

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007199272-01	OBS	No	0.566799	131.687562	66.4	3.288	14.4	12.5	19.33	5068	18.86	0.00
007199272-02	OBS	No	109.311739	200.412977	1471.0	2.526	10.9	9.1	19.33	5068	83.02	503.65
007199272-03	OBS	No	142.714559	262.894690	1516.7	5.208	11.5	8.3	19.33	5068	131.51	352.96
007199272-04	OBS	No	357.880851	138.273497	1764.6	10.921	8.3	7.8	19.33	5068	85.84	103.60
007199272-05	OBS	No	141.341629	222.715211	1773.8	8.761	8.3	8.9	19.33	5068	99.97	357.54
007199272-06	OBS	No	117.822367	150.641905	1383.5	3.661	8.4	9.2	19.33	5068	114.38	455.74
007199272-07	OBS	No	184.965238	282.716782	1088.7	6.545	8.5	6.1	19.33	5068	77.61	249.78
007199272-08	OBS	No	73.248202	201.211539	1083.9	4.053	8.3	9.3	19.33	5068	123.64	858.92
007199272-09	OBS	No	140.819093	158.394533	396.7	3.000	8.0	-1.0	19.33	5068	37.74	359.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007199272-01	OBS	FP	0.00	1	0	1	1	LPP_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
007199272-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
007199272-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV
007199272-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
007199272-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007199272-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007199272-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—INCONSISTENT_TRANS—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.

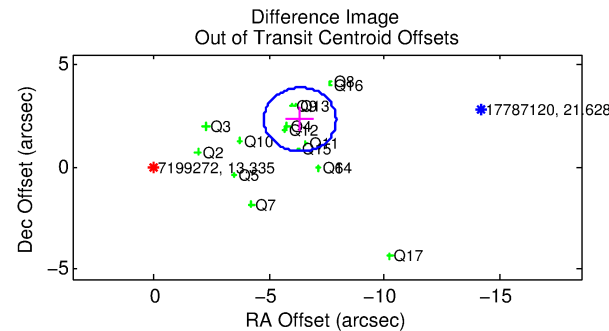
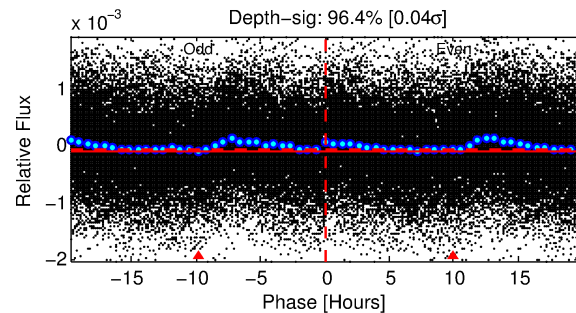
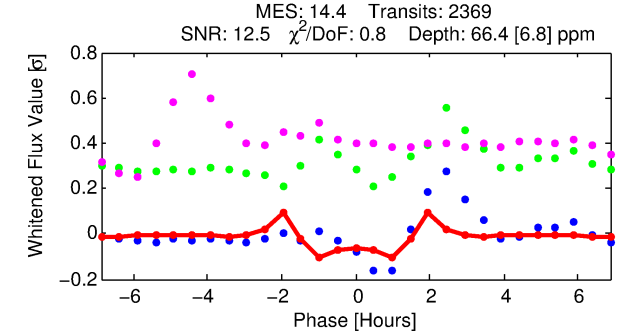
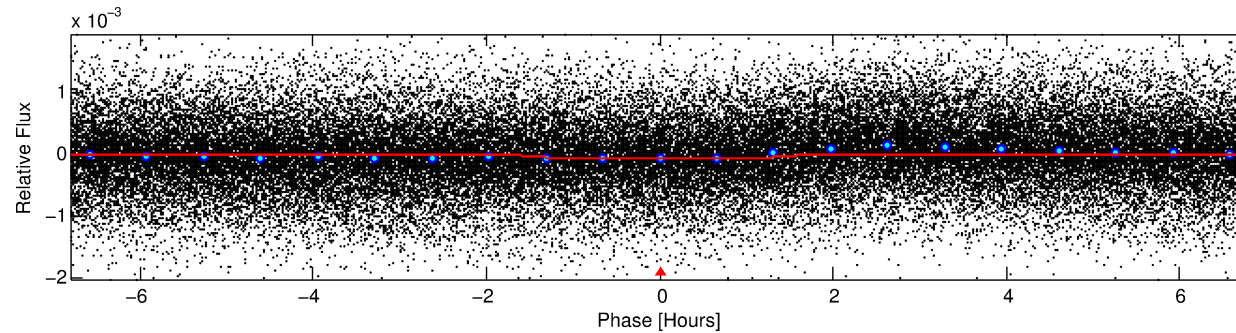
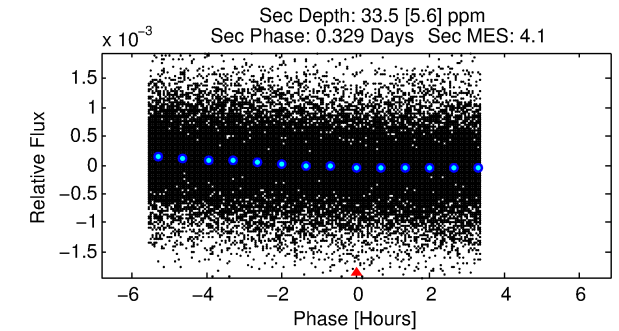
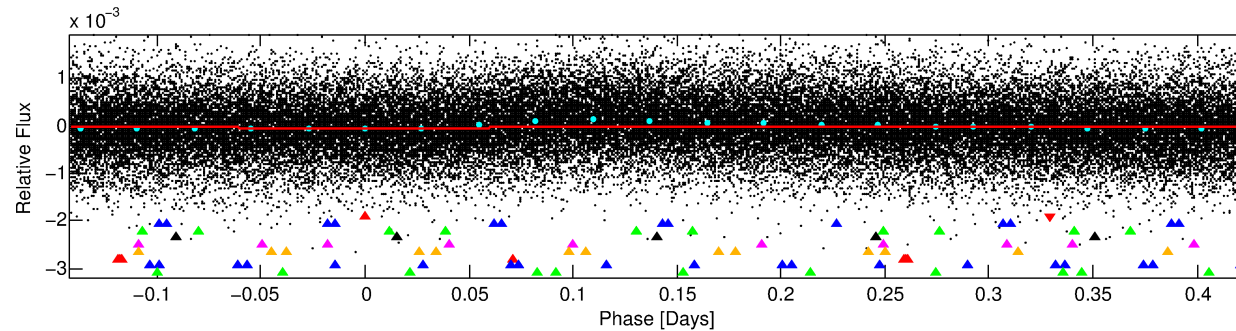
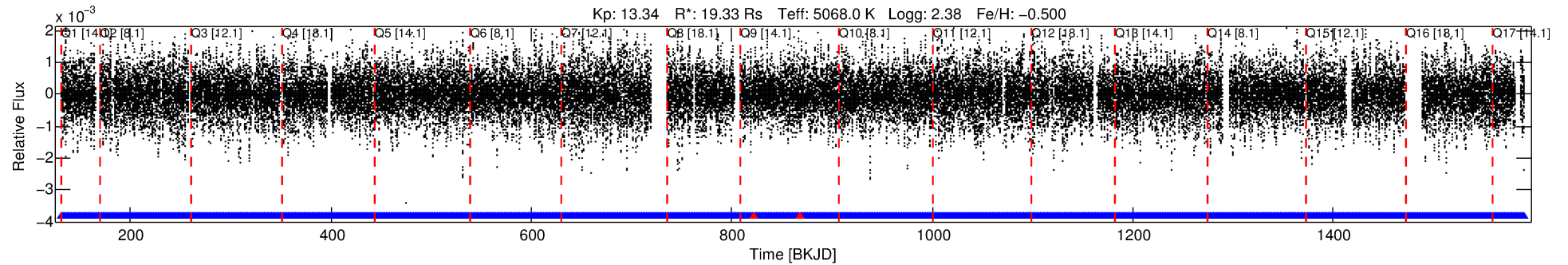
## Ephemeris Match Information For 007199272-01

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	$\sigma_P$	$\sigma_T$
007199272-01	7199272	RR-Lyr-pri	7198959	1:1	264.1	53	39	7.86	13.33	9443.90	Direct-PRF	0	0.26	19.33

**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: 7199272 Candidate: 1 of 9 Period: 0.567 d



## DV Fit Results:

Period = 0.56680 [0.00001] d  
Epoch = 131.6876 [0.0011] BKJD  
Rp/R\* = 0.0089 [0.0018]  
a/R\* = 1.12 [0.19]  
b = 0.90 [0.19]  
Seff = N/A  
Teq = N/A  
Rp = 18.86 [8.36] Re  
a = N/A  
Ag = N/A  
Teff = N/A

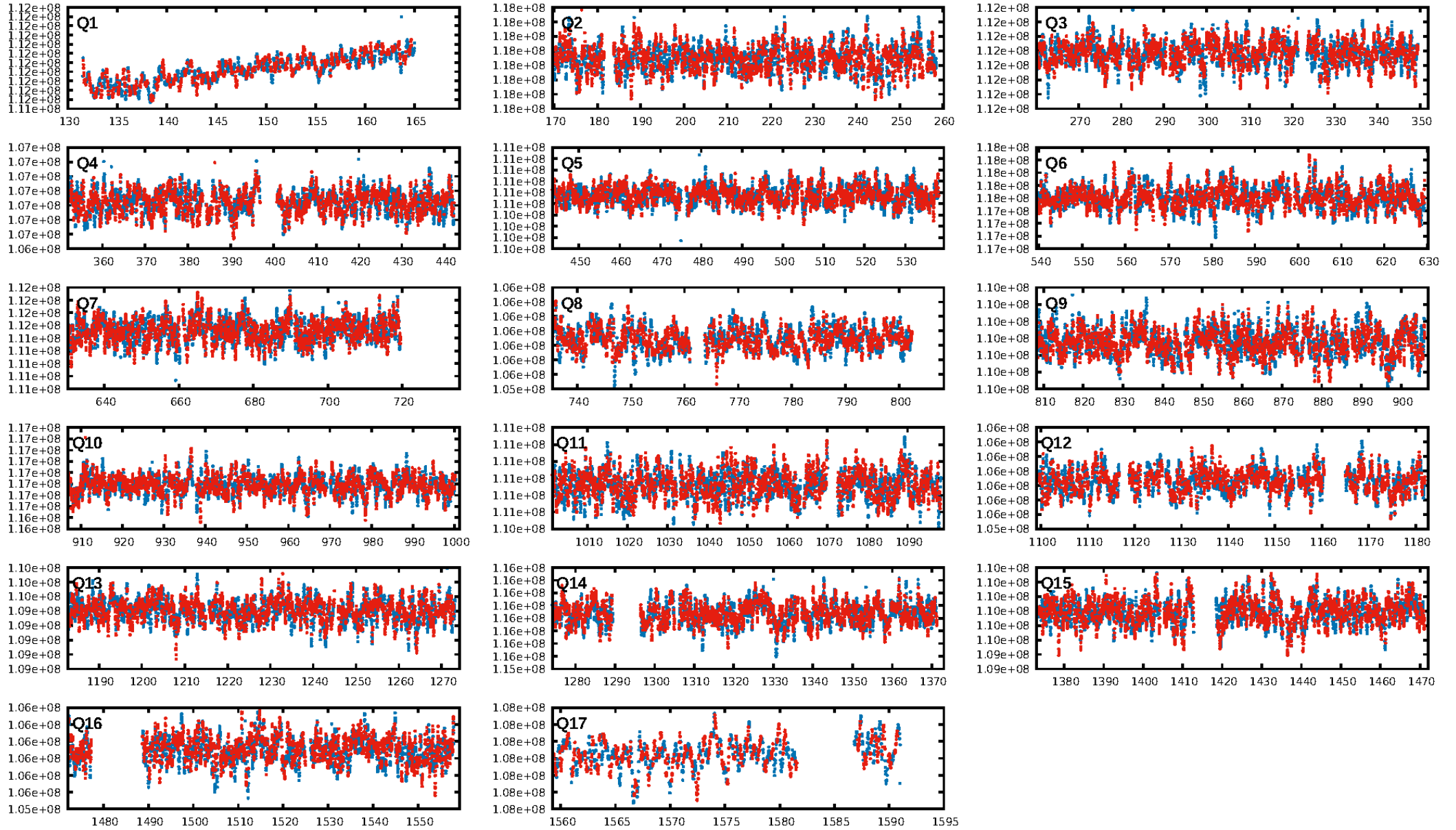
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [334.24 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2261/2263]  
GhostDiagnostic-chr: -0.3416  
Centroid-sig: 0.0%  
Centroid-so: 1.152 arcsec [4.78 $\sigma$ ]  
OotOffset-rm: 6.749 arcsec [12.95 $\sigma$ ]  
KicOffset-rm: 6.805 arcsec [12.69 $\sigma$ ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.25 [4/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:41:10 Z

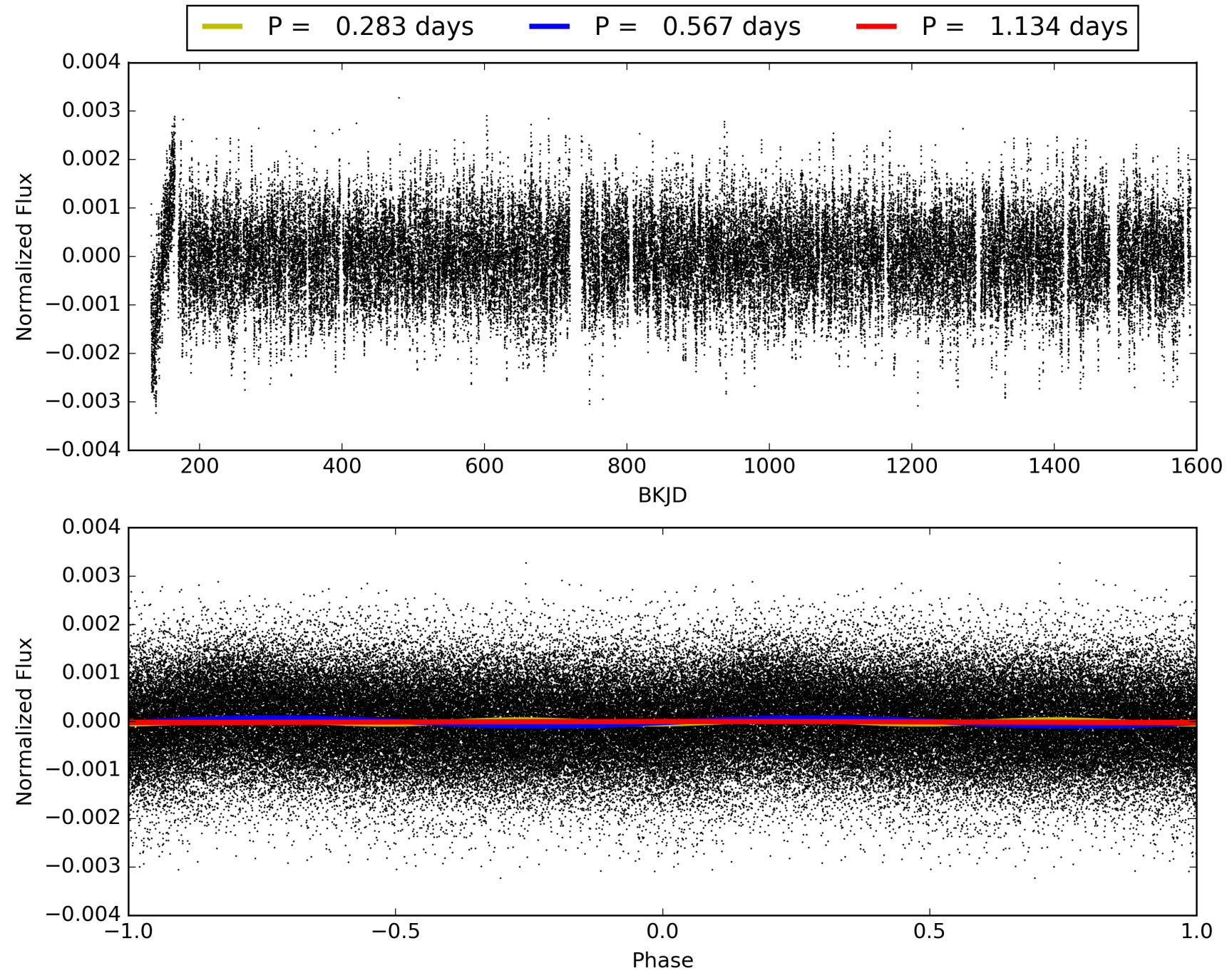
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007199272-01, PDC Light Curves





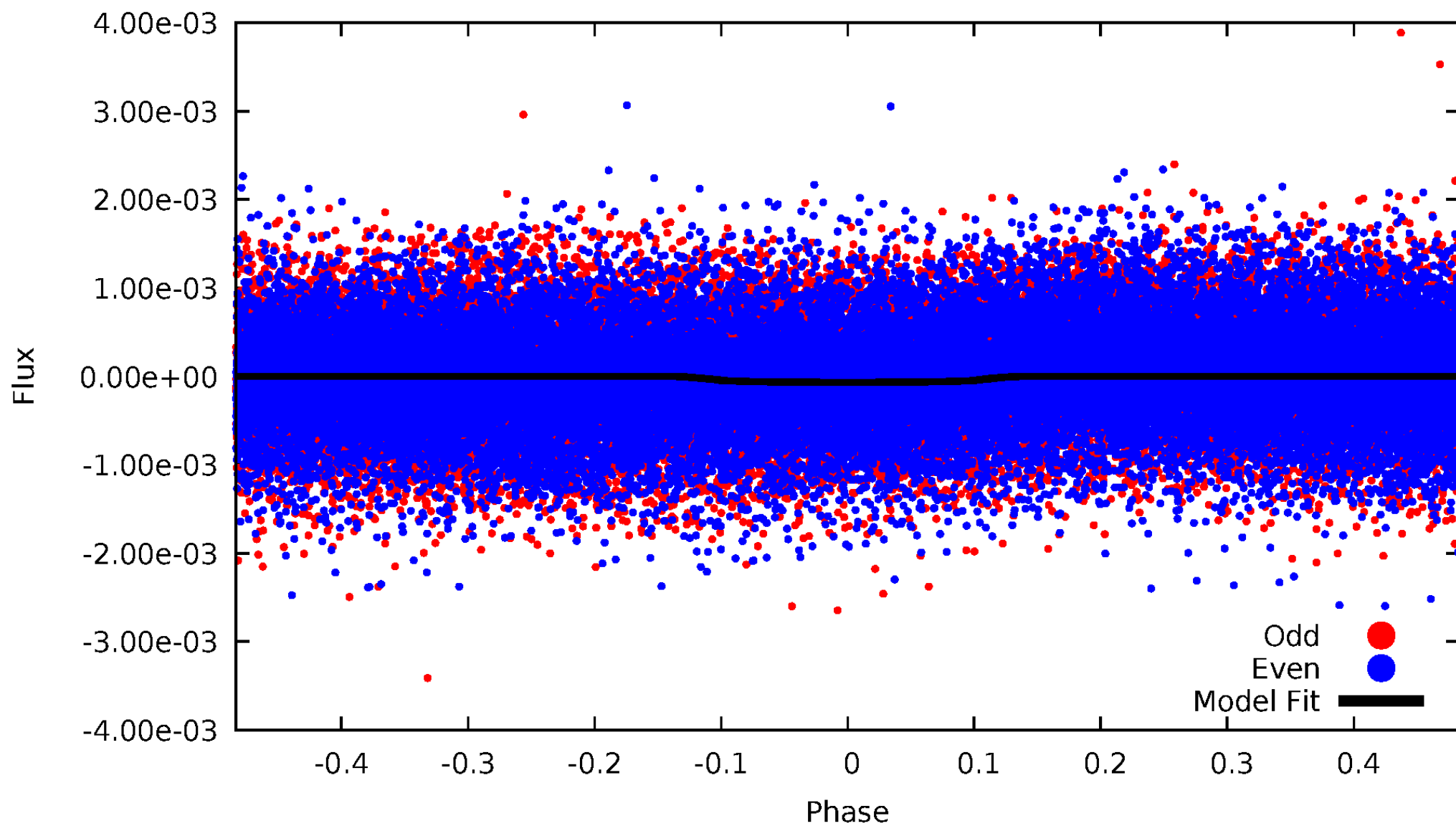
# TCE 007199272-01





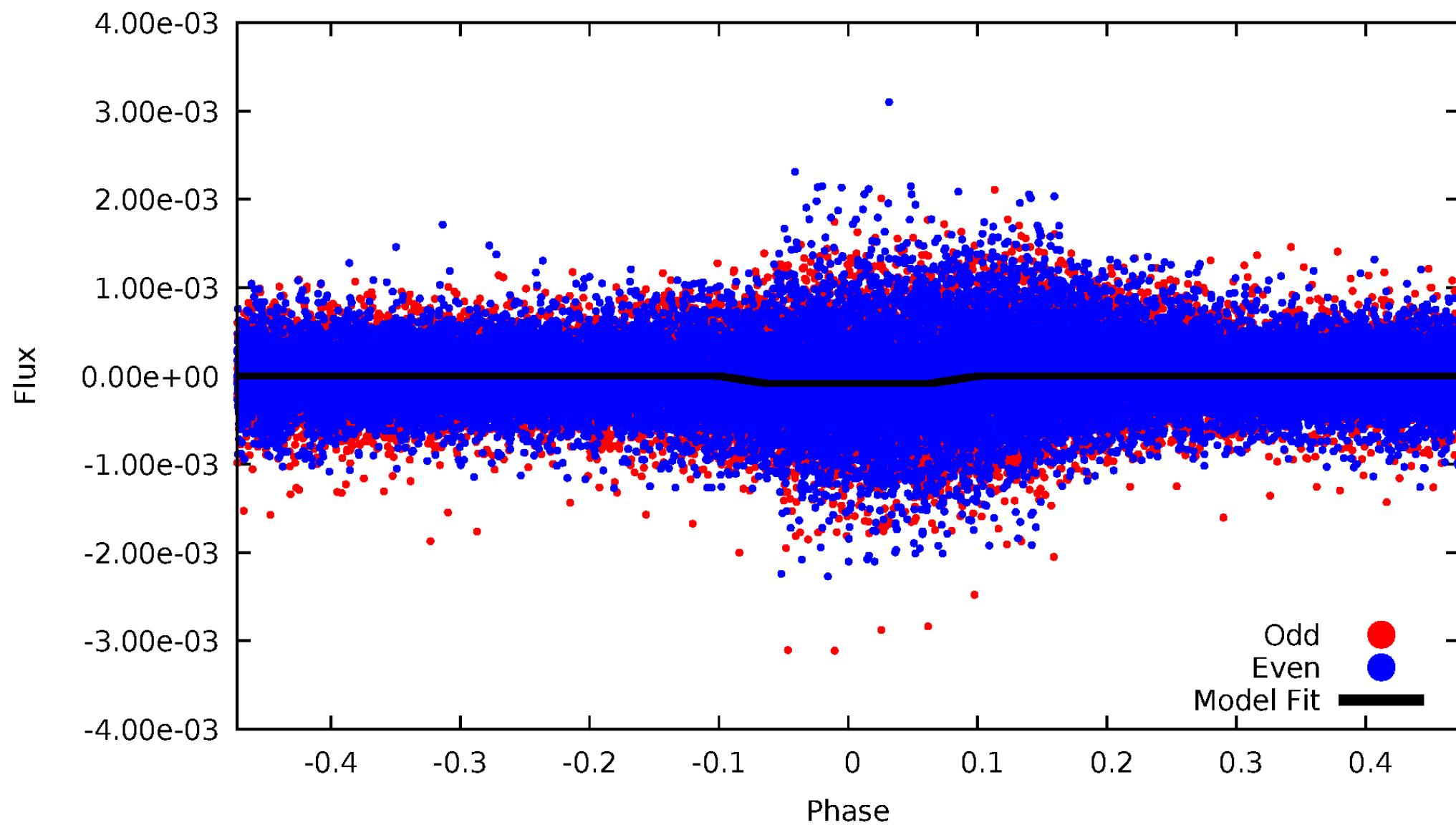
# DV Odd/Even

TCE 007199272-01

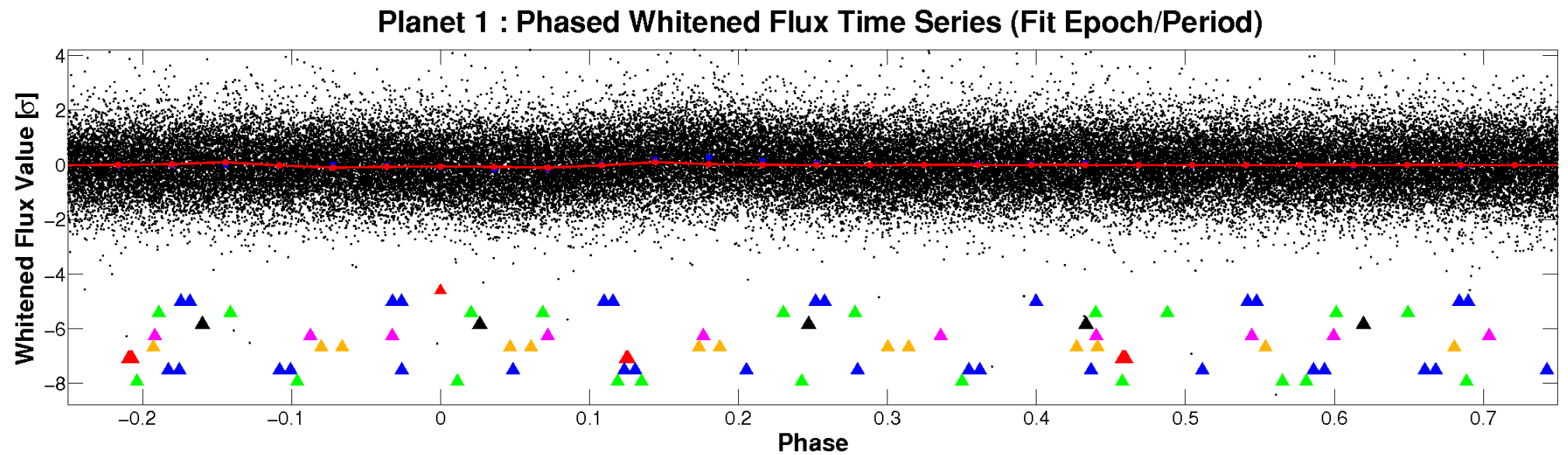
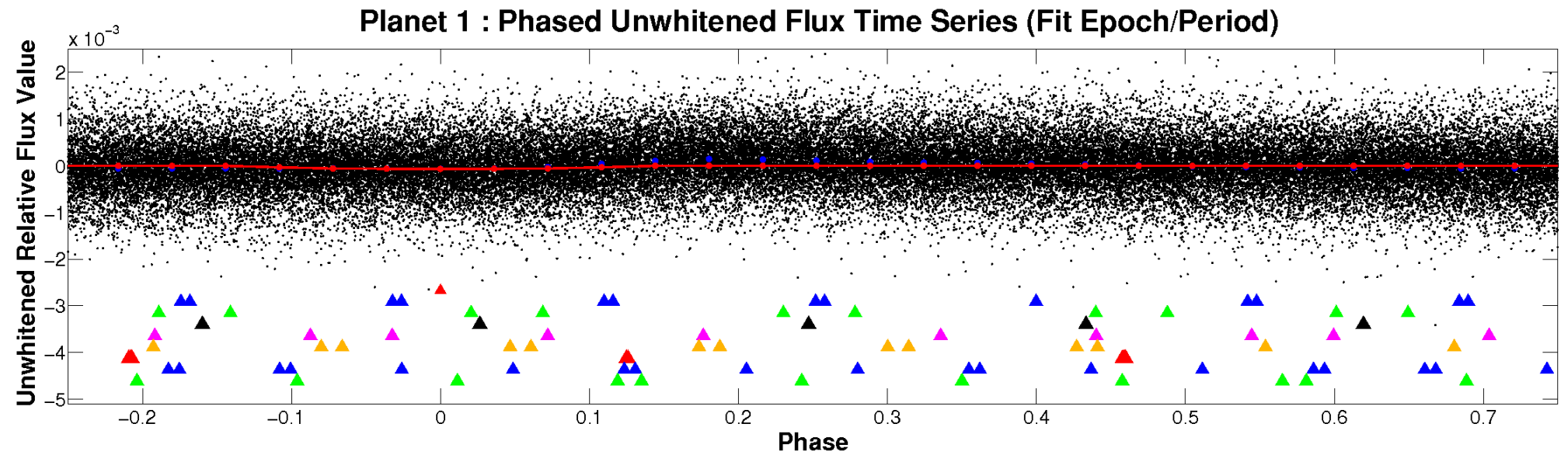


# ALT Odd/Even

TCE 007199272-01



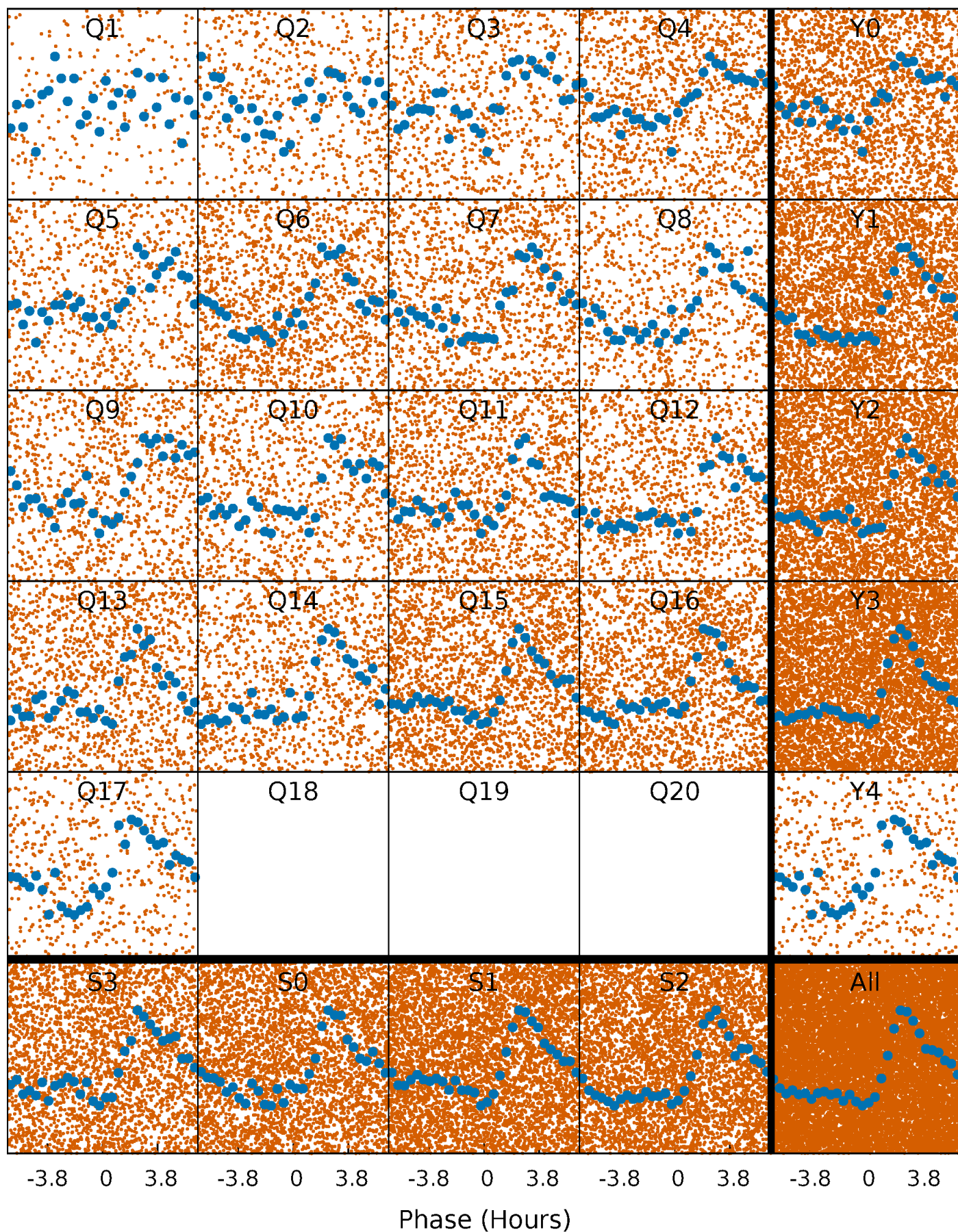
# Non-Whitened Vs. Whitened Light Curve





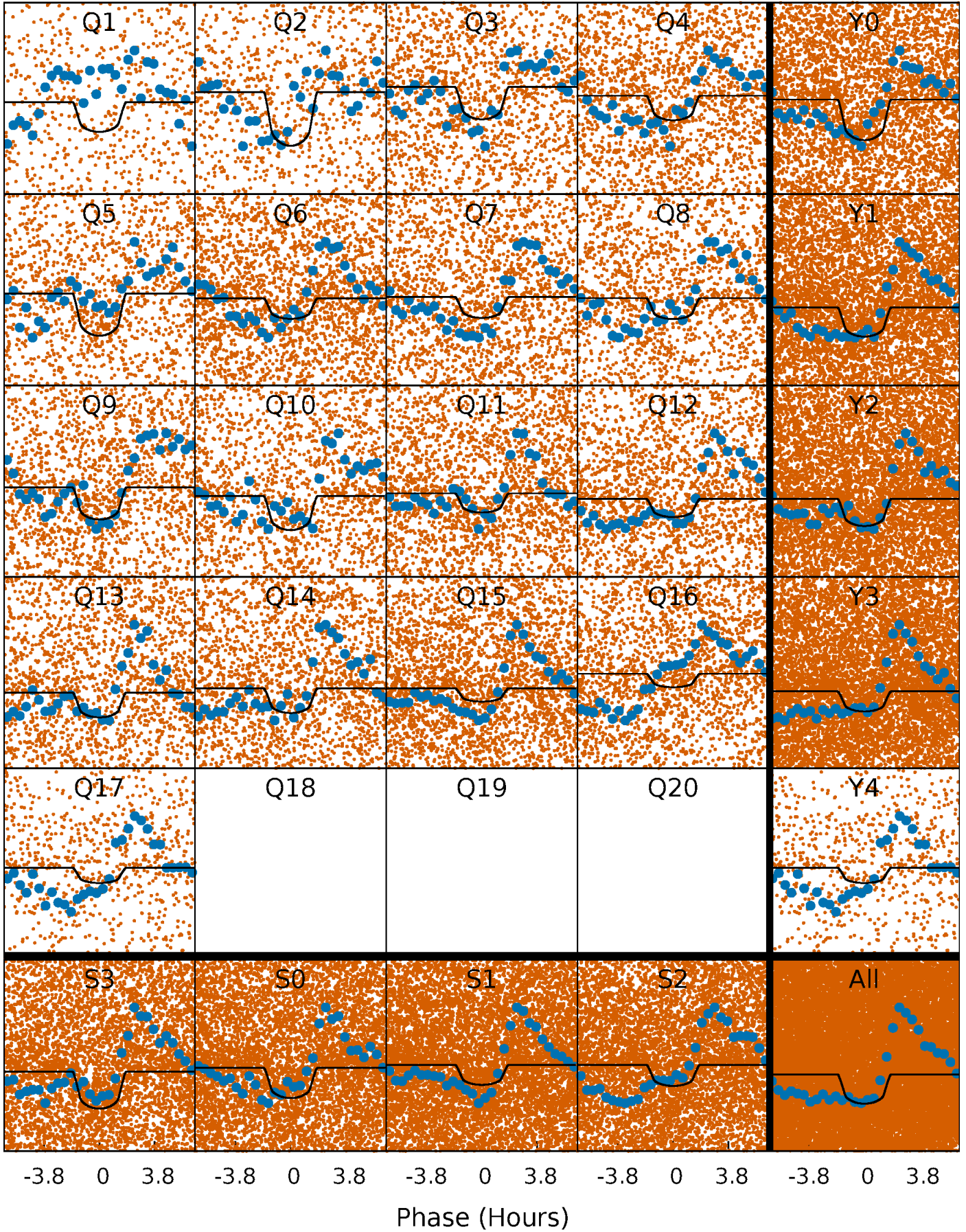
# PDC Quarter-Phased Transit Curves

TCE 007199272-01 P= 0.566799 Days  $T_0=131.687562$  (BKJD)



# DV Quarter-Phased Transit Curves

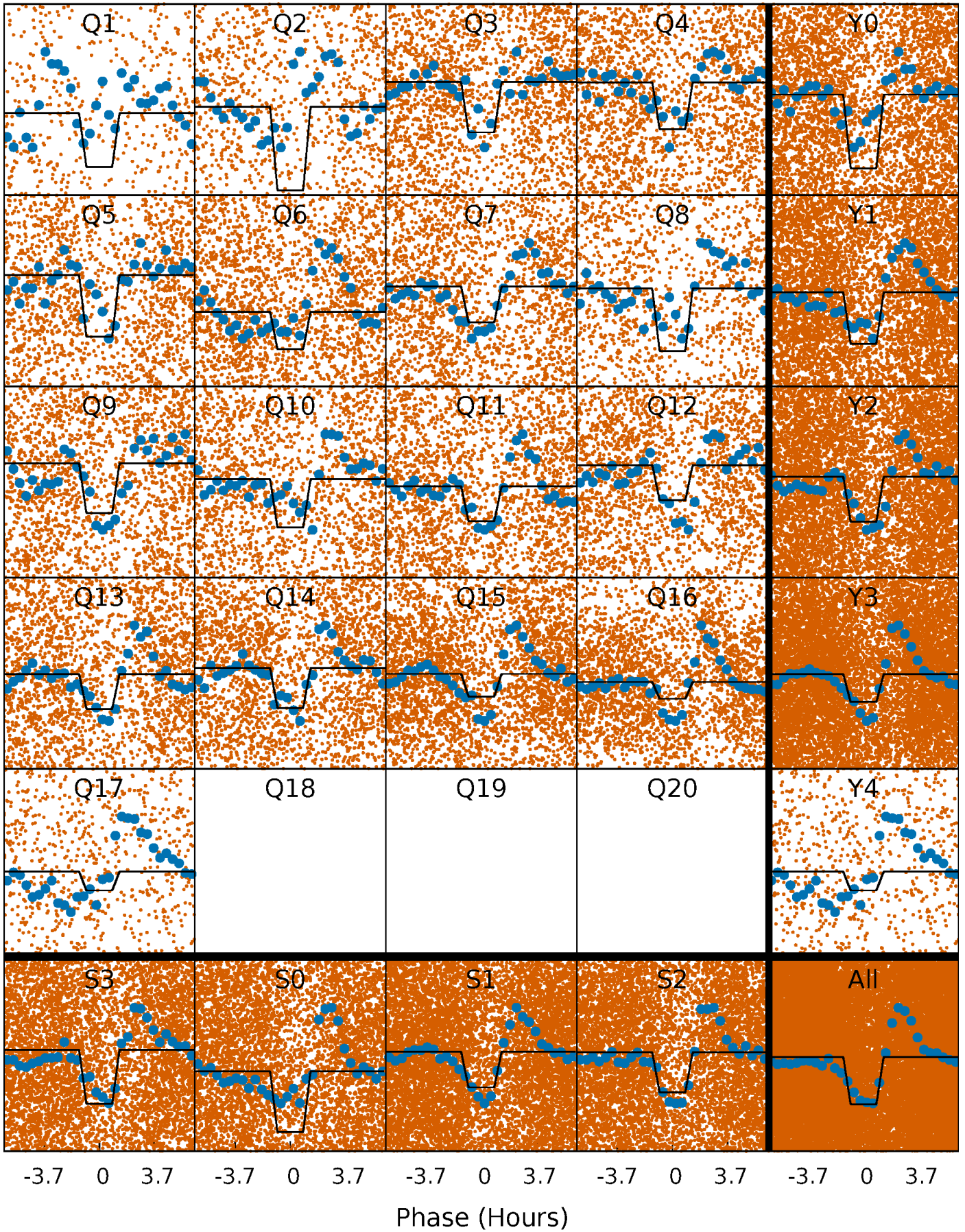
TCE 007199272-01 P= 0.566799 Days  $T_0=131.687562$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 007199272-01 P= 0.566801 Days  $T_0=131.686020$  (BKJD)

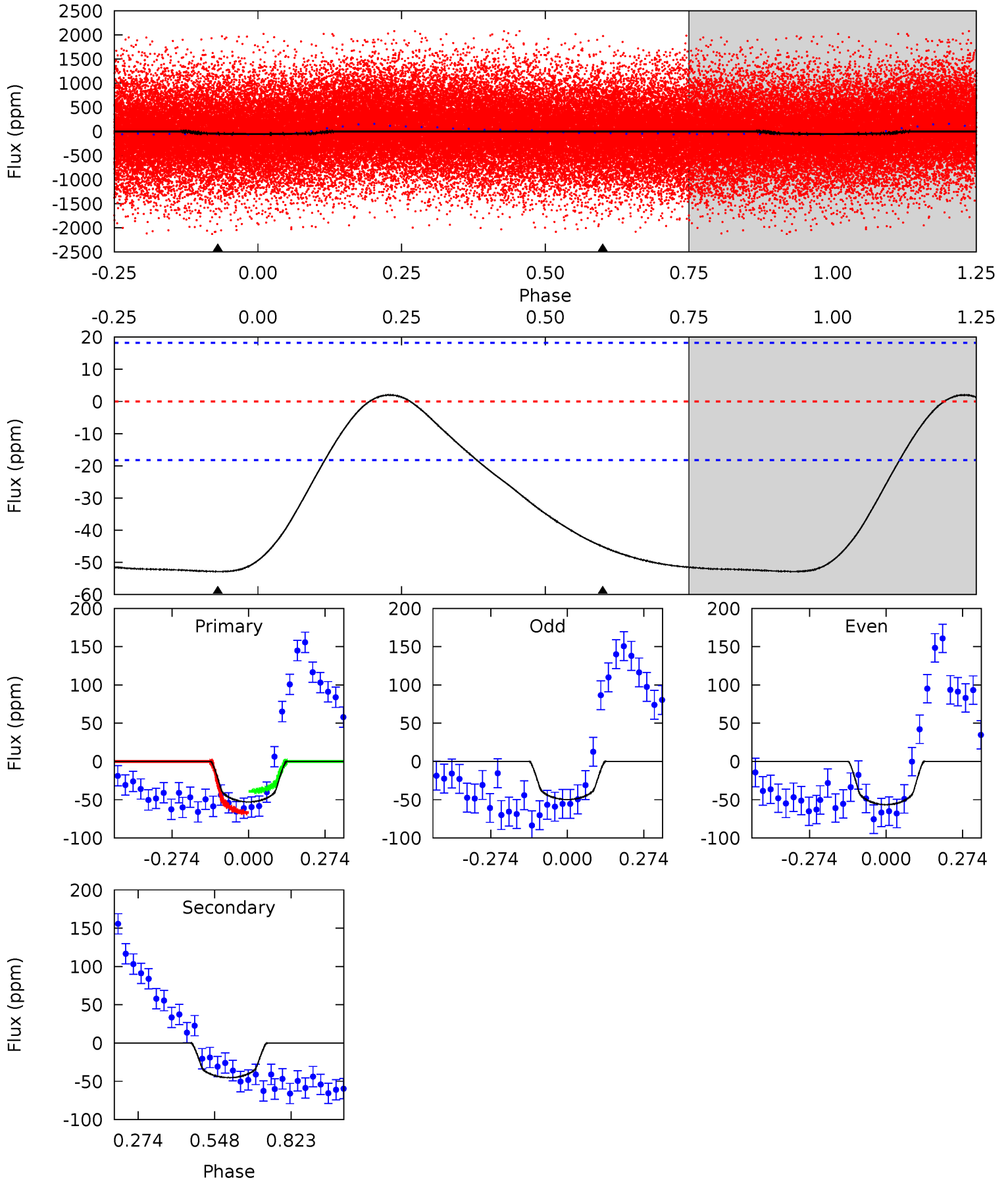




# DV Model-Shift Uniqueness Test

007199272-01, P = 0.566799 Days, E = 131.120763 Days

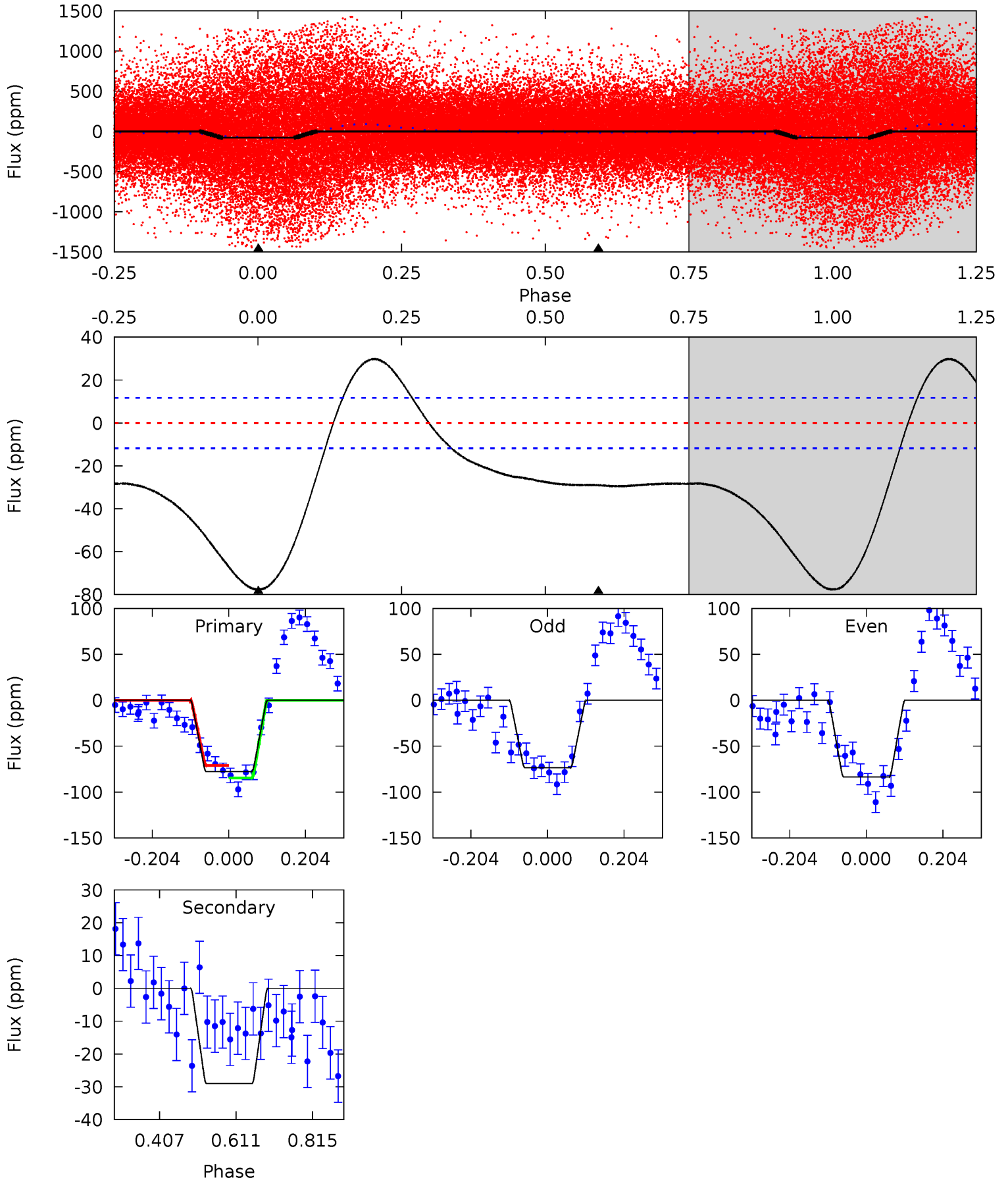
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	10.8	0	0	4.35	1.09	0.86	12.6	12.6	10.8	10.8	0.80	1.03	0.04	3.36



# Alt Model-Shift Uniqueness Test

007199272-01, P = 0.566801 Days, E = 131.119219 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
29.1	10.9	0	0	4.41	1.27	6.32	29.1	29.1	10.9	10.9	1.86	0.86	0.28	2.52



### Stellar Parameters For KIC 007199272

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5068^{+61}_{-305}$	$2.376^{+0.030}_{-0.027}$	$-0.500^{+0.150}_{-0.250}$	$19.327^{+0.853}_{-7.676}$	$3.241^{+0.244}_{-2.077}$	$0.001^{+0.000}_{-0.000}$
	+1%/-6%	+1%/-1%	+30%/-50%	+4%/-40%	+8%/-64%	+69%/-9%
Source	PHO1	AST9	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 007199272-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-45 \pm 4$	$19.24^{+4.12}_{-4.27}$	$9724^{+208}_{-603}$	$-7752^{+657}_{-303}$	$0.027^{+0.017}_{-0.008}$
Alt.	$-29 \pm 3$	$19.63^{+4.20}_{-4.14}$	$9710^{+222}_{-569}$	$-7855^{+620}_{-281}$	$0.017^{+0.009}_{-0.006}$

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



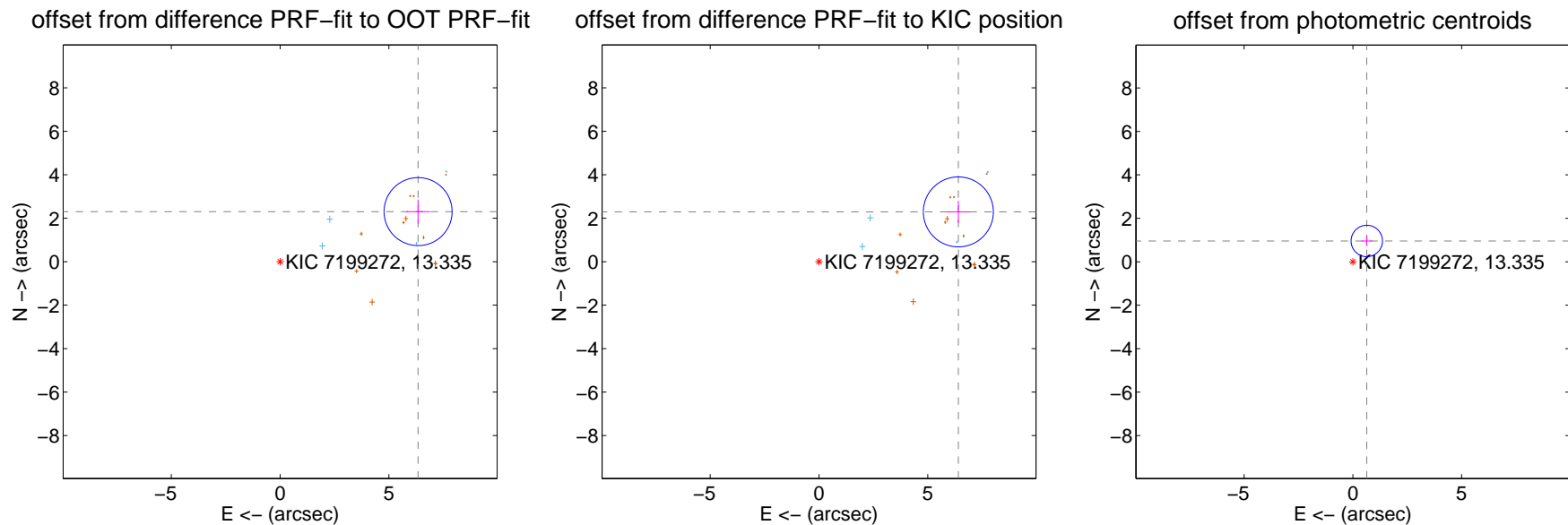
## DV Centroid Data

Supplemental centroid analysis for 007199272-01. Kepler magnitude: 13.34. Transit SNR 12.53

There are 4 quarters with good PRF difference image offsets

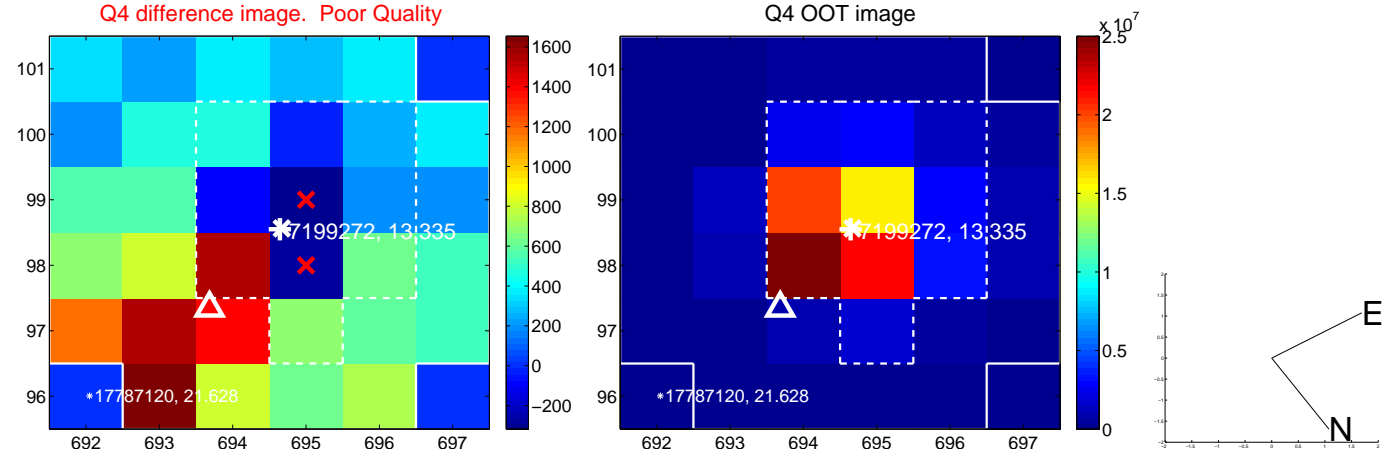
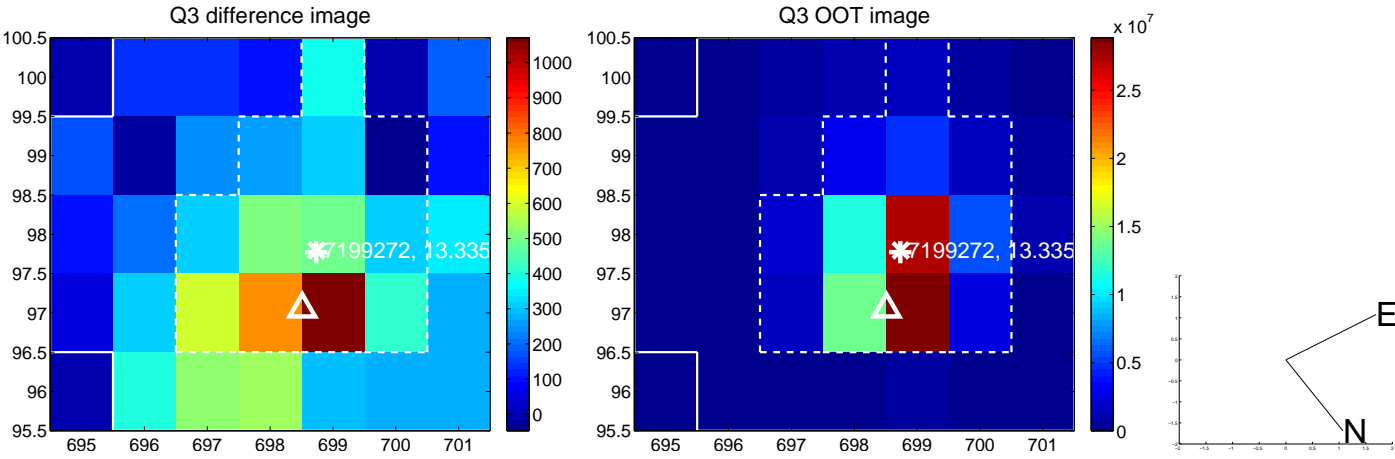
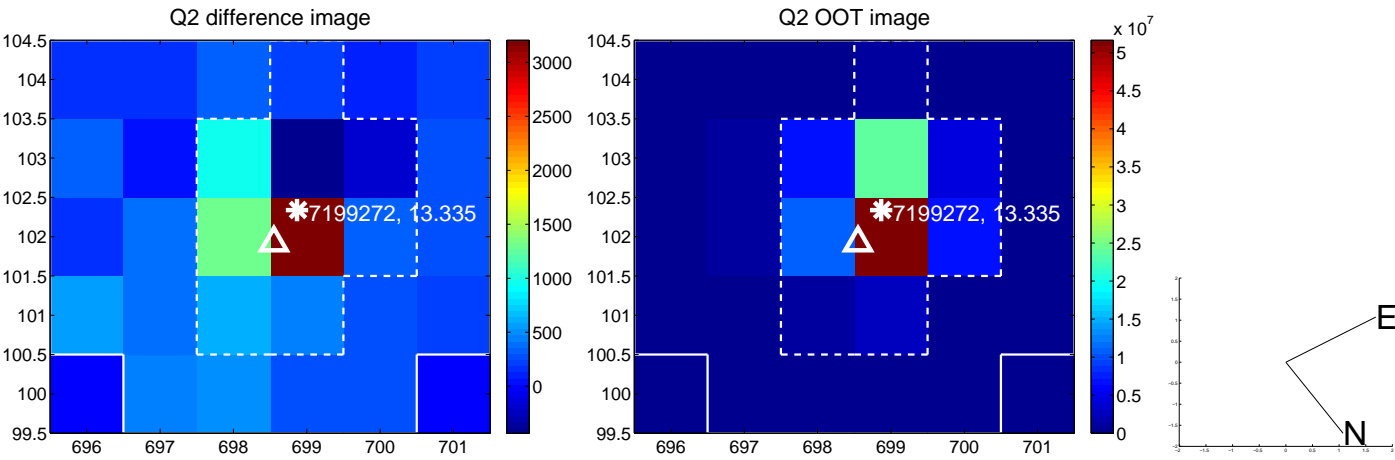
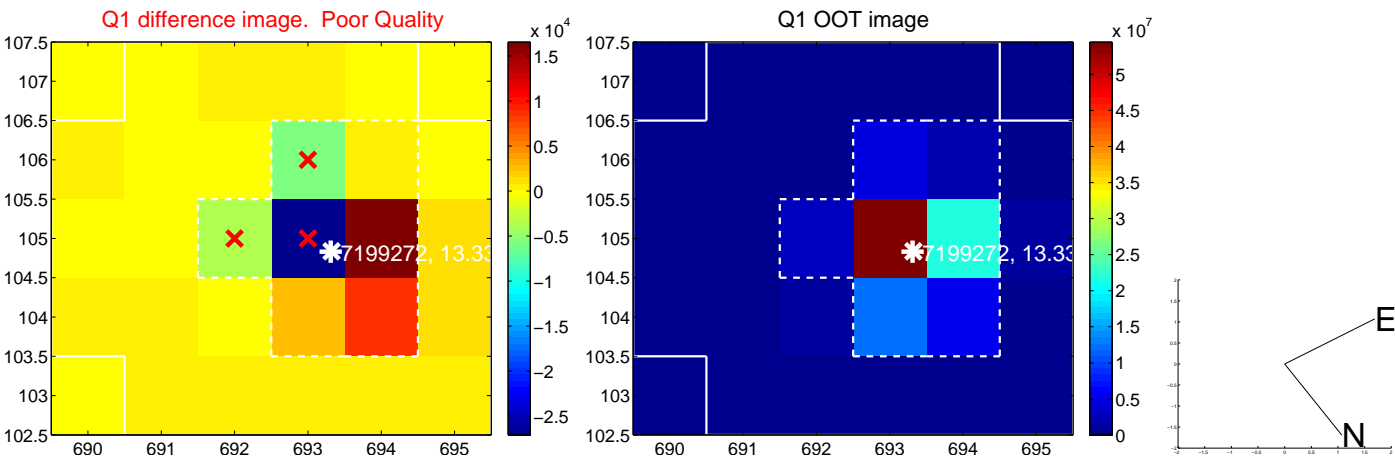
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$6.749 \pm 0.521$	12.95	$-6.344 \pm 0.545$	$2.304 \pm 0.553$
PRF-fit source offset from KIC position	$6.805 \pm 0.536$	12.69	$-6.408 \pm 0.540$	$2.291 \pm 0.513$
photometric centroid source offset	$1.15 \pm 0.24$	4.78	$-0.64 \pm 0.24$	$0.96 \pm 0.24$

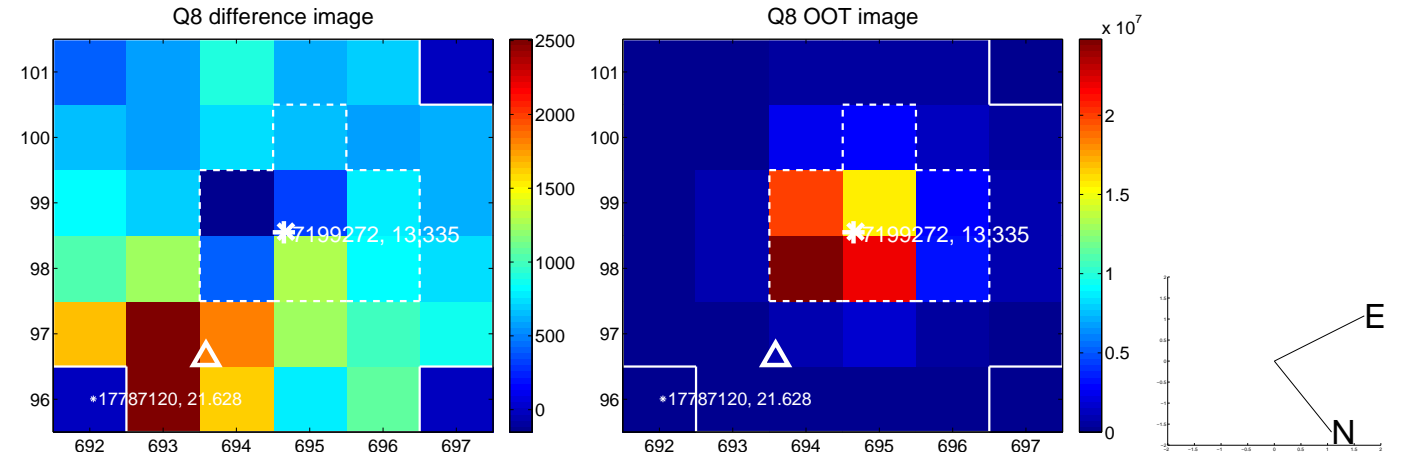
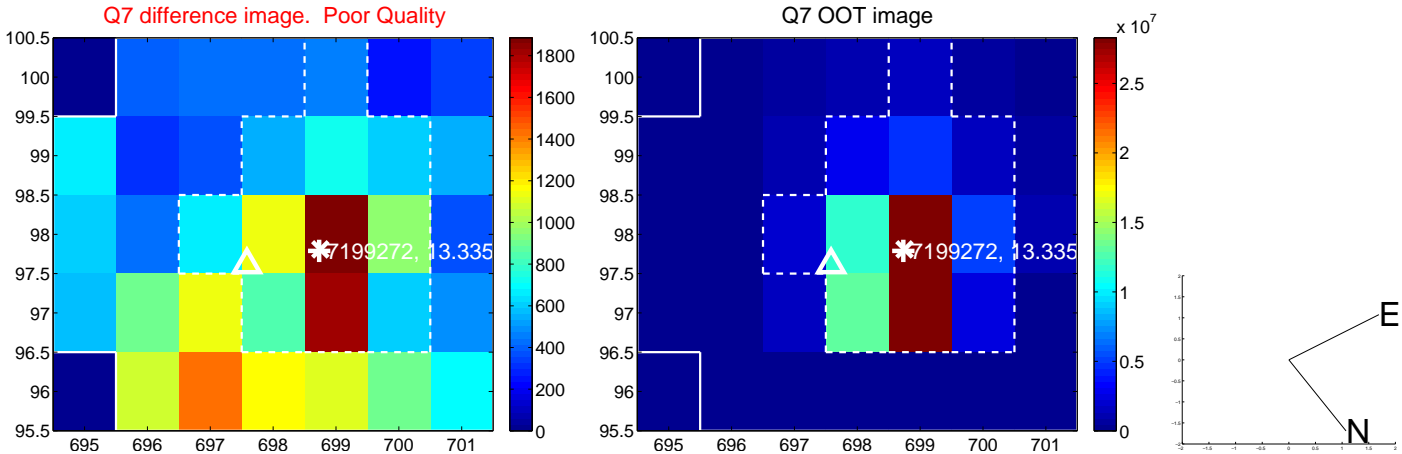
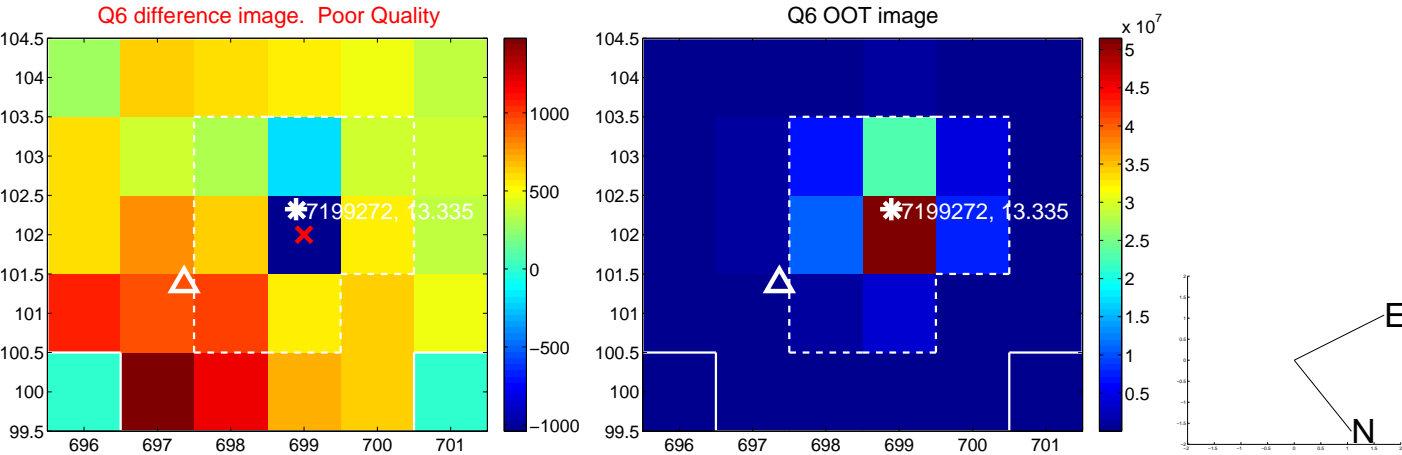
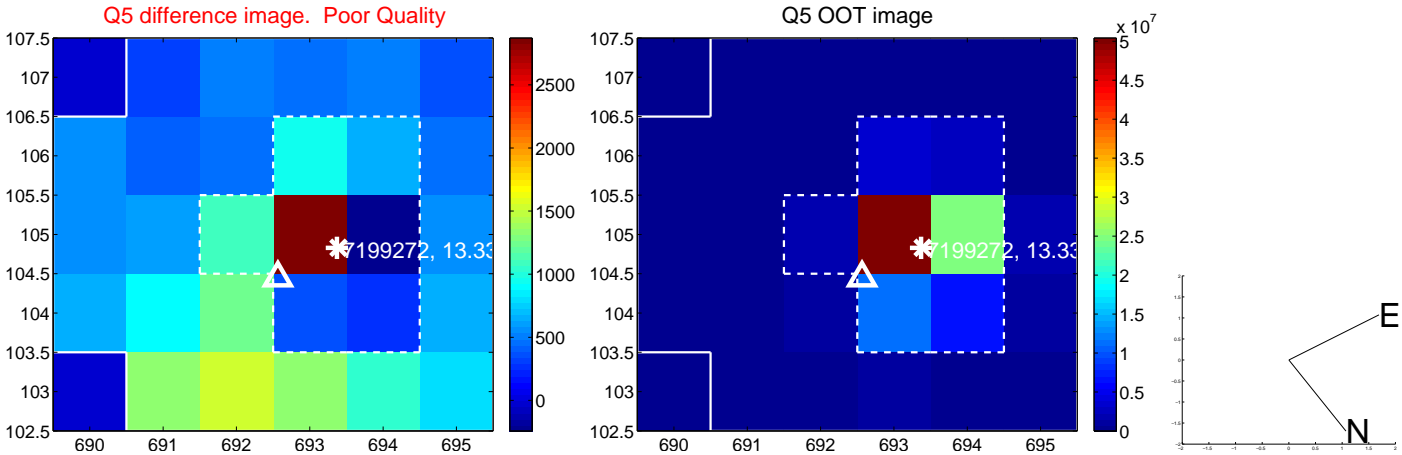


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

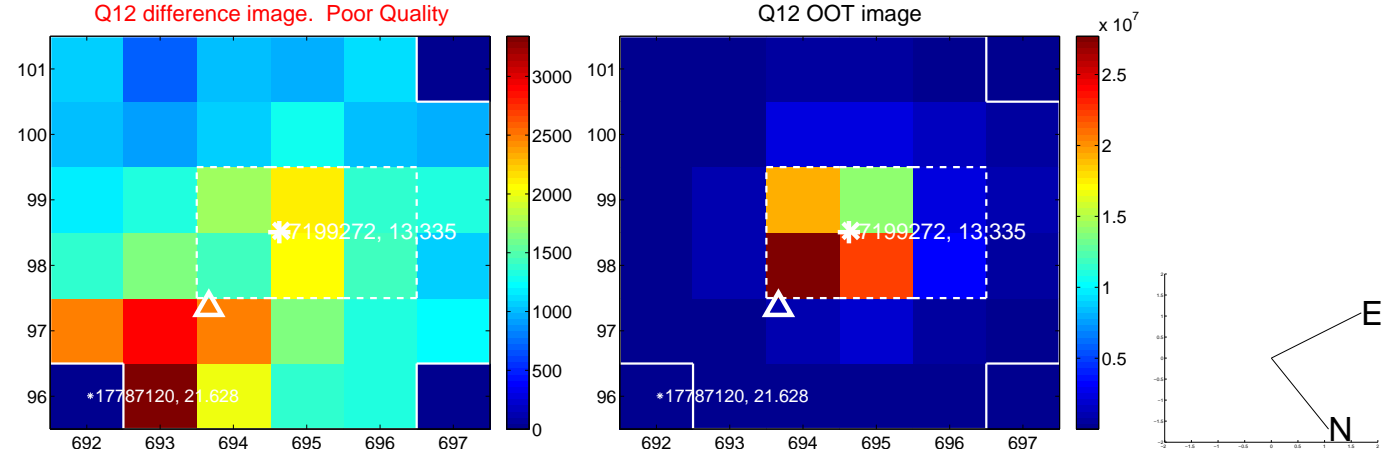
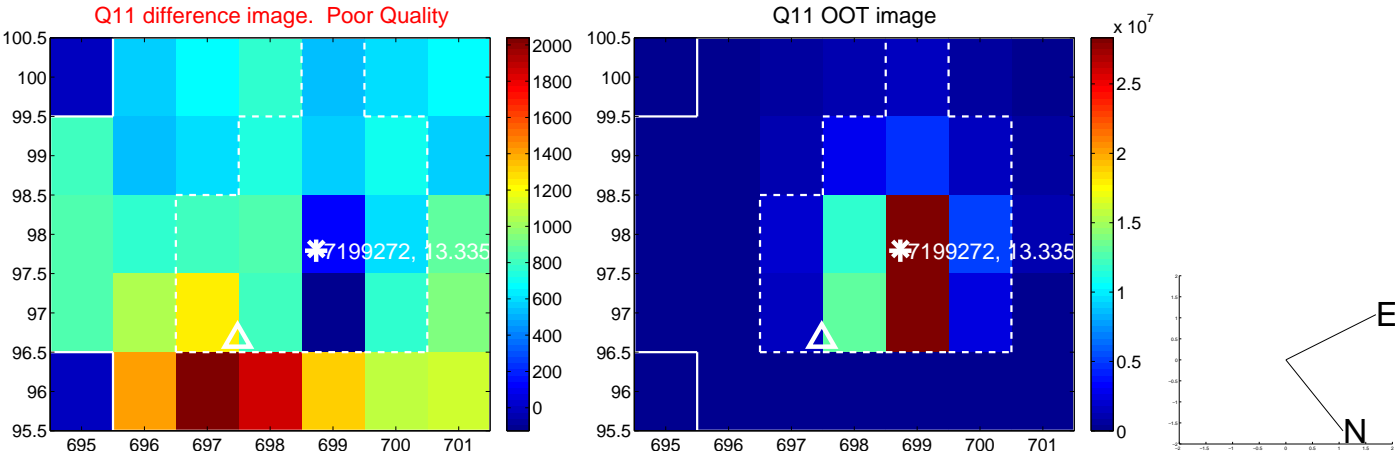
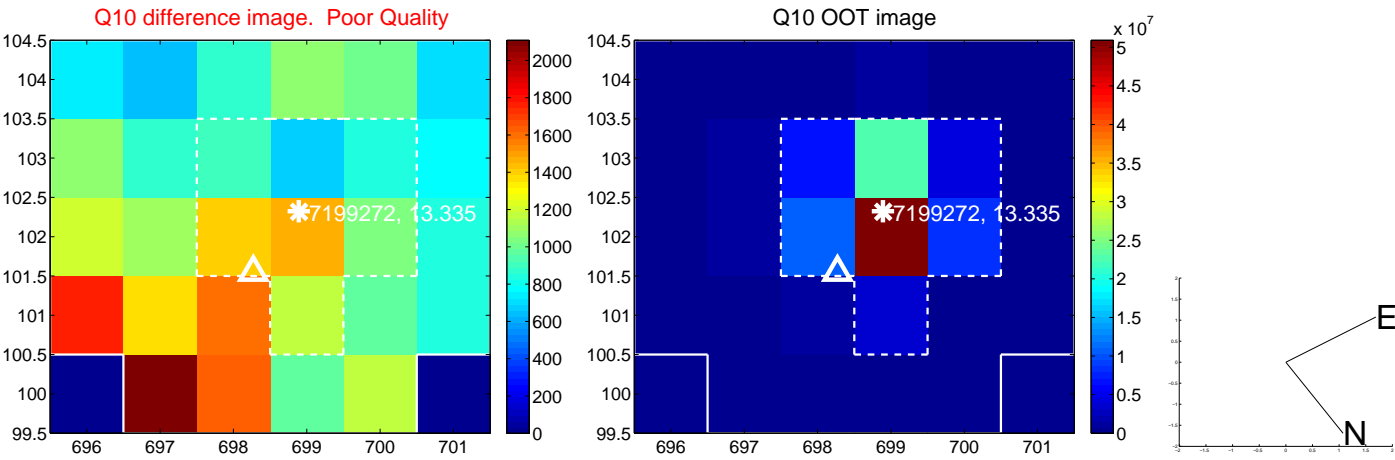
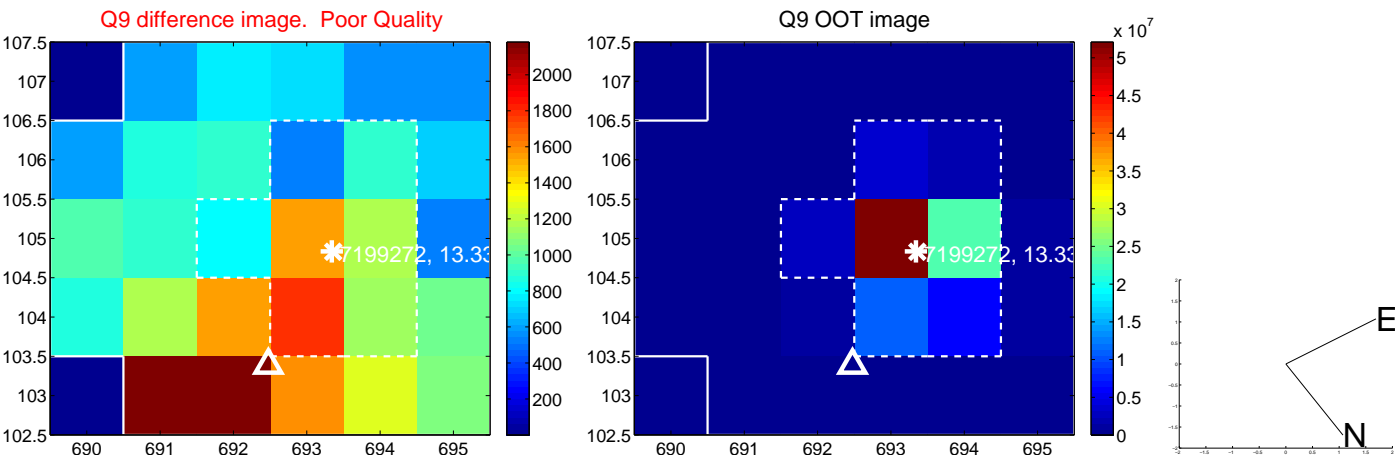


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

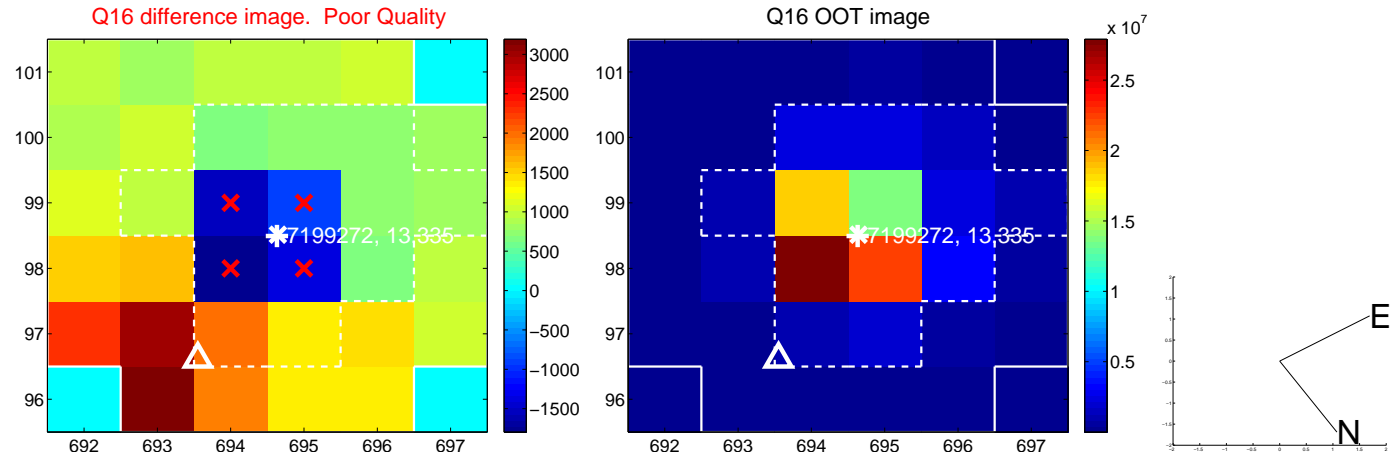
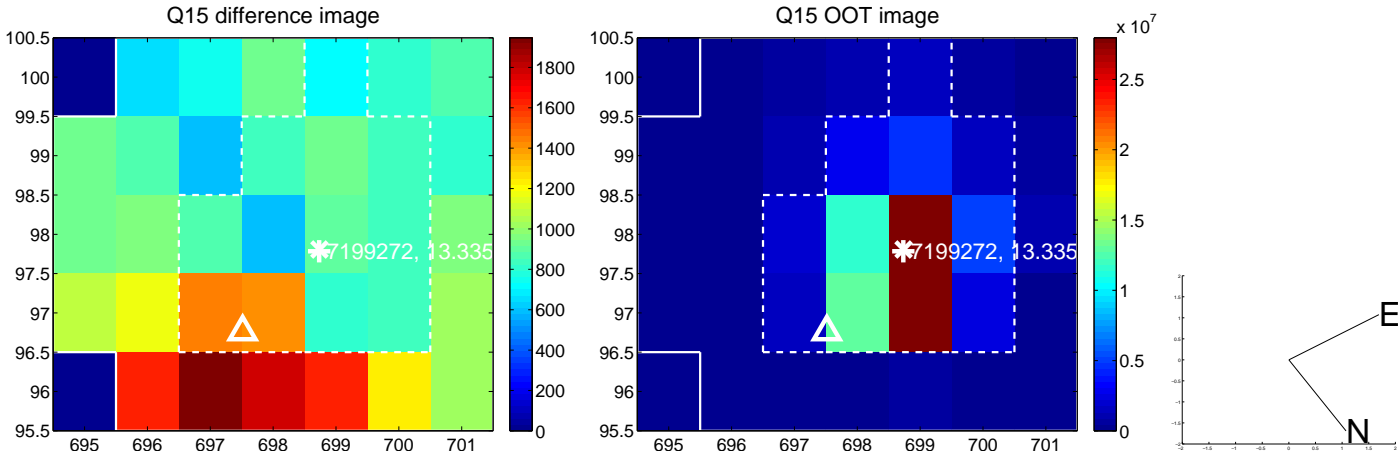
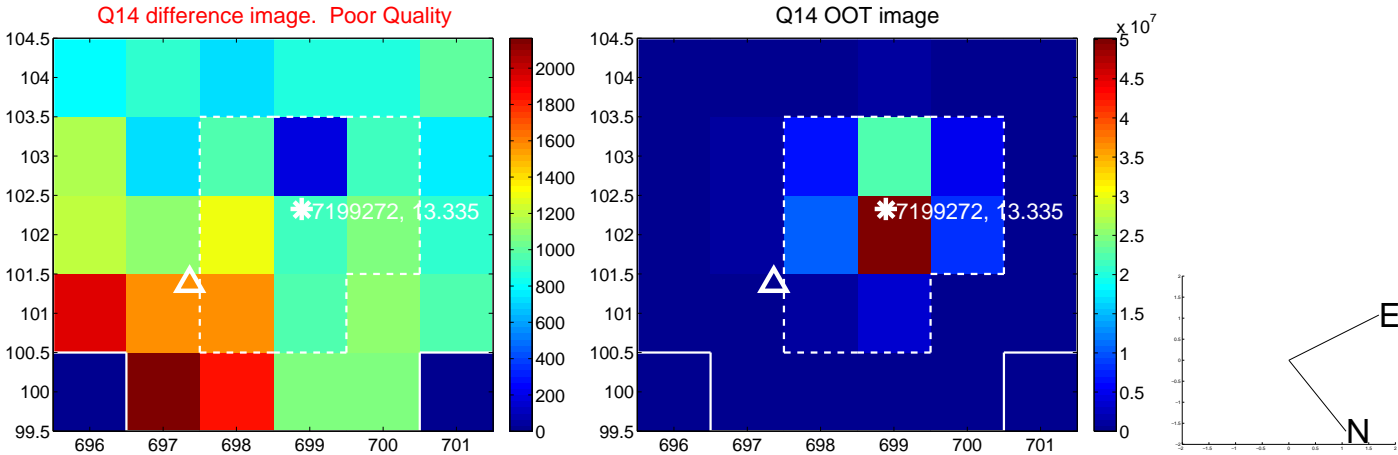
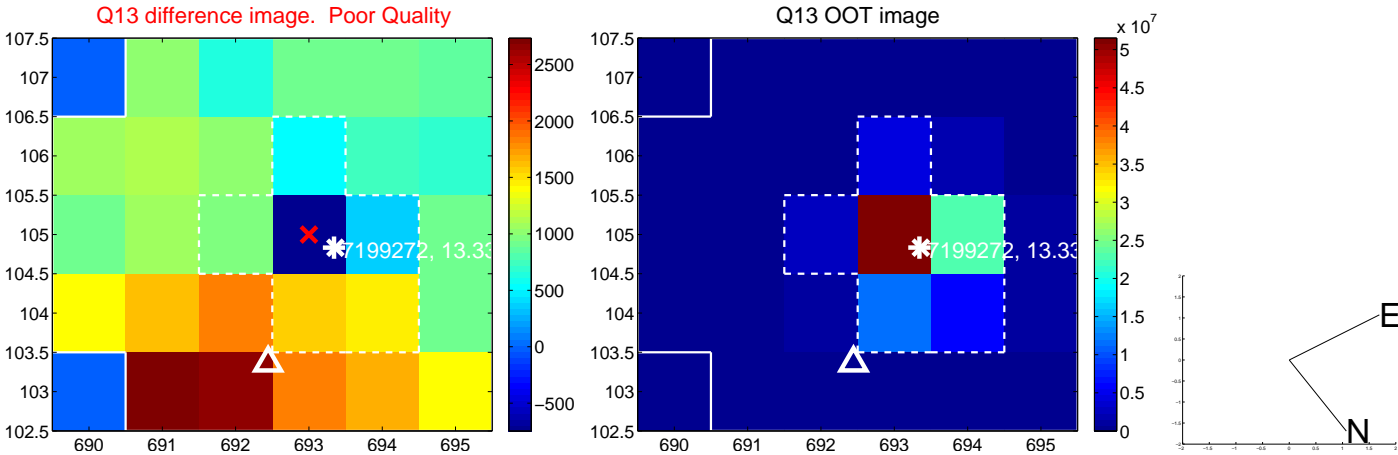




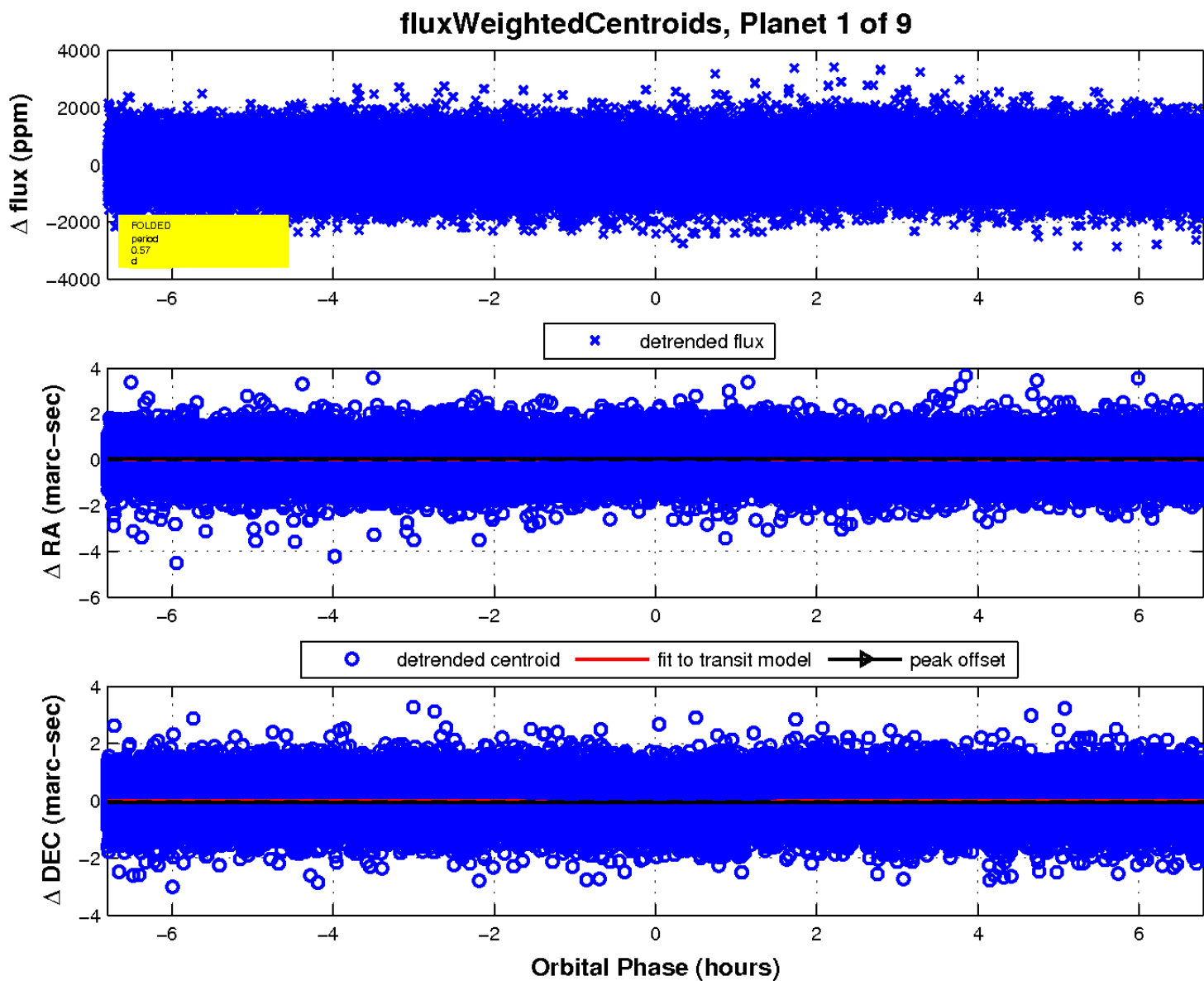
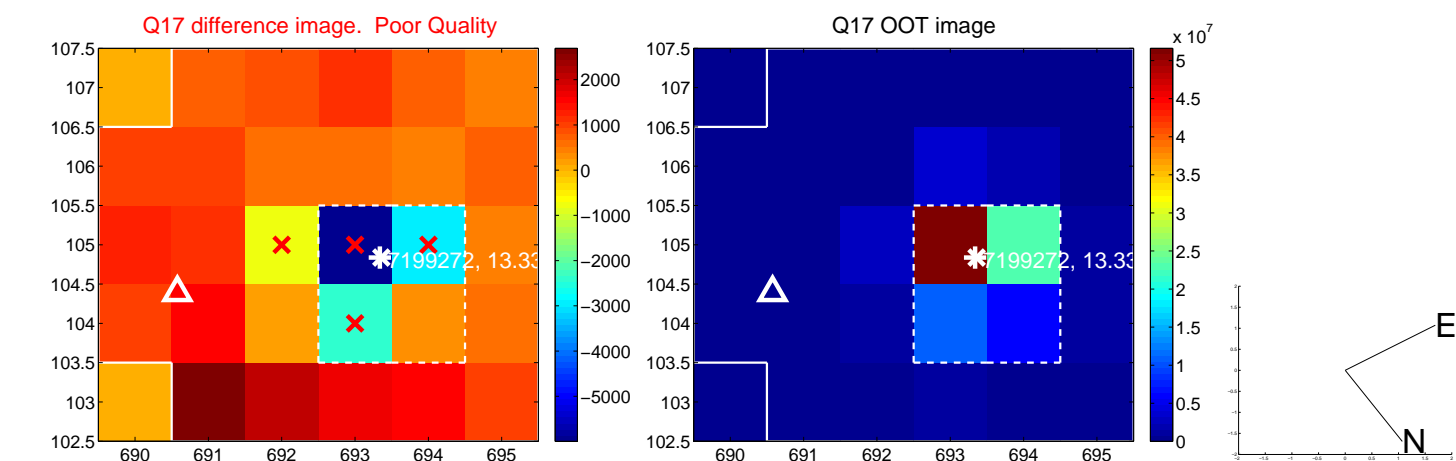
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



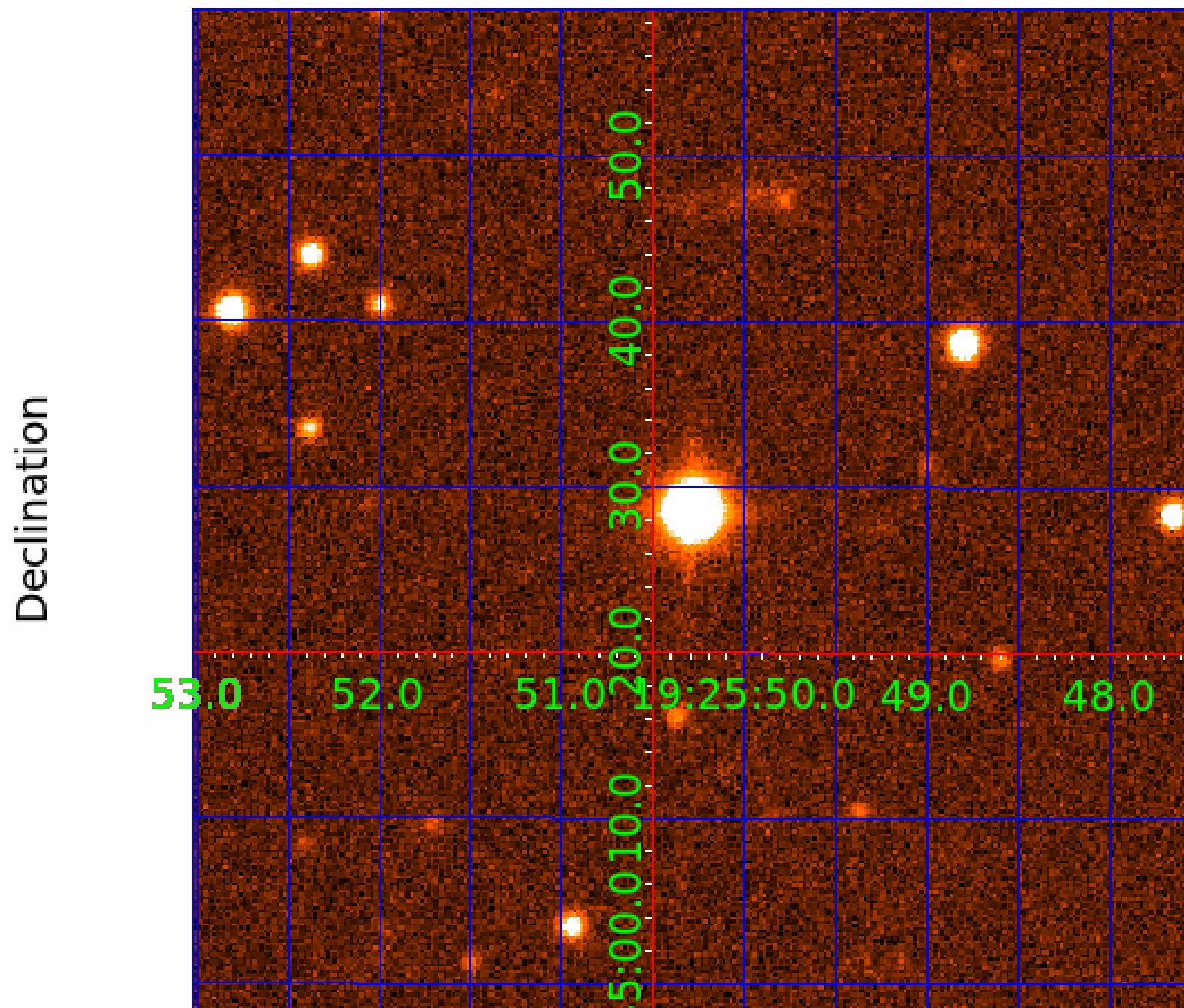
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





