

# KIC 003660392

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003660392-01	OBS	No	2.651865	133.846988	30.1	11.002	10.6	8.6	3.92	6550	2.20	12822.76
003660392-02	OBS	No	2.651830	132.397389	36.9	9.980	11.3	13.3	3.92	6550	2.79	12823.00
003660392-03	OBS	No	9.206947	138.847325	197.1	2.789	9.1	8.9	3.92	6550	6.50	2439.10
003660392-04	OBS	No	25.735035	154.278163	304.7	4.134	8.8	8.4	3.92	6550	7.98	619.47
003660392-05	OBS	No	13.762980	138.762271	194.9	5.685	8.4	8.6	3.92	6550	5.84	1427.03
003660392-06	OBS	No	52.508650	147.896614	270.5	2.000	7.8	-1.0	3.92	6550	6.50	239.37
003660392-07	OBS	No	8.878610	137.254666	280.1	1.394	7.6	8.5	3.92	6550	7.68	2560.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003660392-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT
003660392-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
003660392-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003660392-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST
003660392-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
003660392-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST
003660392-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV

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

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

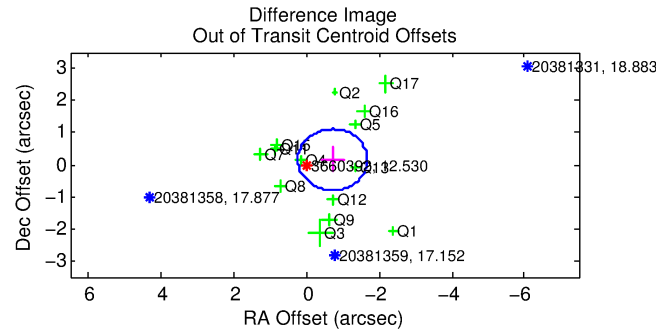
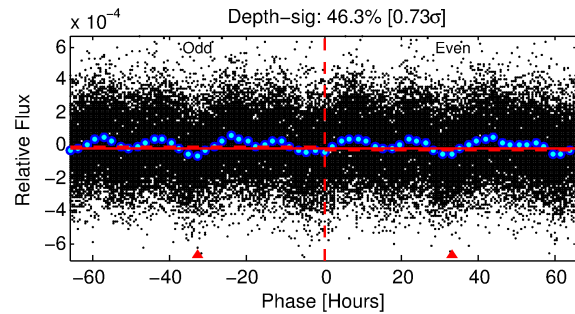
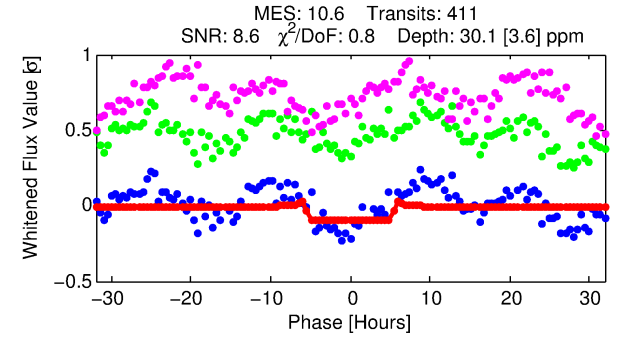
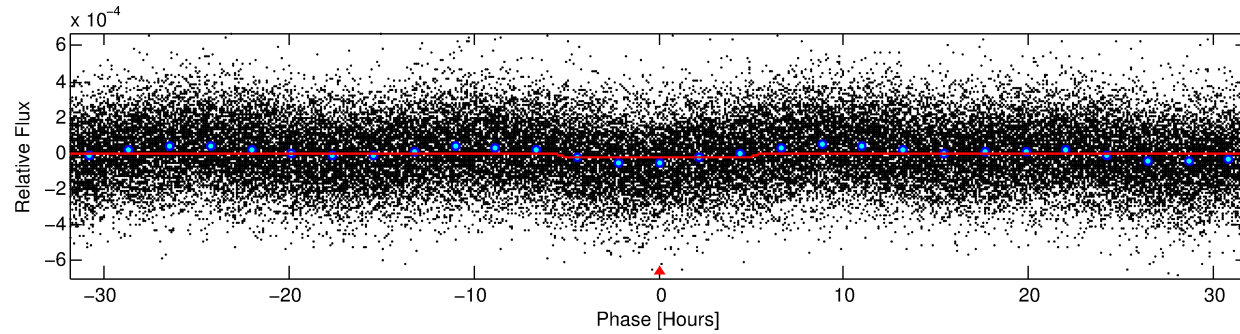
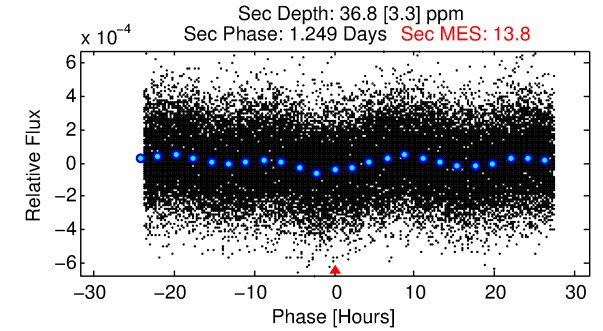
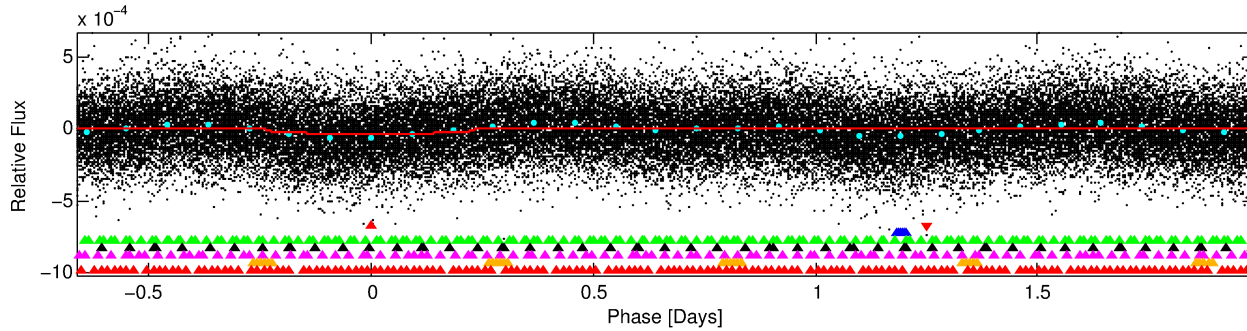
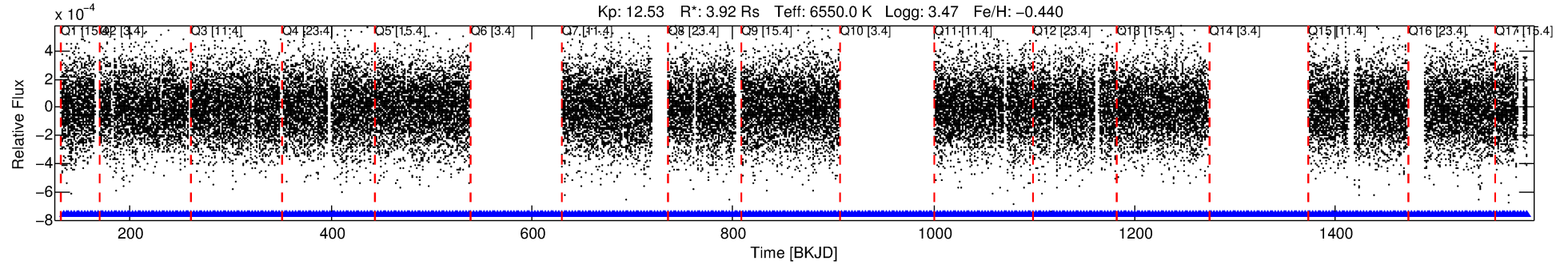
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003660392-01

No Significant Match Found

# DV One-Page Summary

KIC: 3660392 Candidate: 1 of 7 Period: 2.652 d



## DV Fit Results:

Period = 2.65187 [0.00003] d  
Epoch = 133.8470 [0.0067] BKJD  
Rp/R\* = 0.0051 [0.0023]  
a/R\* = 1.83 [3.11]  
b = 0.40 [5.05]  
Seff = 12822.76 [8310.64]  
Teq = 2713 [440] K  
Rp = 2.20 [1.32] Re  
a = 0.0445 [0.0175] AU  
Ag = 8.26 [9.09] [0.80σ]  
Teffp = 7112 [1612] K [2.63σ]

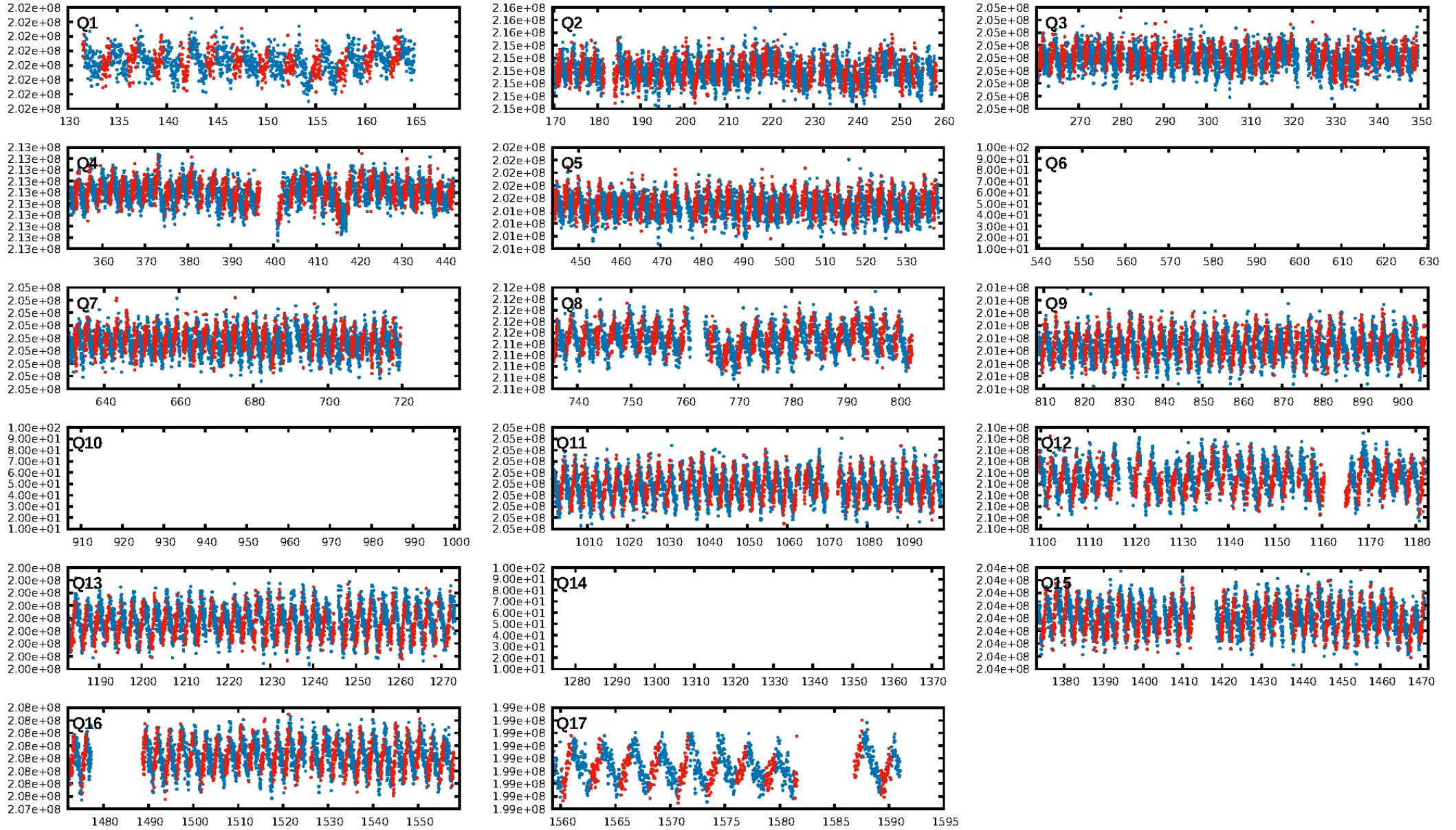
## DV Diagnostic Results:

**ShortPeriod-sig: 0.0% [0.00σ]**  
LongPeriod-sig: 100.0% [13.48σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.45e-105  
RollingBand-fgt: 1.00 [388/388]  
GhostDiagnostic-chr: 2.724  
Centroid-sig: 0.4%  
Centroid-so: 1.435 arcsec [2.08σ]  
OotOffset-rm: 0.730 arcsec [2.30σ]  
KicOffset-rm: 0.872 arcsec [2.69σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 0.93 [13/14]  
DiffImageOverlap-fno: 1.00 [14/14]

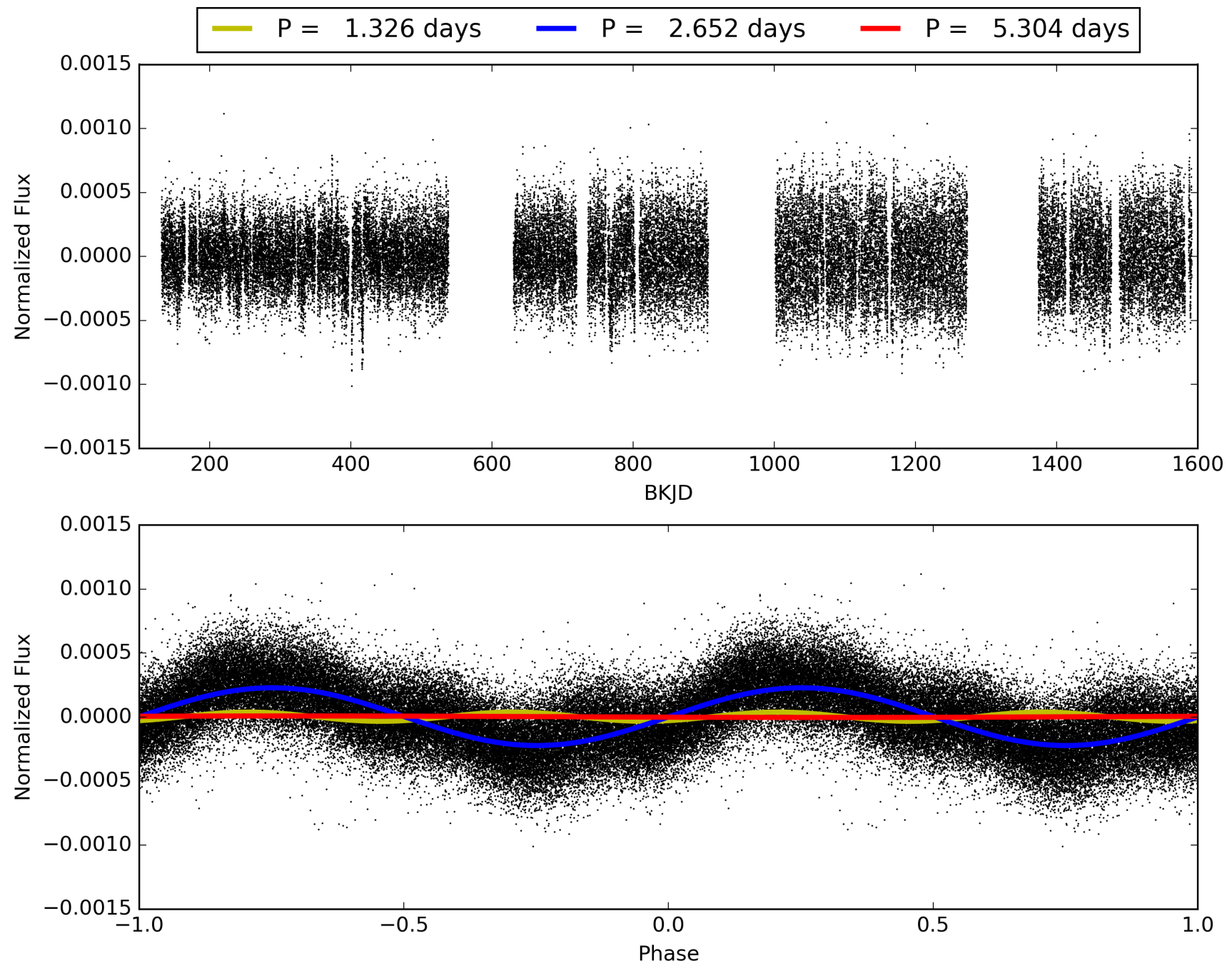
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:06:30 Z

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

# TCE 003660392-01, PDC Light Curves



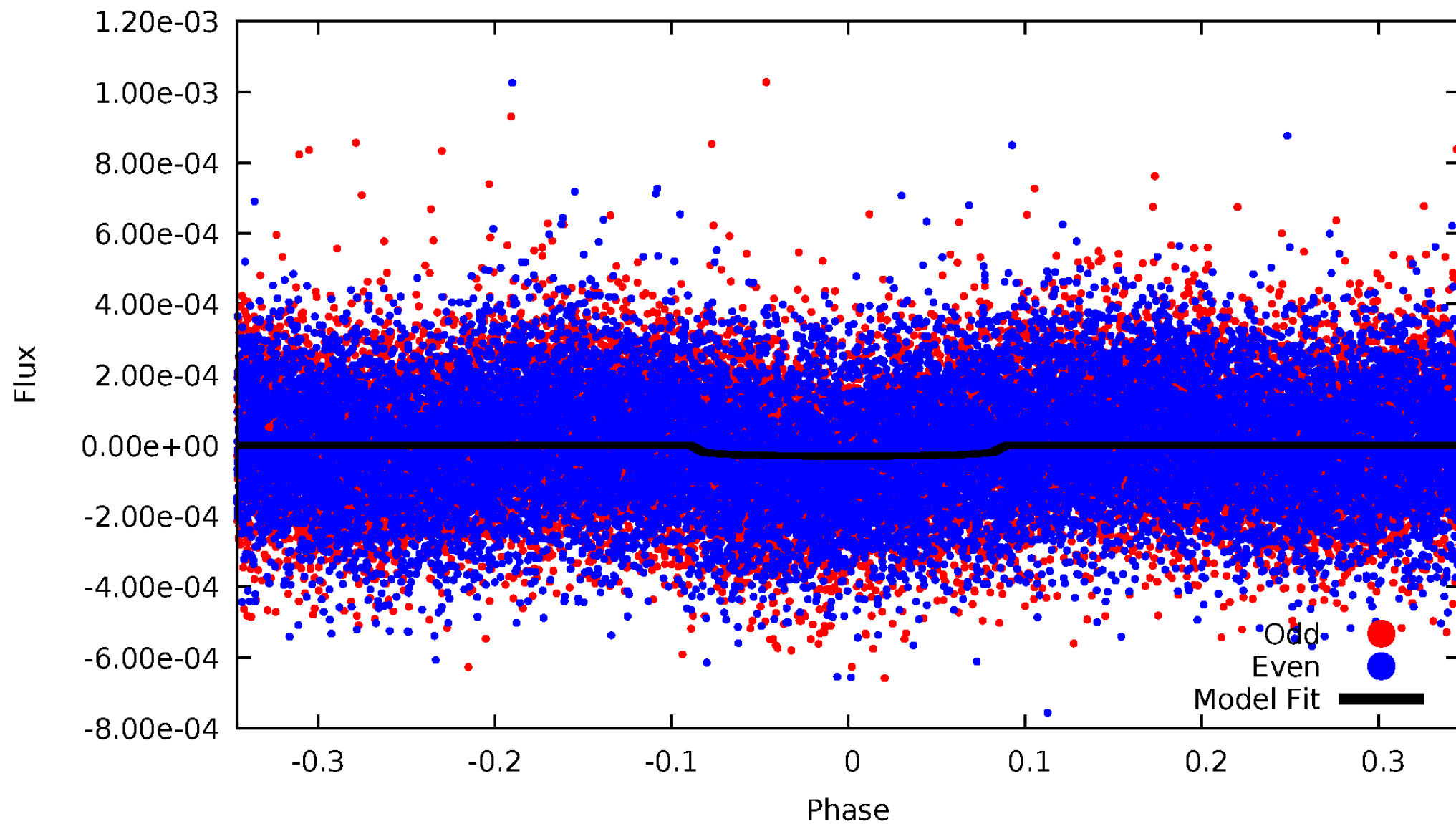
TCE 003660392-01





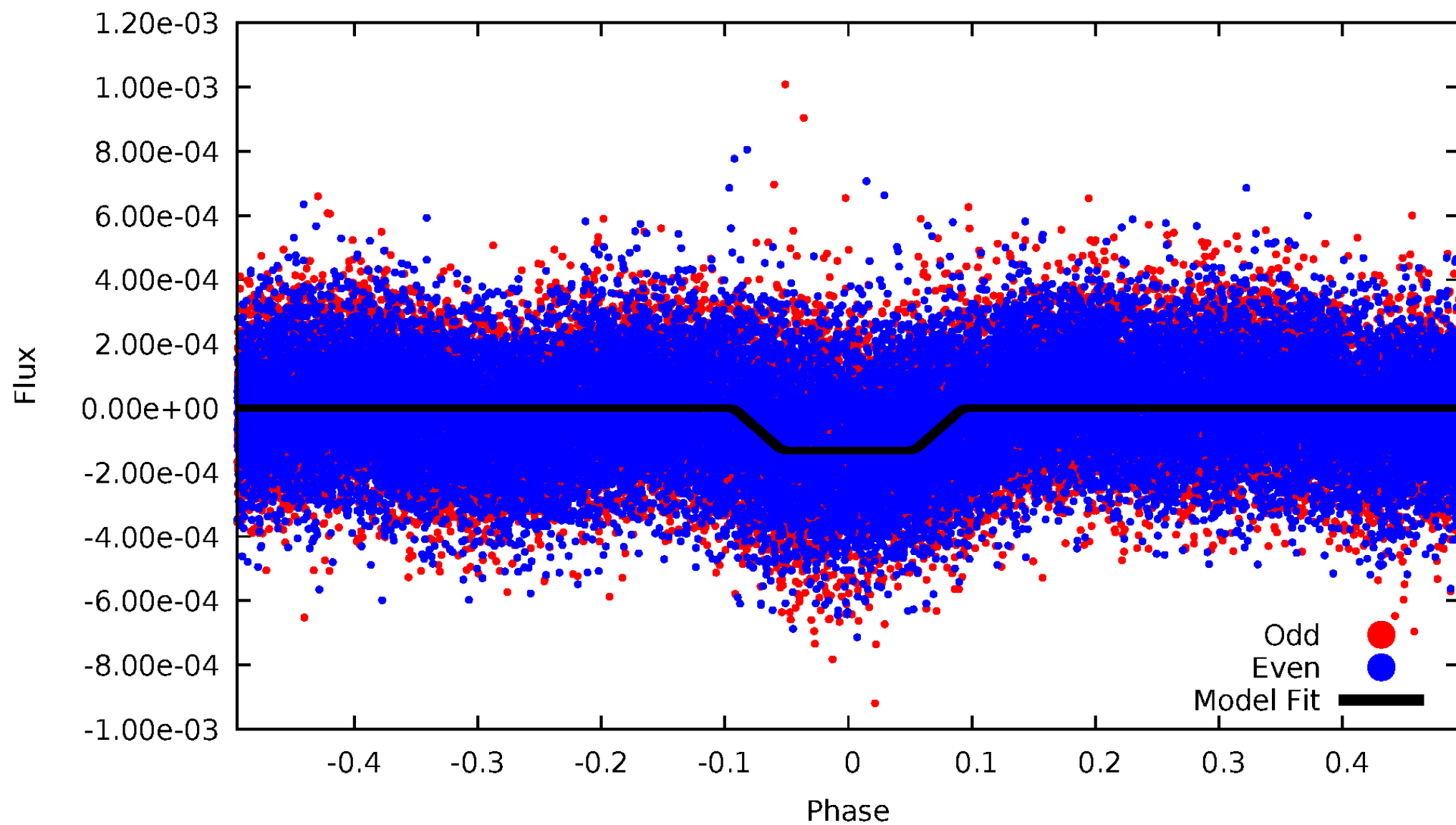
# DV Odd/Even

TCE 003660392-01

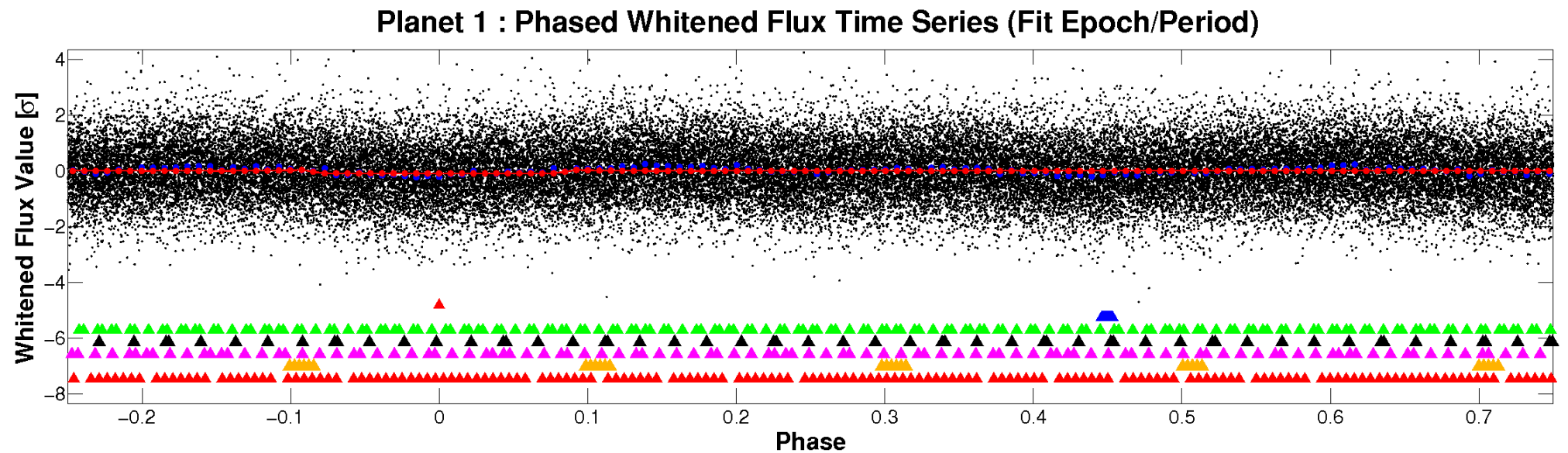
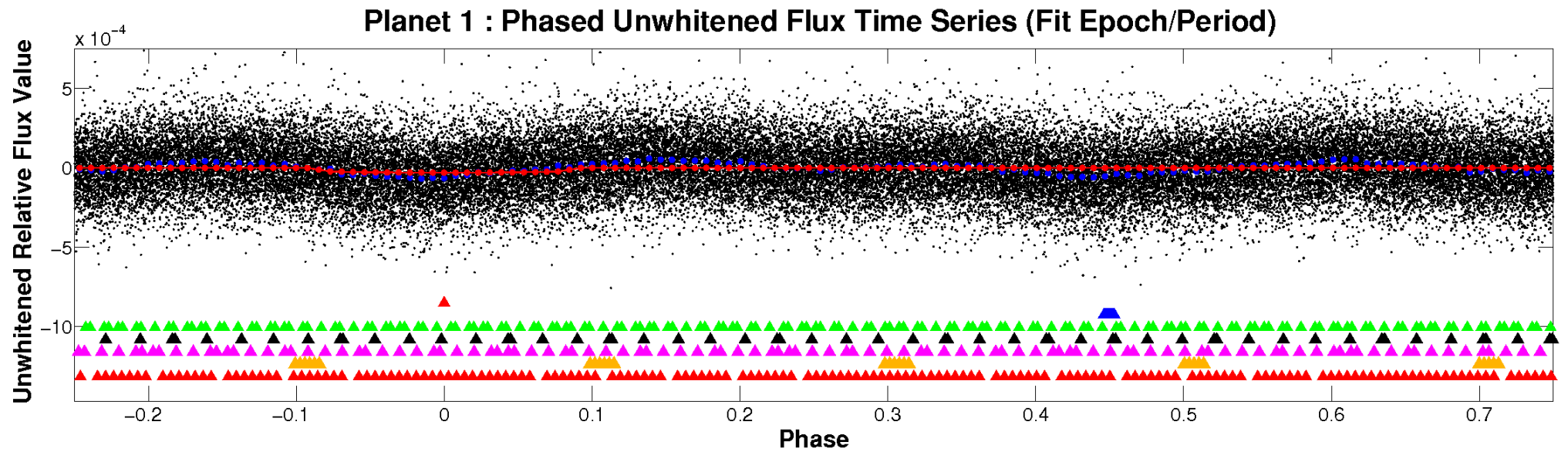


# ALT Odd/Even

TCE 003660392-01

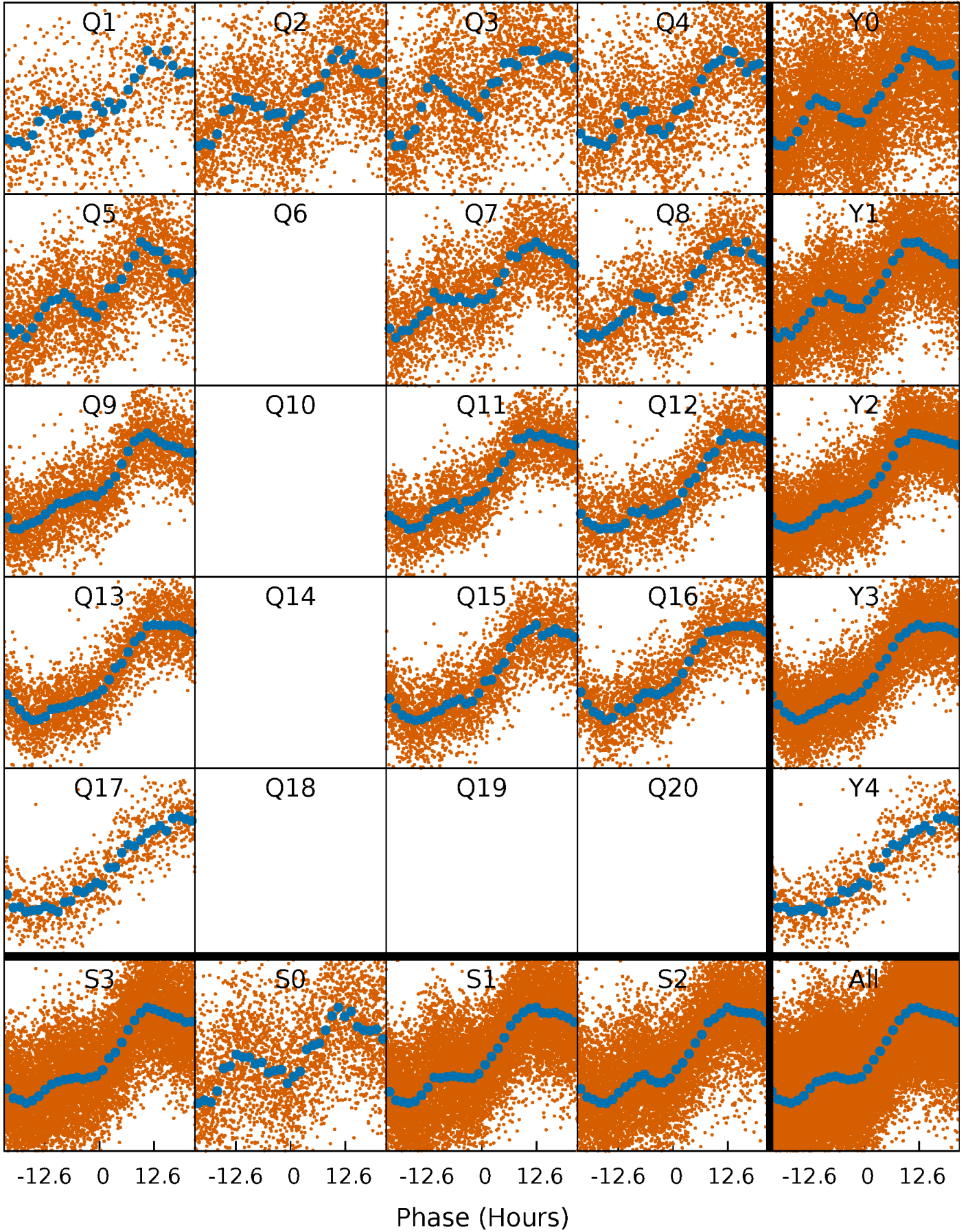


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

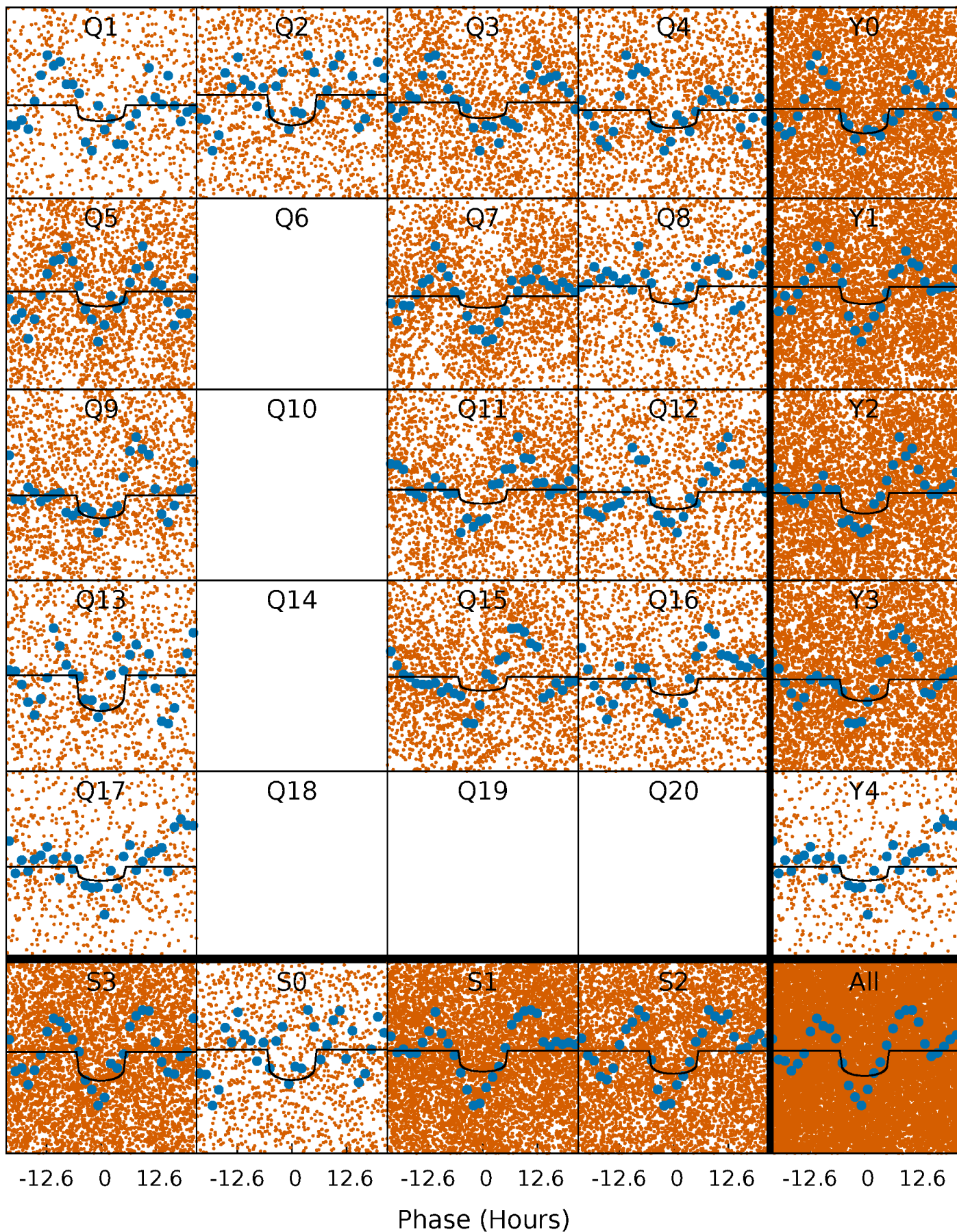
TCE 003660392-01   P= 2.651865 Days    $T_0=133.846988$  (BKJD)





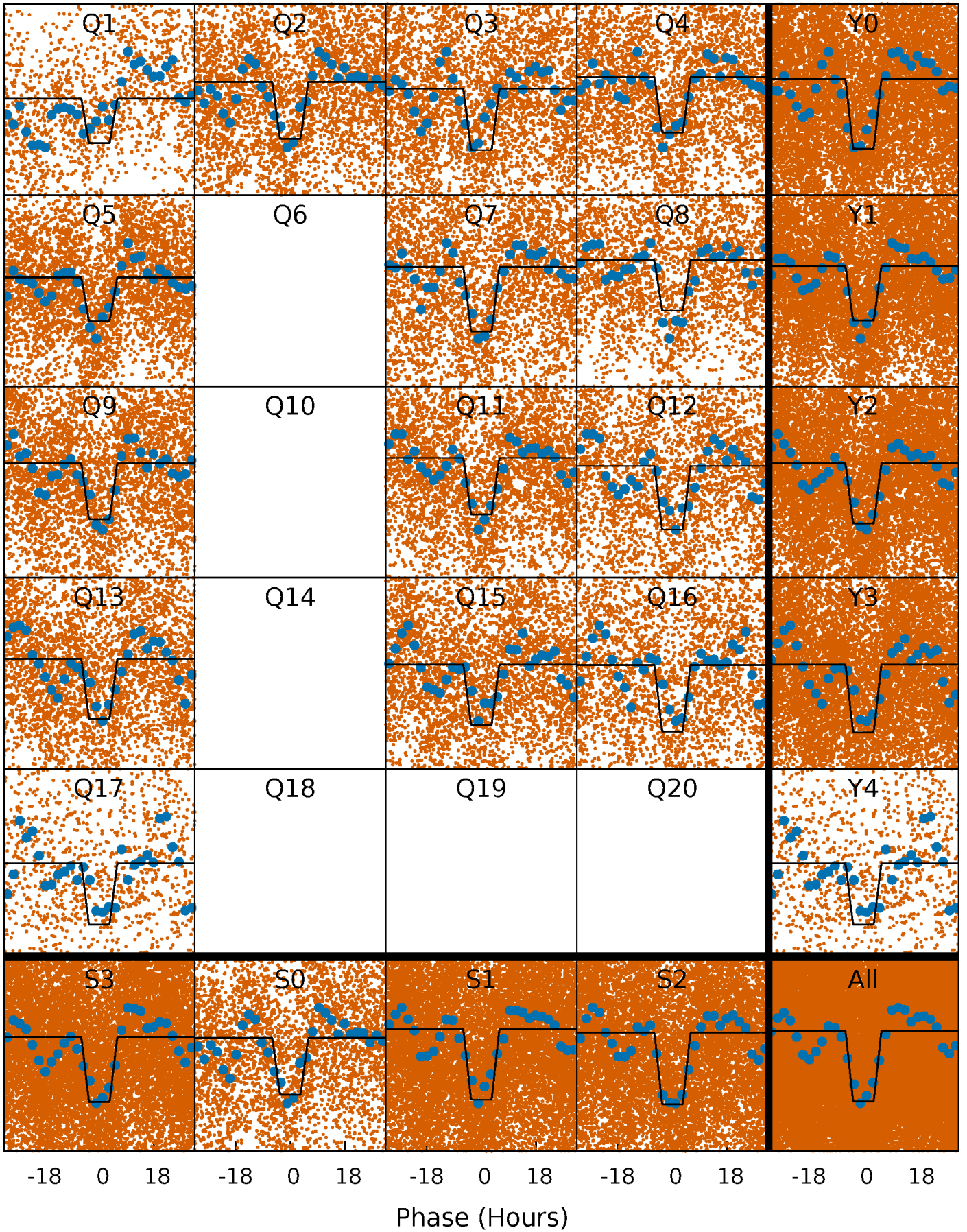
# DV Quarter-Phased Transit Curves

TCE 003660392-01   P= 2.651865 Days    $T_0=133.846988$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003660392-01 P= 2.651640 Days  $T_0=133.900354$  (BKJD)

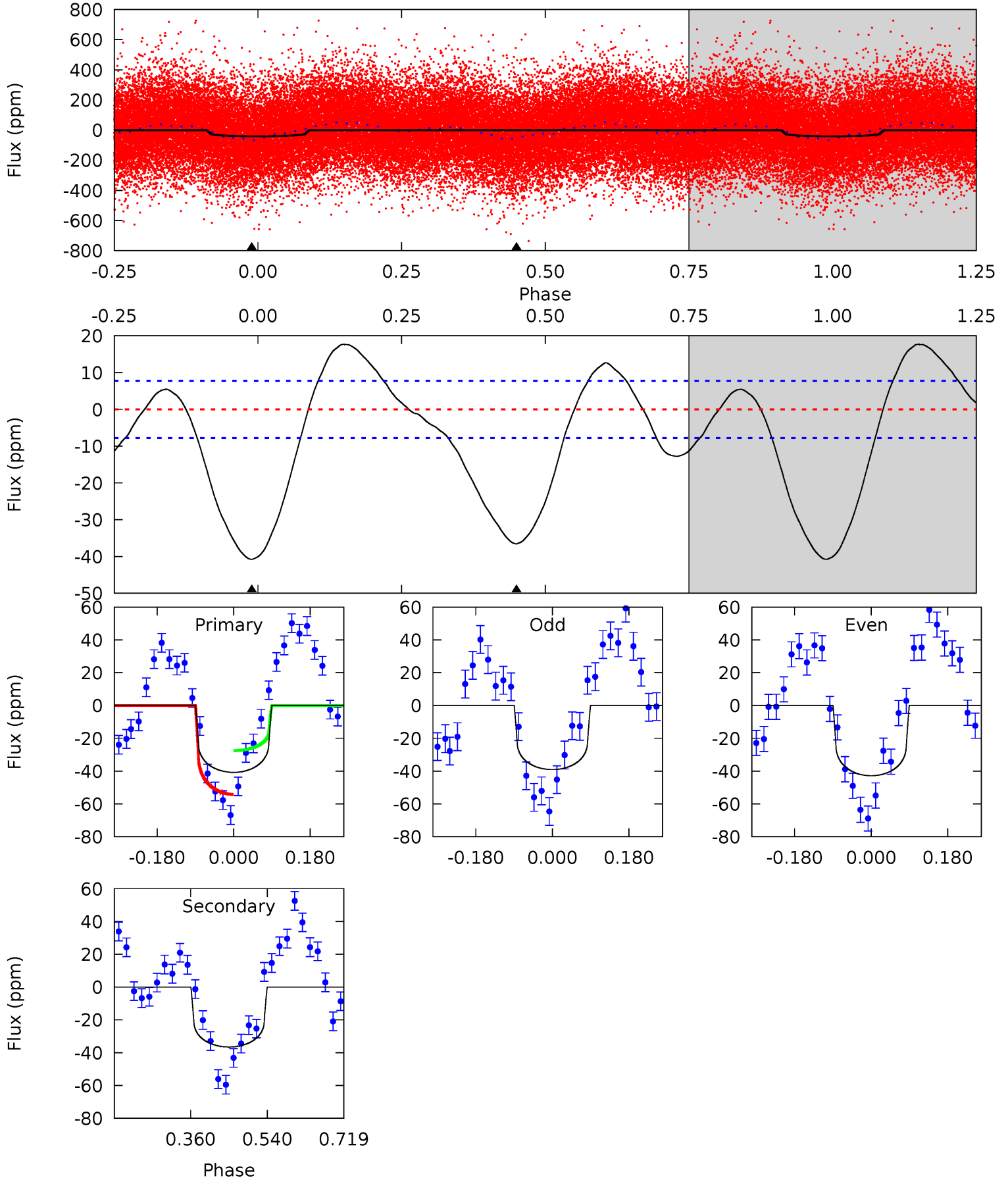




# DV Model-Shift Uniqueness Test

003660392-01, P = 2.651865 Days, E = 131.195123 Days

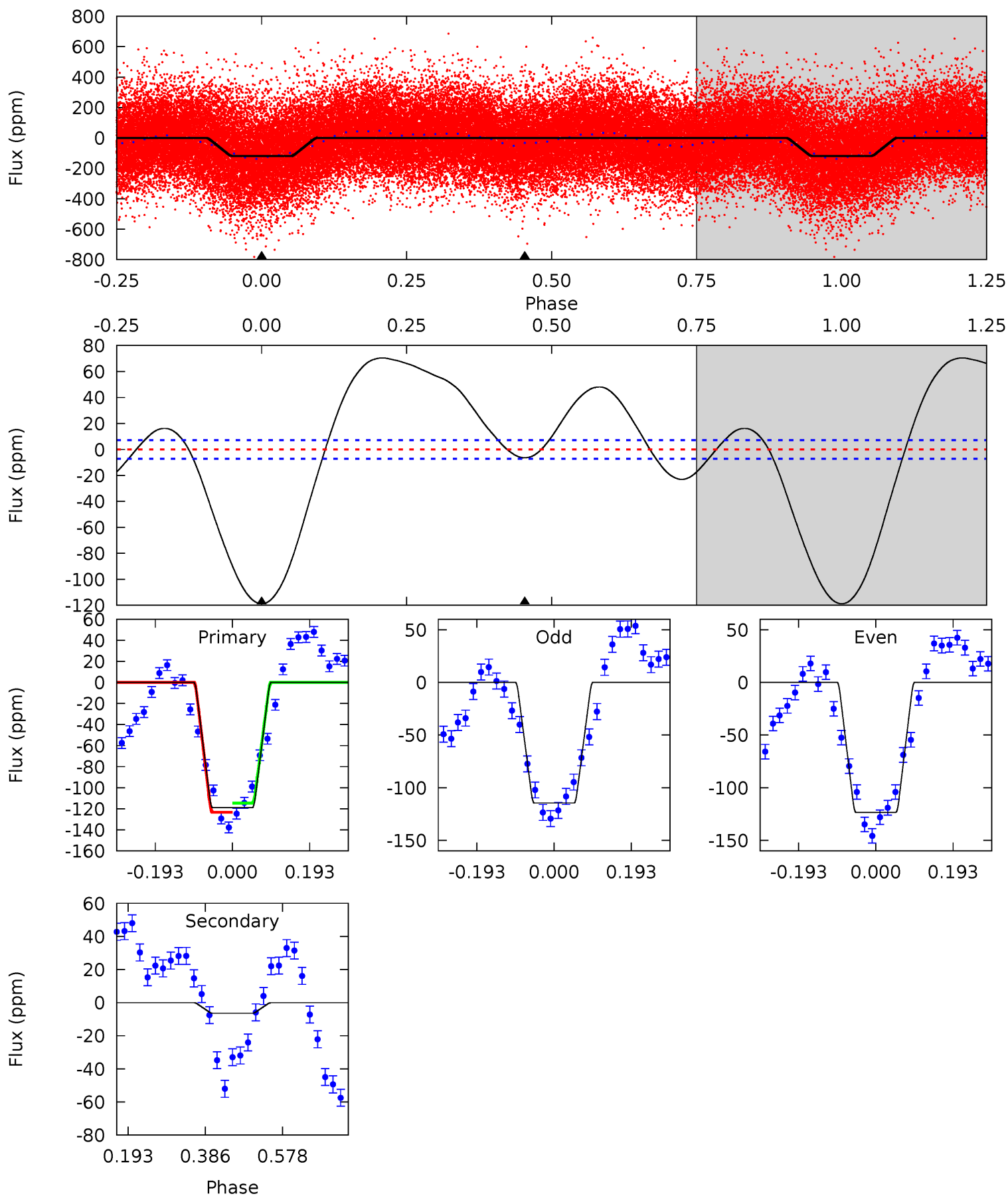
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.3	20.8	0	0	4.44	1.34	4.92	23.3	23.3	20.8	20.8	1.07	0.93	0.30	7.60



# Alt Model-Shift Uniqueness Test

003660392-01, P = 2.651640 Days, E = 131.248714 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
73.5	3.95	0	0	4.43	1.30	22.5	73.5	73.5	3.95	3.95	2.76	1.00	0.37	2.70





### Stellar Parameters For KIC 003660392

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6550^{+178}_{-198}$	$3.473^{+0.376}_{-0.094}$	$-0.440^{+0.400}_{-0.300}$	$3.920^{+0.565}_{-1.581}$	$1.666^{+0.190}_{-0.443}$	$0.039^{+0.124}_{-0.012}$
	+3%/-3%	+11%/-3%	+91%/-68%	+14%/-40%	+11%/-27%	+318%/-30%
Source	PHO1	FLK73	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 003660392-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-37 \pm 2$	$1.96^{+1.03}_{-0.92}$	$3694^{+230}_{-375}$	$7185^{+3532}_{-1388}$	$11^{+26}_{-6}$
Alt.	$-6 \pm 2$	$4.60^{+1.21}_{-1.24}$	$3717^{+218}_{-387}$	$2425^{+955}_{-5493}$	$0.320^{+0.290}_{-0.130}$

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

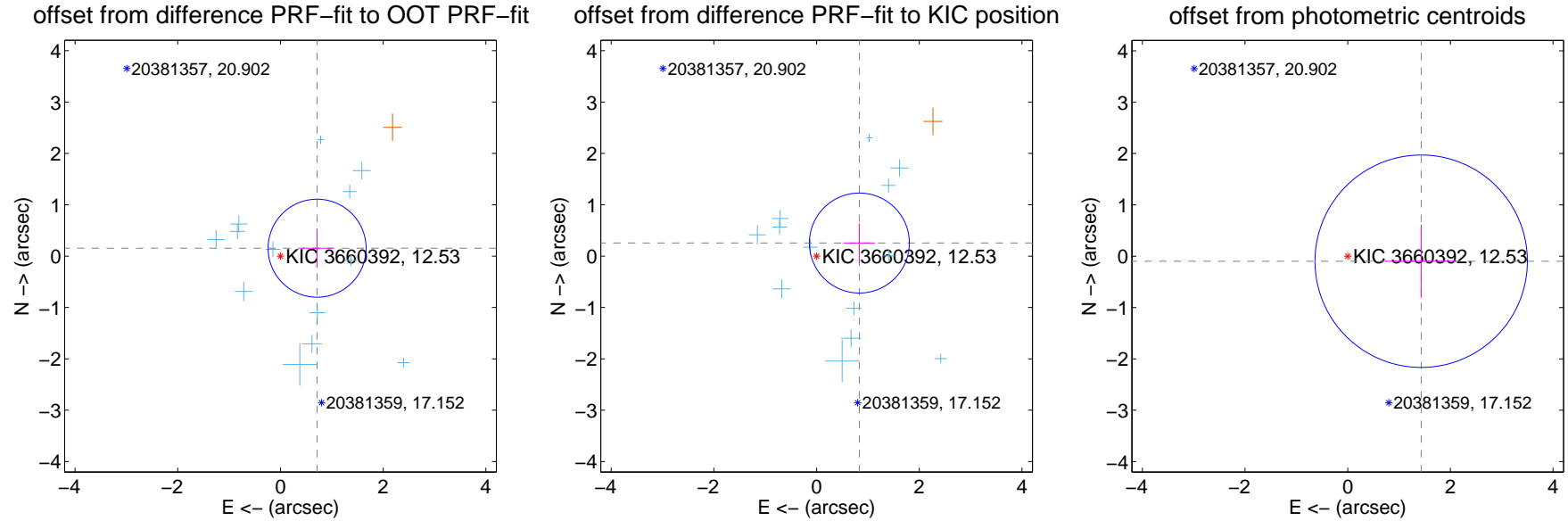
## DV Centroid Data

Supplemental centroid analysis for 003660392-01. Kepler magnitude: 12.53. Transit SNR 8.62

There are 13 quarters with good PRF difference image offsets

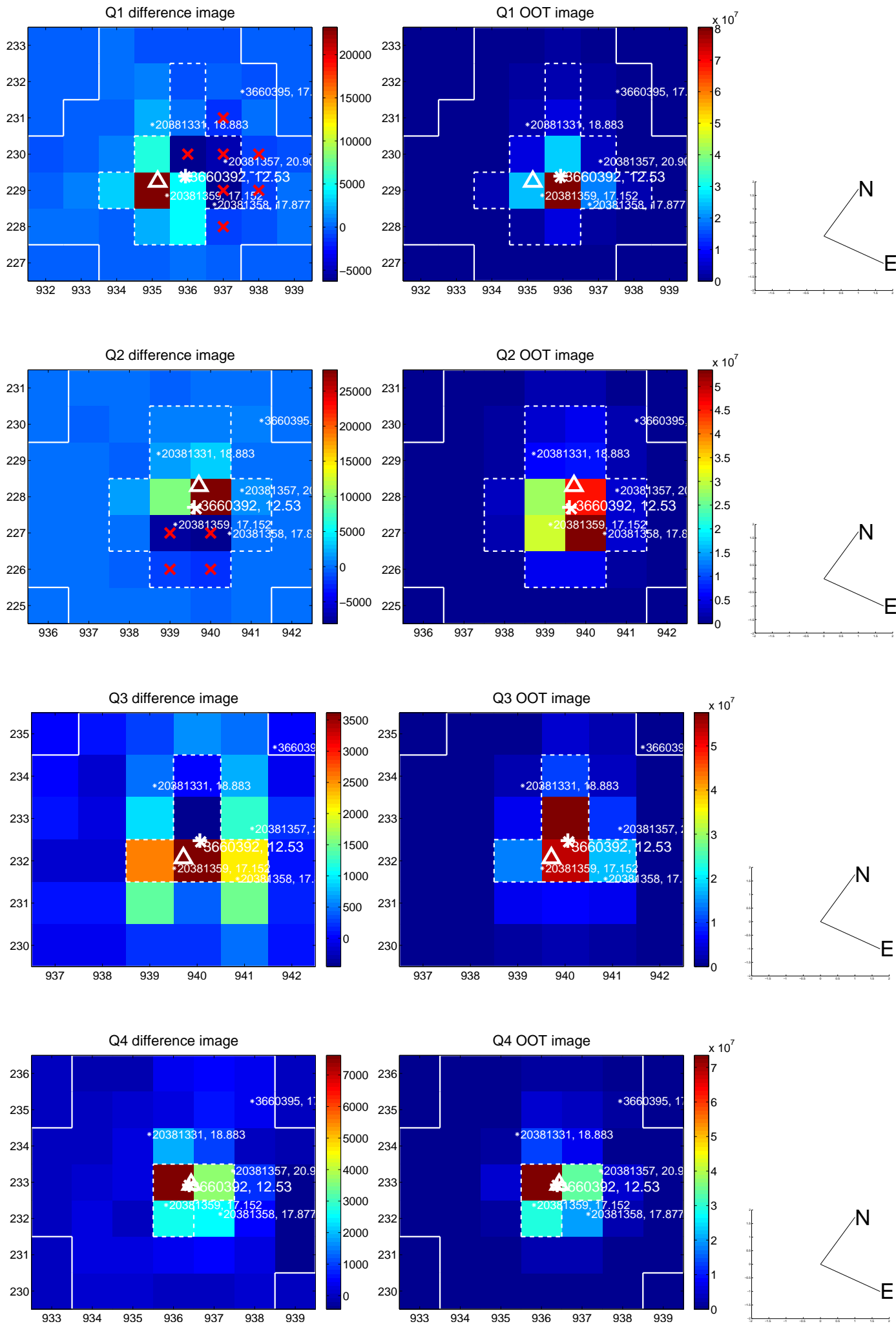
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.730 \pm 0.318$	2.30	$-0.714 \pm 0.302$	$0.154 \pm 0.380$
PRF-fit source offset from KIC position	$0.872 \pm 0.324$	2.69	$-0.834 \pm 0.306$	$0.255 \pm 0.384$
photometric centroid source offset	$1.43 \pm 0.69$	2.08	$-1.43 \pm 0.69$	$-0.10 \pm 0.71$



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.

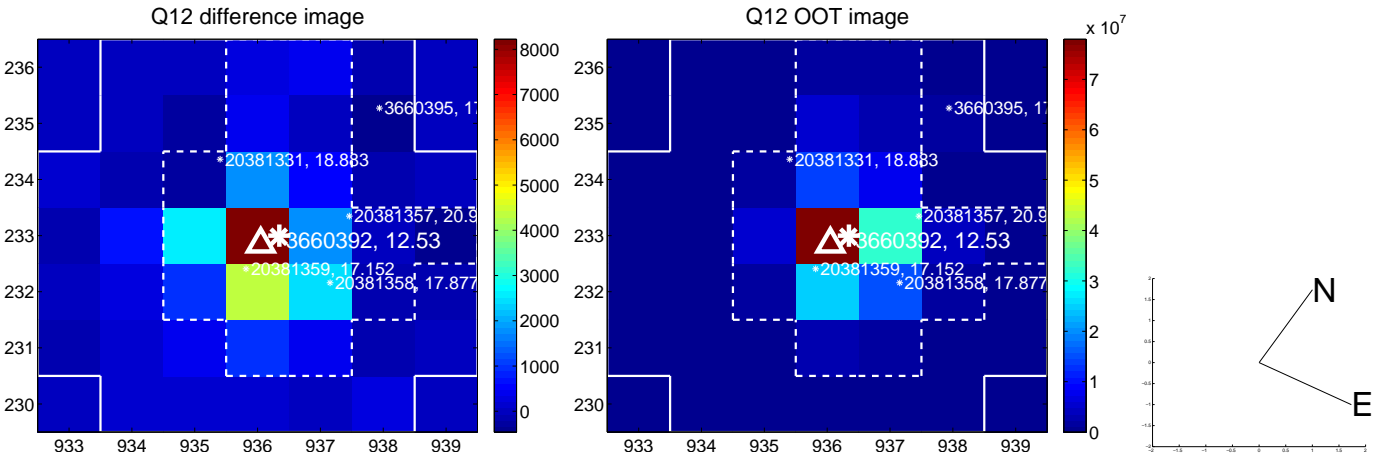
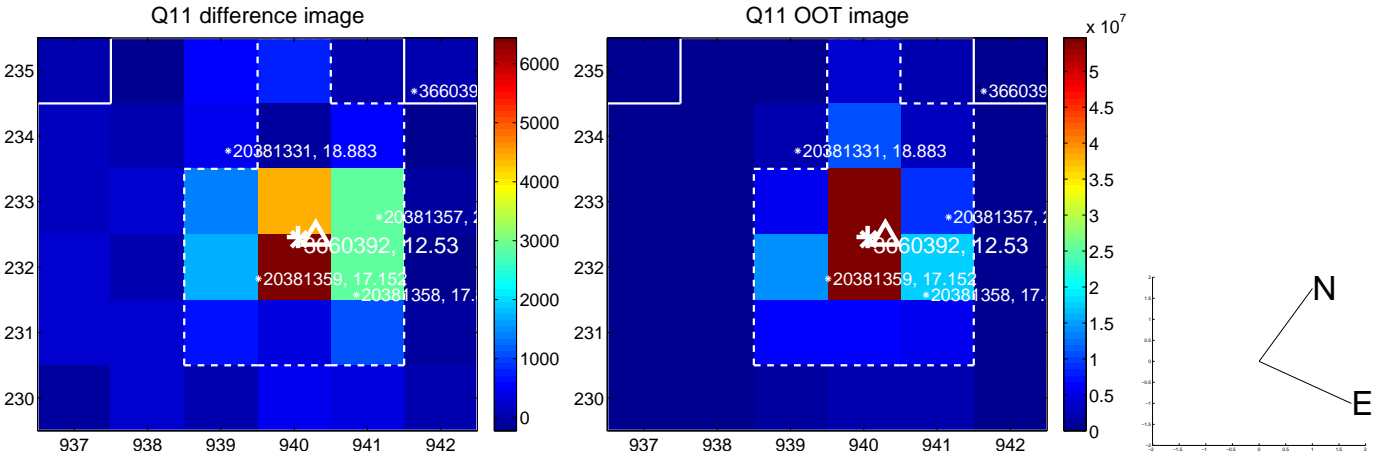
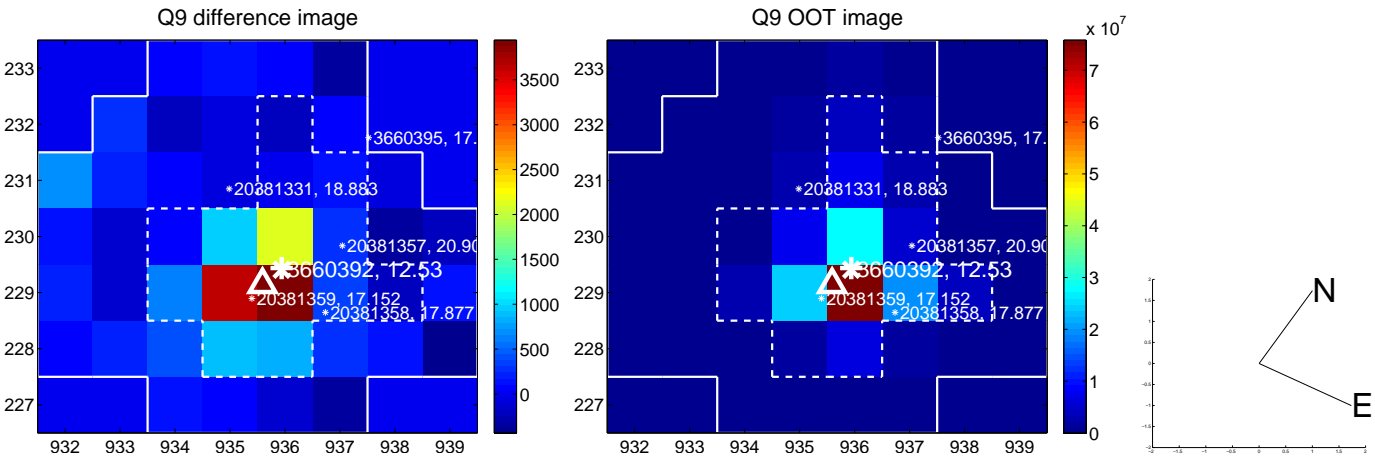
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



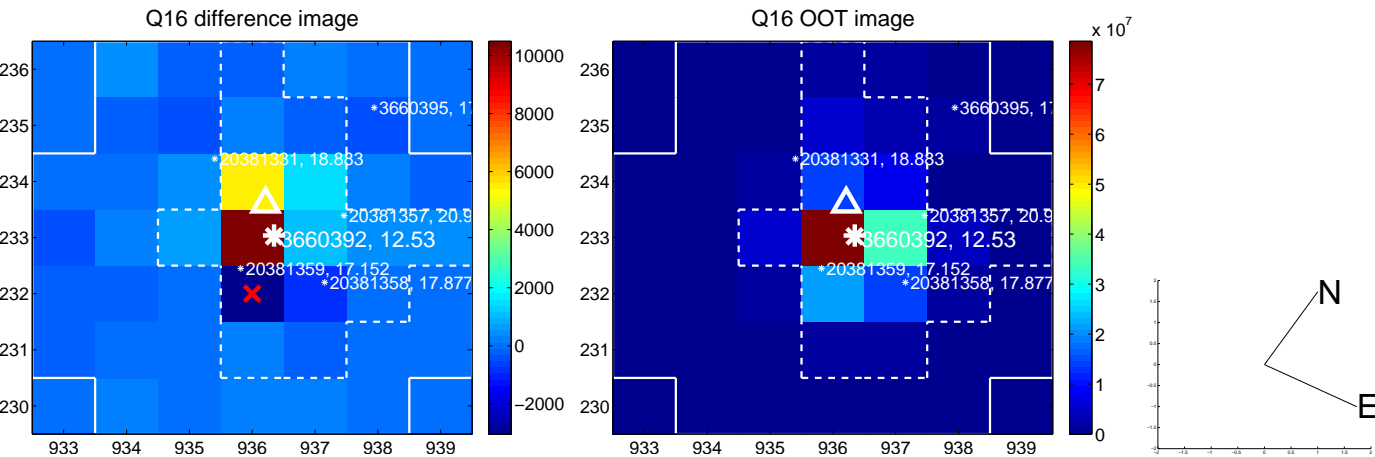
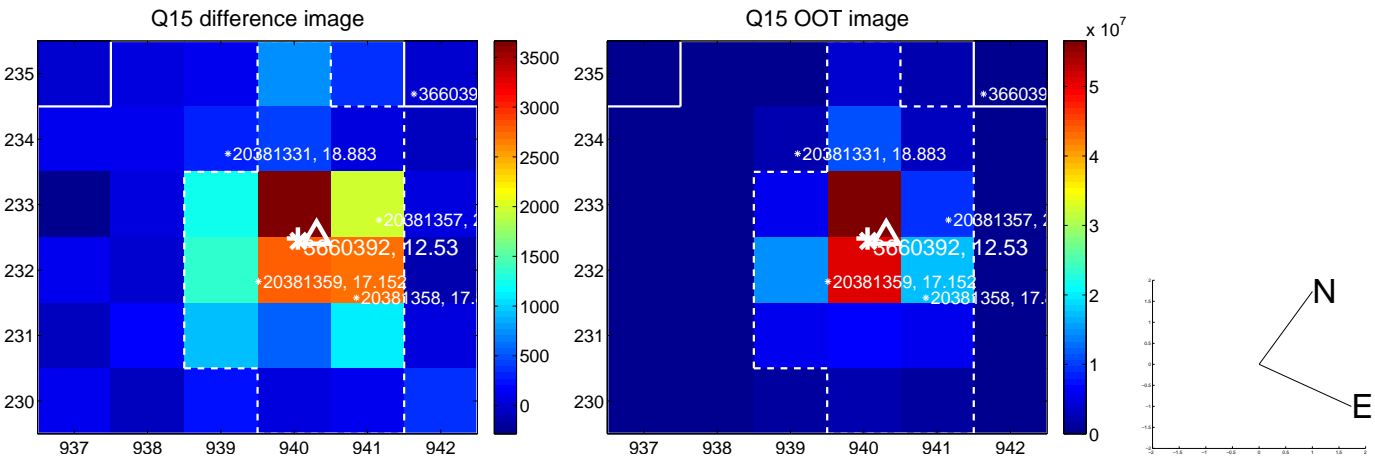
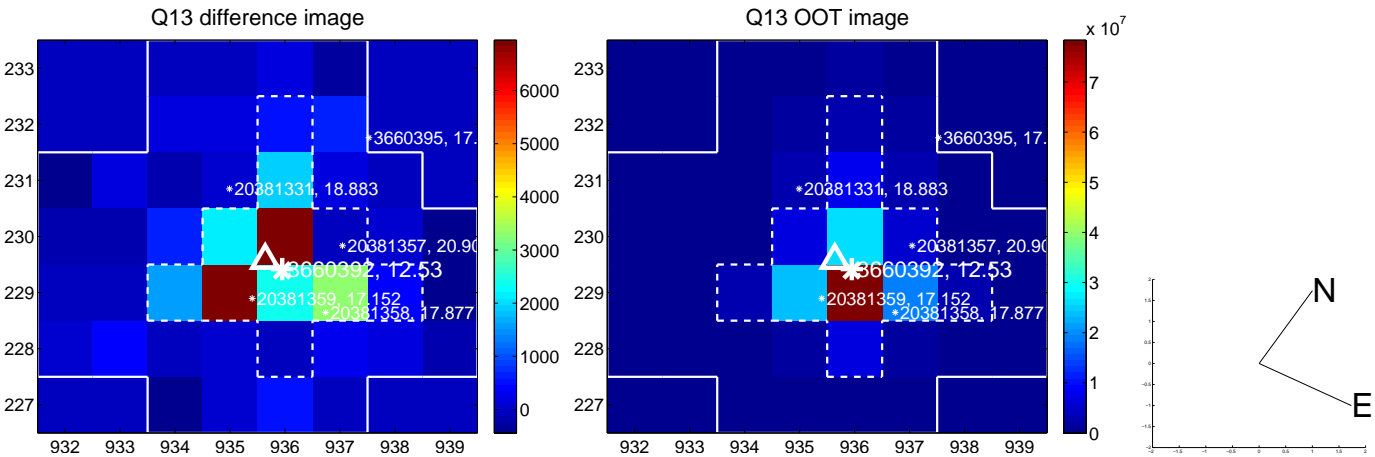




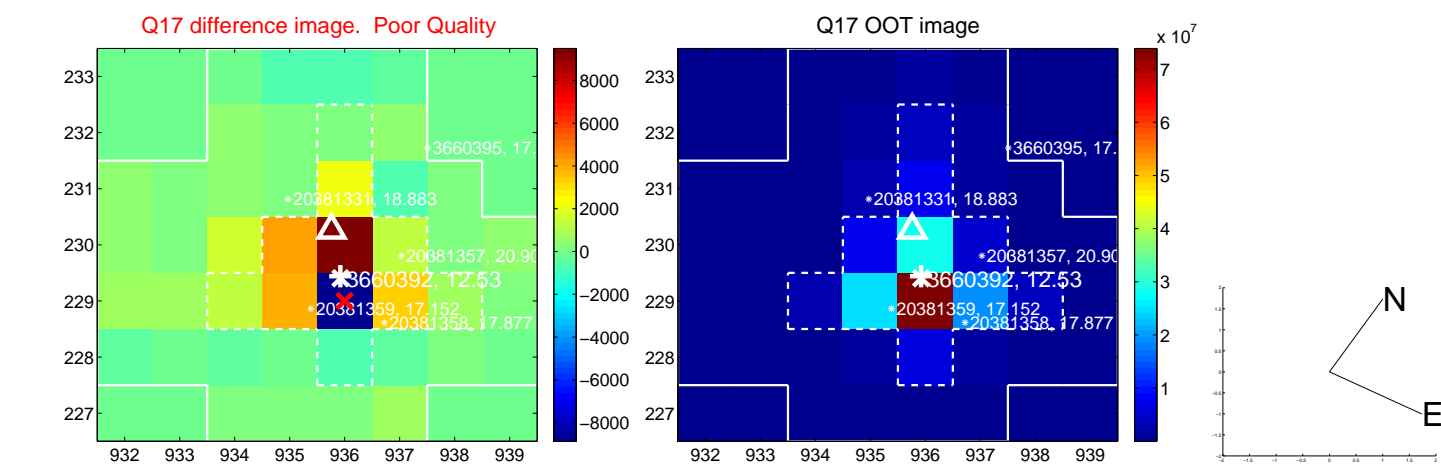
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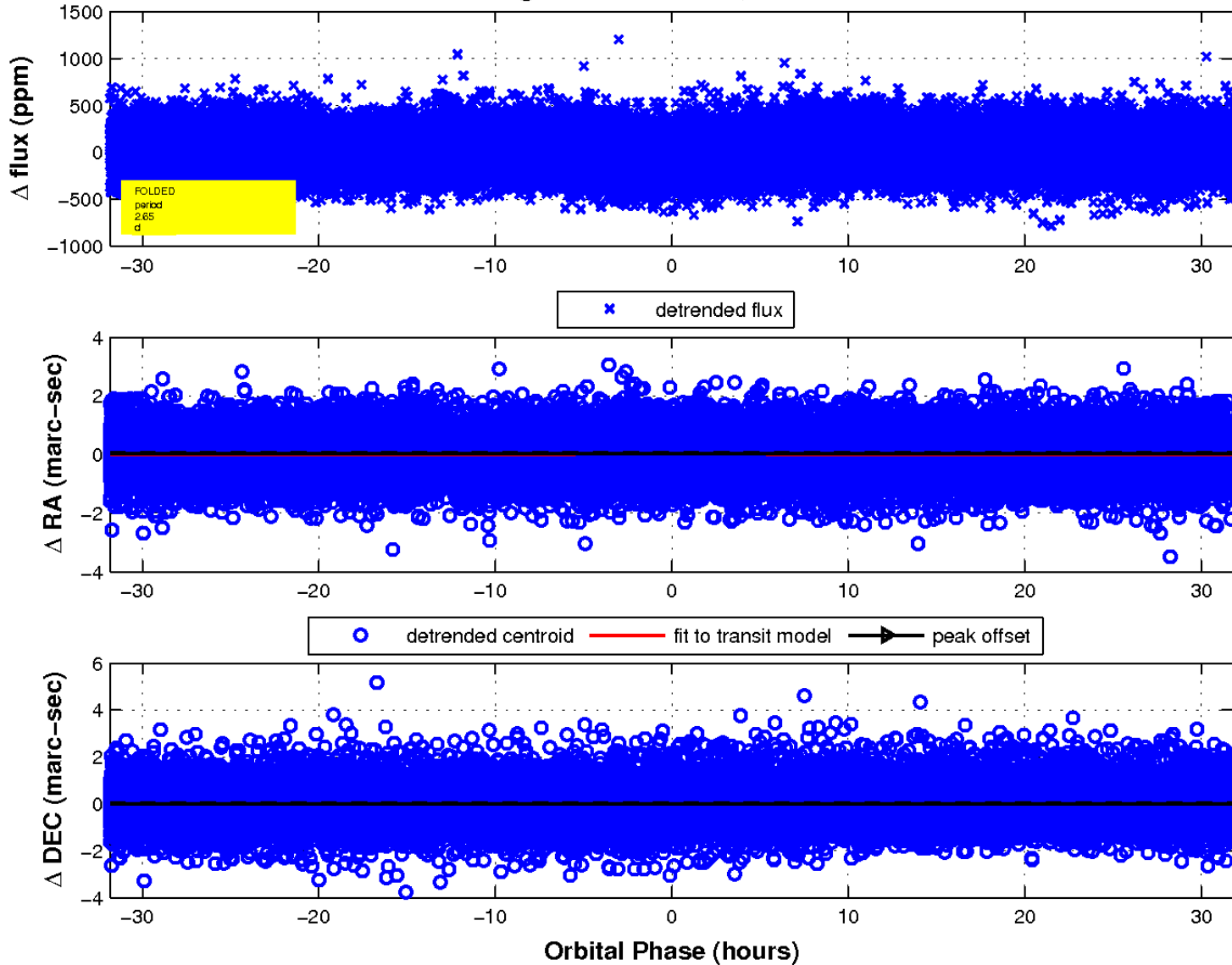
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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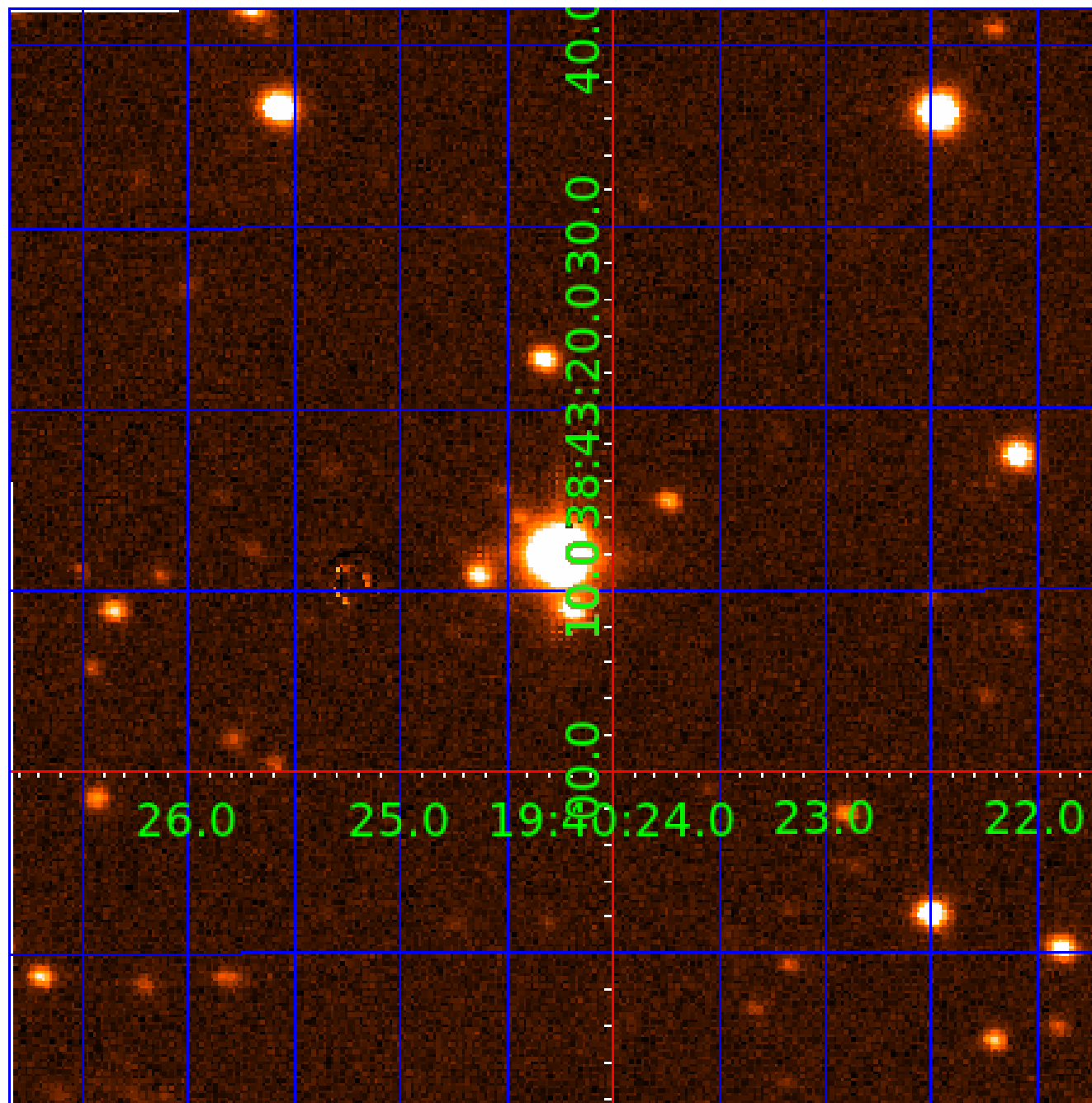


fluxWeightedCentroids, Planet 1 of 7



UKIRT Image

Declination



# KIC 003660392

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003660392-01	OBS	No	2.651865	133.846988	30.1	11.002	10.6	8.6	3.92	6550	2.20	12822.76
003660392-02	OBS	No	2.651830	132.397389	36.9	9.980	11.3	13.3	3.92	6550	2.79	12823.00
003660392-03	OBS	No	9.206947	138.847325	197.1	2.789	9.1	8.9	3.92	6550	6.50	2439.10
003660392-04	OBS	No	25.735035	154.278163	304.7	4.134	8.8	8.4	3.92	6550	7.98	619.47
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003660392-06	OBS	No	52.508650	147.896614	270.5	2.000	7.8	-1.0	3.92	6550	6.50	239.37
003660392-07	OBS	No	8.878610	137.254666	280.1	1.394	7.6	8.5	3.92	6550	7.68	2560.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003660392-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT
003660392-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
003660392-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003660392-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST
003660392-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
003660392-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST
003660392-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV

