

# KIC 008628758

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008628758-01	OBS	1279.01	14.374573	138.201634	336.0	4.934	42.9	47.3	1.07	5768	2.20	87.43
008628758-02	OBS	1279.02	9.651980	132.154158	103.2	4.356	16.2	17.3	1.07	5768	1.29	148.69

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008628758-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008628758-02	OBS	PC	0.97	0	0	0	0	NO_COMMENT

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

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

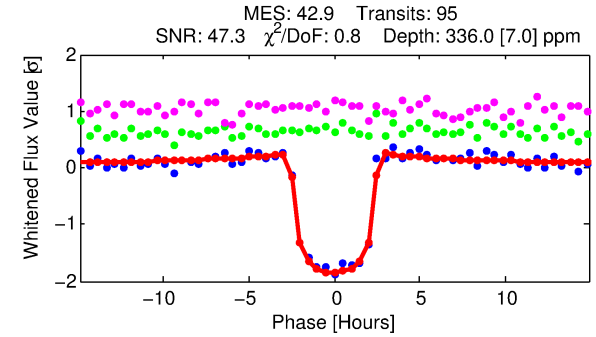
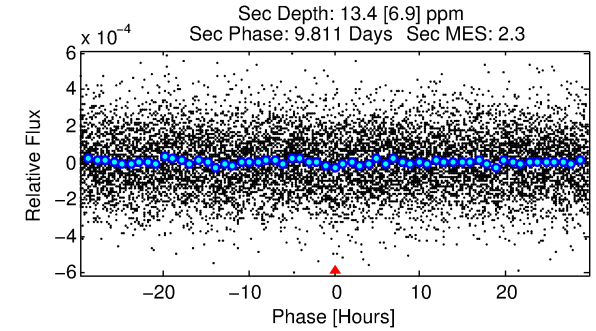
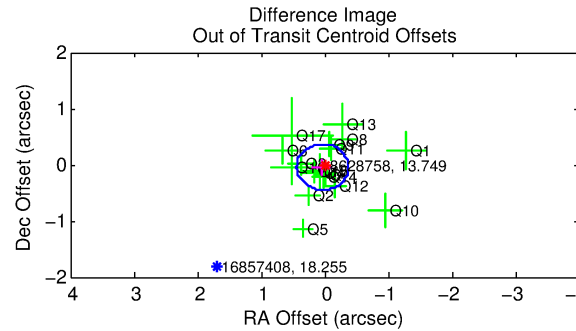
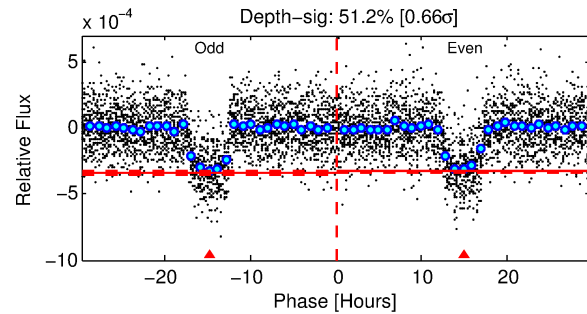
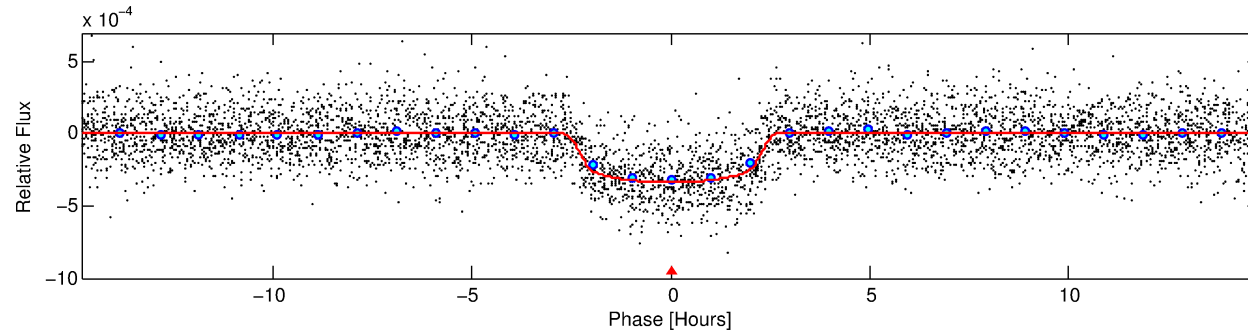
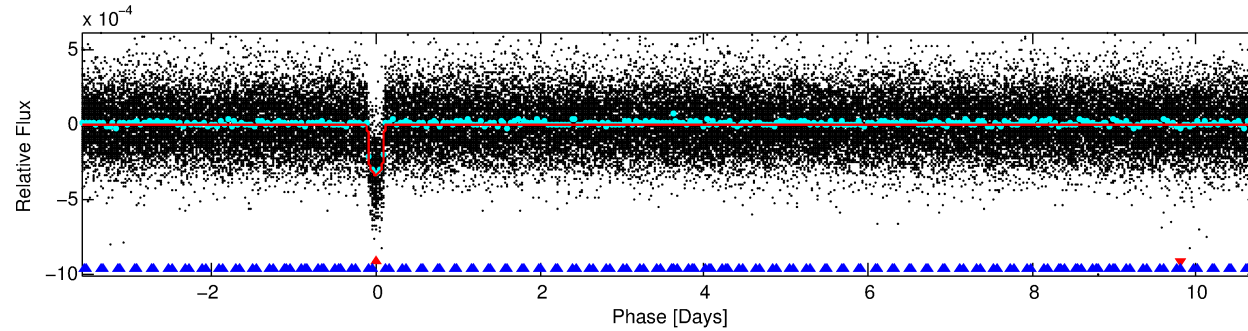
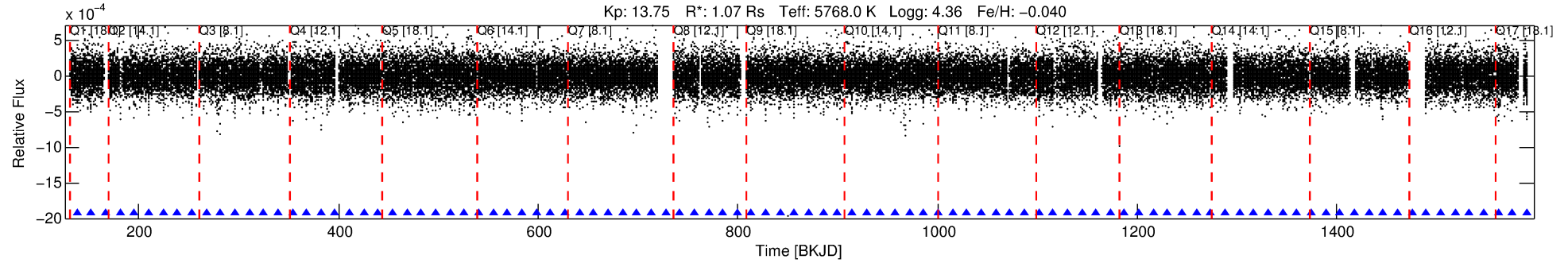
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008628758-01

No Significant Match Found

# DV One-Page Summary

KIC: 8628758 Candidate: 1 of 2 Period: 14.375 d  
KOI: K01279.01 Corr: 0.984



## DV Fit Results:

Period = 14.37457 [0.00004] d  
Epoch = 138.2016 [0.0020] BKJD  
Rp/R\* = 0.0189 [0.0023]  
a/R\* = 13.22 [7.32]  
b = 0.83 [0.21]  
Seff = 87.43 [19.72]  
Teq = 780 [44] K  
Rp = 2.20 [0.43] Re  
a = 0.1136 [0.0155] AU  
Ag = 19.53 [11.92] [1.55 $\sigma$ ]  
Teffp = 2534 [366] K [4.76 $\sigma$ ]

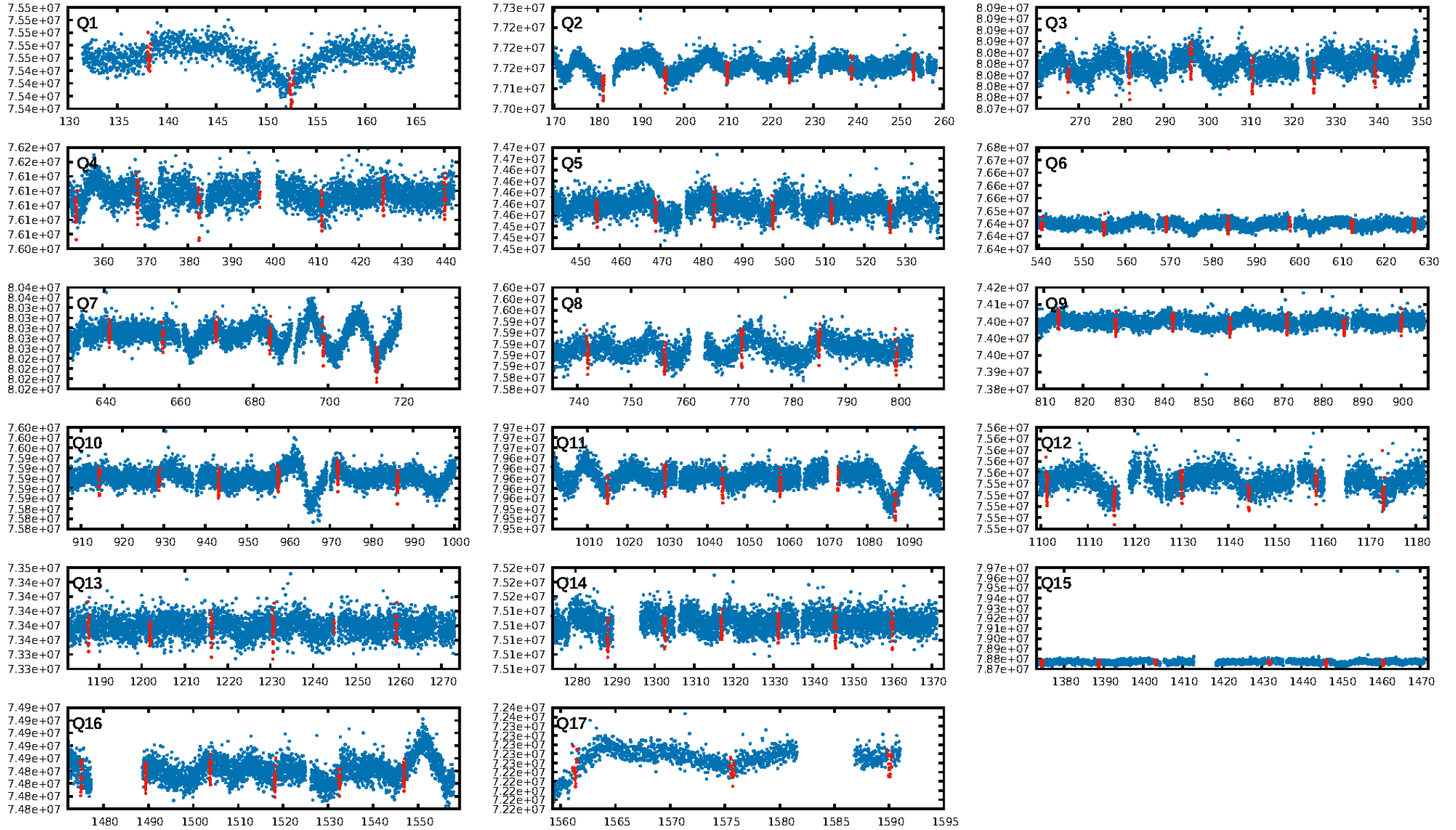
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [17.22 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [90/90]  
GhostDiagnostic-chr: 4.287  
Centroid-sig: 9.4%  
Centroid-so: 0.287 arcsec [1.21 $\sigma$ ]  
OotOffset-rm: 0.055 arcsec [0.41 $\sigma$ ]  
KicOffset-rm: 0.065 arcsec [0.51 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

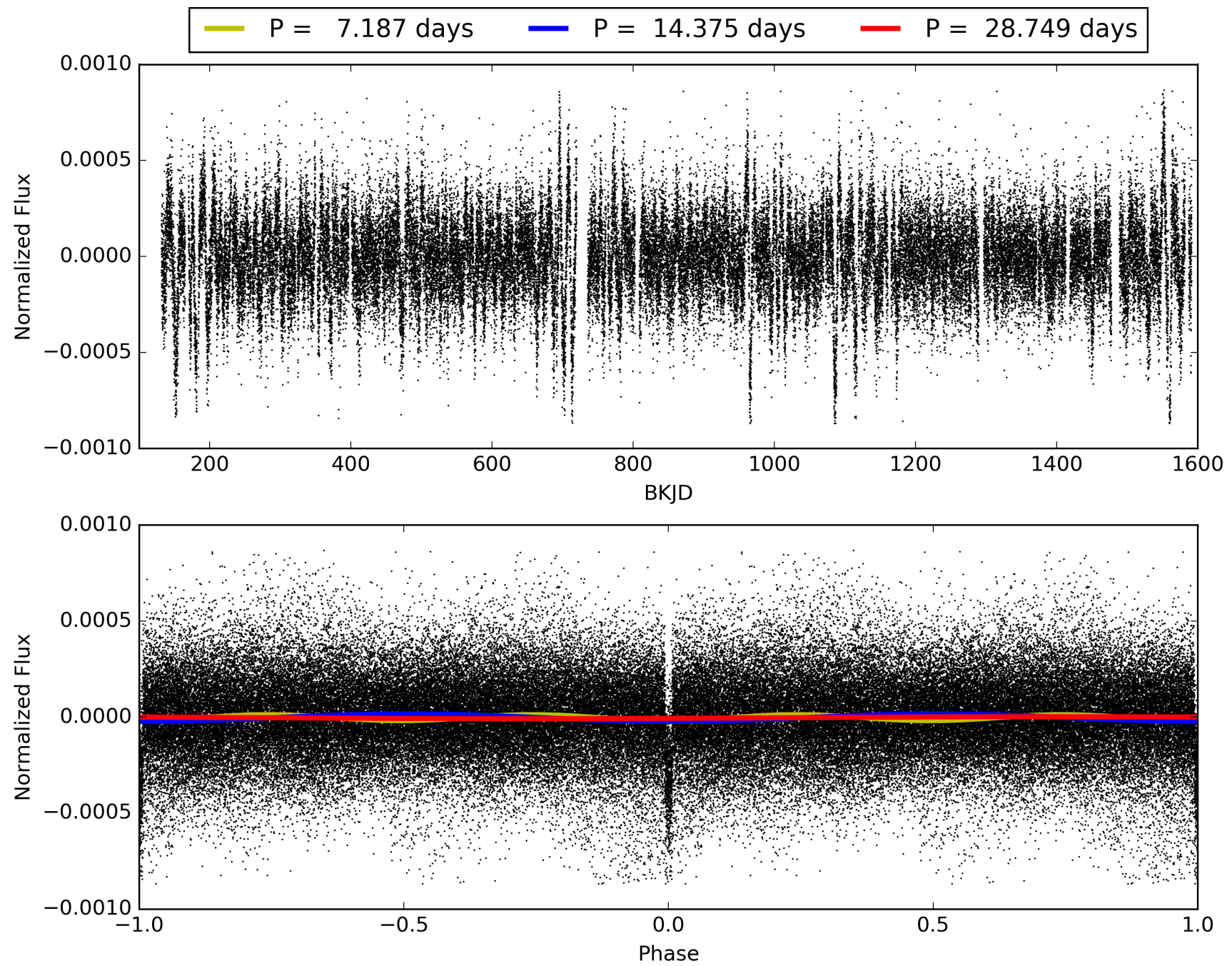
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:24:21 Z

