

# KIC 008042044

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008042044-01	OBS	No	0.878562	132.257490	29.4	2.068	11.6	1.3	1.56	6888	0.90	12493.70
008042044-02	OBS	No	1.177695	132.461842	170.4	7.951	10.6	11.7	1.56	6888	2.06	8452.99
008042044-03	OBS	No	23.263895	151.863282	1031.7	3.000	14.9	-1.0	1.56	6888	5.07	158.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008042044-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008042044-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
008042044-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

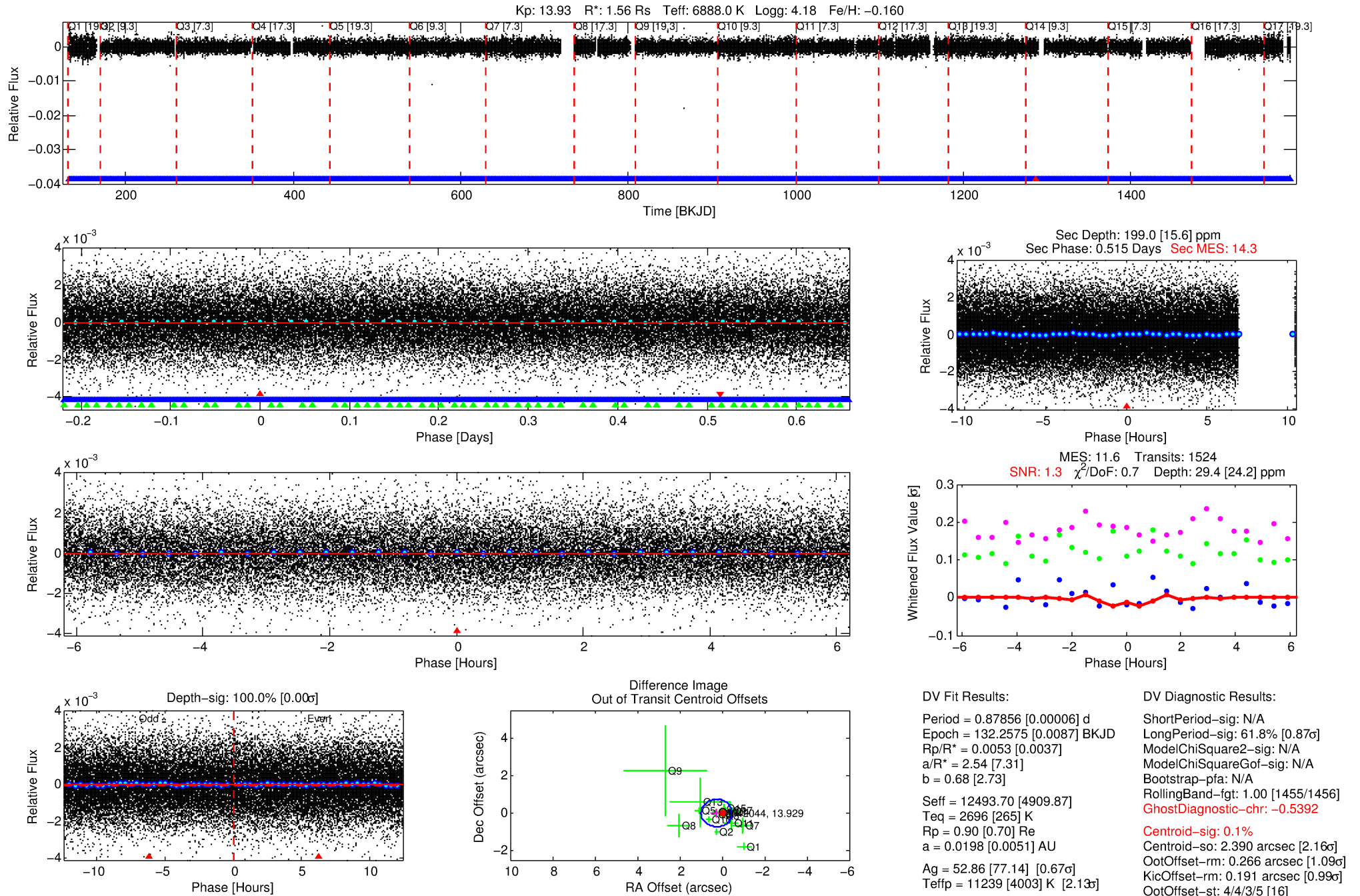
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008042044-01

No Significant Match Found

# DV One-Page Summary

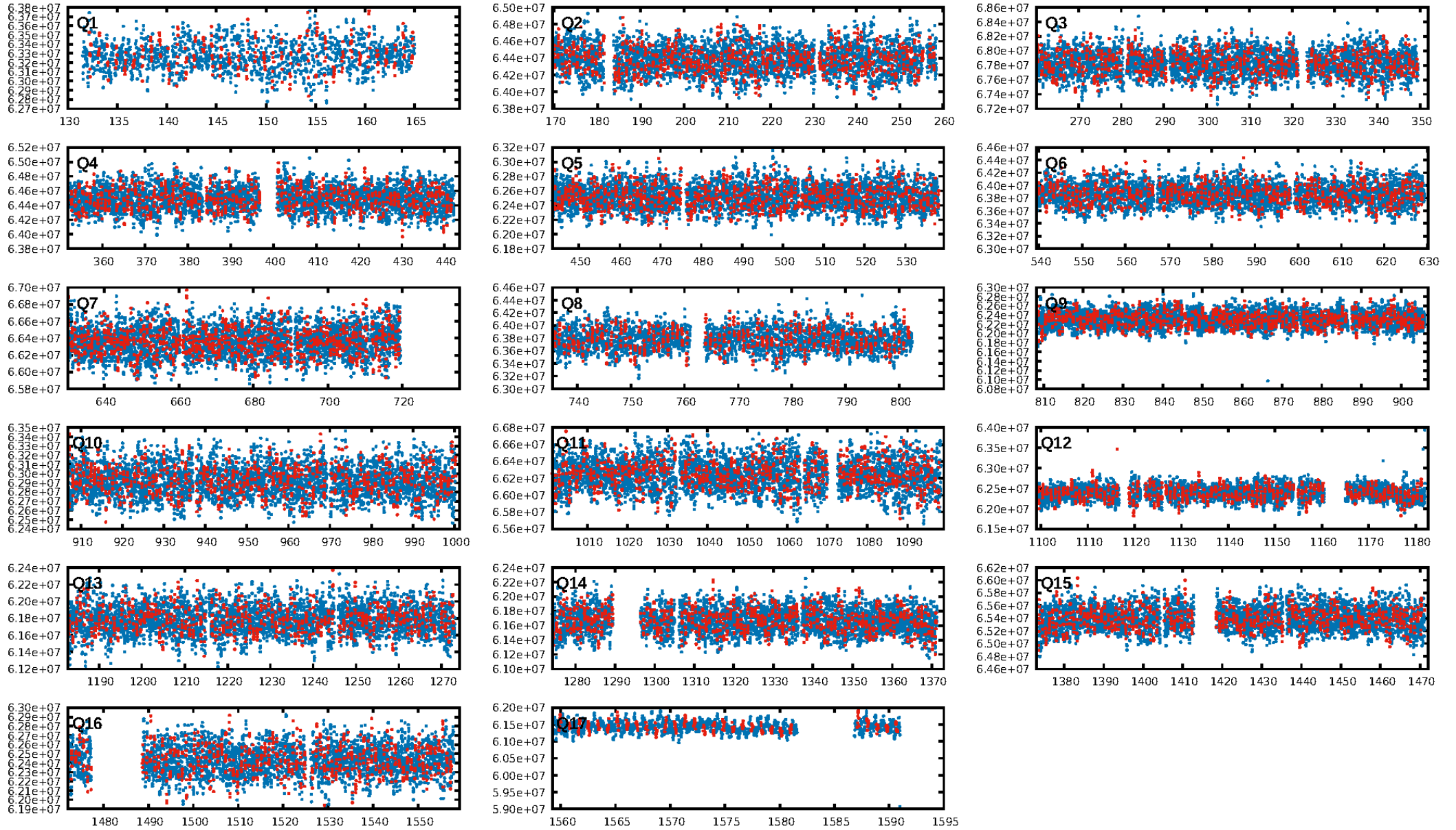
KIC: 8042044 Candidate: 1 of 3 Period: 0.879 d



Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:06:39 Z

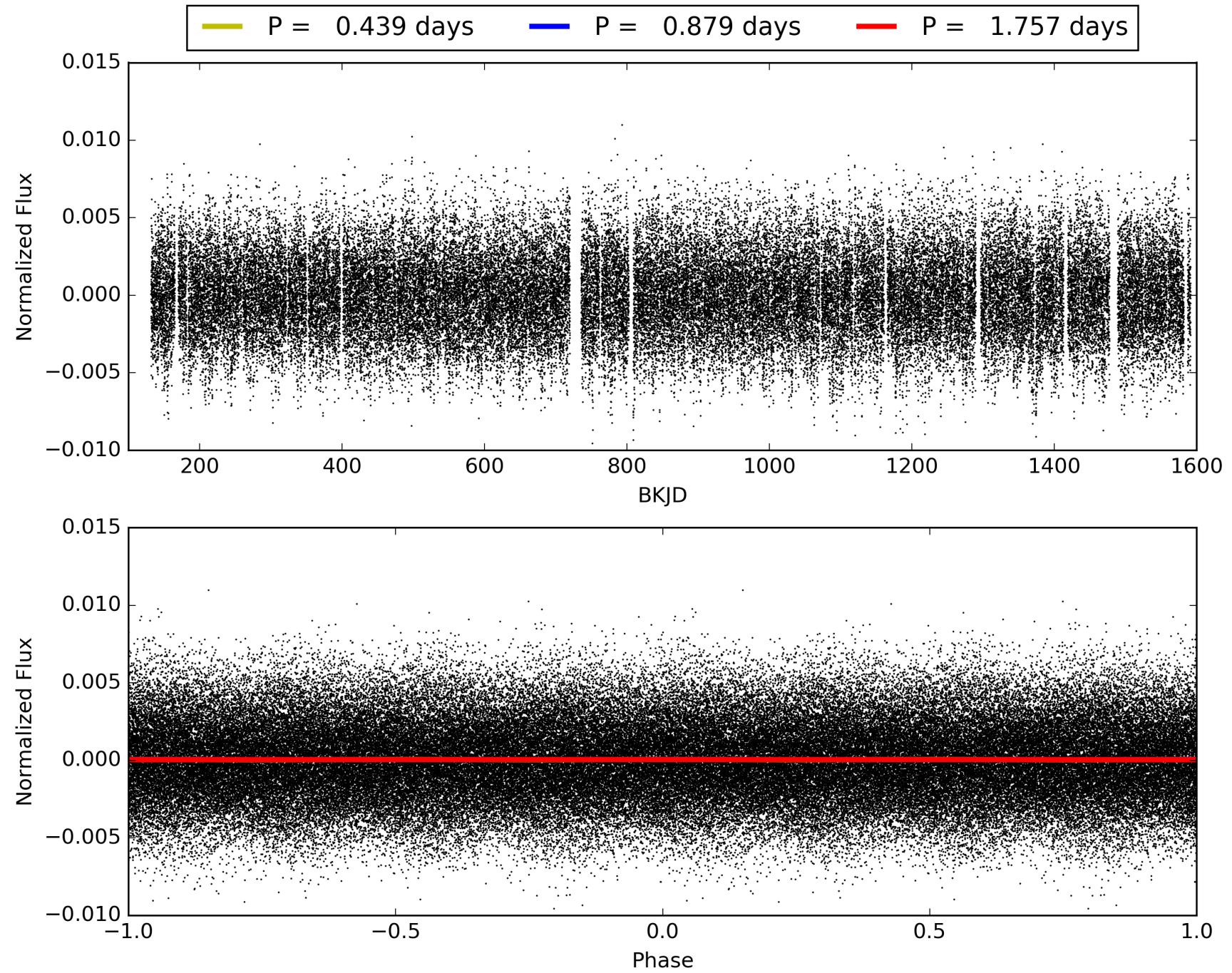
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008042044-01, PDC Light Curves





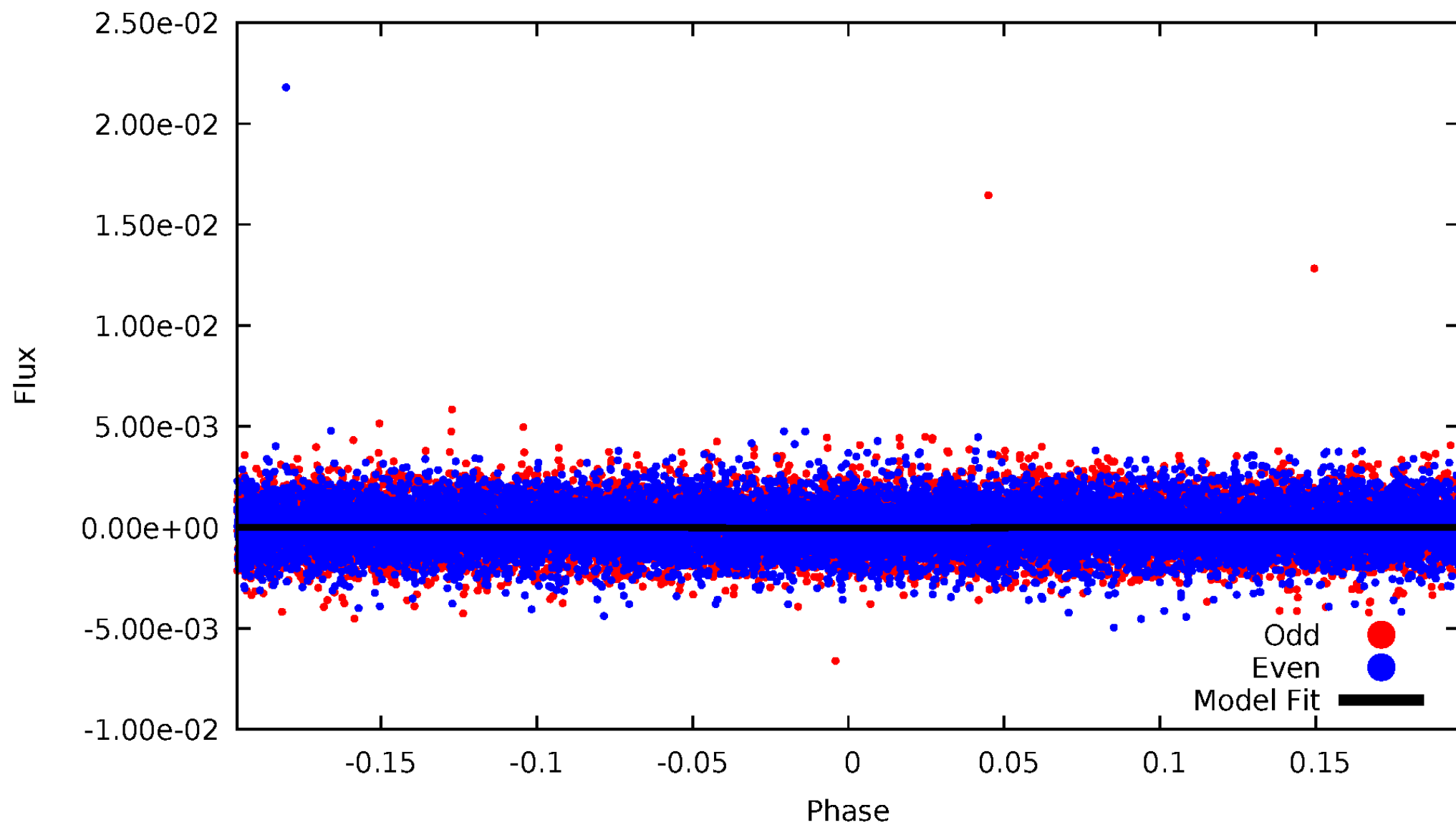
TCE 008042044-01





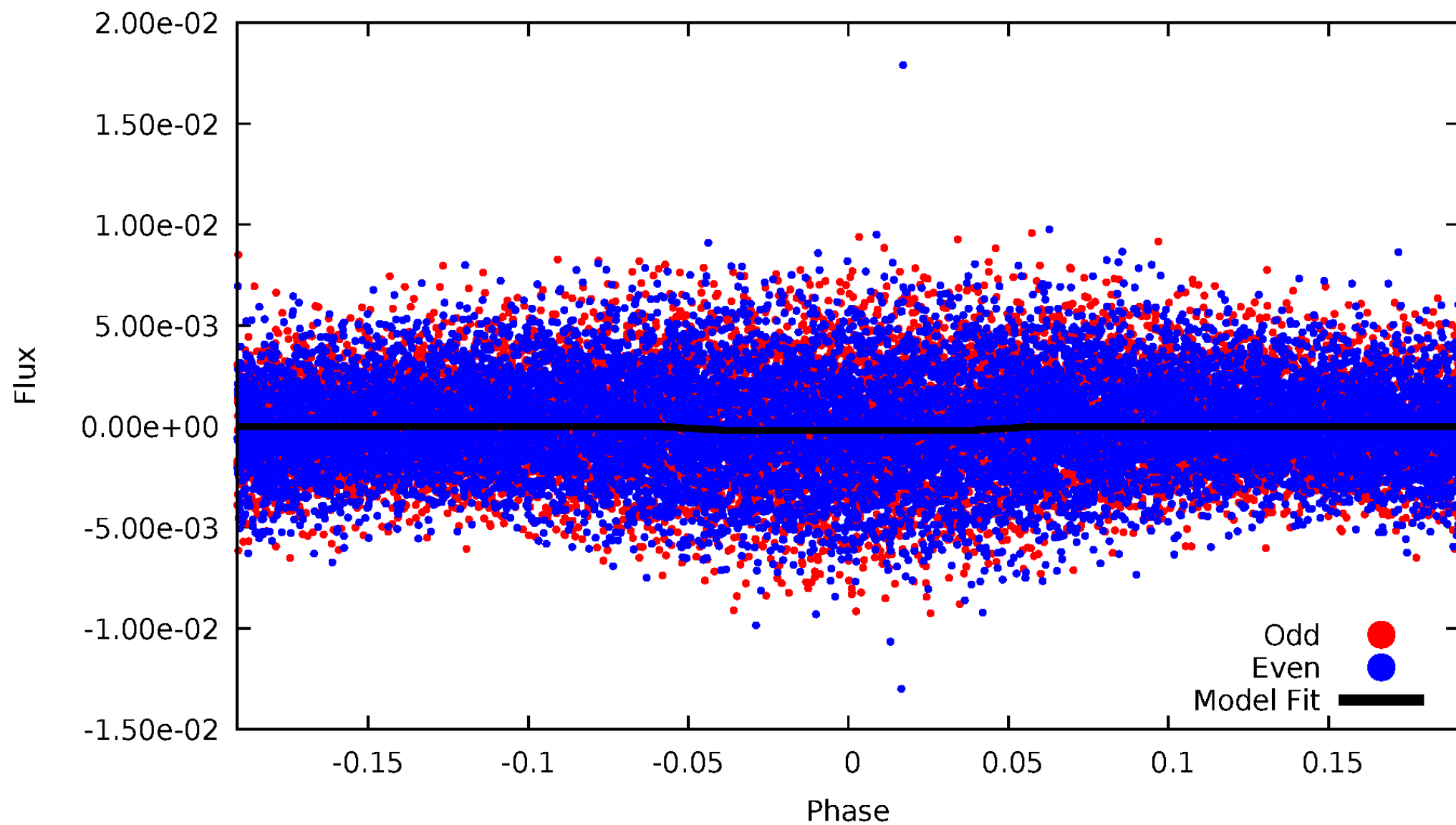
# DV Odd/Even

TCE 008042044-01



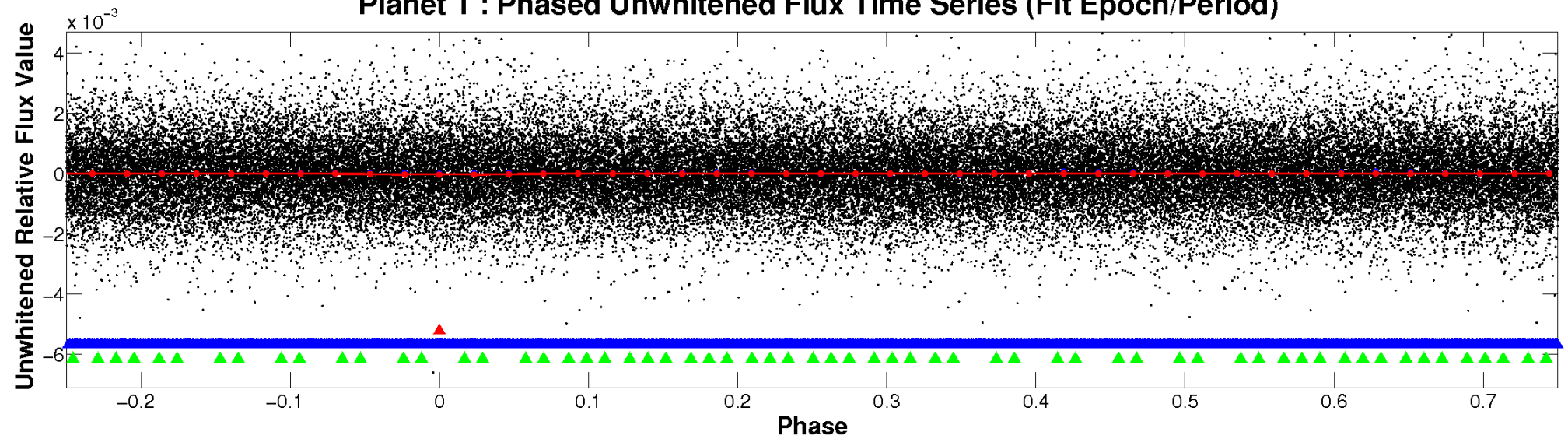
# ALT Odd/Even

TCE 008042044-01

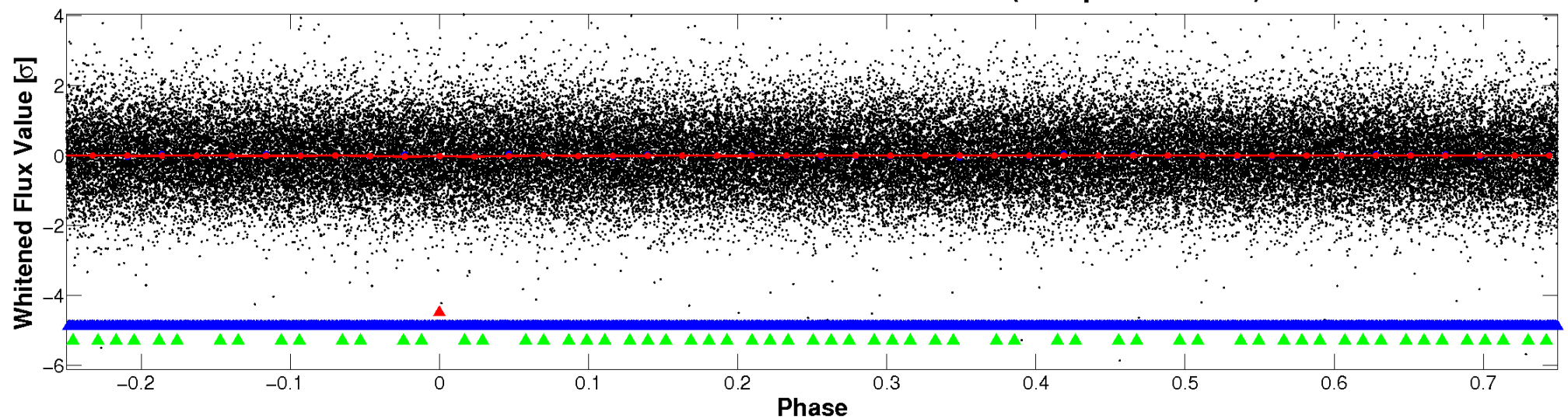


# Non-Whitened Vs. Whitened Light Curve

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



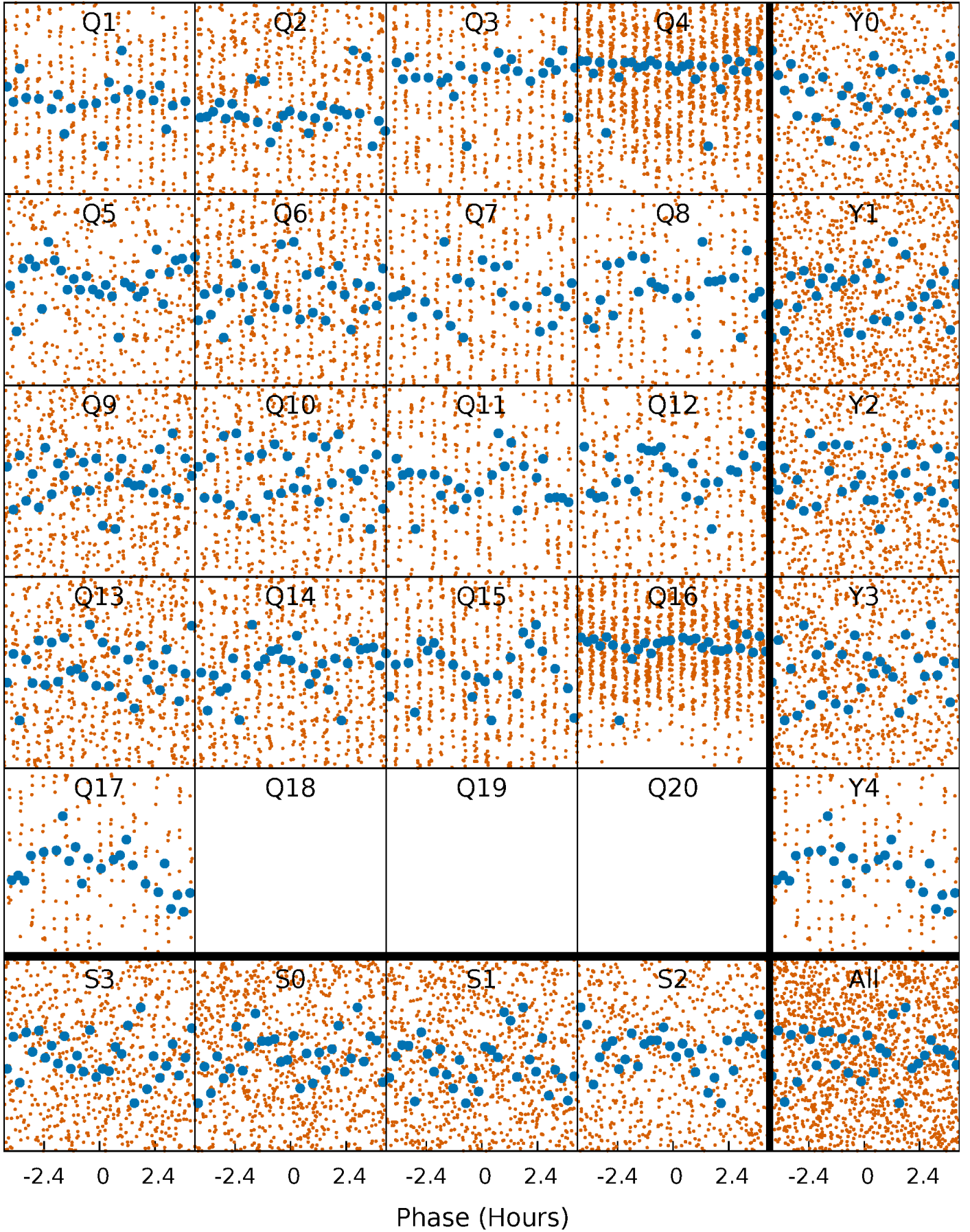
Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





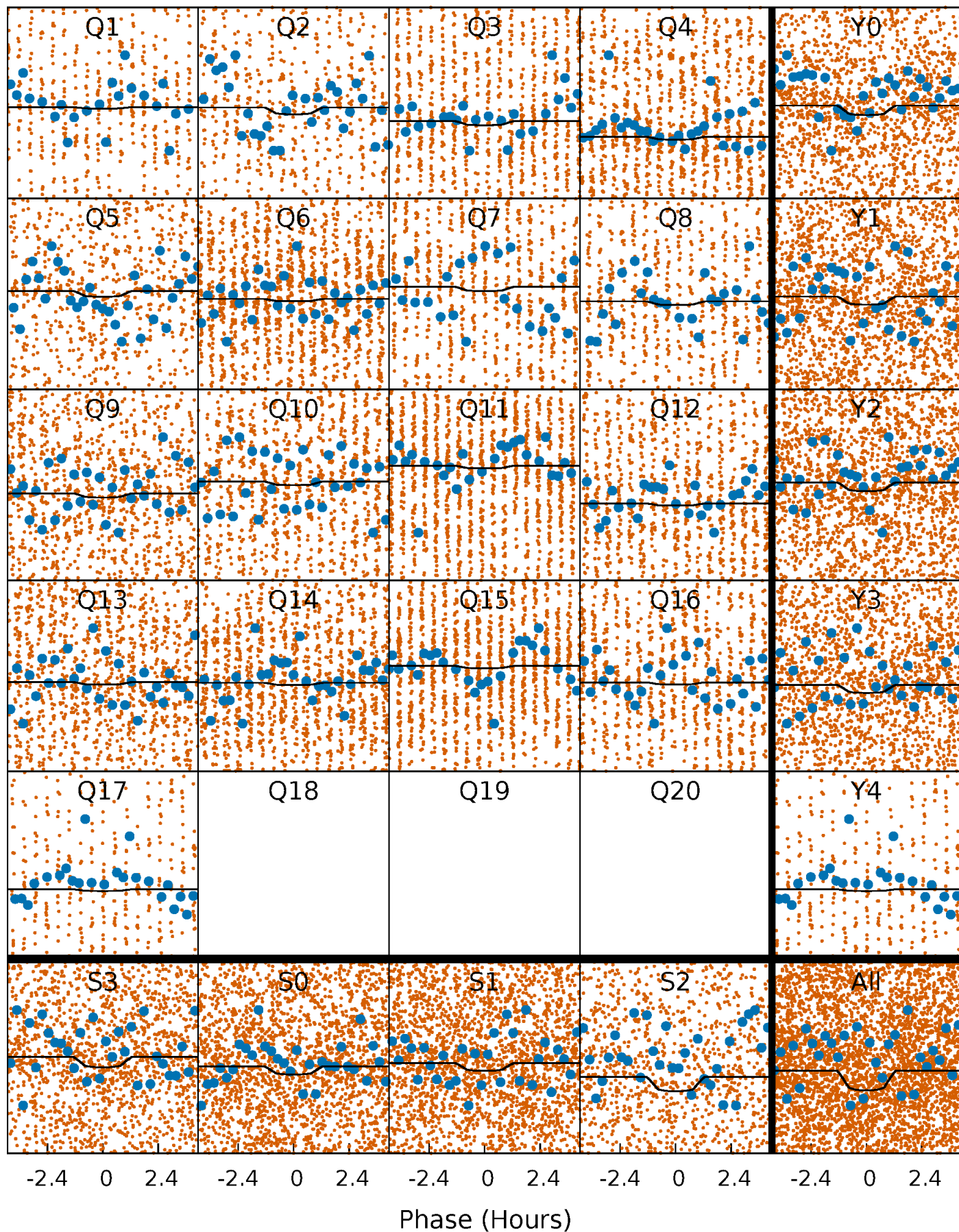
# PDC Quarter-Phased Transit Curves

TCE 008042044-01   P= 0.878562 Days    $T_0=132.257490$  (BKJD)



# DV Quarter-Phased Transit Curves

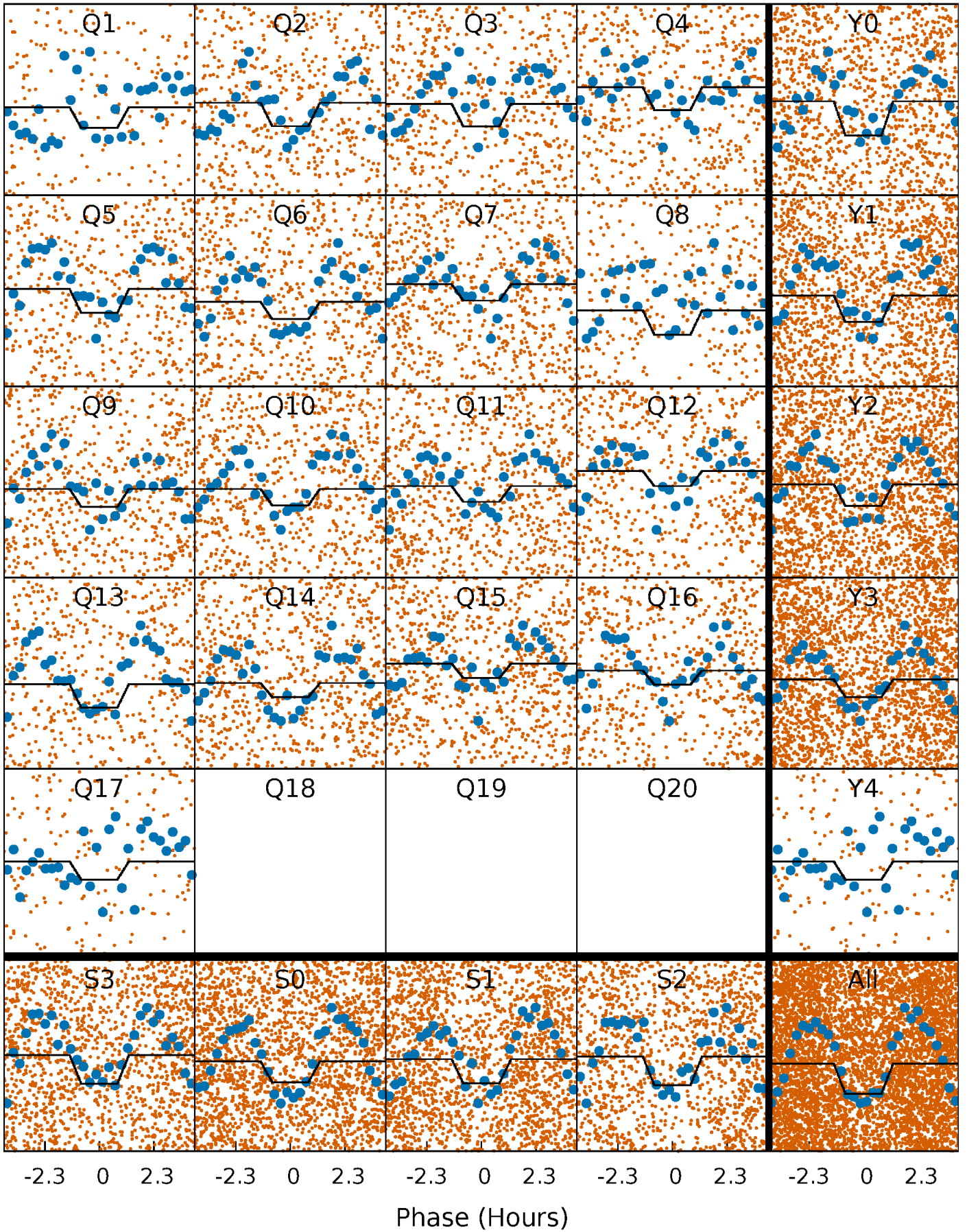
TCE 008042044-01 P= 0.878562 Days  $T_0=132.257490$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 008042044-01 P= 0.879485 Days  $T_0=132.127310$  (BKJD)