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

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

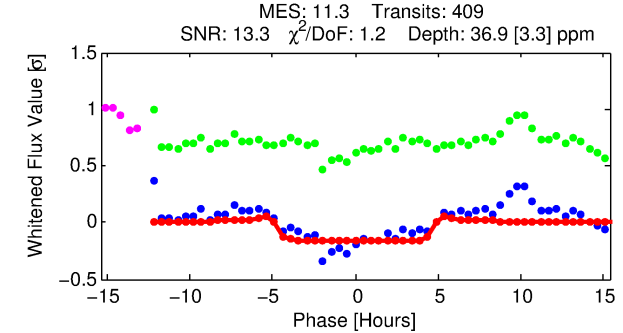
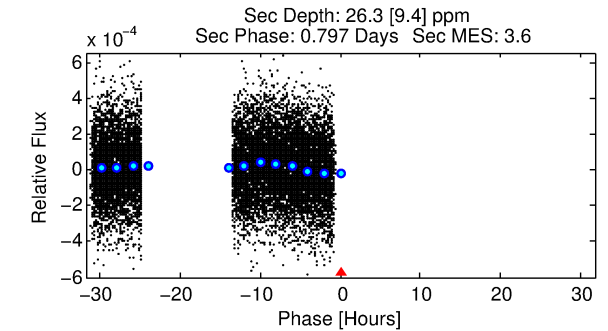
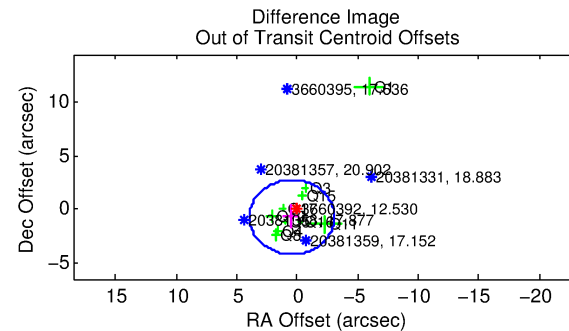
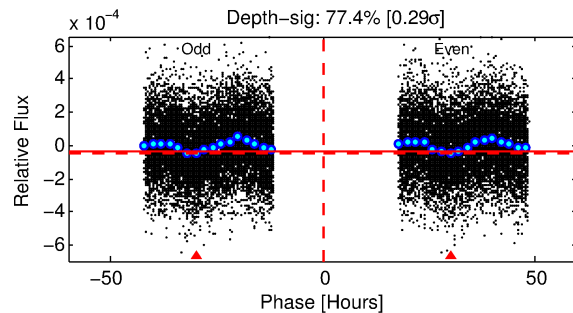
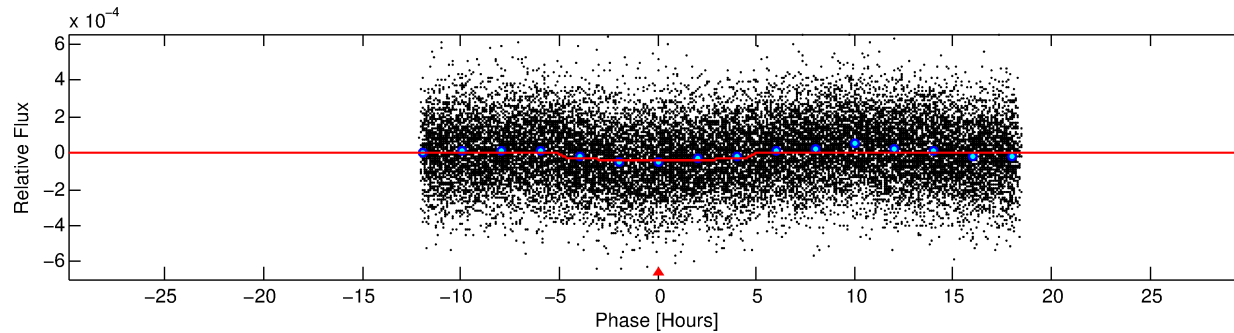
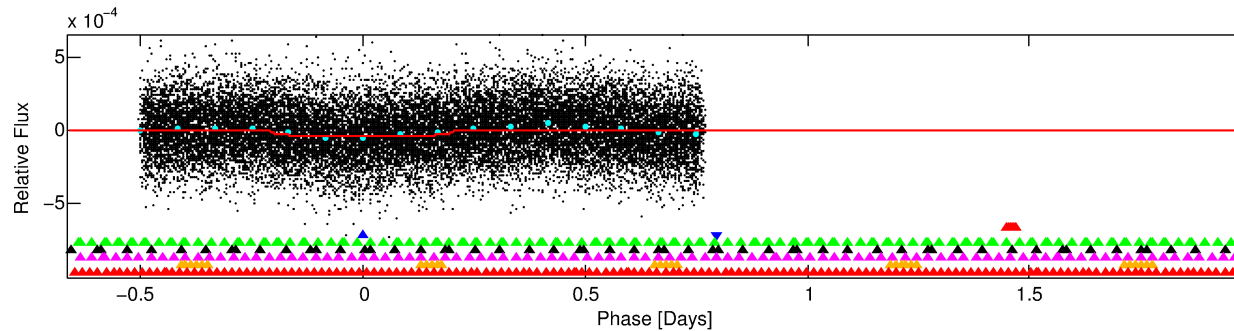
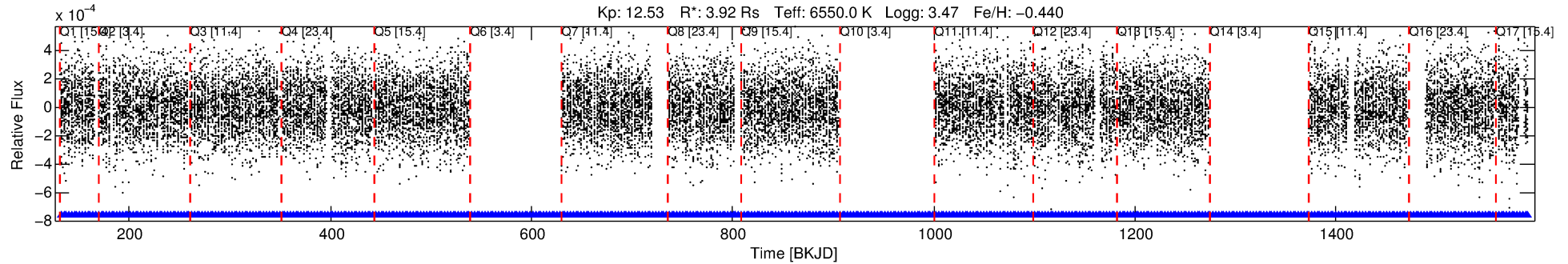
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Ephemeris Match Information For 003660392-02

No Significant Match Found

# DV One-Page Summary

KIC: 3660392 Candidate: 2 of 7 Period: 2.652 d



## DV Fit Results:

Period = 2.65183 [0.00003] d  
Epoch = 132.3974 [0.0058] BKJD  
Rp/R\* = 0.0065 [0.0010]  
a/R\* = 1.30 [0.45]  
b = 0.90 [0.17]  
Seff = 12822.99 [8310.79]  
Teq = 2713 [440] K  
Rp = 2.79 [1.20] Re  
a = 0.0445 [0.0175] AU  
Ag = 3.68 [2.91] [0.92 $\sigma$ ]  
Teffp = 5812 [703] K [3.74 $\sigma$ ]

## DV Diagnostic Results:

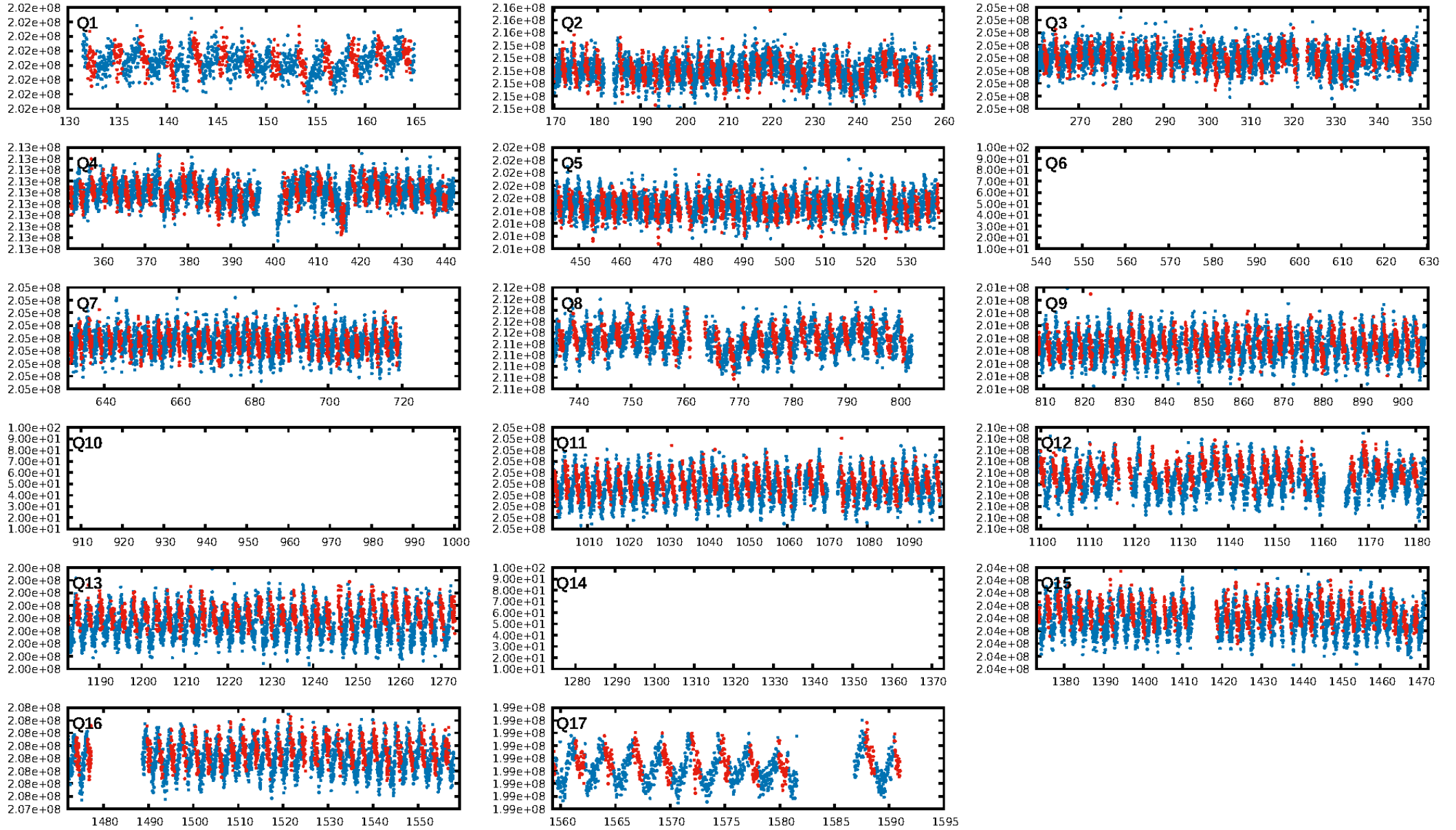
ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.83e-88  
RollingBand-fgt: 1.00 [385/385]  
GhostDiagnostic-chr: 10.02  
Centroid-sig: 6.9%  
Centroid-so: 0.769 arcsec [1.29 $\sigma$ ]  
OotOffset-rm: 0.849 arcsec [0.73 $\sigma$ ]  
KicOffset-rm: 0.740 arcsec [0.49 $\sigma$ ]  
OotOffset-st: 0/3/4/3 [10]  
KicOffset-st: 0/3/4/3 [10]  
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Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:06:42 Z

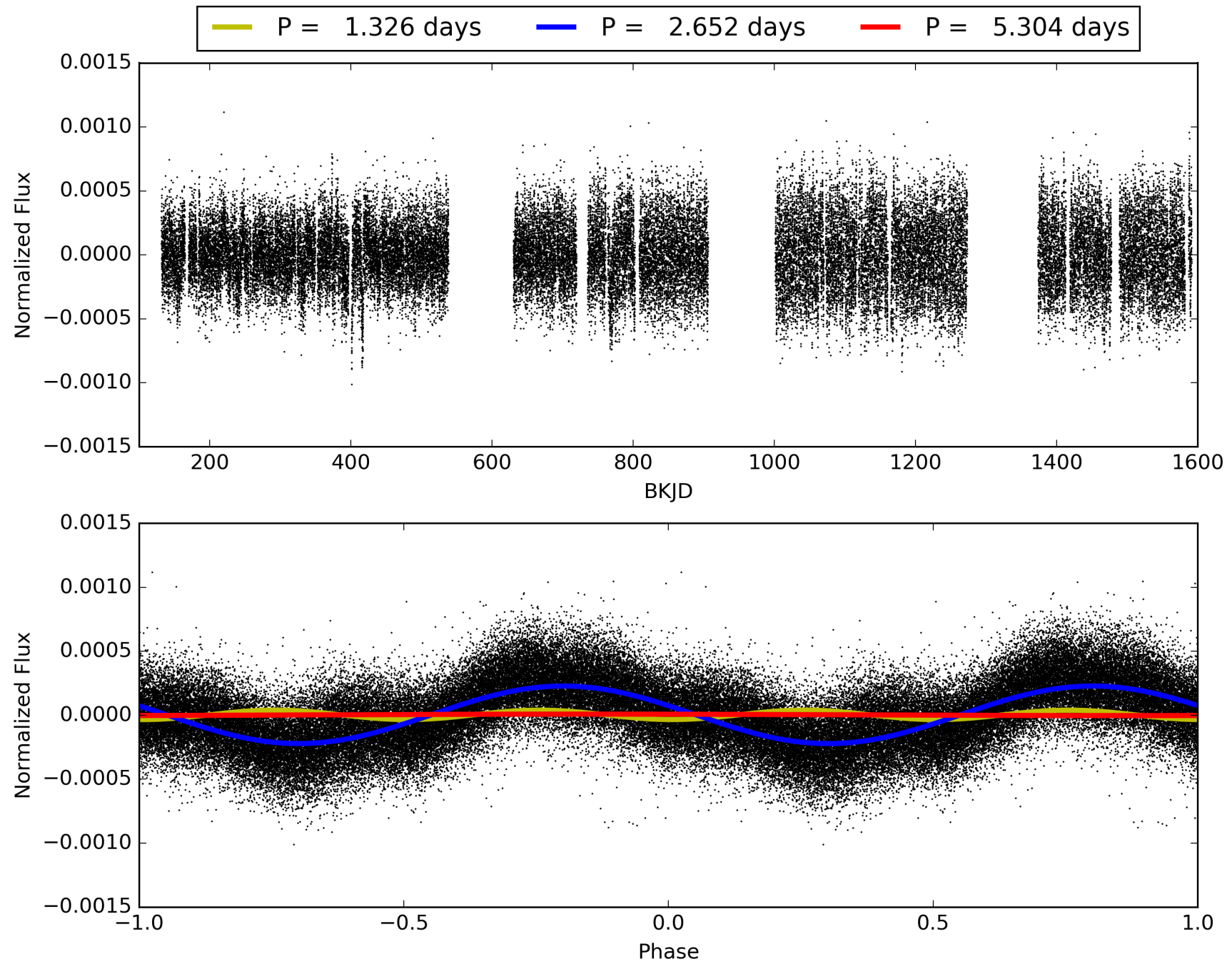
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 003660392-02, PDC Light Curves

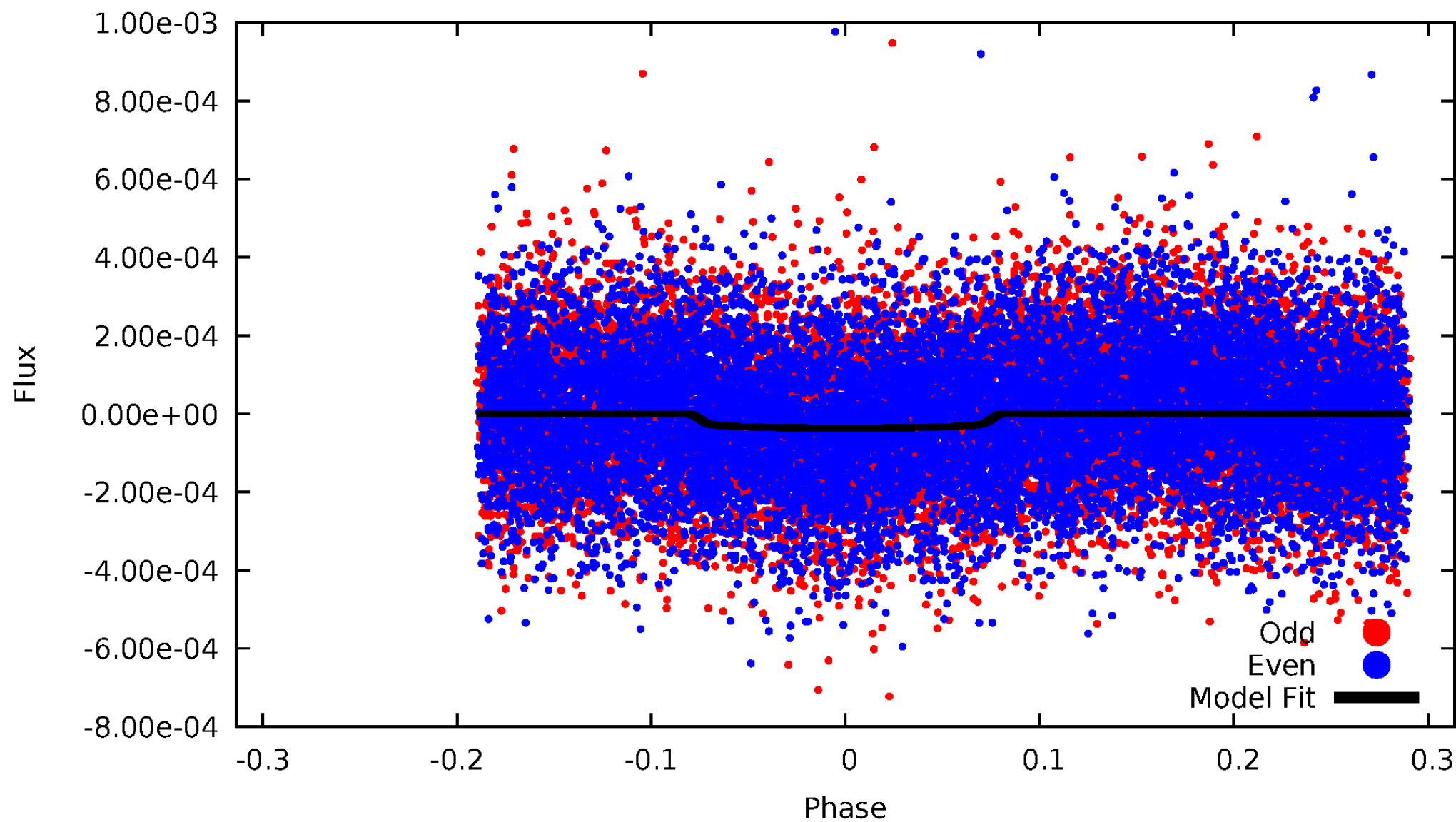


TCE 003660392-02



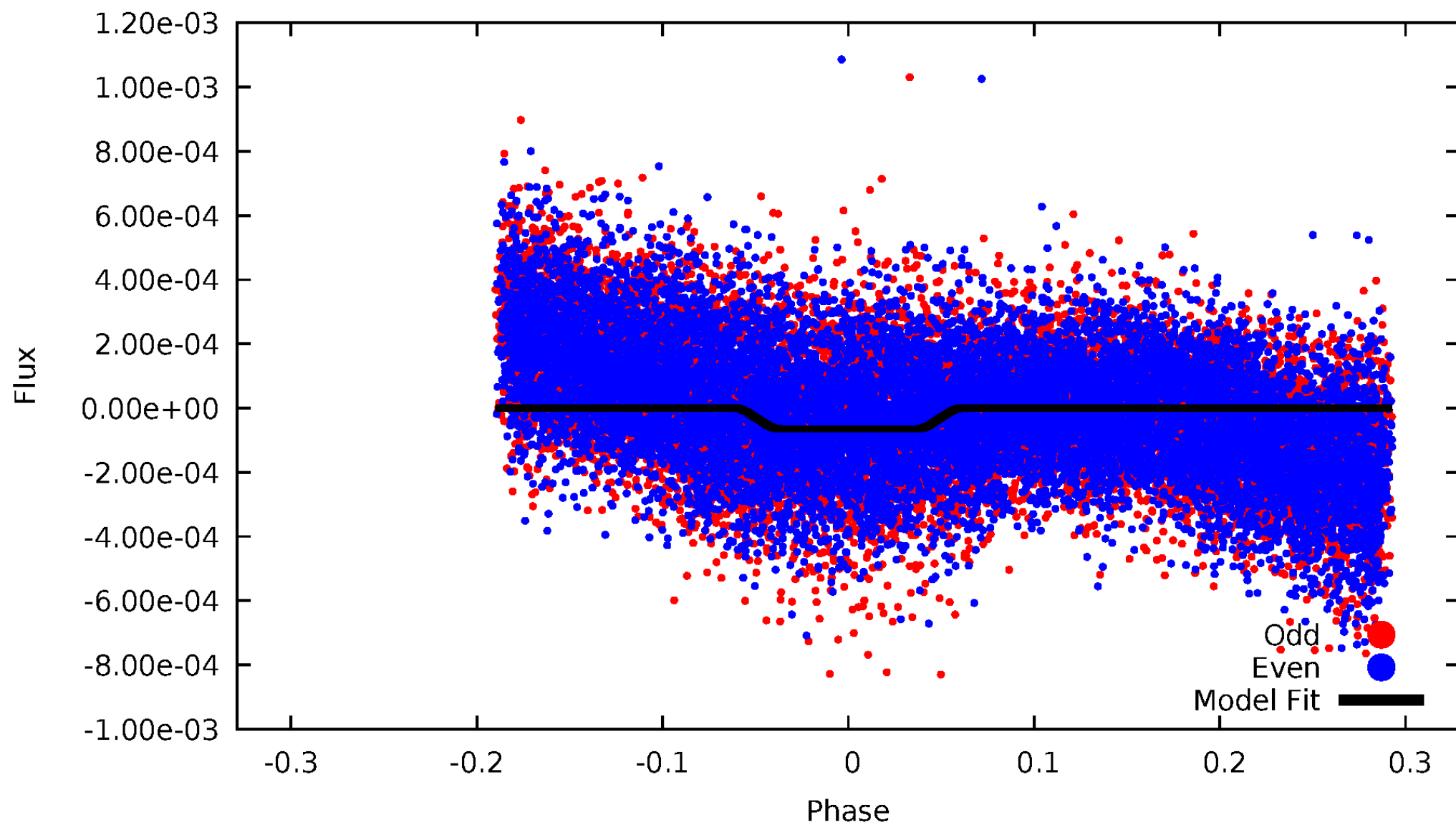
# DV Odd/Even

TCE 003660392-02



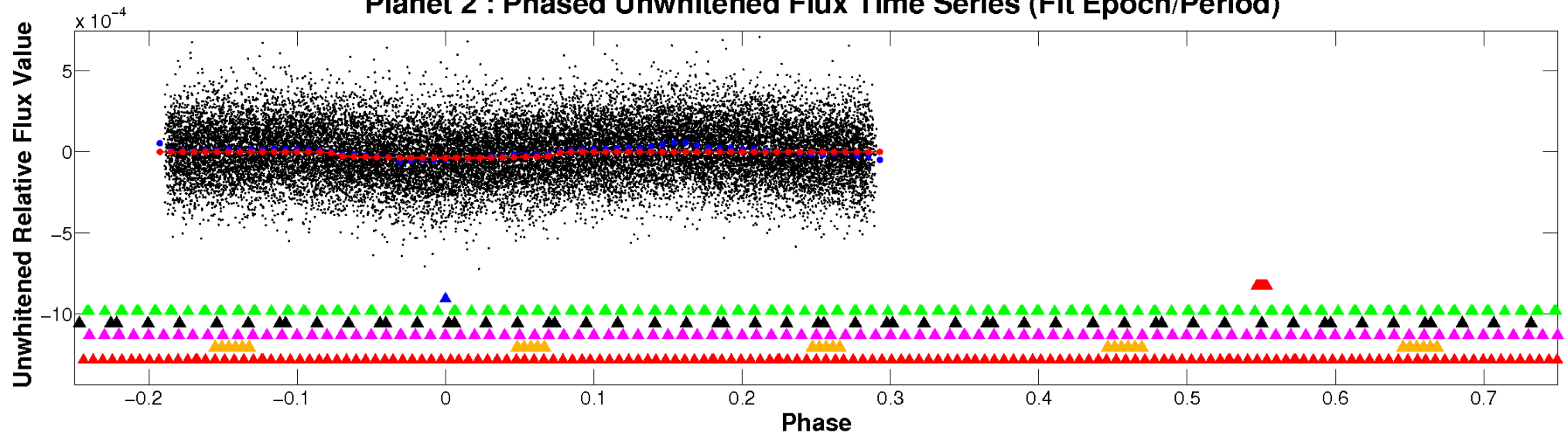
# ALT Odd/Even

TCE 003660392-02

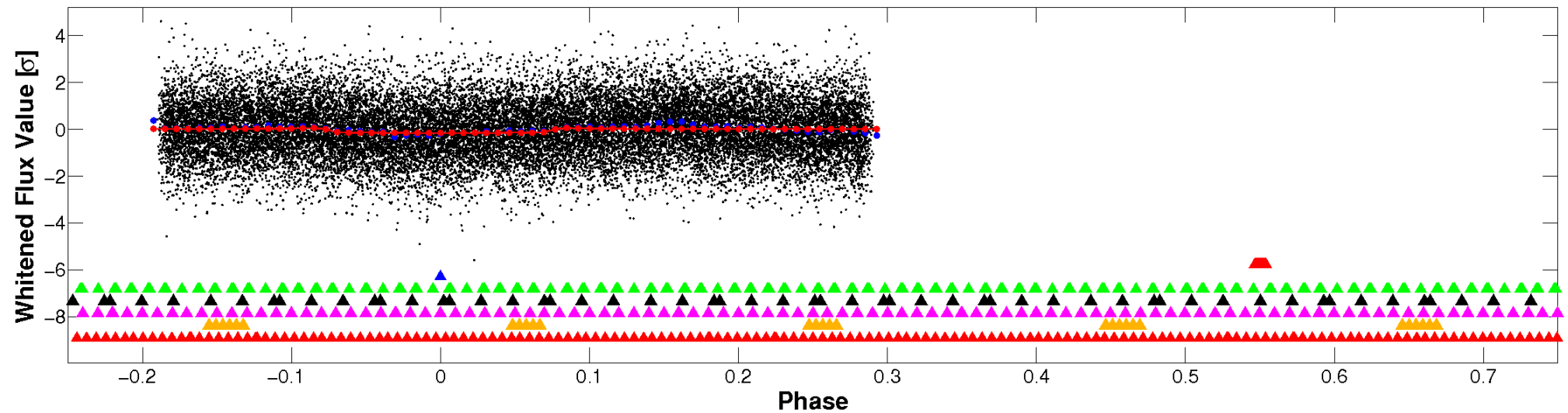


# Non-Whitened Vs. Whitened Light Curve

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



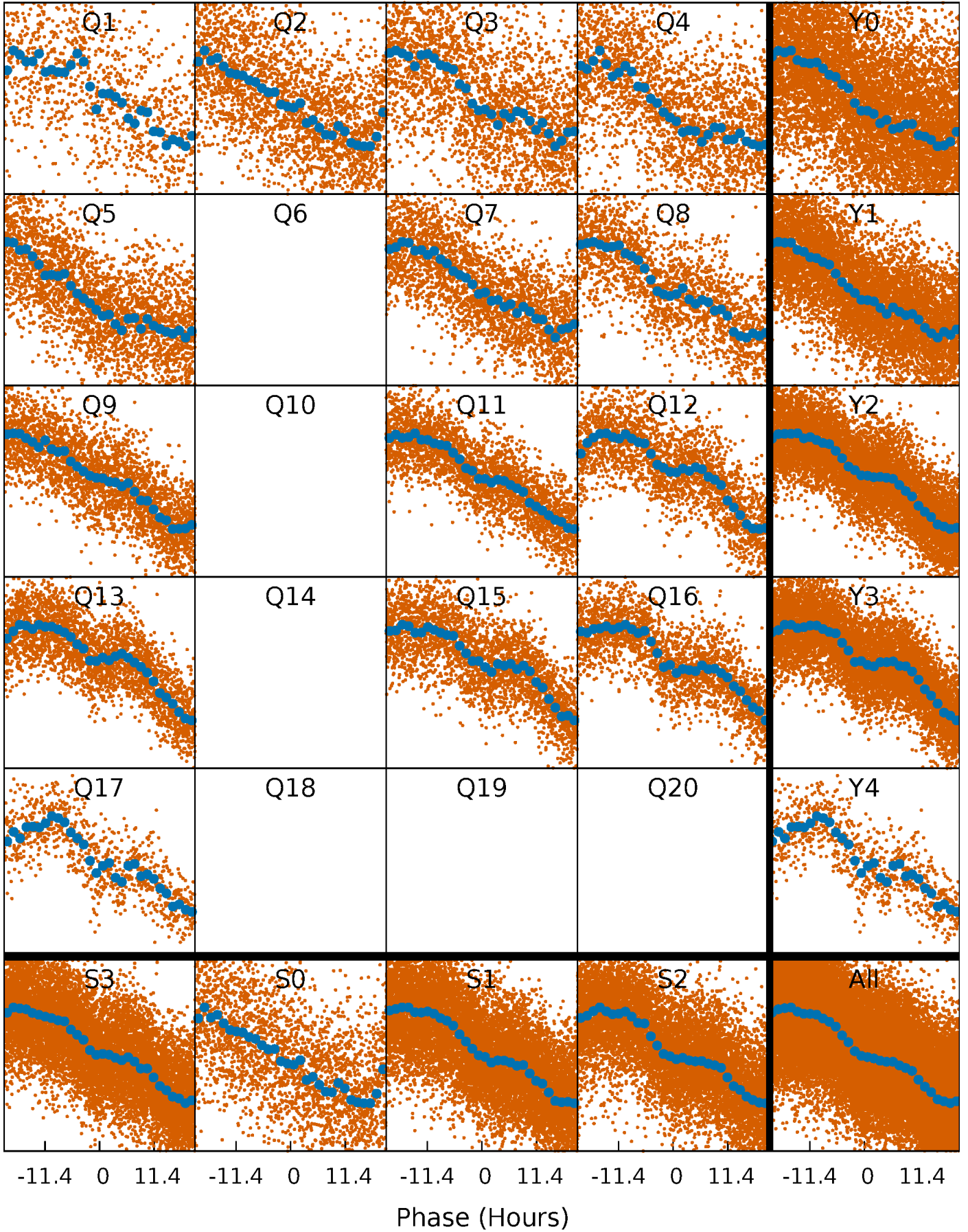
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





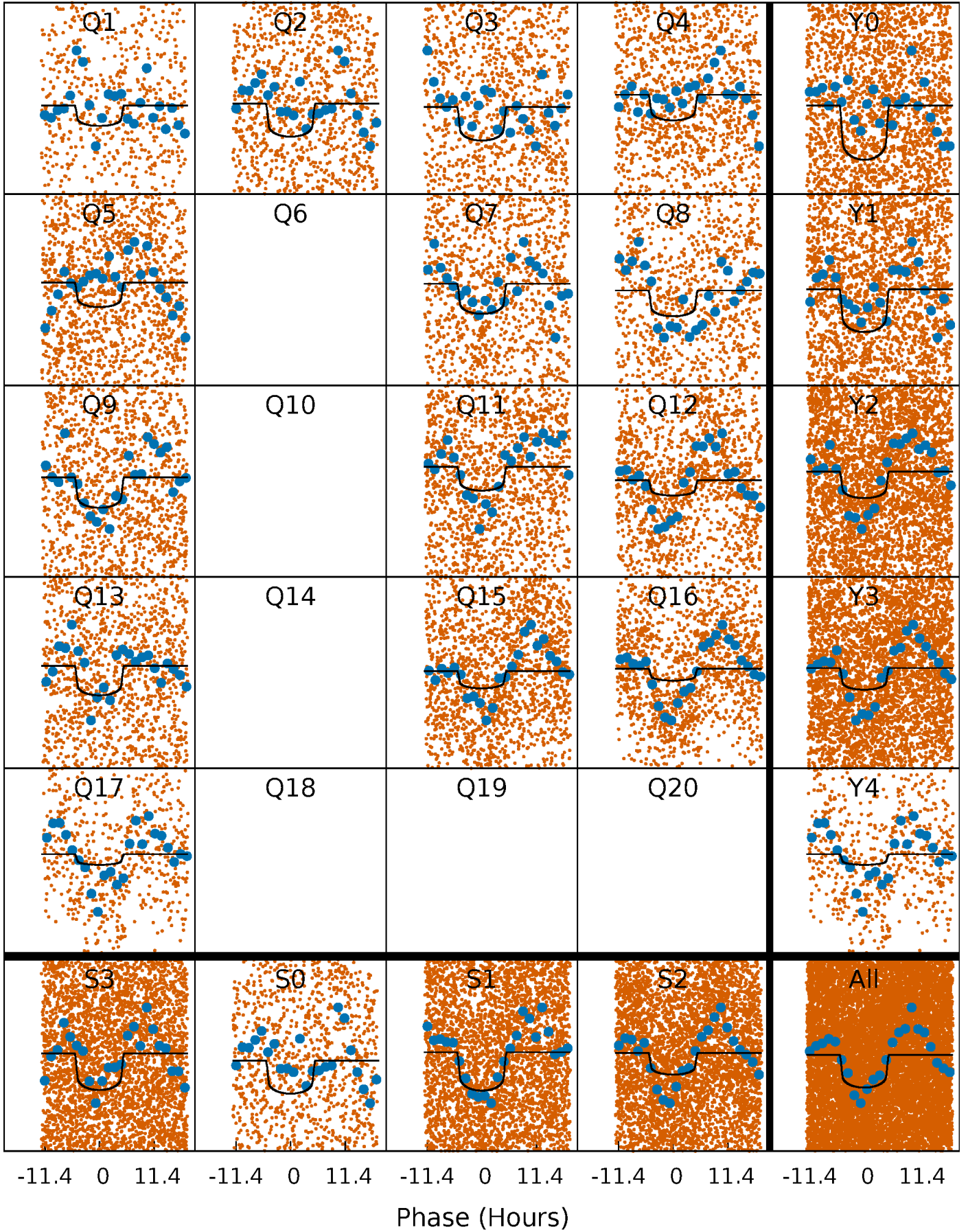
# PDC Quarter-Phased Transit Curves

TCE 003660392-02   P= 2.651830 Days    $T_0=132.397389$  (BKJD)



# DV Quarter-Phased Transit Curves

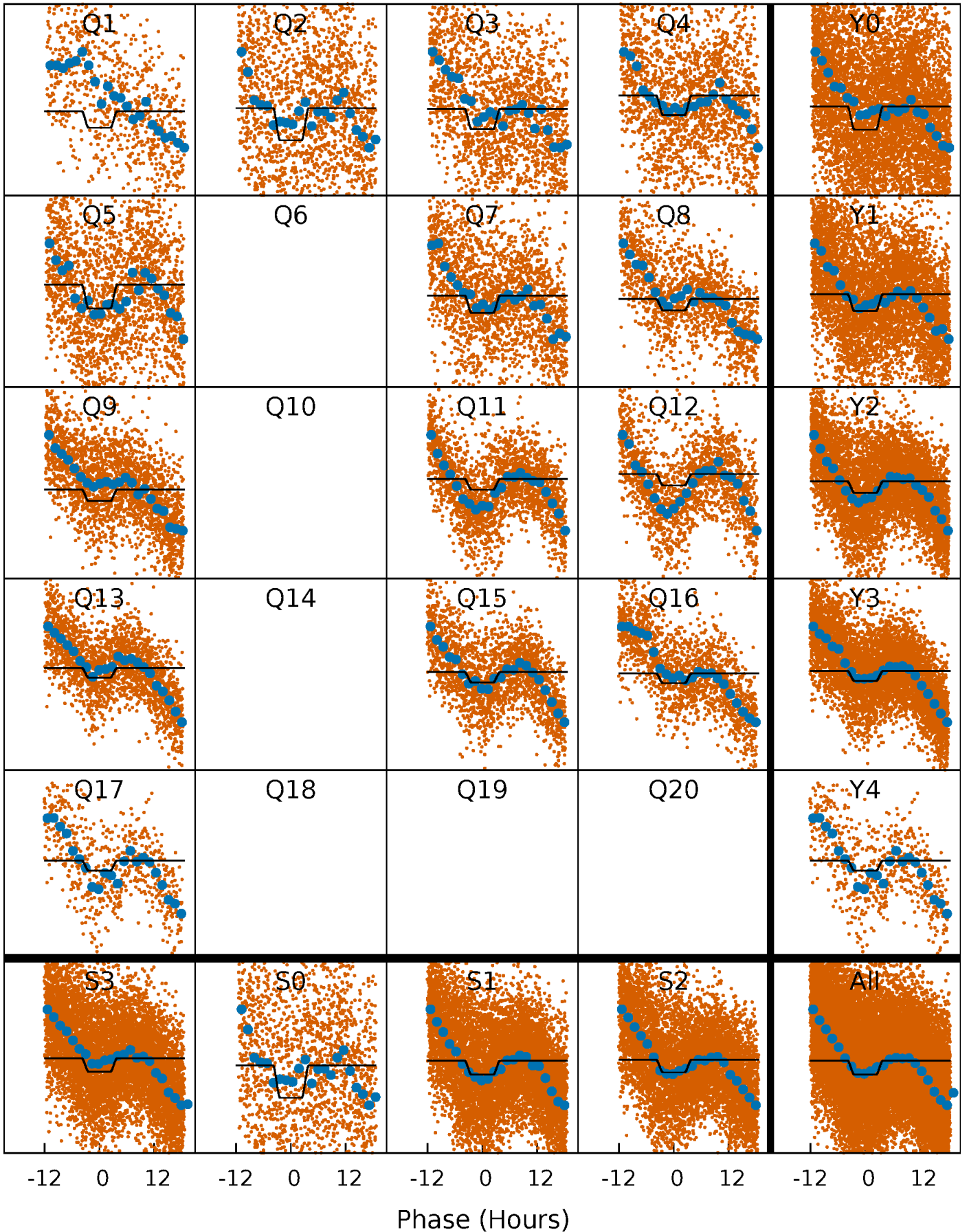
TCE 003660392-02    P= 2.651830 Days     $T_0=132.397389$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

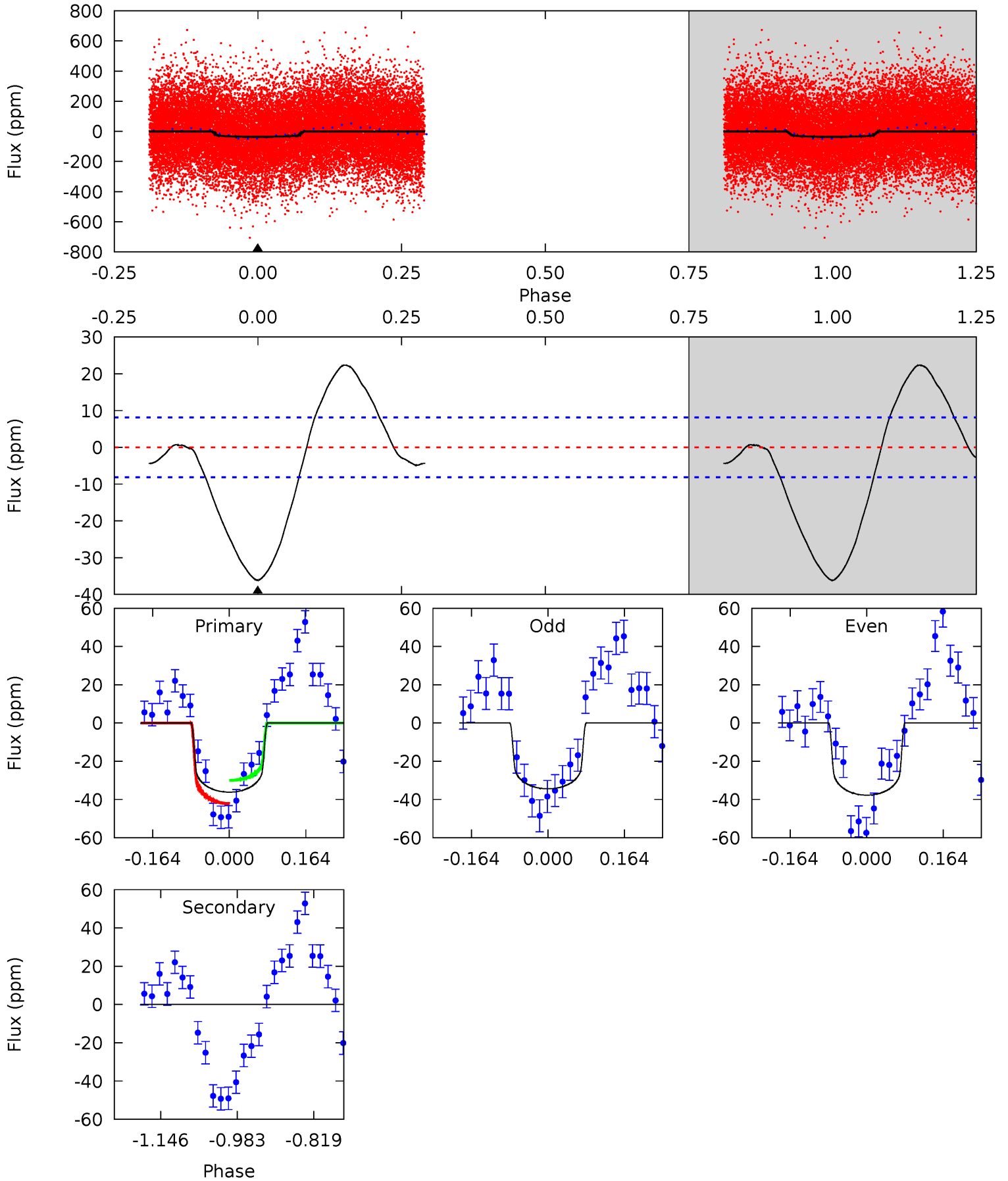
TCE 003660392-02   P= 2.651913 Days    $T_0=132.371062$  (BKJD)



# DV Model-Shift Uniqueness Test

003660392-02, P = 2.651830 Days, E = 129.745559 Days

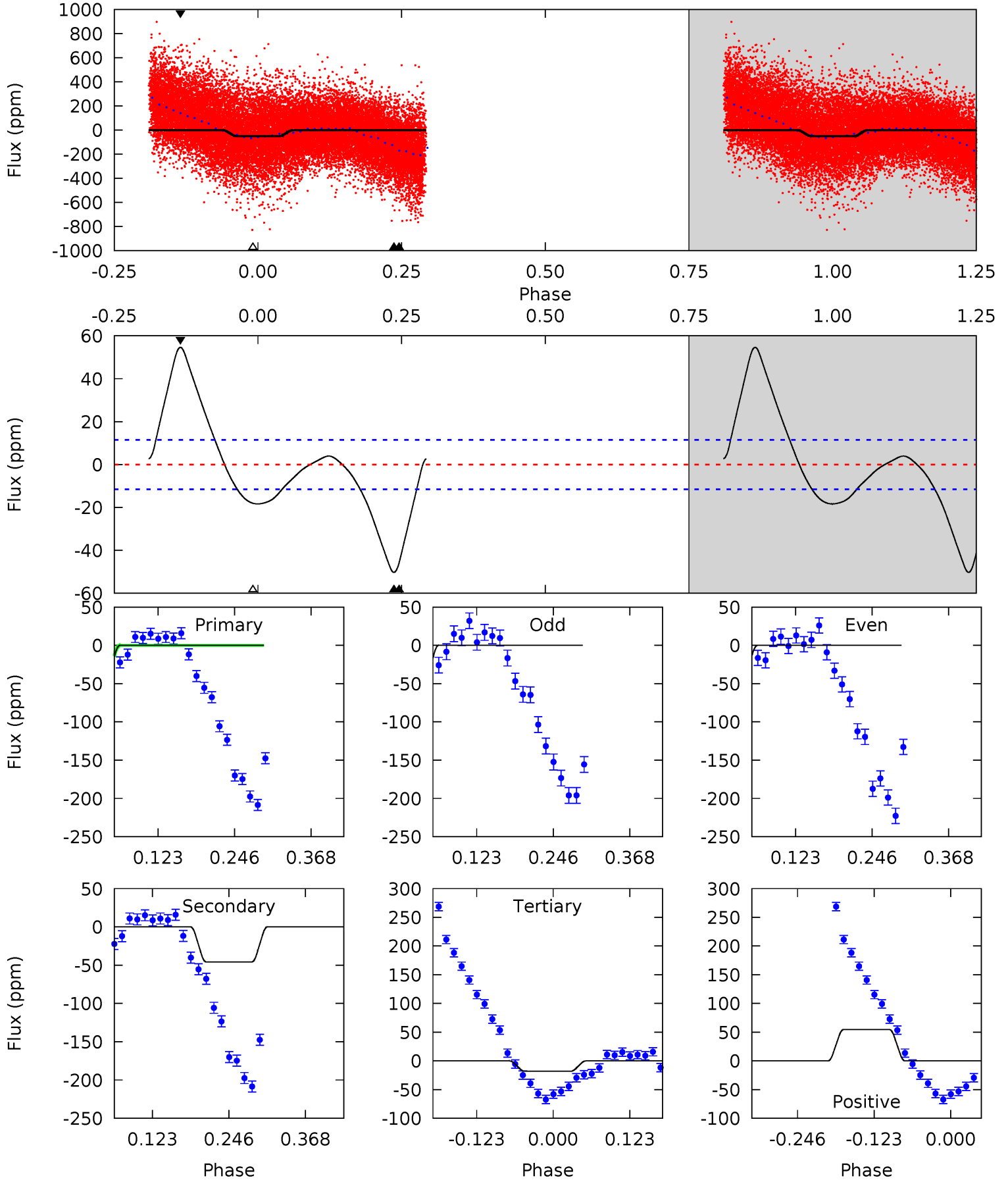
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.9	0	0	0	4.46	1.39	4.85	19.9	19.9	0	0	0.91	1.14	0.38	3.32



# Alt Model-Shift Uniqueness Test

003660392-02, P = 2.651913 Days, E = 129.719149 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
19.7	17.9	7.07	21.4	4.52	1.54	8.82	12.6	-1.70	10.8	-3.49	1.72	1.16	0.52	2.38





### Stellar Parameters For KIC 003660392

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6550^{+178}_{-198}$	$3.473^{+0.376}_{-0.094}$	$-0.440^{+0.400}_{-0.300}$	$3.920^{+0.565}_{-1.581}$	$1.666^{+0.190}_{-0.443}$	$0.039^{+0.124}_{-0.012}$
	+3%/-3%	+11%/-3%	+91%/-68%	+14%/-40%	+11%/-27%	+318%/-30%
Source	PHO1	FLK73	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 003660392-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 2$	$2.65^{+0.59}_{-0.62}$	$3710^{+250}_{-379}$	$-3495^{+5821}_{-433}$	$0.004^{+0.311}_{-0.300}$
Alt.	$-46 \pm 3$	$3.23^{+0.69}_{-0.80}$	$3708^{+234}_{-360}$	$5930^{+457}_{-407}$	$4.894^{+3.188}_{-1.531}$

$T_{max}$  = 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

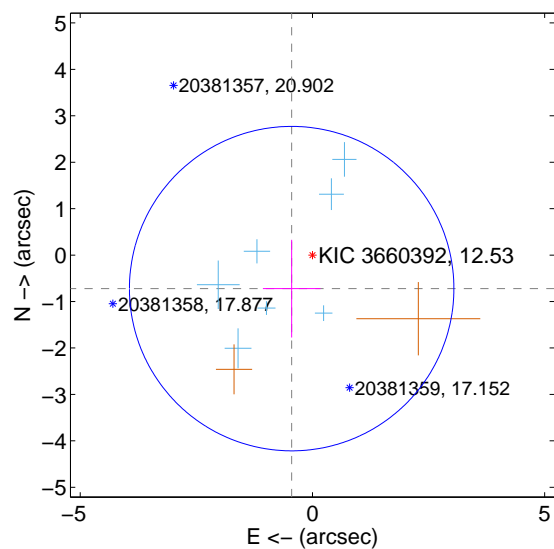
Supplemental centroid analysis for 003660392-02. Kepler magnitude: 12.53. Transit SNR 13.33

There are 7 quarters with good PRF difference image offsets

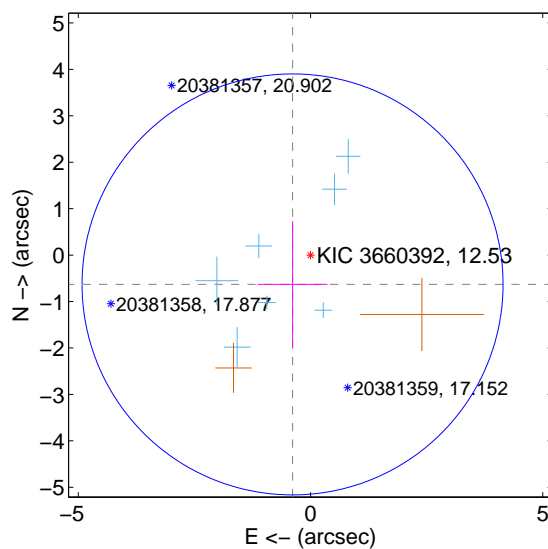
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.849 \pm 1.164$	0.73	$0.447 \pm 0.620$	$-0.722 \pm 1.052$
PRF-fit source offset from KIC position	$0.740 \pm 1.511$	0.49	$0.387 \pm 0.750$	$-0.631 \pm 1.363$
photometric centroid source offset	$0.77 \pm 0.59$	1.29	$0.64 \pm 0.59$	$-0.43 \pm 0.61$

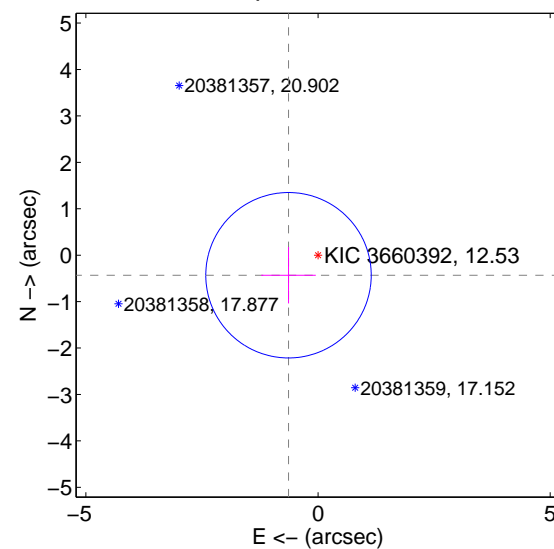
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

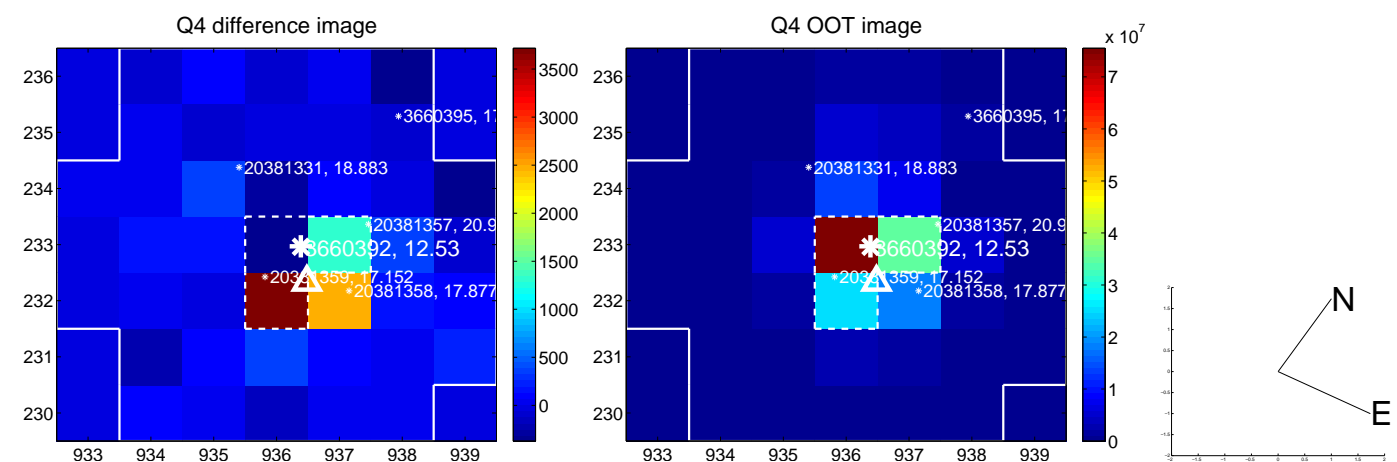
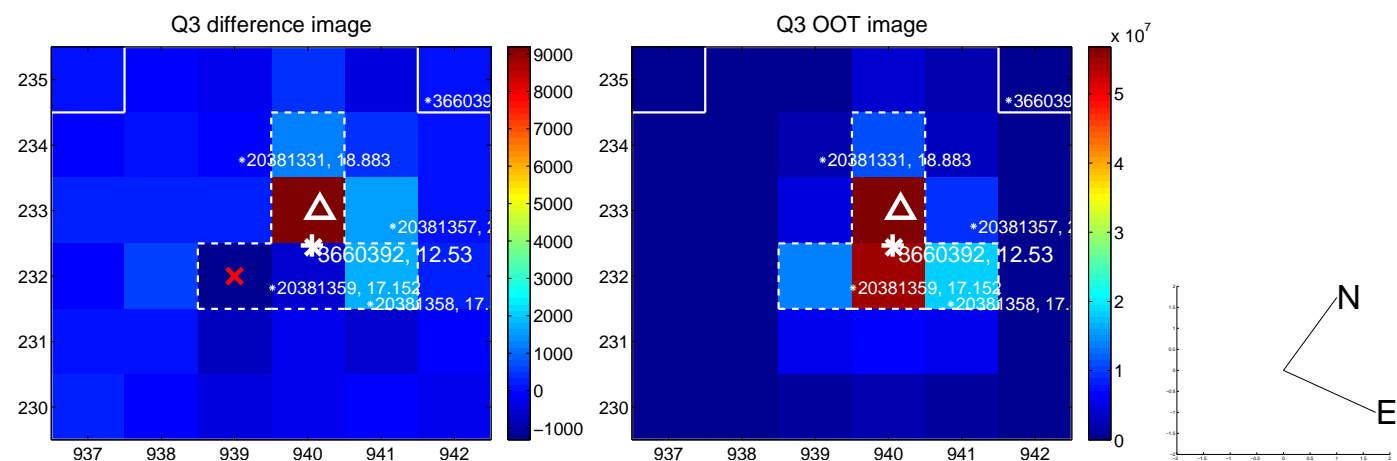
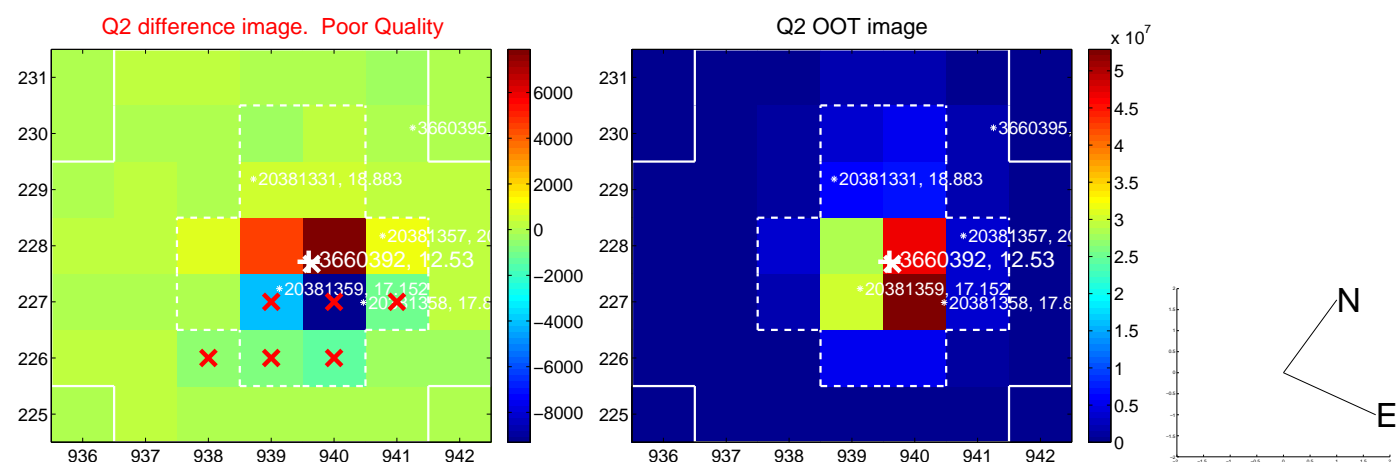
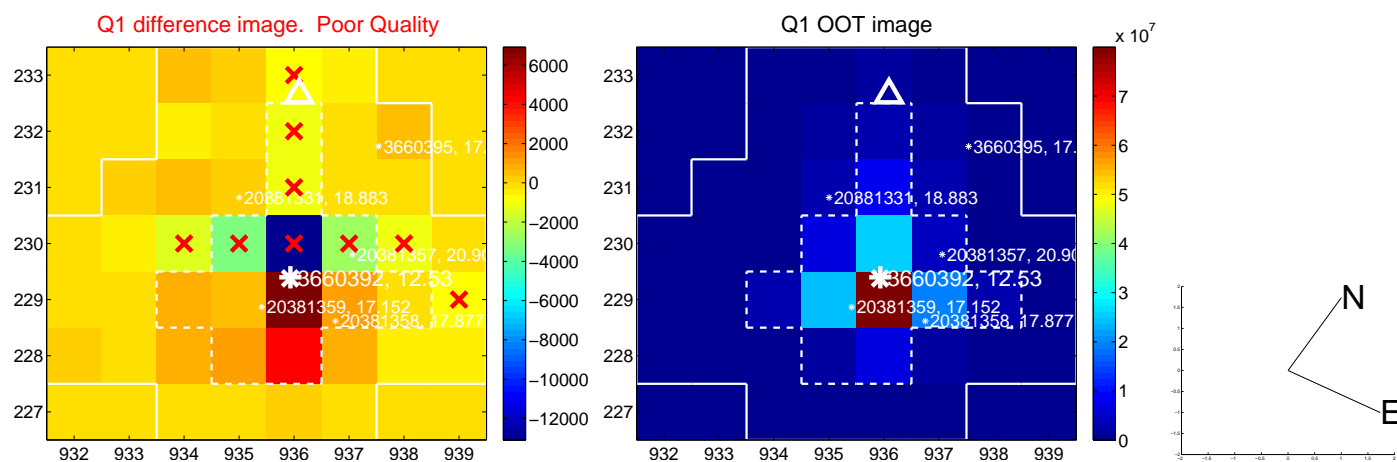


offset from photometric centroids

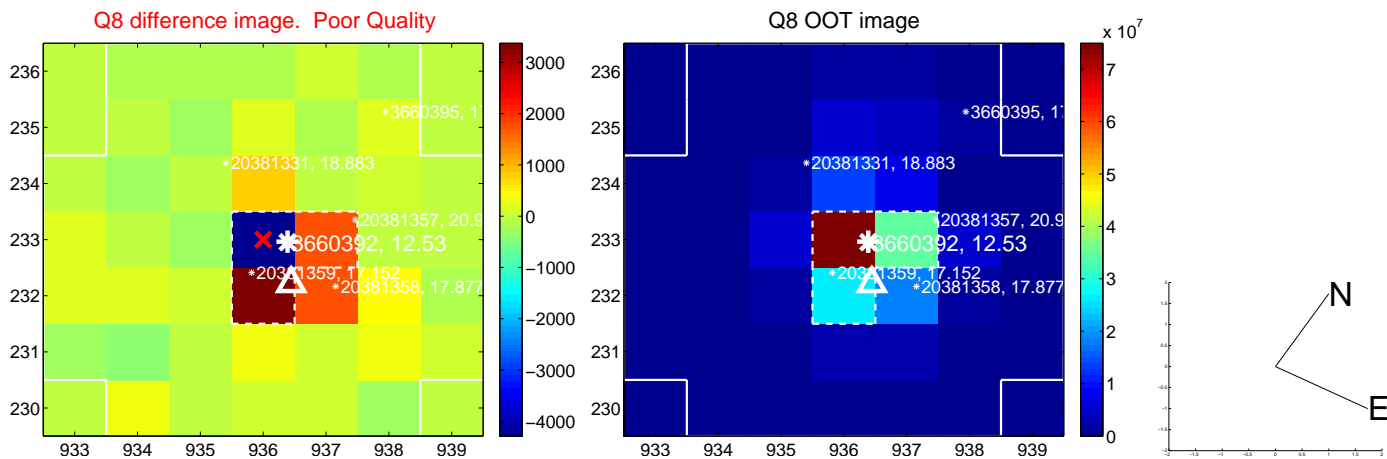
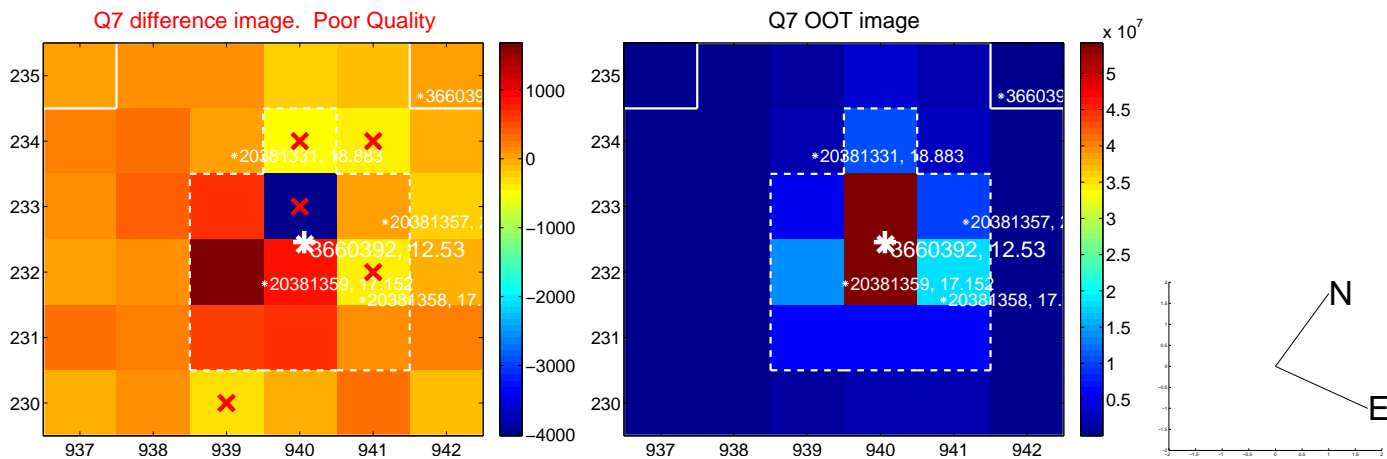
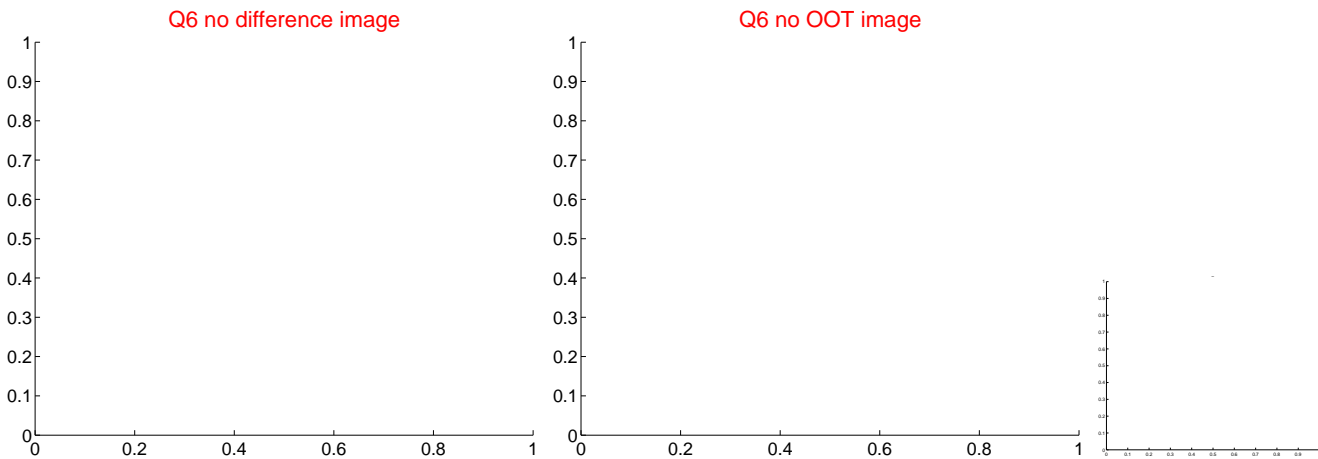
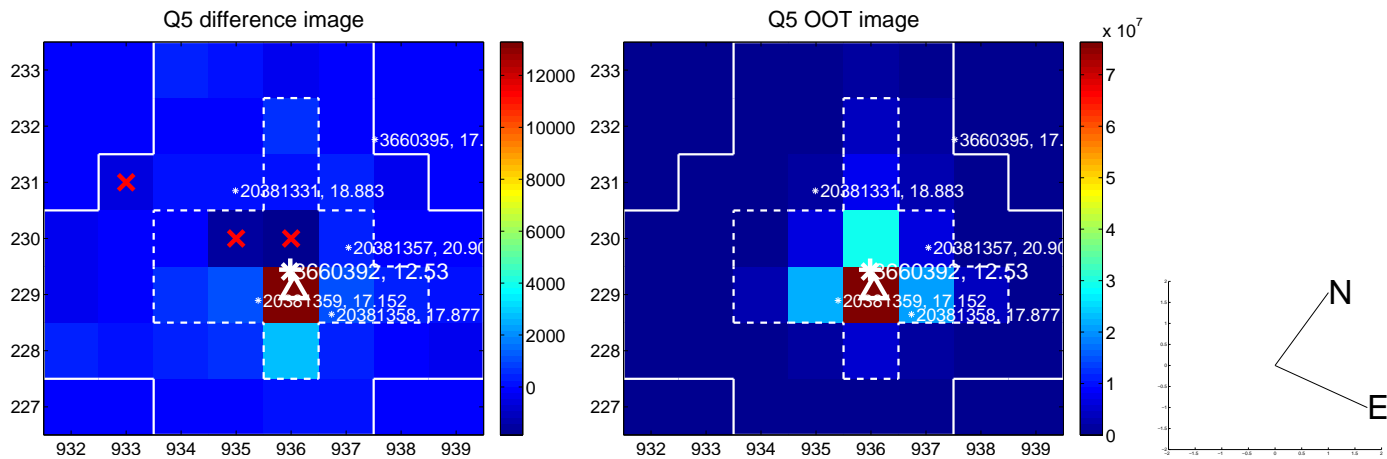


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

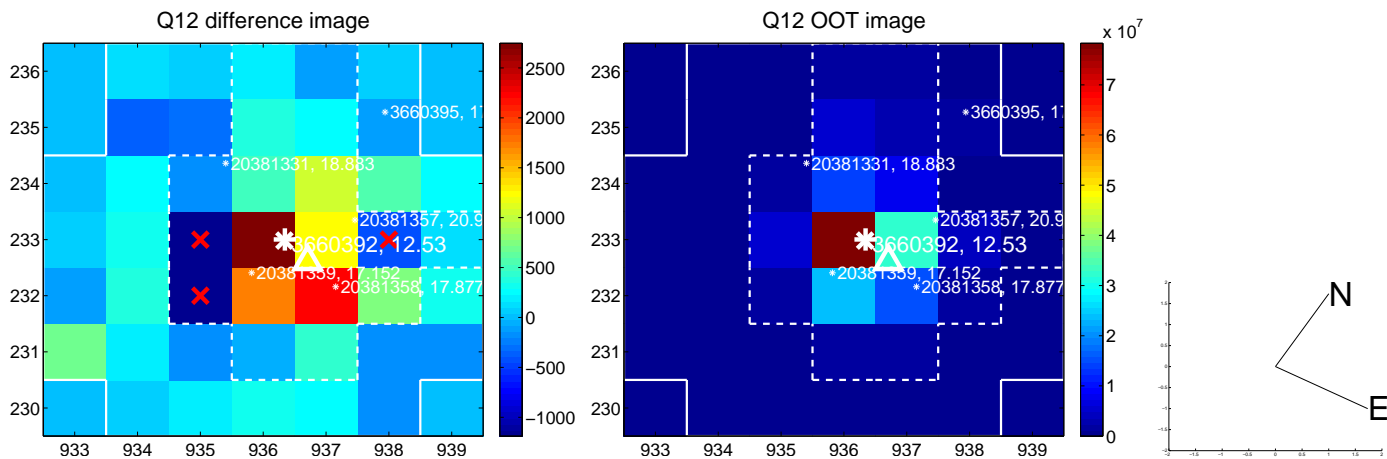
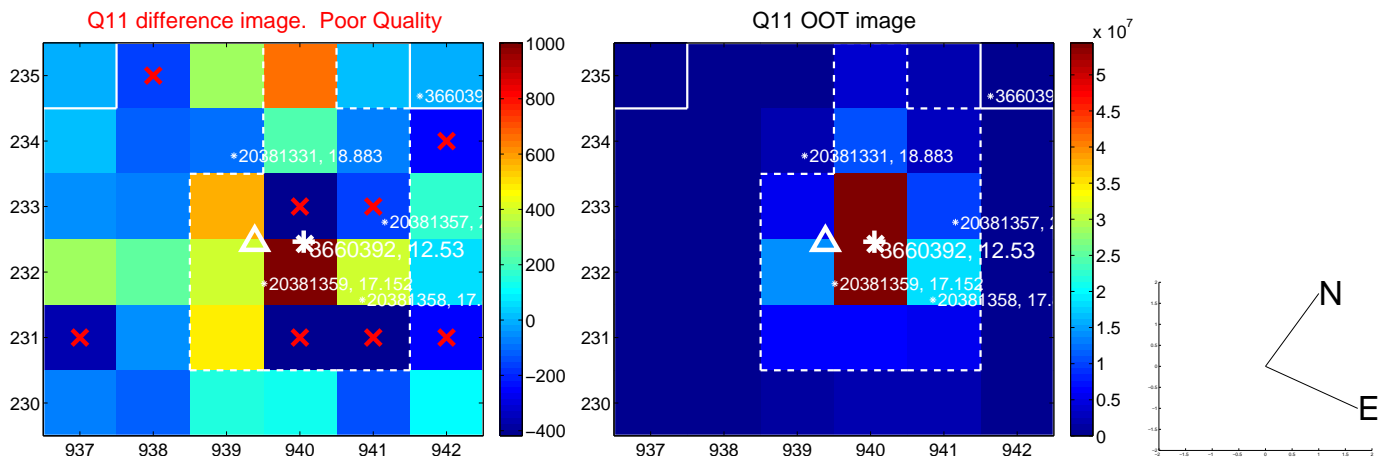
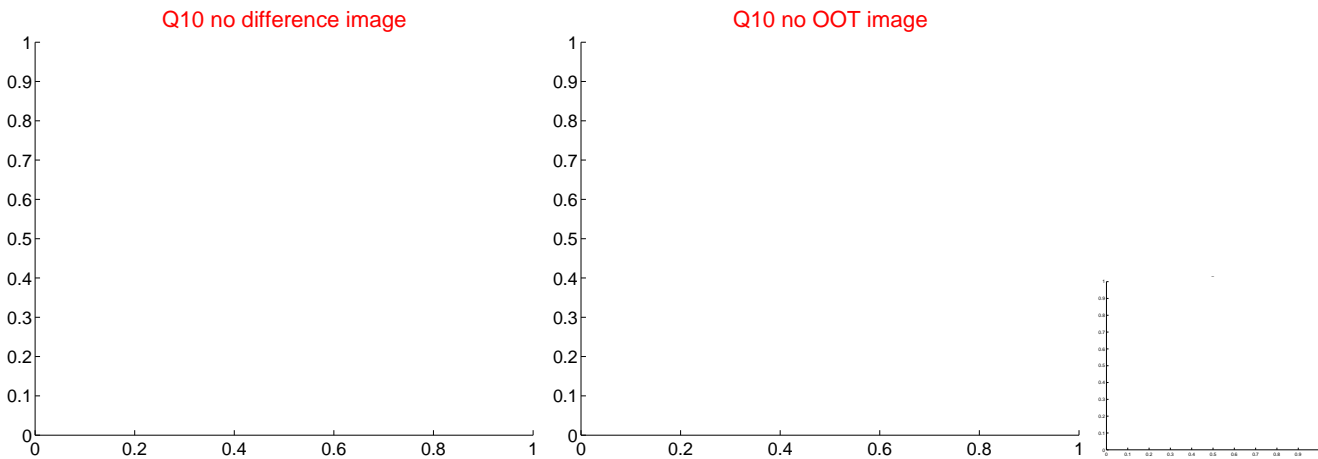
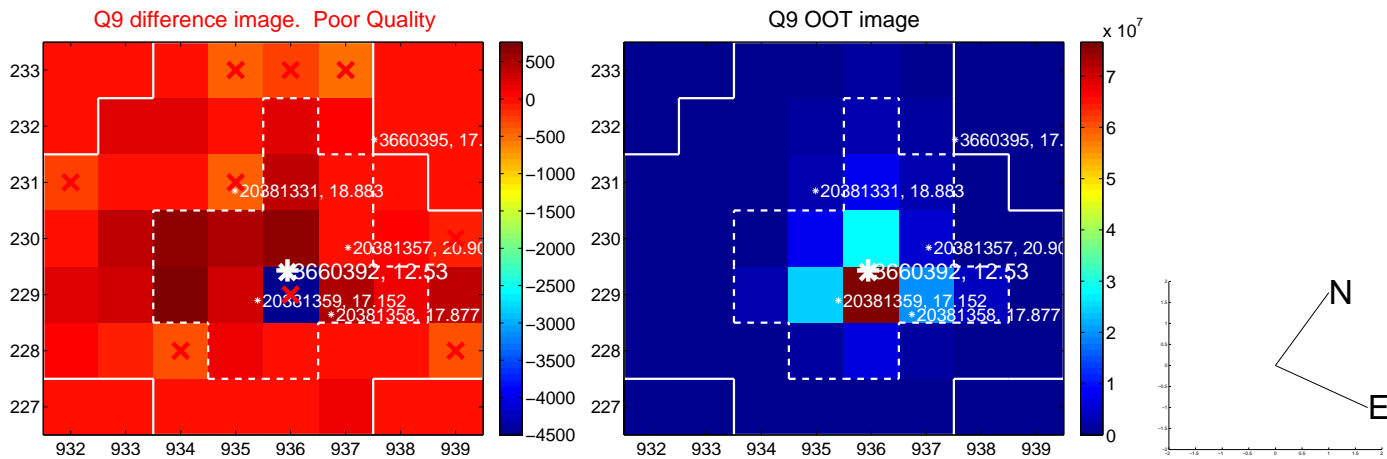
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

