

# KIC 008026752

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008026752-01	OBS	0240.01	4.286837	134.332844	1043.7	4.279	101.5	117.8	1.05	6228	3.66	519.15
008026752-02	OBS	No	4.287399	133.389030	10.0	0.665	7.4	0.5	1.05	6228	0.40	519.06

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008026752-01	OBS	FP	0.01	0	1	0	0	HAS_SEC_TCE
008026752-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_FEW_MEAS—HALO_GHOST

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

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

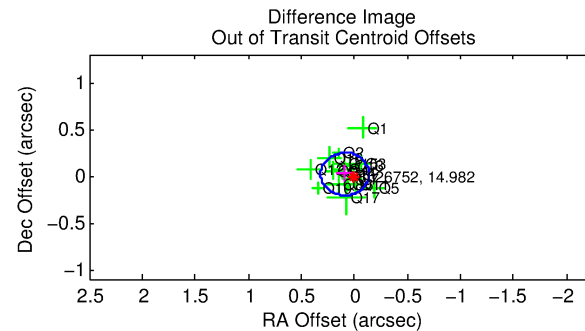
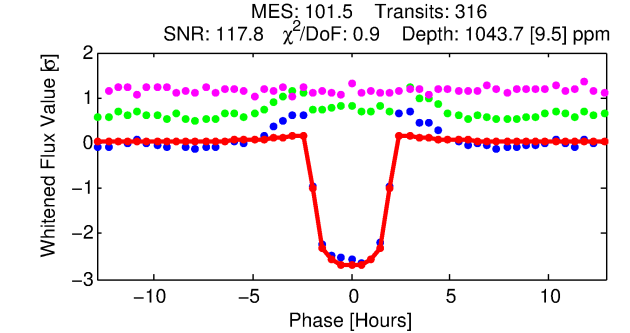
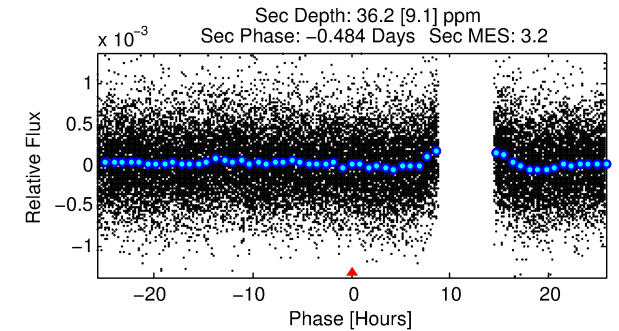
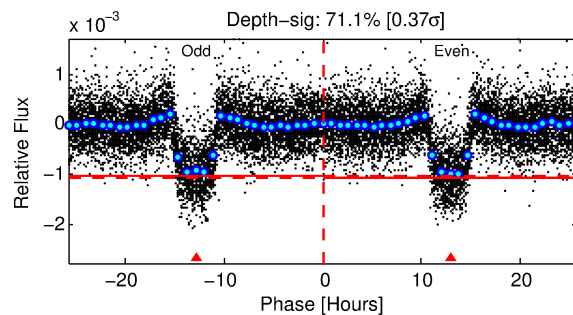
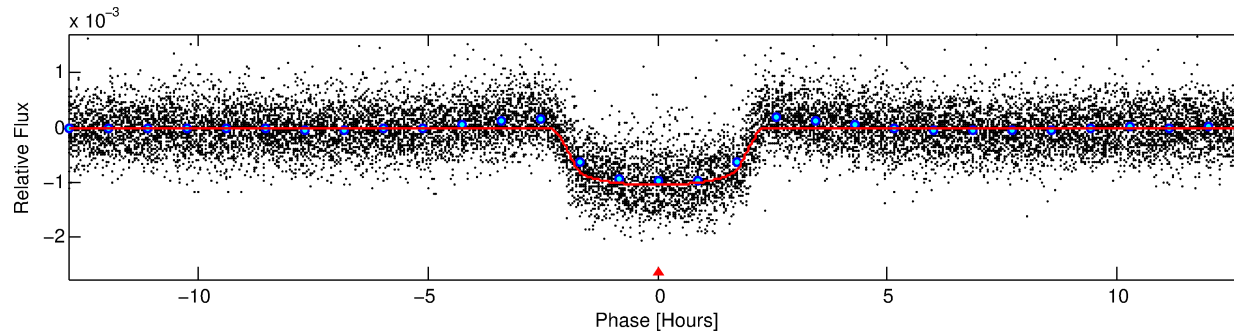
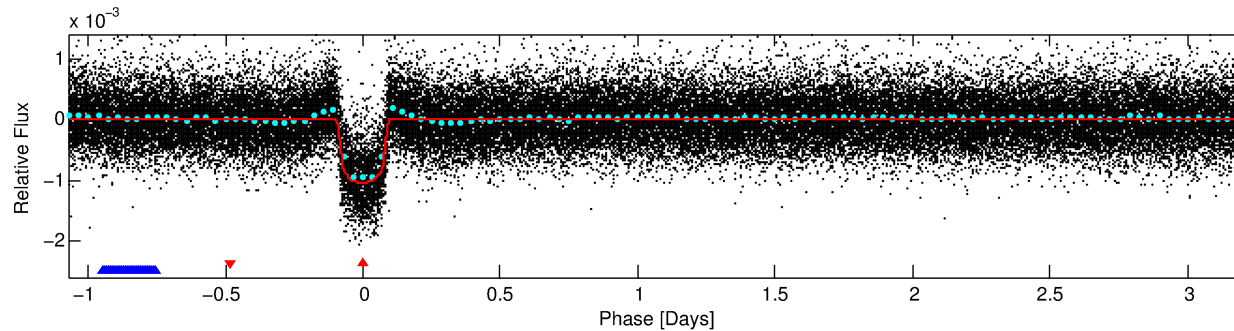
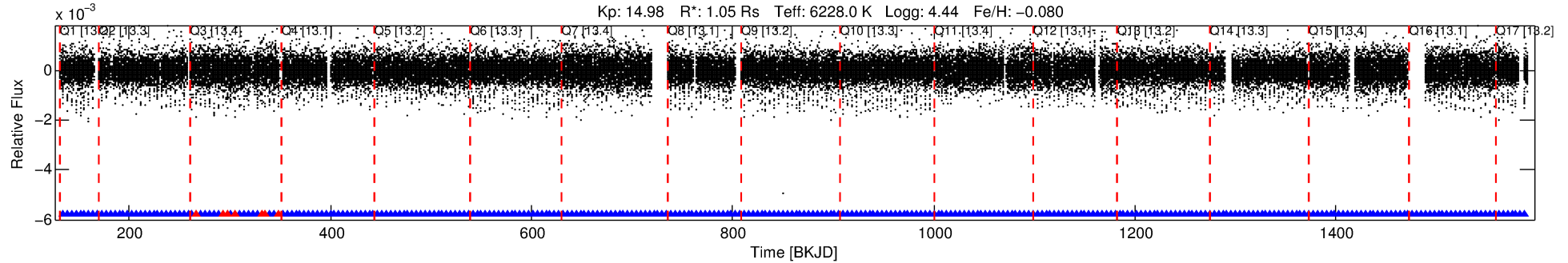
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008026752-01

No Significant Match Found

# DV One-Page Summary

KIC: 8026752 Candidate: 1 of 2 Period: 4.287 d  
KOI: K00240.01 Corr: 0.982



## DV Fit Results:

Period = 4.28684 [0.00000] d  
Epoch = 134.3328 [0.0006] BKJD  
Rp/R\* = 0.0319 [0.0015]  
a/R\* = 5.65 [1.28]  
b = 0.73 [0.15]  
Seff = 519.15 [211.33]  
Teq = 1217 [124] K  
Rp = 3.66 [1.17] Re  
a = 0.0535 [0.0141] AU  
Ag = 4.26 [1.99] [1.64 $\sigma$ ]  
Teffp = 2704 [203] K [6.24 $\sigma$ ]

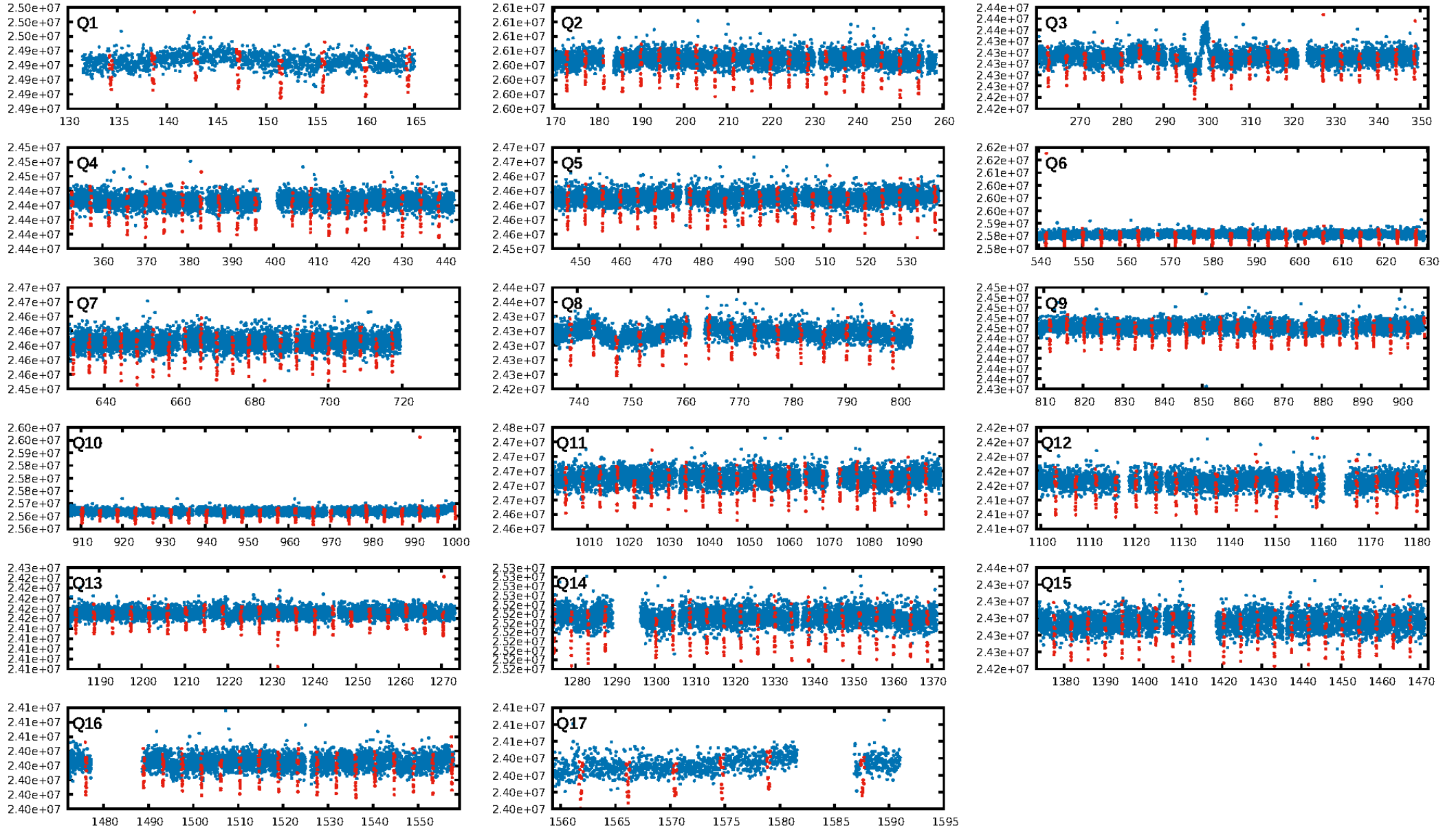
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.2% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.98 [295/302]  
GhostDiagnostic-chr: 3.226  
Centroid-sig: 4.7%  
Centroid-so: 0.274 arcsec [2.44 $\sigma$ ]  
OotOffset-rm: 0.091 arcsec [1.20 $\sigma$ ]  
KicOffset-rm: 0.113 arcsec [1.45 $\sigma$ ]  
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]

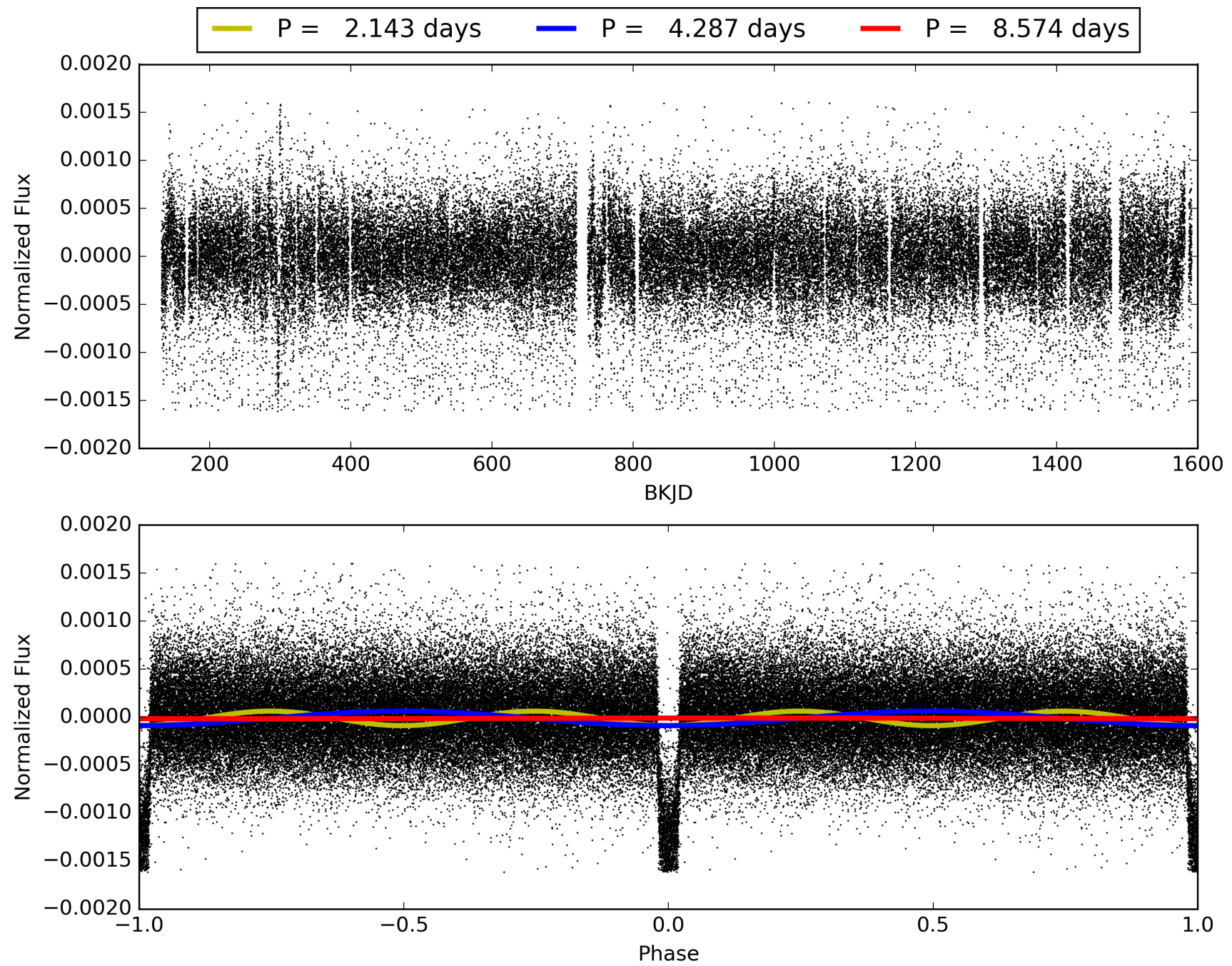
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:52:04 Z

