

# KIC 007595157

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007595157-01	OBS	0568.01	3.383529	132.422945	254.1	1.514	24.7	35.4	0.99	5300	1.96	390.32
007595157-02	OBS	0568.02	2.358978	132.682264	86.5	1.779	14.3	16.2	0.99	5300	1.11	631.37

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007595157-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007595157-02	OBS	PC	0.99	0	0	0	0	NO_COMMENT

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

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

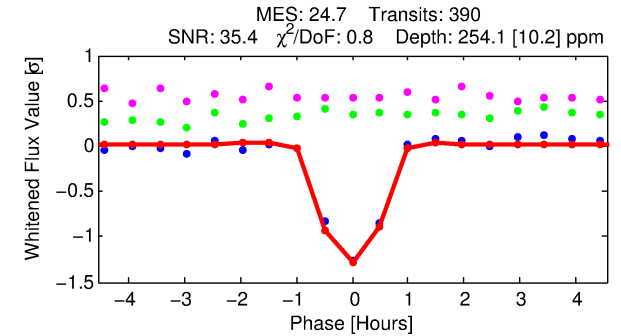
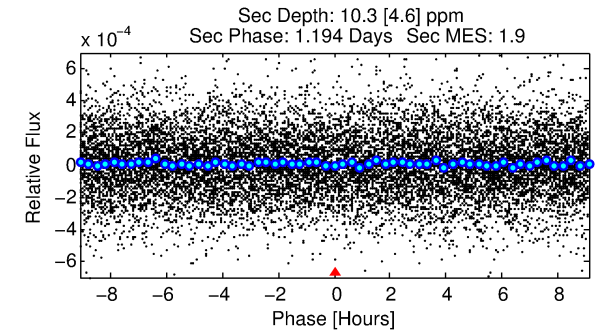
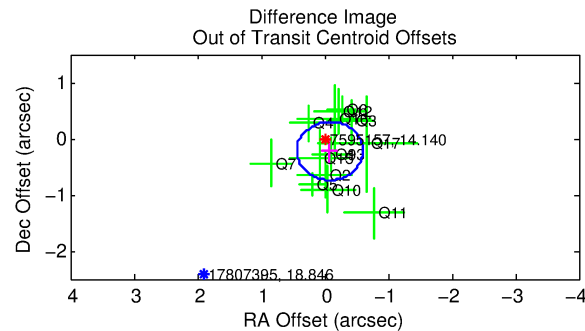
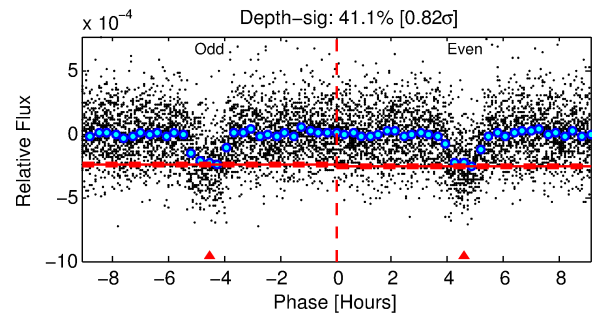
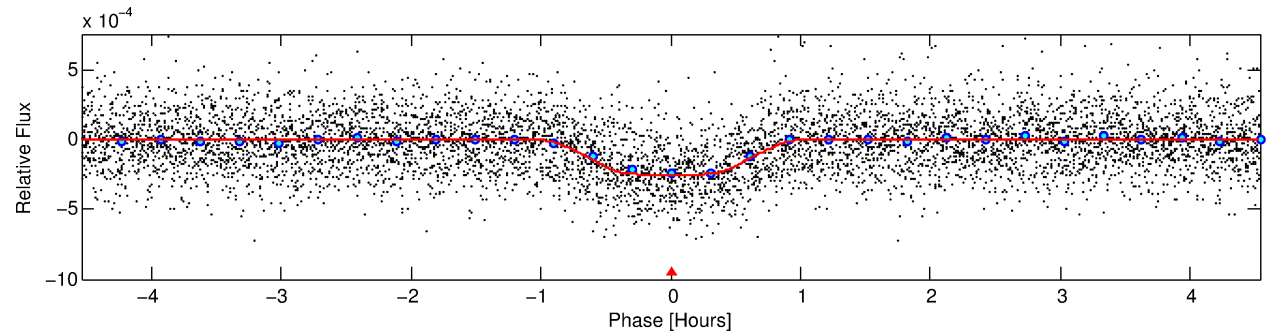
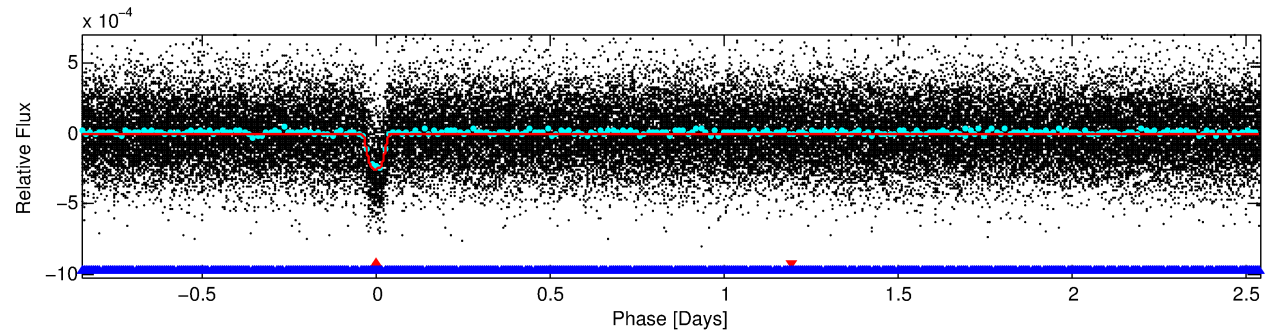
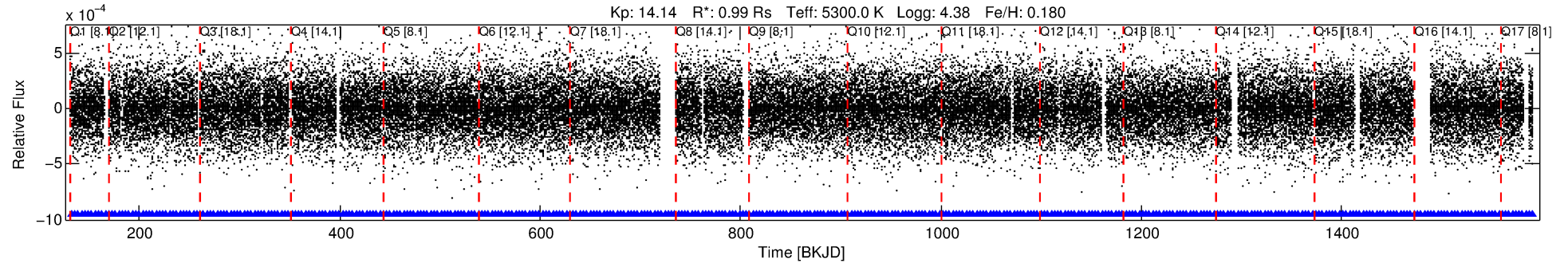
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007595157-01

No Significant Match Found

# DV One-Page Summary

KIC: 7595157 Candidate: 1 of 2 Period: 3.384 d  
KOI: K00568.01 Corr: 0.973



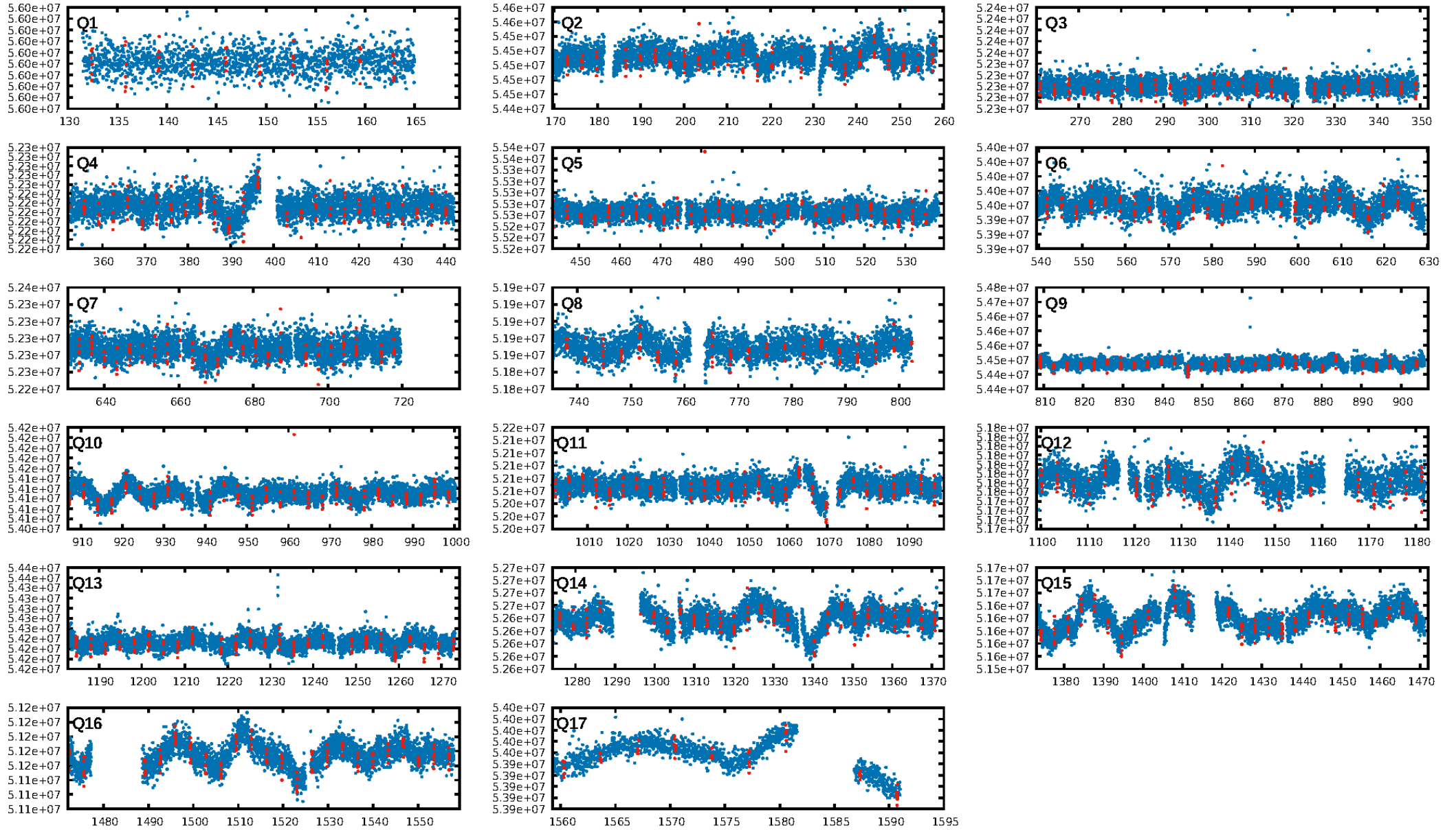
## DV Fit Results:

Period = 3.38353 [0.00000] d  
Epoch = 132.4229 [0.0008] BKJD  
Rp/R\* = 0.0182 [0.0041]  
a/R\* = 7.50 [7.02]  
b = 0.92 [0.16]  
Seff = 390.32 [89.35]  
Teq = 1133 [65] K  
Rp = 1.96 [0.50] Re  
a = 0.0420 [0.0055] AU  
Ag = 2.60 [1.75] [0.92 $\sigma$ ]  
Teffp = 2226 [355] K [3.03 $\sigma$ ]

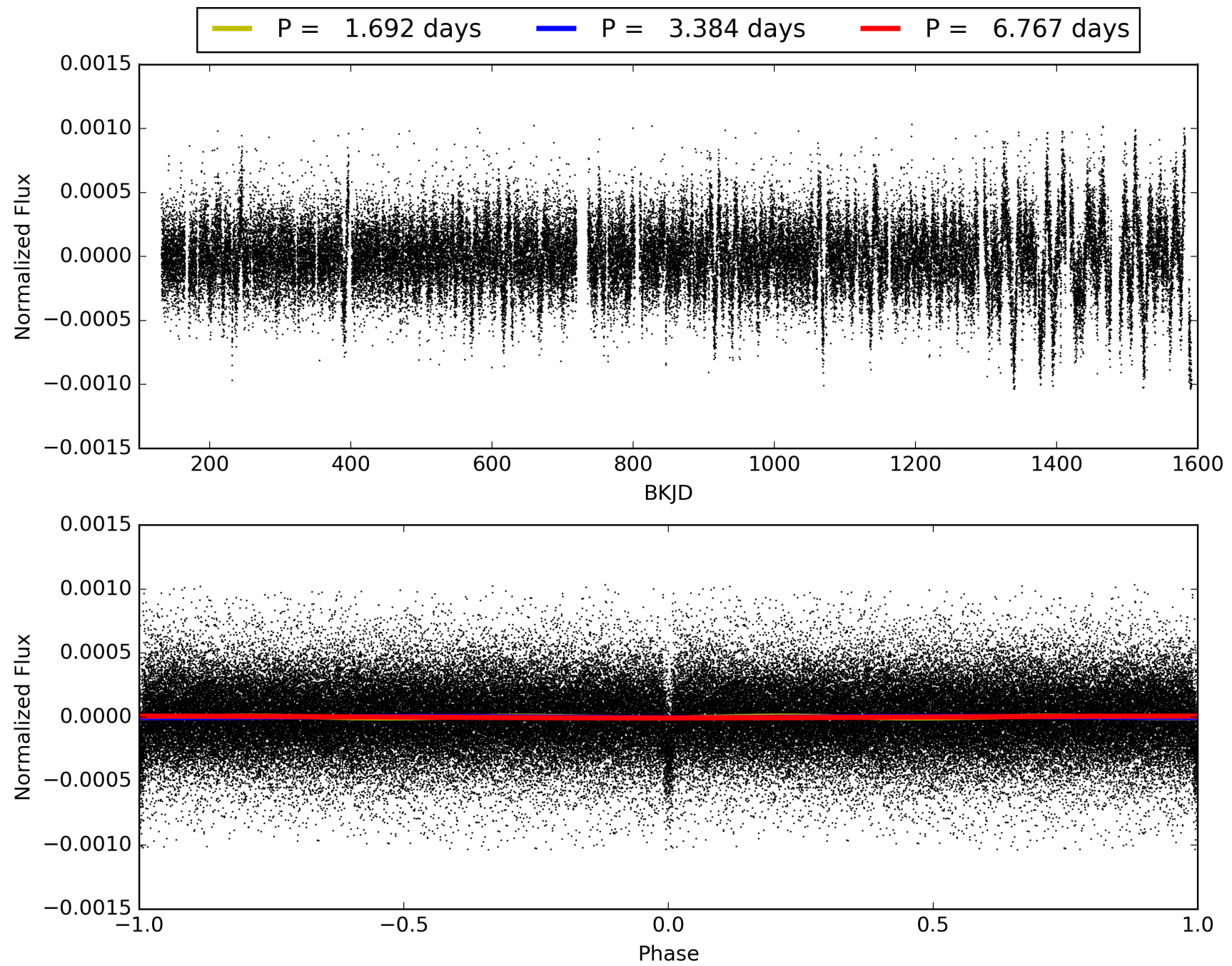
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.53 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.39e-130  
RollingBand-fgt: 1.00 [371/371]  
GhostDiagnostic-chr: 3.605  
Centroid-sig: 0.4%  
Centroid-so: 0.133 arcsec [0.36 $\sigma$ ]  
OotOffset-rm: 0.236 arcsec [1.36 $\sigma$ ]  
KicOffset-rm: 0.160 arcsec [1.06 $\sigma$ ]  
OotOffset-st: 3/4/3/4 [14]  
KicOffset-st: 3/4/3/4 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 007595157-01, PDC Light Curves

