

# KIC 008450600

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008450600-01	OBS	No	1.473313	132.395754	31.5	3.655	8.4	8.0	3.23	8063	2.12	38662.43
008450600-02	OBS	No	0.617402	131.757040	28.5	1.834	7.7	7.1	3.23	8063	2.01	123289.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008450600-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008450600-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

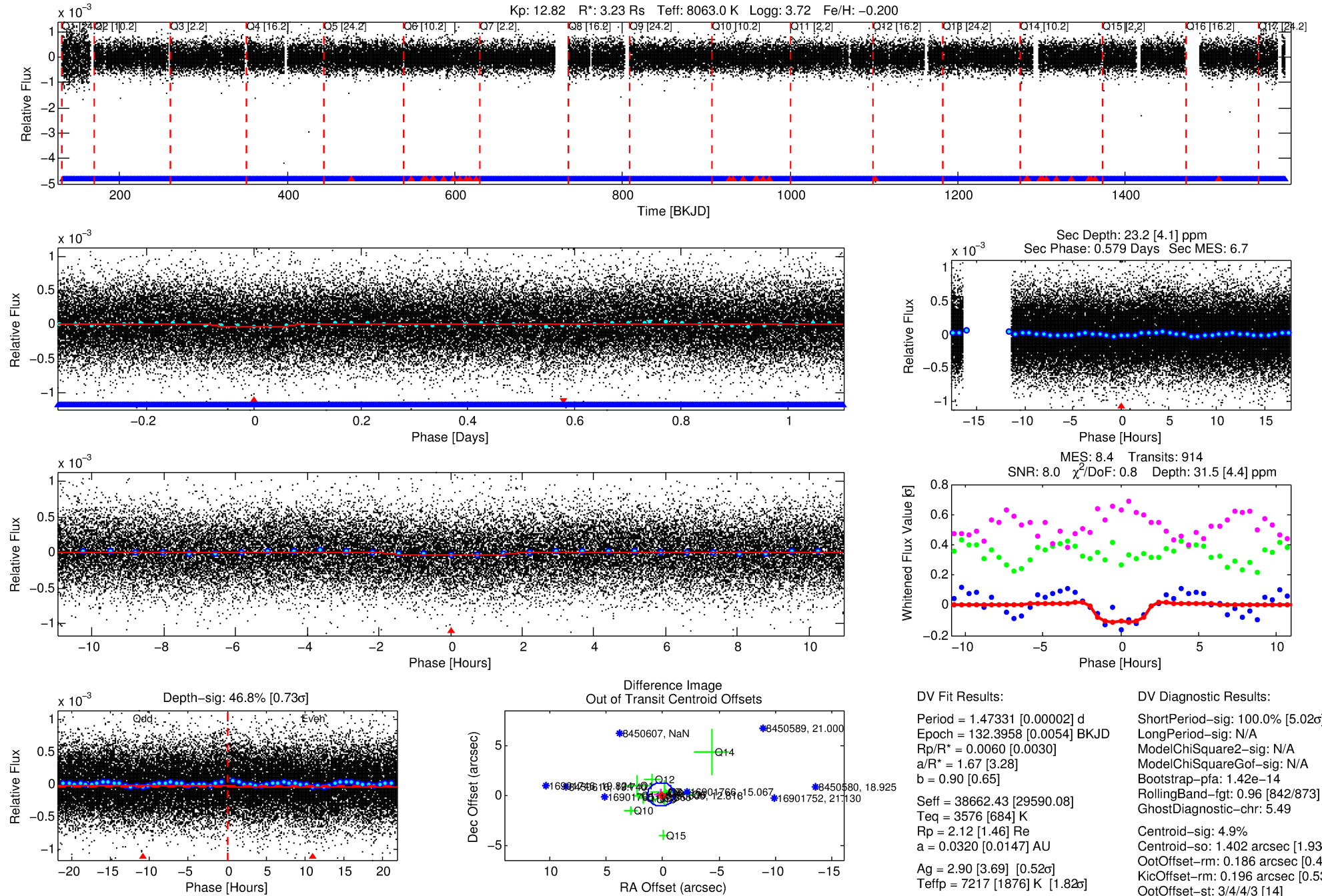
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008450600-01

No Significant Match Found

# DV One-Page Summary

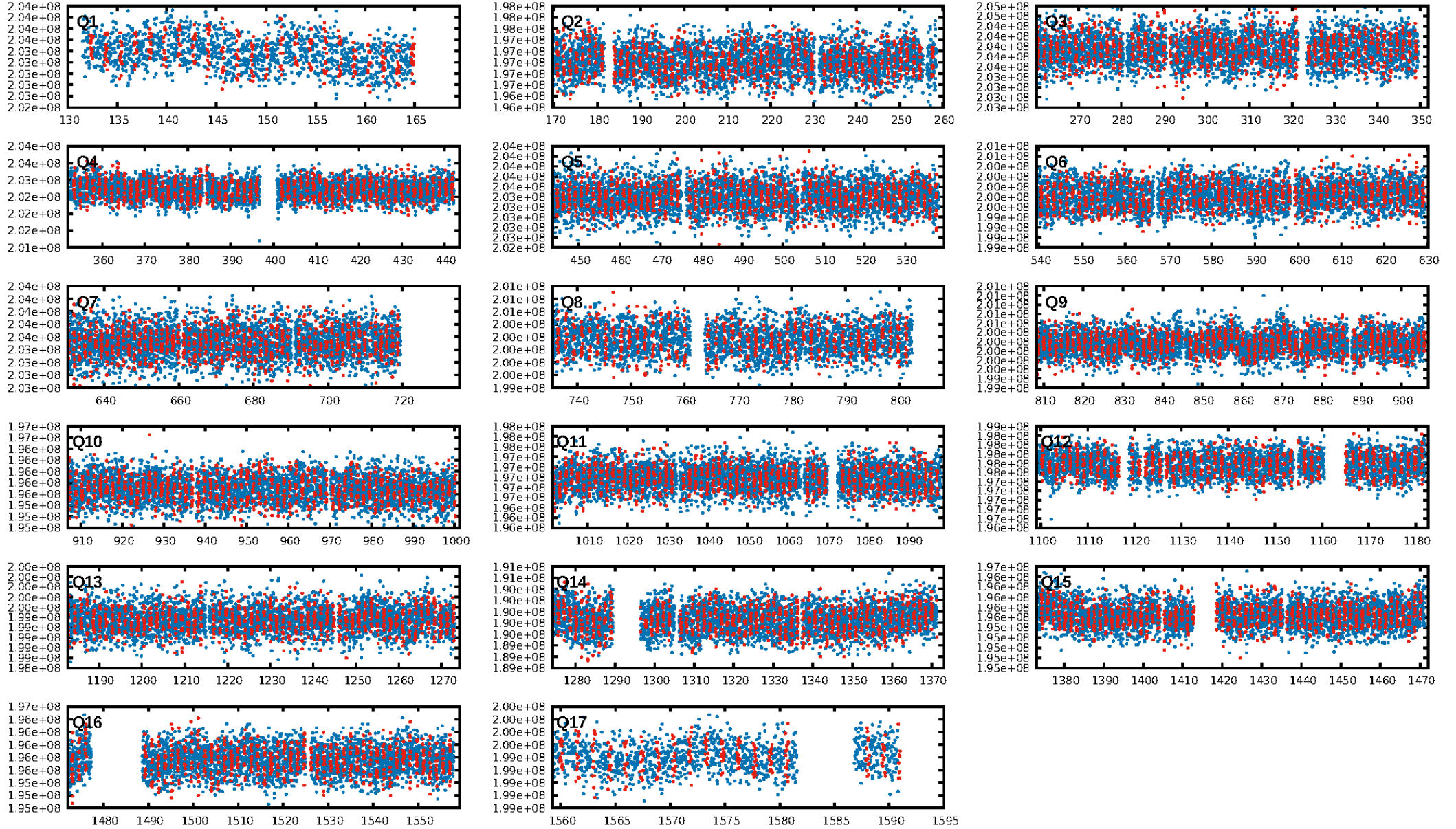
KIC: 8450600 Candidate: 1 of 2 Period: 1.473 d



Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:03:45 Z

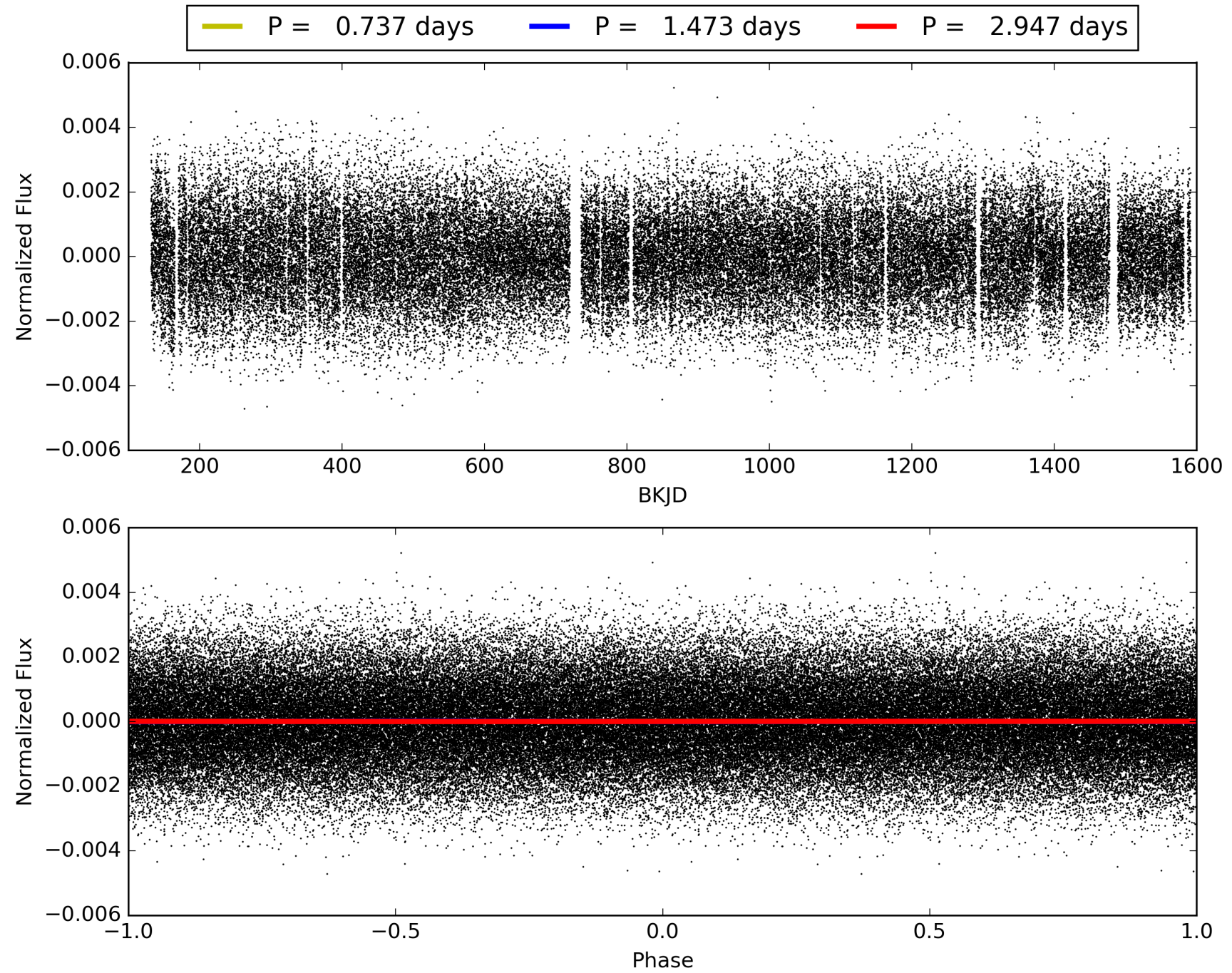
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008450600-01, PDC Light Curves



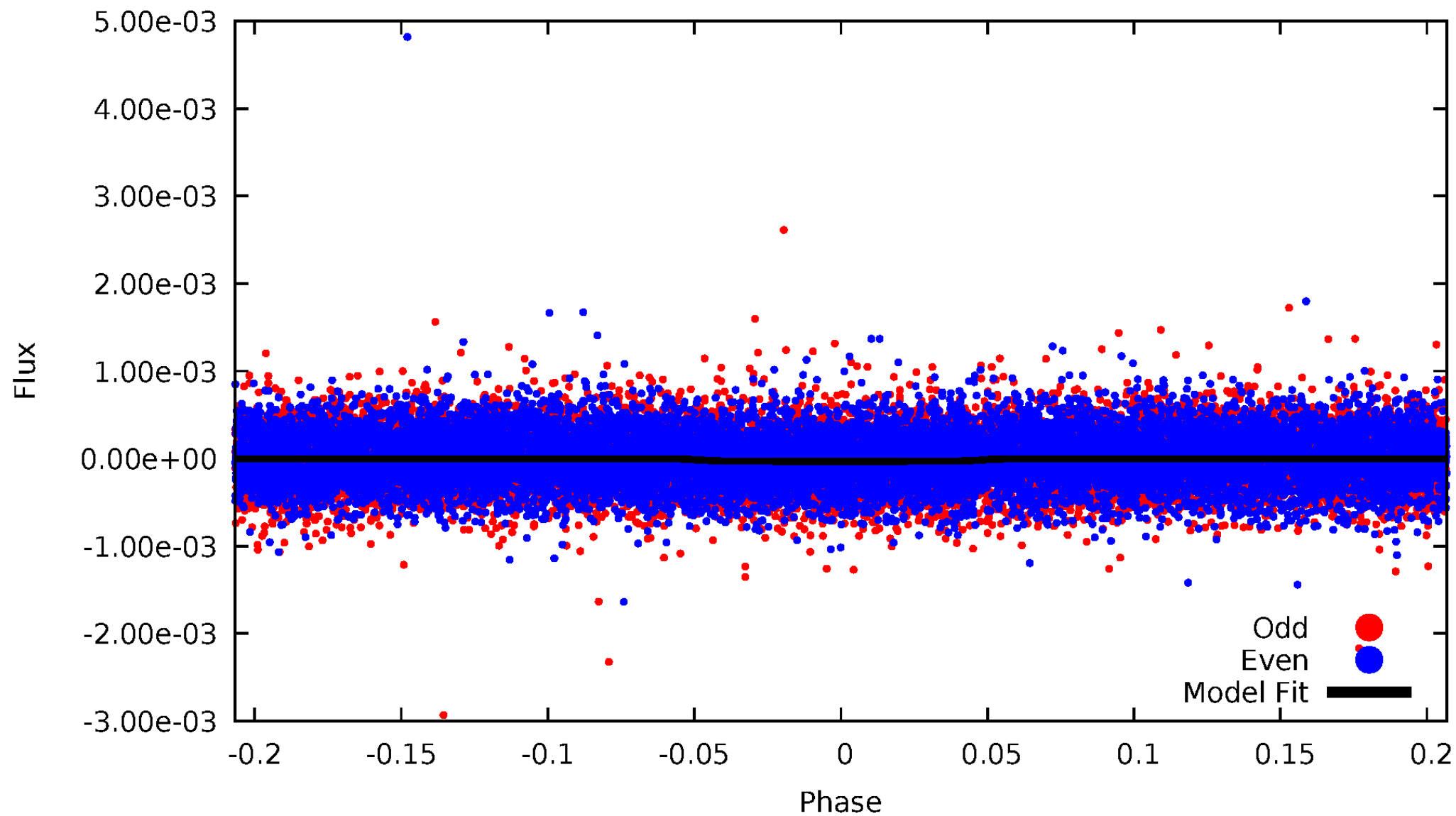


TCE 008450600-01



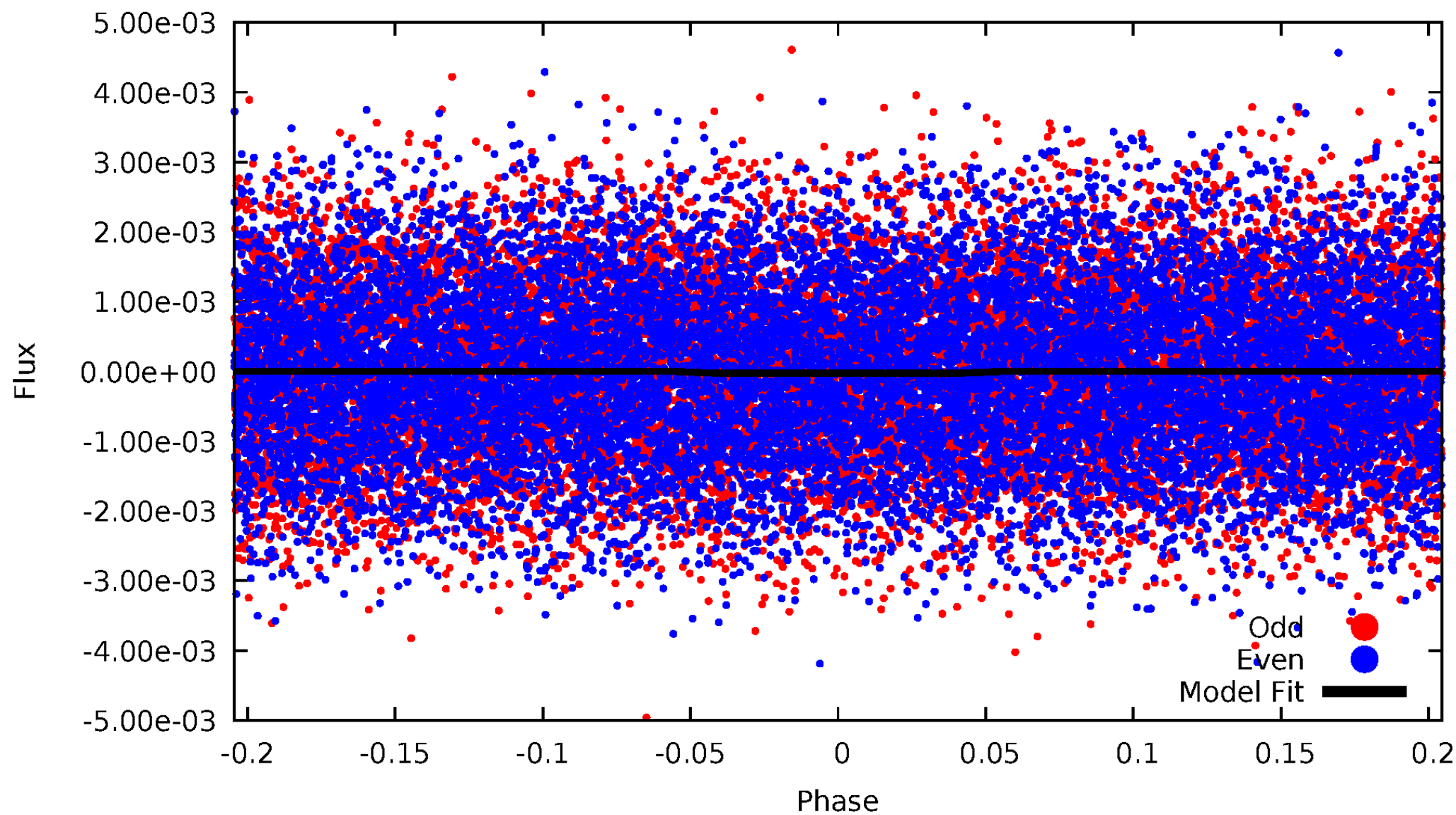
# DV Odd/Even

TCE 008450600-01

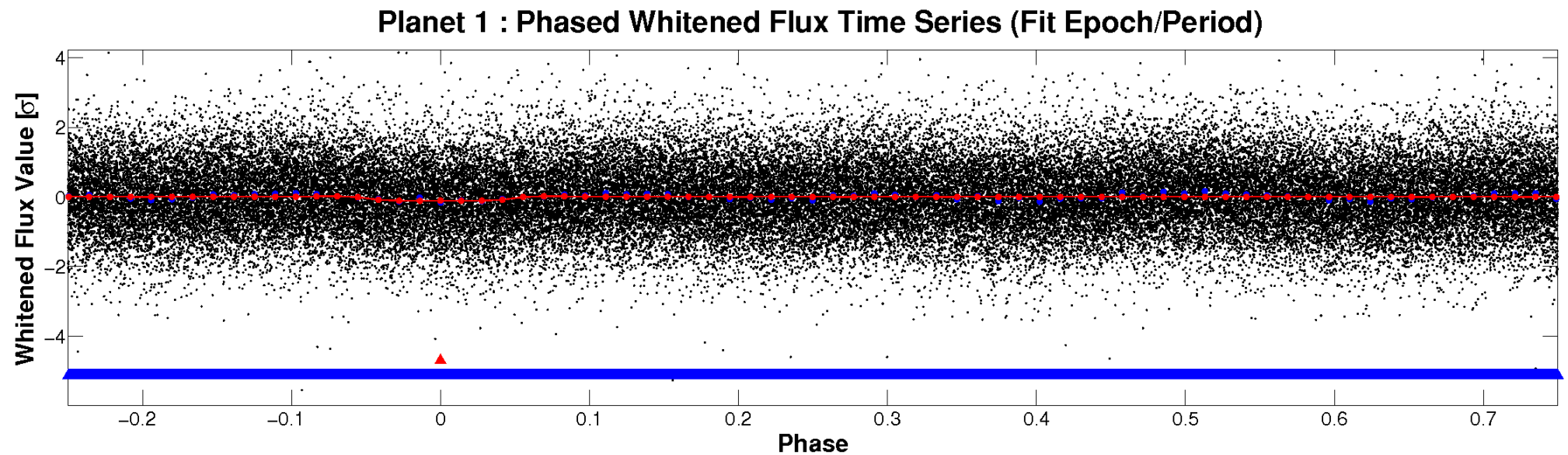
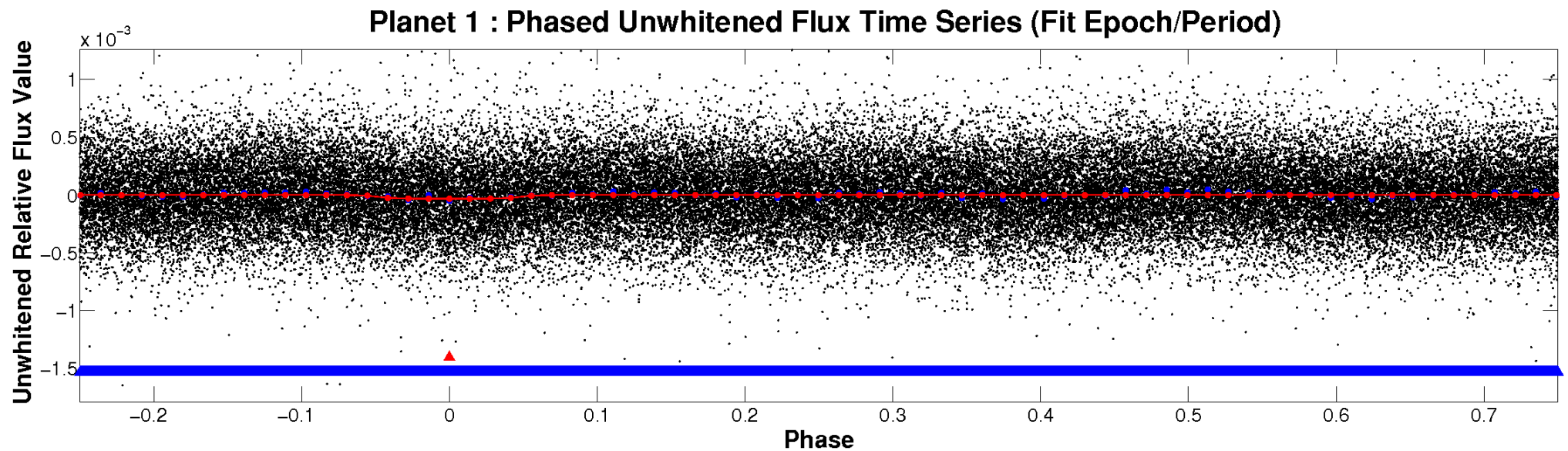


