

# KIC 007199418

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007199418-01	OBS	No	0.566642	131.679030	0.0	3.822	10.6	0.0	1.01	6152	0.02	6904.65
007199418-02	OBS	No	39.518247	139.615108	586.3	2.197	10.5	9.6	1.01	6152	2.83	24.05

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007199418-01	OBS	FP	0.00	1	0	0	1	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—EPHEM_MATCH
007199418-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

**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.

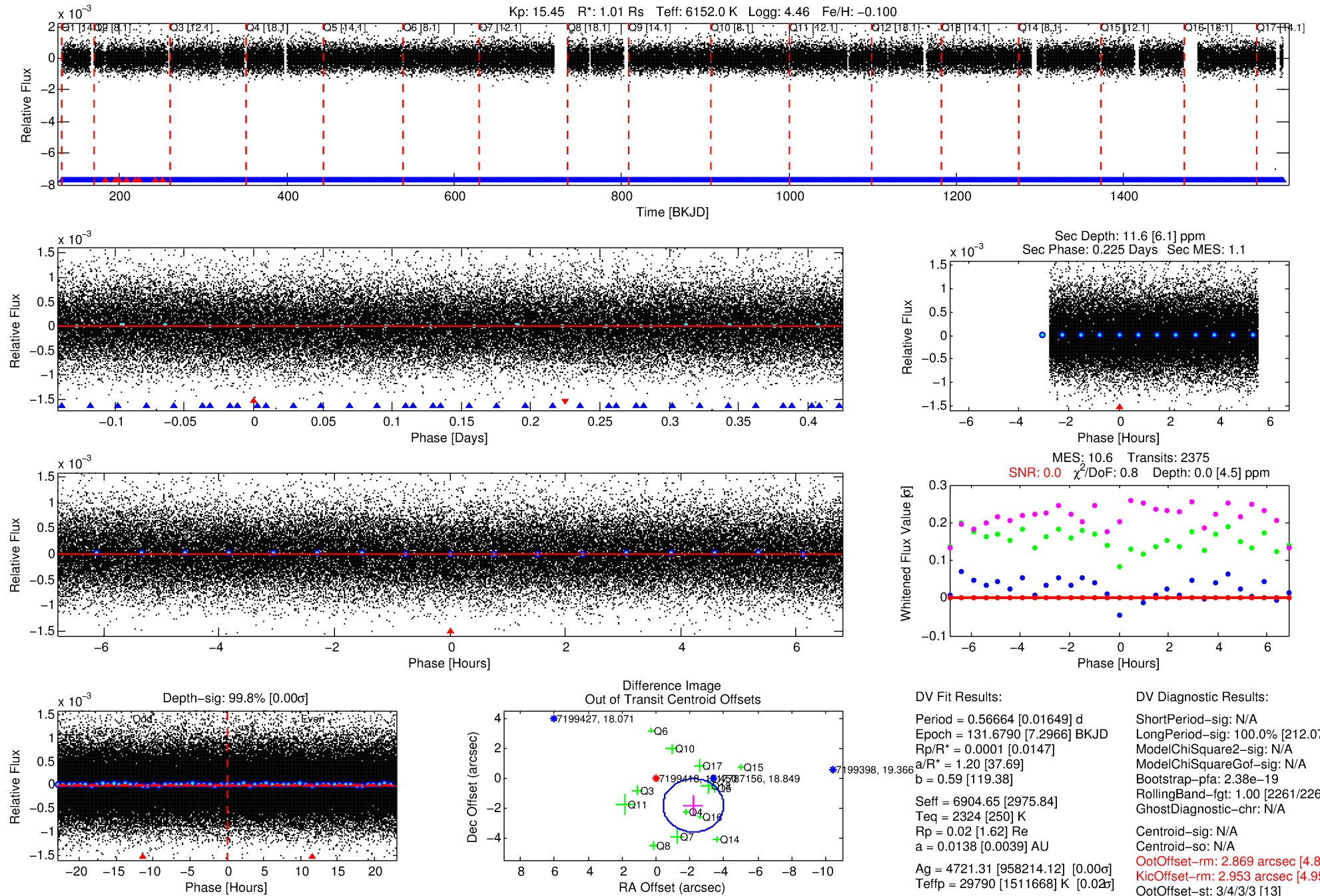
## Ephemeris Match Information For 007199418-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
007199418-01	7199418	RR-Lyr-pri	7198959	1:1	374.4	72	60	7.86	15.45	623300.00	Direct-PRF	0	0.88	18.50

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

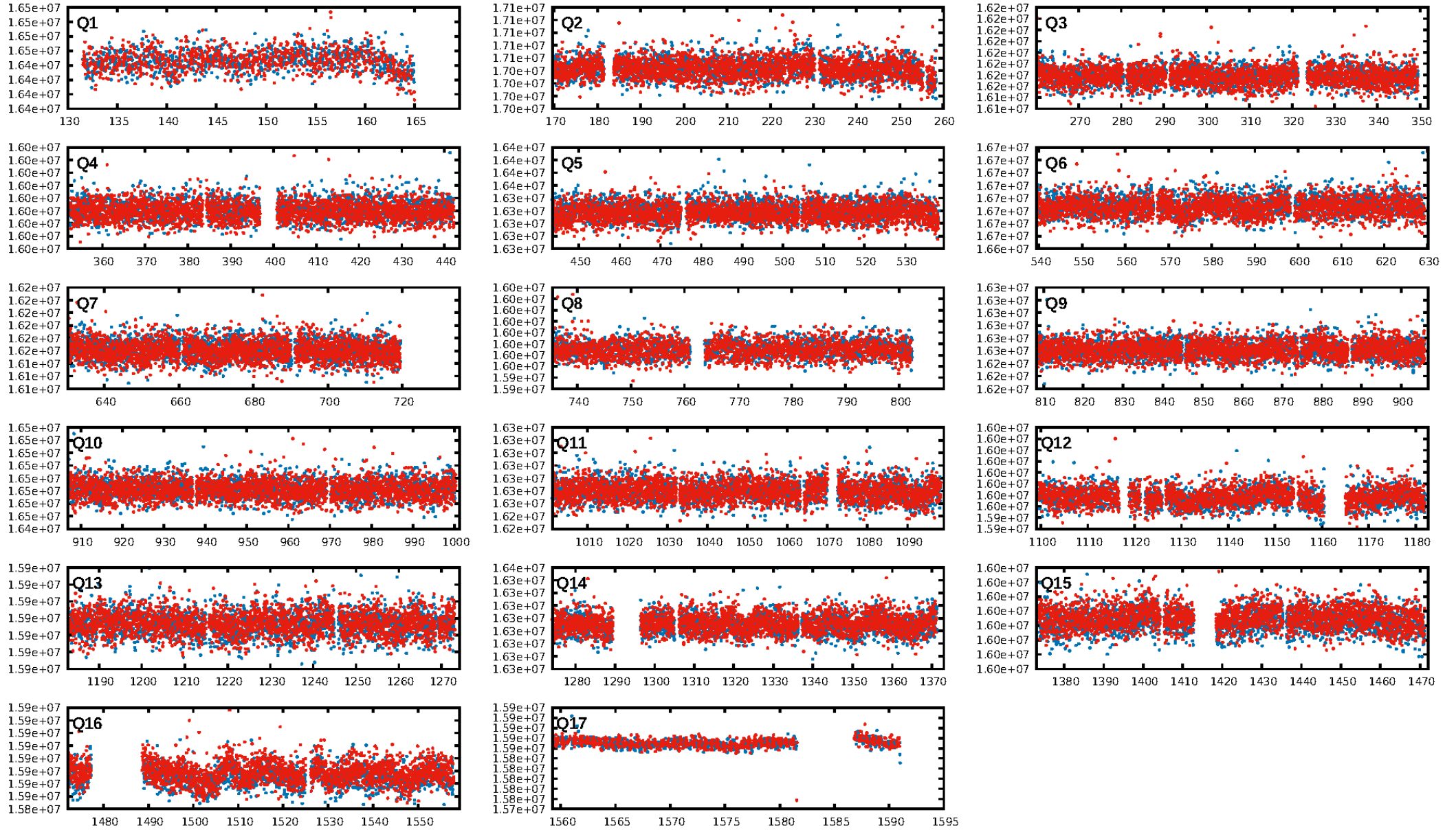
KIC: 7199418 Candidate: 1 of 2 Period: 0.567 d



Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:55:04 Z

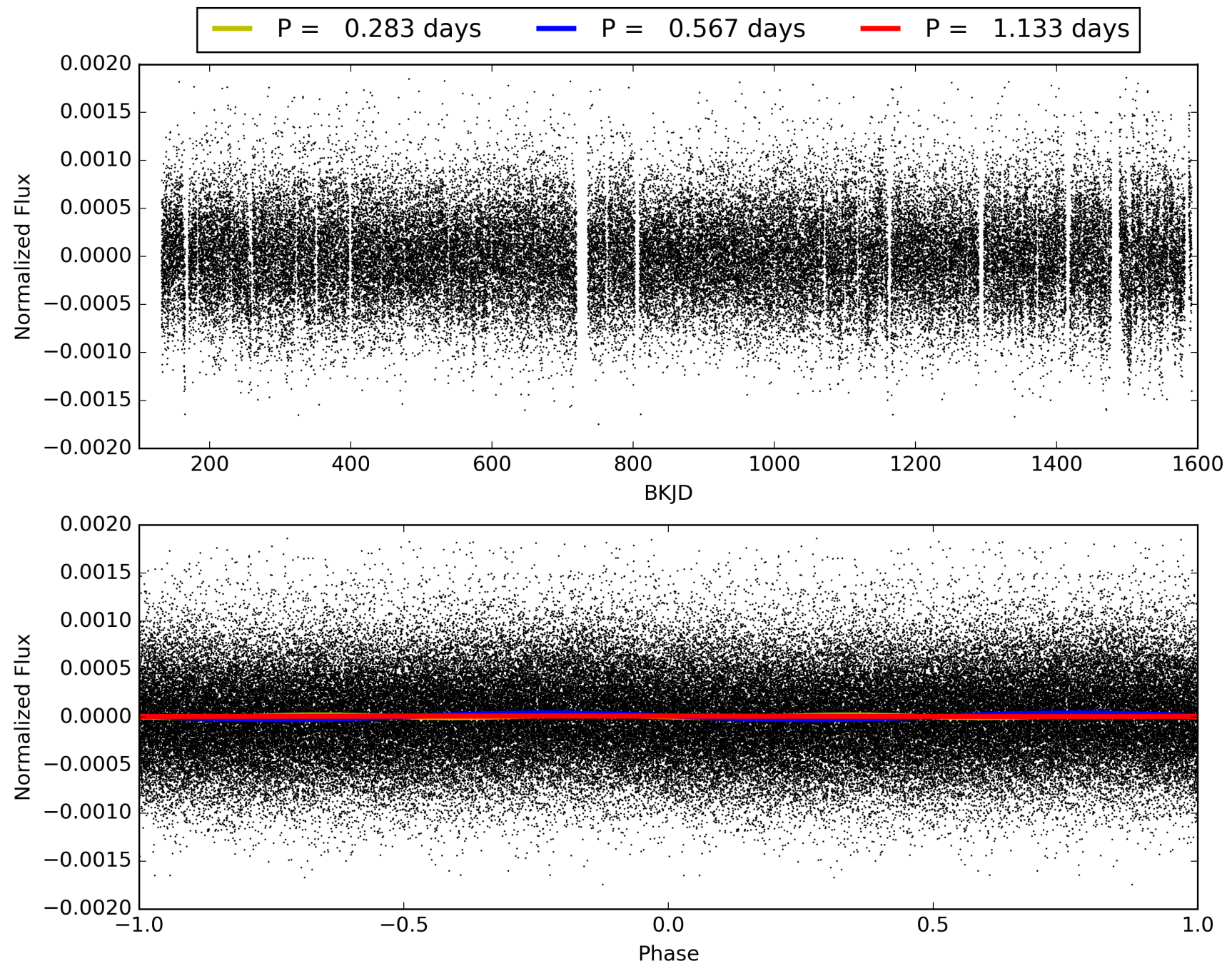
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007199418-01, PDC Light Curves



