

# KIC 003556742

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003556742-01	OBS	6344.01	0.822995	132.171113	148.7	2.140	27.3	28.8	0.72	4975	1.08	1142.95
003556742-02	OBS	No	0.822962	131.784420	26.6	2.504	13.8	6.1	0.72	4975	0.38	1143.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003556742-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
003556742-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—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.

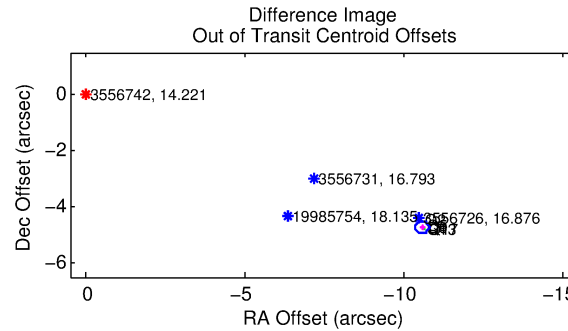
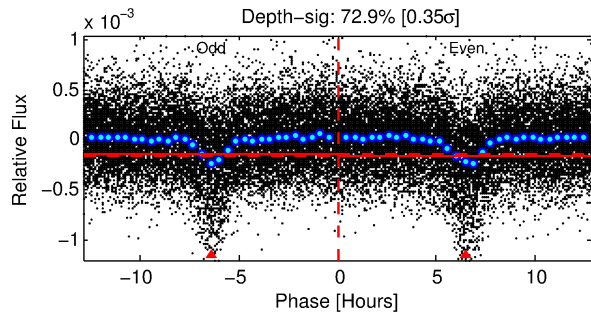
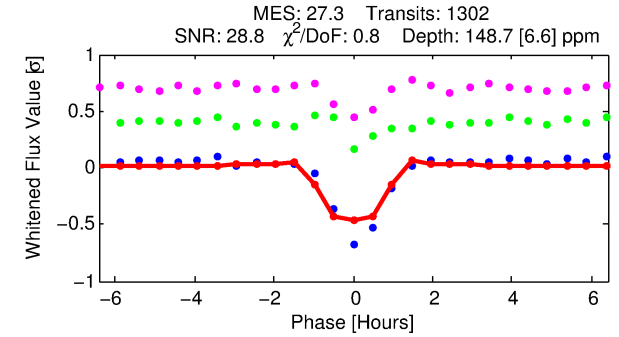
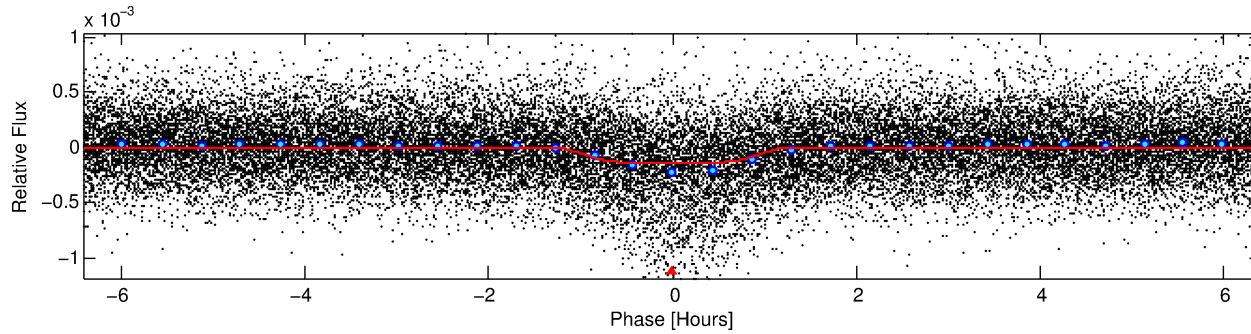
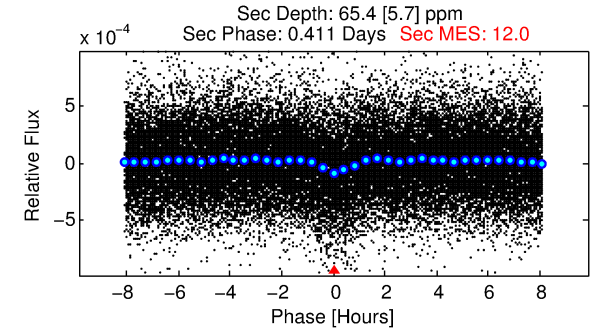
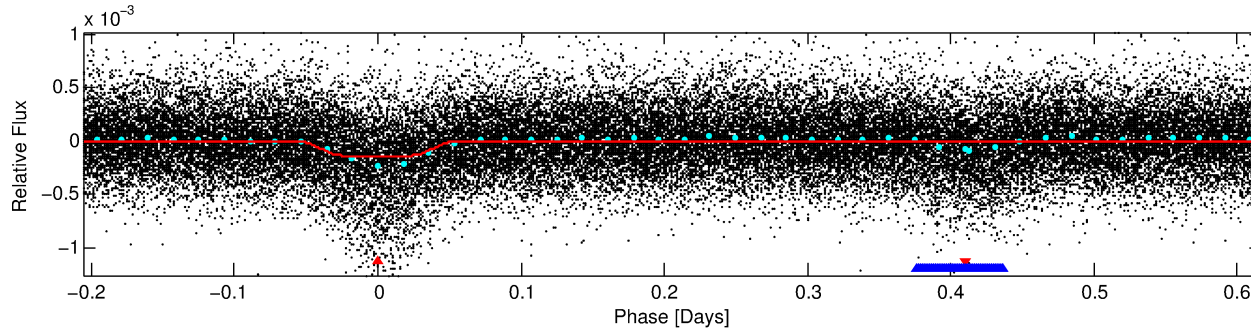
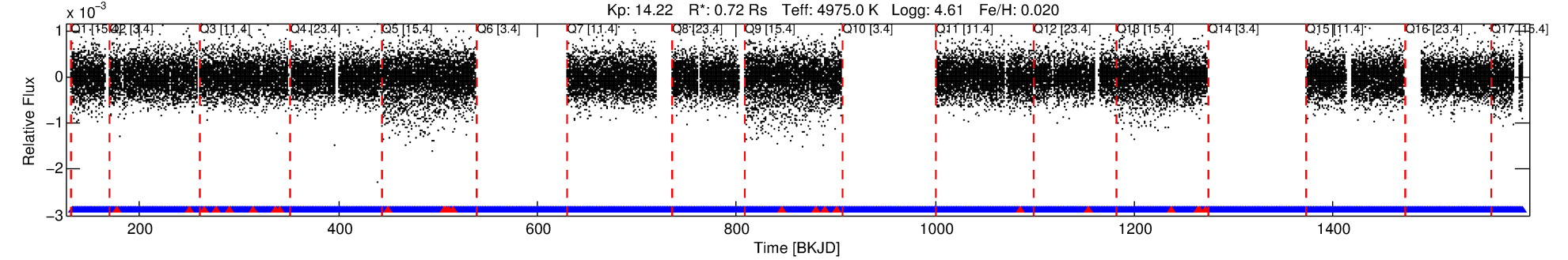
## Ephemeris Match Information For 003556742-01

No Significant Match Found

# DV One-Page Summary

KIC: 3556742 Candidate: 1 of 2 Period: 0.823 d  
KOI: K06344.01 Corr: 0.776

Kp: 14.22 R\*: 0.72 Rs Teff: 4975.0 K Logg: 4.61 Fe/H: 0.020



## DV Fit Results:

Period = 0.82300 [0.00000] d  
Epoch = 132.1711 [0.0009] BKJD  
Rp/R\* = 0.0137 [0.0039]  
a/R\* = 1.65 [1.19]  
b = 0.90 [0.24]  
Seff = 1142.96 [128.48]  
Teq = 1483 [42] K  
Rp = 1.08 [0.32] Re  
a = 0.0159 [0.0010] AU  
Ag = 7.73 [4.52] [1.49σ]  
Teff = 3822 [555] K [4.20σ]