# ALT Odd/Even

TCE 008450600-01



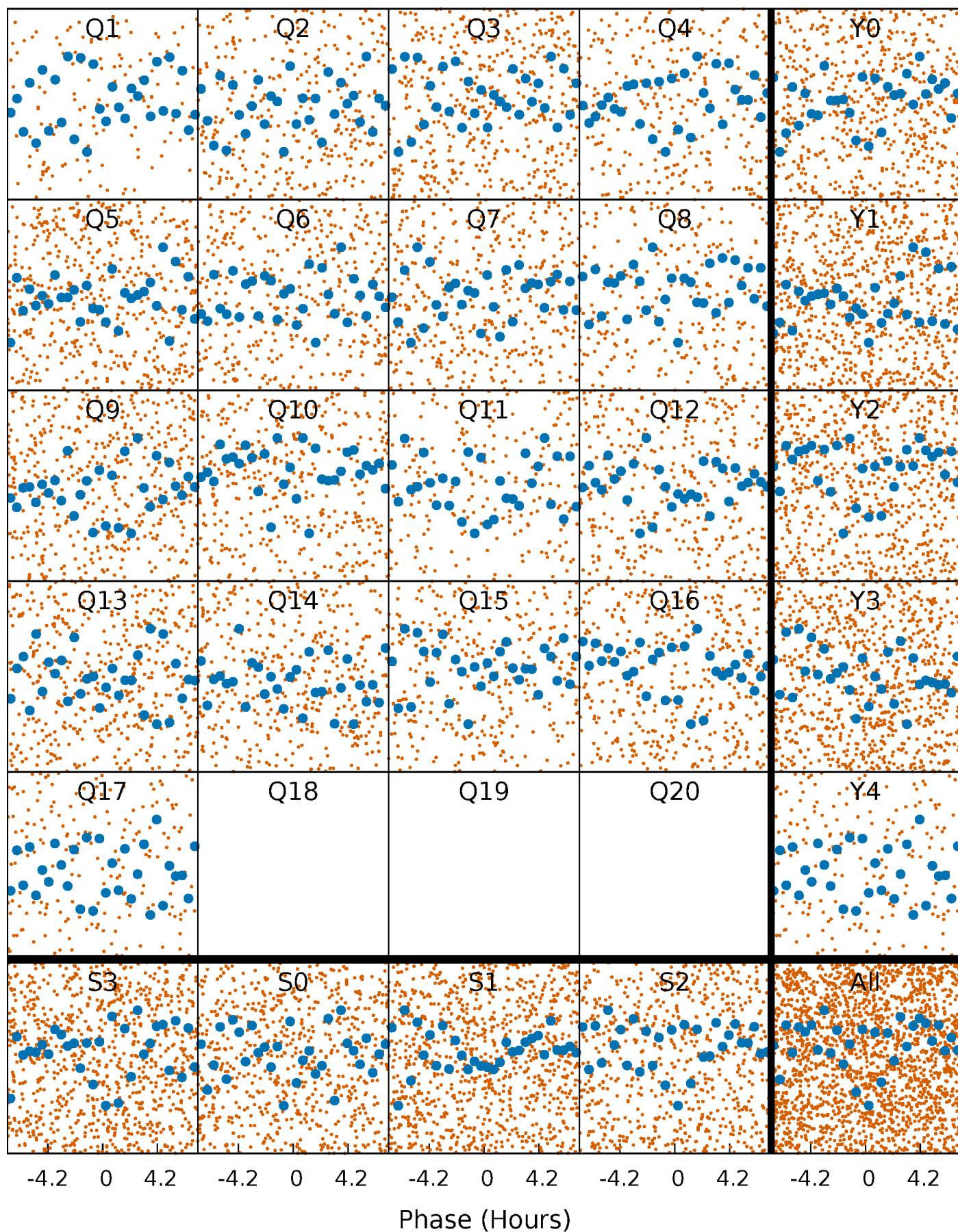
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

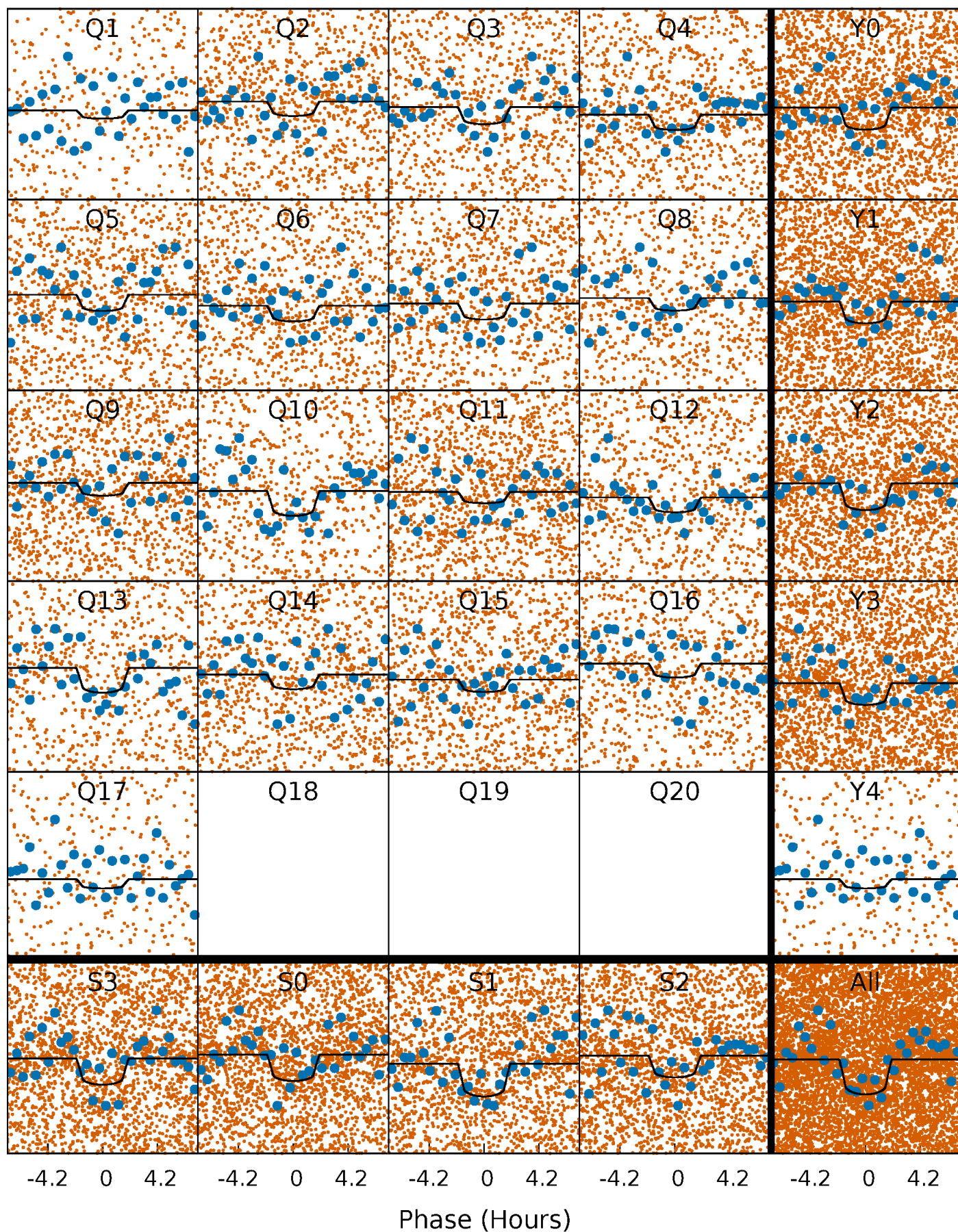
TCE 008450600-01 P= 1.473313 Days  $T_0=132.395754$  (BKJD)





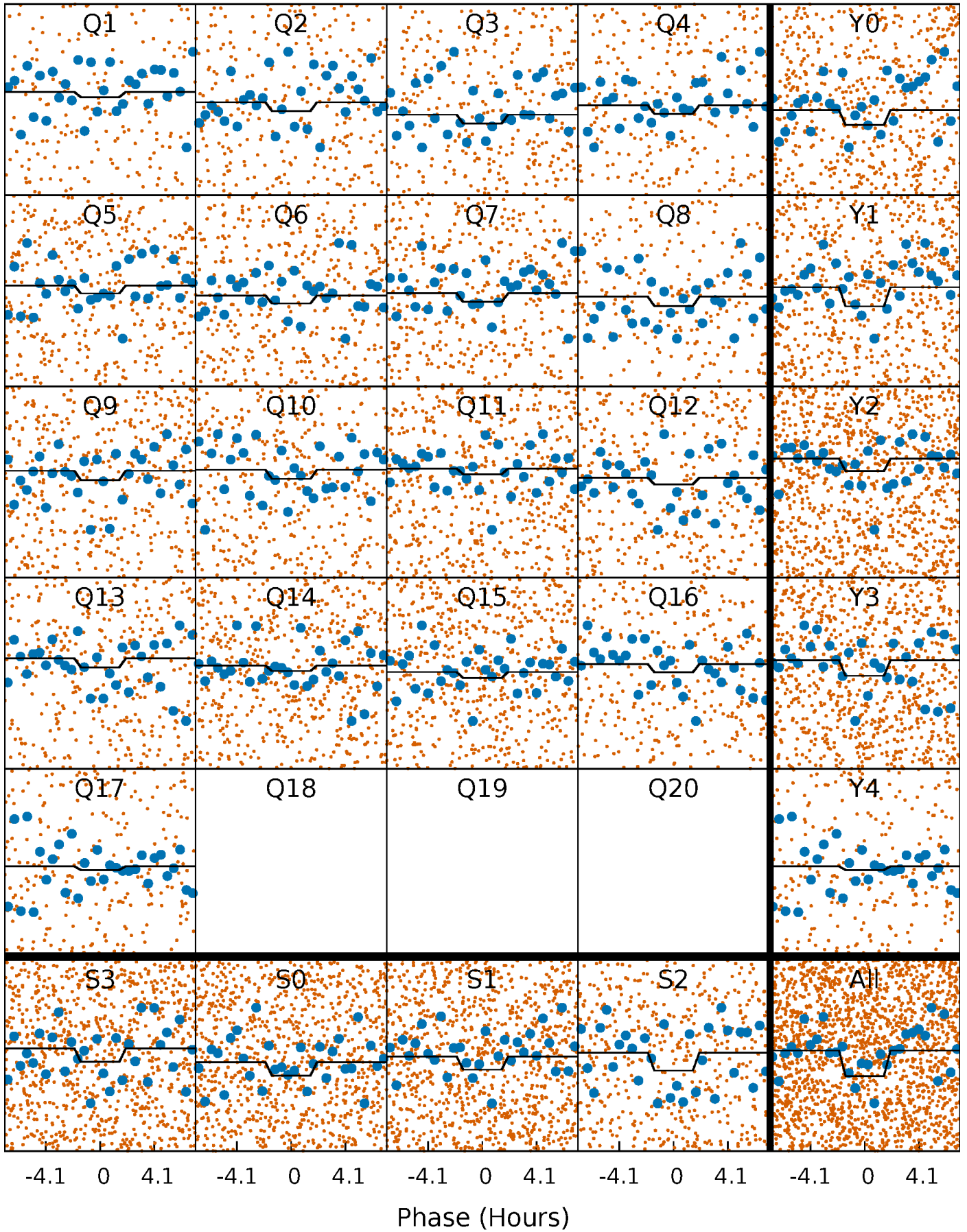
# DV Quarter-Phased Transit Curves

TCE 008450600-01 P= 1.473313 Days  $T_0=132.395754$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

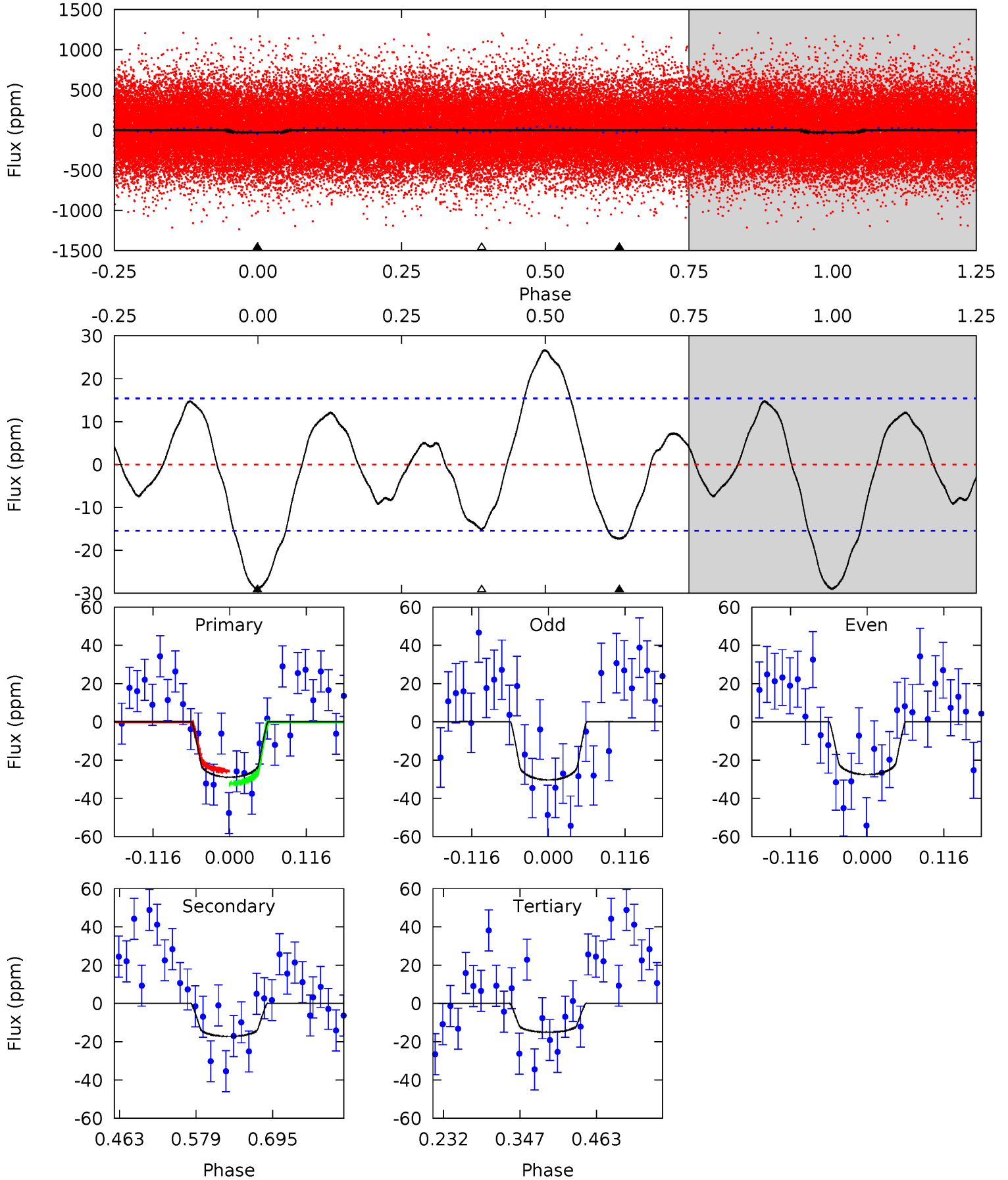
TCE 008450600-01 P= 1.473302 Days  $T_0=132.396077$  (BKJD)



# DV Model-Shift Uniqueness Test

008450600-01, P = 1.473313 Days, E = 130.922441 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
8.51	5.08	4.43	0	4.53	1.57	2.97	4.08	8.51	0.65	5.08	0.41	1.06	0.48	0.97

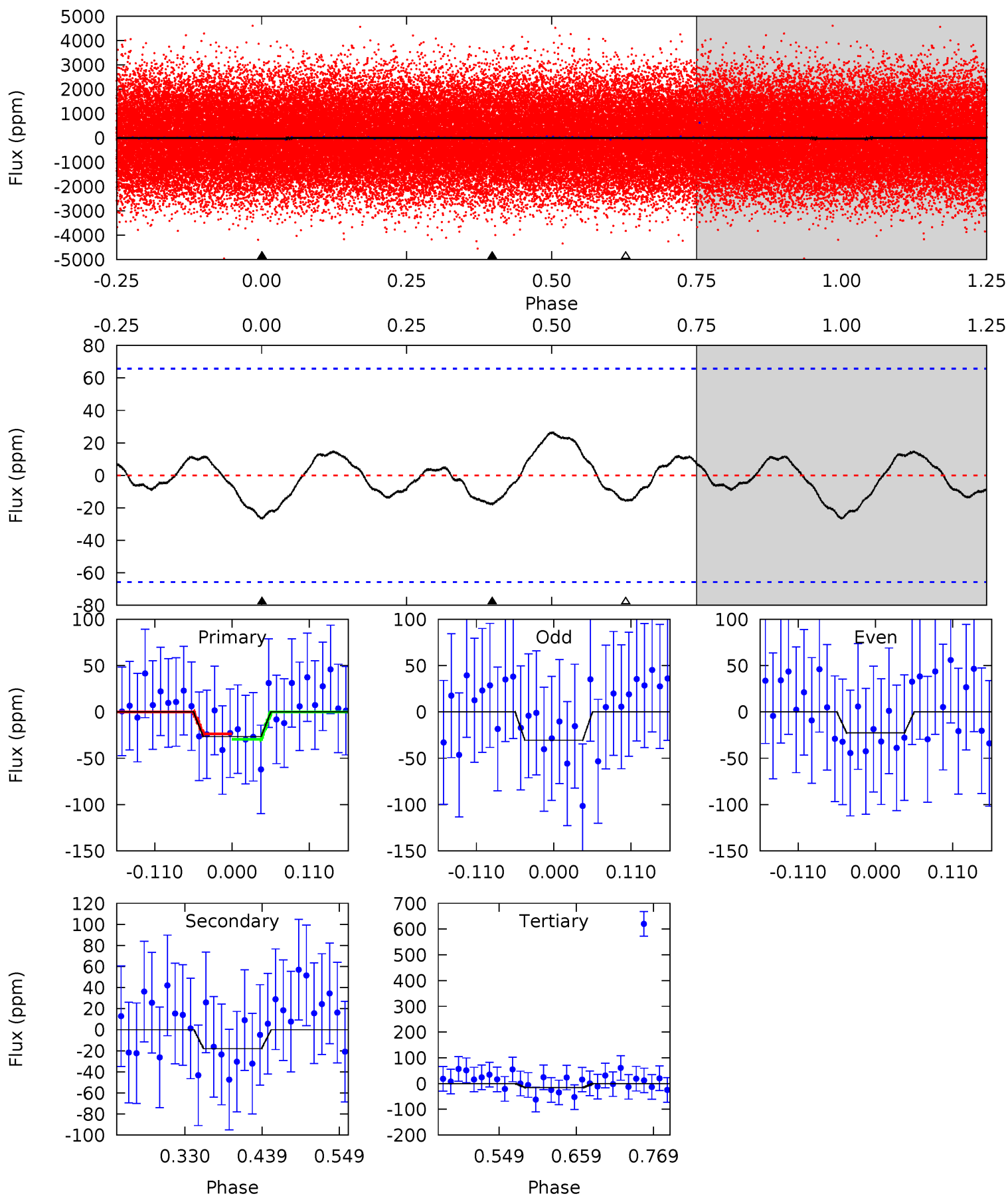




# Alt Model-Shift Uniqueness Test

008450600-01, P = 1.473302 Days, E = 130.922775 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.84	1.24	1.08	0	4.55	1.60	0.71	0.76	1.84	0.16	1.24	0.27	1.96	0.50	0.20





