

# KIC 011464245

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011464245-01	OBS	No	0.592543	131.534060	64.4	3.771	9.2	6.2	2.08	7406	1.81	44549.06
011464245-02	OBS	No	43.077072	155.754280	1134.3	8.411	7.9	7.5	2.08	7406	12.94	146.83

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011464245-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
011464245-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—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.

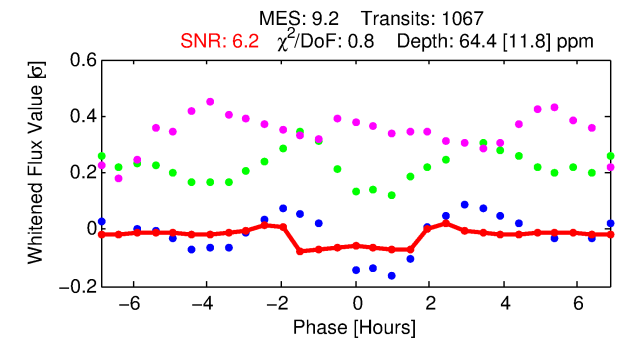
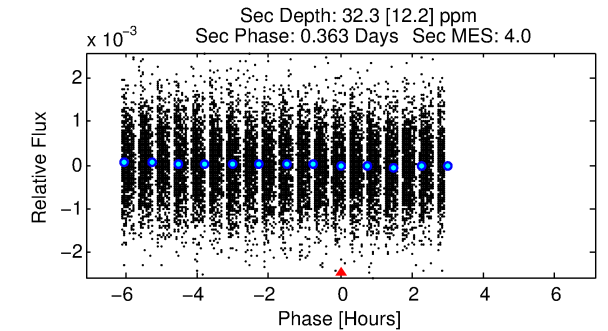
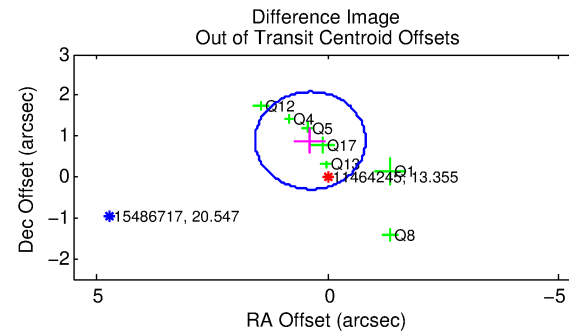
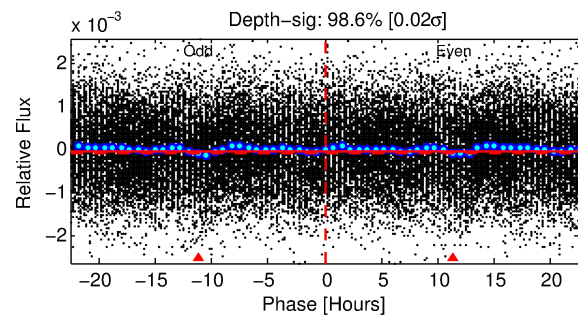
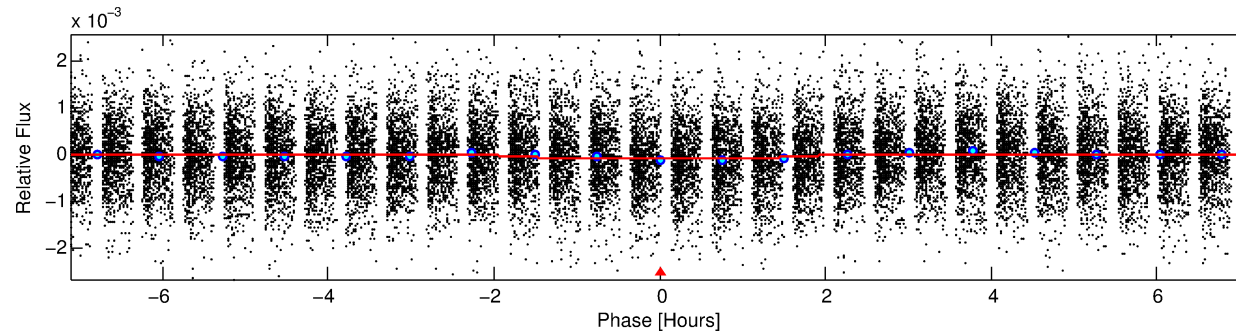
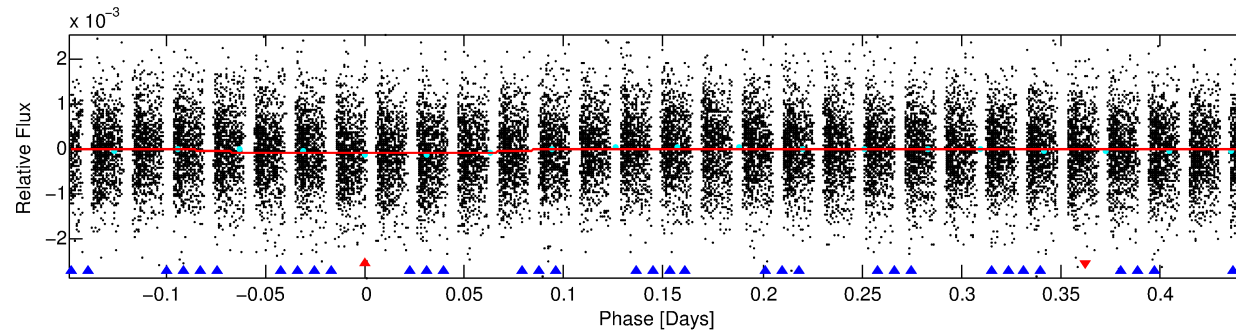
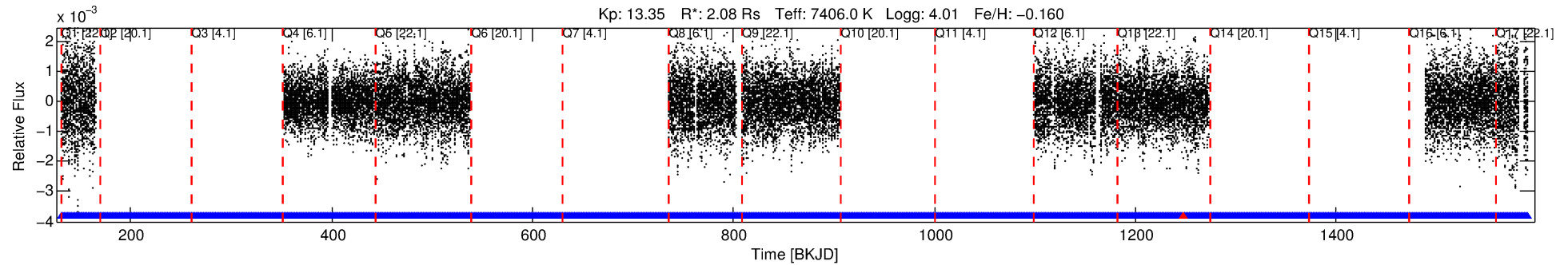
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011464245-01

No Significant Match Found

# DV One-Page Summary

KIC: 11464245 Candidate: 1 of 2 Period: 0.593 d



## DV Fit Results:

Period = 0.59254 [0.00002] d  
Epoch = 131.5341 [0.0033] BKJD  
Rp/R\* = 0.0080 [0.0050]  
a/R\* = 1.18 [1.13]  
b = 0.75 [2.02]  
Seff = 44549.06 [11415.33]  
Teq = 3705 [237] K  
Rp = 1.81 [1.19] Re  
a = 0.0162 [0.0027] AU  
Ag = 1.41 [1.88] [0.22 $\sigma$ ]  
Teffp = 6244 [2044] K [1.23 $\sigma$ ]

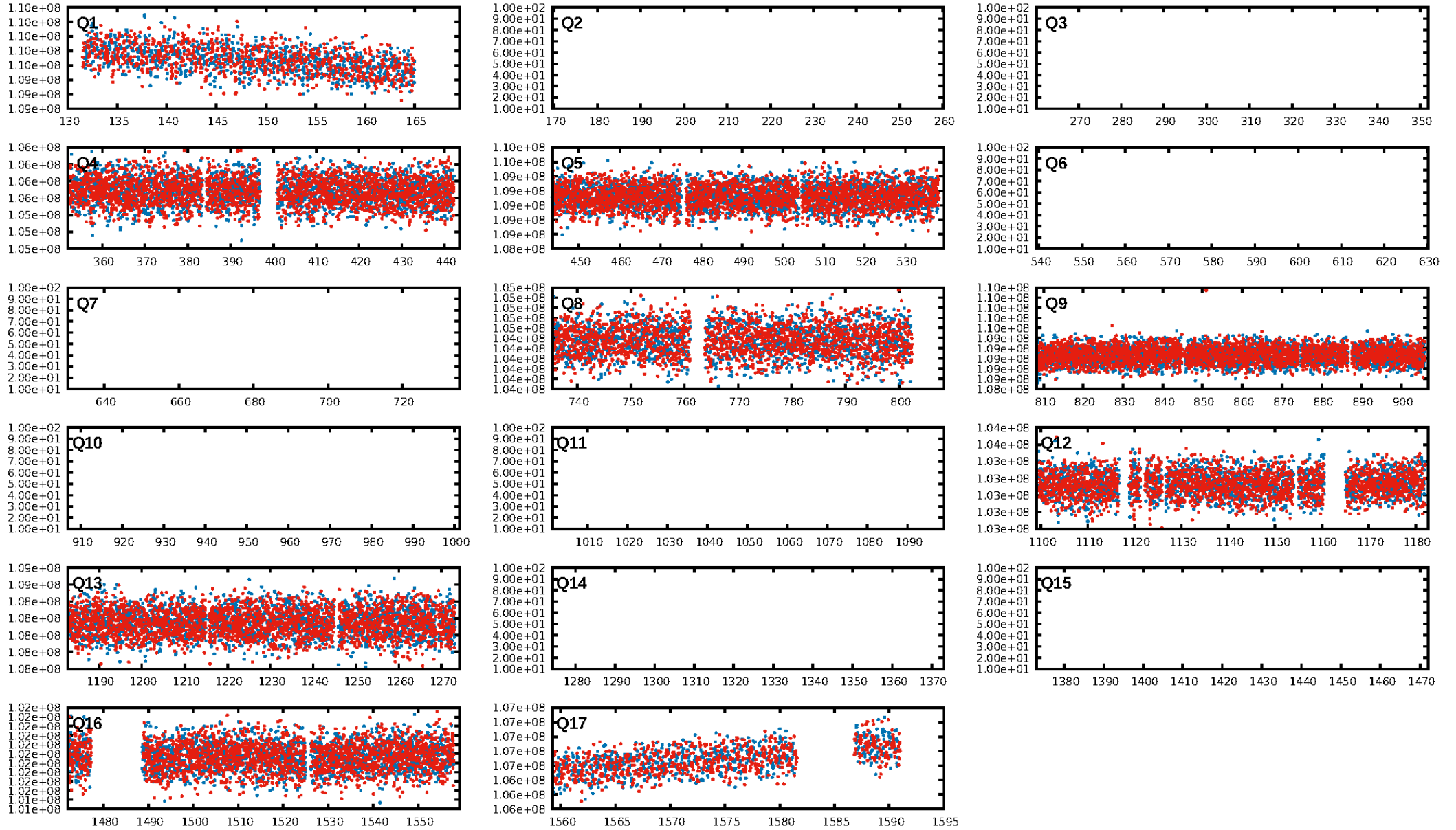
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [110.62 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.70e-10  
RollingBand-fgt: 1.00 [963/964]  
GhostDiagnostic-chr: 1.559  
Centroid-sig: 0.0%  
Centroid-so: 0.898 arcsec [2.39 $\sigma$ ]  
OotOffset-rm: 0.965 arcsec [2.43 $\sigma$ ]  
KicOffset-rm: 1.138 arcsec [2.34 $\sigma$ ]  
OotOffset-st: 0/0/3/4 [7]  
KicOffset-st: 0/0/3/4 [7]  
DiffImageQuality-fgm: 0.86 [6/7]  
DiffImageOverlap-fno: 1.00 [9/9]

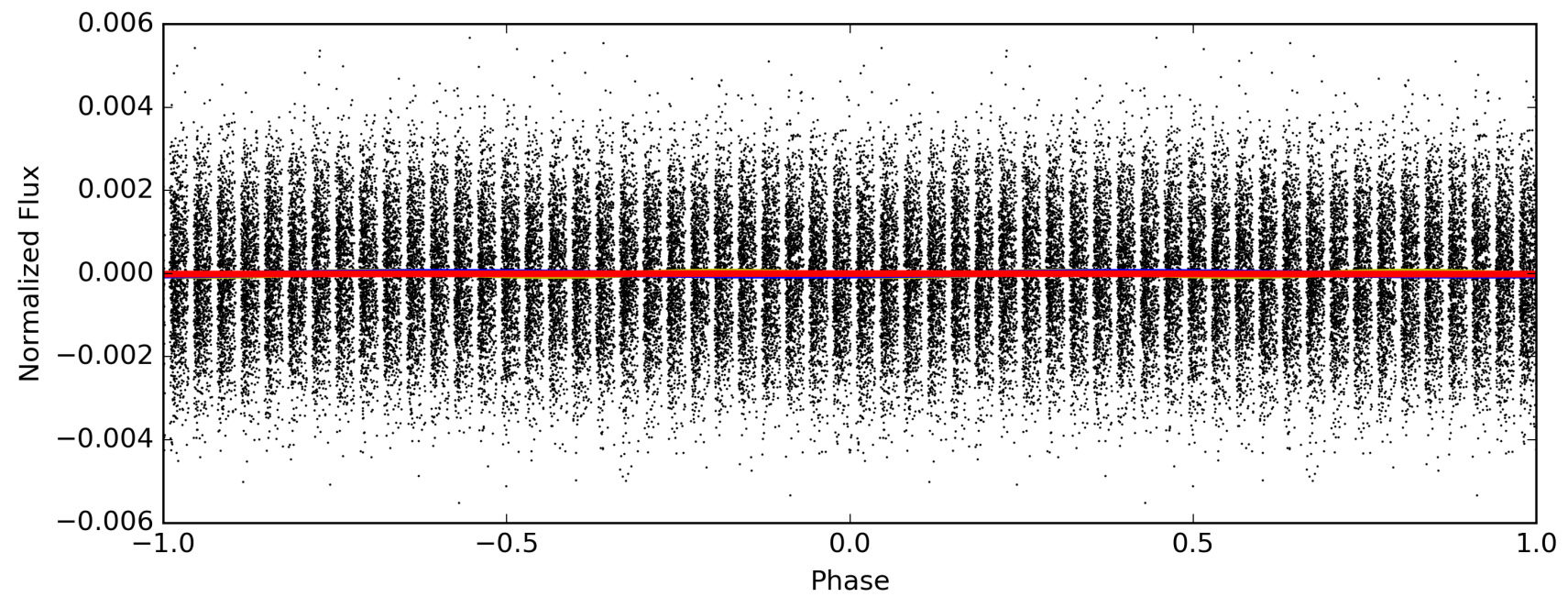
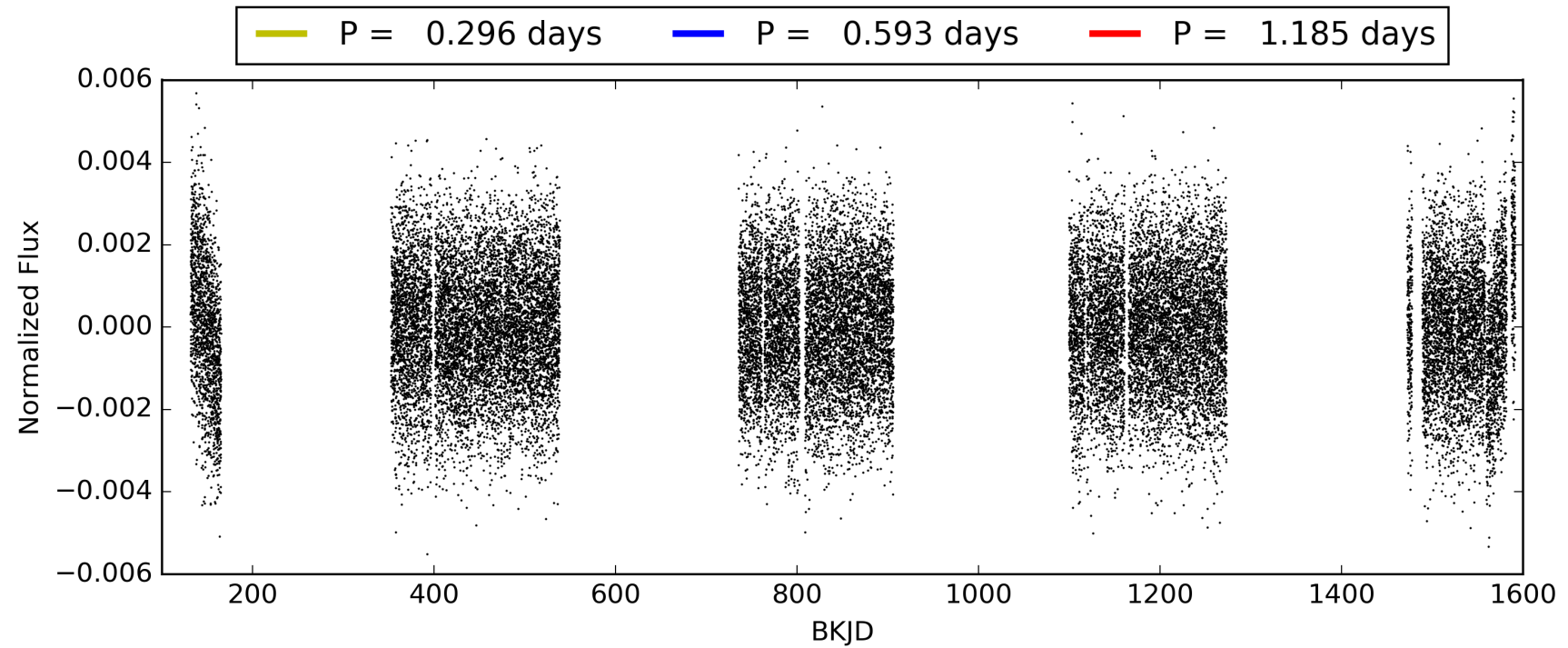
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011464245-01, PDC Light Curves