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

# TCE 008628758-01, PDC Light Curves

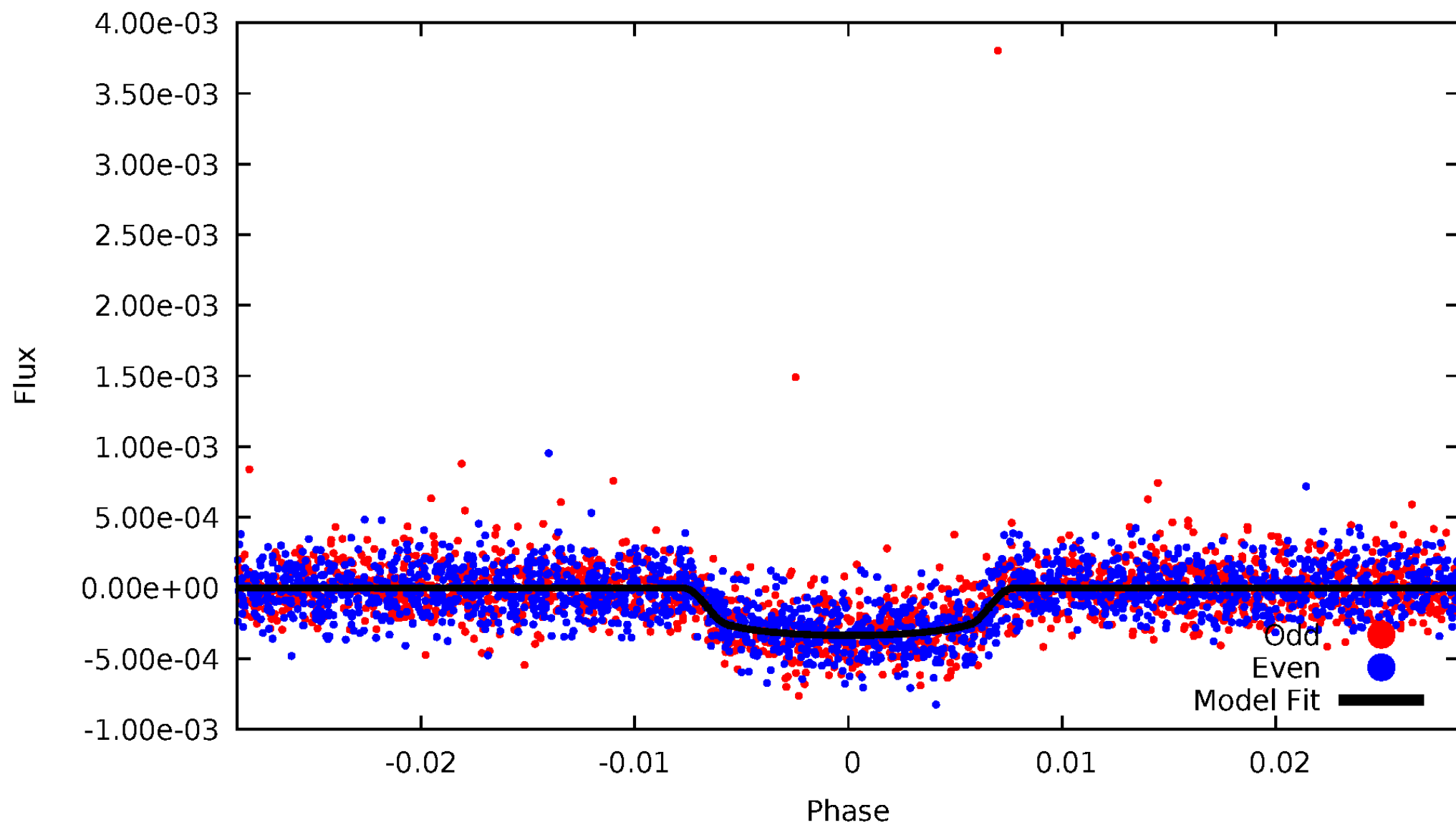


TCE 008628758-01



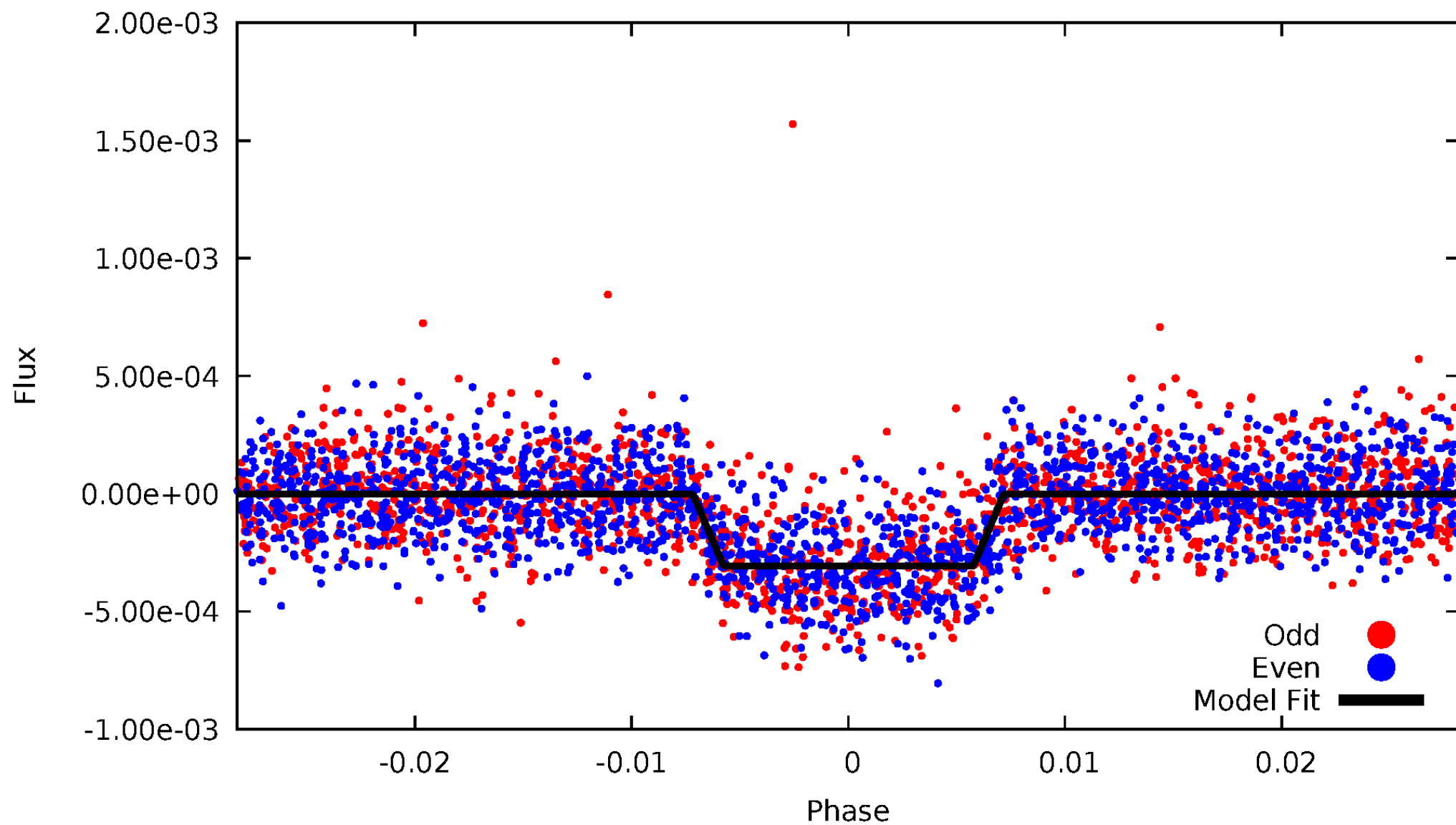
# DV Odd/Even

TCE 008628758-01



# ALT Odd/Even

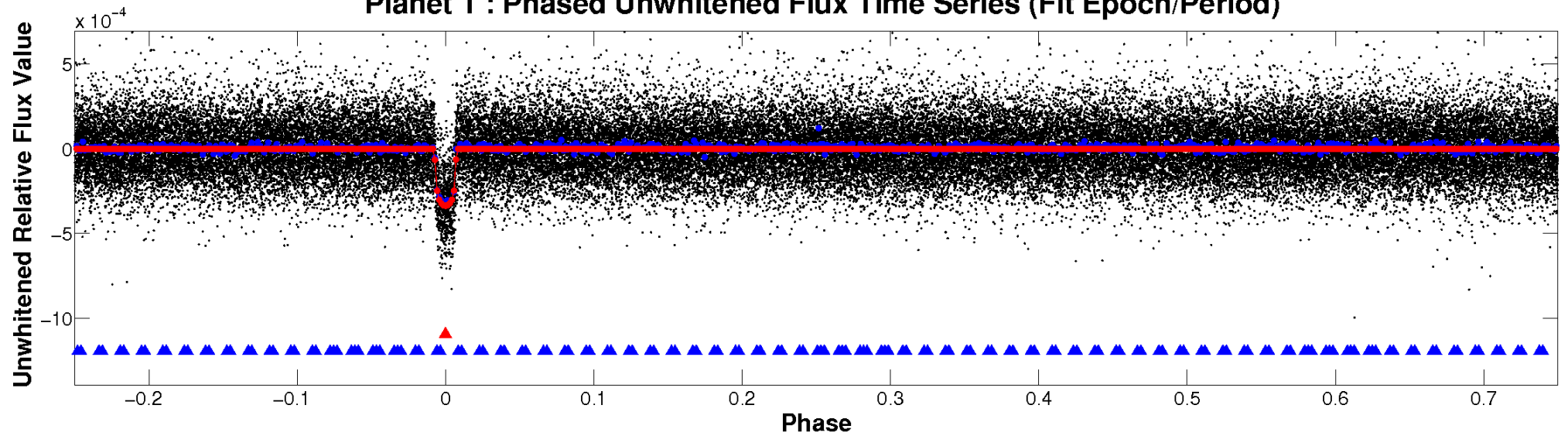
TCE 008628758-01



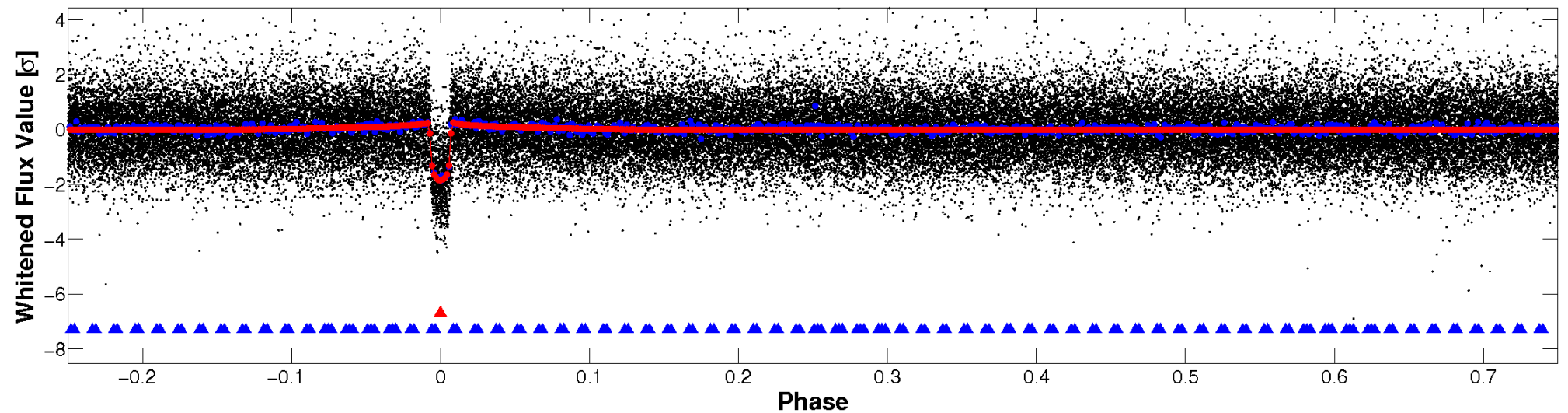


# Non-Whitened Vs. Whitened Light Curve

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

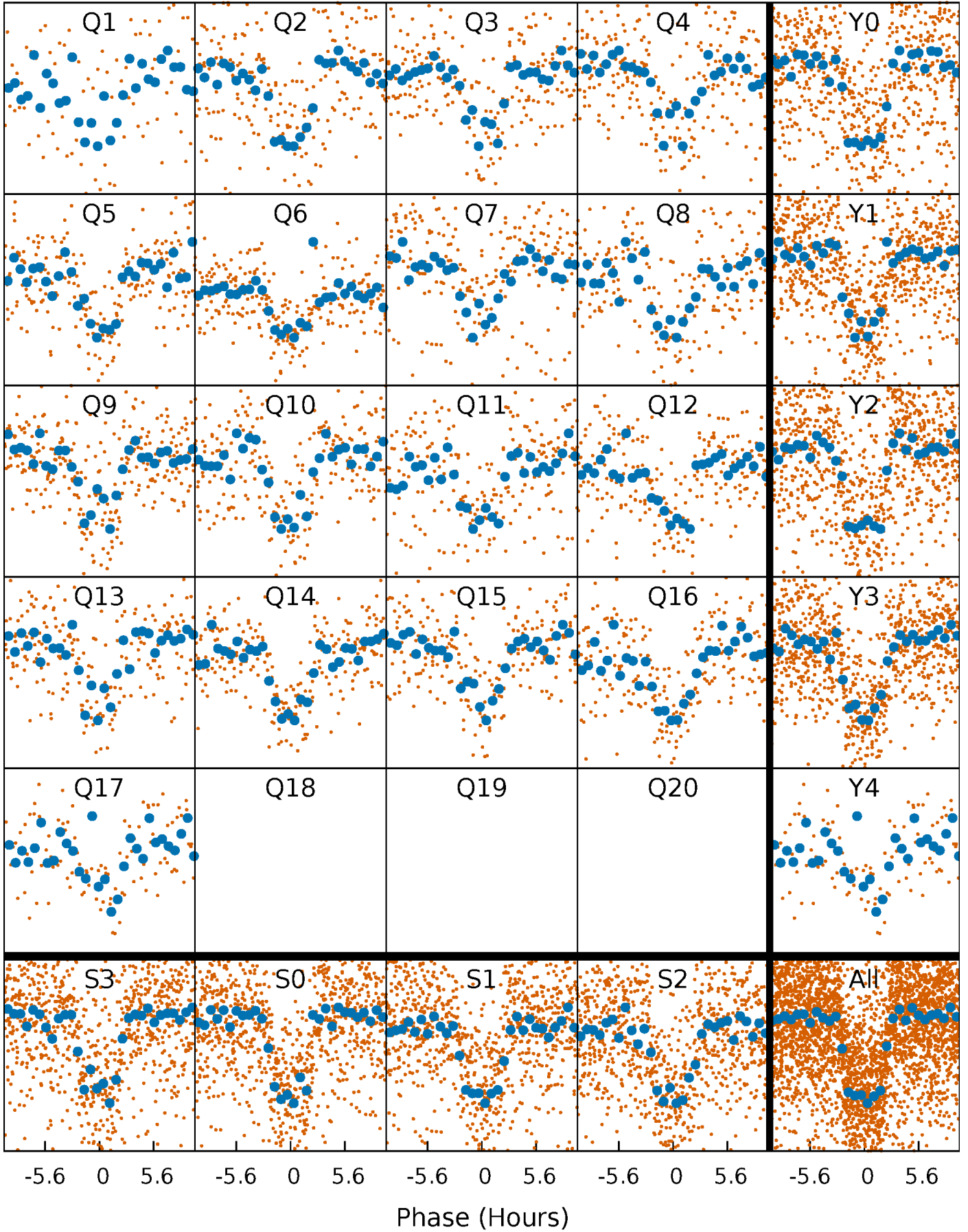


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

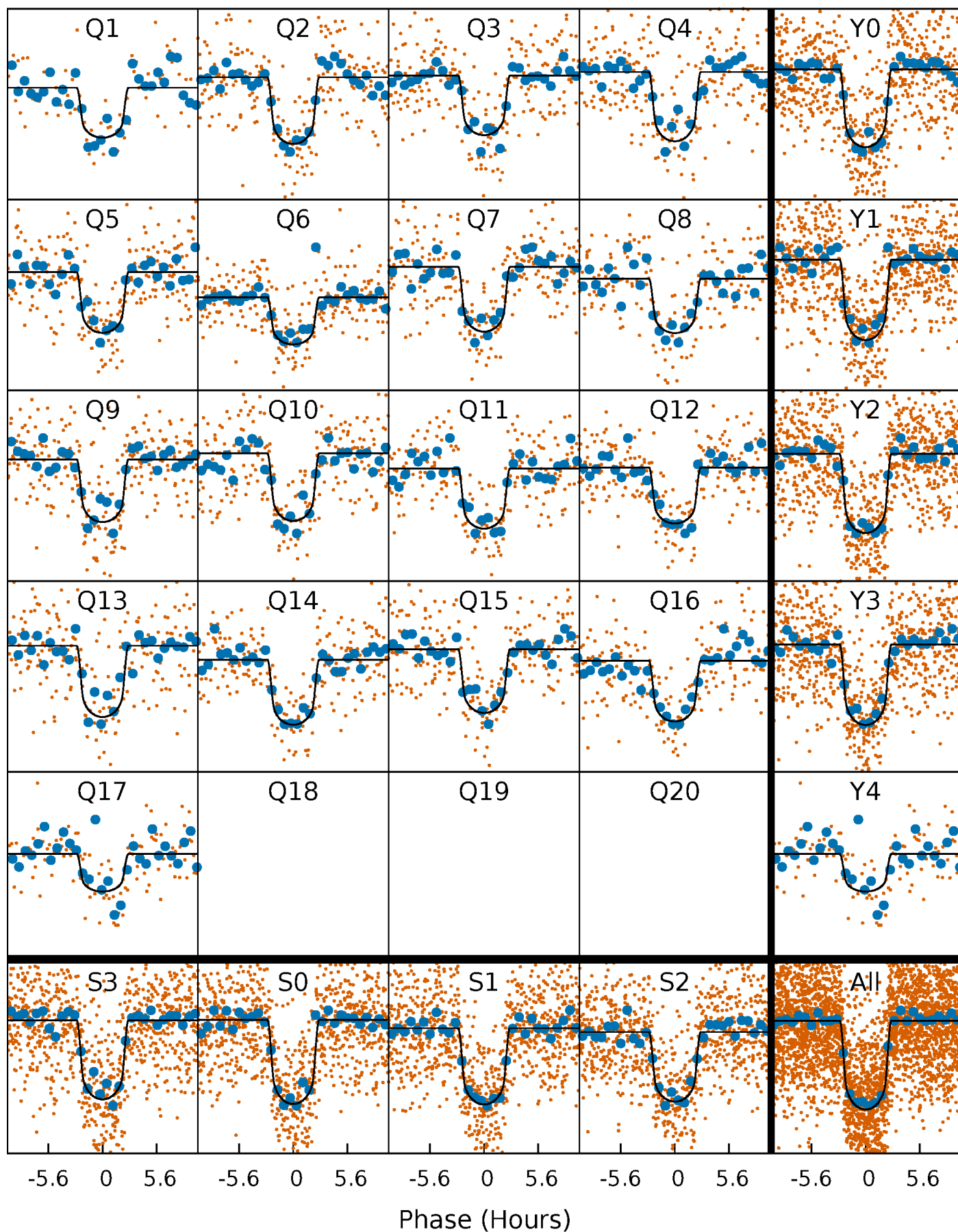
TCE 008628758-01   P= 14.374573 Days    $T_0=138.201634$  (BKJD)





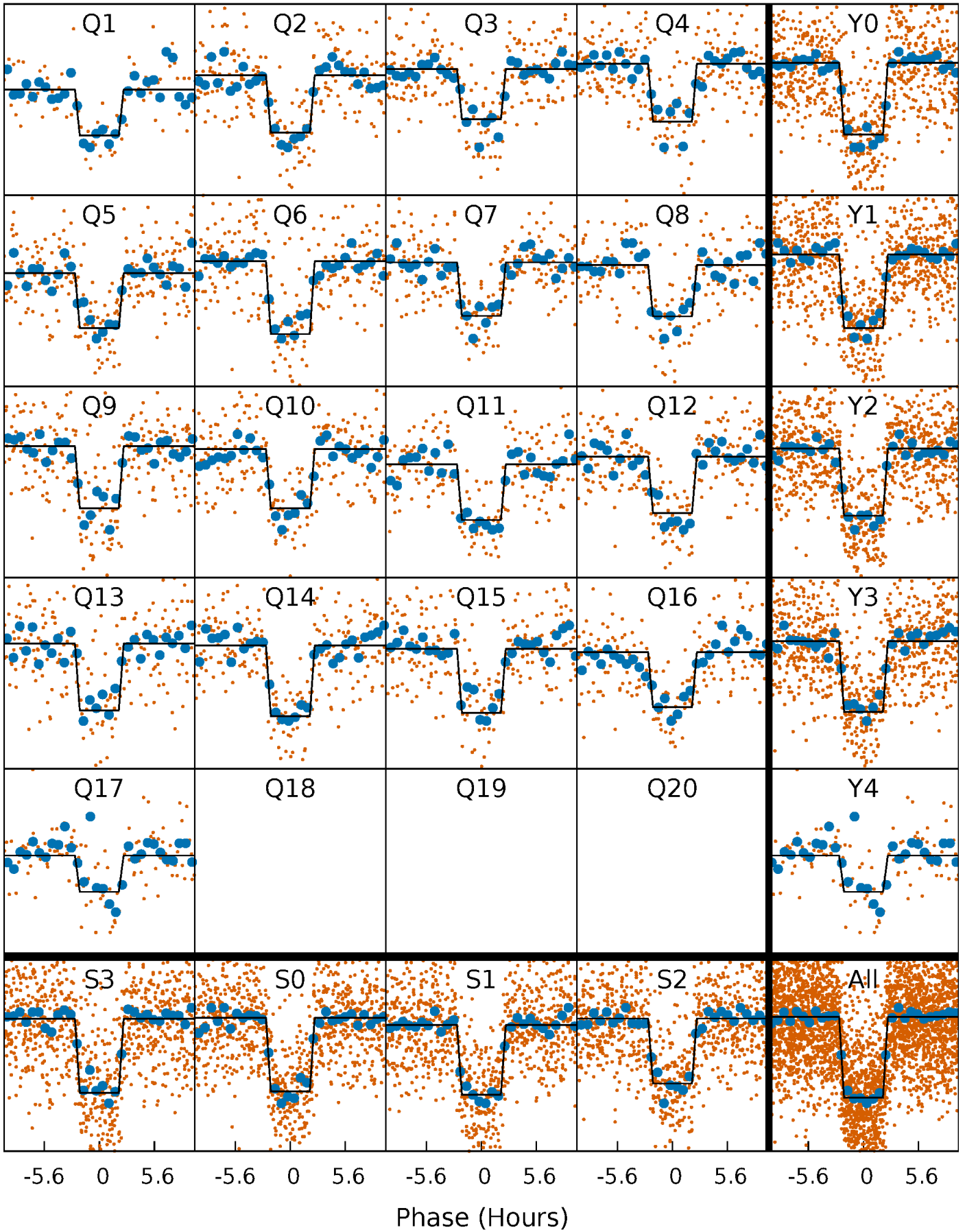
# DV Quarter-Phased Transit Curves

TCE 008628758-01 P= 14.374573 Days  $T_0=138.201634$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

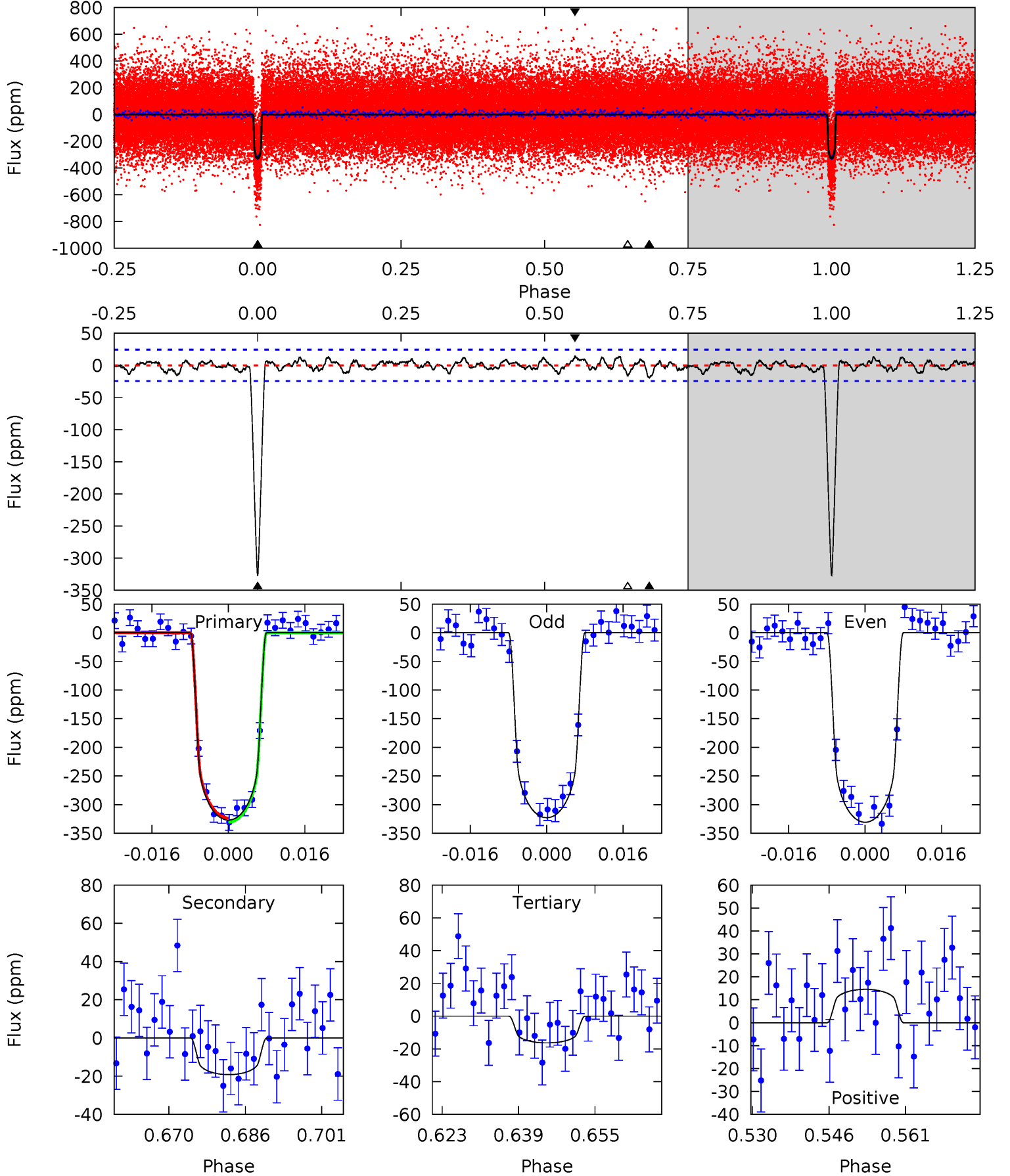
TCE 008628758-01 P= 14.374594 Days  $T_0=138.201050$  (BKJD)



# DV Model-Shift Uniqueness Test

008628758-01,  $P = 14.374573$  Days,  $E = 123.827061$  Days

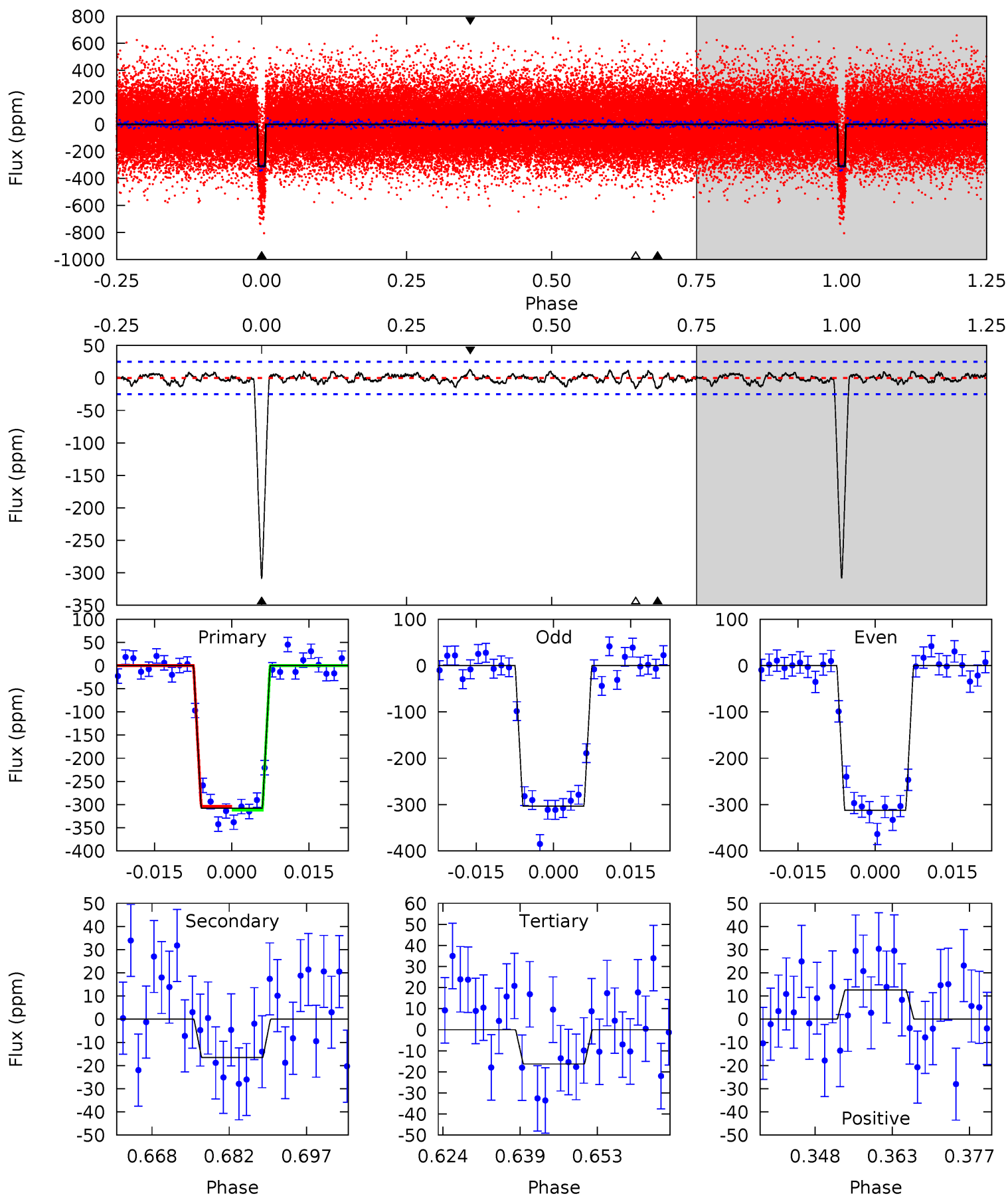
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
66.2	3.89	3.31	2.94	4.94	2.42	1.19	62.9	63.3	0.58	0.94	0.80	0.99	0.04	0.72