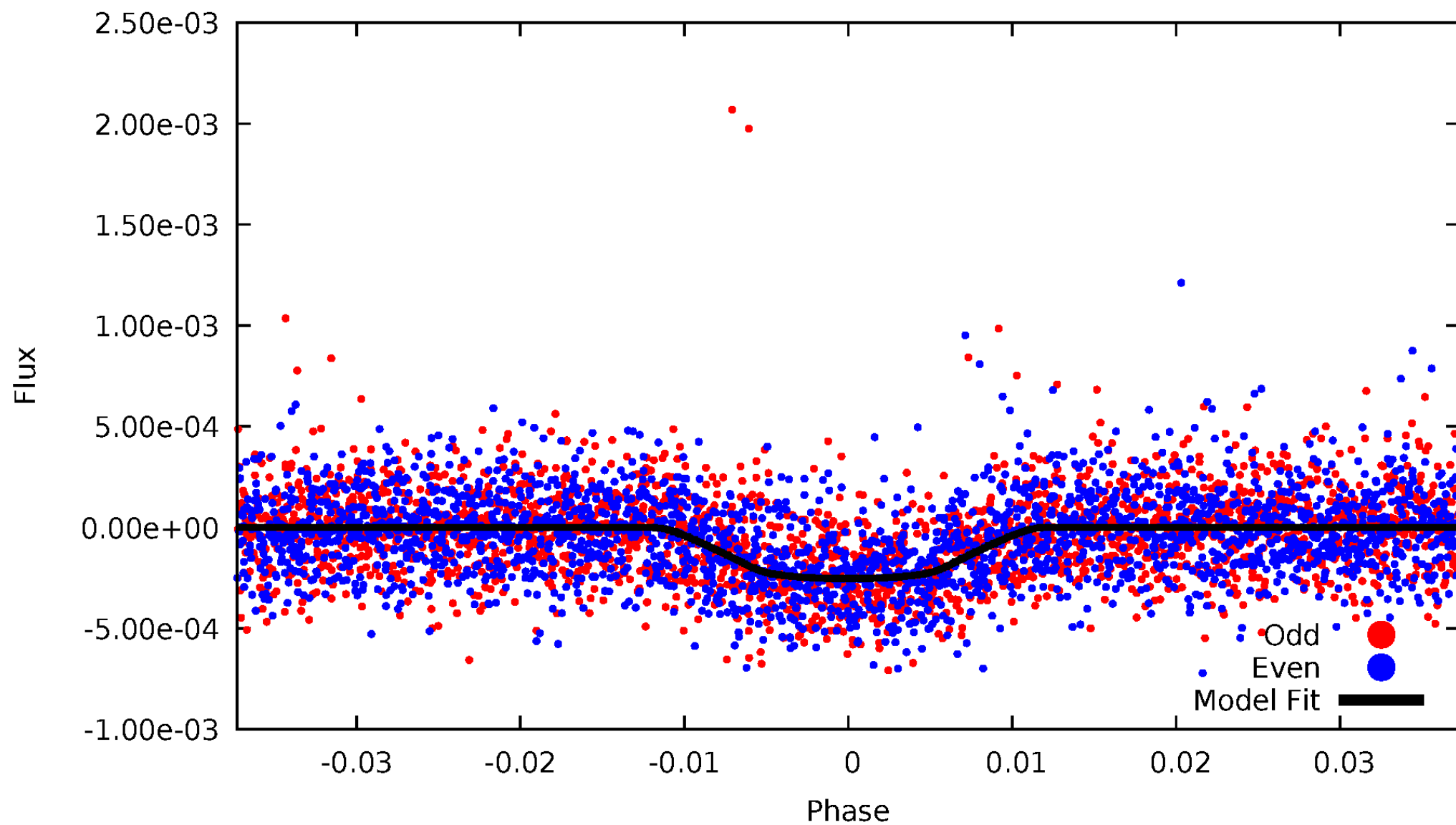


TCE 007595157-01



# DV Odd/Even

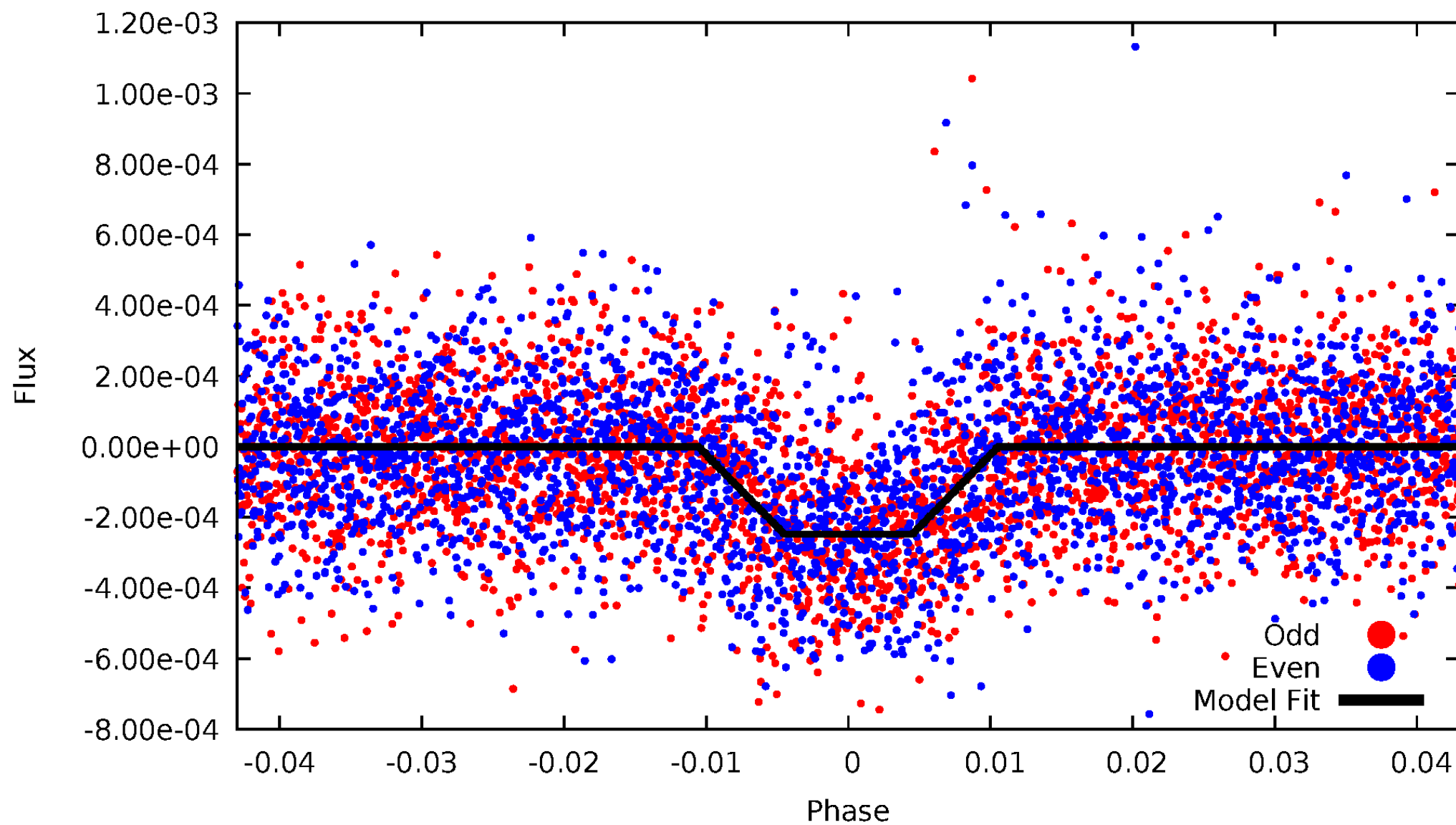
TCE 007595157-01



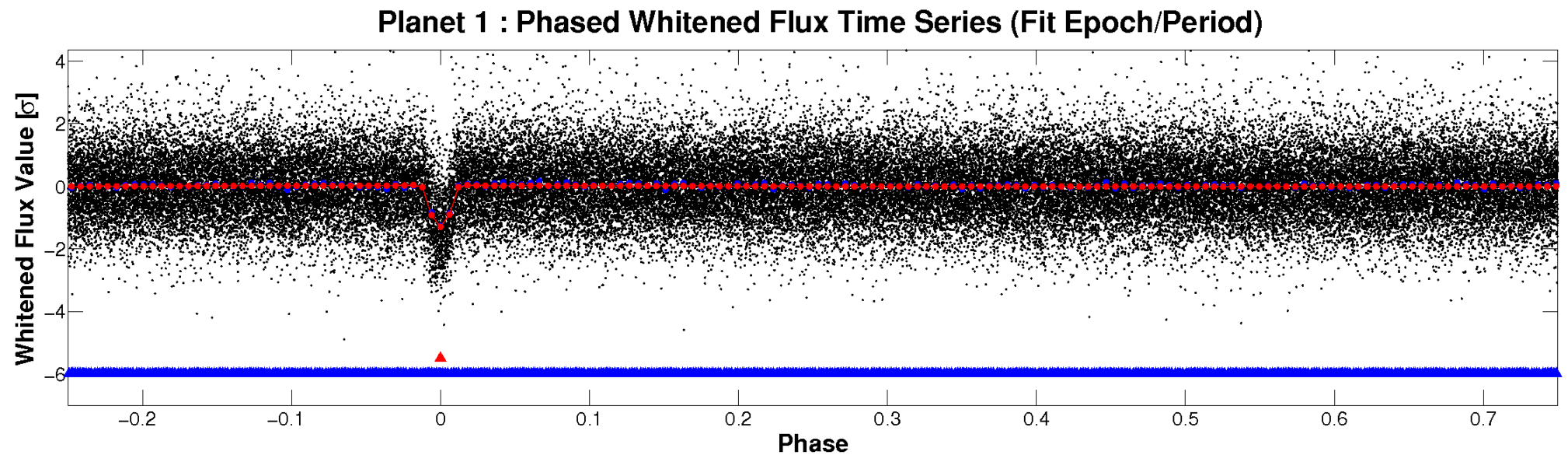
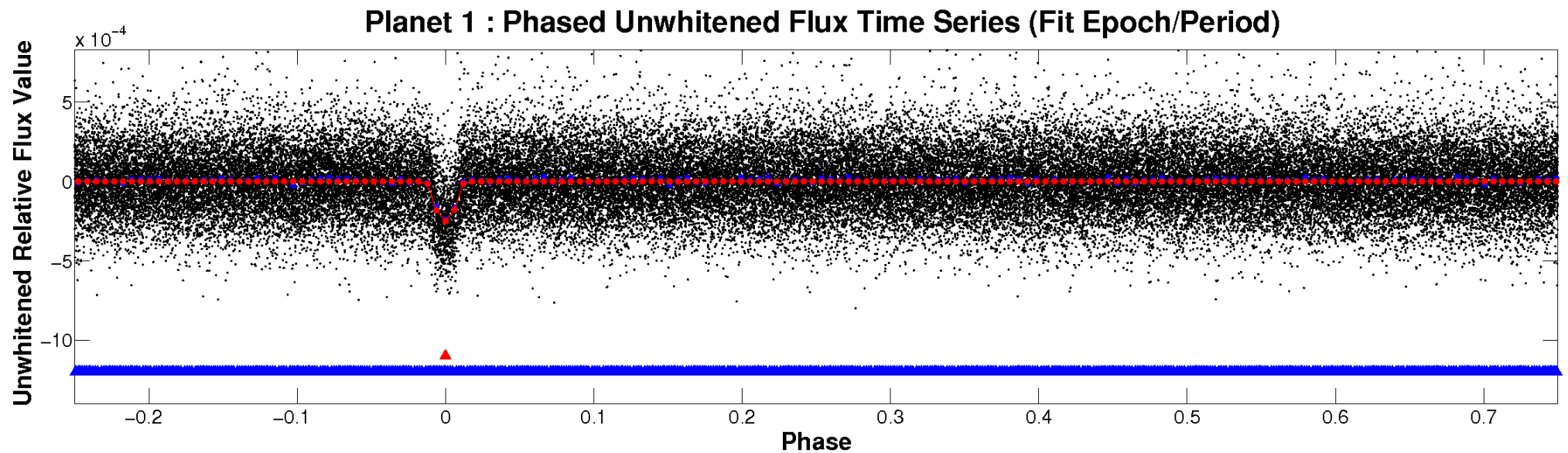


# ALT Odd/Even

TCE 007595157-01

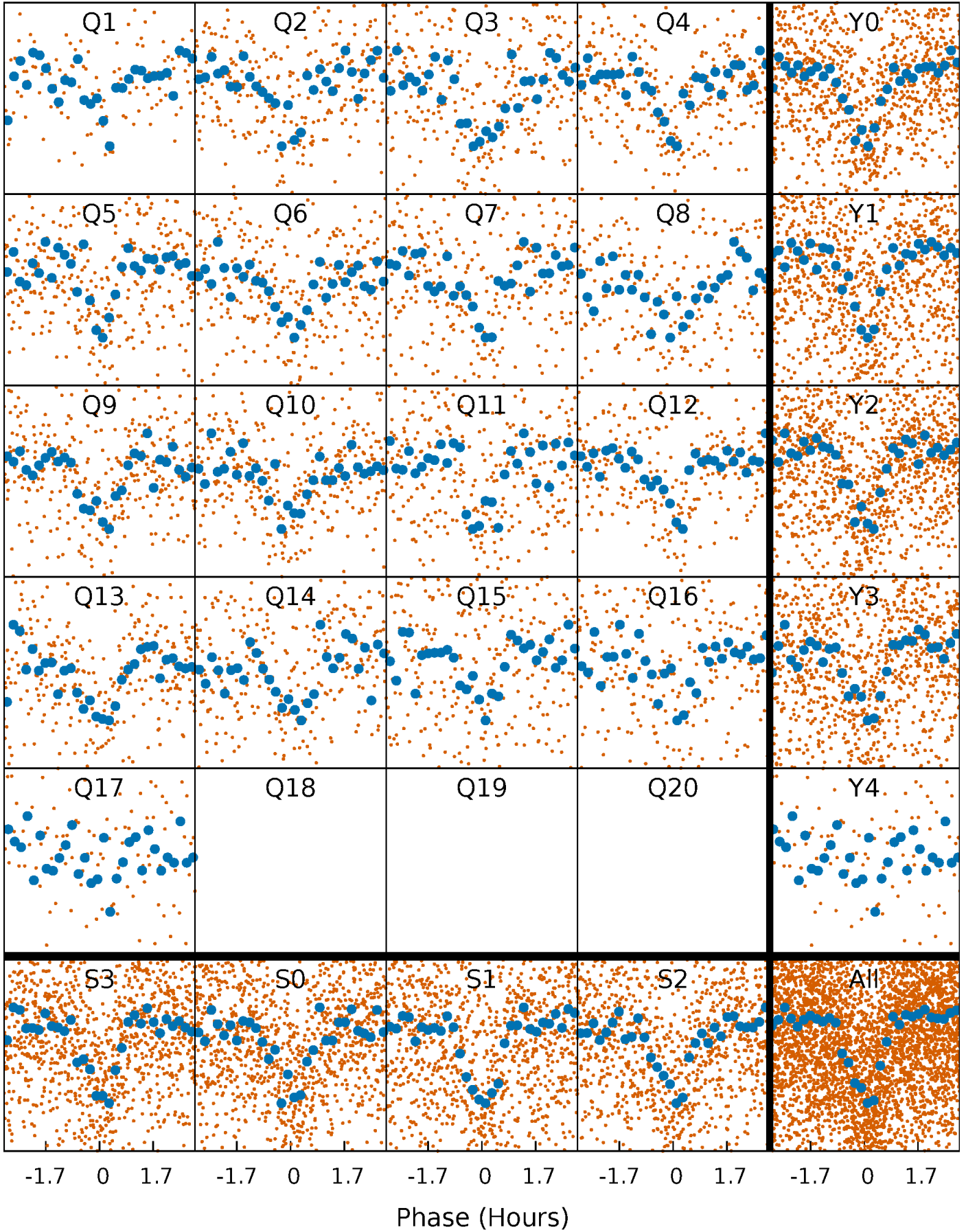


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

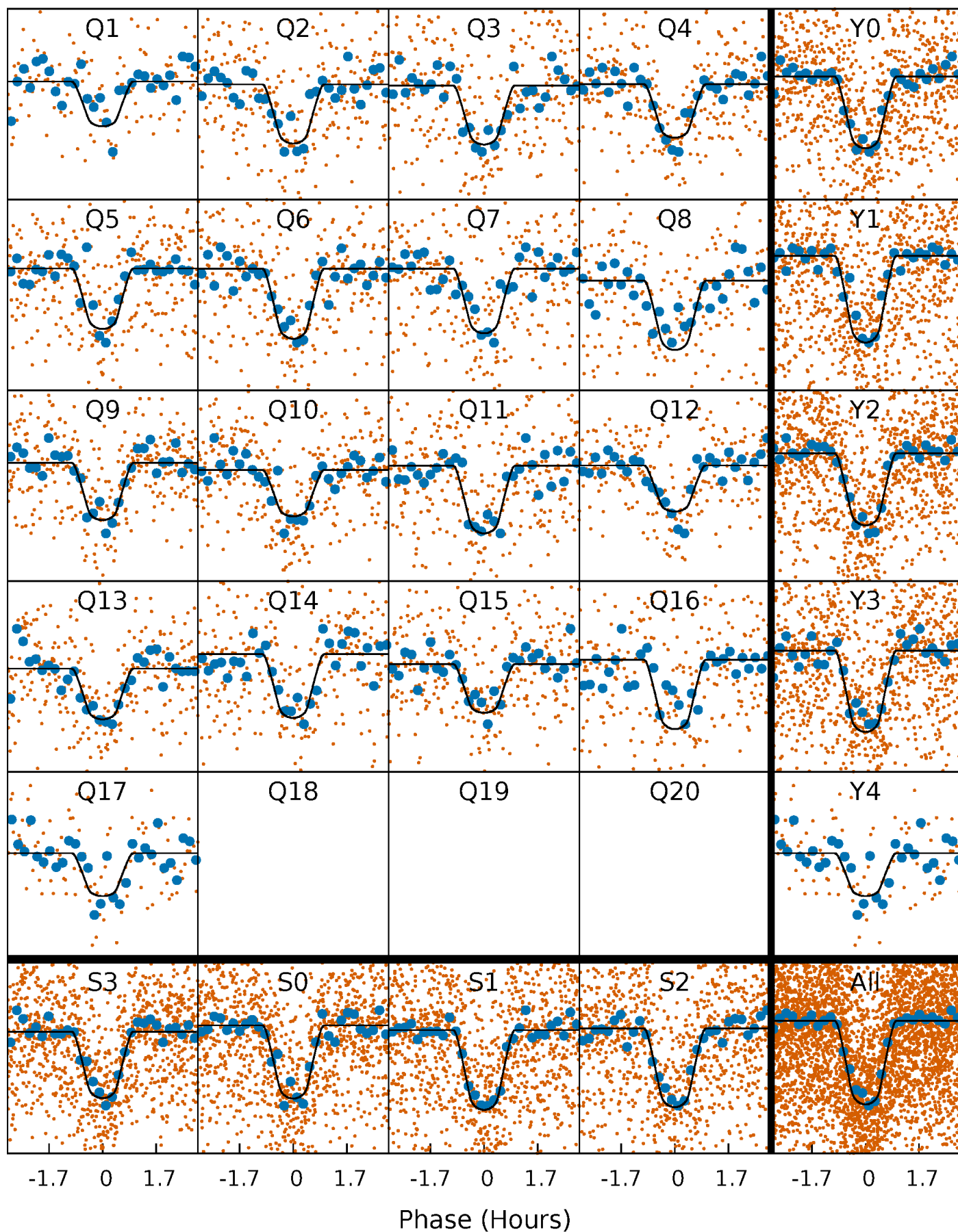
TCE 007595157-01 P= 3.383529 Days  $T_0=132.422945$  (BKJD)





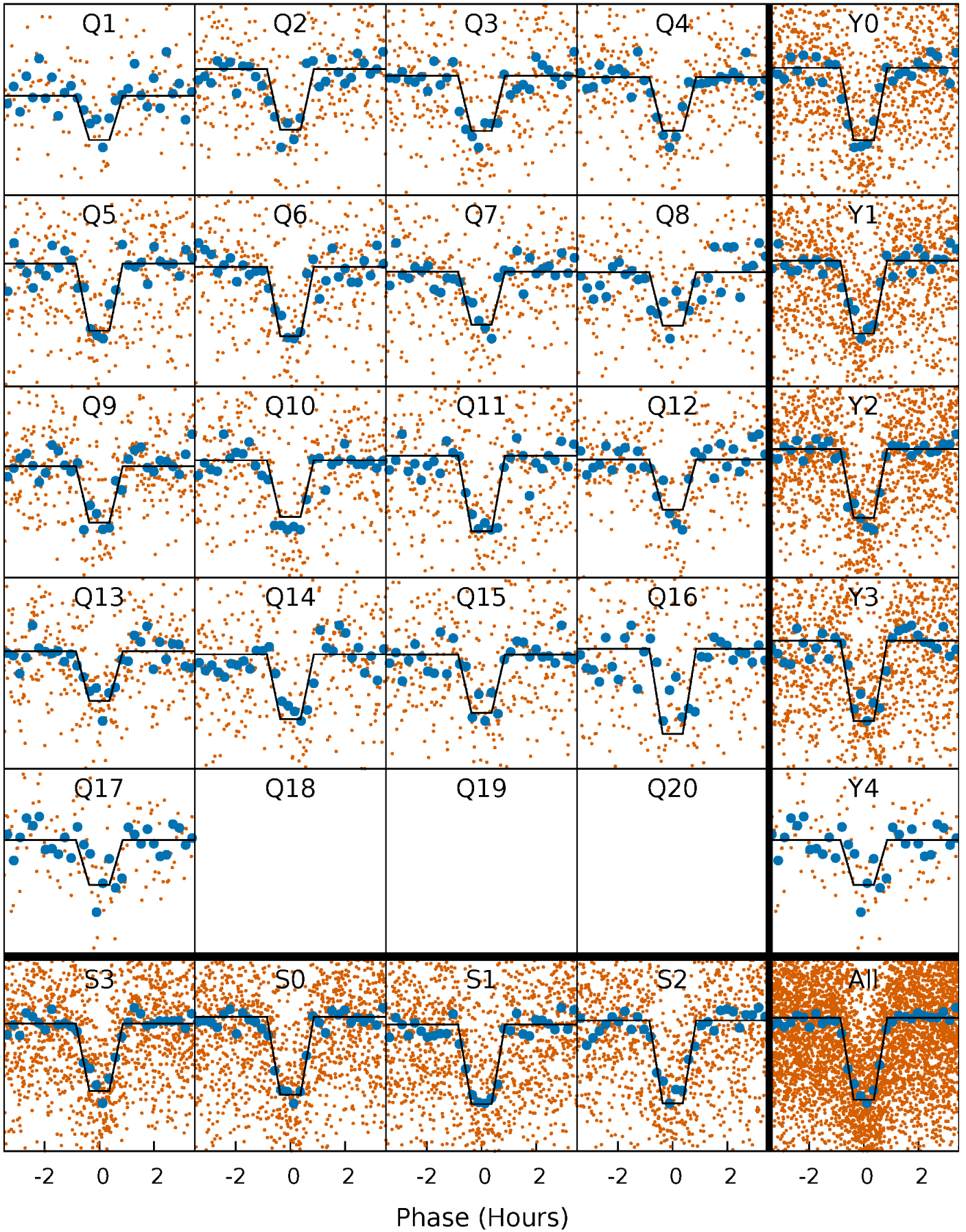
# DV Quarter-Phased Transit Curves

TCE 007595157-01 P= 3.383529 Days  $T_0=132.422945$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

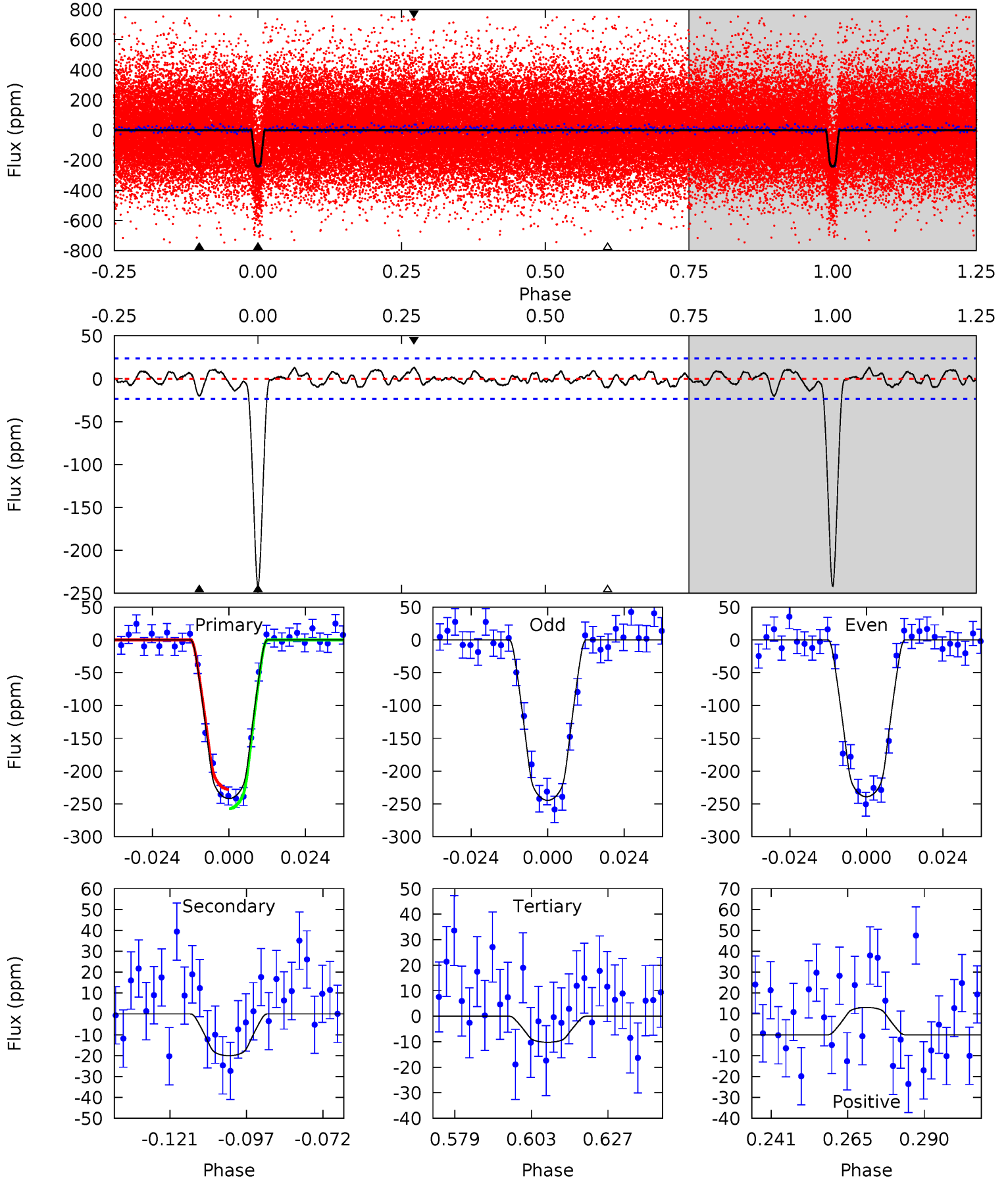
TCE 007595157-01 P= 3.383505 Days  $T_0=132.427692$  (BKJD)



# DV Model-Shift Uniqueness Test

007595157-01, P = 3.383529 Days, E = 129.039416 Days

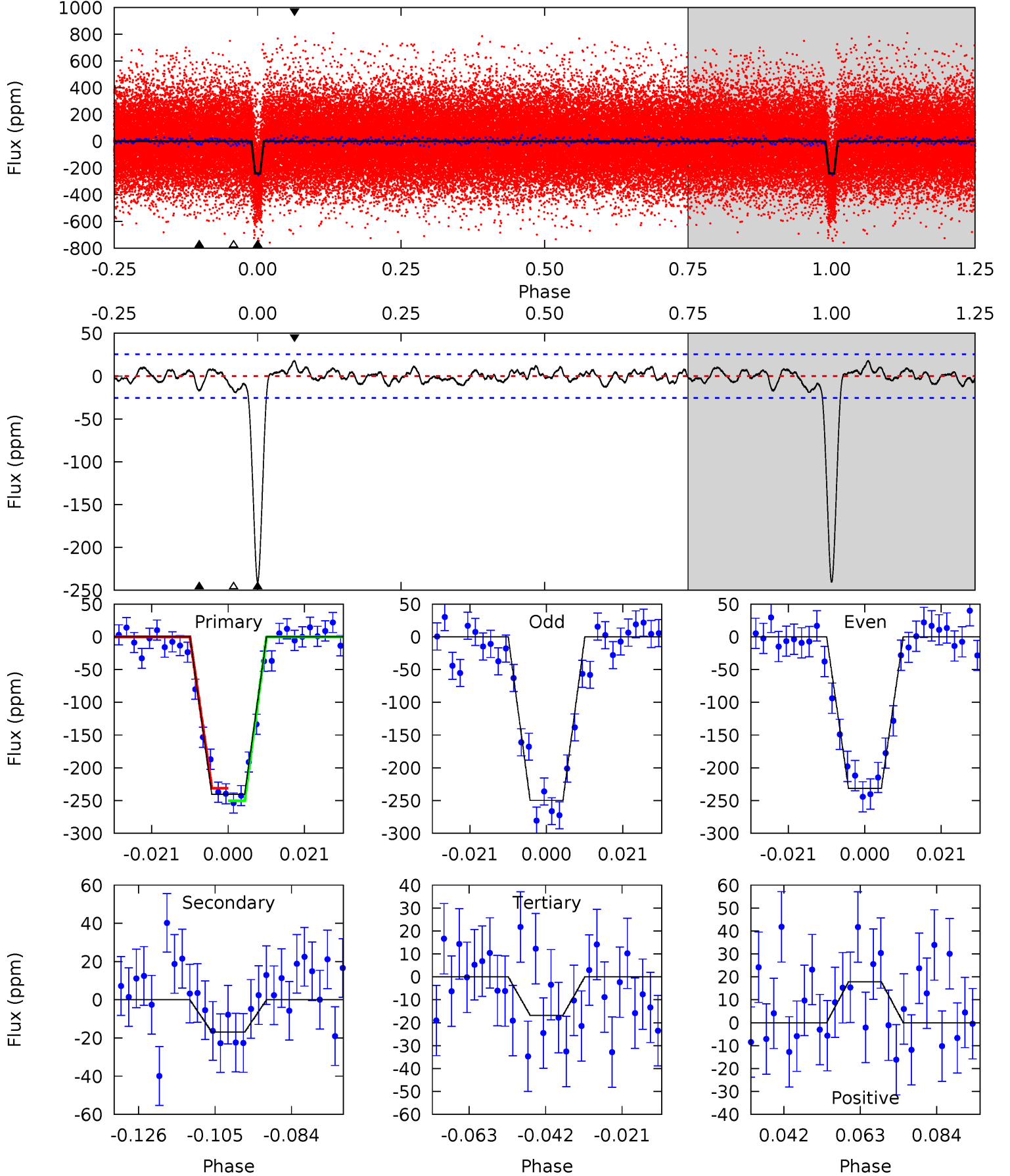
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
50.0	4.14	2.11	2.71	4.85	2.25	1.12	47.9	47.3	2.03	1.43	0.57	0.97	0.05	3.06