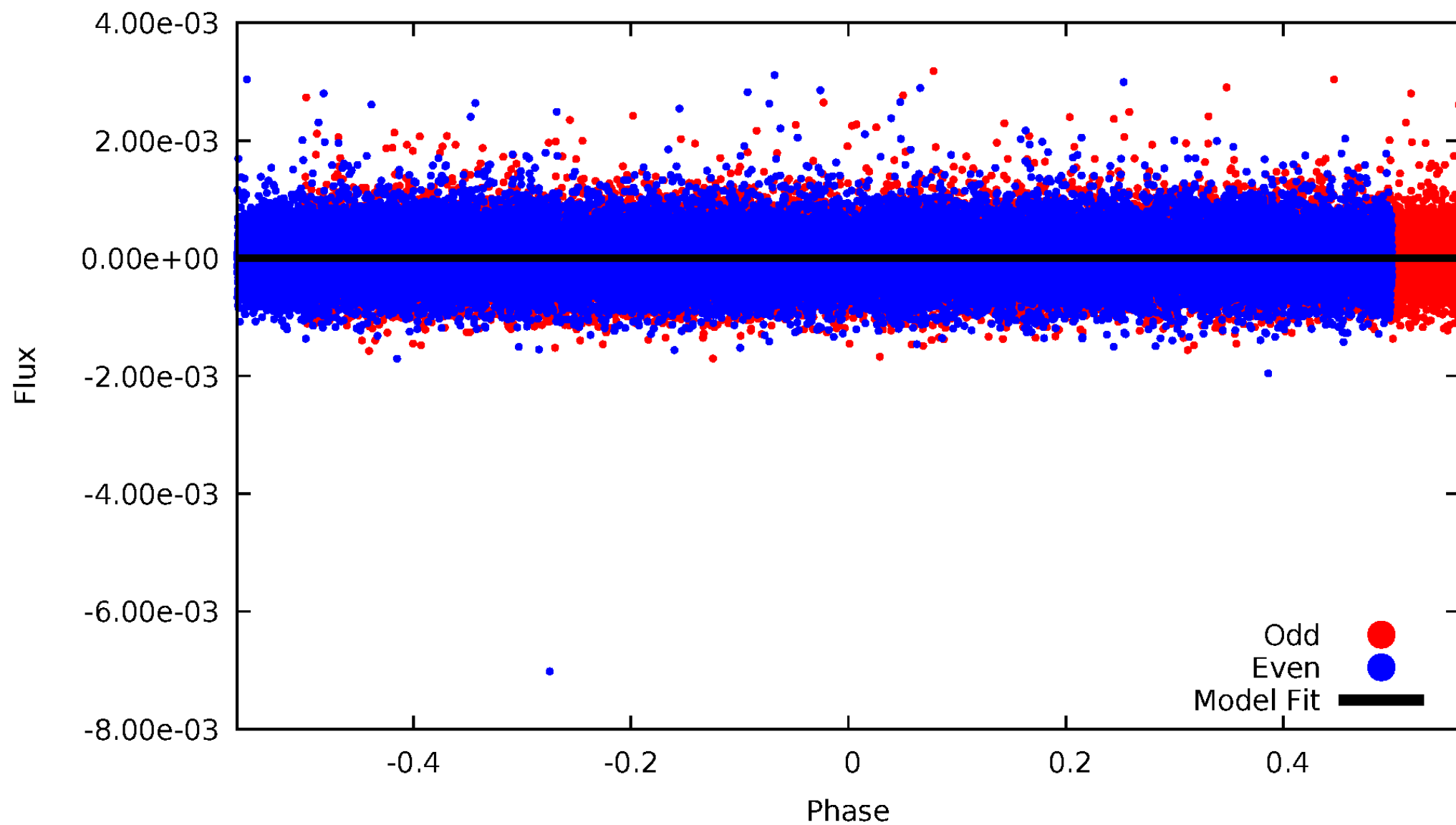


TCE 007199418-01



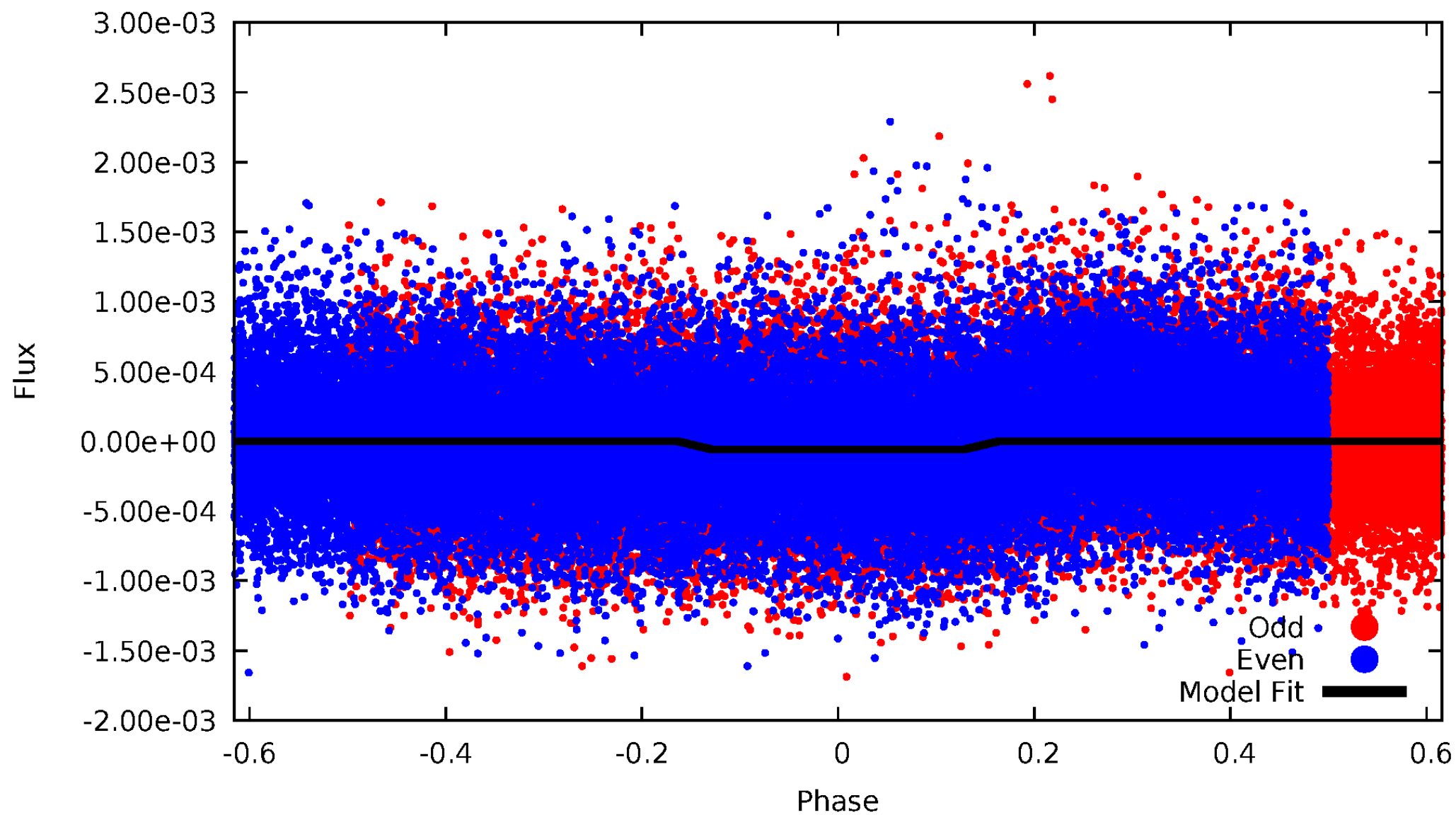
# DV Odd/Even

TCE 007199418-01

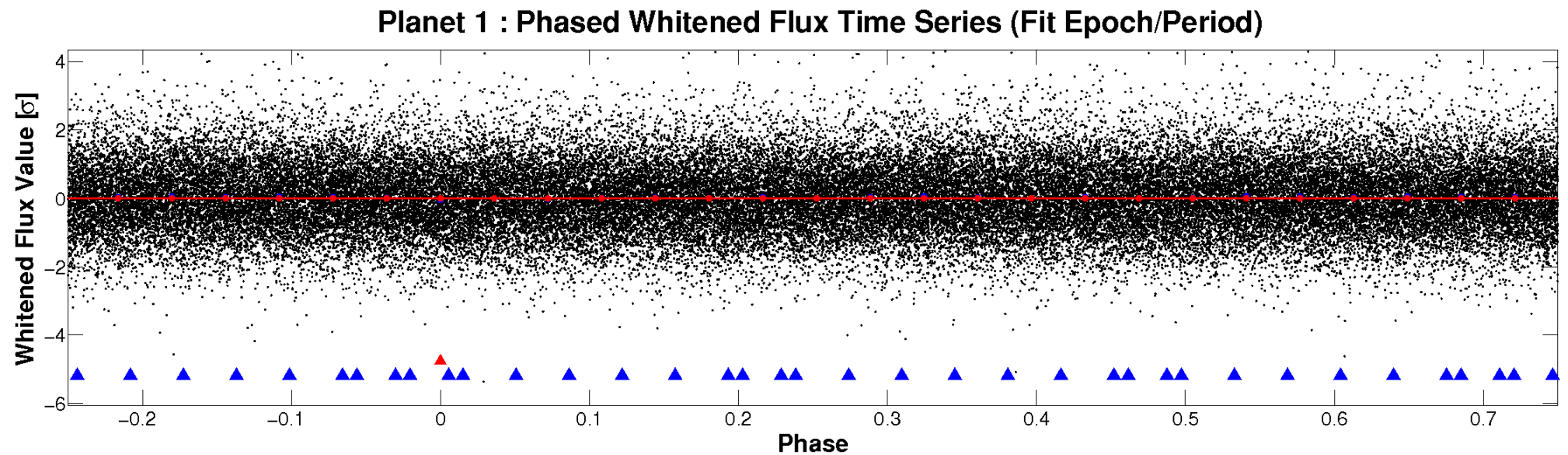
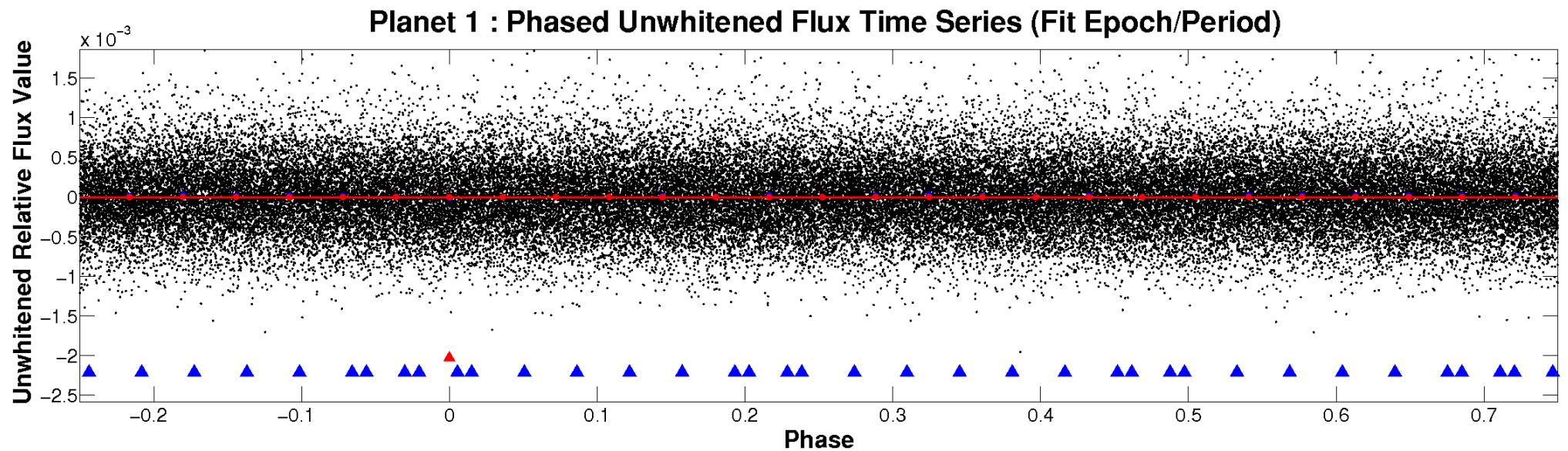


# ALT Odd/Even

TCE 007199418-01



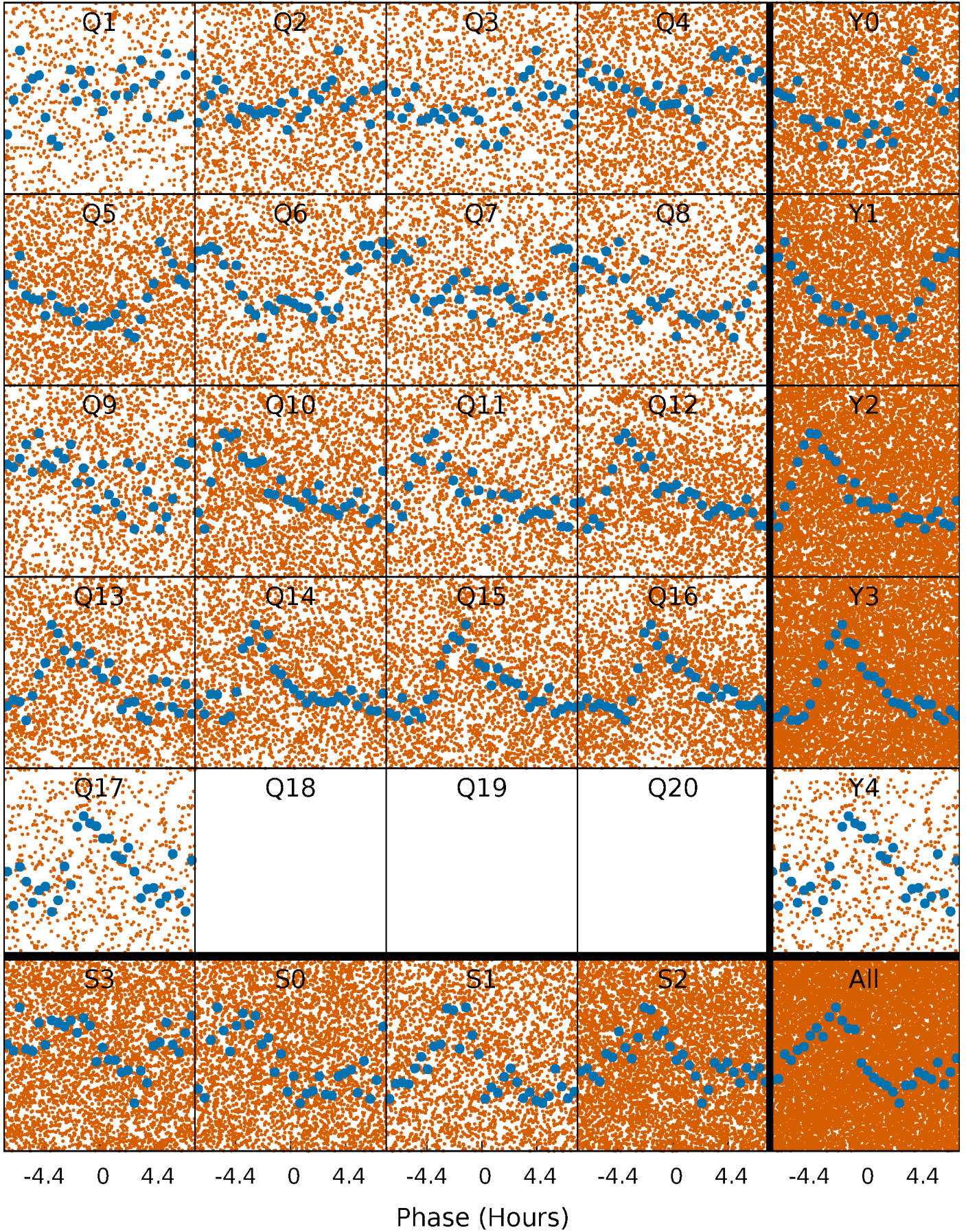
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

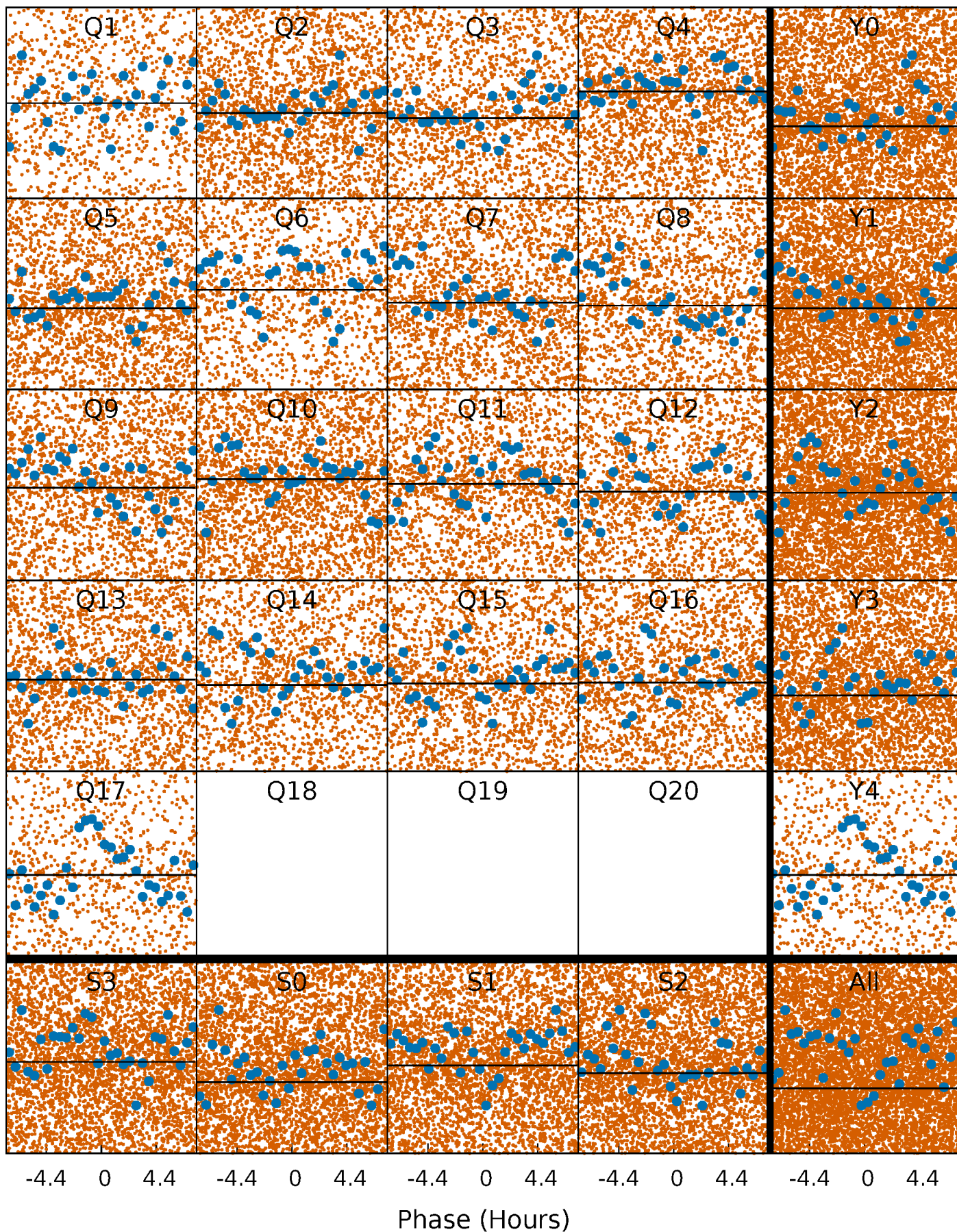
TCE 007199418-01 P= 0.566642 Days  $T_0=131.679030$  (BKJD)





# DV Quarter-Phased Transit Curves

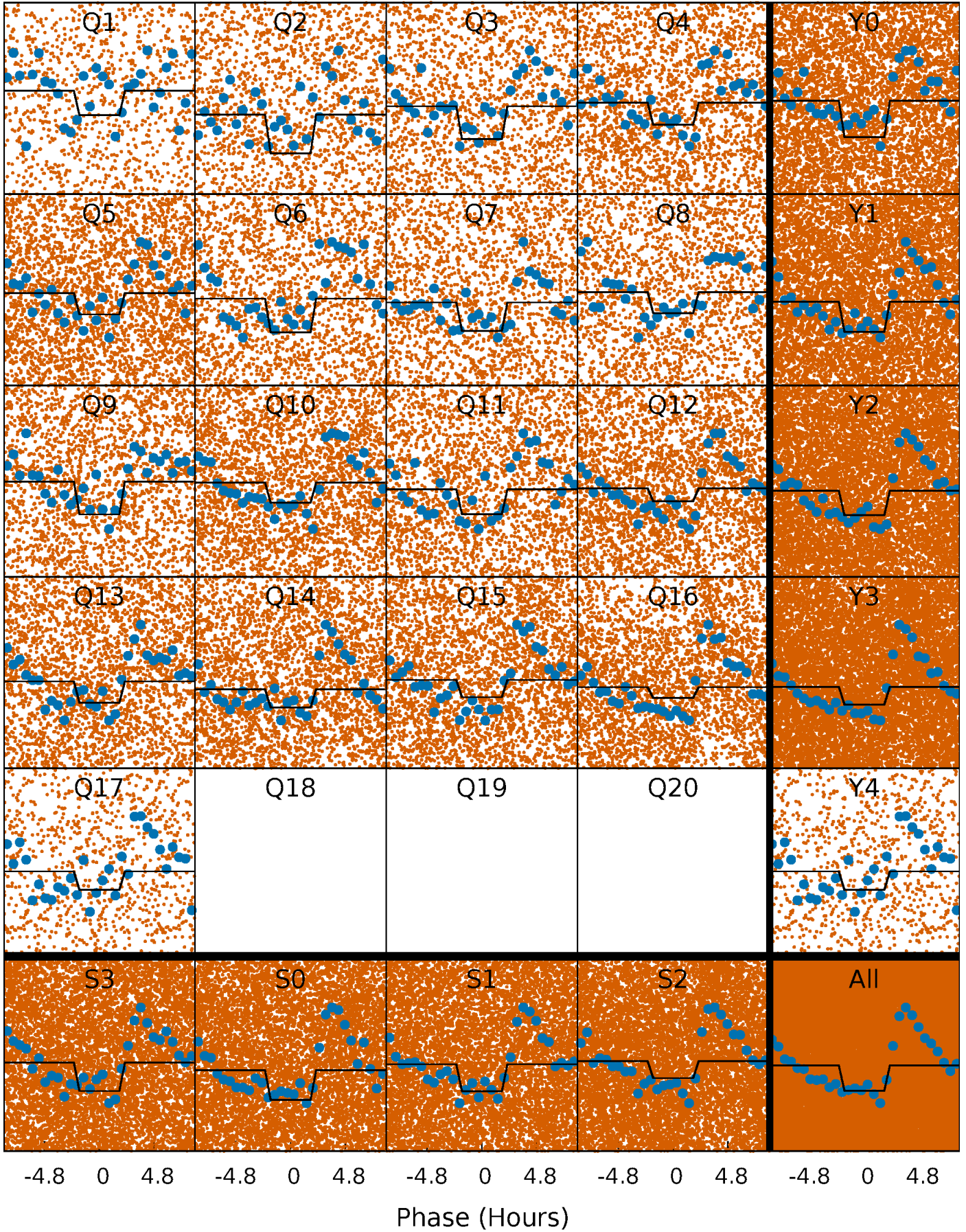
TCE 007199418-01 P= 0.566642 Days  $T_0=131.679030$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

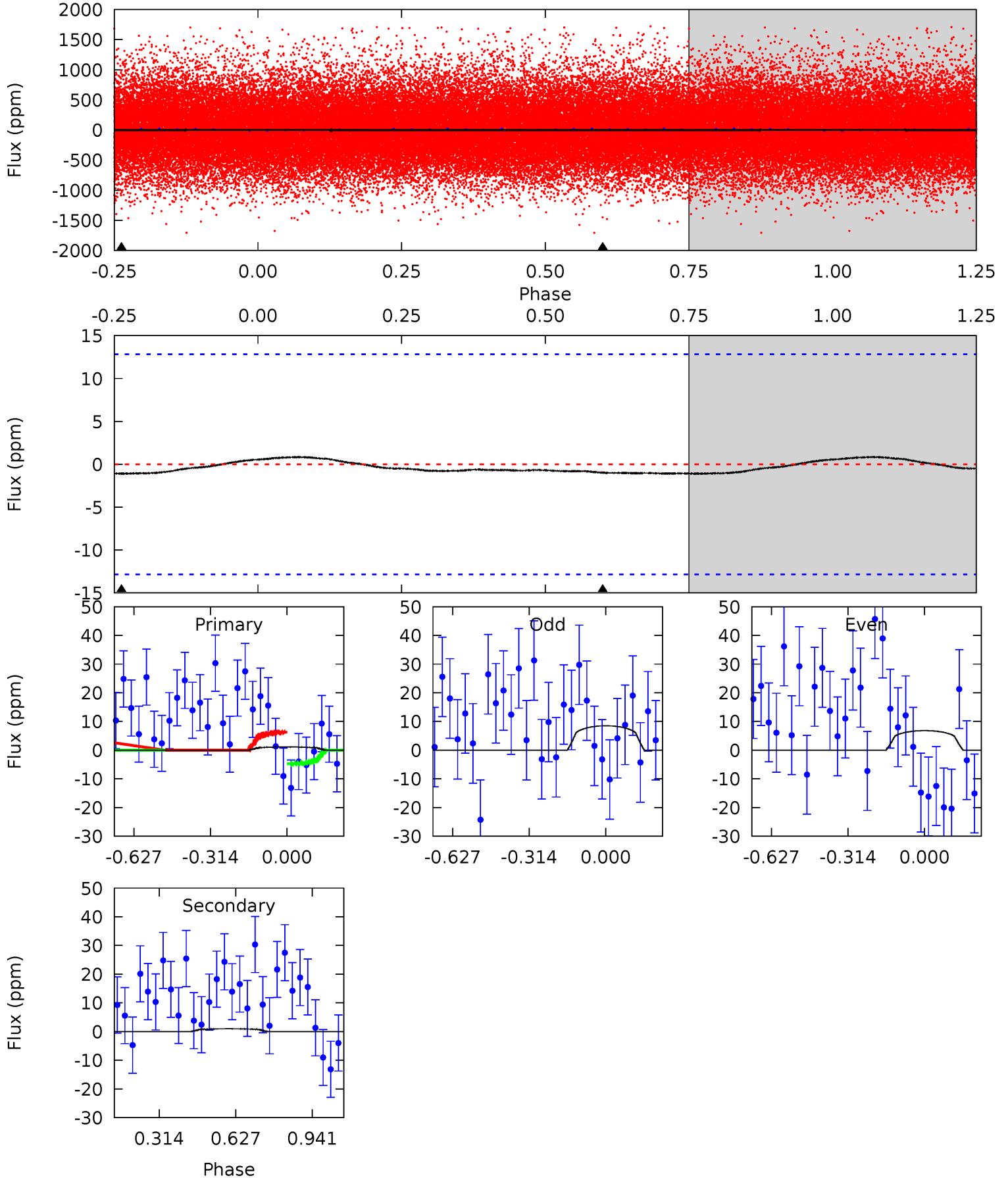
TCE 007199418-01 P= 0.566808 Days  $T_0=131.633910$  (BKJD)