# KIC 007199272

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007199272-01	OBS	No	0.566799	131.687562	66.4	3.288	14.4	12.5	19.33	5068	18.86	0.00
007199272-02	OBS	No	109.311739	200.412977	1471.0	2.526	10.9	9.1	19.33	5068	83.02	503.65
007199272-03	OBS	No	142.714559	262.894690	1516.7	5.208	11.5	8.3	19.33	5068	131.51	352.96
007199272-04	OBS	No	357.880851	138.273497	1764.6	10.921	8.3	7.8	19.33	5068	85.84	103.60
007199272-05	OBS	No	141.341629	222.715211	1773.8	8.761	8.3	8.9	19.33	5068	99.97	357.54
007199272-06	OBS	No	117.822367	150.641905	1383.5	3.661	8.4	9.2	19.33	5068	114.38	455.74
007199272-07	OBS	No	184.965238	282.716782	1088.7	6.545	8.5	6.1	19.33	5068	77.61	249.78
007199272-08	OBS	No	73.248202	201.211539	1083.9	4.053	8.3	9.3	19.33	5068	123.64	858.92
007199272-09	OBS	No	140.819093	158.394533	396.7	3.000	8.0	-1.0	19.33	5068	37.74	359.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007199272-01	OBS	FP	0.00	1	0	1	1	LPP_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
007199272-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
007199272-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV
007199272-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
007199272-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007199272-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007199272-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_NOFITS

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

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

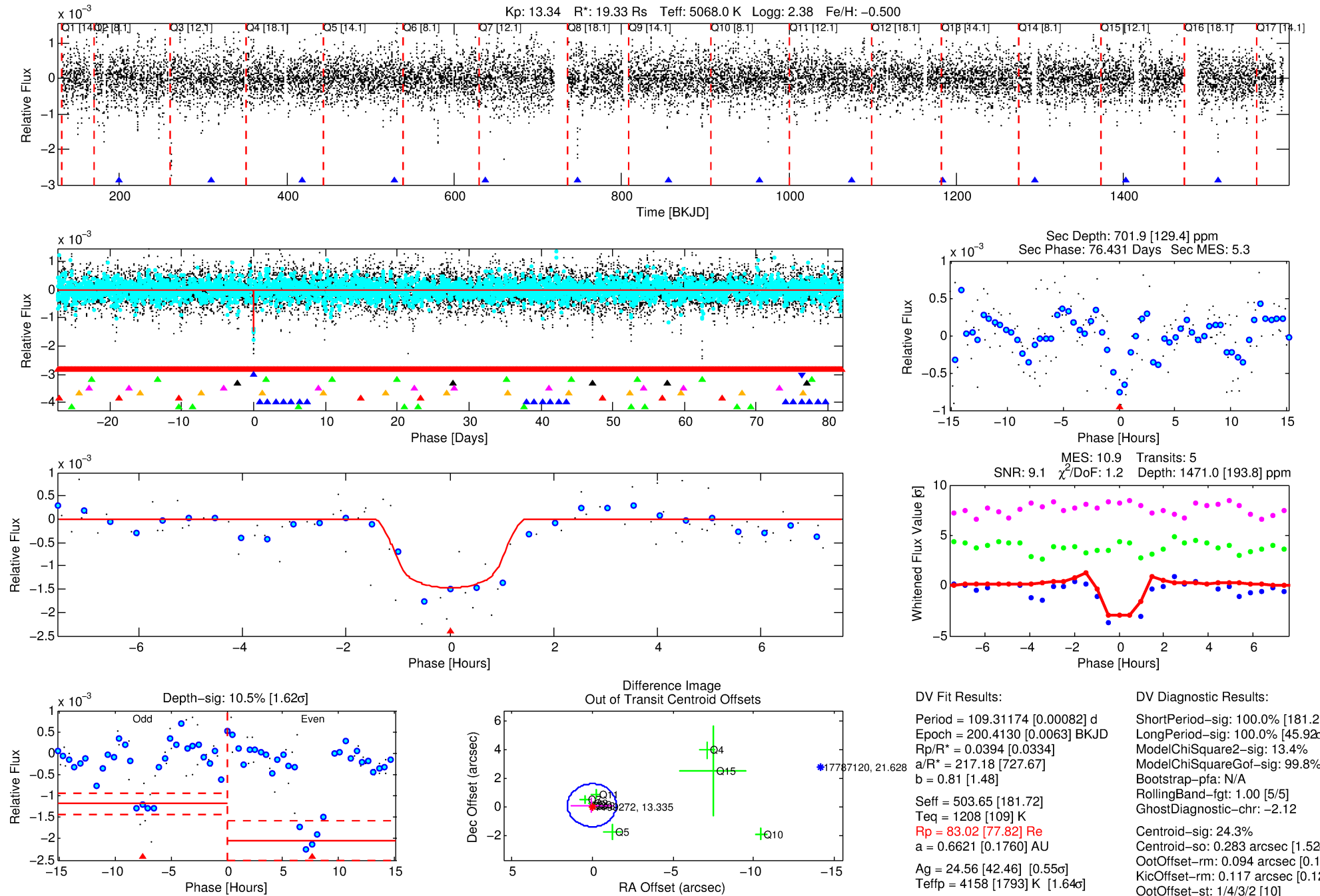
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007199272-02

No Significant Match Found

# DV One-Page Summary

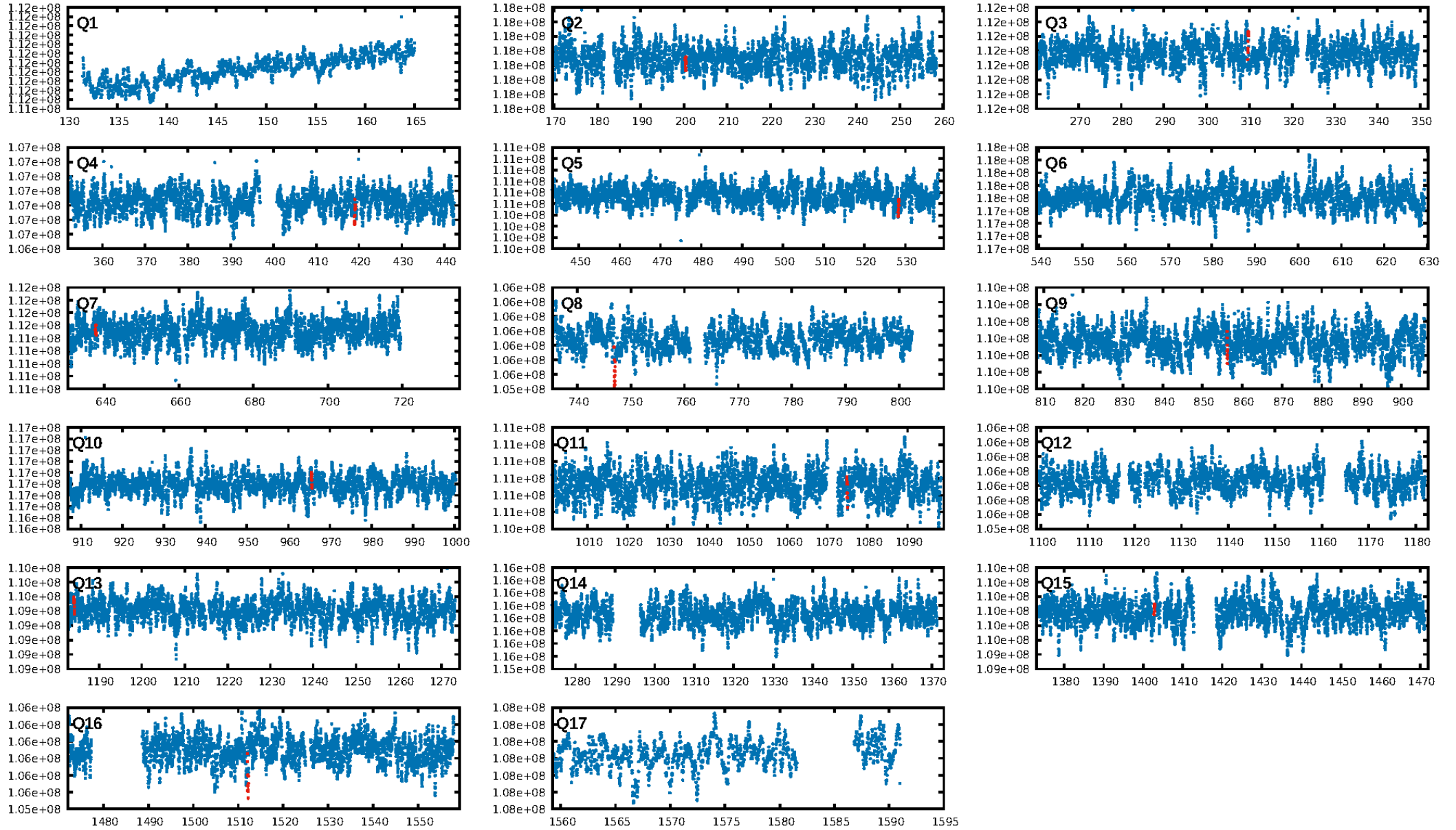
KIC: 7199272 Candidate: 2 of 9 Period: 109.312 d



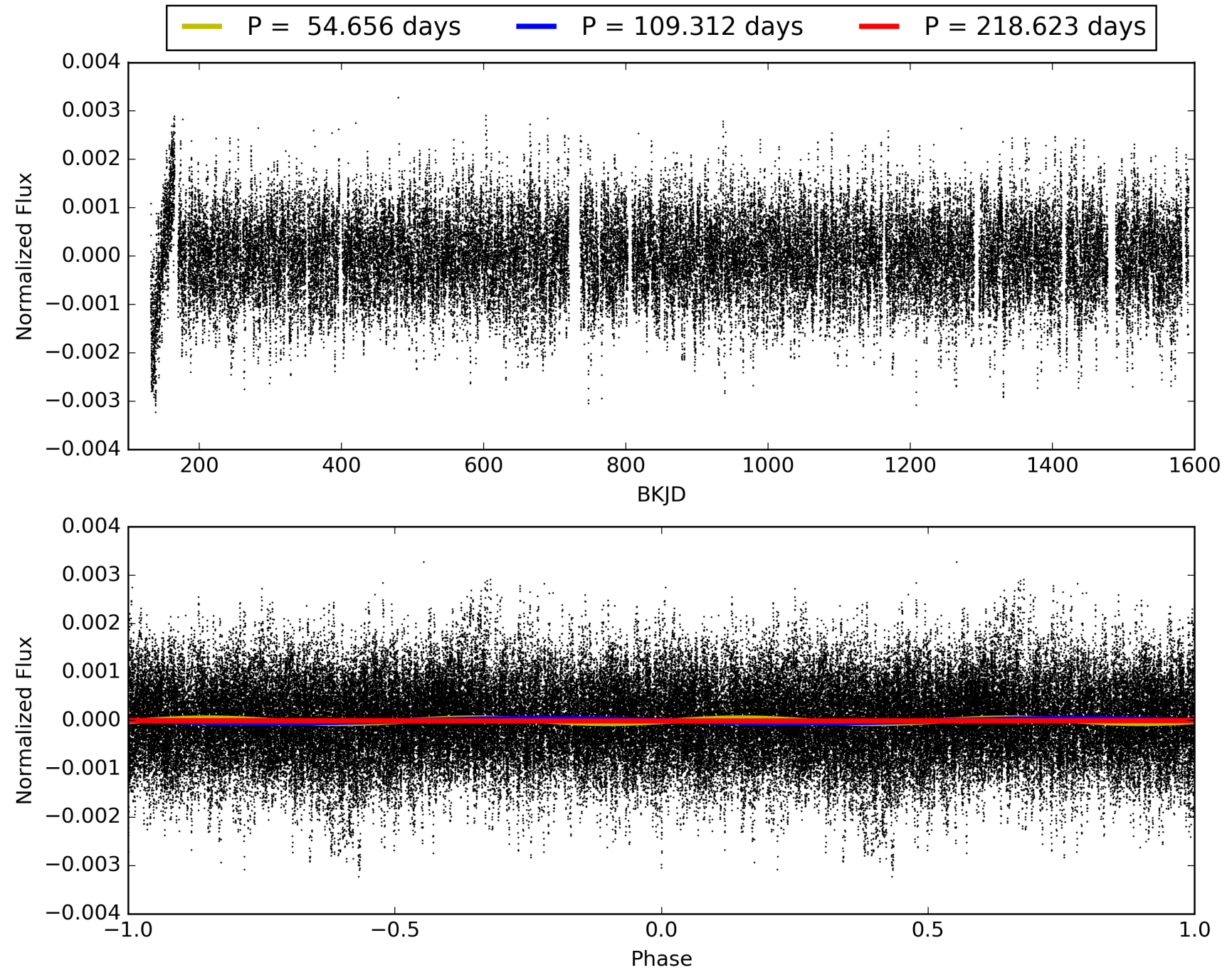
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:41:21 Z

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

# TCE 007199272-02, PDC Light Curves



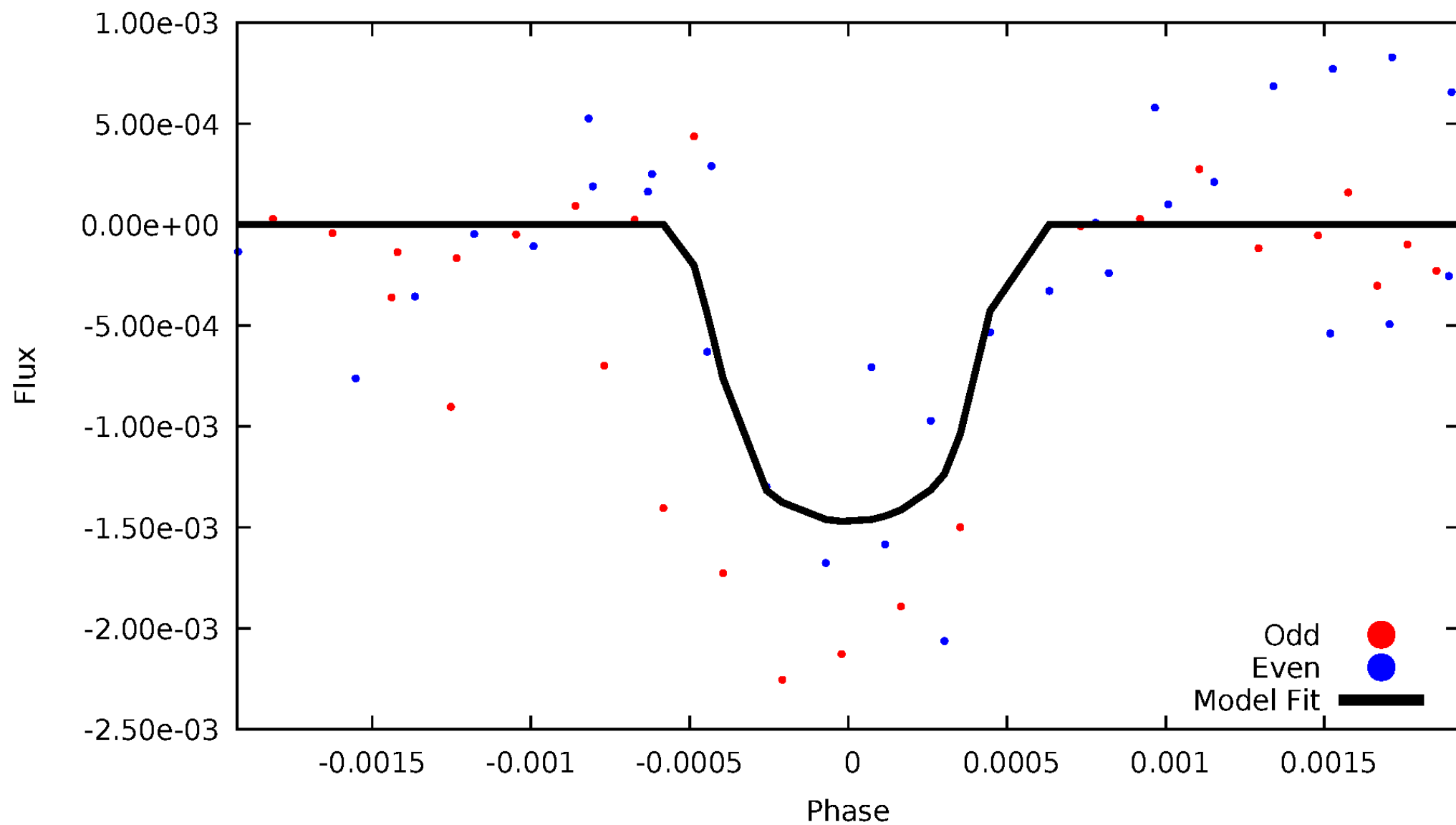
# TCE 007199272-02





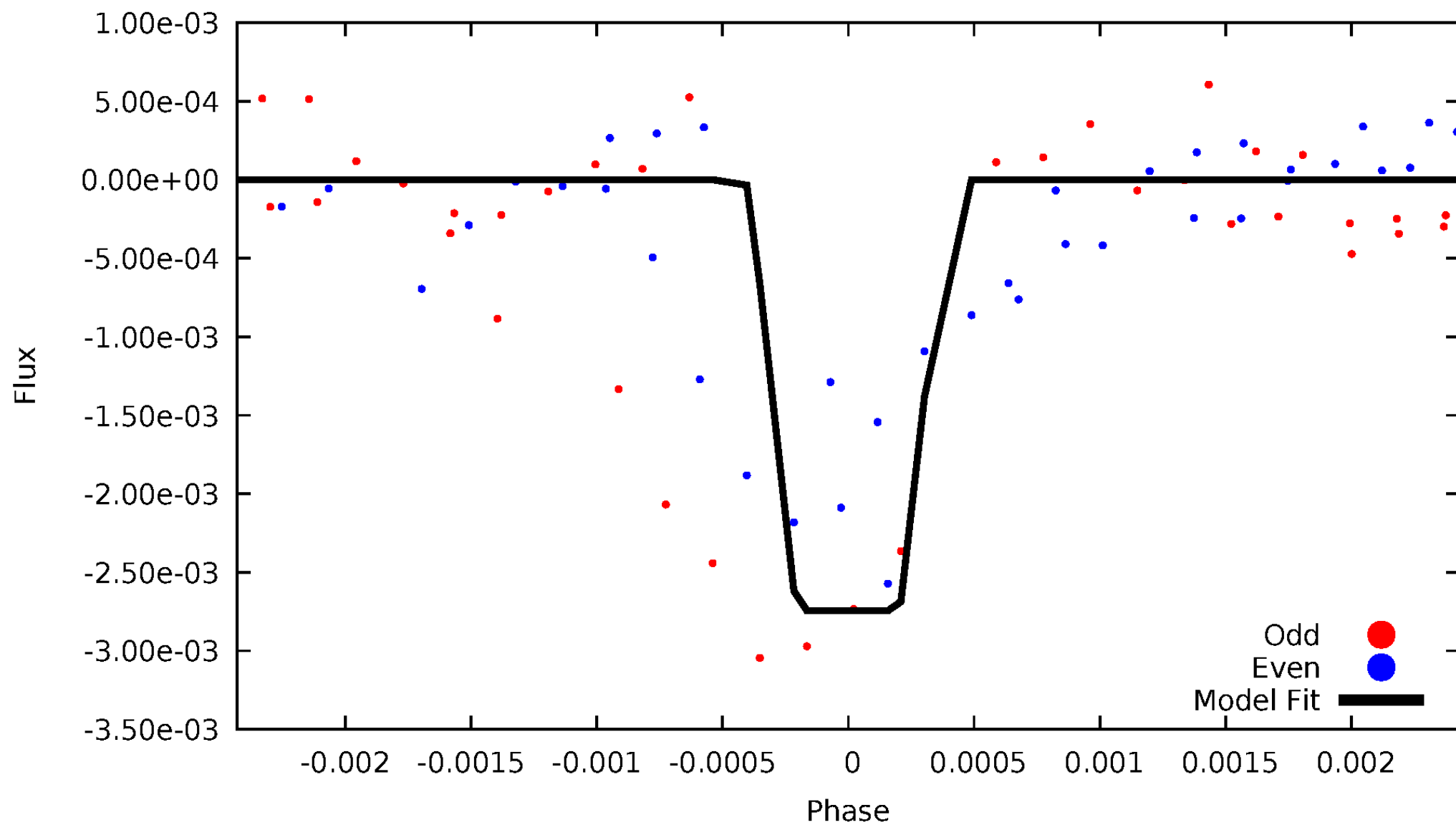
# DV Odd/Even

TCE 007199272-02



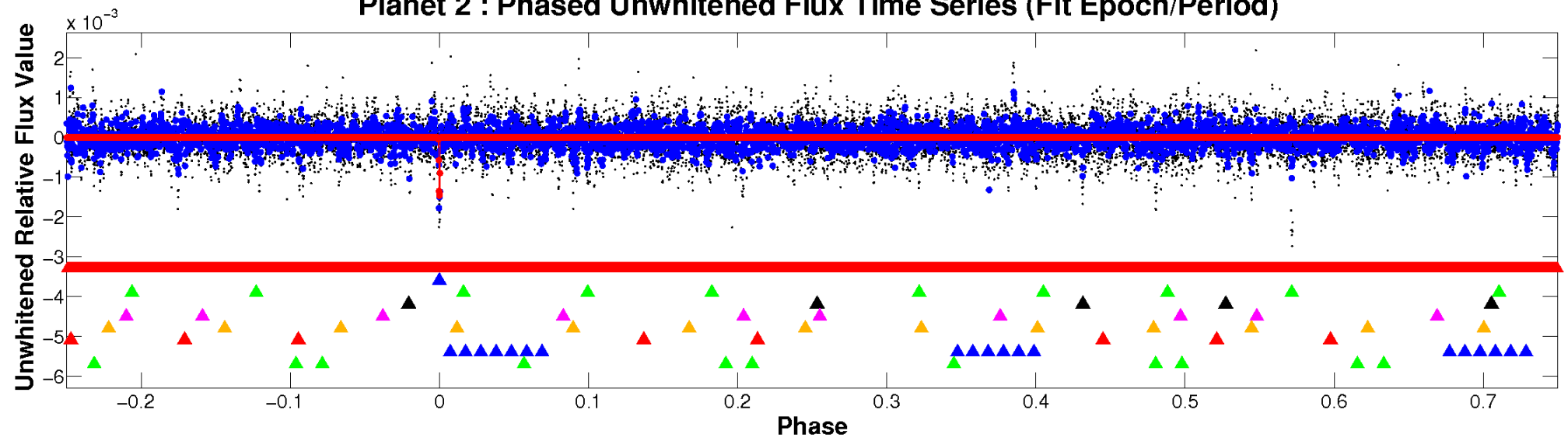
# ALT Odd/Even

TCE 007199272-02

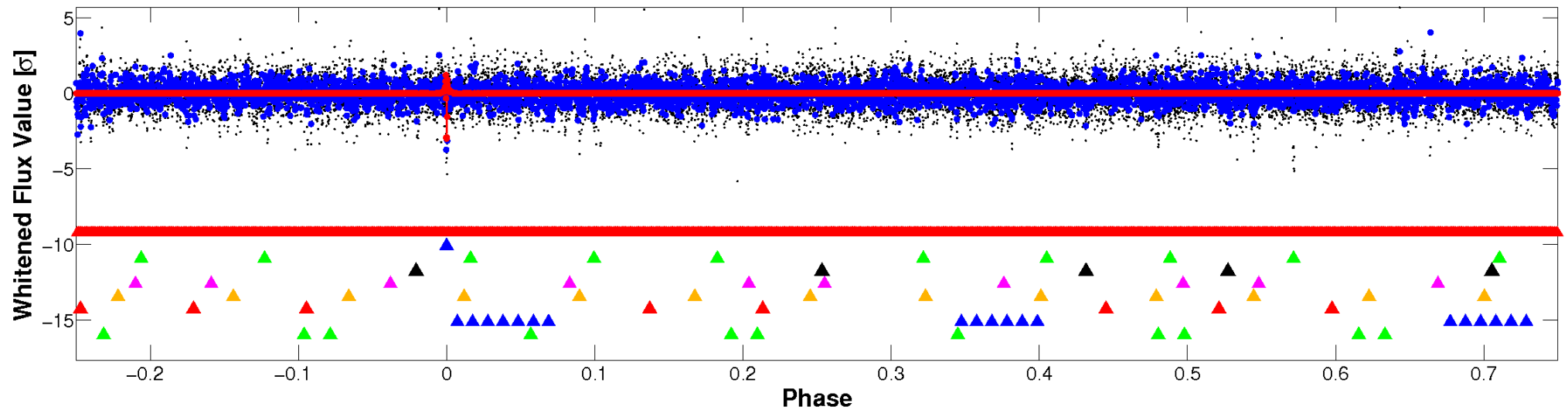


# Non-Whitened Vs. Whitened Light Curve

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

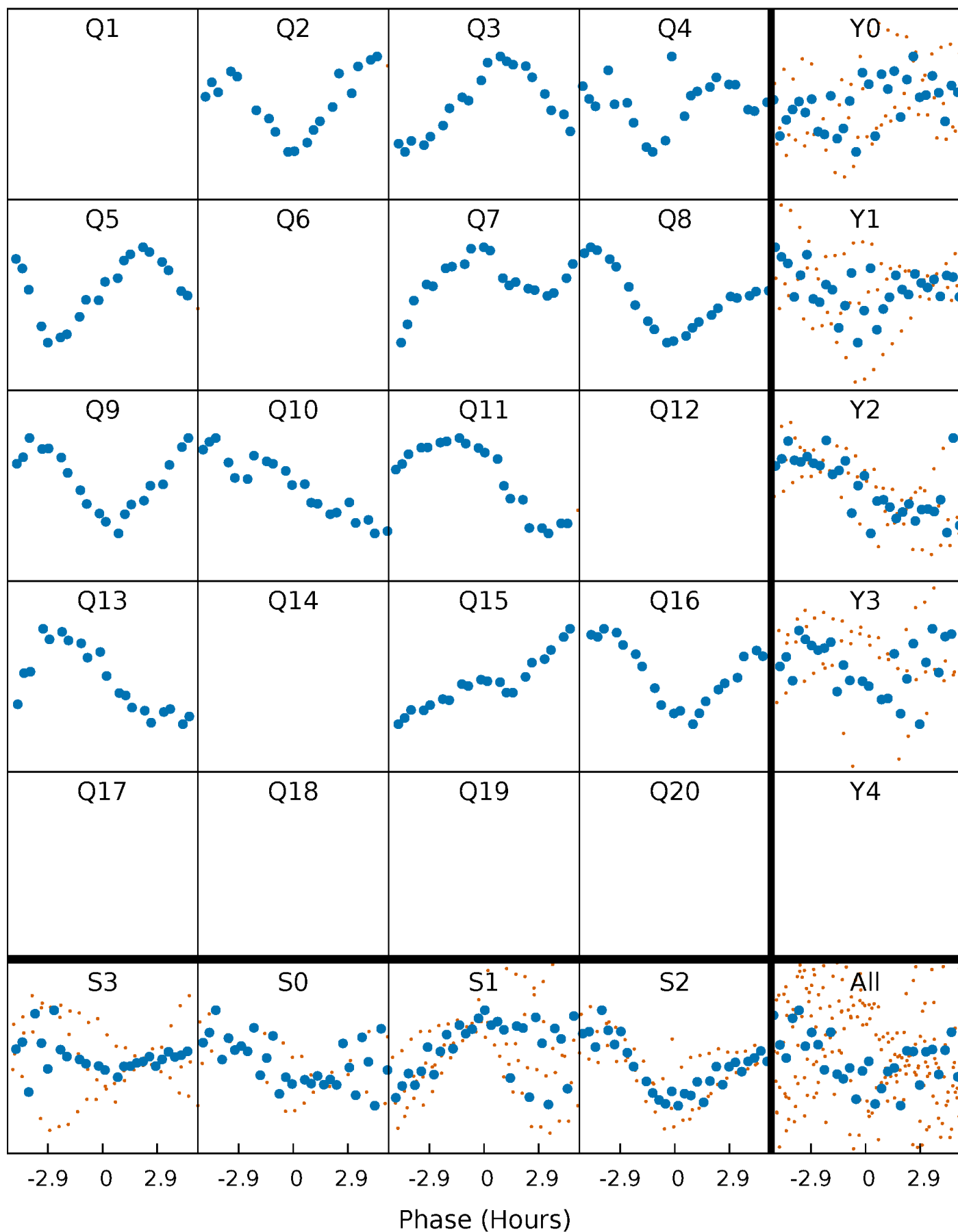


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

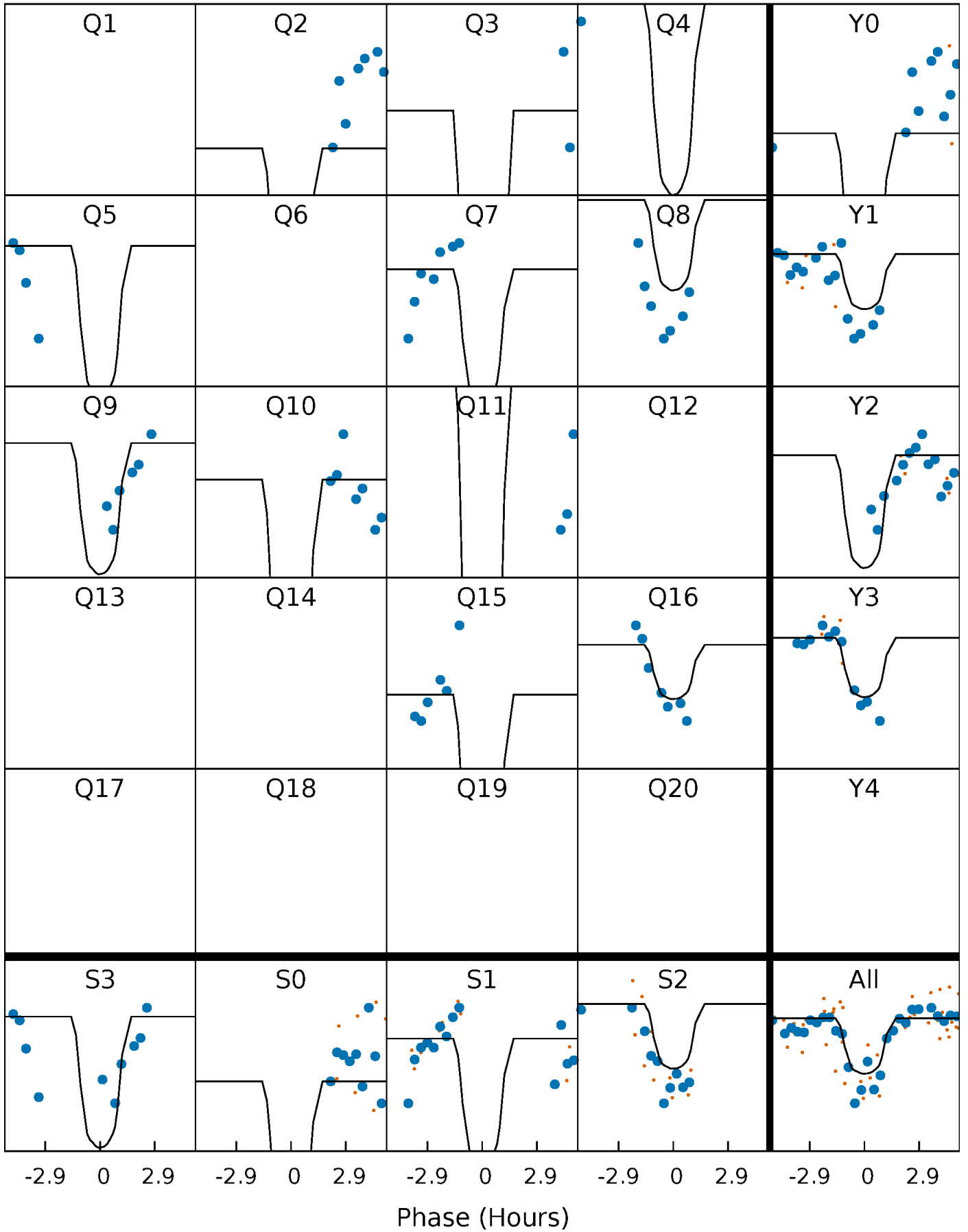
TCE 007199272-02   P=109.311739 Days    $T_0=200.412977$  (BKJD)





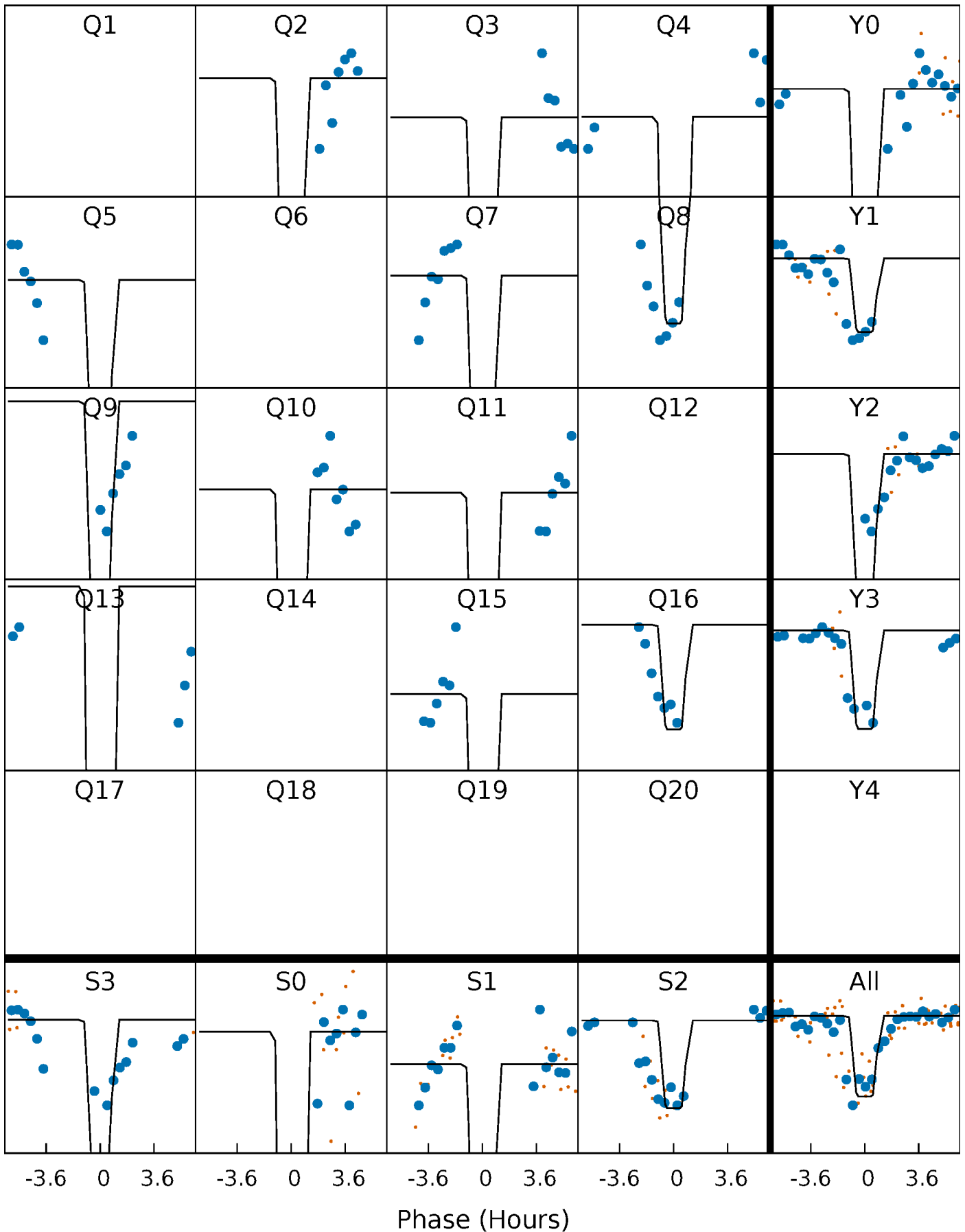
# DV Quarter-Phased Transit Curves

TCE 007199272-02     $P=109.311739$  Days     $T_0=200.412977$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

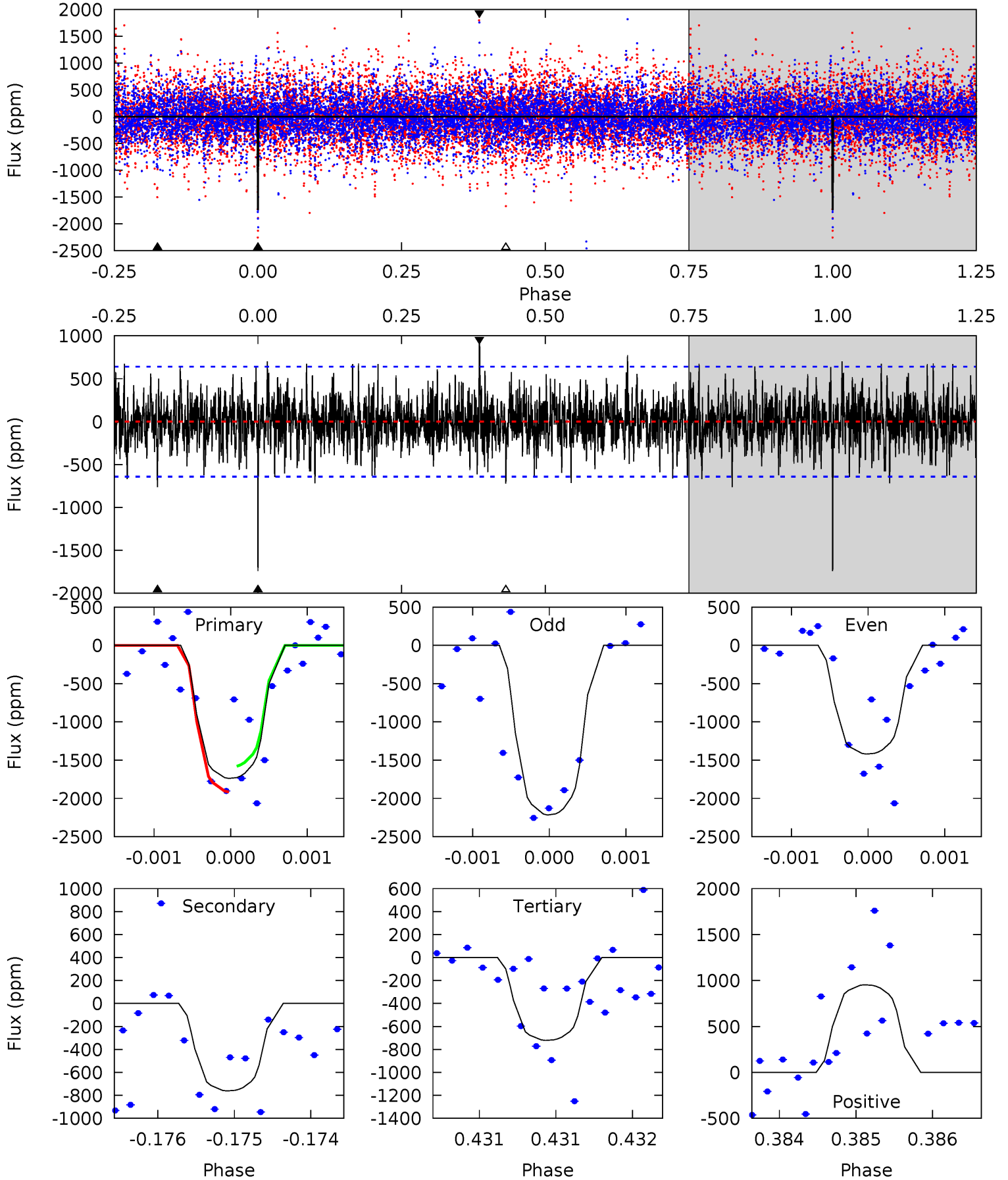
TCE 007199272-02 P=109.311774 Days  $T_0=200.428500$  (BKJD)



# DV Model-Shift Uniqueness Test

007199272-02, P = 109.311739 Days, E = 91.101238 Days

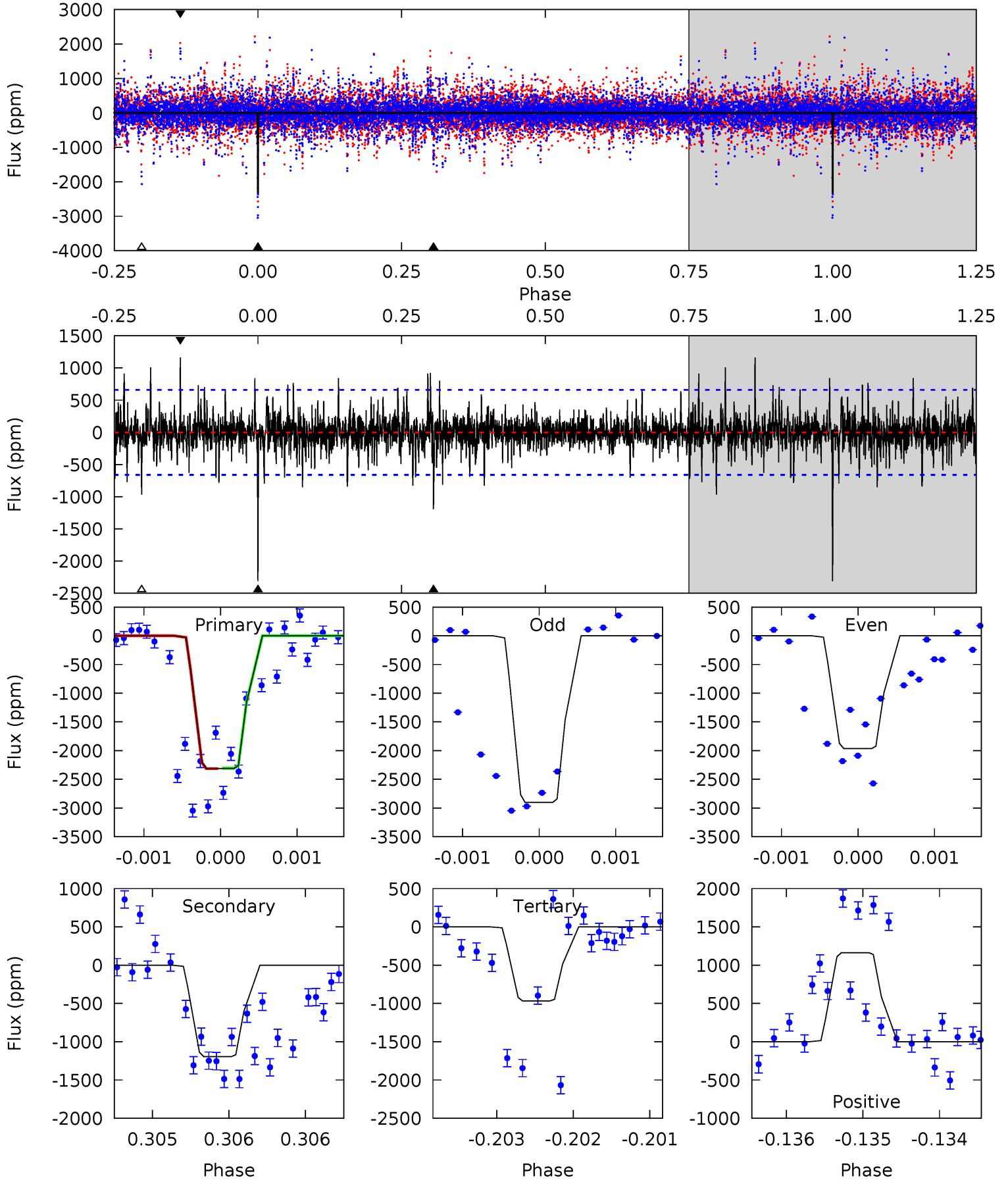
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	6.50	6.16	8.14	5.47	3.32	1.78	8.68	6.70	0.34	-1.64	3.44	0.93	0.35	1.43



# Alt Model-Shift Uniqueness Test

007199272-02, P = 109.311774 Days, E = 91.116726 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
19.2	9.90	8.01	9.65	5.47	3.32	1.57	11.2	9.52	1.89	0.25	3.65	0.96	0.33	0.04





### Stellar Parameters For KIC 007199272

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5068^{+61}_{-305}$	$2.376^{+0.030}_{-0.027}$	$-0.500^{+0.150}_{-0.250}$	$19.327^{+0.853}_{-7.676}$	$3.241^{+0.244}_{-2.077}$	$0.001^{+0.000}_{-0.000}$
	+1%/-6%	+1%/-1%	+30%/-50%	+4%/-40%	+8%/-64%	+69%/-9%
Source	PHO1	AST9	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 007199272-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-762 \pm 117$	$96.60^{+63.98}_{-58.51}$	$1682^{+38}_{-100}$	$4101^{+1863}_{-681}$	$20^{+105}_{-13}$
Alt.	$-1194 \pm 121$	$116.99^{+67.52}_{-63.31}$	$1677^{+44}_{-95}$	$4104^{+1599}_{-589}$	$21^{+76}_{-12}$

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

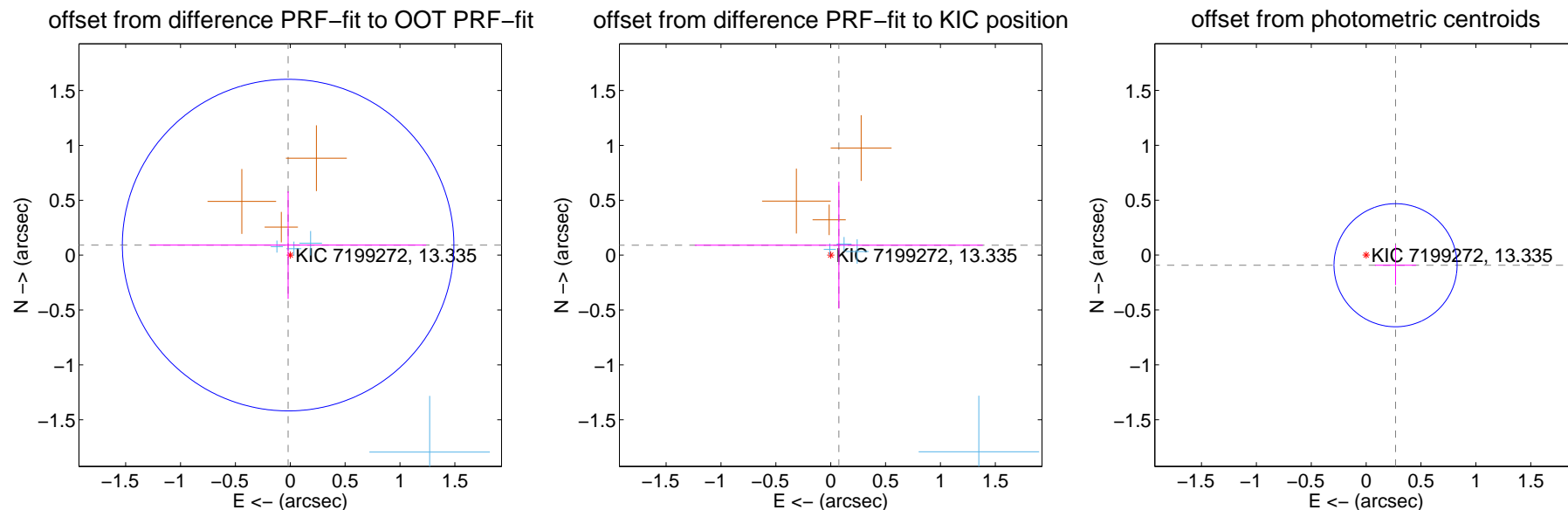
## DV Centroid Data

Supplemental centroid analysis for 007199272-02. Kepler magnitude: 13.34. Transit SNR 9.07

There are 4 quarters with good PRF difference image offsets

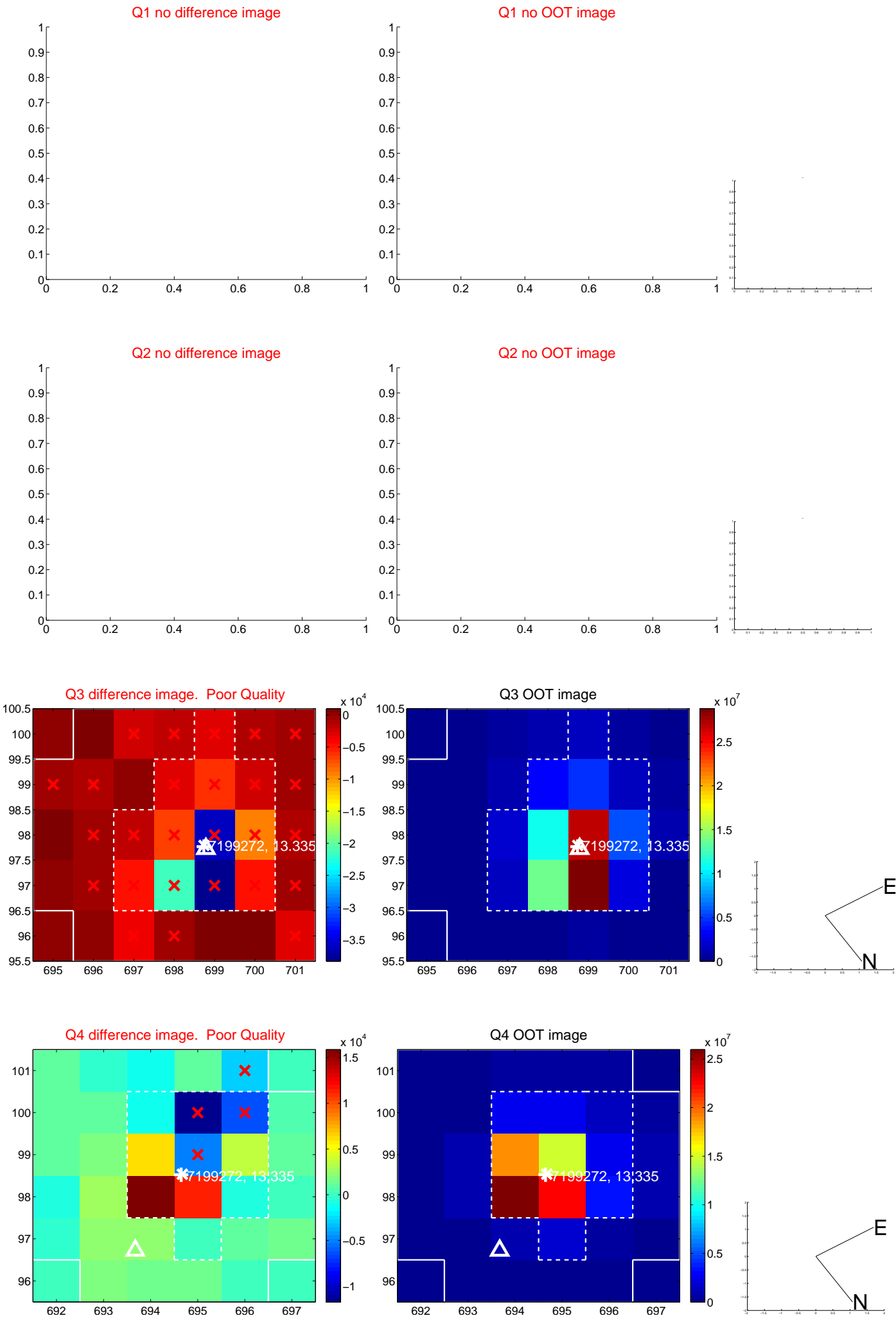
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.094 \pm 0.503$	0.19	$0.019 \pm 1.257$	$0.092 \pm 0.490$
PRF-fit source offset from KIC position	$0.117 \pm 0.995$	0.12	$-0.074 \pm 1.312$	$0.091 \pm 0.578$
photometric centroid source offset	$0.28 \pm 0.19$	1.52	$-0.27 \pm 0.19$	$-0.09 \pm 0.18$

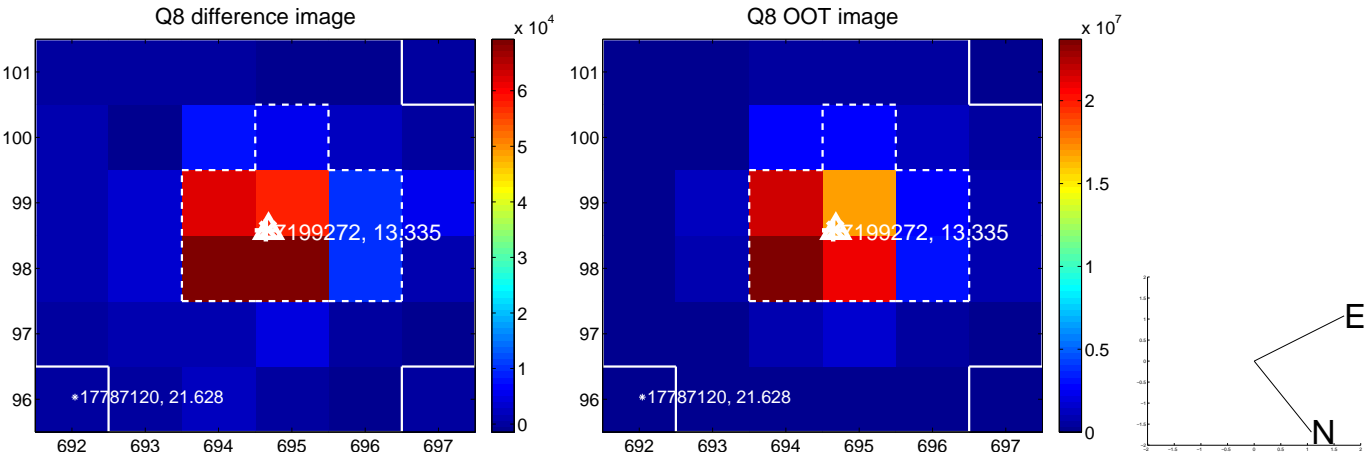
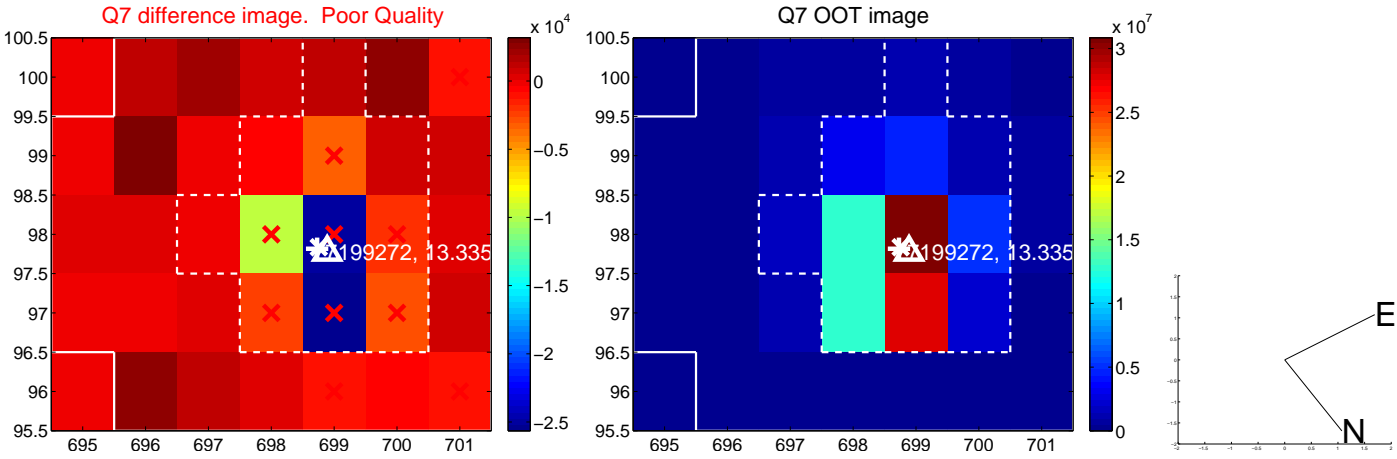
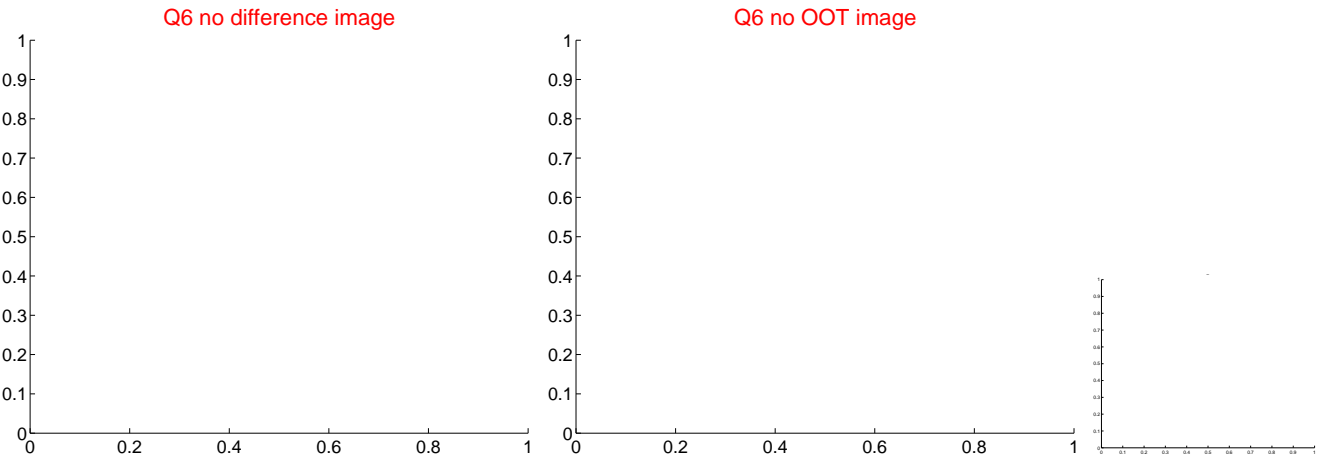
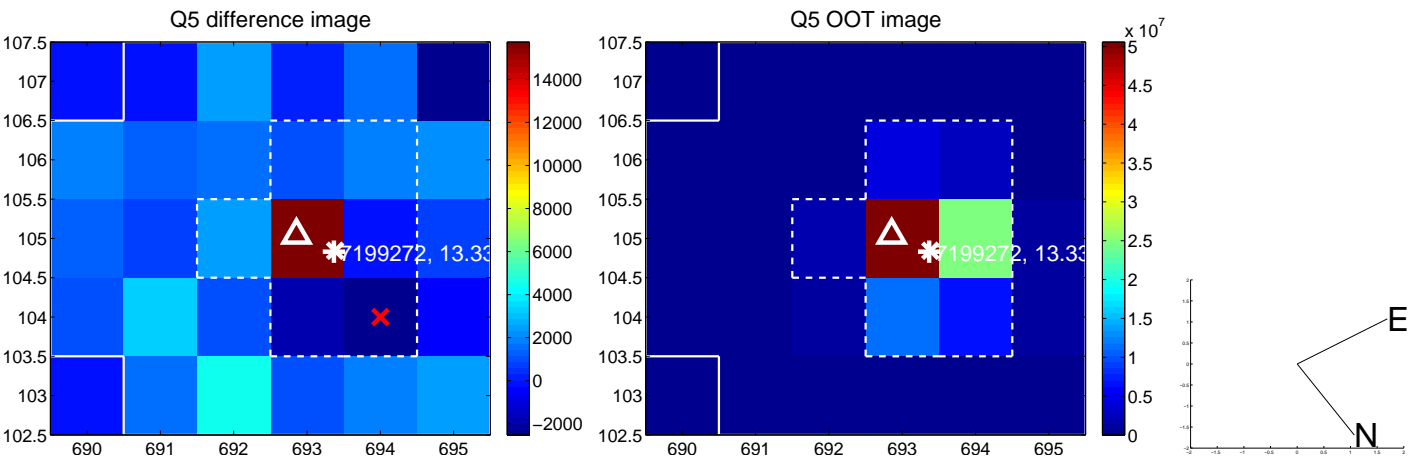


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

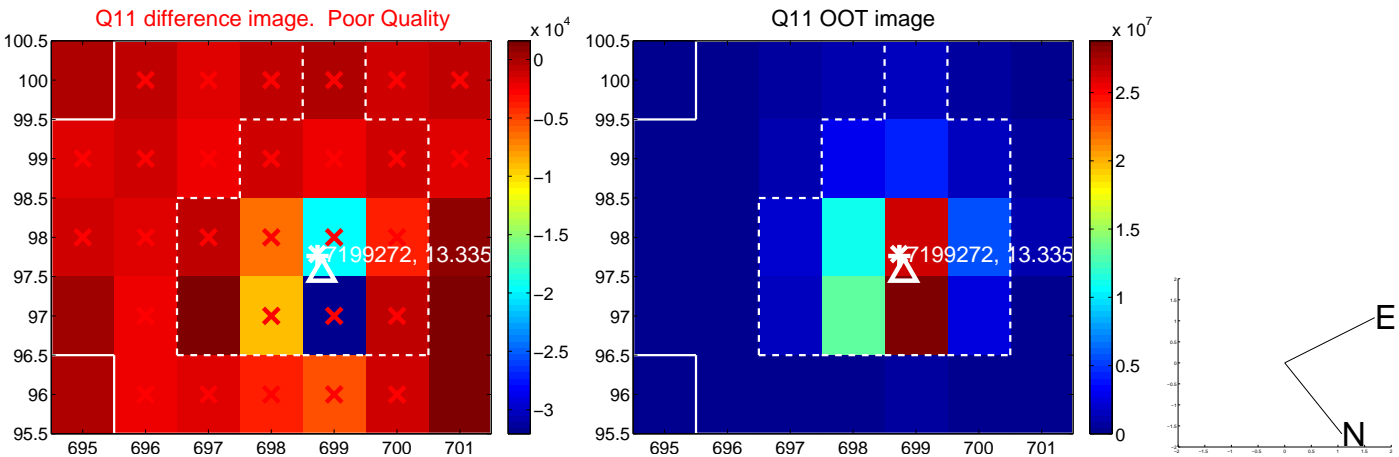
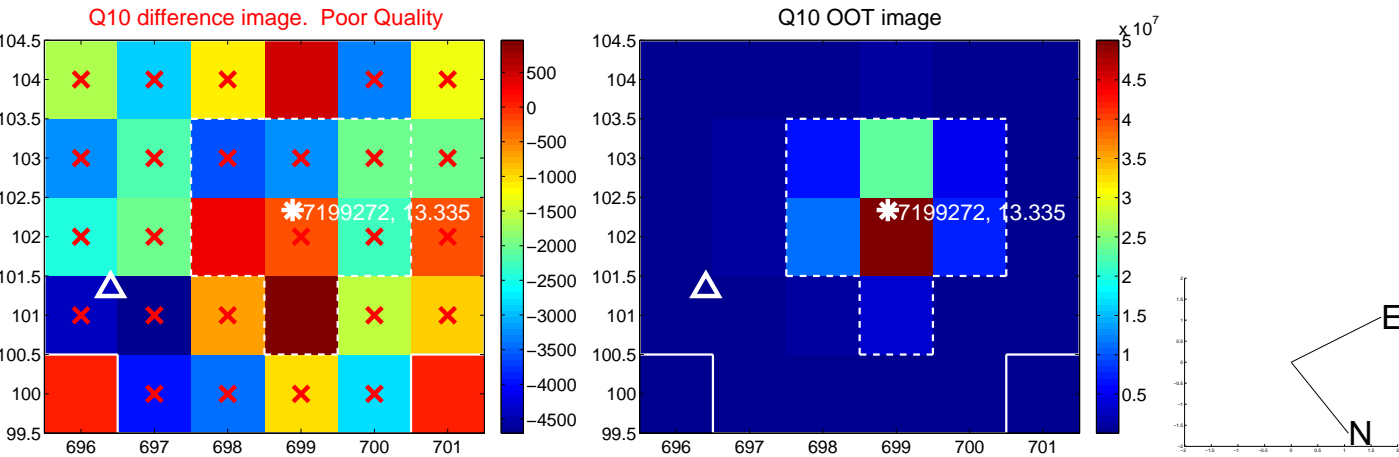
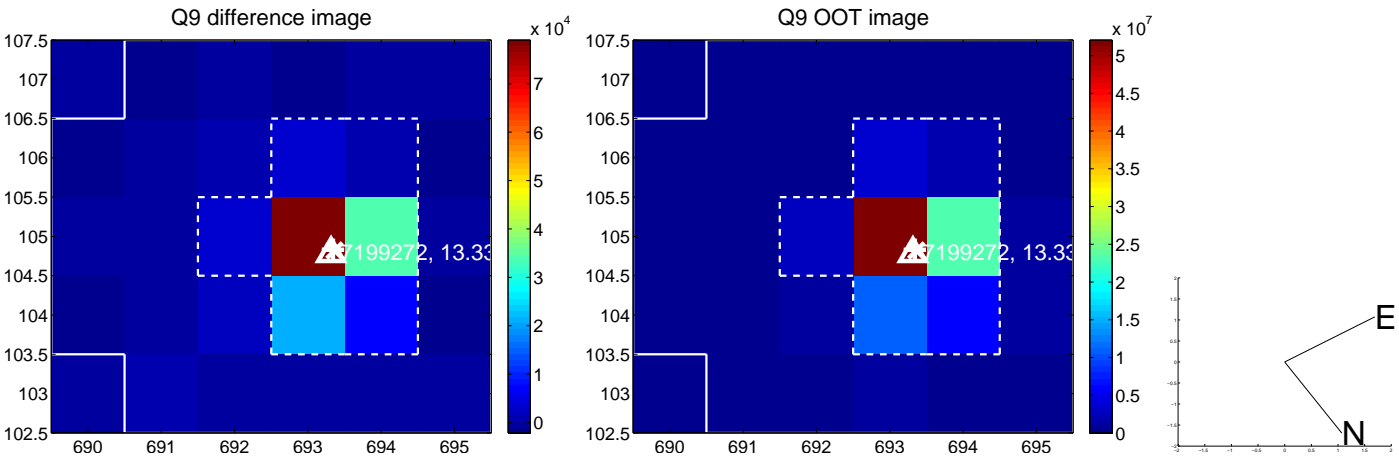
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

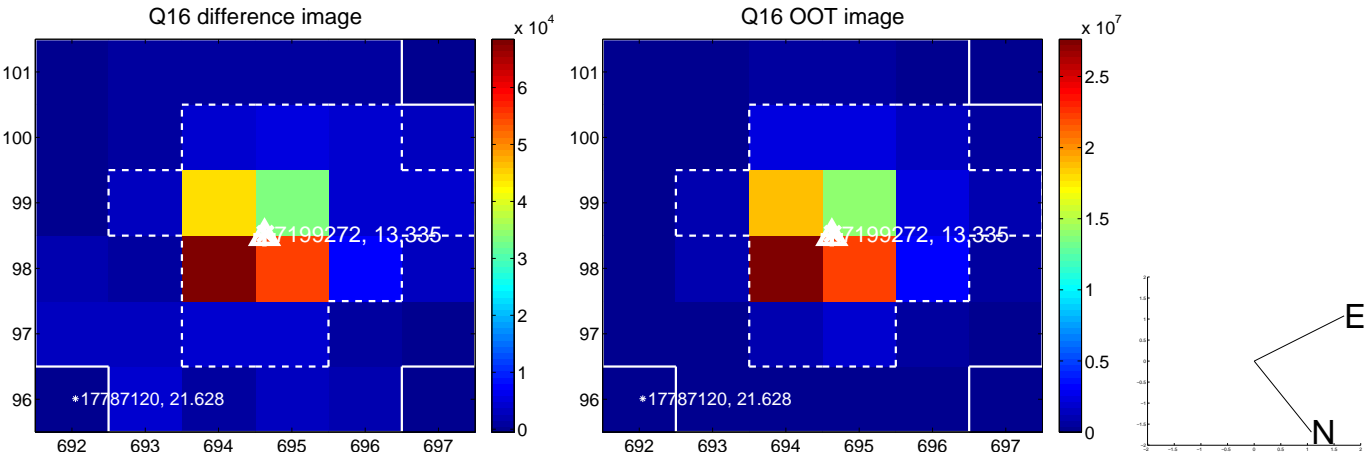
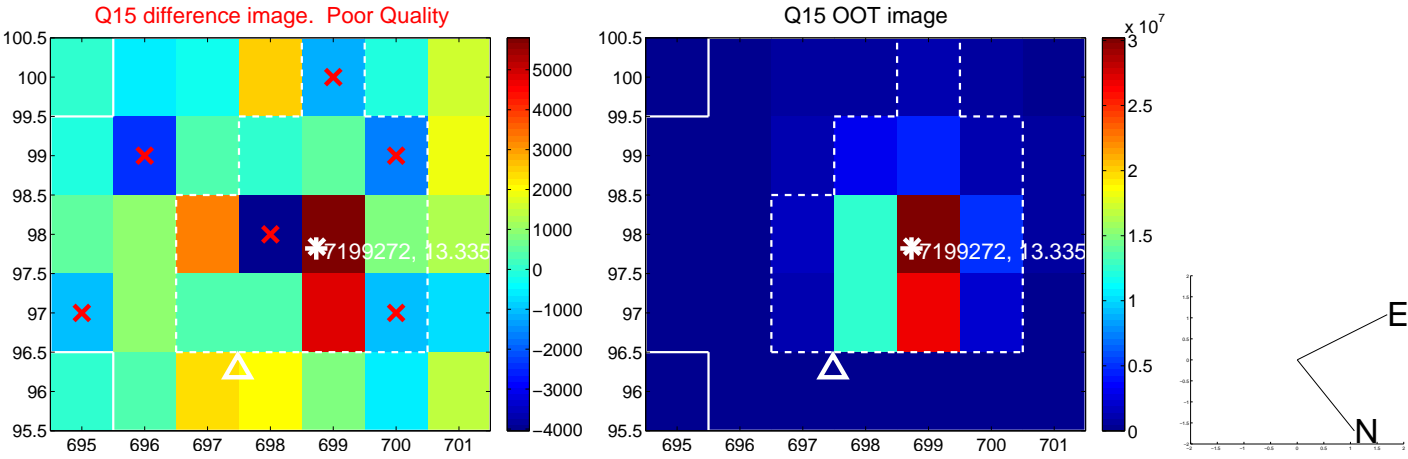
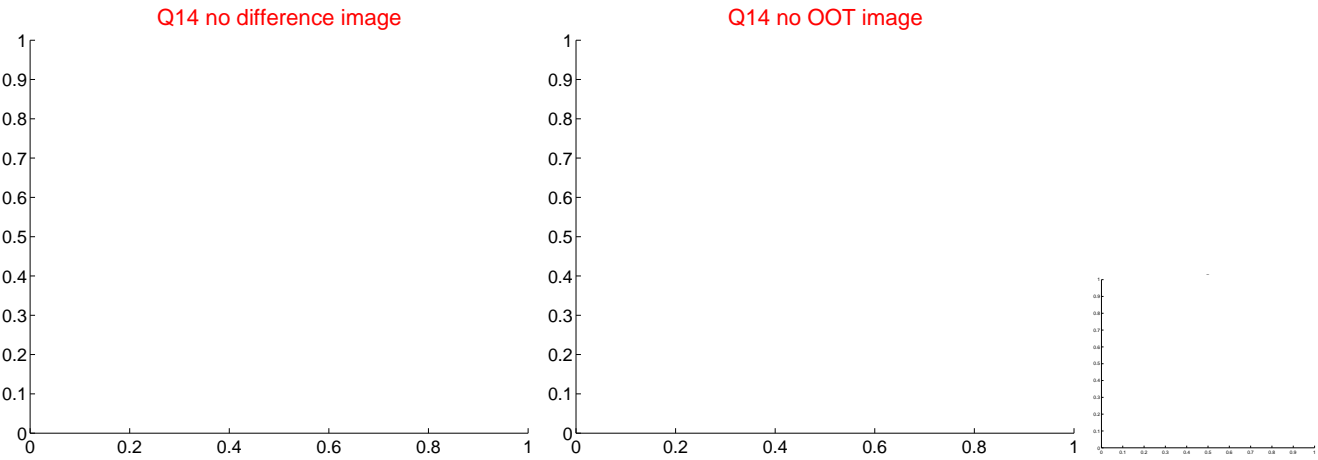
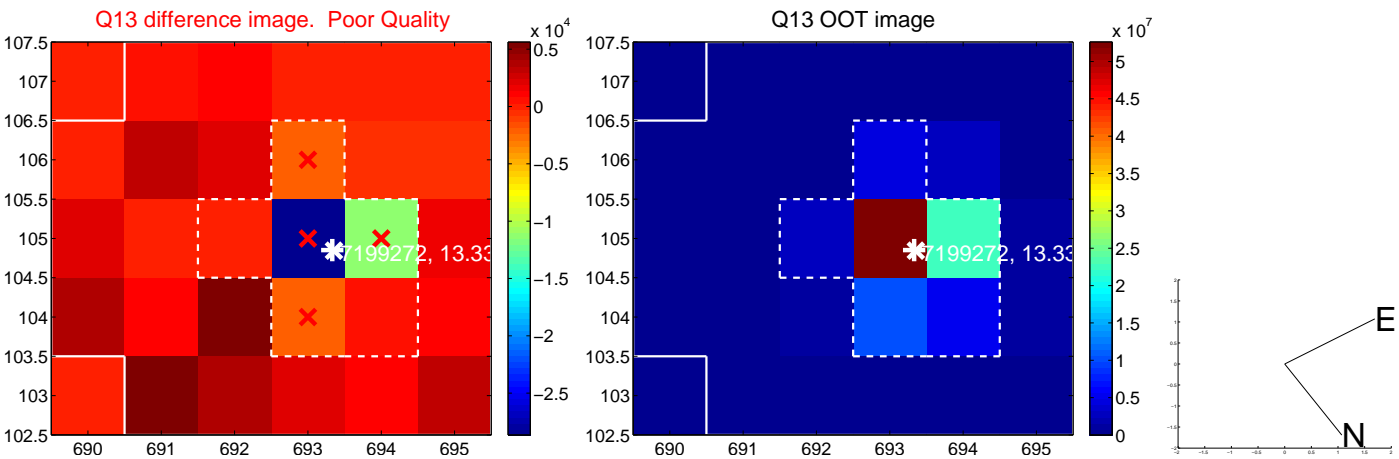


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

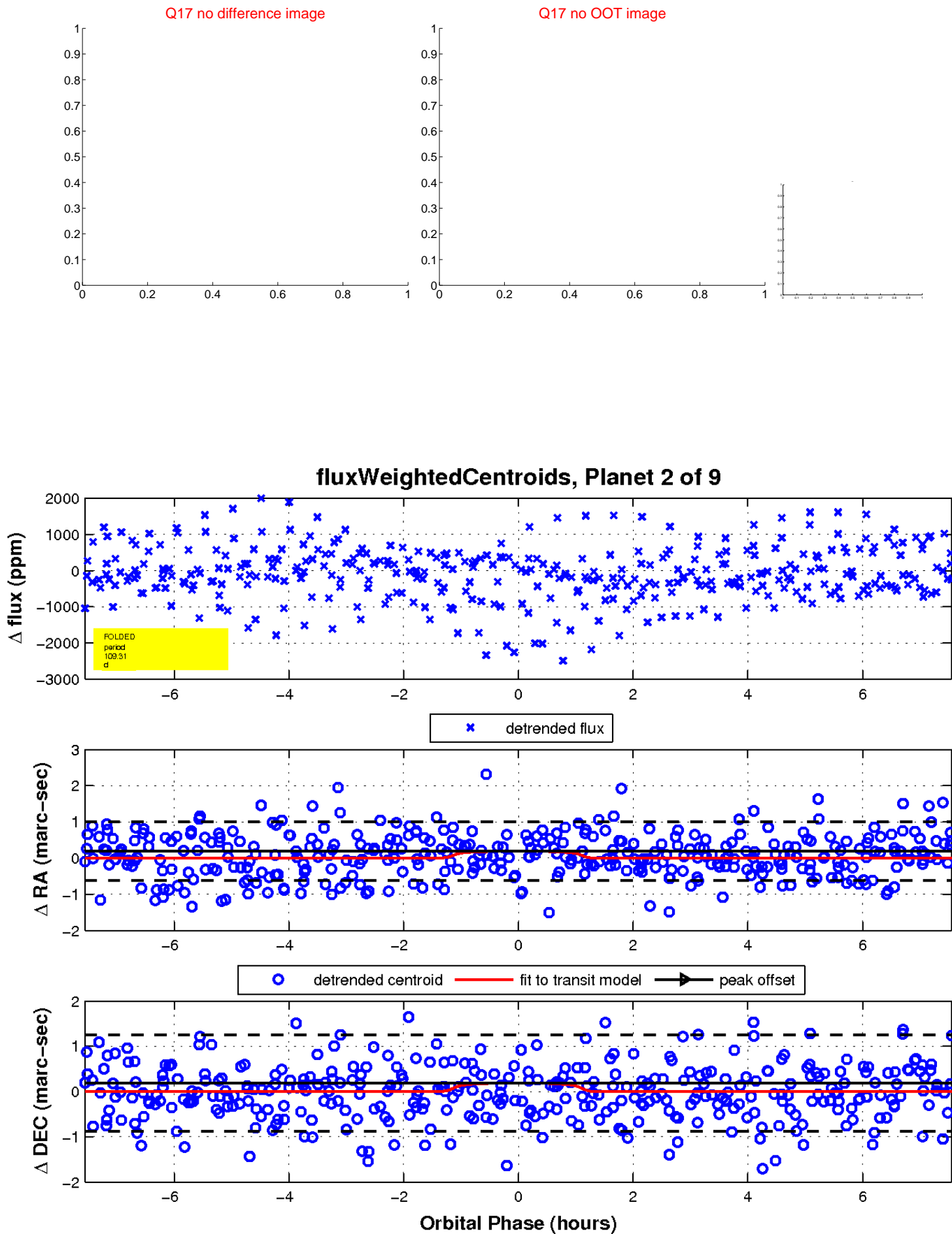




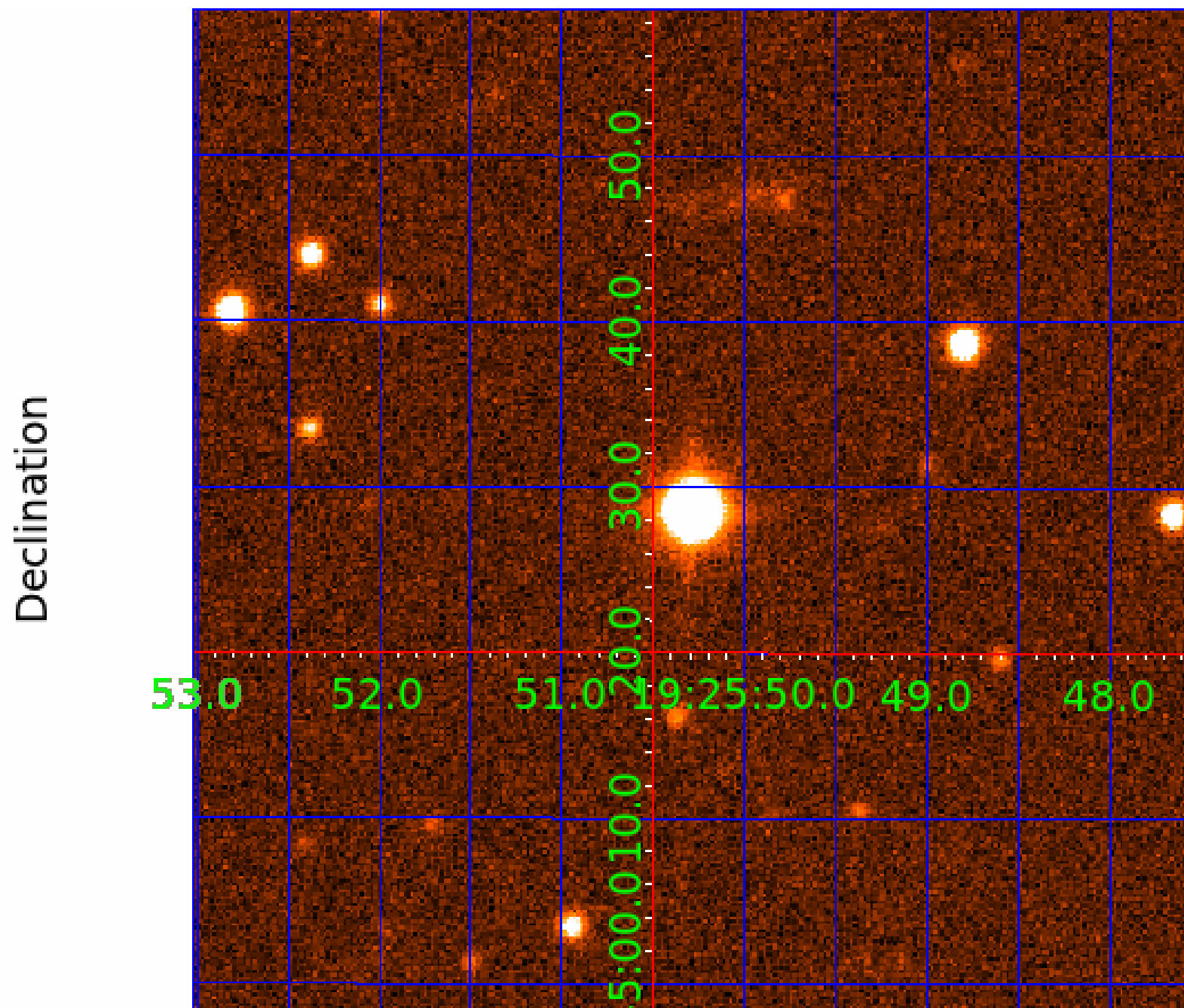
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 007199272

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007199272-01	OBS	No	0.566799	131.687562	66.4	3.288	14.4	12.5	19.33	5068	18.86	0.00
007199272-02	OBS	No	109.311739	200.412977	1471.0	2.526	10.9	9.1	19.33	5068	83.02	503.65
007199272-03	OBS	No	142.714559	262.894690	1516.7	5.208	11.5	8.3	19.33	5068	131.51	352.96
007199272-04	OBS	No	357.880851	138.273497	1764.6	10.921	8.3	7.8	19.33	5068	85.84	103.60
007199272-05	OBS	No	141.341629	222.715211	1773.8	8.761	8.3	8.9	19.33	5068	99.97	357.54
007199272-06	OBS	No	117.822367	150.641905	1383.5	3.661	8.4	9.2	19.33	5068	114.38	455.74
007199272-07	OBS	No	184.965238	282.716782	1088.7	6.545	8.5	6.1	19.33	5068	77.61	249.78
007199272-08	OBS	No	73.248202	201.211539	1083.9	4.053	8.3	9.3	19.33	5068	123.64	858.92
007199272-09	OBS	No	140.819093	158.394533	396.7	3.000	8.0	-1.0	19.33	5068	37.74	359.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007199272-01	OBS	FP	0.00	1	0	1	1	LPP_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
007199272-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
007199272-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV
007199272-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
007199272-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007199272-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007199272-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_NOFITS

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

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

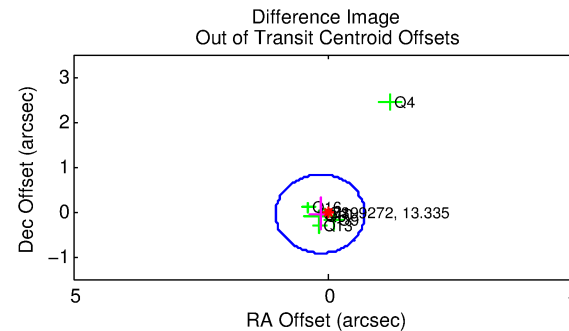
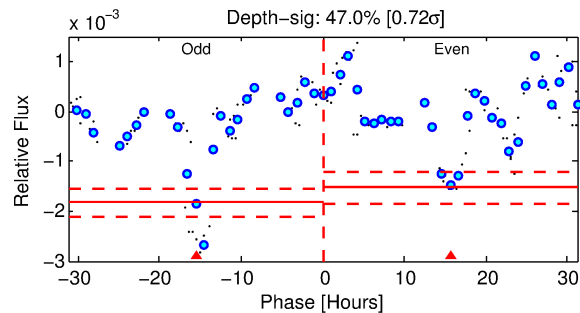
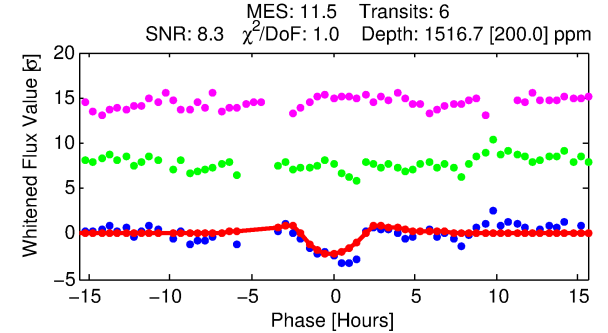
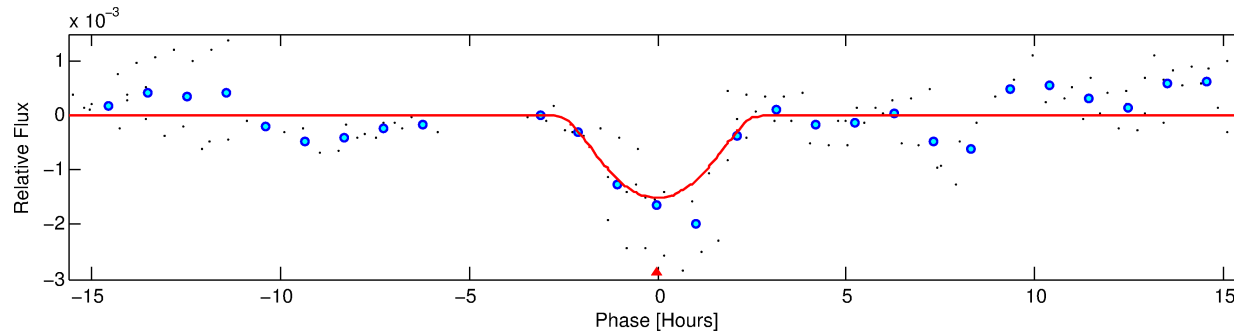
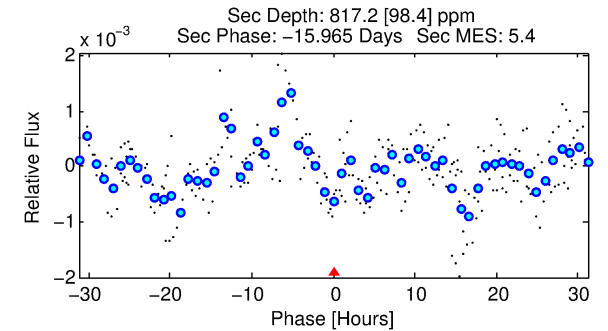
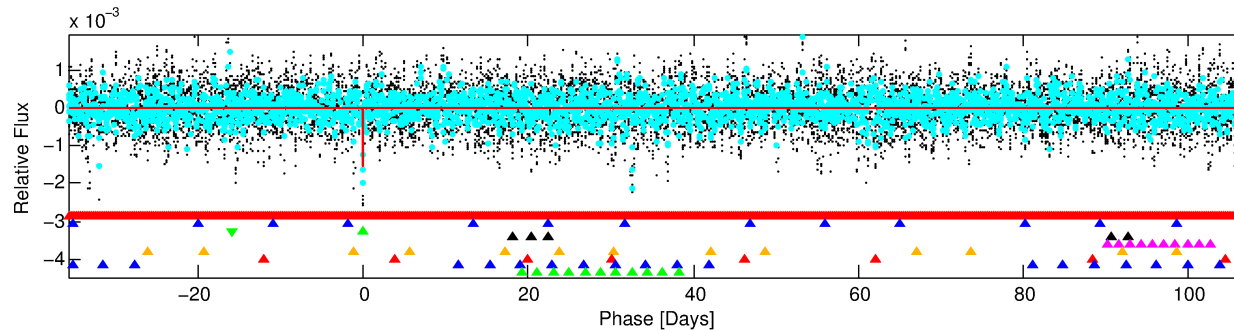
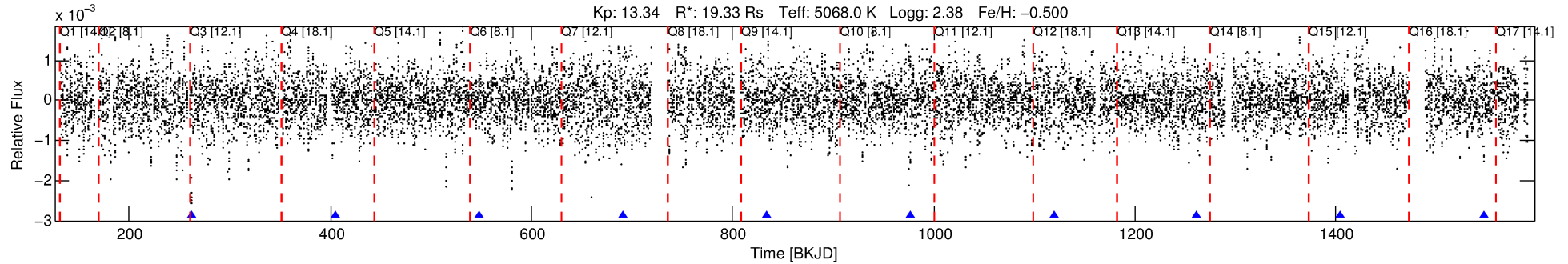
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007199272-03

No Significant Match Found

# DV One-Page Summary

KIC: 7199272 Candidate: 3 of 9 Period: 142.715 d



## DV Fit Results:

Period = 142.71456 [0.00232] d  
Epoch = 262.8947 [0.0119] BKJD  
Rp/R\* = 0.0624 [0.1074]  
a/R\* = 81.72 [39.00]  
b = 0.99 [0.17]  
Seff = 352.96 [127.35]  
Teq = 1105 [100] K  
**Rp = 131.51 [232.47] Re**  
a = 0.7909 [0.2102] AU  
Ag = 16.26 [56.22] [0.27σ]  
Teffp = 3431 [2964] K [0.78σ]

## DV Diagnostic Results:

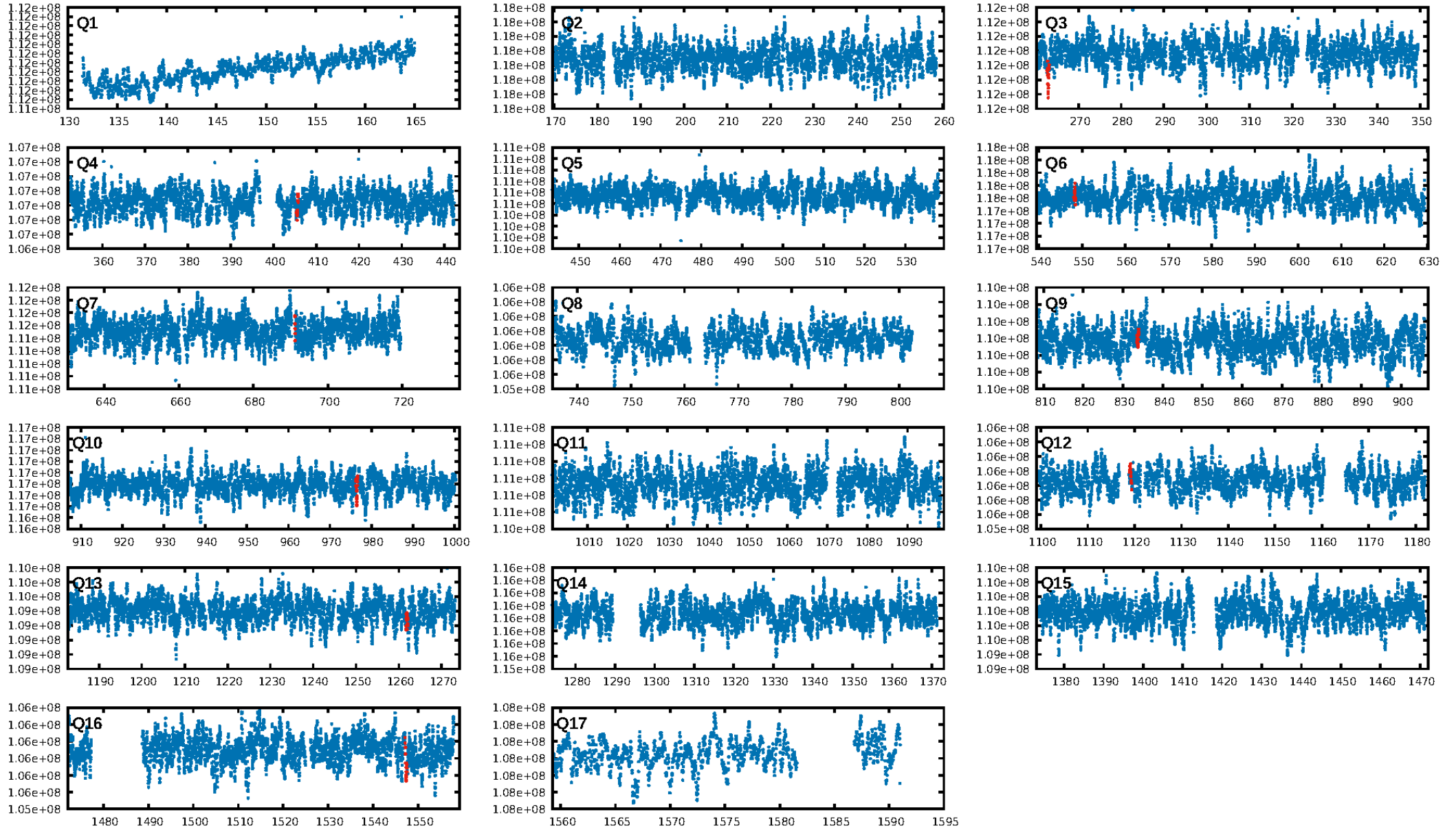
ShortPeriod-sig: 99.9% [3.23σ]  
LongPeriod-sig: 100.0% [121.23σ]  
ModelChiSquare2-sig: 1.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [6/6]  
**GhostDiagnostic-chr: 0.1115**  
Centroid-sig: 15.1%  
Centroid-so: 0.414 arcsec [2.17σ]  
OotOffset-rm: 0.153 arcsec [0.52σ]  
OotOffset-st: 2/1/2/2 [7]  
KicOffset-rm: 0.088 arcsec [0.24σ]  
KicOffset-st: 2/1/2/2 [7]  
DiffImageQuality-fgm: 0.57 [4/7]  
DiffImageOverlap-fno: 0.00 [0/7]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:41:26 Z