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

# TCE 008026752-01, PDC Light Curves

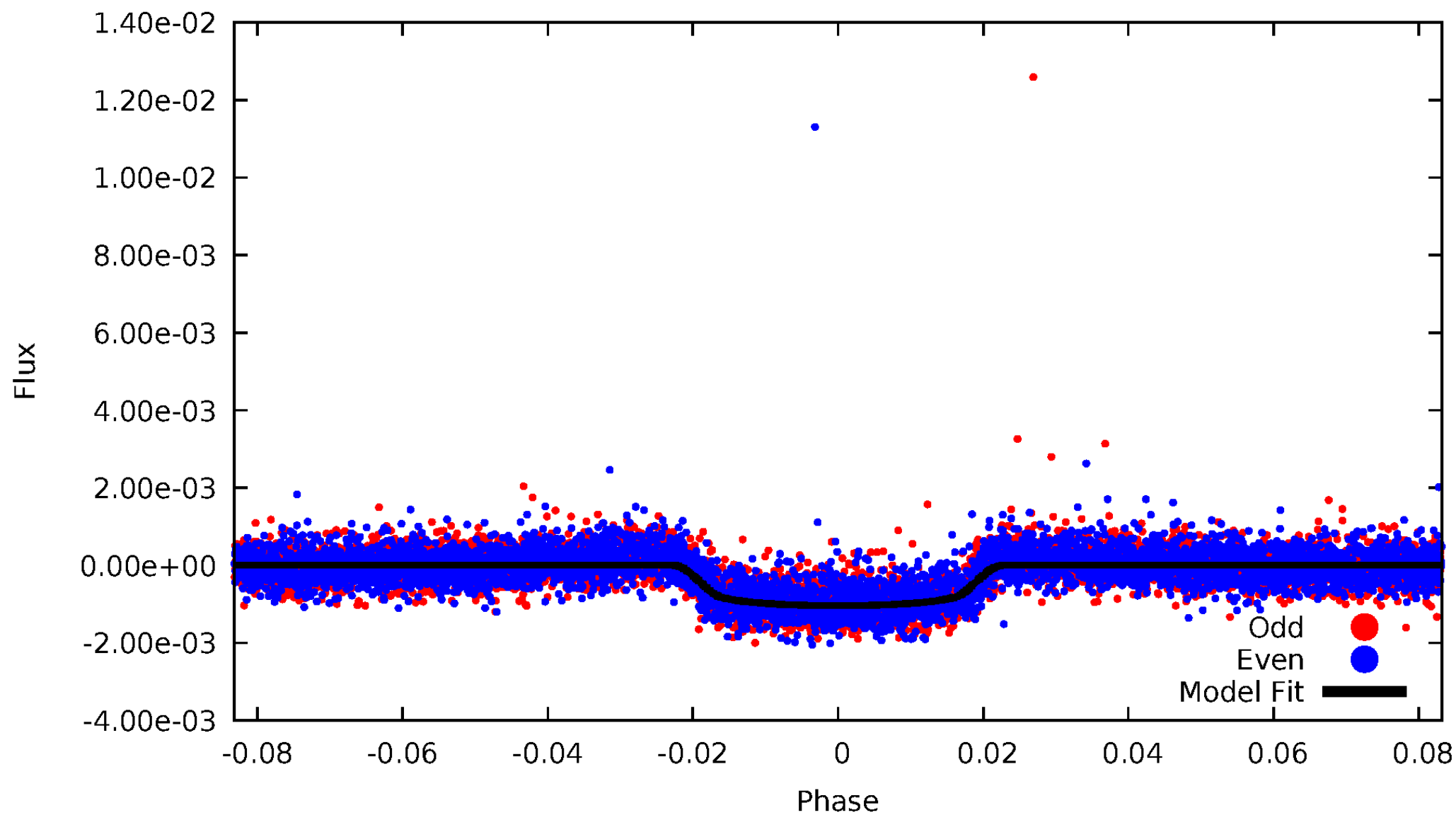


TCE 008026752-01



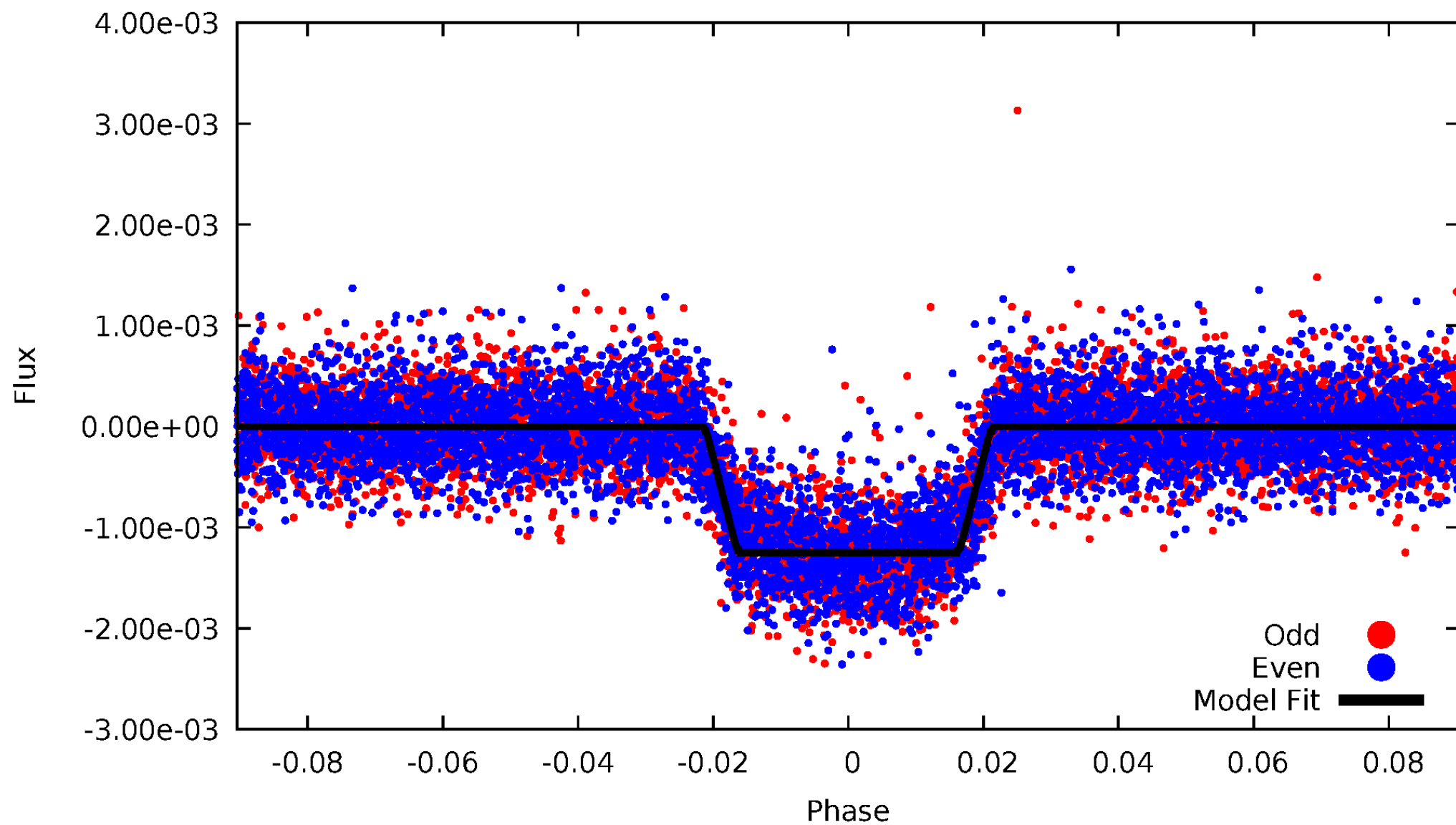
# DV Odd/Even

TCE 008026752-01



# ALT Odd/Even

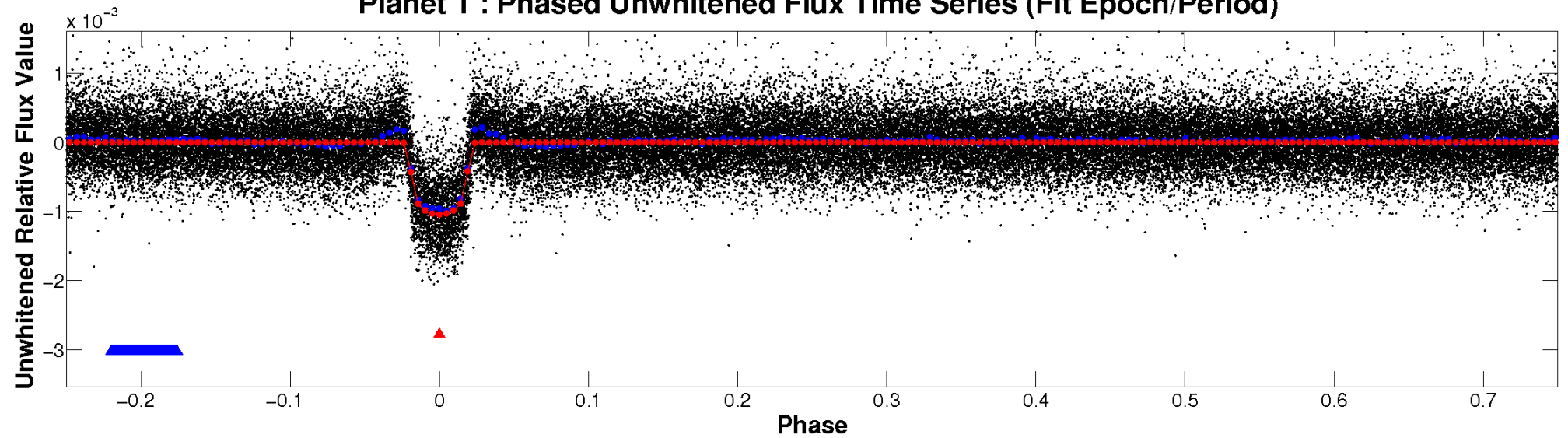
TCE 008026752-01



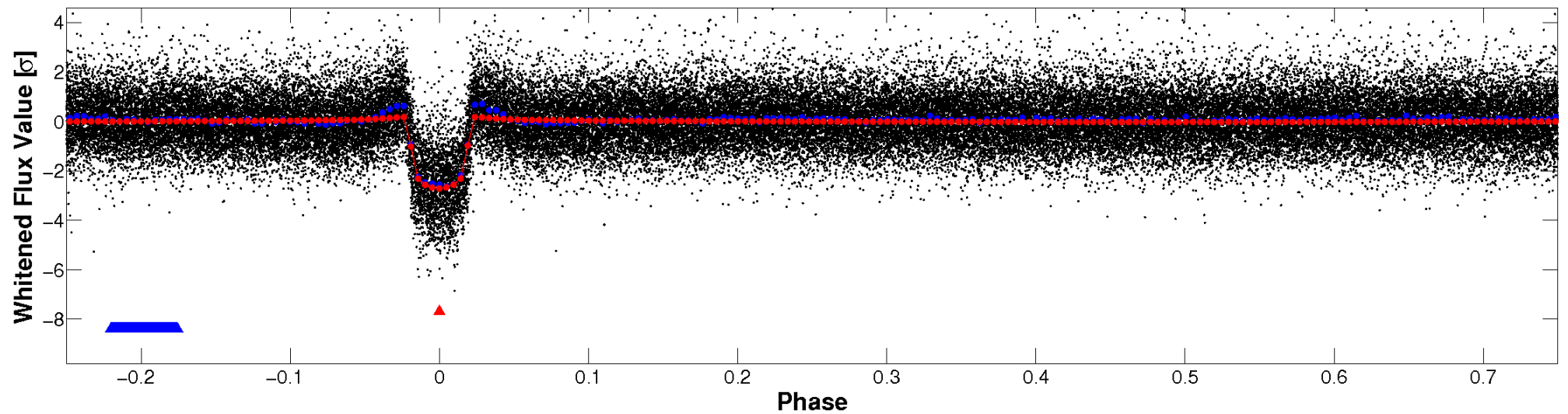


# Non-Whitened Vs. Whitened Light Curve

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

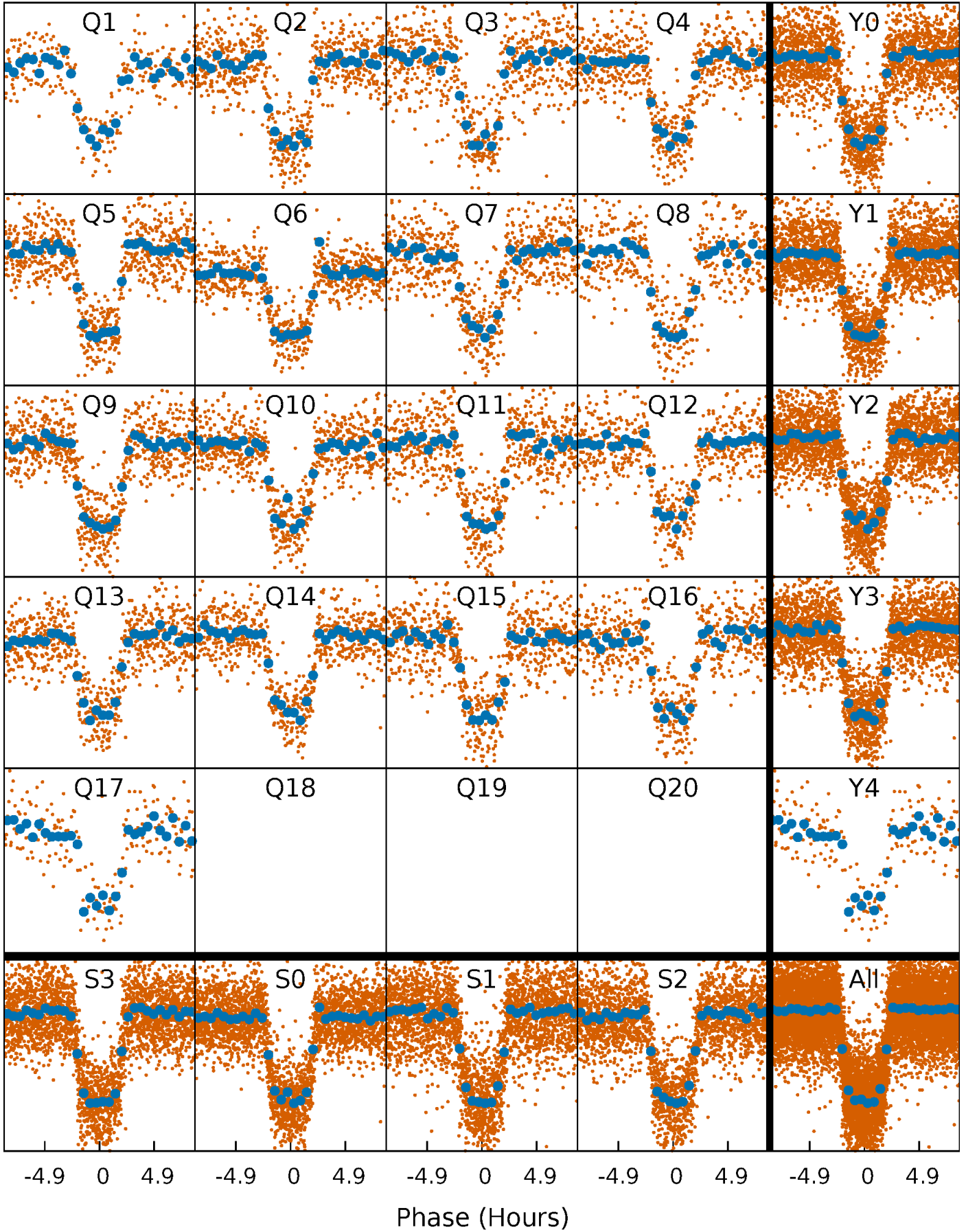


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

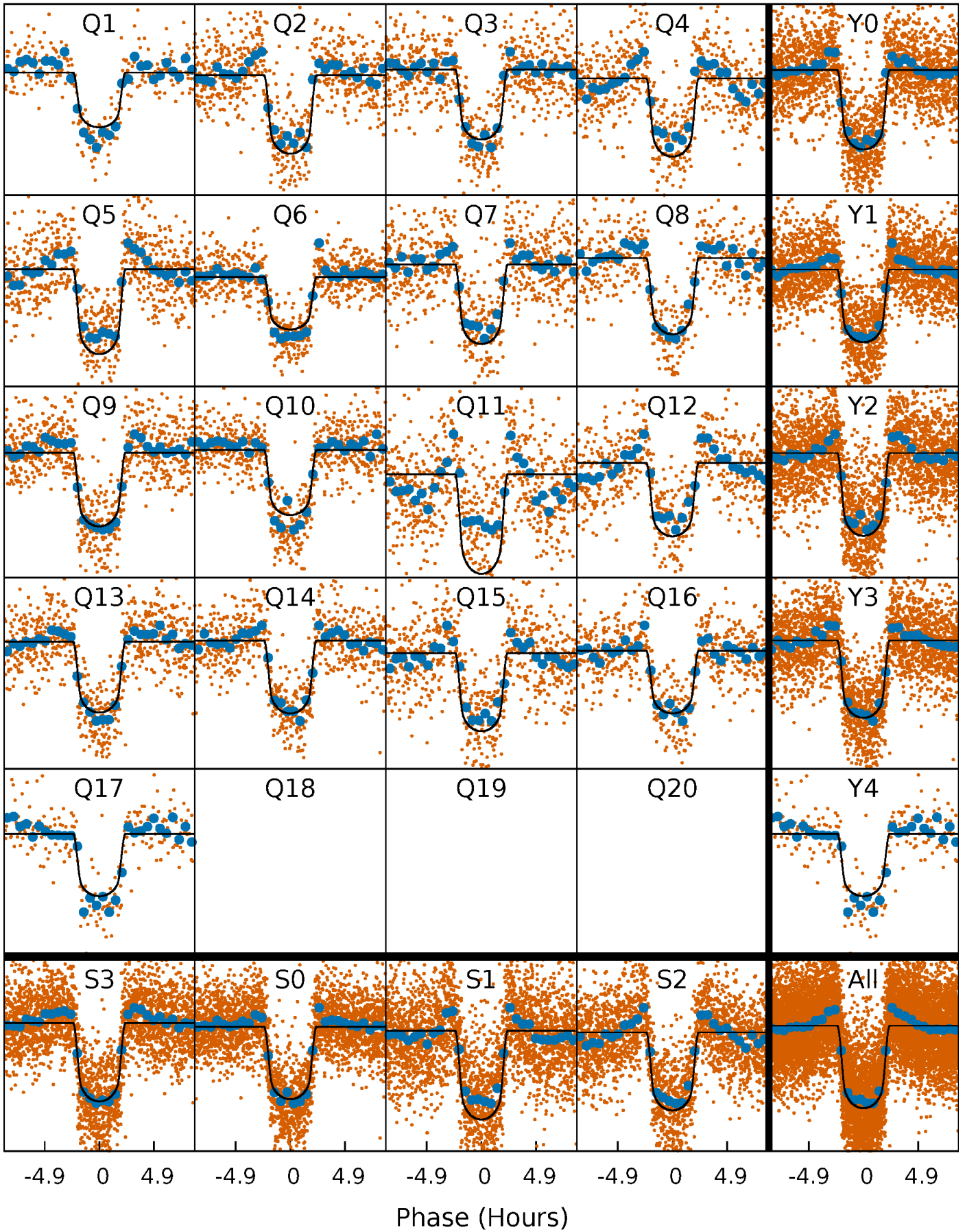
TCE 008026752-01   P= 4.286837 Days    $T_0=134.332844$  (BKJD)





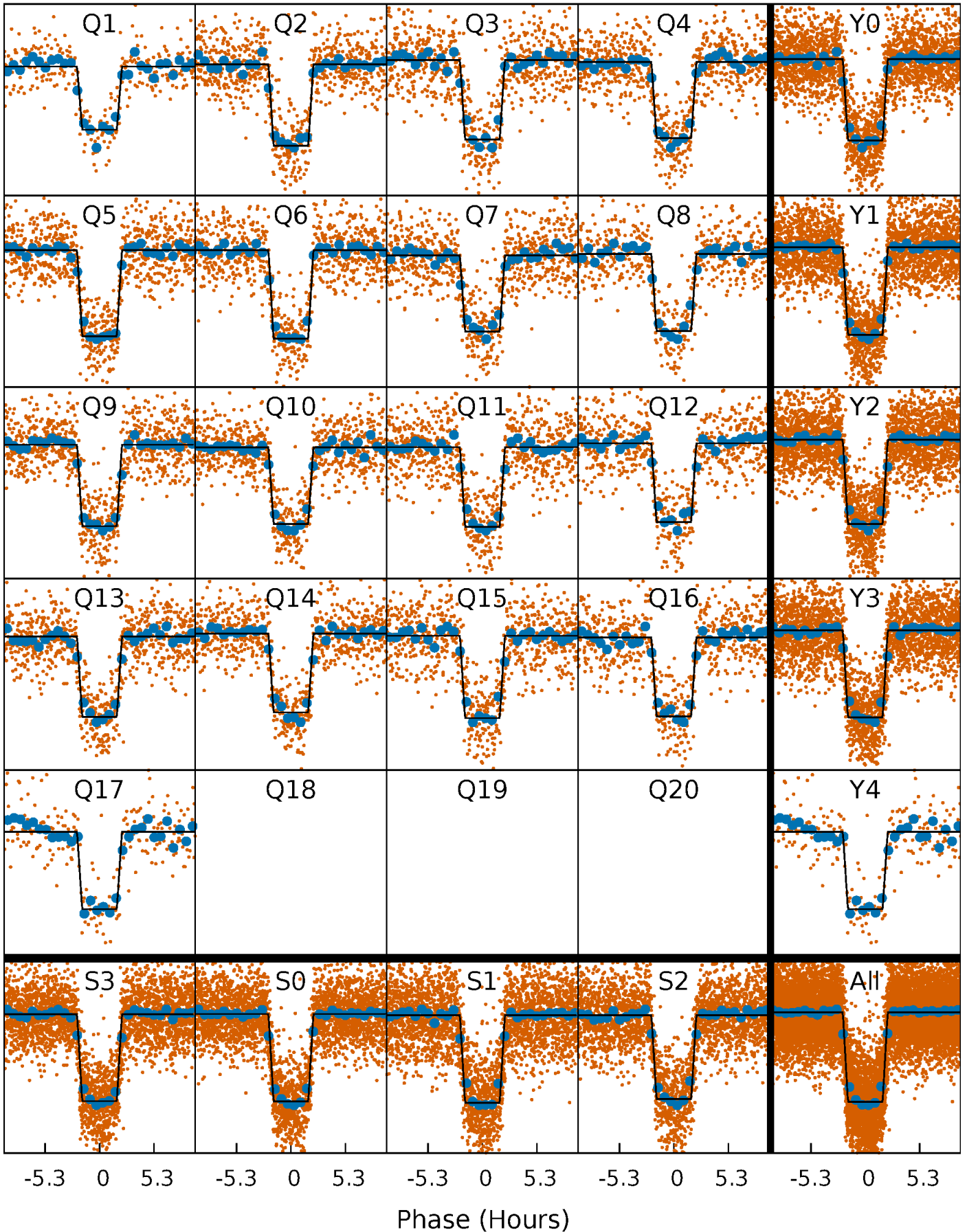
# DV Quarter-Phased Transit Curves

TCE 008026752-01 P= 4.286837 Days  $T_0=134.332844$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

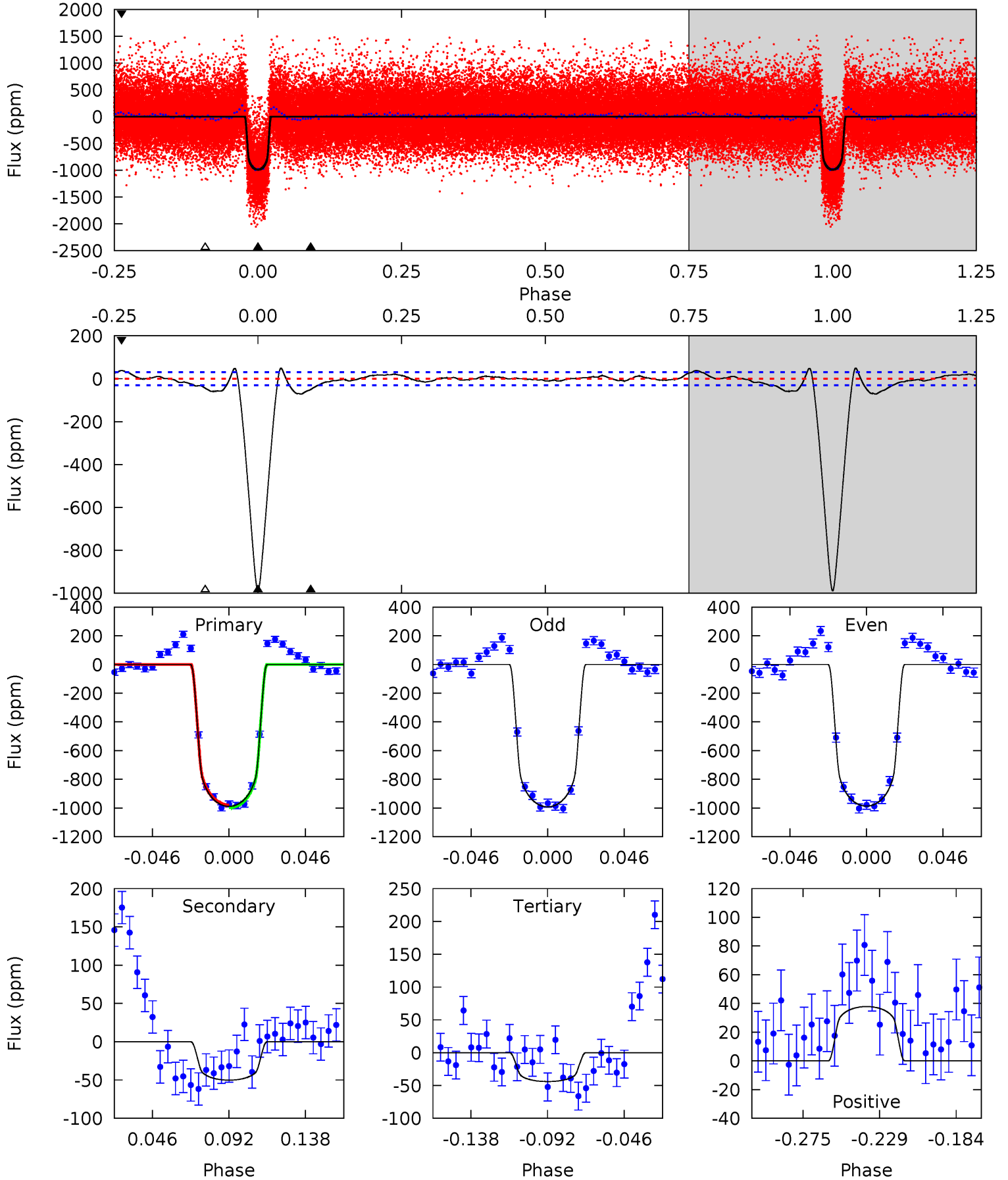
TCE 008026752-01 P= 4.286848 Days  $T_0=134.330883$  (BKJD)