# Alt Model-Shift Uniqueness Test

007595157-01, P = 3.383505 Days, E = 129.044187 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
46.0	3.24	3.21	3.40	4.88	2.31	1.15	42.8	42.6	0.03	-0.16	1.75	0.99	0.07	1.82



### Stellar Parameters For KIC 007595157

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5300^{+87}_{-71}$	$4.385^{+0.132}_{-0.088}$	$0.180^{+0.150}_{-0.150}$	$0.986^{+0.124}_{-0.124}$	$0.861^{+0.061}_{-0.031}$	$1.264^{+0.692}_{-0.351}$
	+2%/-1%	+3%/-2%	+83%/-83%	+13%/-13%	+7%/-4%	+55%/-28%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 007595157-01 / KOI 0568.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-20 \pm 5$	$1.93^{+0.47}_{-0.47}$	$1577^{+59}_{-65}$	$3188^{+294}_{-247}$	$5.308^{+4.021}_{-2.182}$
Alt.	$-17 \pm 5$	$1.67^{+0.47}_{-0.46}$	$1582^{+60}_{-62}$	$3244^{+393}_{-303}$	$5.832^{+6.221}_{-2.696}$

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



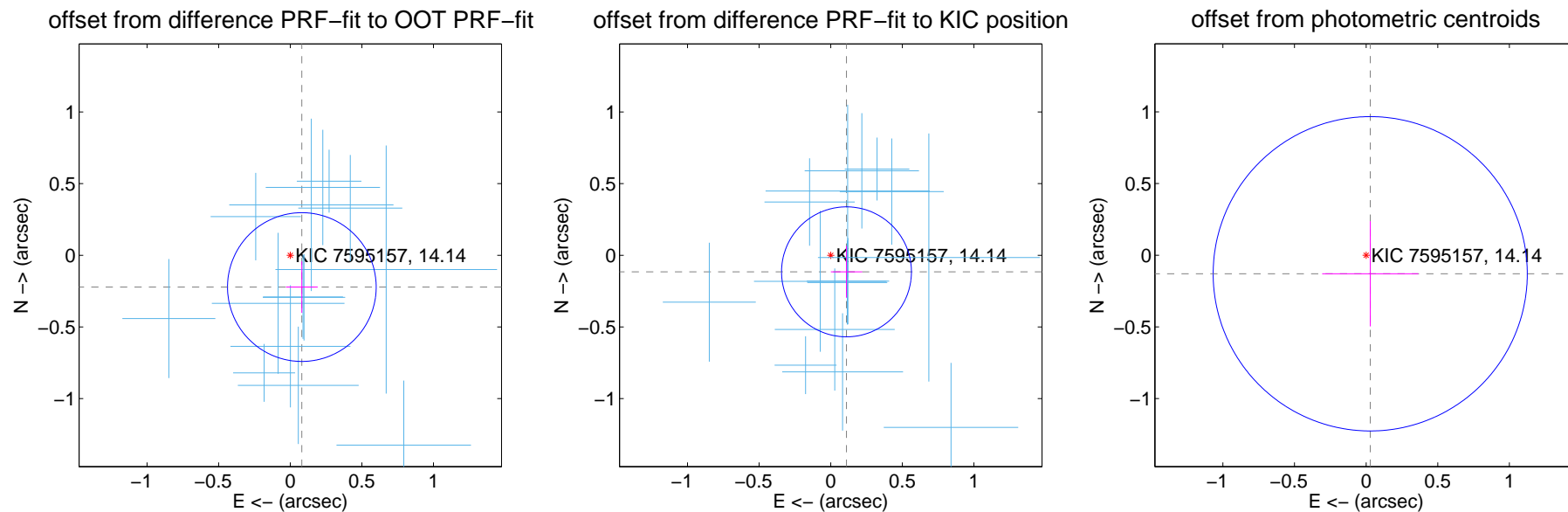
## DV Centroid Data

Supplemental centroid analysis for 007595157-01. Kepler magnitude: 14.14. Transit SNR 35.44

There are 14 quarters with good PRF difference image offsets

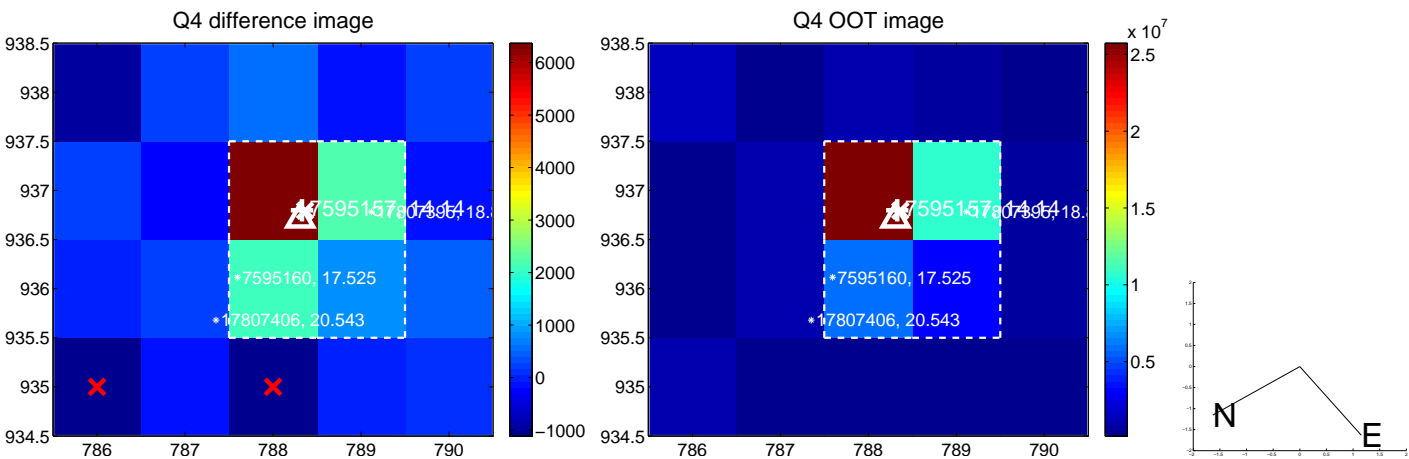
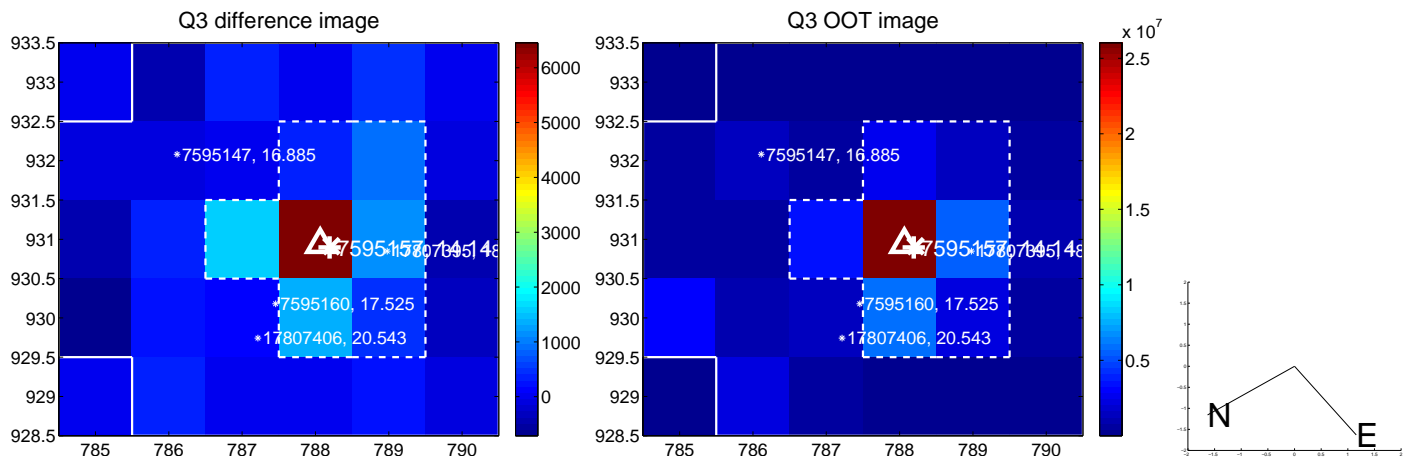
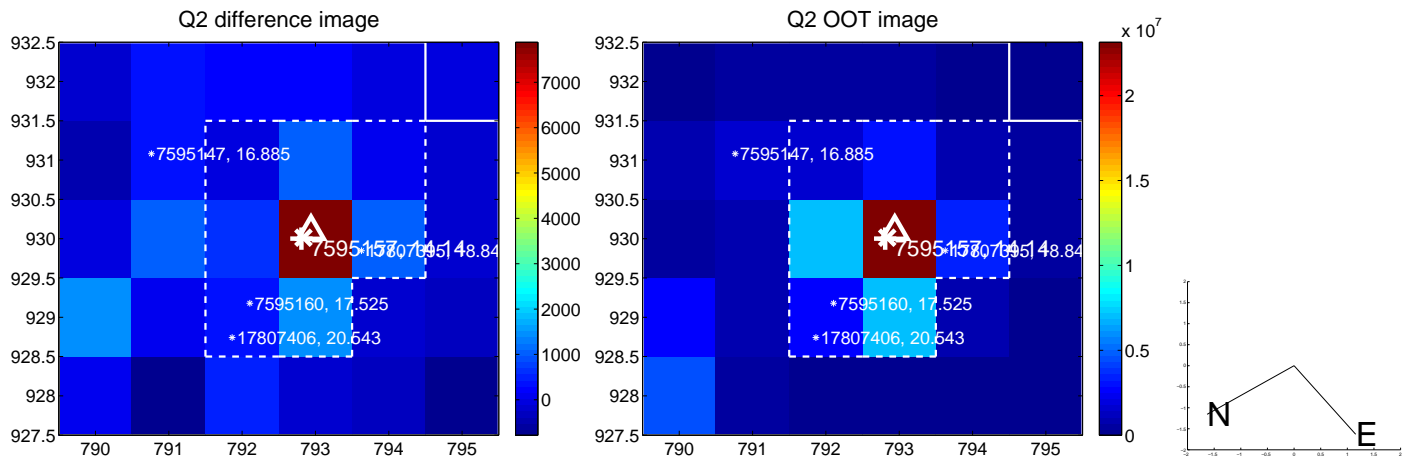
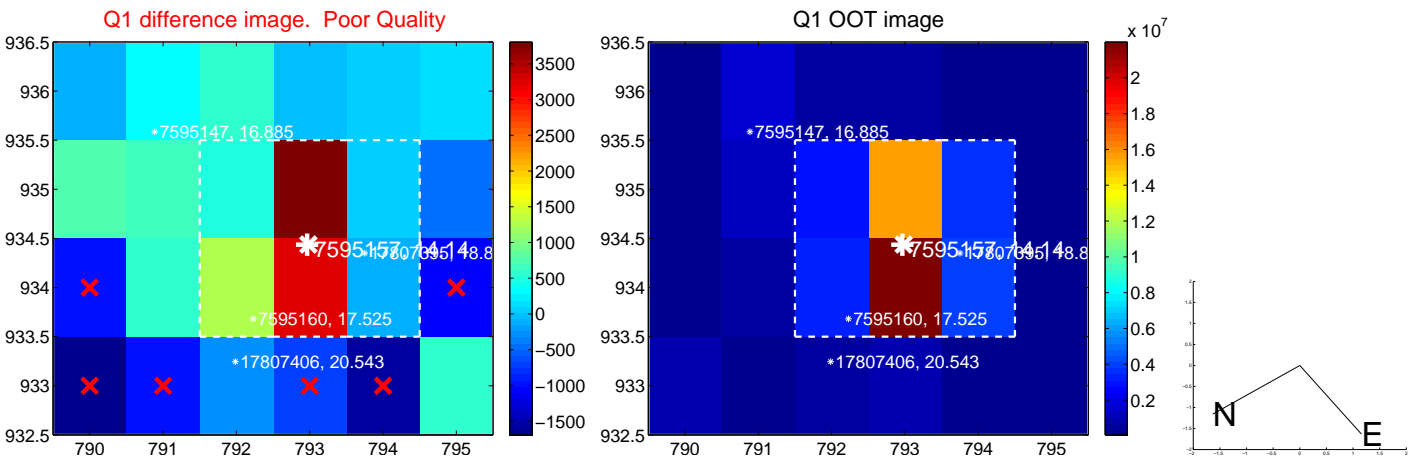
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.236 \pm 0.173$	1.36	$-0.081 \pm 0.111$	$-0.222 \pm 0.180$
PRF-fit source offset from KIC position	$0.160 \pm 0.151$	1.06	$-0.110 \pm 0.109$	$-0.115 \pm 0.181$
photometric centroid source offset	$0.13 \pm 0.37$	0.36	$-0.03 \pm 0.34$	$-0.13 \pm 0.37$

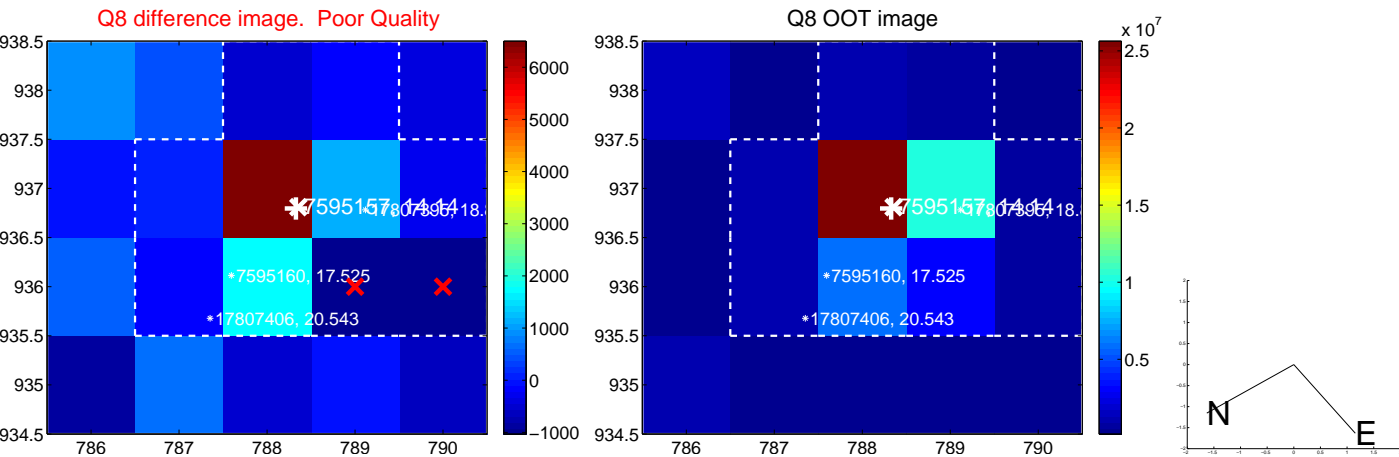
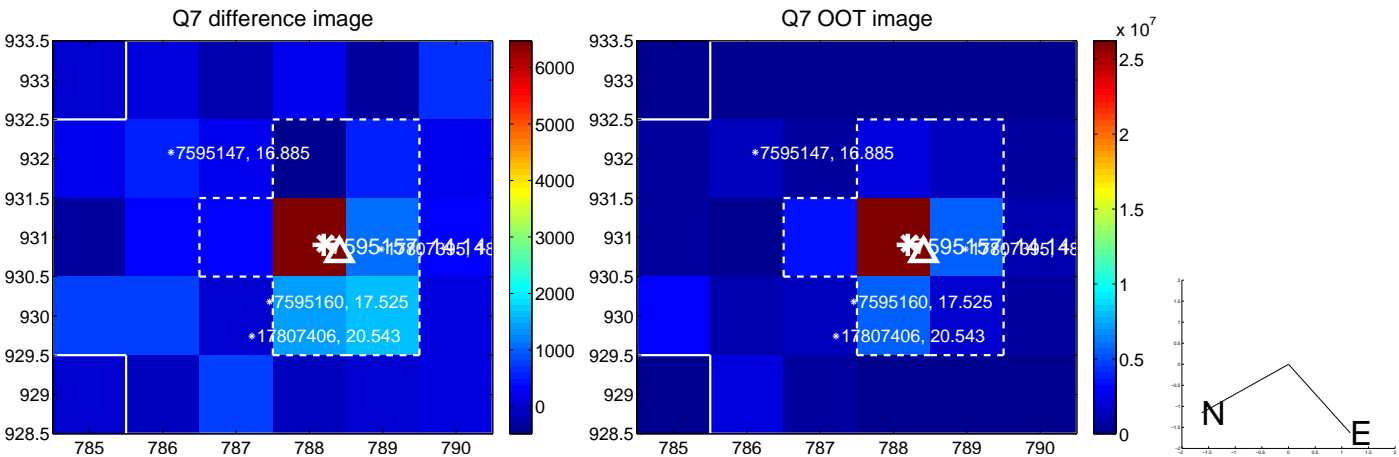
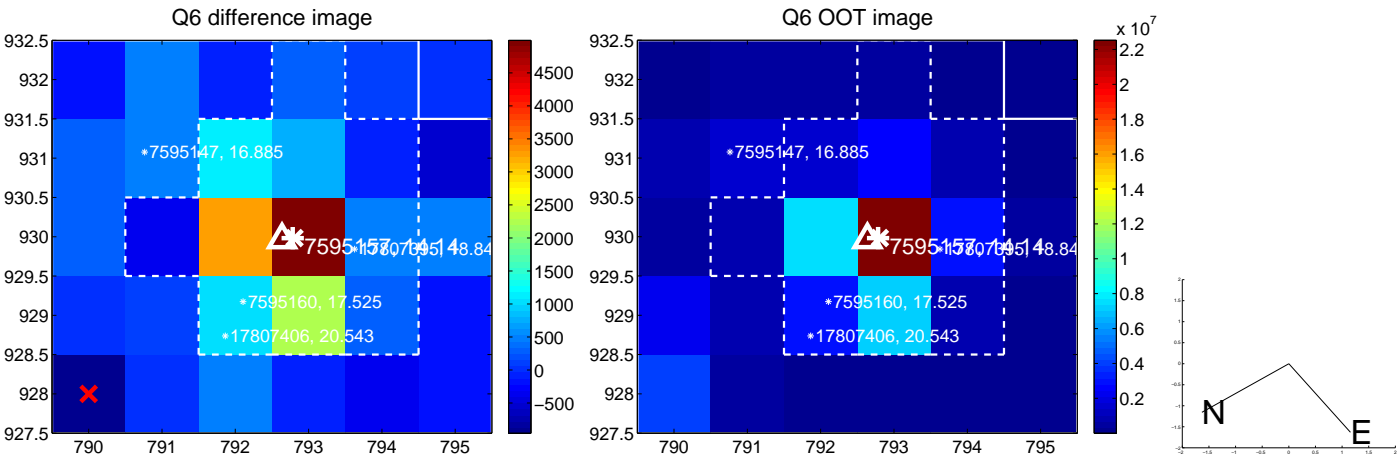
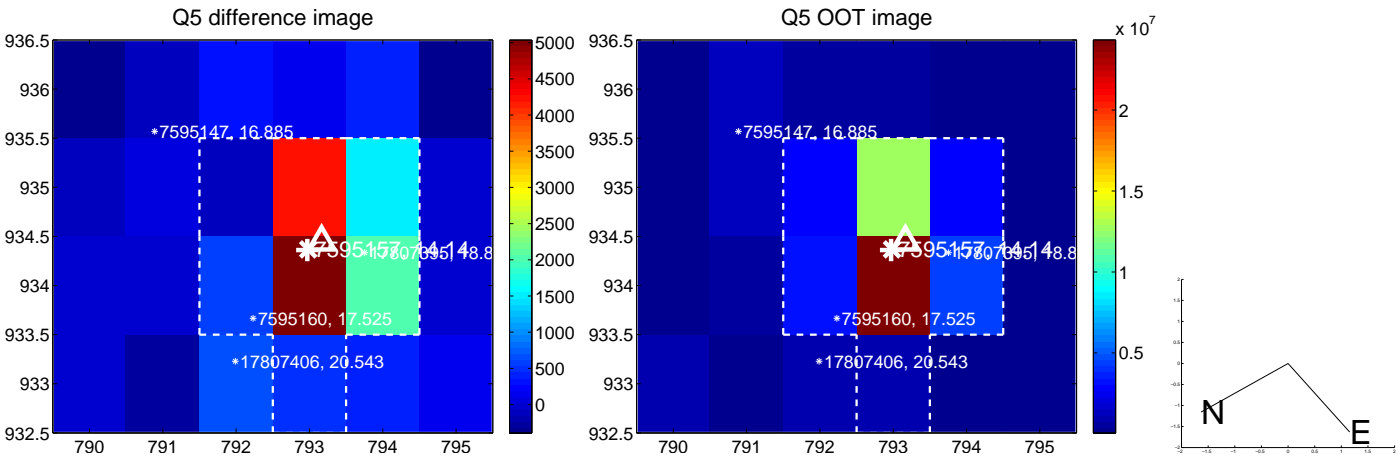