# Alt Model-Shift Uniqueness Test

008628758-01,  $P = 14.374594$  Days,  $E = 123.826456$  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
61.0	3.28	3.22	2.51	4.95	2.44	1.01	57.8	58.5	0.06	0.77	0.87	1.01	0.04	0.80



### Stellar Parameters For KIC 008628758

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5768^{+115}_{-115}$	$4.358^{+0.121}_{-0.110}$	$-0.040^{+0.150}_{-0.150}$	$1.067^{+0.160}_{-0.131}$	$0.946^{+0.072}_{-0.057}$	$1.097^{+0.534}_{-0.327}$
	+2%/-2%	+3%/-3%	+375%/-375%	+15%/-12%	+8%/-6%	+49%/-30%
Source	SPE58	SPE58	SPE58	DSEP		

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

### Secondary Eclipse Parameters for KIC 008628758-01 / KOI 1279.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-19 \pm 5$	$2.21^{+0.32}_{-0.32}$	$1088^{+52}_{-46}$	$3321^{+178}_{-187}$	$28^{+13}_{-10}$
Alt.	$-17 \pm 5$	$2.03^{+0.32}_{-0.31}$	$1086^{+55}_{-45}$	$3318^{+205}_{-225}$	$28^{+14}_{-11}$

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



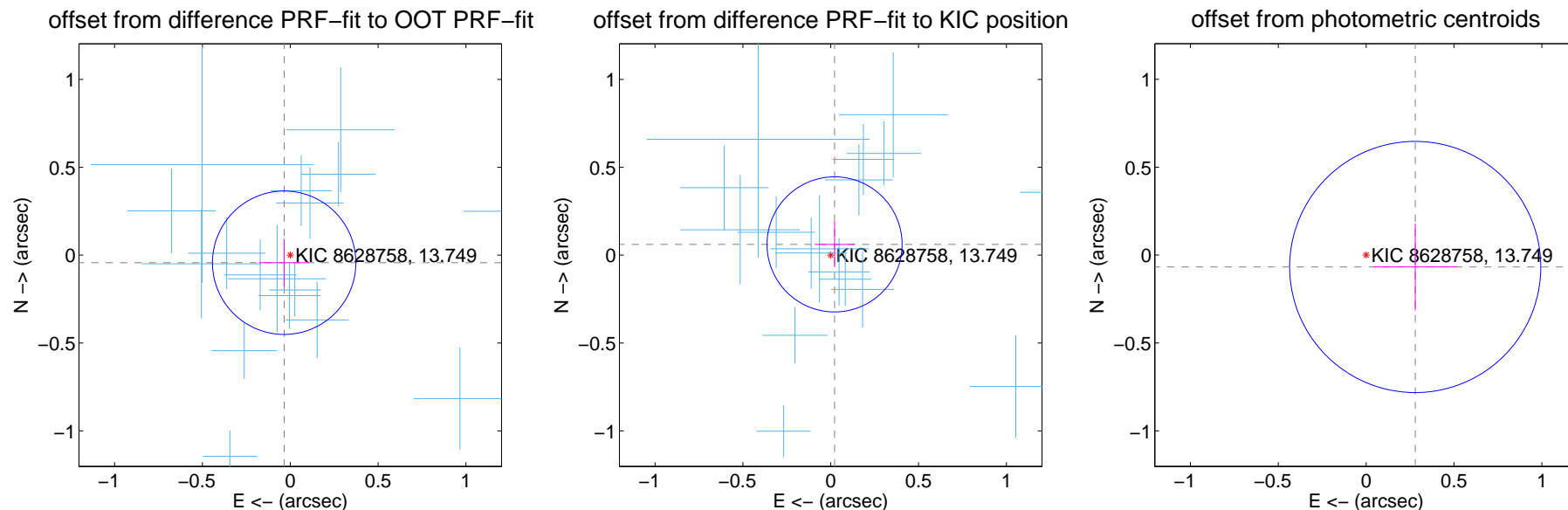
## DV Centroid Data

Supplemental centroid analysis for 008628758-01. Kepler magnitude: 13.75. Transit SNR 47.33

There are 17 quarters with good PRF difference image offsets

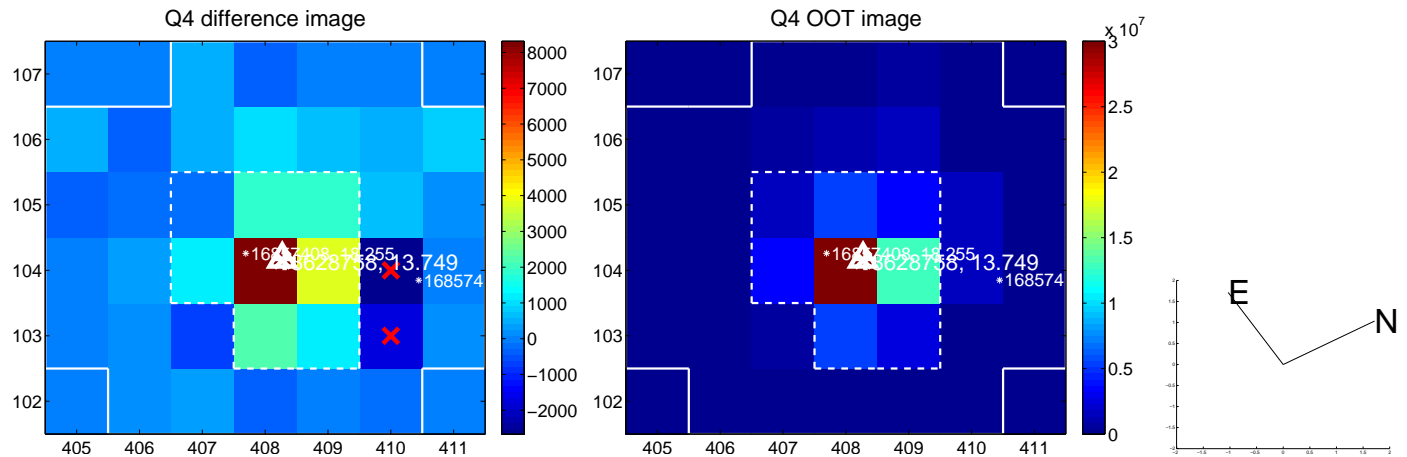
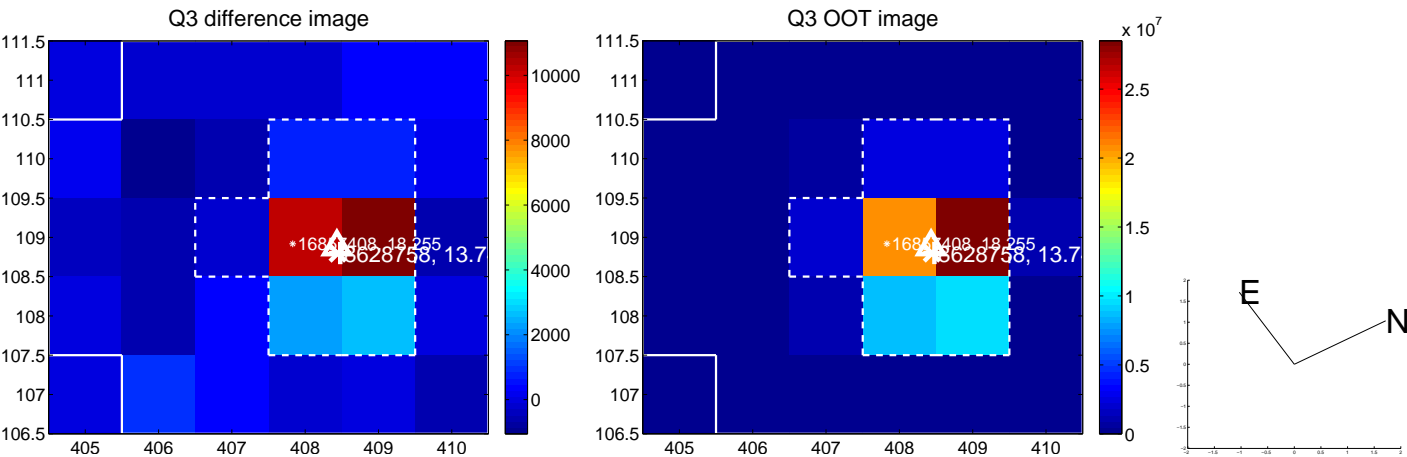
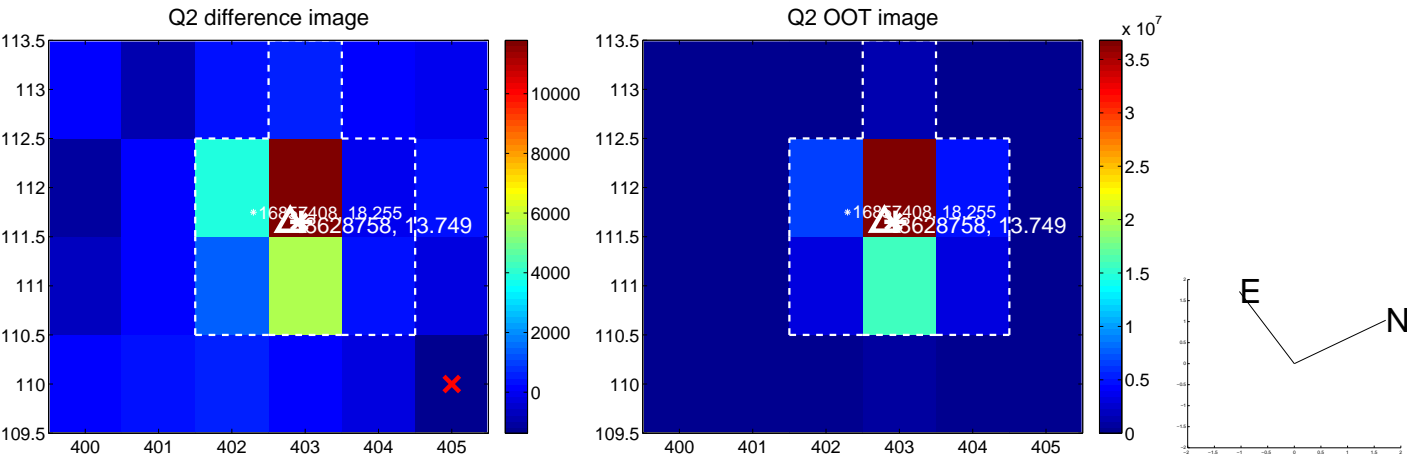
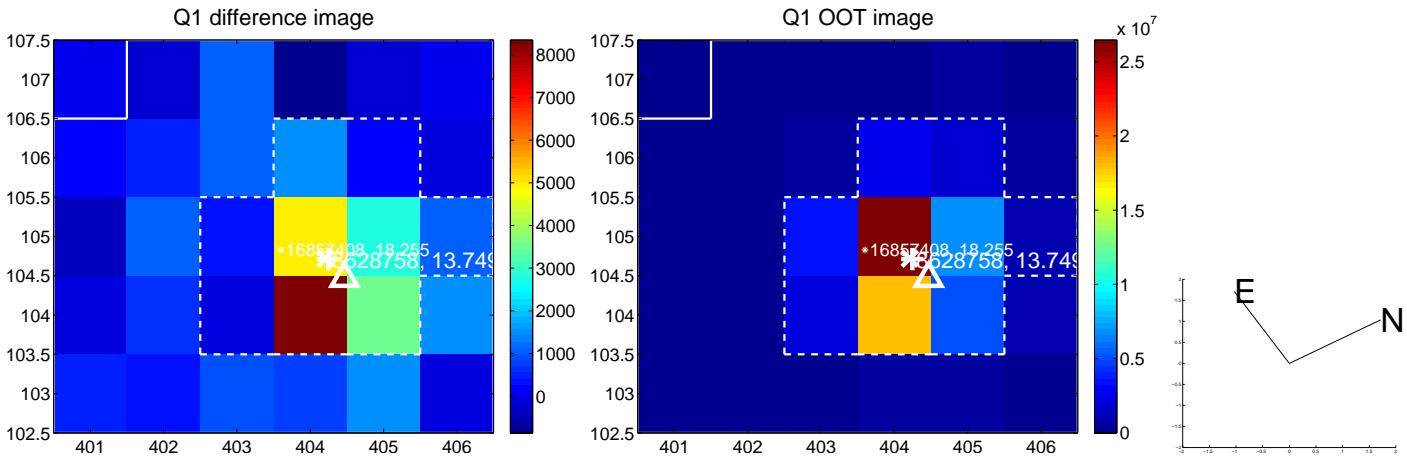
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.055 \pm 0.136$	0.41	$0.035 \pm 0.143$	$-0.043 \pm 0.135$
PRF-fit source offset from KIC position	$0.065 \pm 0.128$	0.51	$-0.022 \pm 0.116$	$0.061 \pm 0.130$
photometric centroid source offset	$0.29 \pm 0.24$	1.21	$-0.28 \pm 0.24$	$-0.07 \pm 0.25$

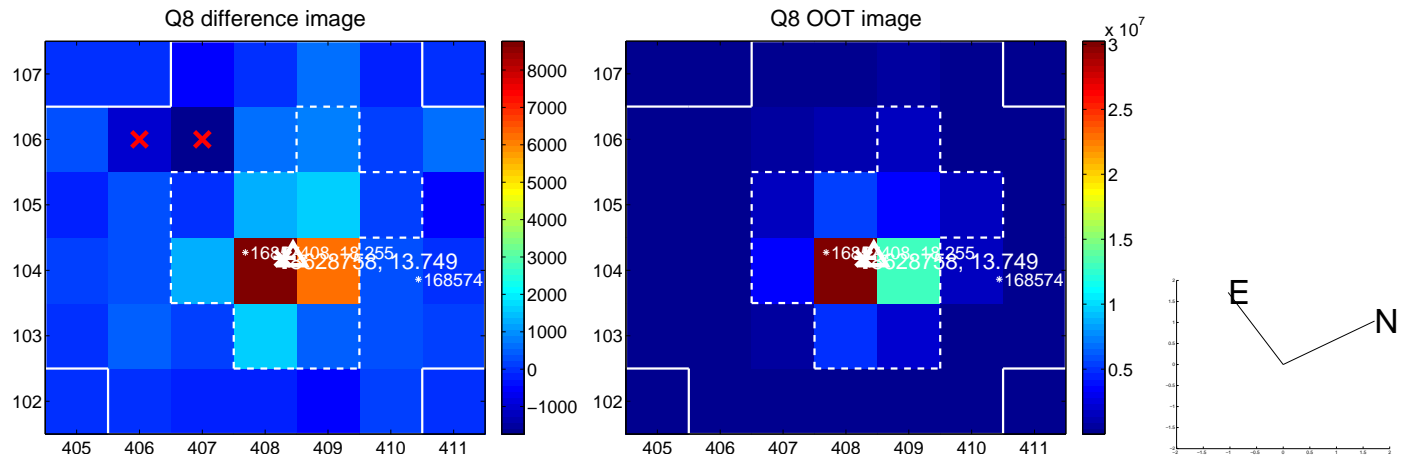
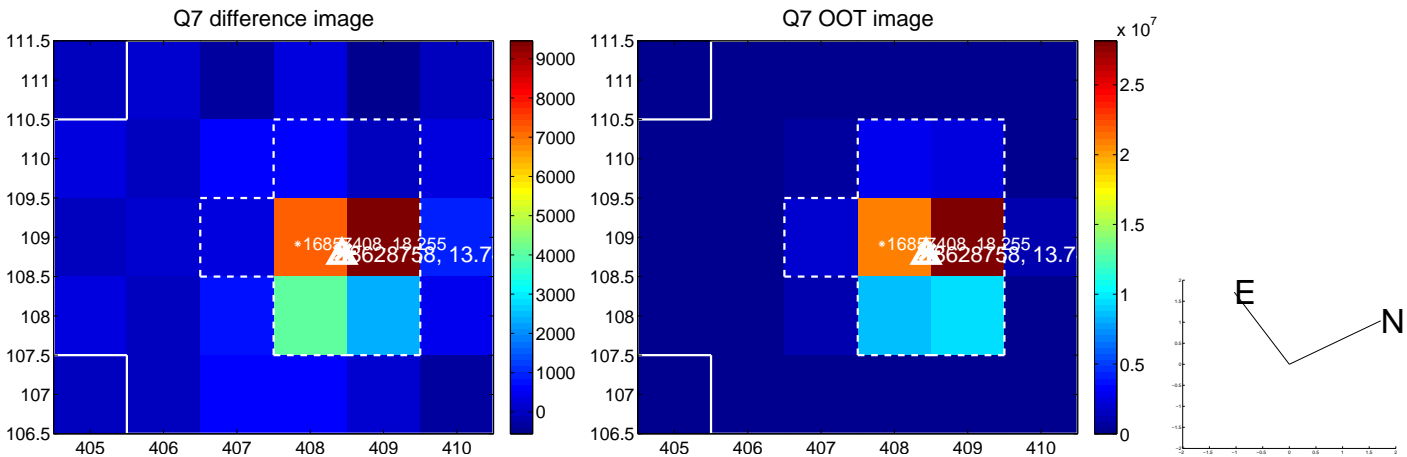
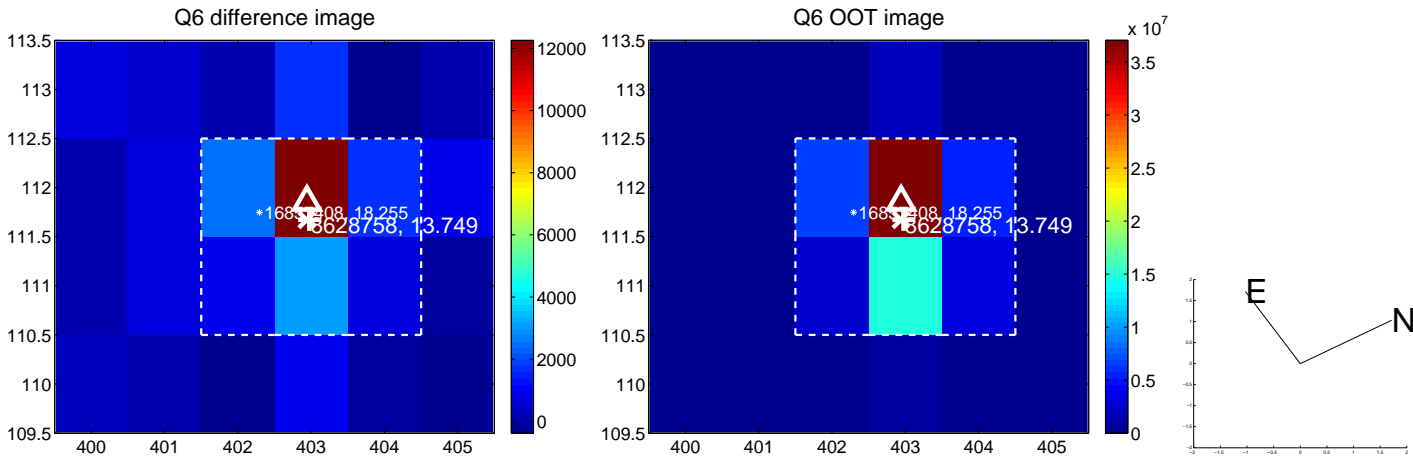
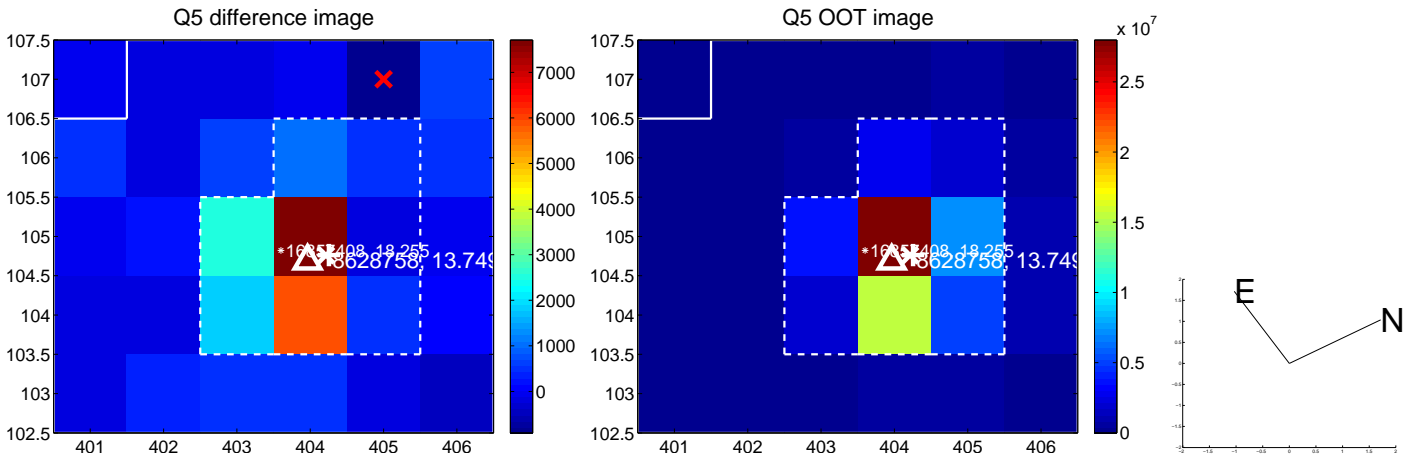


