

# KIC 007840358

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007840358-01	OBS	No	0.787967	131.714931	49.0	5.914	8.7	10.3	0.94	5491	0.65	2941.01
007840358-02	OBS	No	12.267855	133.402753	898.4	1.217	17.7	17.3	0.94	5491	2.98	75.65
007840358-03	OBS	No	19.637220	148.354109	1099.5	1.457	13.9	16.9	0.94	5491	3.30	40.40
007840358-04	OBS	No	10.651664	139.884112	1976.1	2.000	12.3	-1.0	0.94	5491	4.14	91.33
007840358-05	OBS	No	12.998605	133.163019	732.4	1.708	10.7	15.3	0.94	5491	2.58	70.03
007840358-06	OBS	No	7.078920	133.130318	606.6	0.614	14.1	7.6	0.94	5491	2.80	157.48
007840358-07	OBS	No	3.322511	131.960994	2513.8	1.500	16.0	-1.0	0.94	5491	4.68	431.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007840358-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_MEAS
007840358-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007840358-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007840358-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
007840358-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007840358-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007840358-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

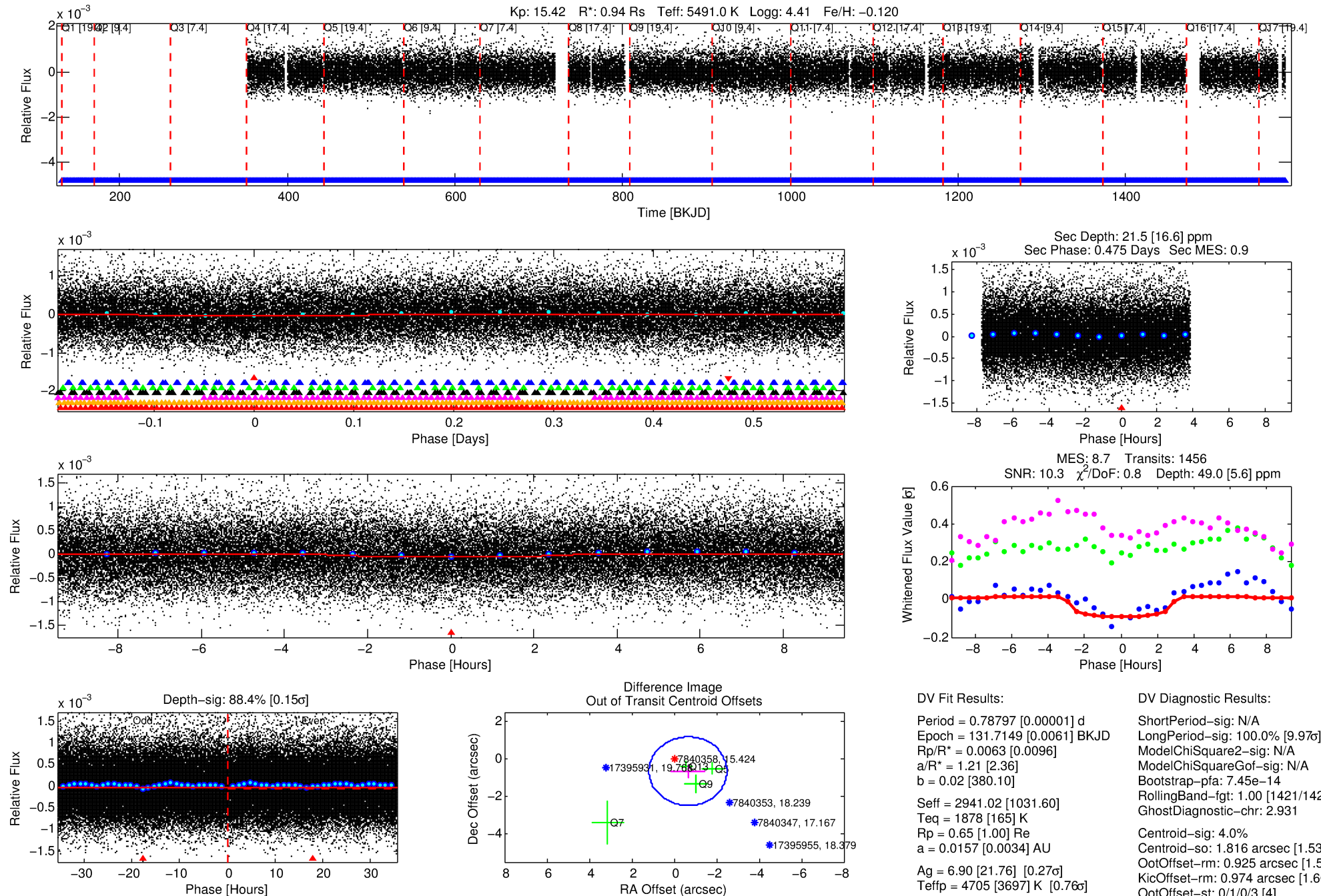
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007840358-01

No Significant Match Found

# DV One-Page Summary

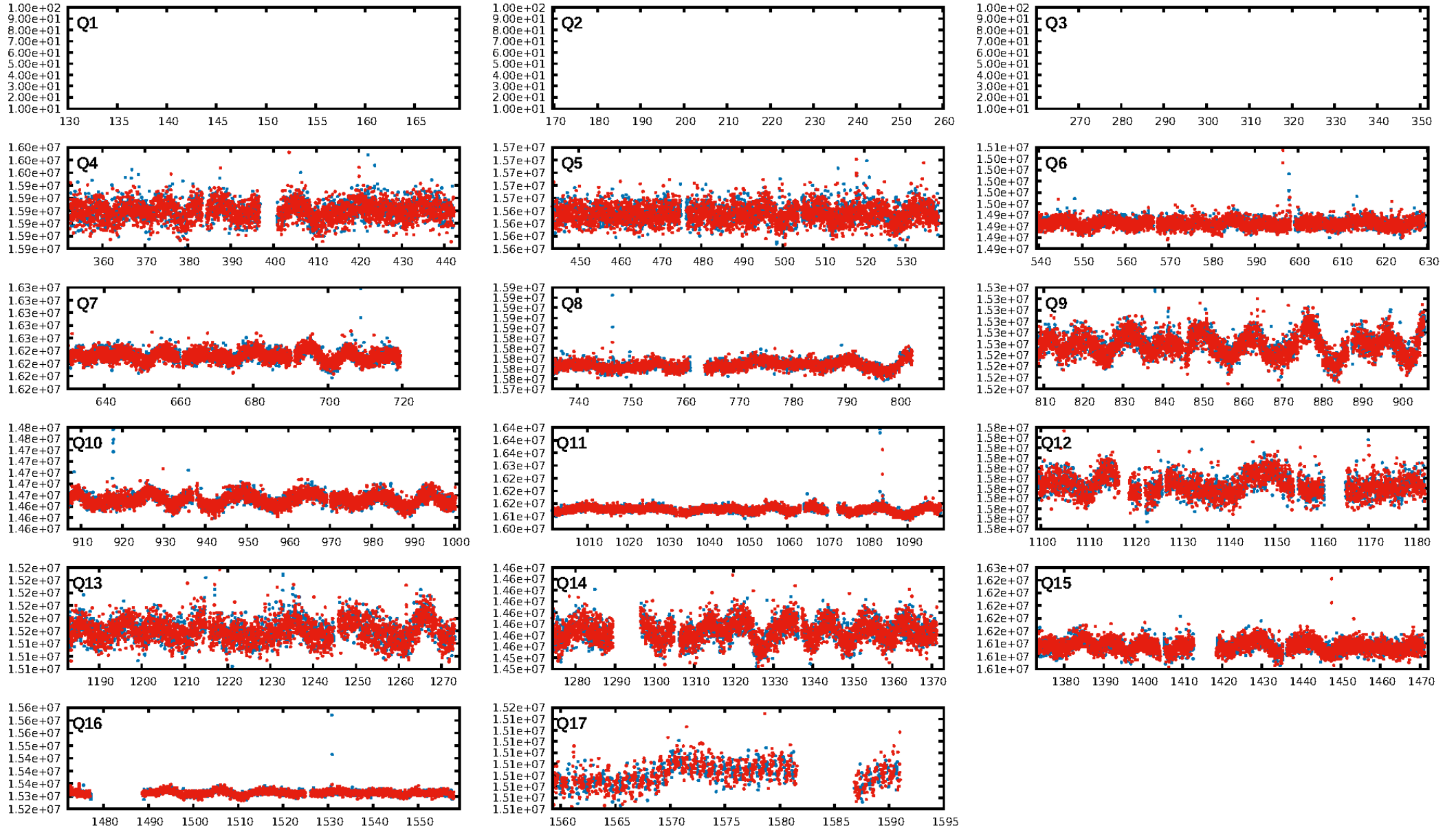
KIC: 7840358 Candidate: 1 of 7 Period: 0.788 d



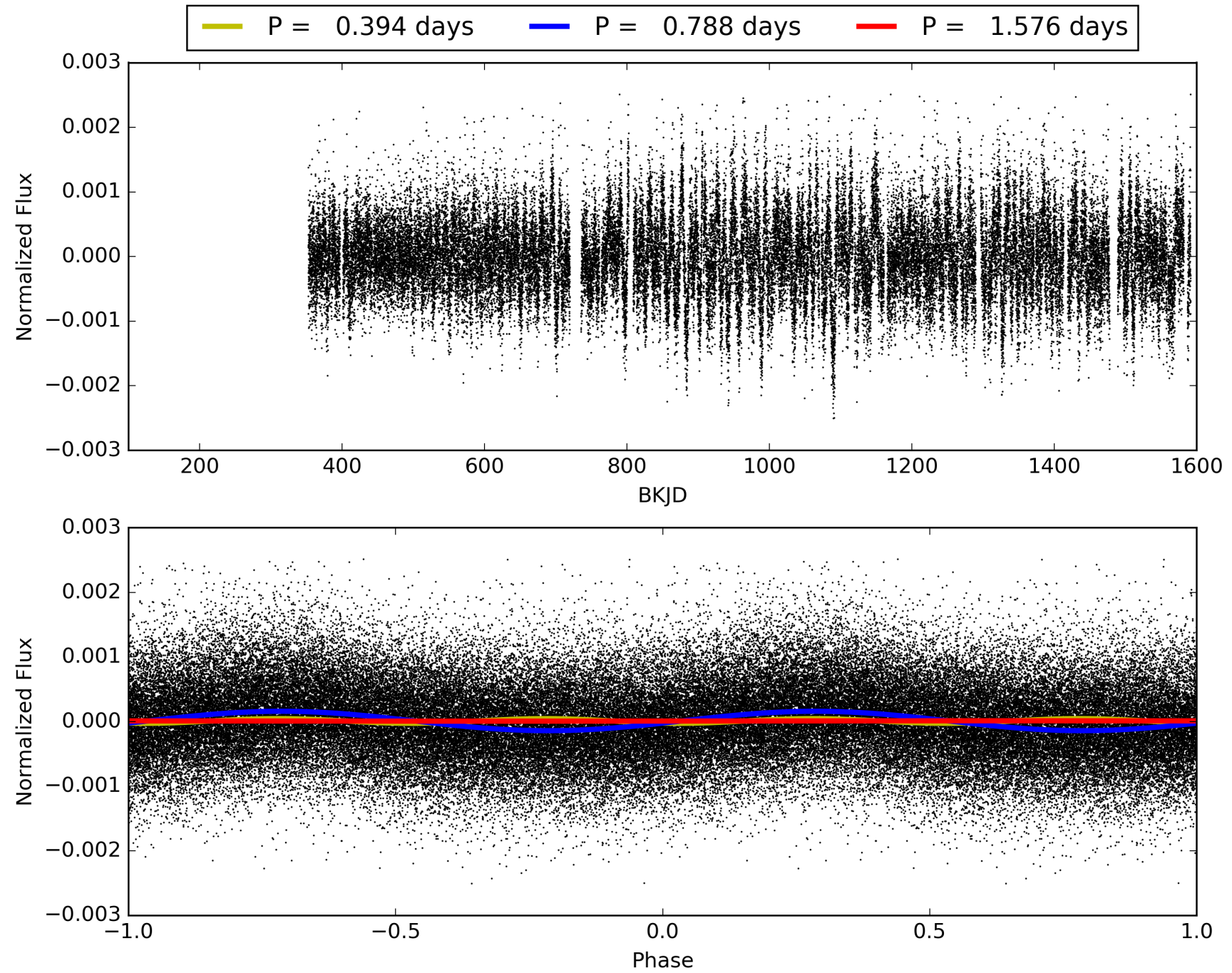
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:04:59 Z

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

# TCE 007840358-01, PDC Light Curves



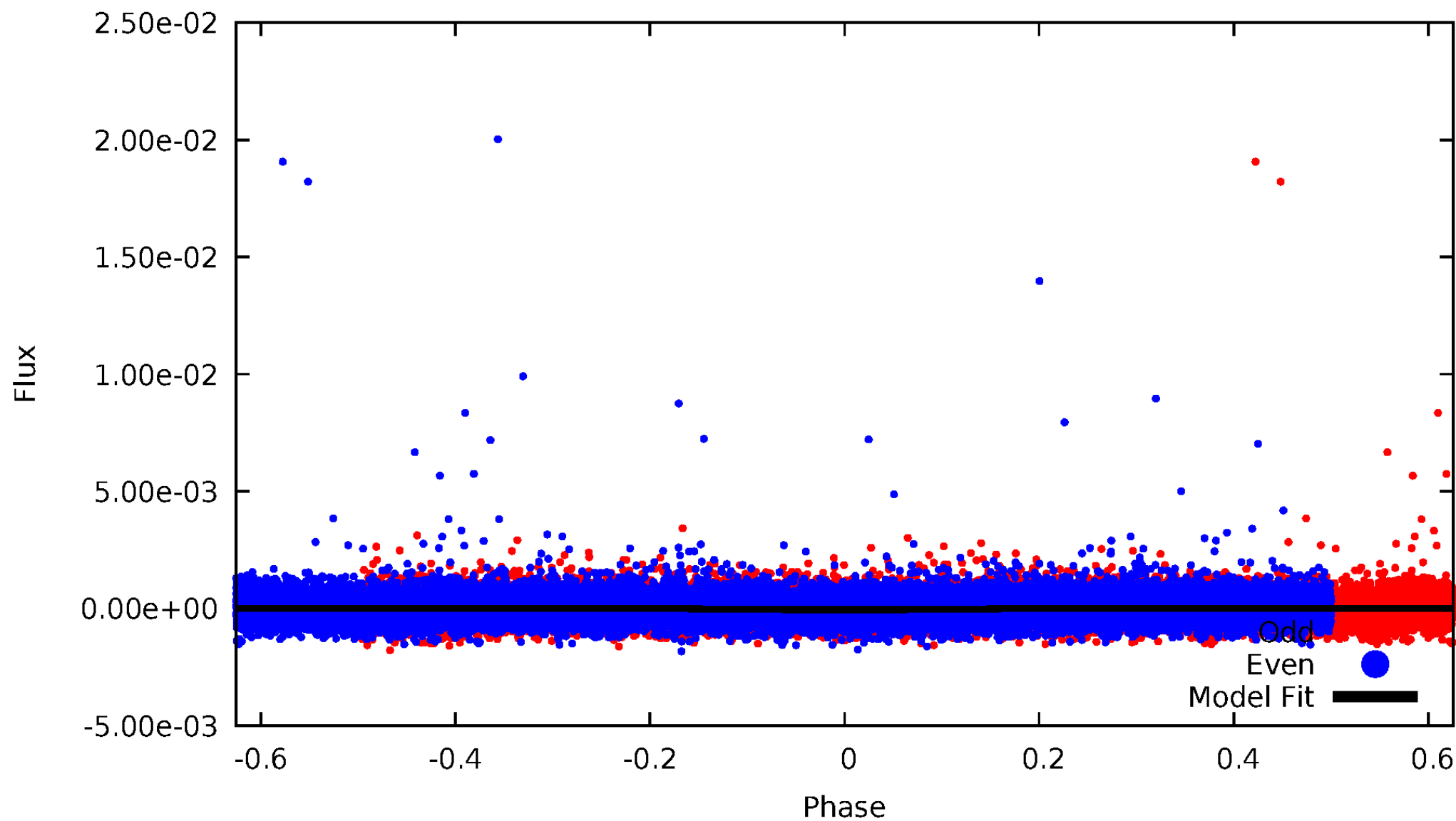
TCE 007840358-01





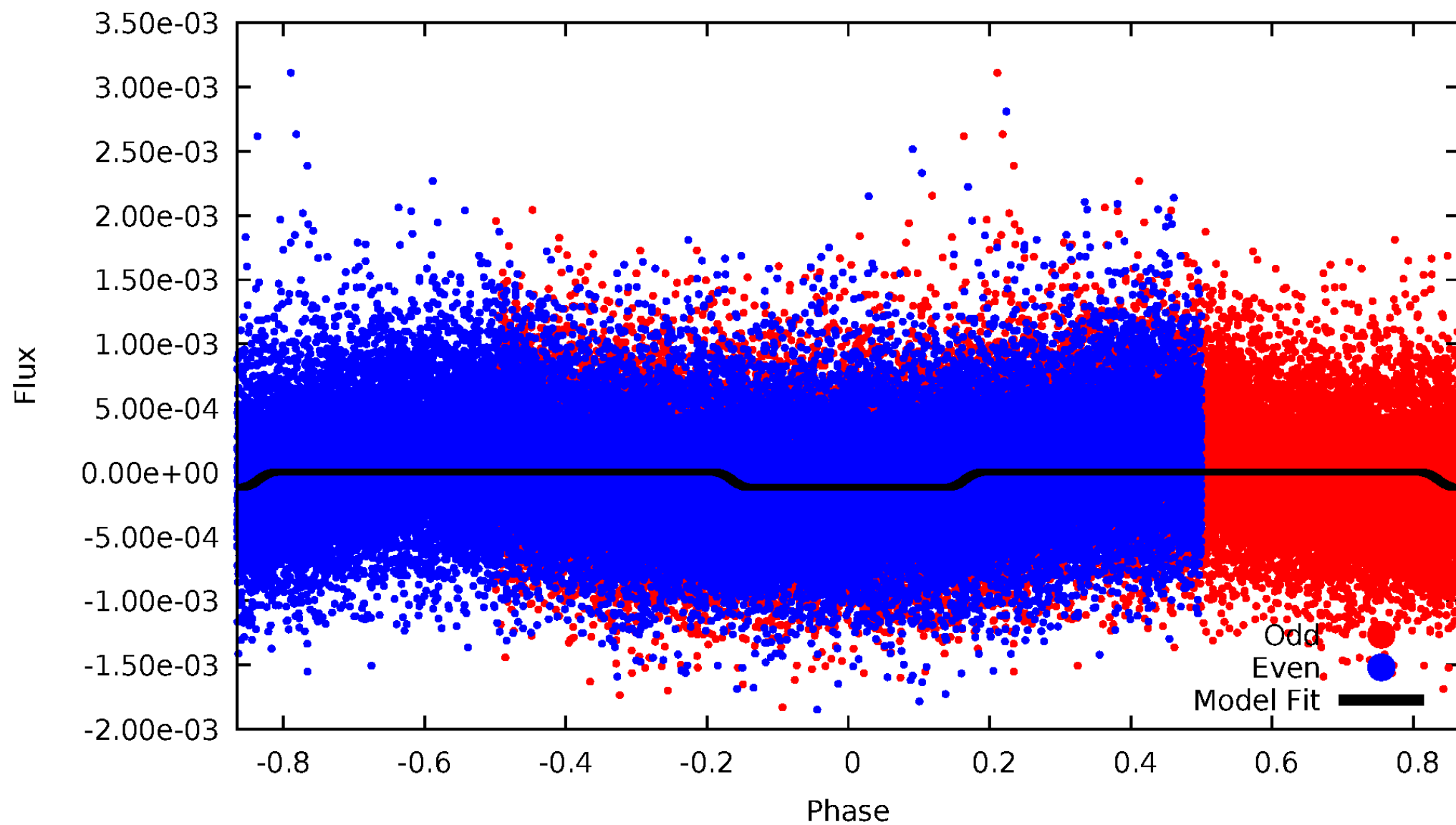
# DV Odd/Even

TCE 007840358-01

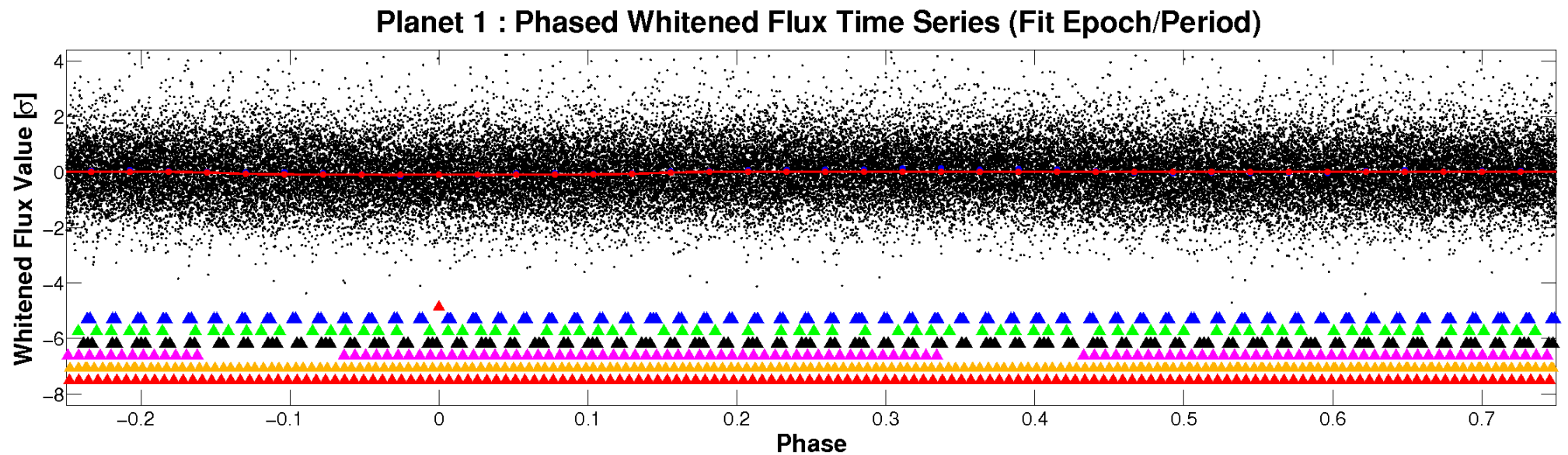
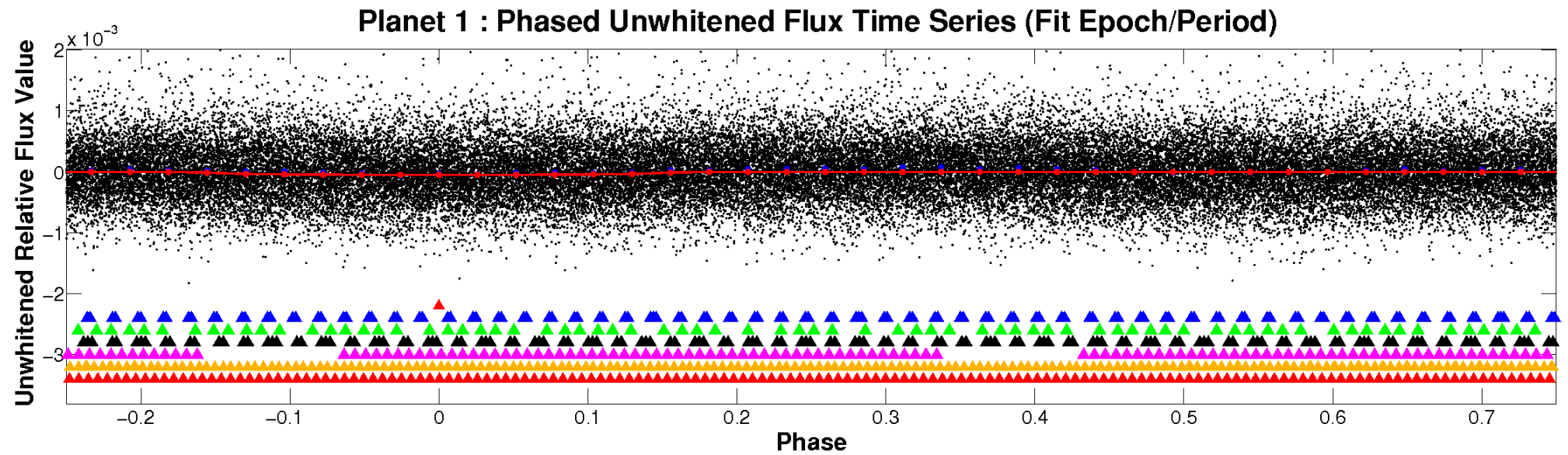


# ALT Odd/Even

TCE 007840358-01

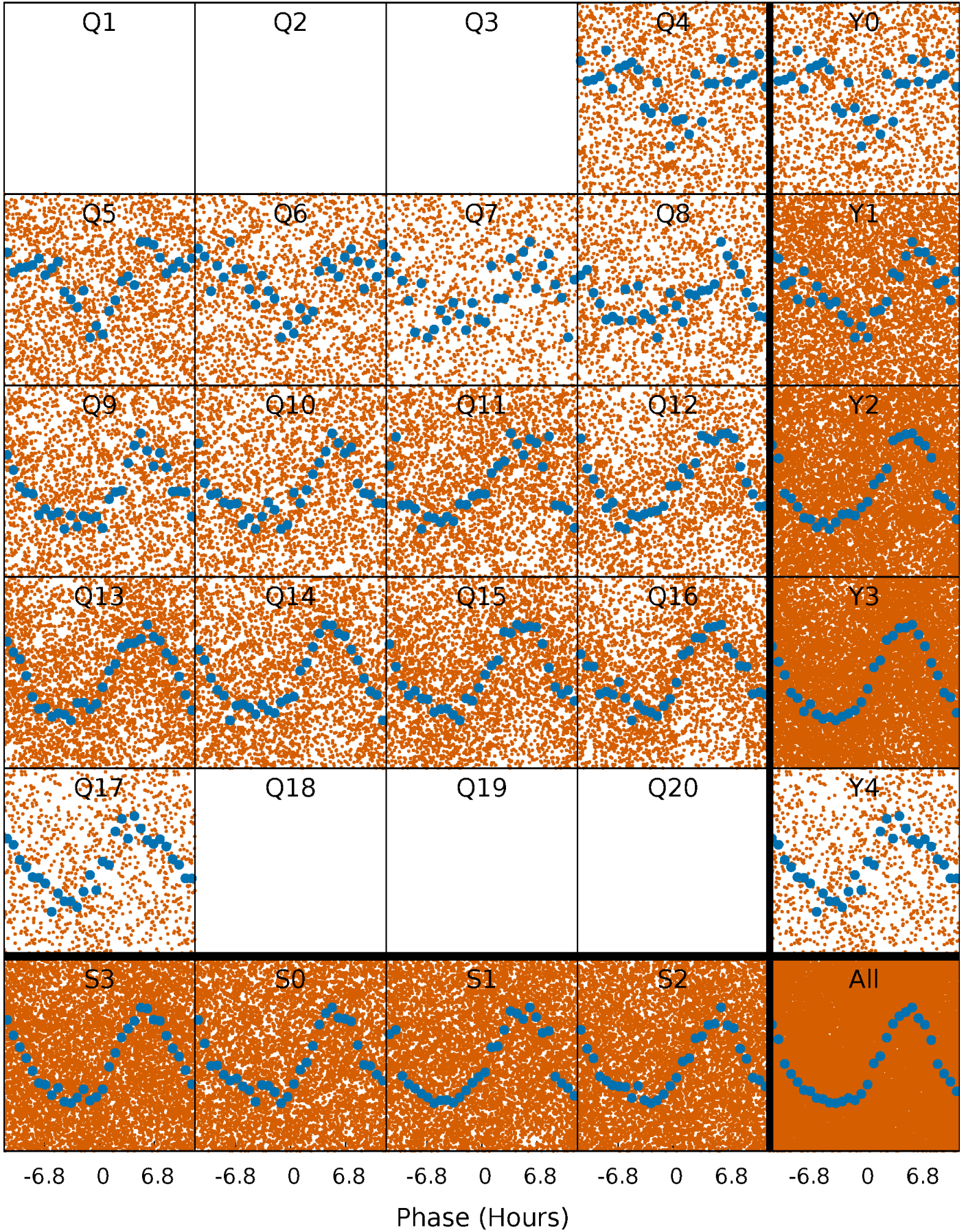


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

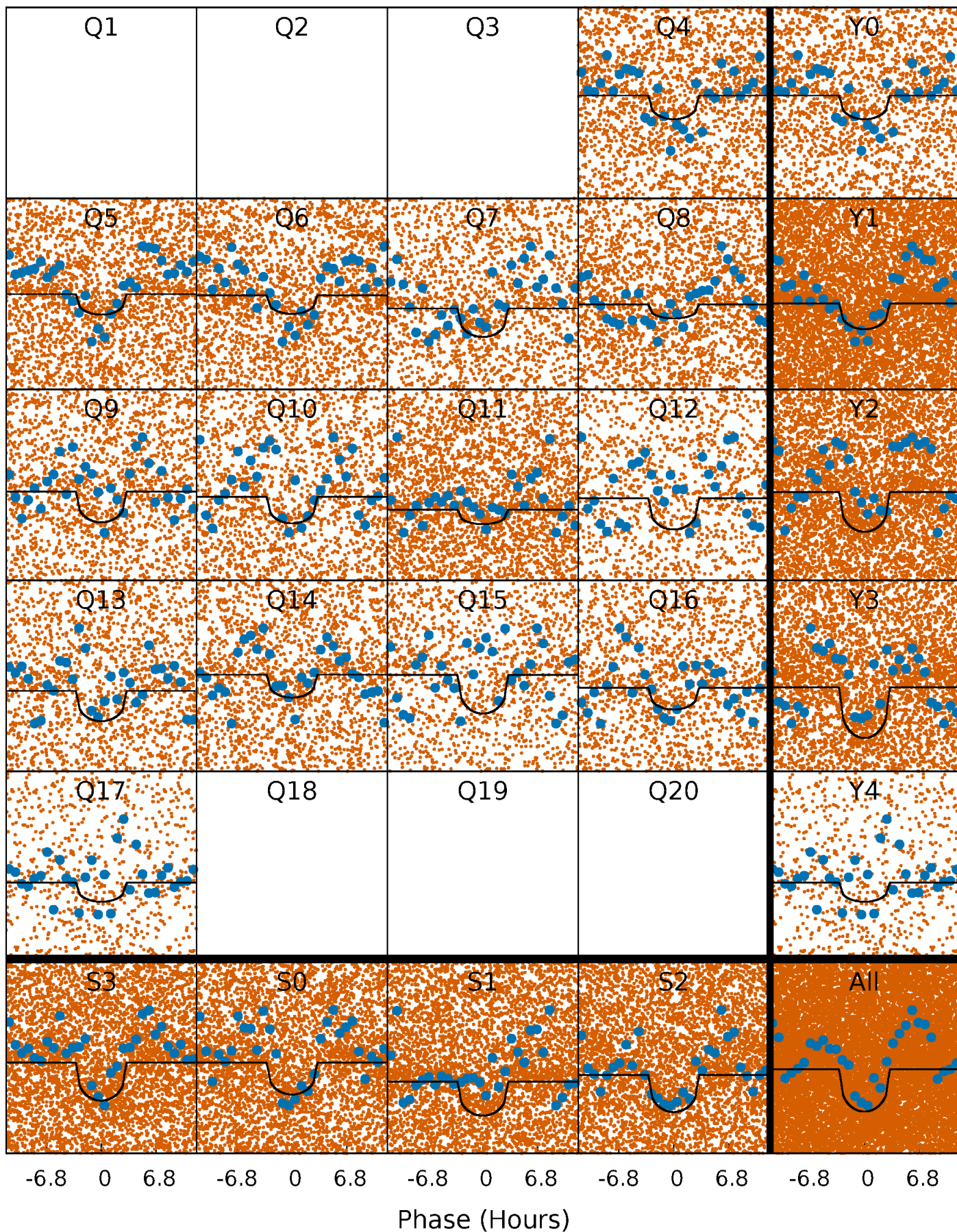
TCE 007840358-01 P= 0.787967 Days  $T_0=131.714931$  (BKJD)





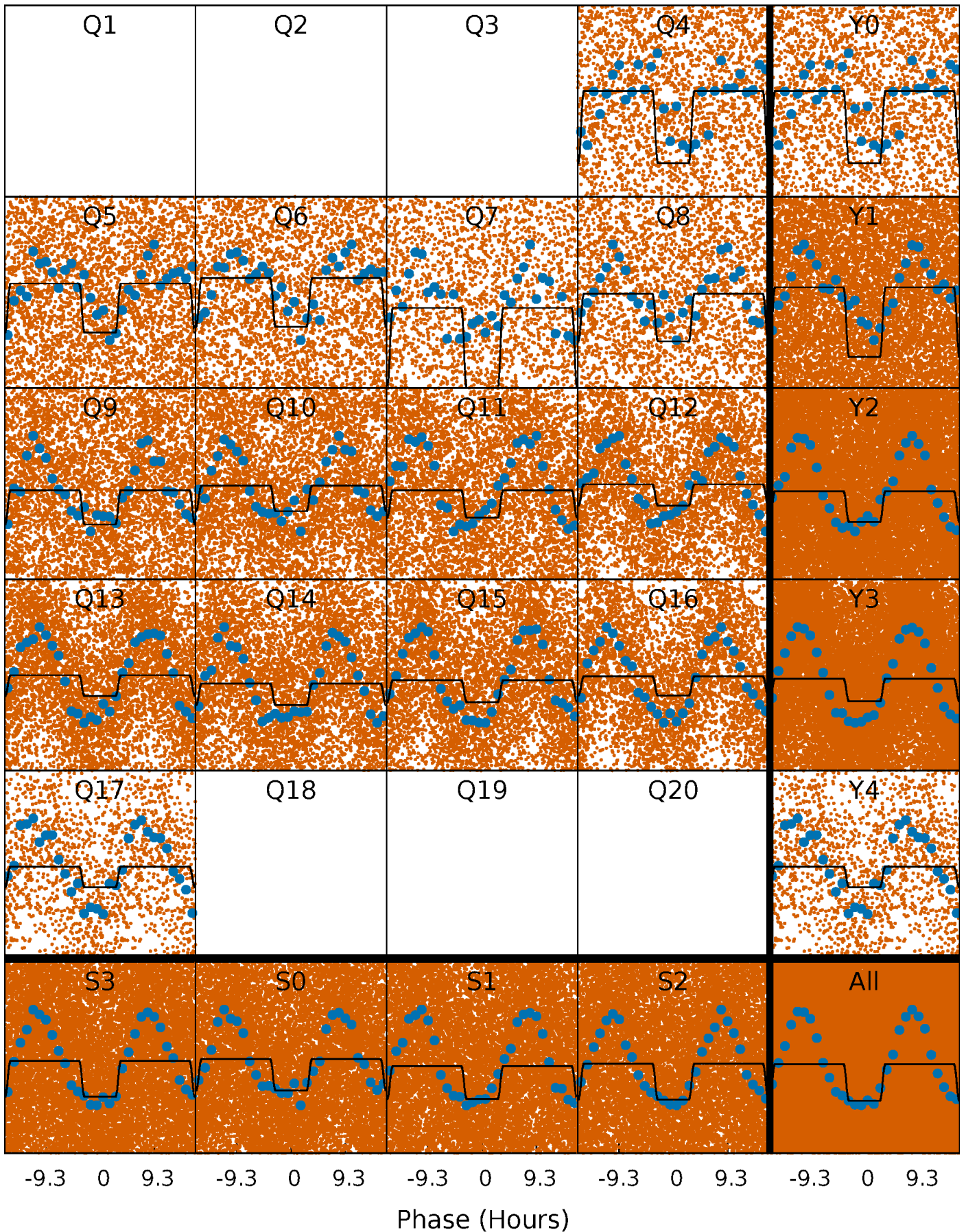
# DV Quarter-Phased Transit Curves

TCE 007840358-01 P= 0.787967 Days  $T_0=131.714931$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007840358-01 P= 0.787941 Days  $T_0=131.631882$  (BKJD)

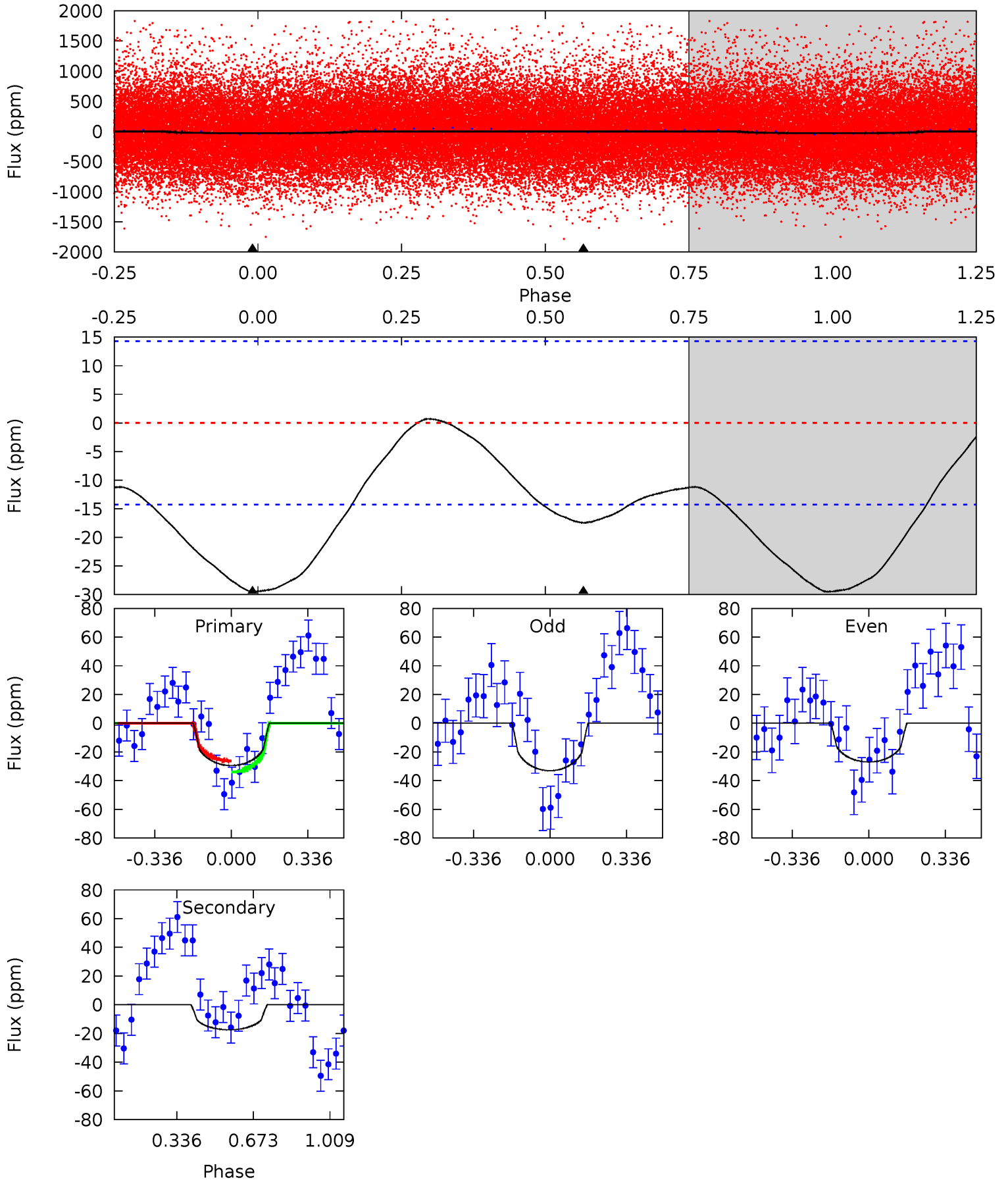




# DV Model-Shift Uniqueness Test

007840358-01, P = 0.787967 Days, E = 131.714931 Days

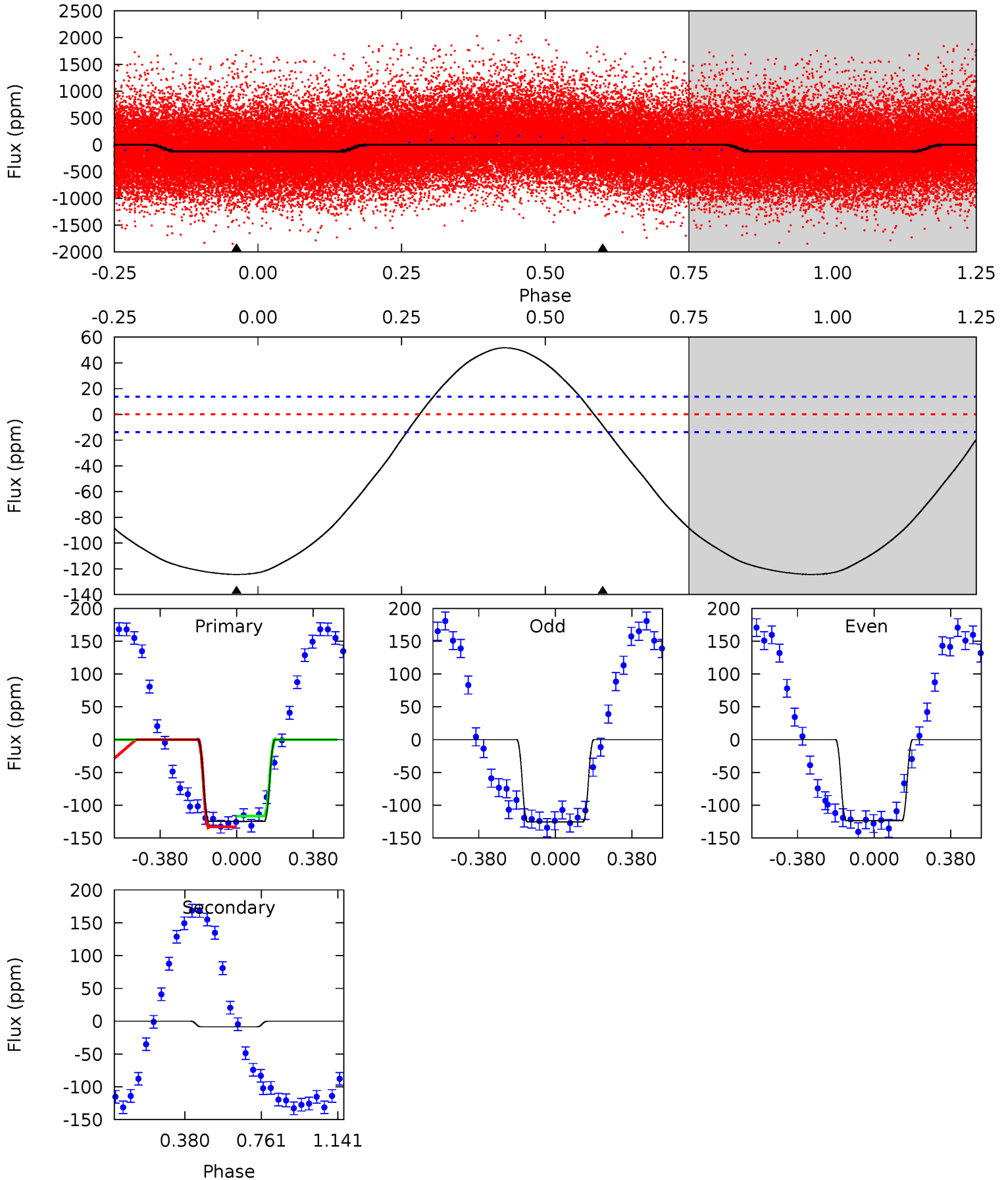
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.89	5.27	0	0	4.30	0.96	0.53	8.89	8.89	5.27	5.27	0.92	0.88	0.02	1.19



# Alt Model-Shift Uniqueness Test

007840358-01, P = 0.787941 Days, E = 131.631882 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
38.8	2.71	0	0	4.28	0.88	5.36	38.8	38.8	2.71	2.71	0.23	0.97	0.29	2.53





### Stellar Parameters For KIC 007840358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5491^{+199}_{-182}$	$4.408^{+0.144}_{-0.176}$	$-0.120^{+0.300}_{-0.300}$	$0.943^{+0.241}_{-0.141}$	$0.830^{+0.120}_{-0.065}$	$1.394^{+0.853}_{-0.677}$
	+4%/-3%	+3%/-4%	+250%/-250%	+26%/-15%	+14%/-8%	+61%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 007840358-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-17 \pm 3$	$0.93^{+0.91}_{-0.65}$	$2632^{+192}_{-154}$	$3898^{+2740}_{-930}$	$2.548^{+24.929}_{-1.830}$
Alt.	$-9 \pm 3$	$1.35^{+0.92}_{-0.76}$	$2625^{+188}_{-163}$	$2881^{+1245}_{-5374}$	$0.617^{+3.021}_{-0.415}$

$T_{max}$  = 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

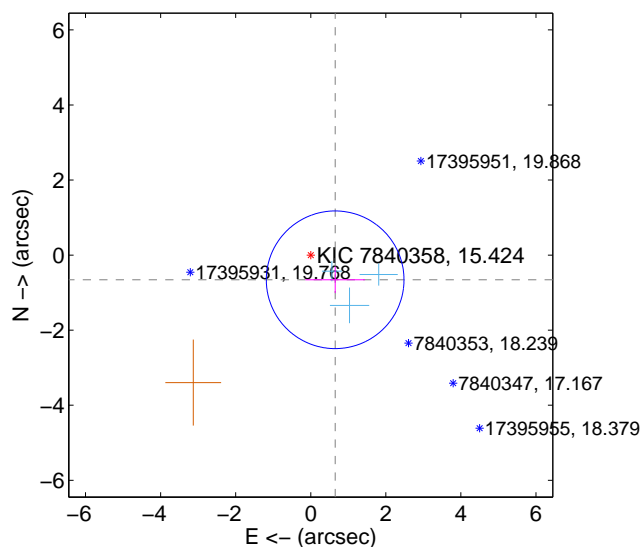
Supplemental centroid analysis for 007840358-01. Kepler magnitude: 15.42. Transit SNR 10.31

There are 3 quarters with good PRF difference image offsets

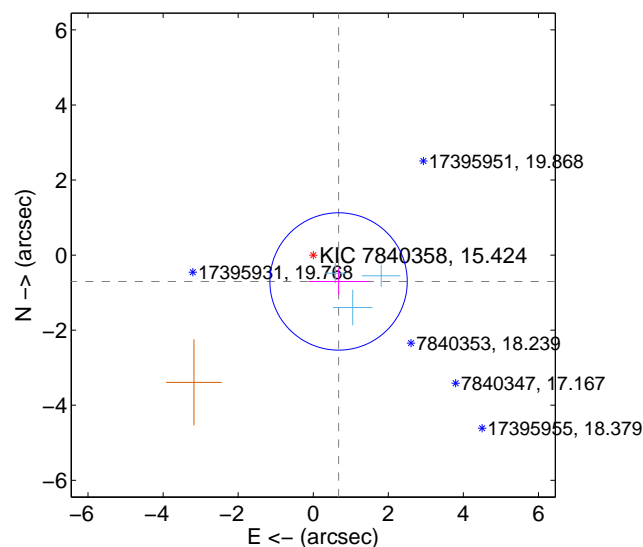
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.925 \pm 0.611$	1.51	$-0.650 \pm 0.792$	$-0.657 \pm 0.354$
PRF-fit source offset from KIC position	$0.974 \pm 0.610$	1.60	$-0.675 \pm 0.800$	$-0.702 \pm 0.352$
photometric centroid source offset	$1.82 \pm 1.19$	1.53	$1.59 \pm 1.16$	$-0.87 \pm 1.27$

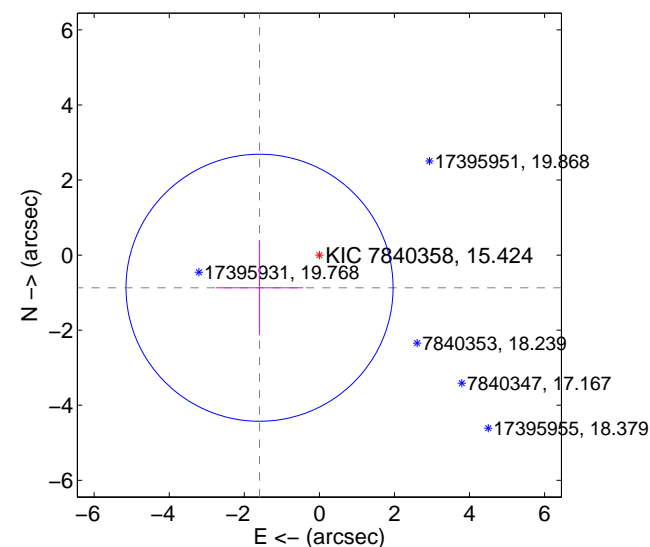
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

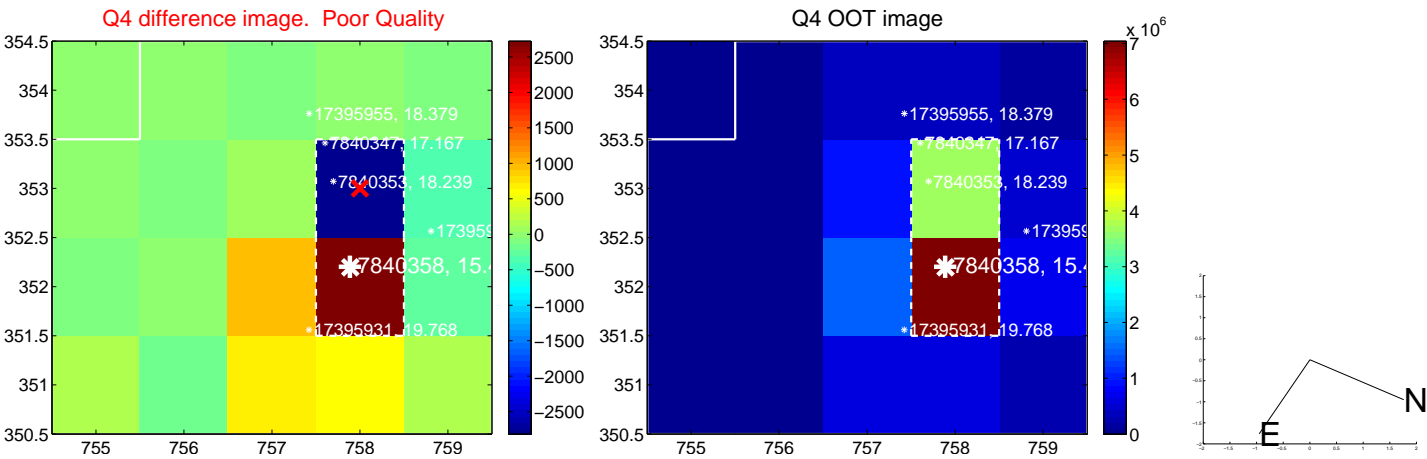


offset from photometric centroids

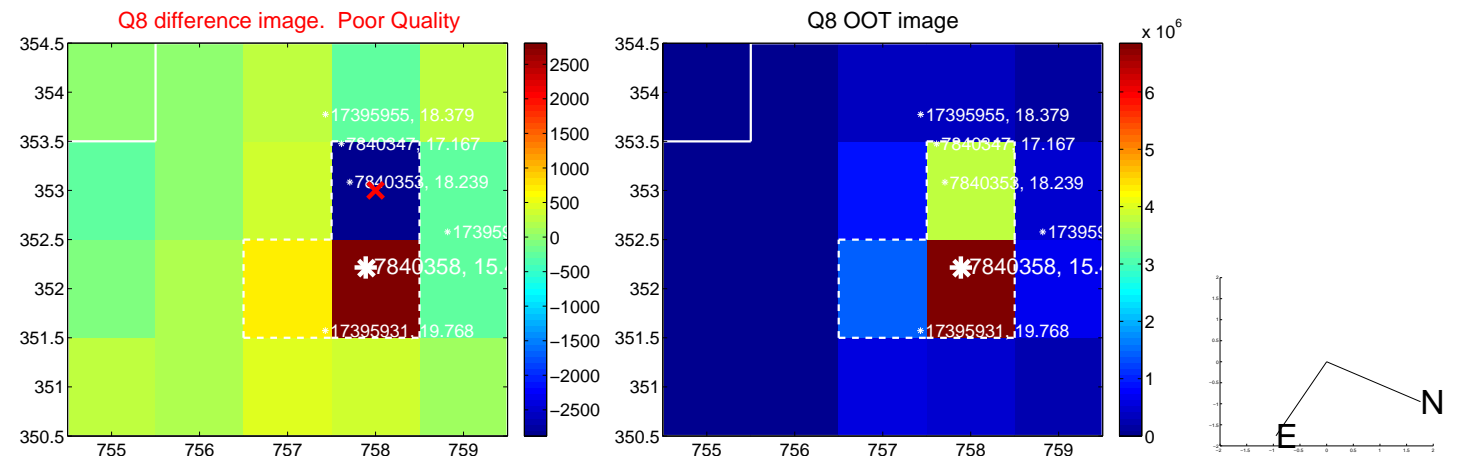
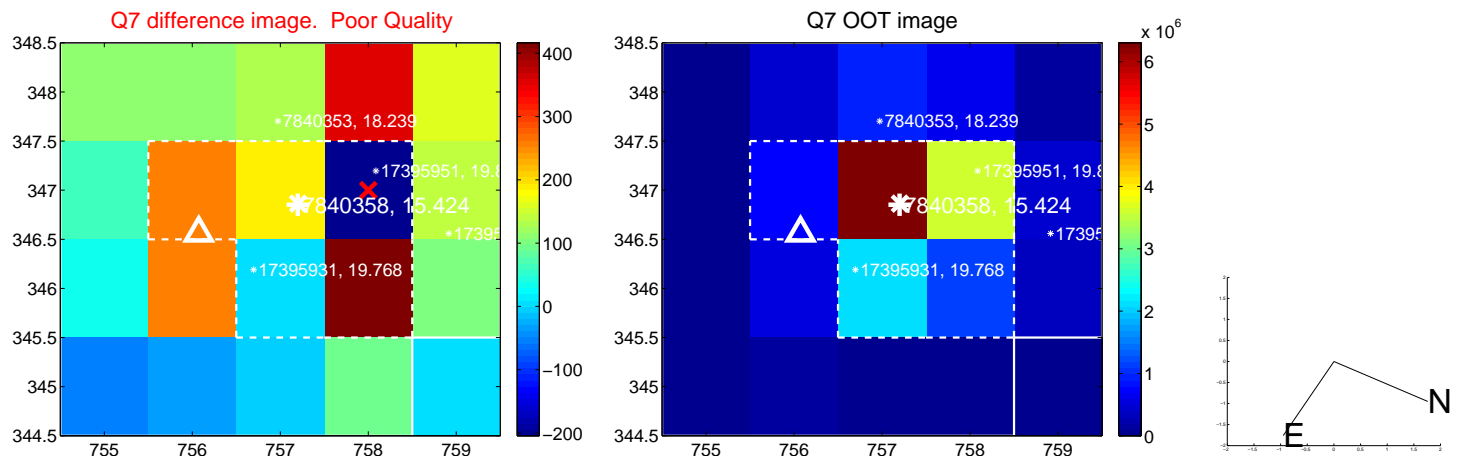
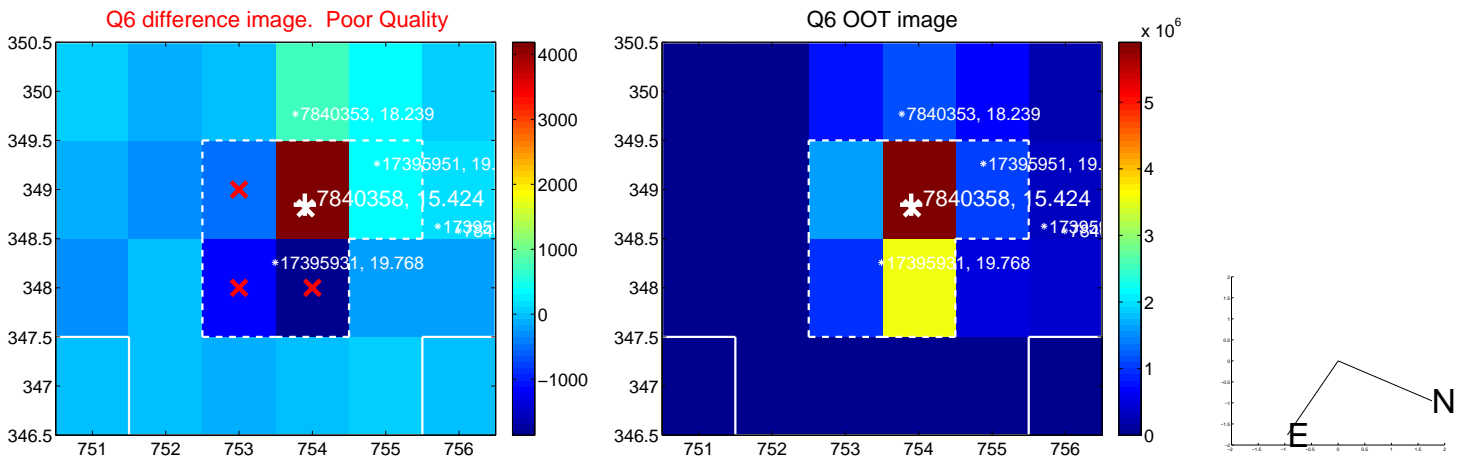
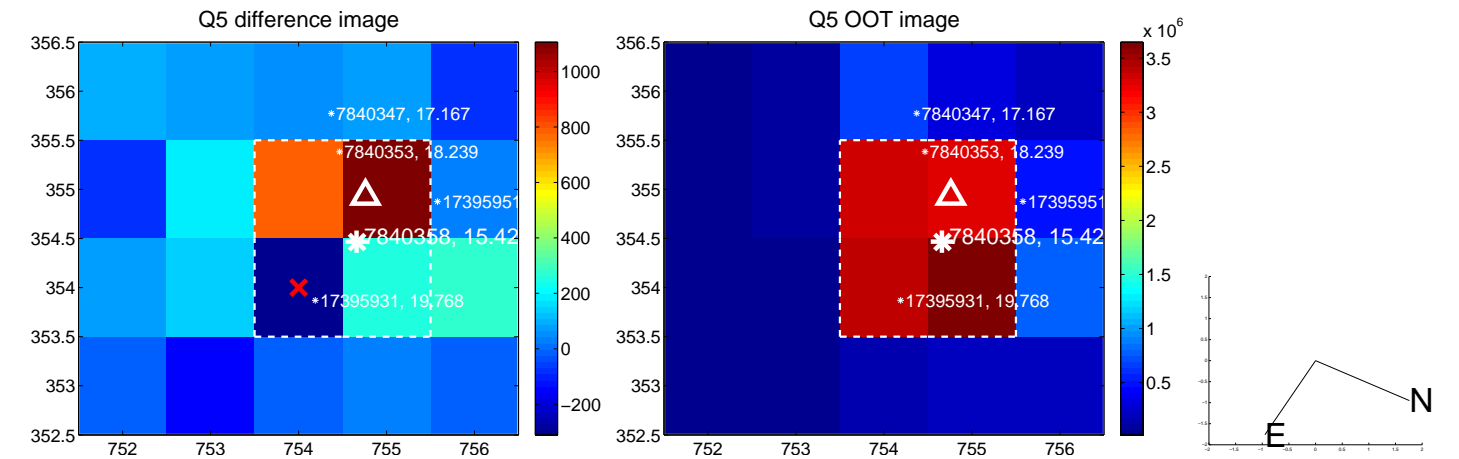


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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



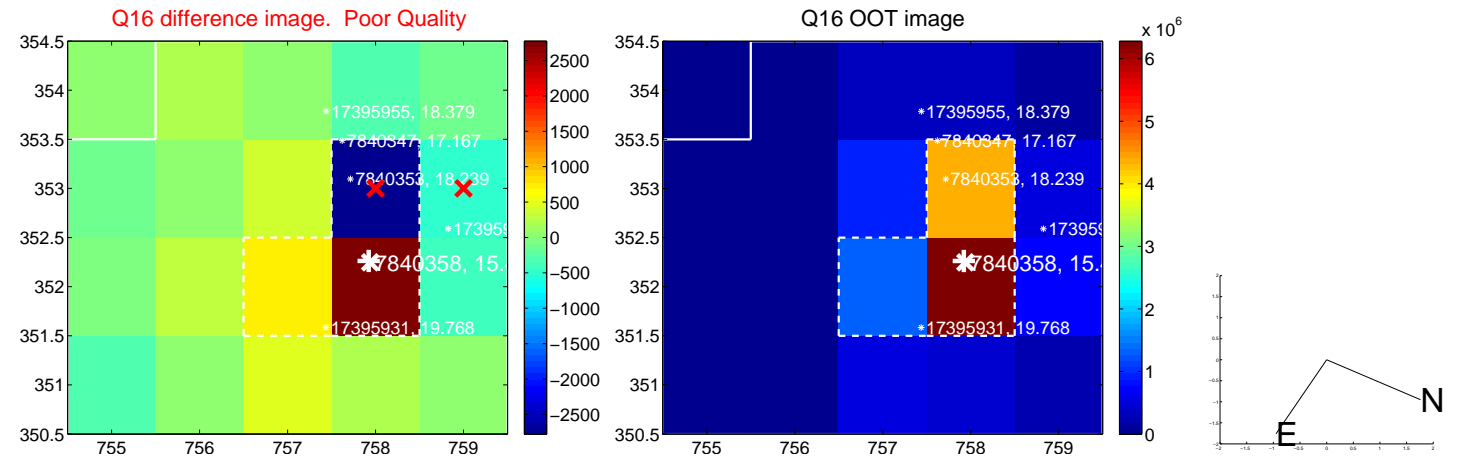
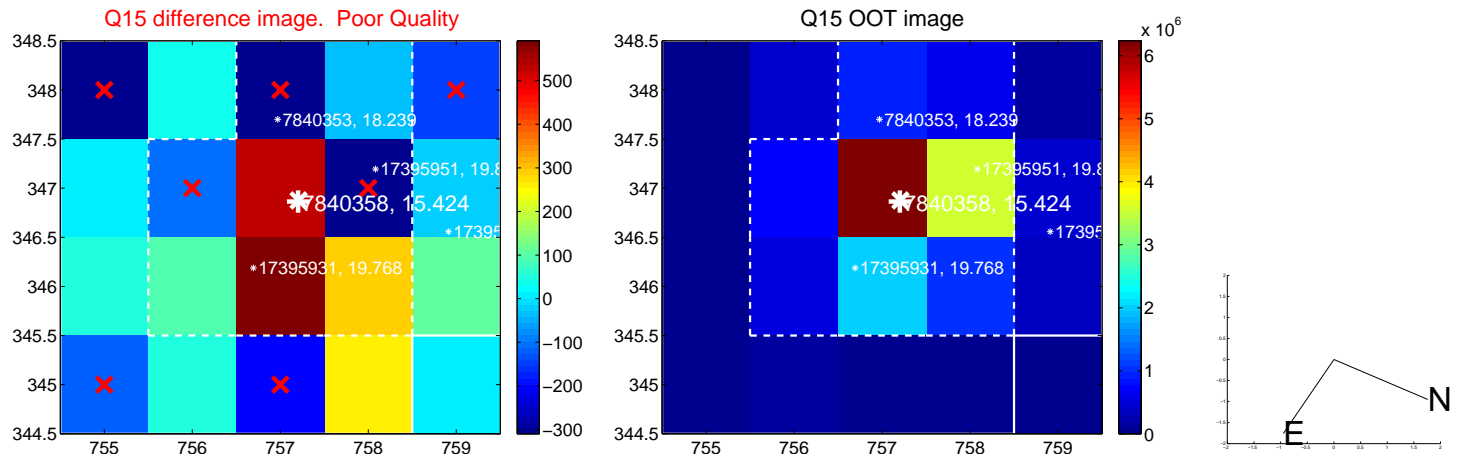
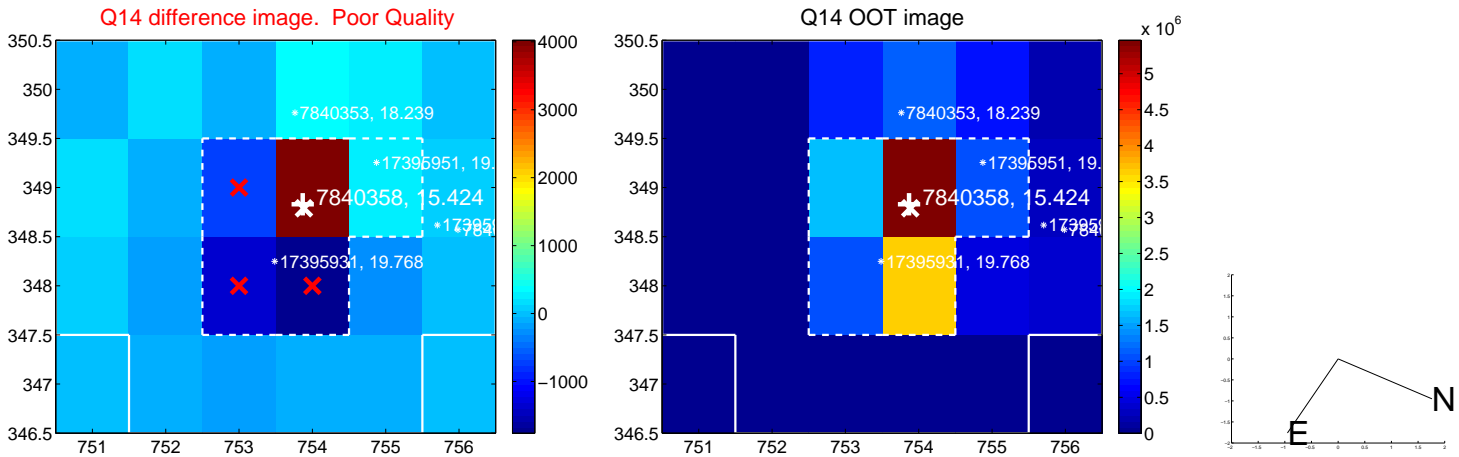
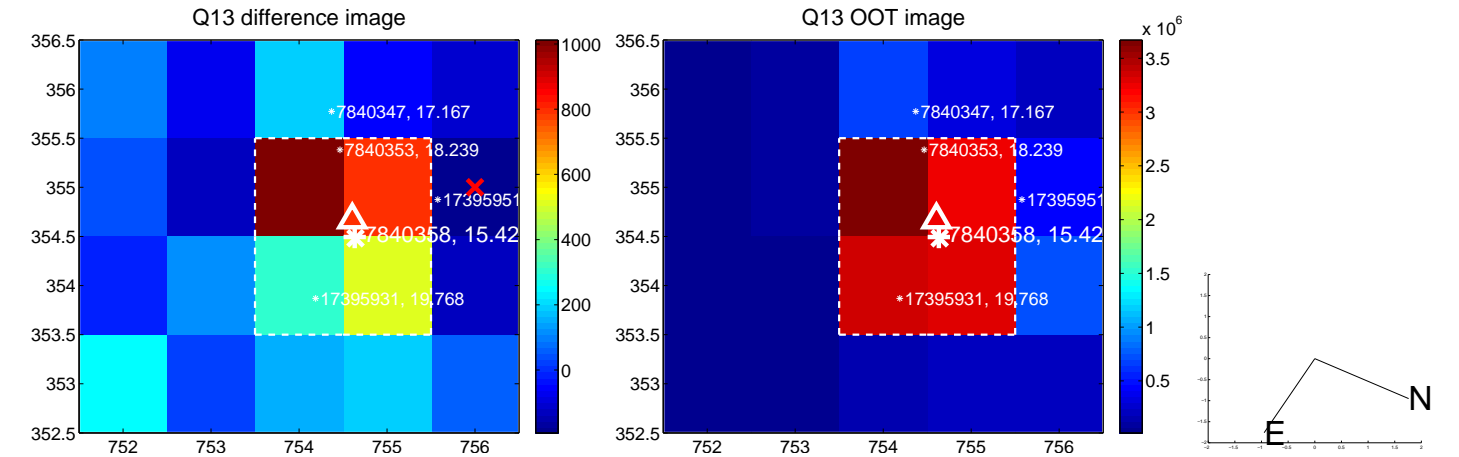
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



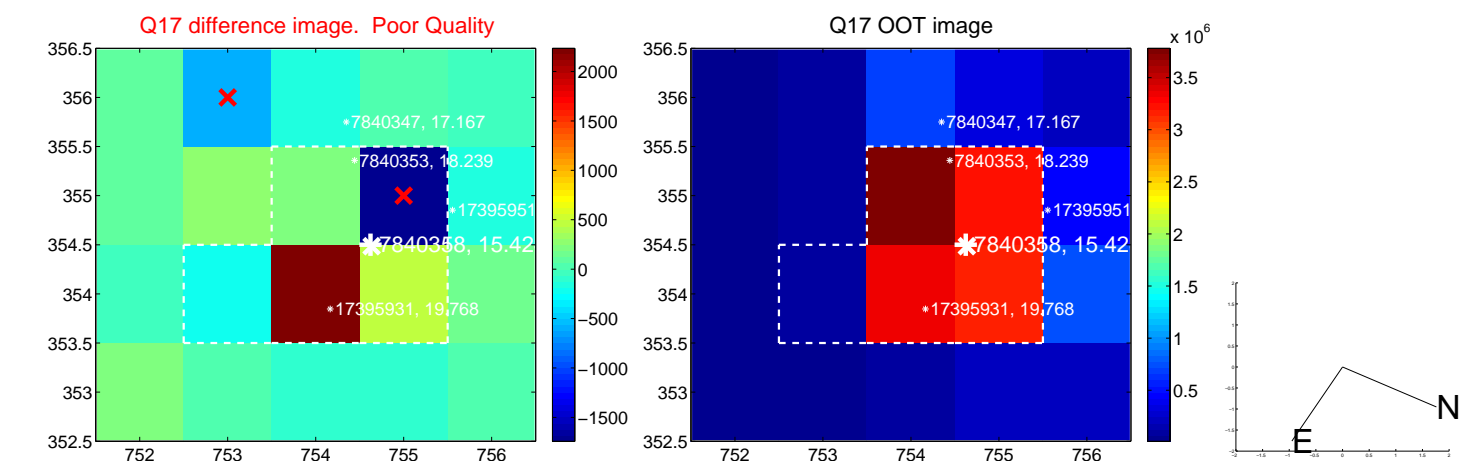




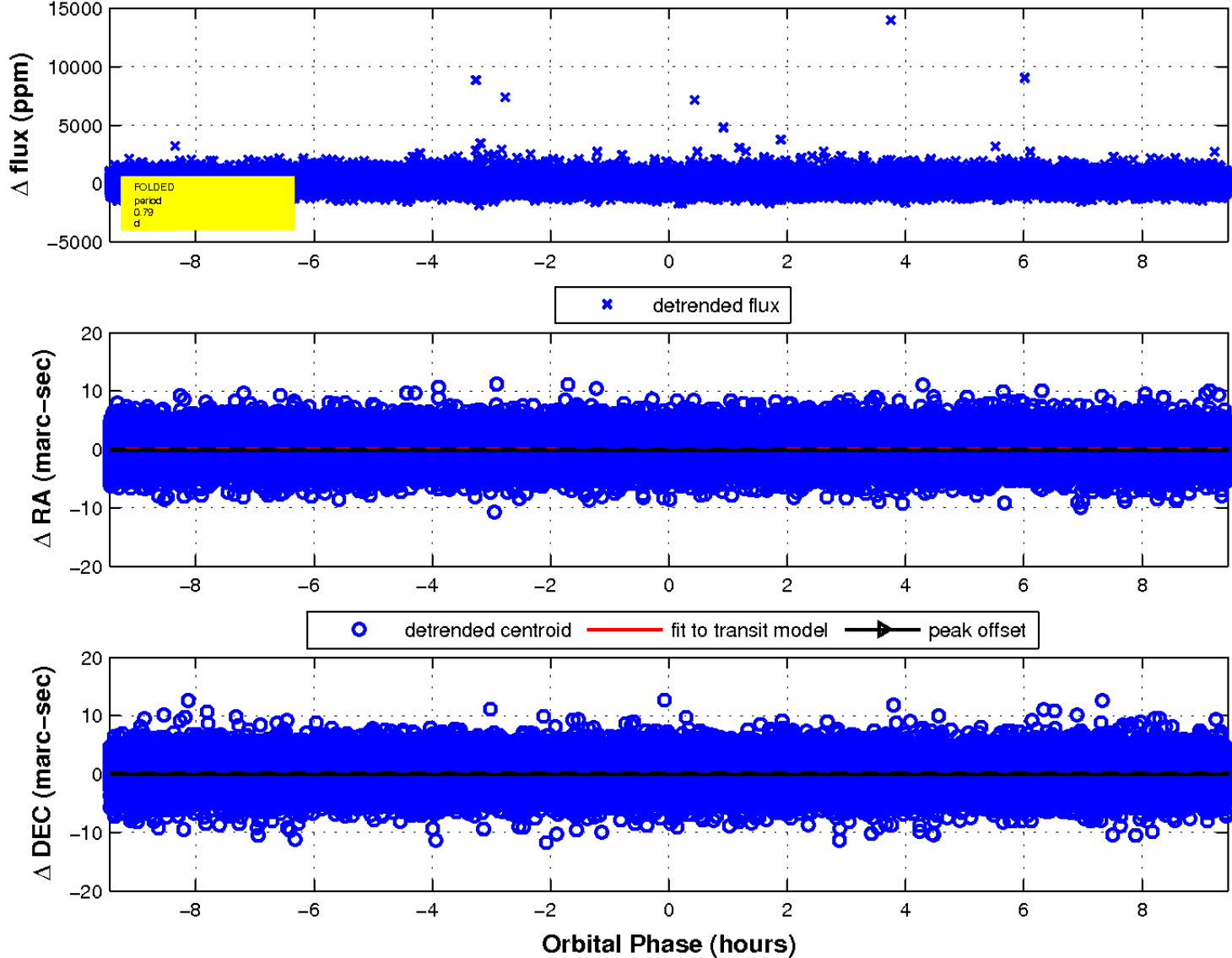
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