# DV Model-Shift Uniqueness Test

007199418-01, P = 0.566642 Days, E = 131.112388 Days

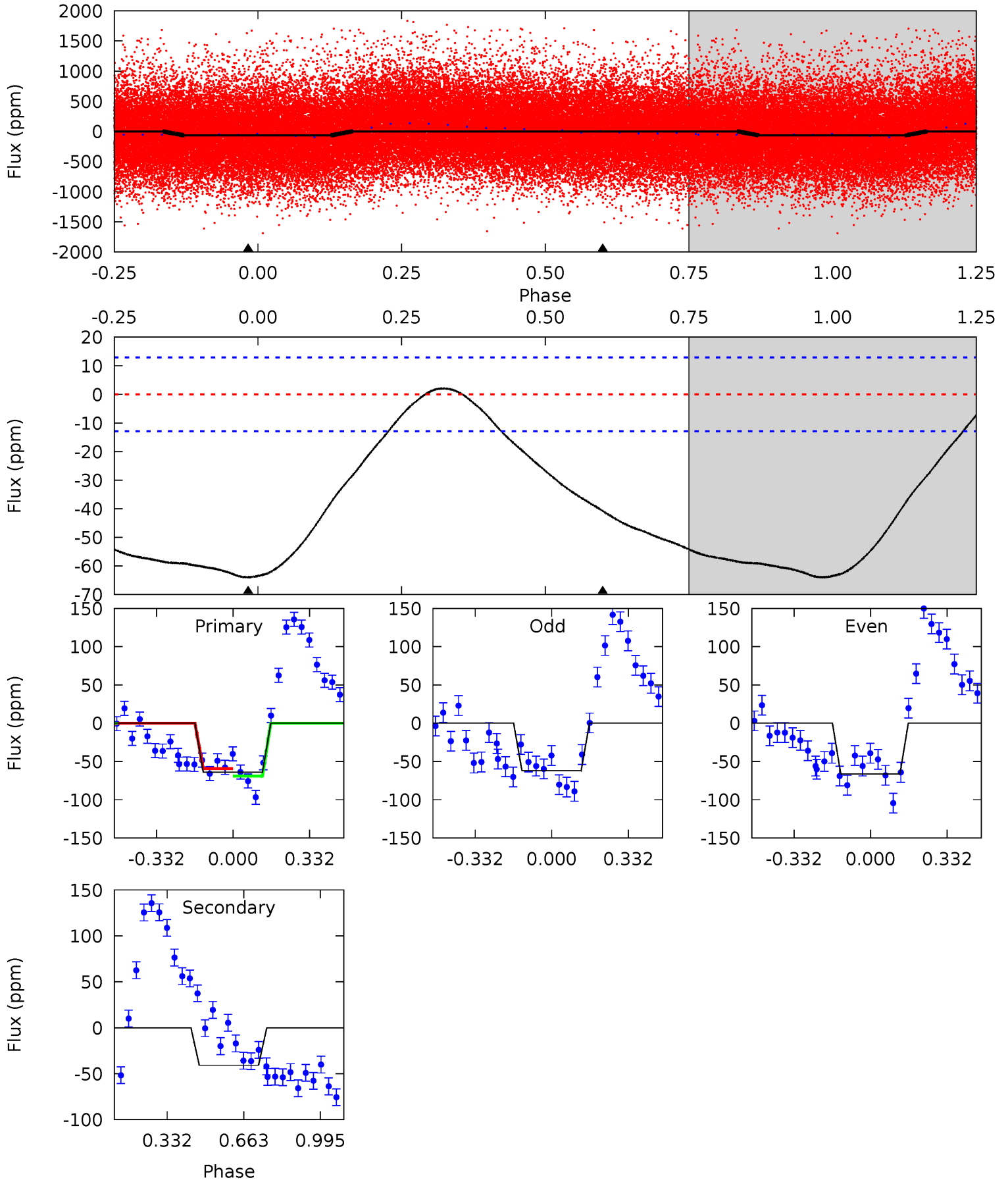
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.37	0.33	0	0	4.32	1.01	0.17	0.37	0.37	0.33	0.33	0.28	13.3	0.44	0.25



# Alt Model-Shift Uniqueness Test

007199418-01, P = 0.566808 Days, E = 131.067102 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
21.3	13.6	0	0	4.31	0.97	1.19	21.3	21.3	13.6	13.6	0.71	1.01	0.03	1.62





### Stellar Parameters For KIC 007199418

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6152^{+193}_{-236}$	$4.464^{+0.054}_{-0.216}$	$-0.100^{+0.250}_{-0.350}$	$1.009^{+0.341}_{-0.114}$	$1.079^{+0.153}_{-0.153}$	$1.480^{+0.437}_{-0.799}$
	+3%/-4%	+1%/-5%	+250%/-350%	+34%/-11%	+14%/-14%	+30%/-54%
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 007199418-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1 \pm 3$	$1.12^{+1.25}_{-0.79}$	$3334^{+256}_{-192}$	$-3206^{+6634}_{-439}$	$0.039^{+0.631}_{-0.255}$
Alt.	$-41 \pm 3$	$1.61^{+1.46}_{-1.09}$	$3327^{+240}_{-190}$	$4253^{+3052}_{-1331}$	$1.611^{+13.300}_{-1.179}$

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

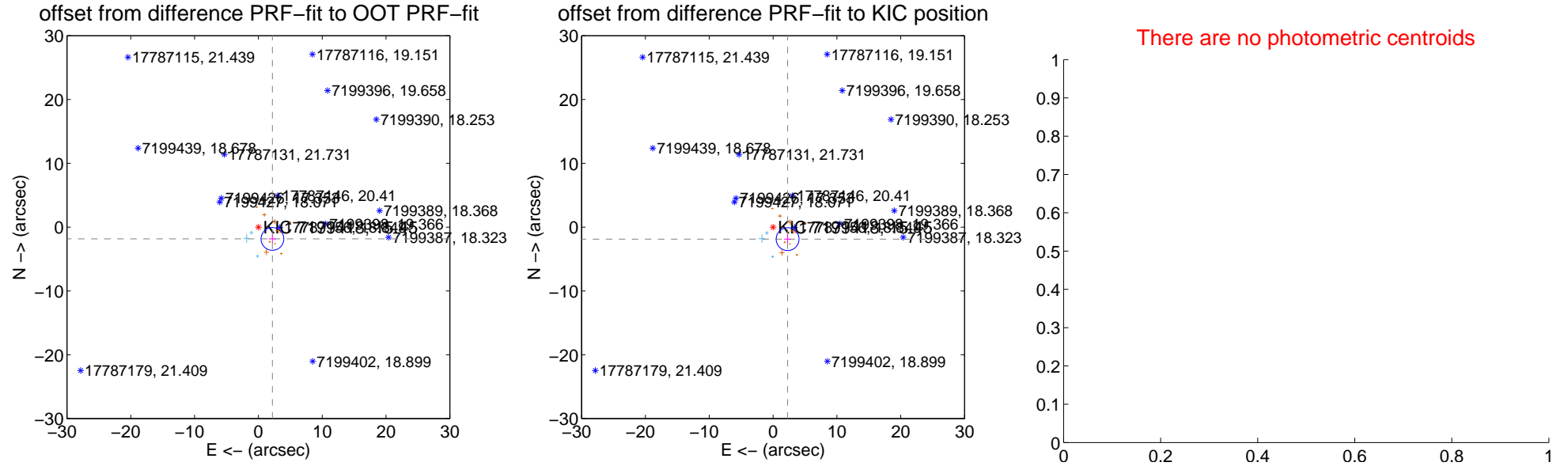
## DV Centroid Data

Supplemental centroid analysis for 007199418-01. Kepler magnitude: 15.45. Transit SNR 0.01

There are 3 quarters with good PRF difference image offsets

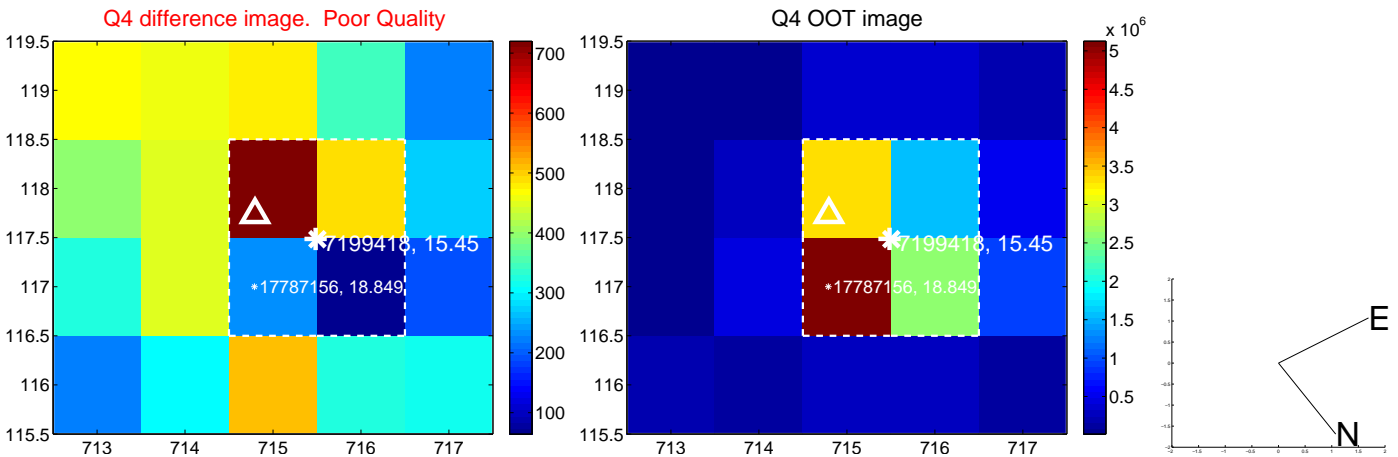
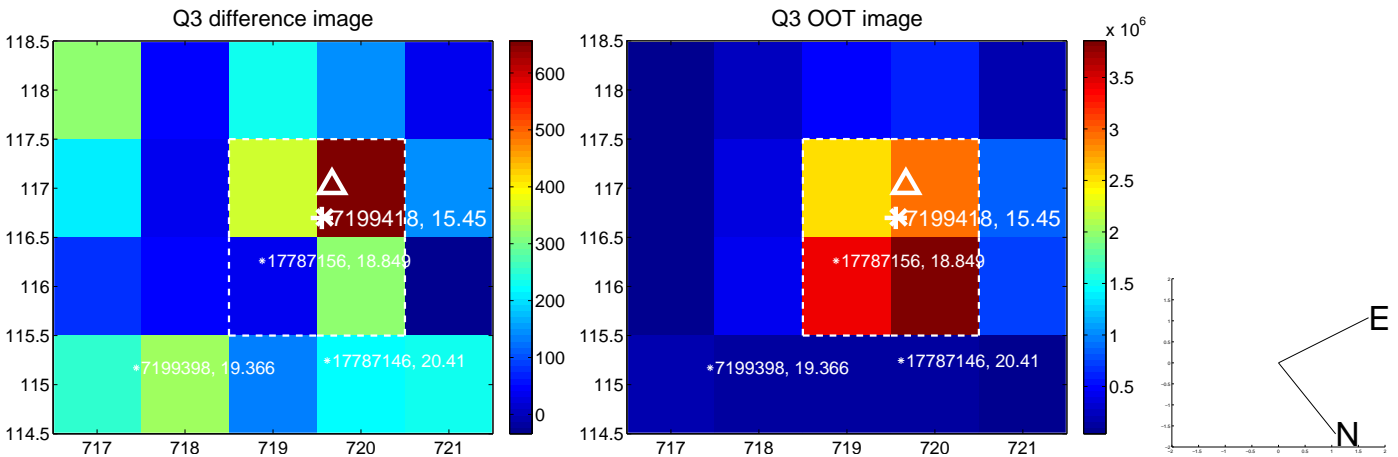
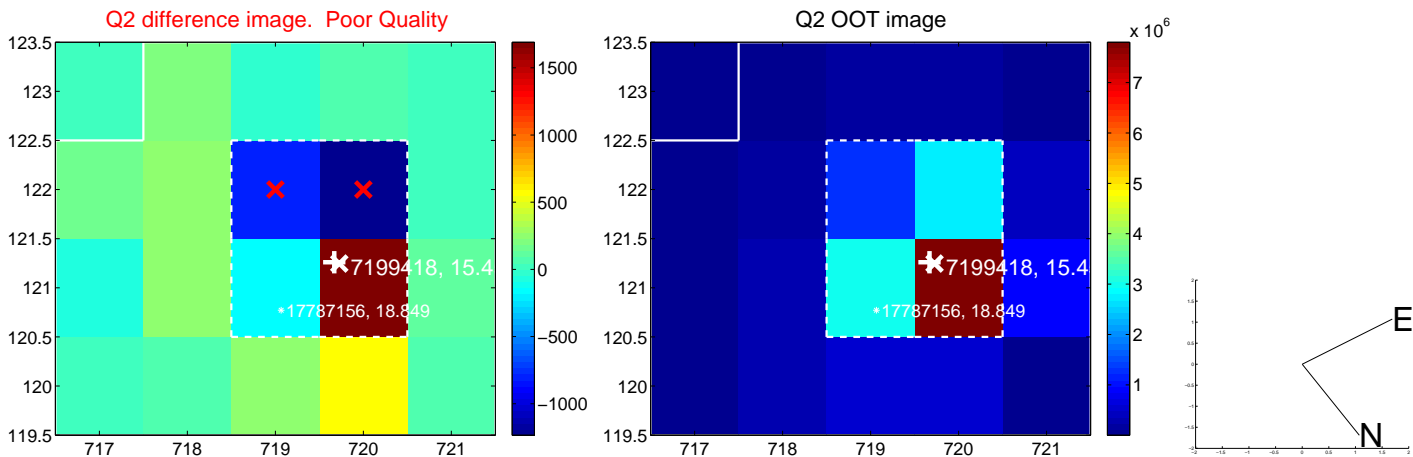
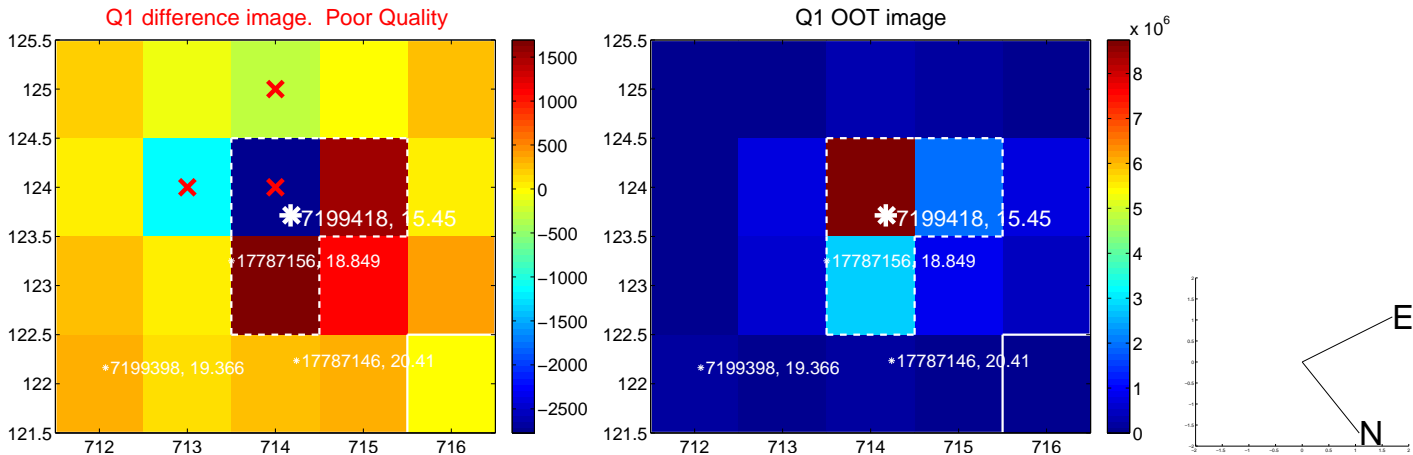
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.869 \pm 0.594$	4.83	$-2.197 \pm 0.552$	$-1.846 \pm 0.650$
PRF-fit source offset from KIC position	$2.953 \pm 0.596$	4.95	$-2.277 \pm 0.548$	$-1.880 \pm 0.661$
photometric centroid source offset	—	—	—	—

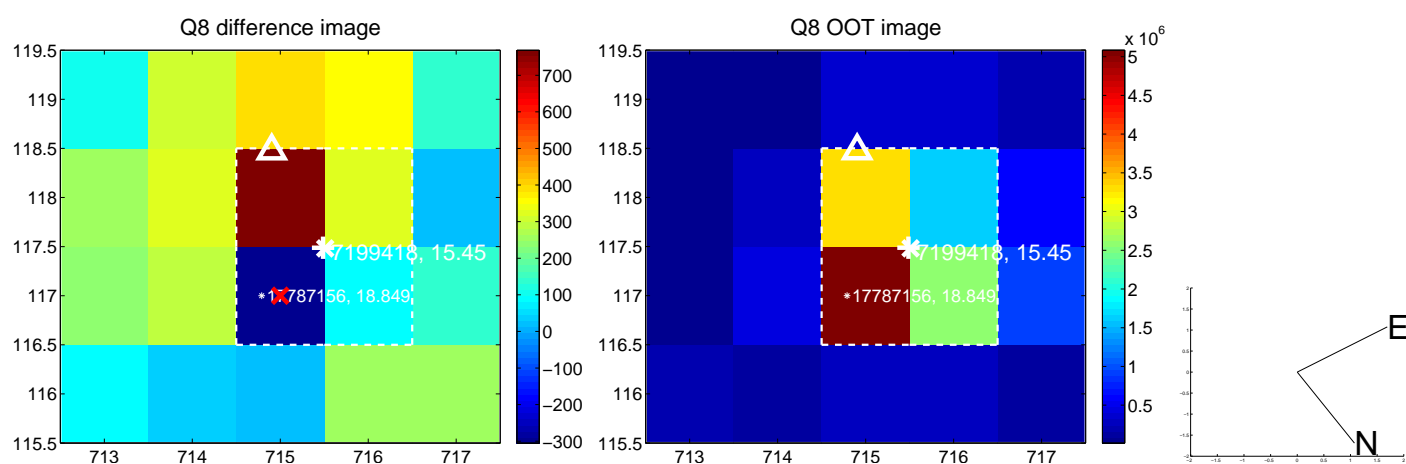
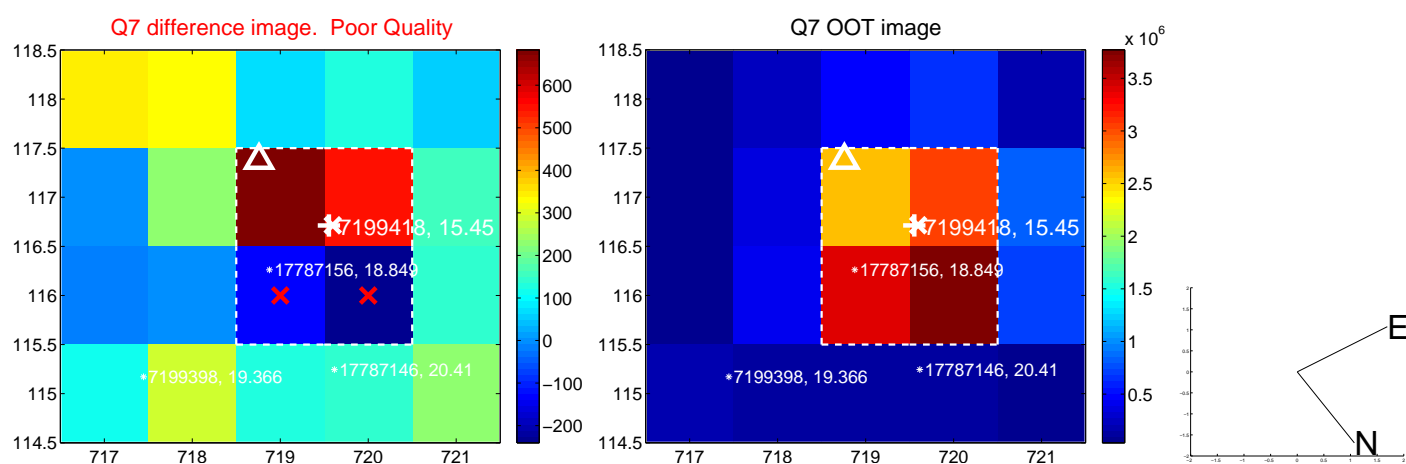
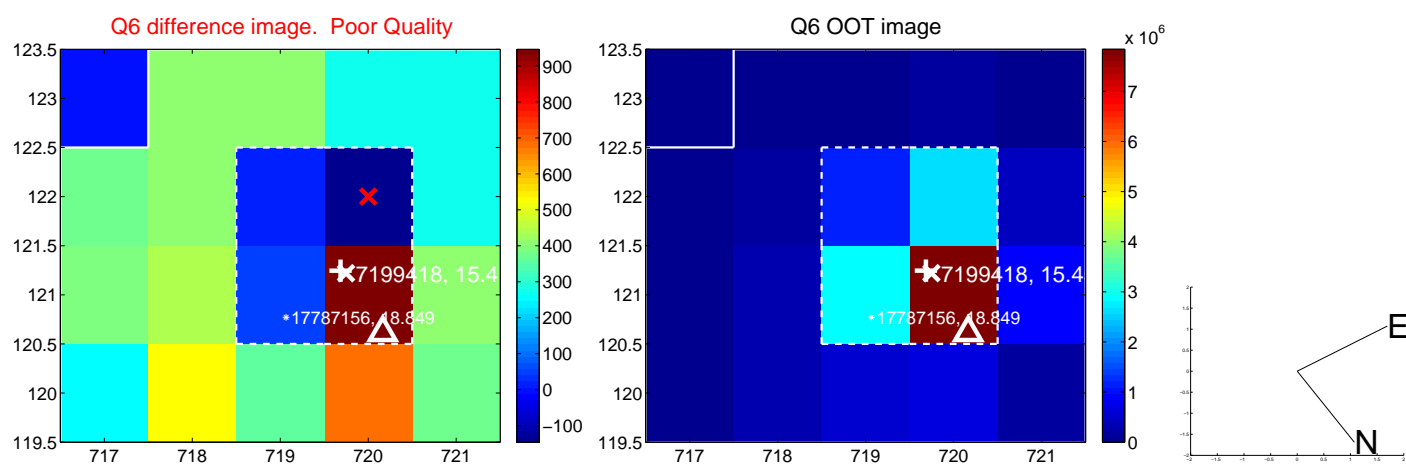
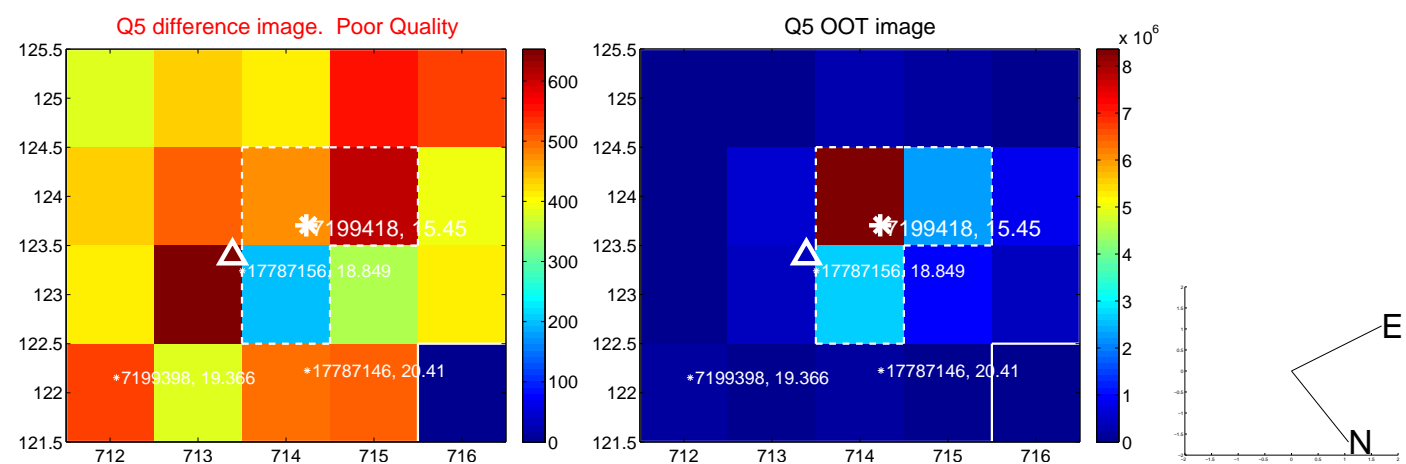


