

# KIC 007630232

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007630232-01	OBS	No	0.612225	131.565195	17.1	3.346	8.9	4.3	2.44	6389	1.08	39604.46
007630232-02	OBS	No	86.105458	134.965035	538.6	2.800	7.2	8.9	2.44	6389	6.28	54.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007630232-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
007630232-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

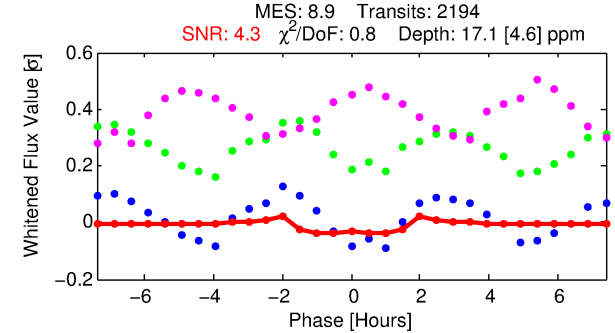
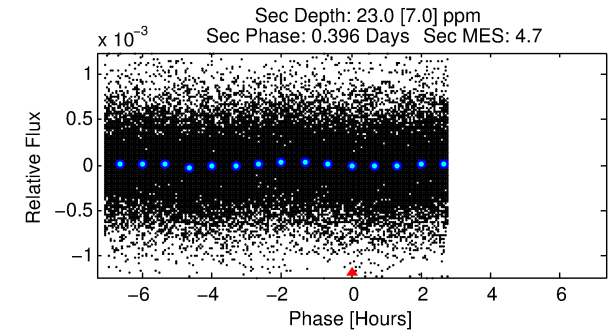
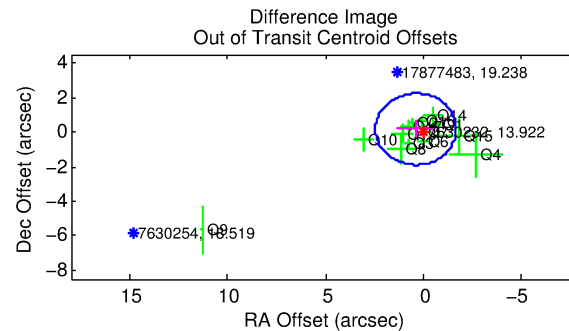
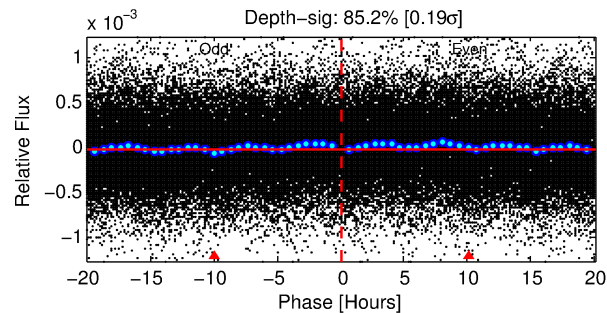
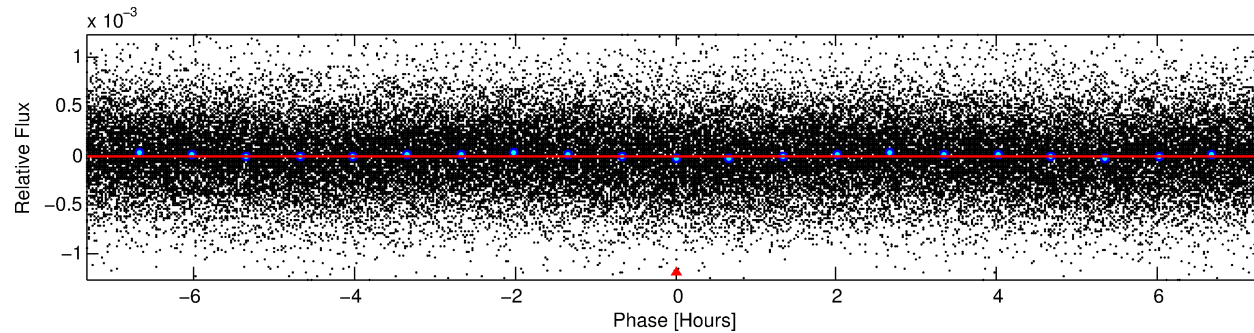
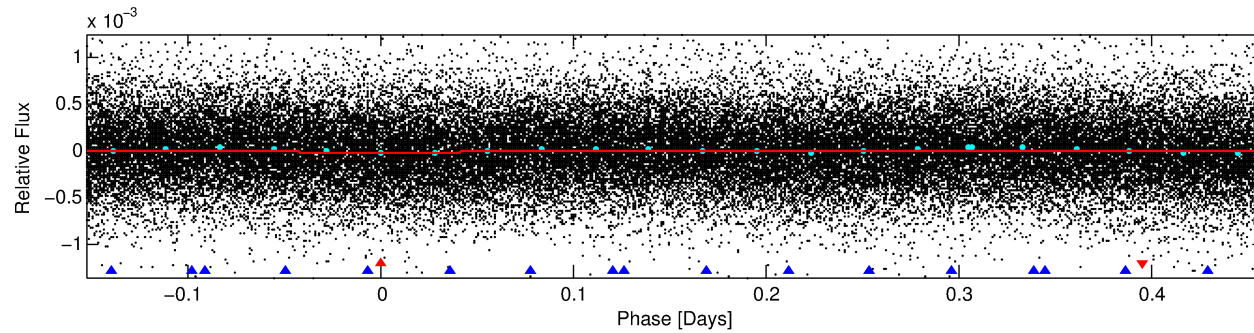
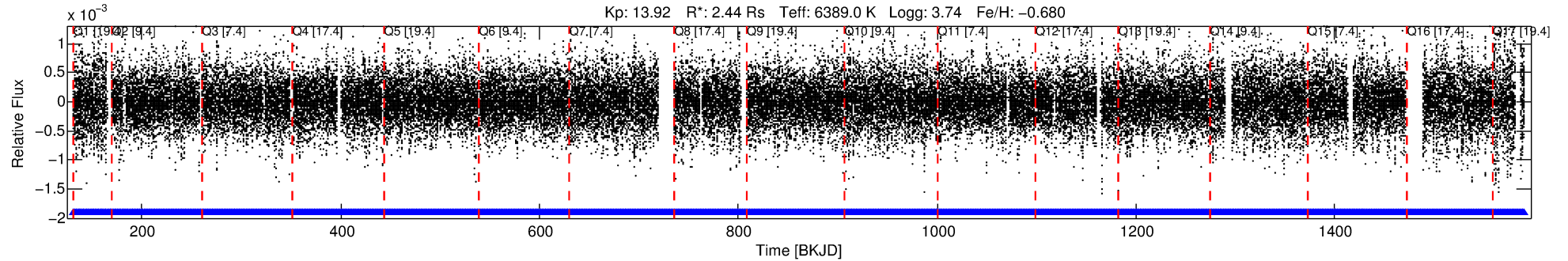
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007630232-01

No Significant Match Found

# DV One-Page Summary

KIC: 7630232 Candidate: 1 of 2 Period: 0.612 d



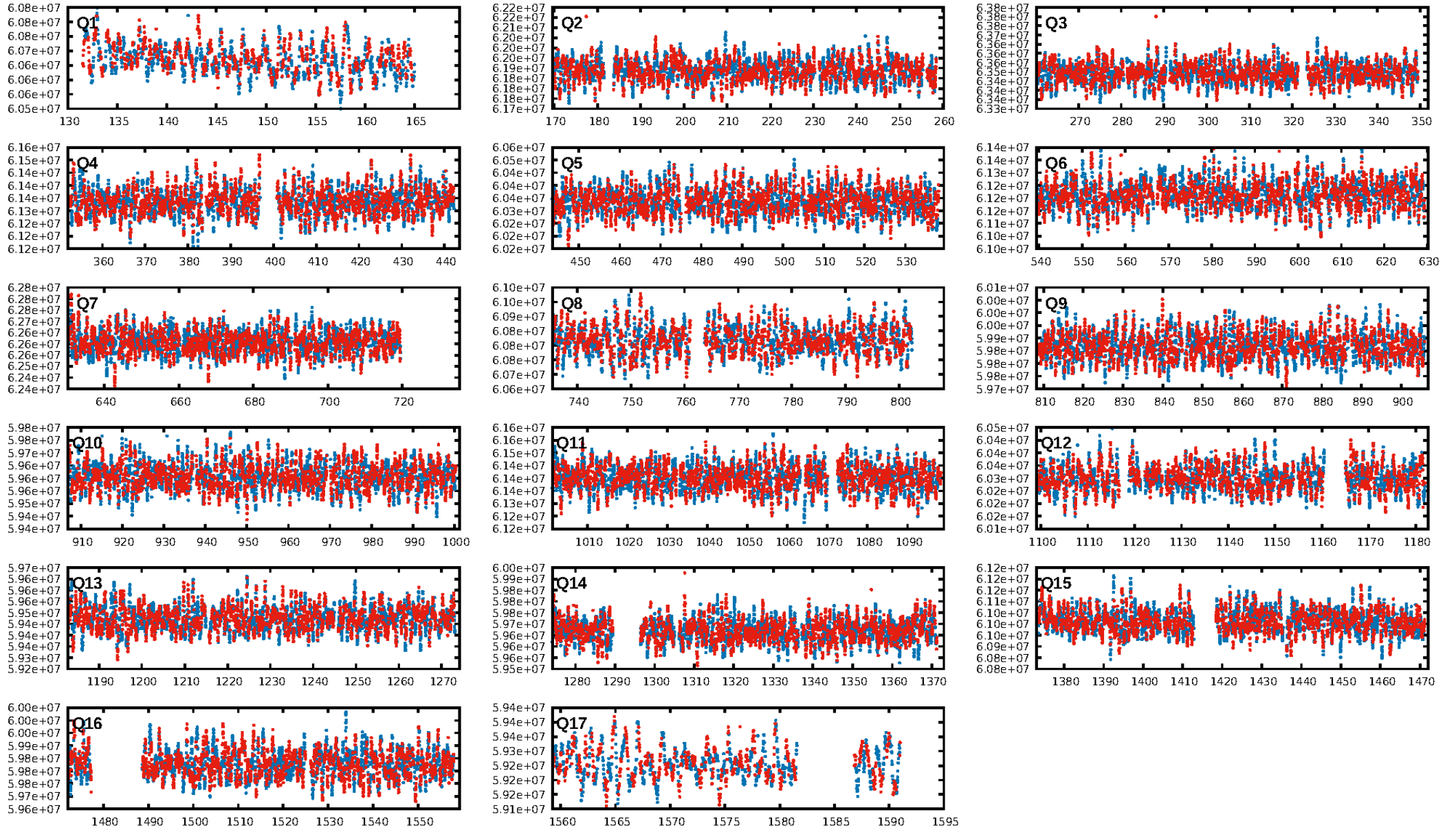
## DV Fit Results:

Period = 0.61222 [0.00002] d  
Epoch = 131.5652 [0.0051] BKJD  
Rp/R\* = 0.0041 [0.0017]  
a/R\* = 1.28 [1.13]  
b = 0.72 [1.49]  
Seff = 39604.46 [41442.86]  
Teq = 3597 [941] K  
Rp = 1.08 [0.76] Re  
a = 0.0149 [0.0091] AU  
Ag = 2.41 [3.30] [0.43 $\sigma$ ]  
Teffp = 6930 [1577] K [1.81 $\sigma$ ]

## DV Diagnostic Results:

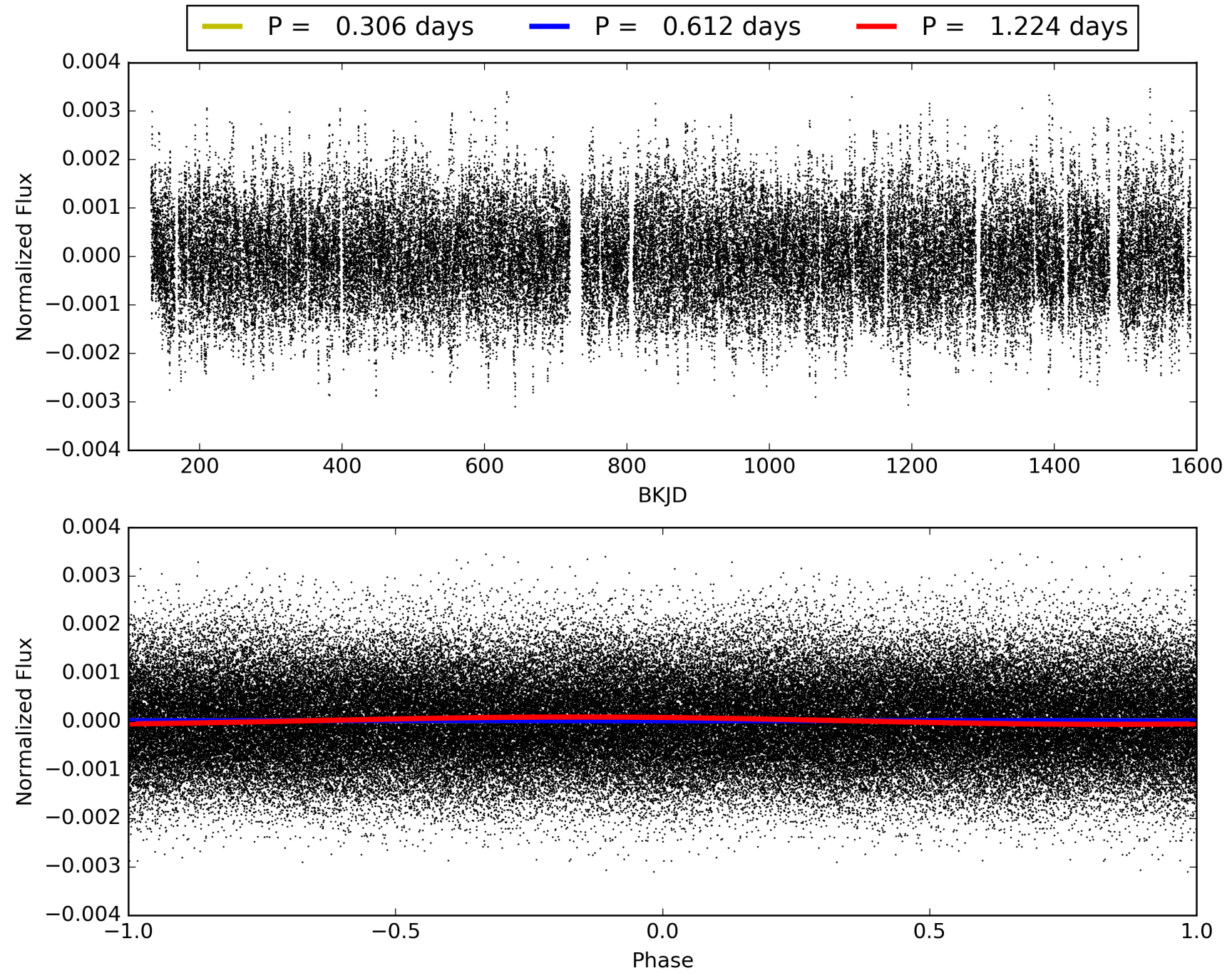
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [470.29 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.25e-16  
RollingBand-fgt: 1.00 [2095/2095]  
GhostDiagnostic-chr: 1.089  
Centroid-sig: 79.4%  
Centroid-so: 0.794 arcsec [0.58 $\sigma$ ]  
OotOffset-rm: 0.421 arcsec [0.61 $\sigma$ ]  
KicOffset-rm: 0.421 arcsec [0.54 $\sigma$ ]  
OotOffset-st: 4/3/3/4 [14]  
KicOffset-st: 4/3/3/4 [14]  
DiffImageQuality-fgm: 0.36 [5/14]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 007630232-01, PDC Light Curves