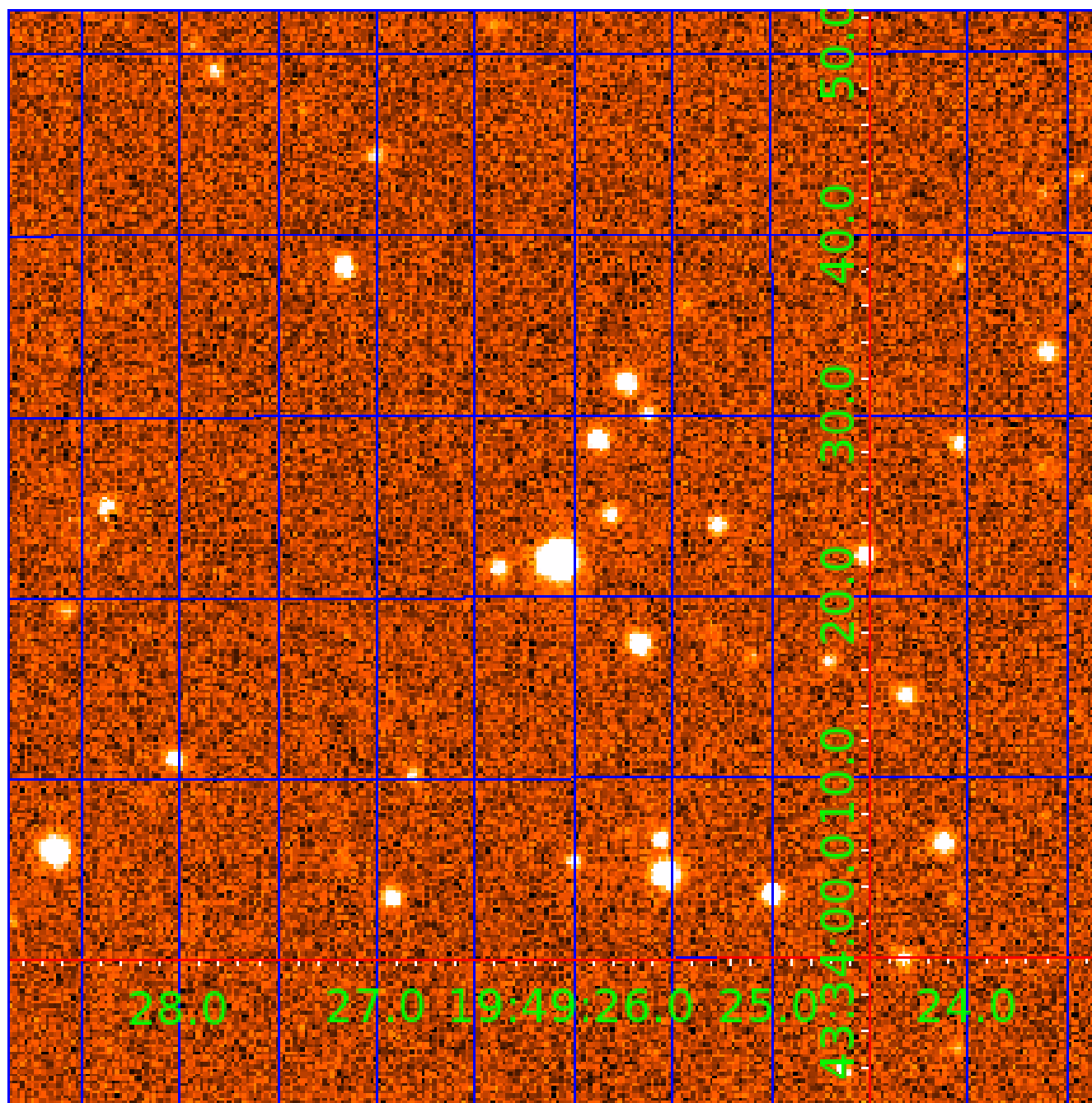


fluxWeightedCentroids, Planet 1 of 7



# UKIRT Image

Declination





# KIC 007840358

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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007840358-03	OBS	No	19.637220	148.354109	1099.5	1.457	13.9	16.9	0.94	5491	3.30	40.40
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007840358-06	OBS	No	7.078920	133.130318	606.6	0.614	14.1	7.6	0.94	5491	2.80	157.48
007840358-07	OBS	No	3.322511	131.960994	2513.8	1.500	16.0	-1.0	0.94	5491	4.68	431.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007840358-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_MEAS
007840358-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007840358-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007840358-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
007840358-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007840358-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007840358-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

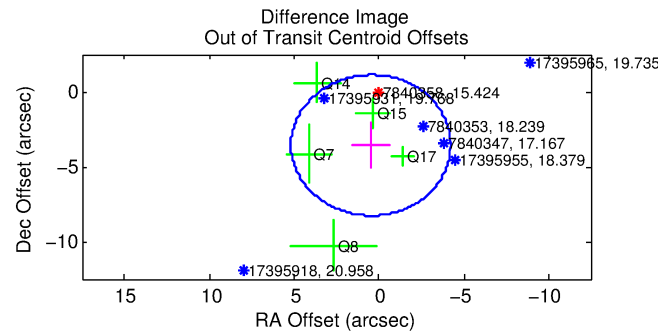
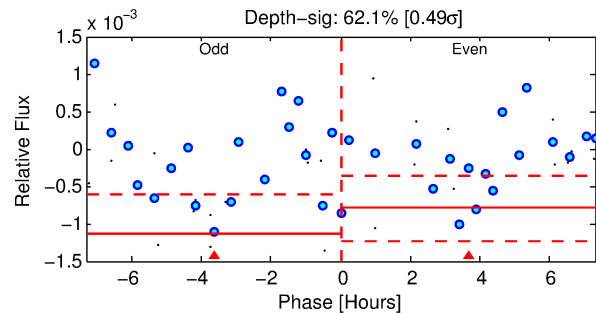
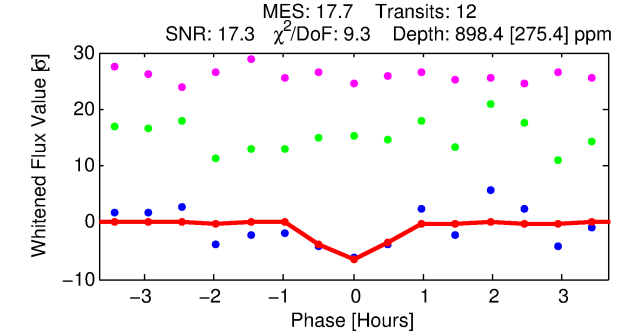
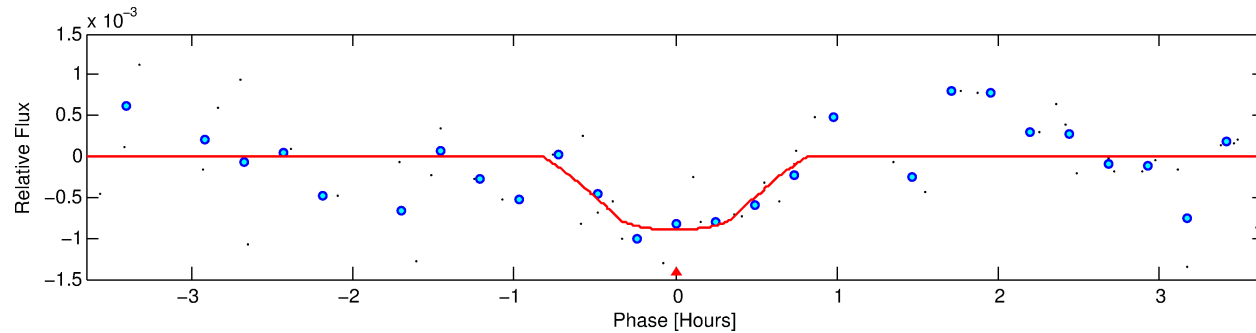
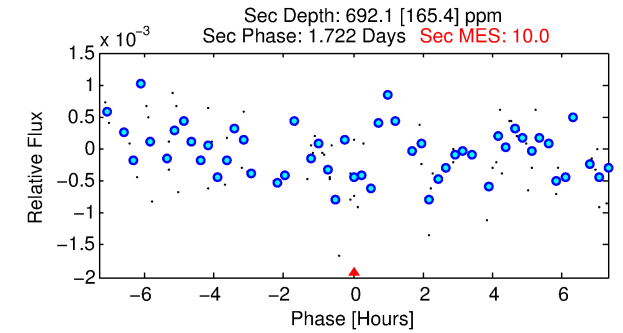
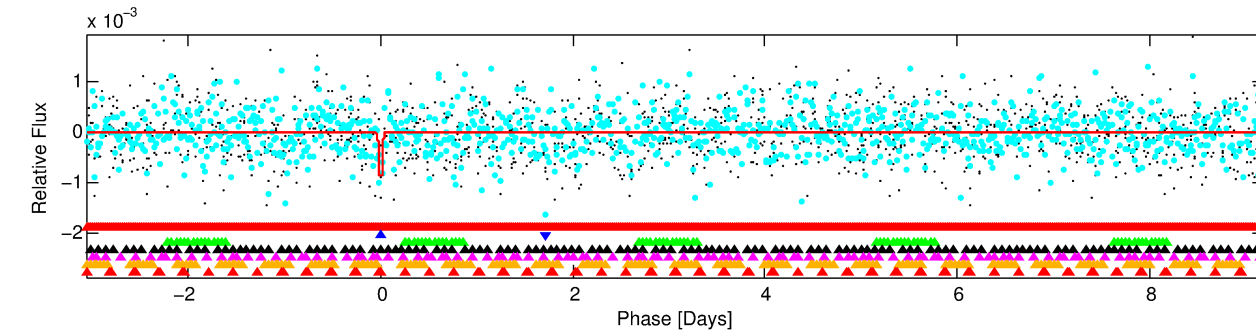
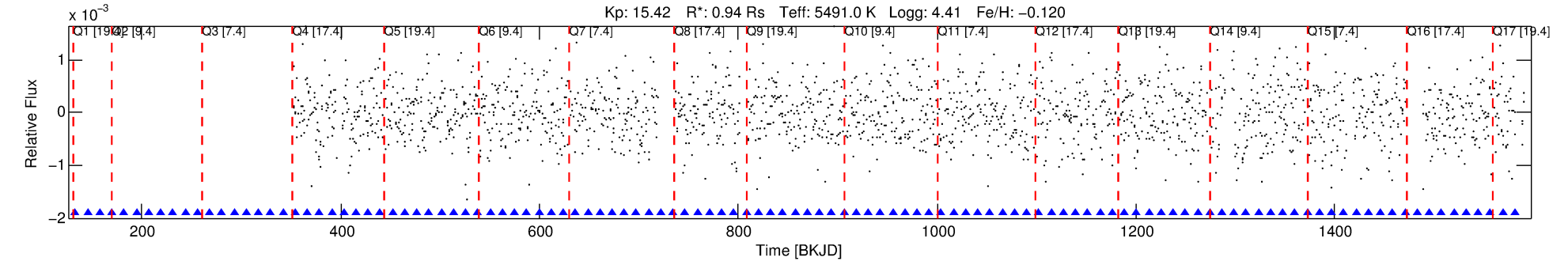
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007840358-02

No Significant Match Found

# DV One-Page Summary

KIC: 7840358 Candidate: 2 of 7 Period: 12.268 d



## DV Fit Results:

Period = 12.26786 [0.00013] d  
Epoch = 133.4028 [0.0102] BKJD  
Rp/R\* = 0.0289 [0.0920]  
a/R\* = 62.74 [788.49]  
b = 0.63 [12.48]  
Seff = 75.65 [26.54]  
Teq = 752 [66] K  
Rp = 2.98 [9.50] Re  
a = 0.0978 [0.0213] AU  
Ag = 411.79 [2626.64] [0.16σ]  
Teffp = 5238 [8344] K [0.54σ]

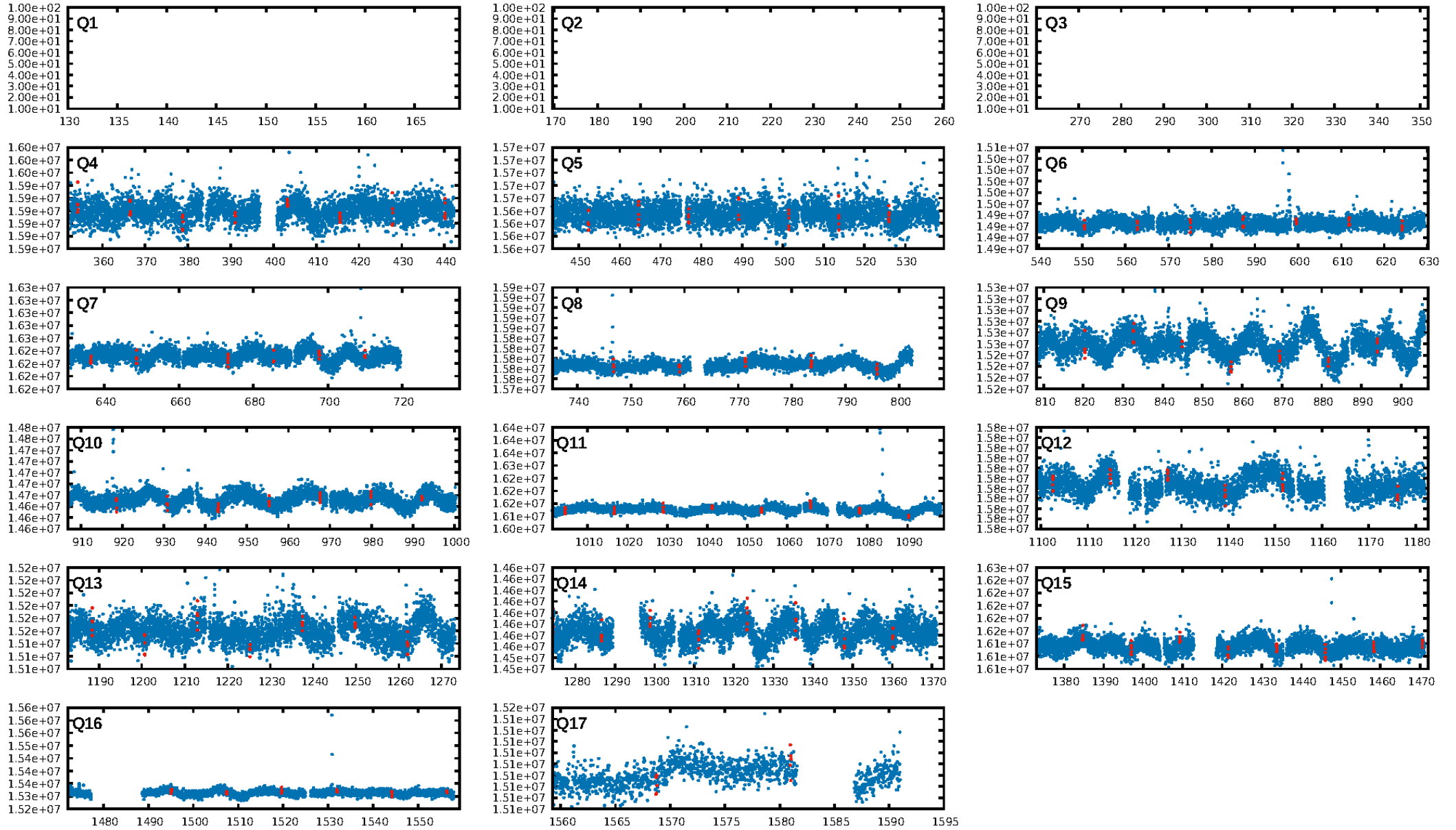
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [16.57σ]  
LongPeriod-sig: 100.0% [8.36σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 4.7%  
Bootstrap-pfa: 1.56e-32  
RollingBand-fgt: 1.00 [12/12]  
GhostDiagnostic-chr: -0.7895  
Centroid-sig: 35.5%  
Centroid-so: 0.421 arcsec [0.69σ]  
OotOffset-rm: 3.602 arcsec [2.30σ]  
KicOffset-rm: 3.660 arcsec [2.20σ]  
OotOffset-st: 1/2/1/1 [5]  
KicOffset-st: 1/2/1/1 [5]  
DiffImageQuality-fgm: 0.00 [0/5]  
DiffImageOverlap-fno: 0.64 [9/14]

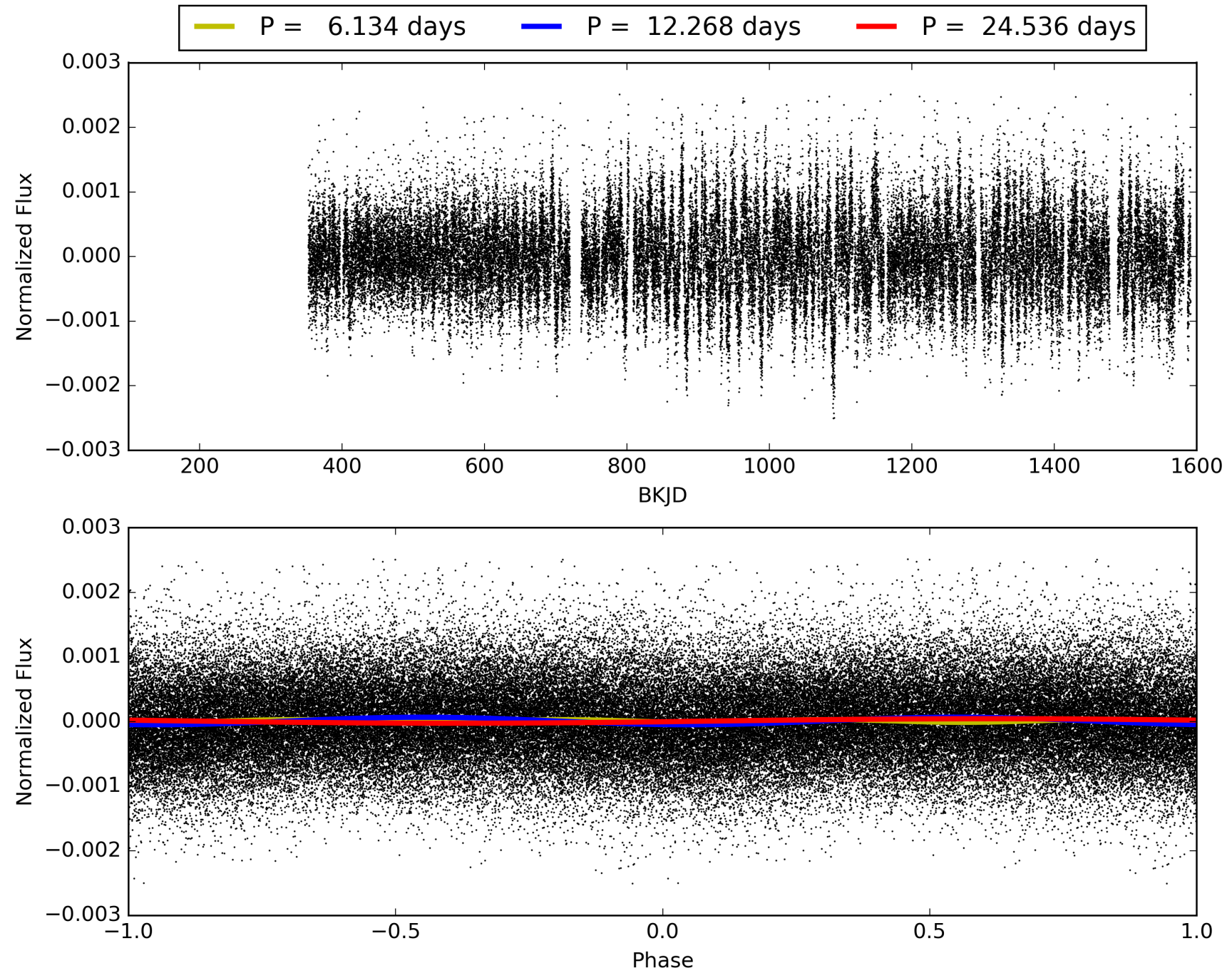
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:05:10 Z

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

# TCE 007840358-02, PDC Light Curves

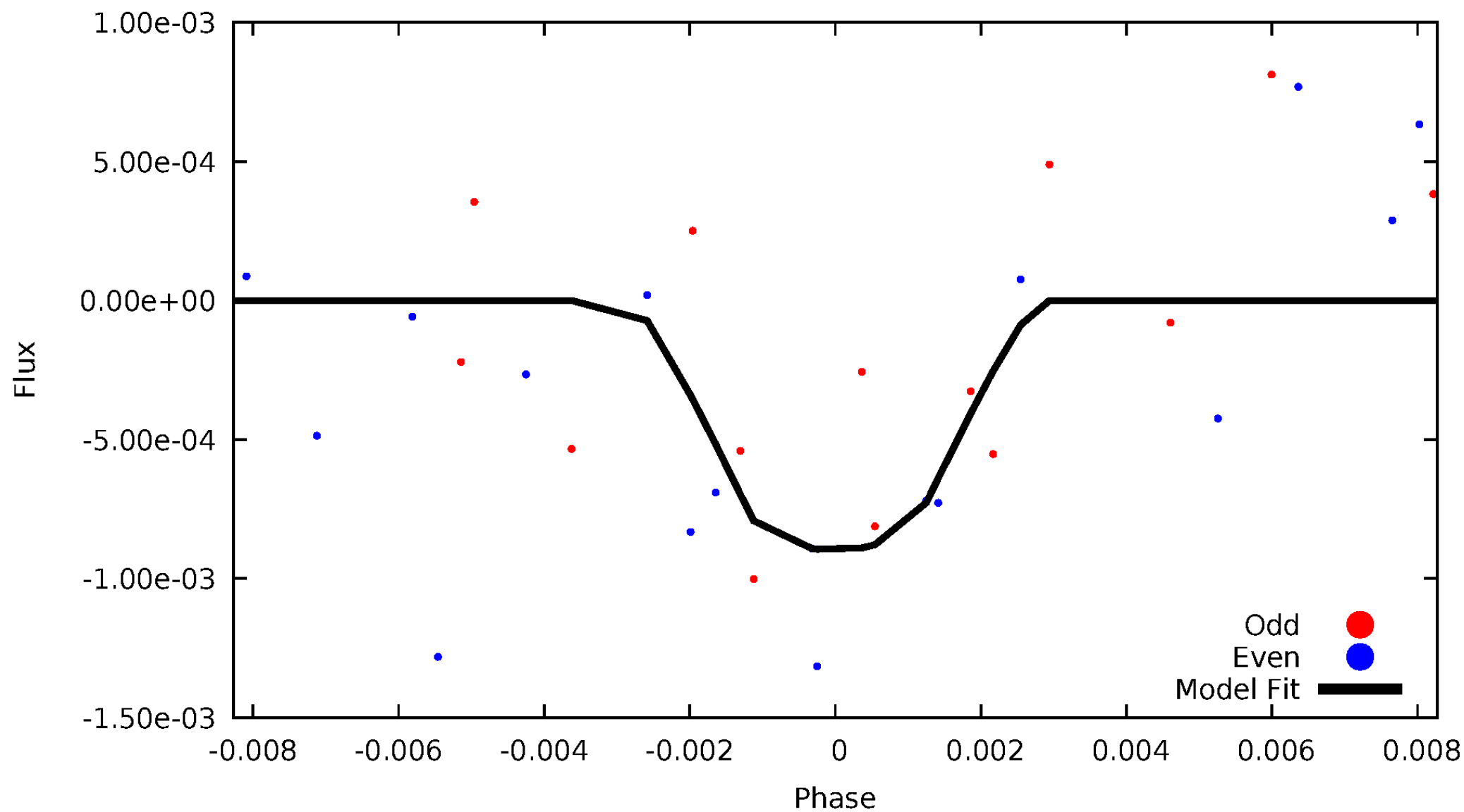


TCE 007840358-02



# DV Odd/Even

TCE 007840358-02





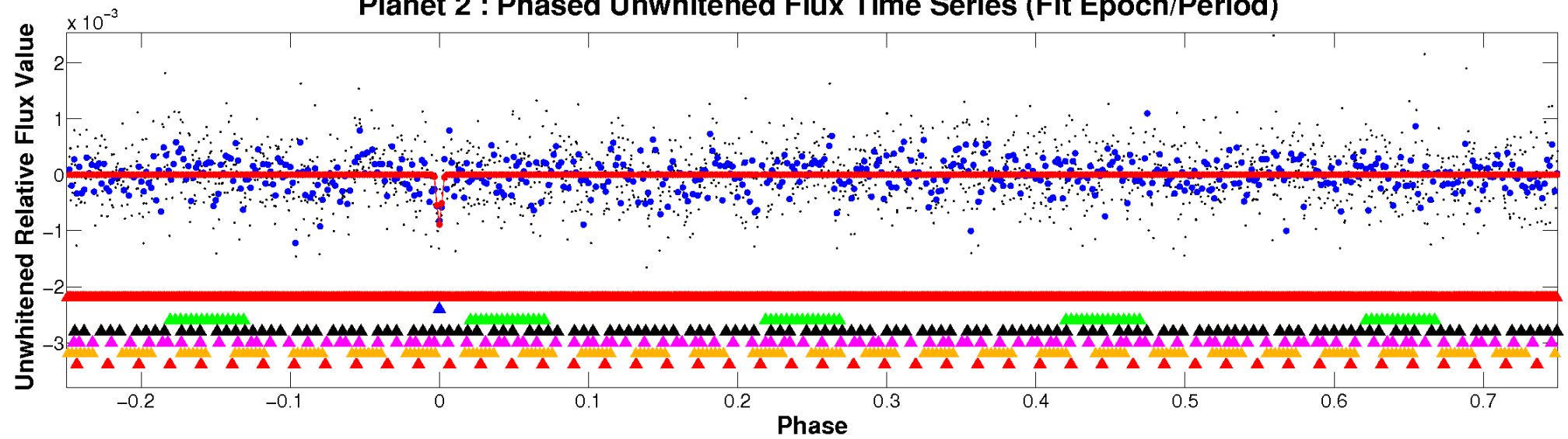


ALT Odd/Even

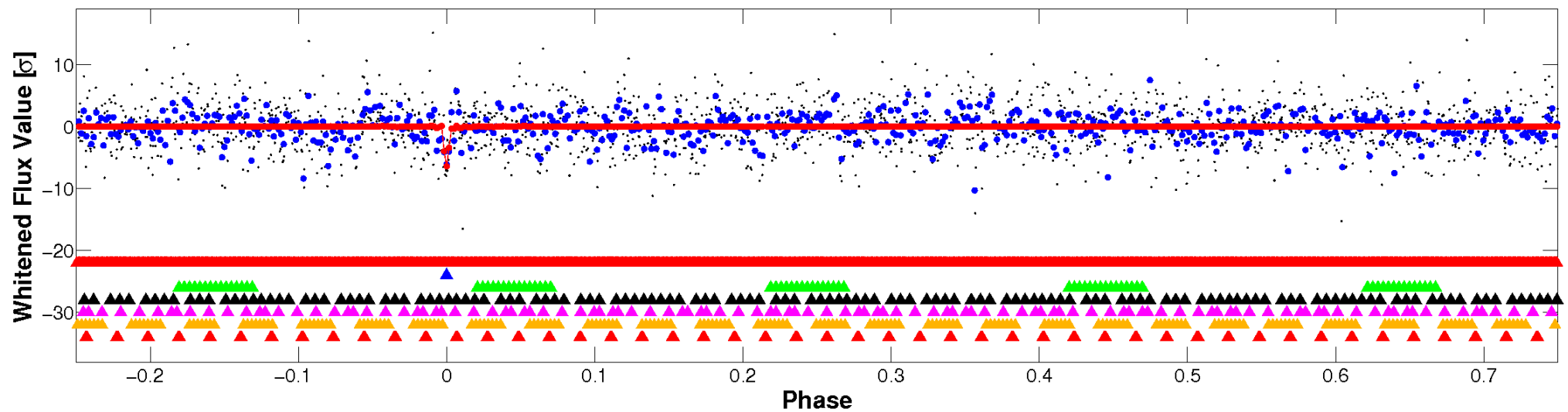
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

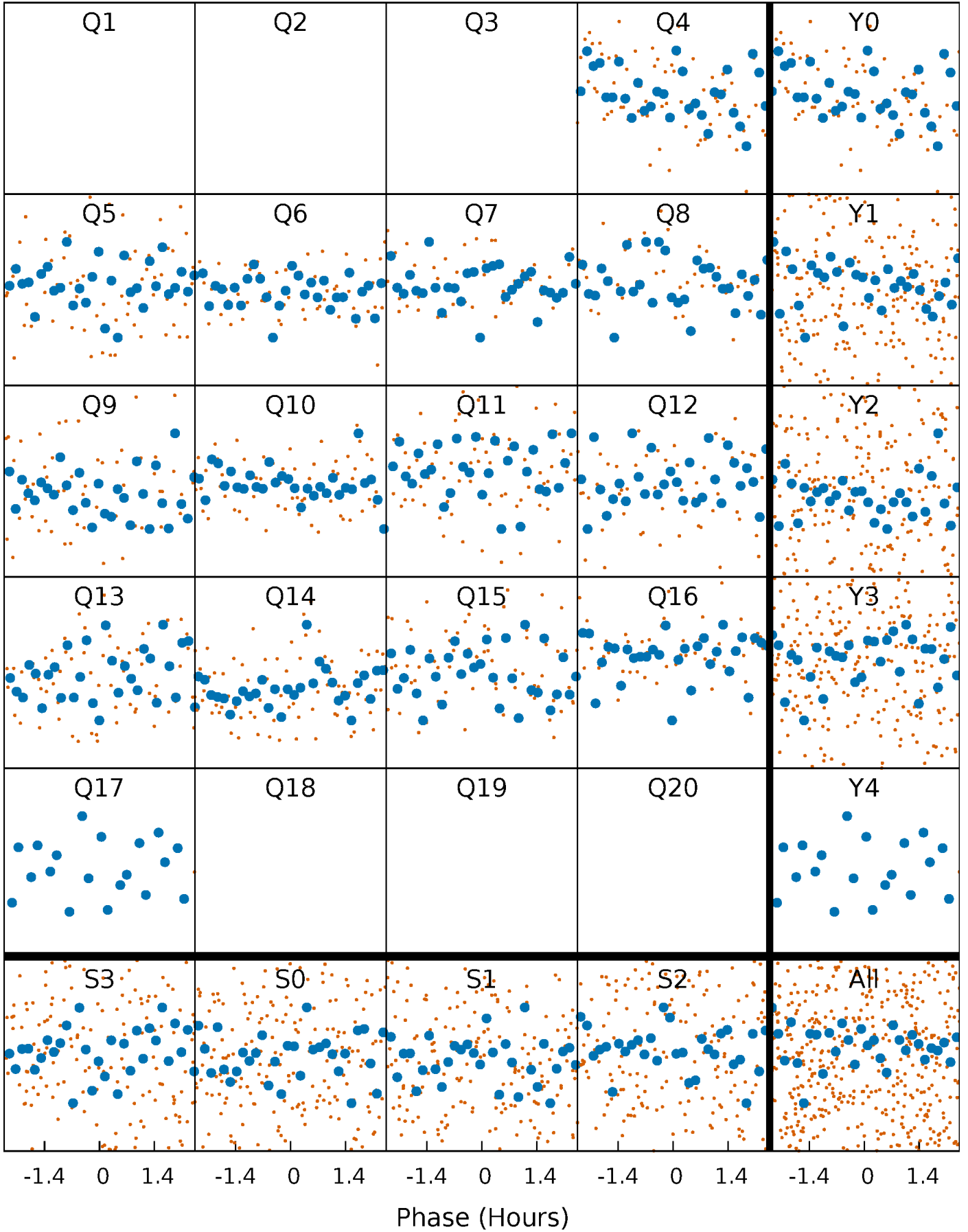


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



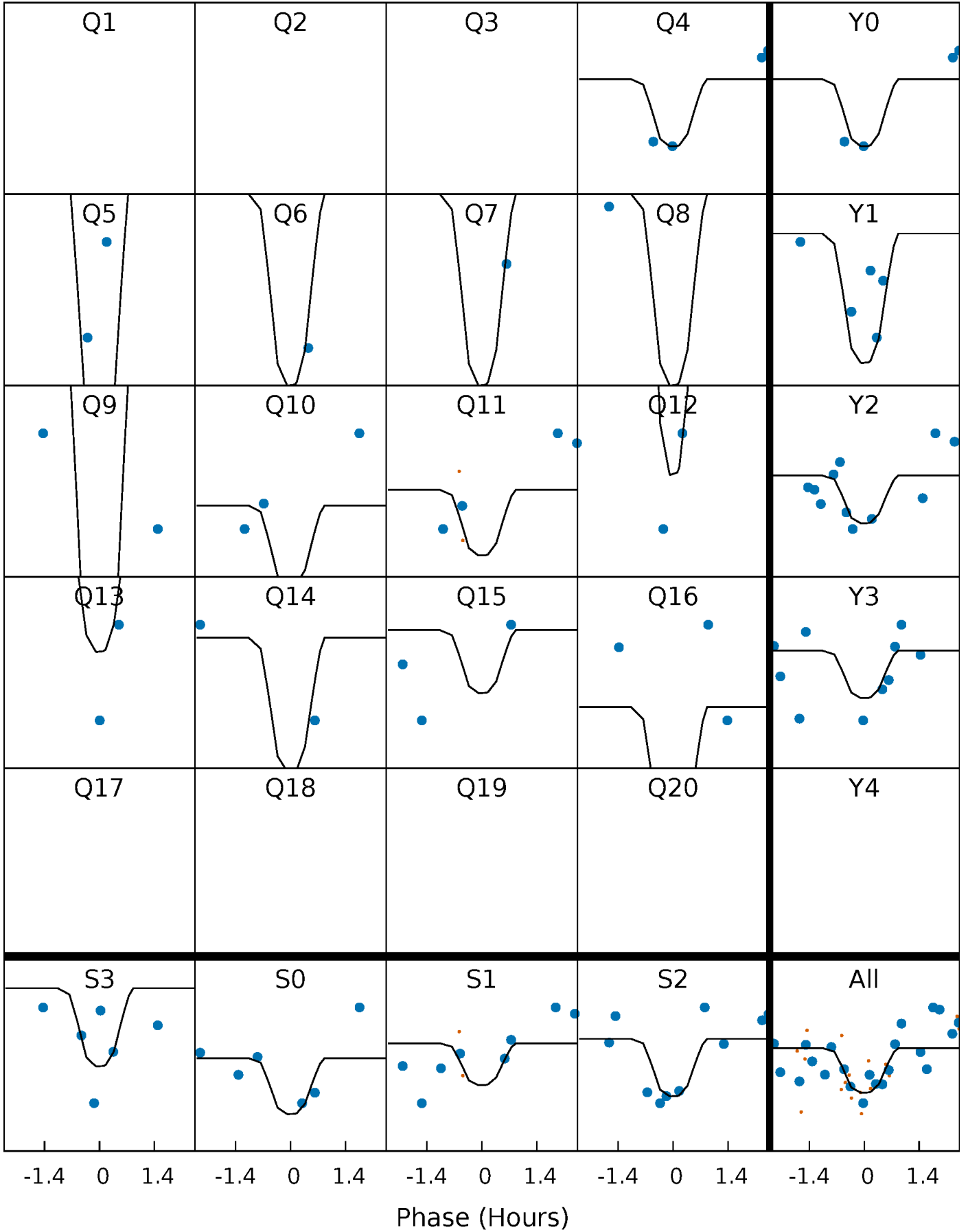
# PDC Quarter-Phased Transit Curves

TCE 007840358-02 P= 12.267855 Days  $T_0=133.402753$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 007840358-02 P= 12.267855 Days  $T_0=133.402753$  (BKJD)



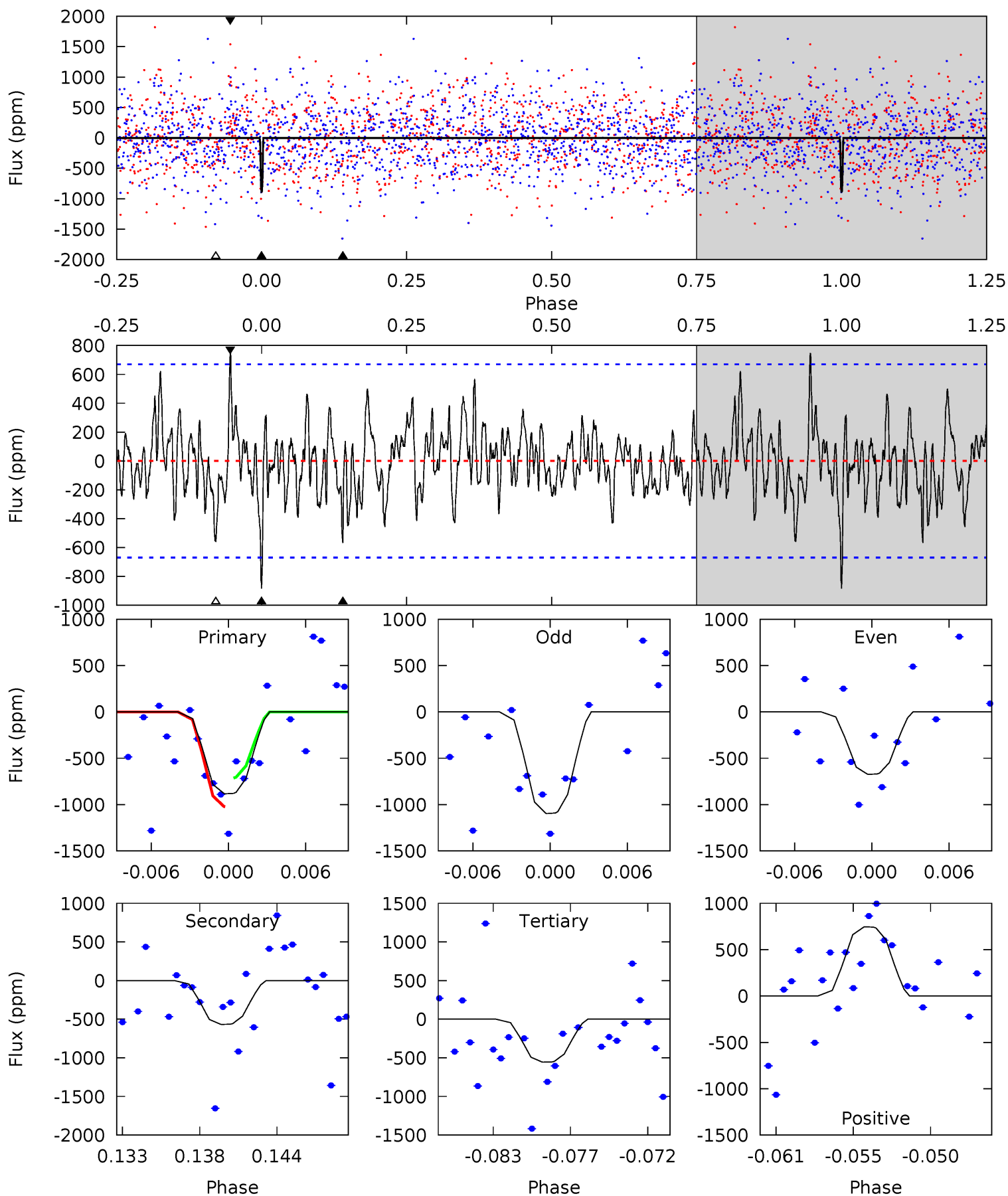
This plot does not exist for this TCE.



# DV Model-Shift Uniqueness Test

007840358-02, P = 12.267855 Days, E = 133.402753 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
6.77	4.36	4.27	5.73	5.14	2.77	1.49	2.51	1.05	0.09	-1.37	1.64	0.91	0.46	1.20



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 007840358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5491^{+199}_{-182}$	$4.408^{+0.144}_{-0.176}$	$-0.120^{+0.300}_{-0.300}$	$0.943^{+0.241}_{-0.141}$	$0.830^{+0.120}_{-0.065}$	$1.394^{+0.853}_{-0.677}$
	+4%/-3%	+3%/-4%	+250%/-250%	+26%/-15%	+14%/-8%	+61%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 007840358-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-568 \pm 130$	$7.72^{+7.36}_{-5.39}$	$1056^{+74}_{-65}$	$3577^{+1920}_{-682}$	$52^{+481}_{-39}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

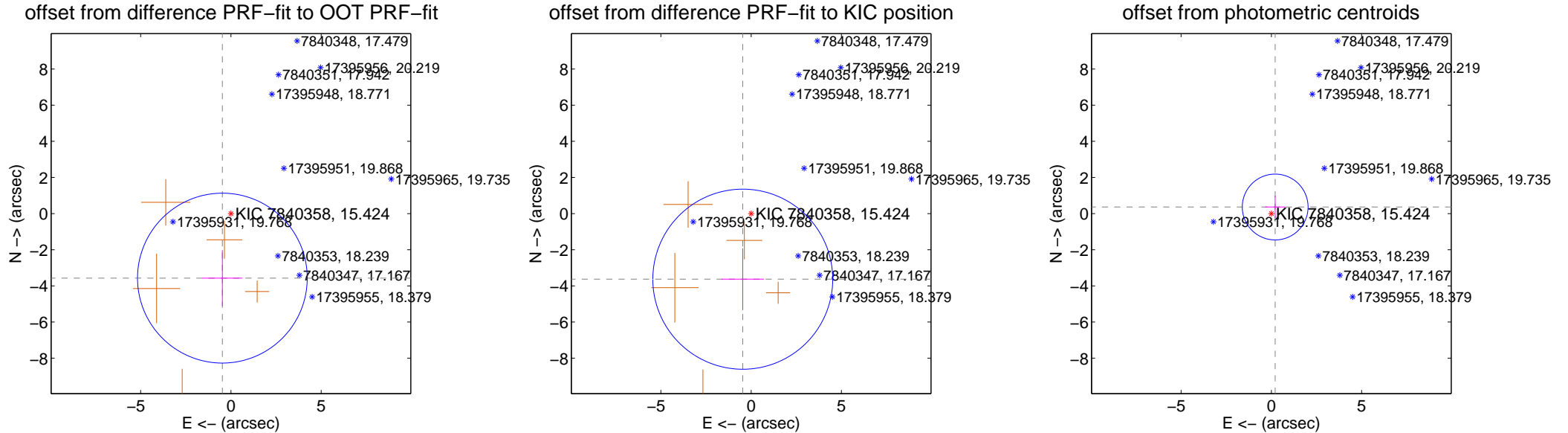
## DV Centroid Data

Supplemental centroid analysis for 007840358-02. Kepler magnitude: 15.42. Transit SNR 17.27

There are 0 quarters with good PRF difference image offsets

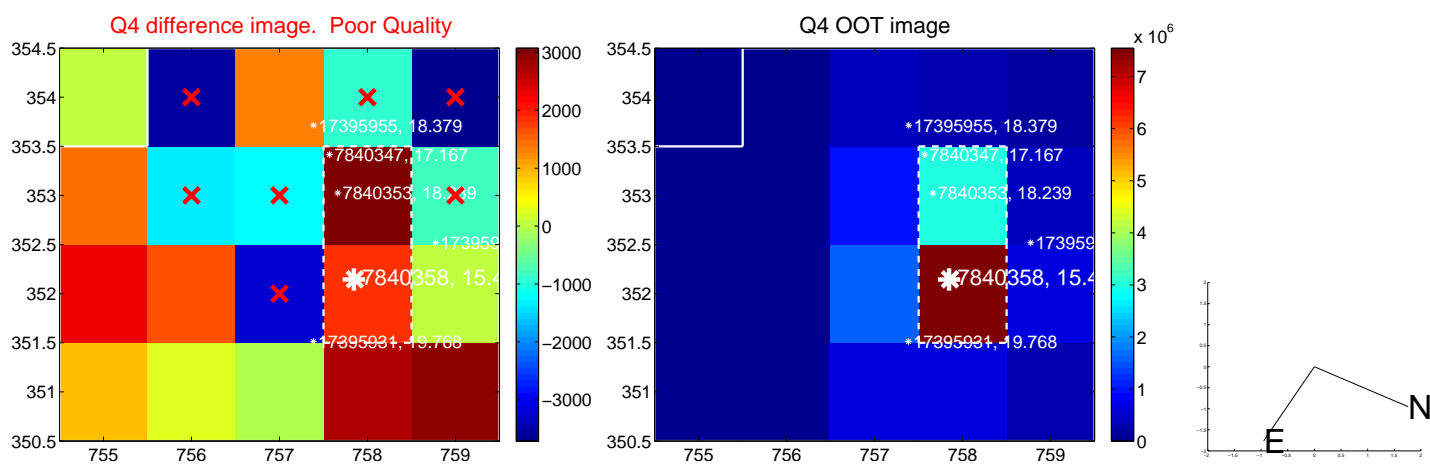
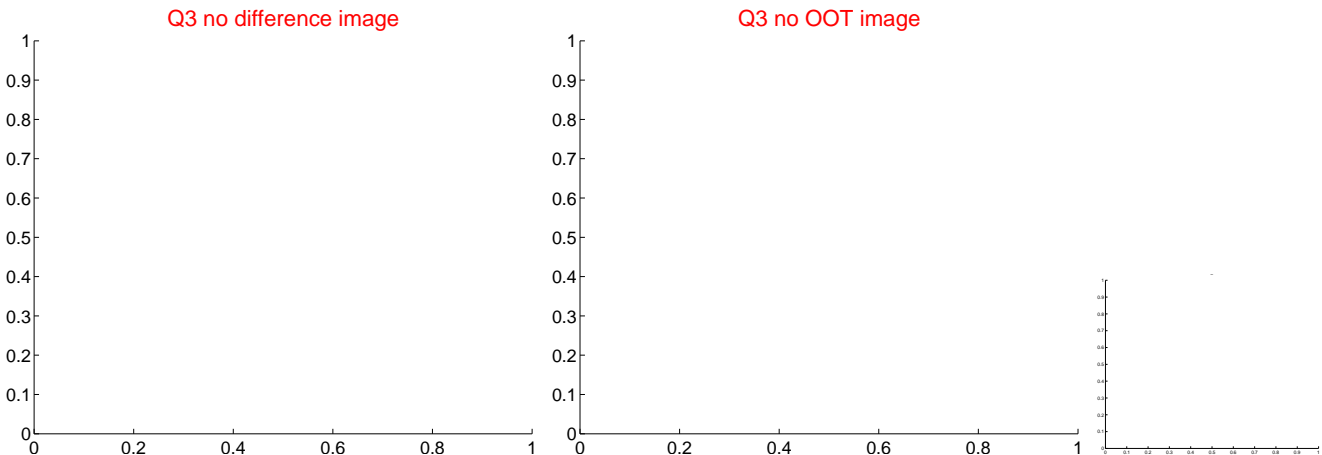
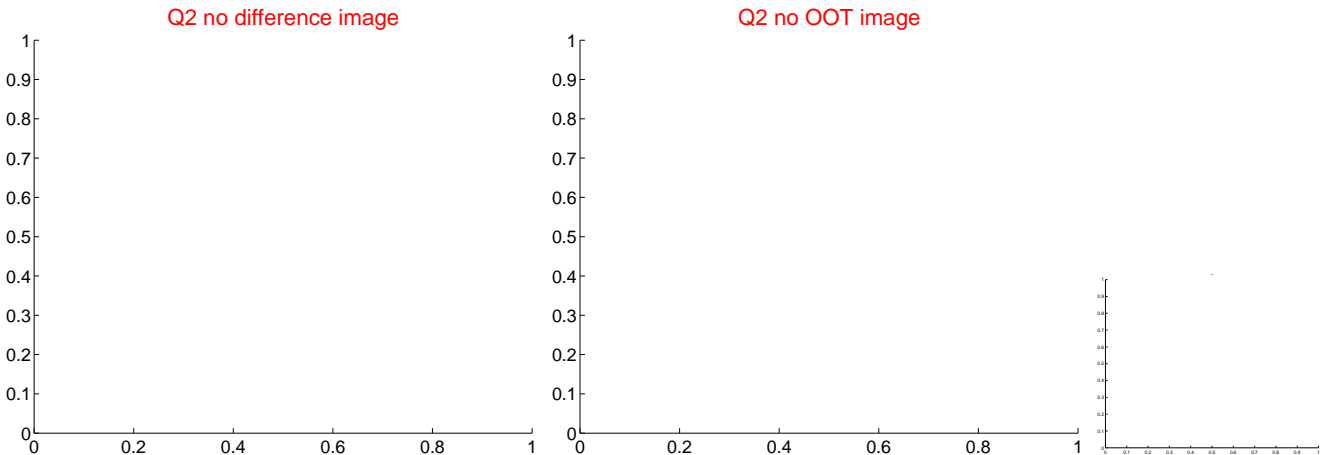
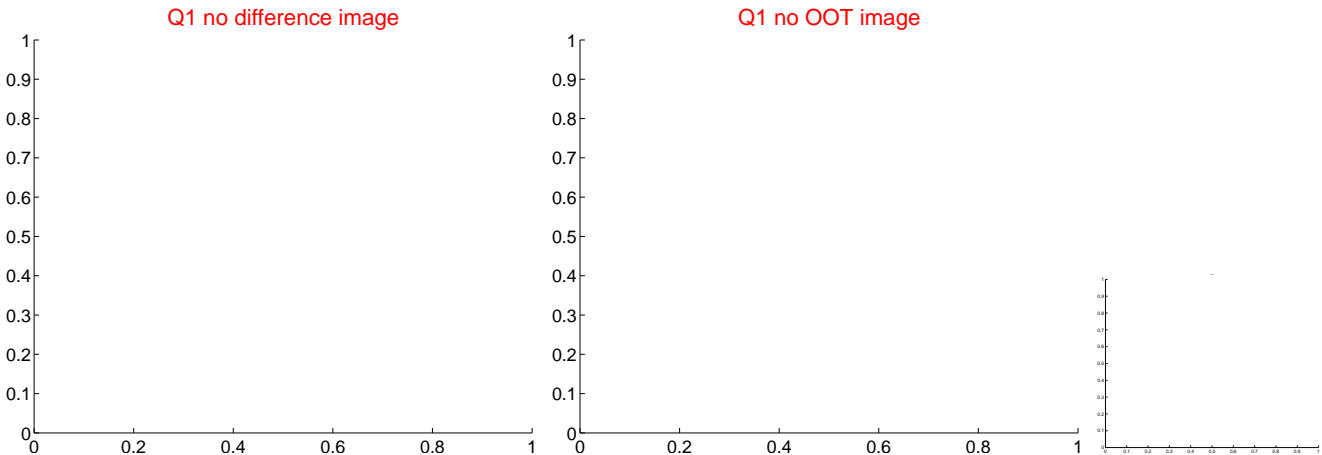
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.602 \pm 1.567$	2.30	$0.473 \pm 1.116$	$-3.571 \pm 1.547$
PRF-fit source offset from KIC position	$3.660 \pm 1.661$	2.20	$0.464 \pm 1.180$	$-3.630 \pm 1.710$
photometric centroid source offset	$0.42 \pm 0.61$	0.69	$-0.21 \pm 0.57$	$0.36 \pm 0.62$



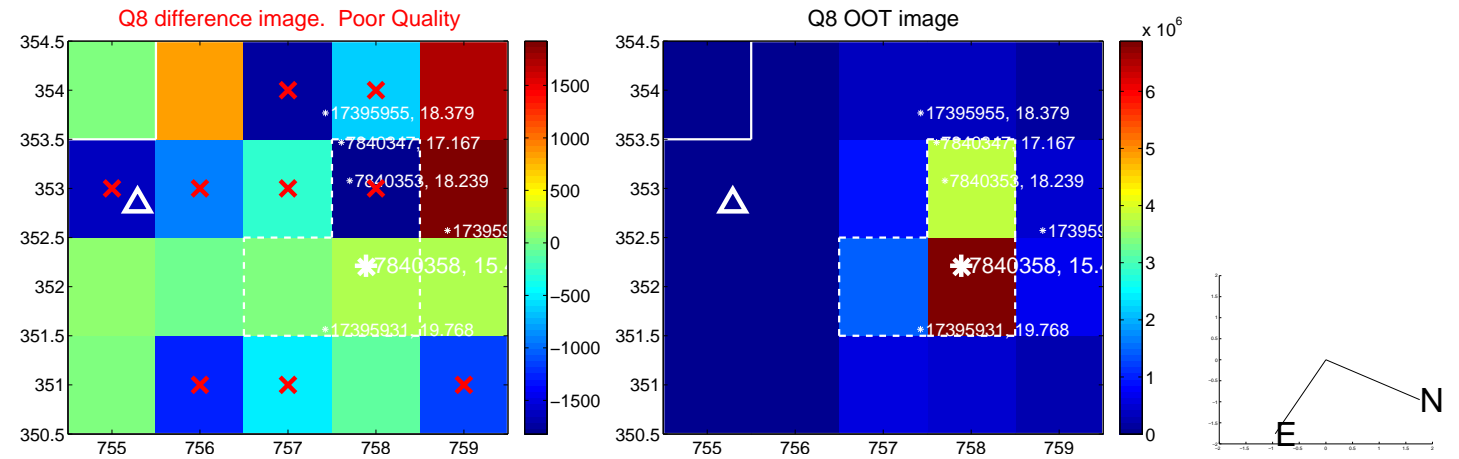
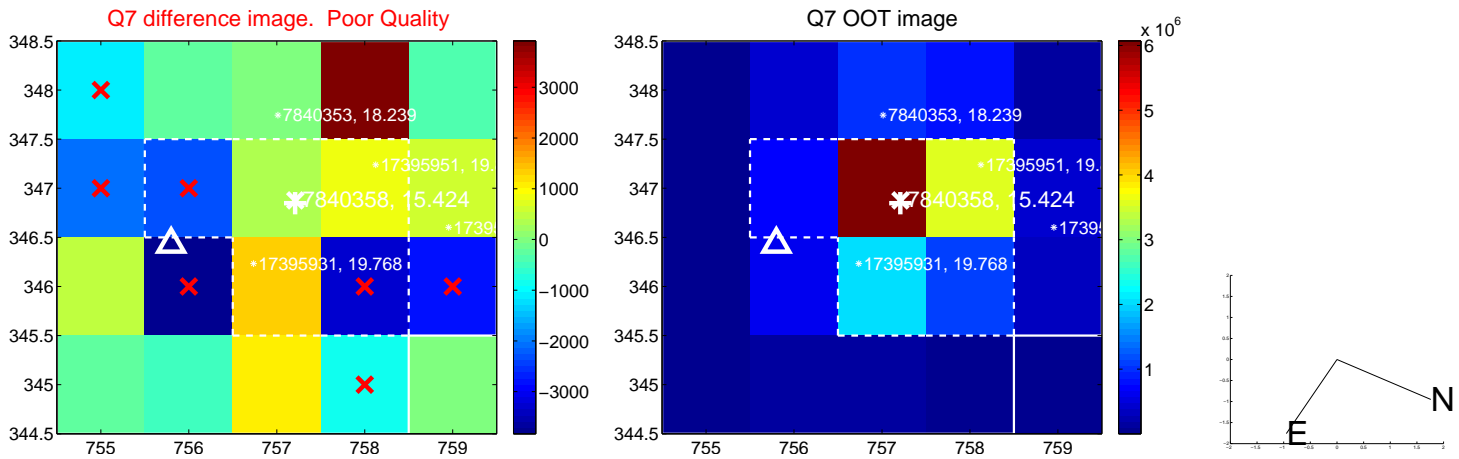
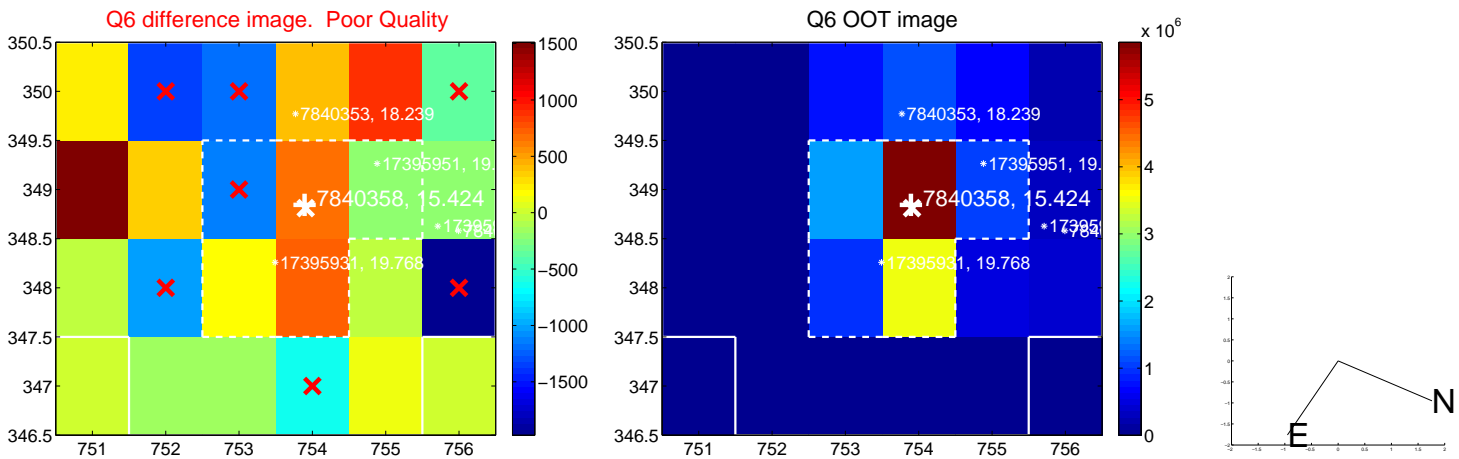
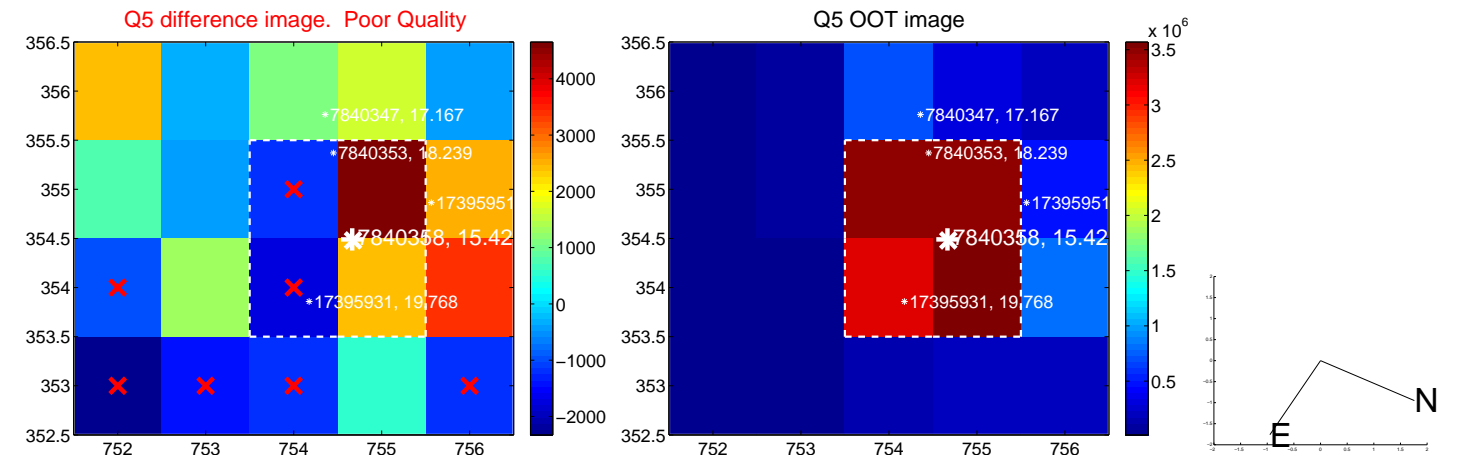
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

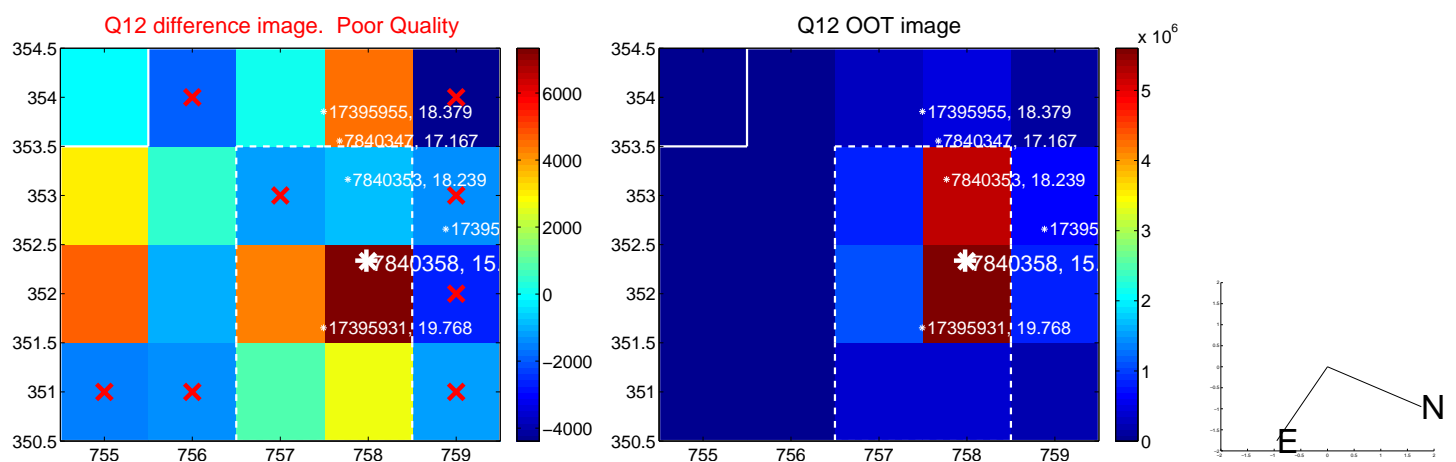
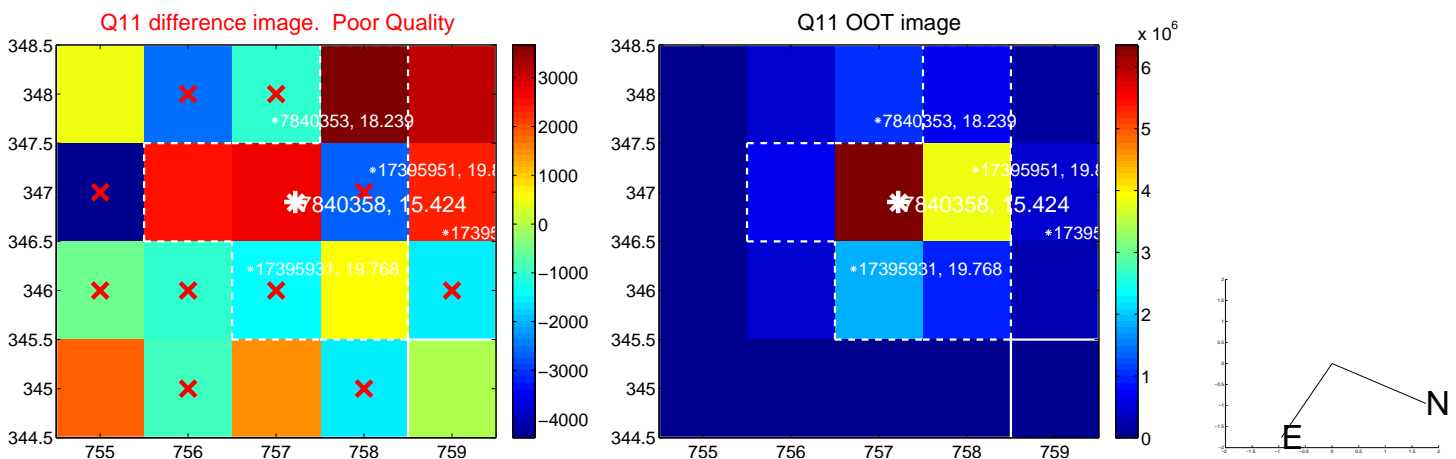
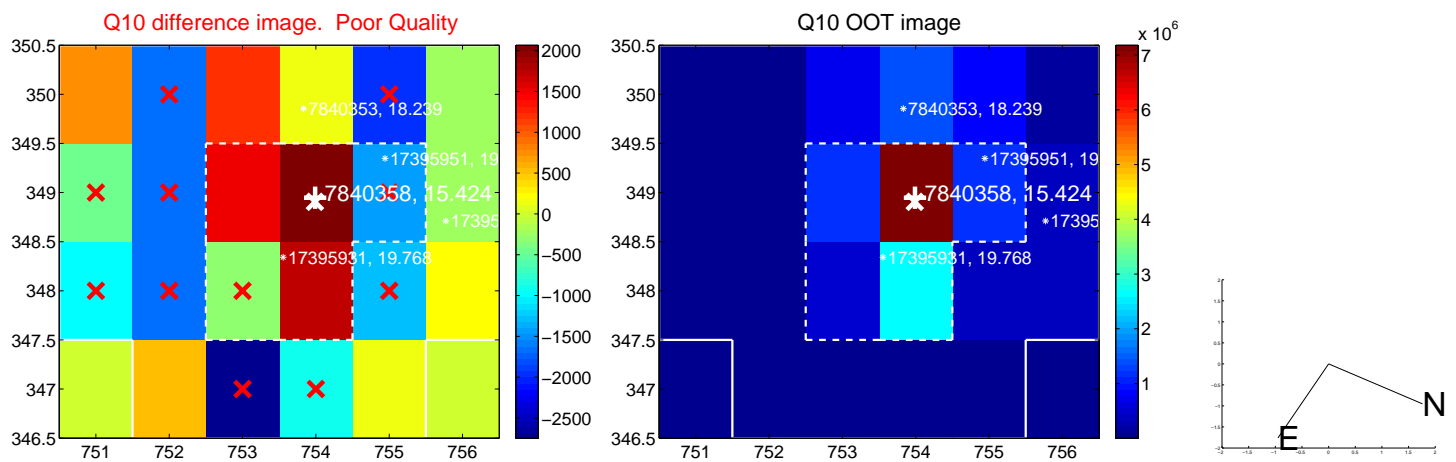
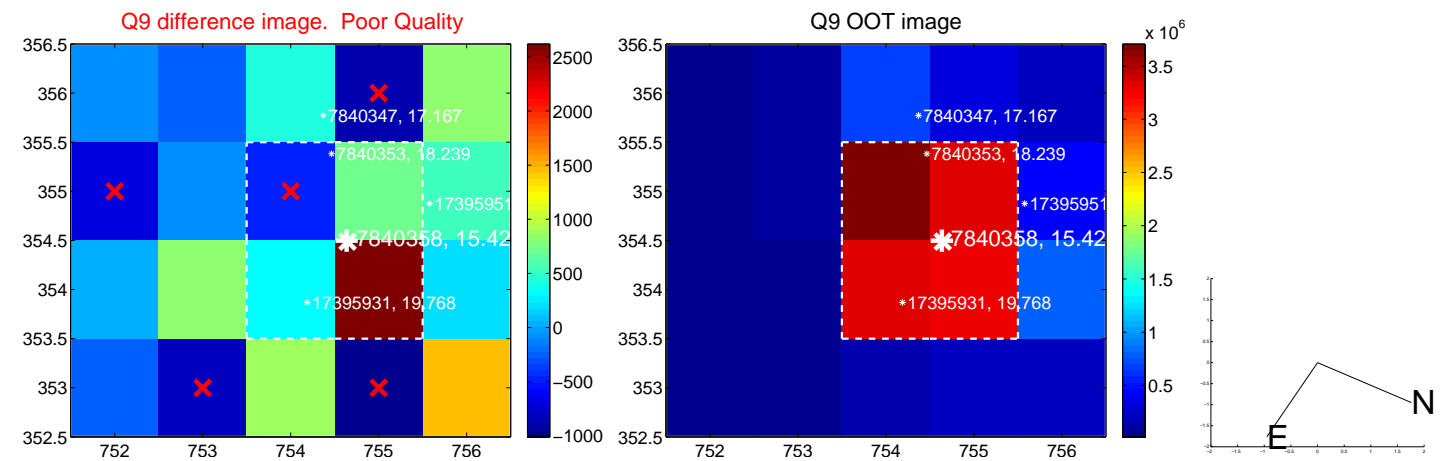