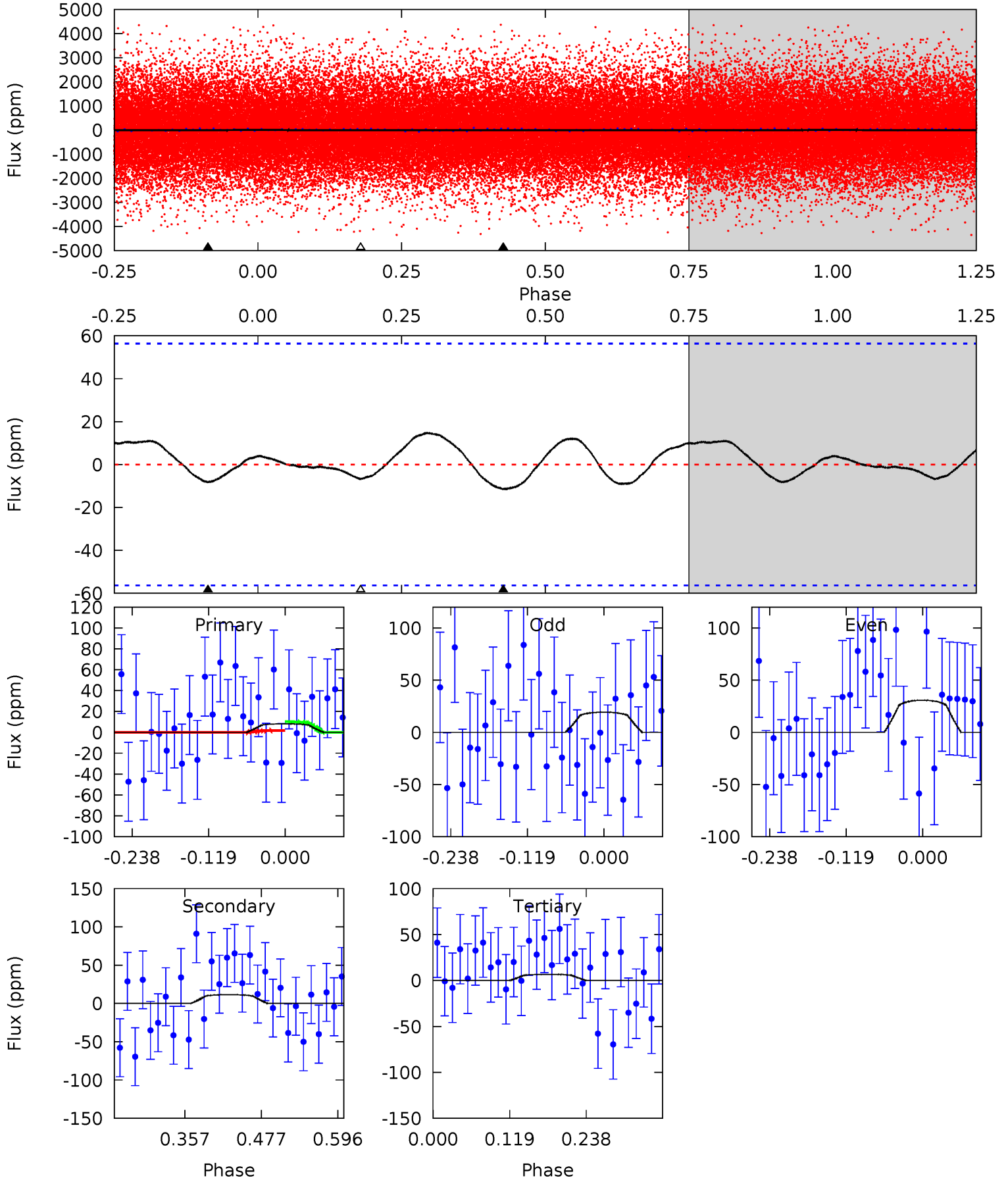




# DV Model-Shift Uniqueness Test

008042044-01, P = 0.878562 Days, E = 131.378928 Days

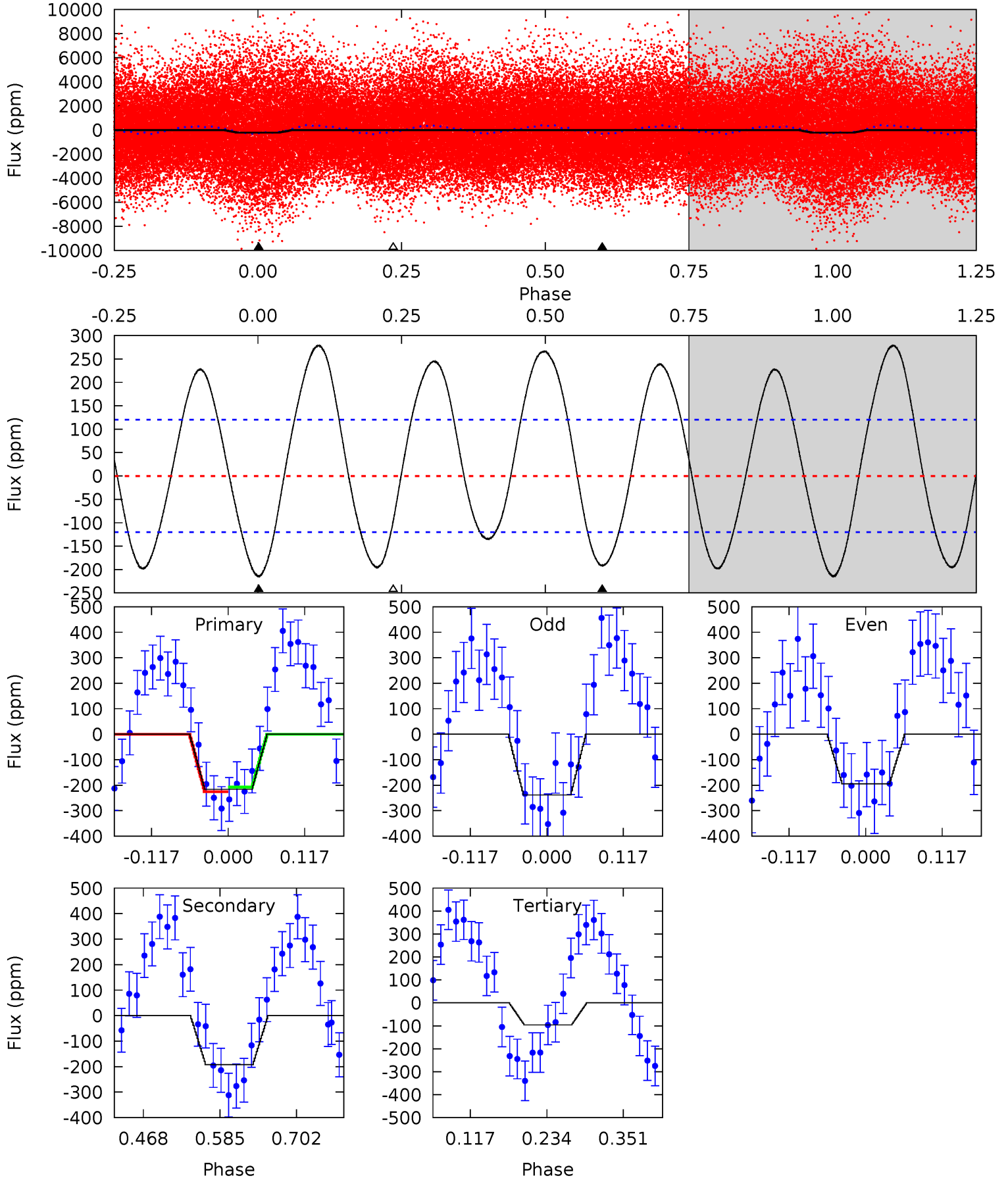
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.66	0.92	0.54	0	4.53	1.56	0.55	0.12	0.66	0.38	0.92	0.46	1.93	0.56	0.33



# Alt Model-Shift Uniqueness Test

008042044-01, P = 0.879485 Days, E = 131.247825 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
8.16	7.26	3.62	0	4.53	1.57	5.35	4.54	8.16	3.63	7.26	0.79	0.90	0.56	0.28



### Stellar Parameters For KIC 008042044

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6888^{+190}_{-286}$	$4.181^{+0.136}_{-0.187}$	$-0.160^{+0.250}_{-0.350}$	$1.562^{+0.494}_{-0.329}$	$1.363^{+0.202}_{-0.247}$	$0.503^{+0.381}_{-0.249}$
	+3%/-4%	+3%/-4%	+156%/-219%	+32%/-21%	+15%/-18%	+76%/-50%
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 008042044-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-11 \pm 12$	$0.96^{+0.64}_{-0.55}$	$3788^{+286}_{-245}$	$4966^{+2952}_{-8435}$	$2.260^{+10.226}_{-2.192}$
Alt.	$-192 \pm 27$	$2.52^{+0.76}_{-0.71}$	$3779^{+272}_{-244}$	$6587^{+1264}_{-855}$	$6.531^{+5.755}_{-2.762}$

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



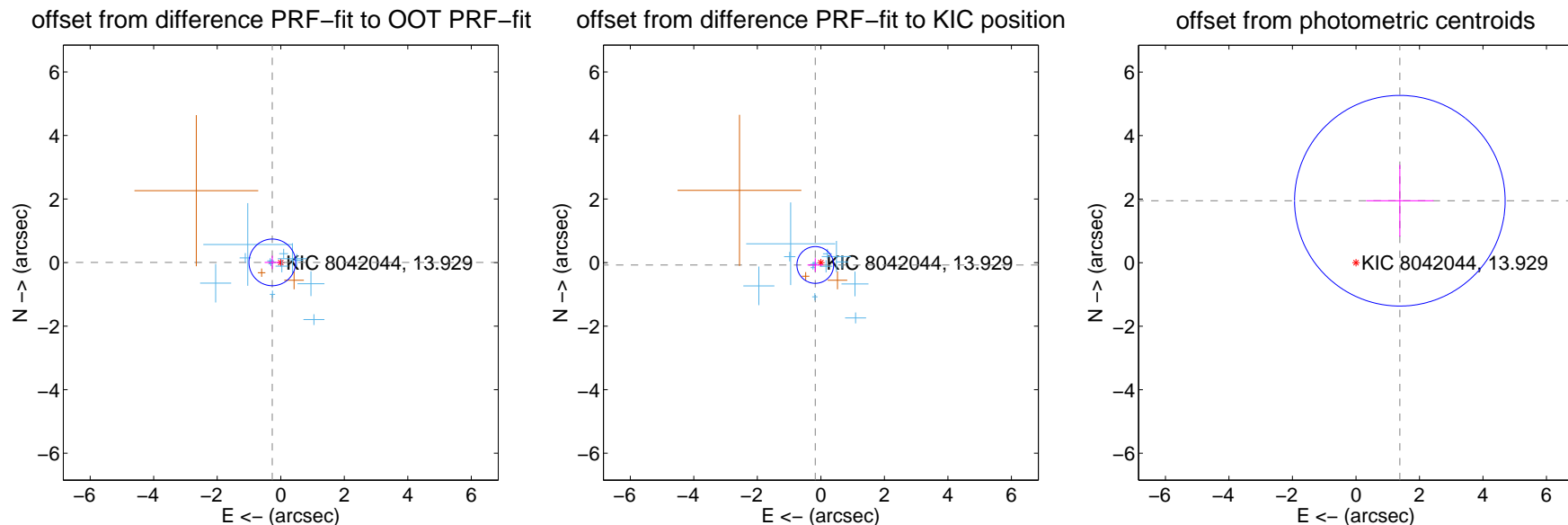
## DV Centroid Data

Supplemental centroid analysis for 008042044-01. Kepler magnitude: 13.93. Transit SNR 1.32

There are 13 quarters with good PRF difference image offsets

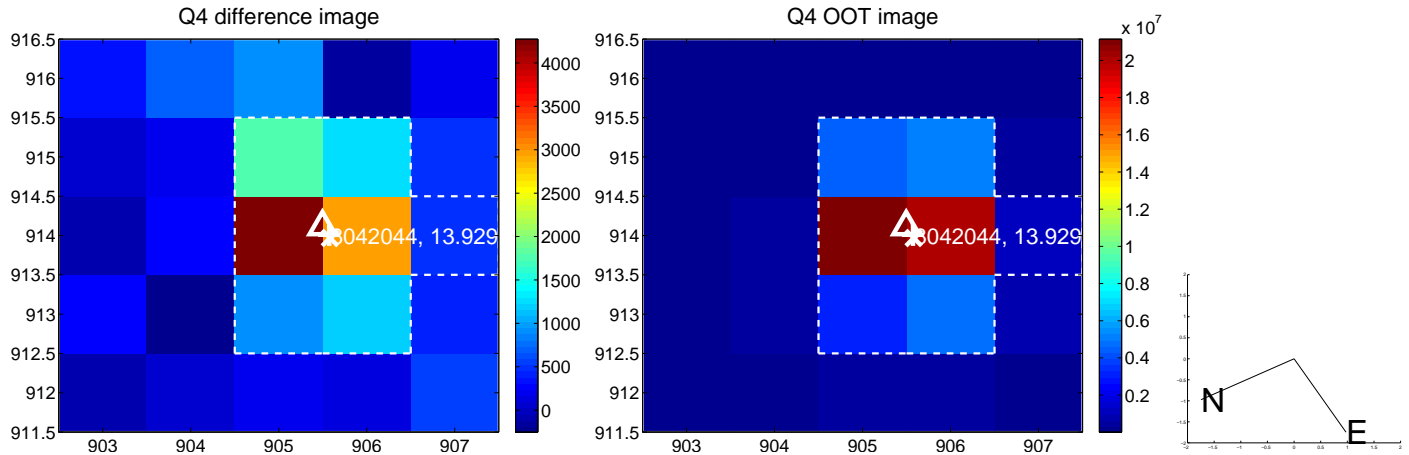
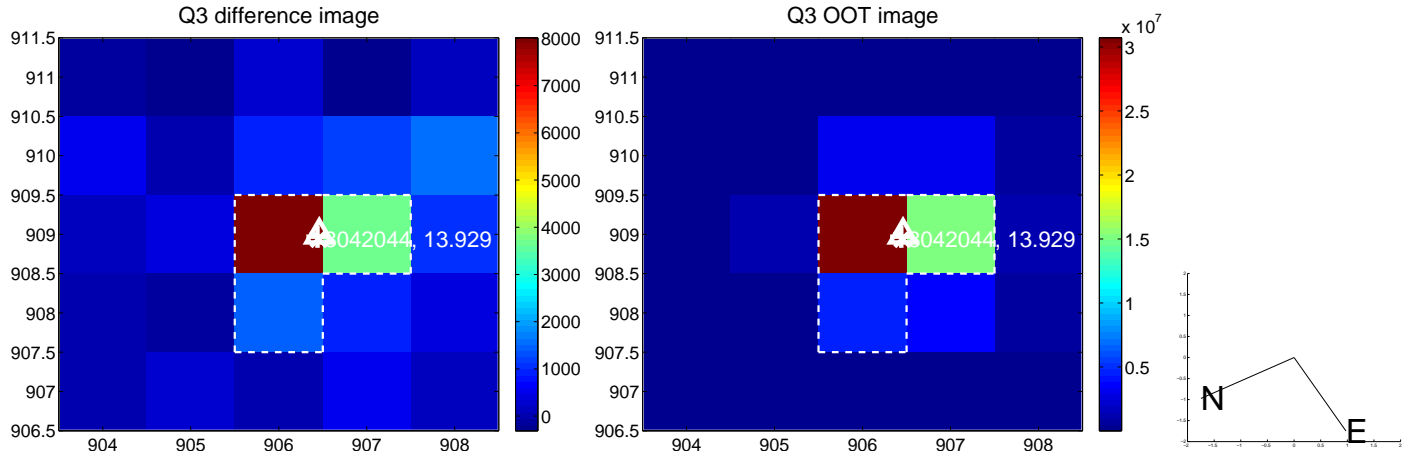
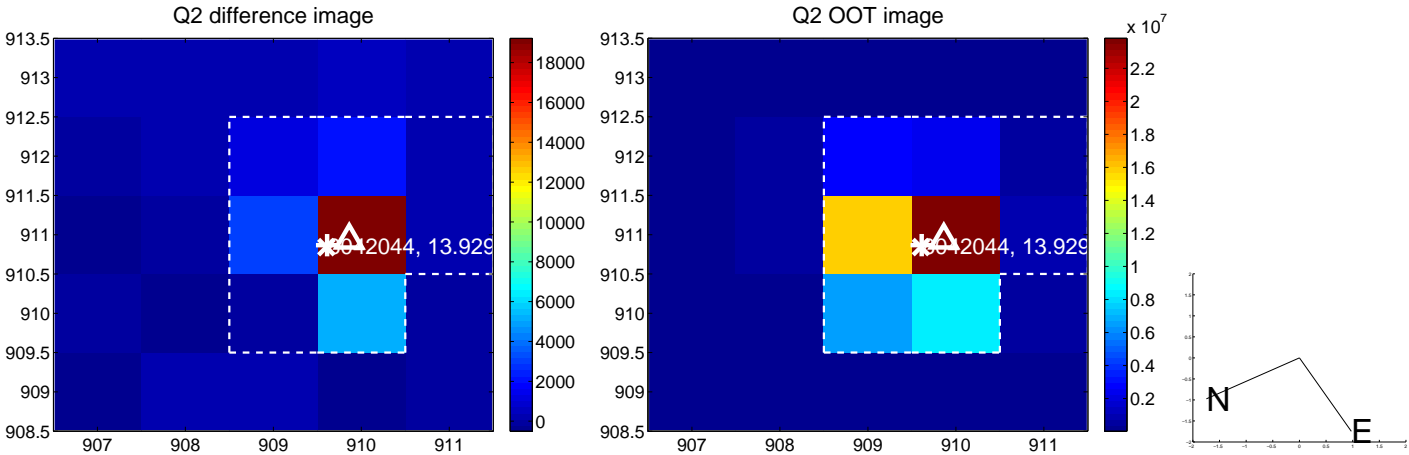
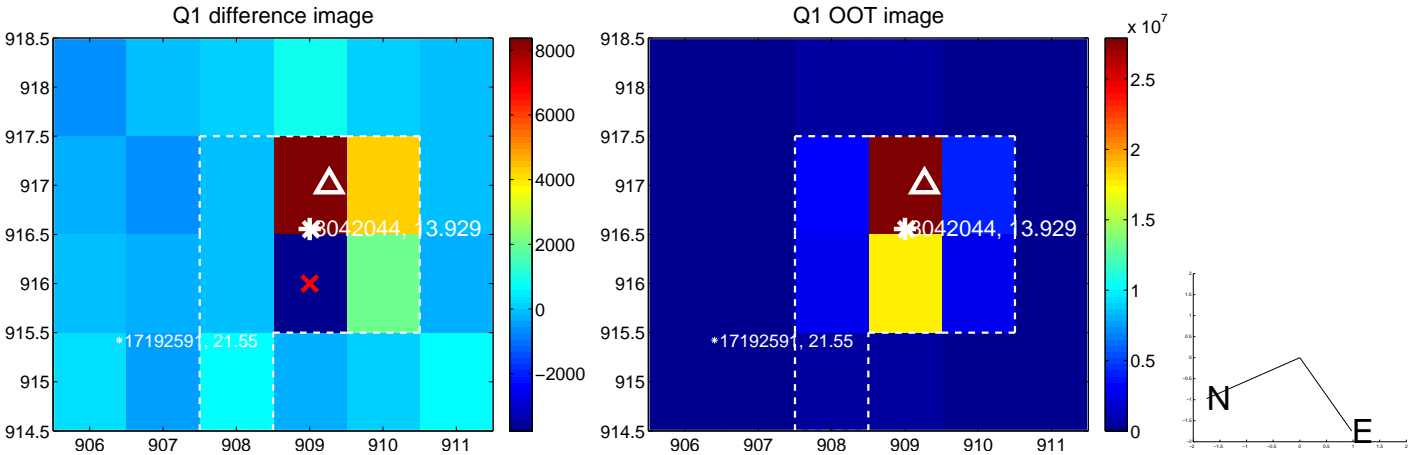
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.266 \pm 0.245$	1.09	$0.266 \pm 0.242$	$0.006 \pm 0.209$
PRF-fit source offset from KIC position	$0.191 \pm 0.193$	0.99	$0.176 \pm 0.244$	$-0.075 \pm 0.212$
photometric centroid source offset	$2.39 \pm 1.11$	2.16	$-1.38 \pm 1.06$	$1.95 \pm 1.13$

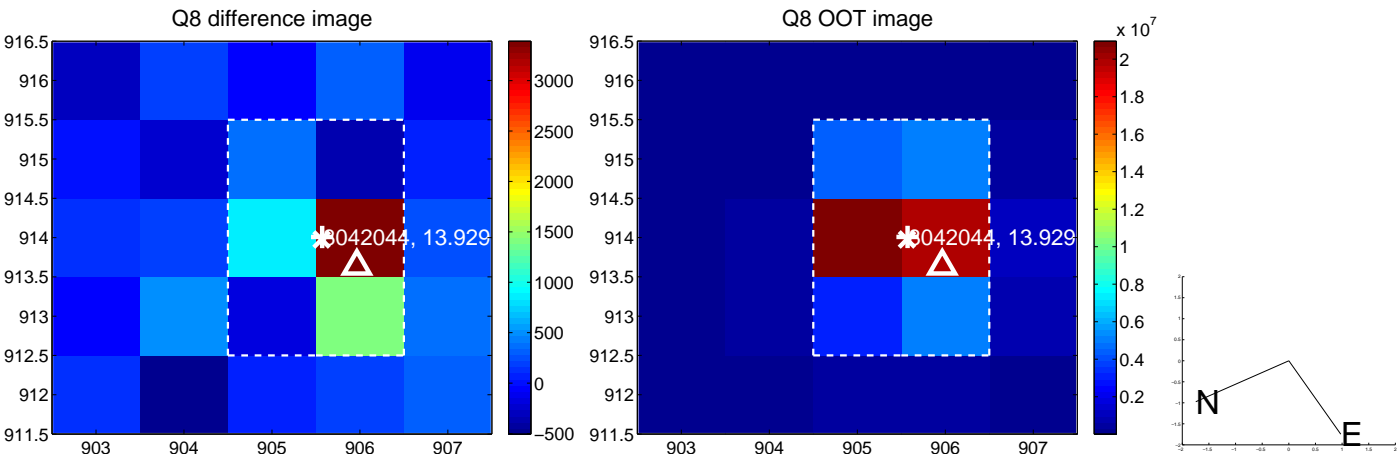
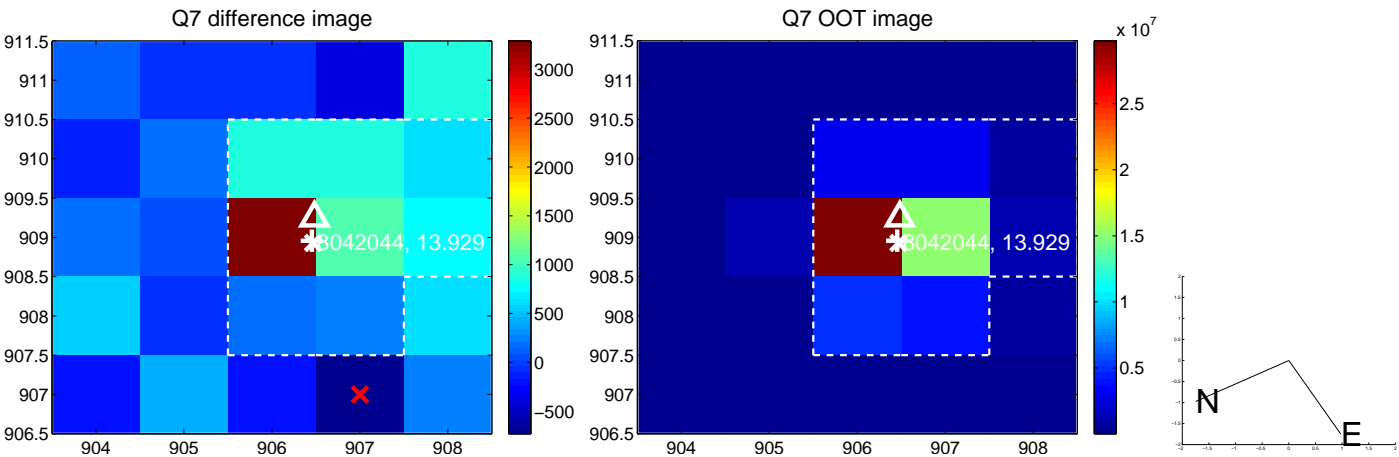
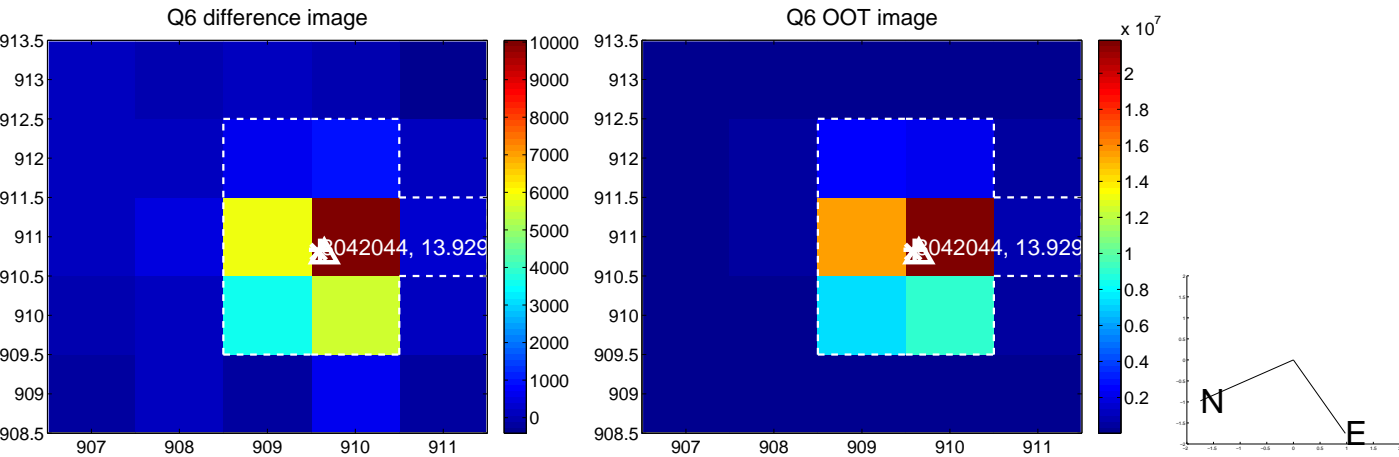
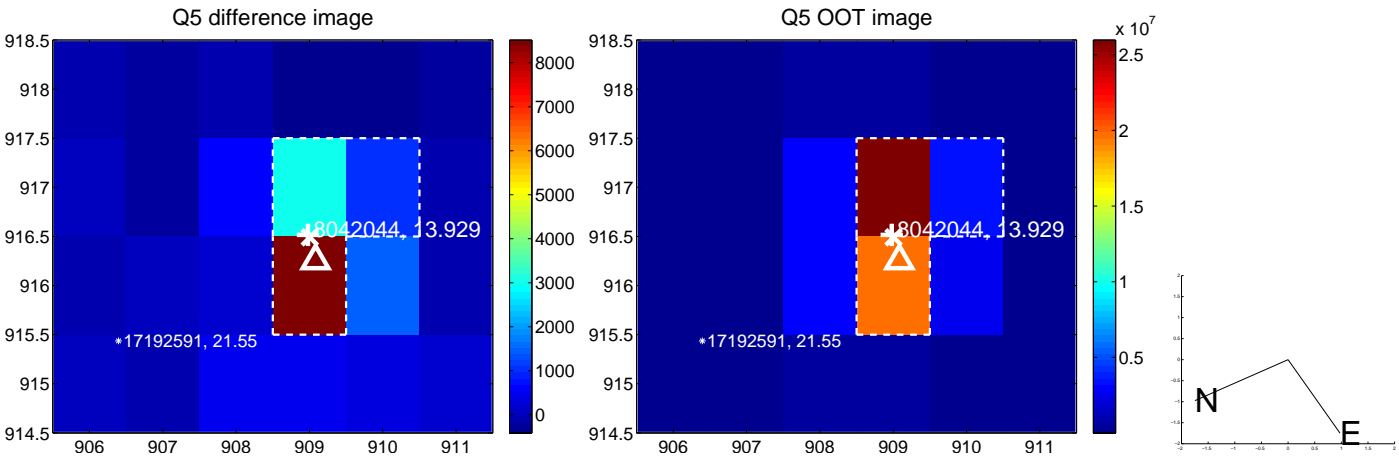


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

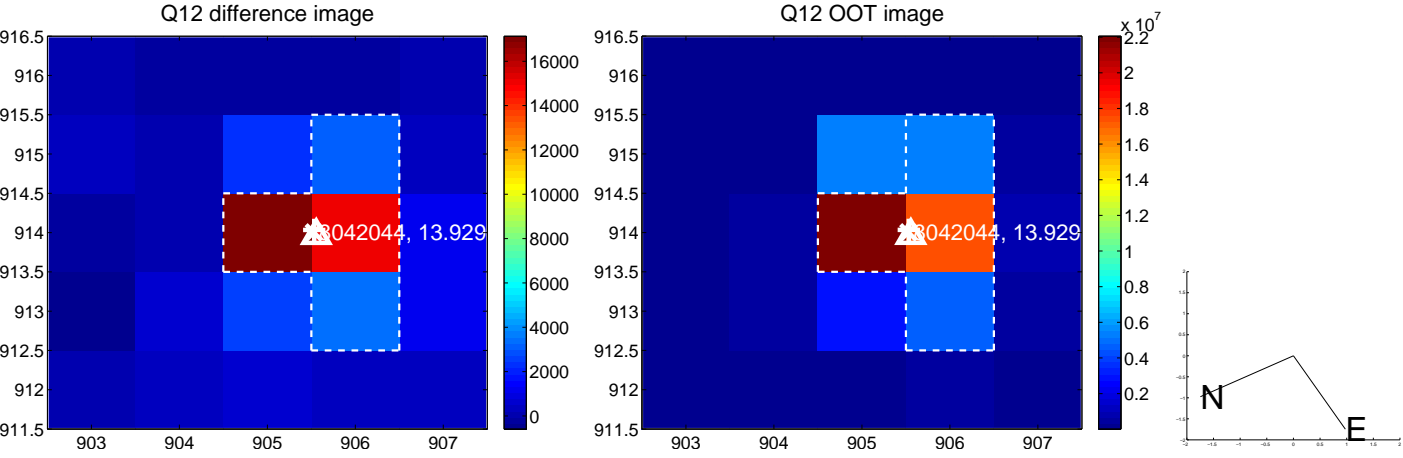
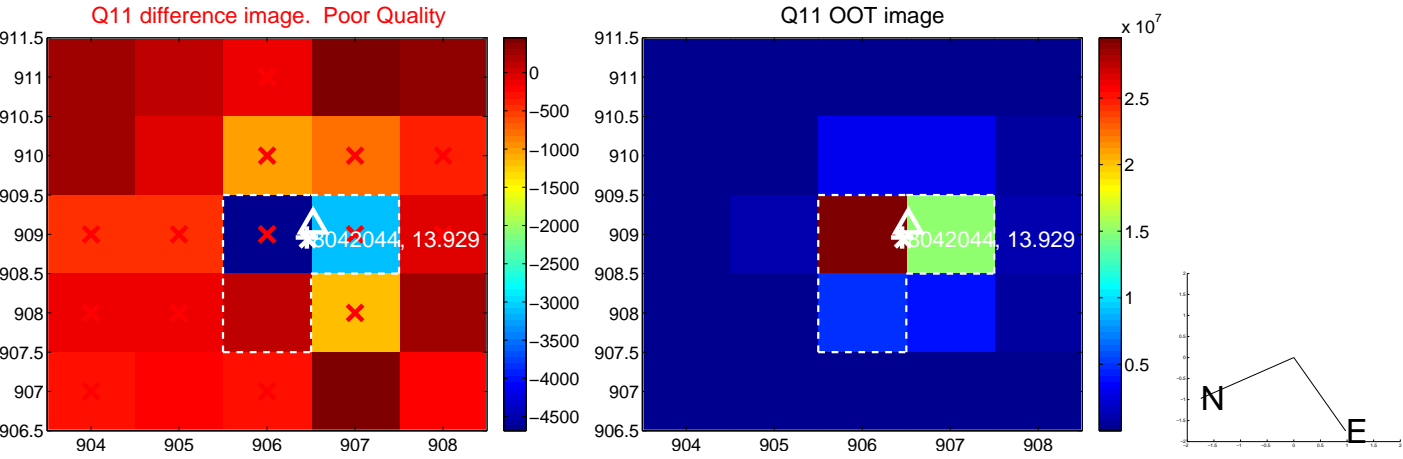
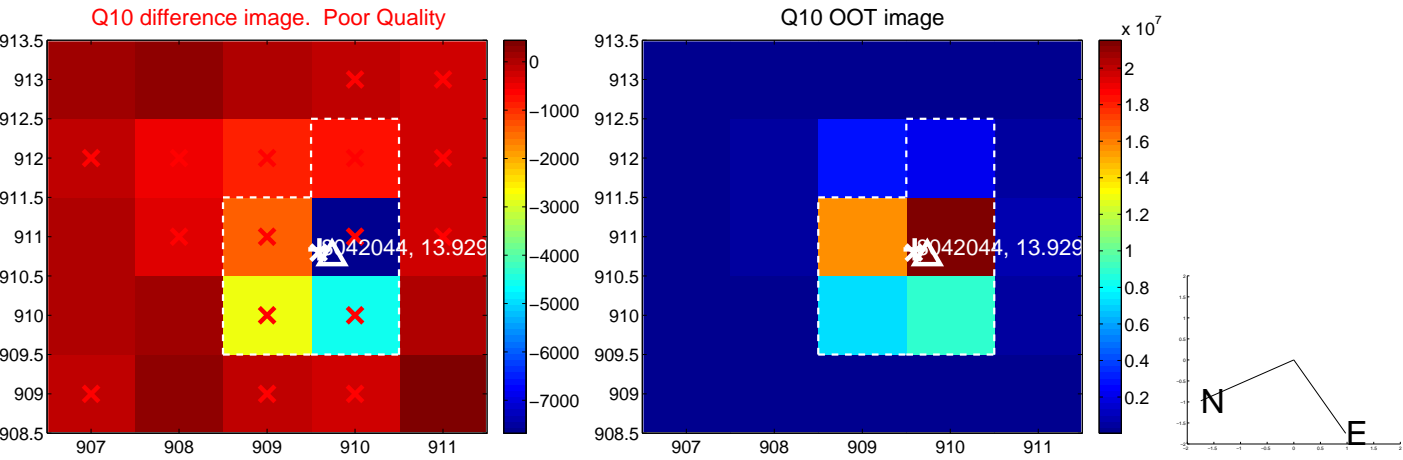
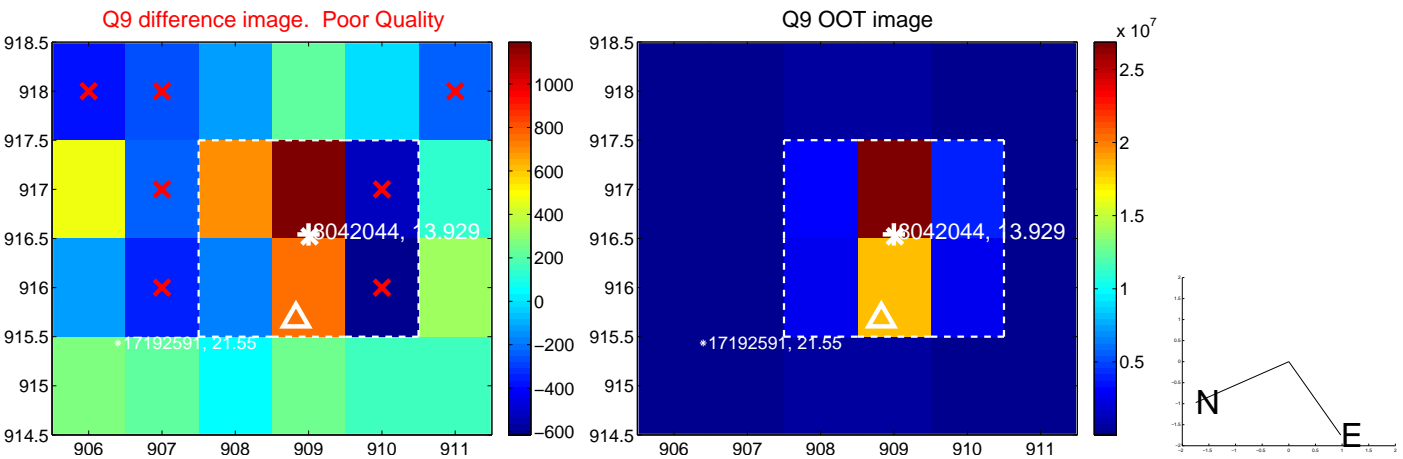