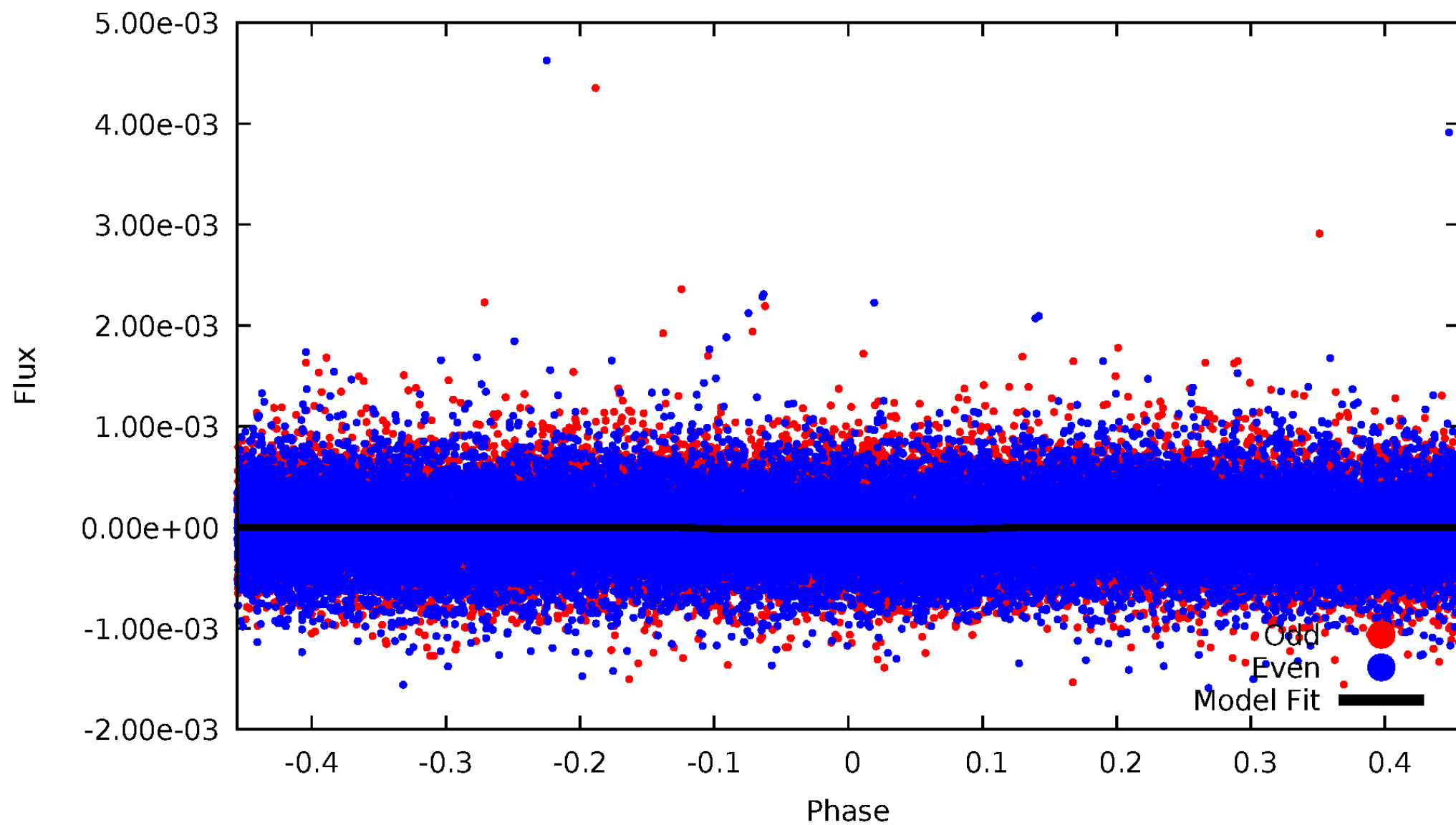


TCE 007630232-01



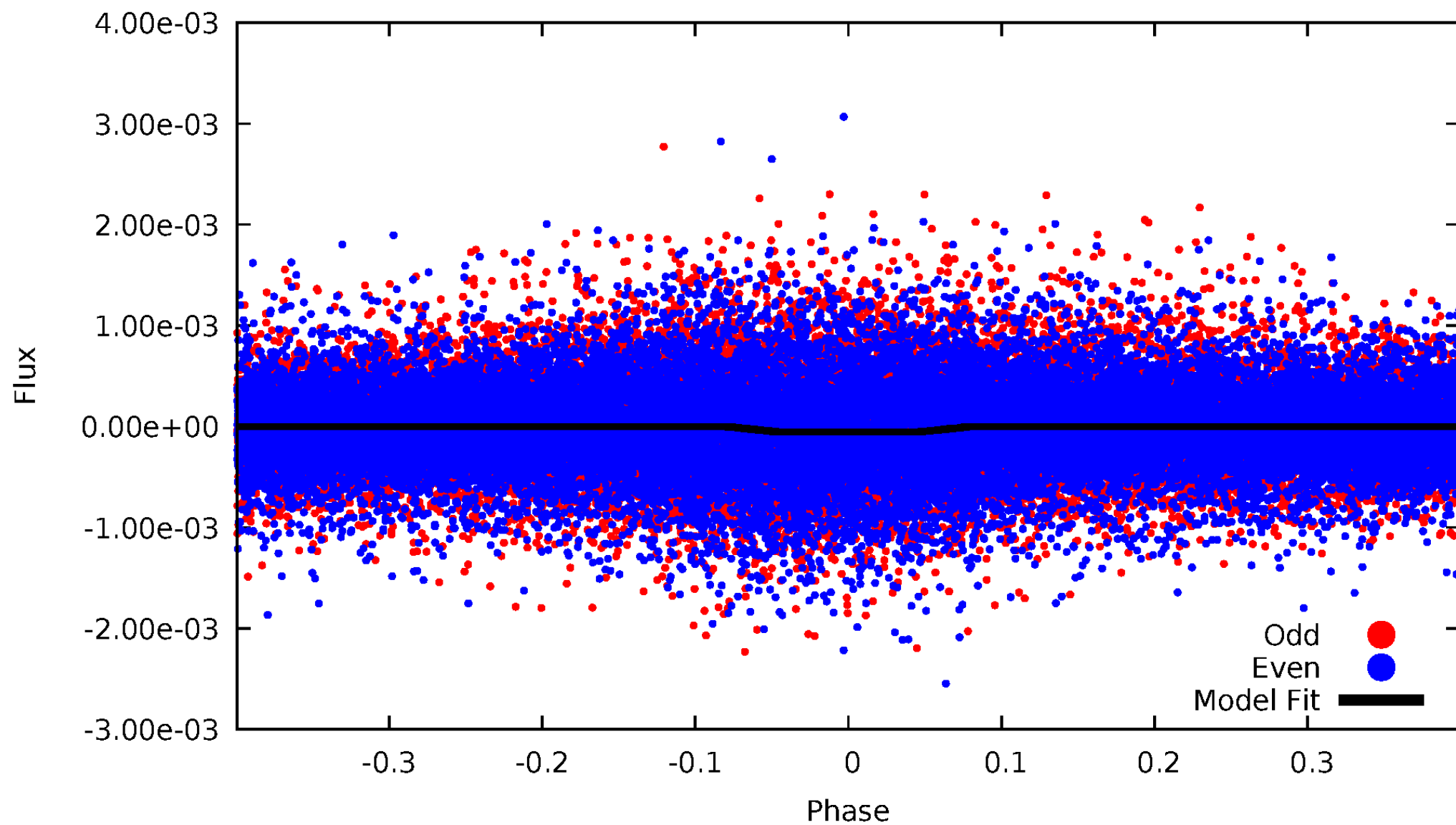
# DV Odd/Even

TCE 007630232-01



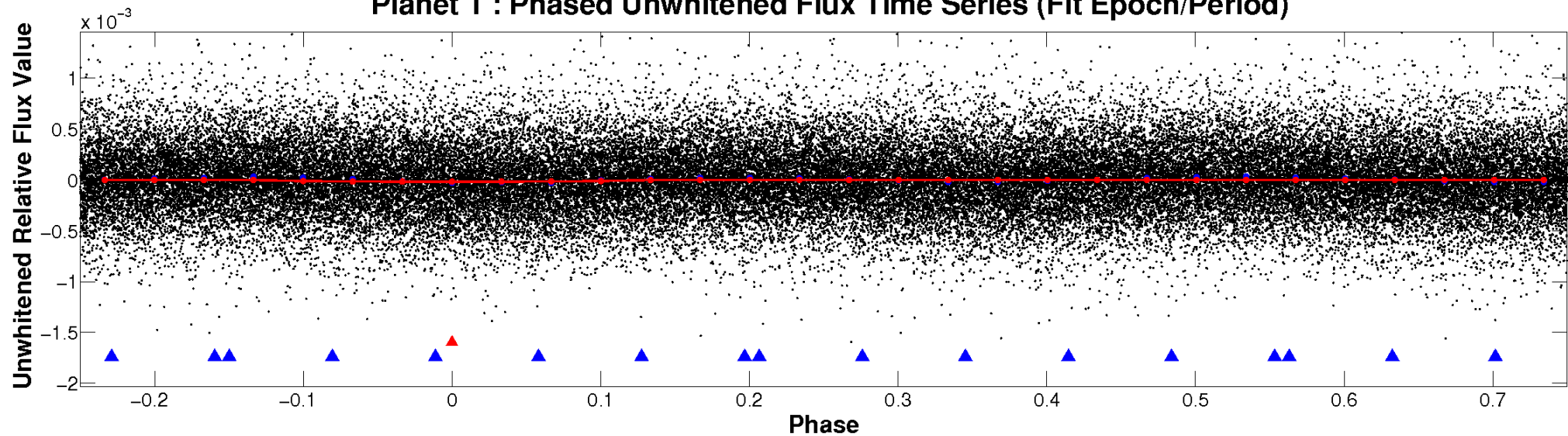
# ALT Odd/Even

TCE 007630232-01

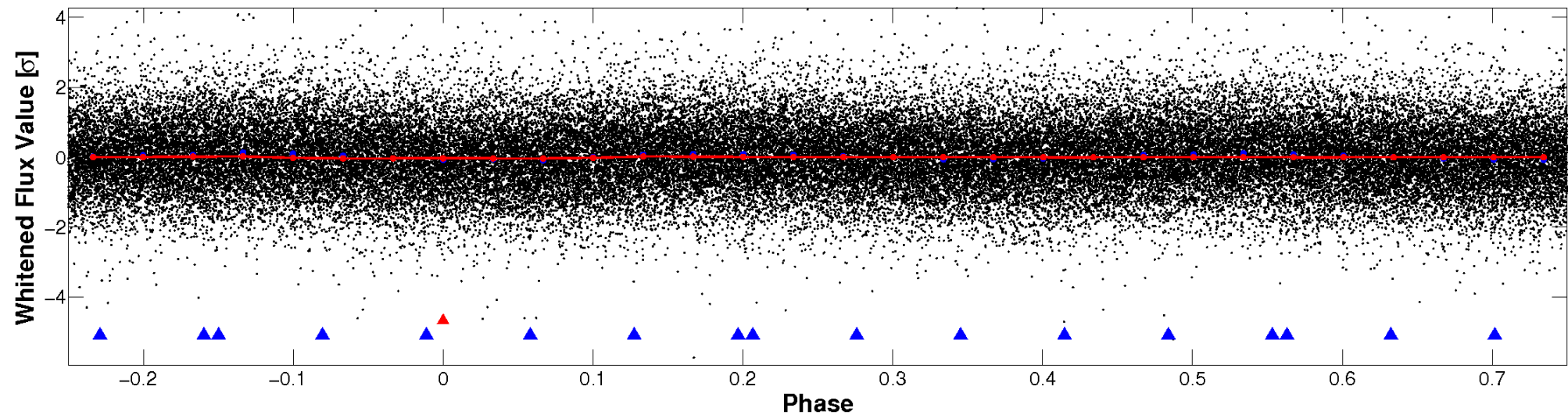


# Non-Whitened Vs. Whitened Light Curve

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



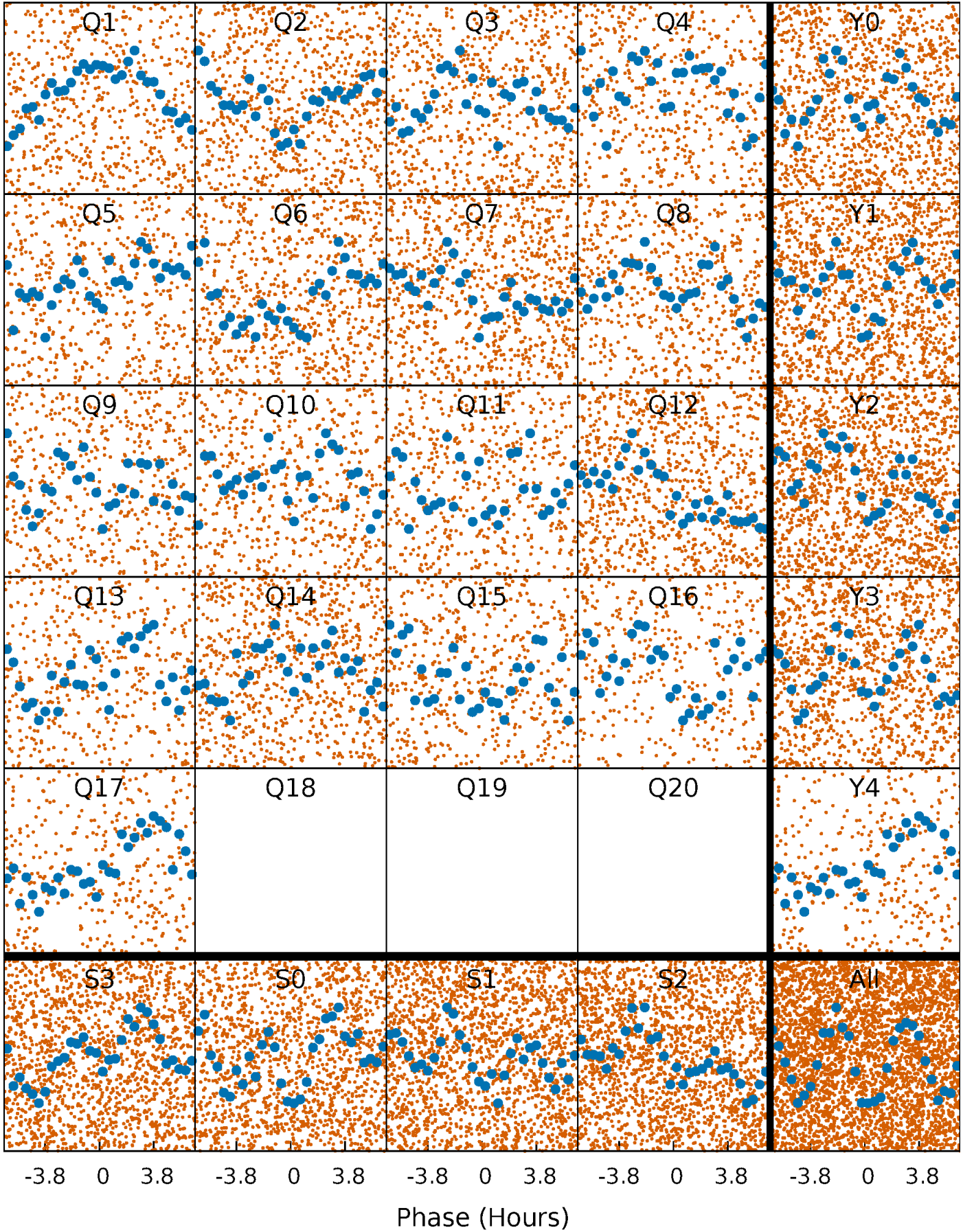
## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

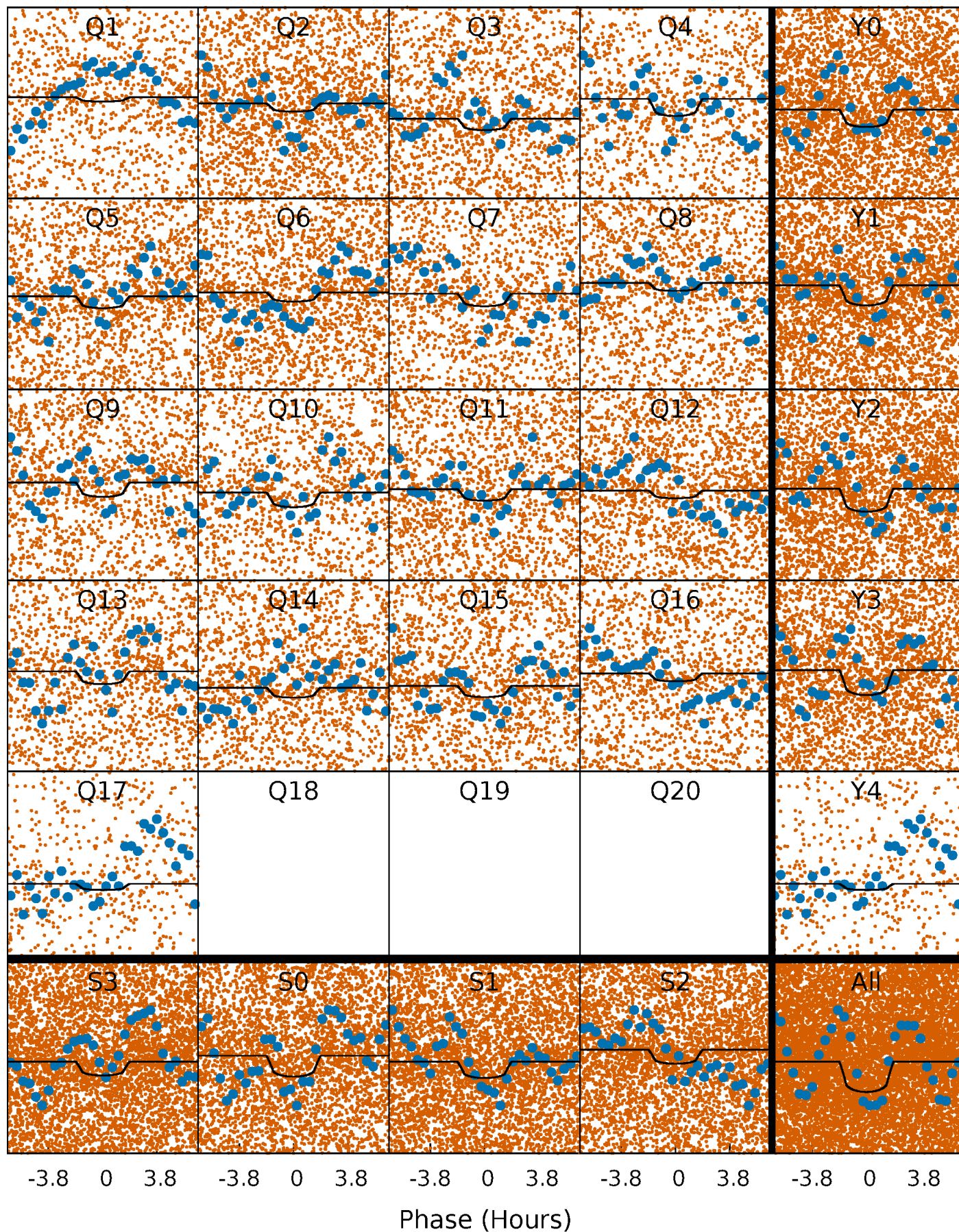
TCE 007630232-01 P= 0.612225 Days  $T_0=131.565195$  (BKJD)





# DV Quarter-Phased Transit Curves

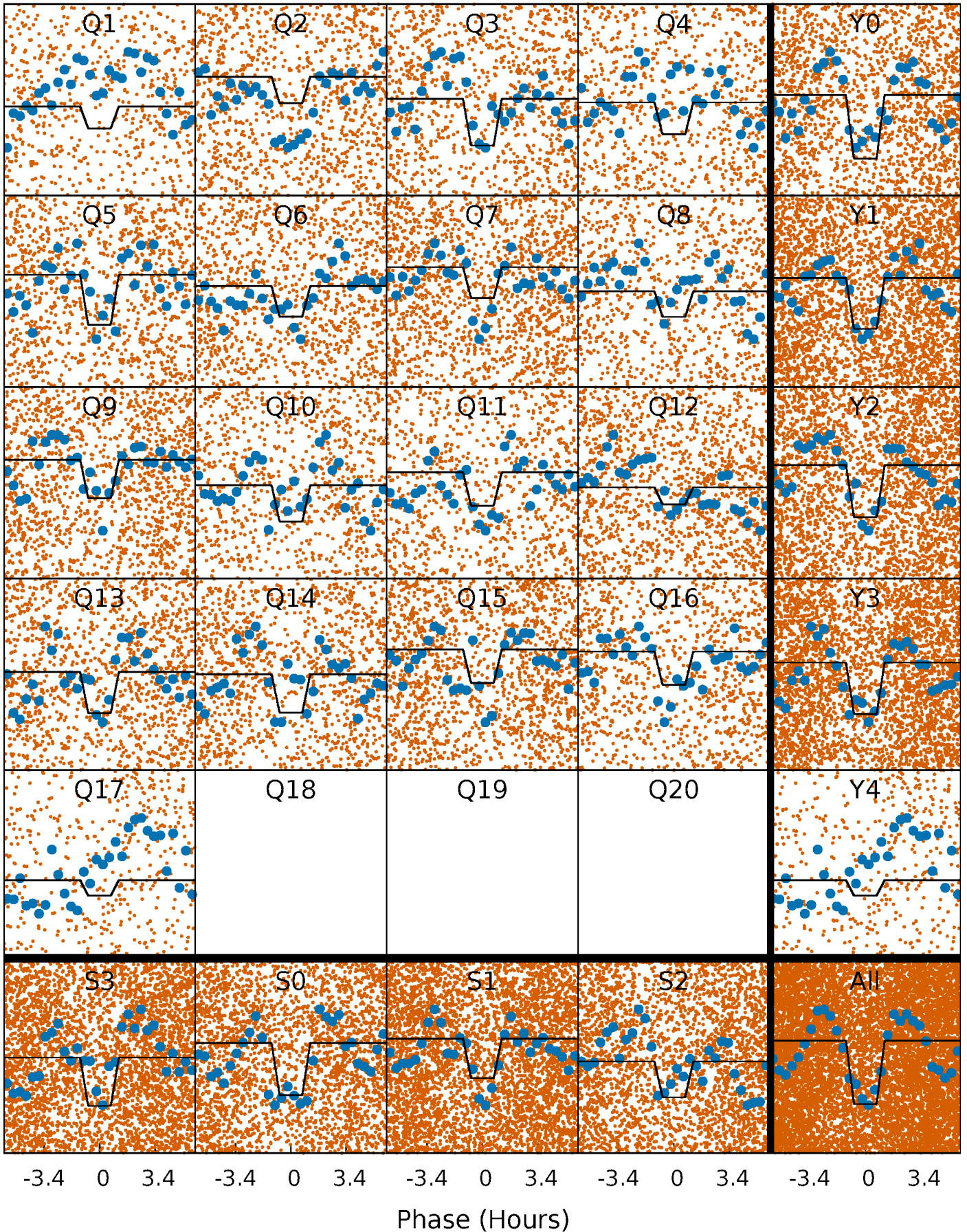
TCE 007630232-01 P= 0.612225 Days  $T_0=131.565195$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

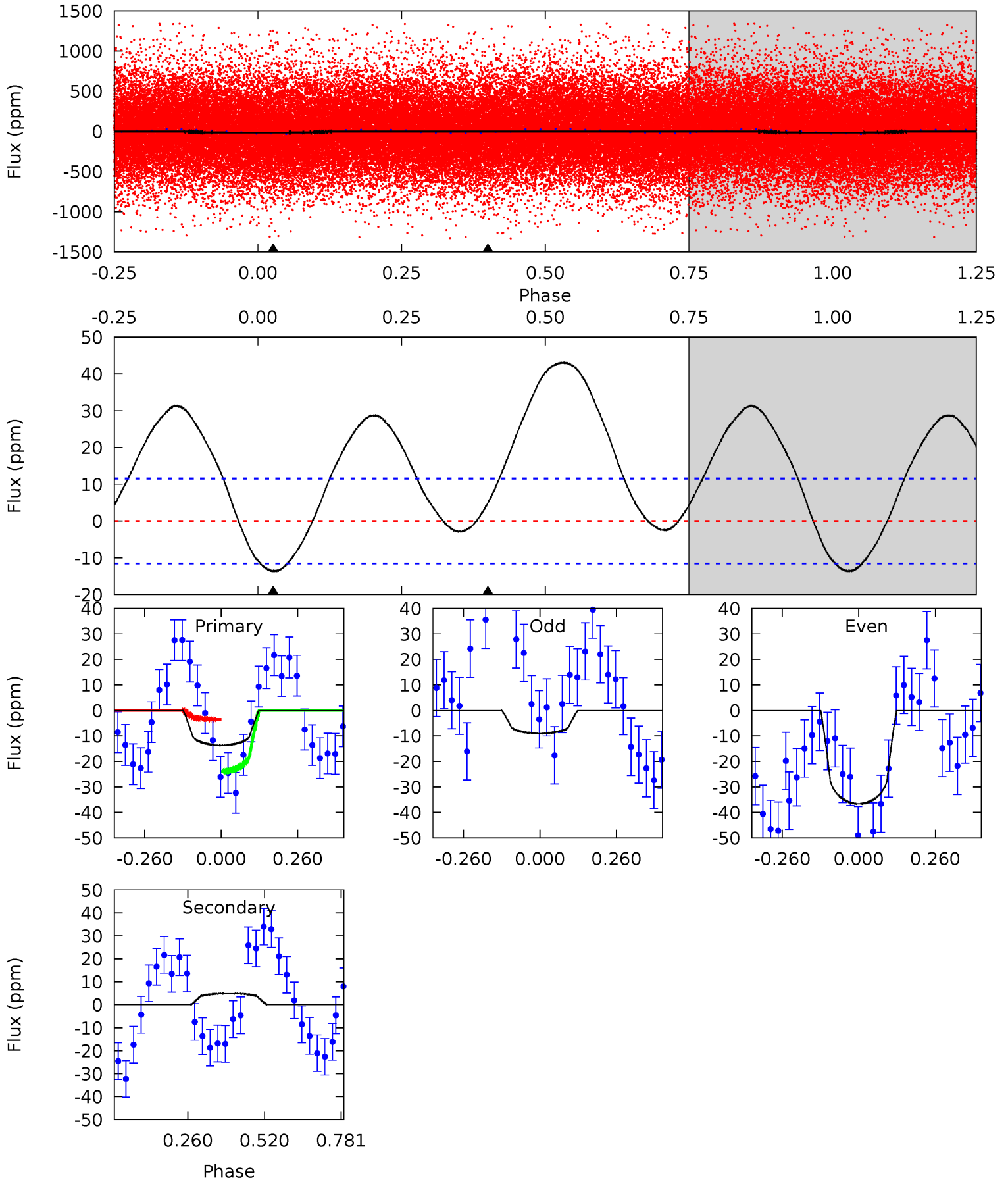
TCE 007630232-01 P= 0.612244 Days  $T_0=131.564337$  (BKJD)



# DV Model-Shift Uniqueness Test

007630232-01, P = 0.612225 Days, E = 130.952970 Days

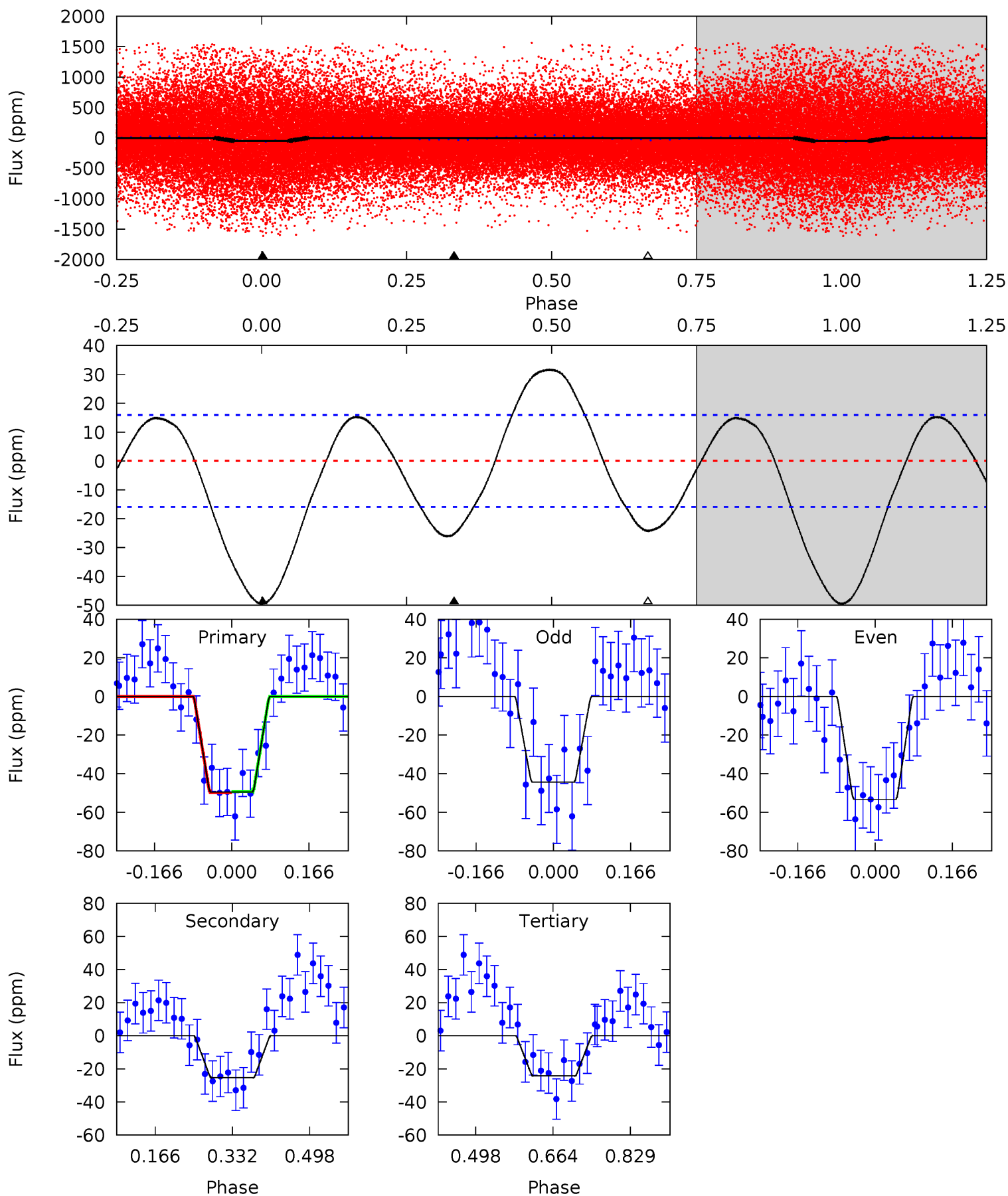
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.16	-1.86	0	0	4.36	1.13	1.18	5.16	5.16	-1.86	-1.86	5.35	1.09	0.76	3.89