# DV Model-Shift Uniqueness Test

008026752-01, P = 4.286837 Days, E = 130.046007 Days

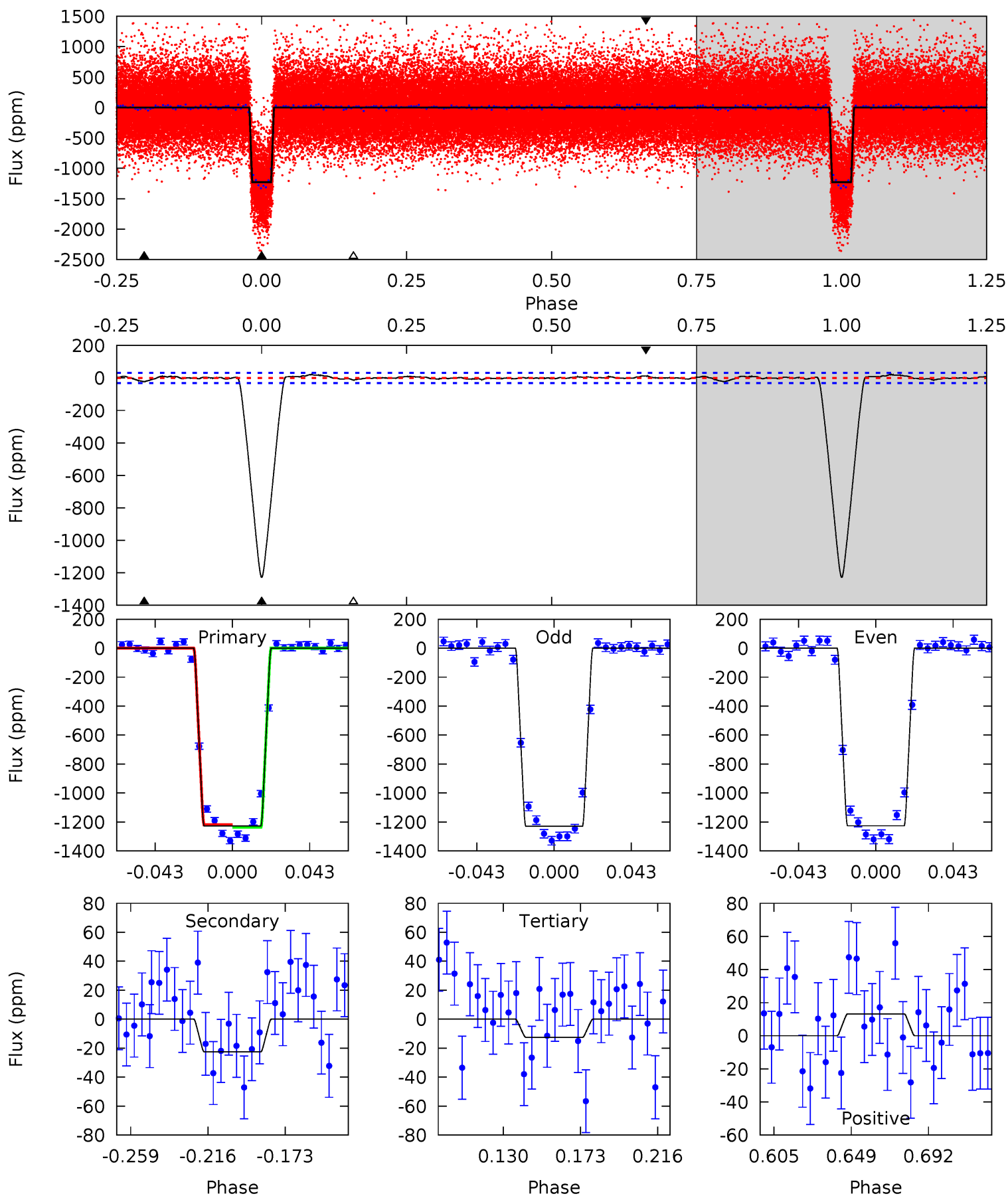
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
153.3	7.78	6.83	5.86	4.73	2.00	2.58	146.4	147.4	0.95	1.91	0.39	0.98	0.05	1.39



# Alt Model-Shift Uniqueness Test

008026752-01, P = 4.286848 Days, E = 130.044035 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
187.6	3.43	1.91	2.01	4.74	2.02	0.89	185.7	185.6	1.52	1.42	0.25	1.00	0.02	1.42



### Stellar Parameters For KIC 008026752

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6228^{+172}_{-216}$	$4.441^{+0.052}_{-0.208}$	$-0.080^{+0.250}_{-0.350}$	$1.049^{+0.332}_{-0.111}$	$1.107^{+0.141}_{-0.155}$	$1.351^{+0.388}_{-0.724}$
	+3%/-3%	+1%/-5%	+312%/-438%	+32%/-11%	+13%/-14%	+29%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008026752-01 / KOI 0240.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-50 \pm 6$	$3.74^{+0.61}_{-0.35}$	$1734^{+121}_{-91}$	$3404^{+121}_{-114}$	$5.446^{+1.323}_{-1.344}$
Alt.	$-22 \pm 7$	$4.20^{+0.70}_{-0.39}$	$1746^{+124}_{-95}$	$2882^{+150}_{-171}$	$1.897^{+0.764}_{-0.678}$

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



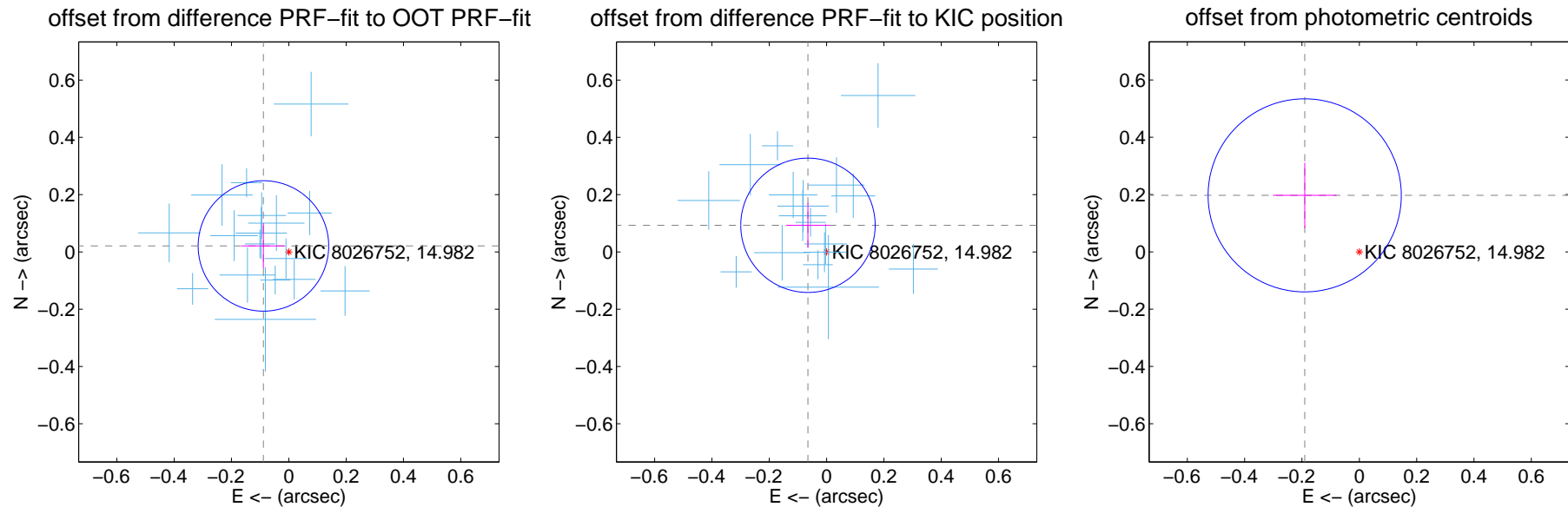
## DV Centroid Data

Supplemental centroid analysis for 008026752-01. Kepler magnitude: 14.98. Transit SNR 117.78

There are 17 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.091 \pm 0.076$	1.20	$0.089 \pm 0.076$	$0.021 \pm 0.080$
PRF-fit source offset from KIC position	$0.113 \pm 0.078$	1.45	$0.065 \pm 0.076$	$0.093 \pm 0.078$
photometric centroid source offset	$0.27 \pm 0.11$	2.44	$0.19 \pm 0.11$	$0.20 \pm 0.11$

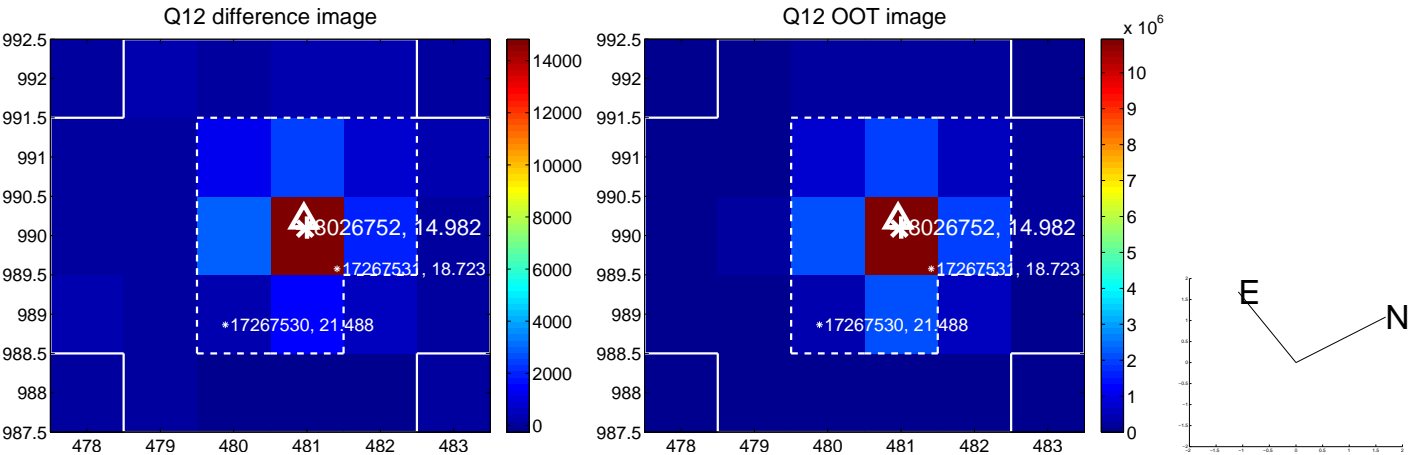
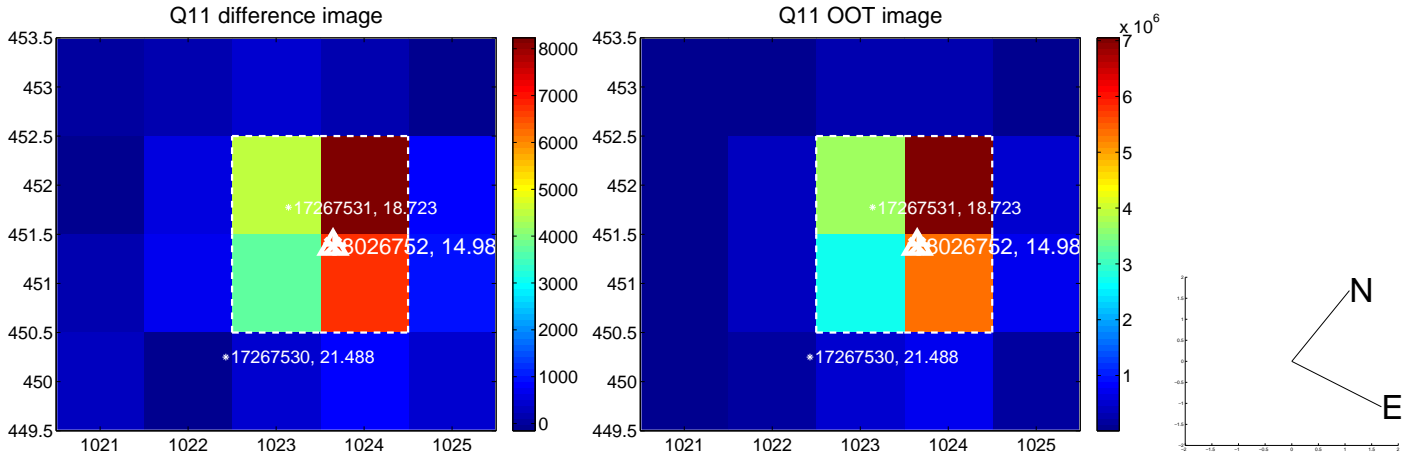
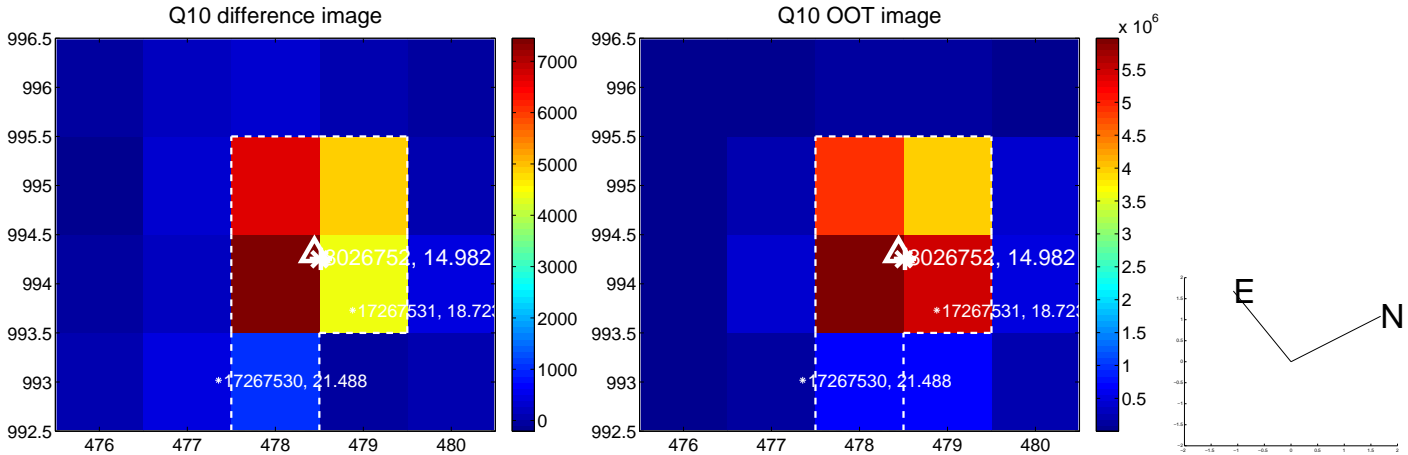
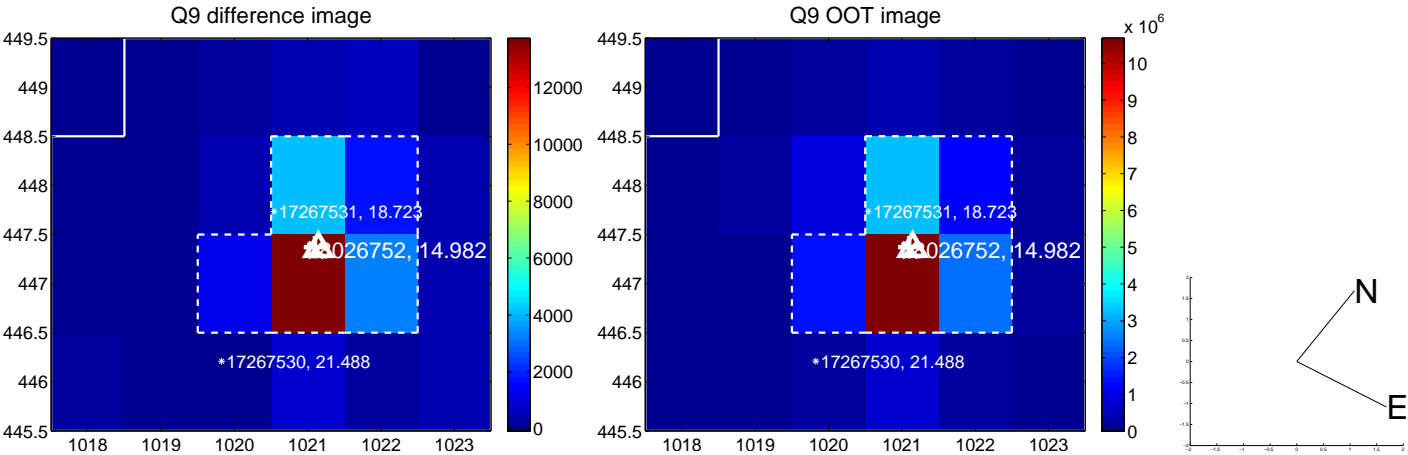