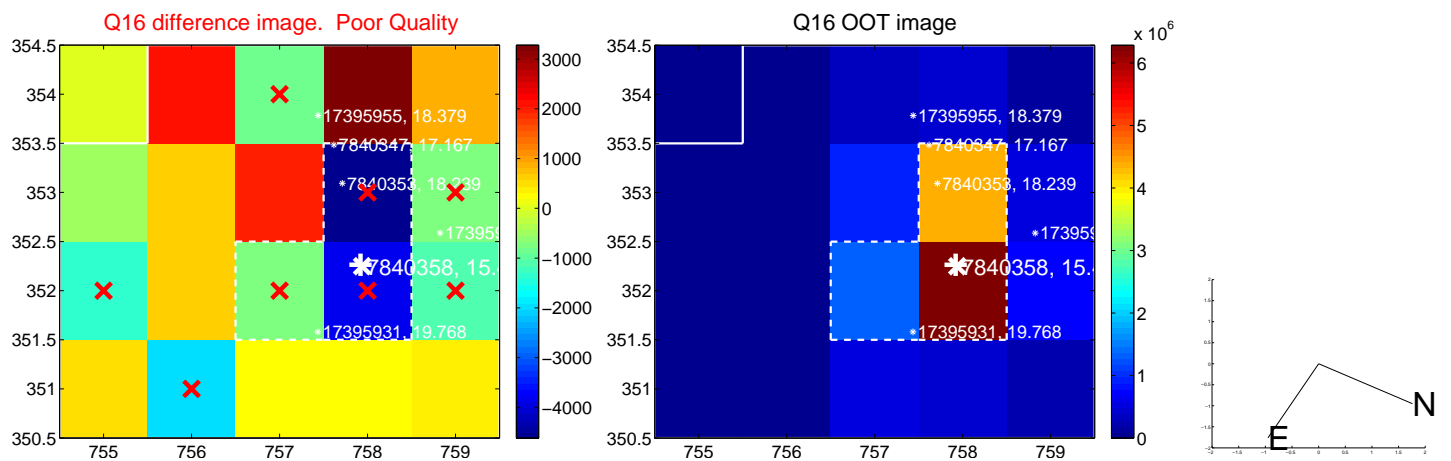
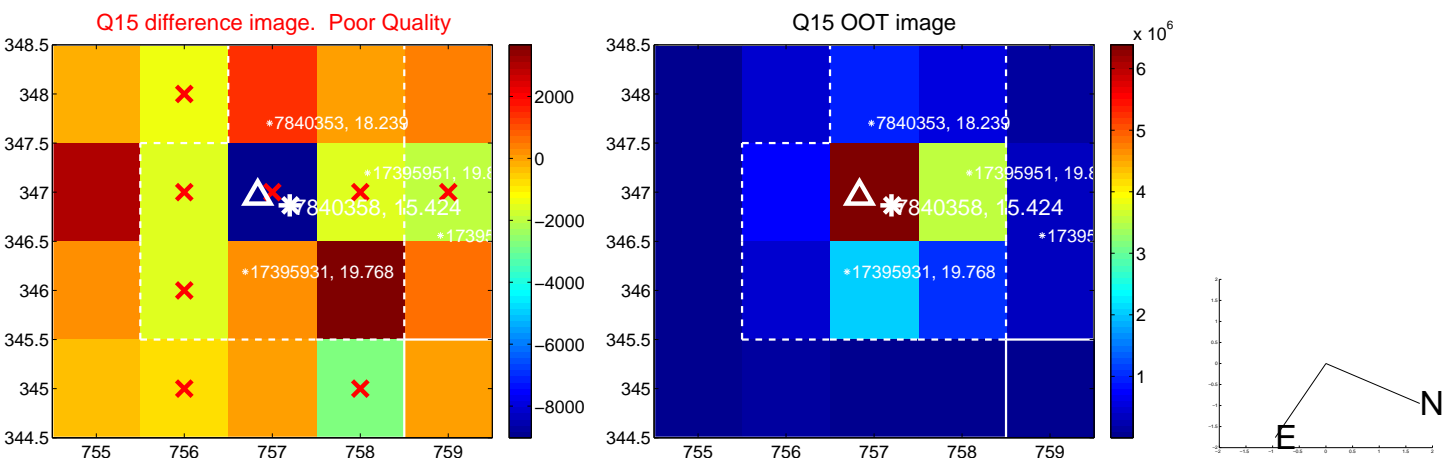
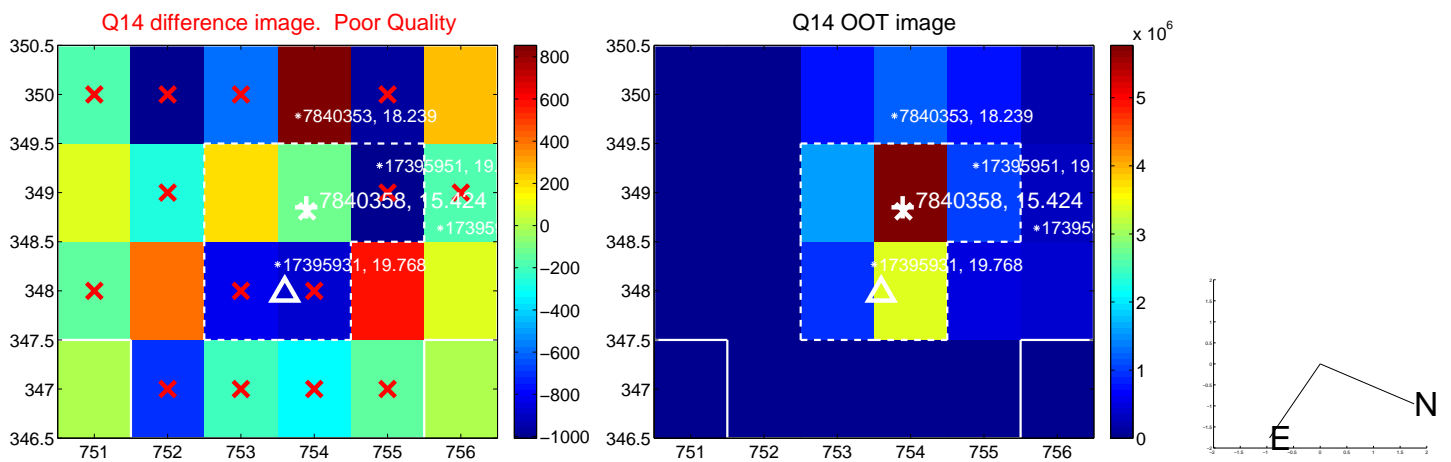
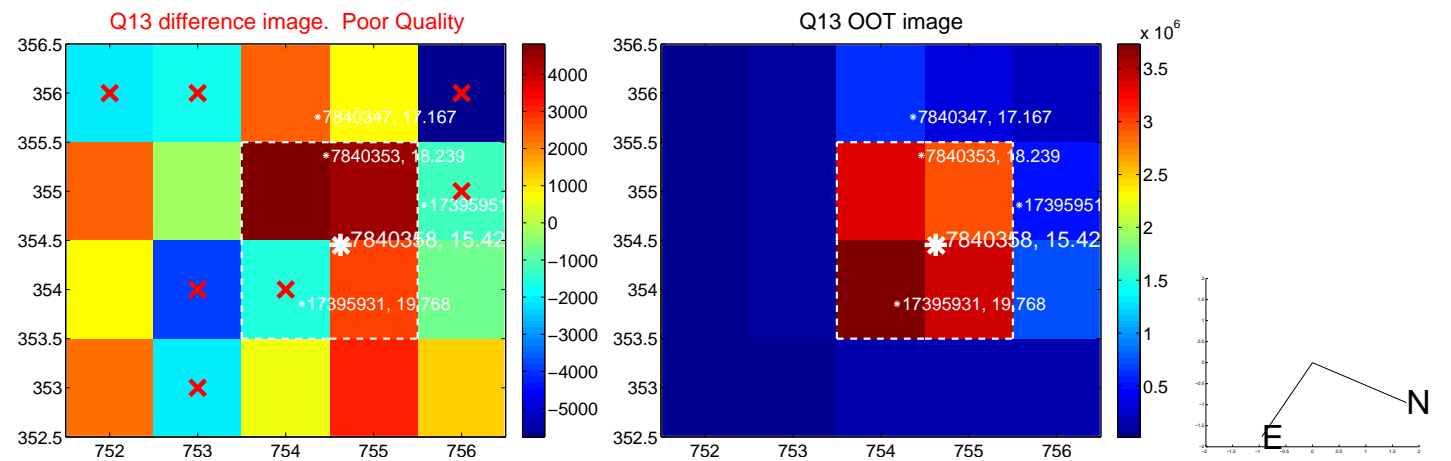
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



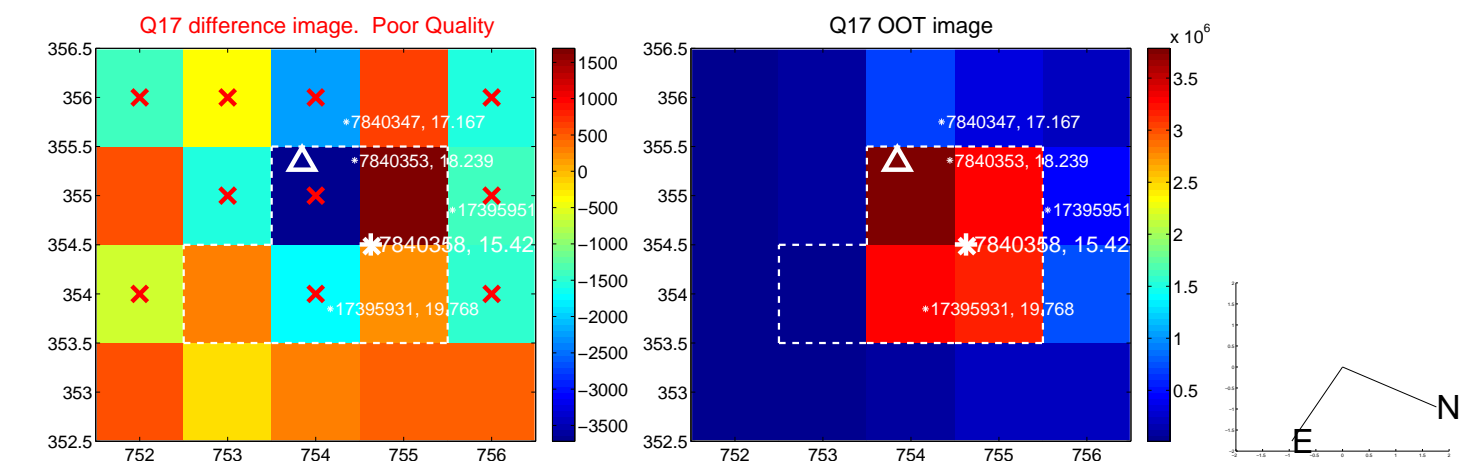
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



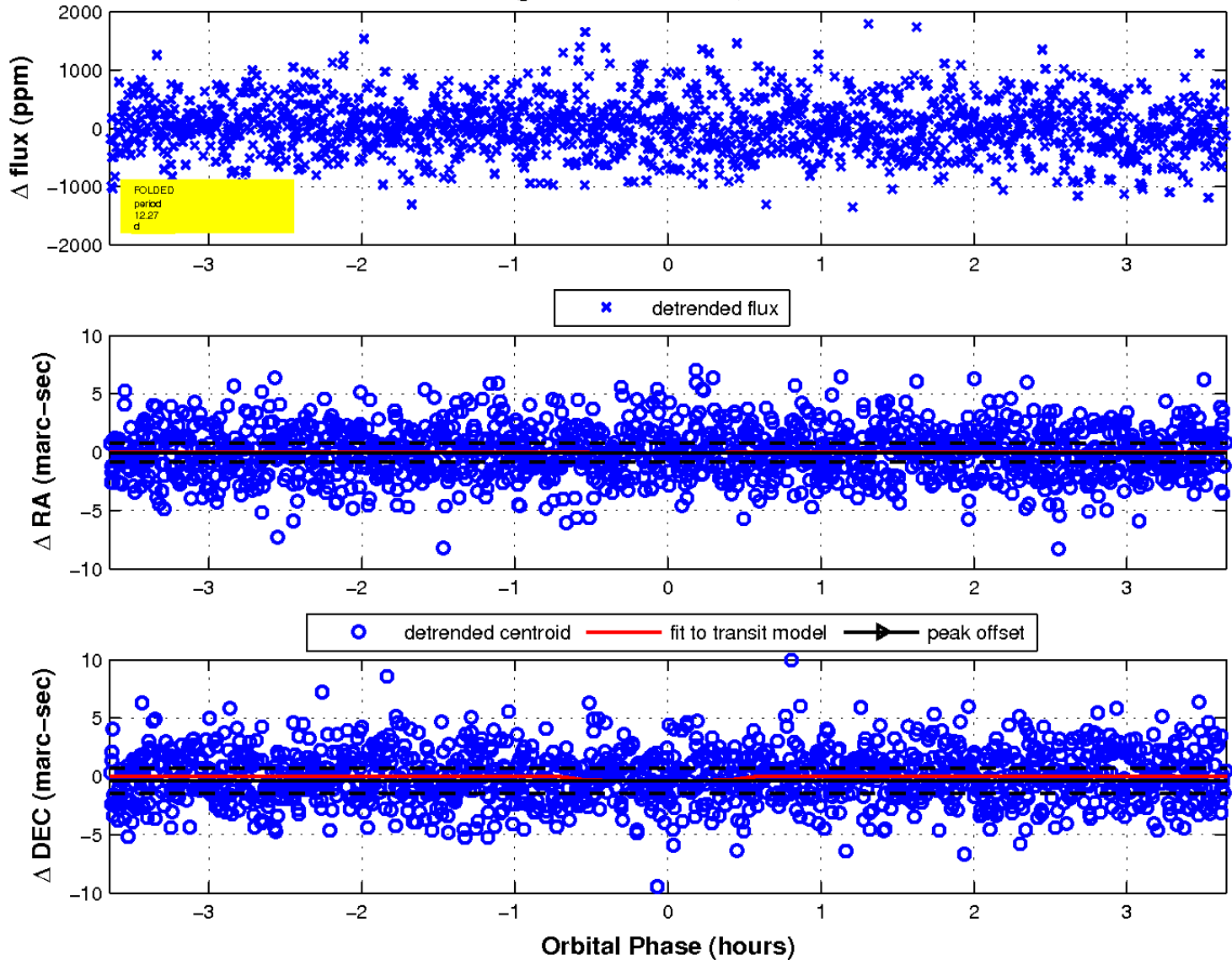
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

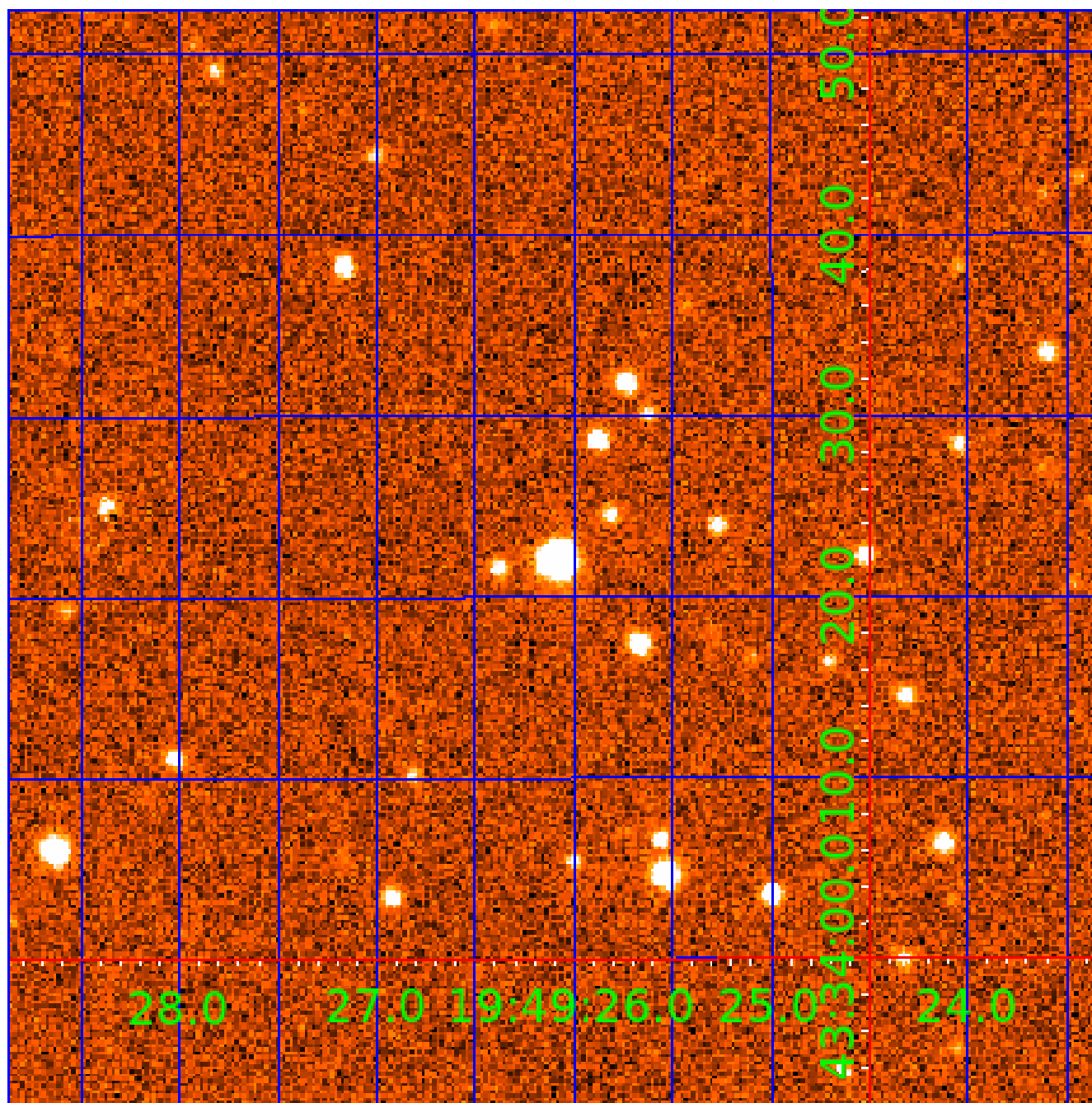


fluxWeightedCentroids, Planet 2 of 7



# UKIRT Image

Declination





# KIC 007840358

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007840358-01	OBS	No	0.787967	131.714931	49.0	5.914	8.7	10.3	0.94	5491	0.65	2941.01
007840358-02	OBS	No	12.267855	133.402753	898.4	1.217	17.7	17.3	0.94	5491	2.98	75.65
007840358-03	OBS	No	19.637220	148.354109	1099.5	1.457	13.9	16.9	0.94	5491	3.30	40.40
007840358-04	OBS	No	10.651664	139.884112	1976.1	2.000	12.3	-1.0	0.94	5491	4.14	91.33
007840358-05	OBS	No	12.998605	133.163019	732.4	1.708	10.7	15.3	0.94	5491	2.58	70.03
007840358-06	OBS	No	7.078920	133.130318	606.6	0.614	14.1	7.6	0.94	5491	2.80	157.48
007840358-07	OBS	No	3.322511	131.960994	2513.8	1.500	16.0	-1.0	0.94	5491	4.68	431.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007840358-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_MEAS
007840358-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007840358-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007840358-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
007840358-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007840358-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007840358-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

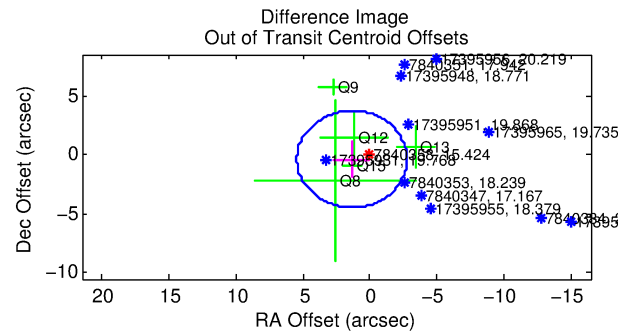
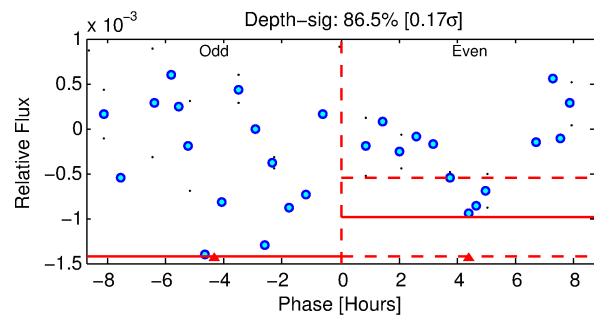
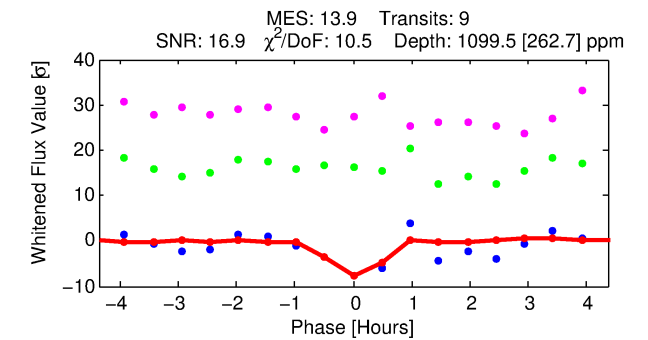
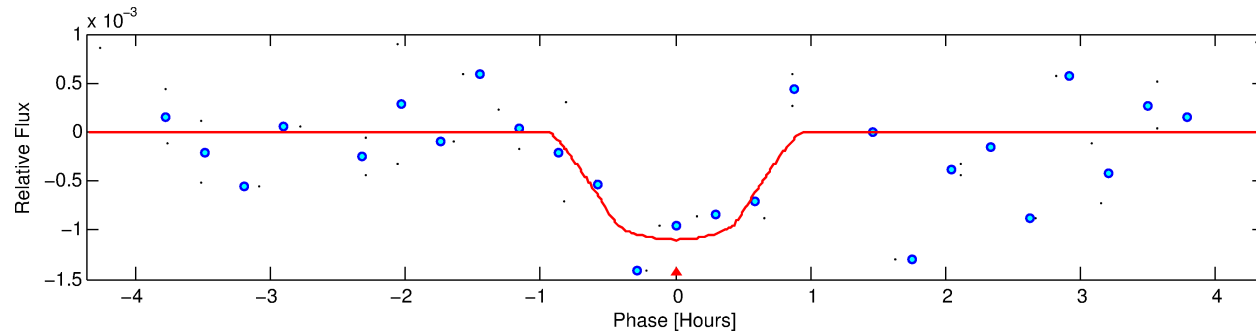
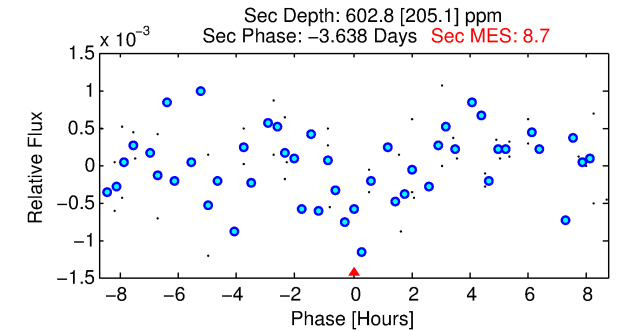
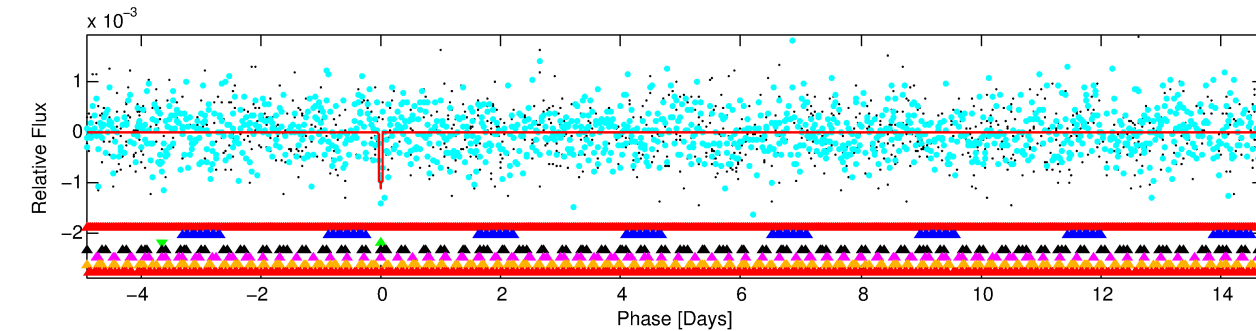
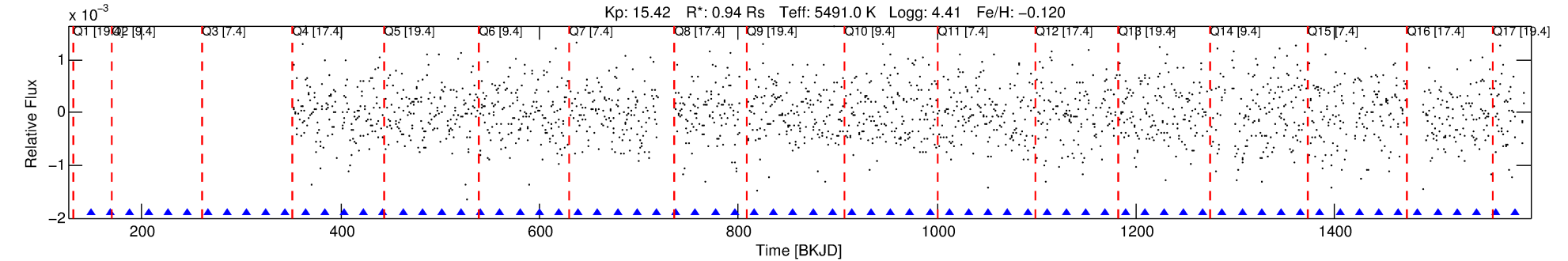
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007840358-03

No Significant Match Found

# DV One-Page Summary

KIC: 7840358 Candidate: 3 of 7 Period: 19.637 d



## DV Fit Results:

Period = 19.63722 [0.00018] d  
Epoch = 148.3541 [0.0088] BKJD  
Rp/R\* = 0.0321 [0.1656]  
a/R\* = 82.94 [1723.64]  
b = 0.65 [19.19]  
Seff = 40.40 [14.17]  
Teq = 643 [56] K  
Rp = 3.30 [17.06] Re  
a = 0.1339 [0.0291] AU  
Ag = 546.37 [5651.38] [0.10σ]  
Teffp = 4806 [12422] K [0.34σ]

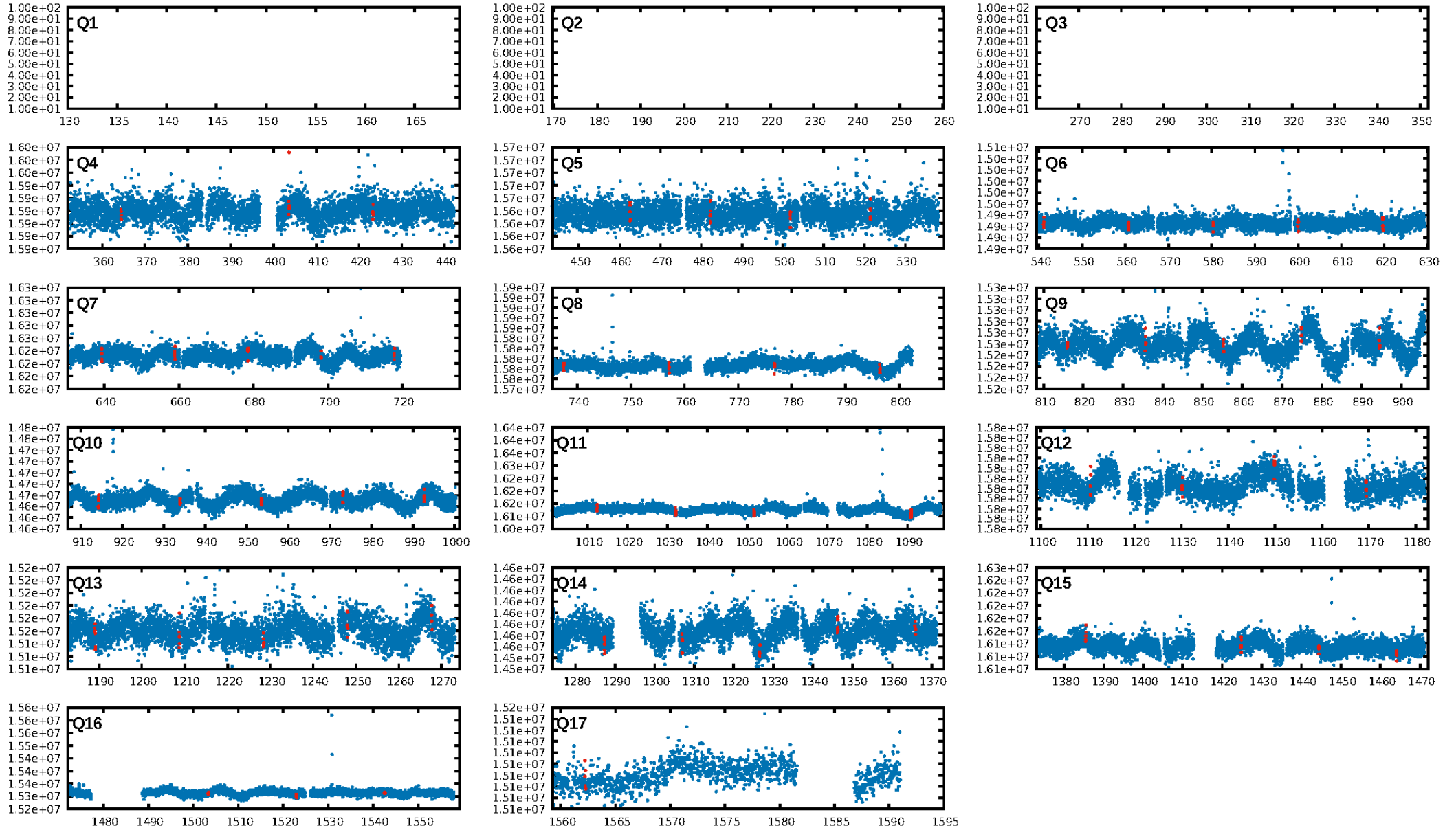
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [70.96σ]  
LongPeriod-sig: N/A  
**ModelChiSquare2-sig: 0.0%**  
ModelChiSquareGof-sig: 25.3%  
Bootstrap-pfa: 8.11e-21  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: 5.084  
Centroid-sig: 36.8%  
Centroid-so: 0.710 arcsec [1.32σ]  
OotOffset-rm: 1.402 arcsec [1.03σ]  
KicOffset-rm: 1.450 arcsec [1.06σ]  
OotOffset-st: 0/1/2/2 [5]  
KicOffset-st: 0/1/2/2 [5]  
DiffImageQuality-fgm: 0.20 [1/5]  
DiffImageOverlap-fno: 0.43 [6/14]

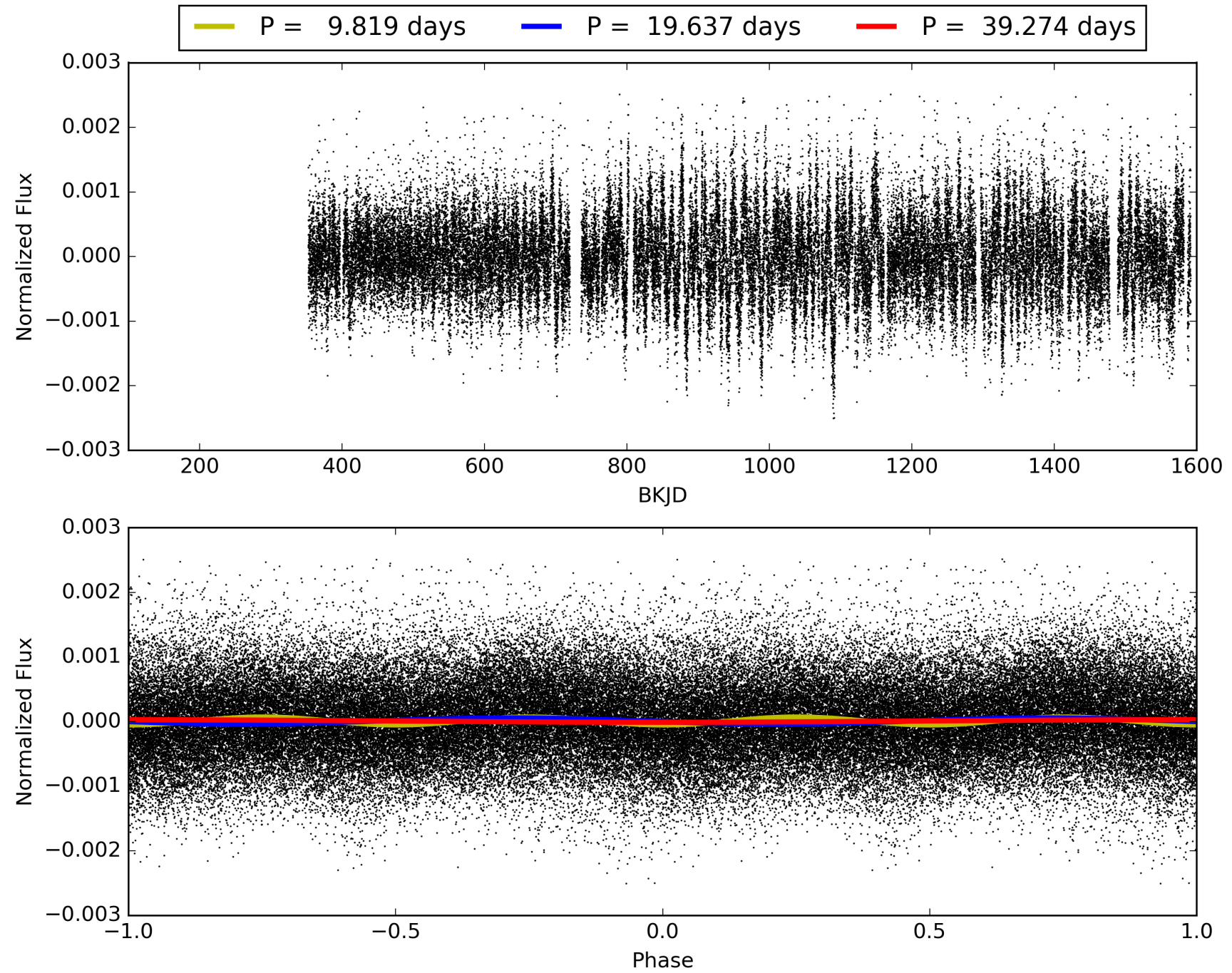
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:05:12 Z

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

# TCE 007840358-03, PDC Light Curves

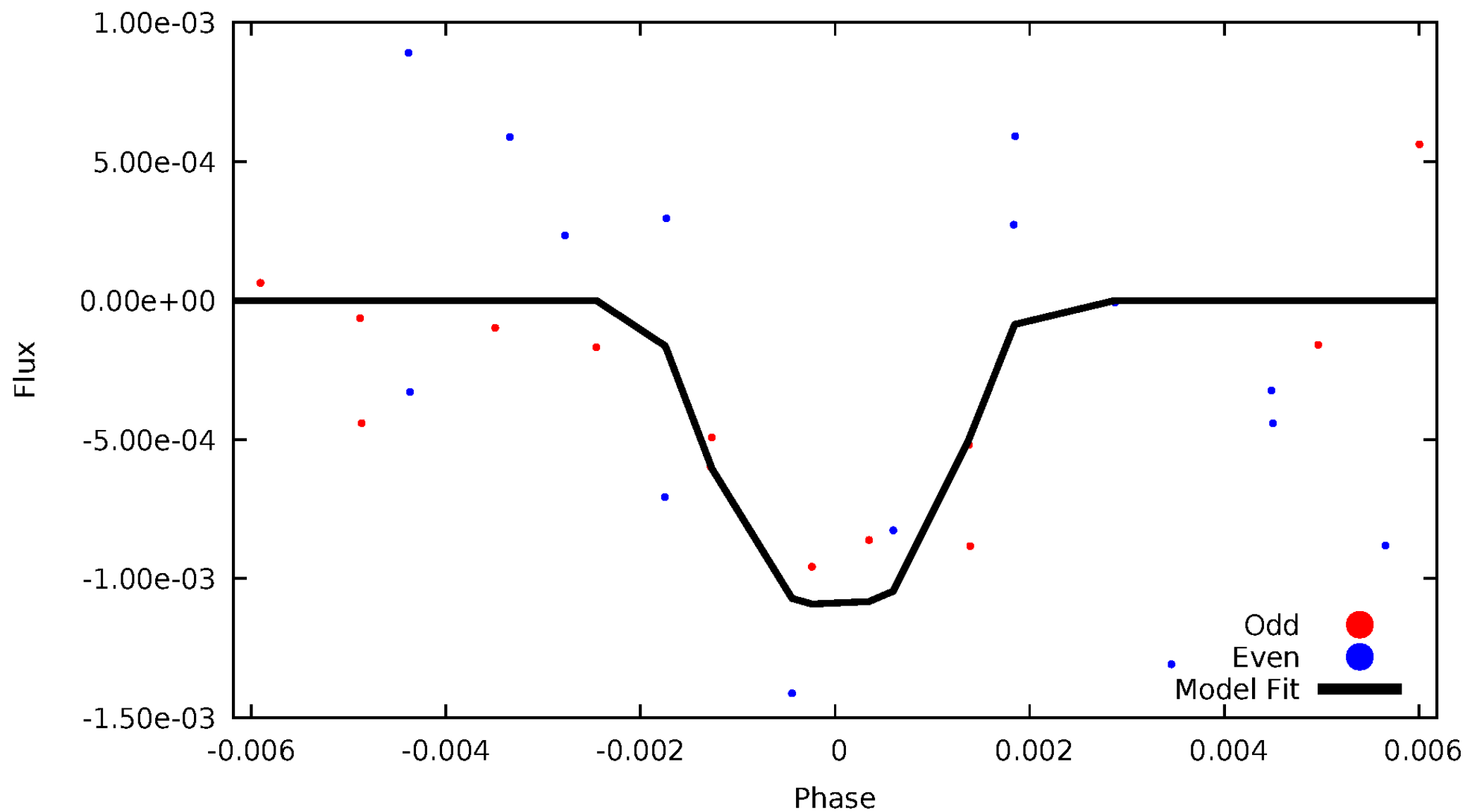


TCE 007840358-03



# DV Odd/Even

TCE 007840358-03





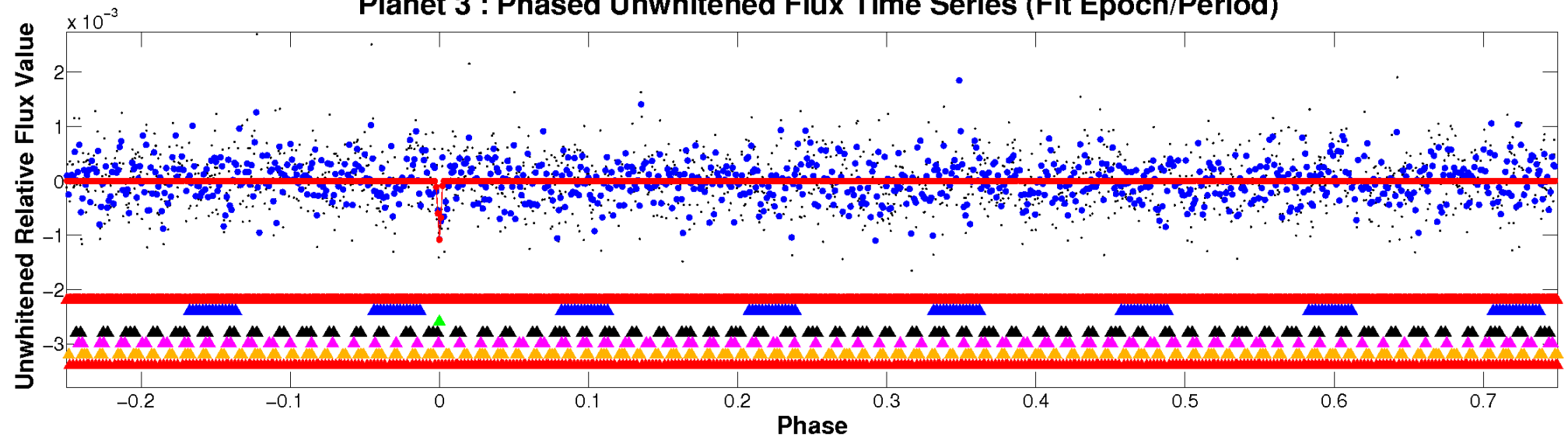
ALT Odd/Even

This plot does not exist for this TCE.

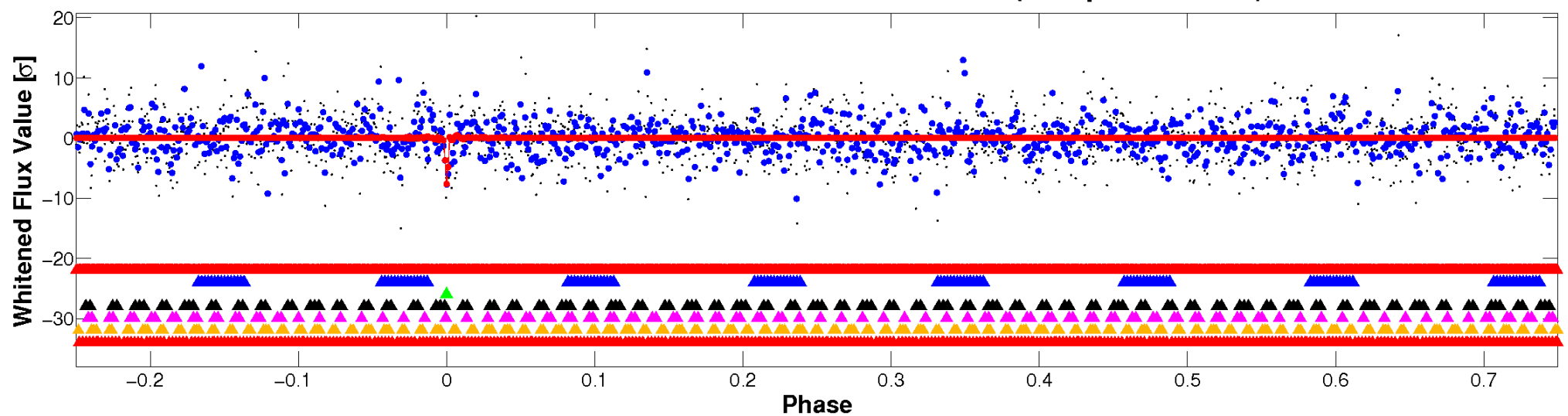


# Non-Whitened Vs. Whitened Light Curve

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

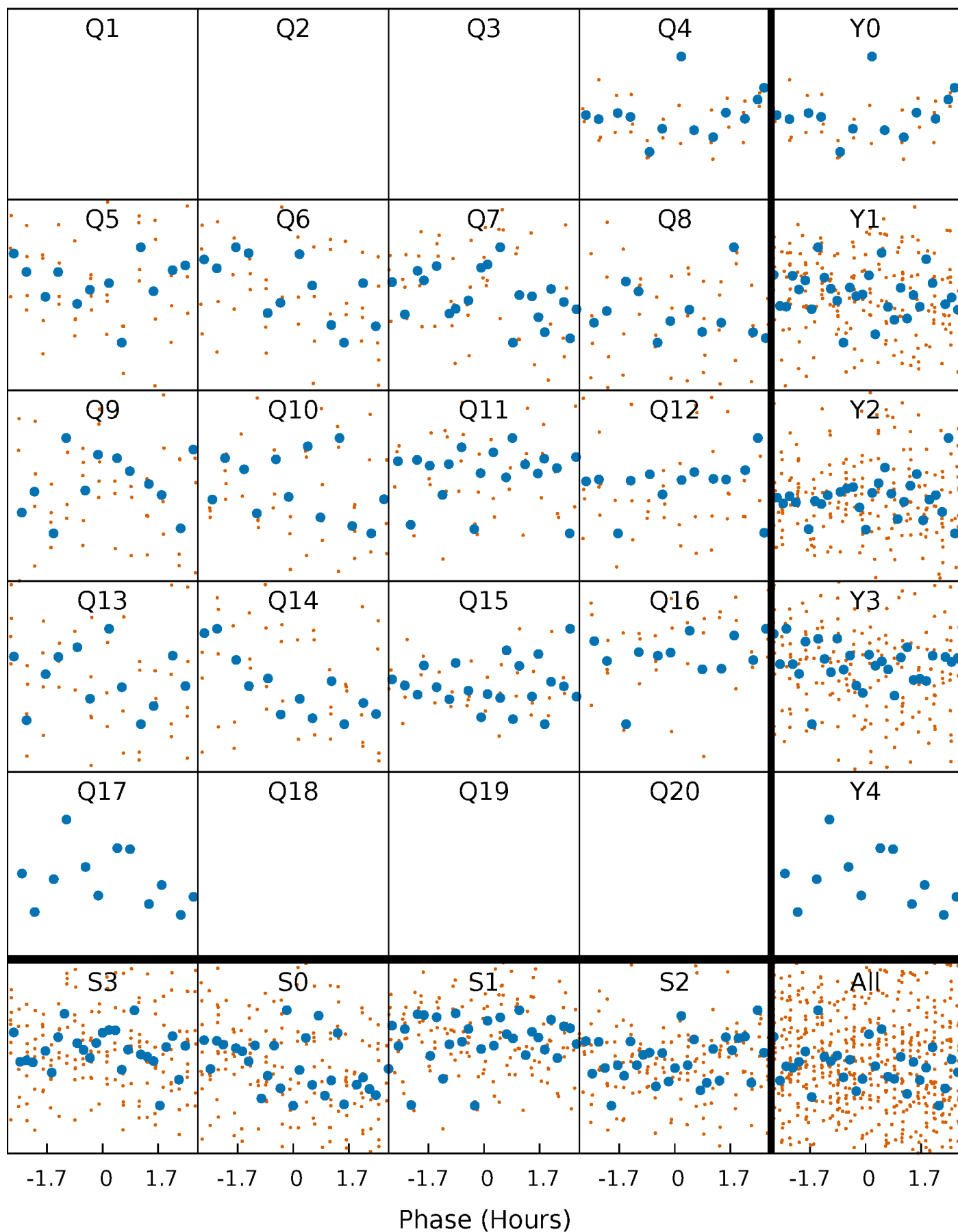


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



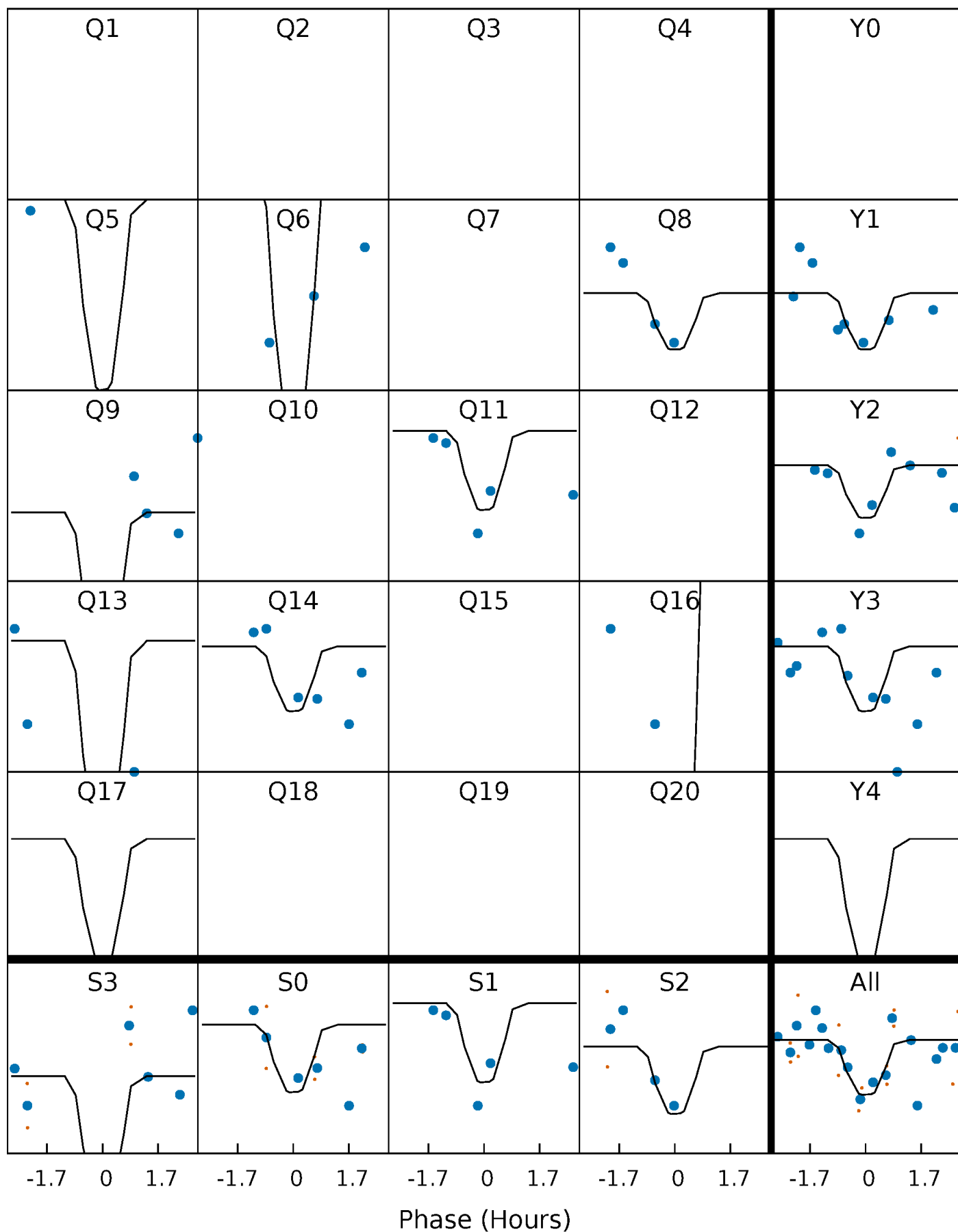
# PDC Quarter-Phased Transit Curves

TCE 007840358-03 P= 19.637220 Days  $T_0=148.354109$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 007840358-03 P= 19.637220 Days  $T_0=148.354109$  (BKJD)

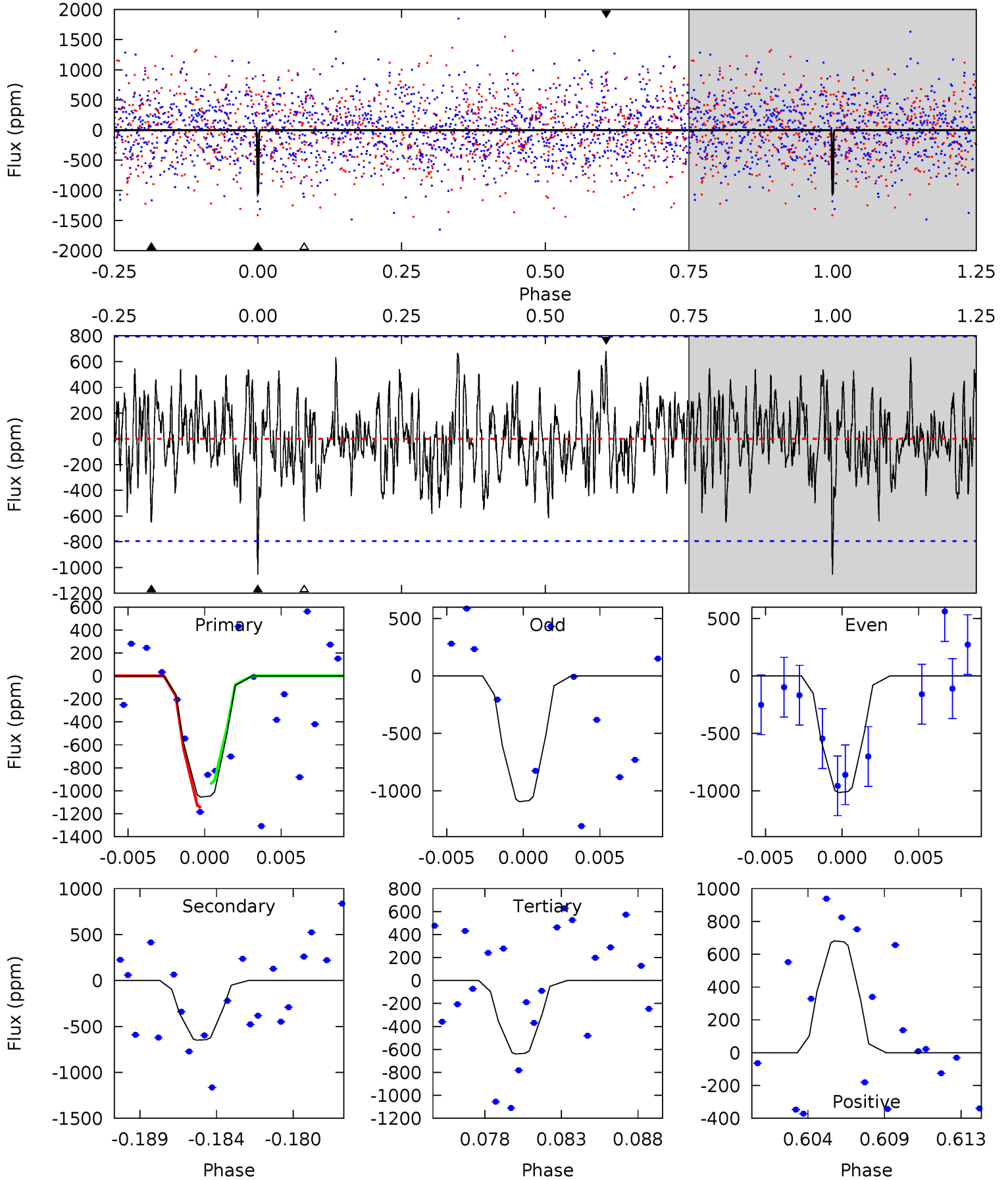


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

007840358-03, P = 19.637220 Days, E = 148.354109 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
6.87	4.23	4.16	4.44	5.17	2.83	1.50	2.70	2.43	0.06	-0.21	0.25	1.01	0.39	0.66



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 007840358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5491^{+199}_{-182}$	$4.408^{+0.144}_{-0.176}$	$-0.120^{+0.300}_{-0.300}$	$0.943^{+0.241}_{-0.141}$	$0.830^{+0.120}_{-0.065}$	$1.394^{+0.853}_{-0.677}$
	+4%/-3%	+3%/-4%	+250%/-250%	+26%/-15%	+14%/-8%	+61%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 007840358-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-649 \pm 154$	$13.39^{+13.35}_{-9.26}$	$901^{+67}_{-54}$	$3085^{+1468}_{-552}$	$36^{+330}_{-27}$
Alt.	N/A	N/A	N/A	N/A	N/A

$T_{max}$  = 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

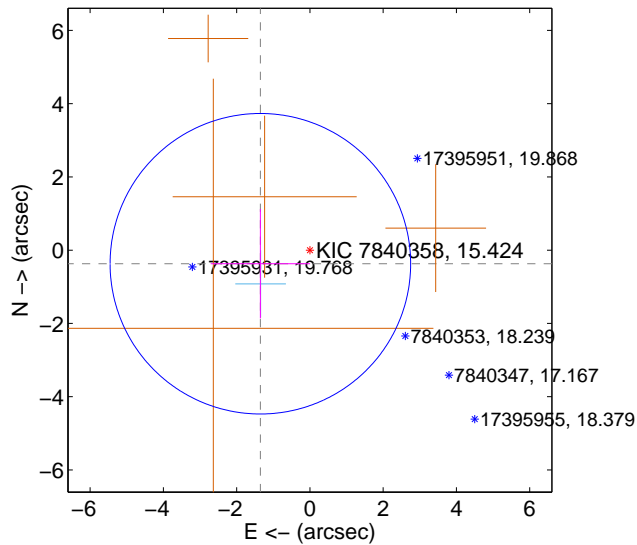
Supplemental centroid analysis for 007840358-03. Kepler magnitude: 15.42. Transit SNR 16.90

There are 1 quarters with good PRF difference image offsets

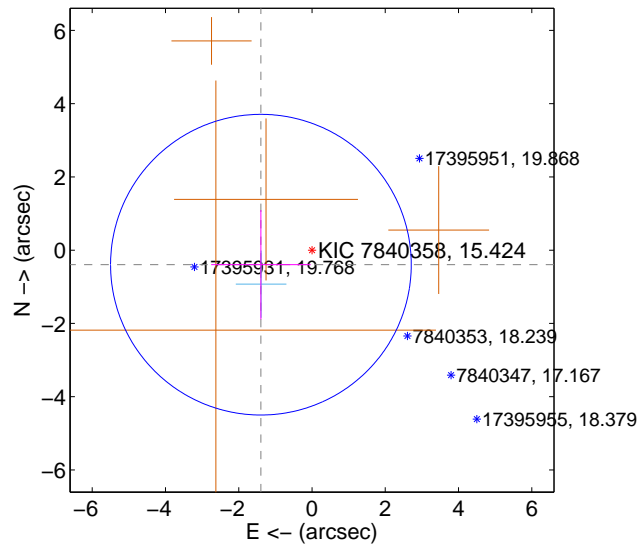
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.402 \pm 1.367$	1.03	$1.352 \pm 1.357$	$-0.371 \pm 1.493$
PRF-fit source offset from KIC position	$1.450 \pm 1.368$	1.06	$1.395 \pm 1.357$	$-0.396 \pm 1.493$
photometric centroid source offset	$0.71 \pm 0.54$	1.32	$-0.69 \pm 0.53$	$0.18 \pm 0.59$

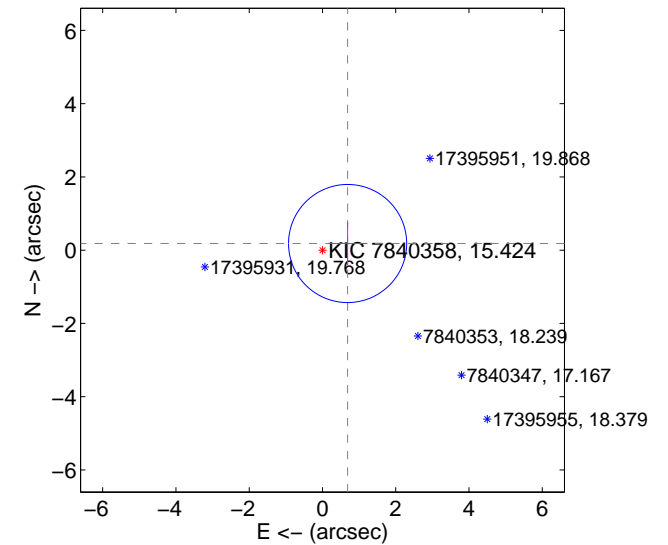
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

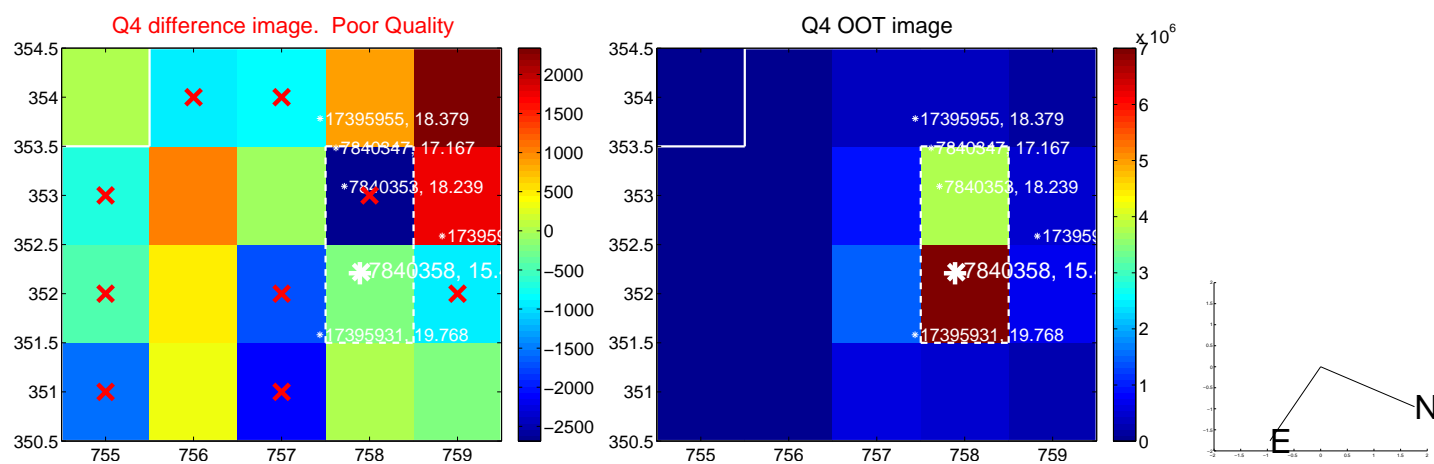
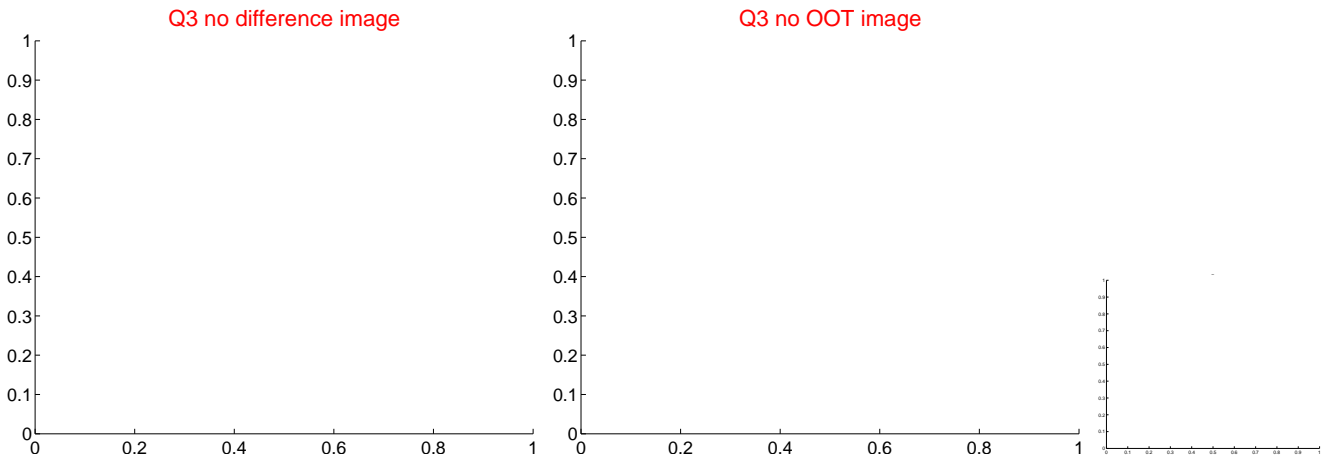
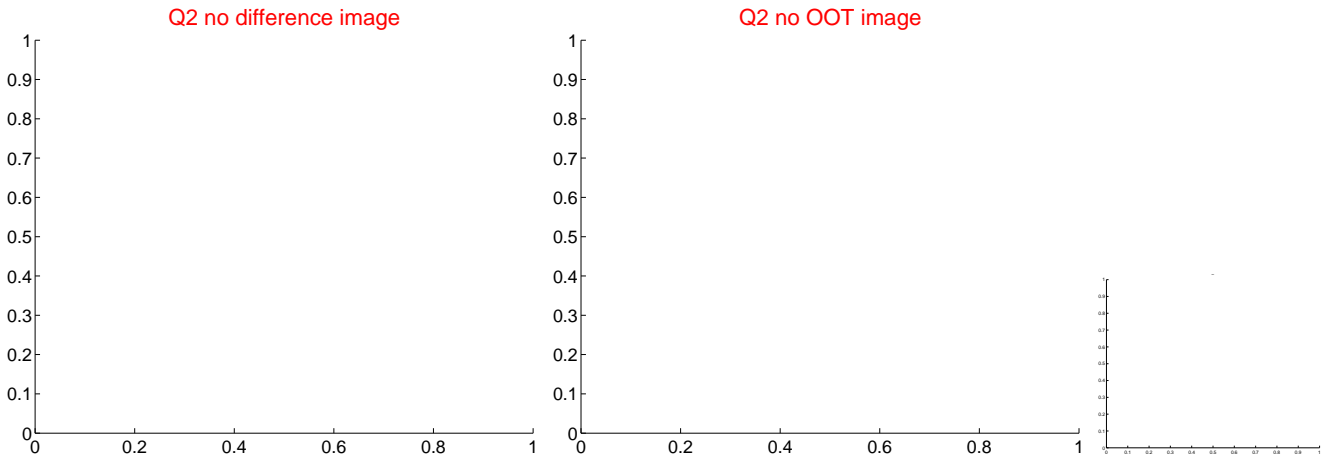
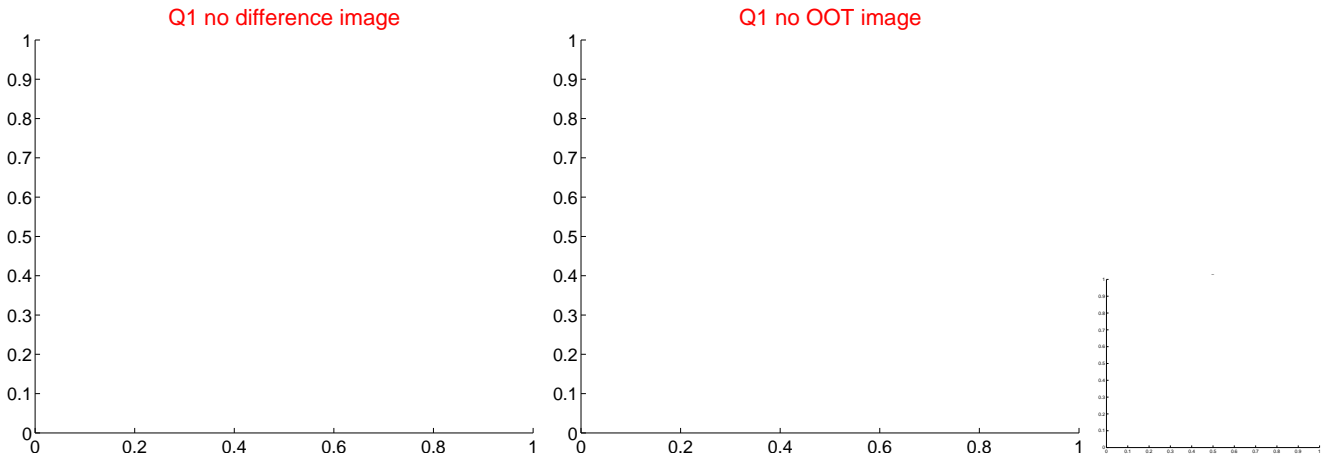


offset from photometric centroids

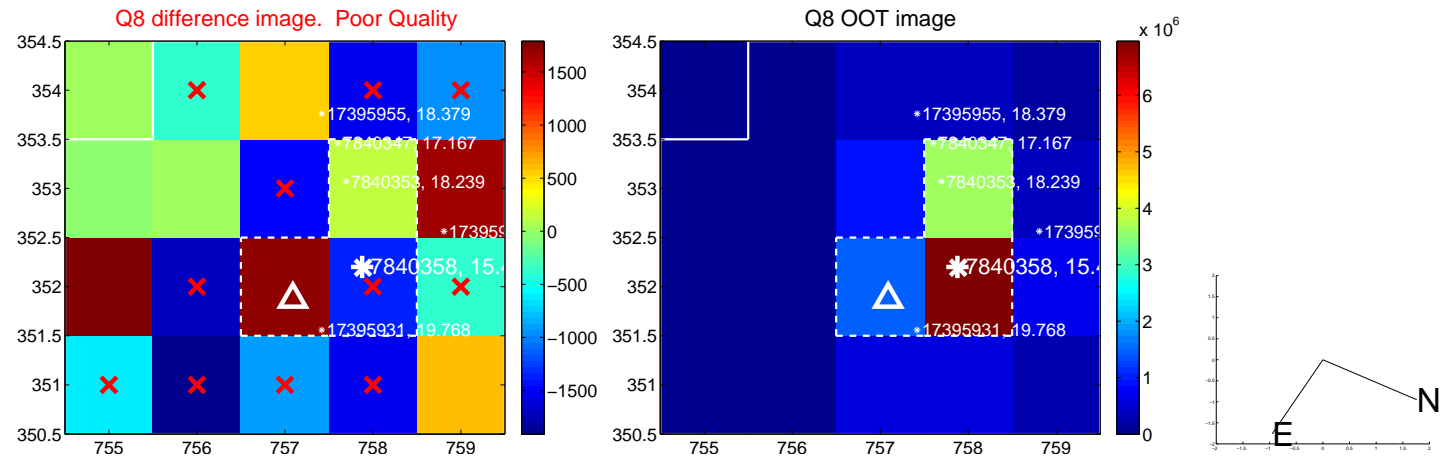
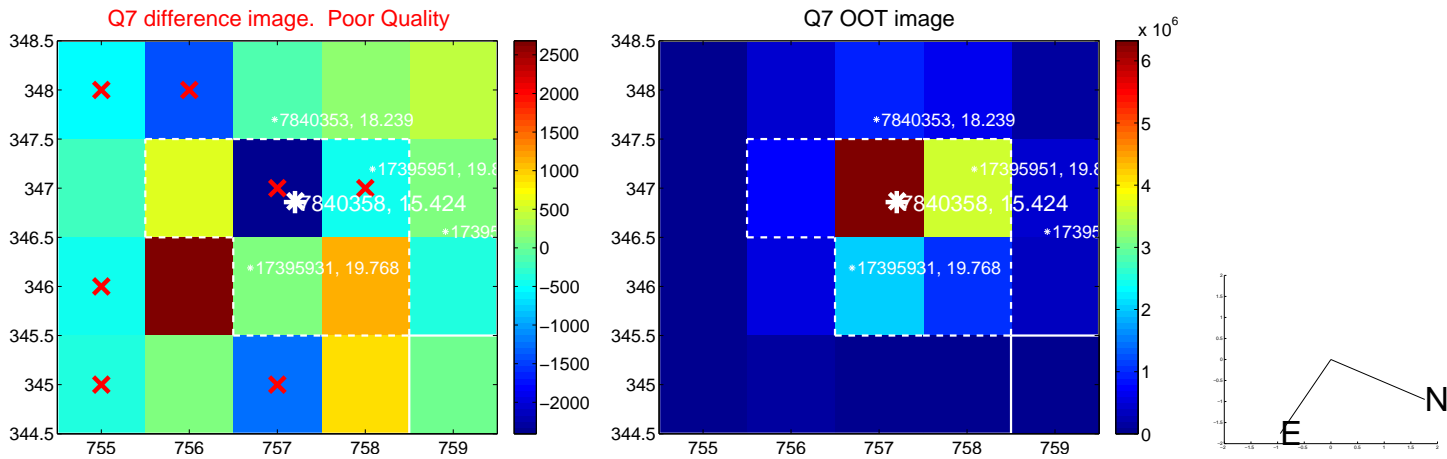
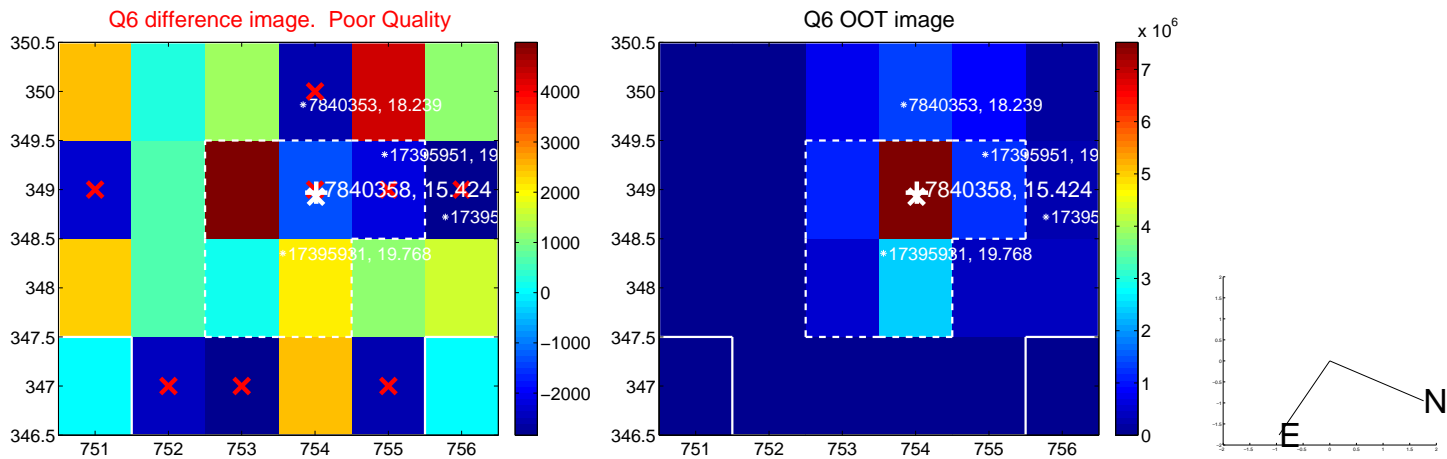
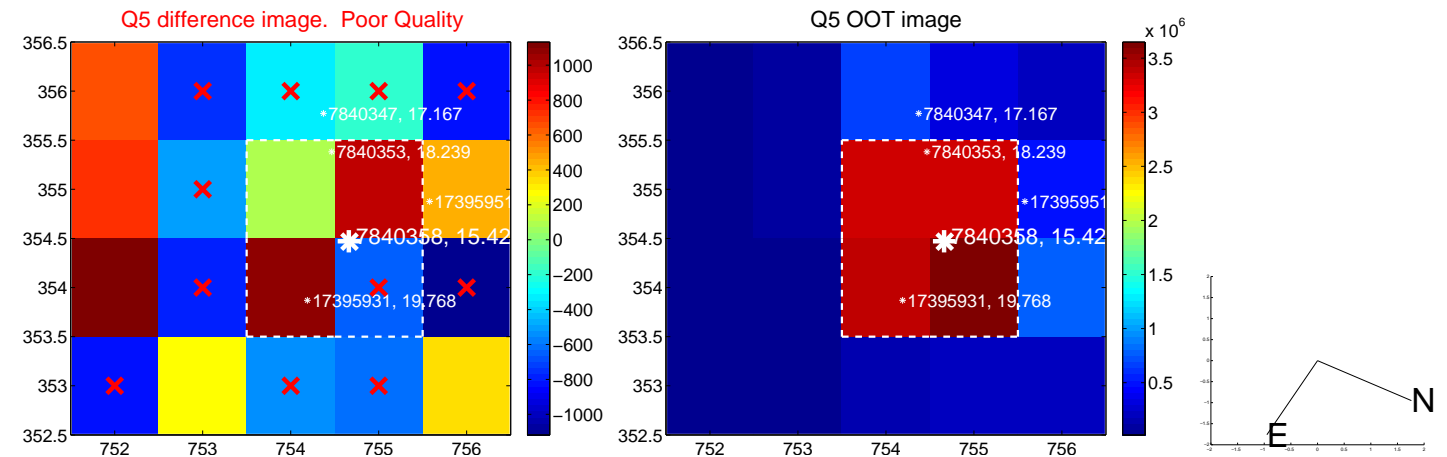