# Alt Model-Shift Uniqueness Test

007630232-01, P = 0.612244 Days, E = 130.952093 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	7.09	6.80	0	4.46	1.39	4.90	7.07	13.9	0.29	7.09	1.28	0.87	0.39	0.08





### Stellar Parameters For KIC 007630232

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6389^{+210}_{-256}$	$3.740^{+0.629}_{-0.148}$	$-0.680^{+0.350}_{-0.300}$	$2.435^{+0.483}_{-1.352}$	$1.186^{+0.166}_{-0.308}$	$0.116^{+0.951}_{-0.050}$
	+3%/-4%	+17%/-4%	+51%/-44%	+20%/-56%	+14%/-26%	+822%/-44%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 007630232-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$5\pm3$	$0.98^{+0.53}_{-0.46}$	$4914^{+418}_{-658}$	$-5258^{+625}_{-1197}$	$-0.588^{+0.409}_{-1.682}$
Alt.	$-25\pm4$	$1.73^{+0.59}_{-0.61}$	$4896^{+426}_{-760}$	$4957^{+854}_{-752}$	$1.026^{+1.314}_{-0.457}$

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

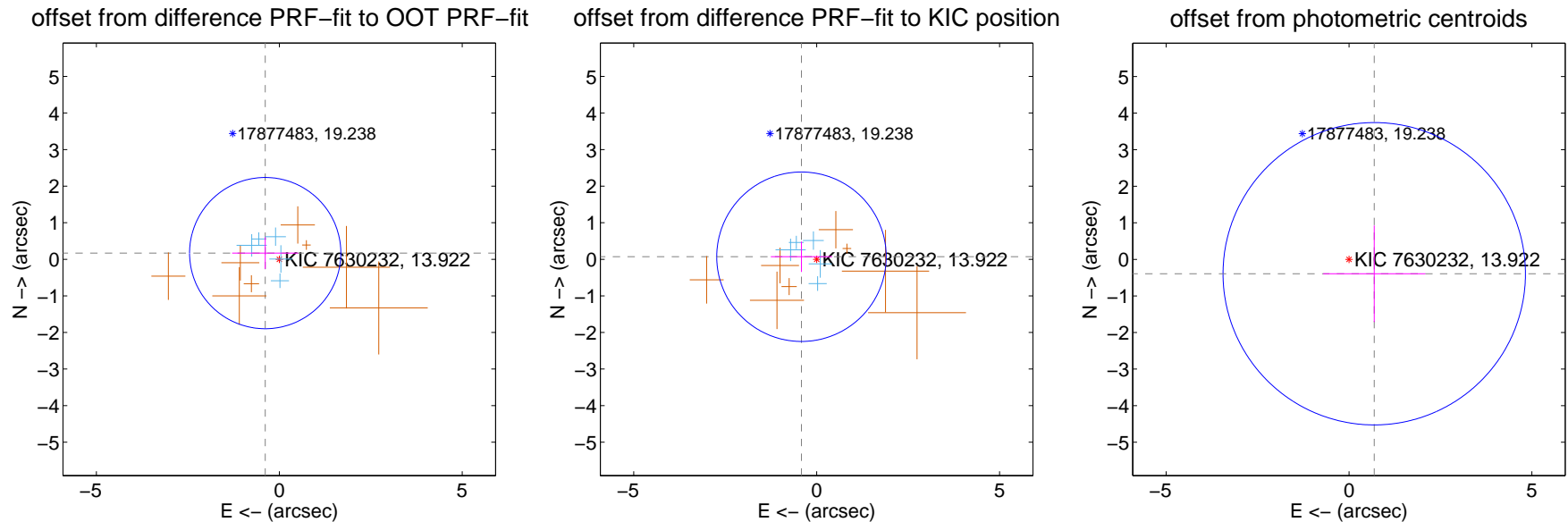
## DV Centroid Data

Supplemental centroid analysis for 007630232-01. Kepler magnitude: 13.92. Transit SNR 4.33

There are 5 quarters with good PRF difference image offsets

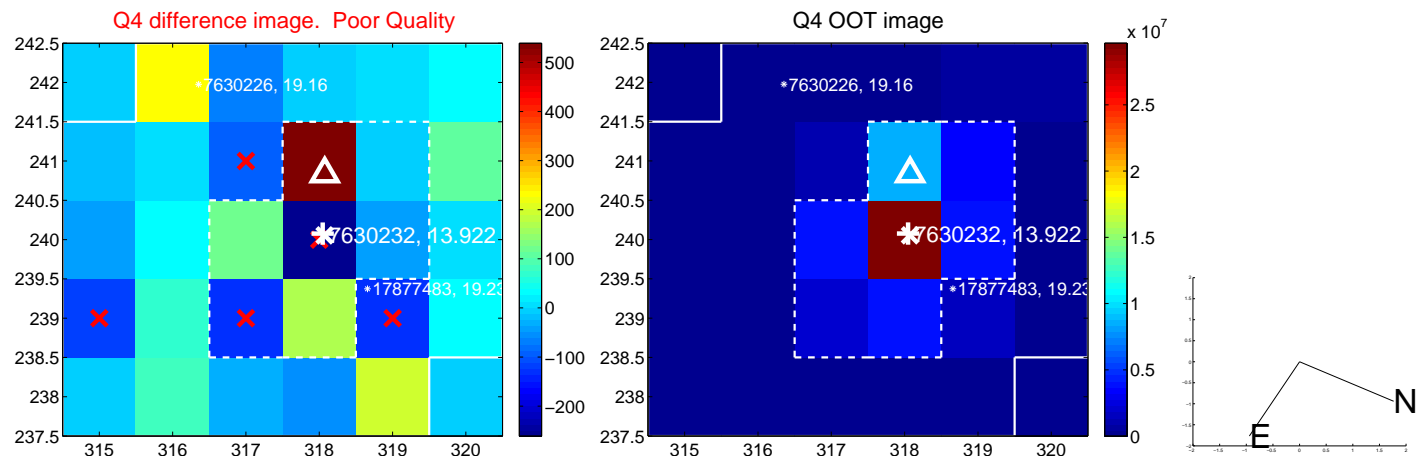
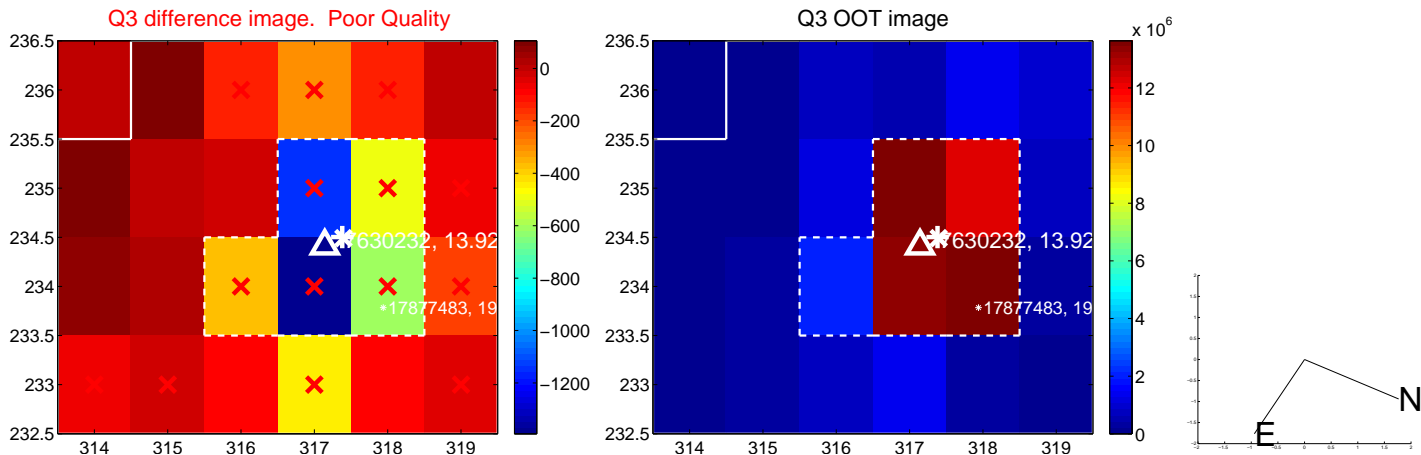
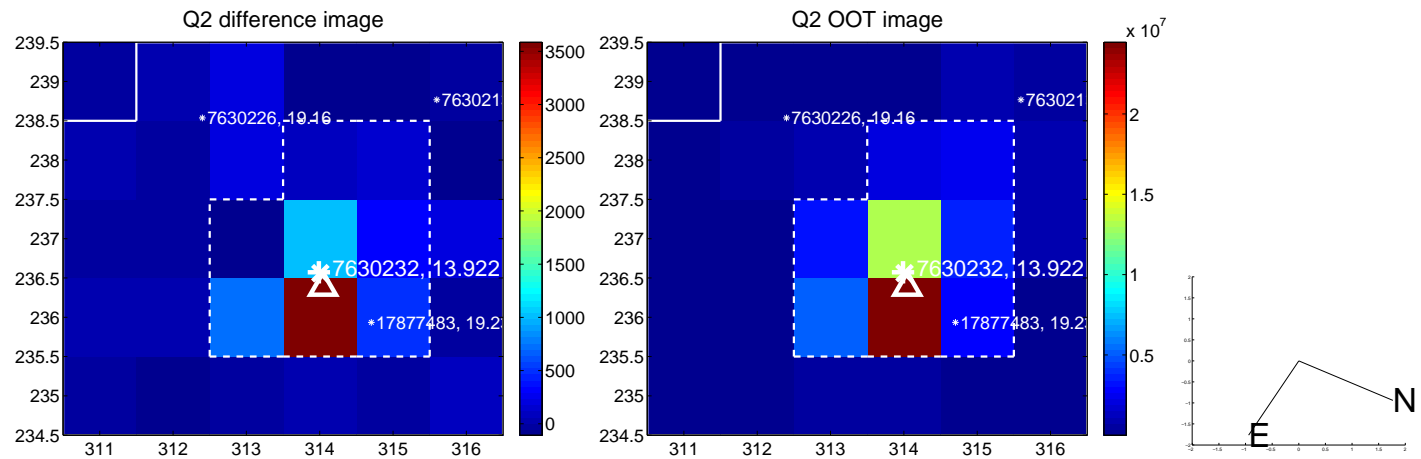
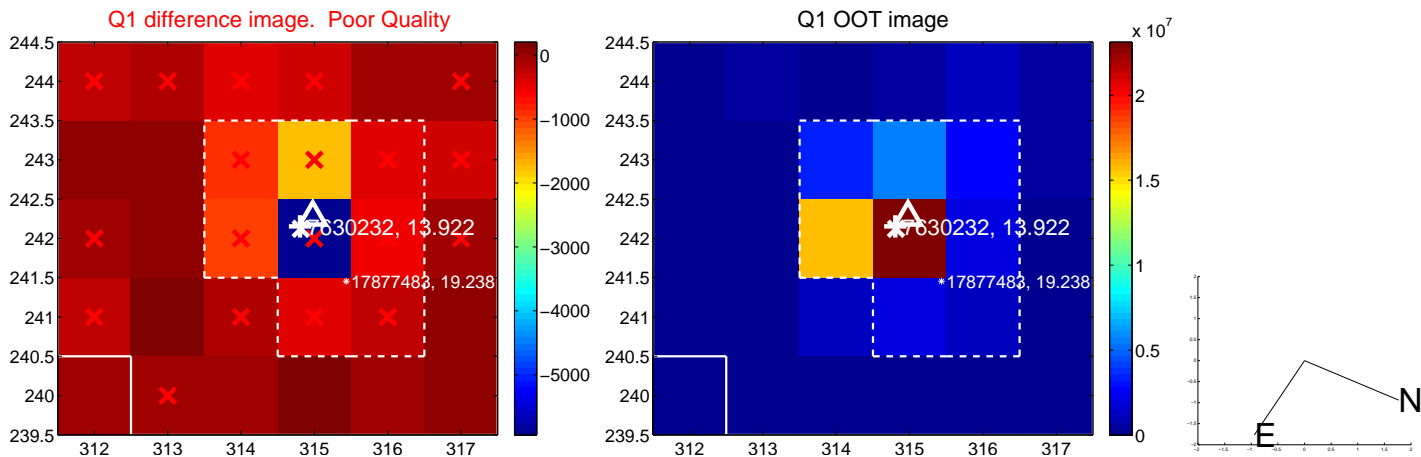
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.421 \pm 0.689$	0.61	$0.385 \pm 0.903$	$0.169 \pm 0.434$
PRF-fit source offset from KIC position	$0.421 \pm 0.772$	0.54	$0.415 \pm 0.837$	$0.070 \pm 0.416$
photometric centroid source offset	$0.79 \pm 1.38$	0.58	$-0.69 \pm 1.40$	$-0.39 \pm 1.32$

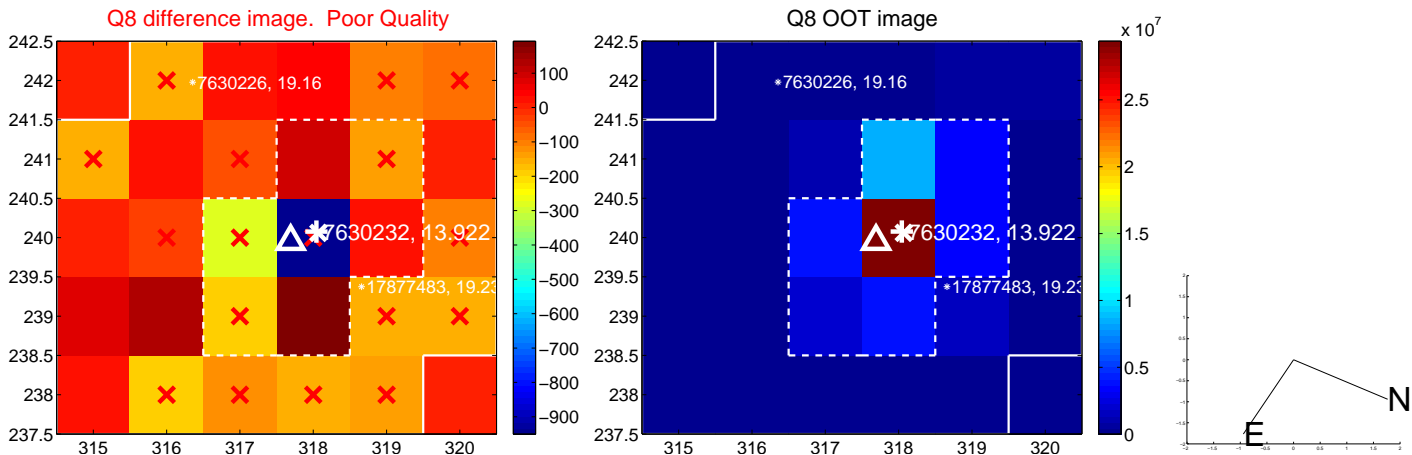
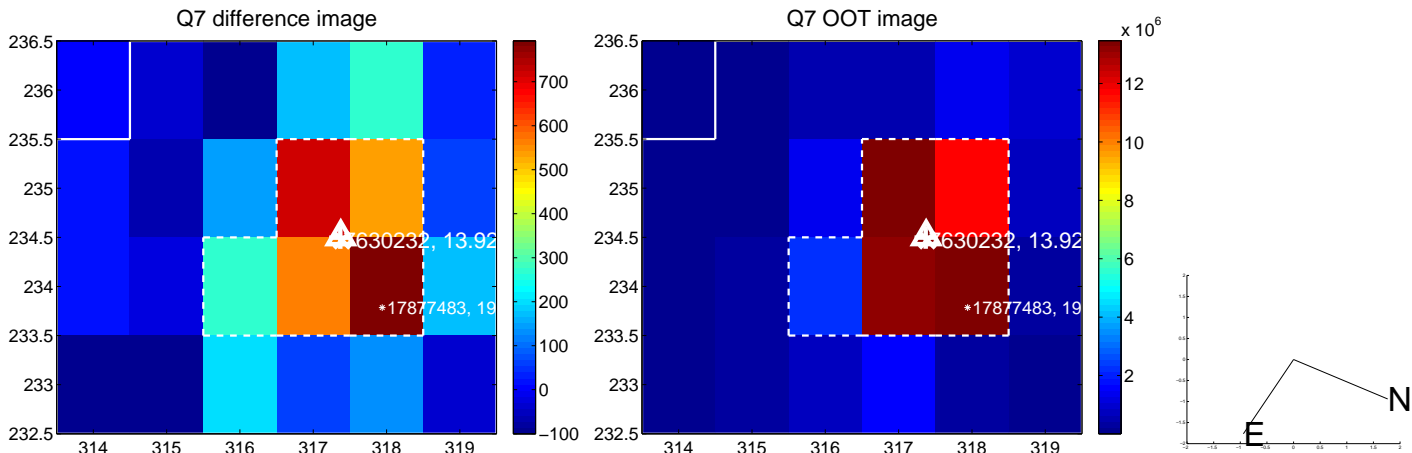
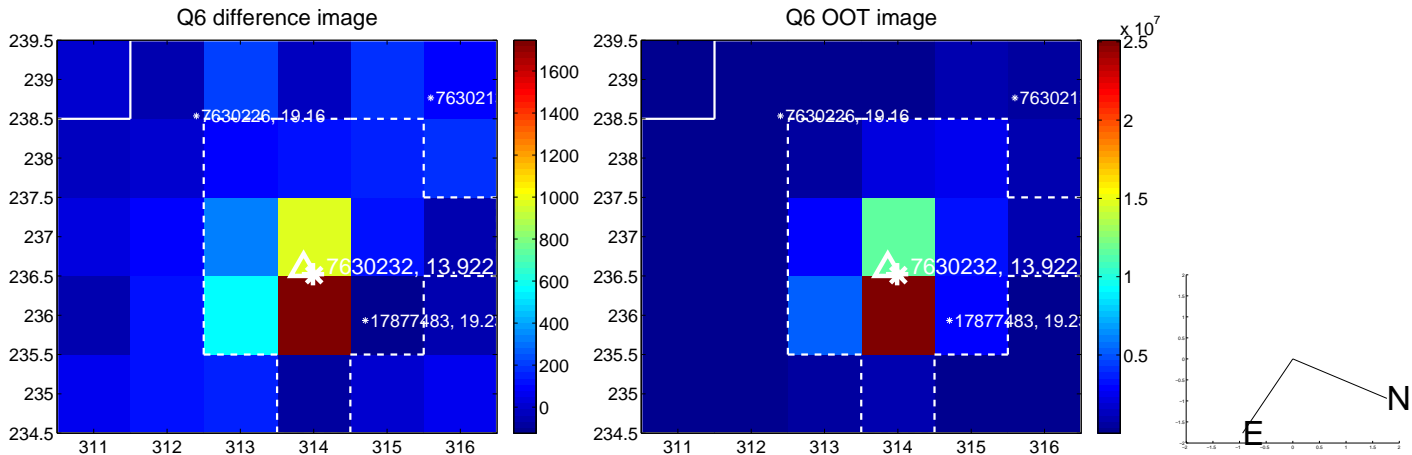
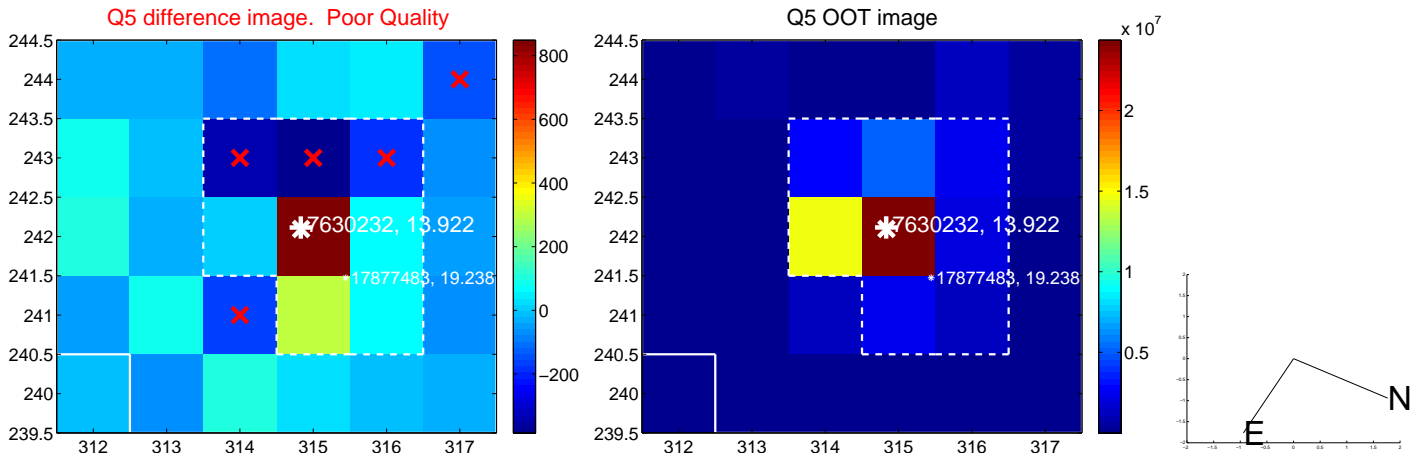