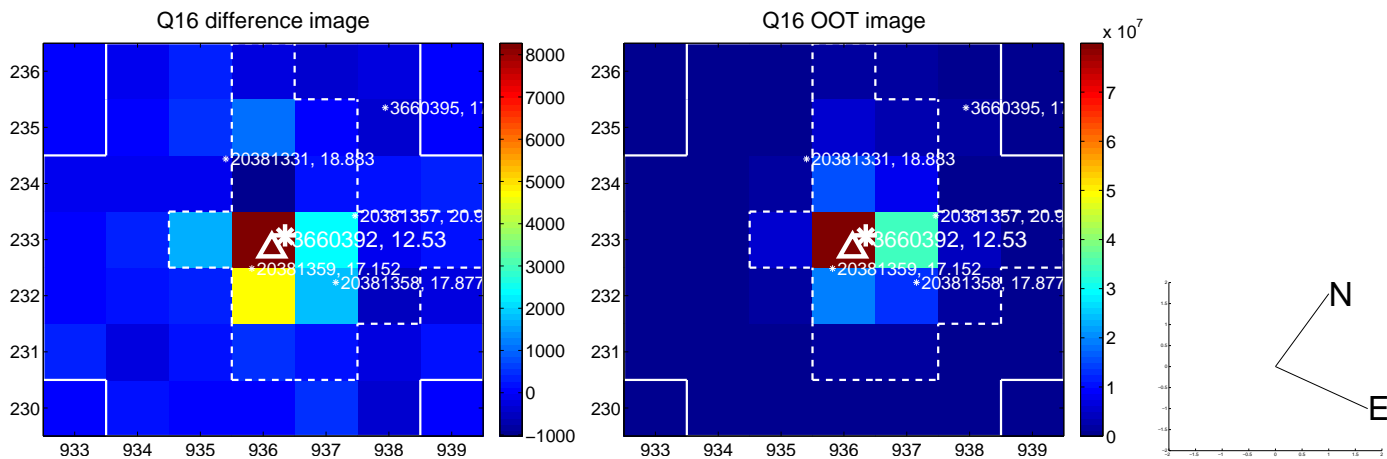
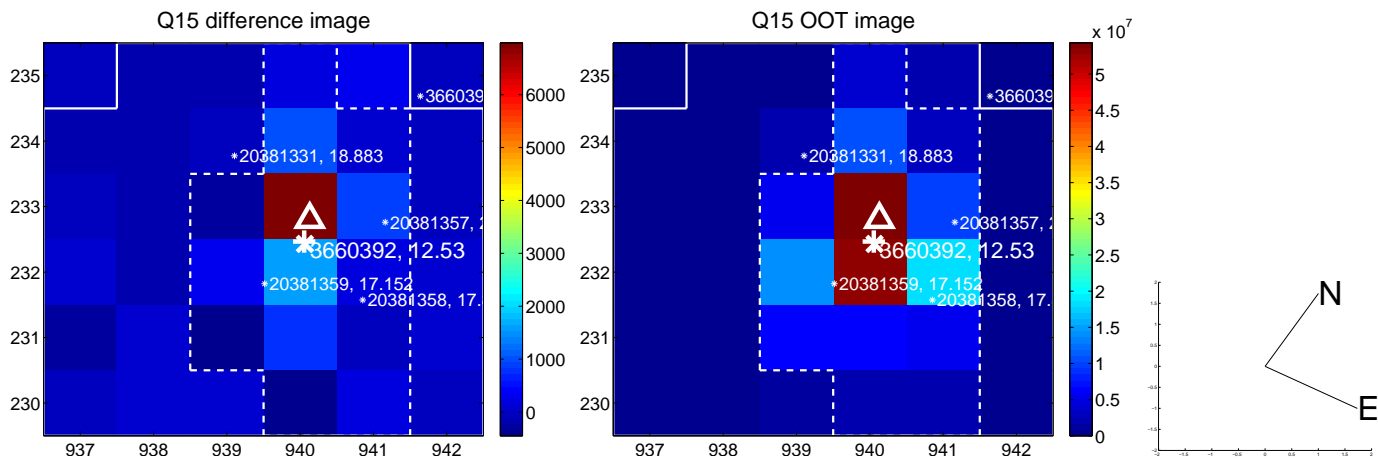
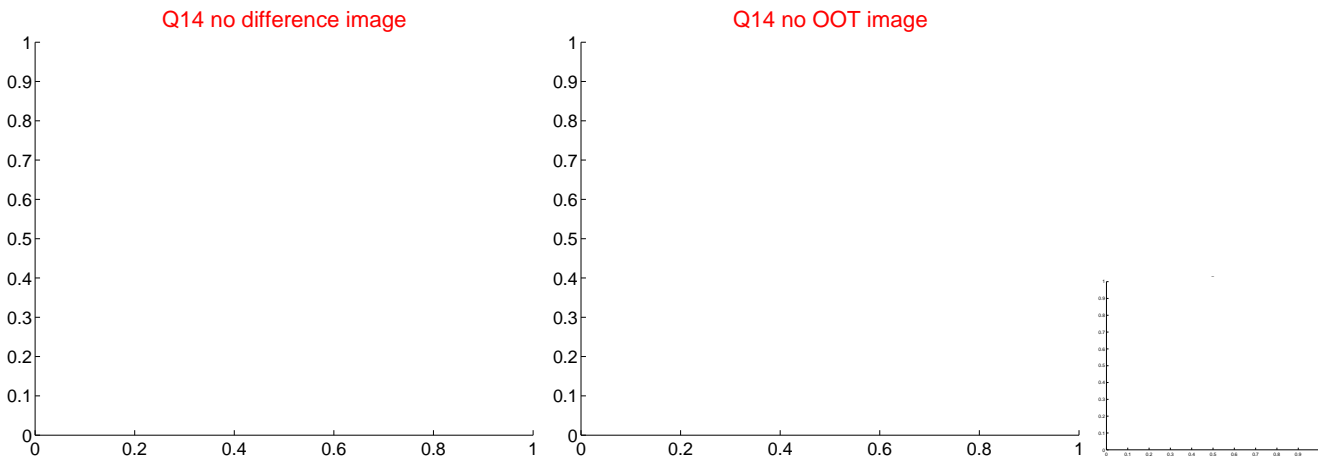
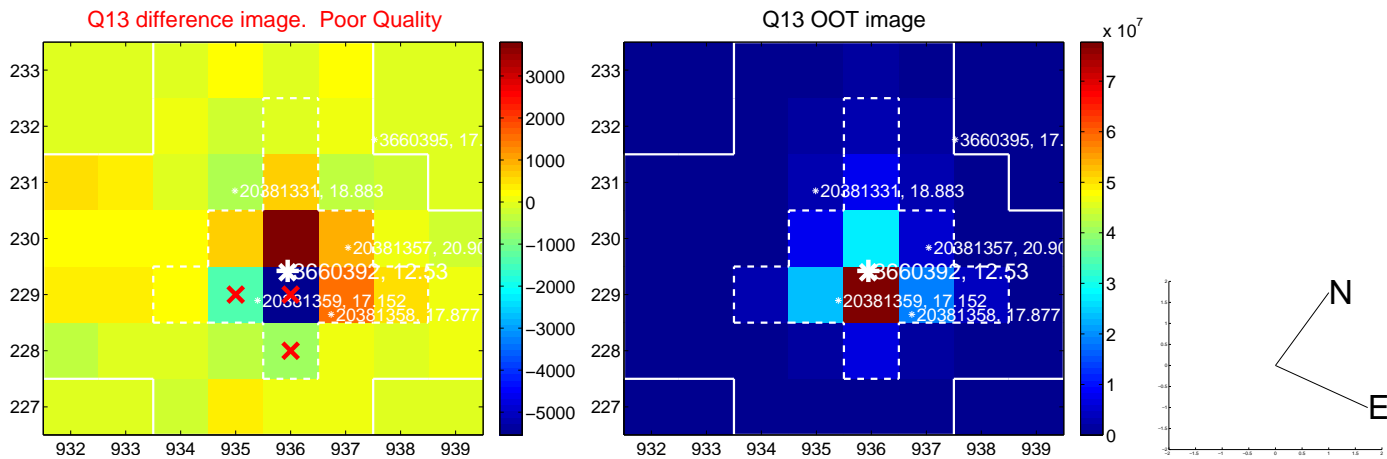


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

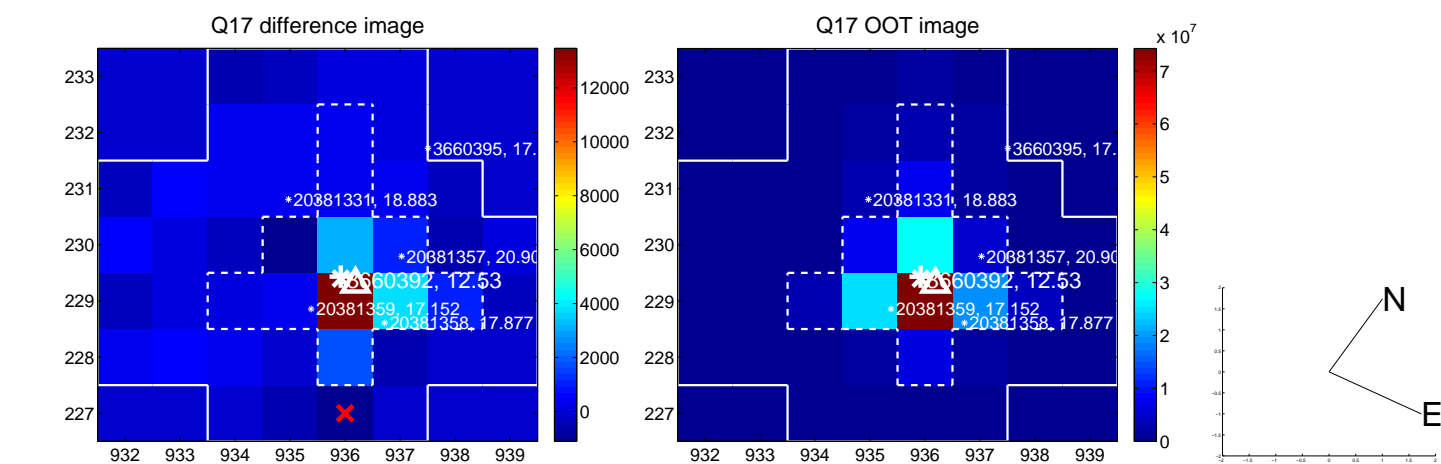




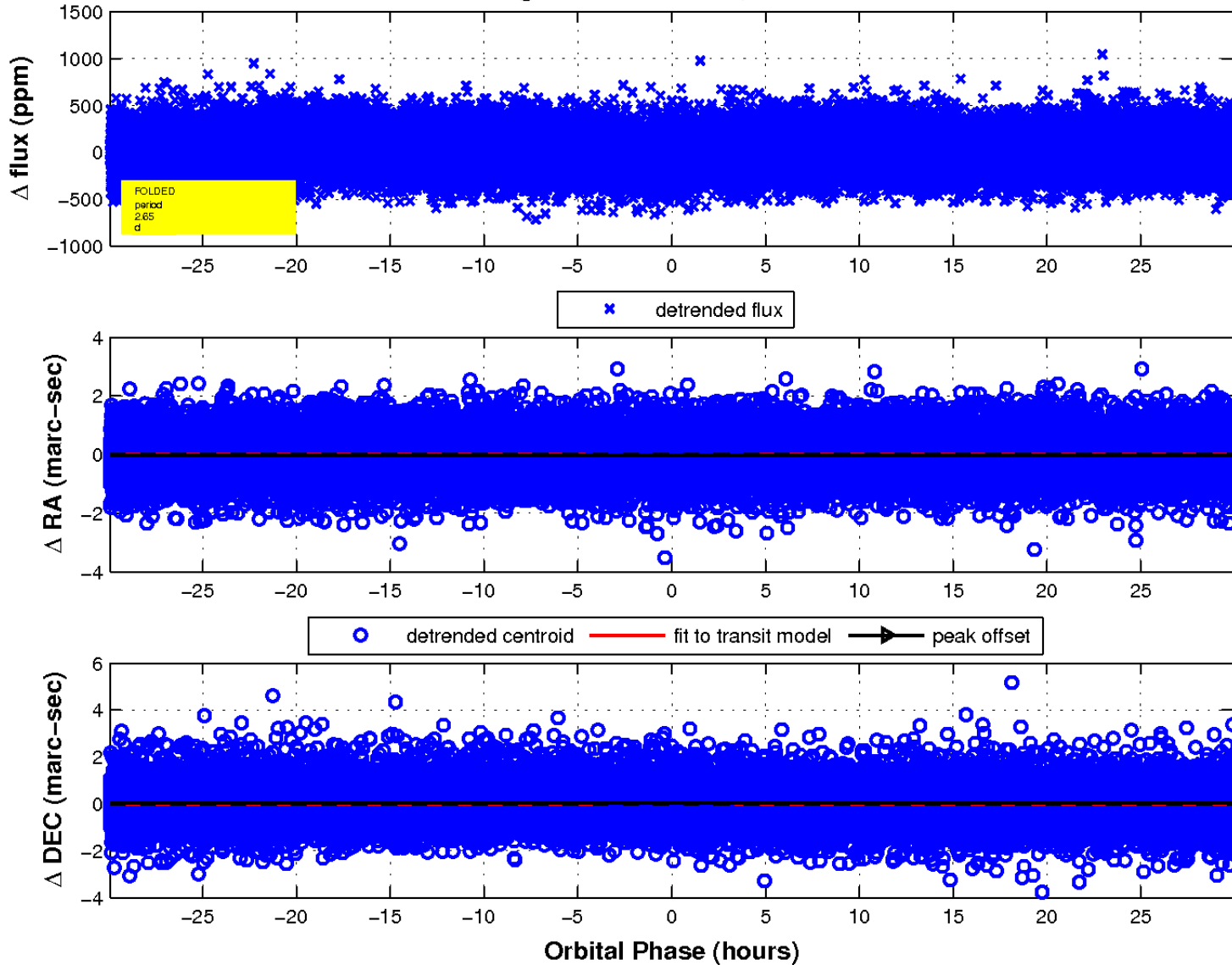
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

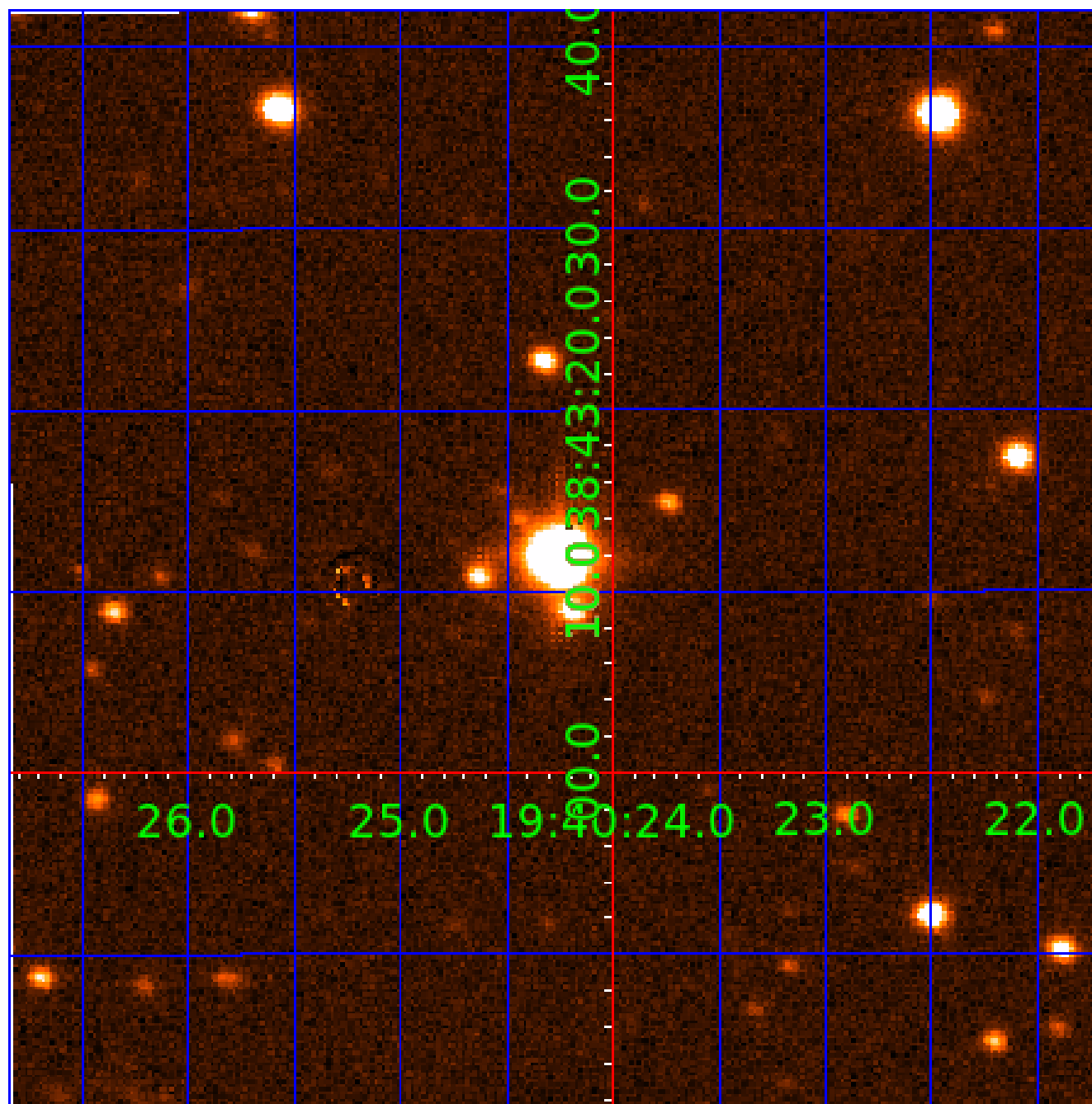


fluxWeightedCentroids, Planet 2 of 7



UKIRT Image

Declination



# KIC 003660392

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003660392-01	OBS	No	2.651865	133.846988	30.1	11.002	10.6	8.6	3.92	6550	2.20	12822.76
003660392-02	OBS	No	2.651830	132.397389	36.9	9.980	11.3	13.3	3.92	6550	2.79	12823.00
003660392-03	OBS	No	9.206947	138.847325	197.1	2.789	9.1	8.9	3.92	6550	6.50	2439.10
003660392-04	OBS	No	25.735035	154.278163	304.7	4.134	8.8	8.4	3.92	6550	7.98	619.47
003660392-05	OBS	No	13.762980	138.762271	194.9	5.685	8.4	8.6	3.92	6550	5.84	1427.03
003660392-06	OBS	No	52.508650	147.896614	270.5	2.000	7.8	-1.0	3.92	6550	6.50	239.37
003660392-07	OBS	No	8.878610	137.254666	280.1	1.394	7.6	8.5	3.92	6550	7.68	2560.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003660392-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT
003660392-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
003660392-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003660392-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST
003660392-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
003660392-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST
003660392-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV

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

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

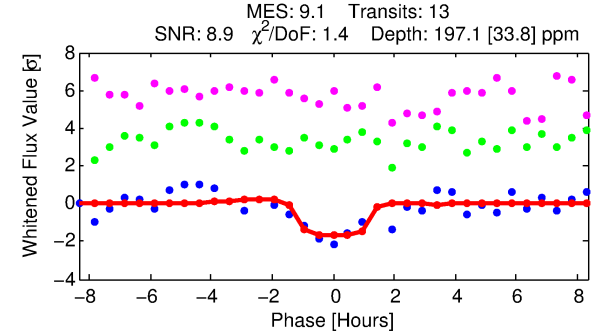
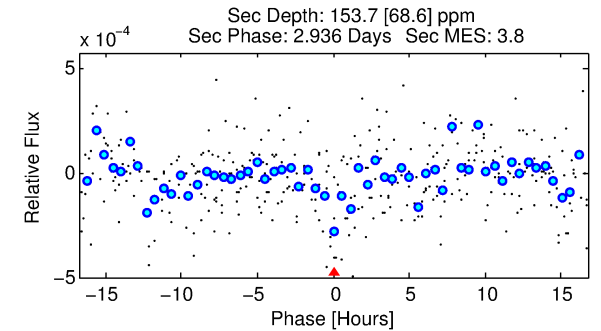
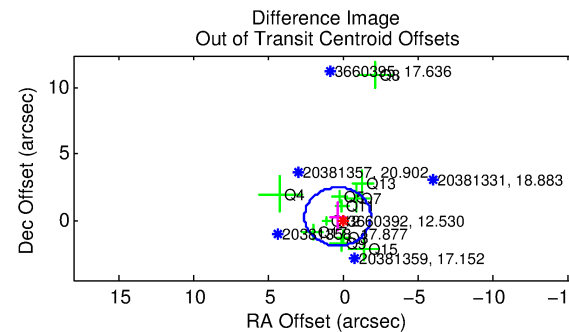
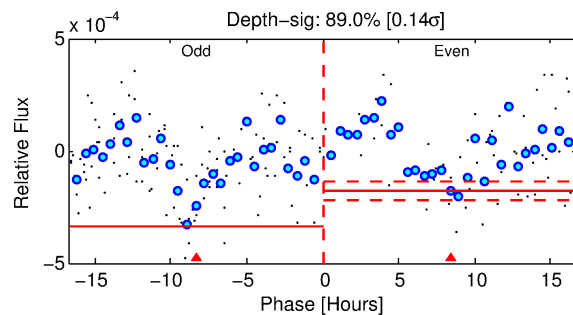
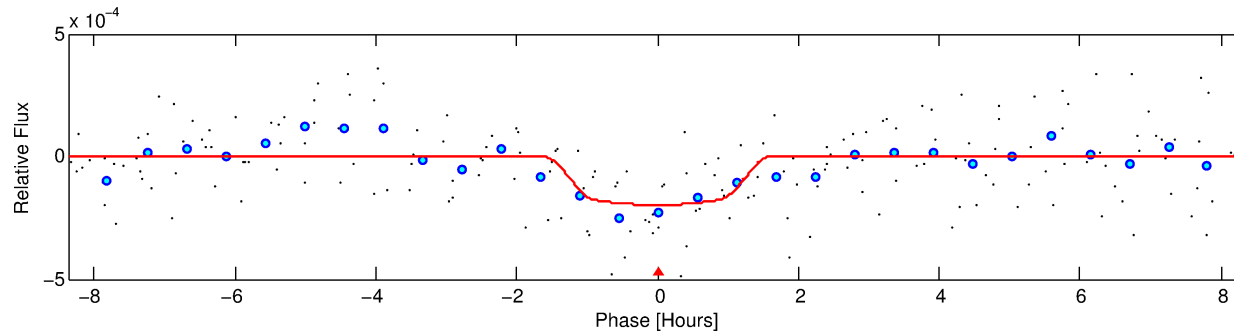
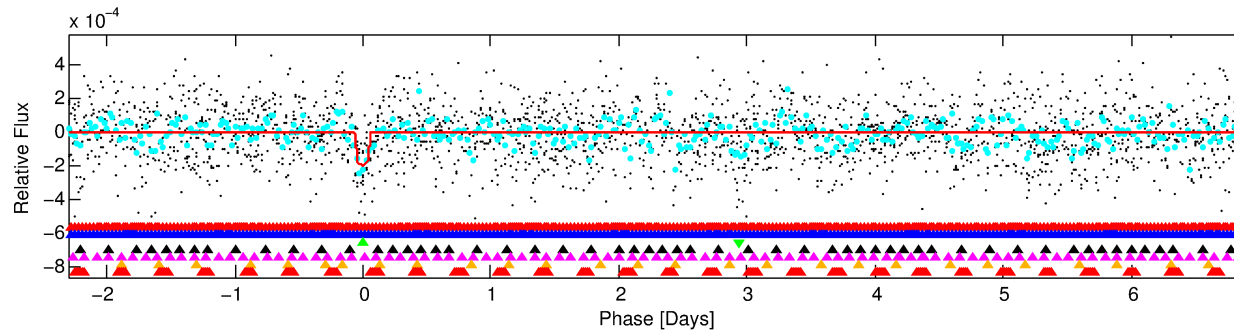
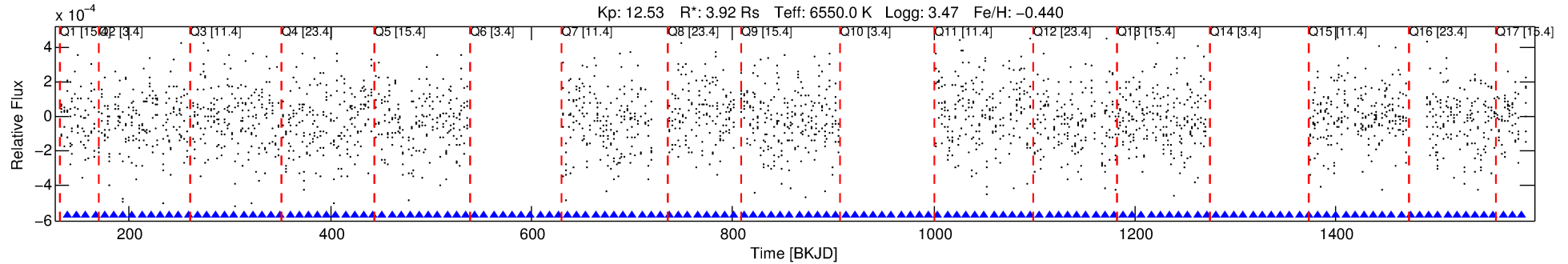
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003660392-03

No Significant Match Found

# DV One-Page Summary

KIC: 3660392 Candidate: 3 of 7 Period: 9.207 d



## DV Fit Results:

Period = 9.20695 [0.00012] d  
Epoch = 138.8473 [0.0097] BKJD  
Rp/R\* = 0.0152 [0.0095]  
a/R\* = 11.15 [40.13]  
b = 0.91 [0.66]  
Seff = 2439.10 [1580.82]  
Teq = 1792 [290] K  
Rp = 6.50 [4.84] Re  
a = 0.1019 [0.0402] AU  
Ag = 20.79 [30.66] [0.65 $\sigma$ ]  
Teffp = 5916 [1976] K [2.07 $\sigma$ ]

## DV Diagnostic Results:

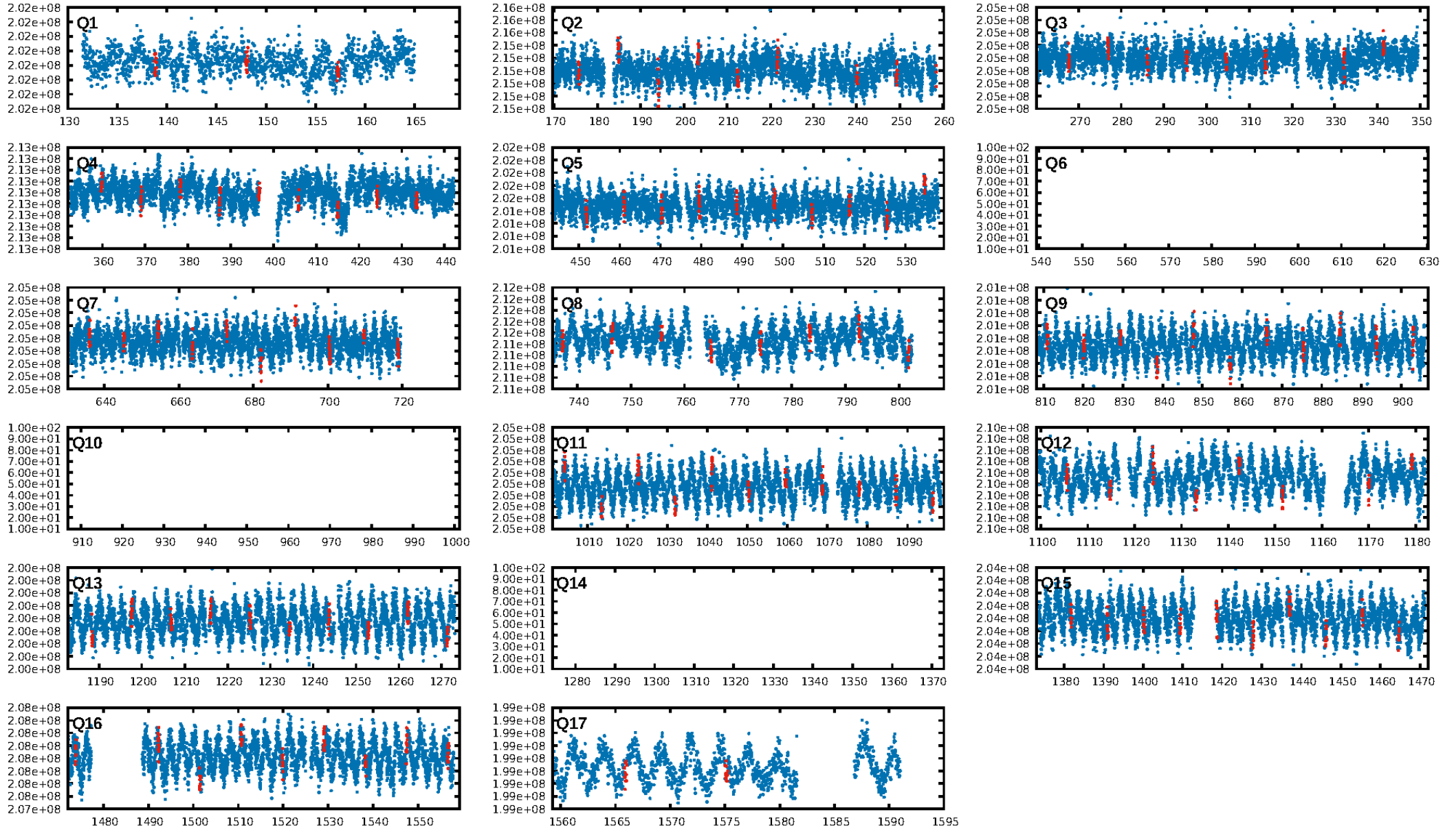
ShortPeriod-sig: 98.9% [2.53 $\sigma$ ]  
LongPeriod-sig: 100.0% [17.27 $\sigma$ ]  
ModelChiSquare2-sig: 17.5%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 2.83e-12**  
RollingBand-fgt: 1.00 [13/13]  
**GhostDiagnostic-chr: 0.4779**  
Centroid-sig: 1.6%  
Centroid-so: 0.553 arcsec [1.51 $\sigma$ ]  
OotOffset-rm: 0.441 arcsec [0.60 $\sigma$ ]  
OotOffset-st: 0.4/3/4 [11]  
KicOffset-rm: 0.478 arcsec [0.60 $\sigma$ ]  
KicOffset-st: 0/4/3/4 [11]  
DiffImageQuality-fgm: 0.64 [7/11]  
DiffImageOverlap-fno: 0.71 [10/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:06:48 Z

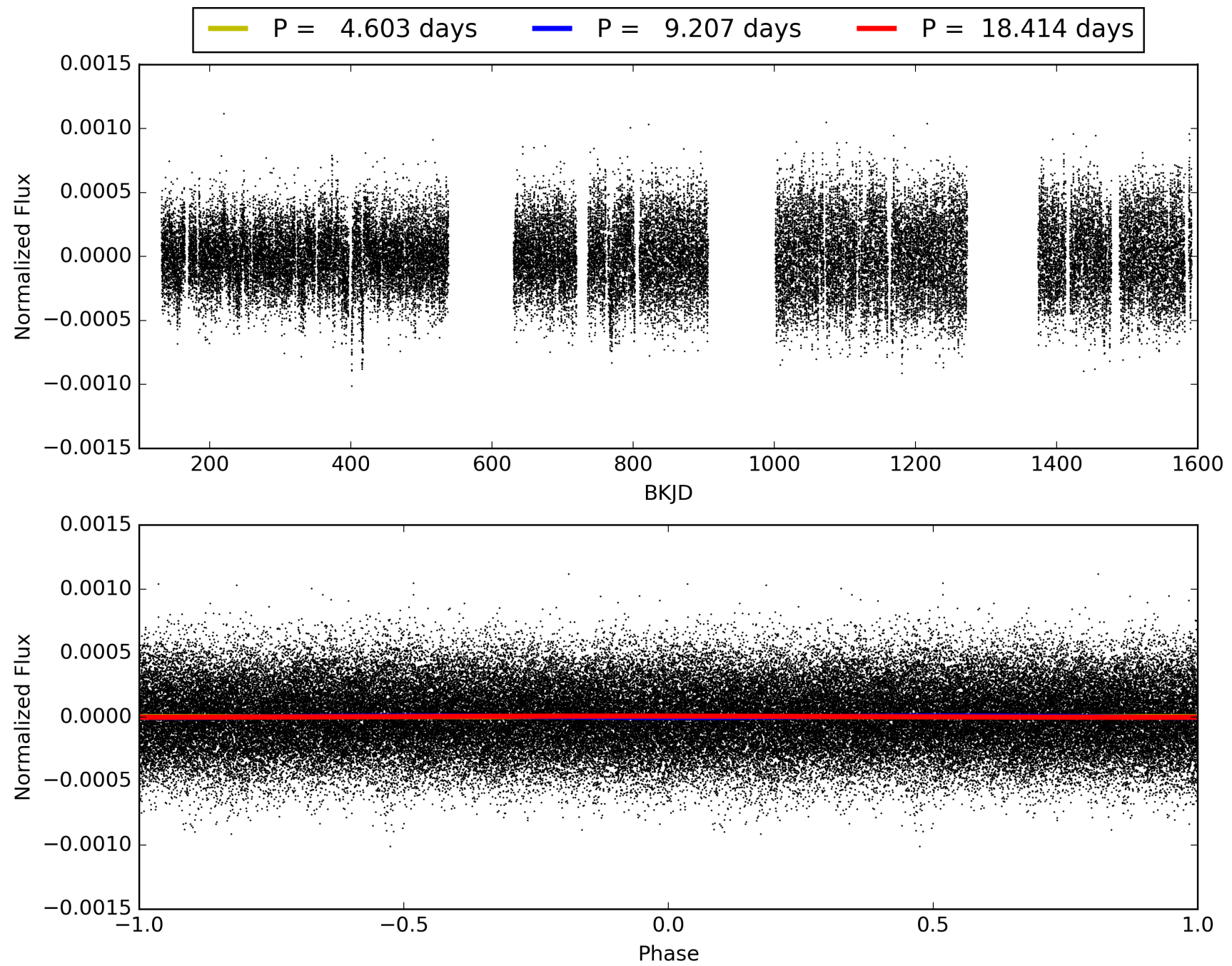
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 003660392-03, PDC Light Curves

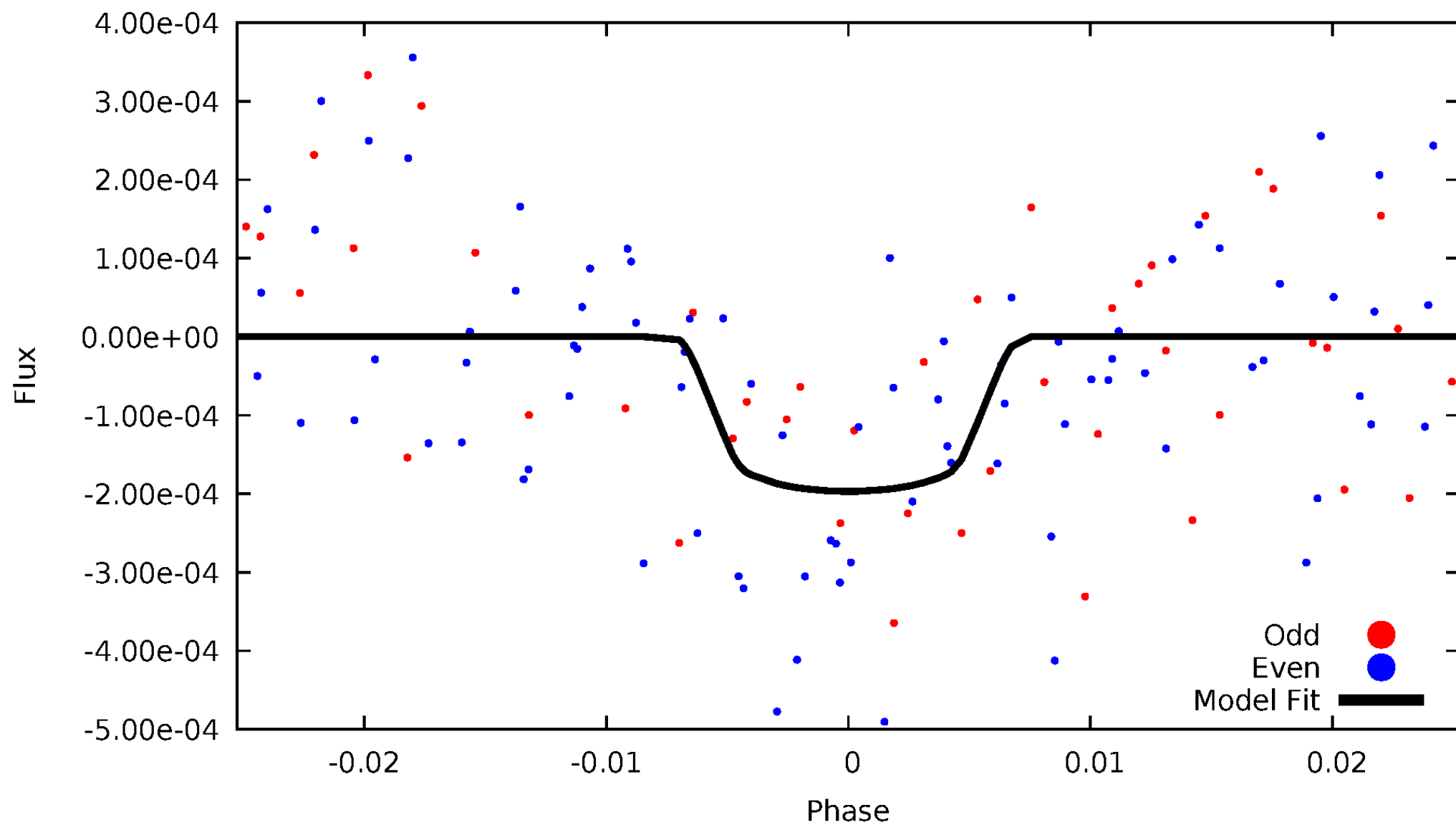


TCE 003660392-03



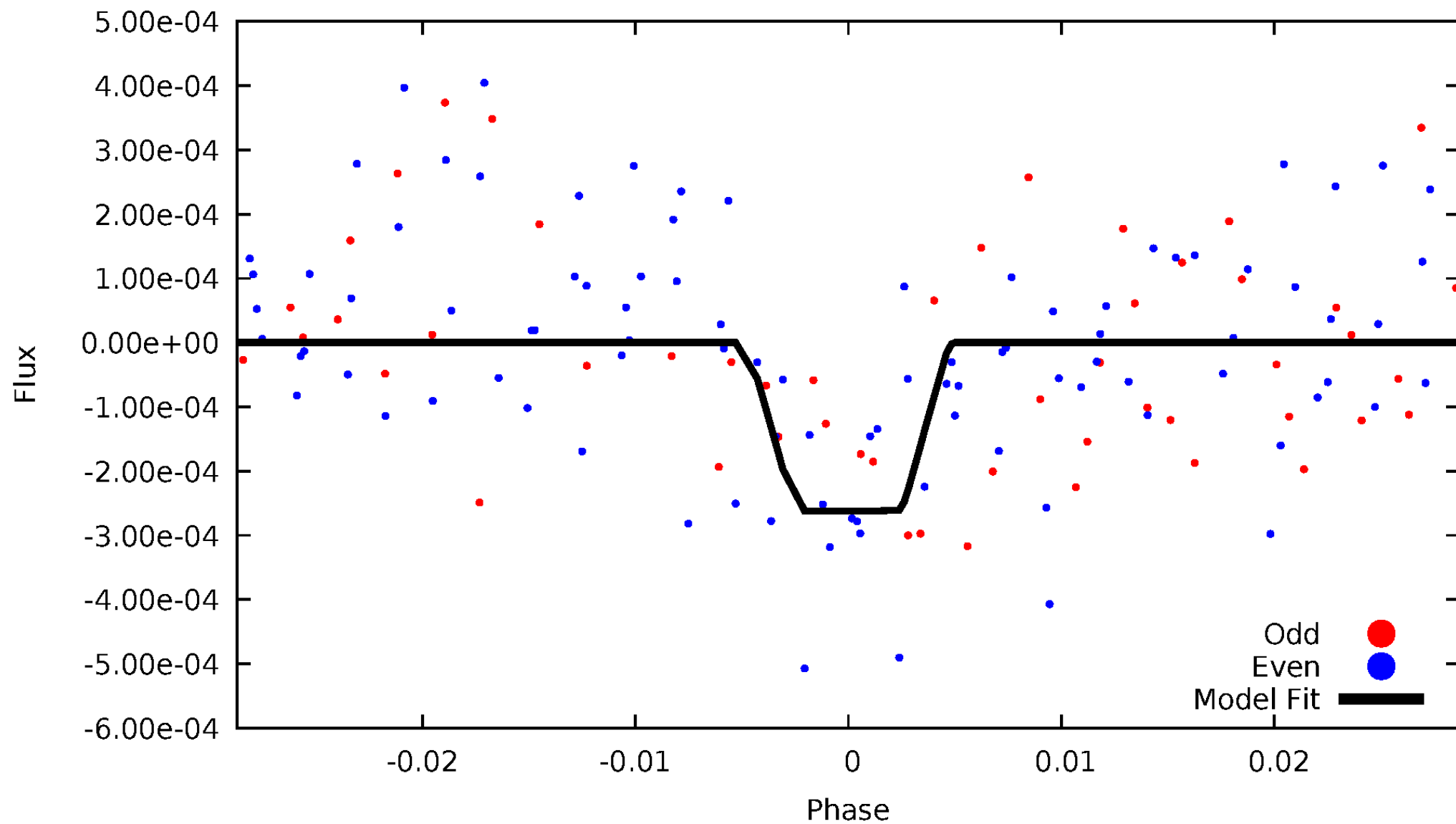
# DV Odd/Even

TCE 003660392-03



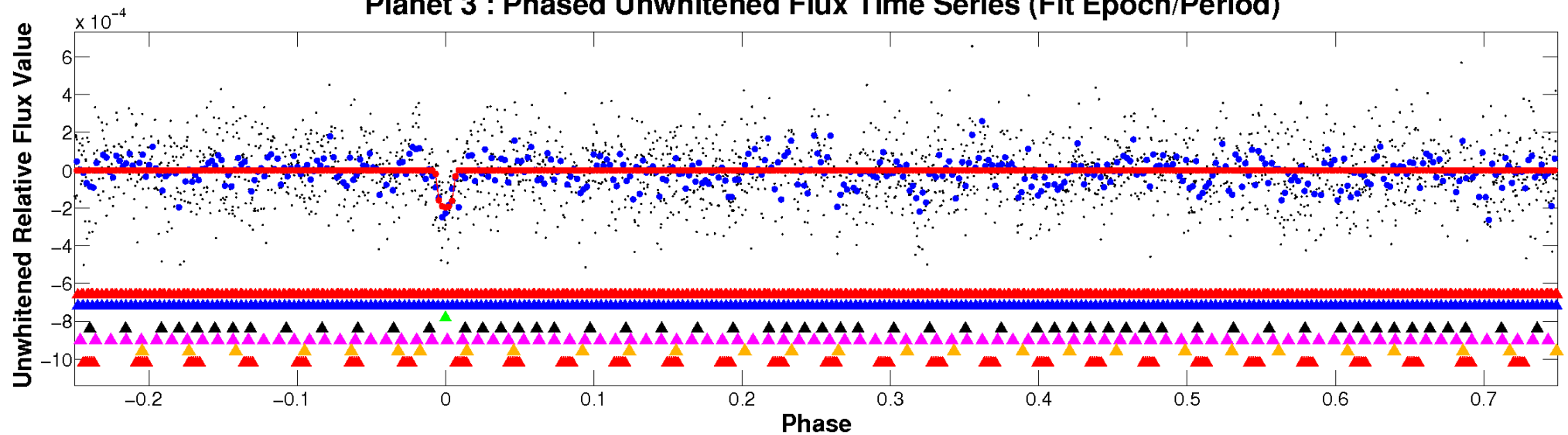
# ALT Odd/Even

TCE 003660392-03

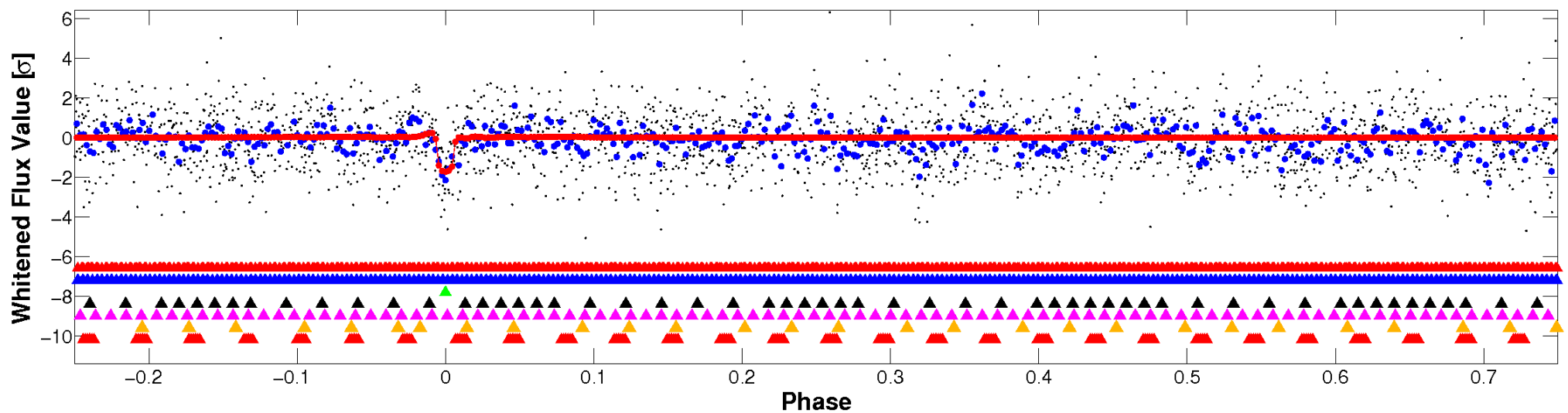


# Non-Whitened Vs. Whitened Light Curve

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

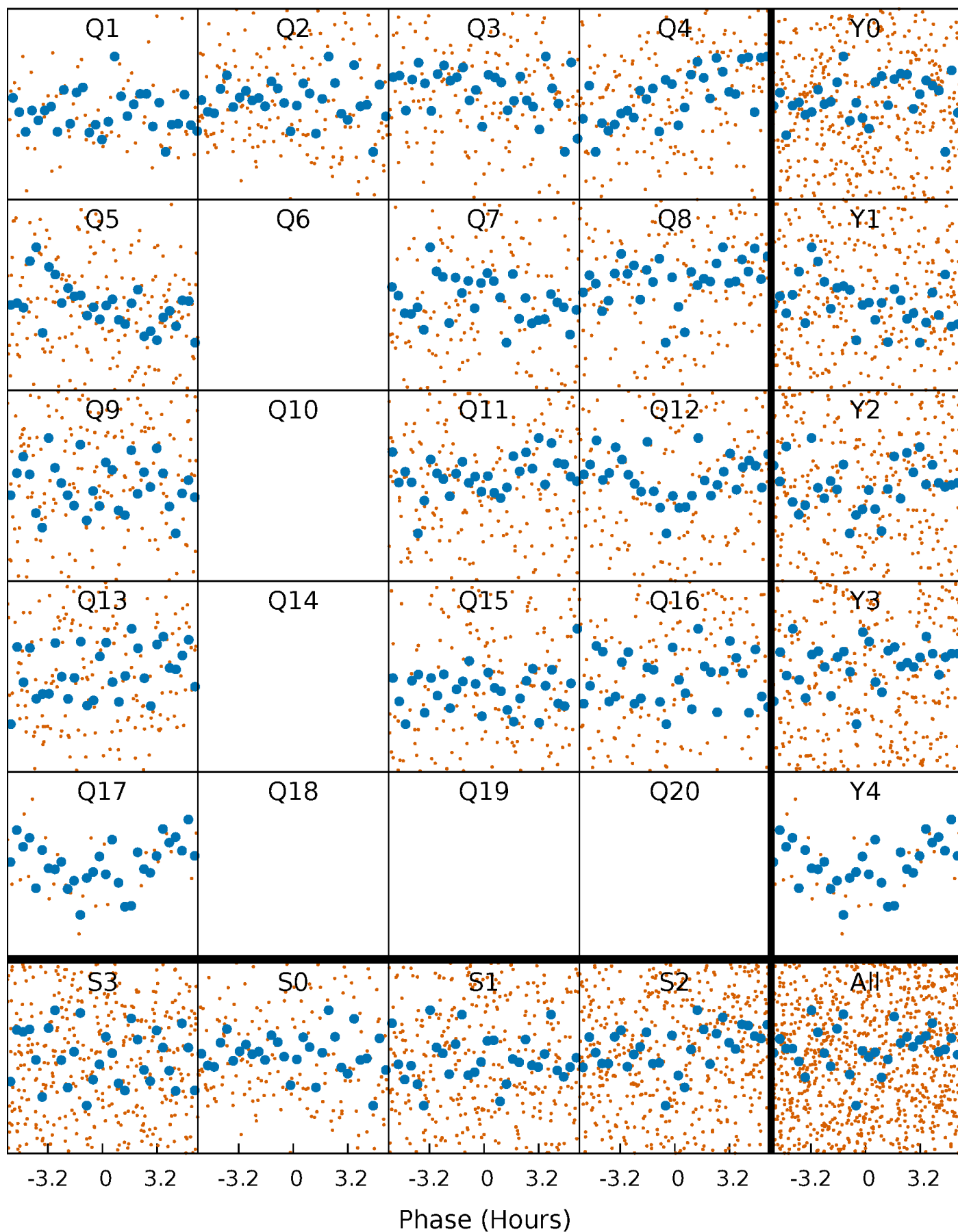


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

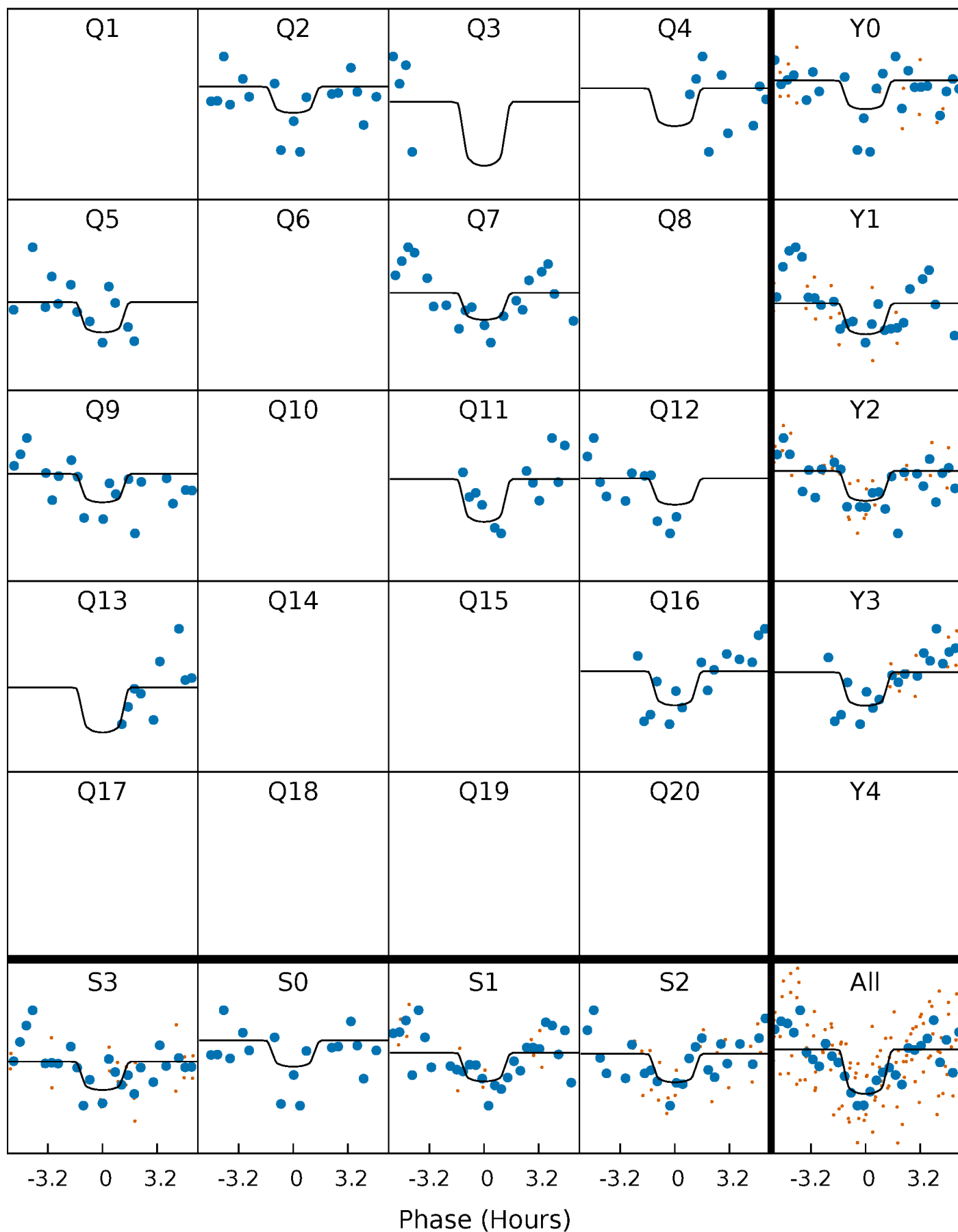
TCE 003660392-03    P= 9.206947 Days     $T_0=138.847325$  (BKJD)





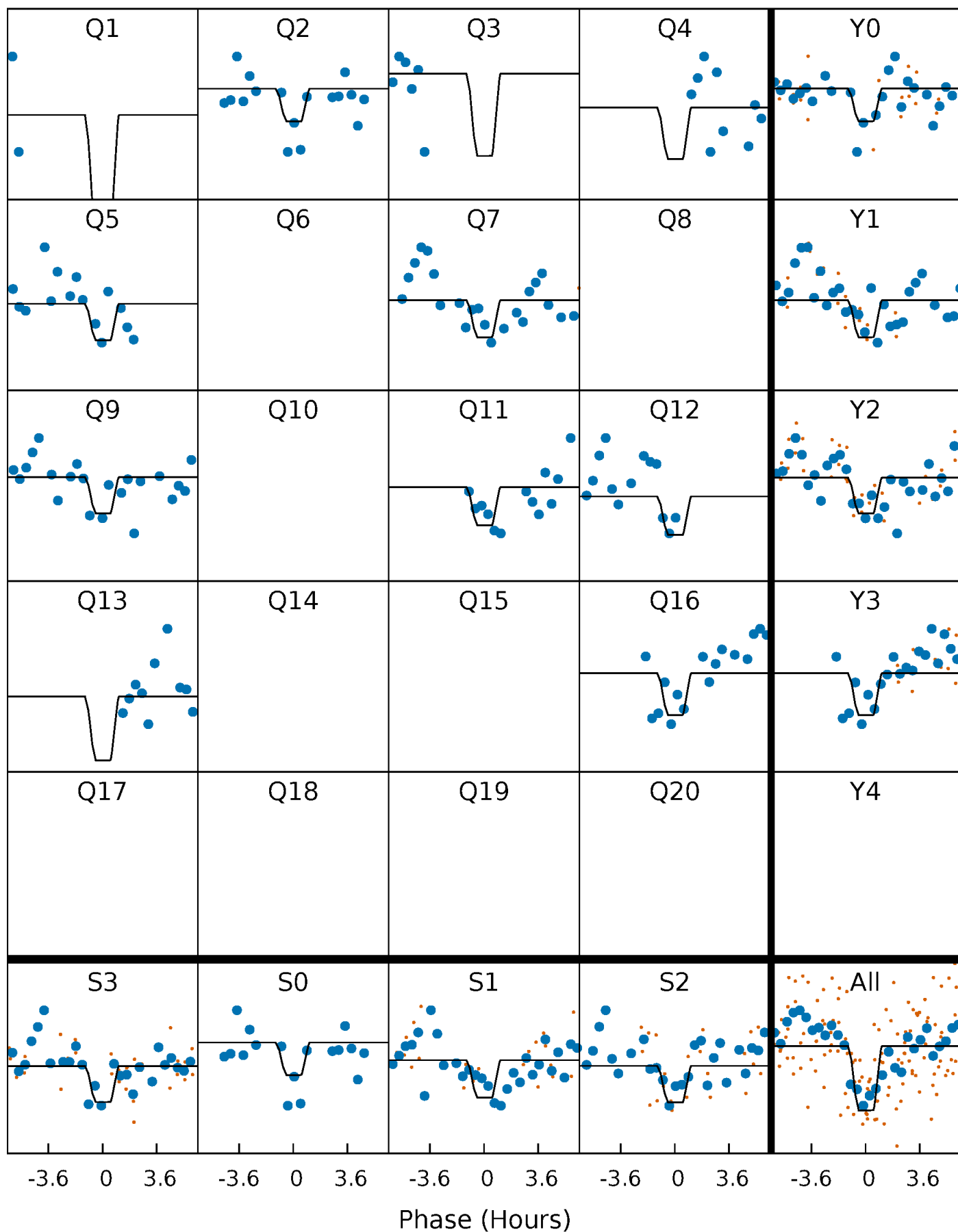
# DV Quarter-Phased Transit Curves

TCE 003660392-03    P= 9.206947 Days     $T_0=138.847325$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

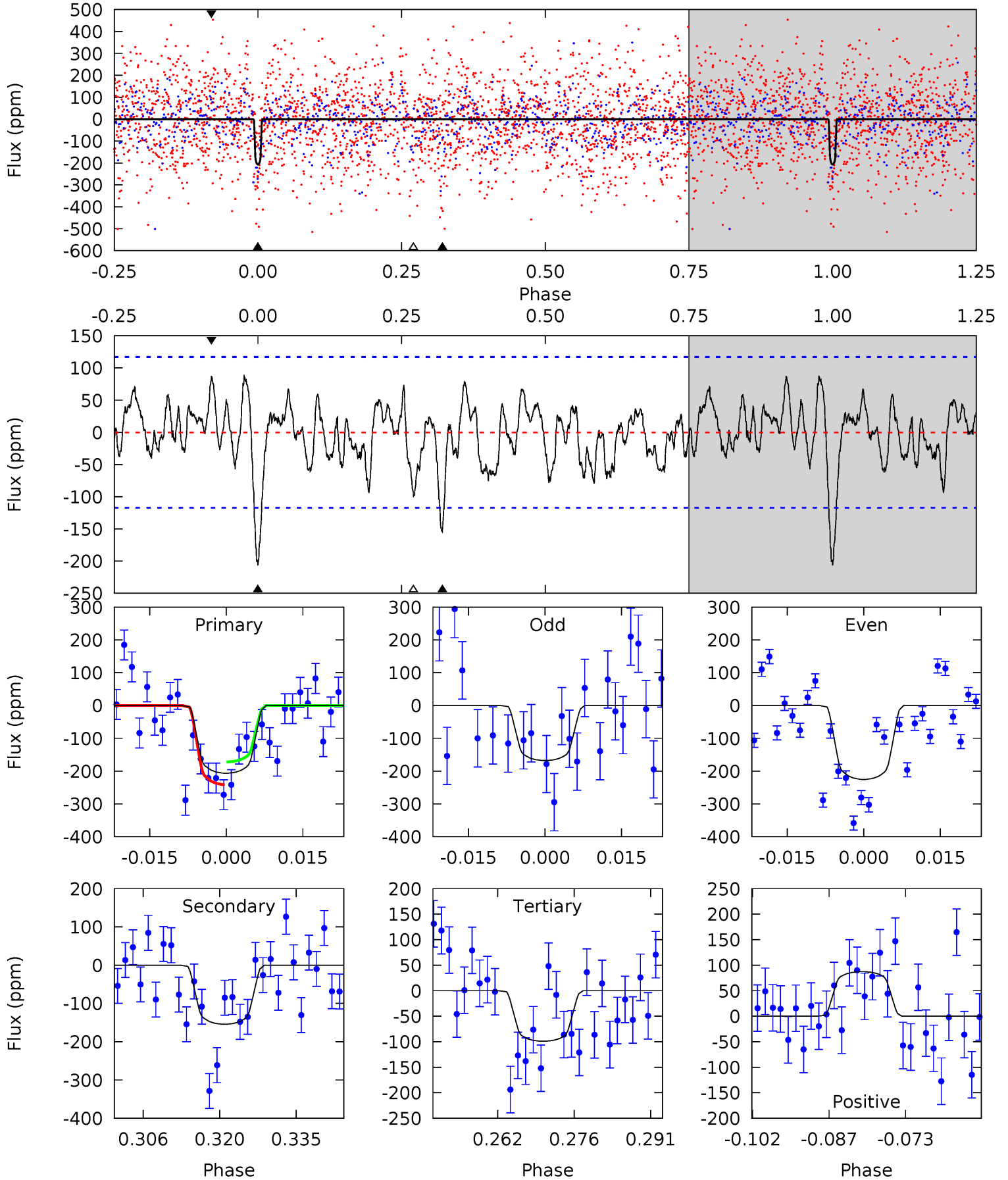
TCE 003660392-03 P= 9.206945 Days  $T_0=138.839070$  (BKJD)



# DV Model-Shift Uniqueness Test

003660392-03, P = 9.206947 Days, E = 129.640378 Days

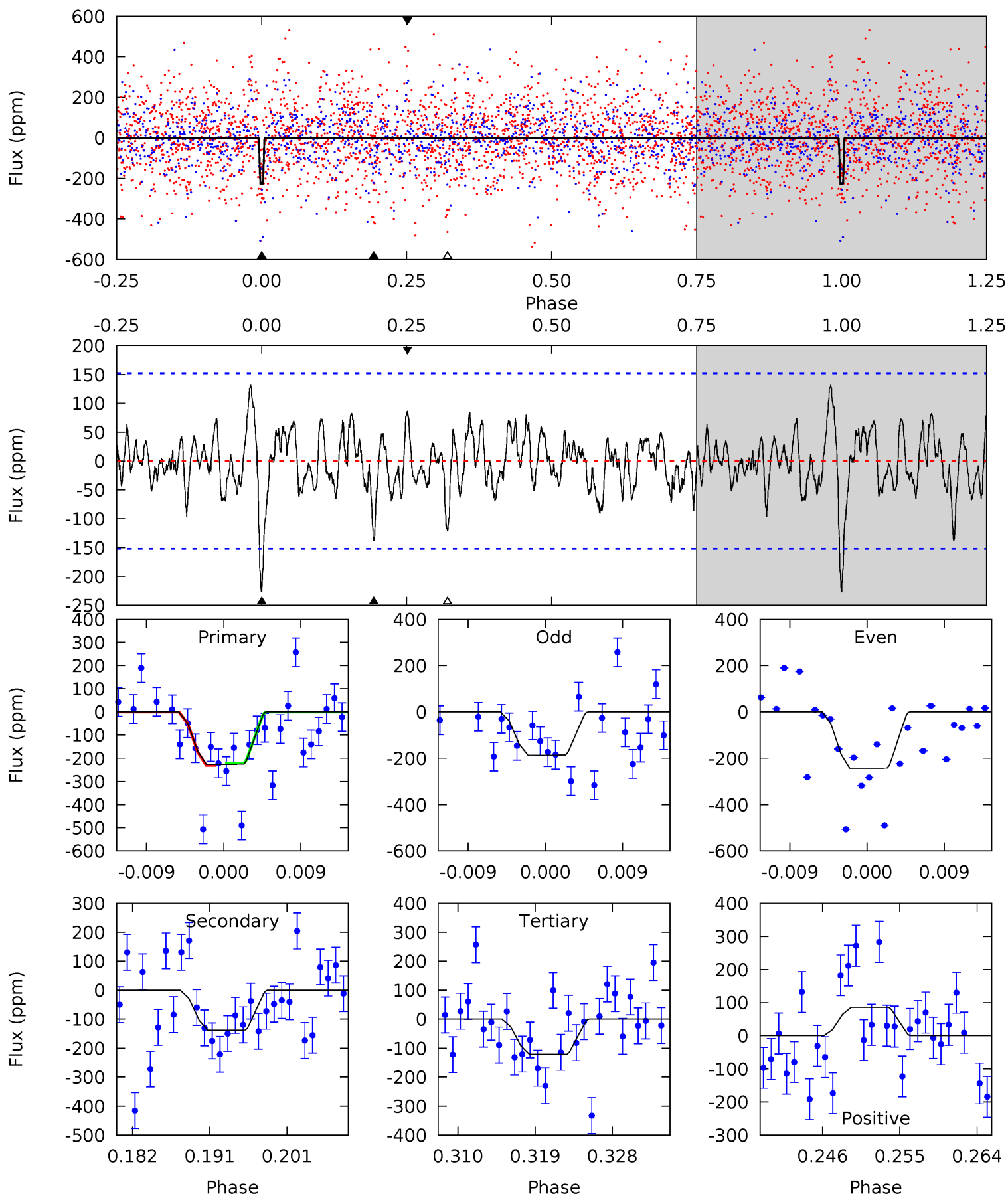
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.74	6.53	4.19	3.70	4.95	2.44	1.56	4.55	5.04	2.34	2.83	1.13	1.07	0.30	1.48



# Alt Model-Shift Uniqueness Test

003660392-03, P = 9.206945 Days, E = 129.632125 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.50	4.58	4.02	2.84	5.04	2.61	1.32	3.47	4.65	0.55	1.73	0.91	1.07	0.37	0.14



### Stellar Parameters For KIC 003660392

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6550^{+178}_{-198}$	$3.473^{+0.376}_{-0.094}$	$-0.440^{+0.400}_{-0.300}$	$3.920^{+0.565}_{-1.581}$	$1.666^{+0.190}_{-0.443}$	$0.039^{+0.124}_{-0.012}$
	+3%/-3%	+11%/-3%	+91%/-68%	+14%/-40%	+11%/-27%	+318%/-30%
Source	PHO1	FLK73	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 003660392-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-154 \pm 24$	$5.83^{+4.10}_{-3.23}$	$2443^{+164}_{-253}$	$5883^{+3261}_{-1246}$	$25^{+96}_{-17}$
Alt.	$-138 \pm 30$	$6.66^{+4.16}_{-3.52}$	$2460^{+154}_{-239}$	$5445^{+2416}_{-977}$	$18^{+60}_{-11}$

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

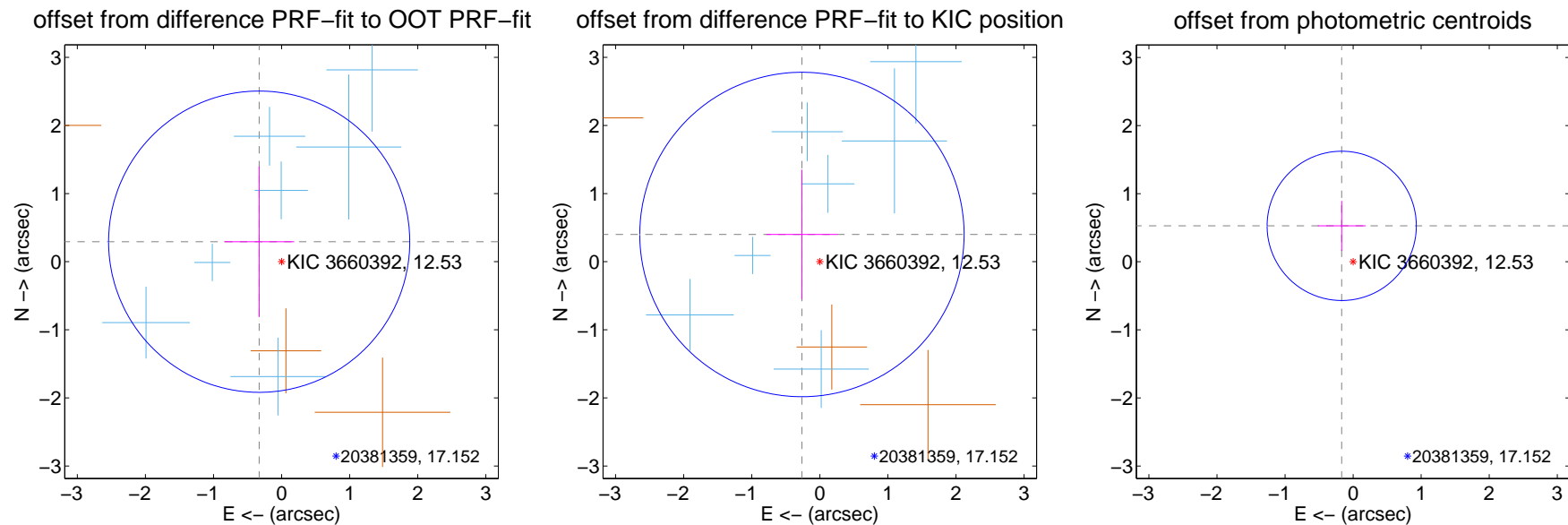
## DV Centroid Data

Supplemental centroid analysis for 003660392-03. Kepler magnitude: 12.53. Transit SNR 8.91