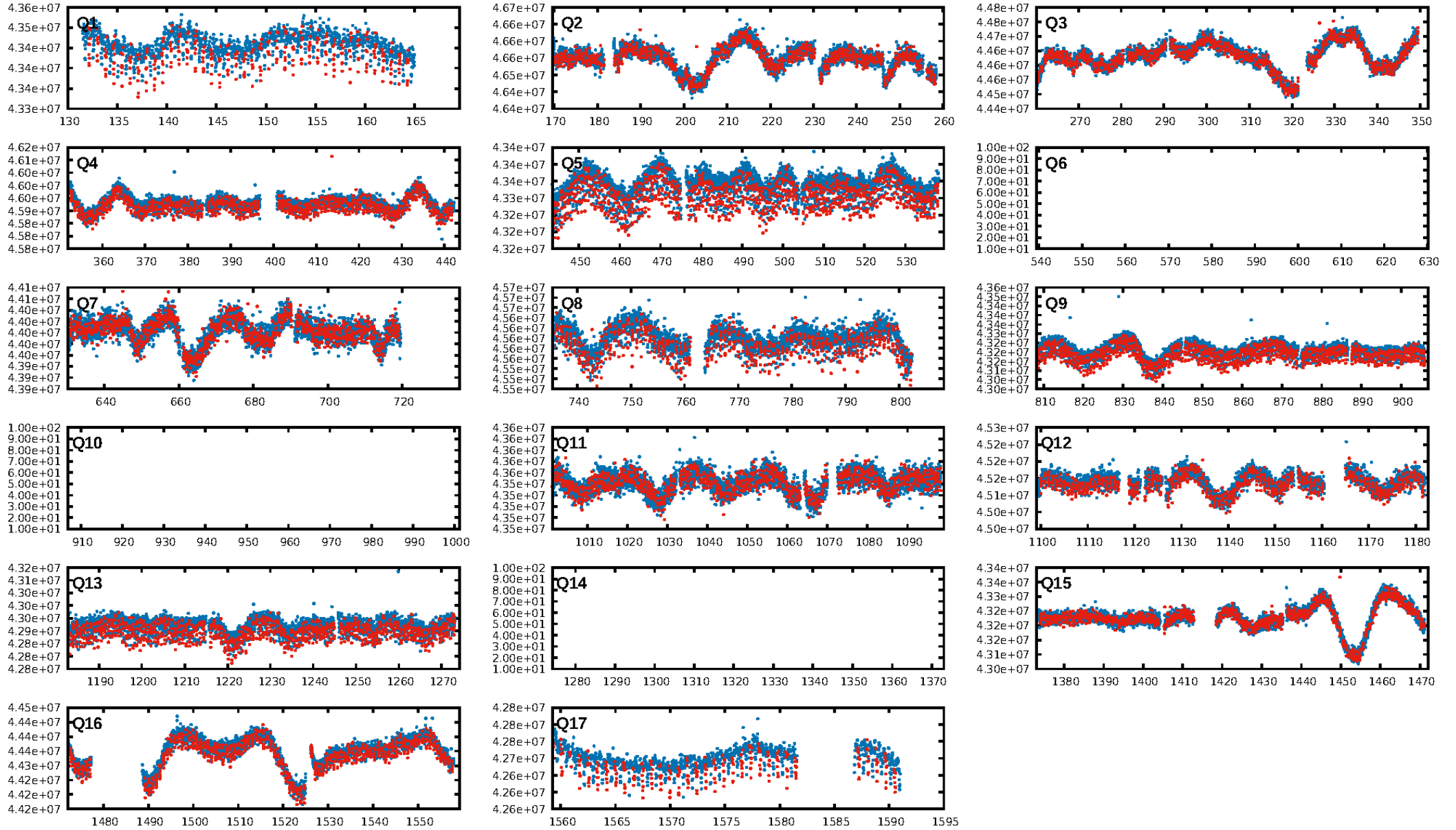
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.77e-137  
RollingBand-fgt: 0.98 [1206/1229]  
GhostDiagnostic-chr: -0.5877  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 11.584 arcsec [155.05σ]  
KicOffset-rm: 11.375 arcsec [157.71σ]  
OotOffset-st: 1/0/0/5 [6]  
KicOffset-st: 1/0/0/5 [6]  
DiffImageQuality-fgm: 1.00 [6/6]  
DiffImageOverlap-fno: 1.00 [14/14]

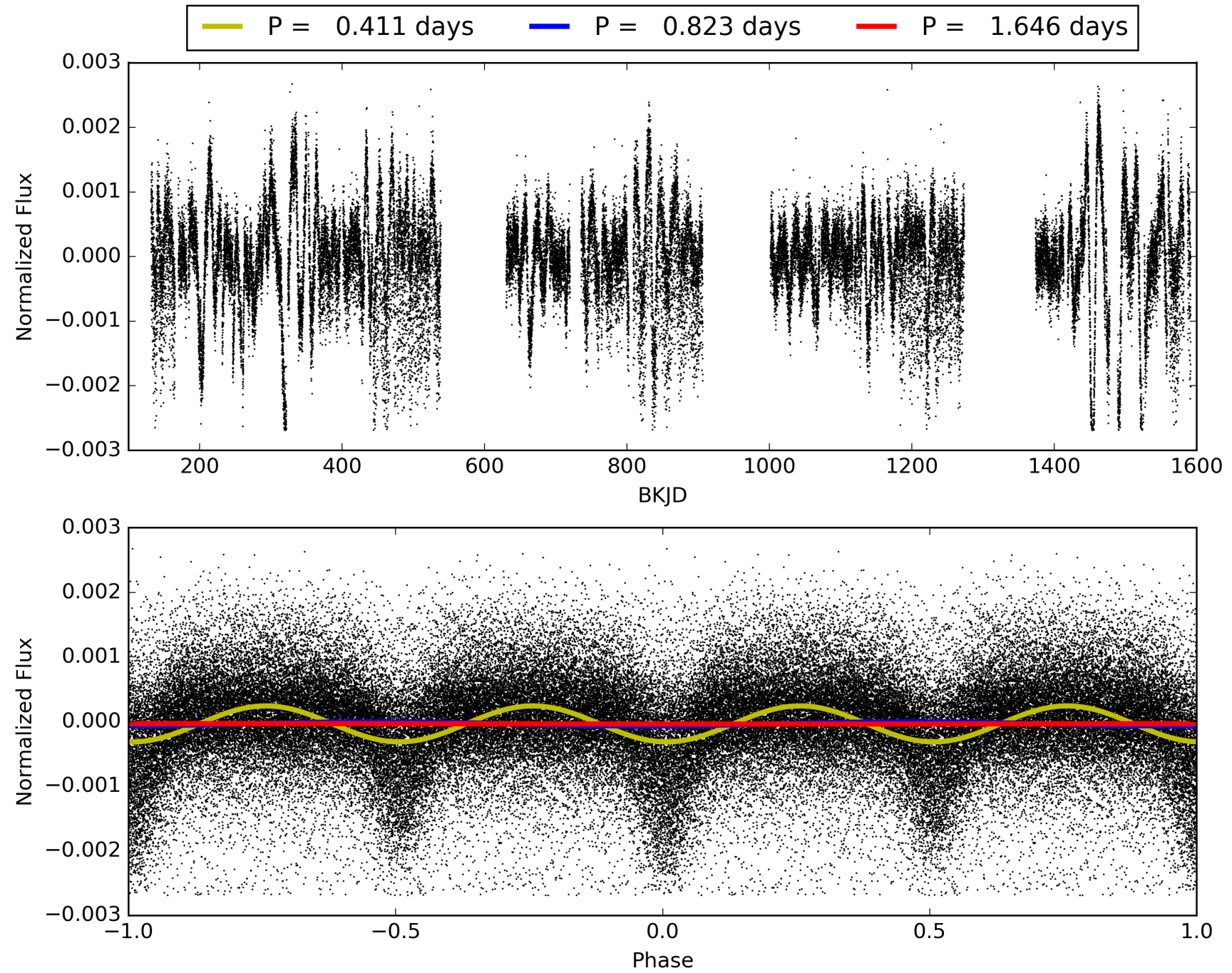
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:23:17 Z