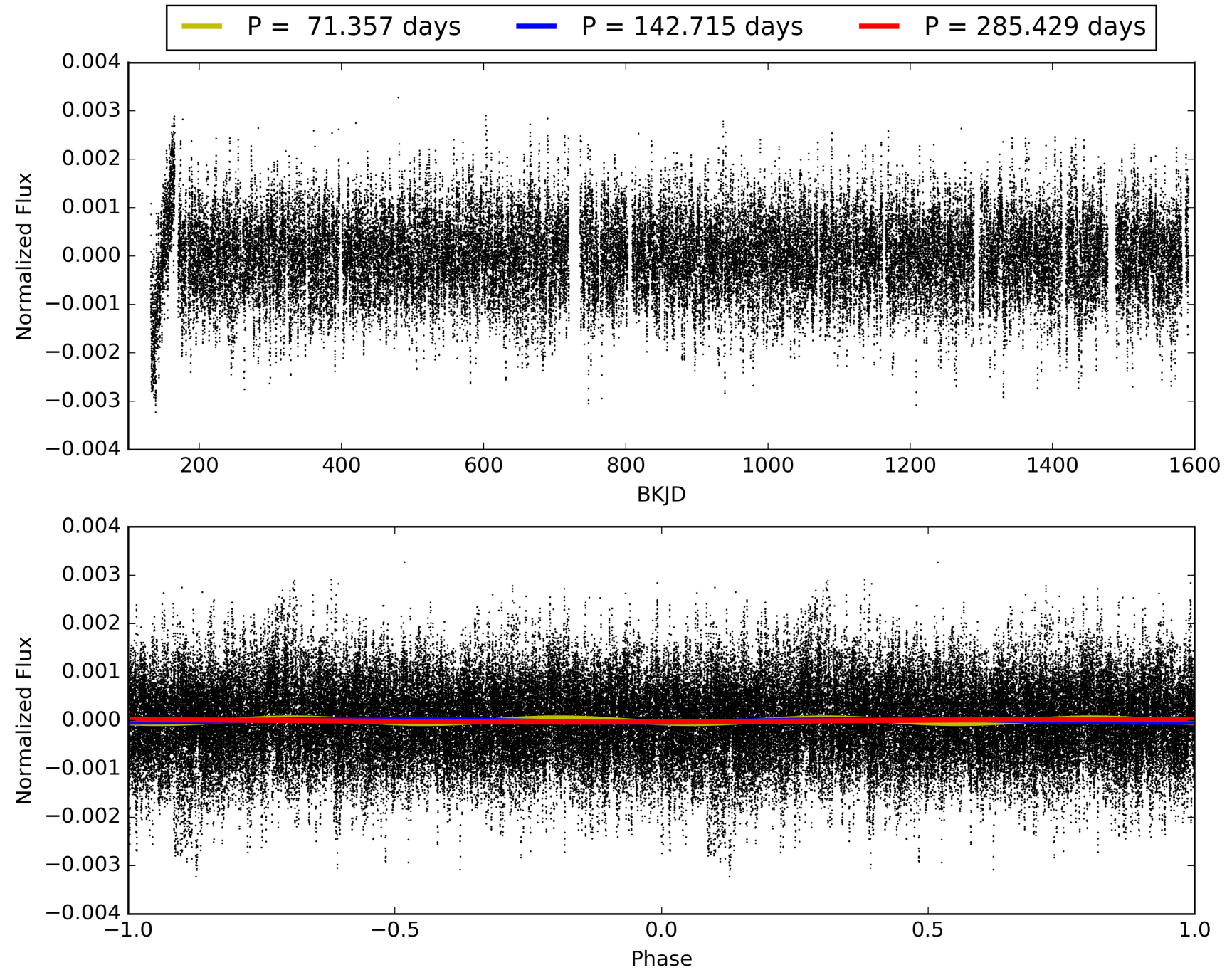
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 007199272-03, PDC Light Curves

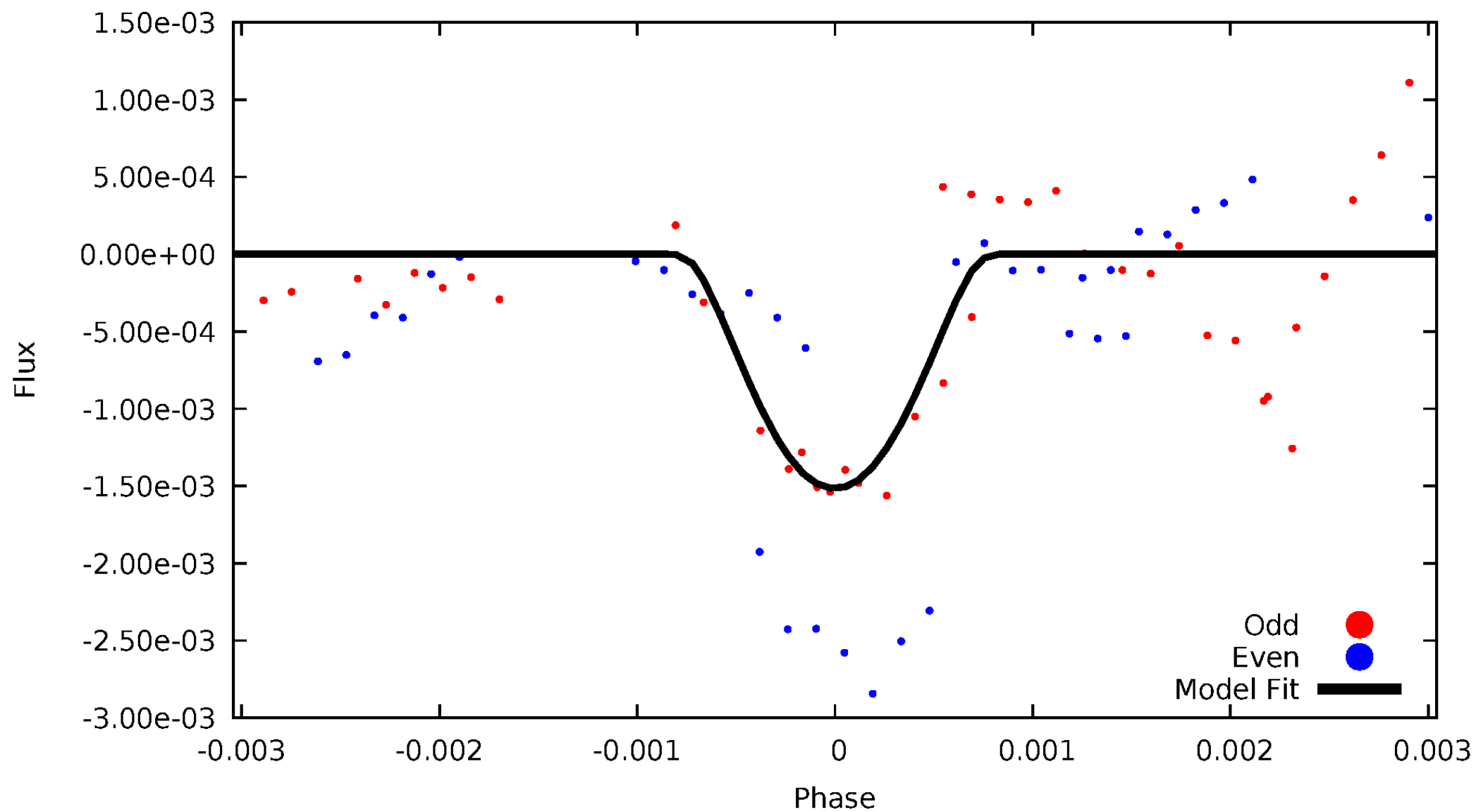


# TCE 007199272-03



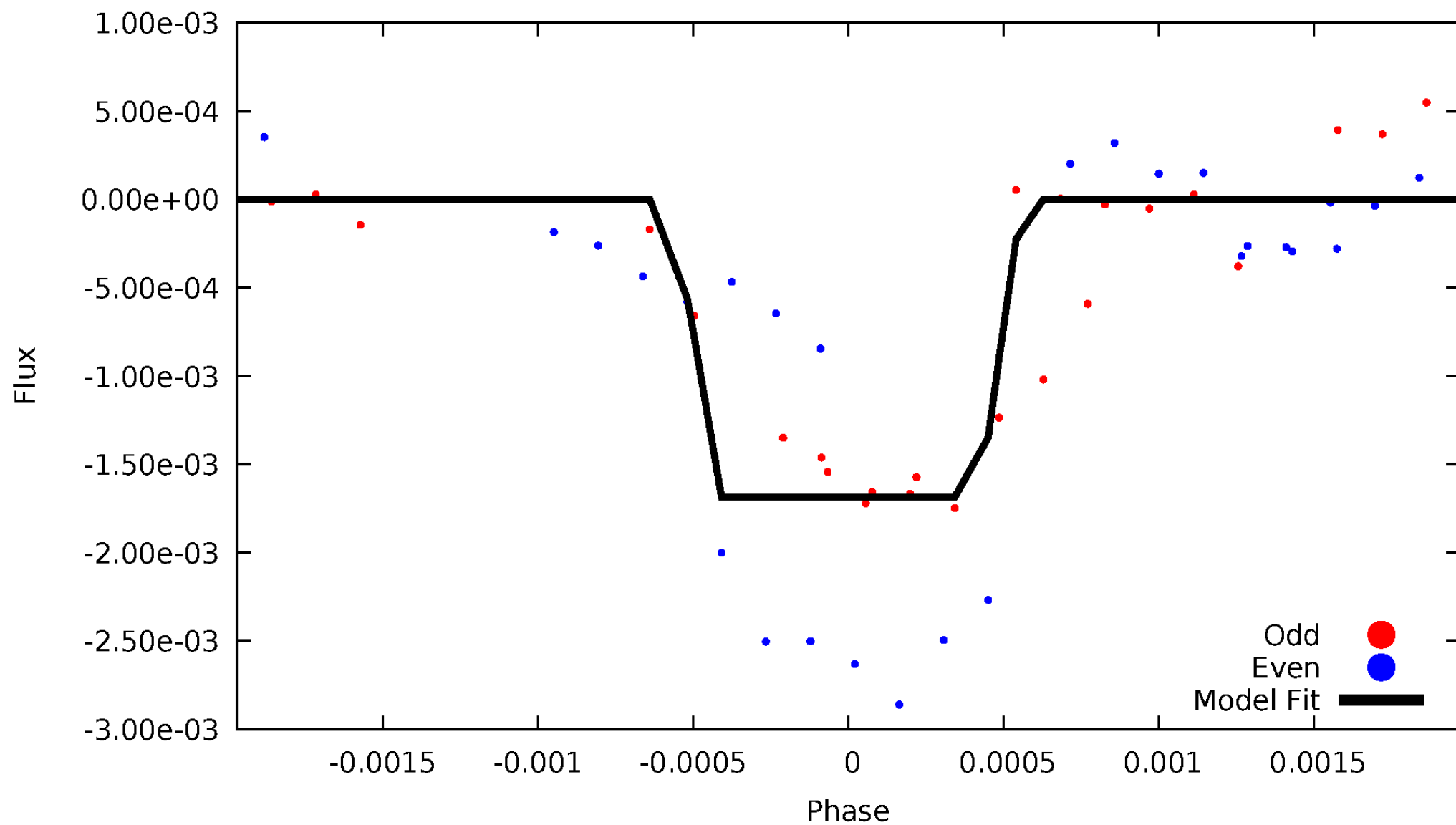
DV Odd/Even

TCE 007199272-03



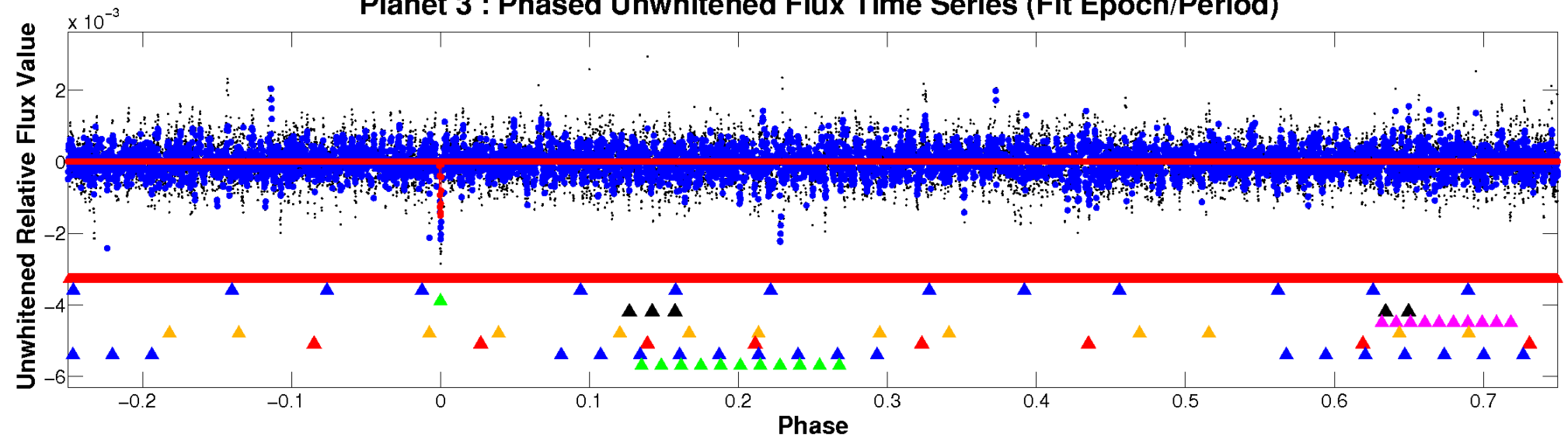
# ALT Odd/Even

TCE 007199272-03

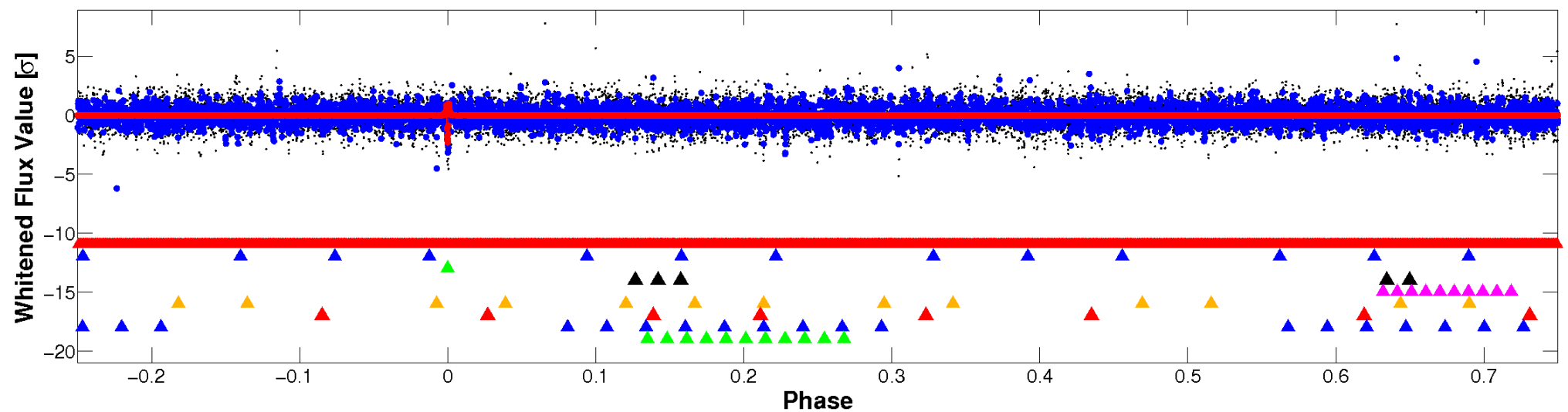


# Non-Whitened Vs. Whitened Light Curve

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



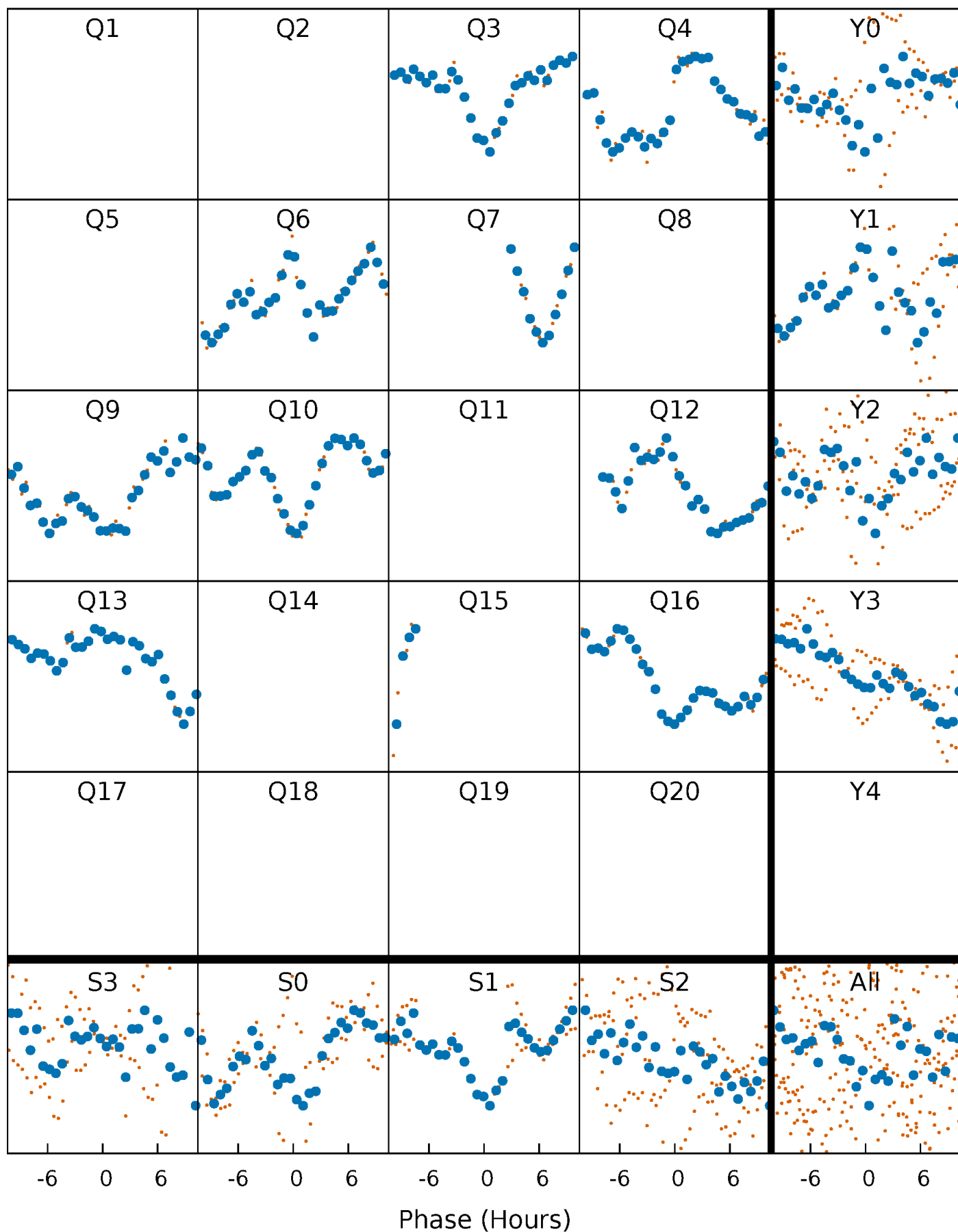
Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





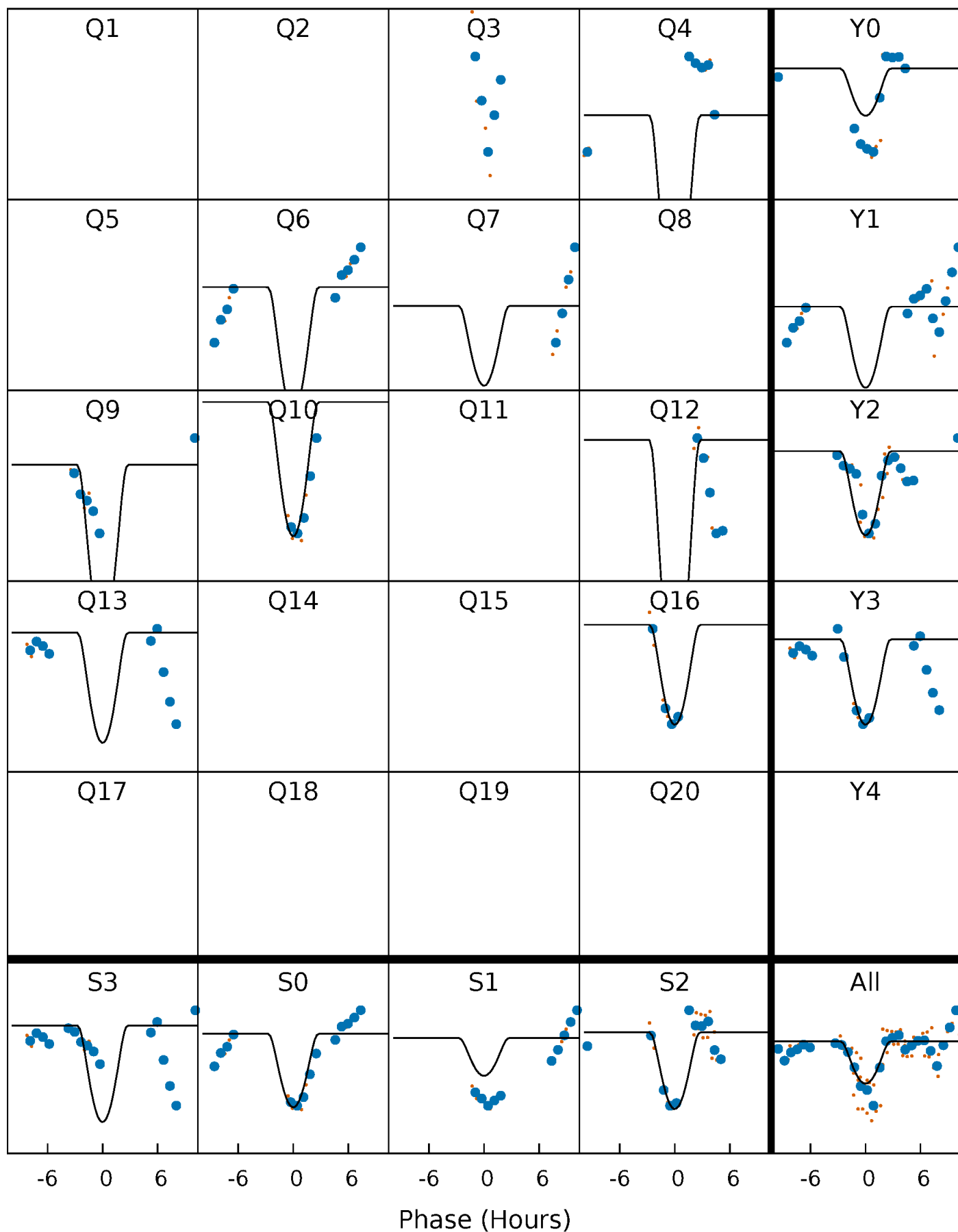
# PDC Quarter-Phased Transit Curves

TCE 007199272-03     $P=142.714559$  Days     $T_0=262.894690$  (BKJD)



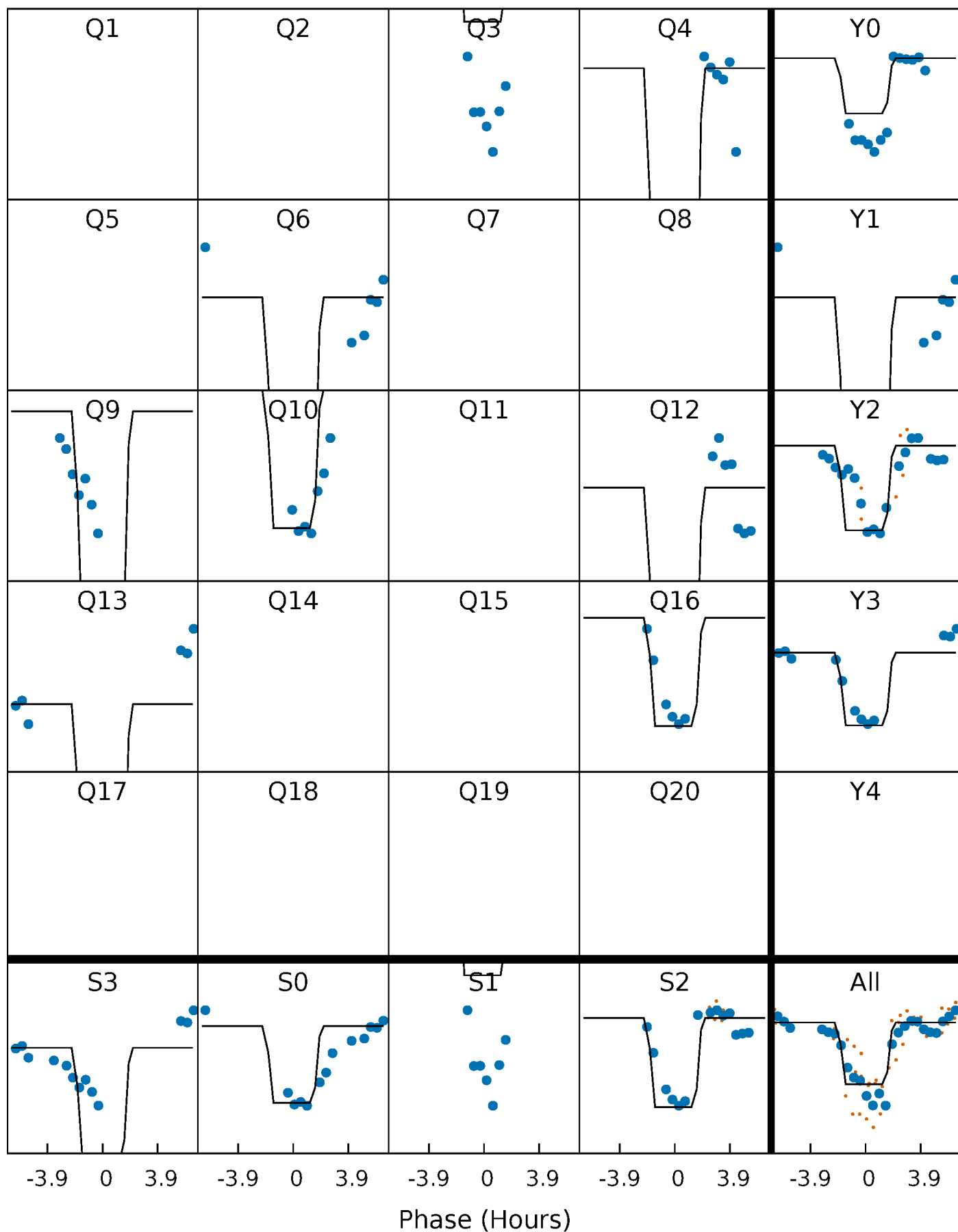
# DV Quarter-Phased Transit Curves

TCE 007199272-03 P=142.714559 Days  $T_0=262.894690$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

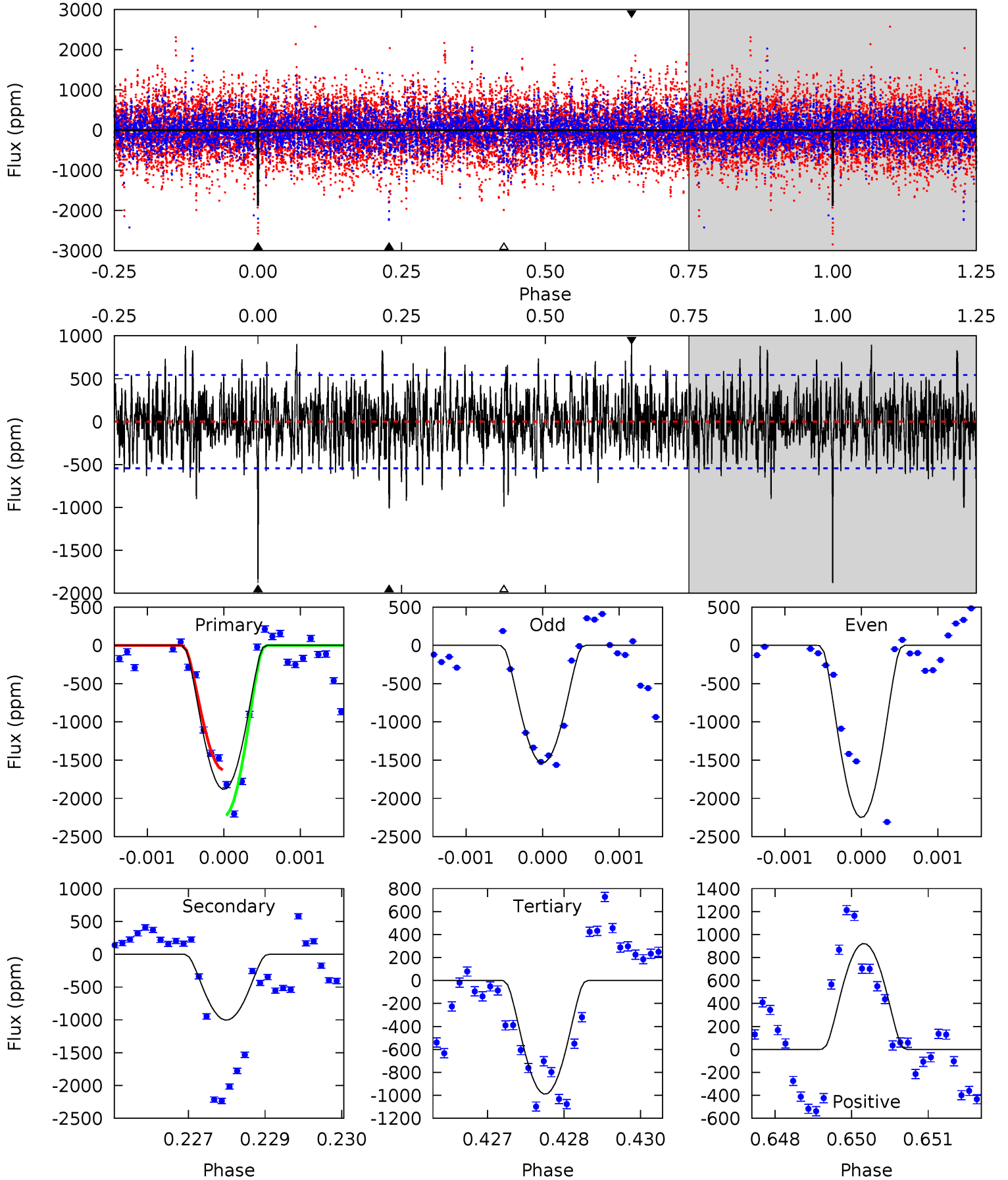
TCE 007199272-03 P=142.711480 Days  $T_0=262.898595$  (BKJD)



# DV Model-Shift Uniqueness Test

007199272-03, P = 142.714559 Days, E = 120.180131 Days

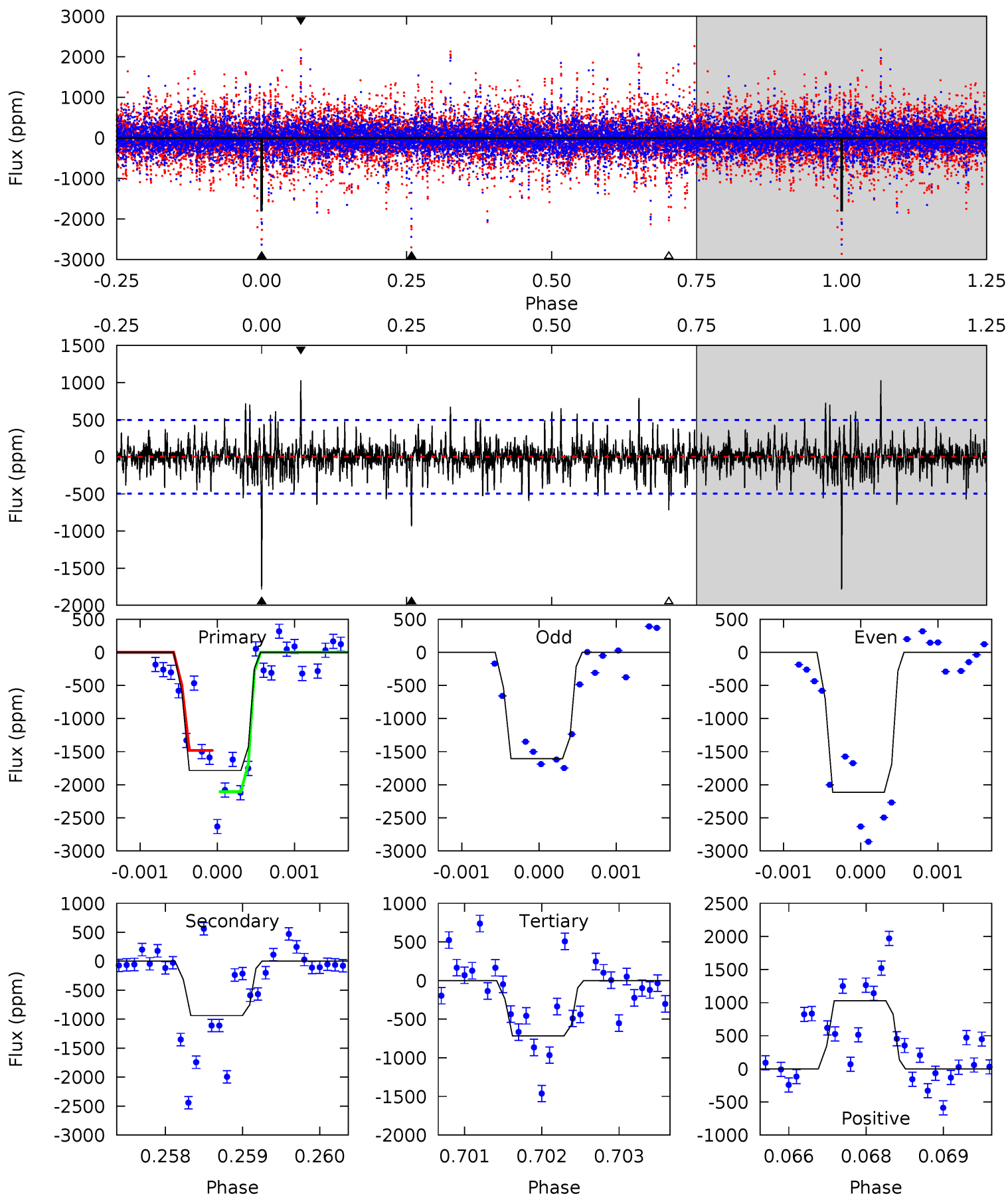
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.6	9.93	9.79	9.12	5.38	3.18	2.59	8.83	9.50	0.14	0.81	3.51	0.84	0.33	2.94



# Alt Model-Shift Uniqueness Test

007199272-03, P = 142.711480 Days, E = 120.187115 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
19.5	10.3	7.84	11.3	5.43	3.26	1.77	11.7	8.28	2.42	-1.01	2.61	1.00	0.37	3.40



### Stellar Parameters For KIC 007199272

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5068^{+61}_{-305}$	$2.376^{+0.030}_{-0.027}$	$-0.500^{+0.150}_{-0.250}$	$19.327^{+0.853}_{-7.676}$	$3.241^{+0.244}_{-2.077}$	$0.001^{+0.000}_{-0.000}$
	+1%/-6%	+1%/-1%	+30%/-50%	+4%/-40%	+8%/-64%	+69%/-9%
Source	PHO1	AST9	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 007199272-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1003 \pm 101$	$206.36^{+183.29}_{-135.02}$	$1537^{+36}_{-97}$	$3309^{+1606}_{-606}$	$8.289^{+58.599}_{-6.003}$
Alt.	$-938 \pm 91$	$191.60^{+171.56}_{-125.32}$	$1539^{+32}_{-94}$	$3335^{+1523}_{-583}$	$8.755^{+65.645}_{-6.312}$

$T_{max}$  = 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

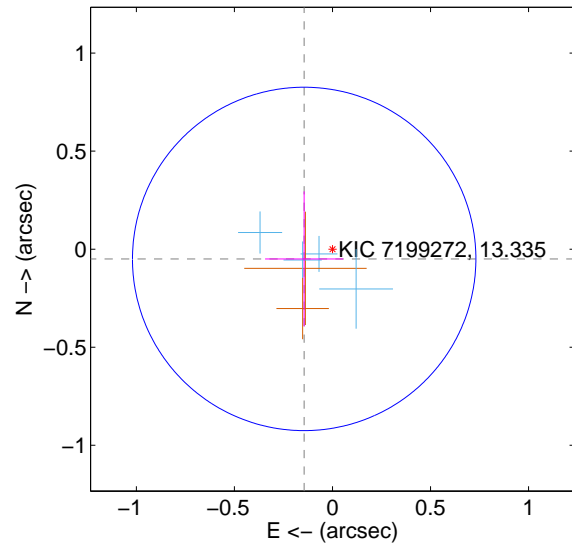
Supplemental centroid analysis for 007199272-03. Kepler magnitude: 13.34. Transit SNR 8.34

There are 4 quarters with good PRF difference image offsets

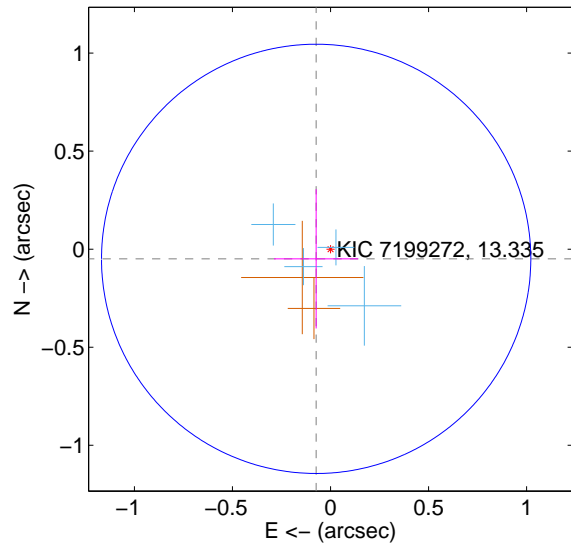
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.153 \pm 0.292$	0.52	$0.144 \pm 0.199$	$-0.050 \pm 0.345$
PRF-fit source offset from KIC position	$0.088 \pm 0.365$	0.24	$0.073 \pm 0.215$	$-0.049 \pm 0.355$
photometric centroid source offset	$0.41 \pm 0.19$	2.17	$-0.41 \pm 0.19$	$0.01 \pm 0.18$

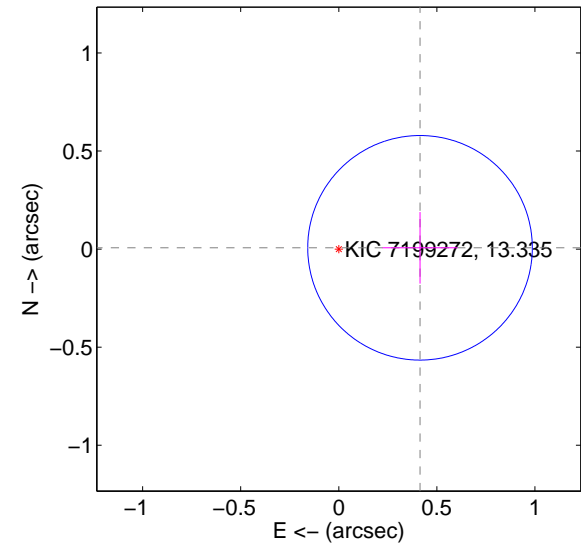
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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.

Q1 no difference image



Q1 no OOT image



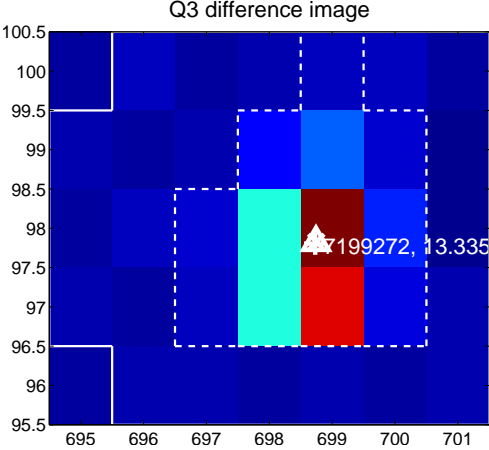
Q2 no difference image



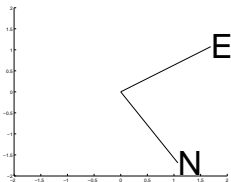
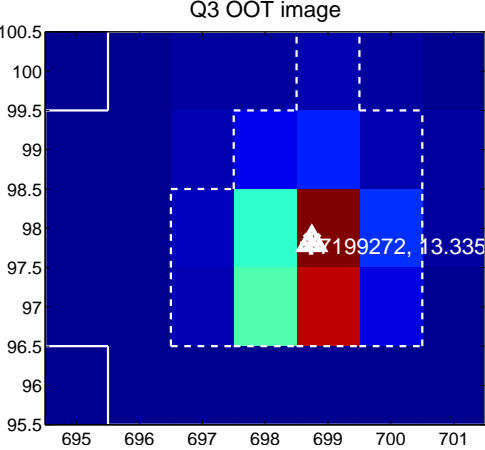
Q2 no OOT image



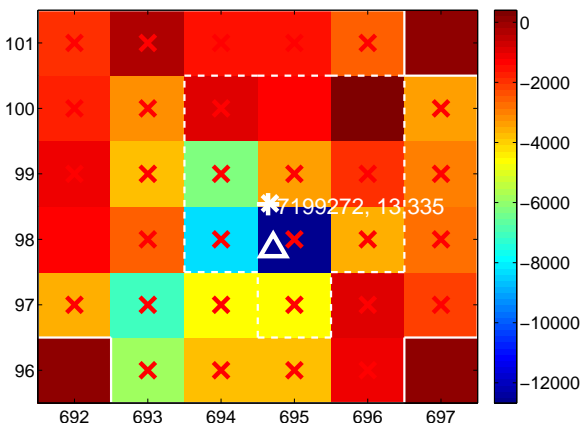
Q3 difference image



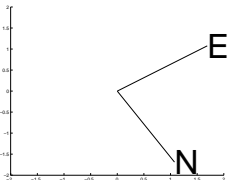
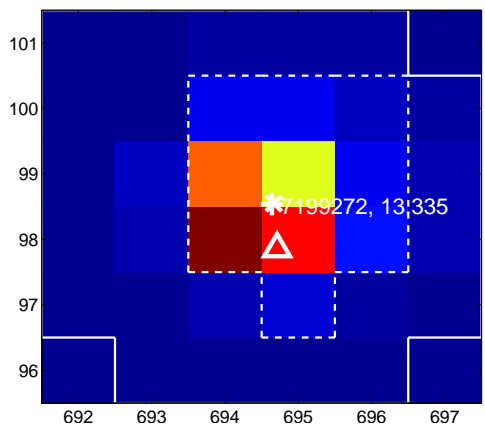
Q3 OOT image



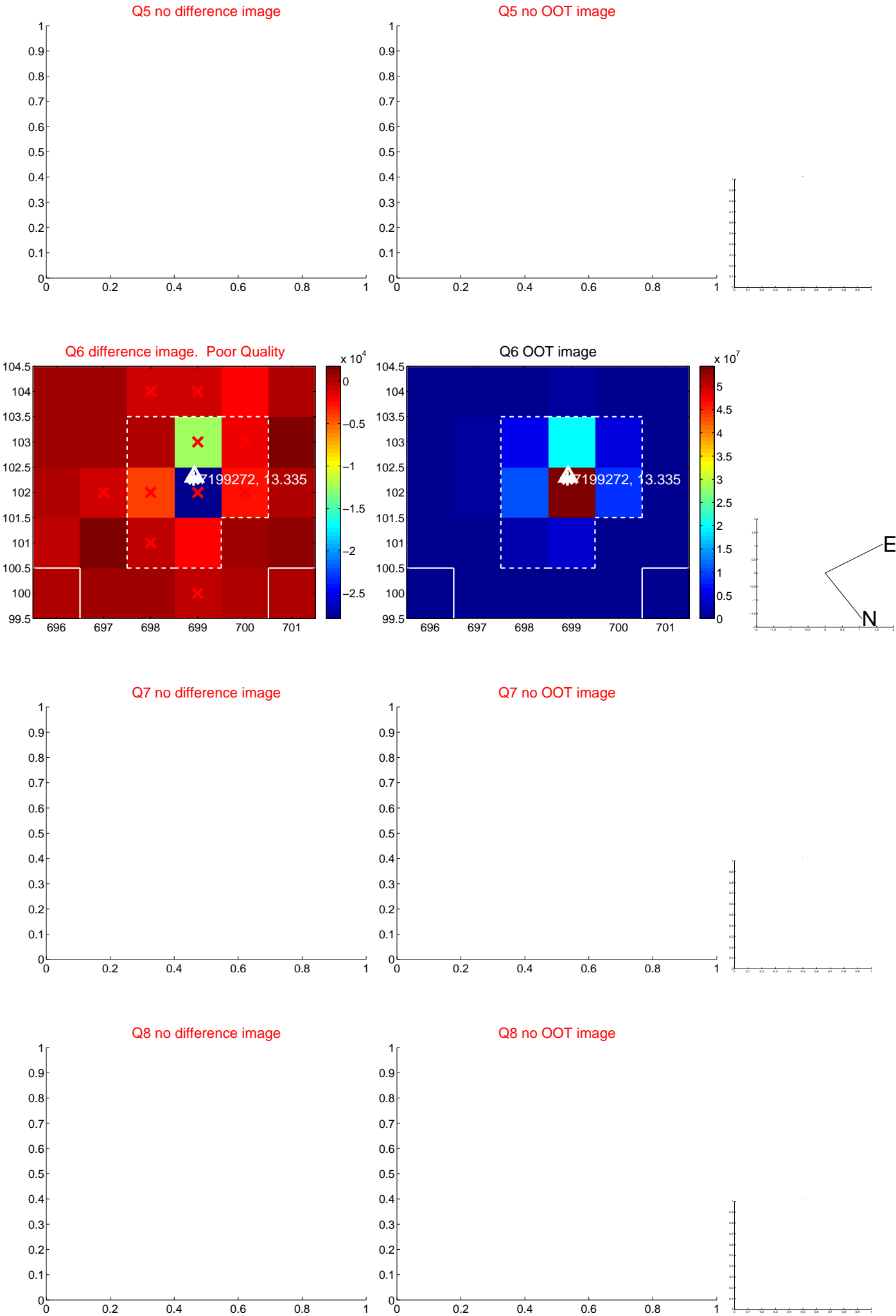
Q4 difference image. Poor Quality



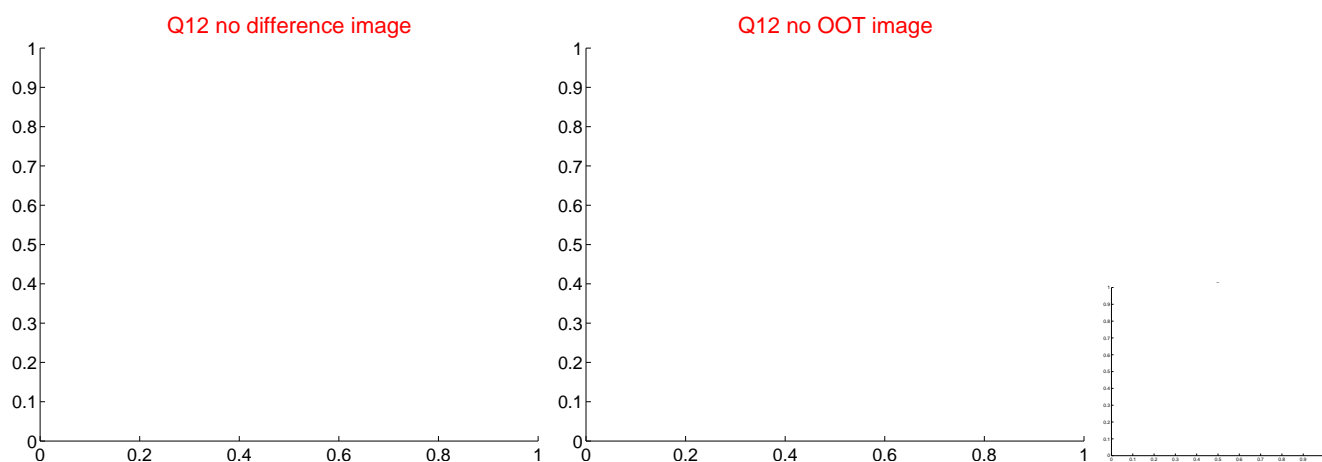
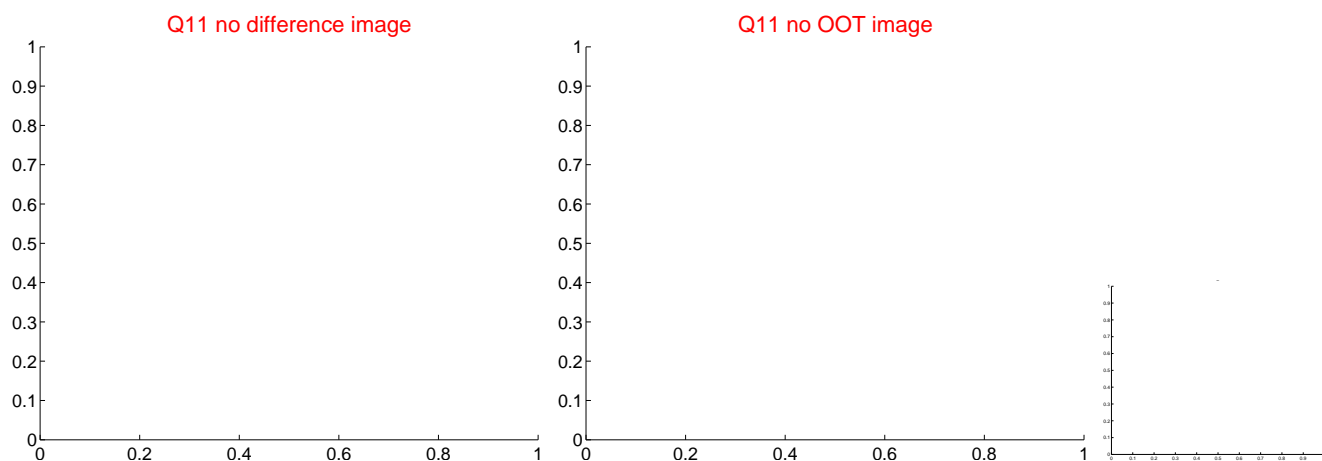
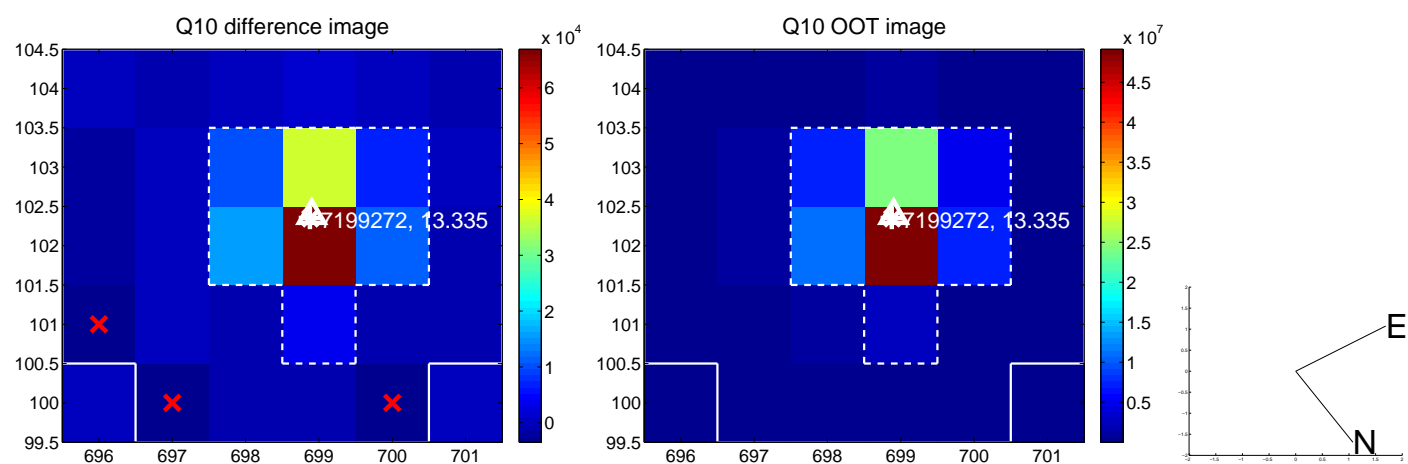
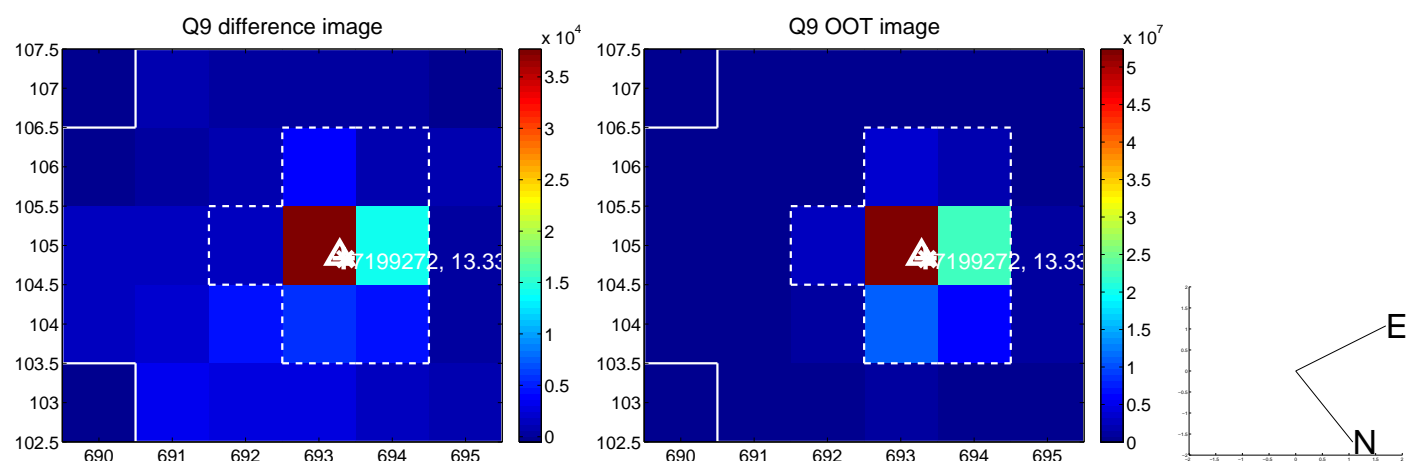
Q4 OOT image



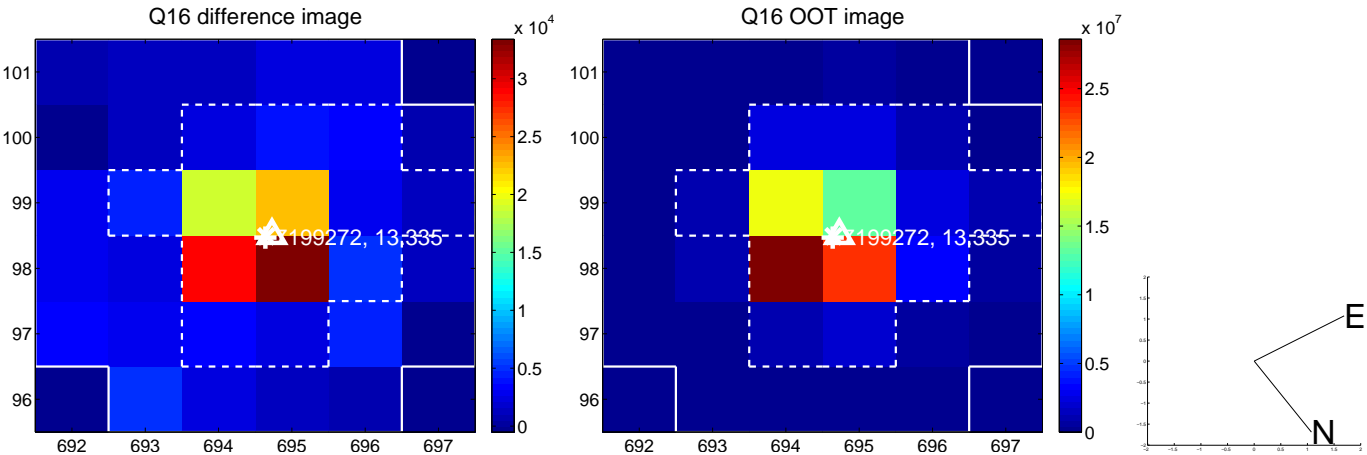
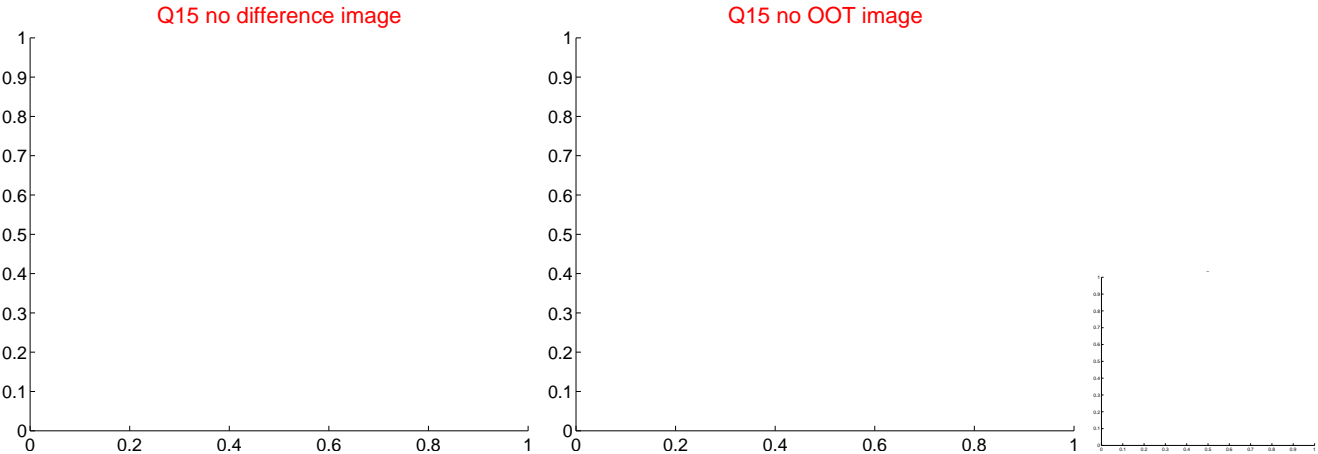
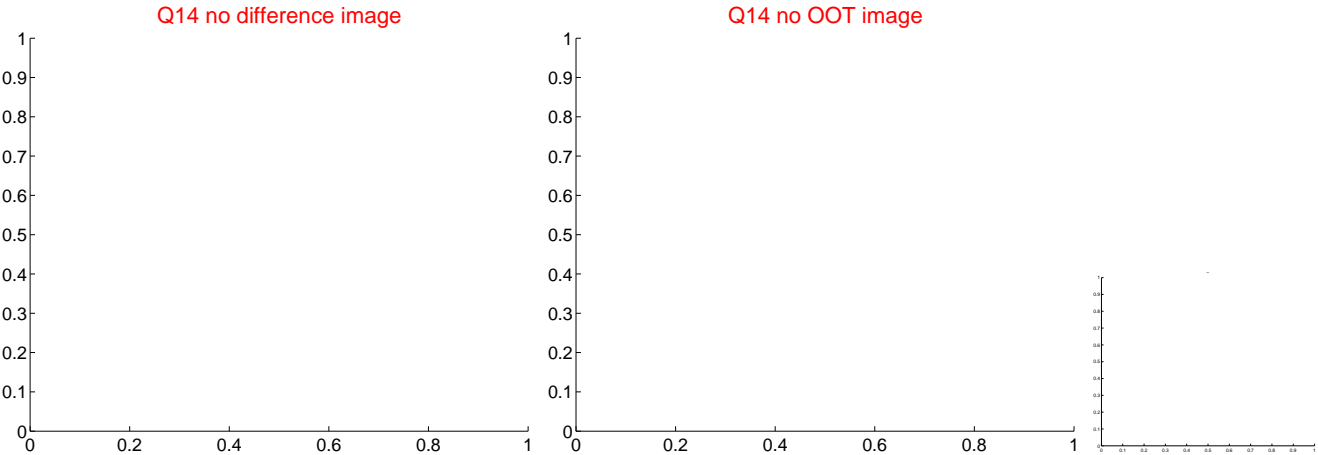
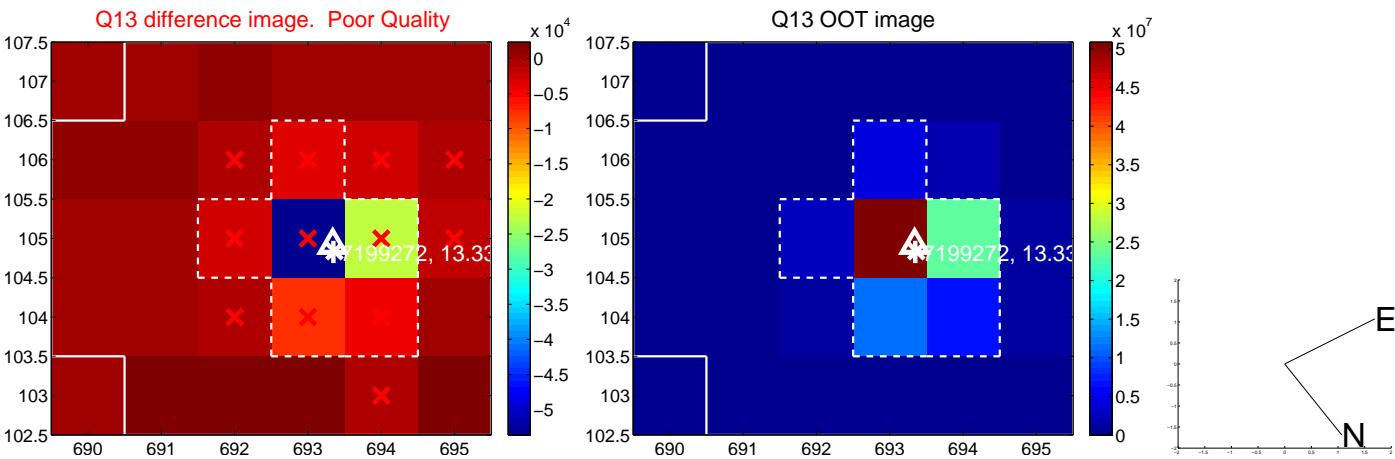
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



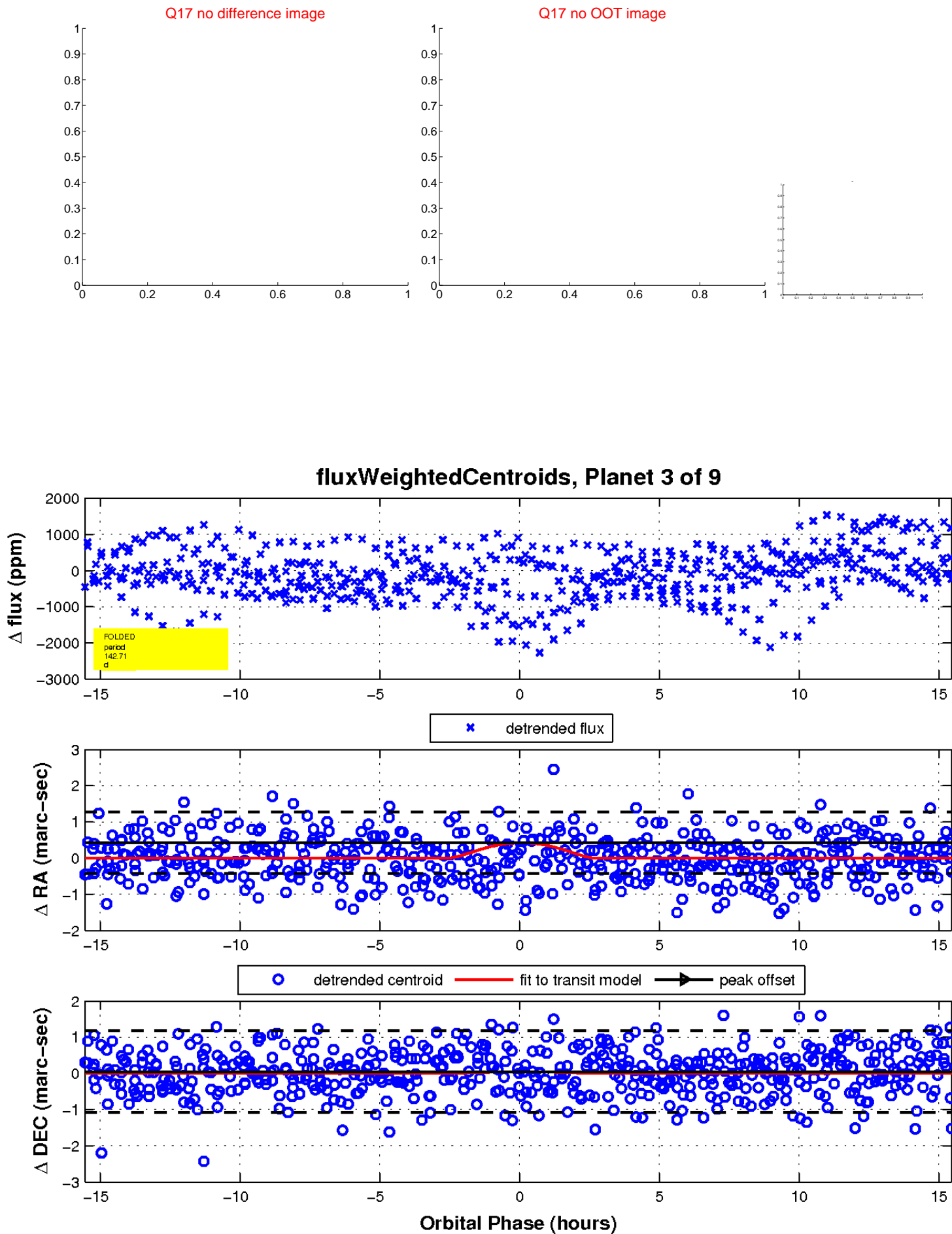
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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

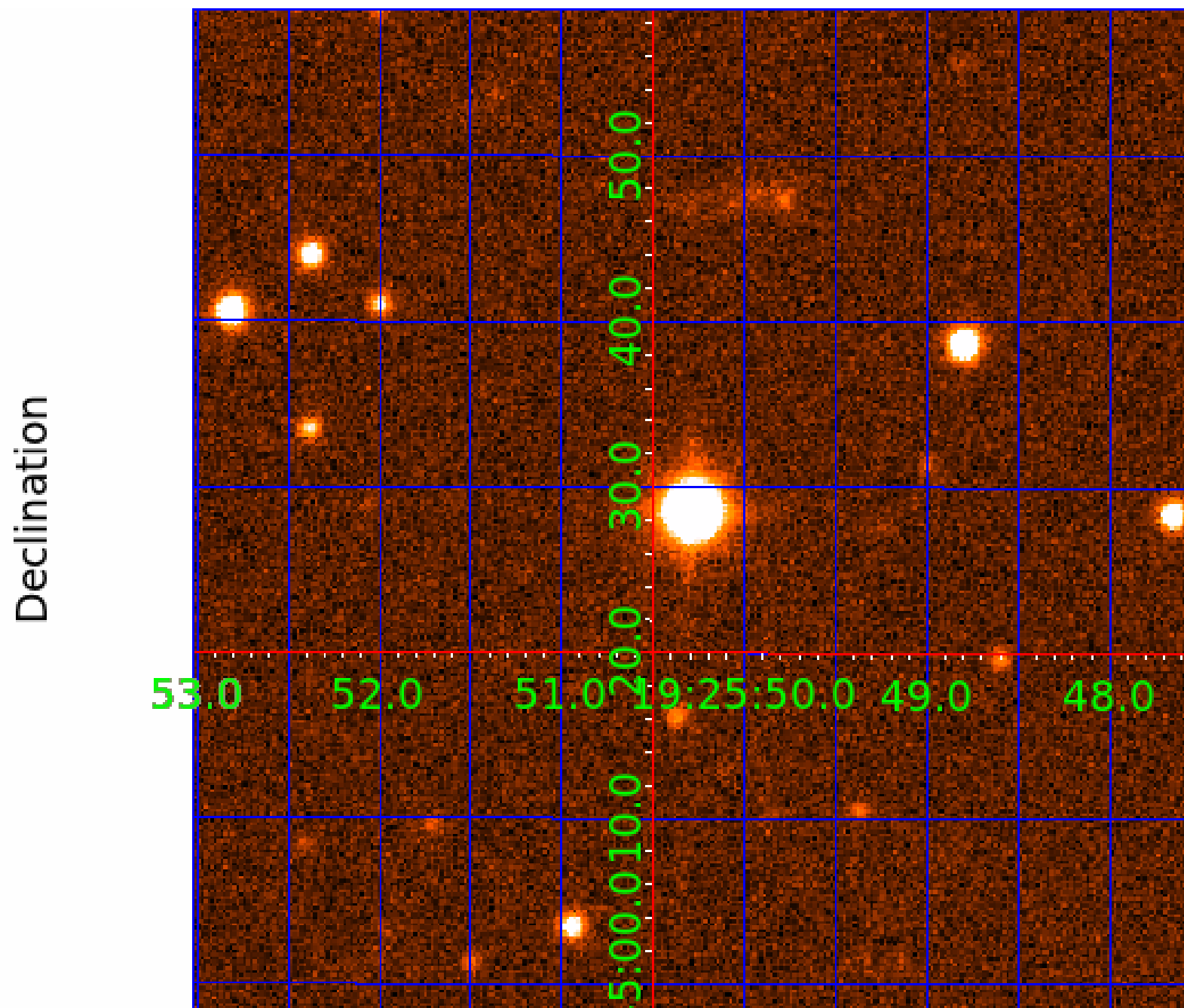


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image



# KIC 007199272

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007199272-01	OBS	No	0.566799	131.687562	66.4	3.288	14.4	12.5	19.33	5068	18.86	0.00
007199272-02	OBS	No	109.311739	200.412977	1471.0	2.526	10.9	9.1	19.33	5068	83.02	503.65
007199272-03	OBS	No	142.714559	262.894690	1516.7	5.208	11.5	8.3	19.33	5068	131.51	352.96
007199272-04	OBS	No	357.880851	138.273497	1764.6	10.921	8.3	7.8	19.33	5068	85.84	103.60
007199272-05	OBS	No	141.341629	222.715211	1773.8	8.761	8.3	8.9	19.33	5068	99.97	357.54
007199272-06	OBS	No	117.822367	150.641905	1383.5	3.661	8.4	9.2	19.33	5068	114.38	455.74
007199272-07	OBS	No	184.965238	282.716782	1088.7	6.545	8.5	6.1	19.33	5068	77.61	249.78
007199272-08	OBS	No	73.248202	201.211539	1083.9	4.053	8.3	9.3	19.33	5068	123.64	858.92
007199272-09	OBS	No	140.819093	158.394533	396.7	3.000	8.0	-1.0	19.33	5068	37.74	359.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007199272-01	OBS	FP	0.00	1	0	1	1	LPP_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
007199272-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
007199272-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV
007199272-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
007199272-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007199272-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007199272-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_NOFITS

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

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

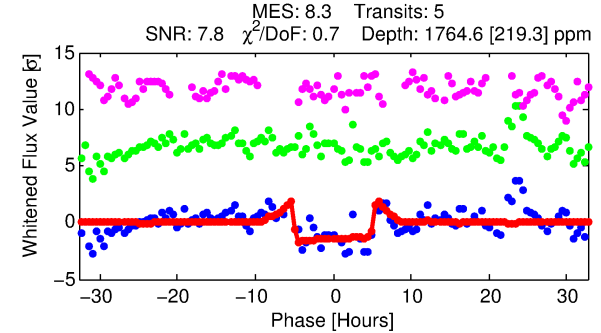
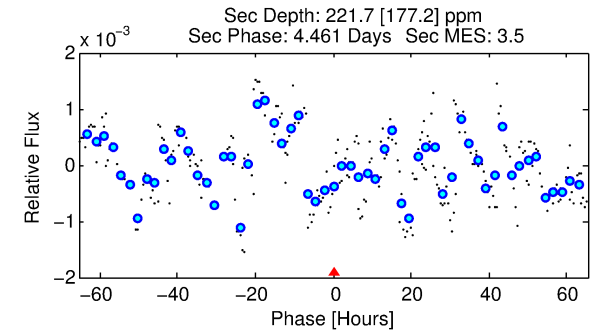
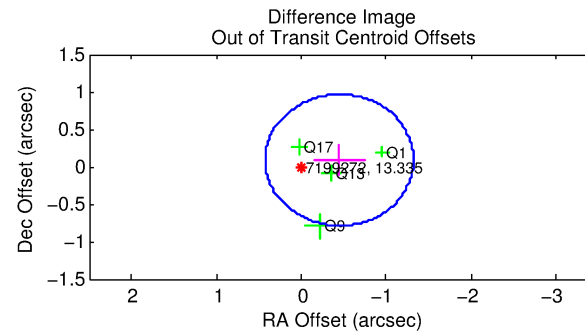
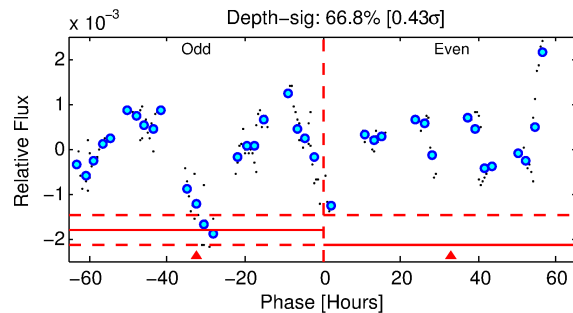
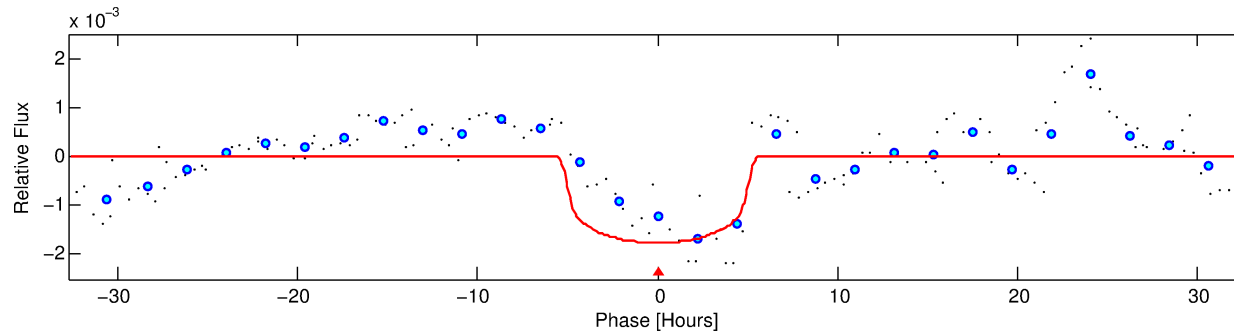
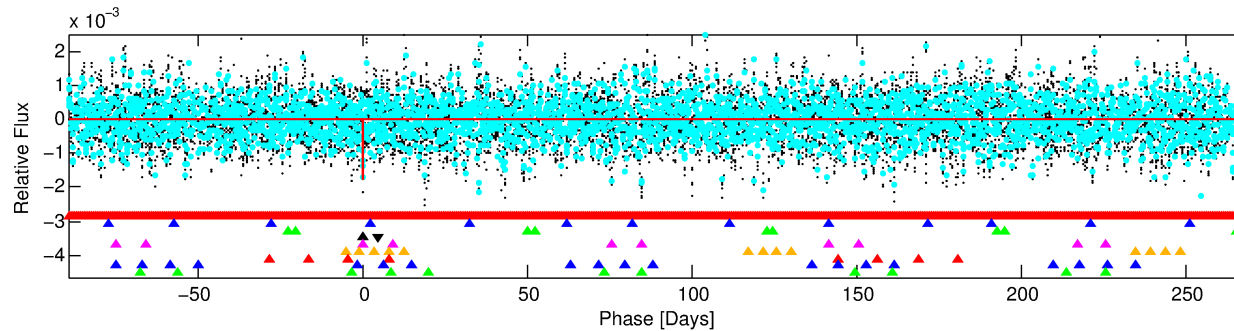
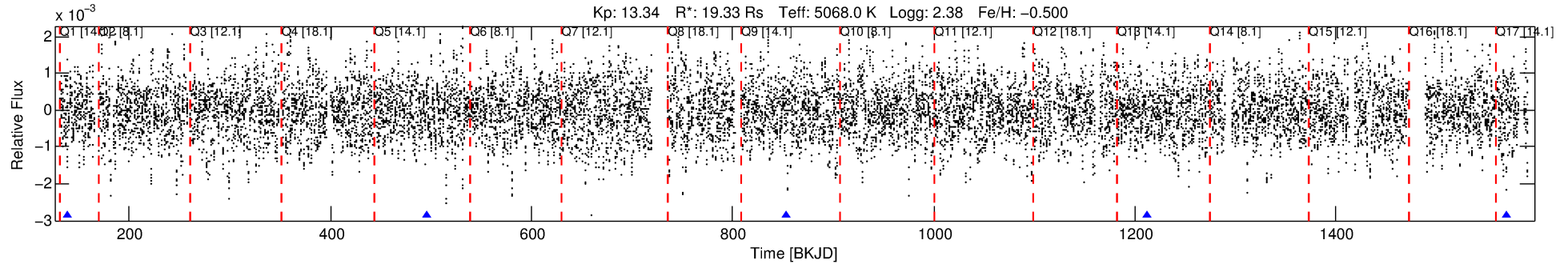
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007199272-04

No Significant Match Found

# DV One-Page Summary

KIC: 7199272 Candidate: 4 of 9 Period: 357.881 d



## DV Fit Results:

Period = 357.88085 [0.00610] d  
Epoch = 138.2735 [0.0171] BKJD  
Rp/R\* = 0.0407 [0.0060]  
a/R\* = 198.80 [101.72]  
b = 0.67 [0.41]  
Seff = 103.60 [37.38]  
Teq = 814 [73] K  
Rp = 85.84 [36.36] Re  
a = 1.4598 [0.3880] AU  
Ag = 35.27 [31.49] [1.09 $\sigma$ ]  
Teffp = 3065 [678] K [3.30 $\sigma$ ]

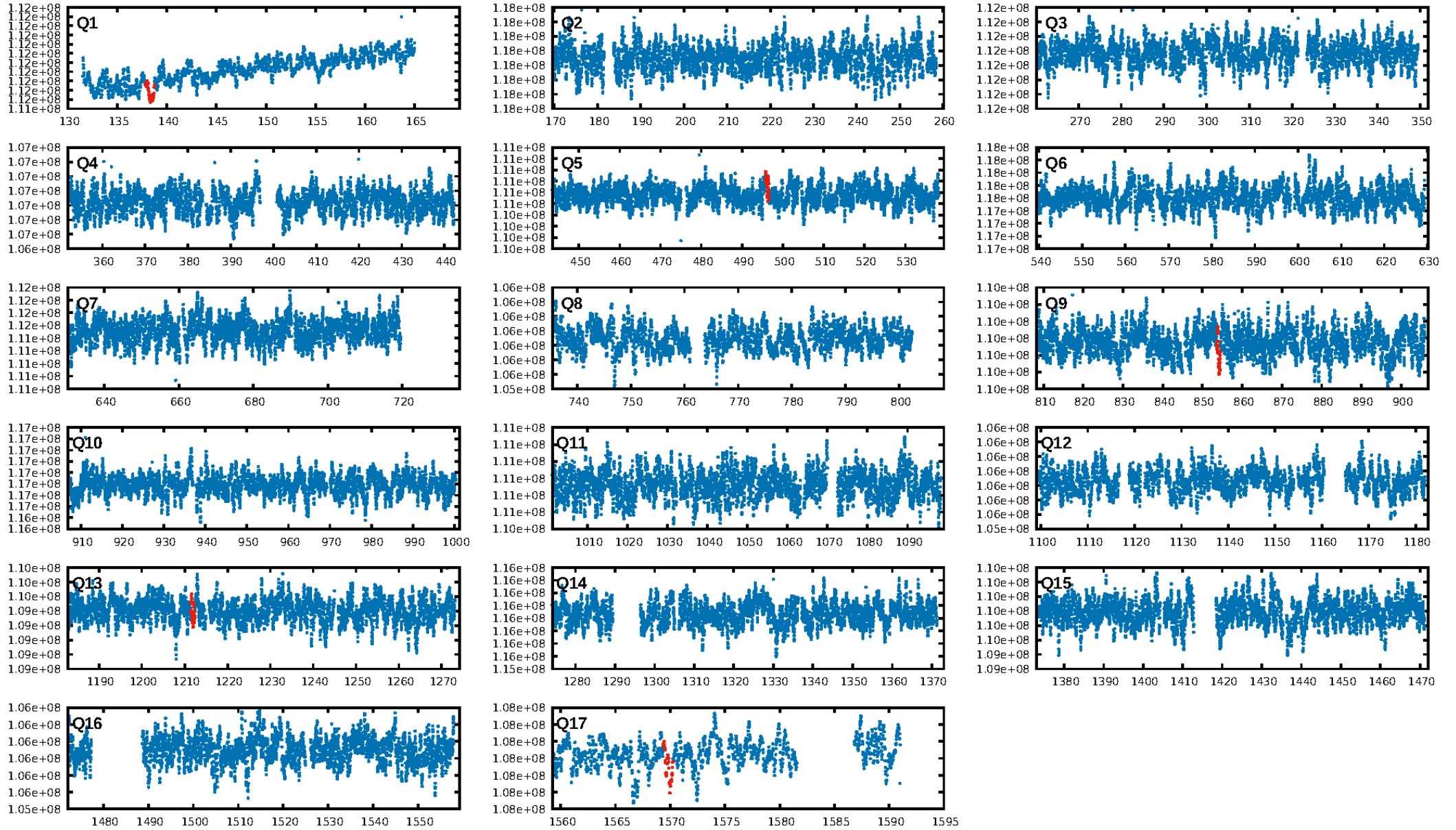
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [325.95 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 94.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 18.53  
Centroid-sig: 9.8%  
Centroid-so: 0.300 arcsec [3.06 $\sigma$ ]  
OotOffset-rm: 0.459 arcsec [1.57 $\sigma$ ]  
KicOffset-rm: 0.515 arcsec [1.77 $\sigma$ ]  
OotOffset-st: 0/0/0/4 [4]  
KicOffset-st: 0/0/0/4 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 0.00 [0/5]

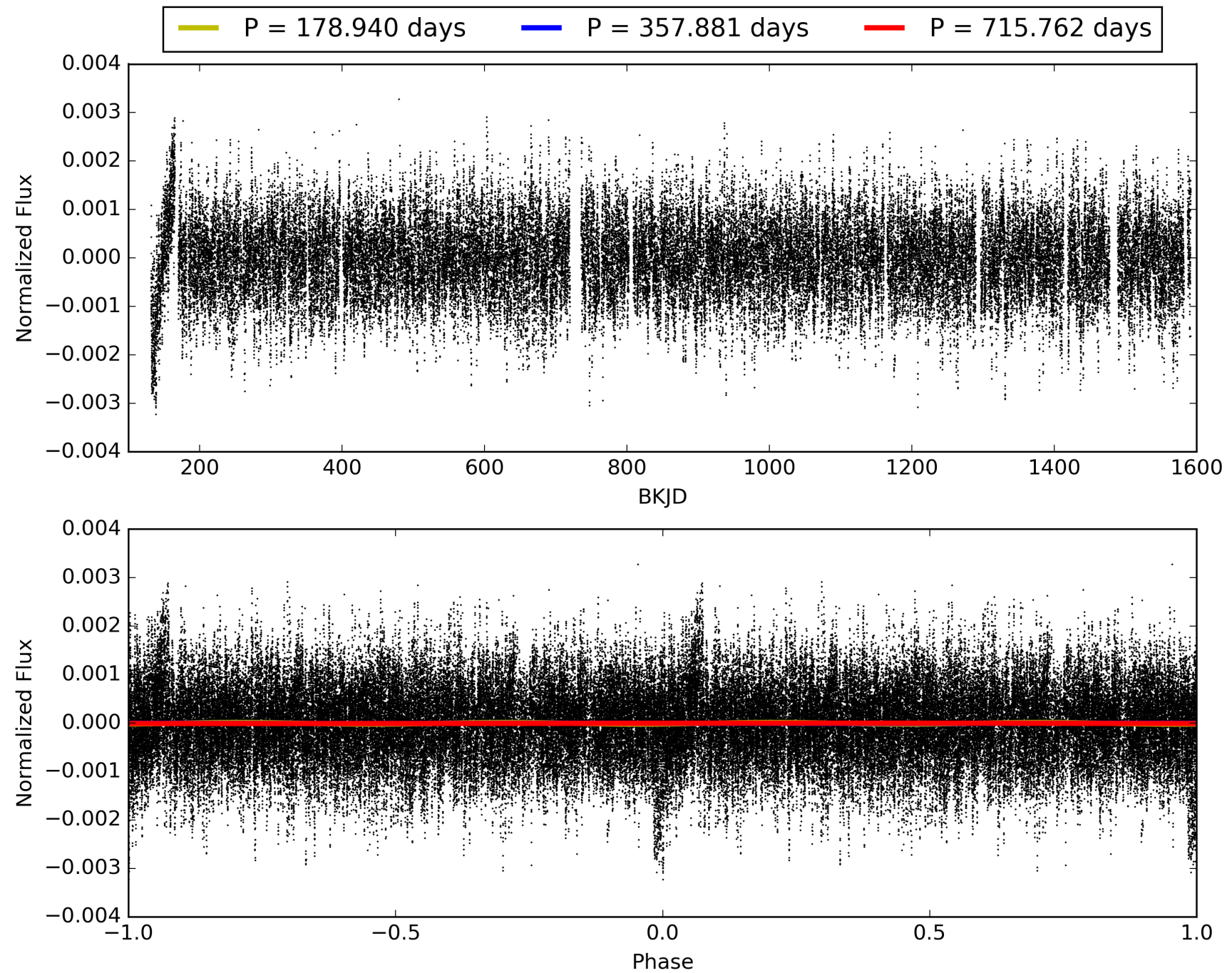
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:41:31 Z