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

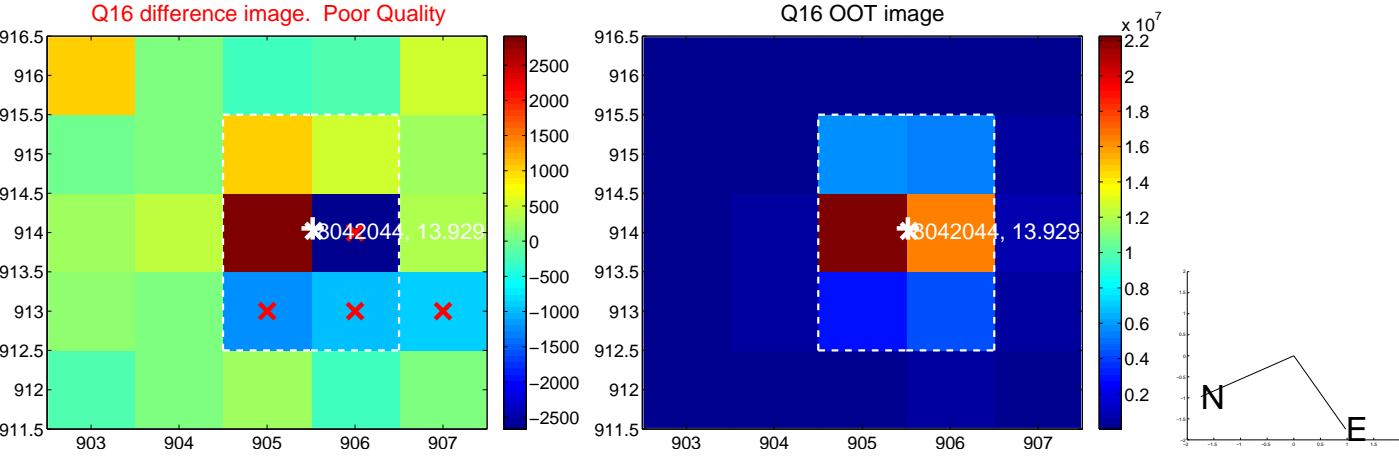
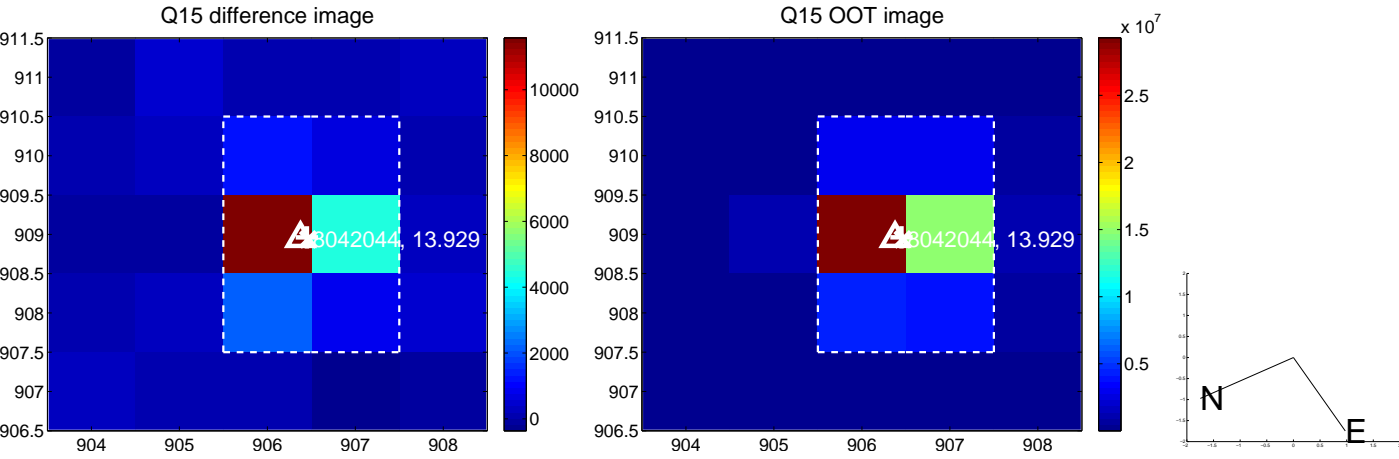
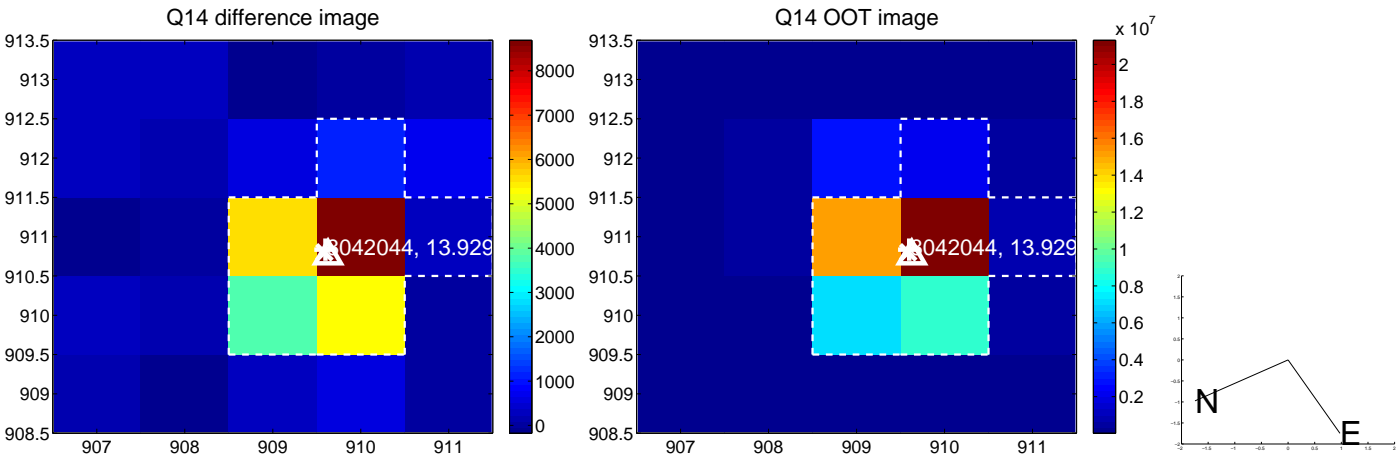
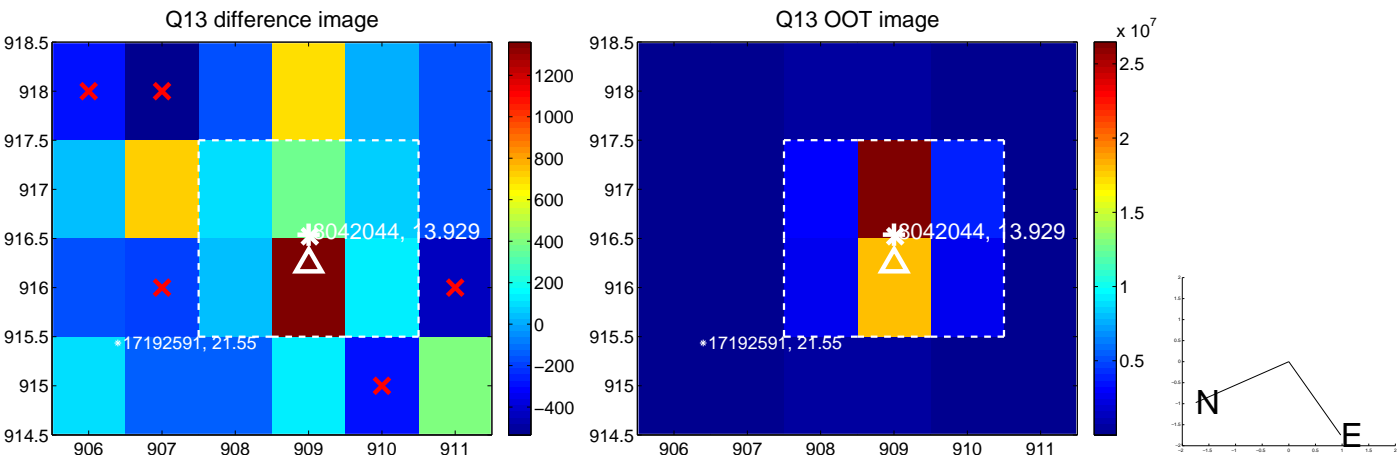




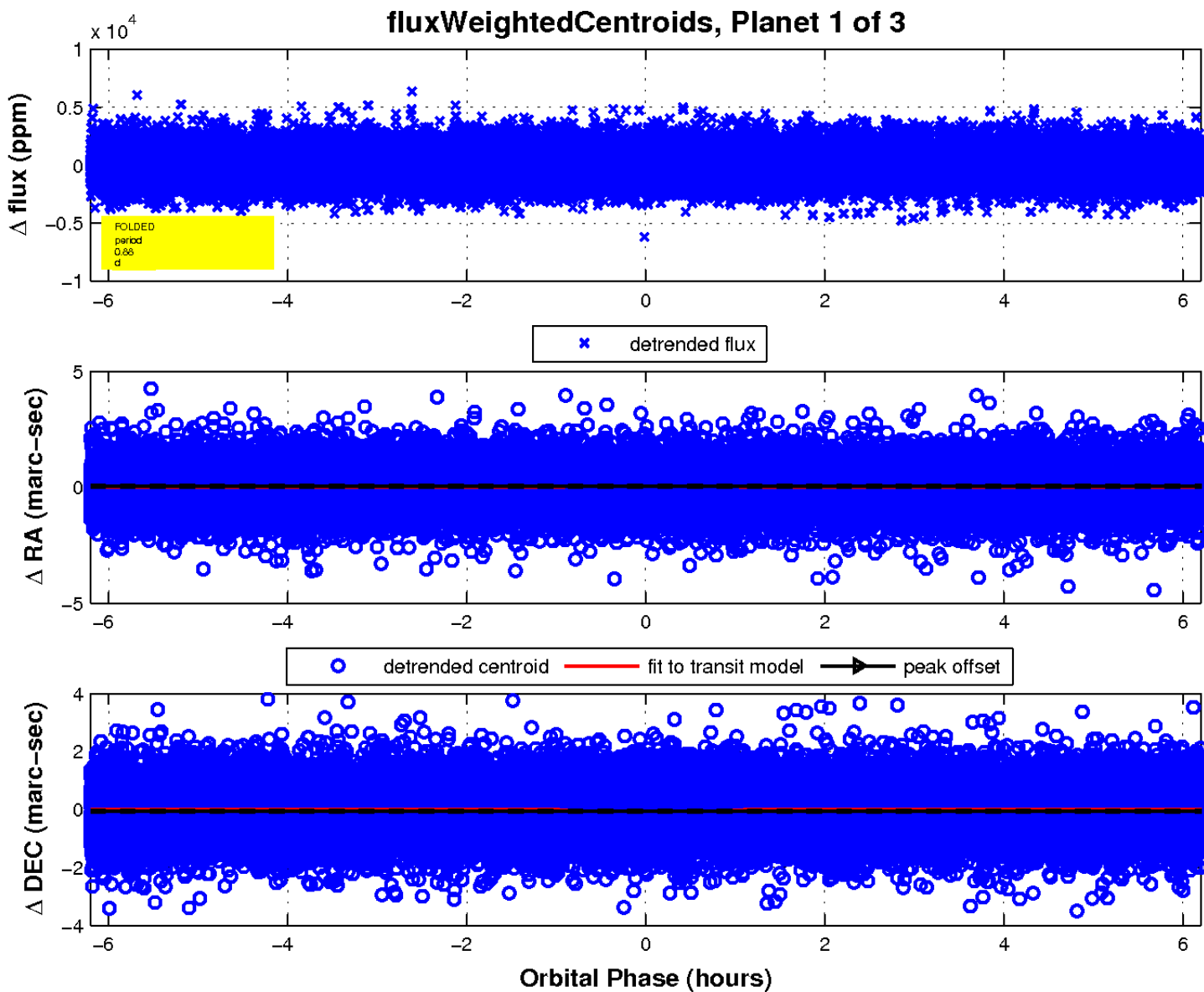
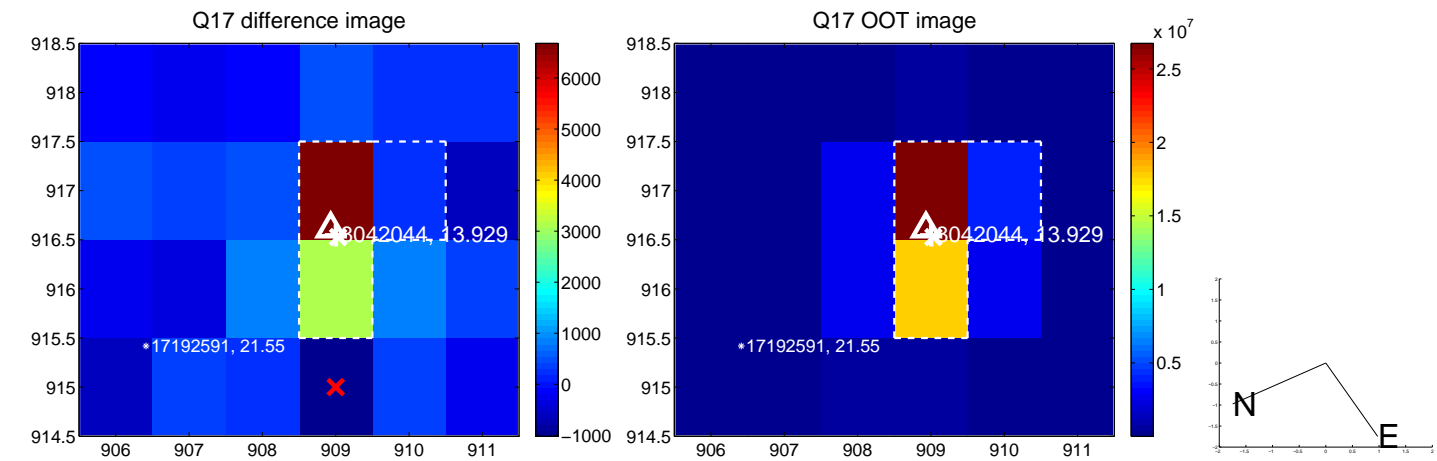
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

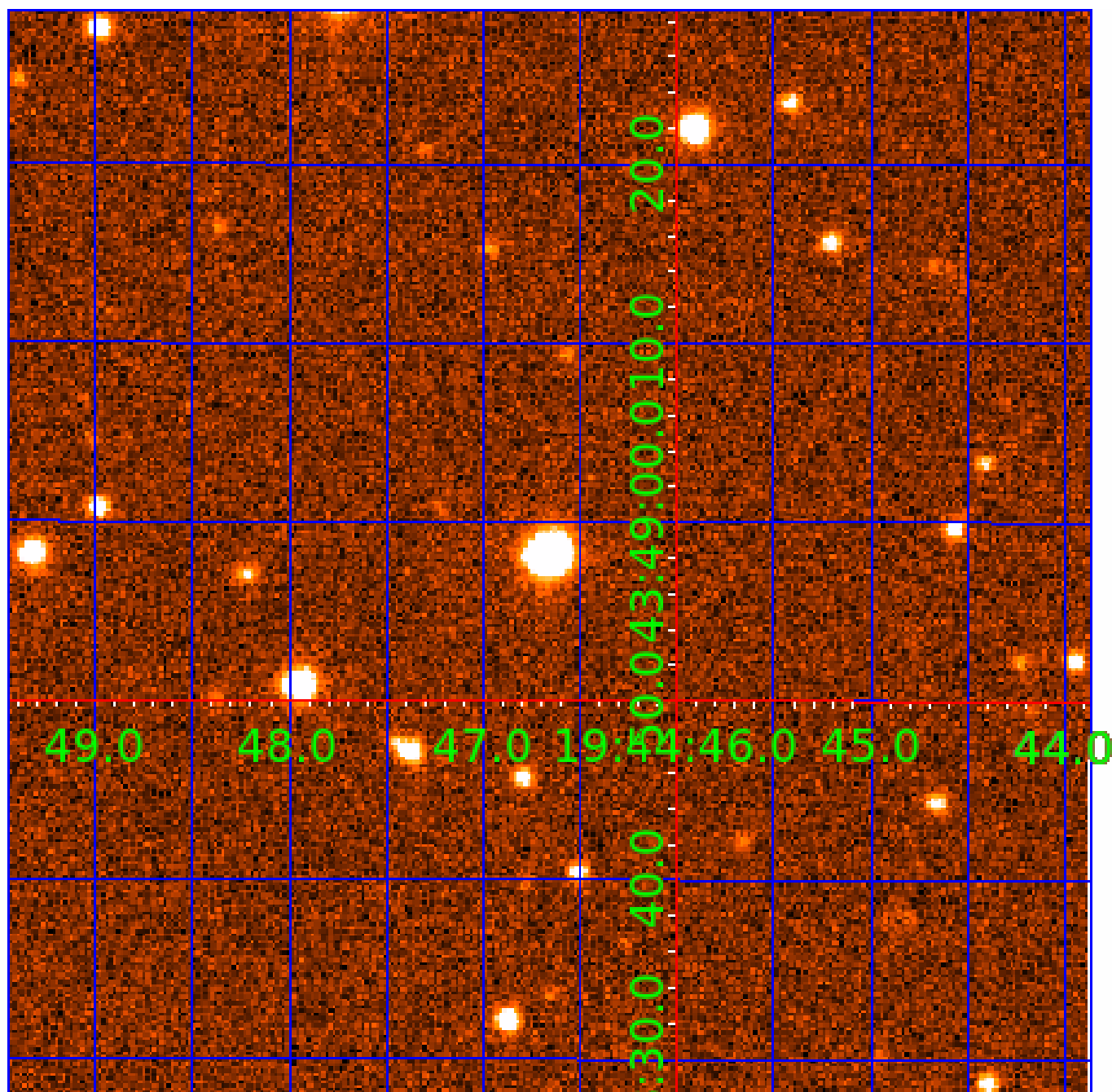


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 008042044

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008042044-01	OBS	No	0.878562	132.257490	29.4	2.068	11.6	1.3	1.56	6888	0.90	12493.70
008042044-02	OBS	No	1.177695	132.461842	170.4	7.951	10.6	11.7	1.56	6888	2.06	8452.99
008042044-03	OBS	No	23.263895	151.863282	1031.7	3.000	14.9	-1.0	1.56	6888	5.07	158.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008042044-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008042044-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
008042044-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

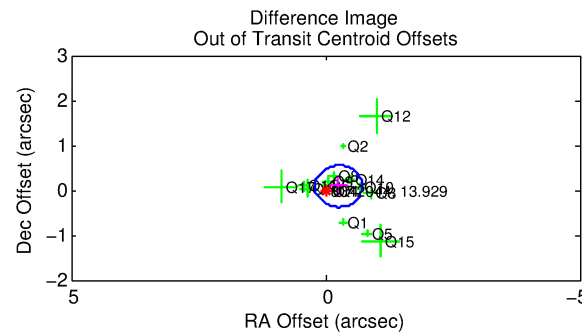
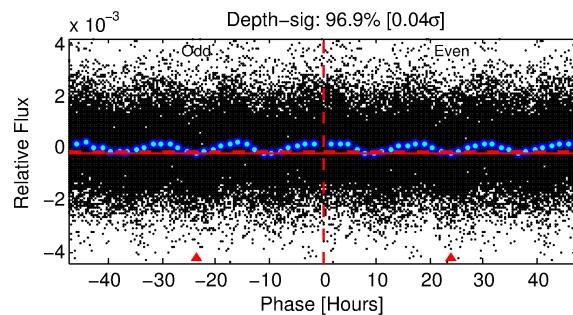
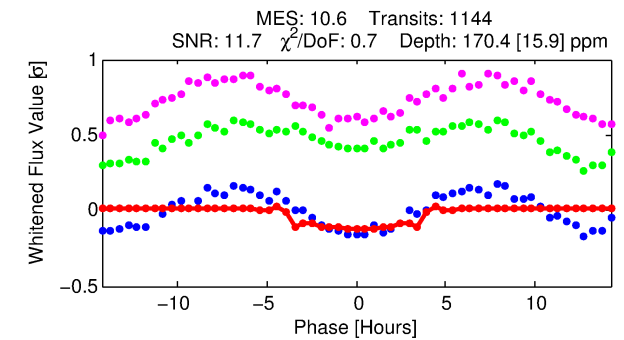
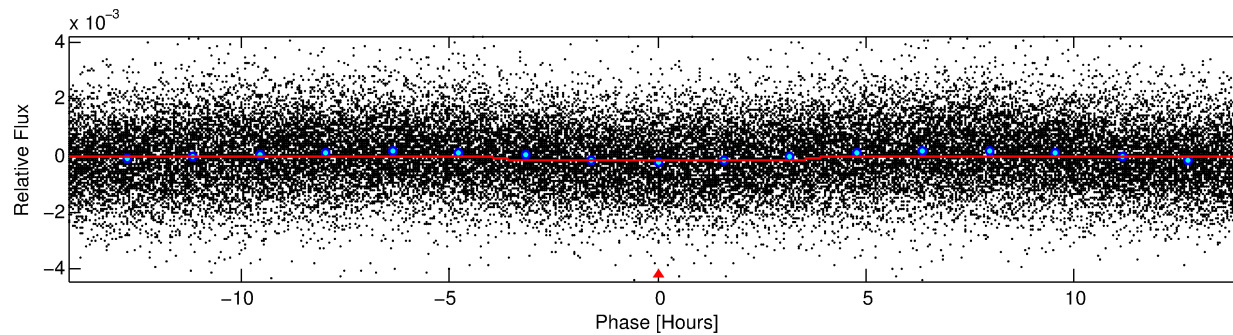
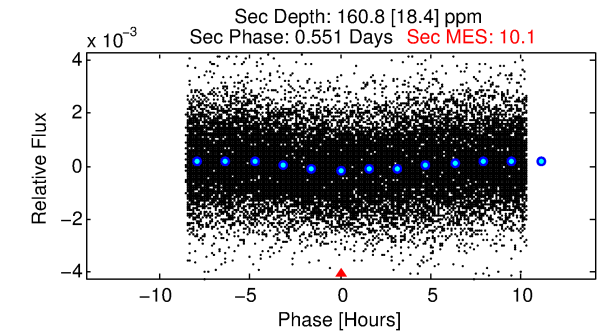
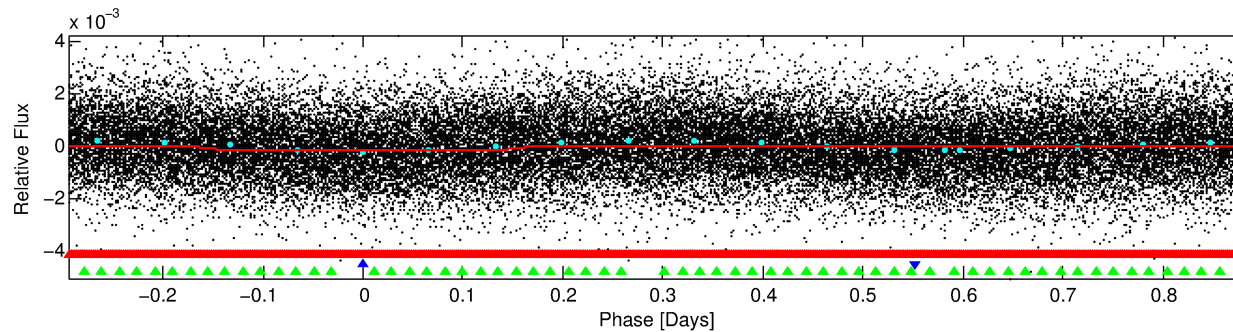
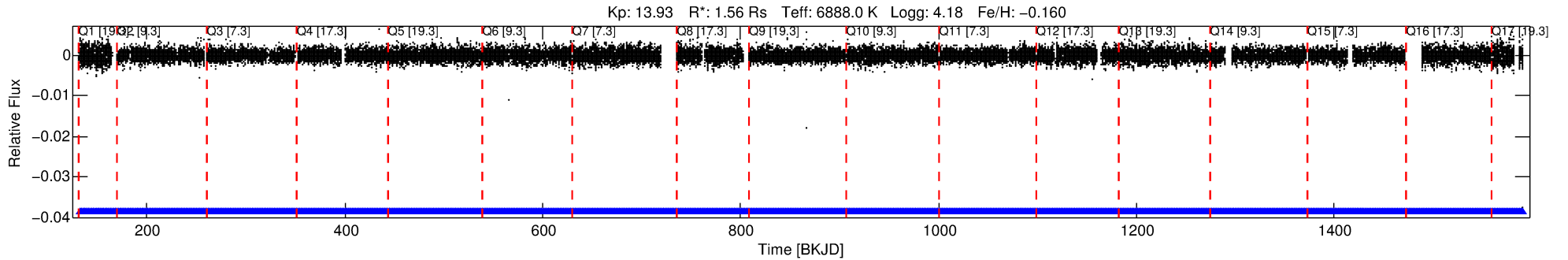
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008042044-02

No Significant Match Found

# DV One-Page Summary

KIC: 8042044 Candidate: 2 of 3 Period: 1.178 d



## DV Fit Results:

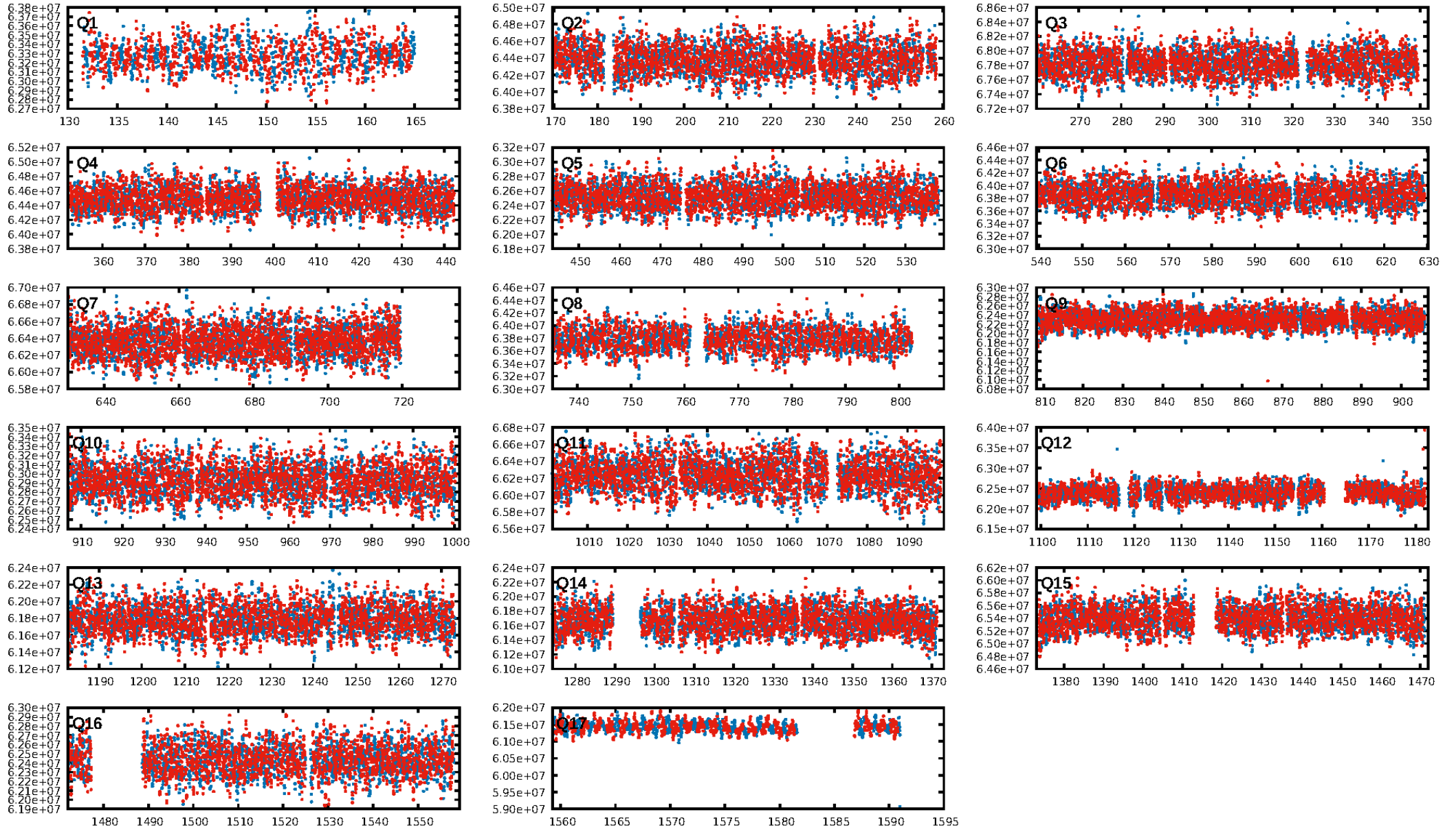
Period = 1.17770 [0.00001] d  
Epoch = 132.4618 [0.0026] BKJD  
Rp/R\* = 0.0121 [0.0075]  
a/R\* = 1.31 [1.90]  
b = 0.01 [359.17]  
Seff = 8452.99 [3321.92]  
Teq = 2445 [240] K  
Rp = 2.06 [1.44] Re  
a = 0.0241 [0.0062] AU  
Ag = 12.17 [15.84] [0.70σ]  
Teffp = 7060 [2230] K [2.06σ]