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

# TCE 003556742-01, PDC Light Curves

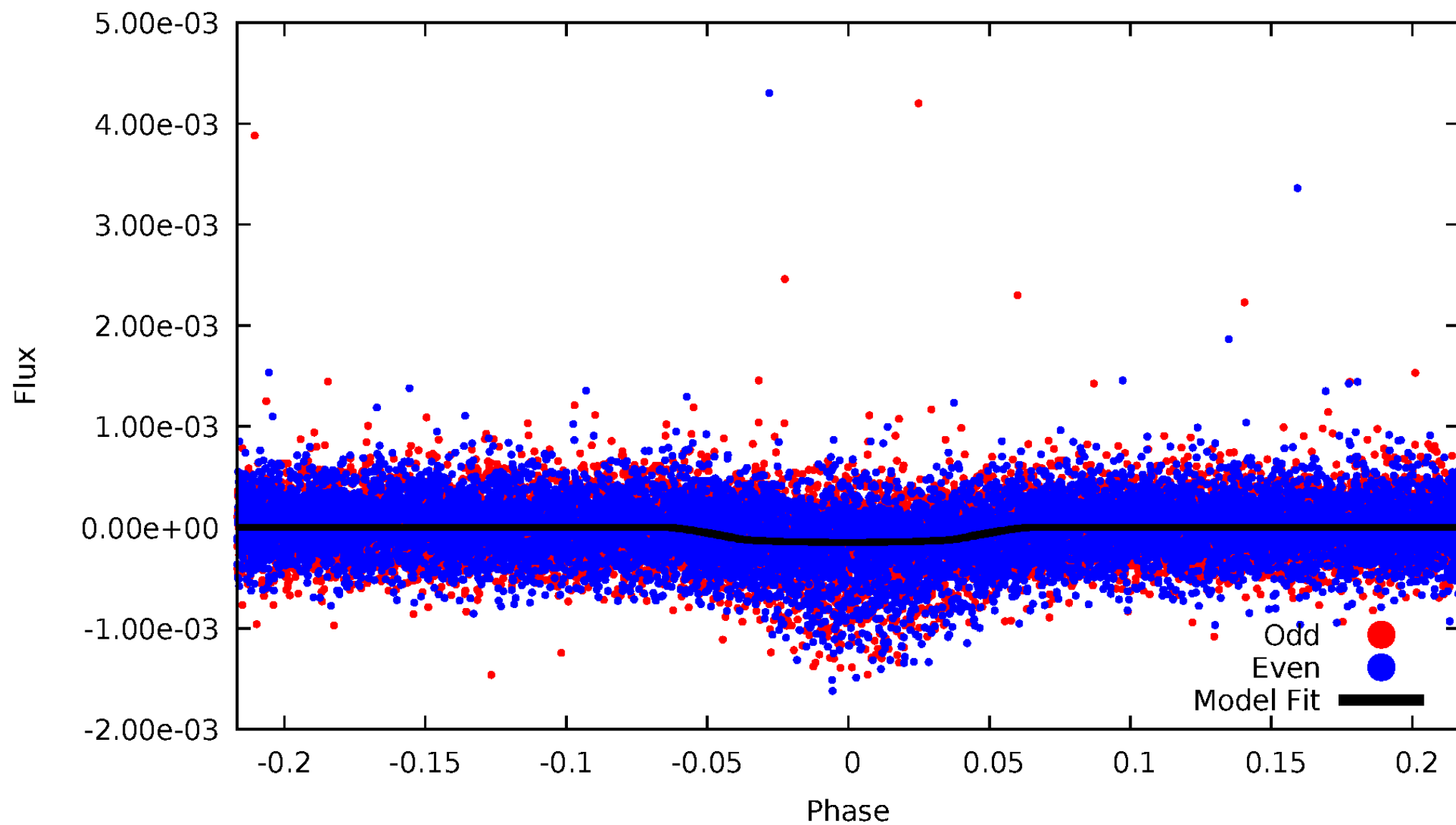


TCE 003556742-01



# DV Odd/Even

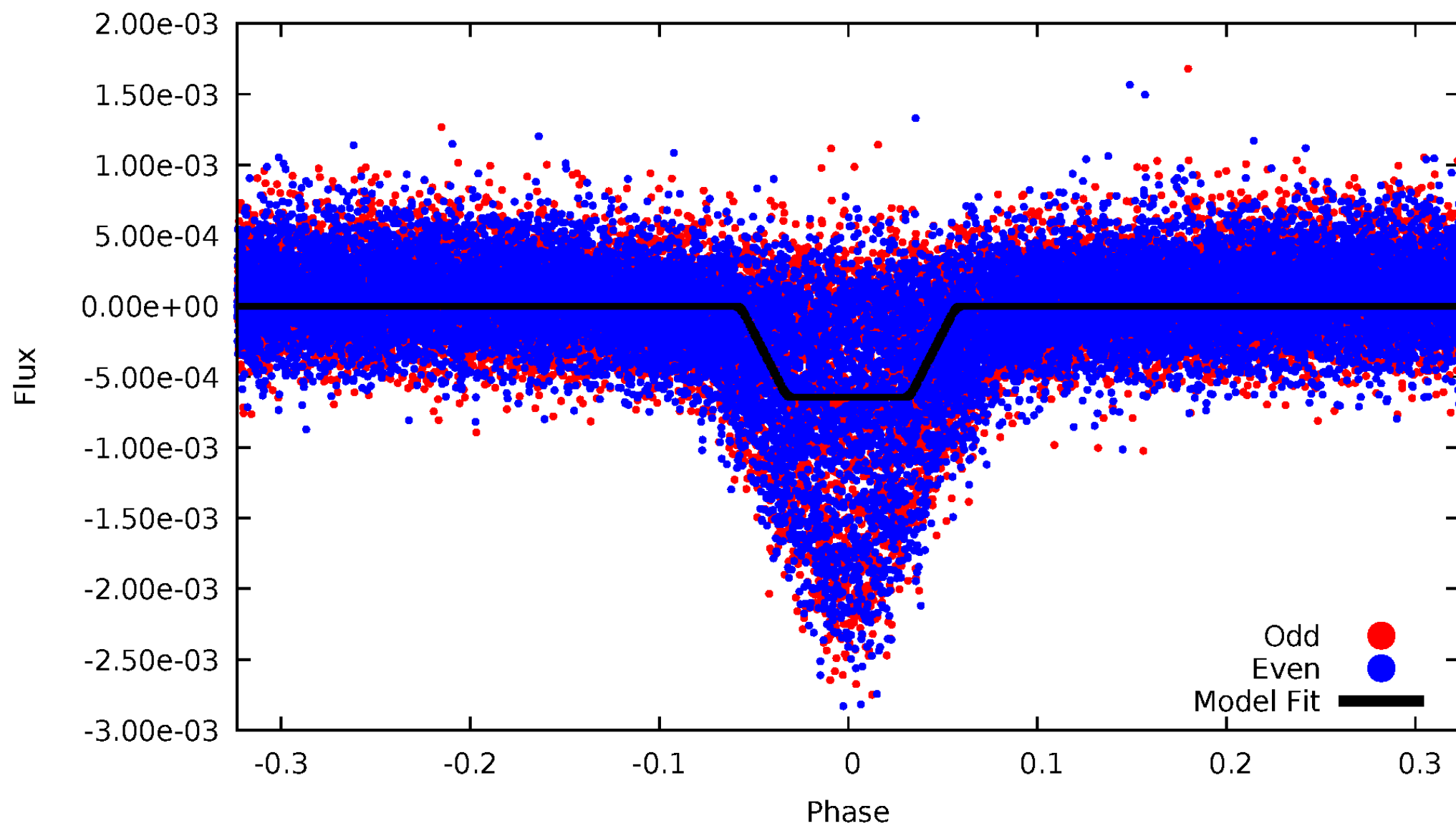
TCE 003556742-01





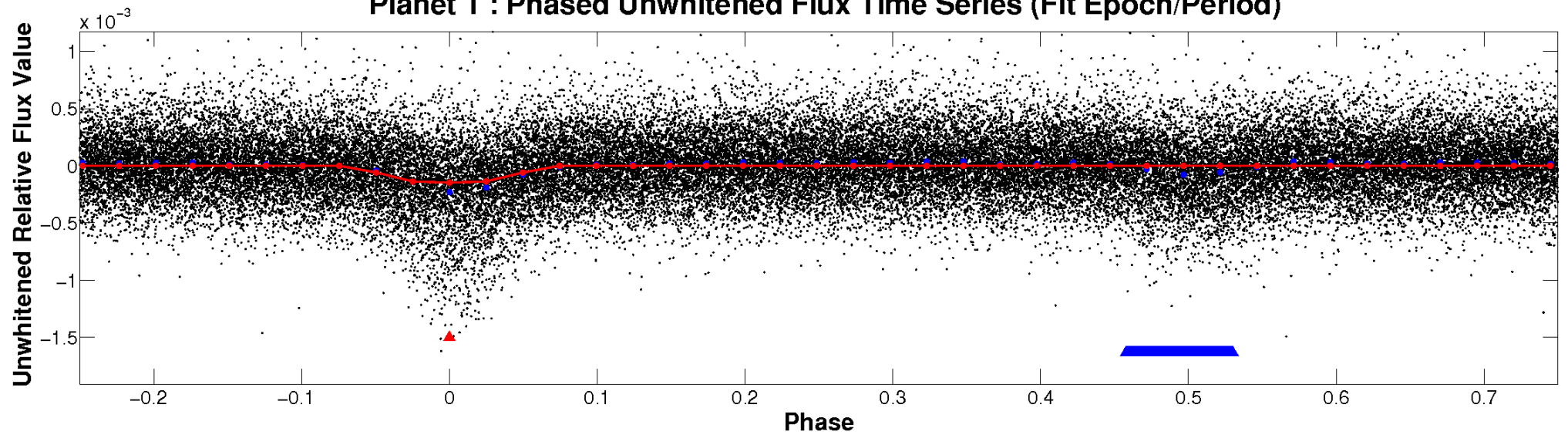