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

# TCE 007199272-04, PDC Light Curves

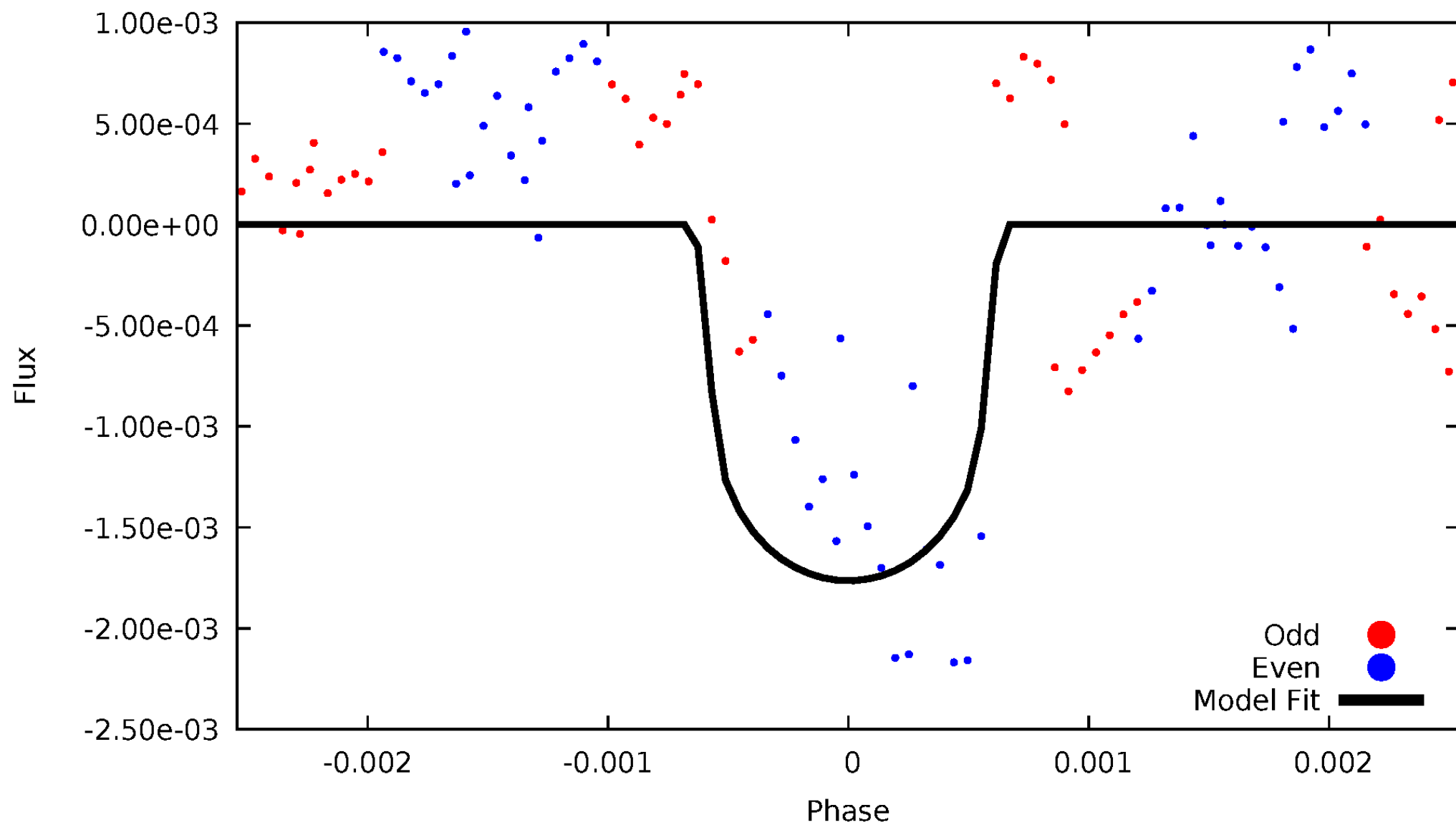


# TCE 007199272-04



# DV Odd/Even

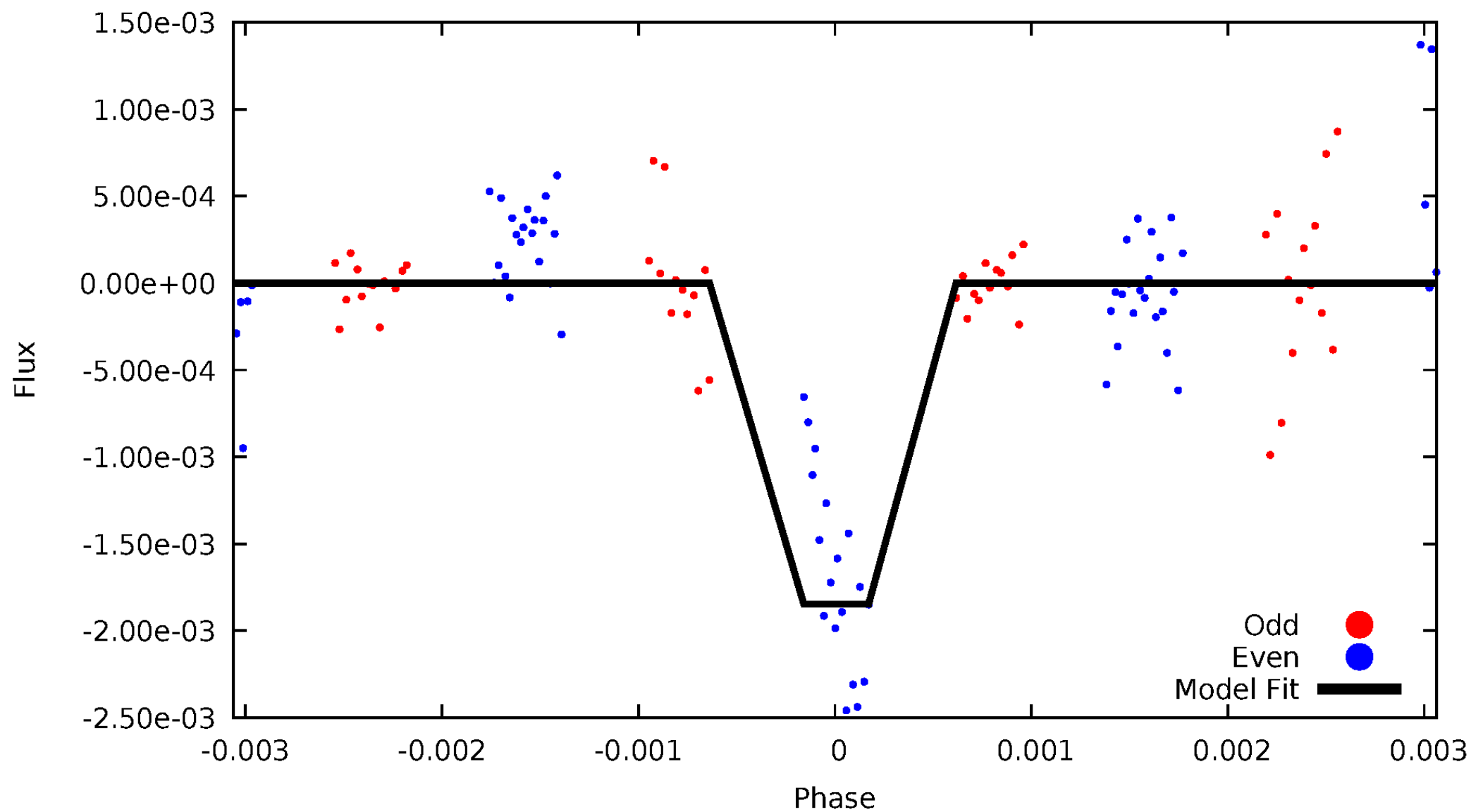
TCE 007199272-04





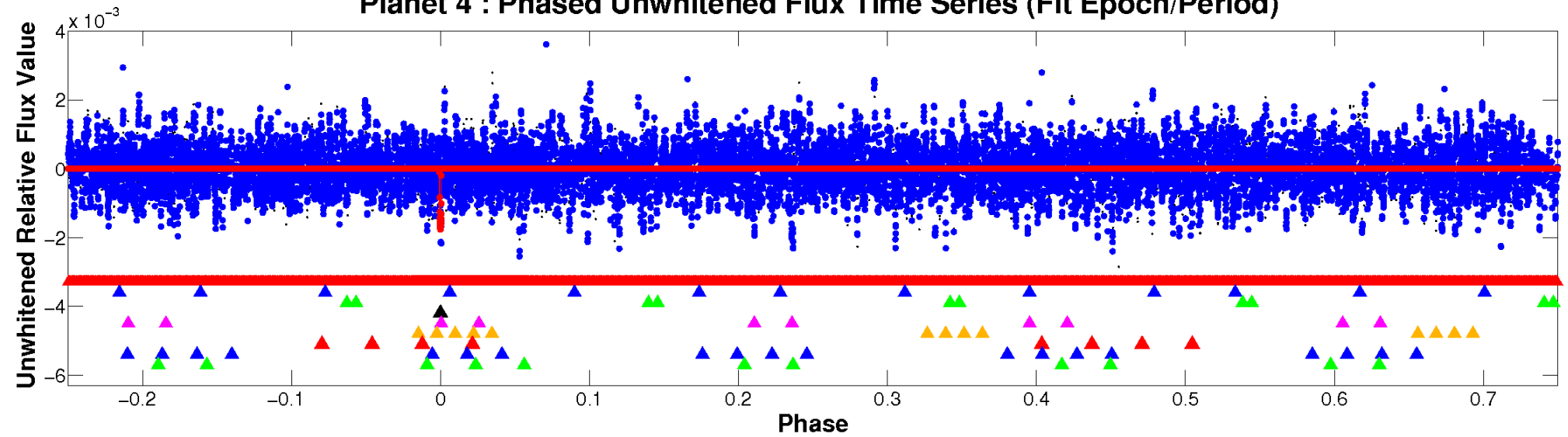
# ALT Odd/Even

TCE 007199272-04

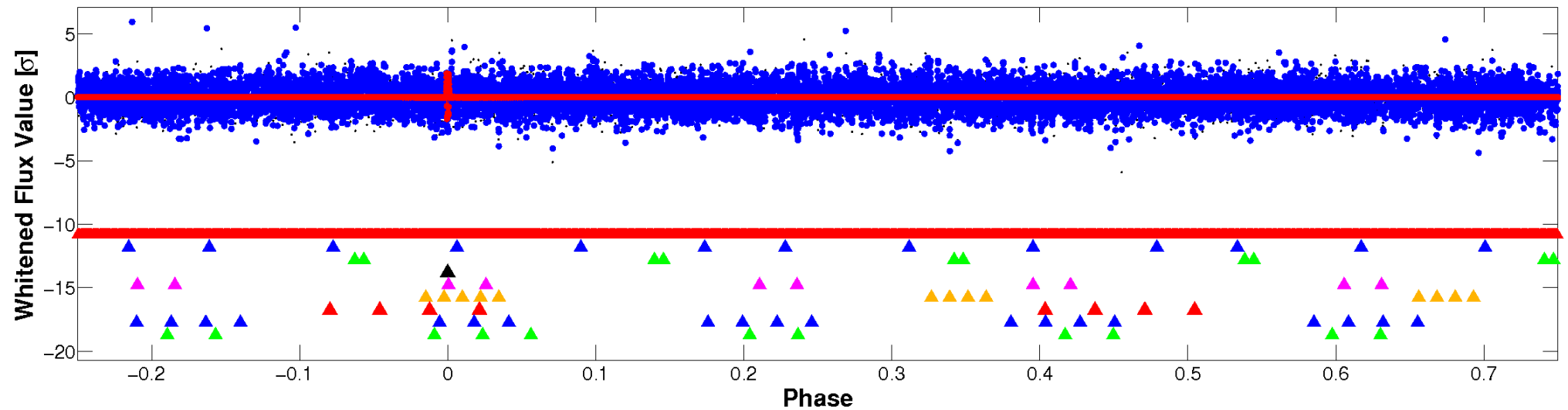


# Non-Whitened Vs. Whitened Light Curve

## Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

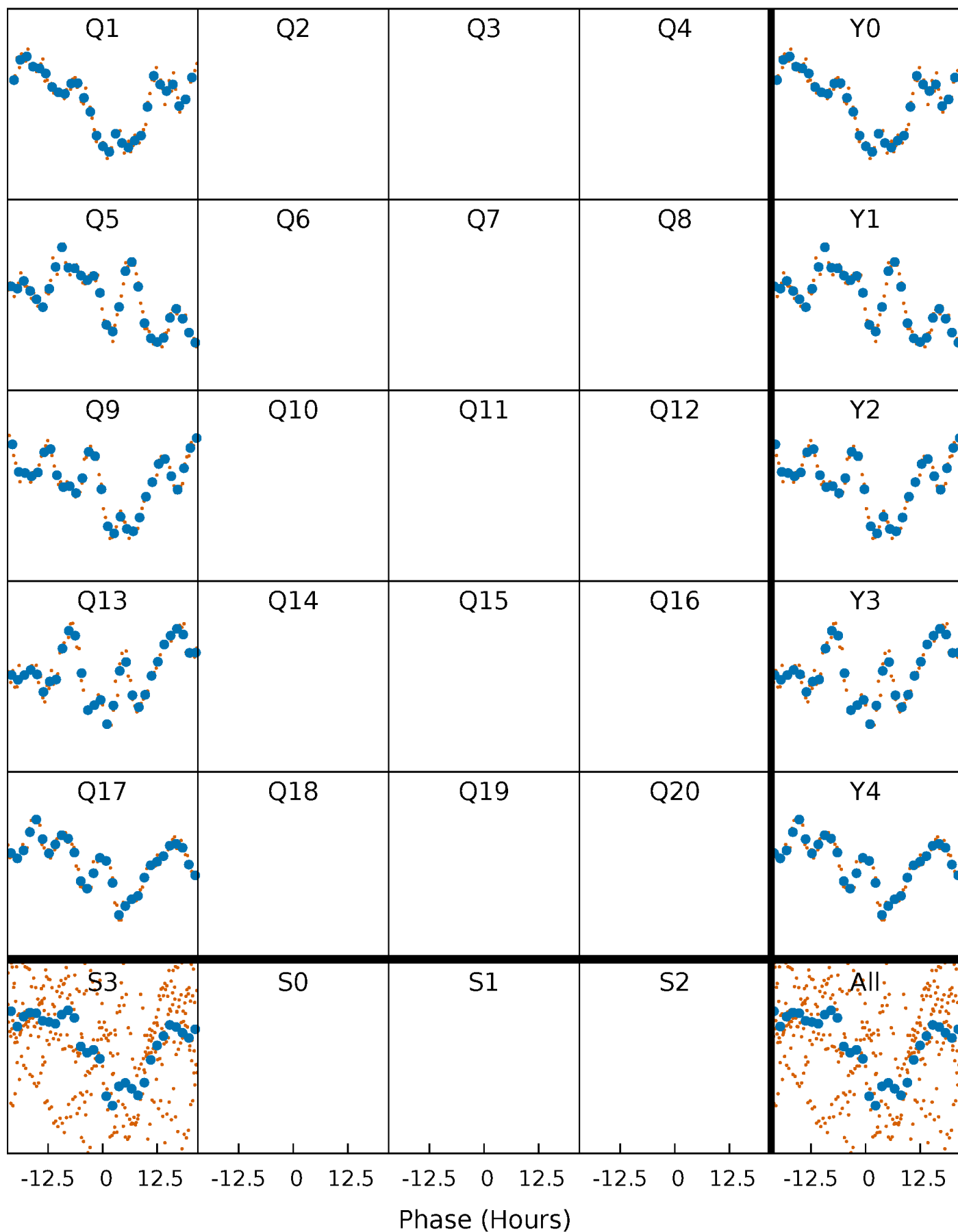


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



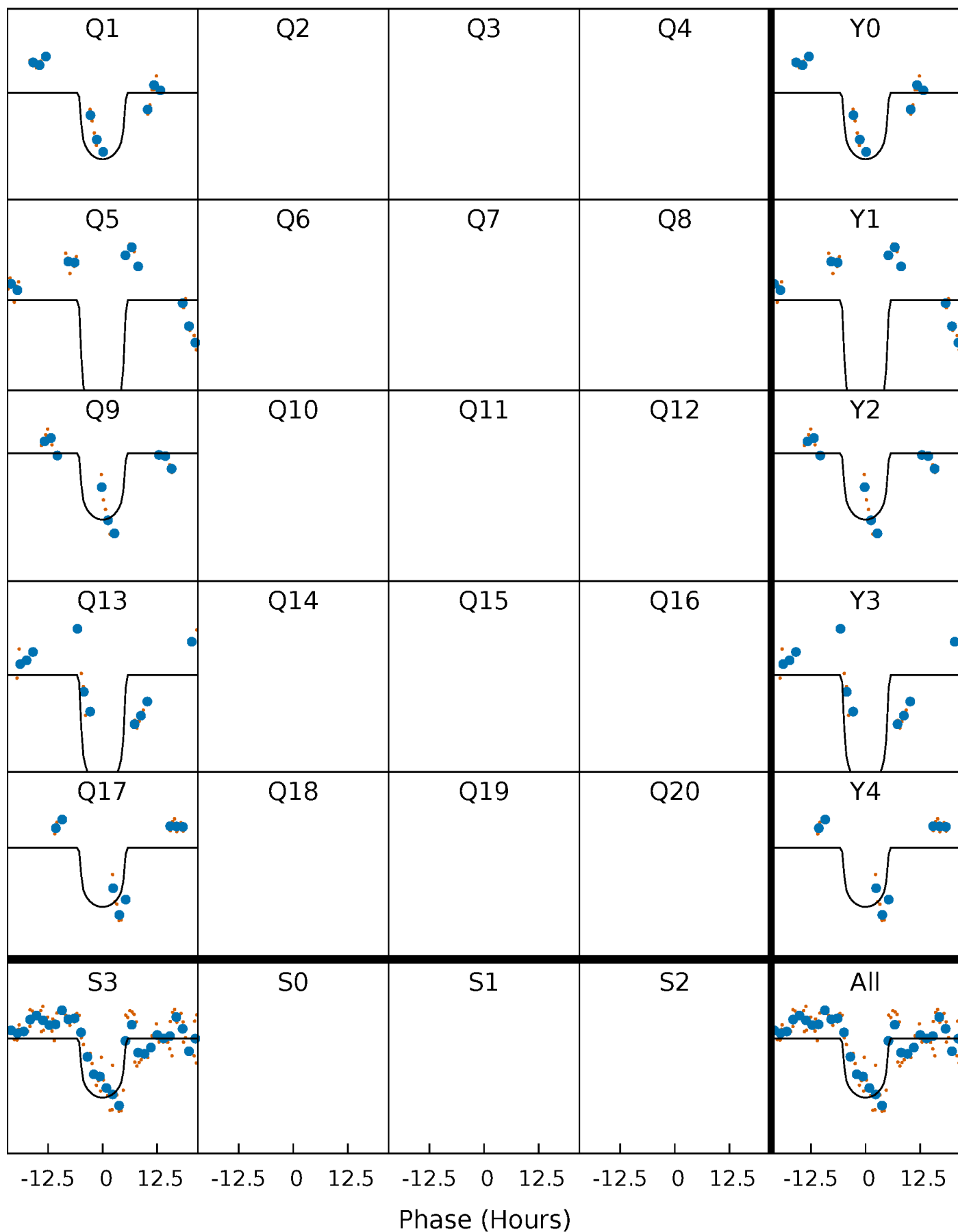
# PDC Quarter-Phased Transit Curves

TCE 007199272-04     $P=357.880851$  Days     $T_0=138.273497$  (BKJD)



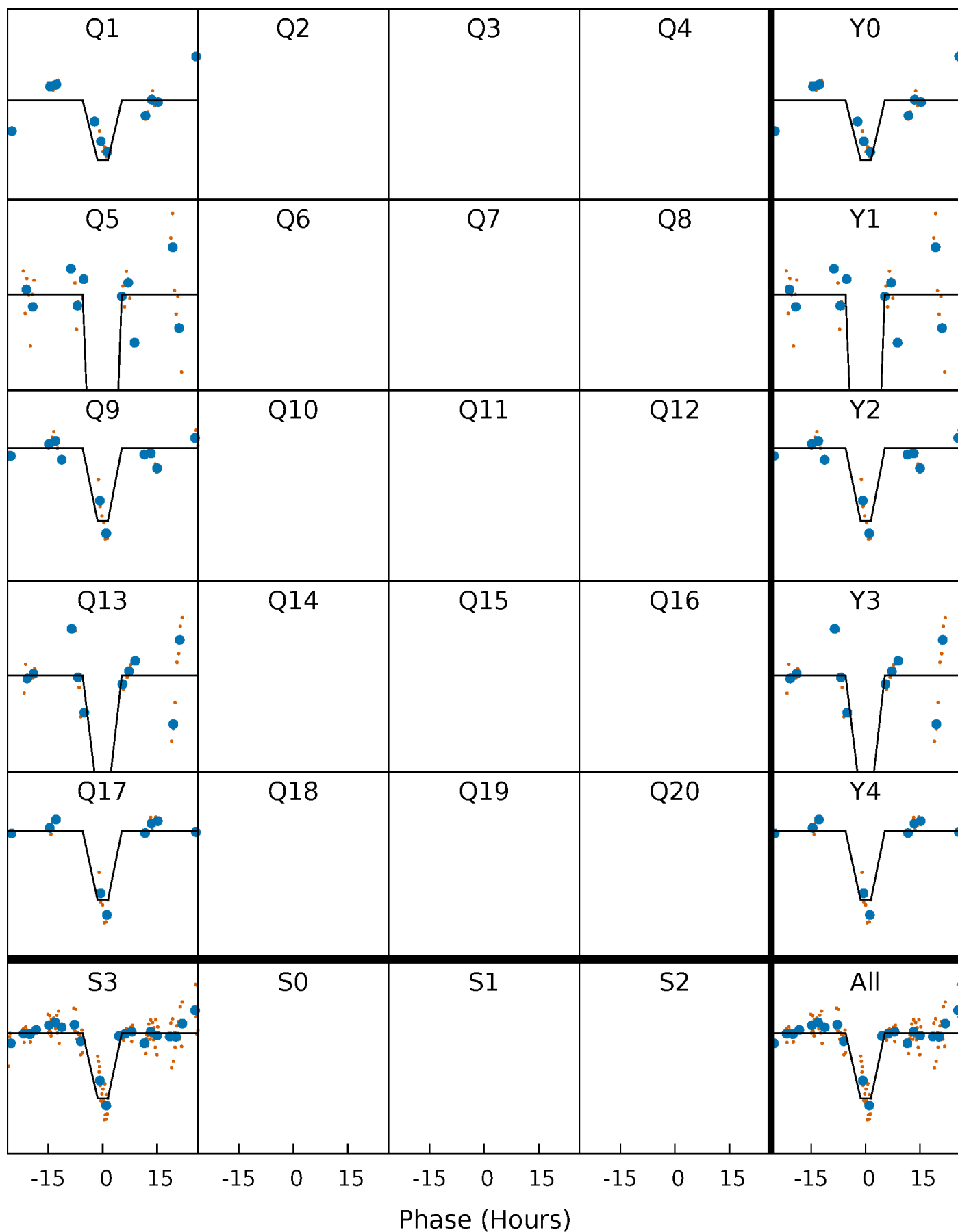
# DV Quarter-Phased Transit Curves

TCE 007199272-04     $P=357.880851$  Days     $T_0=138.273497$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

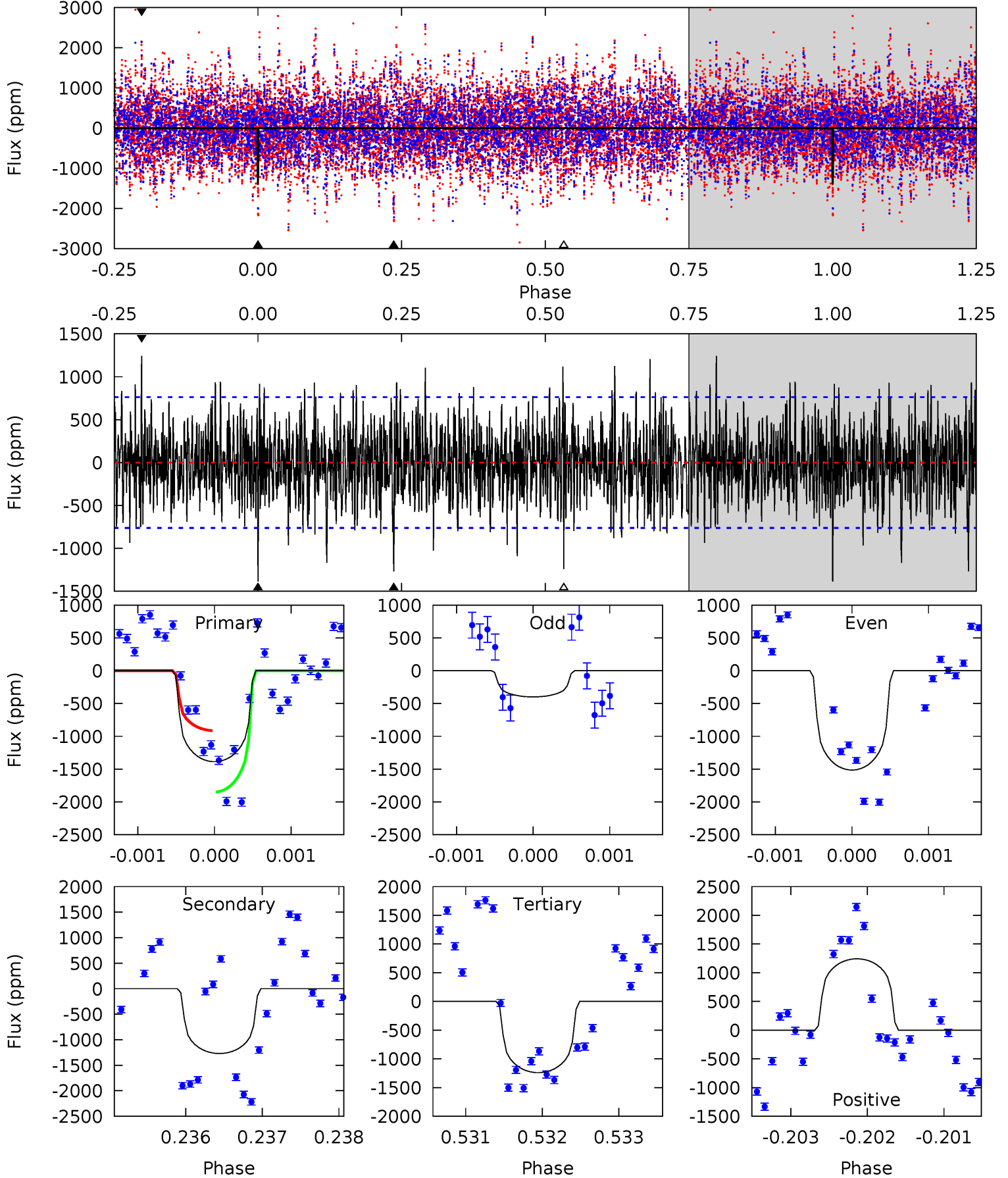
TCE 007199272-04 P=357.930745 Days  $T_0=138.210262$  (BKJD)



# DV Model-Shift Uniqueness Test

007199272-04, P = 357.880851 Days, E = 138.273497 Days

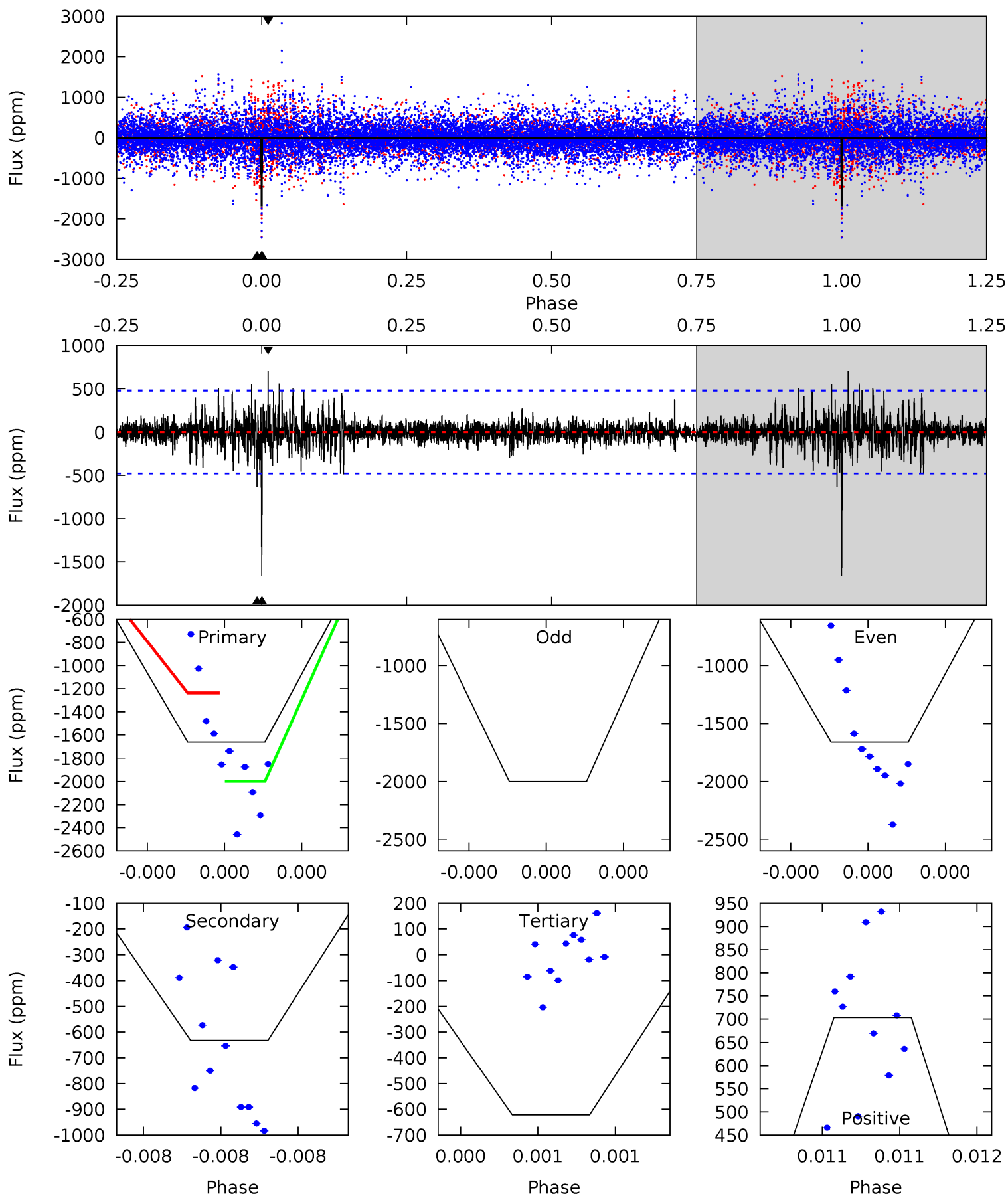
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.85	9.02	8.81	8.83	5.41	3.23	2.41	1.04	1.02	0.21	0.19	3.08	0.96	0.47	3.31



# Alt Model-Shift Uniqueness Test

007199272-04, P = 357.930745 Days, E = 138.210262 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
19.5	7.44	7.31	8.27	5.64	3.59	1.27	12.2	11.3	0.13	-0.83	2.30	0.95	0.30	4.46





### Stellar Parameters For KIC 007199272

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5068^{+61}_{-305}$	$2.376^{+0.030}_{-0.027}$	$-0.500^{+0.150}_{-0.250}$	$19.327^{+0.853}_{-7.676}$	$3.241^{+0.244}_{-2.077}$	$0.001^{+0.000}_{-0.000}$
	+1%/-6%	+1%/-1%	+30%/-50%	+4%/-40%	+8%/-64%	+69%/-9%
Source	PHO1	AST9	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 007199272-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1270 \pm 141$	$87.29^{+13.14}_{-14.77}$	$1133^{+24}_{-63}$	$4726^{+364}_{-349}$	$202^{+81}_{-54}$
Alt.	$-633 \pm 85$	$92.02^{+13.07}_{-14.47}$	$1132^{+26}_{-67}$	$4051^{+270}_{-255}$	$90^{+34}_{-24}$

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

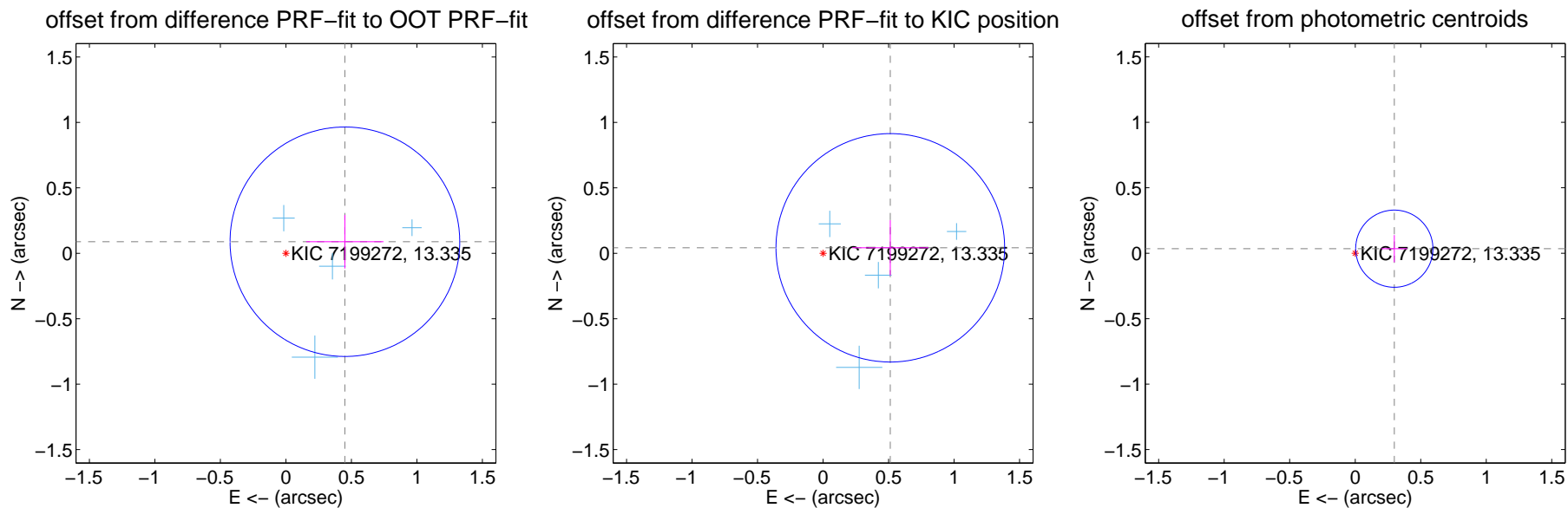
## DV Centroid Data

Supplemental centroid analysis for 007199272-04. Kepler magnitude: 13.34. Transit SNR 7.75

There are 4 quarters with good PRF difference image offsets

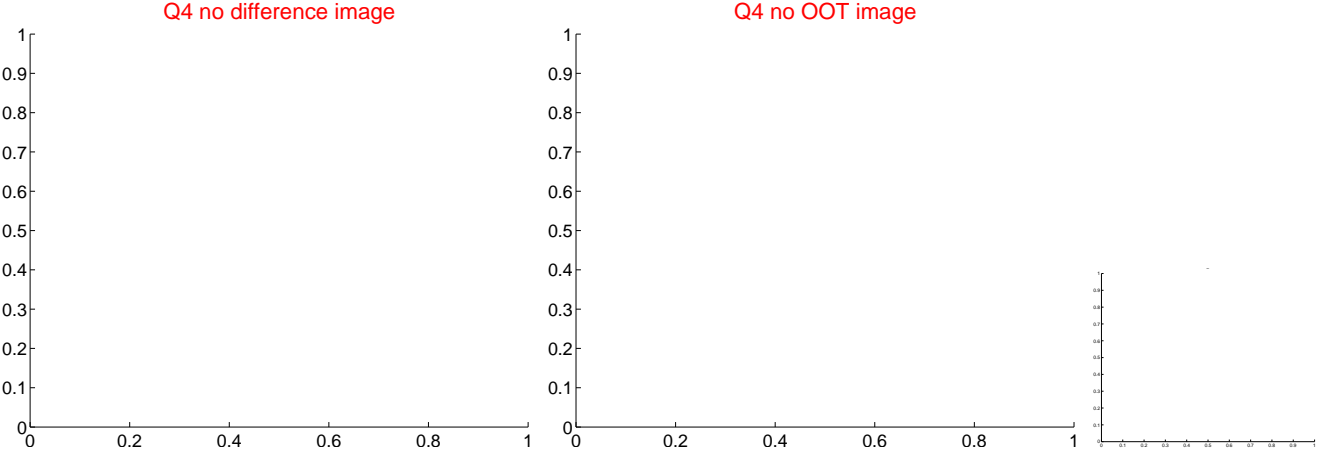
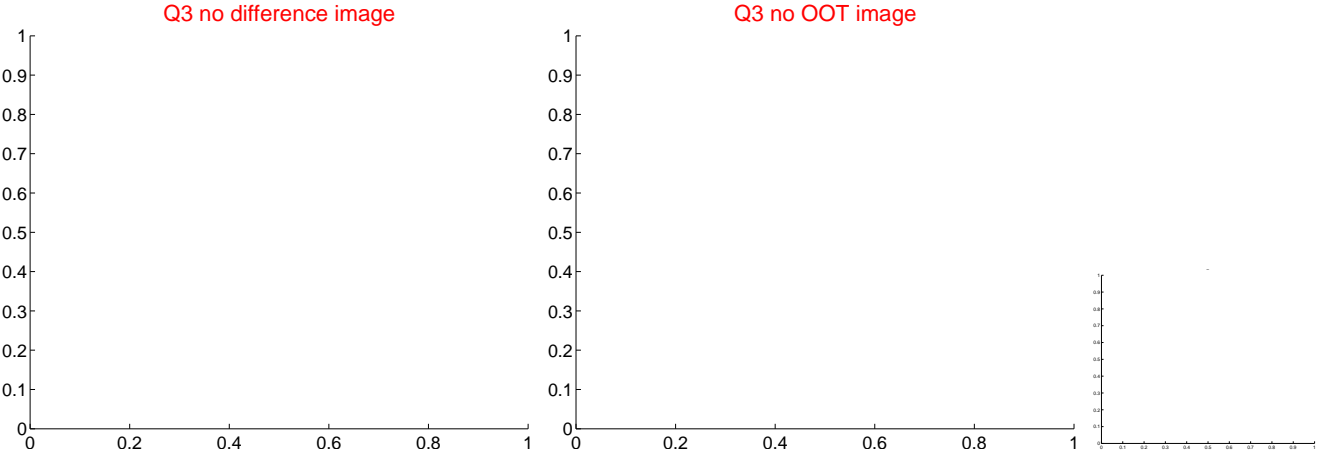
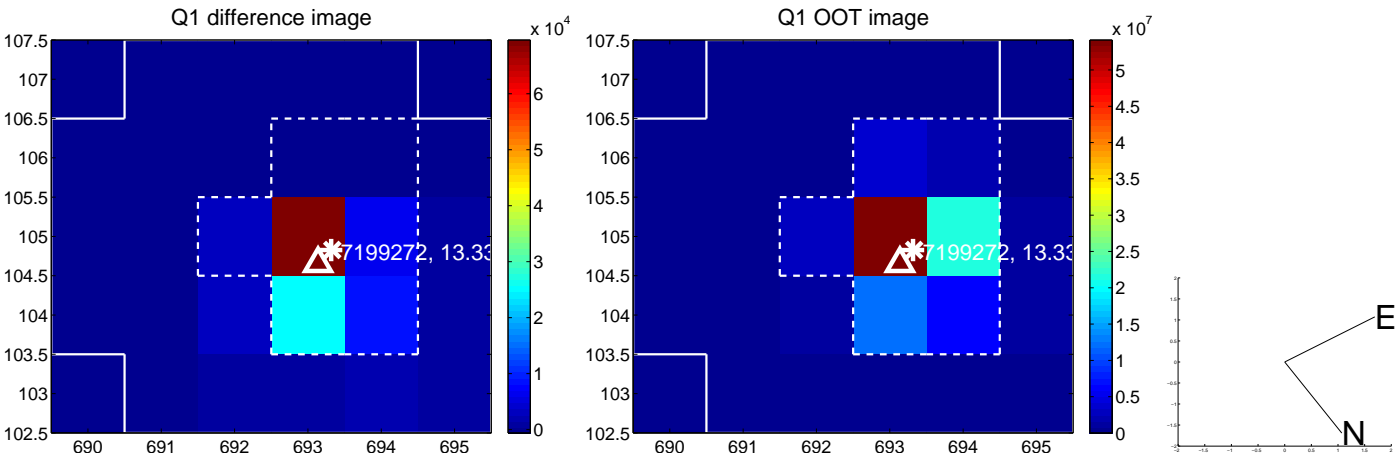
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.459 \pm 0.292$	1.57	$-0.450 \pm 0.295$	$0.088 \pm 0.205$
PRF-fit source offset from KIC position	$0.515 \pm 0.291$	1.77	$-0.513 \pm 0.291$	$0.042 \pm 0.211$
photometric centroid source offset	$0.30 \pm 0.10$	3.06	$-0.30 \pm 0.10$	$0.03 \pm 0.10$

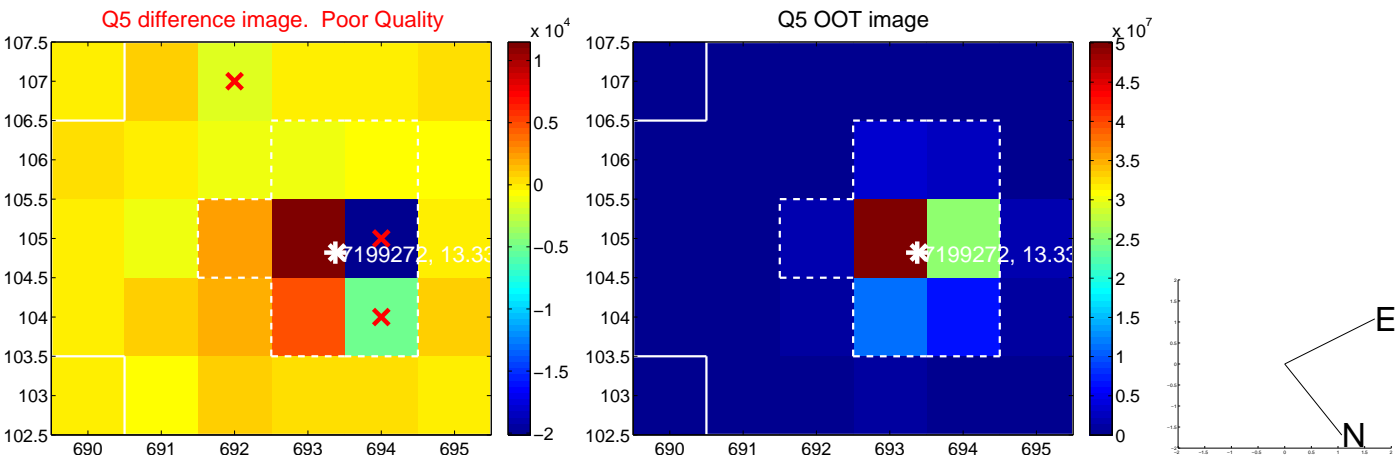


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

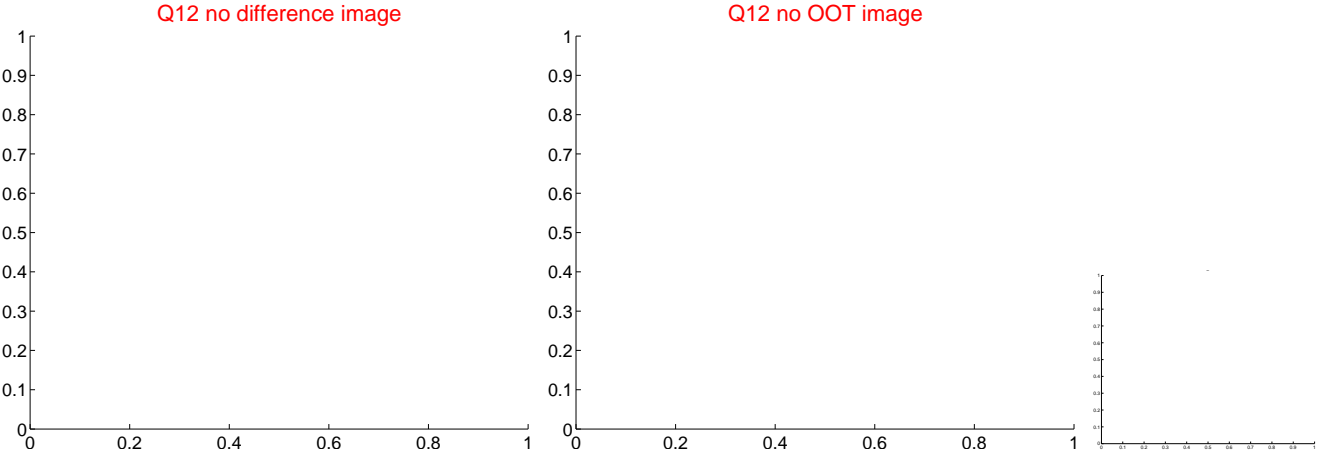
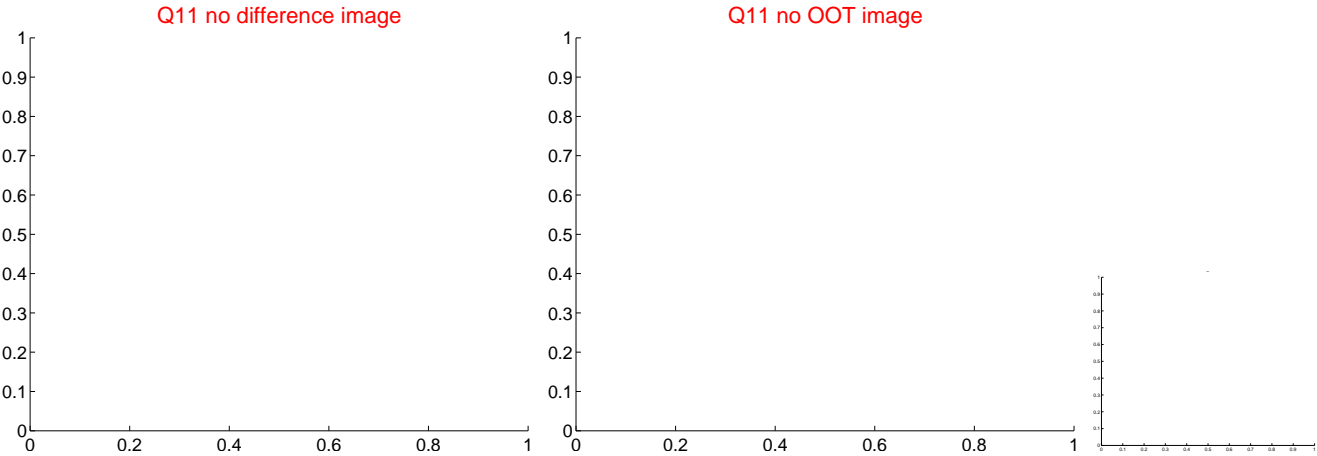
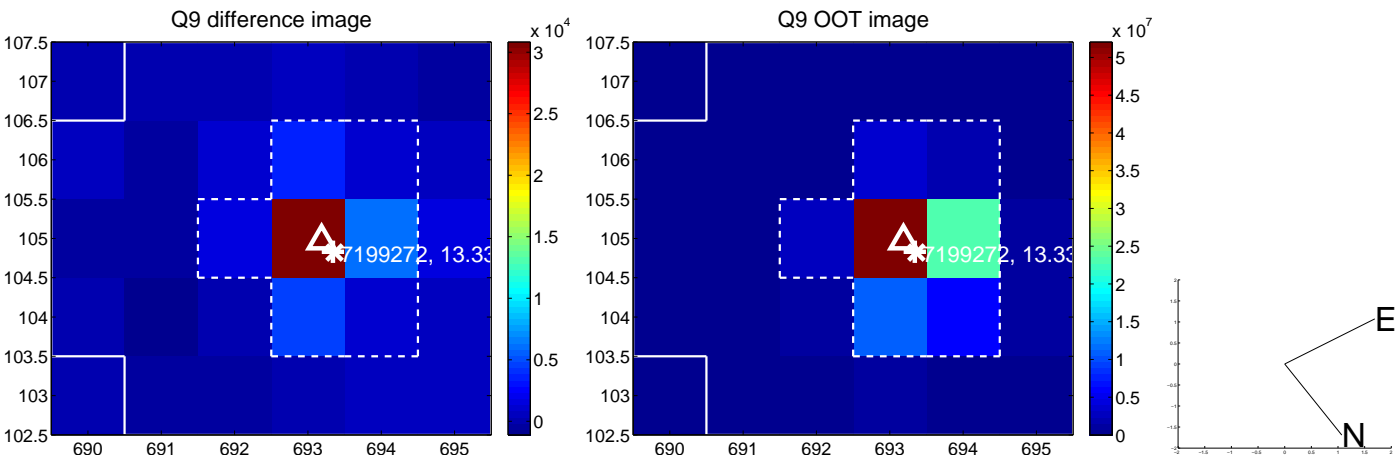
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



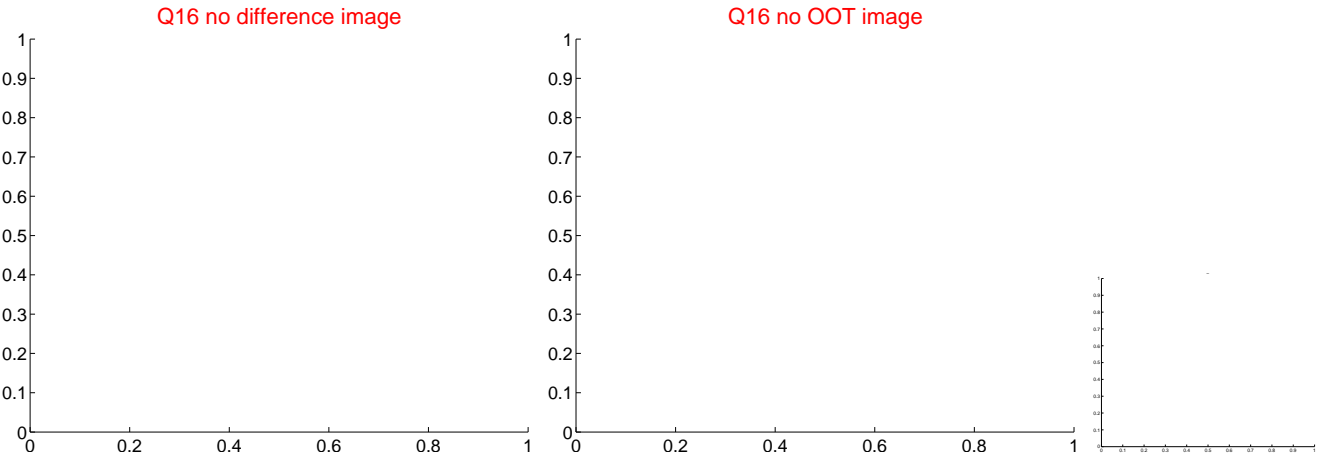
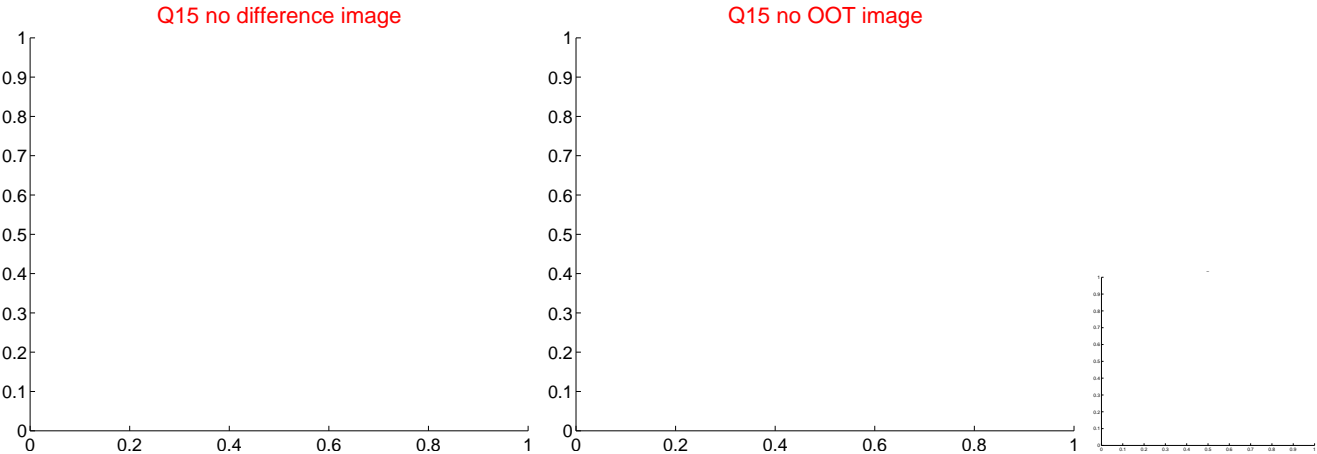
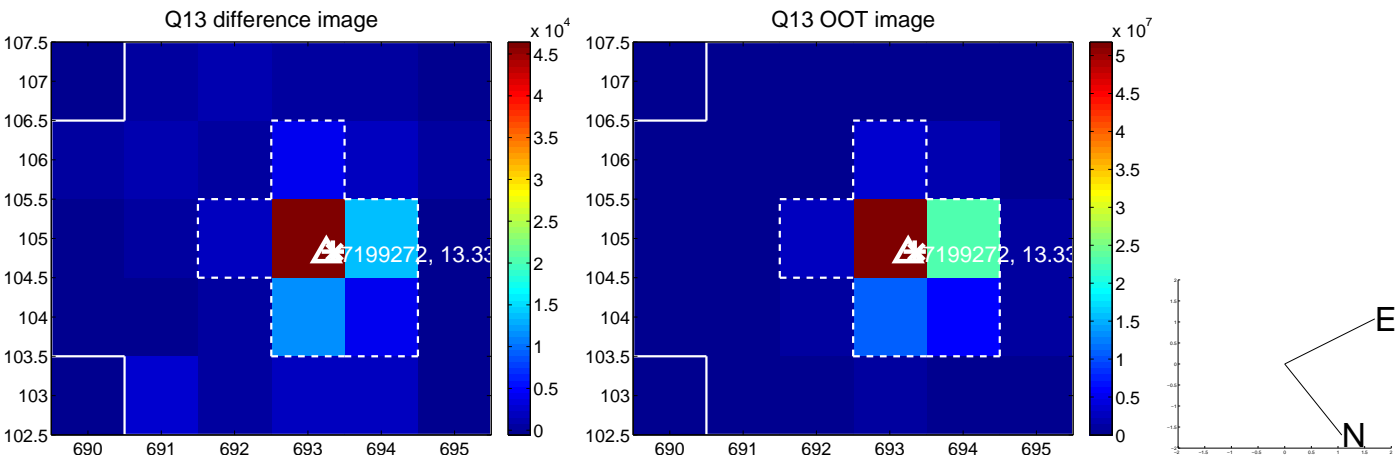
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



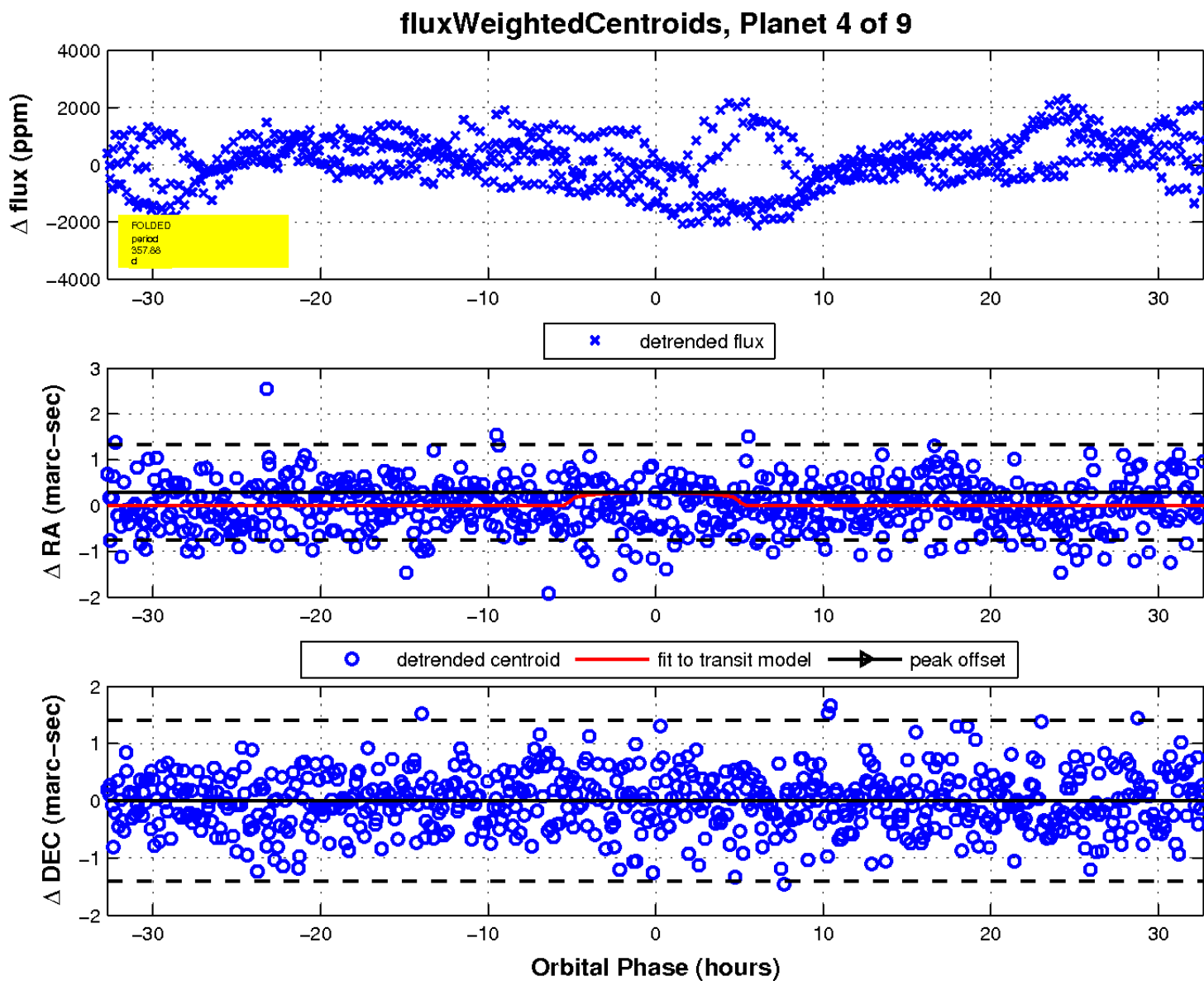
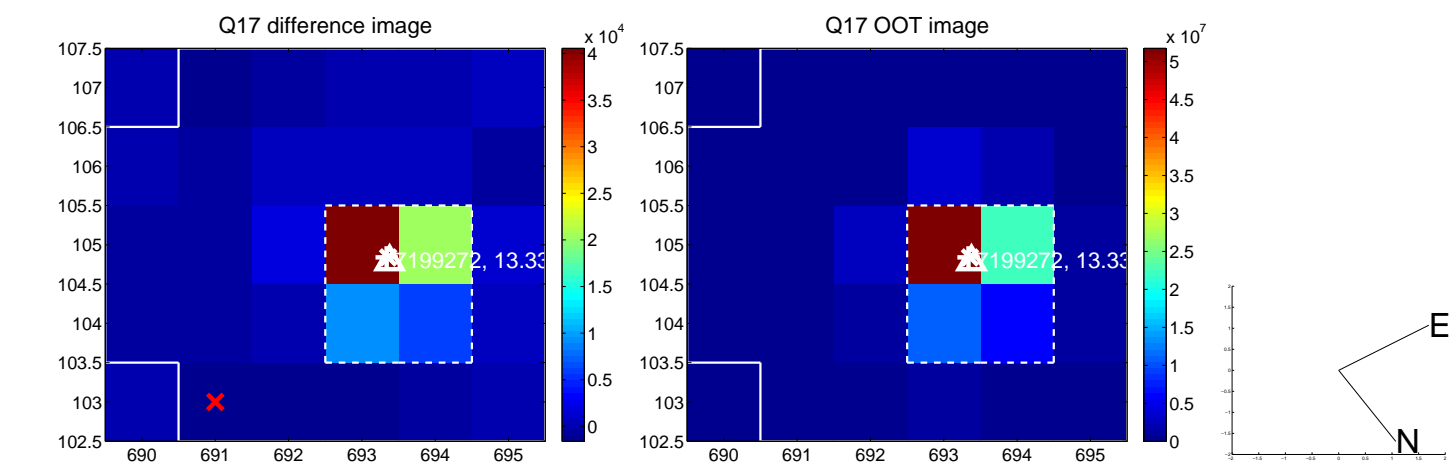
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

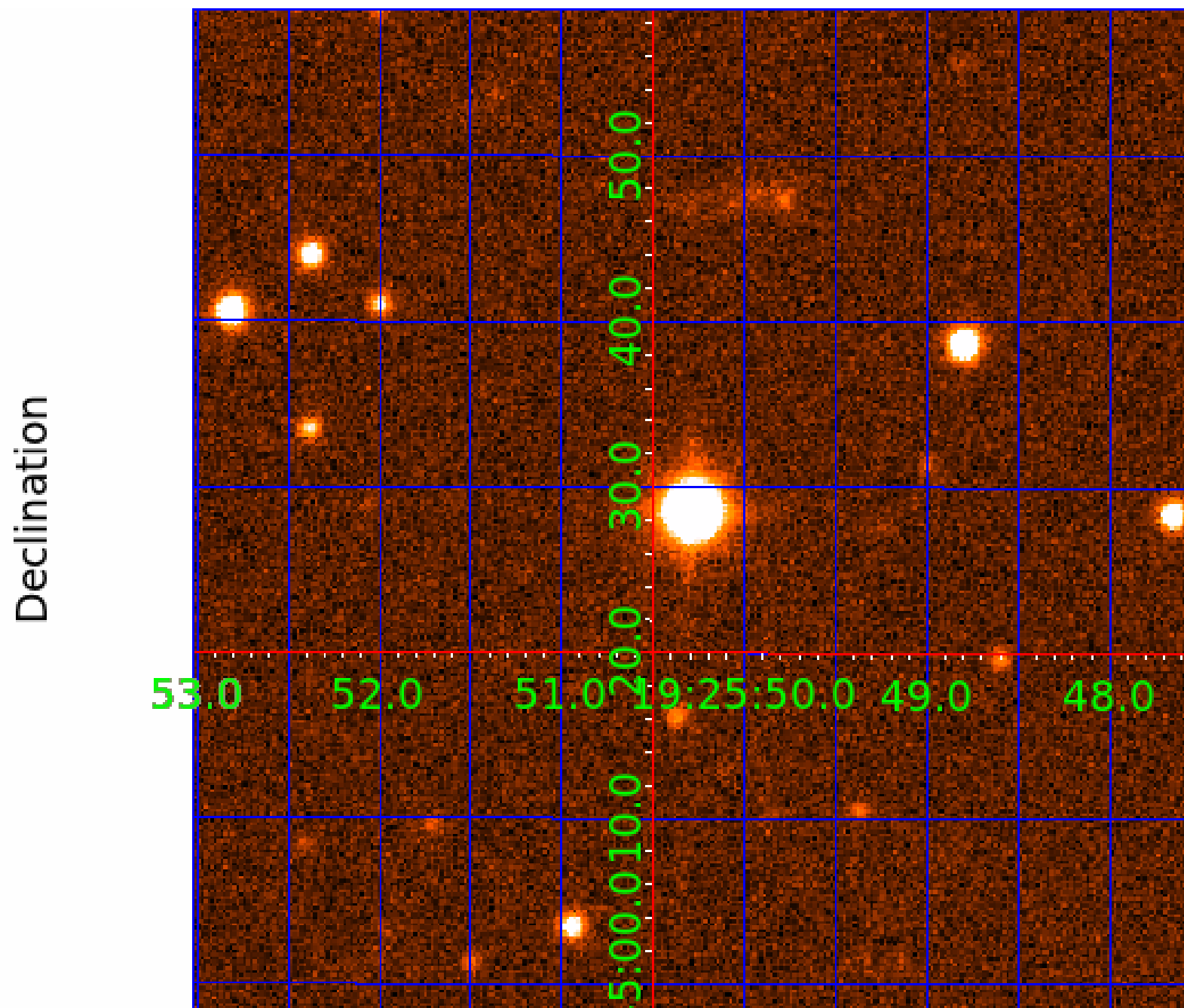


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image



# KIC 007199272

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007199272-01	OBS	No	0.566799	131.687562	66.4	3.288	14.4	12.5	19.33	5068	18.86	0.00
007199272-02	OBS	No	109.311739	200.412977	1471.0	2.526	10.9	9.1	19.33	5068	83.02	503.65
007199272-03	OBS	No	142.714559	262.894690	1516.7	5.208	11.5	8.3	19.33	5068	131.51	352.96
007199272-04	OBS	No	357.880851	138.273497	1764.6	10.921	8.3	7.8	19.33	5068	85.84	103.60
007199272-05	OBS	No	141.341629	222.715211	1773.8	8.761	8.3	8.9	19.33	5068	99.97	357.54
007199272-06	OBS	No	117.822367	150.641905	1383.5	3.661	8.4	9.2	19.33	5068	114.38	455.74
007199272-07	OBS	No	184.965238	282.716782	1088.7	6.545	8.5	6.1	19.33	5068	77.61	249.78
007199272-08	OBS	No	73.248202	201.211539	1083.9	4.053	8.3	9.3	19.33	5068	123.64	858.92
007199272-09	OBS	No	140.819093	158.394533	396.7	3.000	8.0	-1.0	19.33	5068	37.74	359.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007199272-01	OBS	FP	0.00	1	0	1	1	LPP_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
007199272-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
007199272-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV
007199272-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
007199272-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007199272-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007199272-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_NOFITS

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

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

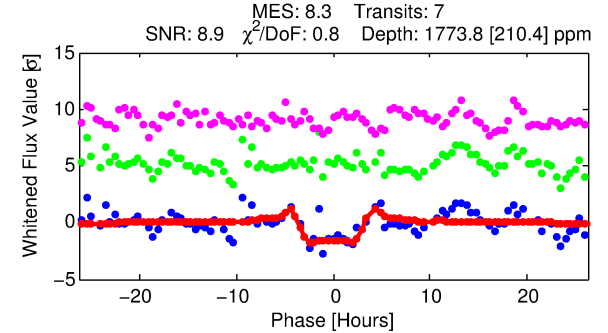
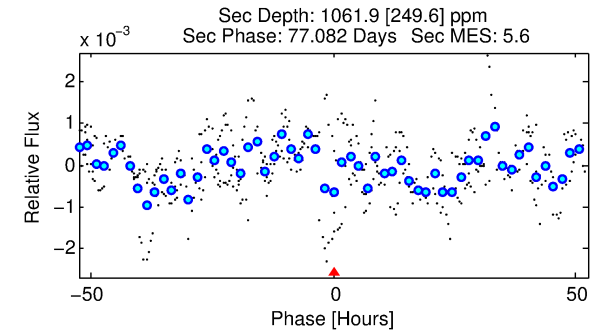
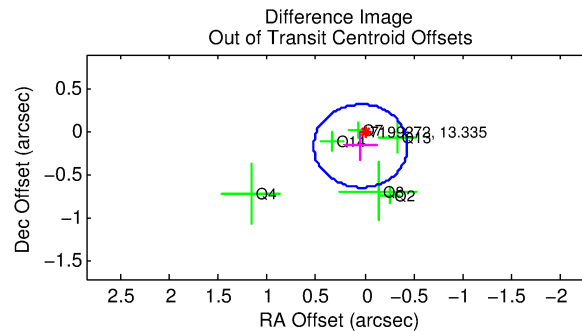
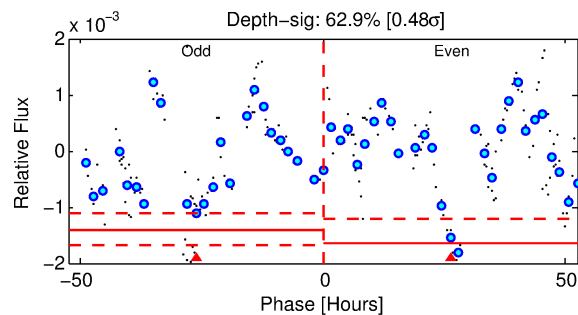
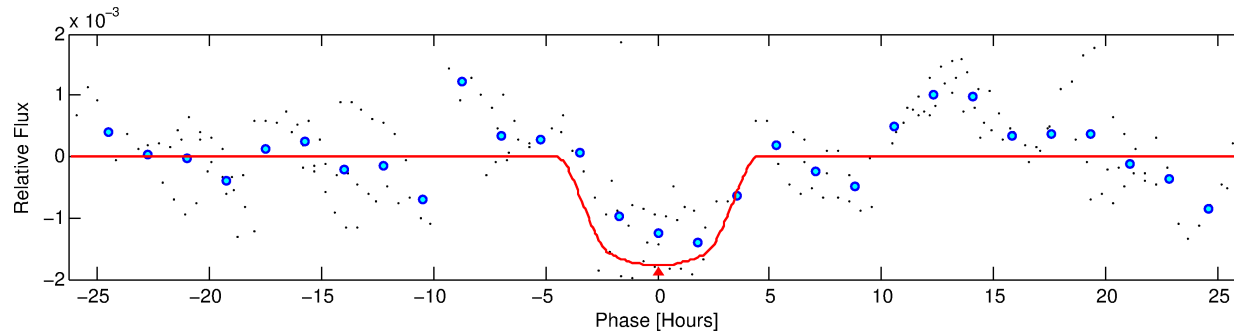
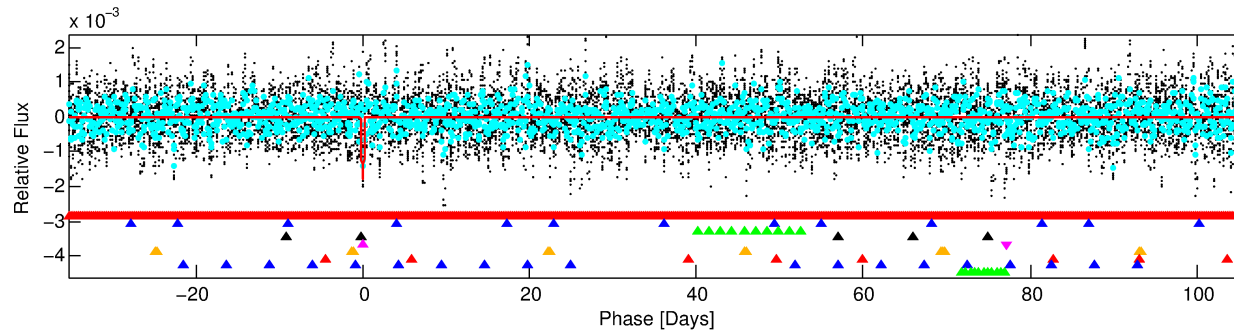
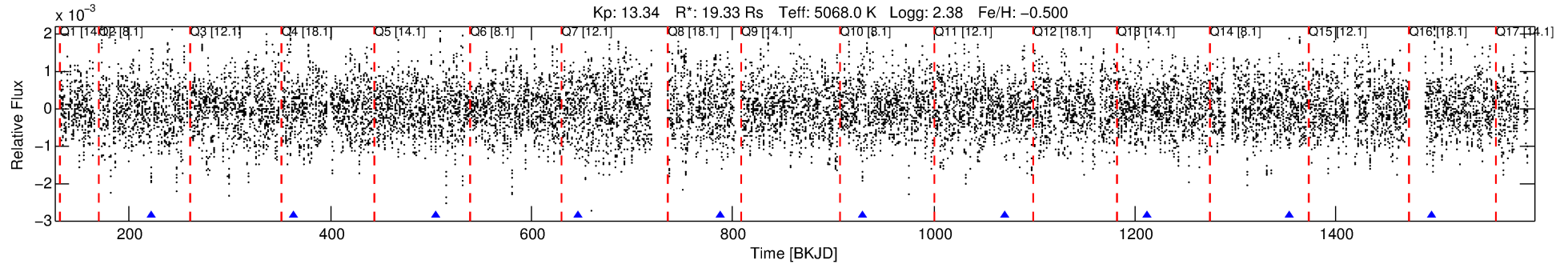
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007199272-05

No Significant Match Found

# DV One-Page Summary

KIC: 7199272 Candidate: 5 of 9 Period: 141.342 d



## DV Fit Results:

Period = 141.34163 [0.00520] d  
Epoch = 222.7152 [0.0167] BKJD  
Rp/R\* = 0.0474 [0.0035]  
a/R\* = 62.54 [10.14]  
b = 0.92 [0.03]  
Seff = 357.54 [129.00]  
Teq = 1109 [100] K  
**Rp = 99.98 [40.38] Re**  
a = 0.7858 [0.2089] AU  
Ag = 36.09 [13.93] [2.52 $\sigma$ ]  
Teffp = 4202 [386] K [7.76 $\sigma$ ]

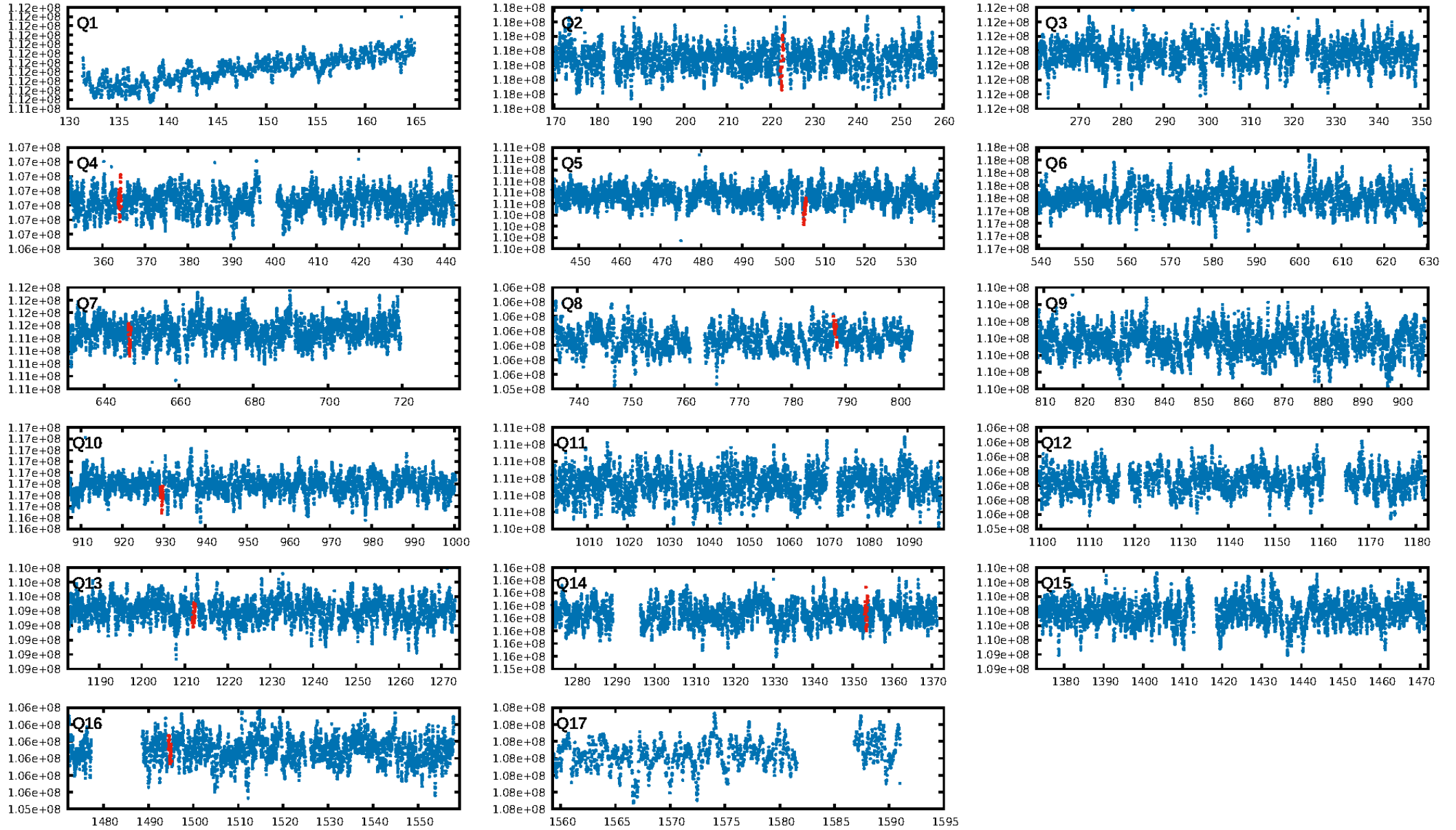
## DV Diagnostic Results:

ShortPeriod-sig: 82.4% [1.35 $\sigma$ ]  
LongPeriod-sig: 99.9% [3.23 $\sigma$ ]  
ModelChiSquare2-sig: 64.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: 1.237  
Centroid-sig: 0.5%  
Centroid-so: 0.176 arcsec [1.76 $\sigma$ ]  
OotOffset-rm: 0.166 arcsec [1.04 $\sigma$ ]  
KicOffset-rm: 0.184 arcsec [1.12 $\sigma$ ]  
OotOffset-st: 2/1/2/1 [6]  
KicOffset-st: 2/1/2/1 [6]  
DiffImageQuality-fgm: 0.83 [5/6]  
DiffImageOverlap-fno: 0.00 [0/7]

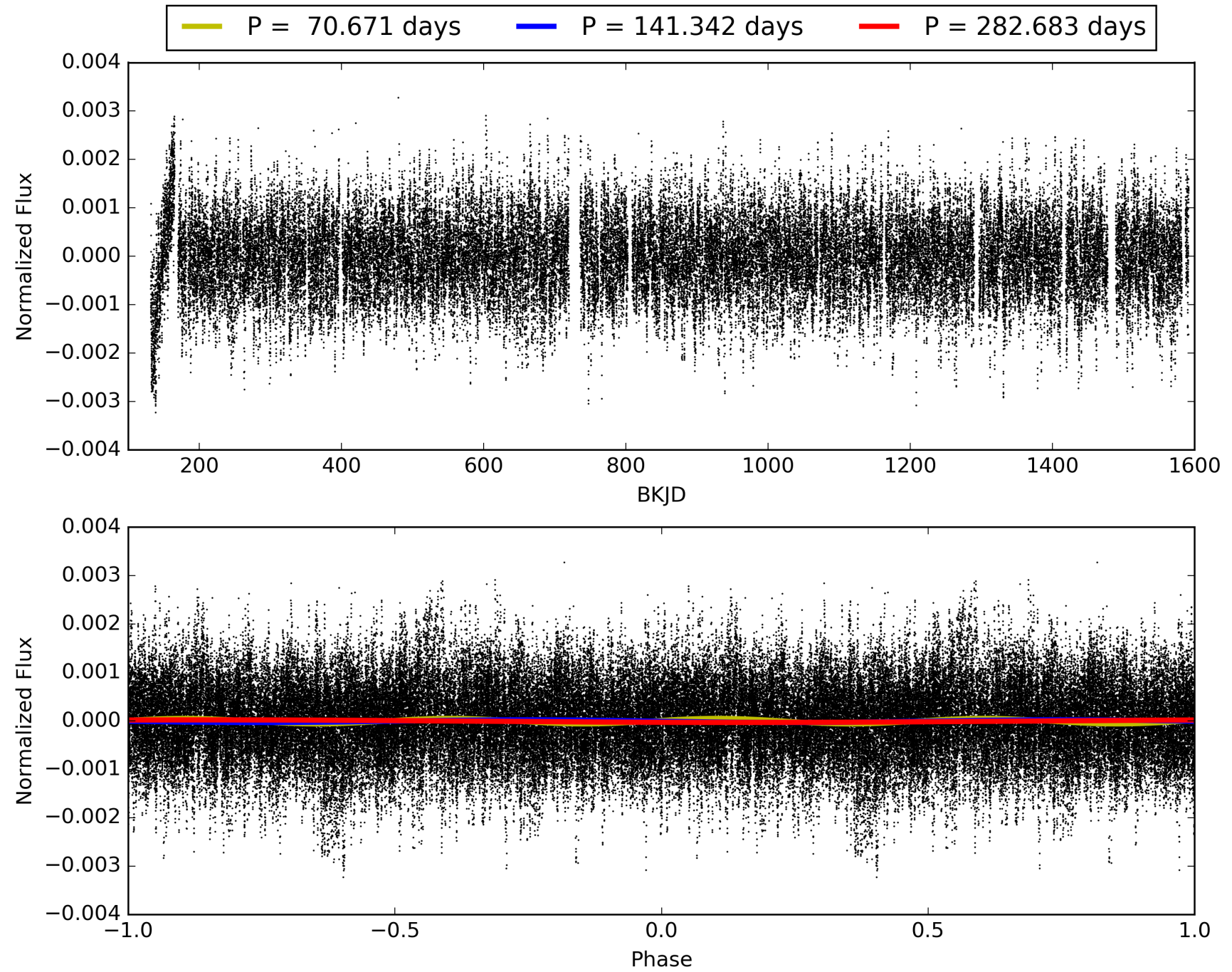
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:41:35 Z

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

# TCE 007199272-05, PDC Light Curves

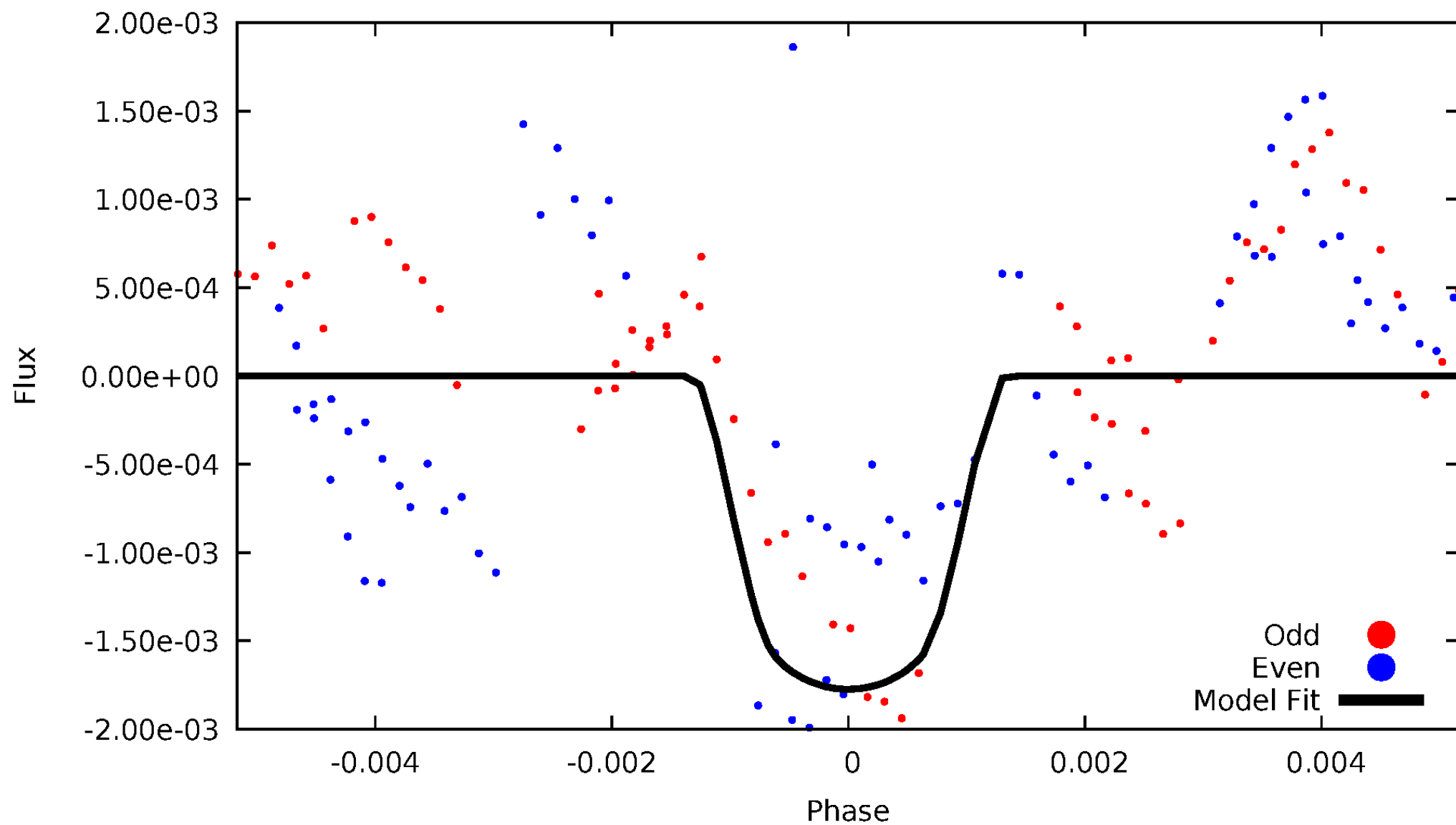


# TCE 007199272-05



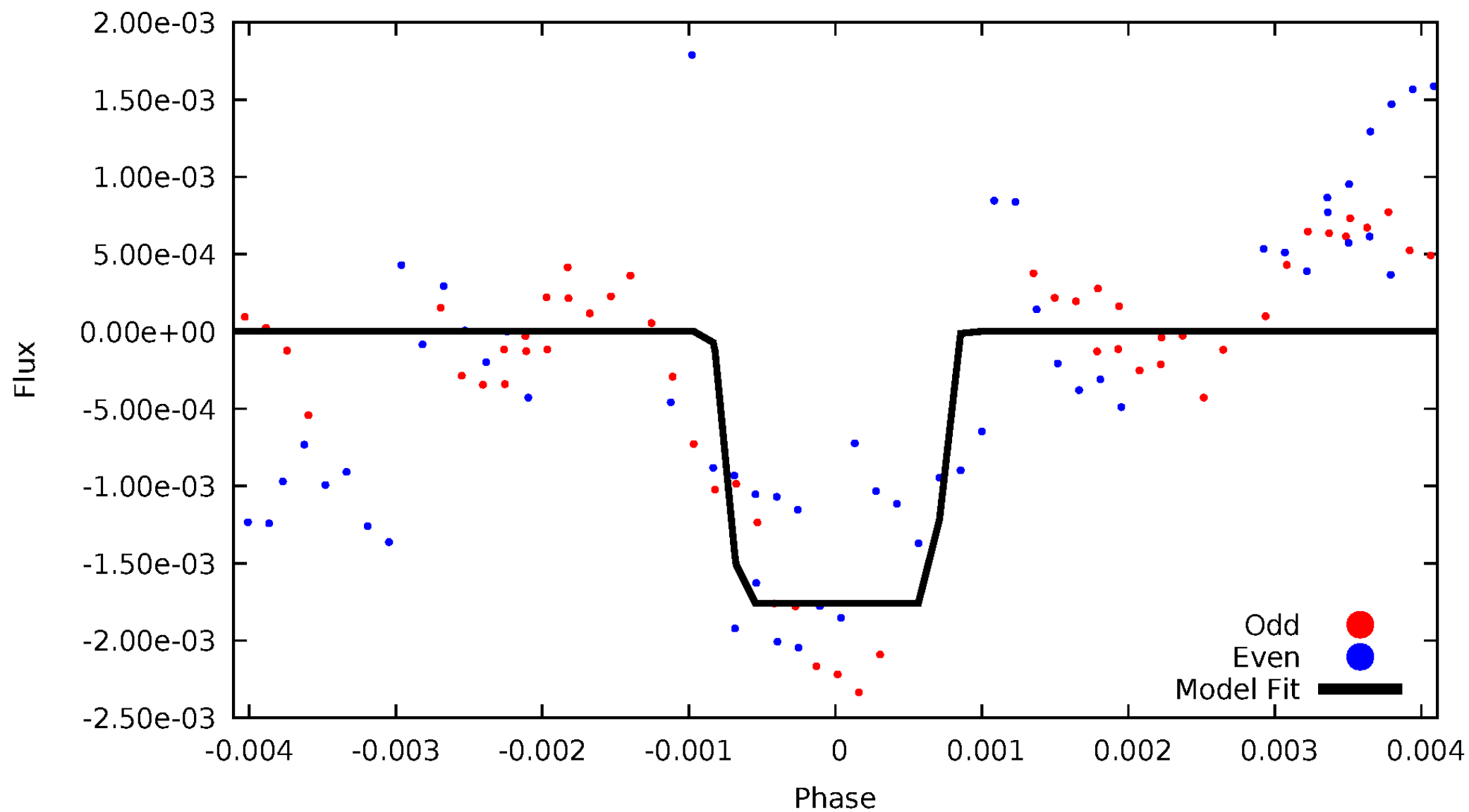
# DV Odd/Even

TCE 007199272-05



# ALT Odd/Even

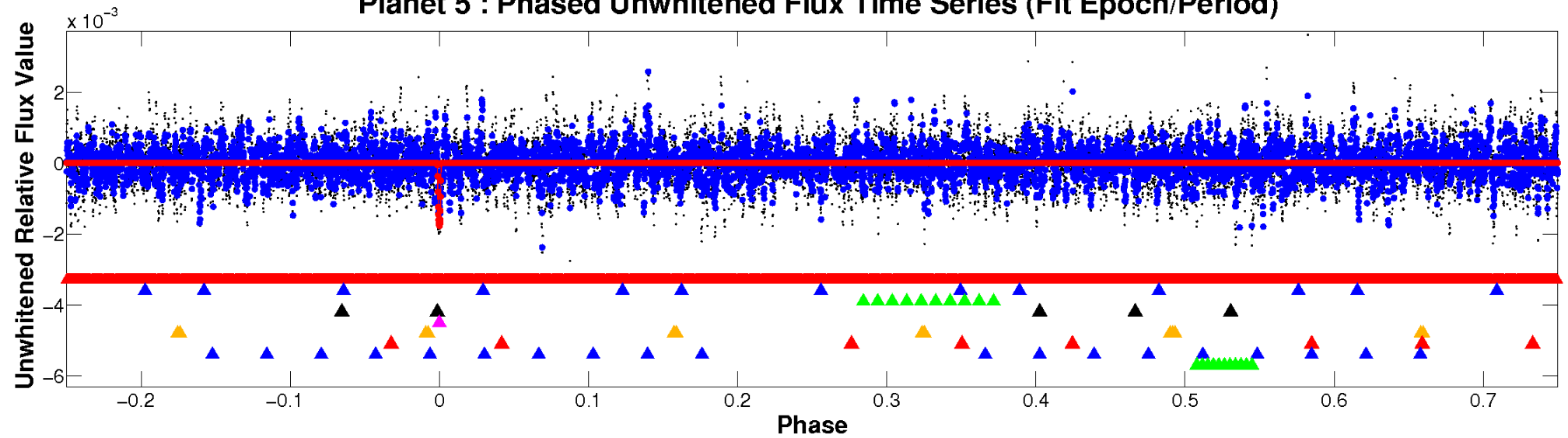
TCE 007199272-05



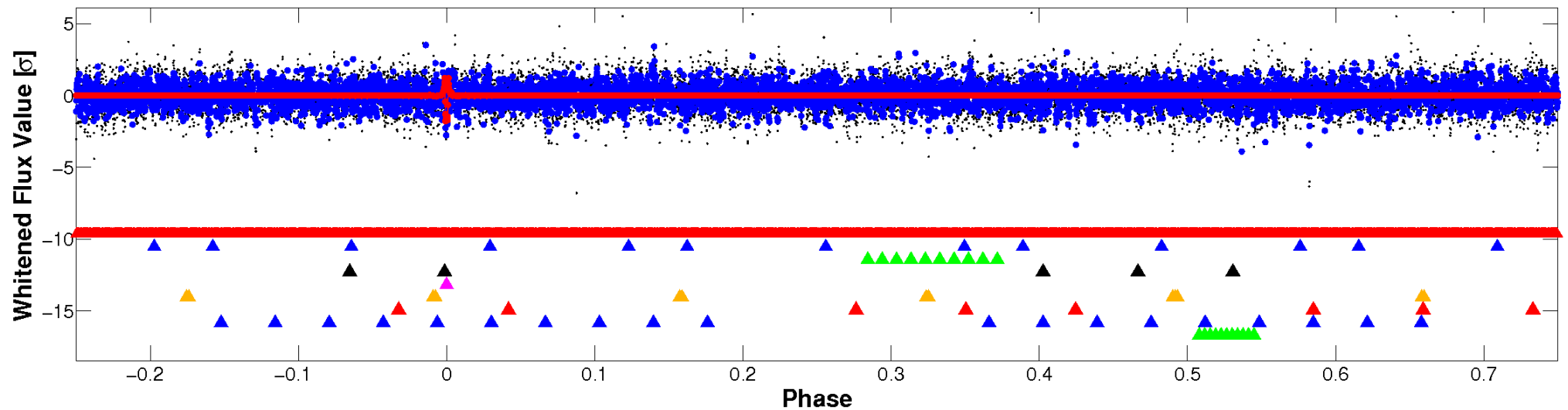


# Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

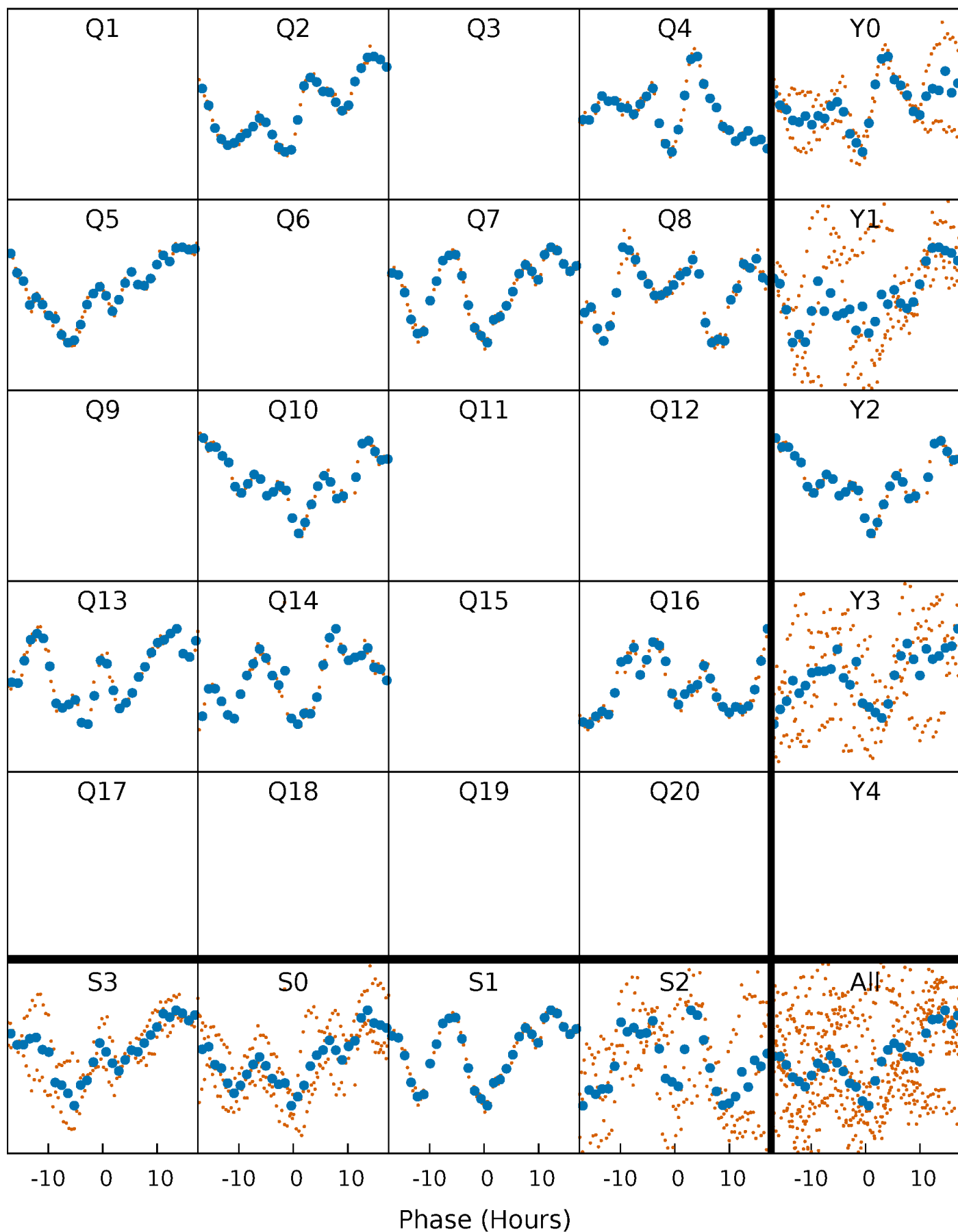


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



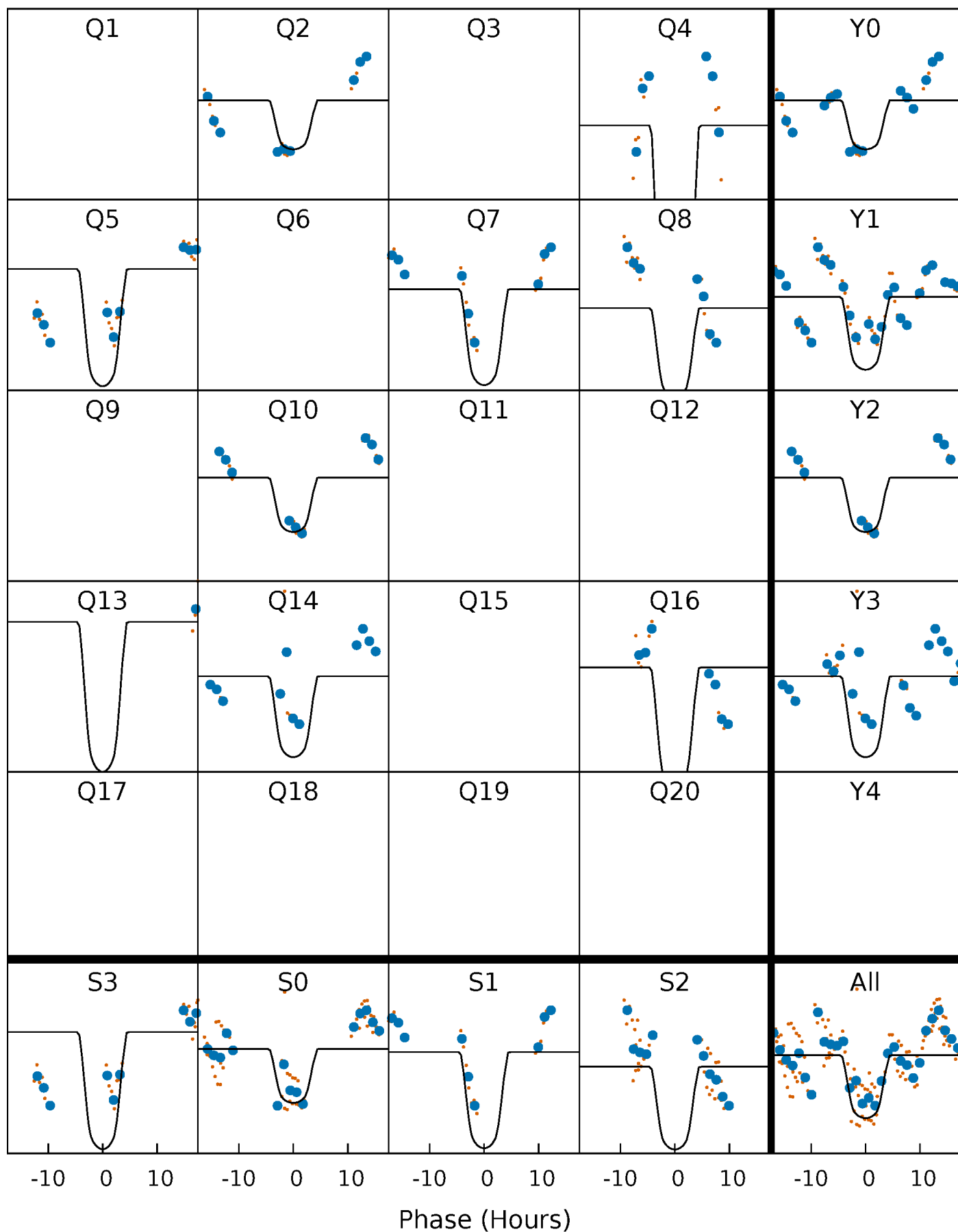
# PDC Quarter-Phased Transit Curves

TCE 007199272-05     $P=141.341629$  Days     $T_0=222.715211$  (BKJD)