## DV Diagnostic Results:

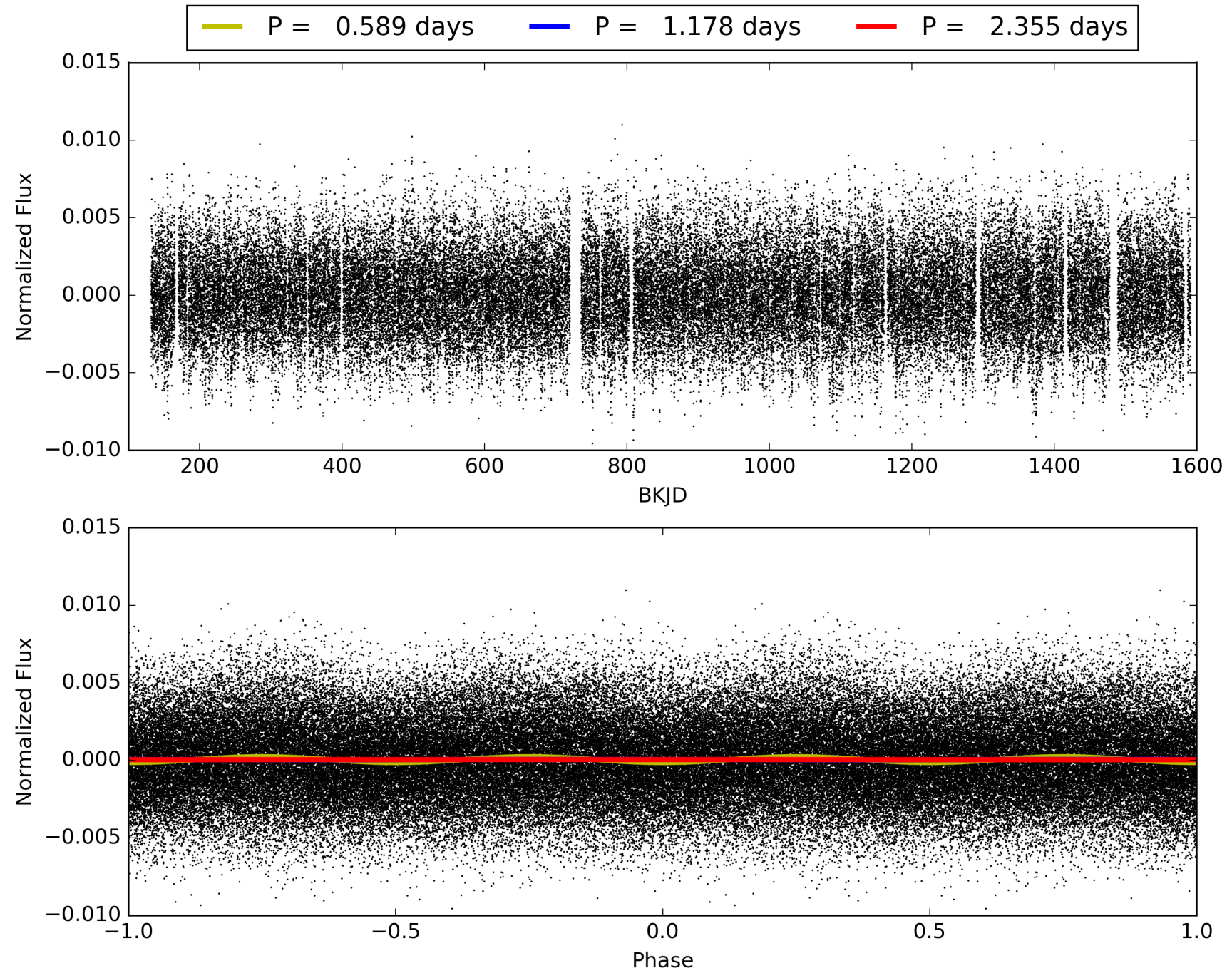
ShortPeriod-sig: 61.8% [0.87σ]  
LongPeriod-sig: 100.0% [62.37σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1093/1093]  
GhostDiagnostic-chr: 1.895  
Centroid-sig: 32.1%  
Centroid-so: 0.217 arcsec [1.91σ]  
OotOffset-rm: 0.267 arcsec [1.73σ]  
KicOffset-rm: 0.351 arcsec [2.41σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.94 [15/16]  
DiffImageOverlap-fno: 0.00 [0/17]



# TCE 008042044-02, PDC Light Curves

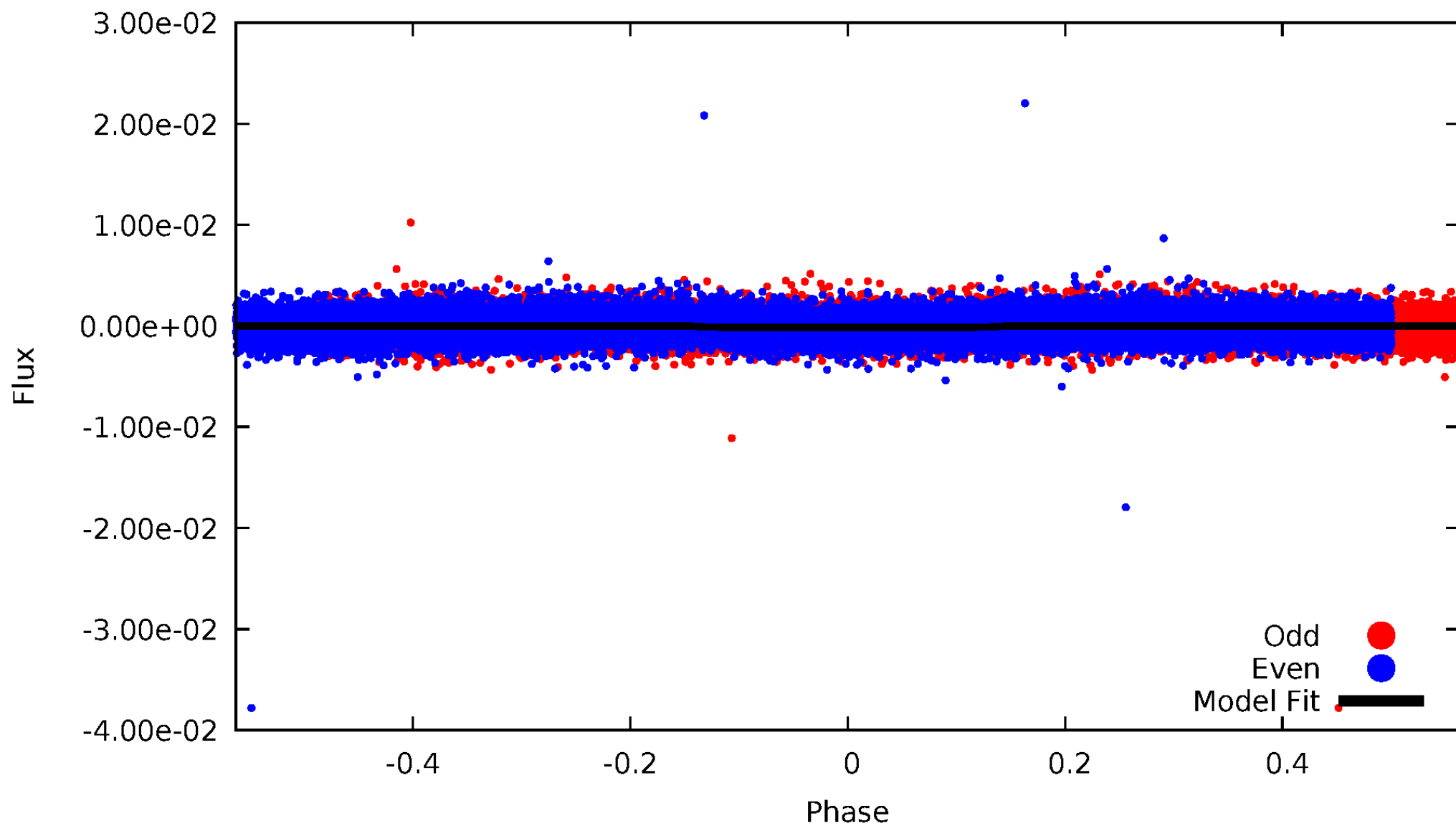


TCE 008042044-02



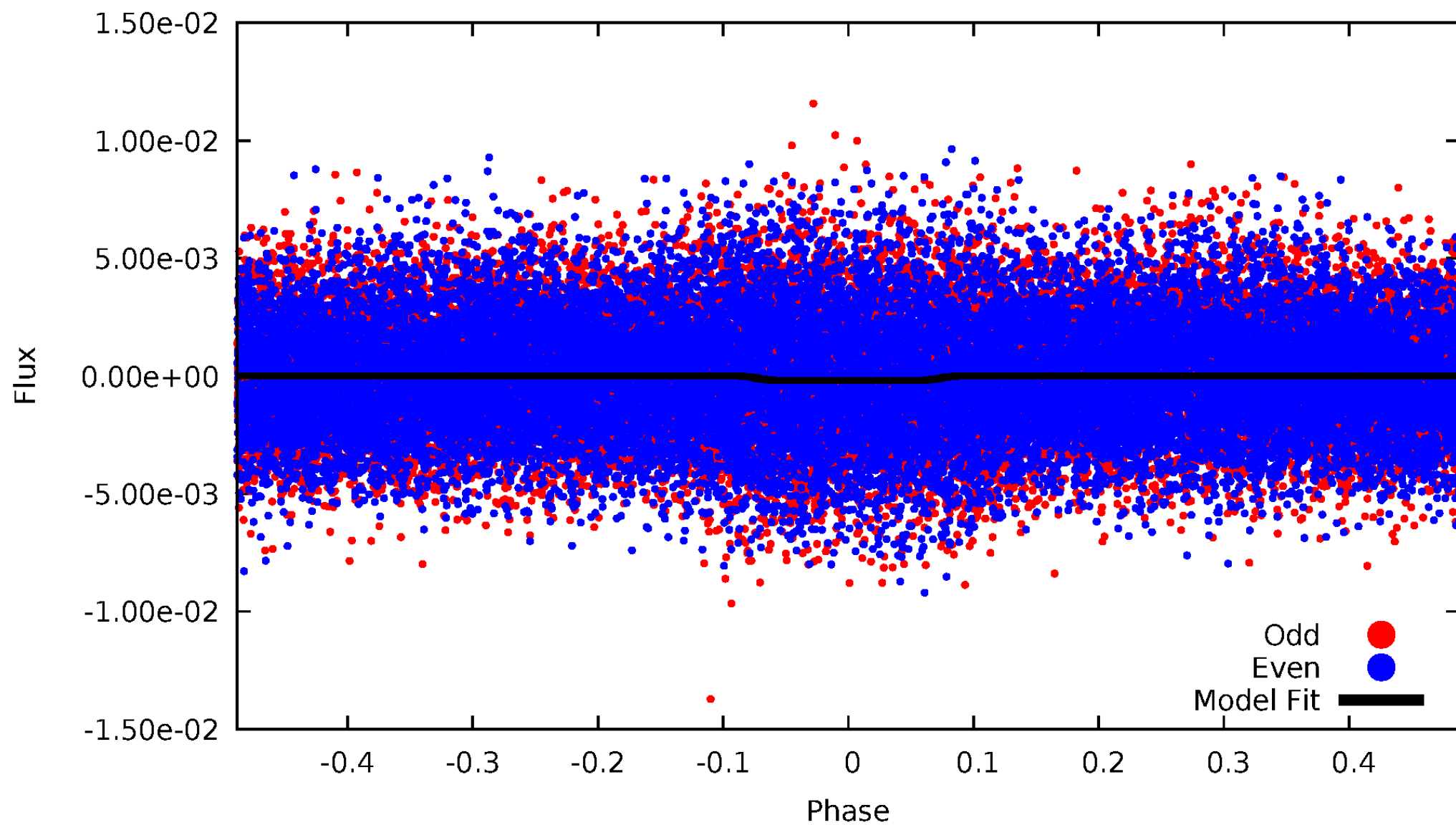
# DV Odd/Even

TCE 008042044-02



# ALT Odd/Even

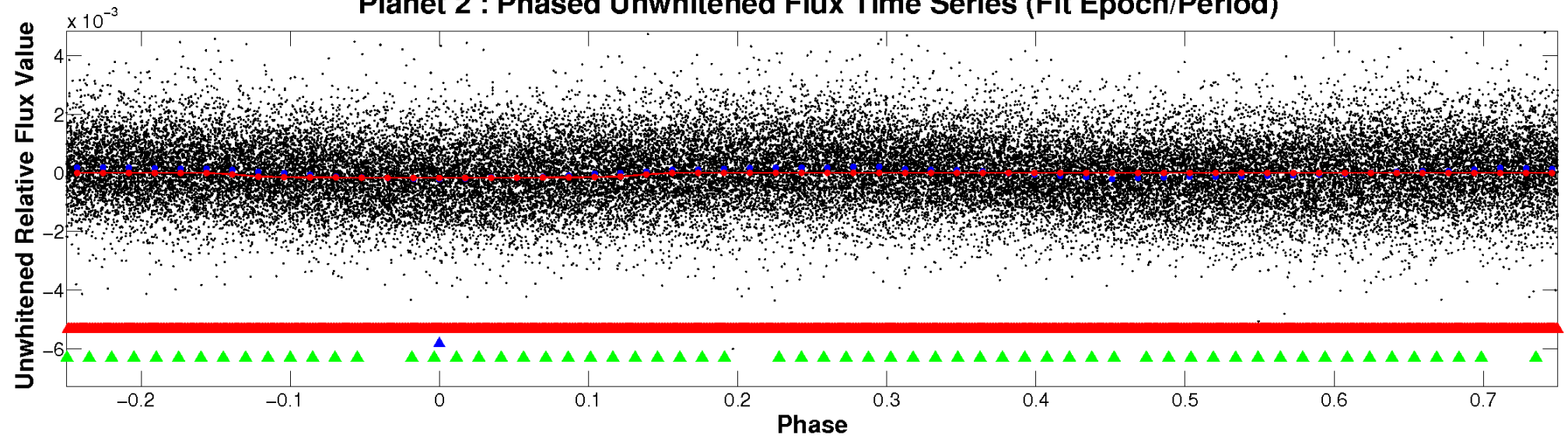
TCE 008042044-02



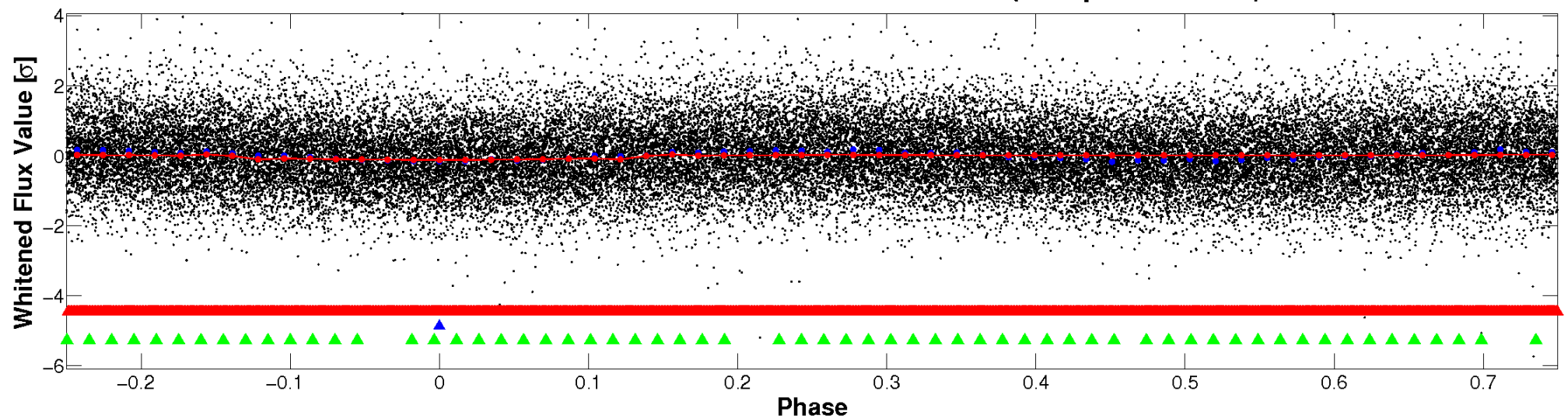


# Non-Whitened Vs. Whitened Light Curve

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



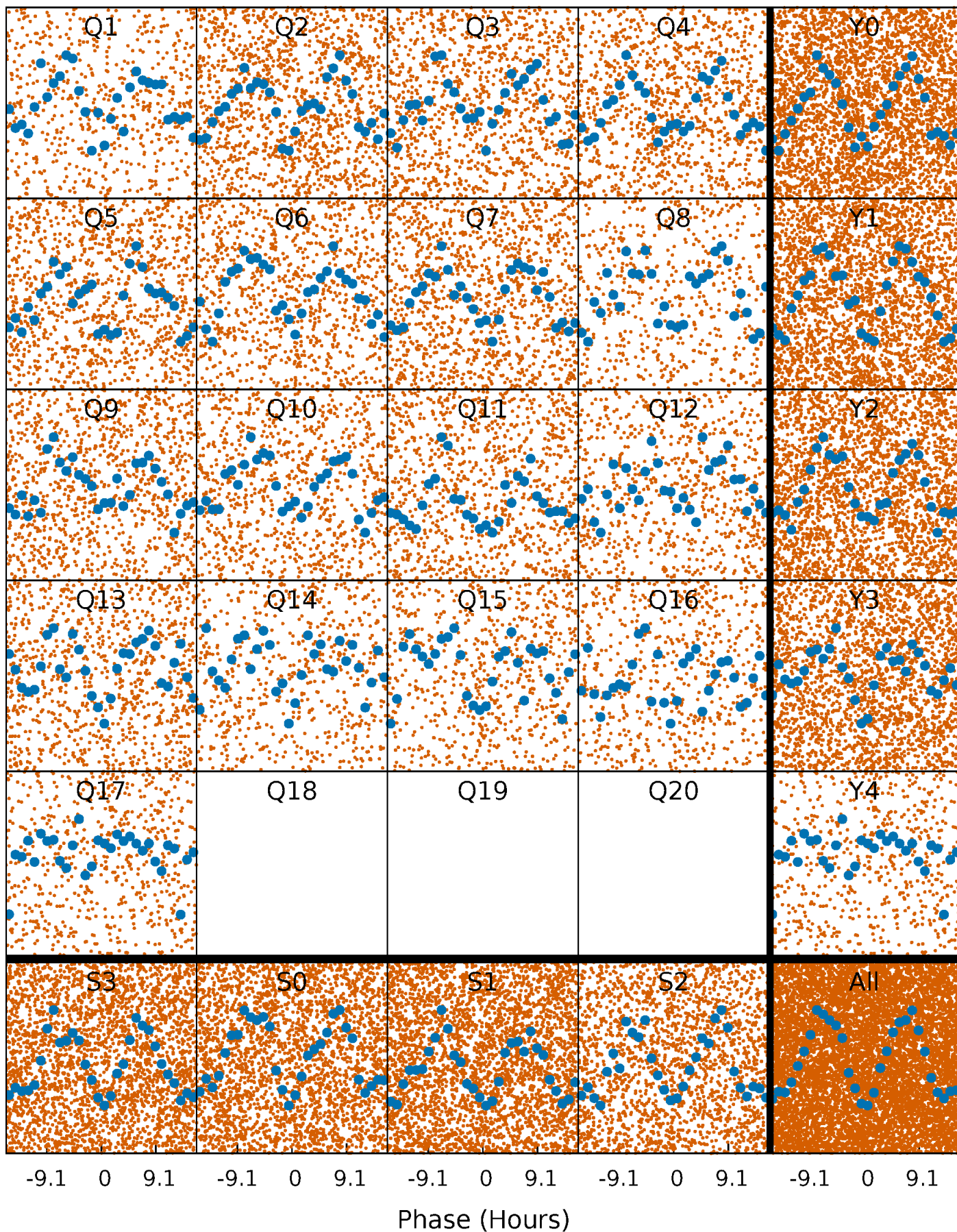
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





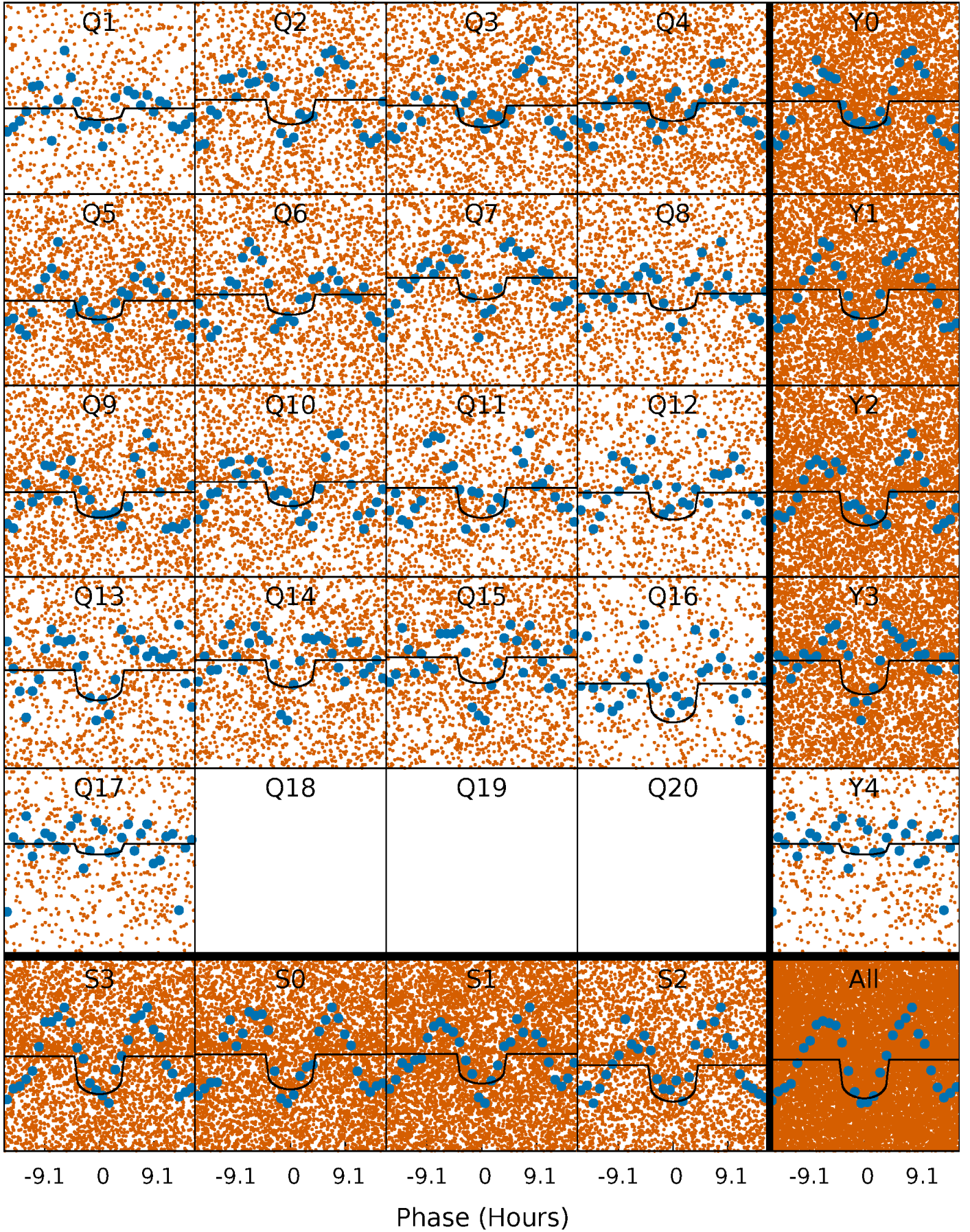
# PDC Quarter-Phased Transit Curves

TCE 008042044-02 P= 1.177695 Days  $T_0=132.461842$  (BKJD)



# DV Quarter-Phased Transit Curves

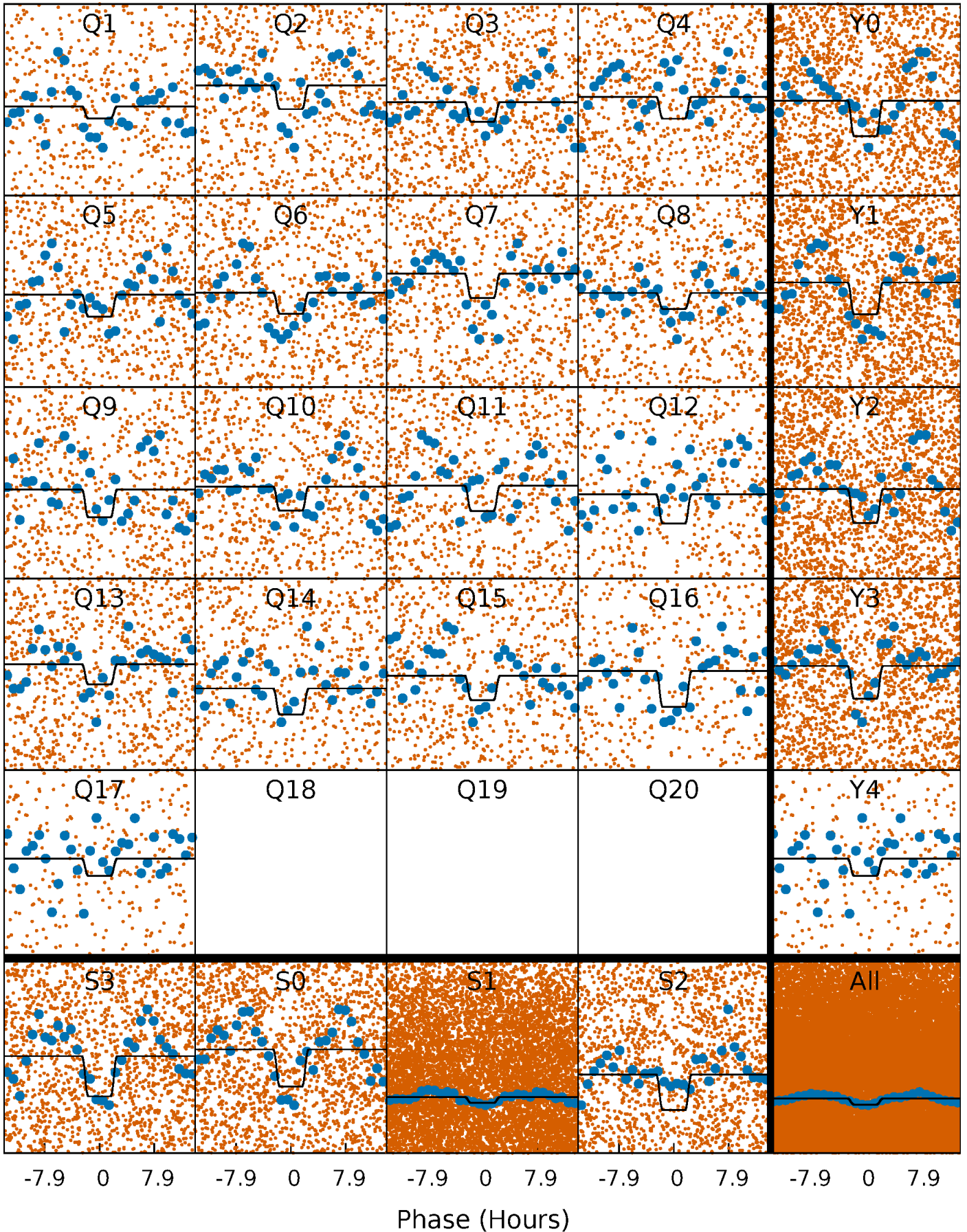
TCE 008042044-02   P= 1.177695 Days    $T_0=132.461842$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

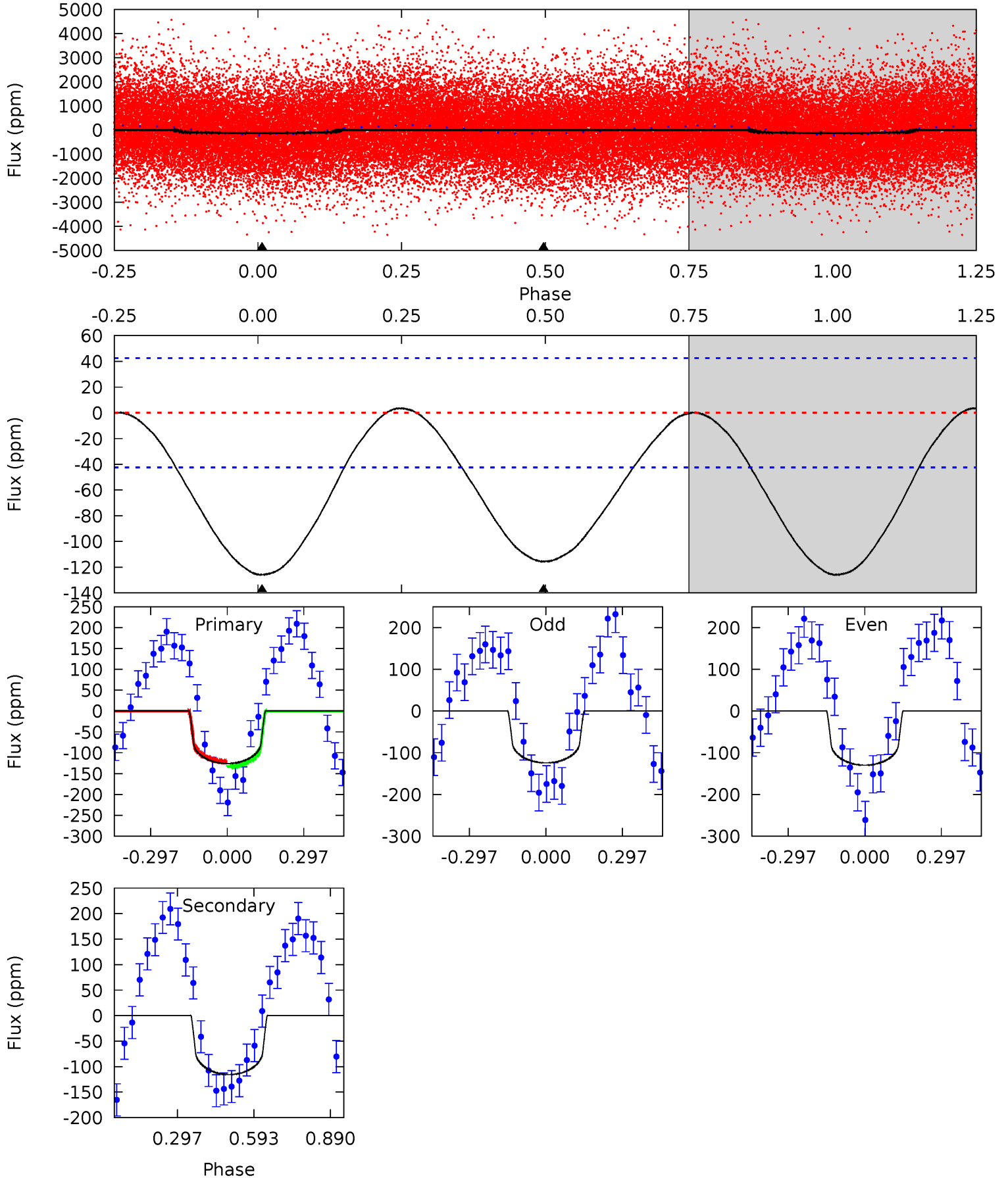
TCE 008042044-02 P= 1.177698 Days  $T_0=132.464739$  (BKJD)



# DV Model-Shift Uniqueness Test

008042044-02, P = 1.177695 Days, E = 131.284147 Days

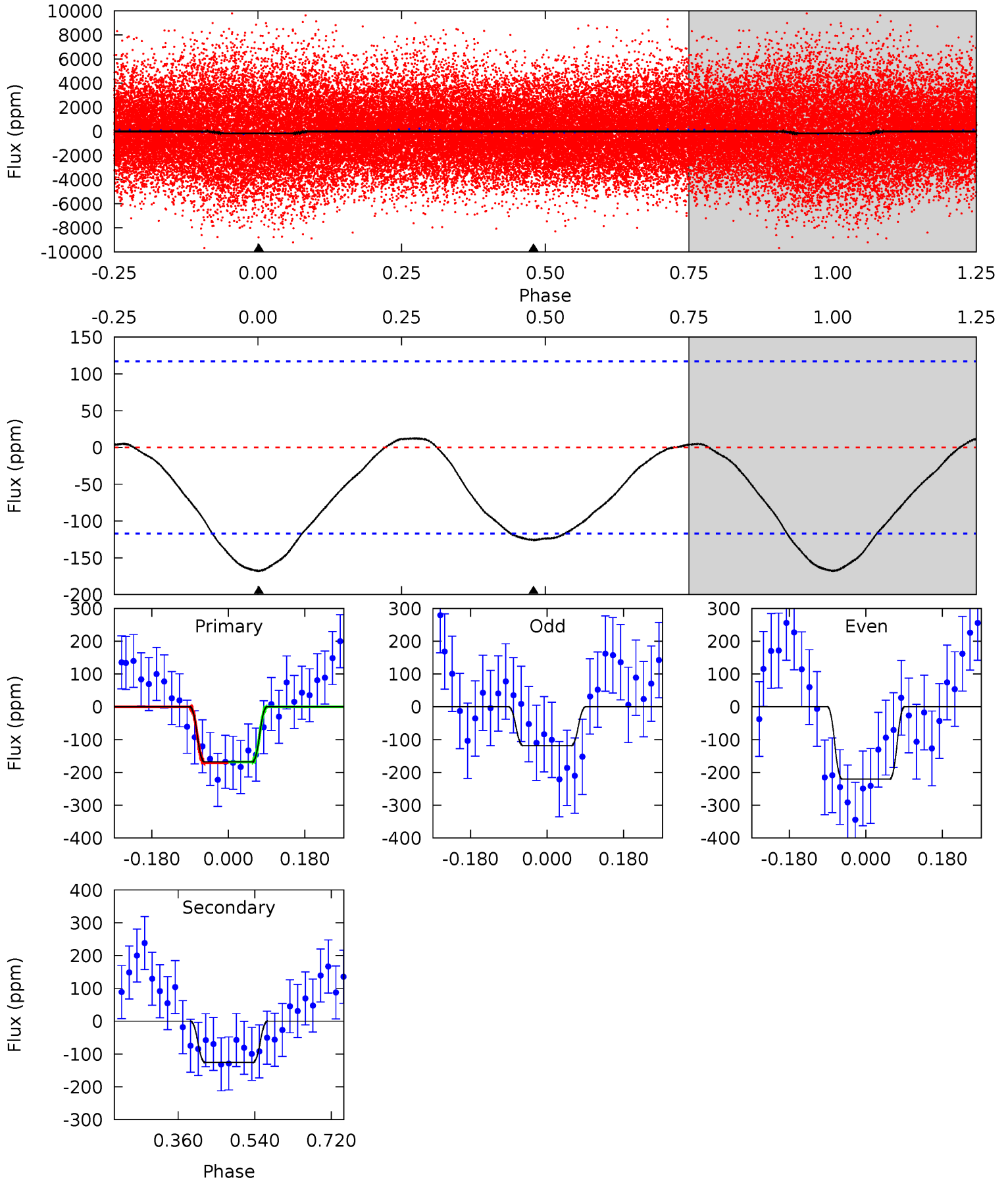
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.8	11.8	0	0	4.33	1.04	0.26	12.8	12.8	11.8	11.8	0.29	0.75	0.03	0.62