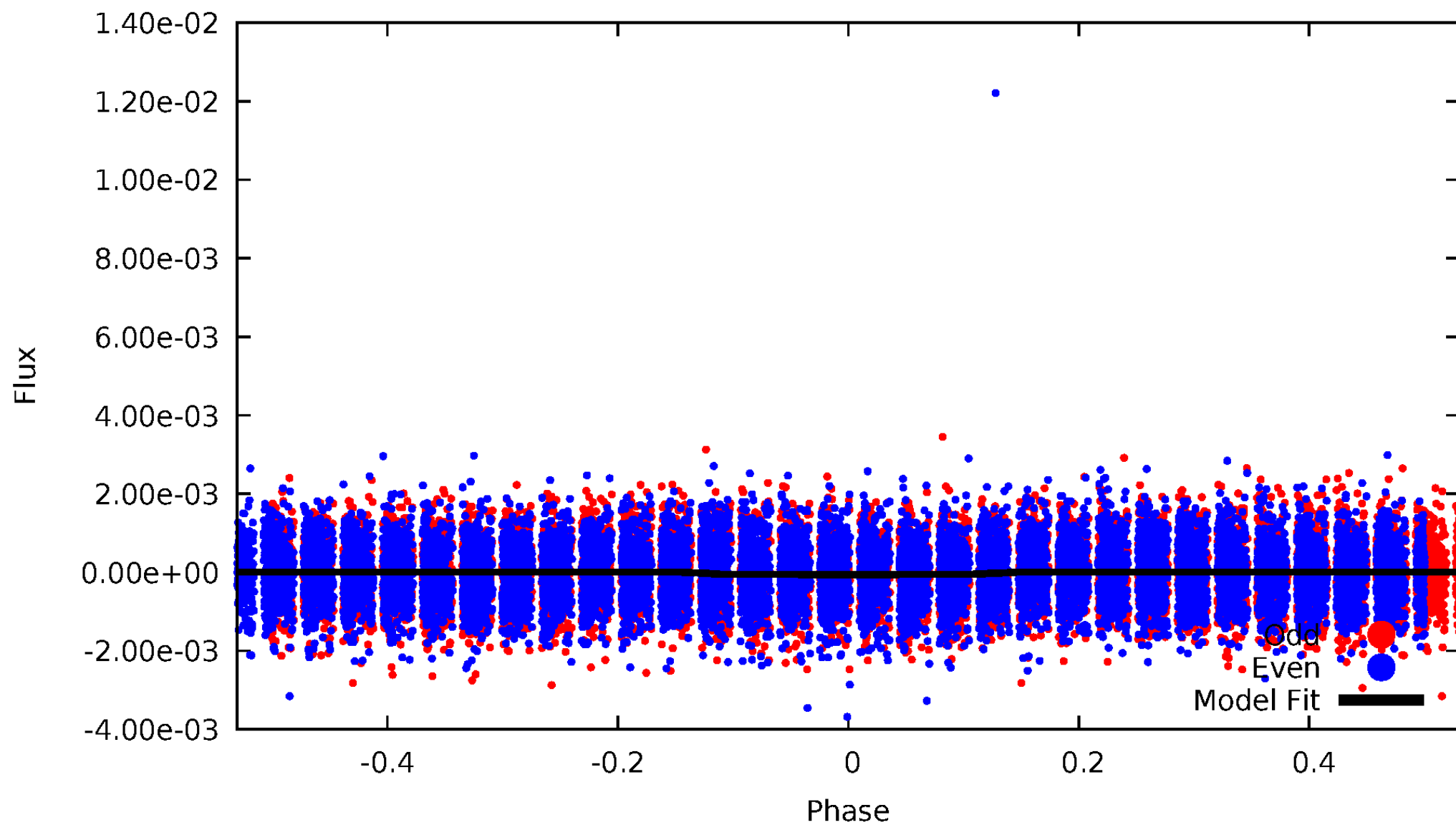


TCE 011464245-01



# DV Odd/Even

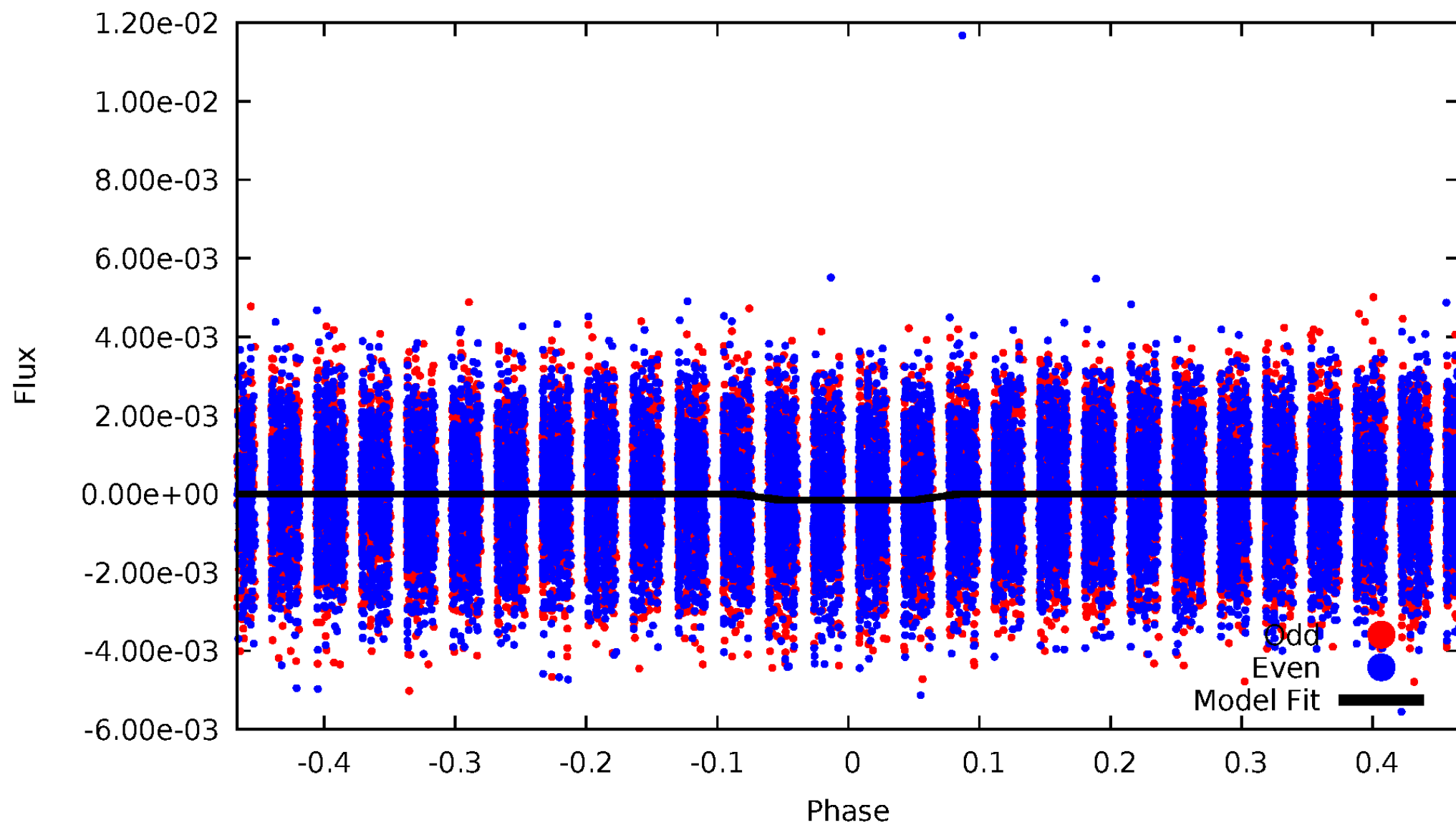
TCE 011464245-01



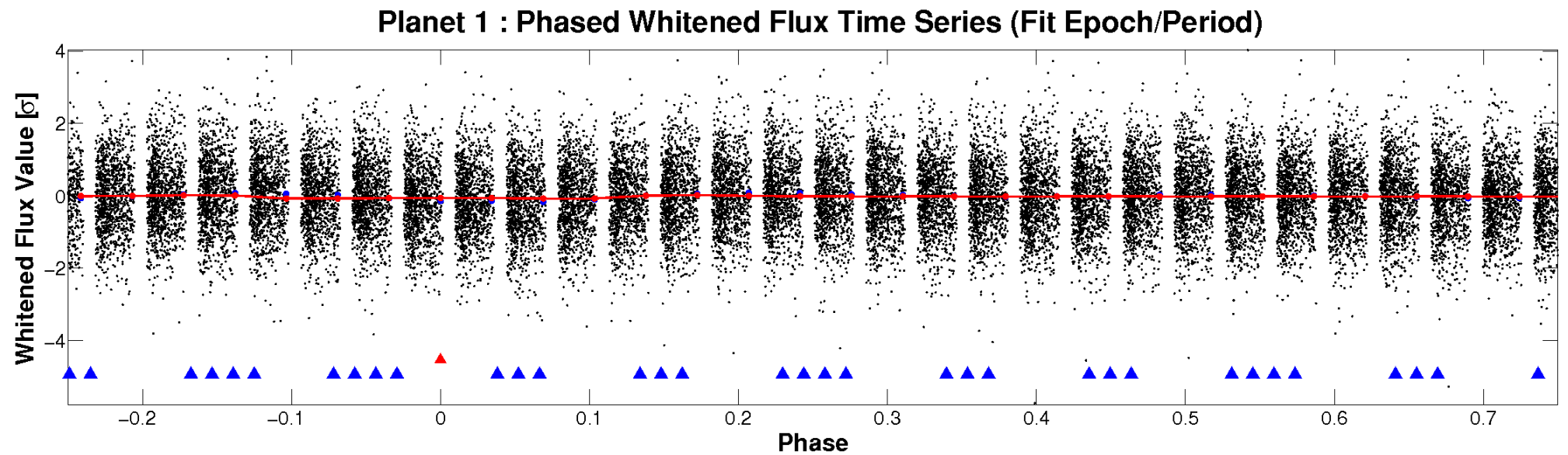
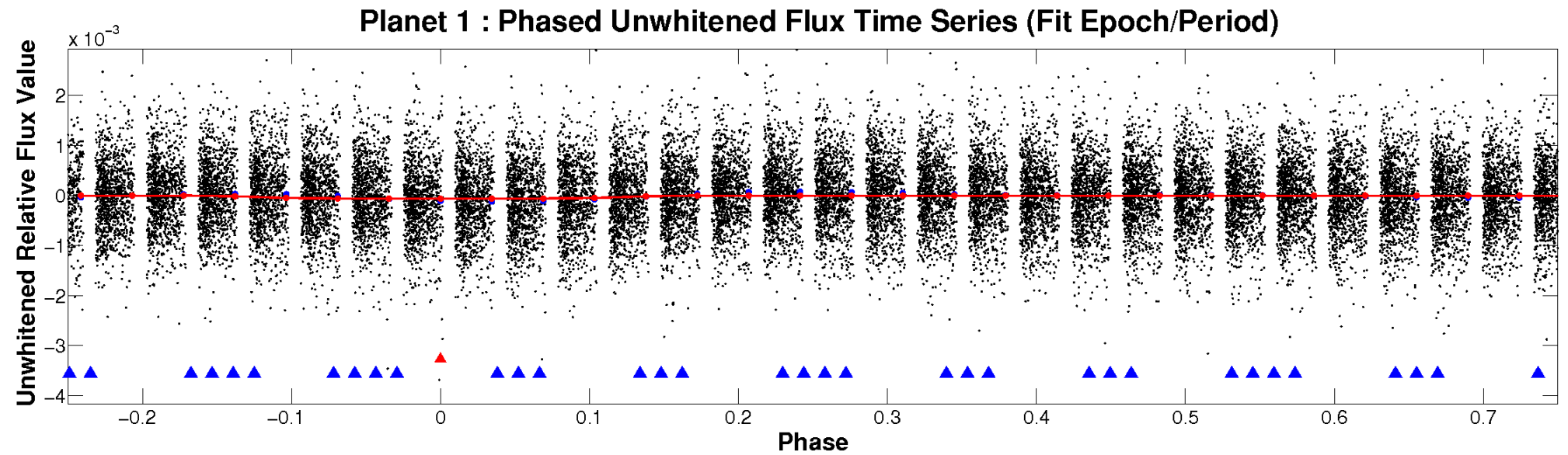


# ALT Odd/Even

TCE 011464245-01

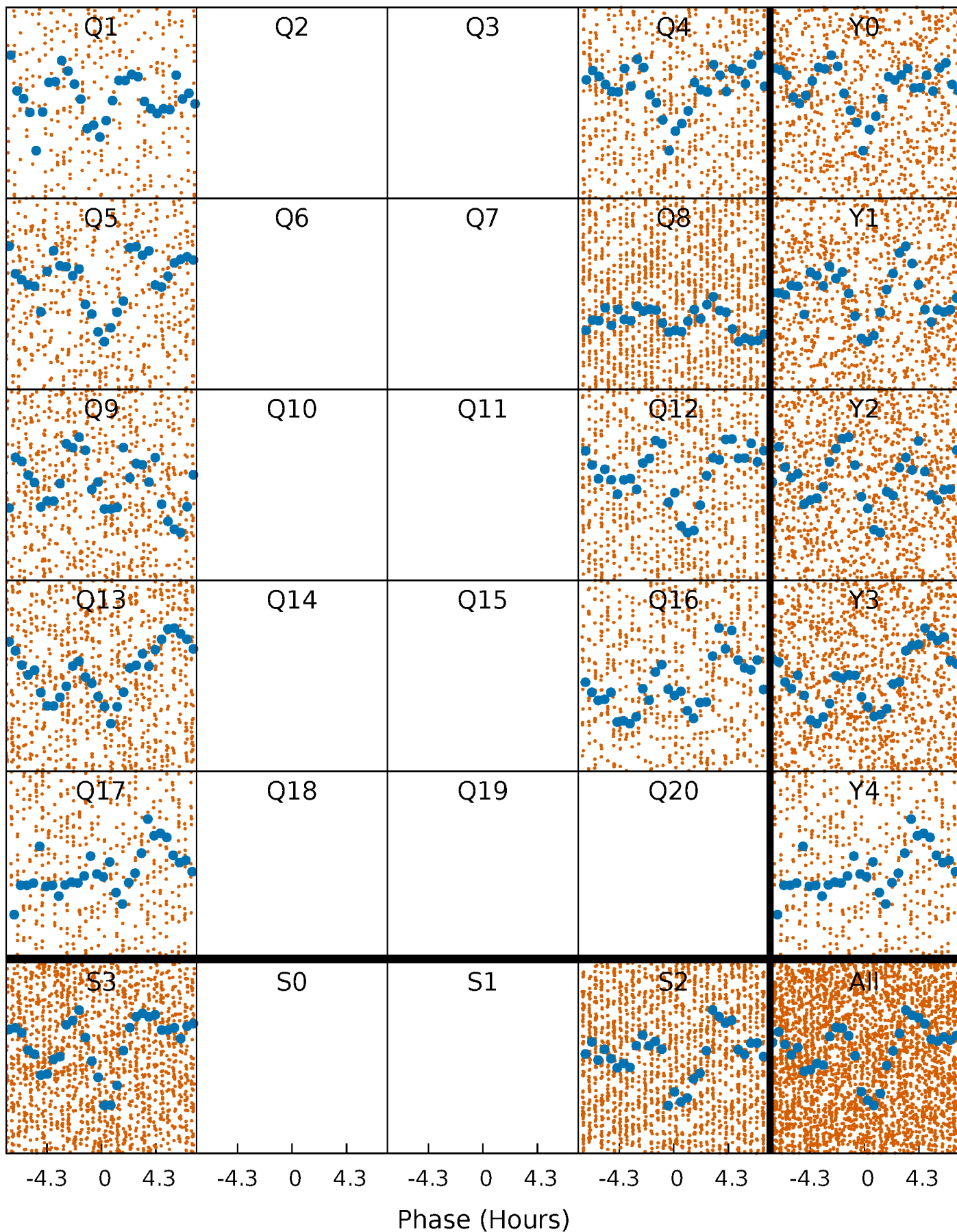


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

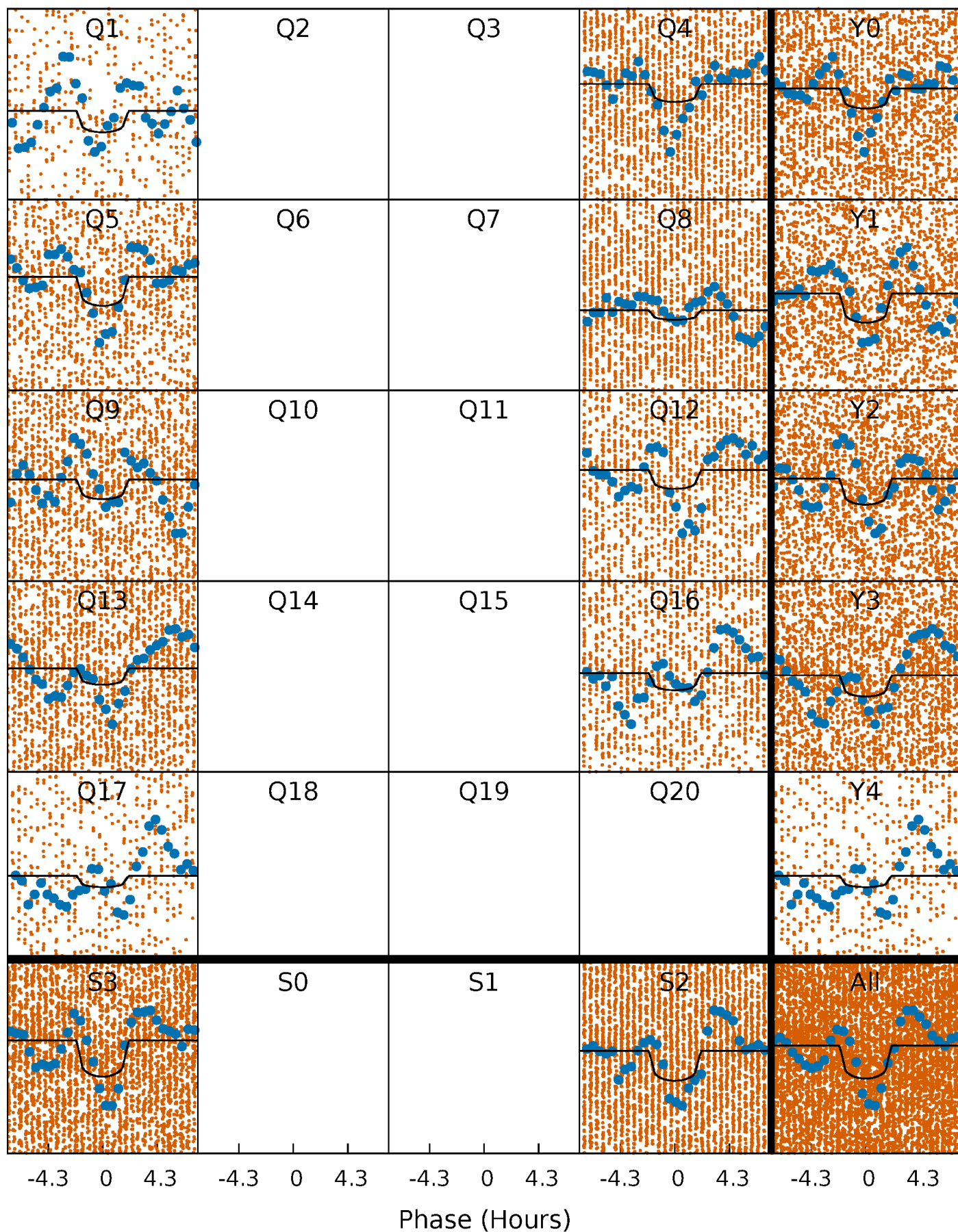
TCE 011464245-01 P= 0.592543 Days  $T_0=131.534060$  (BKJD)





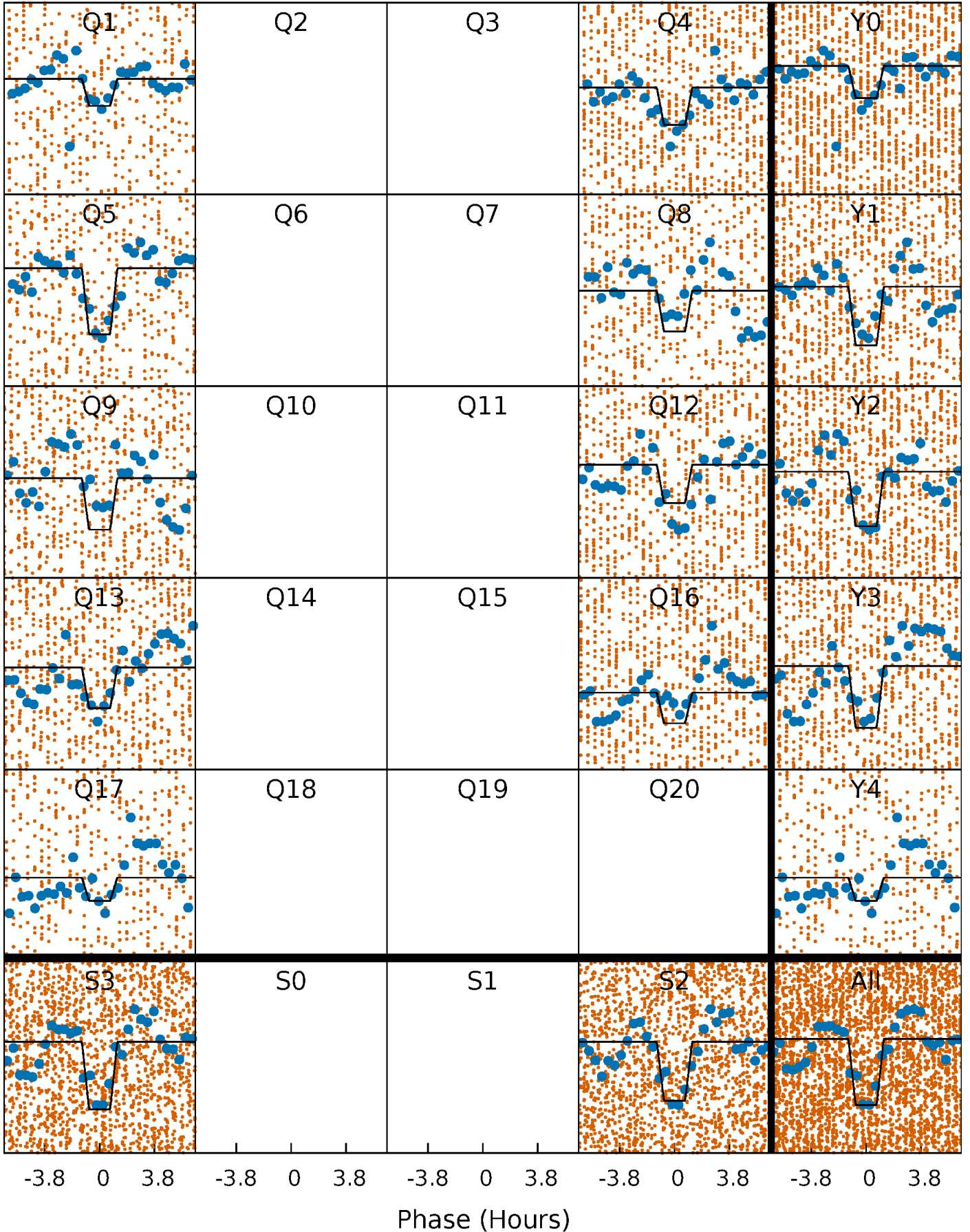
# DV Quarter-Phased Transit Curves

TCE 011464245-01 P= 0.592543 Days  $T_0=131.534060$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

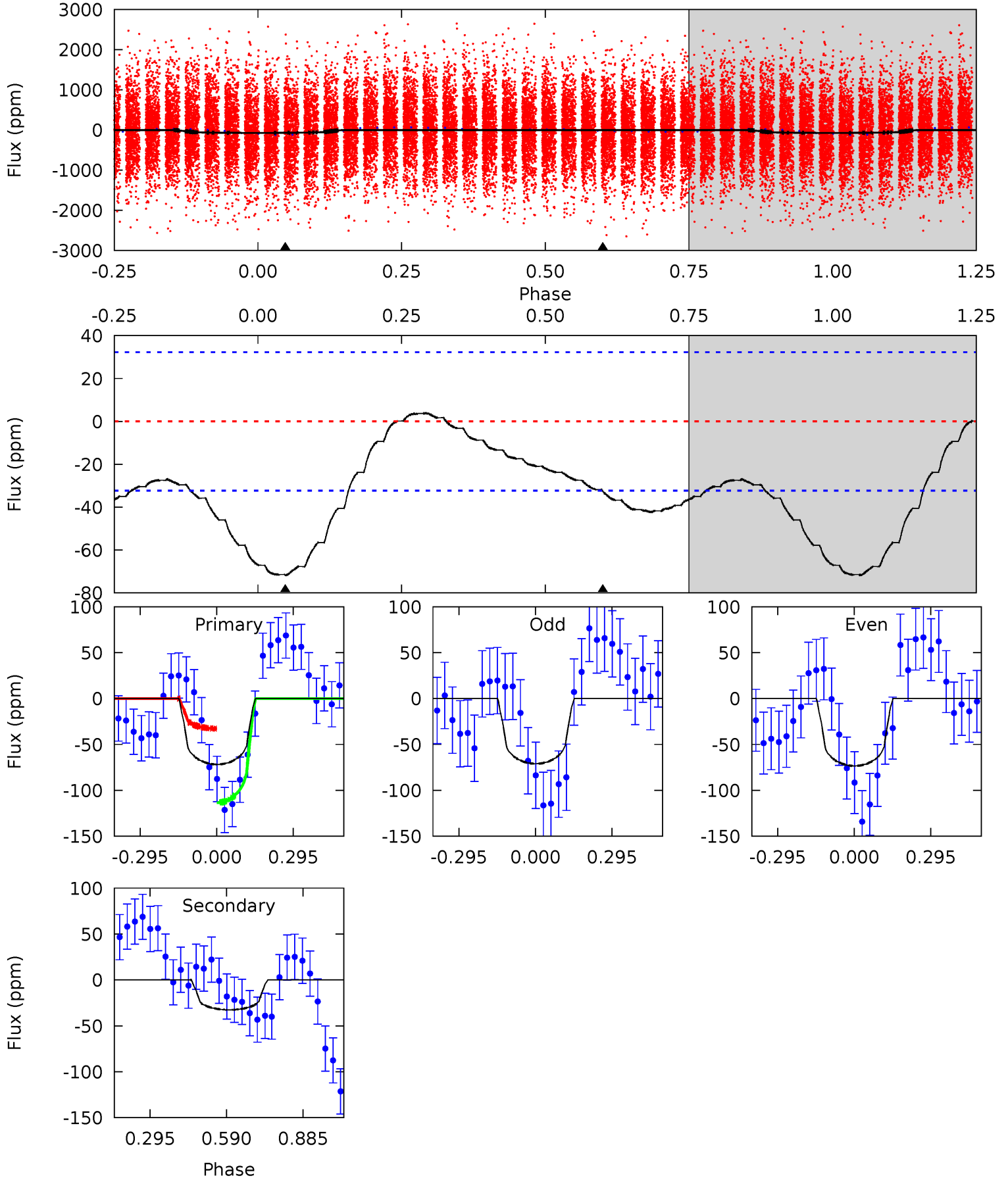
TCE 011464245-01   P= 0.592569 Days    $T_0=131.527674$  (BKJD)