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

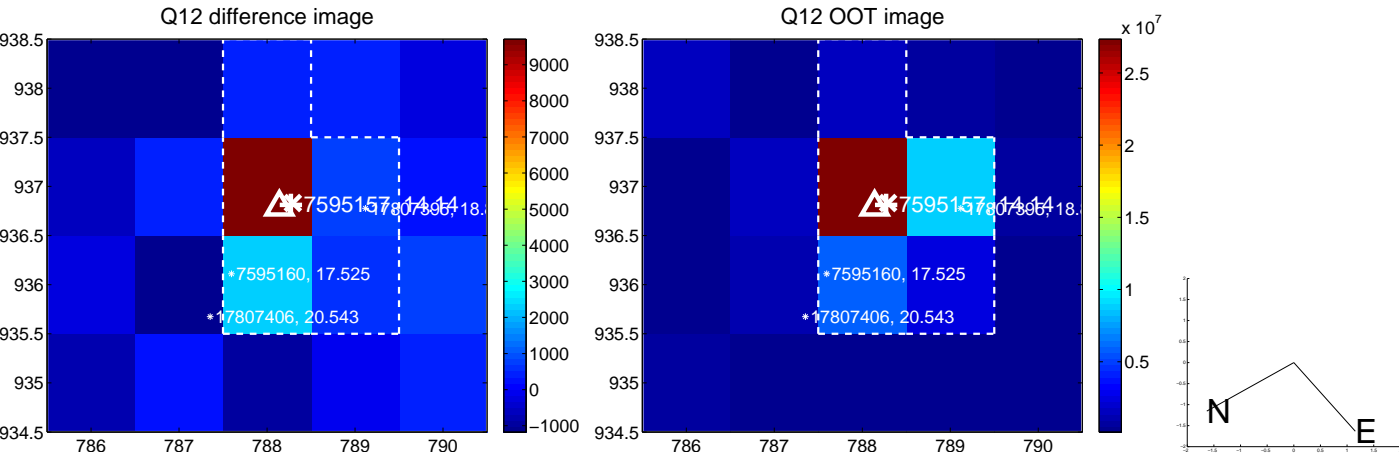
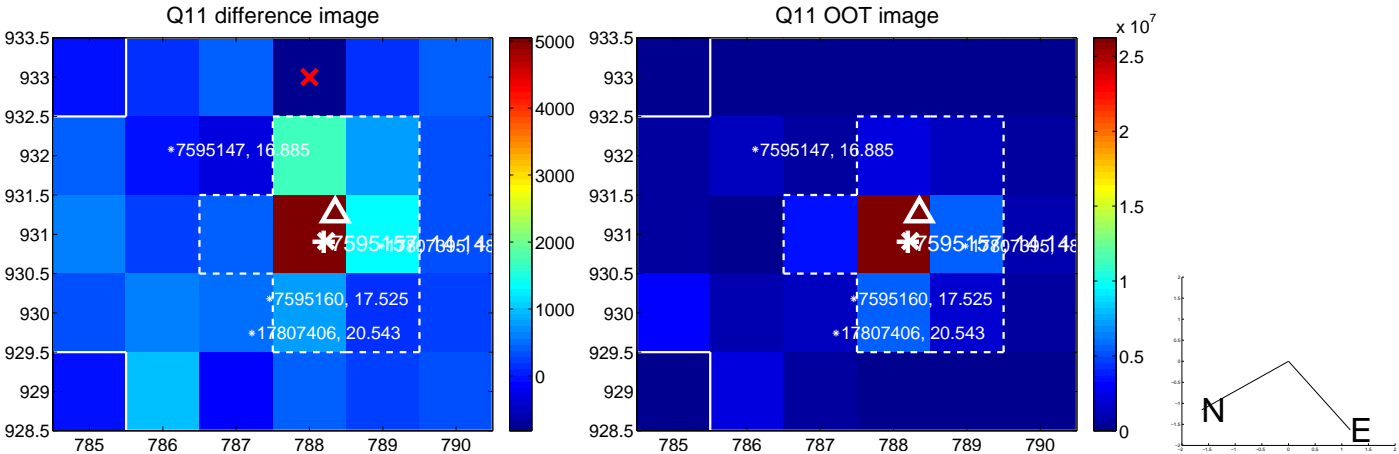
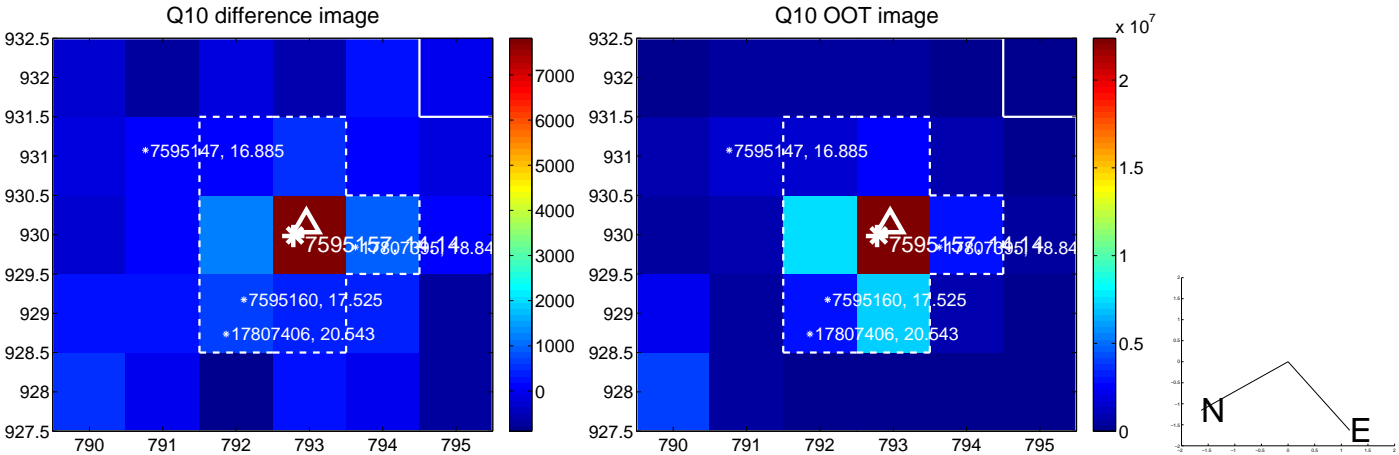
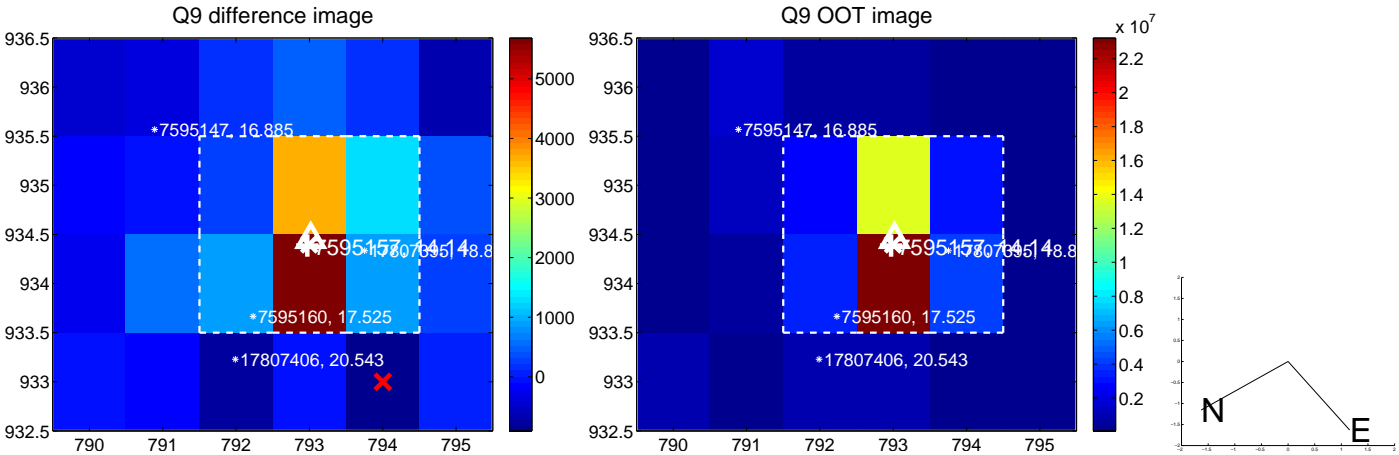
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



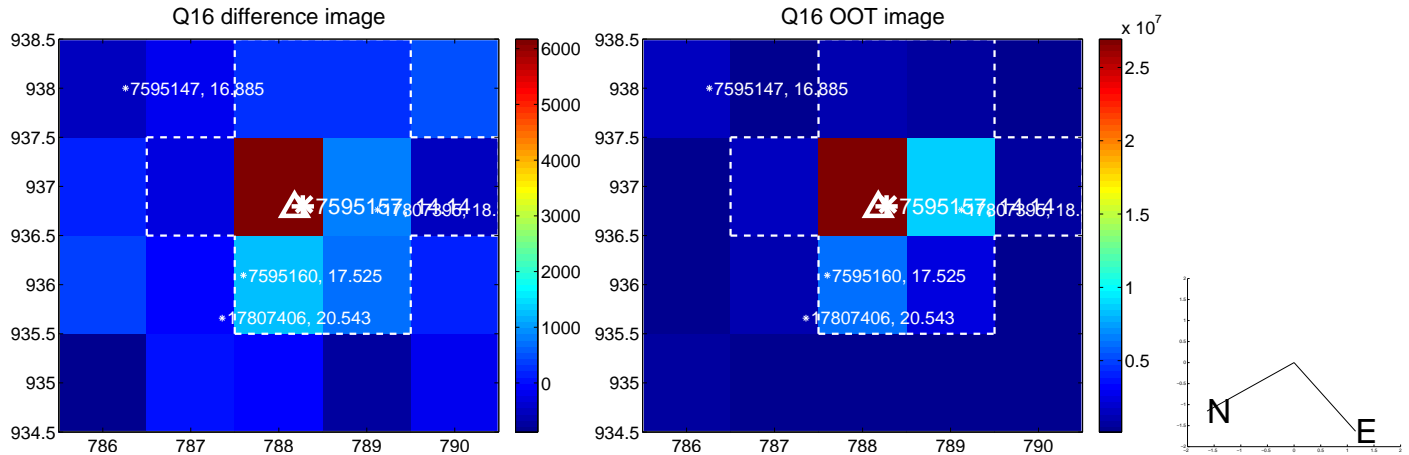
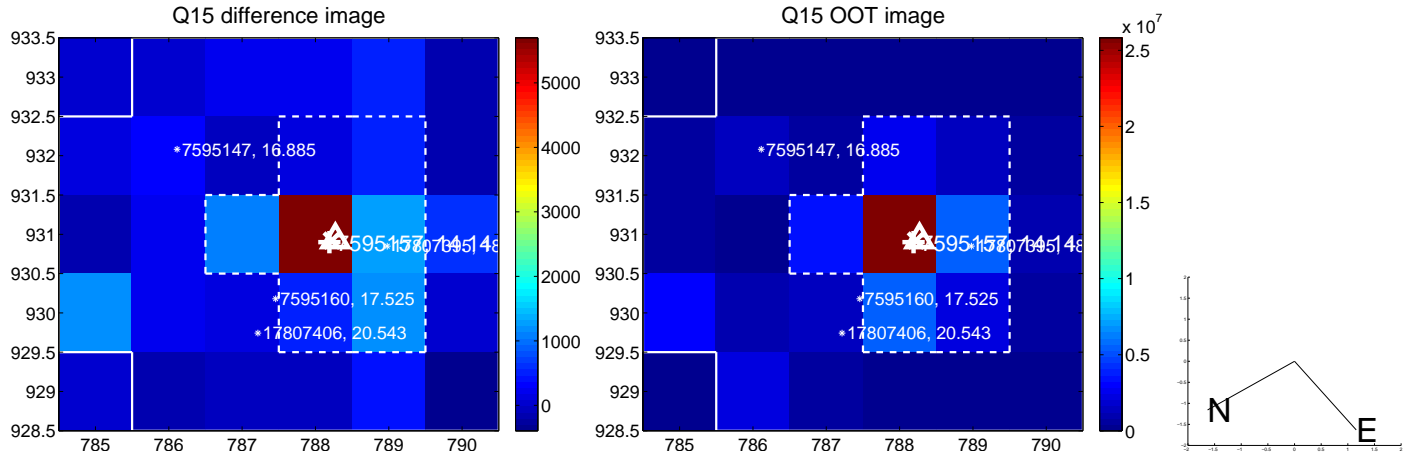
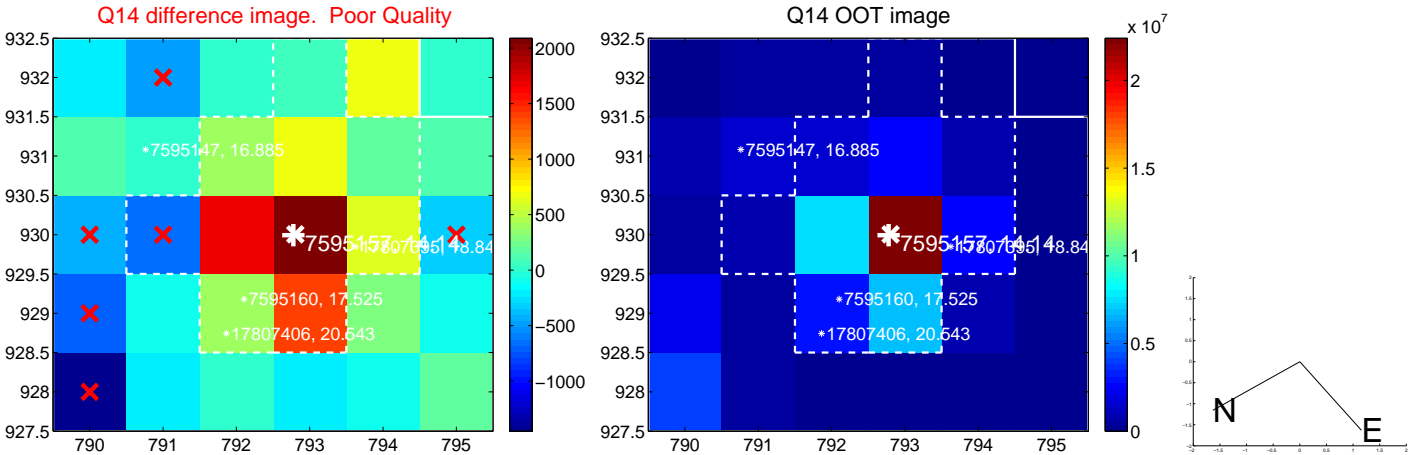
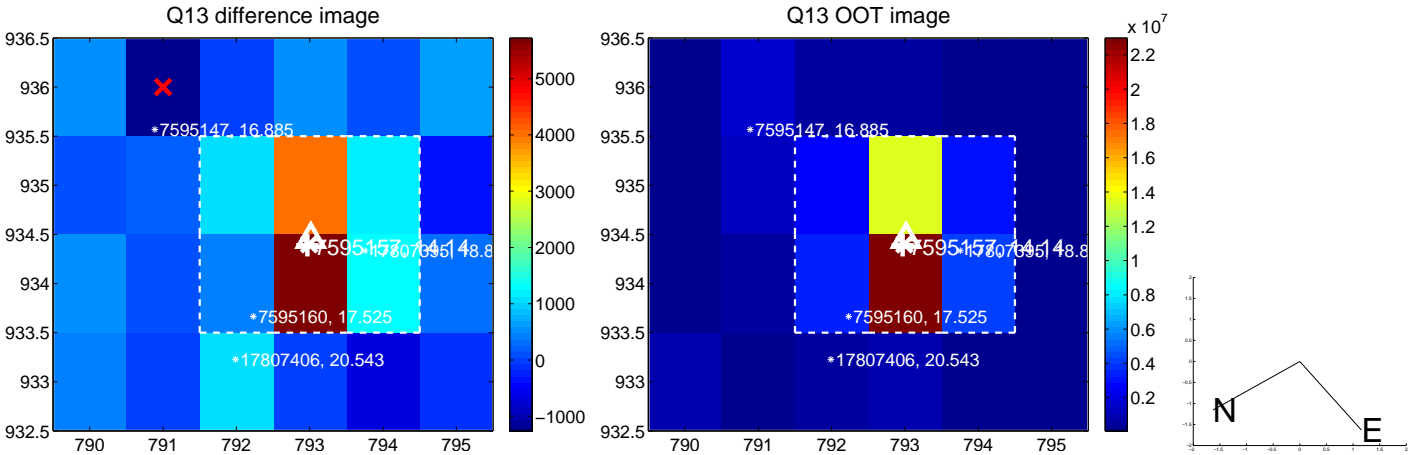
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

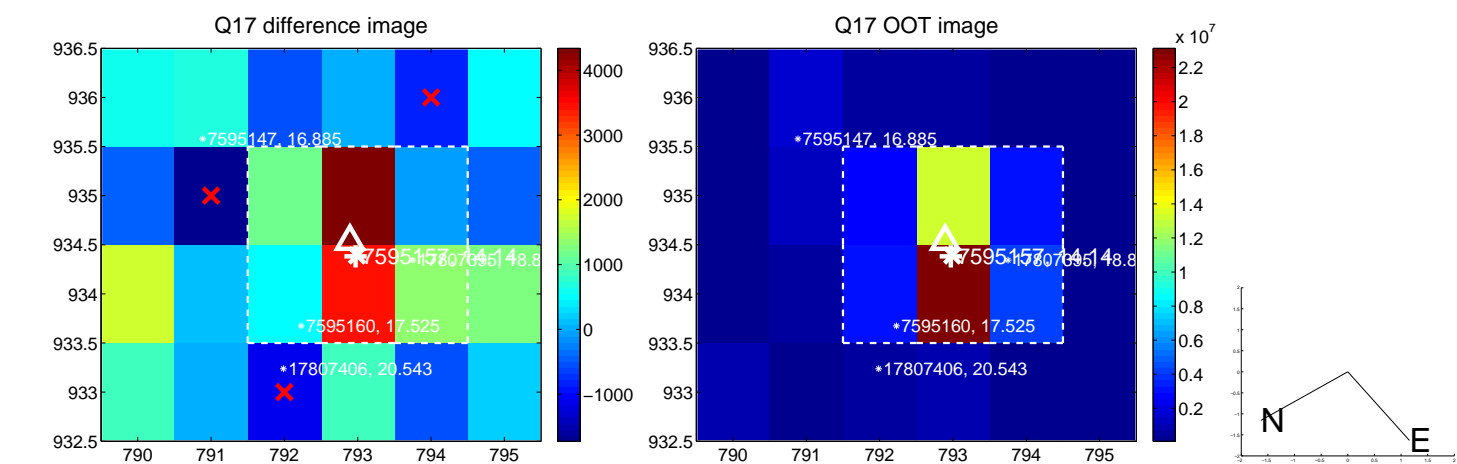


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

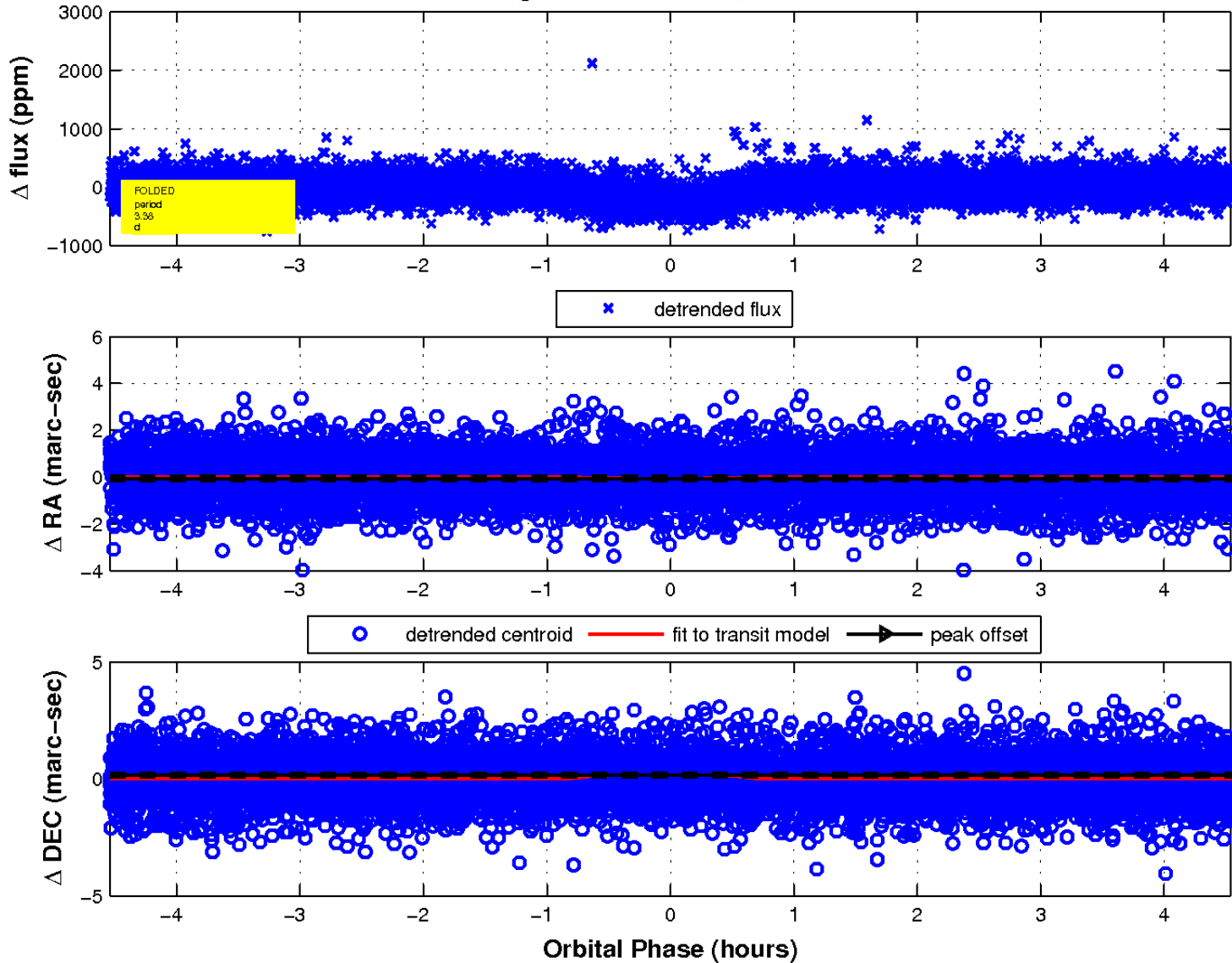




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

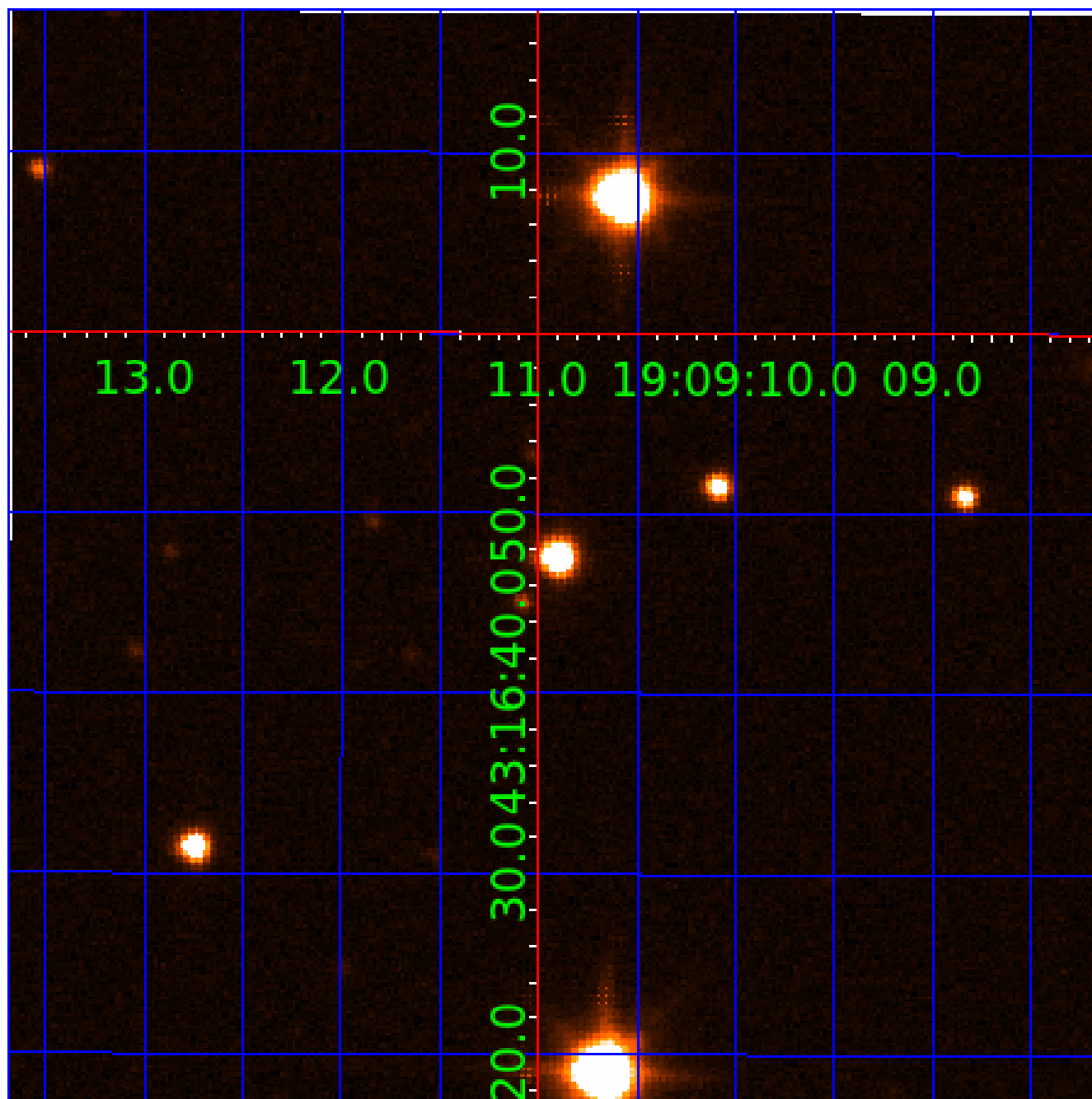


### fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



# KIC 007595157

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007595157-01	OBS	0568.01	3.383529	132.422945	254.1	1.514	24.7	35.4	0.99	5300	1.96	390.32
007595157-02	OBS	0568.02	2.358978	132.682264	86.5	1.779	14.3	16.2	0.99	5300	1.11	631.37