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

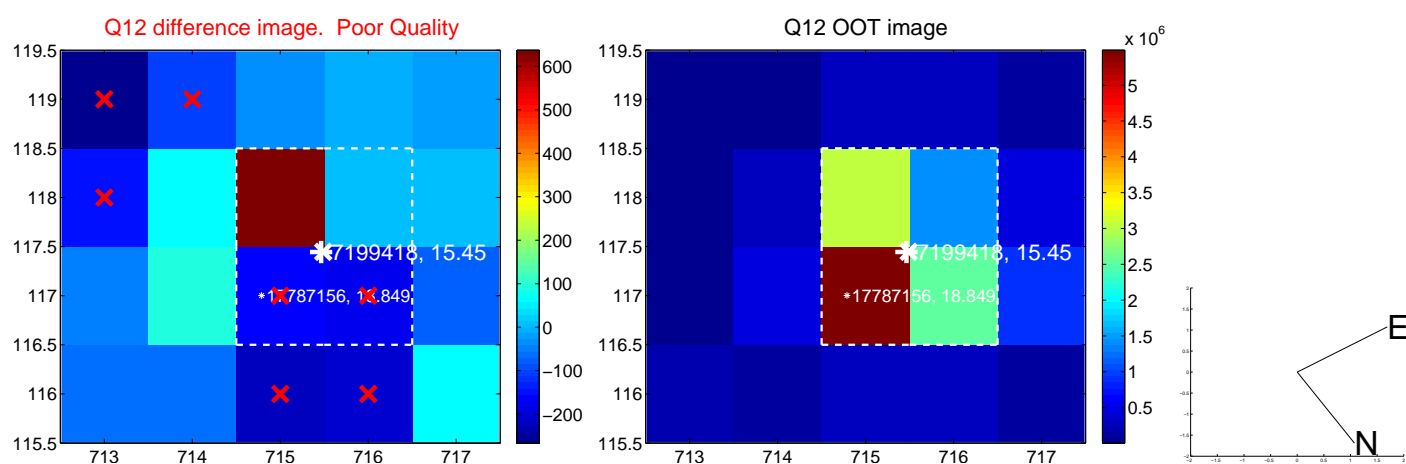
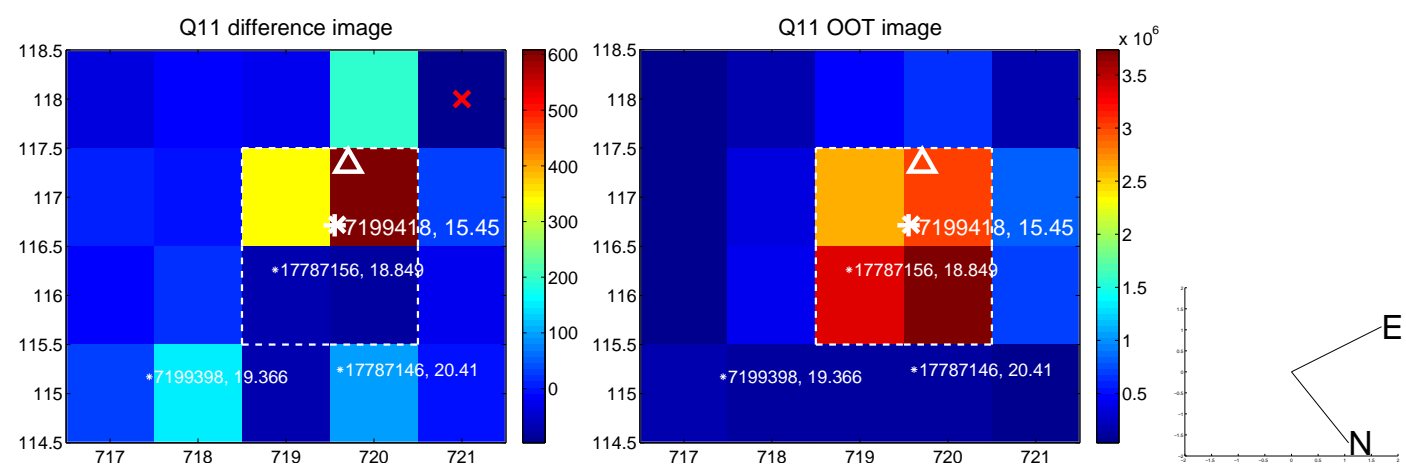
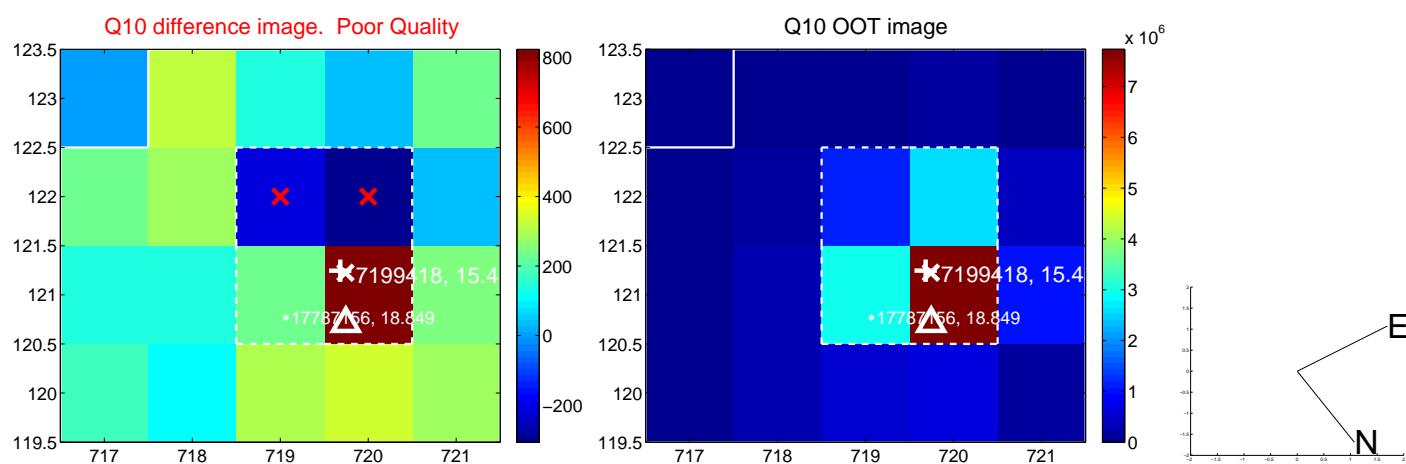
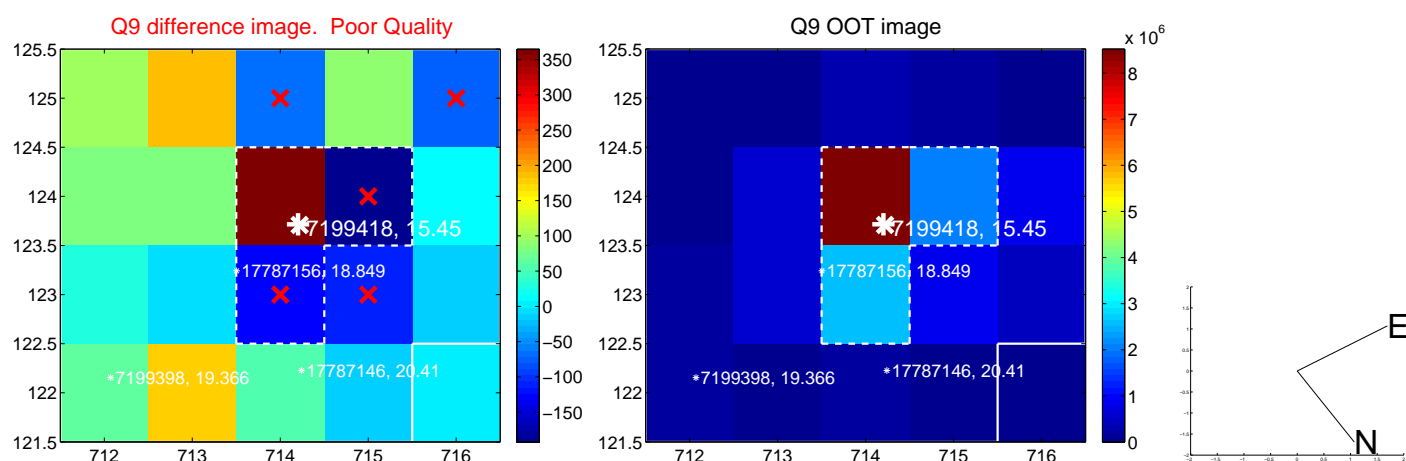


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



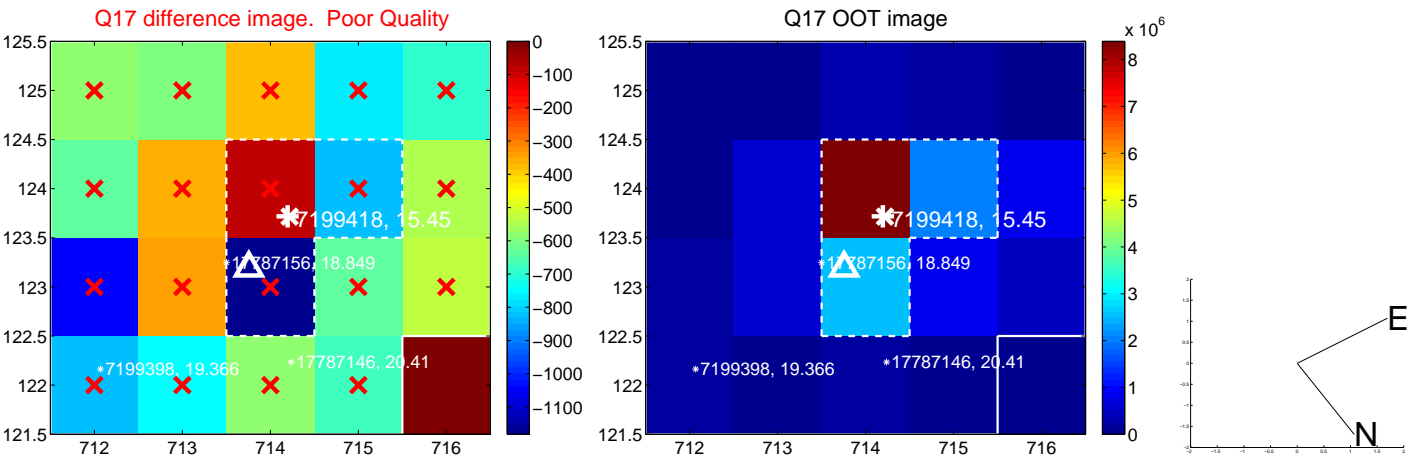


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





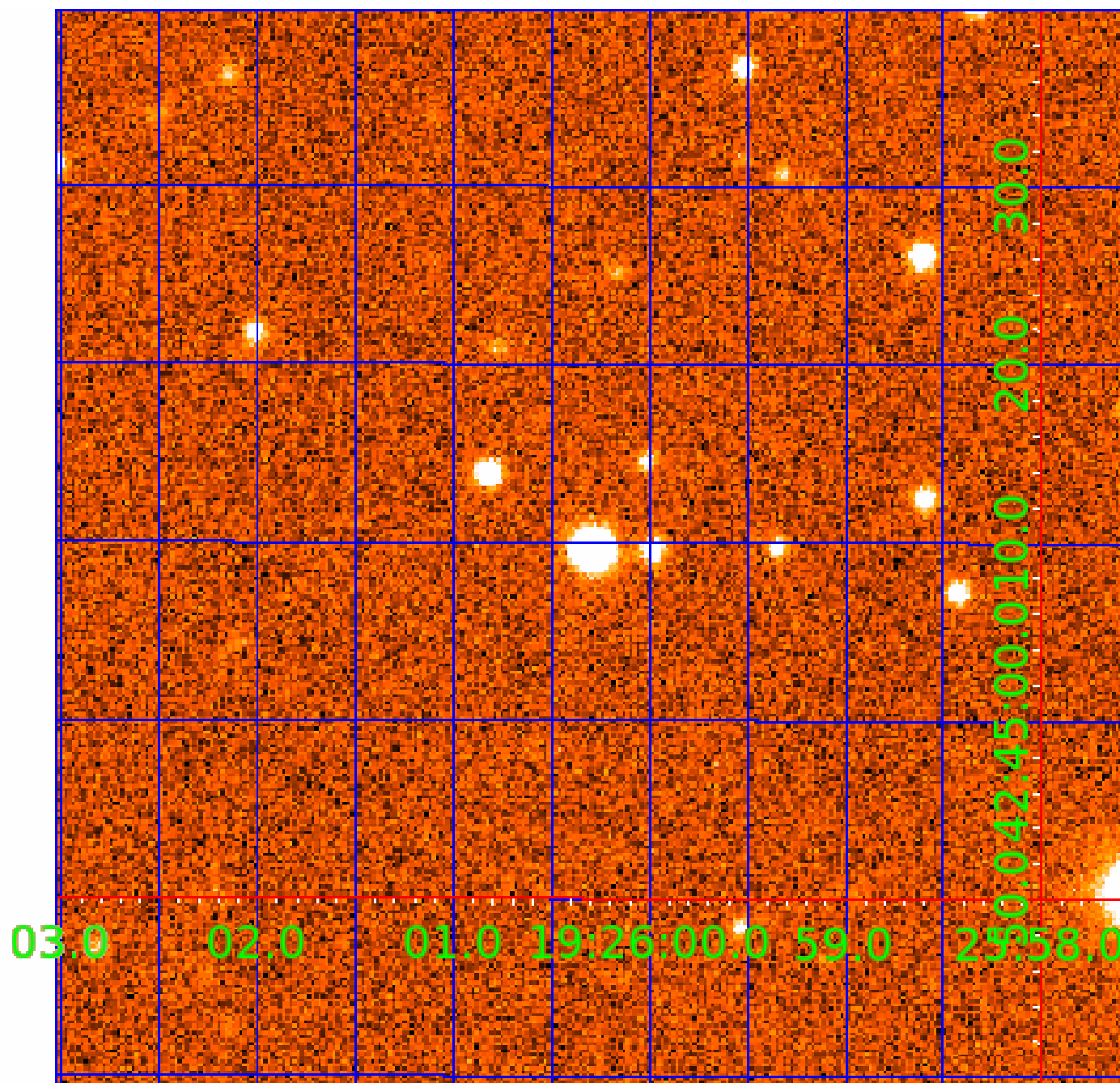
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

# UKIRT Image

Declination





# KIC 007199418

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007199418-01	OBS	No	0.566642	131.679030	0.0	3.822	10.6	0.0	1.01	6152	0.02	6904.65
007199418-02	OBS	No	39.518247	139.615108	586.3	2.197	10.5	9.6	1.01	6152	2.83	24.05

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007199418-01	OBS	FP	0.00	1	0	0	1	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—EPHEM_MATCH
007199418-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