# DV Model-Shift Uniqueness Test

011464245-01, P = 0.592543 Days, E = 130.941517 Days

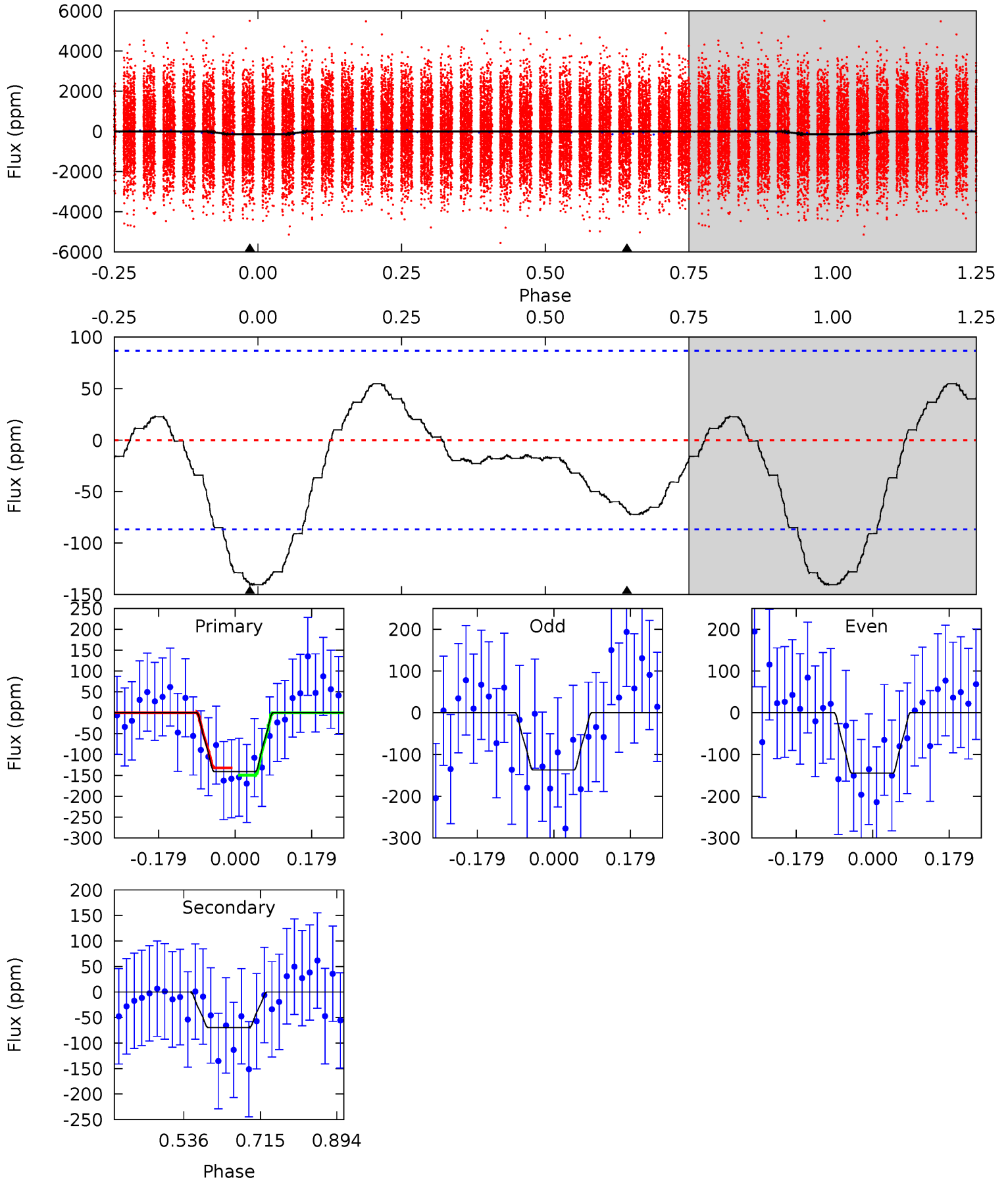
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.64	4.37	0	0	4.33	1.05	0.52	9.64	9.64	4.37	4.37	0.16	1.07	0.05	5.47



# Alt Model-Shift Uniqueness Test

011464245-01, P = 0.592569 Days, E = 130.935105 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.22	3.56	0	0	4.44	1.34	1.41	7.22	7.22	3.56	3.56	0.20	1.08	0.28	0.44



### Stellar Parameters For KIC 011464245

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7406^{+81}_{-81}$	$4.008^{+0.143}_{-0.117}$	$-0.160^{+0.150}_{-0.150}$	$2.079^{+0.389}_{-0.389}$	$1.604^{+0.148}_{-0.148}$	$0.251^{+0.182}_{-0.091}$
	+1%/-1%	+4%/-3%	+94%/-94%	+19%/-19%	+9%/-9%	+73%/-36%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 011464245-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-33 \pm 7$	$1.89^{+1.13}_{-1.07}$	$5173^{+251}_{-255}$	$5606^{+4315}_{-1587}$	$1.257^{+5.941}_{-0.781}$
Alt.	$-70 \pm 20$	$2.89^{+1.17}_{-1.18}$	$5163^{+233}_{-256}$	$5461^{+2116}_{-1223}$	$1.178^{+2.171}_{-0.634}$

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



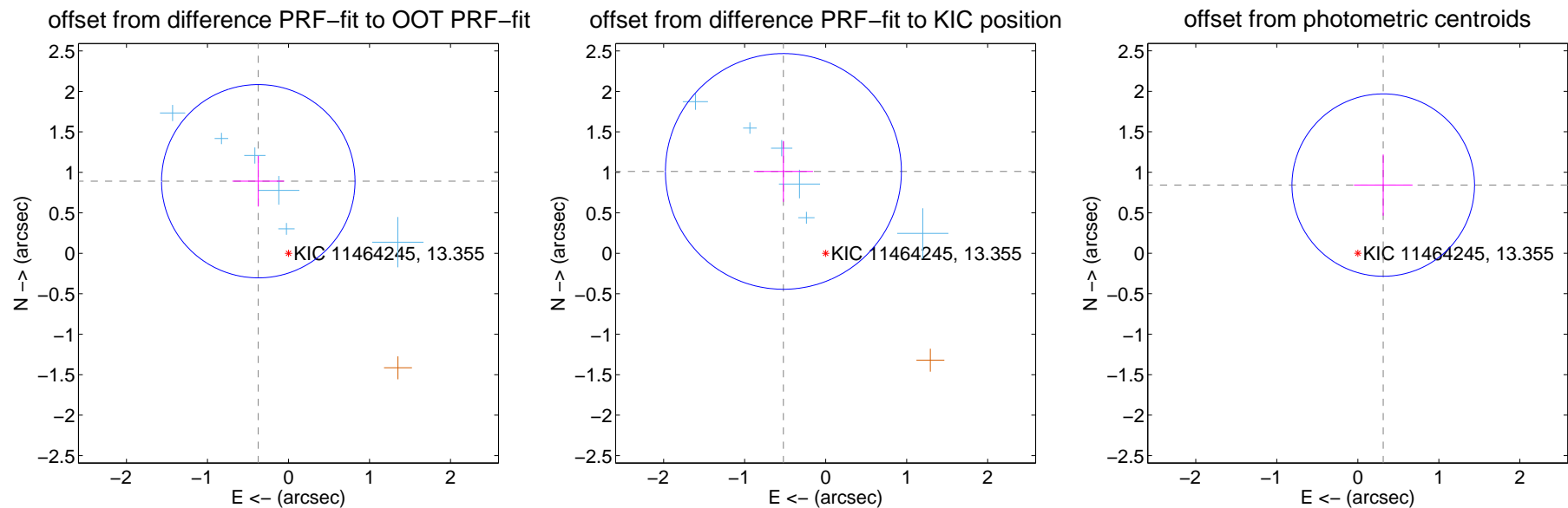
## DV Centroid Data

Supplemental centroid analysis for 011464245-01. Kepler magnitude: 13.36. Transit SNR 6.19

There are 6 quarters with good PRF difference image offsets

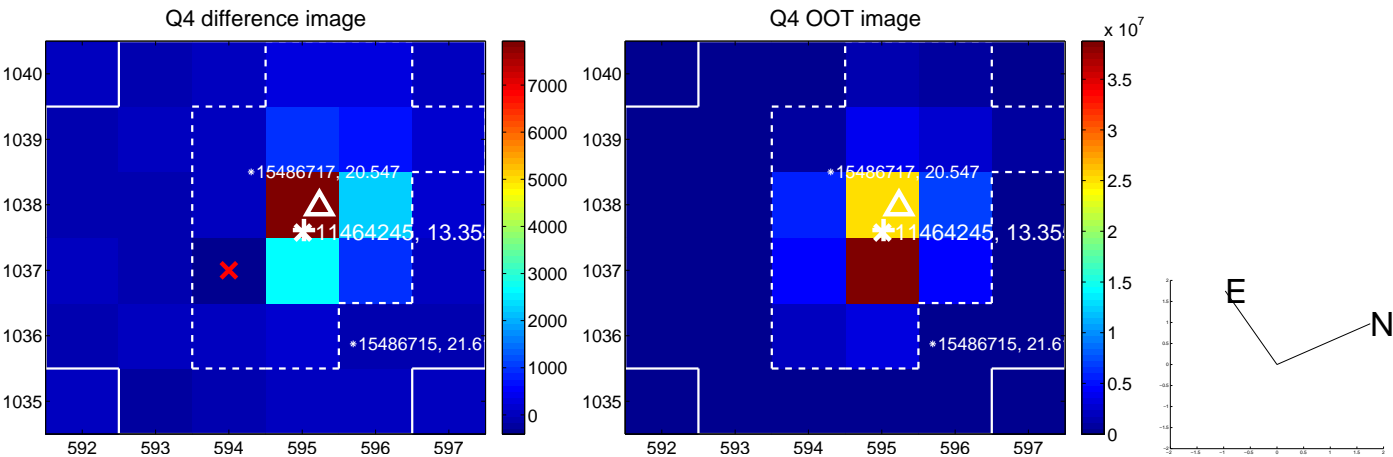
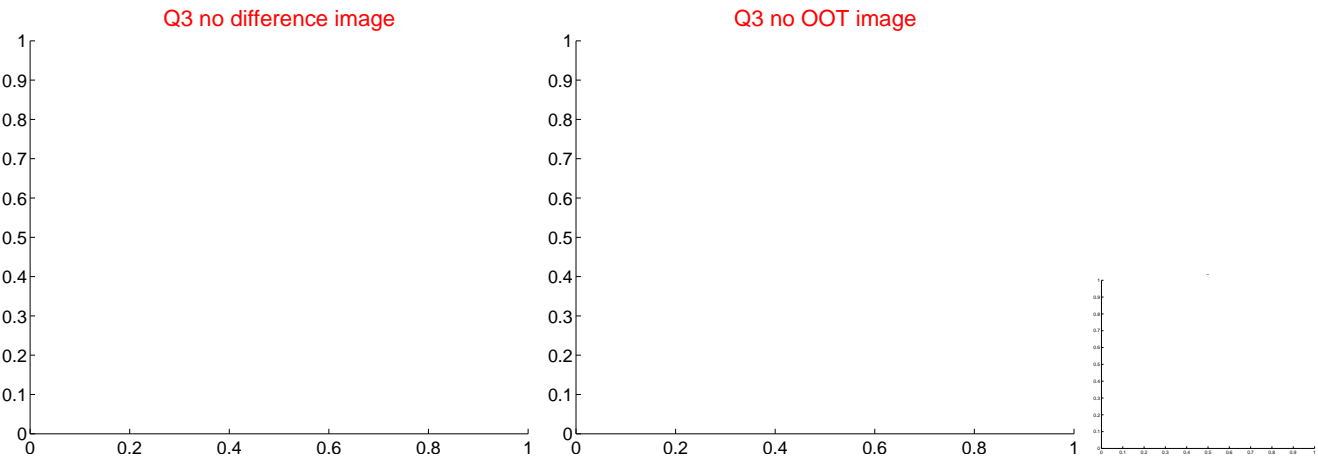
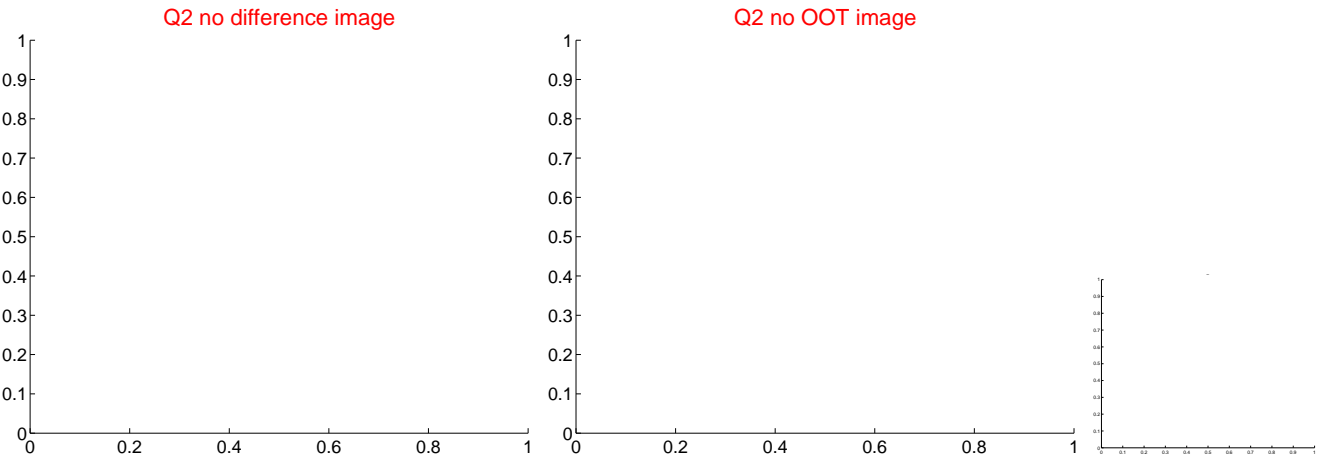
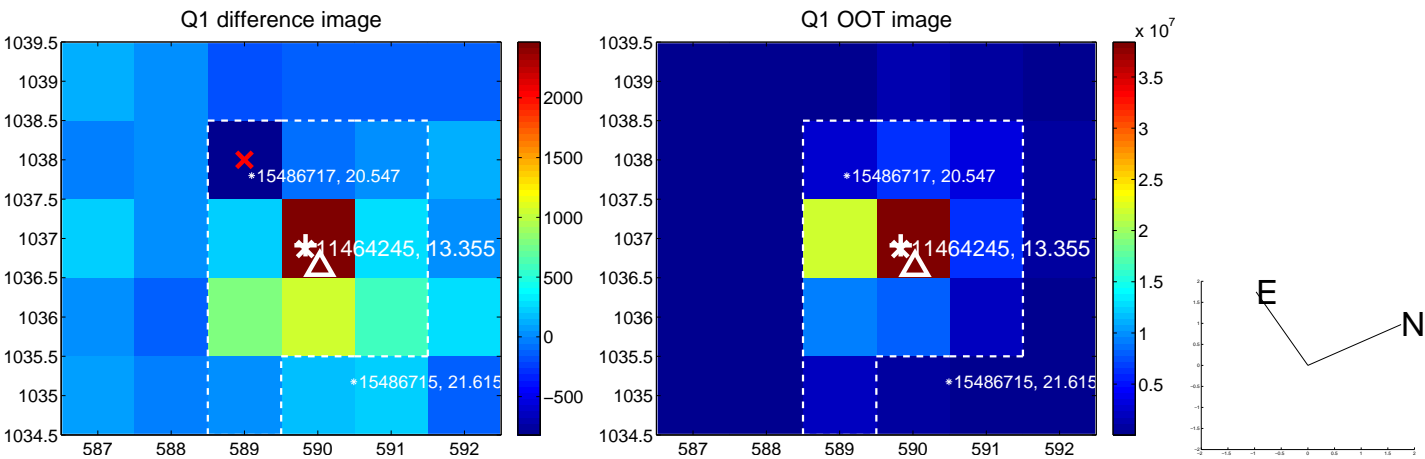
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.965 \pm 0.398$	2.43	$0.373 \pm 0.319$	$0.890 \pm 0.313$
PRF-fit source offset from KIC position	$1.138 \pm 0.485$	2.34	$0.521 \pm 0.365$	$1.011 \pm 0.376$
photometric centroid source offset	$0.90 \pm 0.38$	2.39	$-0.31 \pm 0.36$	$0.84 \pm 0.38$

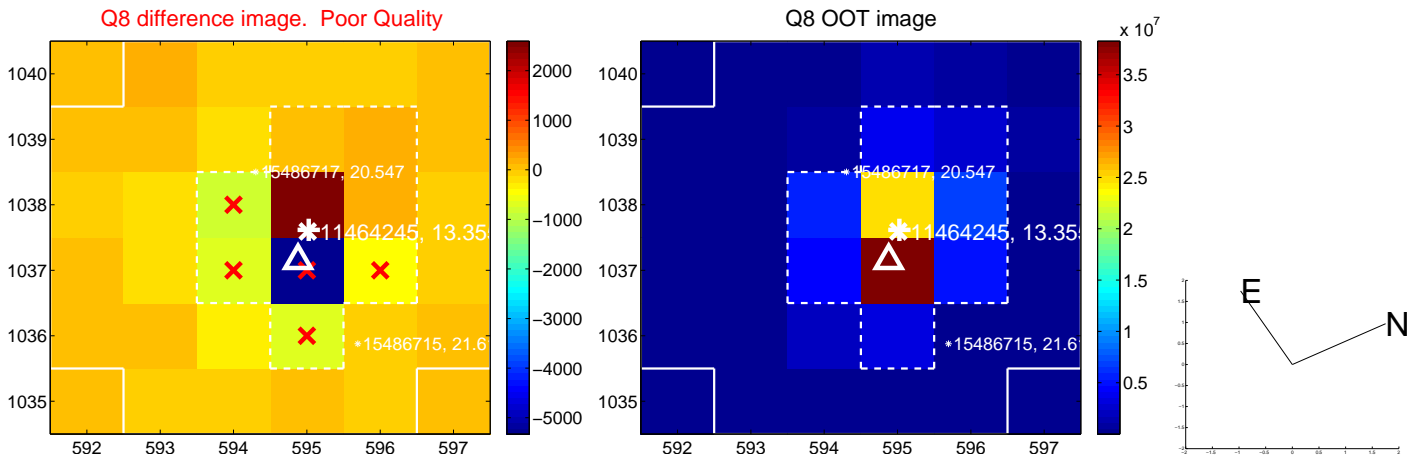
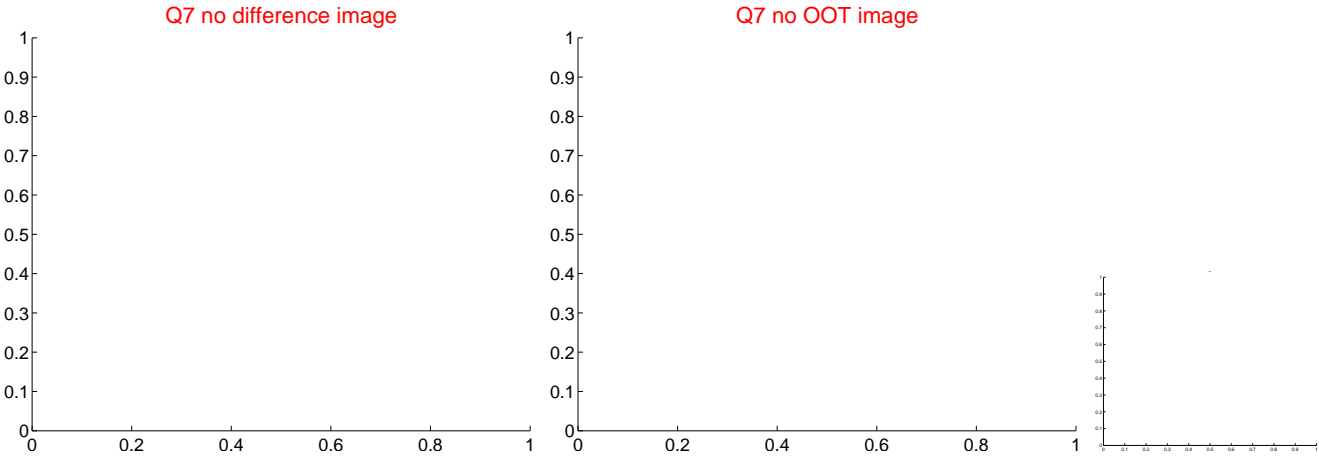
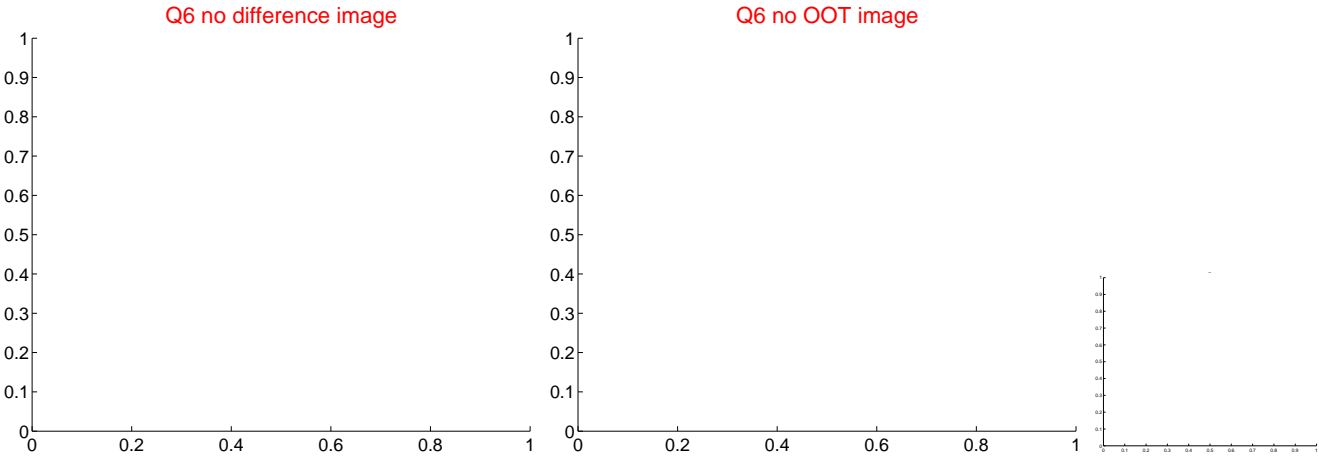
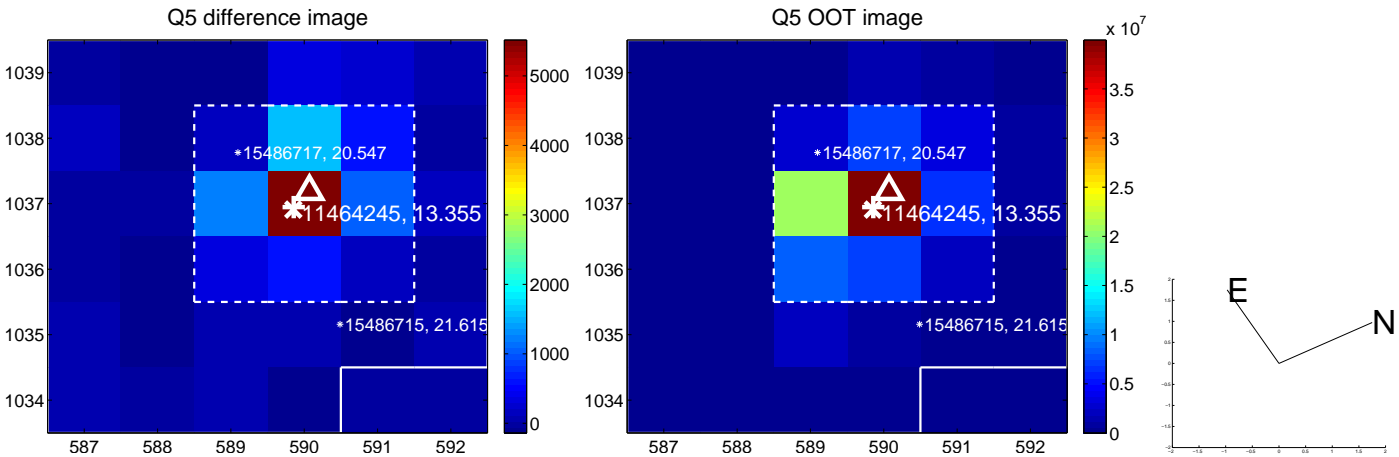