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

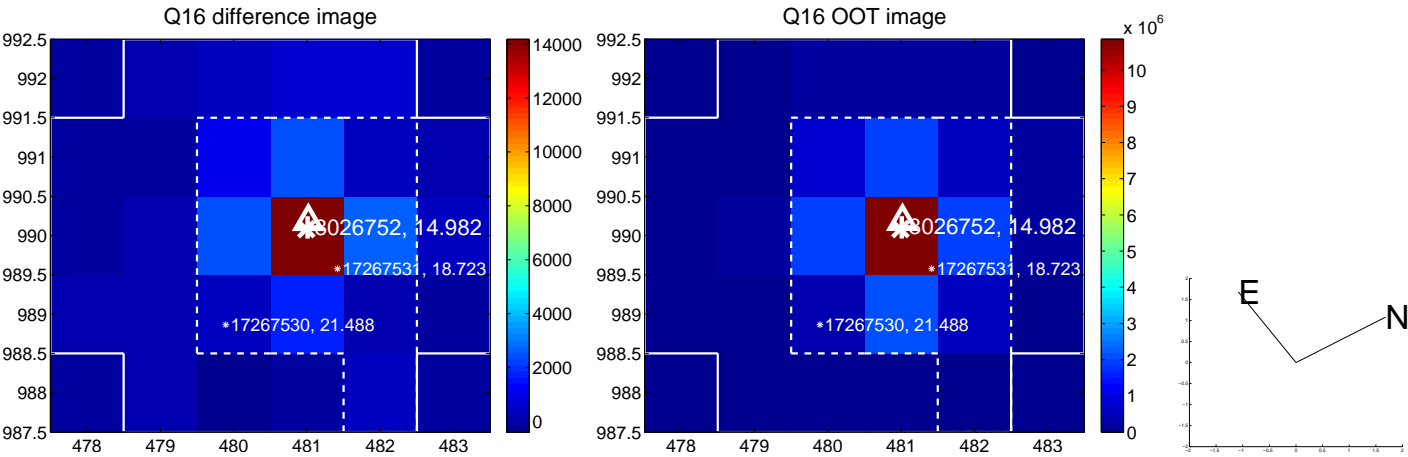
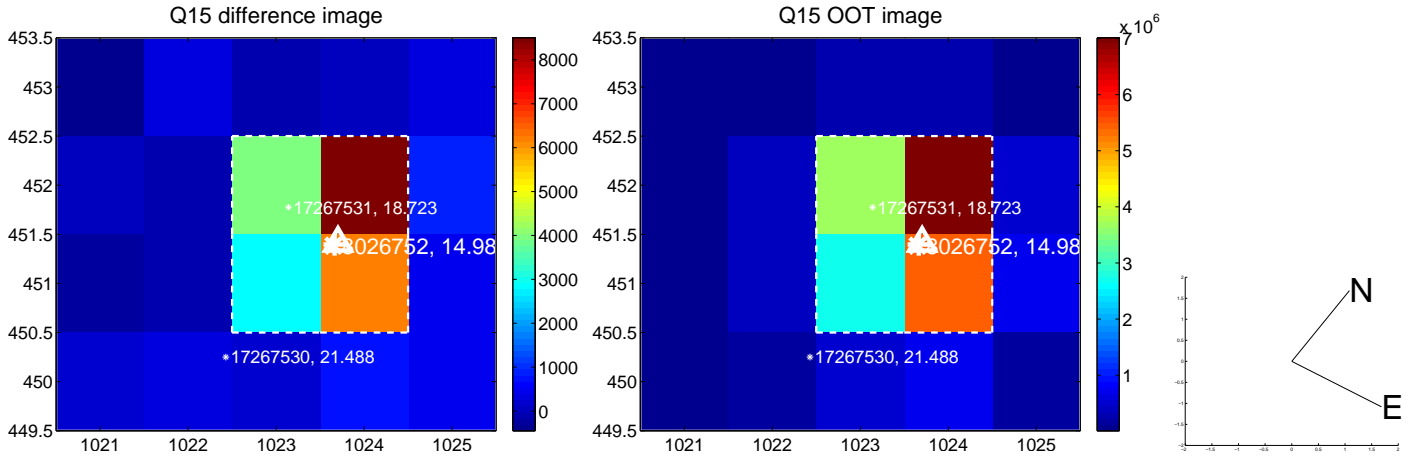
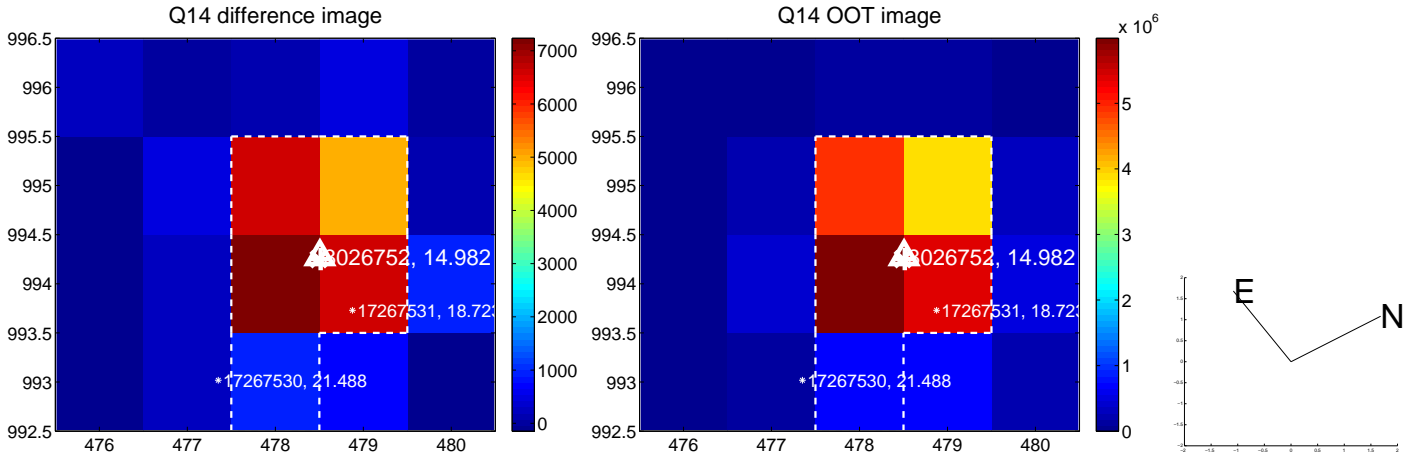
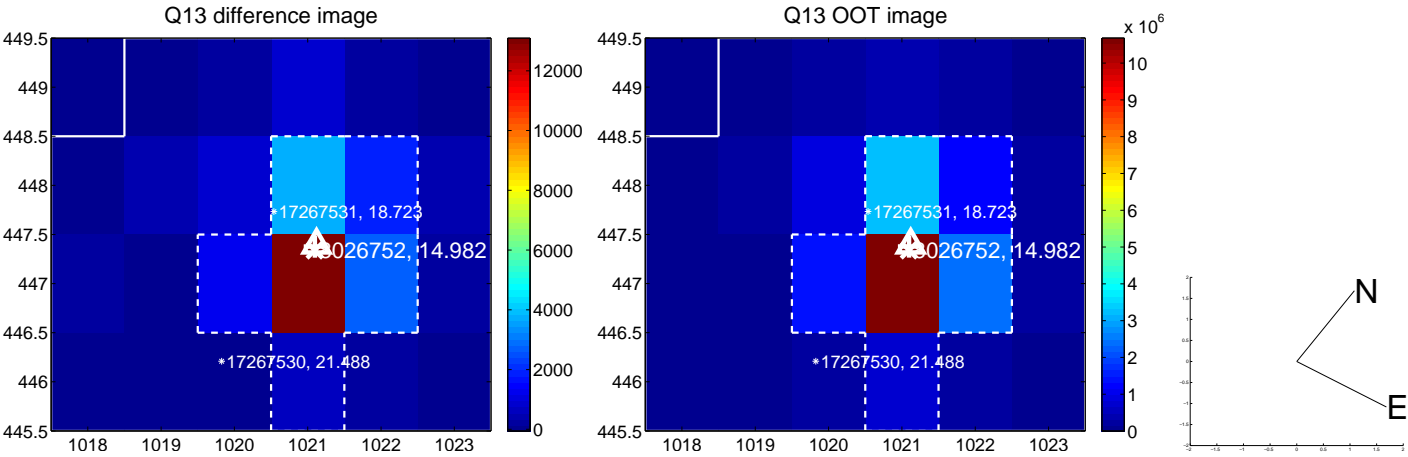




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

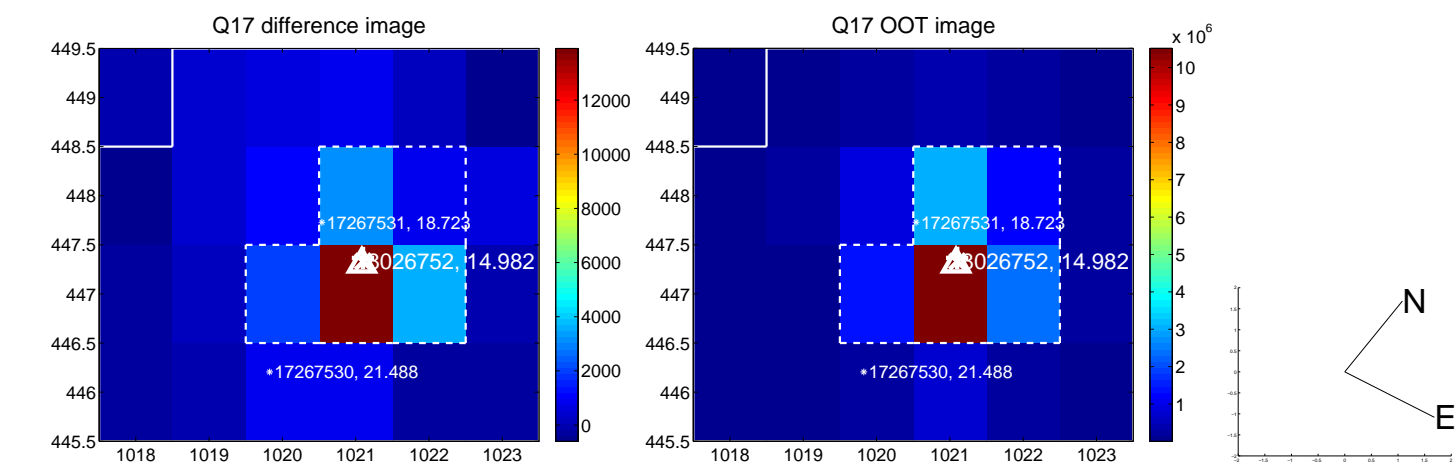


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

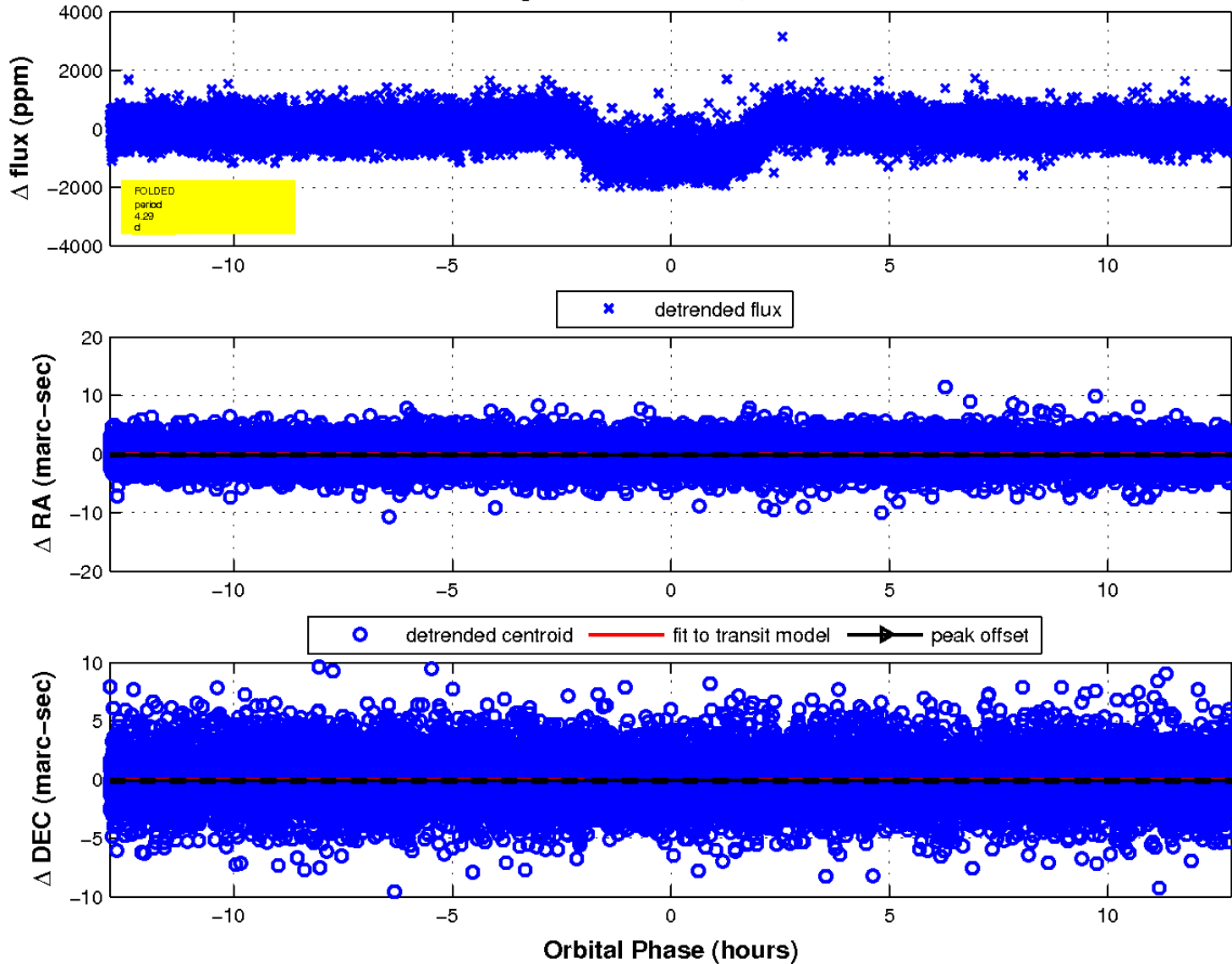




white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

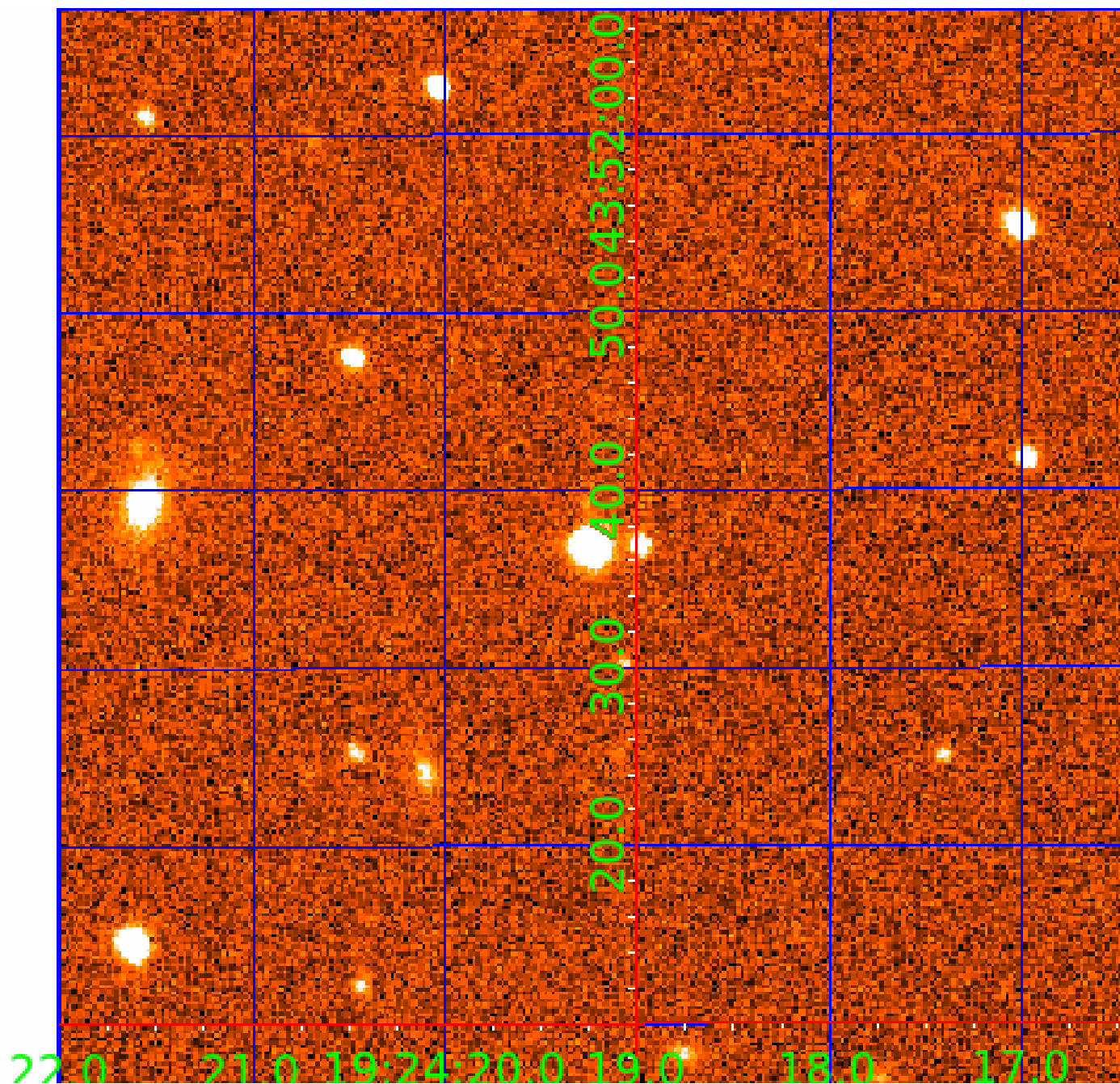


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



# KIC 008026752

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008026752-01	OBS	0240.01	4.286837	134.332844	1043.7	4.279	101.5	117.8	1.05	6228	3.66	519.15
008026752-02	OBS	No	4.287399	133.389030	10.0	0.665	7.4	0.5	1.05	6228	0.40	519.06

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008026752-01	OBS	FP	0.01	0	1	0	0	HAS_SEC_TCE
008026752-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_FEW_MEAS—HALO_GHOST

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

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

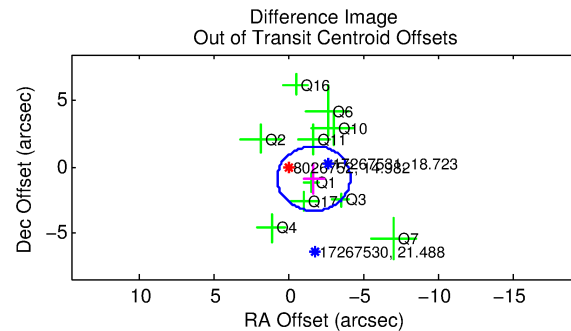
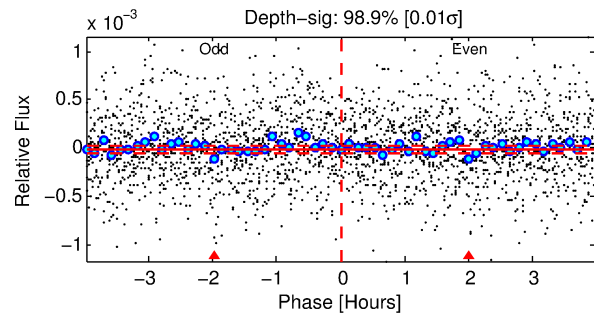
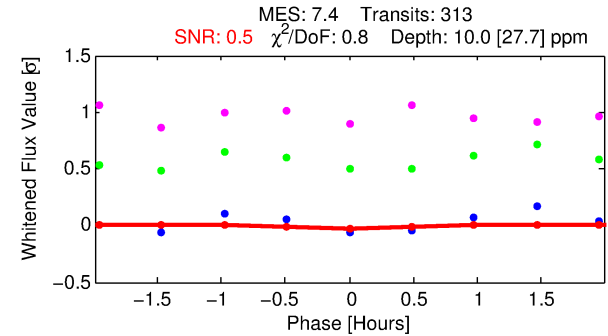
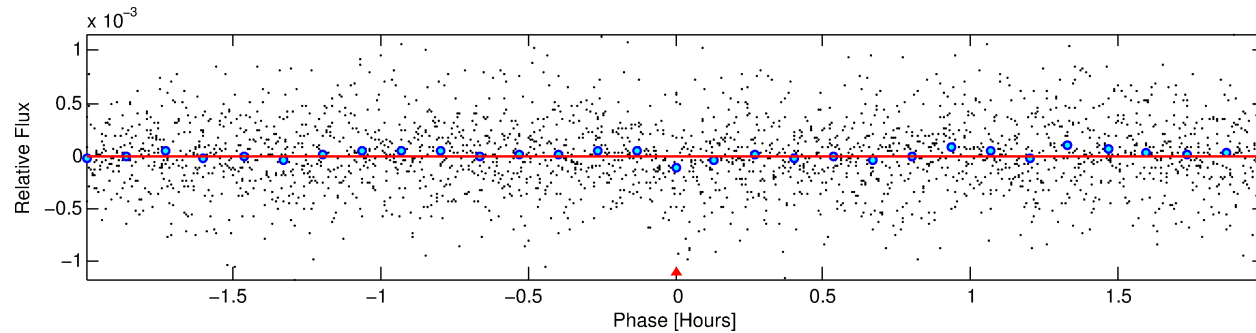
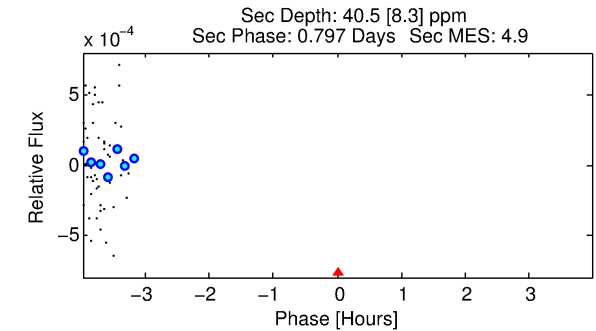
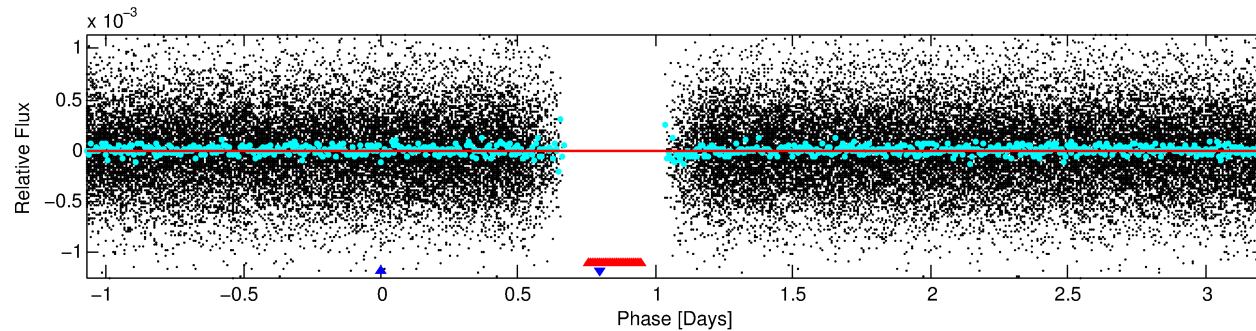
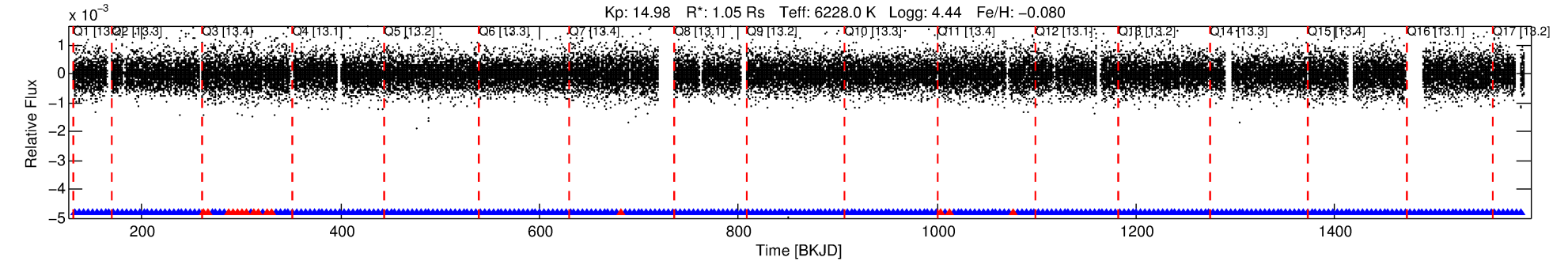
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008026752-02

No Significant Match Found

# DV One-Page Summary

KIC: 8026752 Candidate: 2 of 2 Period: 4.287 d  
KOI: K00240 Corr: No Ephemeris Match