### Stellar Parameters For KIC 008450600

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$\rho_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8063^{+223}_{-335}$	$3.722^{+0.442}_{-0.078}$	$-0.200^{+0.200}_{-0.350}$	$3.230^{+0.541}_{-1.515}$	$2.008^{+0.337}_{-0.548}$	$0.084^{+0.342}_{-0.022}$
	+3%/-4%	+12%/-2%	+100%/-175%	+17%/-47%	+17%/-27%	+407%/-26%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008450600-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-17 \pm 3$	$1.89^{+1.10}_{-0.89}$	$4820^{+334}_{-542}$	$6282^{+2905}_{-1306}$	$2.731^{+7.273}_{-1.636}$
Alt.	$-18 \pm 14$	$1.74^{+1.04}_{-0.99}$	$4783^{+362}_{-587}$	$6385^{+4142}_{-2861}$	$2.907^{+10.855}_{-2.482}$

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

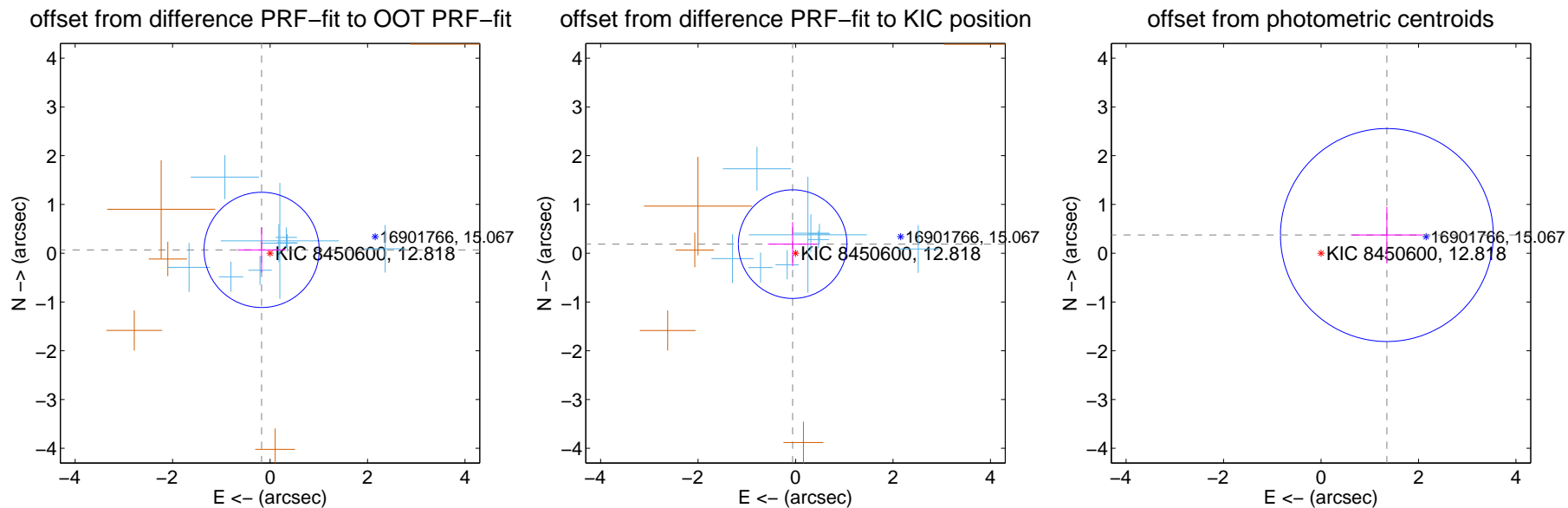
## DV Centroid Data

Supplemental centroid analysis for 008450600-01. Kepler magnitude: 12.82. Transit SNR 7.97

There are 9 quarters with good PRF difference image offsets

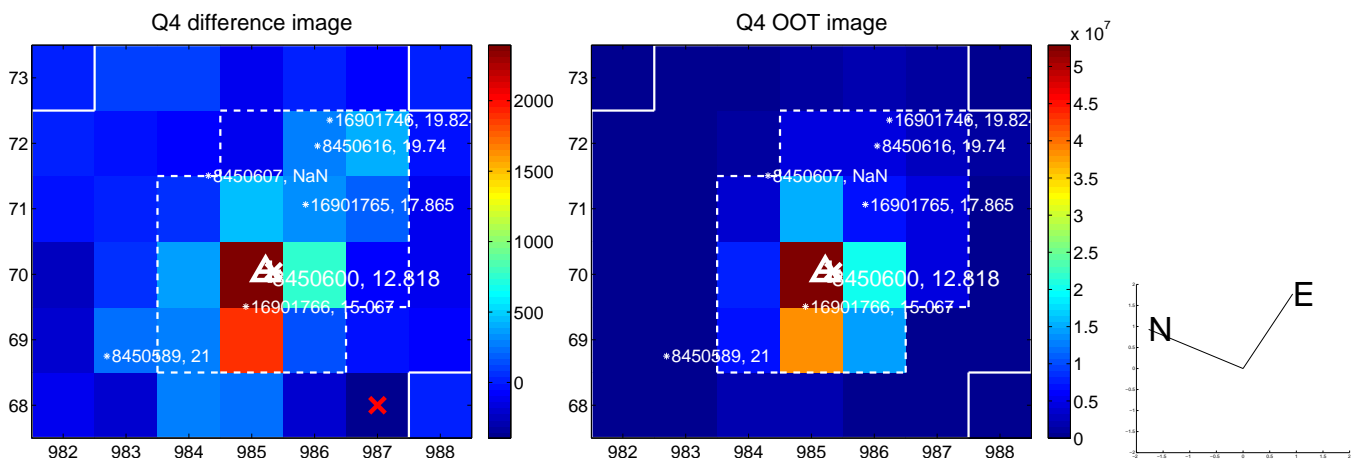
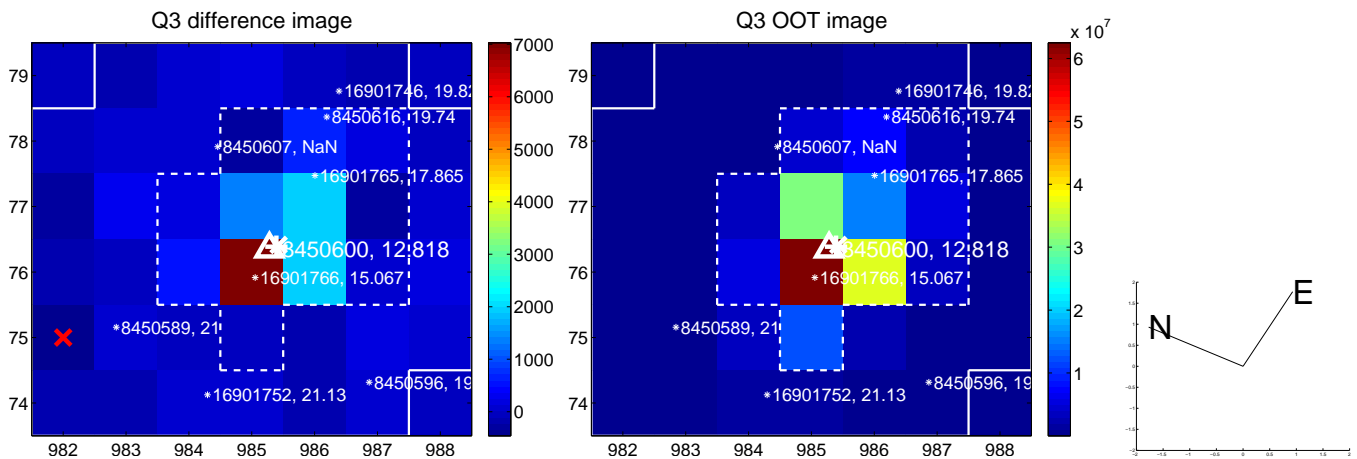
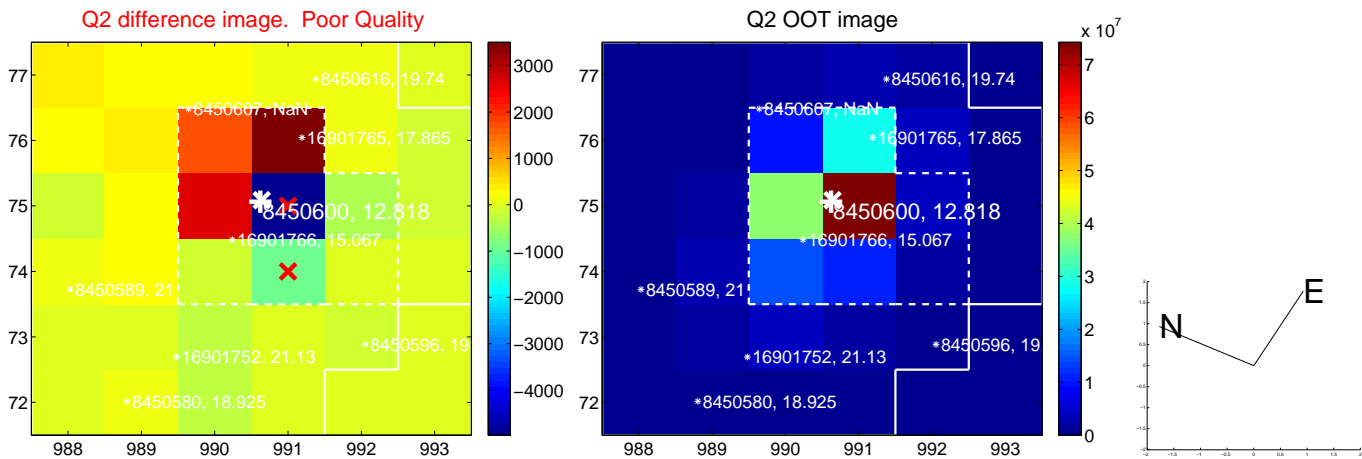
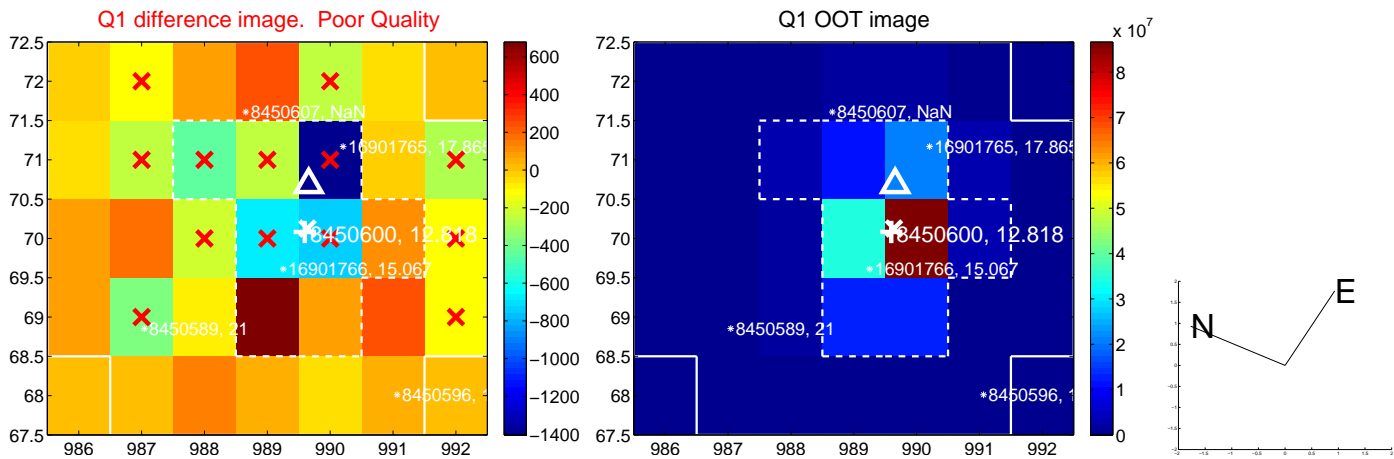
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.186 \pm 0.394$	0.47	$0.173 \pm 0.493$	$0.068 \pm 0.465$
PRF-fit source offset from KIC position	$0.196 \pm 0.371$	0.53	$0.059 \pm 0.506$	$0.187 \pm 0.452$
photometric centroid source offset	$1.40 \pm 0.73$	1.93	$-1.35 \pm 0.74$	$0.37 \pm 0.58$

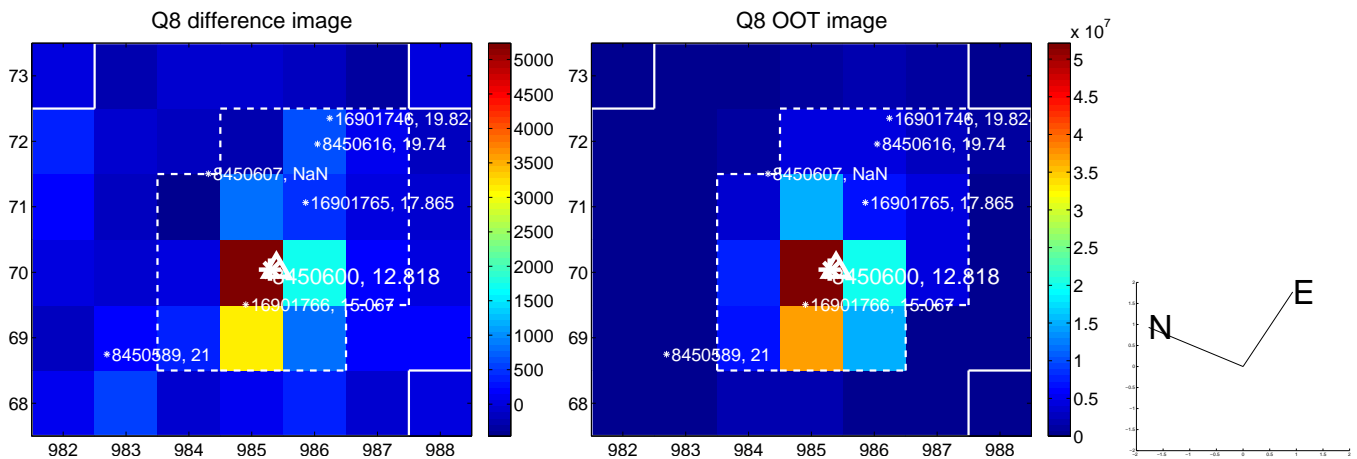
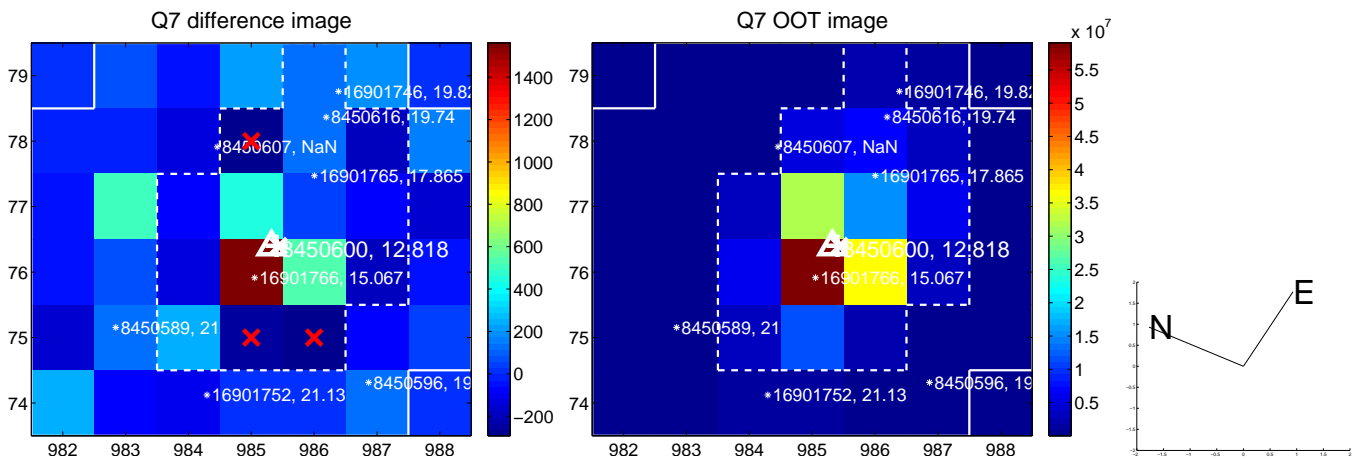
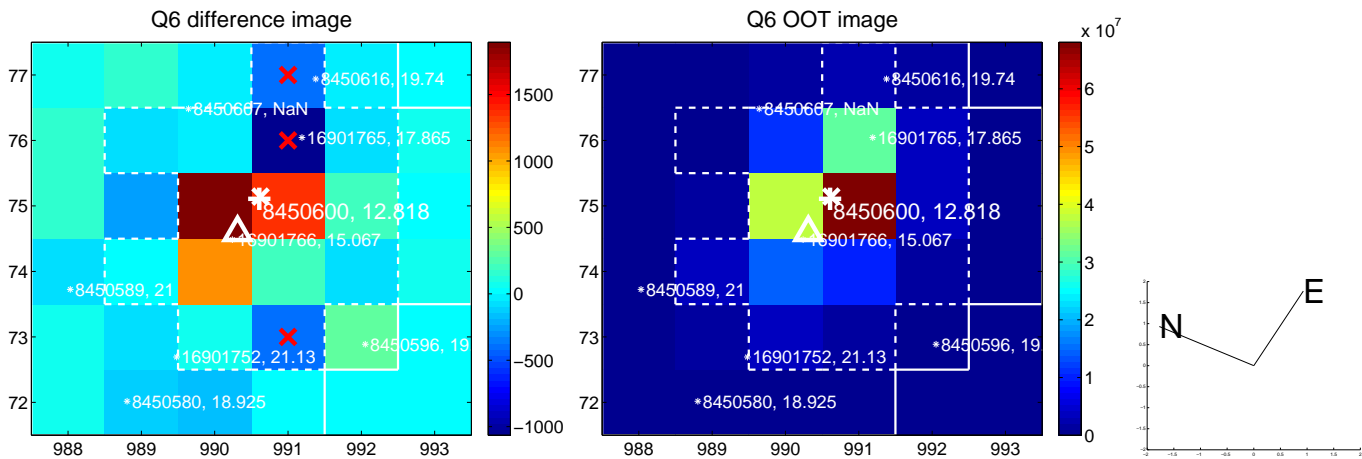
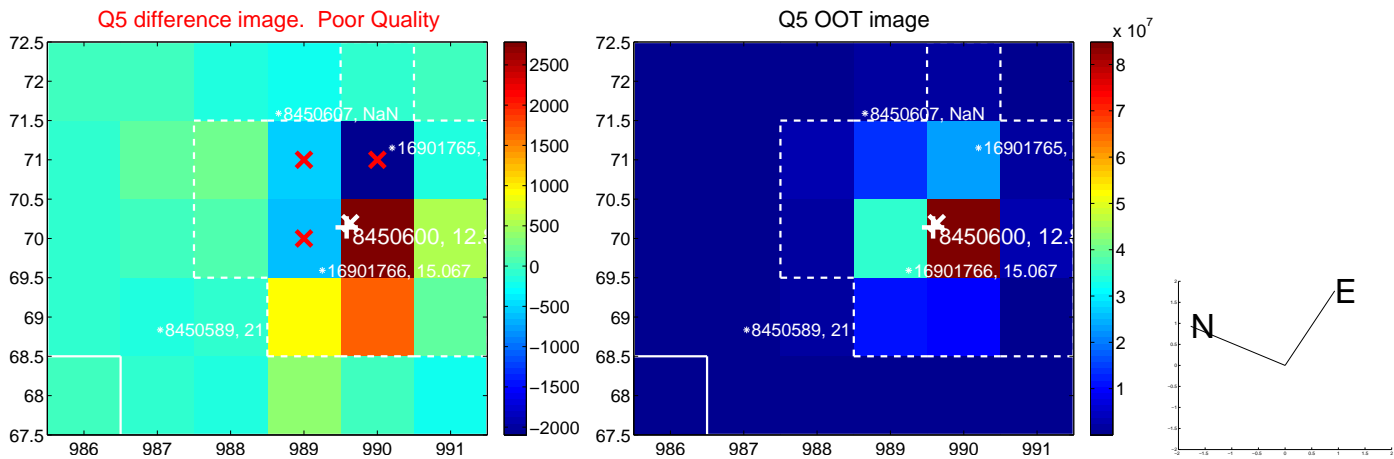