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

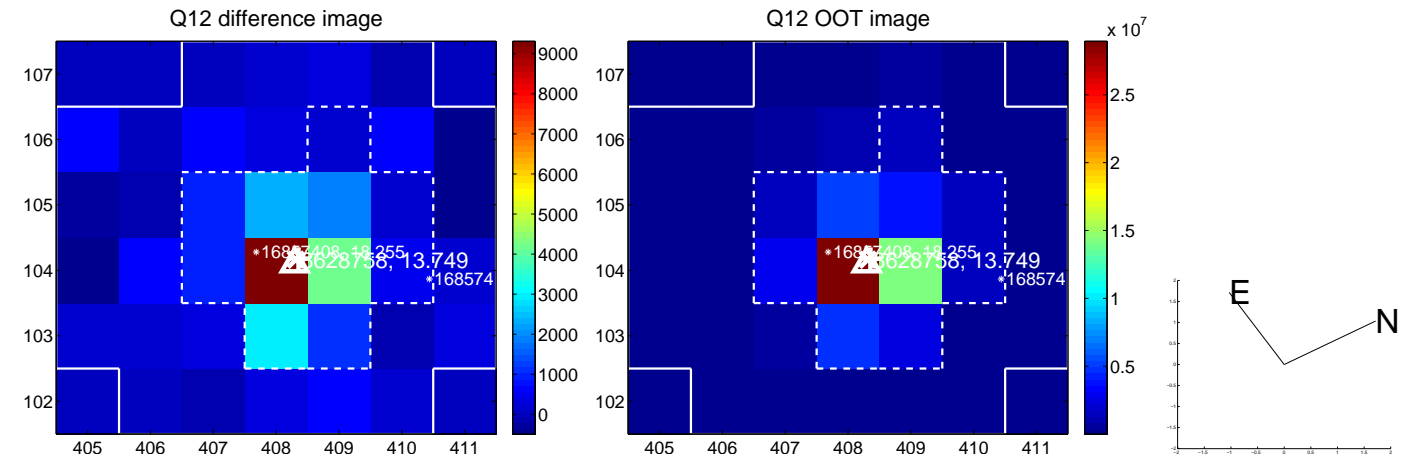
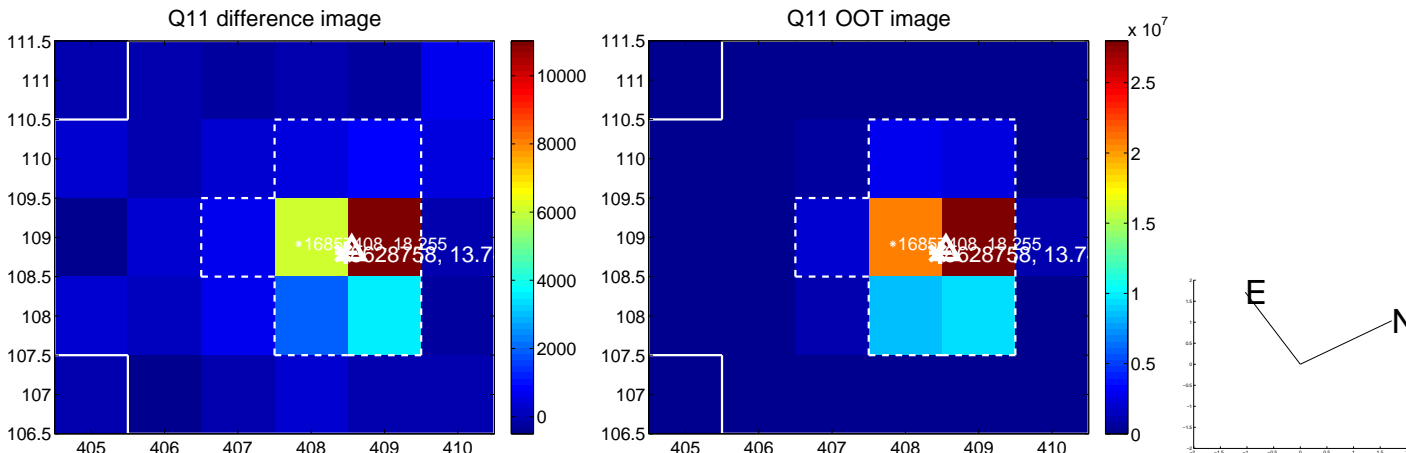
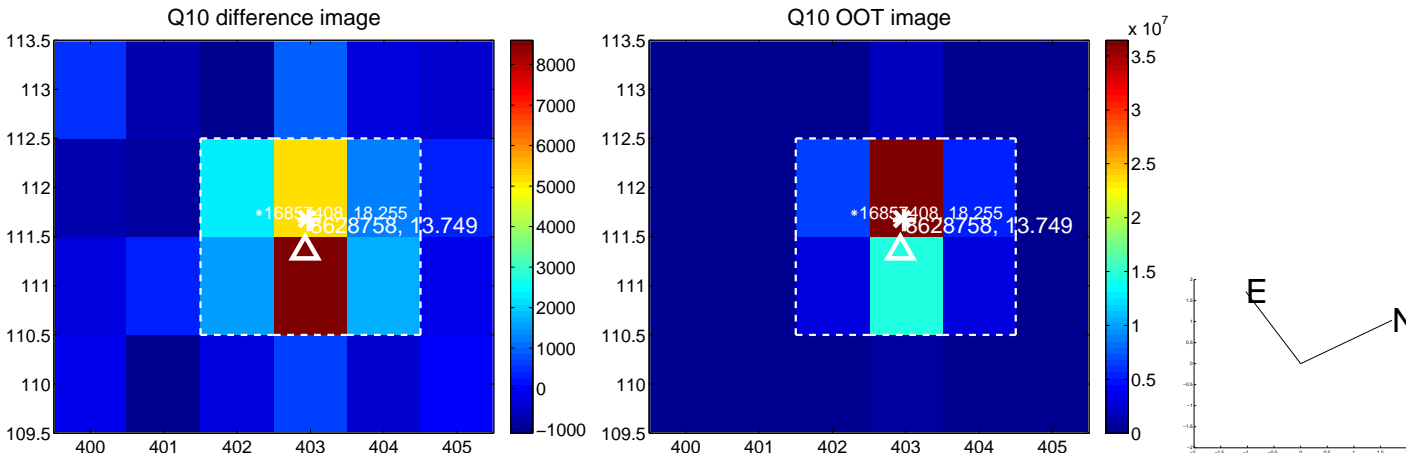
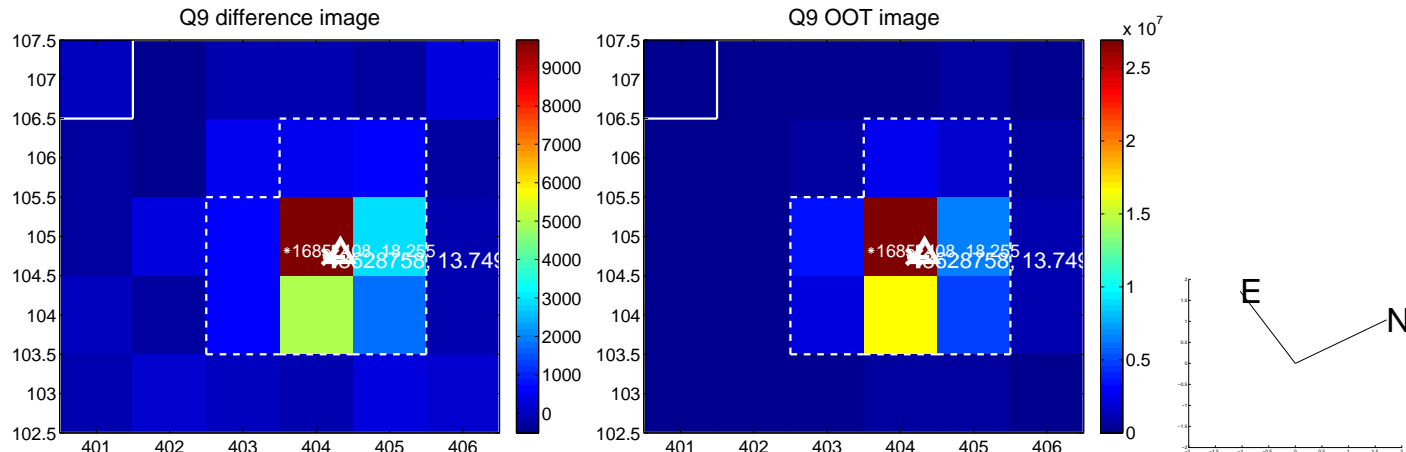
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



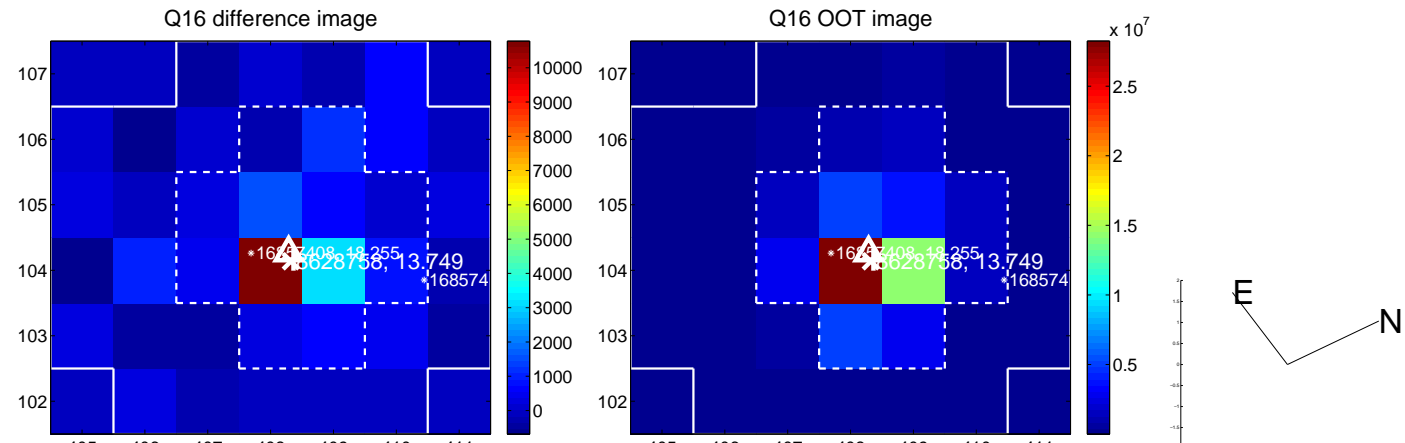
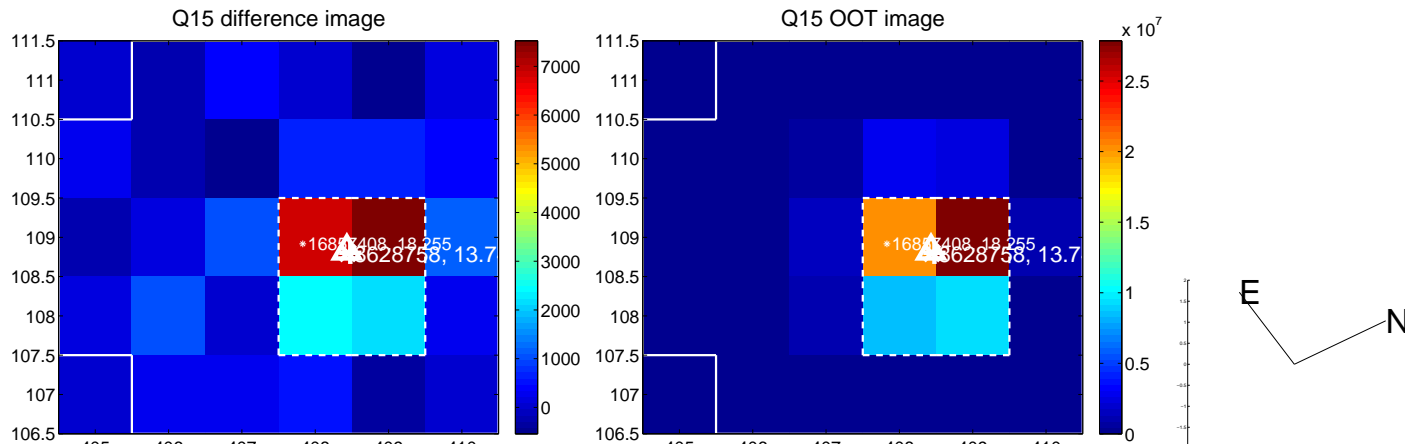
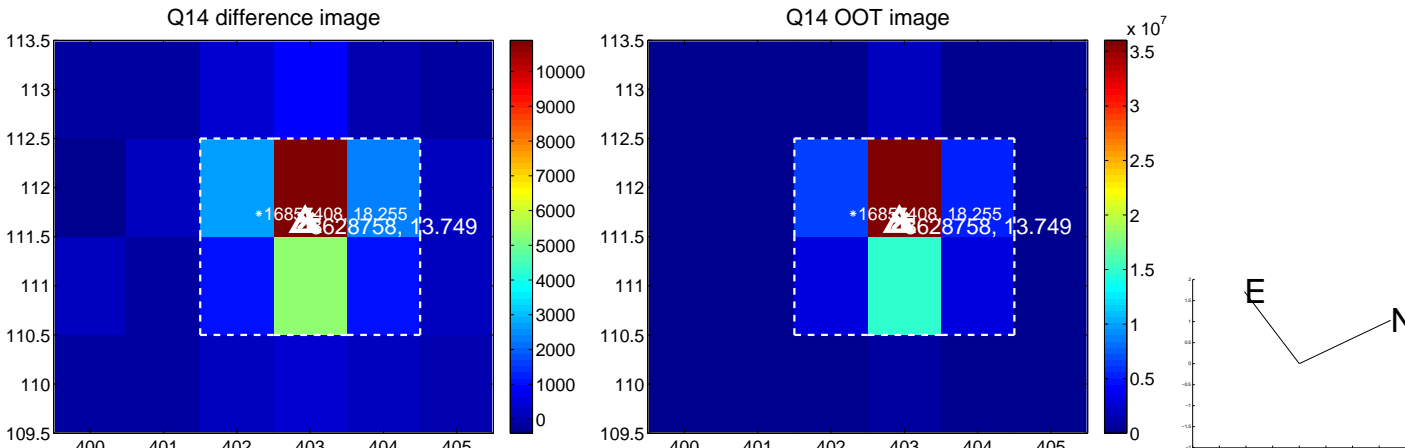
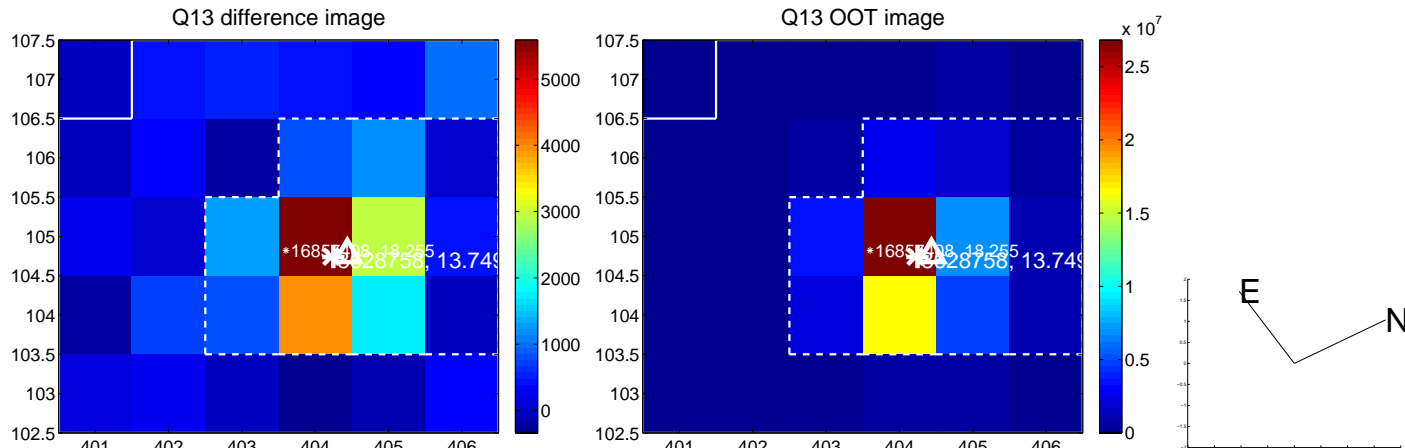
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

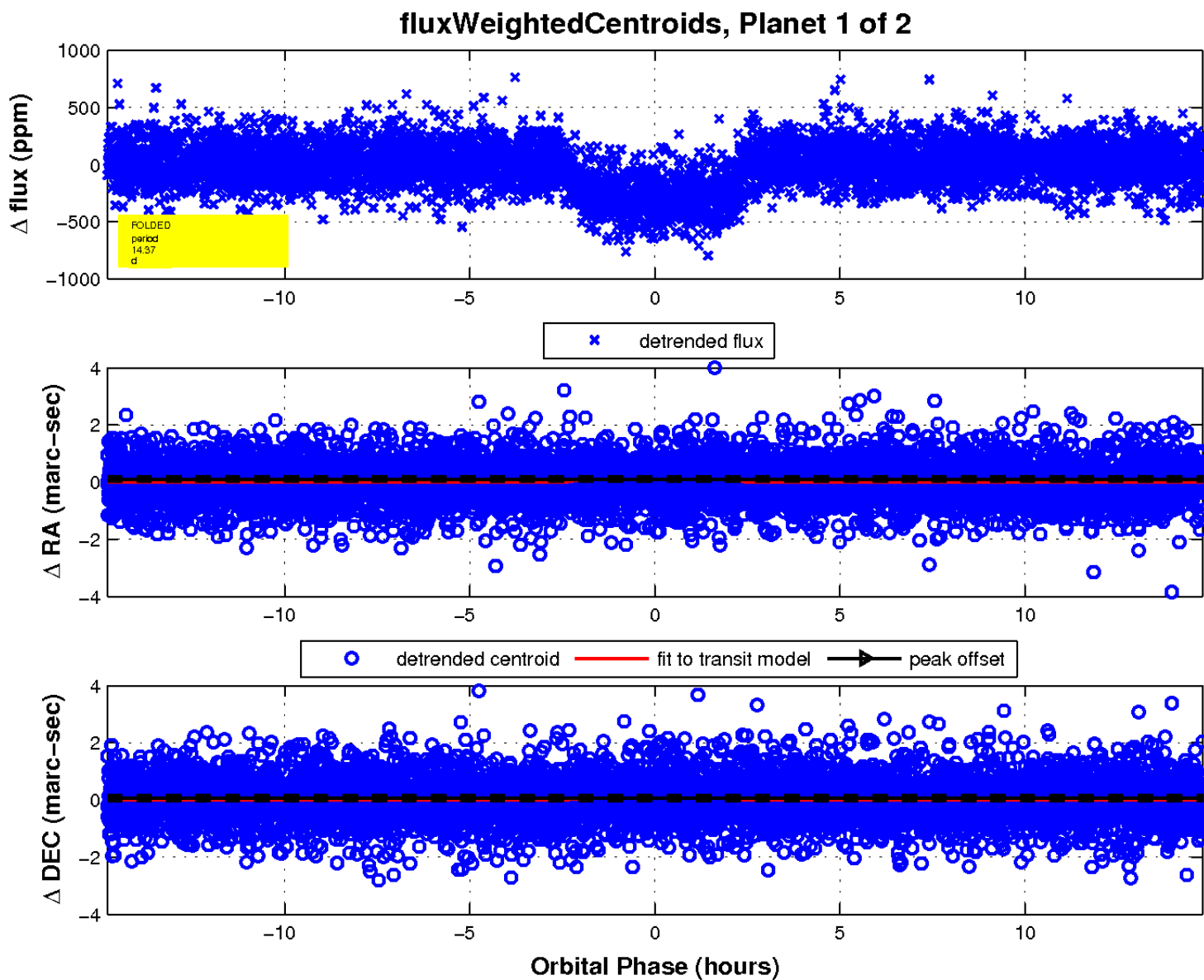
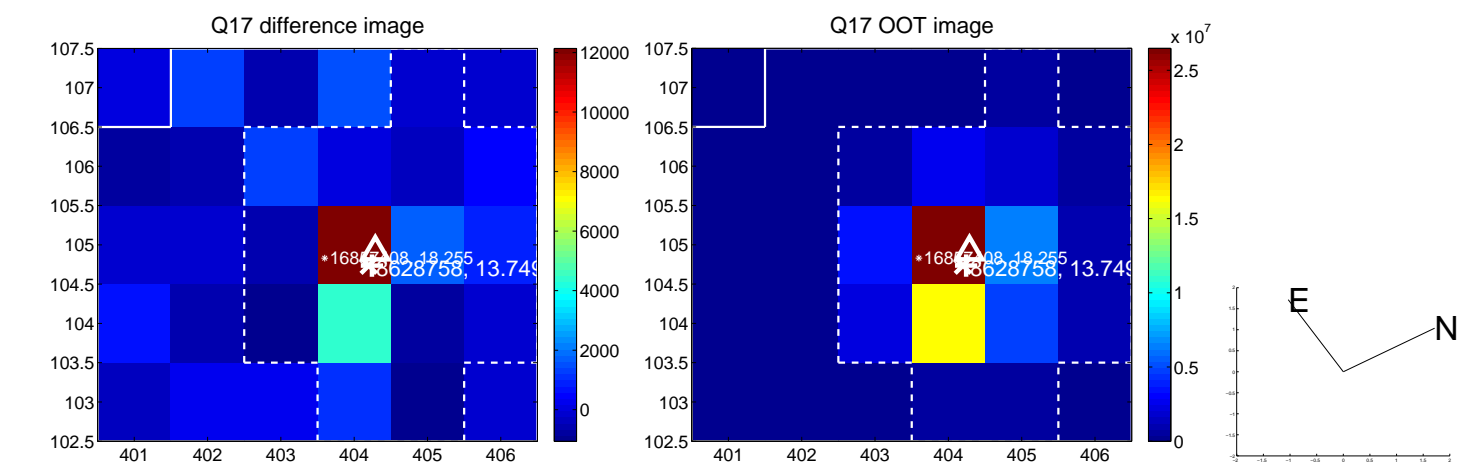