# Alt Model-Shift Uniqueness Test

008042044-02, P = 1.177698 Days, E = 131.287041 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
6.36	4.76	0	0	4.44	1.34	0.44	6.36	6.36	4.76	4.76	1.91	0.96	0.07	0.06





### Stellar Parameters For KIC 008042044

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6888^{+190}_{-286}$	$4.181^{+0.136}_{-0.187}$	$-0.160^{+0.250}_{-0.350}$	$1.562^{+0.494}_{-0.329}$	$1.363^{+0.202}_{-0.247}$	$0.503^{+0.381}_{-0.249}$
	+3%/-4%	+3%/-4%	+156%/-219%	+32%/-21%	+15%/-18%	+76%/-50%
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 008042044-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-116 \pm 10$	$2.15^{+1.28}_{-1.15}$	$3423^{+258}_{-230}$	$6261^{+3616}_{-1311}$	$8.046^{+27.120}_{-4.946}$
Alt.	$-126 \pm 26$	$2.43^{+1.29}_{-1.21}$	$3416^{+274}_{-228}$	$6065^{+3195}_{-1229}$	$7.064^{+21.594}_{-4.326}$

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

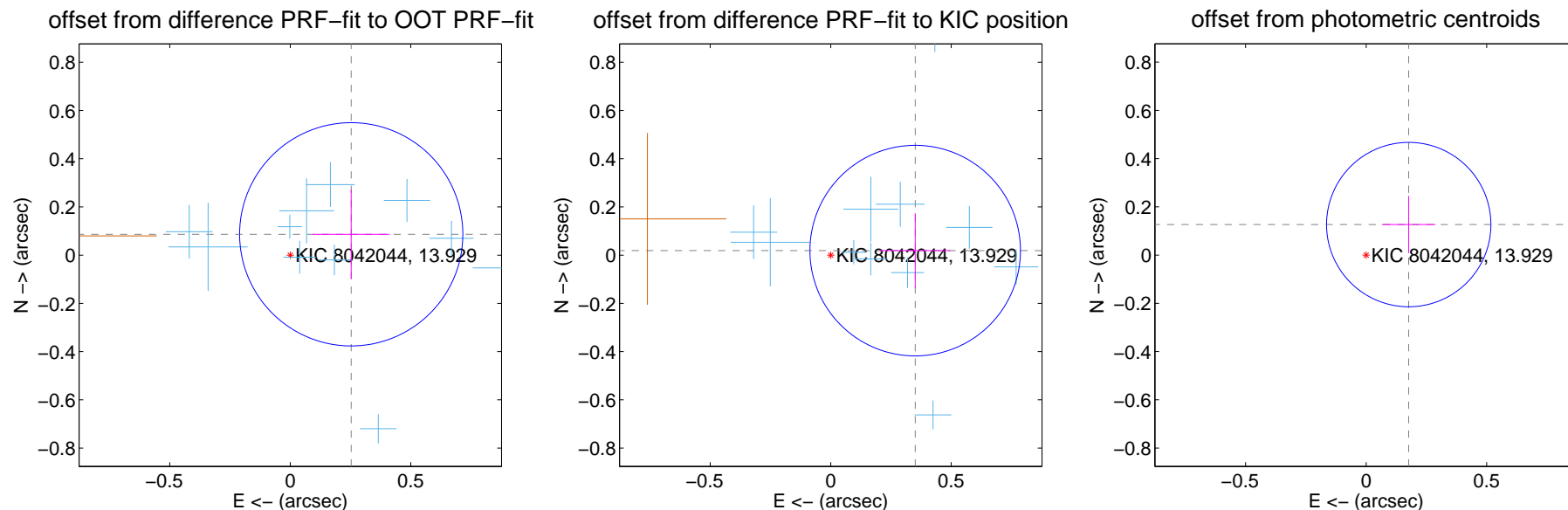
## DV Centroid Data

Supplemental centroid analysis for 008042044-02. Kepler magnitude: 13.93. Transit SNR 11.69

There are 15 quarters with good PRF difference image offsets

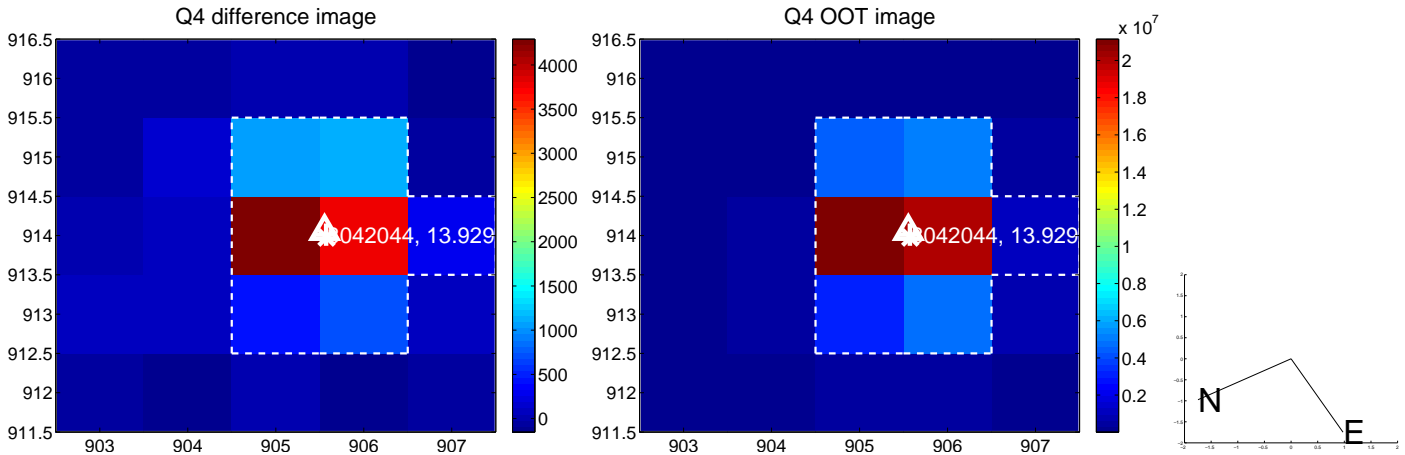
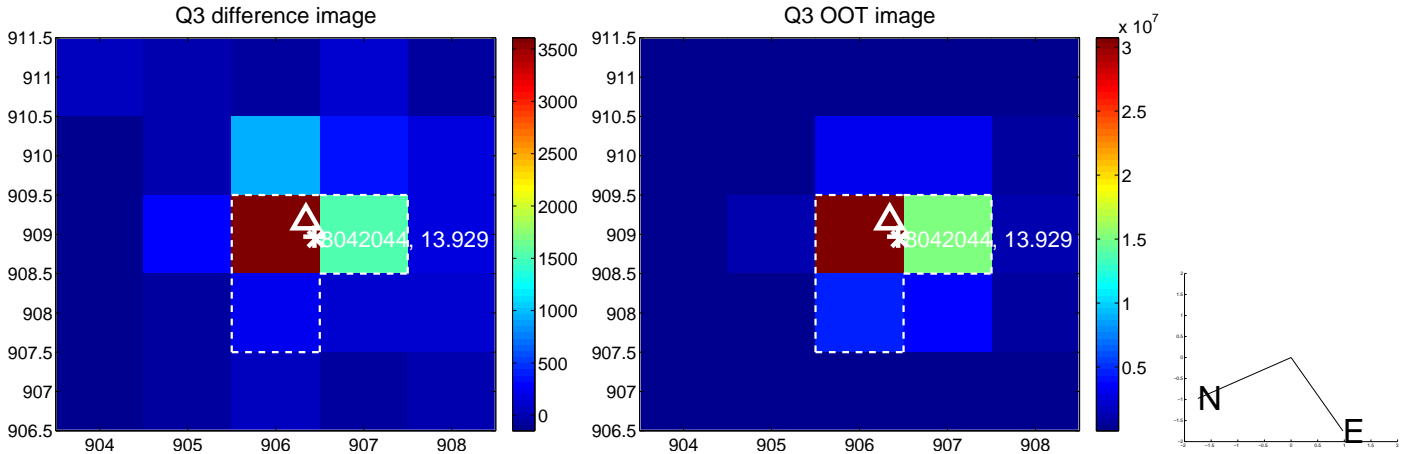
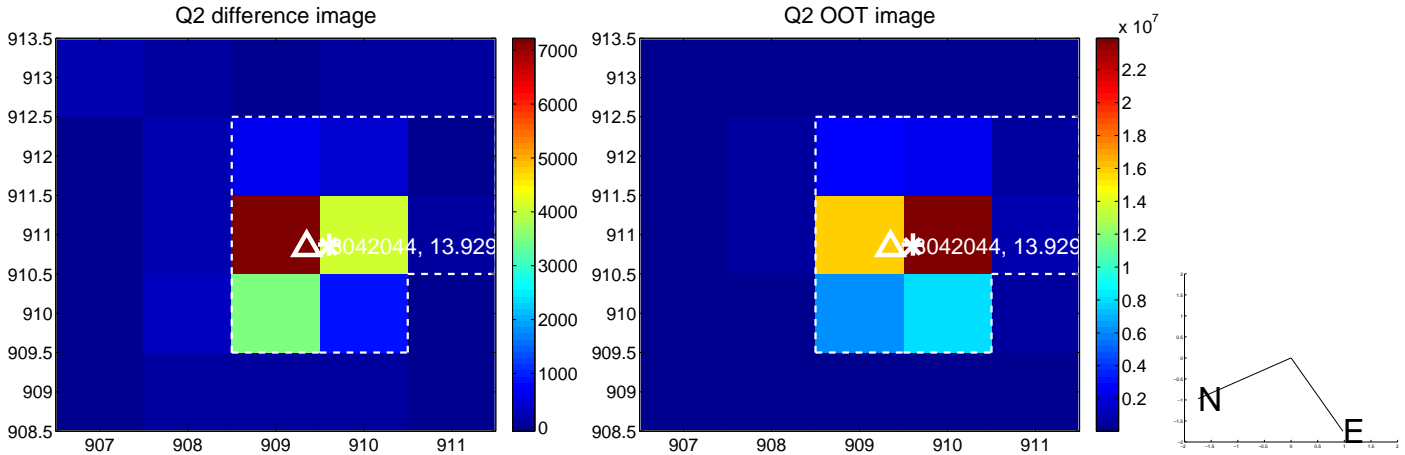
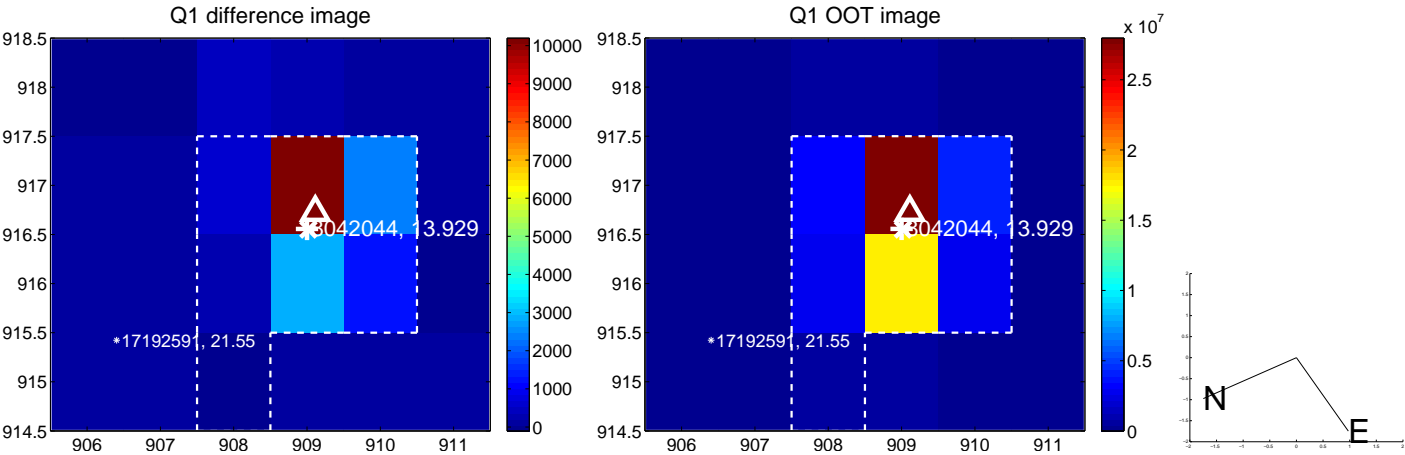
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.267 \pm 0.154$	1.73	$-0.253 \pm 0.159$	$0.086 \pm 0.185$
PRF-fit source offset from KIC position	$0.351 \pm 0.146$	2.41	$-0.350 \pm 0.147$	$0.019 \pm 0.155$
photometric centroid source offset	$0.22 \pm 0.11$	1.91	$-0.18 \pm 0.11$	$0.13 \pm 0.12$

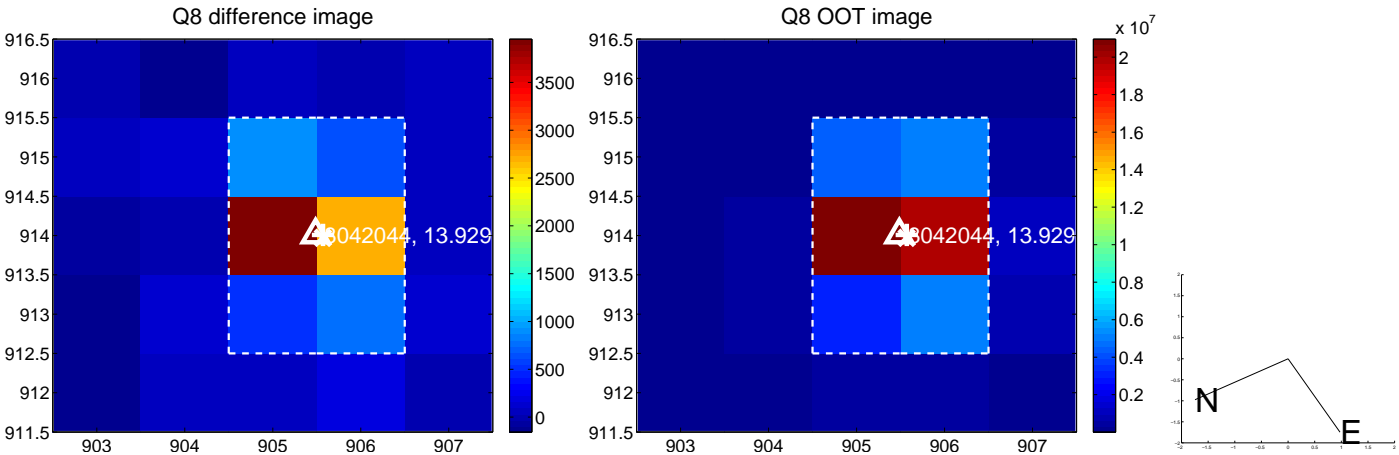
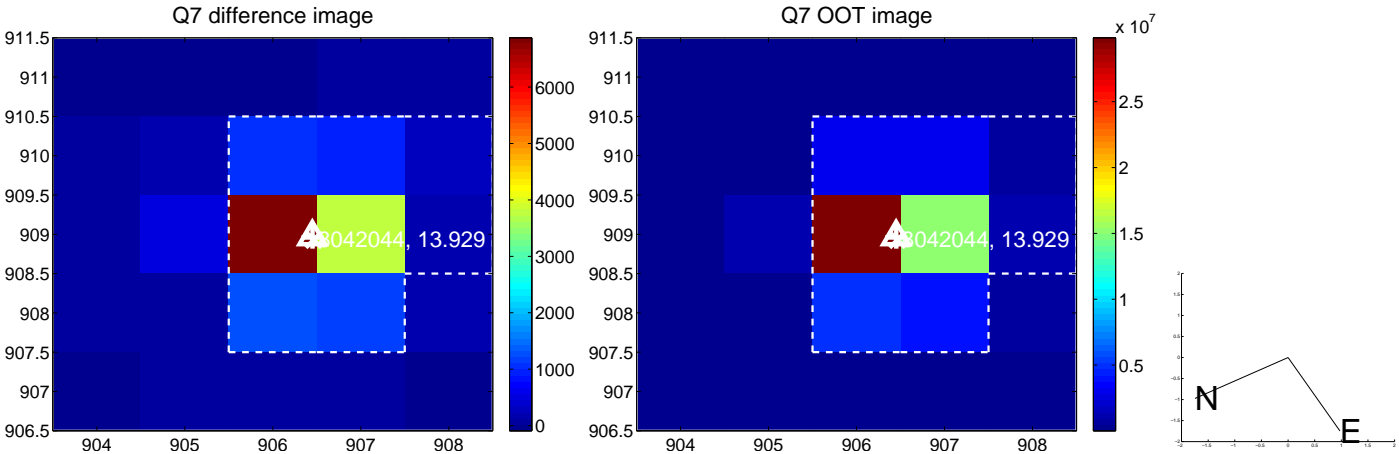
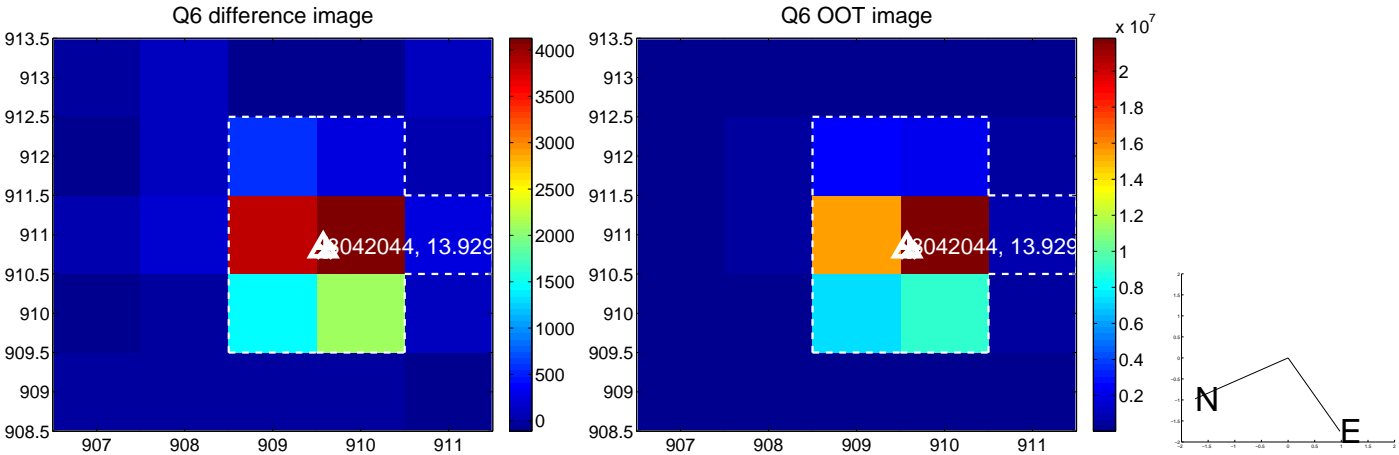
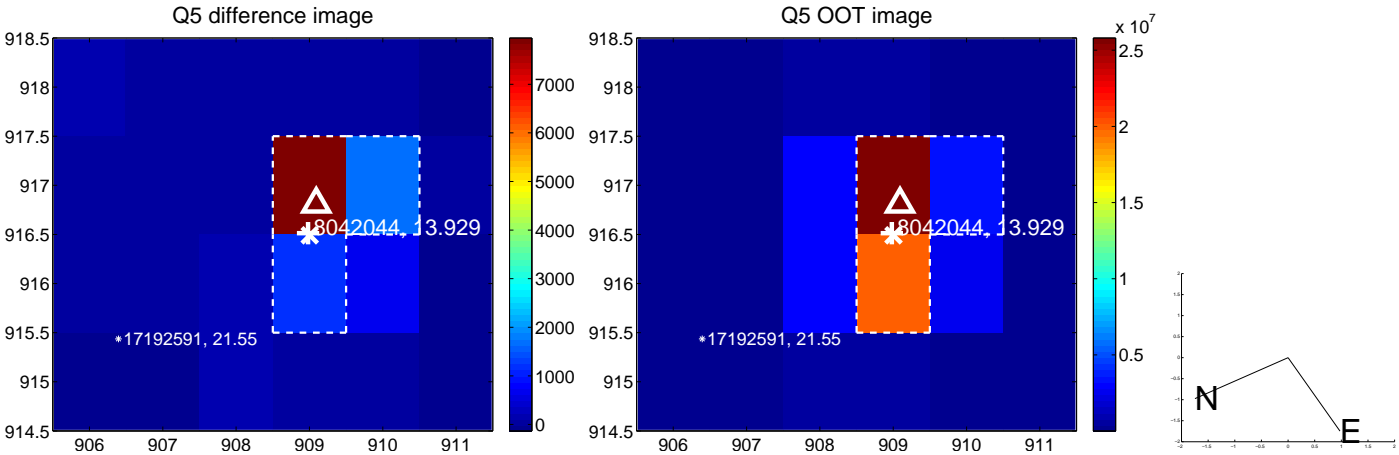


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

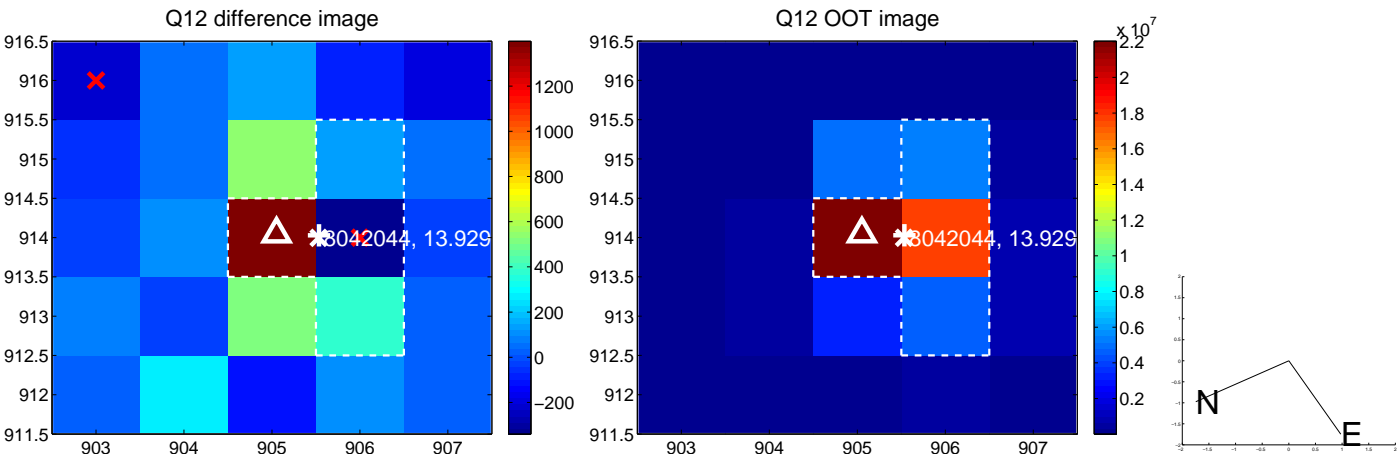
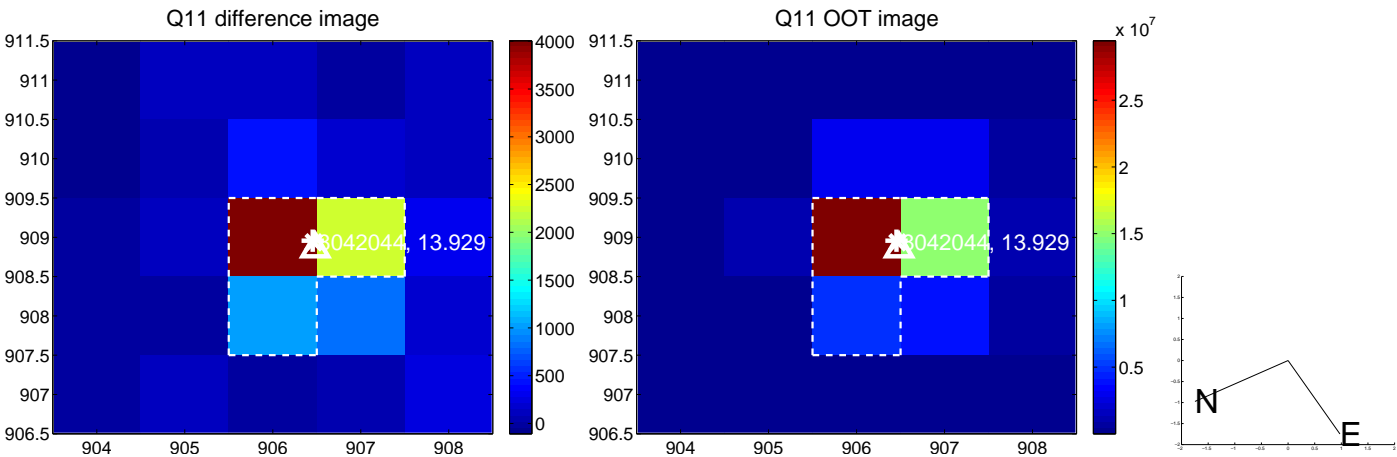
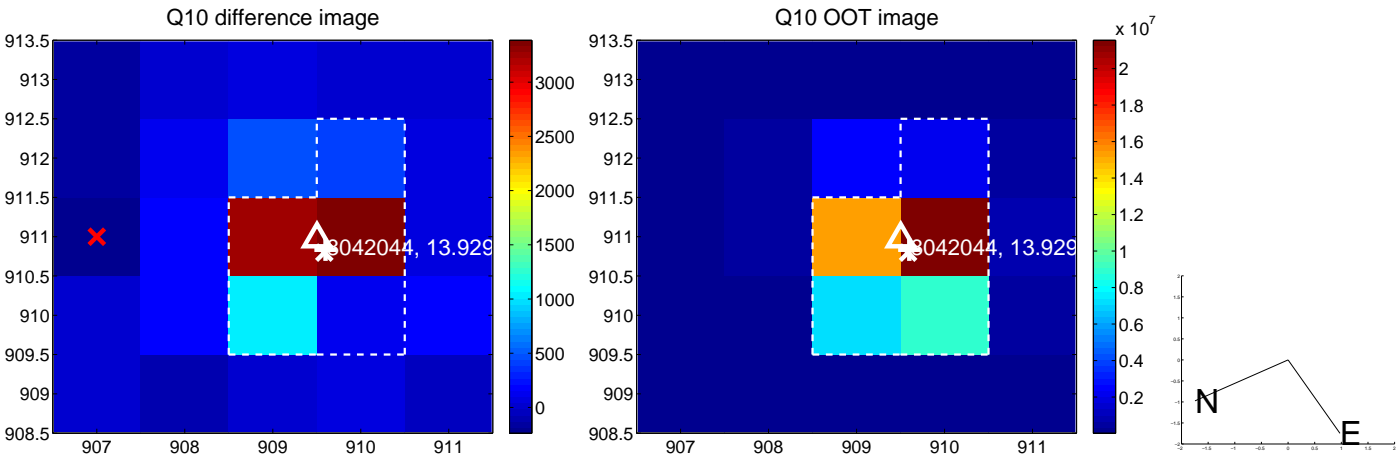
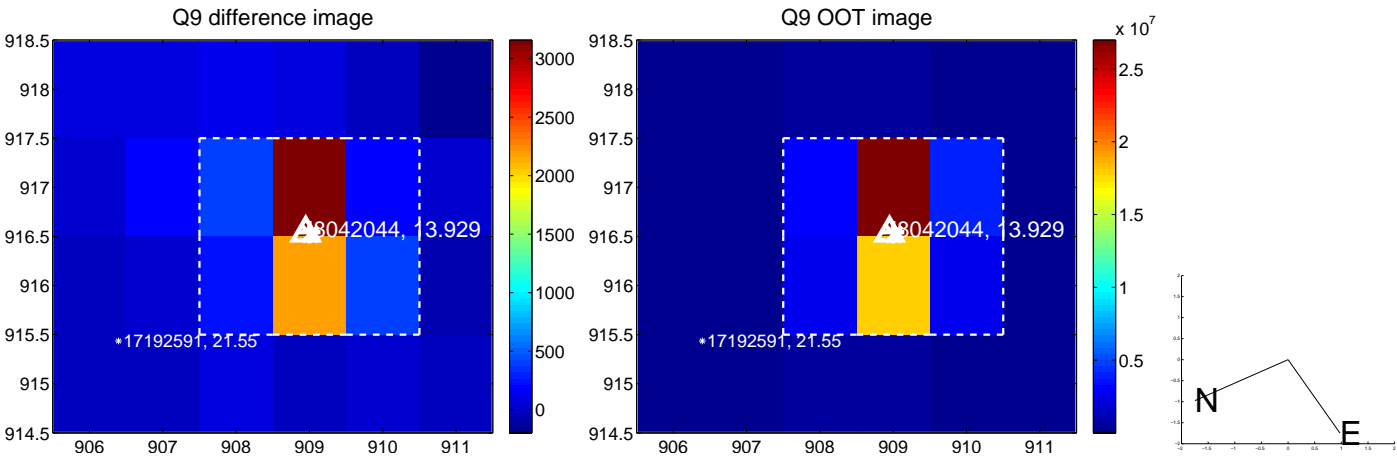
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

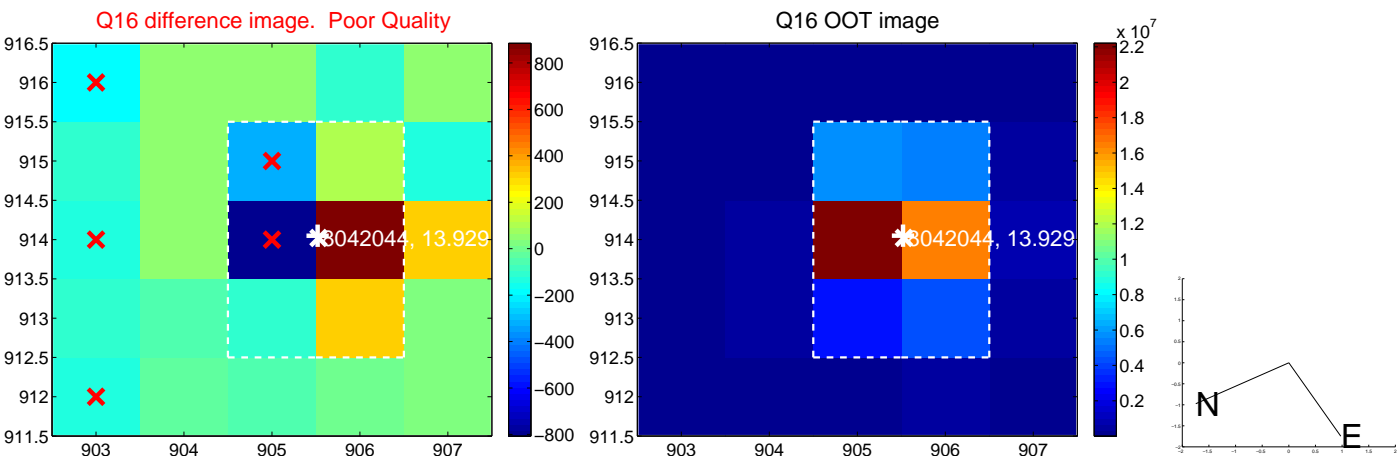
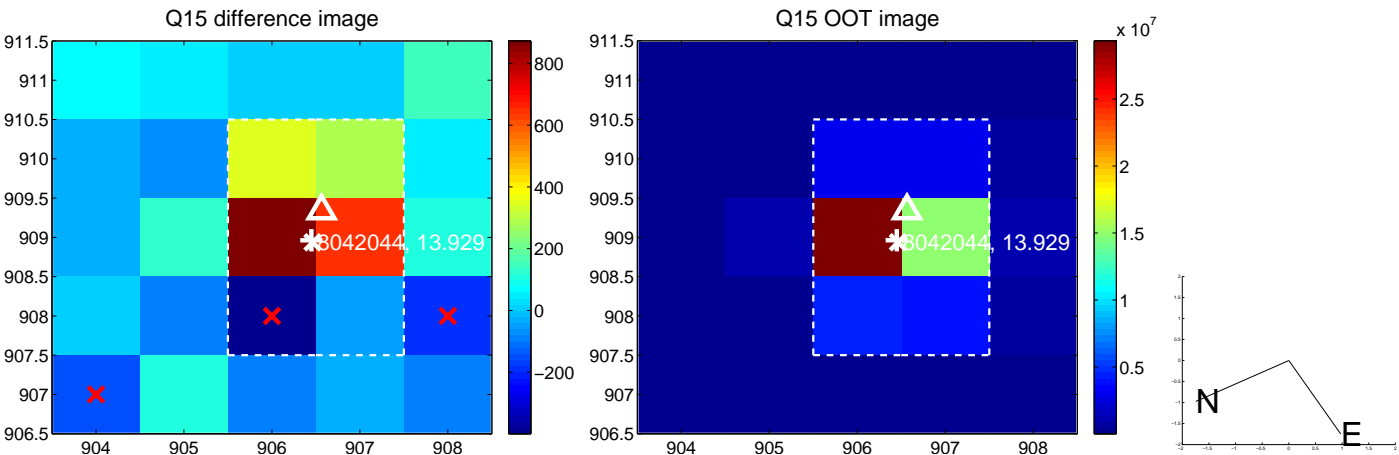
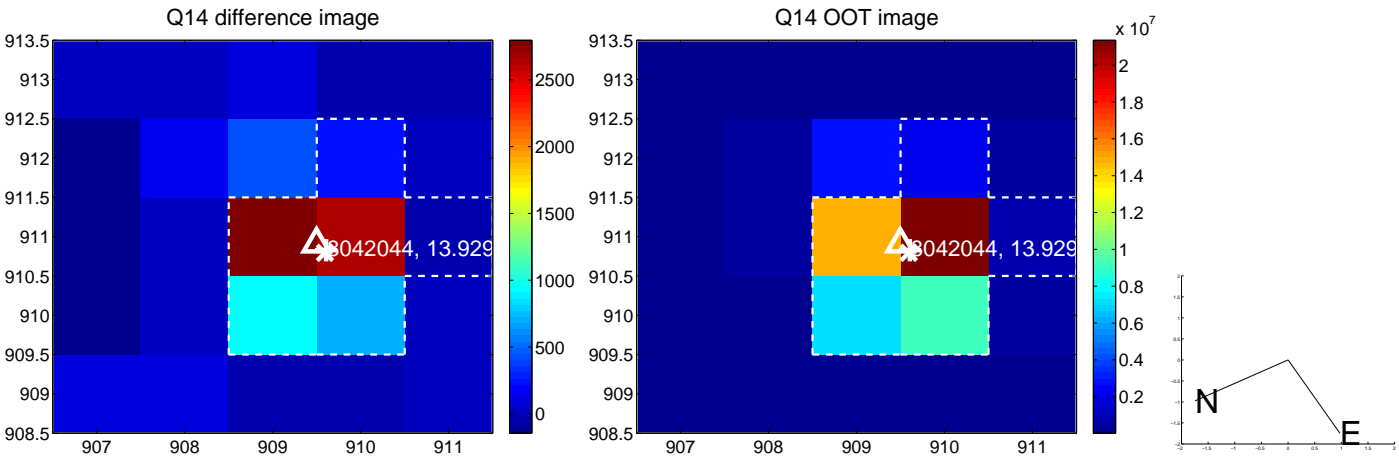
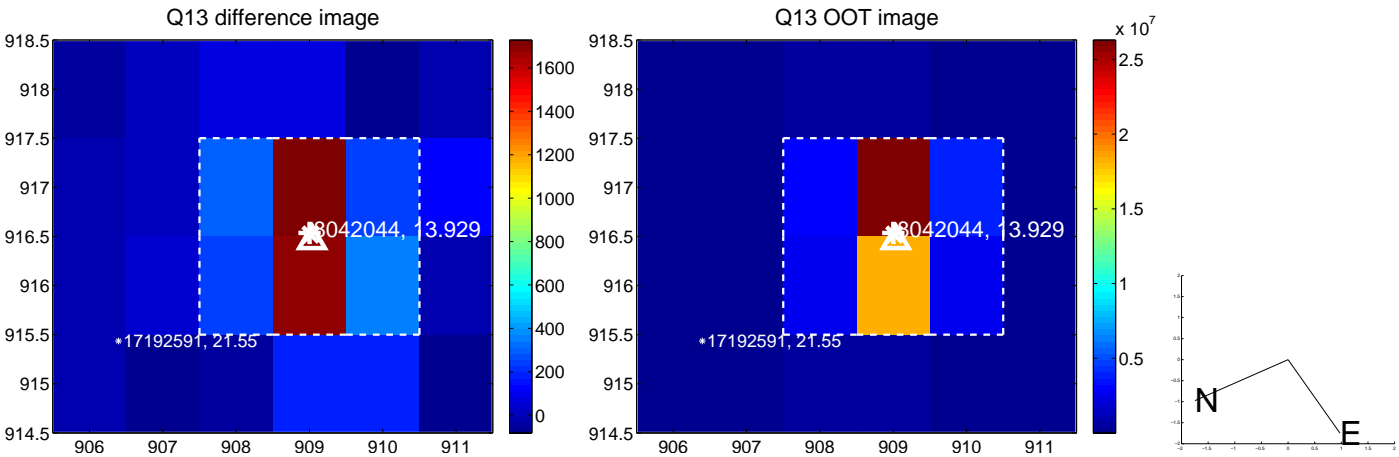