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

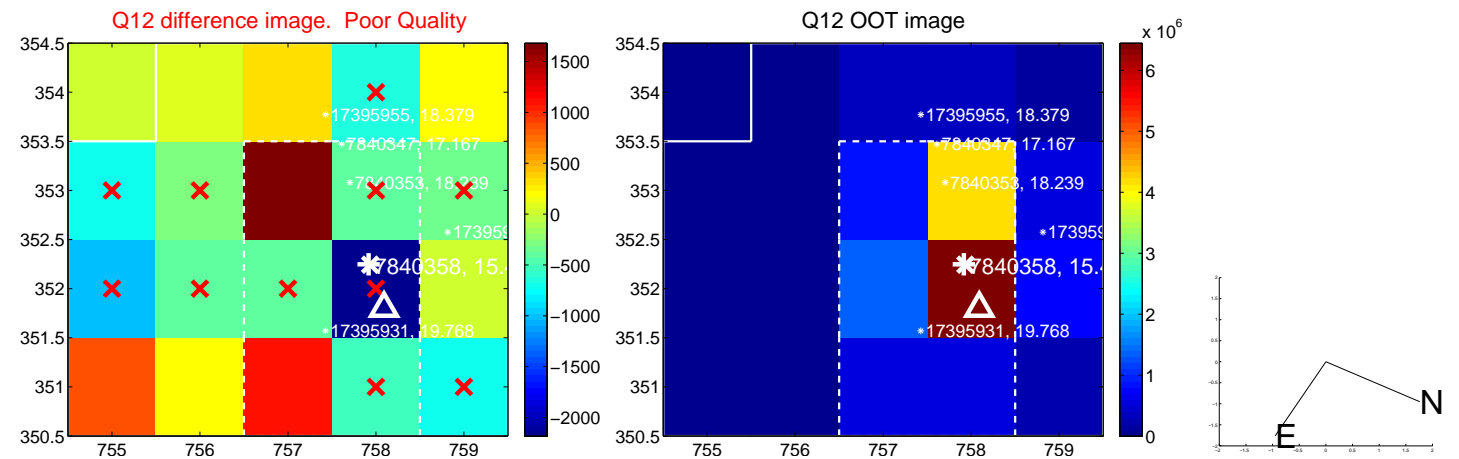
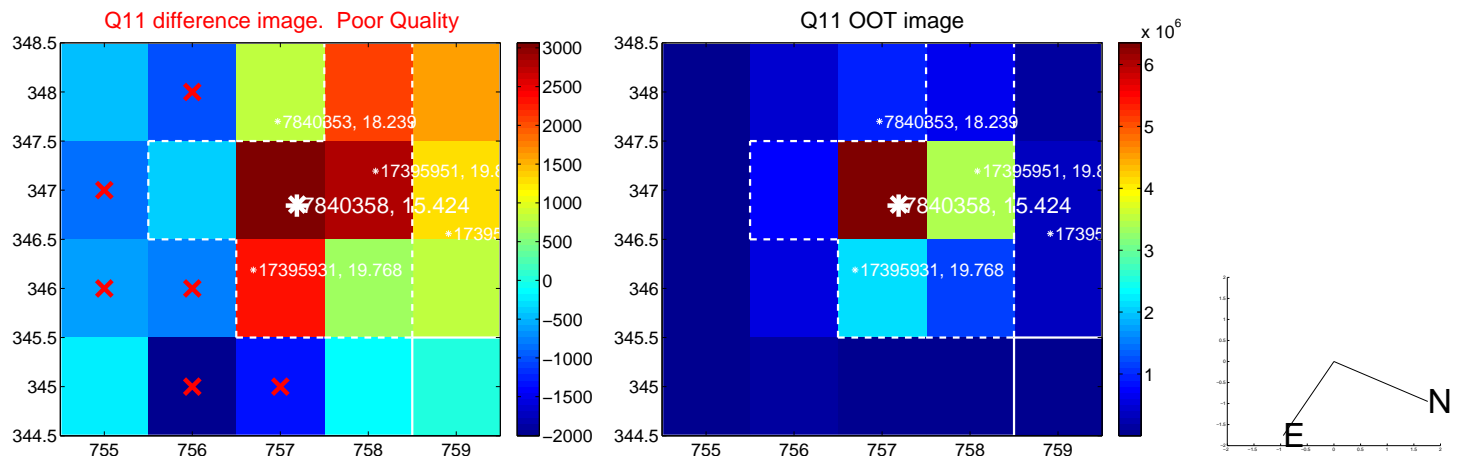
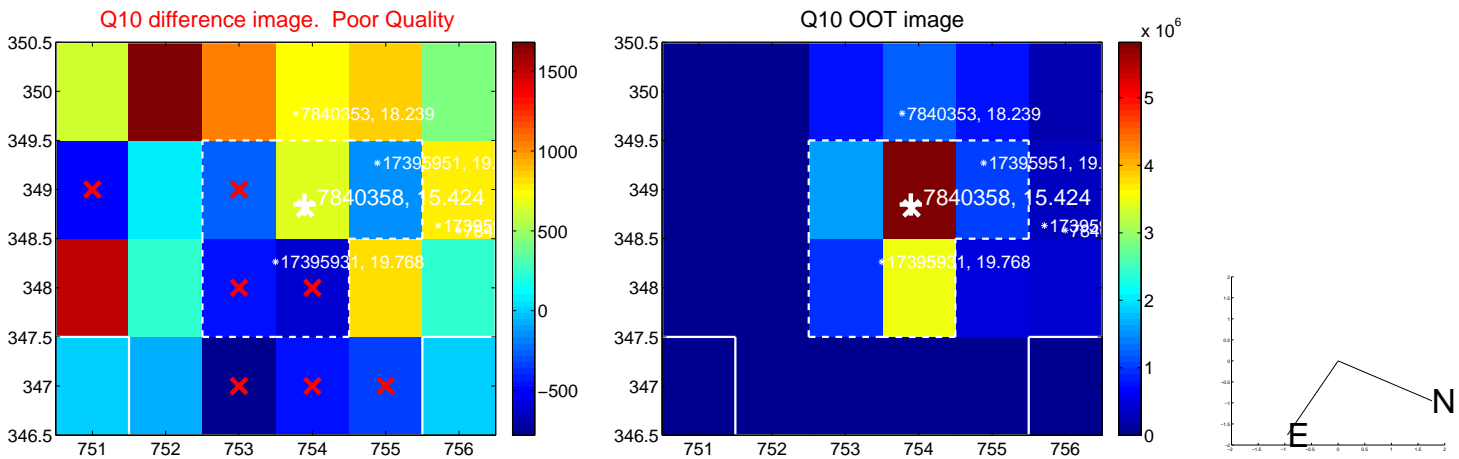
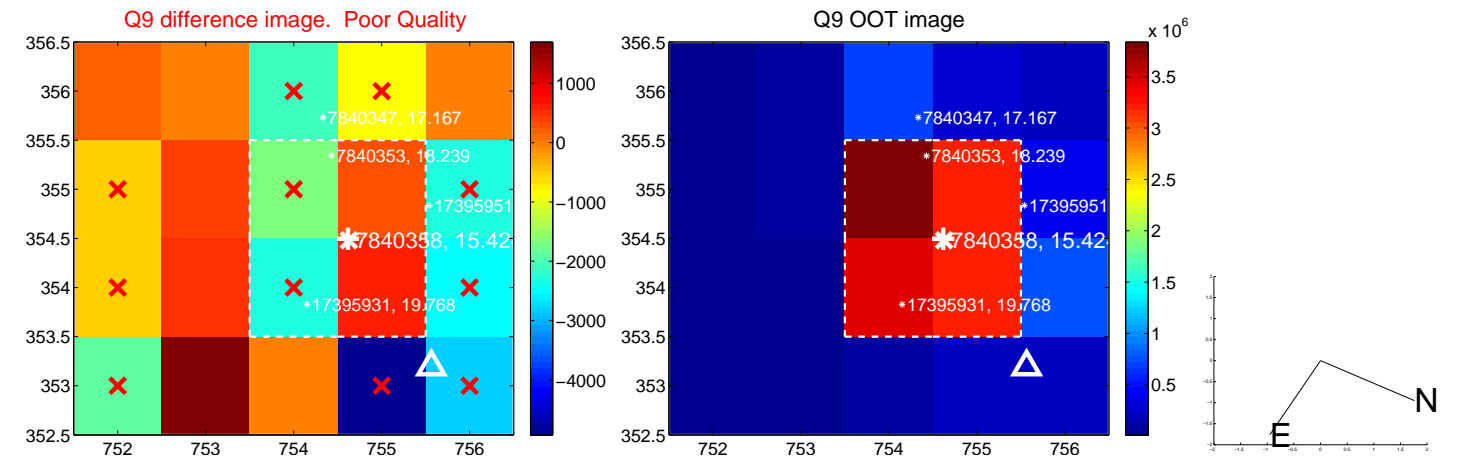
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



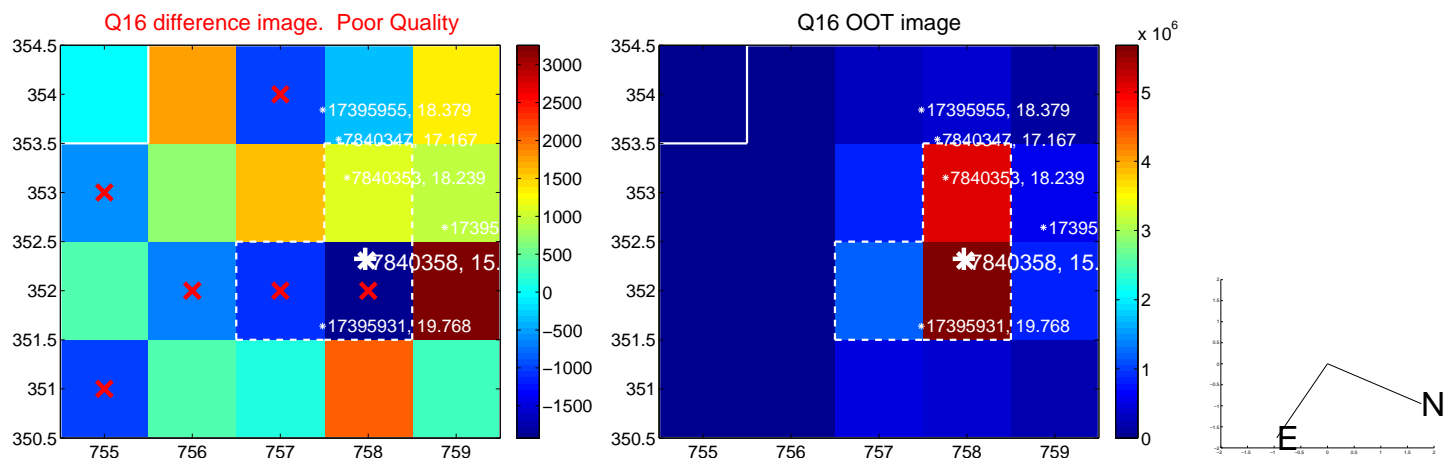
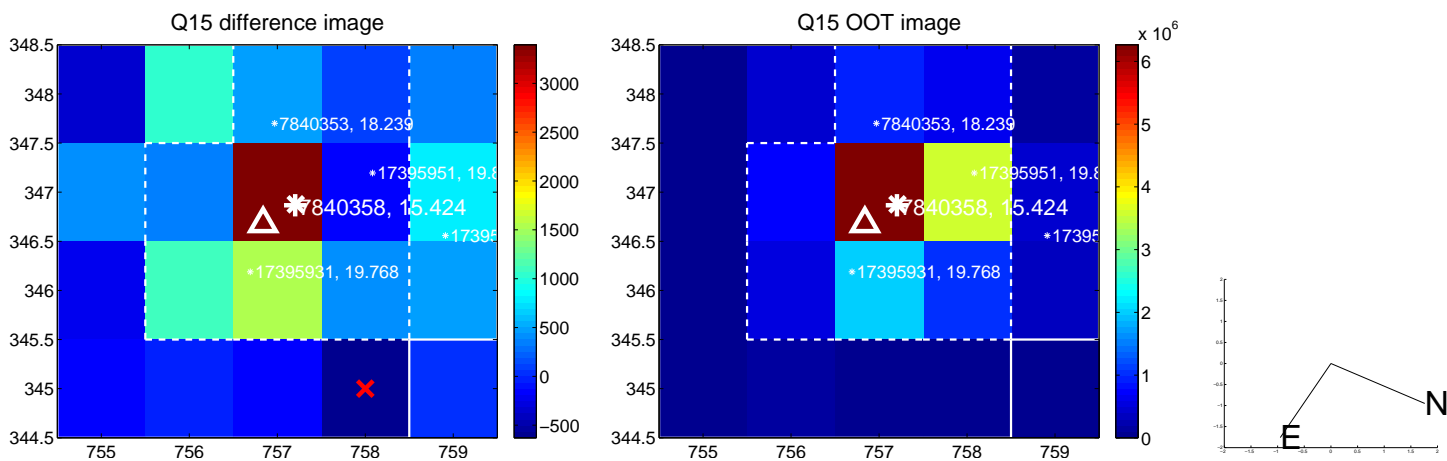
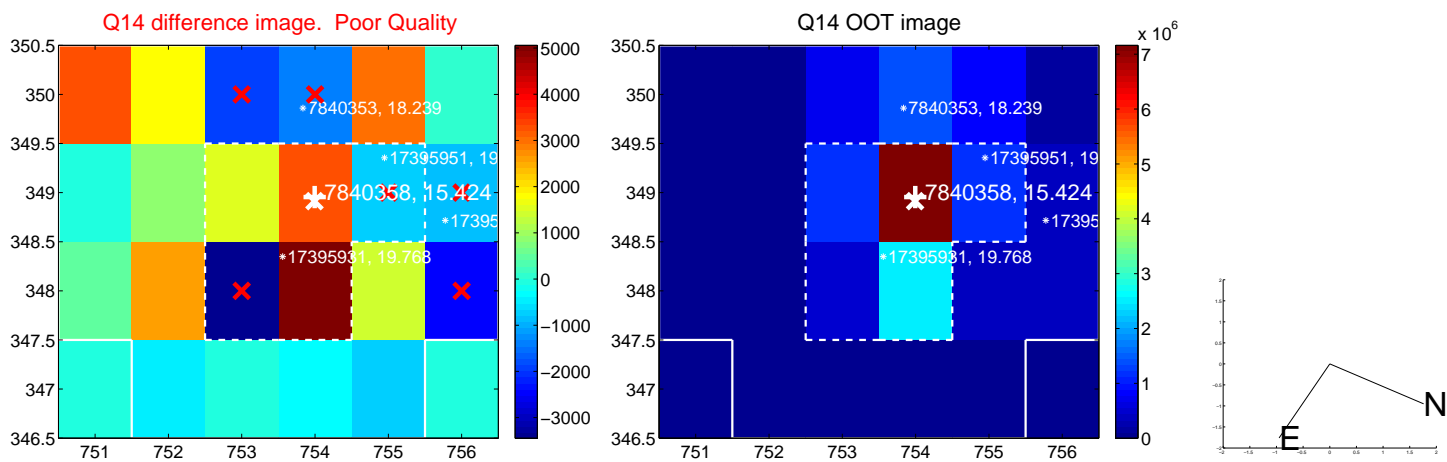
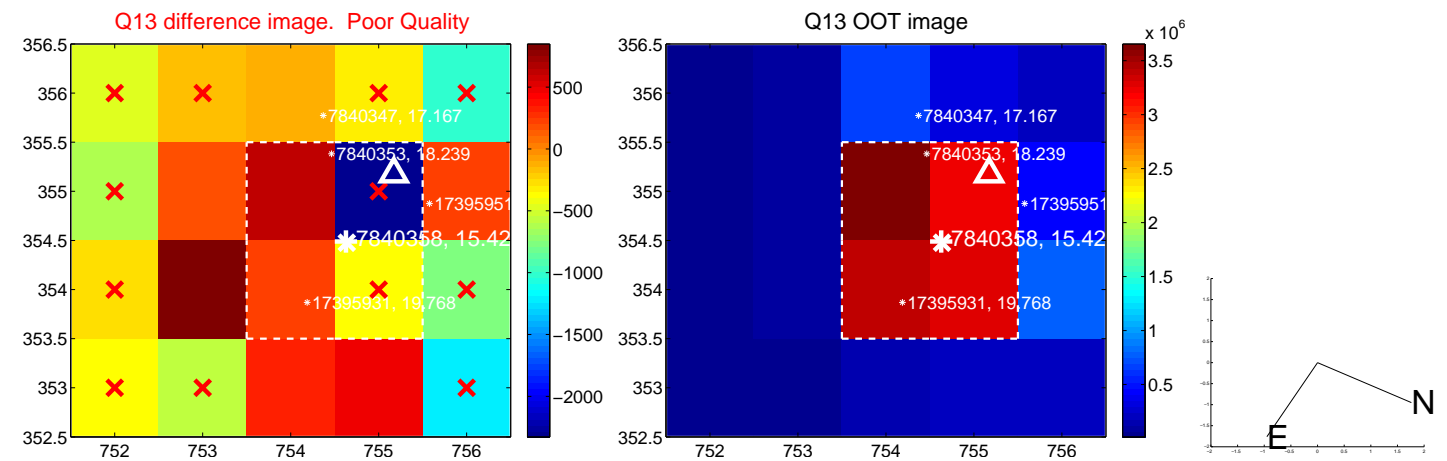
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



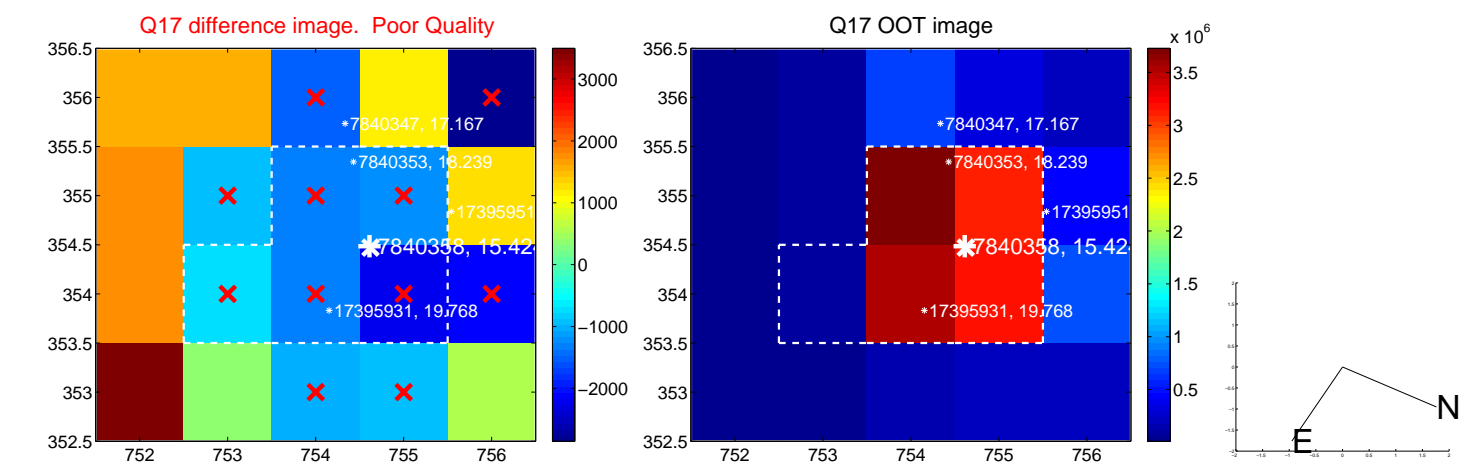
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



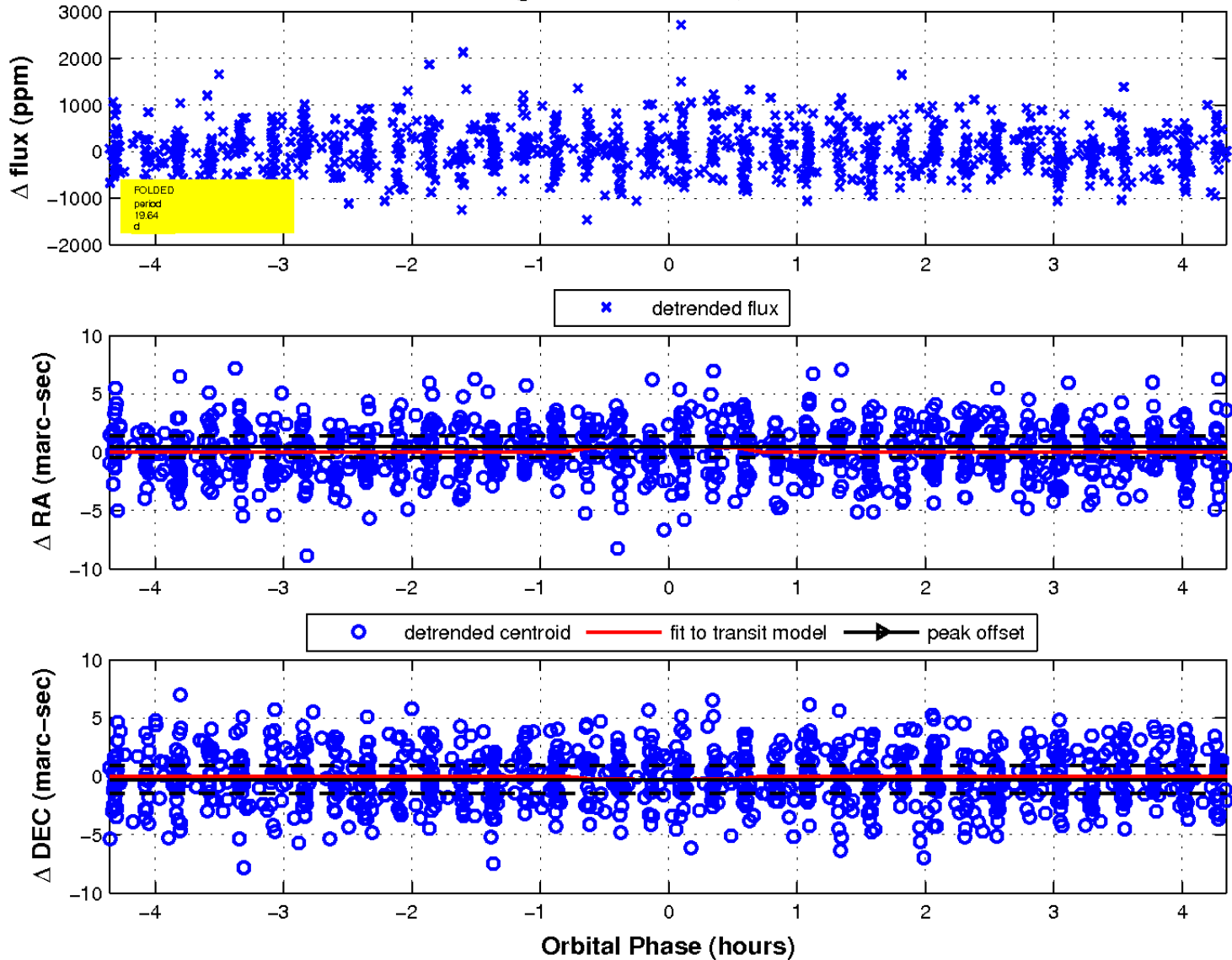
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

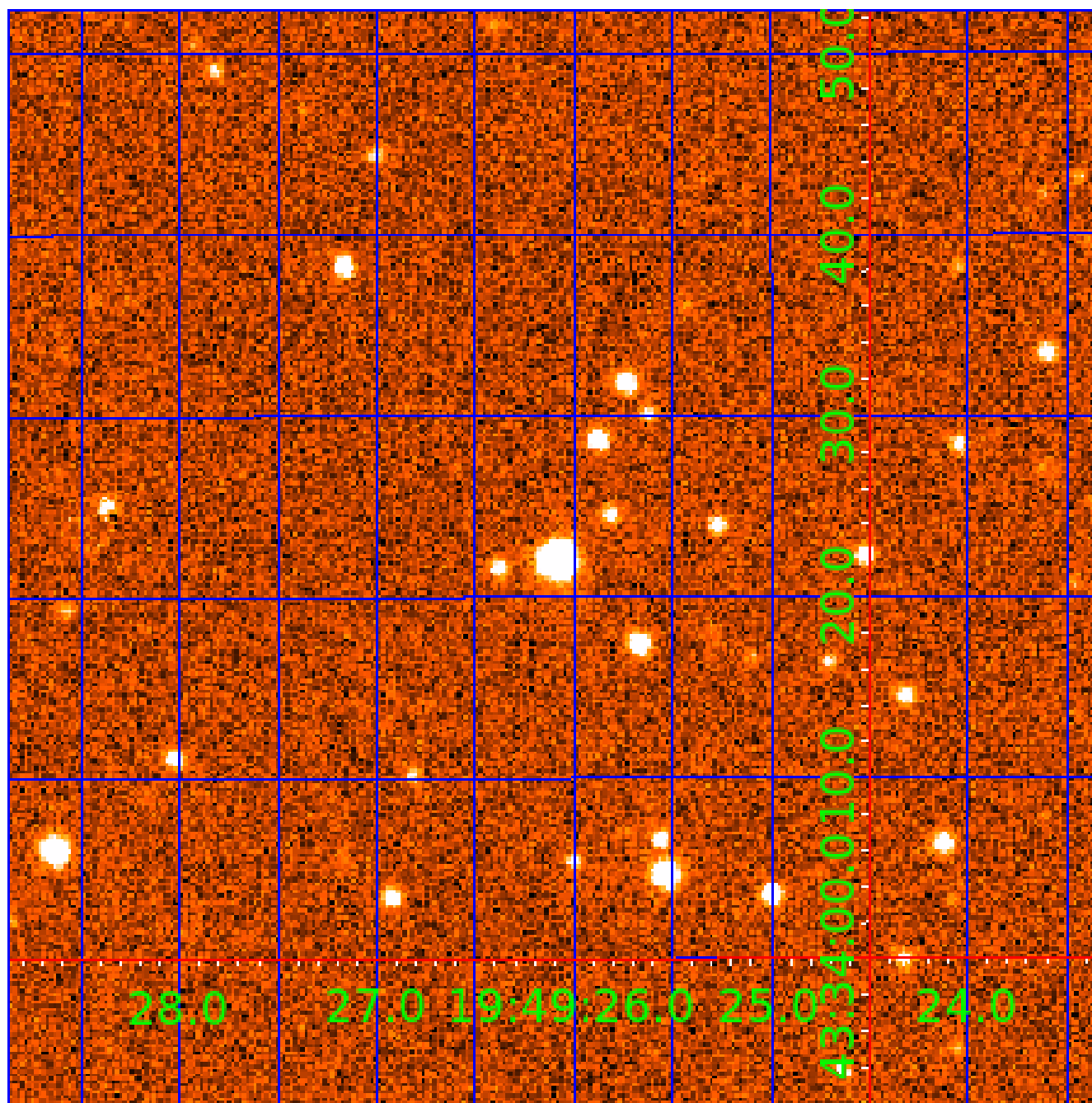


fluxWeightedCentroids, Planet 3 of 7



# UKIRT Image

Declination





# KIC 007840358

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007840358-01	OBS	No	0.787967	131.714931	49.0	5.914	8.7	10.3	0.94	5491	0.65	2941.01
007840358-02	OBS	No	12.267855	133.402753	898.4	1.217	17.7	17.3	0.94	5491	2.98	75.65
007840358-03	OBS	No	19.637220	148.354109	1099.5	1.457	13.9	16.9	0.94	5491	3.30	40.40
007840358-04	OBS	No	10.651664	139.884112	1976.1	2.000	12.3	-1.0	0.94	5491	4.14	91.33
007840358-05	OBS	No	12.998605	133.163019	732.4	1.708	10.7	15.3	0.94	5491	2.58	70.03
007840358-06	OBS	No	7.078920	133.130318	606.6	0.614	14.1	7.6	0.94	5491	2.80	157.48
007840358-07	OBS	No	3.322511	131.960994	2513.8	1.500	16.0	-1.0	0.94	5491	4.68	431.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007840358-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_MEAS
007840358-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007840358-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007840358-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
007840358-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007840358-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007840358-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

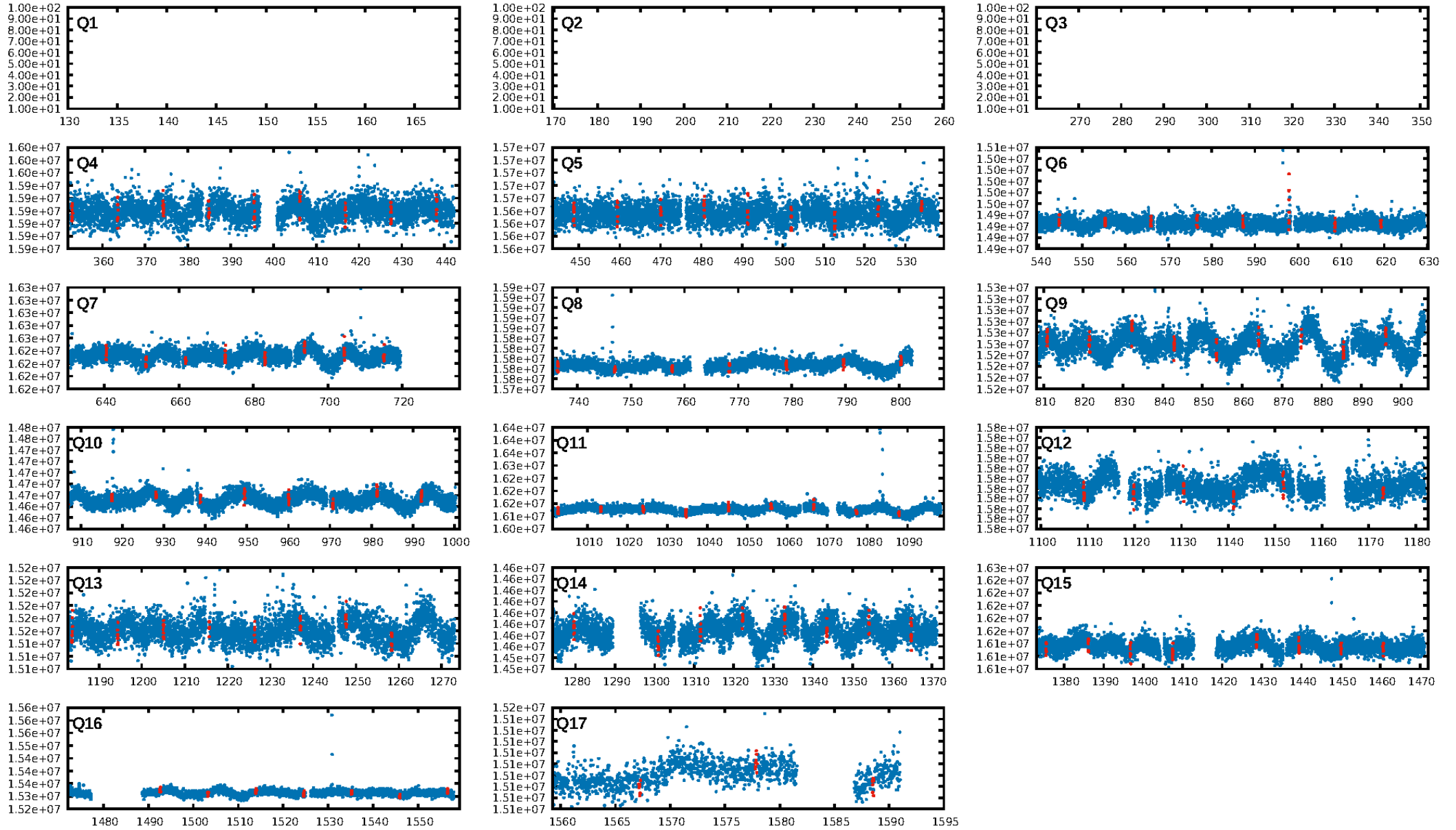
Ephemeris Match Information For 007840358-04

No Significant Match Found

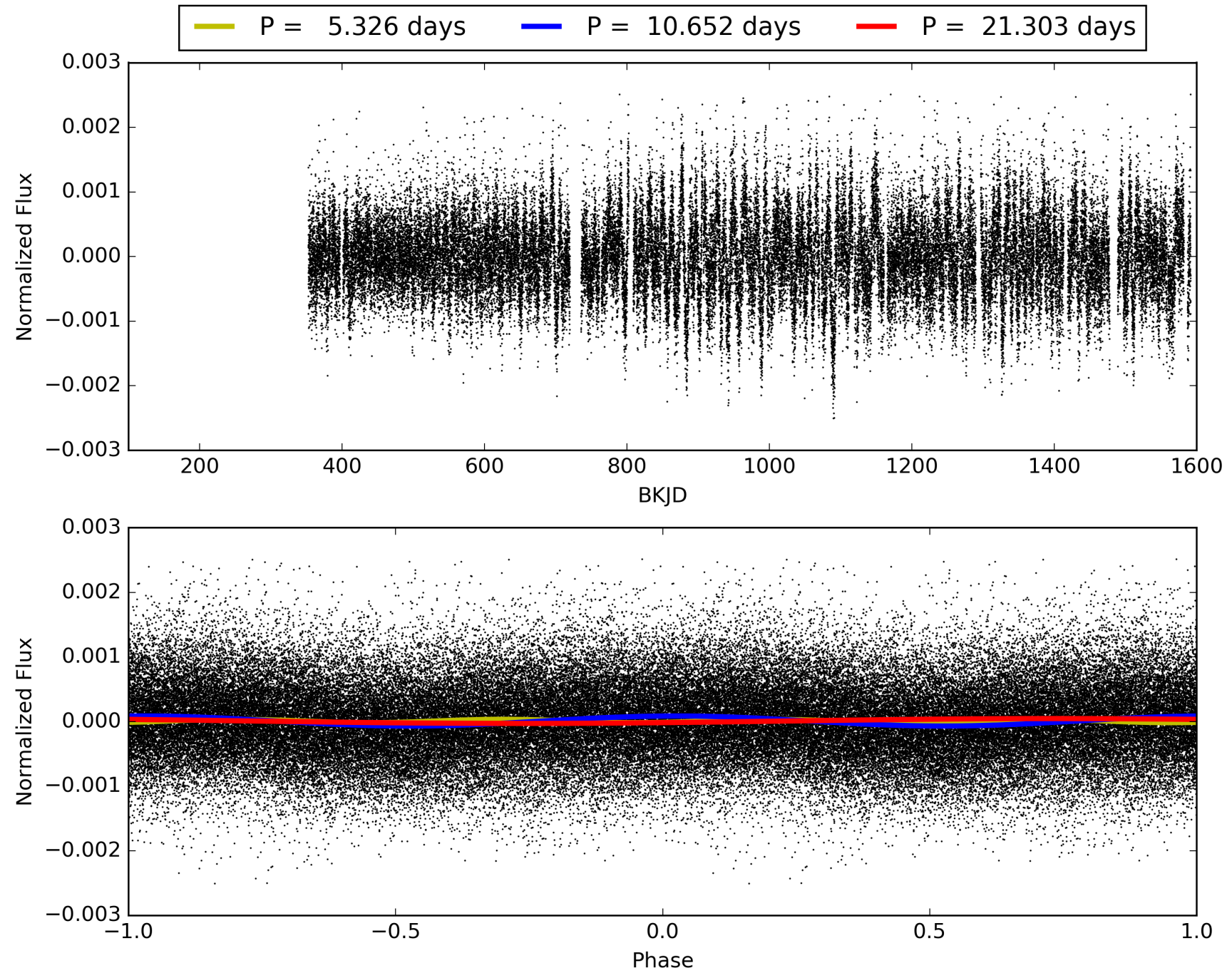
## KIC: 7840358    Candidate: 4 of 7    Period: 10.652 d



# TCE 007840358-04, PDC Light Curves

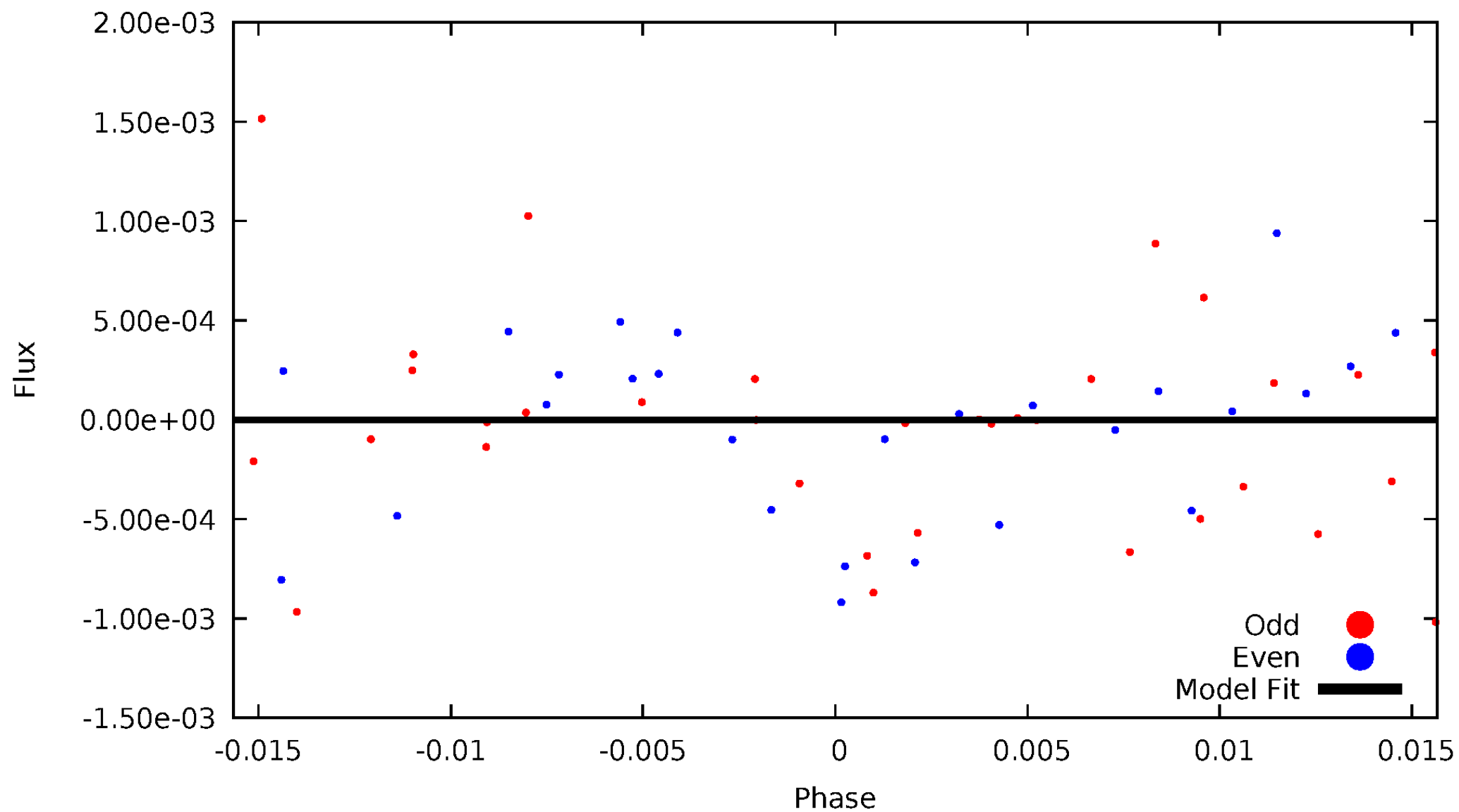


# TCE 007840358-04



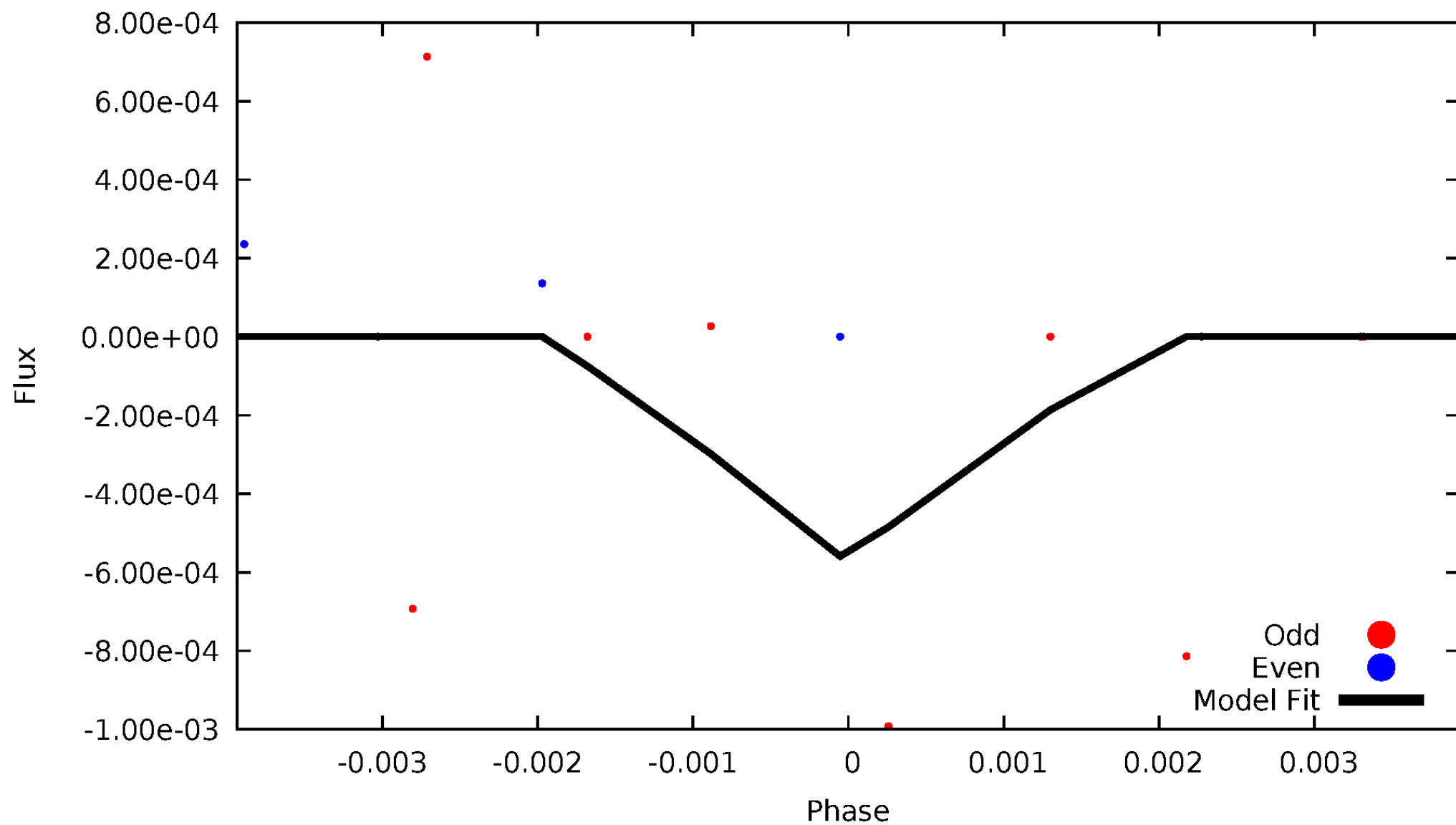
# DV Odd/Even

TCE 007840358-04



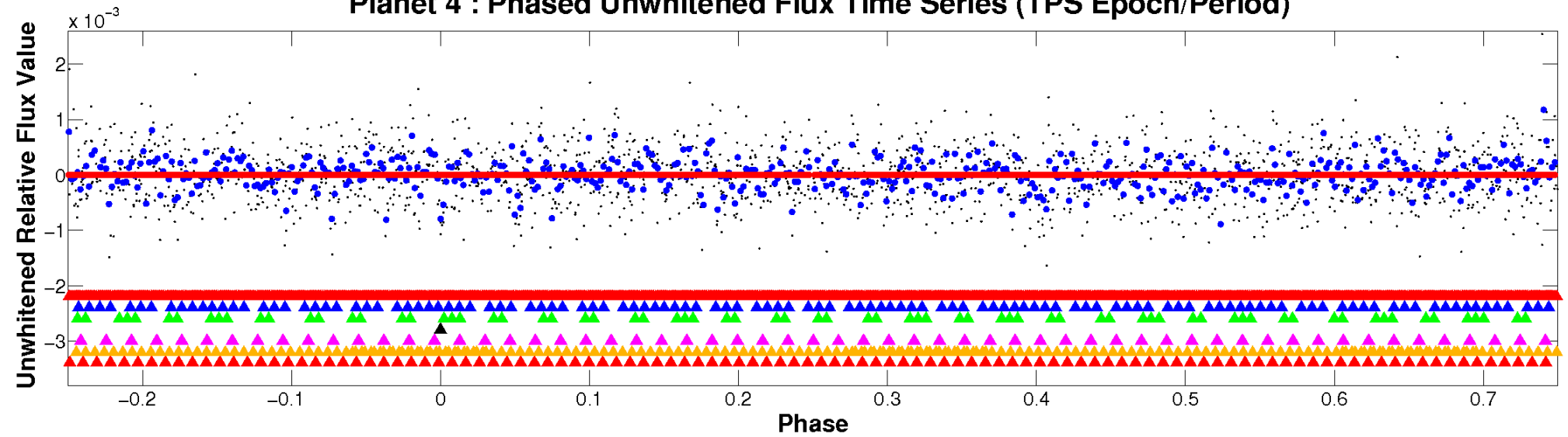
# ALT Odd/Even

TCE 007840358-04



# Non-Whitened Vs. Whitened Light Curve

**Planet 4 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**



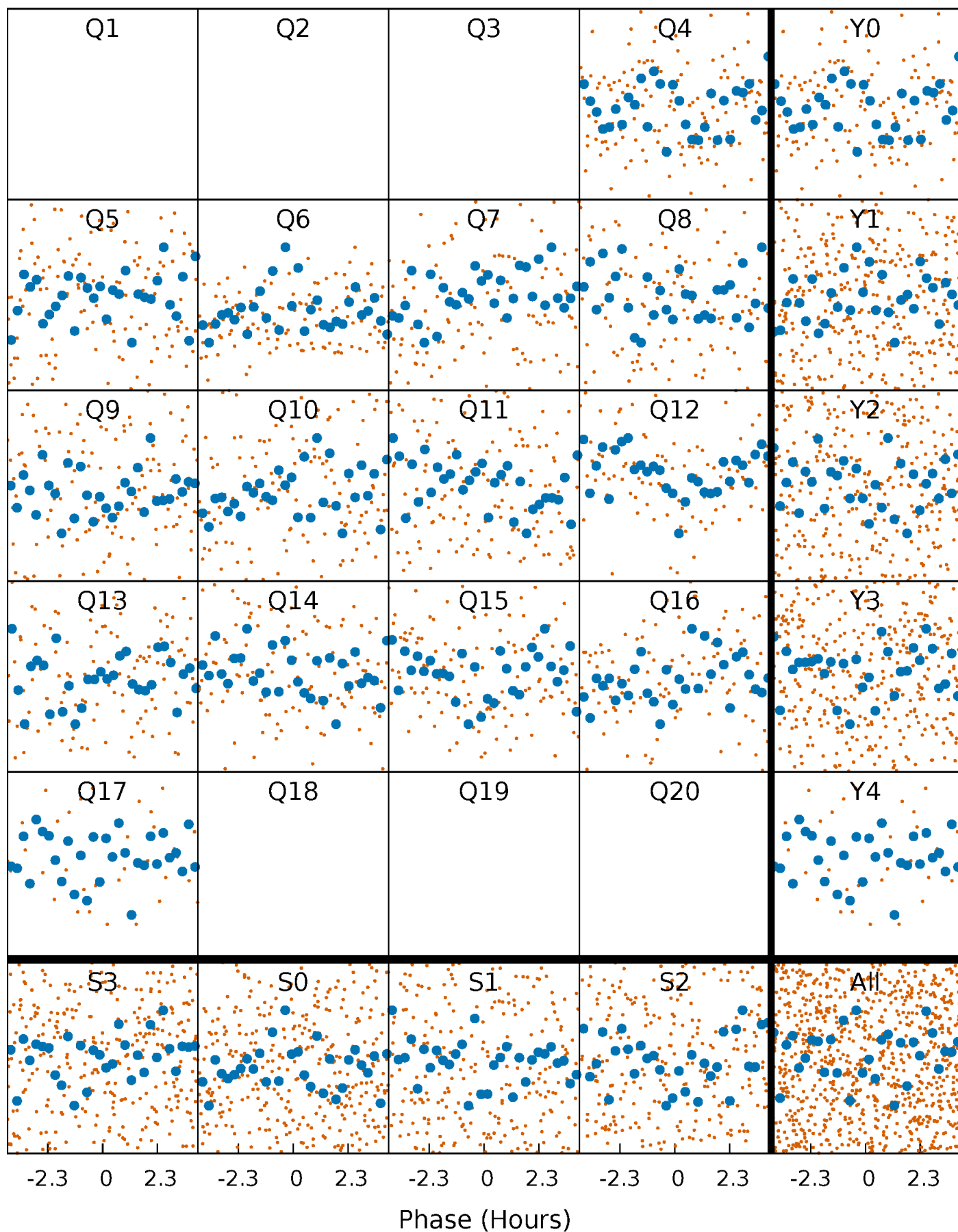
**Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)**





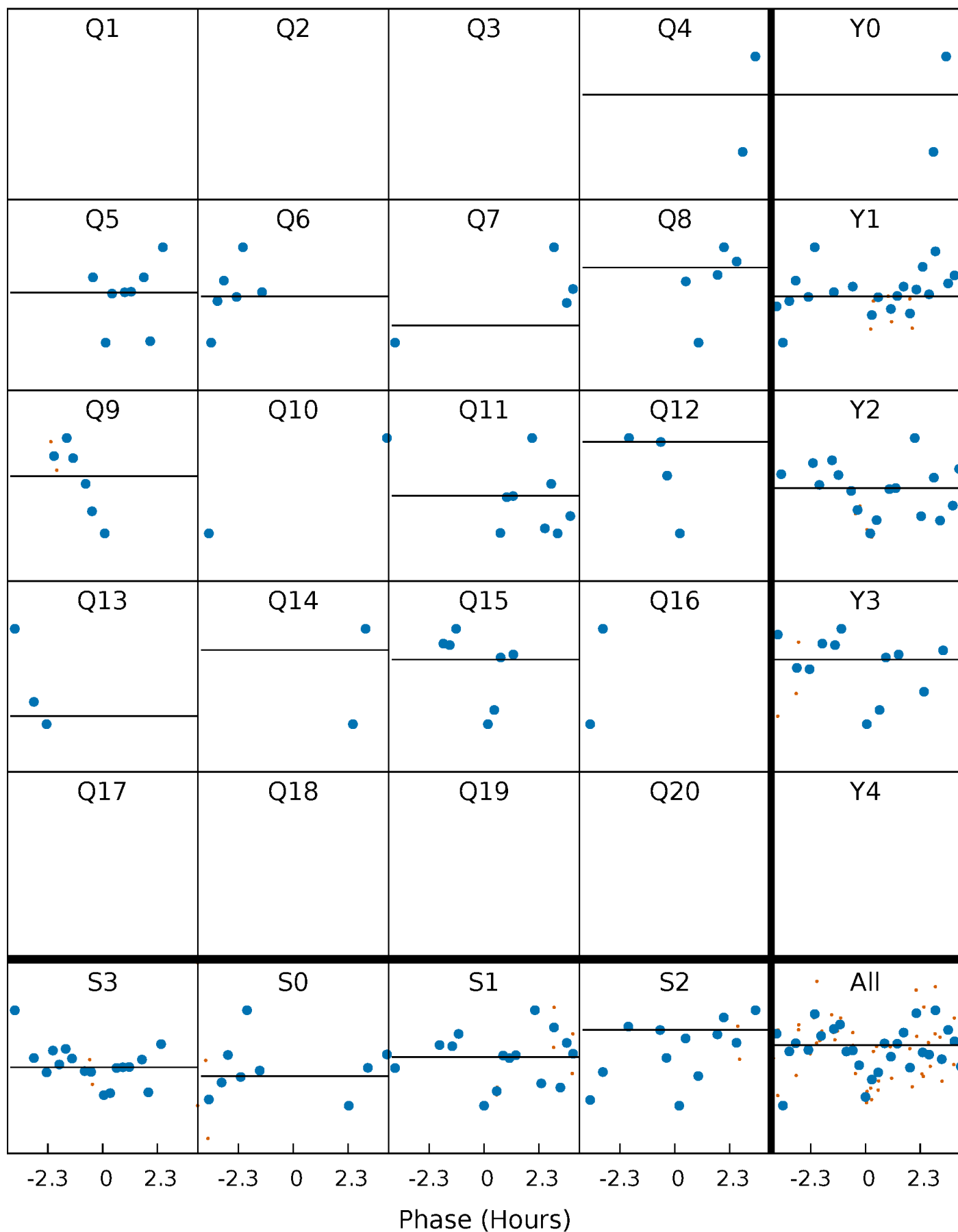
# PDC Quarter-Phased Transit Curves

TCE 007840358-04 P= 10.651664 Days  $T_0=139.884112$  (BKJD)



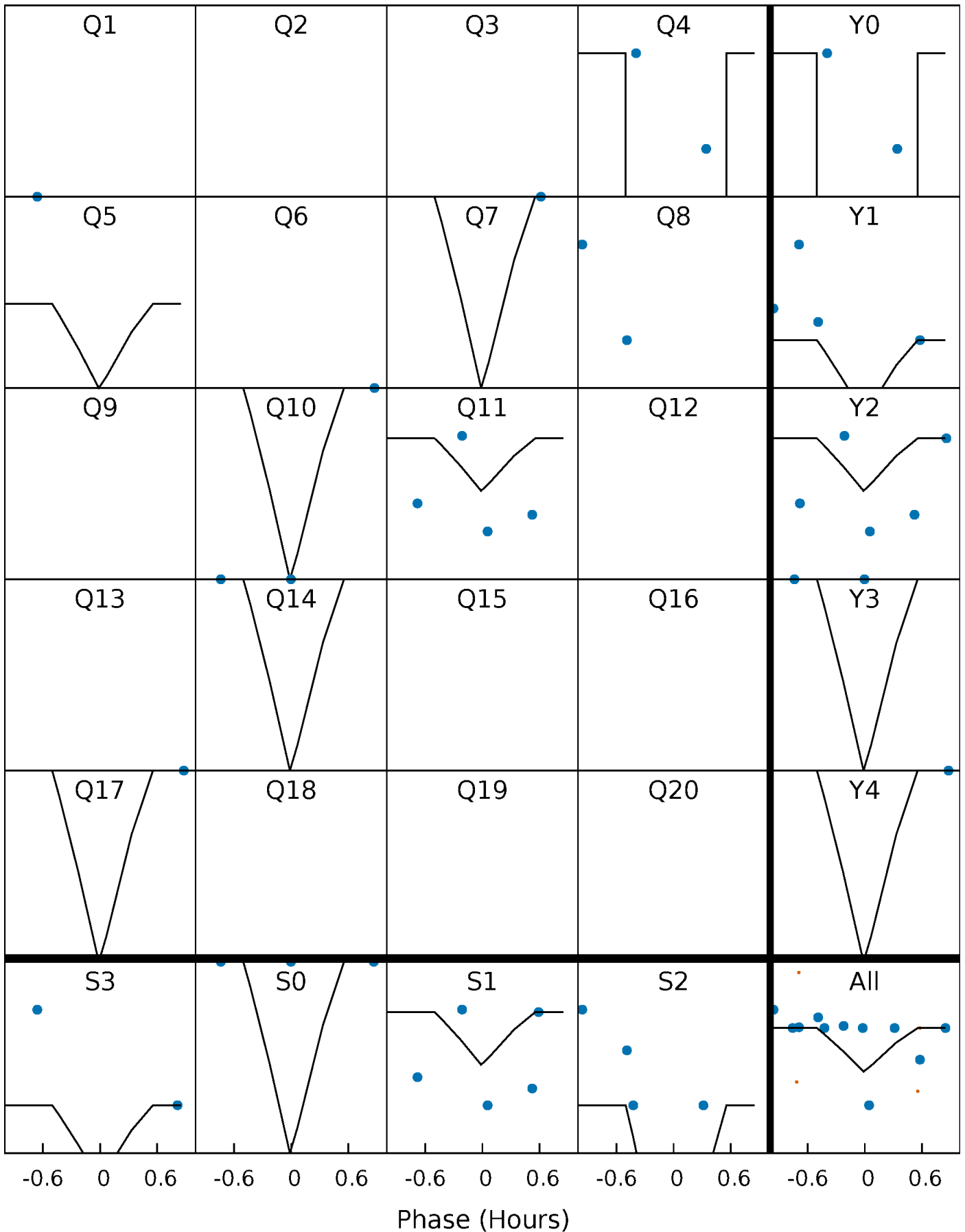
# DV Quarter-Phased Transit Curves

TCE 007840358-04 P= 10.651664 Days  $T_0=139.884112$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

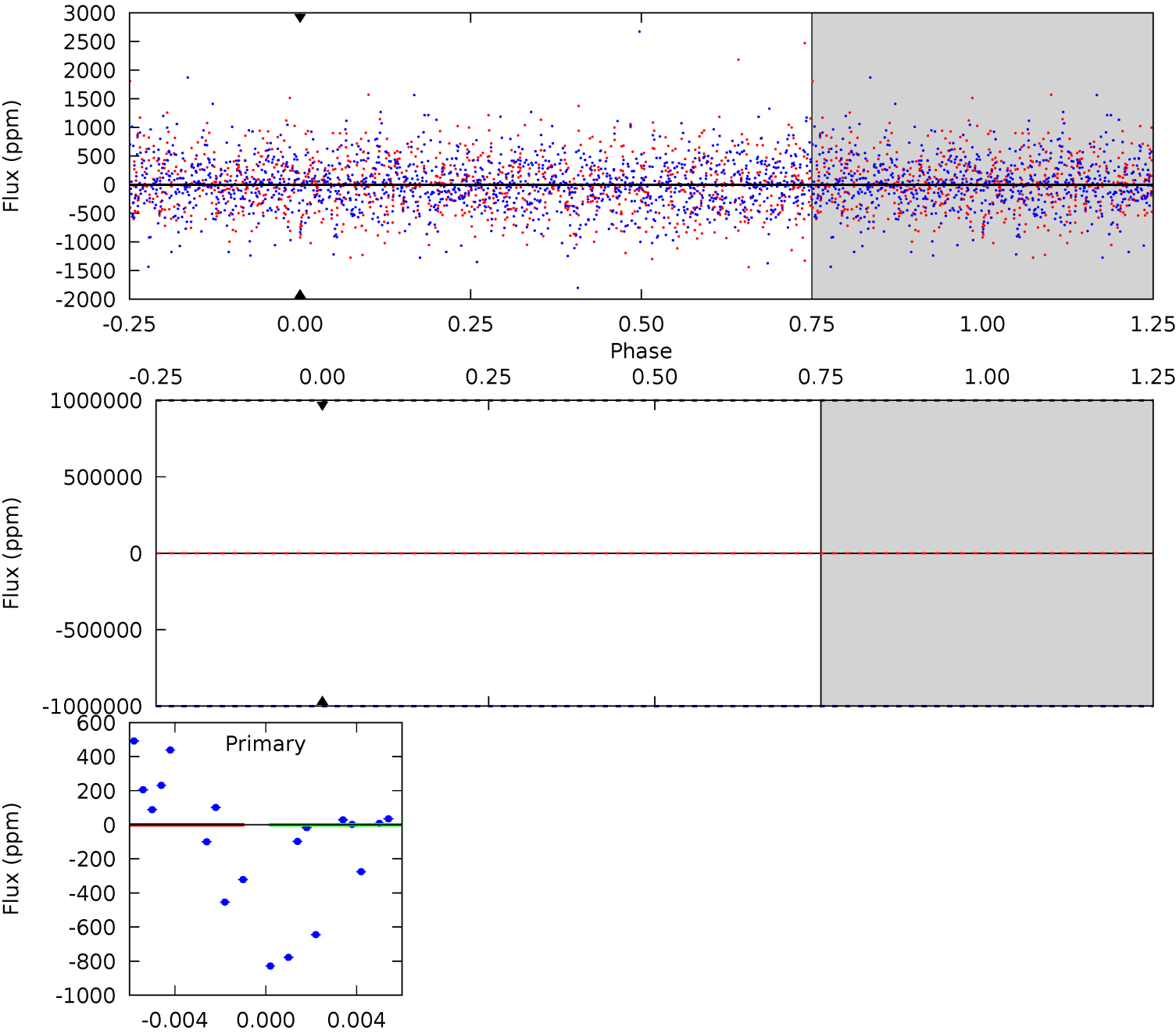
TCE 007840358-04 P= 10.651664 Days  $T_0=140.015076$  (BKJD)



# DV Model-Shift Uniqueness Test

007840358-04, P = 10.651664 Days, E = 139.884112 Days

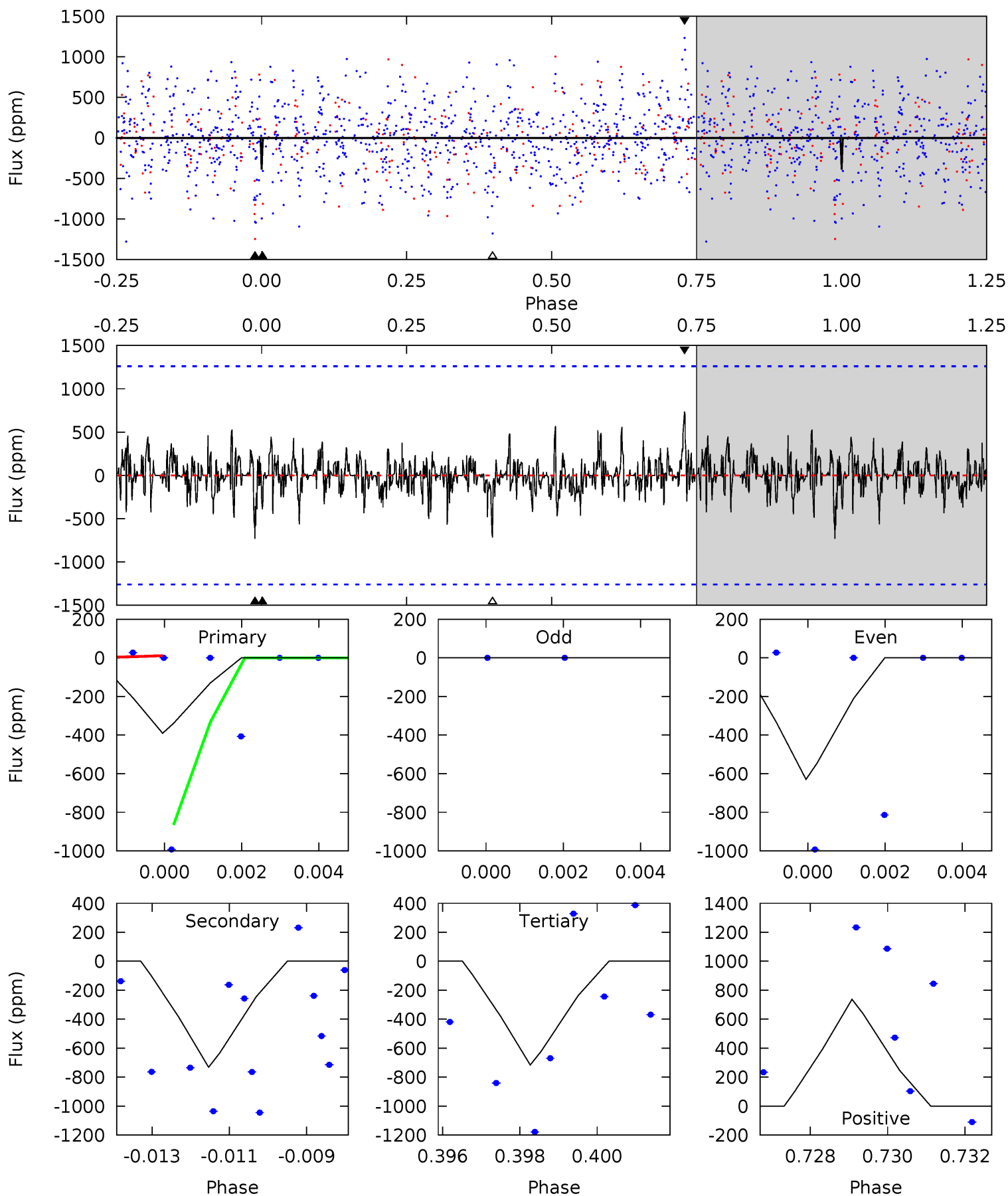
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

007840358-04, P = 10.651664 Days, E = 140.015076 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.65	3.09	3.02	3.11	5.31	3.06	0.70	-1.37	-1.46	0.07	-0.02	0	0	0.50	1.86



### Stellar Parameters For KIC 007840358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5491^{+199}_{-182}$	$4.408^{+0.144}_{-0.176}$	$-0.120^{+0.300}_{-0.300}$	$0.943^{+0.241}_{-0.141}$	$0.830^{+0.120}_{-0.065}$	$1.394^{+0.853}_{-0.677}$
	+4%/-3%	+3%/-4%	+250%/-250%	+26%/-15%	+14%/-8%	+61%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 007840358-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$9.01^{+9.23}_{-6.15}$	$1104^{+72}_{-64}$	$3509^{+13661}_{-16520}$	$36^{+11842}_{-6434}$
Alt.	$-732 \pm 237$	$8.33^{+8.26}_{-5.77}$	$1106^{+82}_{-66}$	$3620^{+2031}_{-696}$	$43^{+437}_{-33}$

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

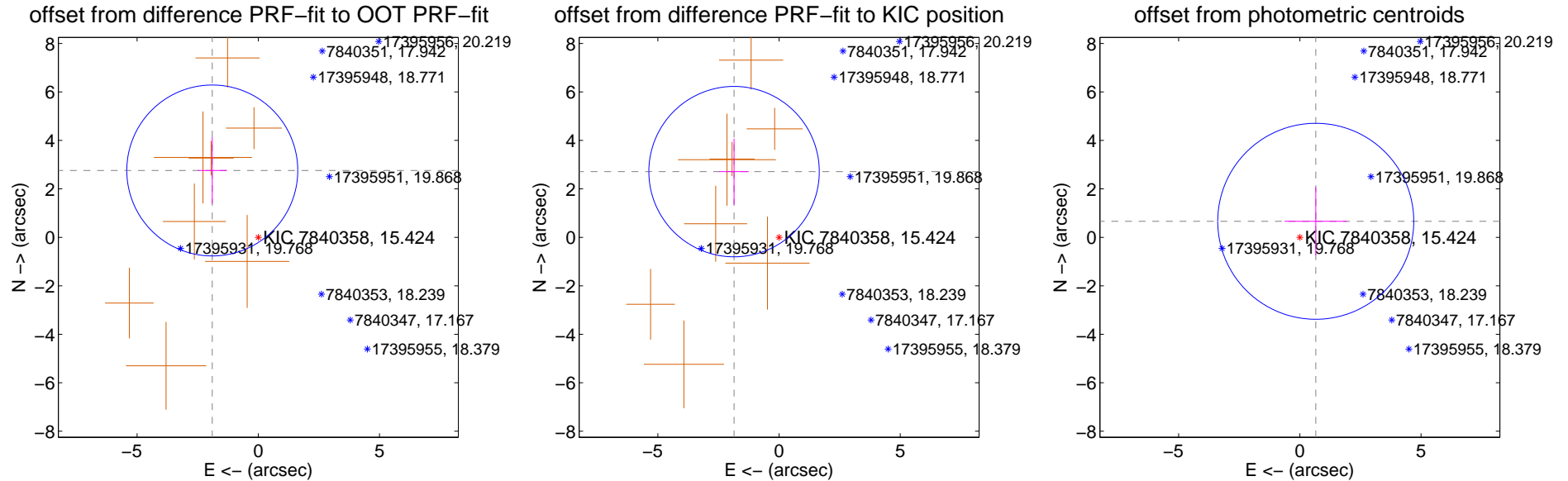
## DV Centroid Data

Supplemental centroid analysis for 007840358-04. Kepler magnitude: 15.42. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.349 \pm 1.176$	2.85	$1.899 \pm 0.600$	$2.759 \pm 1.366$
PRF-fit source offset from KIC position	$3.287 \pm 1.172$	2.80	$1.857 \pm 0.608$	$2.712 \pm 1.358$
photometric centroid source offset	$0.93 \pm 1.35$	0.69	$-0.66 \pm 1.29$	$0.66 \pm 1.40$