There are 7 quarters with good PRF difference image offsets

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

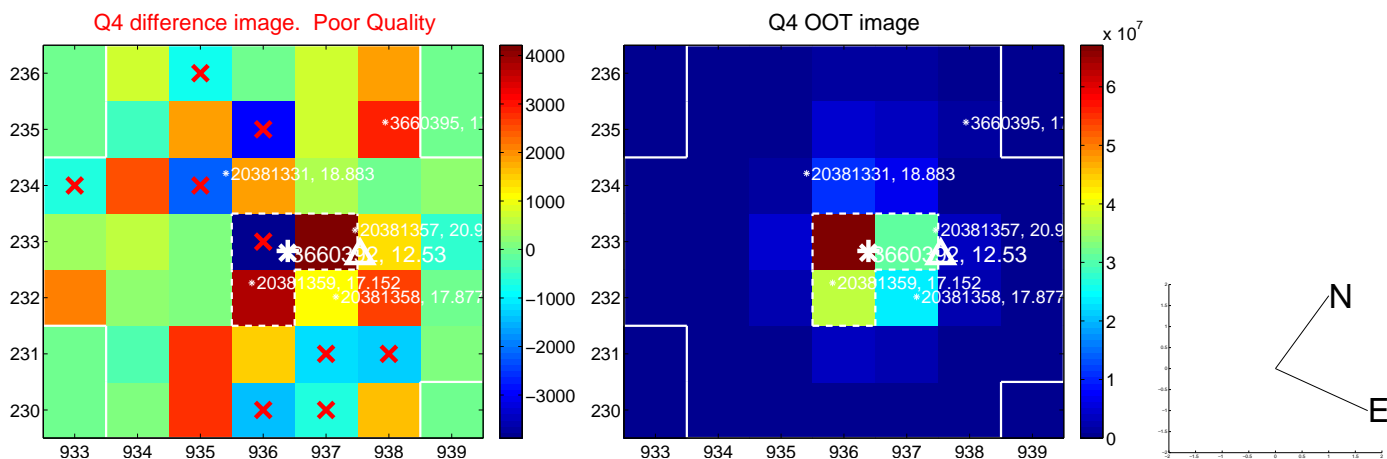
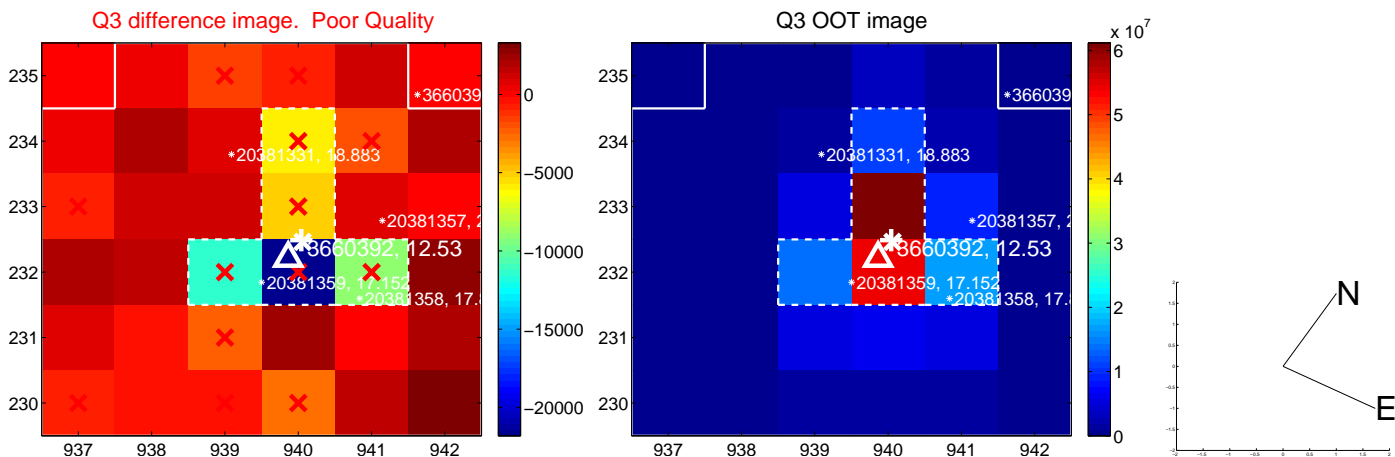
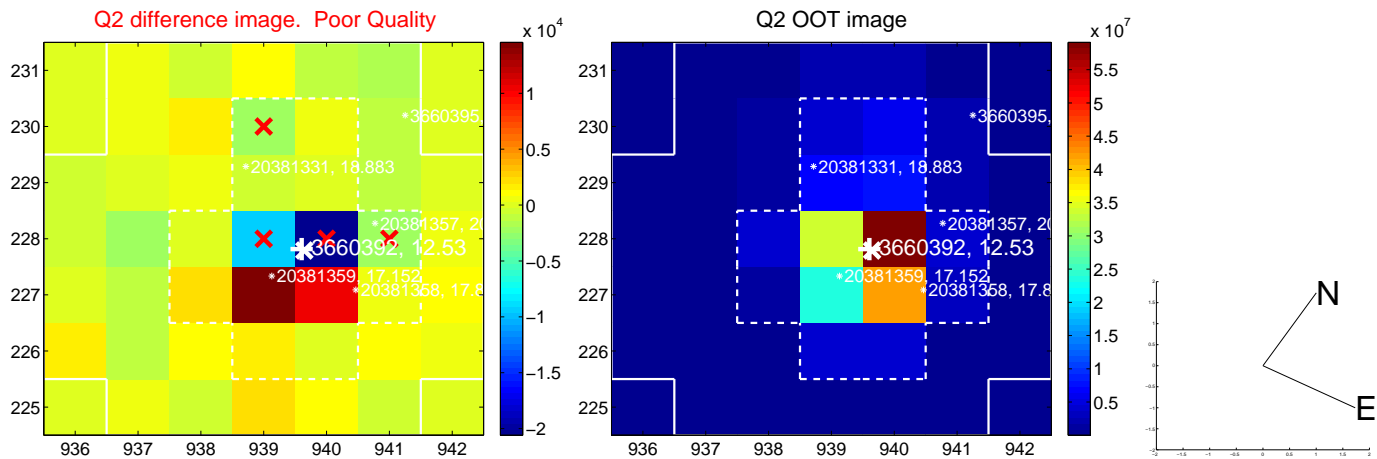
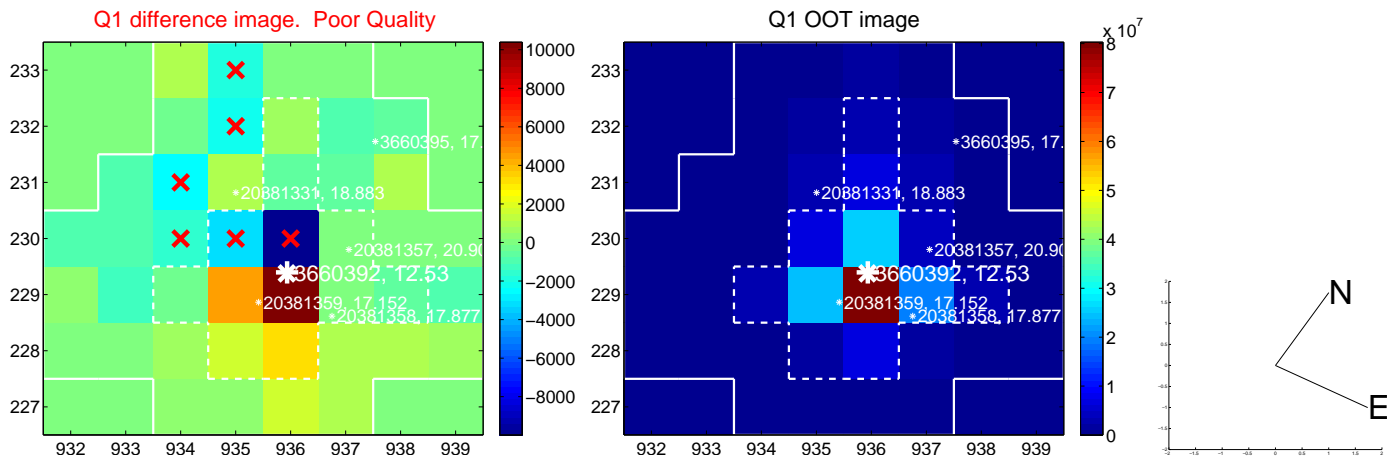
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.441 \pm 0.737$	0.60	$0.329 \pm 0.516$	$0.294 \pm 1.106$
PRF-fit source offset from KIC position	$0.478 \pm 0.794$	0.60	$0.263 \pm 0.525$	$0.399 \pm 0.952$
photometric centroid source offset	$0.55 \pm 0.37$	1.51	$0.17 \pm 0.35$	$0.53 \pm 0.37$



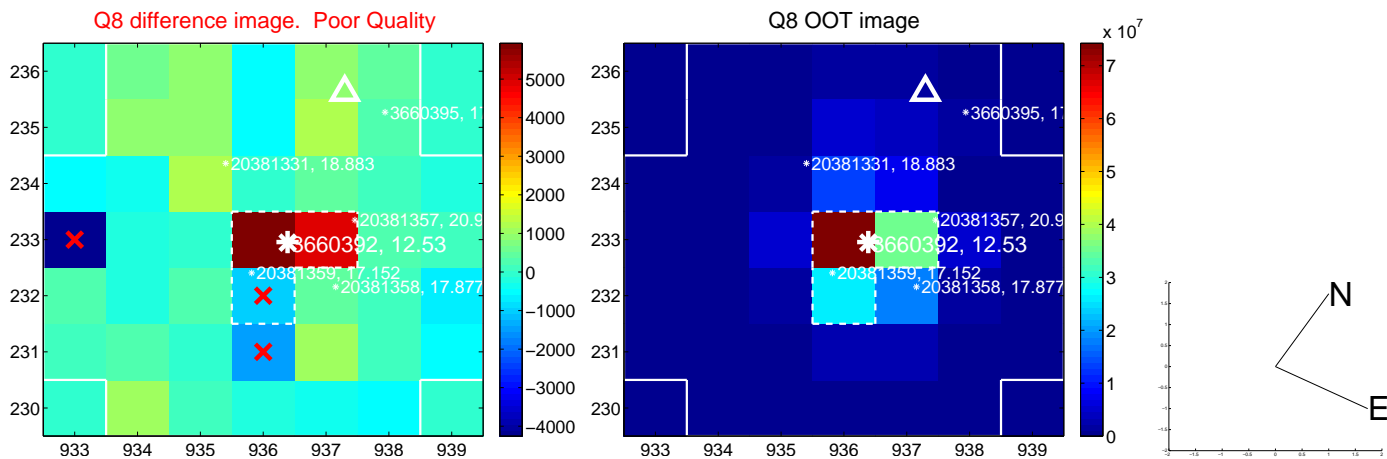
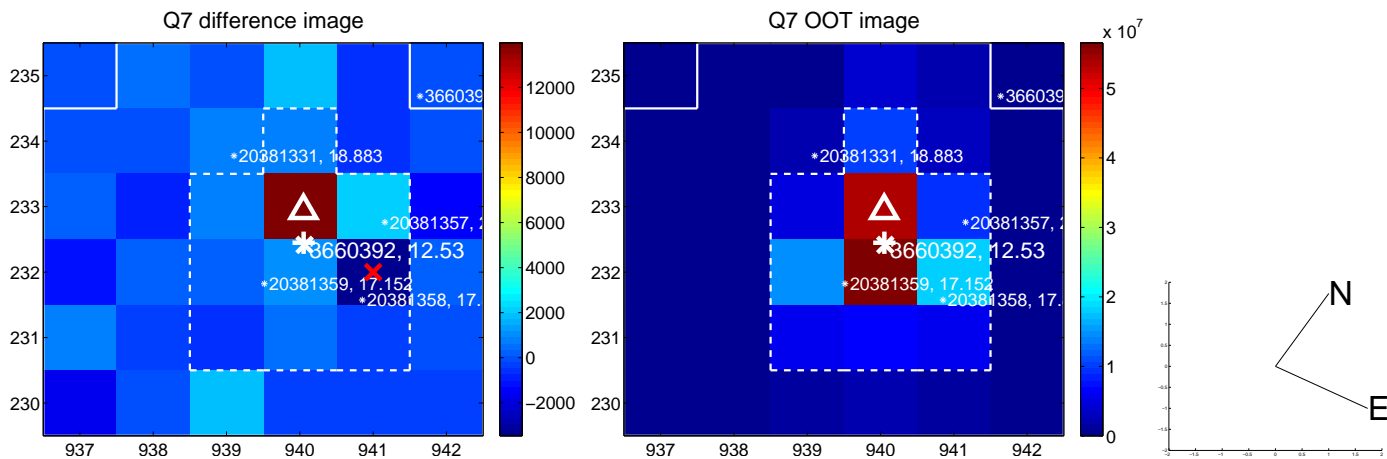
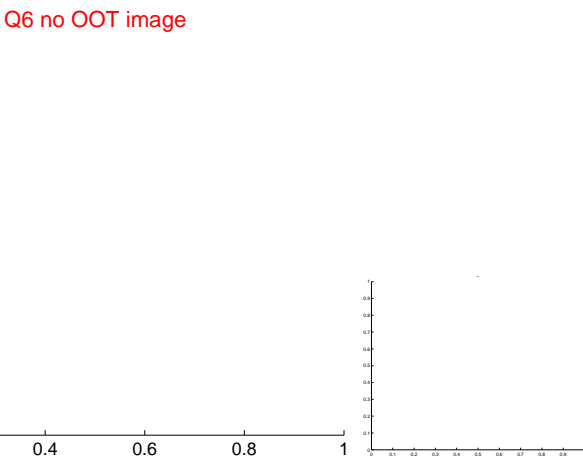
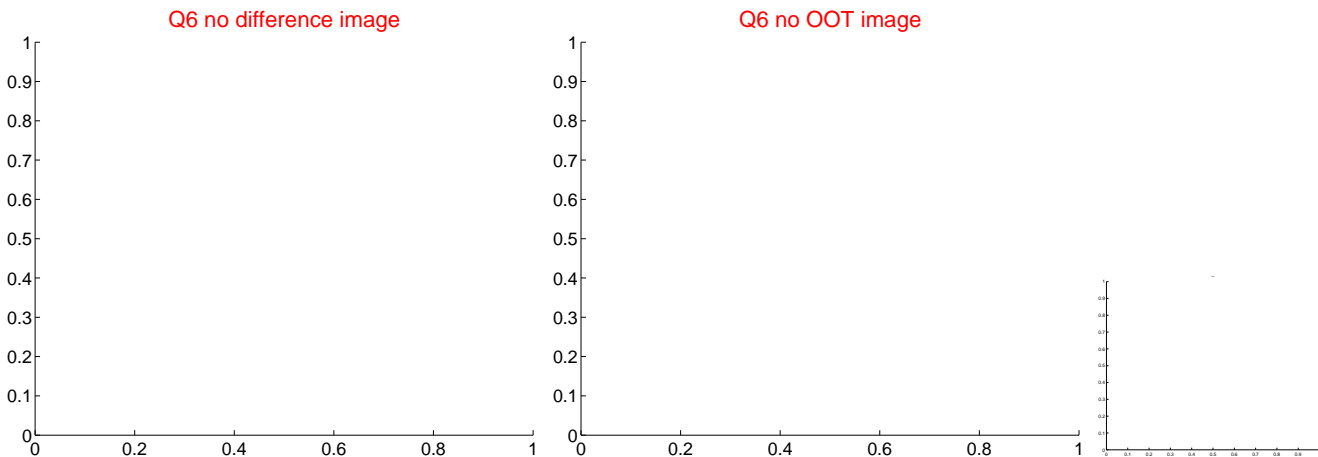
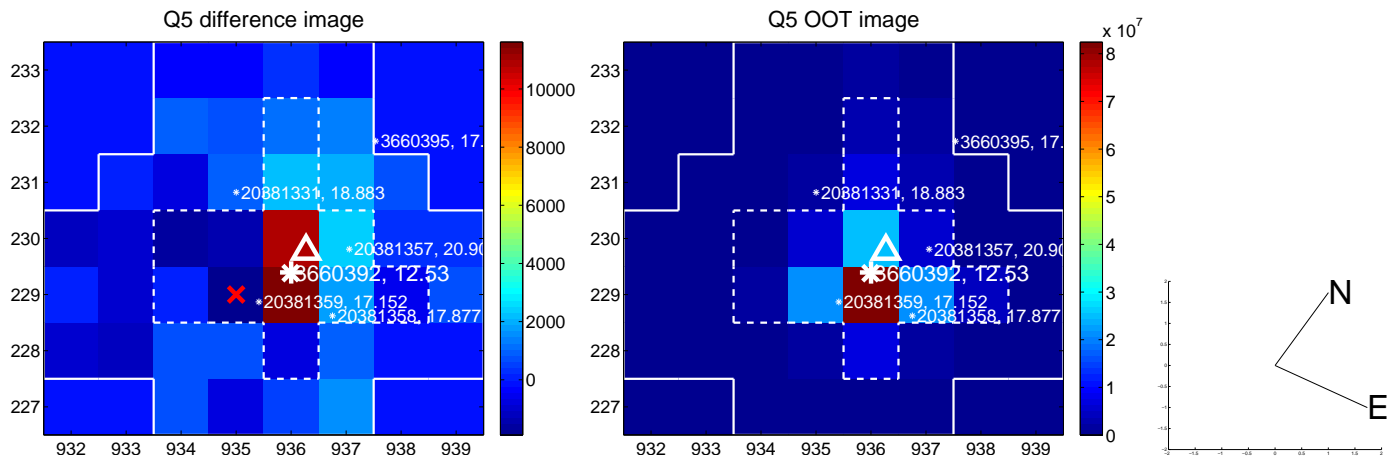
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



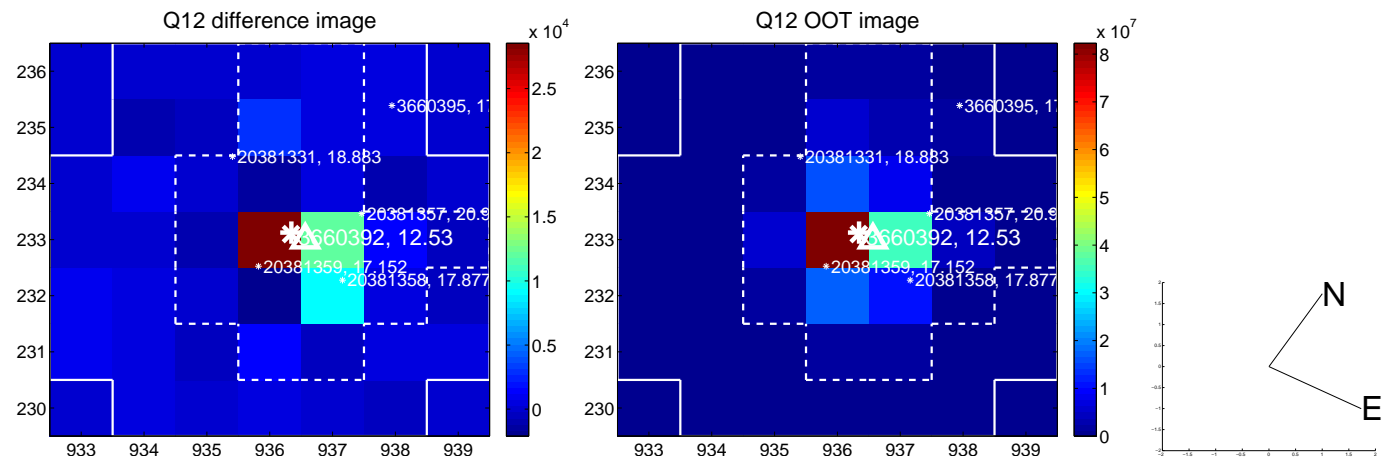
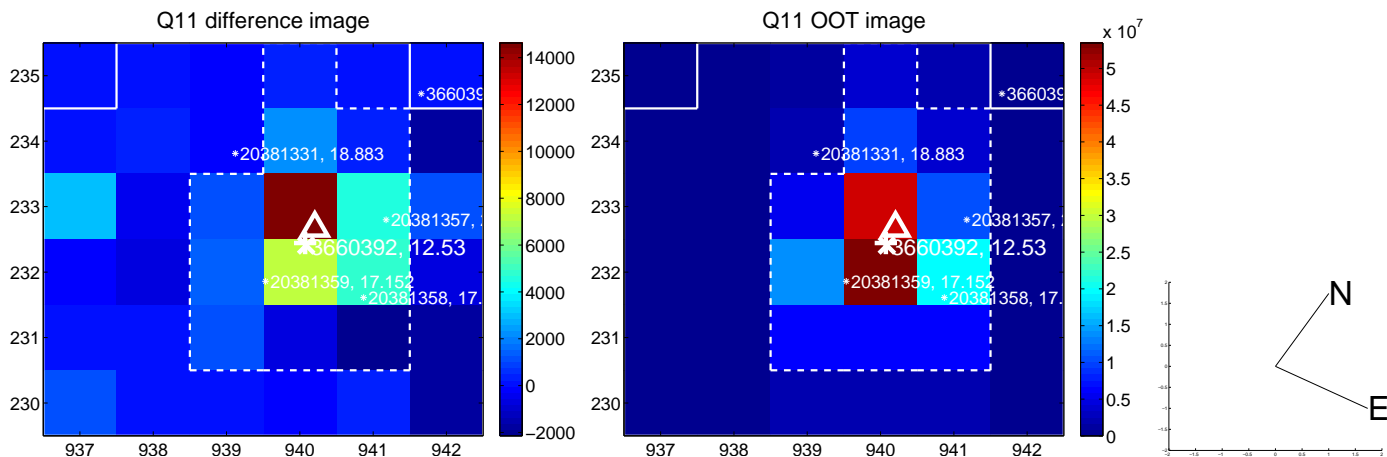
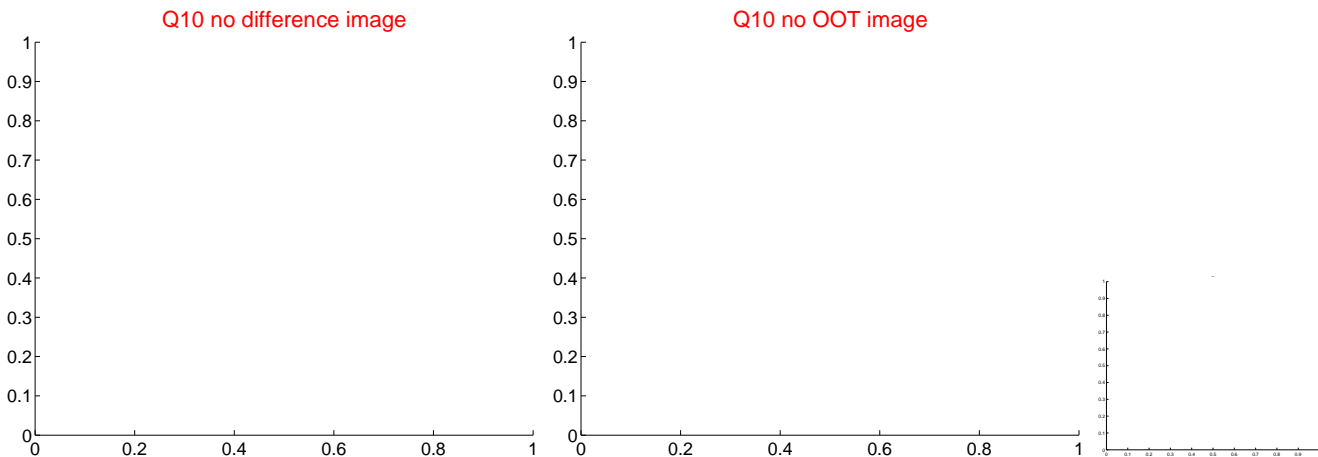
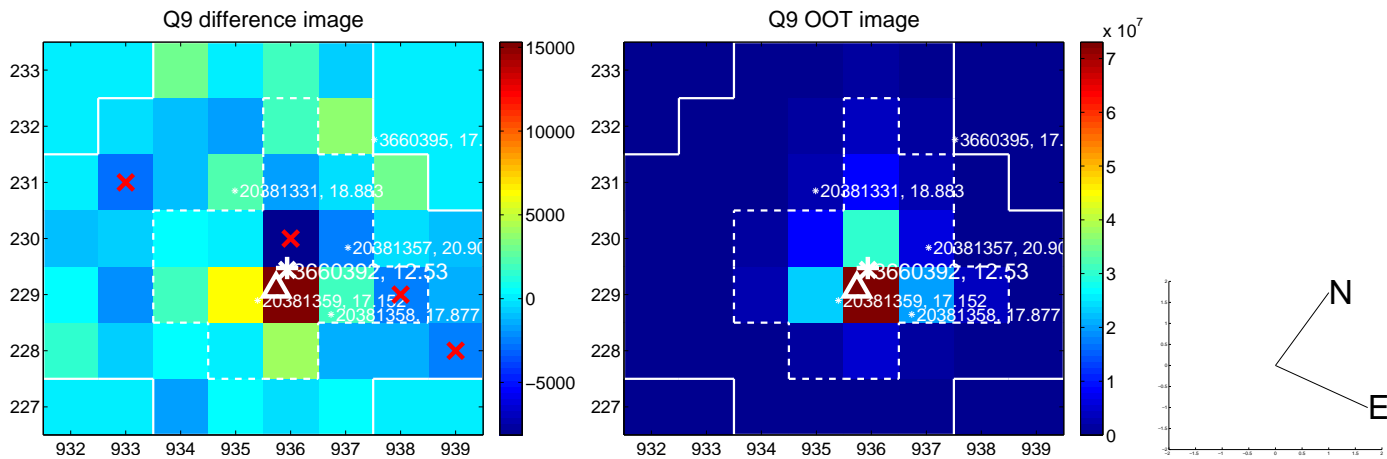
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



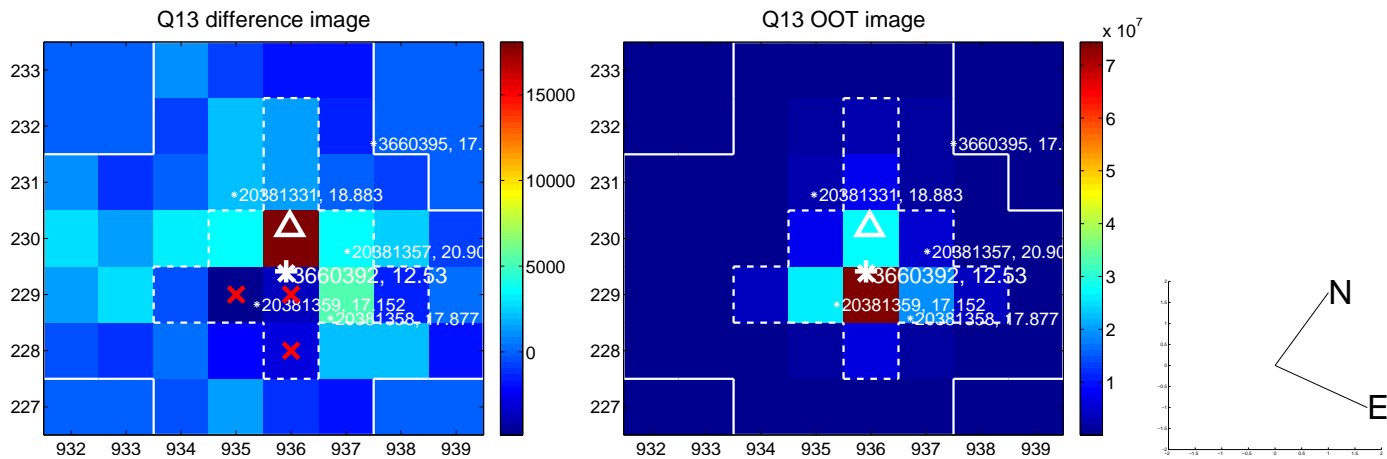
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



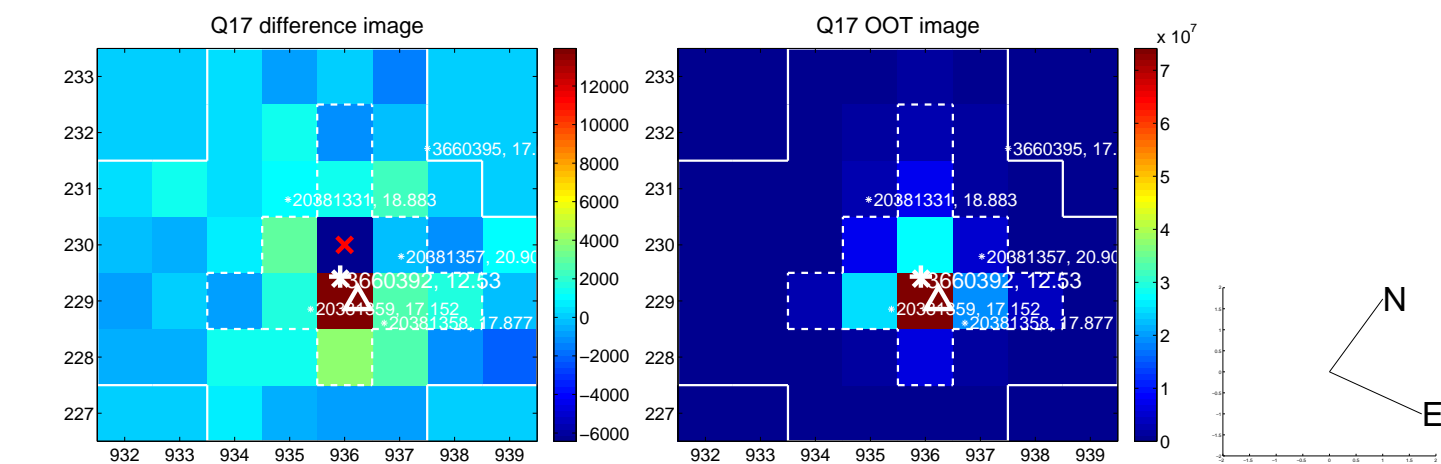
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



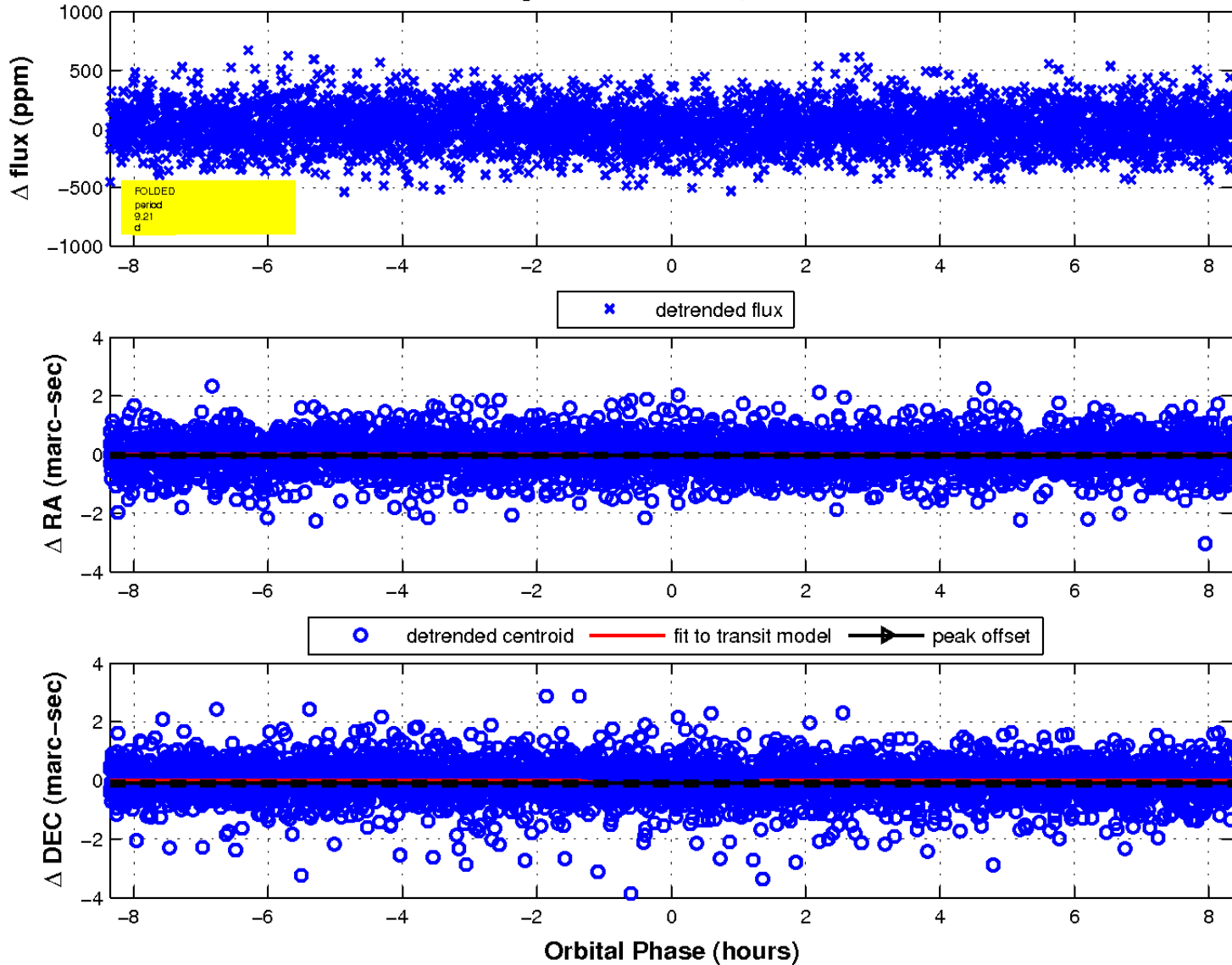
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

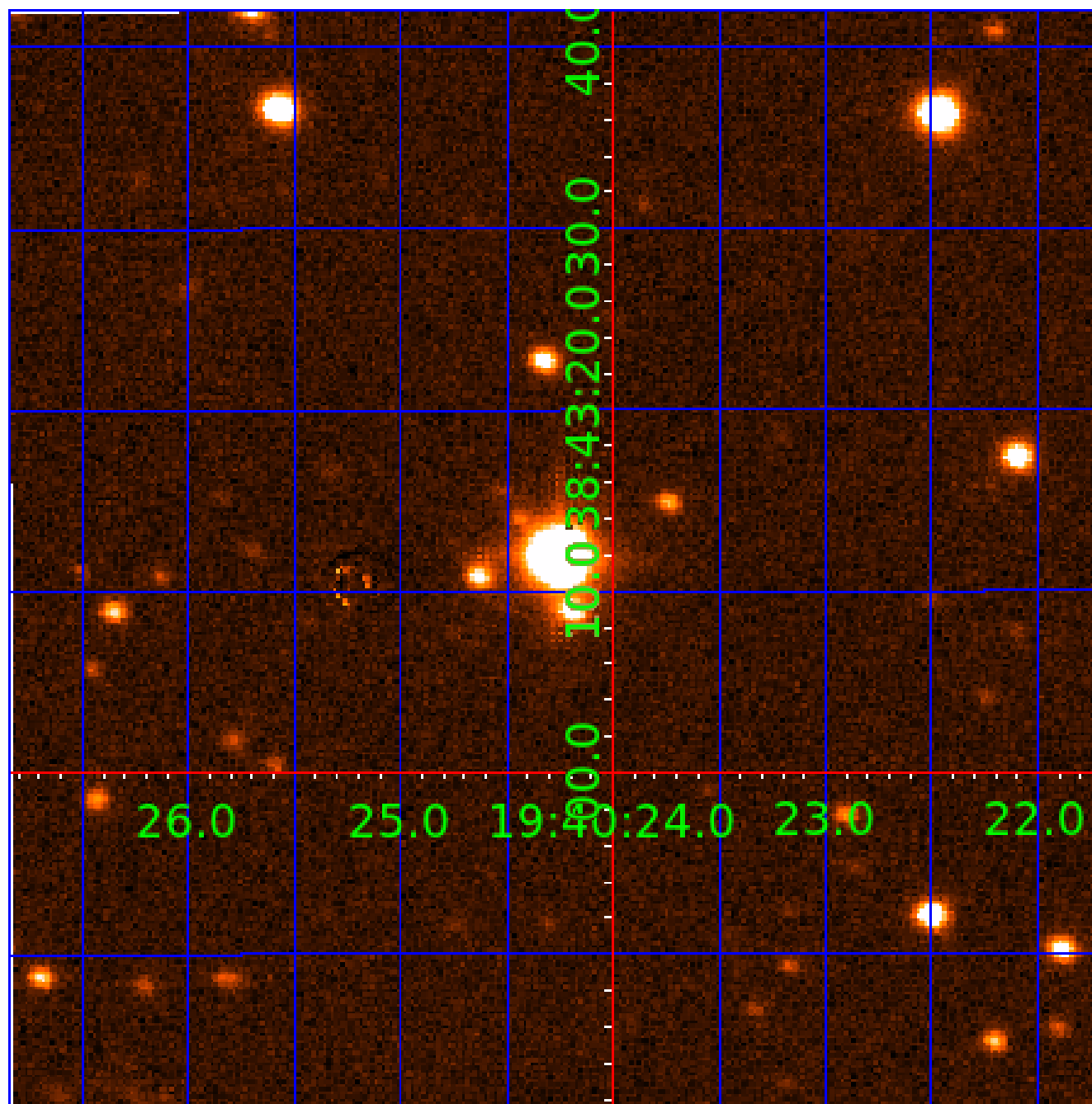


fluxWeightedCentroids, Planet 3 of 7



UKIRT Image

Declination





# KIC 003660392

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003660392-01	OBS	No	2.651865	133.846988	30.1	11.002	10.6	8.6	3.92	6550	2.20	12822.76
003660392-02	OBS	No	2.651830	132.397389	36.9	9.980	11.3	13.3	3.92	6550	2.79	12823.00
003660392-03	OBS	No	9.206947	138.847325	197.1	2.789	9.1	8.9	3.92	6550	6.50	2439.10
003660392-04	OBS	No	25.735035	154.278163	304.7	4.134	8.8	8.4	3.92	6550	7.98	619.47
003660392-05	OBS	No	13.762980	138.762271	194.9	5.685	8.4	8.6	3.92	6550	5.84	1427.03
003660392-06	OBS	No	52.508650	147.896614	270.5	2.000	7.8	-1.0	3.92	6550	6.50	239.37
003660392-07	OBS	No	8.878610	137.254666	280.1	1.394	7.6	8.5	3.92	6550	7.68	2560.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003660392-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT
003660392-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
003660392-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003660392-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST
003660392-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
003660392-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST
003660392-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV

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

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

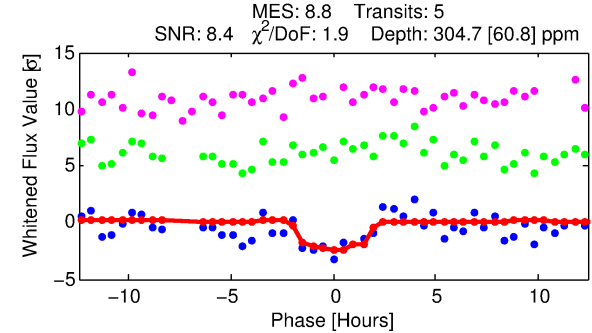
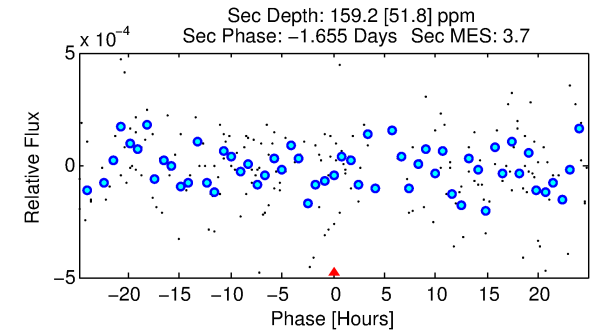
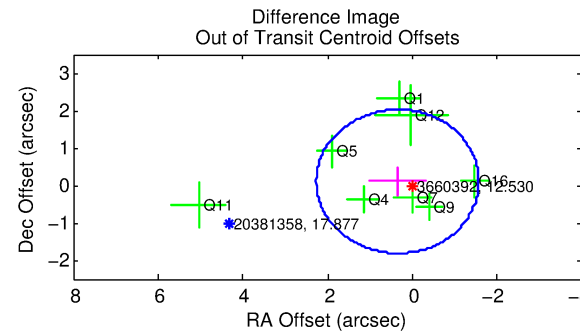
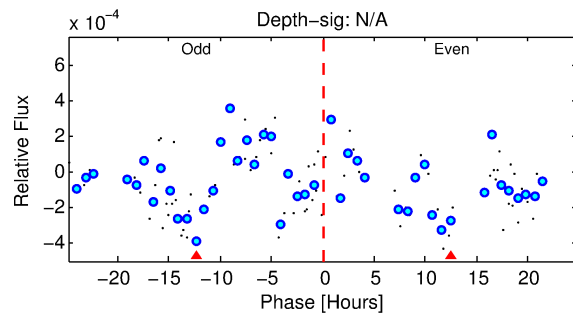
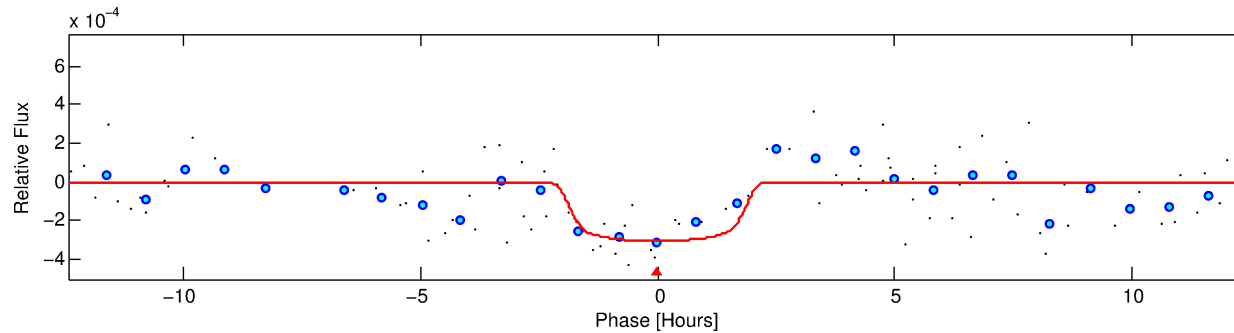
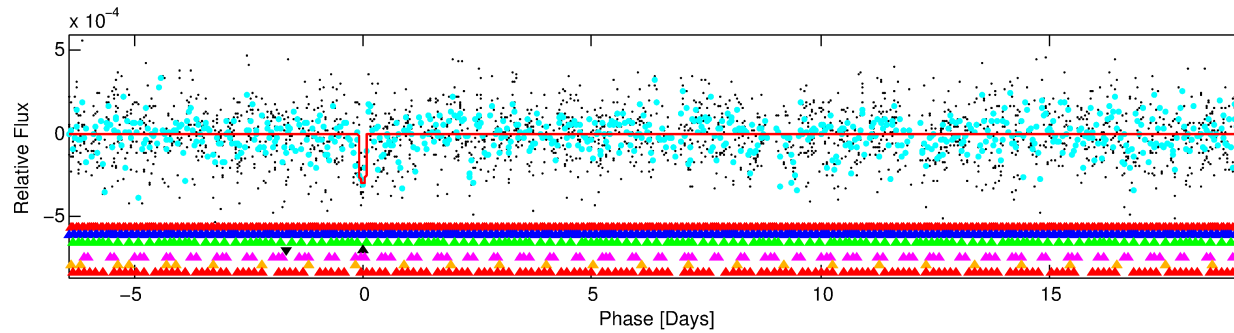
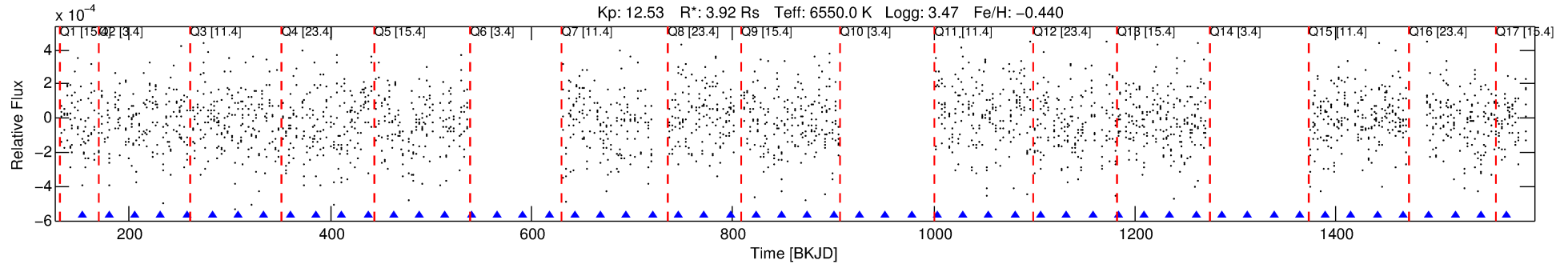
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003660392-04

No Significant Match Found

# DV One-Page Summary

KIC: 3660392 Candidate: 4 of 7 Period: 25.735 d



## DV Fit Results:

Period = 25.73503 [0.00055] d  
Epoch = 154.2782 [0.0113] BKJD  
Rp/R\* = 0.0187 [0.0089]  
a/R\* = 22.75 [60.80]  
b = 0.90 [0.58]  
Seff = 619.47 [401.49]  
Teq = 1272 [206] K  
Rp = 7.98 [4.98] Re  
a = 0.2023 [0.0798] AU  
Ag = 56.31 [67.10] [0.82σ]  
Teffp = 5388 [1366] K [2.98σ]

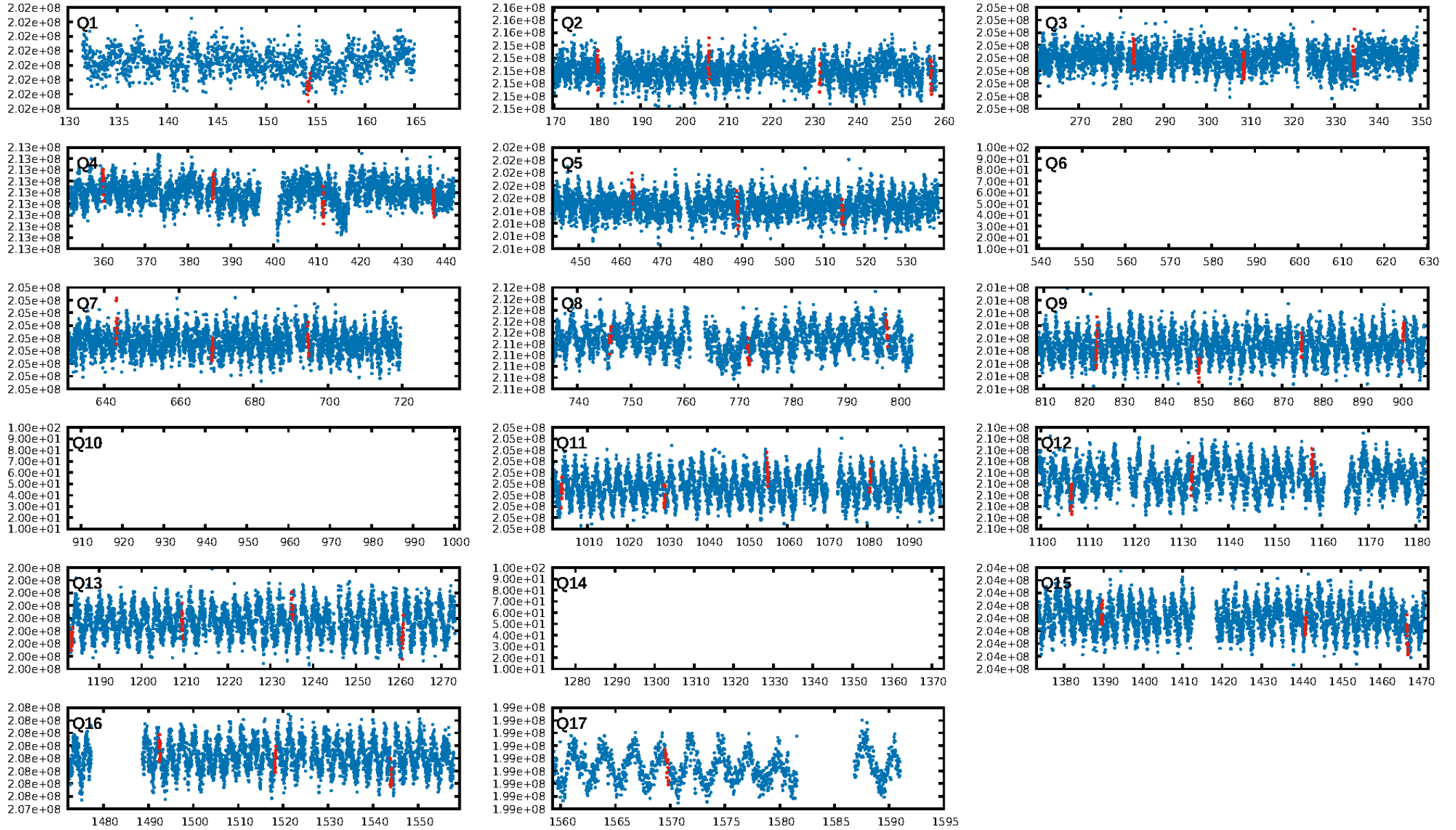
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [40.87σ]  
LongPeriod-sig: 100.0% [139.92σ]  
ModelChiSquare2-sig: 46.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.88e-18  
RollingBand-fgt: 1.00 [4/4]  
**GhostDiagnostic-chr: -0.1212**  
Centroid-sig: 0.8%  
Centroid-so: 0.597 arcsec [1.92σ]  
OotOffset-rm: 0.363 arcsec [0.57σ]  
OotOffset-st: 0/2/3/3 [8]  
KicOffset-rm: 0.350 arcsec [0.61σ]  
KicOffset-st: 0/2/3/3 [8]  
DiffImageQuality-fgm: 0.50 [4/8]  
DiffImageOverlap-fno: 0.29 [4/14]

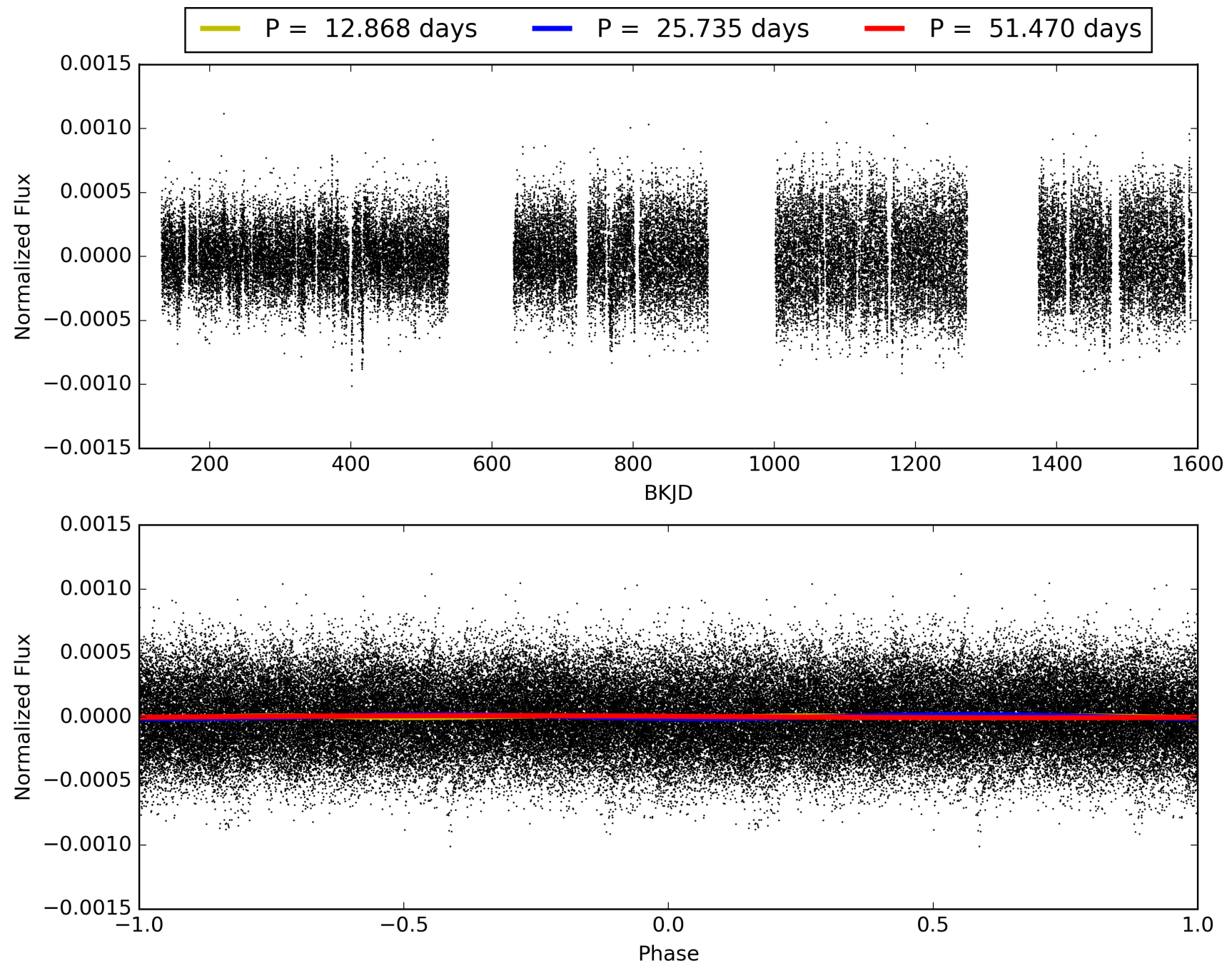
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:06:50 Z

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

# TCE 003660392-04, PDC Light Curves

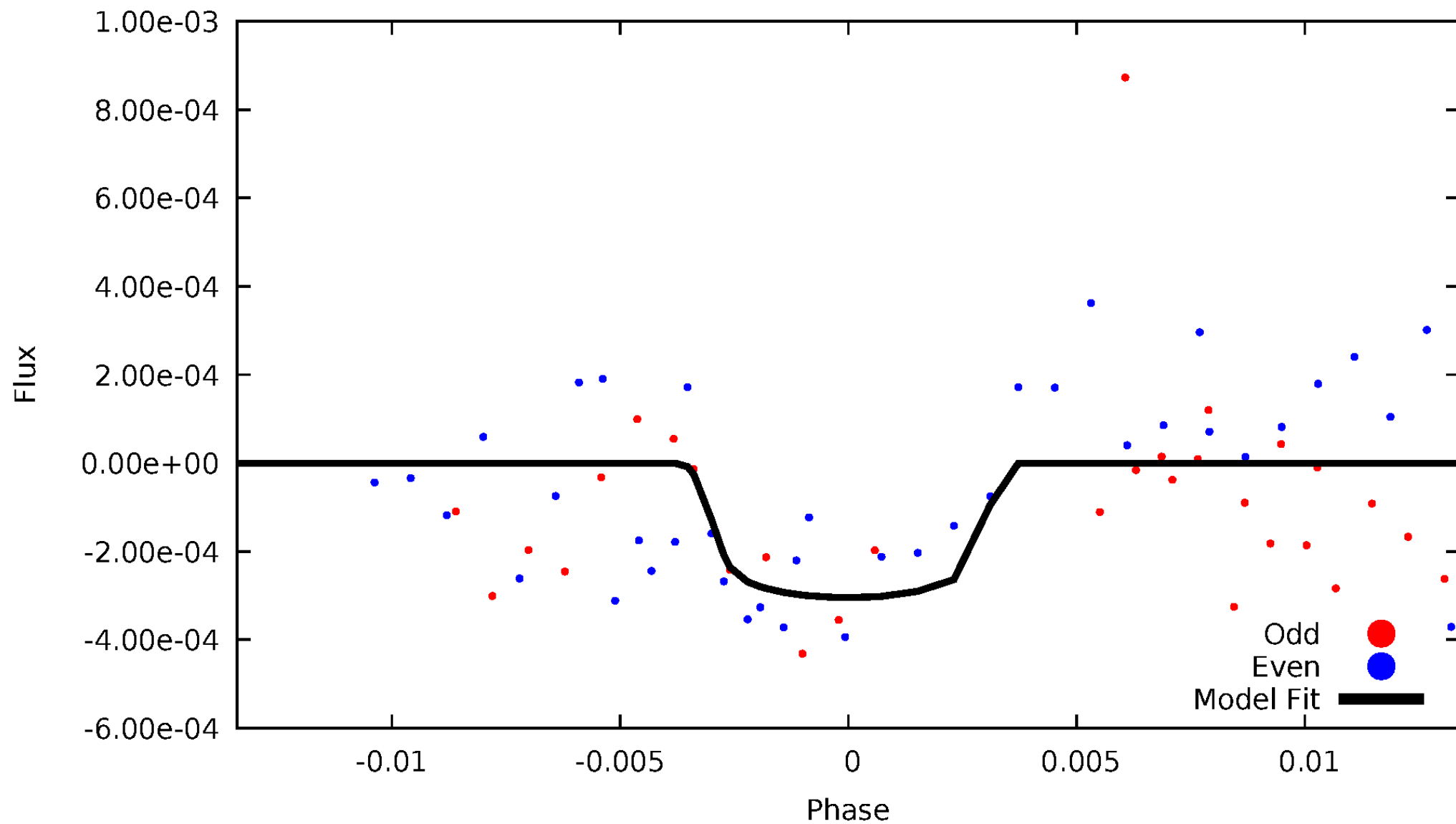


TCE 003660392-04



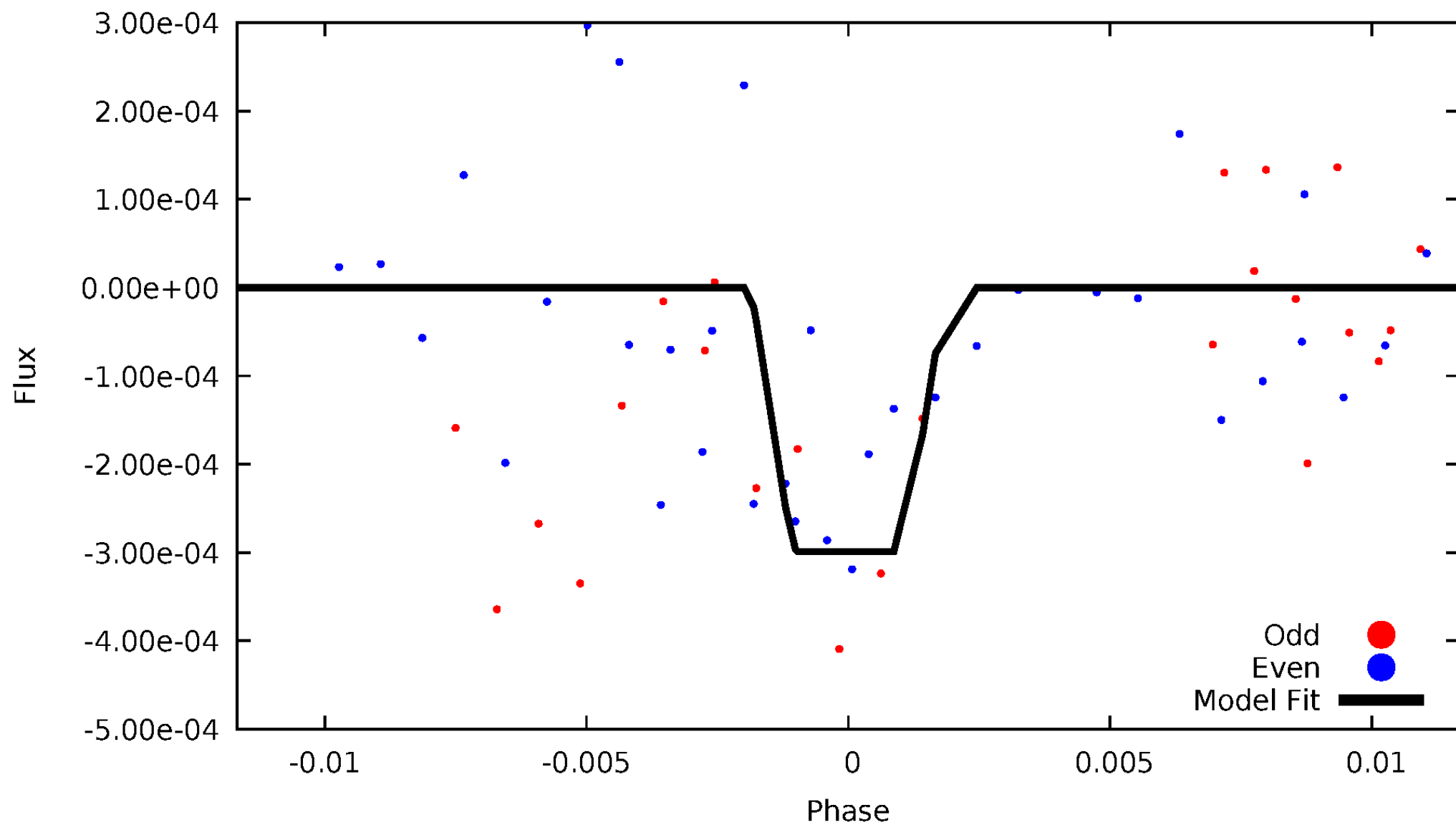
# DV Odd/Even

TCE 003660392-04



# ALT Odd/Even

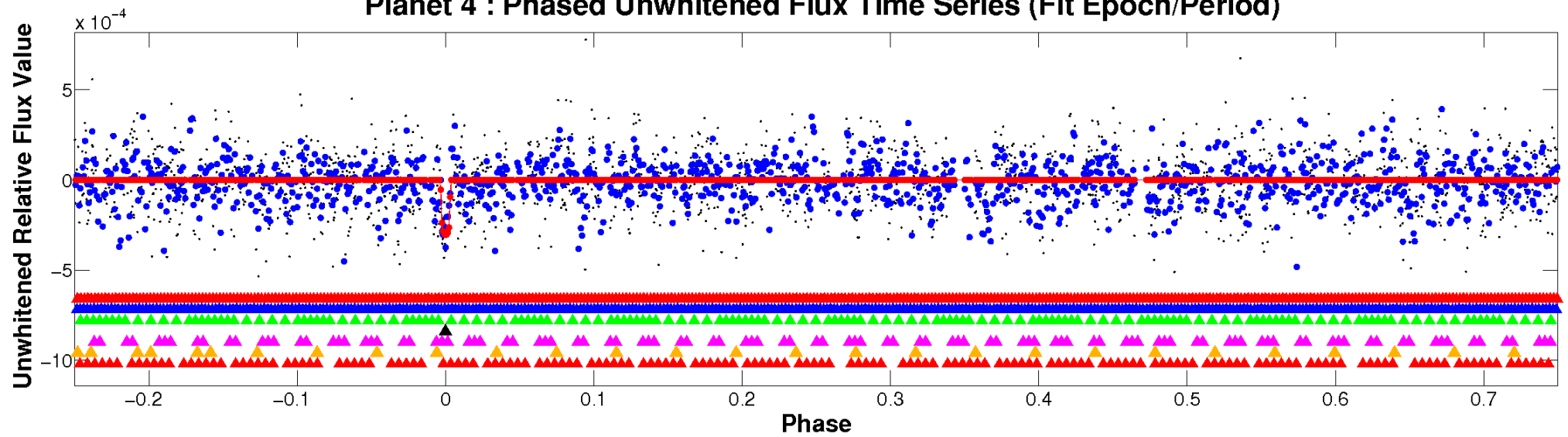
TCE 003660392-04



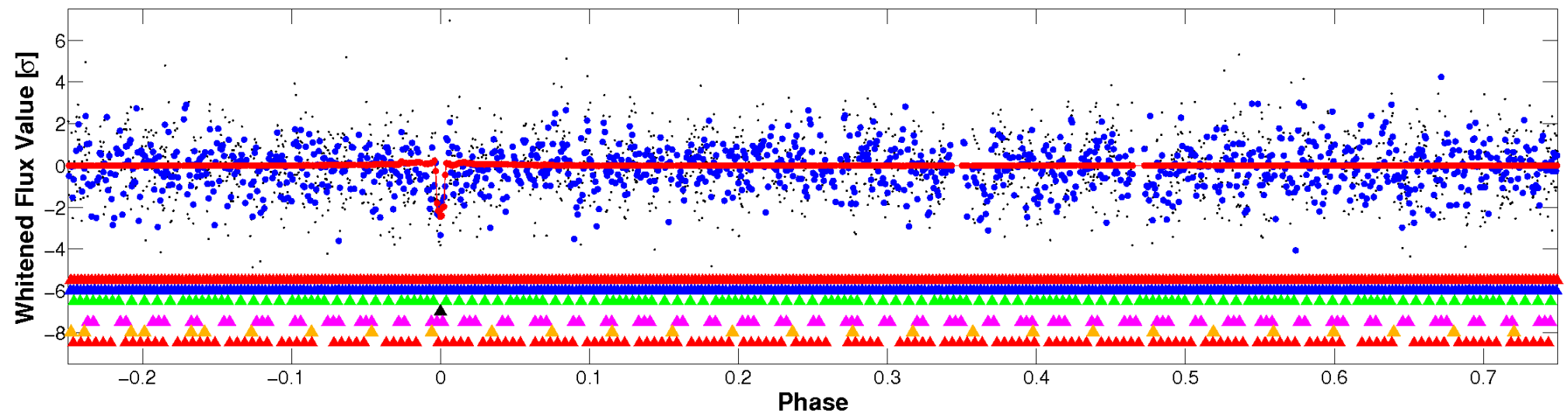


# Non-Whitened Vs. Whitened Light Curve

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

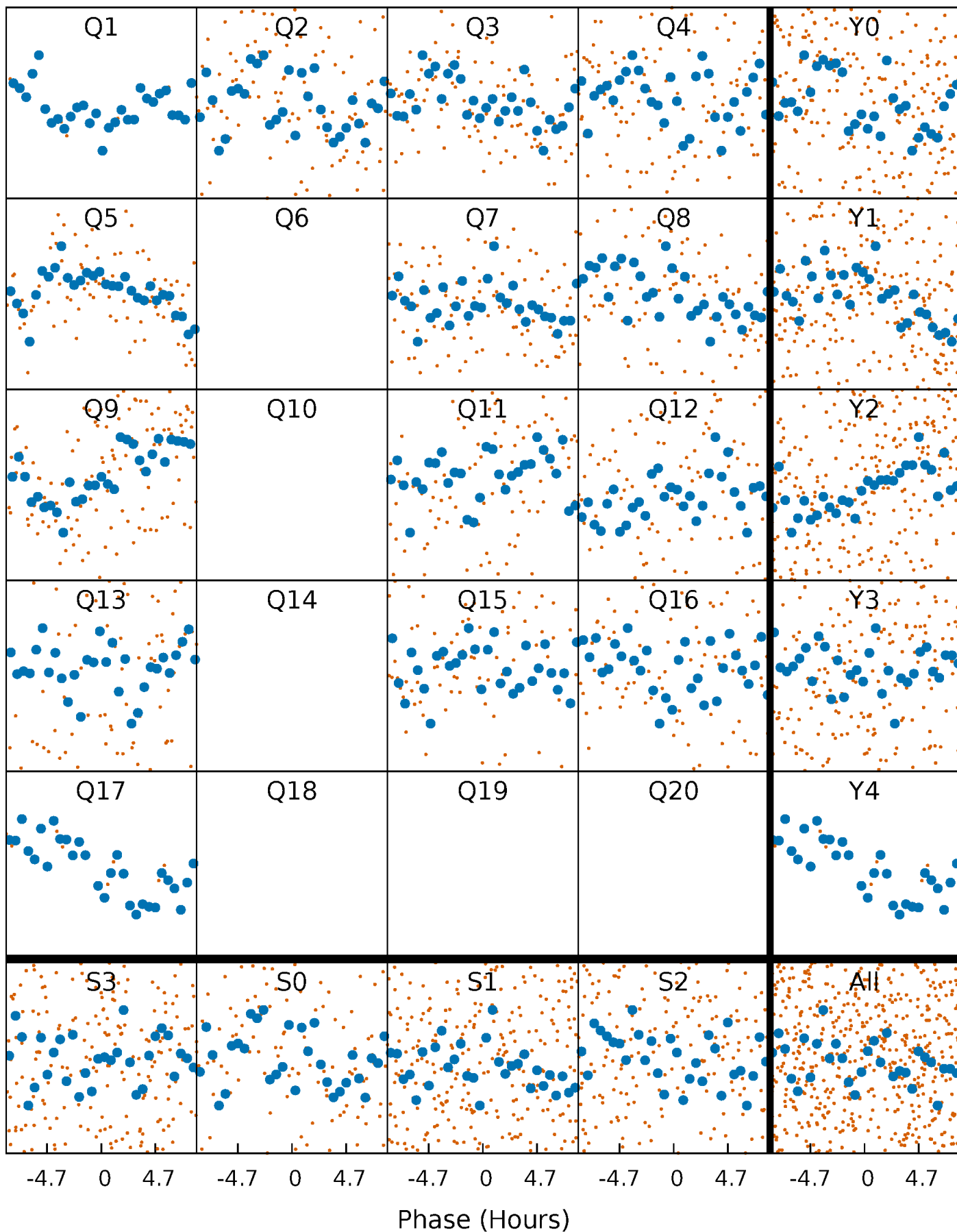


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



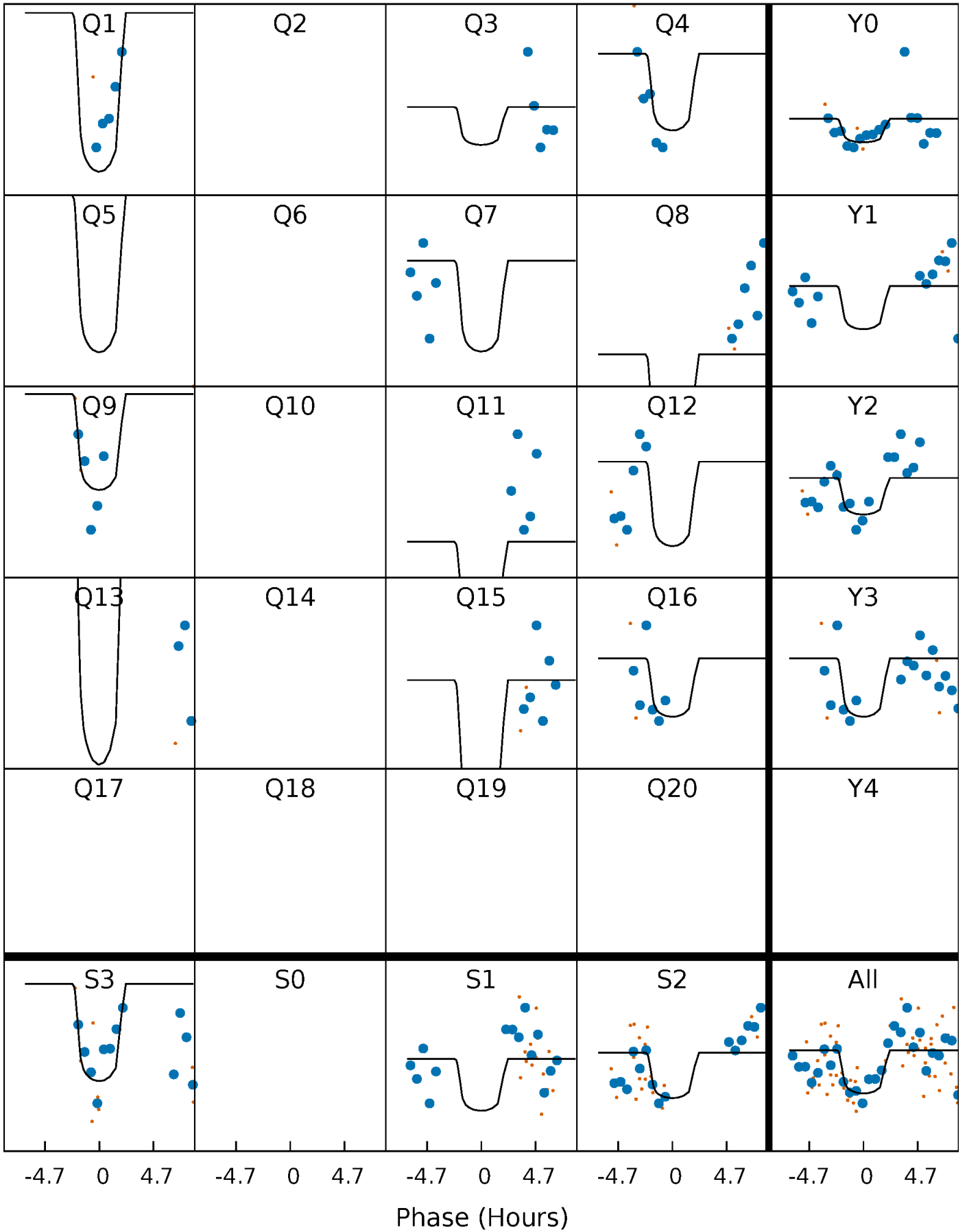
# PDC Quarter-Phased Transit Curves

TCE 003660392-04     $P = 25.735035$  Days     $T_0 = 154.278163$  (BKJD)



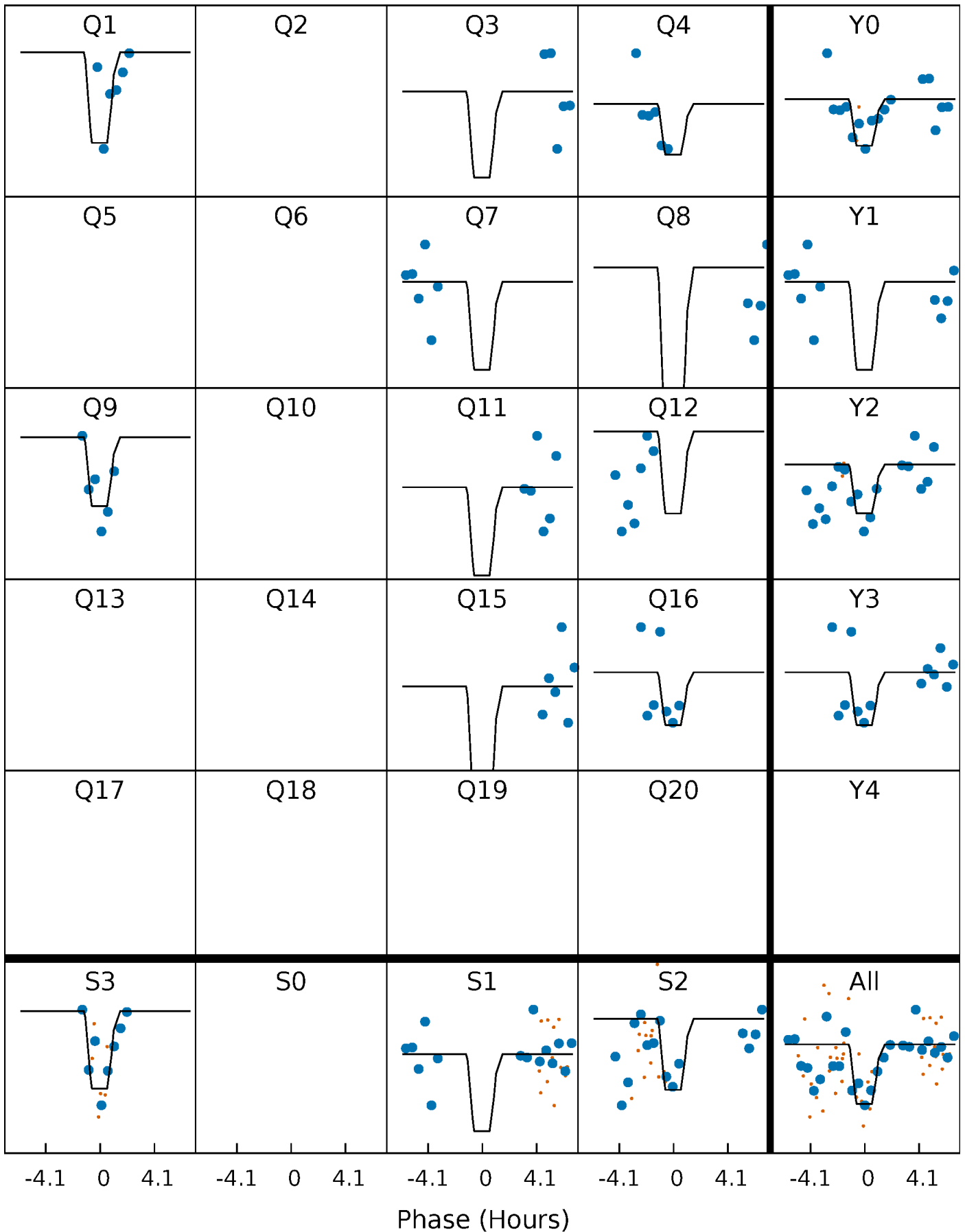
# DV Quarter-Phased Transit Curves

TCE 003660392-04   P= 25.735035 Days    $T_0=154.278163$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