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

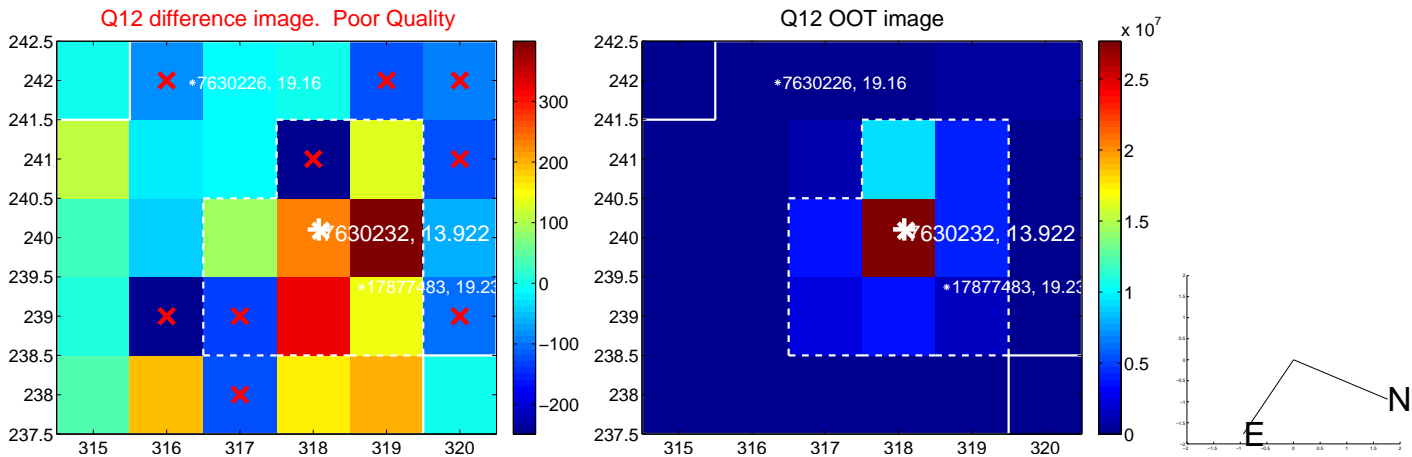
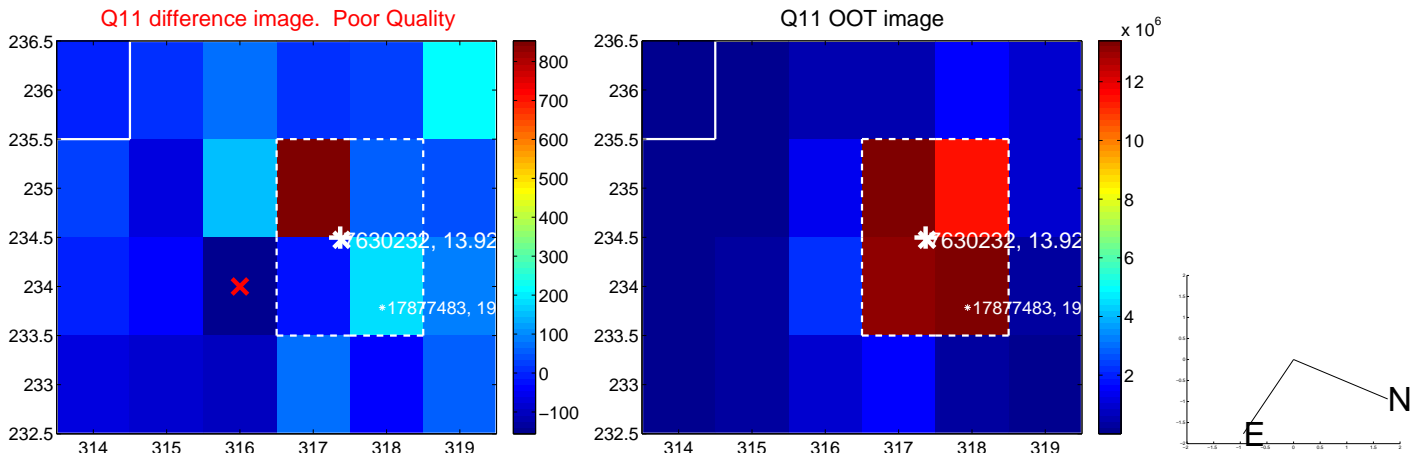
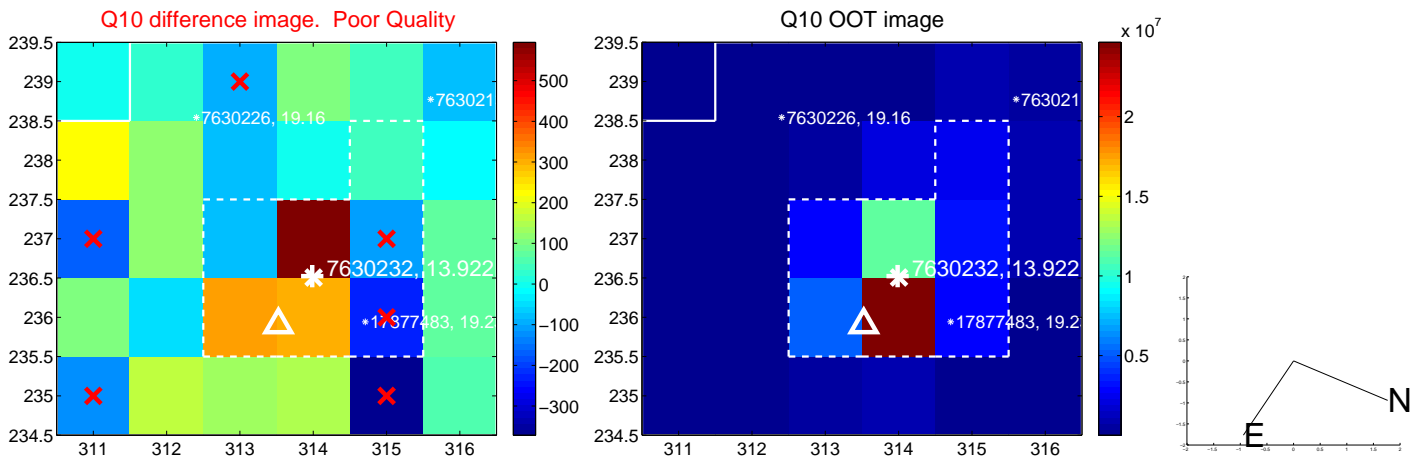
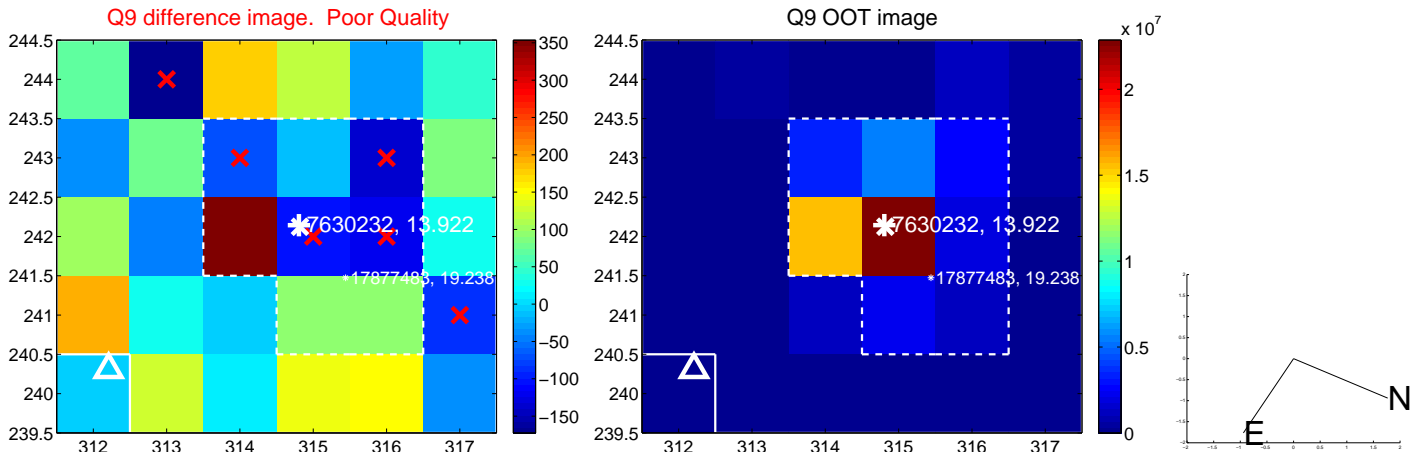


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

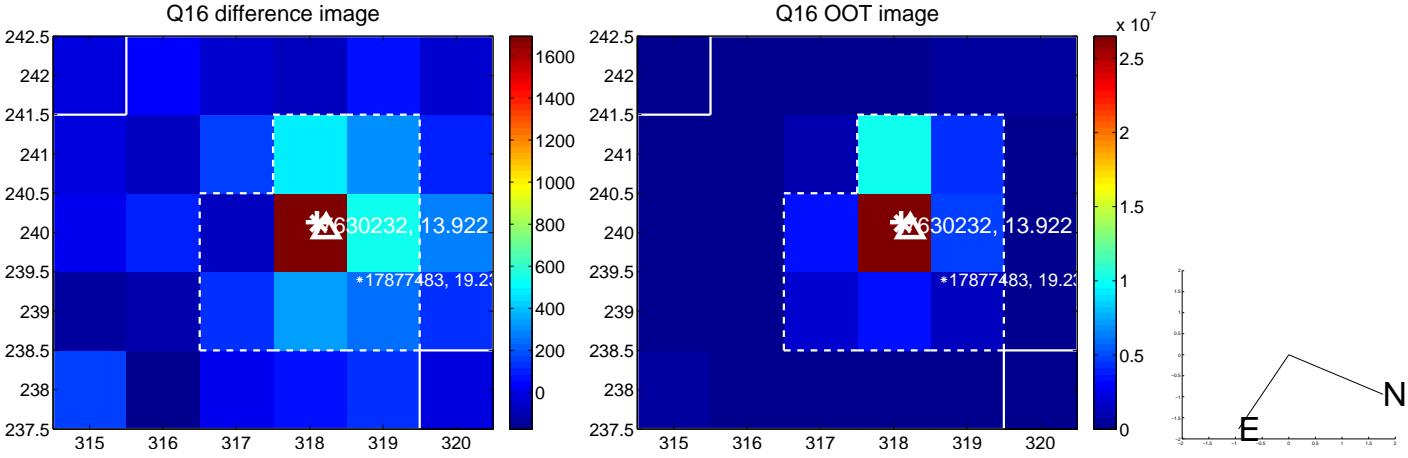
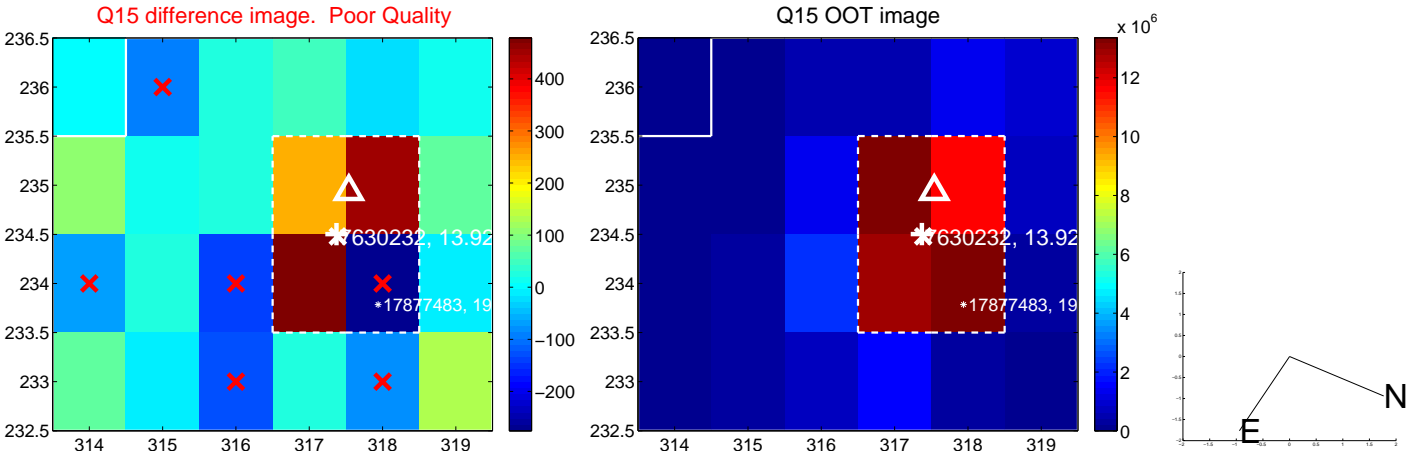
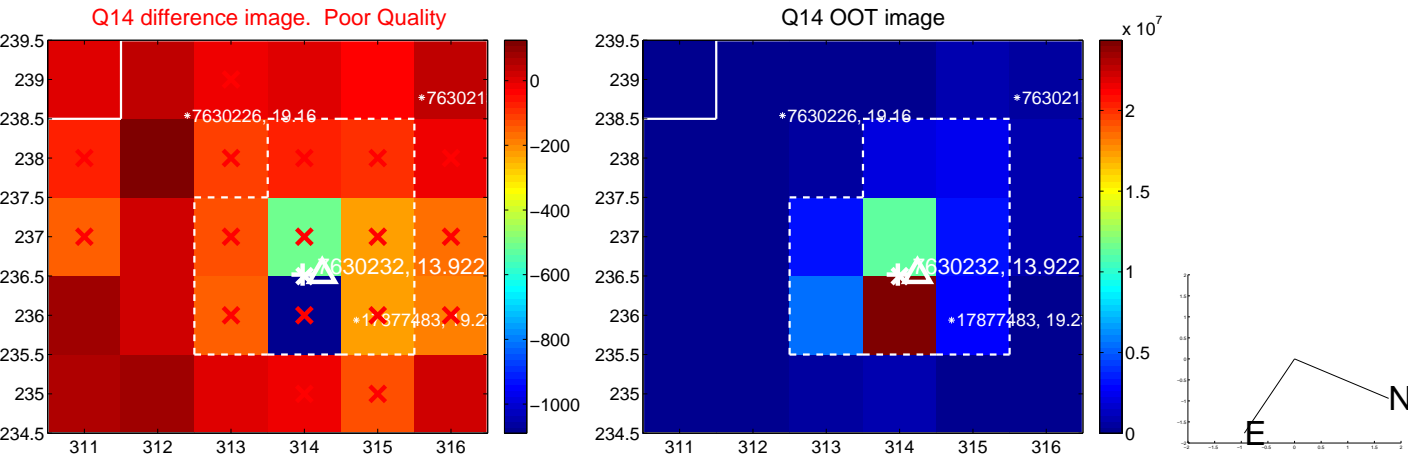
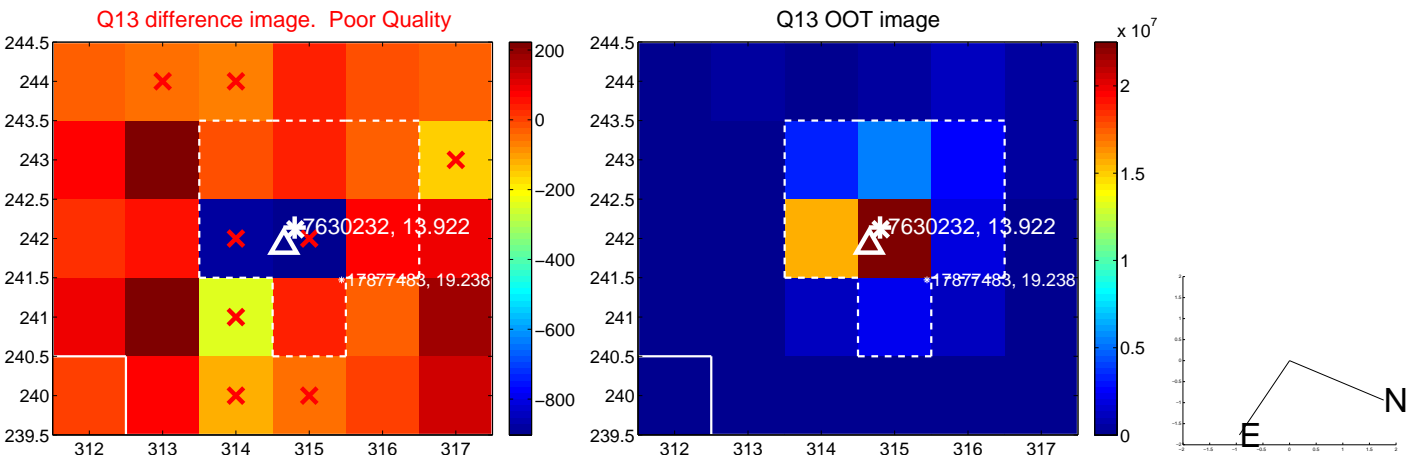




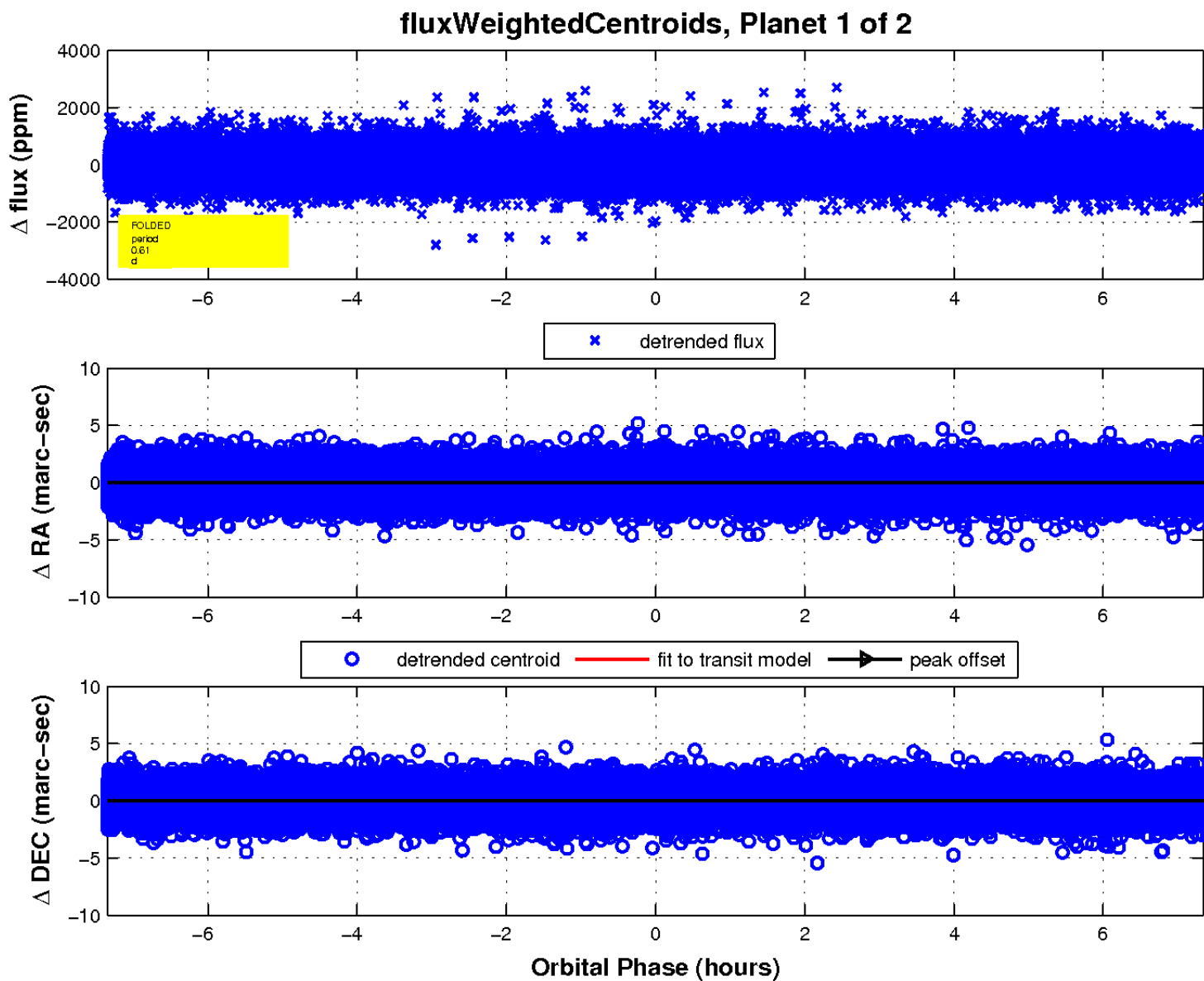
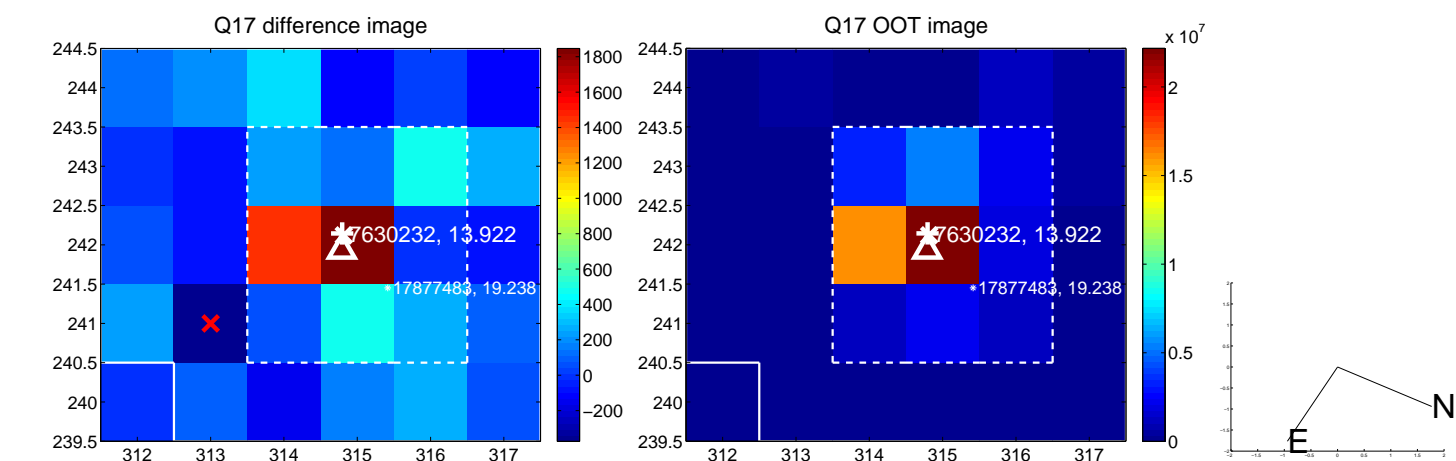
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

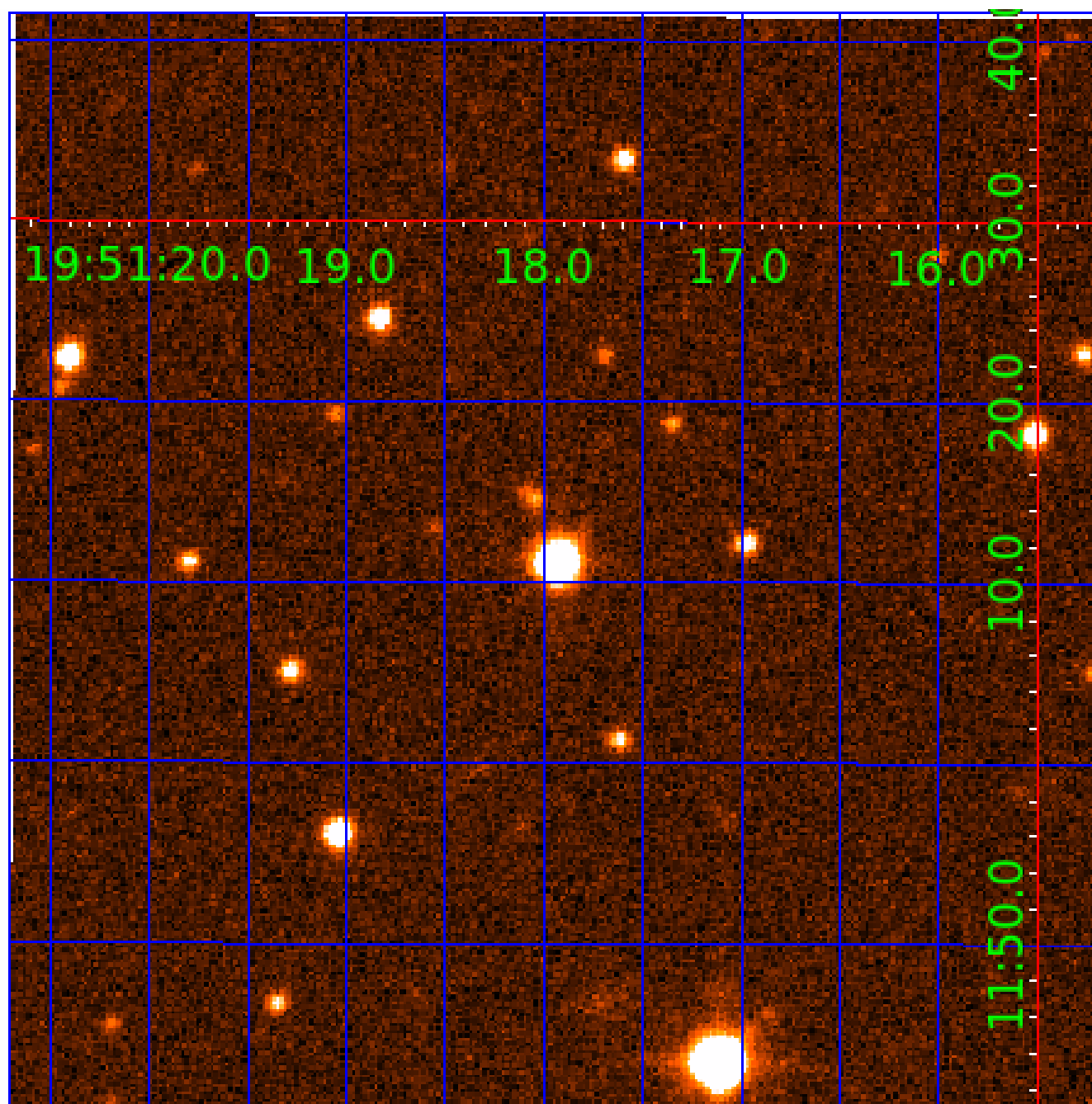


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007630232

## 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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TCE	Run Type	Disp	Score	N	S	C	E	Comments
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007630232-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