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



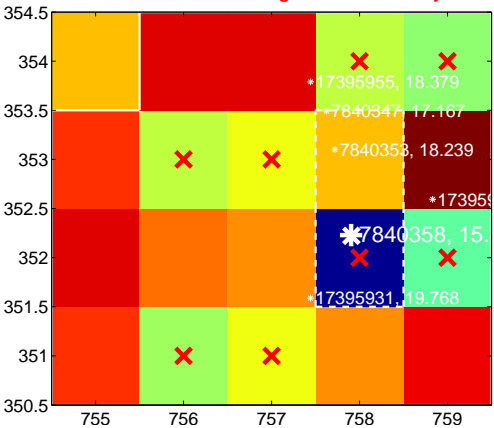
Q3 no difference image



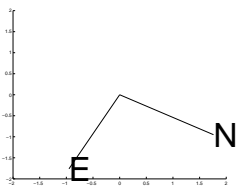
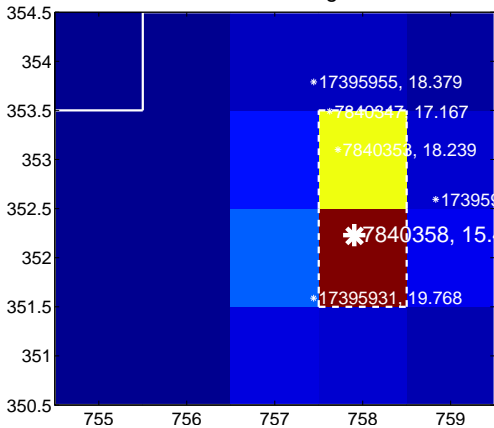
Q3 no OOT image



Q4 difference image. Poor Quality

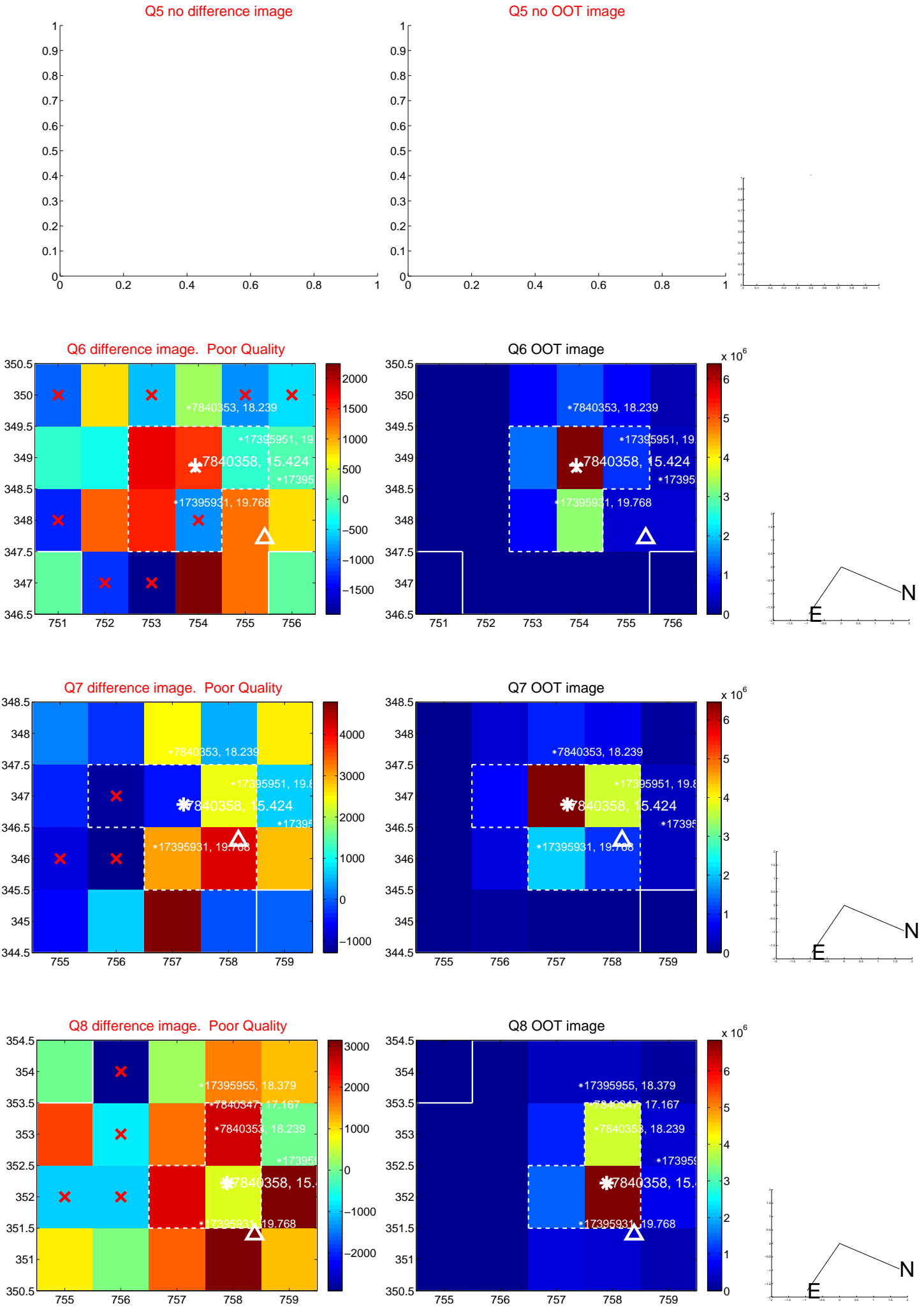


Q4 OOT image

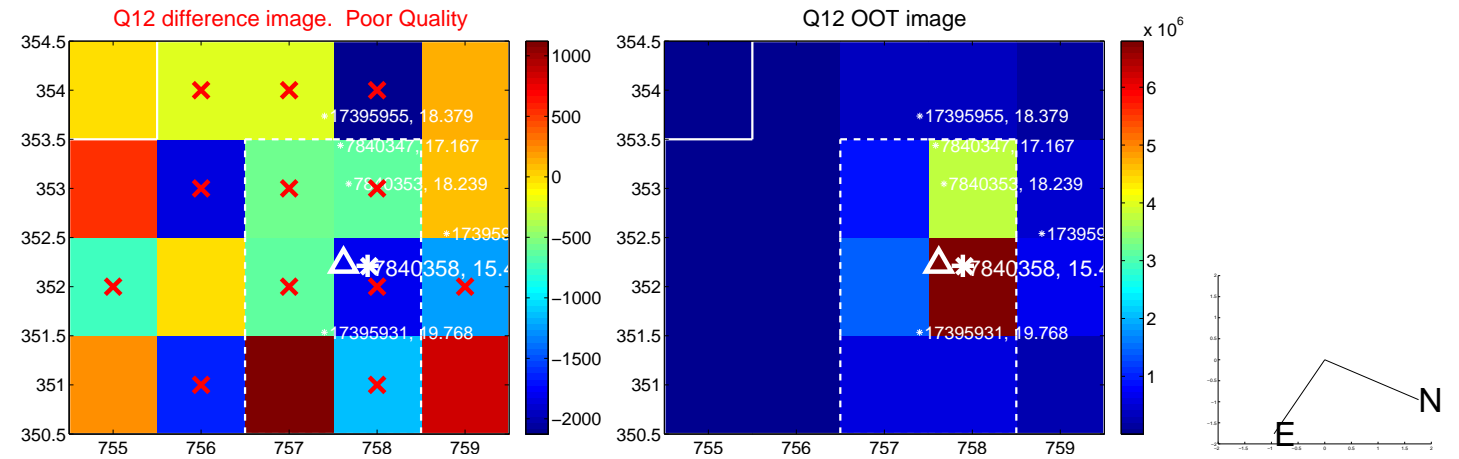
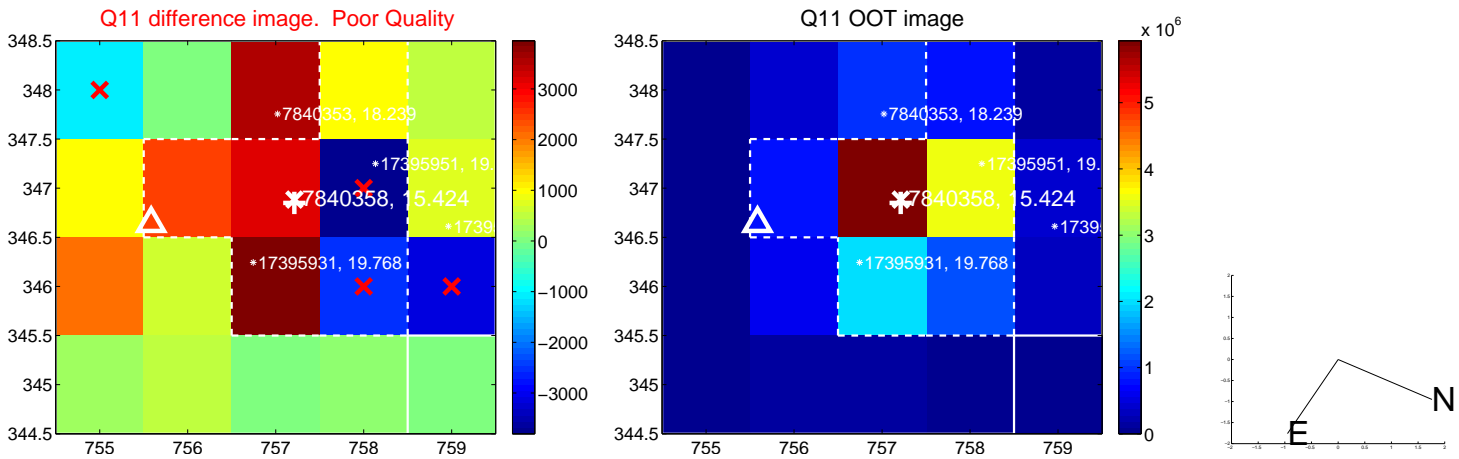
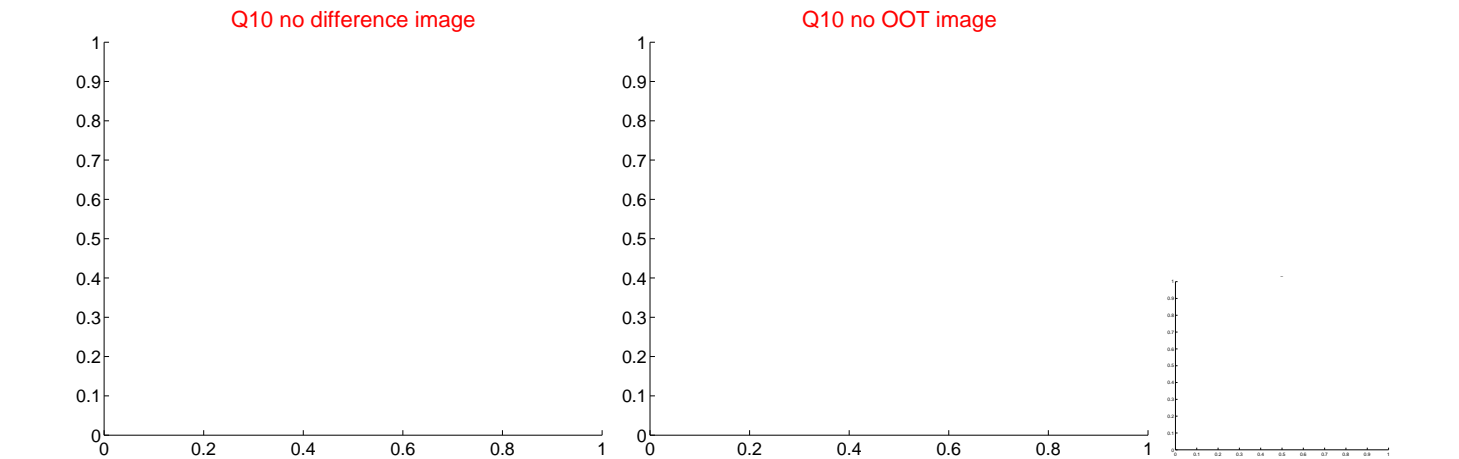
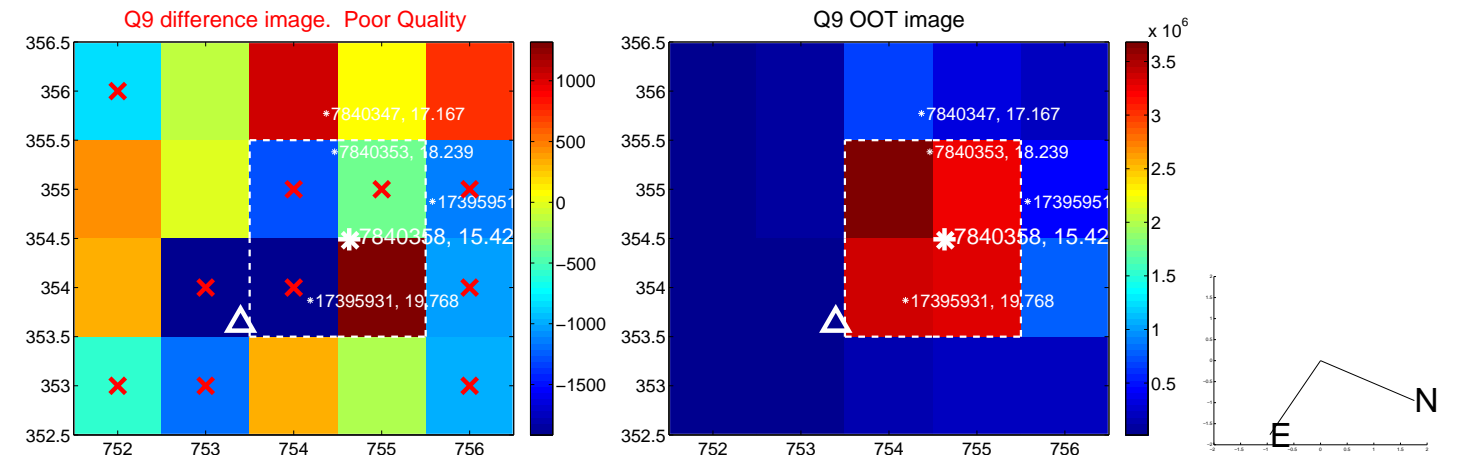




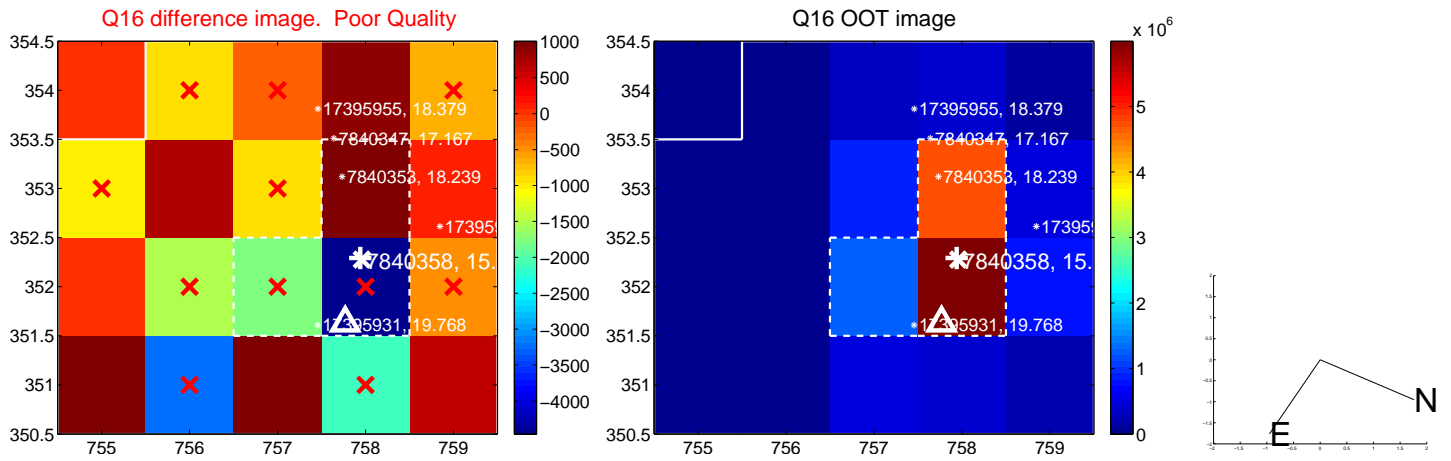
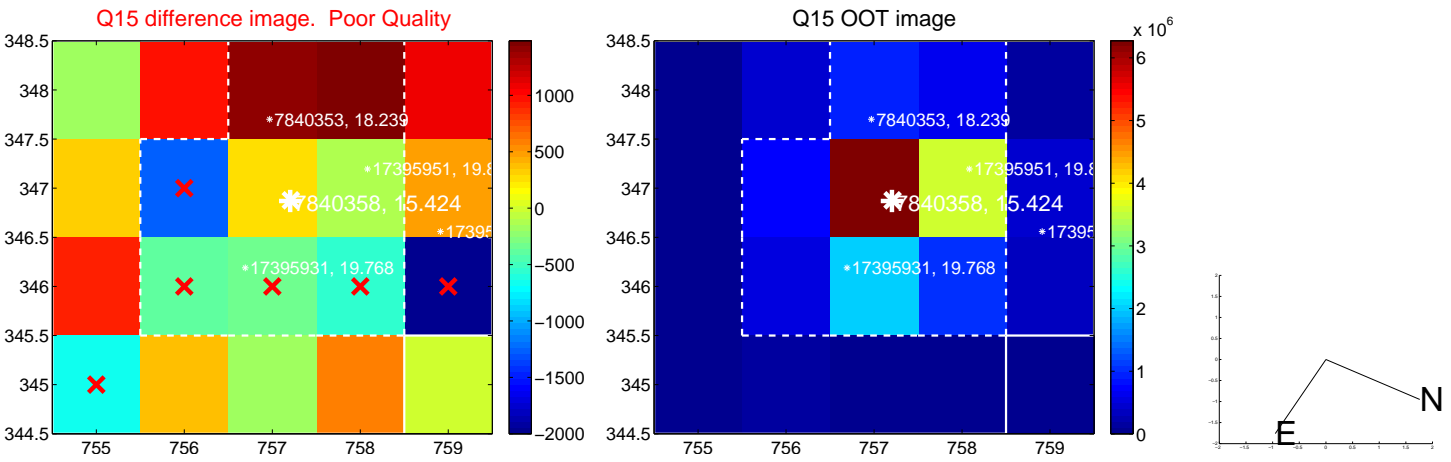
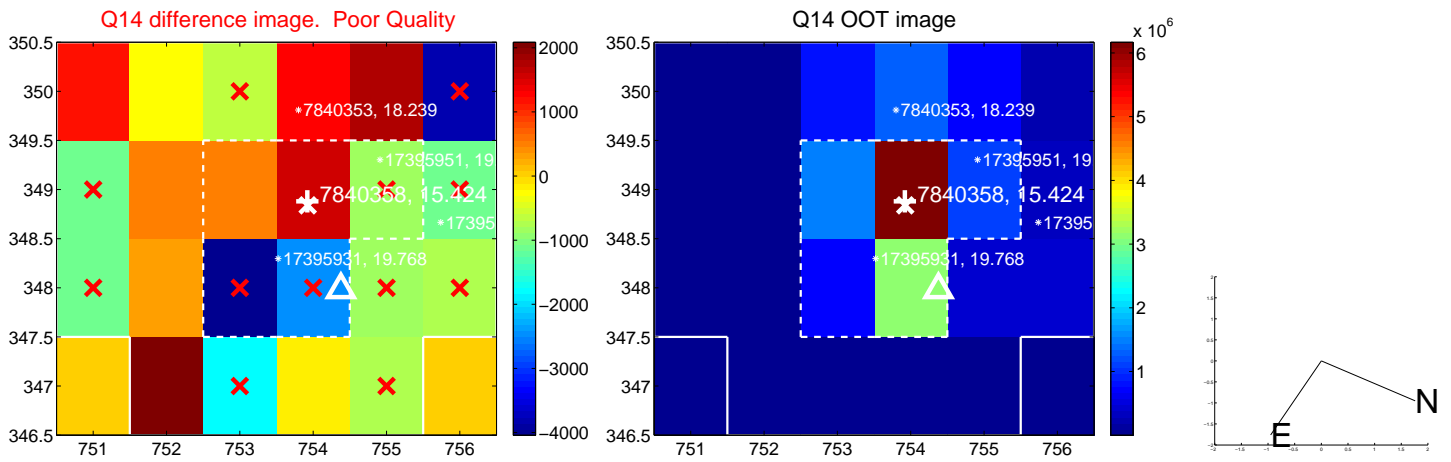
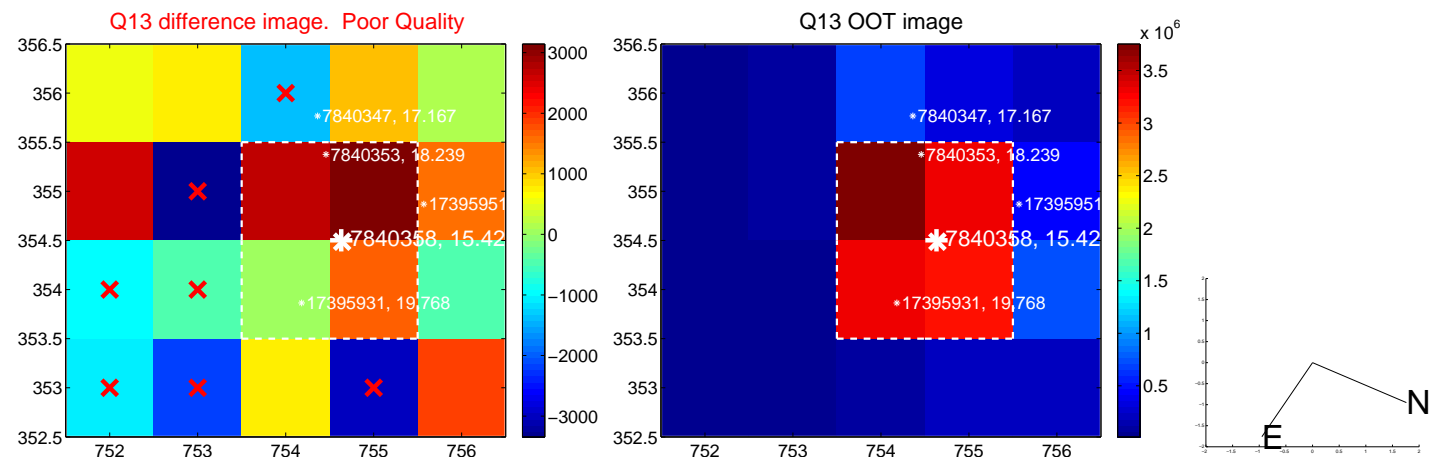
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



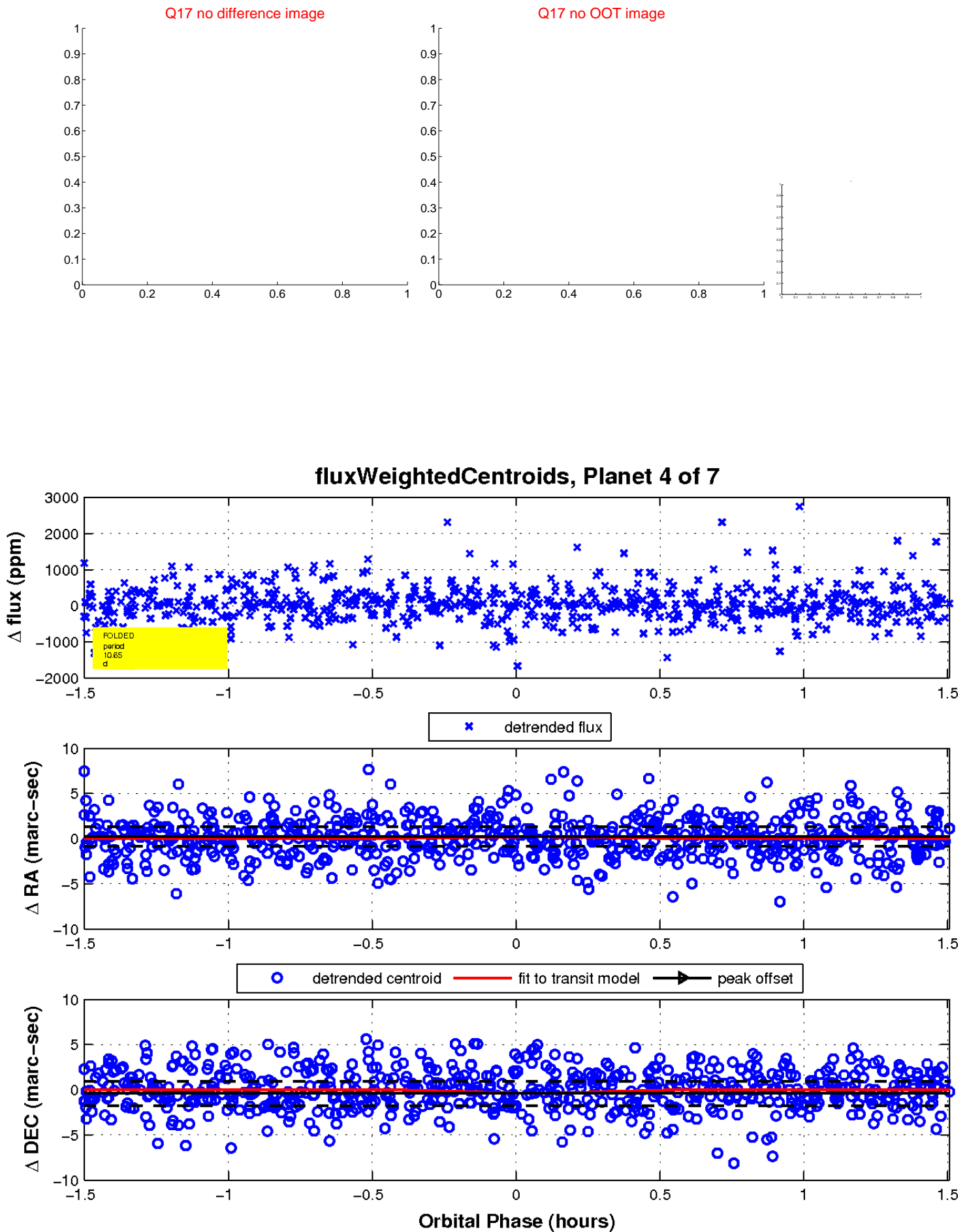
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

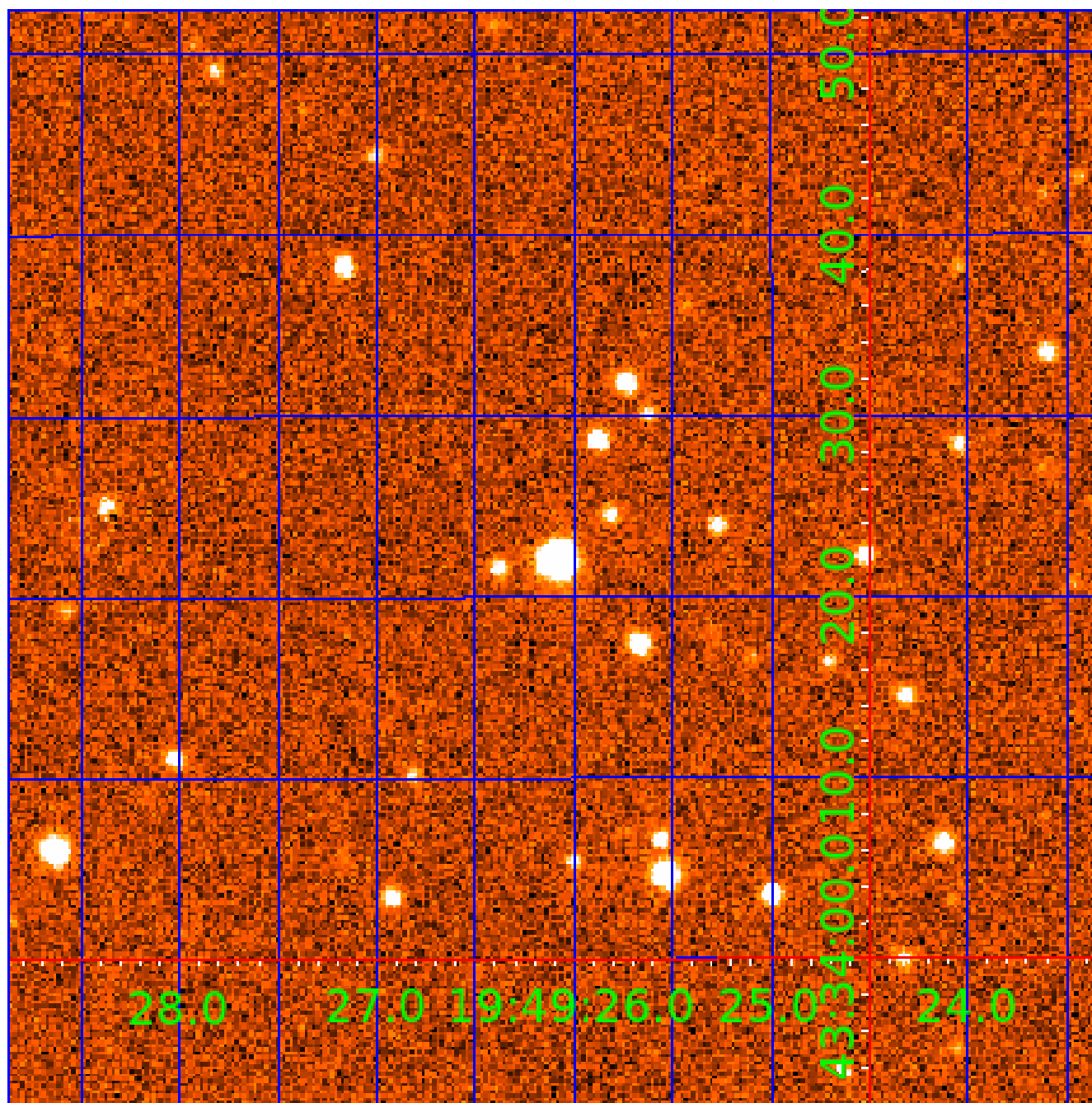


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 007840358

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007840358-01	OBS	No	0.787967	131.714931	49.0	5.914	8.7	10.3	0.94	5491	0.65	2941.01
007840358-02	OBS	No	12.267855	133.402753	898.4	1.217	17.7	17.3	0.94	5491	2.98	75.65
007840358-03	OBS	No	19.637220	148.354109	1099.5	1.457	13.9	16.9	0.94	5491	3.30	40.40
007840358-04	OBS	No	10.651664	139.884112	1976.1	2.000	12.3	-1.0	0.94	5491	4.14	91.33
007840358-05	OBS	No	12.998605	133.163019	732.4	1.708	10.7	15.3	0.94	5491	2.58	70.03
007840358-06	OBS	No	7.078920	133.130318	606.6	0.614	14.1	7.6	0.94	5491	2.80	157.48
007840358-07	OBS	No	3.322511	131.960994	2513.8	1.500	16.0	-1.0	0.94	5491	4.68	431.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007840358-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_MEAS
007840358-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007840358-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007840358-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
007840358-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007840358-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007840358-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

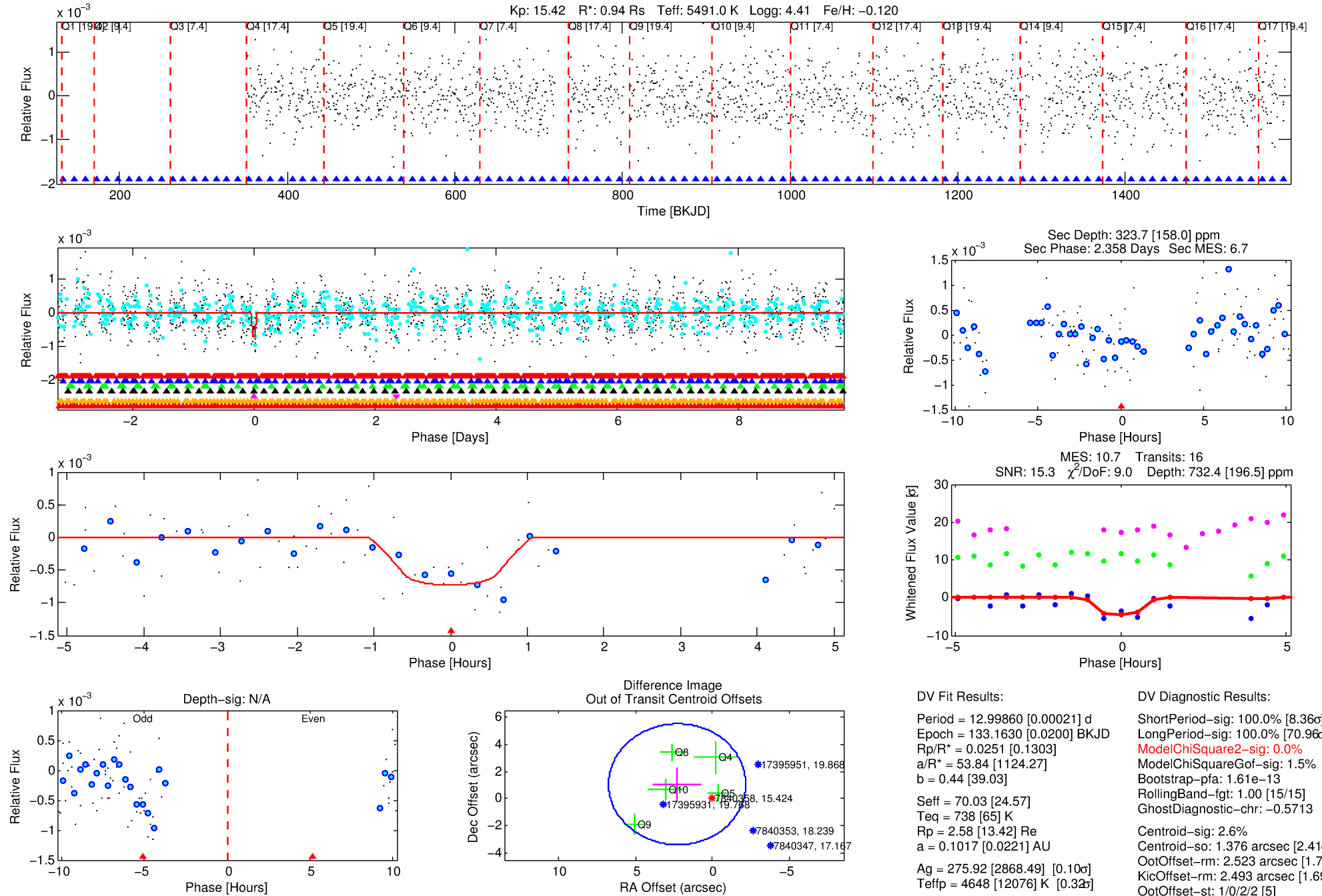
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007840358-05

No Significant Match Found

# DV One-Page Summary

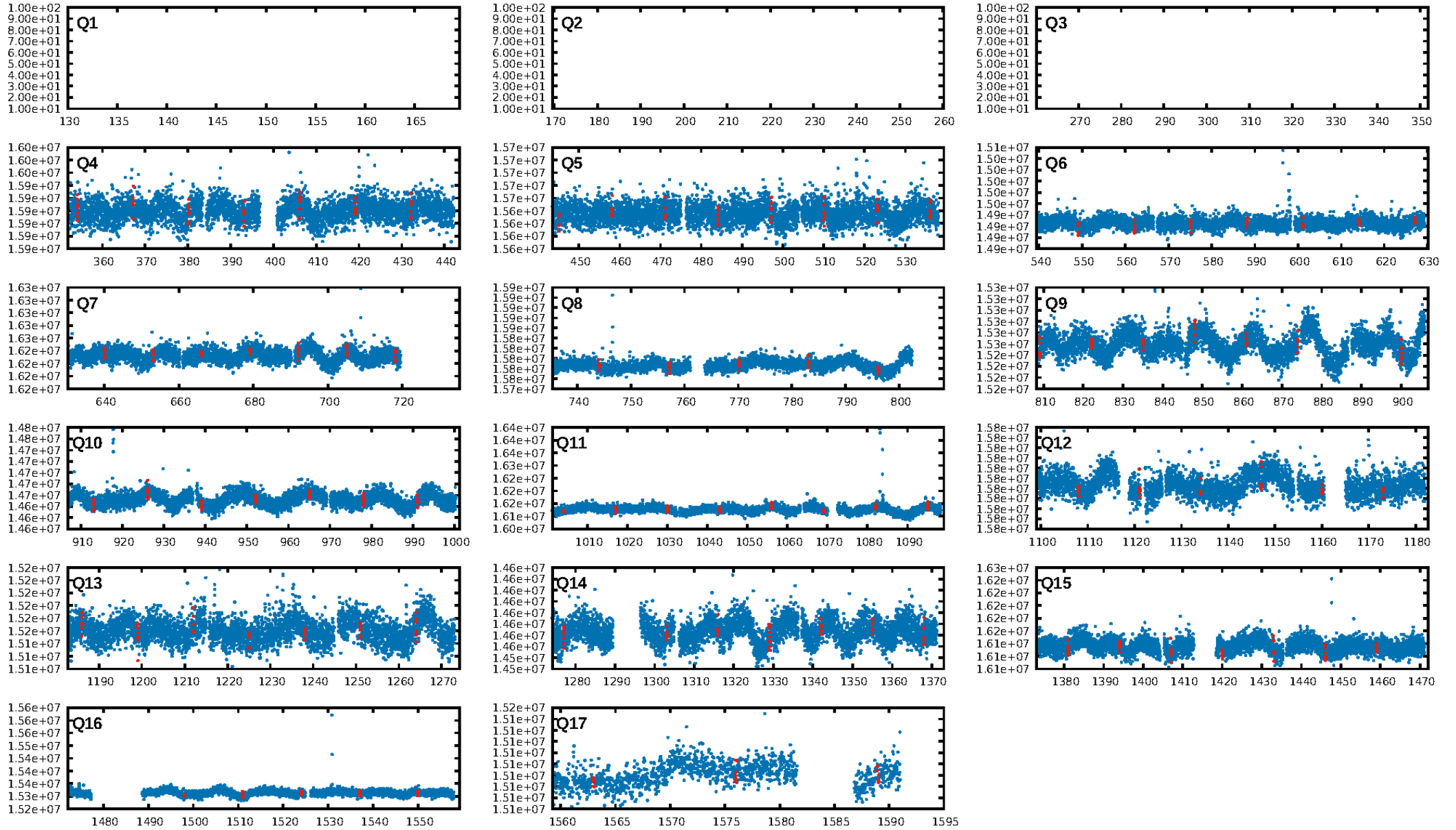
KIC: 7840358 Candidate: 5 of 7 Period: 12.999 d



Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:05:18 Z

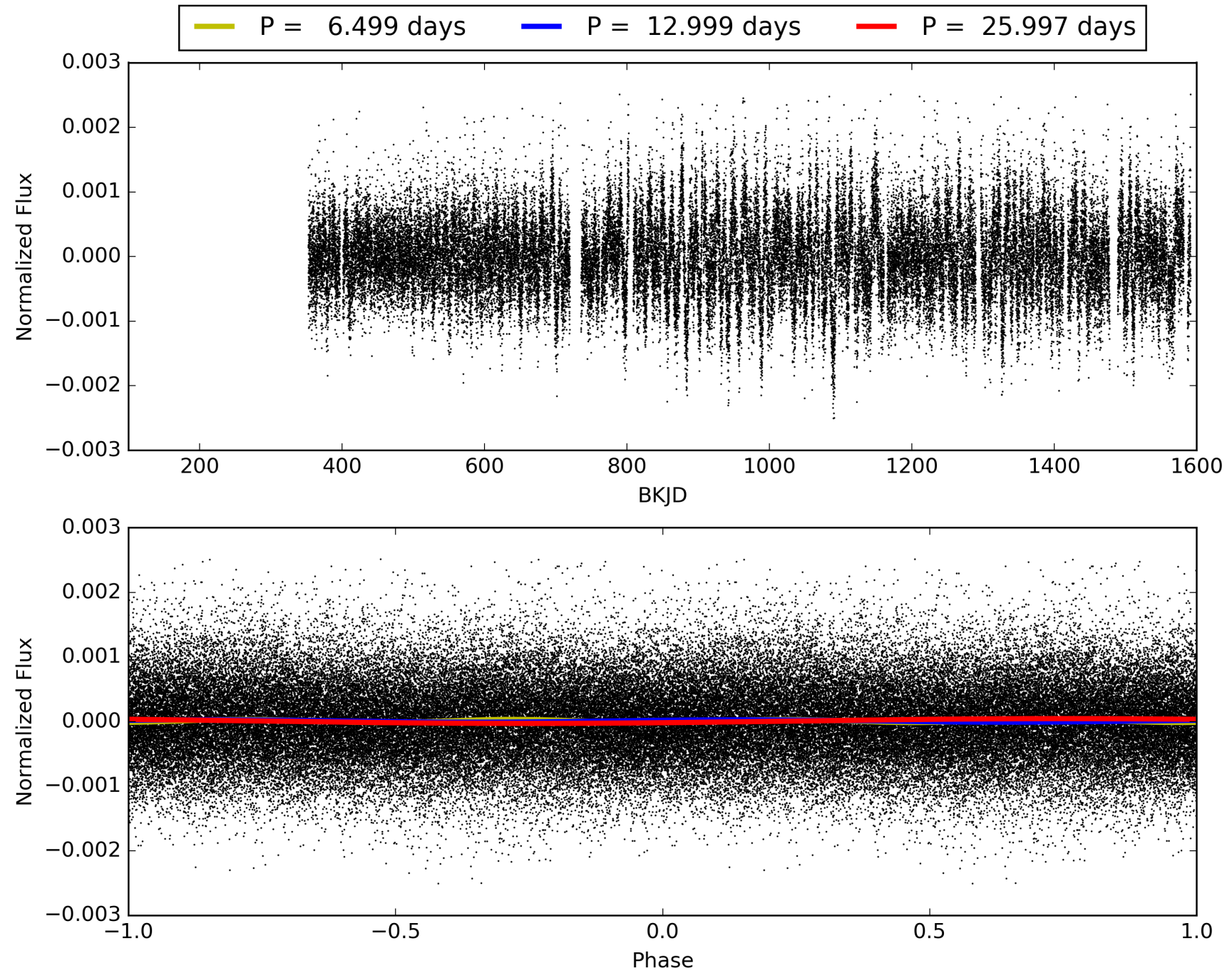
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007840358-05, PDC Light Curves



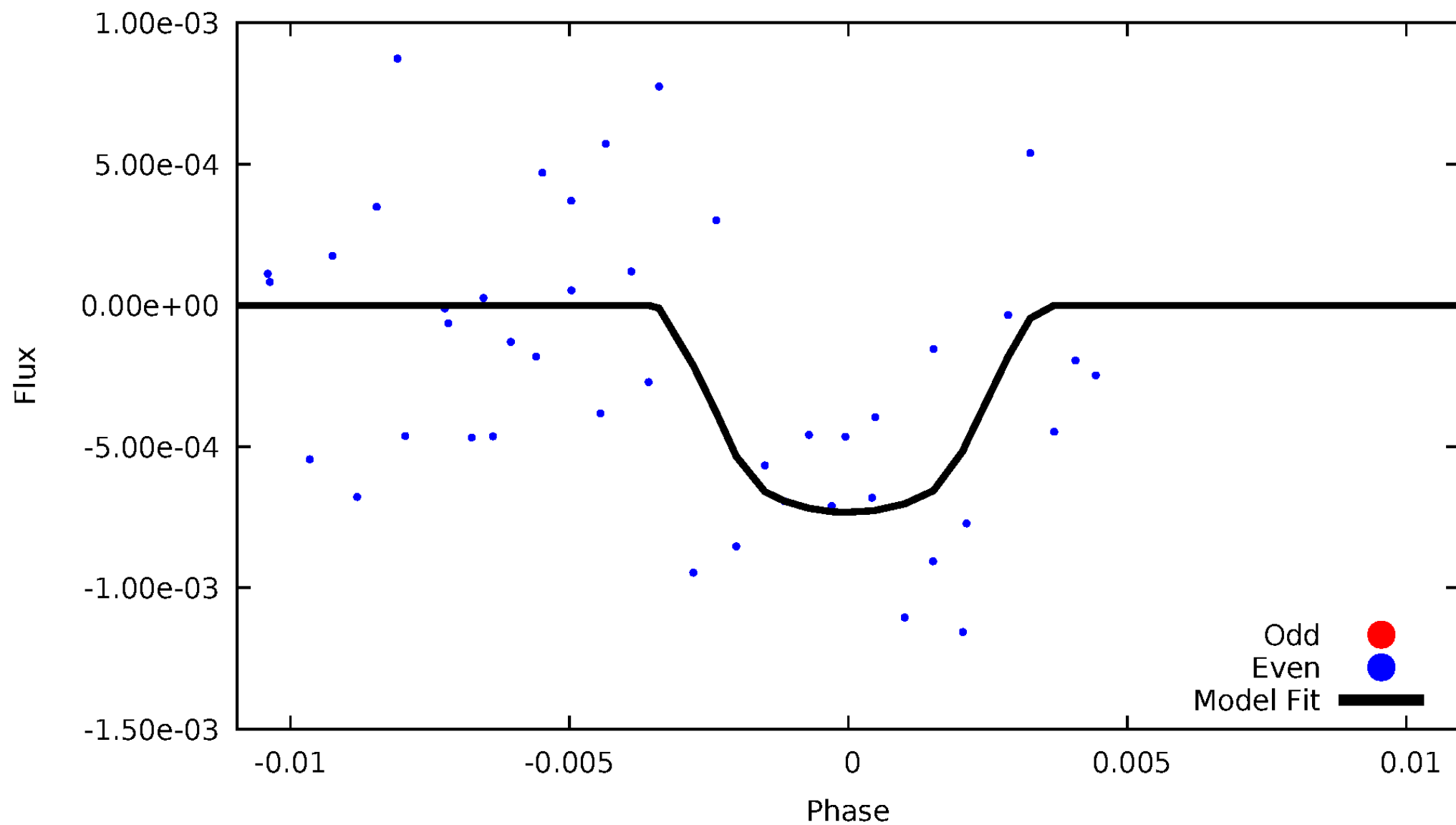


TCE 007840358-05



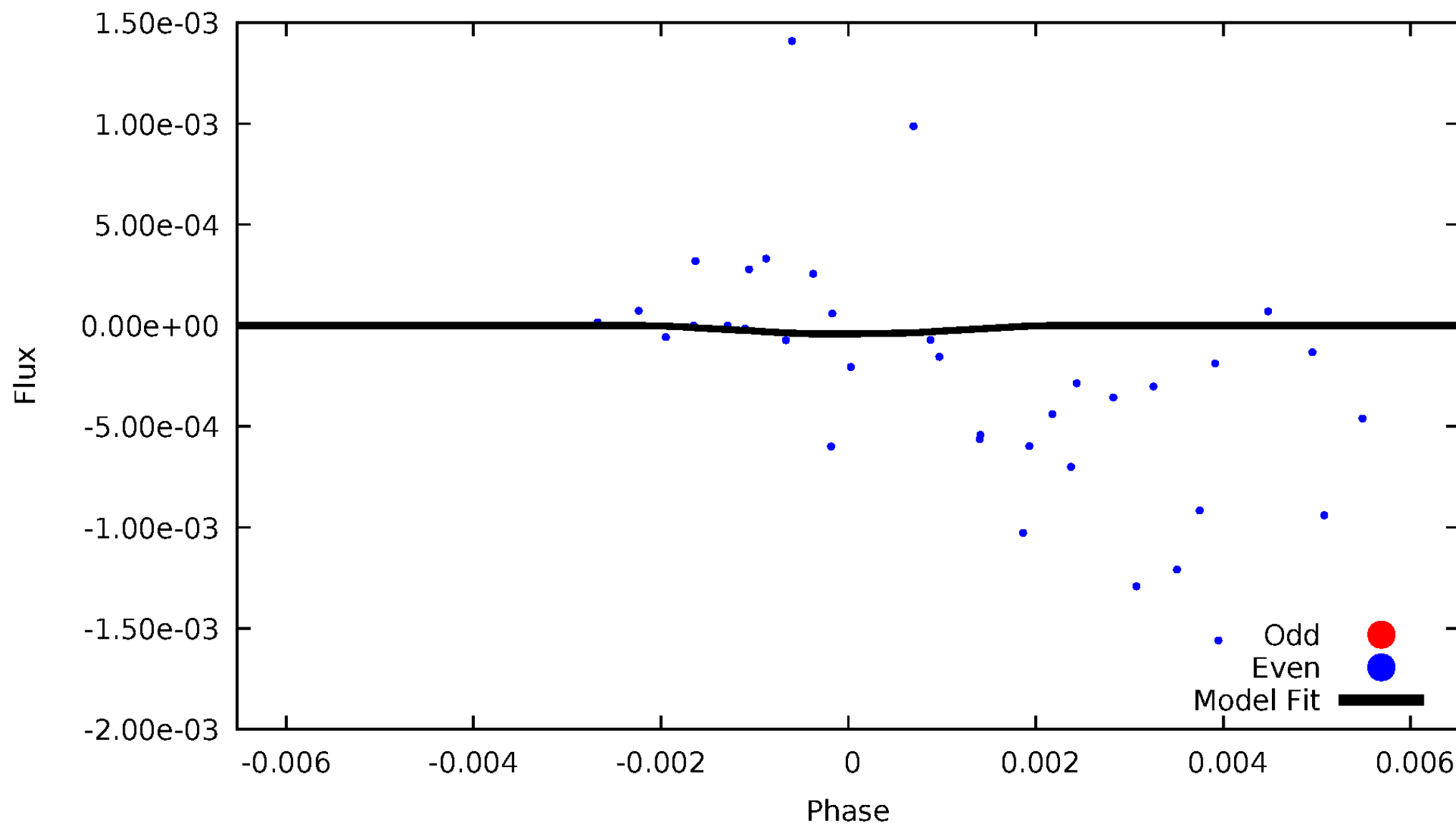
# DV Odd/Even

TCE 007840358-05



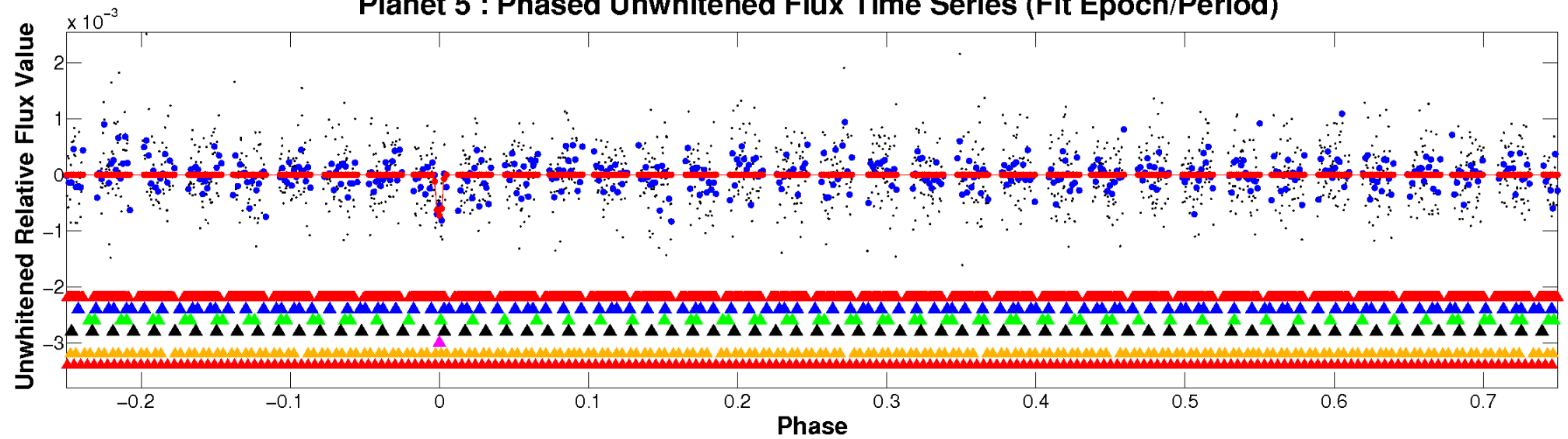
# ALT Odd/Even

TCE 007840358-05

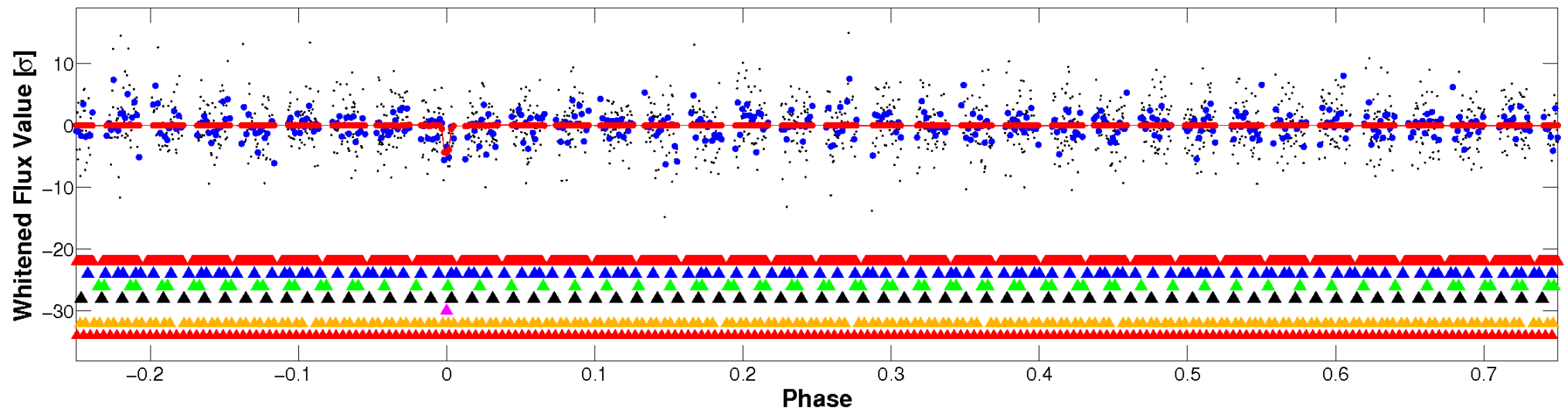


# Non-Whitened Vs. Whitened Light Curve

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

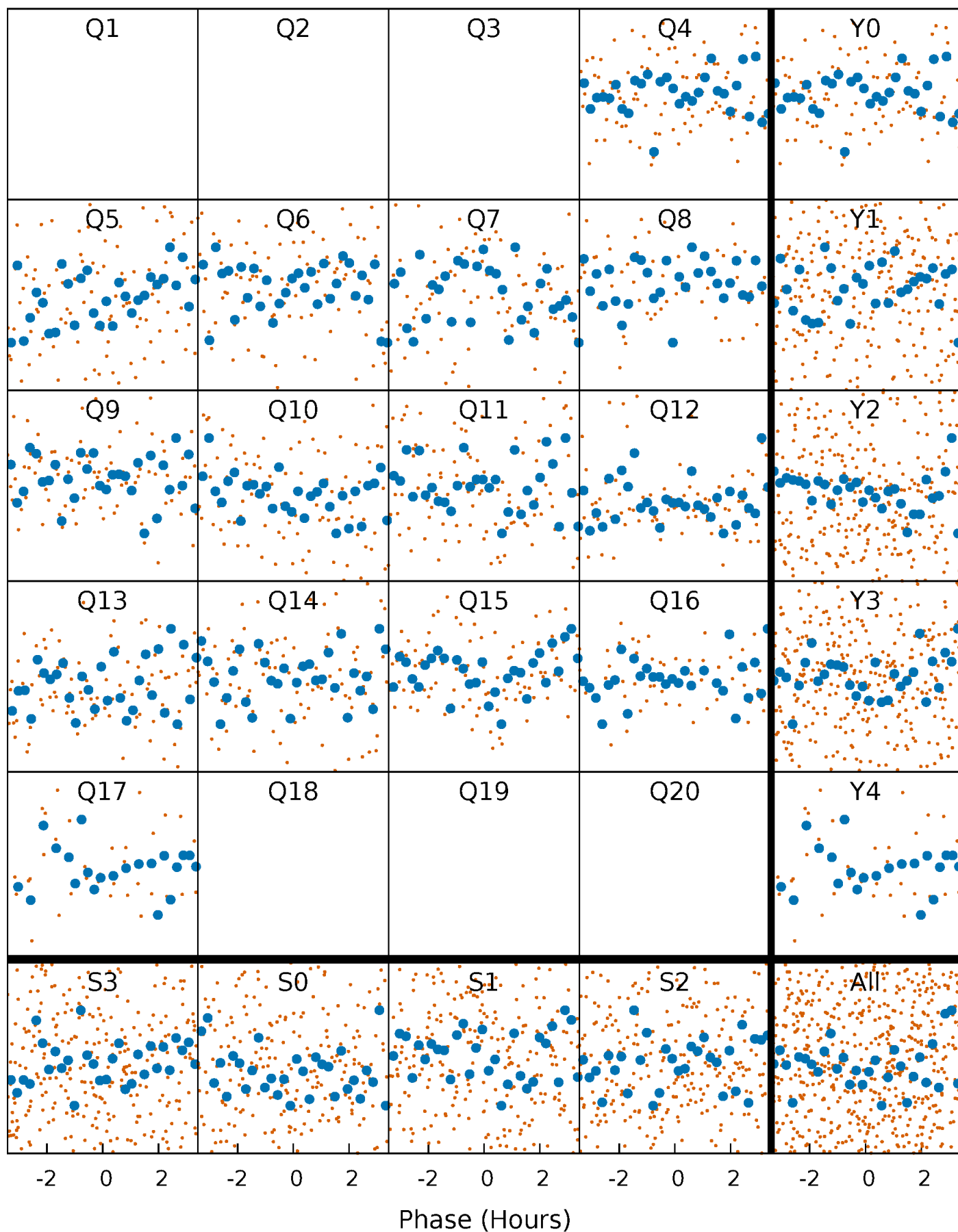


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



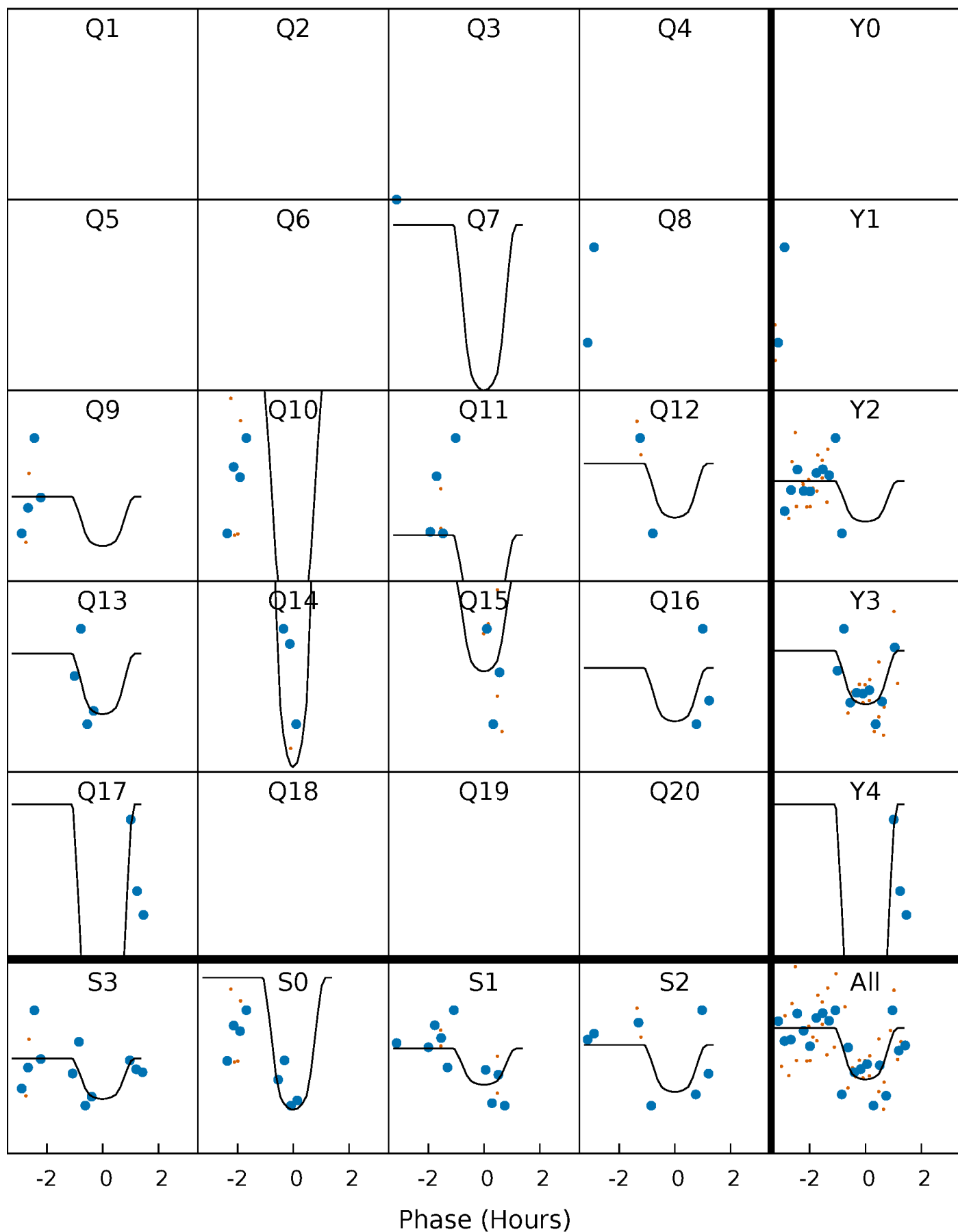
# PDC Quarter-Phased Transit Curves

TCE 007840358-05   P= 12.998605 Days    $T_0=133.163019$  (BKJD)



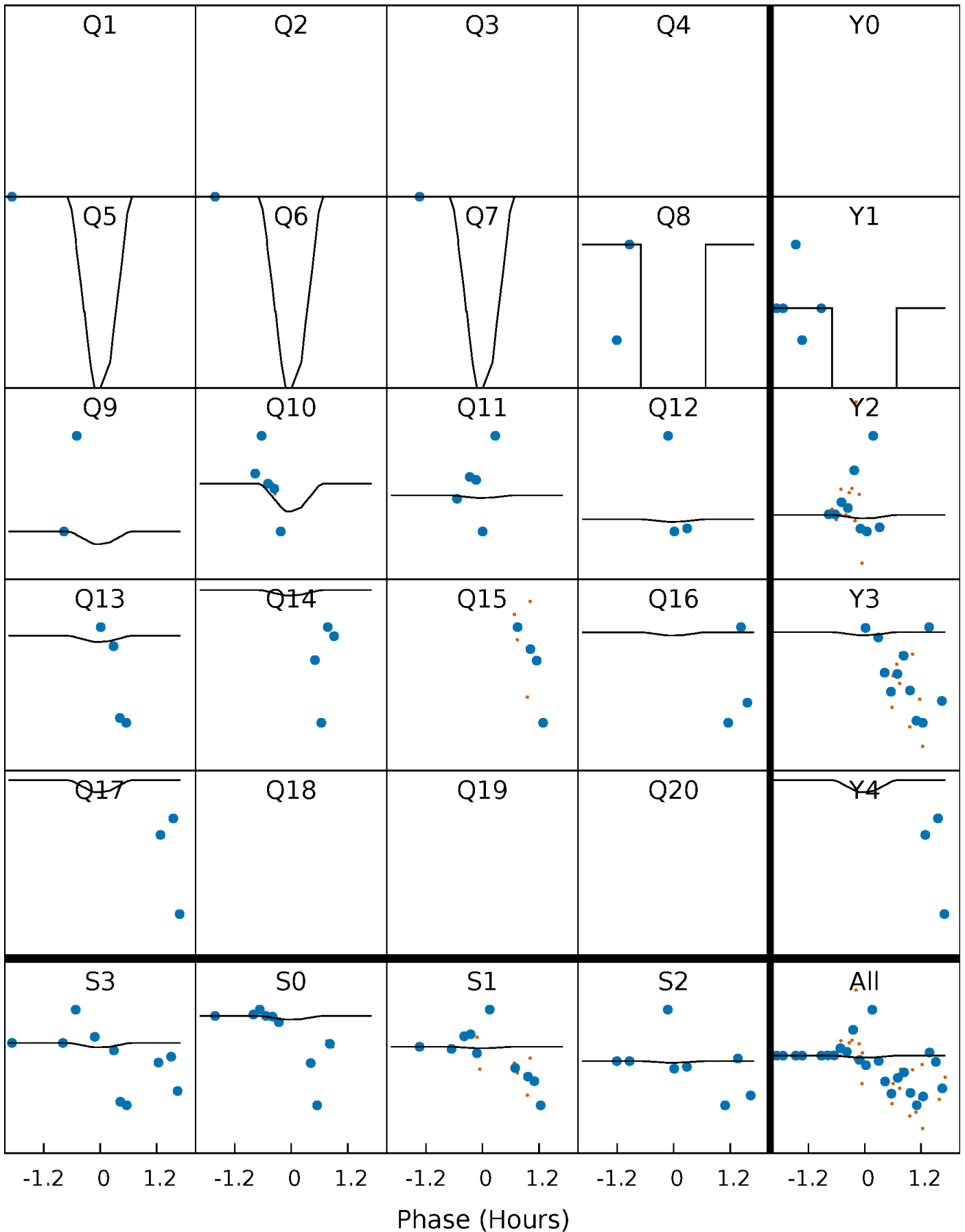
# DV Quarter-Phased Transit Curves

TCE 007840358-05   P= 12.998605 Days    $T_0=133.163019$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

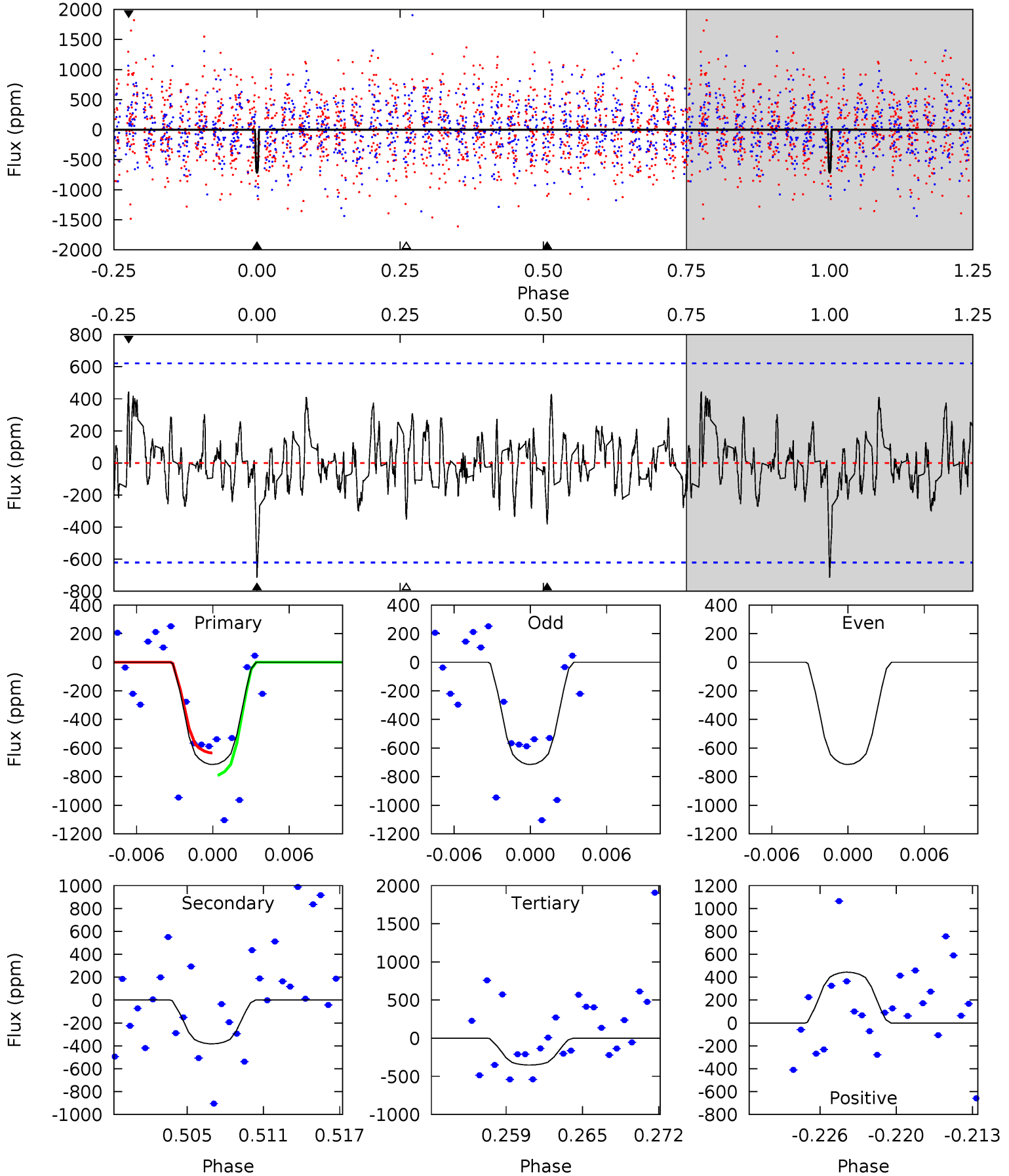
TCE 007840358-05 P= 12.999701 Days  $T_0=133.028794$  (BKJD)



# DV Model-Shift Uniqueness Test

007840358-05, P = 12.998605 Days, E = 133.163019 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
5.89	3.15	2.90	3.65	5.11	2.72	1.18	2.99	2.23	0.25	-0.50	0	1.00	0.38	0.65