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

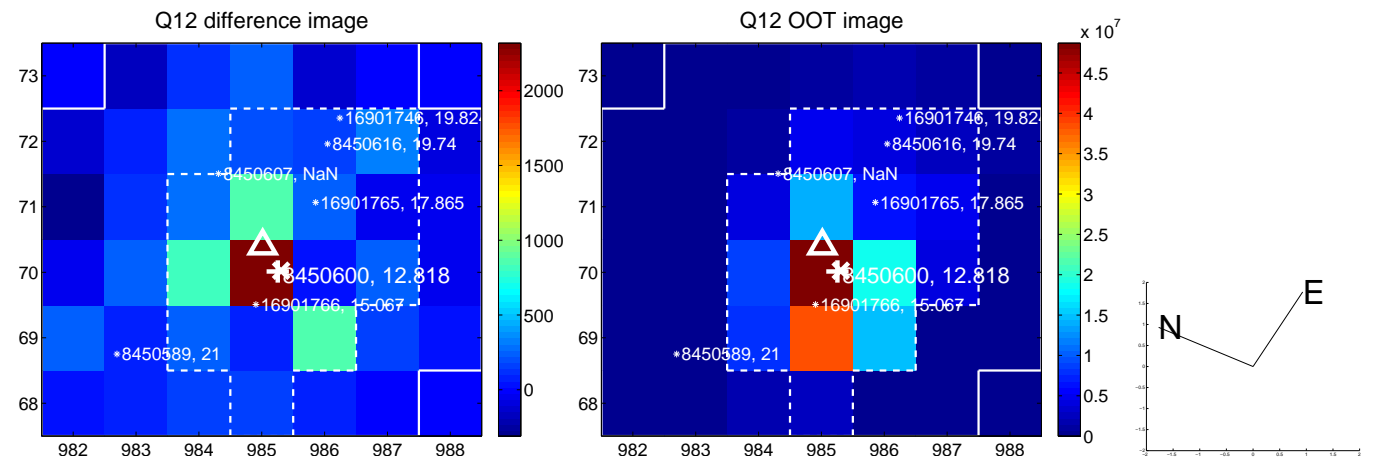
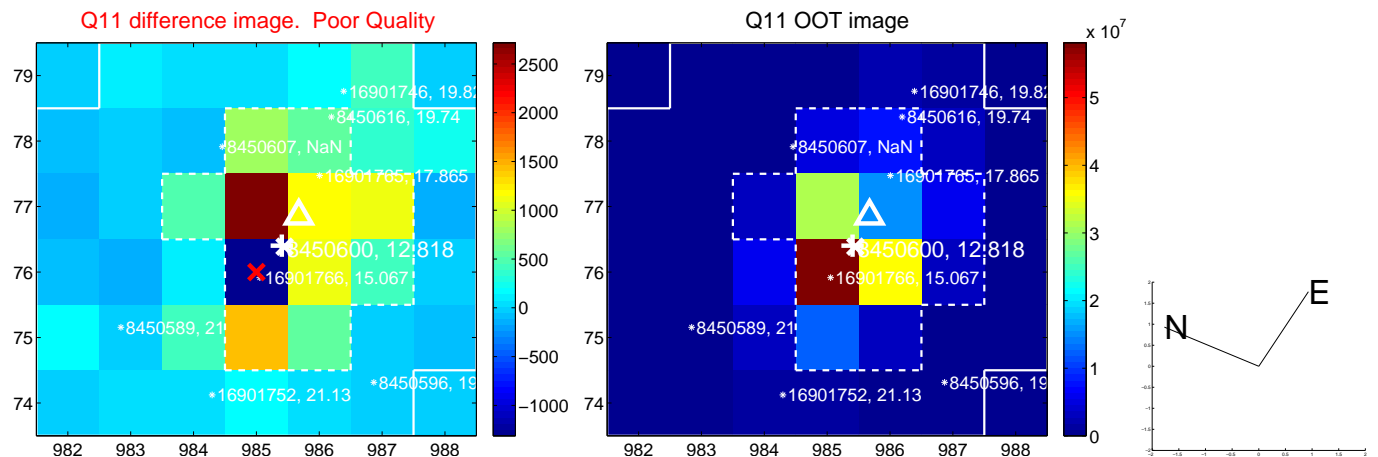
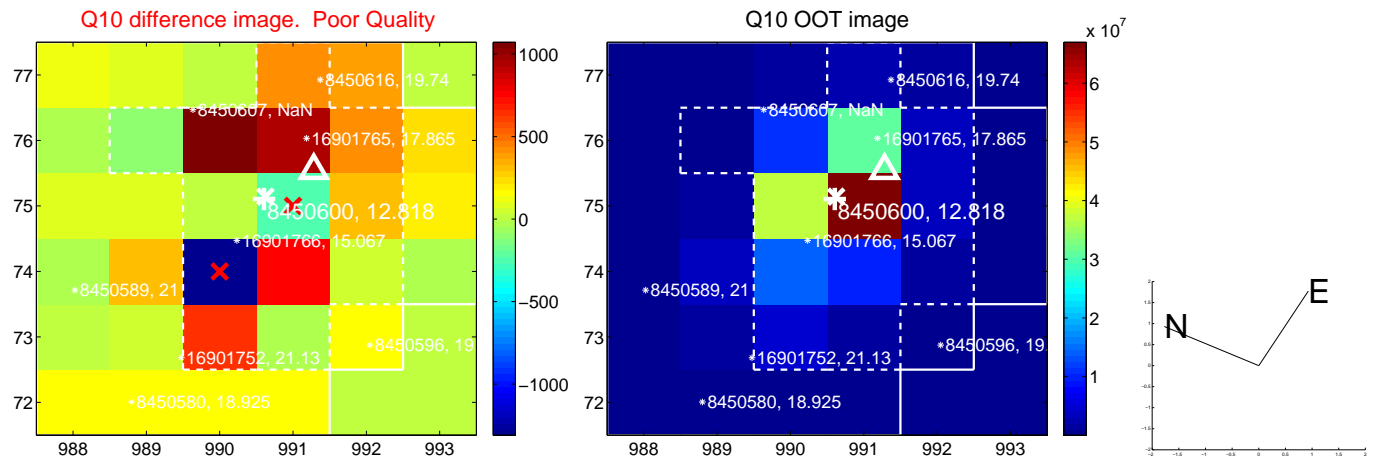
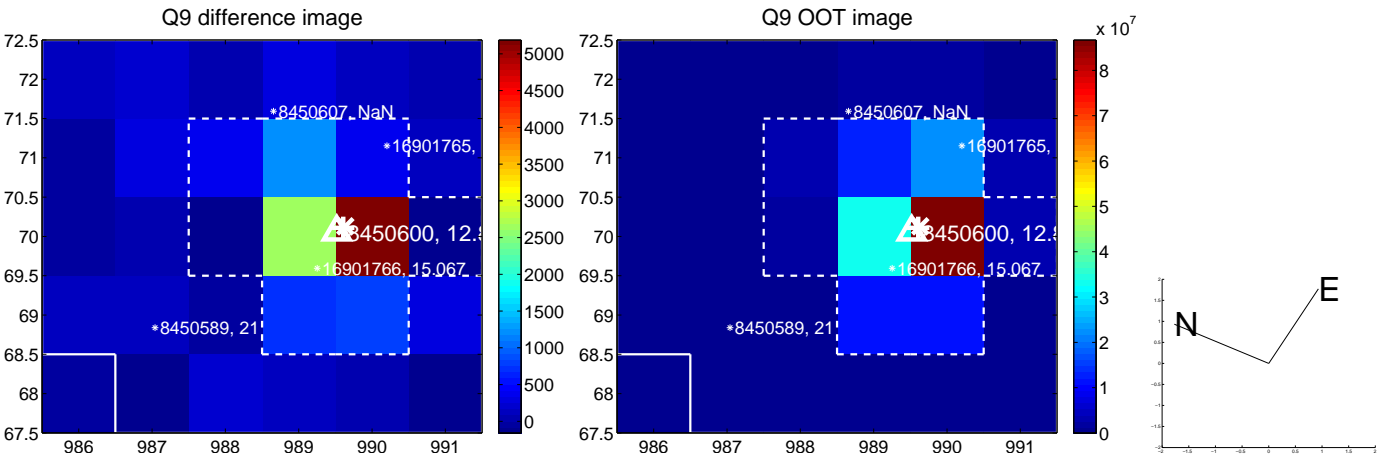


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

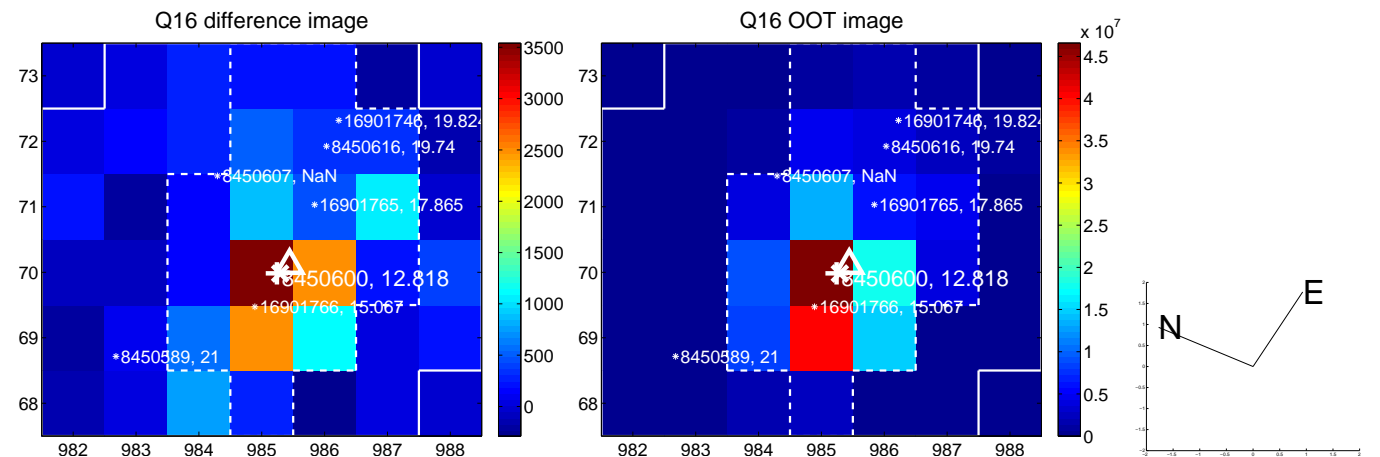
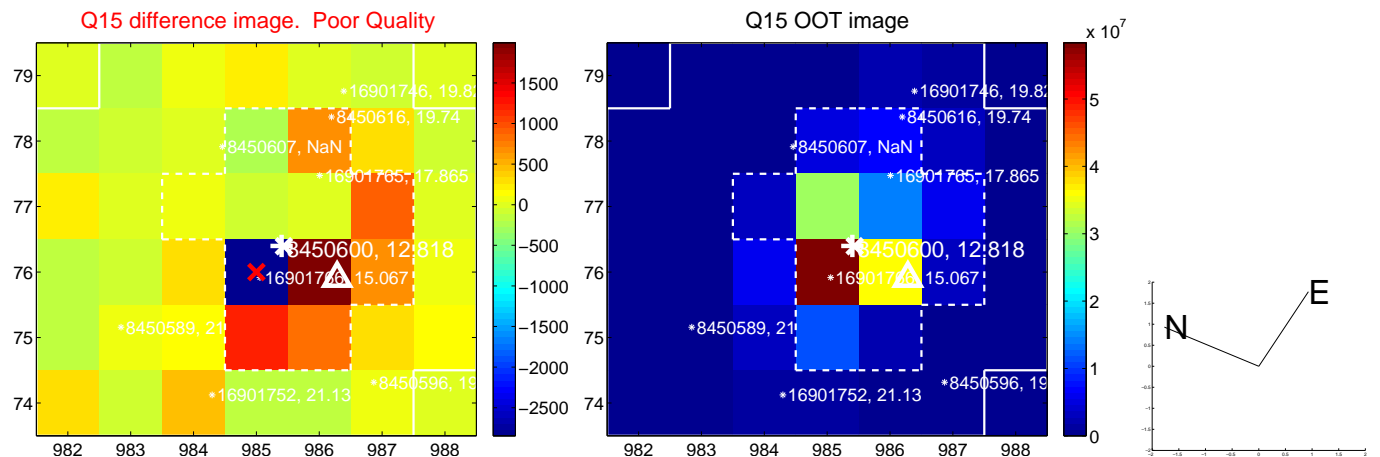
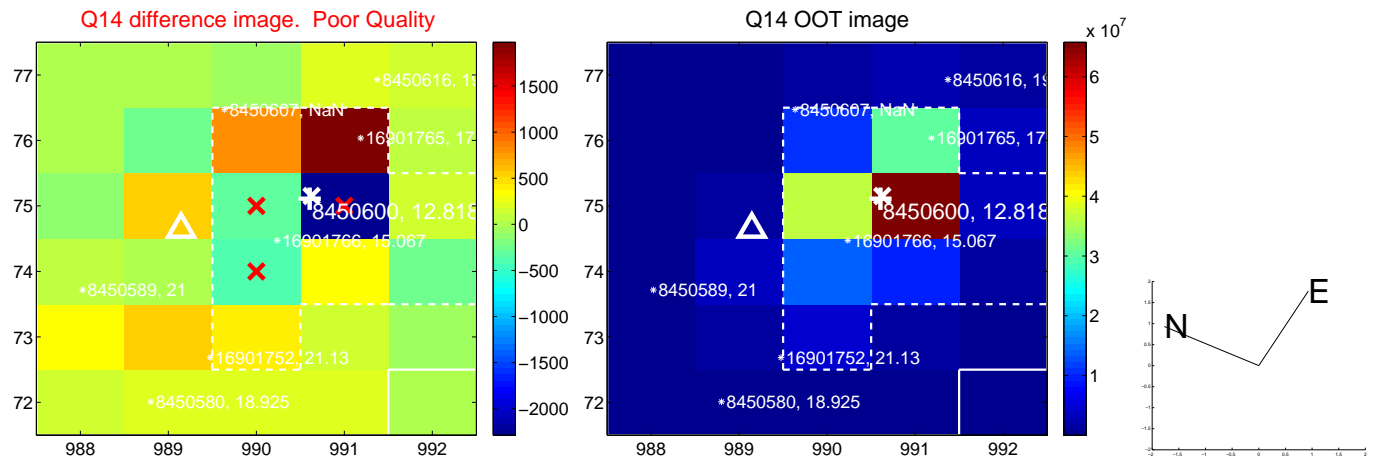
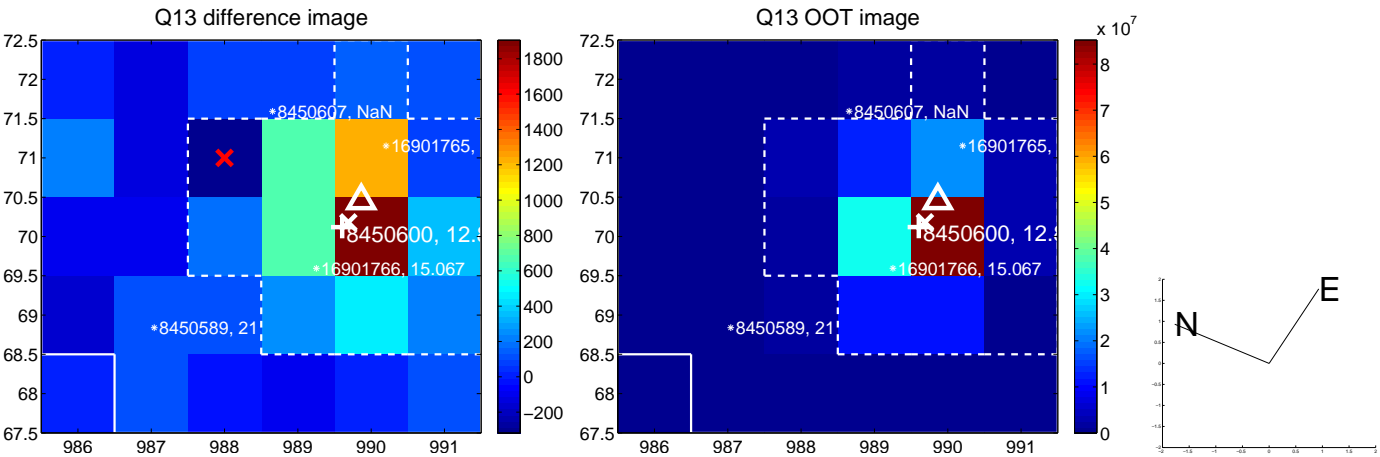




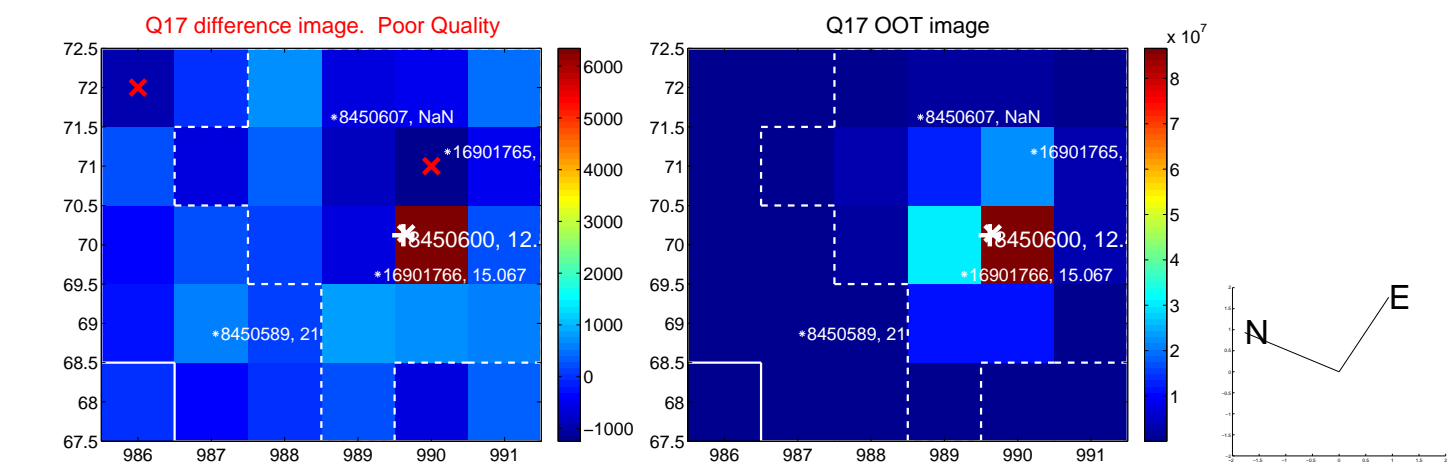
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



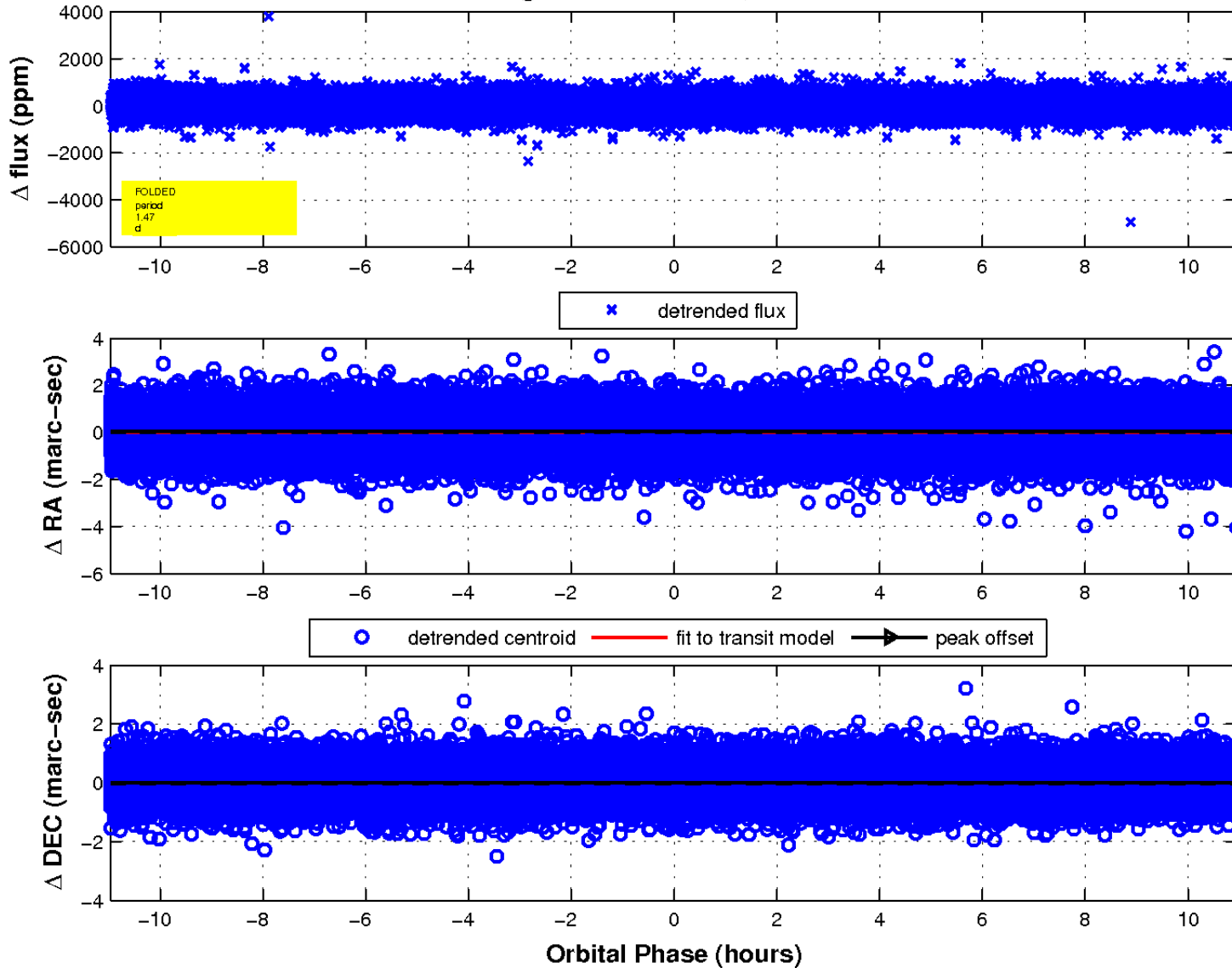
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