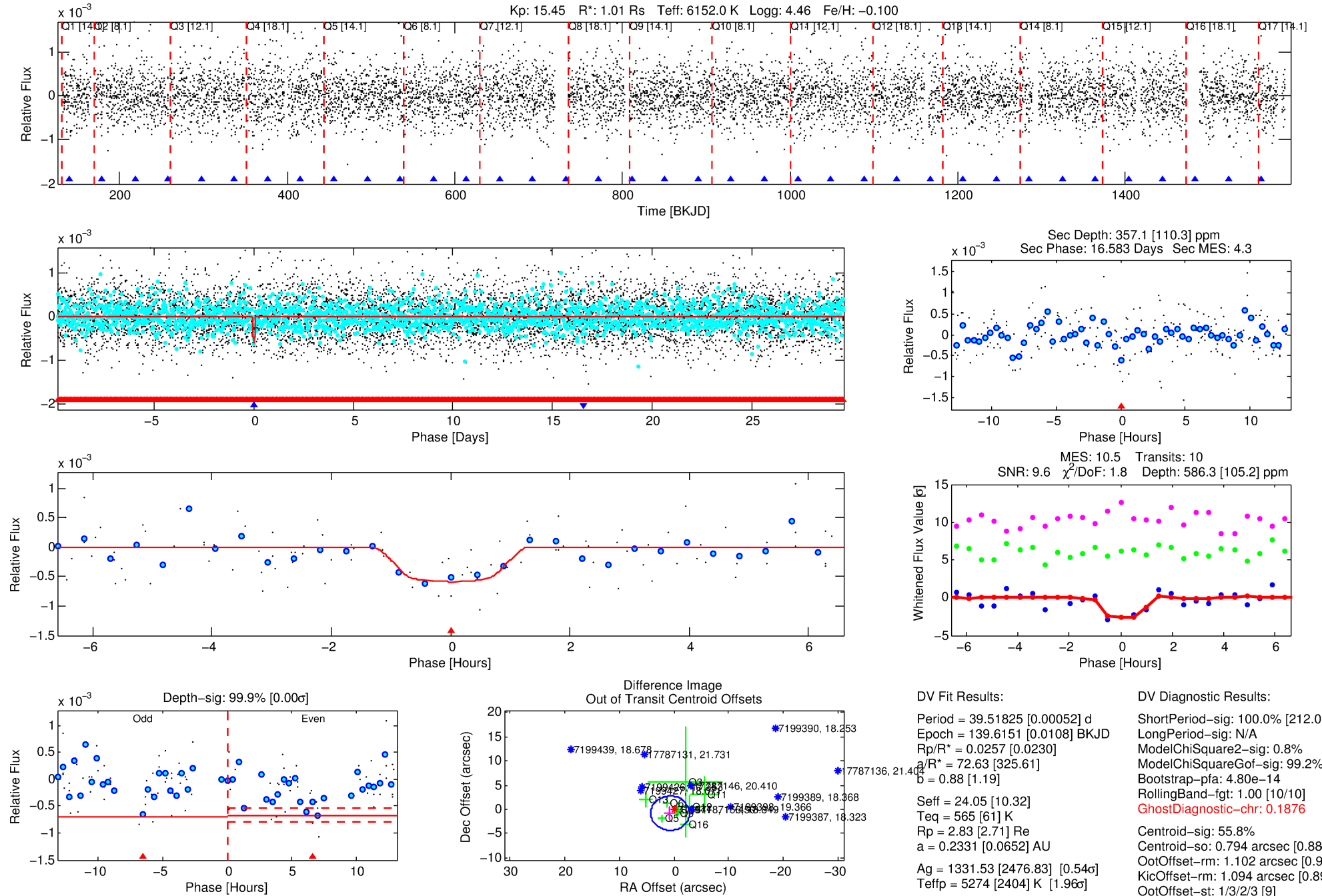
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007199418-02

No Significant Match Found

# DV One-Page Summary

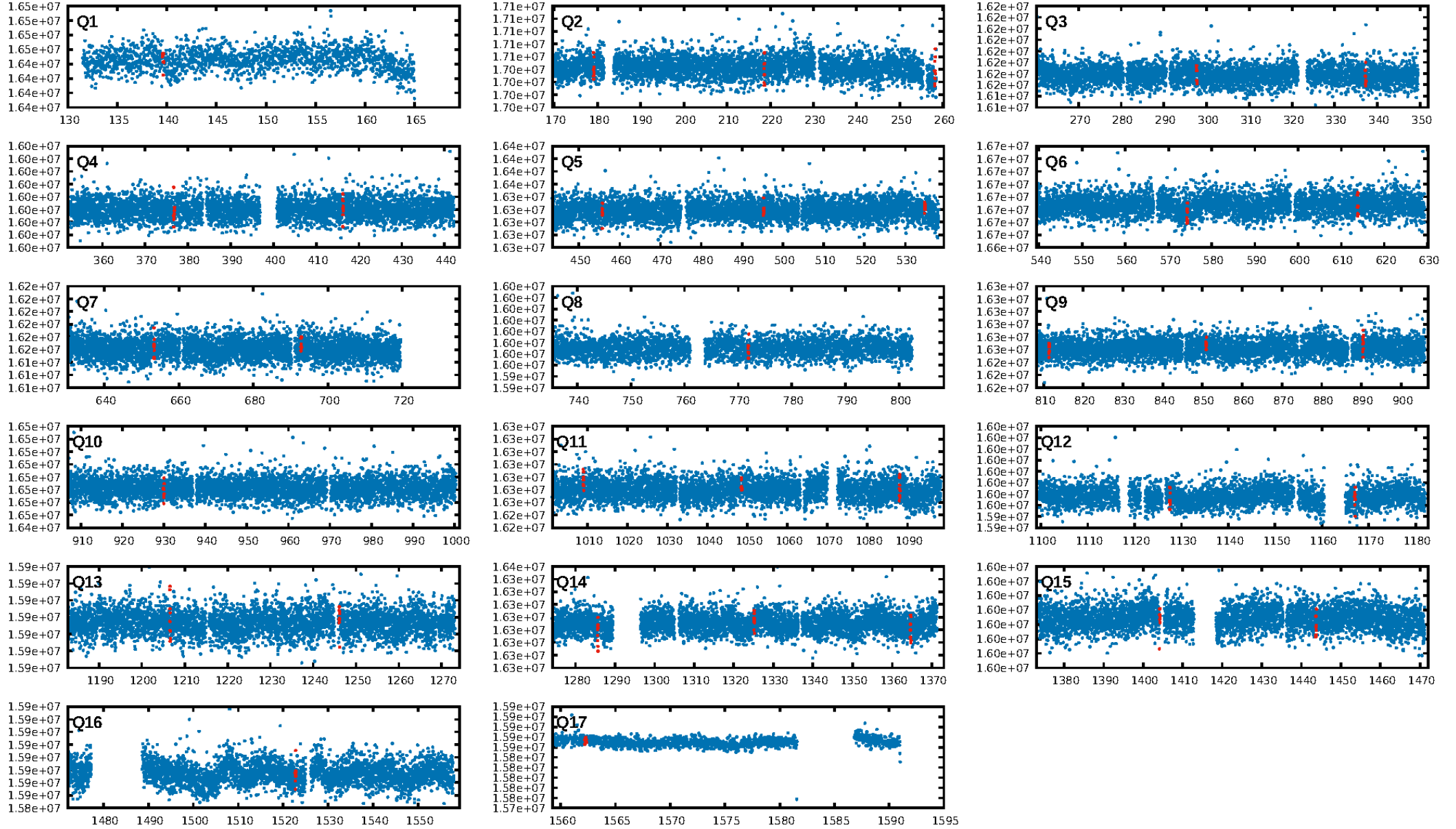
KIC: 7199418 Candidate: 2 of 2 Period: 39.518 d



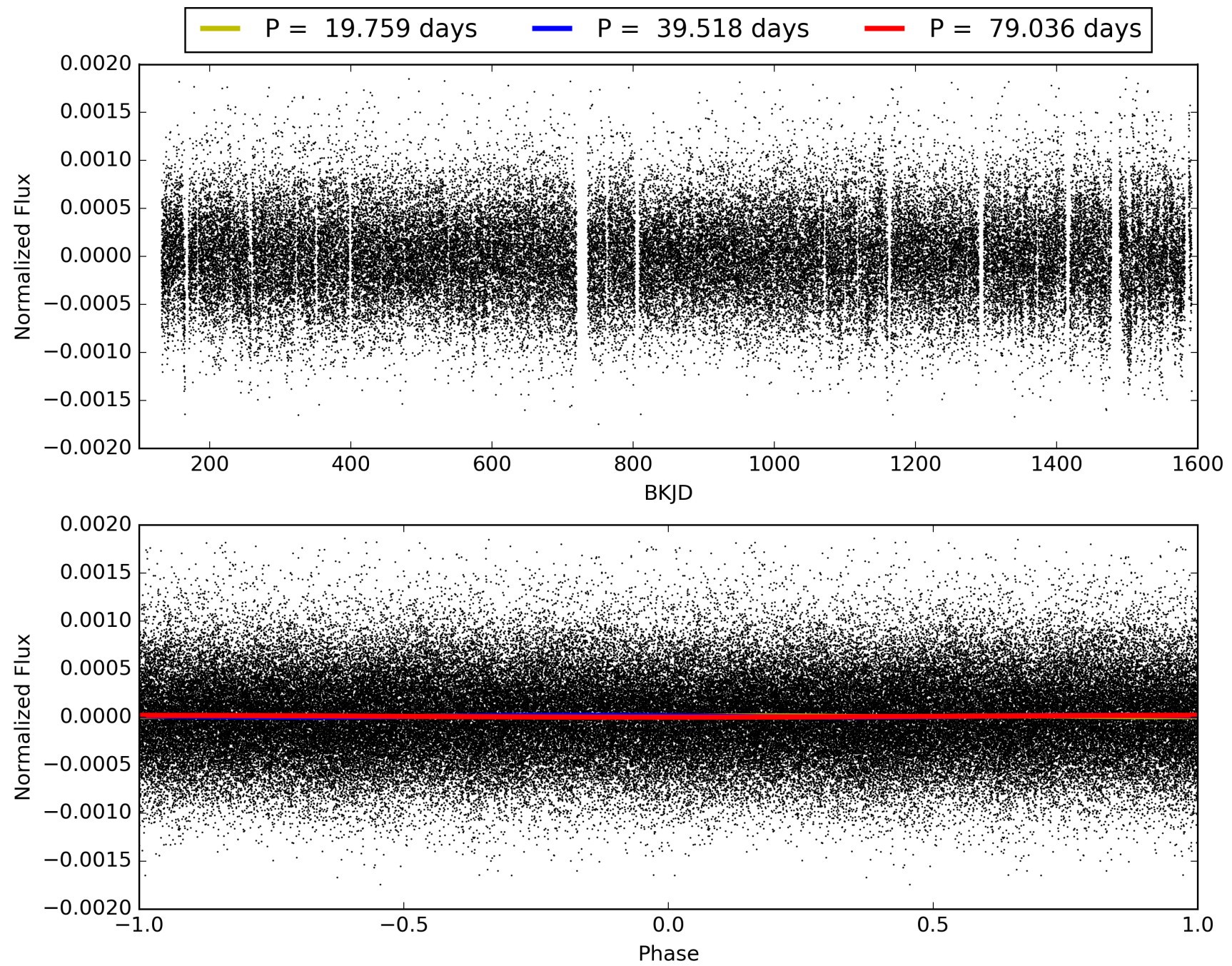
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:55:14 Z