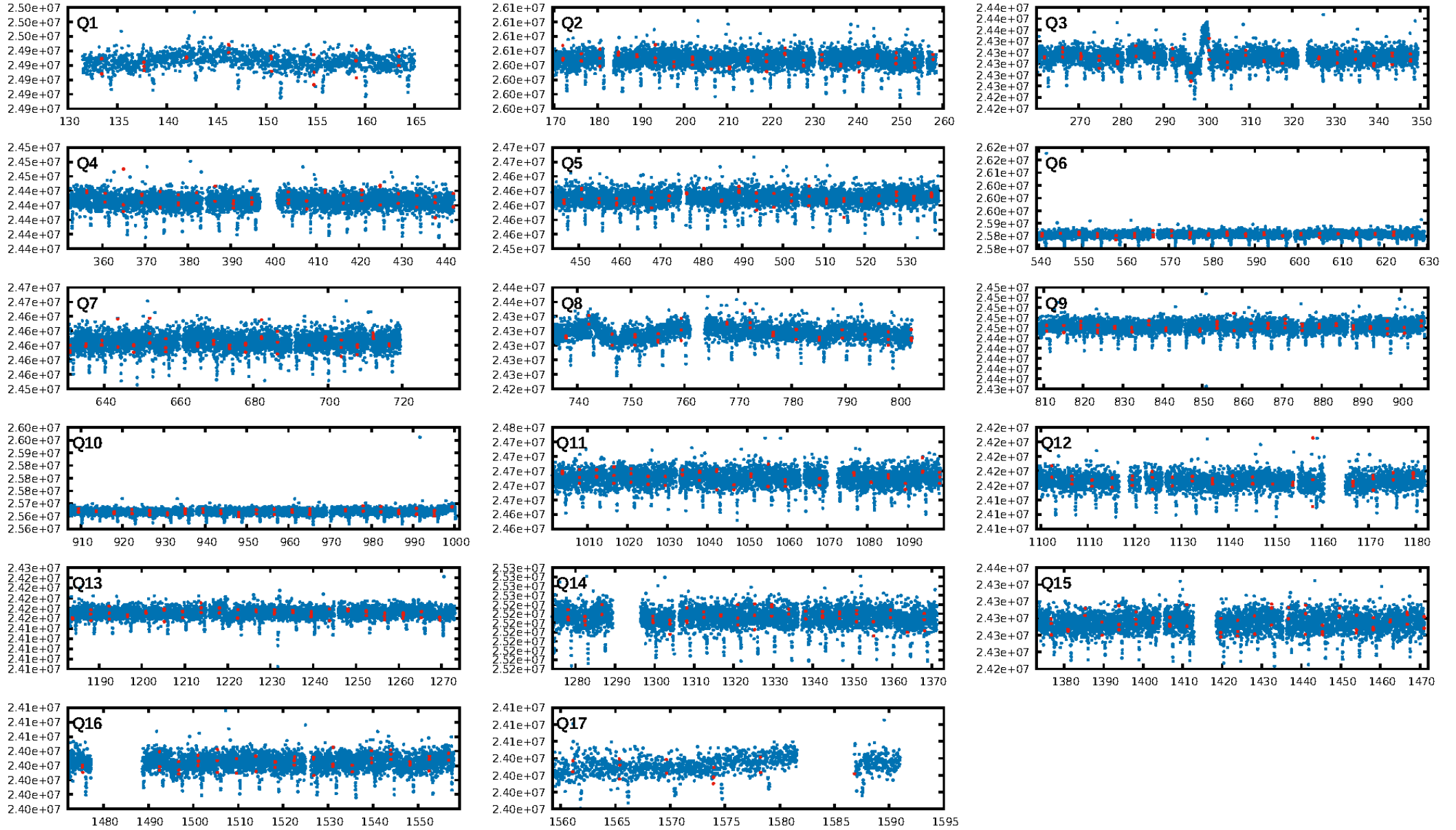
## DV Fit Results:

Period = 4.28740 [0.00030] d  
Epoch = 133.3890 [0.0356] BKJD  
Rp/R\* = 0.0035 [0.0131]  
a/R\* = 20.54 [404.97]  
b = 0.91 [3.62]  
Seff = 519.06 [211.30]  
Teq = 1217 [124] K  
Rp = 0.40 [1.50] Re  
a = 0.0535 [0.0141] AU  
Ag = 392.73 [2923.56] [0.13σ]  
Teffp = 8377 [15572] K [0.46σ]

## DV Diagnostic Results:

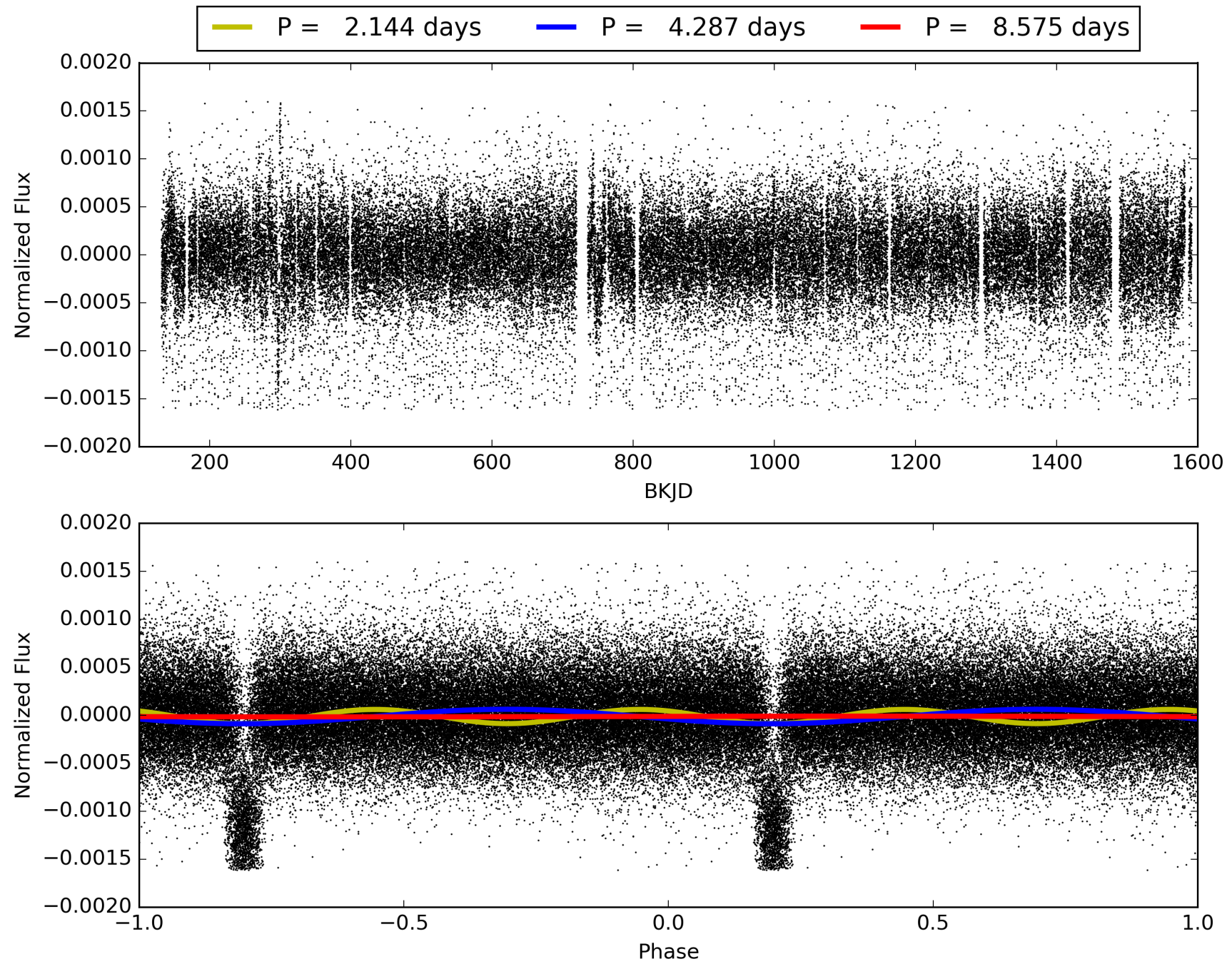
ShortPeriod-sig: 0.2% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 5.56e-14  
RollingBand-fgt: 0.95 [284/299]  
GhostDiagnostic-chr: -0.1035  
Centroid-sig: 53.7%  
Centroid-so: 18.707 arcsec [0.60σ]  
OotOffset-rm: 1.927 arcsec [2.36σ]  
KicOffset-rm: 1.952 arcsec [2.17σ]  
OotOffset-st: 3/3/2/2 [10]  
KicOffset-st: 3/3/2/2 [10]  
DiffImageQuality-fgm: 0.20 [2/10]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008026752-02, PDC Light Curves