# ALT Odd/Even

TCE 003556742-01

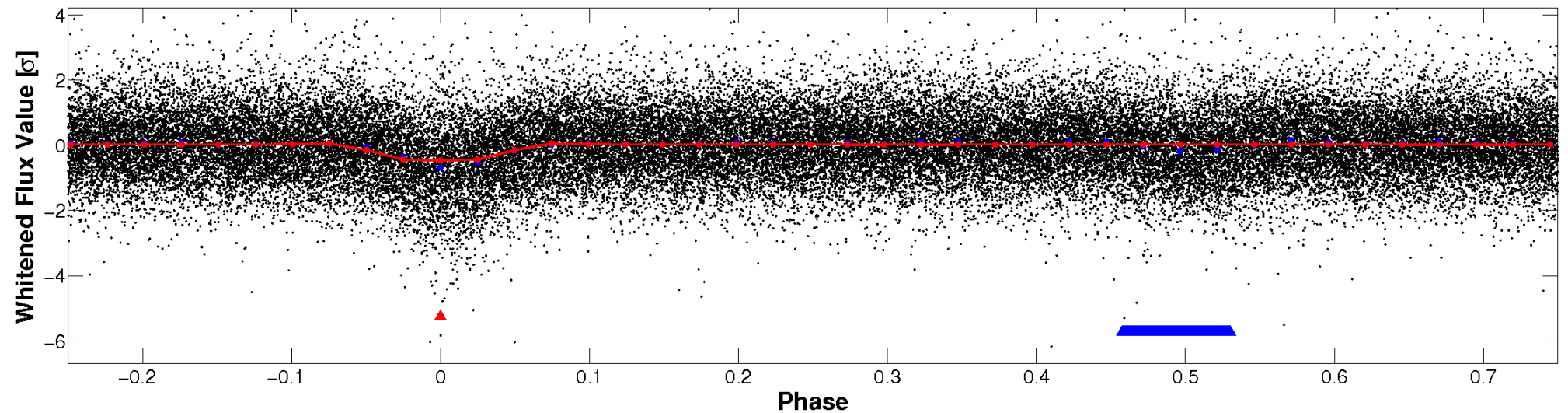


# Non-Whitened Vs. Whitened Light Curve

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

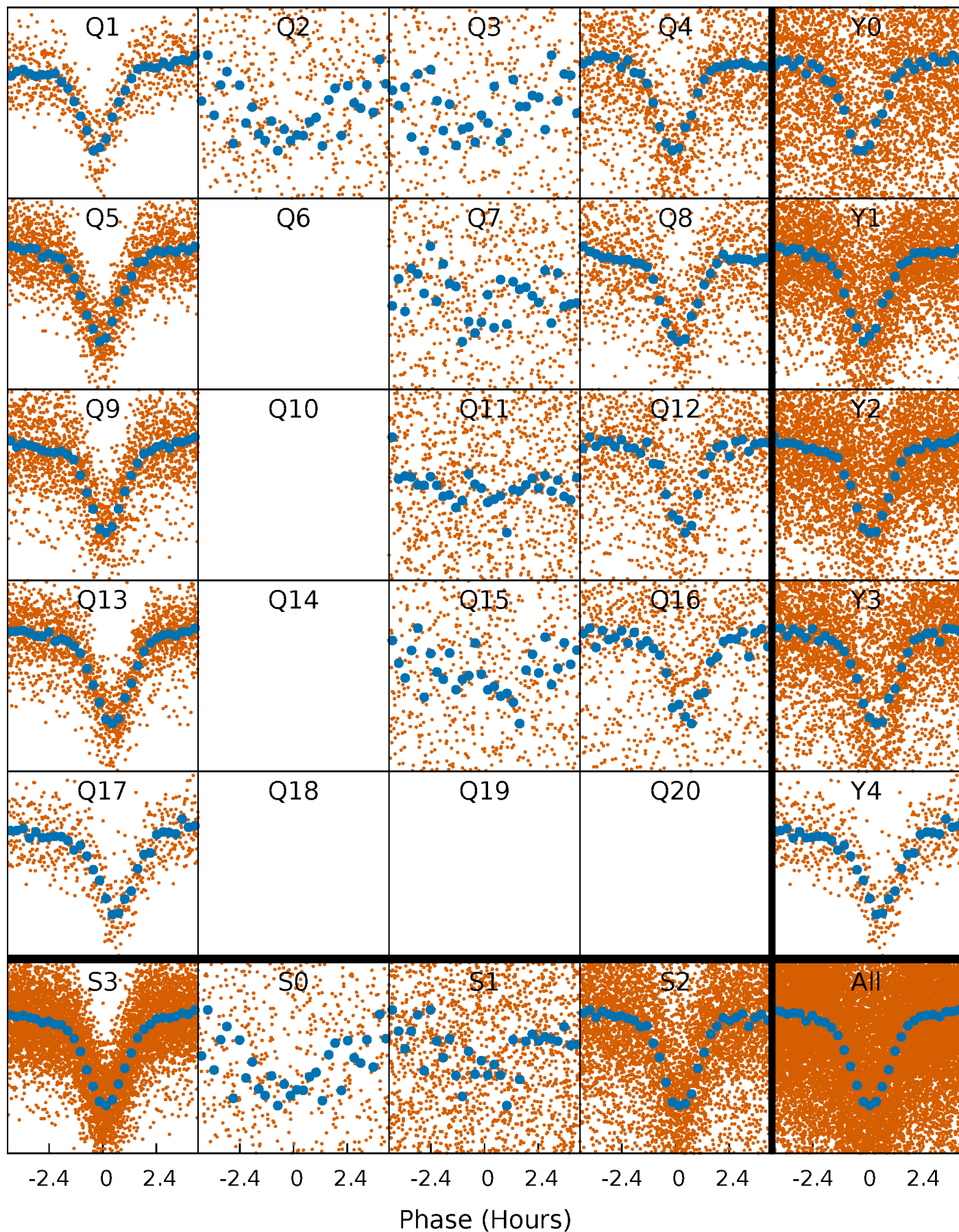


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