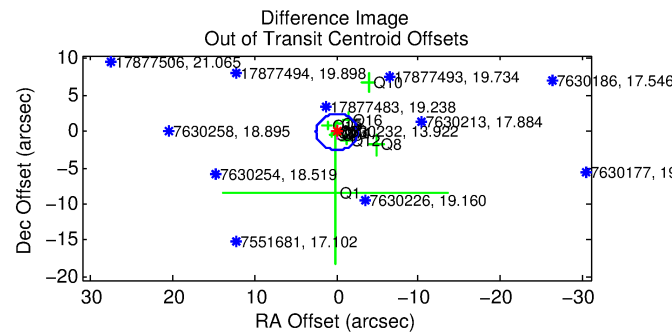
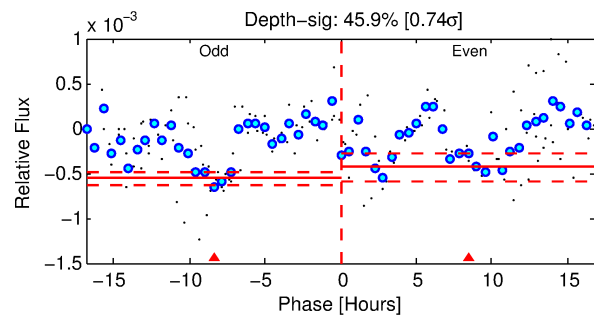
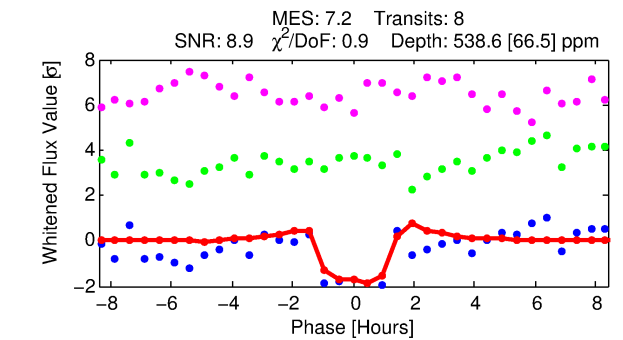
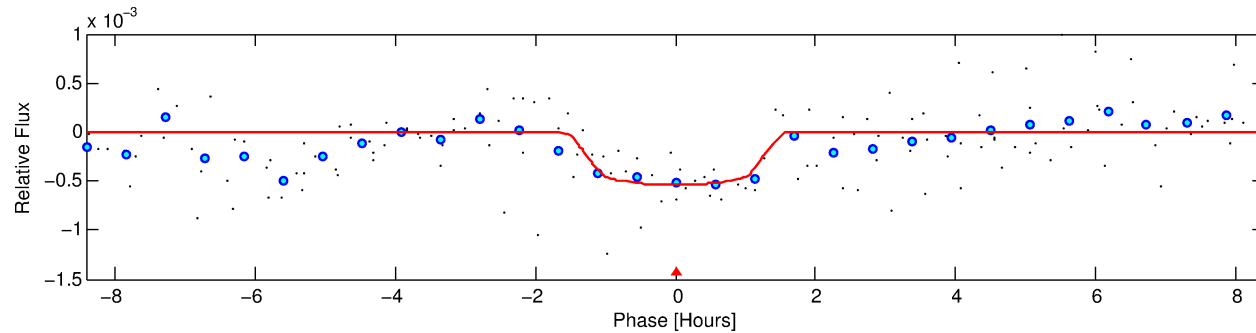
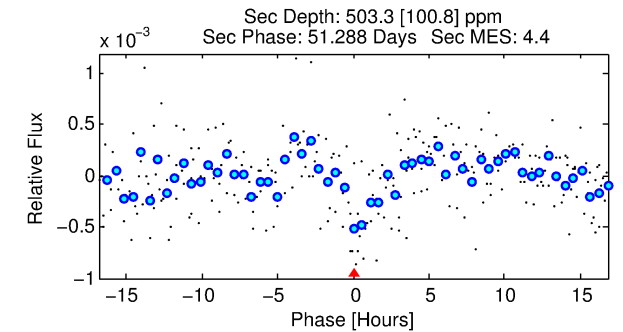
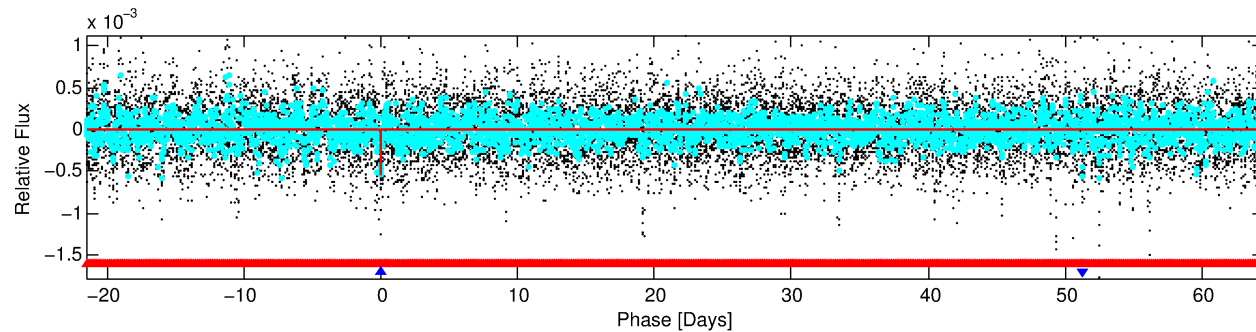
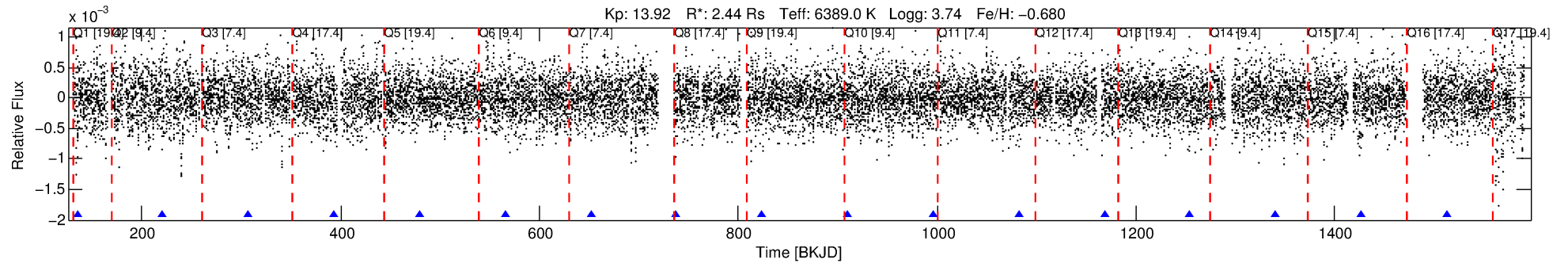
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007630232-02

No Significant Match Found

# DV One-Page Summary

KIC: 7630232 Candidate: 2 of 2 Period: 86.105 d



## DV Fit Results:

Period = 86.10546 [0.00072] d  
Epoch = 134.9650 [0.0074] BKJD  
Rp/R\* = 0.0236 [0.0099]  
a/R\* = 146.39 [331.33]  
b = 0.81 [0.96]  
Seff = 54.15 [56.66]  
Teff = 692 [181] K  
Rp = 6.28 [4.36] Re  
a = 0.4043 [0.2460] AU  
Ag = 1148.07 [1542.76] [0.74 $\sigma$ ]  
Teffp = 6225 [1359] K [4.04 $\sigma$ ]

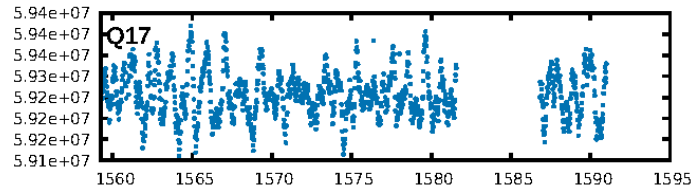
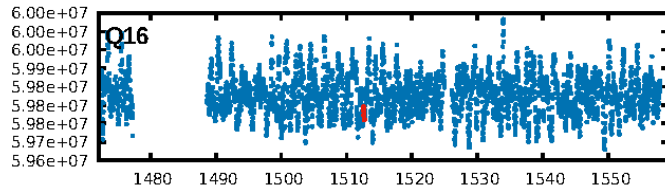
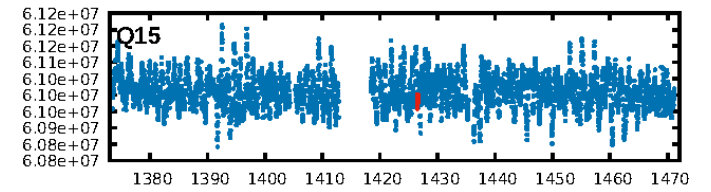
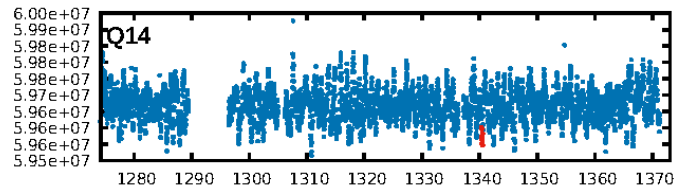
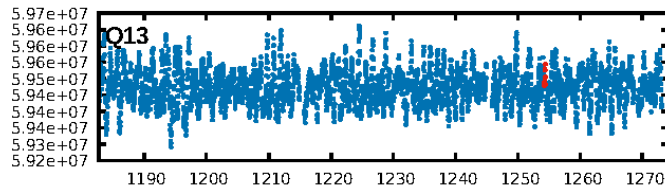
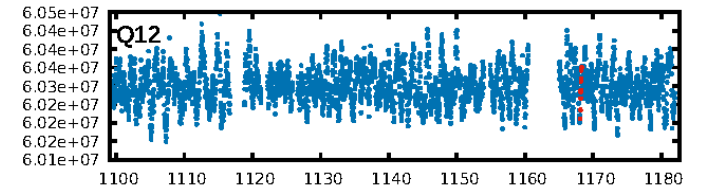
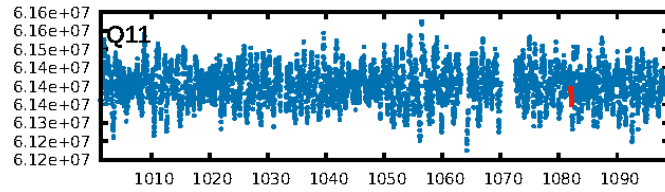
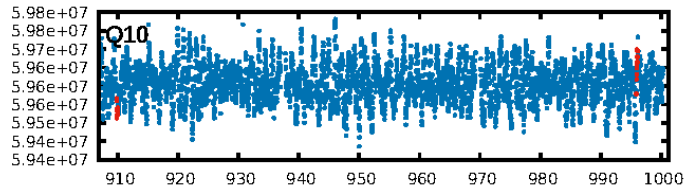
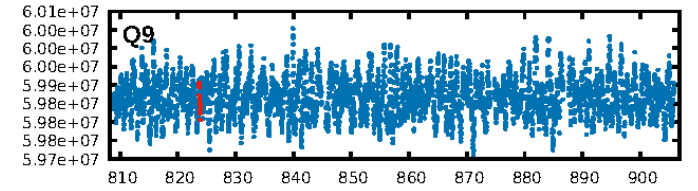
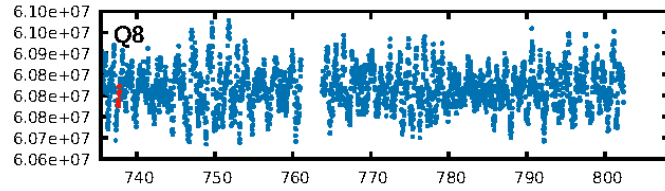
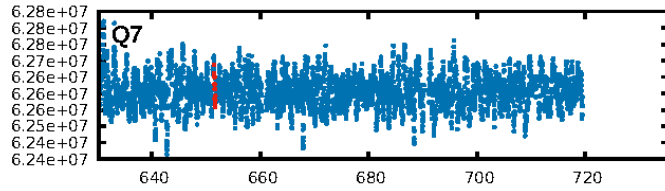
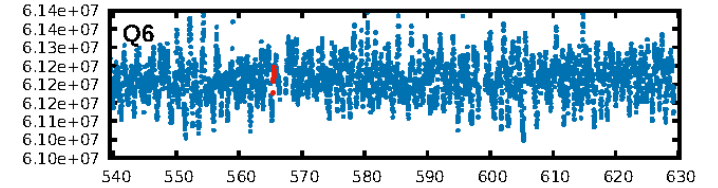
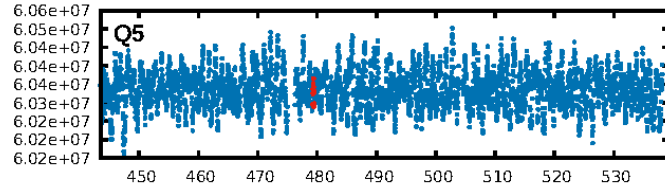
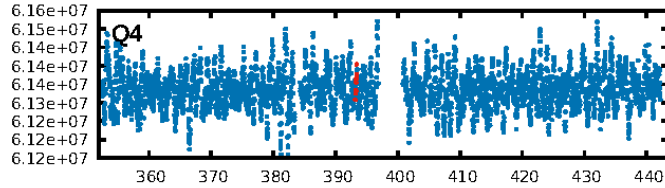
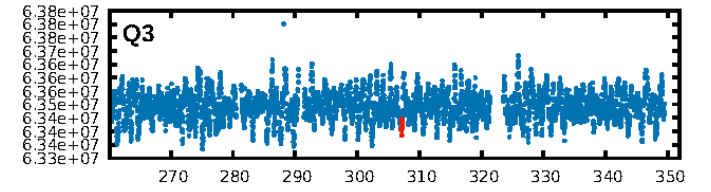
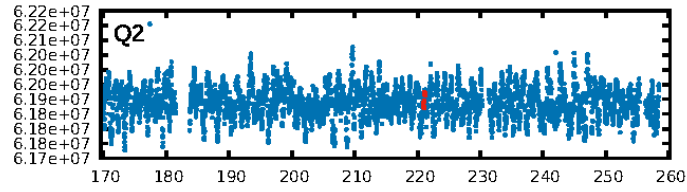
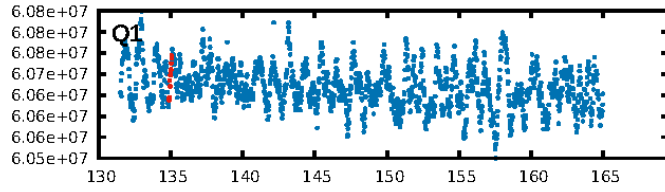
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [470.29 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 91.3%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 4.33e-09**  
RollingBand-fgt: 1.00 [7/7]  
**GhostDiagnostic-chr: 0.7791**  
Centroid-sig: 4.6%  
Centroid-so: 1.141 arcsec [1.98 $\sigma$ ]  
OotOffset-rm: 0.062 arcsec [0.07 $\sigma$ ]  
KicOffset-rm: 0.160 arcsec [0.18 $\sigma$ ]  
OotOffset-st: 3/3/3/4 [13]  
KicOffset-st: 3/3/3/4 [13]  
DiffImageQuality-fgm: 0.38 [5/13]  
DiffImageOverlap-fno: 0.00 [0/16]

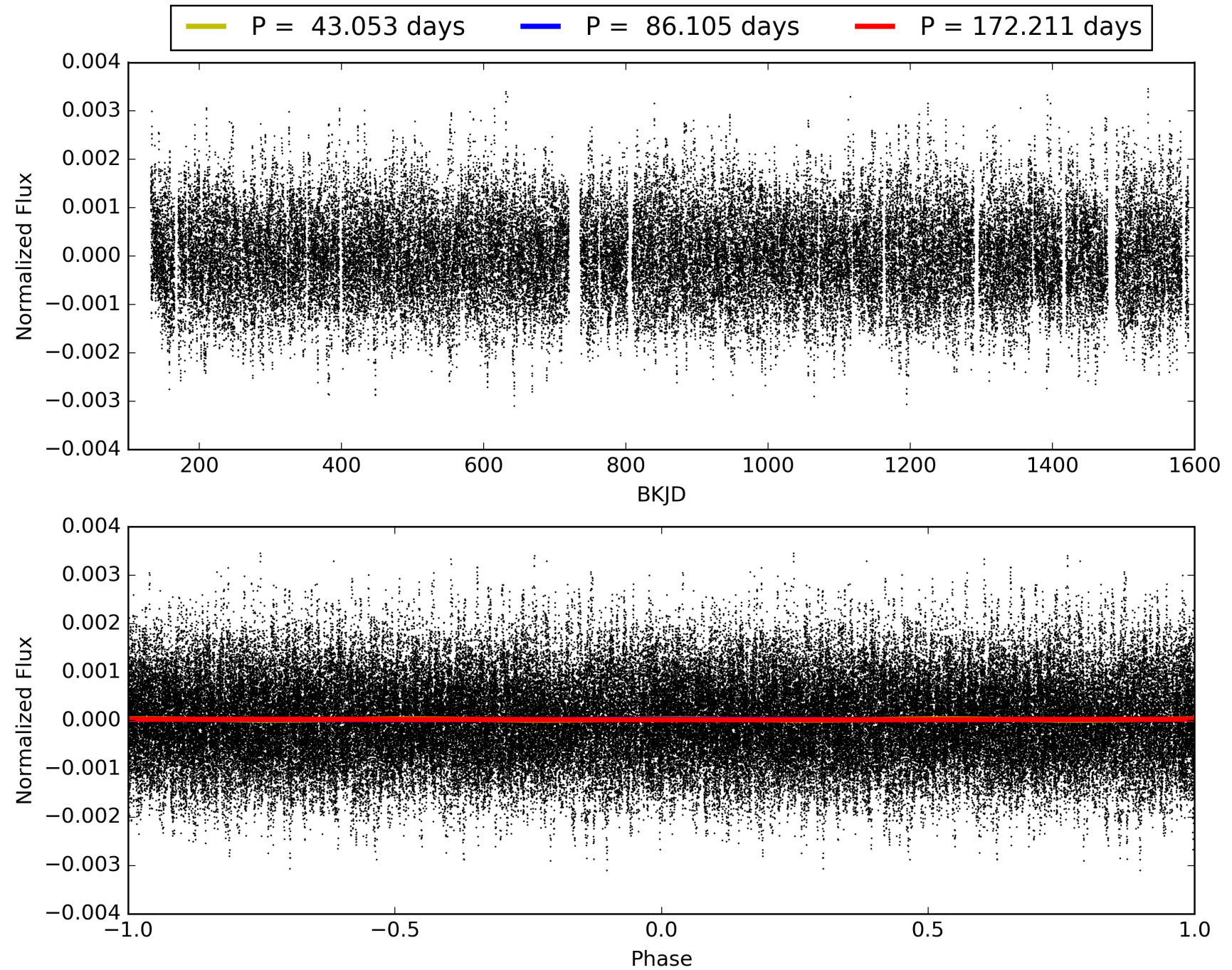
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:56:31 Z