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



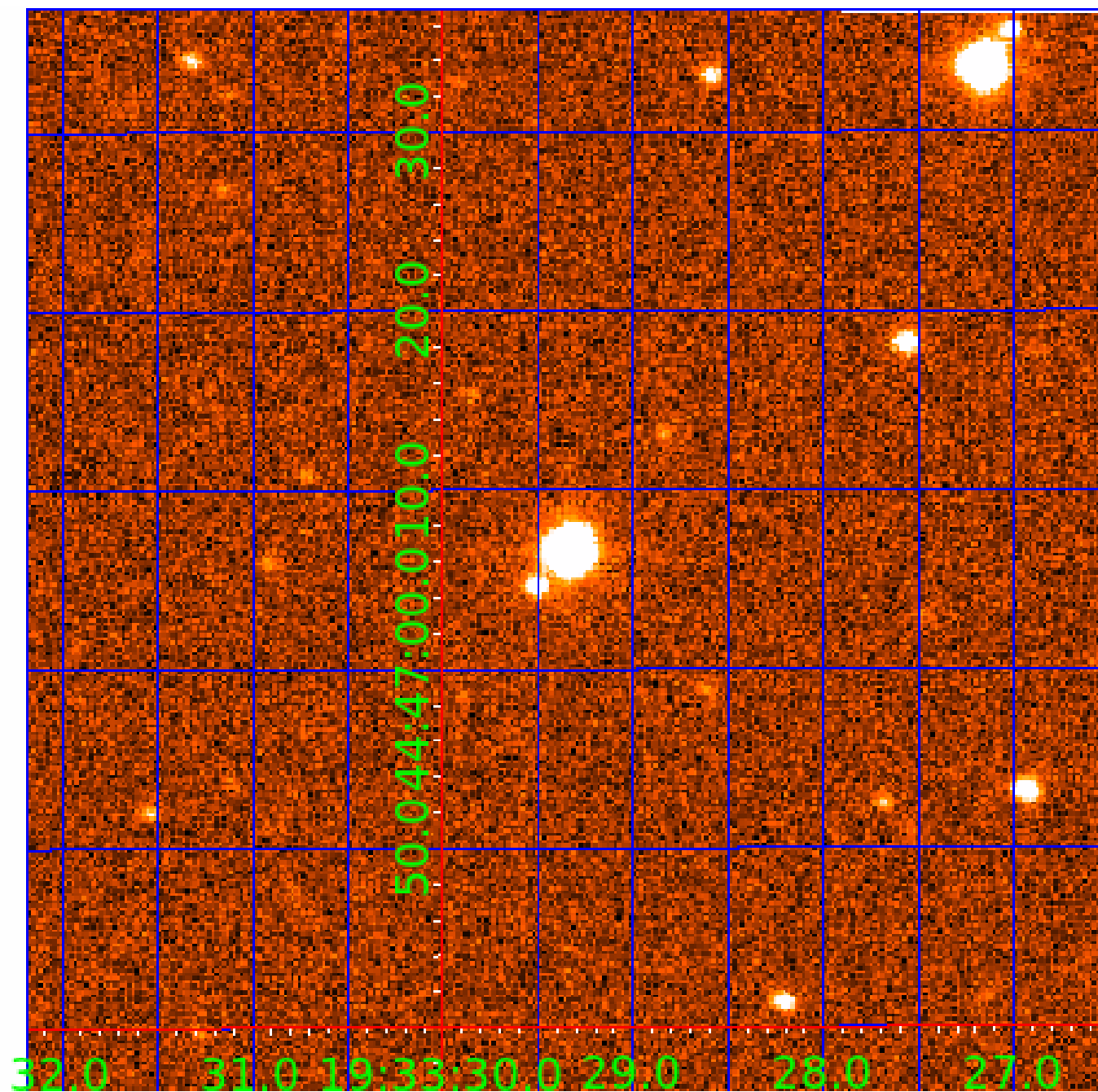


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008628758

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008628758-01	OBS	1279.01	14.374573	138.201634	336.0	4.934	42.9	47.3	1.07	5768	2.20	87.43
008628758-02	OBS	1279.02	9.651980	132.154158	103.2	4.356	16.2	17.3	1.07	5768	1.29	148.69

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008628758-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008628758-02	OBS	PC	0.97	0	0	0	0	NO_COMMENT

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

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

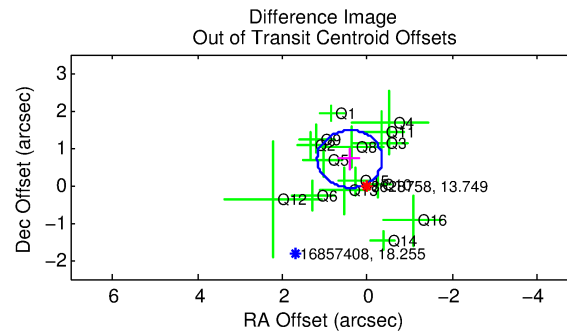
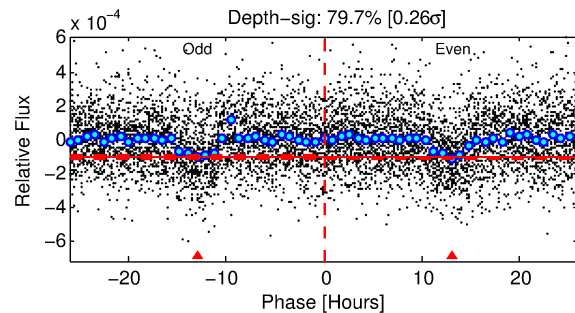
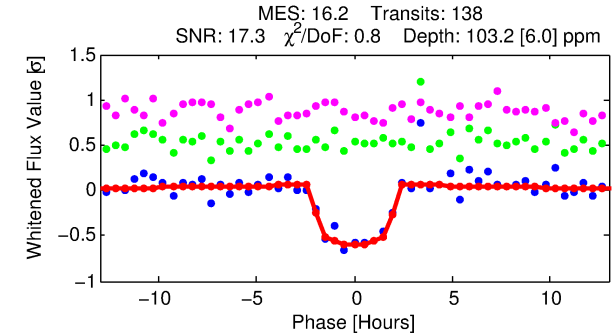
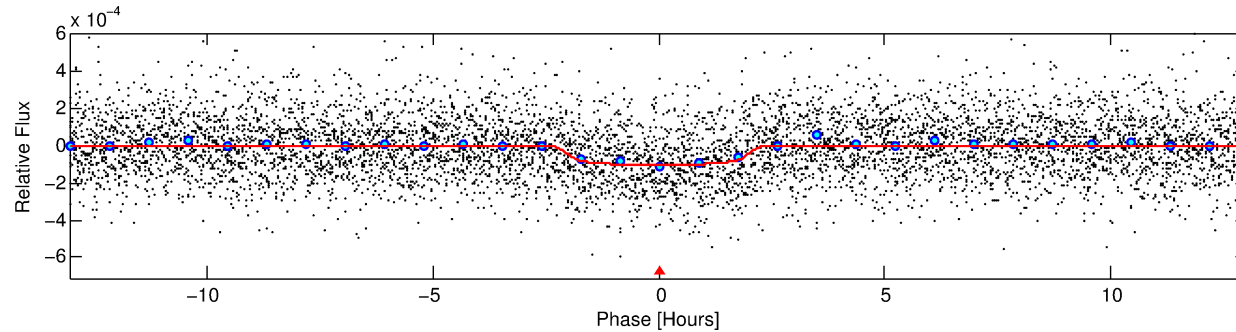
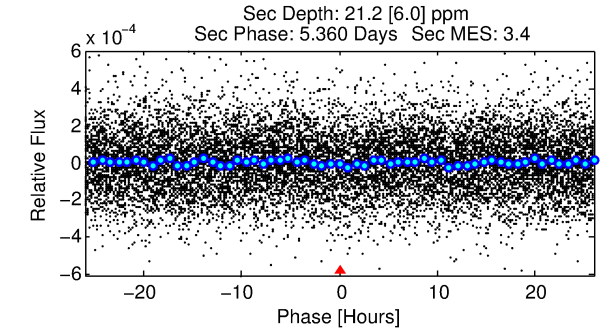
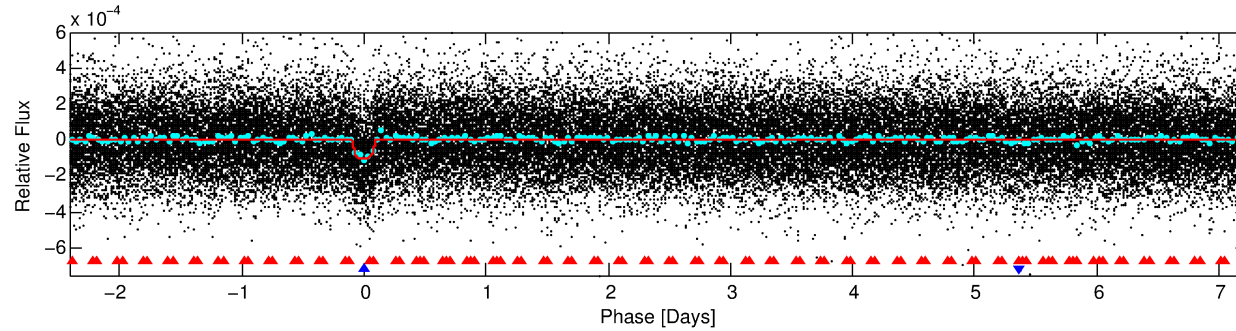
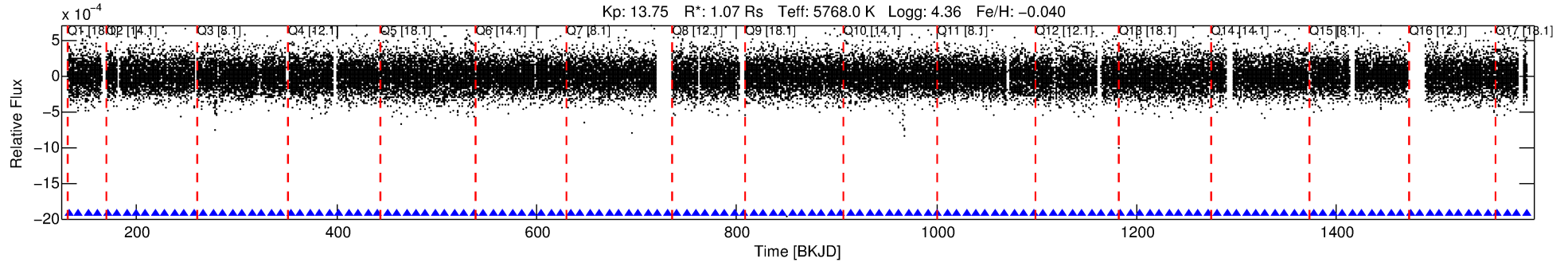
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008628758-02

No Significant Match Found

# DV One-Page Summary

KIC: 8628758 Candidate: 2 of 2 Period: 9.652 d  
KOI: K01279.02 Corr: 0.966



## DV Fit Results:

Period = 9.65198 [0.00006] d  
Epoch = 132.1542 [0.0046] BKJD  
Rp/R\* = 0.0111 [0.0033]  
a/R\* = 7.88 [11.35]  
b = 0.90 [0.32]  
Seff = 148.69 [33.53]  
Teq = 890 [50] K  
Rp = 1.29 [0.43] Re  
a = 0.0871 [0.0119] AU  
Ag = 53.57 [37.47] [1.40σ]  
Teffp = 3725 [625] K [4.52σ]

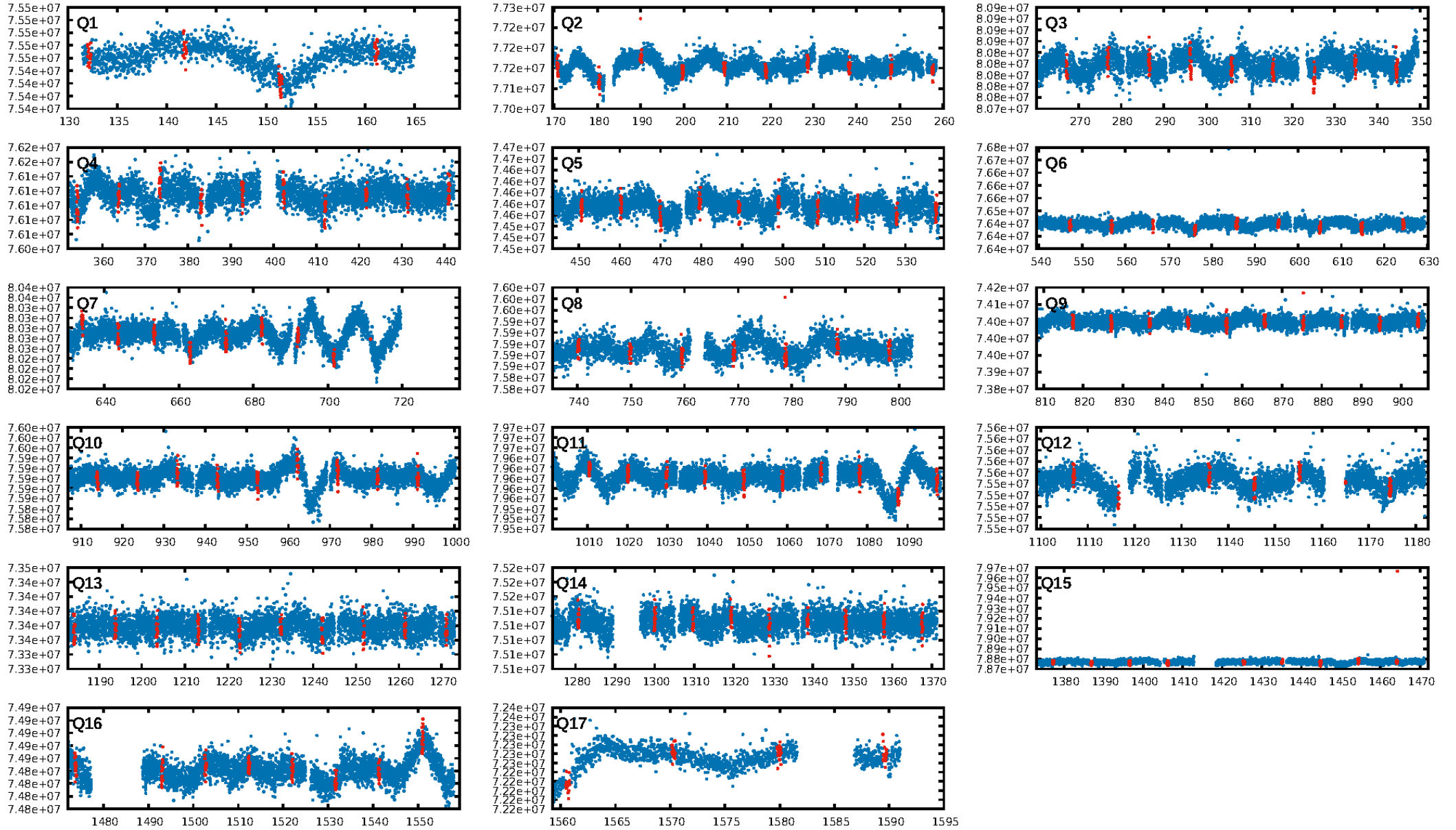
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [17.22σ]  
ModelChiSquare2-sig: 99.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.23e-56  
RollingBand-fgt: 1.00 [130/130]  
GhostDiagnostic-chr: 2.57  
Centroid-sig: 25.4%  
Centroid-so: 0.785 arcsec [1.18σ]  
OotOffset-rm: 0.816 arcsec [3.19σ]  
KicOffset-rm: 0.930 arcsec [3.57σ]  
OotOffset-st: 4/3/4/4 [15]  
KicOffset-st: 4/3/4/4 [15]  
DiffImageQuality-fgm: 0.87 [13/15]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:24:28 Z

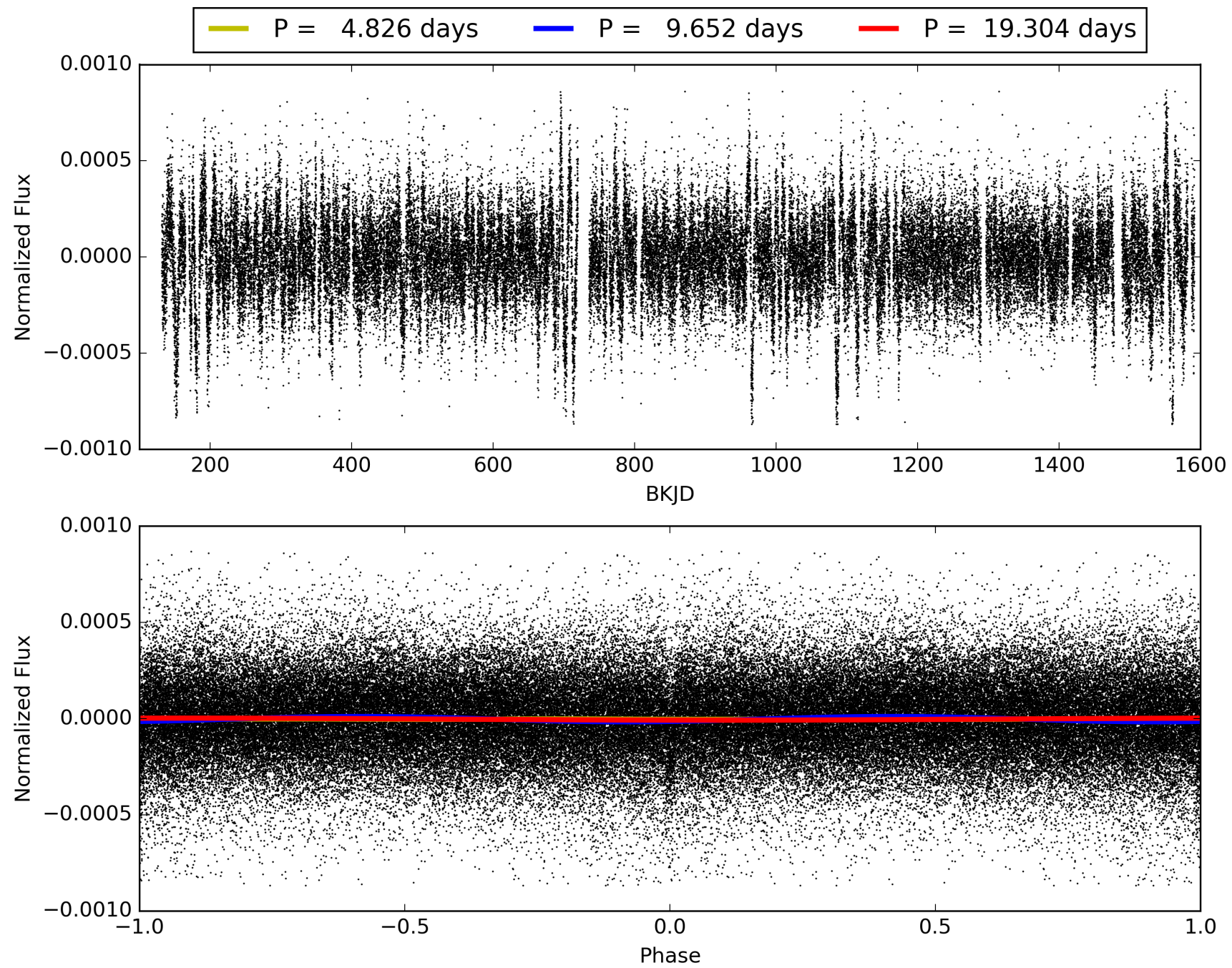
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008628758-02, PDC Light Curves