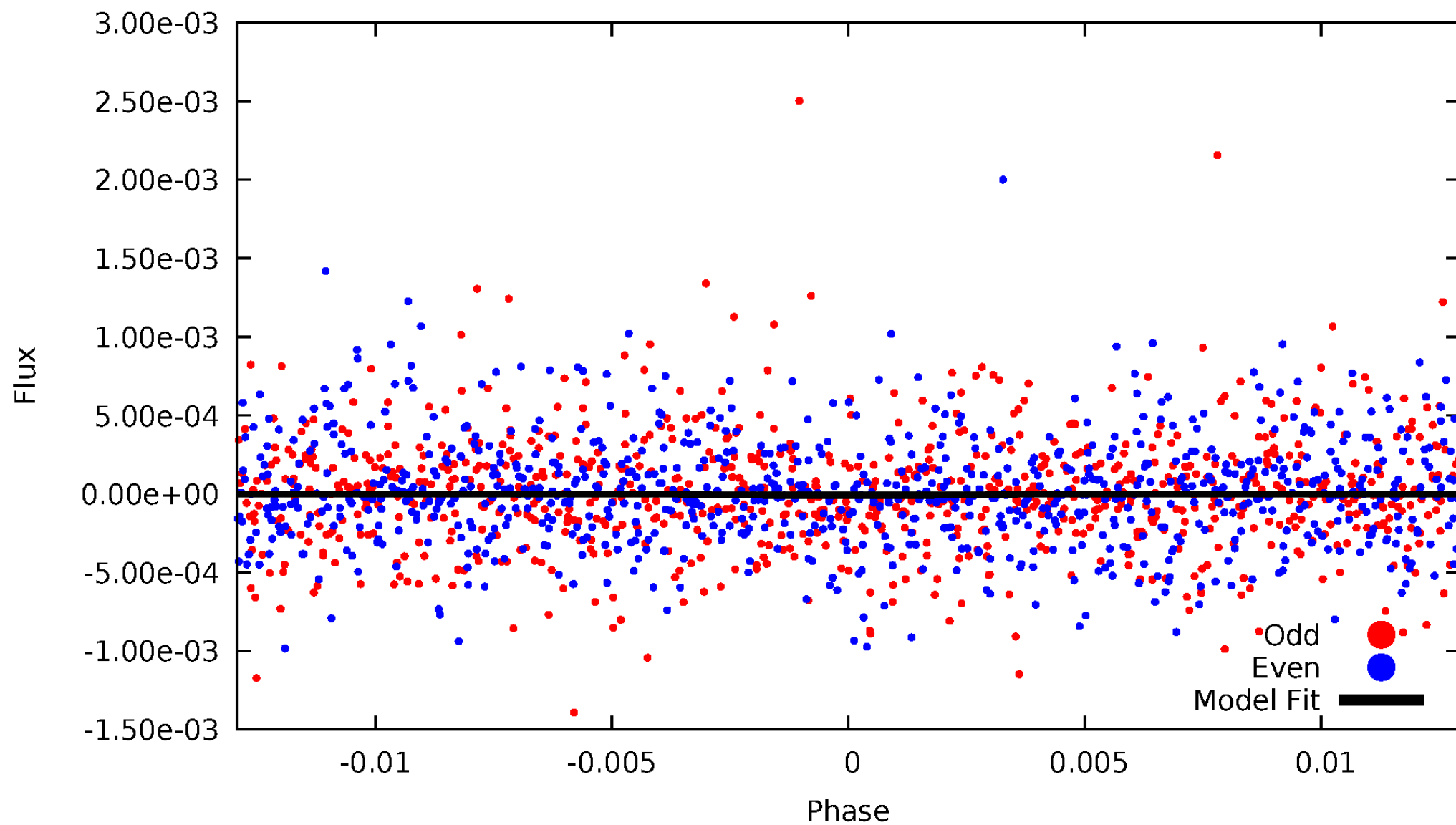


TCE 008026752-02



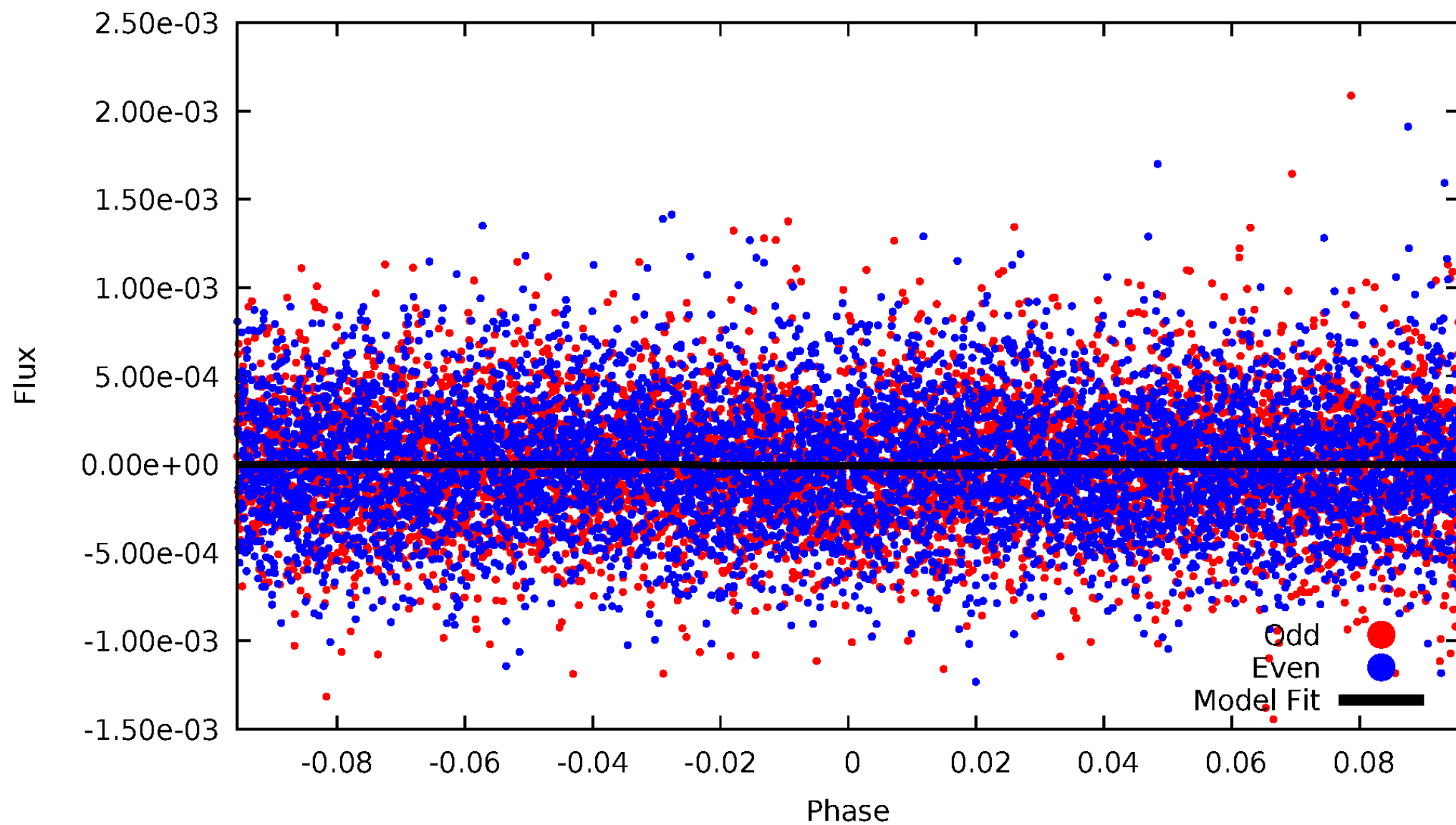
# DV Odd/Even

TCE 008026752-02



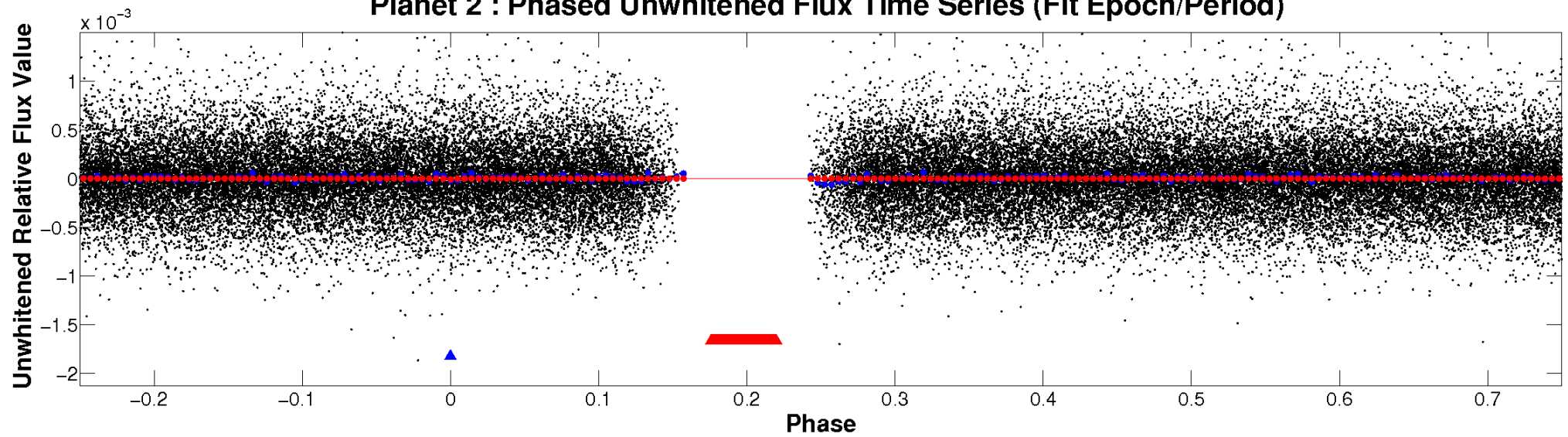
# ALT Odd/Even

TCE 008026752-02

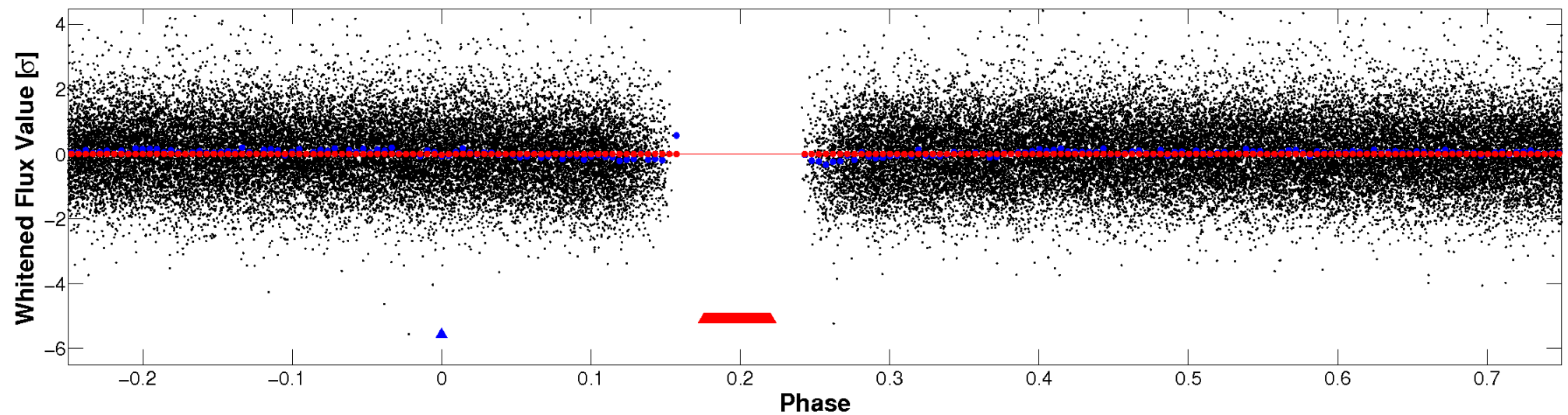


# Non-Whitened Vs. Whitened Light Curve

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

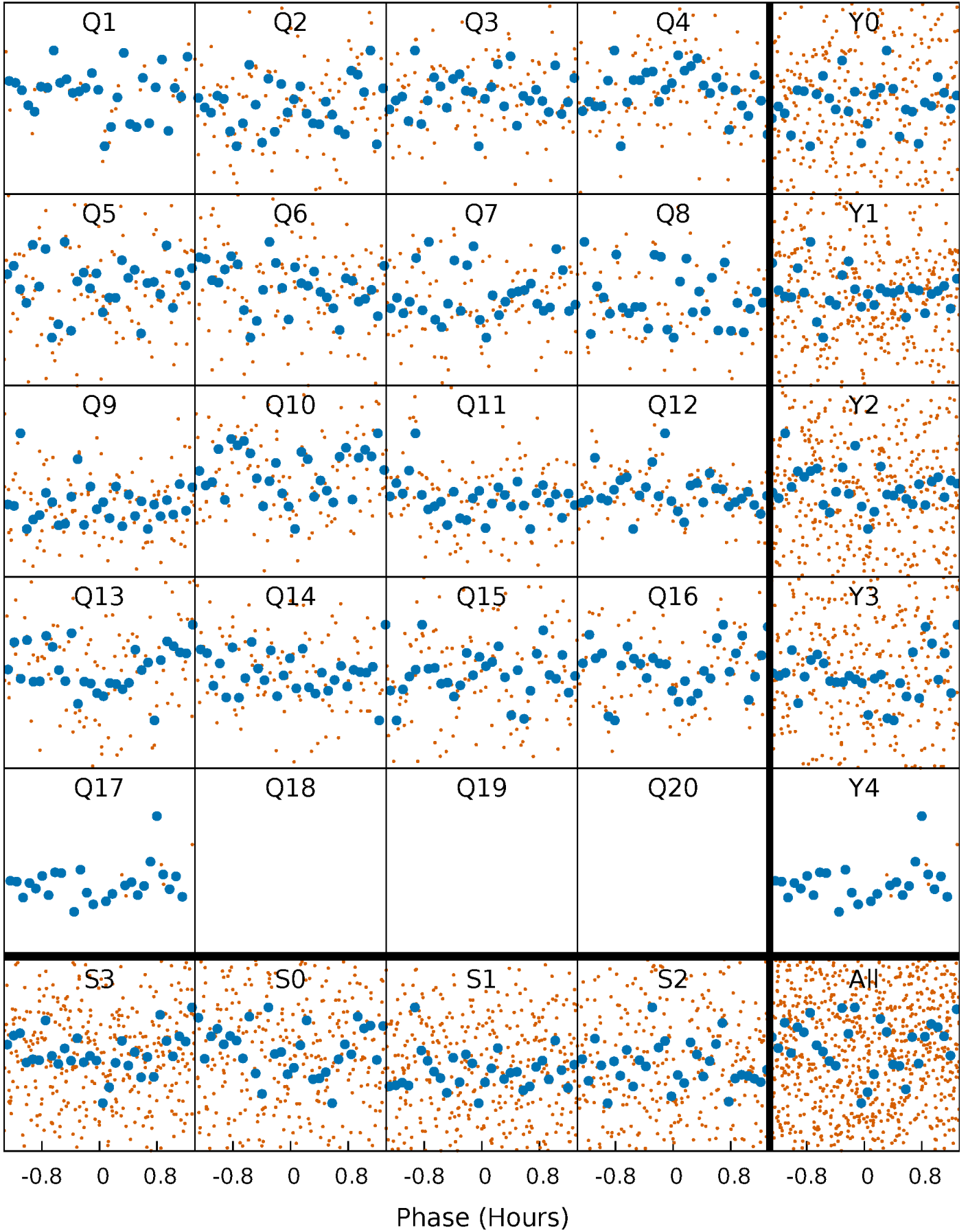


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

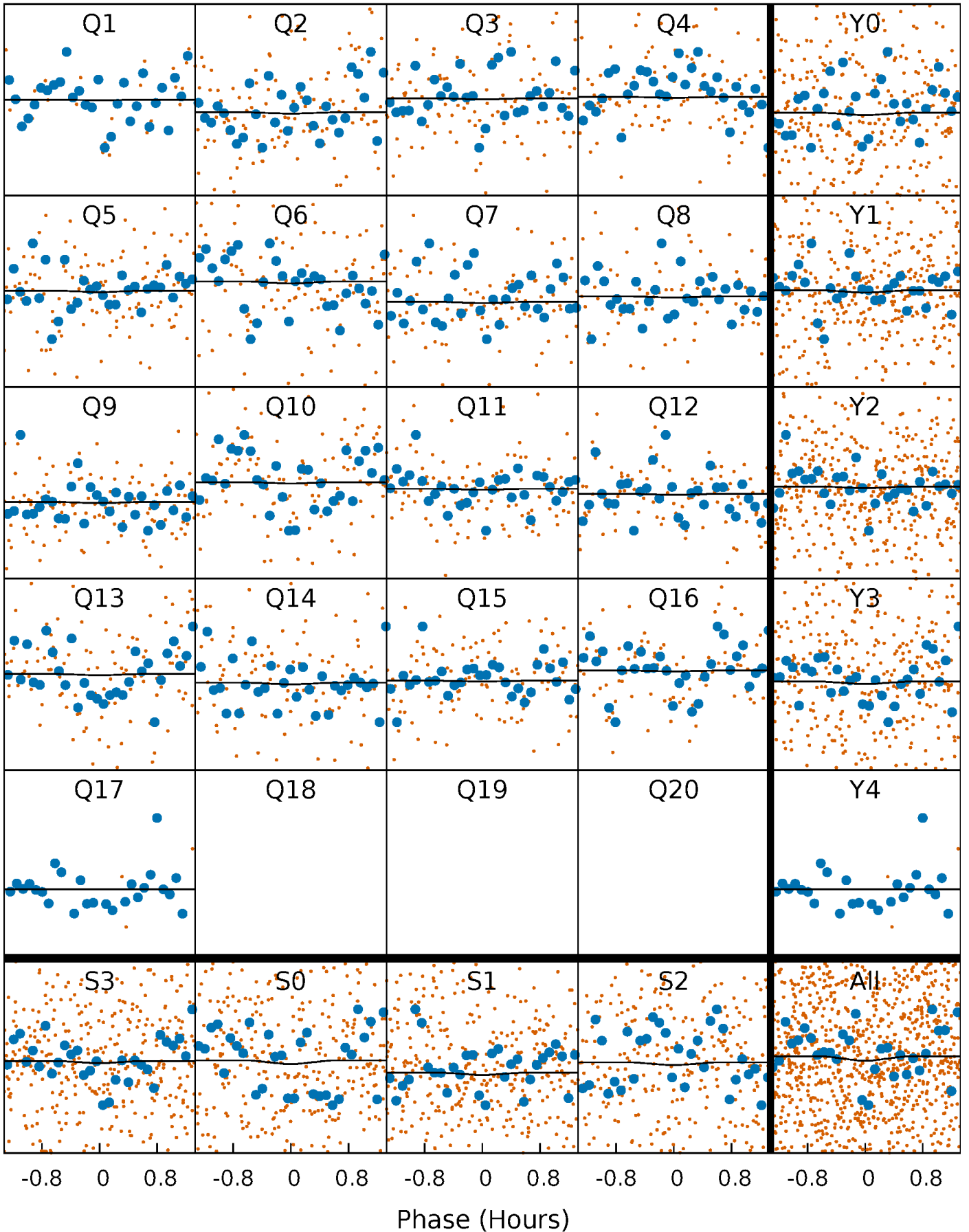
TCE 008026752-02   P= 4.287399 Days    $T_0=133.389030$  (BKJD)





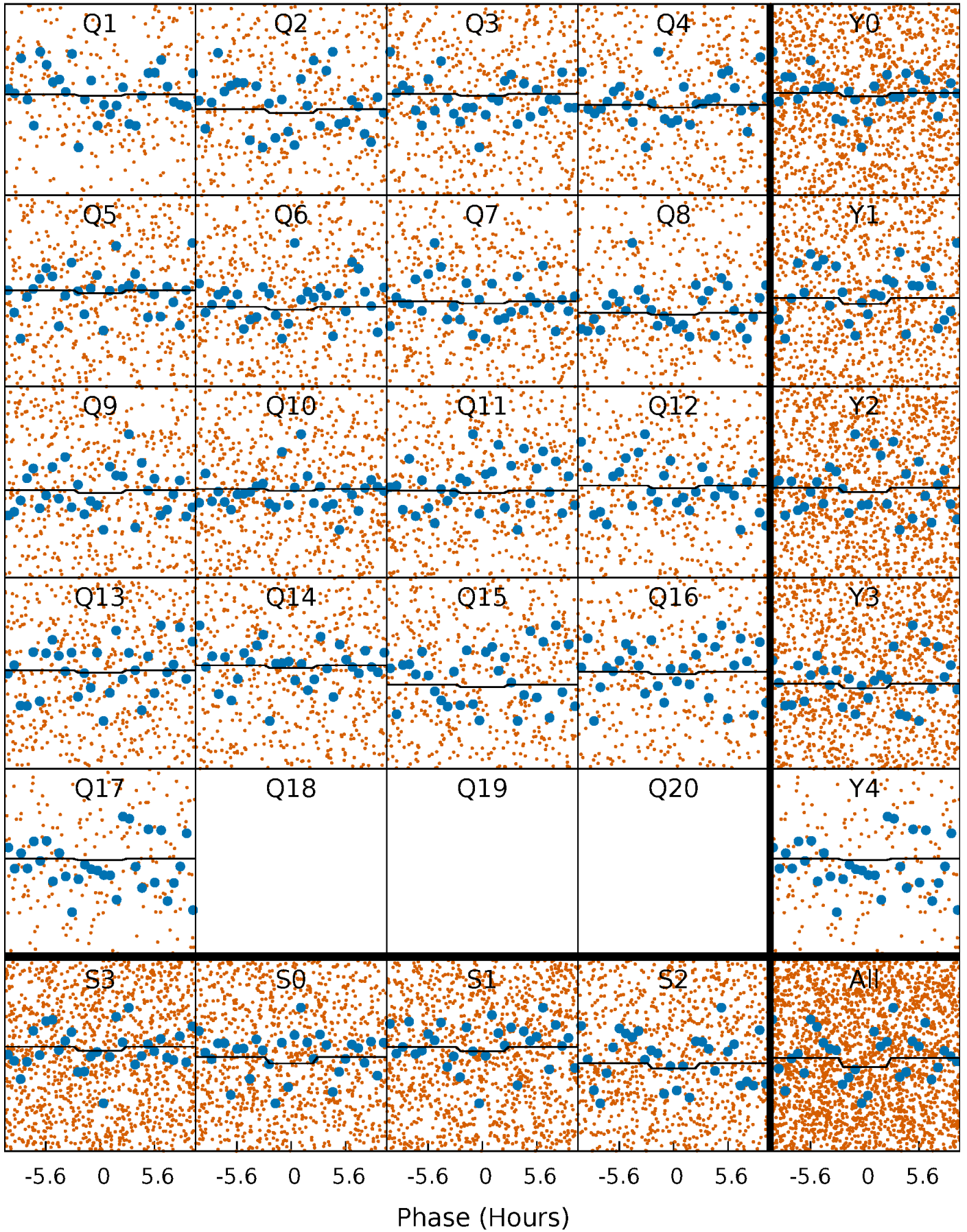
# DV Quarter-Phased Transit Curves

TCE 008026752-02 P= 4.287399 Days  $T_0=133.389030$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

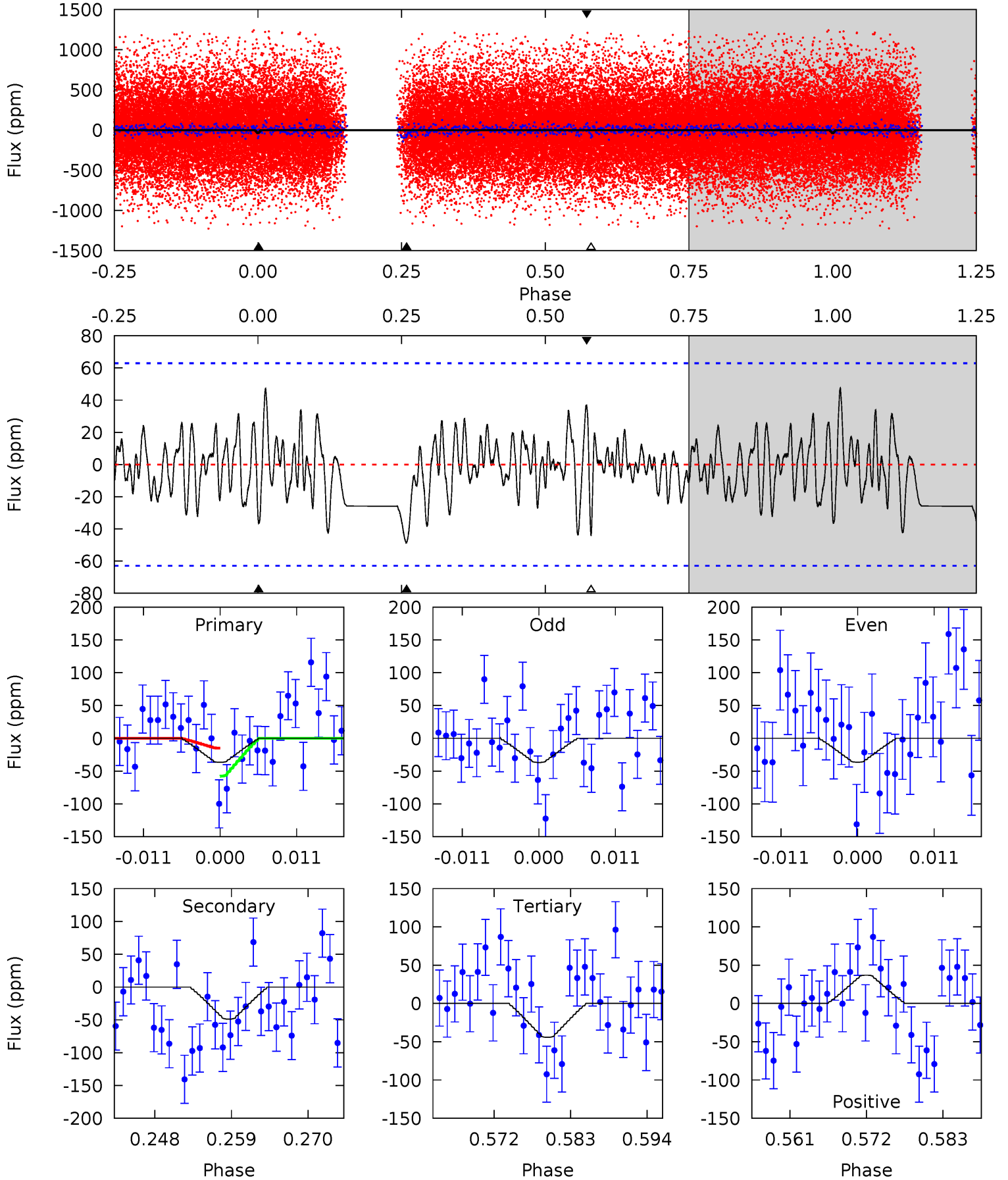
TCE 008026752-02 P= 4.286915 Days  $T_0=133.492933$  (BKJD)



# DV Model-Shift Uniqueness Test

008026752-02, P = 4.287399 Days, E = 129.101631 Days

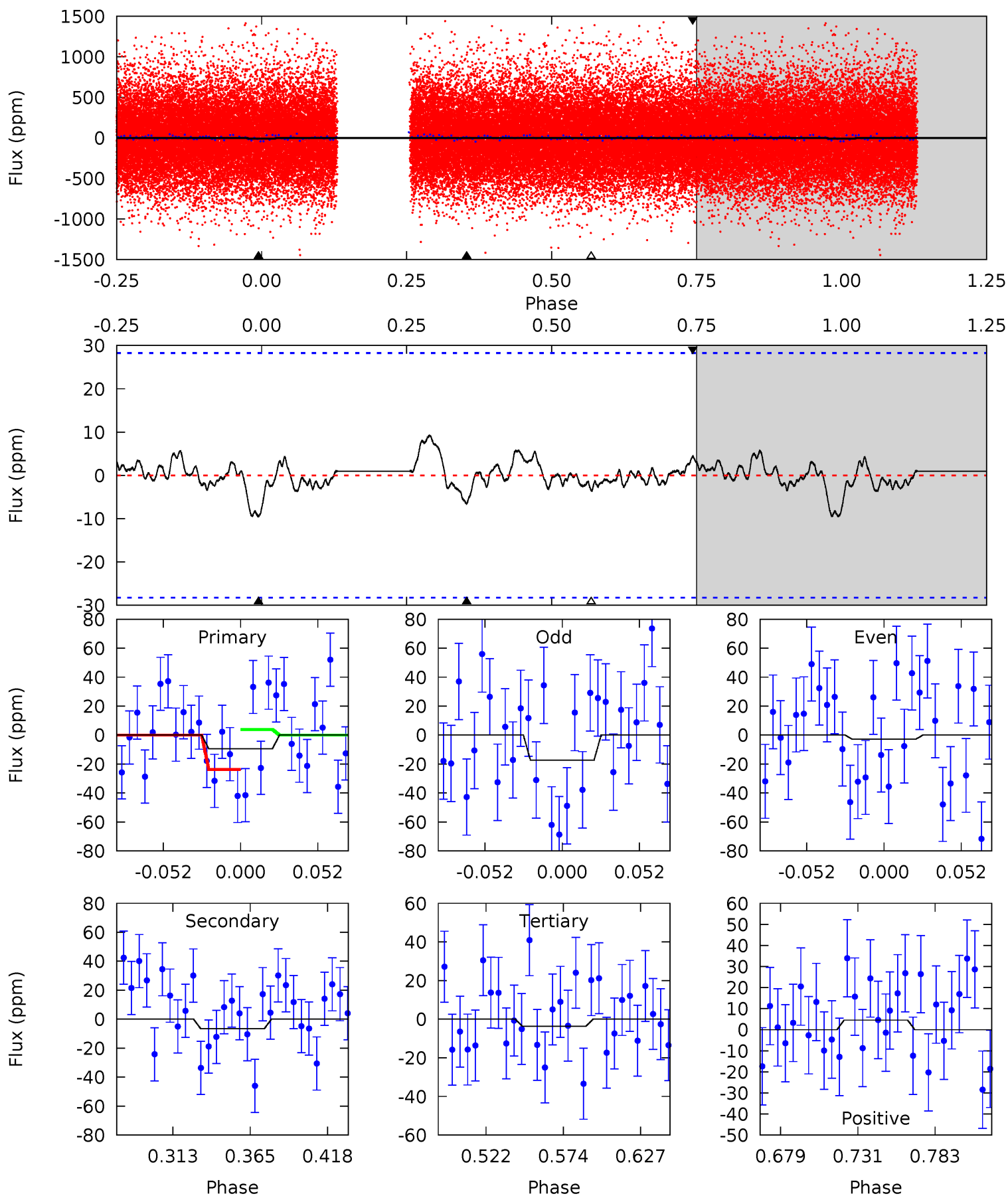
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.92	3.89	3.53	2.95	5.01	2.55	1.18	-0.61	-0.02	0.37	0.95	0.02	0.44	0.49	1.71



# Alt Model-Shift Uniqueness Test

008026752-02, P = 4.286915 Days, E = 129.206018 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.58	1.10	0.61	0.76	4.70	1.94	0.44	0.98	0.83	0.49	0.34	1.20	1.03	0.49	1.66



### Stellar Parameters For KIC 008026752

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6228^{+172}_{-216}$	$4.441^{+0.052}_{-0.208}$	$-0.080^{+0.250}_{-0.350}$	$1.049^{+0.332}_{-0.111}$	$1.107^{+0.141}_{-0.155}$	$1.351^{+0.388}_{-0.724}$
	+3%/-3%	+1%/-5%	+312%/-438%	+32%/-11%	+13%/-14%	+29%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008026752-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-49 \pm 13$	$1.29^{+1.22}_{-0.89}$	$1739^{+125}_{-91}$	$5091^{+4093}_{-1197}$	$45^{+359}_{-33}$
Alt.	$-7 \pm 6$	$1.17^{+1.22}_{-0.85}$	$1745^{+116}_{-89}$	$3378^{+2458}_{-5458}$	$4.852^{+77.814}_{-4.646}$

$T_{max}$  = 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

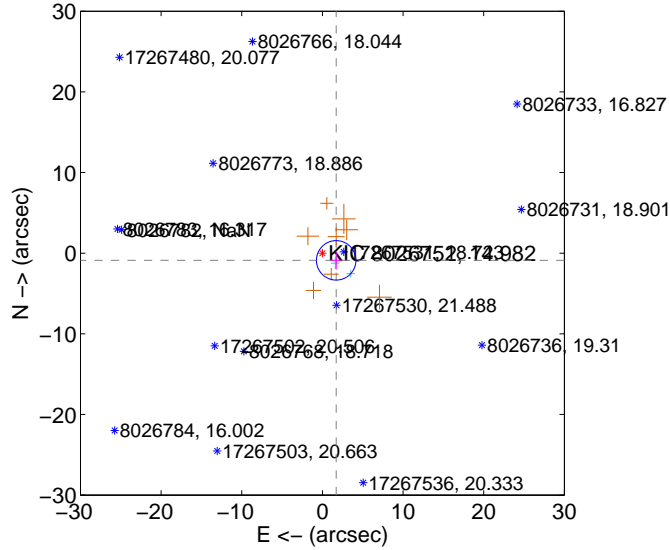
Supplemental centroid analysis for 008026752-02. Kepler magnitude: 14.98. Transit SNR 0.47