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007595157-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007595157-02	OBS	PC	0.99	0	0	0	0	NO_COMMENT

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

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

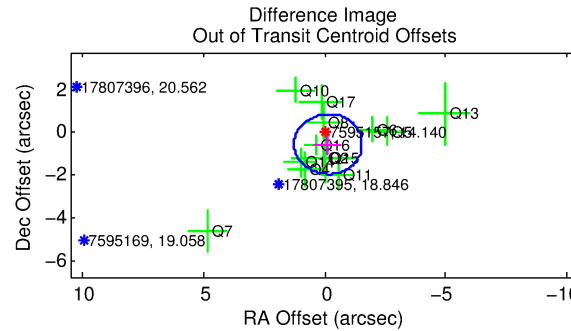
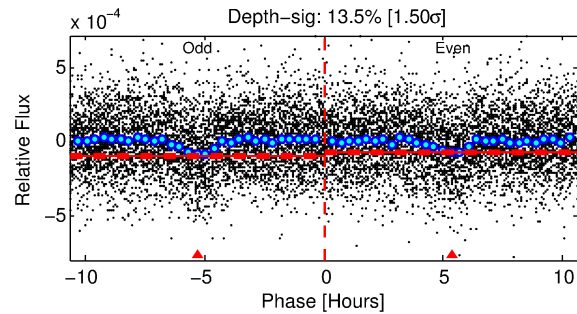
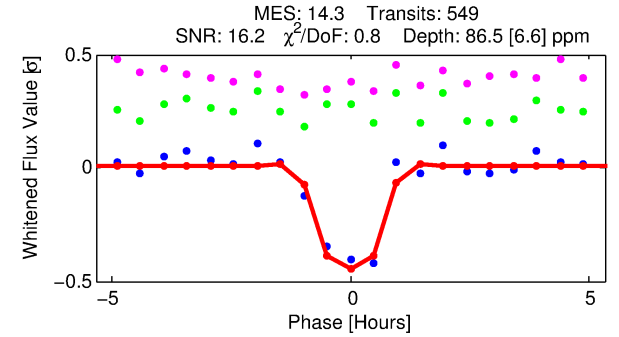
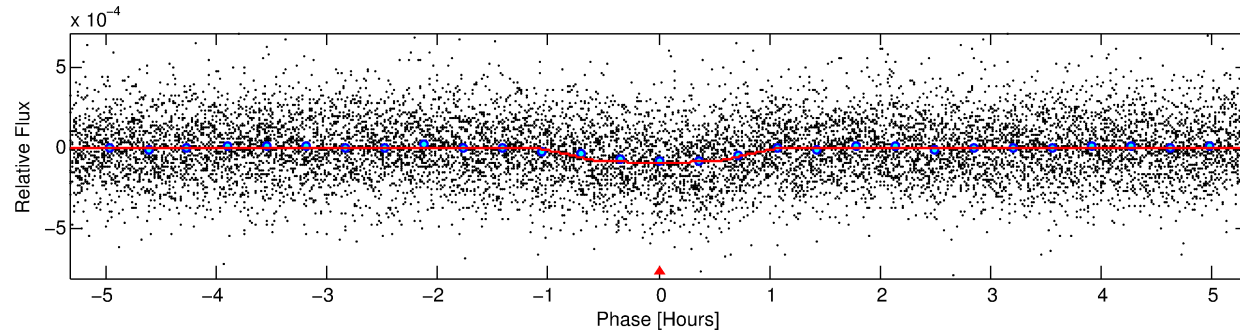
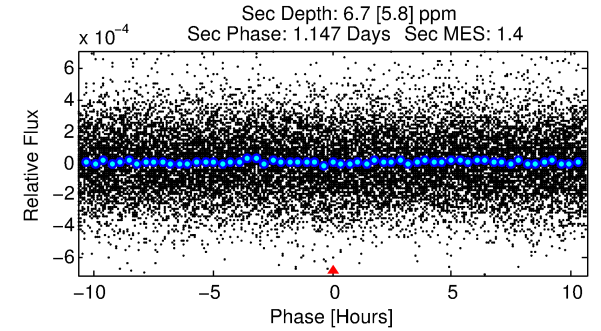
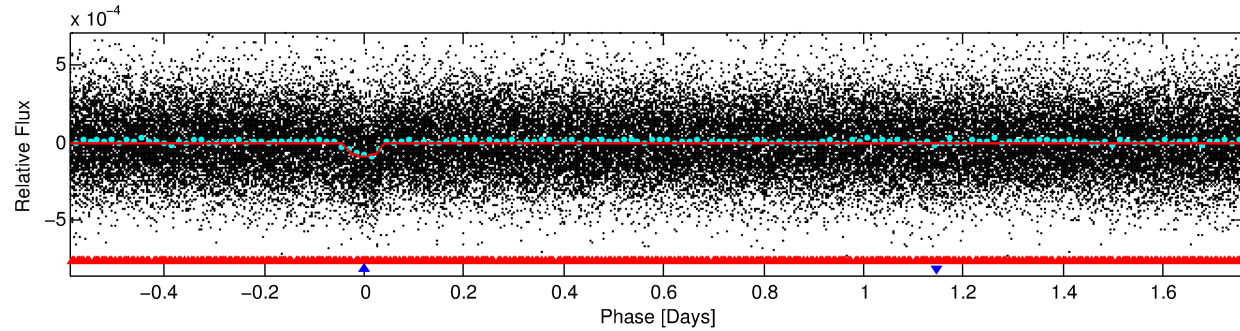
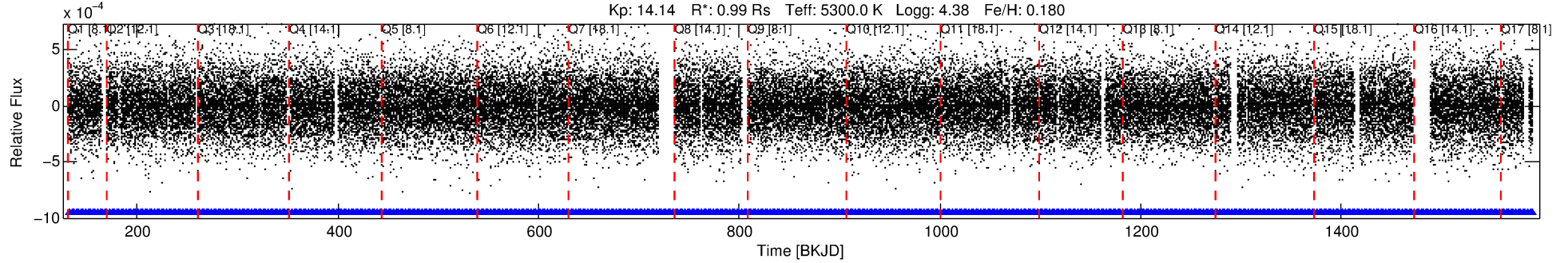
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007595157-02

No Significant Match Found

# DV One-Page Summary

KIC: 7595157 Candidate: 2 of 2 Period: 2.359 d  
KOI: K00568.02 Corr: 0.935



## DV Fit Results:

Period = 2.35898 [0.00001] d  
Epoch = 132.6823 [0.0018] BKJD  
Rp/R\* = 0.0103 [0.0048]  
a/R\* = 4.76 [9.00]  
b = 0.90 [0.43]  
Seff = 631.37 [144.52]  
Teff = 1278 [73] K  
Rp = 1.11 [0.54] Re  
a = 0.0330 [0.0043] AU  
Ag = 3.23 [4.21] [0.53σ]  
Teffp = 2650 [851] K [1.61σ]

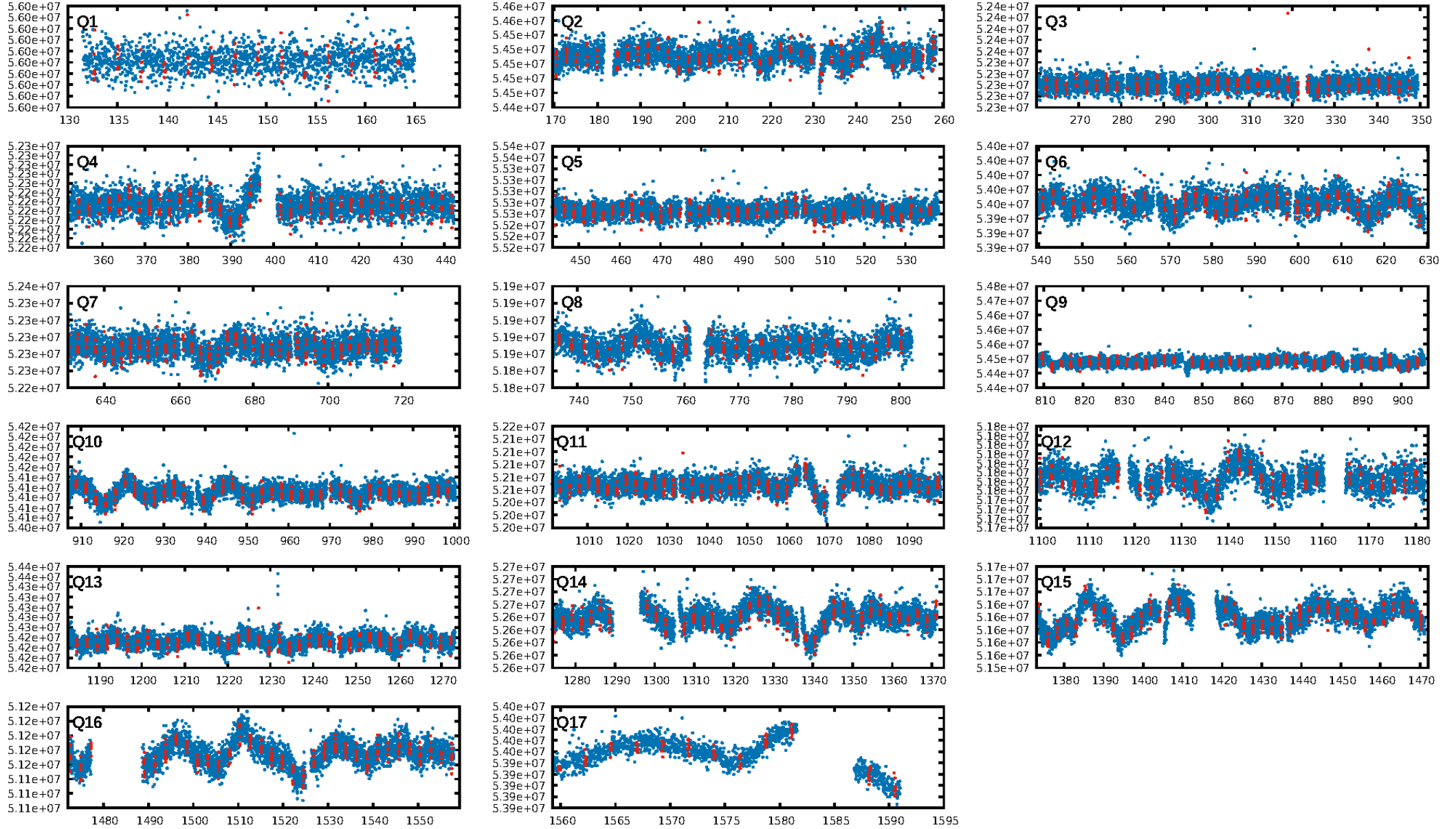
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [10.53σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 5.30e-45  
RollingBand-fgt: 1.00 [523/523]  
GhostDiagnostic-chr: 5.252  
Centroid-sig: 0.0%  
Centroid-so: 2.511 arcsec [3.44σ]  
OotOffset-rm: 0.559 arcsec [1.20σ]  
KicOffset-rm: 0.472 arcsec [1.01σ]  
OotOffset-st: 4/3/3/3 [13]  
KicOffset-st: 4/3/3/3 [13]  
DiffImageQuality-fgm: 0.85 [11/13]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:28:01 Z

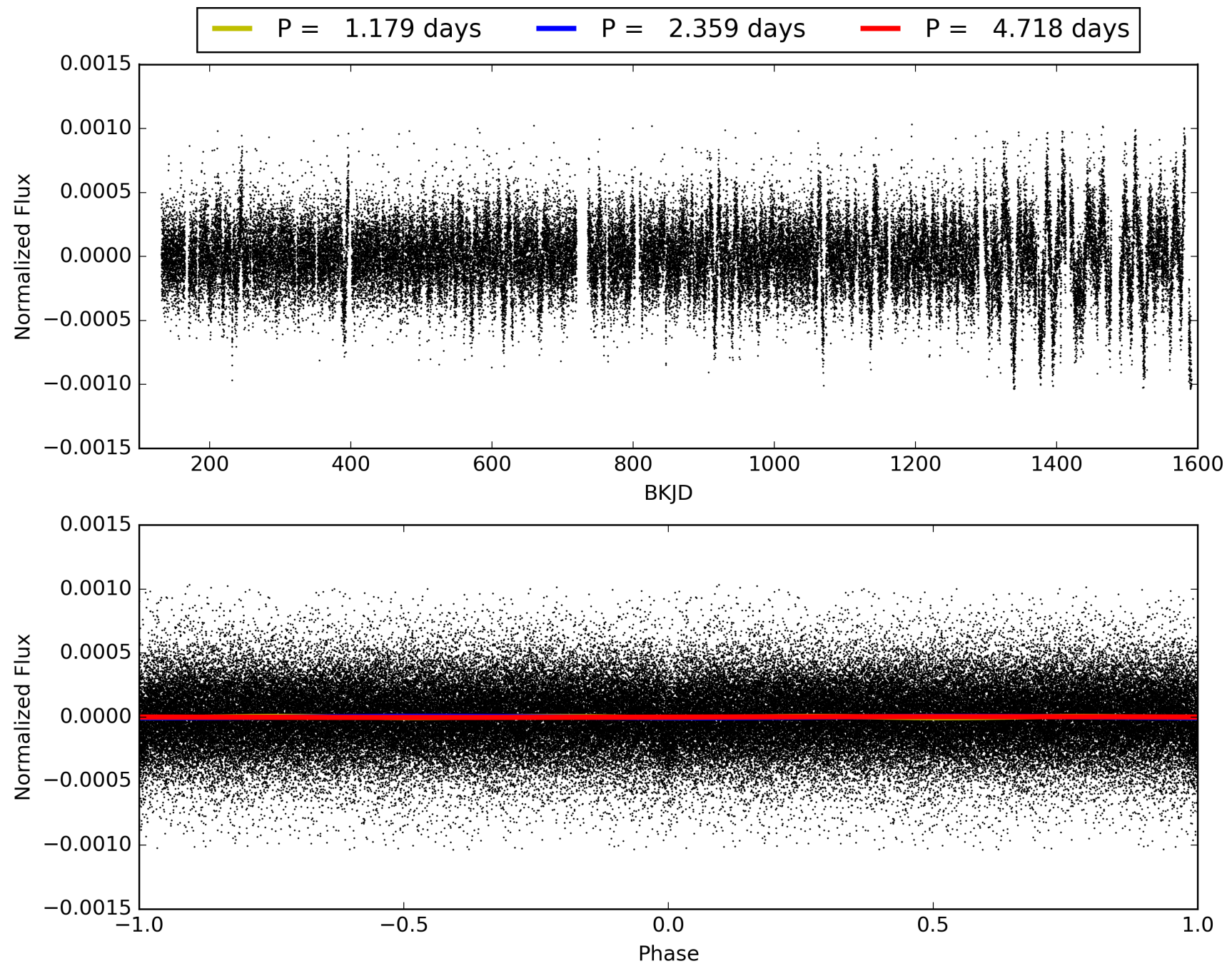
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007595157-02, PDC Light Curves