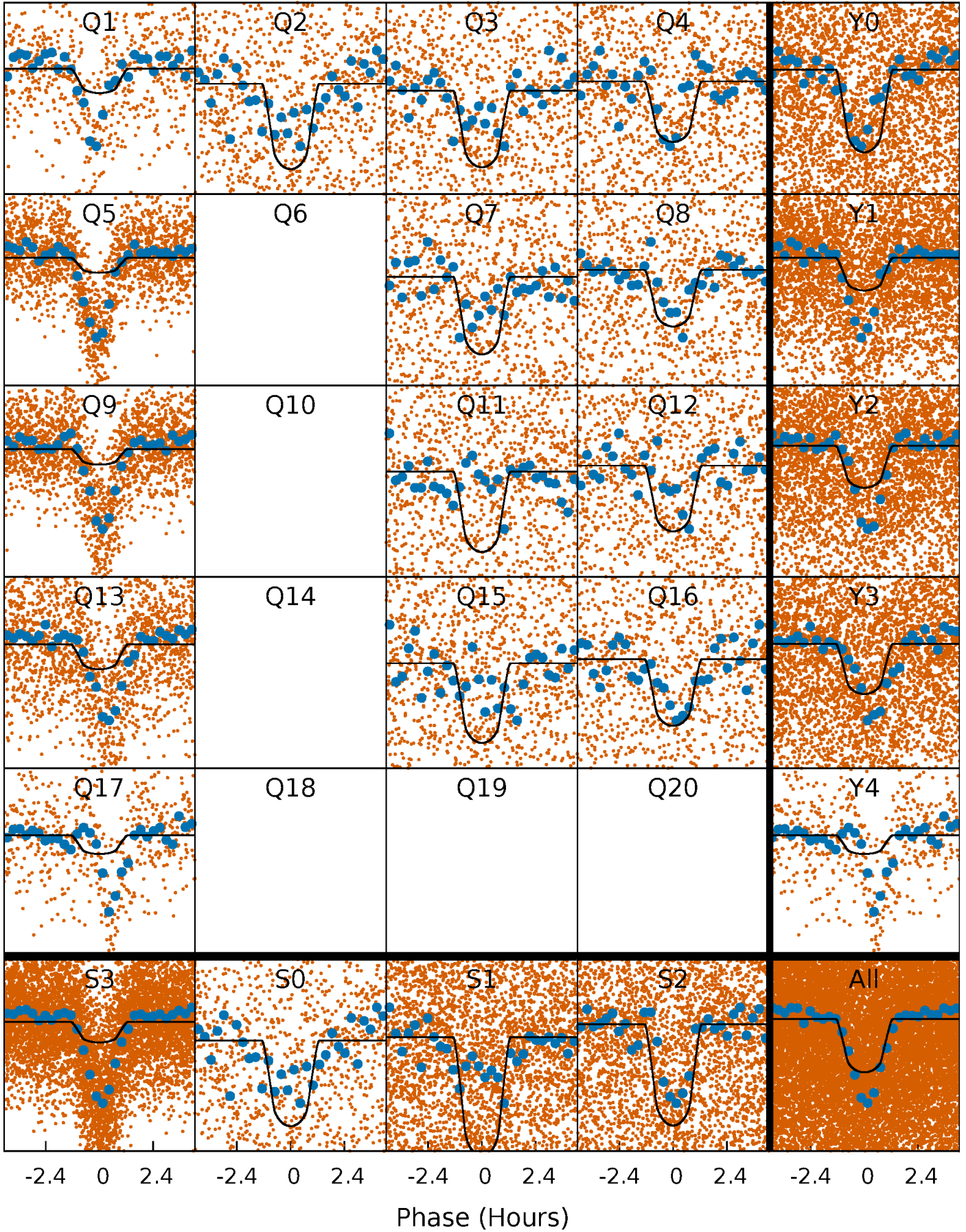
TCE 003556742-01 P= 0.822995 Days  $T_0=132.171113$  (BKJD)





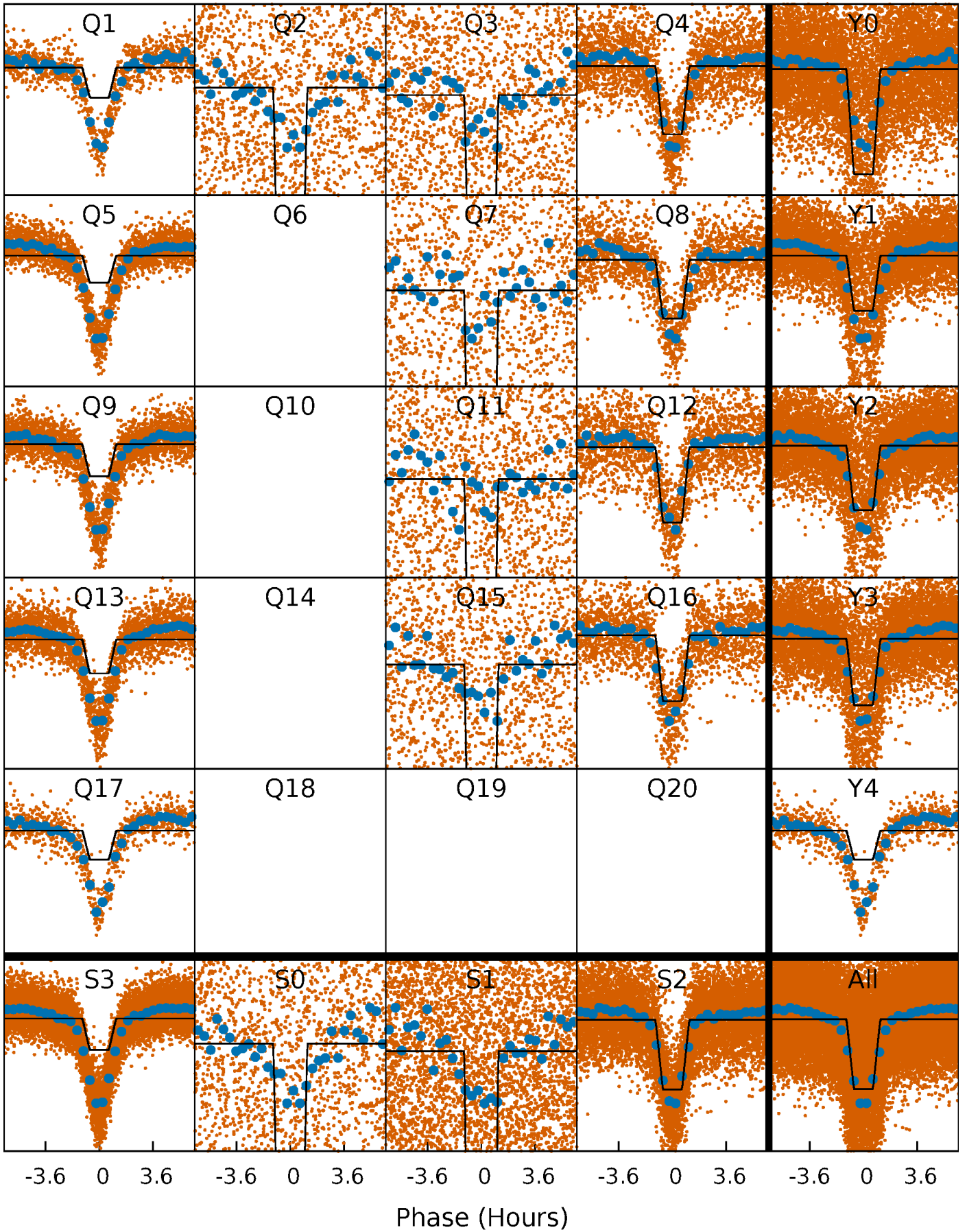
# DV Quarter-Phased Transit Curves

TCE 003556742-01 P= 0.822995 Days  $T_0=132.171113$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