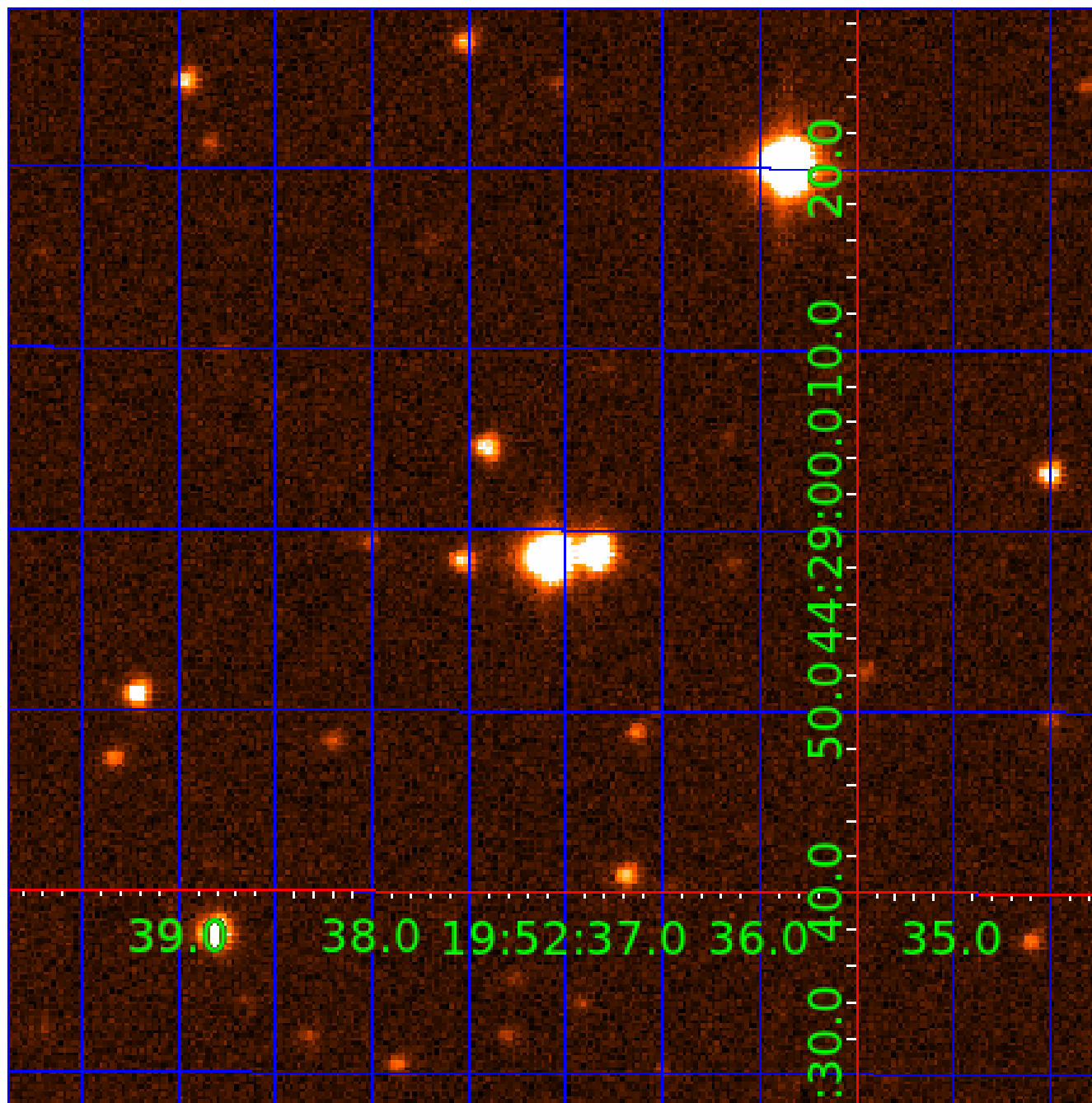


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination





# KIC 008450600

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008450600-01	OBS	No	1.473313	132.395754	31.5	3.655	8.4	8.0	3.23	8063	2.12	38662.43
008450600-02	OBS	No	0.617402	131.757040	28.5	1.834	7.7	7.1	3.23	8063	2.01	123289.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008450600-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008450600-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

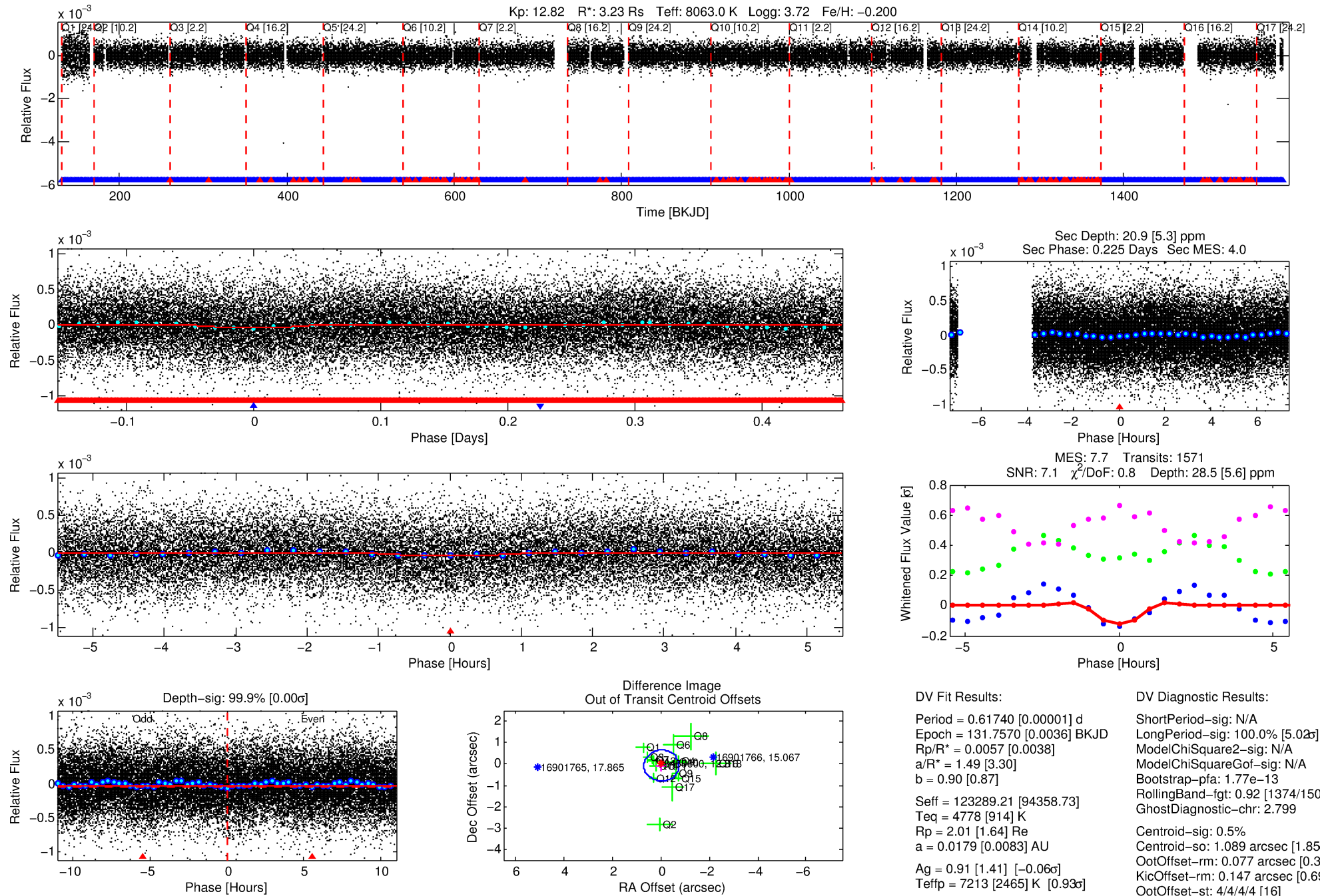
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008450600-02

No Significant Match Found

# DV One-Page Summary

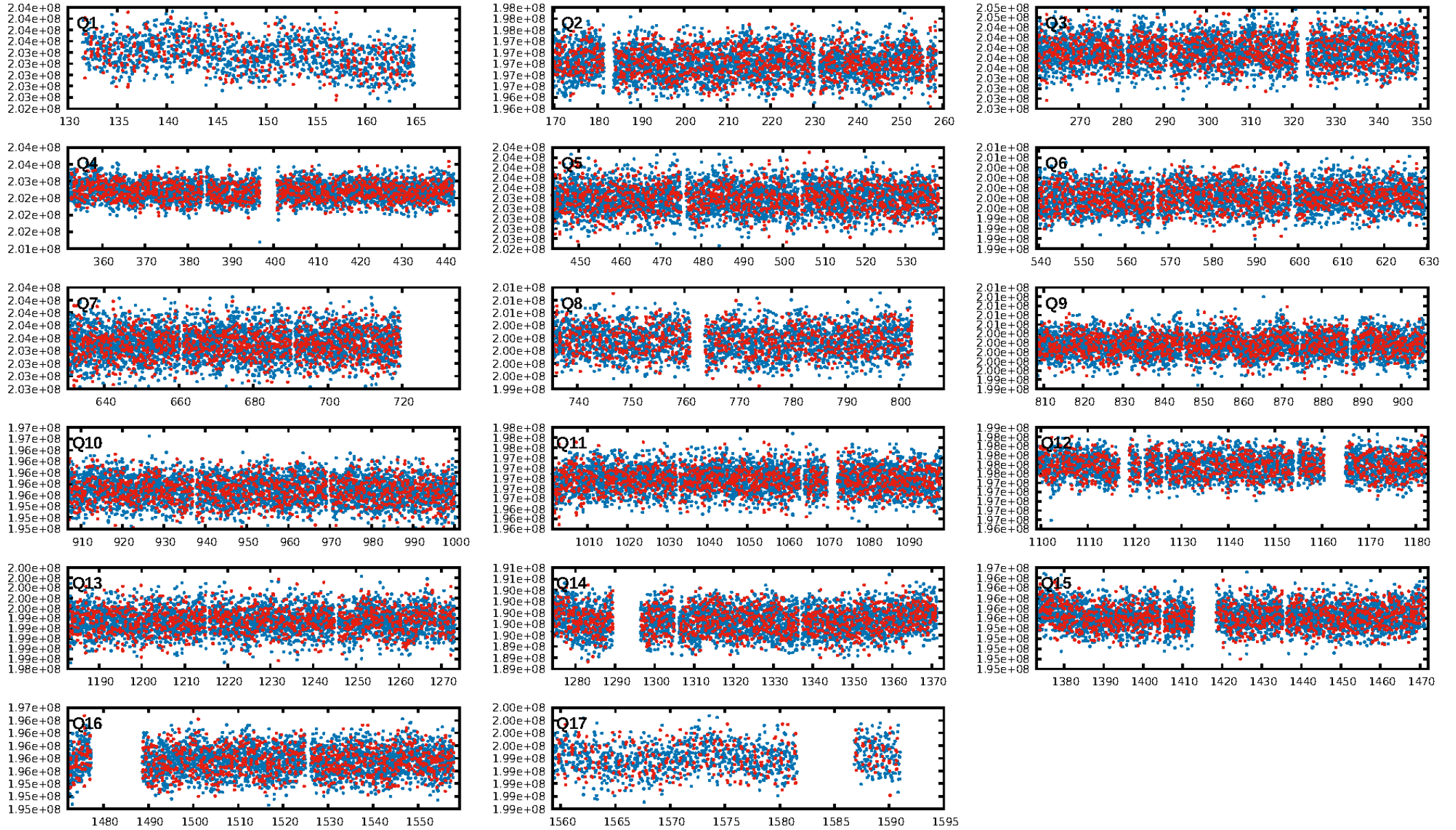
KIC: 8450600 Candidate: 2 of 2 Period: 0.617 d



Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:03:56 Z

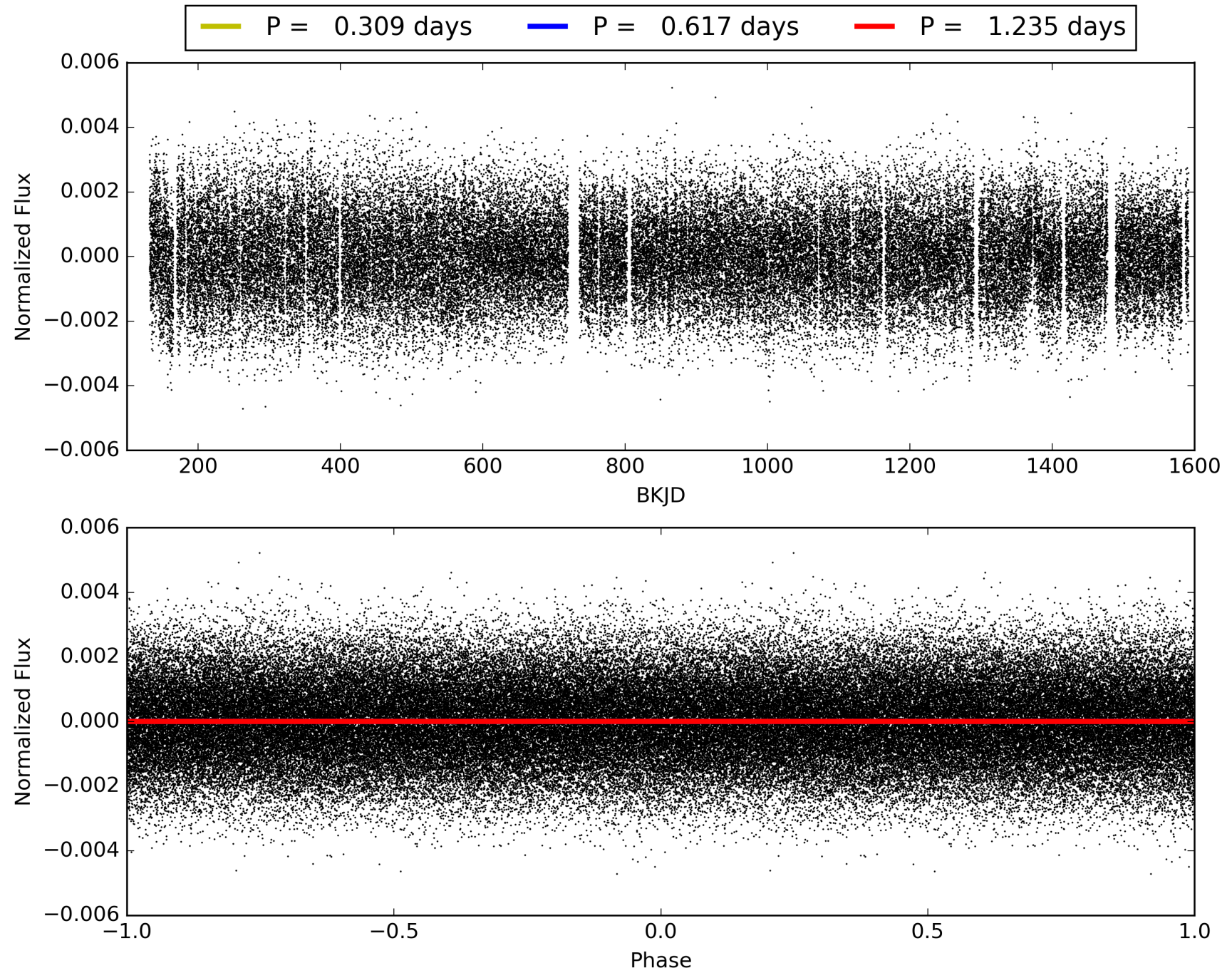
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008450600-02, PDC Light Curves