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

# TCE 007199418-02, PDC Light Curves



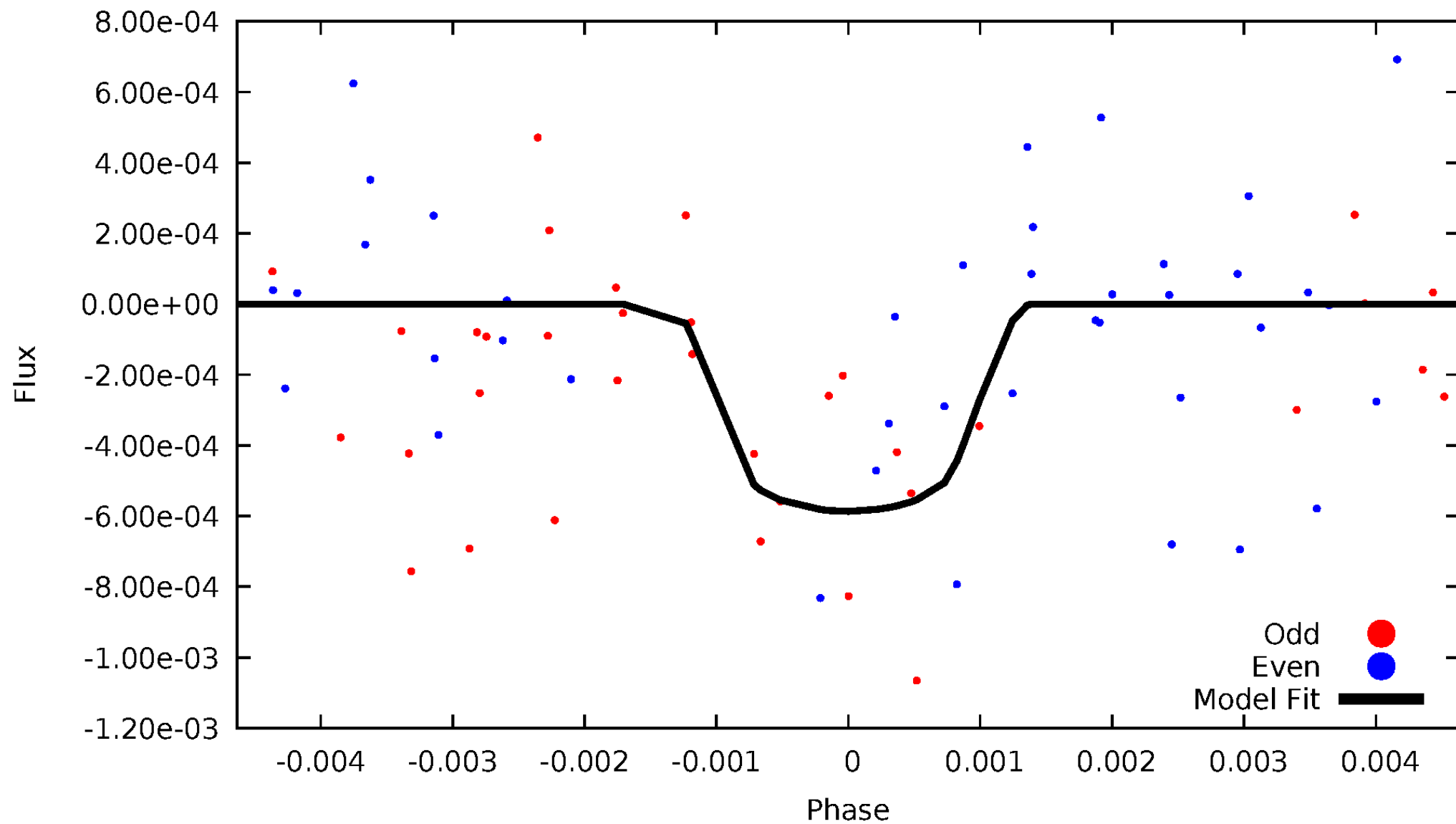
# TCE 007199418-02





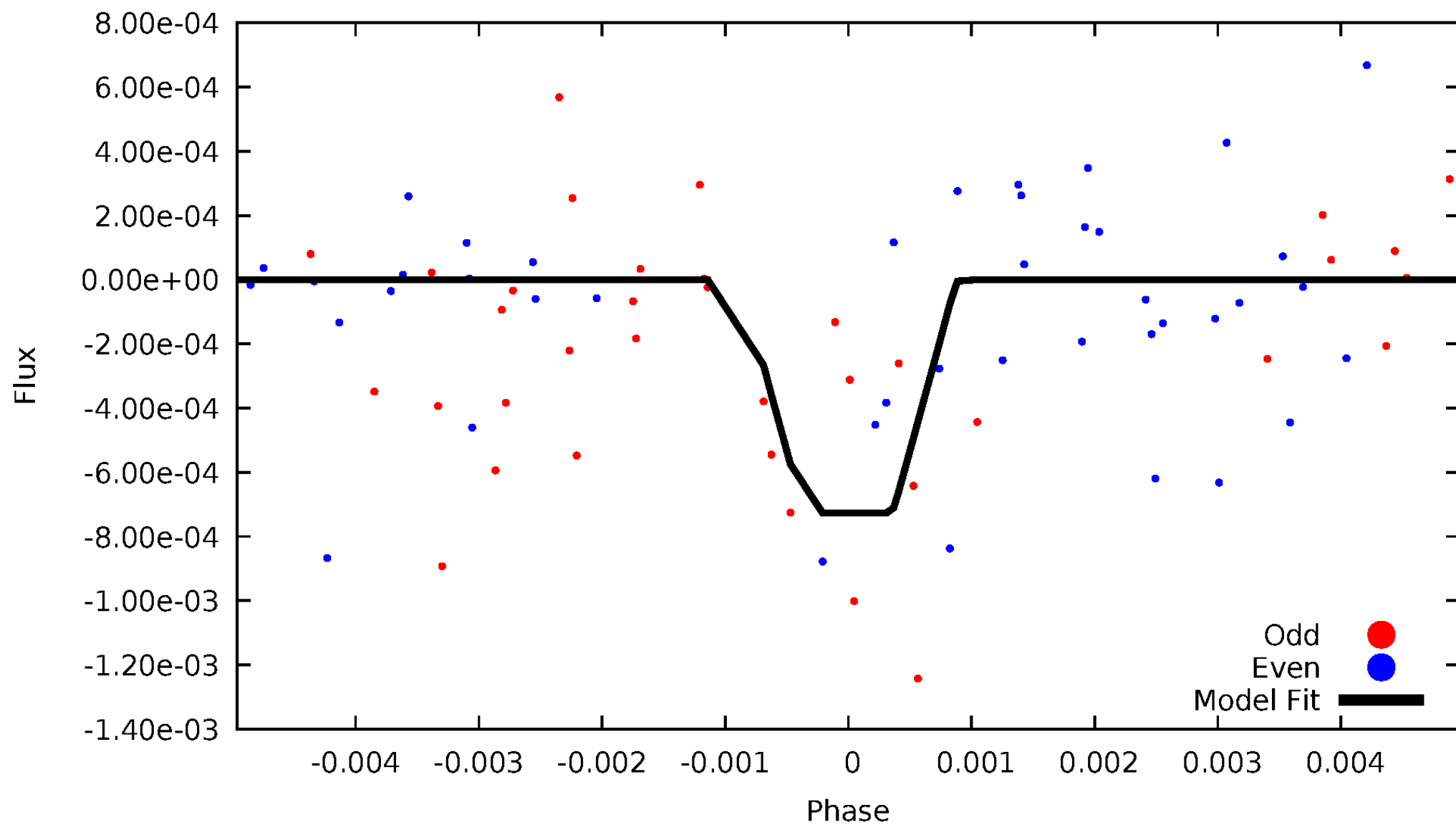
# DV Odd/Even

TCE 007199418-02



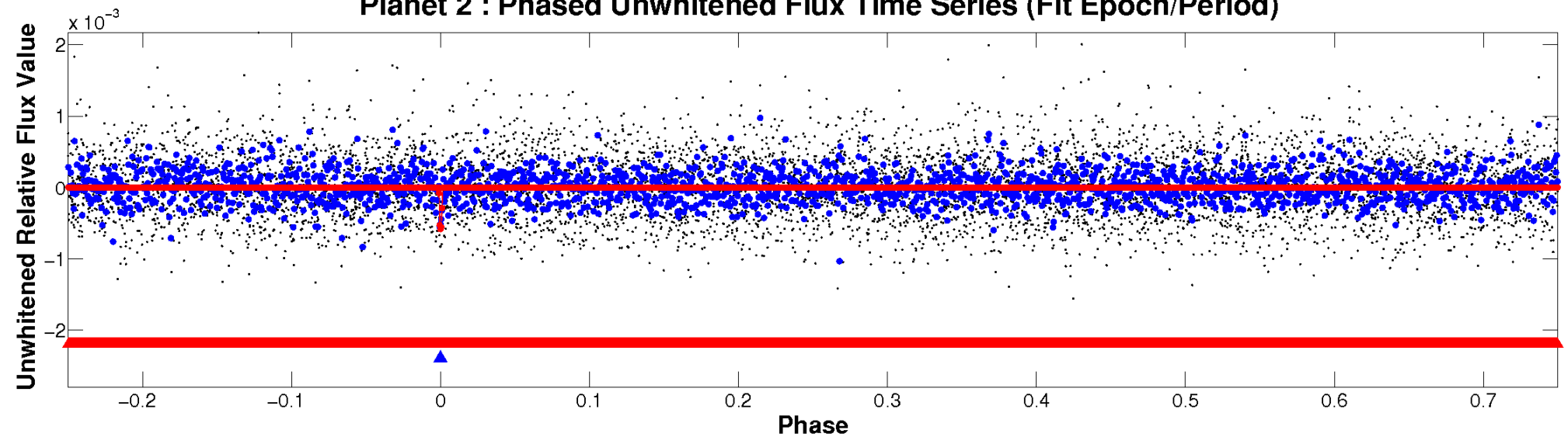
# ALT Odd/Even

TCE 007199418-02

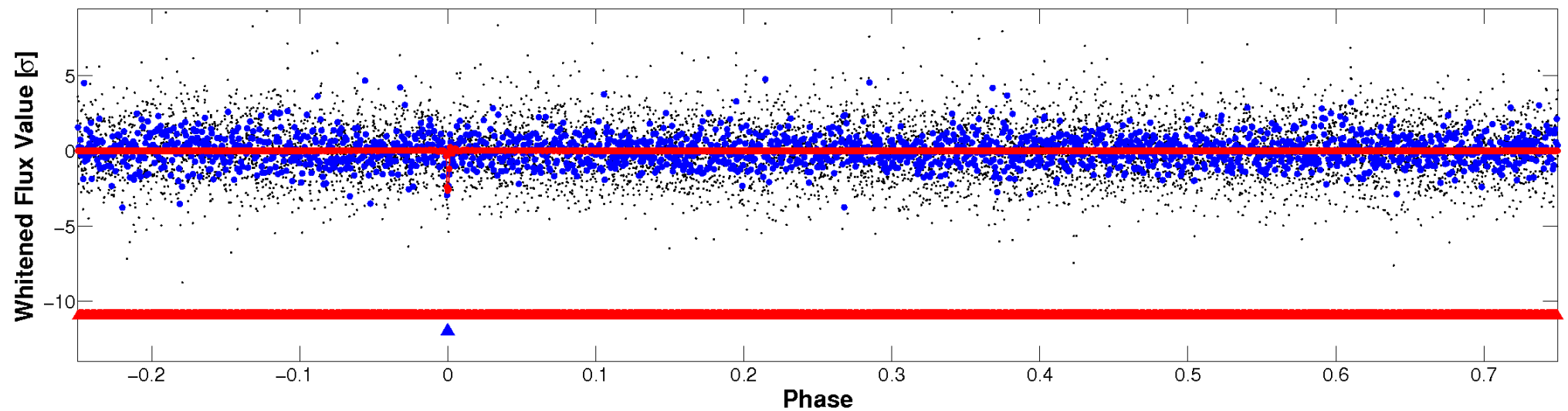


# Non-Whitened Vs. Whitened Light Curve

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

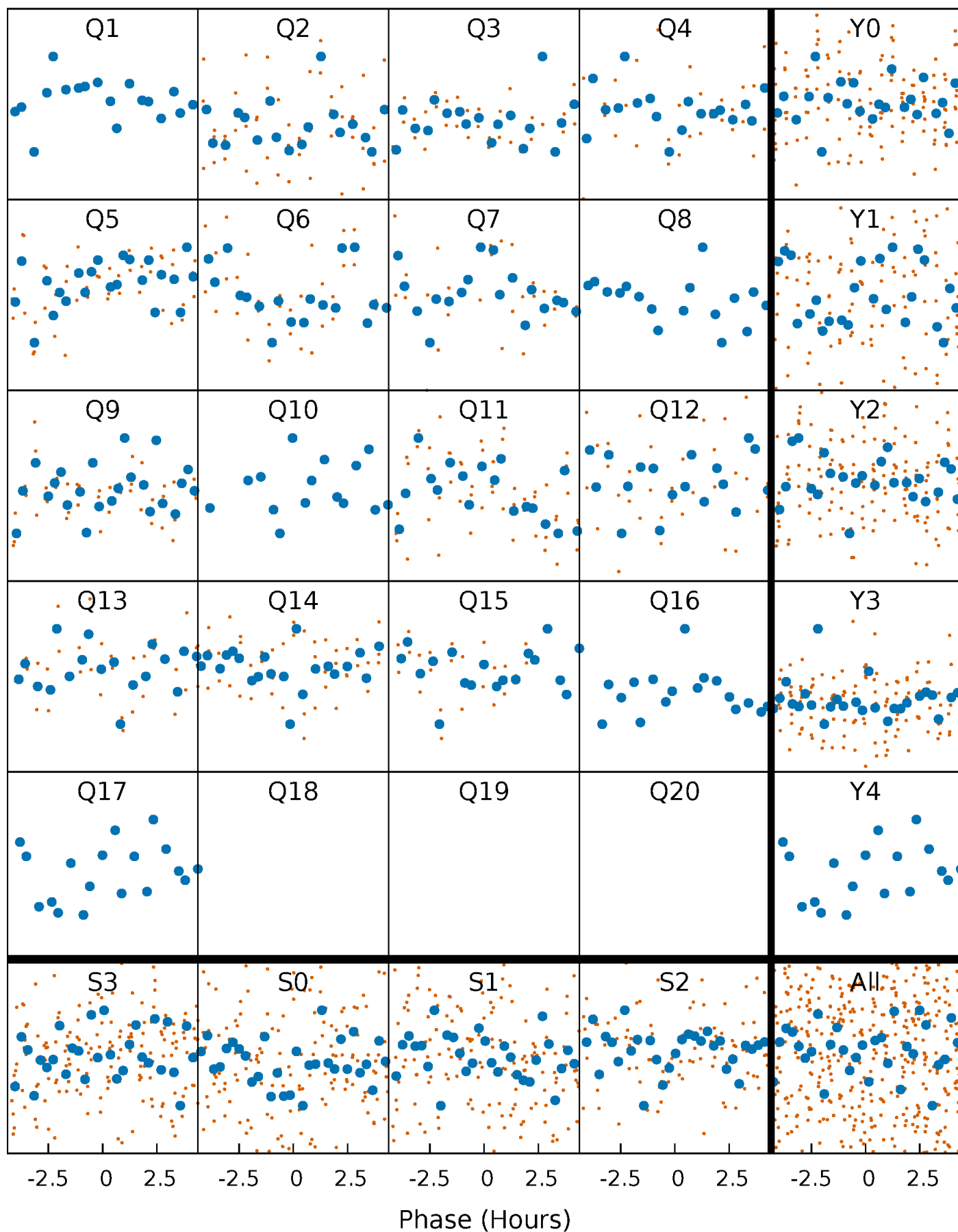


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



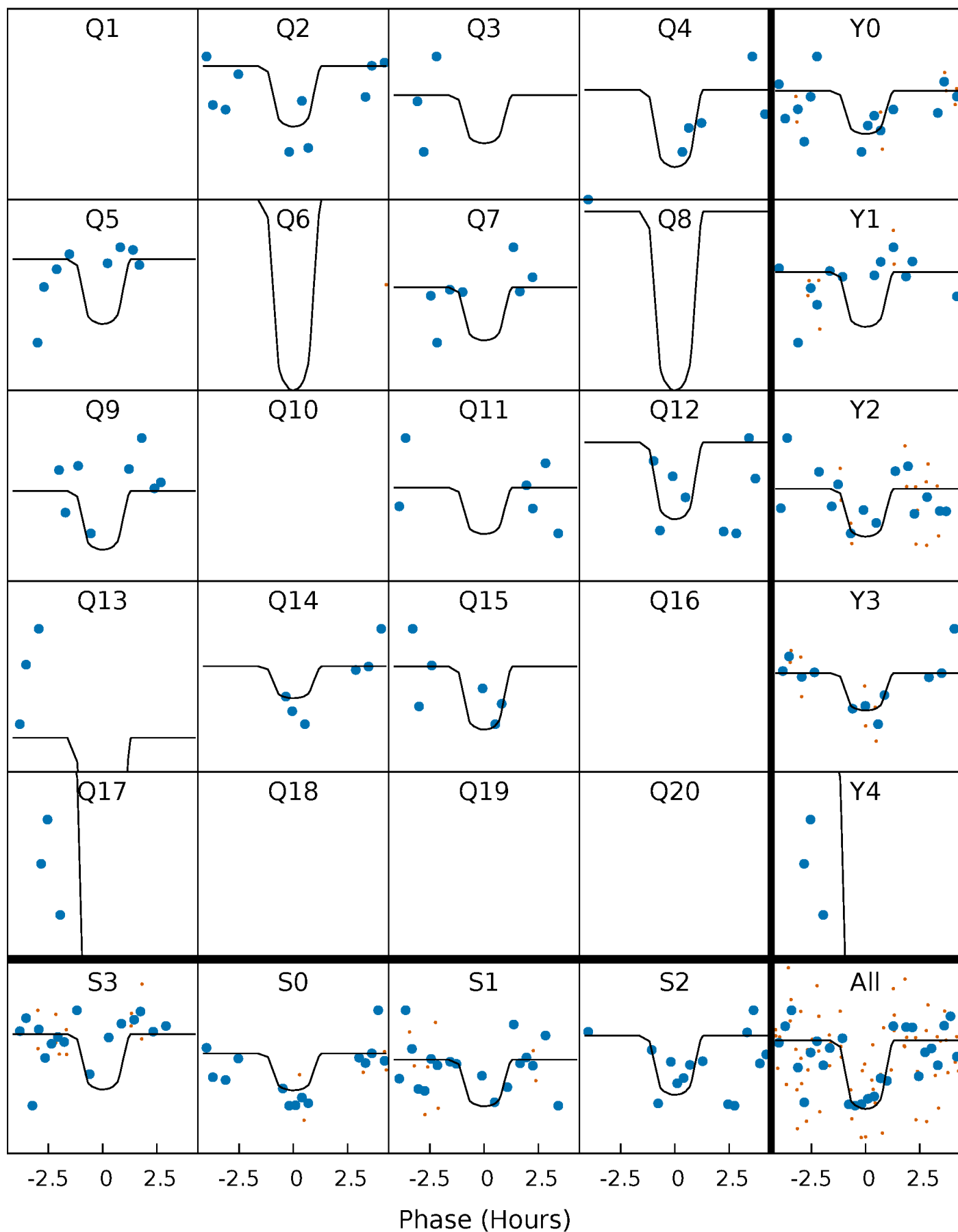
# PDC Quarter-Phased Transit Curves

TCE 007199418-02 P= 39.518247 Days  $T_0=139.615108$  (BKJD)



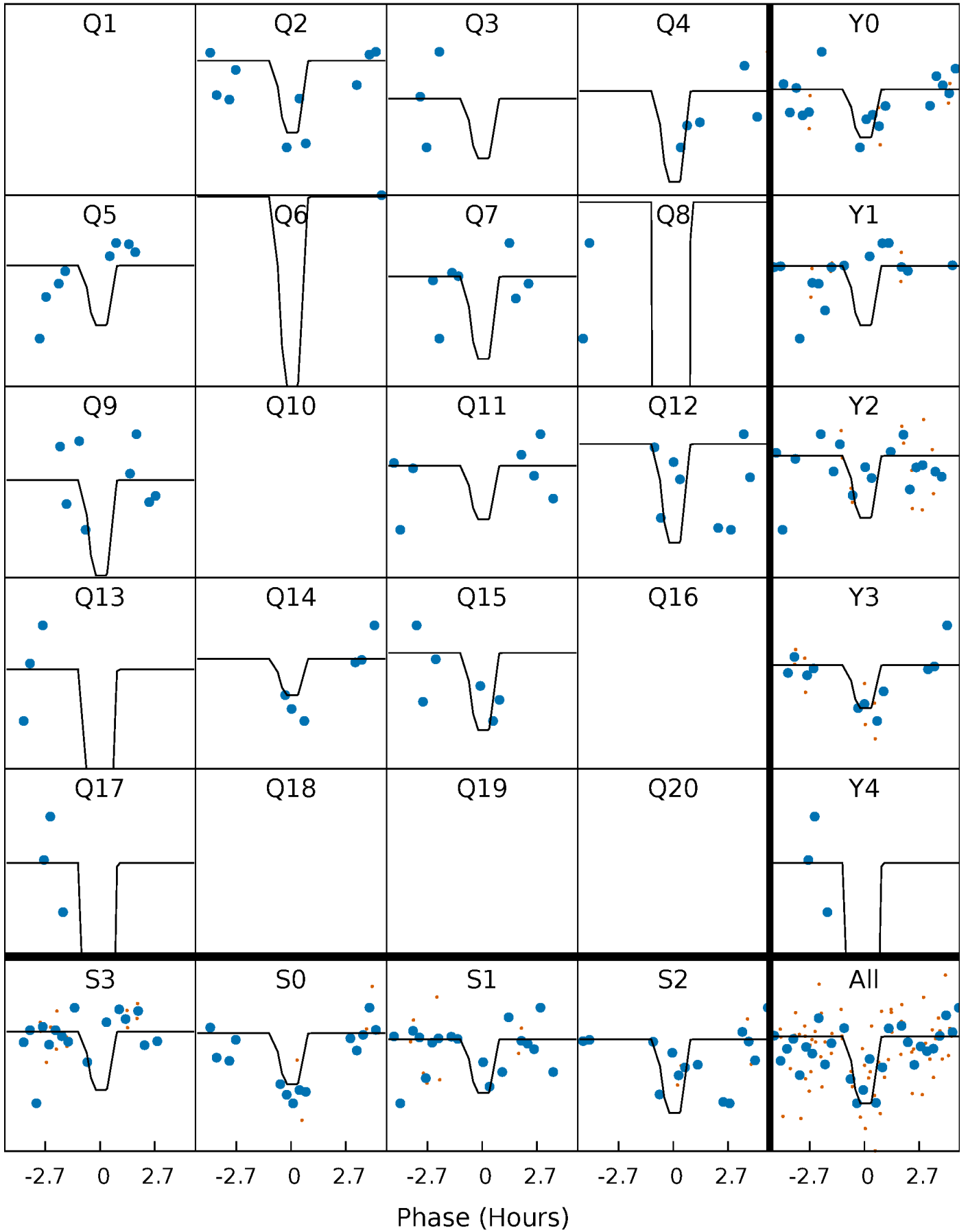
# DV Quarter-Phased Transit Curves

TCE 007199418-02 P= 39.518247 Days  $T_0=139.615108$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007199418-02   P= 39.518182 Days    $T_0=139.615147$  (BKJD)

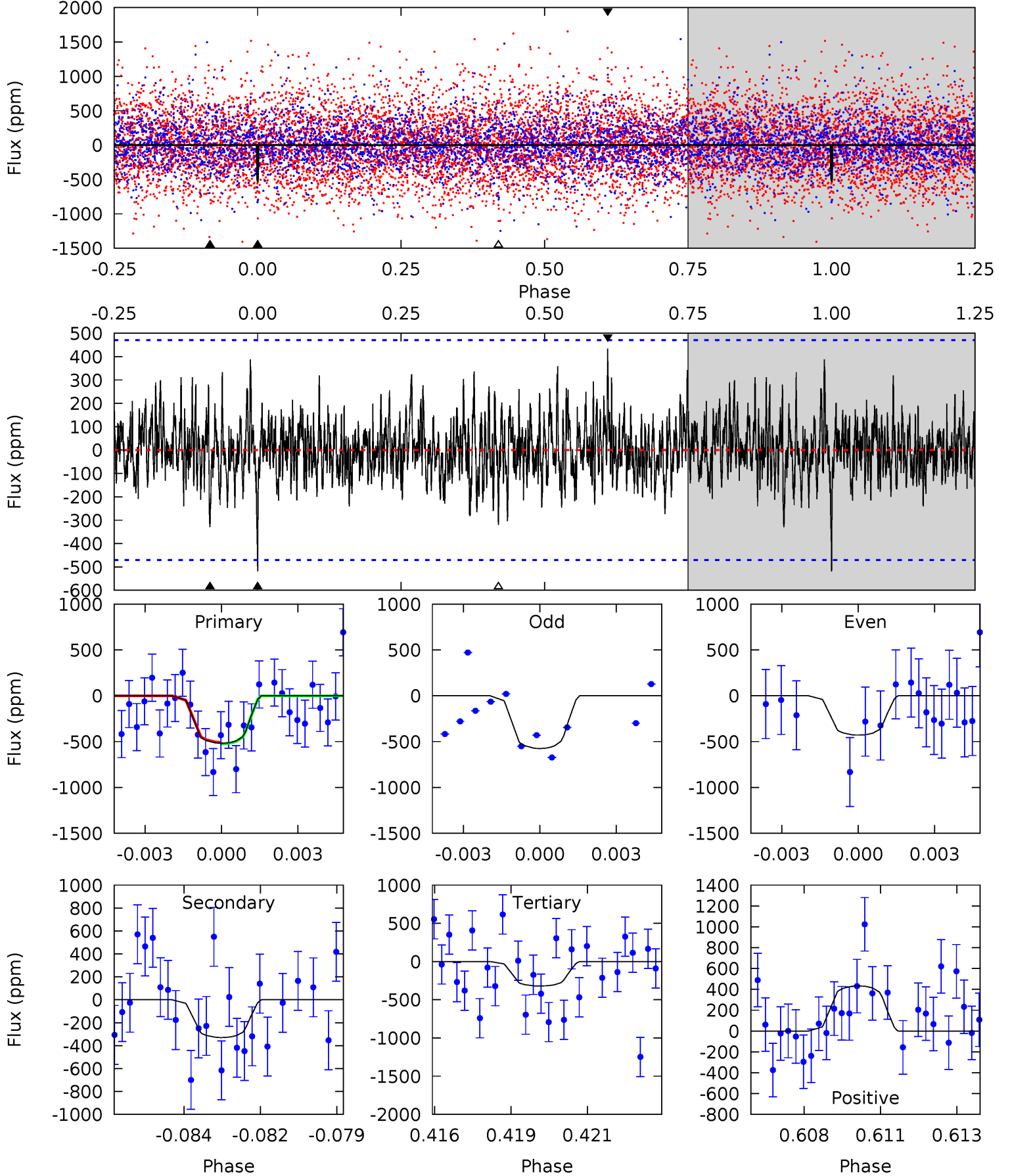




# DV Model-Shift Uniqueness Test

007199418-02, P = 39.518247 Days, E = 100.096861 Days

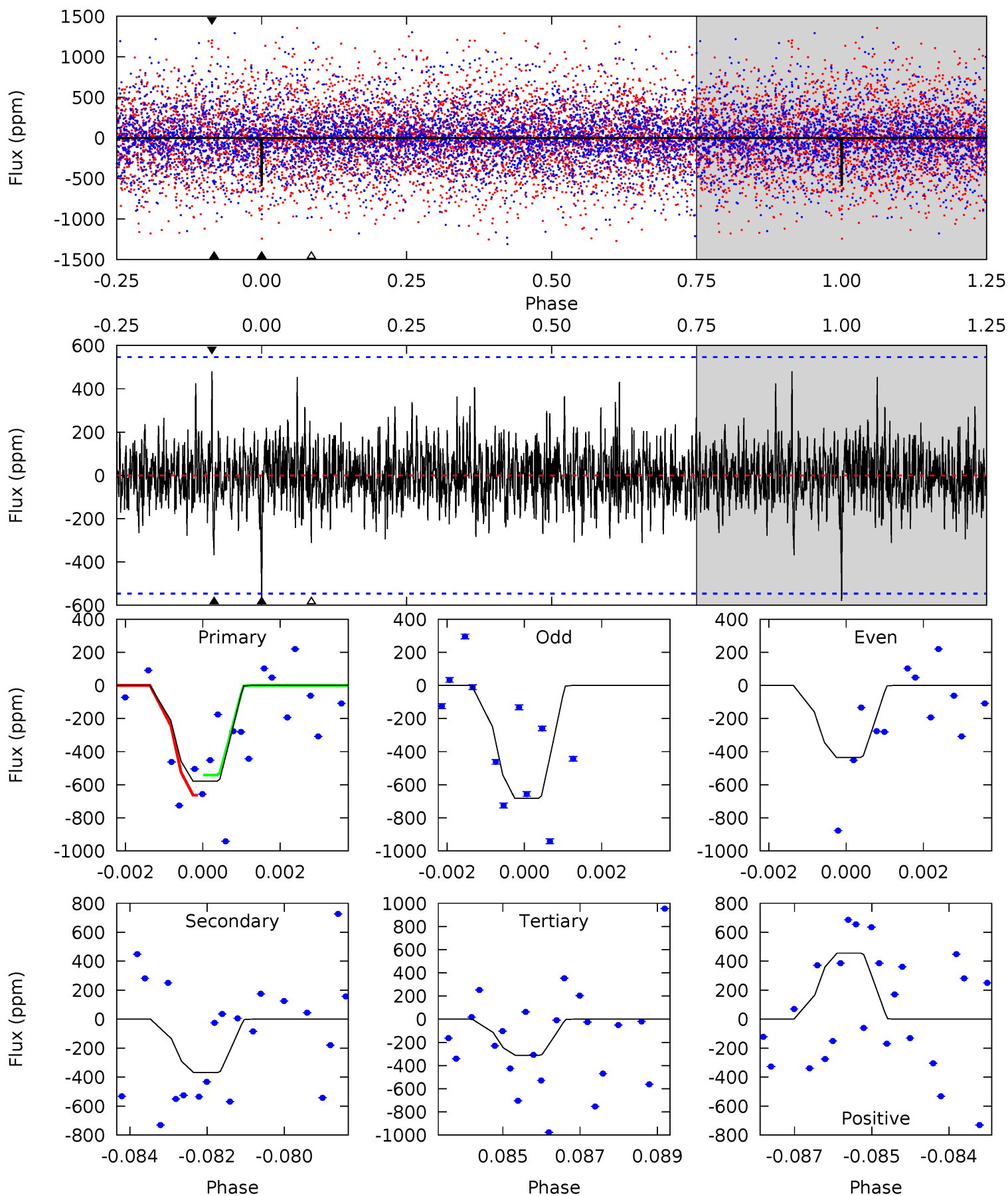
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.82	3.70	3.59	4.86	5.28	3.01	1.19	2.23	0.95	0.11	-1.16	0.82	1.04	0.46	0.09