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

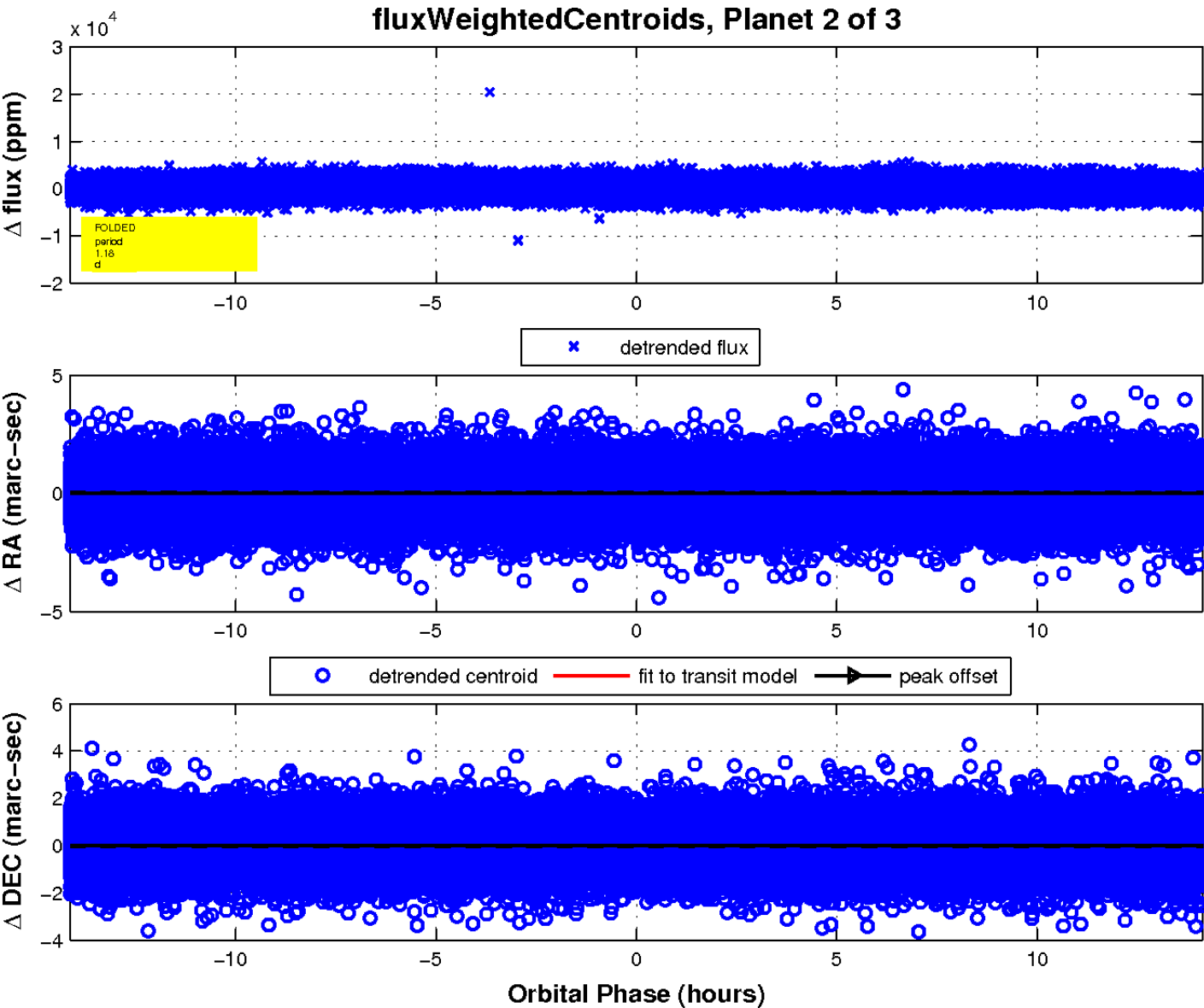
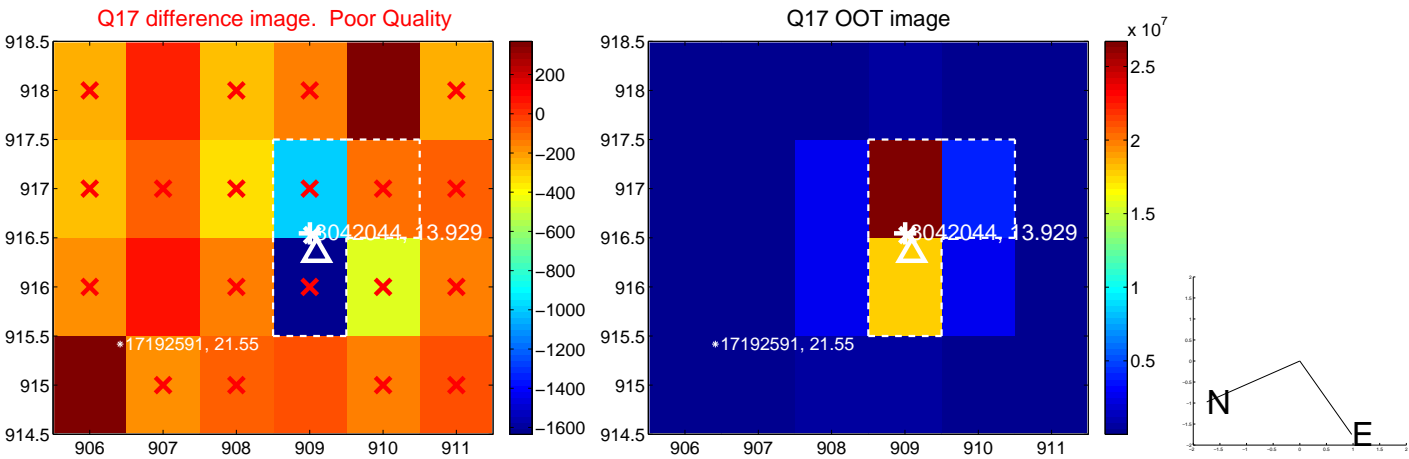




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

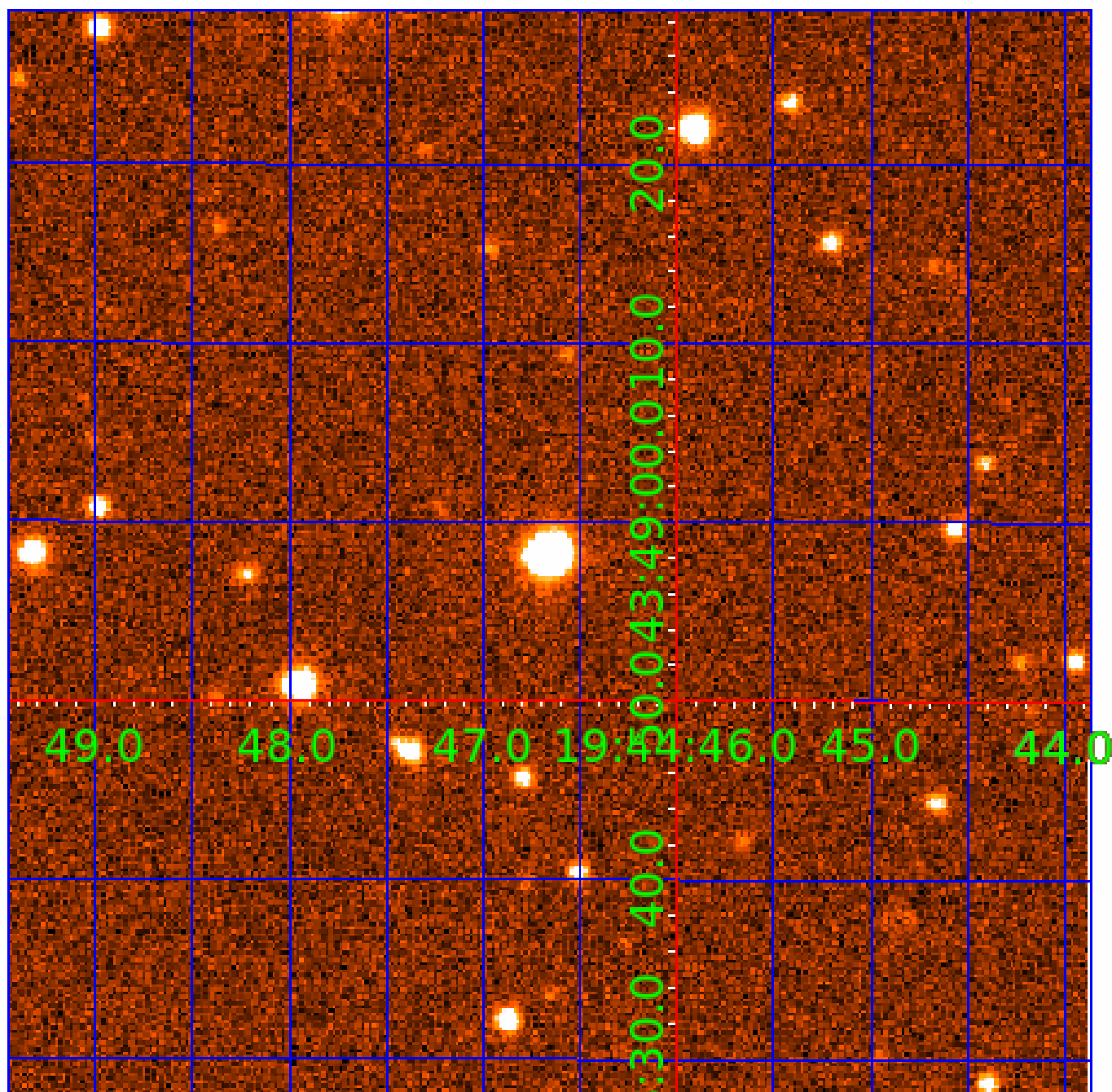


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008042044

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008042044-01	OBS	No	0.878562	132.257490	29.4	2.068	11.6	1.3	1.56	6888	0.90	12493.70
008042044-02	OBS	No	1.177695	132.461842	170.4	7.951	10.6	11.7	1.56	6888	2.06	8452.99
008042044-03	OBS	No	23.263895	151.863282	1031.7	3.000	14.9	-1.0	1.56	6888	5.07	158.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008042044-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008042044-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
008042044-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

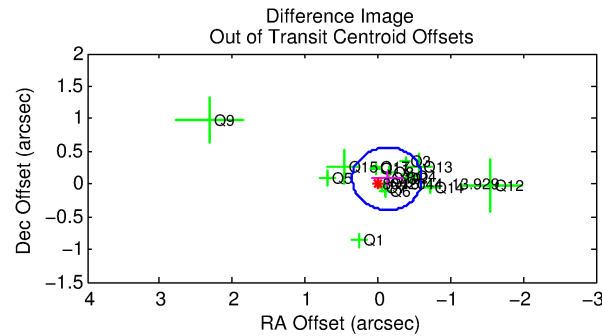
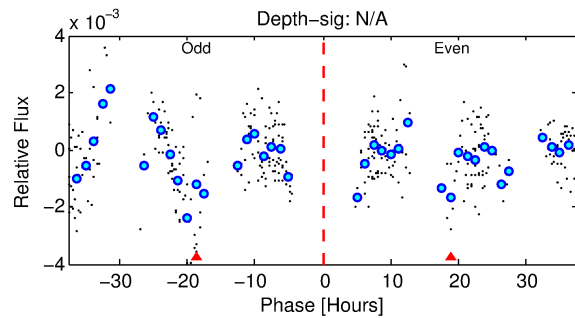
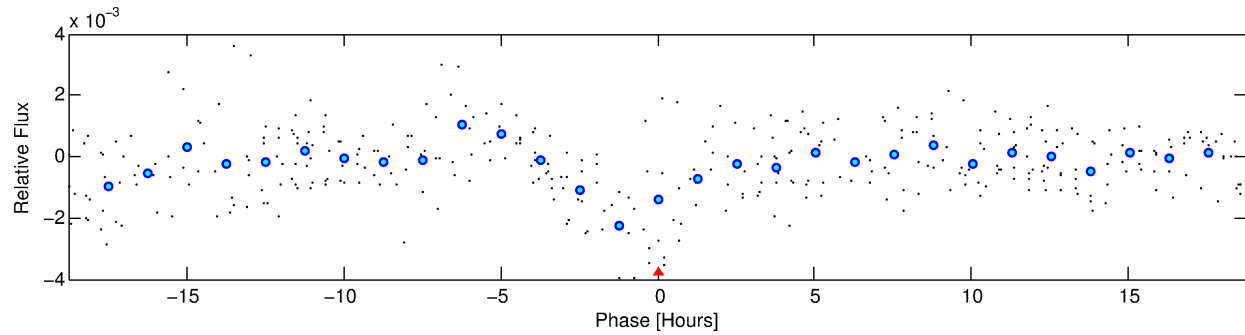
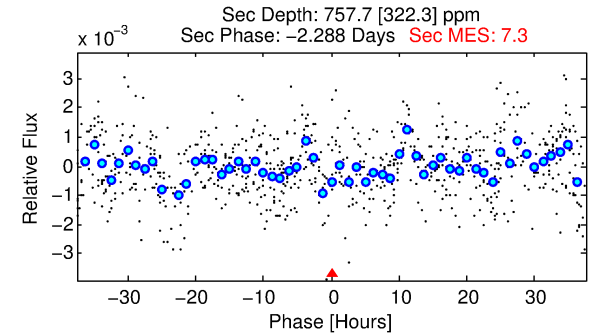
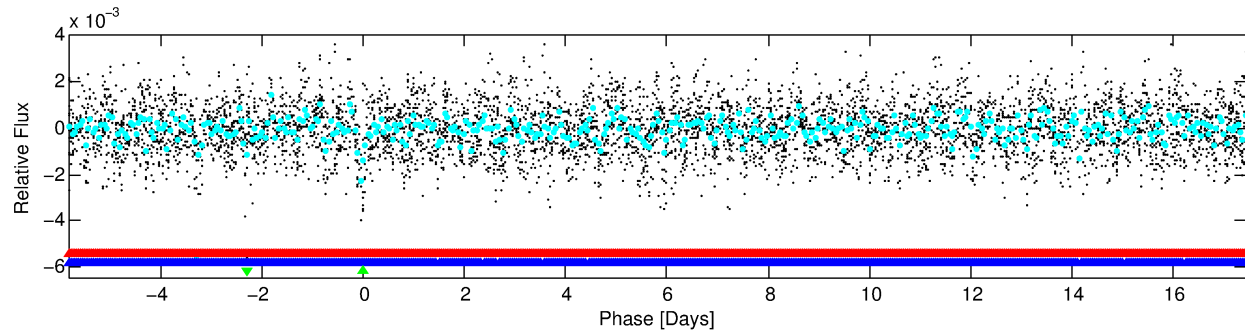
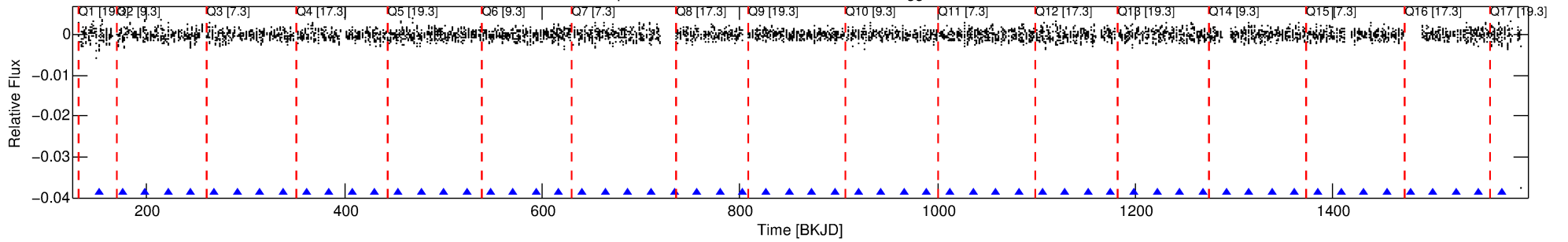
Ephemeris Match Information For 008042044-03

No Significant Match Found

# DV One-Page Summary

KIC: 8042044 Candidate: 3 of 3 Period: 23.264 d

Kp: 13.93 R\*: 1.56 Rs Teff: 6888.0 K Logg: 4.18 Fe/H: -0.160



## TPS TCE Results:

Period = 23.26389 d  
Epoch = 151.8633 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [62.37σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [15/15]  
GhostDiagnostic-chr: -0.5298

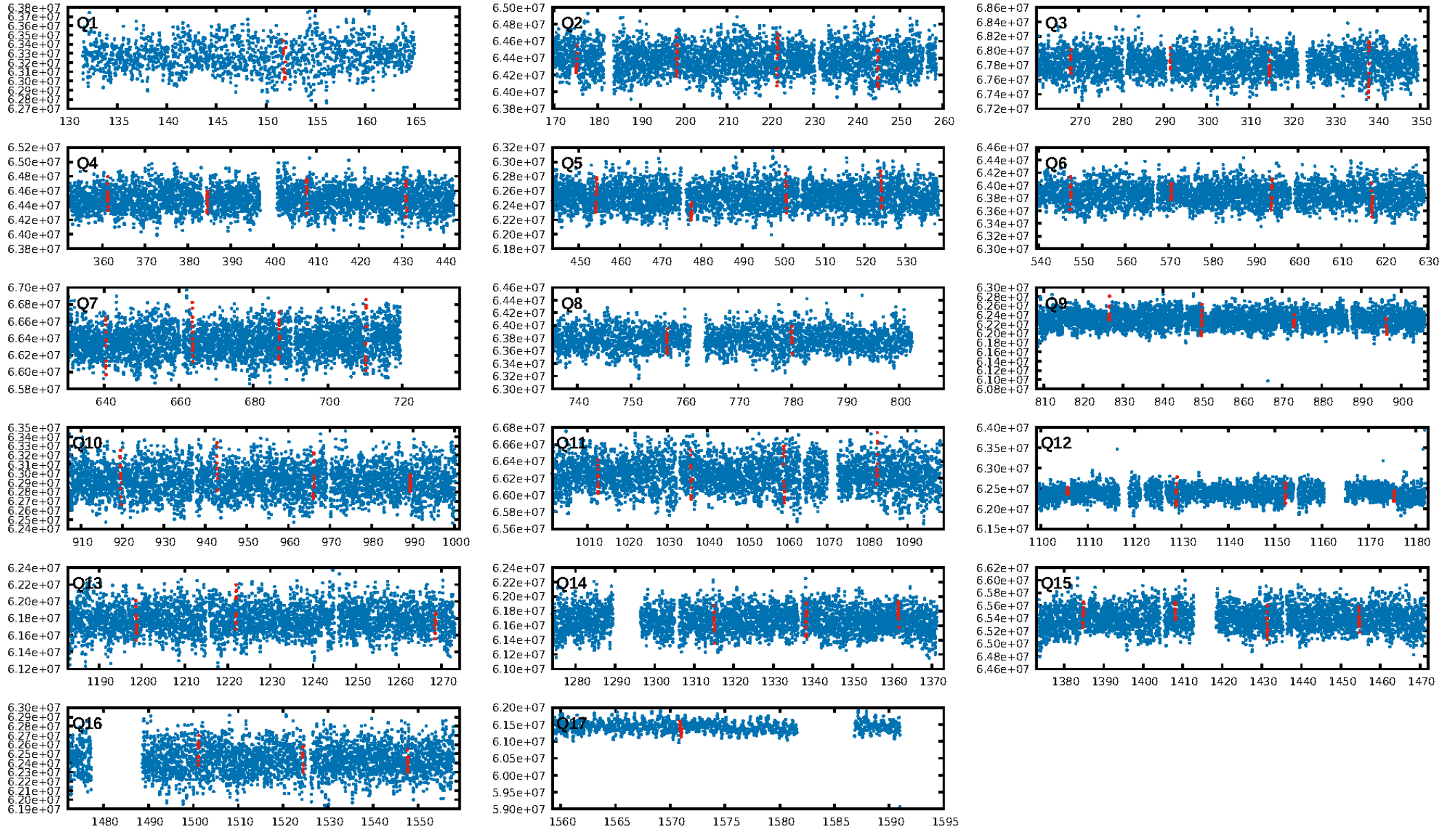
Centroid-sig: 6.2%  
Centroid-so: 0.097 arcsec [1.81σ]  
OotOffset-rm: 0.150 arcsec [0.94σ]  
KicOffset-rm: 0.239 arcsec [1.24σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.59 [10/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:07:00 Z

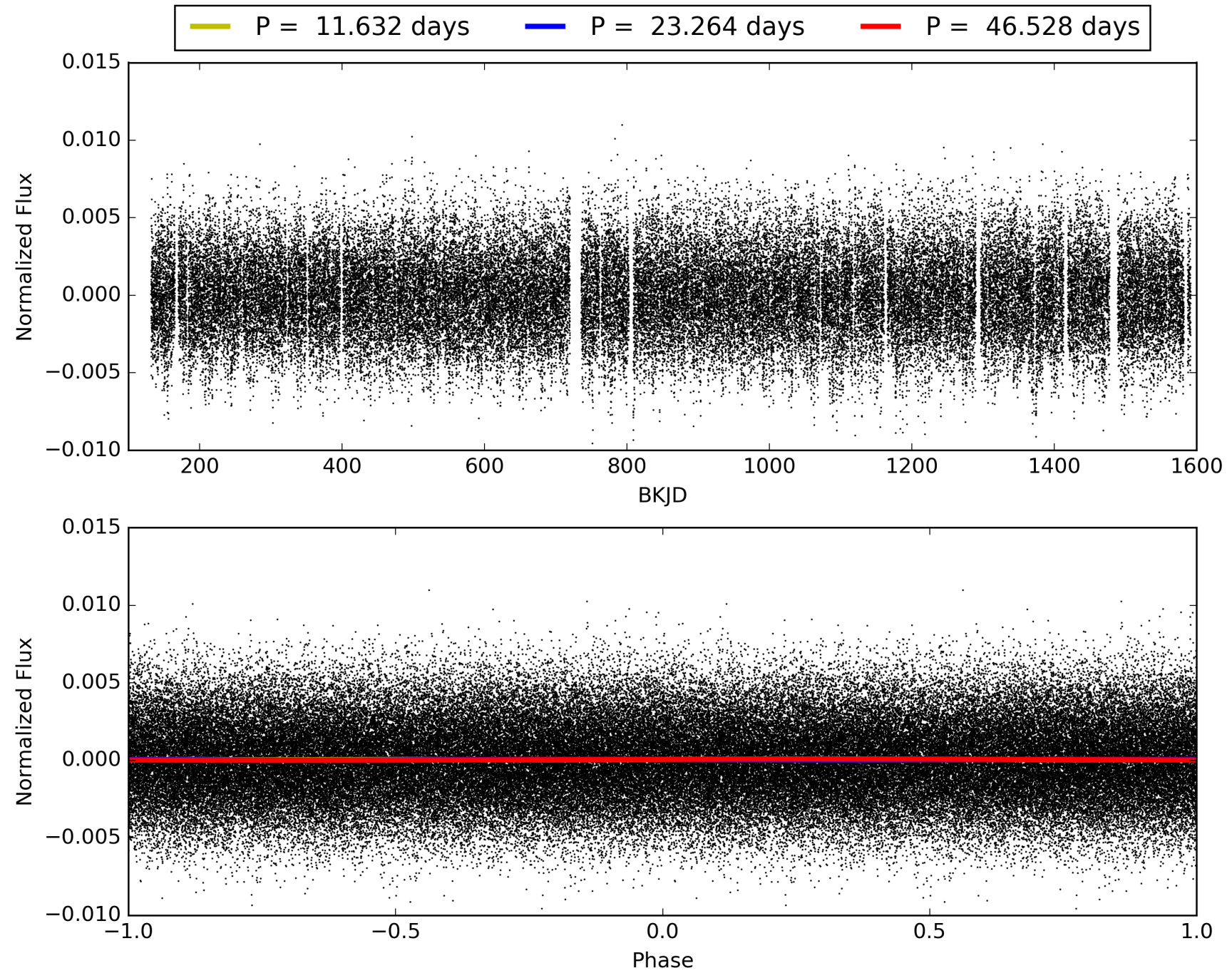
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 008042044-03, PDC Light Curves