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

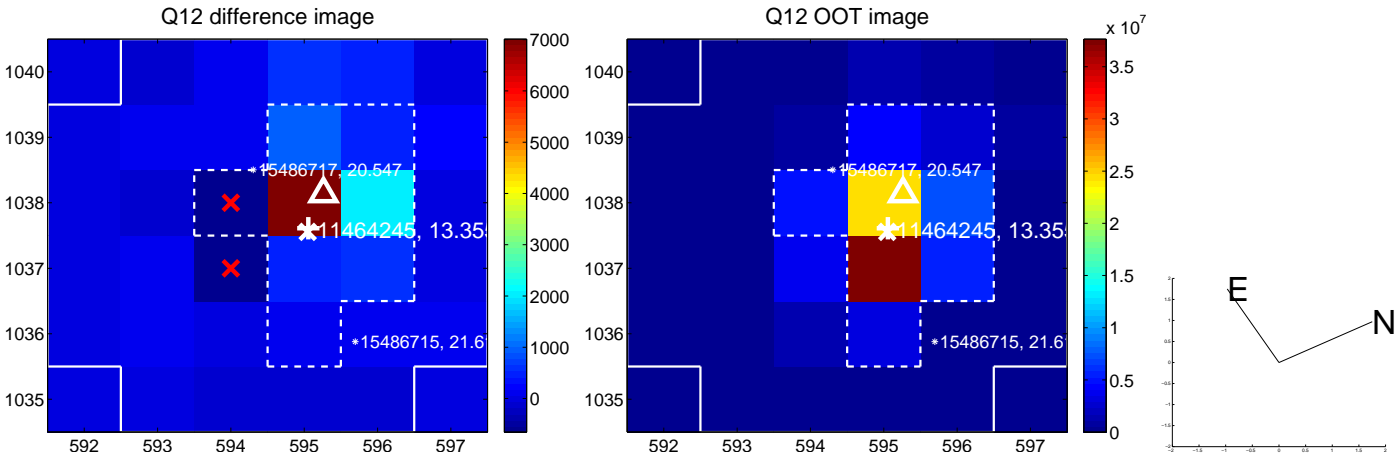
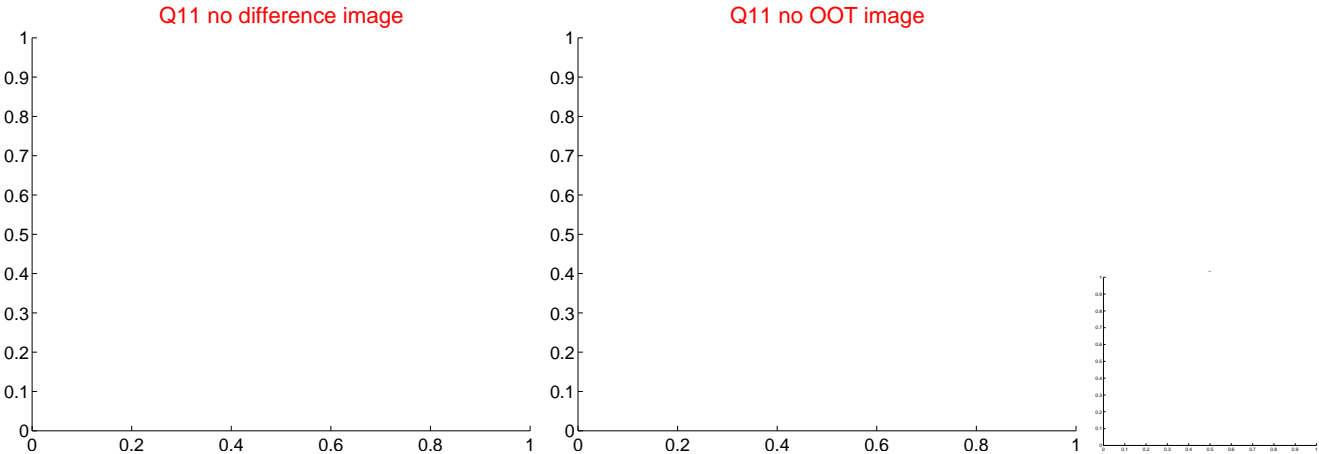
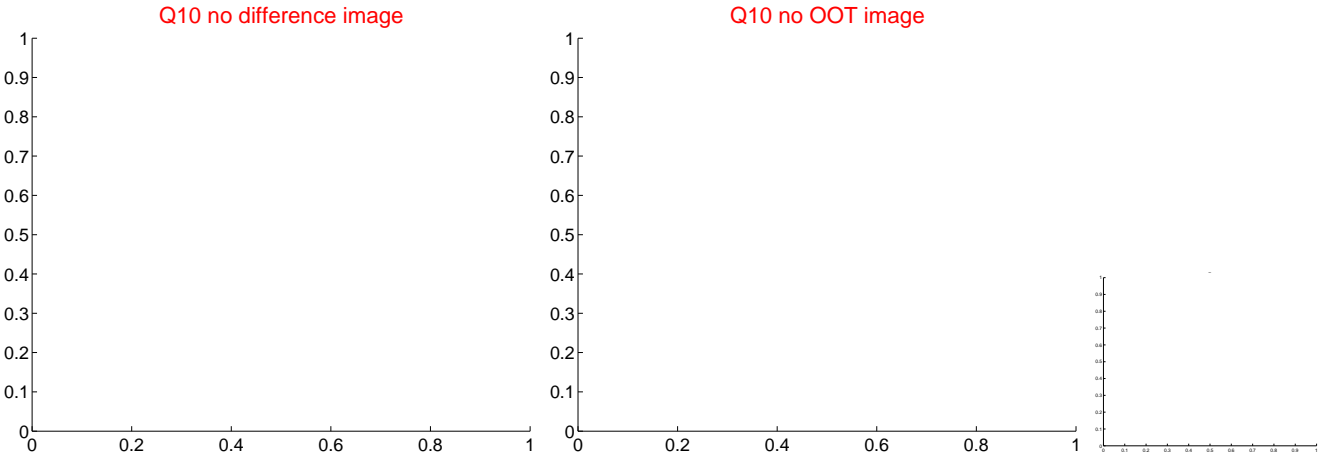
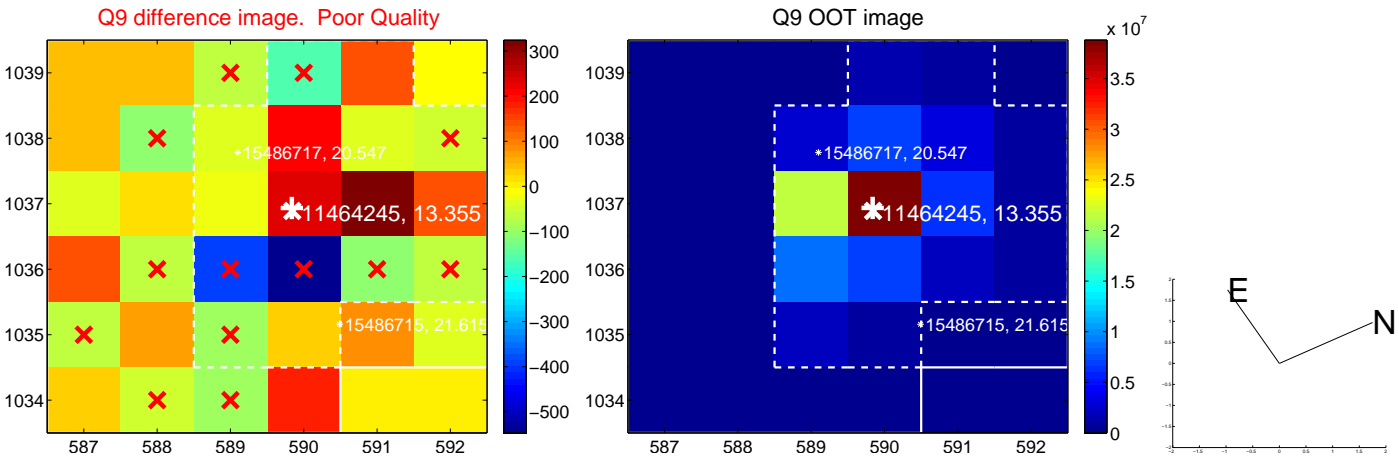
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



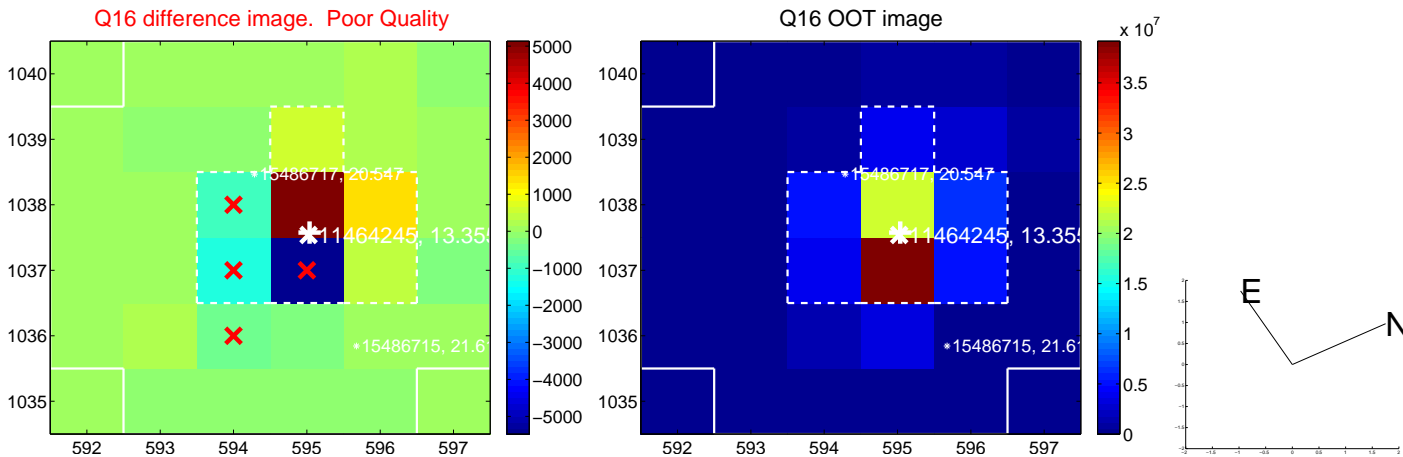
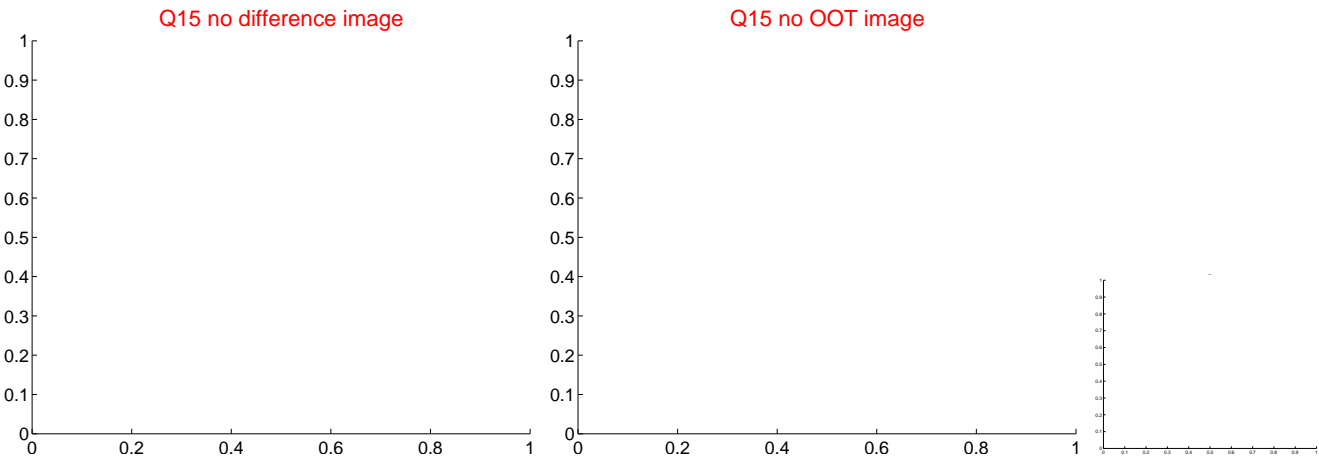
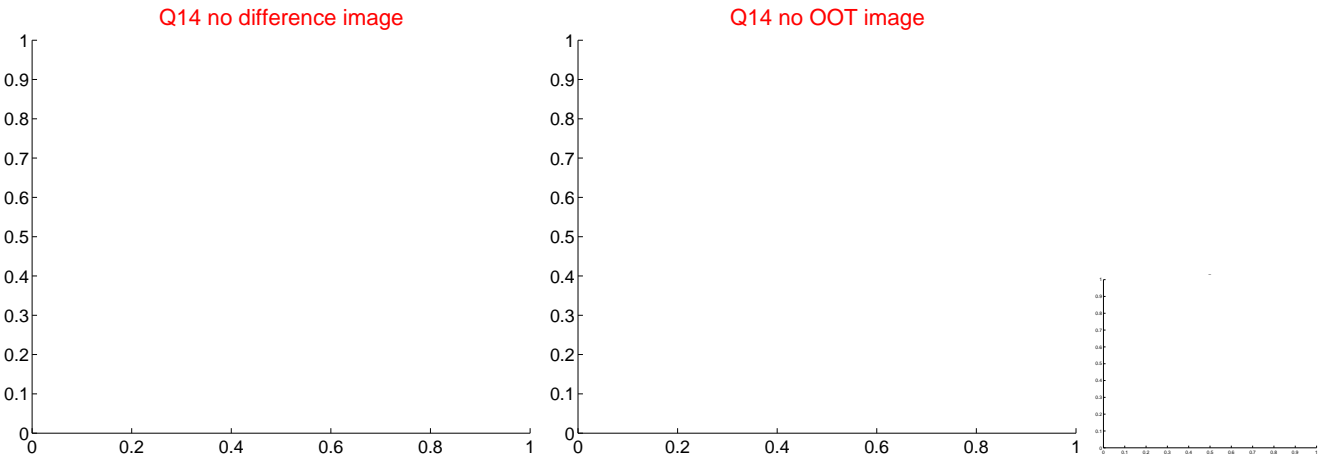
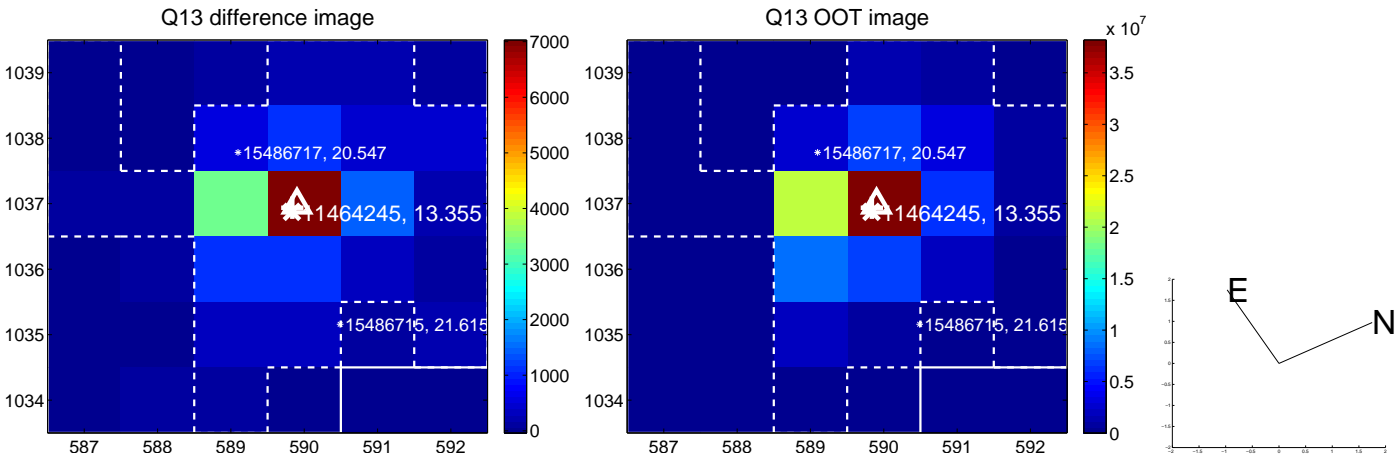
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

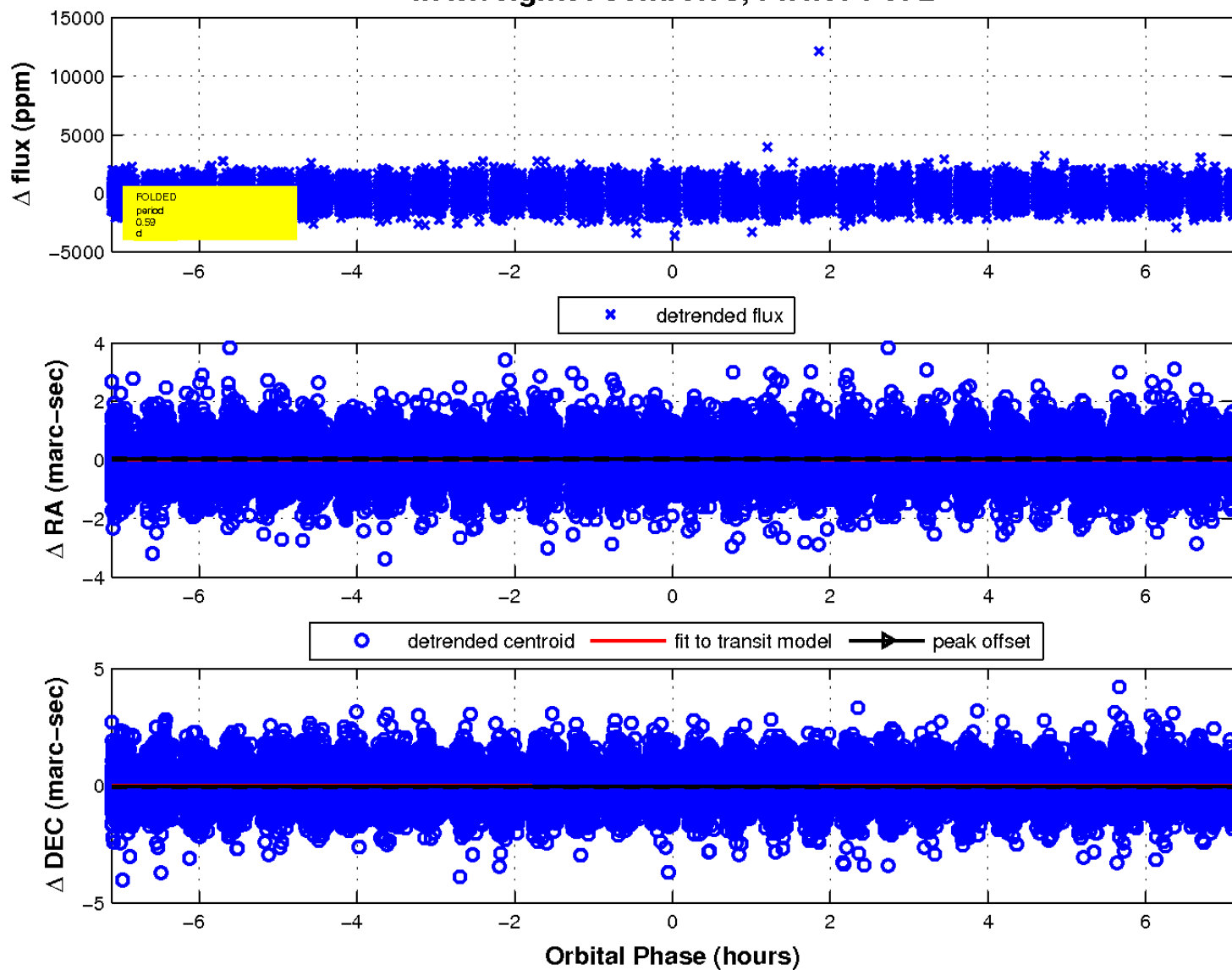
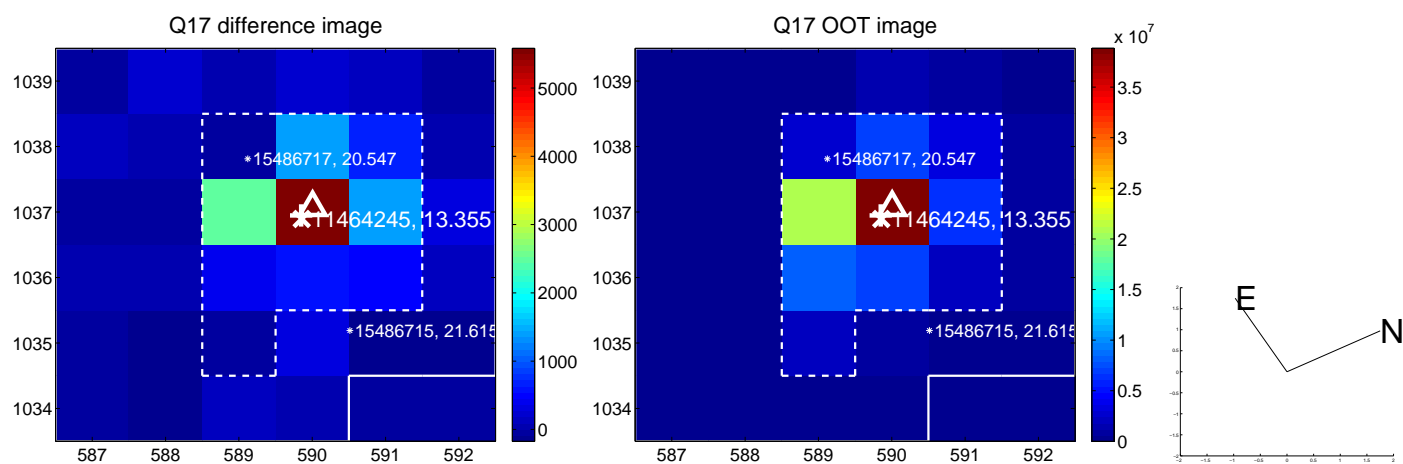