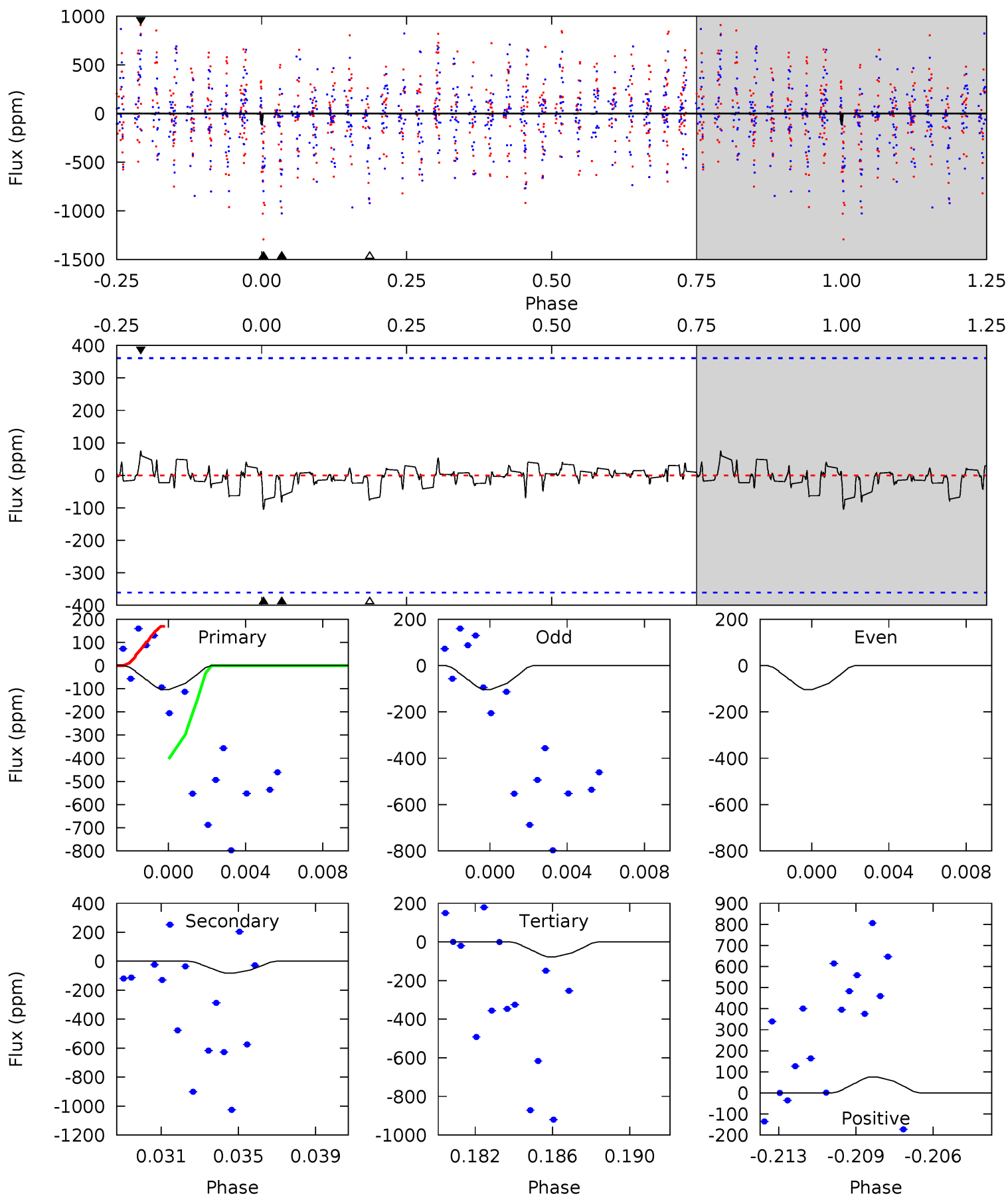




# Alt Model-Shift Uniqueness Test

007840358-05, P = 12.999701 Days, E = 133.028794 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.50	1.19	1.11	1.10	5.21	2.89	0.28	0.38	0.40	0.08	0.10	0	0.86	0.42	1.71



### Stellar Parameters For KIC 007840358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5491^{+199}_{-182}$	$4.408^{+0.144}_{-0.176}$	$-0.120^{+0.300}_{-0.300}$	$0.943^{+0.241}_{-0.141}$	$0.830^{+0.120}_{-0.065}$	$1.394^{+0.853}_{-0.677}$
	+4%/-3%	+3%/-4%	+250%/-250%	+26%/-15%	+14%/-8%	+61%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 007840358-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-383 \pm 122$	$9.95^{+11.33}_{-7.13}$	$1036^{+75}_{-61}$	$3070^{+1588}_{-593}$	$21^{+229}_{-16}$
Alt.	$-83 \pm 69$	$8.55^{+11.01}_{-5.87}$	$1035^{+77}_{-63}$	$2490^{+1086}_{-3929}$	$4.468^{+49.264}_{-4.184}$

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

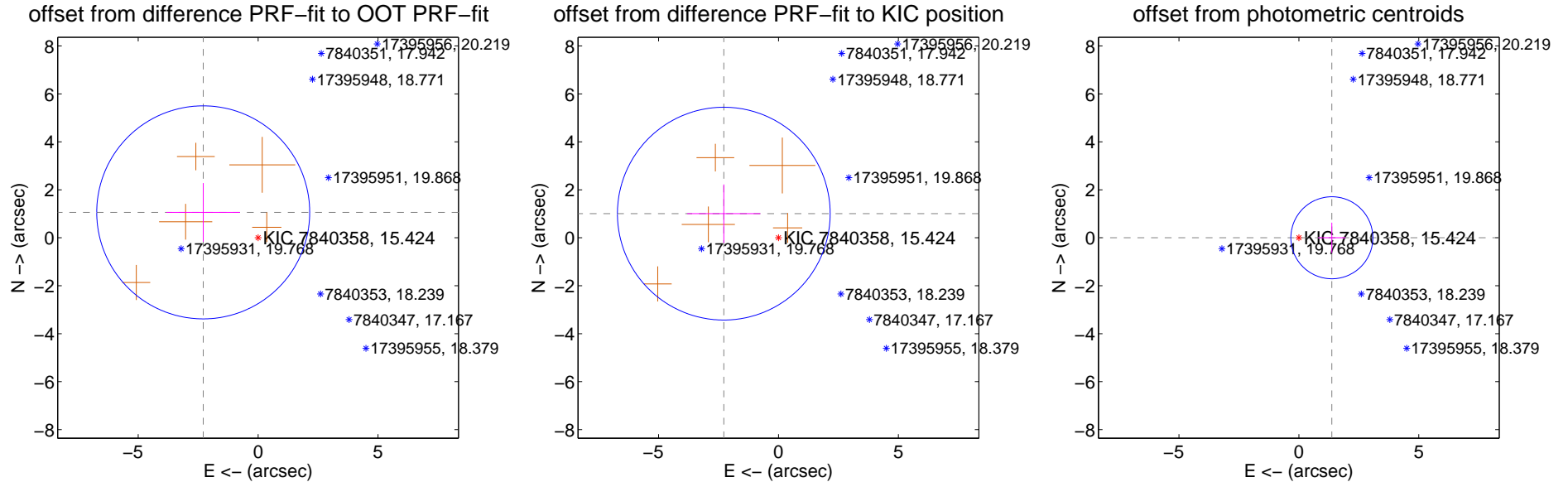
## DV Centroid Data

Supplemental centroid analysis for 007840358-05. Kepler magnitude: 15.42. Transit SNR 15.27

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.523 \pm 1.481$	1.70	$2.290 \pm 1.530$	$1.059 \pm 1.222$
PRF-fit source offset from KIC position	$2.493 \pm 1.479$	1.69	$2.281 \pm 1.524$	$1.006 \pm 1.220$
photometric centroid source offset	$1.38 \pm 0.57$	2.41	$-1.38 \pm 0.57$	$0.00 \pm 0.63$



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



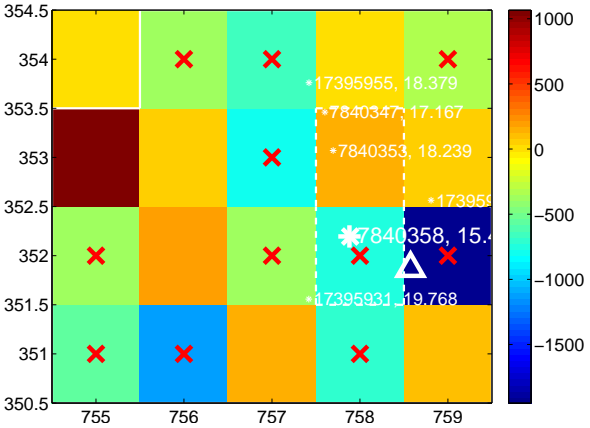
Q3 no difference image



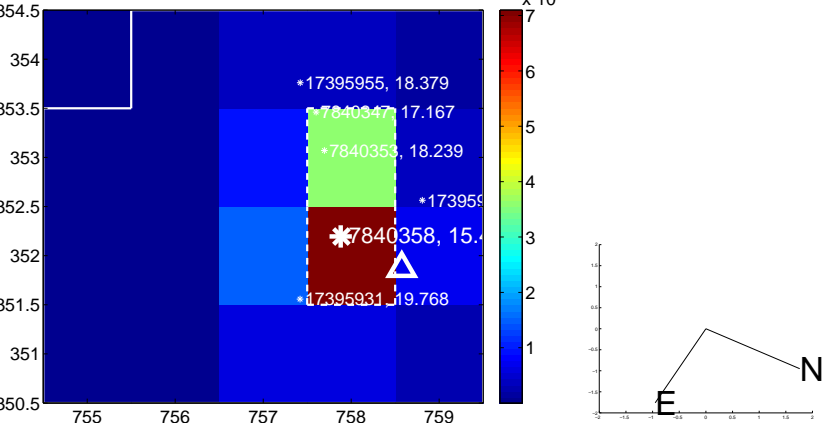
Q3 no OOT image



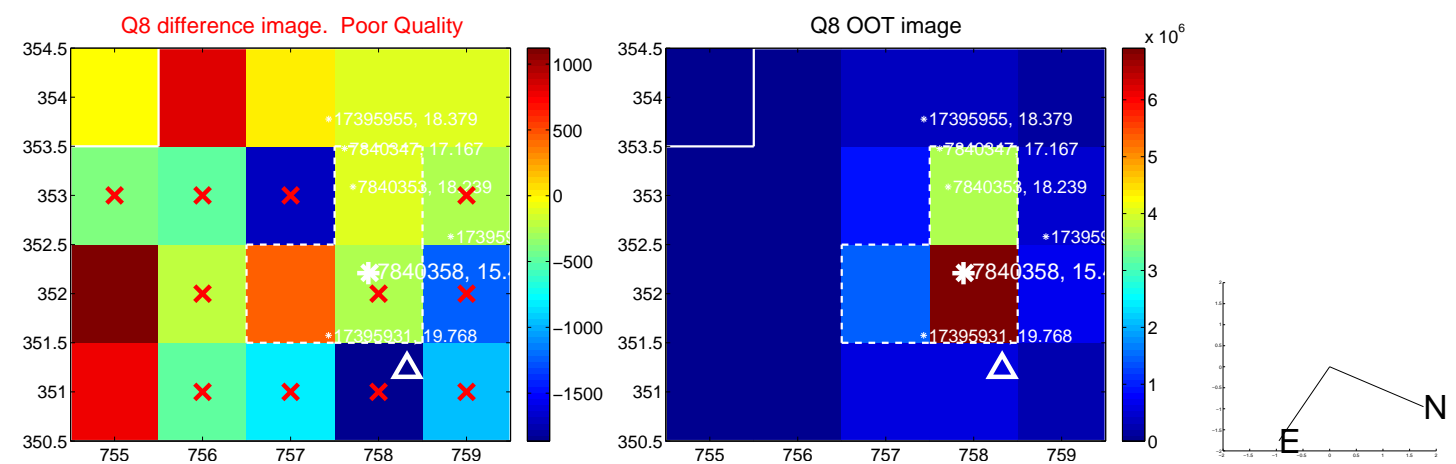
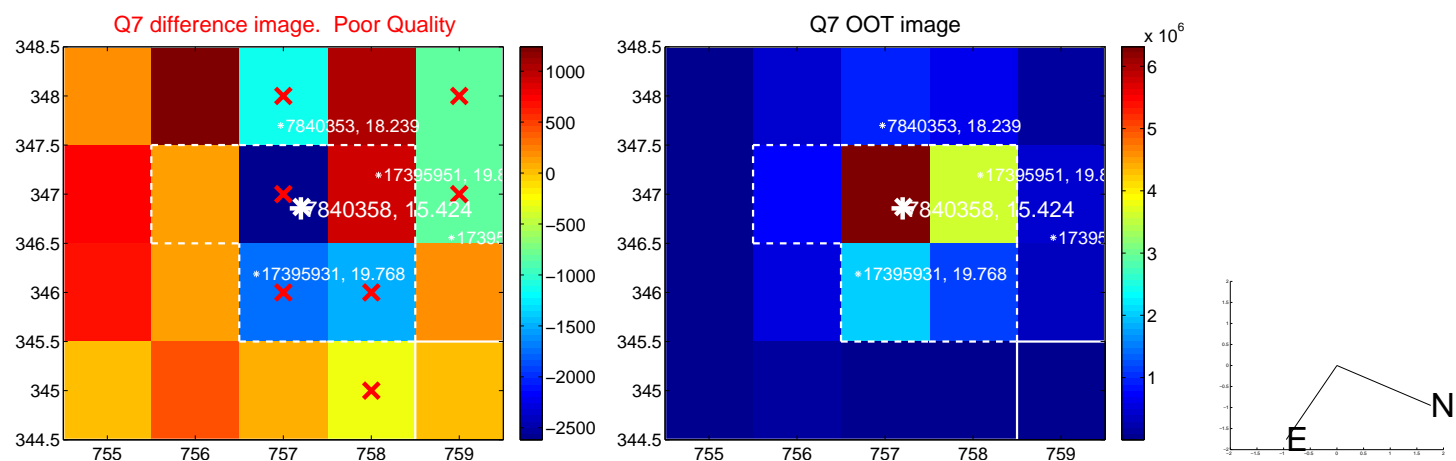
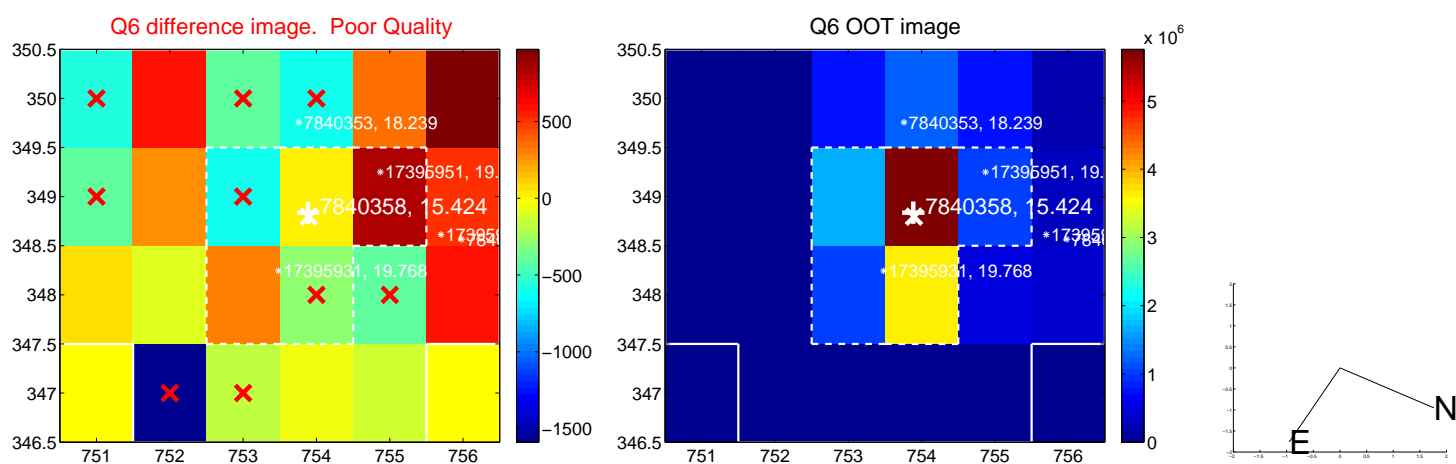
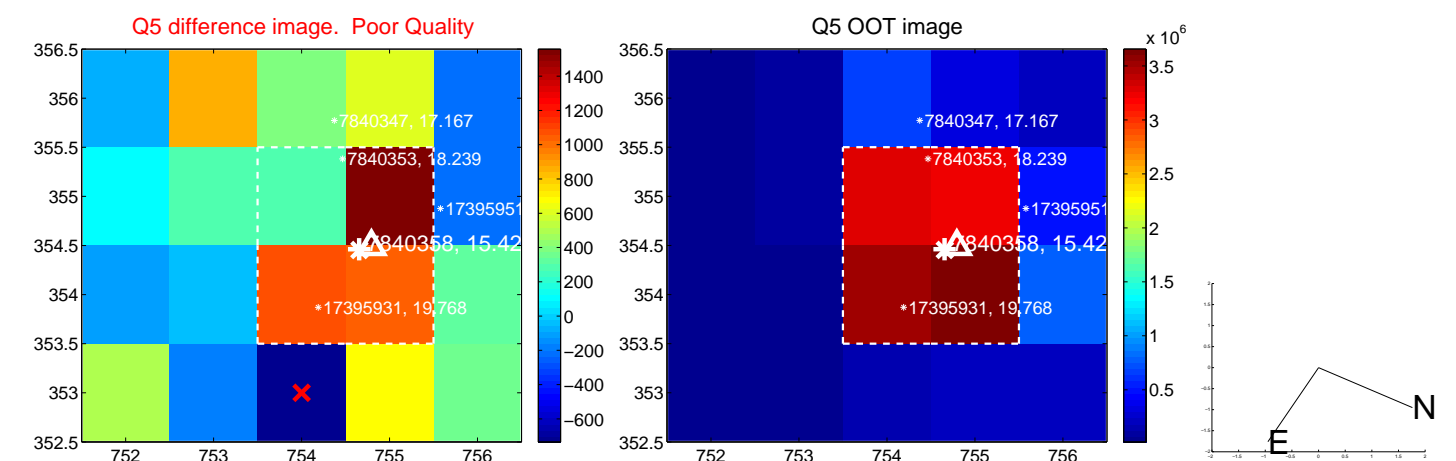
Q4 difference image. Poor Quality



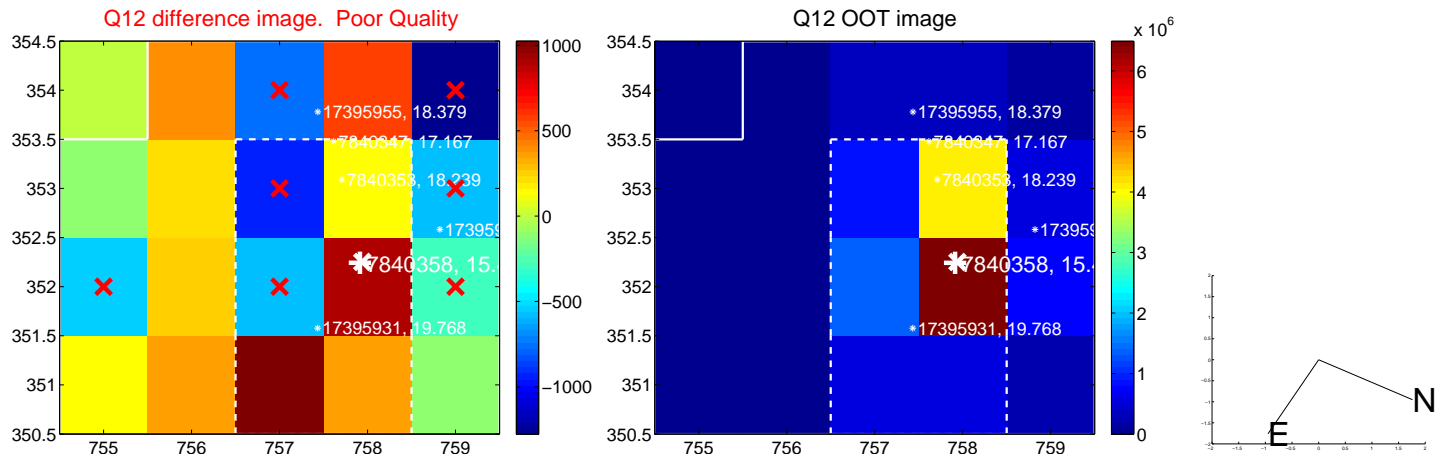
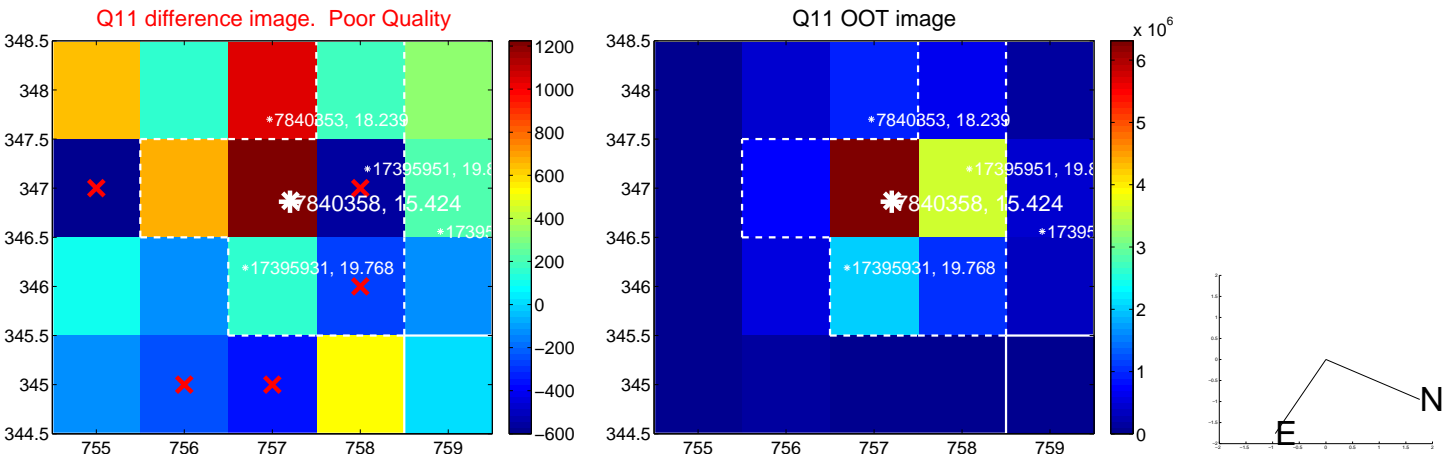
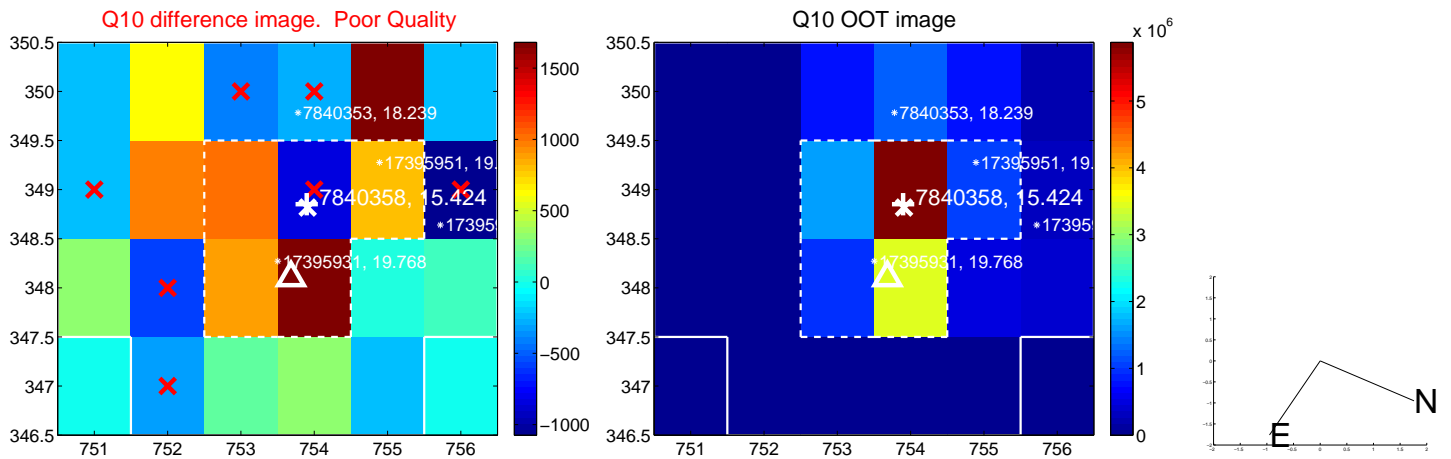
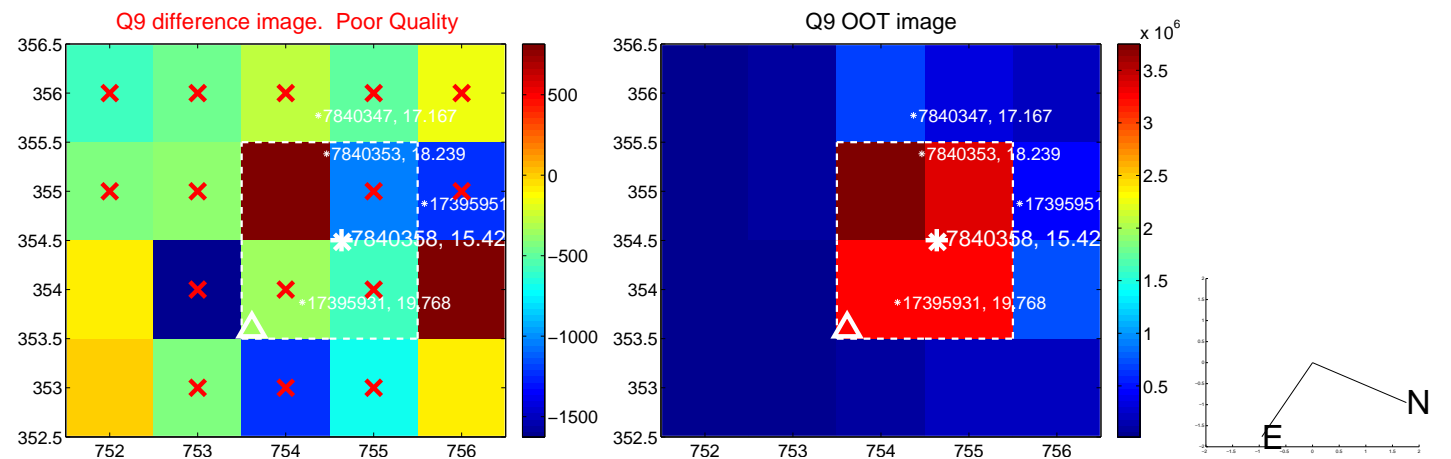
Q4 OOT image



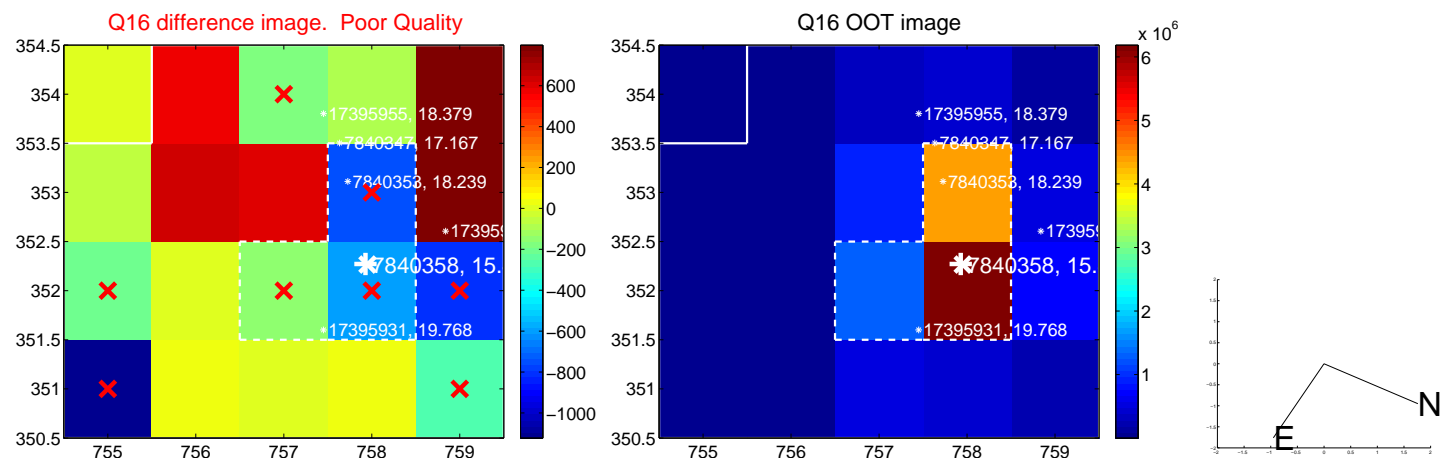
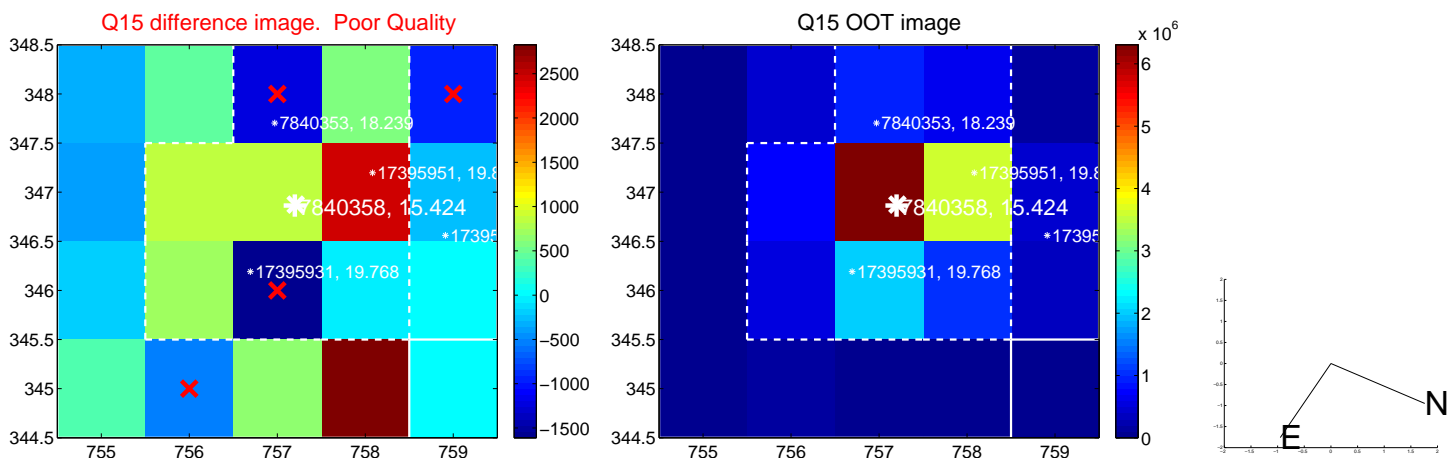
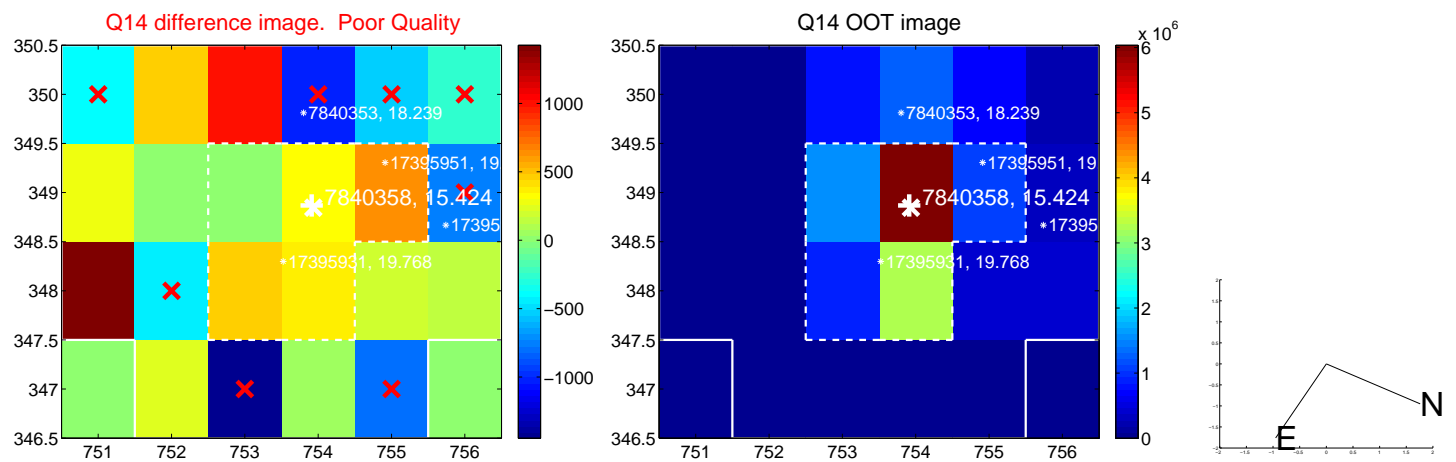
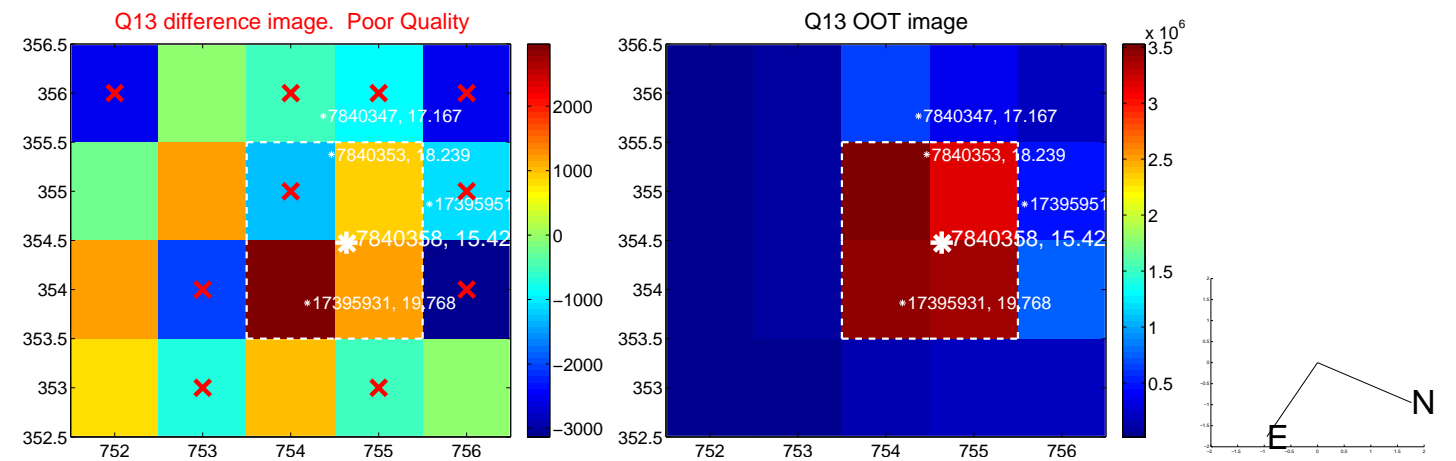
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



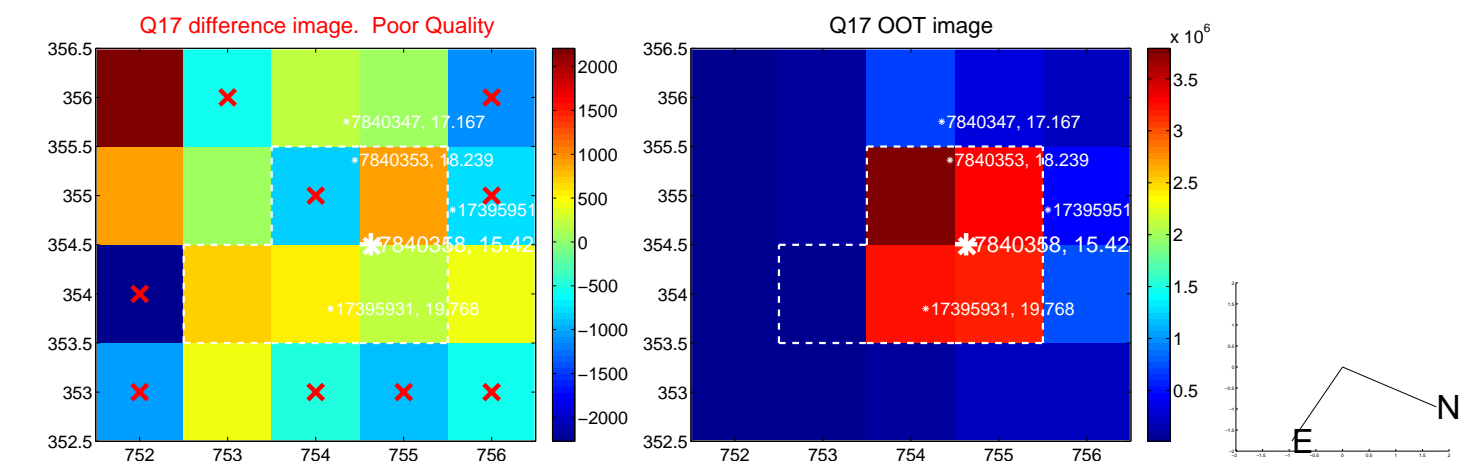
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



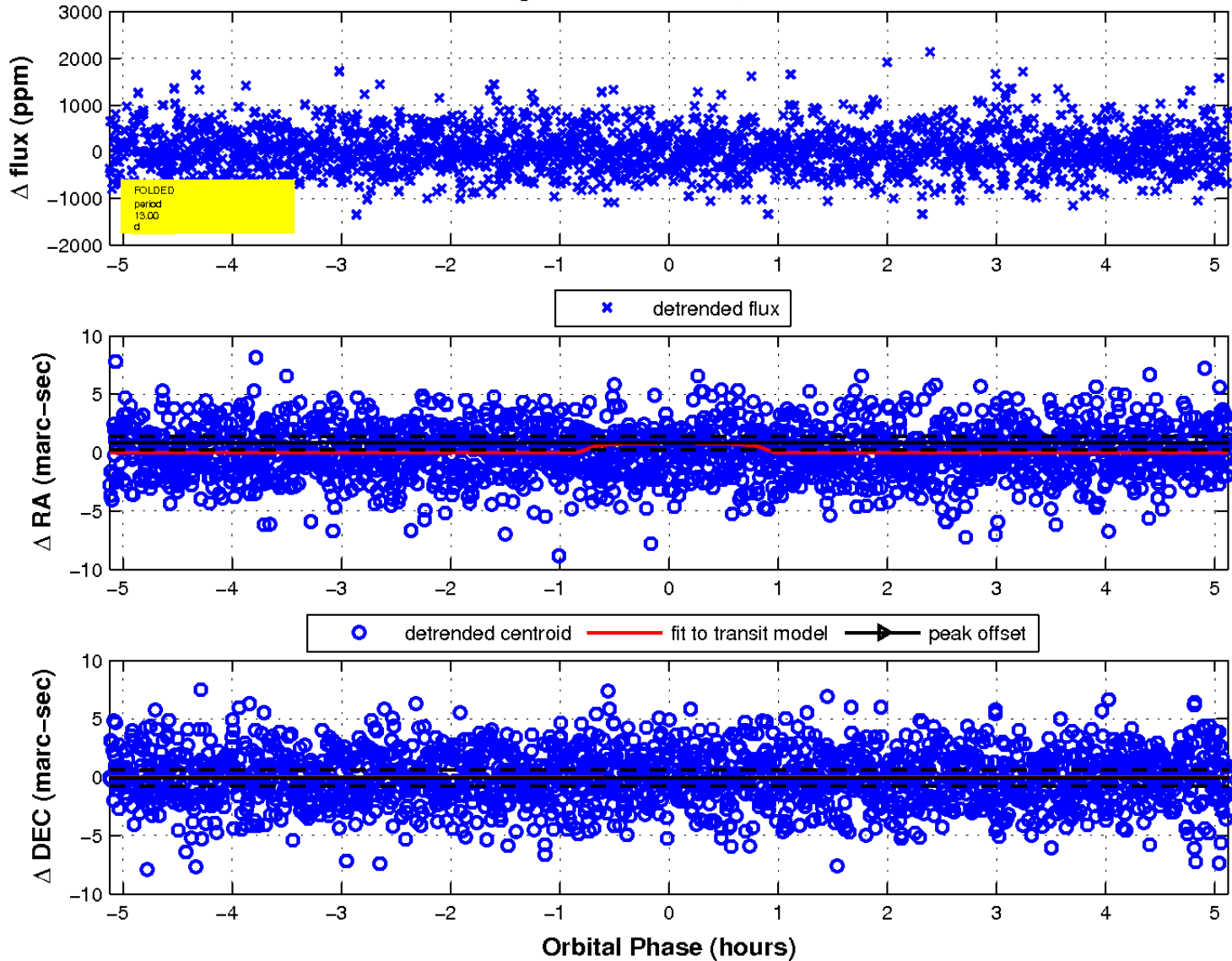
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



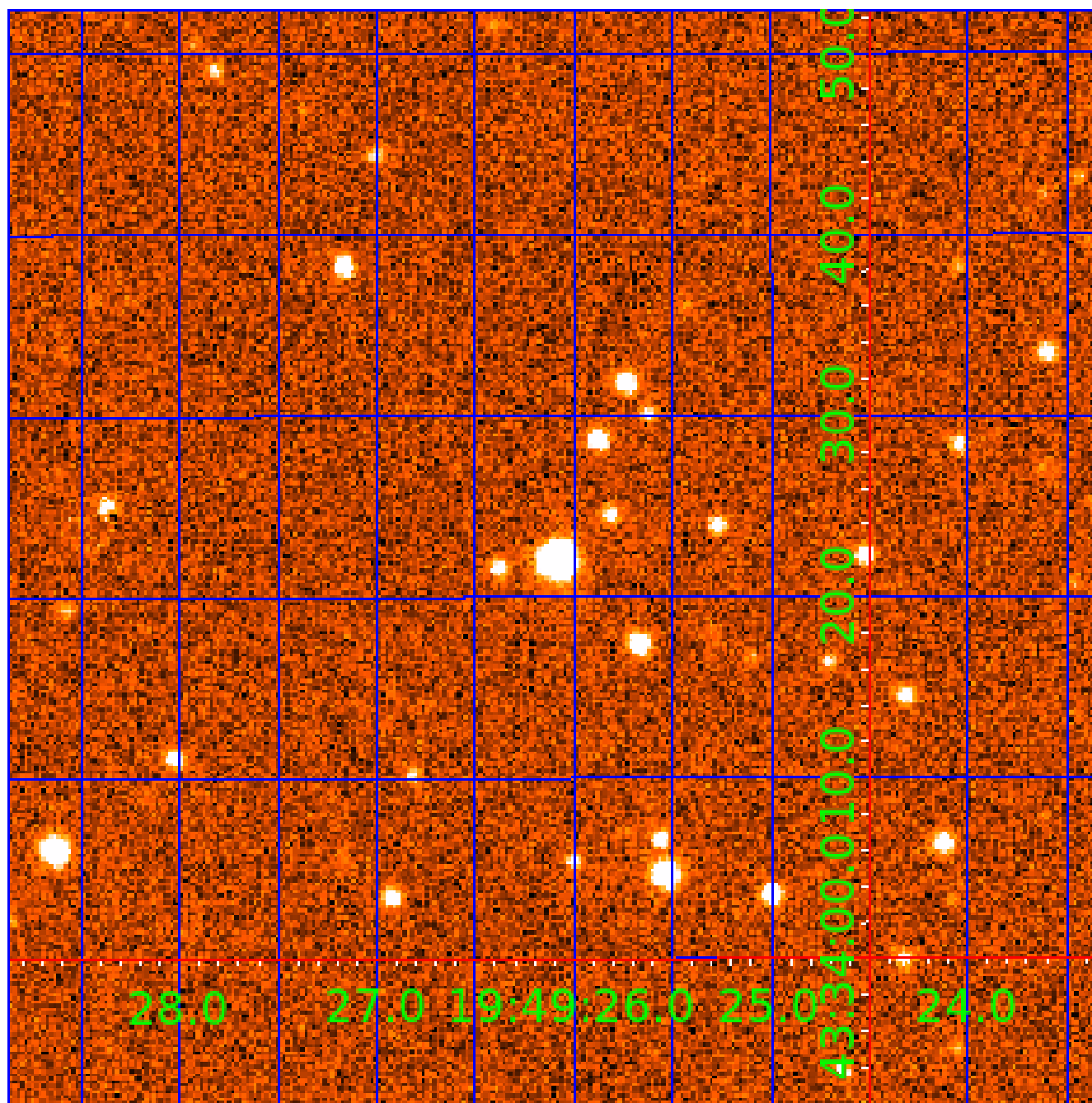
fluxWeightedCentroids, Planet 5 of 7





# UKIRT Image

Declination



# KIC 007840358

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007840358-01	OBS	No	0.787967	131.714931	49.0	5.914	8.7	10.3	0.94	5491	0.65	2941.01
007840358-02	OBS	No	12.267855	133.402753	898.4	1.217	17.7	17.3	0.94	5491	2.98	75.65
007840358-03	OBS	No	19.637220	148.354109	1099.5	1.457	13.9	16.9	0.94	5491	3.30	40.40
007840358-04	OBS	No	10.651664	139.884112	1976.1	2.000	12.3	-1.0	0.94	5491	4.14	91.33
007840358-05	OBS	No	12.998605	133.163019	732.4	1.708	10.7	15.3	0.94	5491	2.58	70.03
007840358-06	OBS	No	7.078920	133.130318	606.6	0.614	14.1	7.6	0.94	5491	2.80	157.48
007840358-07	OBS	No	3.322511	131.960994	2513.8	1.500	16.0	-1.0	0.94	5491	4.68	431.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007840358-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_MEAS
007840358-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007840358-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007840358-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
007840358-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007840358-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007840358-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

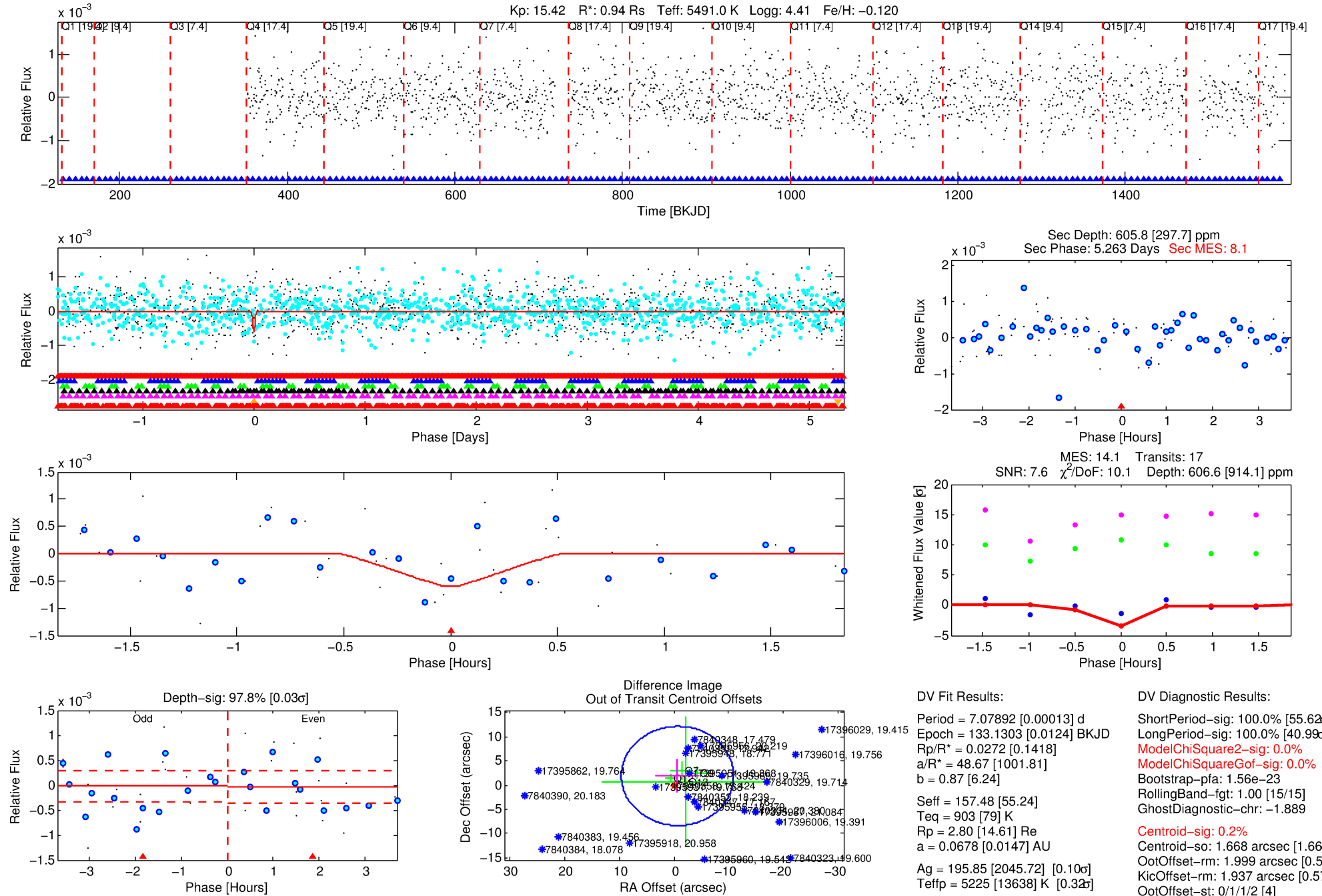
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007840358-06

No Significant Match Found

# DV One-Page Summary

KIC: 7840358 Candidate: 6 of 7 Period: 7.079 d



## DV Fit Results:

Period = 7.07892 [0.00013] d  
Epoch = 133.1303 [0.0124] BKJD  
Rp/R\* = 0.0272 [0.1418]  
a/R\* = 48.67 [1001.81]  
b = 0.87 [6.24]  
Seff = 157.48 [55.24]  
Teff = 903 [79] K  
Rp = 2.80 [14.61] Re  
a = 0.0678 [0.0147] AU  
Ag = 195.85 [2045.72] [0.10σ]  
Teffp = 5225 [13638] K [0.32σ]

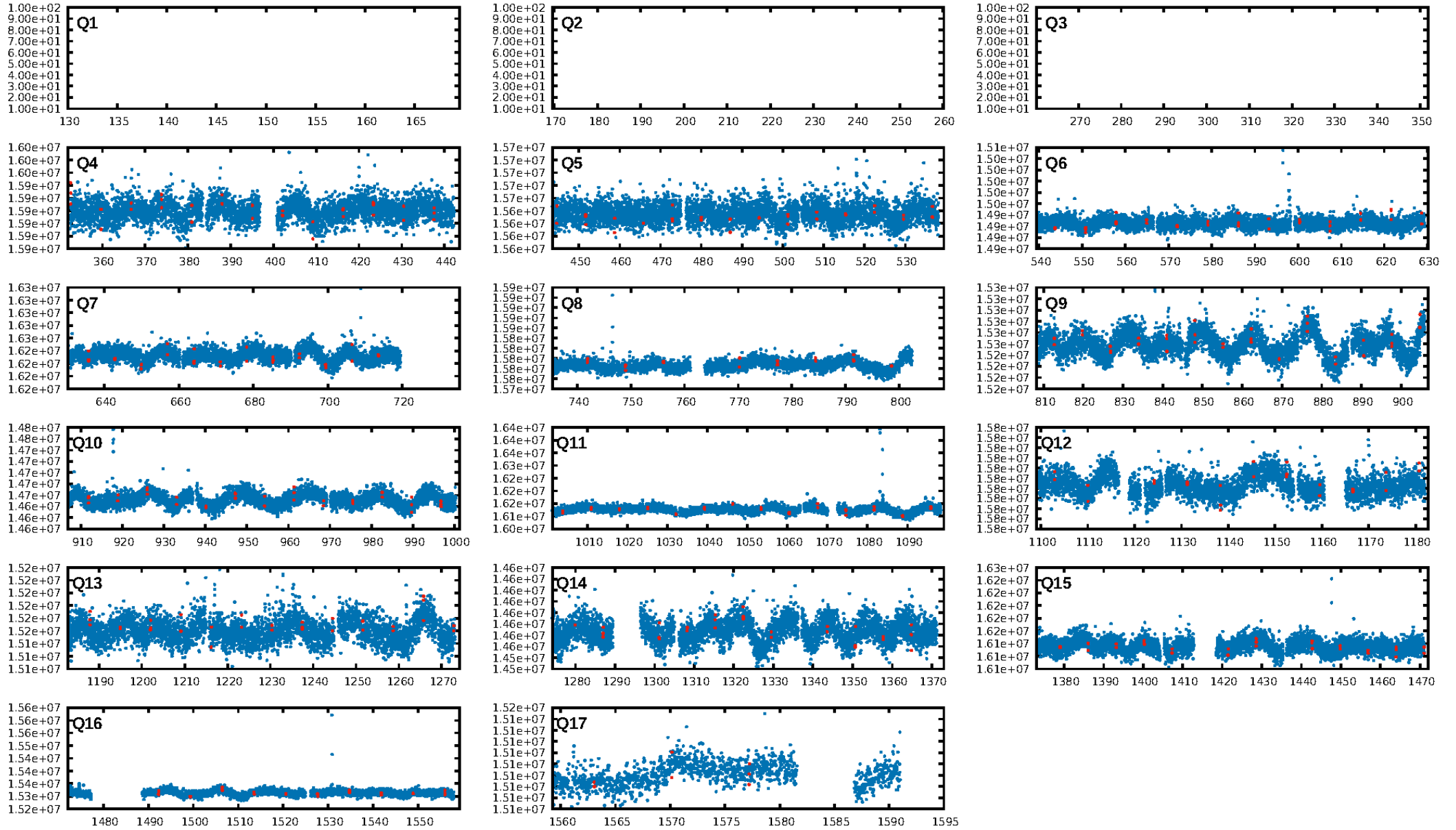
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [55.62σ]  
LongPeriod-sig: 100.0% [40.99σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: 1.56e-23  
RollingBand-fgt: 1.00 [15/15]  
GhostDiagnostic-chr: -1.889  
Centroid-sig: 0.2%  
Centroid-so: 1.668 arcsec [1.66σ]  
OotOffset-rm: 1.999 arcsec [0.58σ]  
KicOffset-rm: 1.937 arcsec [0.57σ]  
OotOffset-st: 0/1/1/2 [4]  
KicOffset-st: 0/1/1/2 [4]  
DiffImageQuality-fgm: 0.00 [0/4]  
DiffImageOverlap-fno: 0.23 [3/13]

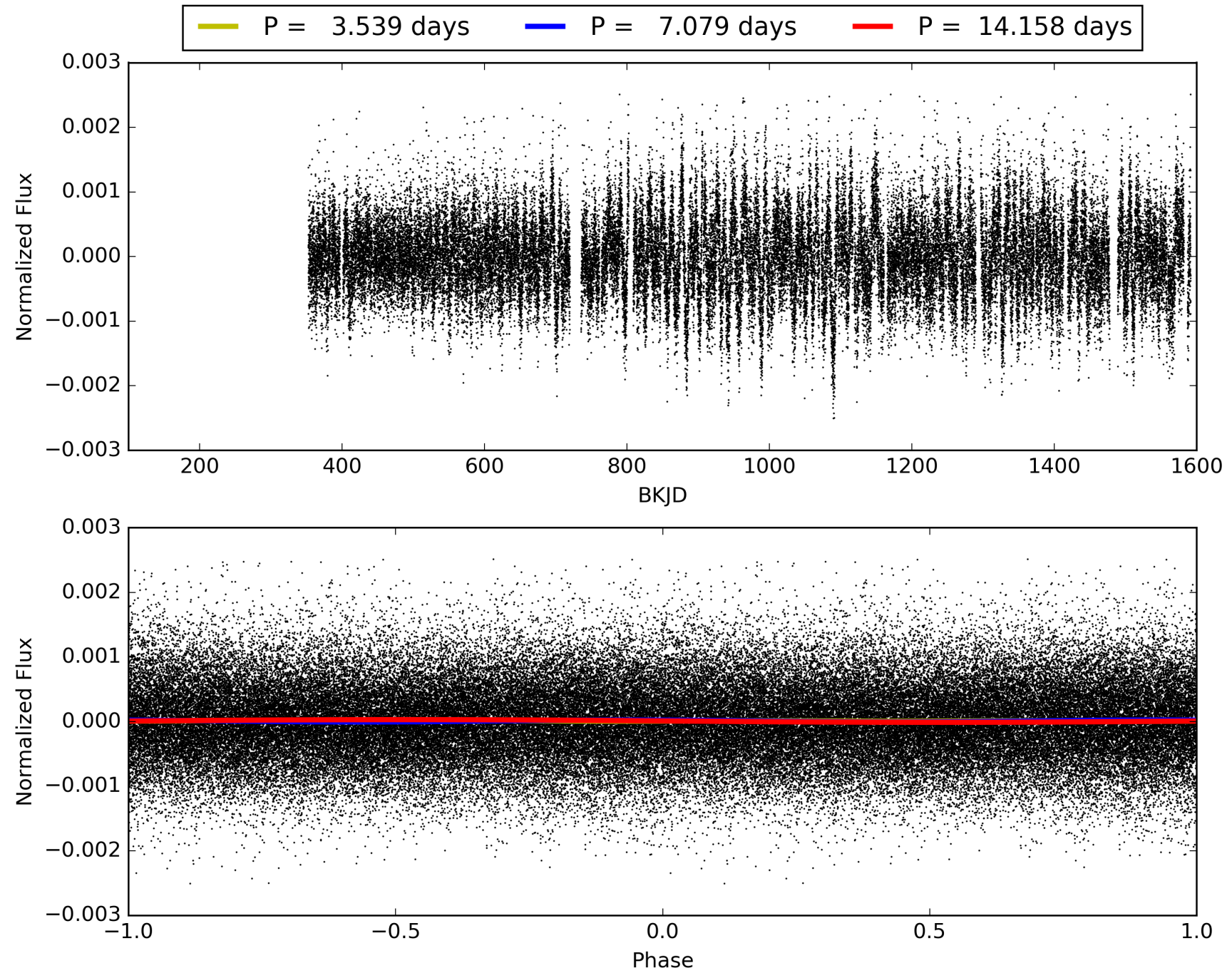
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:05:21 Z

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

# TCE 007840358-06, PDC Light Curves

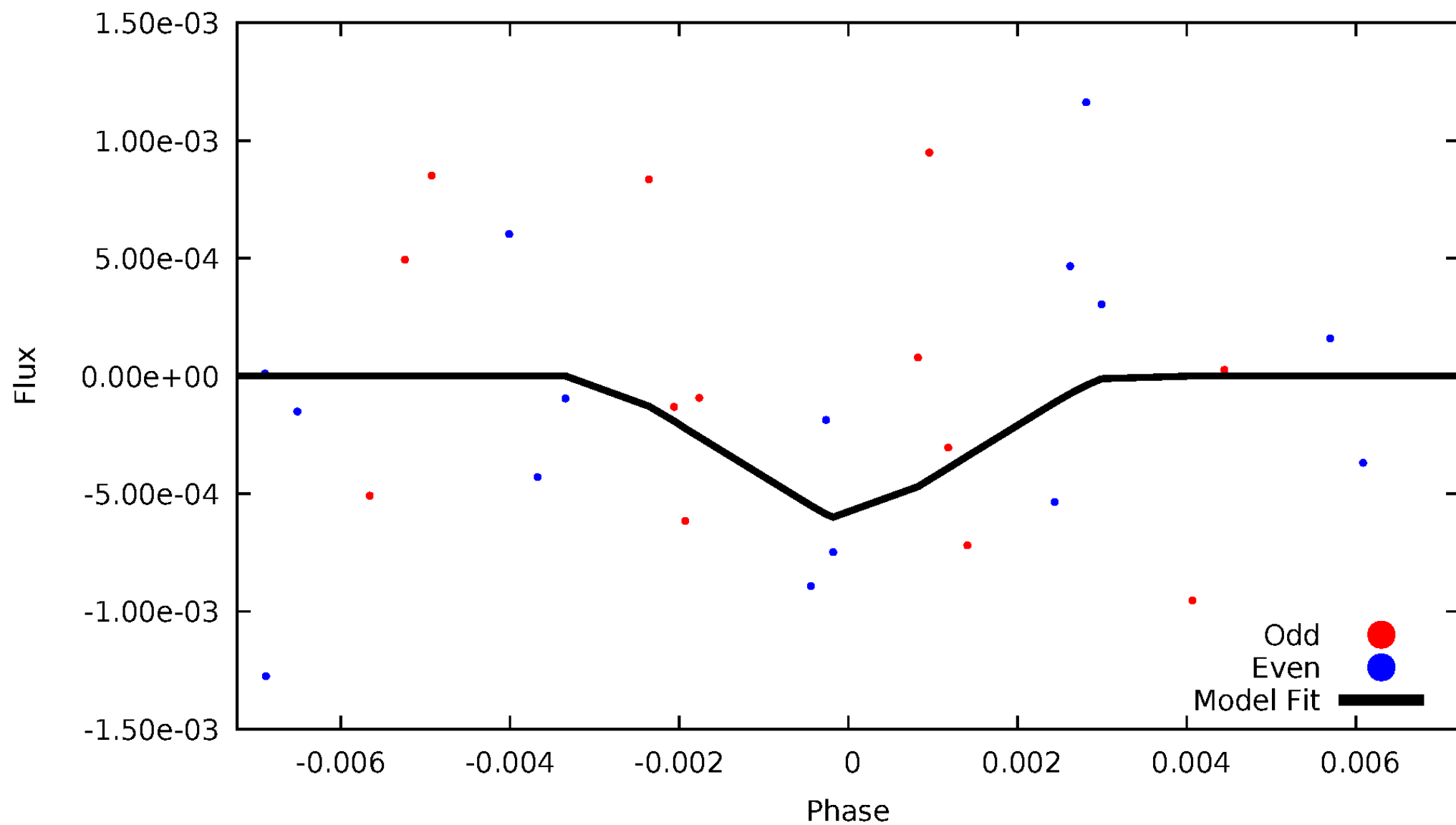


TCE 007840358-06



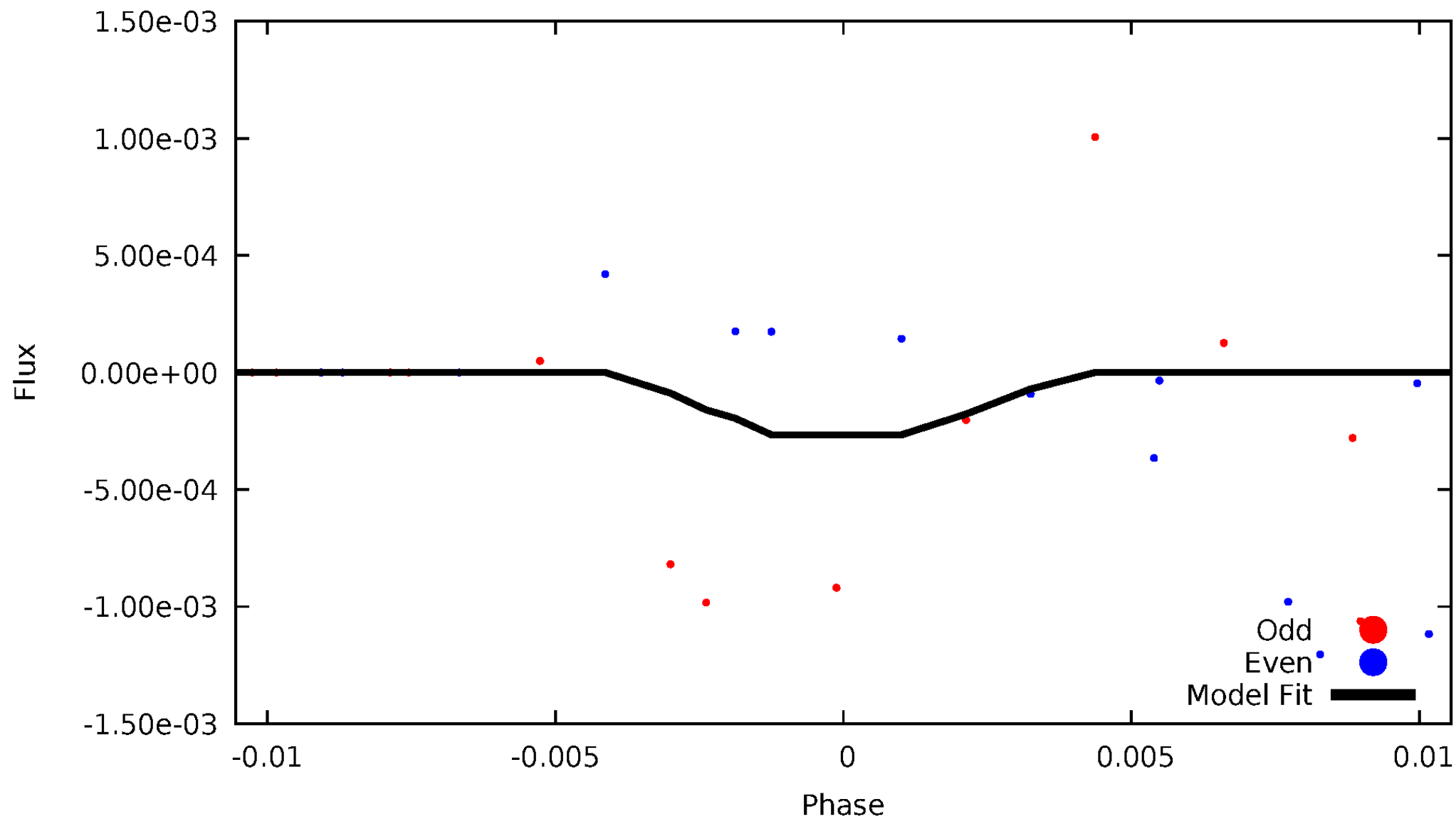
# DV Odd/Even

TCE 007840358-06



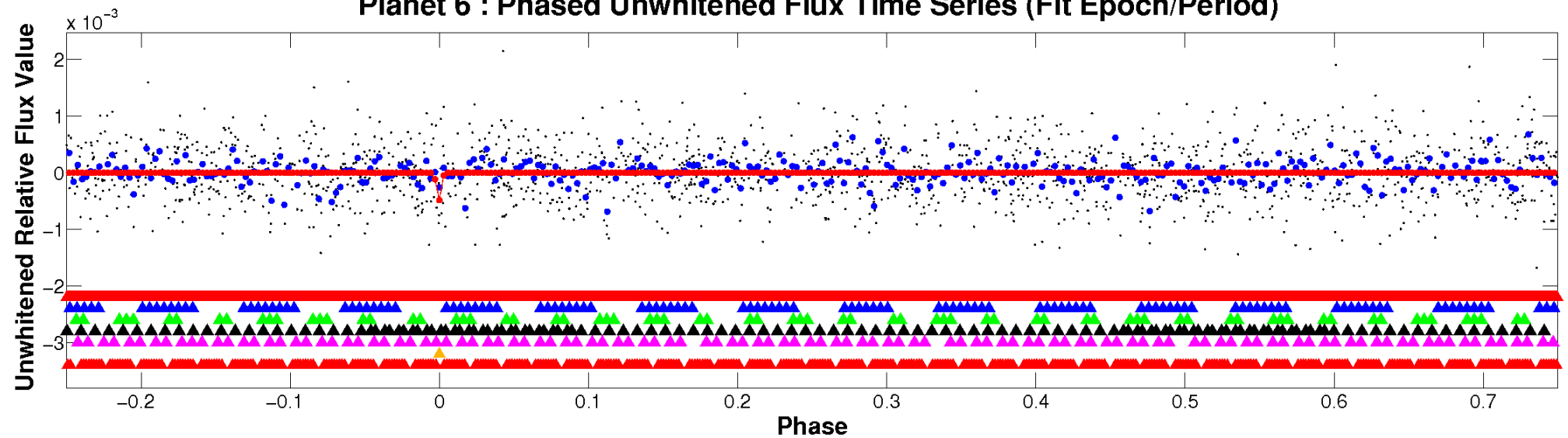
# ALT Odd/Even

TCE 007840358-06

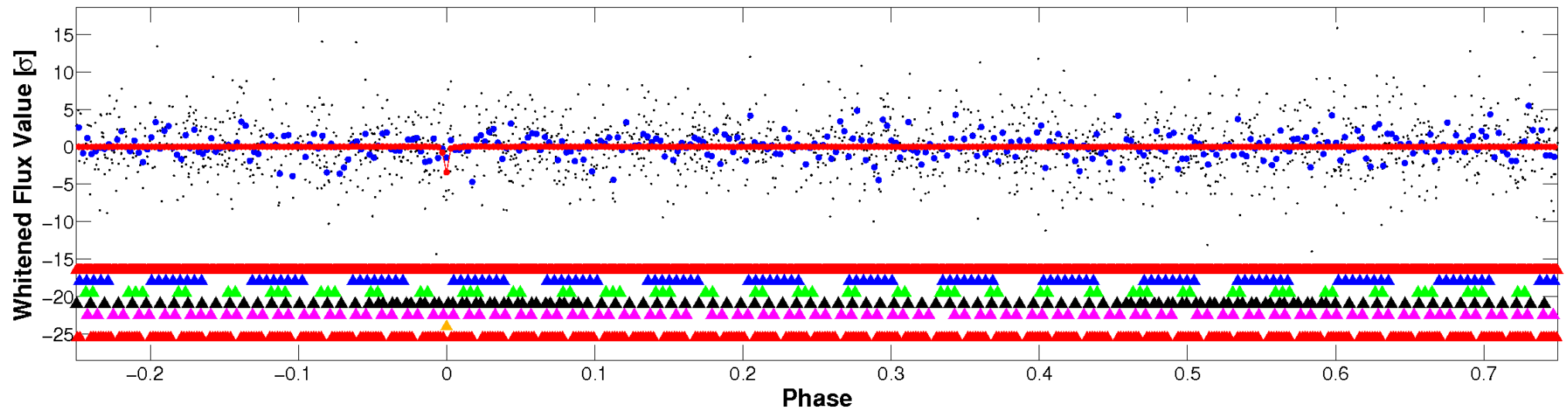


# Non-Whitened Vs. Whitened Light Curve

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



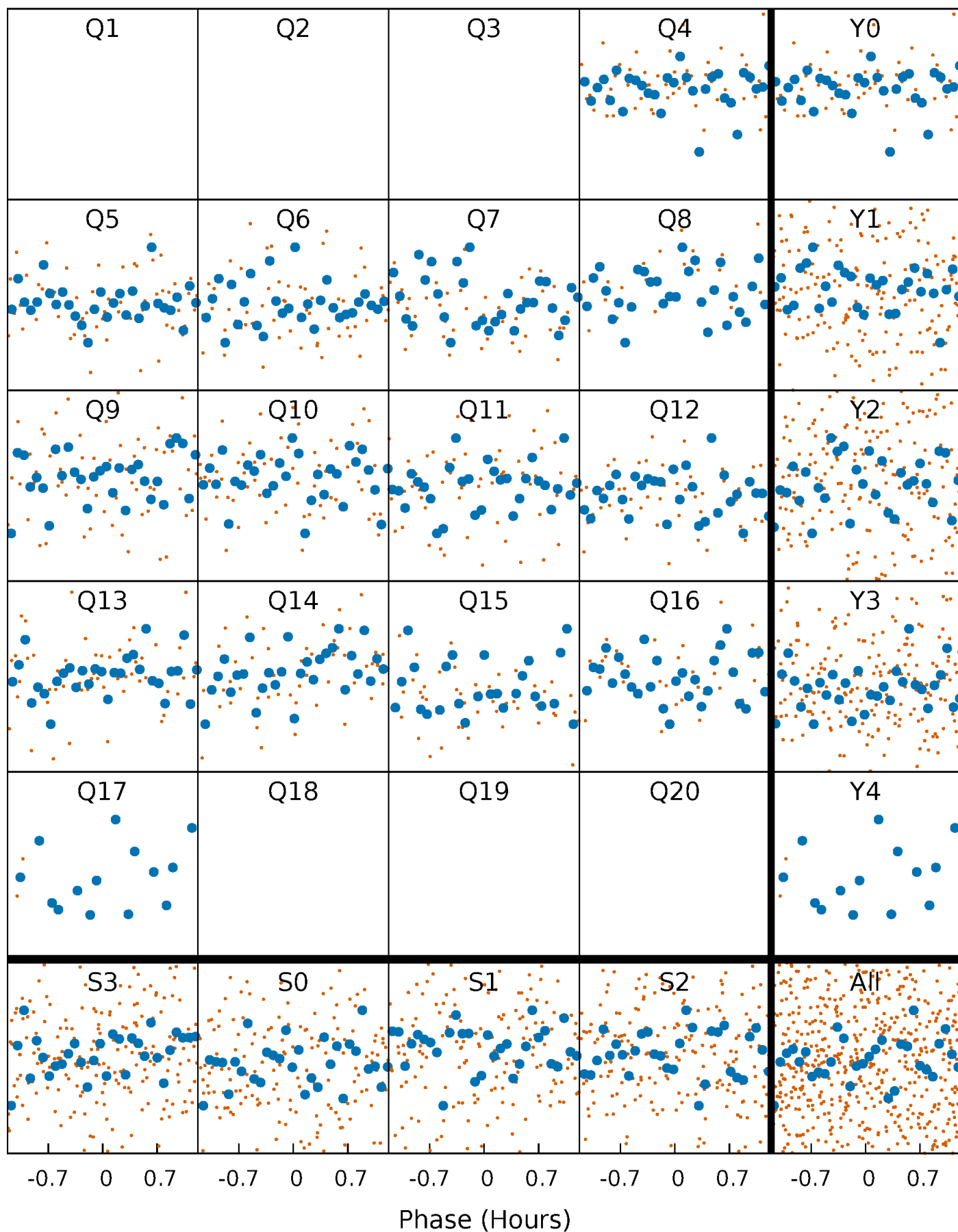
## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)