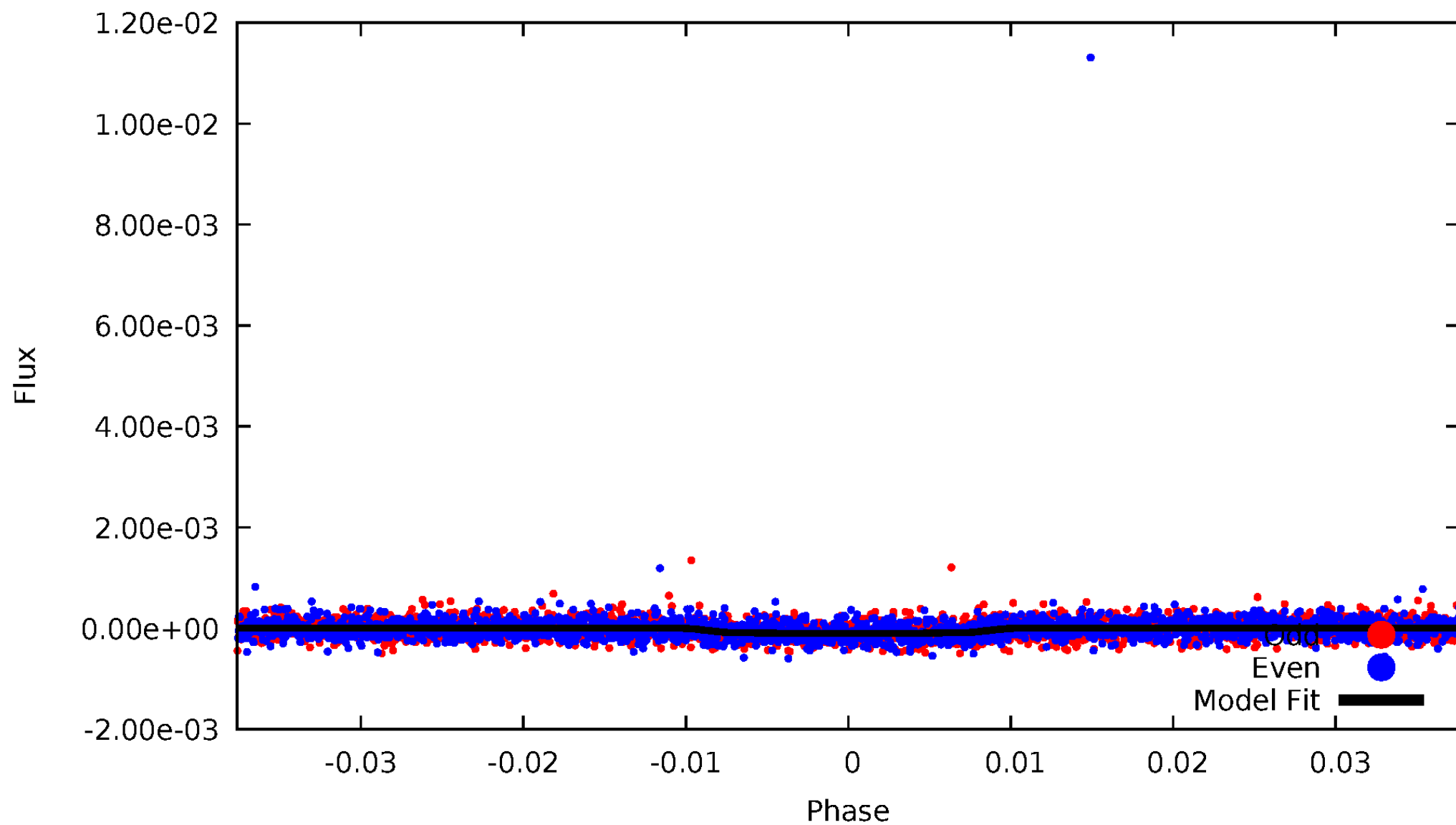


TCE 008628758-02



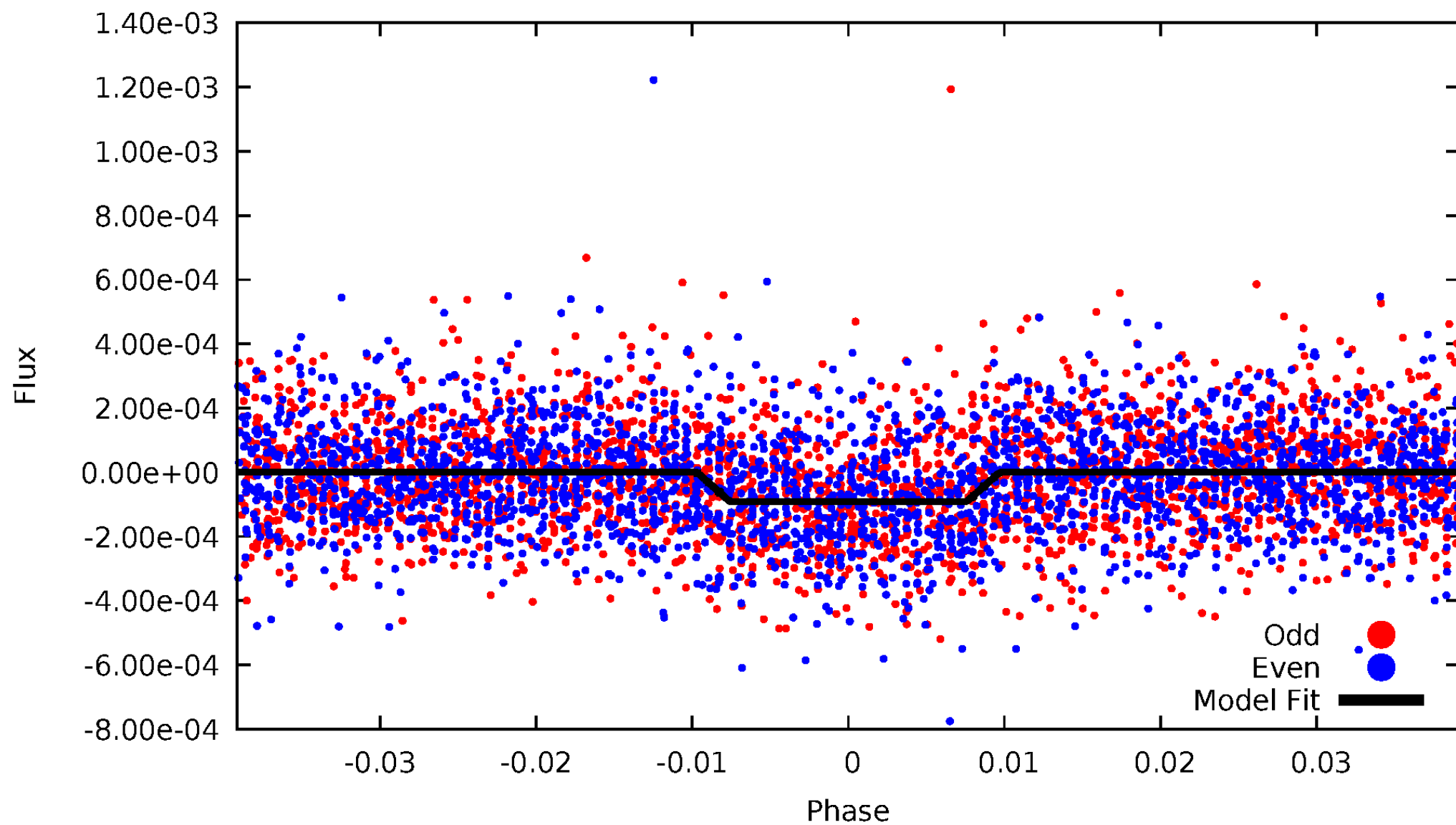
# DV Odd/Even

TCE 008628758-02



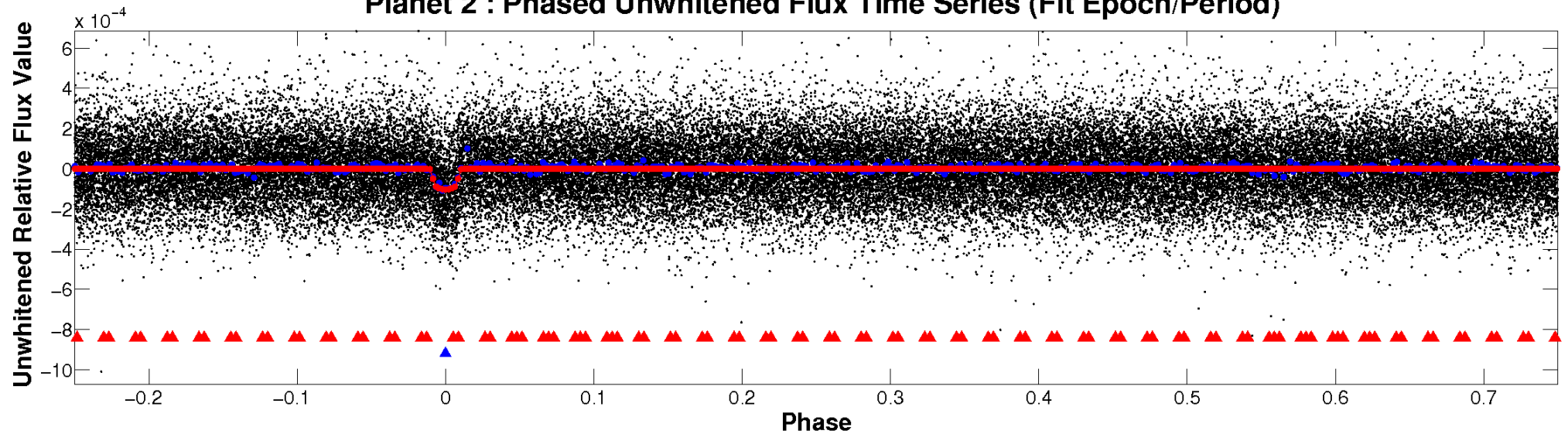
# ALT Odd/Even

TCE 008628758-02

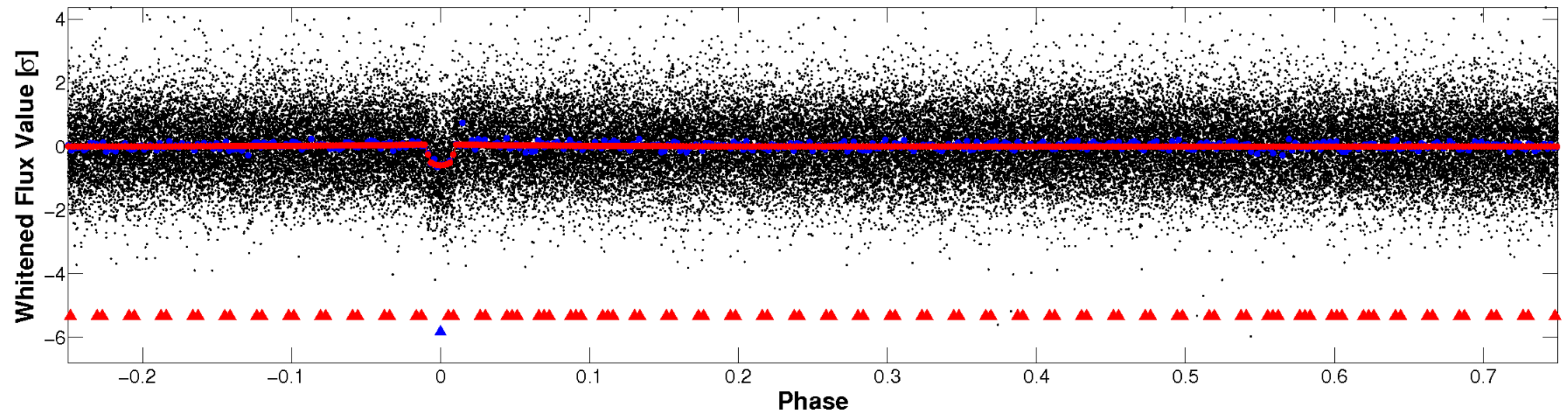


# Non-Whitened Vs. Whitened Light Curve

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

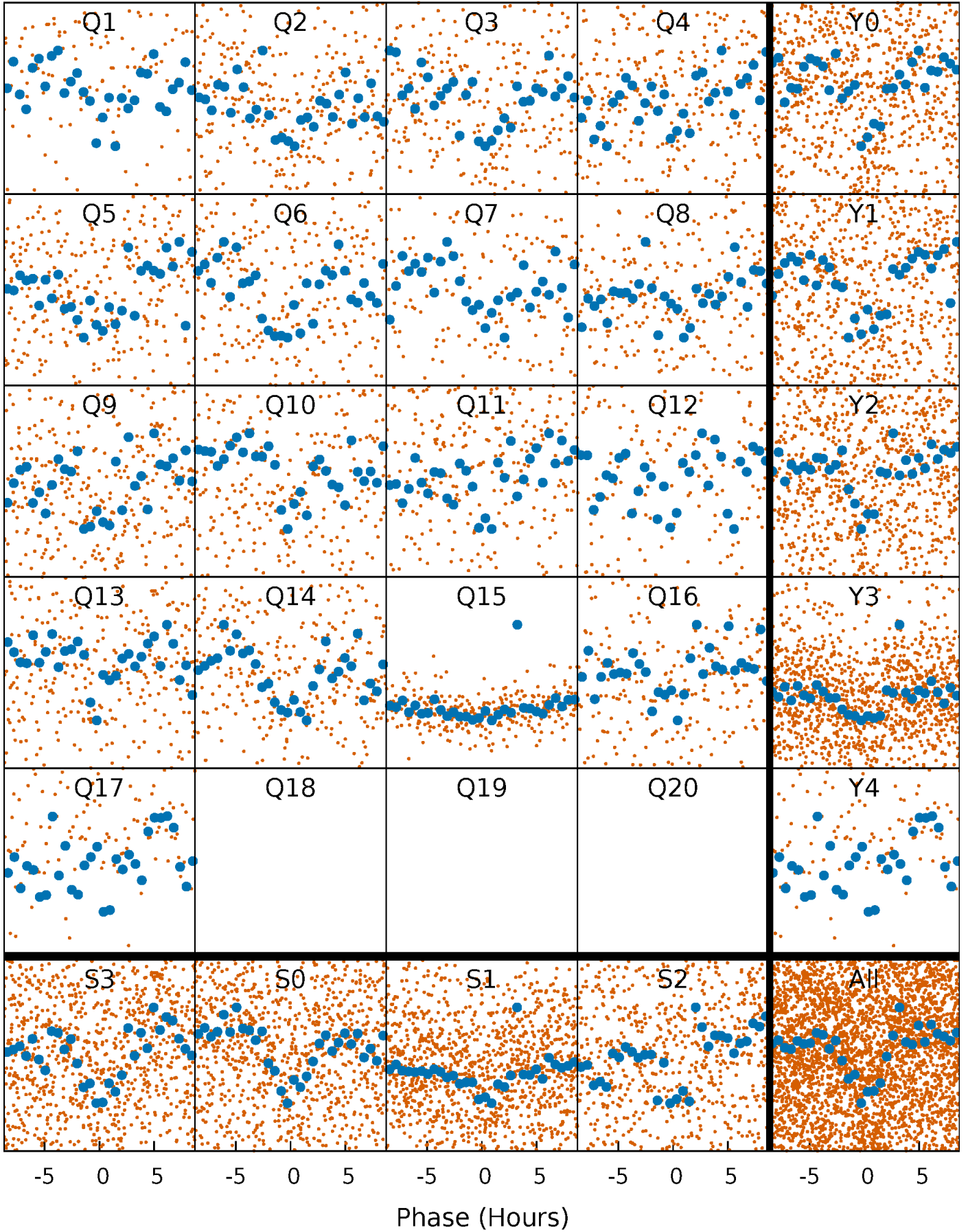


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

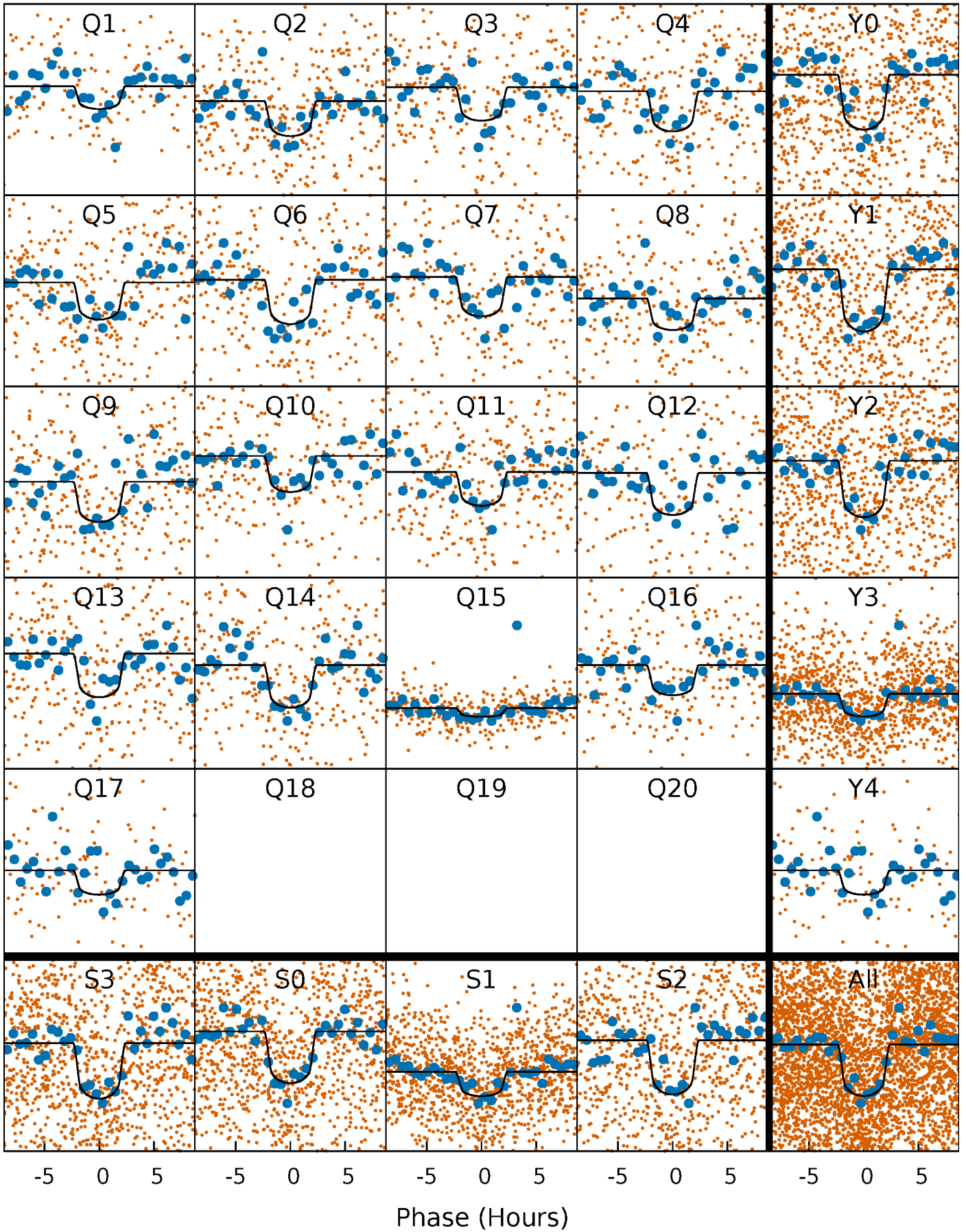
TCE 008628758-02   P= 9.651980 Days    $T_0=132.154158$  (BKJD)





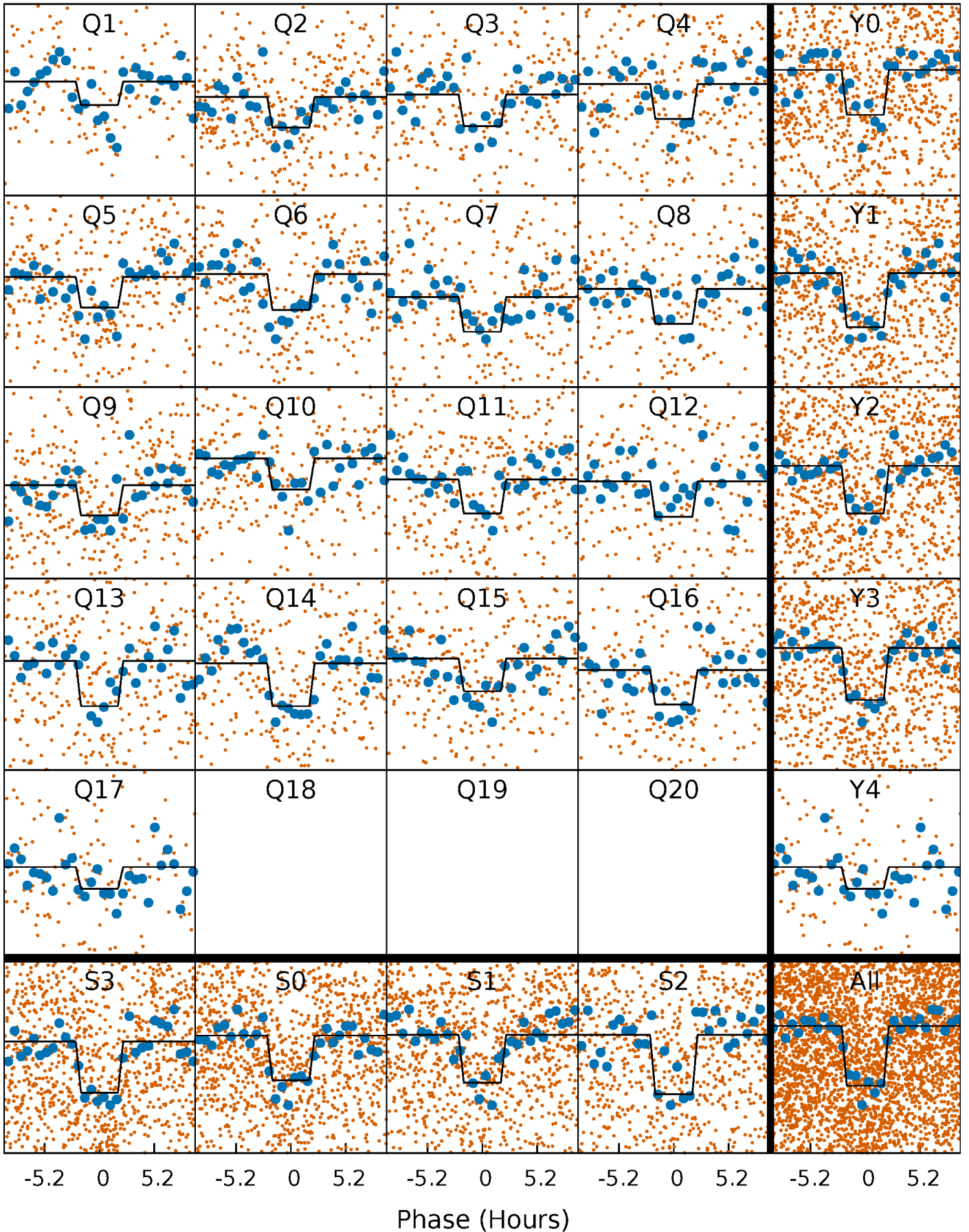
# DV Quarter-Phased Transit Curves

TCE 008628758-02   P= 9.651980 Days    $T_0=132.154158$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

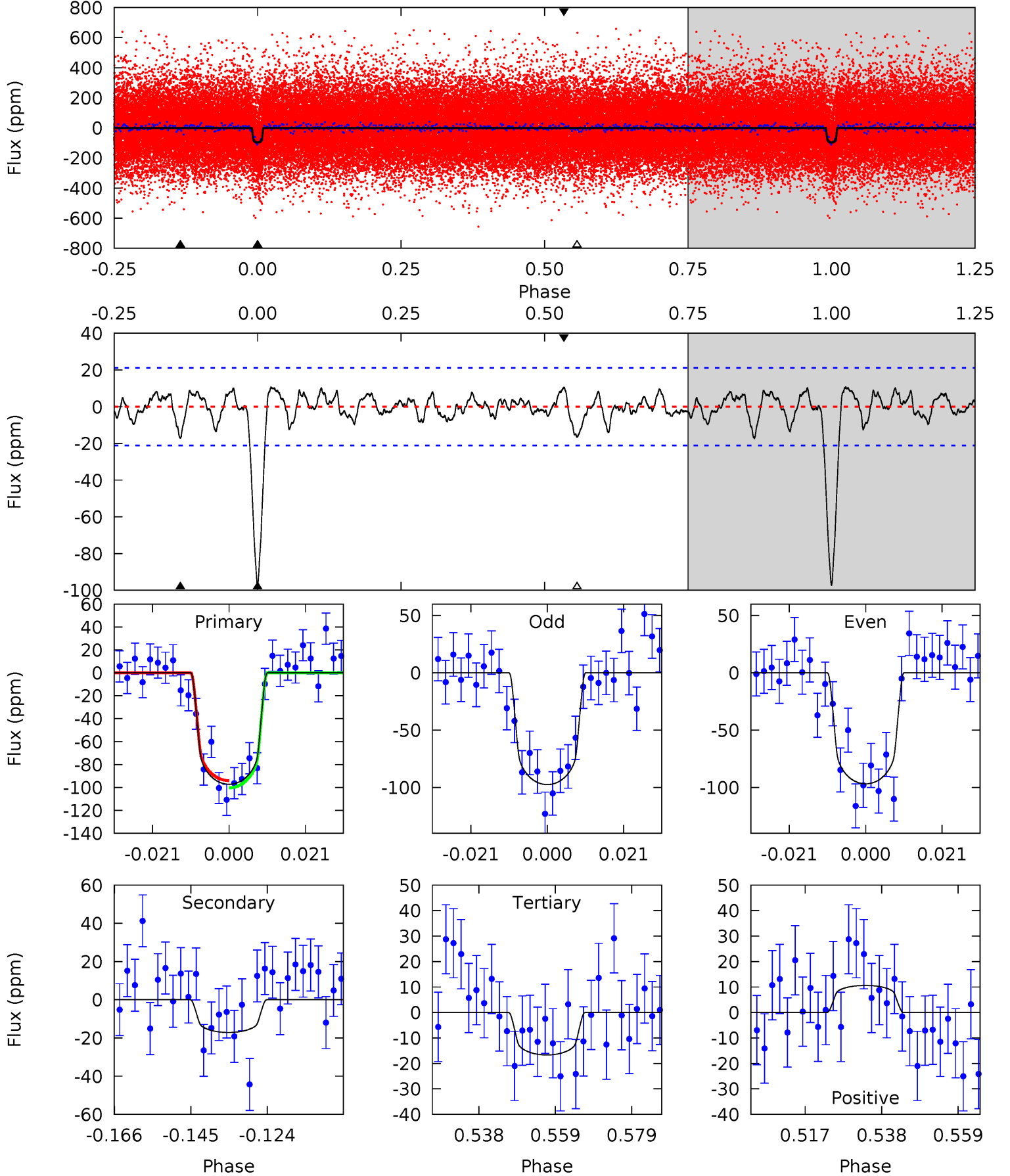
TCE 008628758-02   P= 9.651830 Days    $T_0=132.163563$  (BKJD)