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



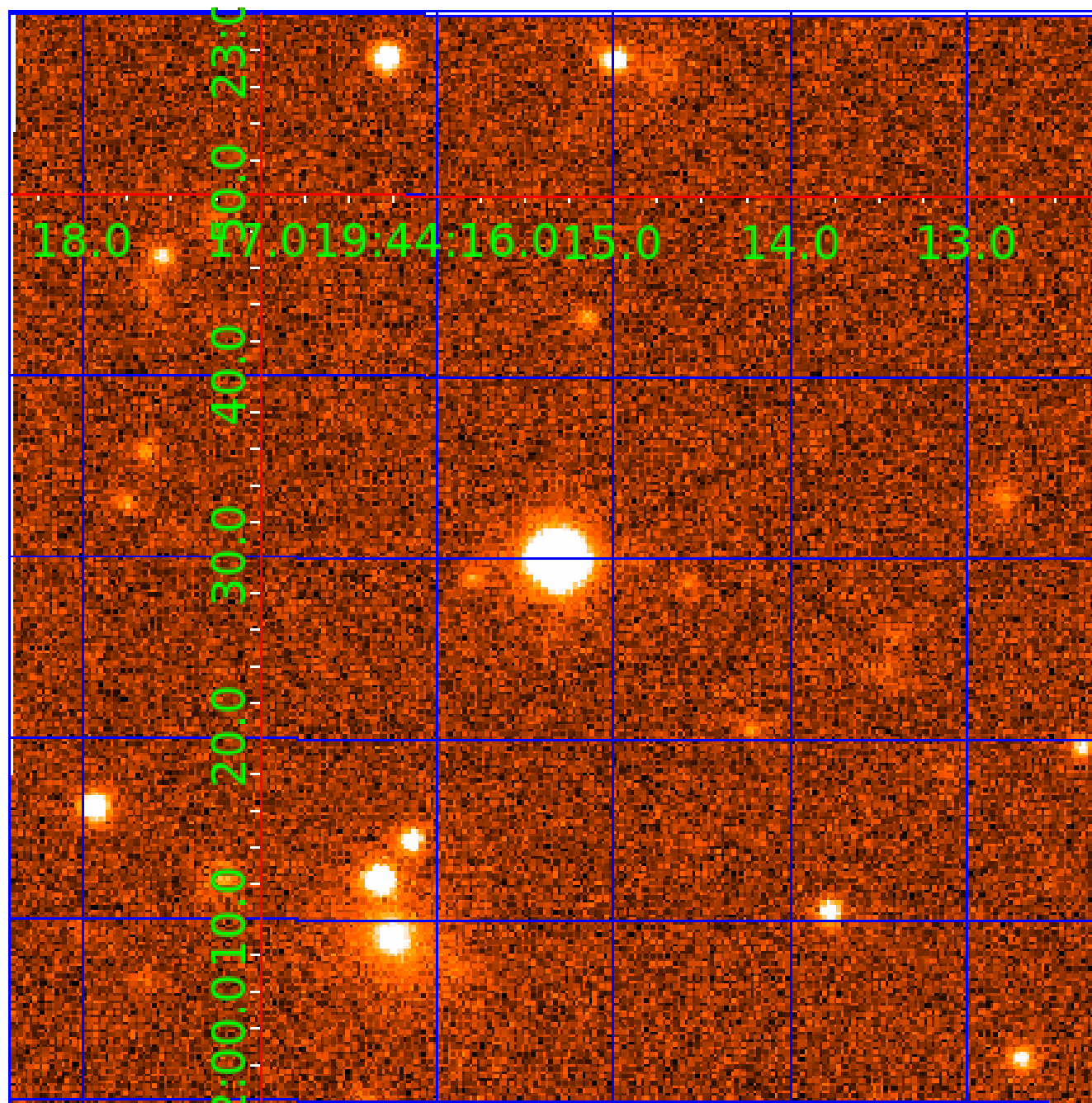


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 011464245

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011464245-01	OBS	No	0.592543	131.534060	64.4	3.771	9.2	6.2	2.08	7406	1.81	44549.06
011464245-02	OBS	No	43.077072	155.754280	1134.3	8.411	7.9	7.5	2.08	7406	12.94	146.83

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011464245-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
011464245-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—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.

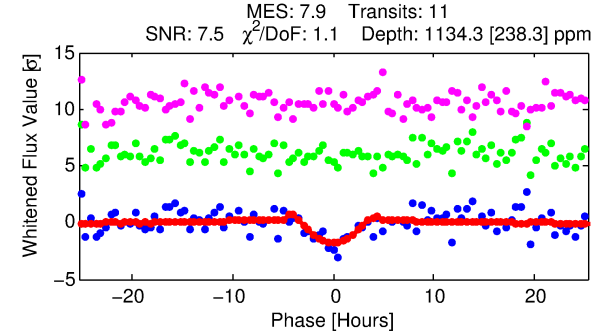
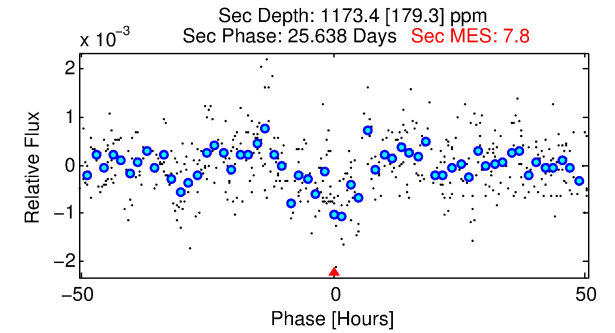
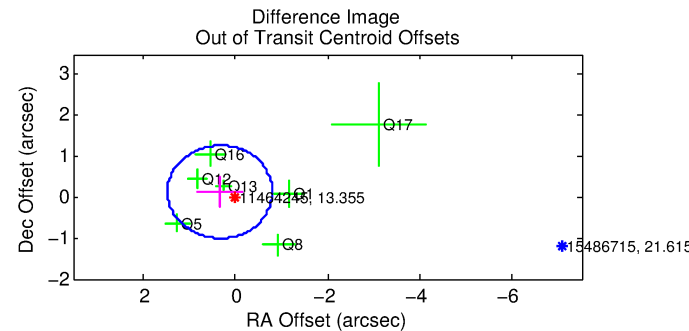
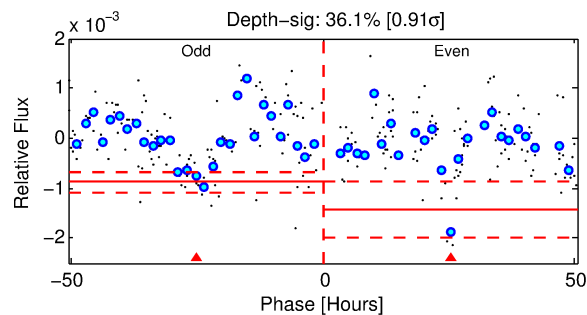
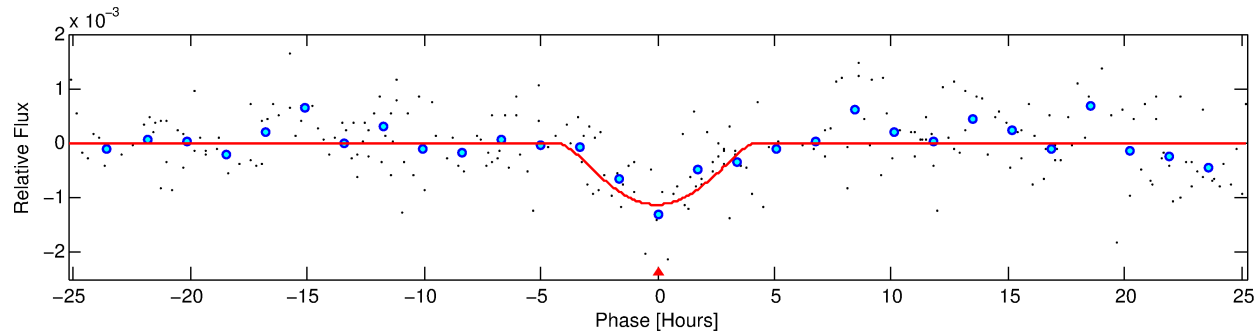
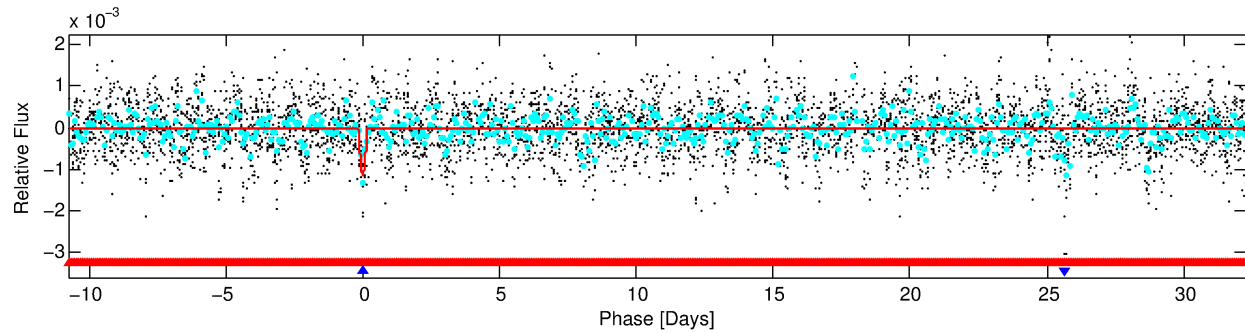
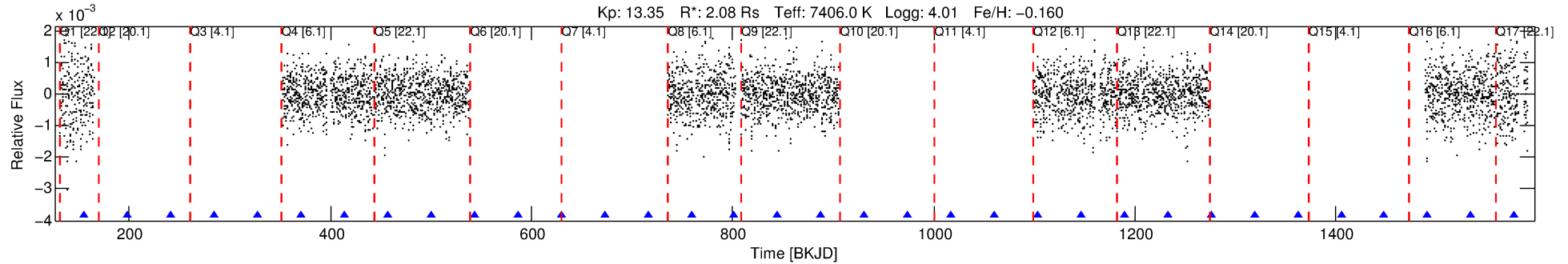
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011464245-02

No Significant Match Found

# DV One-Page Summary

KIC: 11464245 Candidate: 2 of 2 Period: 43.077 d



## DV Fit Results:

Period = 43.07707 [0.00152] d  
Epoch = 155.7543 [0.0297] BKJD  
Rp/R\* = 0.0570 [0.1828]  
a/R\* = 13.57 [10.78]  
b = 1.00 [0.27]  
Seff = 146.83 [37.62]  
Teq = 888 [57] K  
Rp = 12.94 [41.55] Re  
a = 0.2817 [0.0468] AU  
Ag = 306.10 [1965.01] [0.16 $\sigma$ ]  
Teffp = 5740 [9206] K [0.53 $\sigma$ ]

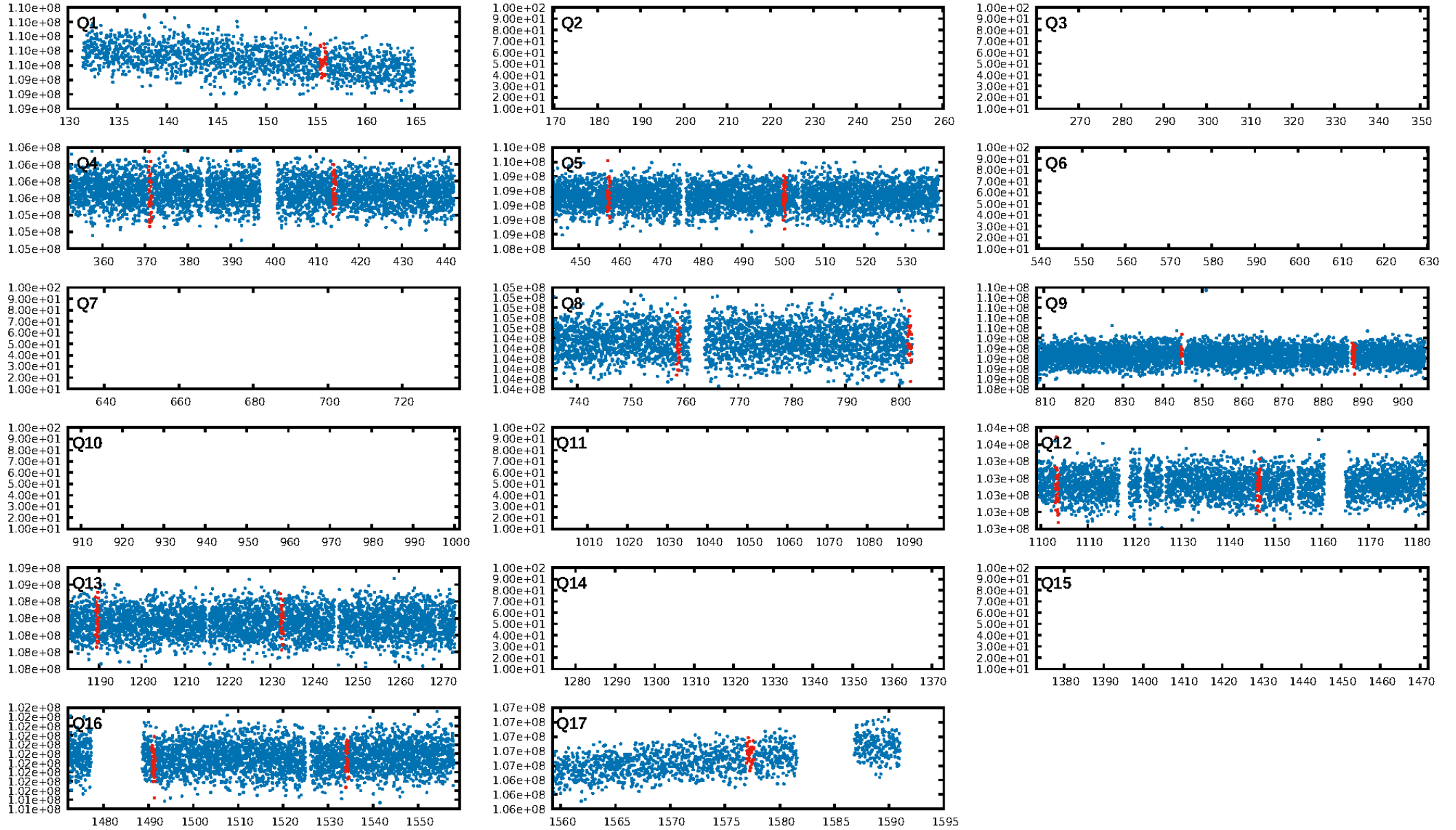
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [110.62 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 18.7%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 4.73e-08**  
RollingBand-fgt: 1.00 [11/11]  
GhostDiagnostic-chr: 15.86  
Centroid-sig: 8.3%  
Centroid-so: 0.240 arcsec [1.52 $\sigma$ ]  
OotOffset-rm: 0.353 arcsec [0.93 $\sigma$ ]  
OotOffset-st: 0/0/3/4 [7]  
KicOffset-rm: 0.568 arcsec [1.50 $\sigma$ ]  
KicOffset-st: 0/0/3/4 [7]  
DiffImageQuality-fgm: 0.71 [5/7]  
DiffImageOverlap-fno: 0.00 [0/8]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:41:39 Z

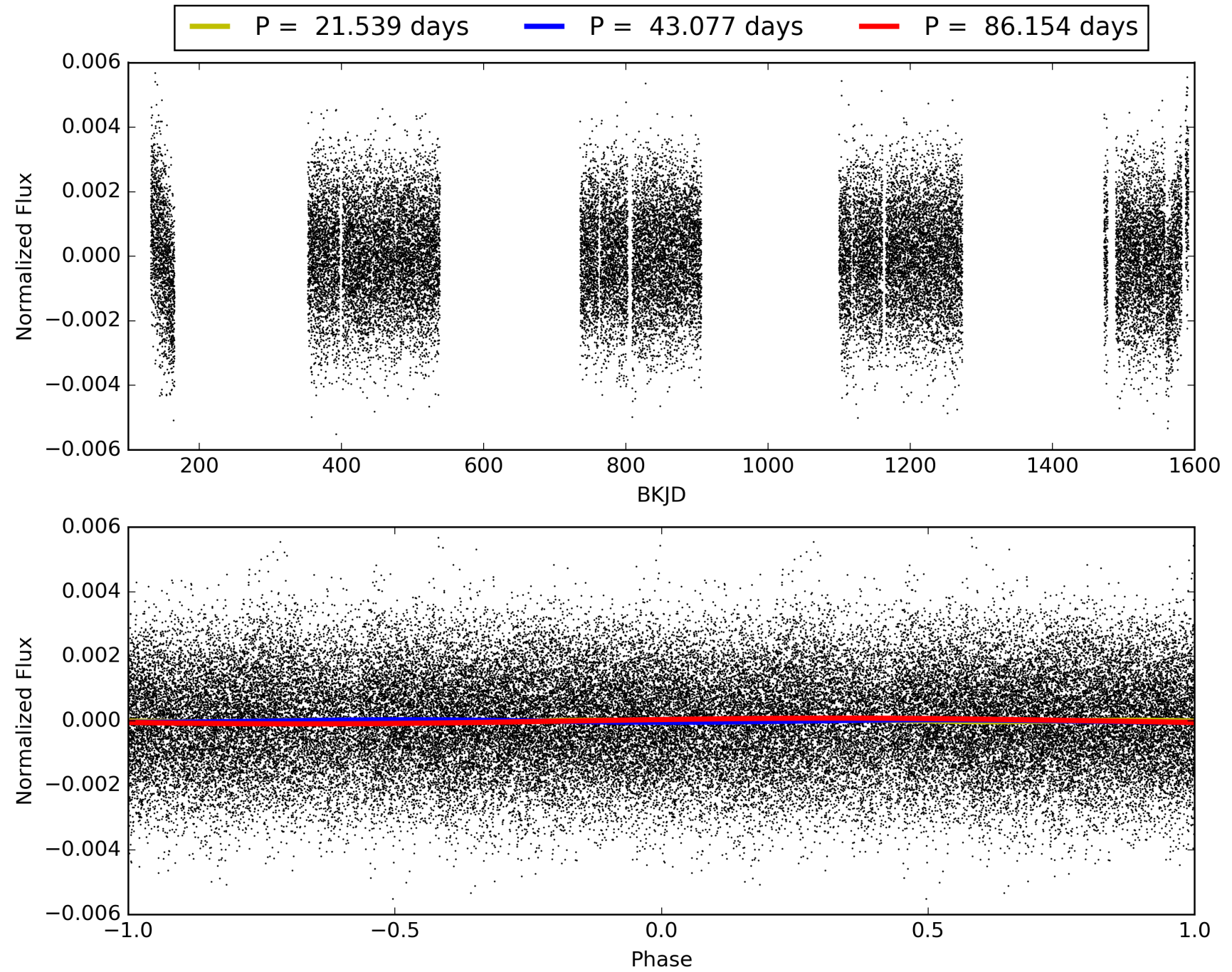
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011464245-02, PDC Light Curves