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

# TCE 007630232-02, PDC Light Curves

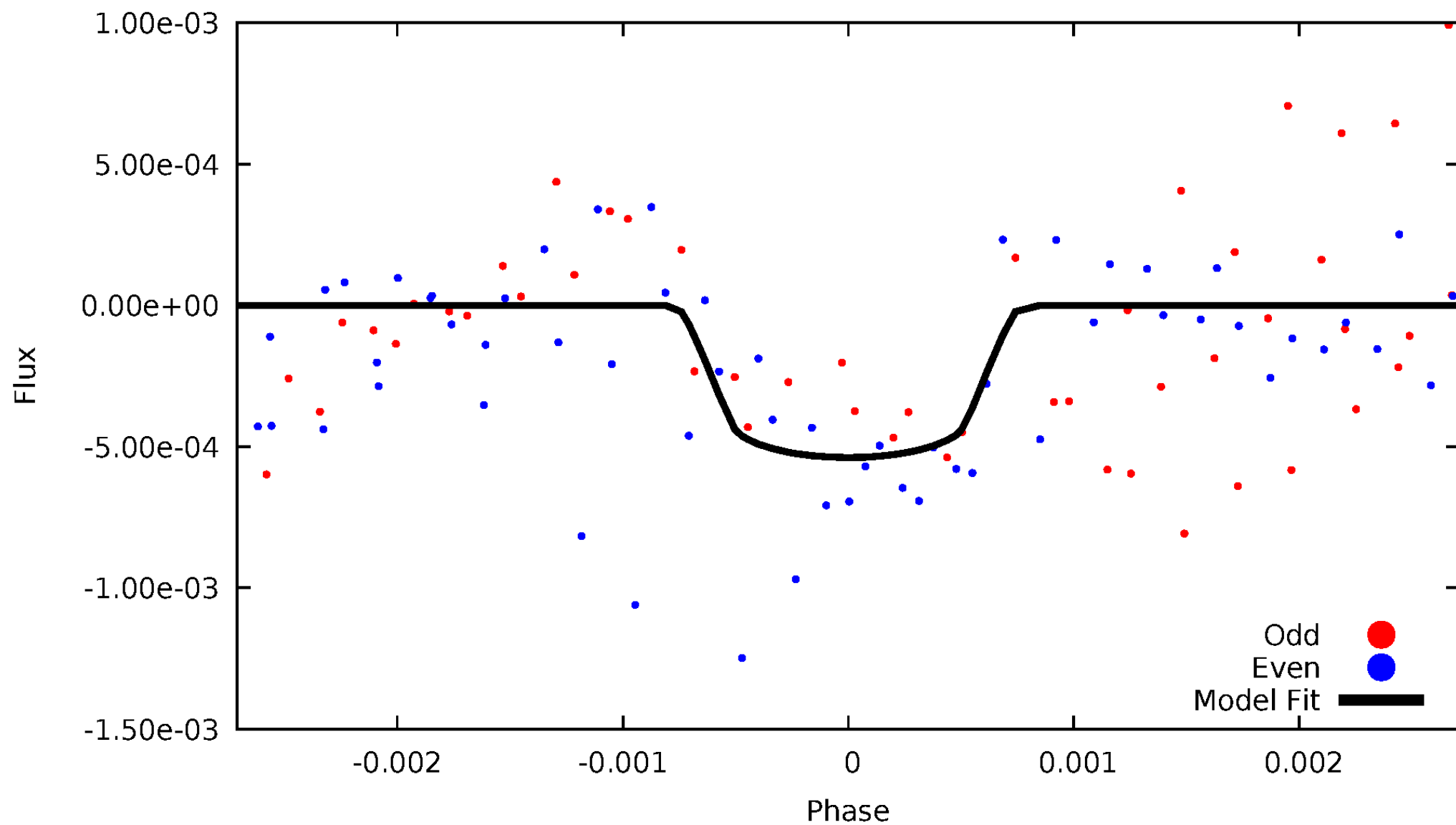


# TCE 007630232-02



# DV Odd/Even

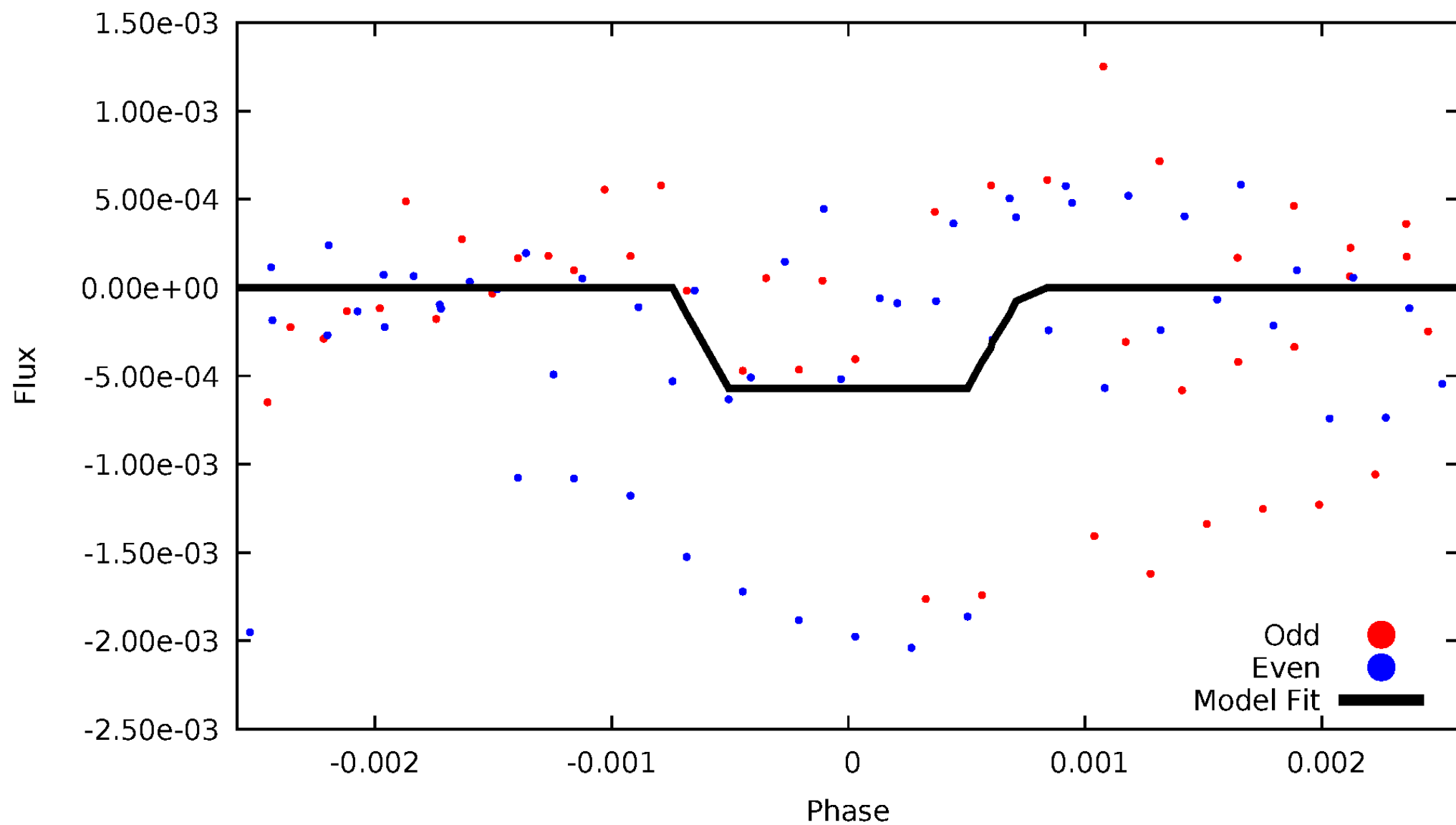
TCE 007630232-02





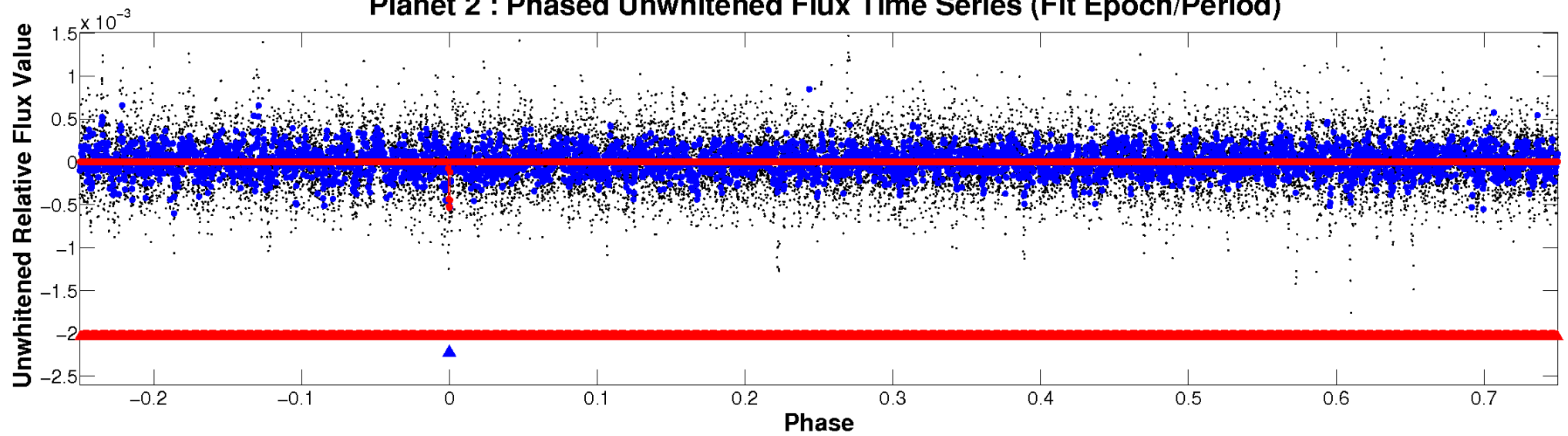
# ALT Odd/Even

TCE 007630232-02

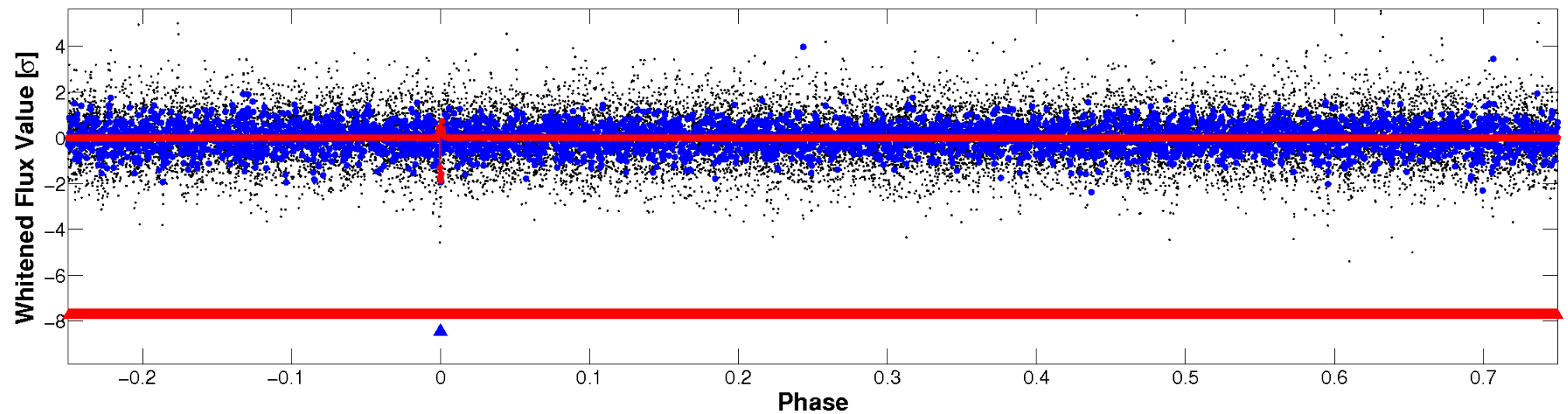


# Non-Whitened Vs. Whitened Light Curve

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

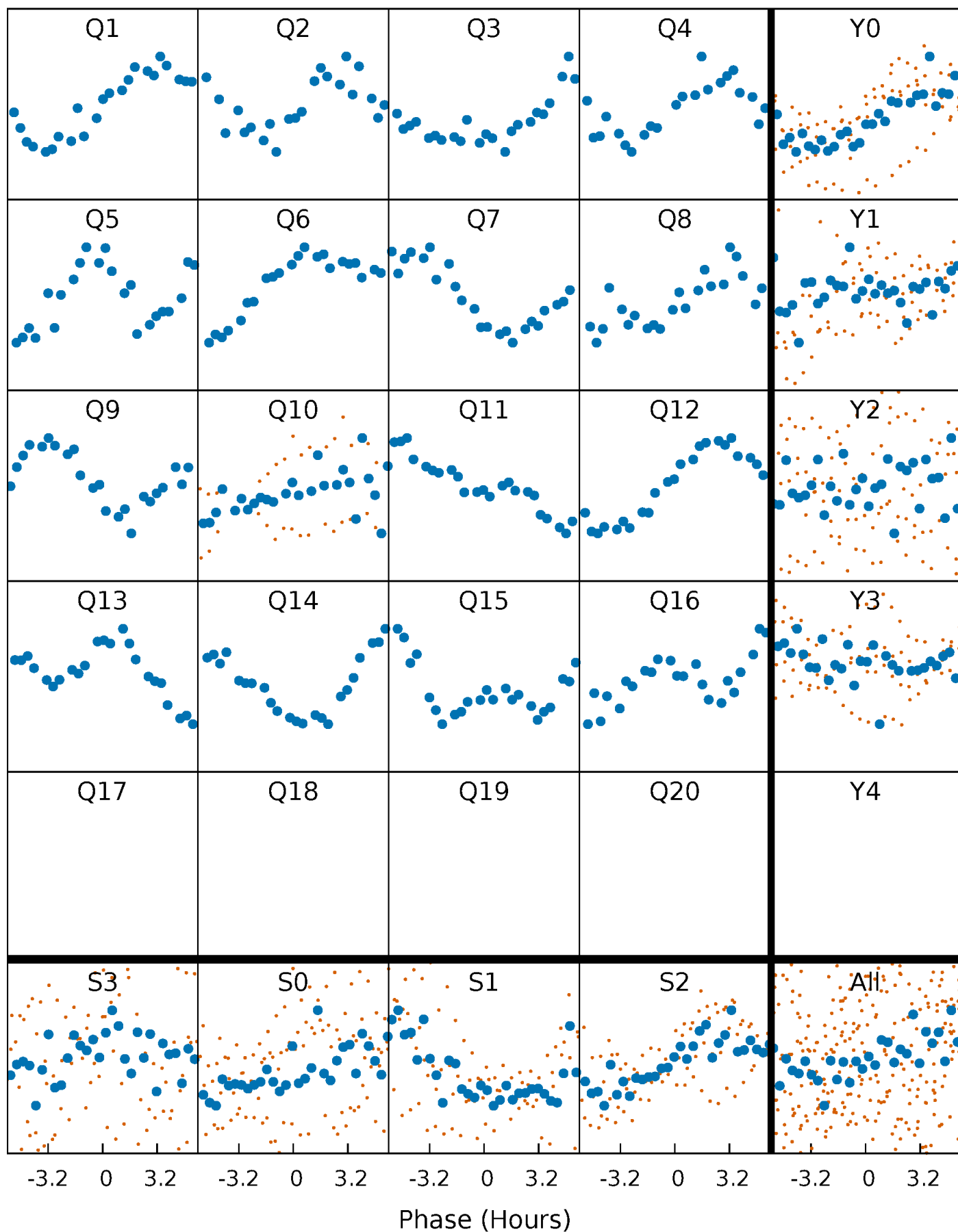


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



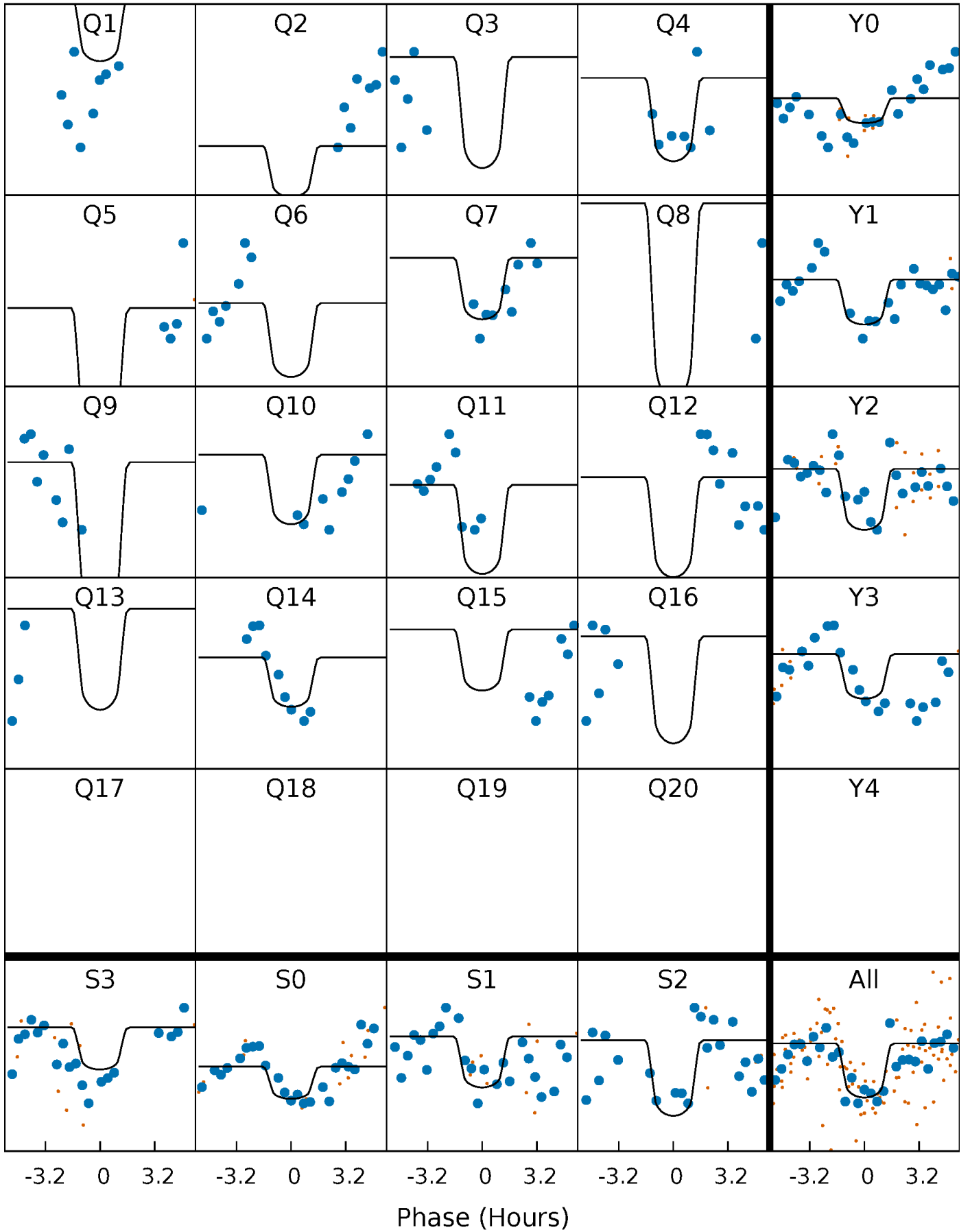
# PDC Quarter-Phased Transit Curves

TCE 007630232-02   P= 86.105458 Days    $T_0=134.965035$  (BKJD)



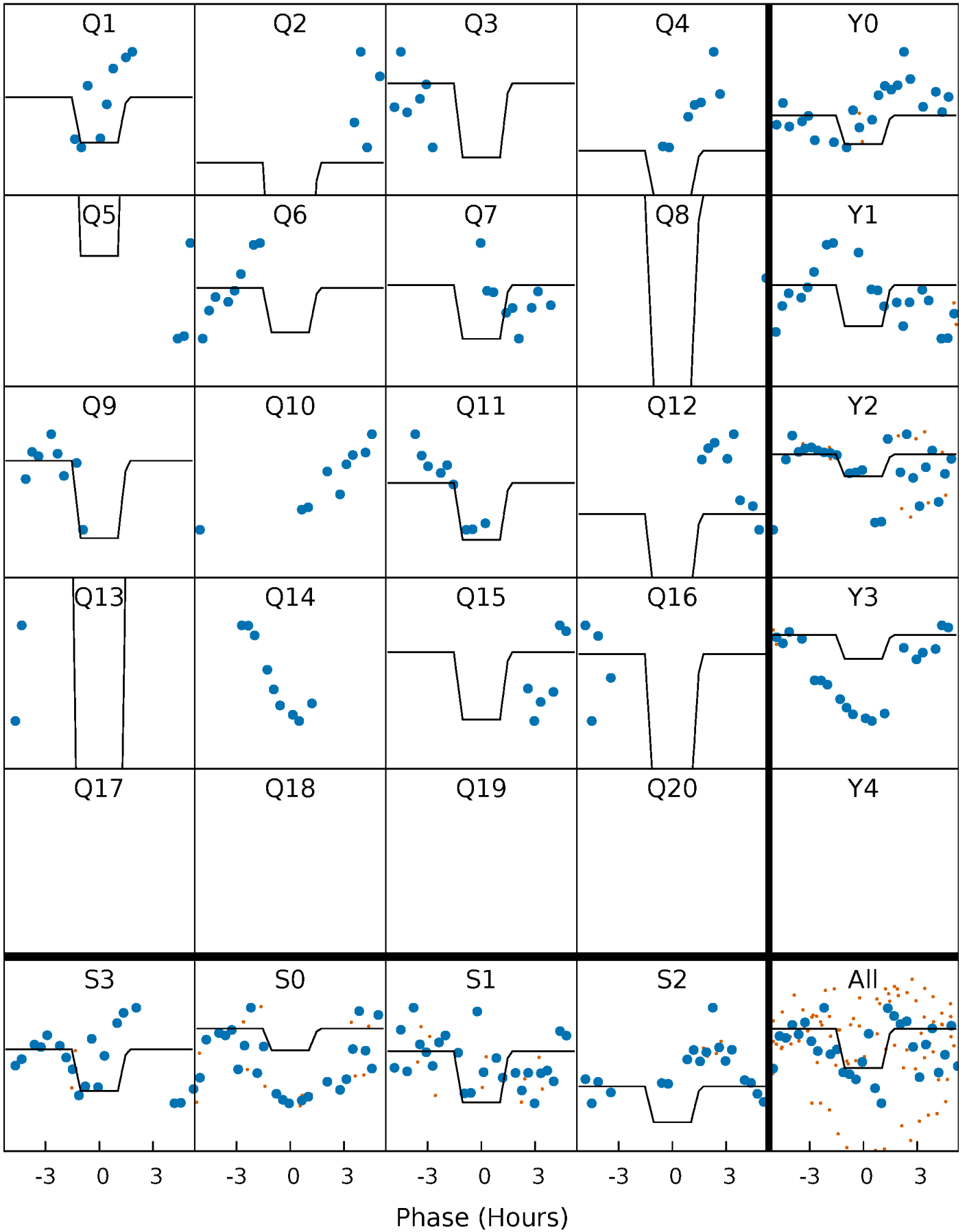
# DV Quarter-Phased Transit Curves

TCE 007630232-02   P= 86.105458 Days    $T_0=134.965035$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007630232-02 P= 86.108453 Days  $T_0=134.927131$  (BKJD)