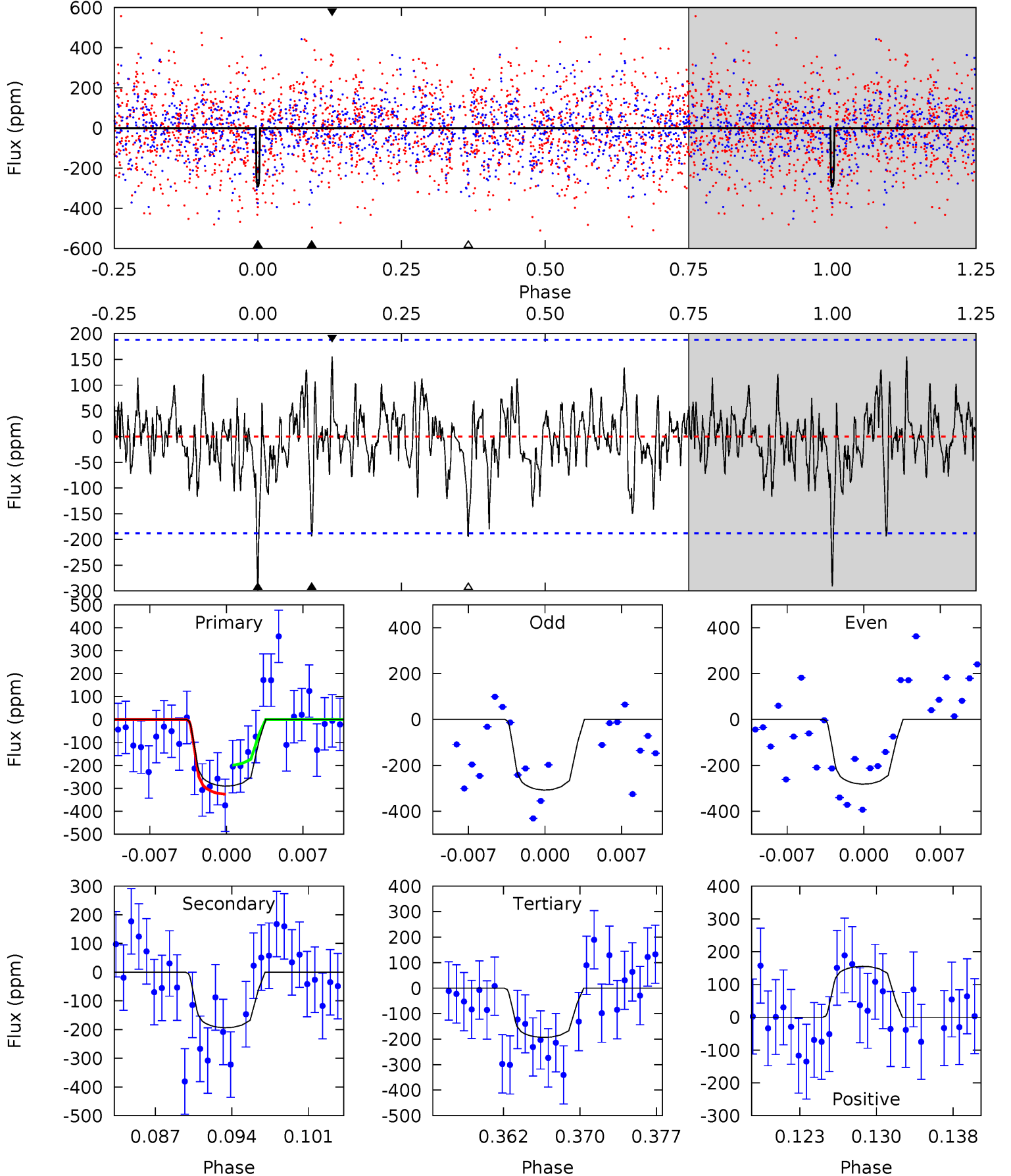
TCE 003660392-04     $P = 25.734375$  Days     $T_0 = 154.274517$  (BKJD)



# DV Model-Shift Uniqueness Test

003660392-04,  $P = 25.735035$  Days,  $E = 128.543128$  Days

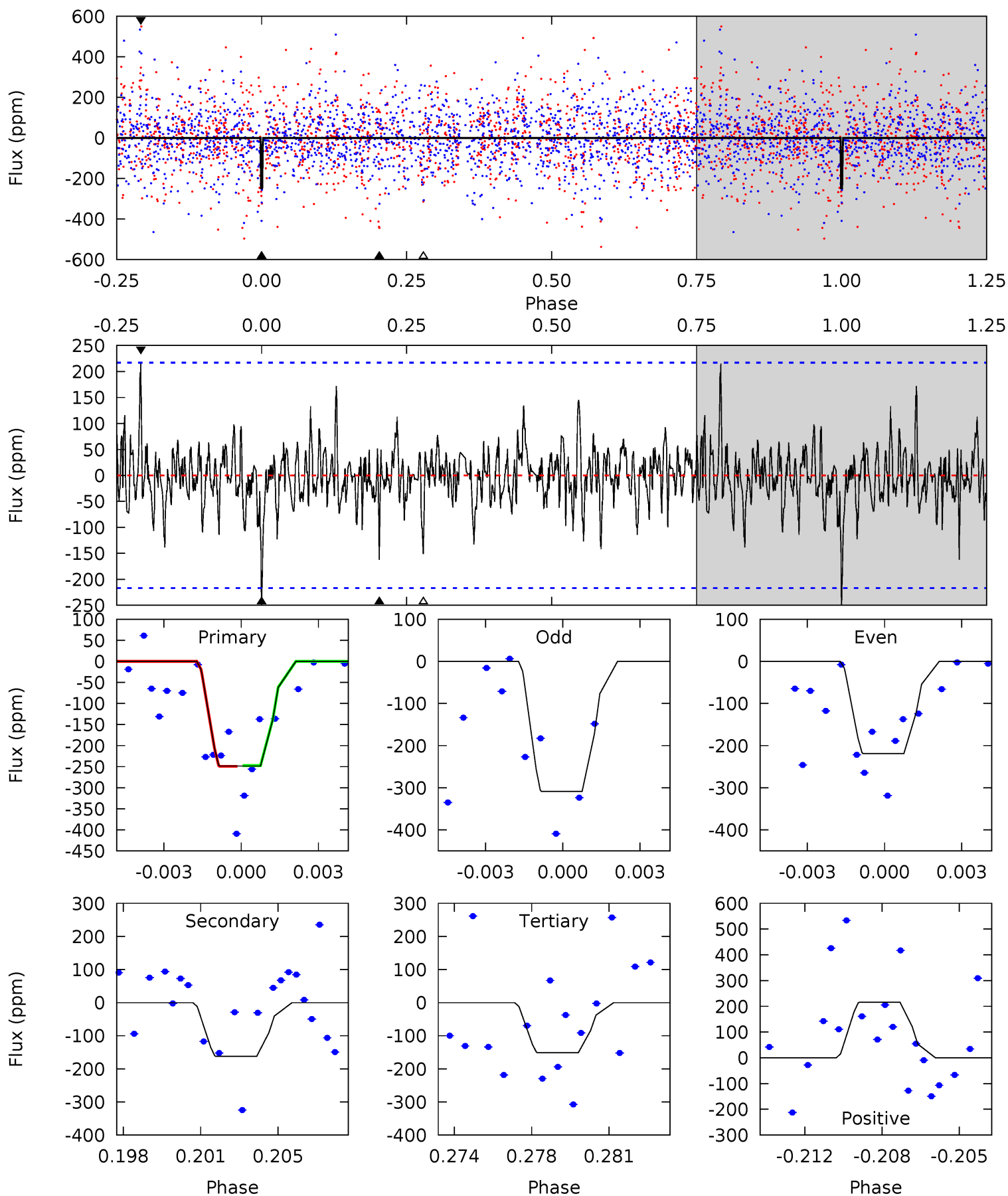
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.86	5.24	5.23	4.20	5.09	2.69	1.39	2.63	3.66	0.01	1.04	0.33	1.00	0.35	1.55



# Alt Model-Shift Uniqueness Test

003660392-04, P = 25.734375 Days, E = 128.540142 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
5.99	3.91	3.65	5.19	5.23	2.92	1.14	2.34	0.80	0.27	-1.27	1.08	0.96	0.46	0.02





### Stellar Parameters For KIC 003660392

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6550^{+178}_{-198}$	$3.473^{+0.376}_{-0.094}$	$-0.440^{+0.400}_{-0.300}$	$3.920^{+0.565}_{-1.581}$	$1.666^{+0.190}_{-0.443}$	$0.039^{+0.124}_{-0.012}$
	+3%/-3%	+11%/-3%	+91%/-68%	+14%/-40%	+11%/-27%	+318%/-30%
Source	PHO1	FLK73	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 003660392-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-194 \pm 37$	$7.32^{+3.82}_{-3.32}$	$1746^{+102}_{-178}$	$5599^{+2041}_{-860}$	$80^{+186}_{-46}$
Alt.	$-162 \pm 42$	$6.78^{+3.93}_{-3.33}$	$1740^{+102}_{-189}$	$5558^{+2167}_{-970}$	$74^{+219}_{-45}$

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

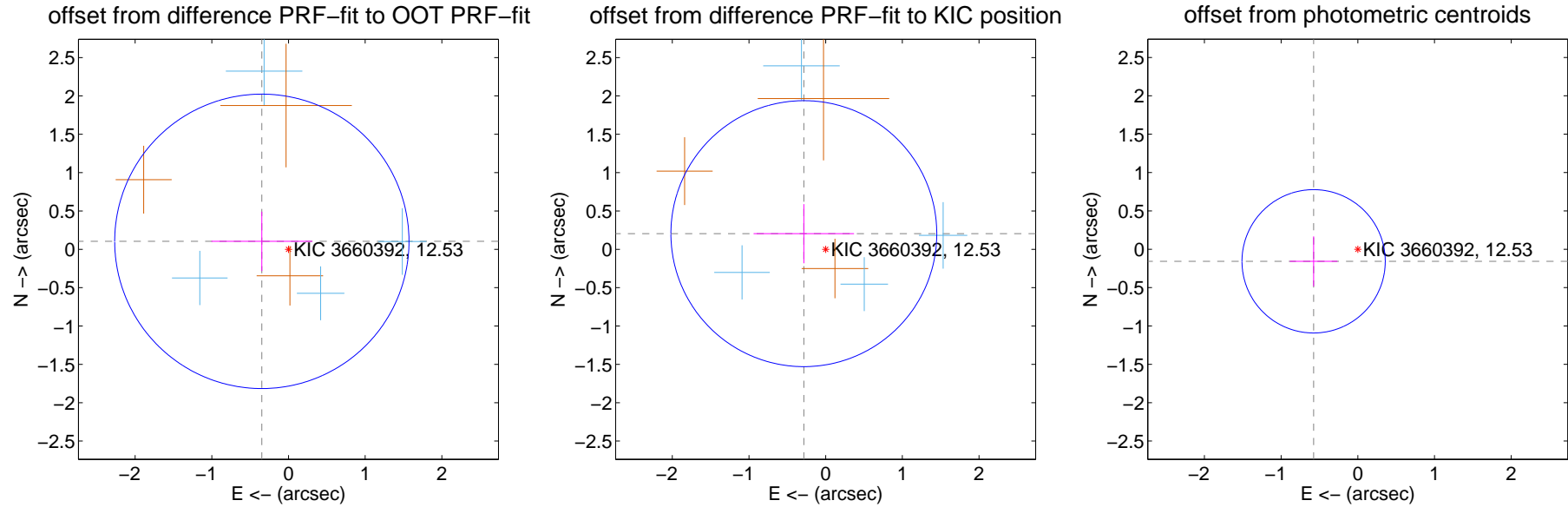
## DV Centroid Data

Supplemental centroid analysis for 003660392-04. Kepler magnitude: 12.53. Transit SNR 8.39

There are 4 quarters with good PRF difference image offsets

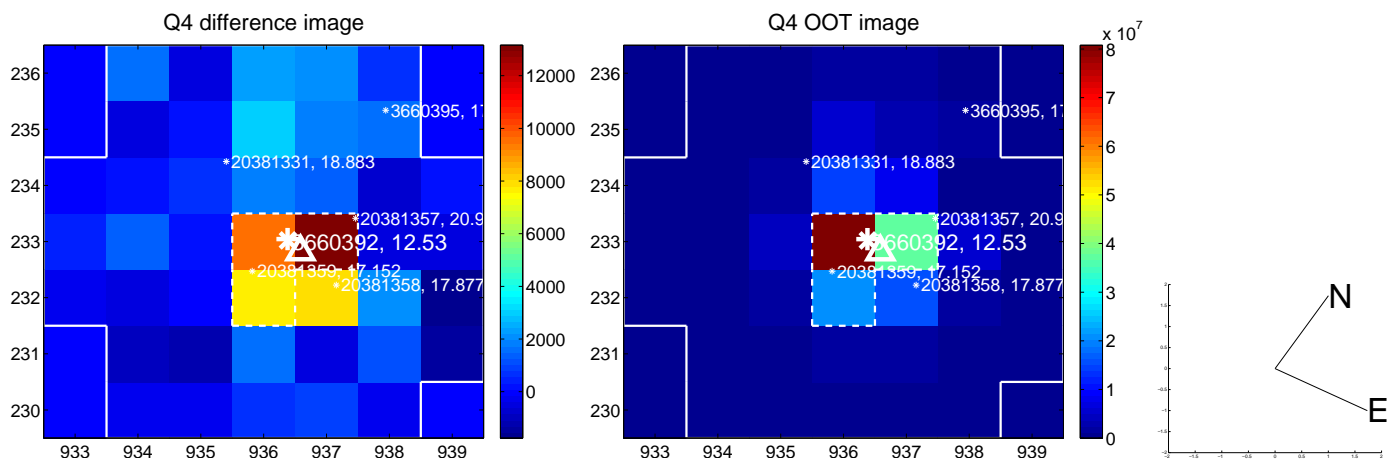
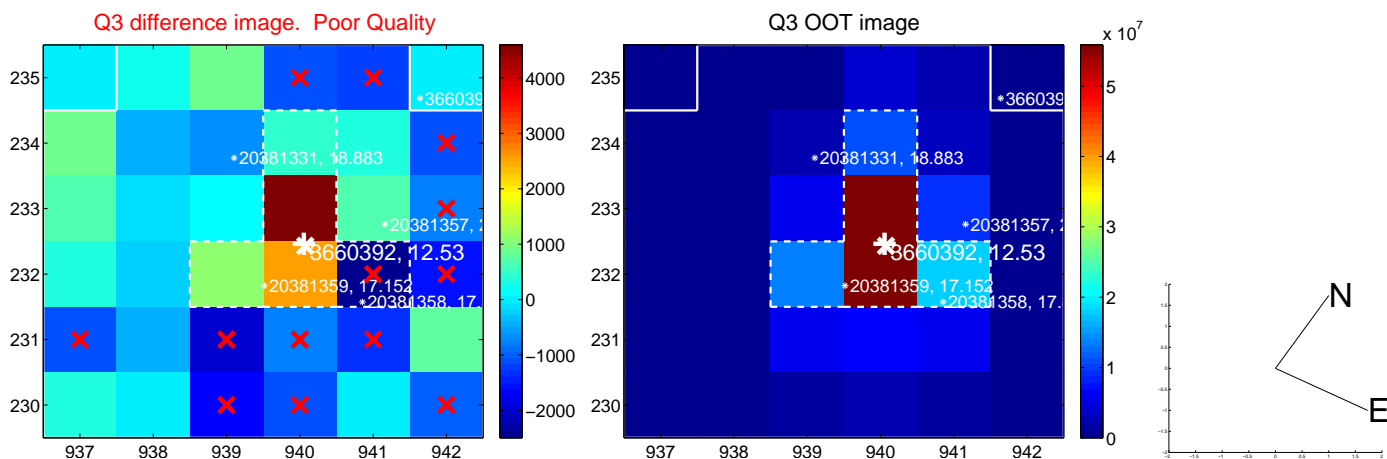
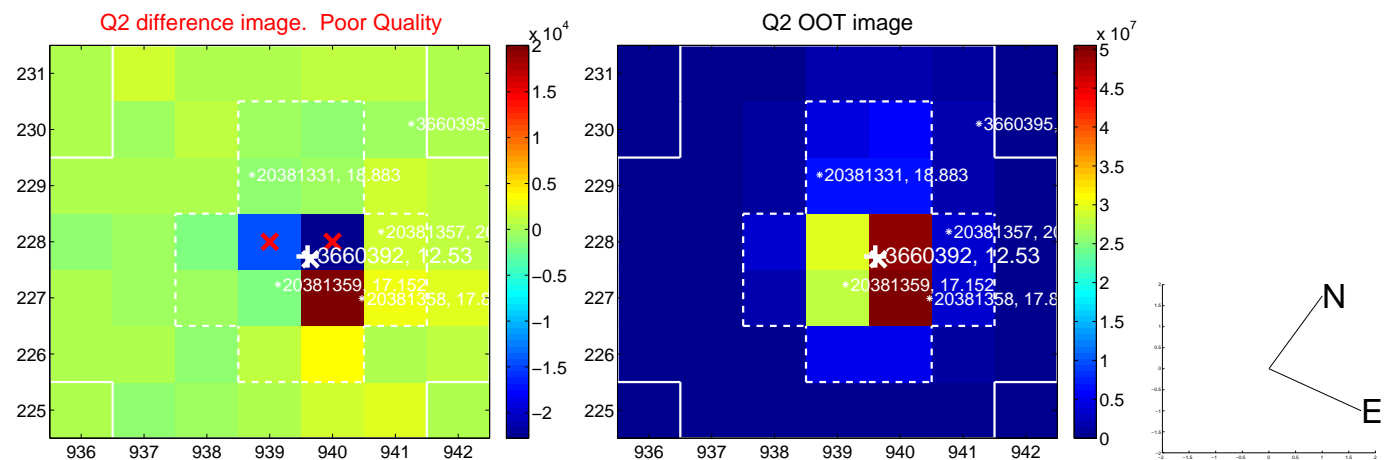
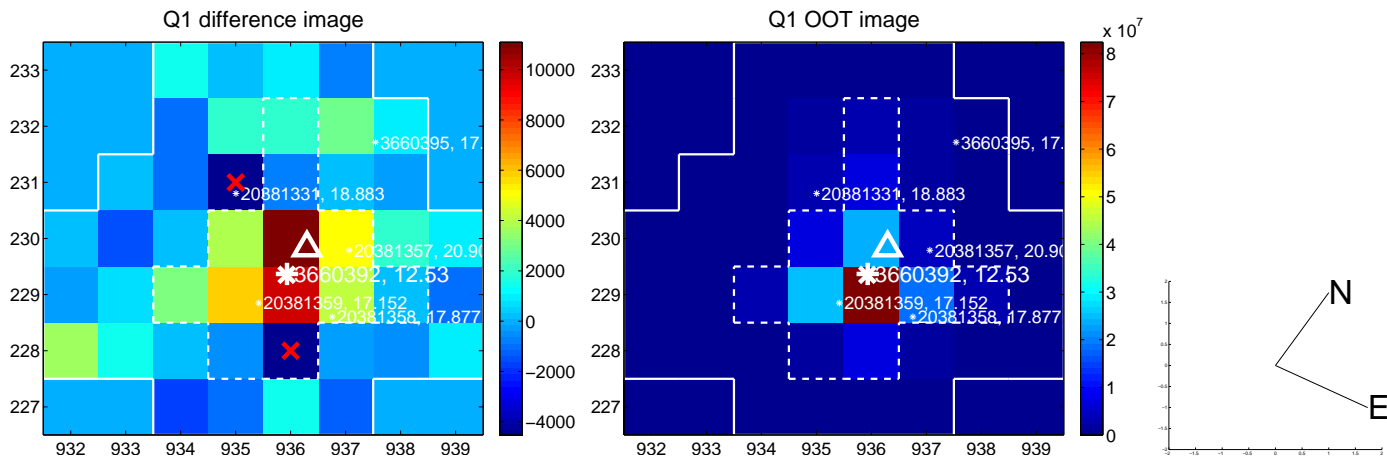
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.363 \pm 0.640$	0.57	$0.348 \pm 0.658$	$0.104 \pm 0.387$
PRF-fit source offset from KIC position	$0.350 \pm 0.578$	0.61	$0.285 \pm 0.655$	$0.204 \pm 0.386$
photometric centroid source offset	$0.60 \pm 0.31$	1.92	$0.58 \pm 0.31$	$-0.16 \pm 0.33$

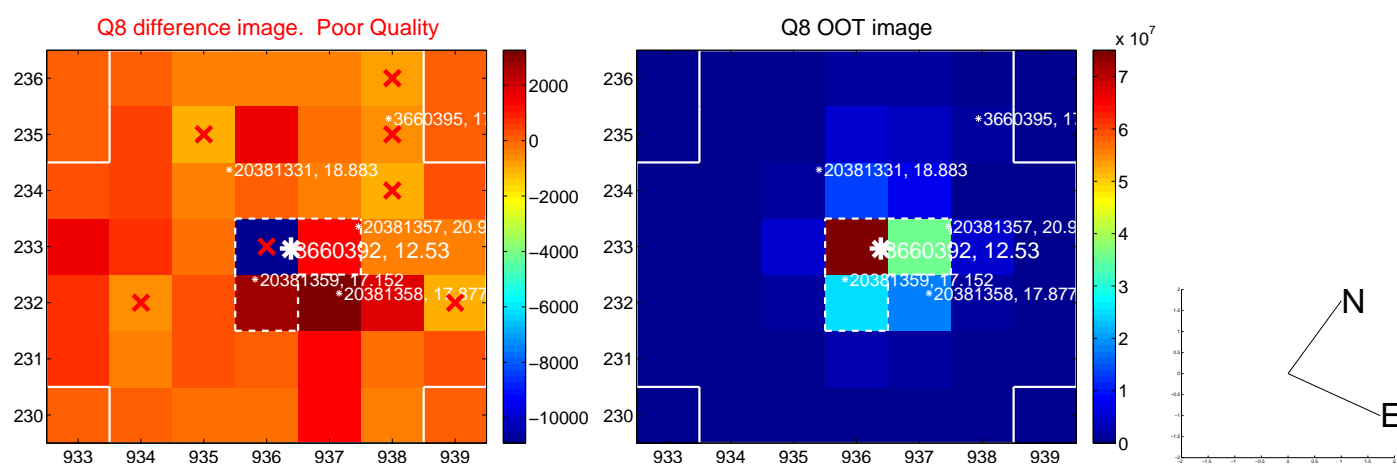
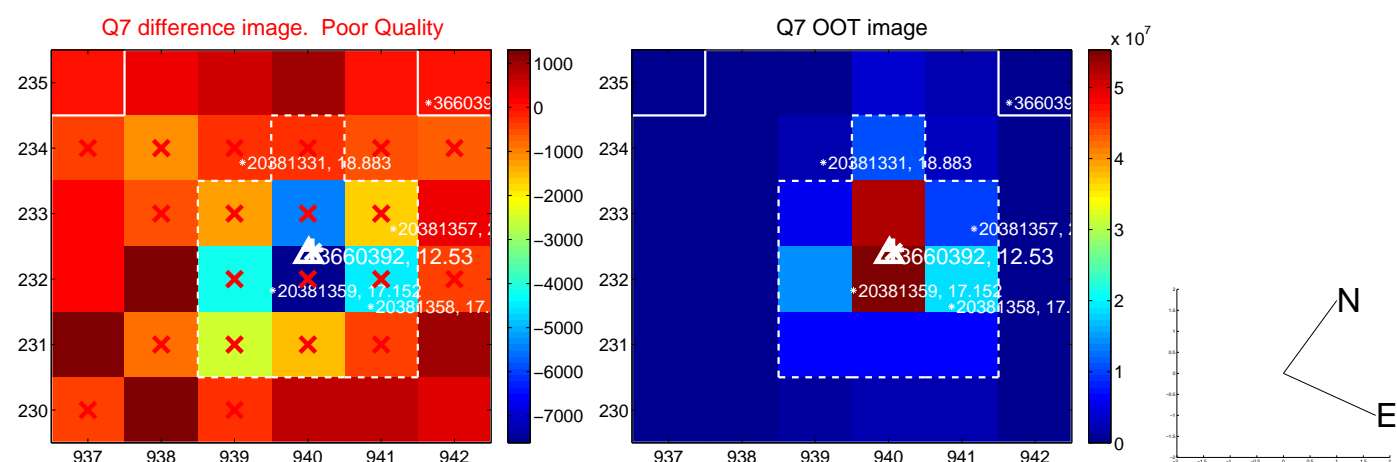
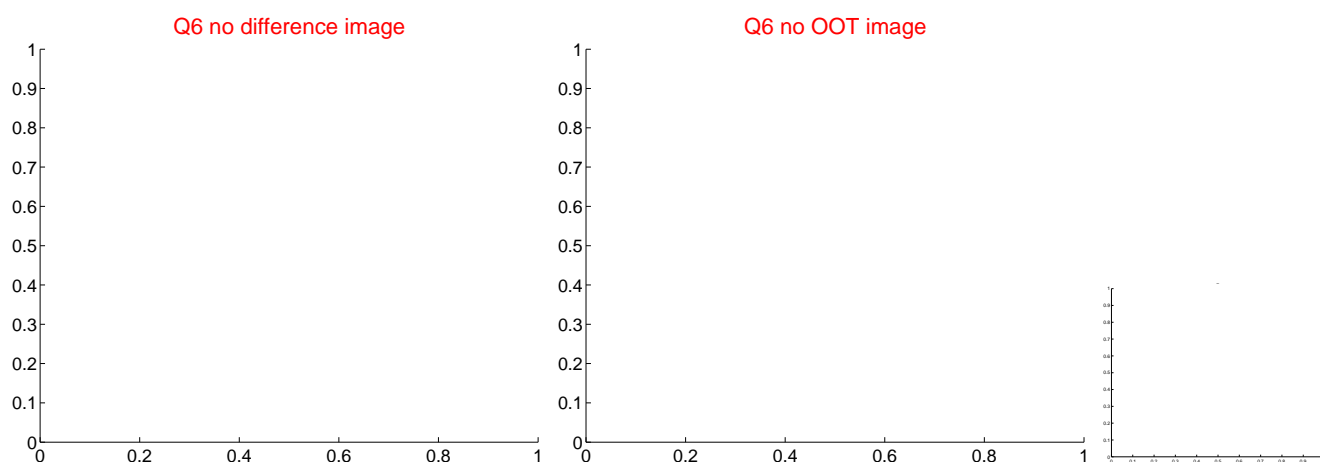
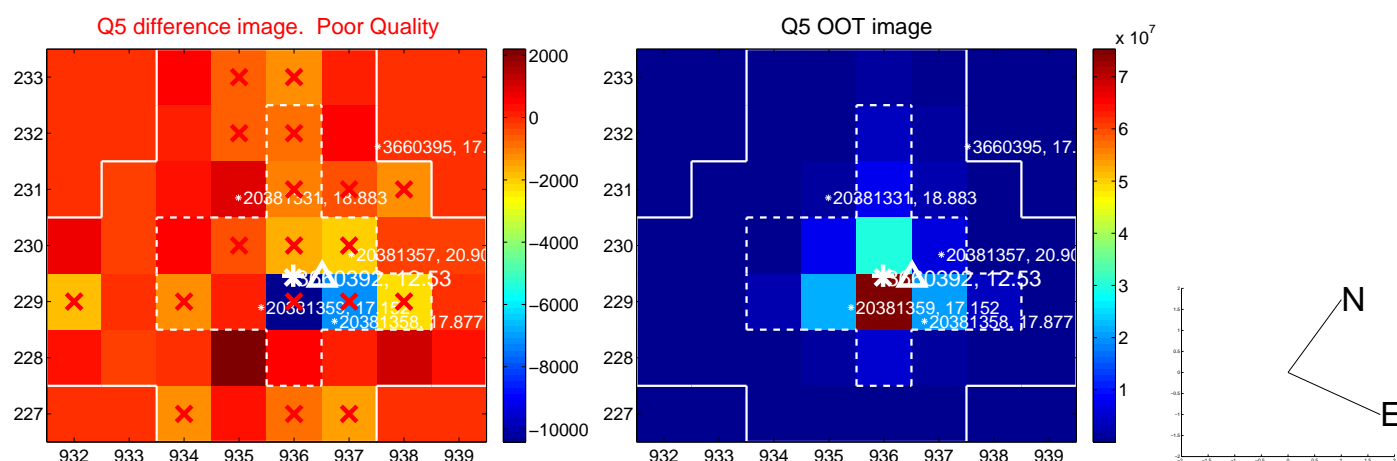


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

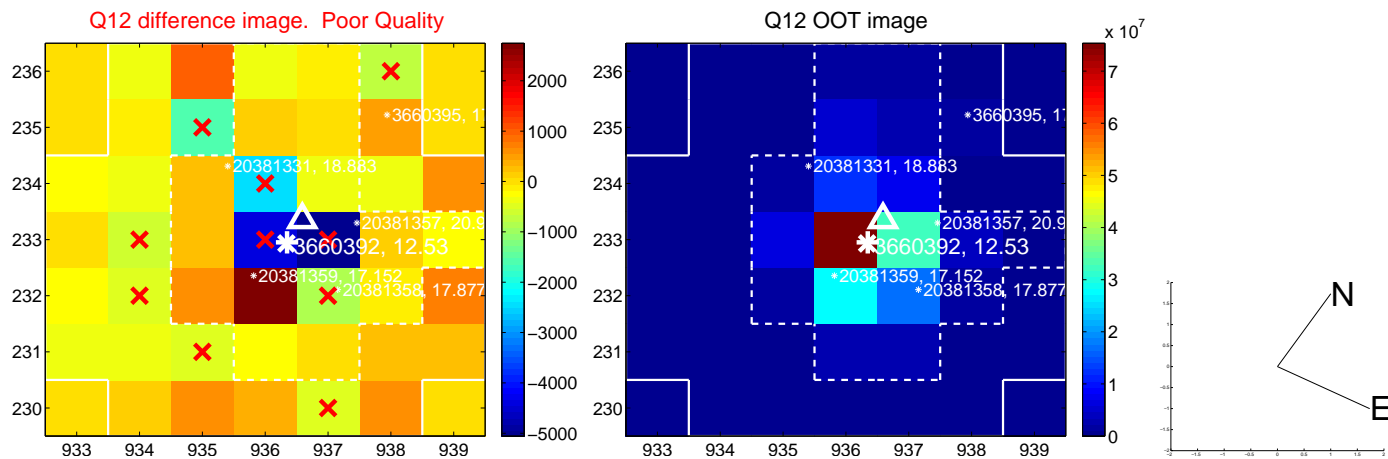
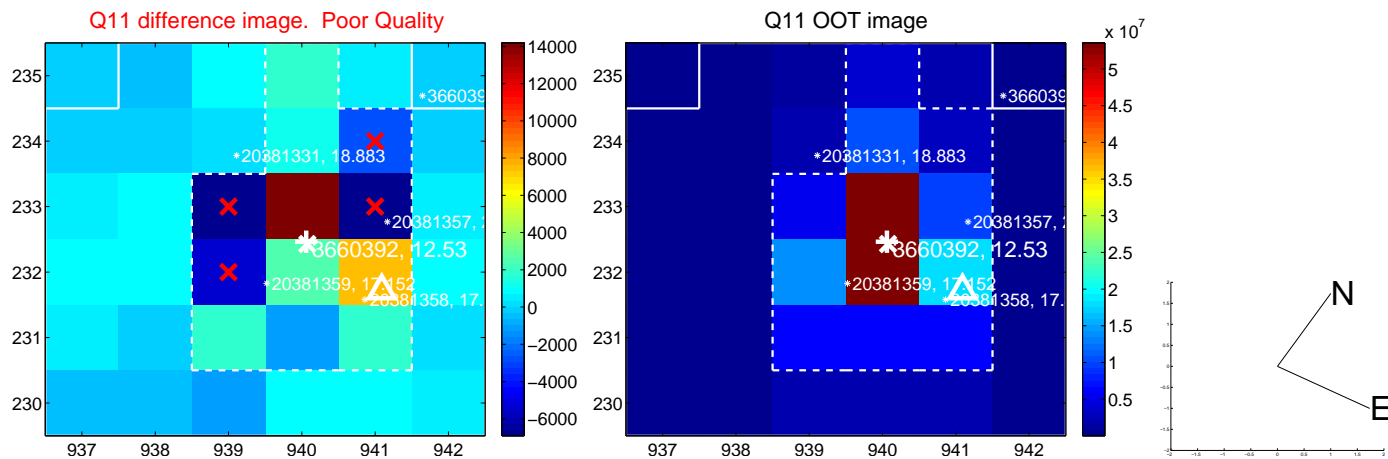
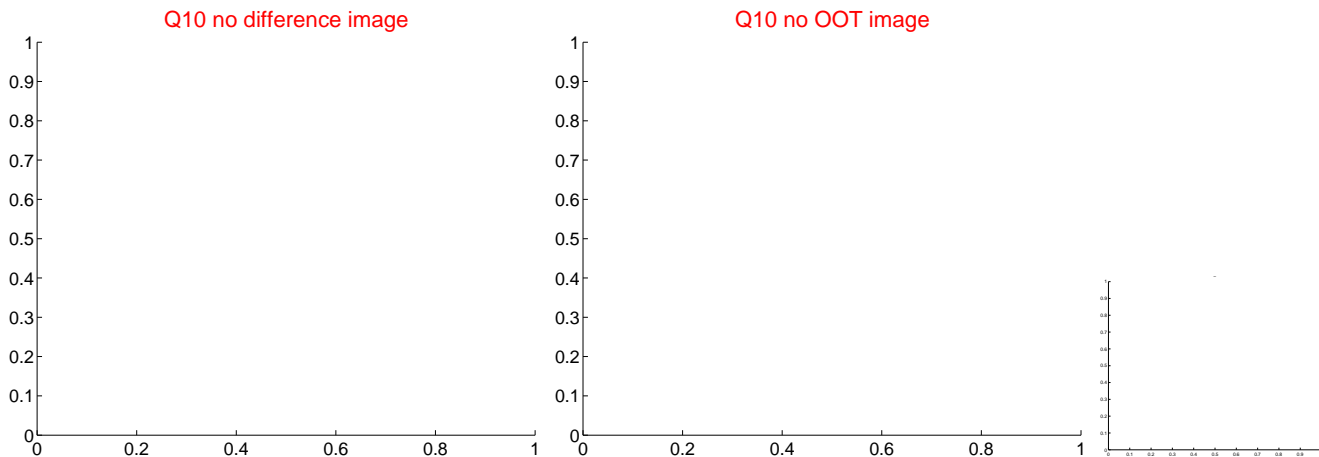
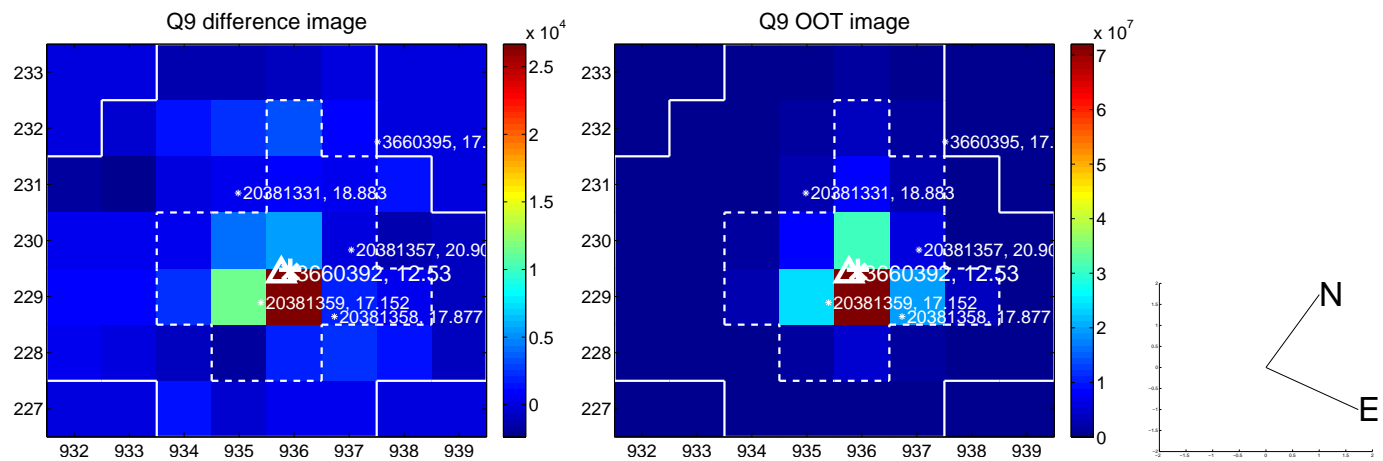
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



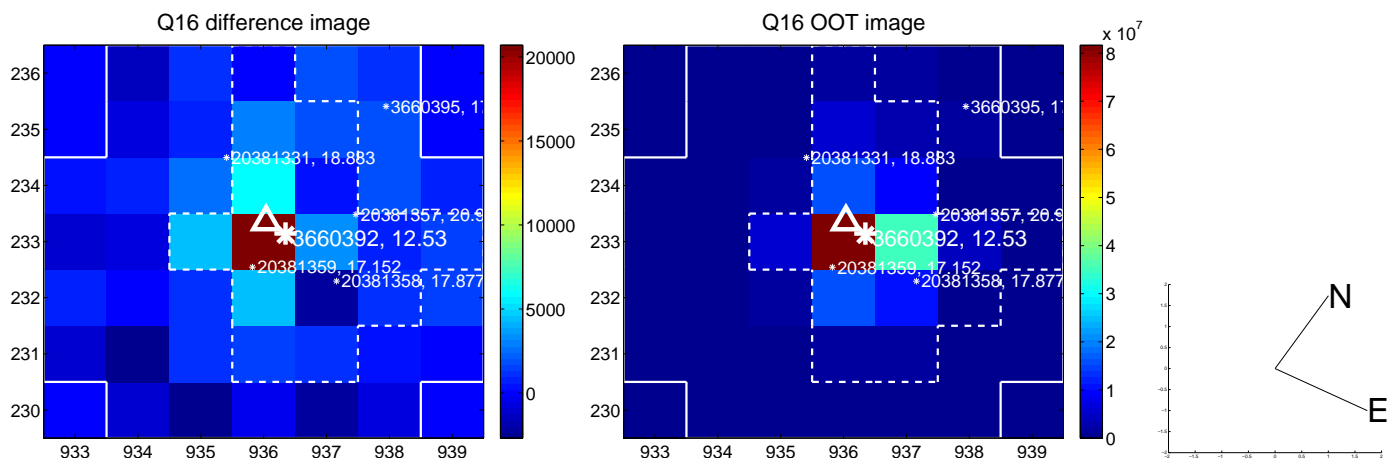
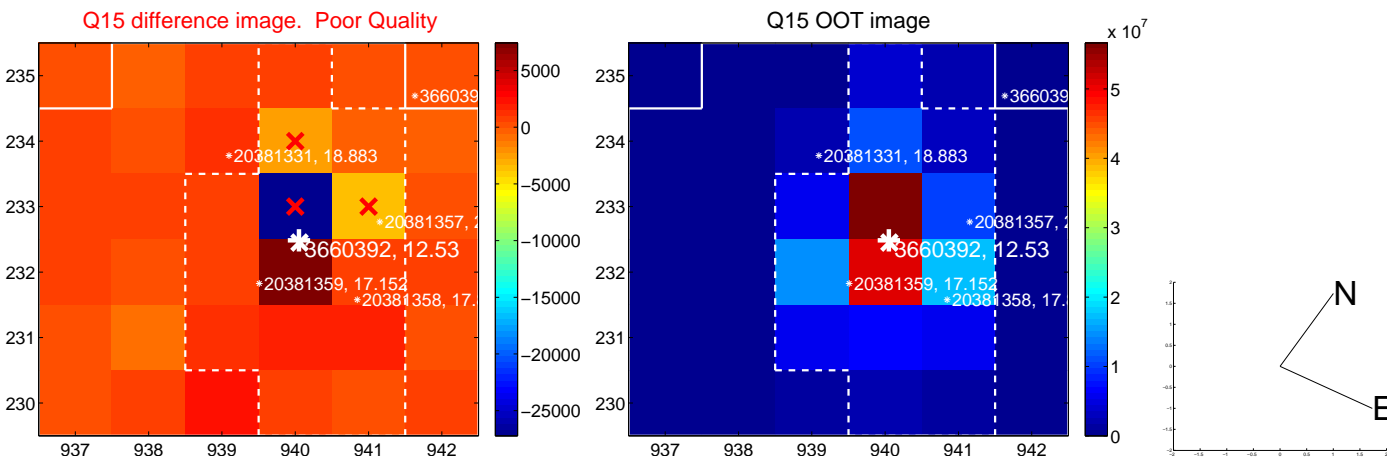
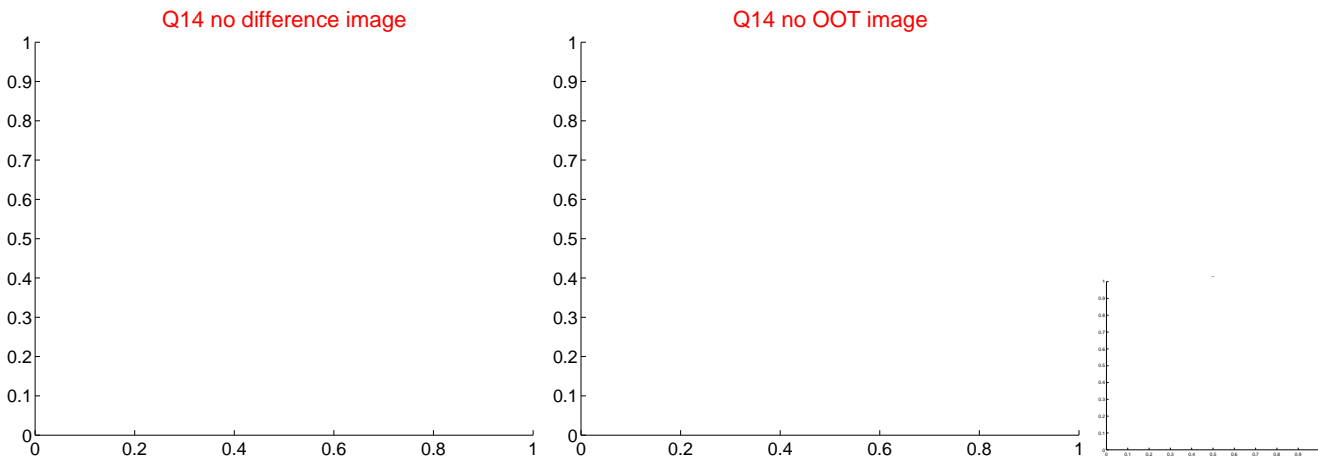
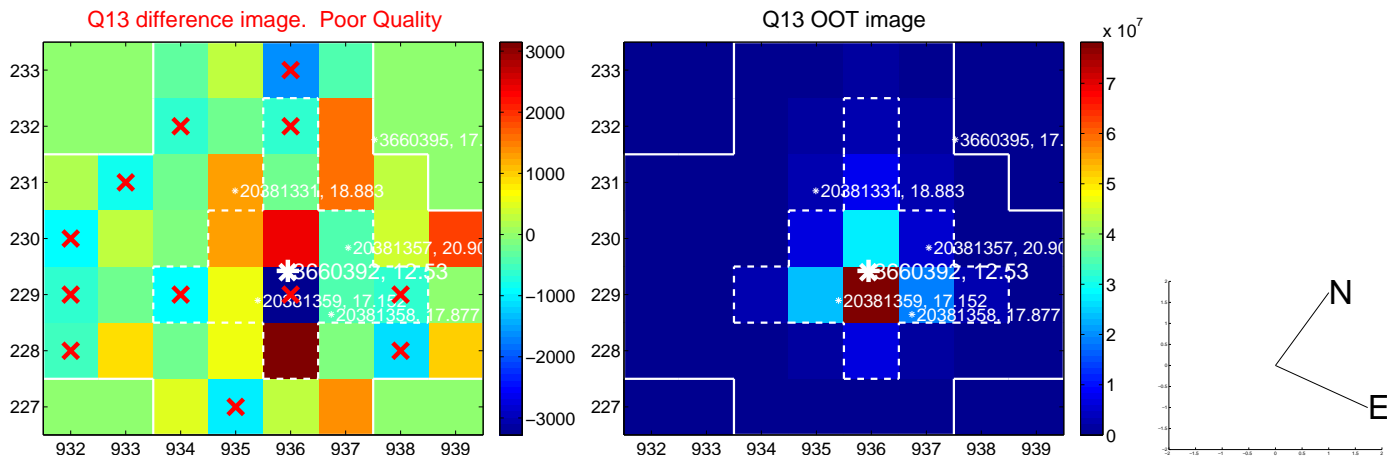
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

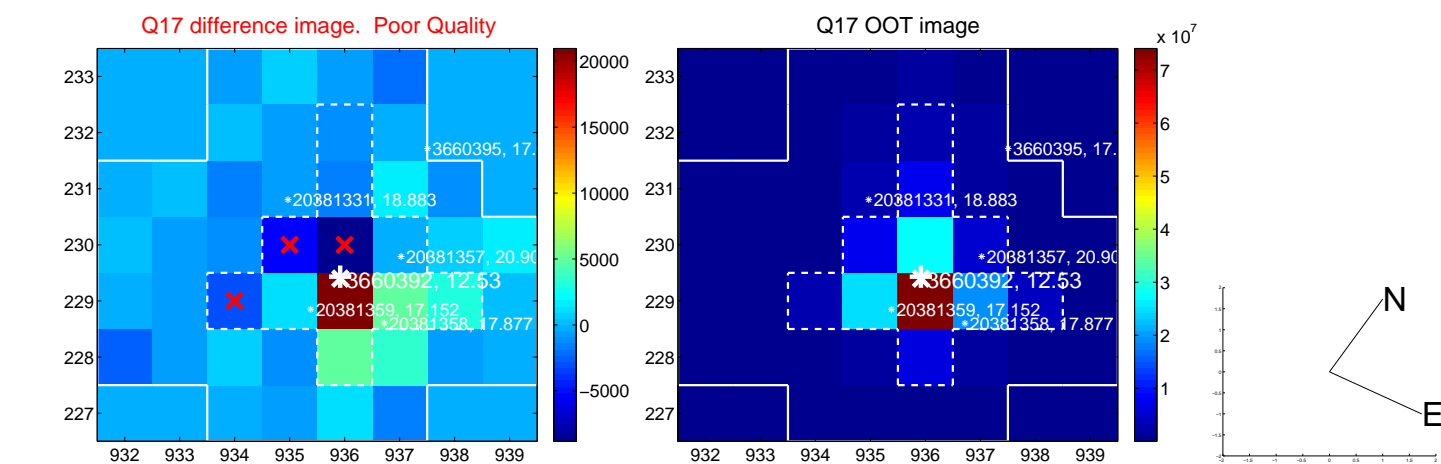


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

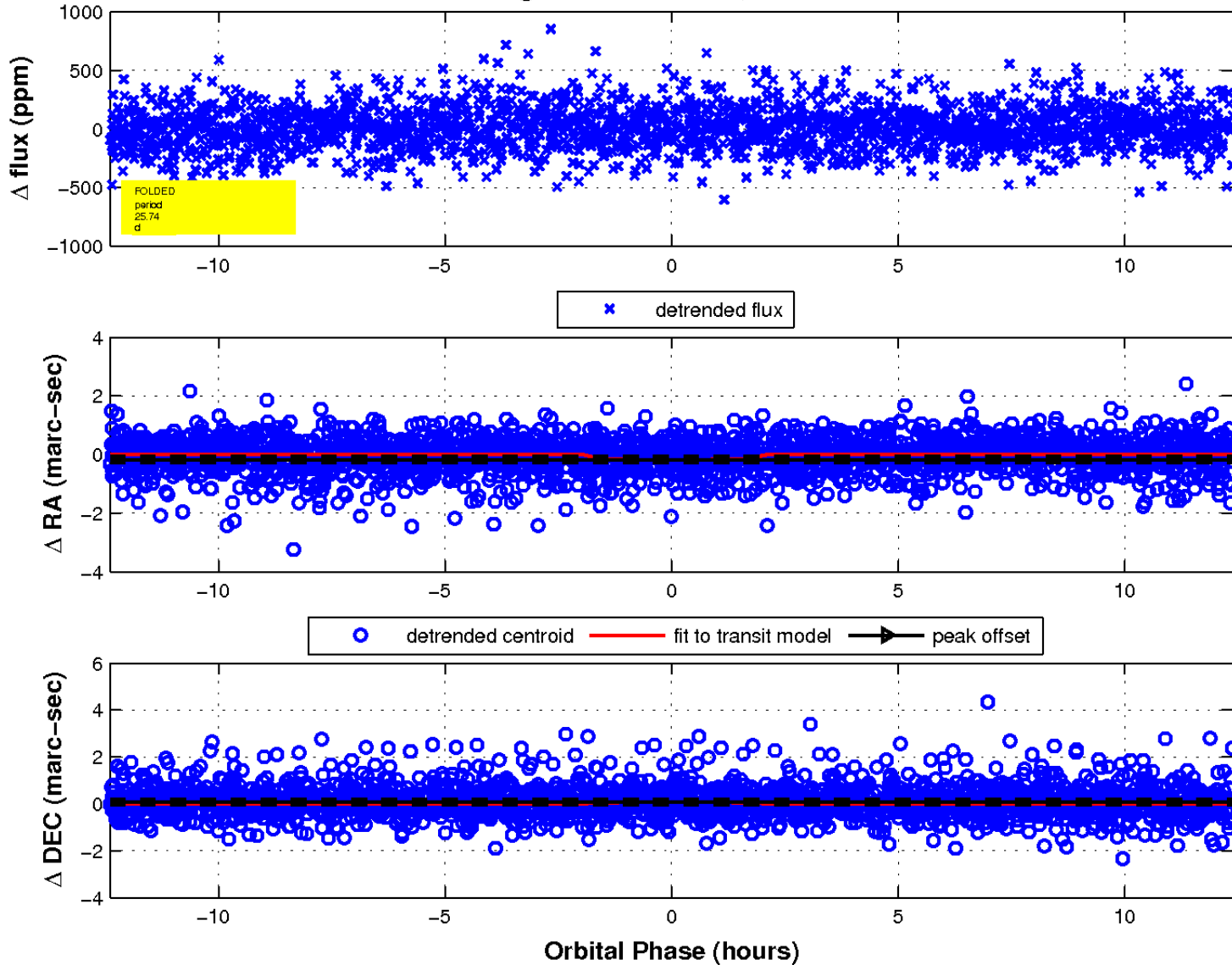




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

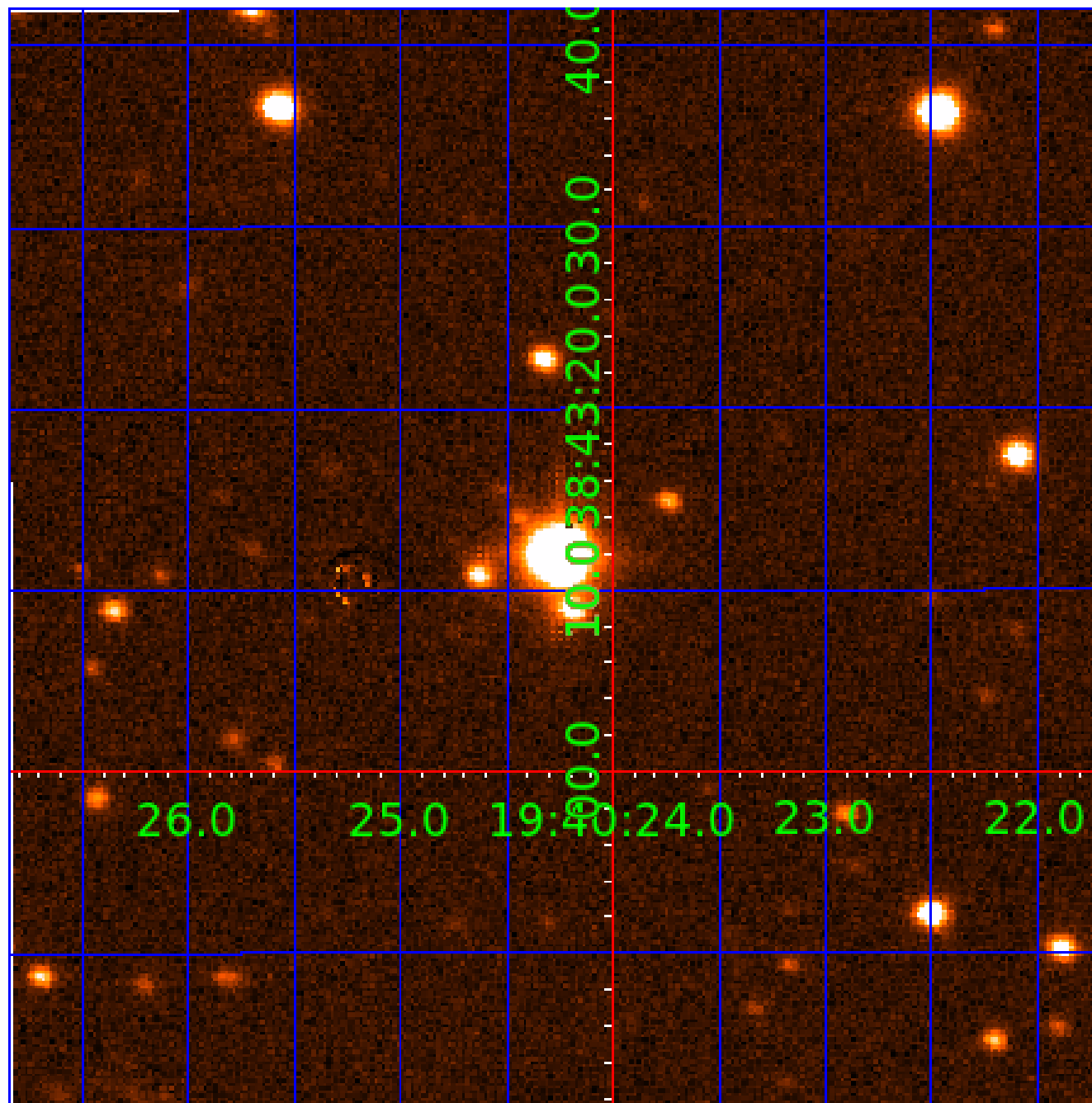


fluxWeightedCentroids, Planet 4 of 7



UKIRT Image

Declination



# KIC 003660392

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003660392-01	OBS	No	2.651865	133.846988	30.1	11.002	10.6	8.6	3.92	6550	2.20	12822.76
003660392-02	OBS	No	2.651830	132.397389	36.9	9.980	11.3	13.3	3.92	6550	2.79	12823.00
003660392-03	OBS	No	9.206947	138.847325	197.1	2.789	9.1	8.9	3.92	6550	6.50	2439.10
003660392-04	OBS	No	25.735035	154.278163	304.7	4.134	8.8	8.4	3.92	6550	7.98	619.47
003660392-05	OBS	No	13.762980	138.762271	194.9	5.685	8.4	8.6	3.92	6550	5.84	1427.03
003660392-06	OBS	No	52.508650	147.896614	270.5	2.000	7.8	-1.0	3.92	6550	6.50	239.37
003660392-07	OBS	No	8.878610	137.254666	280.1	1.394	7.6	8.5	3.92	6550	7.68	2560.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003660392-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT
003660392-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
003660392-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003660392-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST
003660392-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
003660392-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST
003660392-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV

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

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

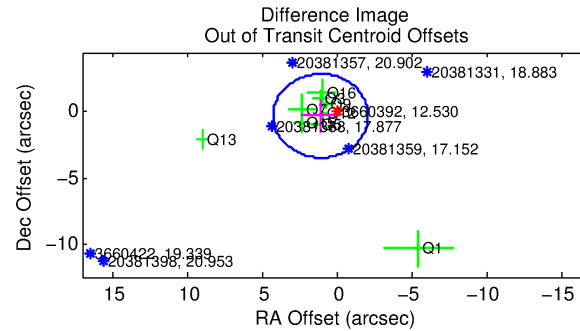
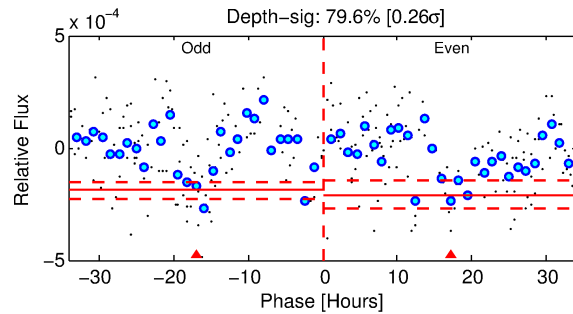
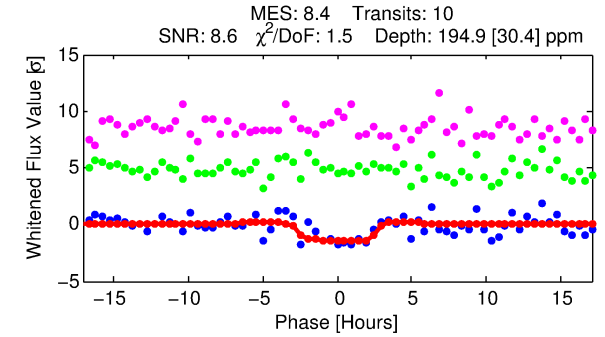
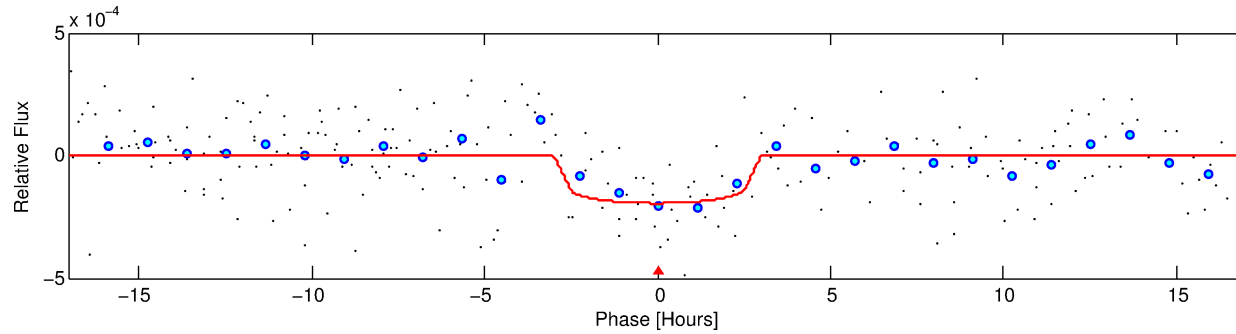
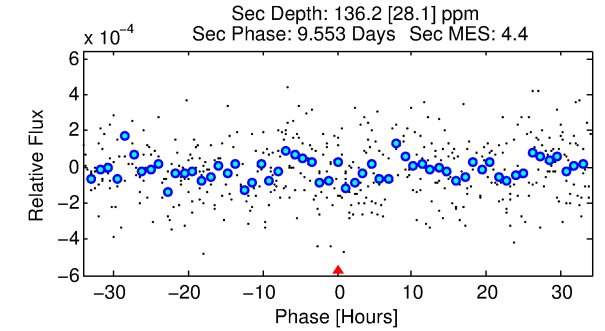
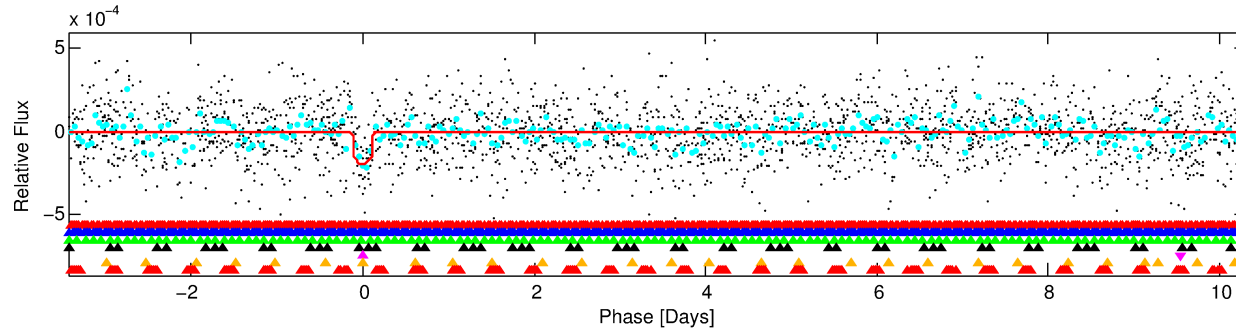
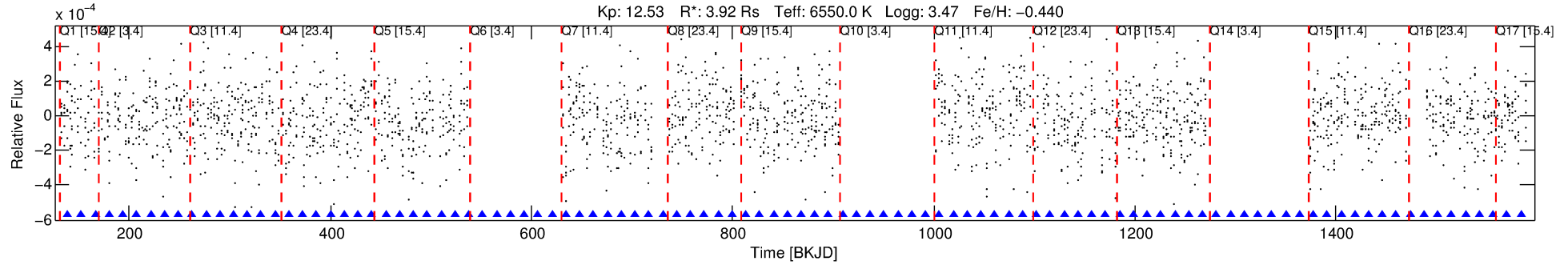
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003660392-05

No Significant Match Found

# DV One-Page Summary

KIC: 3660392 Candidate: 5 of 7 Period: 13.763 d



## DV Fit Results:

Period = 13.76298 [0.00041] d  
Epoch = 138.7623 [0.0202] BKJD  
Rp/R\* = 0.0136 [0.0145]  
a/R\* = 13.85 [81.32]  
b = 0.68 [4.61]  
Seff = 1427.03 [924.88]  
Teq = 1567 [254] K  
Rp = 5.84 [6.64] Re  
a = 0.1333 [0.0526] AU  
Ag = 39.03 [87.08] [0.44σ]  
Teffp = 6057 [3243] K [1.38σ]

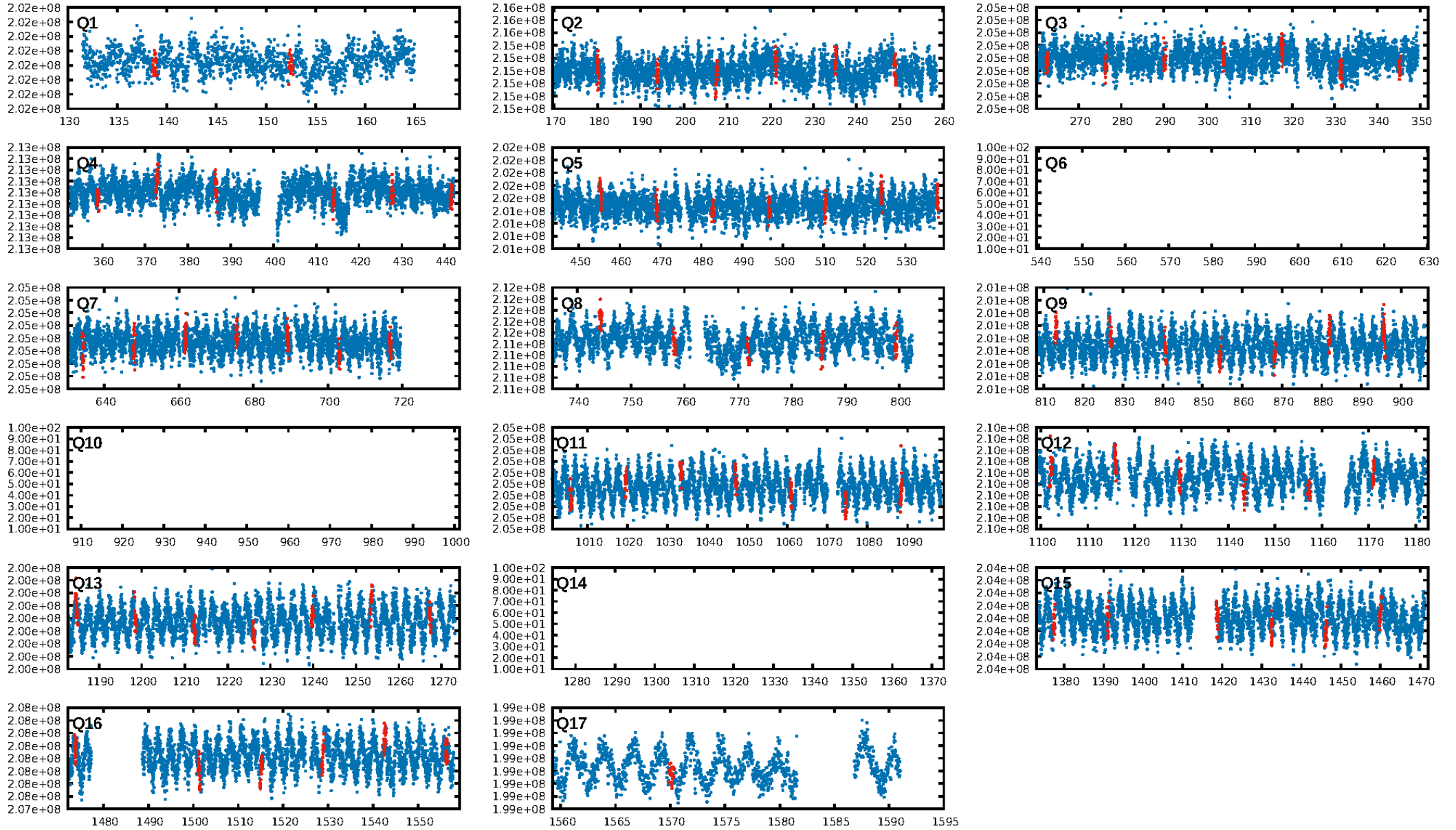
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [17.27σ]  
LongPeriod-sig: 100.0% [40.87σ]  
ModelChiSquare2-sig: 0.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.60e-20  
RollingBand-fgt: 1.00 [10/10]  
GhostDiagnostic-chr: -0.2075  
Centroid-sig: 3.2%  
Centroid-so: 0.415 arcsec [1.29σ]  
OotOffset-rm: 1.112 arcsec [1.05σ]  
KicOffset-rm: 1.036 arcsec [1.01σ]  
OotOffset-st: 0/3/2/4 [9]  
KicOffset-st: 0/3/2/4 [9]  
DiffImageQuality-fgm: 0.22 [2/9]  
DiffImageOverlap-fno: 0.07 [1/14]

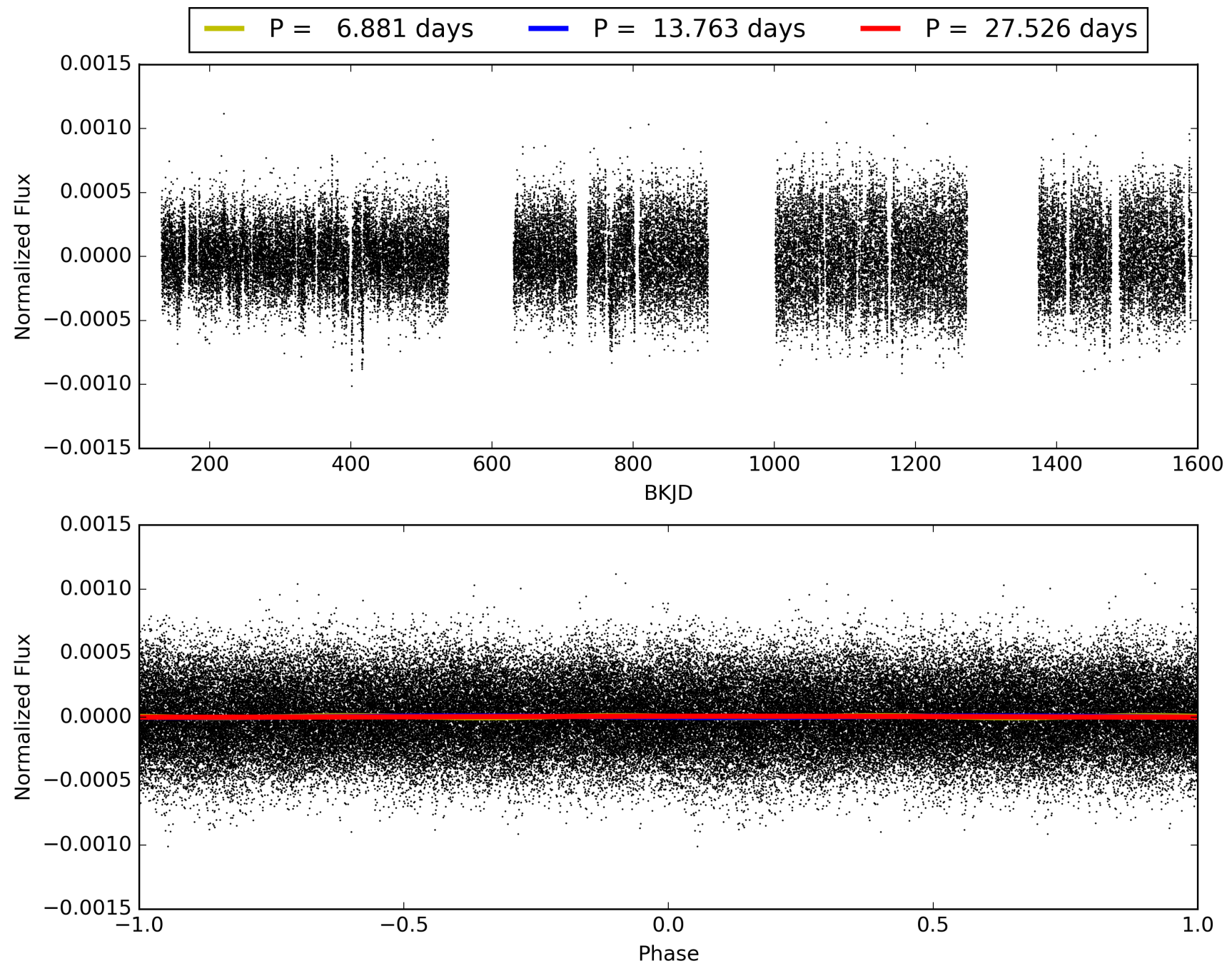
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:06:53 Z