# DV Model-Shift Uniqueness Test

008628758-02, P = 9.651980 Days, E = 122.502178 Days

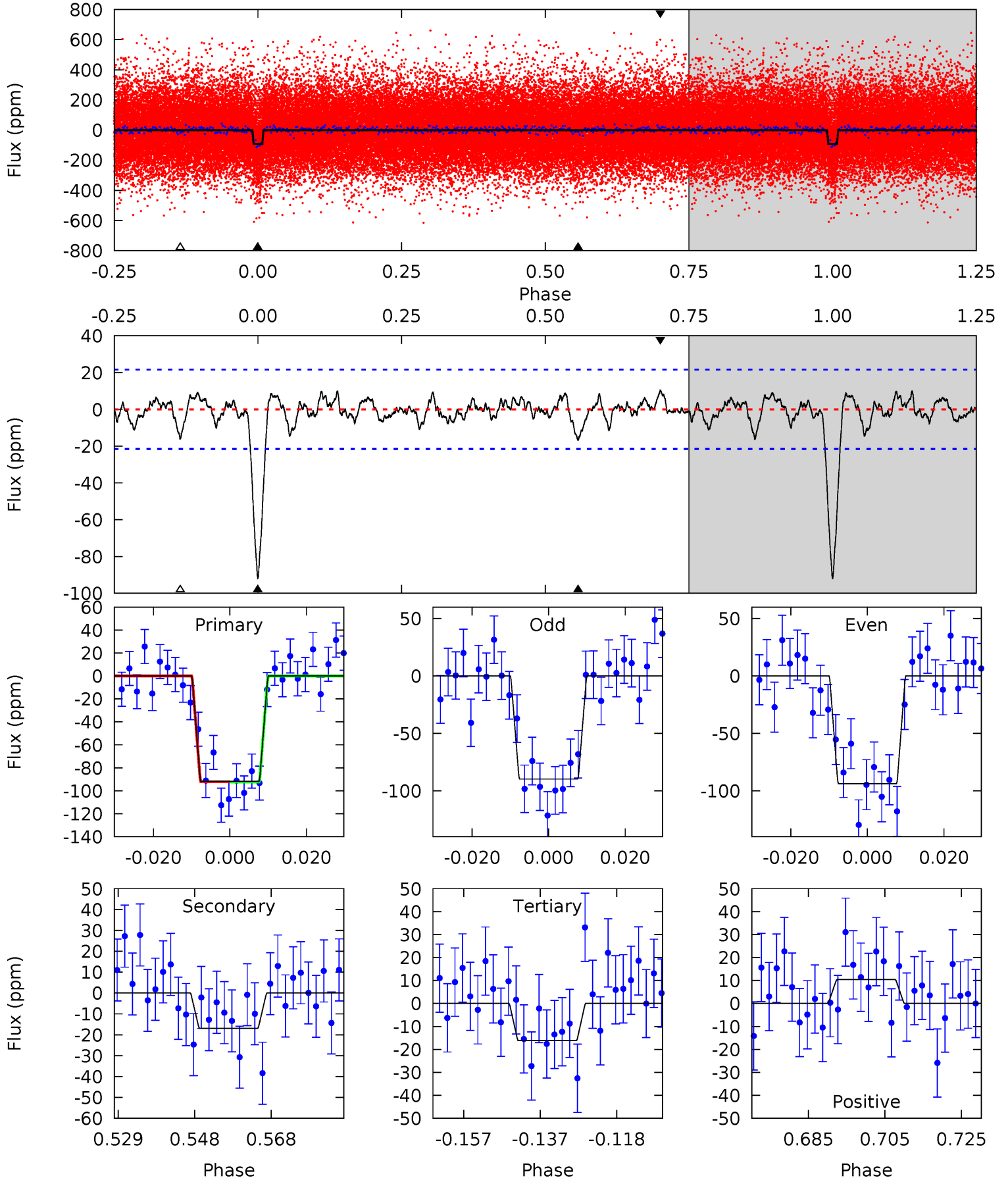
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.5	3.96	3.85	2.46	4.88	2.31	1.20	18.6	20.0	0.11	1.50	0.08	1.05	0.10	0.73



# Alt Model-Shift Uniqueness Test

008628758-02, P = 9.651830 Days, E = 122.511733 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
20.8	3.83	3.67	2.36	4.90	2.33	1.05	17.2	18.5	0.16	1.47	0.45	0.95	0.10	0.04



### Stellar Parameters For KIC 008628758

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5768^{+115}_{-115}$	$4.358^{+0.121}_{-0.110}$	$-0.040^{+0.150}_{-0.150}$	$1.067^{+0.160}_{-0.131}$	$0.946^{+0.072}_{-0.057}$	$1.097^{+0.534}_{-0.327}$
	+2%/-2%	+3%/-3%	+375%/-375%	+15%/-12%	+8%/-6%	+49%/-30%
Source	SPE58	SPE58	SPE58	DSEP		

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

### Secondary Eclipse Parameters for KIC 008628758-02 / KOI 1279.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-17 \pm 4$	$1.29^{+0.40}_{-0.38}$	$1242^{+58}_{-49}$	$3884^{+547}_{-386}$	$43^{+47}_{-20}$
Alt.	$-17 \pm 4$	$1.13^{+0.39}_{-0.42}$	$1245^{+56}_{-53}$	$4040^{+766}_{-427}$	$55^{+84}_{-28}$

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

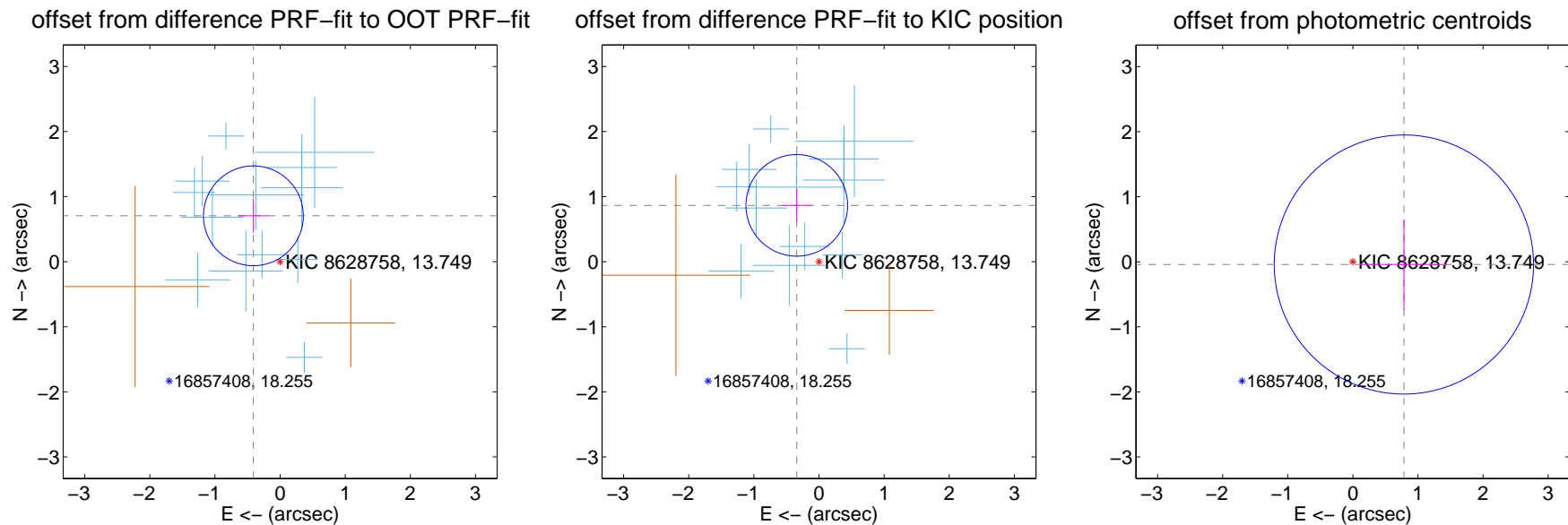
## DV Centroid Data

Supplemental centroid analysis for 008628758-02. Kepler magnitude: 13.75. Transit SNR 17.32

There are 13 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

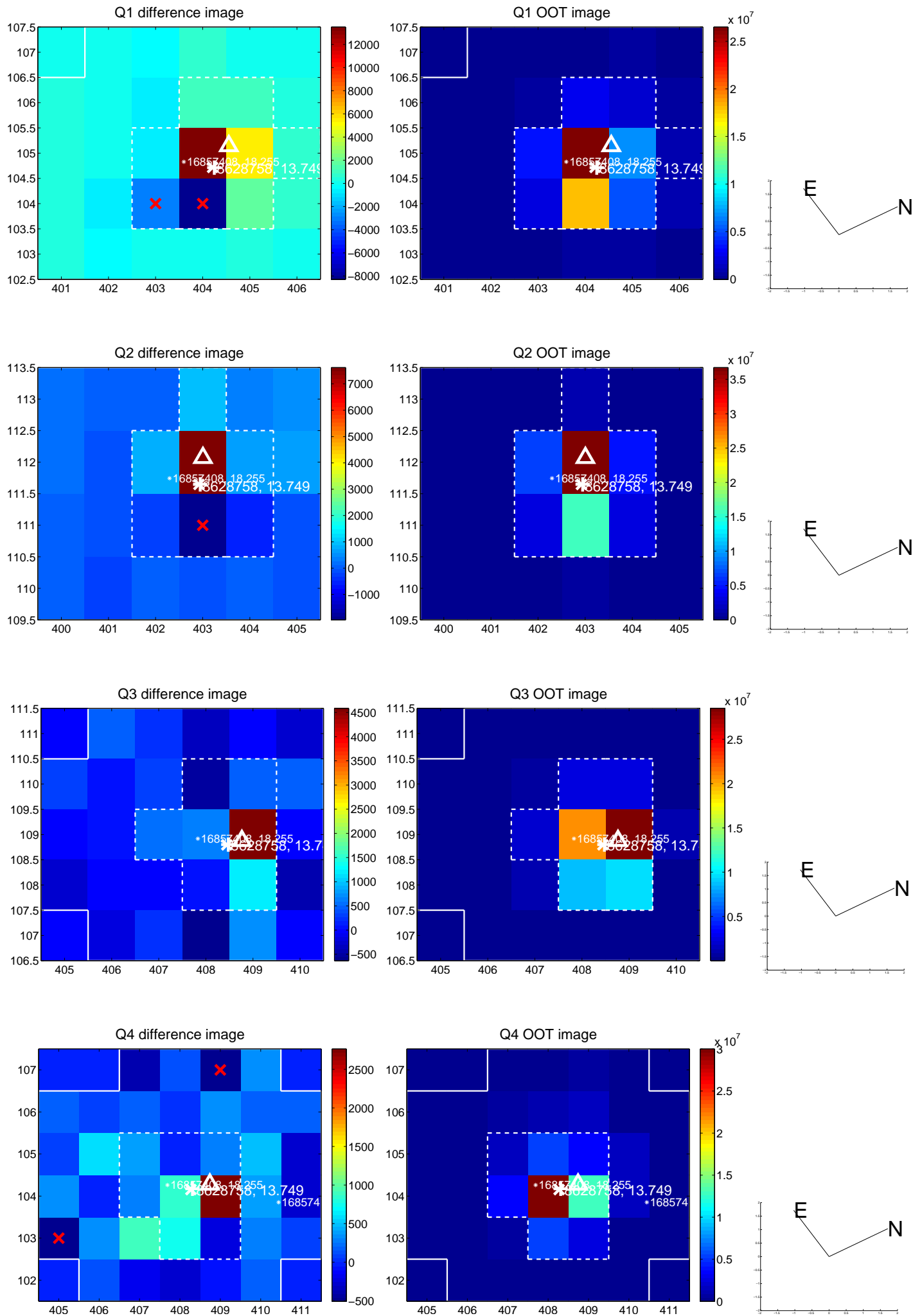
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>0.816 \pm 0.255</math></b>	<b>3.19</b>	$0.410 \pm 0.238$	$0.705 \pm 0.260$
PRF-fit source offset from KIC position	<b><math>0.930 \pm 0.260</math></b>	<b>3.57</b>	$0.341 \pm 0.225$	$0.866 \pm 0.262$
photometric centroid source offset	$0.79 \pm 0.66$	1.18	$-0.78 \pm 0.66$	$-0.04 \pm 0.69$



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

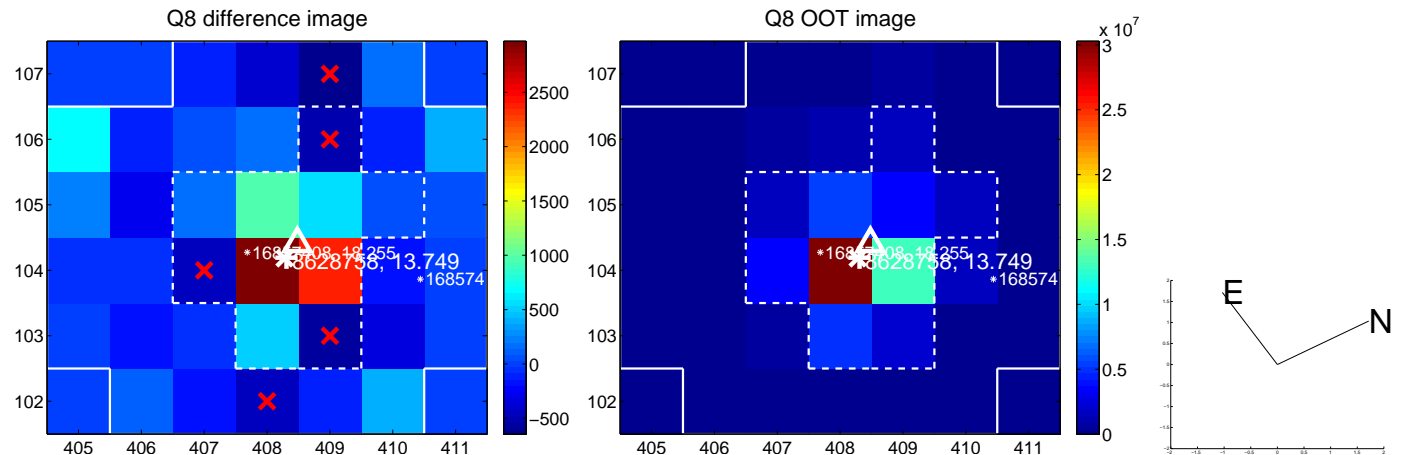
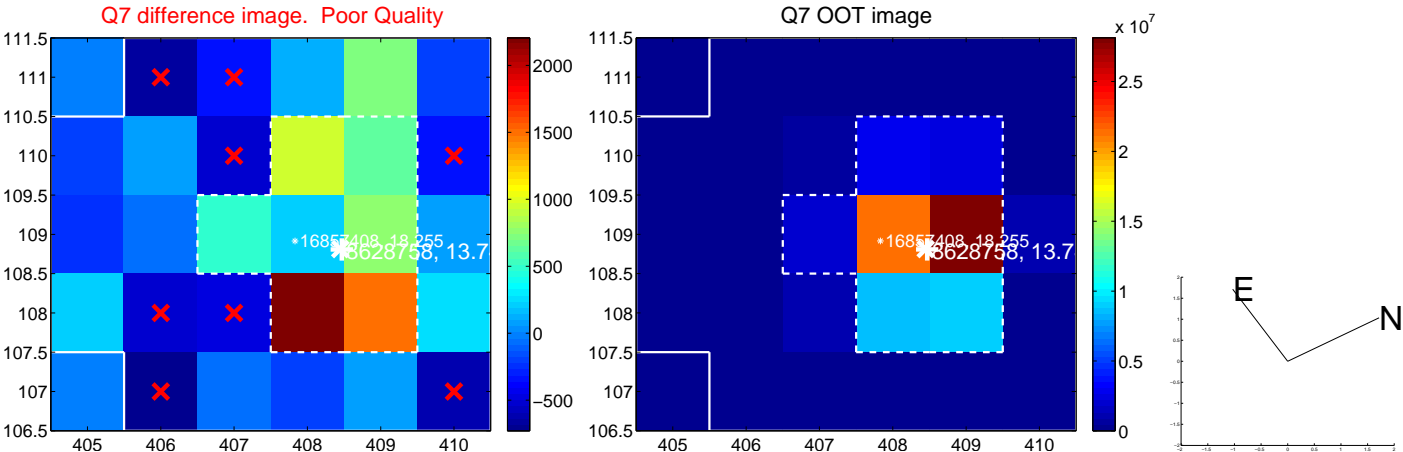
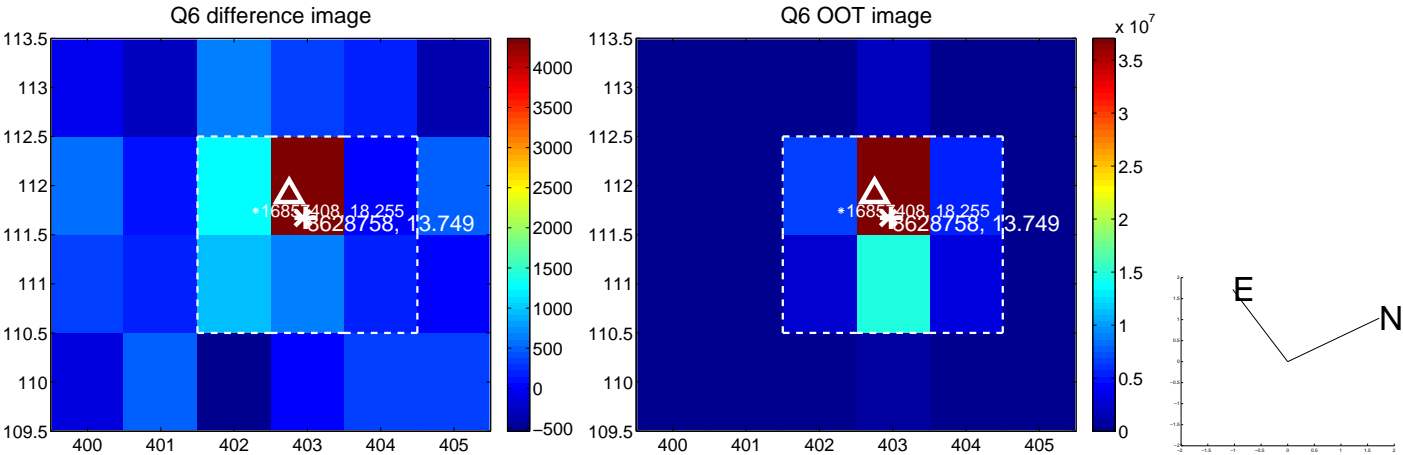
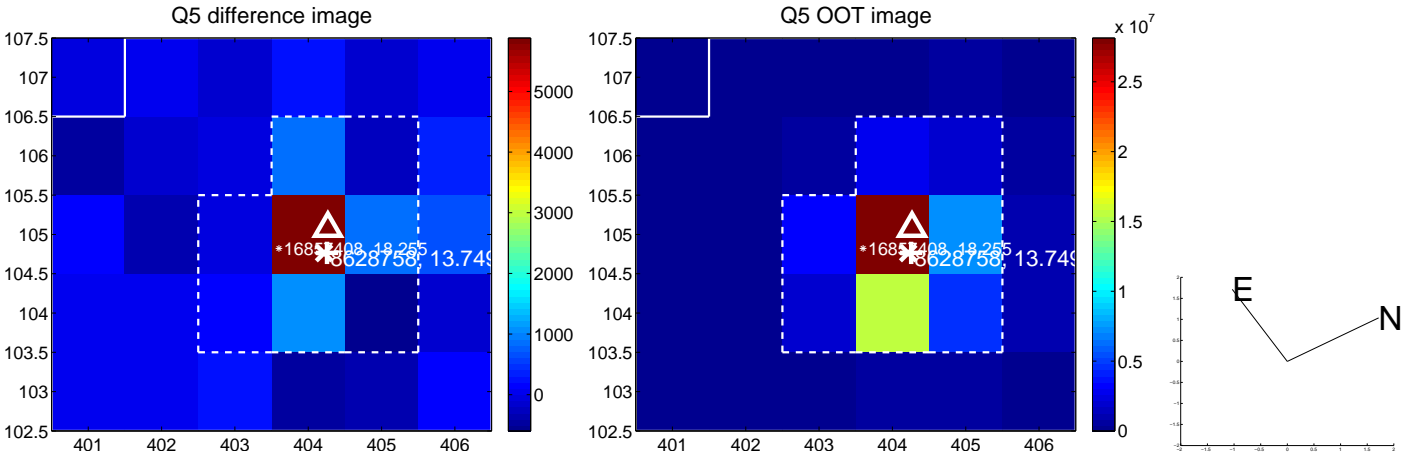