# Alt Model-Shift Uniqueness Test

007199418-02, P = 39.518182 Days, E = 100.096965 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.68	3.61	3.06	4.47	5.36	3.14	1.06	2.62	1.20	0.55	-0.86	1.21	1.01	0.45	0.50



### Stellar Parameters For KIC 007199418

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6152^{+193}_{-236}$	$4.464^{+0.054}_{-0.216}$	$-0.100^{+0.250}_{-0.350}$	$1.009^{+0.341}_{-0.114}$	$1.079^{+0.153}_{-0.153}$	$1.480^{+0.437}_{-0.799}$
	+3%/-4%	+1%/-5%	+250%/-350%	+34%/-11%	+14%/-14%	+30%/-54%
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 007199418-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-330 \pm 89$	$3.35^{+2.57}_{-2.04}$	$806^{+64}_{-44}$	$4954^{+2968}_{-1053}$	$860^{+4629}_{-611}$
Alt.	$-368 \pm 102$	$3.47^{+2.56}_{-2.14}$	$809^{+61}_{-46}$	$5009^{+3075}_{-988}$	$869^{+5143}_{-588}$

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

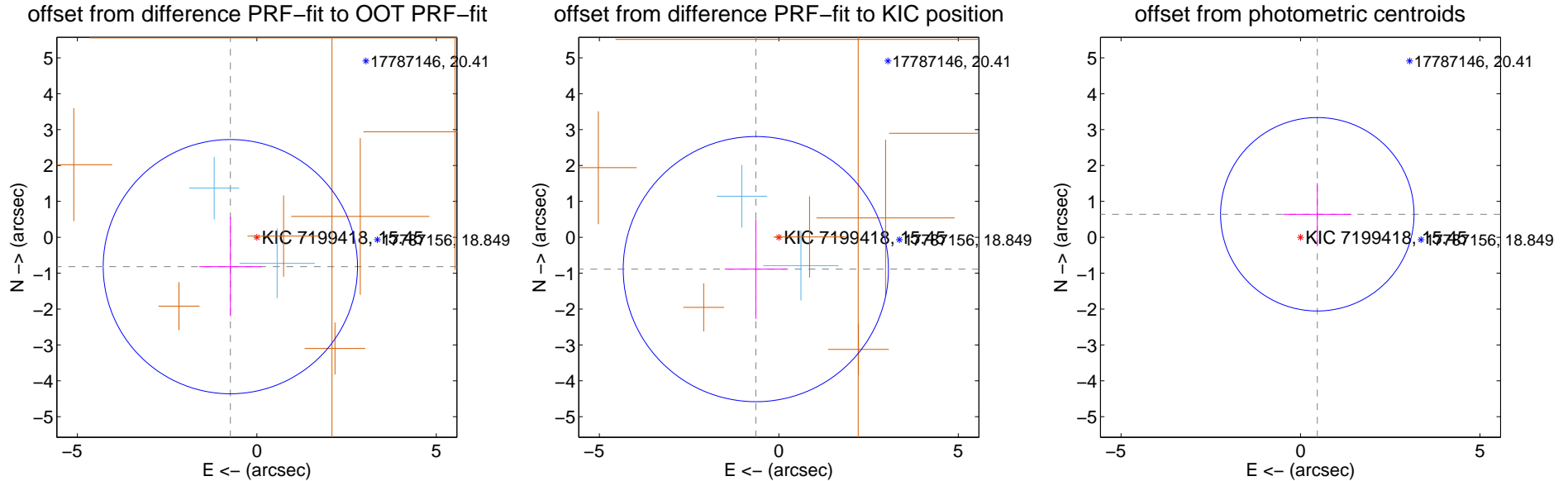
## DV Centroid Data

Supplemental centroid analysis for 007199418-02. Kepler magnitude: 15.45. Transit SNR 9.63

There are 2 quarters with good PRF difference image offsets

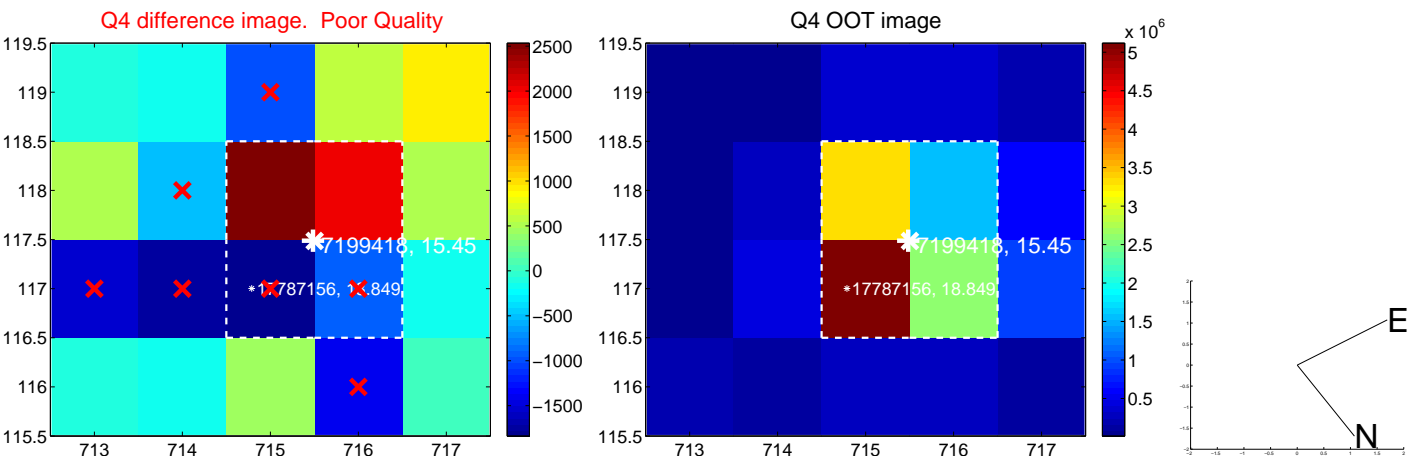
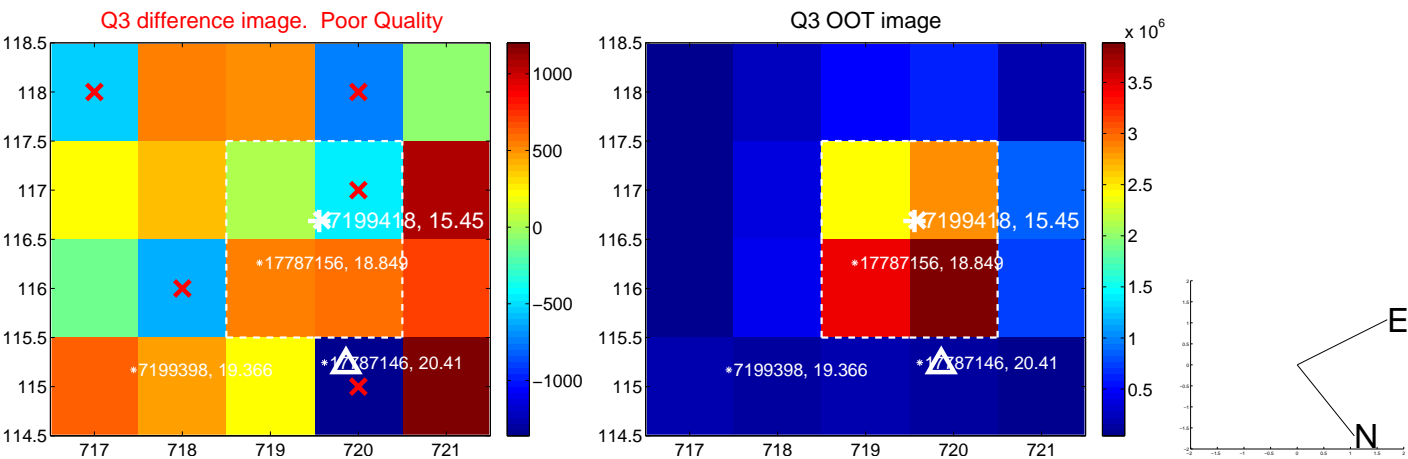
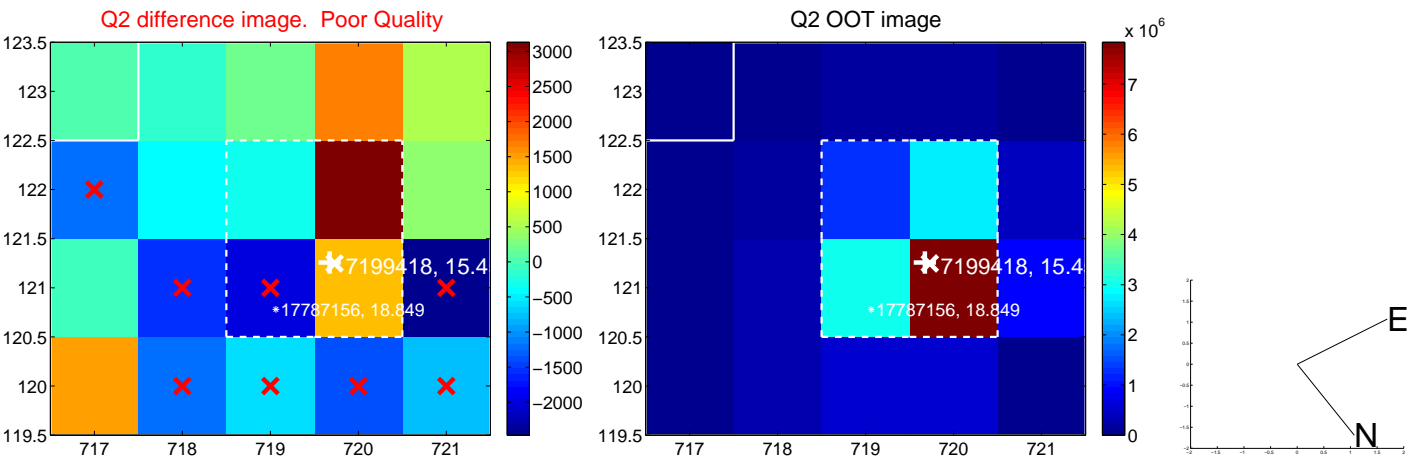
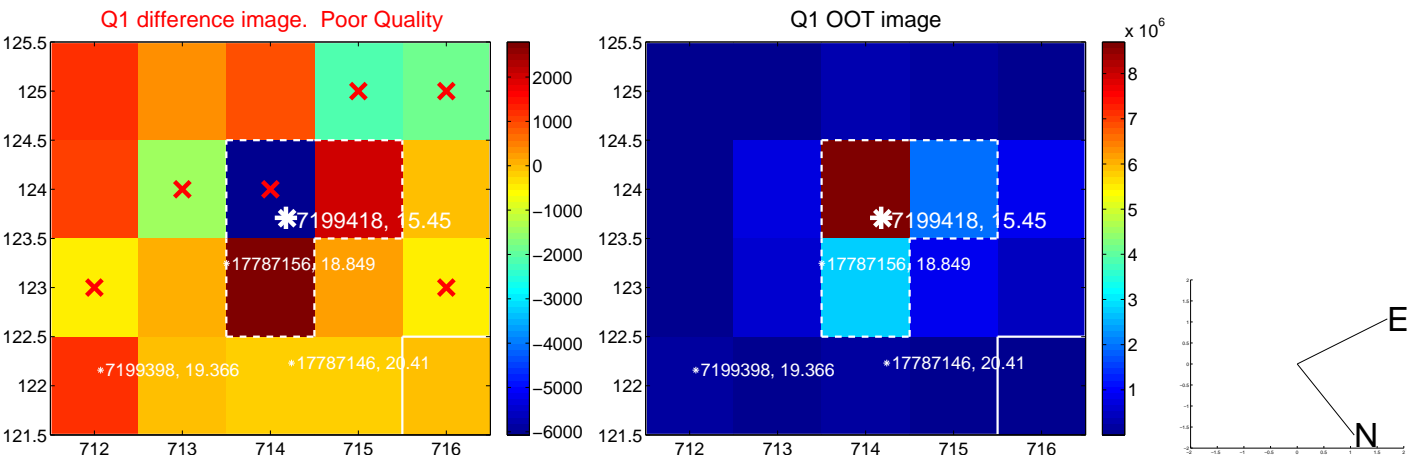
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.102 \pm 1.181$	0.93	$0.738 \pm 0.868$	$-0.819 \pm 1.384$
PRF-fit source offset from KIC position	$1.094 \pm 1.232$	0.89	$0.641 \pm 0.868$	$-0.887 \pm 1.384$
photometric centroid source offset	$0.79 \pm 0.90$	0.88	$-0.47 \pm 0.95$	$0.64 \pm 0.87$