There are 2 quarters with good PRF difference image offsets

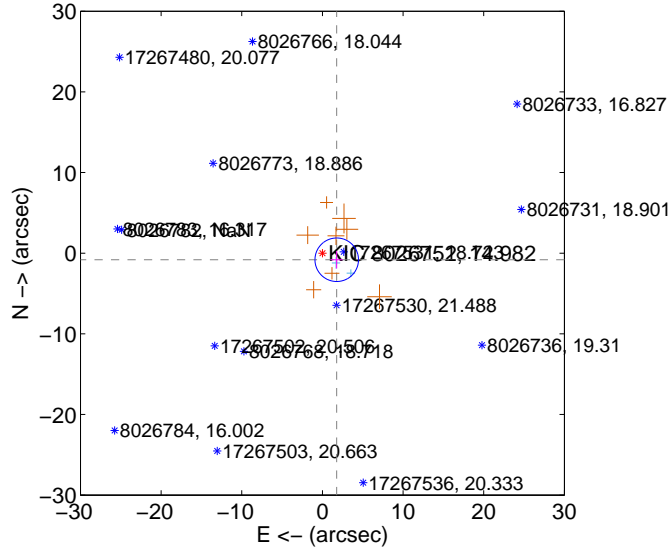
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.927 \pm 0.815$	2.36	$-1.709 \pm 0.698$	$-0.890 \pm 1.149$
PRF-fit source offset from KIC position	$1.952 \pm 0.899$	2.17	$-1.774 \pm 0.713$	$-0.816 \pm 1.086$
photometric centroid source offset	$18.71 \pm 31.22$	0.60	$-1.42 \pm 30.32$	$-18.65 \pm 31.23$

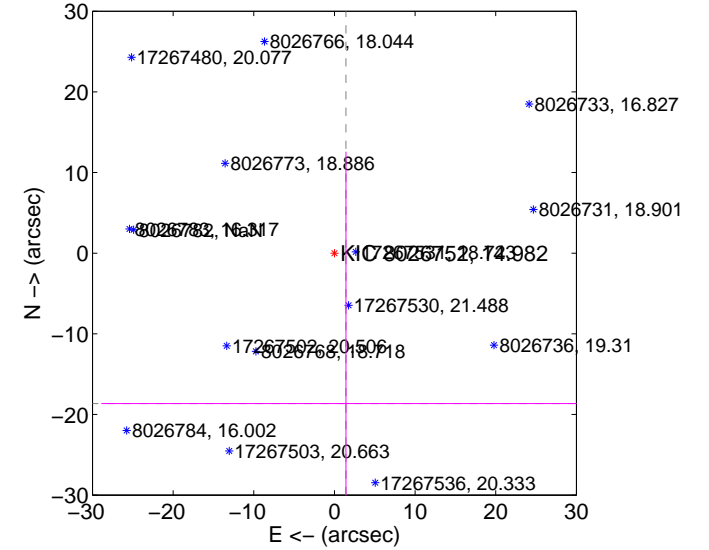
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



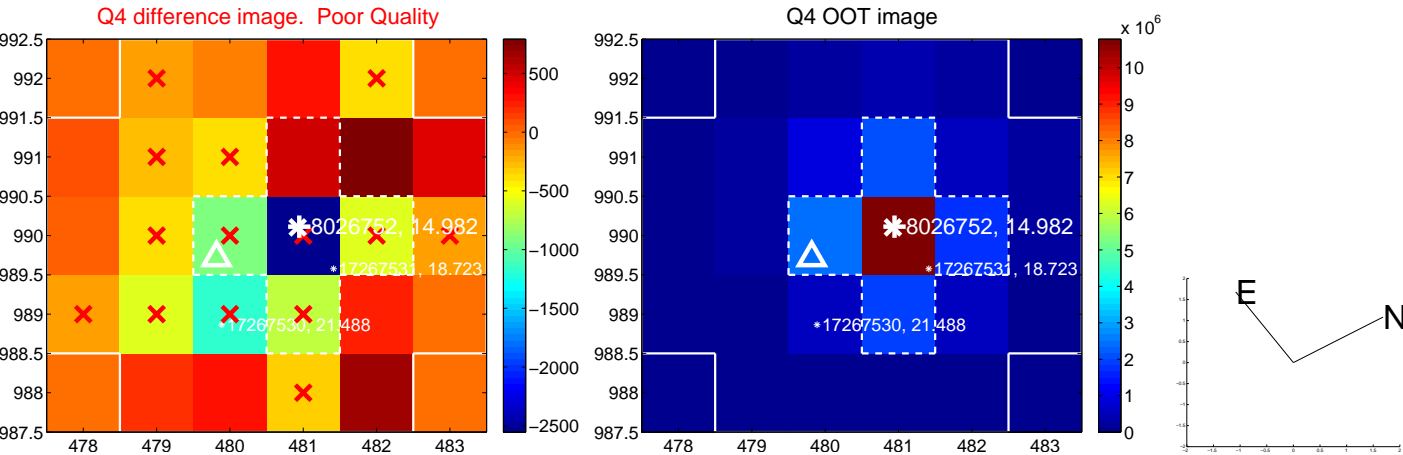
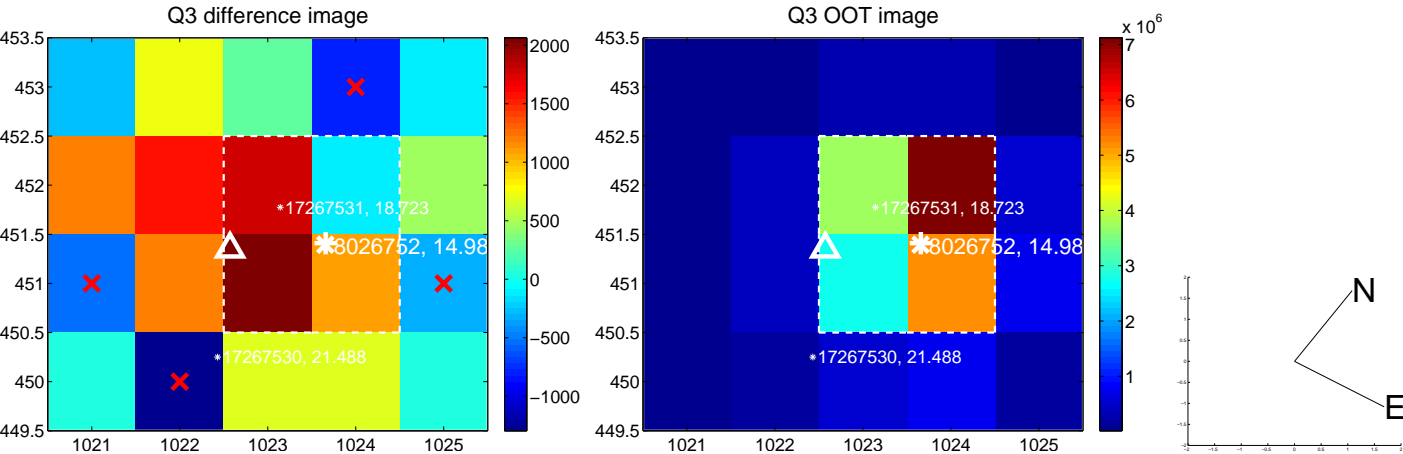
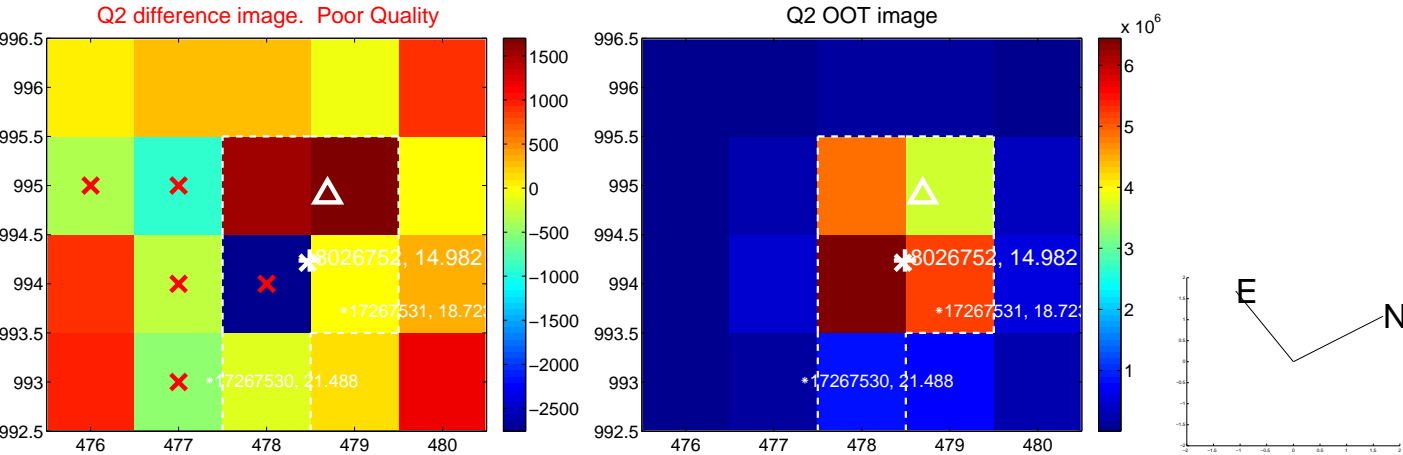
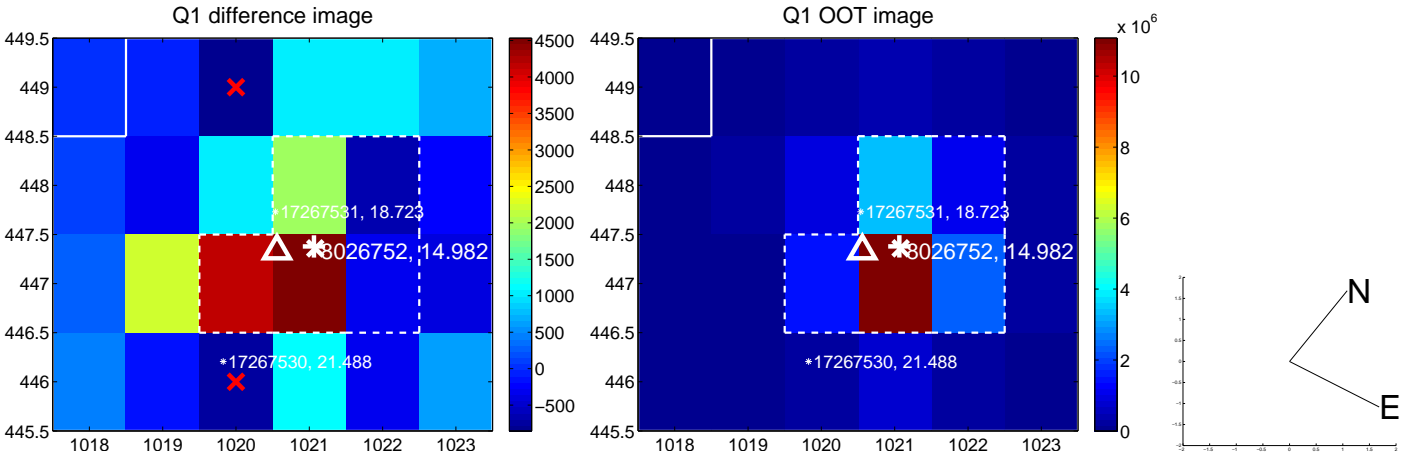
offset from photometric centroids



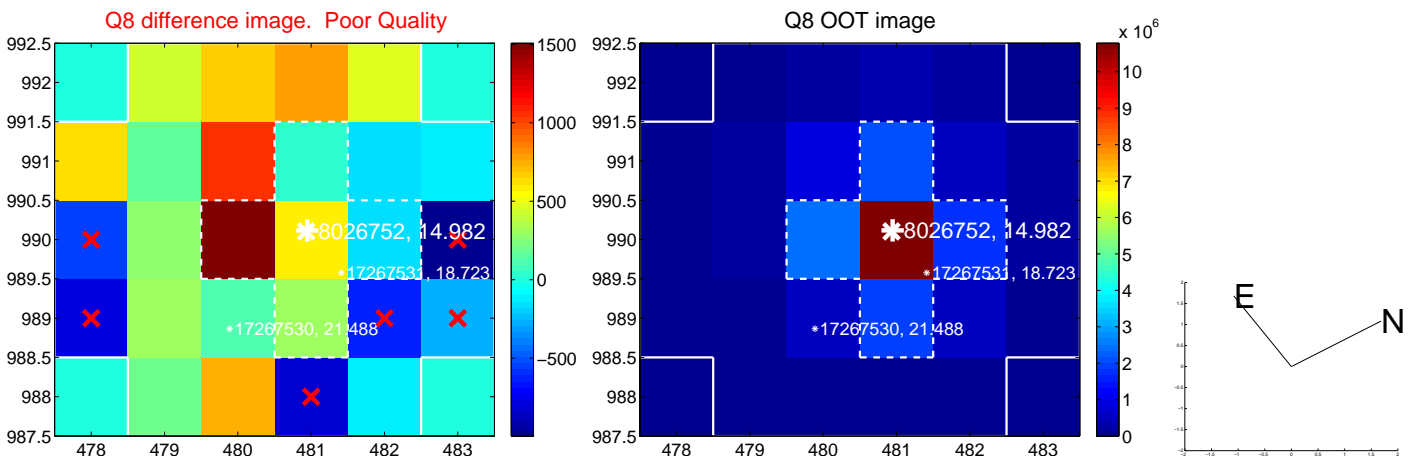
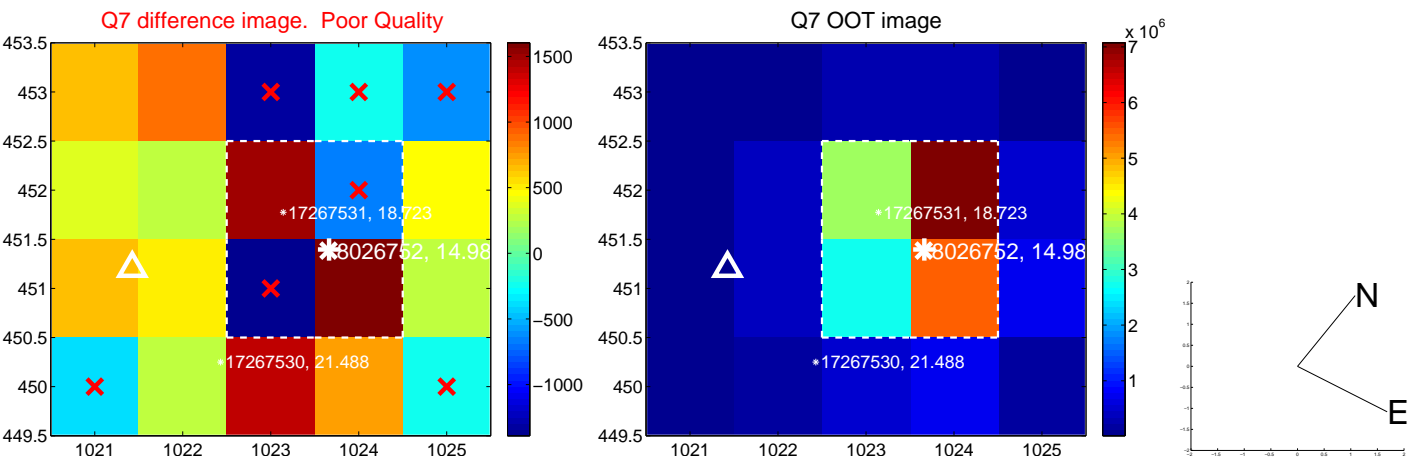
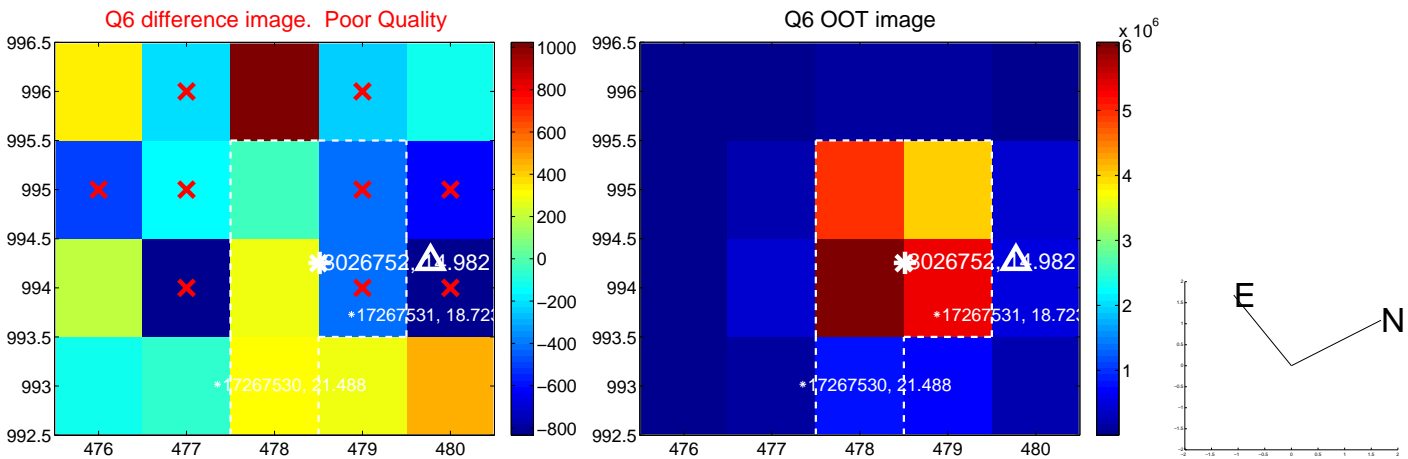
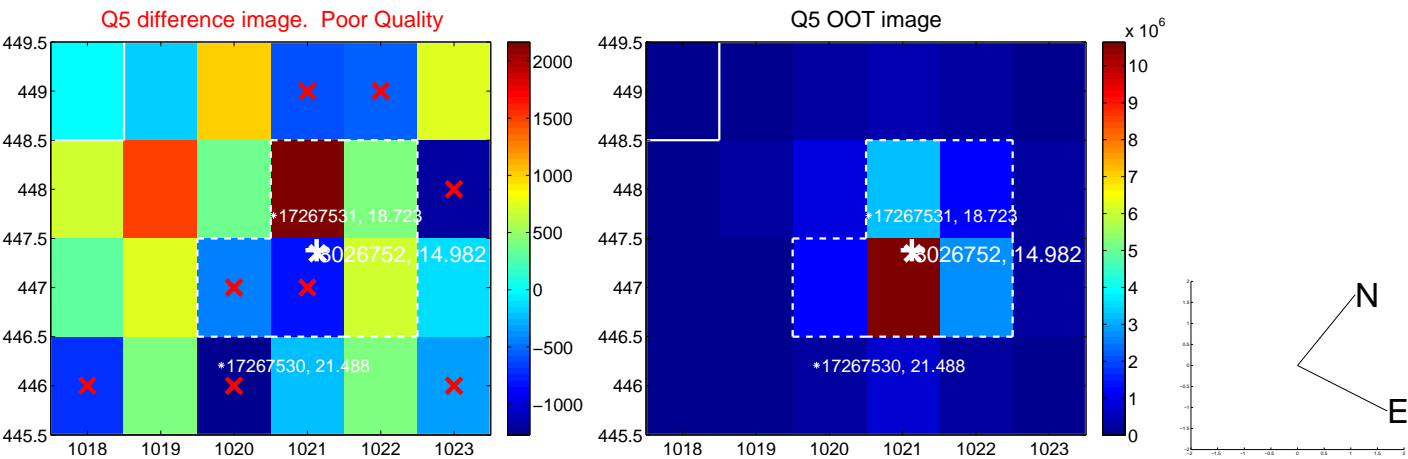
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