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

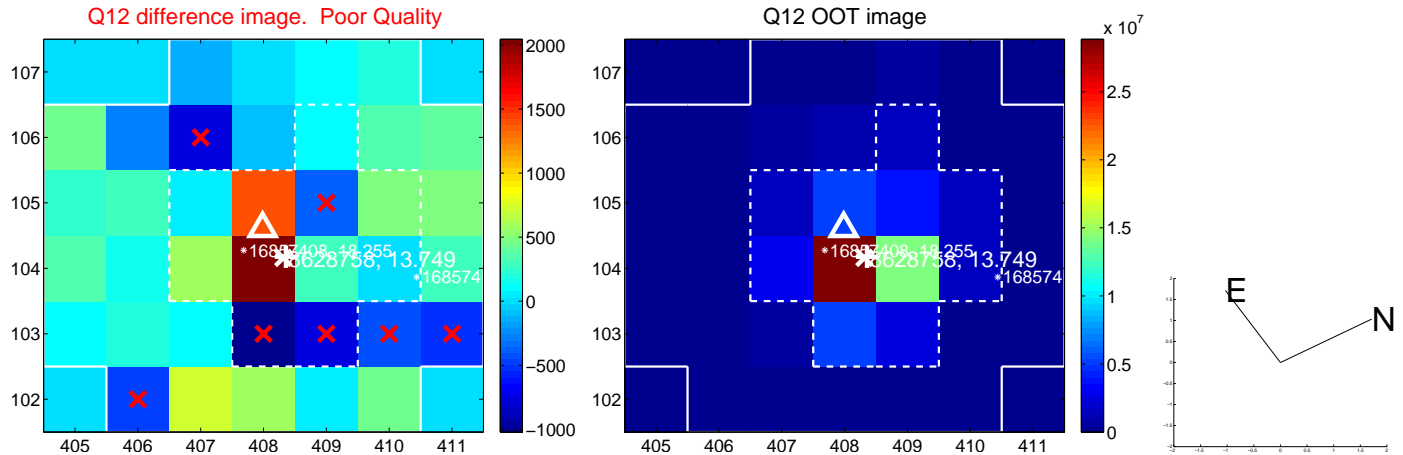
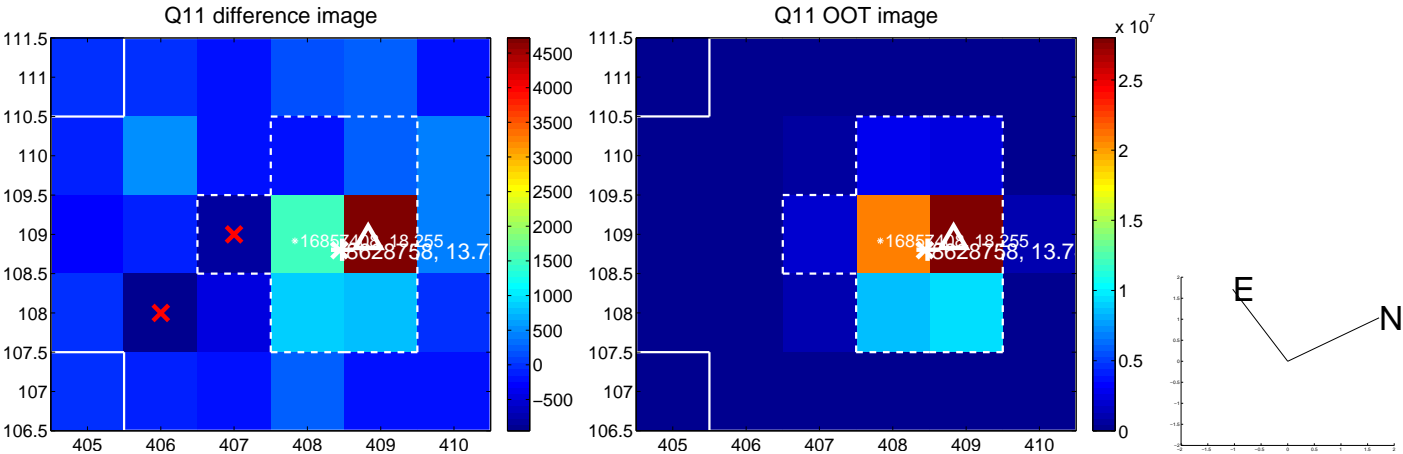
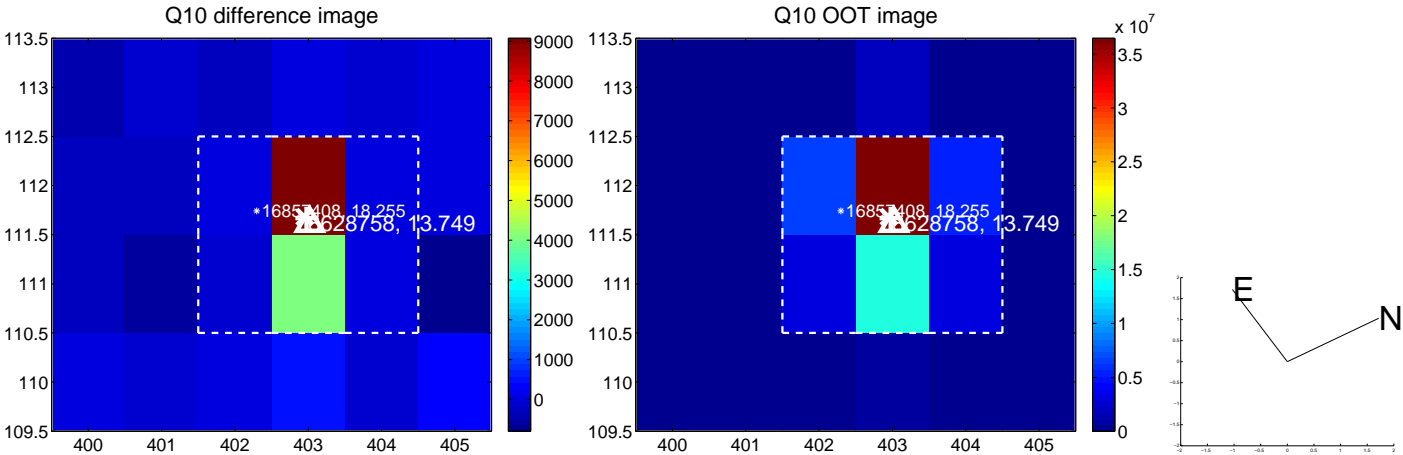
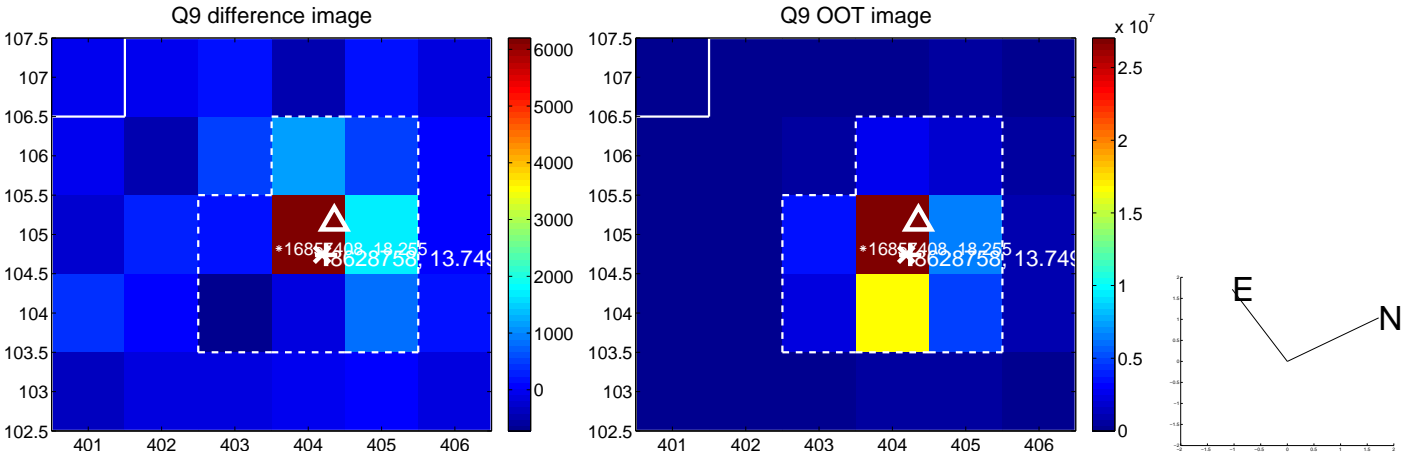




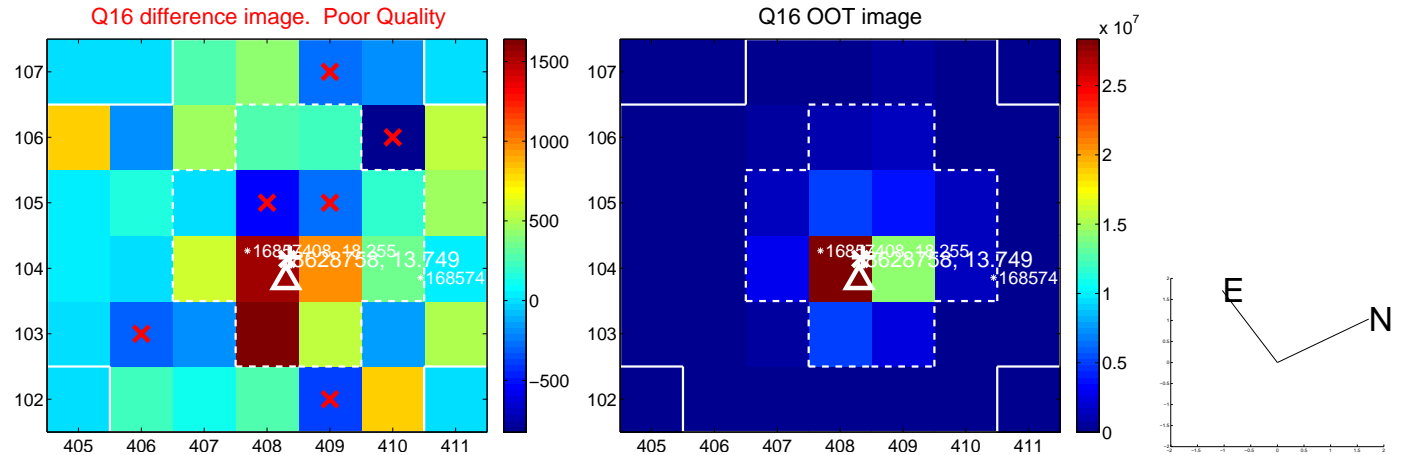
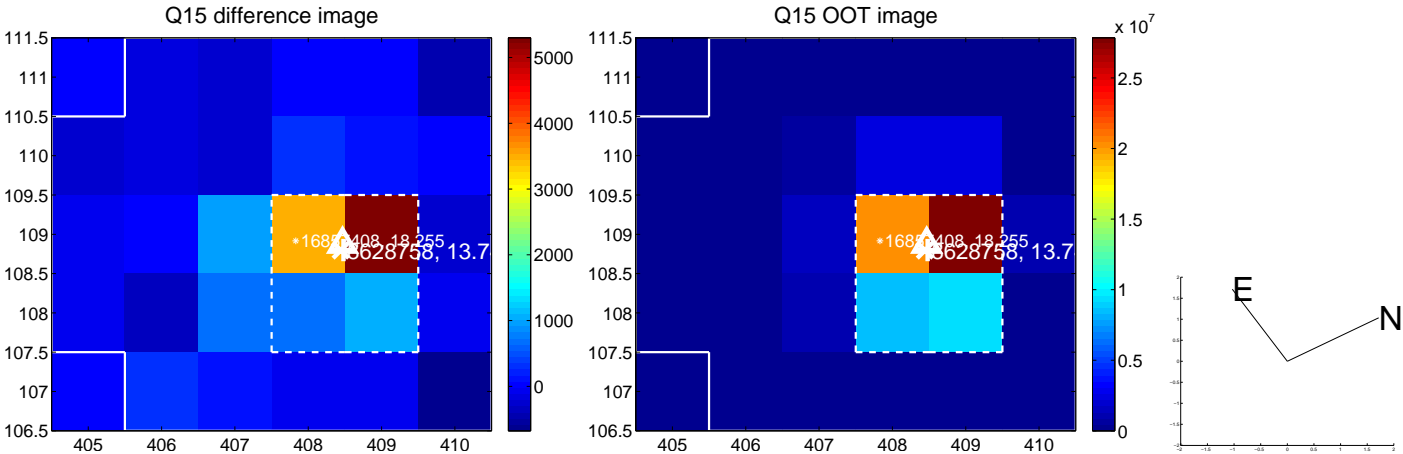
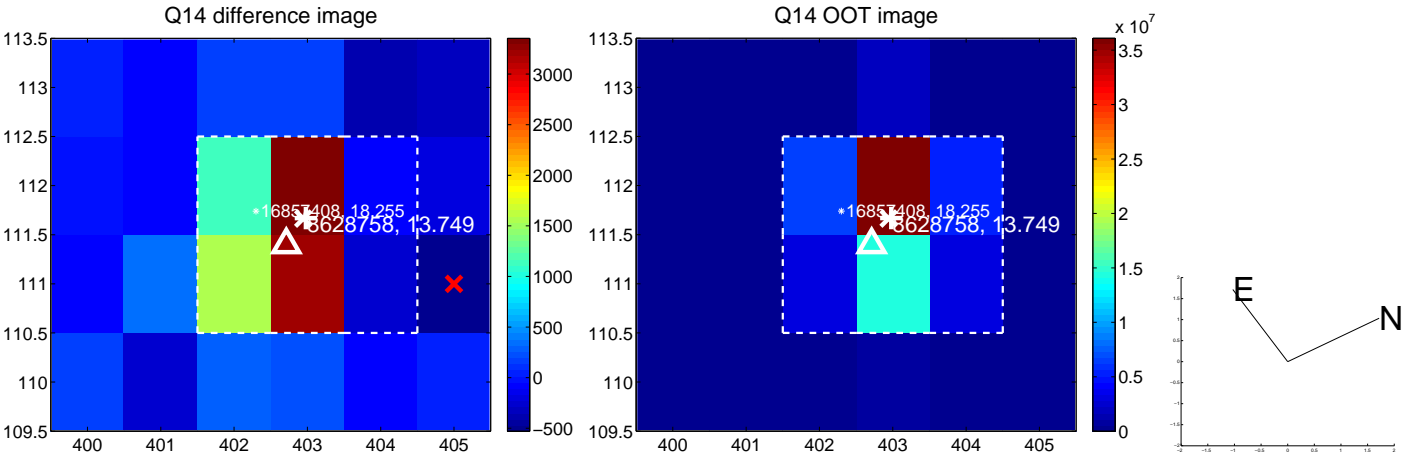
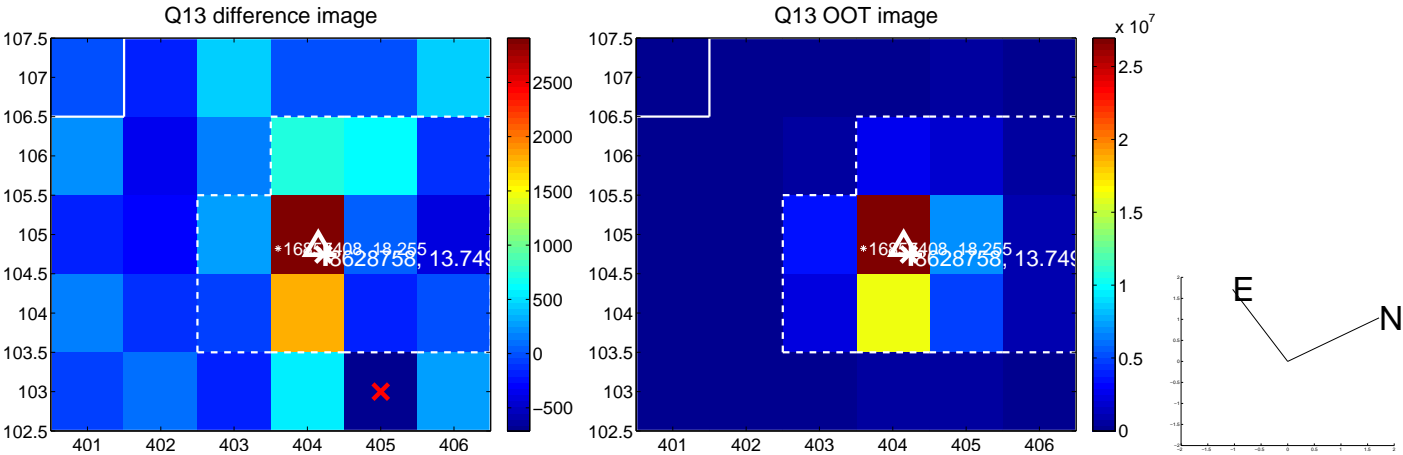
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



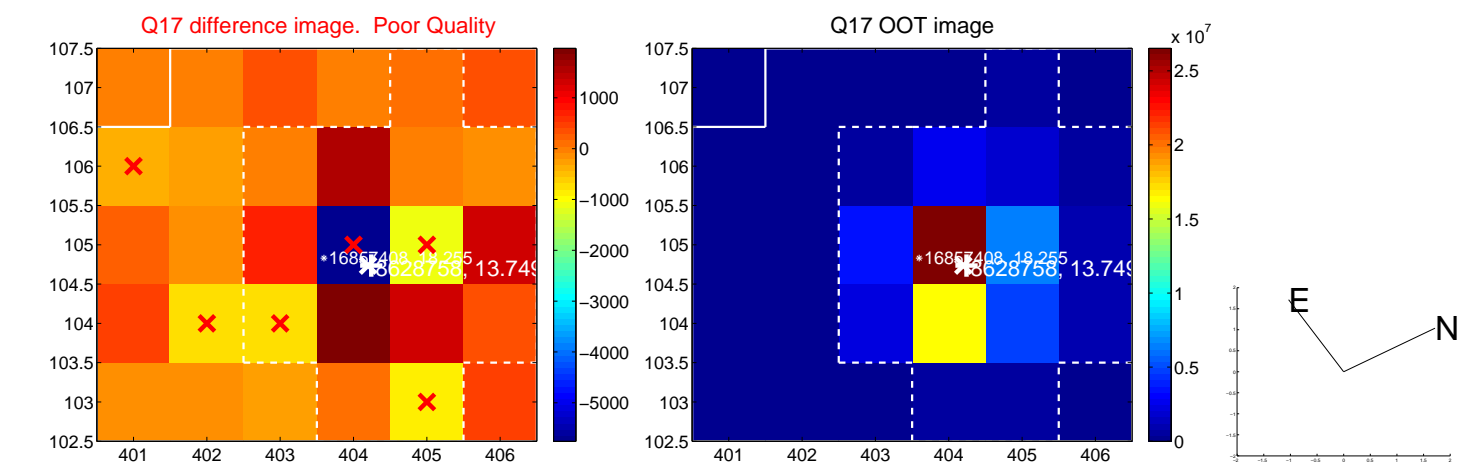
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



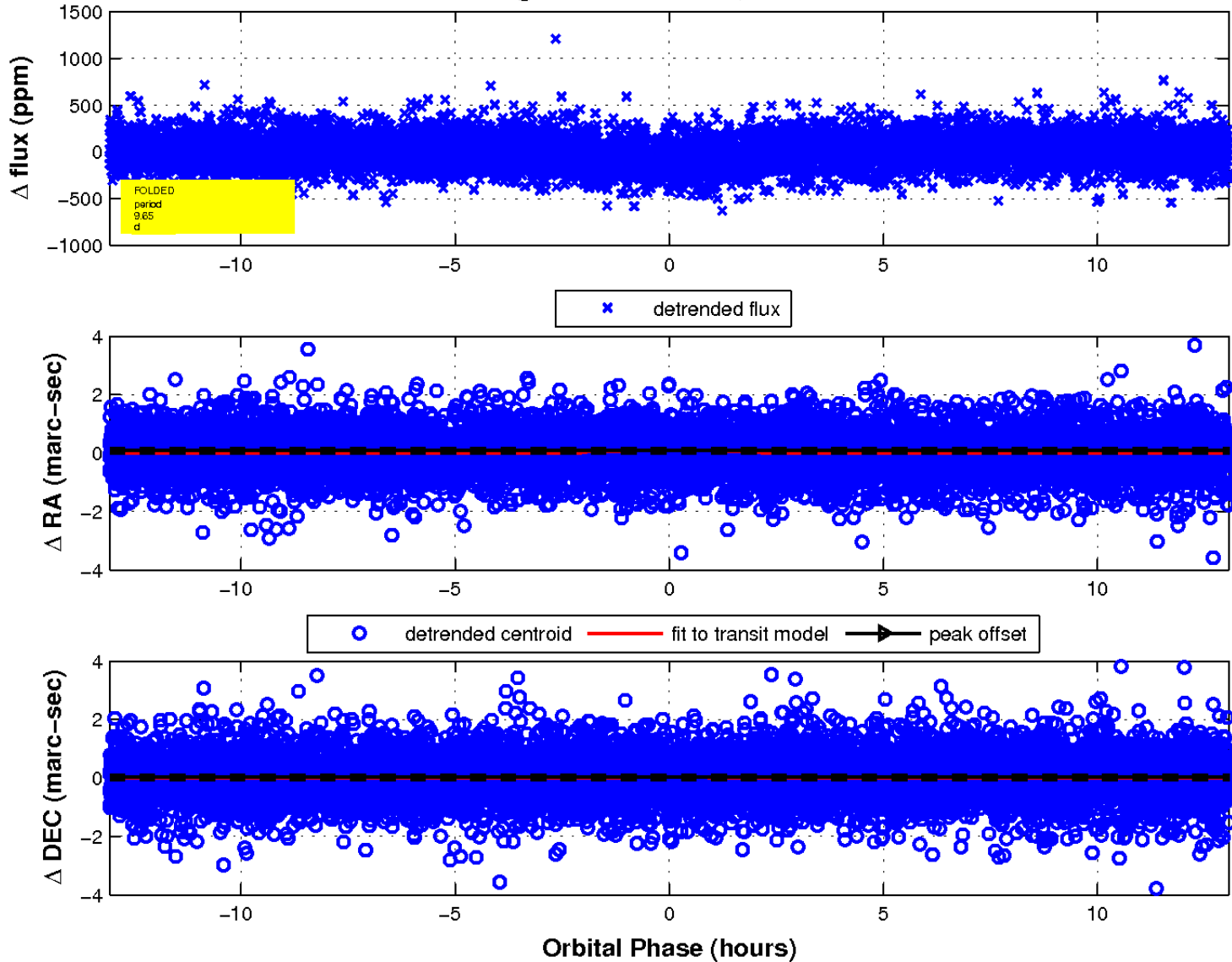
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