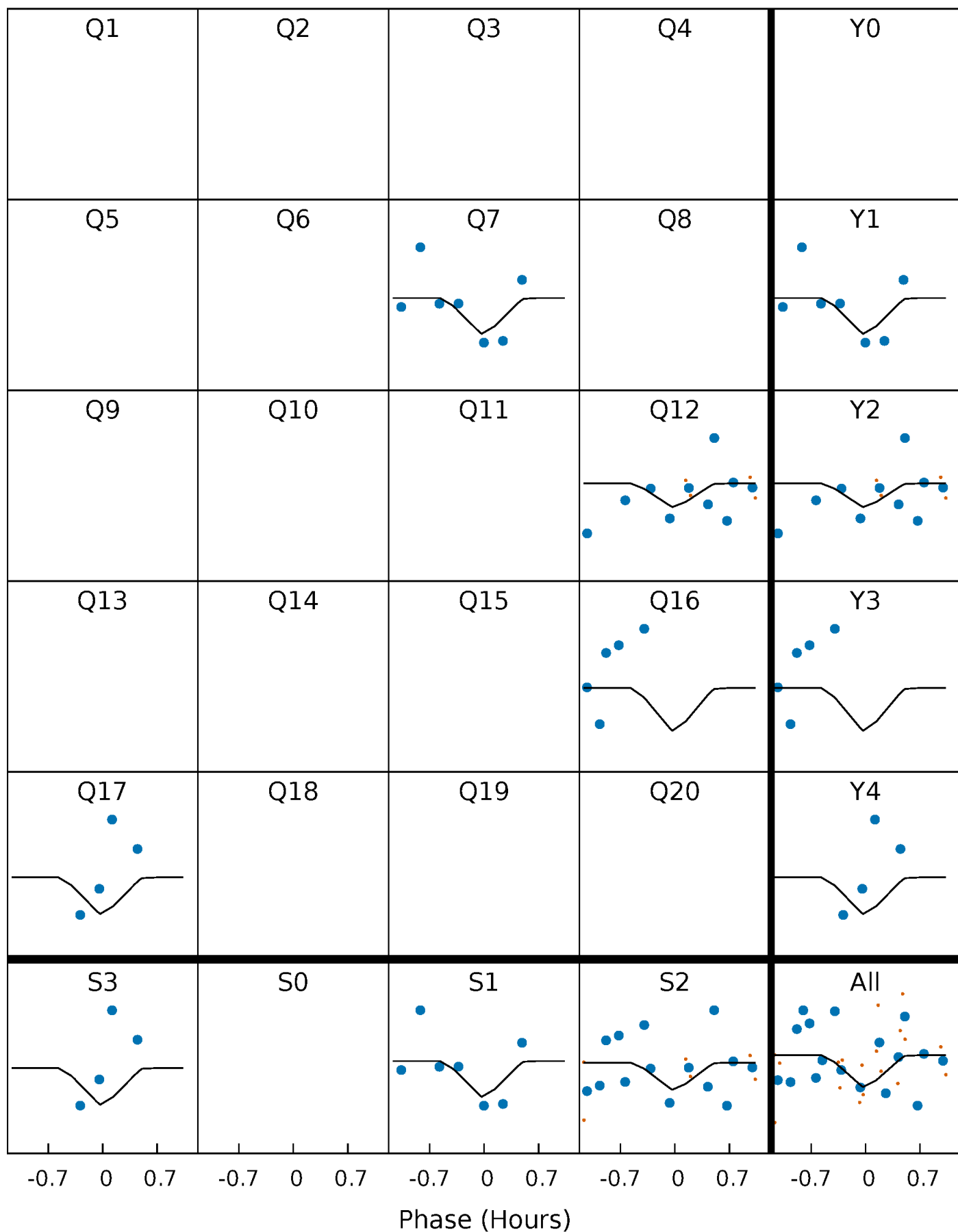
# PDC Quarter-Phased Transit Curves

TCE 007840358-06 P= 7.078920 Days  $T_0=133.130318$  (BKJD)



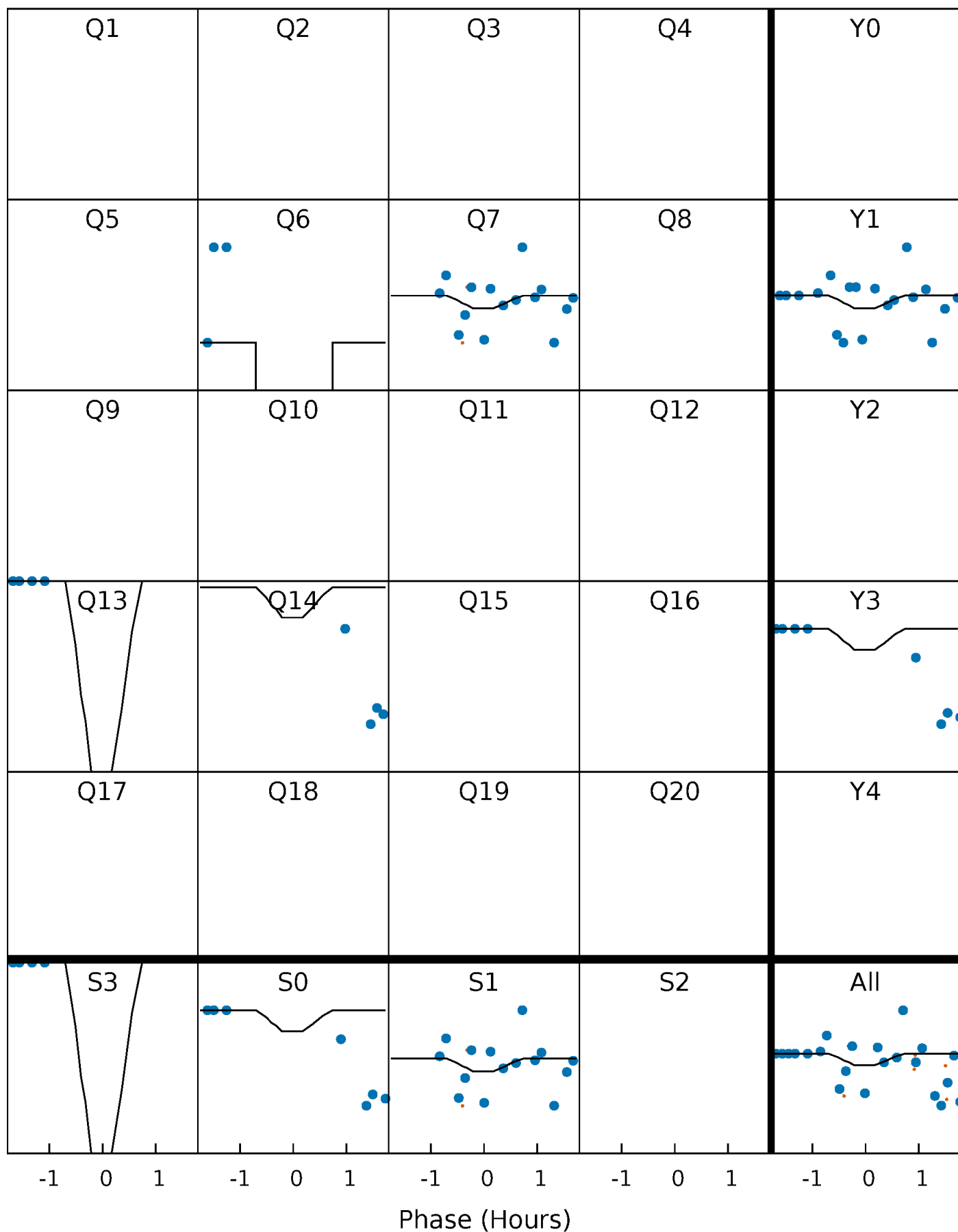
# DV Quarter-Phased Transit Curves

TCE 007840358-06 P= 7.078920 Days  $T_0=133.130318$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

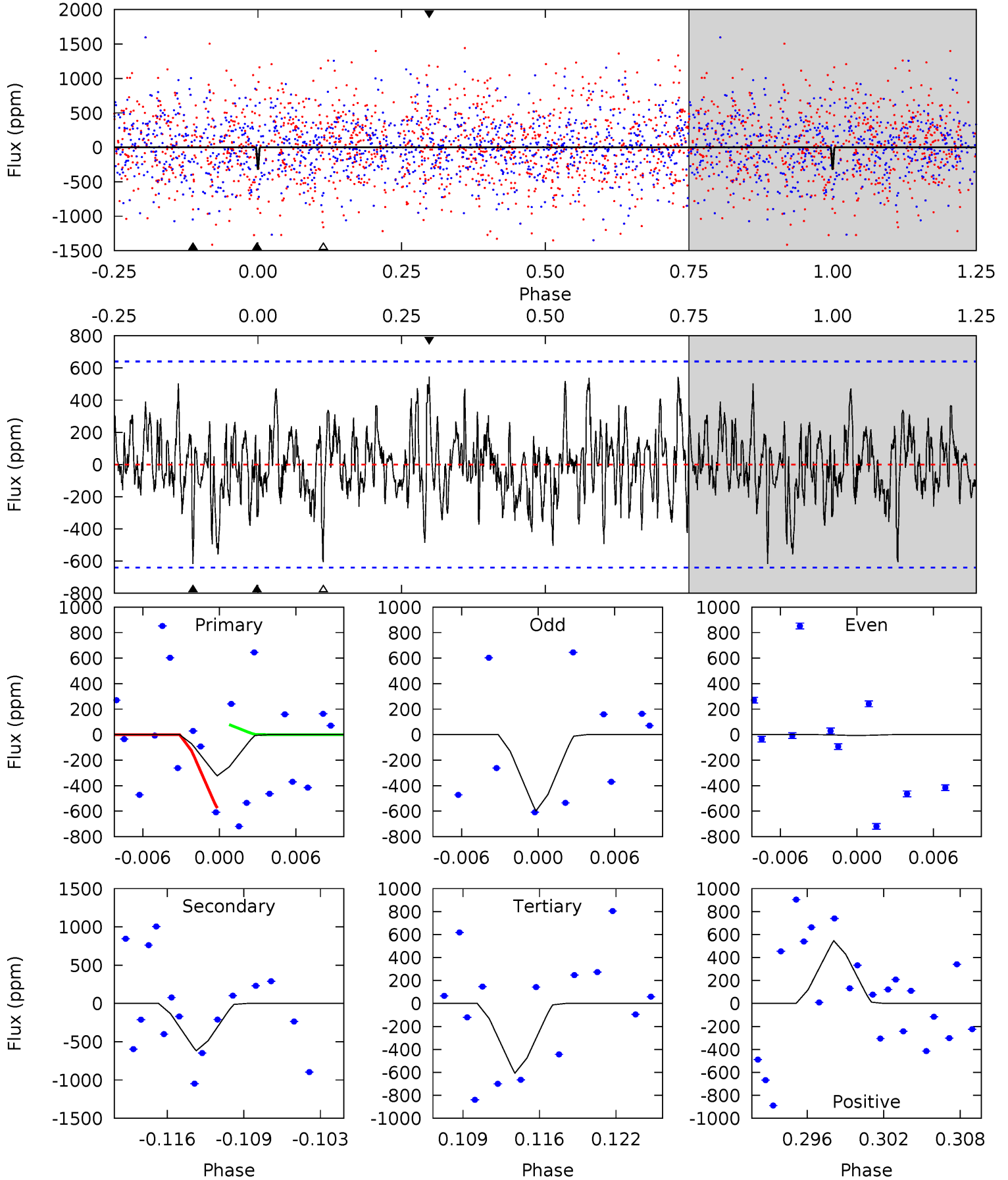
TCE 007840358-06 P= 7.082213 Days  $T_0=132.810895$  (BKJD)



# DV Model-Shift Uniqueness Test

007840358-06, P = 7.078920 Days, E = 133.130318 Days

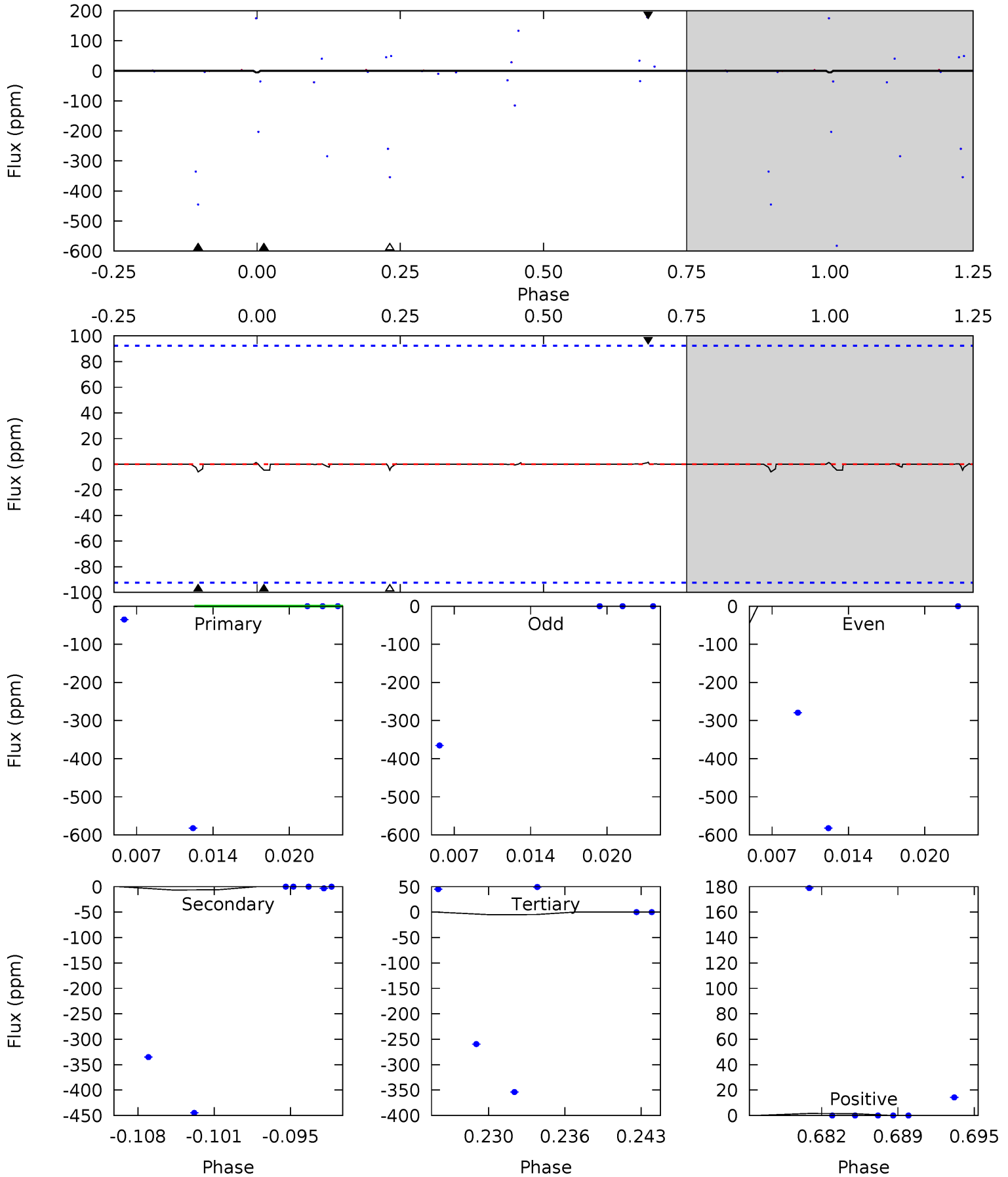
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.57	4.93	4.84	4.36	5.11	2.73	1.53	-2.27	-1.78	0.09	0.58	2.38	2.28	0.47	1.96



# Alt Model-Shift Uniqueness Test

007840358-06, P = 7.082213 Days, E = 132.810895 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
0.26	0.33	0.26	0.08	5.10	2.71	0.02	-0.01	0.17	0.07	0.25	0	1.00	0.19	0



### Stellar Parameters For KIC 007840358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5491^{+199}_{-182}$	$4.408^{+0.144}_{-0.176}$	$-0.120^{+0.300}_{-0.300}$	$0.943^{+0.241}_{-0.141}$	$0.830^{+0.120}_{-0.065}$	$1.394^{+0.853}_{-0.677}$
	+4%/-3%	+3%/-4%	+250%/-250%	+26%/-15%	+14%/-8%	+61%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 007840358-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-618 \pm 125$	$11.01^{+10.90}_{-7.92}$	$1263^{+92}_{-77}$	$3241^{+1847}_{-623}$	$13^{+160}_{-10}$
Alt.	$-6 \pm 18$	$10.52^{+11.06}_{-7.60}$	$1265^{+91}_{-78}$	$-1953^{+4370}_{-242}$	$0.079^{+1.652}_{-0.342}$

$T_{max}$  = 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

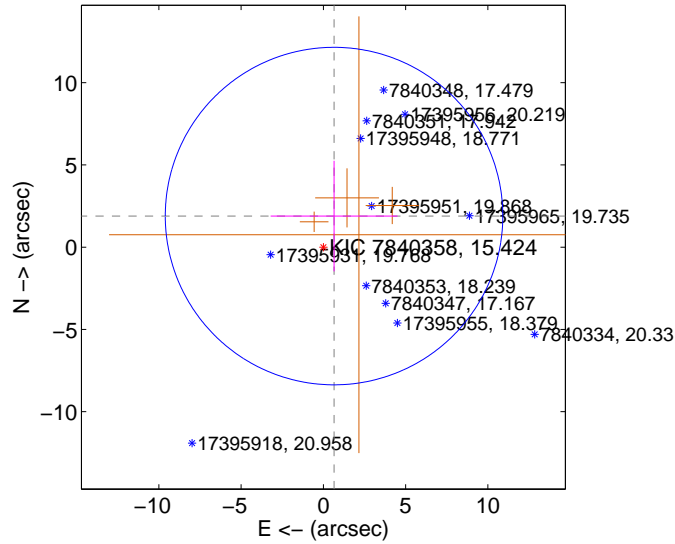
Supplemental centroid analysis for 007840358-06. Kepler magnitude: 15.42. Transit SNR 7.58

There are 0 quarters with good PRF difference image offsets

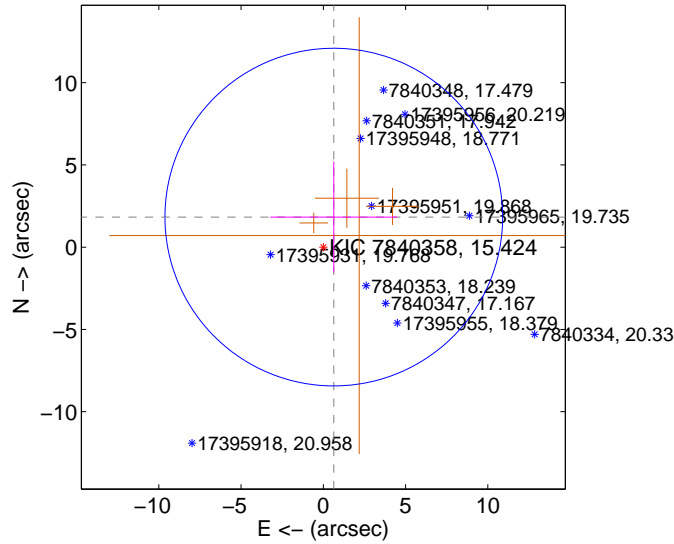
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.999 \pm 3.421$	0.58	$-0.649 \pm 3.857$	$1.891 \pm 3.366$
PRF-fit source offset from KIC position	$1.937 \pm 3.422$	0.57	$-0.637 \pm 3.857$	$1.829 \pm 3.366$
photometric centroid source offset	$1.67 \pm 1.00$	1.66	$0.72 \pm 0.92$	$1.51 \pm 1.02$

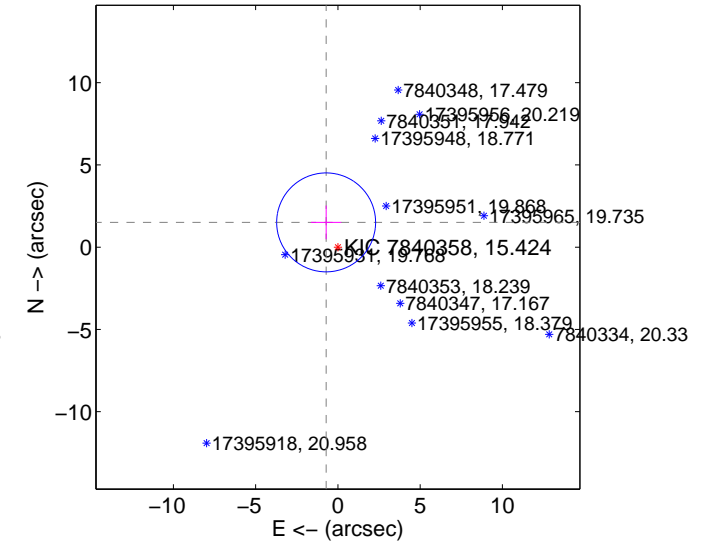
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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

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

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



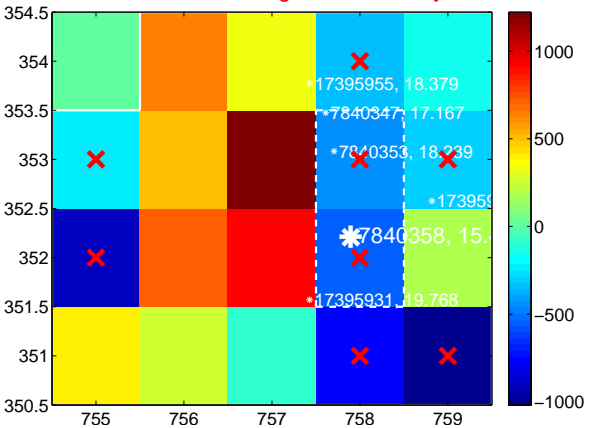
Q3 no difference image



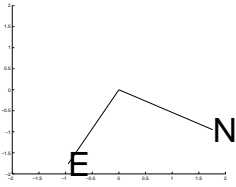
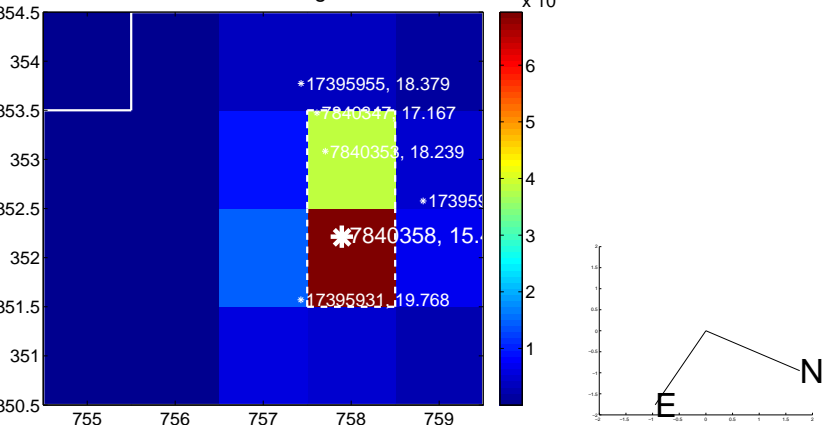
Q3 no OOT image



Q4 difference image. Poor Quality

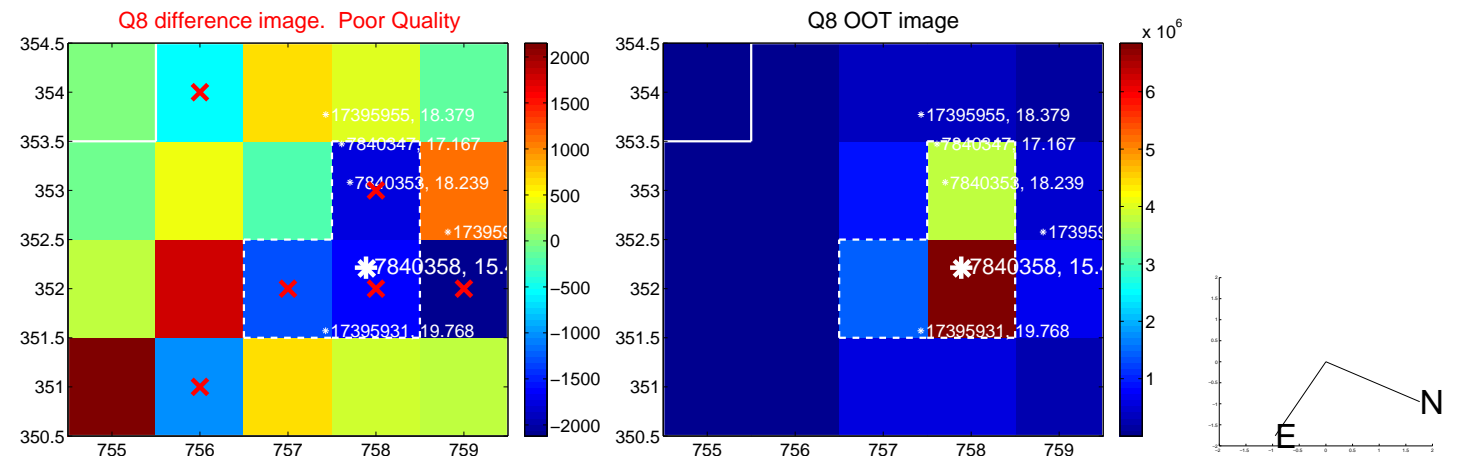
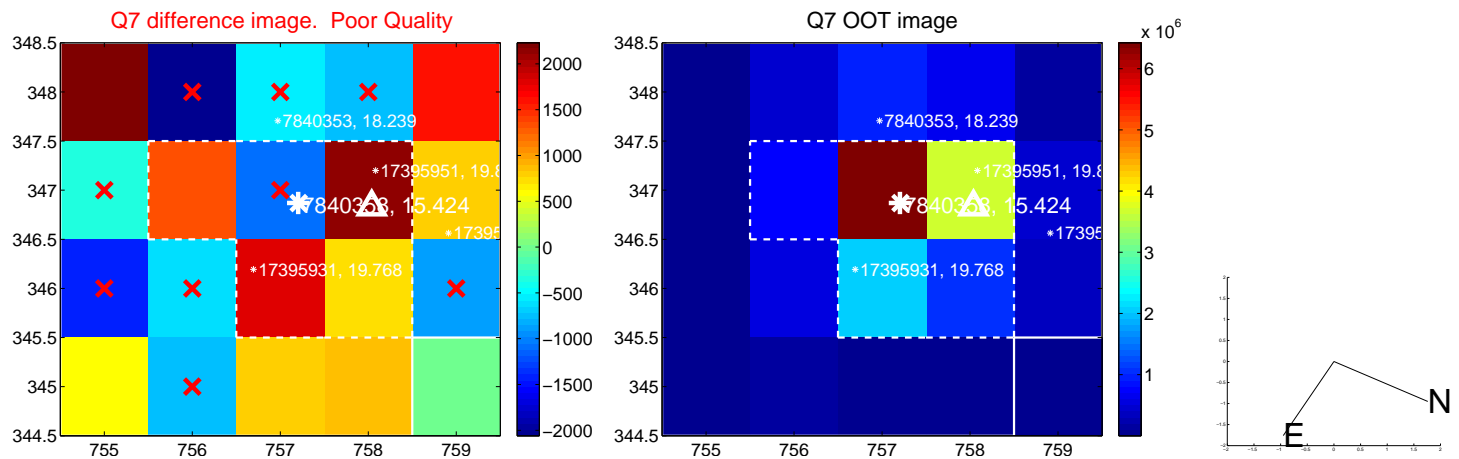
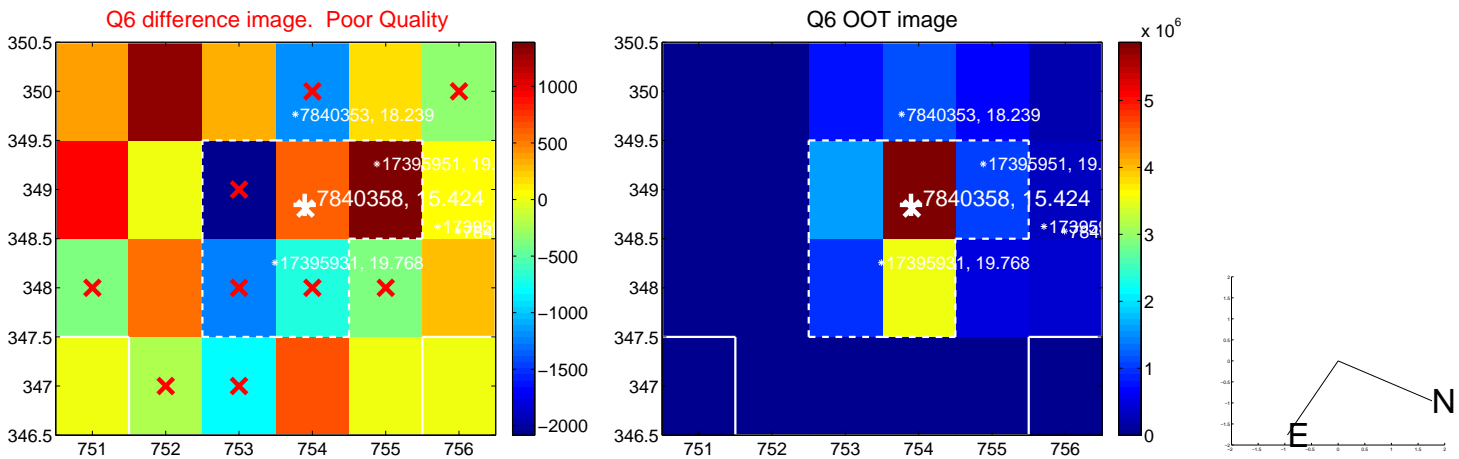
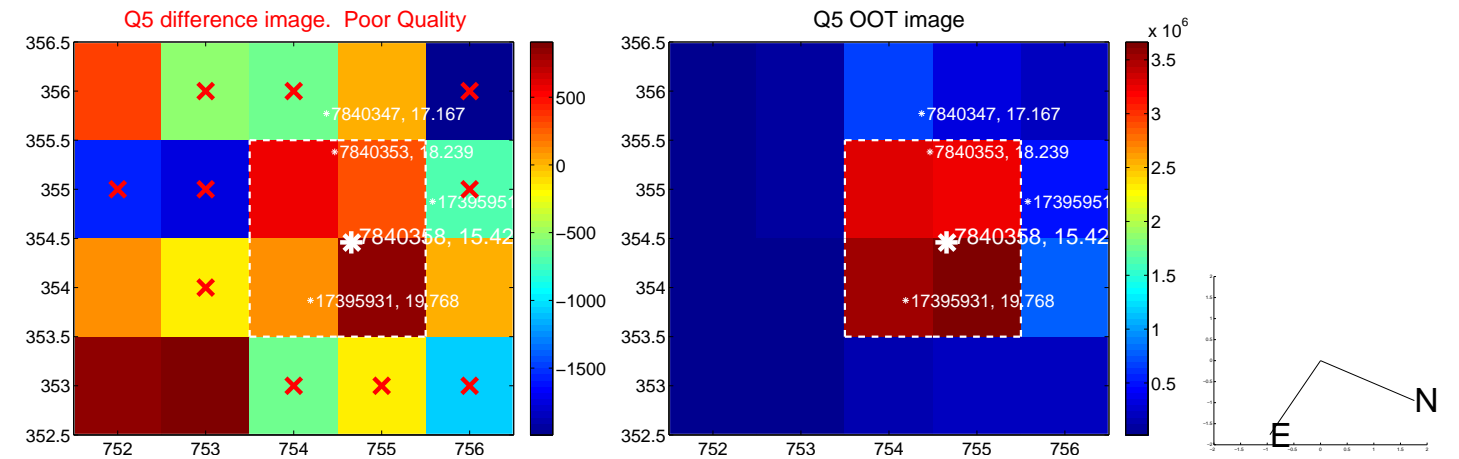


Q4 OOT image

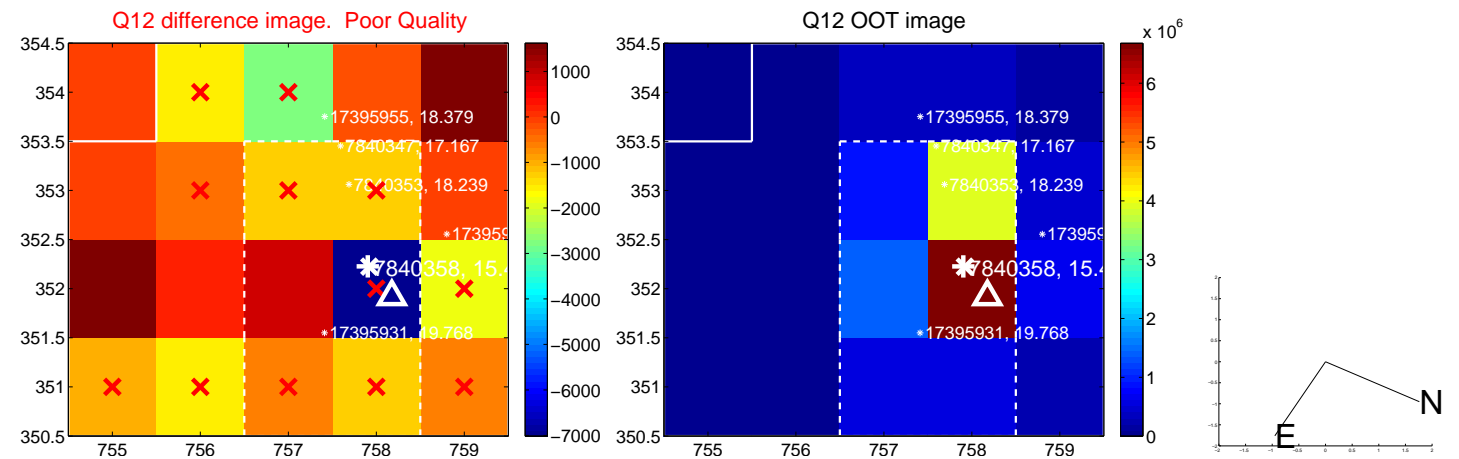
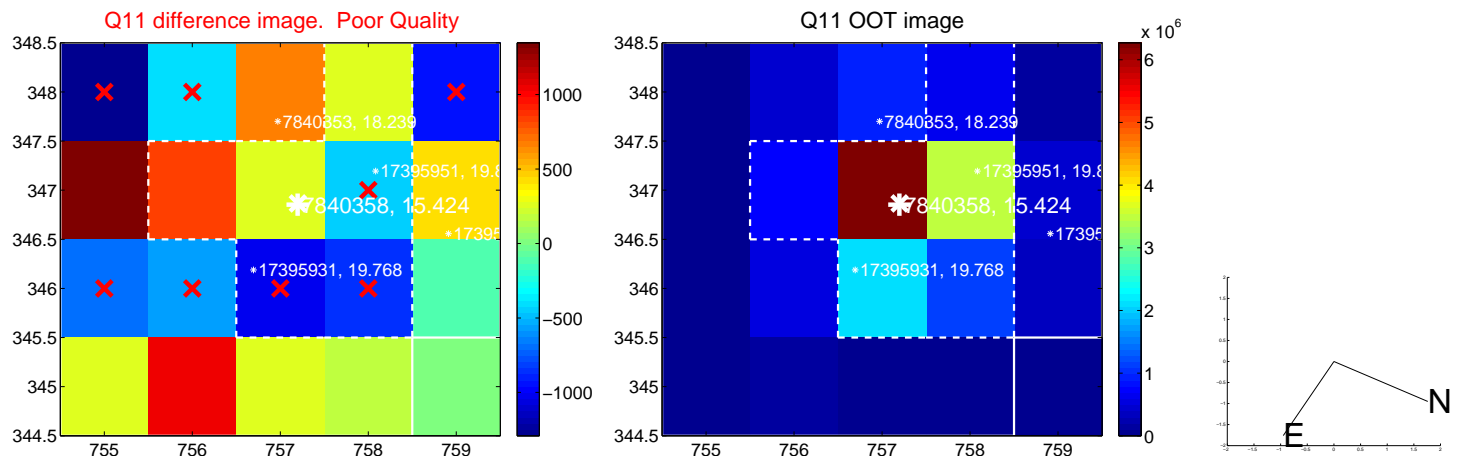
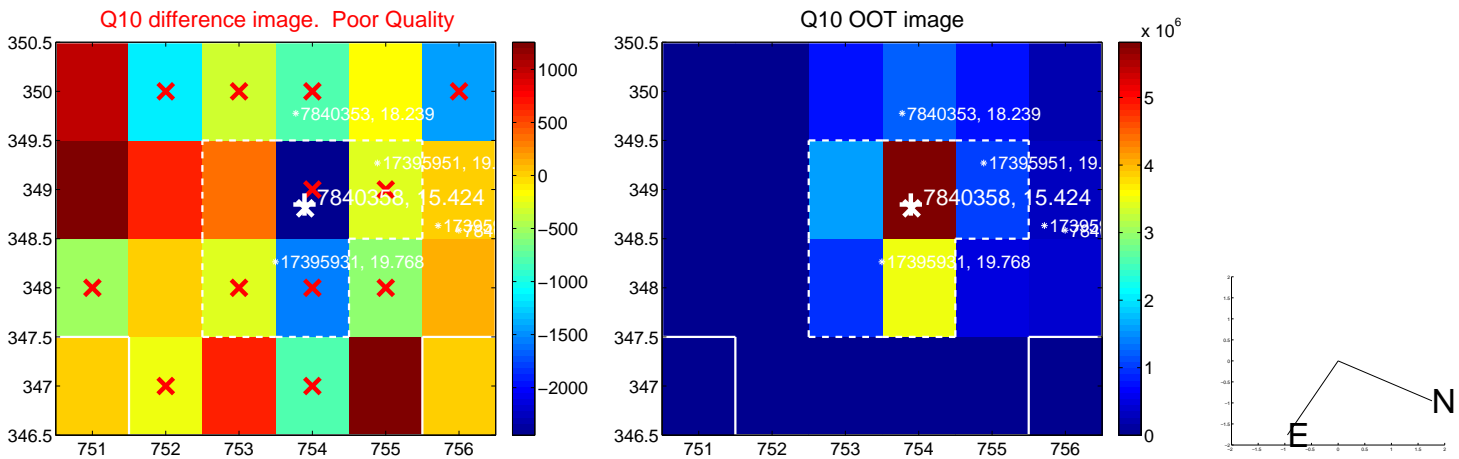
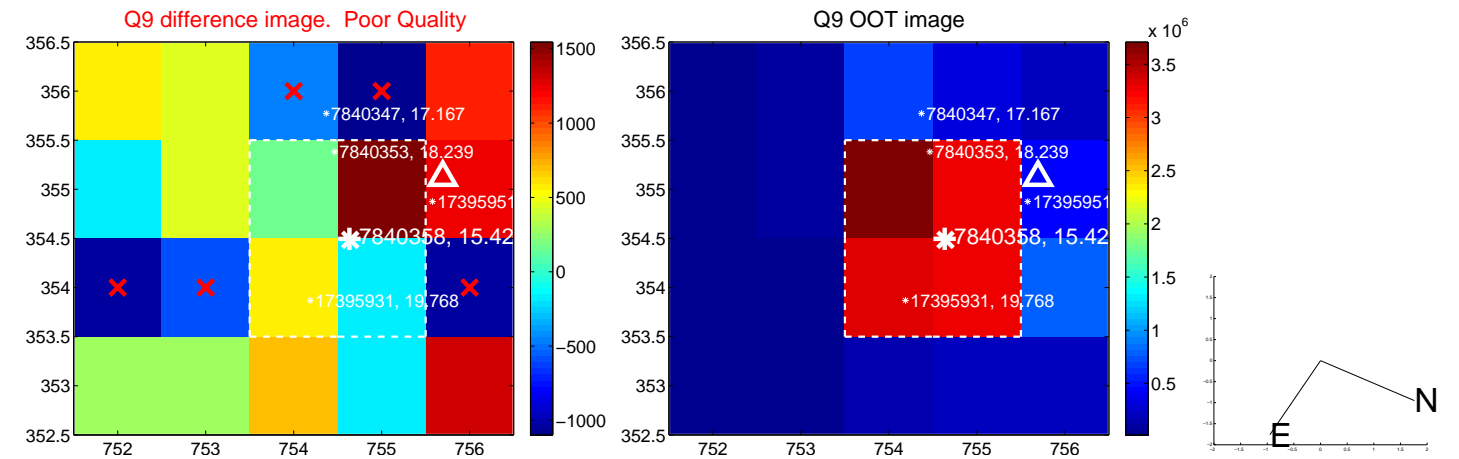




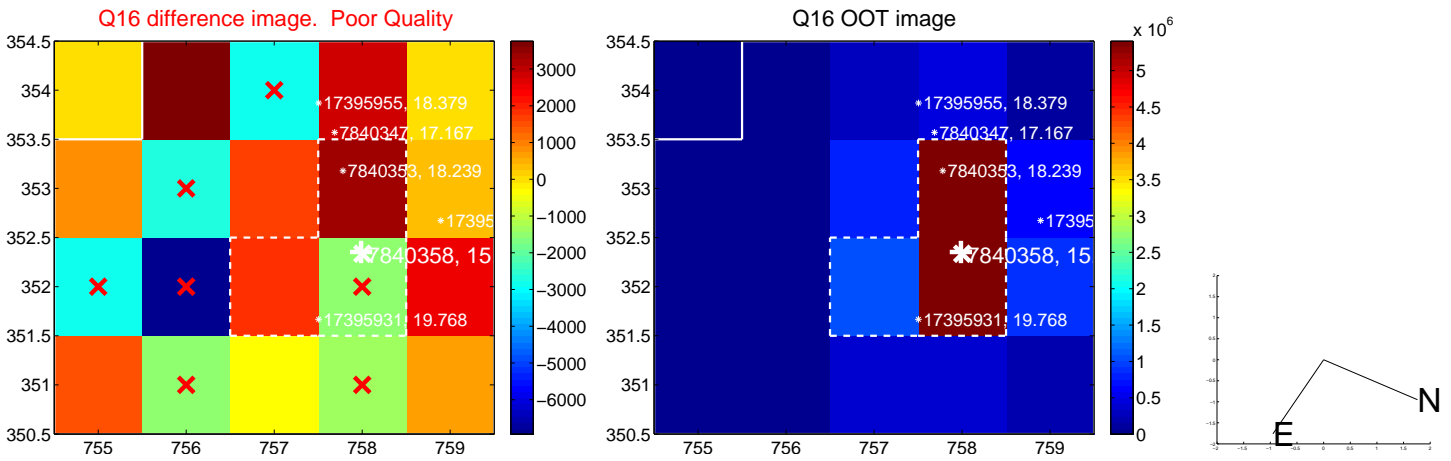
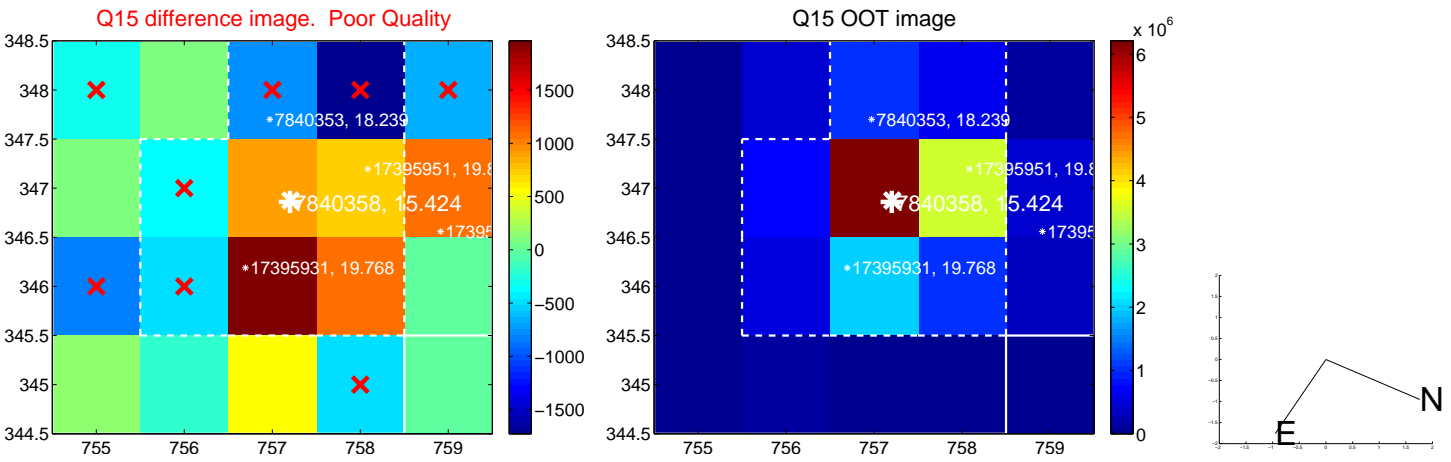
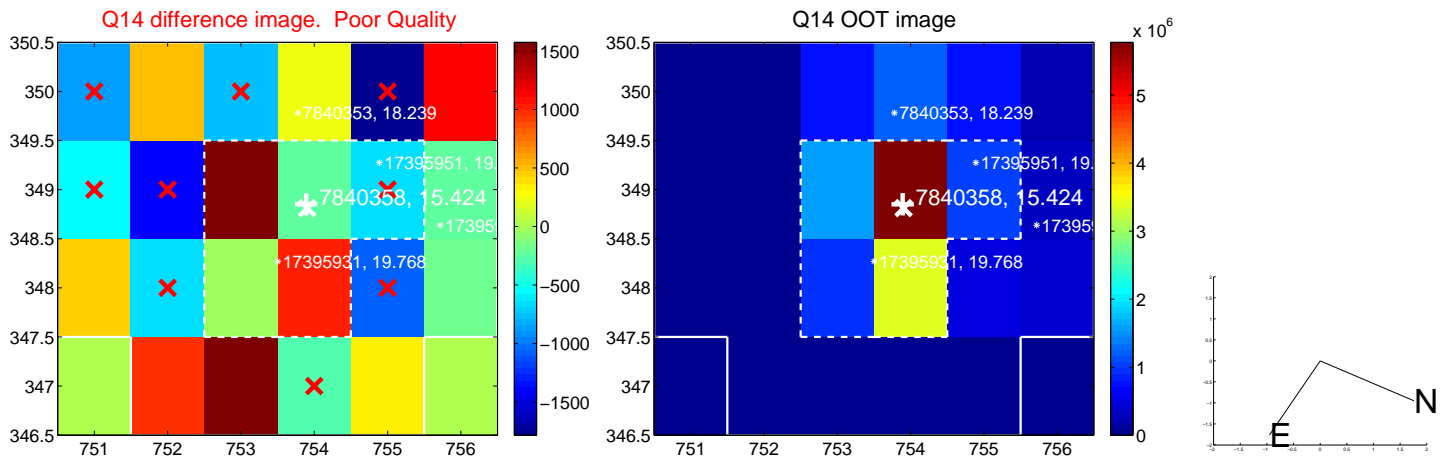
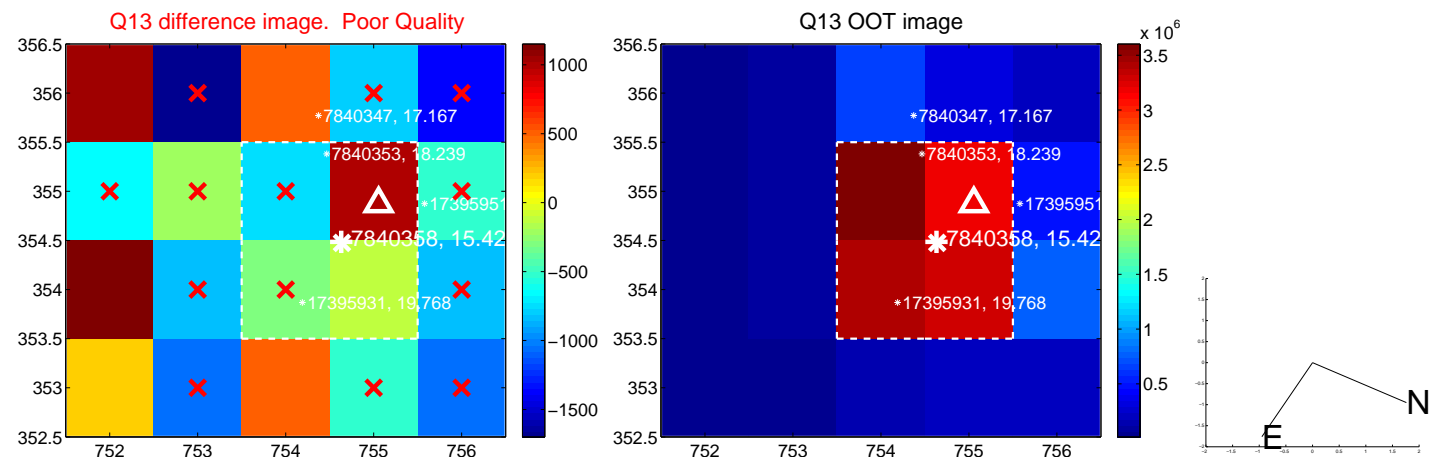
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



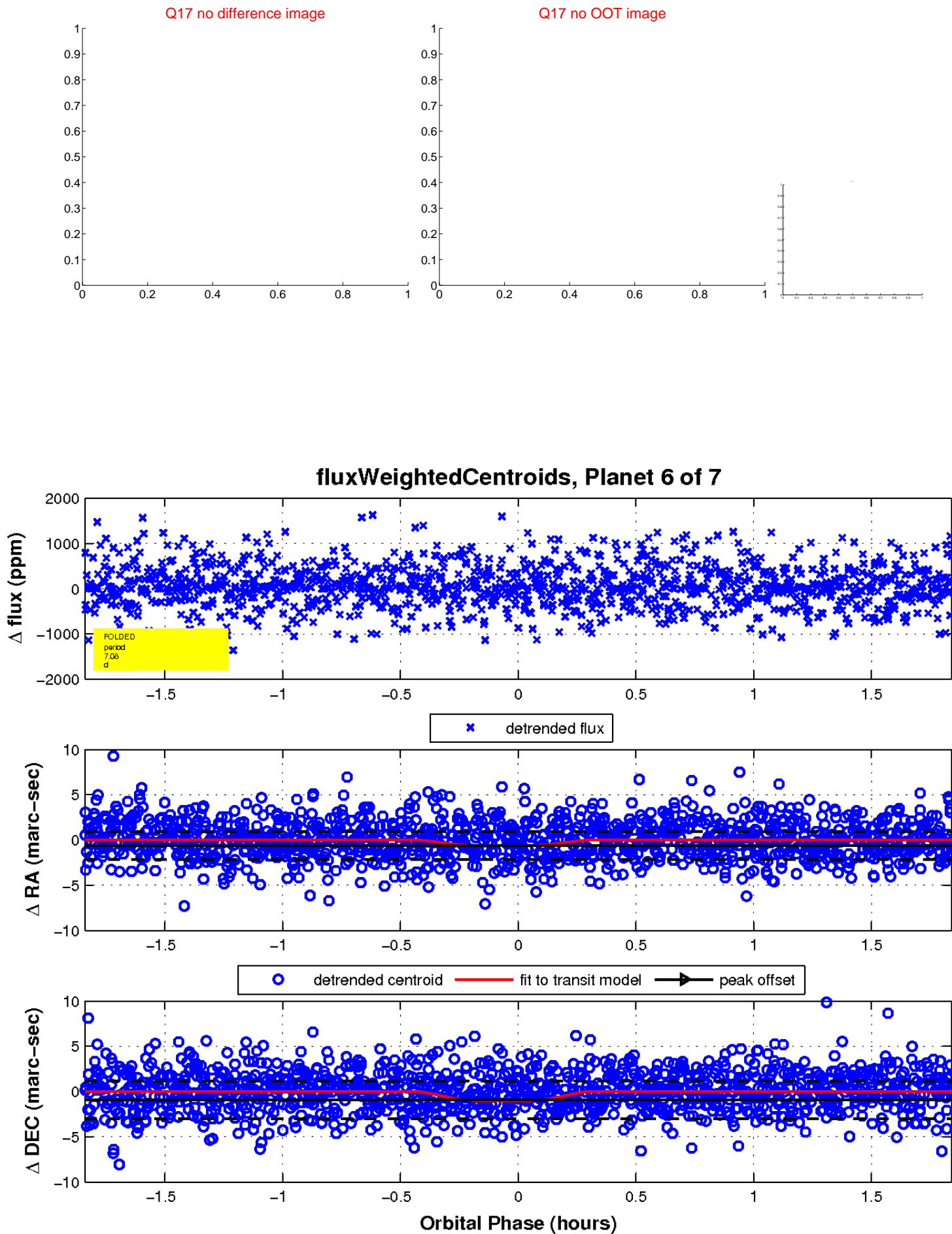
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

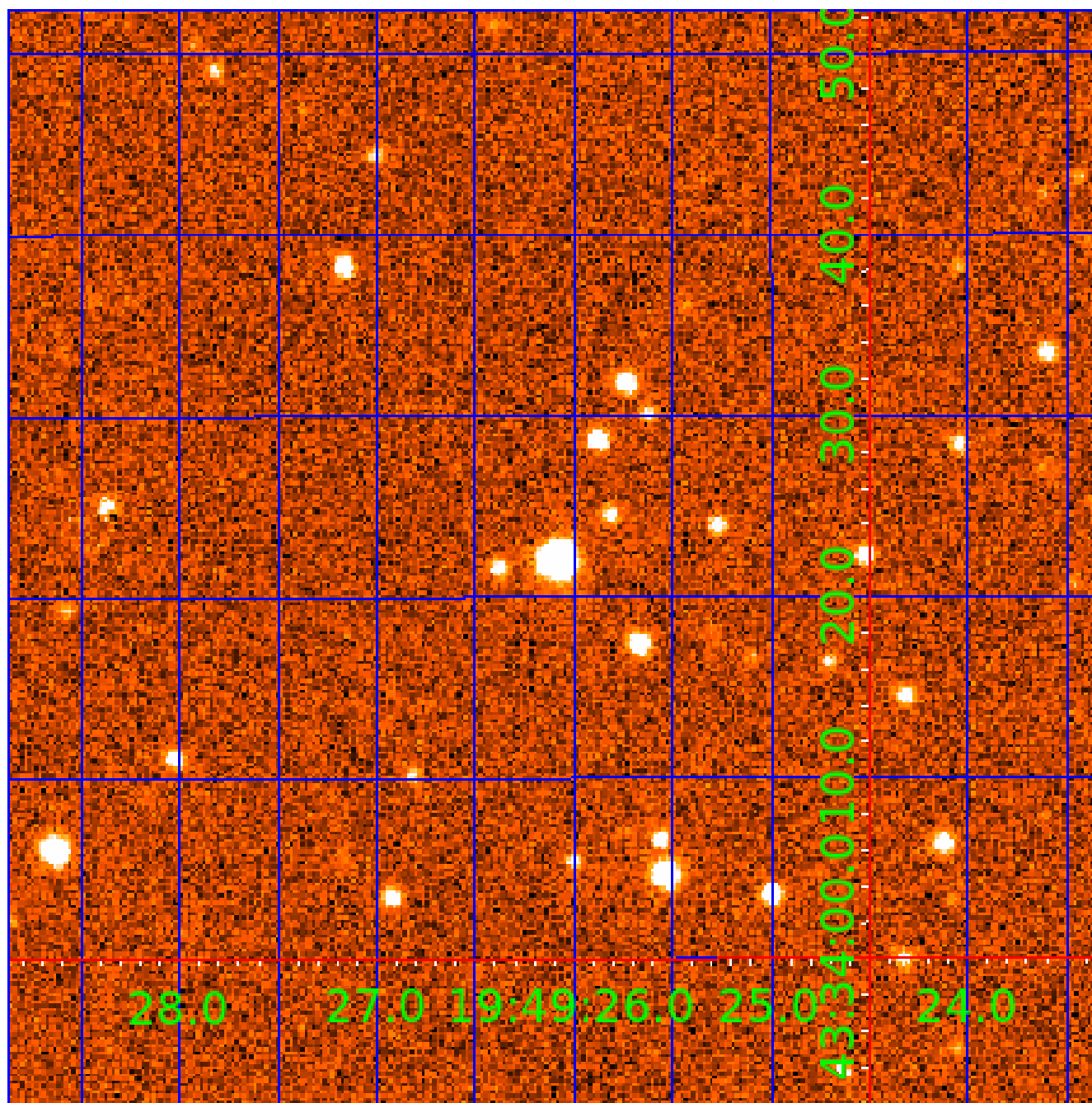


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007840358

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007840358-01	OBS	No	0.787967	131.714931	49.0	5.914	8.7	10.3	0.94	5491	0.65	2941.01
007840358-02	OBS	No	12.267855	133.402753	898.4	1.217	17.7	17.3	0.94	5491	2.98	75.65
007840358-03	OBS	No	19.637220	148.354109	1099.5	1.457	13.9	16.9	0.94	5491	3.30	40.40
007840358-04	OBS	No	10.651664	139.884112	1976.1	2.000	12.3	-1.0	0.94	5491	4.14	91.33
007840358-05	OBS	No	12.998605	133.163019	732.4	1.708	10.7	15.3	0.94	5491	2.58	70.03
007840358-06	OBS	No	7.078920	133.130318	606.6	0.614	14.1	7.6	0.94	5491	2.80	157.48
007840358-07	OBS	No	3.322511	131.960994	2513.8	1.500	16.0	-1.0	0.94	5491	4.68	431.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007840358-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_MEAS
007840358-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007840358-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007840358-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
007840358-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007840358-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007840358-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

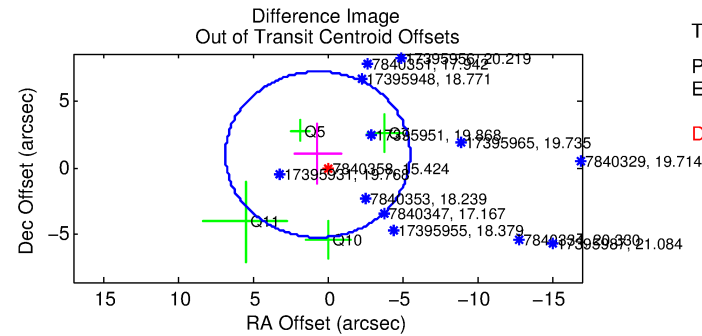
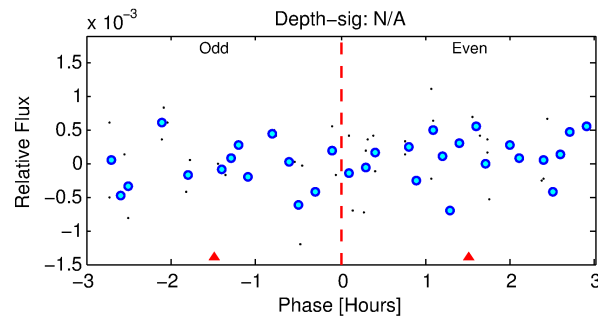
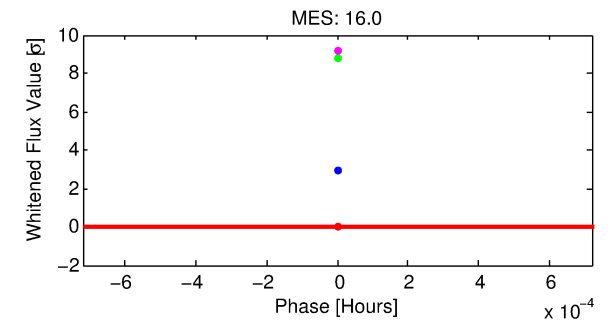
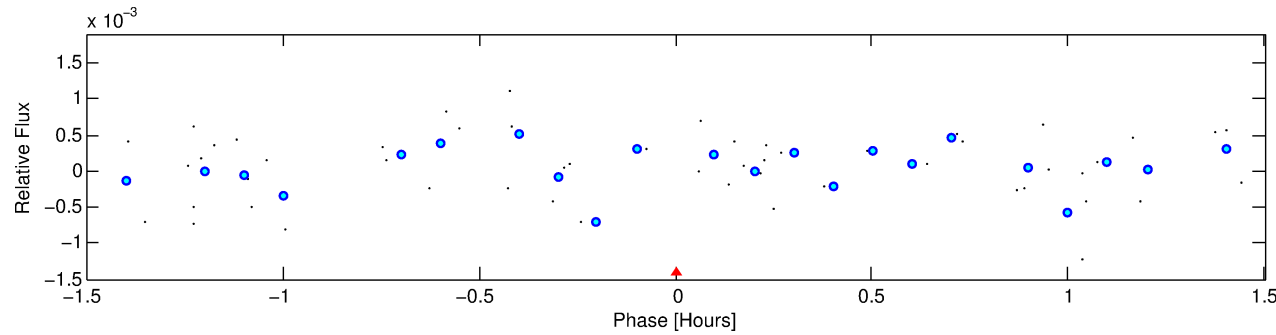
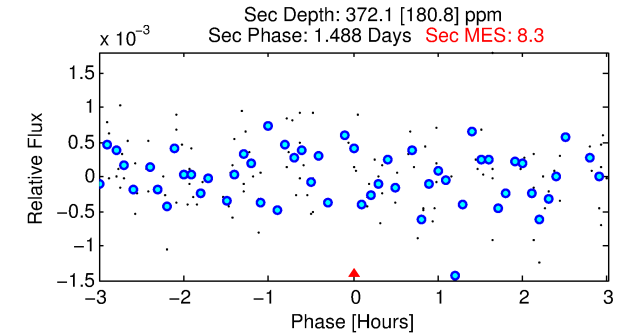
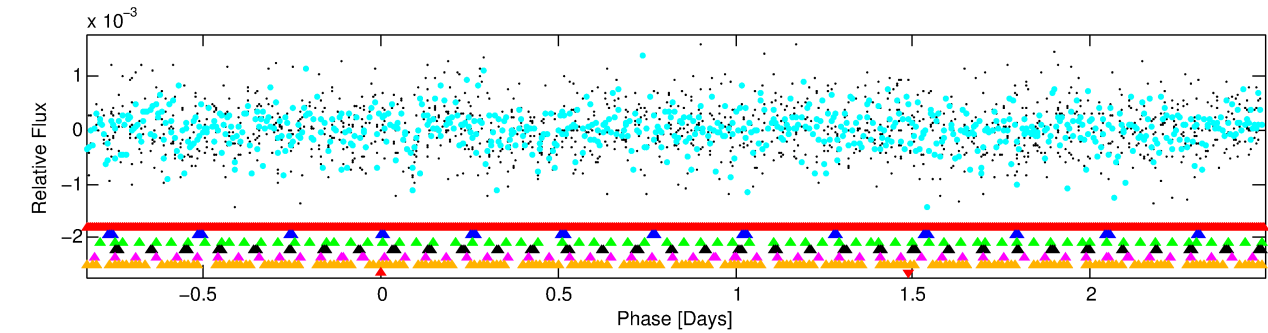
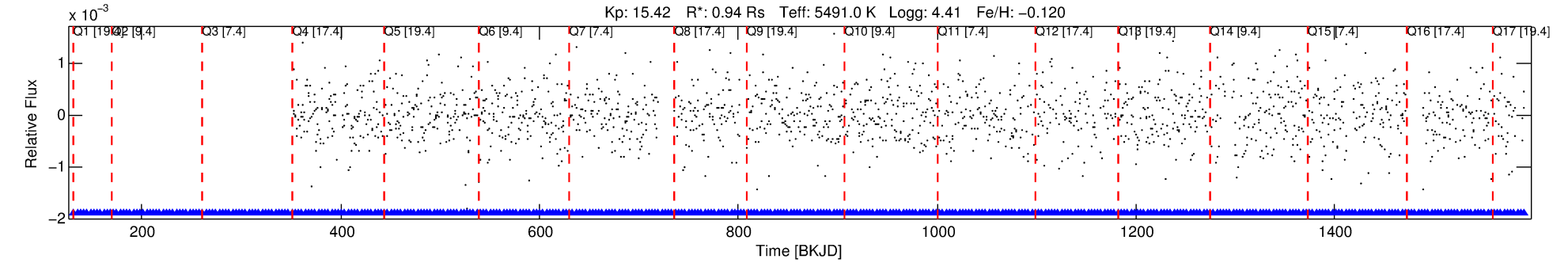
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007840358-07

No Significant Match Found

# DV One-Page Summary

KIC: 7840358 Candidate: 7 of 7 Period: 3.323 d



TPS TCE Results:

Period = 3.32251 d  
Epoch = 131.9610 BKJD

**DV fit results are unavailable**

DV Diagnostic Results:

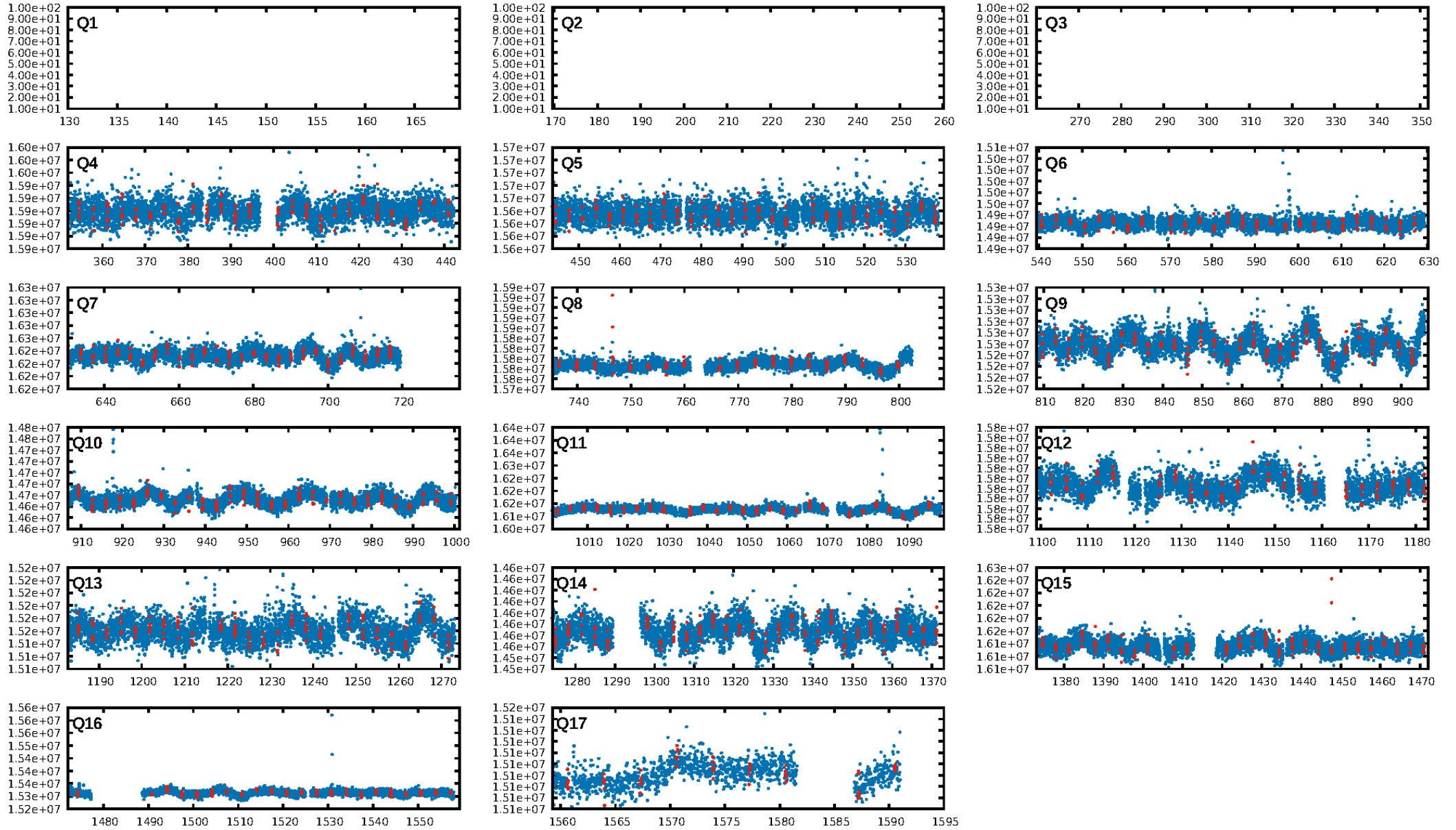
ShortPeriod-sig: 100.0% [9.97σ]  
LongPeriod-sig: 100.0% [55.62σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.87e-32  
RollingBand-fgt: 1.00 [27/27]  
GhostDiagnostic-chr: -1.76

Centroid-sig: 3.3%  
Centroid-so: 5.683 arcsec [1.85σ]  
OotOffset-rm: 1.174 arcsec [0.57σ]  
KicOffset-rm: 1.166 arcsec [0.56σ]  
OotOffset-st: 1/2/0/1 [4]  
KicOffset-st: 1/2/0/1 [4]  
DiffImageQuality-fgm: 0.00 [0/4]  
DiffImageOverlap-fno: 0.78 [7/9]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:05:24 Z