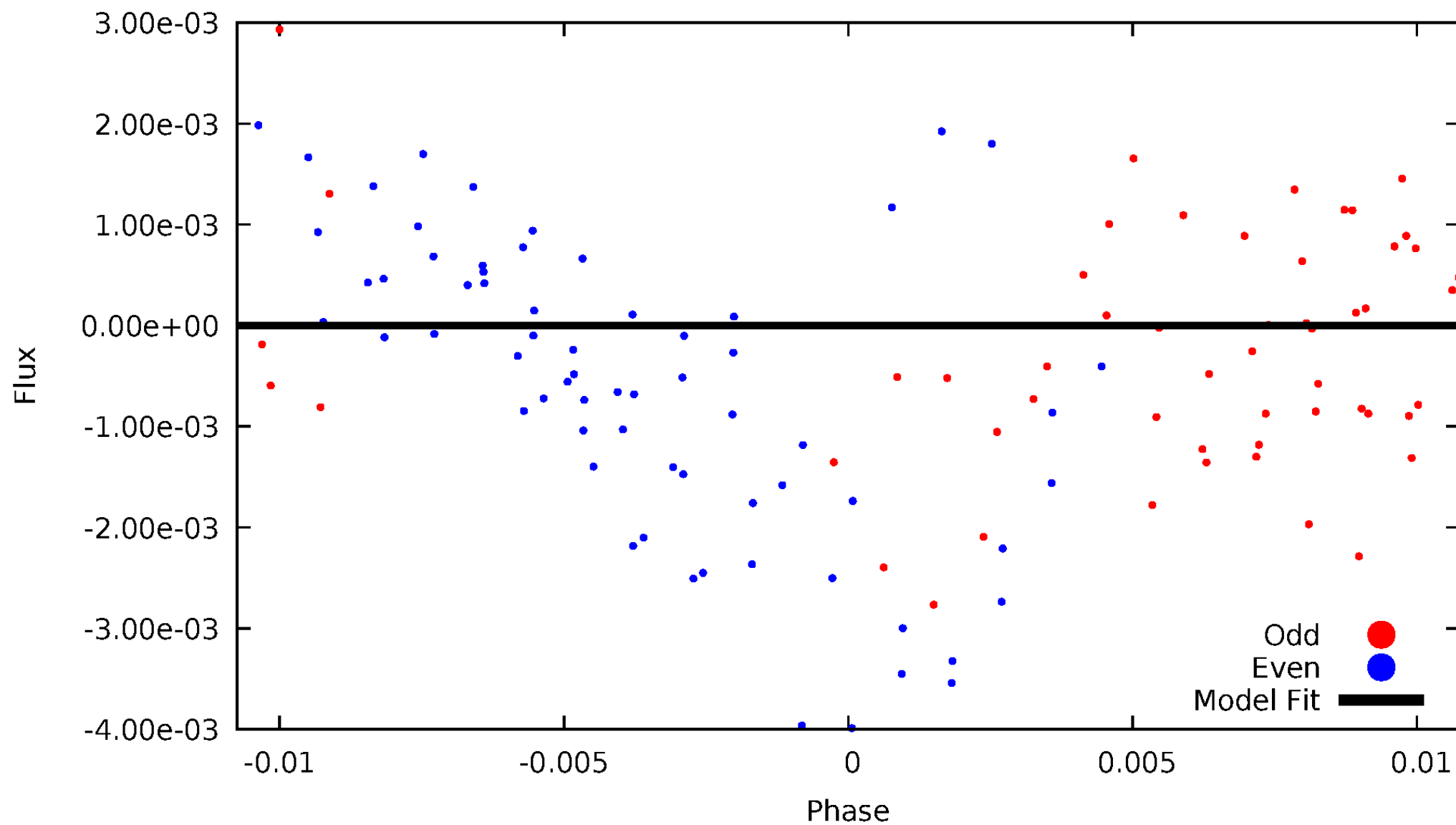


TCE 008042044-03



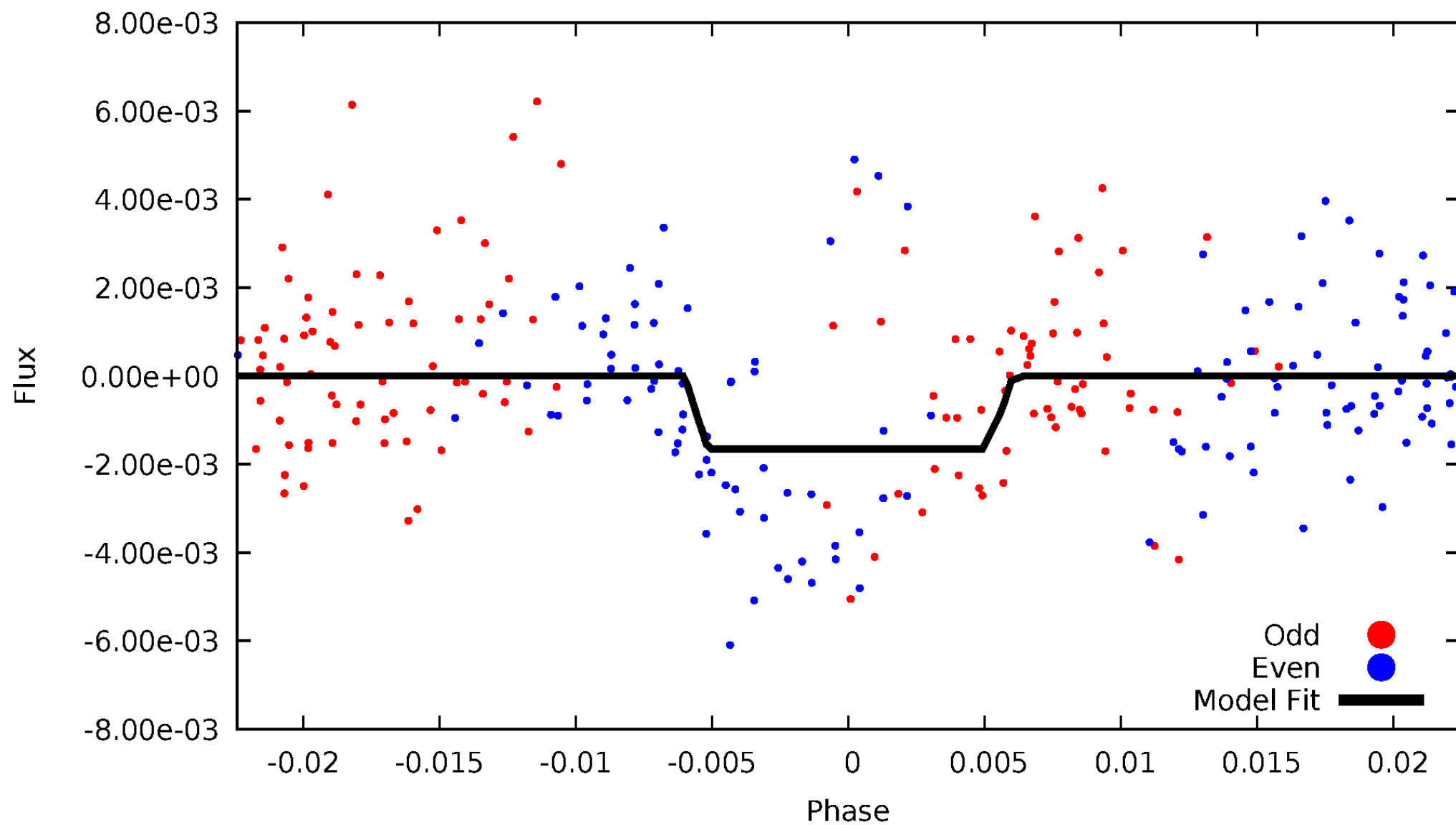
# DV Odd/Even

TCE 008042044-03



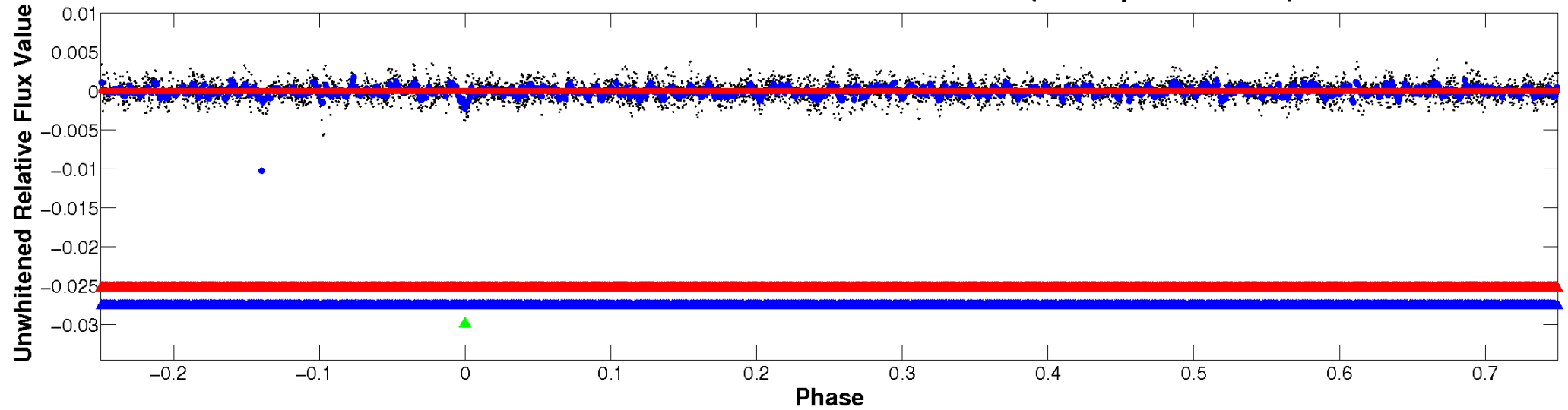
# ALT Odd/Even

TCE 008042044-03

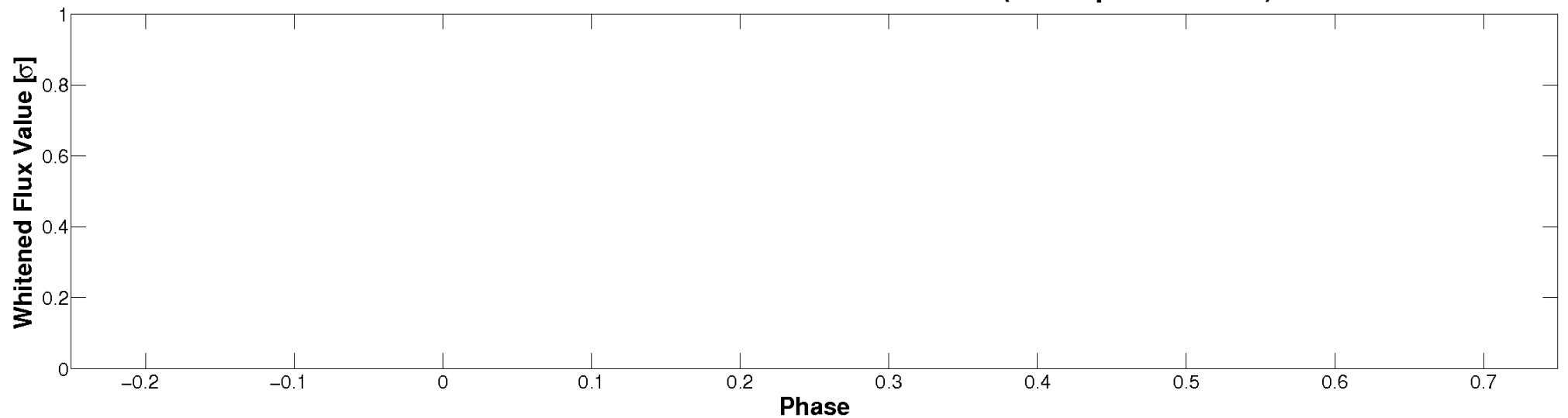


# Non-Whitened Vs. Whitened Light Curve

**Planet 3 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**



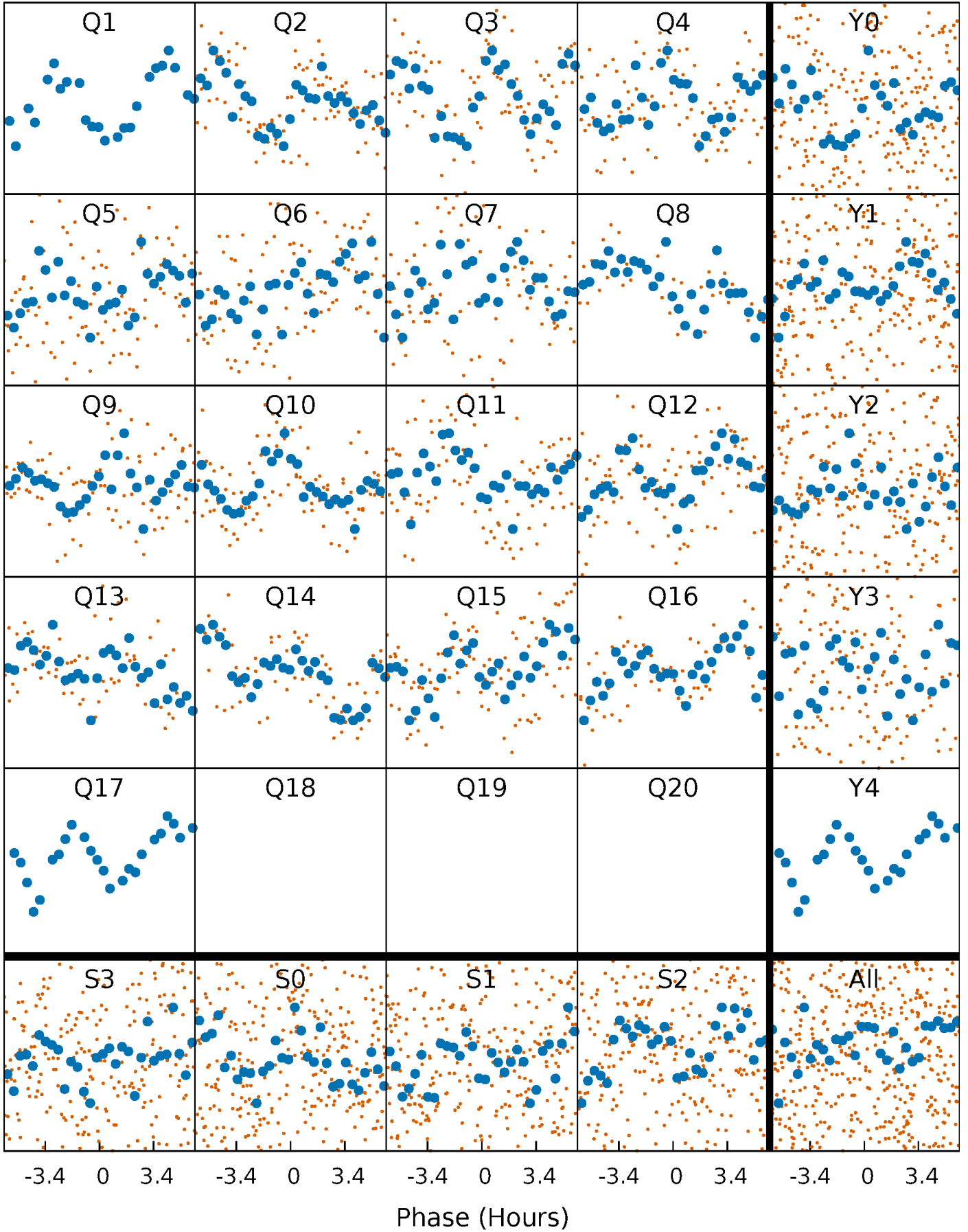
**Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)**





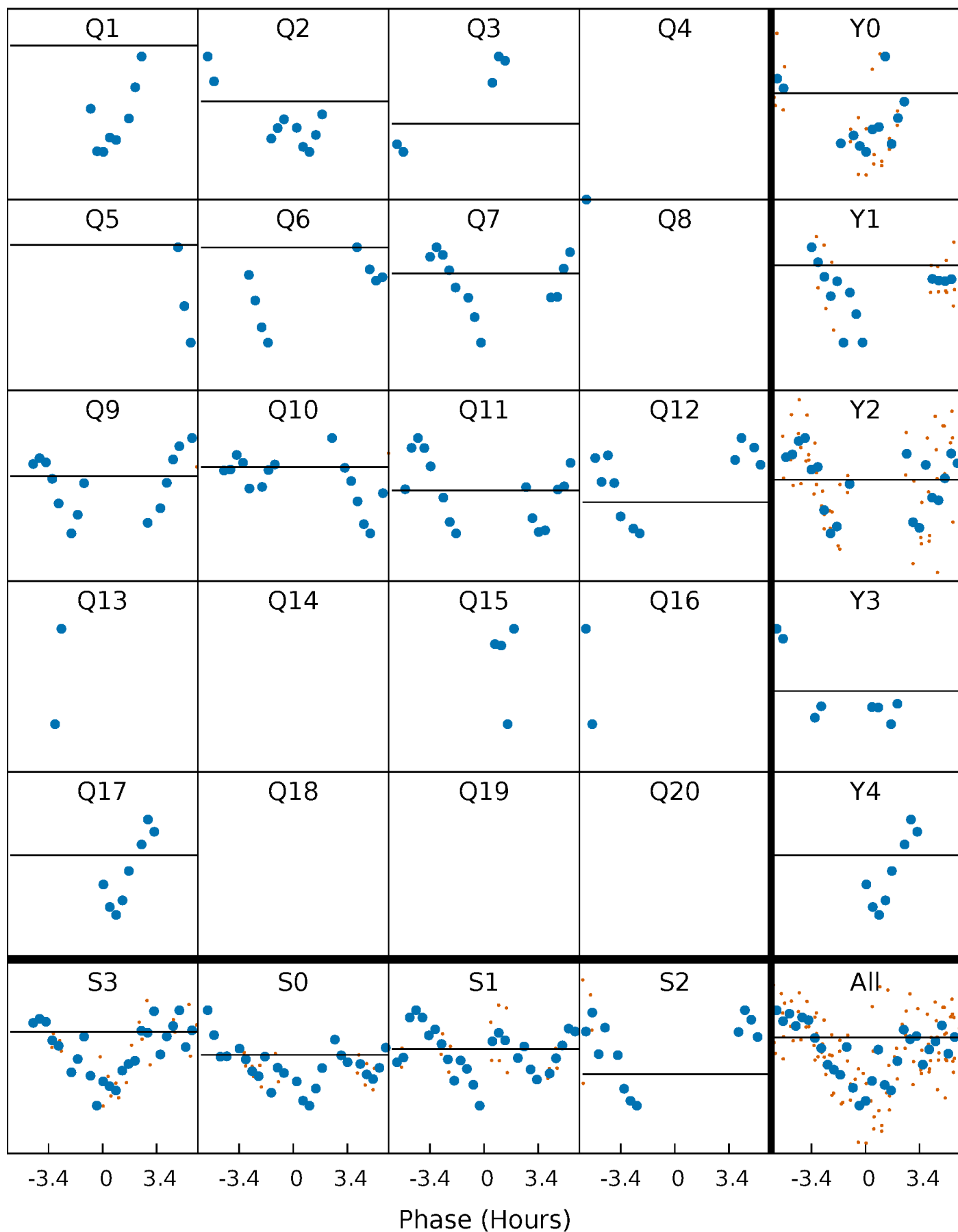
# PDC Quarter-Phased Transit Curves

TCE 008042044-03 P= 23.263895 Days  $T_0=151.863282$  (BKJD)



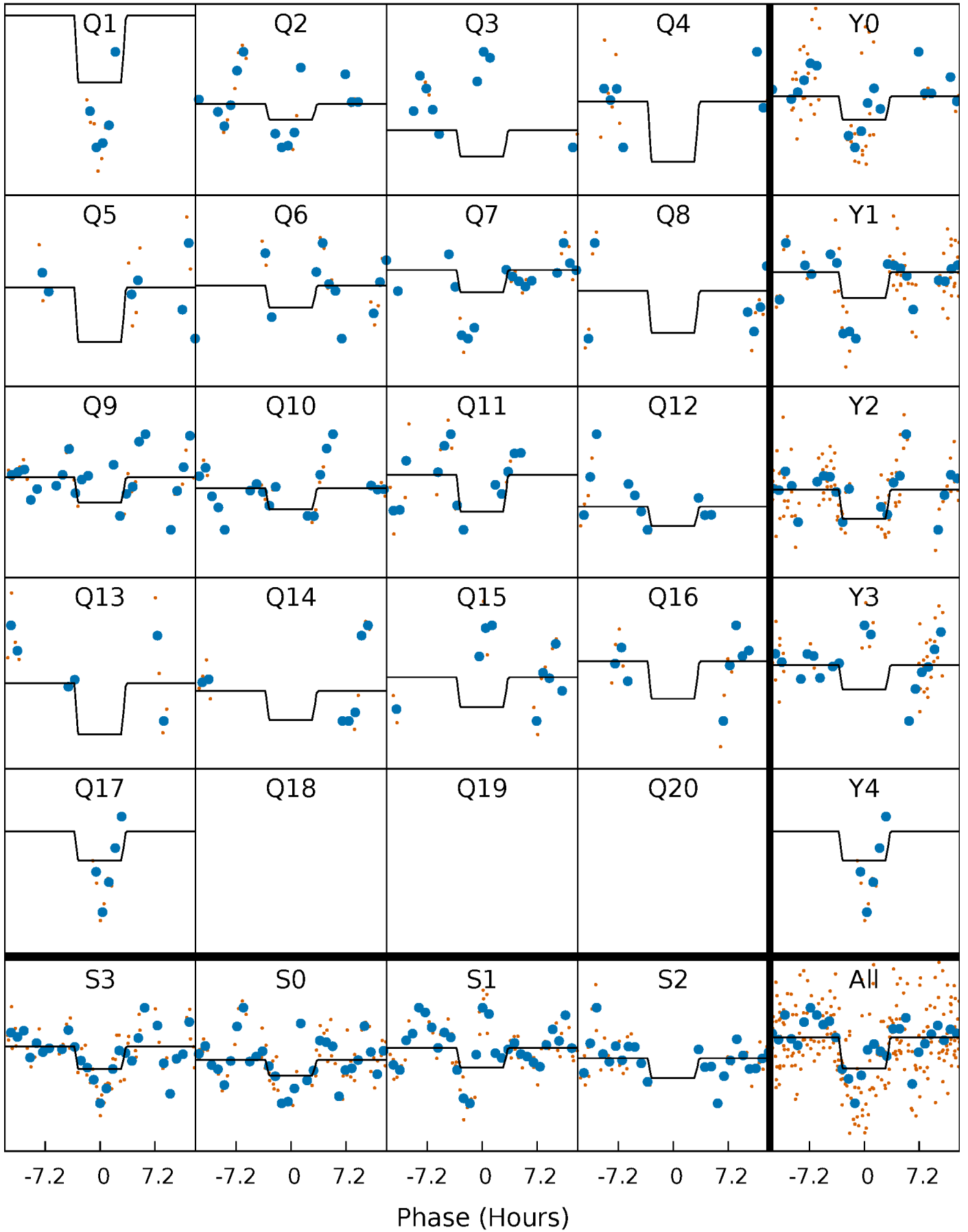
# DV Quarter-Phased Transit Curves

TCE 008042044-03 P= 23.263895 Days  $T_0=151.863282$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

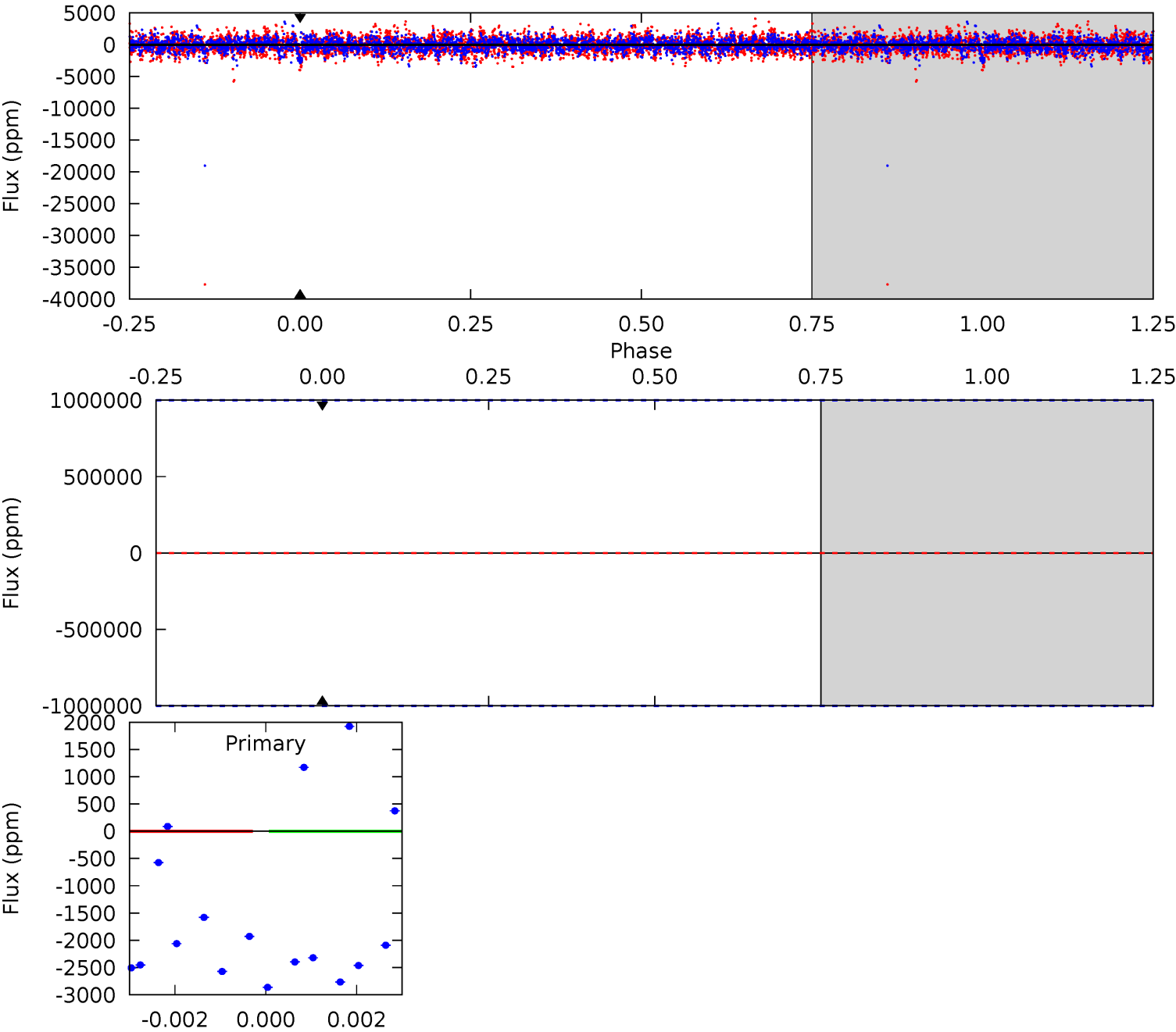
TCE 008042044-03   P= 23.263895 Days    $T_0=151.896269$  (BKJD)



# DV Model-Shift Uniqueness Test

008042044-03, P = 23.263895 Days, E = 128.599387 Days

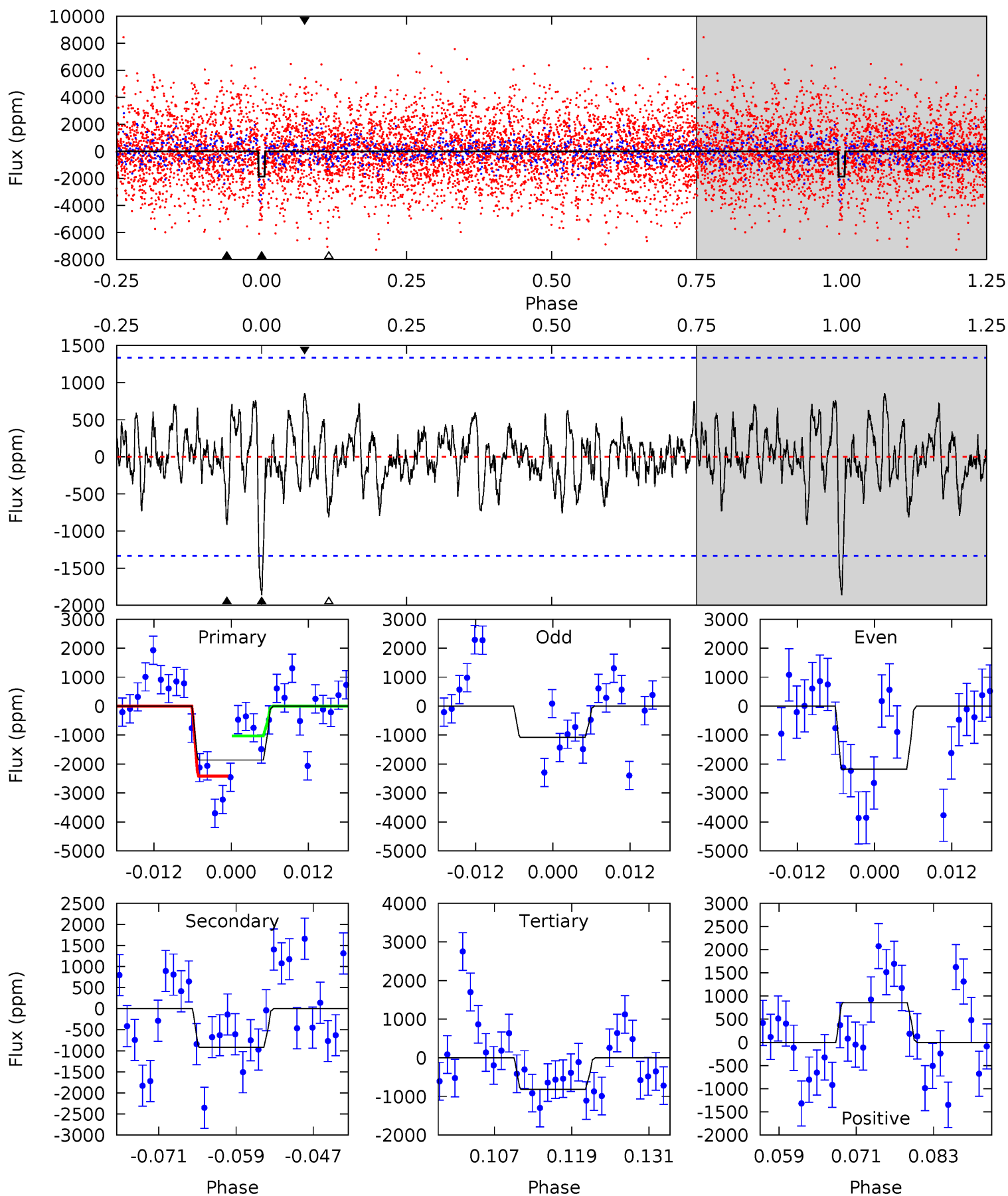
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008042044-03, P = 23.263895 Days, E = 128.632374 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
6.97	3.43	3.06	3.21	4.99	2.52	1.10	3.91	3.76	0.37	0.22	2.05	0.56	0.32	2.61





### Stellar Parameters For KIC 008042044

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6888^{+190}_{-286}$	$4.181^{+0.136}_{-0.187}$	$-0.160^{+0.250}_{-0.350}$	$1.562^{+0.494}_{-0.329}$	$1.363^{+0.202}_{-0.247}$	$0.503^{+0.381}_{-0.249}$
	+3%/-4%	+3%/-4%	+156%/-219%	+32%/-21%	+15%/-18%	+76%/-50%
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 008042044-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$13.70^{+13.55}_{-9.48}$	$1271^{+101}_{-88}$	$-5611^{+43183}_{-18672}$	$-250.318^{+21944.800}_{-12633.511}$
Alt.	$-917 \pm 267$	$14.17^{+13.80}_{-9.78}$	$1264^{+102}_{-77}$	$4314^{+3085}_{-896}$	$76^{+719}_{-56}$

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

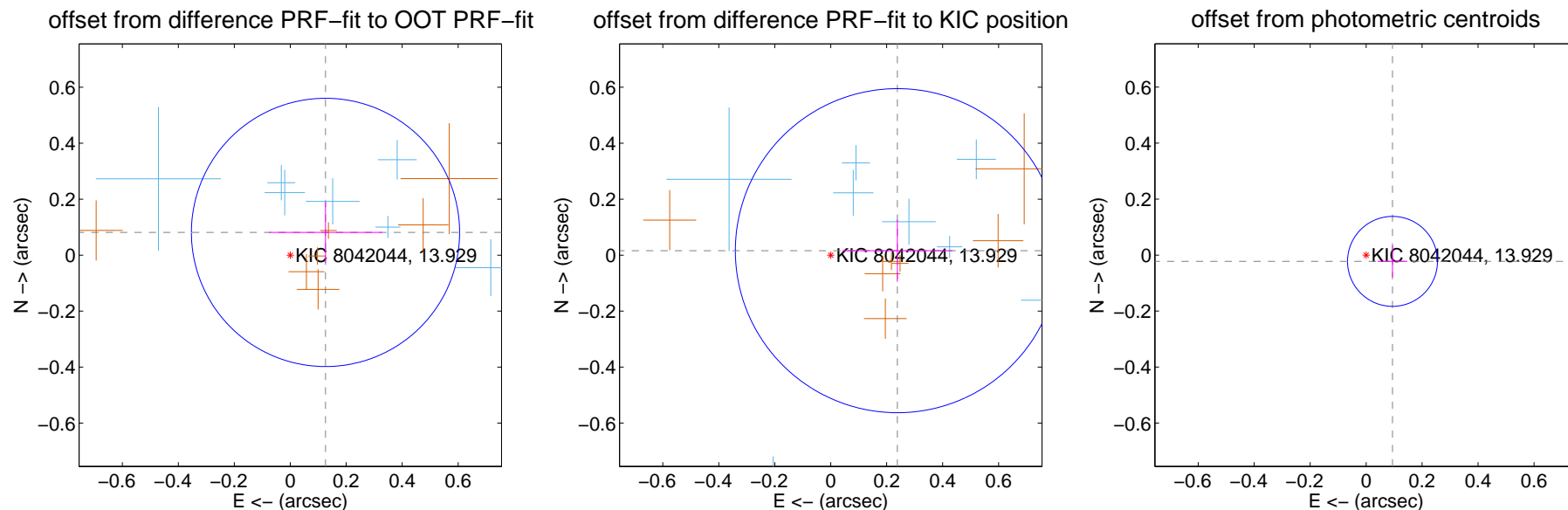
## DV Centroid Data

Supplemental centroid analysis for 008042044-03. Kepler magnitude: 13.93. Transit SNR -1.00

There are 10 quarters with good PRF difference image offsets

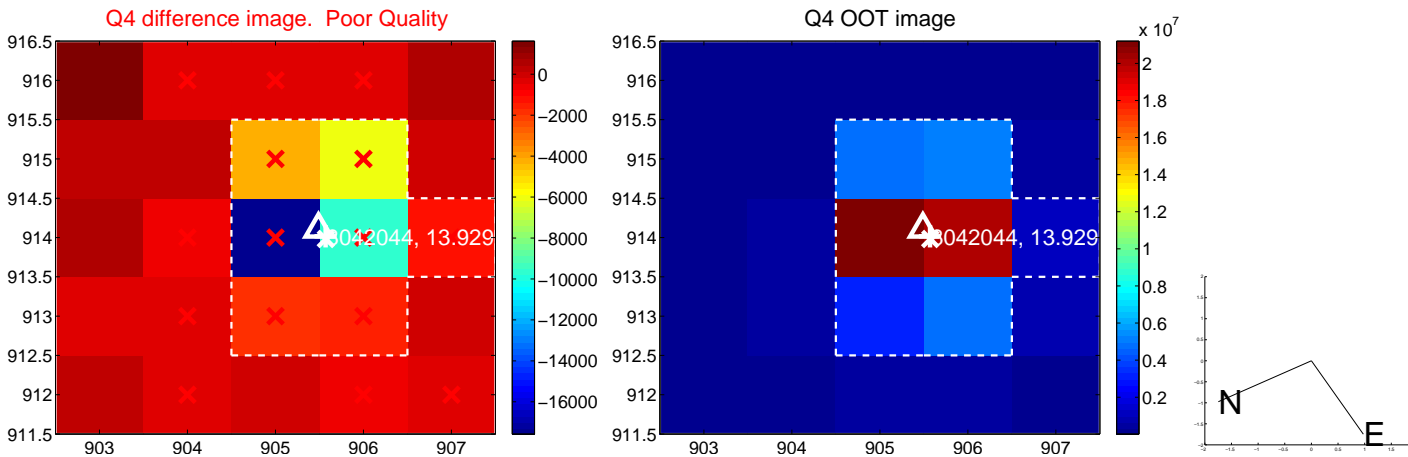
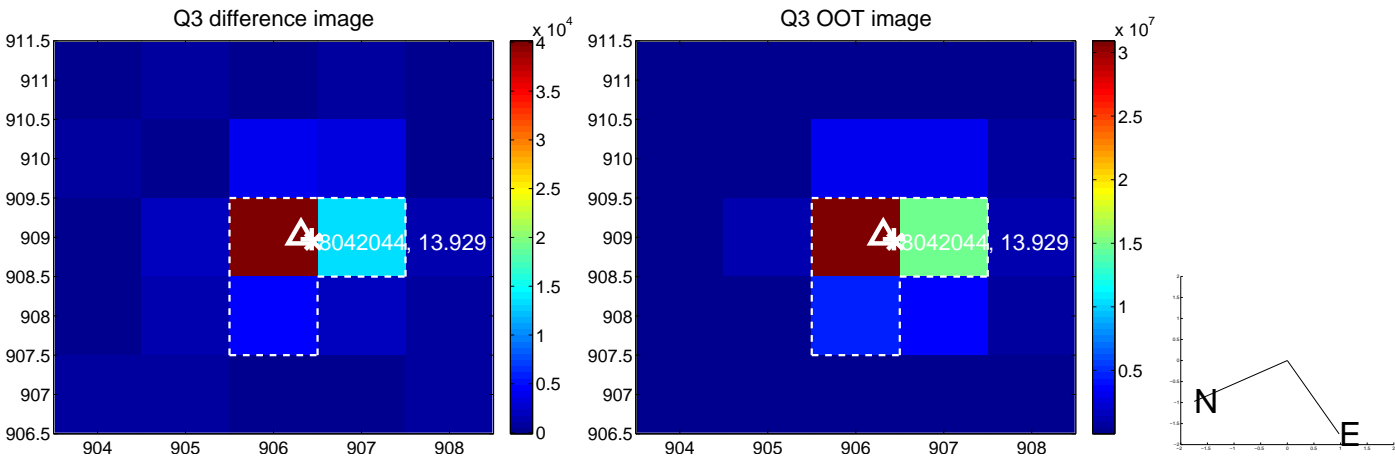
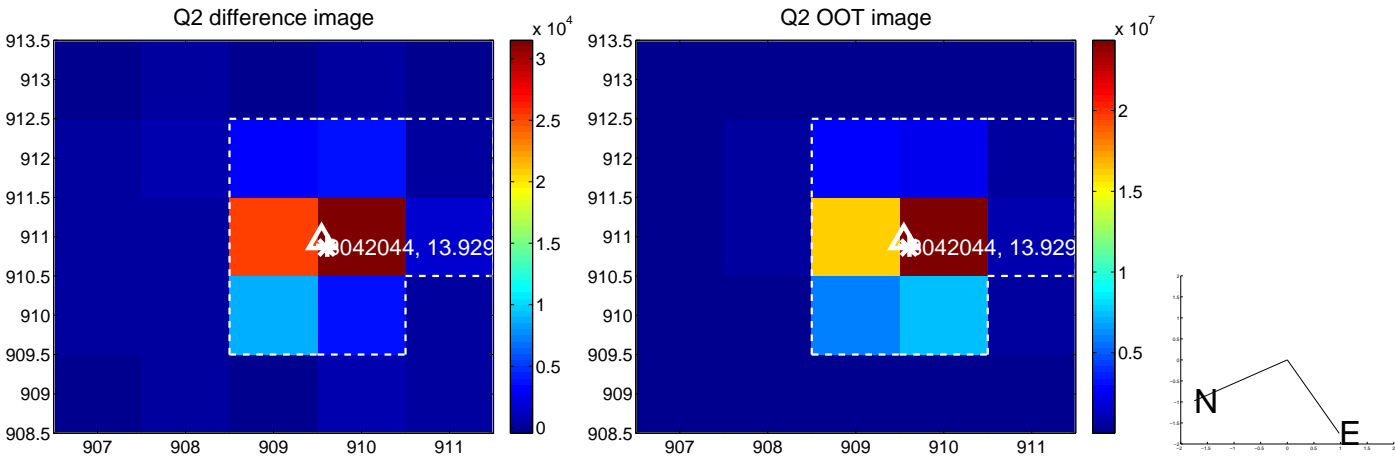
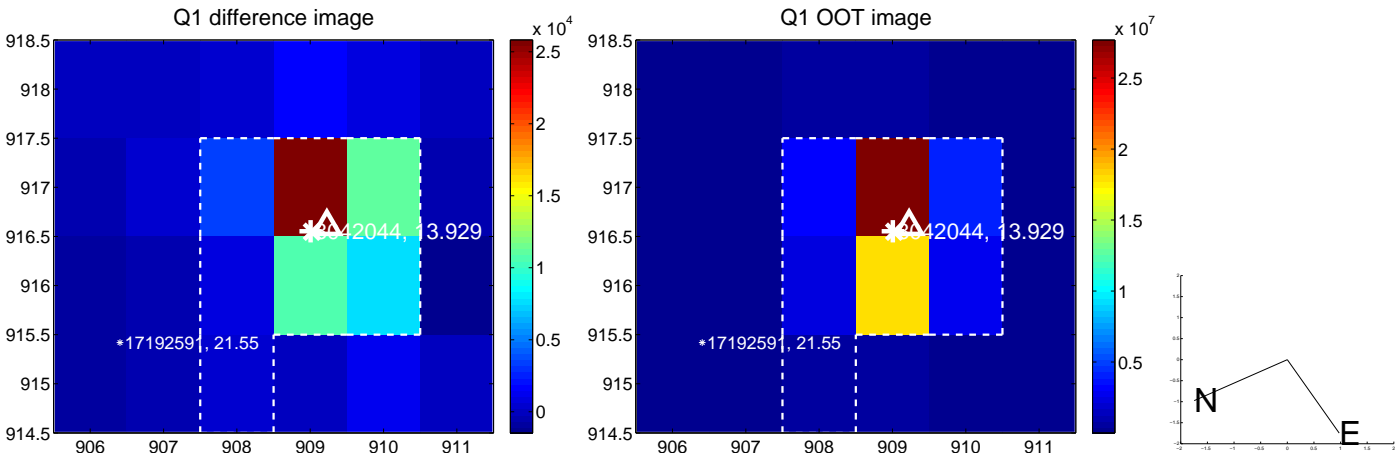
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.150 \pm 0.160$	0.94	$-0.126 \pm 0.202$	$0.081 \pm 0.109$
PRF-fit source offset from KIC position	$0.239 \pm 0.193$	1.24	$-0.238 \pm 0.196$	$0.016 \pm 0.111$
photometric centroid source offset	$0.10 \pm 0.05$	1.81	$-0.09 \pm 0.05$	$-0.02 \pm 0.06$