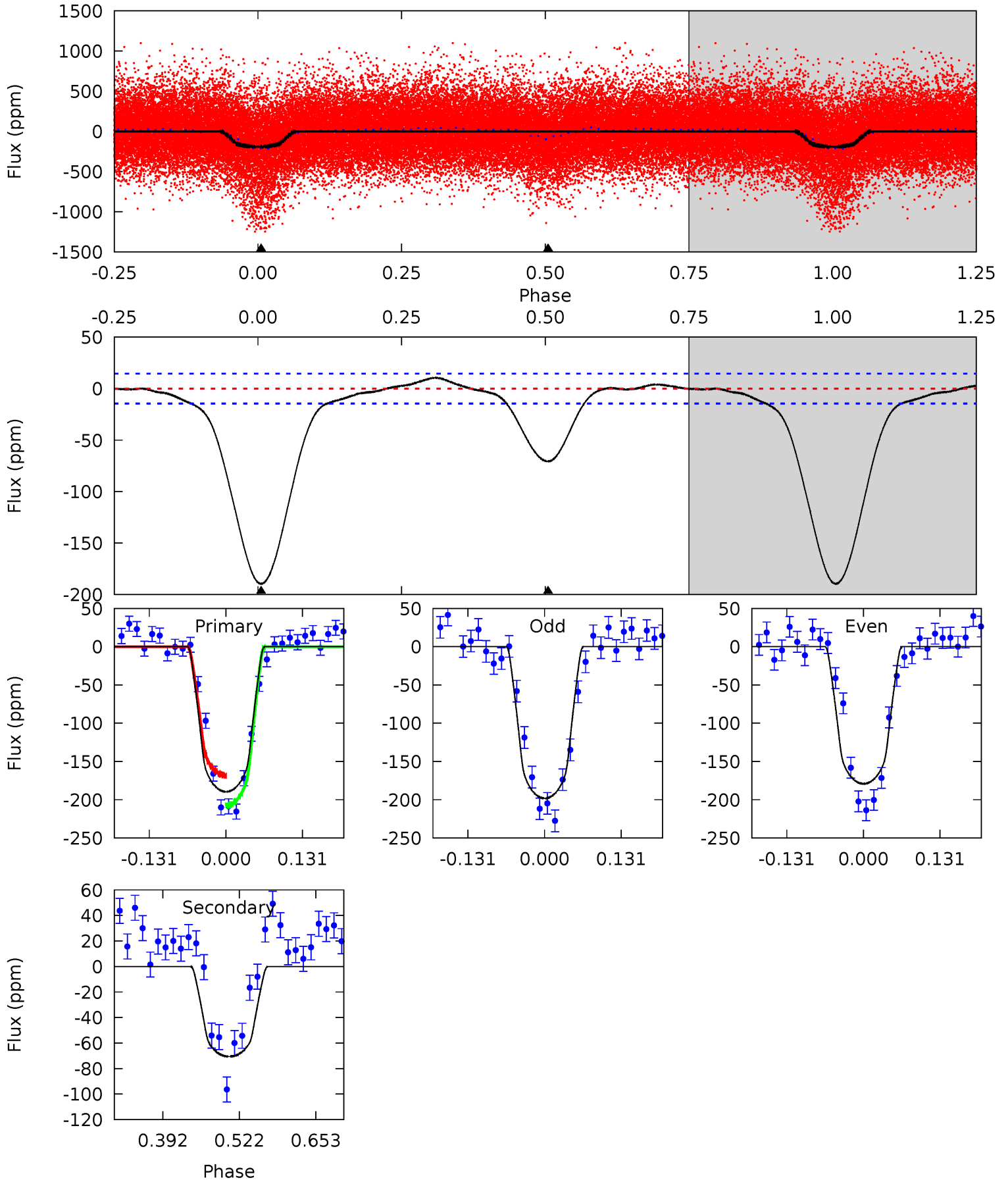
TCE 003556742-01 P= 0.823017 Days  $T_0=132.159187$  (BKJD)



# DV Model-Shift Uniqueness Test

003556742-01, P = 0.822995 Days, E = 131.348118 Days

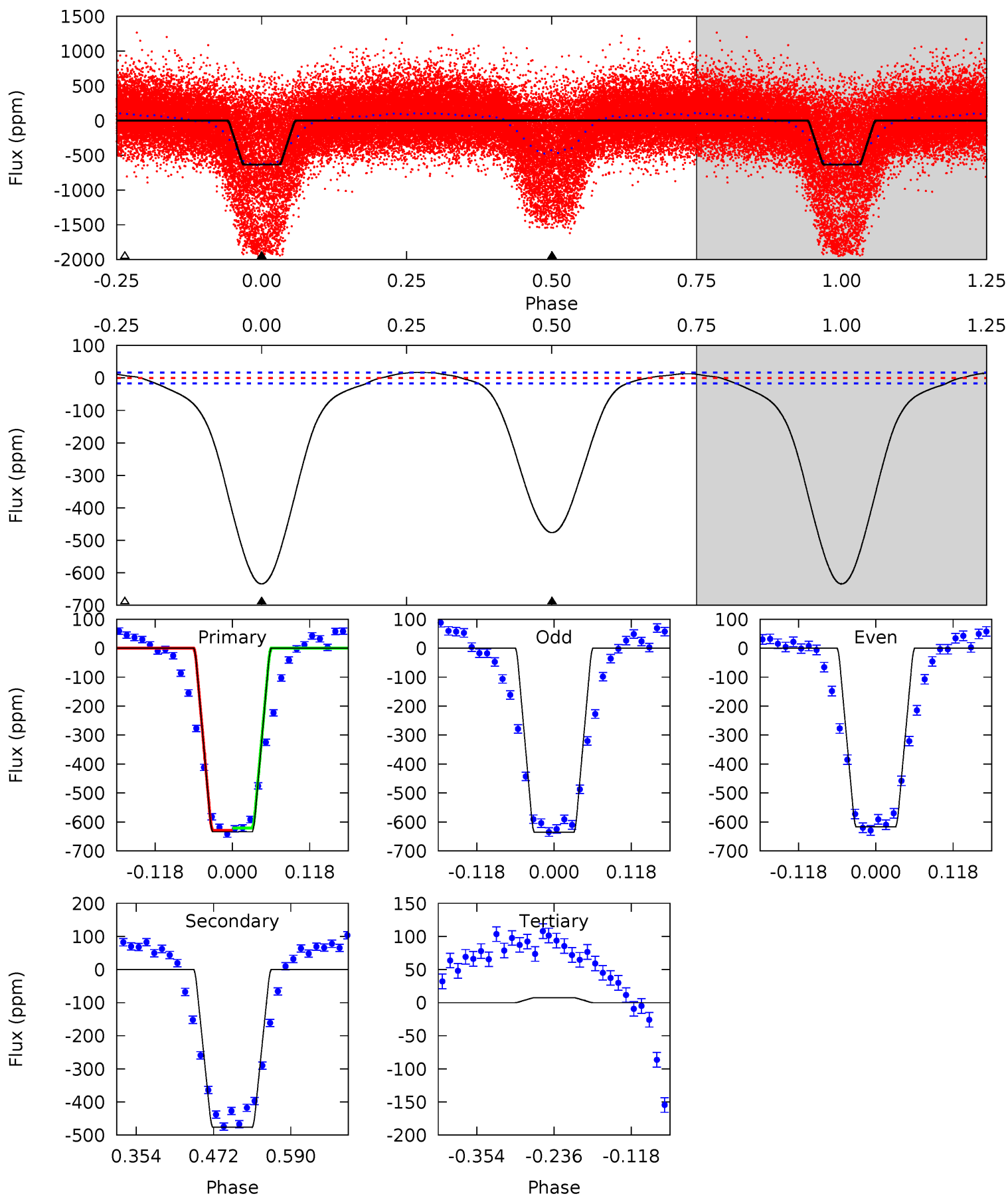
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
58.6	21.9	0	0	4.51	1.51	1.57	58.6	58.6	21.9	21.9	2.96	1.36	0.05	6.11



