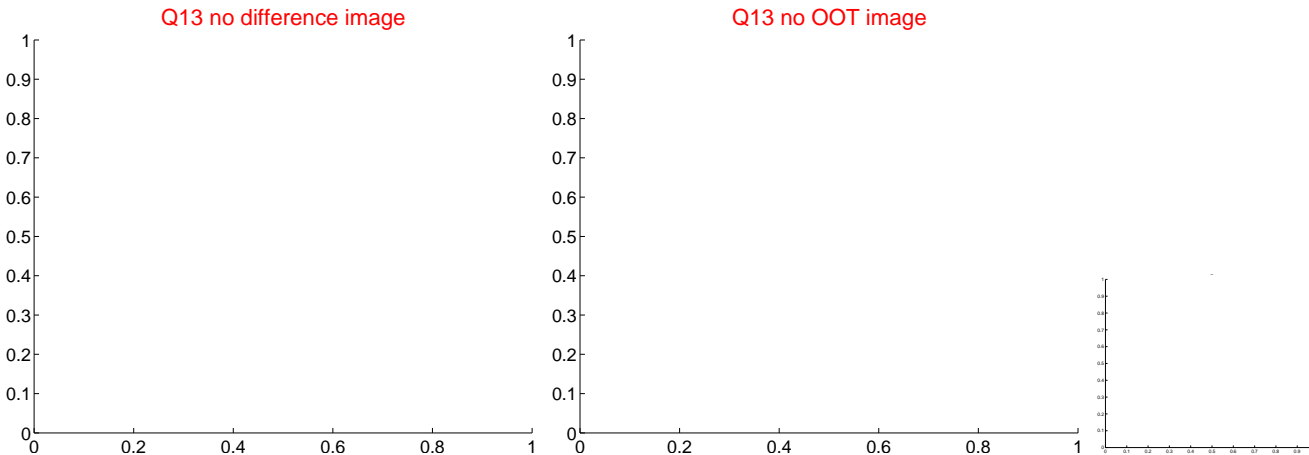
Q12 no difference image



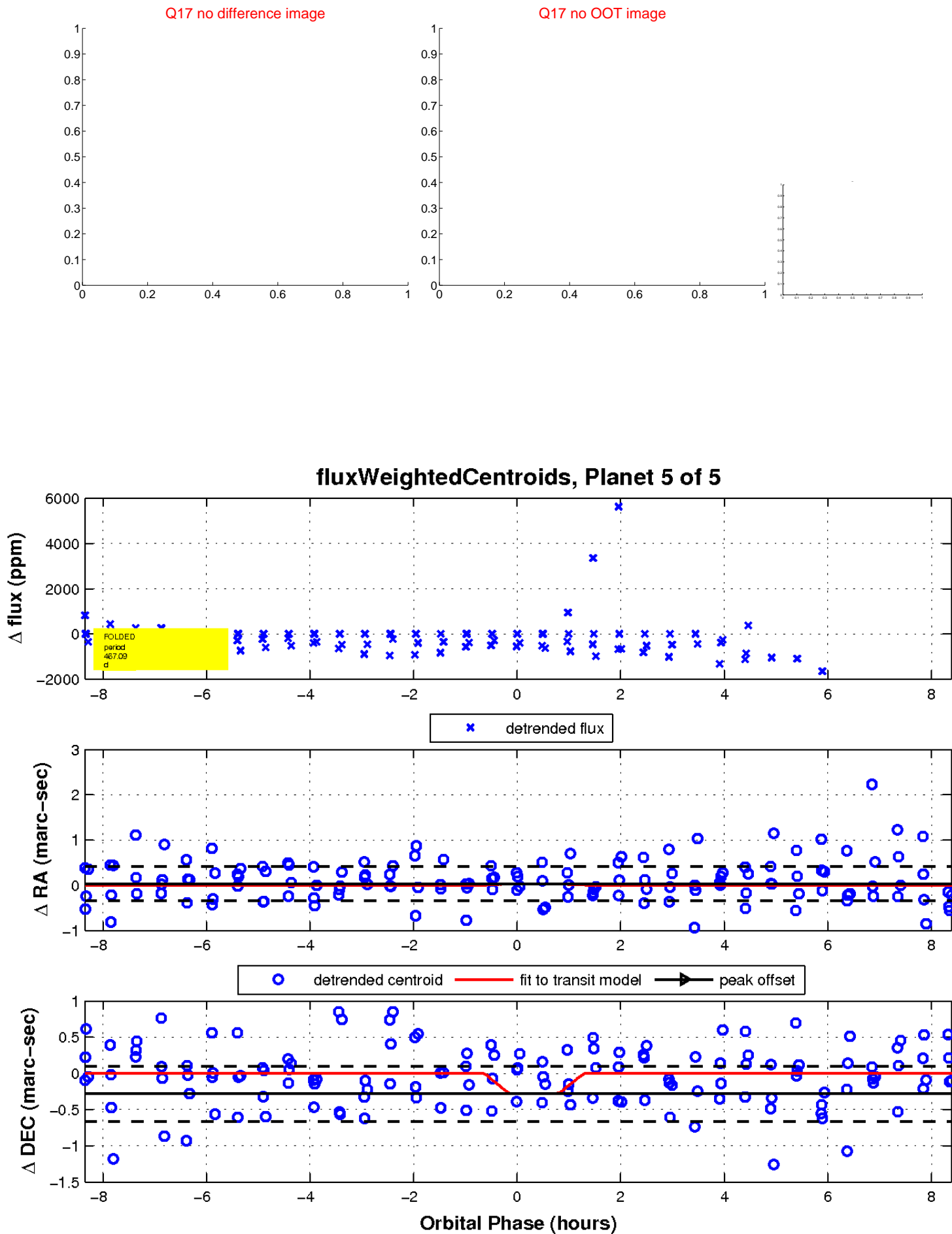
Q12 no OOT image



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



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



UKIRT Image

Declination