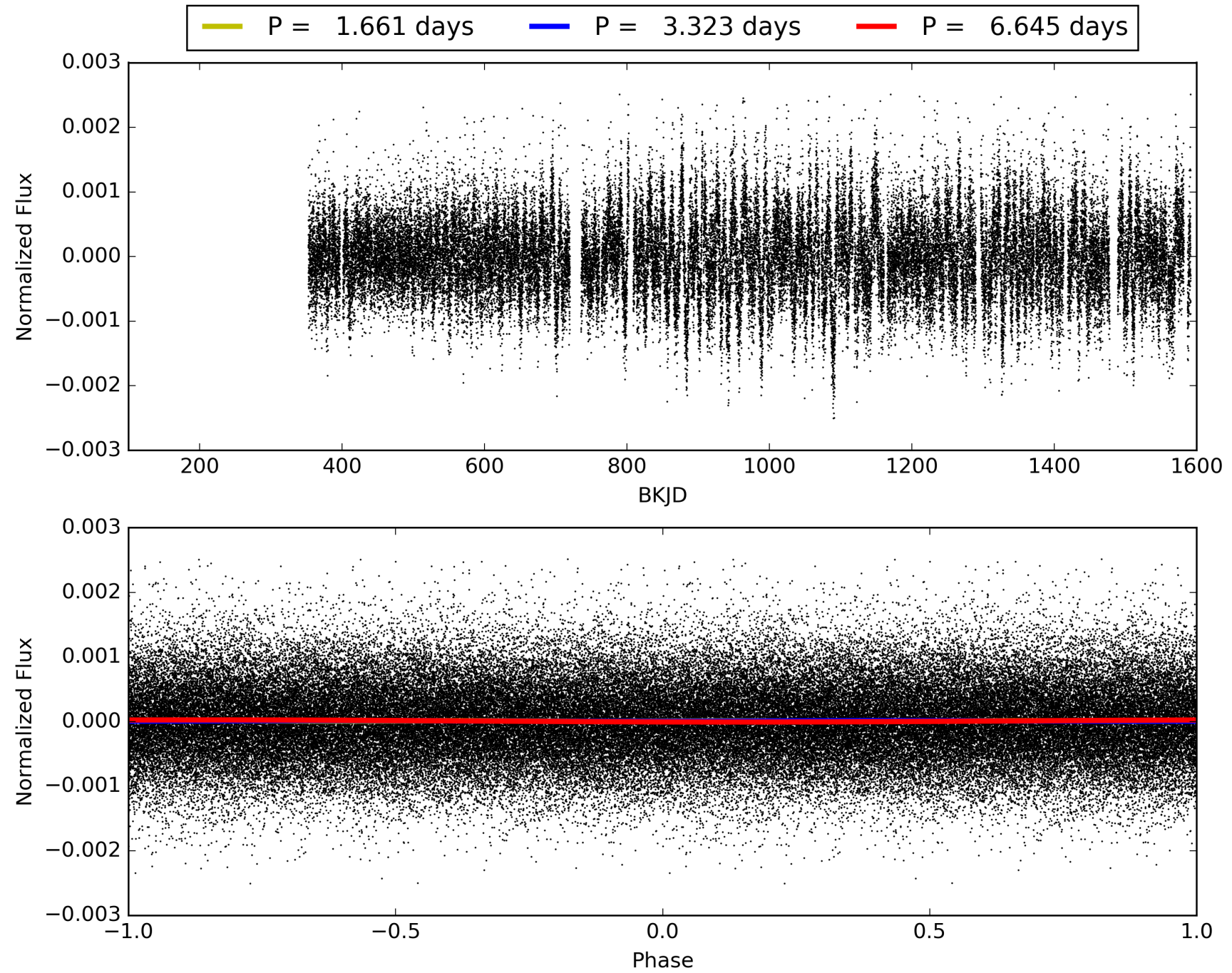
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007840358-07, PDC Light Curves



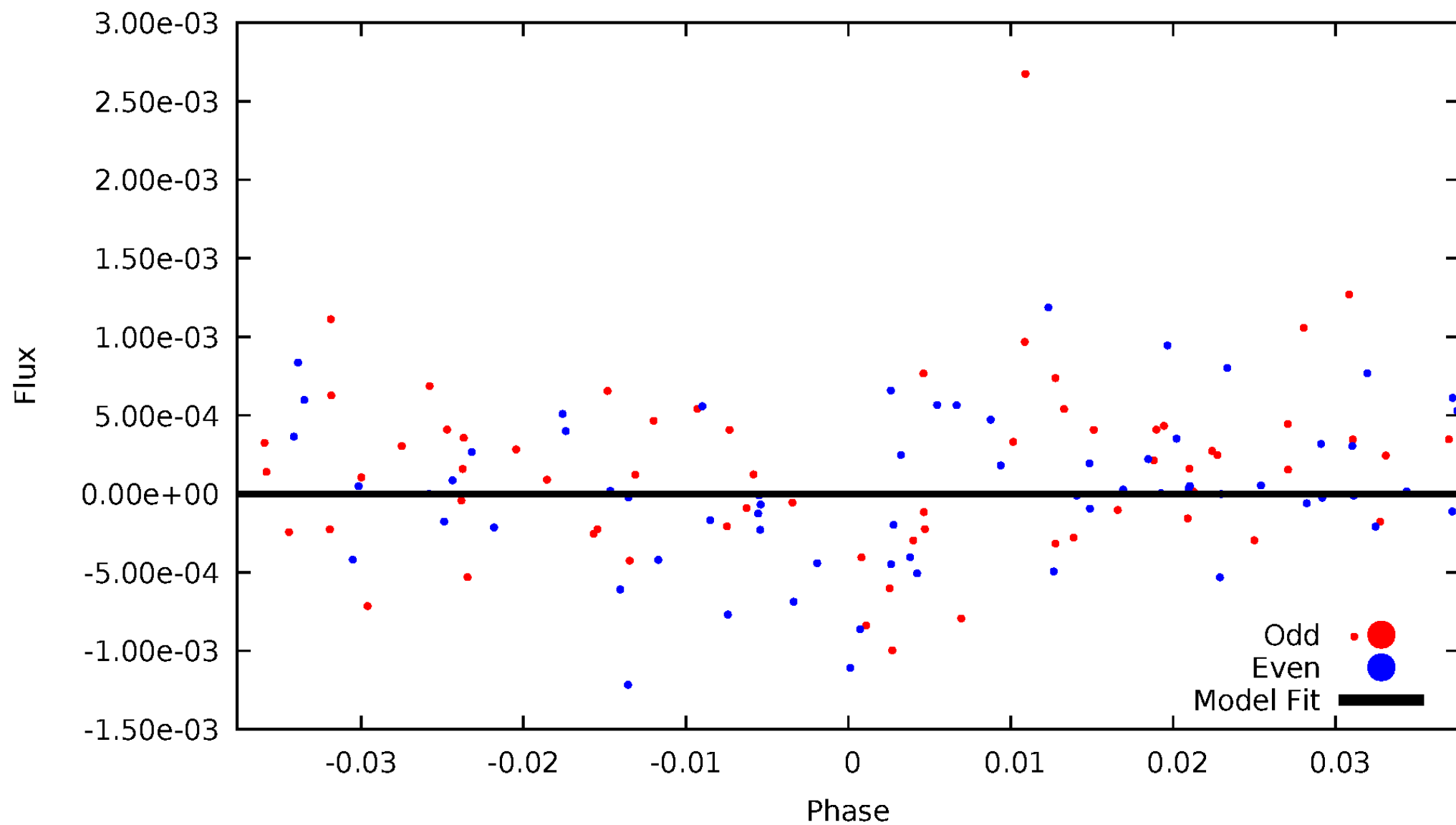


TCE 007840358-07



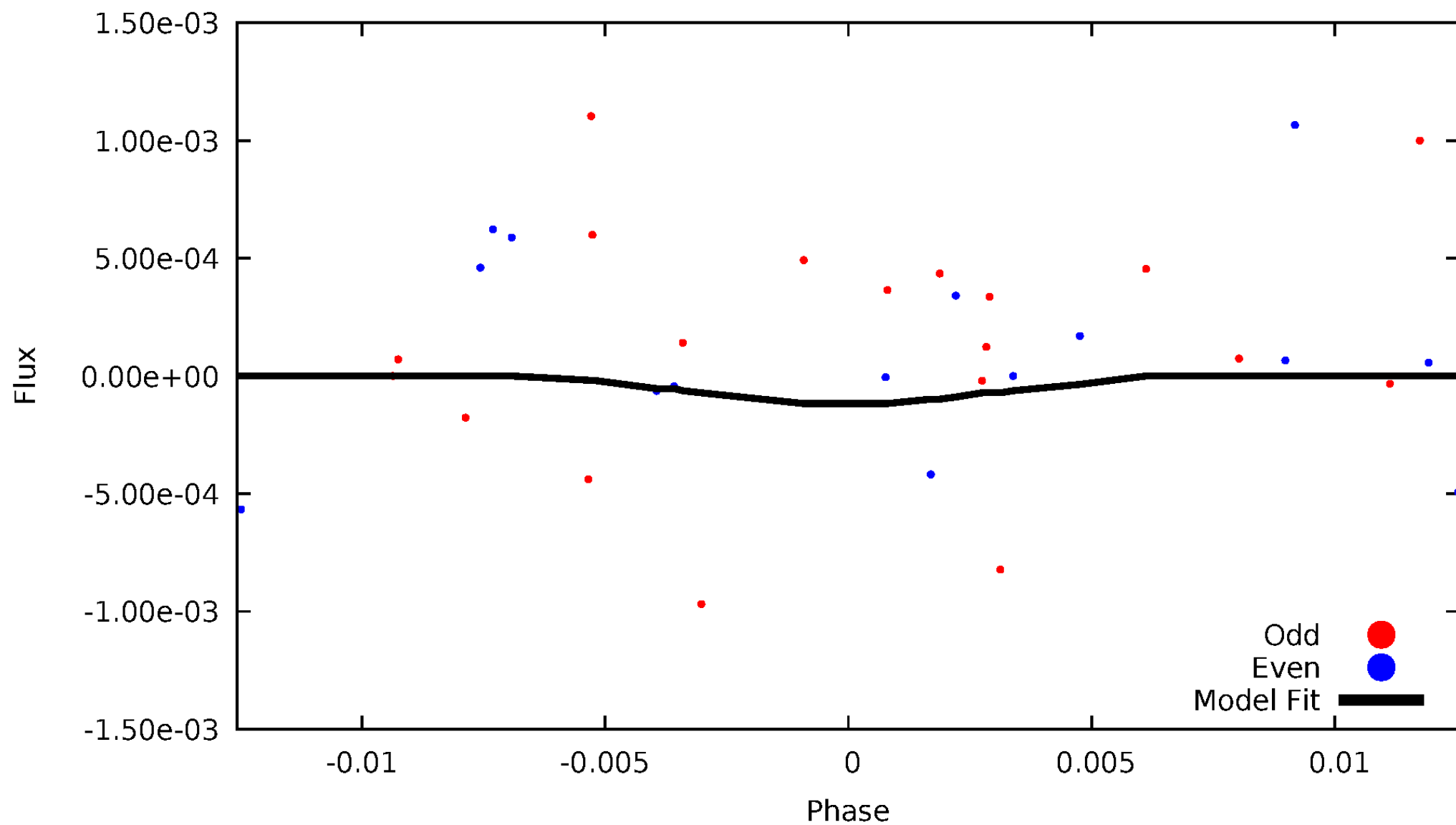
# DV Odd/Even

TCE 007840358-07



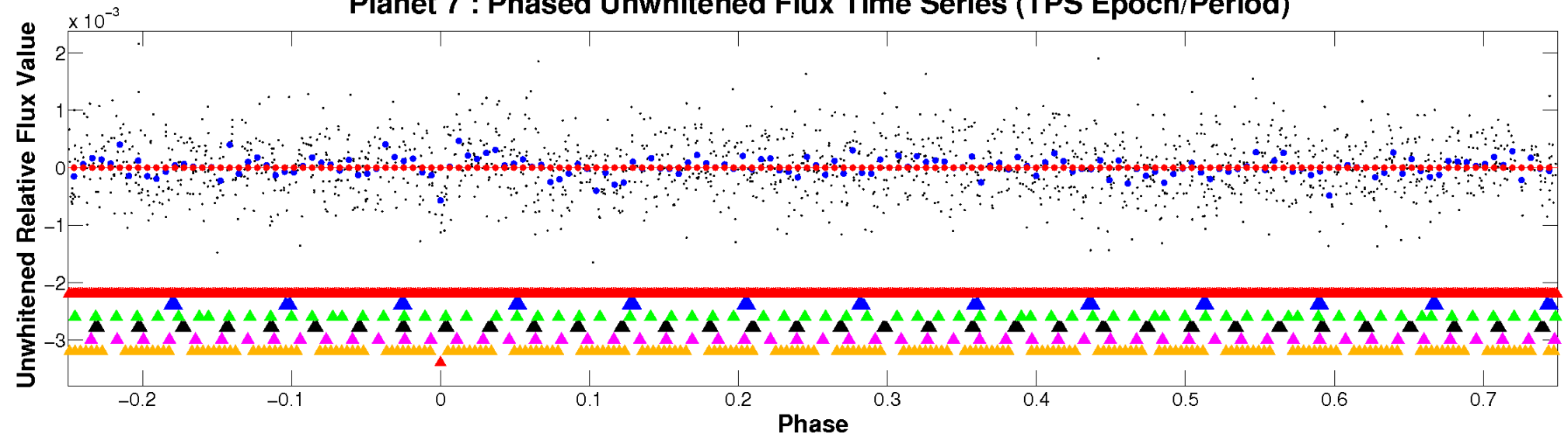
# ALT Odd/Even

TCE 007840358-07

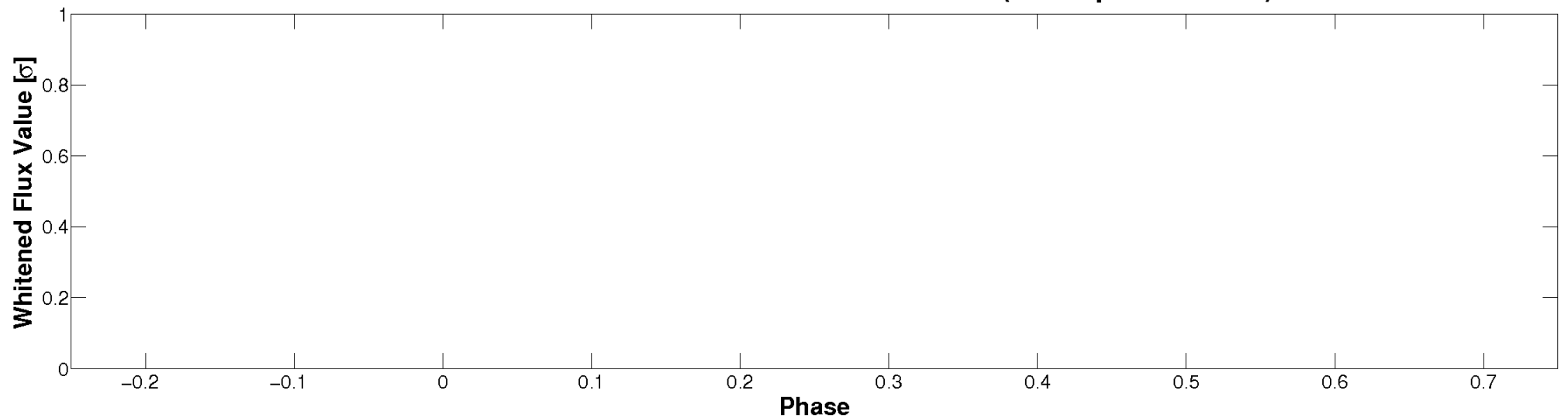


# Non-Whitened Vs. Whitened Light Curve

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

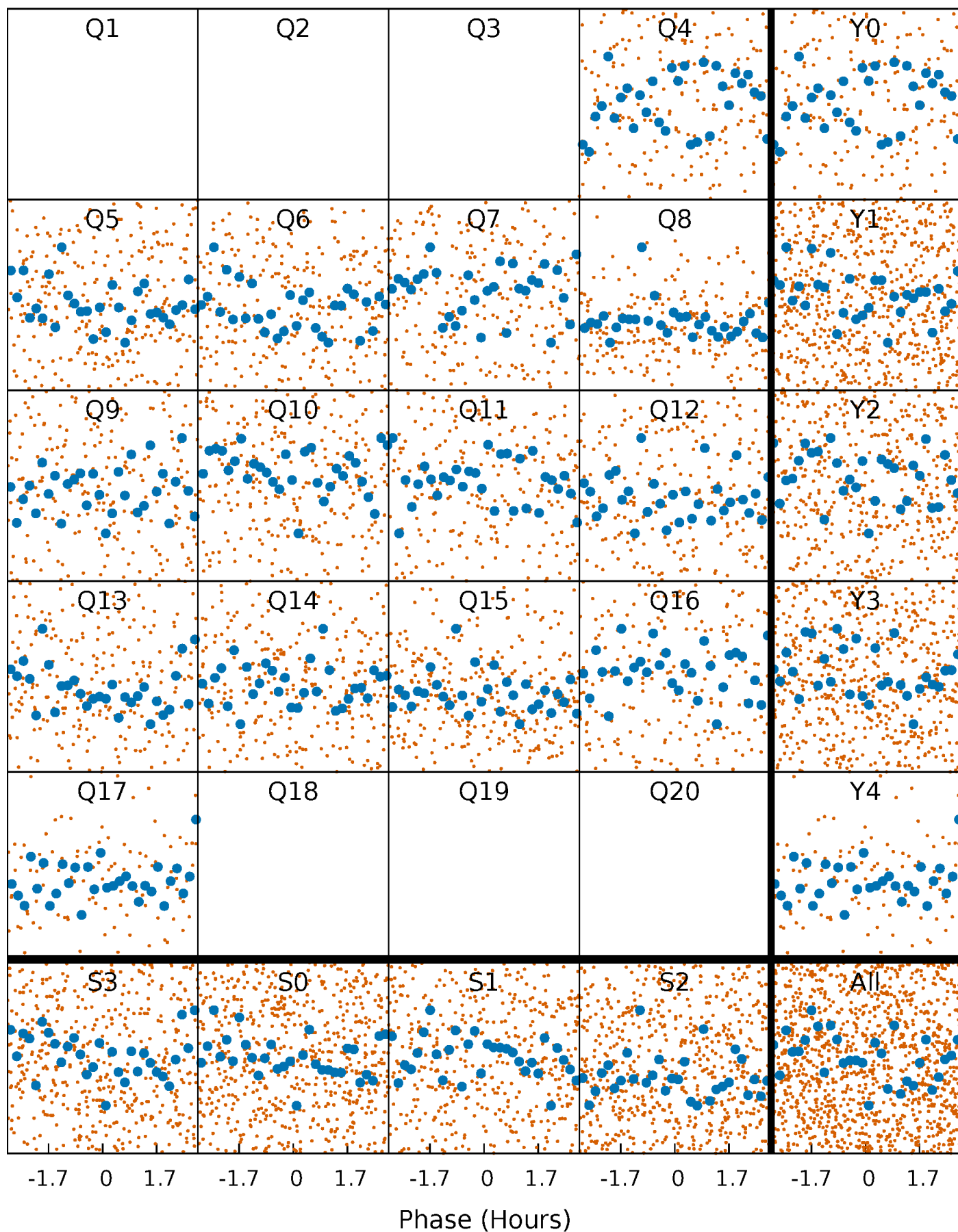


**Planet 7 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



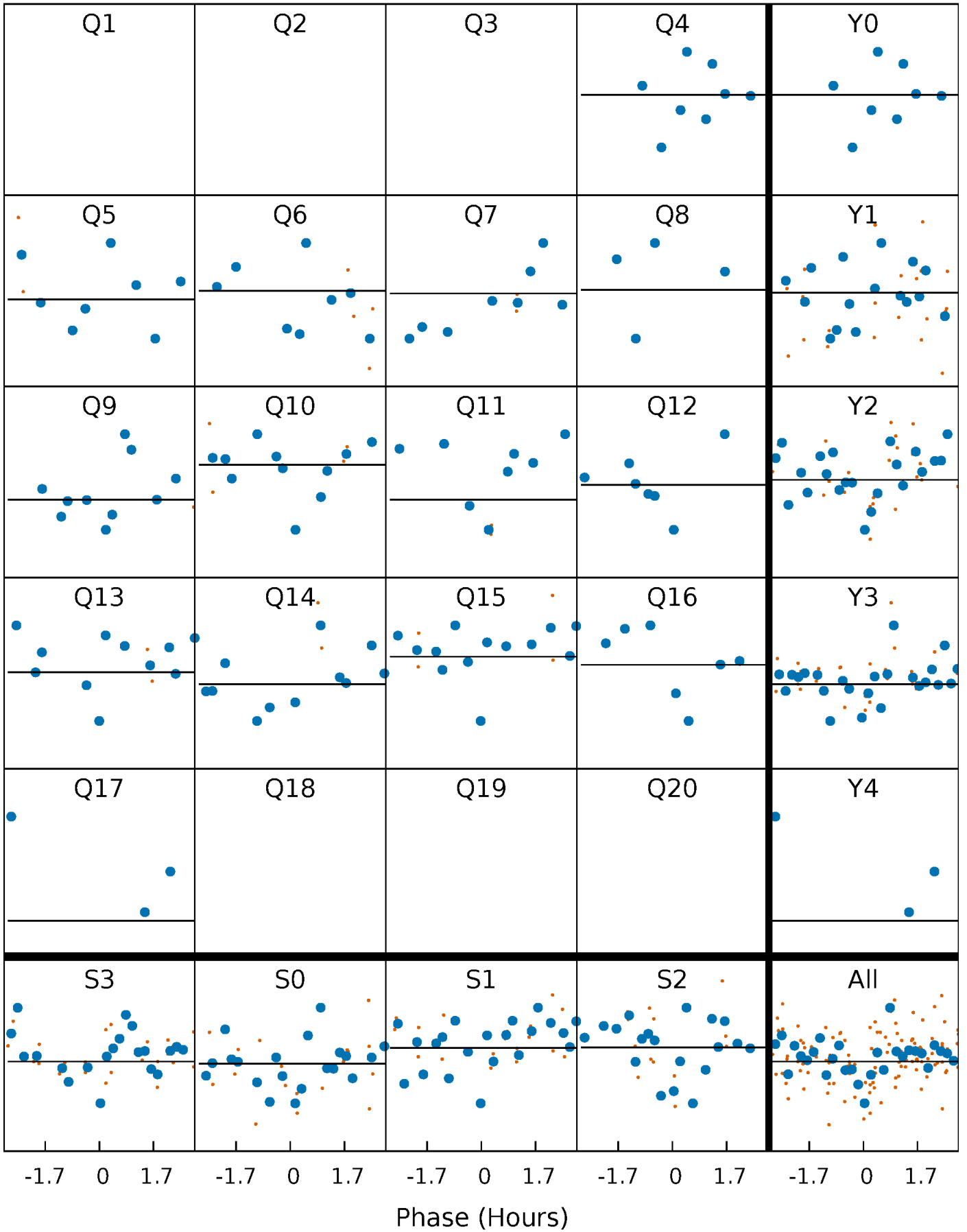
# PDC Quarter-Phased Transit Curves

TCE 007840358-07    P= 3.322511 Days     $T_0=131.960994$  (BKJD)



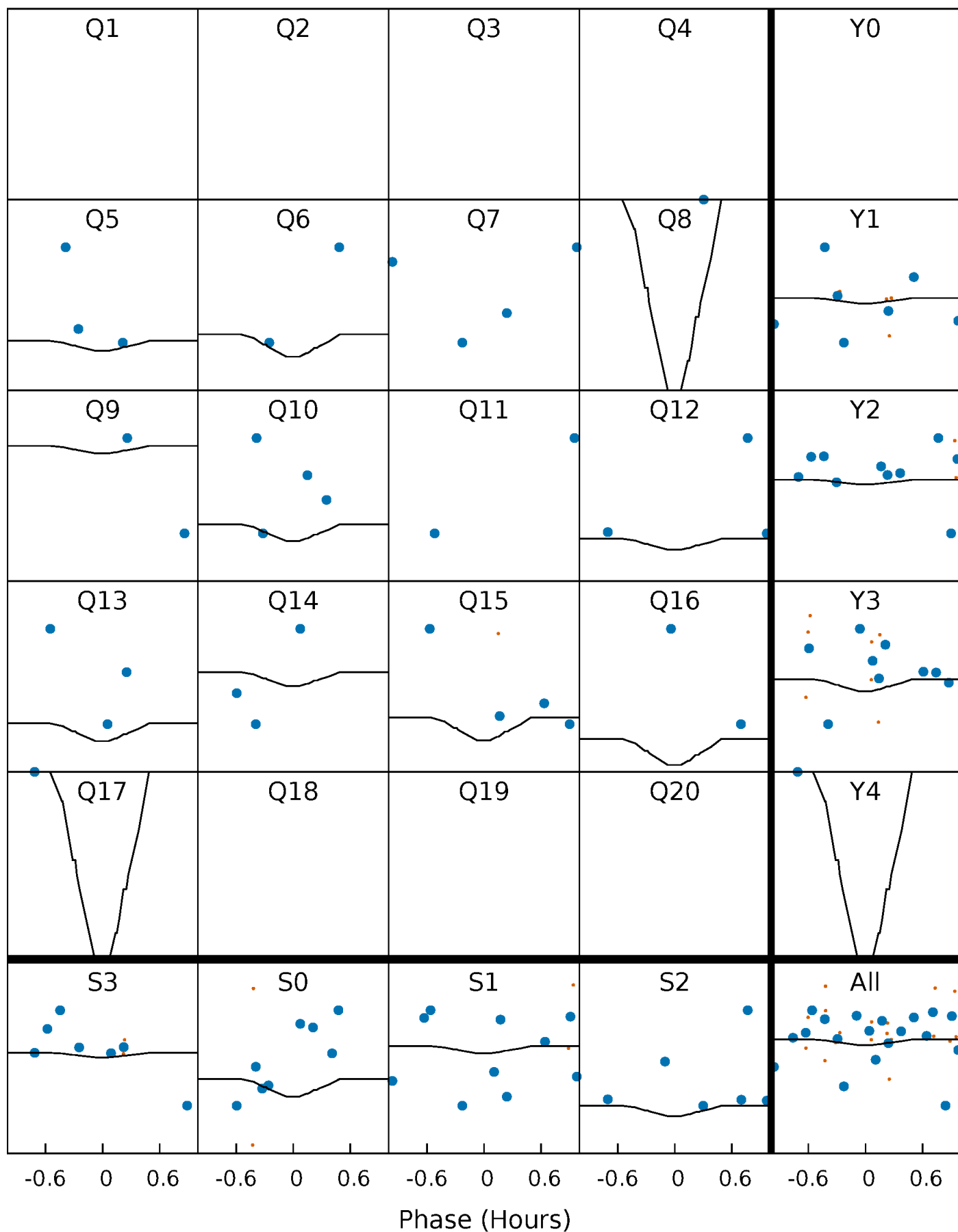
# DV Quarter-Phased Transit Curves

TCE 007840358-07     $P = 3.322511$  Days     $T_0 = 131.960994$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

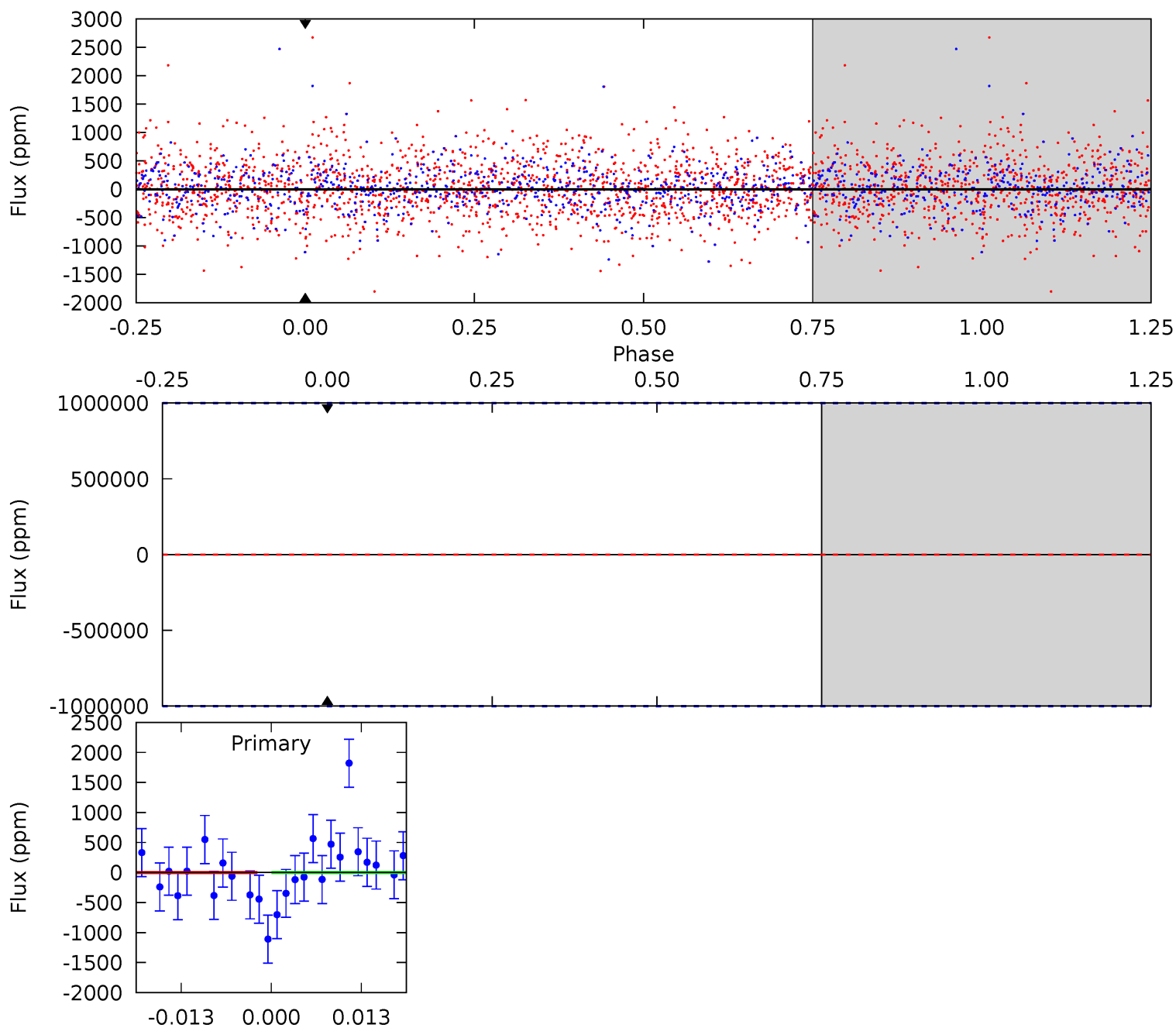
TCE 007840358-07     $P = 3.322511$  Days     $T_0 = 131.872690$  (BKJD)



# DV Model-Shift Uniqueness Test

007840358-07, P = 3.322511 Days, E = 131.960994 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

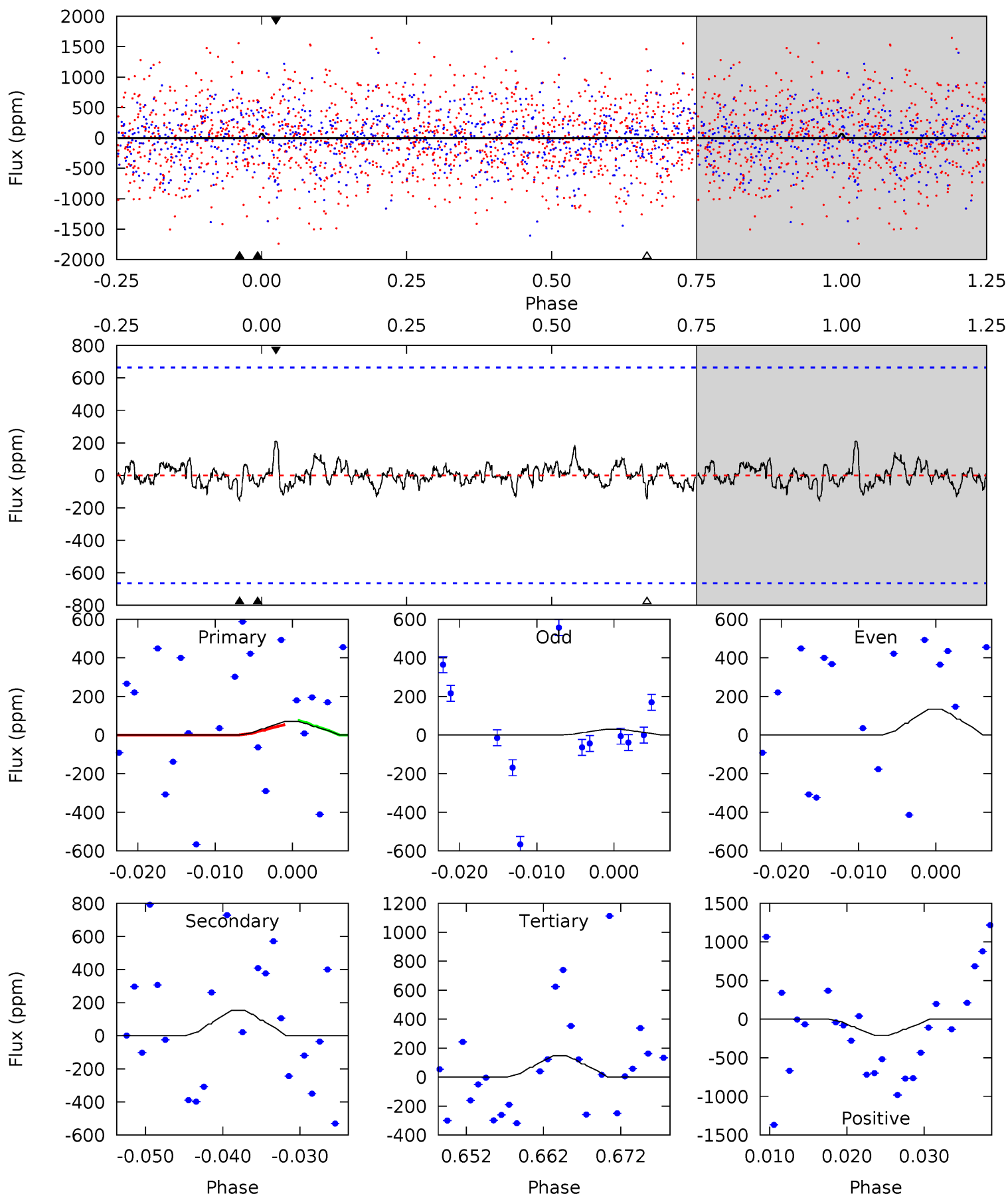




# Alt Model-Shift Uniqueness Test

007840358-07, P = 3.322511 Days, E = 131.872690 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
0.53	1.16	1.11	1.59	5.03	2.57	0.40	-0.58	-1.06	0.04	-0.44	0.39	-1.01	0.58	0.08



### Stellar Parameters For KIC 007840358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5491^{+199}_{-182}$	$4.408^{+0.144}_{-0.176}$	$-0.120^{+0.300}_{-0.300}$	$0.943^{+0.241}_{-0.141}$	$0.830^{+0.120}_{-0.065}$	$1.394^{+0.853}_{-0.677}$
	+4%/-3%	+3%/-4%	+250%/-250%	+26%/-15%	+14%/-8%	+61%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 007840358-07 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$9.00^{+9.08}_{-6.15}$	$1630^{+117}_{-99}$	$4616^{+15506}_{-16761}$	$38^{+2942}_{-1300}$
Alt.	$-153 \pm 132$	$7.09^{+9.24}_{-4.98}$	$1633^{+121}_{-98}$	$2803^{+1537}_{-4897}$	$2.002^{+24.824}_{-1.835}$

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

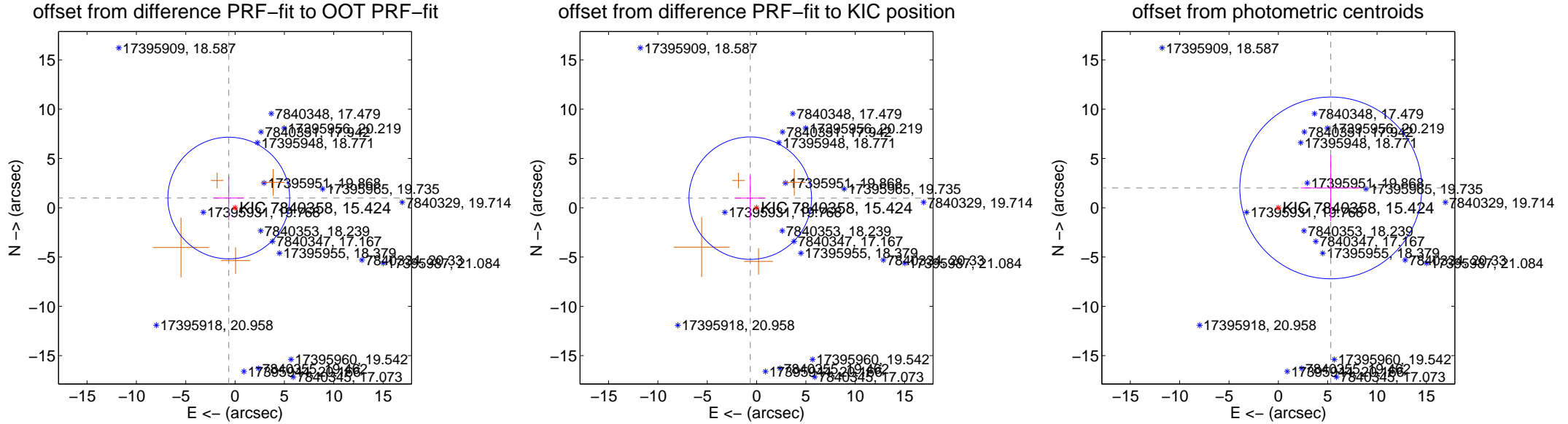
## DV Centroid Data

Supplemental centroid analysis for 007840358-07. Kepler magnitude: 15.42. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

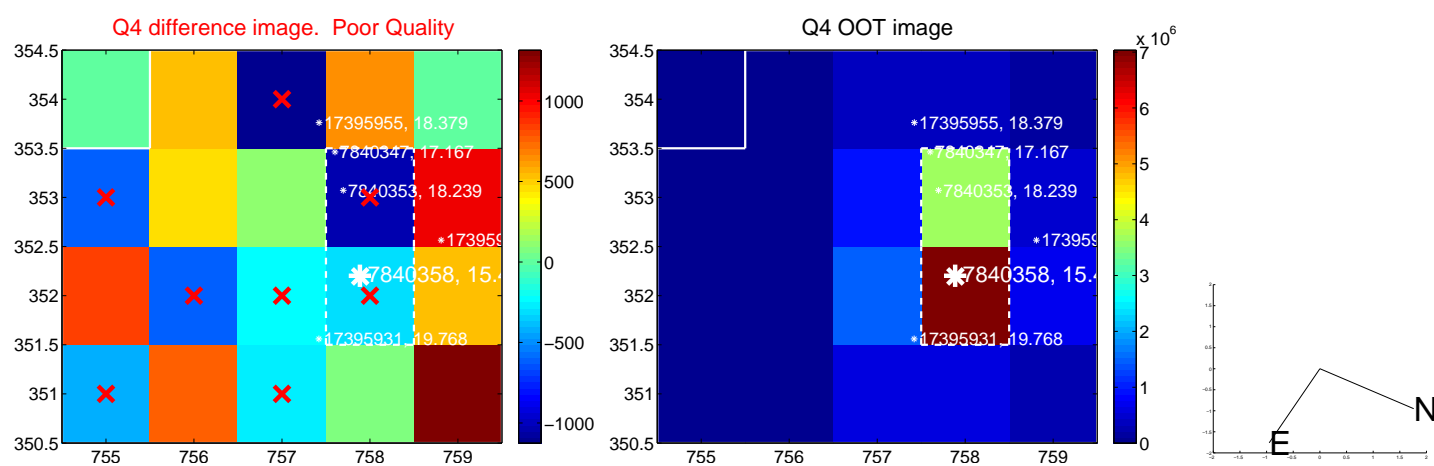
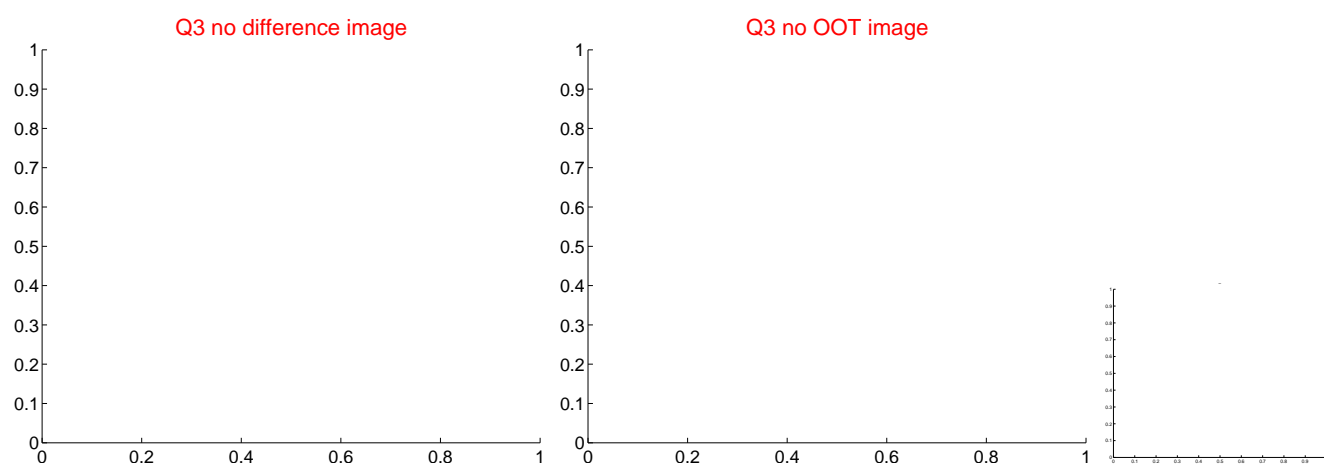
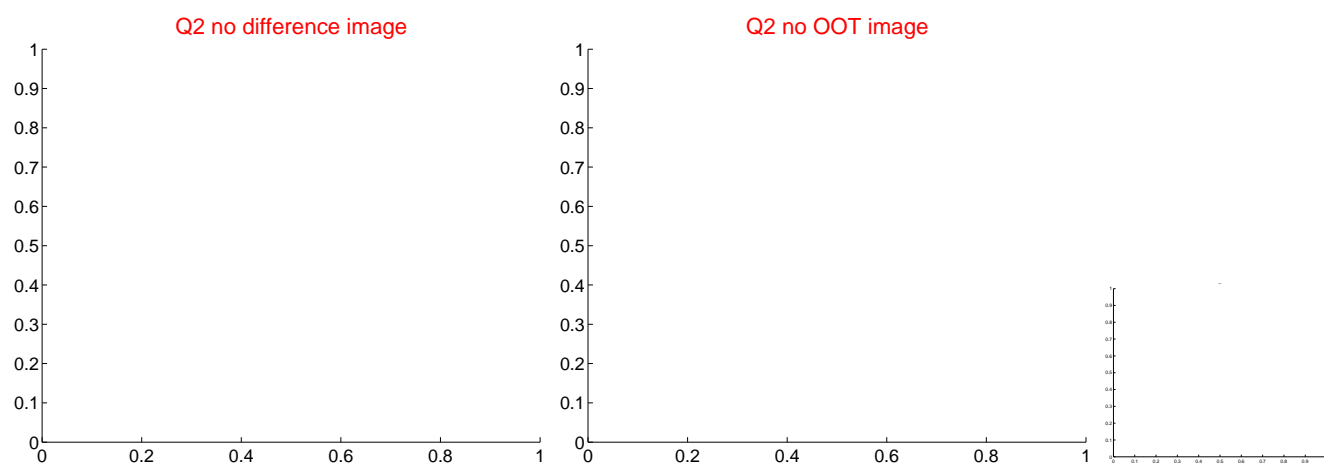
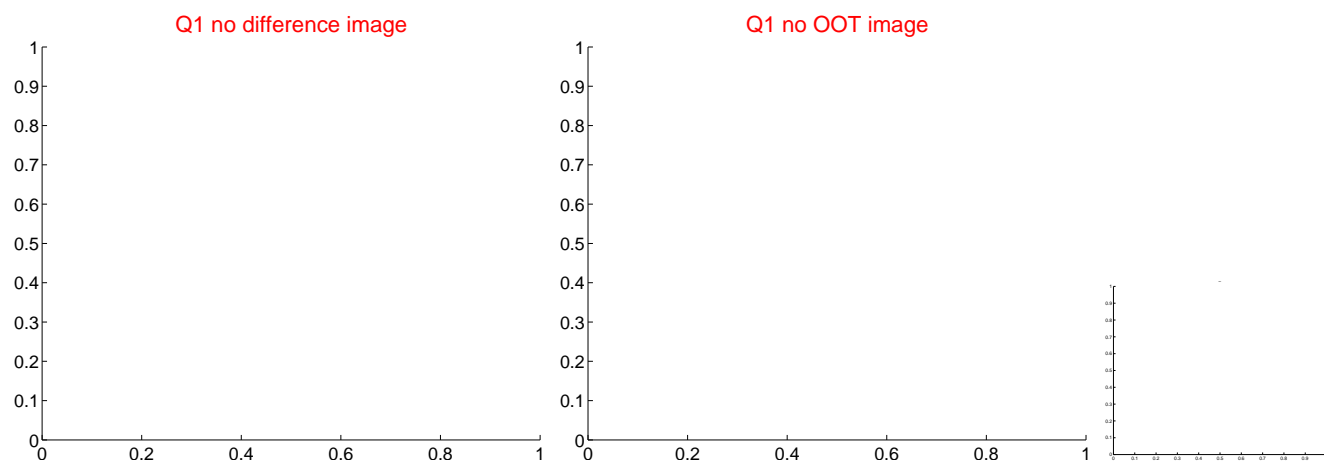
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.174 \pm 2.058$	0.57	$0.639 \pm 1.552$	$0.985 \pm 2.237$
PRF-fit source offset from KIC position	$1.166 \pm 2.070$	0.56	$0.641 \pm 1.554$	$0.974 \pm 2.257$
photometric centroid source offset	$5.68 \pm 3.07$	1.85	$-5.31 \pm 3.03$	$2.01 \pm 3.34$

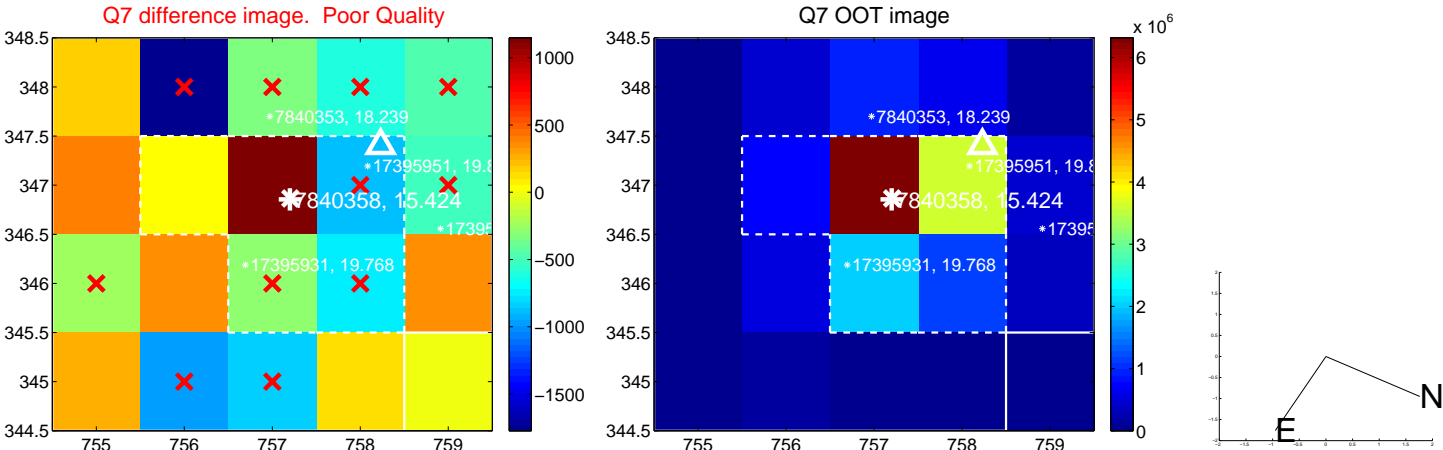
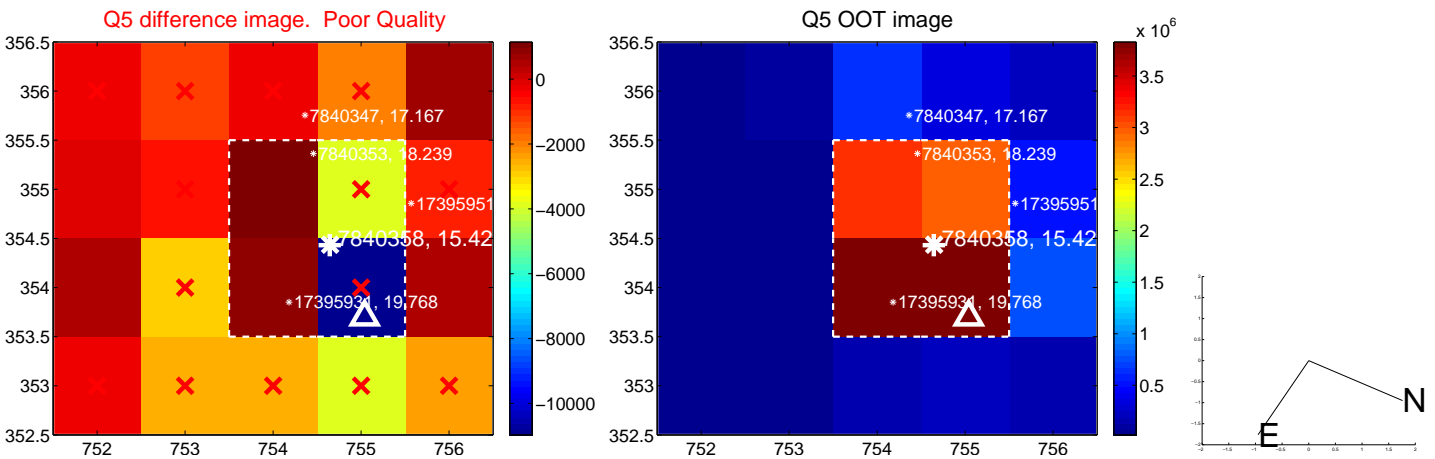


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

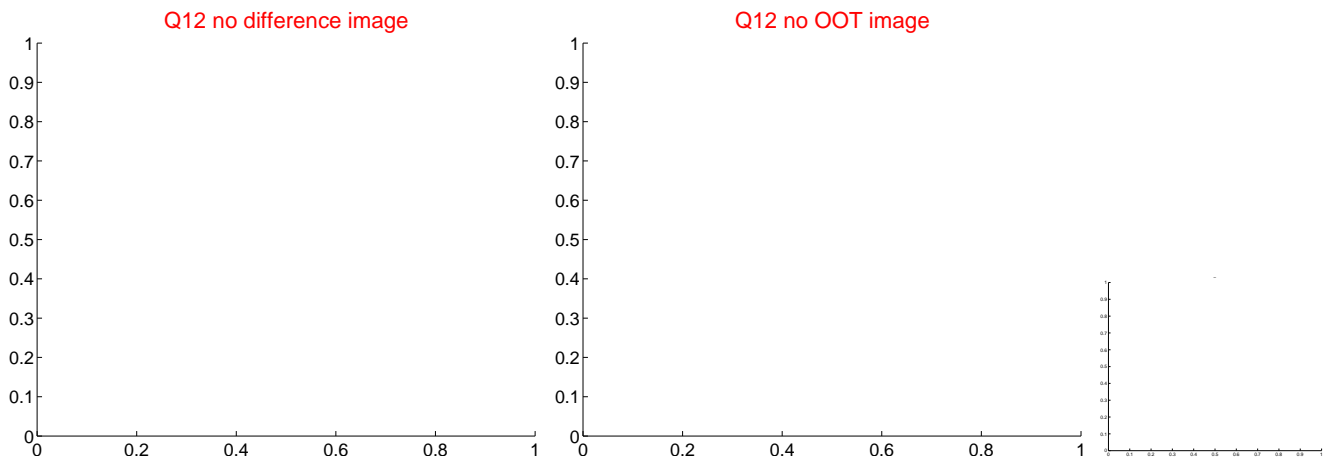
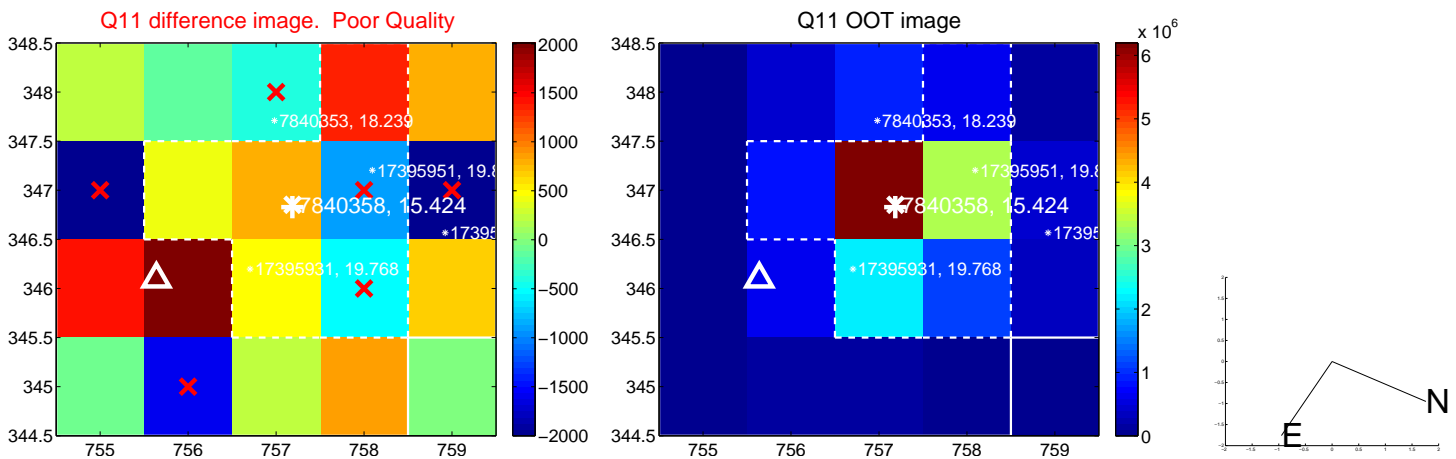
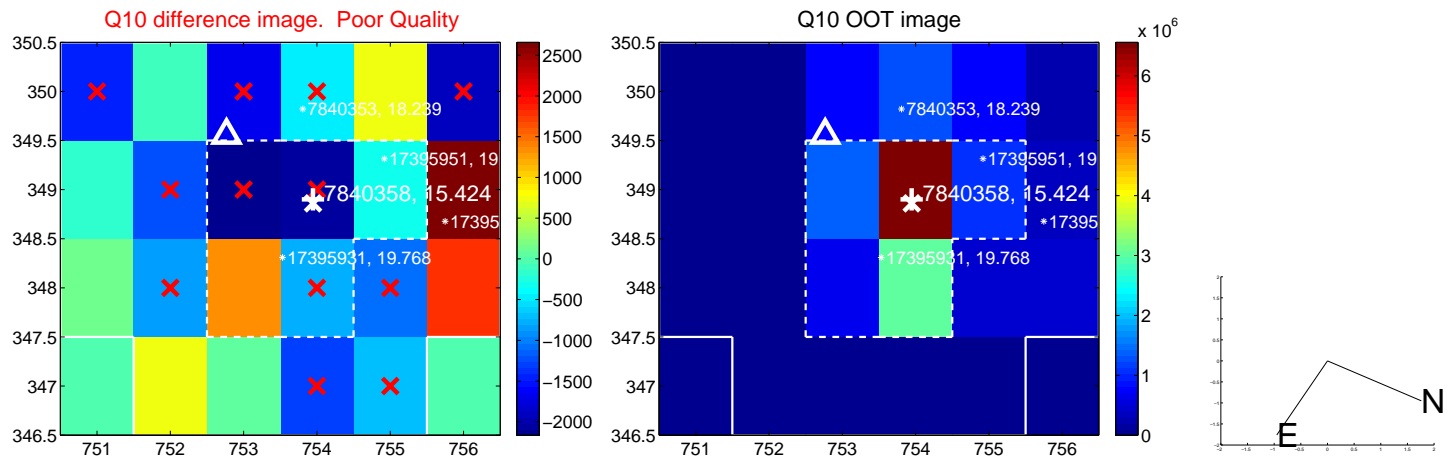
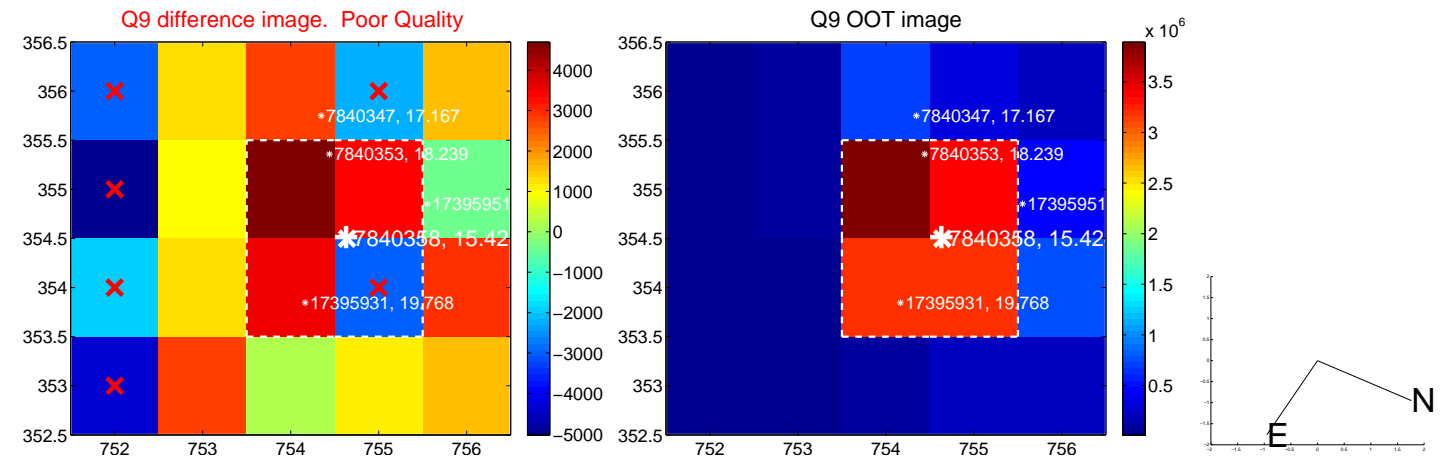
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



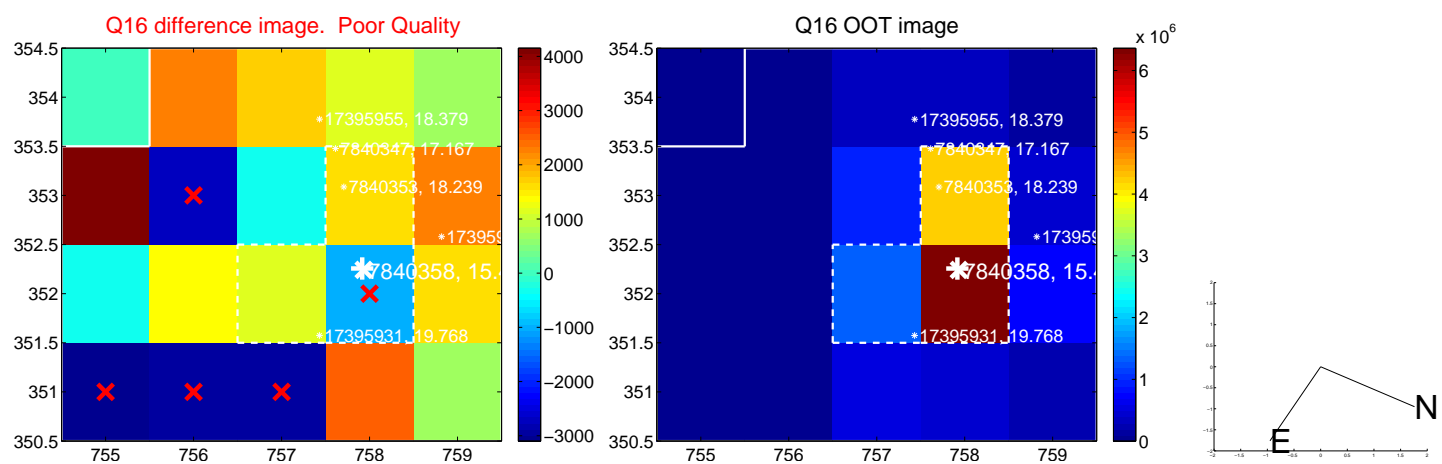
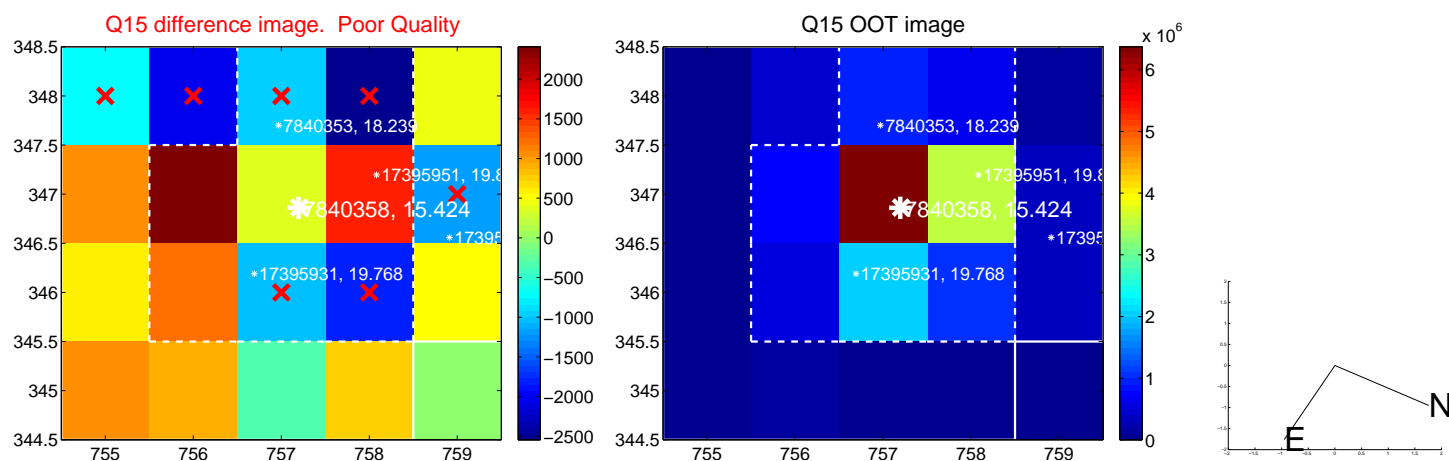
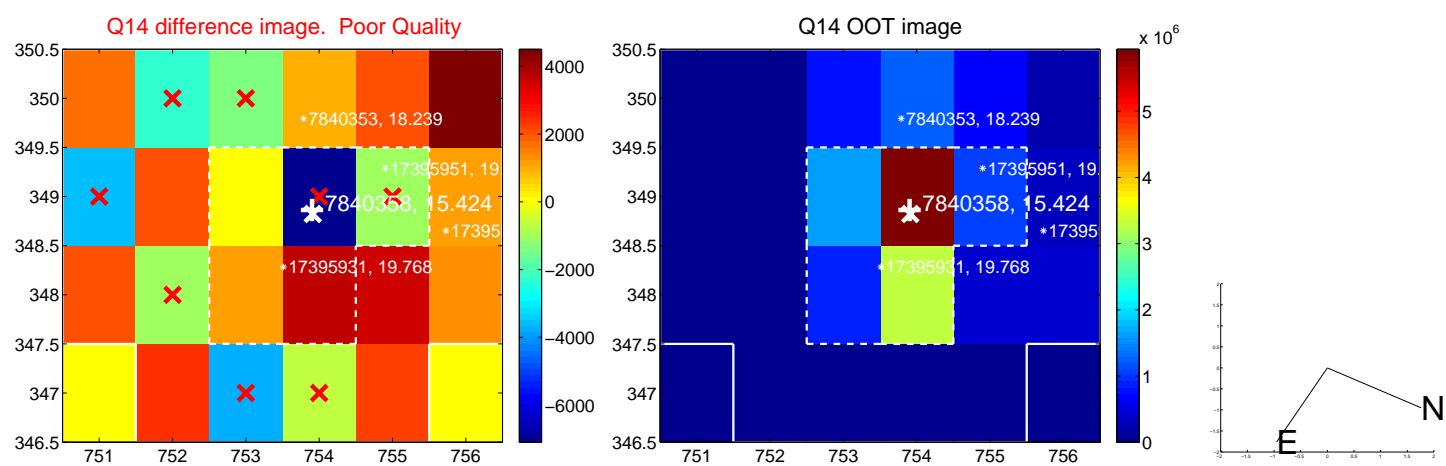
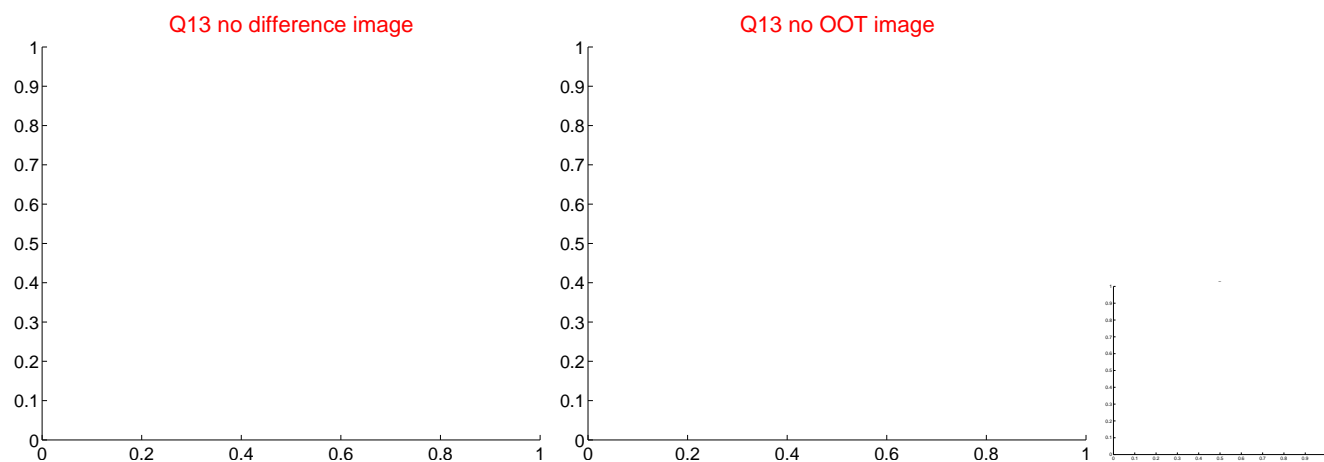
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



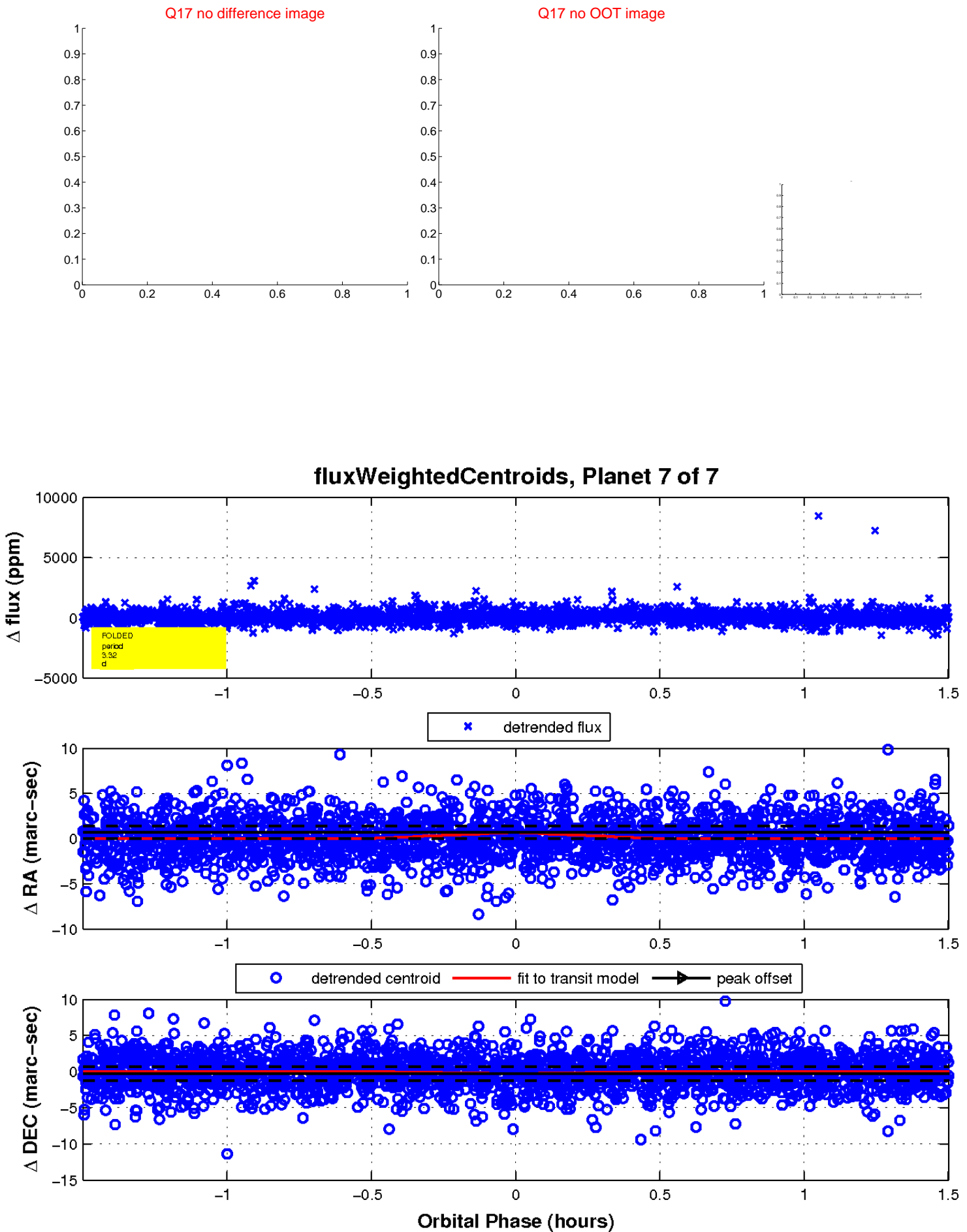
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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





# UKIRT Image

Declination