# Alt Model-Shift Uniqueness Test

003556742-01, P = 0.823017 Days, E = 131.336170 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
173.7	130.5	-2.01	0	4.53	1.56	6.21	175.7	173.7	132.5	130.5	2.63	1.20	0.03	1.06





### Stellar Parameters For KIC 003556742

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4975^{+79}_{-79}$	$4.614^{+0.012}_{-0.051}$	$0.020^{+0.150}_{-0.150}$	$0.724^{+0.054}_{-0.022}$	$0.818^{+0.029}_{-0.057}$	$3.039^{+0.172}_{-0.566}$
	+2%/-2%	+0%/-1%	+750%/-750%	+7%/-3%	+4%/-7%	+6%/-19%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 003556742-01 / KOI 6344.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-71 \pm 3$	$1.11^{+0.31}_{-0.31}$	$2091^{+47}_{-41}$	$4090^{+546}_{-349}$	$8.060^{+7.318}_{-3.068}$
Alt.	$-476 \pm 4$	$2.06^{+0.33}_{-0.31}$	$2091^{+43}_{-40}$	$4659^{+312}_{-267}$	$16^{+6}_{-4}$

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

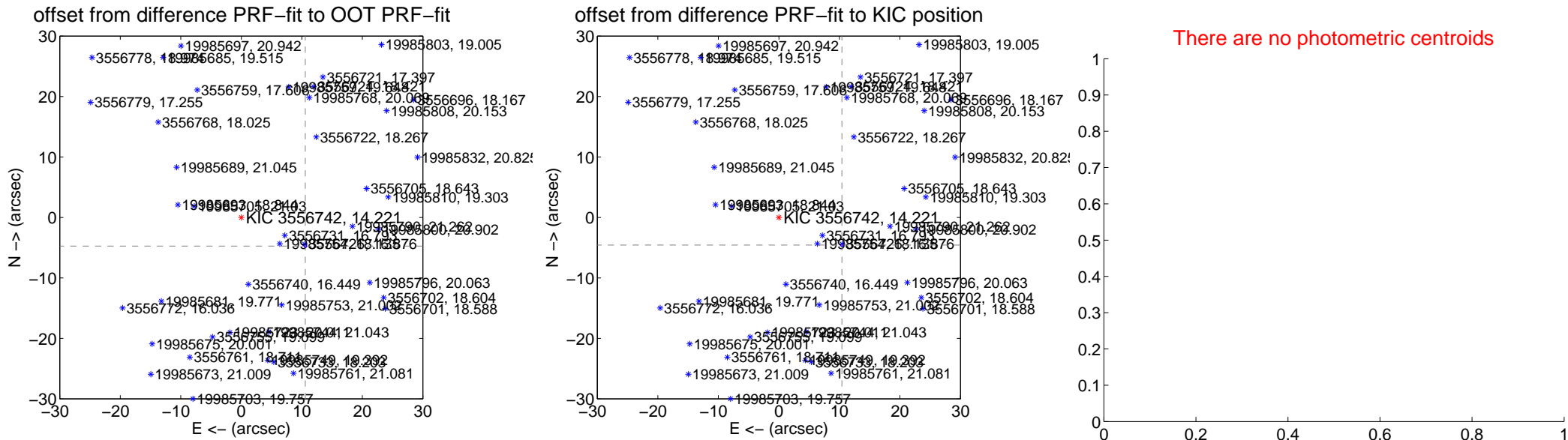
## DV Centroid Data

Supplemental centroid analysis for 003556742-01. Kepler magnitude: 14.22. Transit SNR 28.83