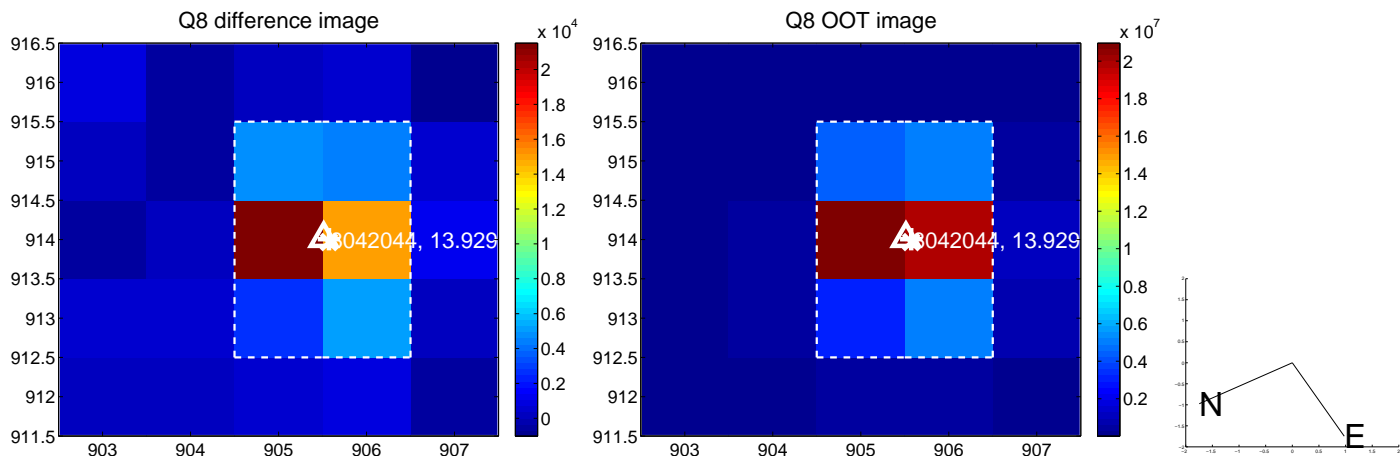
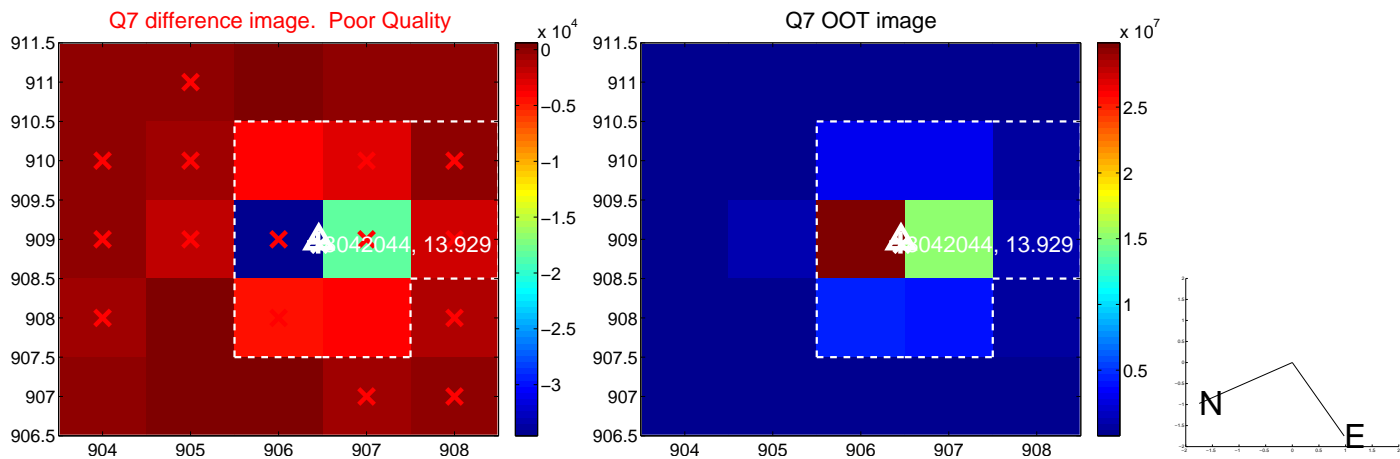
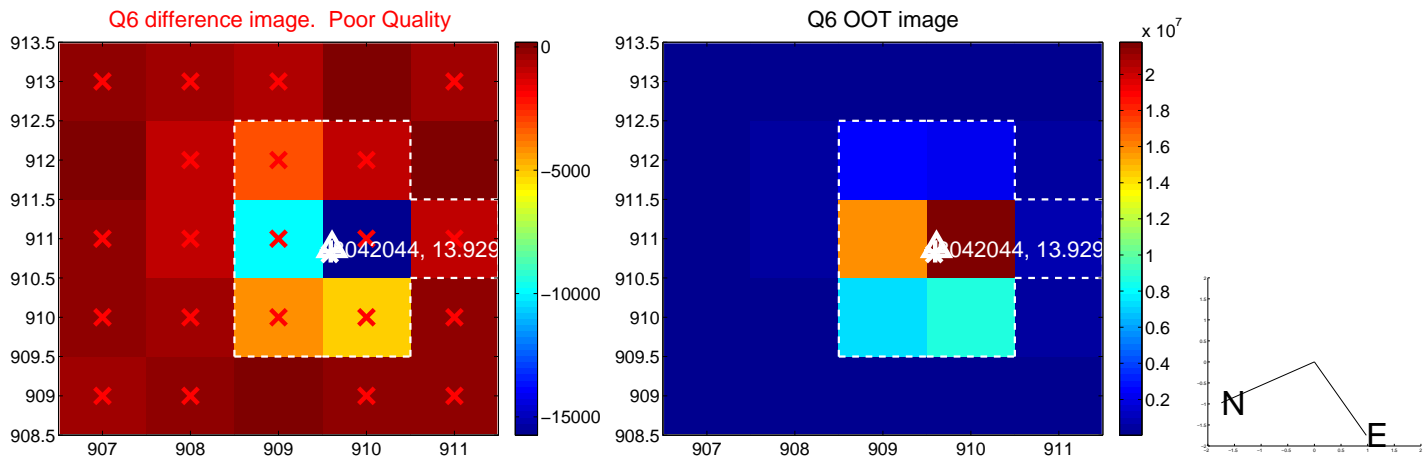
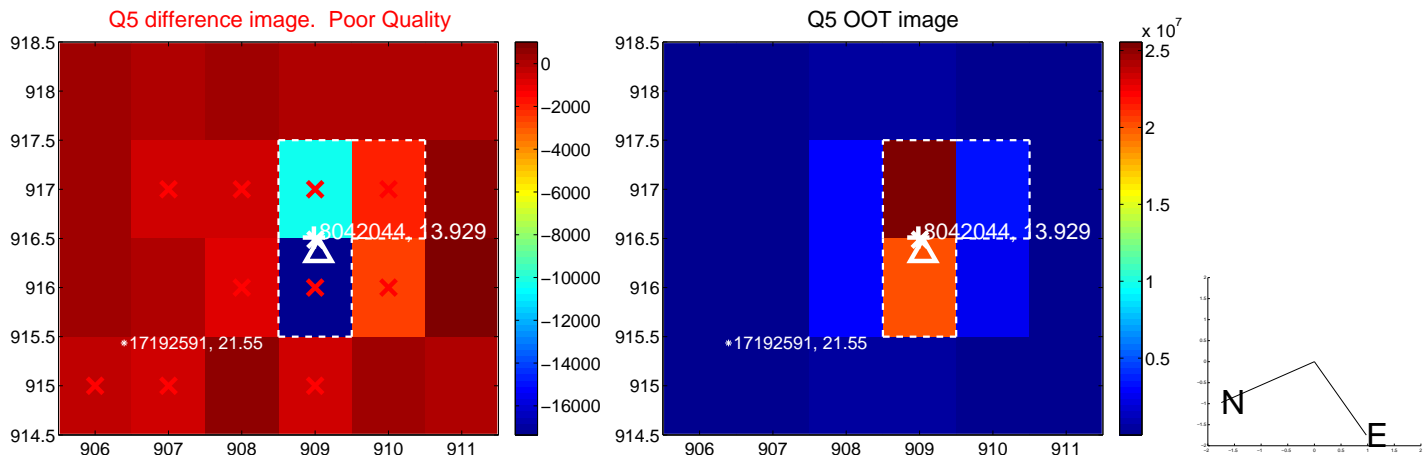


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

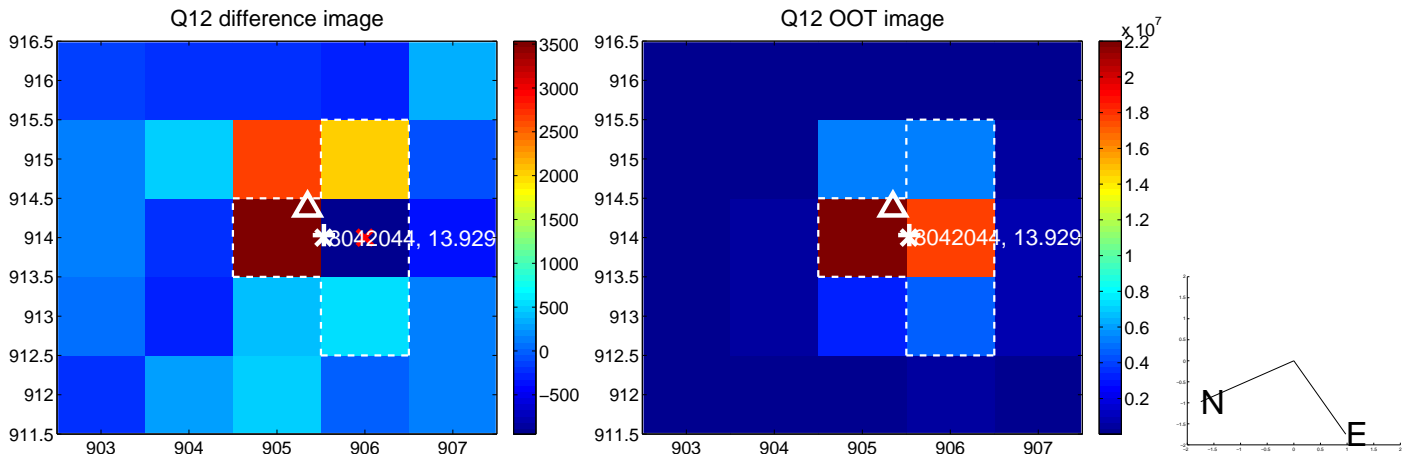
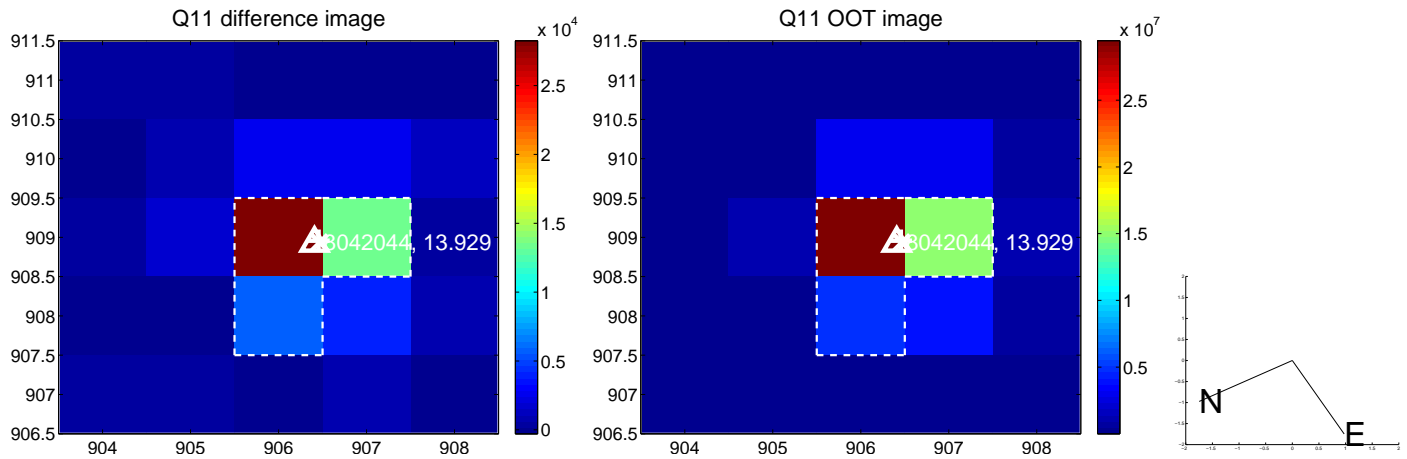
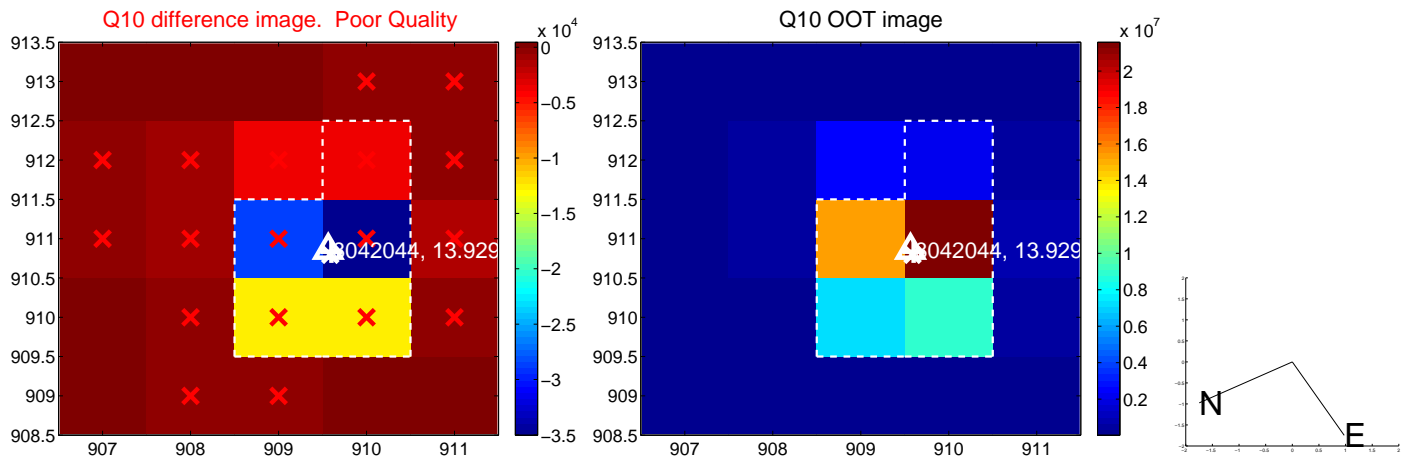
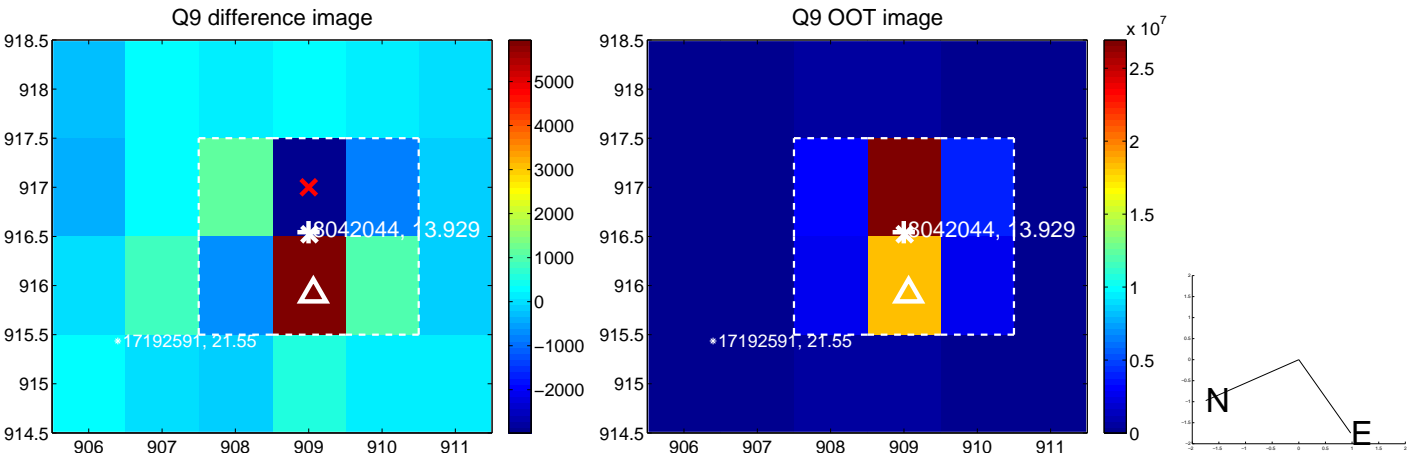
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

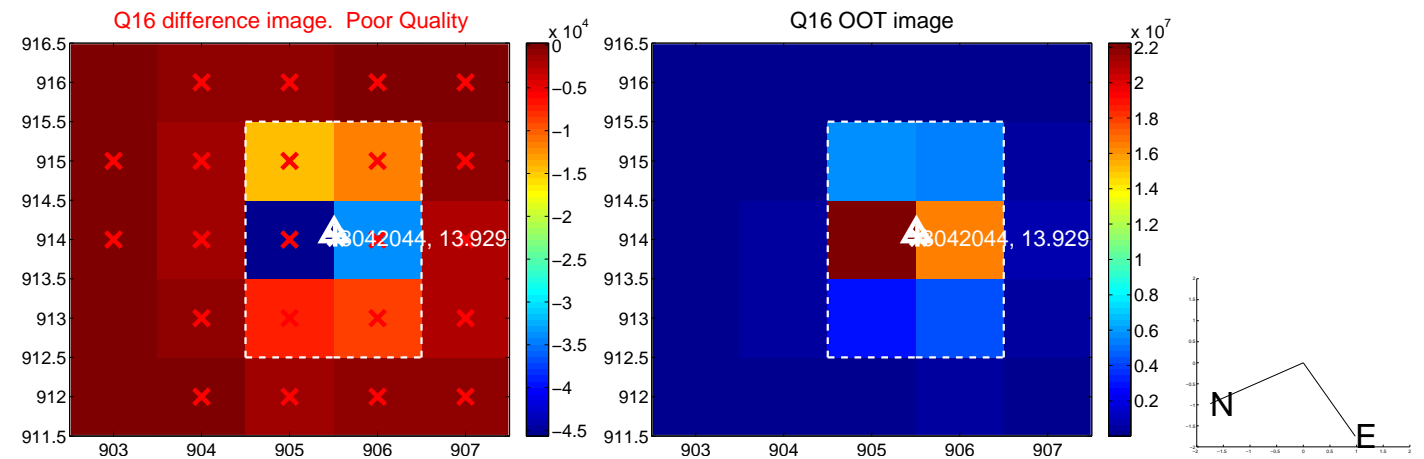
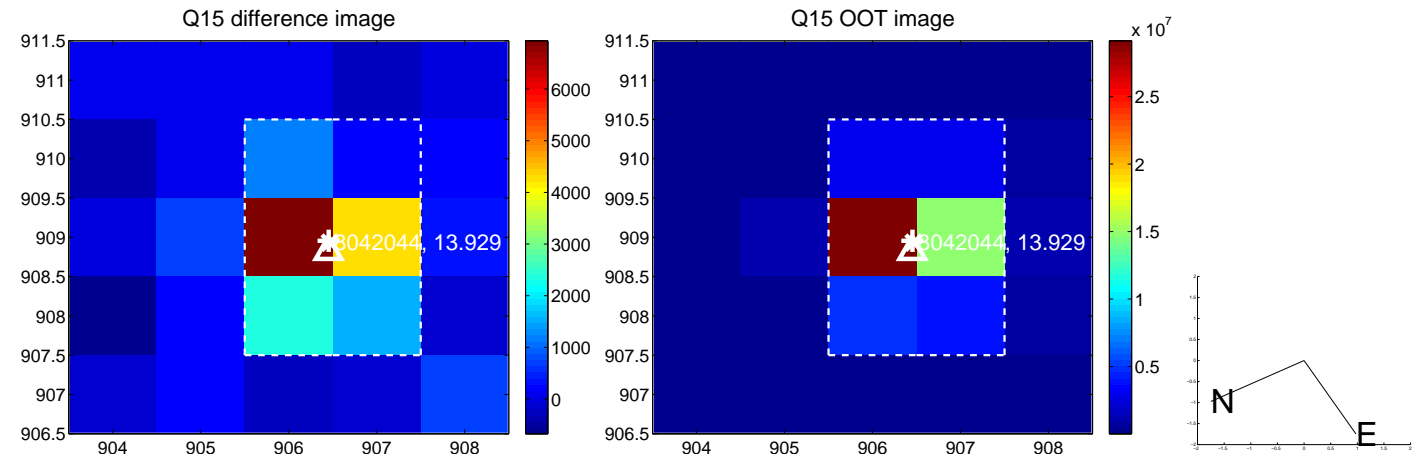
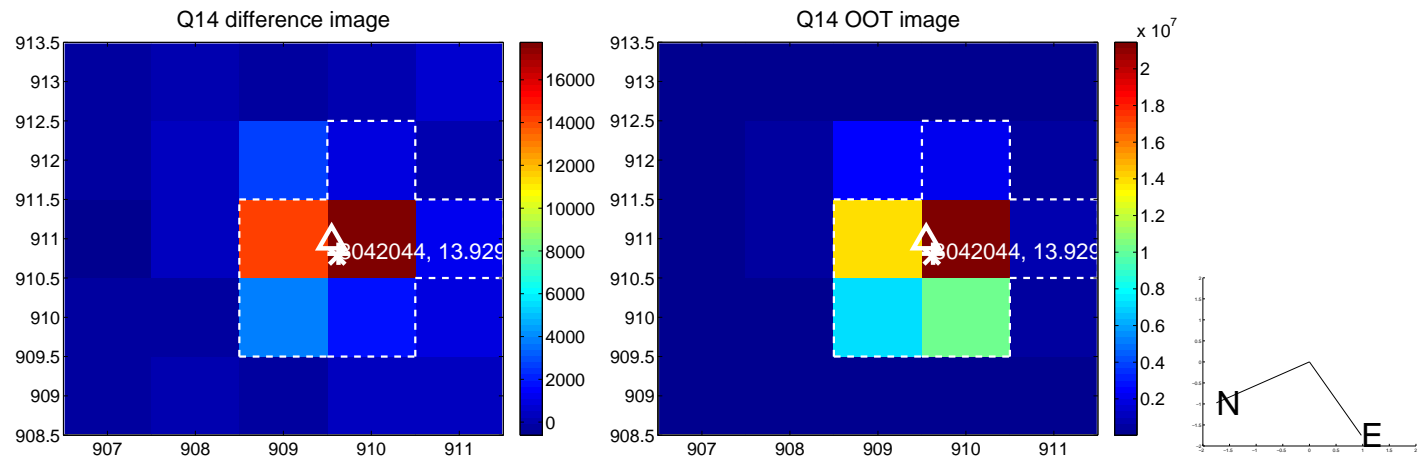
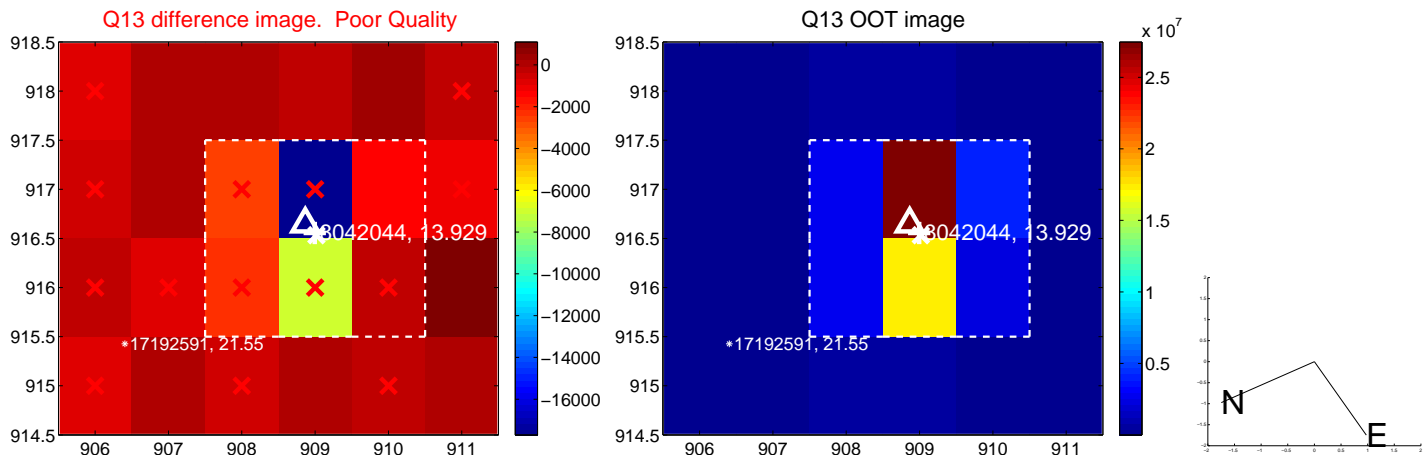


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

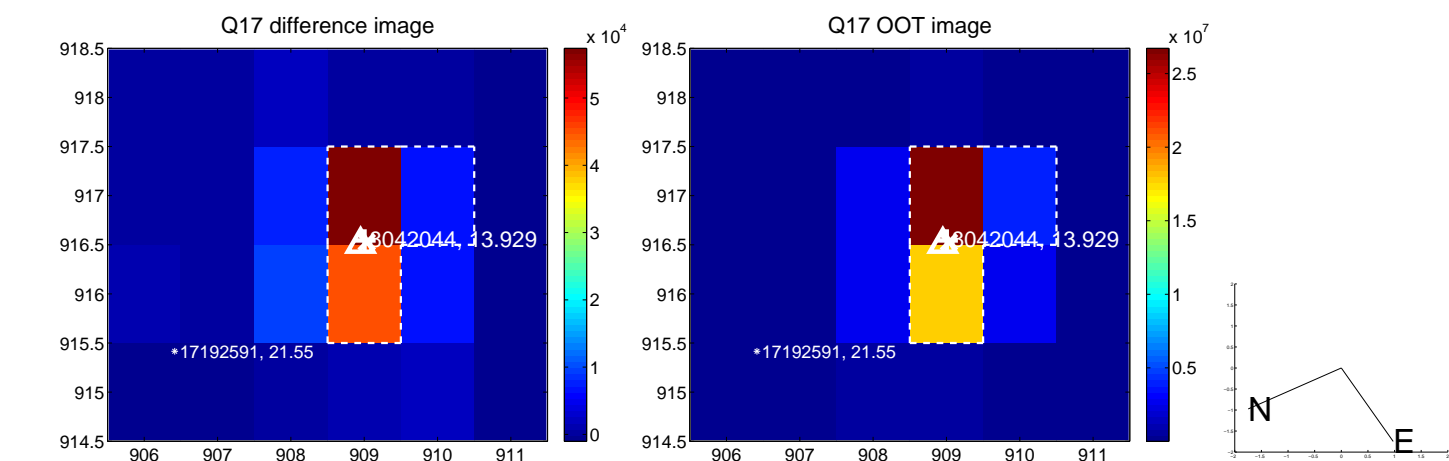




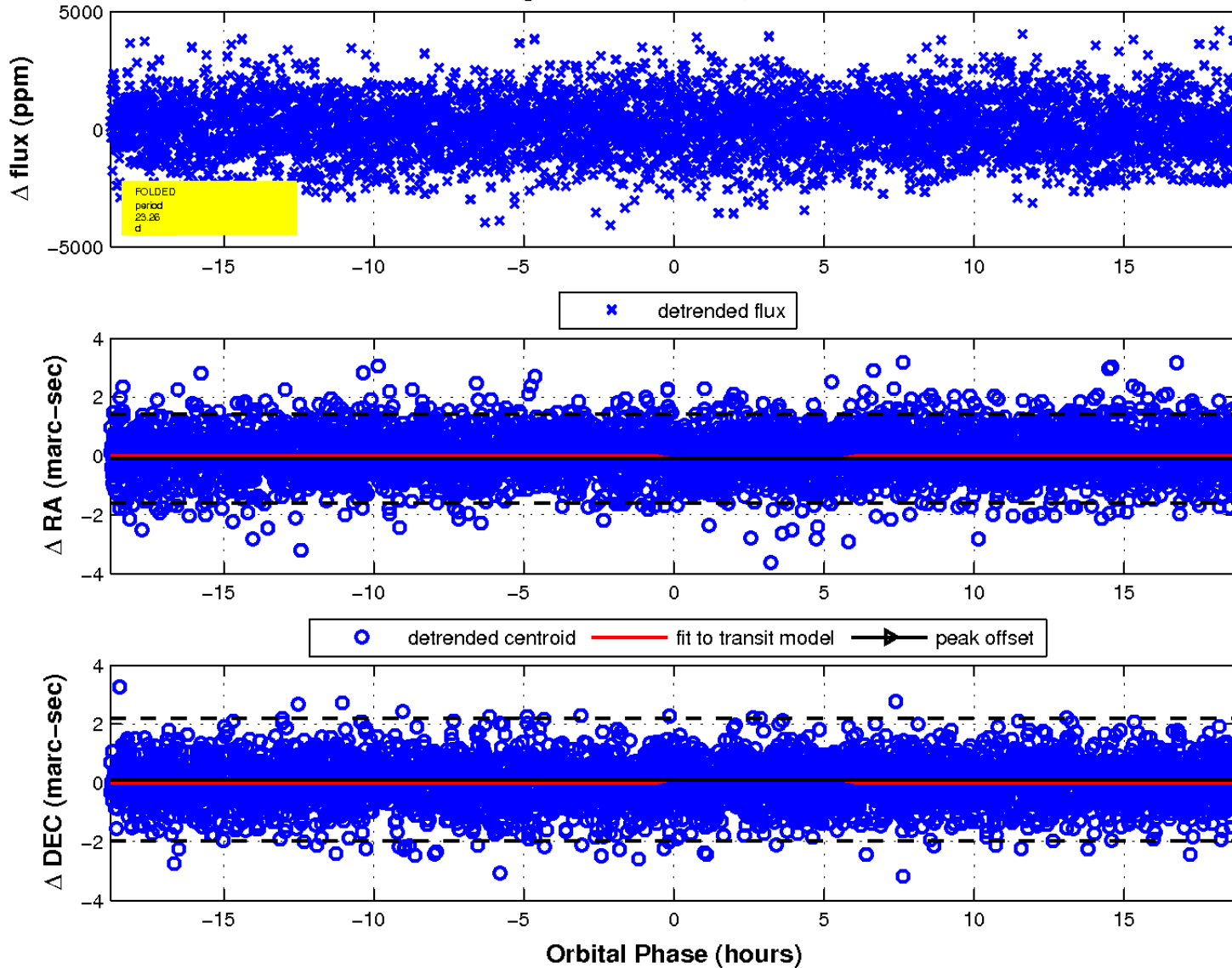
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