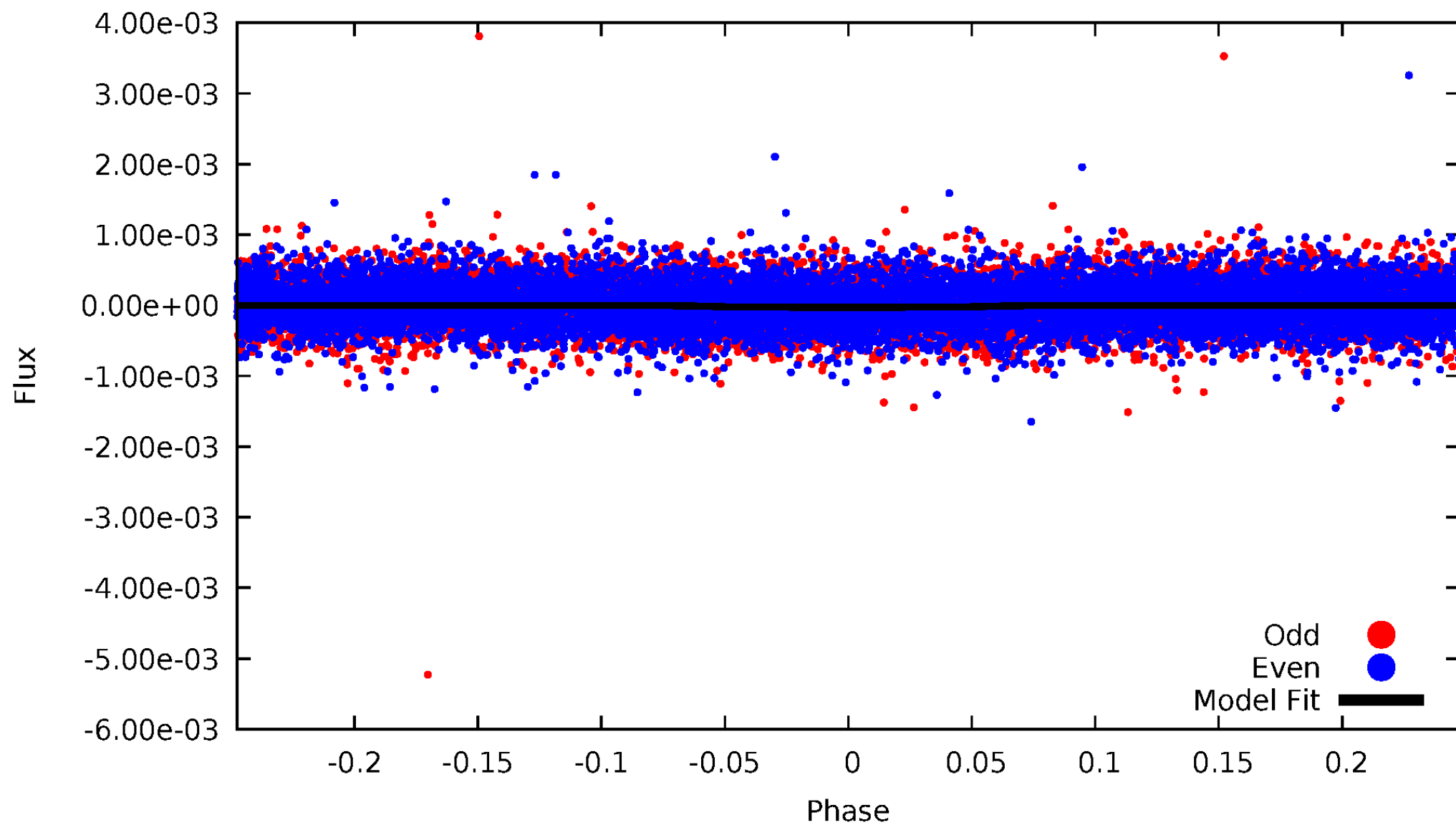


# TCE 008450600-02



# DV Odd/Even

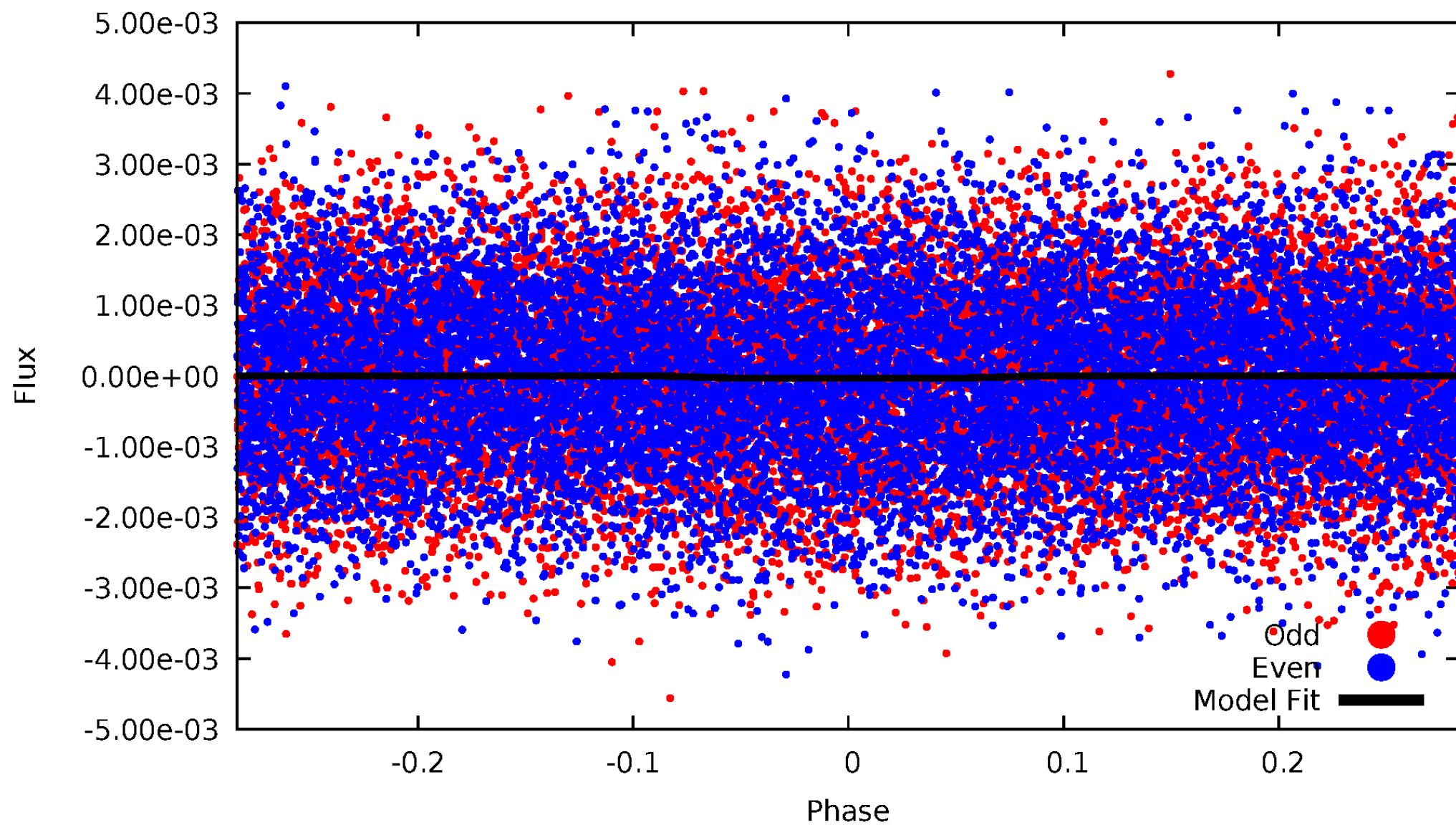
TCE 008450600-02





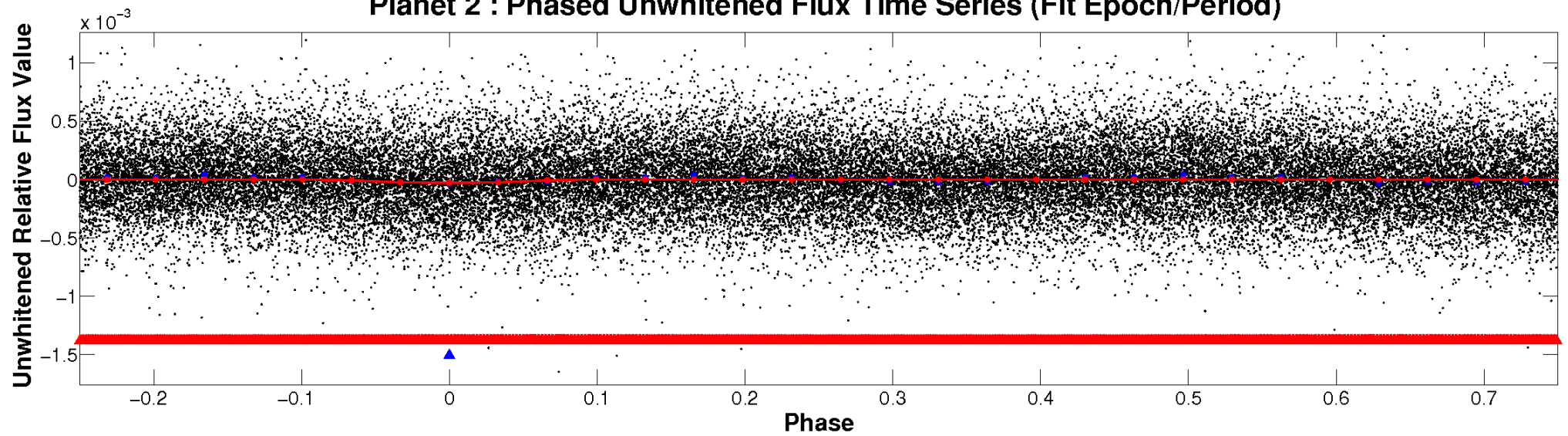
# ALT Odd/Even

TCE 008450600-02

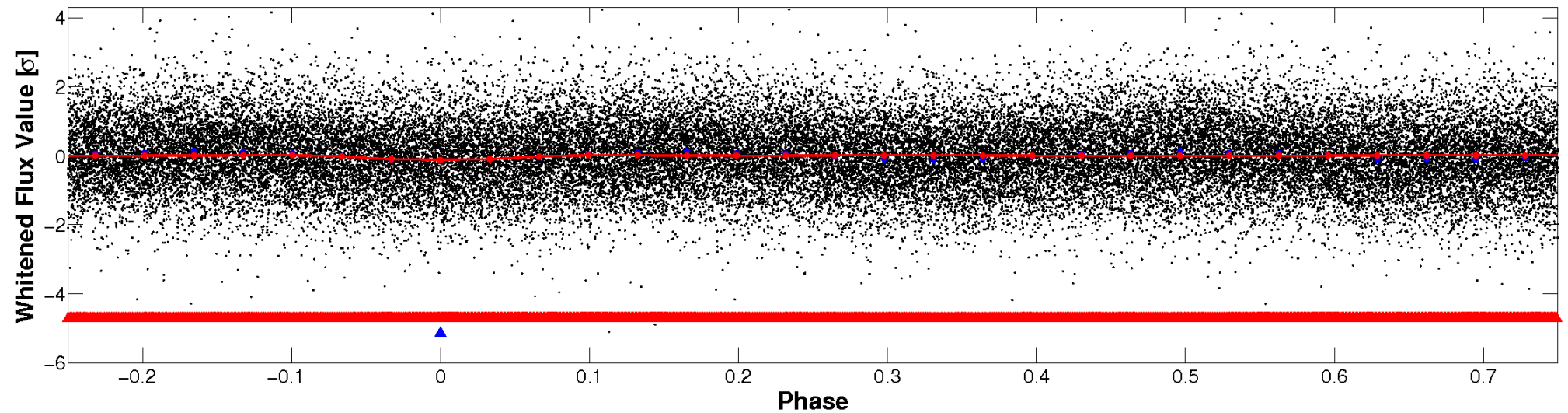


# Non-Whitened Vs. Whitened Light Curve

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

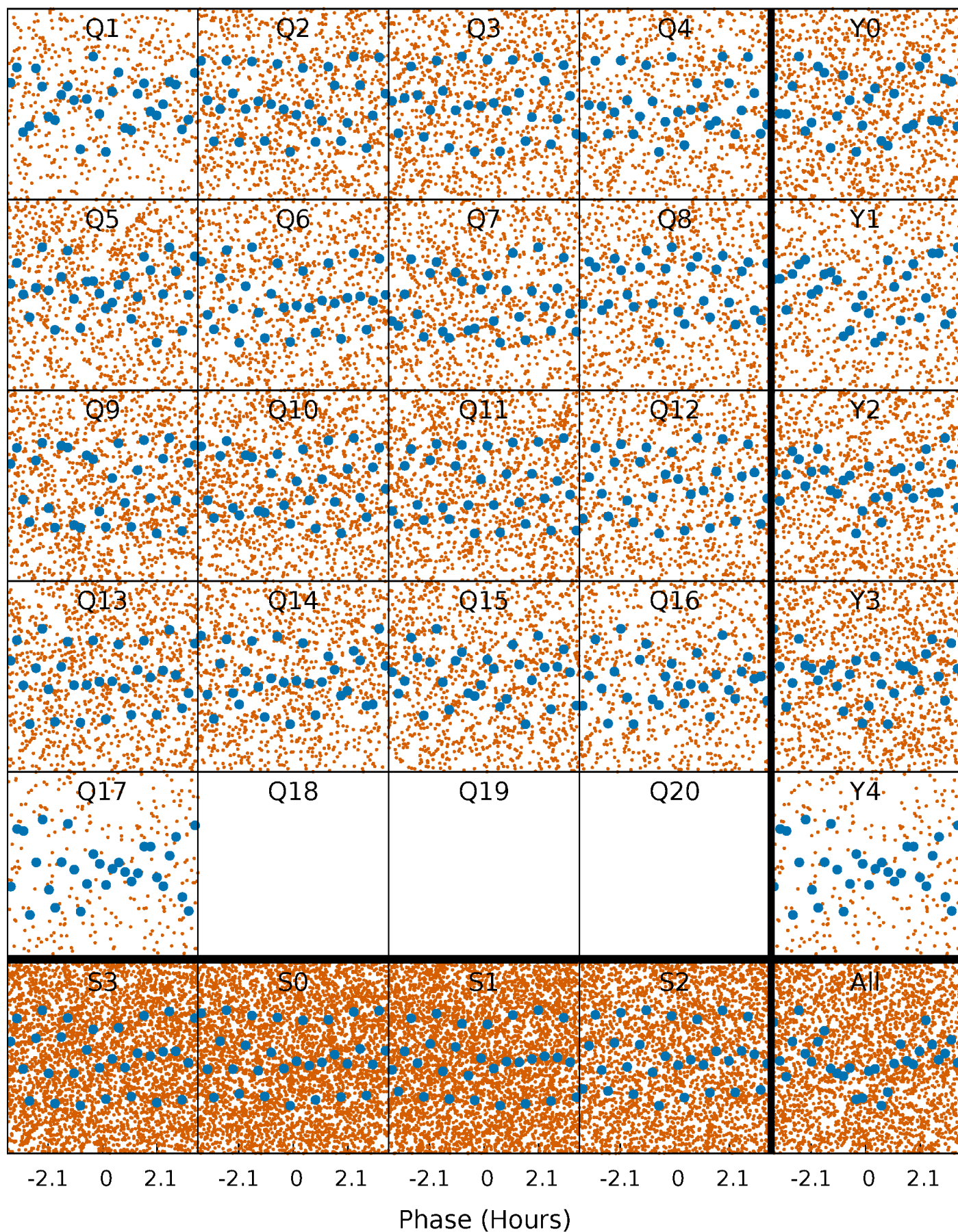


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

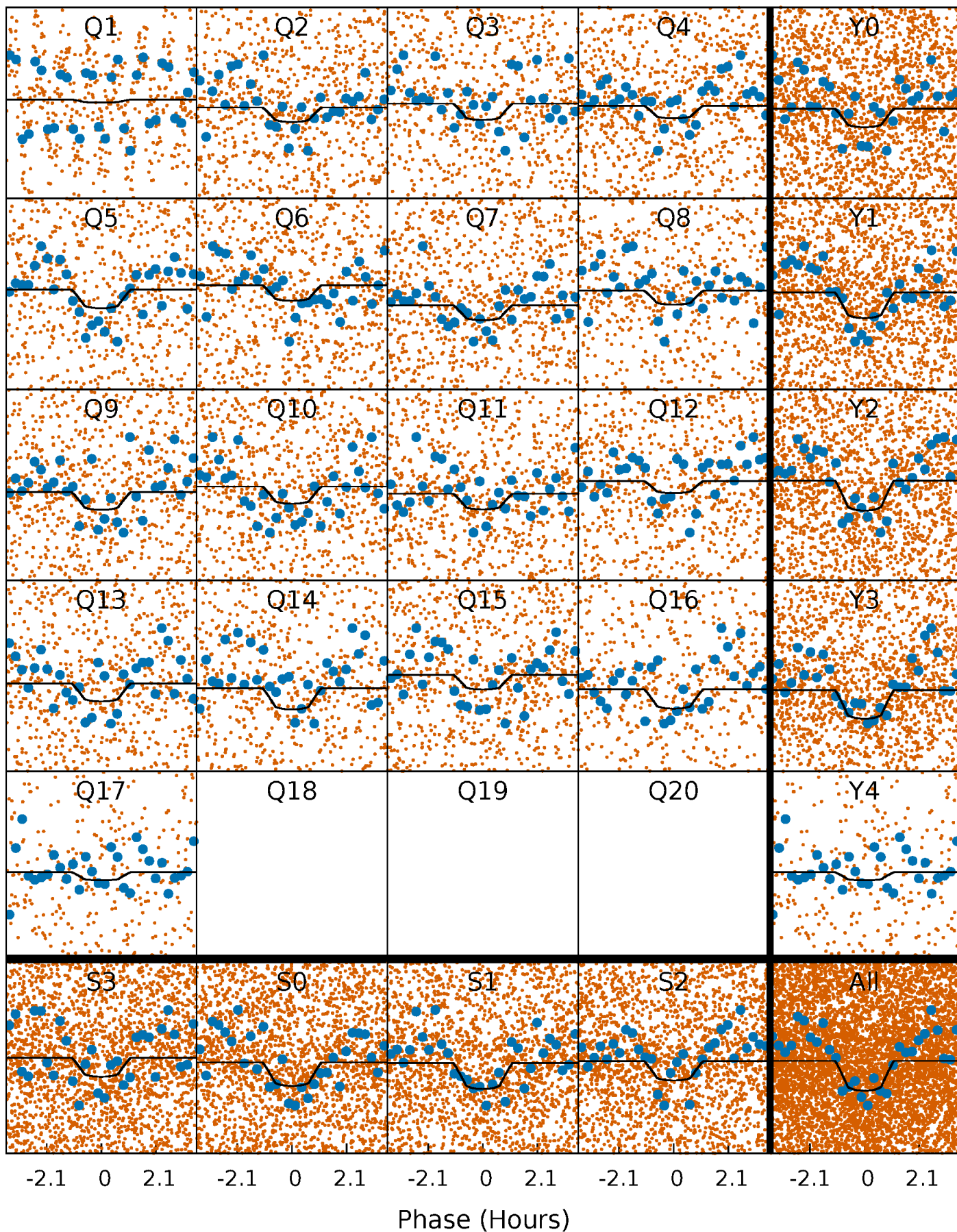
TCE 008450600-02 P= 0.617402 Days  $T_0=131.757040$  (BKJD)





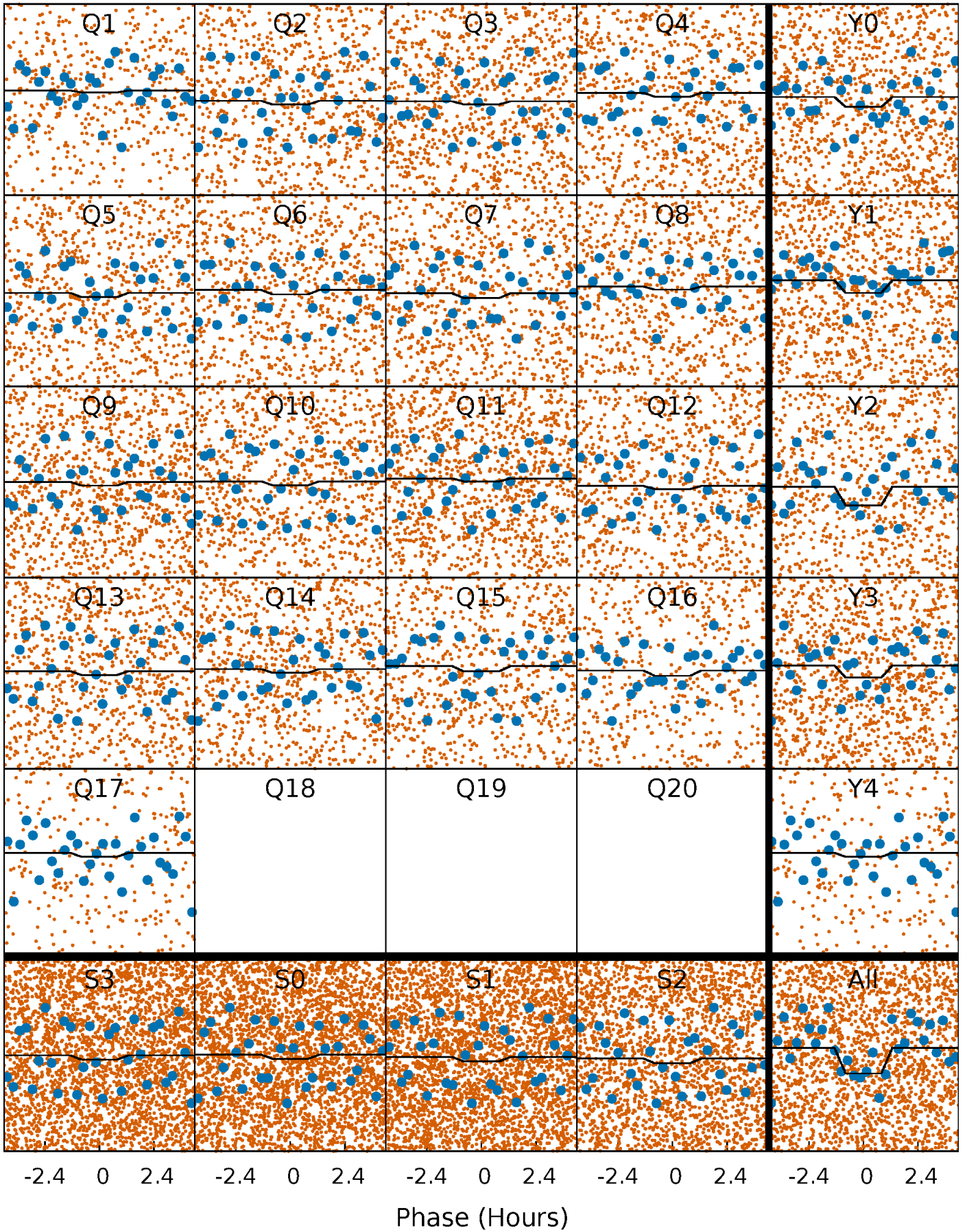
# DV Quarter-Phased Transit Curves

TCE 008450600-02     $P = 0.617402$  Days     $T_0 = 131.757040$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008450600-02 P= 0.617403 Days  $T_0=131.757107$  (BKJD)

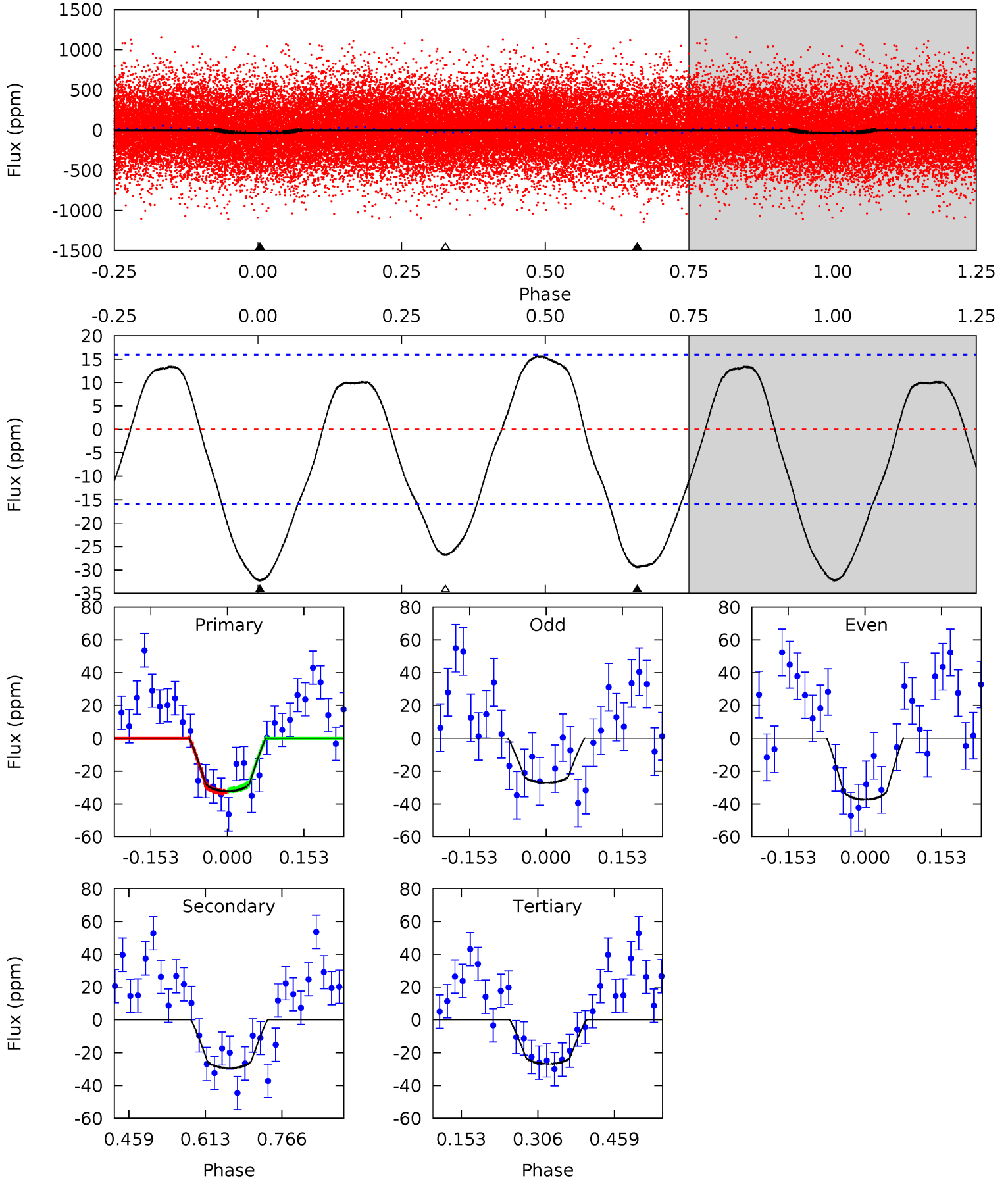




# DV Model-Shift Uniqueness Test

008450600-02, P = 0.617402 Days, E = 131.139638 Days

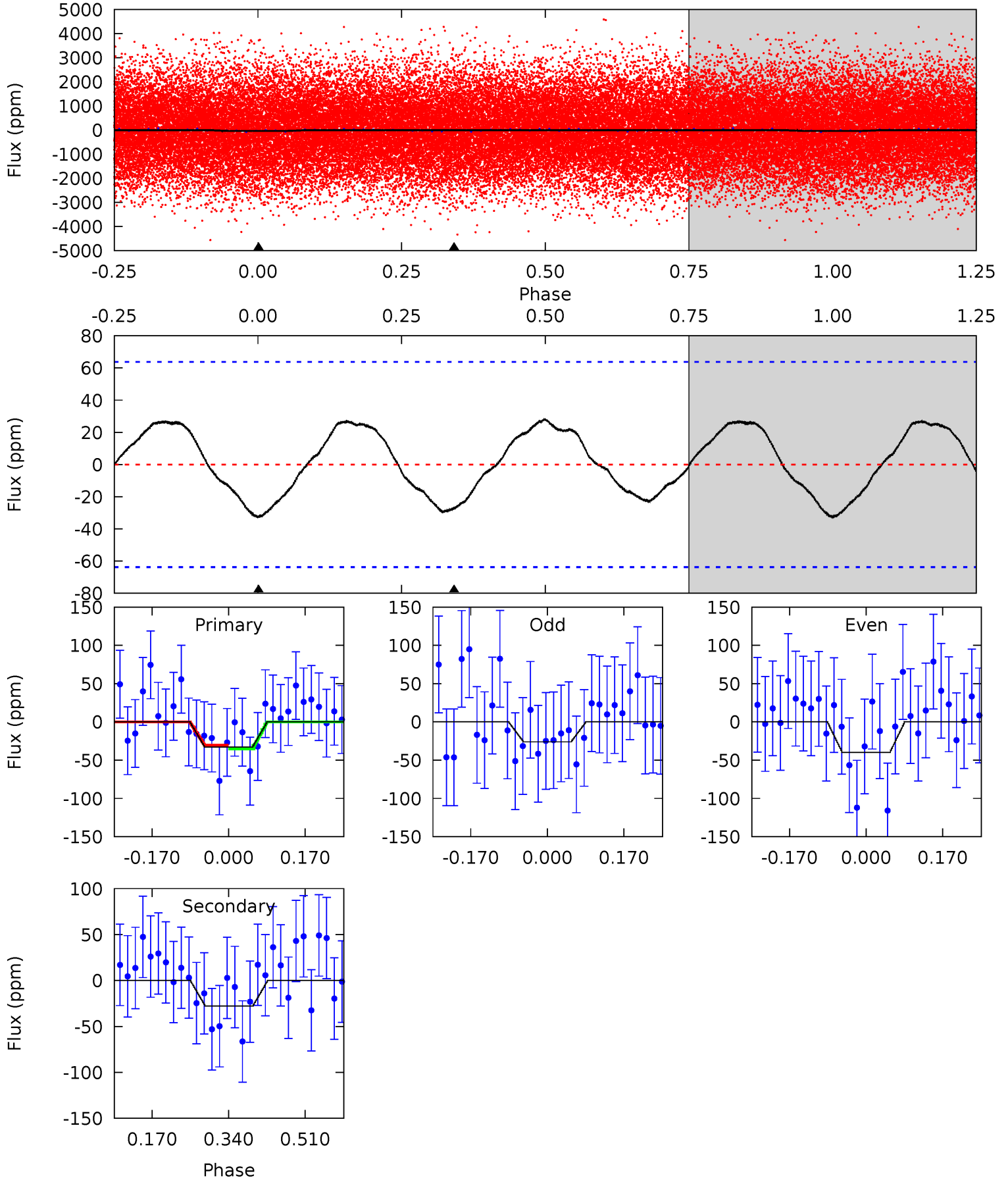
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.07	8.28	7.55	0	4.47	1.43	4.14	1.52	9.07	0.73	8.28	1.44	0.84	0.33	0.19