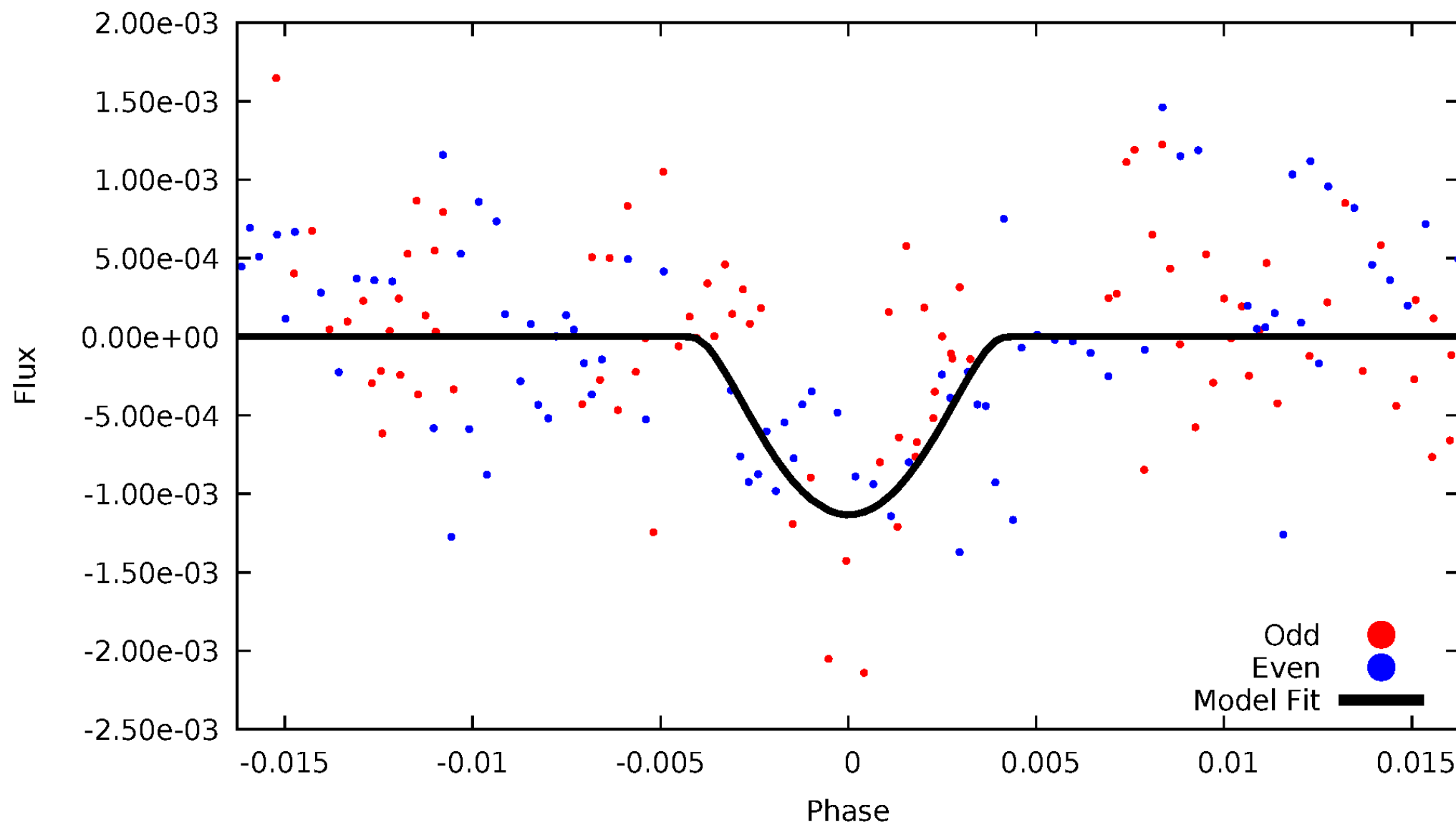


# TCE 011464245-02



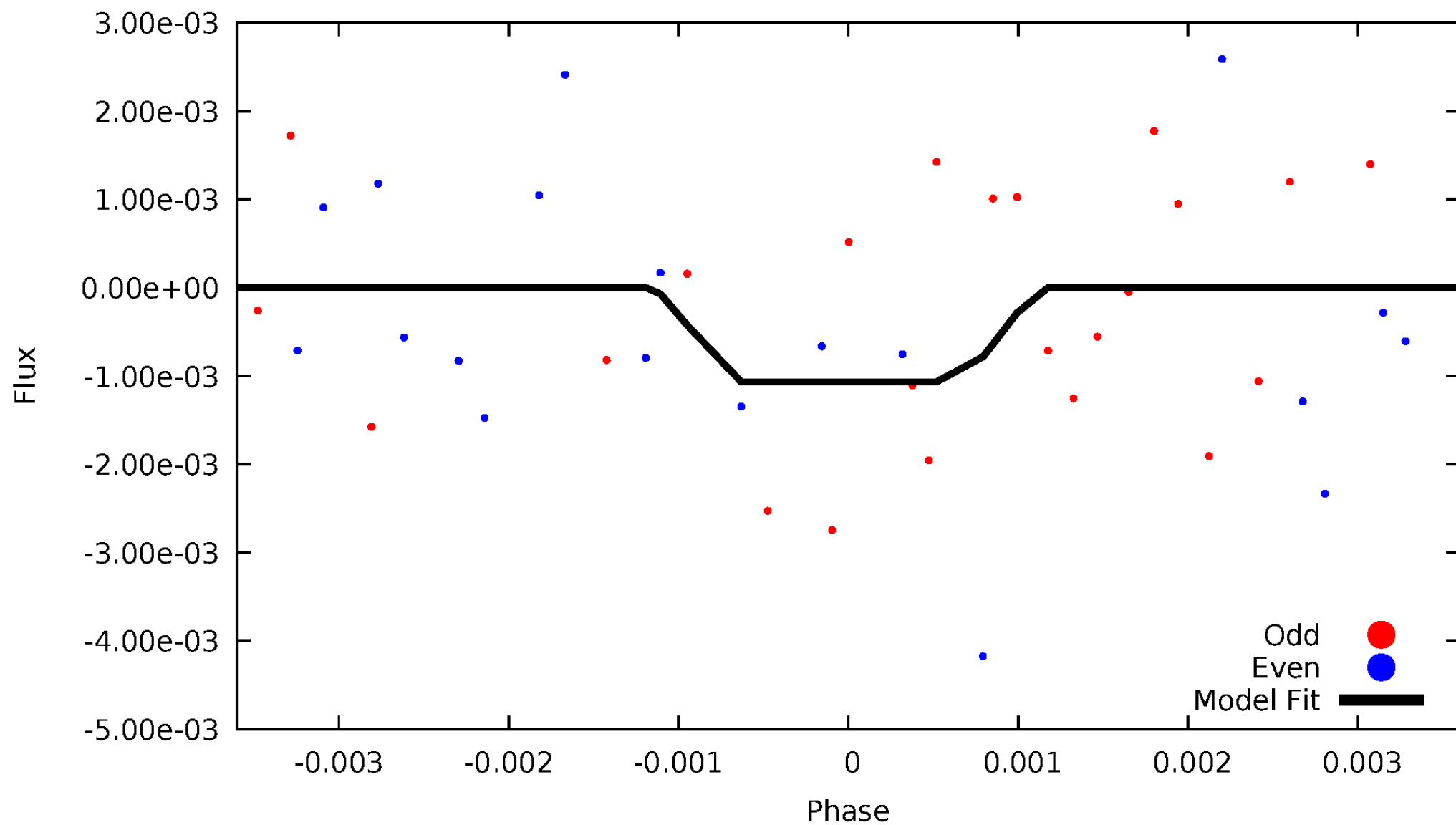
# DV Odd/Even

TCE 011464245-02



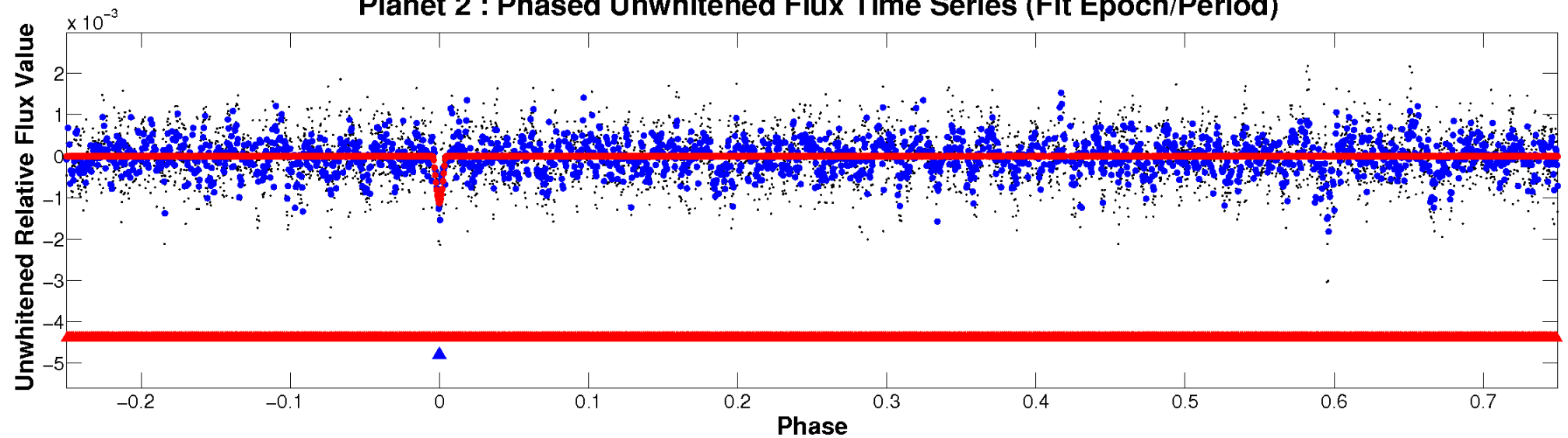
# ALT Odd/Even

TCE 011464245-02

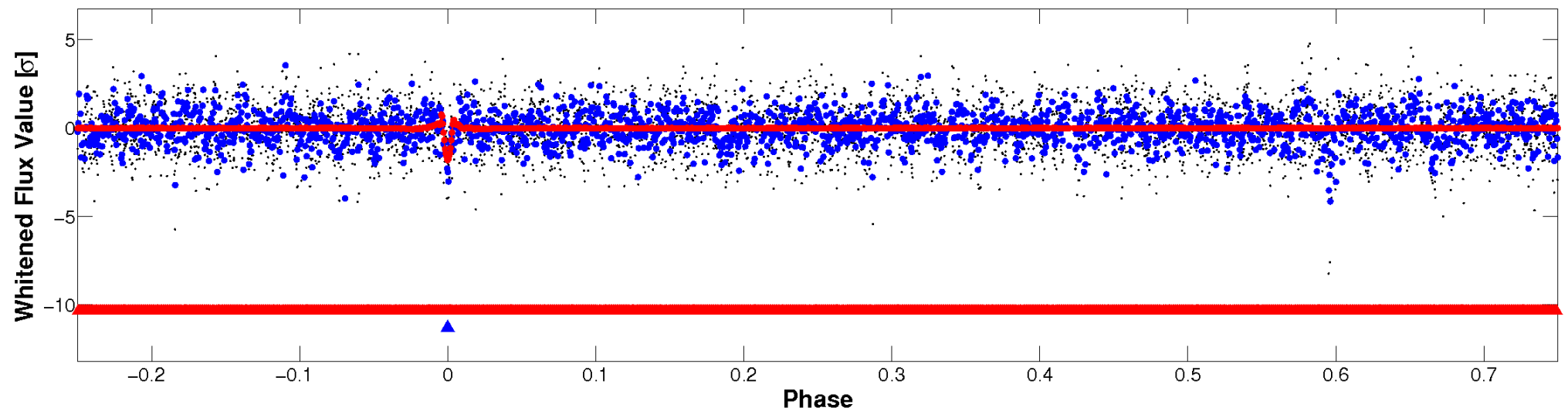


# Non-Whitened Vs. Whitened Light Curve

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

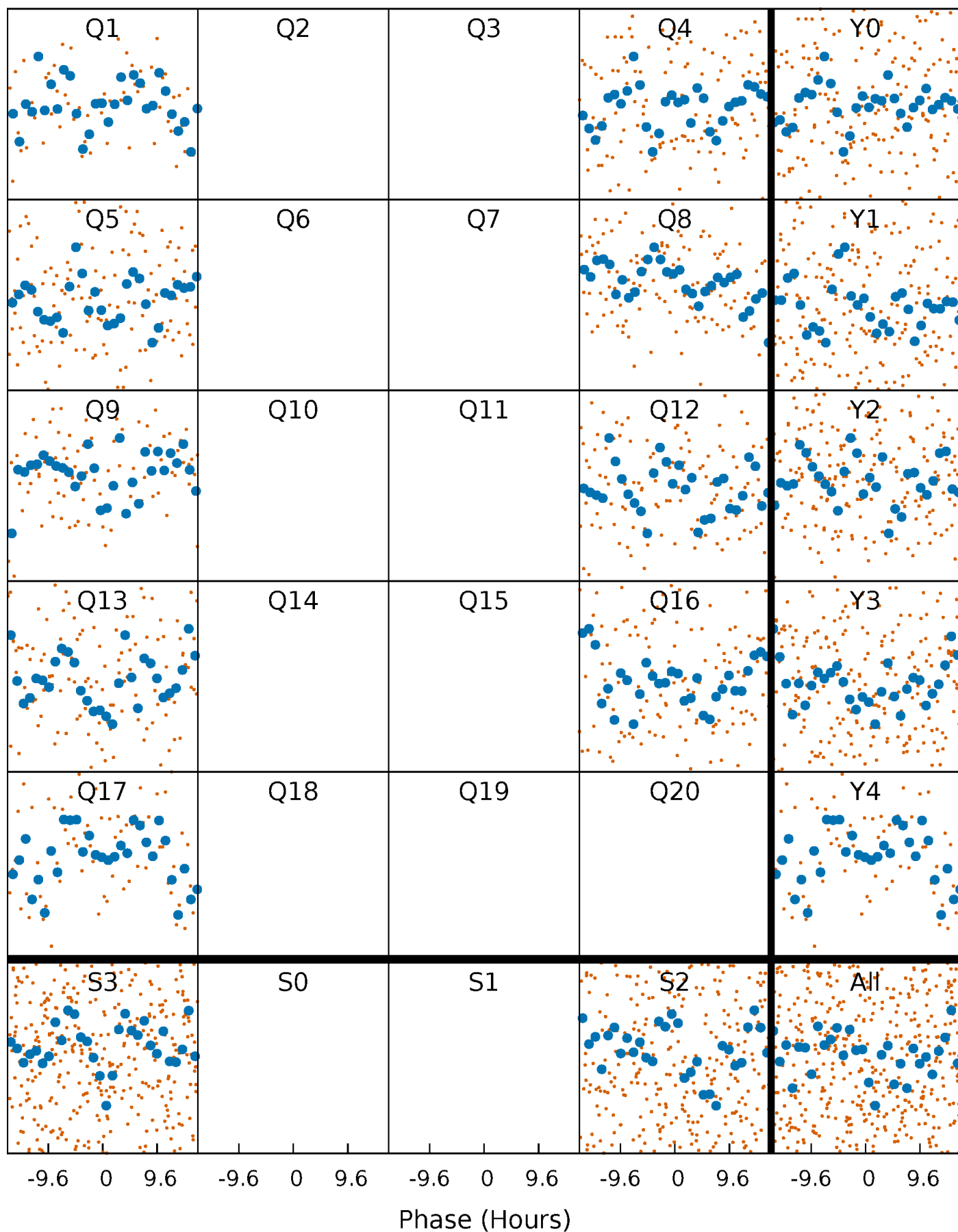


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

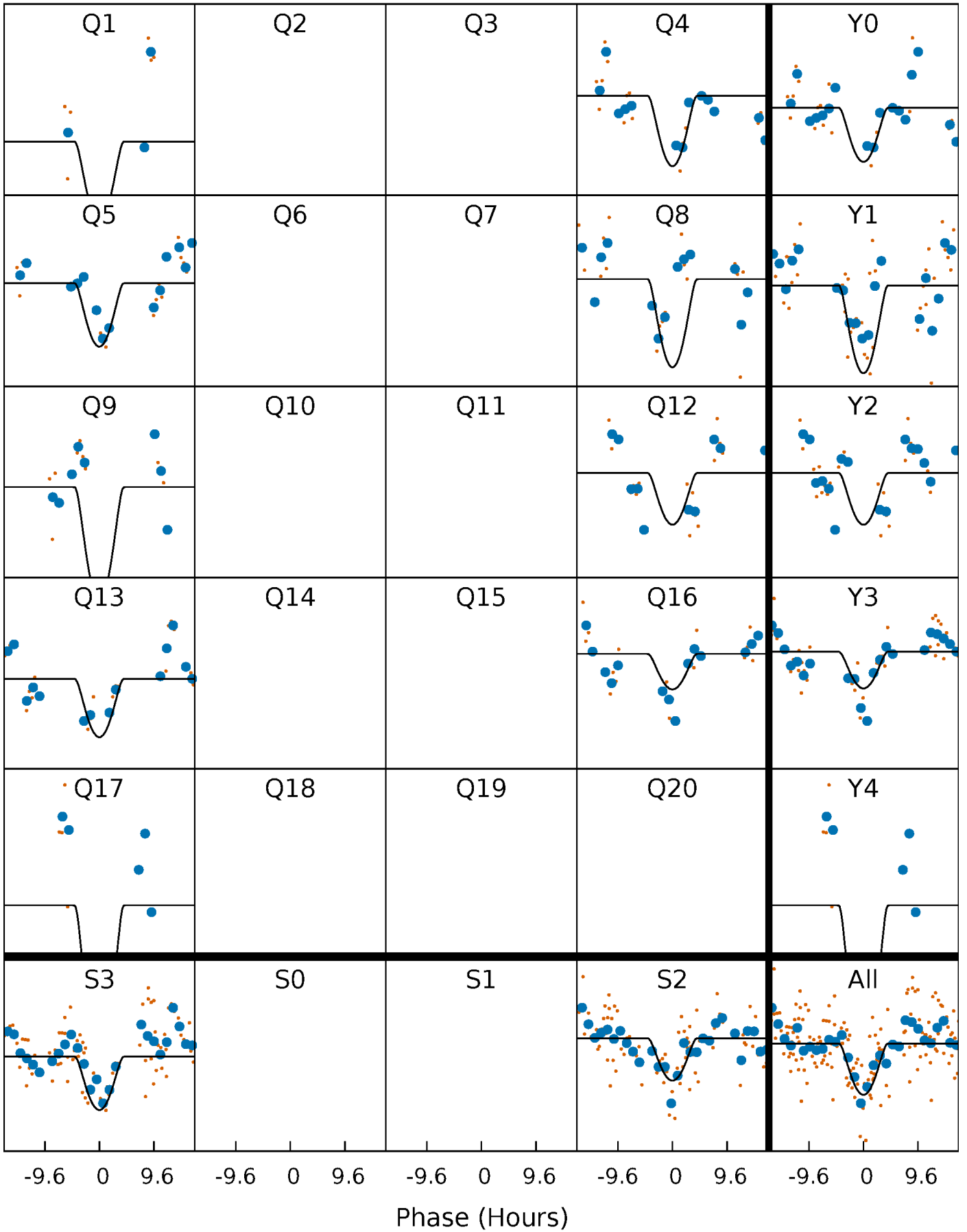
TCE 011464245-02   P= 43.077072 Days    $T_0=155.754280$  (BKJD)





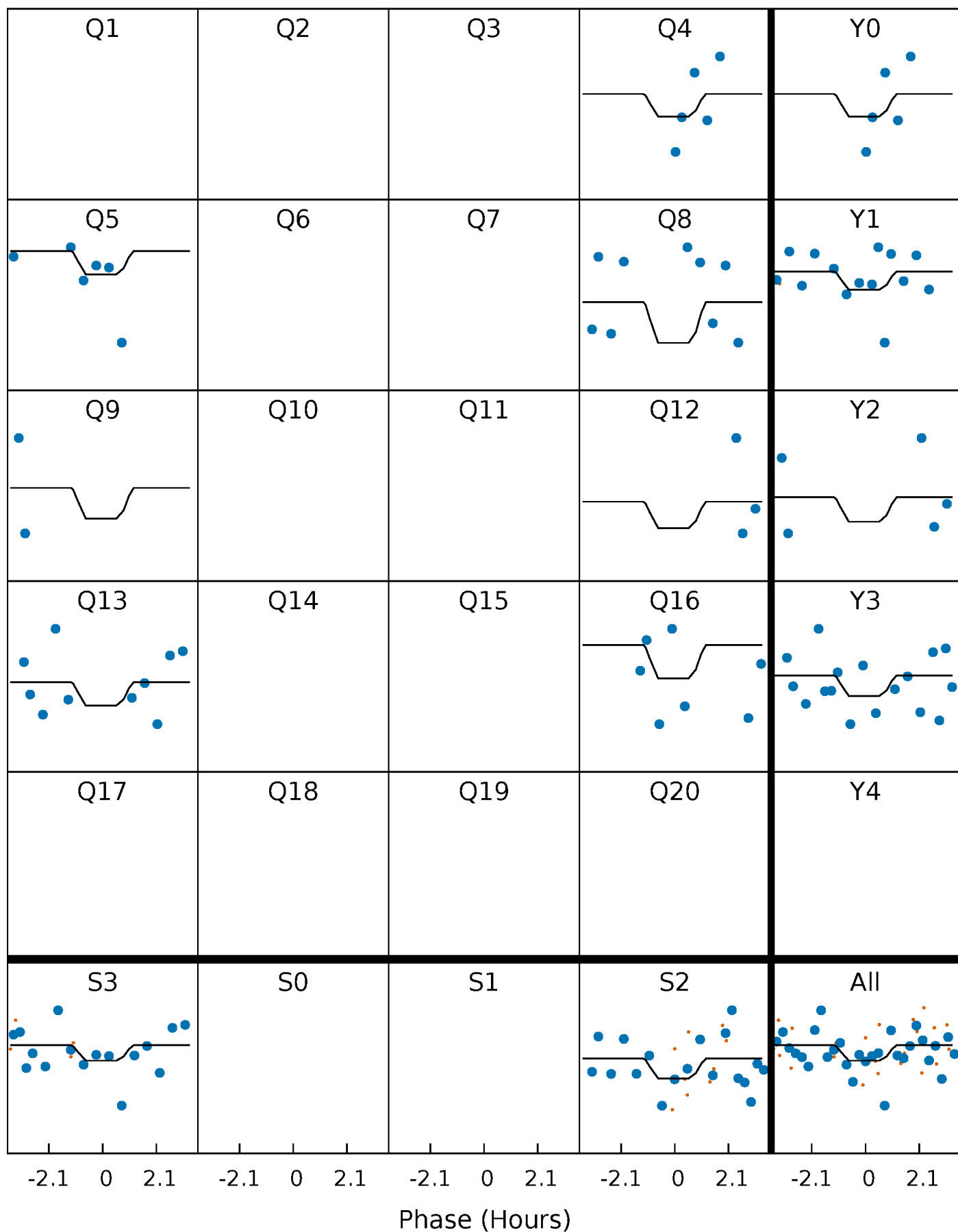
# DV Quarter-Phased Transit Curves

TCE 011464245-02     $P = 43.077072$  Days     $T_0 = 155.754280$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