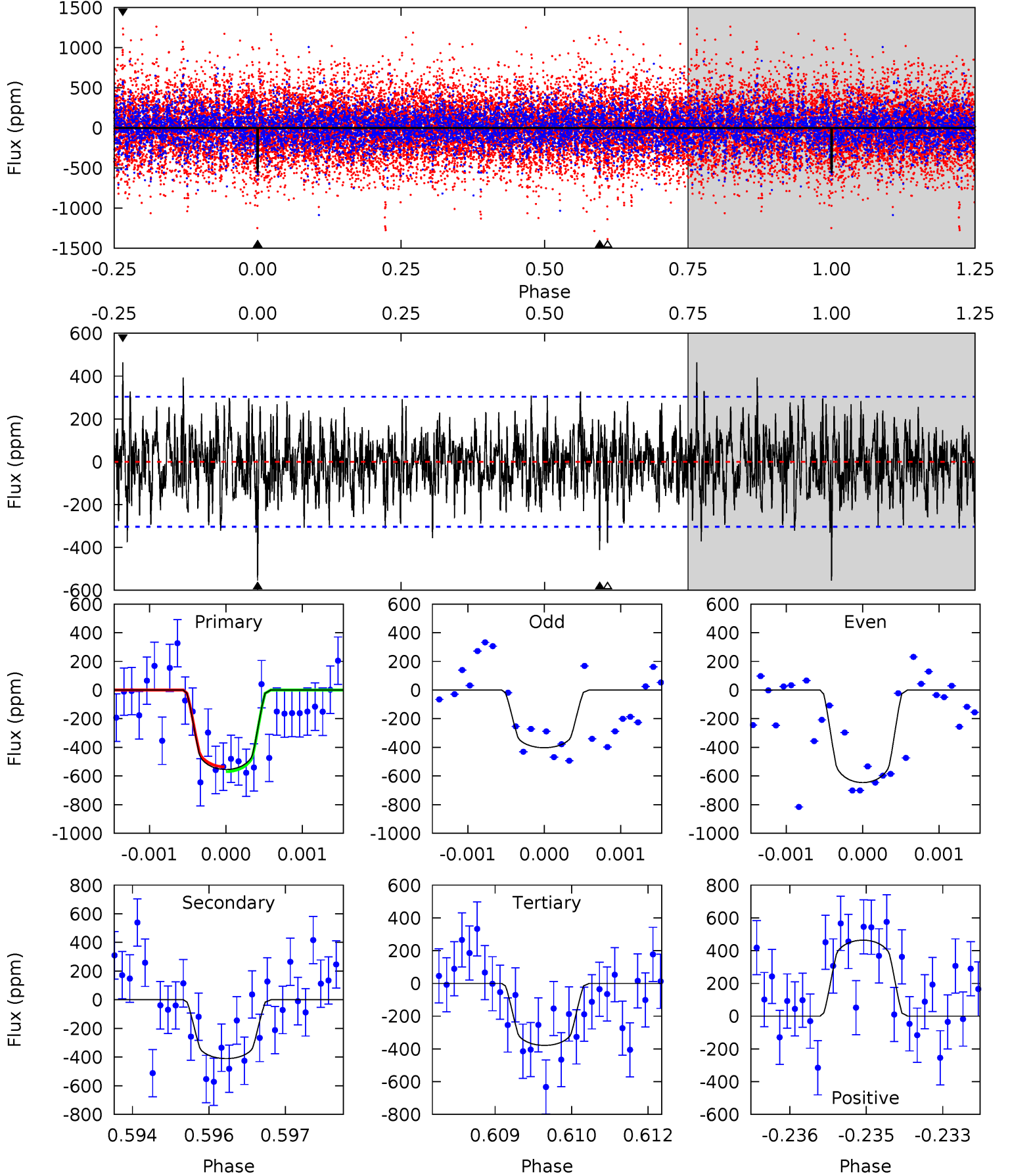




# DV Model-Shift Uniqueness Test

007630232-02, P = 86.105458 Days, E = 48.859577 Days

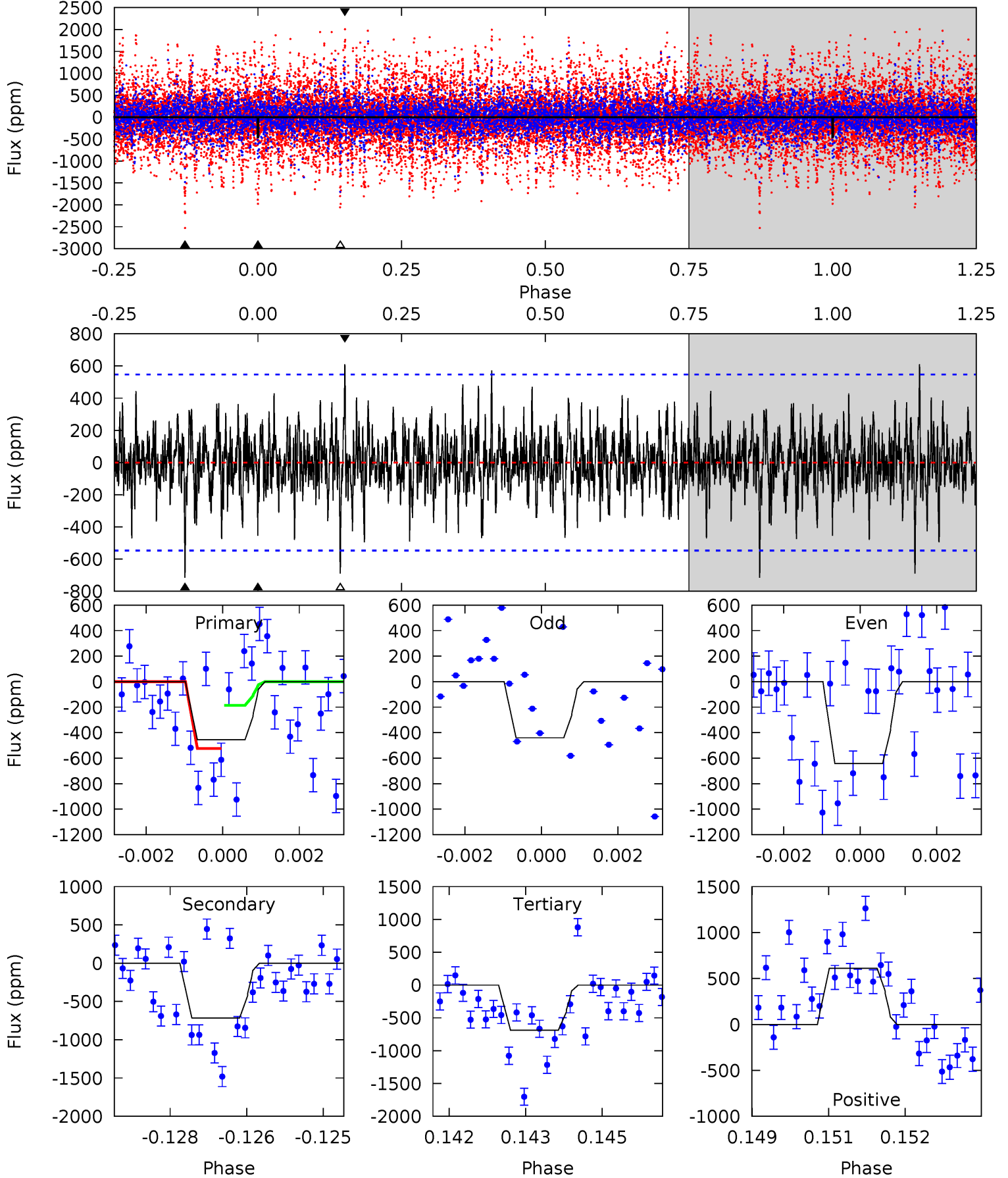
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.85	7.29	6.72	8.23	5.38	3.18	1.97	3.13	1.61	0.56	-0.95	2.05	1.01	0.46	0.29



# Alt Model-Shift Uniqueness Test

007630232-02, P = 86.108453 Days, E = 48.818678 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.47	7.03	6.77	6.01	5.38	3.17	1.51	-2.30	-1.54	0.25	1.02	0.97	1.51	0.46	1.64



### Stellar Parameters For KIC 007630232

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6389^{+210}_{-256}$	$3.740^{+0.629}_{-0.148}$	$-0.680^{+0.350}_{-0.300}$	$2.435^{+0.483}_{-1.352}$	$1.186^{+0.166}_{-0.308}$	$0.116^{+0.951}_{-0.050}$
	+3%/-4%	+17%/-4%	+51%/-44%	+20%/-56%	+14%/-26%	+822%/-44%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 007630232-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-411 \pm 56$	$5.44^{+3.17}_{-2.44}$	$941^{+85}_{-146}$	$5921^{+1795}_{-922}$	$1251^{+2856}_{-762}$
Alt.	$-715 \pm 102$	$5.58^{+3.06}_{-2.59}$	$936^{+89}_{-138}$	$6845^{+2225}_{-1186}$	$2032^{+4902}_{-1165}$

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

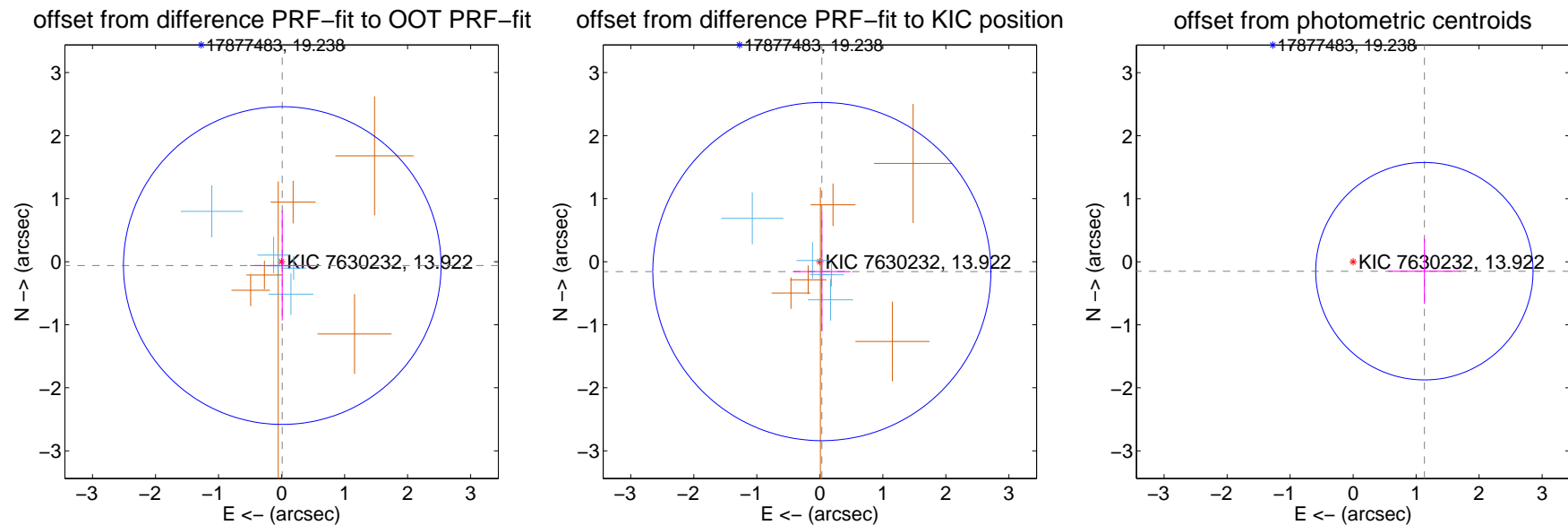
## DV Centroid Data

Supplemental centroid analysis for 007630232-02. Kepler magnitude: 13.92. Transit SNR 8.94

There are 5 quarters with good PRF difference image offsets

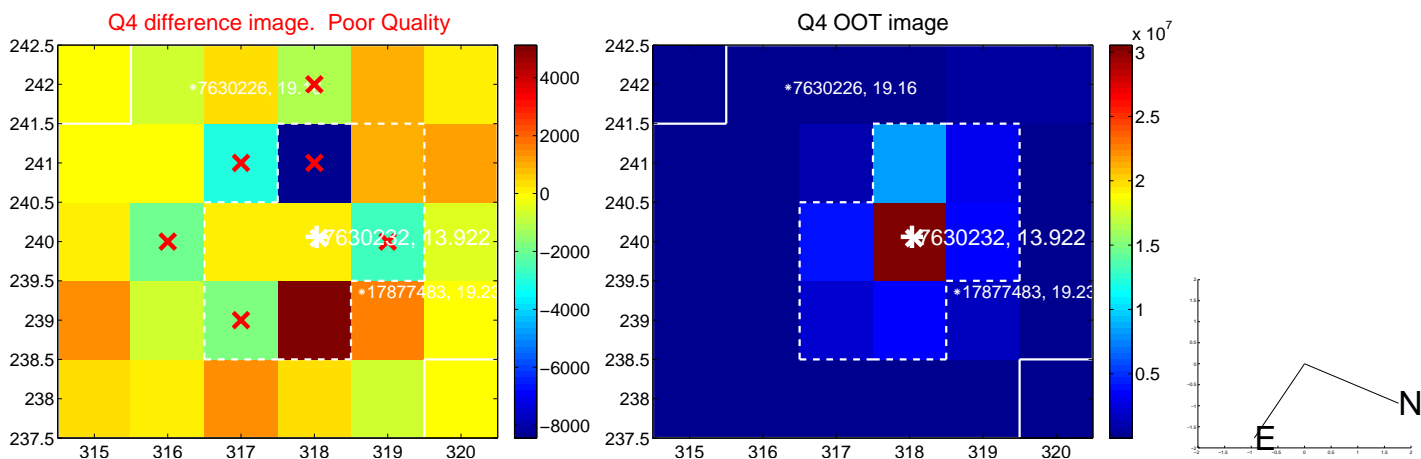
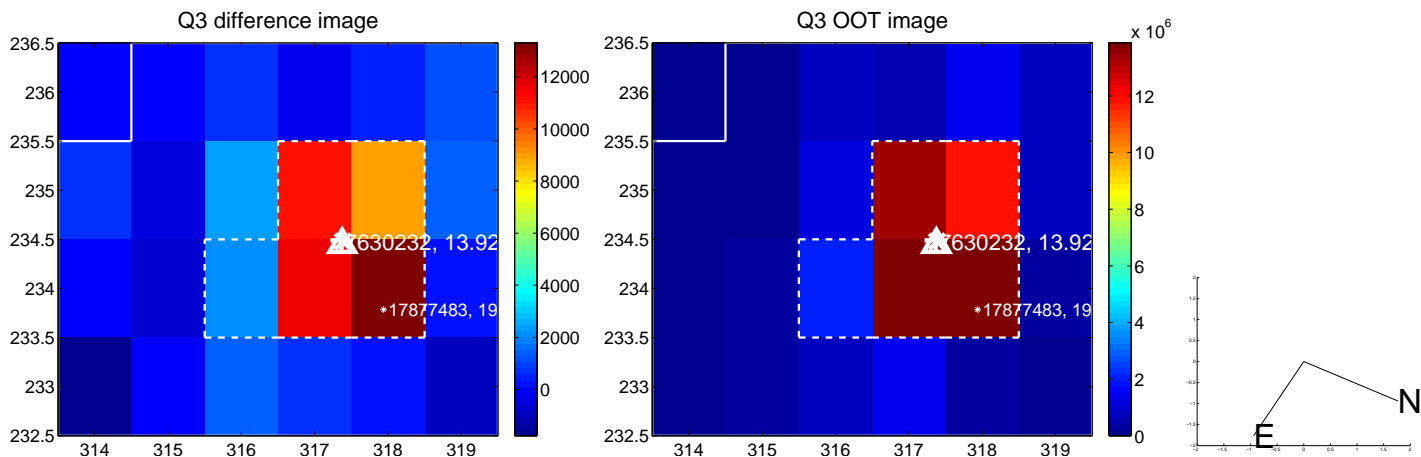
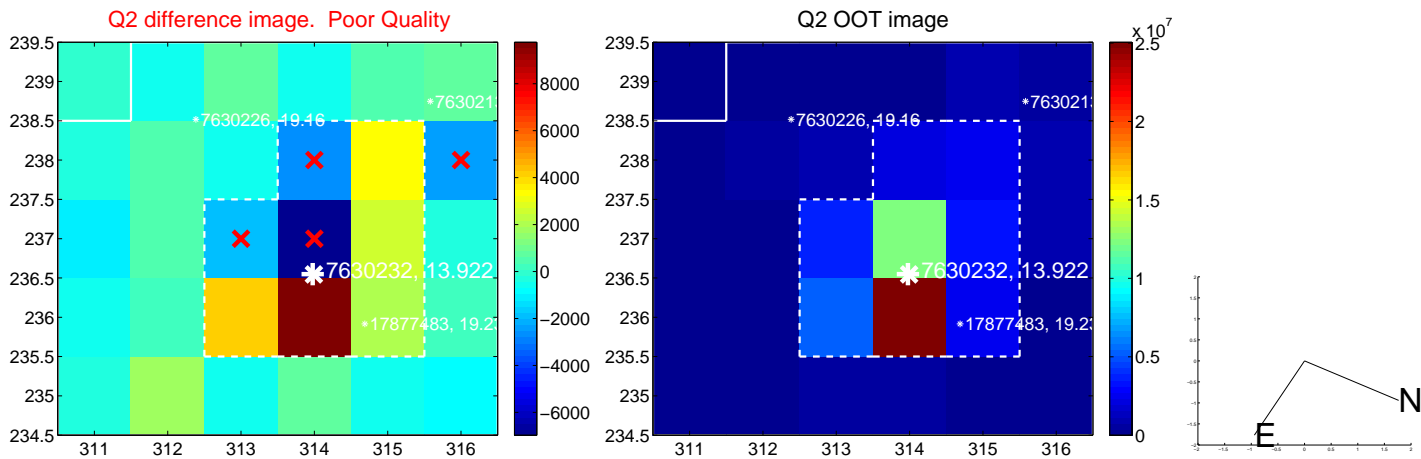
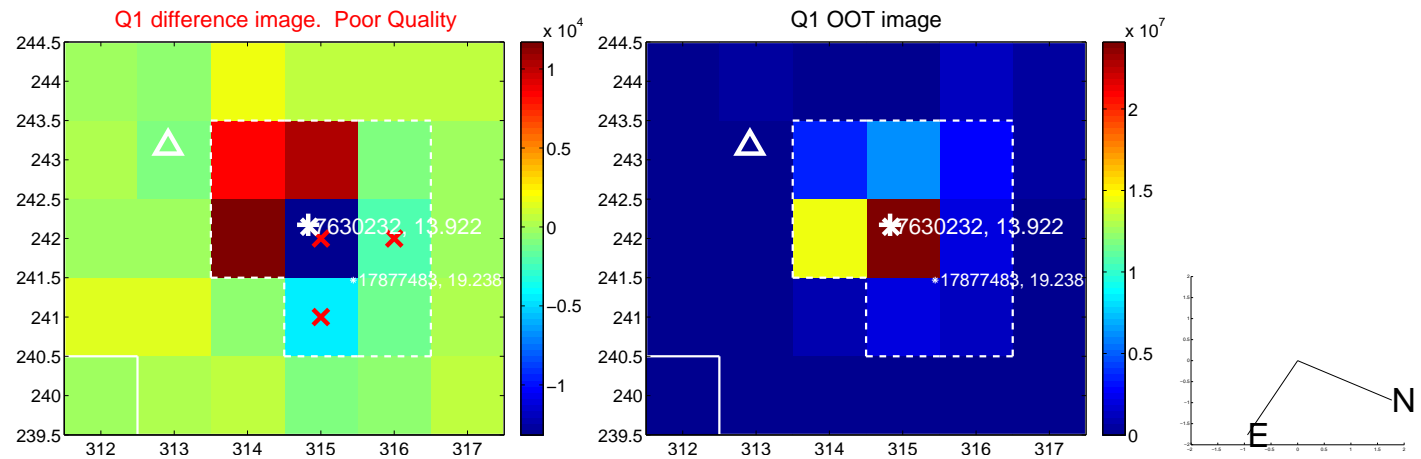
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.062 \pm 0.840$	0.07	$-0.011 \pm 0.510$	$-0.061 \pm 0.871$
PRF-fit source offset from KIC position	$0.160 \pm 0.894$	0.18	$-0.032 \pm 0.453$	$-0.157 \pm 0.945$
photometric centroid source offset	$1.14 \pm 0.57$	1.98	$-1.13 \pm 0.58$	$-0.15 \pm 0.52$



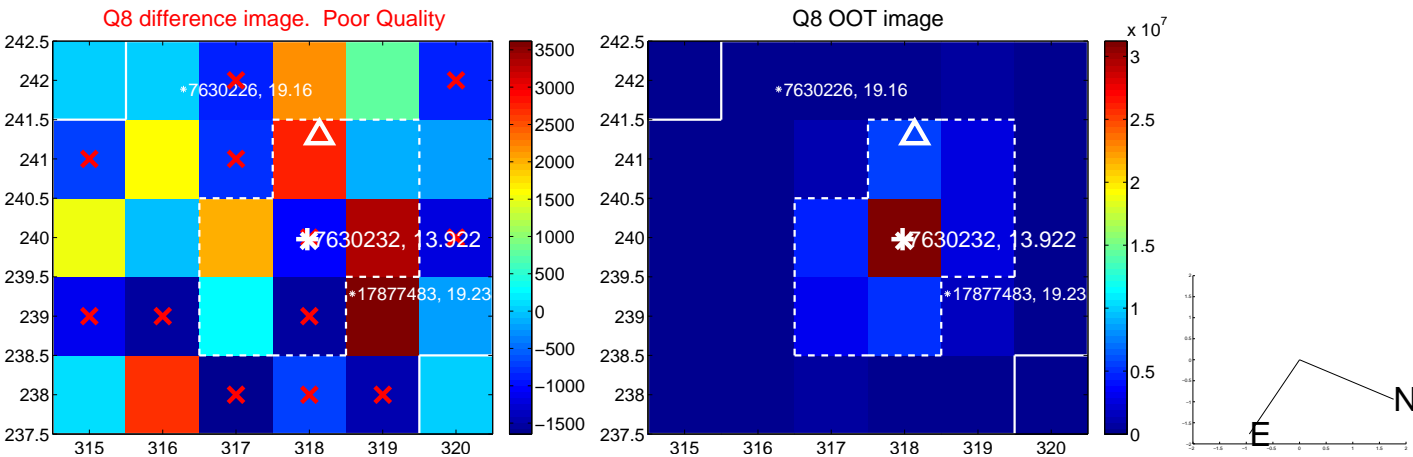
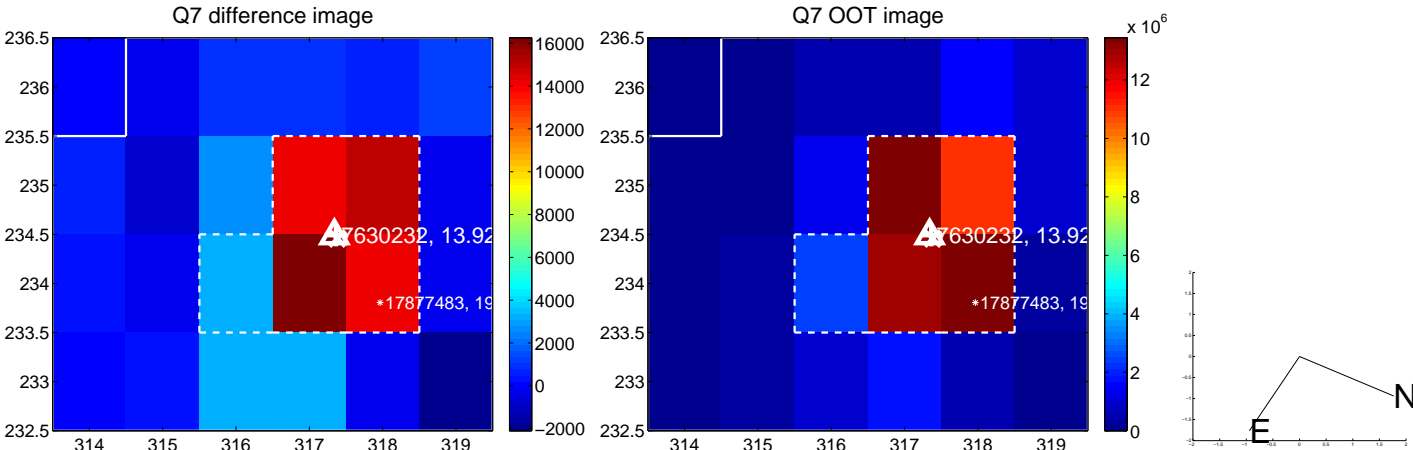
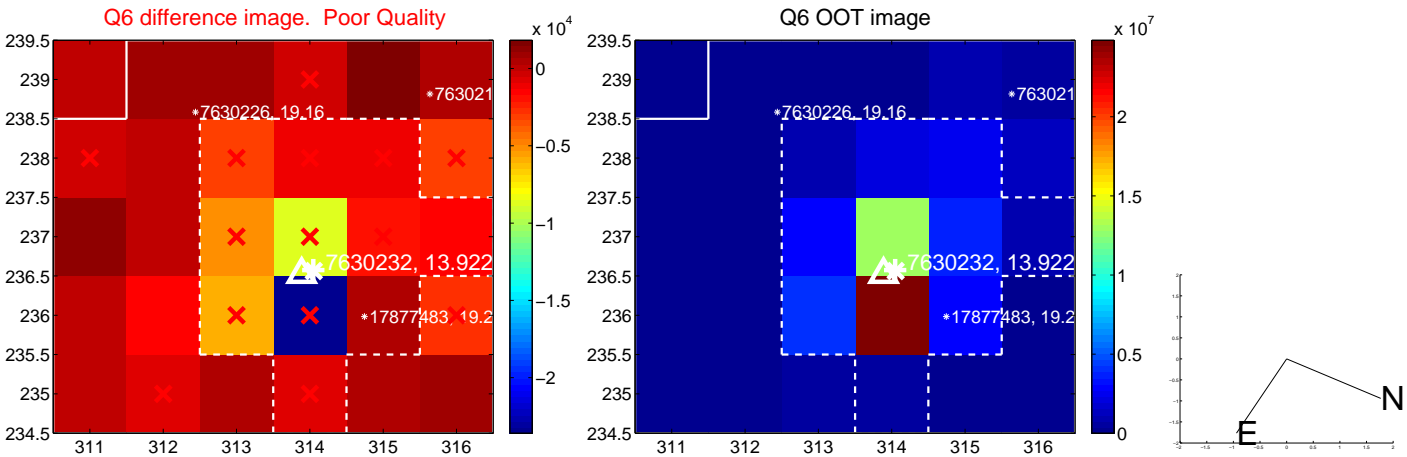
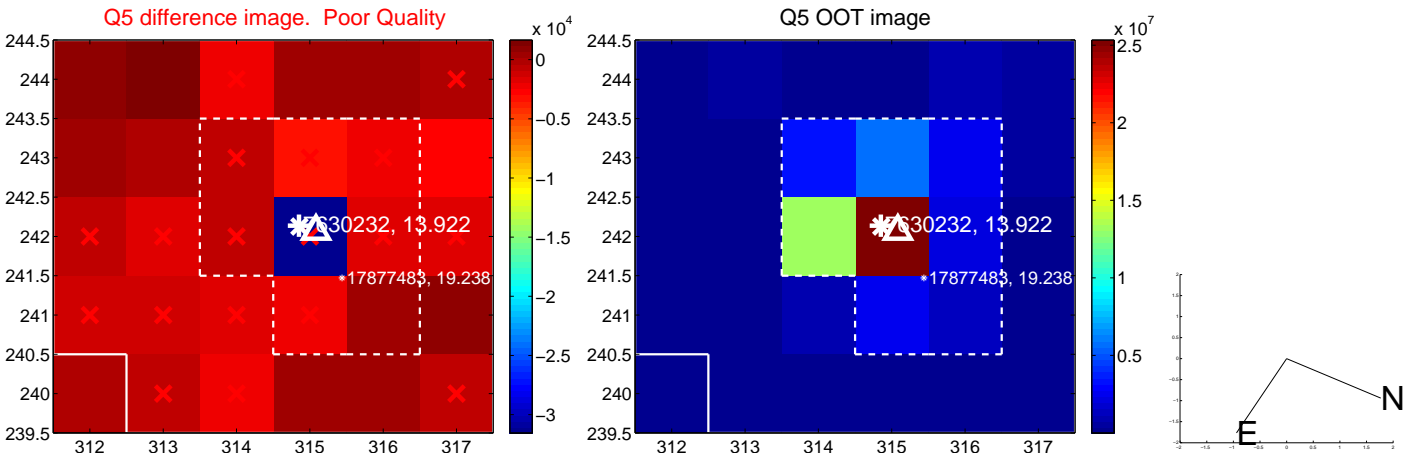
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