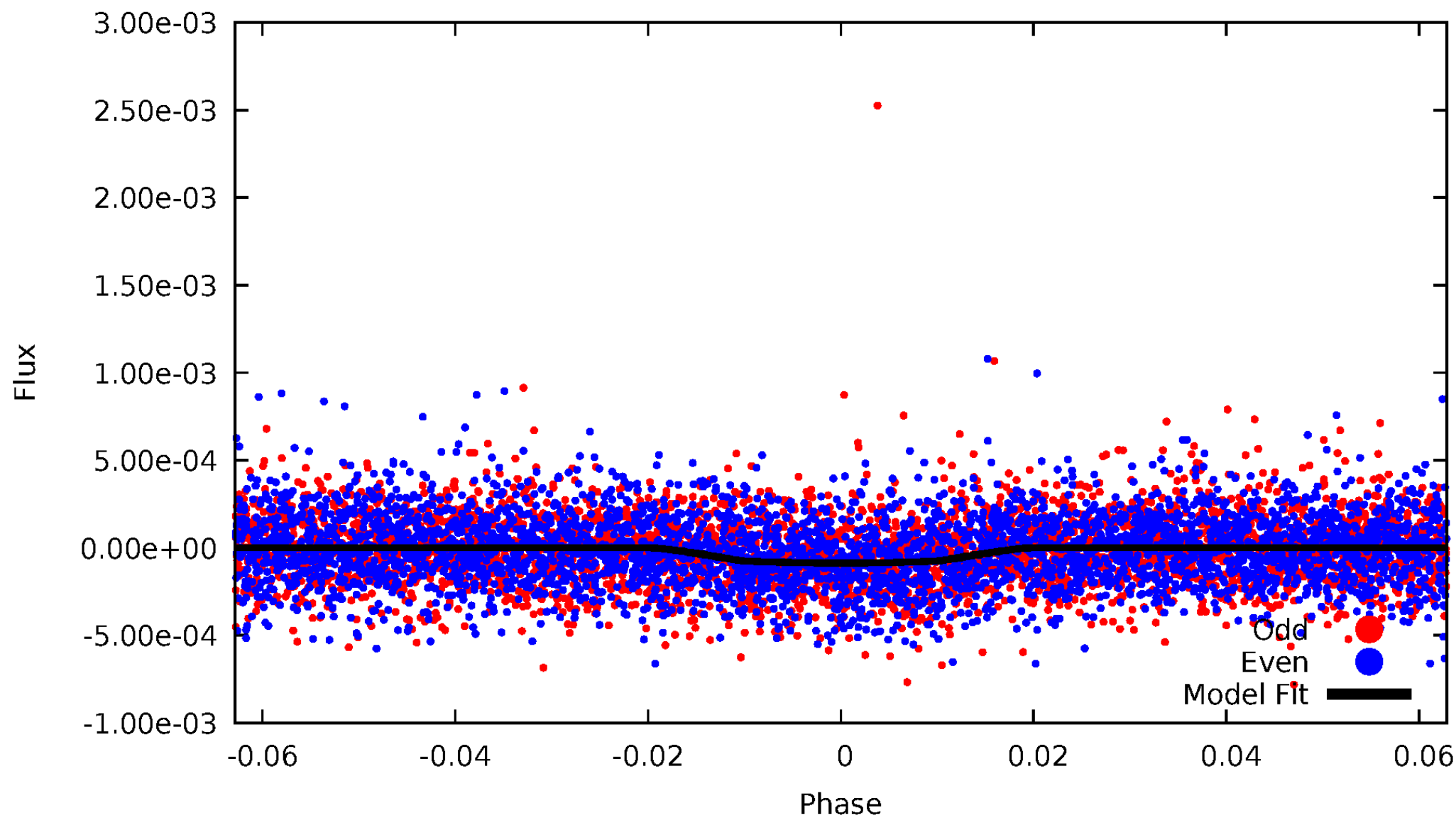


TCE 007595157-02



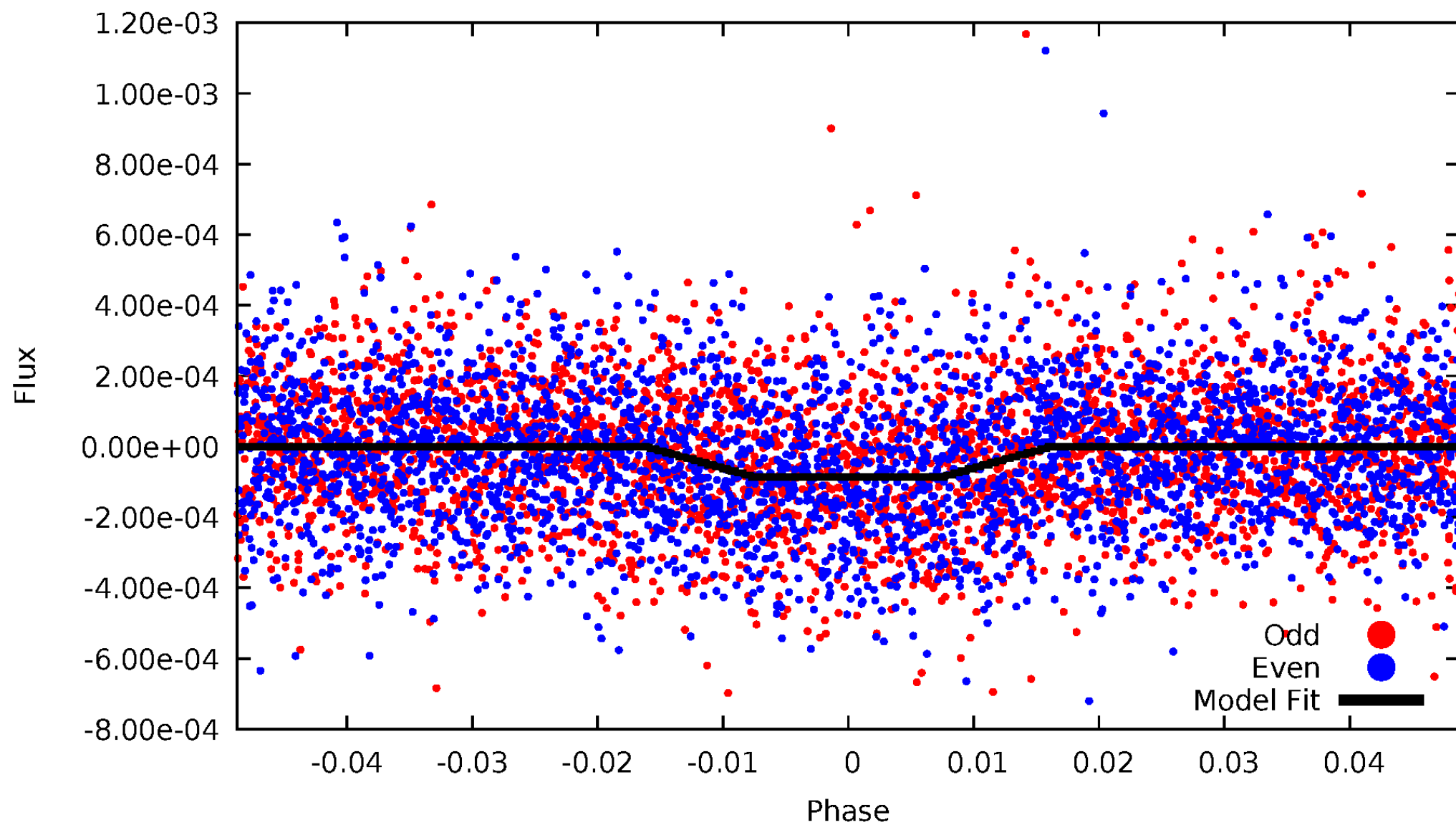
# DV Odd/Even

TCE 007595157-02



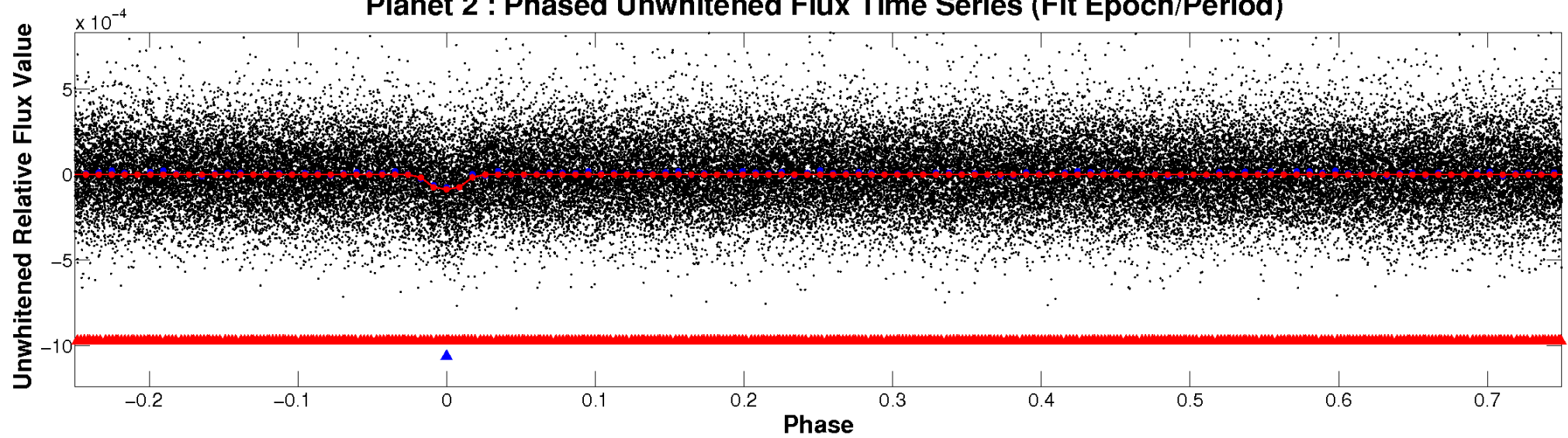
# ALT Odd/Even

TCE 007595157-02

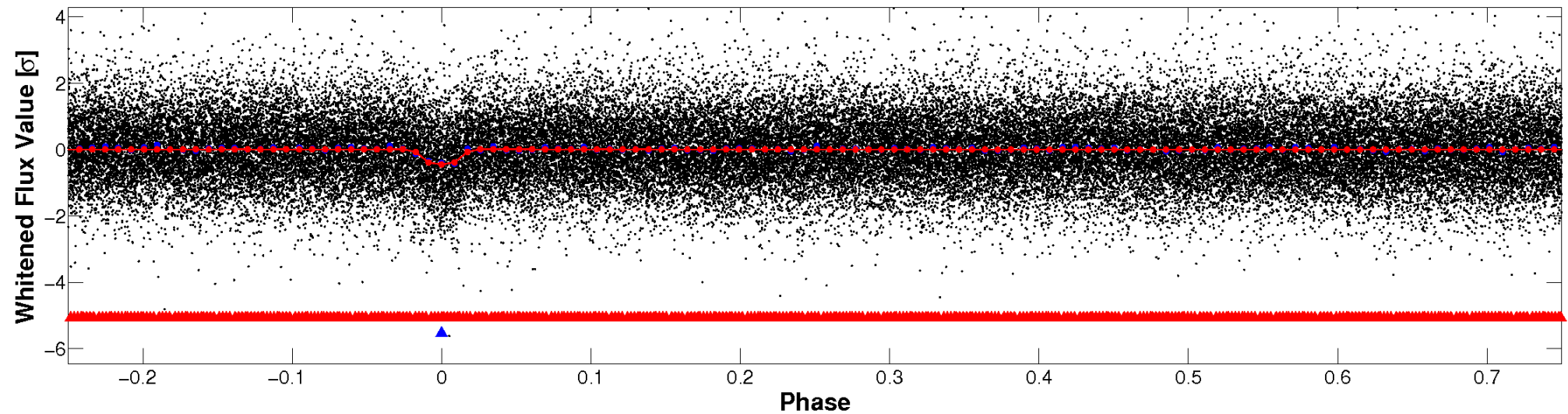


# Non-Whitened Vs. Whitened Light Curve

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



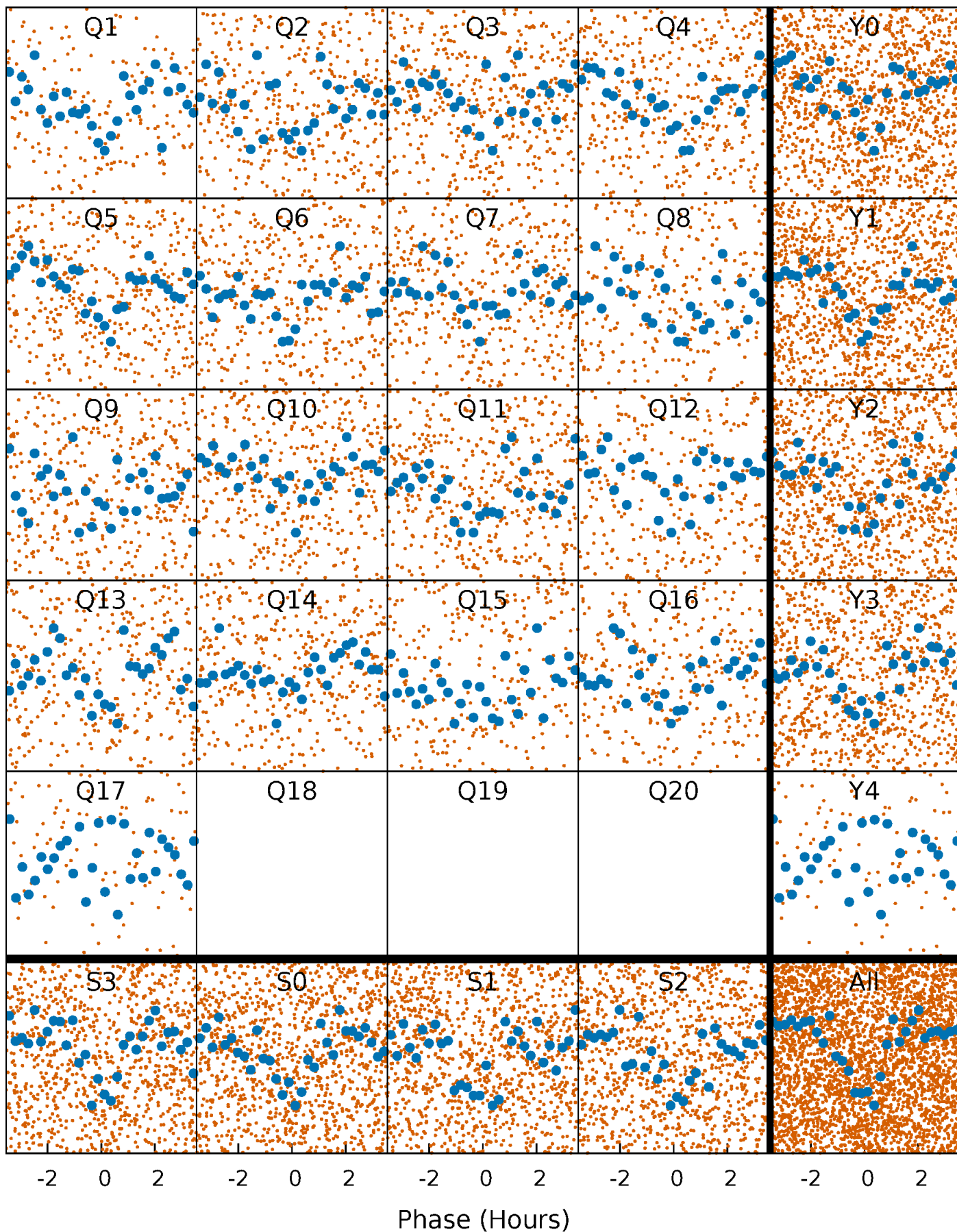
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

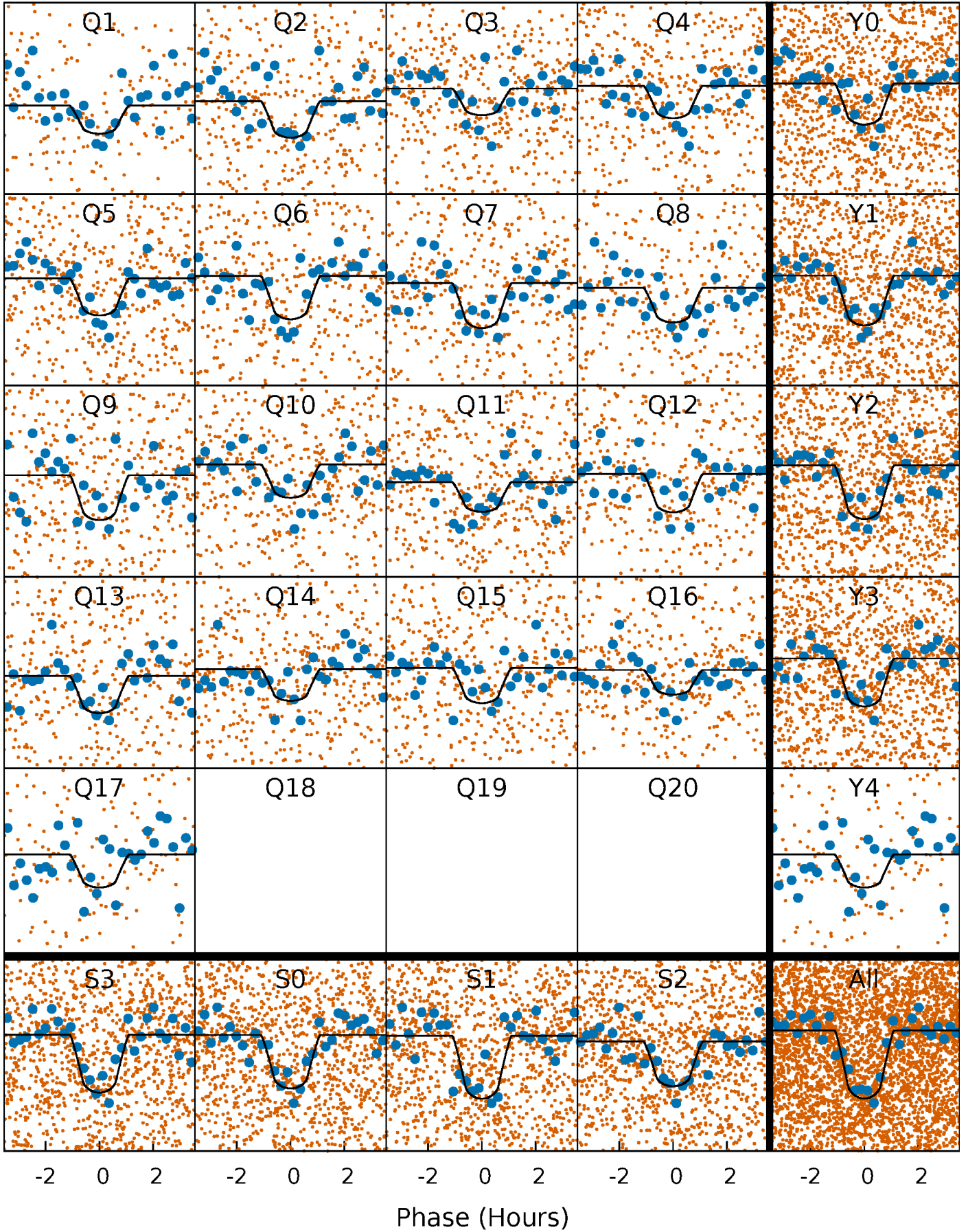
TCE 007595157-02   P= 2.358978 Days    $T_0=132.682264$  (BKJD)





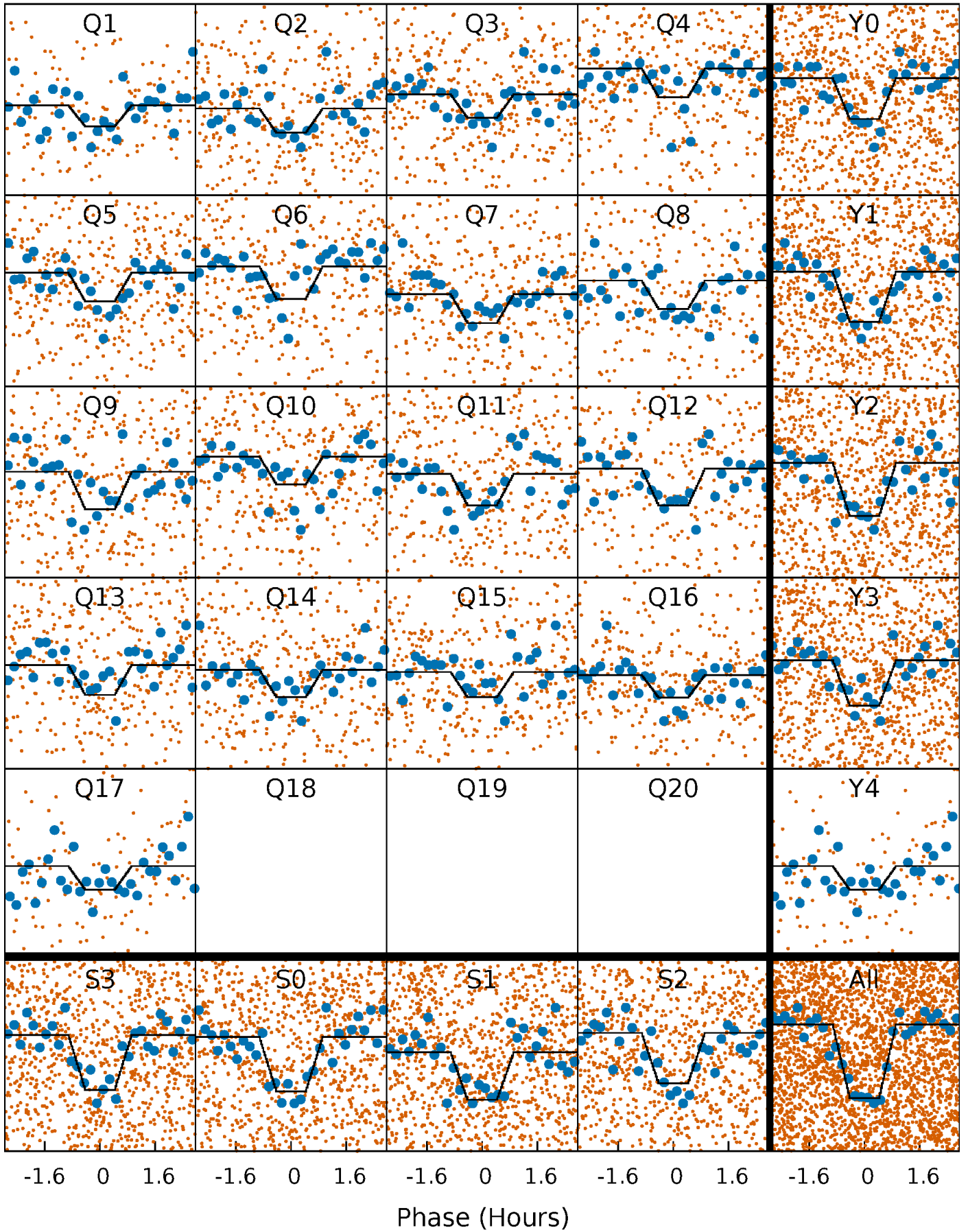
# DV Quarter-Phased Transit Curves

TCE 007595157-02 P= 2.358978 Days  $T_0=132.682264$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

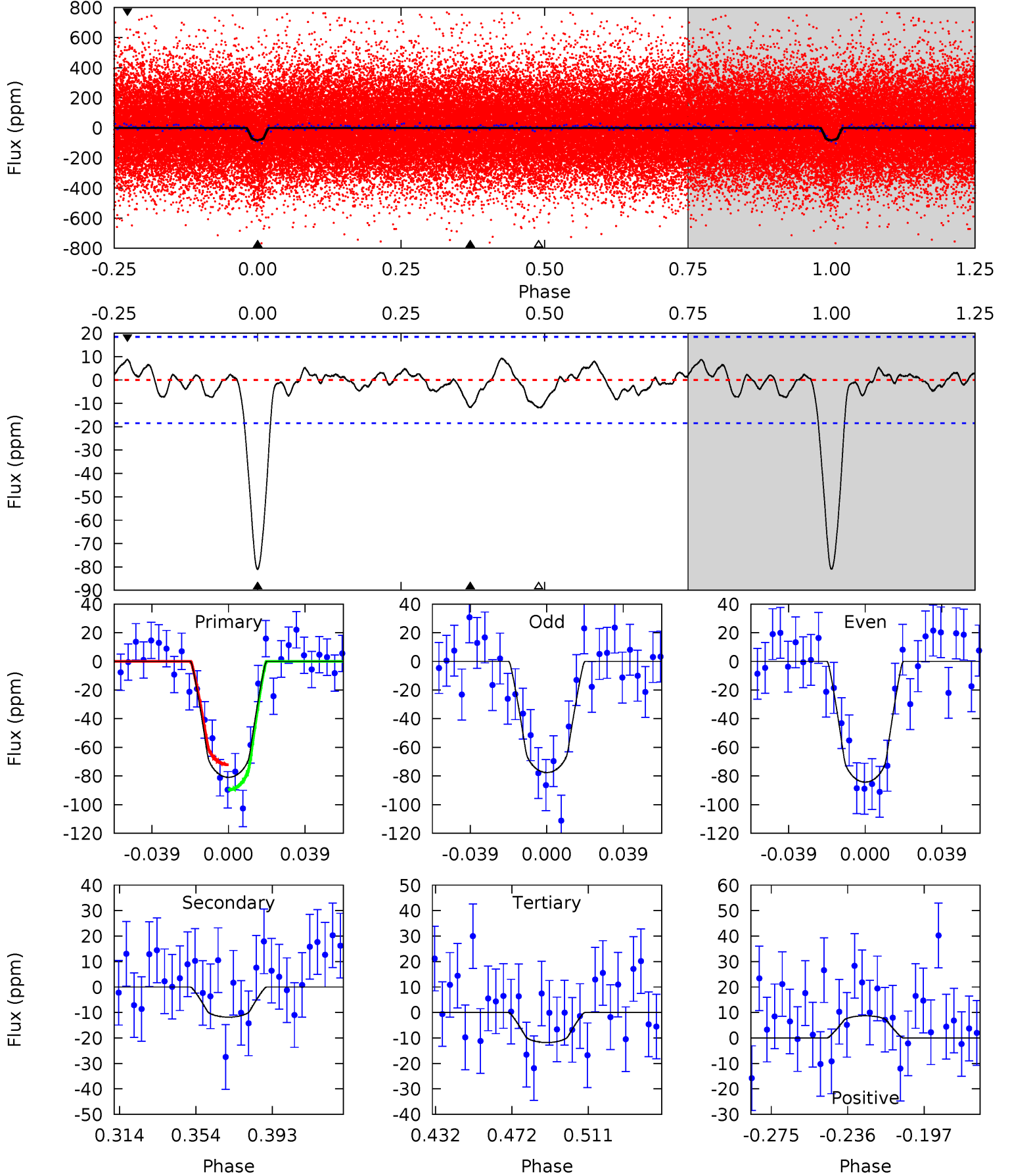
TCE 007595157-02   P= 2.358964 Days    $T_0=132.687574$  (BKJD)