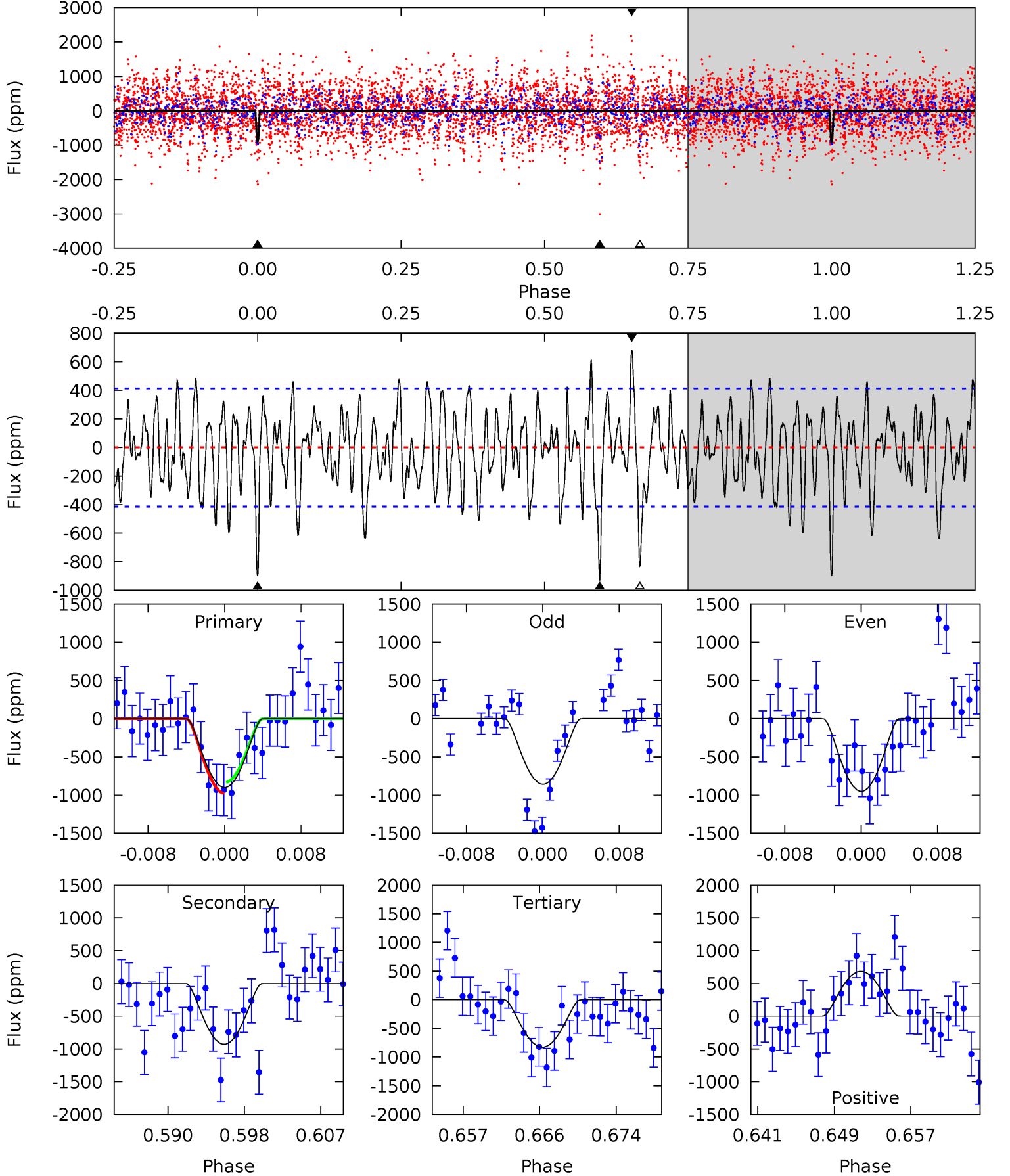
TCE 011464245-02 P= 43.075432 Days  $T_0=155.802727$  (BKJD)



# DV Model-Shift Uniqueness Test

011464245-02, P = 43.077072 Days, E = 112.677208 Days

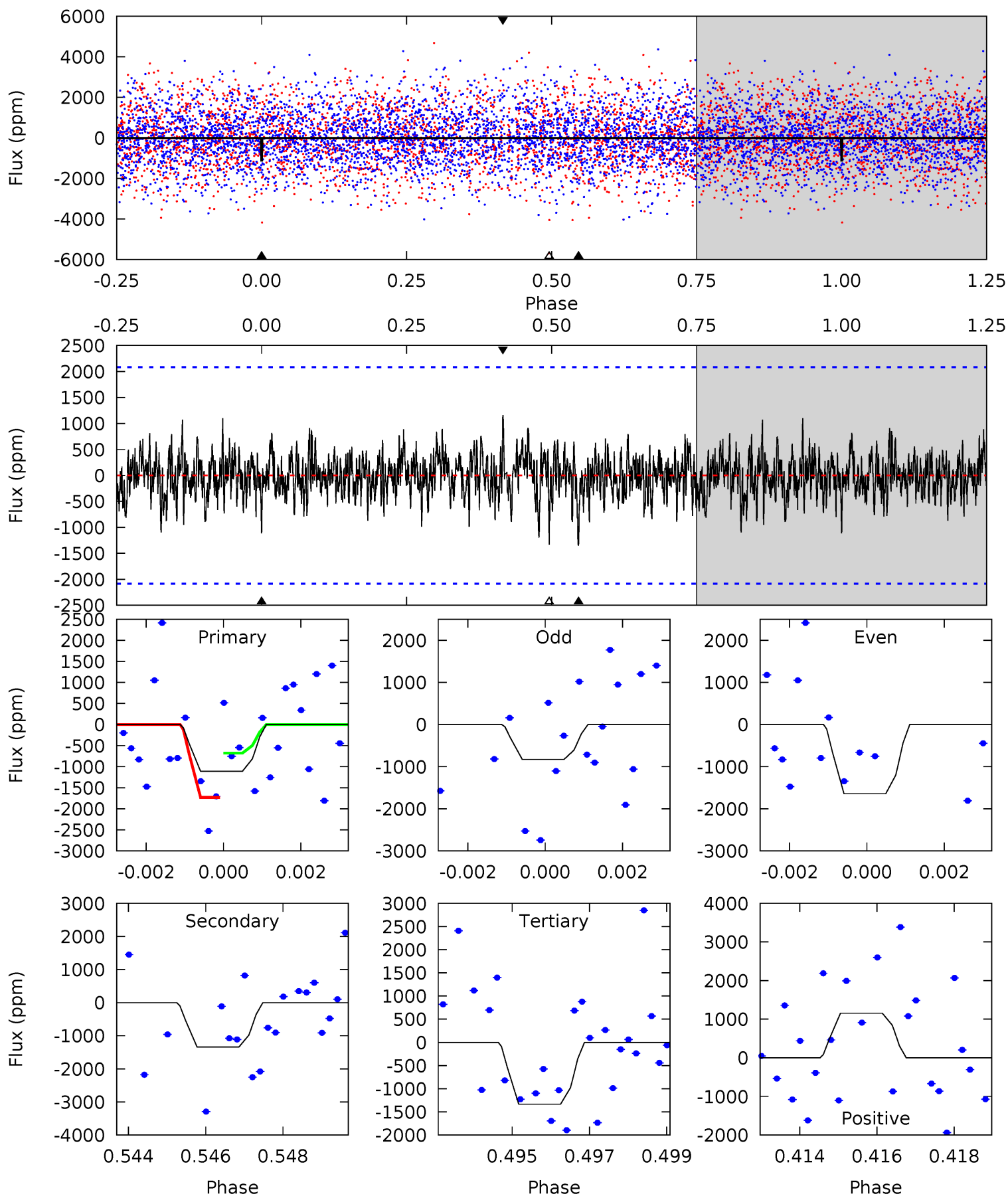
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	11.4	10.1	8.36	5.06	2.63	2.92	0.88	2.65	1.25	3.01	0.57	0.77	0.42	0.86



# Alt Model-Shift Uniqueness Test

011464245-02,  $P = 43.075432$  Days,  $E = 112.727295$  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
2.84	3.43	3.40	2.95	5.32	3.07	0.86	-0.57	-0.11	0.02	0.48	0.98	0.51	0.46	1.27



### Stellar Parameters For KIC 011464245

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7406^{+81}_{-81}$	$4.008^{+0.143}_{-0.117}$	$-0.160^{+0.150}_{-0.150}$	$2.079^{+0.389}_{-0.389}$	$1.604^{+0.148}_{-0.148}$	$0.251^{+0.182}_{-0.091}$
	+1%/-1%	+4%/-3%	+94%/-94%	+19%/-19%	+9%/-9%	+73%/-36%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 011464245-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-930 \pm 82$	$33.74^{+33.23}_{-23.71}$	$1239^{+61}_{-58}$	$3692^{+2403}_{-699}$	$36^{+391}_{-27}$
Alt.	$-1343 \pm 392$	$32.20^{+29.55}_{-22.78}$	$1238^{+58}_{-57}$	$4005^{+2613}_{-824}$	$54^{+542}_{-40}$

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

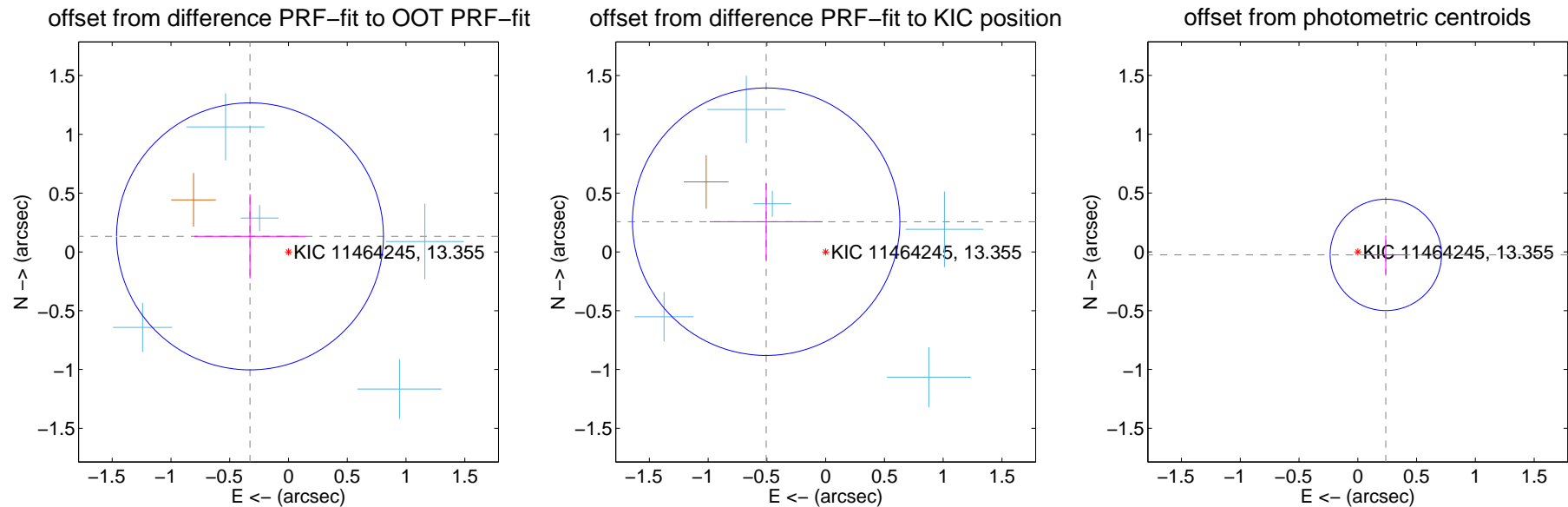
## DV Centroid Data

Supplemental centroid analysis for 011464245-02. Kepler magnitude: 13.36. Transit SNR 7.49

There are 5 quarters with good PRF difference image offsets

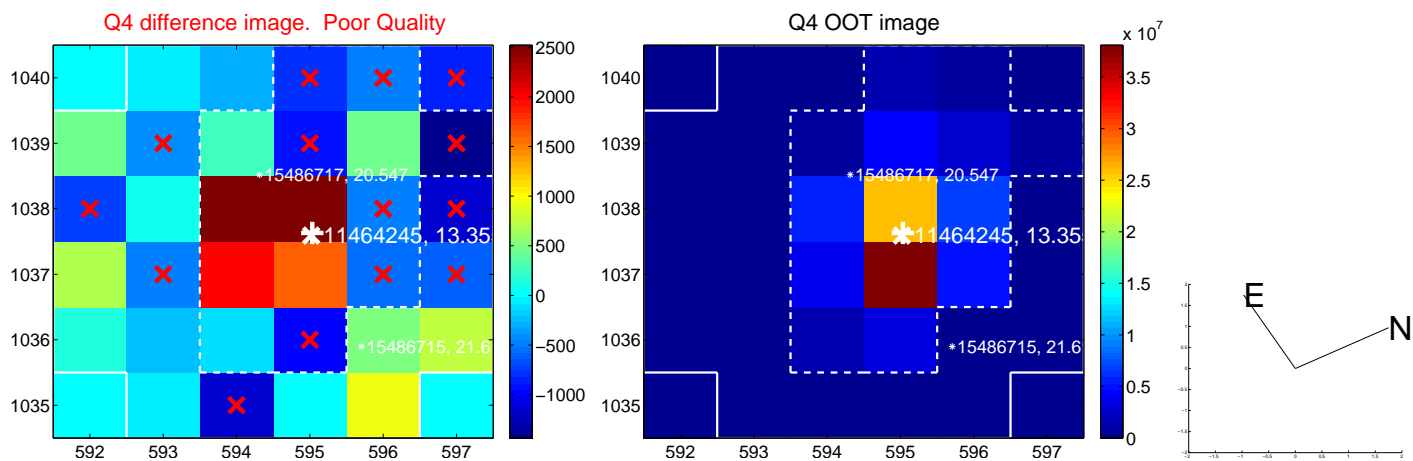
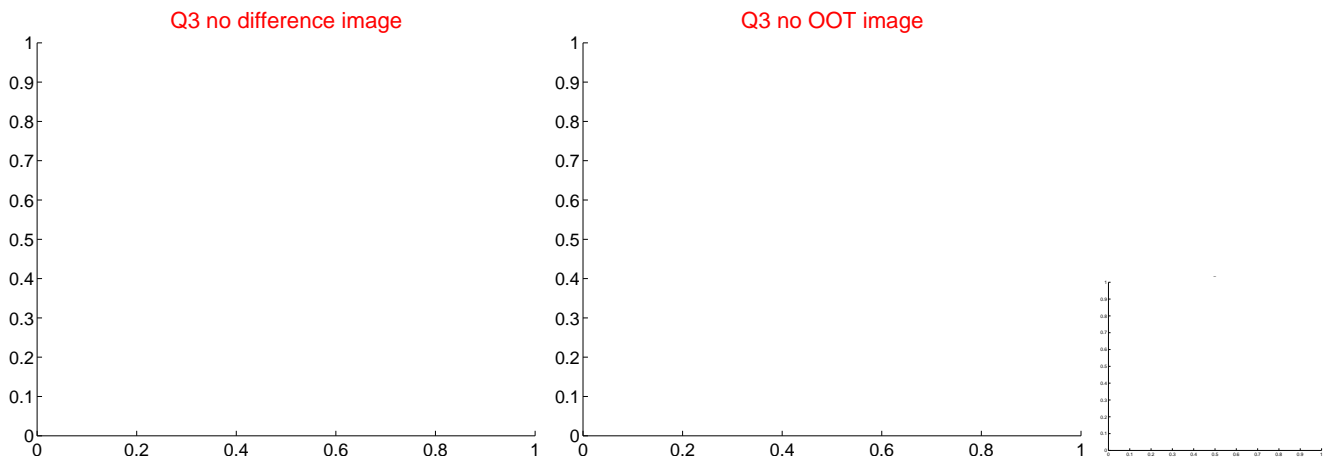
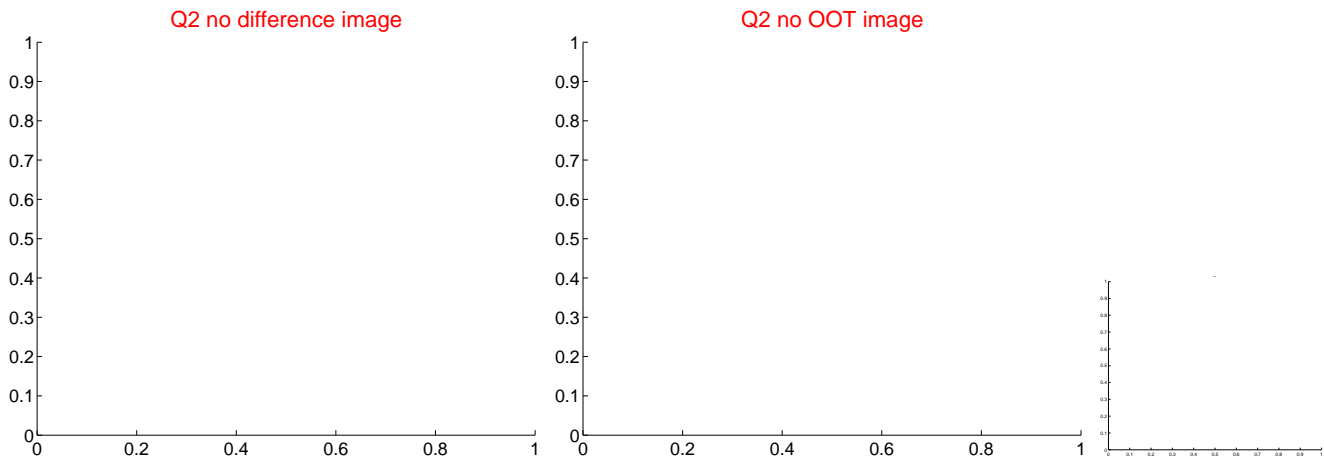
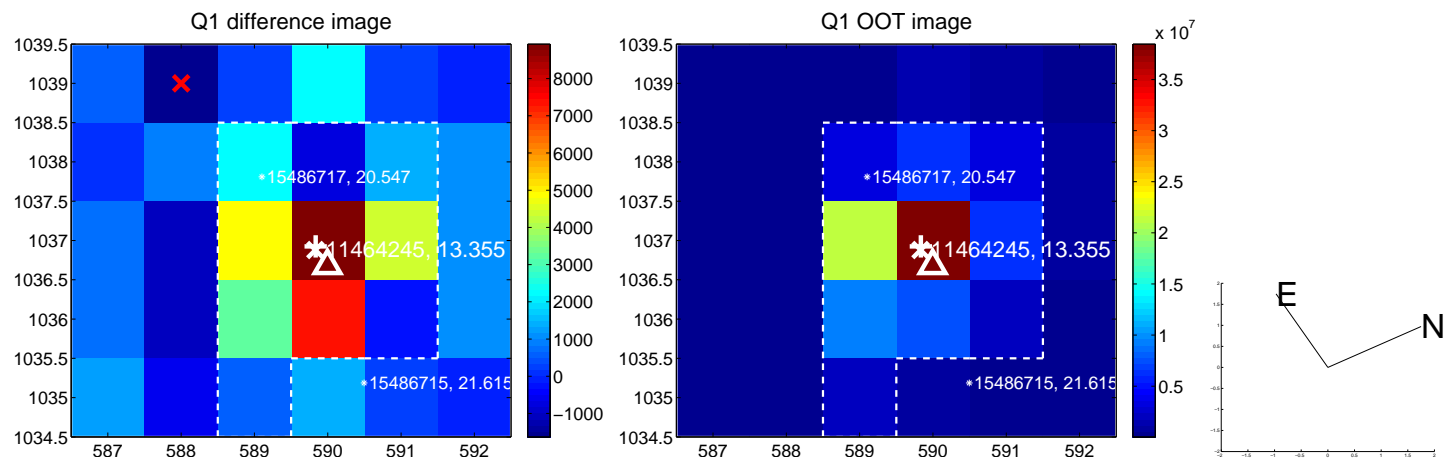
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.353 \pm 0.378$	0.93	$0.328 \pm 0.474$	$0.132 \pm 0.357$
PRF-fit source offset from KIC position	$0.568 \pm 0.379$	1.50	$0.506 \pm 0.480$	$0.257 \pm 0.327$
photometric centroid source offset	$0.24 \pm 0.16$	1.52	$-0.24 \pm 0.16$	$-0.03 \pm 0.17$