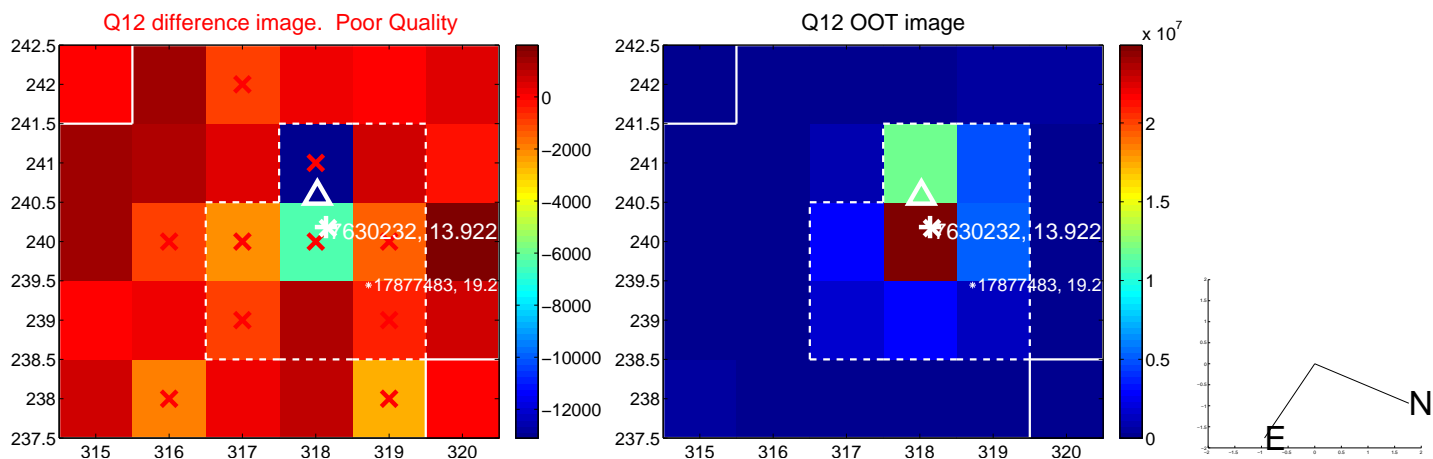
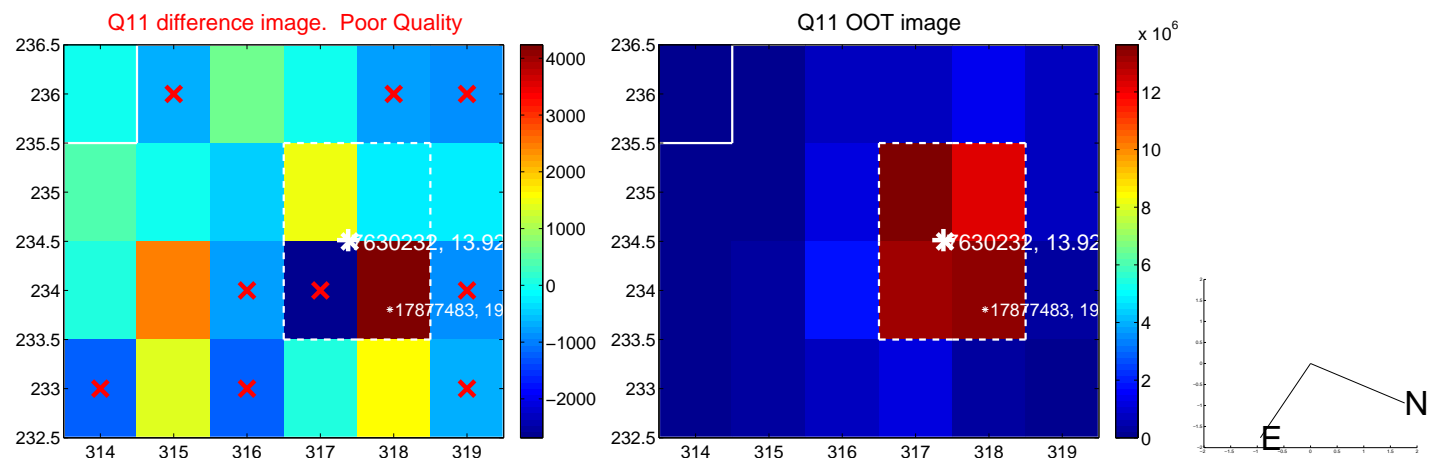
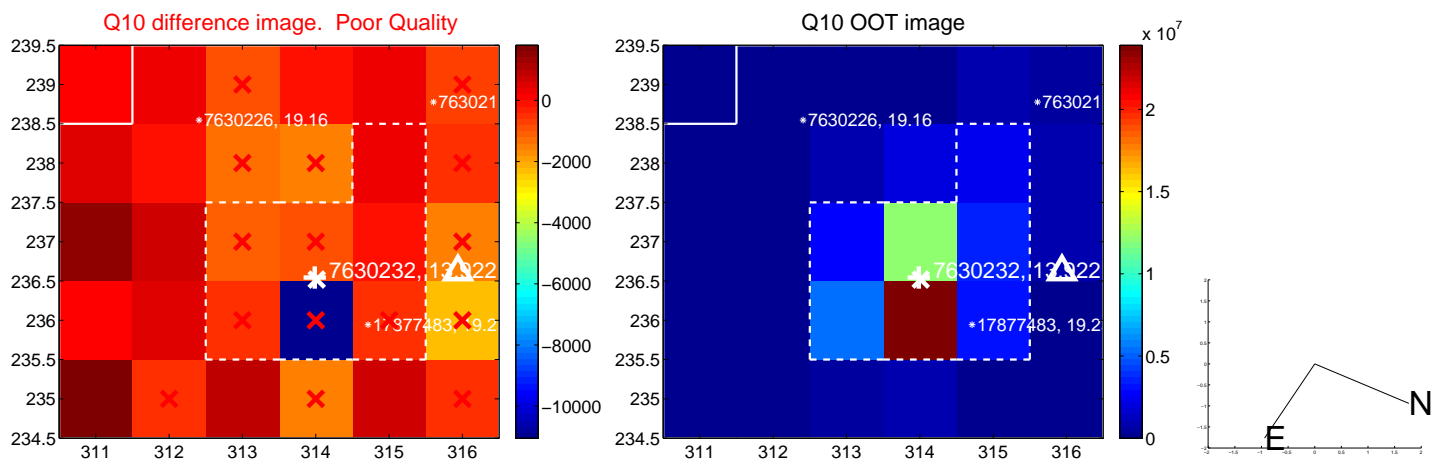
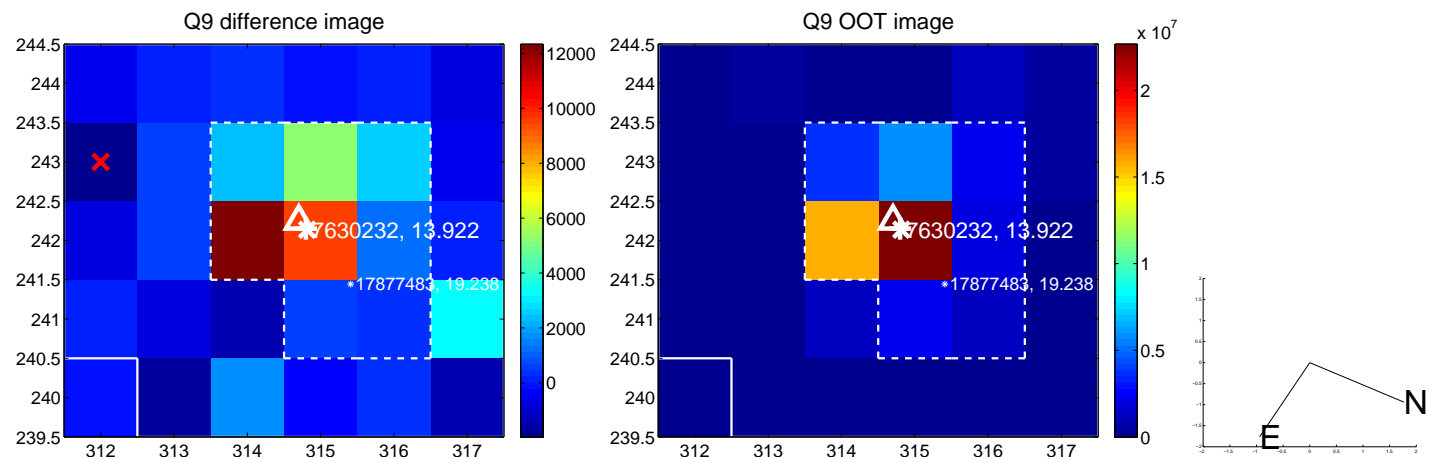




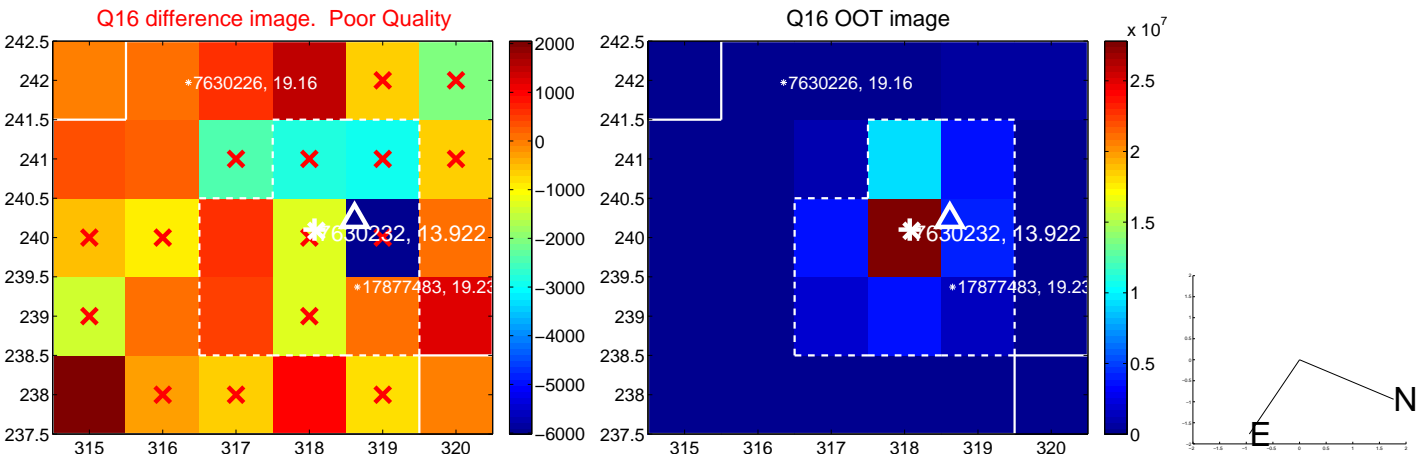
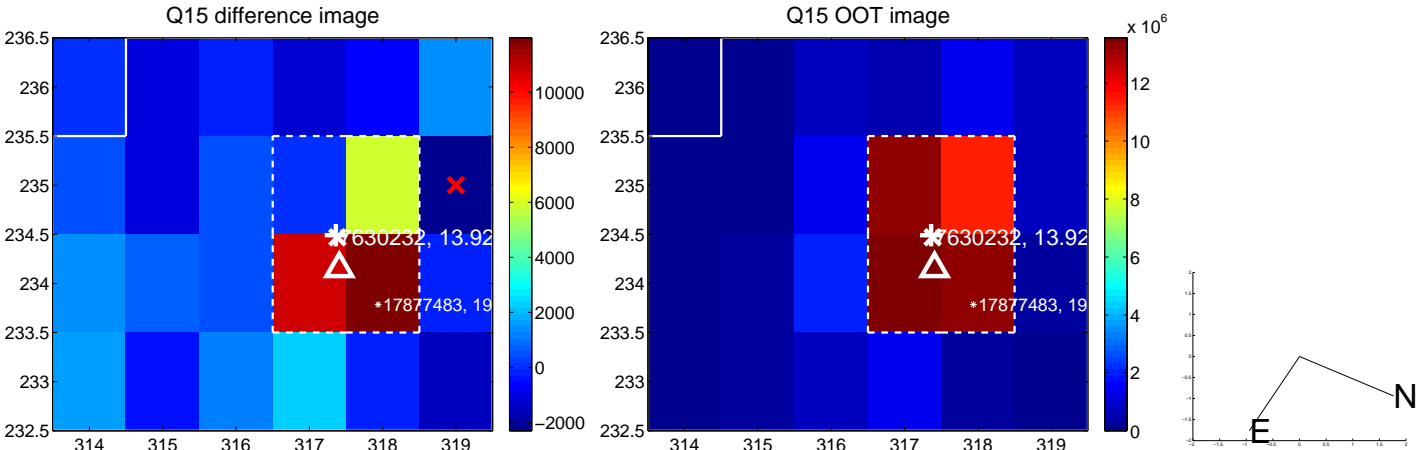
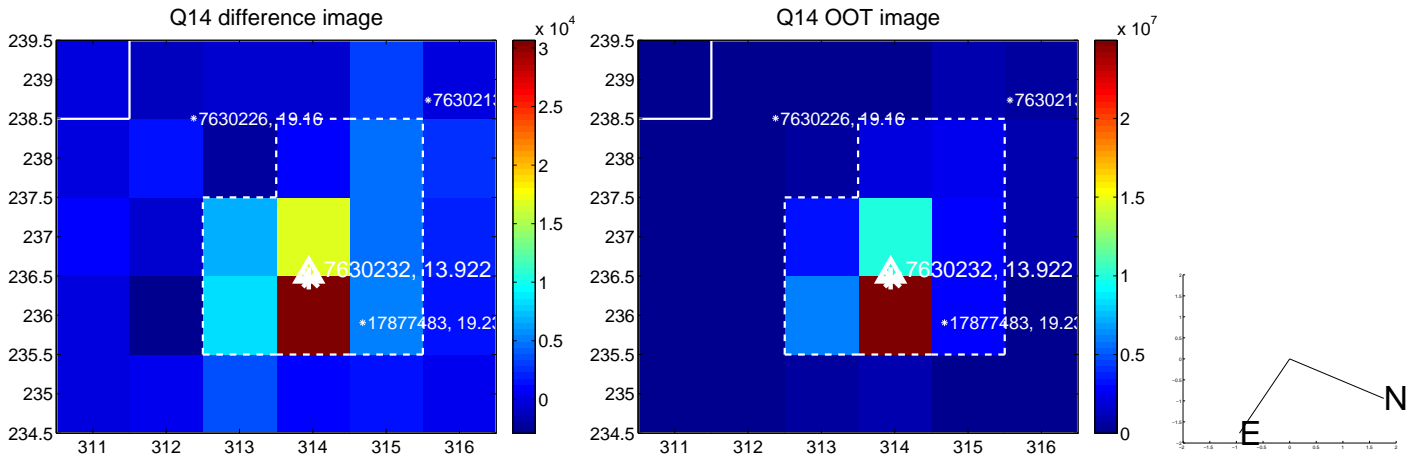
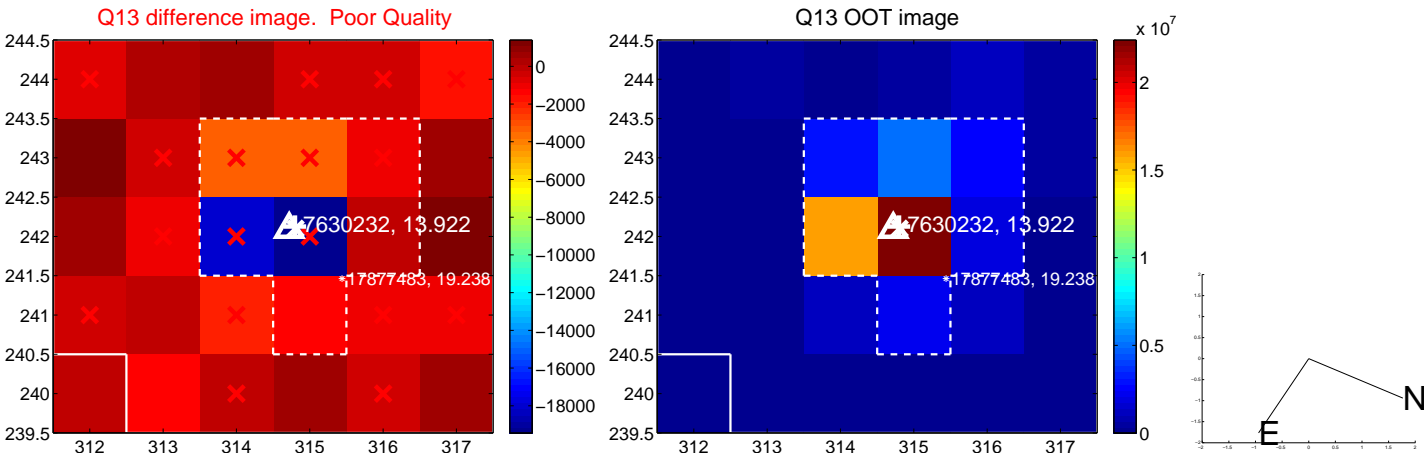
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



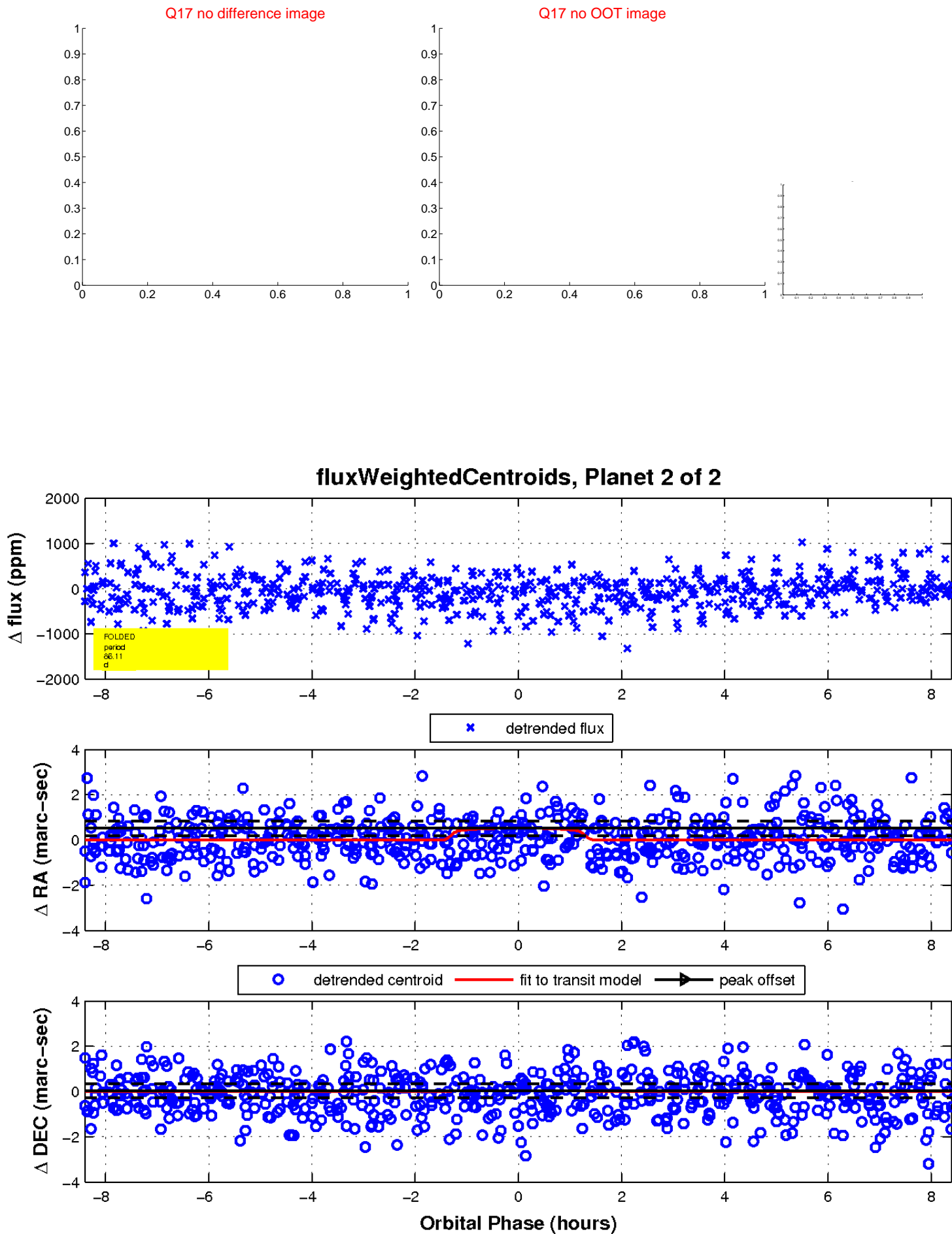
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