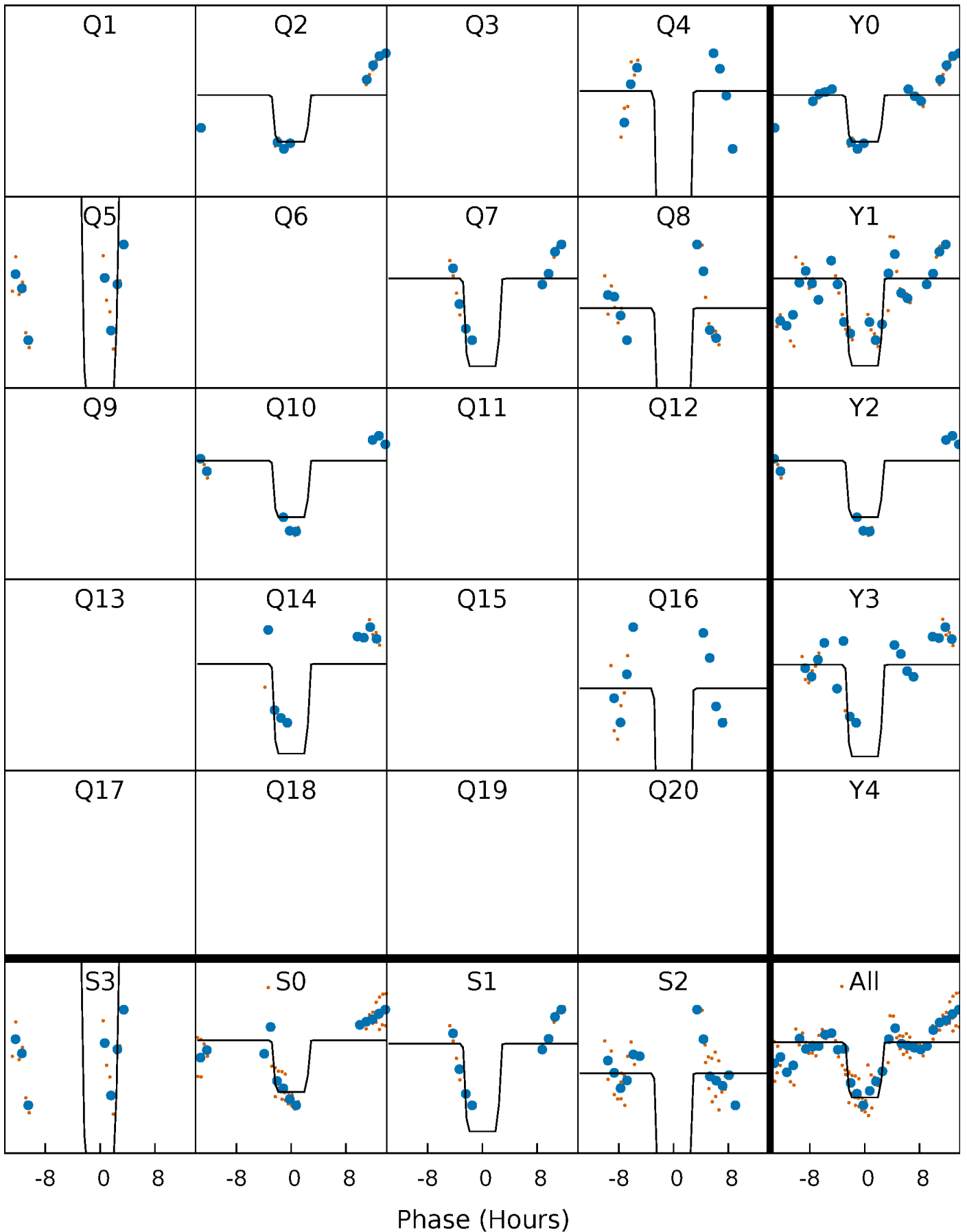
# DV Quarter-Phased Transit Curves

TCE 007199272-05     $P=141.341629$  Days     $T_0=222.715211$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

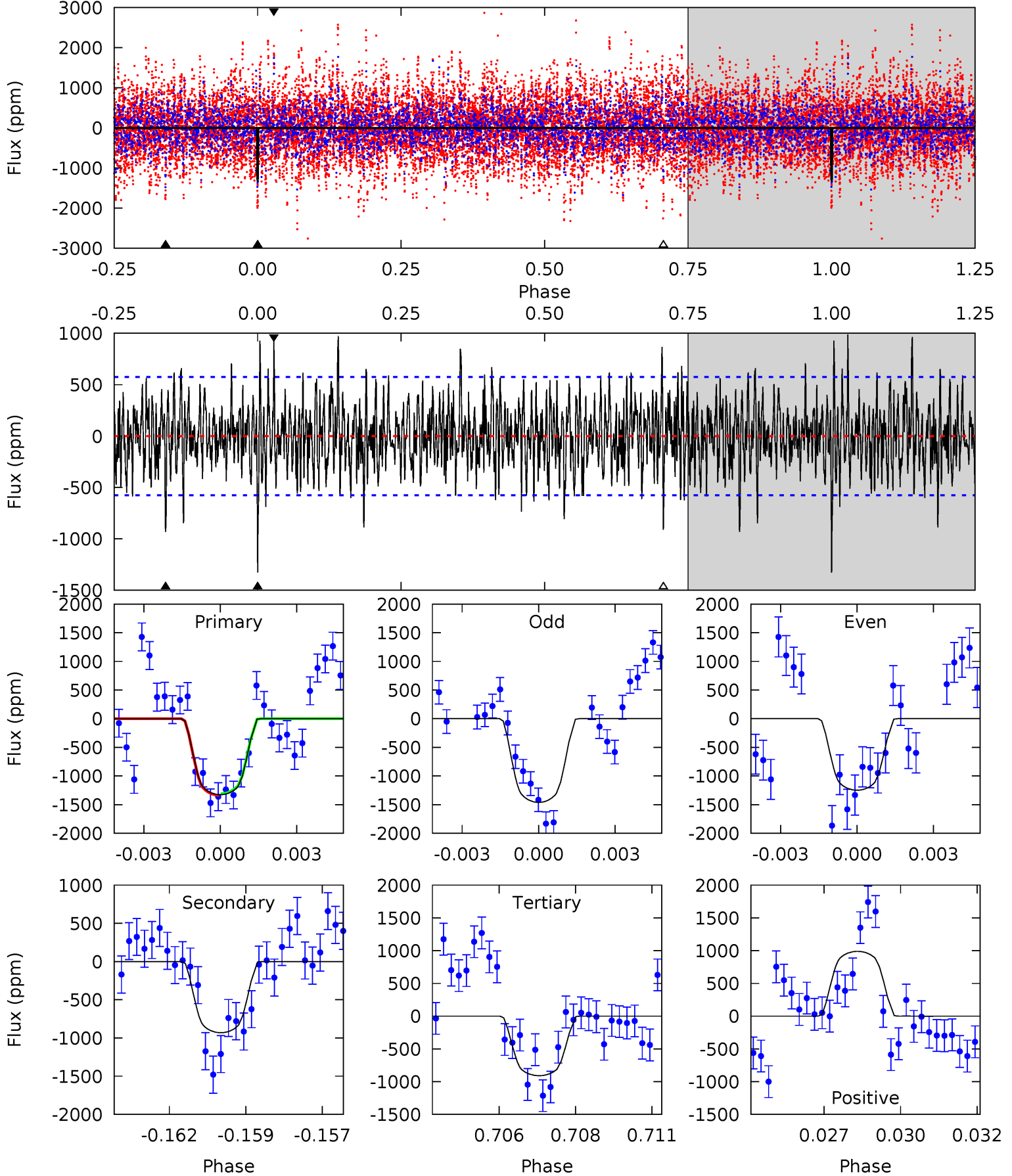
TCE 007199272-05 P=141.352037 Days  $T_0=222.704161$  (BKJD)



# DV Model-Shift Uniqueness Test

007199272-05, P = 141.341629 Days, E = 81.373582 Days

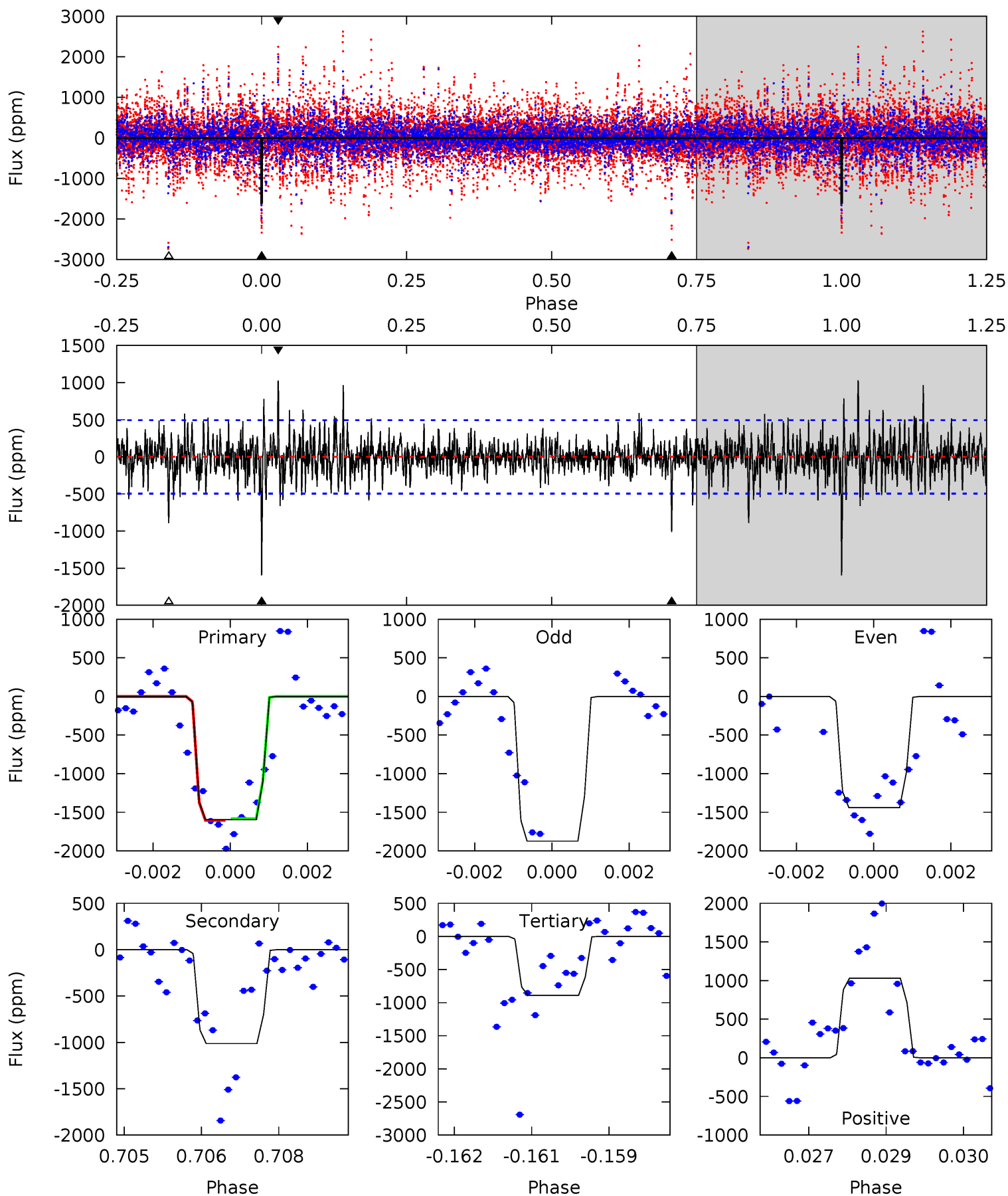
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	8.54	8.33	9.07	5.27	3.00	2.47	3.83	3.09	0.20	-0.53	0.96	1.22	0.43	0.13



# Alt Model-Shift Uniqueness Test

007199272-05, P = 141.352037 Days, E = 81.352124 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
17.3	11.0	9.65	11.2	5.36	3.14	1.94	7.63	6.11	1.32	-0.20	2.29	1.20	0.39	0.12



### Stellar Parameters For KIC 007199272

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5068^{+61}_{-305}$	$2.376^{+0.030}_{-0.027}$	$-0.500^{+0.150}_{-0.250}$	$19.327^{+0.853}_{-7.676}$	$3.241^{+0.244}_{-2.077}$	$0.001^{+0.000}_{-0.000}$
	+1%/-6%	+1%/-1%	+30%/-50%	+4%/-40%	+8%/-64%	+69%/-9%
Source	PHO1	AST9	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 007199272-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-931 \pm 109$	$101.53^{+8.31}_{-8.92}$	$1545^{+32}_{-89}$	$4188^{+189}_{-207}$	$32^{+6}_{-6}$
Alt.	$-1012 \pm 92$	$90.54^{+7.86}_{-9.45}$	$1543^{+34}_{-92}$	$4460^{+195}_{-228}$	$43^{+10}_{-7}$

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



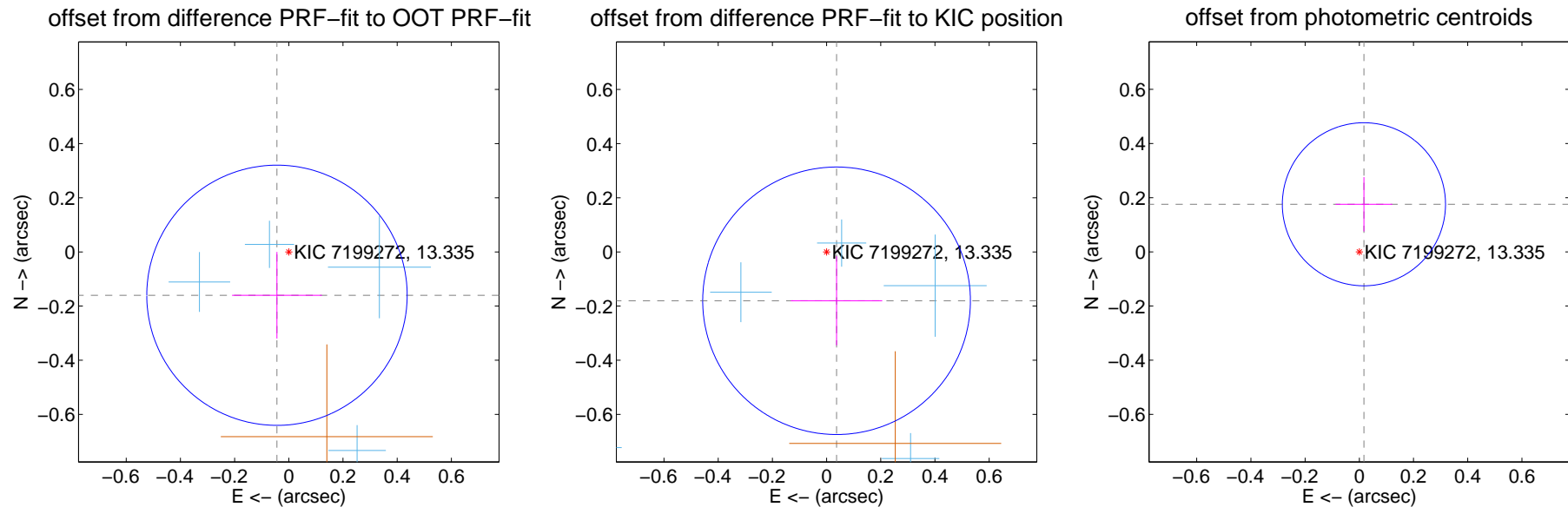
## DV Centroid Data

Supplemental centroid analysis for 007199272-05. Kepler magnitude: 13.34. Transit SNR 8.90

There are 5 quarters with good PRF difference image offsets

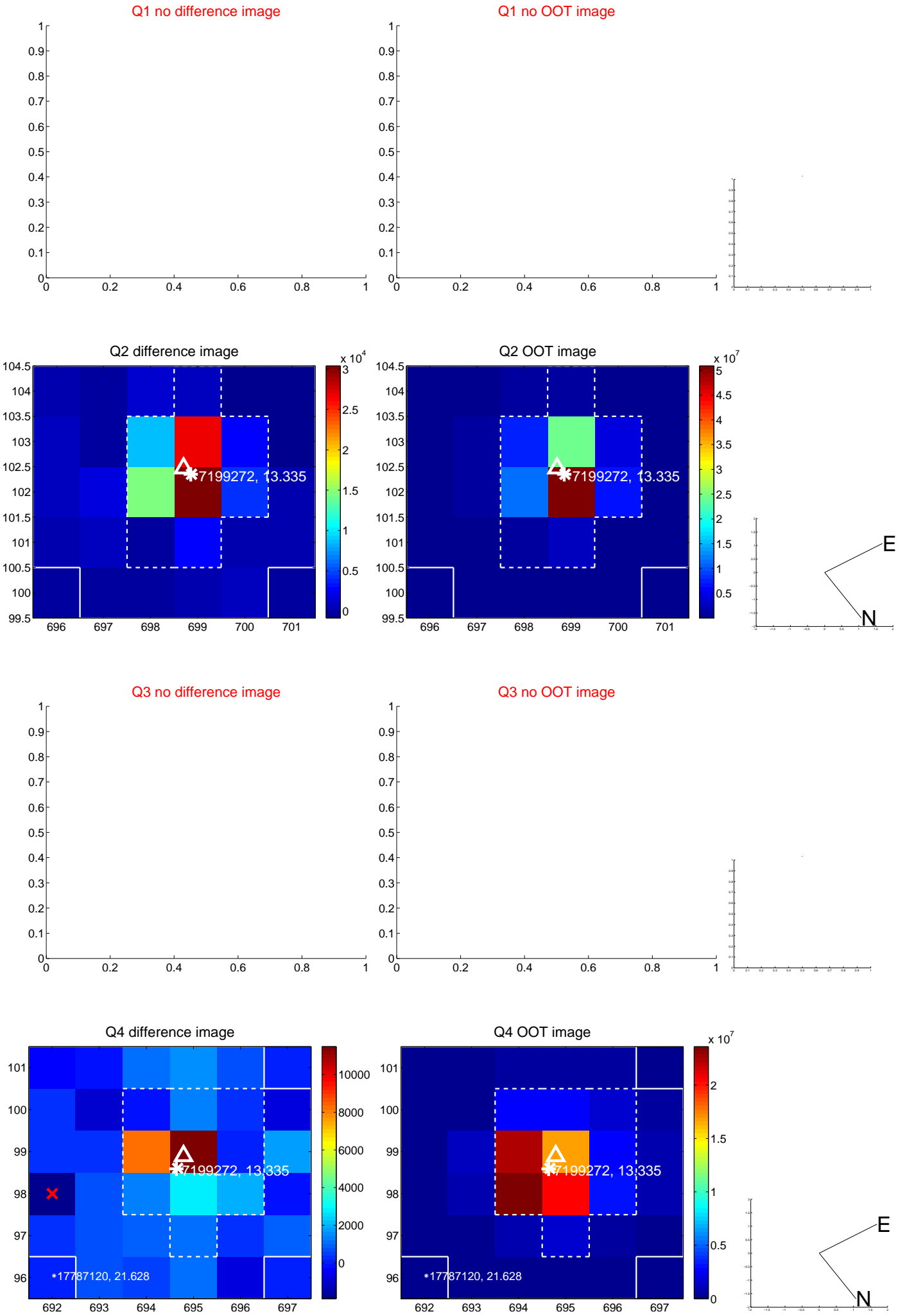
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.166 \pm 0.160$	1.04	$0.044 \pm 0.166$	$-0.160 \pm 0.160$
PRF-fit source offset from KIC position	$0.184 \pm 0.165$	1.12	$-0.037 \pm 0.169$	$-0.180 \pm 0.164$
photometric centroid source offset	$0.18 \pm 0.10$	1.76	$-0.02 \pm 0.10$	$0.18 \pm 0.10$



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.

Q5 no difference image



Q5 no OOT image



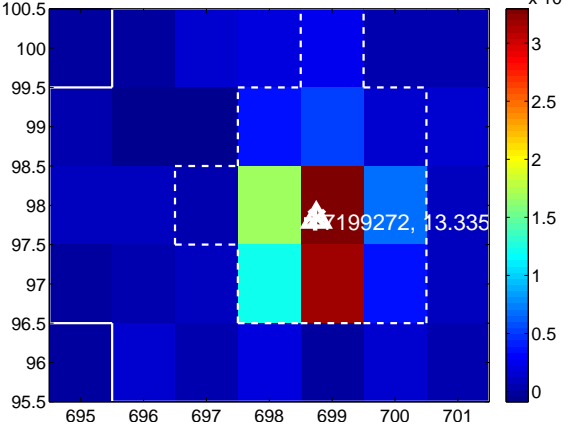
Q6 no difference image



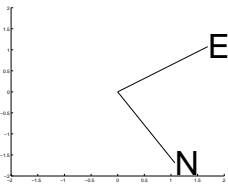
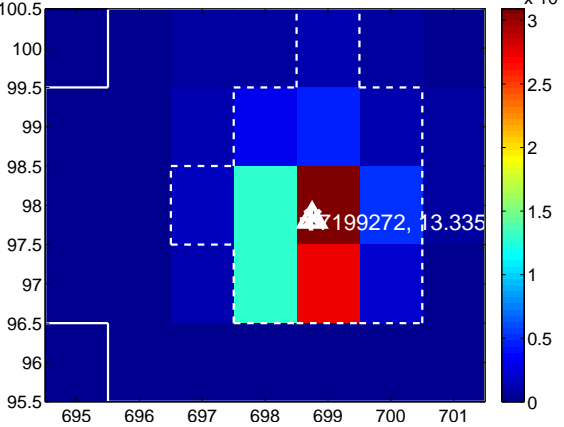
Q6 no OOT image



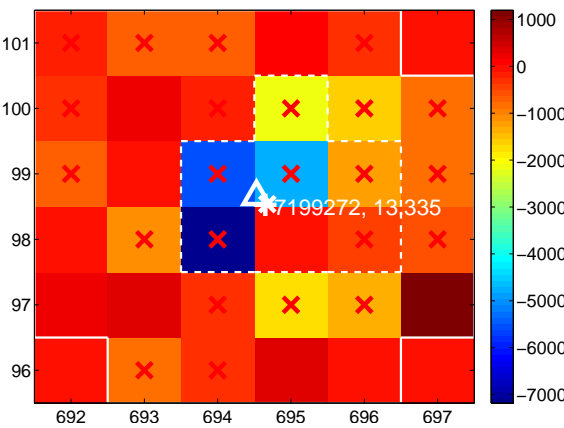
Q7 difference image



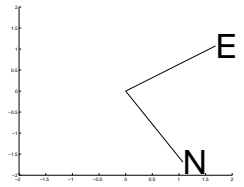
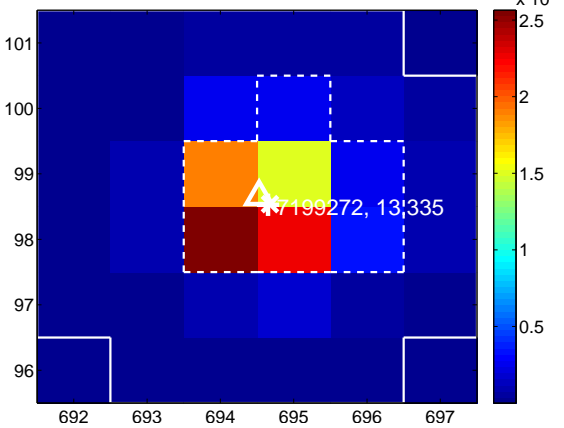
Q7 OOT image



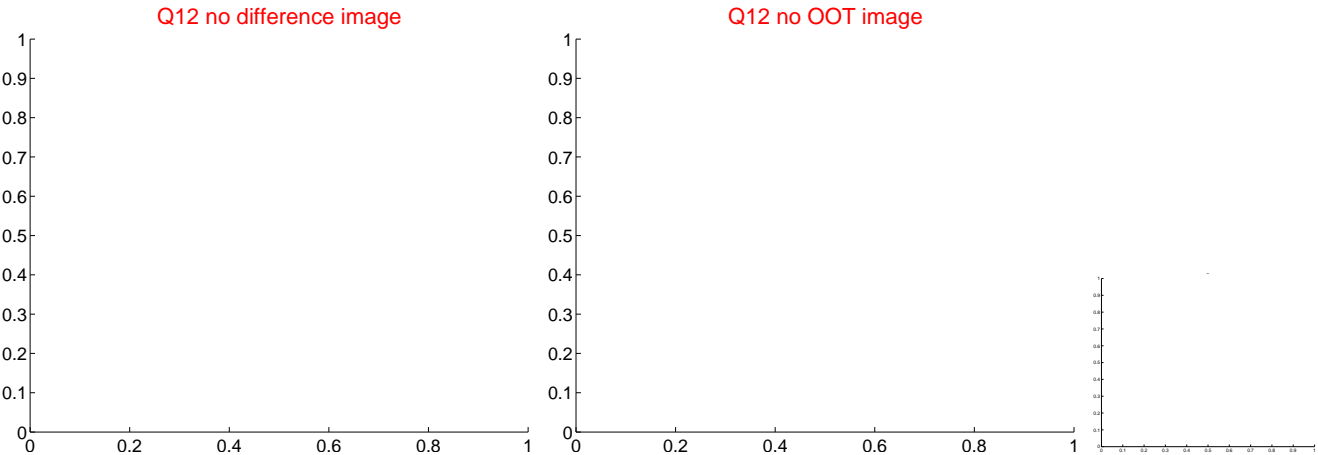
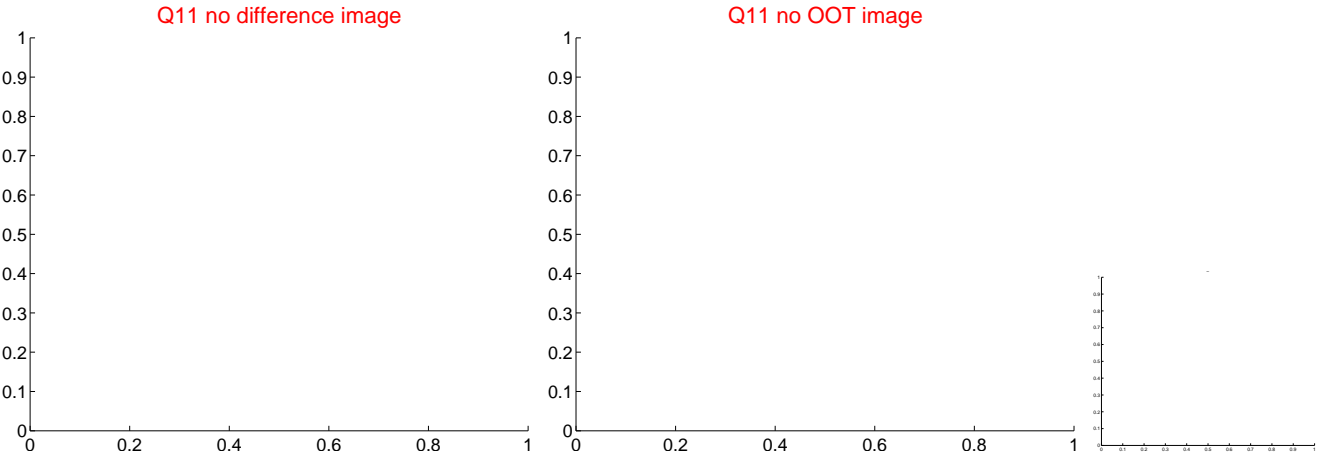
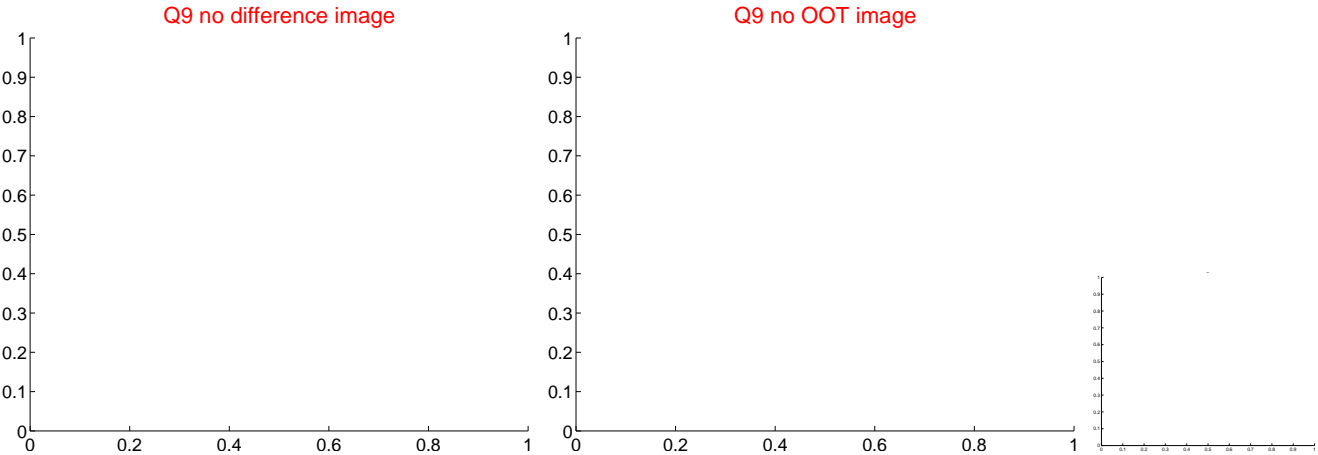
Q8 difference image. Poor Quality



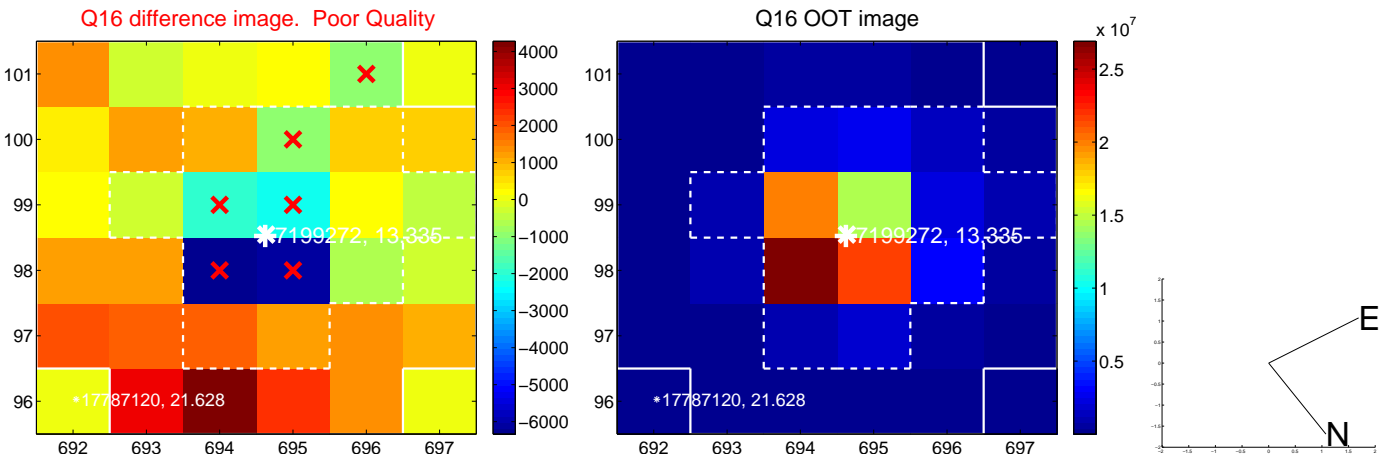
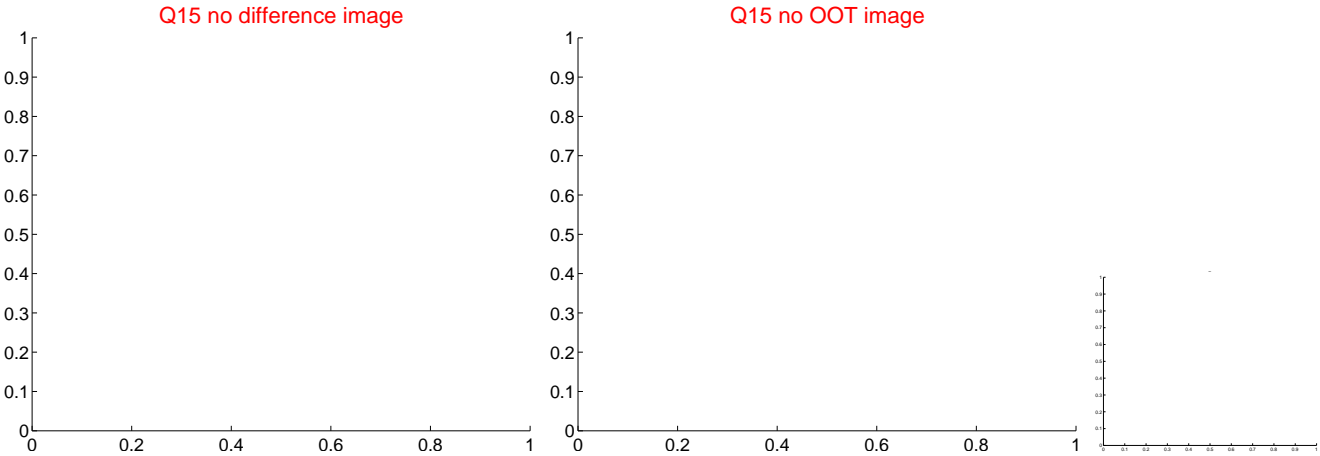
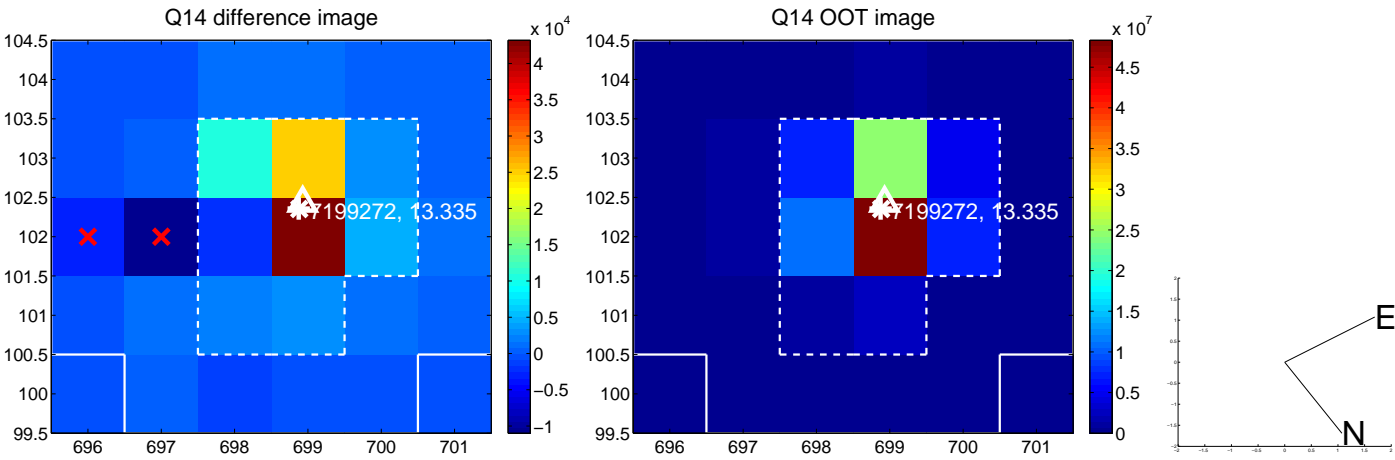
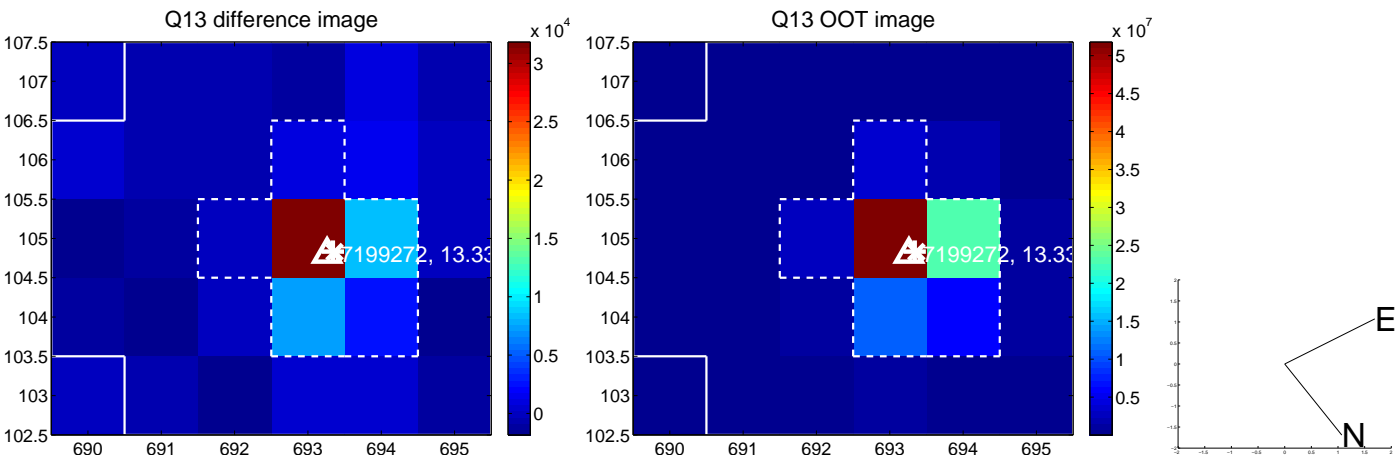
Q8 OOT image



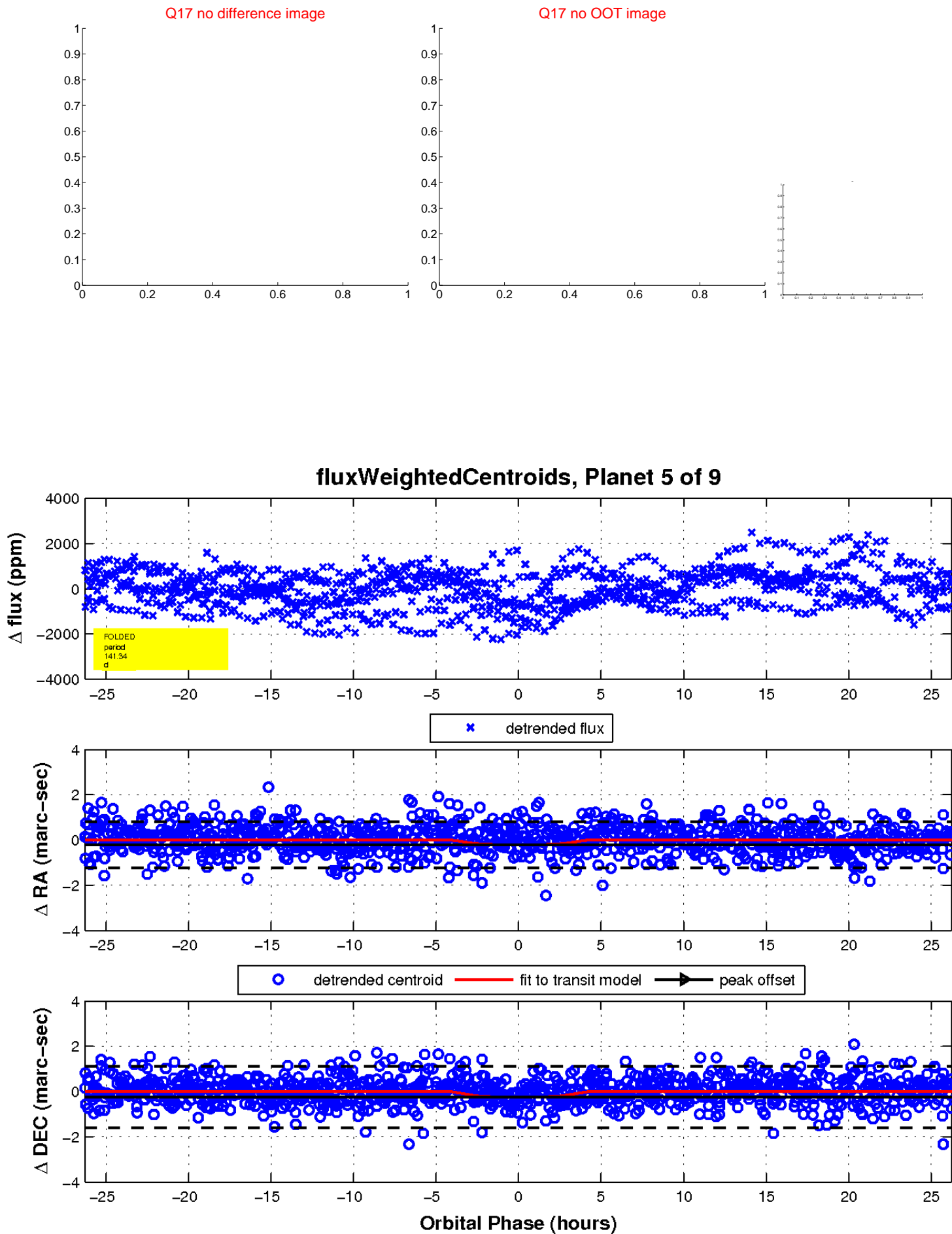
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



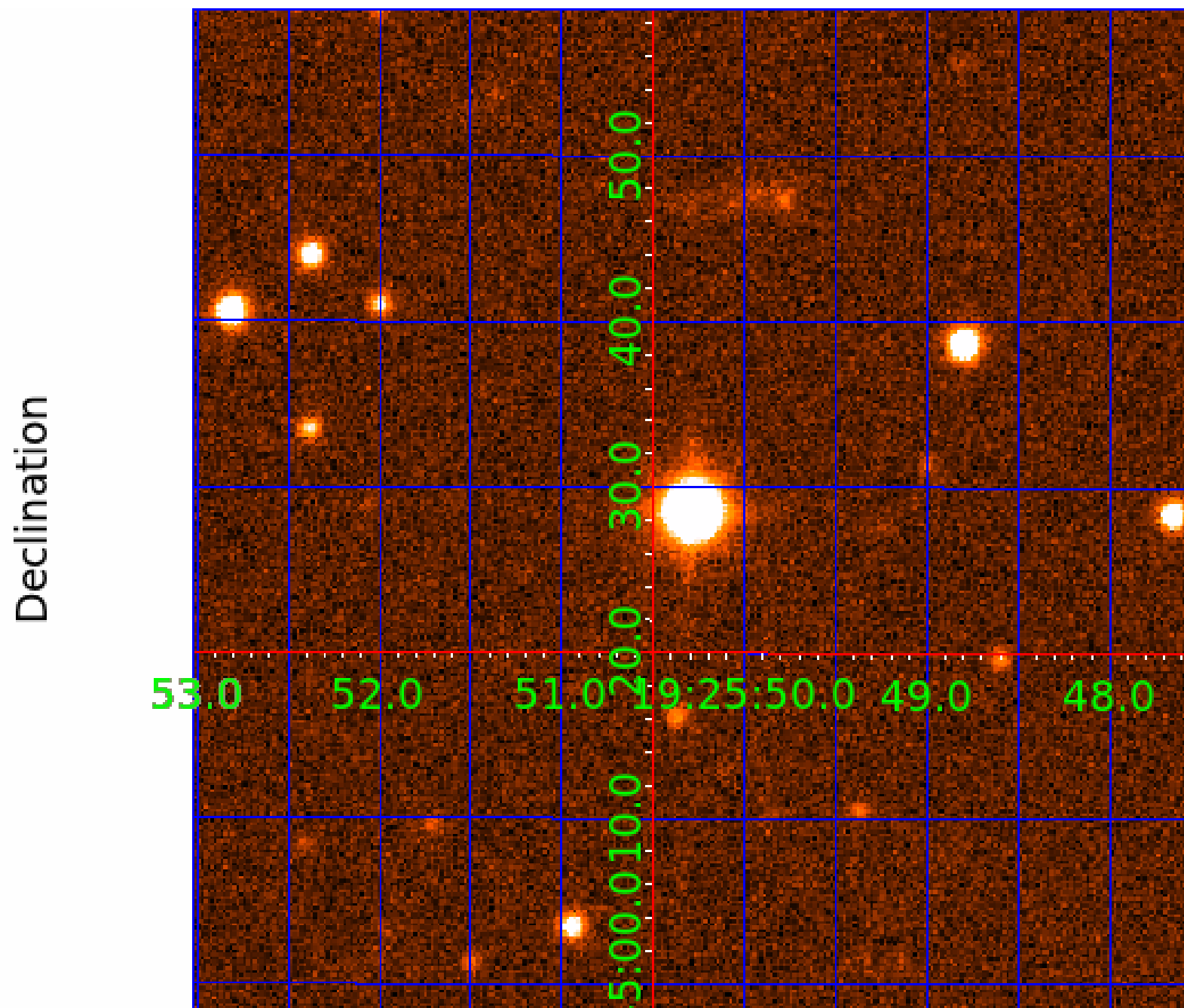
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 007199272

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007199272-01	OBS	No	0.566799	131.687562	66.4	3.288	14.4	12.5	19.33	5068	18.86	0.00
007199272-02	OBS	No	109.311739	200.412977	1471.0	2.526	10.9	9.1	19.33	5068	83.02	503.65
007199272-03	OBS	No	142.714559	262.894690	1516.7	5.208	11.5	8.3	19.33	5068	131.51	352.96
007199272-04	OBS	No	357.880851	138.273497	1764.6	10.921	8.3	7.8	19.33	5068	85.84	103.60
007199272-05	OBS	No	141.341629	222.715211	1773.8	8.761	8.3	8.9	19.33	5068	99.97	357.54
007199272-06	OBS	No	117.822367	150.641905	1383.5	3.661	8.4	9.2	19.33	5068	114.38	455.74
007199272-07	OBS	No	184.965238	282.716782	1088.7	6.545	8.5	6.1	19.33	5068	77.61	249.78
007199272-08	OBS	No	73.248202	201.211539	1083.9	4.053	8.3	9.3	19.33	5068	123.64	858.92
007199272-09	OBS	No	140.819093	158.394533	396.7	3.000	8.0	-1.0	19.33	5068	37.74	359.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007199272-01	OBS	FP	0.00	1	0	1	1	LPP_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
007199272-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
007199272-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV
007199272-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
007199272-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007199272-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007199272-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—INCONSISTENT_TRANS—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.

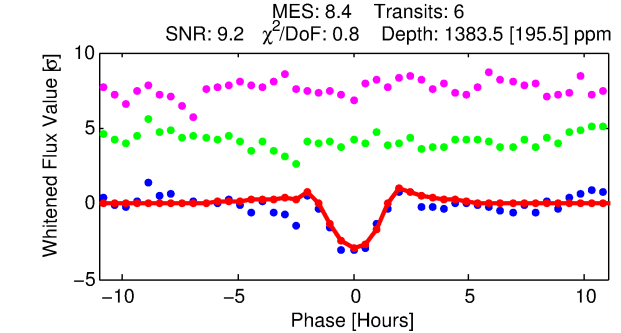
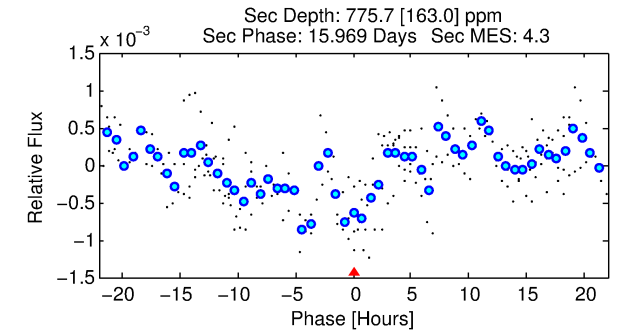
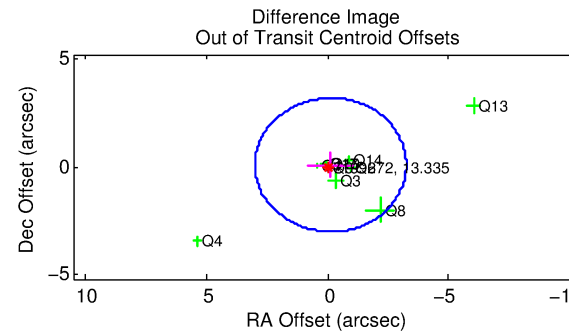
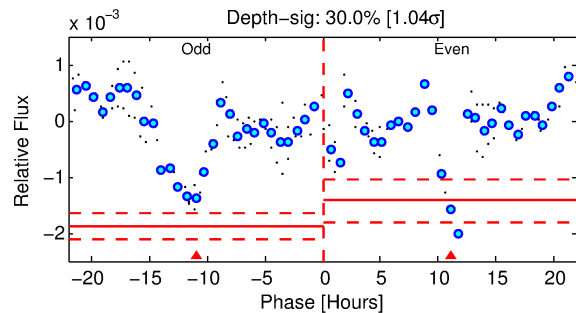
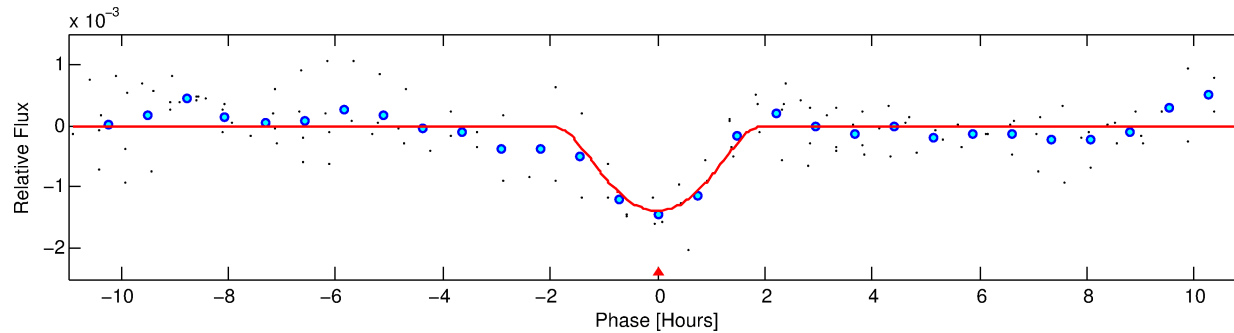
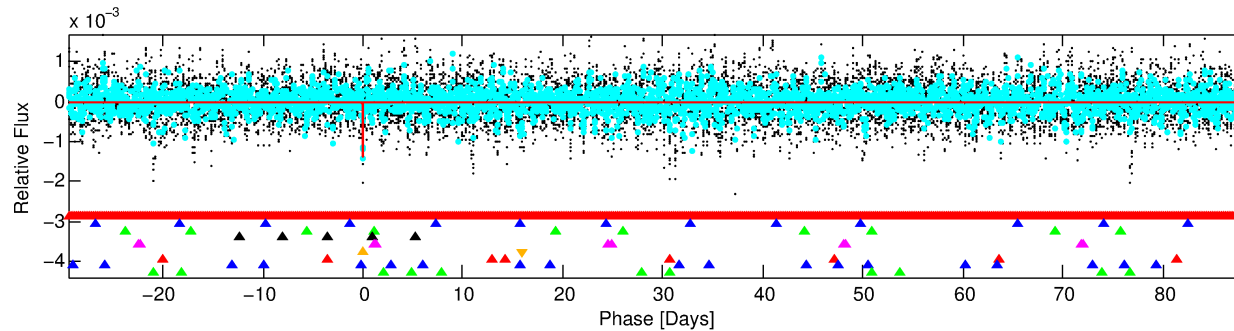
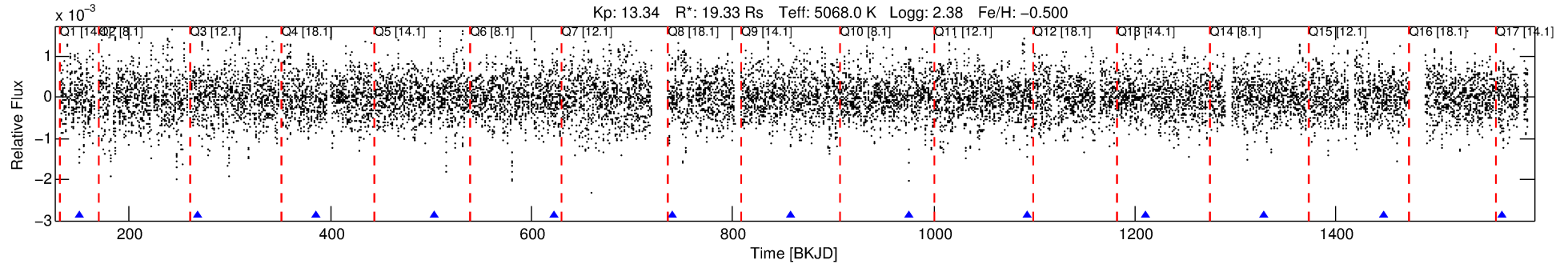
Ephemeris Match Information For 007199272-06

No Significant Match Found



# DV One-Page Summary

KIC: 7199272 Candidate: 6 of 9 Period: 117.822 d



## DV Fit Results:

Period = 117.82237 [0.00108] d  
Epoch = 150.6419 [0.0069] BKJD  
Rp/R\* = 0.0542 [0.0778]  
a/R\* = 96.39 [49.28]  
b = 0.98 [0.14]  
Seff = 455.74 [164.43]  
Teq = 1178 [106] K  
**Rp = 114.38 [170.31] Re**  
a = 0.6960 [0.1850] AU  
Ag = 15.80 [45.68] [0.32 $\sigma$ ]  
Teffp = 3632 [2622] K [0.93 $\sigma$ ]

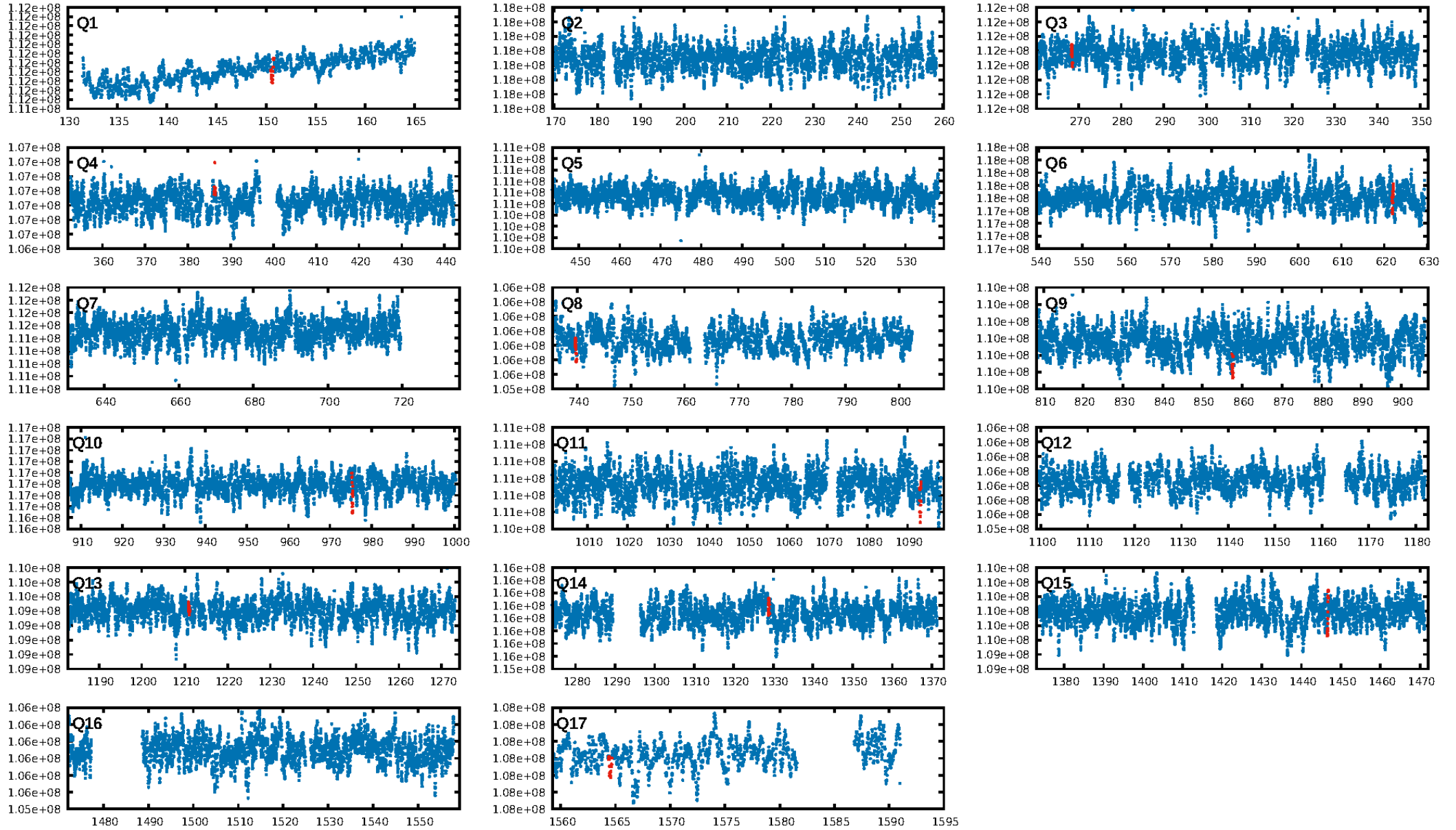
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [45.92 $\sigma$ ]  
LongPeriod-sig: 100.0% [116.61 $\sigma$ ]  
ModelChiSquare2-sig: 84.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 2.45  
Centroid-sig: 38.0%  
Centroid-so: 0.186 arcsec [0.98 $\sigma$ ]  
OotOffset-rm: 0.150 arcsec [0.14 $\sigma$ ]  
OotOffset-st: 3/1/2/4 [10]  
KicOffset-rm: 0.166 arcsec [0.17 $\sigma$ ]  
KicOffset-st: 3/1/2/4 [10]  
DiffImageQuality-fgm: 0.50 [5/10]  
DiffImageOverlap-fno: 0.00 [0/11]

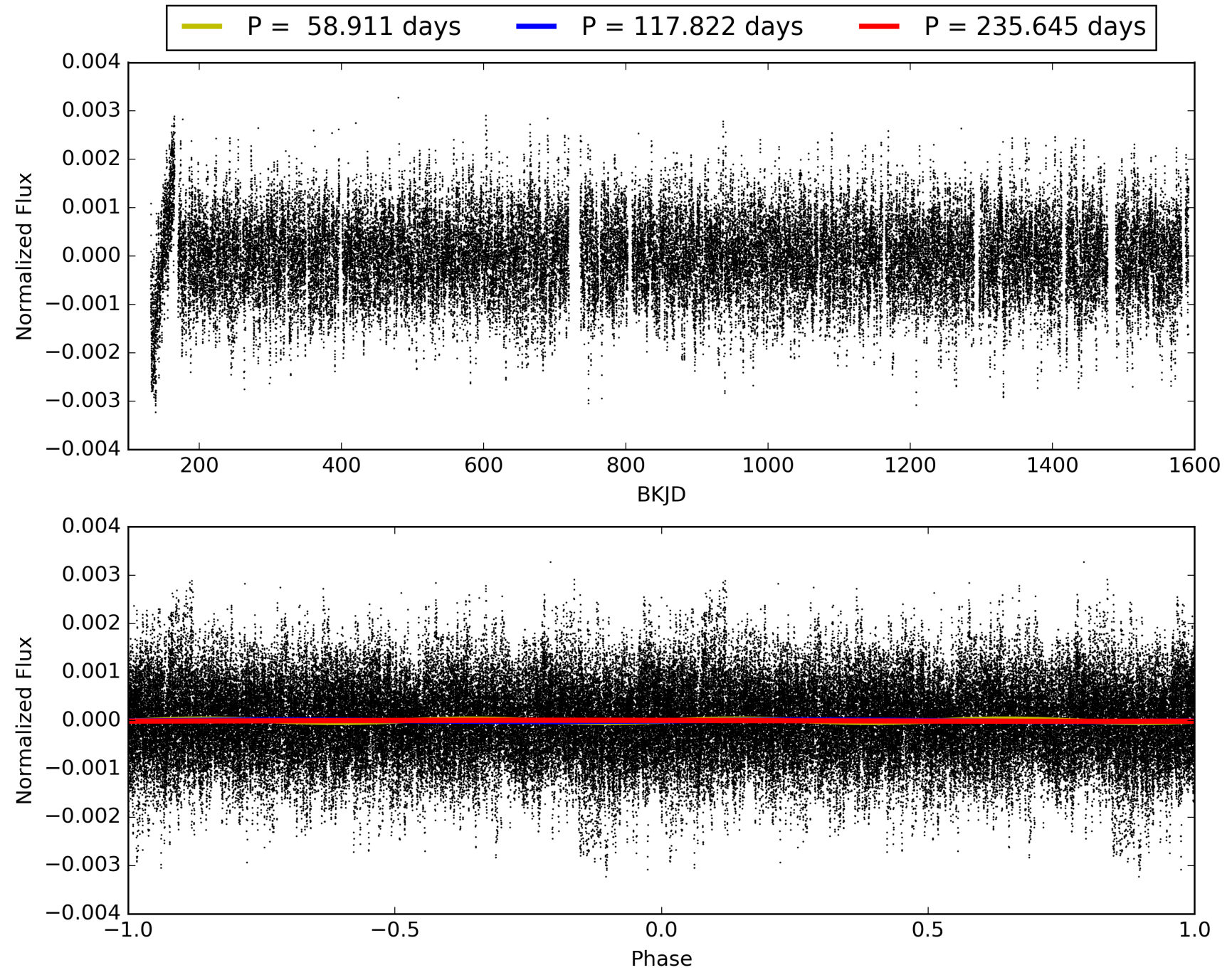
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:41:39 Z

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

# TCE 007199272-06, PDC Light Curves

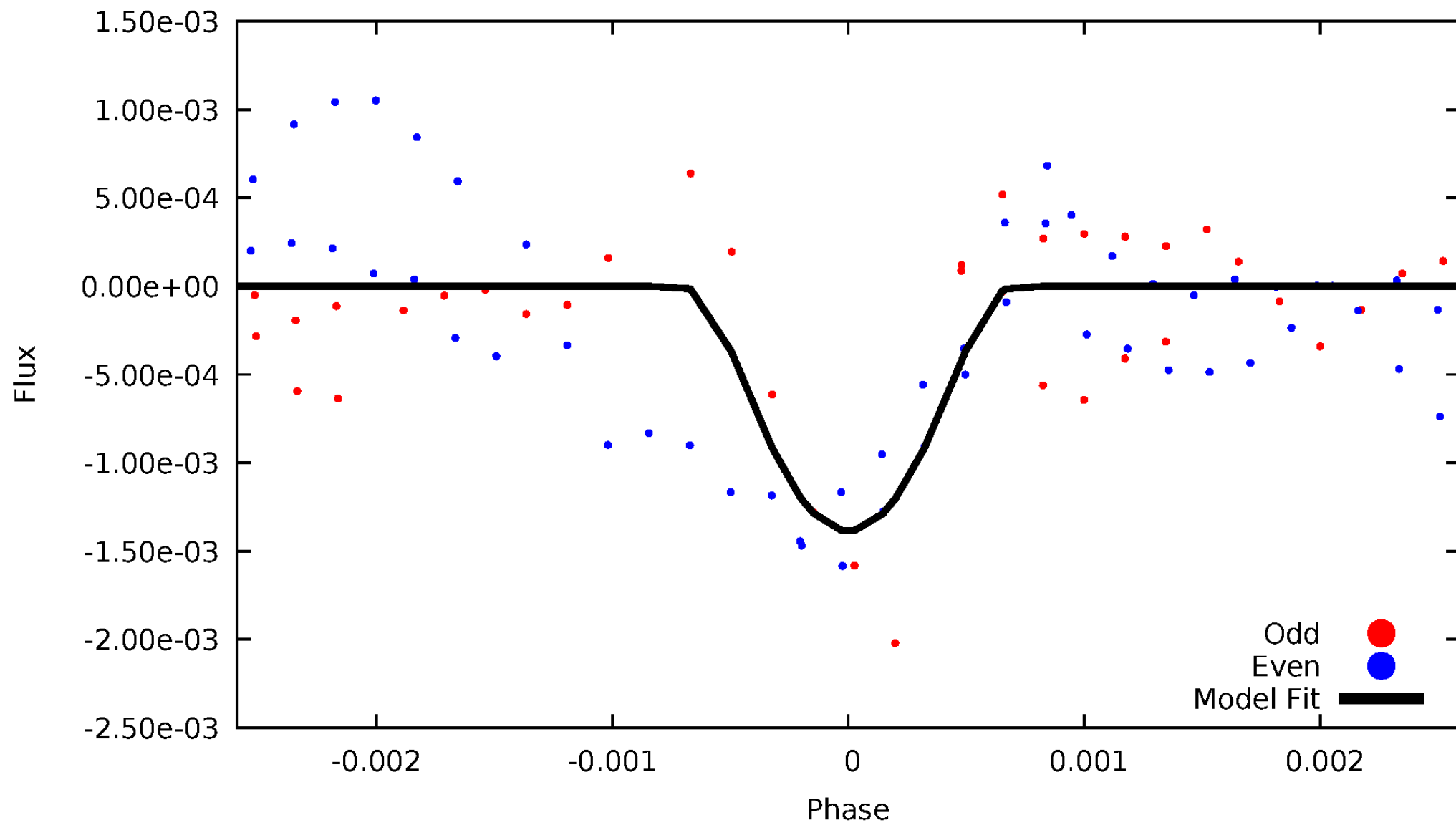


# TCE 007199272-06



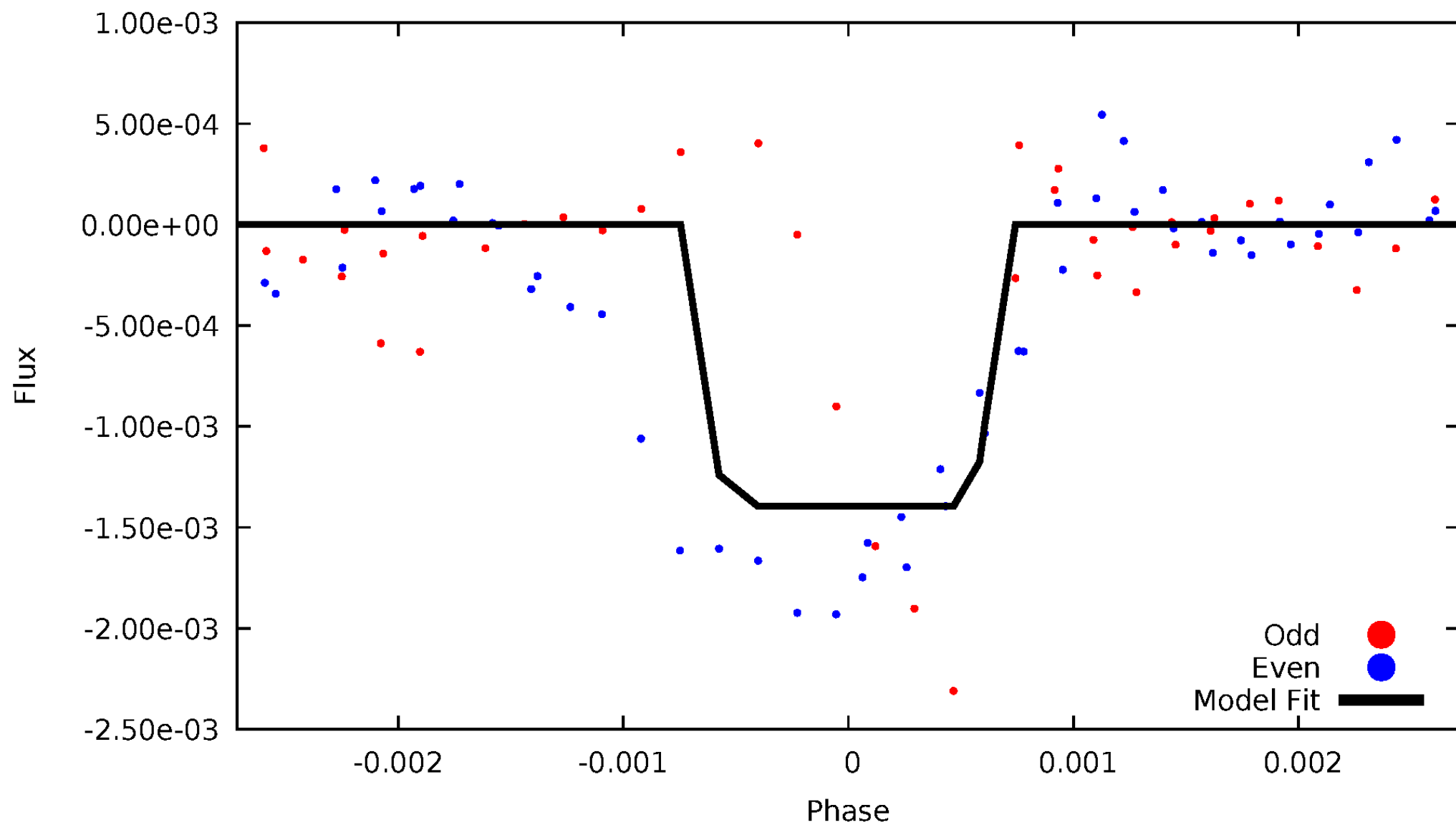
# DV Odd/Even

TCE 007199272-06



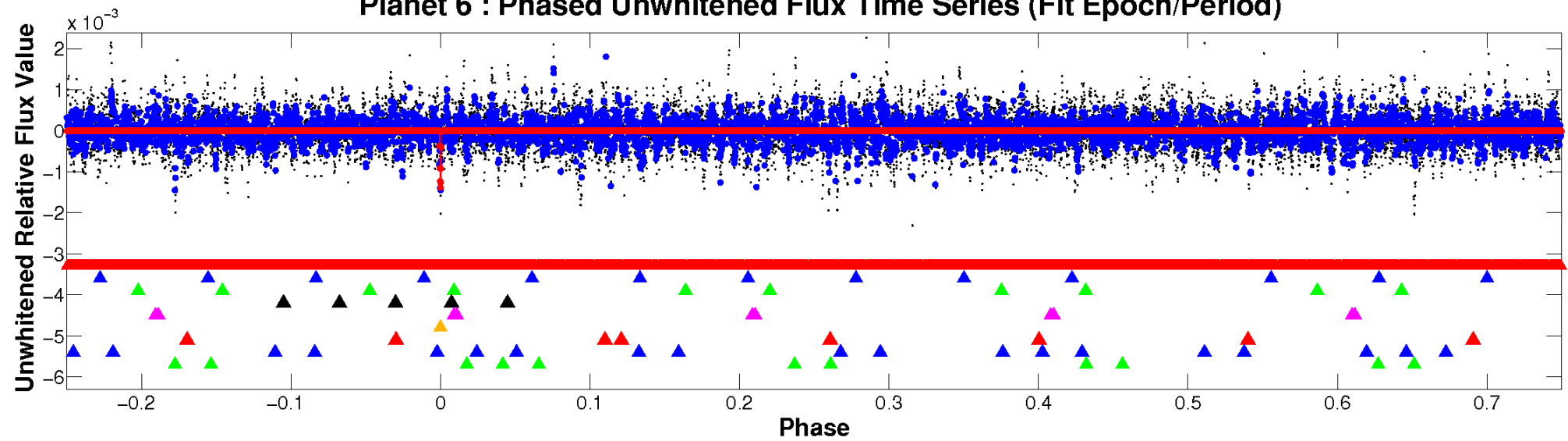
# ALT Odd/Even

TCE 007199272-06

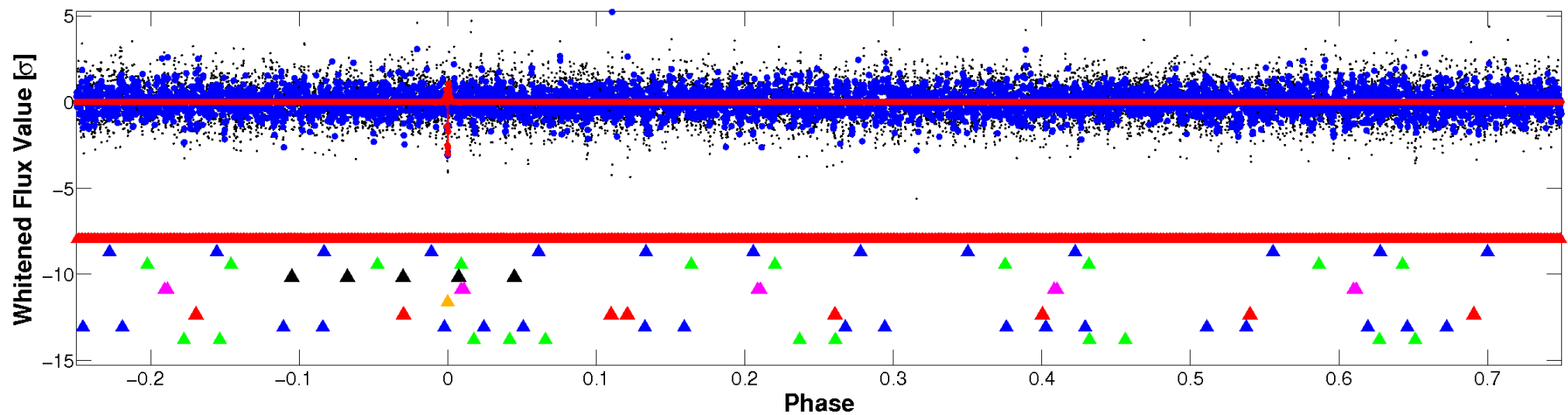


# Non-Whitened Vs. Whitened Light Curve

## Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

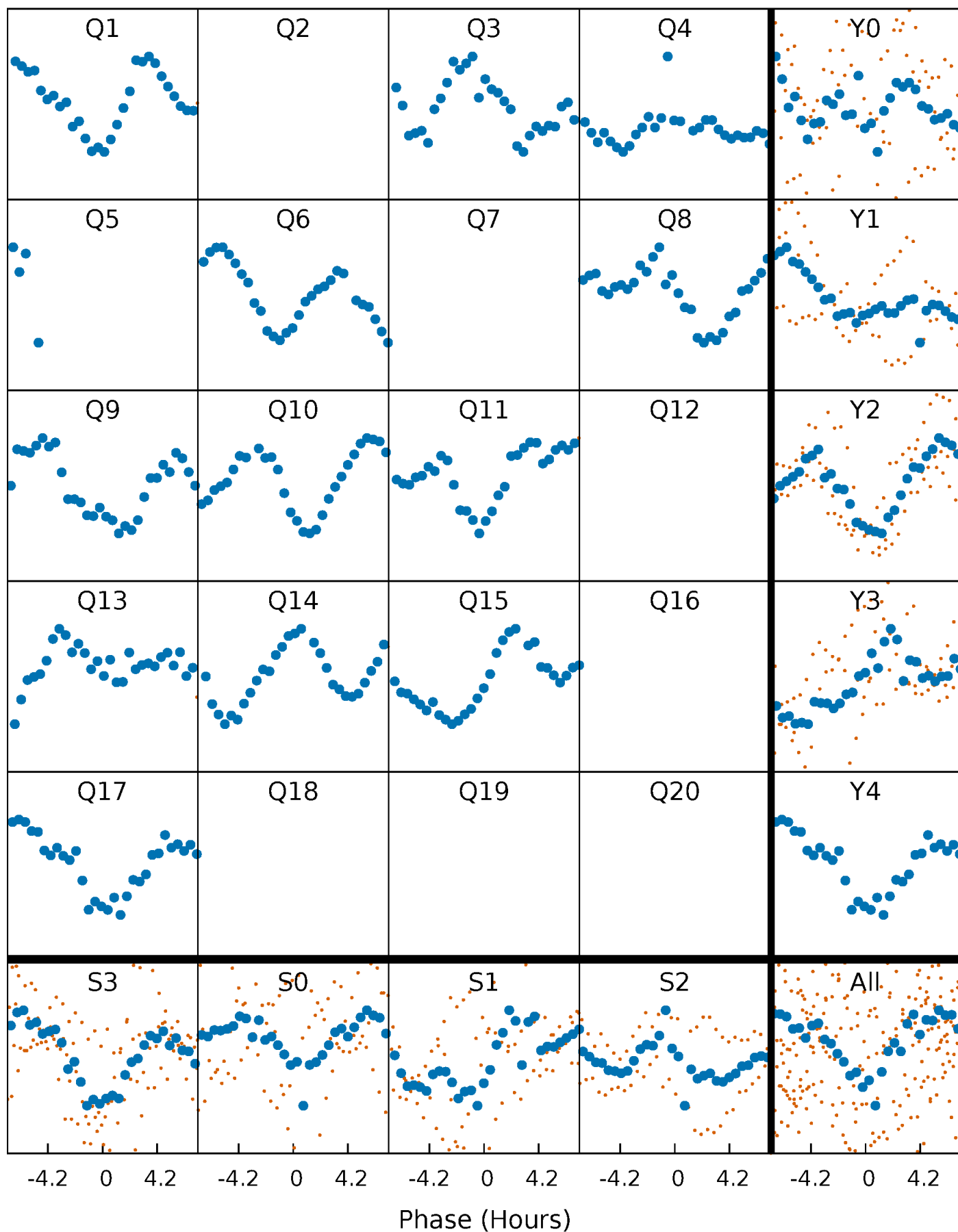


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

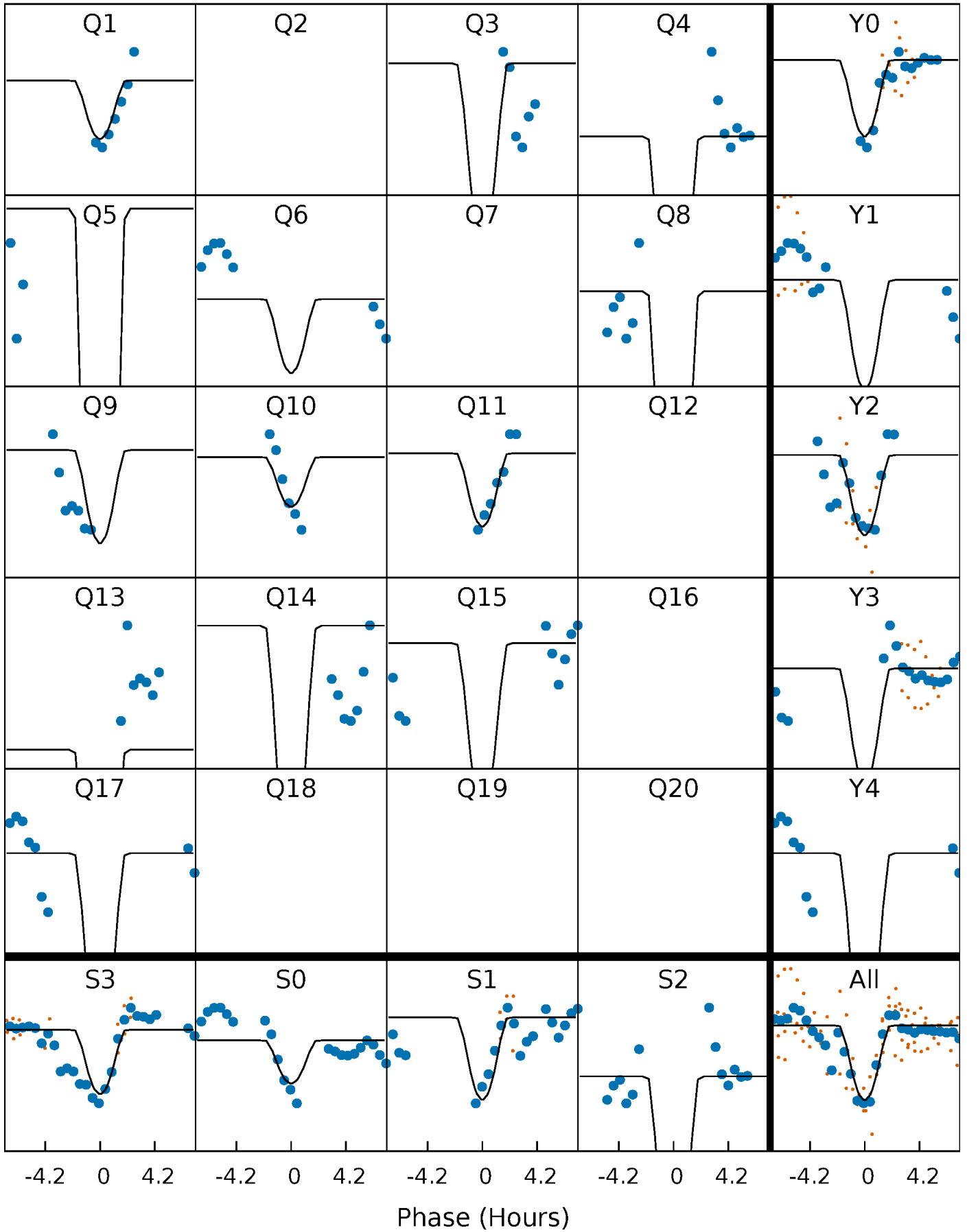
TCE 007199272-06 P=117.822367 Days  $T_0=150.641905$  (BKJD)





# DV Quarter-Phased Transit Curves

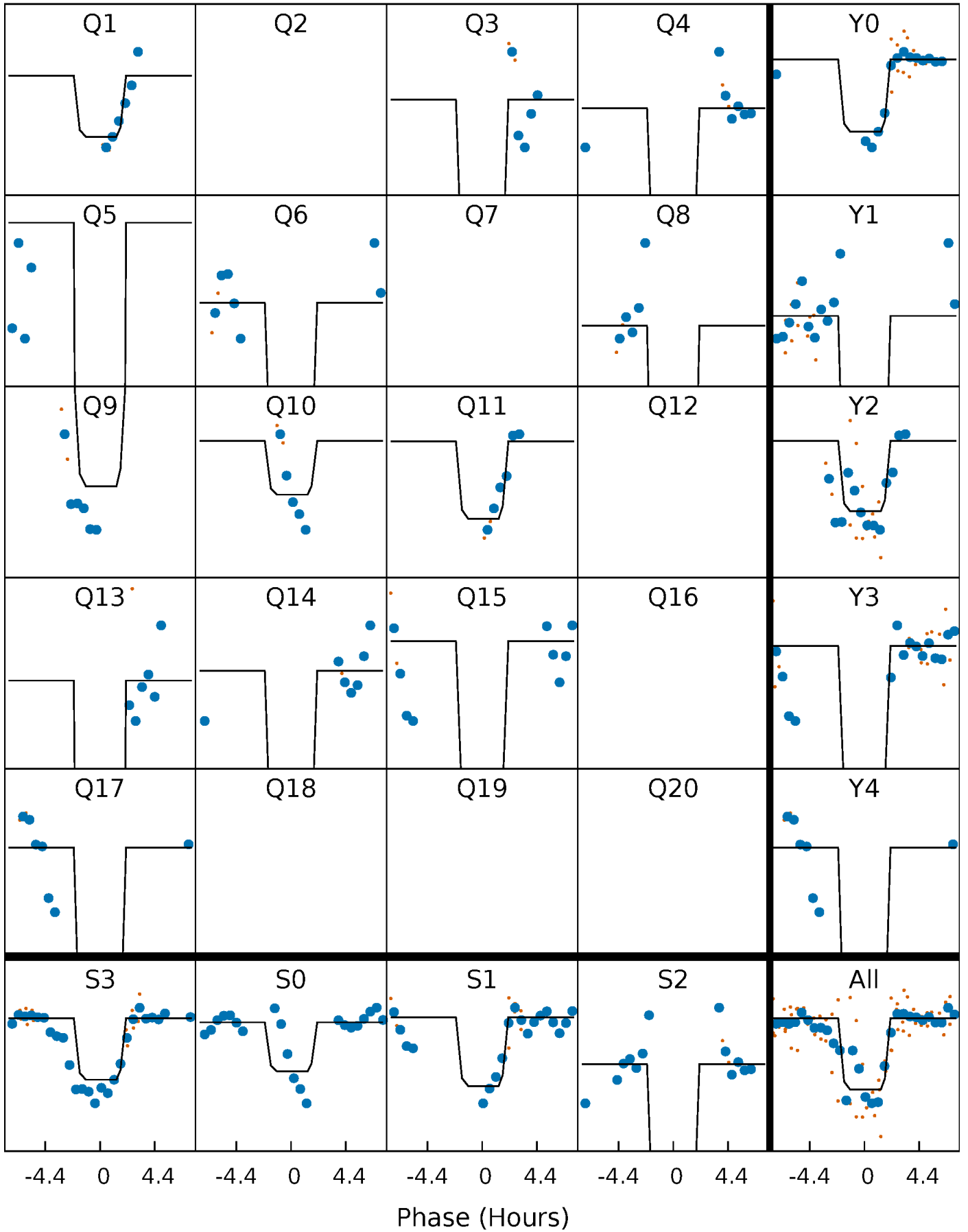
TCE 007199272-06 P=117.822367 Days  $T_0=150.641905$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

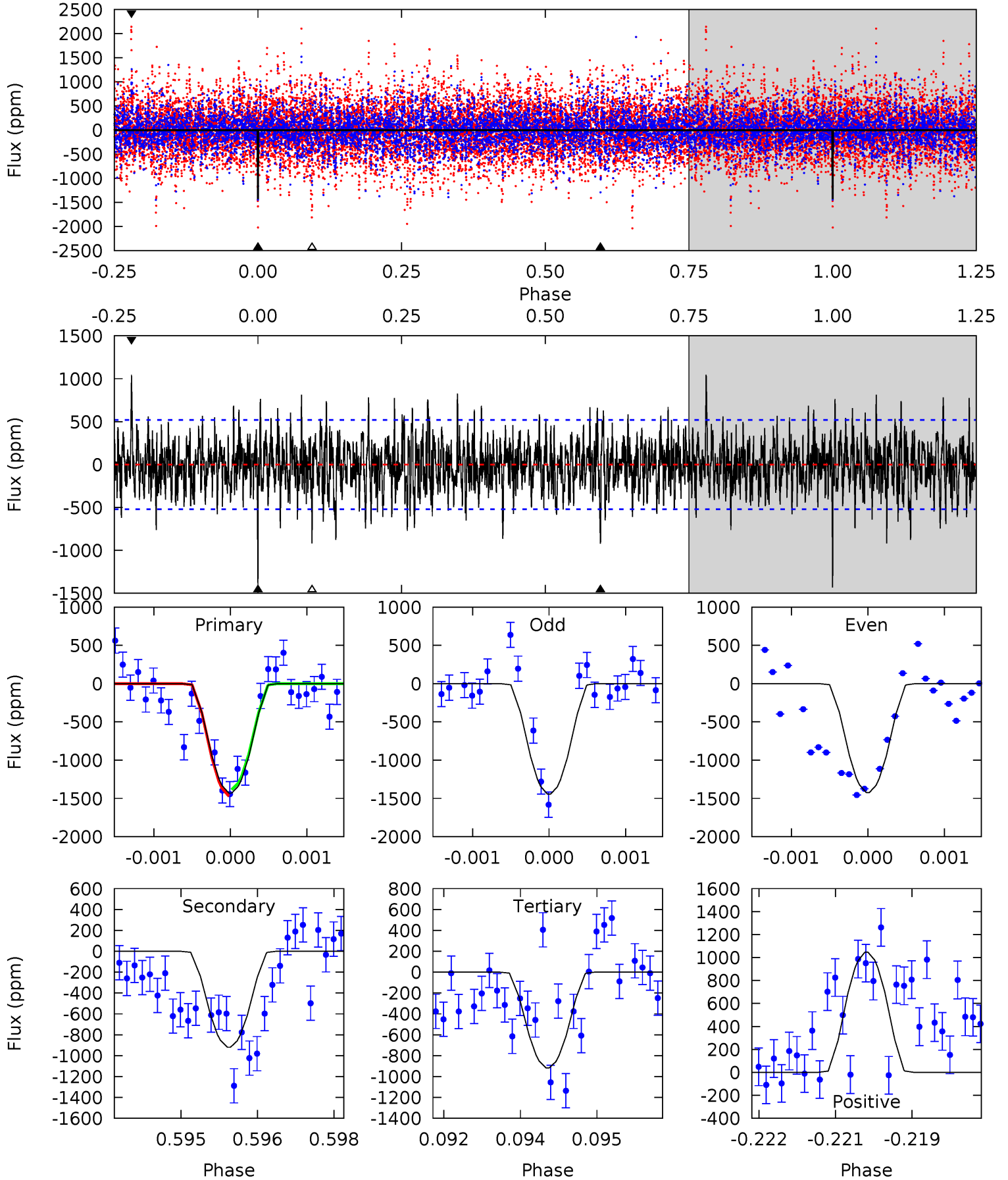
TCE 007199272-06 P=117.822628 Days  $T_0=150.608498$  (BKJD)



# DV Model-Shift Uniqueness Test

007199272-06, P = 117.822367 Days, E = 32.819538 Days

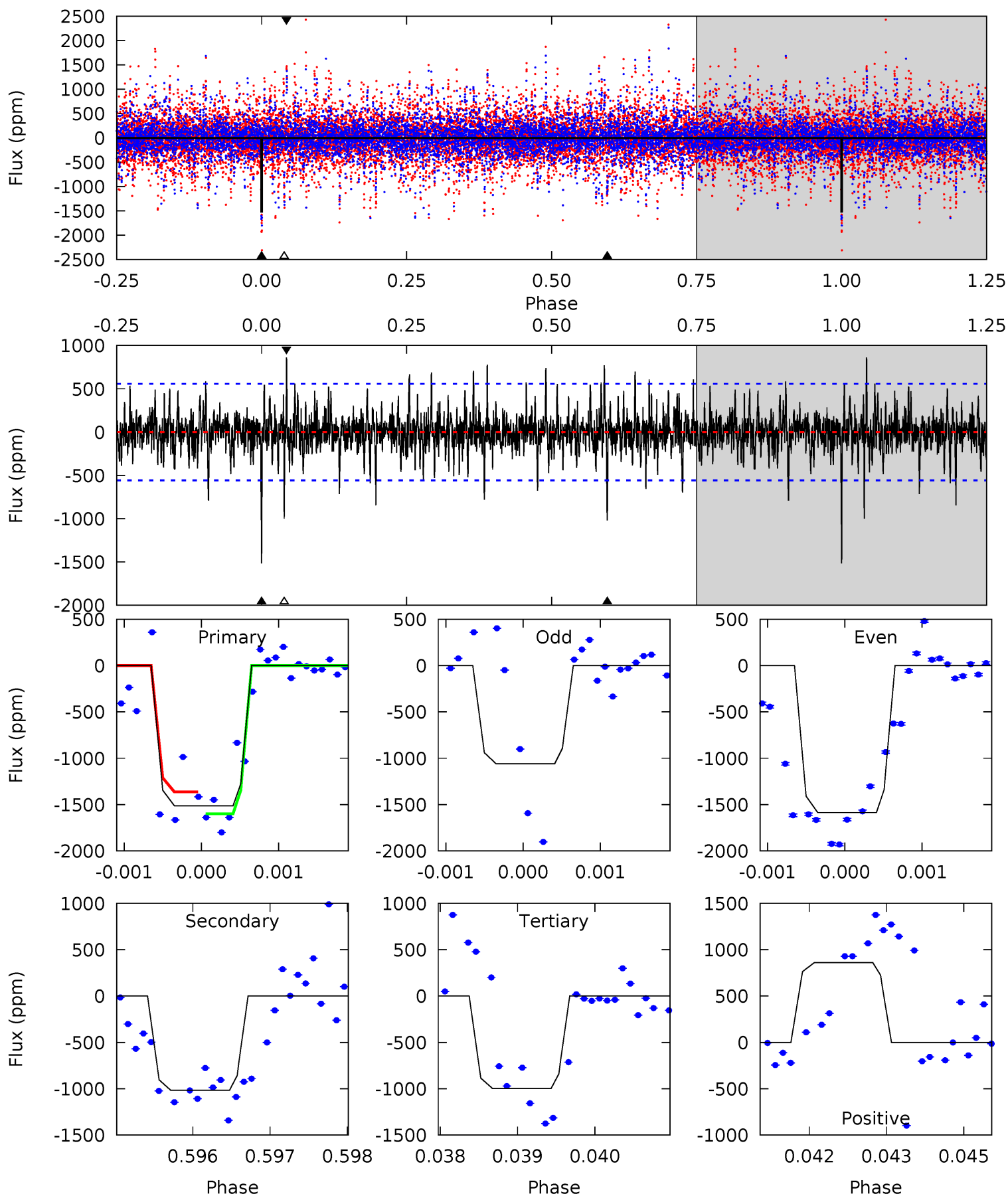
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	9.54	9.52	10.9	5.40	3.21	2.54	5.32	3.98	0.02	-1.32	0.11	0.70	0.42	0.43



# Alt Model-Shift Uniqueness Test

007199272-06, P = 117.822628 Days, E = 32.785870 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
14.7	9.91	9.71	8.37	5.43	3.25	1.66	5.03	6.37	0.20	1.55	2.55	1.00	0.36	1.01



### Stellar Parameters For KIC 007199272

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5068^{+61}_{-305}$	$2.376^{+0.030}_{-0.027}$	$-0.500^{+0.150}_{-0.250}$	$19.327^{+0.853}_{-7.676}$	$3.241^{+0.244}_{-2.077}$	$0.001^{+0.000}_{-0.000}$
	+1%/-6%	+1%/-1%	+30%/-50%	+4%/-40%	+8%/-64%	+69%/-9%
Source	PHO1	AST9	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 007199272-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-920 \pm 96$	$170.11^{+154.65}_{-108.84}$	$1641^{+35}_{-94}$	$3479^{+1647}_{-642}$	$8.695^{+61.183}_{-6.320}$
Alt.	$-1018 \pm 103$	$139.58^{+139.95}_{-94.53}$	$1639^{+37}_{-98}$	$3744^{+2156}_{-725}$	$14^{+114}_{-10}$