# DV Model-Shift Uniqueness Test

007595157-02, P = 2.358978 Days, E = 130.323286 Days

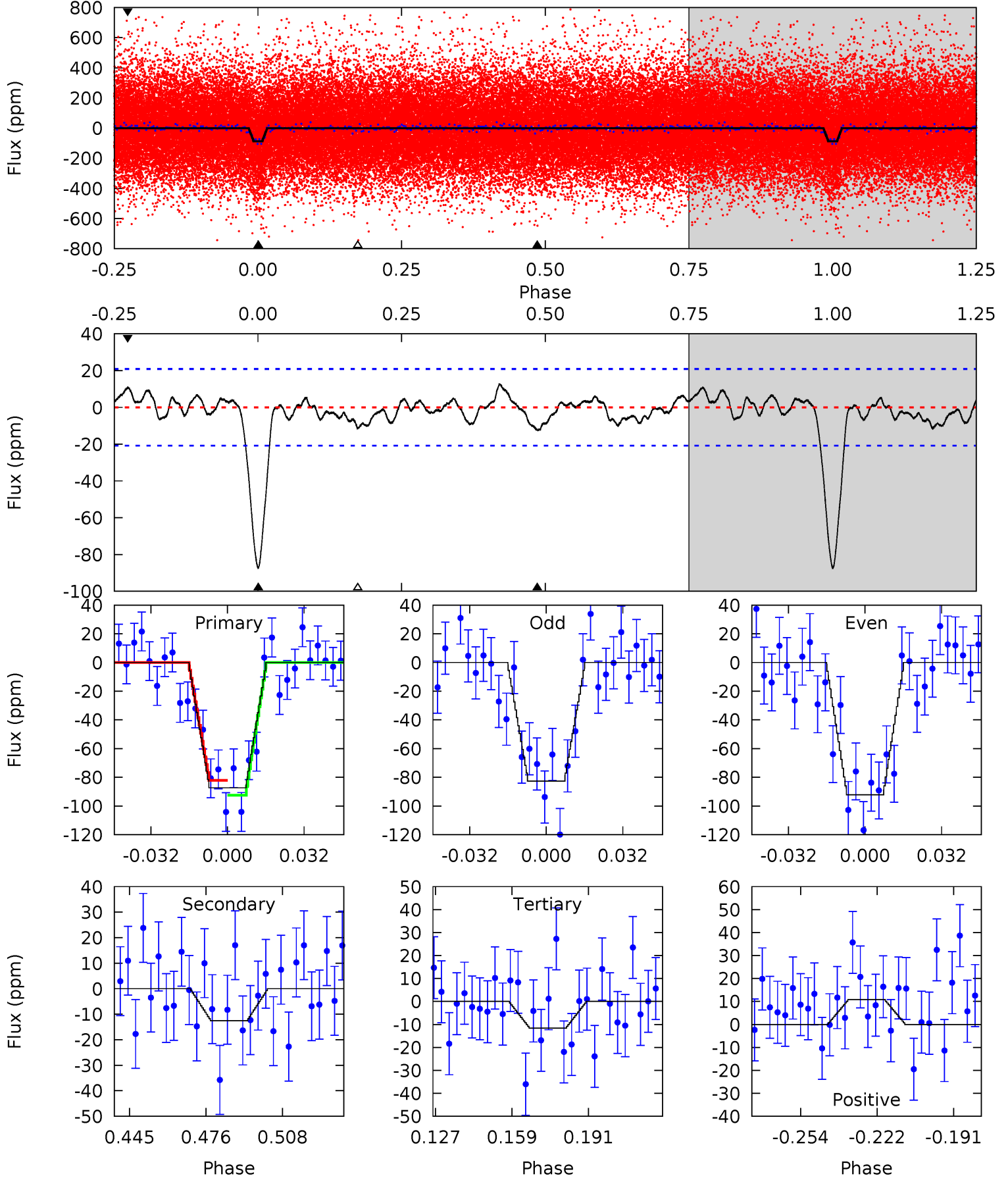
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.8	3.05	3.04	2.24	4.76	2.06	1.10	17.8	18.6	0.01	0.81	0.86	0.96	0.10	2.26



# Alt Model-Shift Uniqueness Test

007595157-02, P = 2.358964 Days, E = 130.328610 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
20.1	2.89	2.67	2.49	4.80	2.15	1.12	17.5	17.6	0.22	0.40	1.09	0.92	0.13	1.19



### Stellar Parameters For KIC 007595157

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5300^{+87}_{-71}$	$4.385^{+0.132}_{-0.088}$	$0.180^{+0.150}_{-0.150}$	$0.986^{+0.124}_{-0.124}$	$0.861^{+0.061}_{-0.031}$	$1.264^{+0.692}_{-0.351}$
	+2%/-1%	+3%/-2%	+83%/-83%	+13%/-13%	+7%/-4%	+55%/-28%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 007595157-02 / KOI 0568.02

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-12 \pm 4$	$1.05^{+0.53}_{-0.47}$	$1781^{+71}_{-70}$	$3505^{+867}_{-456}$	$6.164^{+15.436}_{-3.617}$
Alt.	$-13 \pm 4$	$0.98^{+0.54}_{-0.46}$	$1778^{+69}_{-69}$	$3624^{+985}_{-518}$	$7.690^{+20.145}_{-4.913}$

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



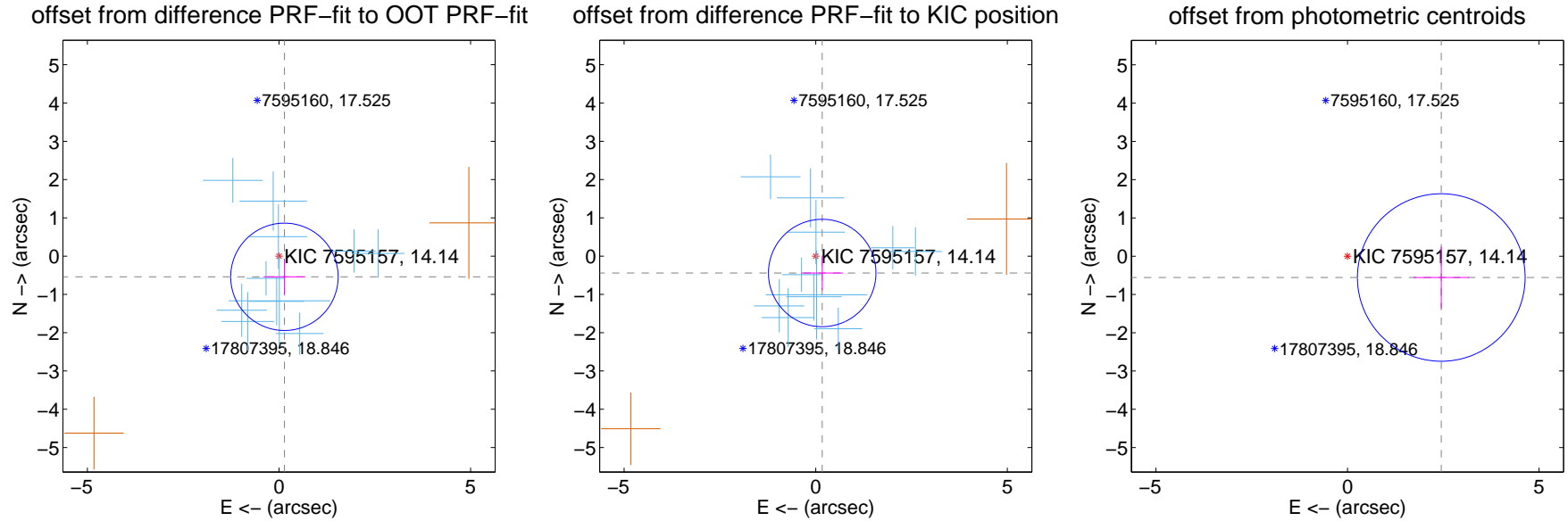
## DV Centroid Data

Supplemental centroid analysis for 007595157-02. Kepler magnitude: 14.14. Transit SNR 16.21

There are 11 quarters with good PRF difference image offsets

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

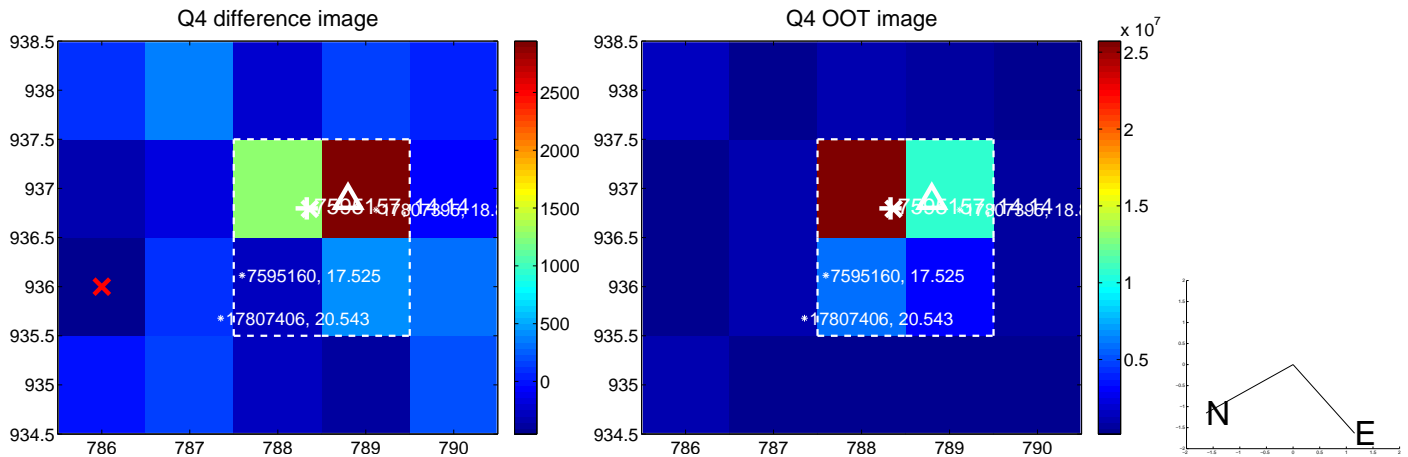
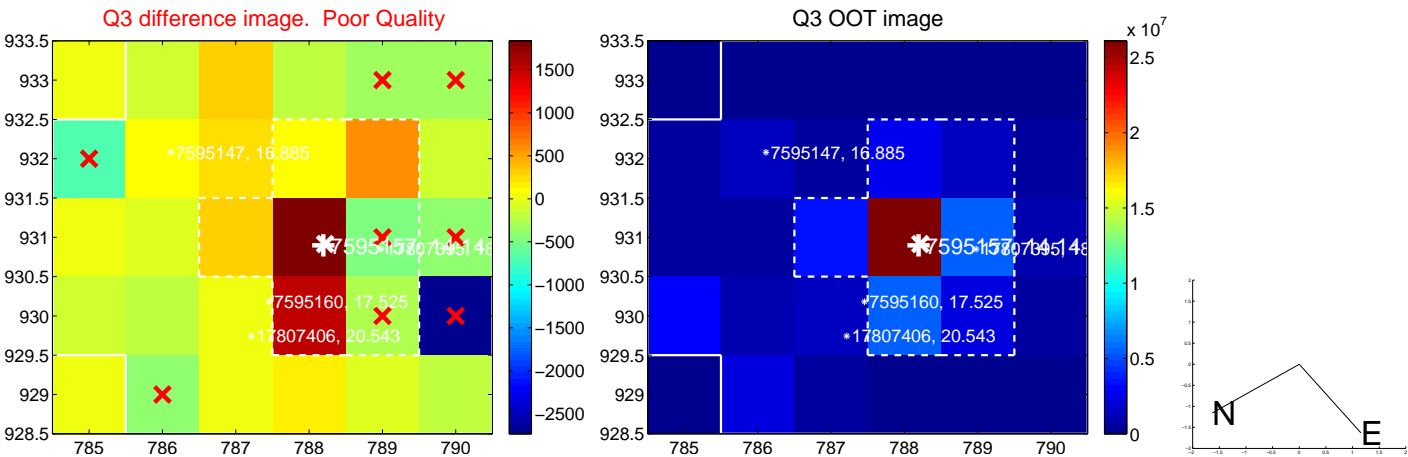
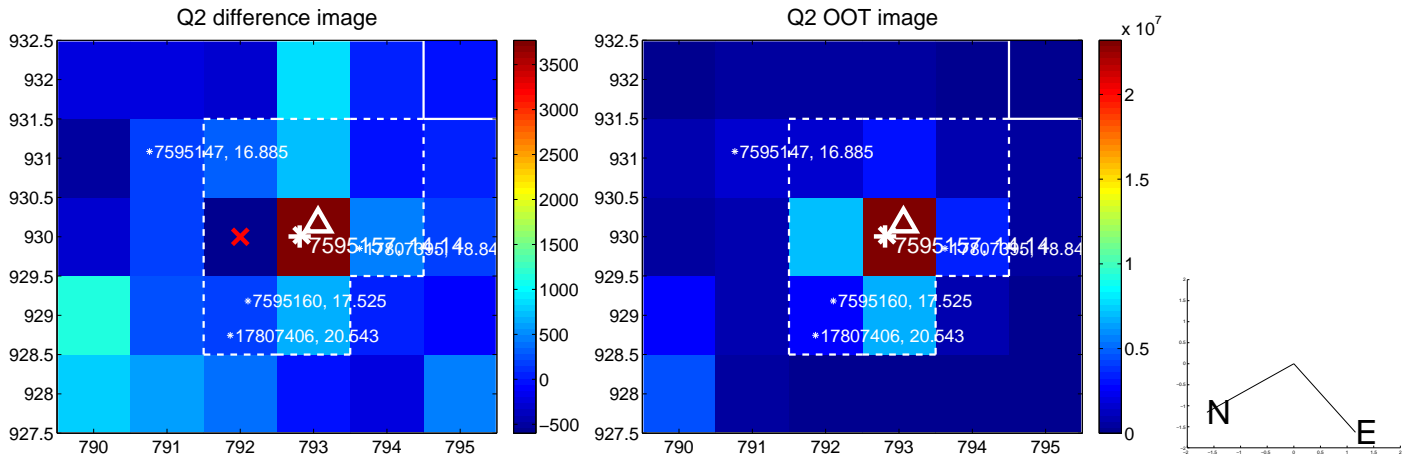
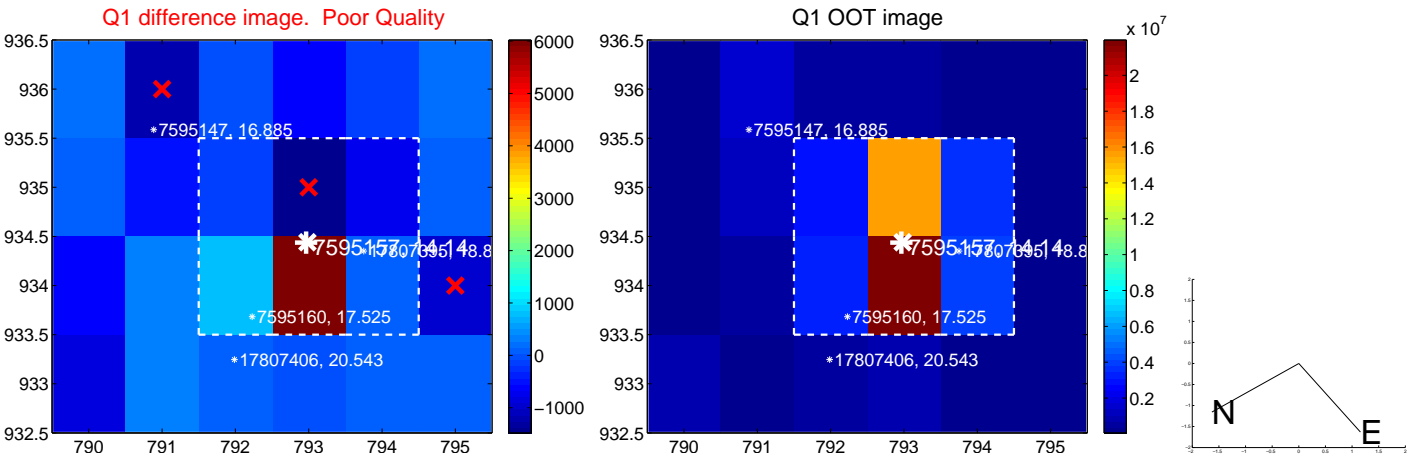
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.559 \pm 0.467$	1.20	$-0.142 \pm 0.545$	$-0.540 \pm 0.462$
PRF-fit source offset from KIC position	$0.472 \pm 0.468$	1.01	$-0.169 \pm 0.546$	$-0.441 \pm 0.455$
photometric centroid source offset	$2.51 \pm 0.73$	3.44	$-2.45 \pm 0.73$	$-0.56 \pm 0.80$



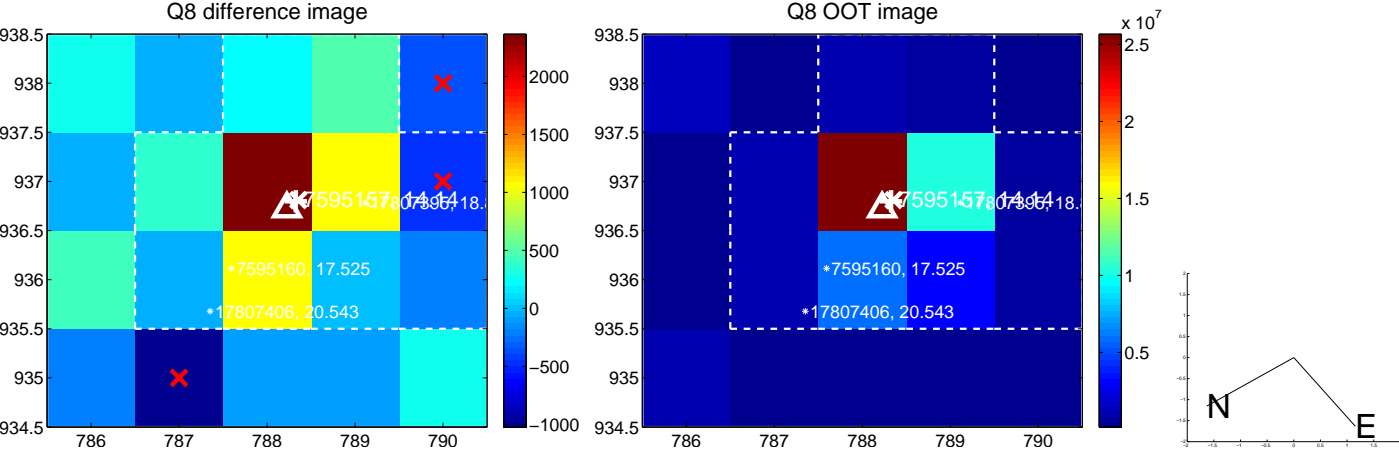
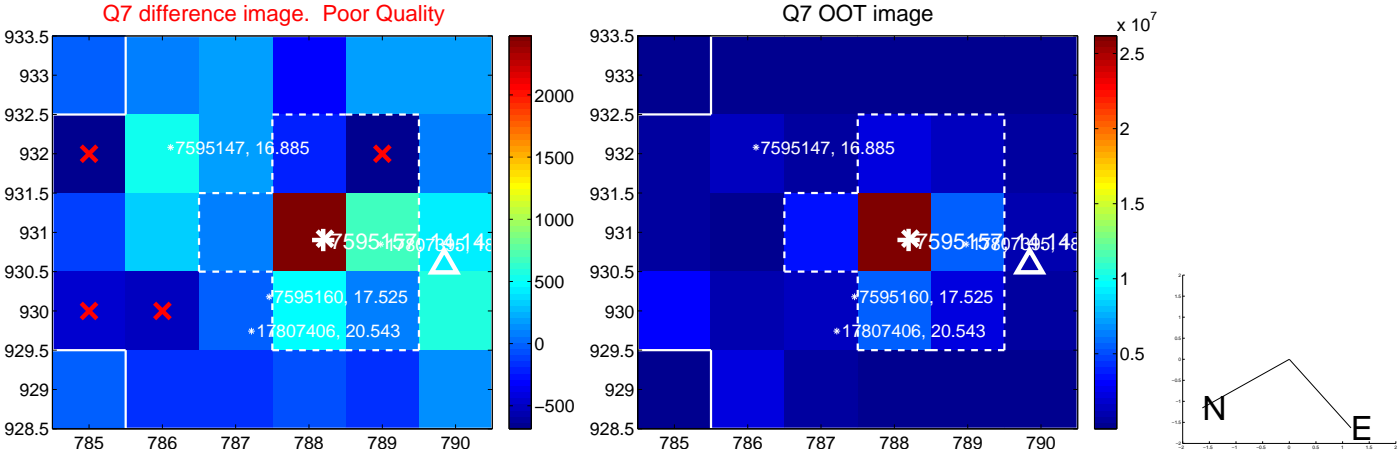
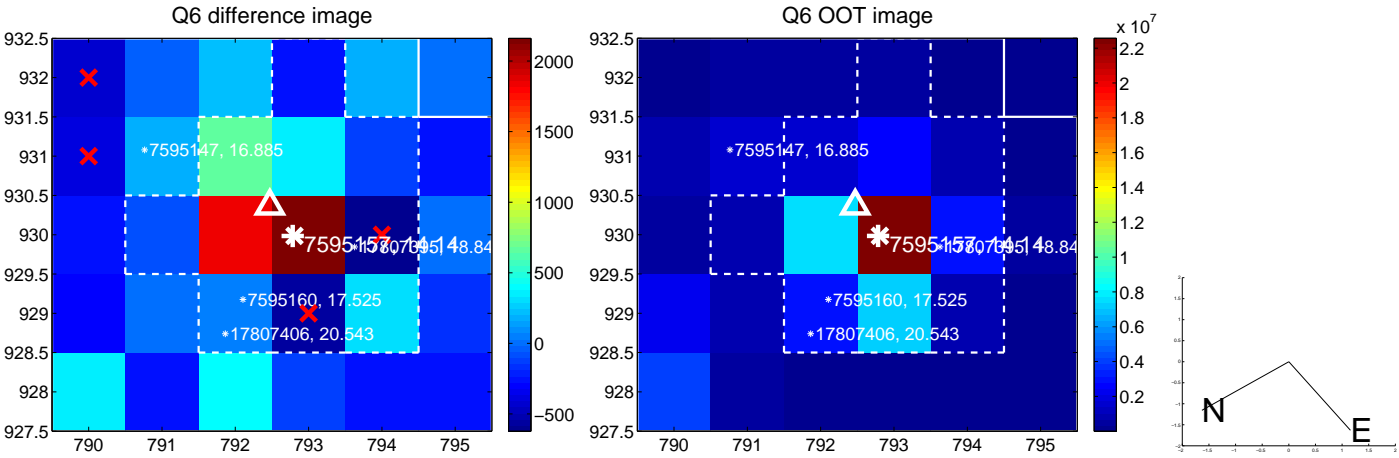
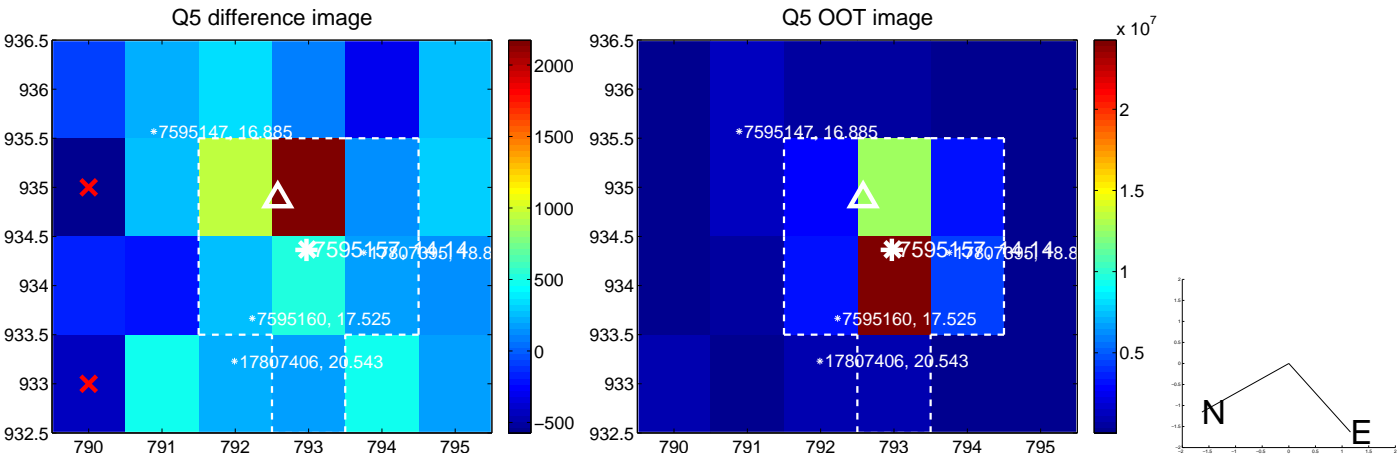
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