# Alt Model-Shift Uniqueness Test

008450600-02, P = 0.617403 Days, E = 131.139704 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
2.30	1.93	0	0	4.45	1.37	1.12	2.30	2.30	1.93	1.93	0.48	0.99	0.46	0.17



### Stellar Parameters For KIC 008450600

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8063^{+223}_{-335}$	$3.722^{+0.442}_{-0.078}$	$-0.200^{+0.200}_{-0.350}$	$3.230^{+0.541}_{-1.515}$	$2.008^{+0.337}_{-0.548}$	$0.084^{+0.342}_{-0.022}$
	+3%/-4%	+12%/-2%	+100%/-175%	+17%/-47%	+17%/-27%	+407%/-26%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008450600-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-29 \pm 4$	$1.86^{+1.27}_{-1.00}$	$6400^{+447}_{-742}$	$6917^{+4933}_{-2058}$	$1.450^{+4.951}_{-0.920}$
Alt.	$-28 \pm 14$	$1.94^{+1.25}_{-1.22}$	$6421^{+469}_{-765}$	$6725^{+6273}_{-3524}$	$1.283^{+6.690}_{-0.965}$

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

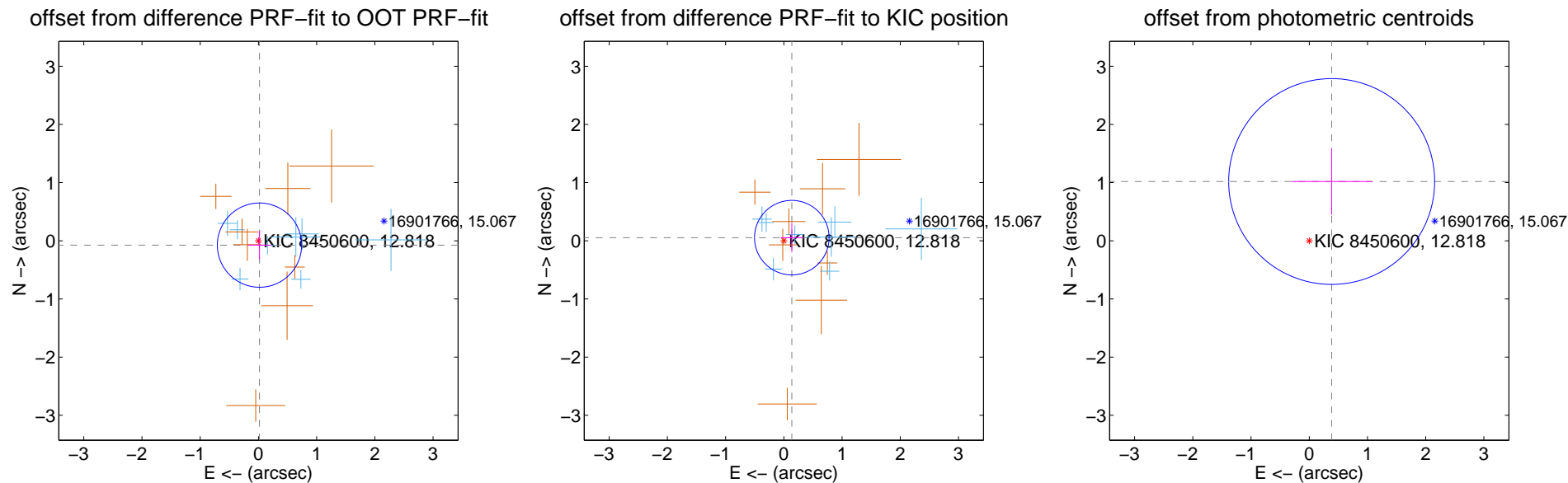
## DV Centroid Data

Supplemental centroid analysis for 008450600-02. Kepler magnitude: 12.82. Transit SNR 7.10

There are 8 quarters with good PRF difference image offsets

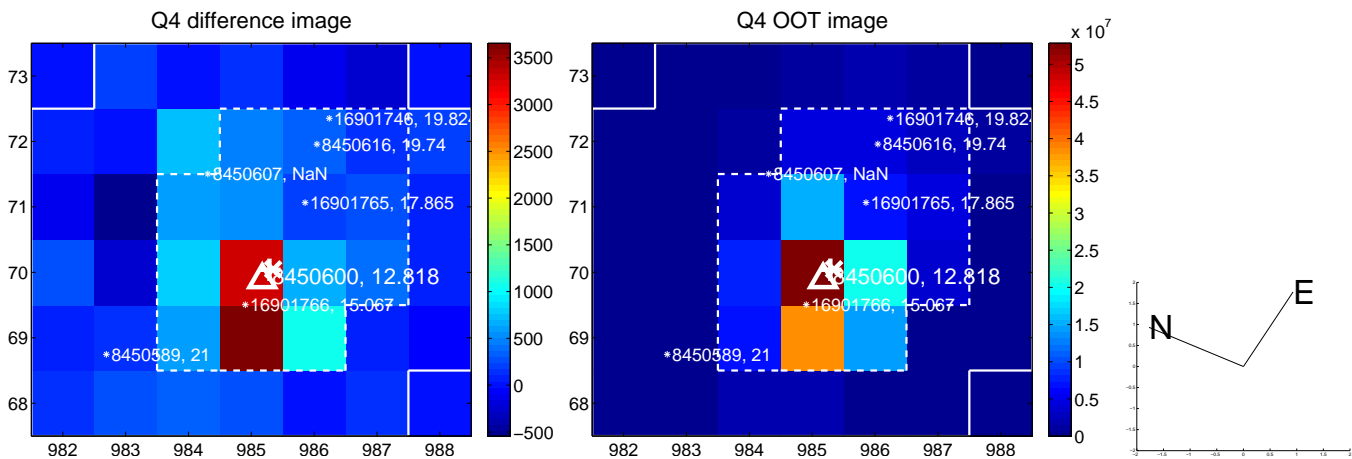
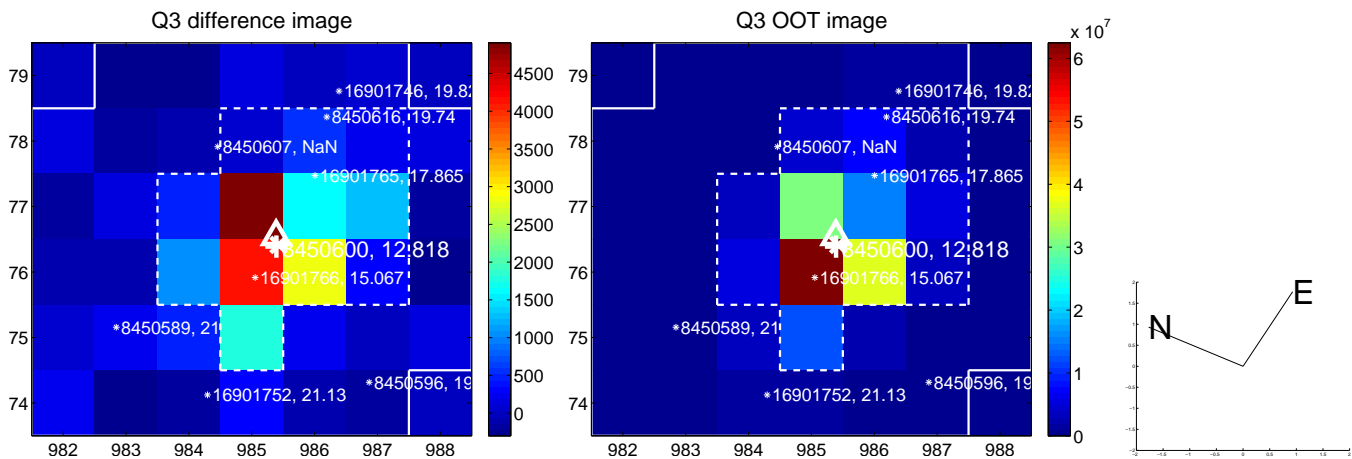
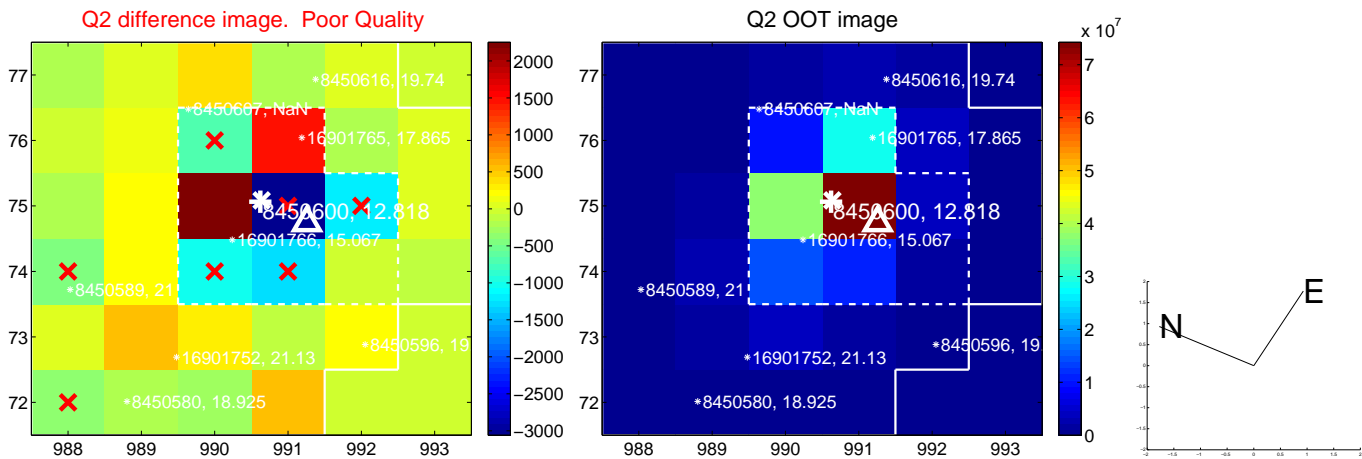
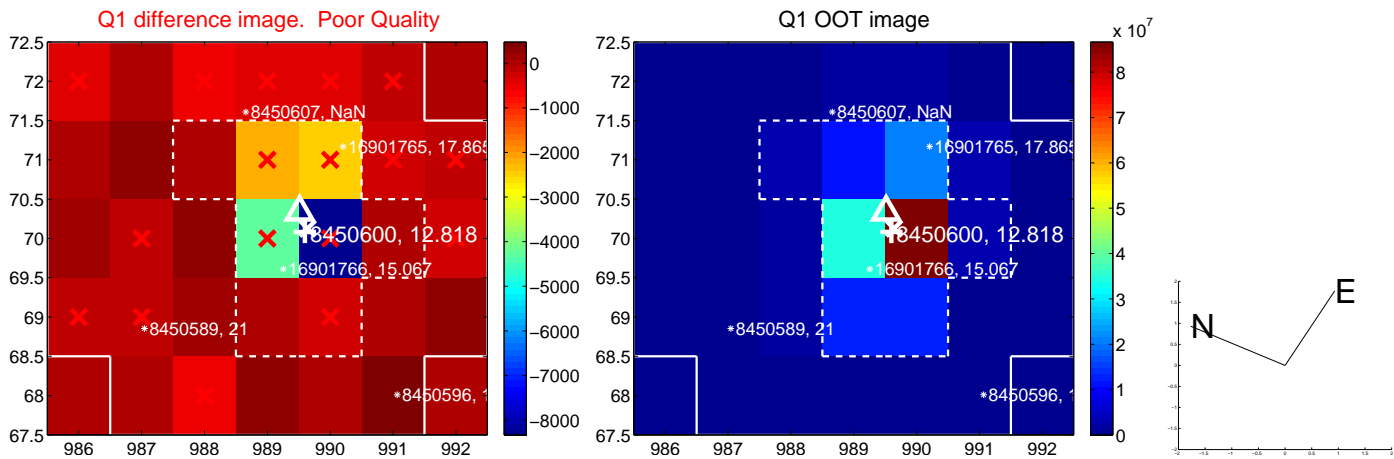
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.077 \pm 0.241$	0.32	$-0.018 \pm 0.198$	$-0.075 \pm 0.246$
PRF-fit source offset from KIC position	$0.147 \pm 0.213$	0.69	$-0.137 \pm 0.192$	$0.053 \pm 0.251$
photometric centroid source offset	$1.09 \pm 0.59$	1.85	$-0.38 \pm 0.69$	$1.02 \pm 0.57$



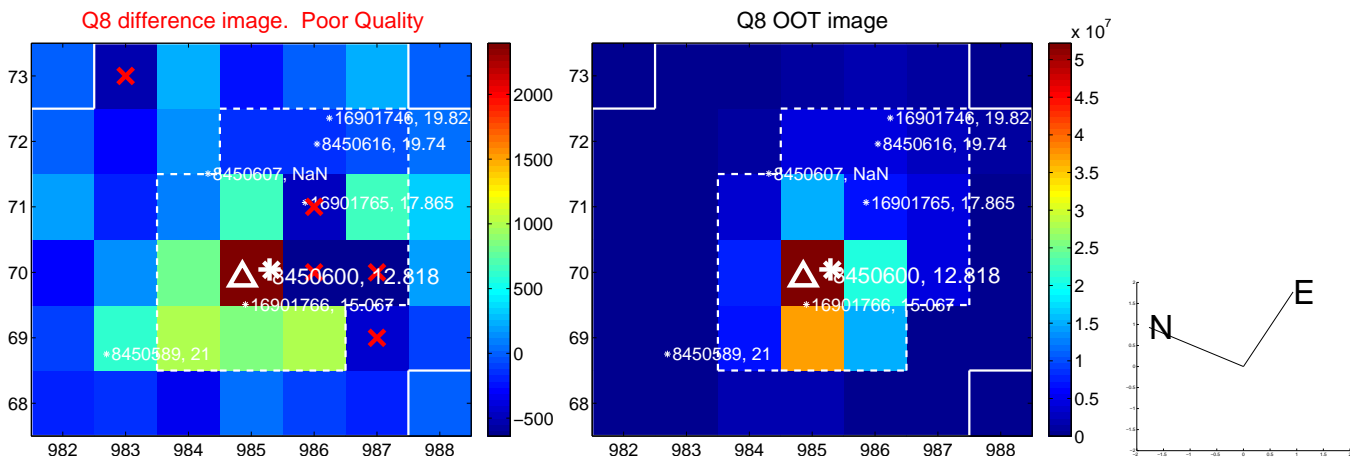
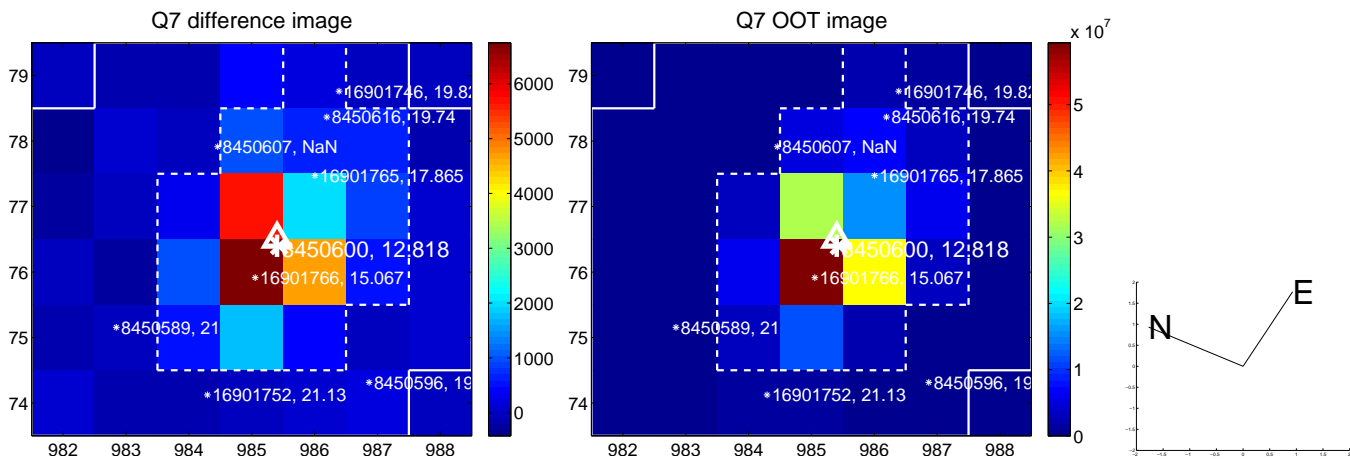
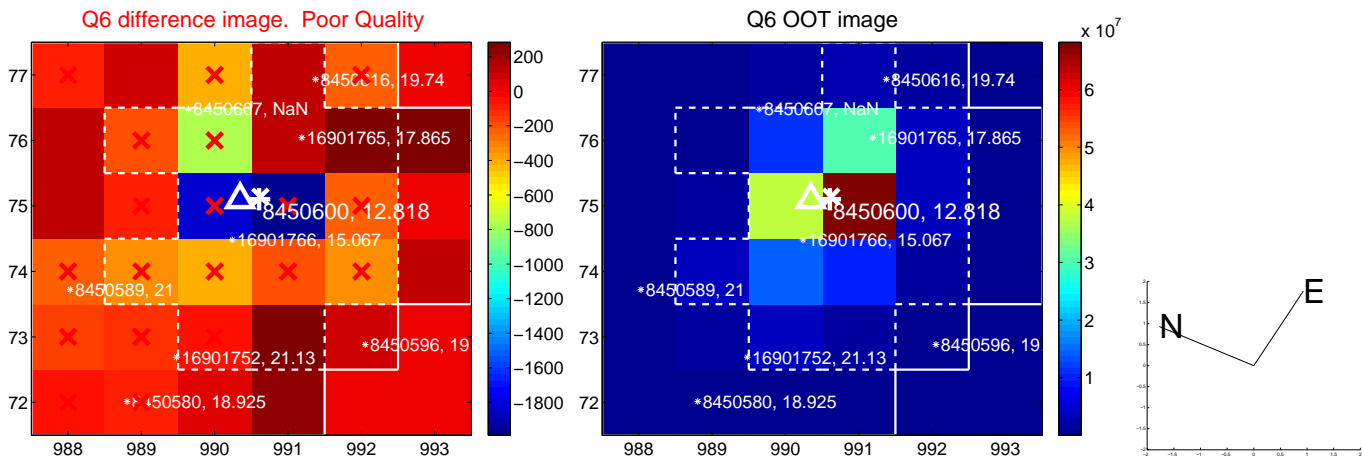
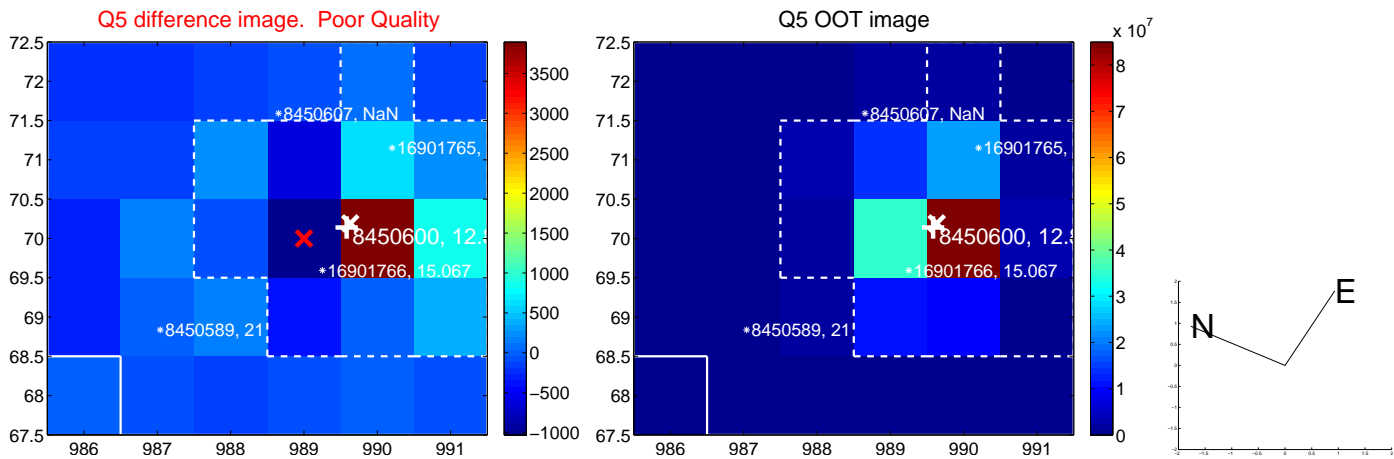
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