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

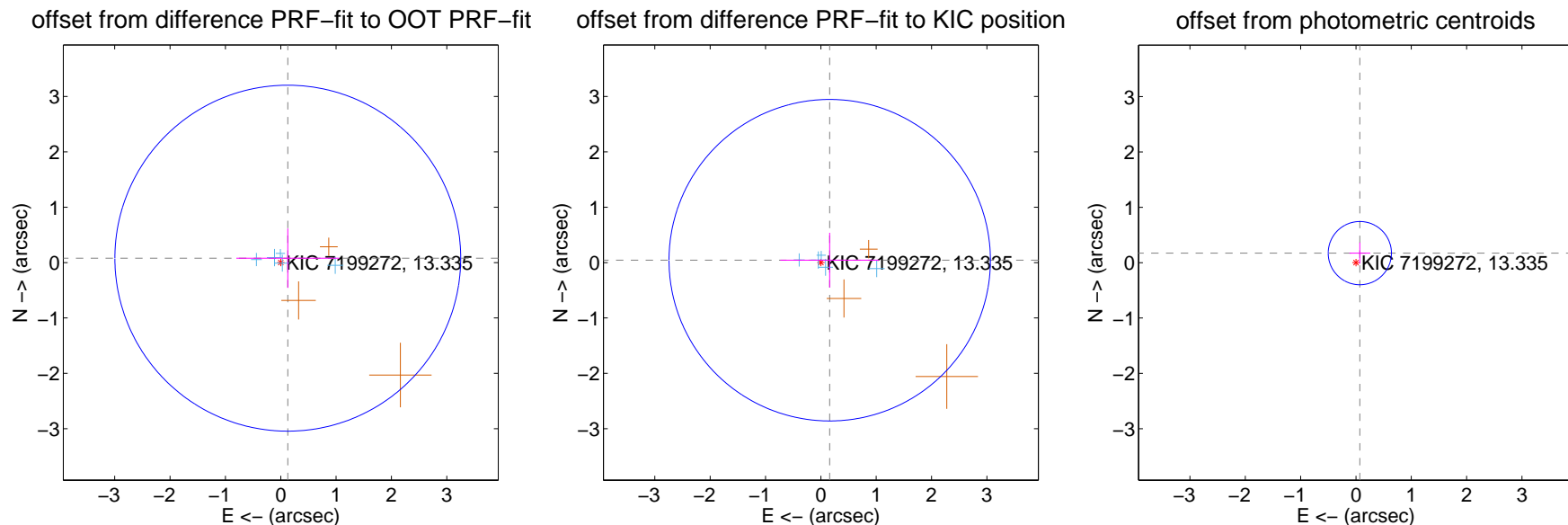
## DV Centroid Data

Supplemental centroid analysis for 007199272-06. Kepler magnitude: 13.34. Transit SNR 9.19

There are 5 quarters with good PRF difference image offsets

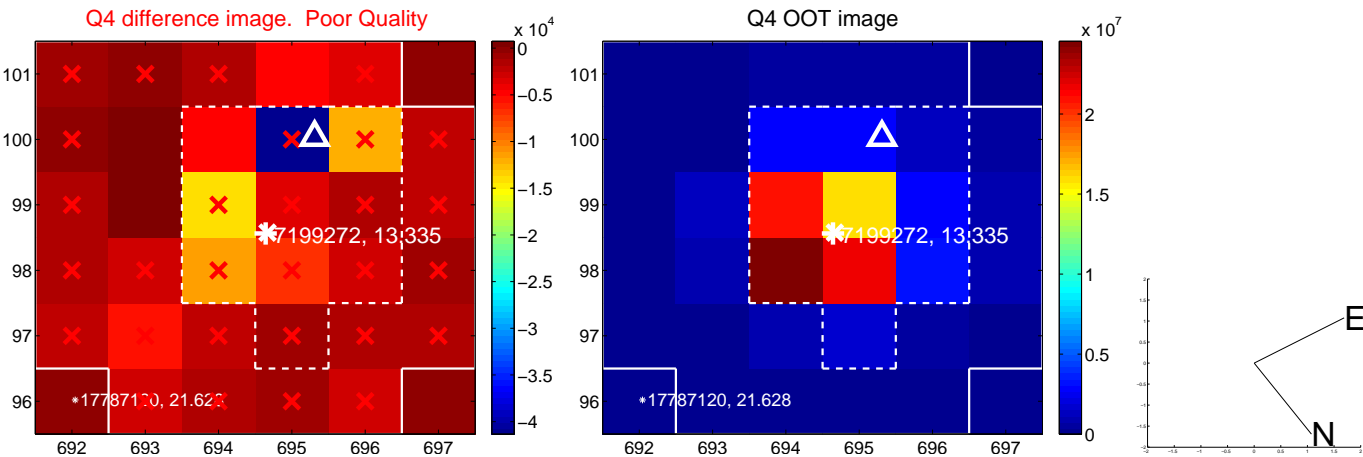
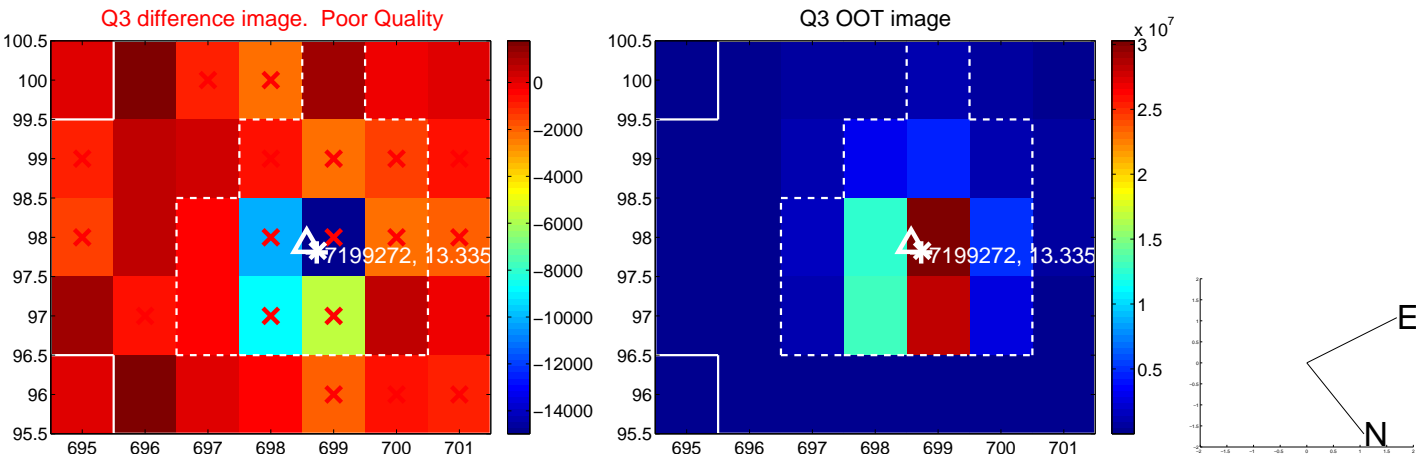
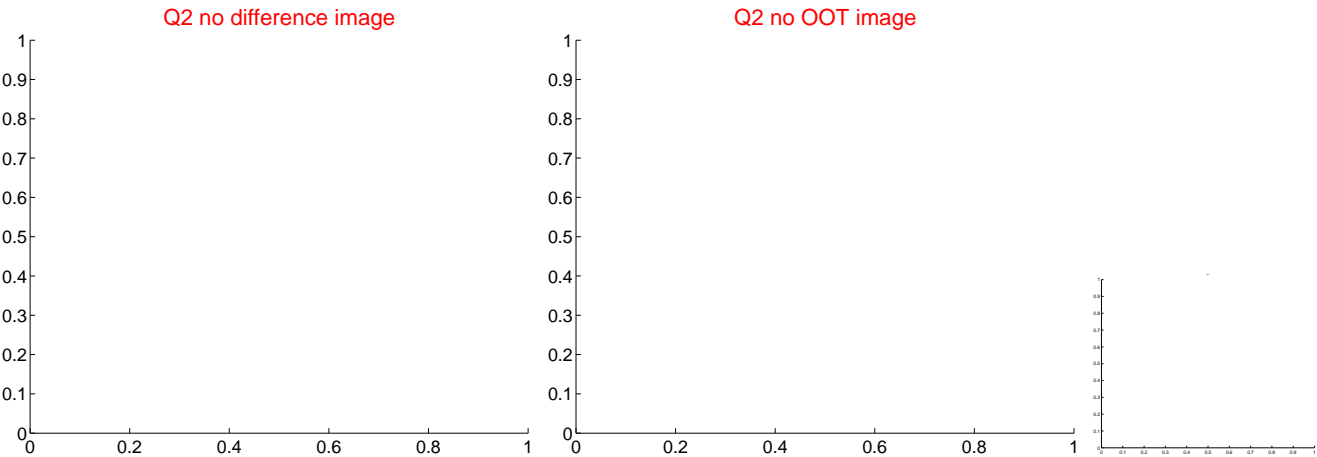
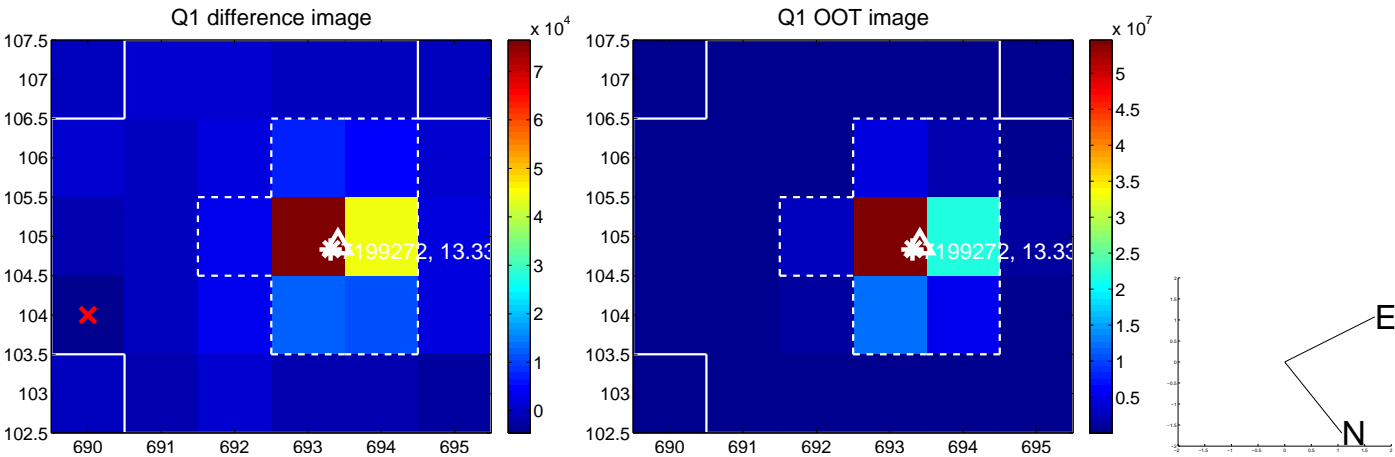
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.150 \pm 1.042$	0.14	$-0.127 \pm 0.930$	$0.080 \pm 0.536$
PRF-fit source offset from KIC position	$0.166 \pm 0.968$	0.17	$-0.160 \pm 0.892$	$0.043 \pm 0.494$
photometric centroid source offset	$0.19 \pm 0.19$	0.98	$-0.07 \pm 0.19$	$0.17 \pm 0.19$

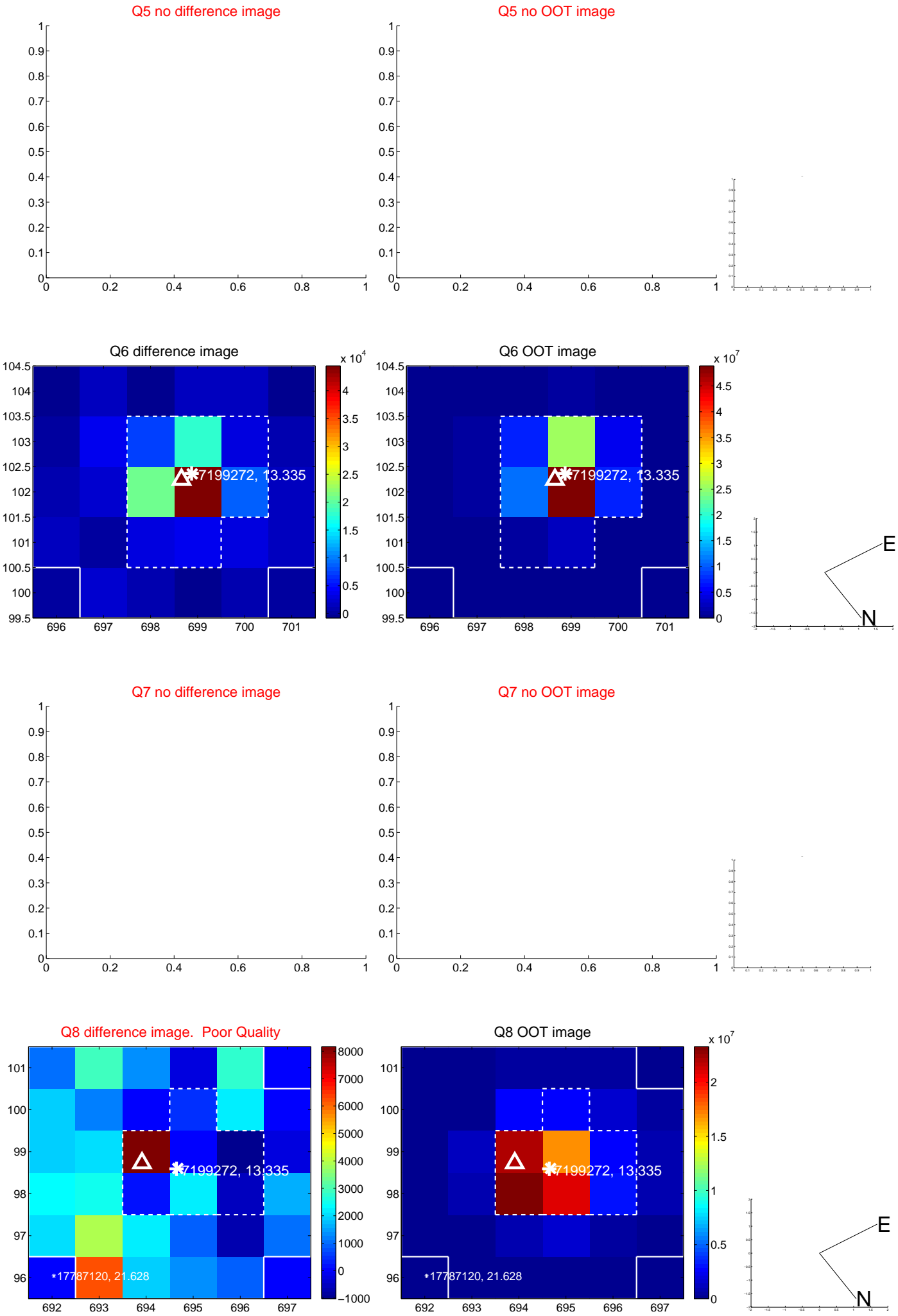


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

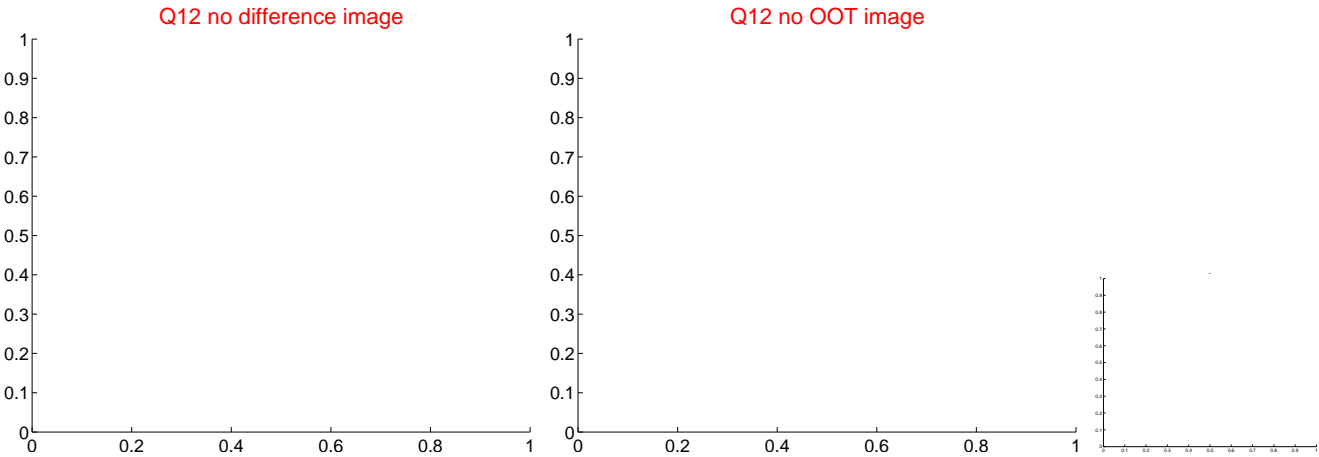
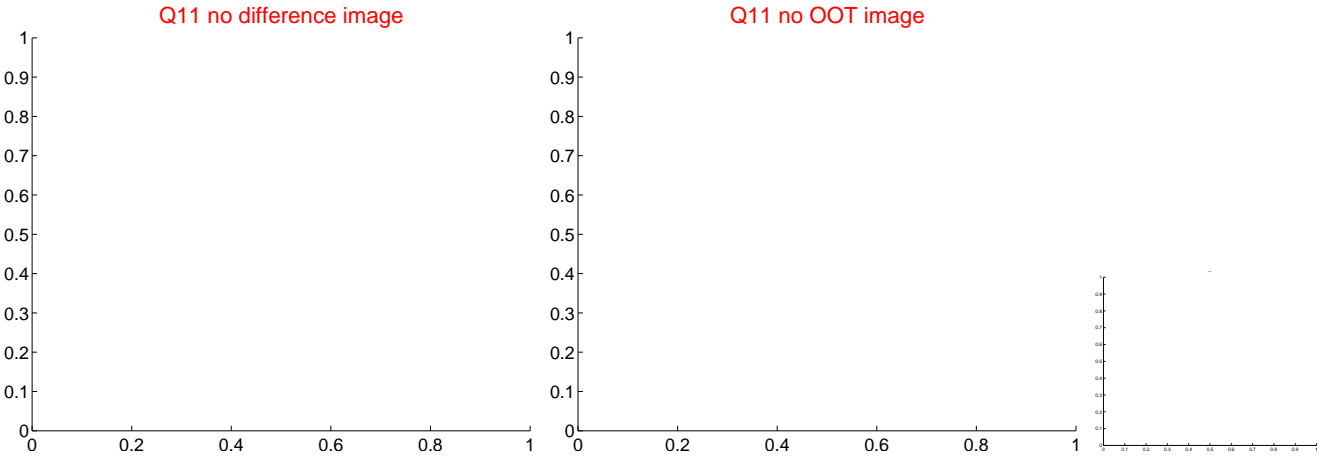
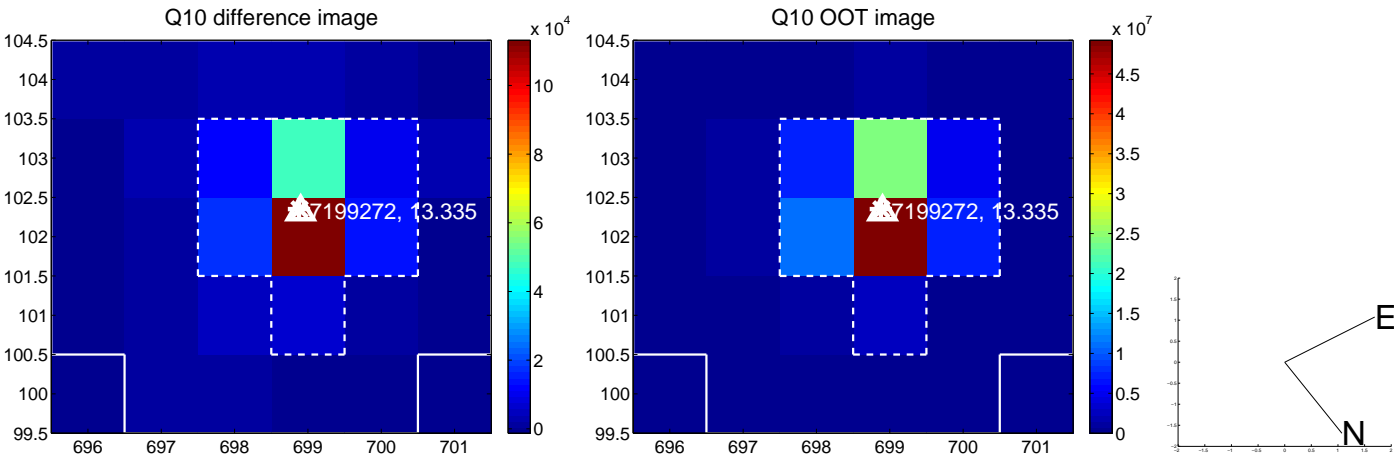
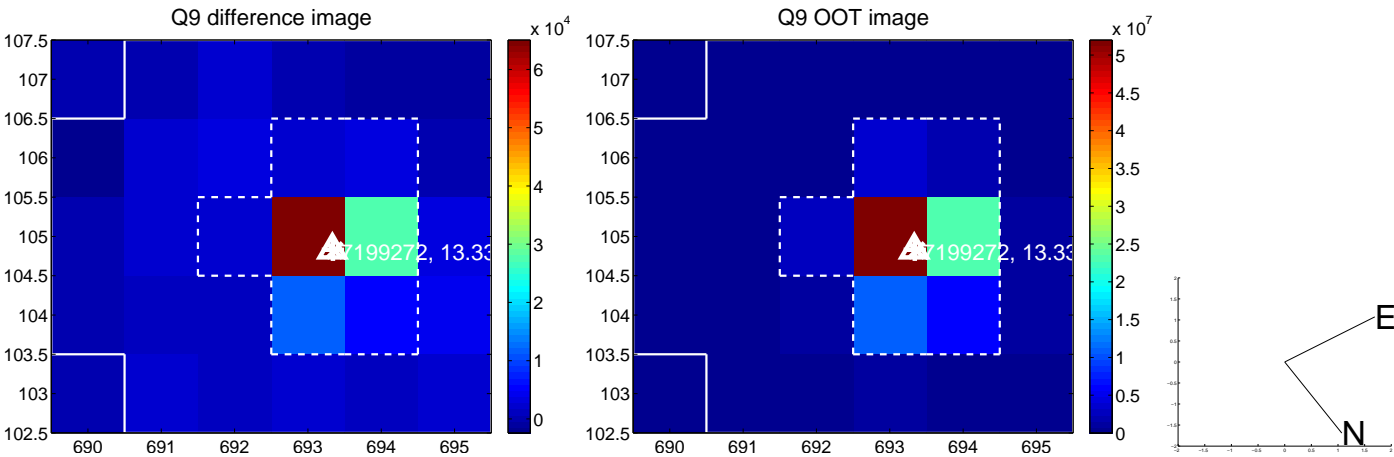
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

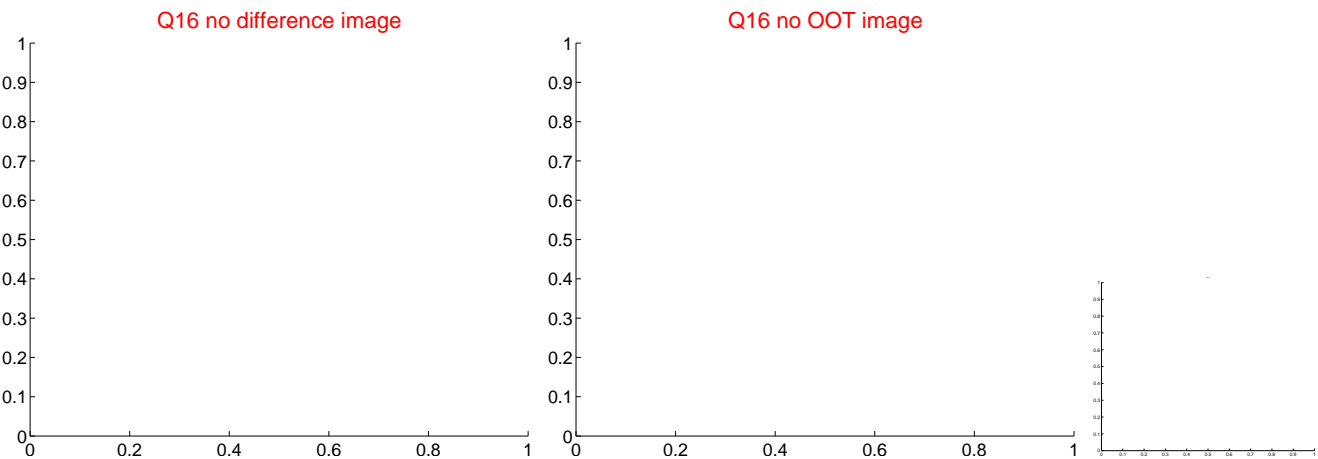
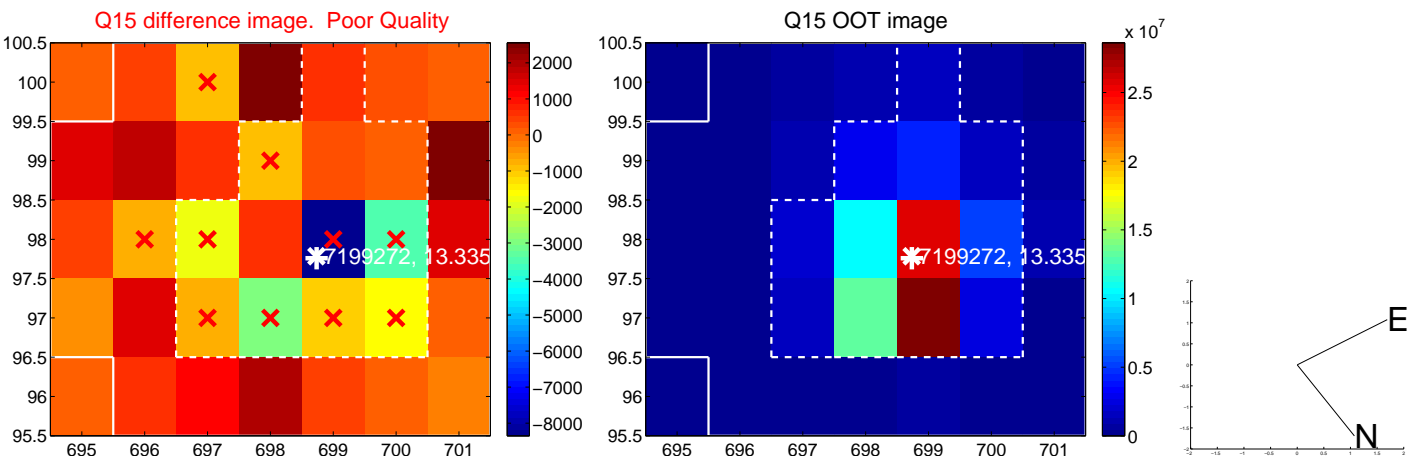
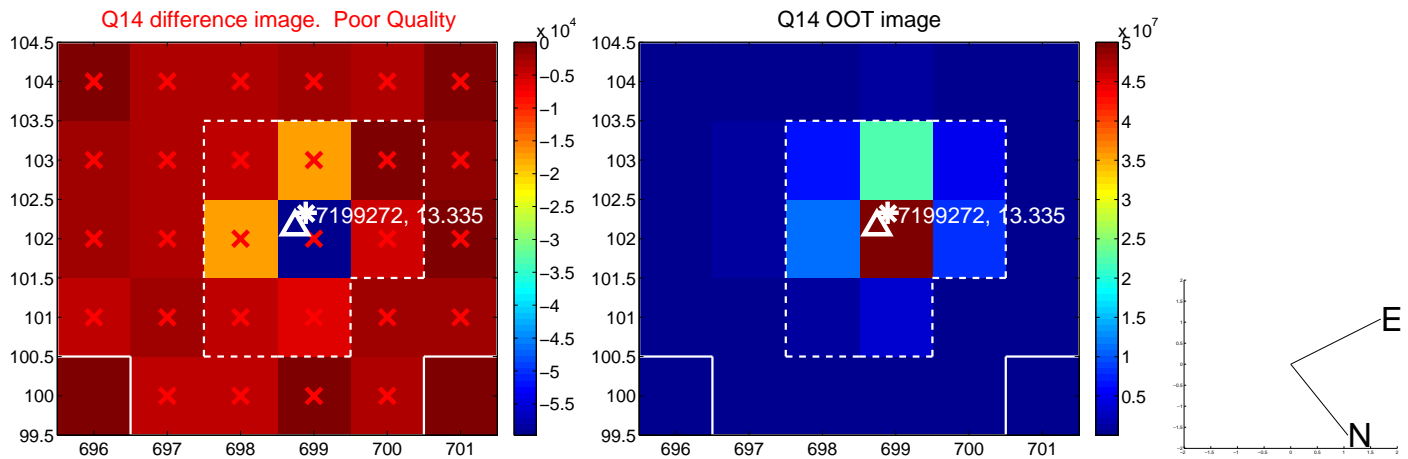
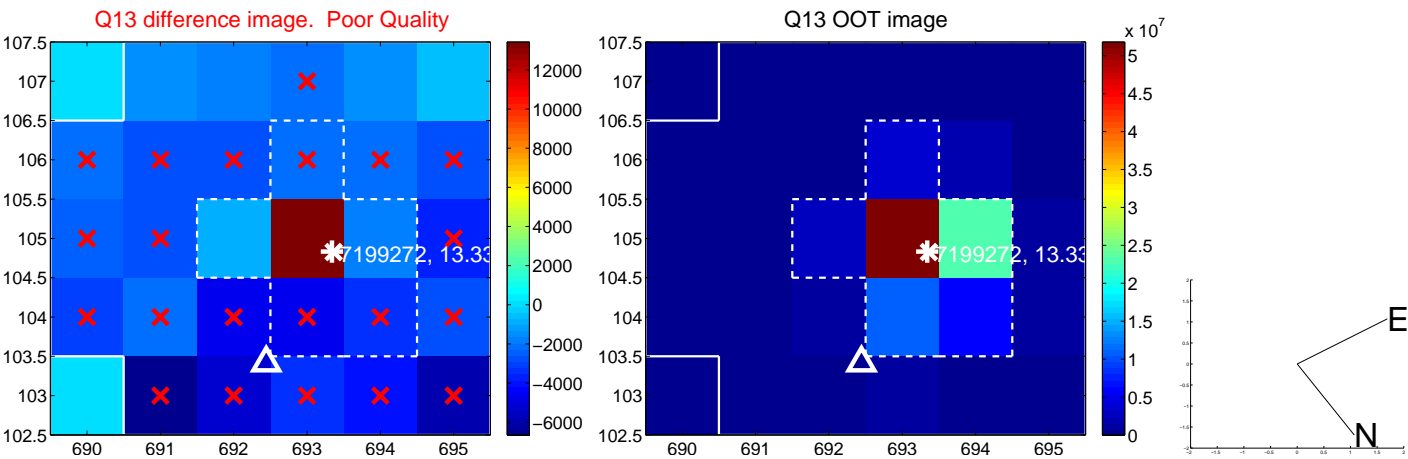


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

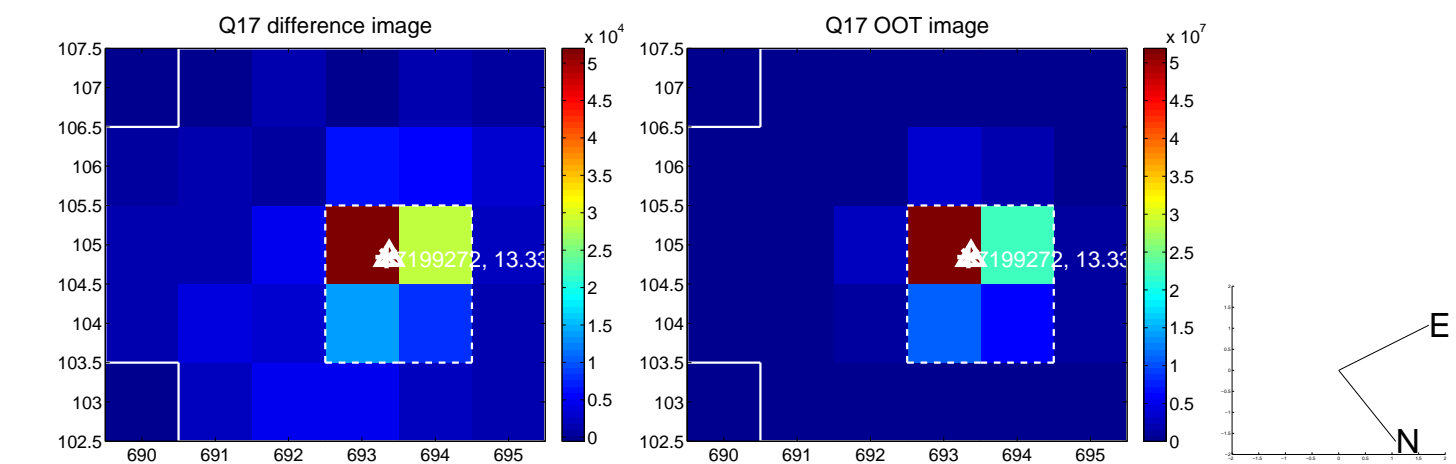




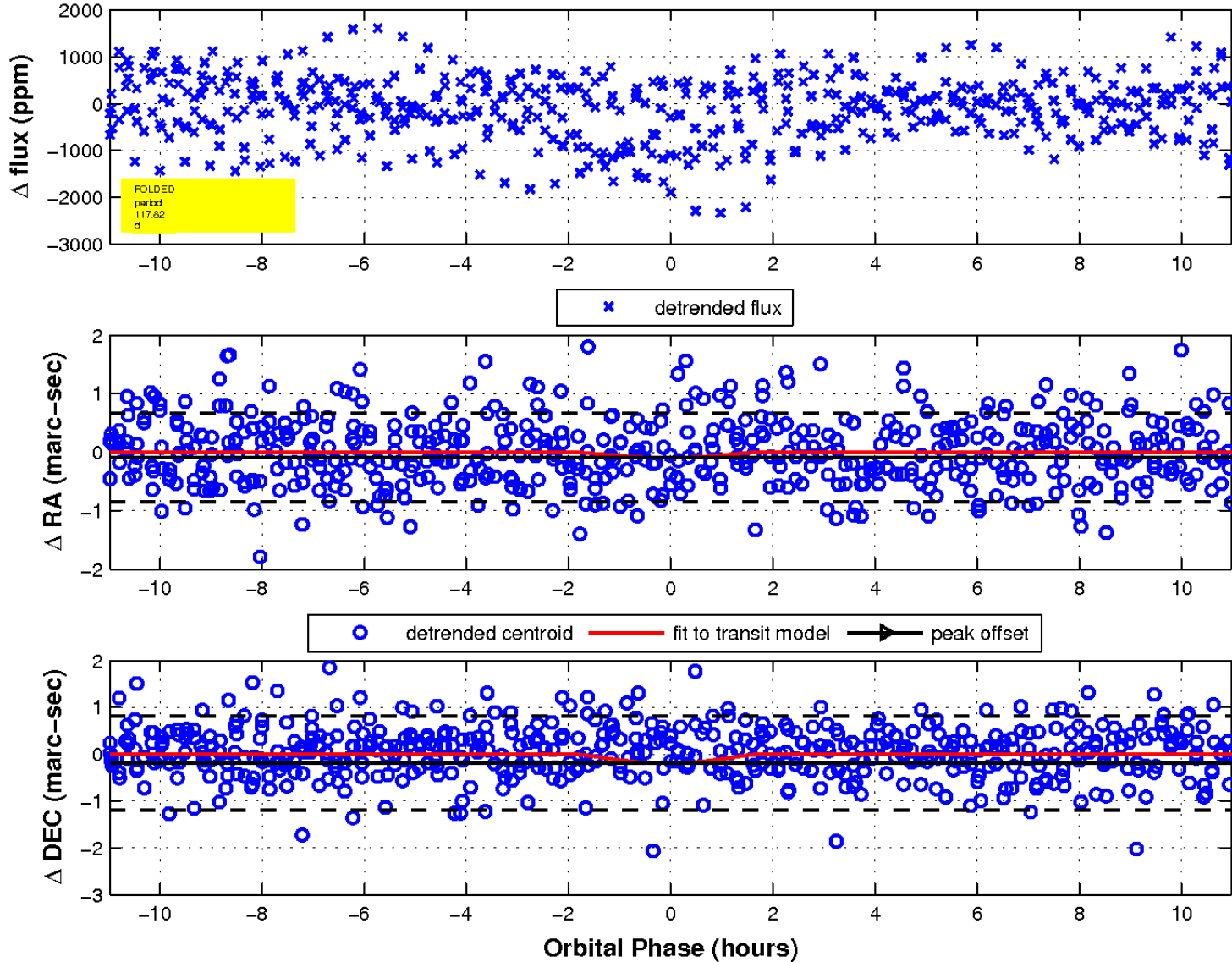
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



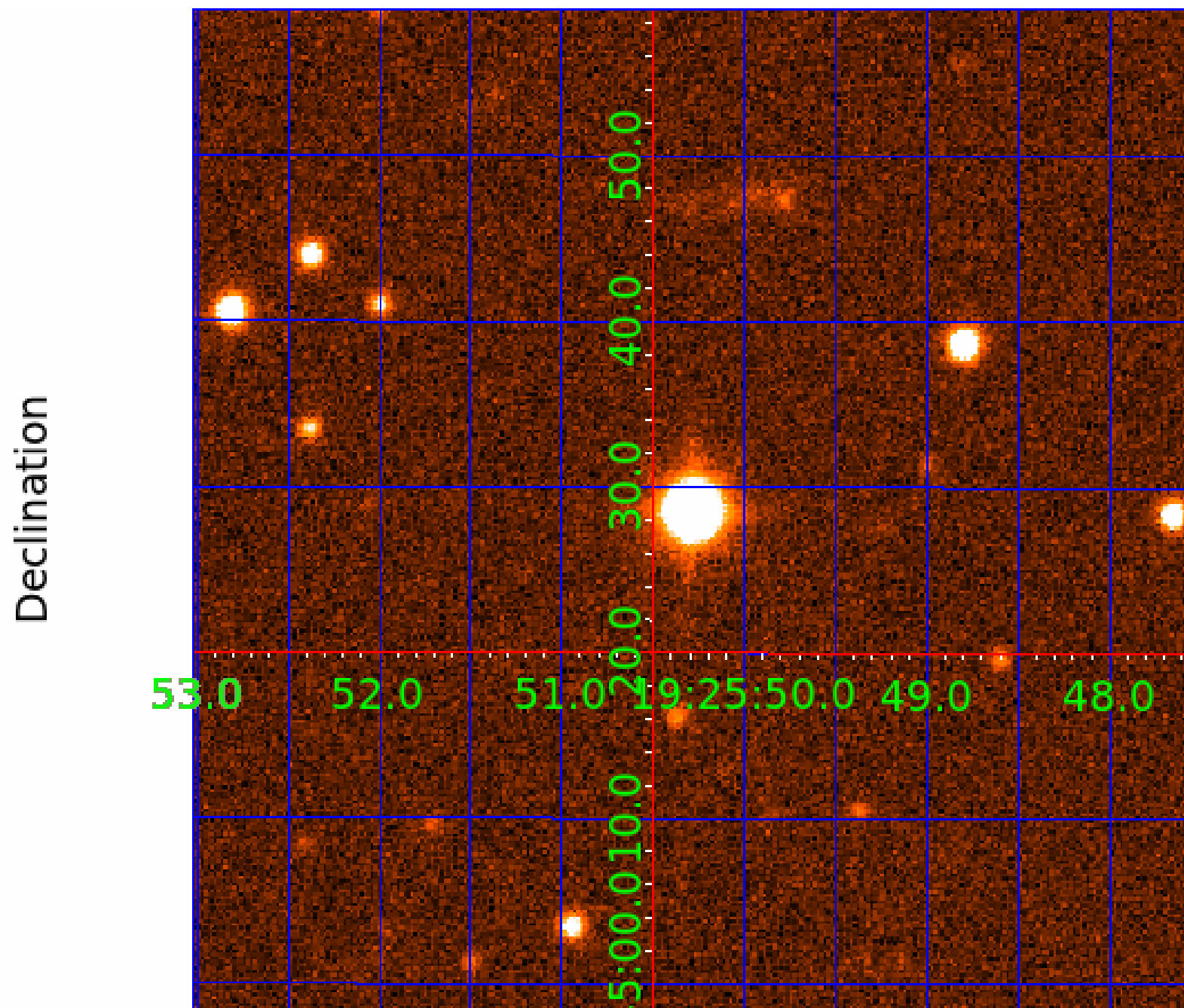
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 6 of 9



UKIRT Image



# KIC 007199272

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007199272-01	OBS	No	0.566799	131.687562	66.4	3.288	14.4	12.5	19.33	5068	18.86	0.00
007199272-02	OBS	No	109.311739	200.412977	1471.0	2.526	10.9	9.1	19.33	5068	83.02	503.65
007199272-03	OBS	No	142.714559	262.894690	1516.7	5.208	11.5	8.3	19.33	5068	131.51	352.96
007199272-04	OBS	No	357.880851	138.273497	1764.6	10.921	8.3	7.8	19.33	5068	85.84	103.60
007199272-05	OBS	No	141.341629	222.715211	1773.8	8.761	8.3	8.9	19.33	5068	99.97	357.54
007199272-06	OBS	No	117.822367	150.641905	1383.5	3.661	8.4	9.2	19.33	5068	114.38	455.74
007199272-07	OBS	No	184.965238	282.716782	1088.7	6.545	8.5	6.1	19.33	5068	77.61	249.78
007199272-08	OBS	No	73.248202	201.211539	1083.9	4.053	8.3	9.3	19.33	5068	123.64	858.92
007199272-09	OBS	No	140.819093	158.394533	396.7	3.000	8.0	-1.0	19.33	5068	37.74	359.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007199272-01	OBS	FP	0.00	1	0	1	1	LPP_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
007199272-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
007199272-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV
007199272-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
007199272-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007199272-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007199272-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_NOFITS

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

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

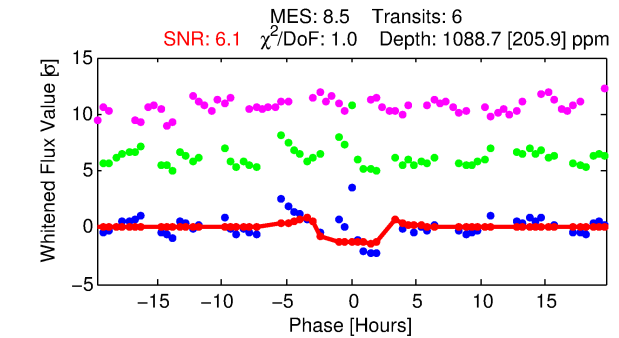
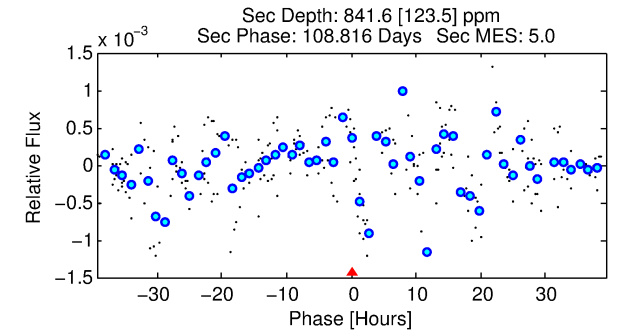
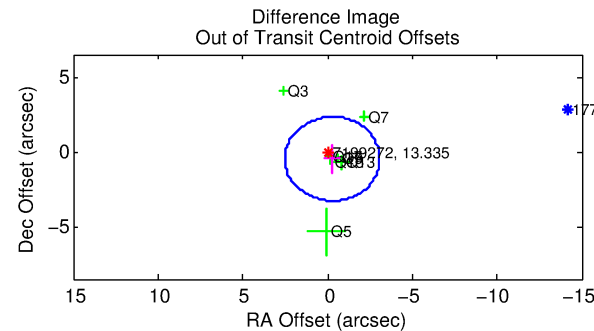
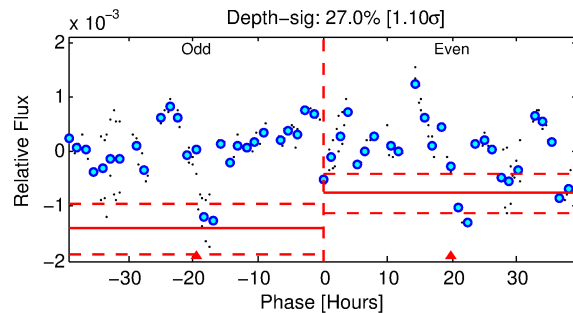
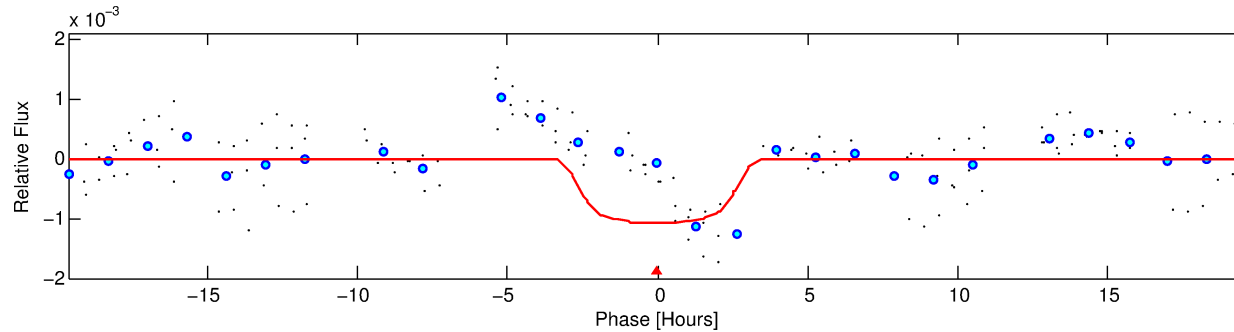
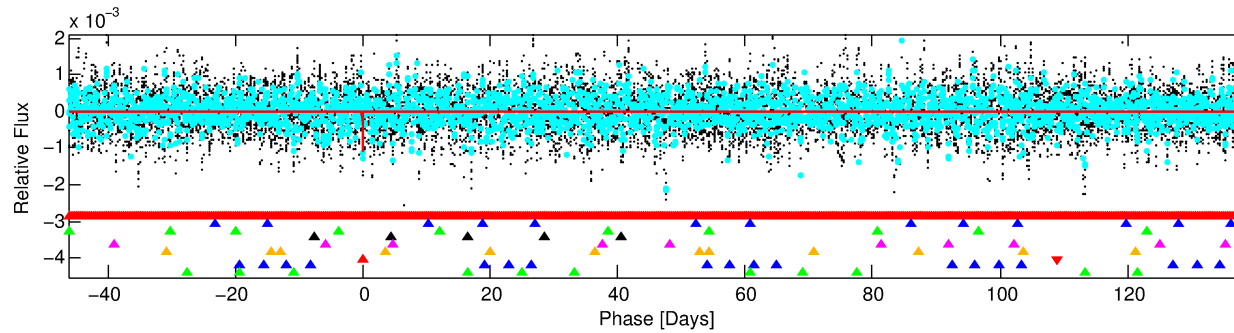
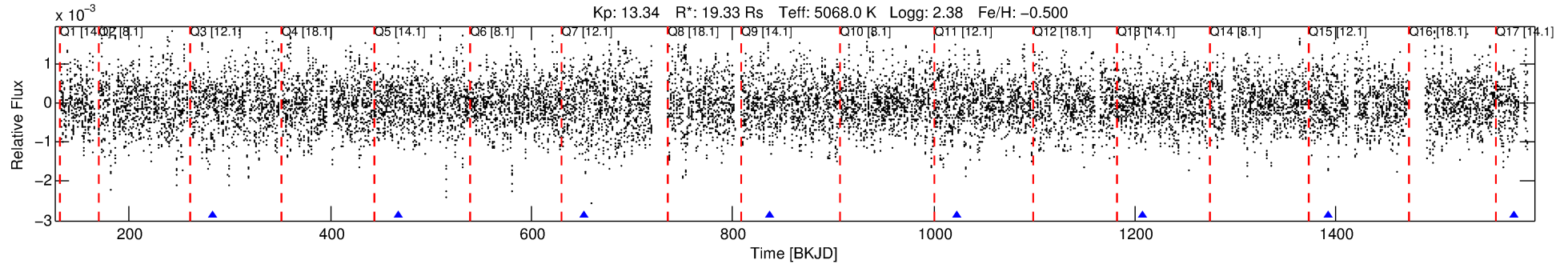
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007199272-07

No Significant Match Found

# DV One-Page Summary

KIC: 7199272 Candidate: 7 of 9 Period: 184.965 d



## DV Fit Results:

Period = 184.96524 [0.00350] d  
Epoch = 282.7168 [0.0192] BKJD  
Rp/R\* = 0.0368 [0.0049]  
a/R\* = 107.23 [37.37]  
b = 0.91 [0.07]  
Seff = 249.78 [90.12]  
Teq = 1014 [91] K  
Rp = 77.61 [32.52] Re  
a = 0.9402 [0.2499] AU  
Ag = 67.94 [27.60] [2.43σ]  
Teffp = 4500 [437] K [7.81σ]

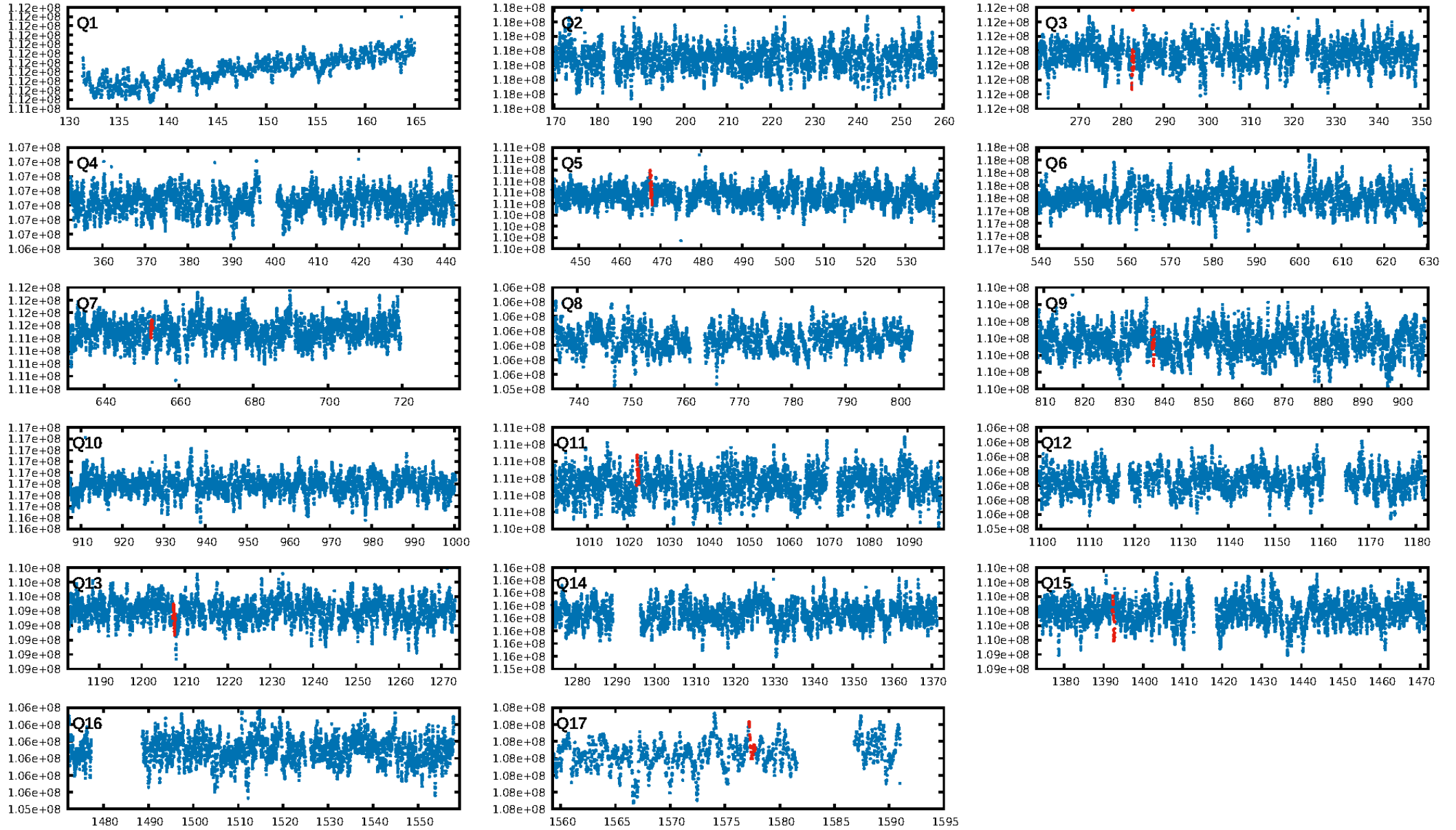
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [121.23σ]  
LongPeriod-sig: 100.0% [325.95σ]  
ModelChiSquare2-sig: 75.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 0.8974  
Centroid-sig: 82.6%  
Centroid-so: 0.229 arcsec [1.19σ]  
OotOffset-rm: 0.552 arcsec [0.59σ]  
KicOffset-rm: 0.600 arcsec [0.75σ]  
OotOffset-st: 0/3/0/4 [7]  
KicOffset-st: 0/3/0/4 [7]  
DiffImageQuality-fgm: 0.43 [3/7]  
DiffImageOverlap-fno: 0.00 [0/8]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:41:44 Z

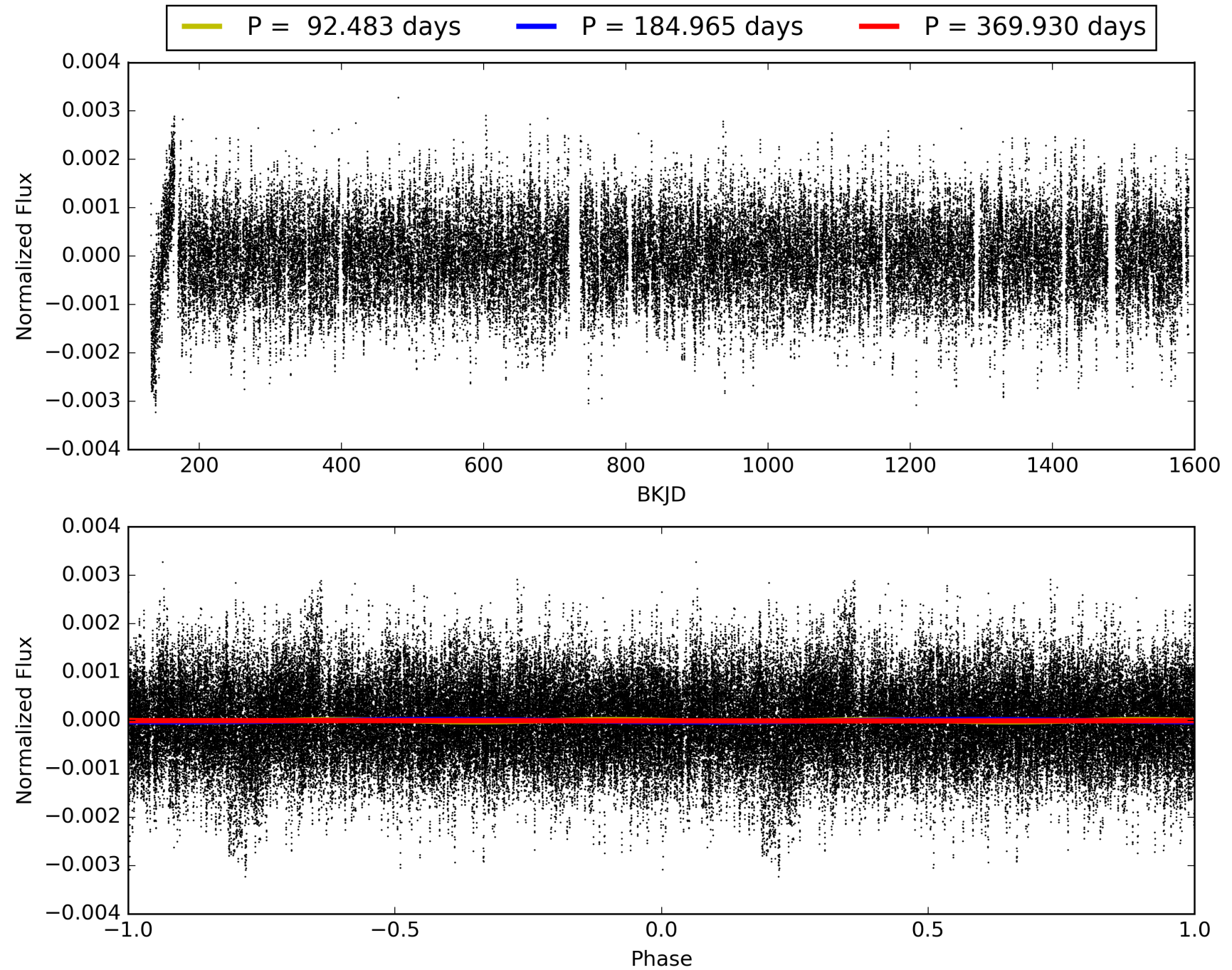
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007199272-07, PDC Light Curves



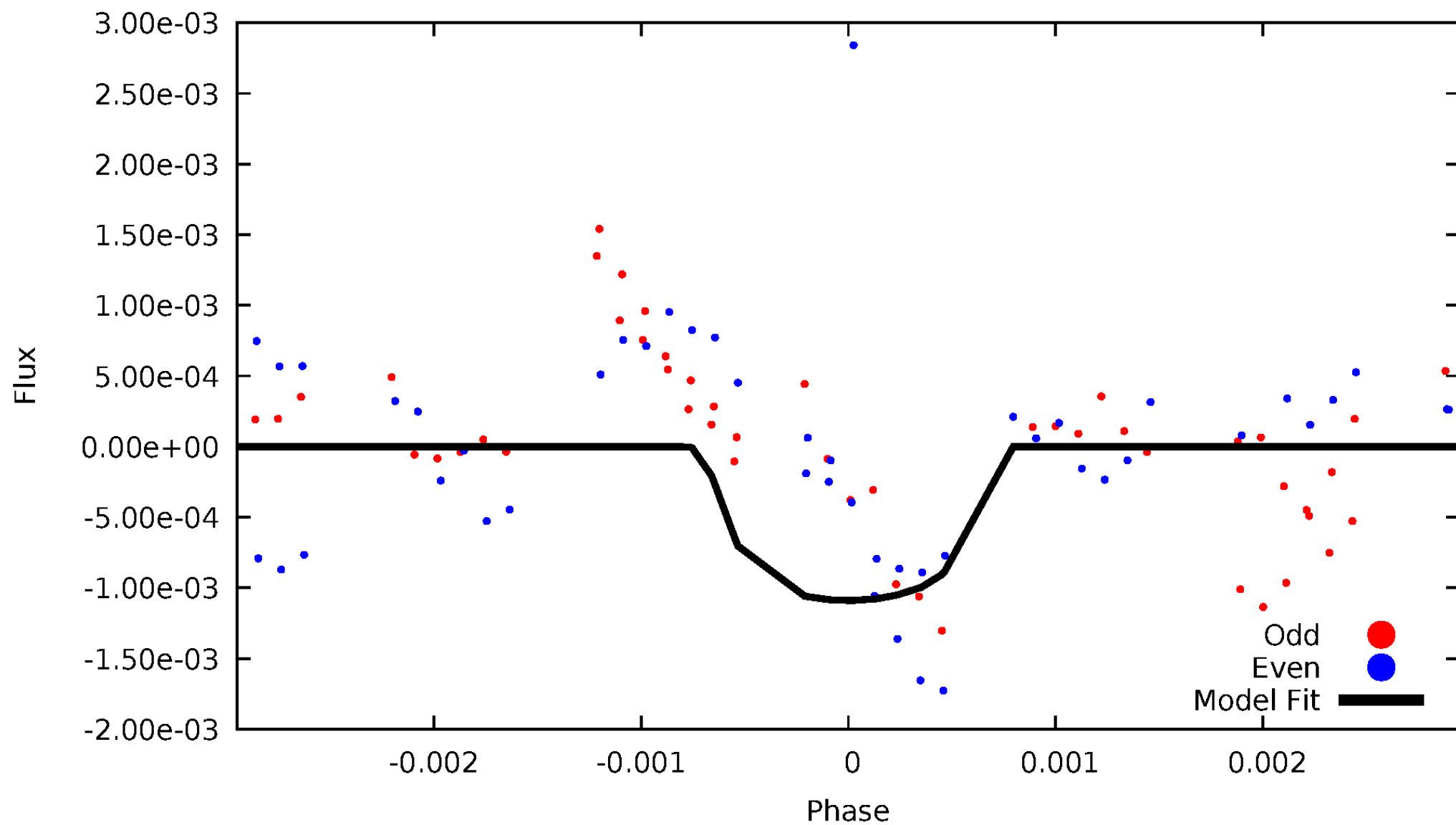


# TCE 007199272-07



# DV Odd/Even

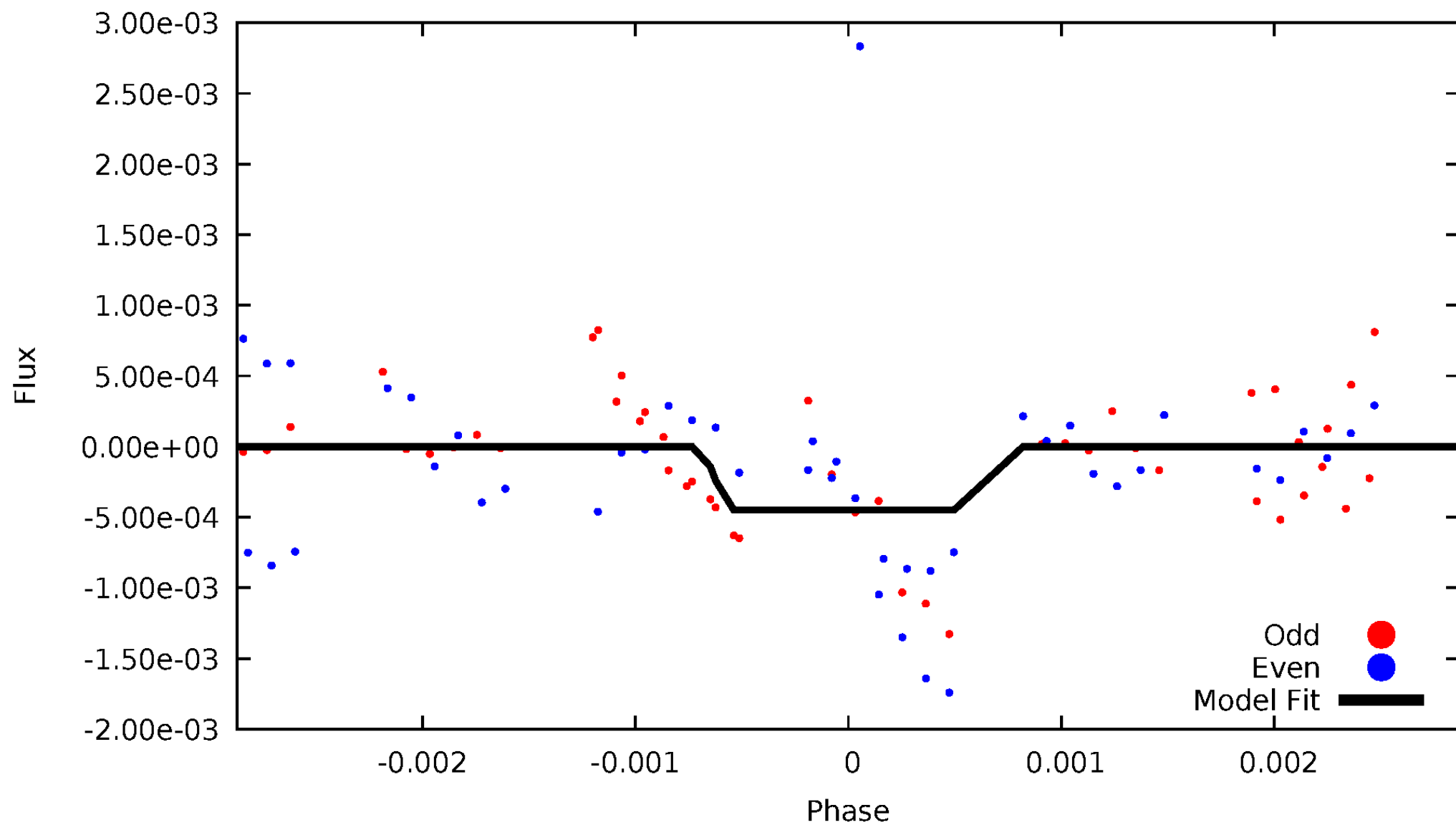
TCE 007199272-07





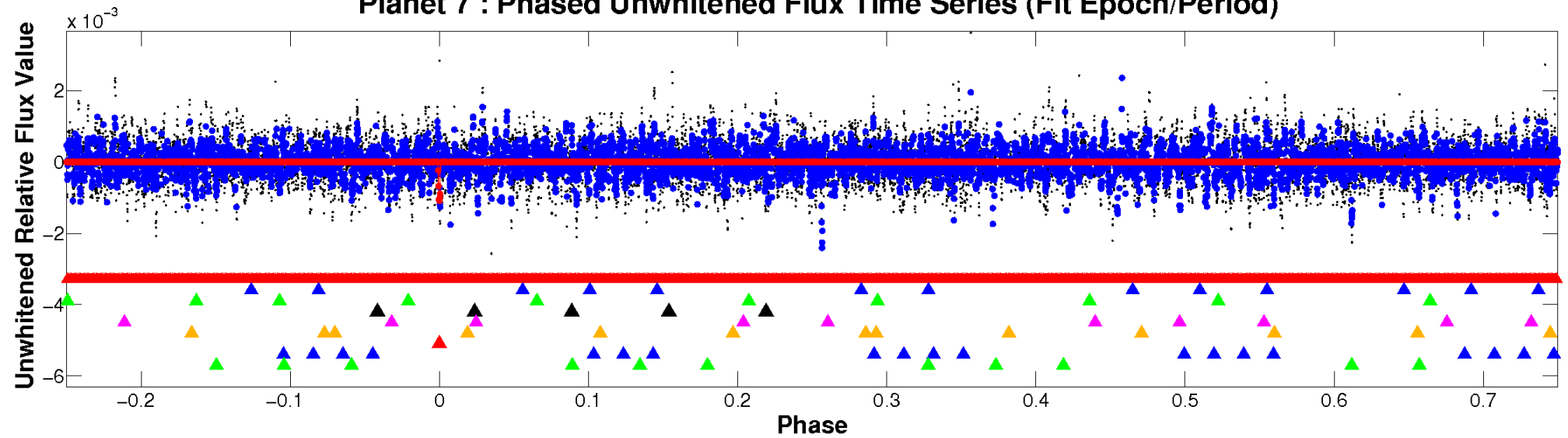
# ALT Odd/Even

TCE 007199272-07

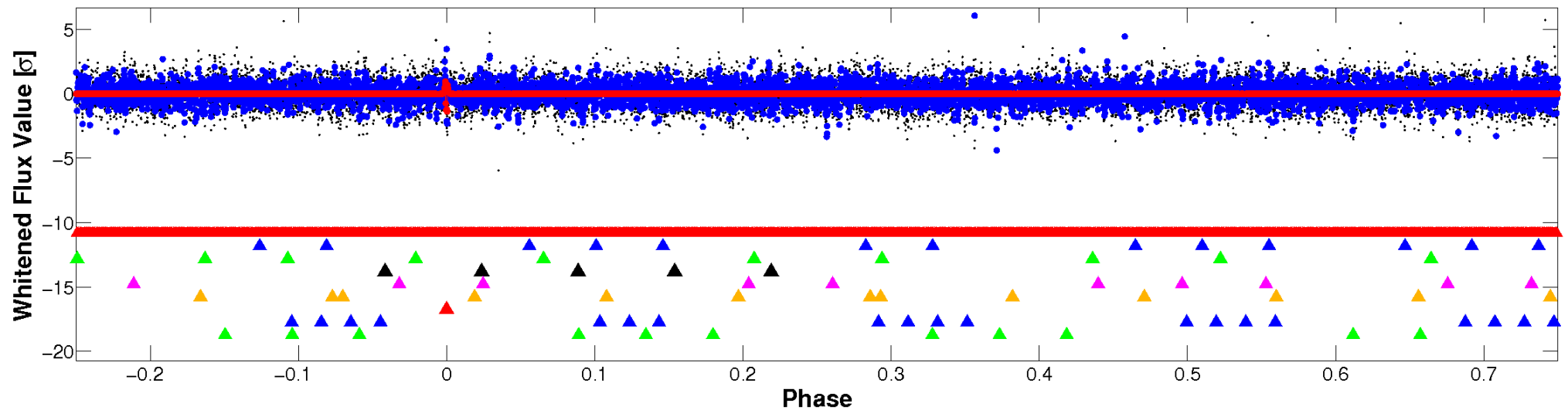


# Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

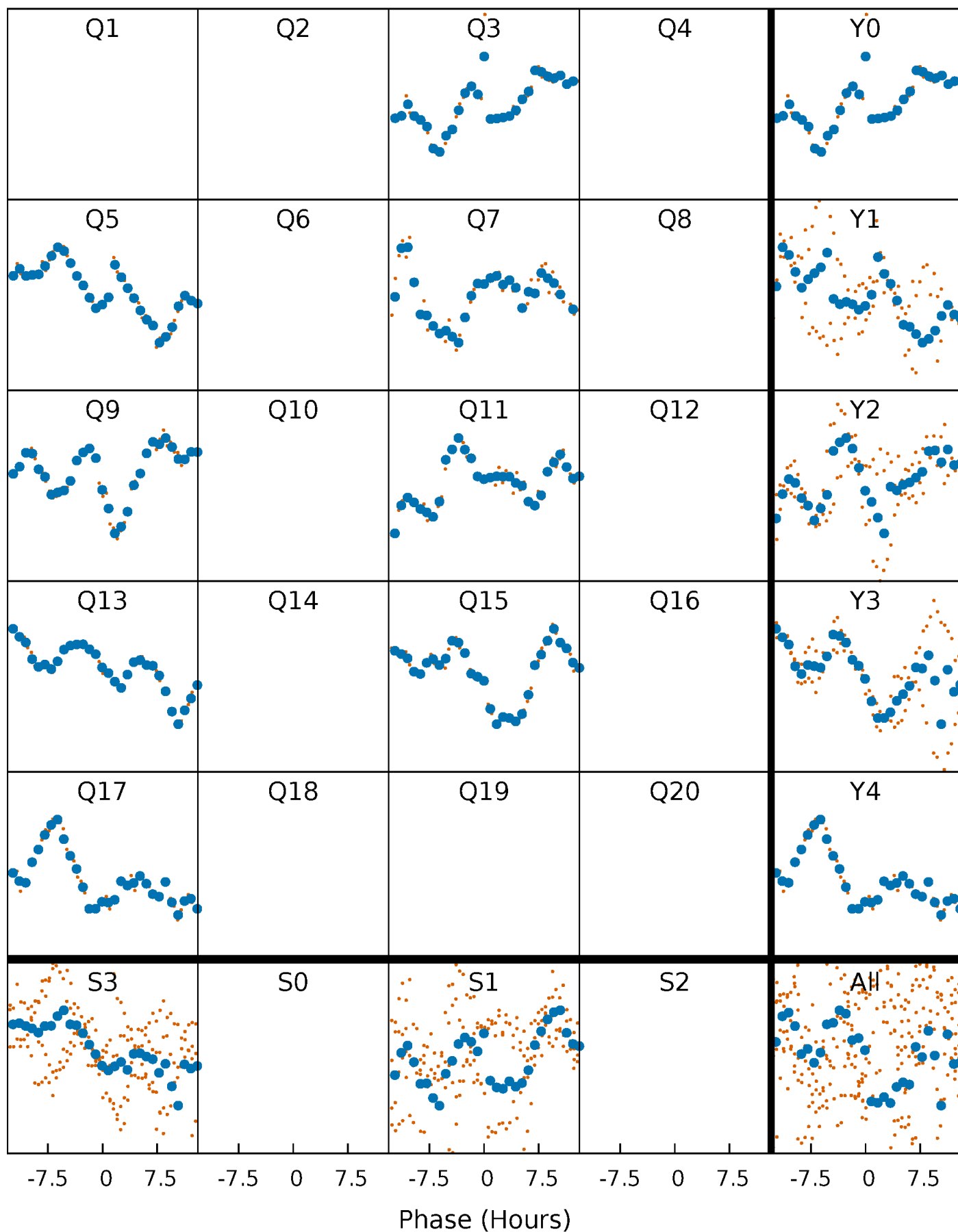


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



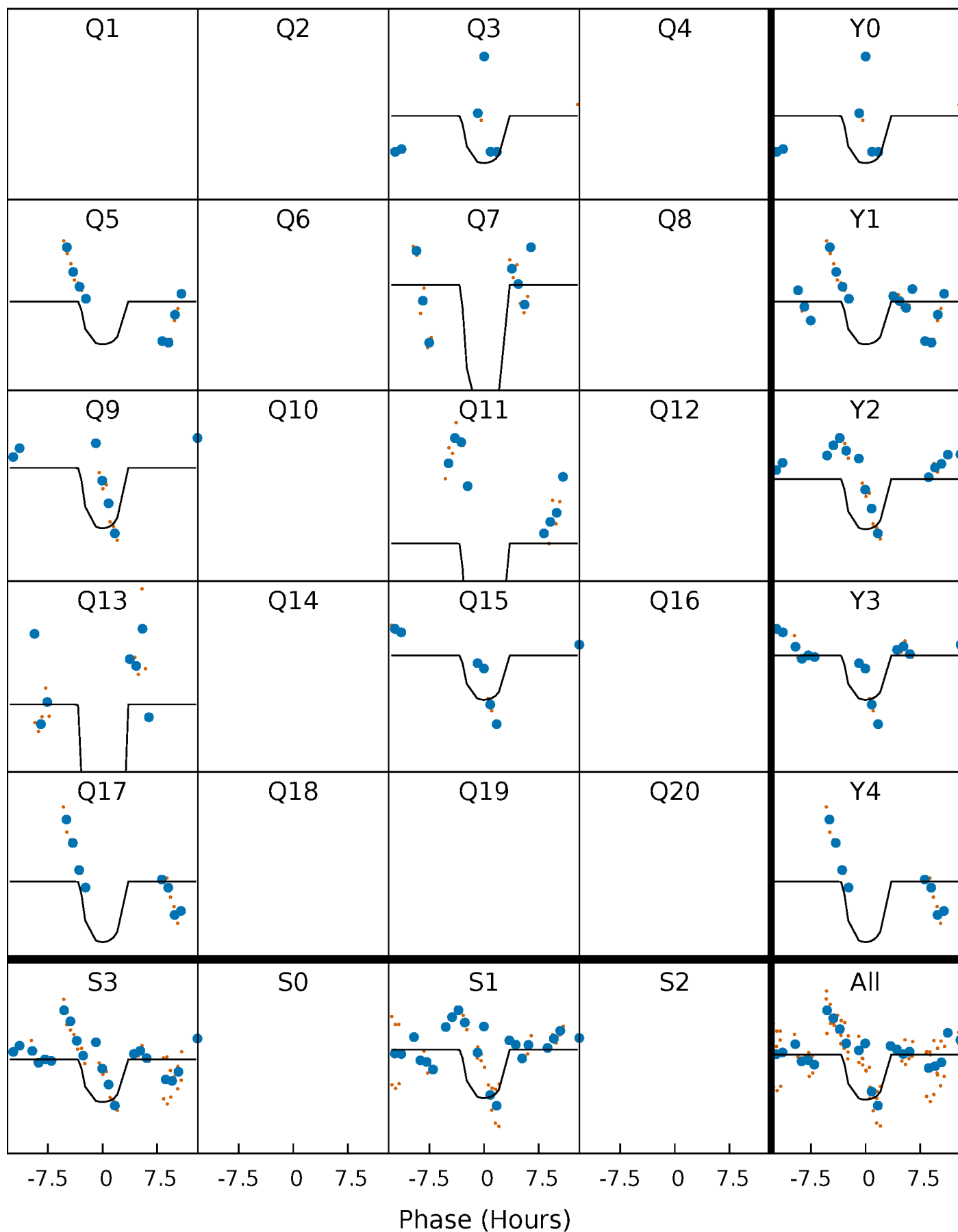
# PDC Quarter-Phased Transit Curves

TCE 007199272-07     $P=184.965238$  Days     $T_0=282.716782$  (BKJD)



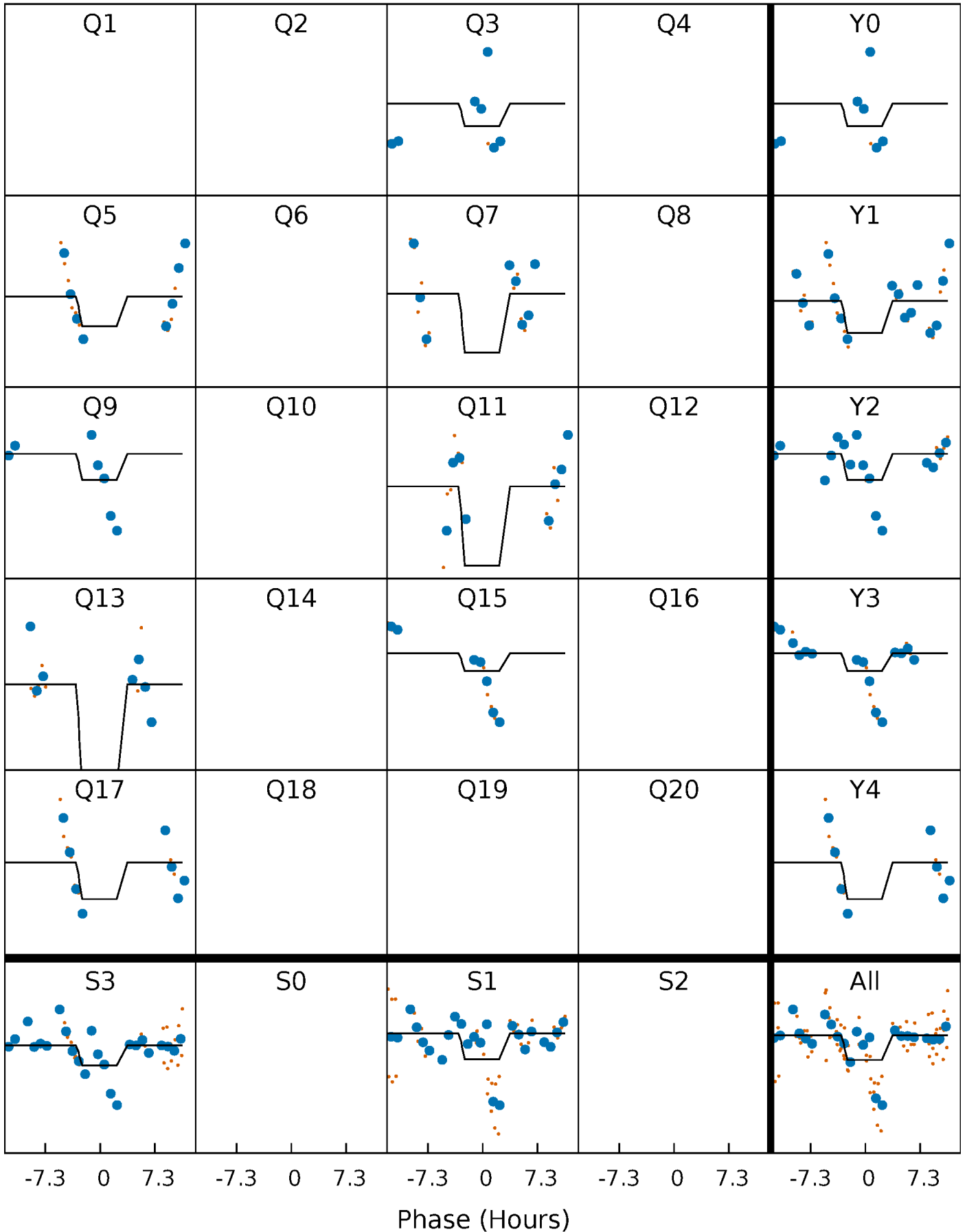
# DV Quarter-Phased Transit Curves

TCE 007199272-07 P=184.965238 Days  $T_0=282.716782$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

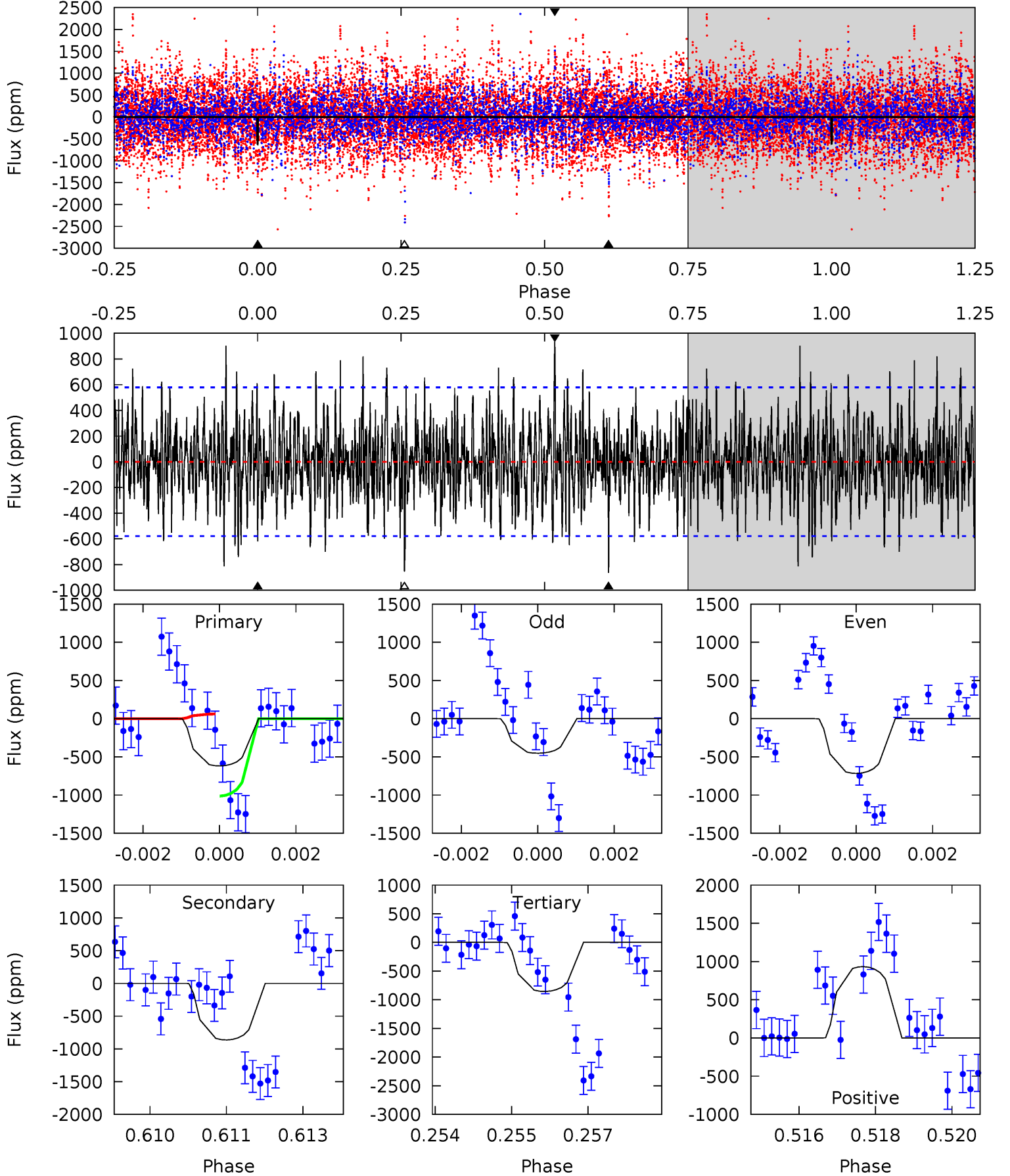
TCE 007199272-07 P=184.965644 Days  $T_0=282.711407$  (BKJD)



# DV Model-Shift Uniqueness Test

007199272-07, P = 184.965238 Days, E = 97.751544 Days

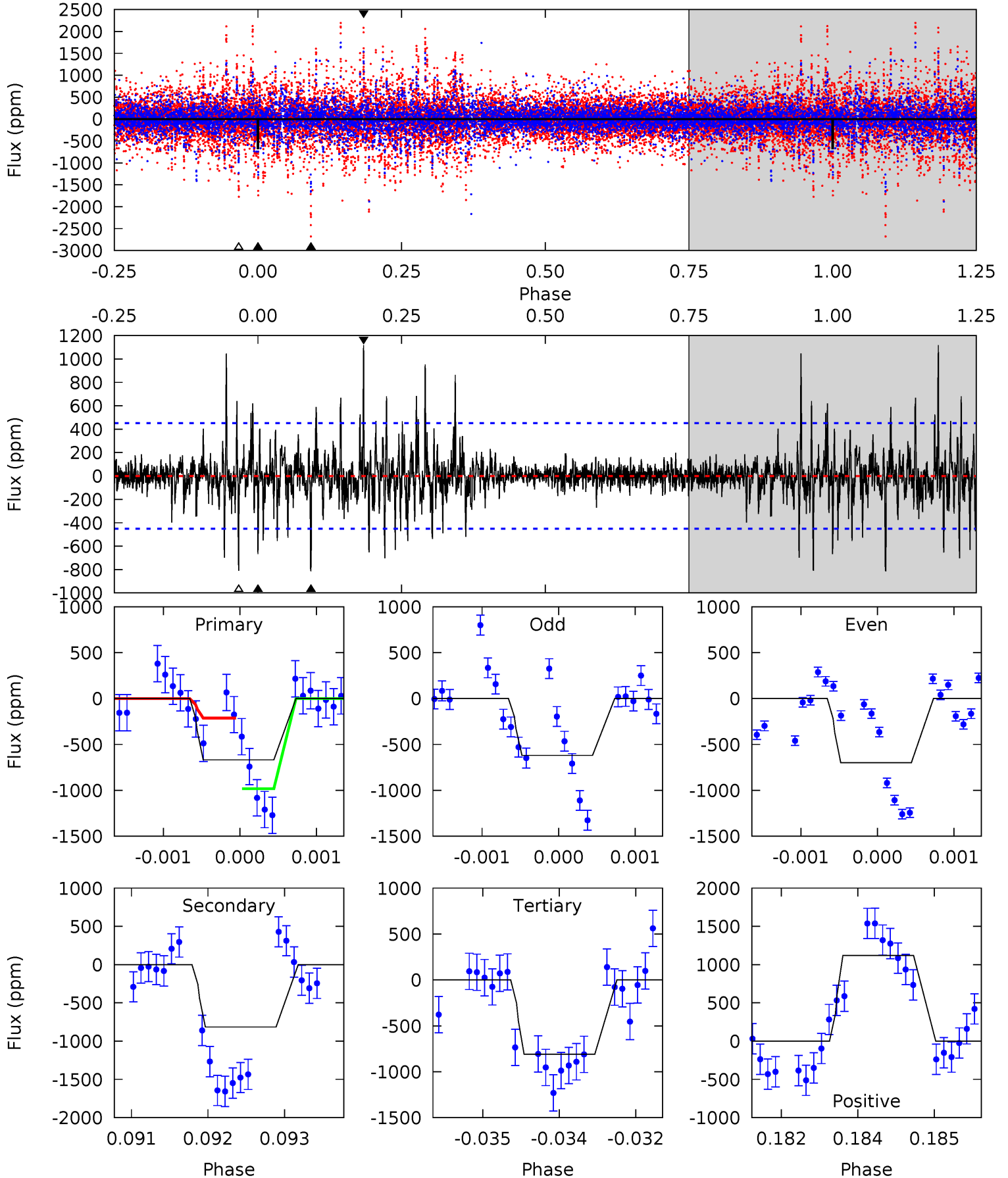
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.74	8.02	7.94	8.67	5.37	3.16	2.25	-2.20	-2.93	0.08	-0.65	1.21	0.91	0.52	4.42



# Alt Model-Shift Uniqueness Test

007199272-07, P = 184.965644 Days, E = 97.745763 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
8.04	9.81	9.74	13.5	5.43	3.26	1.84	-1.70	-5.42	0.07	-3.65	0.47	0.80	0.58	4.65



### Stellar Parameters For KIC 007199272

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5068^{+61}_{-305}$	$2.376^{+0.030}_{-0.027}$	$-0.500^{+0.150}_{-0.250}$	$19.327^{+0.853}_{-7.676}$	$3.241^{+0.244}_{-2.077}$	$0.001^{+0.000}_{-0.000}$
	+1%/-6%	+1%/-1%	+30%/-50%	+4%/-40%	+8%/-64%	+69%/-9%
Source	PHO1	AST9	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 007199272-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-864 \pm 108$	$78.45^{+10.37}_{-10.96}$	$1412^{+30}_{-86}$	$4537^{+319}_{-278}$	$69^{+26}_{-17}$
Alt.	$-815 \pm 83$	$45.20^{+10.58}_{-11.26}$	$1415^{+27}_{-84}$	$5700^{+895}_{-566}$	$201^{+141}_{-71}$

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



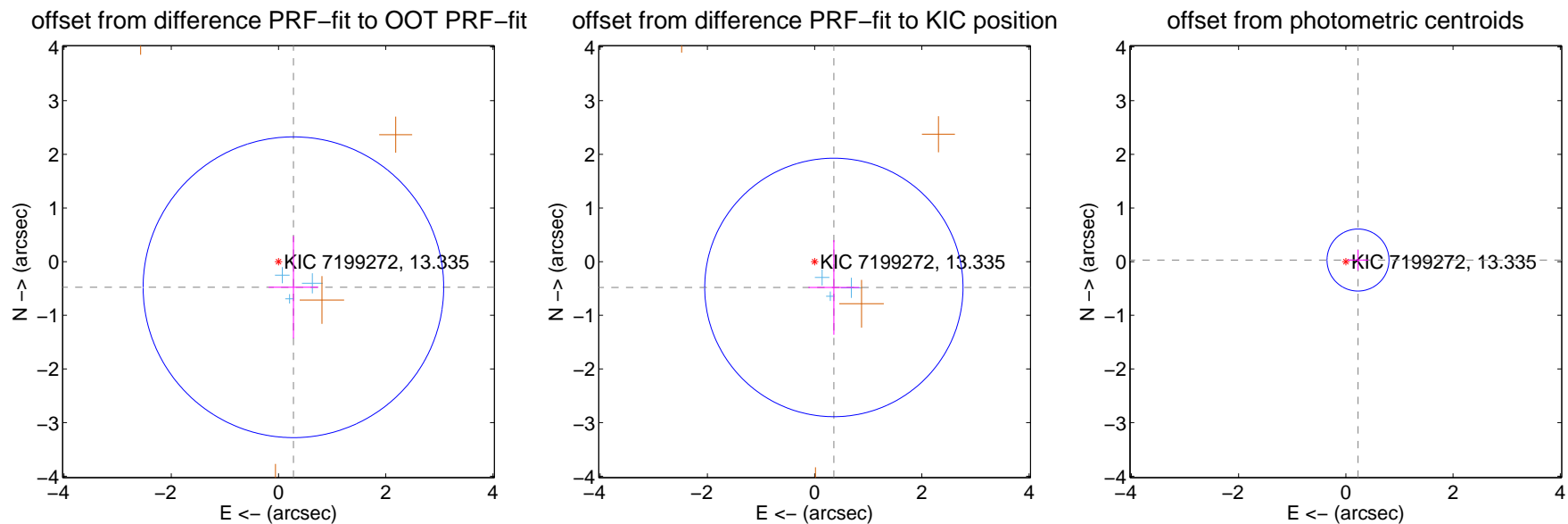
## DV Centroid Data

Supplemental centroid analysis for 007199272-07. Kepler magnitude: 13.34. Transit SNR 6.13

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.552 \pm 0.934$	0.59	$-0.278 \pm 0.463$	$-0.477 \pm 0.955$
PRF-fit source offset from KIC position	$0.600 \pm 0.803$	0.75	$-0.359 \pm 0.476$	$-0.481 \pm 0.881$
photometric centroid source offset	$0.23 \pm 0.19$	1.19	$-0.23 \pm 0.19$	$0.03 \pm 0.19$



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.