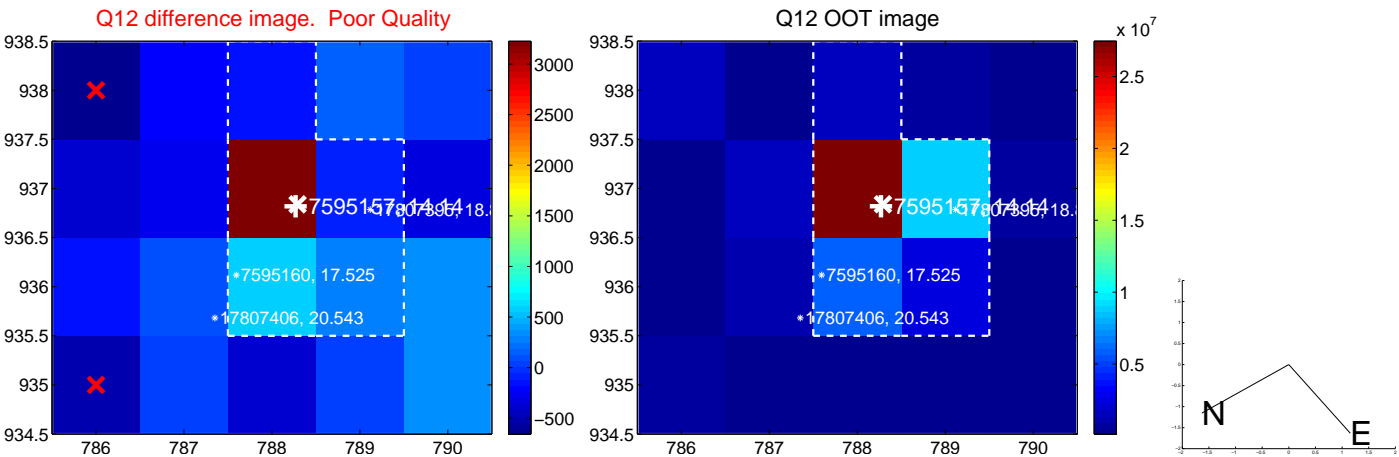
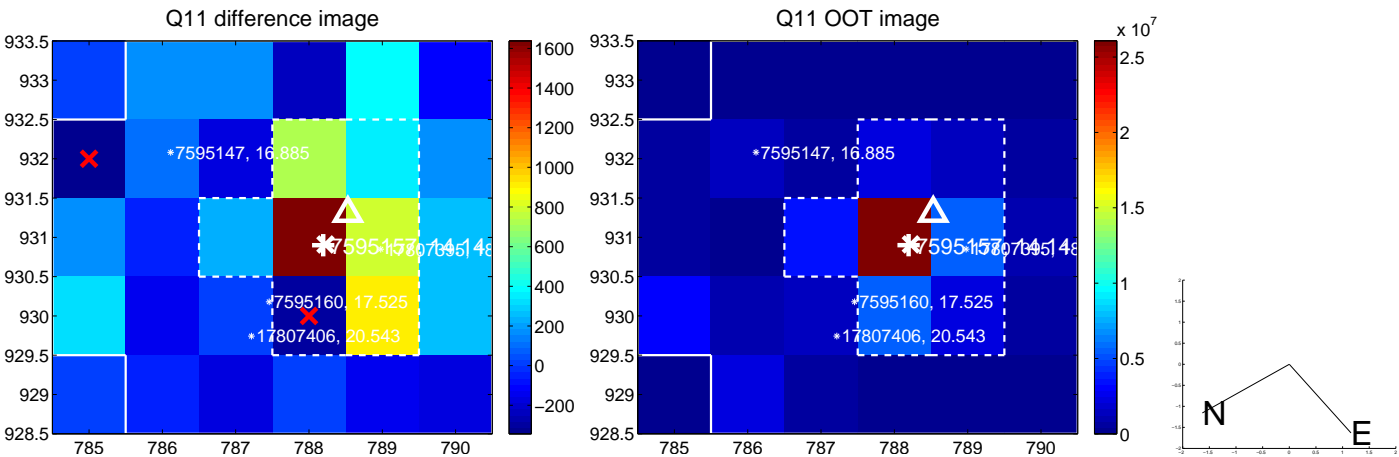
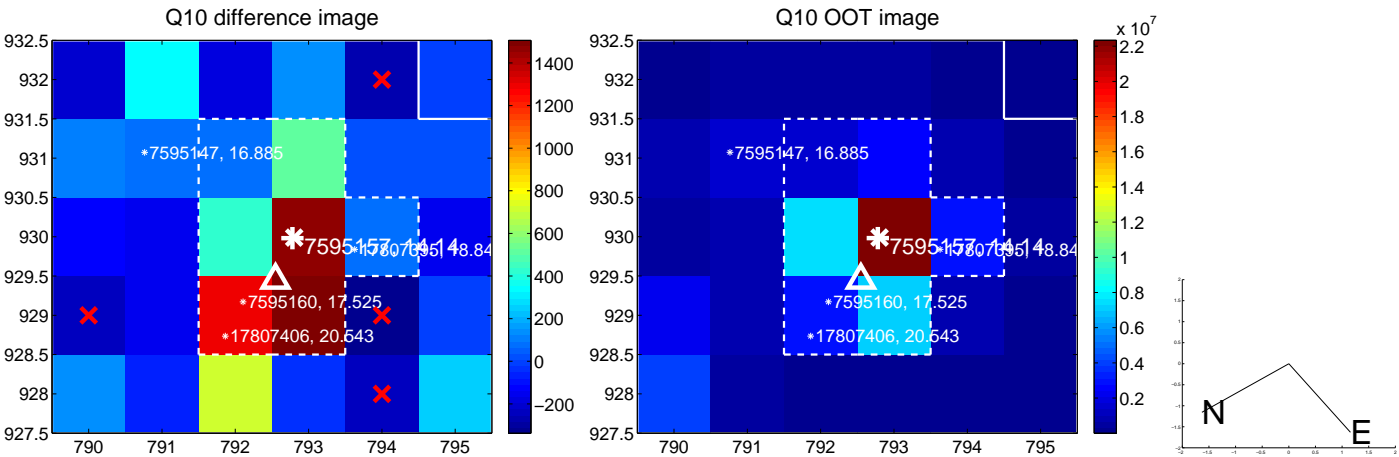
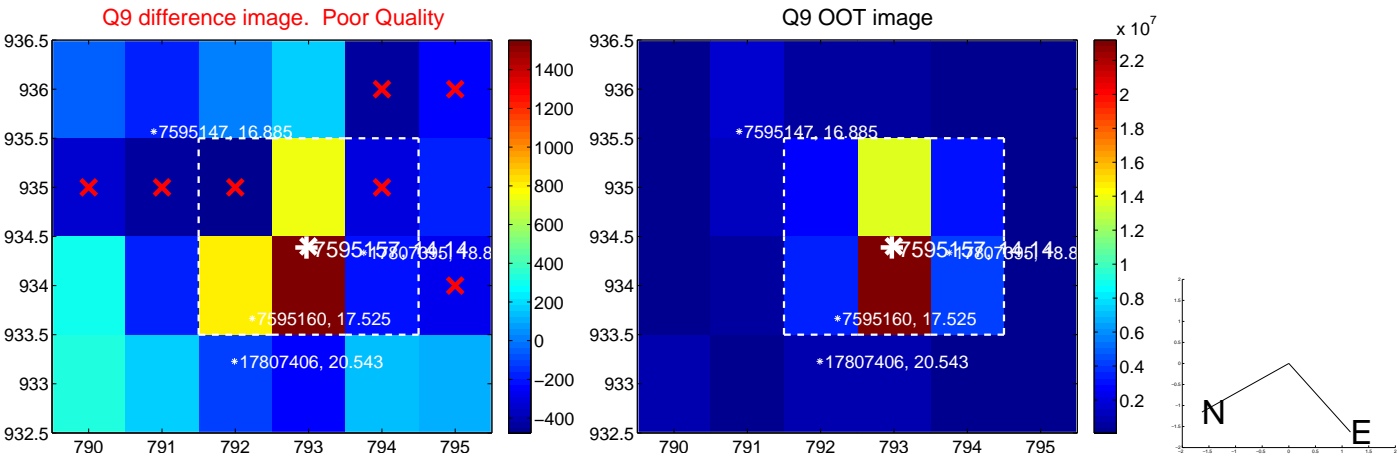
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



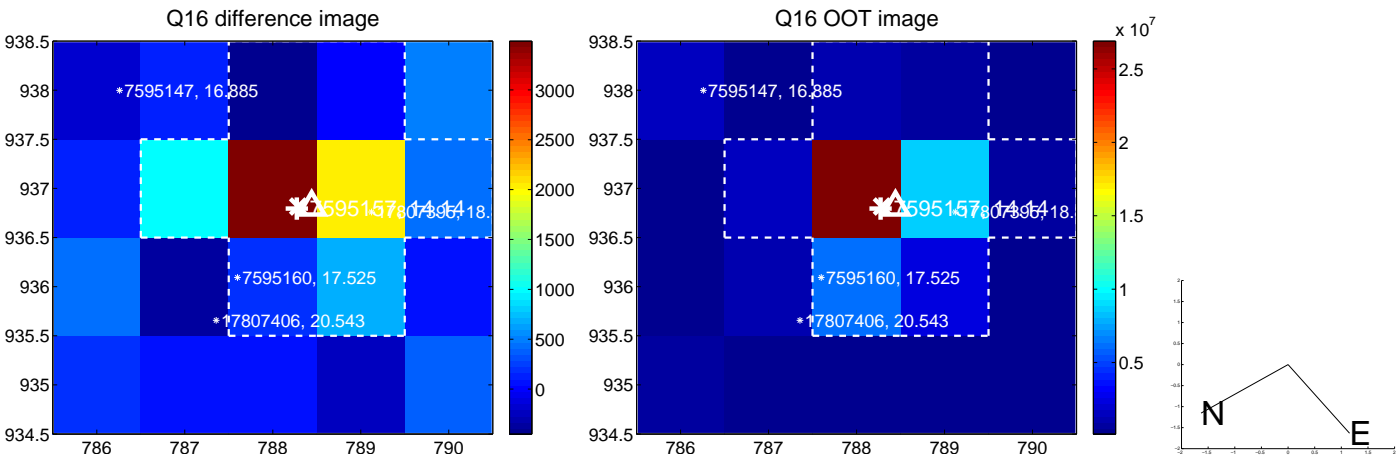
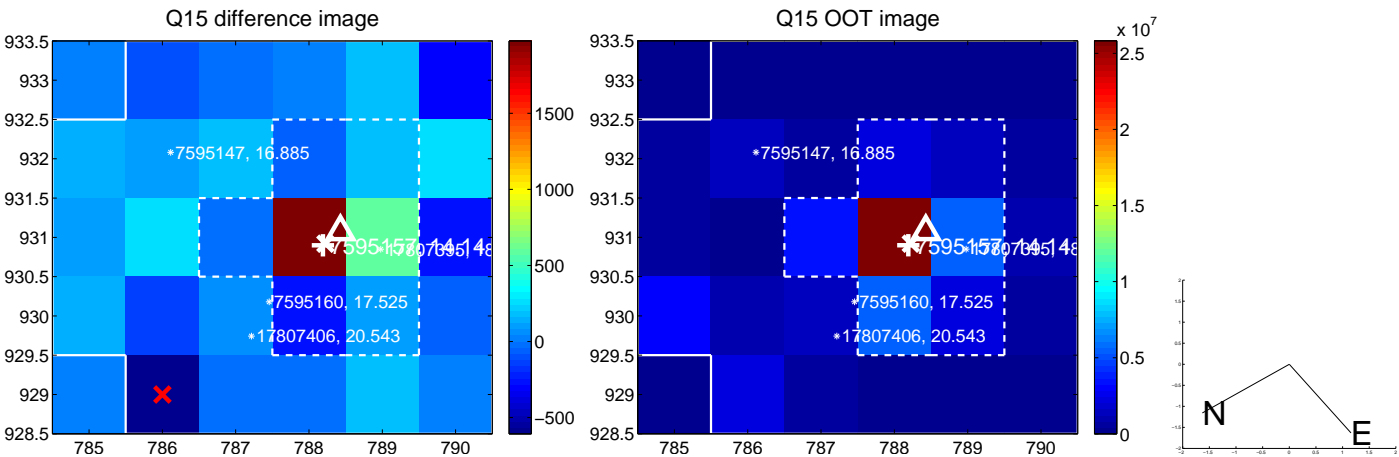
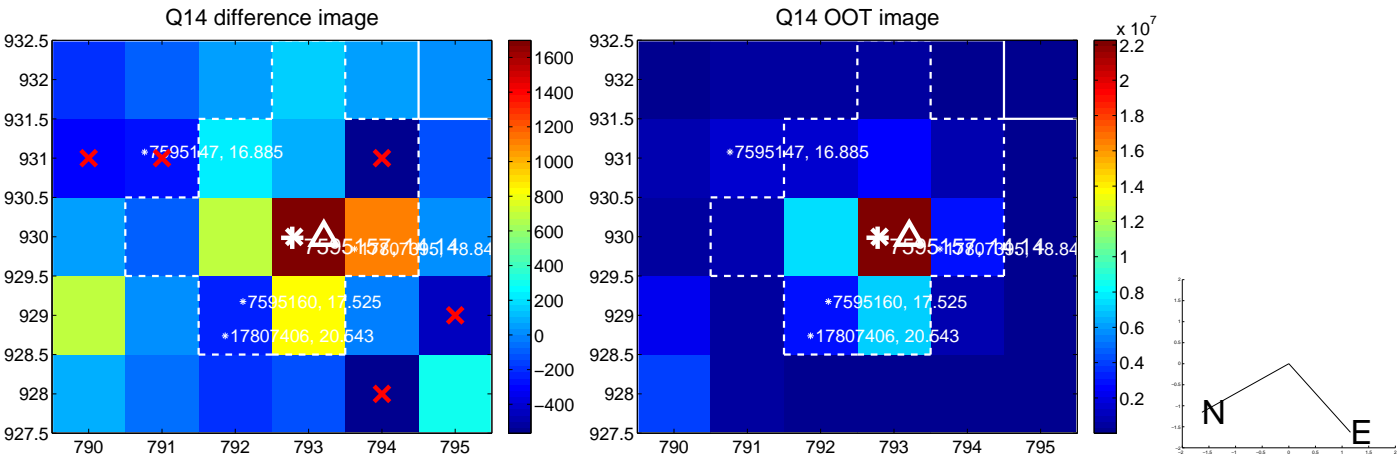
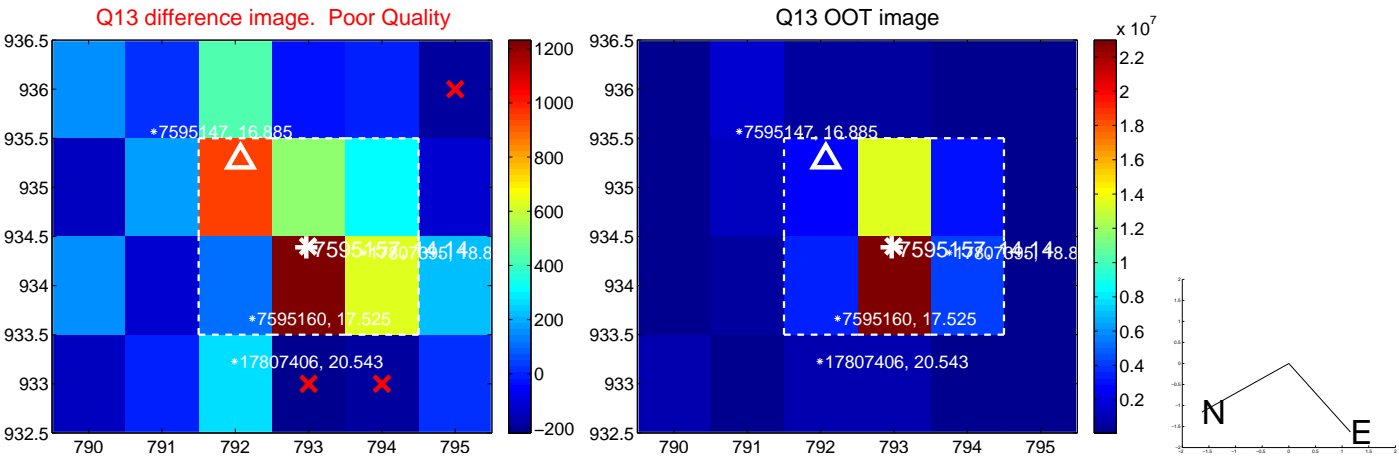
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



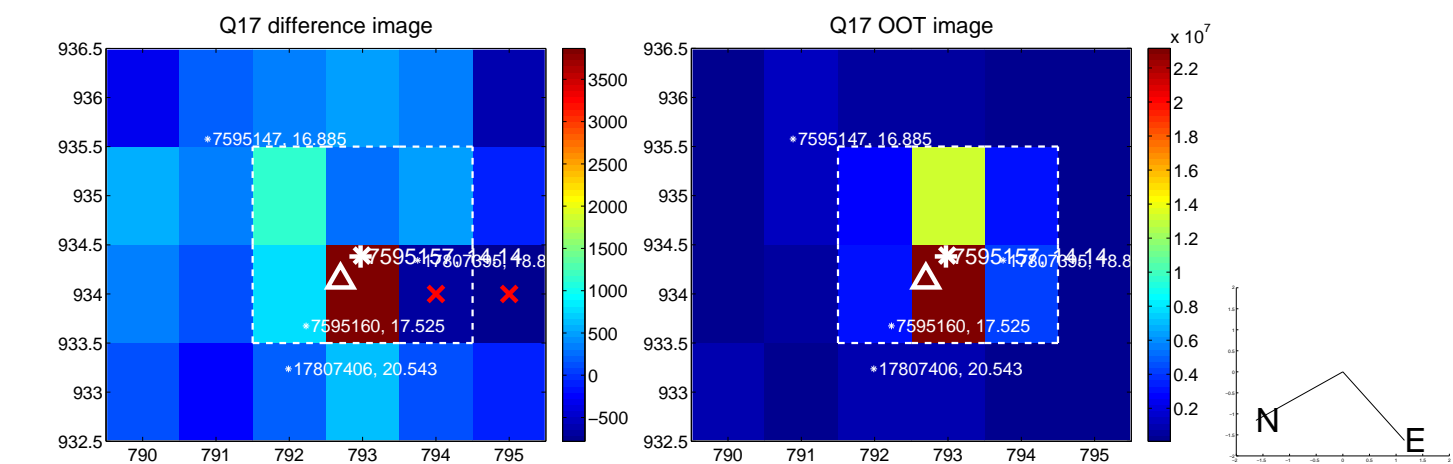
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



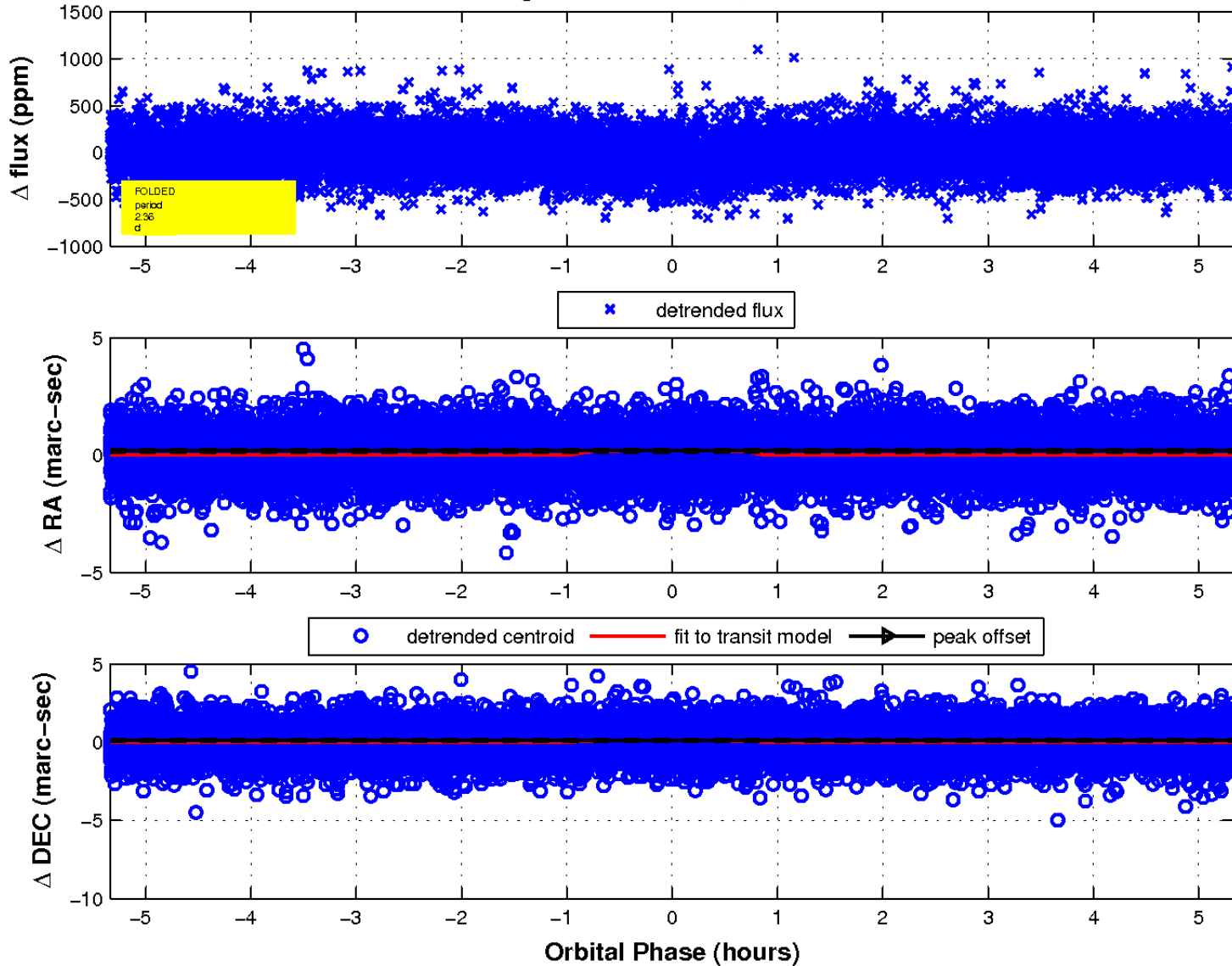
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