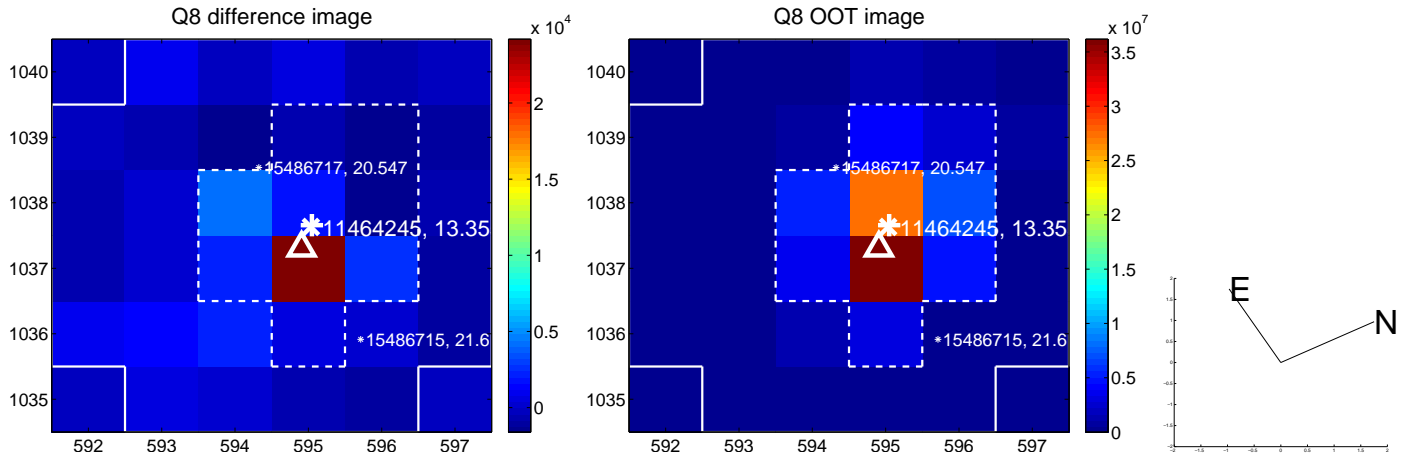
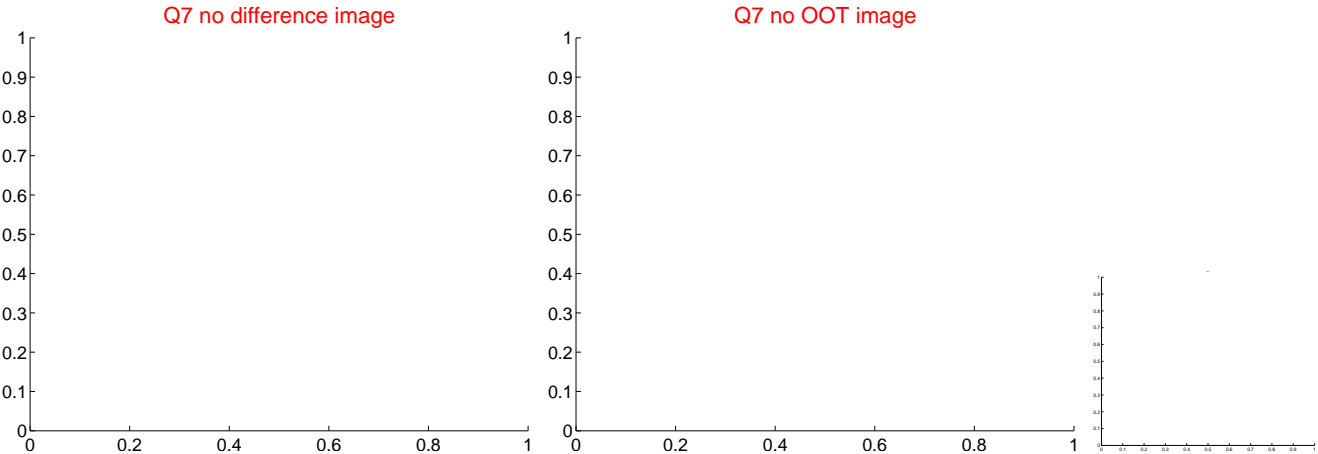
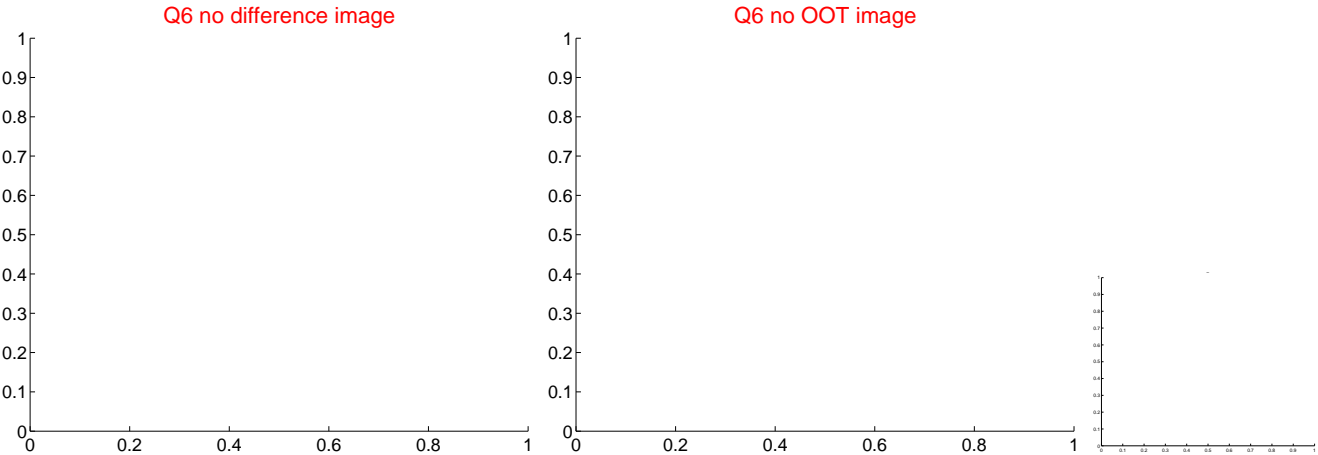
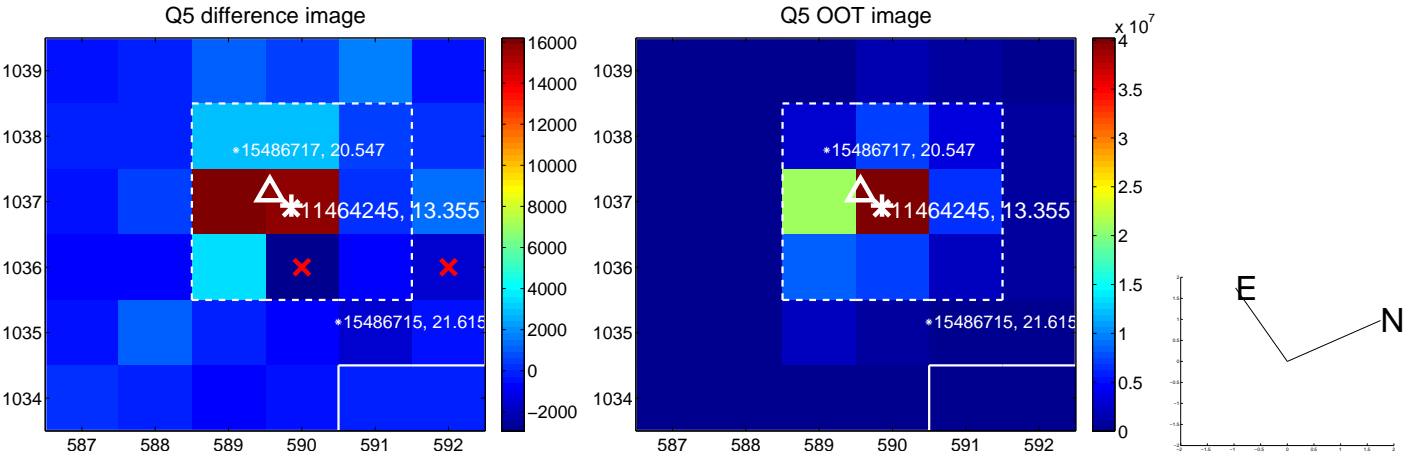
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

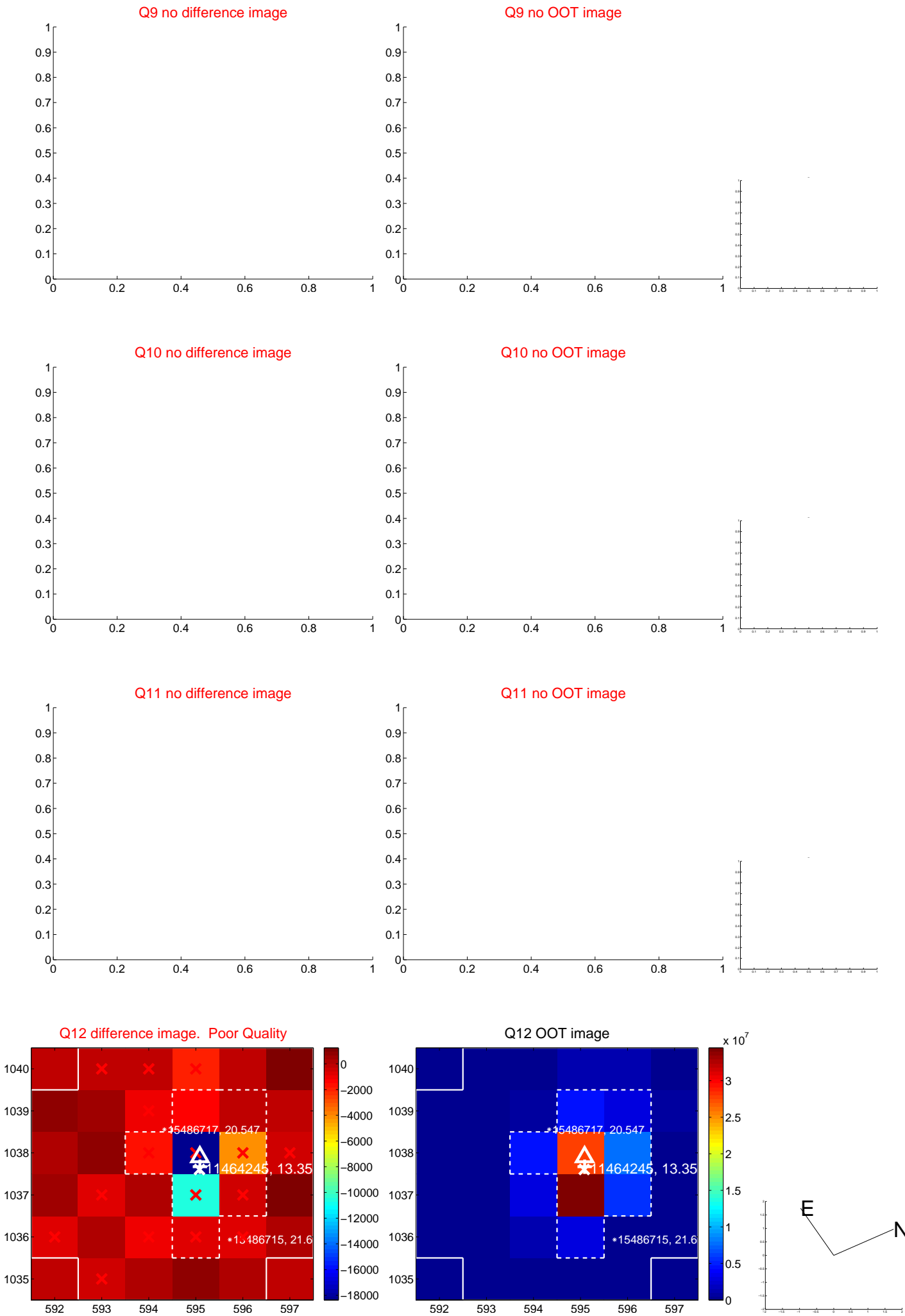




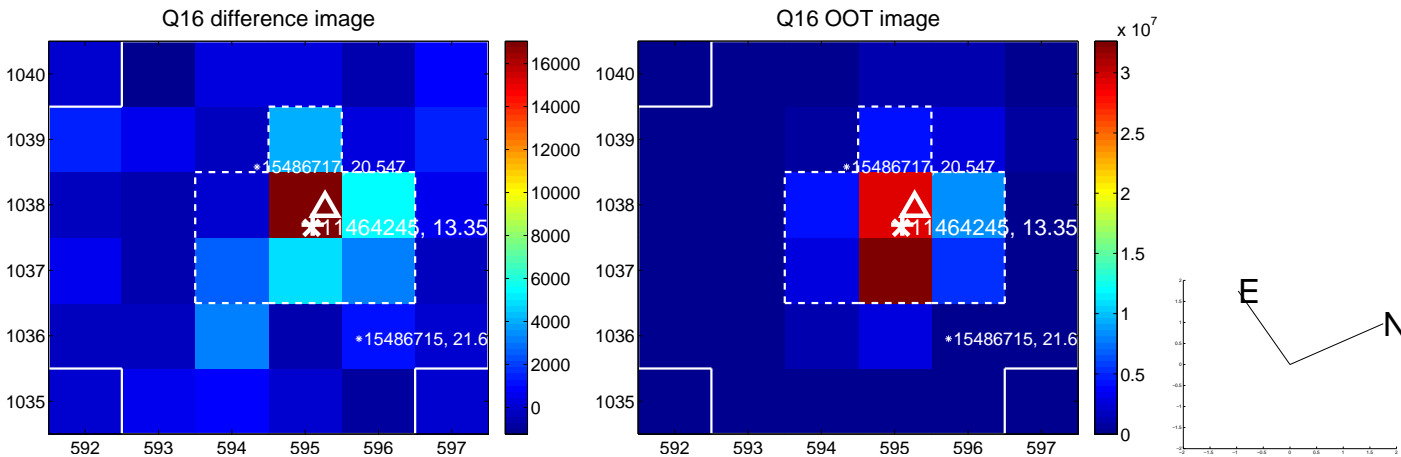
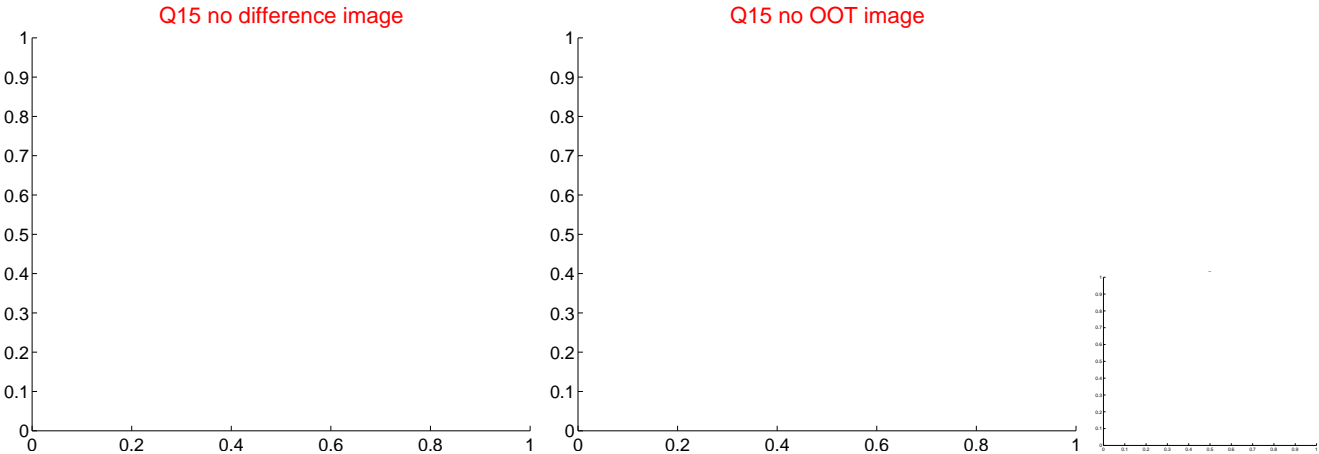
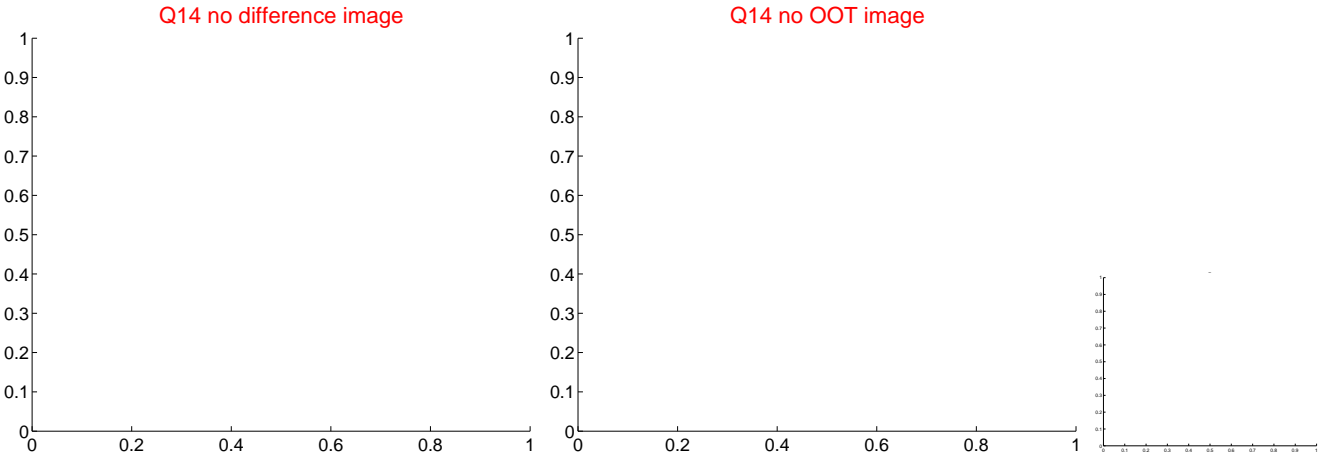
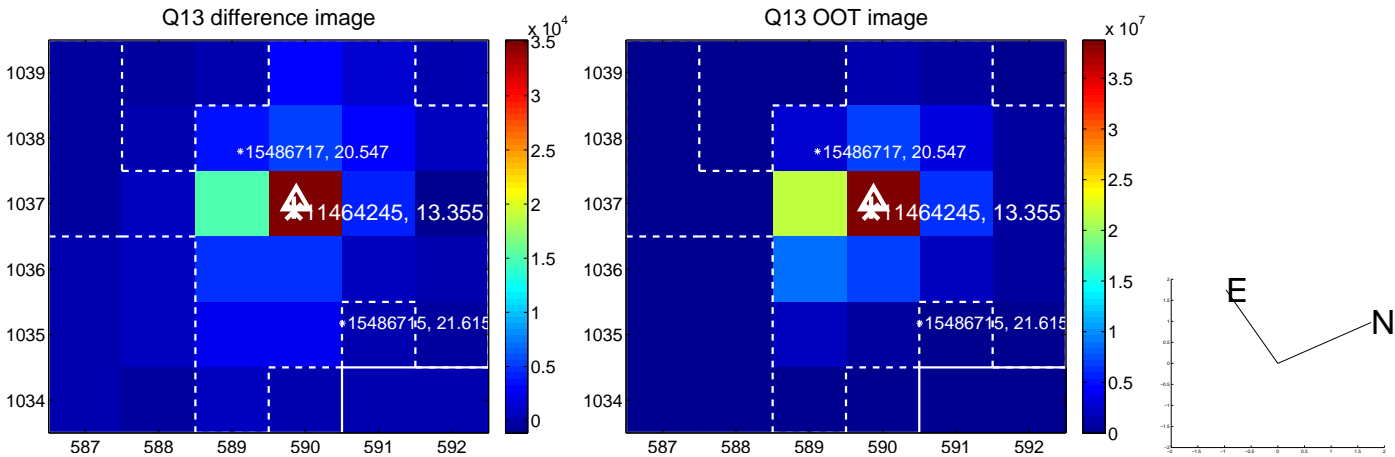
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



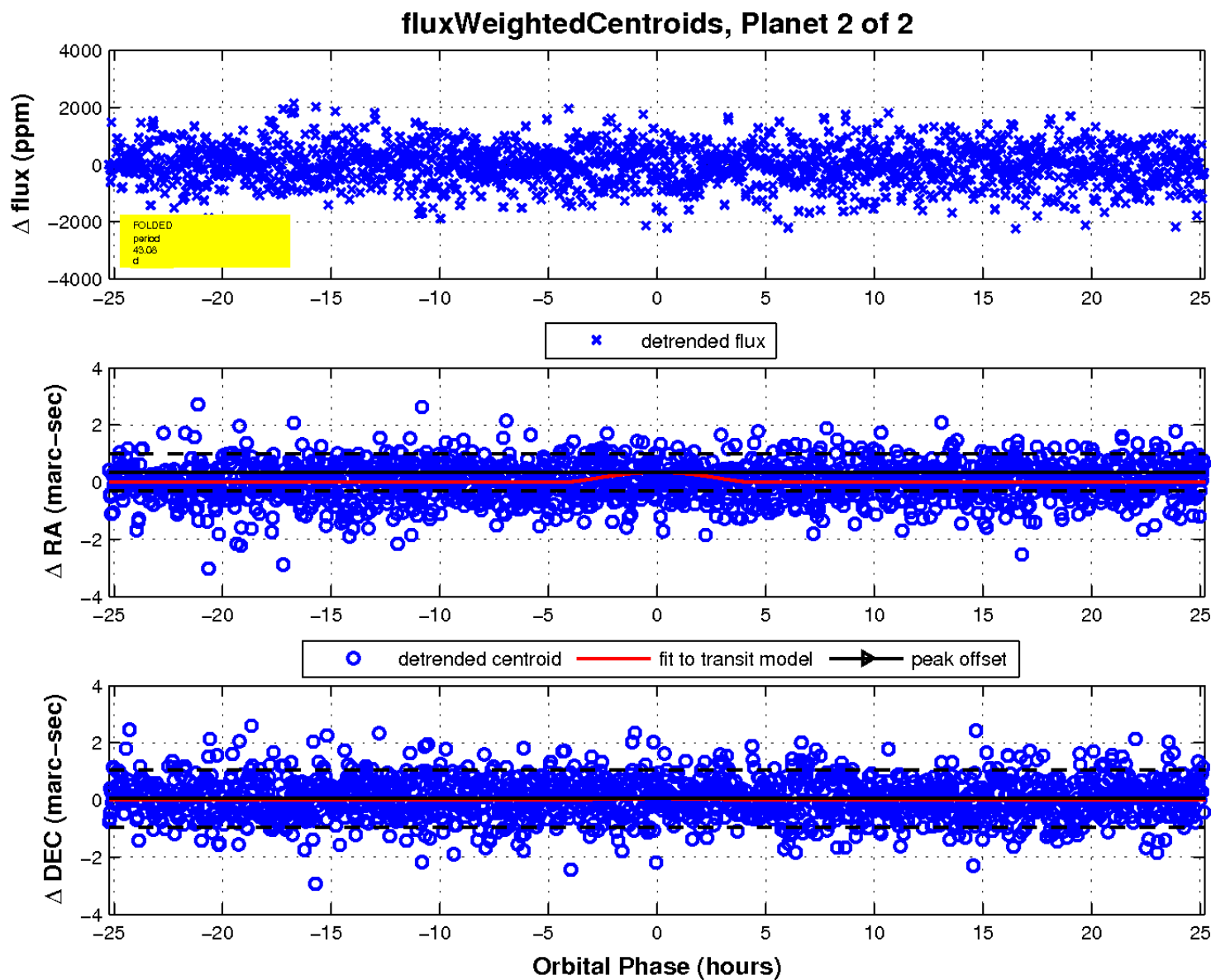
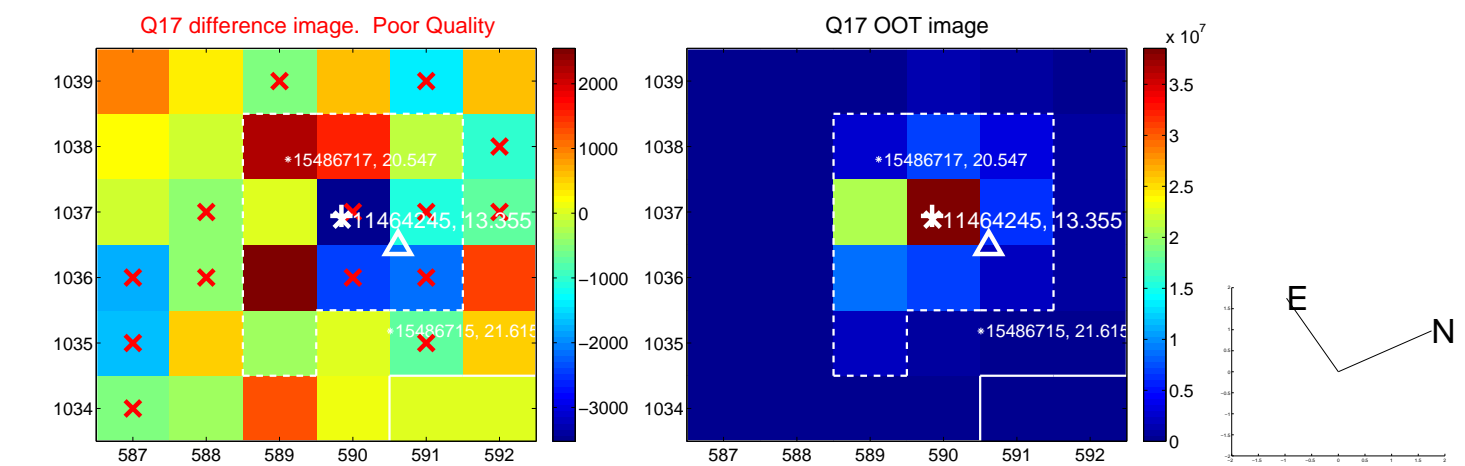
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