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

# TCE 003660392-05, PDC Light Curves



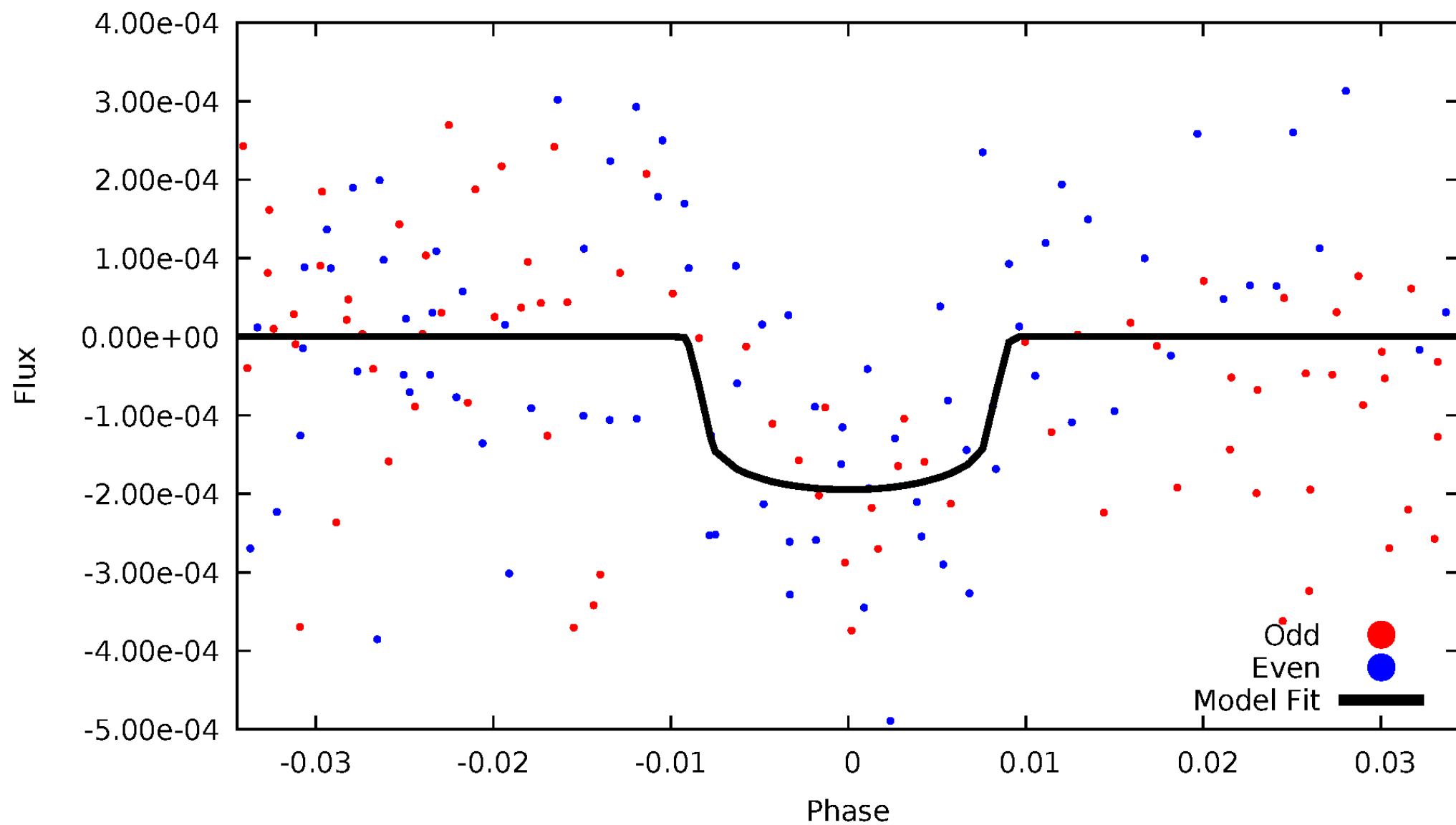
TCE 003660392-05





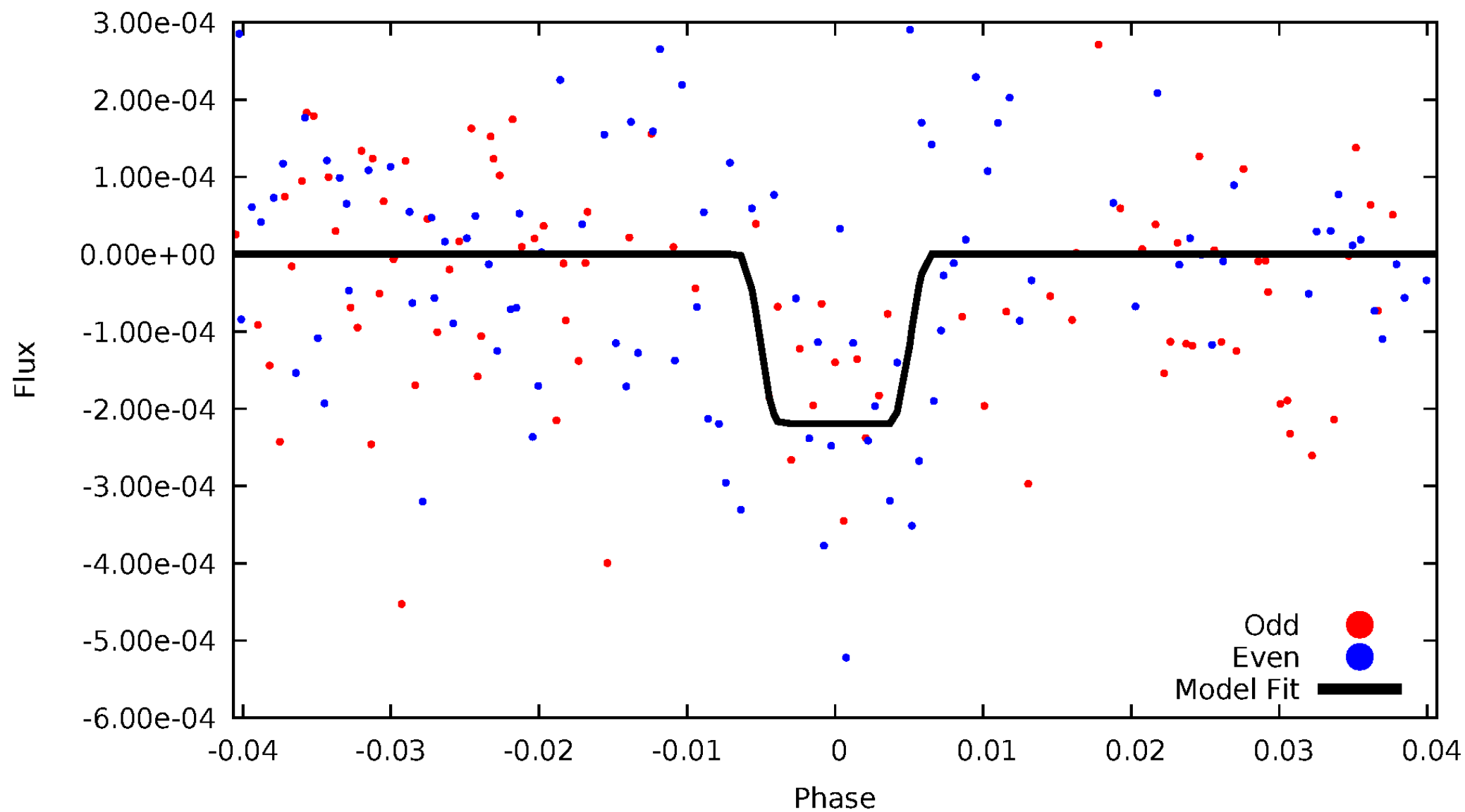
# DV Odd/Even

TCE 003660392-05



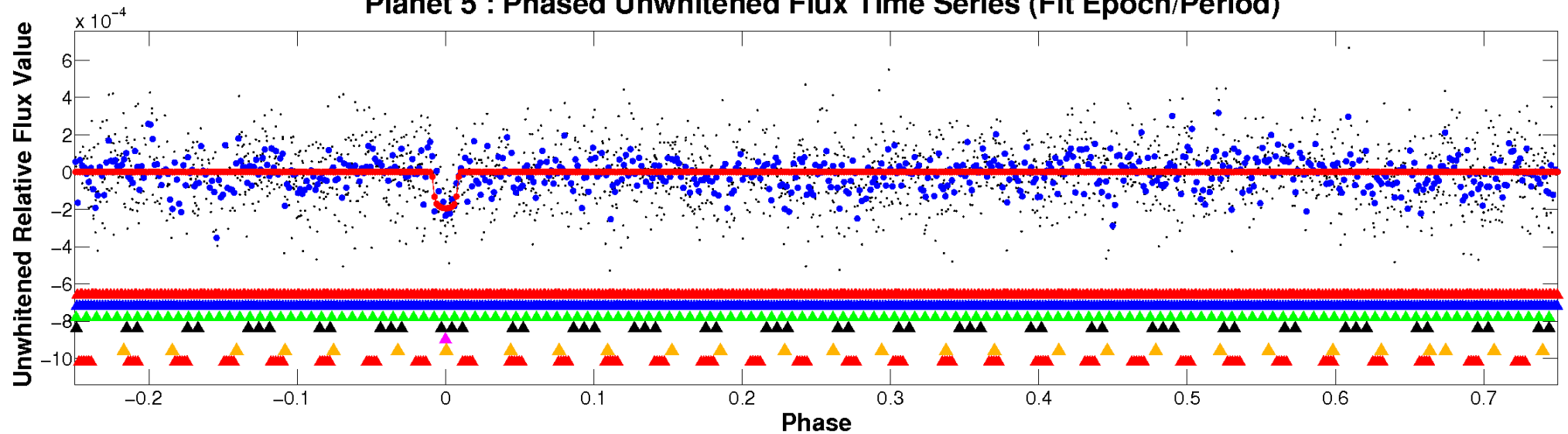
# ALT Odd/Even

TCE 003660392-05

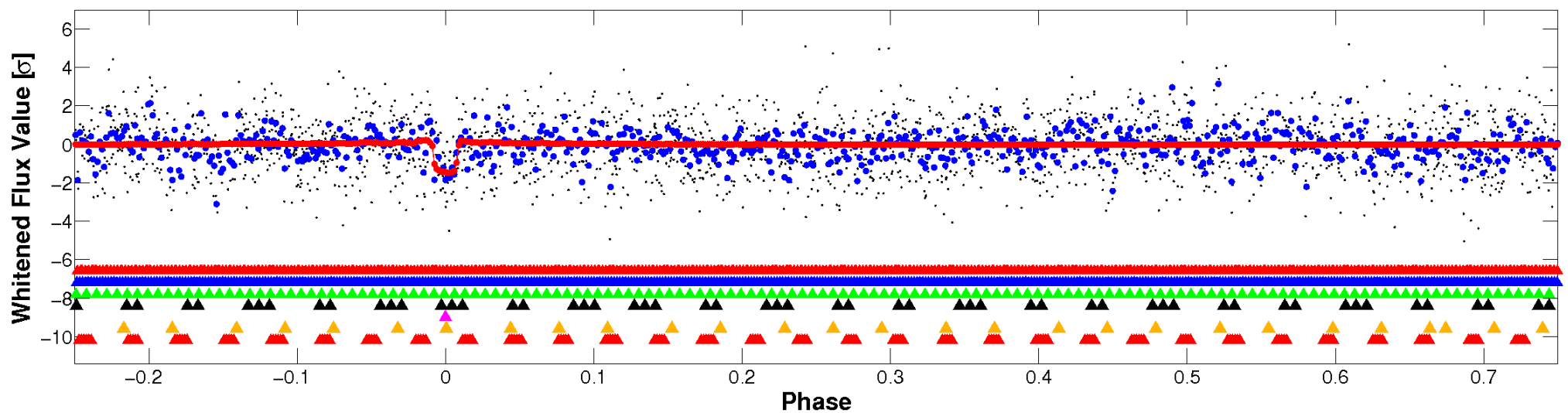


# Non-Whitened Vs. Whitened Light Curve

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

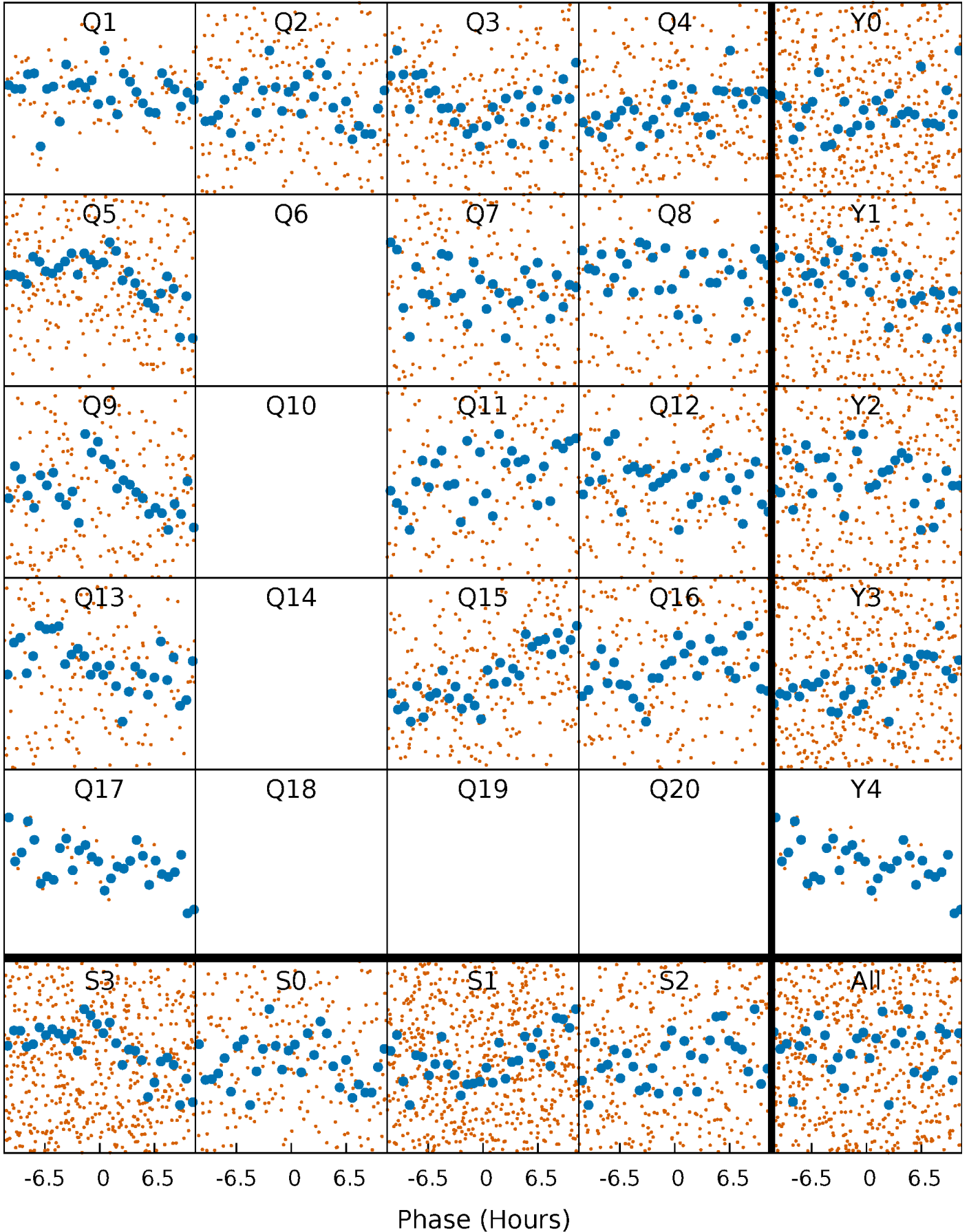


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



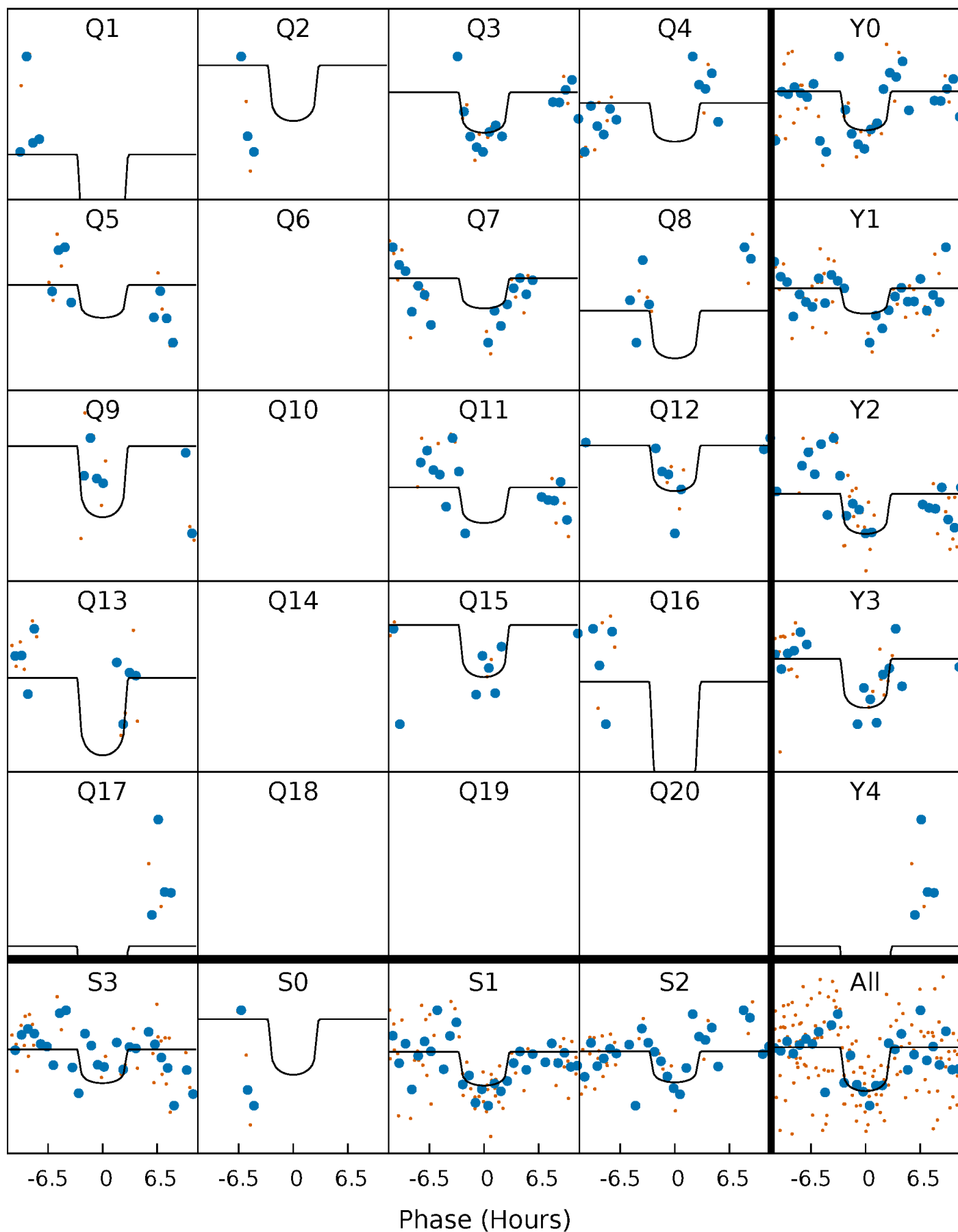
# PDC Quarter-Phased Transit Curves

TCE 003660392-05     $P = 13.762980$  Days     $T_0 = 138.762271$  (BKJD)



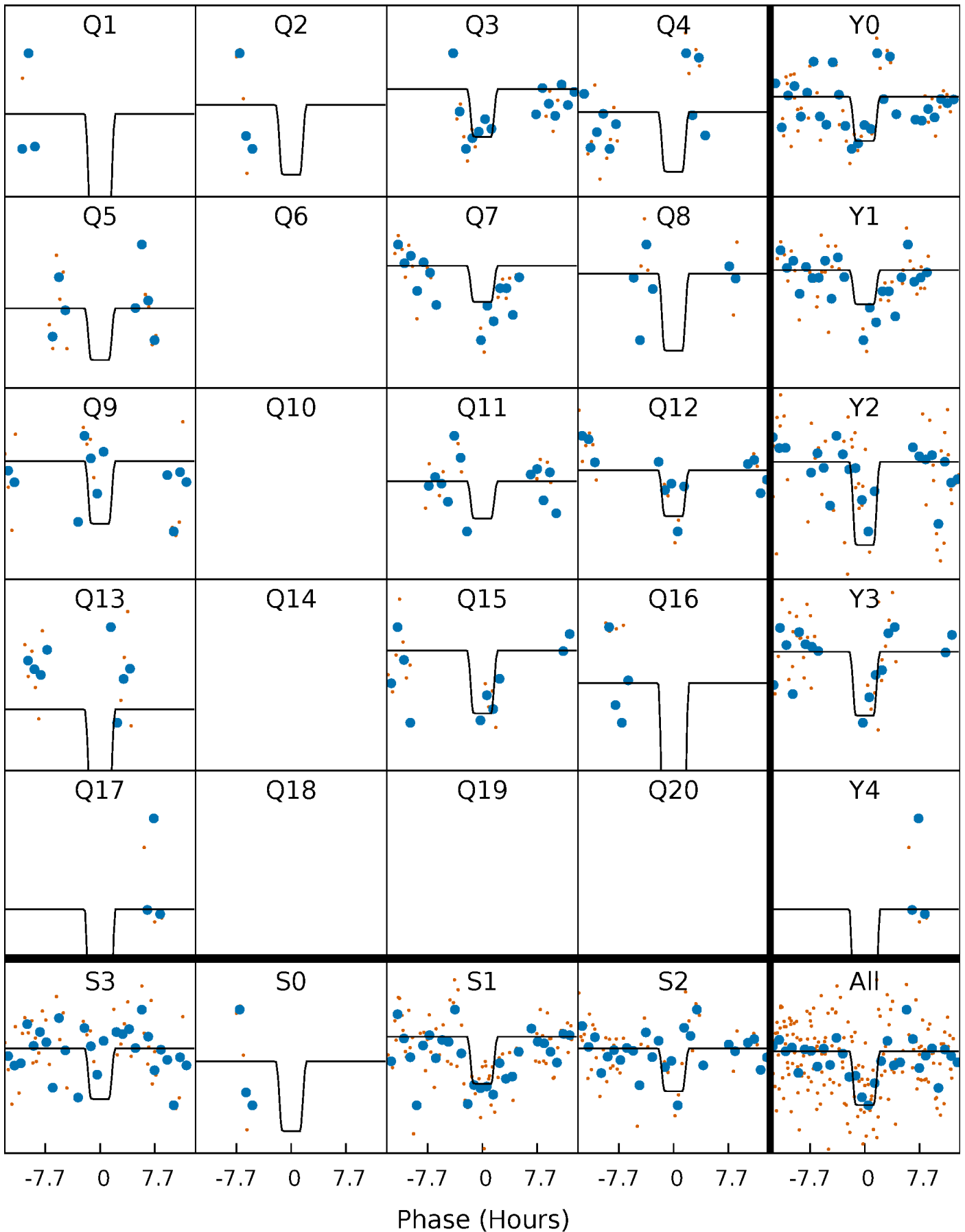
# DV Quarter-Phased Transit Curves

TCE 003660392-05     $P = 13.762980$  Days     $T_0 = 138.762271$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003660392-05     $P = 13.762222$  Days     $T_0 = 138.812076$  (BKJD)

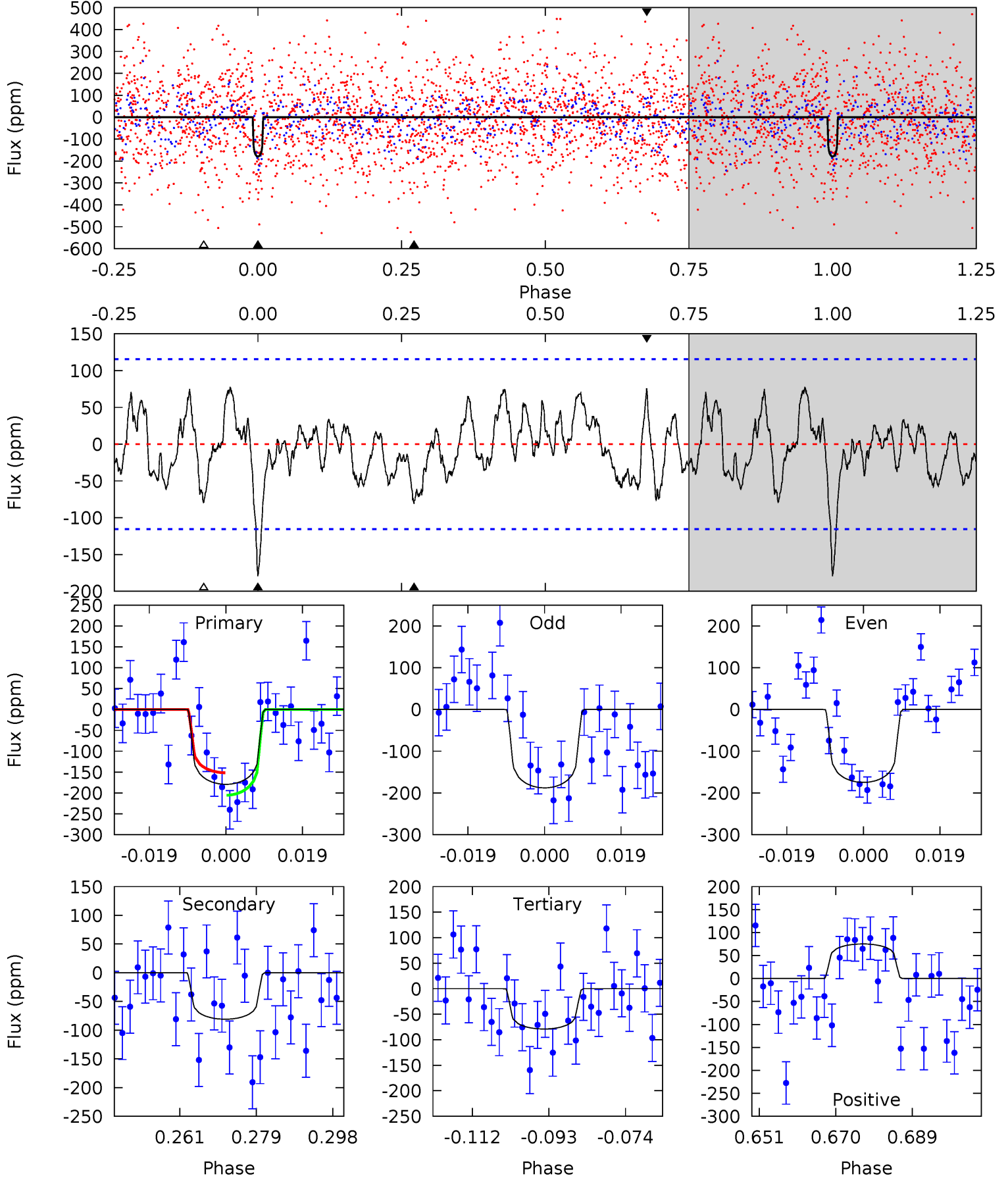




# DV Model-Shift Uniqueness Test

003660392-05, P = 13.762980 Days, E = 124.999291 Days

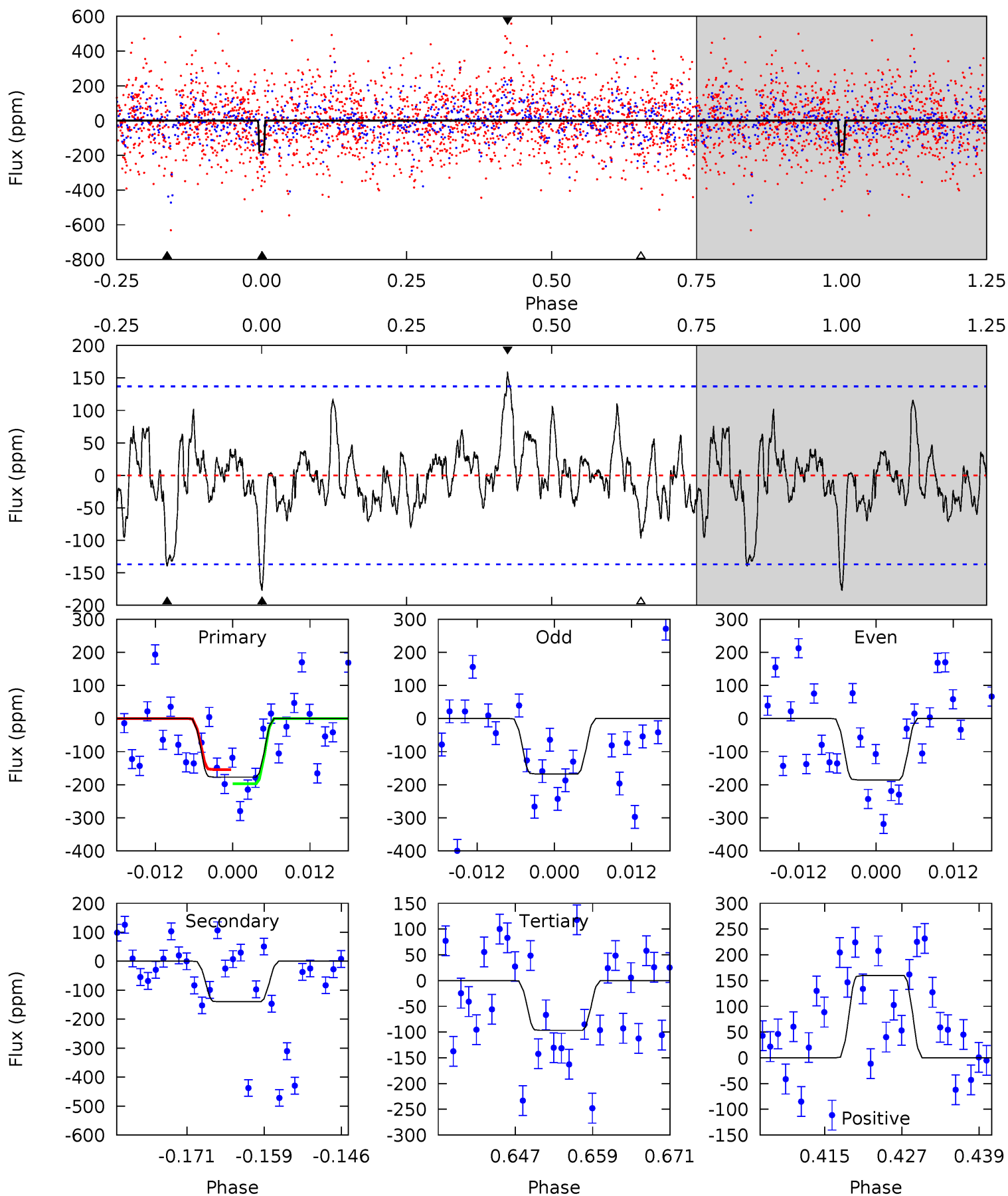
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.61	3.44	3.35	3.19	4.91	2.35	1.47	4.26	4.42	0.08	0.24	0.26	0.74	0.30	1.14



# Alt Model-Shift Uniqueness Test

003660392-05, P = 13.762222 Days, E = 125.049854 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.45	5.09	3.52	5.81	4.99	2.51	1.45	2.93	0.63	1.57	-0.72	0.33	0.99	0.47	0.78



### Stellar Parameters For KIC 003660392

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6550^{+178}_{-198}$	$3.473^{+0.376}_{-0.094}$	$-0.440^{+0.400}_{-0.300}$	$3.920^{+0.565}_{-1.581}$	$1.666^{+0.190}_{-0.443}$	$0.039^{+0.124}_{-0.012}$
	+3%/-3%	+11%/-3%	+91%/-68%	+14%/-40%	+11%/-27%	+318%/-30%
Source	PHO1	FLK73	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 003660392-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-81 \pm 24$	$6.07^{+5.91}_{-3.65}$	$2151^{+125}_{-217}$	$5005^{+2938}_{-1144}$	$21^{+103}_{-15}$
Alt.	$-140 \pm 27$	$7.12^{+5.47}_{-4.27}$	$2133^{+148}_{-204}$	$5307^{+3241}_{-1091}$	$28^{+139}_{-19}$

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

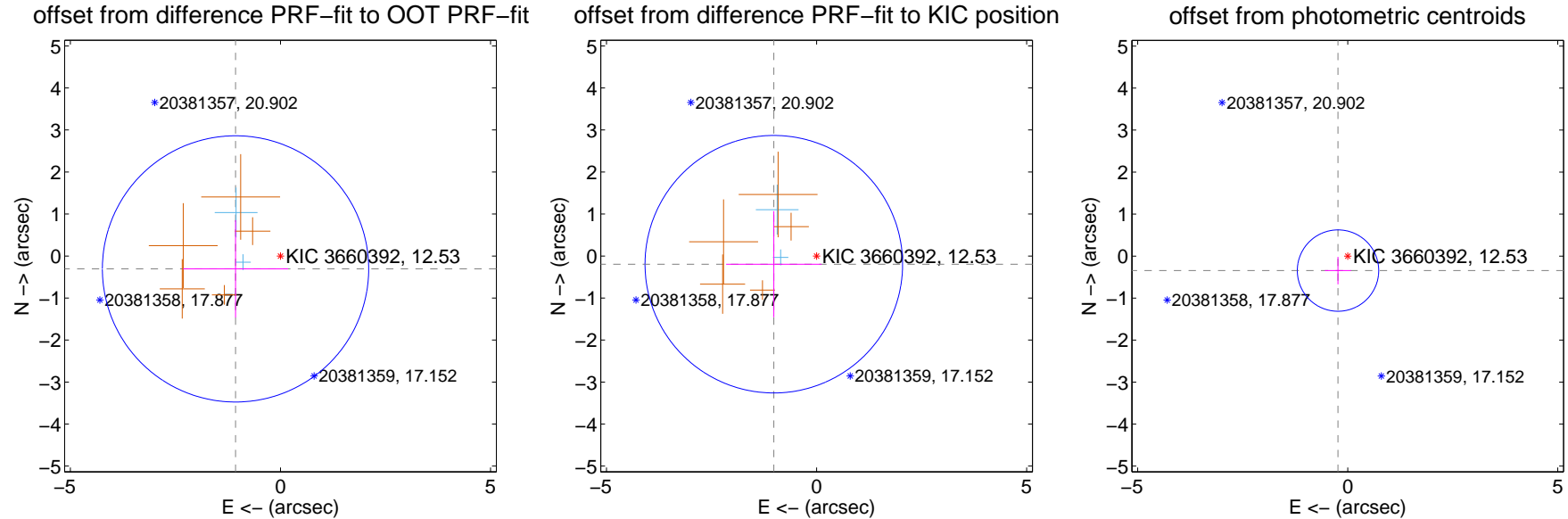
## DV Centroid Data

Supplemental centroid analysis for 003660392-05. Kepler magnitude: 12.53. Transit SNR 8.58

There are 2 quarters with good PRF difference image offsets

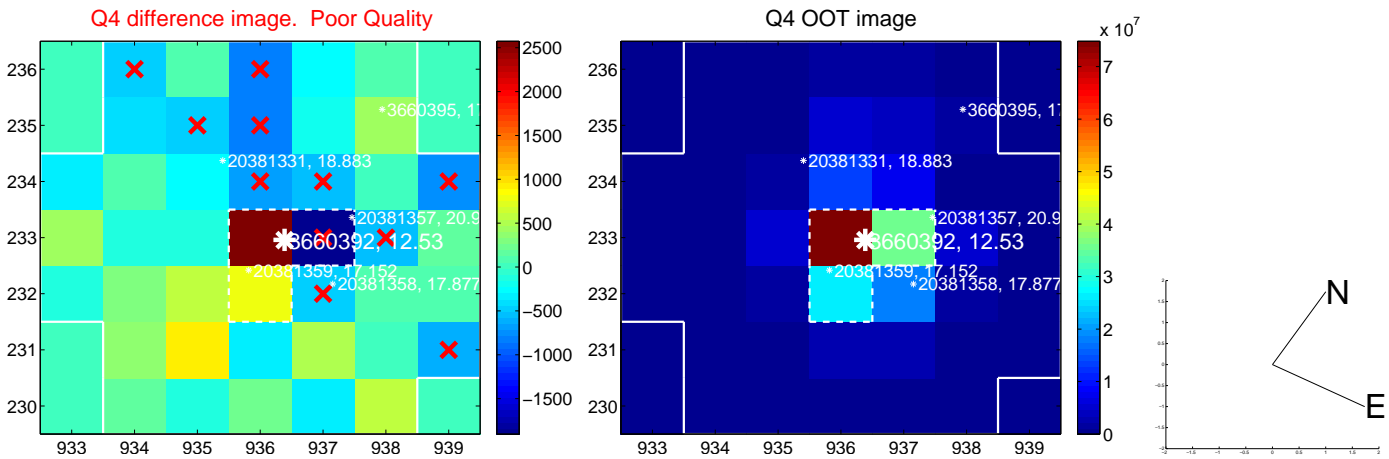
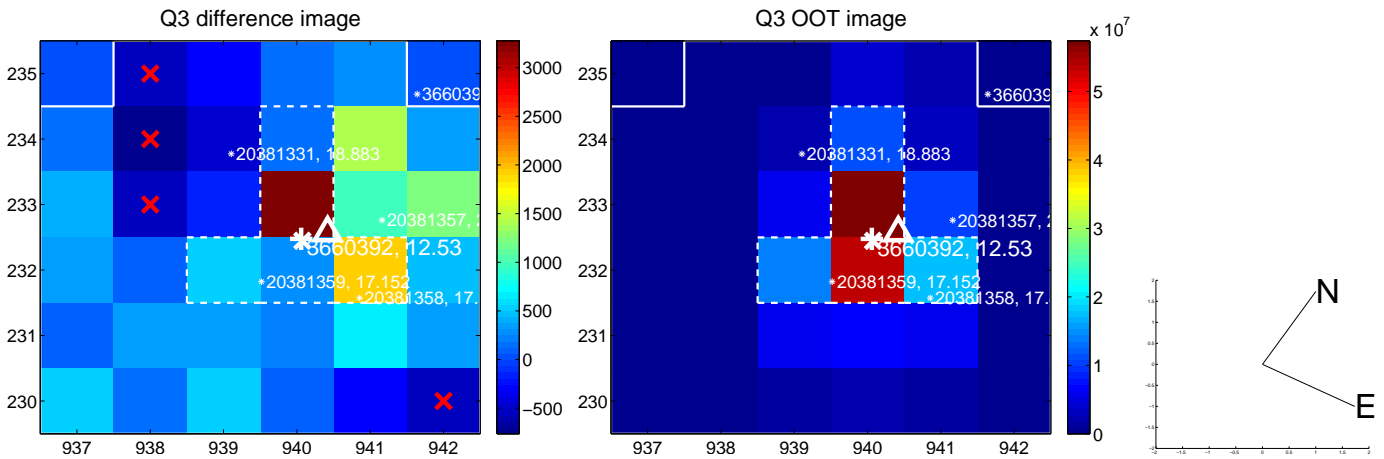
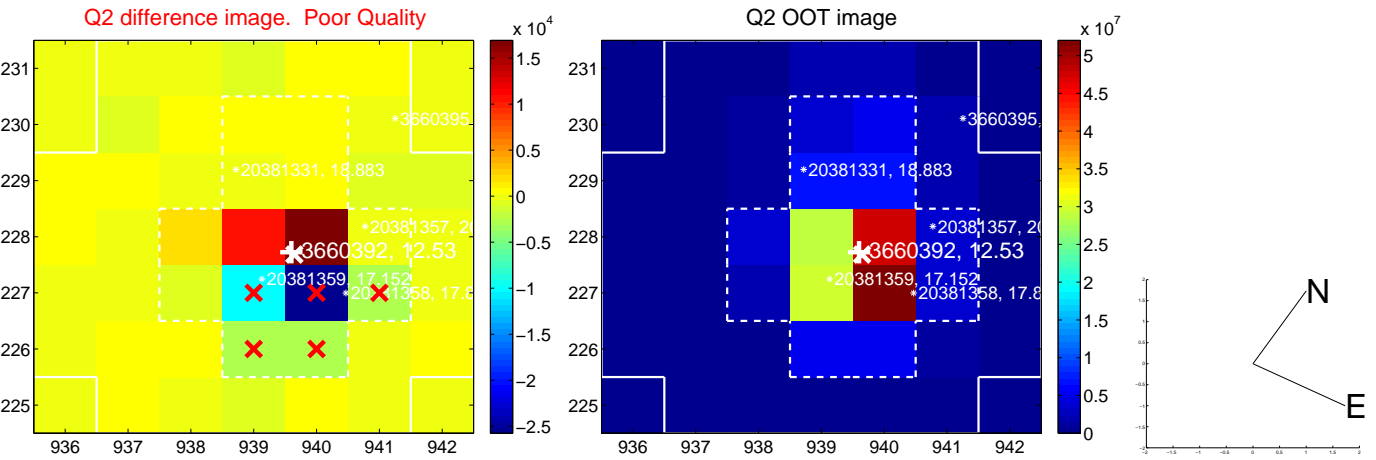
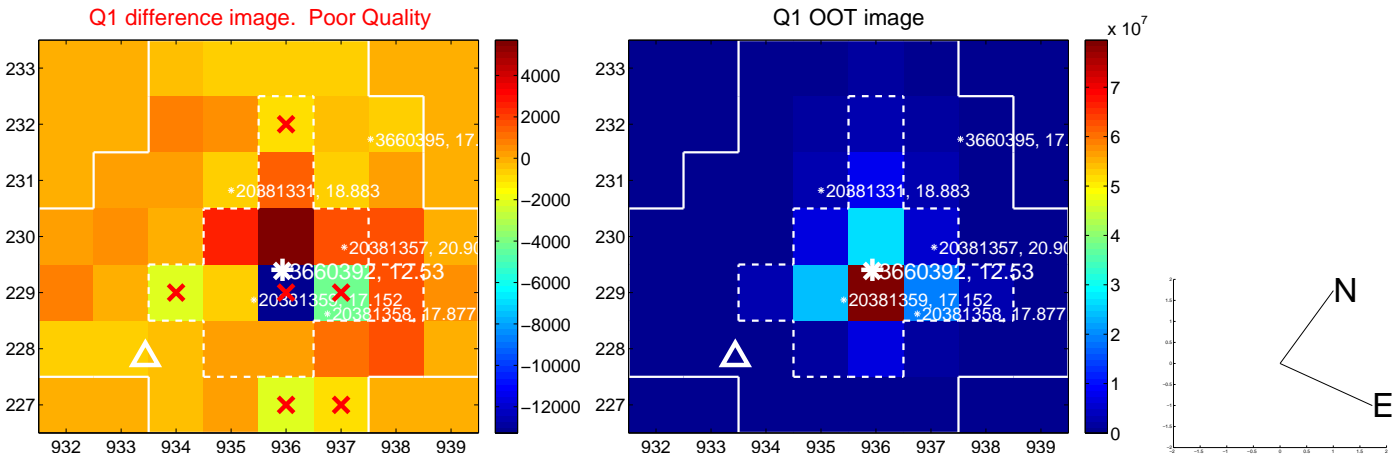
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.112 \pm 1.056$	1.05	$1.069 \pm 1.250$	$-0.306 \pm 1.158$
PRF-fit source offset from KIC position	$1.036 \pm 1.021$	1.01	$1.018 \pm 1.135$	$-0.195 \pm 1.263$
photometric centroid source offset	$0.42 \pm 0.32$	1.29	$0.23 \pm 0.31$	$-0.34 \pm 0.33$

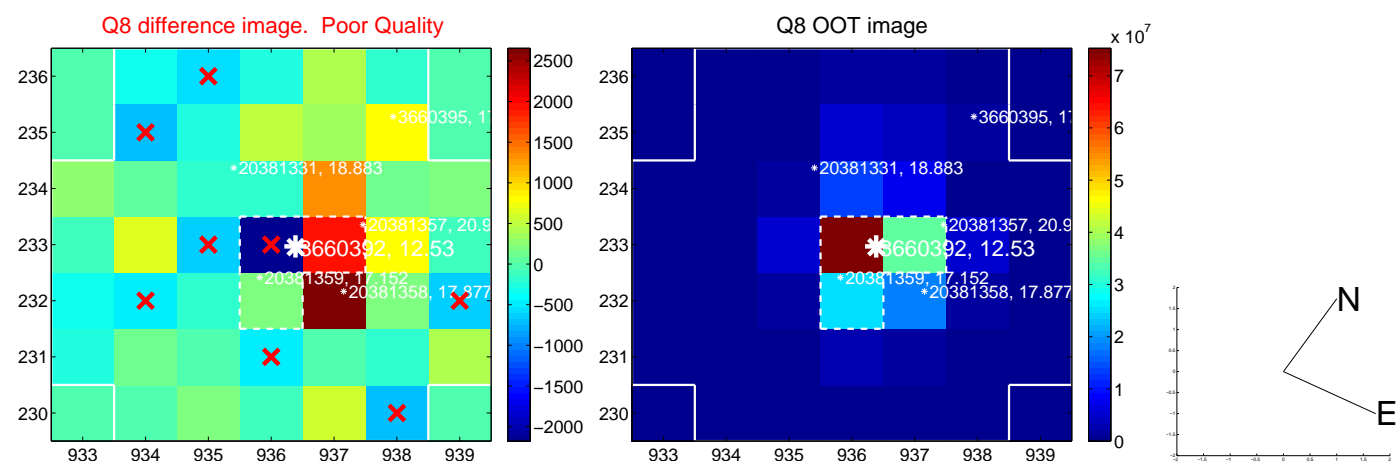
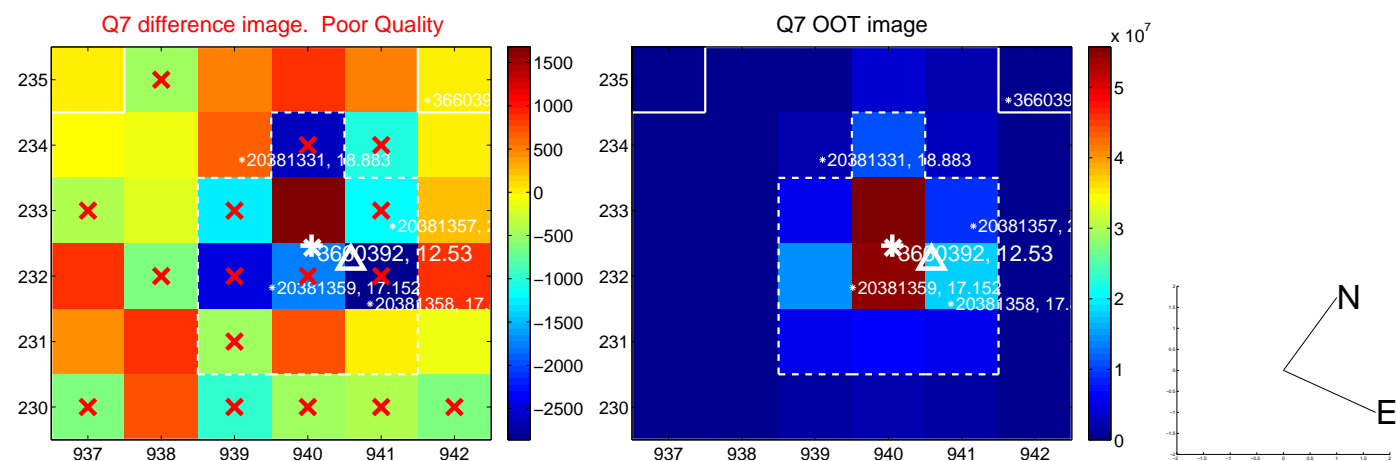
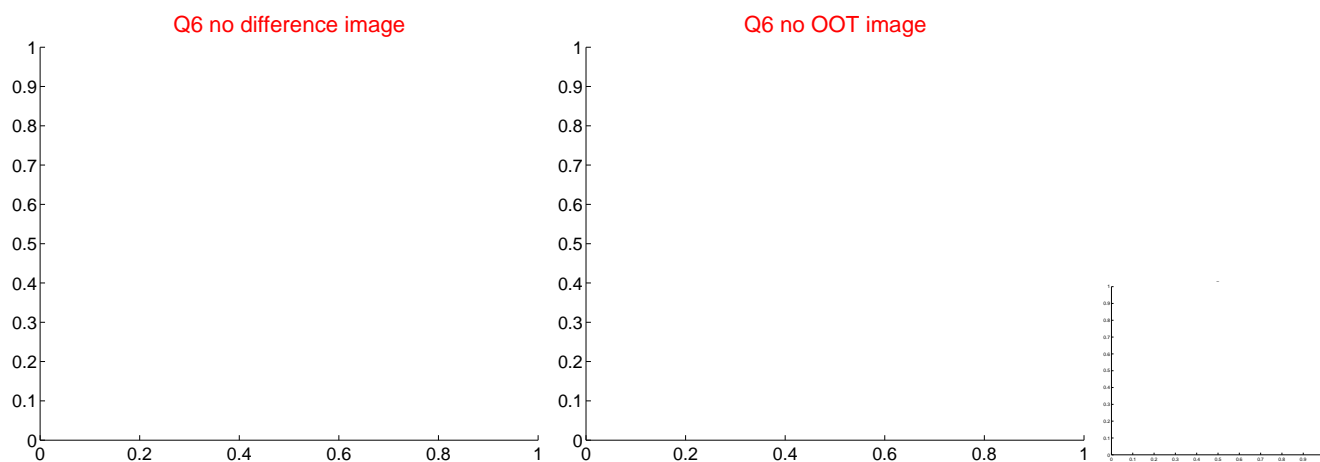
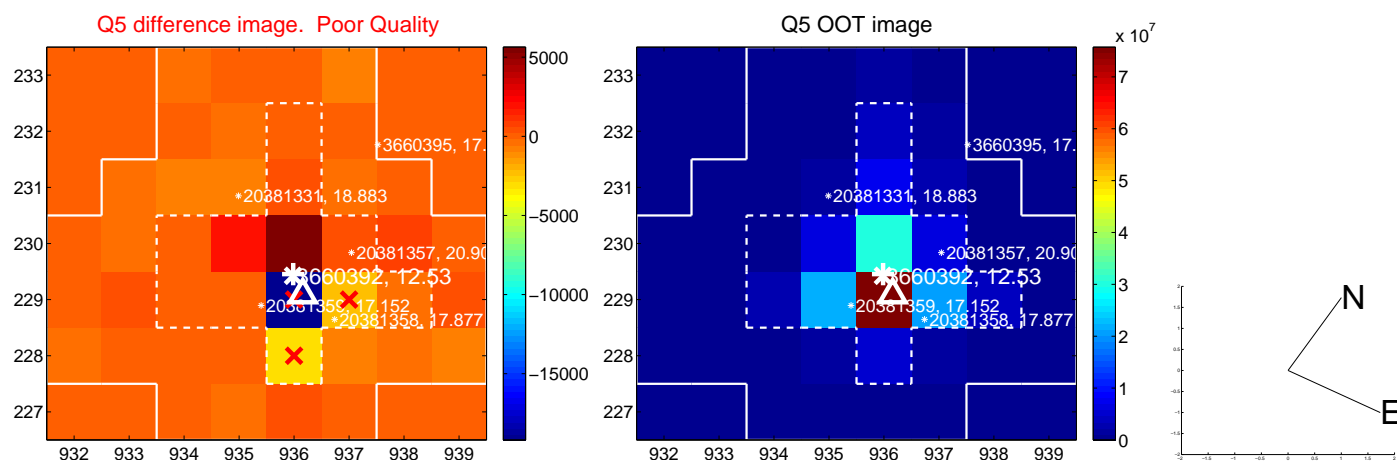


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

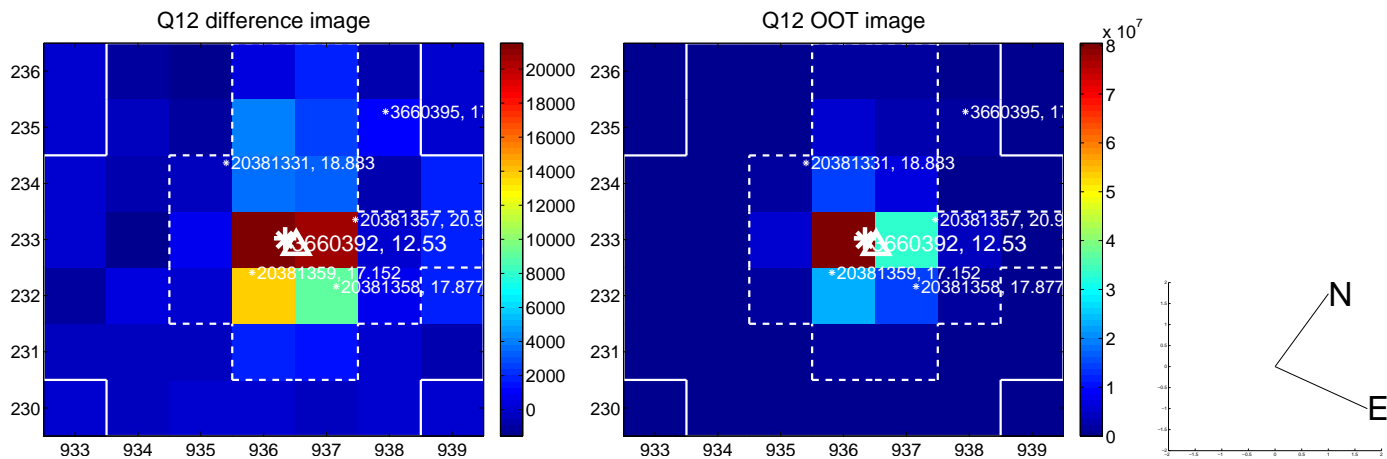
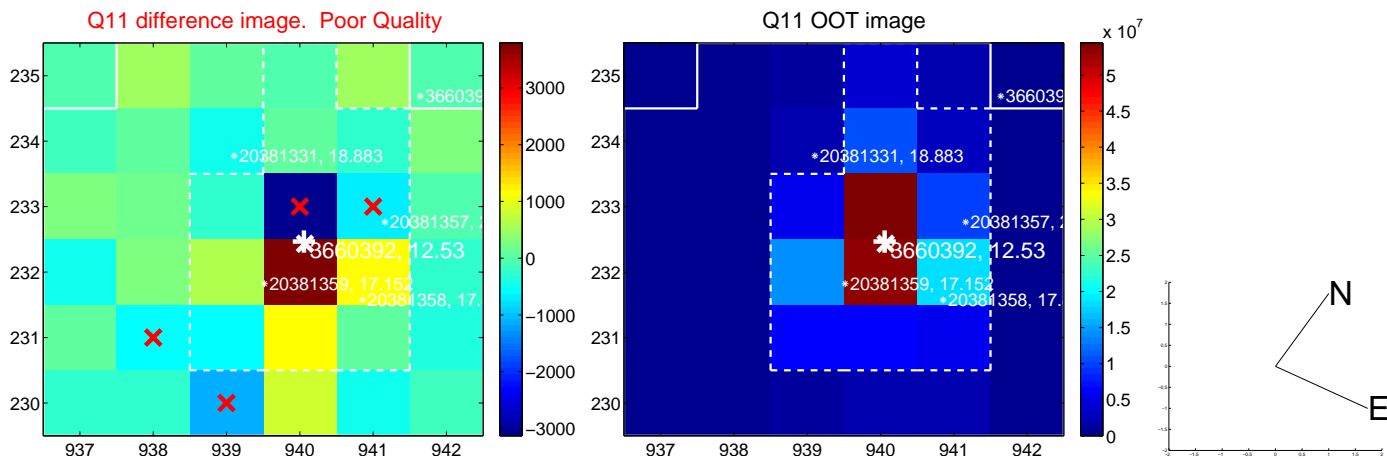
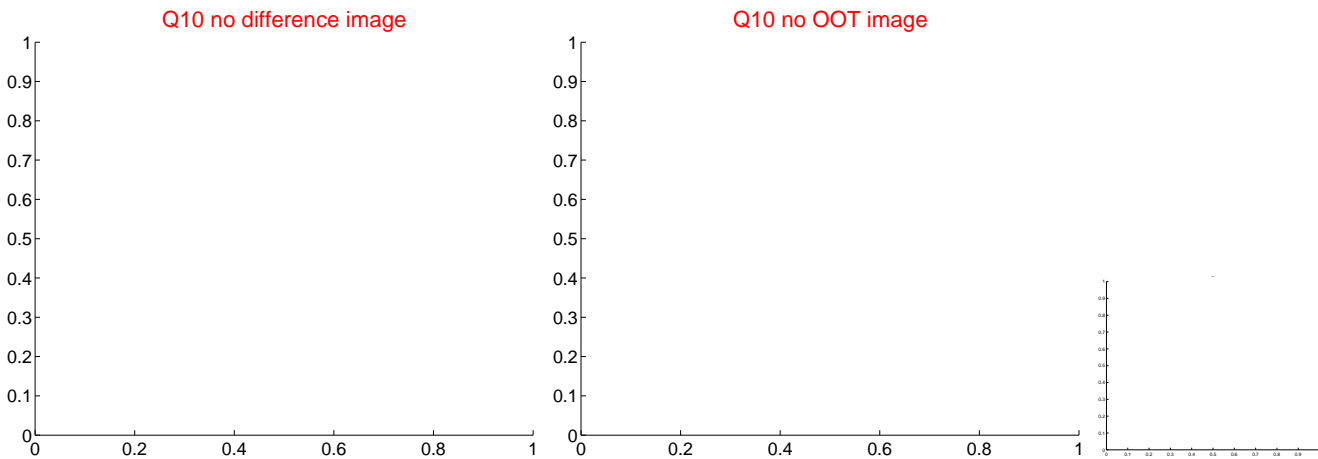
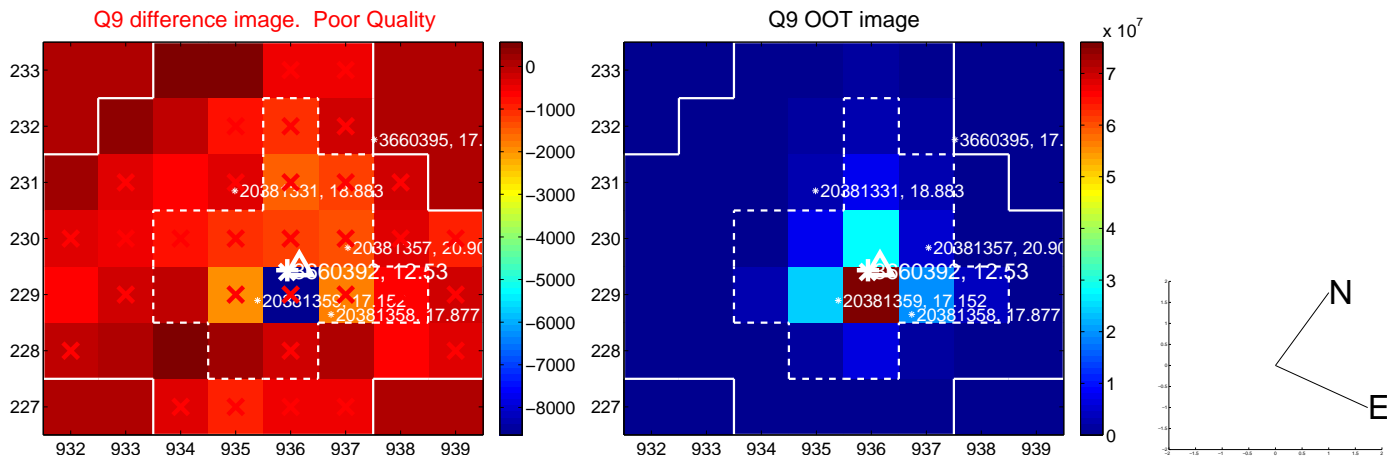
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

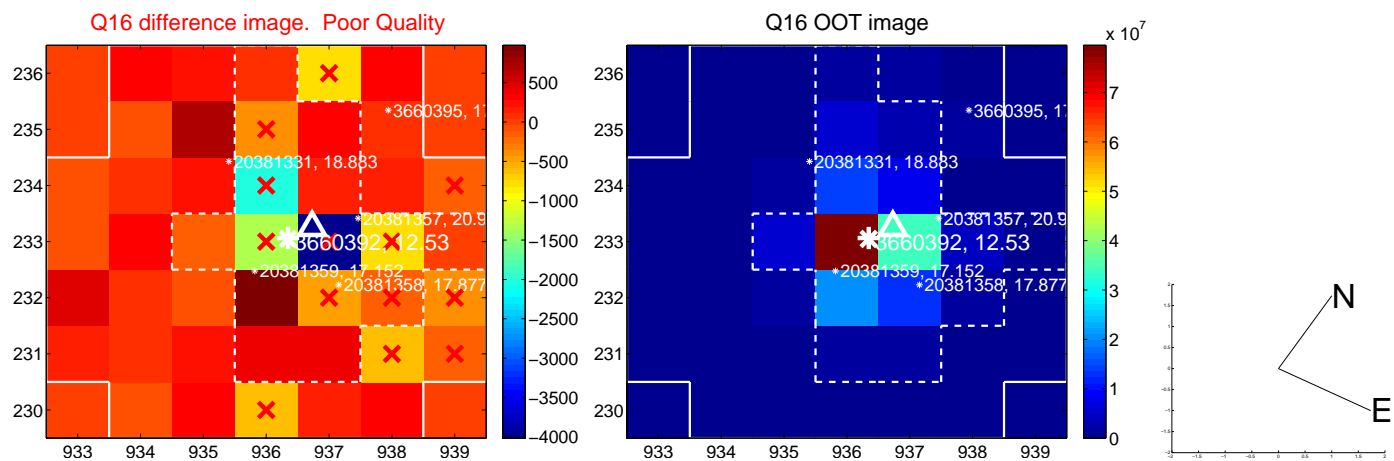
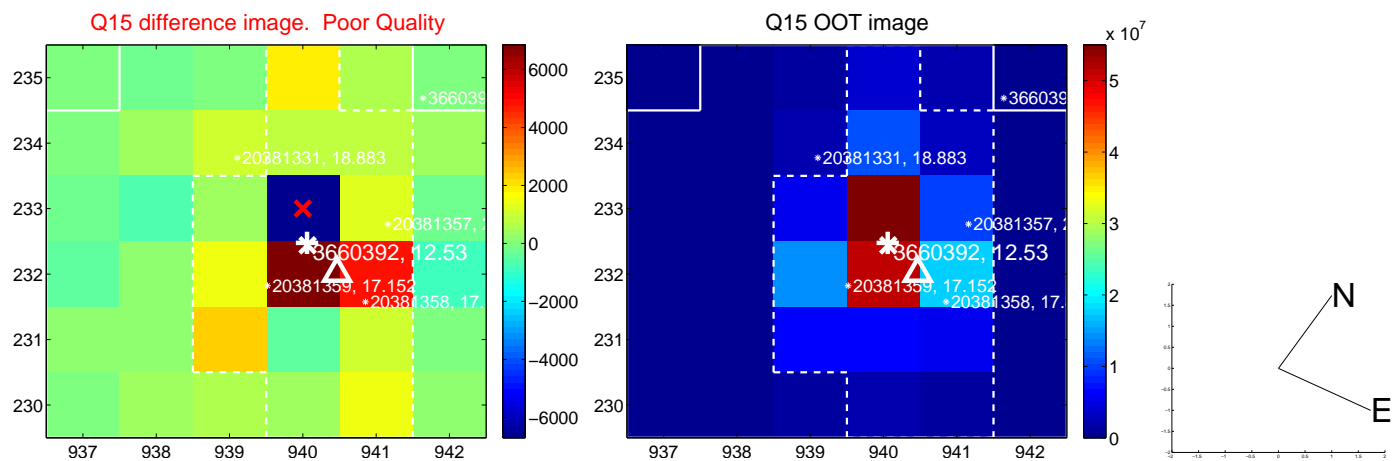
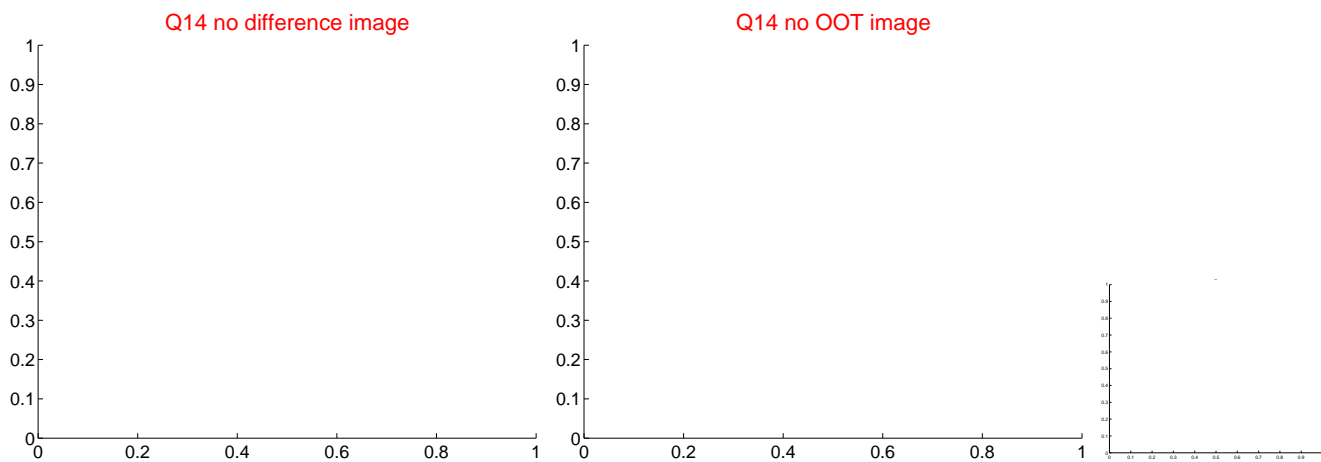
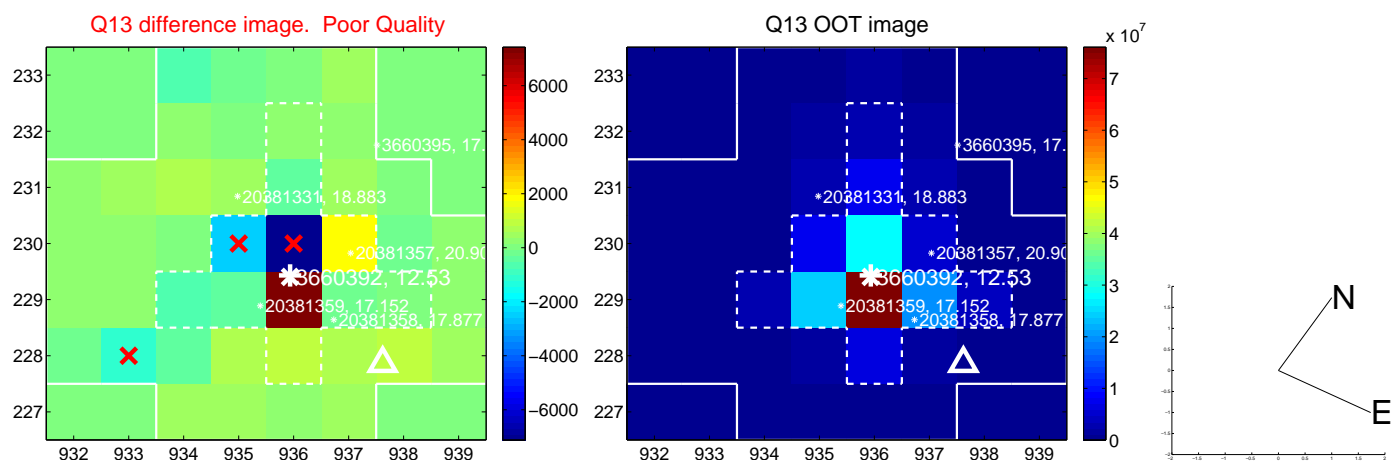


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

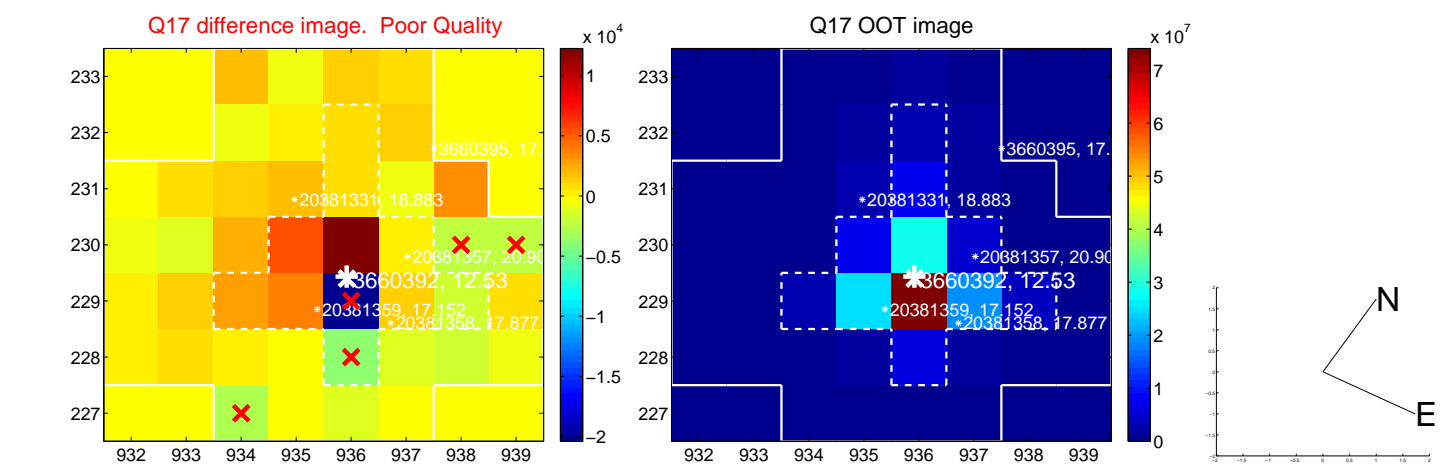




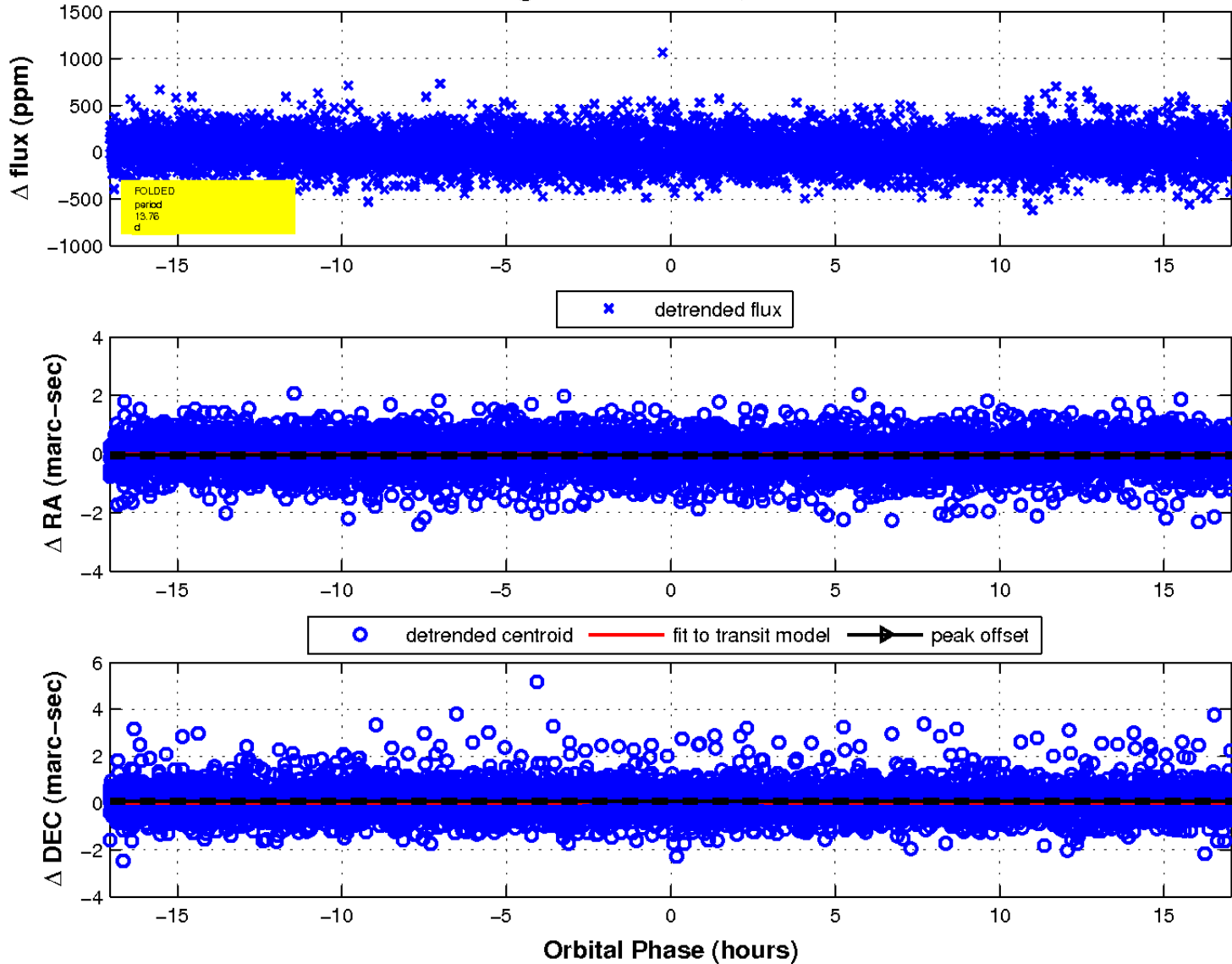
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

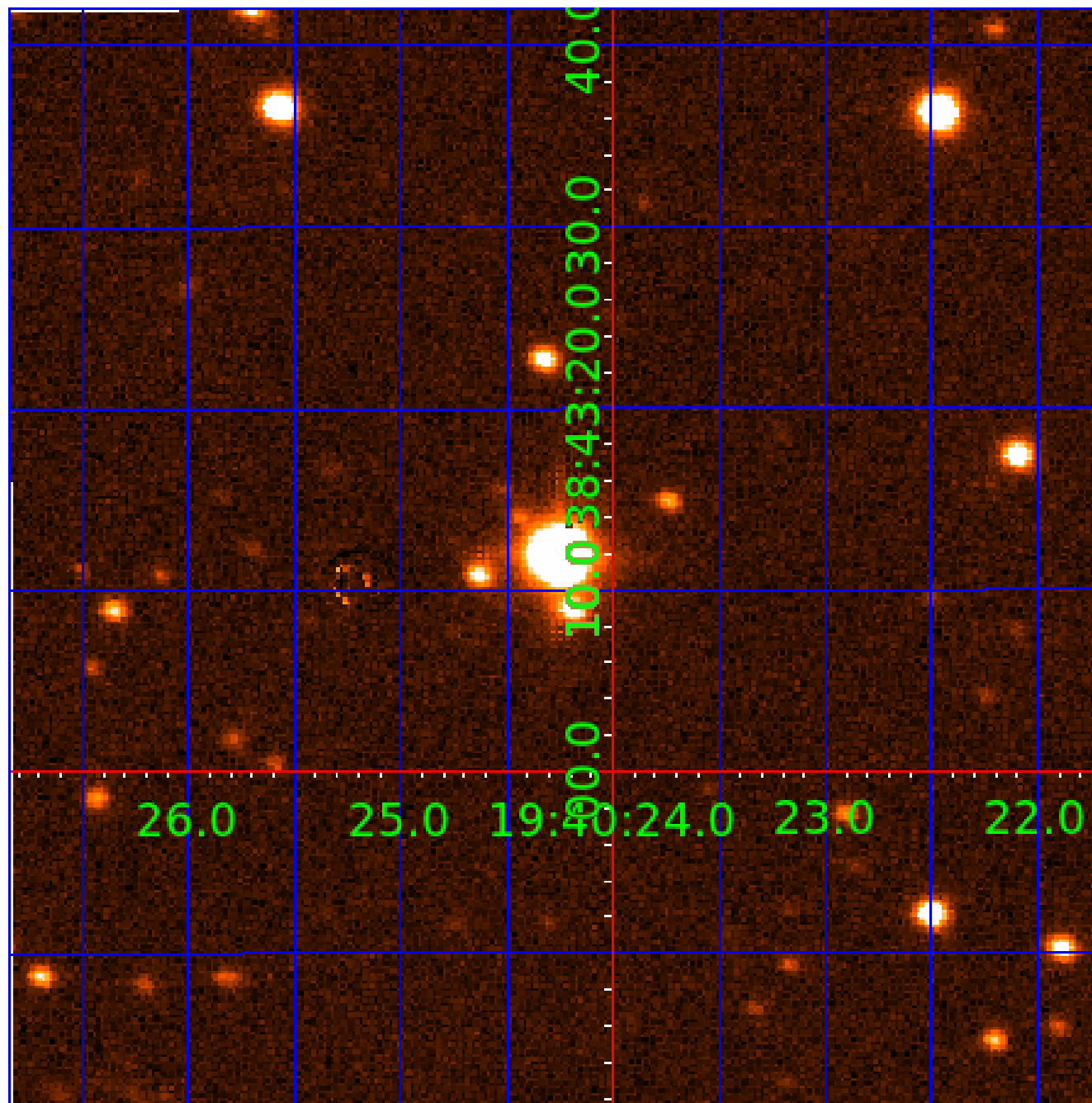


fluxWeightedCentroids, Planet 5 of 7



UKIRT Image

Declination



# KIC 003660392

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003660392-01	OBS	No	2.651865	133.846988	30.1	11.002	10.6	8.6	3.92	6550	2.20	12822.76
003660392-02	OBS	No	2.651830	132.397389	36.9	9.980	11.3	13.3	3.92	6550	2.79	12823.00
003660392-03	OBS	No	9.206947	138.847325	197.1	2.789	9.1	8.9	3.92	6550	6.50	2439.10
003660392-04	OBS	No	25.735035	154.278163	304.7	4.134	8.8	8.4	3.92	6550	7.98	619.47
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003660392-07	OBS	No	8.878610	137.254666	280.1	1.394	7.6	8.5	3.92	6550	7.68	2560.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003660392-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT
003660392-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
003660392-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003660392-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST
003660392-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
003660392-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST
003660392-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV

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

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

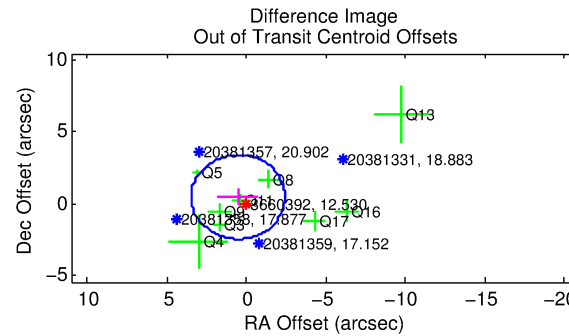
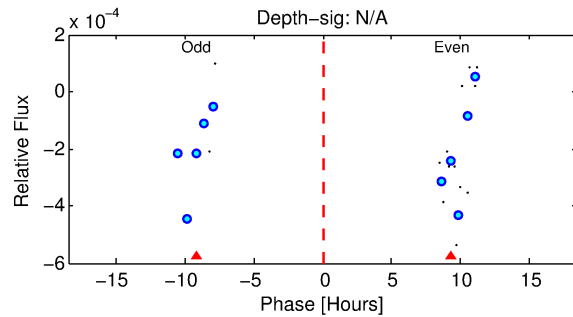
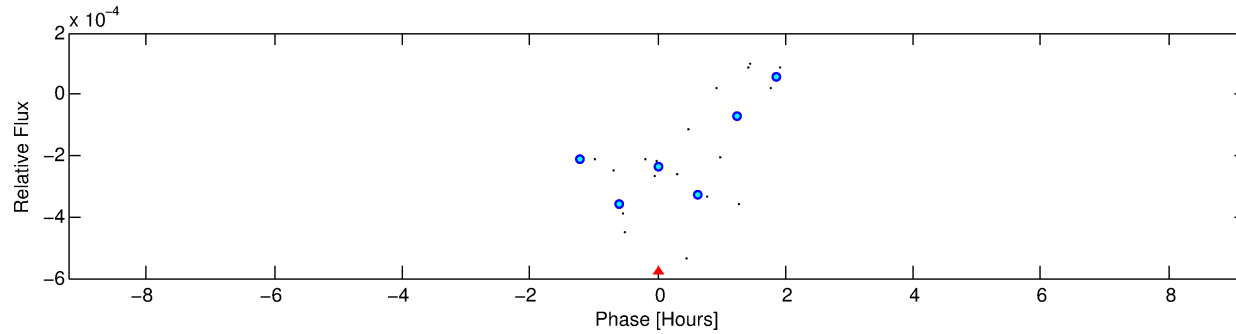
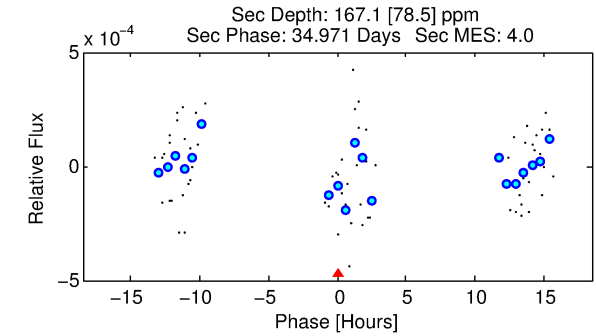
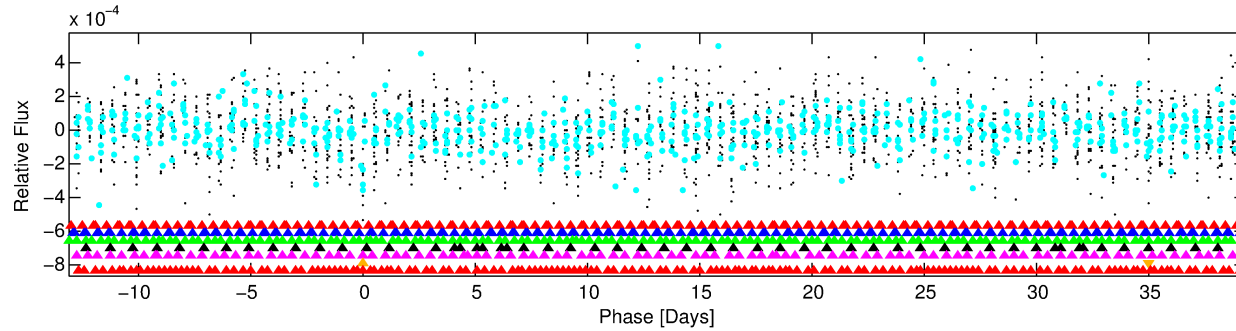
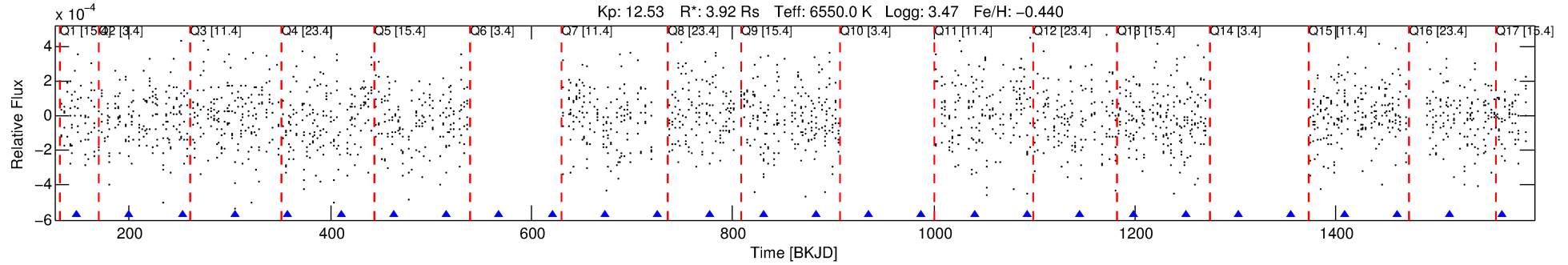
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003660392-06