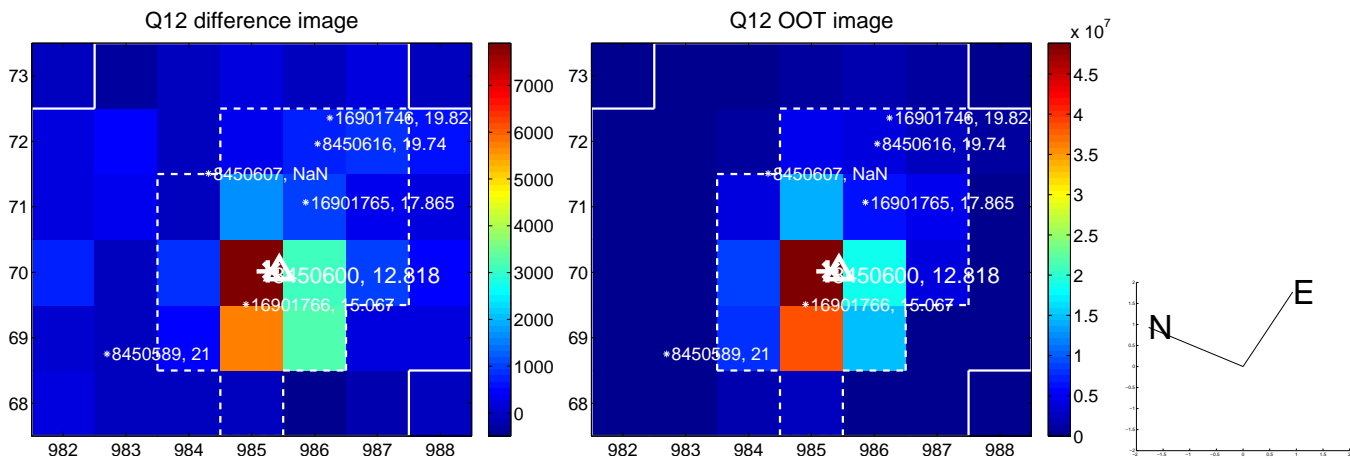
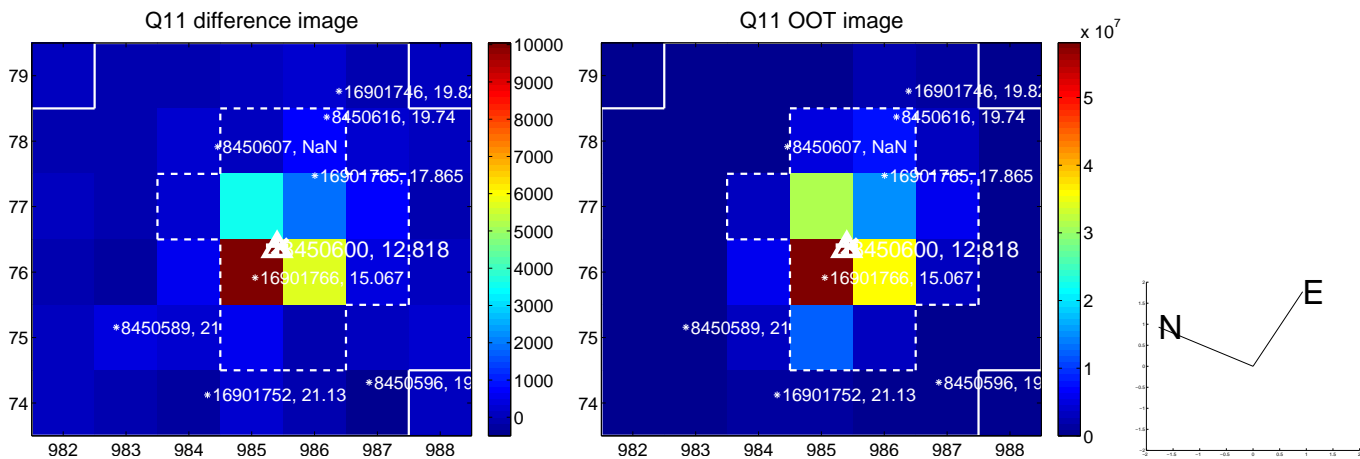
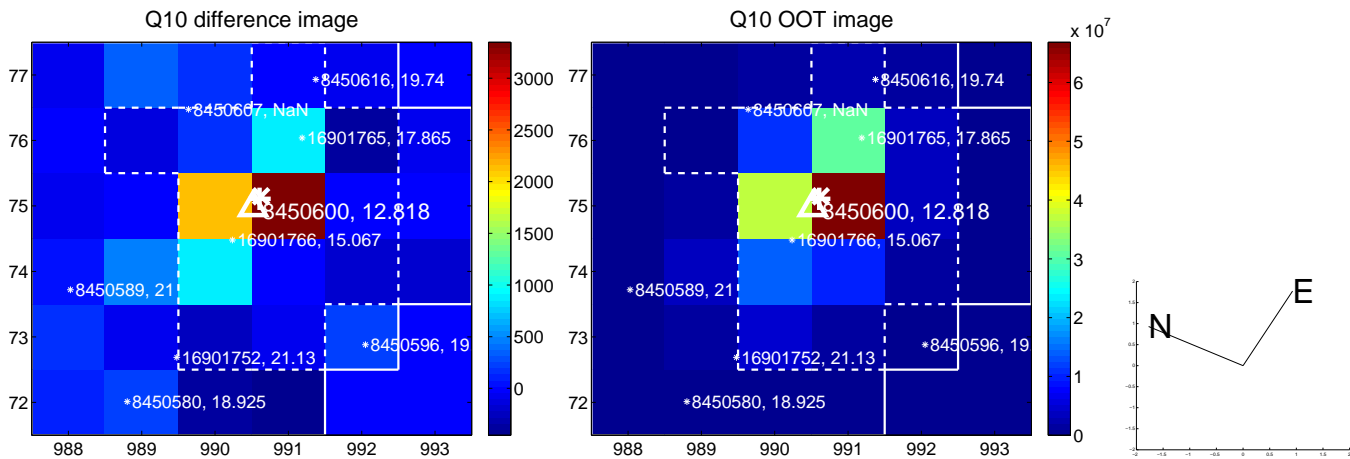
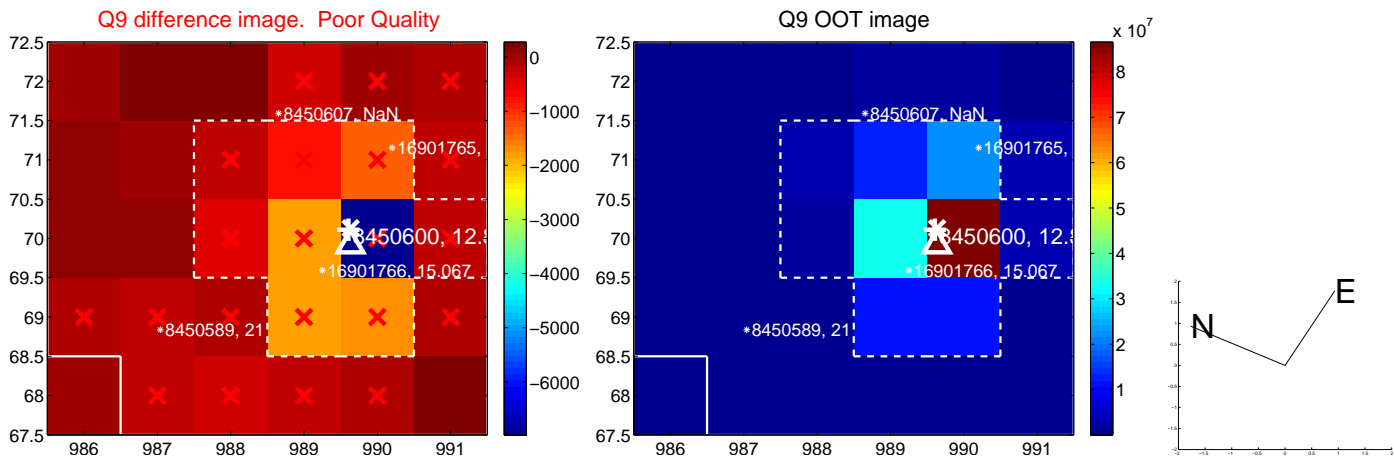




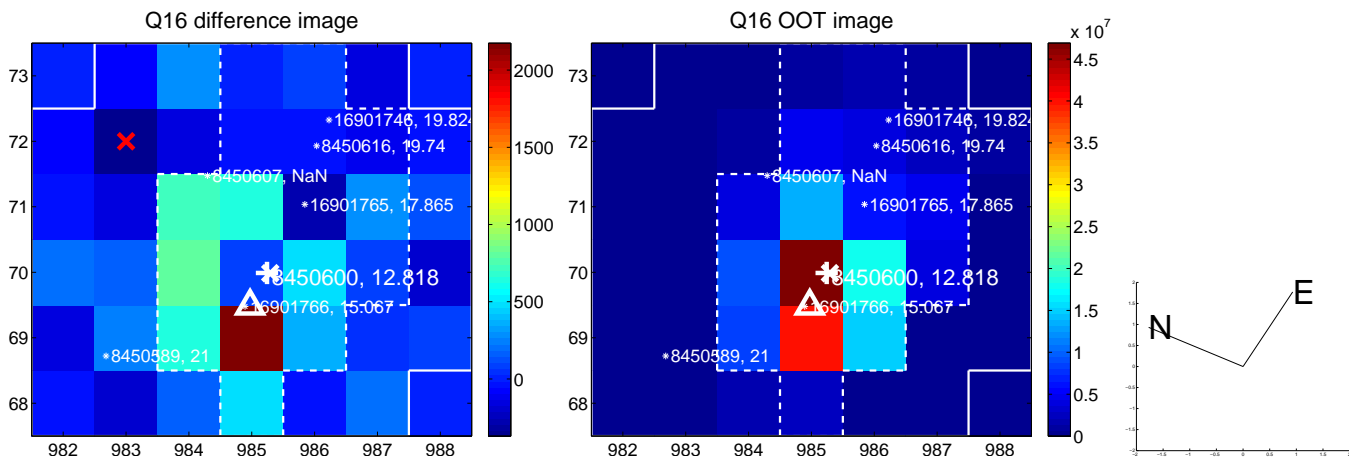
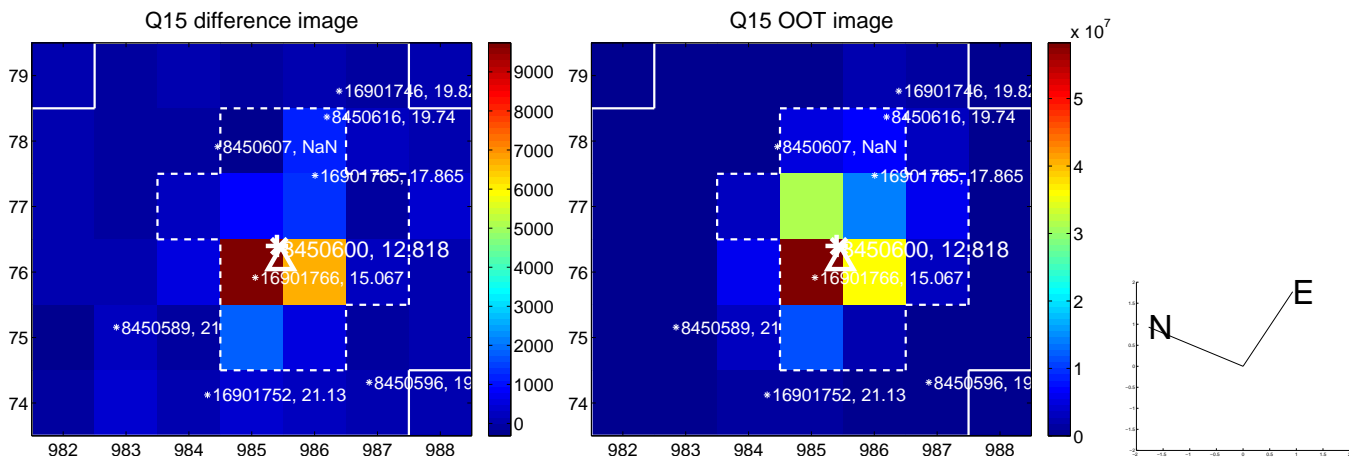
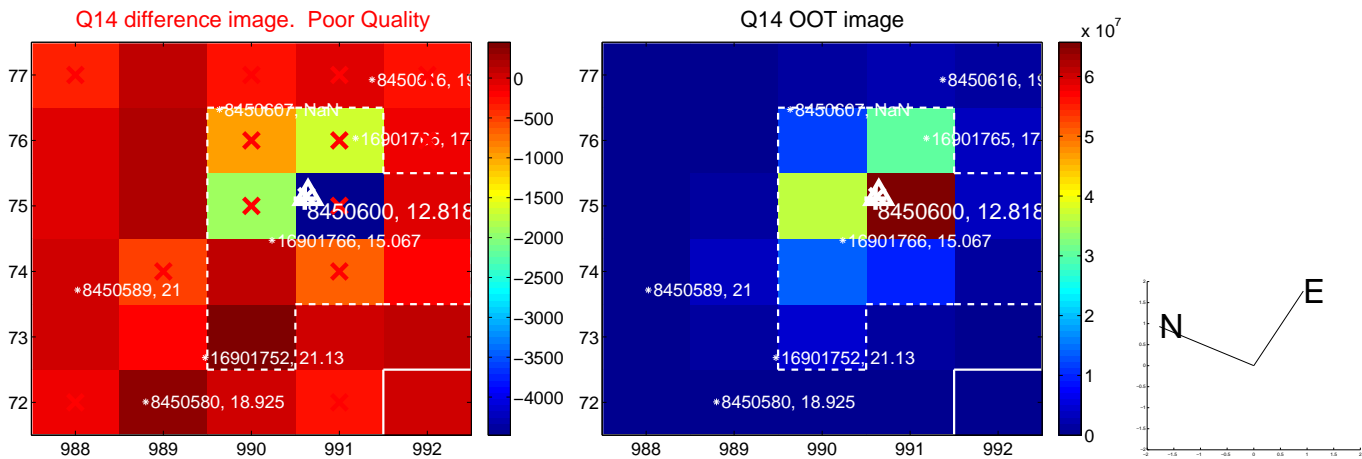
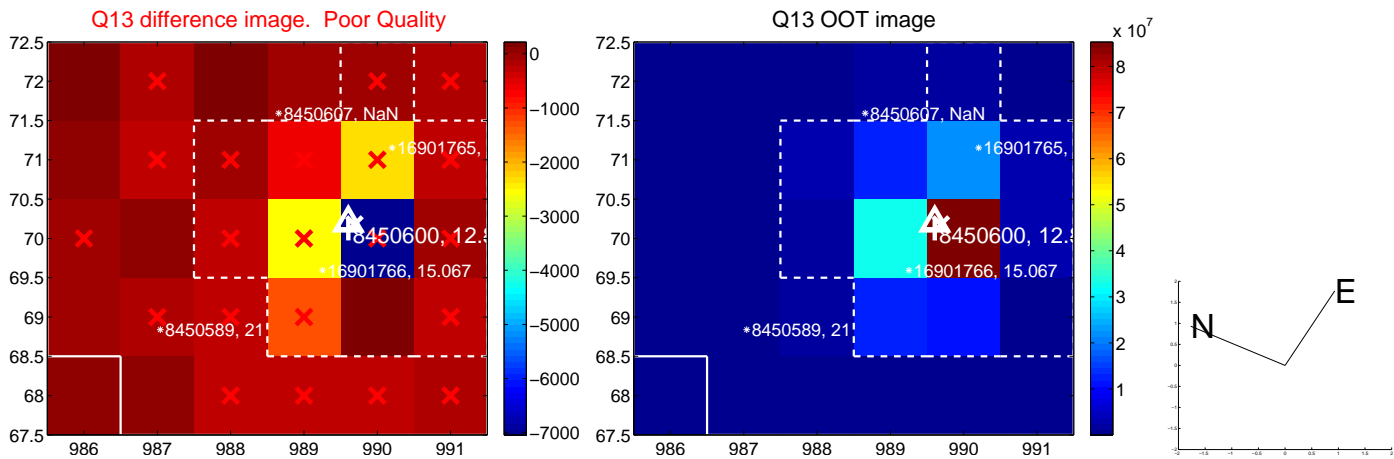
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



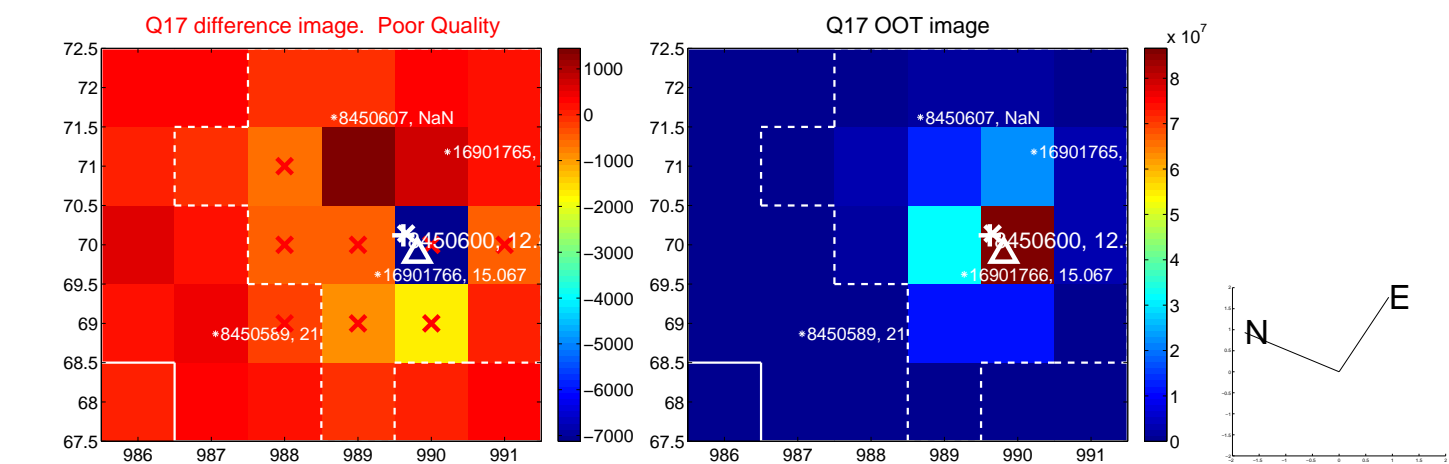
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



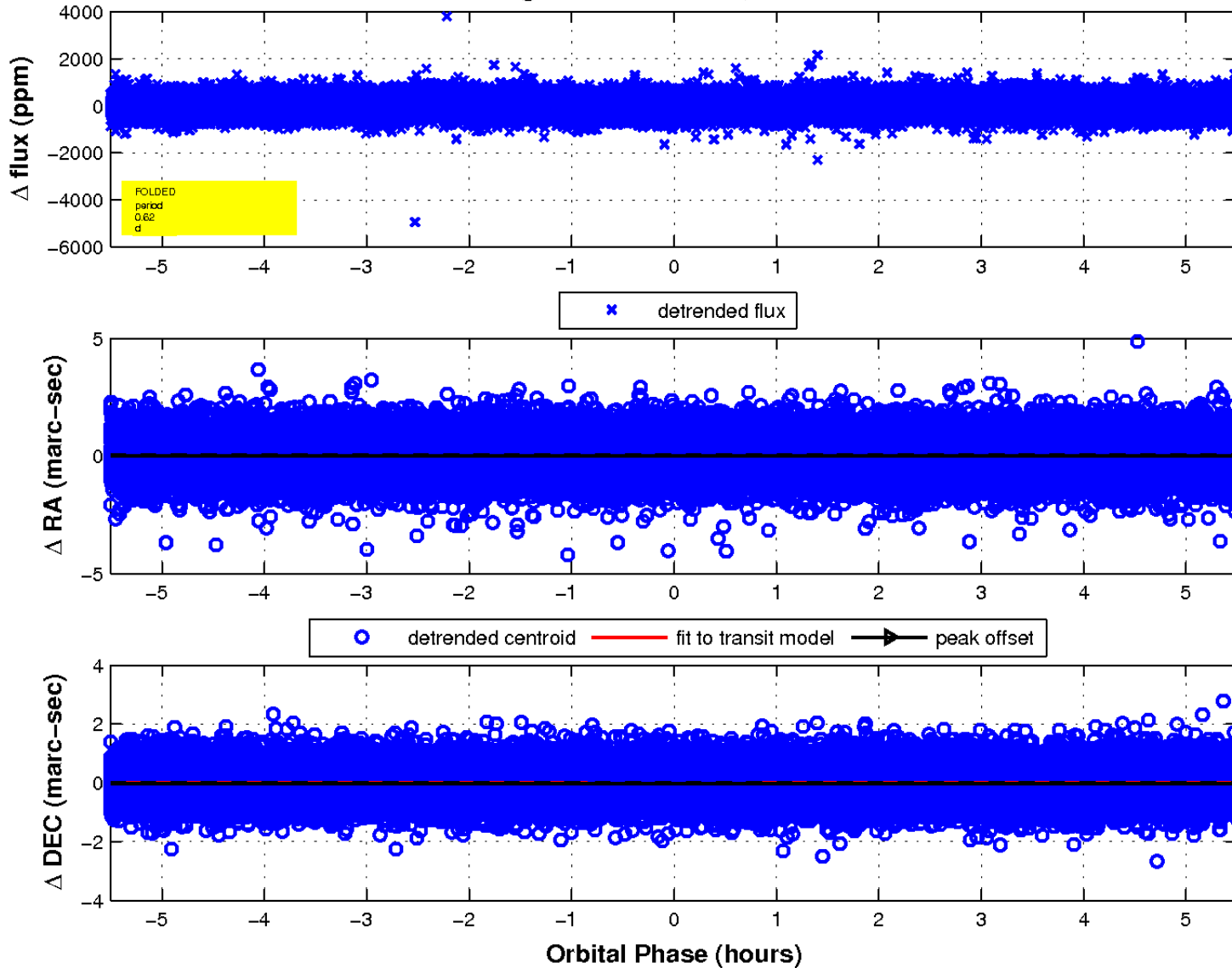
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