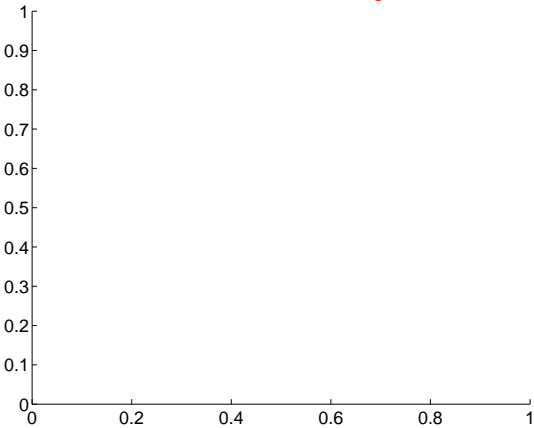
Q1 no difference image



Q1 no OOT image



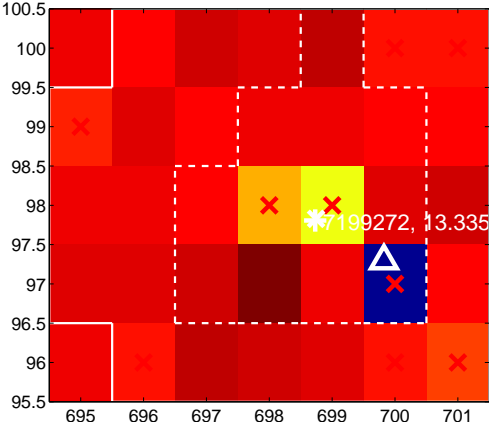
Q2 no difference image



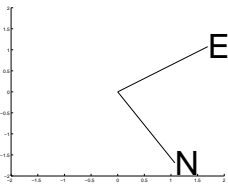
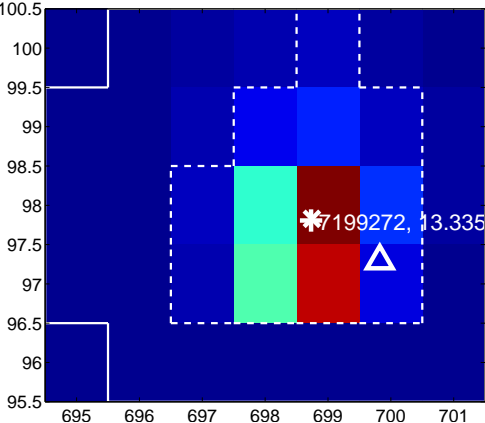
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



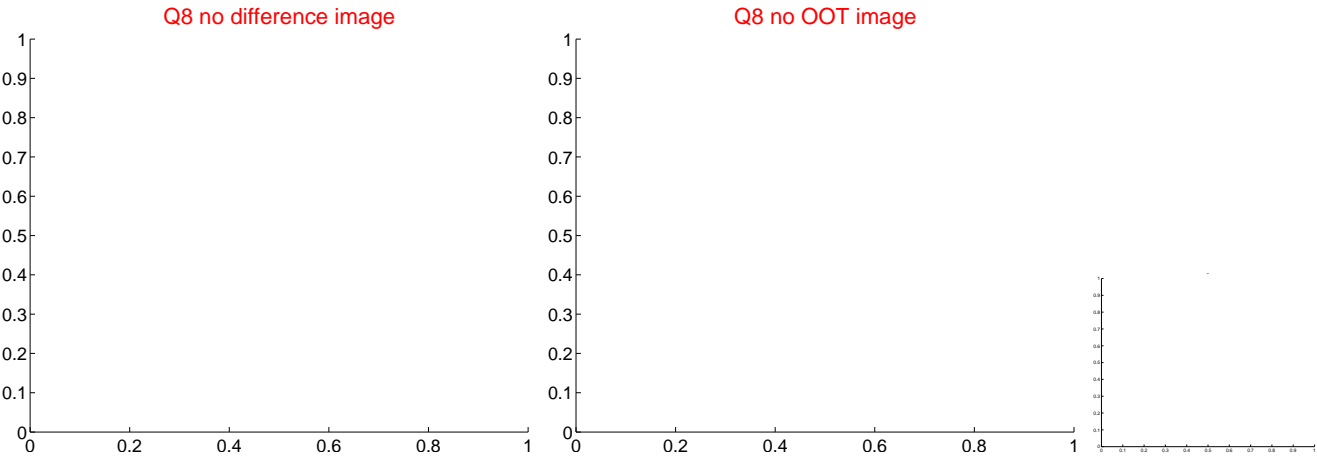
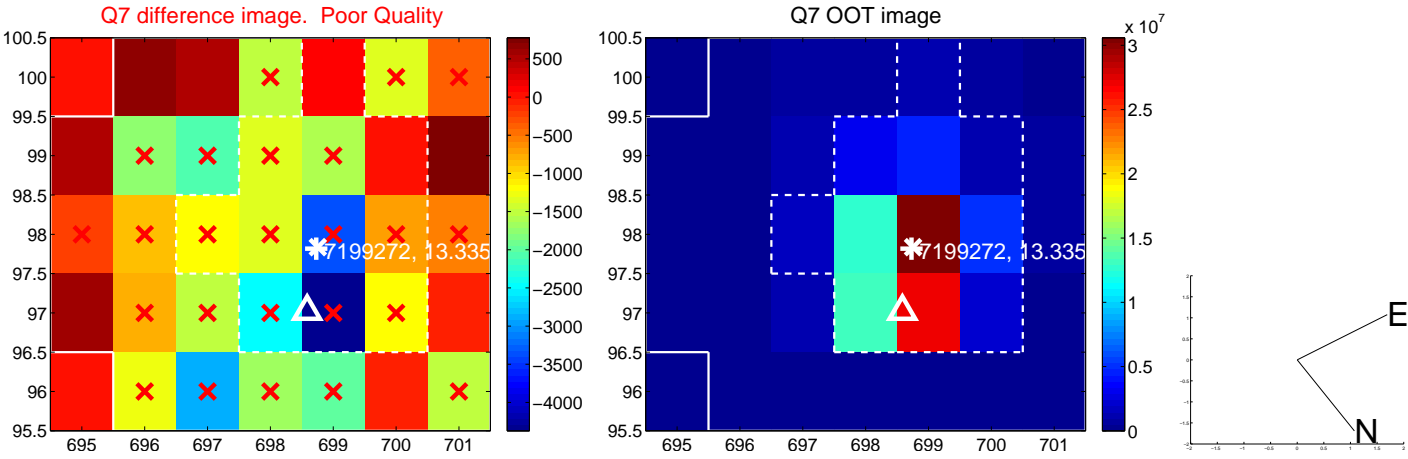
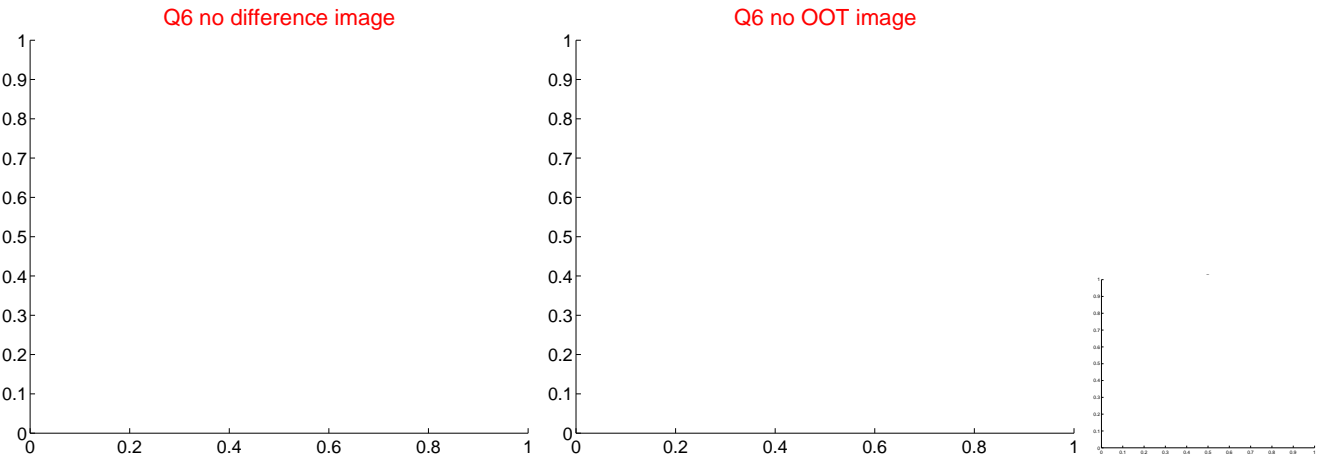
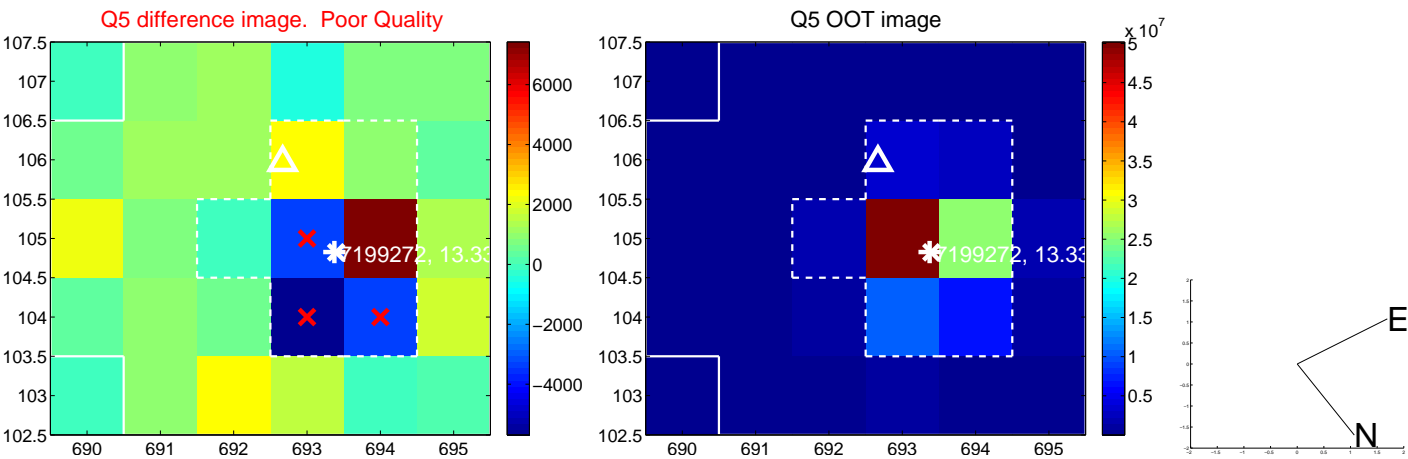
Q4 no difference image



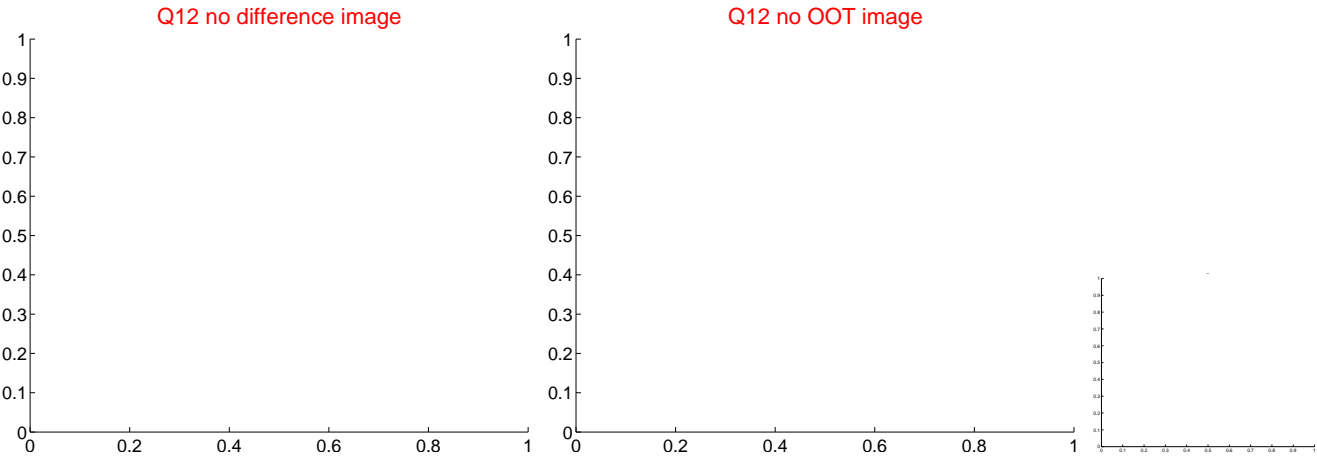
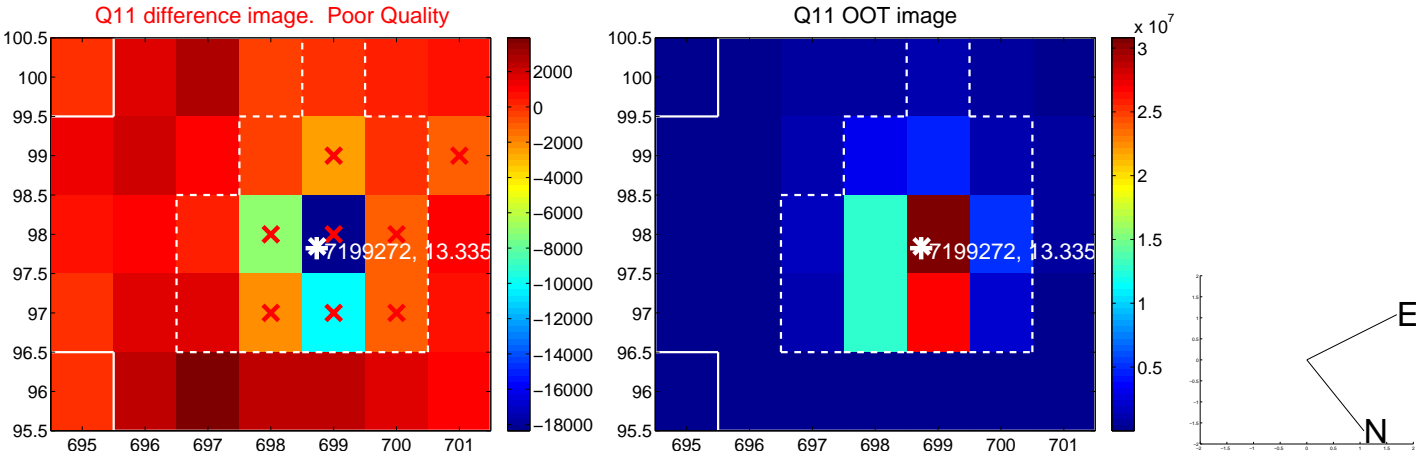
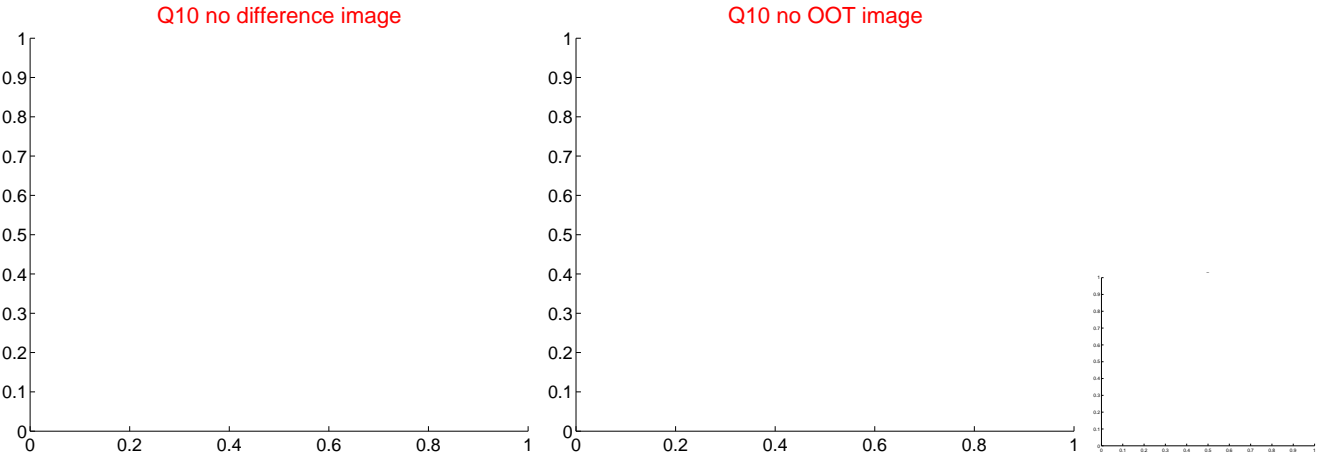
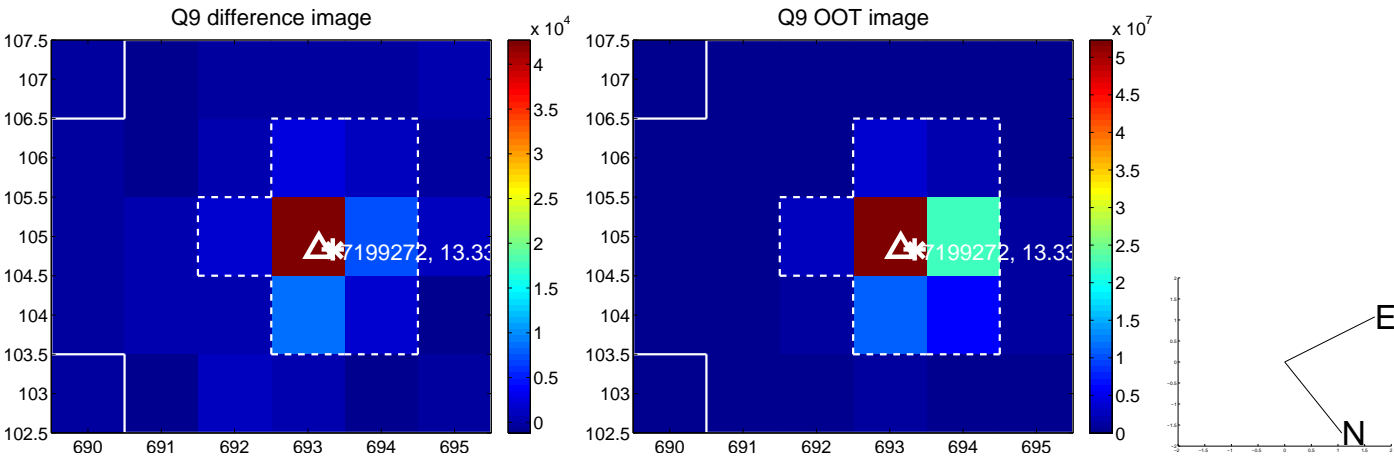
Q4 no OOT image



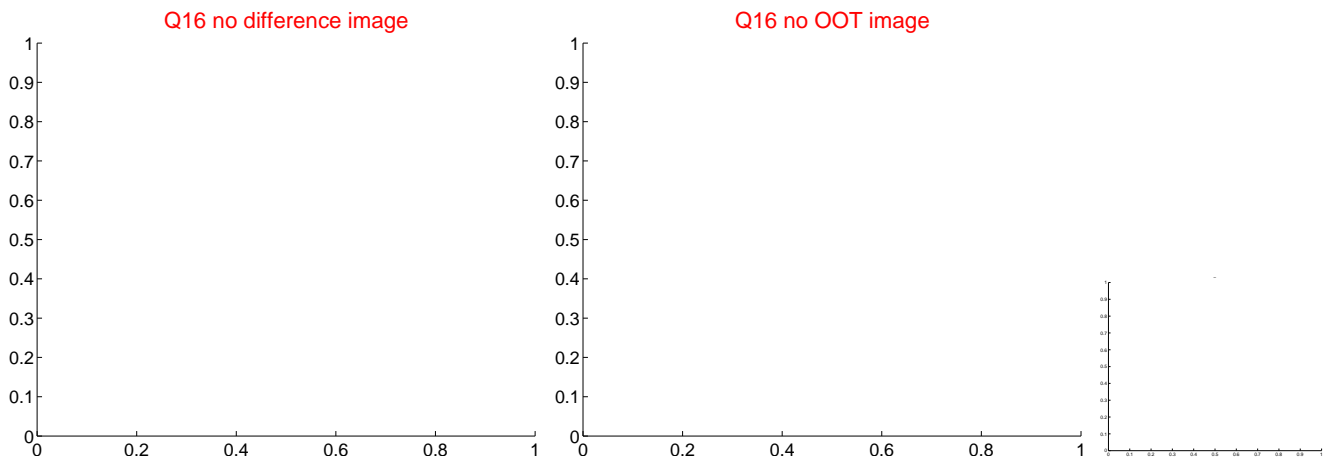
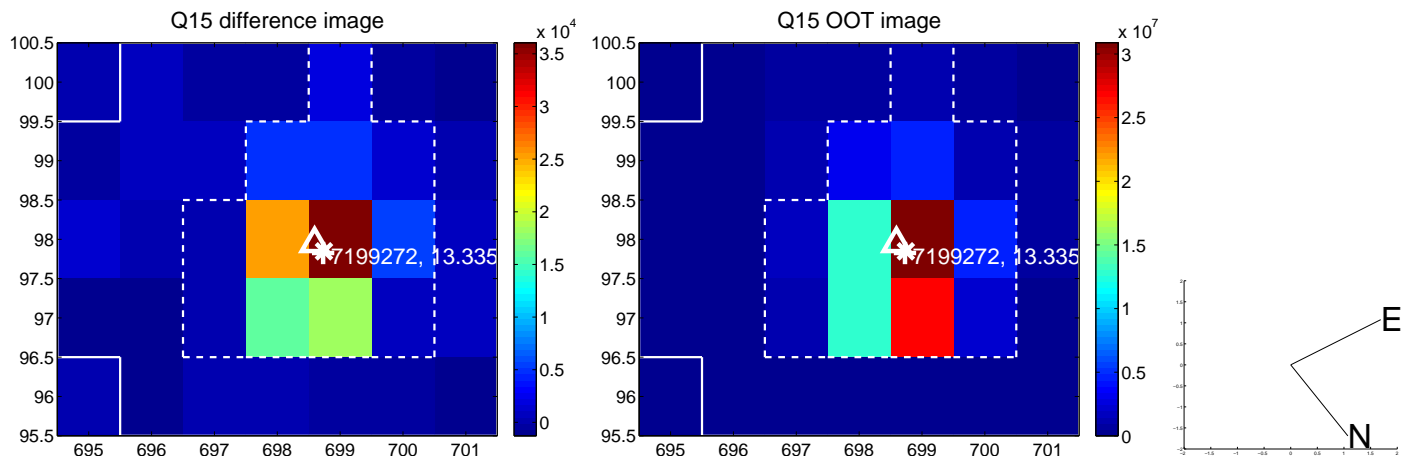
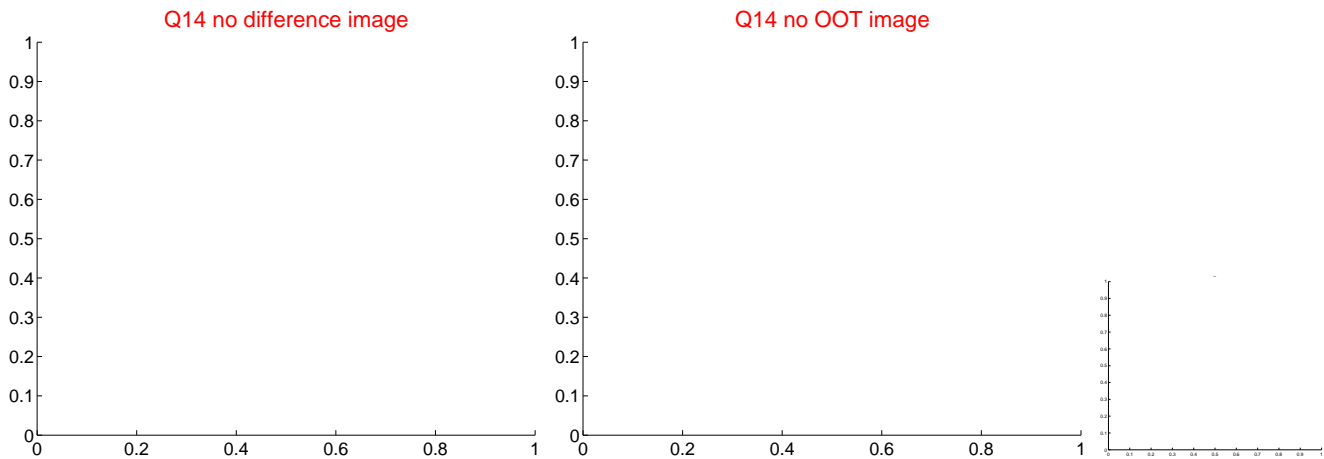
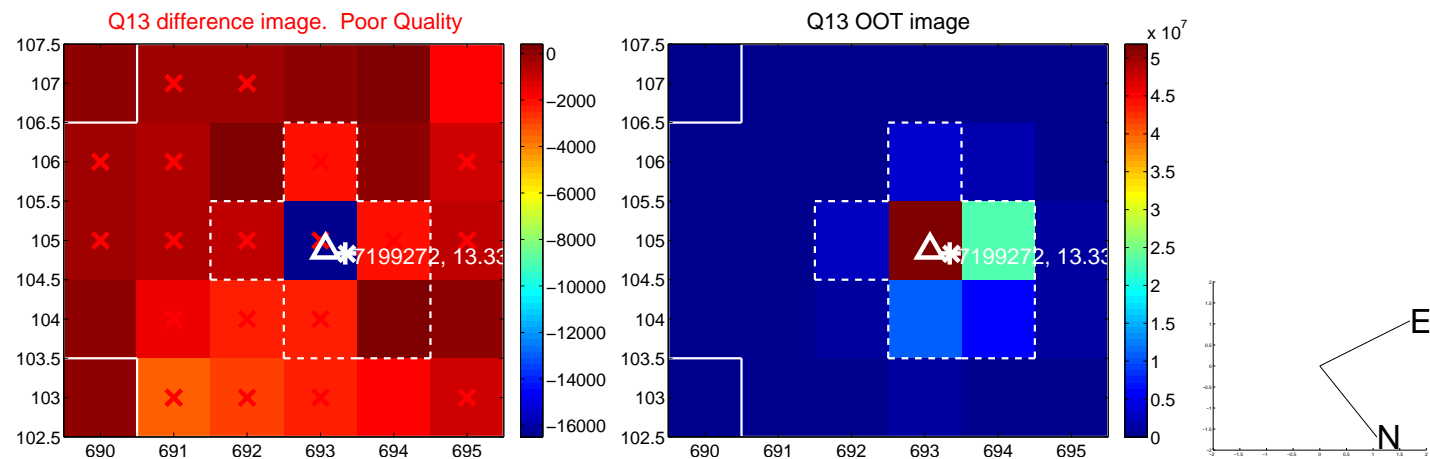
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



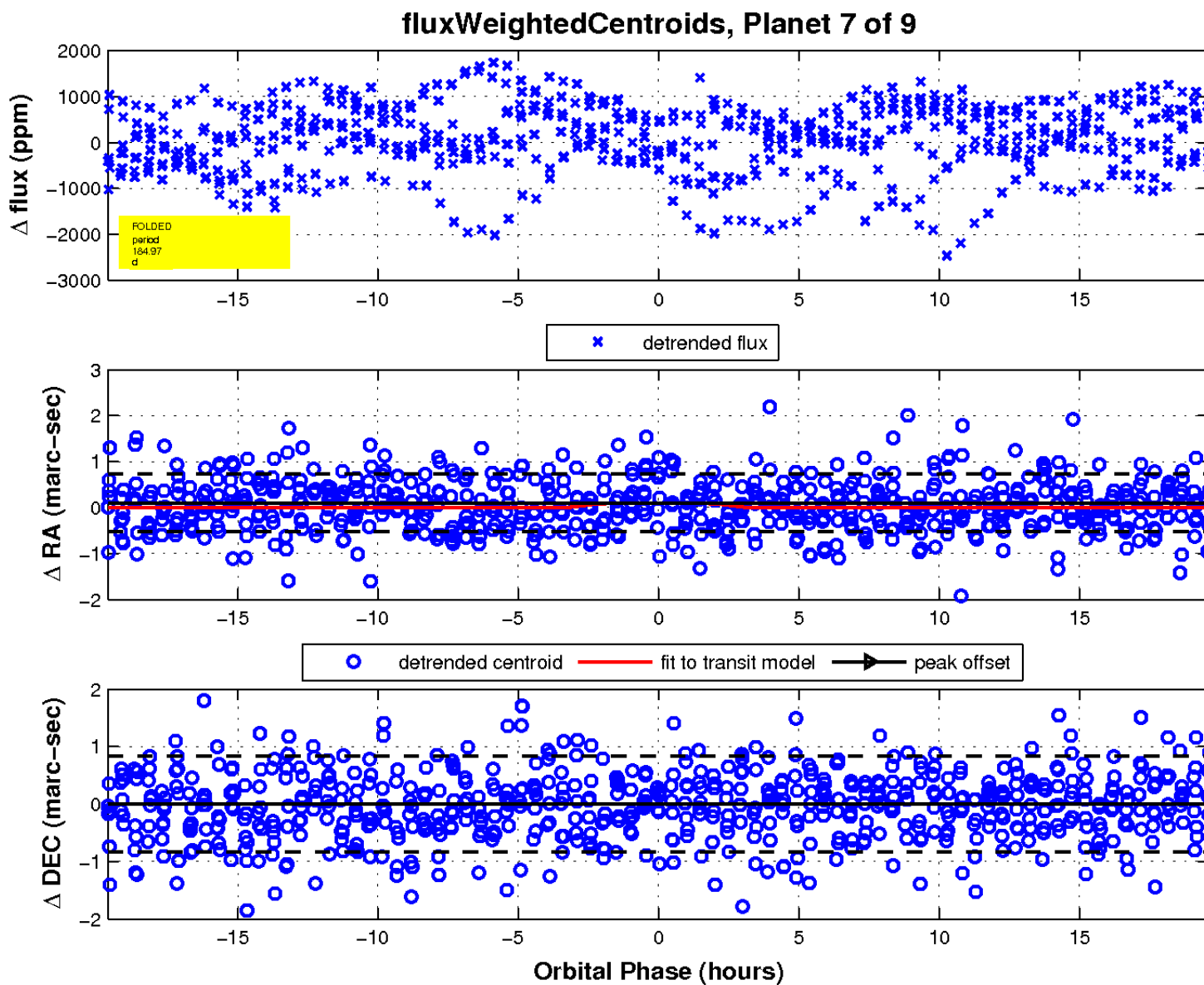
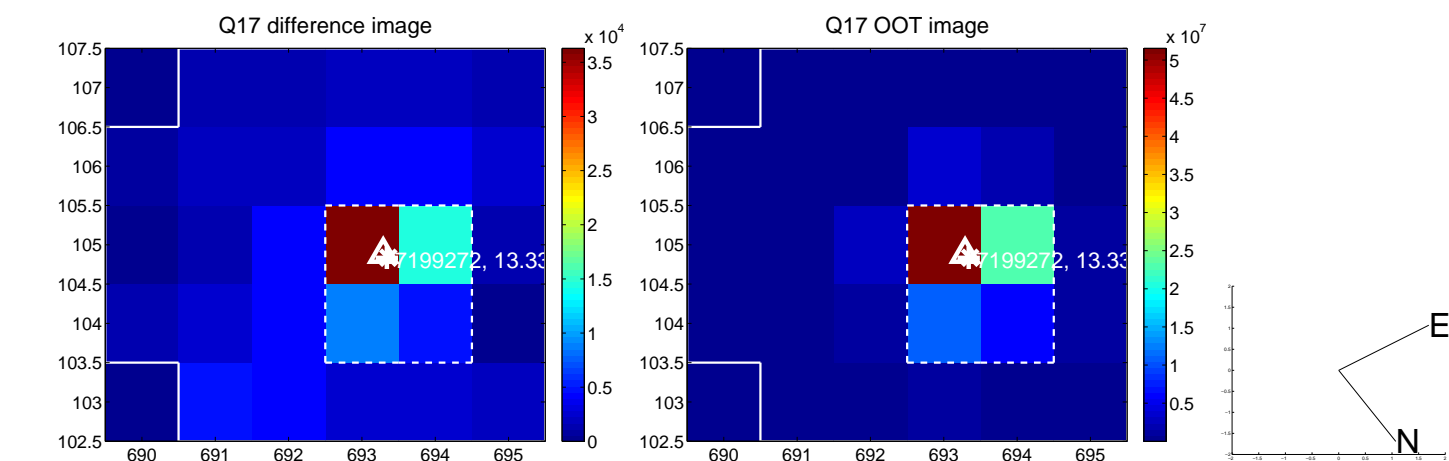
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



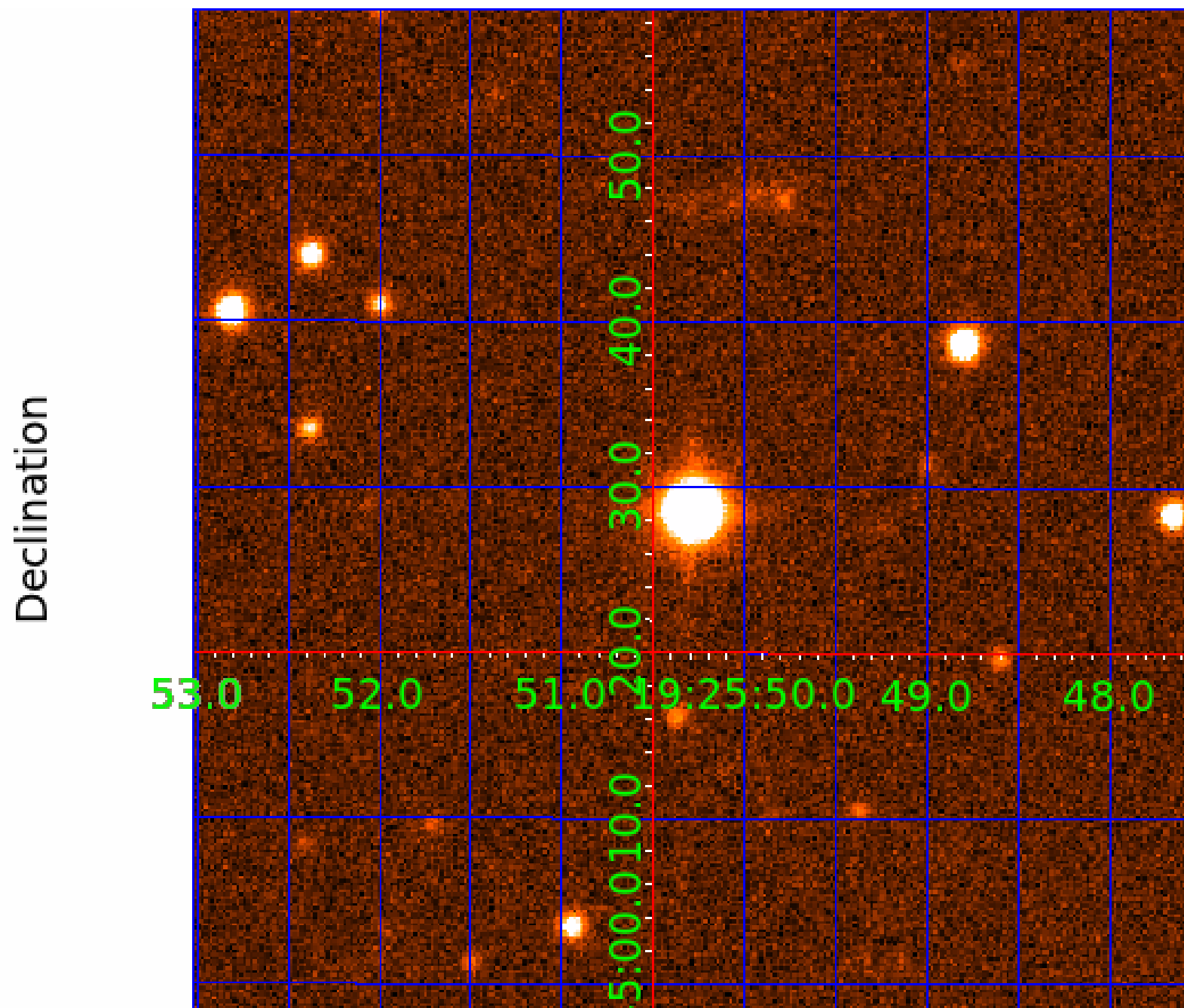
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 007199272

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007199272-01	OBS	No	0.566799	131.687562	66.4	3.288	14.4	12.5	19.33	5068	18.86	0.00
007199272-02	OBS	No	109.311739	200.412977	1471.0	2.526	10.9	9.1	19.33	5068	83.02	503.65
007199272-03	OBS	No	142.714559	262.894690	1516.7	5.208	11.5	8.3	19.33	5068	131.51	352.96
007199272-04	OBS	No	357.880851	138.273497	1764.6	10.921	8.3	7.8	19.33	5068	85.84	103.60
007199272-05	OBS	No	141.341629	222.715211	1773.8	8.761	8.3	8.9	19.33	5068	99.97	357.54
007199272-06	OBS	No	117.822367	150.641905	1383.5	3.661	8.4	9.2	19.33	5068	114.38	455.74
007199272-07	OBS	No	184.965238	282.716782	1088.7	6.545	8.5	6.1	19.33	5068	77.61	249.78
007199272-08	OBS	No	73.248202	201.211539	1083.9	4.053	8.3	9.3	19.33	5068	123.64	858.92
007199272-09	OBS	No	140.819093	158.394533	396.7	3.000	8.0	-1.0	19.33	5068	37.74	359.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007199272-01	OBS	FP	0.00	1	0	1	1	LPP_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
007199272-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
007199272-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV
007199272-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
007199272-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007199272-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007199272-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—INCONSISTENT_TRANS—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.

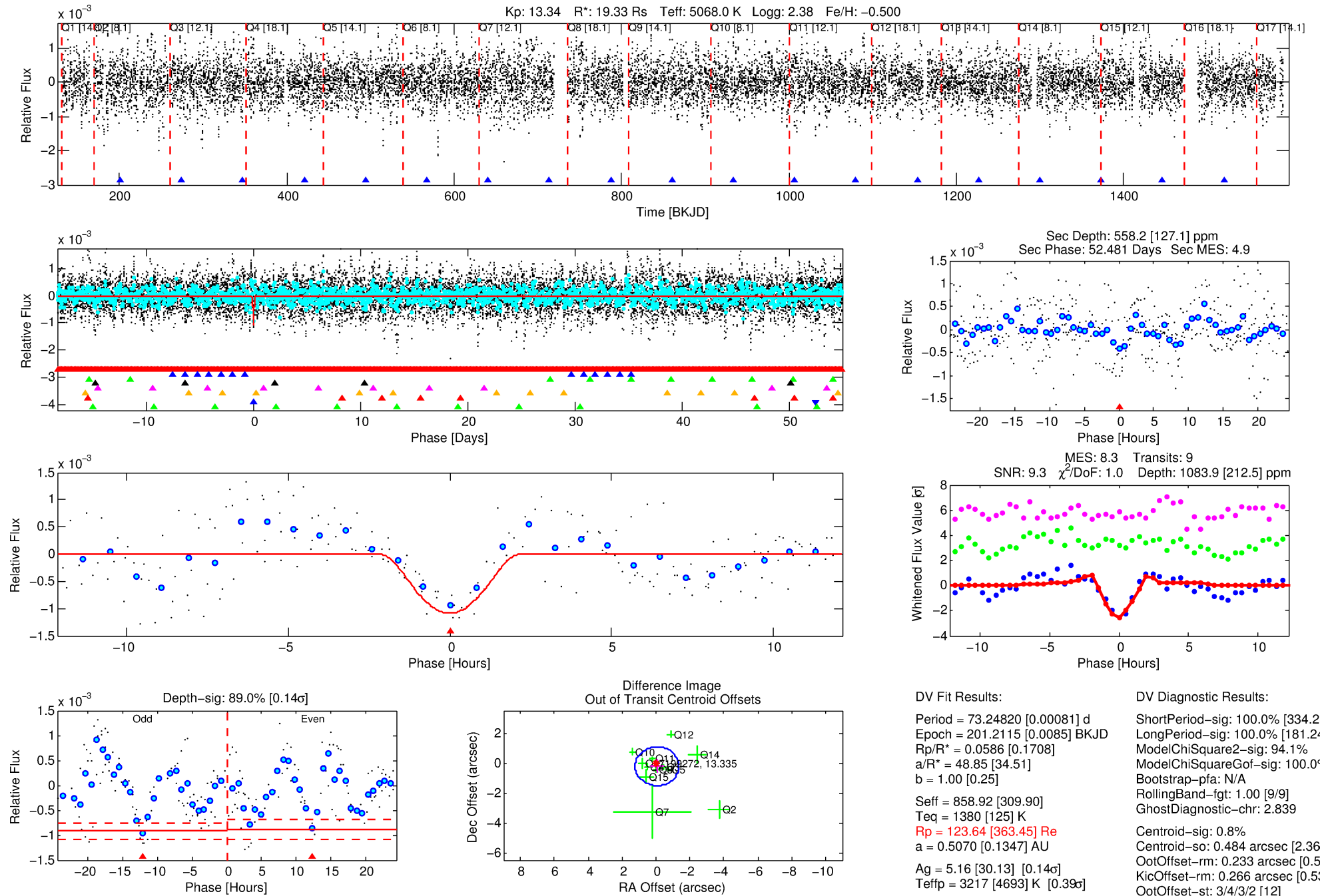
Ephemeris Match Information For 007199272-08

No Significant Match Found



# DV One-Page Summary

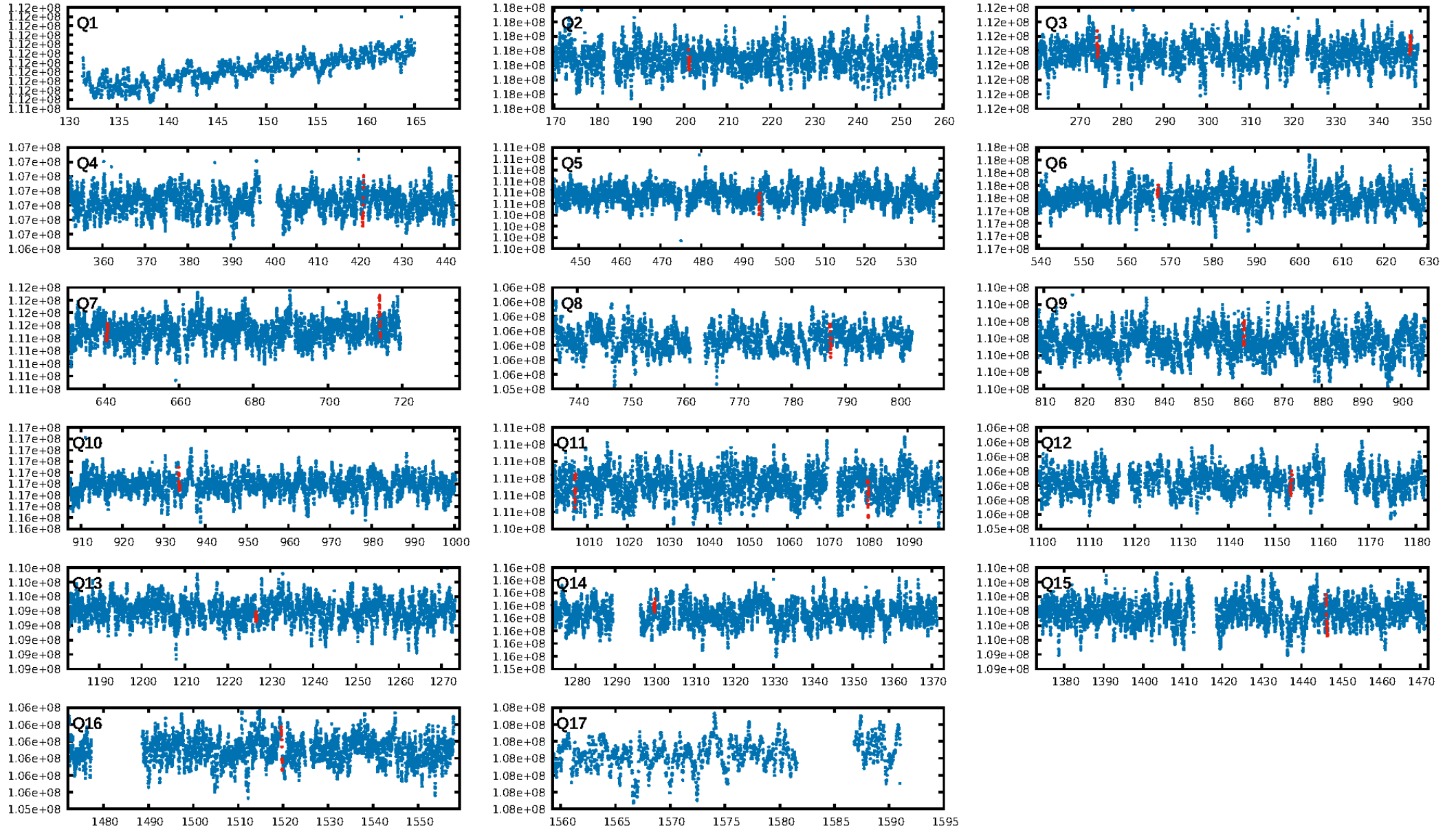
KIC: 7199272 Candidate: 8 of 9 Period: 73.248 d



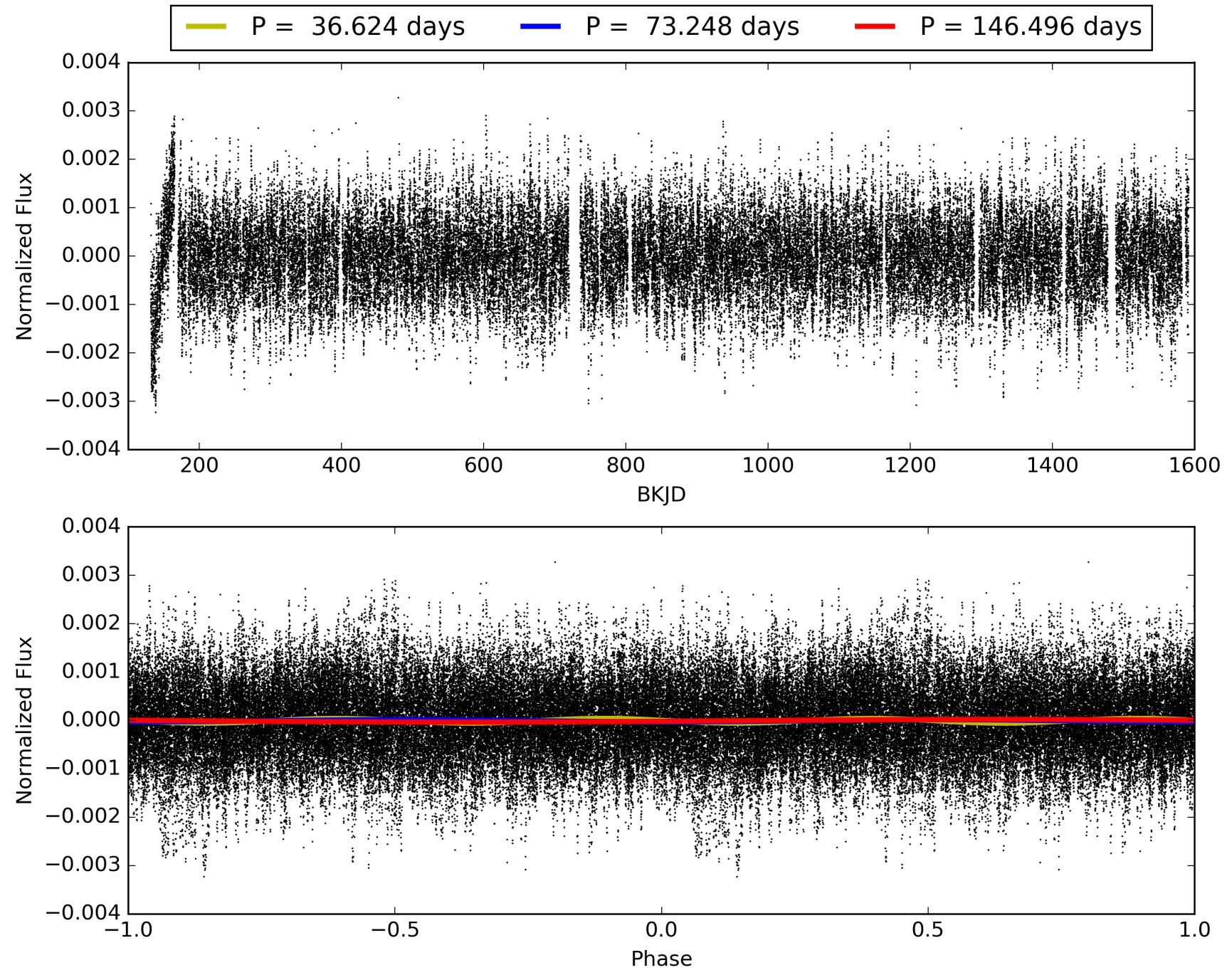
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:41:48 Z

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

# TCE 007199272-08, PDC Light Curves

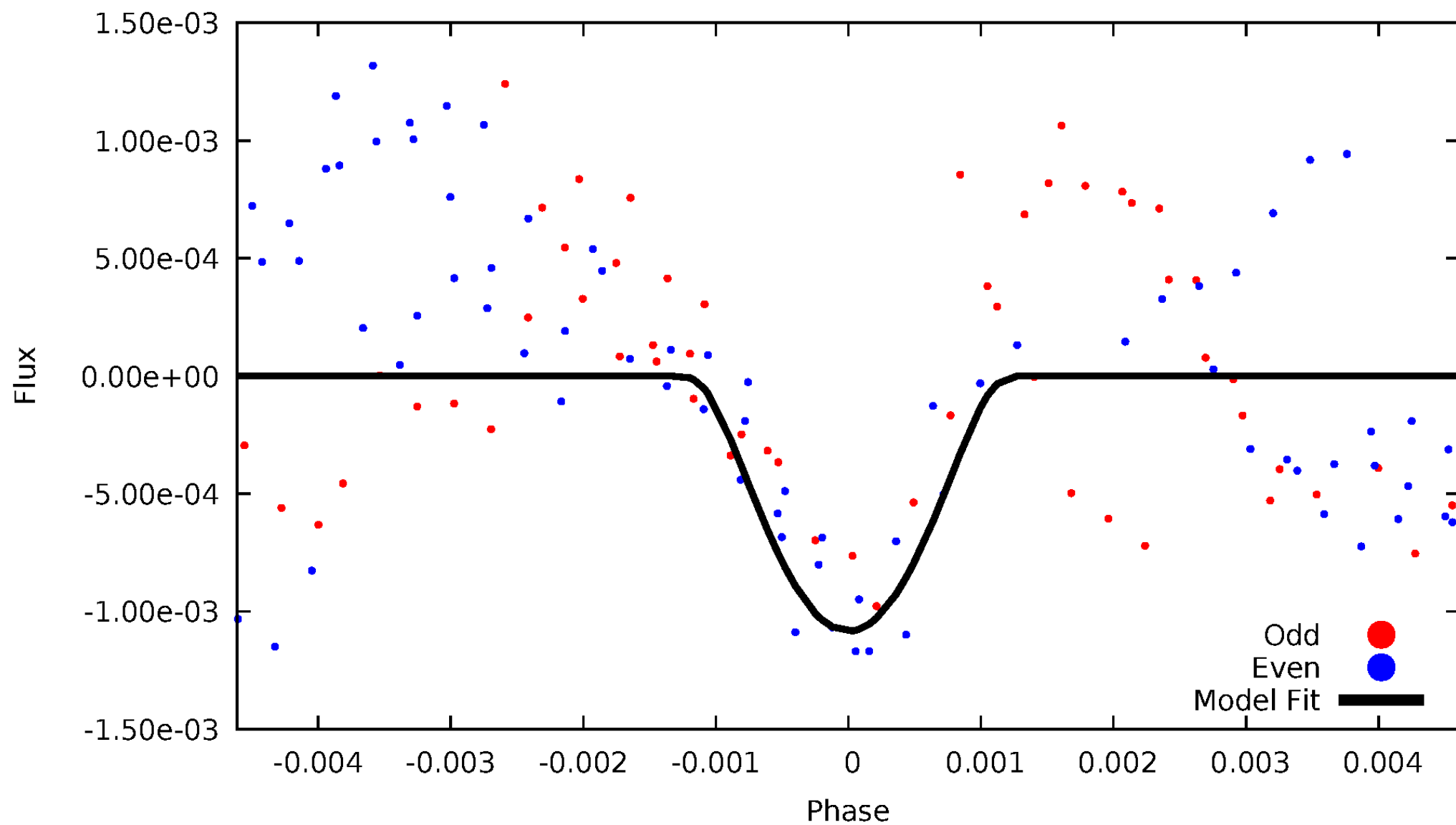


# TCE 007199272-08



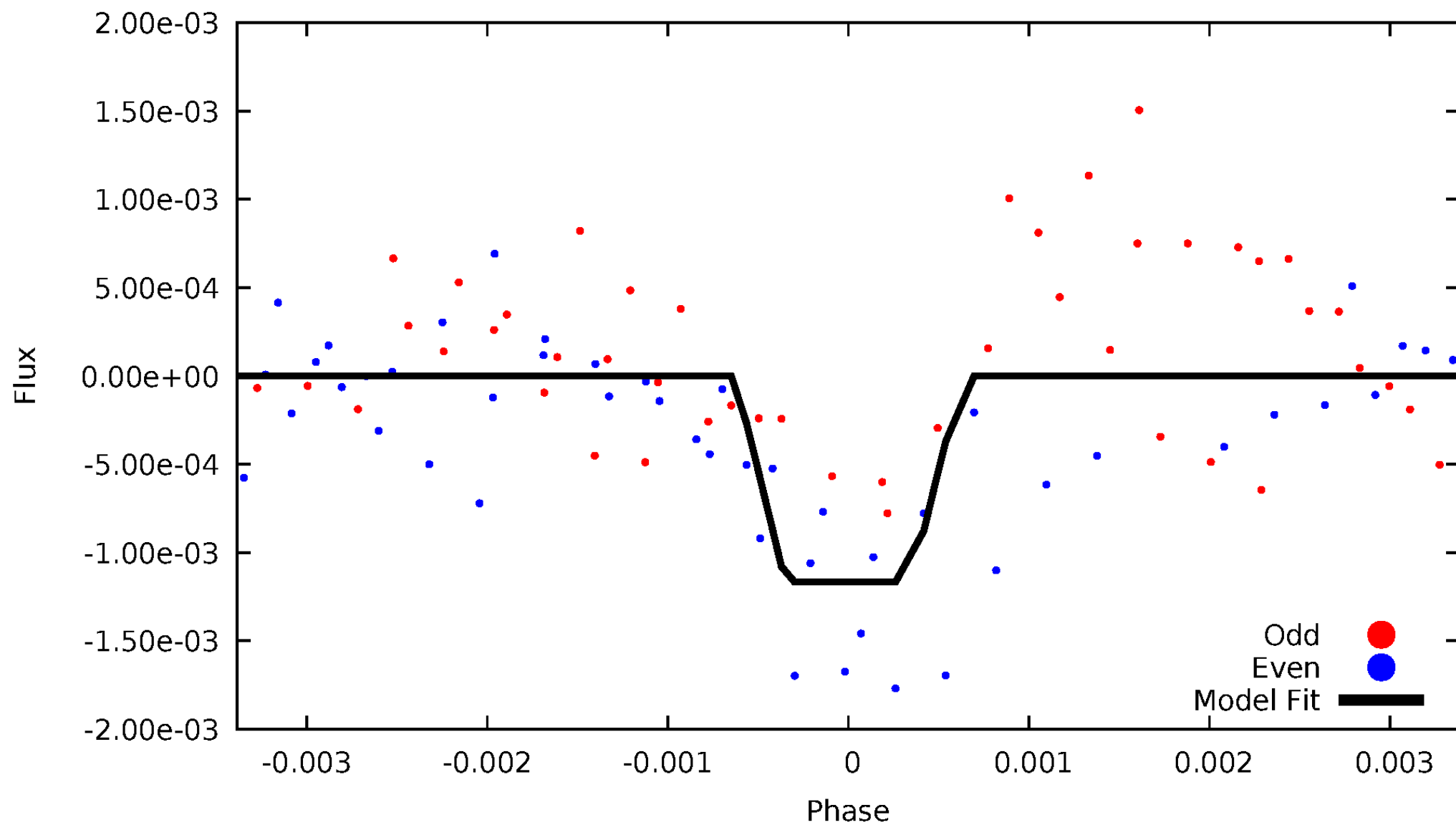
# DV Odd/Even

TCE 007199272-08



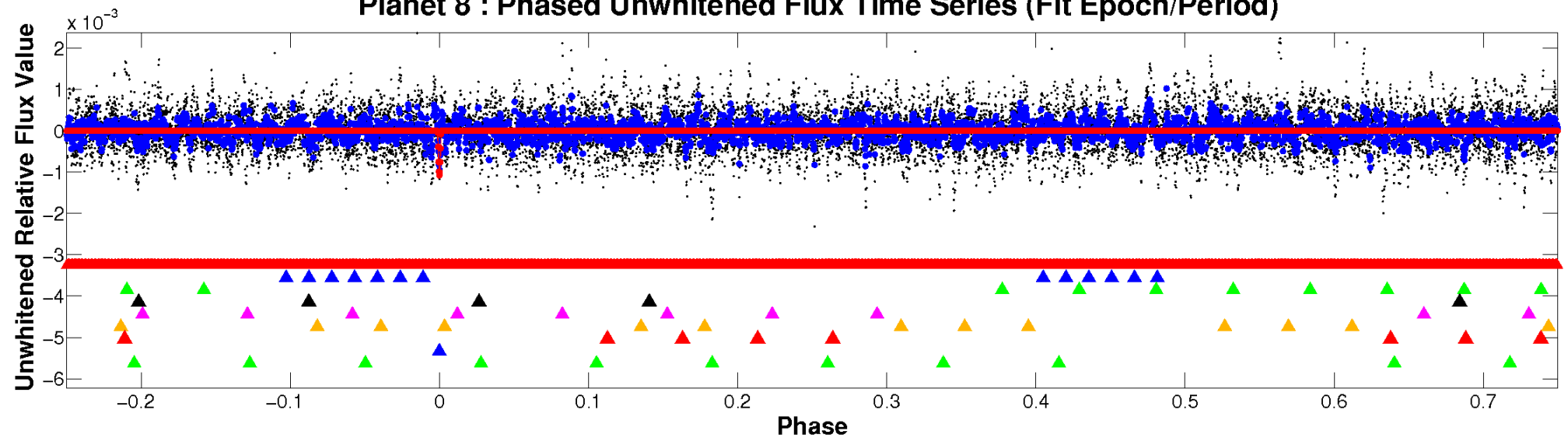
# ALT Odd/Even

TCE 007199272-08

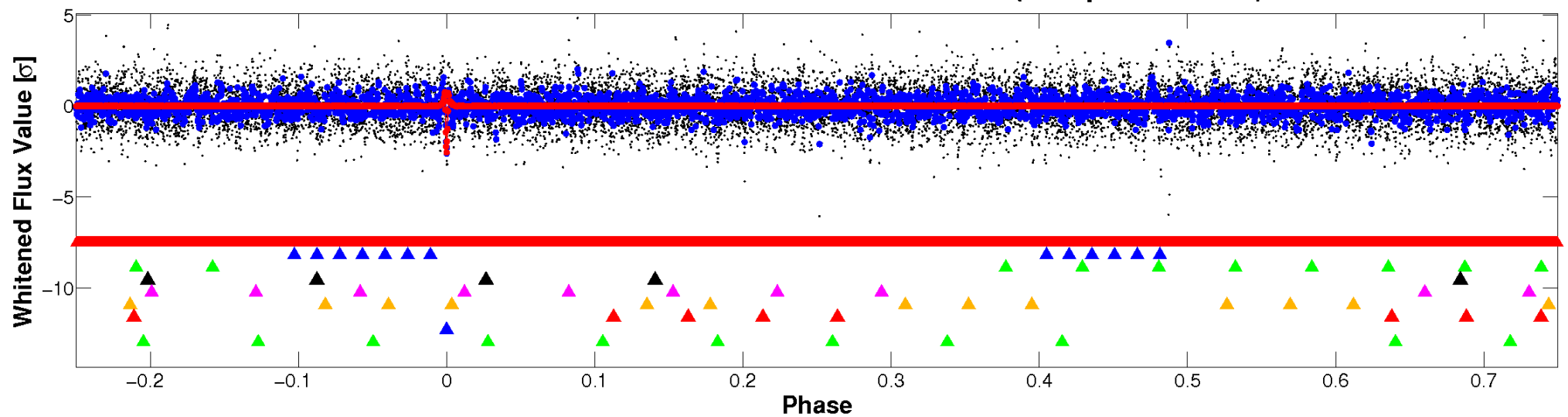


# Non-Whitened Vs. Whitened Light Curve

## Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



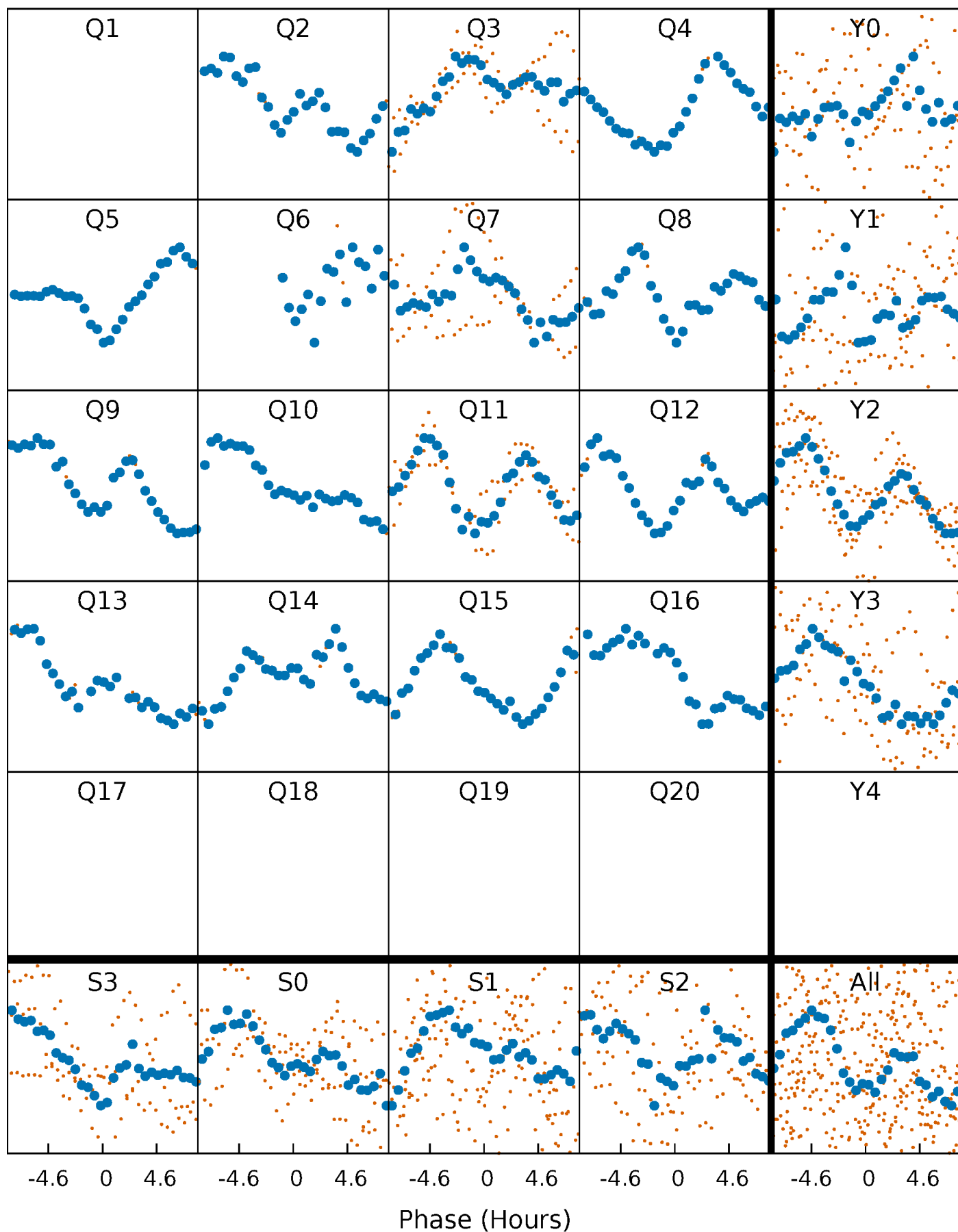
## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)





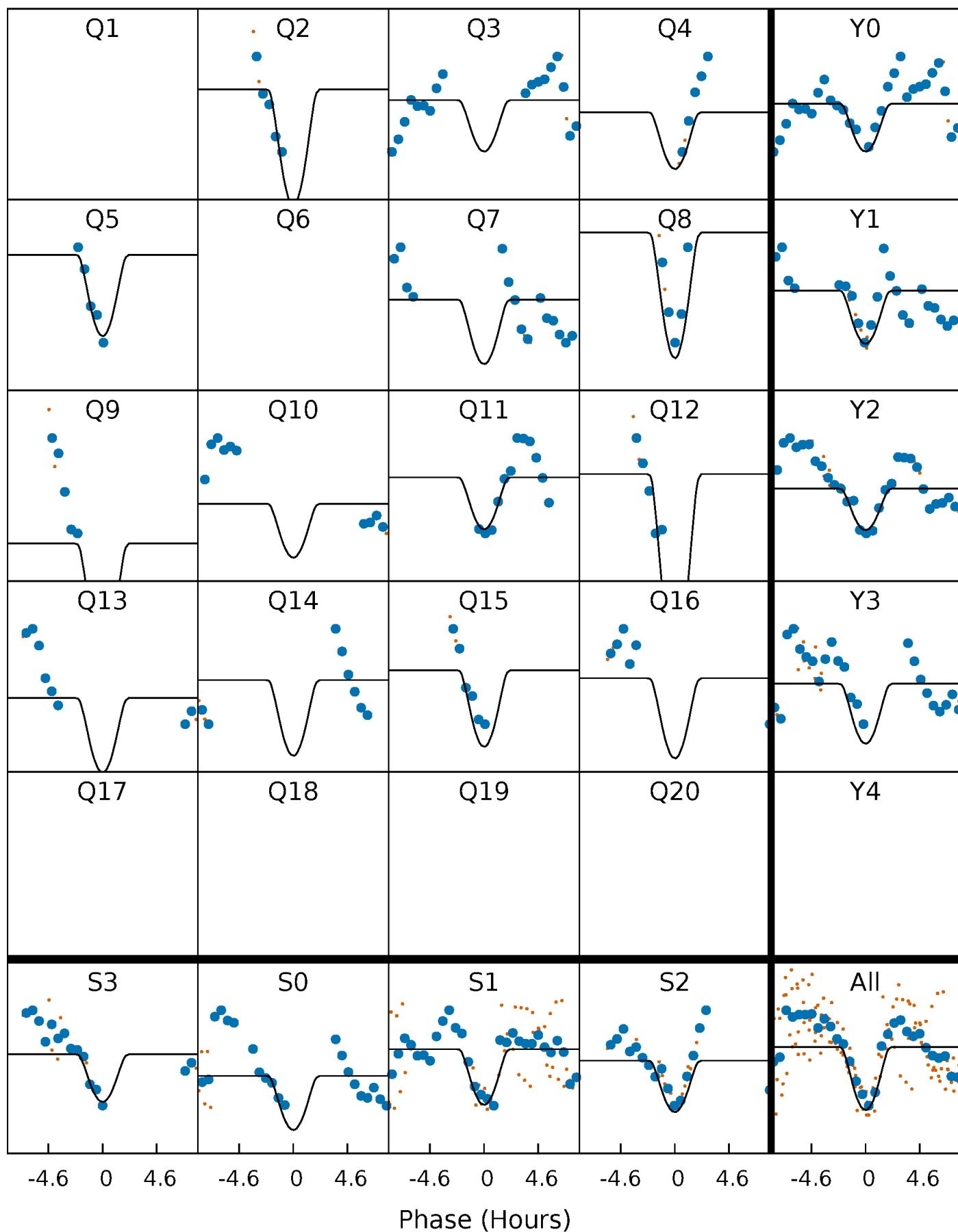
# PDC Quarter-Phased Transit Curves

TCE 007199272-08 P= 73.248202 Days  $T_0=201.211539$  (BKJD)



# DV Quarter-Phased Transit Curves

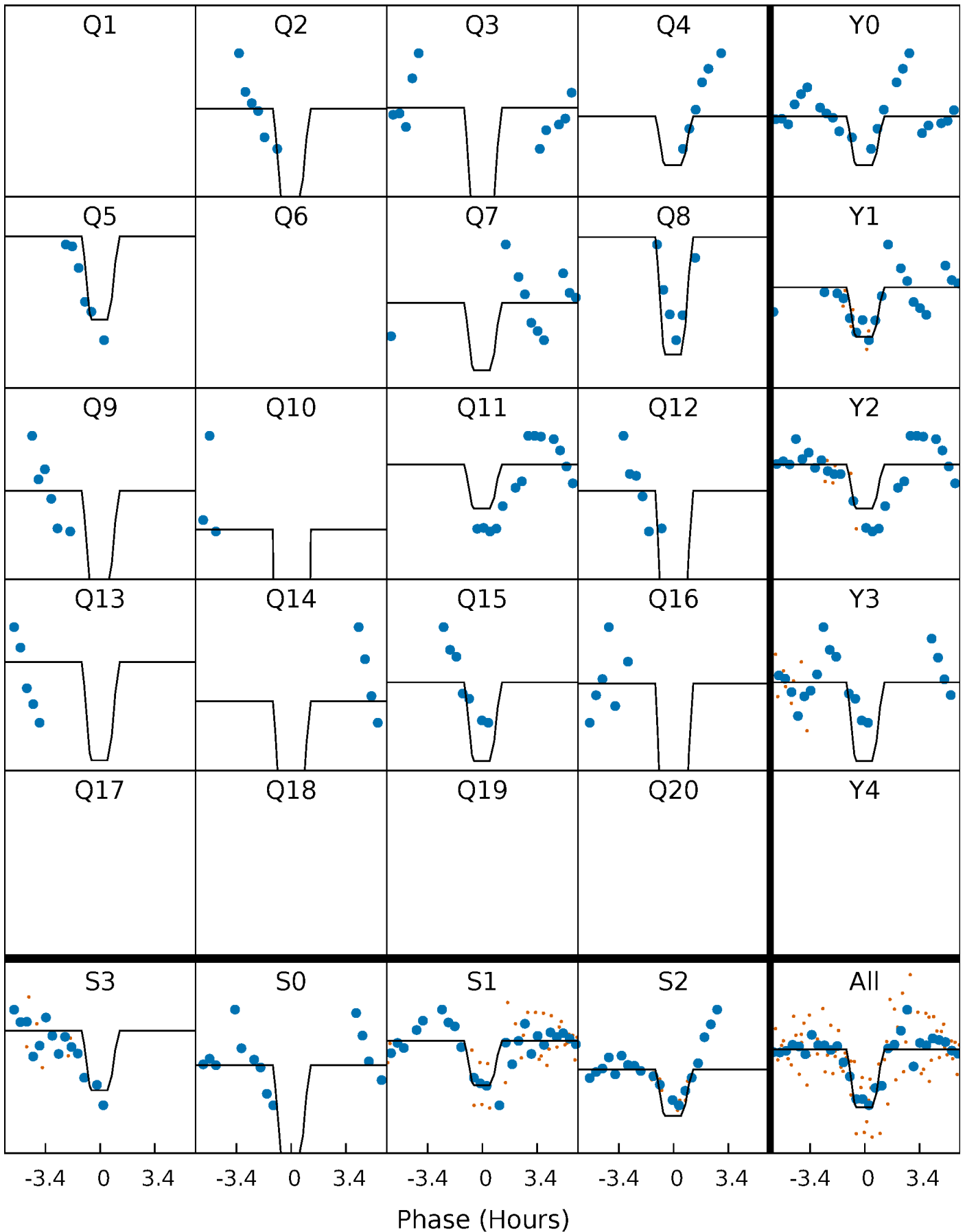
TCE 007199272-08 P= 73.248202 Days  $T_0=201.211539$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

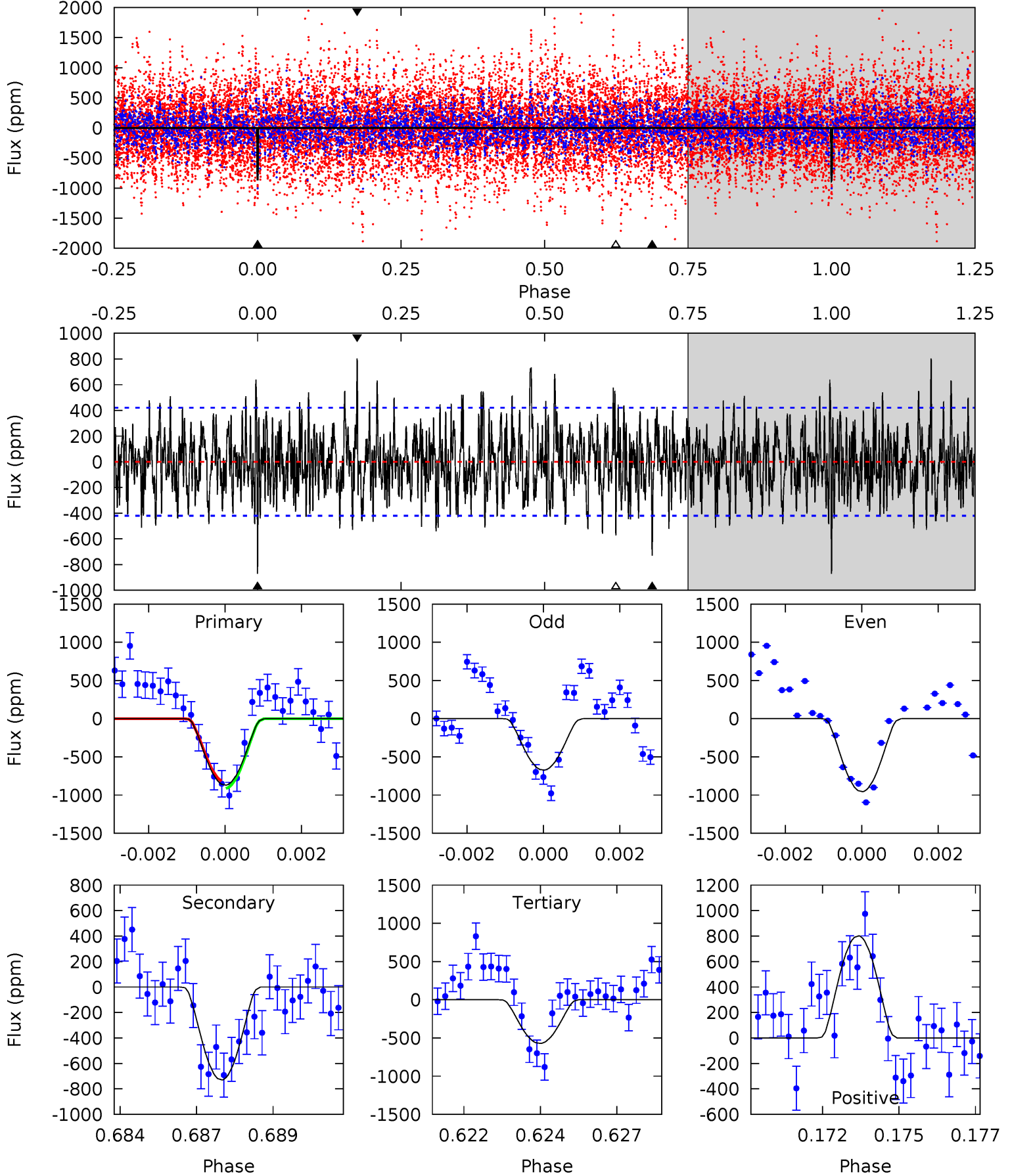
TCE 007199272-08     $P = 73.247393$  Days     $T_0 = 201.213759$  (BKJD)



# DV Model-Shift Uniqueness Test

007199272-08, P = 73.248202 Days, E = 127.963337 Days

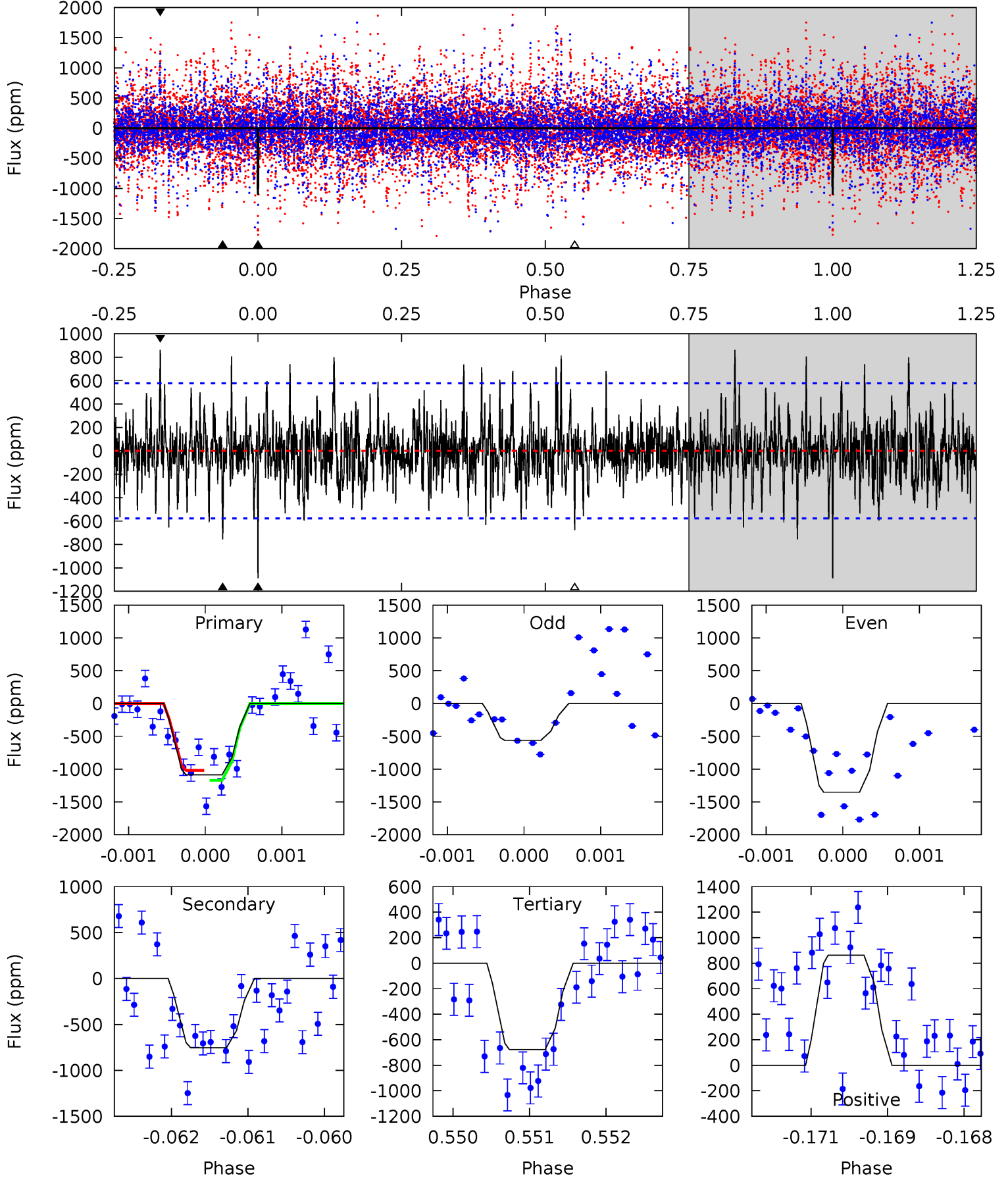
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	9.19	7.20	10.1	5.29	3.02	2.66	3.76	0.86	1.99	-0.91	1.72	0.50	0.48	0.61



# Alt Model-Shift Uniqueness Test

007199272-08, P = 73.247393 Days, E = 127.966366 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
10.2	7.08	6.36	8.10	5.42	3.24	1.82	3.86	2.12	0.72	-1.02	3.37	1.19	0.44	0.71



### Stellar Parameters For KIC 007199272

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5068^{+61}_{-305}$	$2.376^{+0.030}_{-0.027}$	$-0.500^{+0.150}_{-0.250}$	$19.327^{+0.853}_{-7.676}$	$3.241^{+0.244}_{-2.077}$	$0.001^{+0.000}_{-0.000}$
	+1%/-6%	+1%/-1%	+30%/-50%	+4%/-40%	+8%/-64%	+69%/-9%
Source	PHO1	AST9	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 007199272-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-730 \pm 79$	$276.03^{+314.42}_{-191.05}$	$1918^{+48}_{-109}$	$2819^{+1416}_{-4463}$	$1.355^{+13.319}_{-1.064}$
Alt.	$-754 \pm 107$	$265.36^{+281.74}_{-185.98}$	$1922^{+40}_{-113}$	$2872^{+1474}_{-897}$	$1.465^{+15.192}_{-1.112}$

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

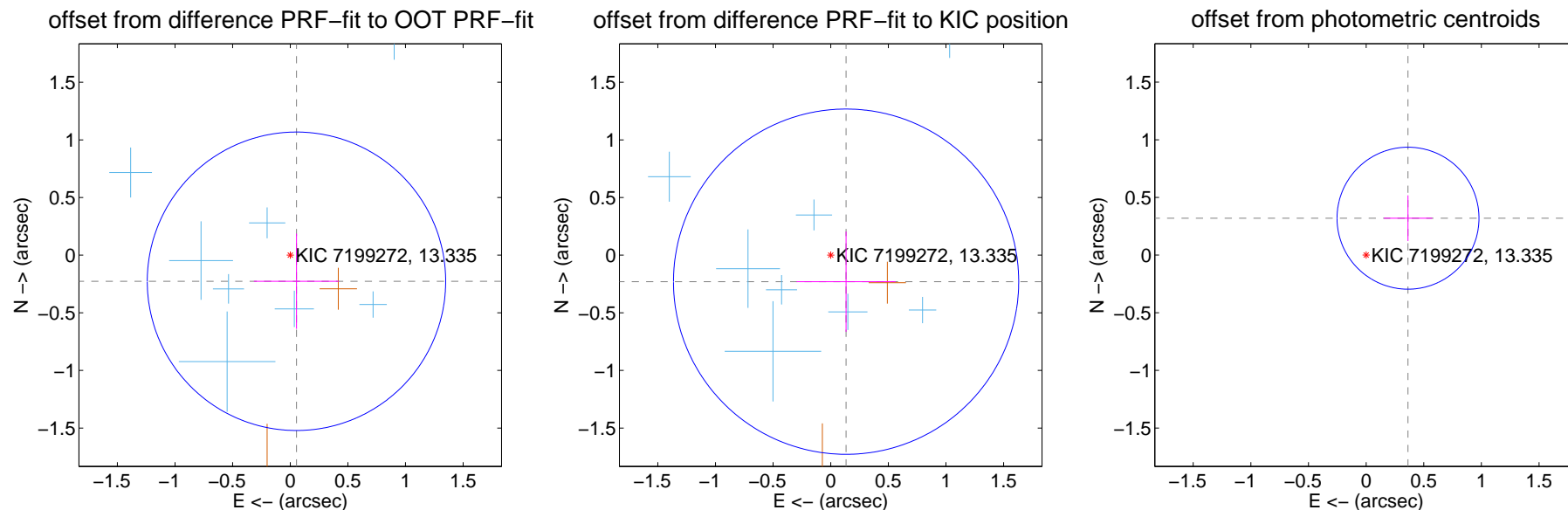
## DV Centroid Data

Supplemental centroid analysis for 007199272-08. Kepler magnitude: 13.34. Transit SNR 9.27

There are 8 quarters with good PRF difference image offsets

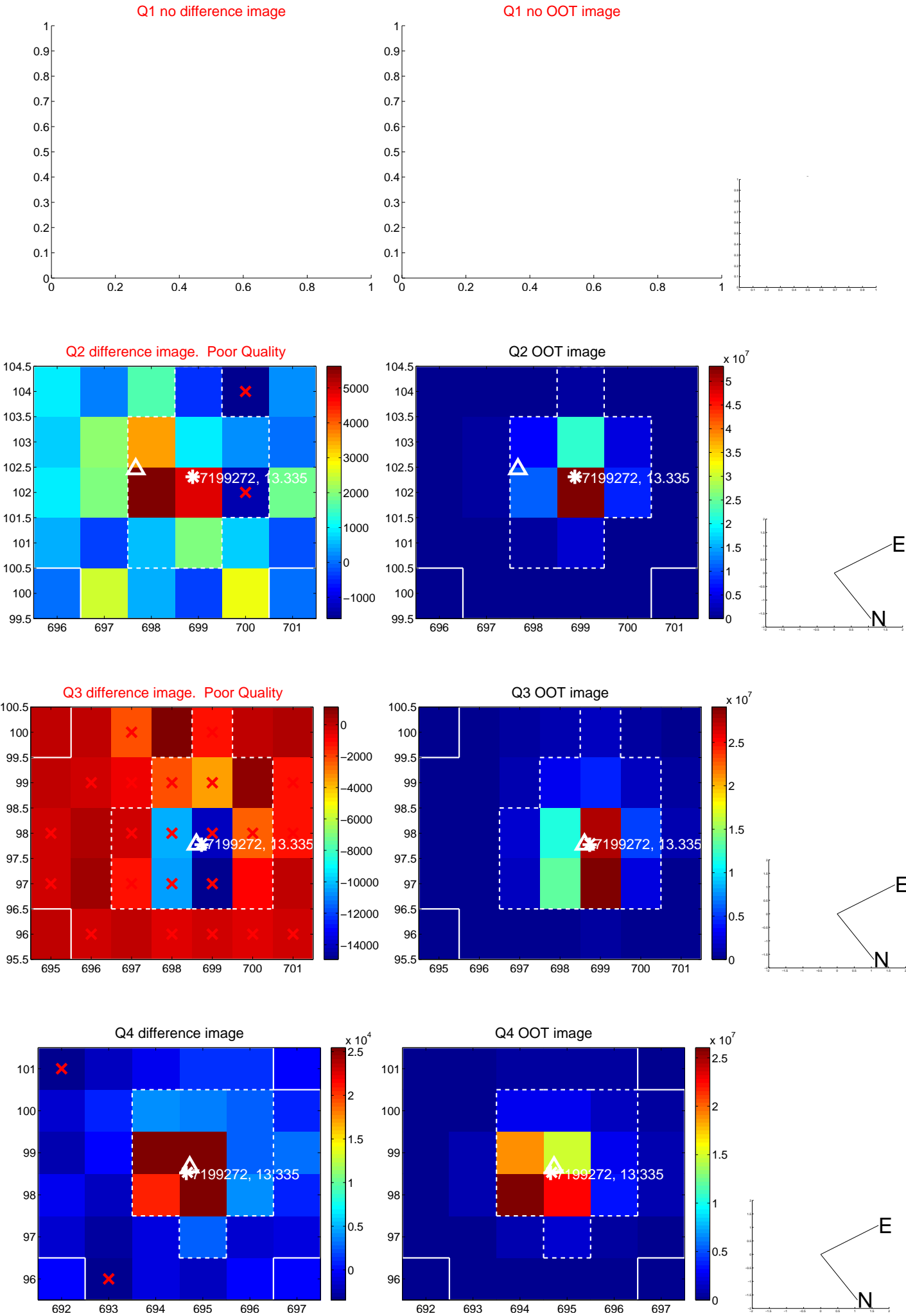
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.233 \pm 0.432$	0.54	$-0.054 \pm 0.369$	$-0.227 \pm 0.413$
PRF-fit source offset from KIC position	$0.266 \pm 0.499$	0.53	$-0.133 \pm 0.429$	$-0.230 \pm 0.435$
photometric centroid source offset	$0.48 \pm 0.21$	2.36	$-0.36 \pm 0.21$	$0.32 \pm 0.20$

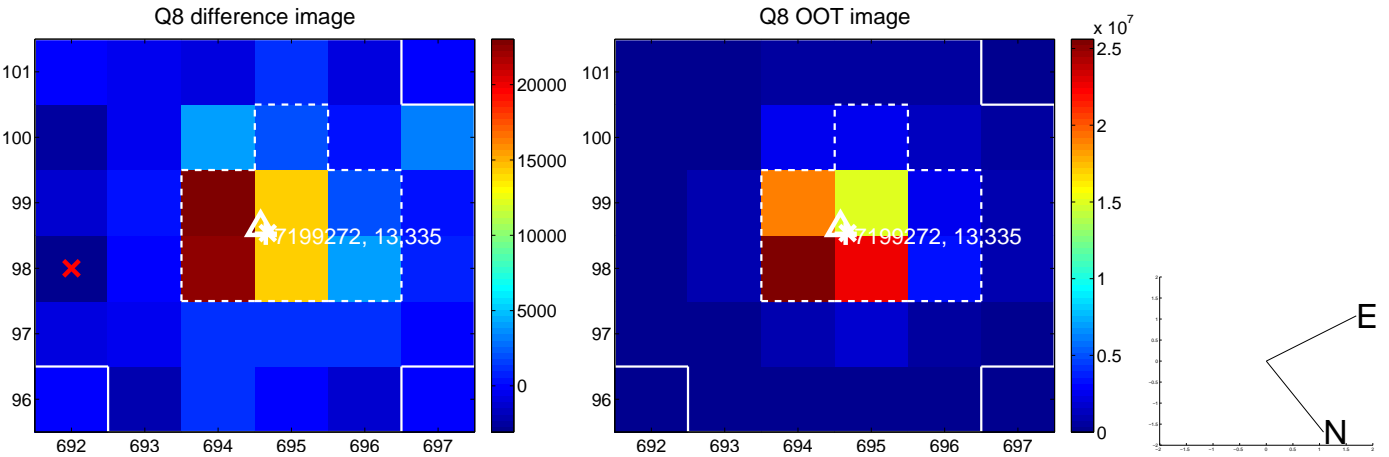
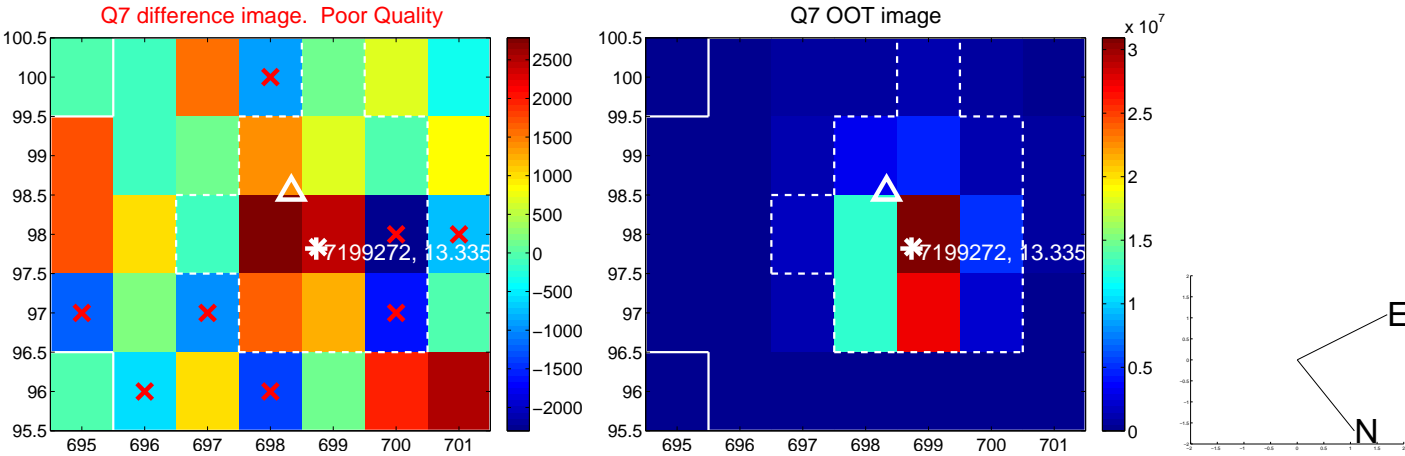
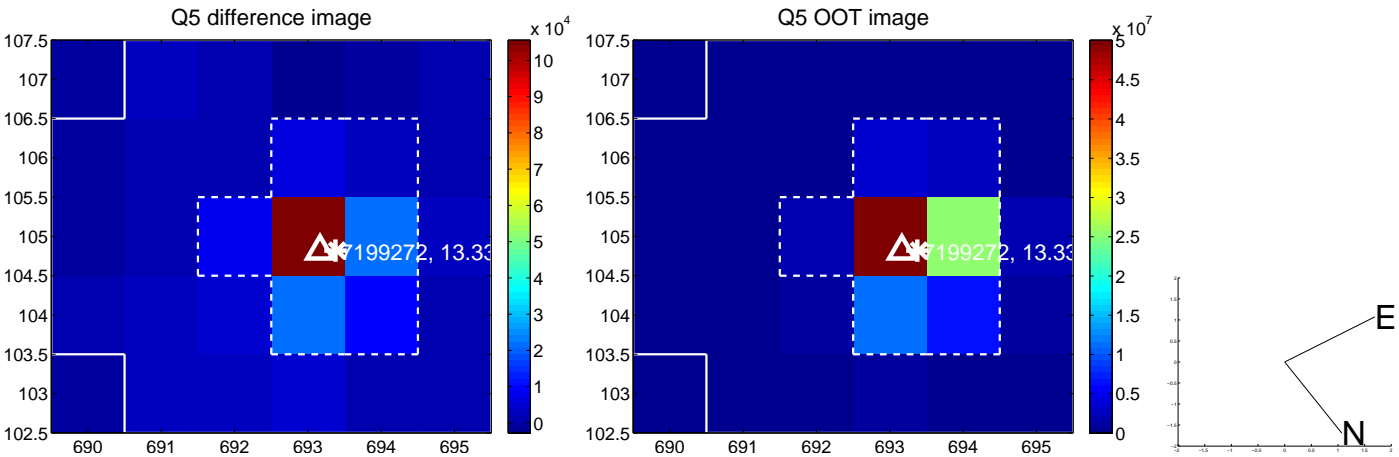