No Significant Match Found

# DV One-Page Summary

KIC: 3660392 Candidate: 6 of 7 Period: 52.509 d



## TPS TCE Results:

Period = 52.50865 d  
Epoch = 147.8966 BKJD

DV fit results are unavailable

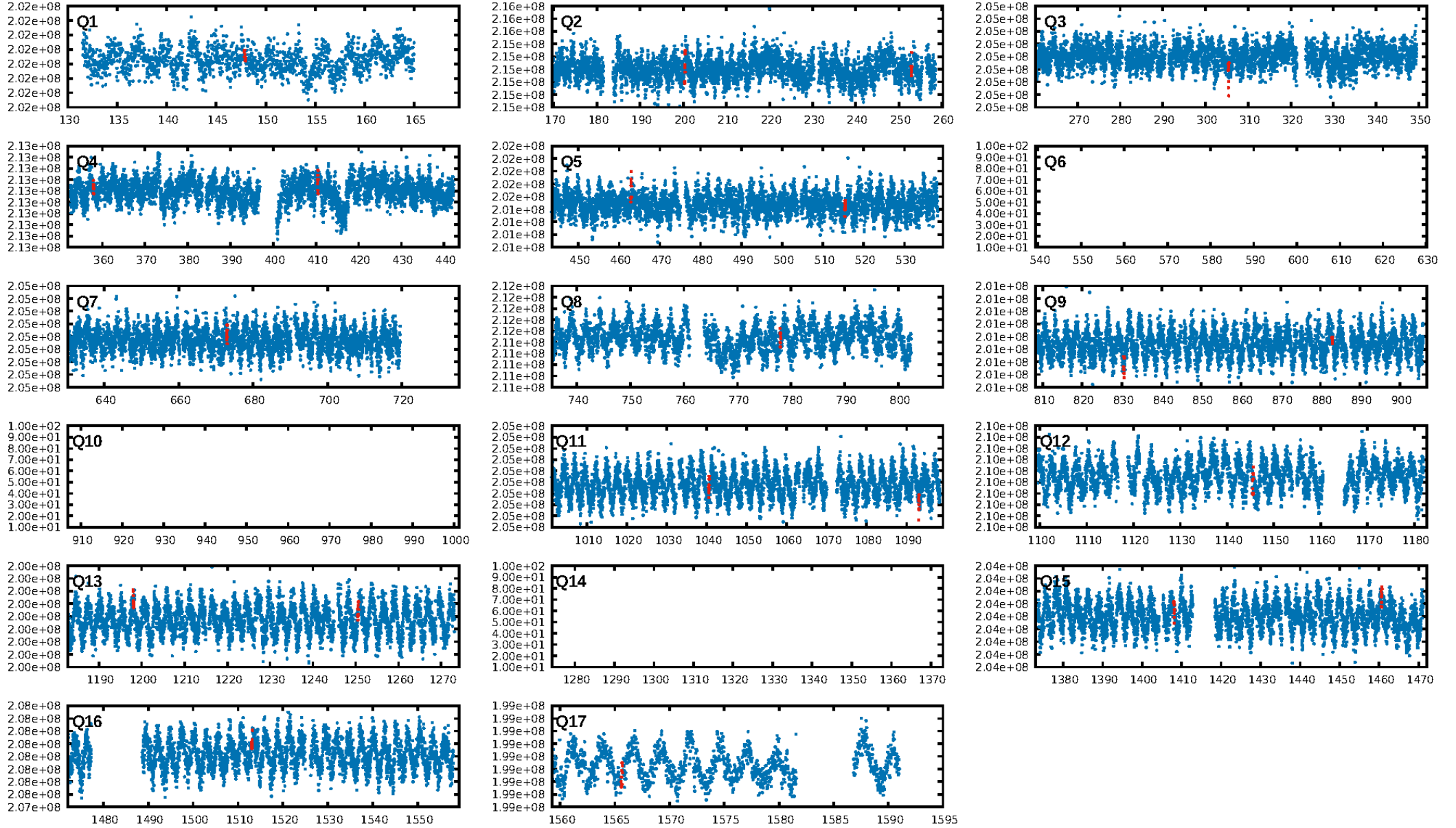
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [139.92 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.81e-09  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.232  
Centroid-sig: 28.4%  
Centroid-so: 0.370 arcsec [0.93 $\sigma$ ]  
OotOffset-rm: 0.678 arcsec [0.69 $\sigma$ ]  
KicOffset-rm: 0.659 arcsec [0.74 $\sigma$ ]  
OotOffset-st: 0/2/3/4 [9]  
KicOffset-st: 0/2/3/4 [9]  
DiffImageQuality-fgm: 0.33 [3/9]  
DiffImageOverlap-fno: 0.21 [3/14]

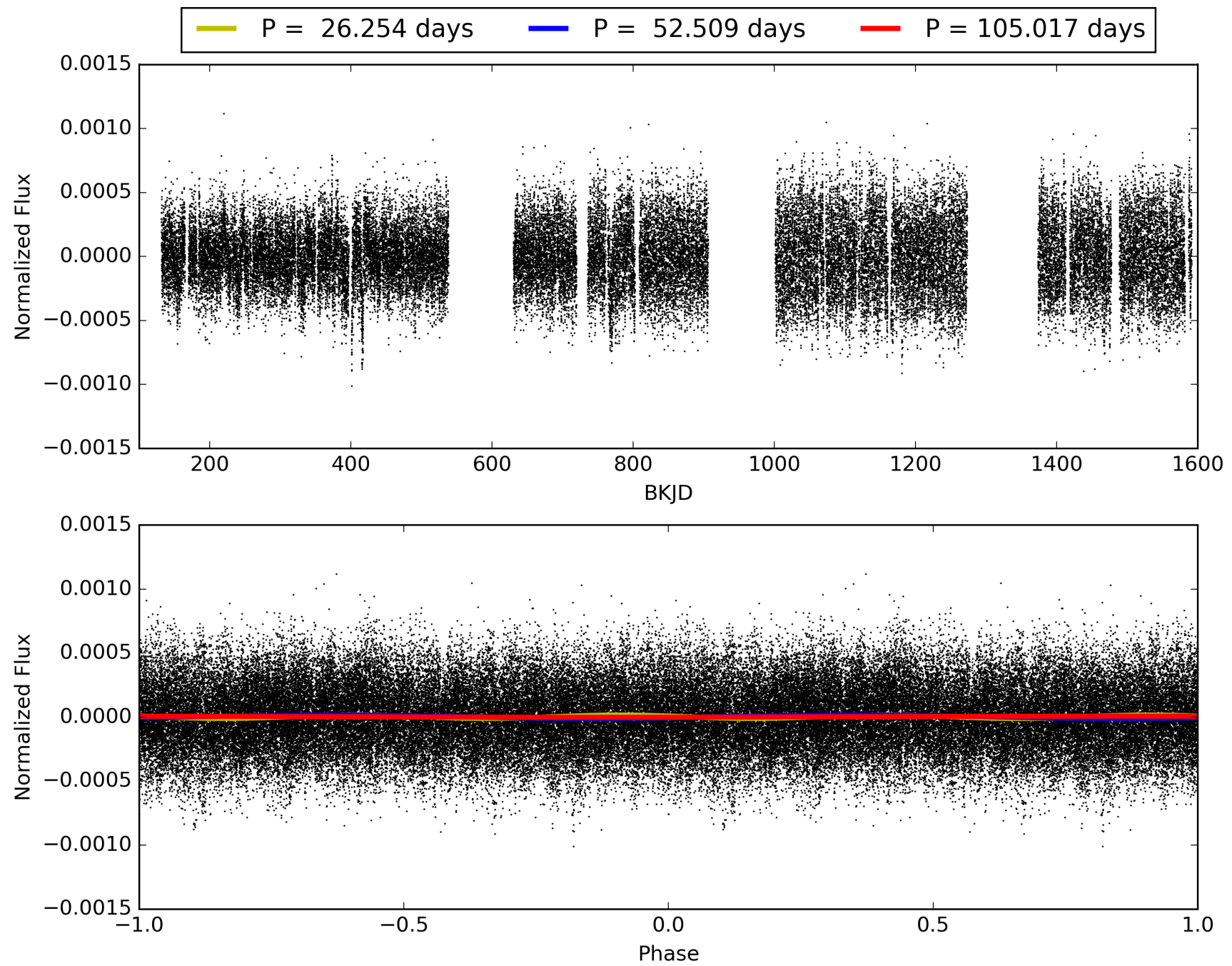
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:06:56 Z

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

# TCE 003660392-06, PDC Light Curves



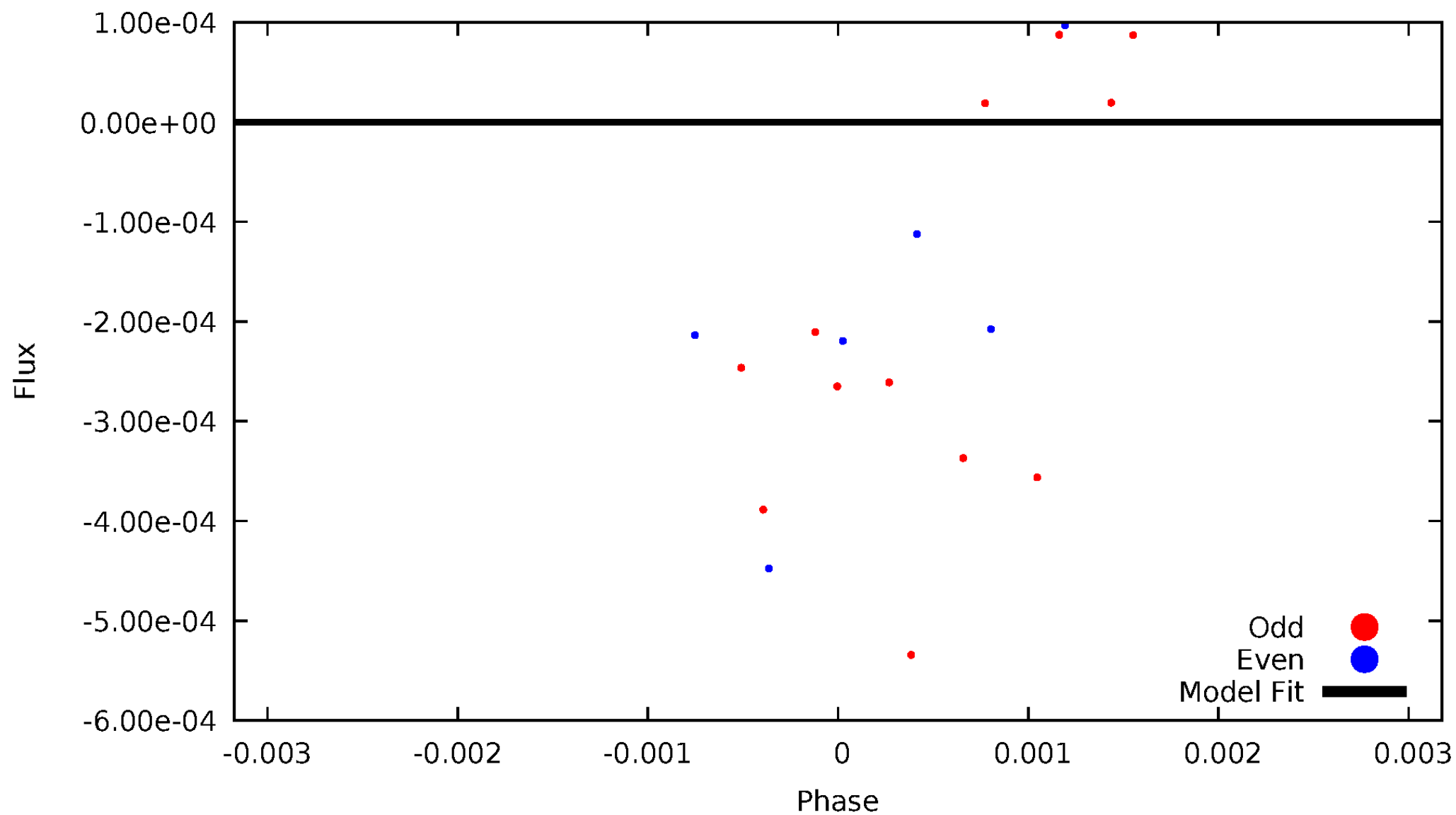
TCE 003660392-06





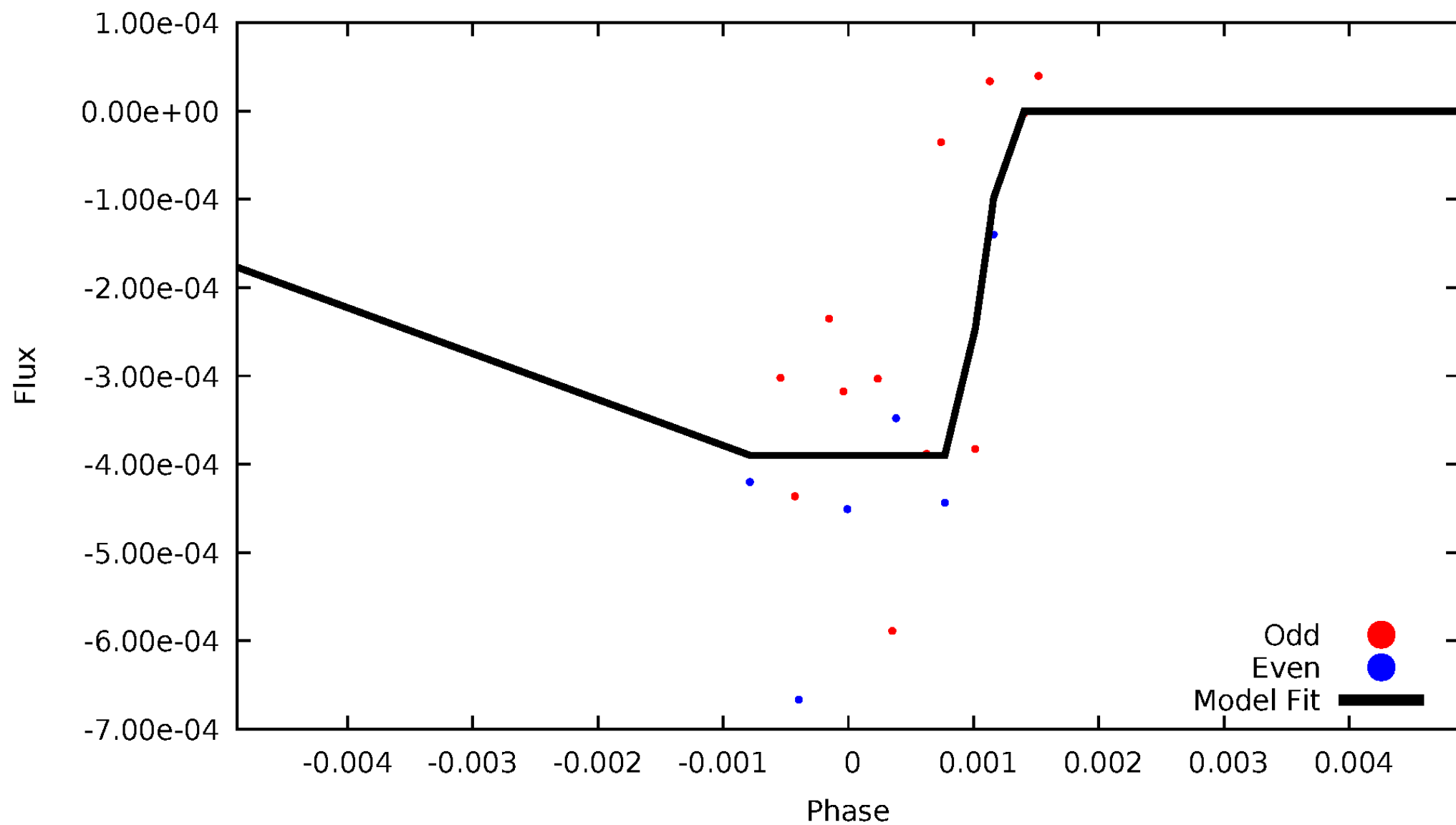
# DV Odd/Even

TCE 003660392-06



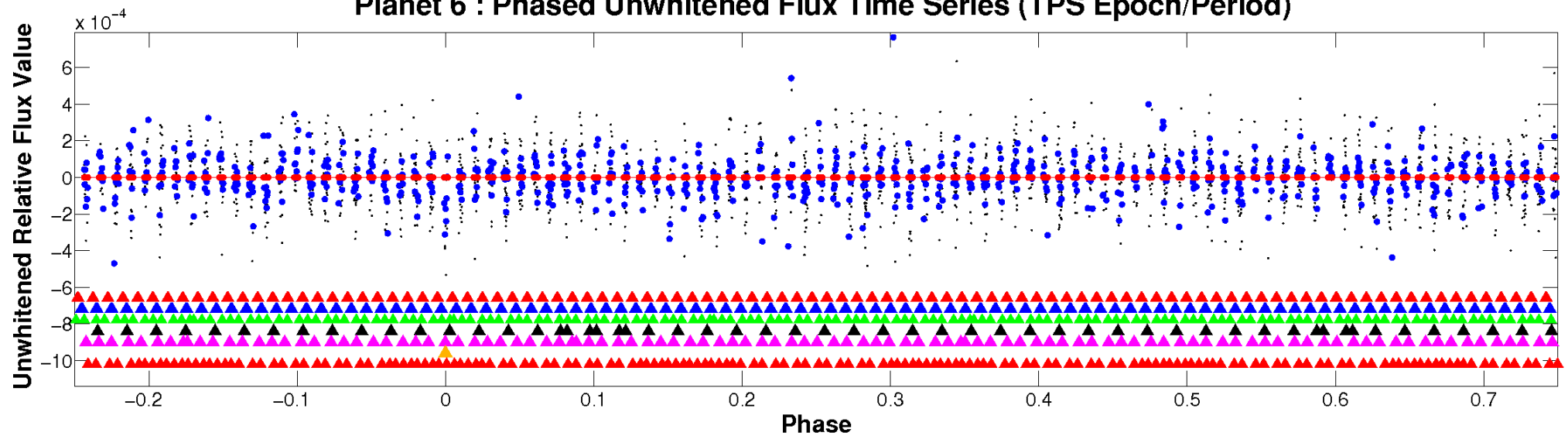
# ALT Odd/Even

TCE 003660392-06



# Non-Whitened Vs. Whitened Light Curve

**Planet 6 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

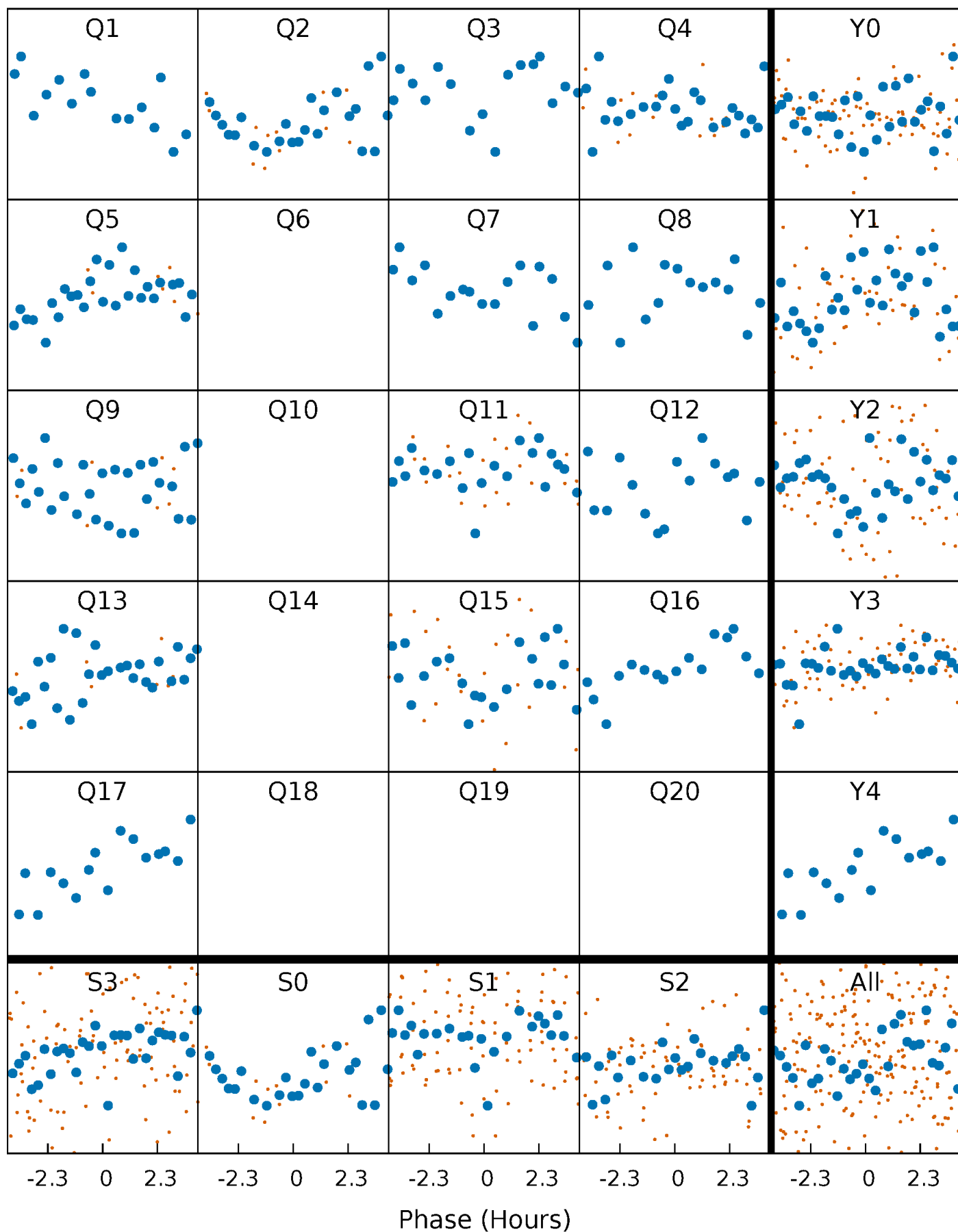


**Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



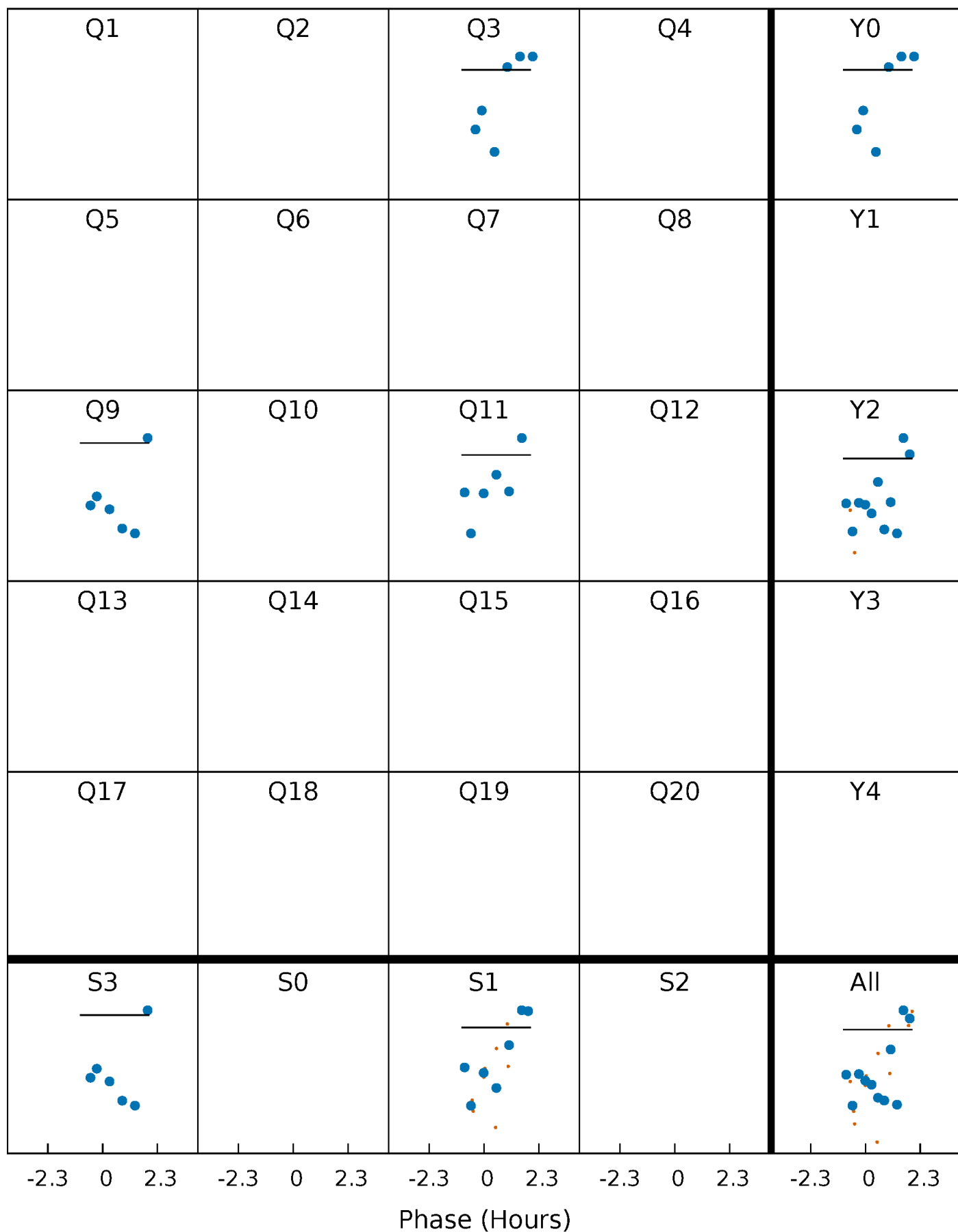
# PDC Quarter-Phased Transit Curves

TCE 003660392-06 P= 52.508650 Days  $T_0=147.896614$  (BKJD)



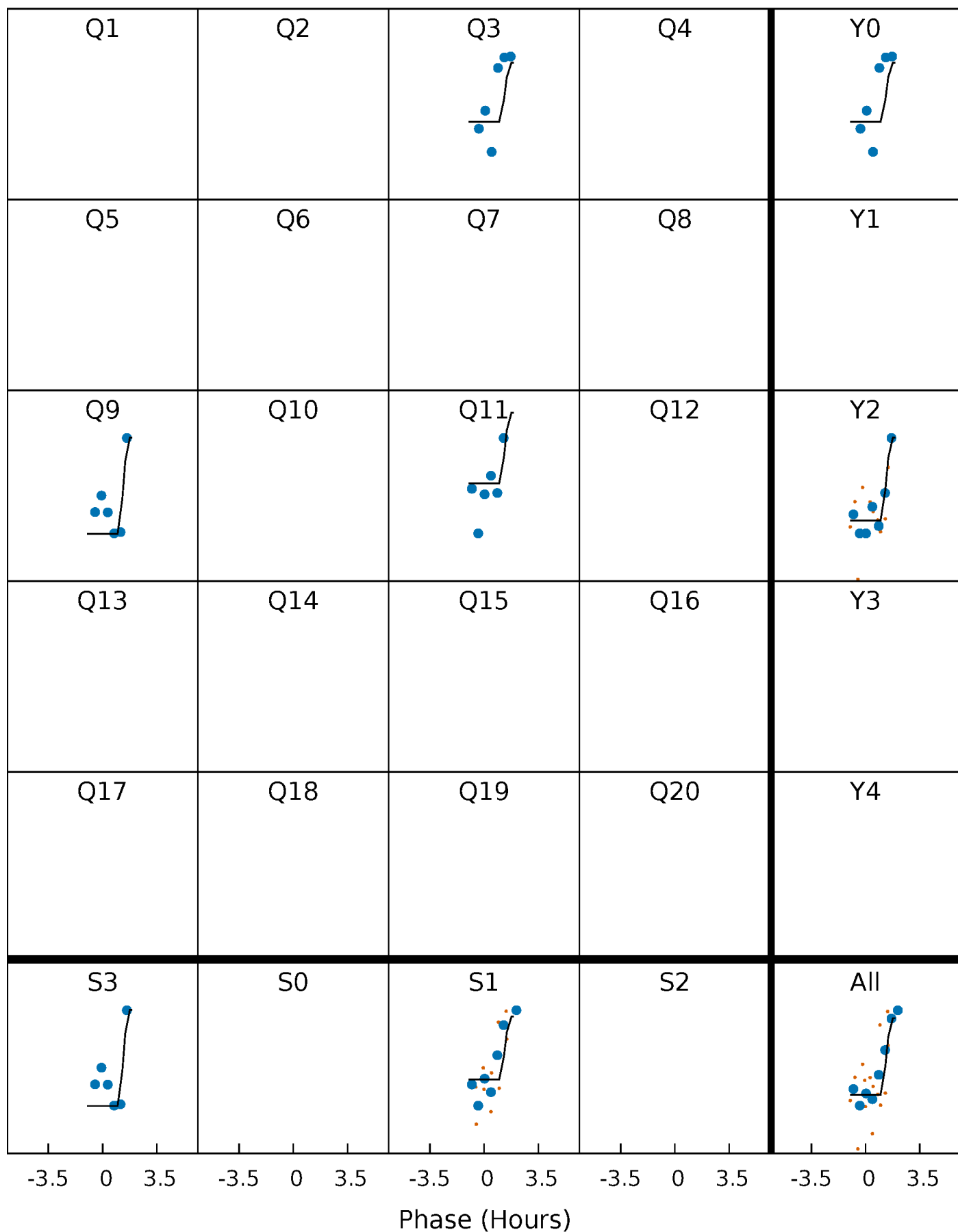
# DV Quarter-Phased Transit Curves

TCE 003660392-06 P= 52.508650 Days  $T_0=147.896614$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

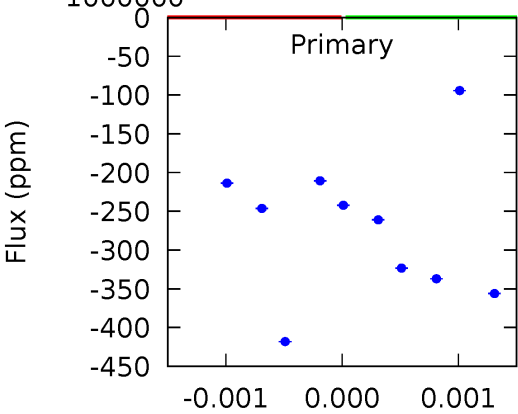
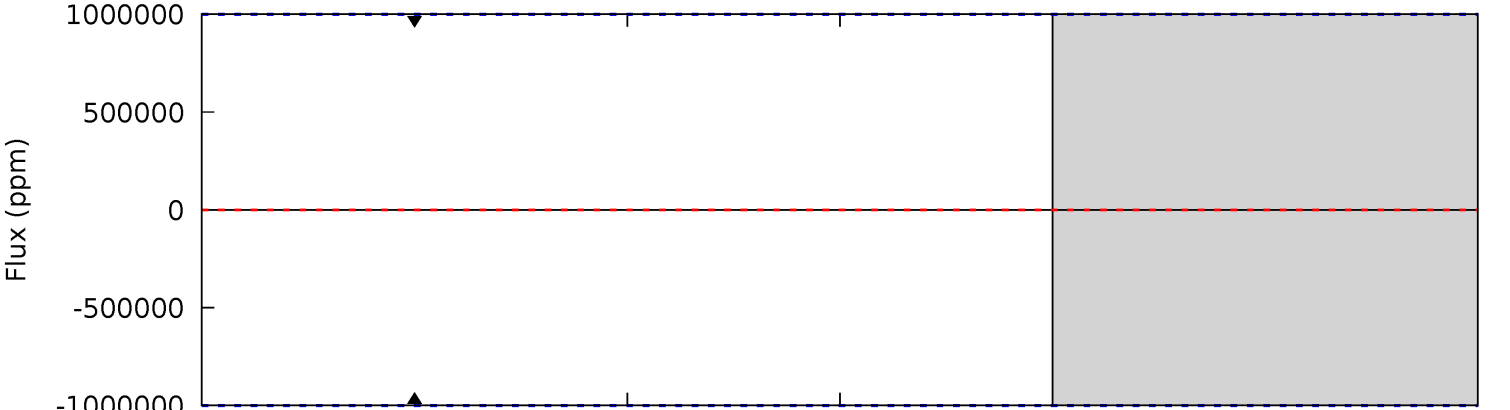
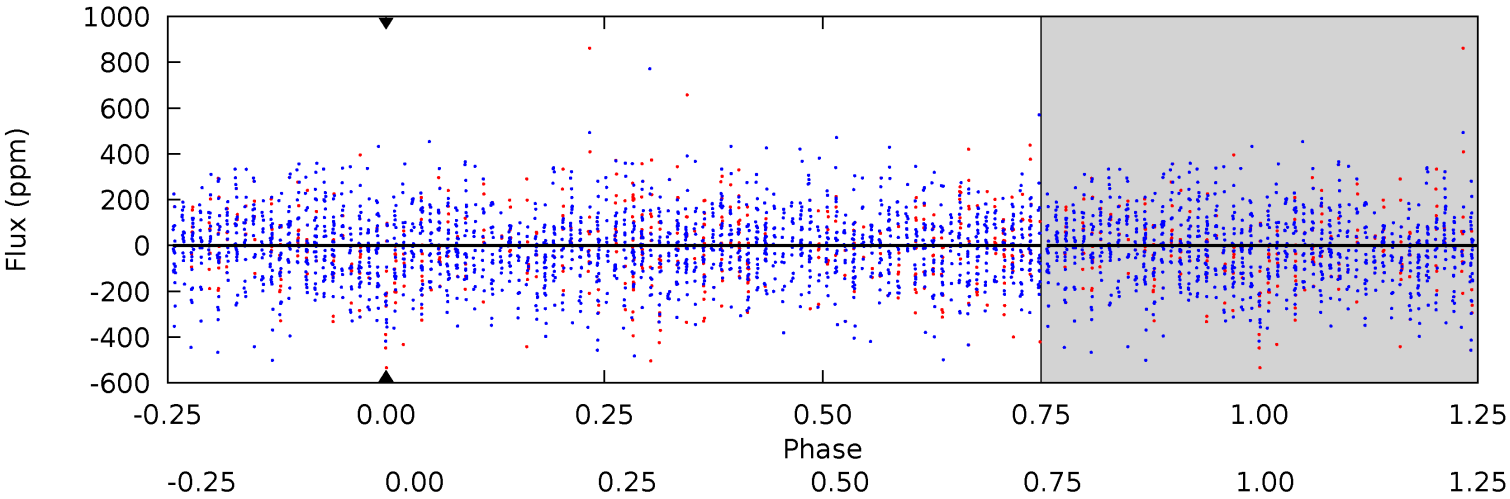
TCE 003660392-06 P= 52.508650 Days  $T_0=147.898373$  (BKJD)



# DV Model-Shift Uniqueness Test

003660392-06, P = 52.508650 Days, E = 95.387964 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

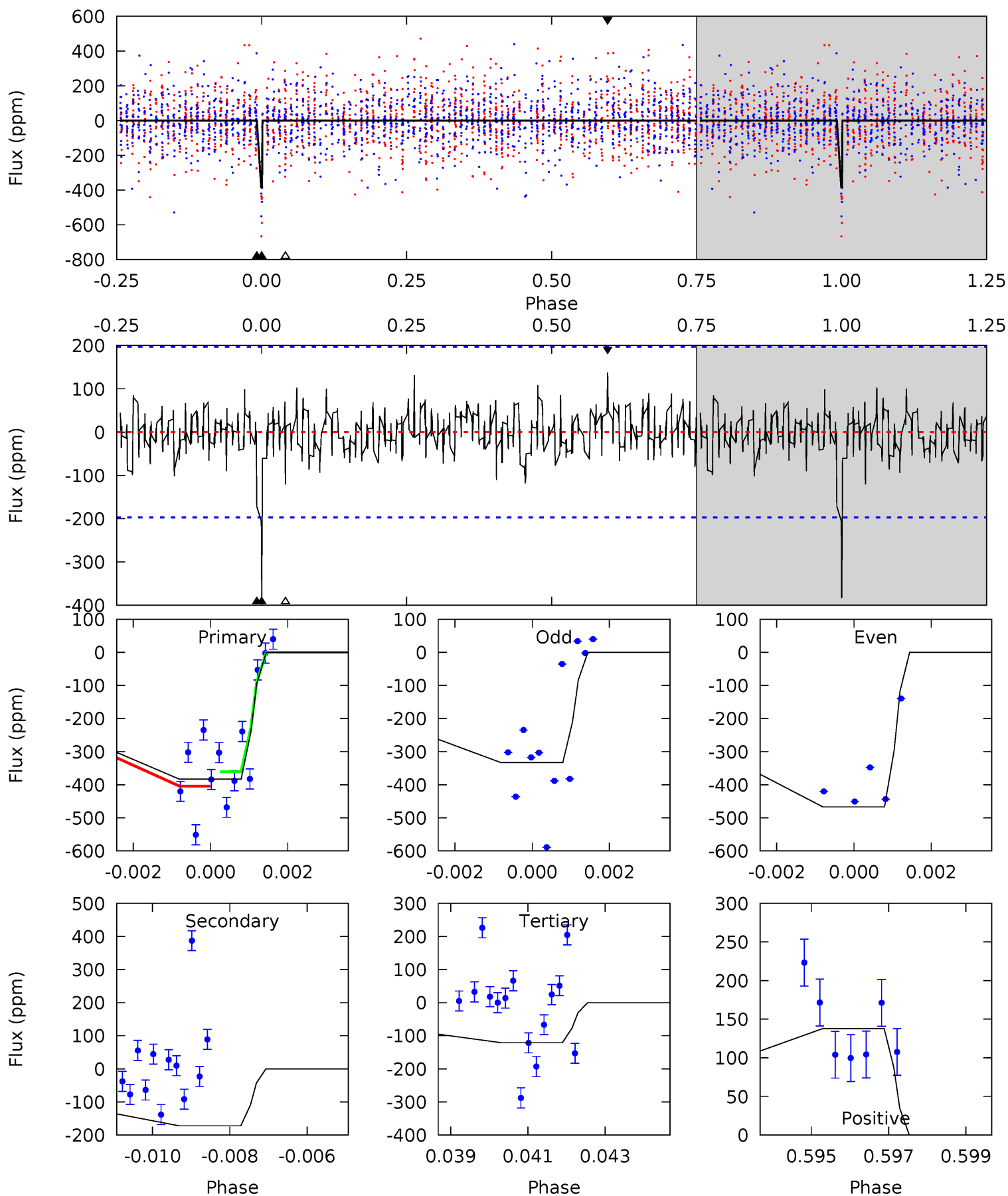




# Alt Model-Shift Uniqueness Test

003660392-06, P = 52.508650 Days, E = 95.389723 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
10.4	4.66	3.27	3.73	5.33	3.10	1.04	7.11	6.65	1.39	0.93	1.63	1.13	0.26	0.59



### Stellar Parameters For KIC 003660392

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6550^{+178}_{-198}$	$3.473^{+0.376}_{-0.094}$	$-0.440^{+0.400}_{-0.300}$	$3.920^{+0.565}_{-1.581}$	$1.666^{+0.190}_{-0.443}$	$0.039^{+0.124}_{-0.012}$
	+3%/-3%	+11%/-3%	+91%/-68%	+14%/-40%	+11%/-27%	+318%/-30%
Source	PHO1	FLK73	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 003660392-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$28.51^{+30.02}_{-19.67}$	$1370^{+83}_{-131}$	$4135^{+21855}_{-27945}$	$45^{+11500}_{-9739}$
Alt.	$-172 \pm 37$	$30.20^{+31.48}_{-20.65}$	$1364^{+90}_{-129}$	$3258^{+1554}_{-627}$	$11^{+93}_{-8}$

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

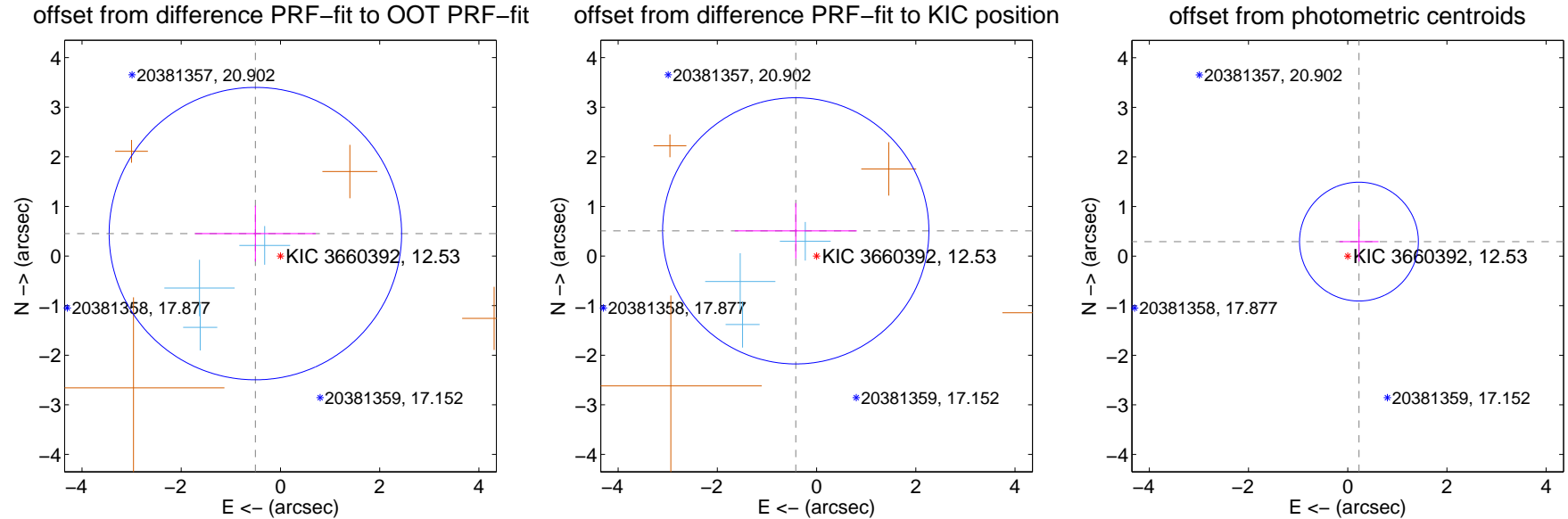
## DV Centroid Data

Supplemental centroid analysis for 003660392-06. Kepler magnitude: 12.53. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

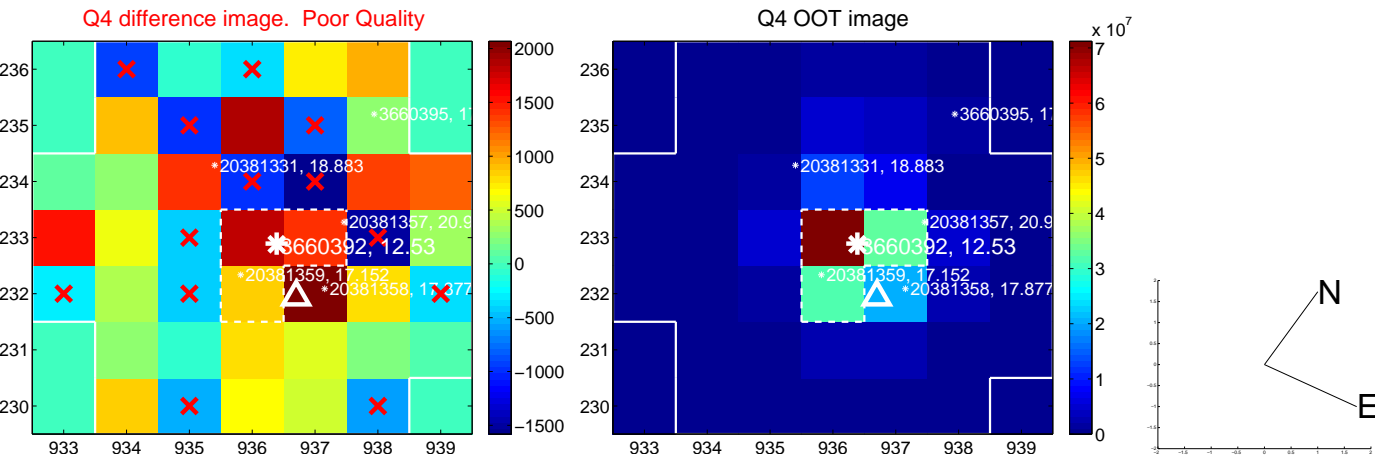
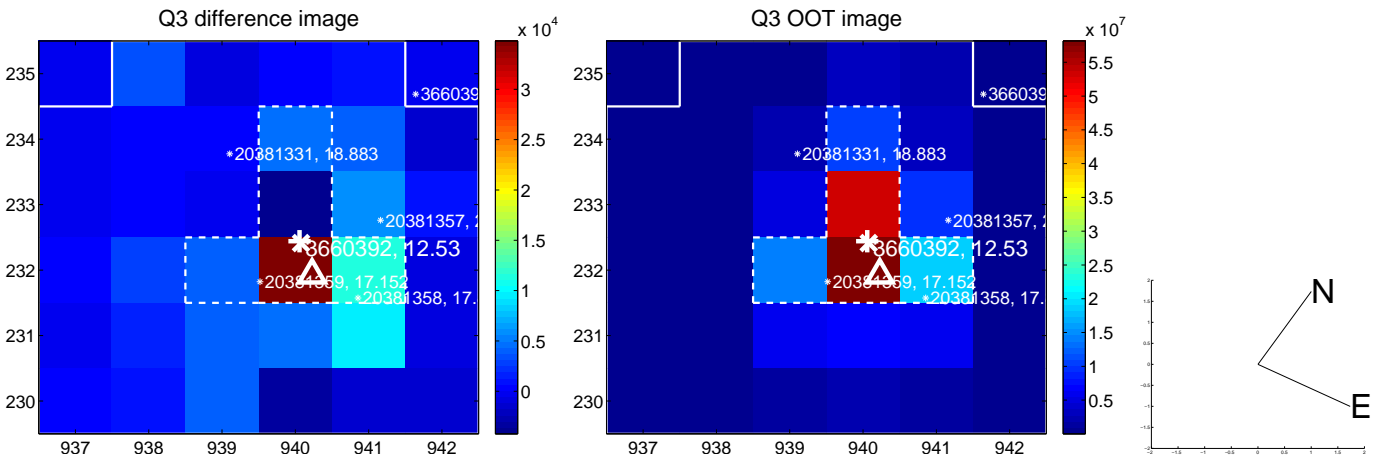
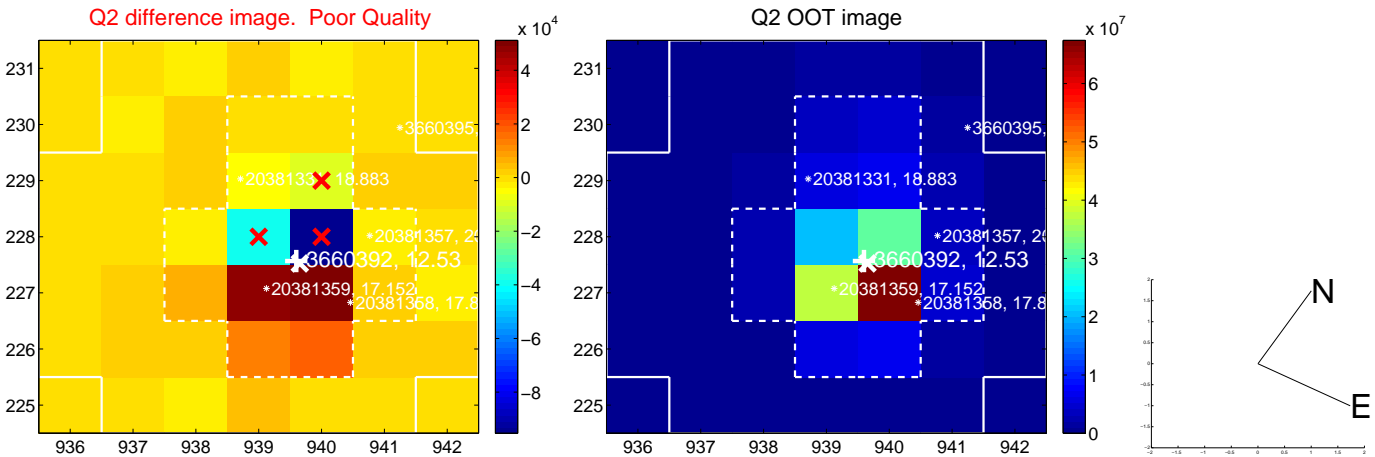
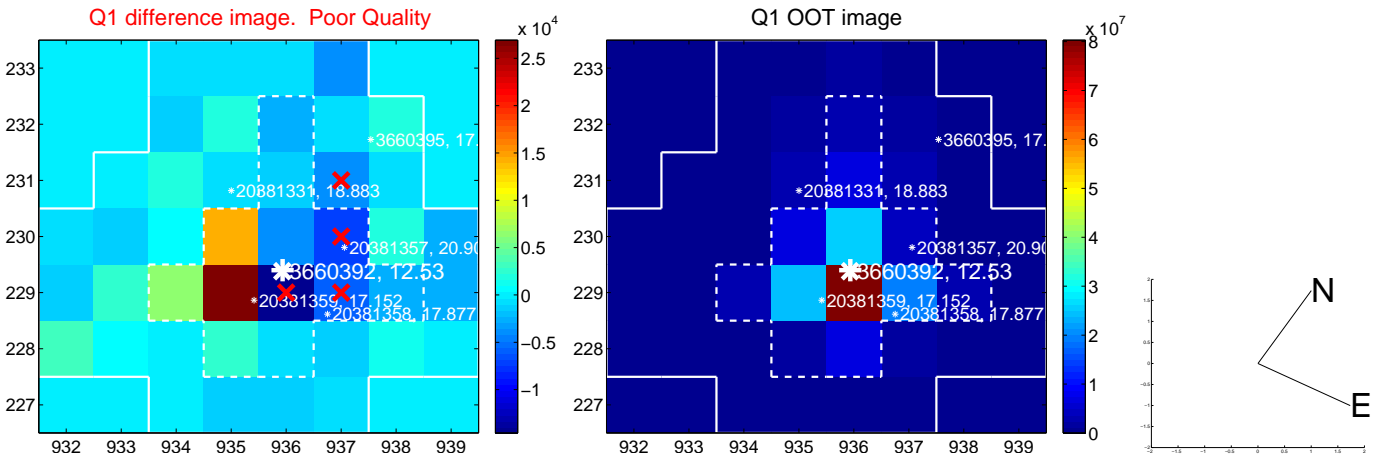
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.678 \pm 0.983$	0.69	$0.506 \pm 1.218$	$0.452 \pm 0.564$
PRF-fit source offset from KIC position	$0.659 \pm 0.895$	0.74	$0.420 \pm 1.231$	$0.508 \pm 0.558$
photometric centroid source offset	$0.37 \pm 0.40$	0.93	$-0.23 \pm 0.39$	$0.29 \pm 0.40$

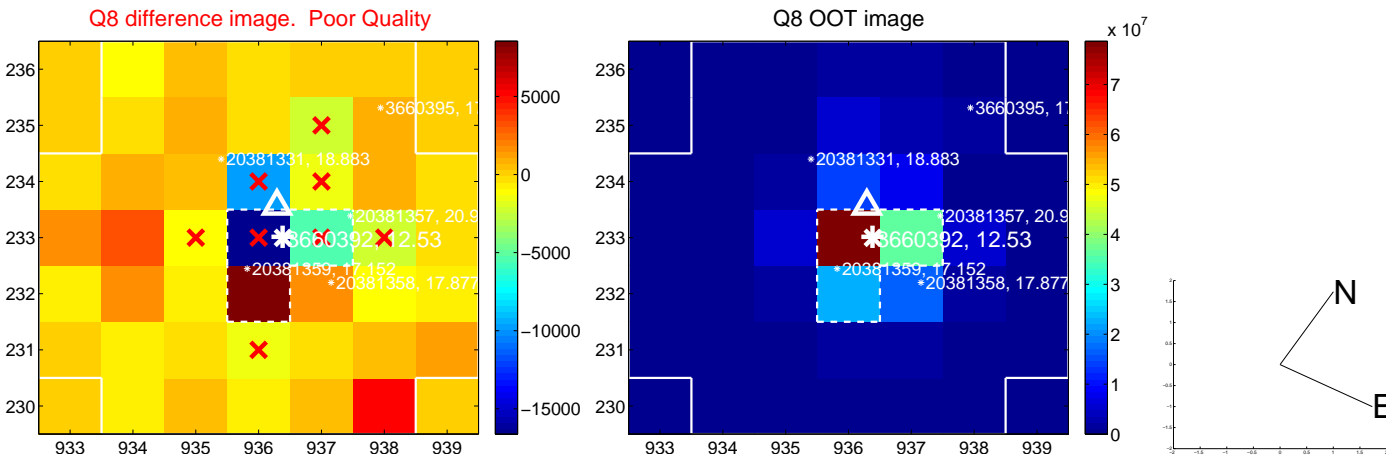
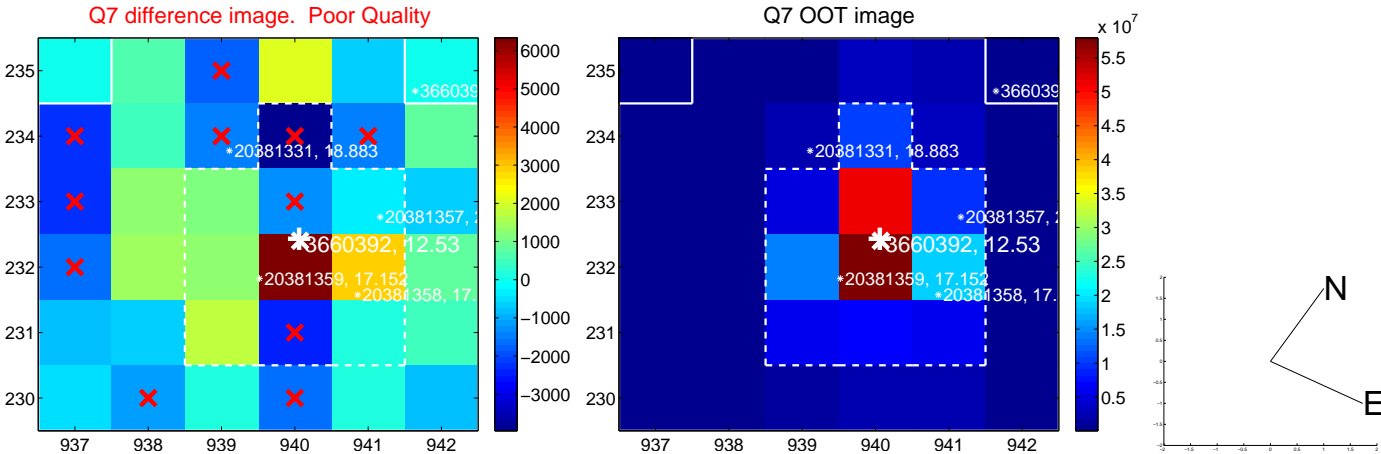
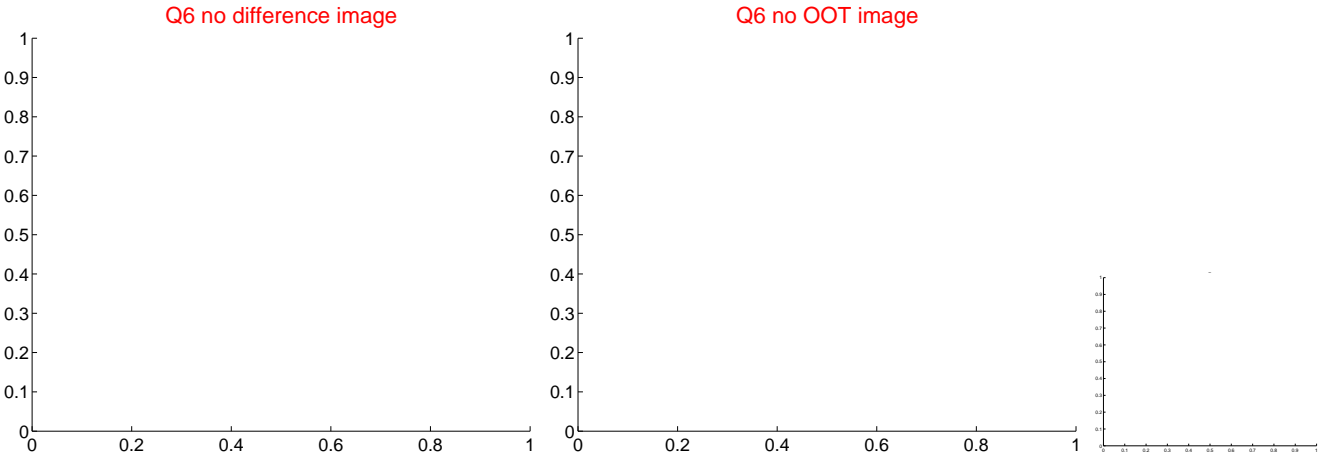
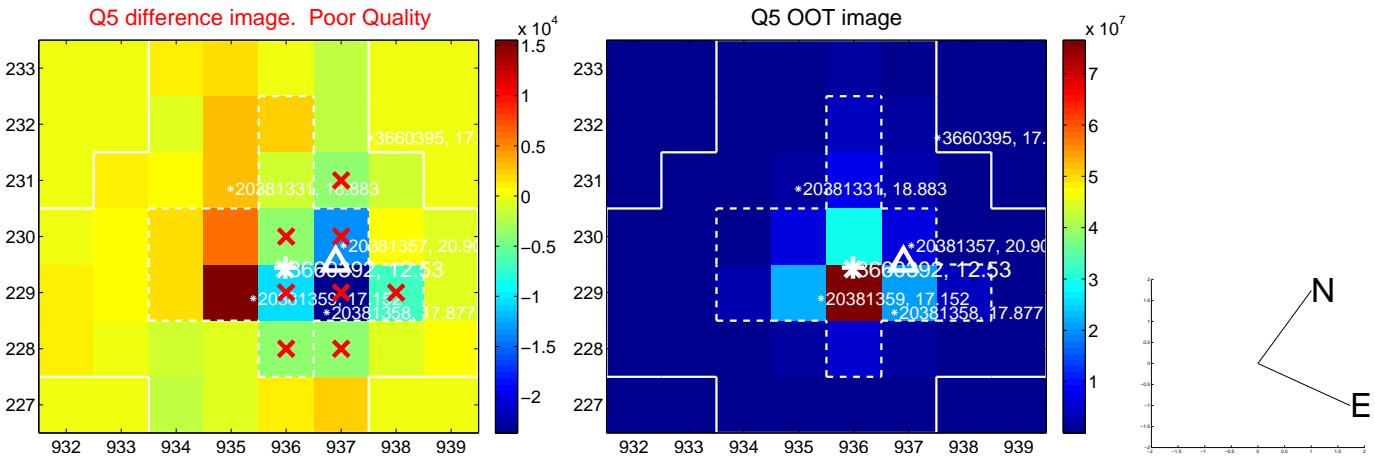


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

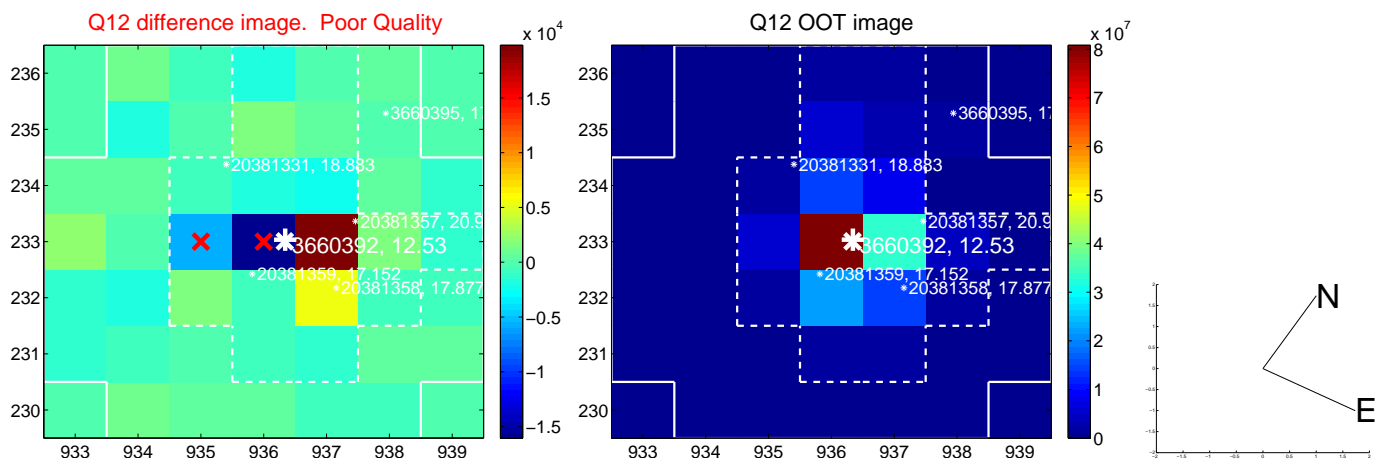
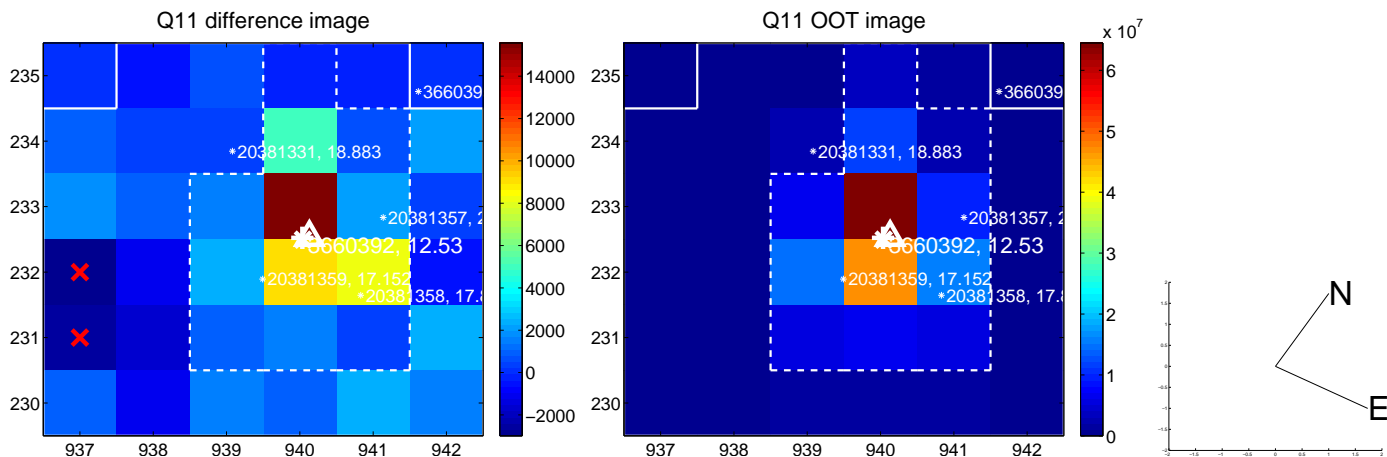
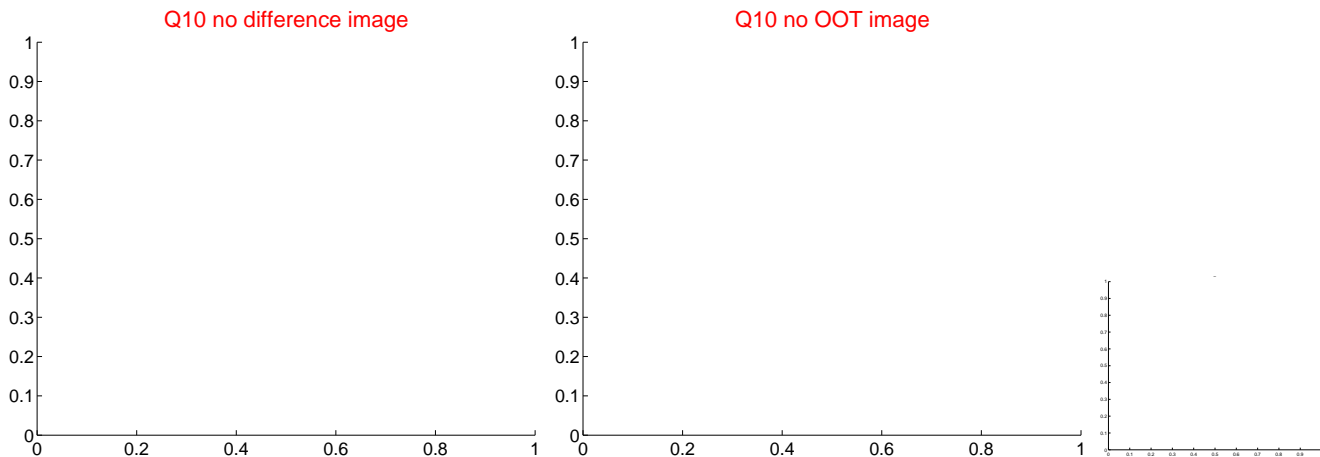
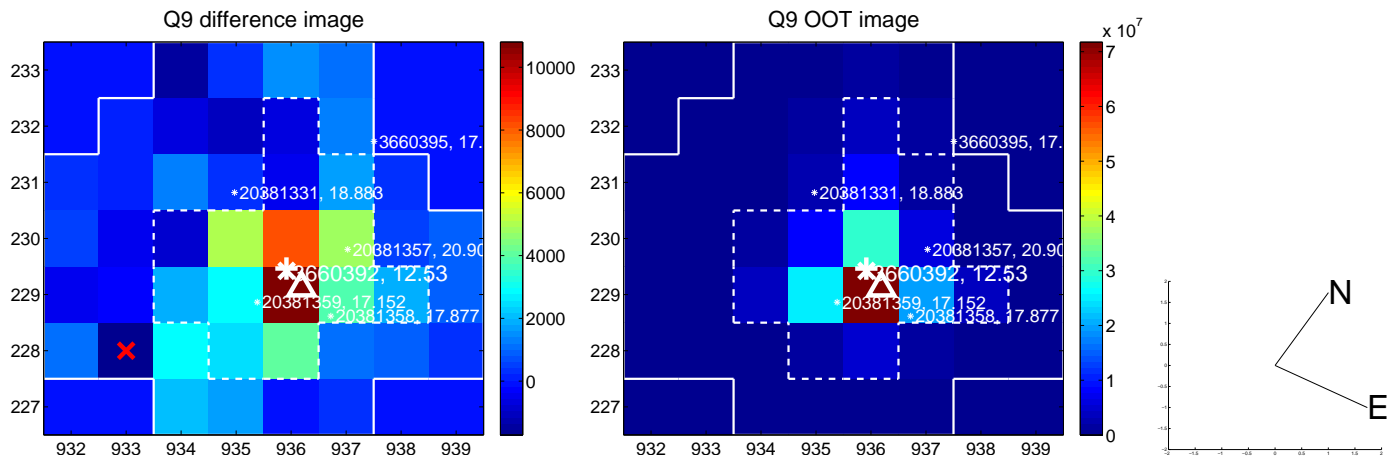
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



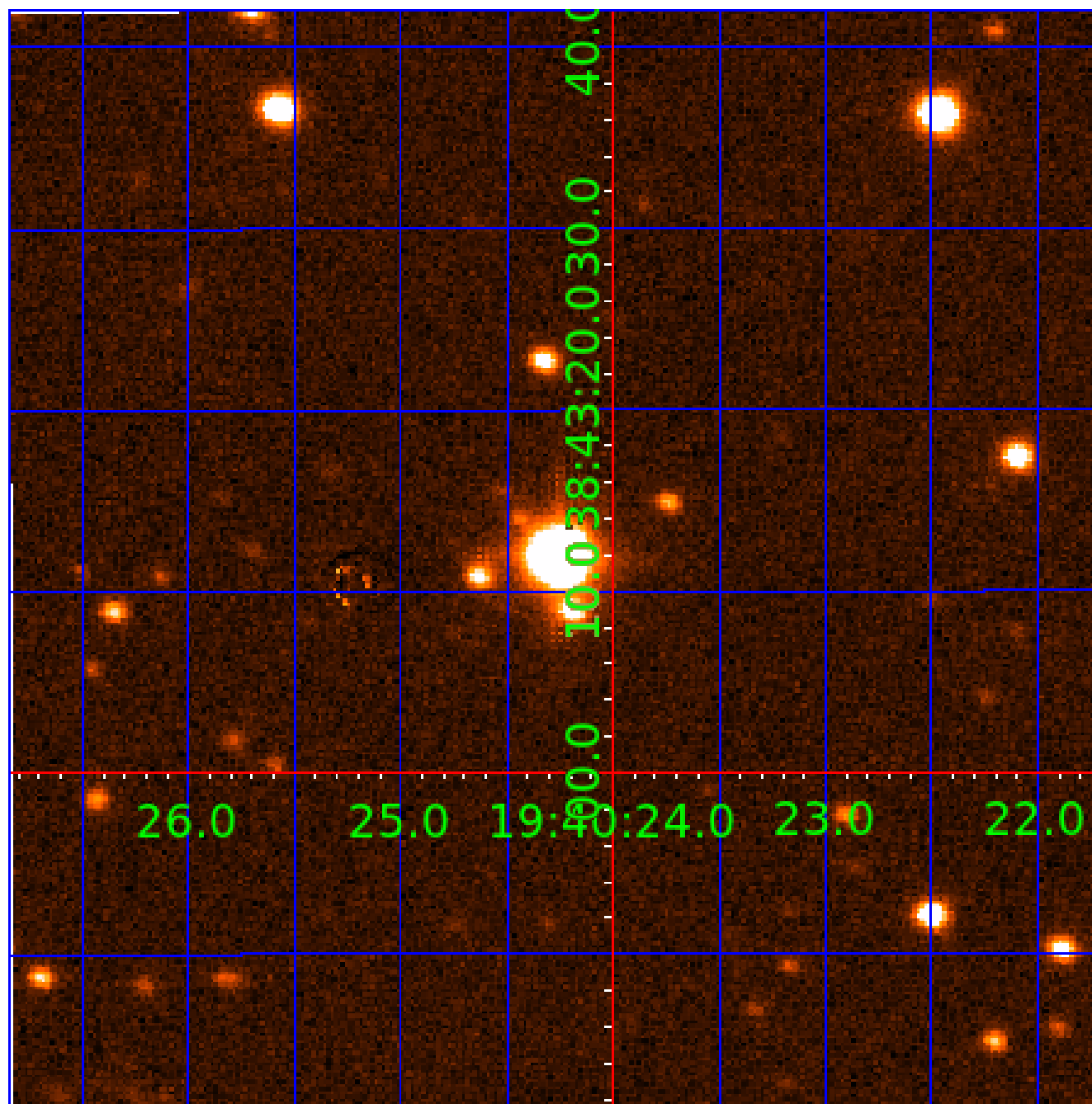






UKIRT Image

Declination



# KIC 003660392

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003660392-01	OBS	No	2.651865	133.846988	30.1	11.002	10.6	8.6	3.92	6550	2.20	12822.76
003660392-02	OBS	No	2.651830	132.397389	36.9	9.980	11.3	13.3	3.92	6550	2.79	12823.00
003660392-03	OBS	No	9.206947	138.847325	197.1	2.789	9.1	8.9	3.92	6550	6.50	2439.10
003660392-04	OBS	No	25.735035	154.278163	304.7	4.134	8.8	8.4	3.92	6550	7.98	619.47
003660392-05	OBS	No	13.762980	138.762271	194.9	5.685	8.4	8.6	3.92	6550	5.84	1427.03
003660392-06	OBS	No	52.508650	147.896614	270.5	2.000	7.8	-1.0	3.92	6550	6.50	239.37
003660392-07	OBS	No	8.878610	137.254666	280.1	1.394	7.6	8.5	3.92	6550	7.68	2560.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003660392-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT
003660392-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
003660392-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003660392-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST
003660392-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
003660392-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST
003660392-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV