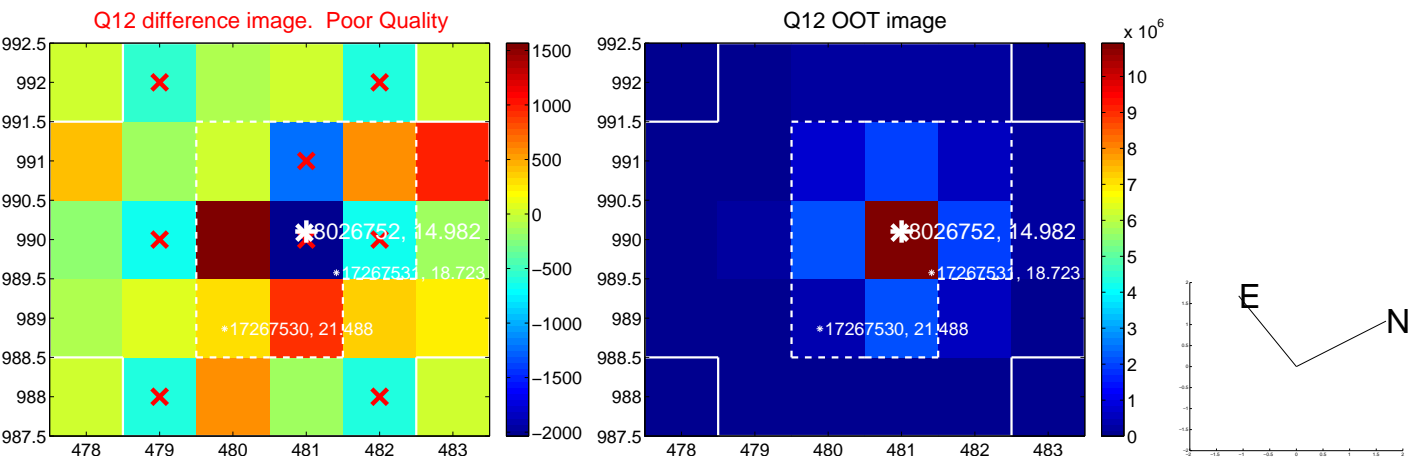
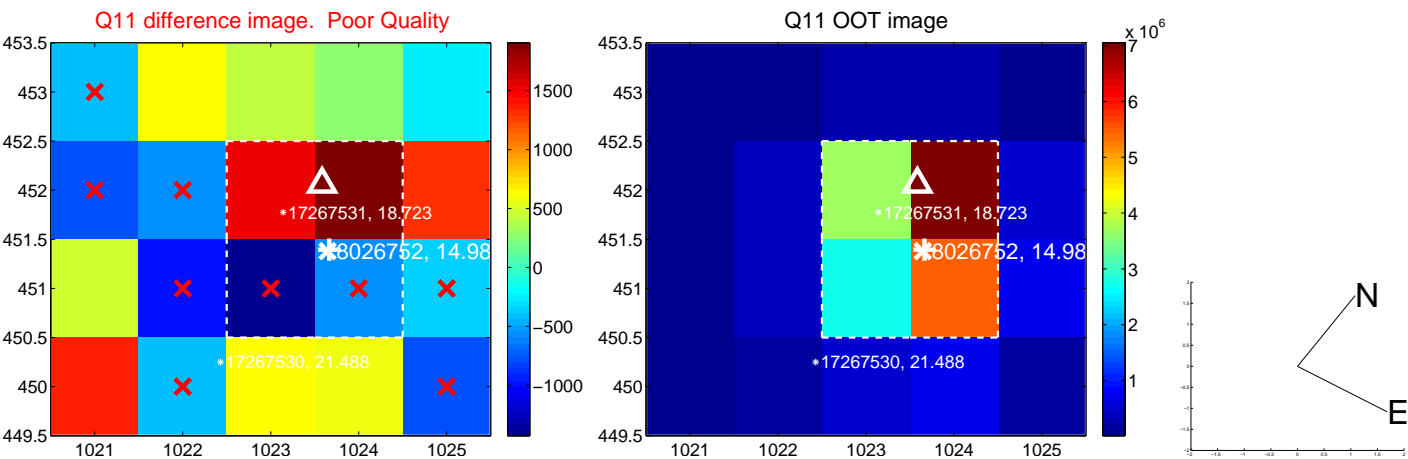
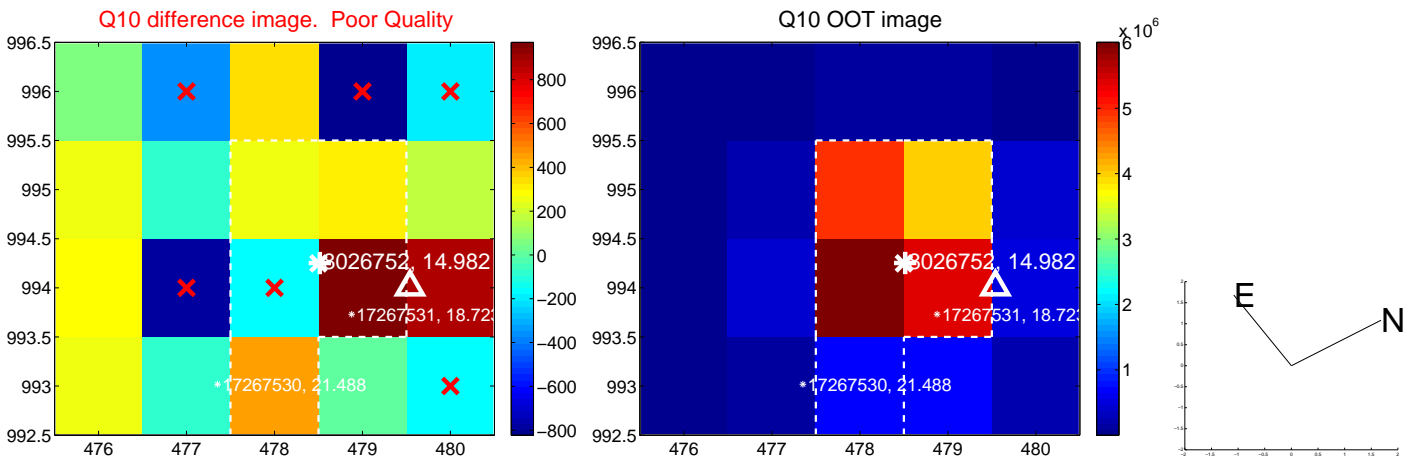
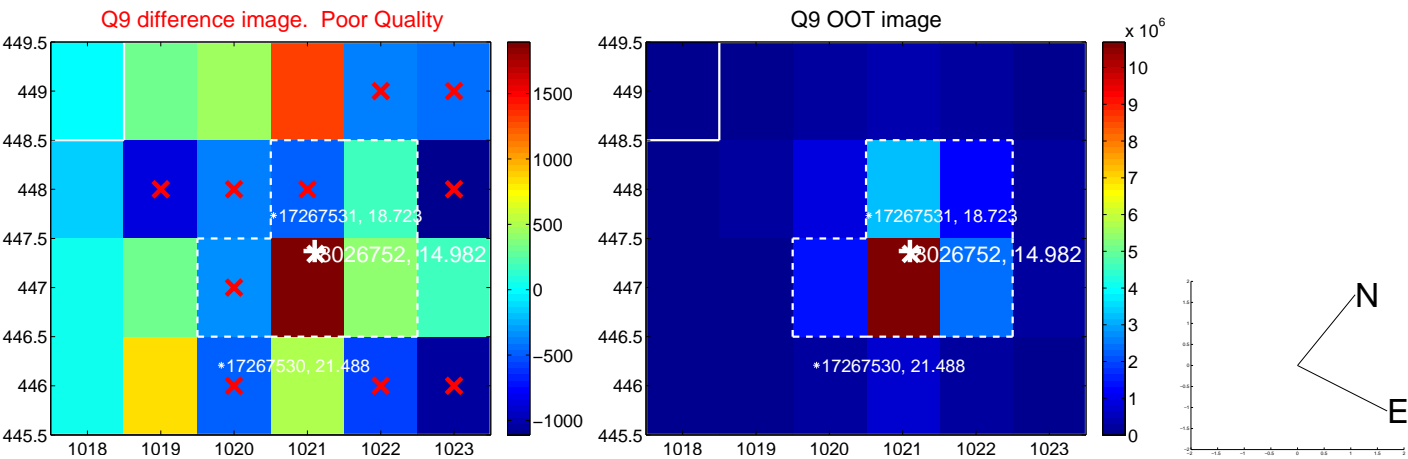
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



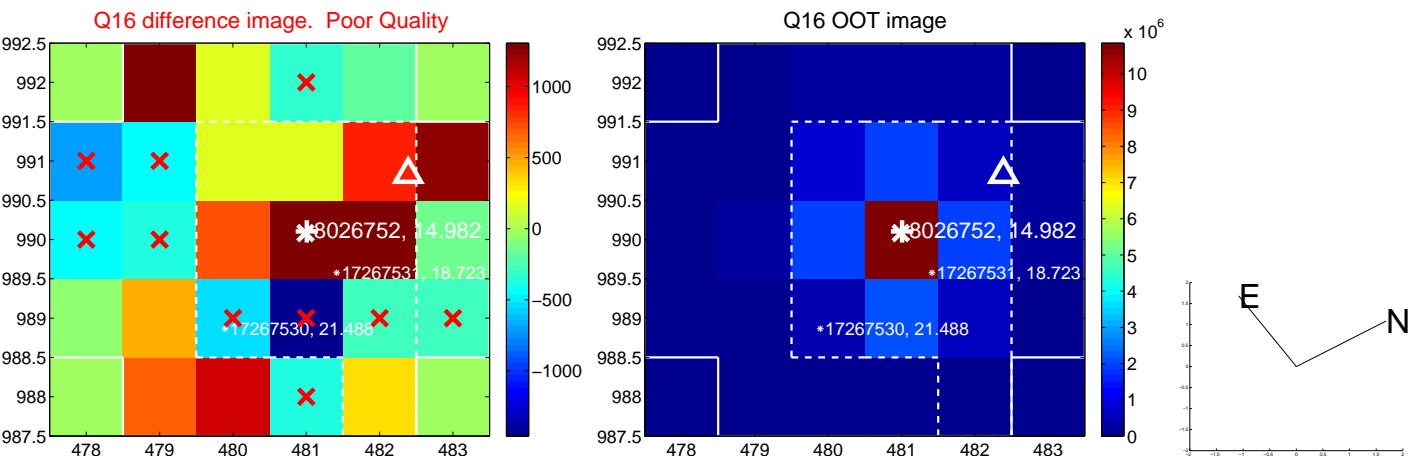
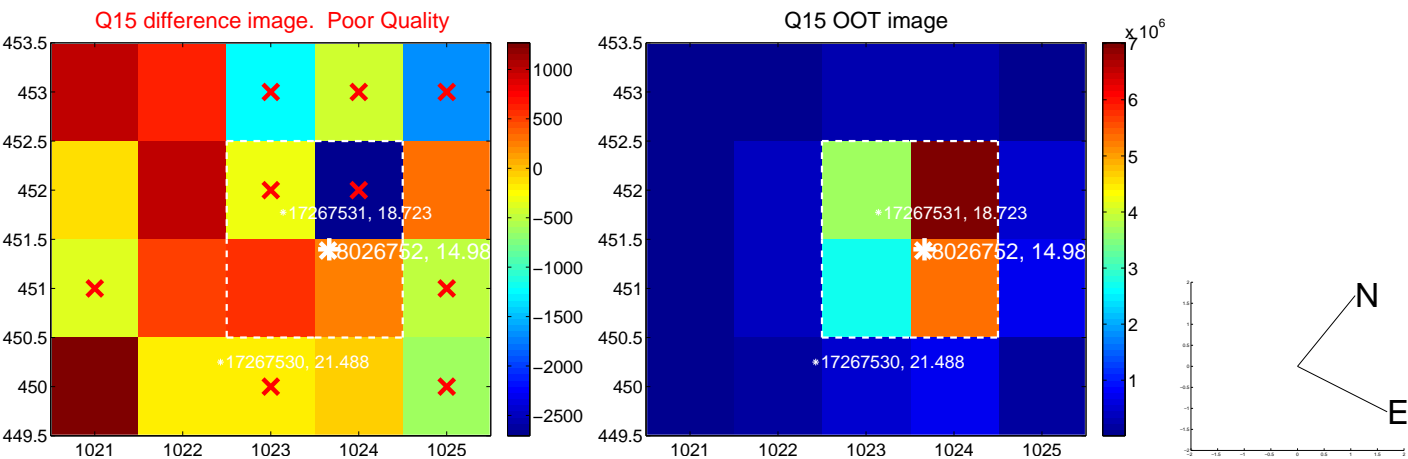
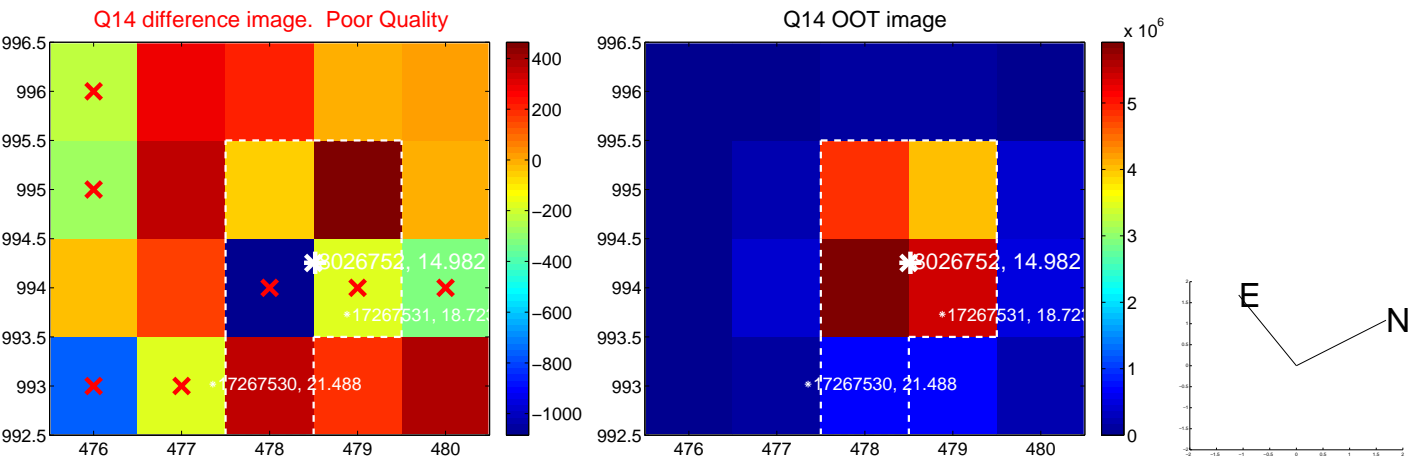
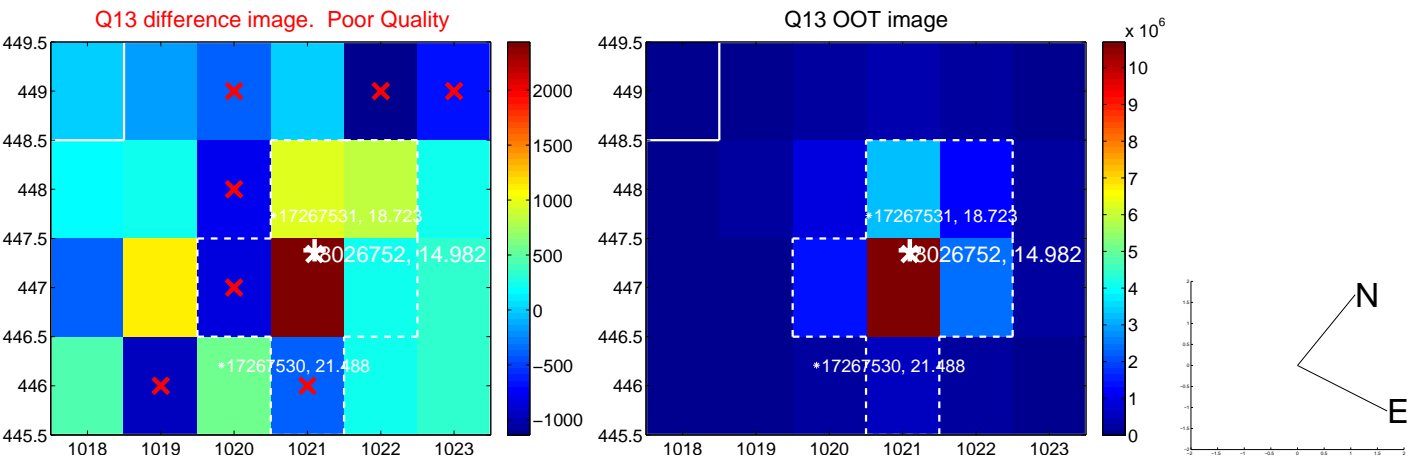
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



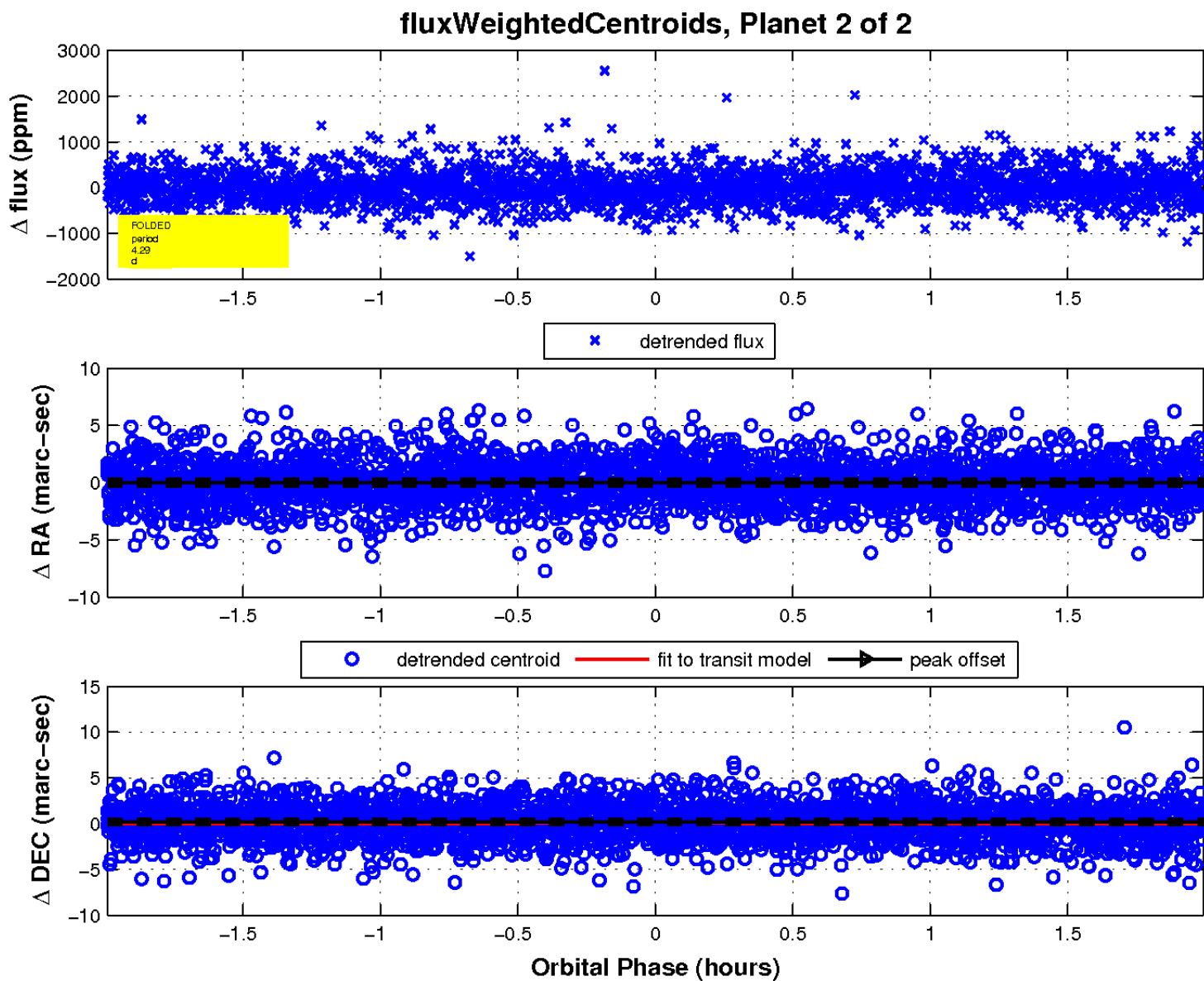
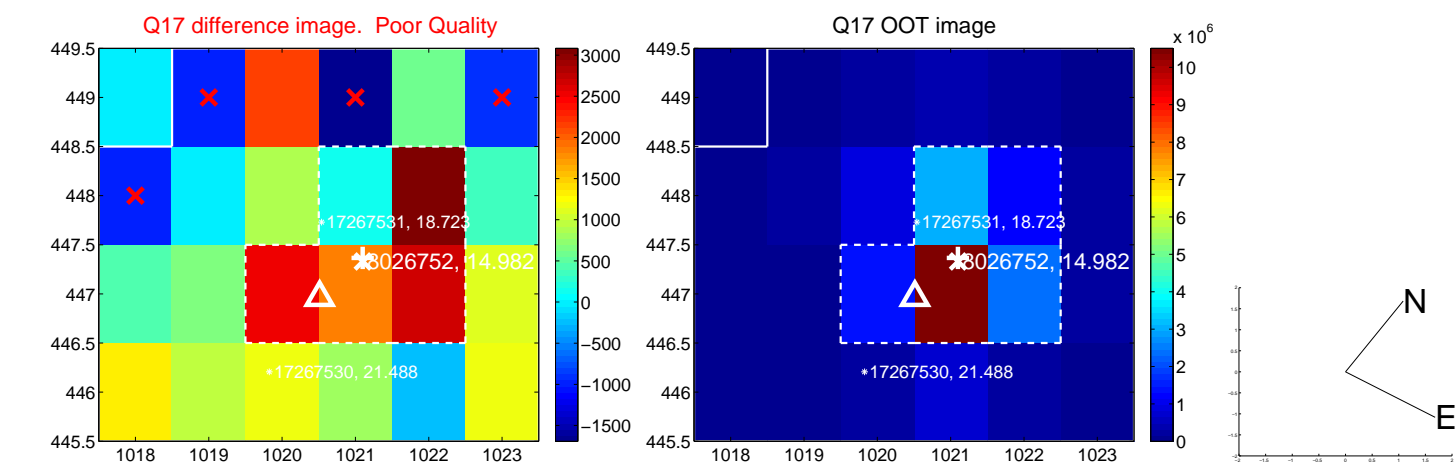
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