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

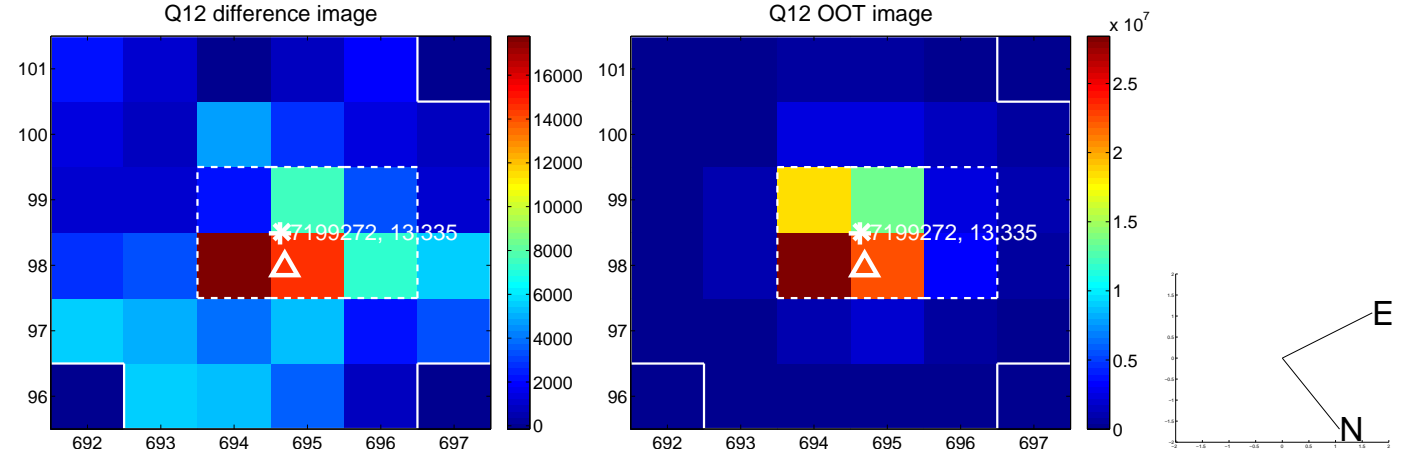
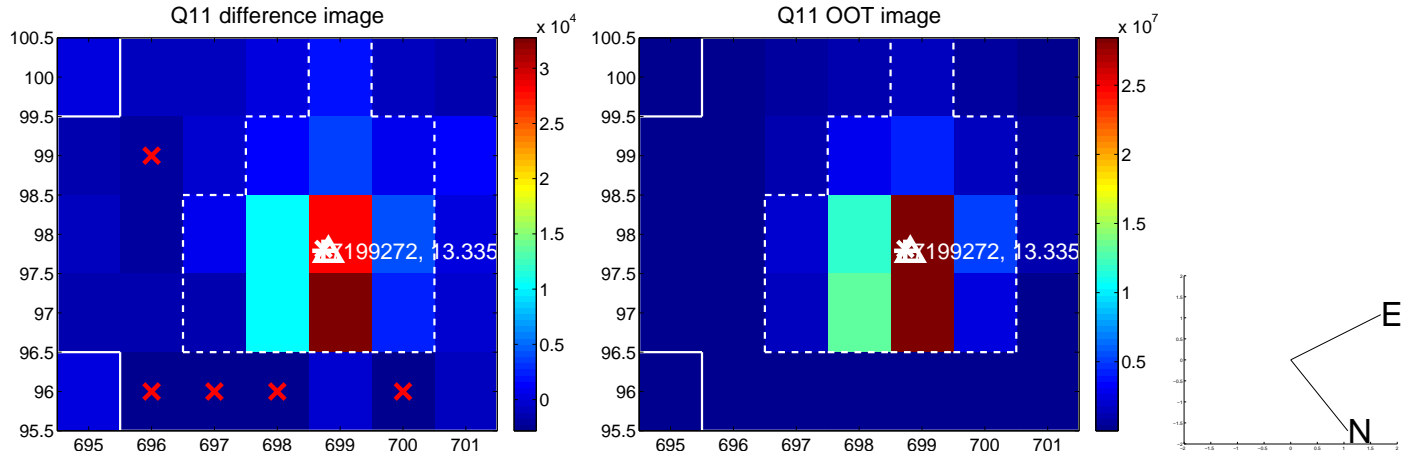
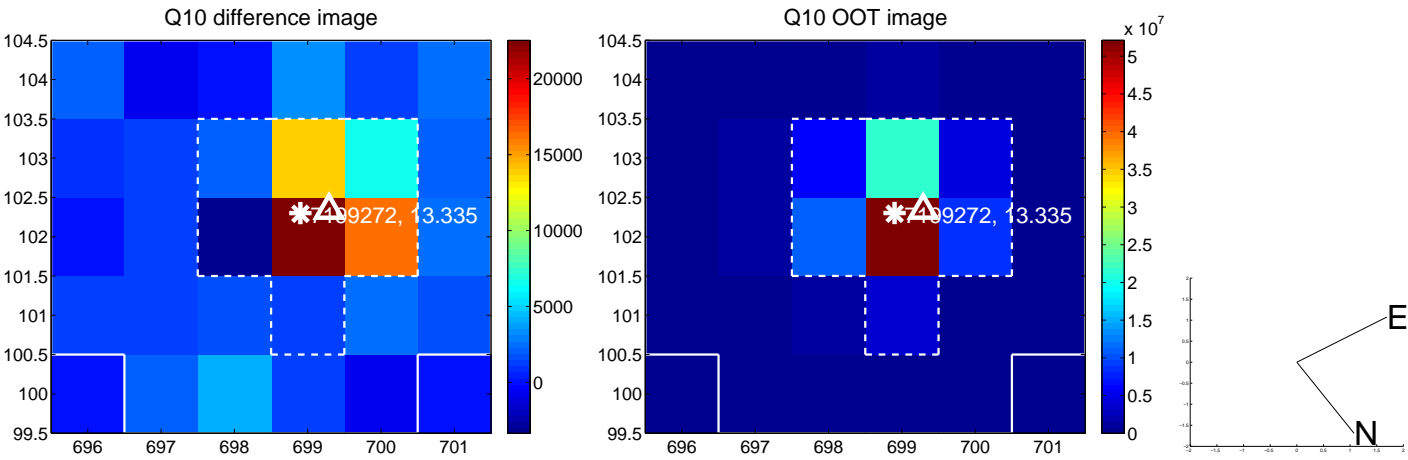
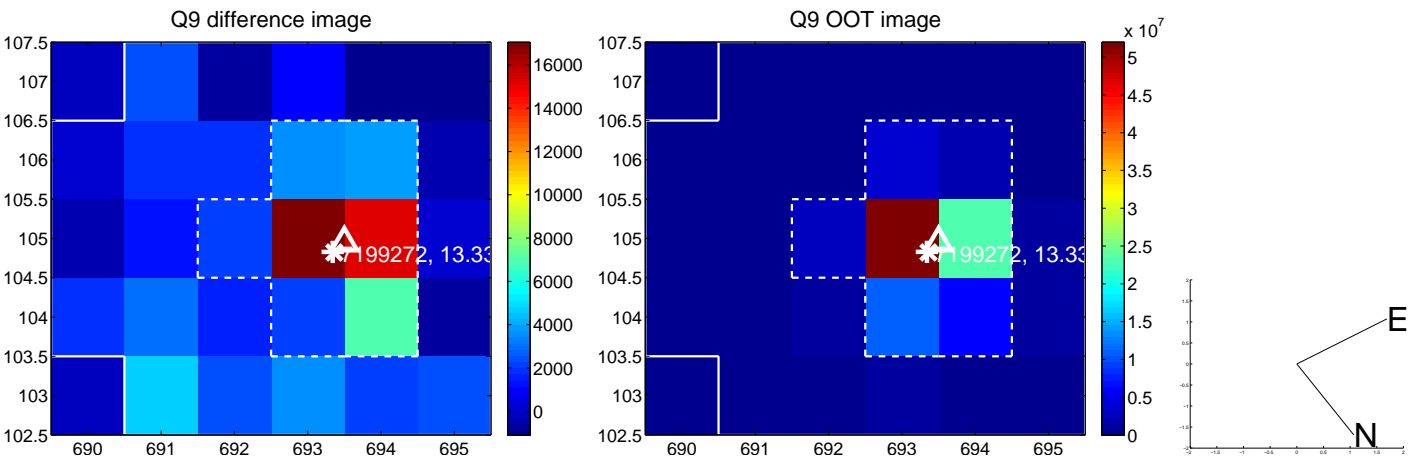
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

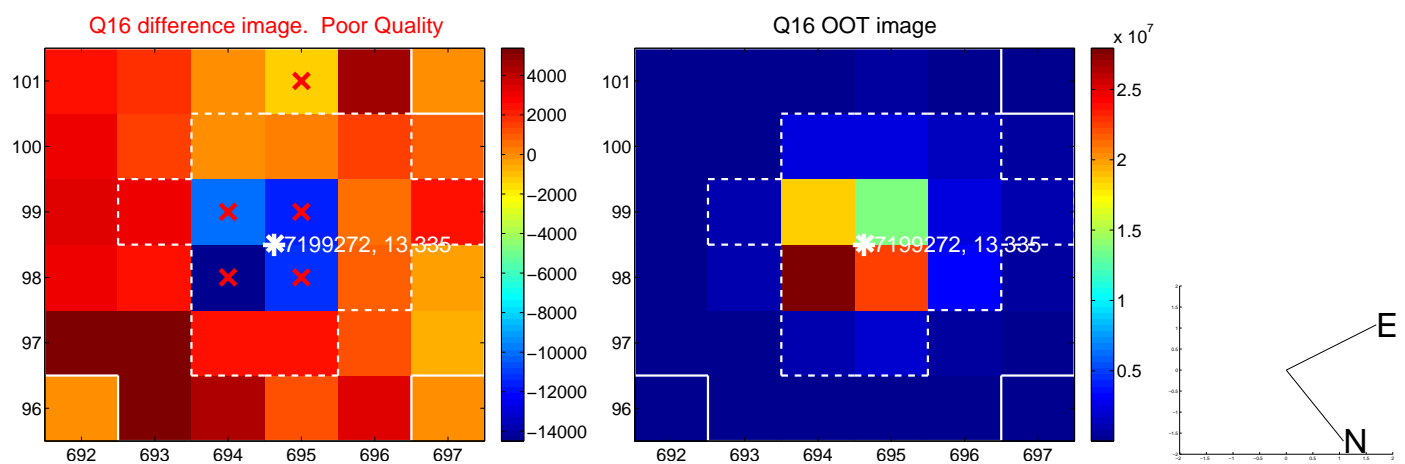
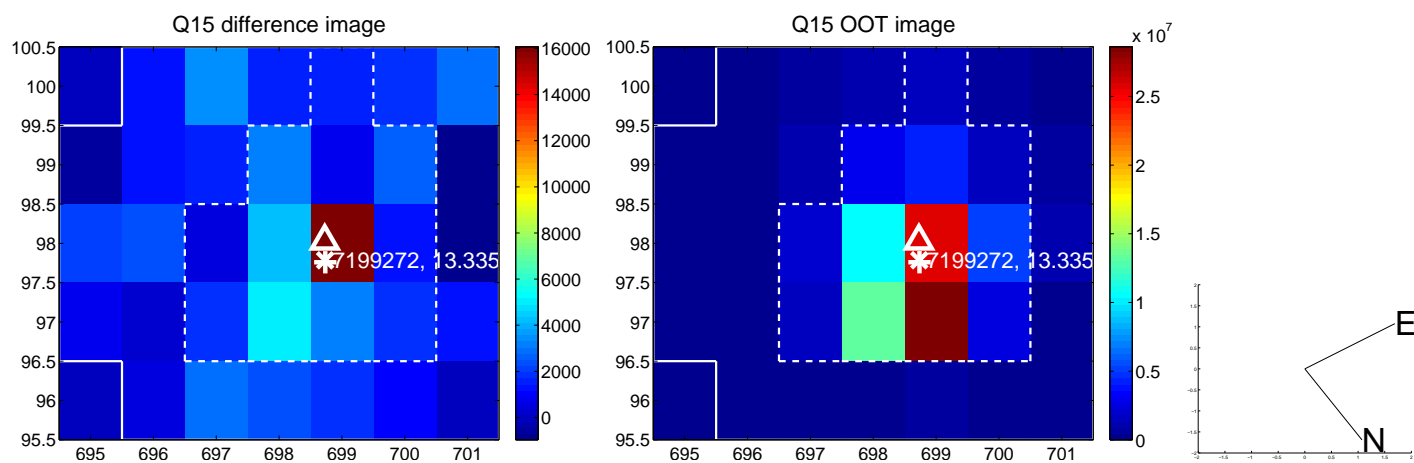
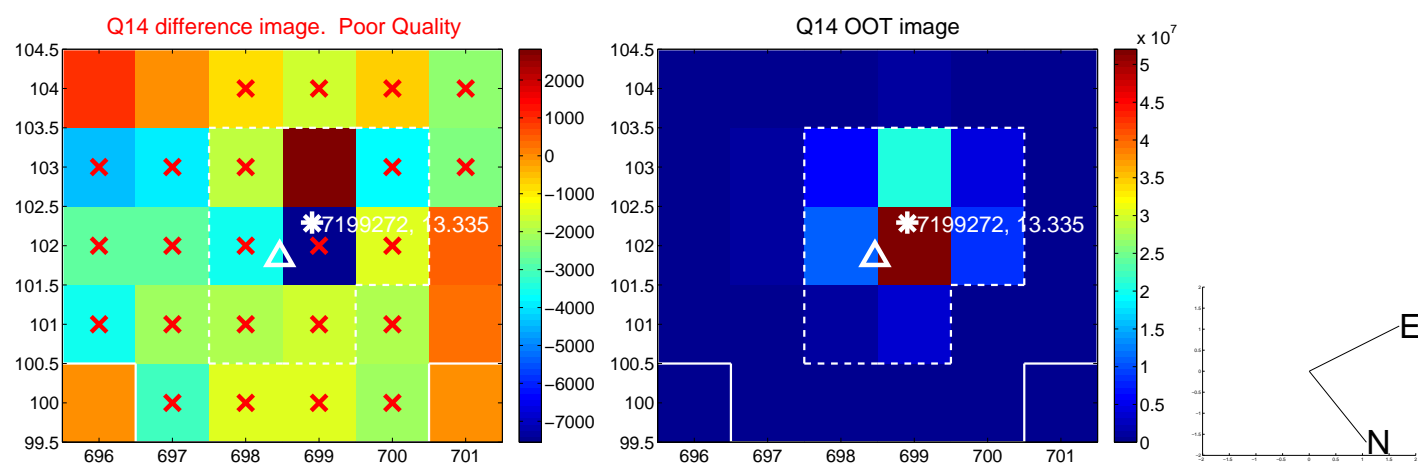
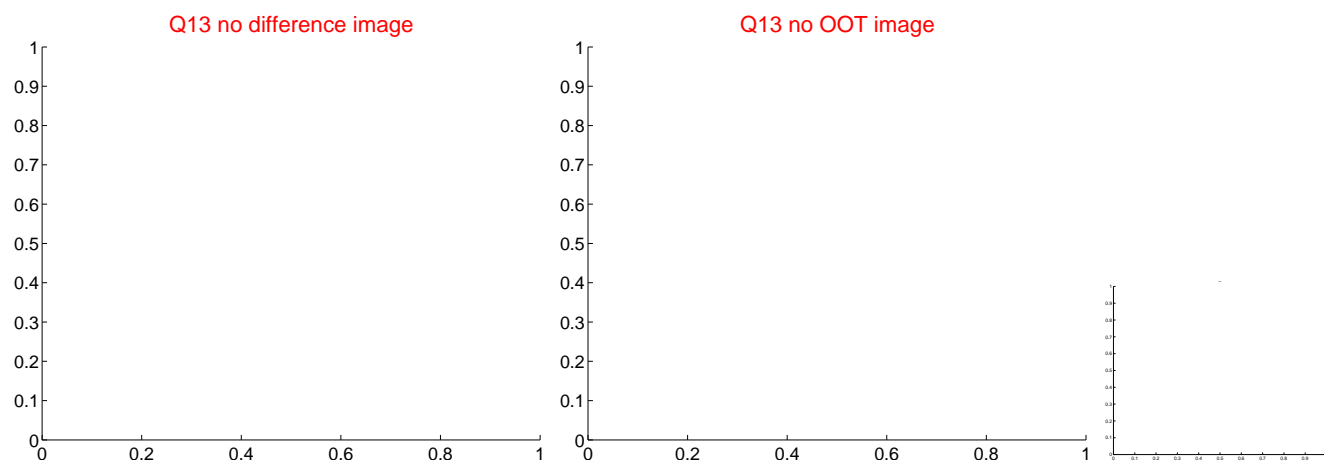


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

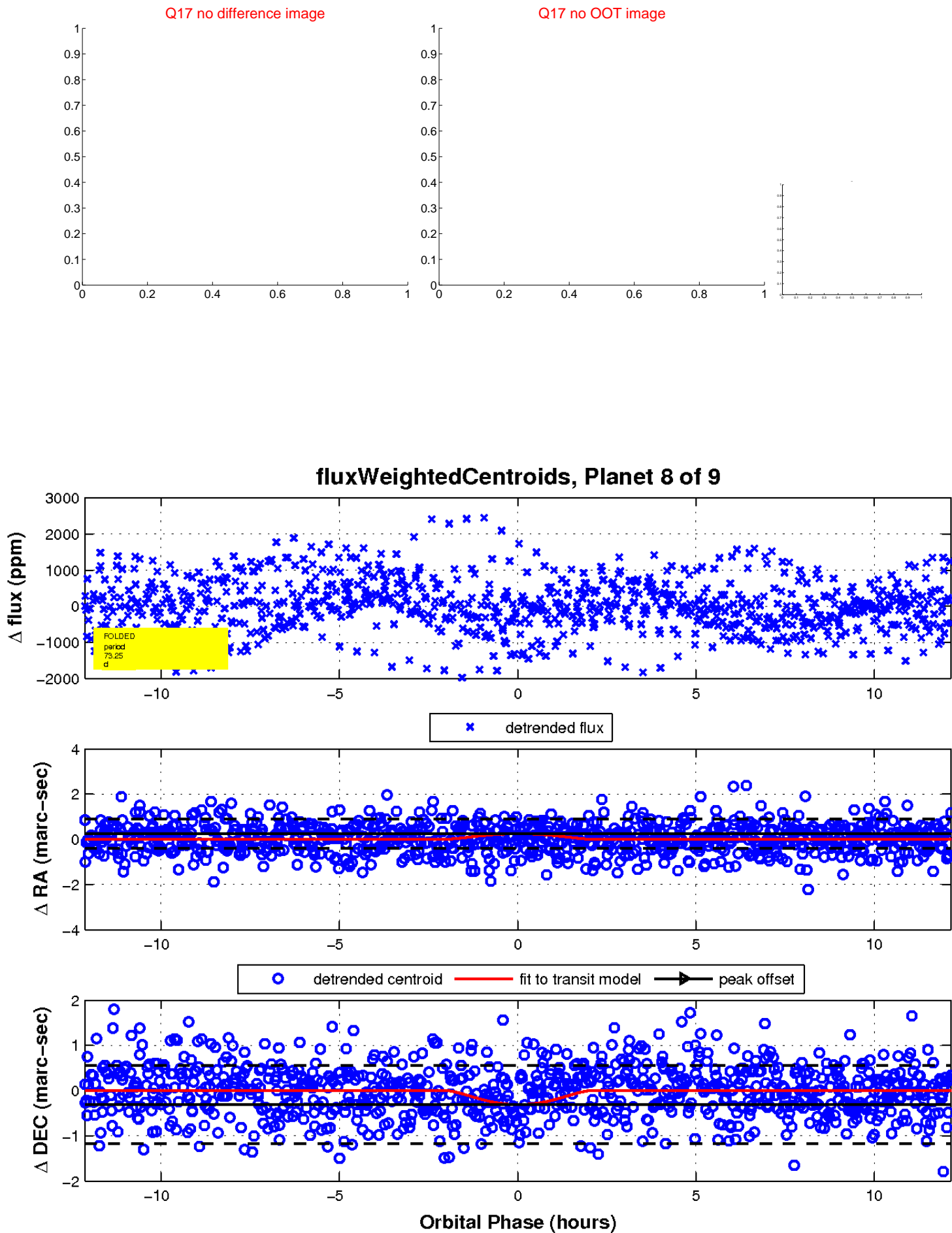




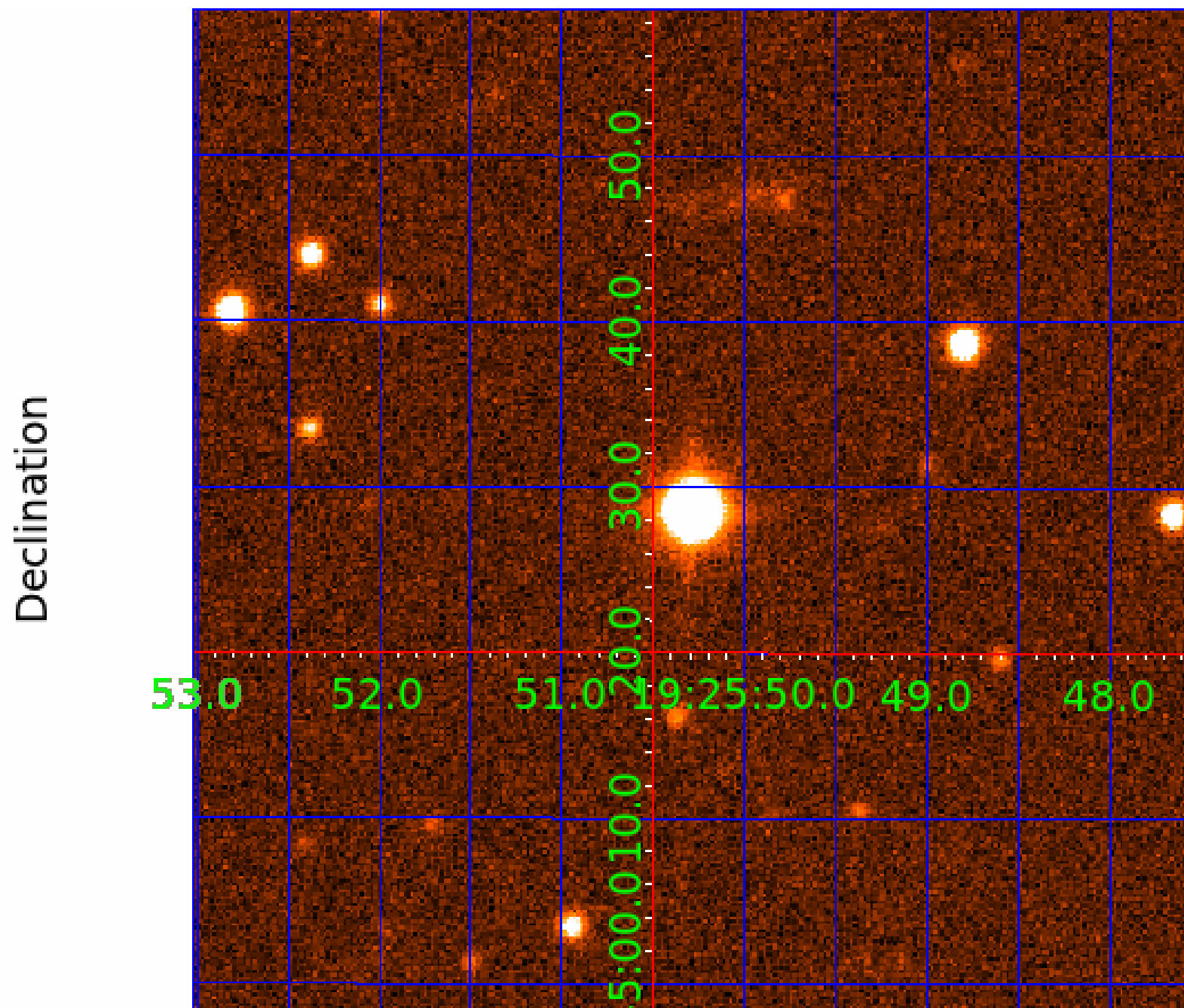
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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



UKIRT Image



# KIC 007199272

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007199272-01	OBS	No	0.566799	131.687562	66.4	3.288	14.4	12.5	19.33	5068	18.86	0.00
007199272-02	OBS	No	109.311739	200.412977	1471.0	2.526	10.9	9.1	19.33	5068	83.02	503.65
007199272-03	OBS	No	142.714559	262.894690	1516.7	5.208	11.5	8.3	19.33	5068	131.51	352.96
007199272-04	OBS	No	357.880851	138.273497	1764.6	10.921	8.3	7.8	19.33	5068	85.84	103.60
007199272-05	OBS	No	141.341629	222.715211	1773.8	8.761	8.3	8.9	19.33	5068	99.97	357.54
007199272-06	OBS	No	117.822367	150.641905	1383.5	3.661	8.4	9.2	19.33	5068	114.38	455.74
007199272-07	OBS	No	184.965238	282.716782	1088.7	6.545	8.5	6.1	19.33	5068	77.61	249.78
007199272-08	OBS	No	73.248202	201.211539	1083.9	4.053	8.3	9.3	19.33	5068	123.64	858.92
007199272-09	OBS	No	140.819093	158.394533	396.7	3.000	8.0	-1.0	19.33	5068	37.74	359.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007199272-01	OBS	FP	0.00	1	0	1	1	LPP_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
007199272-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
007199272-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV
007199272-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
007199272-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
007199272-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007199272-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007199272-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_NOFITS

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

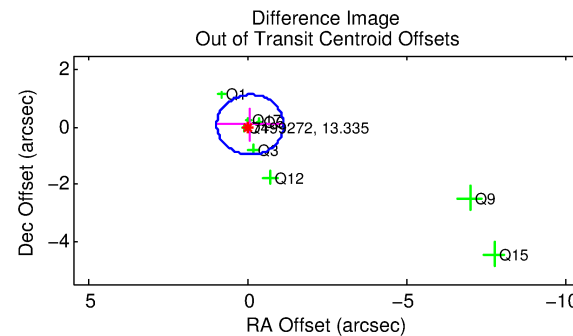
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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 007199272-09

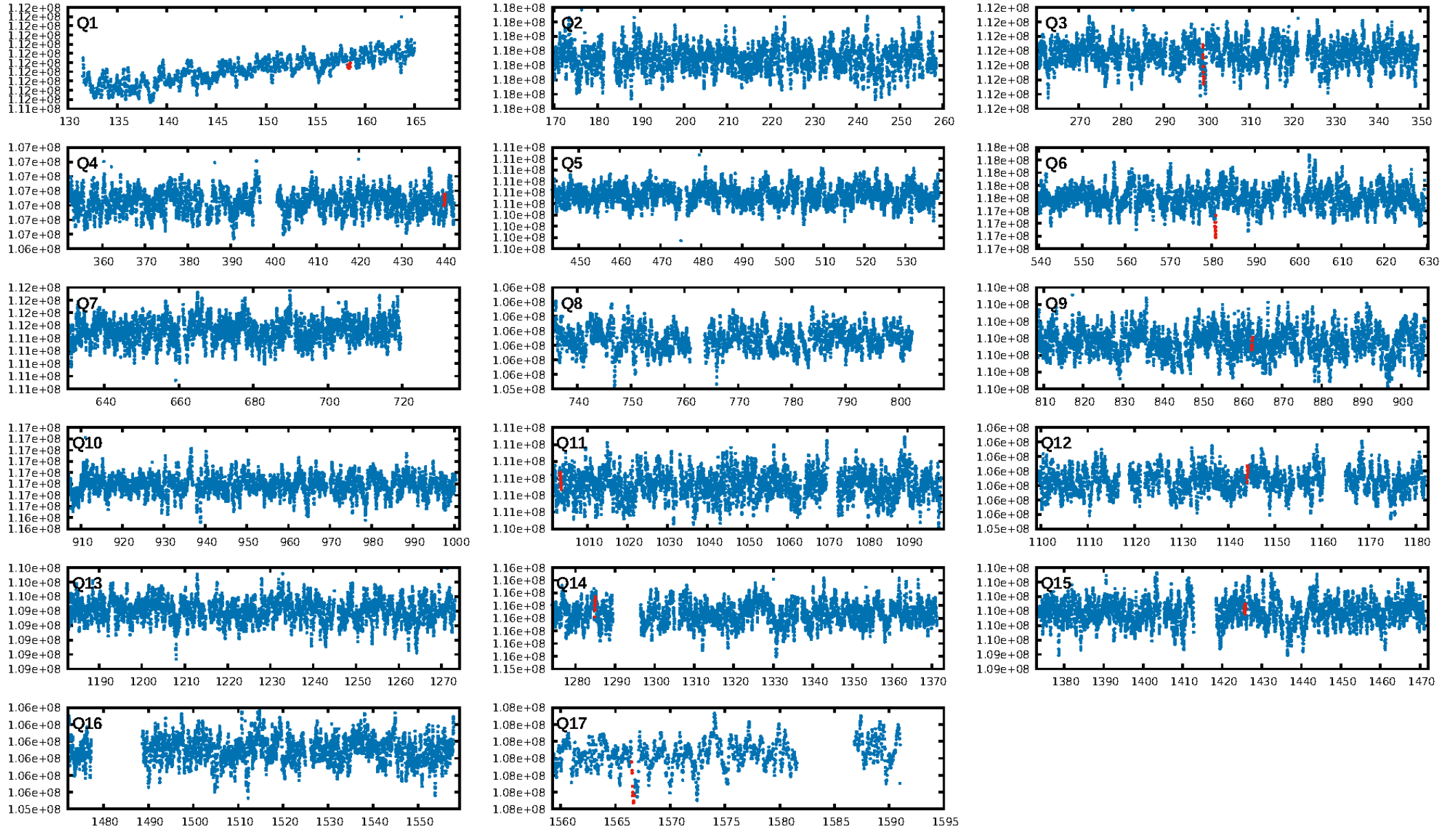
No Significant Match Found

## KIC: 7199272    Candidate: 9 of 9    Period: 140.819 d



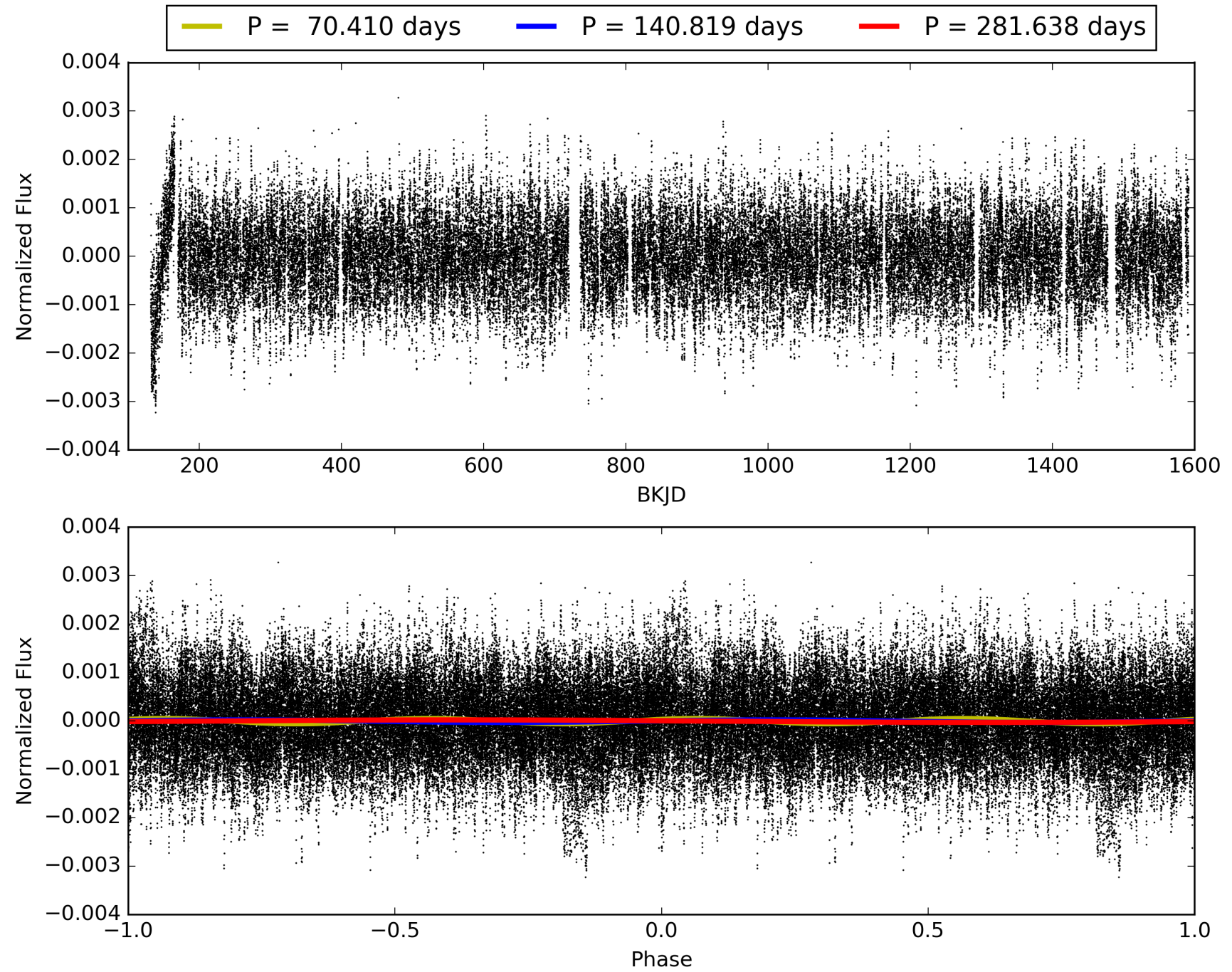
Centroid-sig: 15.4%  
Centroid-so: 0.241 arcsec [1.83σ]  
OotOffset-rm: 0.101 arcsec [0.29σ]  
KicOffset-rm: 0.130 arcsec [0.15σ]  
OotOffset-st: 1/2/2/3 [8]  
KicOffset-st: 1/2/2/3 [8]  
DiffImageQuality-fgm: 0.50 [4/8]  
DiffImageOverlap-fno: 0.00 [0/10]

# TCE 007199272-09, PDC Light Curves



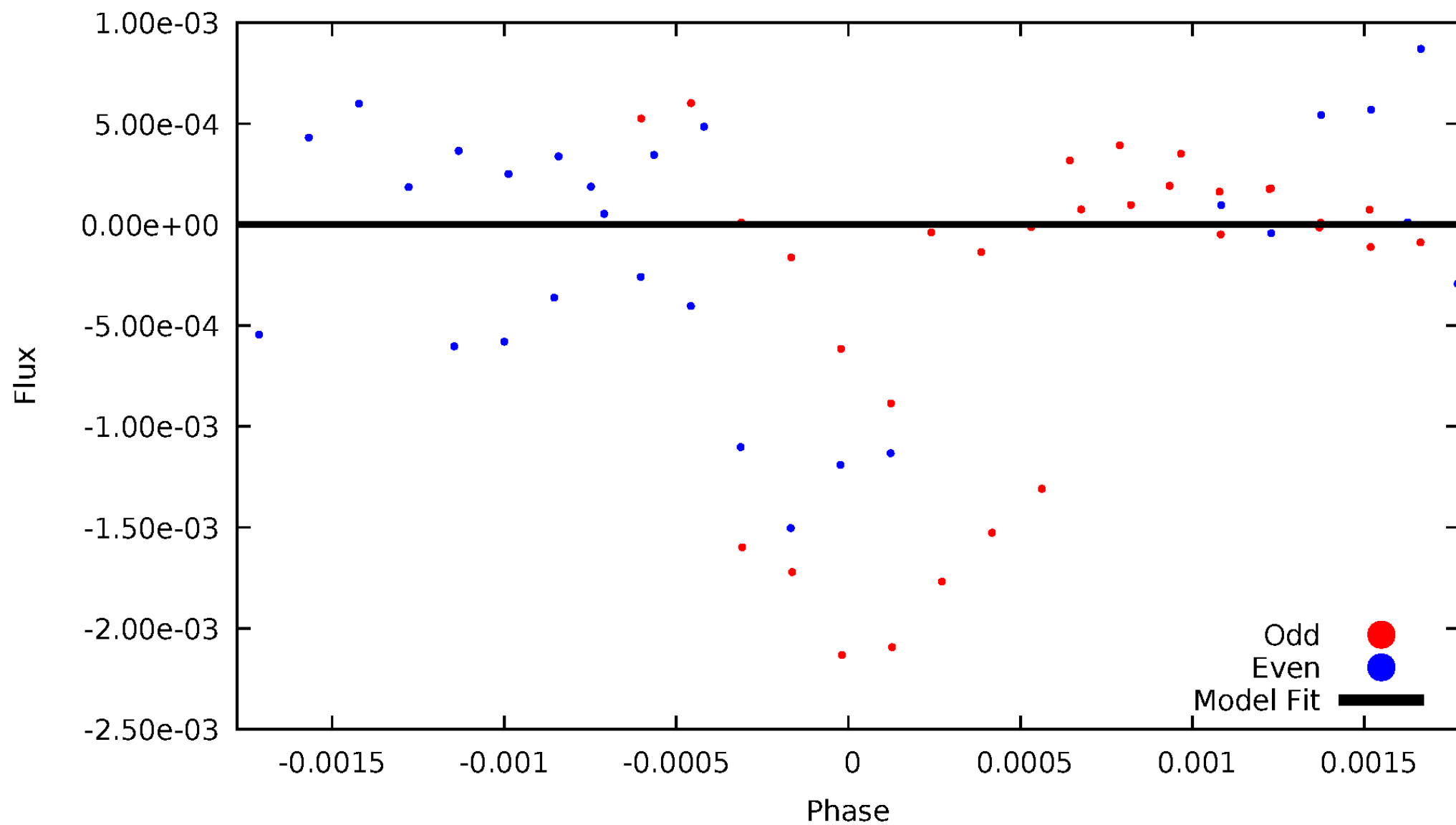


# TCE 007199272-09



# DV Odd/Even

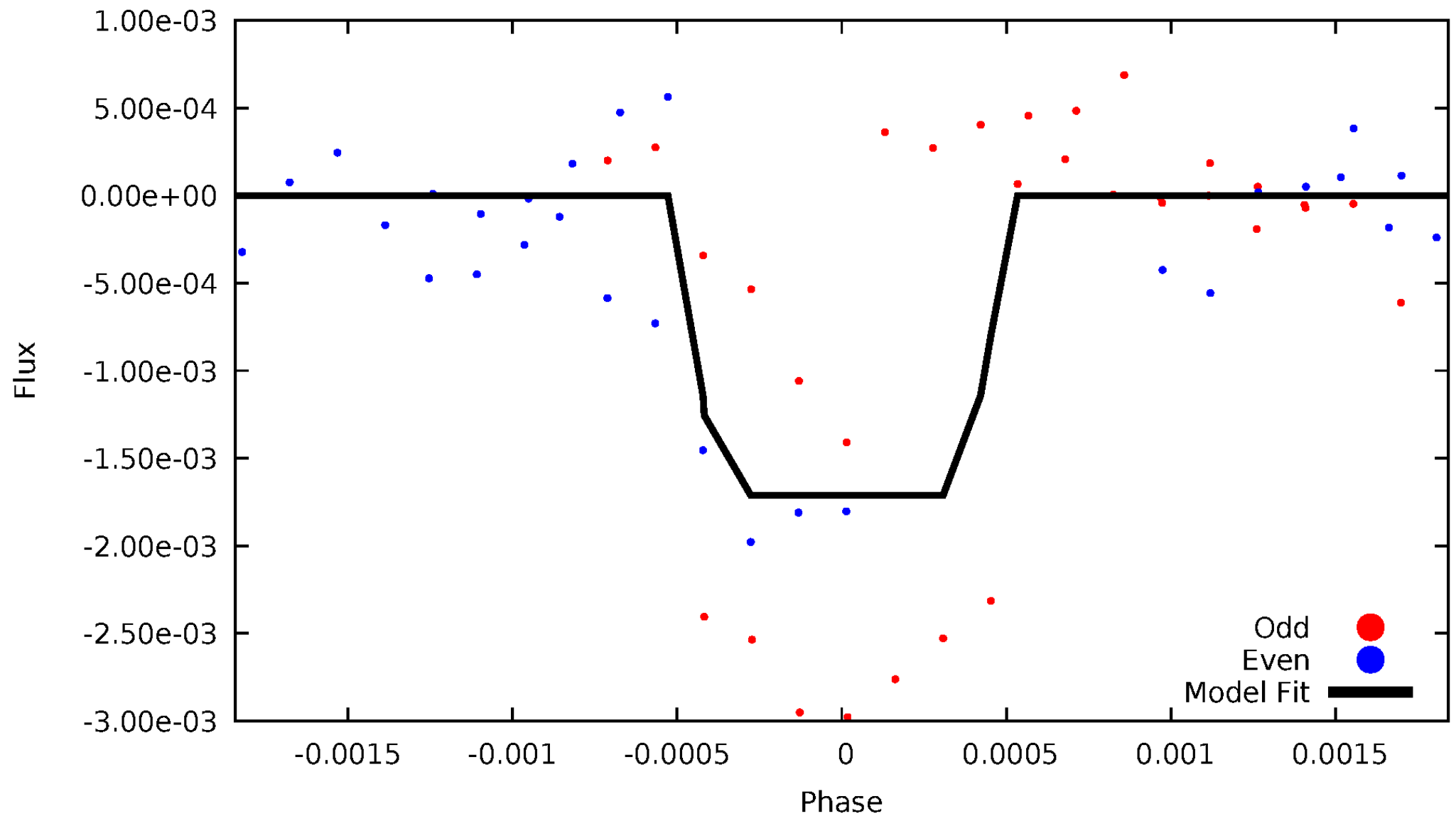
TCE 007199272-09





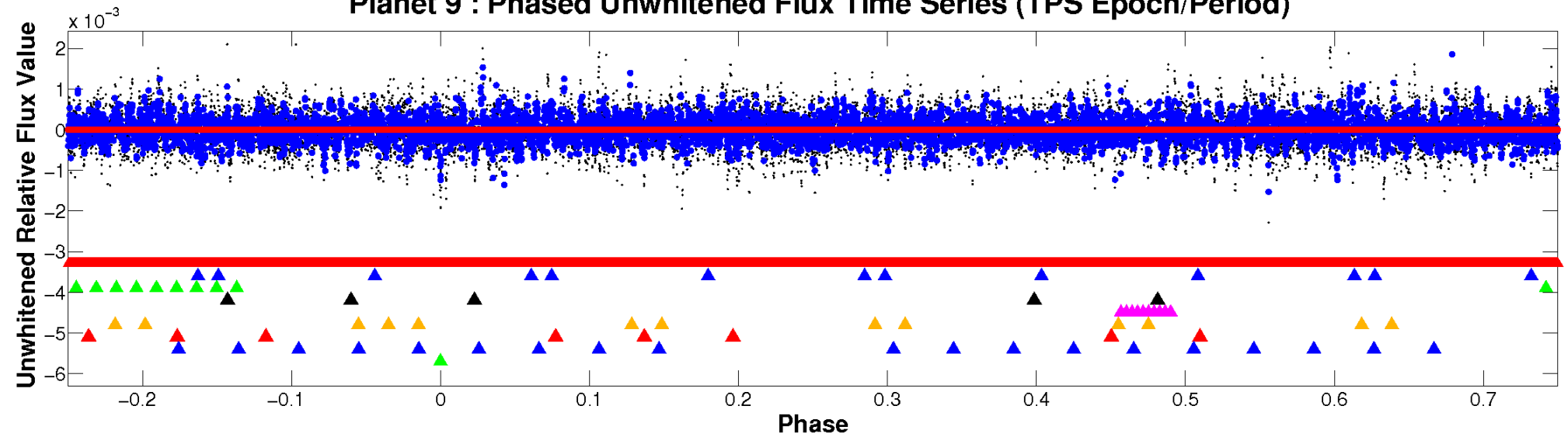
# ALT Odd/Even

TCE 007199272-09

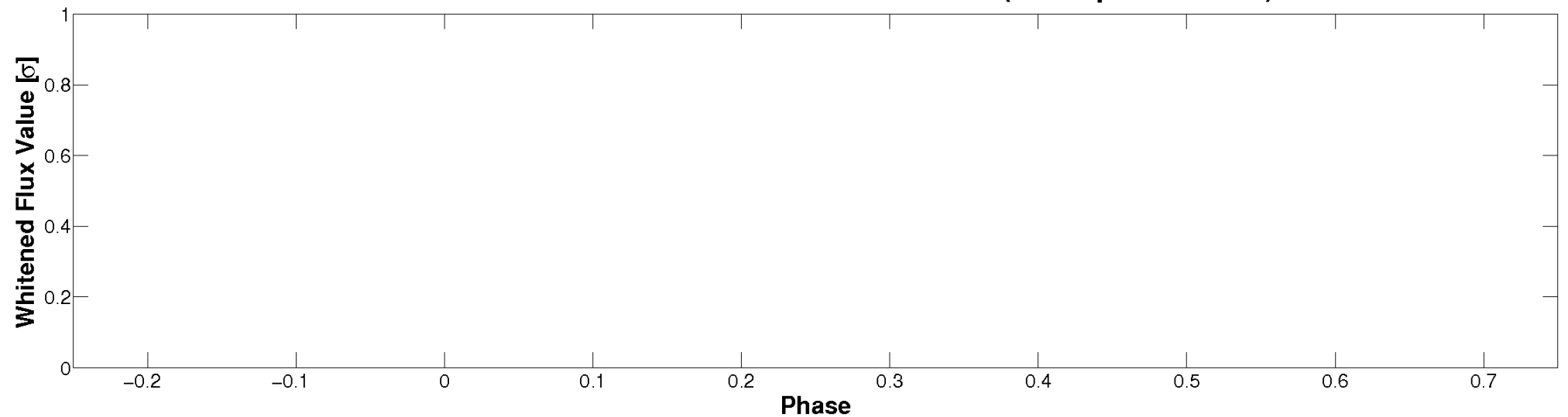


# Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

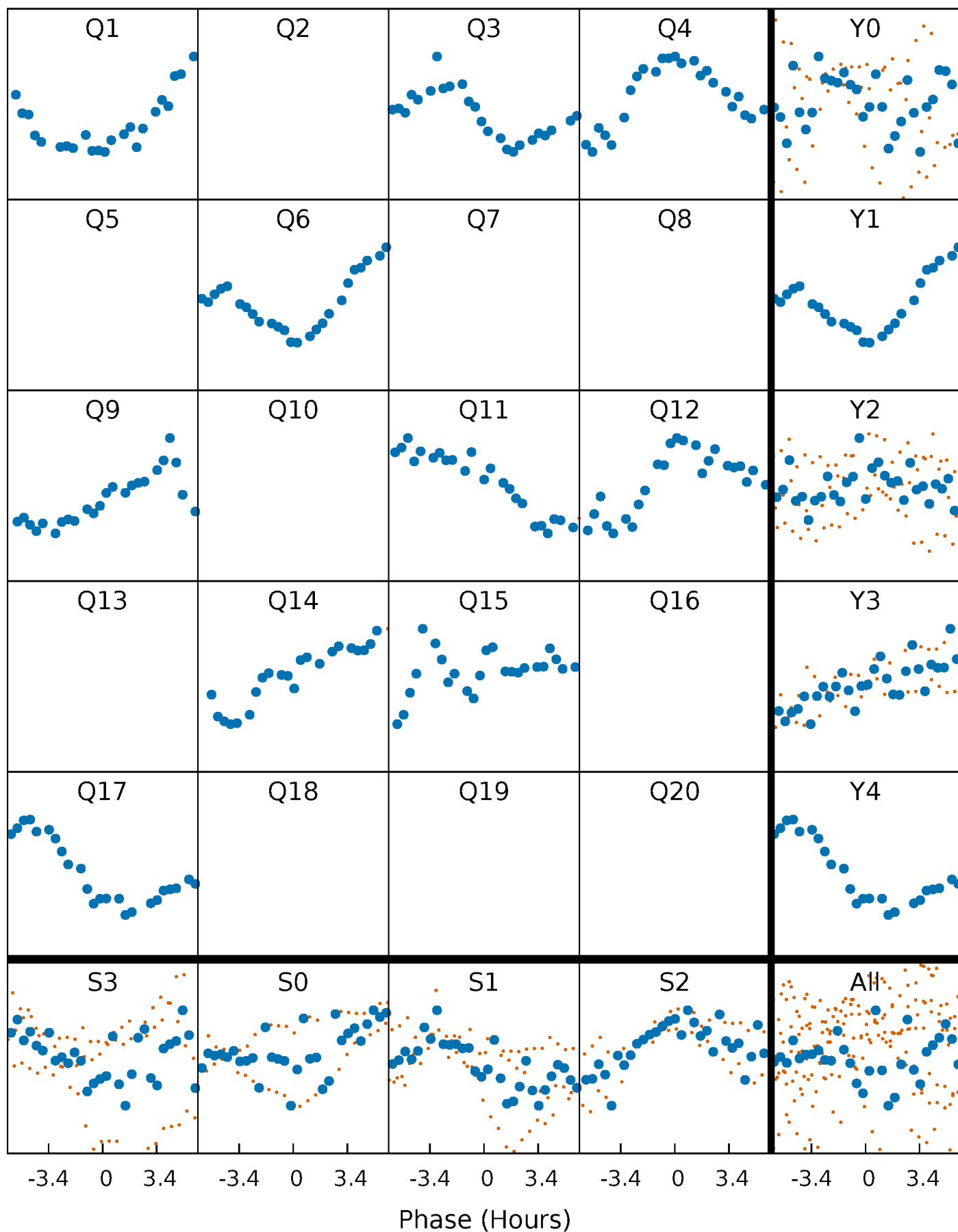


Planet 9 : Phased Whitened Flux Time Series (TPS Epoch/Period)



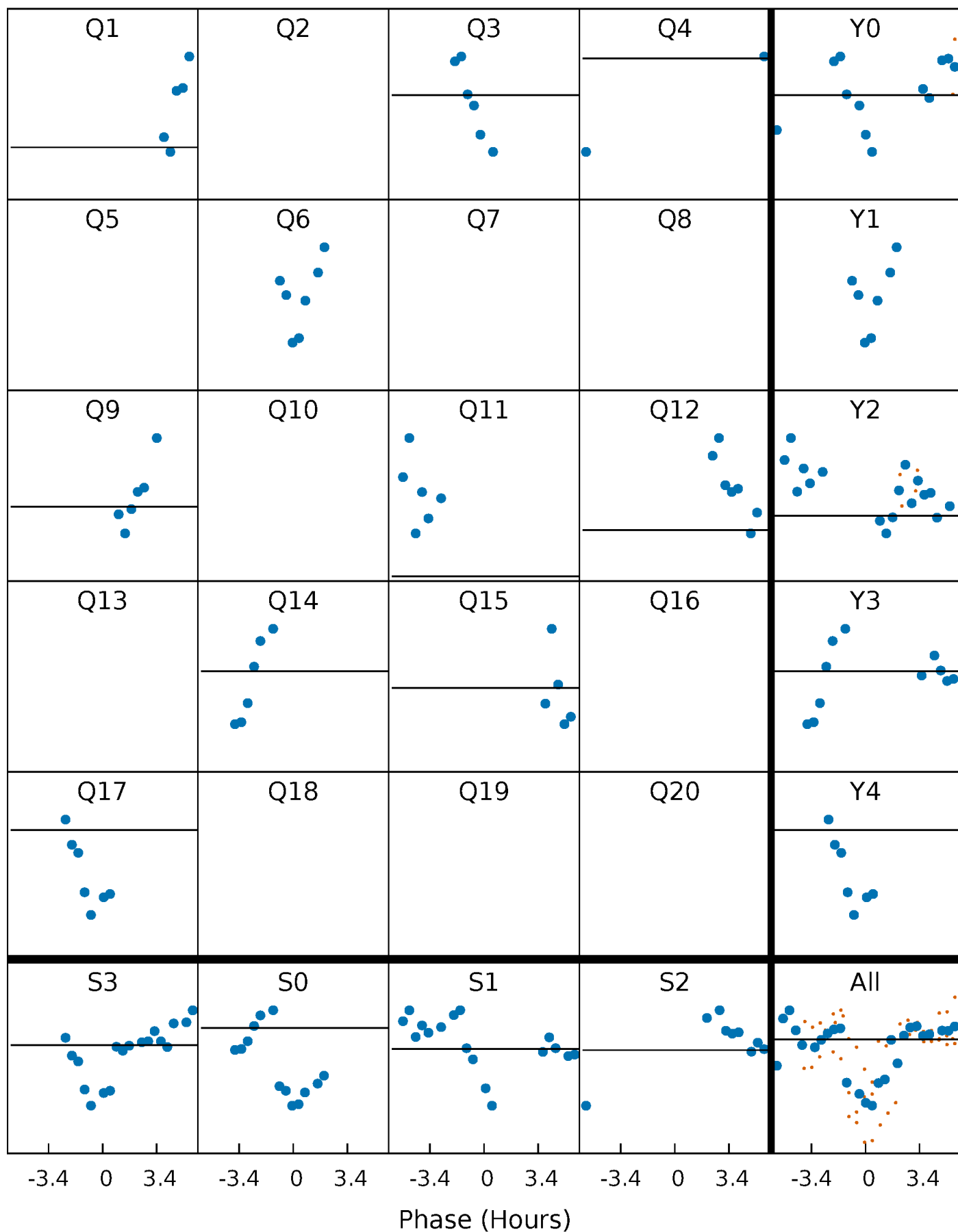
# PDC Quarter-Phased Transit Curves

TCE 007199272-09 P=140.819093 Days  $T_0=158.394533$  (BKJD)



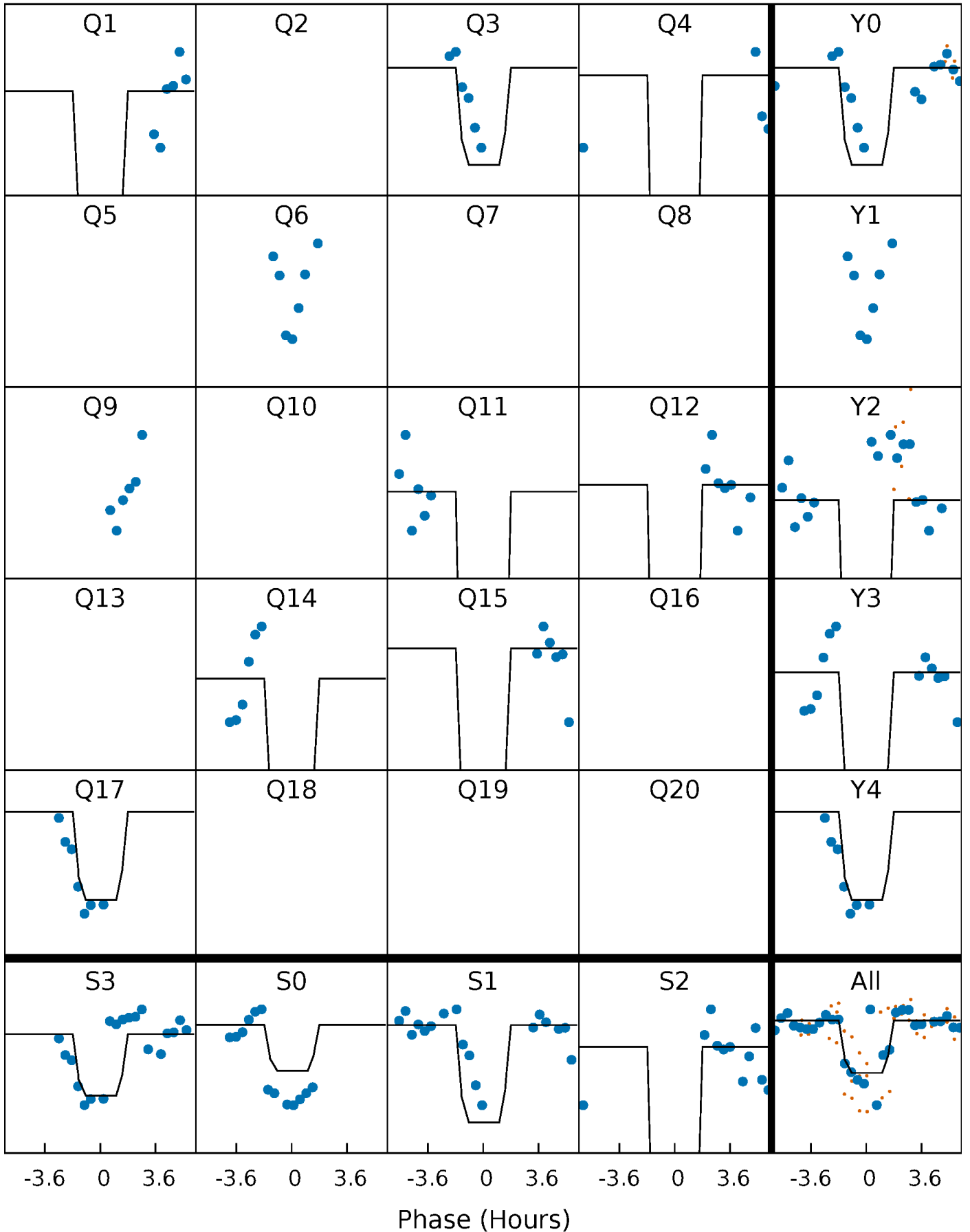
# DV Quarter-Phased Transit Curves

TCE 007199272-09 P=140.819093 Days  $T_0=158.394533$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

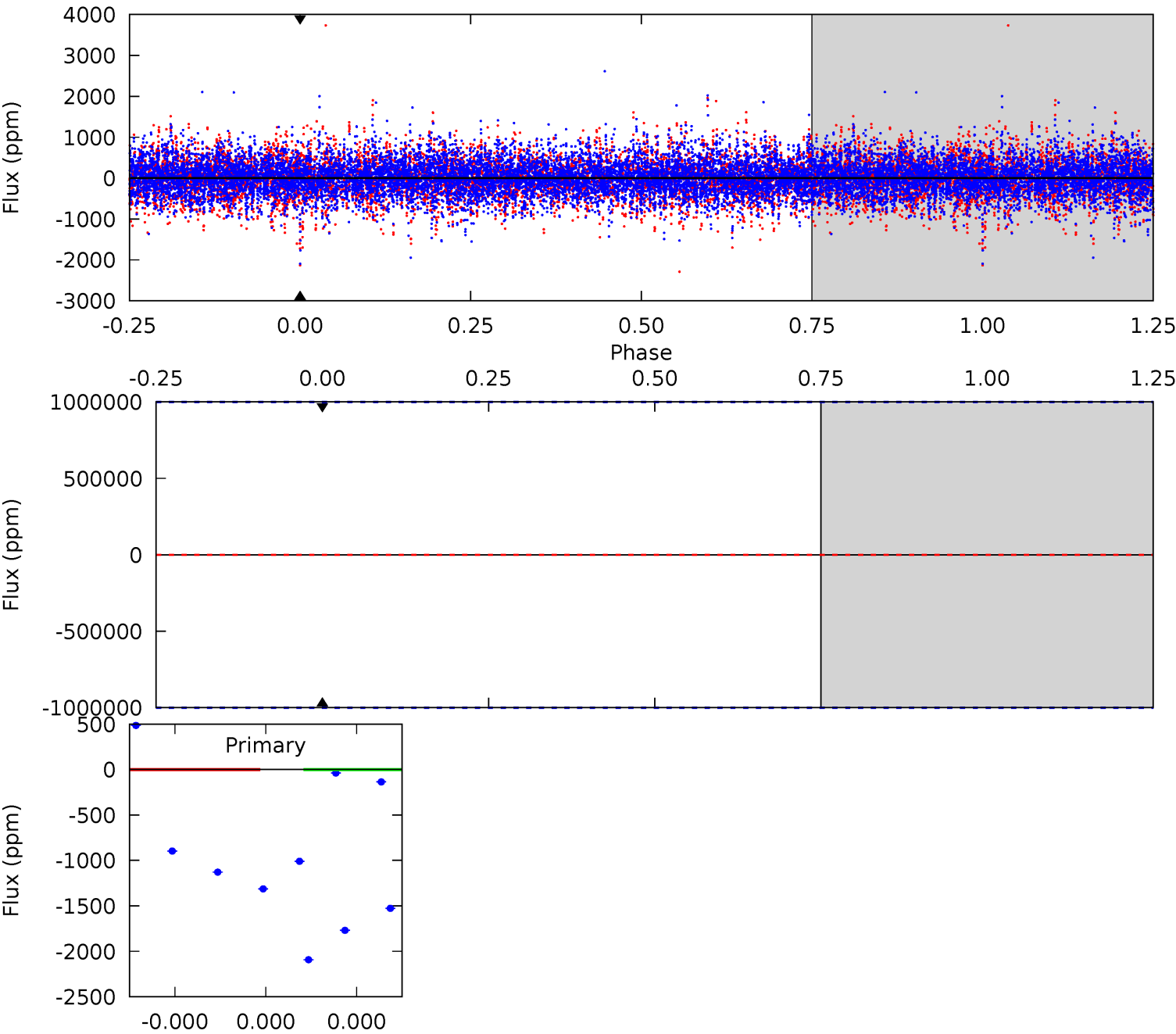
TCE 007199272-09 P=140.819093 Days  $T_0=158.409859$  (BKJD)



# DV Model-Shift Uniqueness Test

007199272-09, P = 140.819093 Days, E = 17.575440 Days

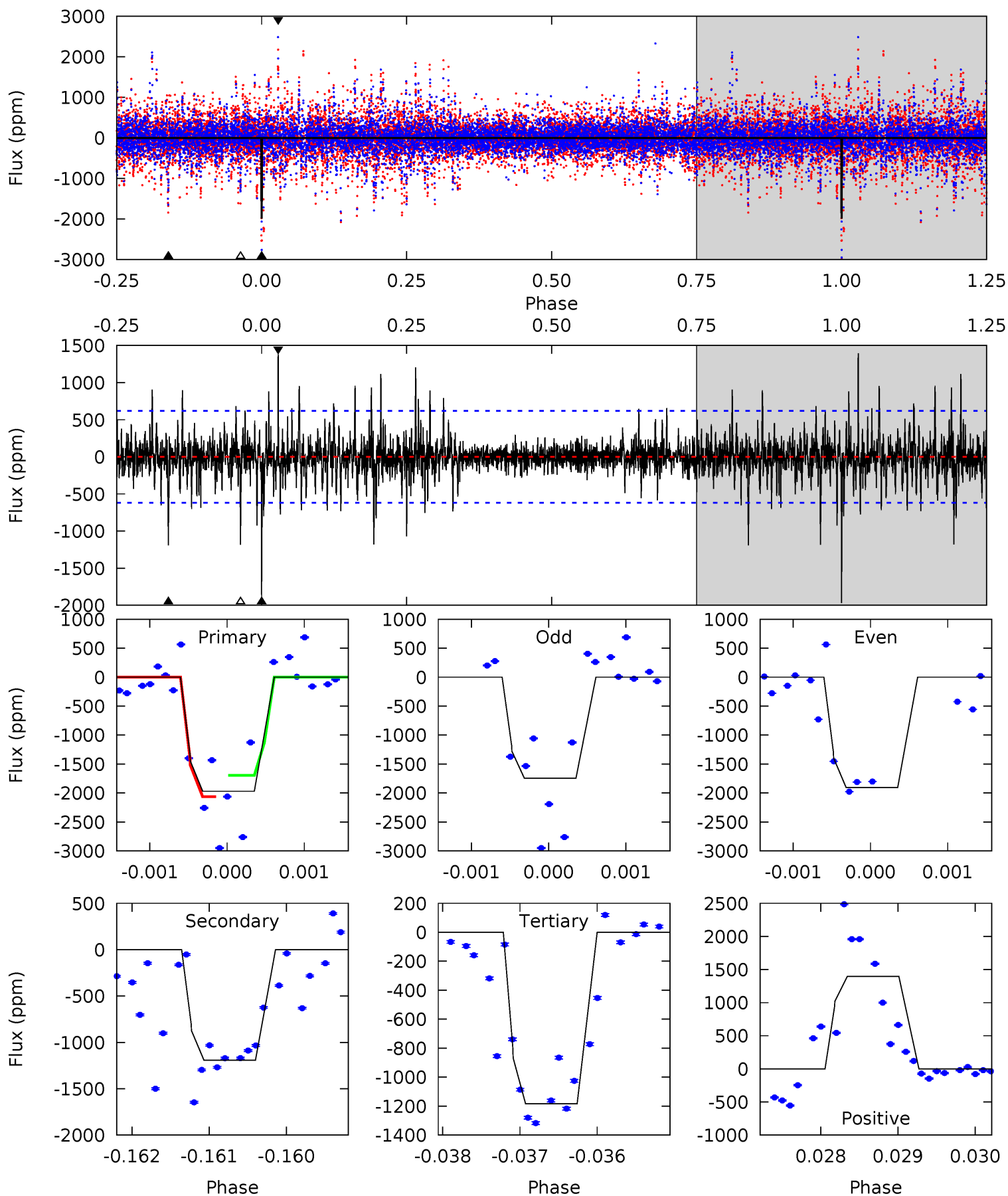
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

007199272-09, P = 140.819093 Days, E = 17.590766 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
17.4	10.5	10.5	12.3	5.48	3.33	1.77	6.96	5.09	0.07	-1.80	0.69	0.94	0.41	1.69



### Stellar Parameters For KIC 007199272

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5068^{+61}_{-305}$	$2.376^{+0.030}_{-0.027}$	$-0.500^{+0.150}_{-0.250}$	$19.327^{+0.853}_{-7.676}$	$3.241^{+0.244}_{-2.077}$	$0.001^{+0.000}_{-0.000}$
	+1%/-6%	+1%/-1%	+30%/-50%	+4%/-40%	+8%/-64%	+69%/-9%
Source	PHO1	AST9	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 007199272-09 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$153.42^{+168.88}_{-106.66}$	$1540^{+39}_{-94}$	$3618^{+13200}_{-17728}$	$12^{+3173}_{-2255}$
Alt.	$-1192 \pm 113$	$177.63^{+165.92}_{-116.81}$	$1548^{+30}_{-89}$	$3585^{+1884}_{-707}$	$13^{+96}_{-10}$

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



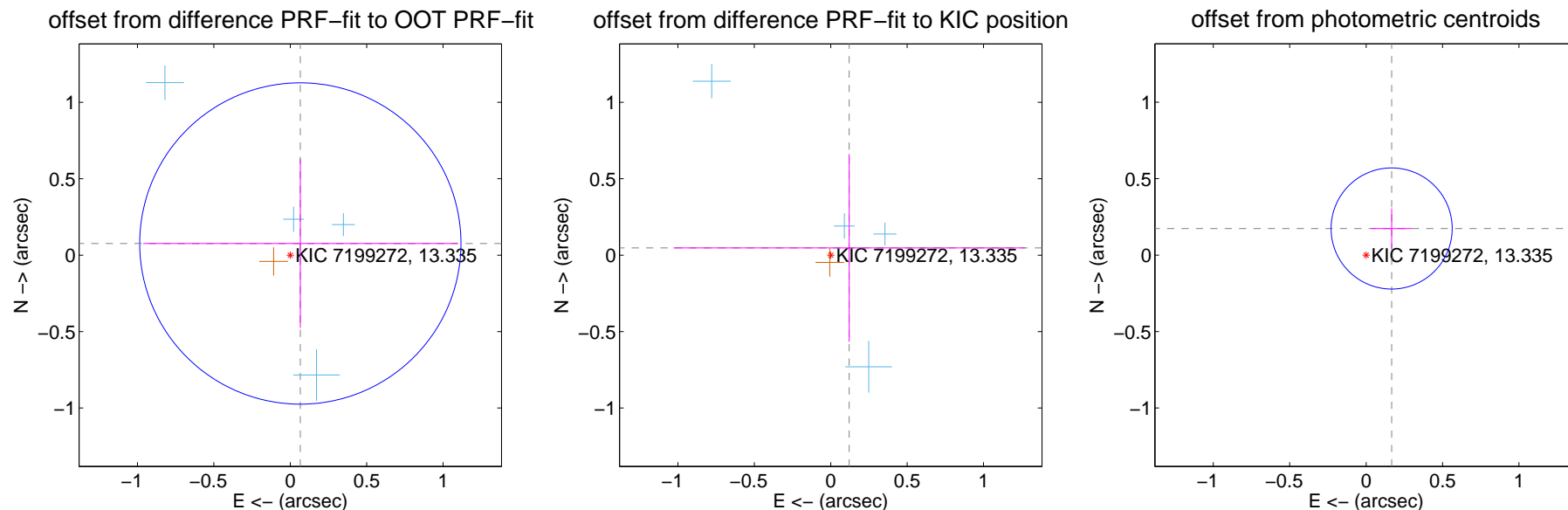
## DV Centroid Data

Supplemental centroid analysis for 007199272-09. Kepler magnitude: 13.34. Transit SNR -1.00

There are 4 quarters with good PRF difference image offsets

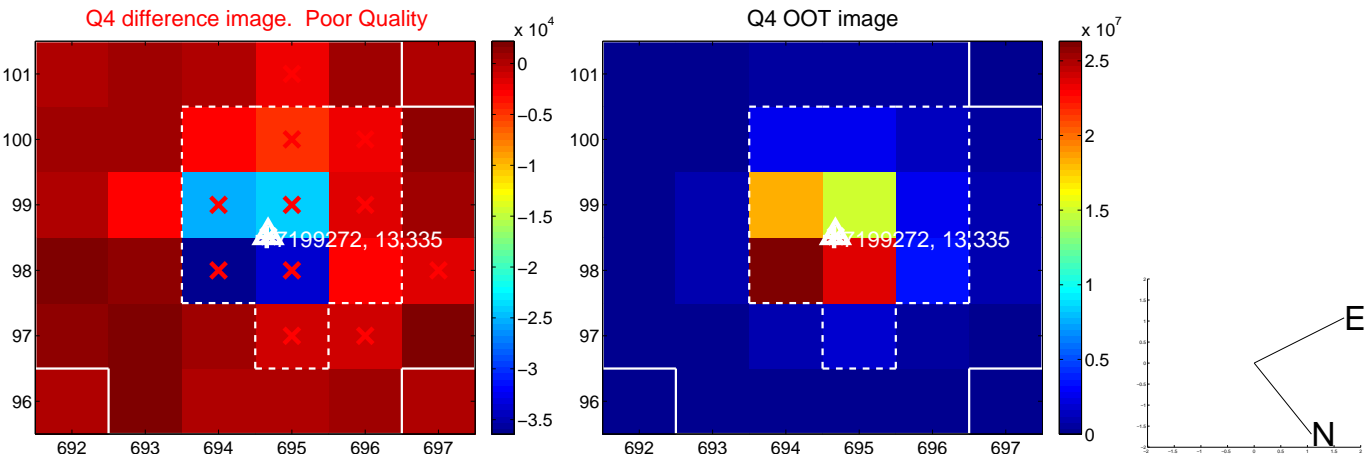
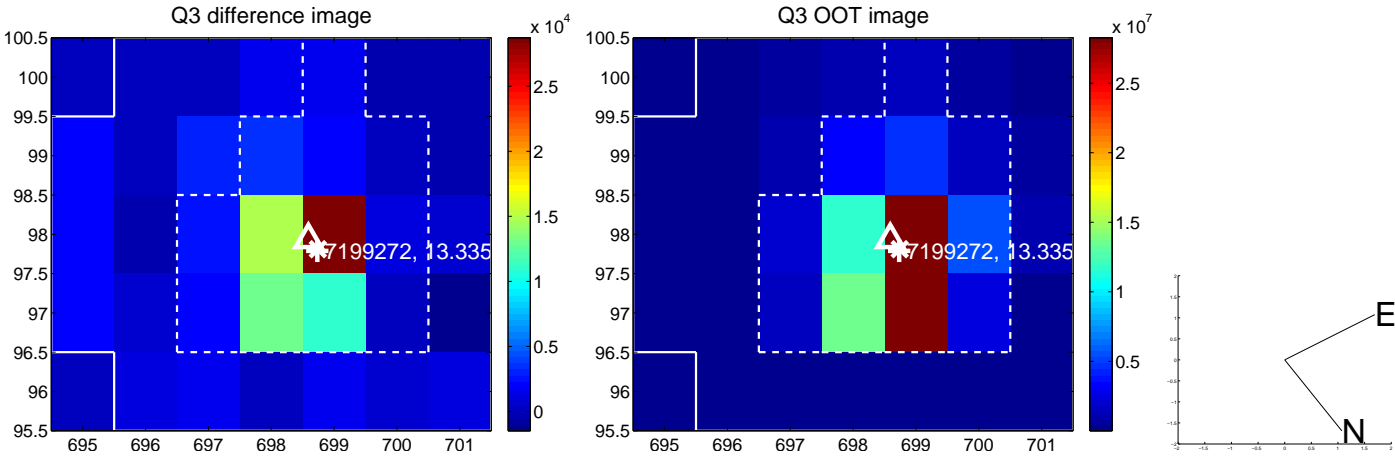
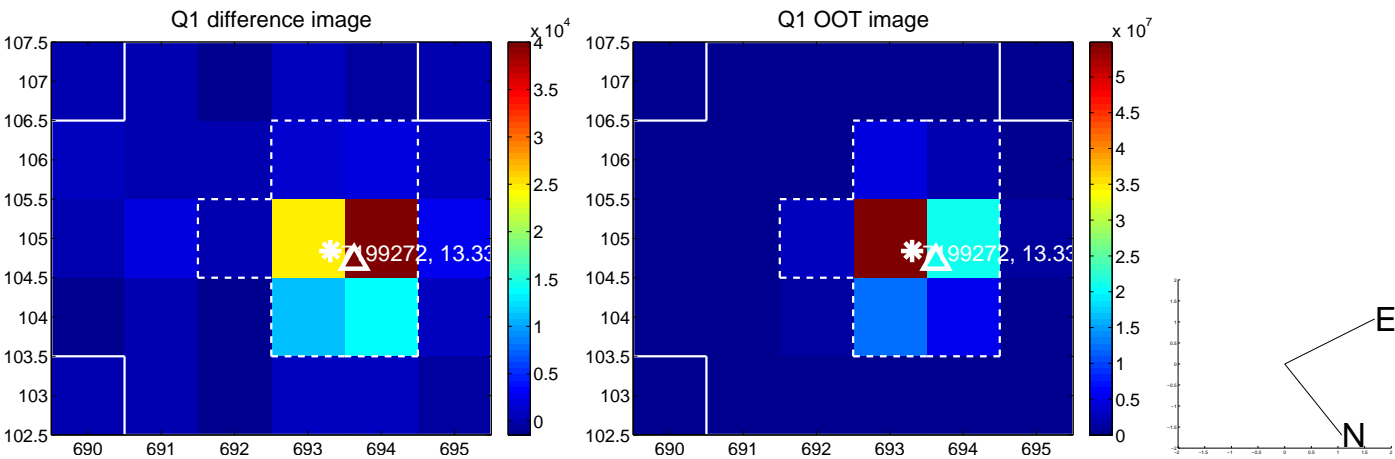
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.101 \pm 0.350$	0.29	$-0.066 \pm 1.028$	$0.076 \pm 0.552$
PRF-fit source offset from KIC position	$0.130 \pm 0.871$	0.15	$-0.121 \pm 1.150$	$0.047 \pm 0.614$
photometric centroid source offset	$0.24 \pm 0.13$	1.83	$-0.17 \pm 0.13$	$0.17 \pm 0.13$



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.

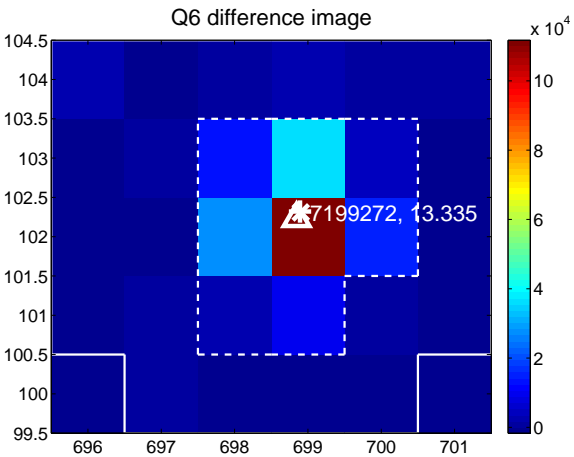
Q5 no difference image



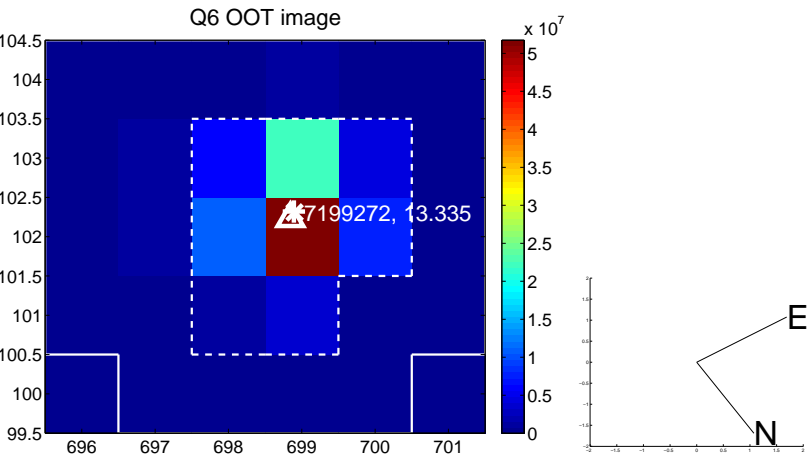
Q5 no OOT image



Q6 difference image



Q6 OOT image



Q7 no difference image



Q7 no OOT image



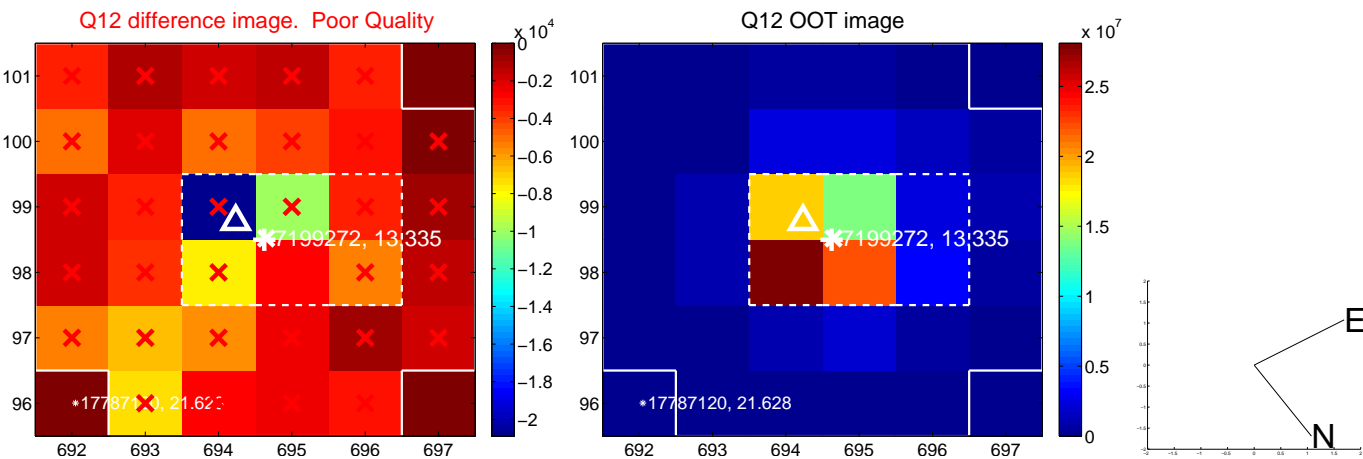
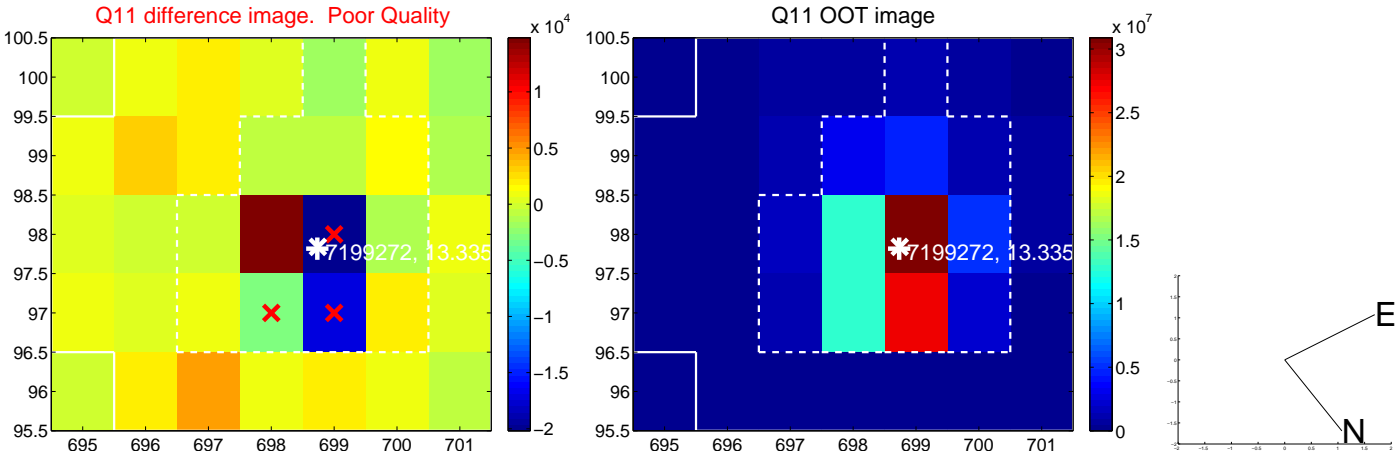
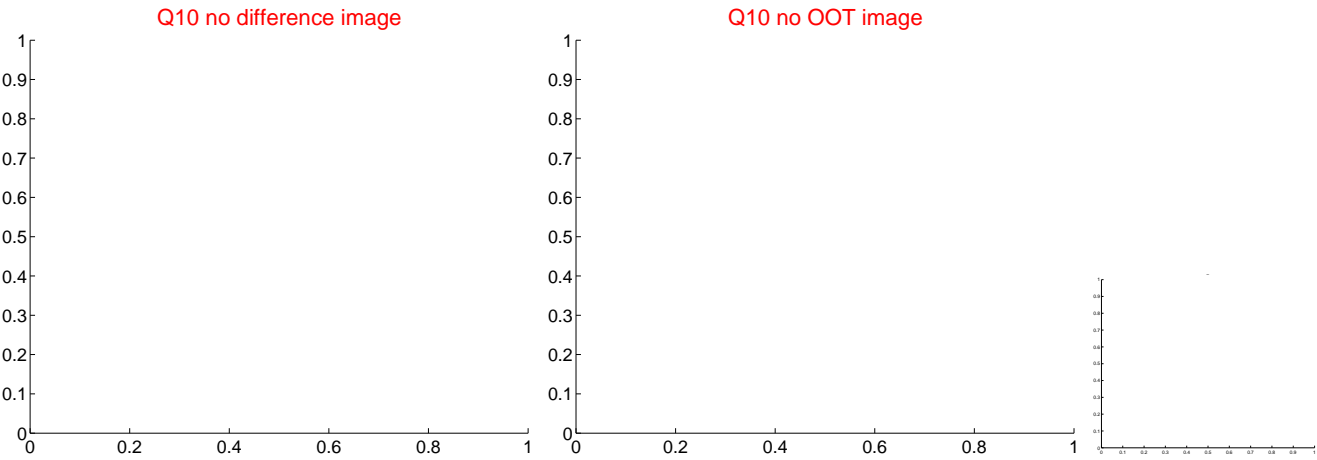
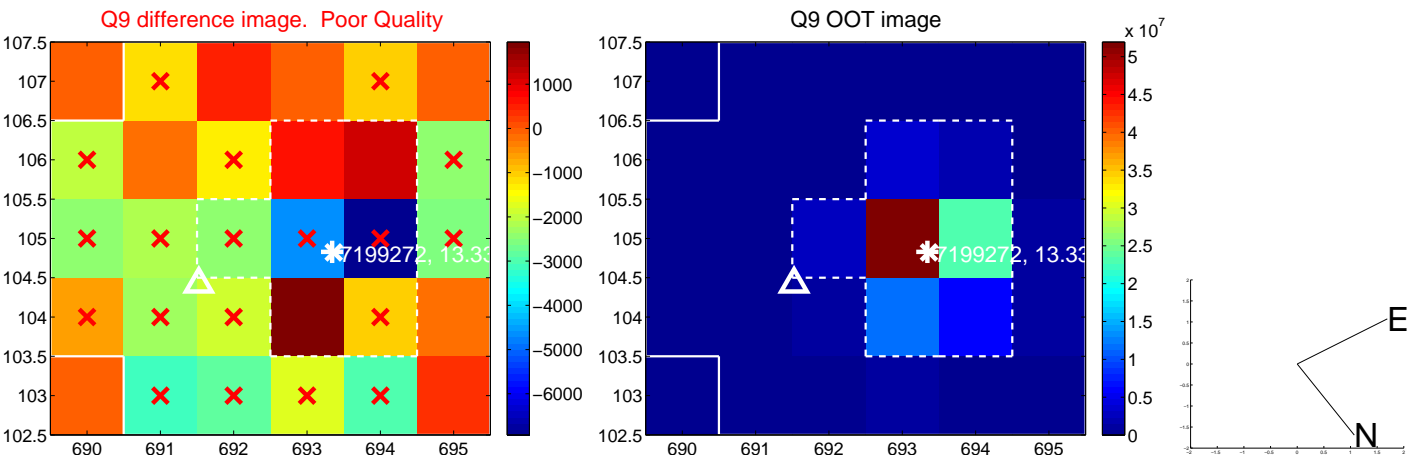
Q8 no difference image



Q8 no OOT image



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.

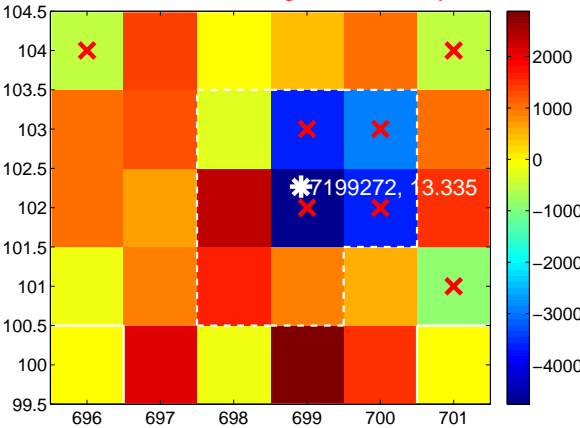
Q13 no difference image



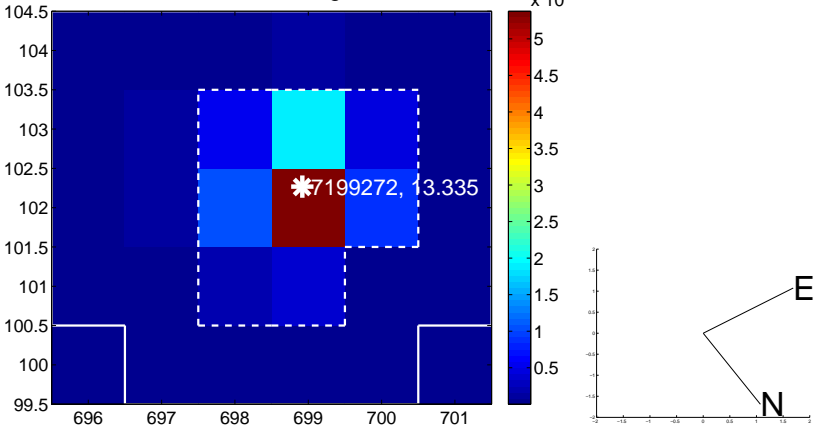
Q13 no OOT image



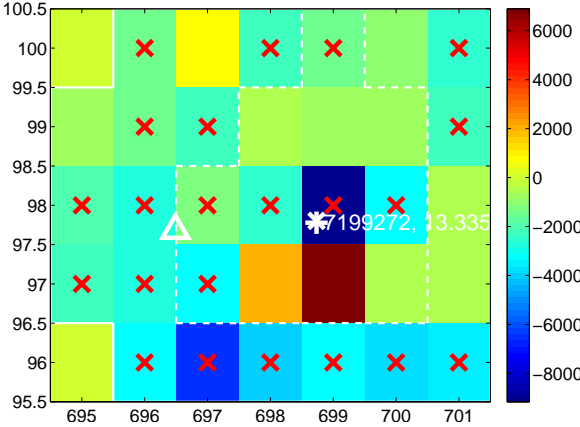
Q14 difference image. Poor Quality



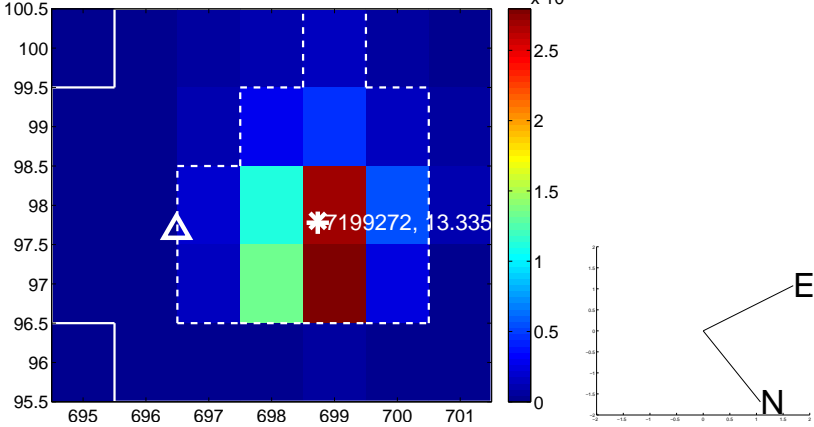
Q14 OOT image



Q15 difference image. Poor Quality



Q15 OOT image



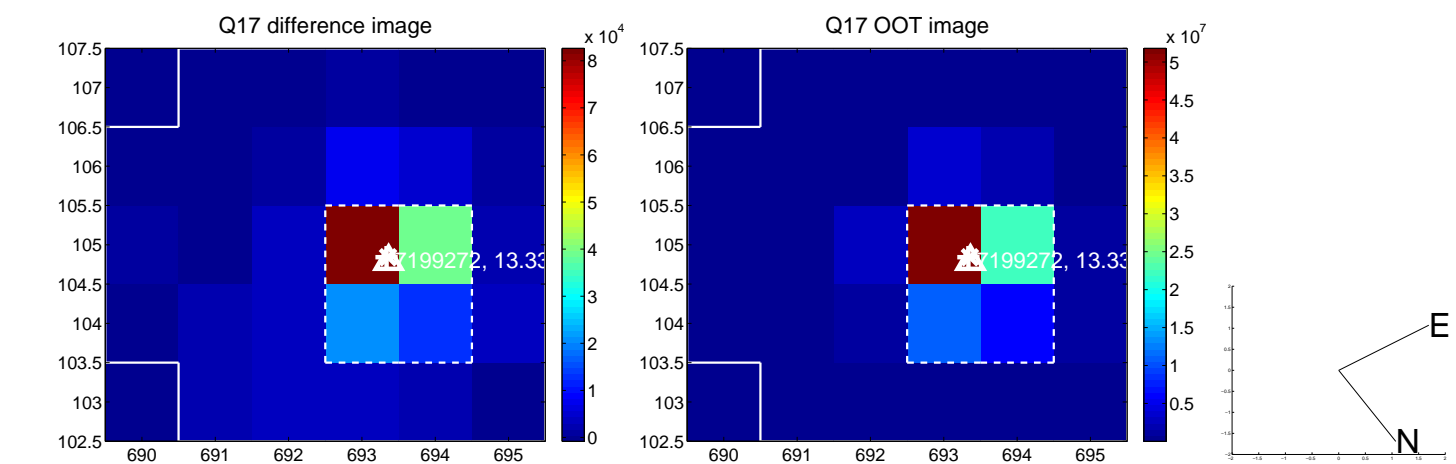
Q16 no difference image



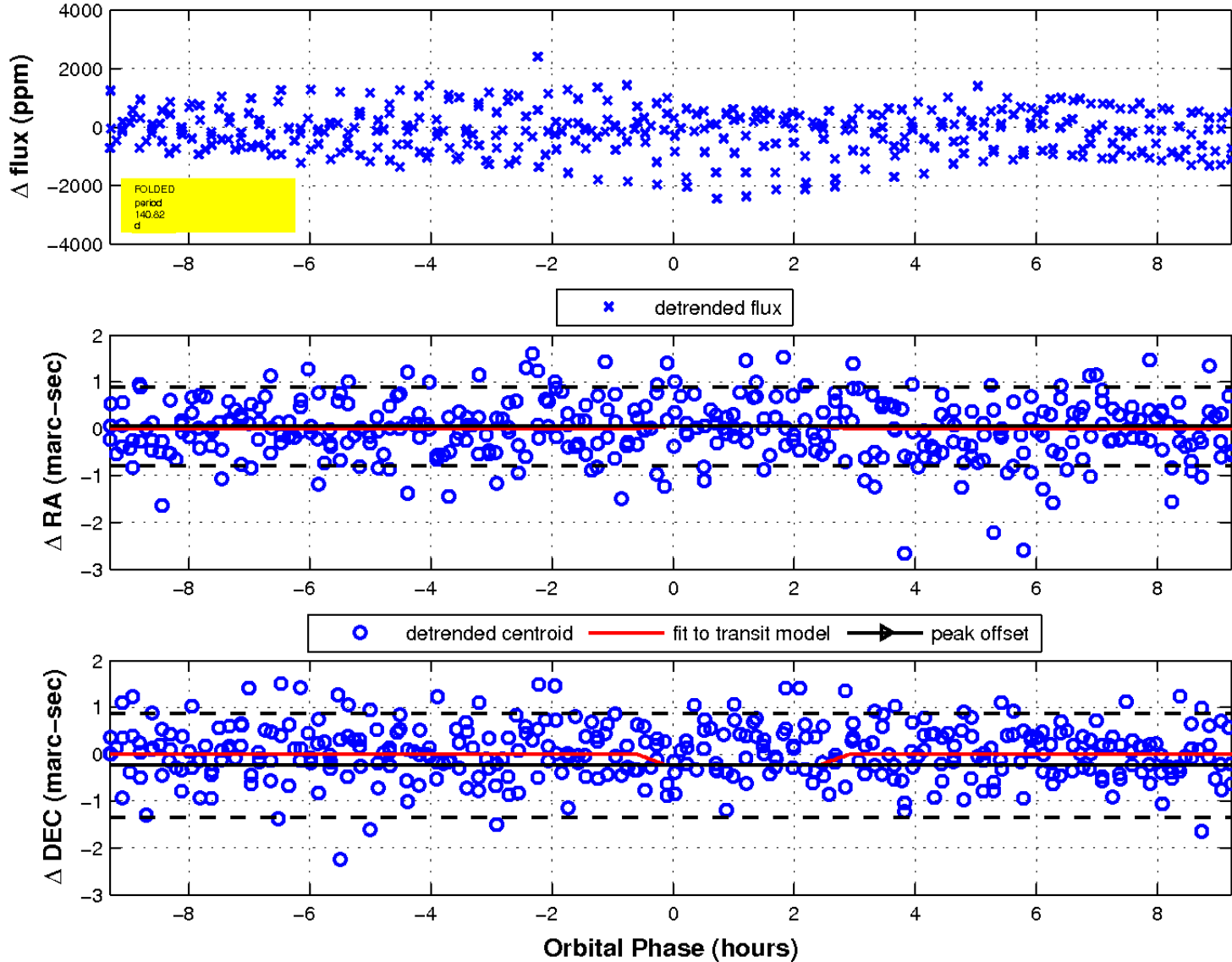
Q16 no OOT image



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



### fluxWeightedCentroids, Planet 9 of 9



UKIRT Image