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

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

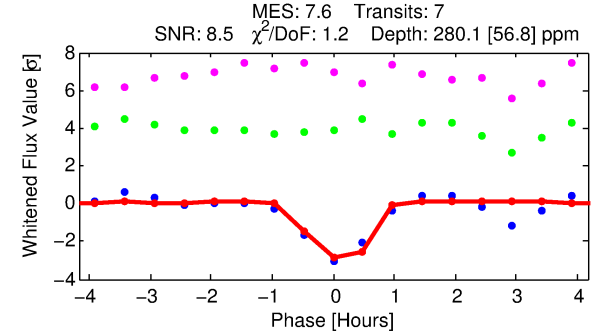
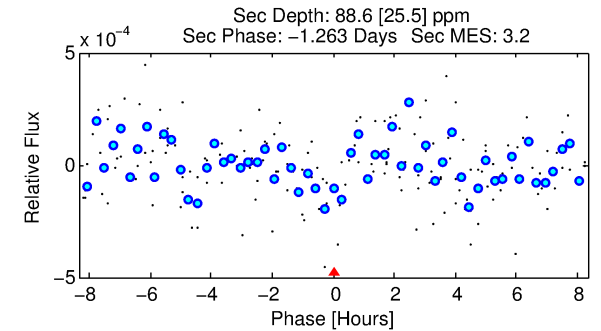
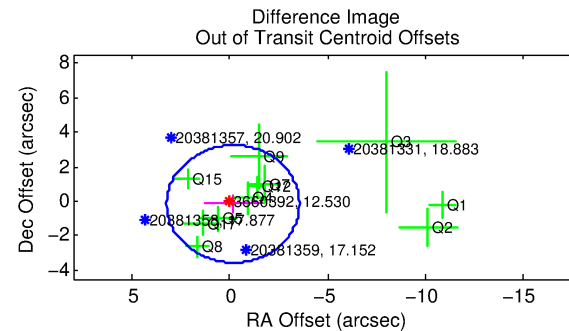
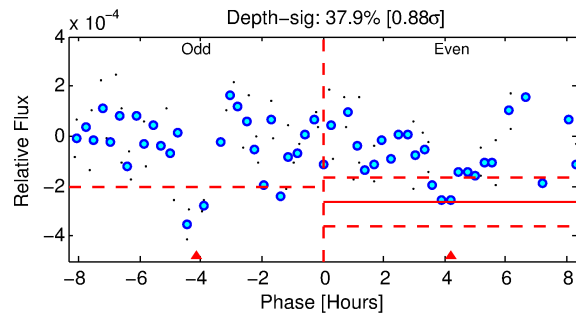
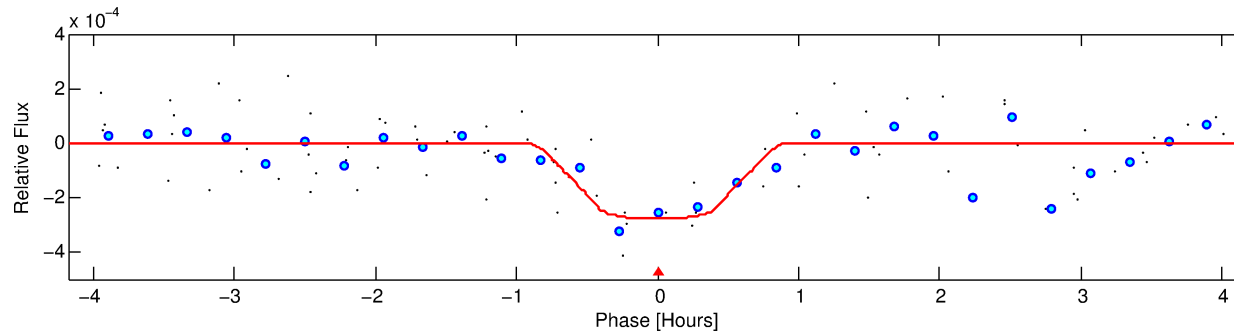
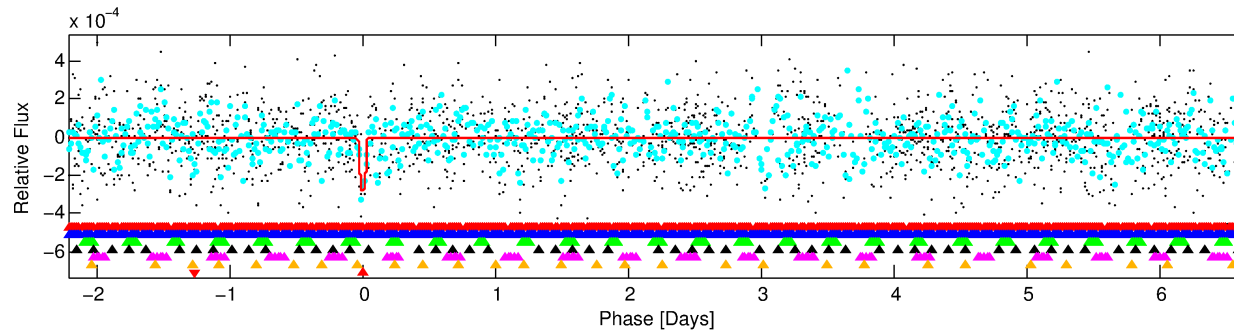
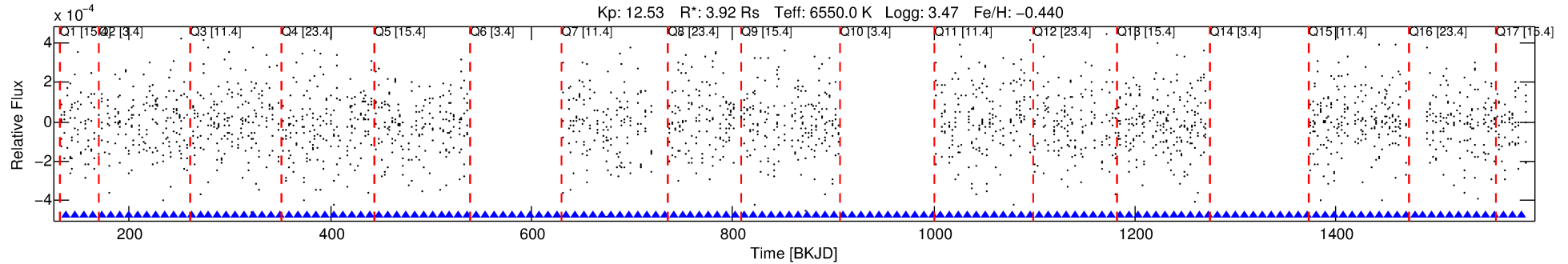
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003660392-07

No Significant Match Found

# DV One-Page Summary

KIC: 3660392 Candidate: 7 of 7 Period: 8.879 d



## DV Fit Results:

Period = 8.87861 [0.00006] d  
Epoch = 137.2547 [0.0051] BKJD  
Rp/R\* = 0.0180 [0.0364]  
a/R\* = 23.11 [278.42]  
b = 0.90 [2.56]  
Seff = 2560.10 [1659.24]  
Teq = 1814 [294] K  
Rp = 7.68 [15.88] Re  
a = 0.0995 [0.0392] AU  
Ag = 8.17 [33.59] [0.21 $\sigma$ ]  
Teffp = 4741 [4817] K [0.61 $\sigma$ ]

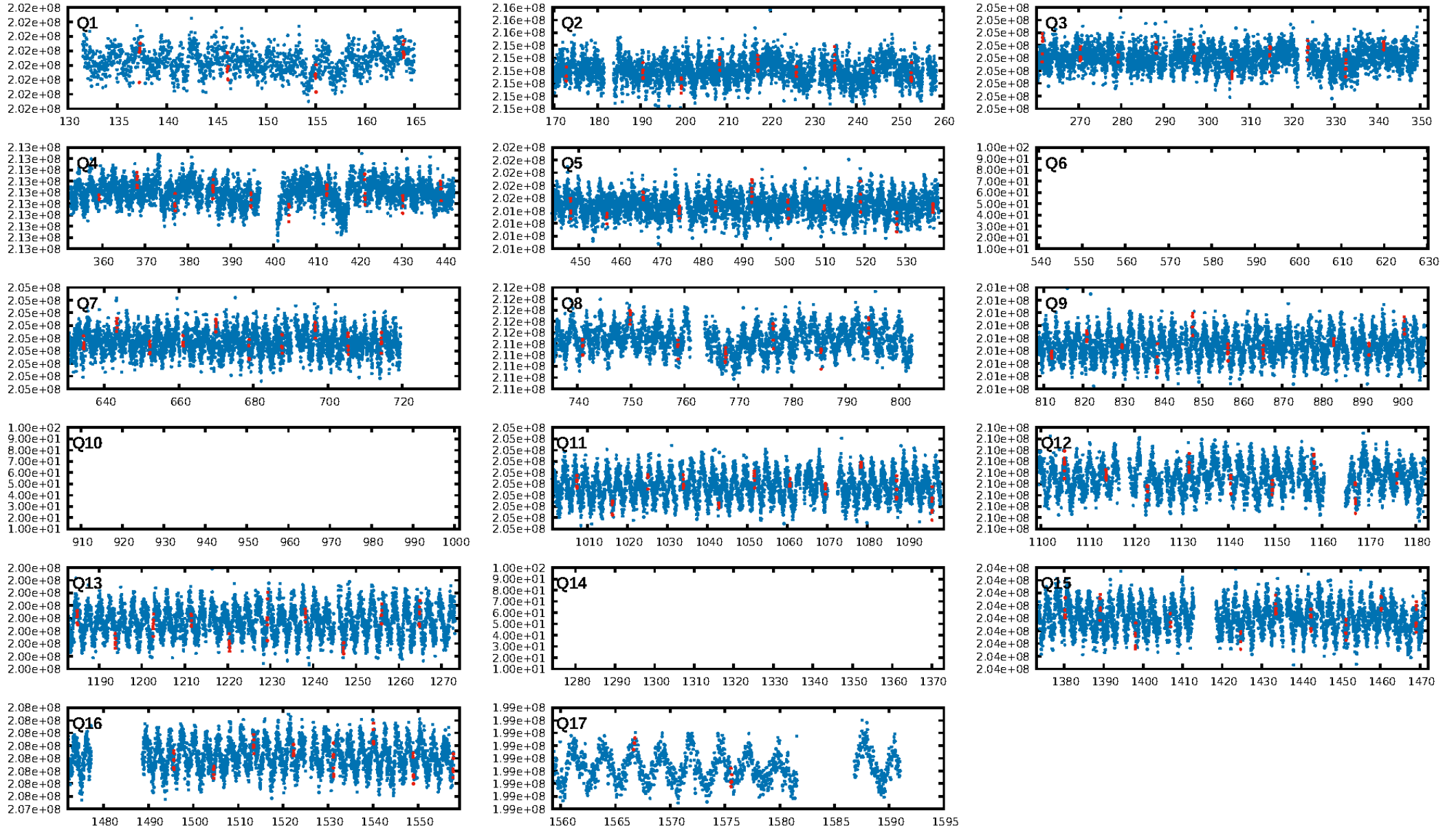
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [13.48 $\sigma$ ]  
LongPeriod-sig: 98.9% [2.53 $\sigma$ ]  
ModelChiSquare2-sig: 27.0%  
ModelChiSquareGof-sig: 97.7%  
**Bootstrap-pfa: 4.42e-09**  
RollingBand-fgt: 1.00 [7/7]  
**GhostDiagnostic-chr: 0.9057**  
Centroid-sig: 83.9%  
Centroid-so: 0.140 arcsec [0.40 $\sigma$ ]  
OotOffset-rm: 0.239 arcsec [0.21 $\sigma$ ]  
OotOffset-st: 1/3/3/4 [11]  
KicOffset-rm: 0.239 arcsec [0.19 $\sigma$ ]  
KicOffset-st: 1/3/3/4 [11]  
DiffImageQuality-fgm: 0.36 [4/11]  
DiffImageOverlap-fno: 1.00 [14/14]

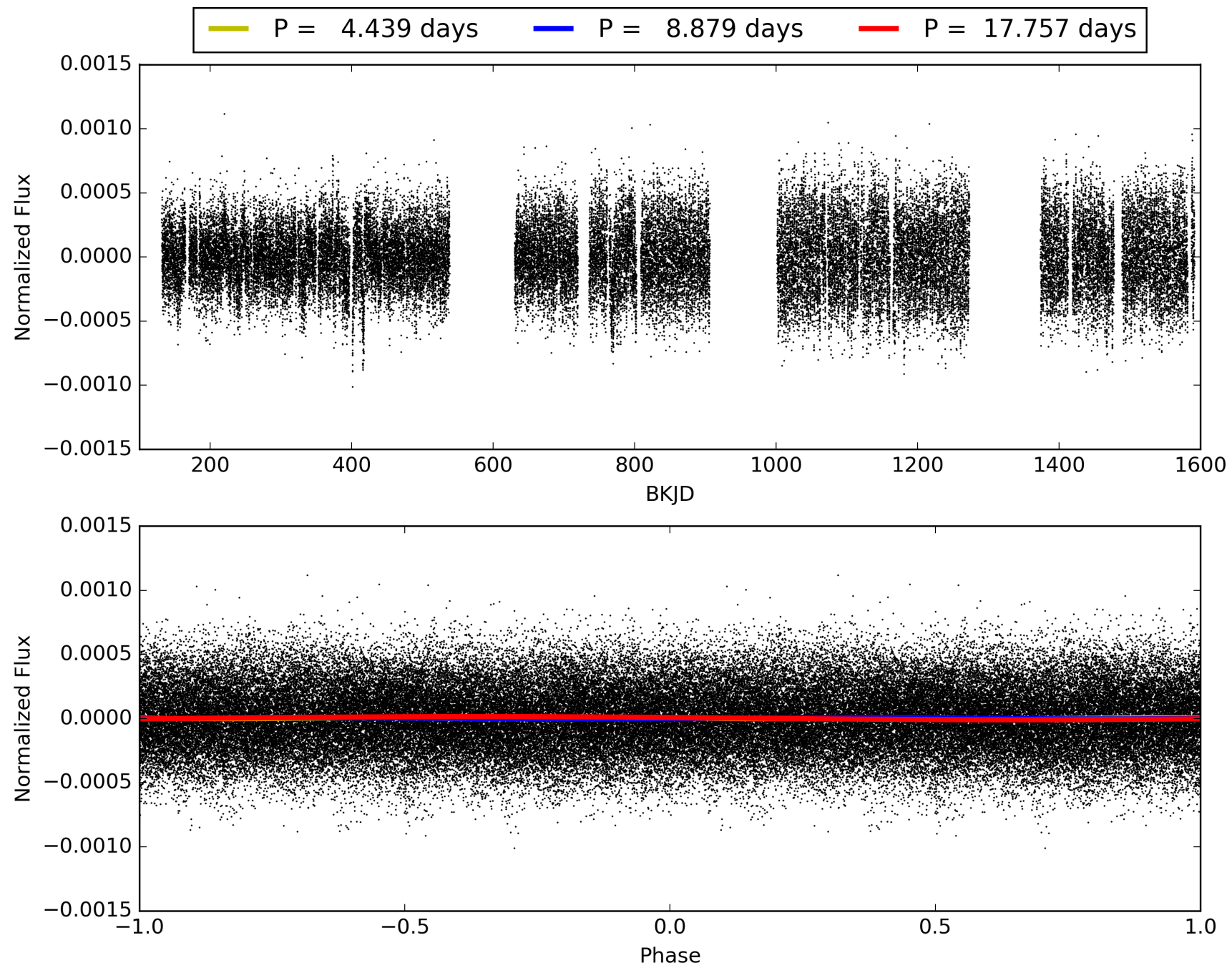
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:06:59 Z

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

# TCE 003660392-07, PDC Light Curves

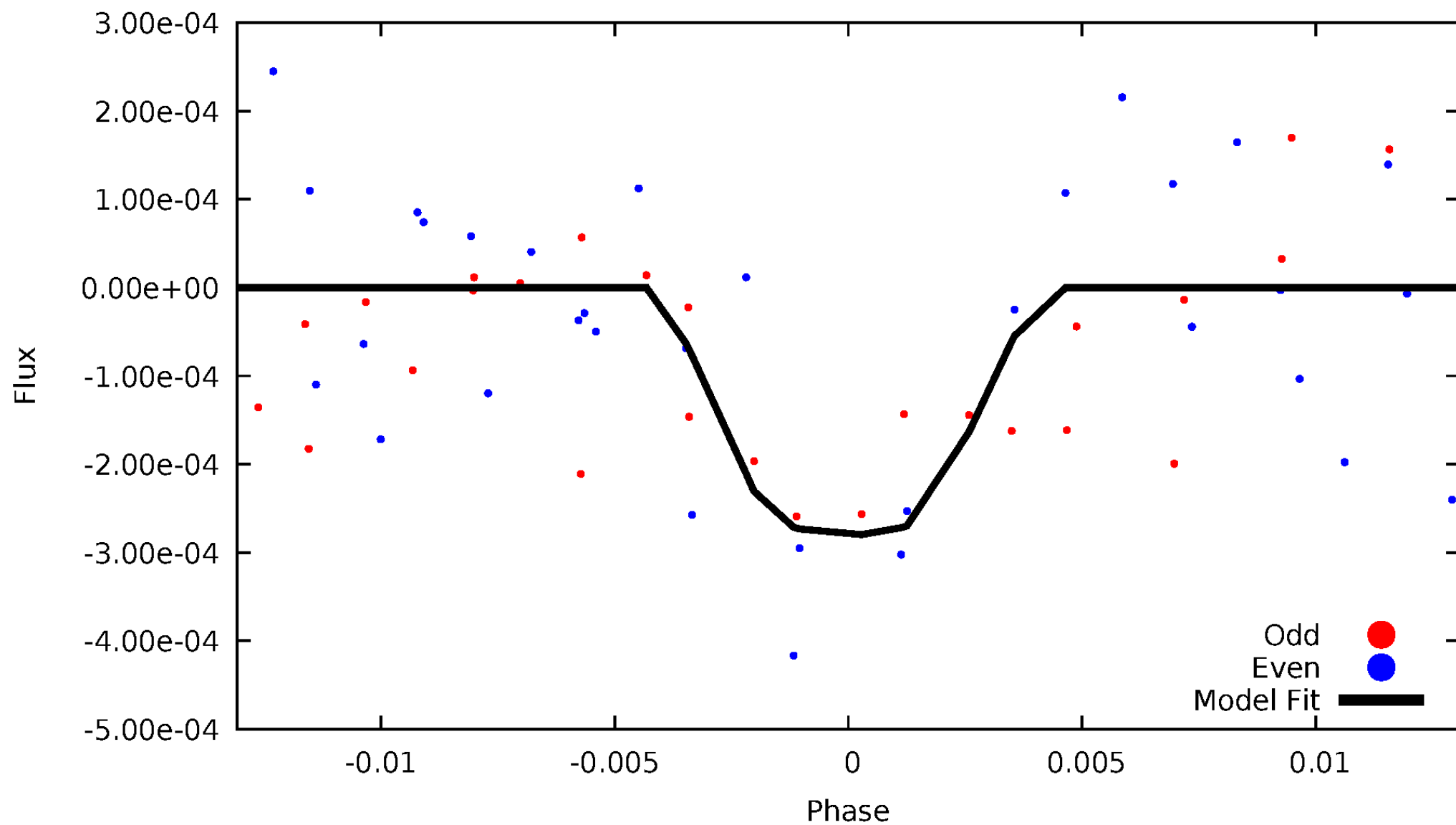


TCE 003660392-07



# DV Odd/Even

TCE 003660392-07





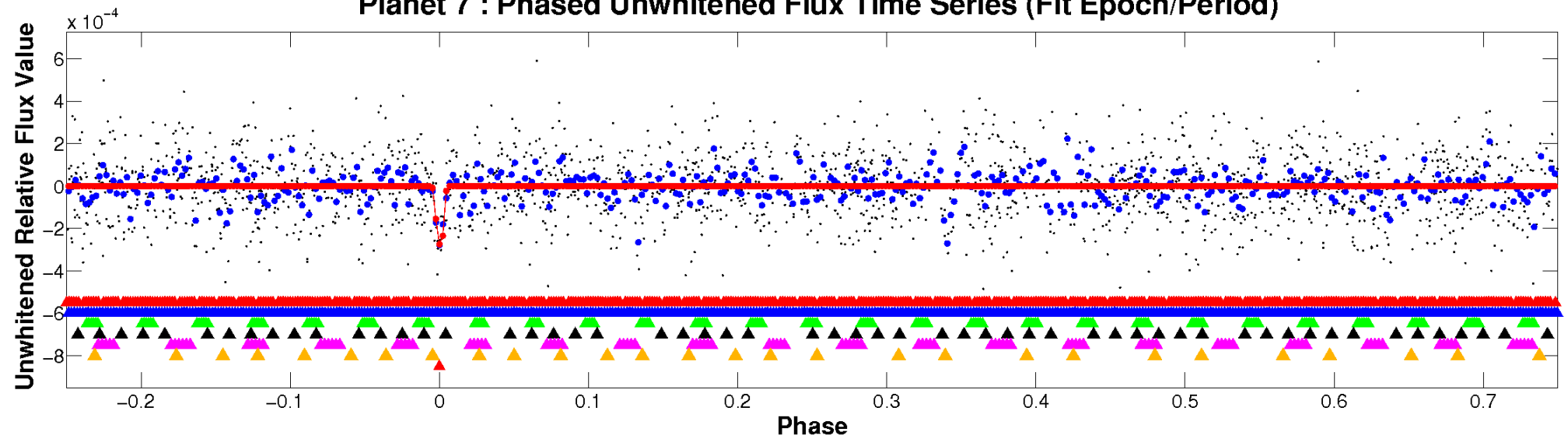


ALT Odd/Even

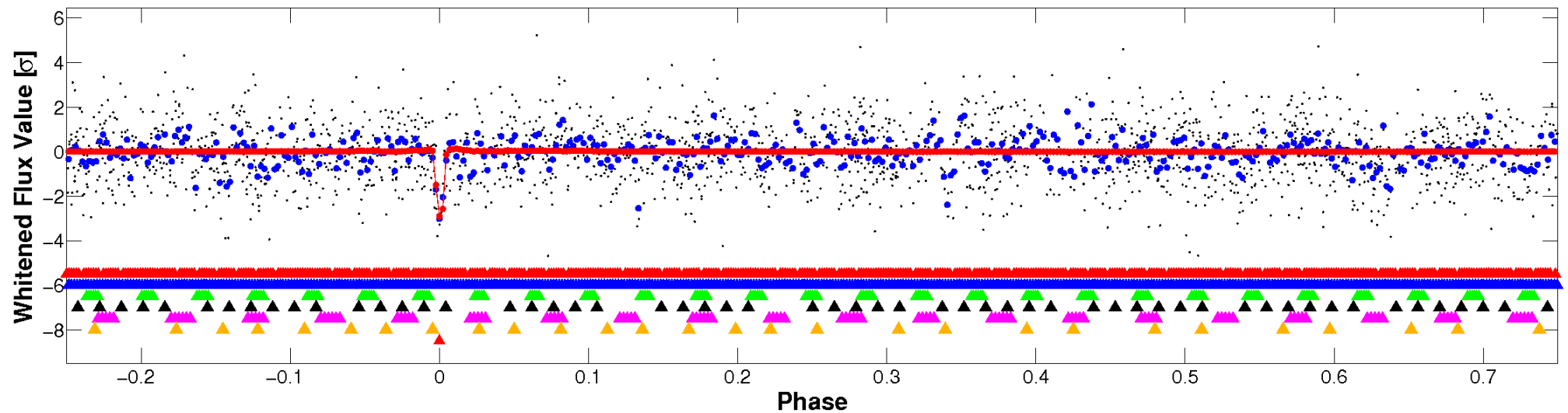
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

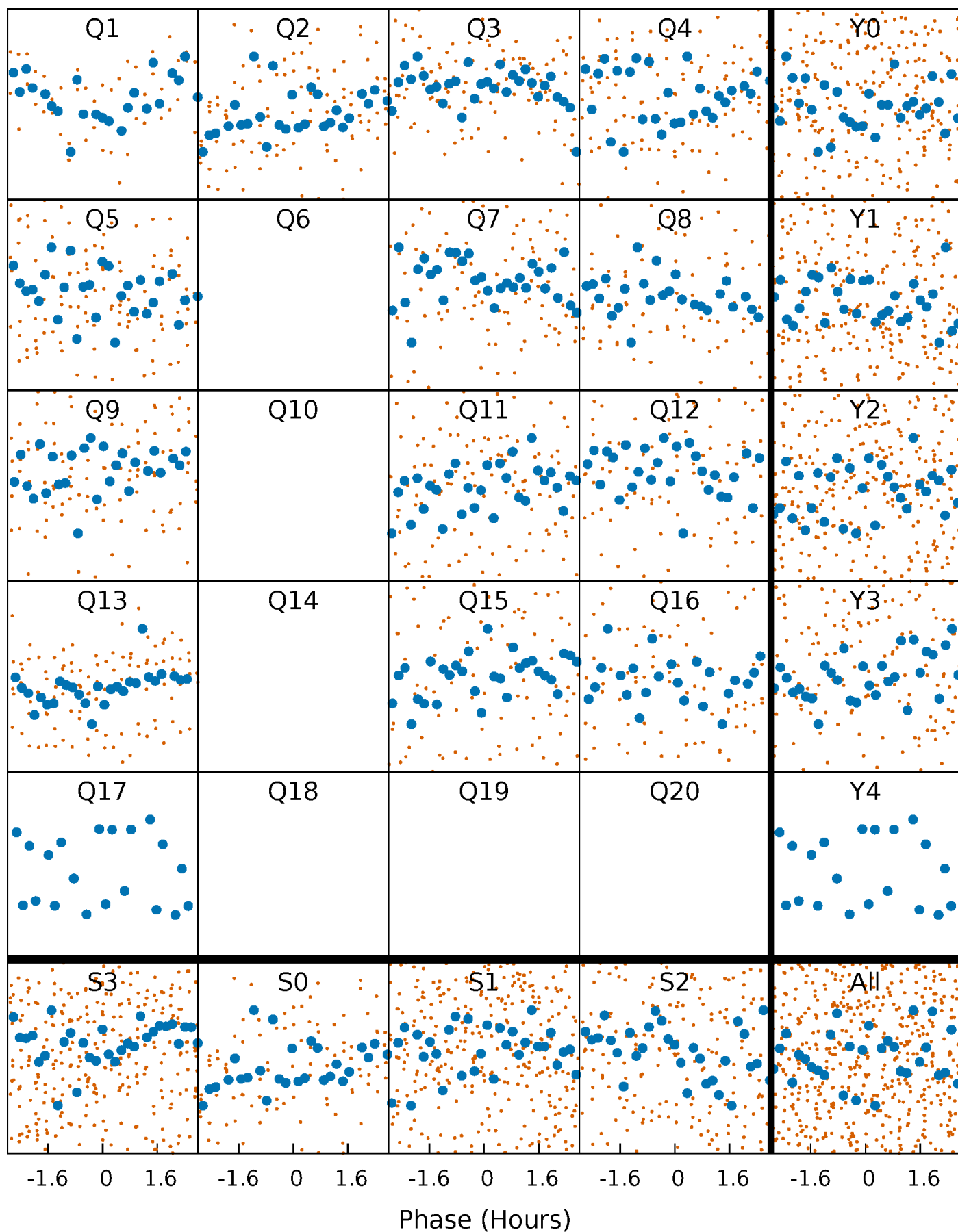


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



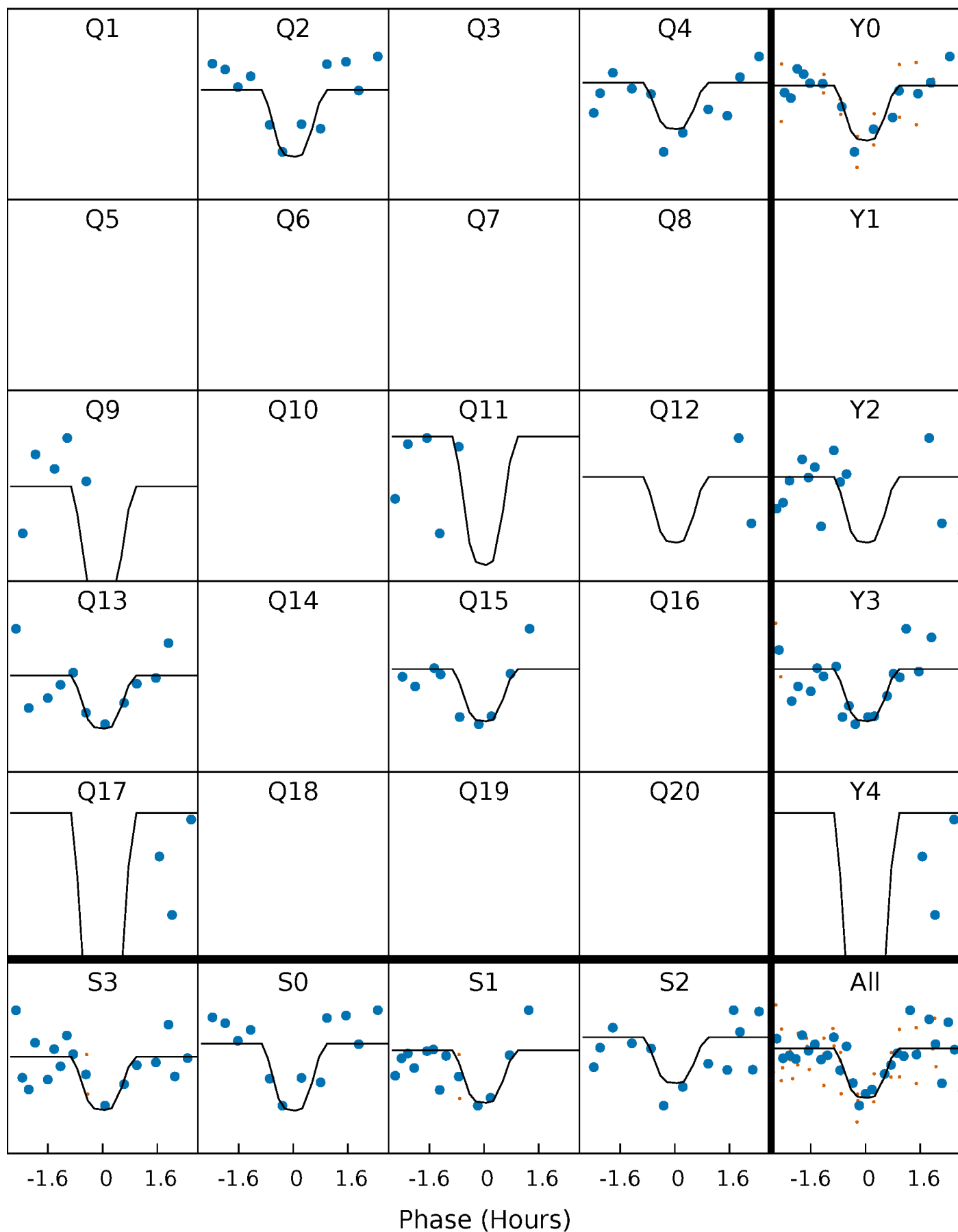
# PDC Quarter-Phased Transit Curves

TCE 003660392-07     $P = 8.878610$  Days     $T_0 = 137.254666$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 003660392-07     $P = 8.878610$  Days     $T_0 = 137.254666$  (BKJD)

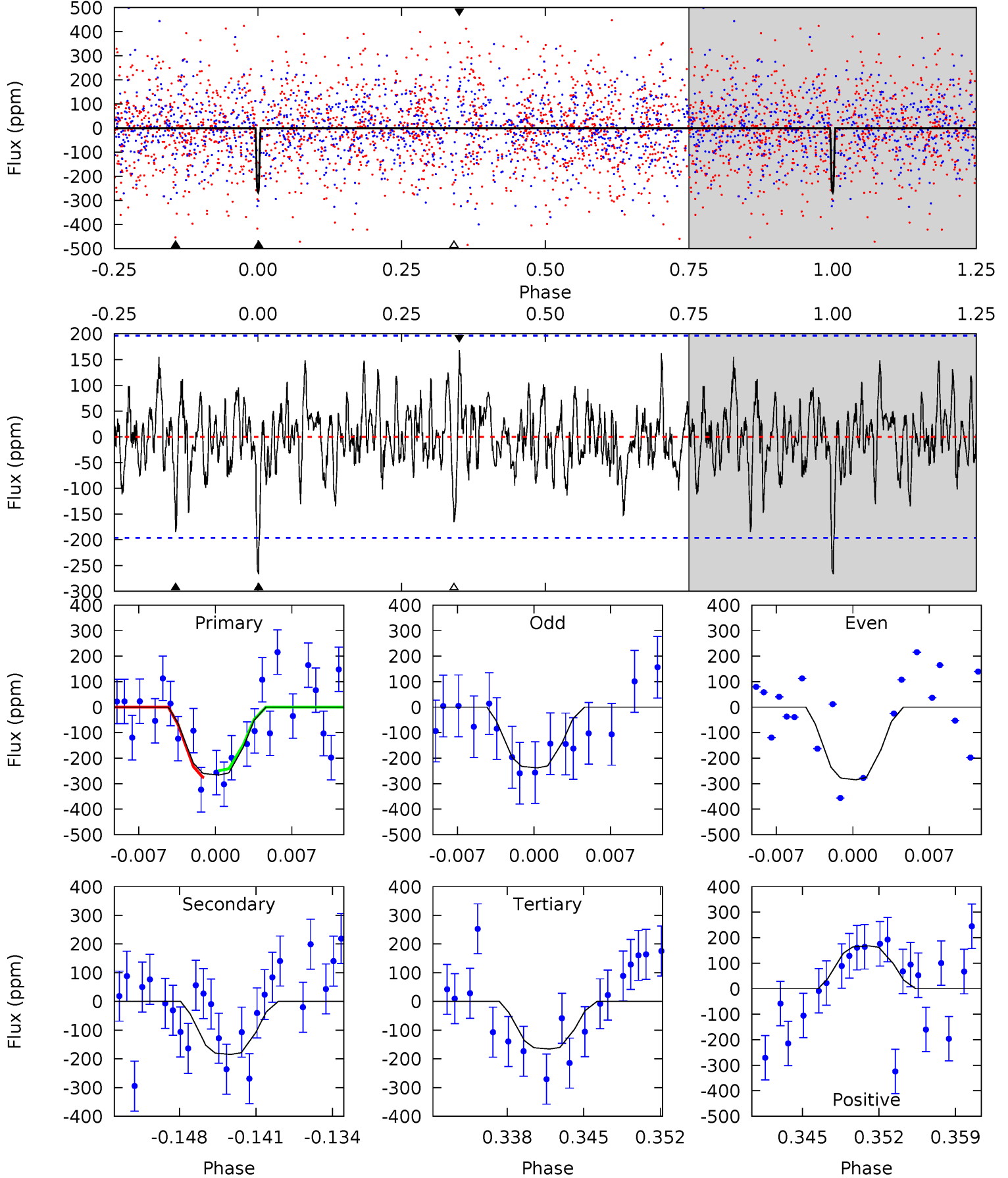


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

003660392-07, P = 8.878610 Days, E = 128.376056 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.91	4.79	4.29	4.36	5.09	2.70	1.36	2.61	2.55	0.50	0.43	0.63	1.04	0.39	0.34



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.



### Stellar Parameters For KIC 003660392

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6550^{+178}_{-198}$	$3.473^{+0.376}_{-0.094}$	$-0.440^{+0.400}_{-0.300}$	$3.920^{+0.565}_{-1.581}$	$1.666^{+0.190}_{-0.443}$	$0.039^{+0.124}_{-0.012}$
	+3%/-3%	+11%/-3%	+91%/-68%	+14%/-40%	+11%/-27%	+318%/-30%
Source	PHO1	FLK73	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 003660392-07 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-185 \pm 39$	$12.50^{+13.59}_{-8.00}$	$2489^{+149}_{-263}$	$4394^{+2805}_{-1034}$	$6.061^{+42.569}_{-4.589}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

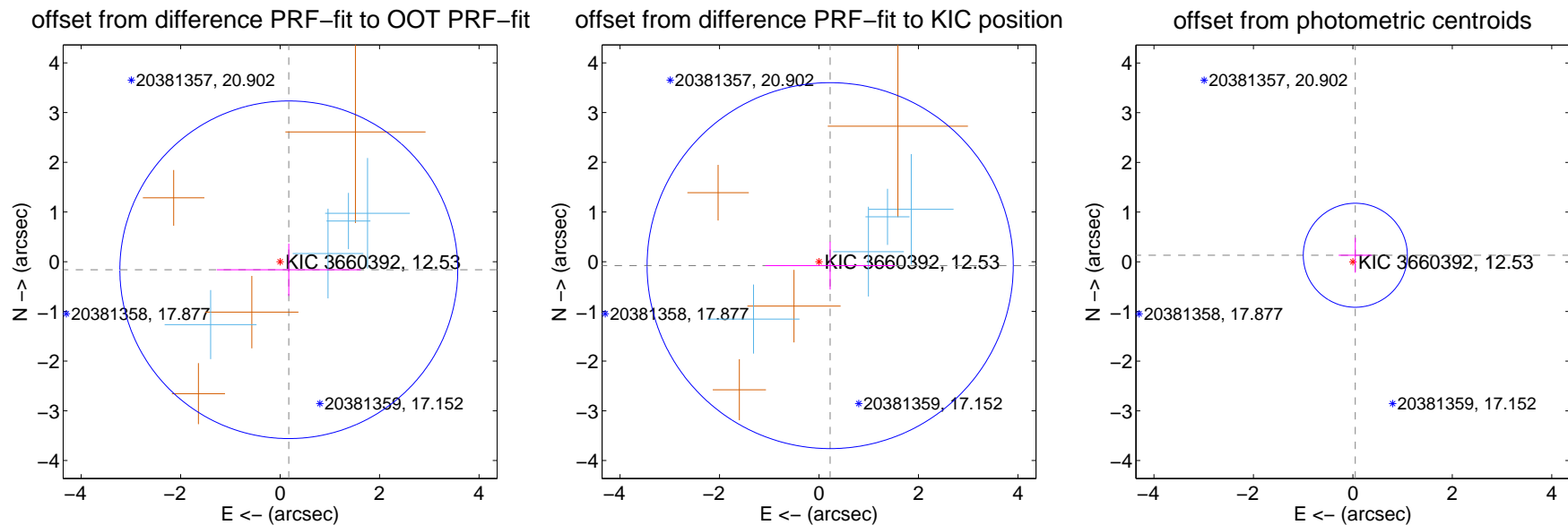
## DV Centroid Data

Supplemental centroid analysis for 003660392-07. Kepler magnitude: 12.53. Transit SNR 8.49

There are 4 quarters with good PRF difference image offsets

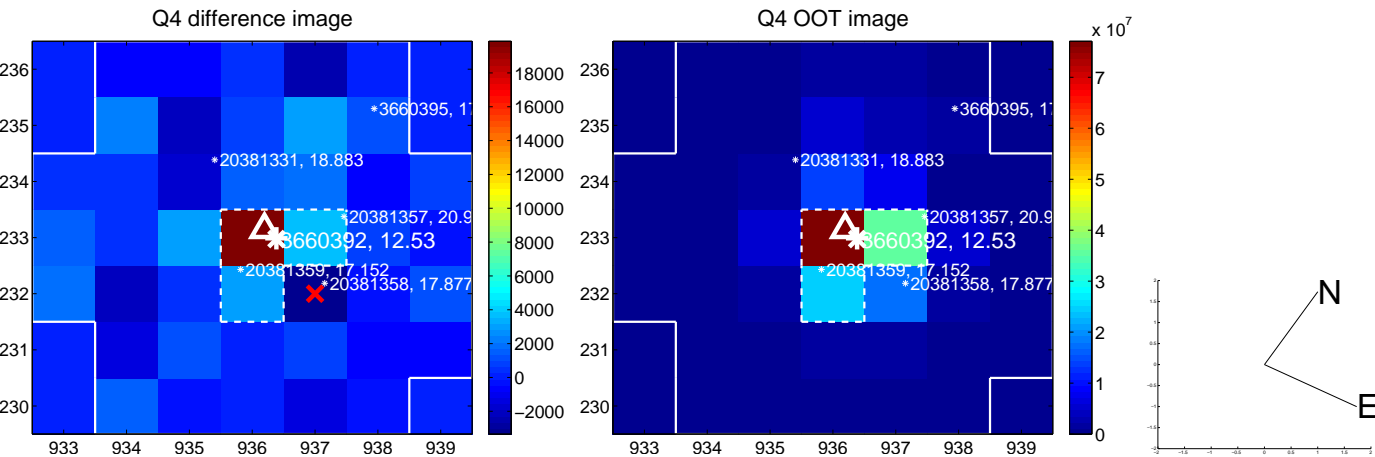
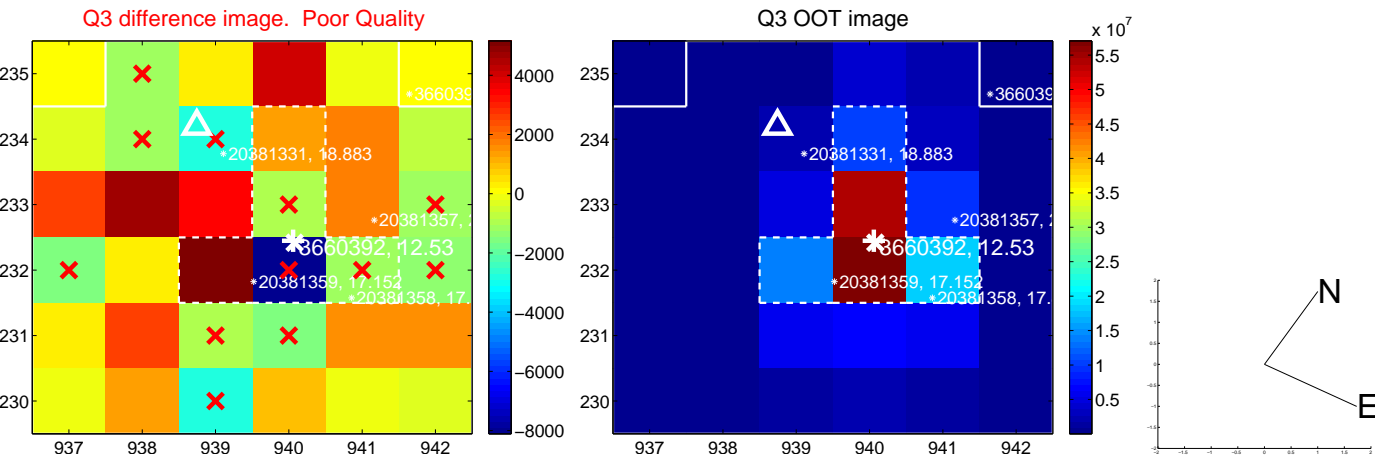
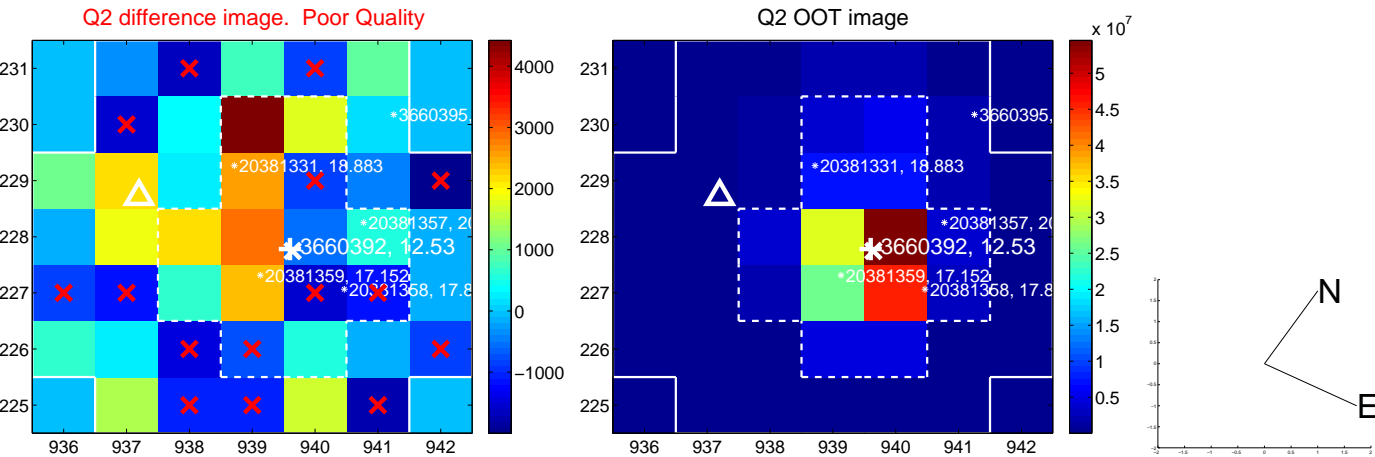
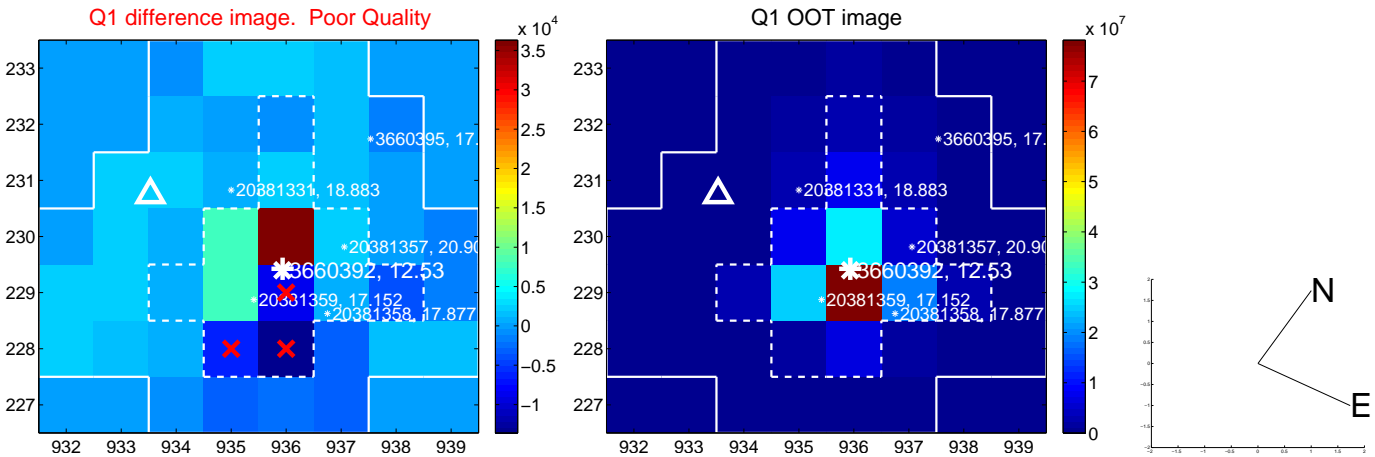
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.239 \pm 1.132$	0.21	$-0.175 \pm 1.448$	$-0.162 \pm 0.526$
PRF-fit source offset from KIC position	$0.239 \pm 1.227$	0.19	$-0.225 \pm 1.302$	$-0.079 \pm 0.482$
photometric centroid source offset	$0.14 \pm 0.35$	0.40	$-0.05 \pm 0.33$	$0.13 \pm 0.35$

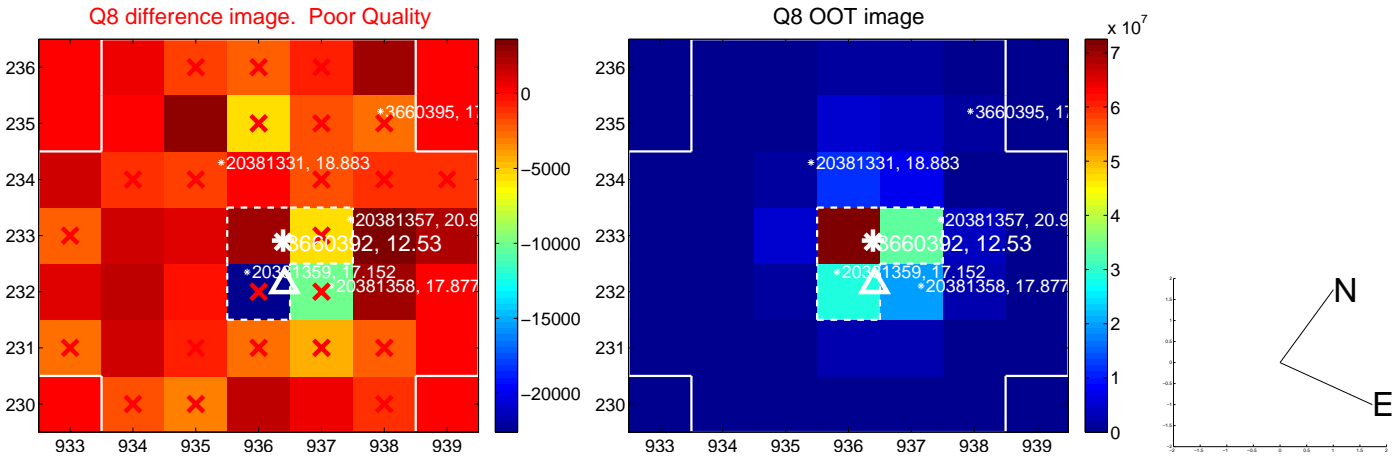
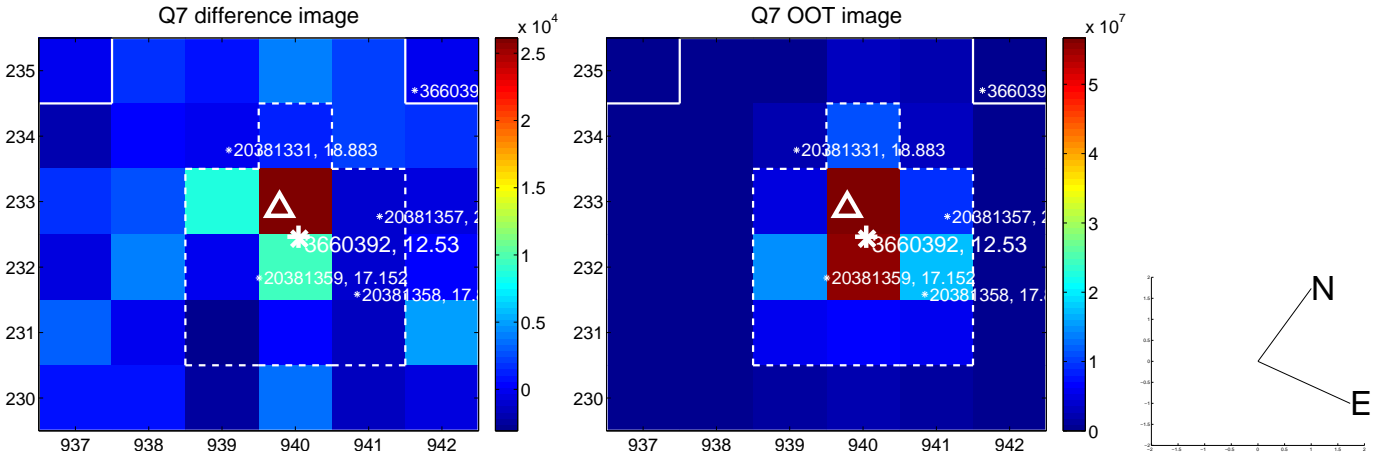
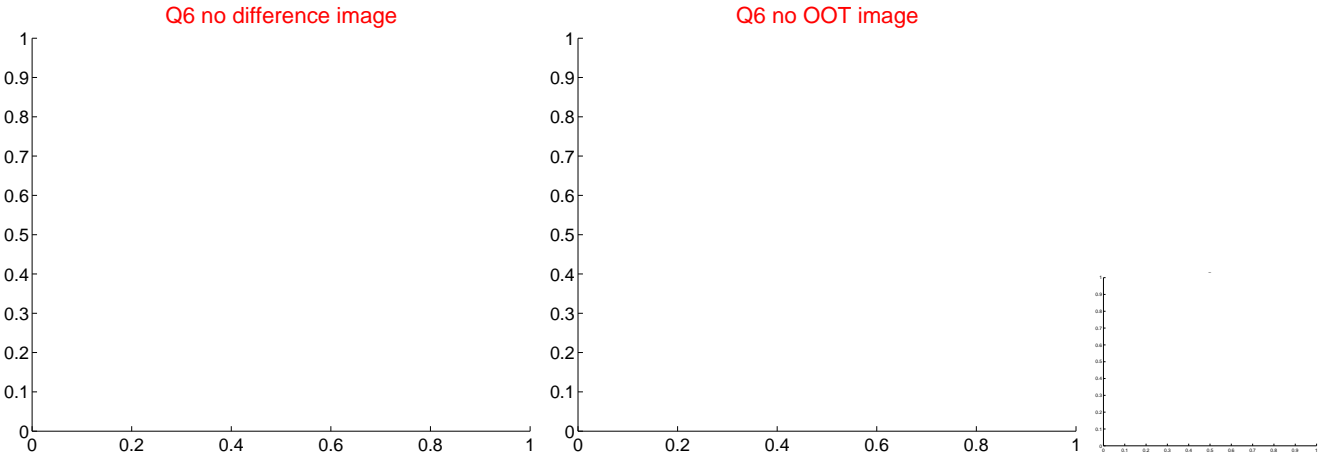
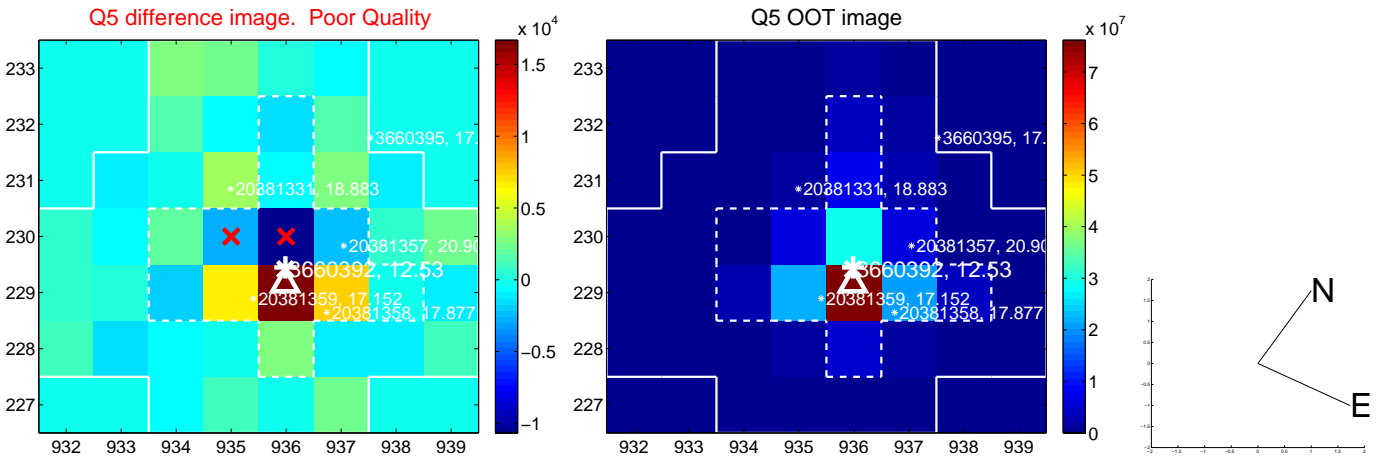


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

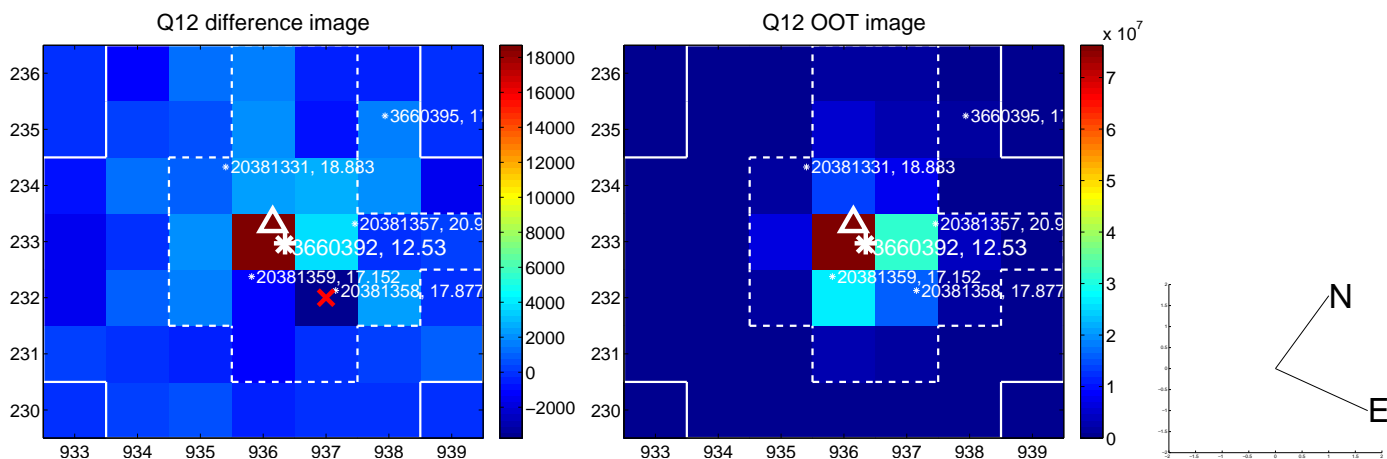
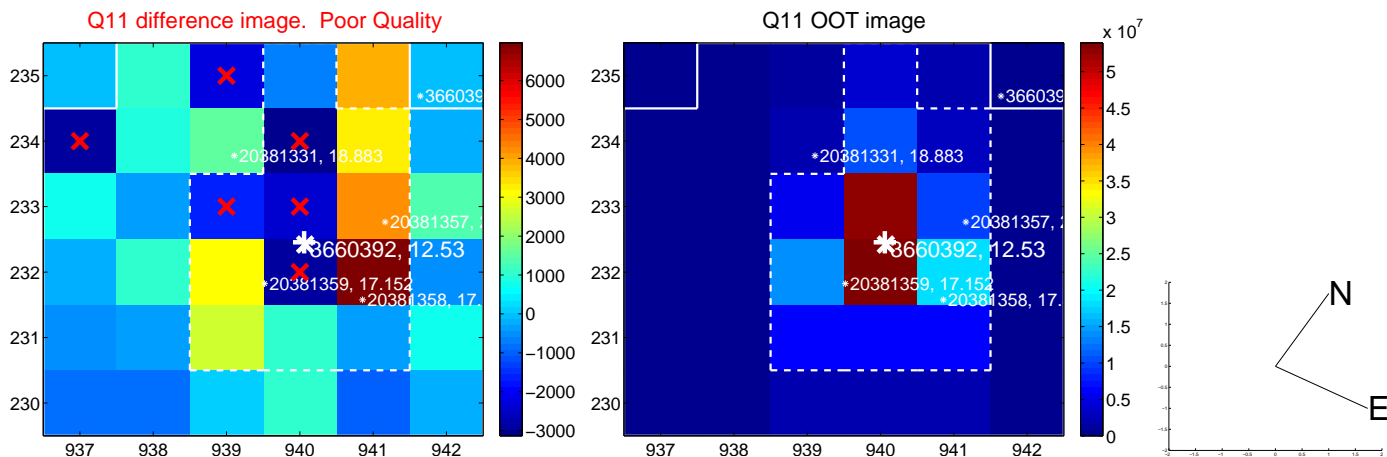
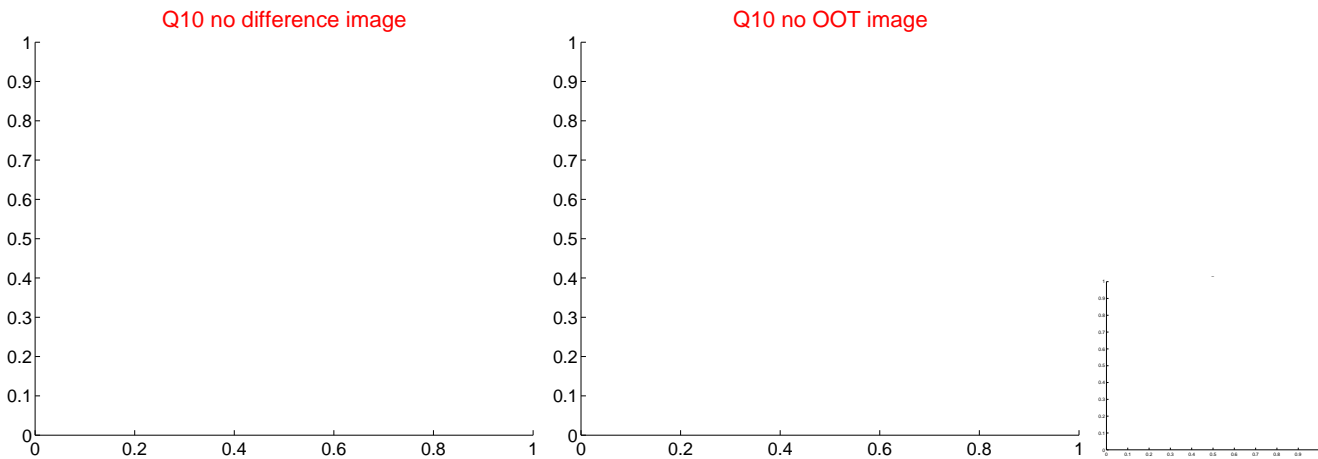
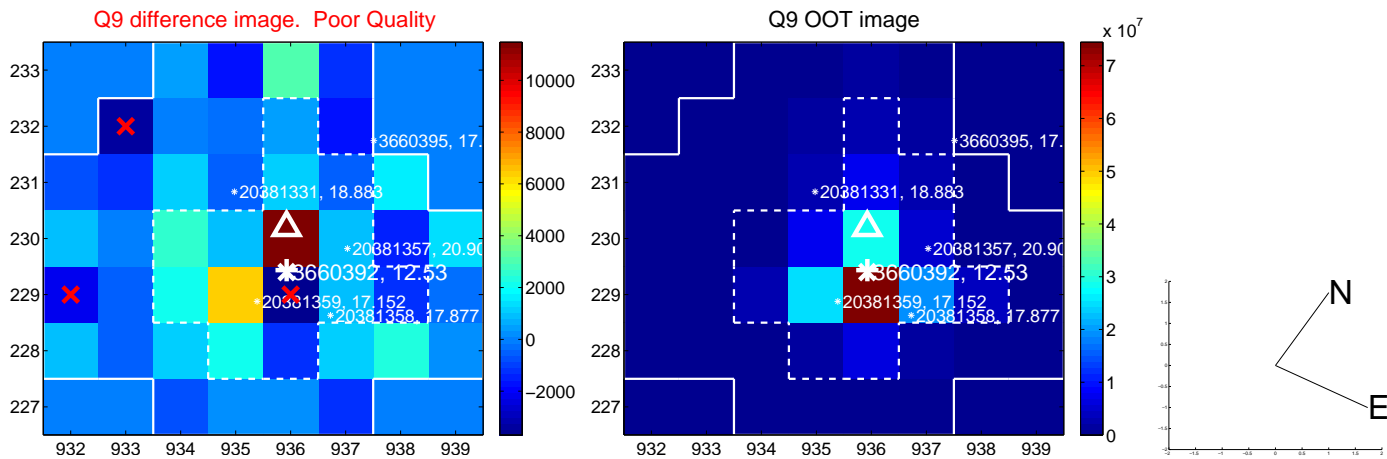
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



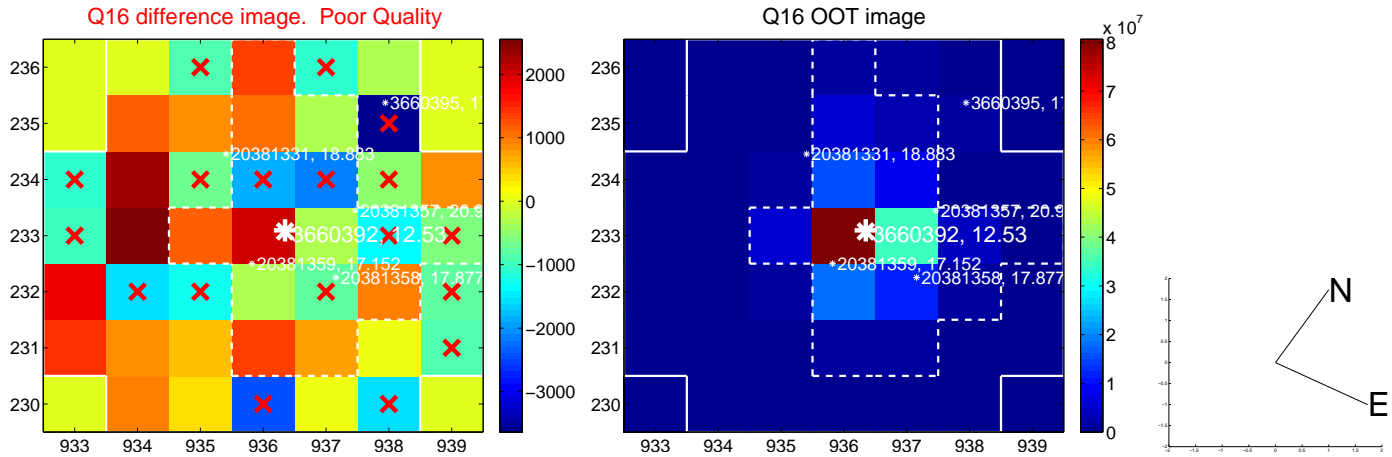
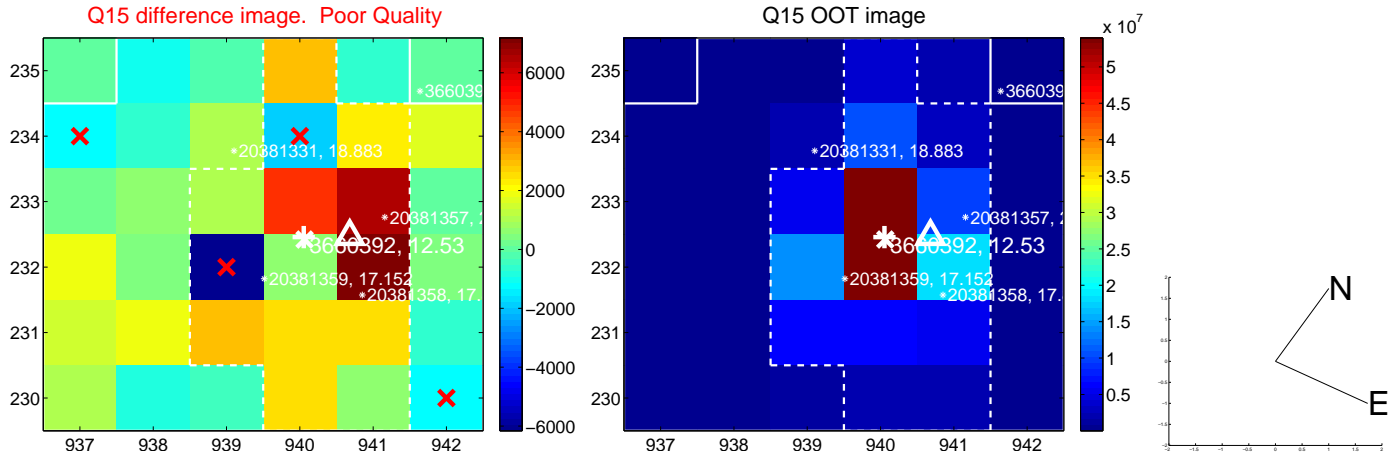
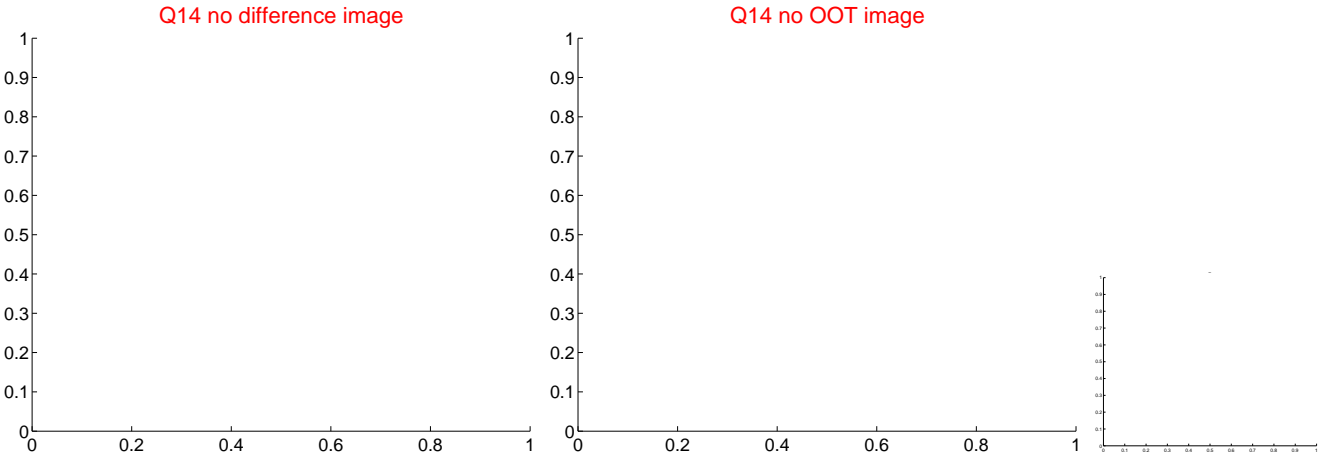
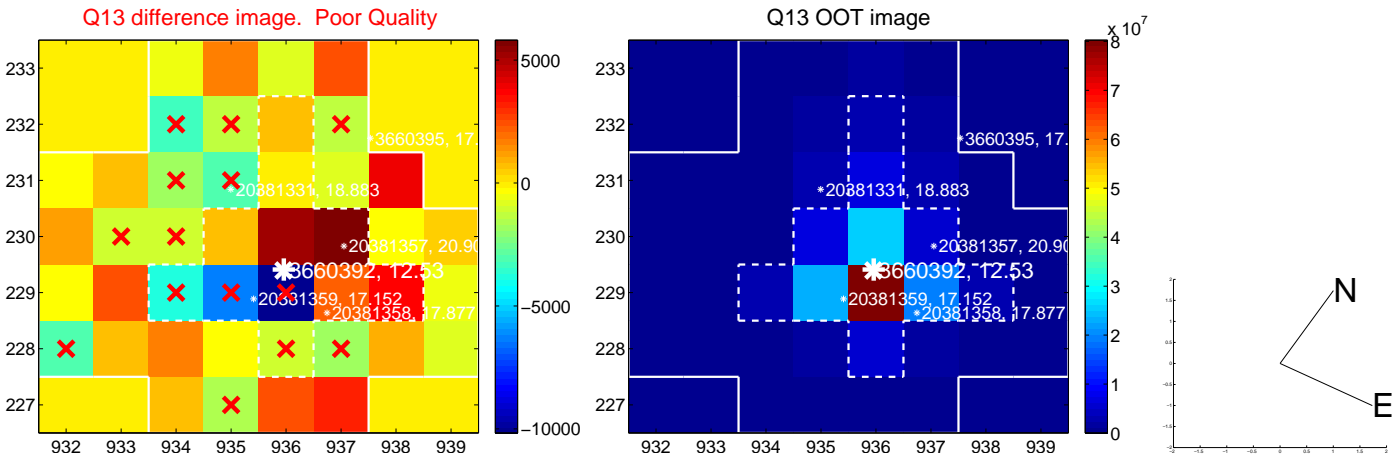
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



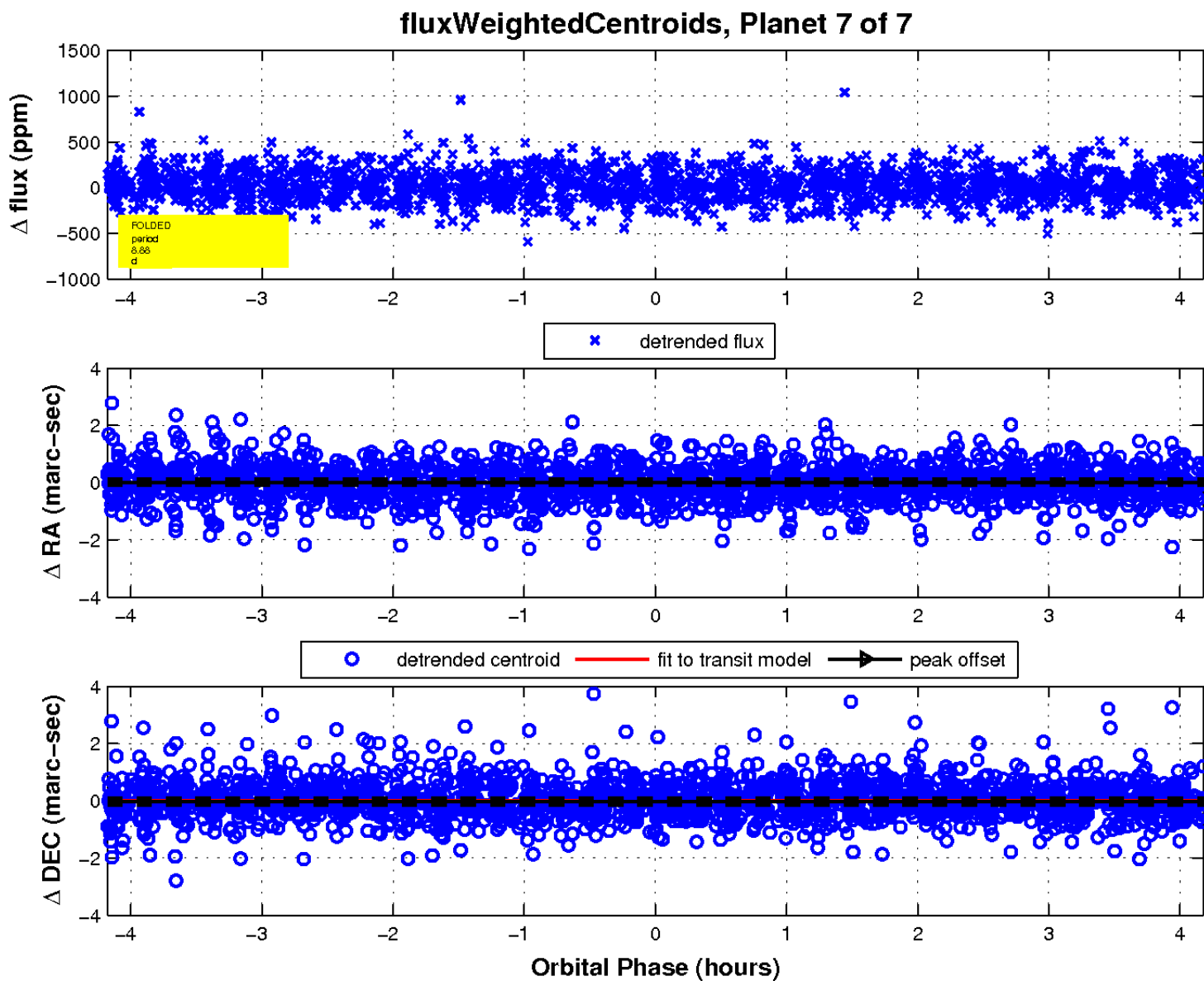
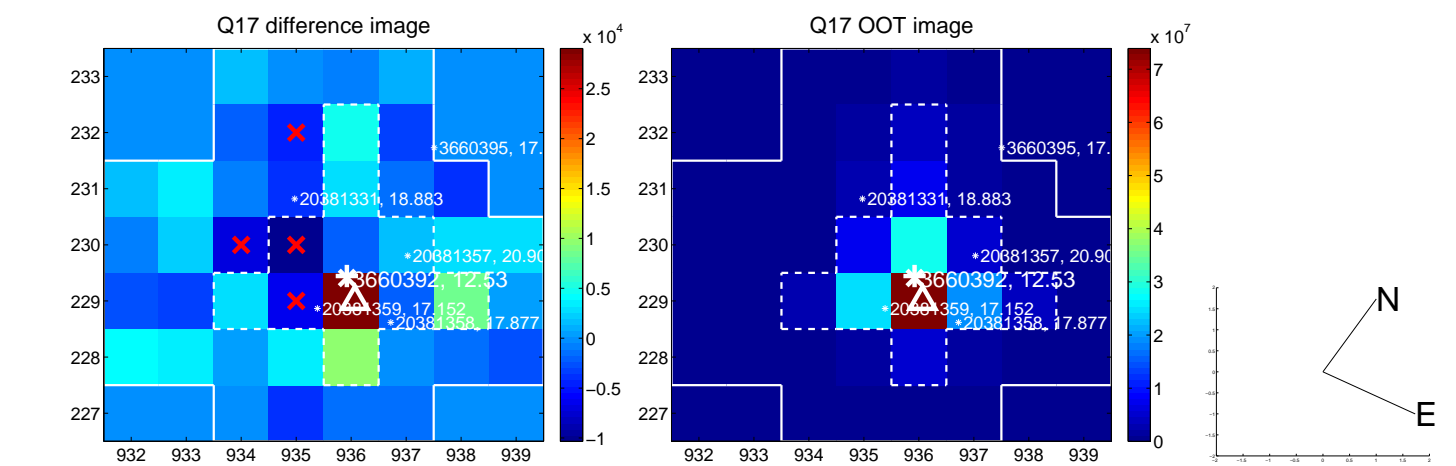
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