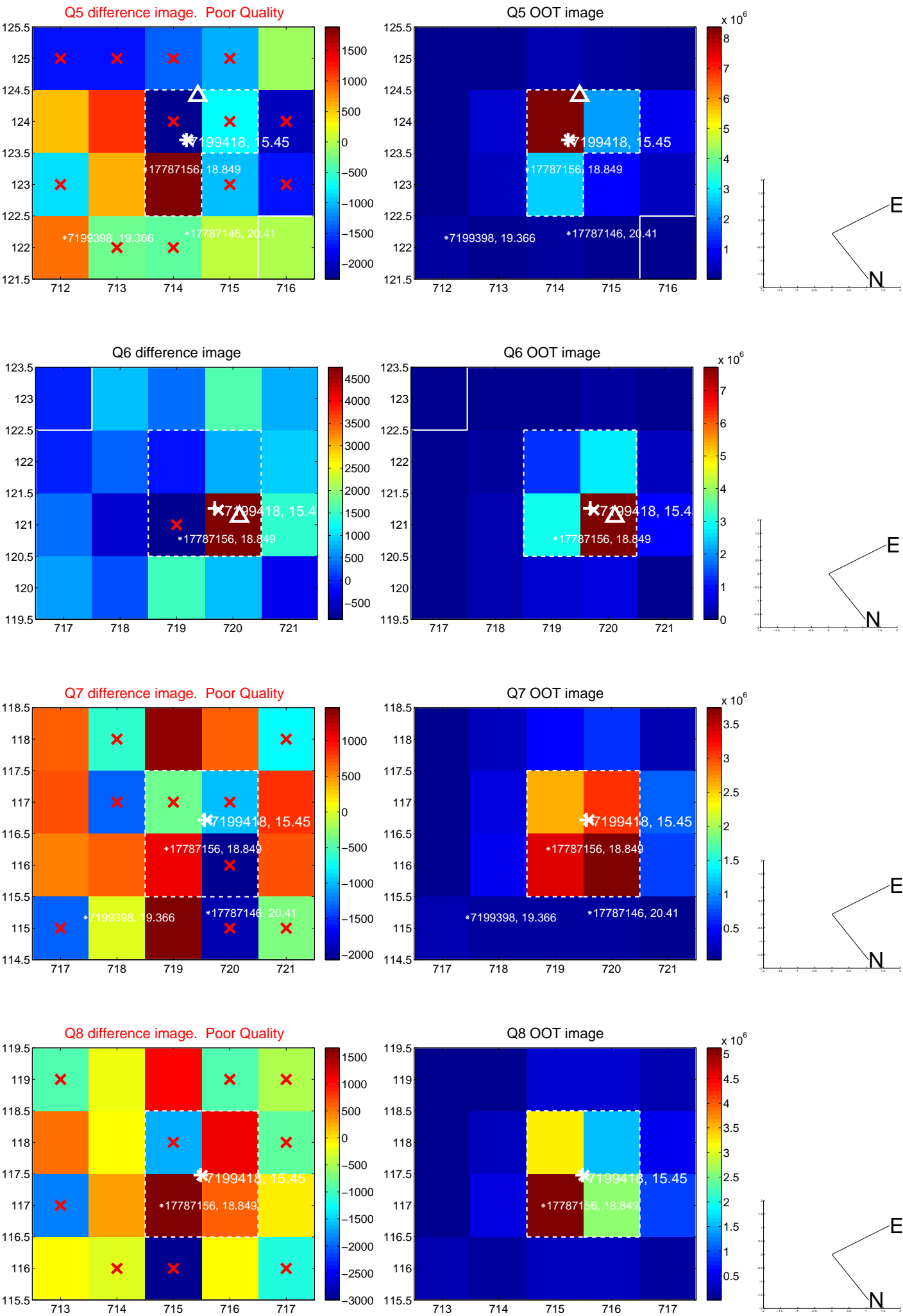


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

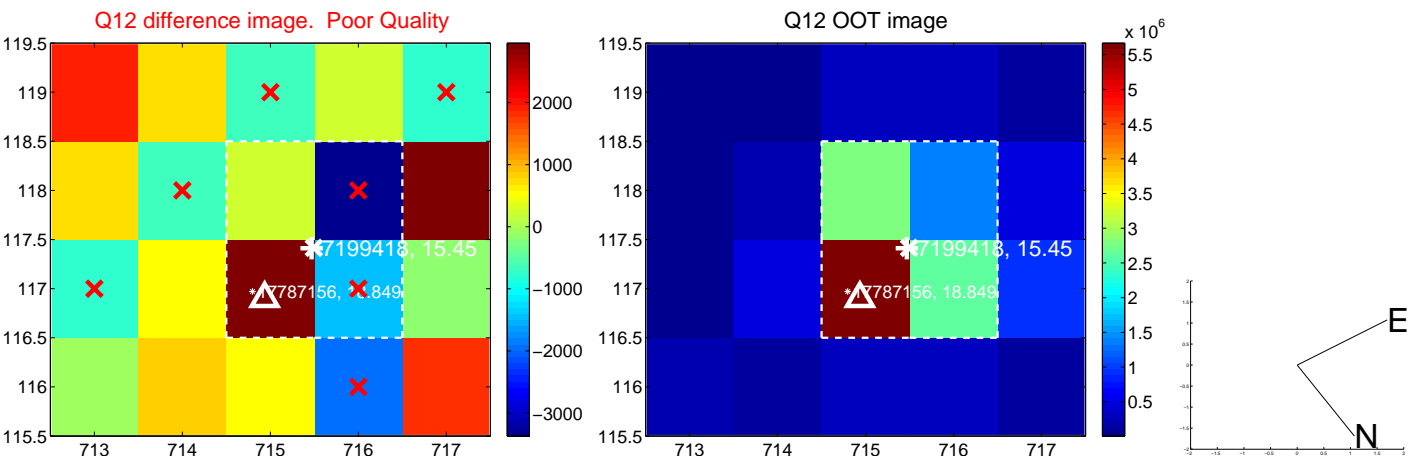
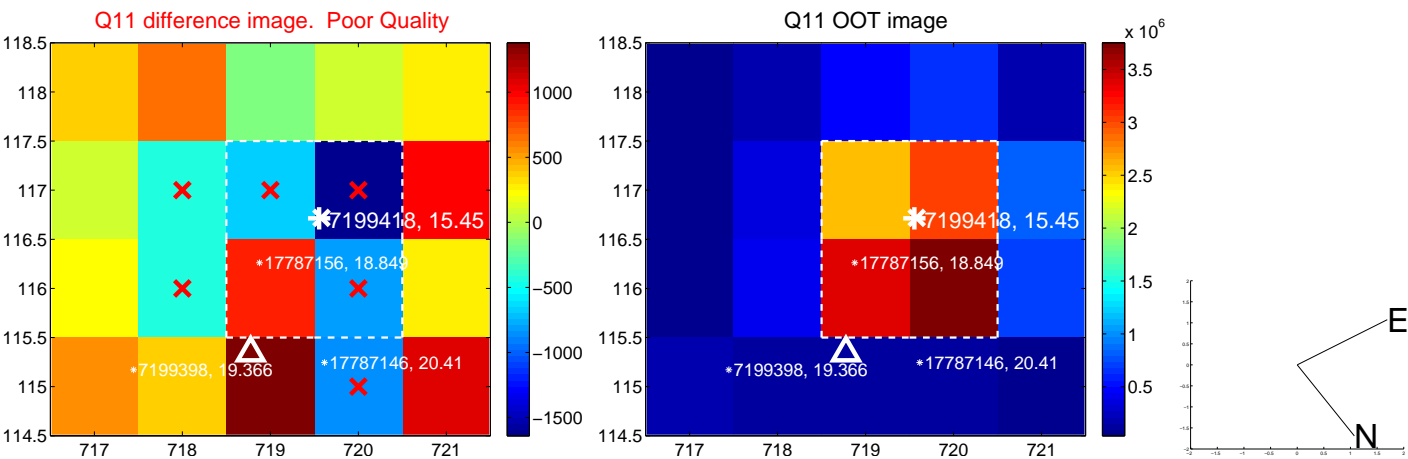
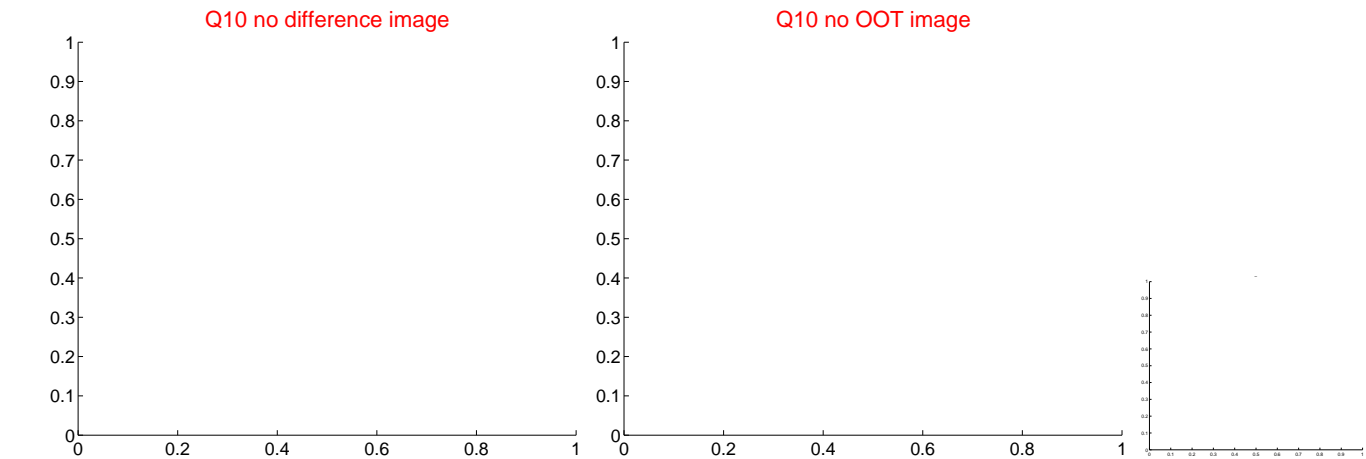
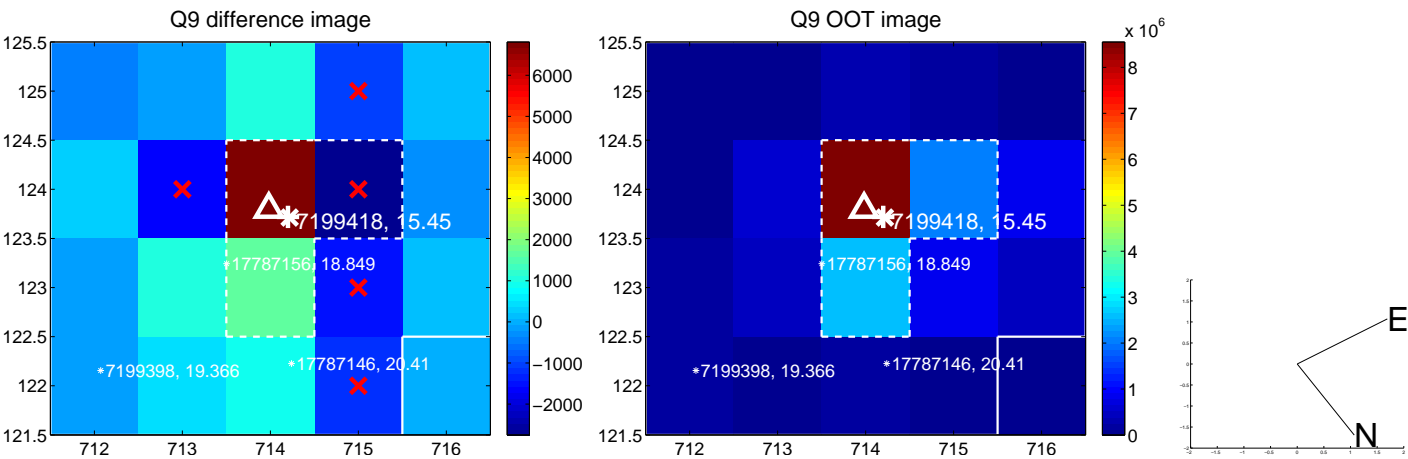


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

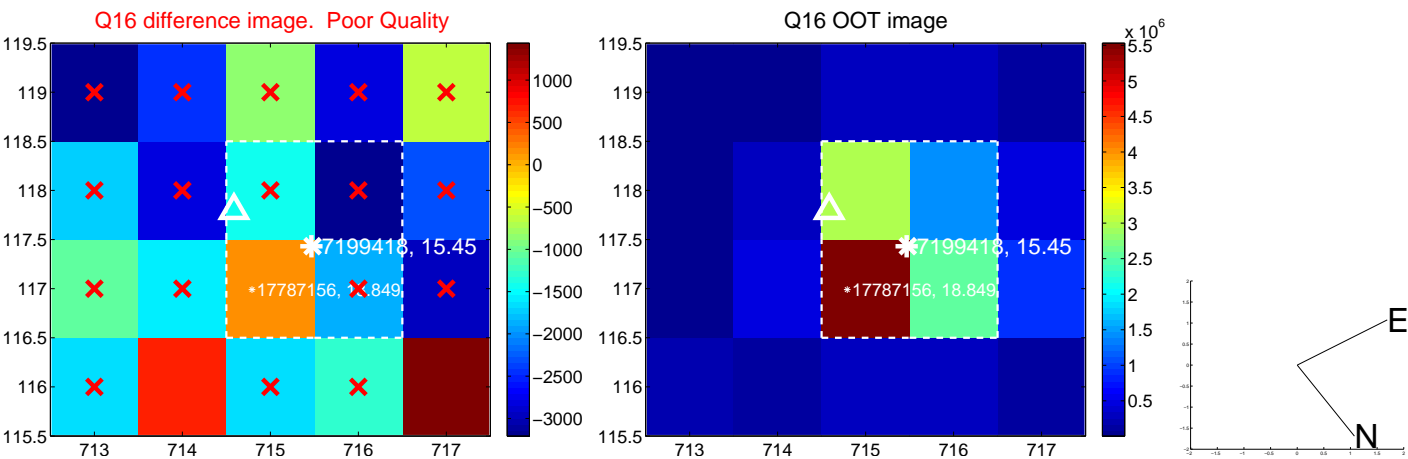
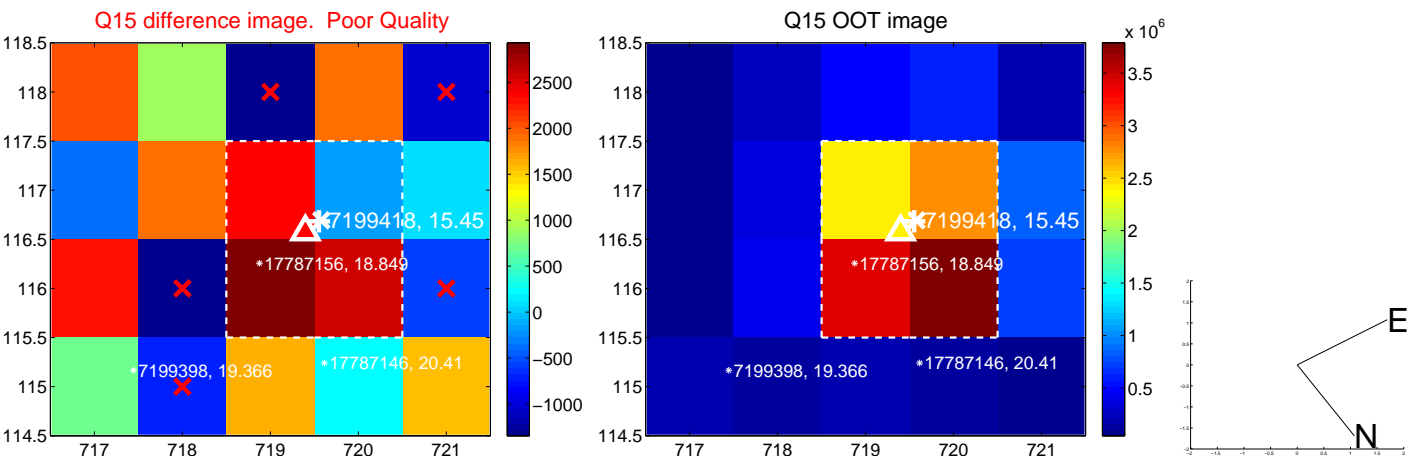
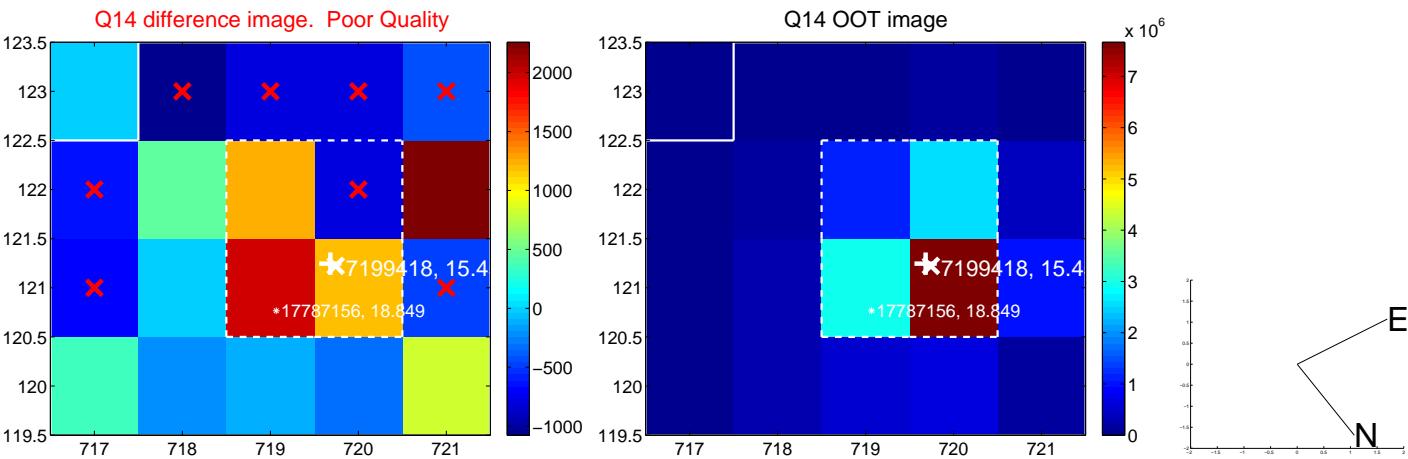
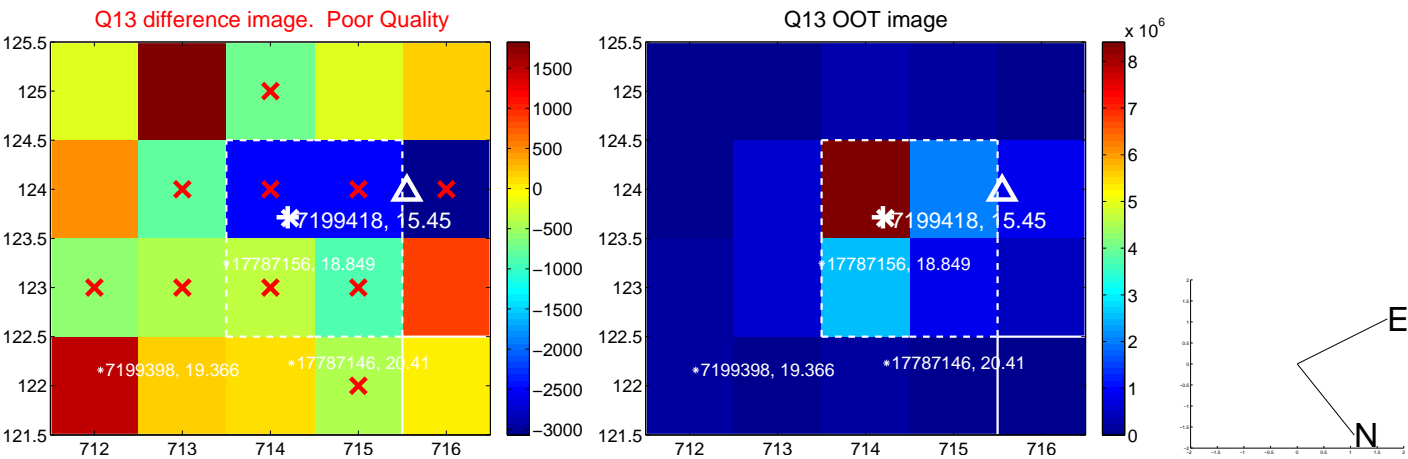




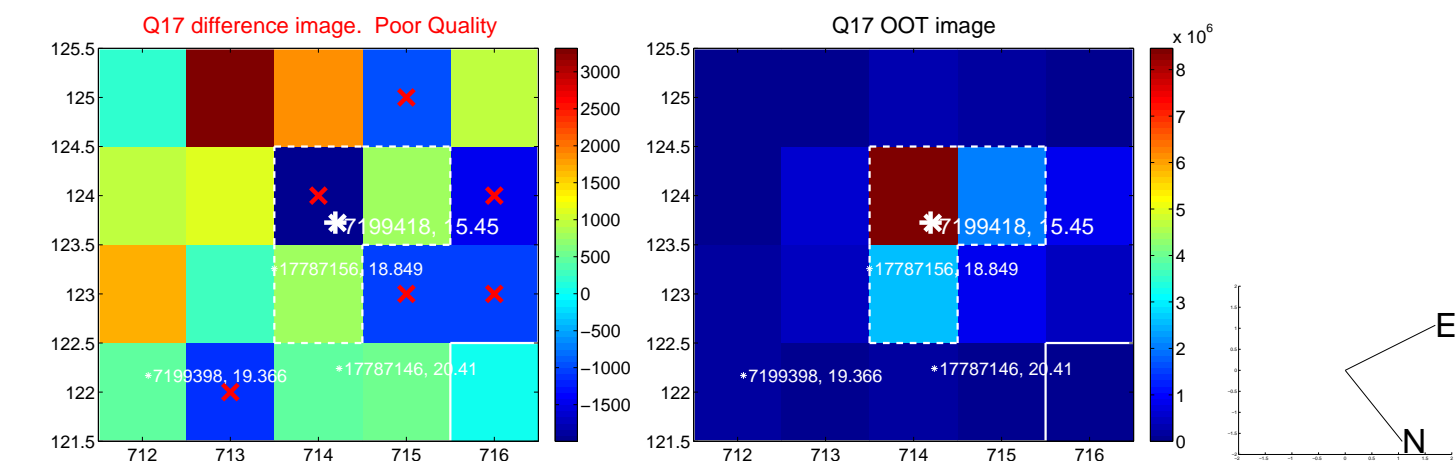
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



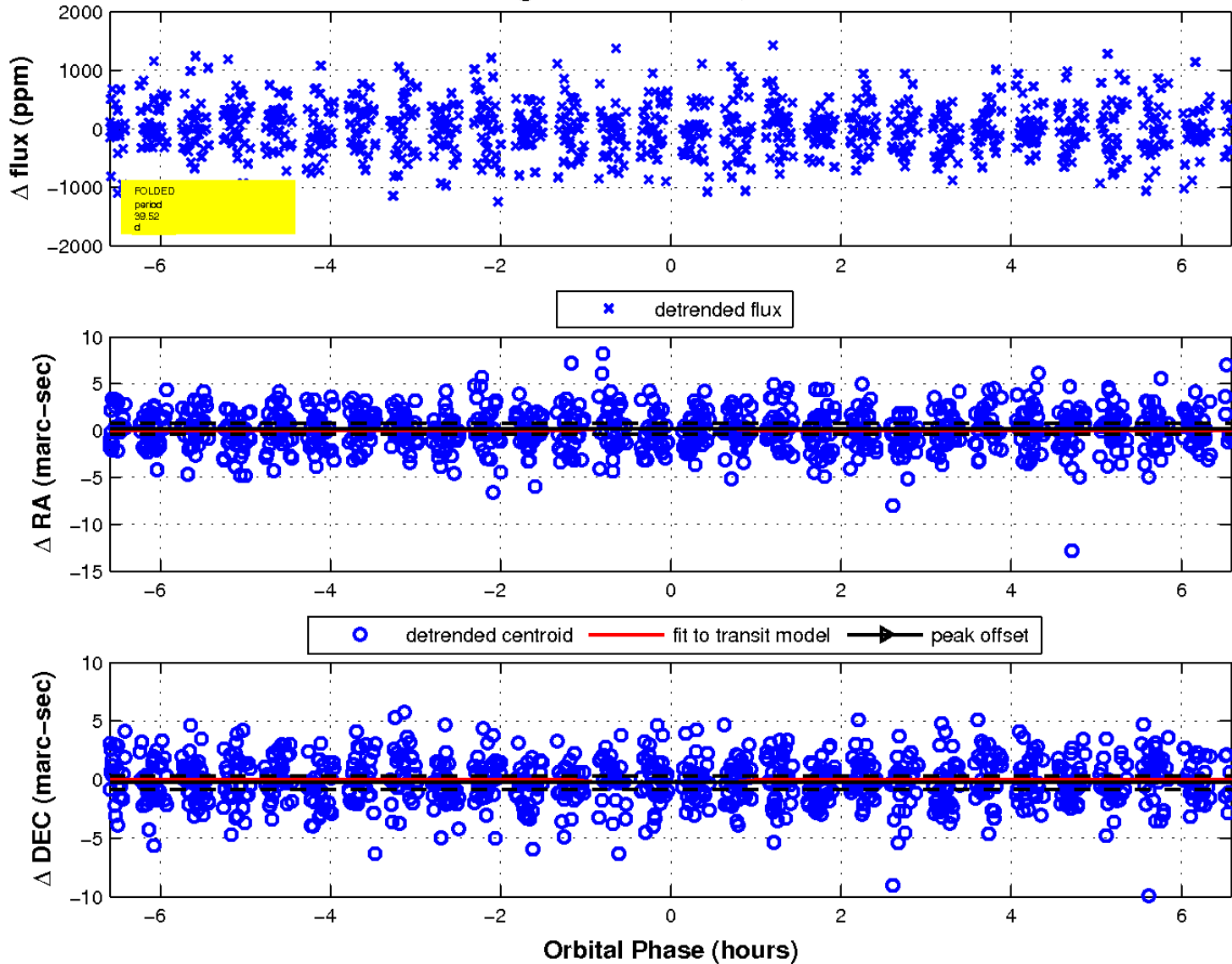
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



# UKIRT Image

Declination