There are 6 quarters with good PRF difference image offsets

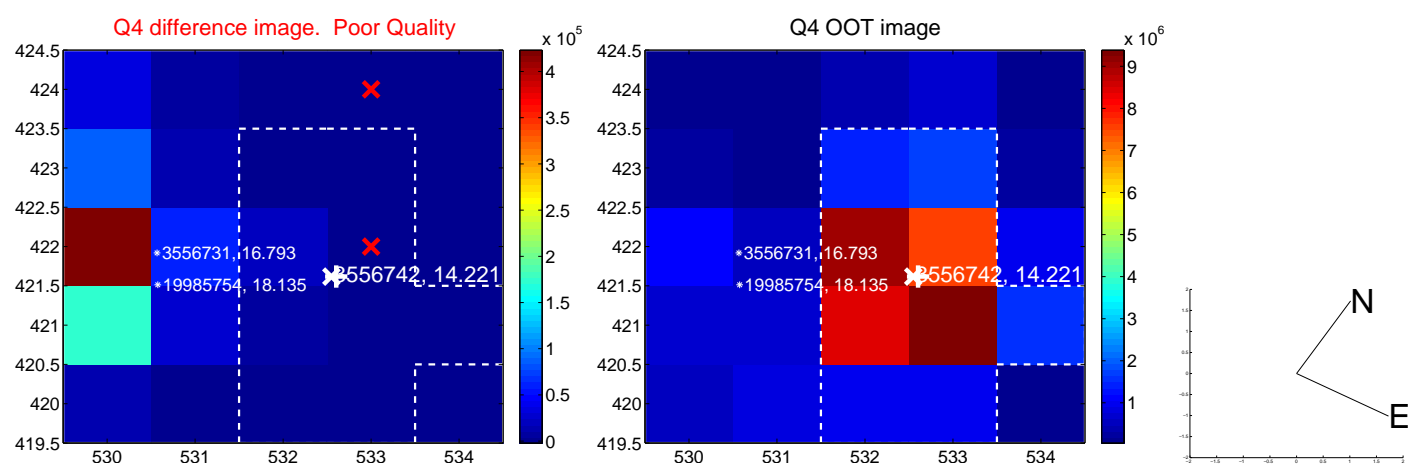
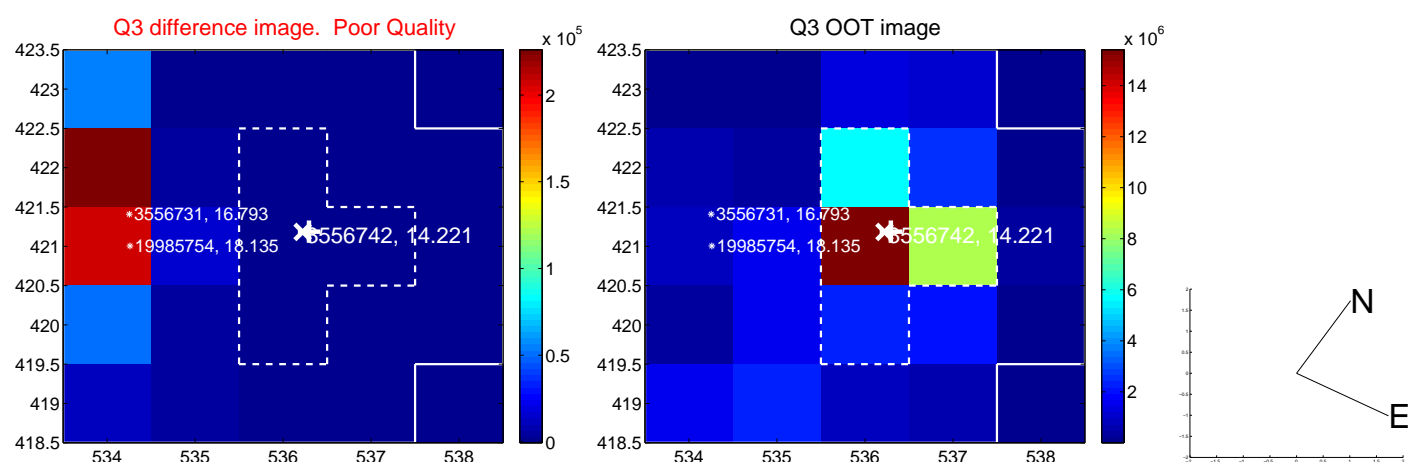
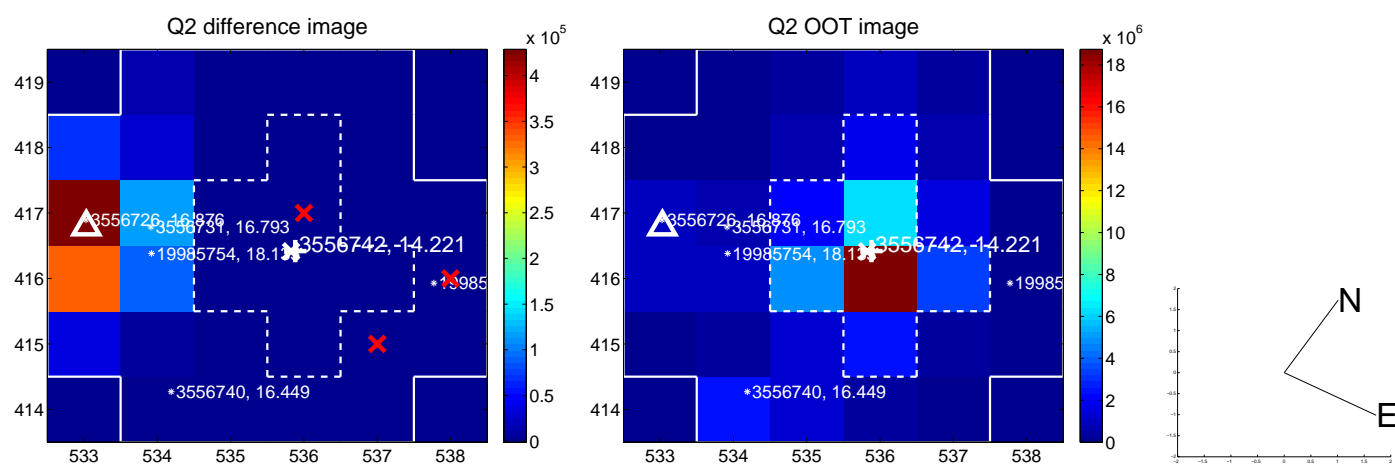
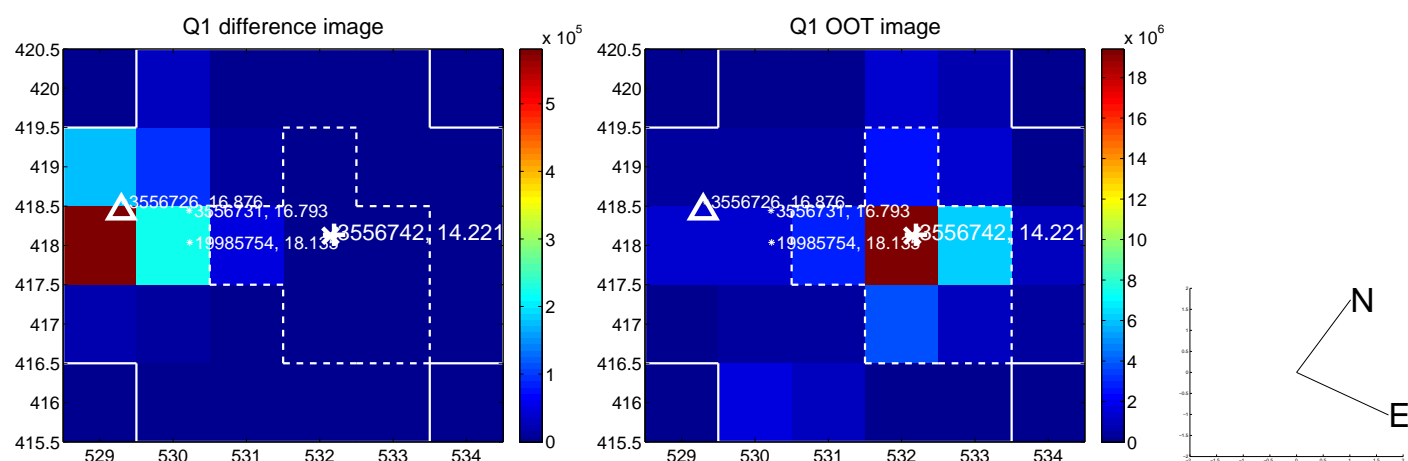
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>11.584 <math>\pm</math> 0.075</b>	<b>155.05</b>	-10.571 $\pm$ 0.068	-4.737 $\pm$ 0.085
PRF-fit source offset from KIC position	<b>11.375 <math>\pm</math> 0.072</b>	<b>157.71</b>	-10.416 $\pm$ 0.068	-4.571 $\pm$ 0.079
photometric centroid source offset	—	—	—	—

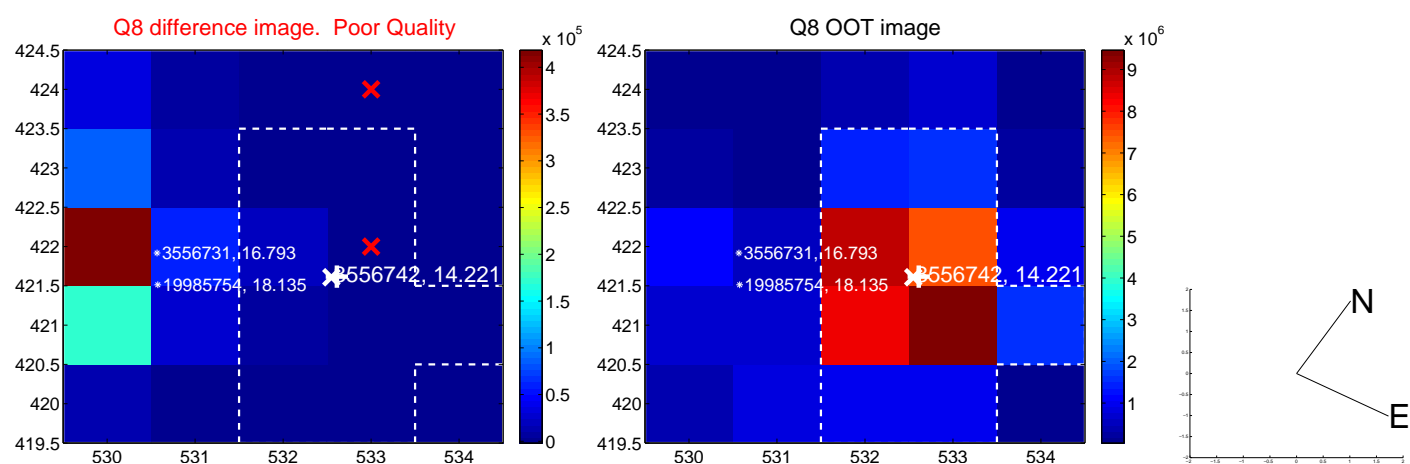
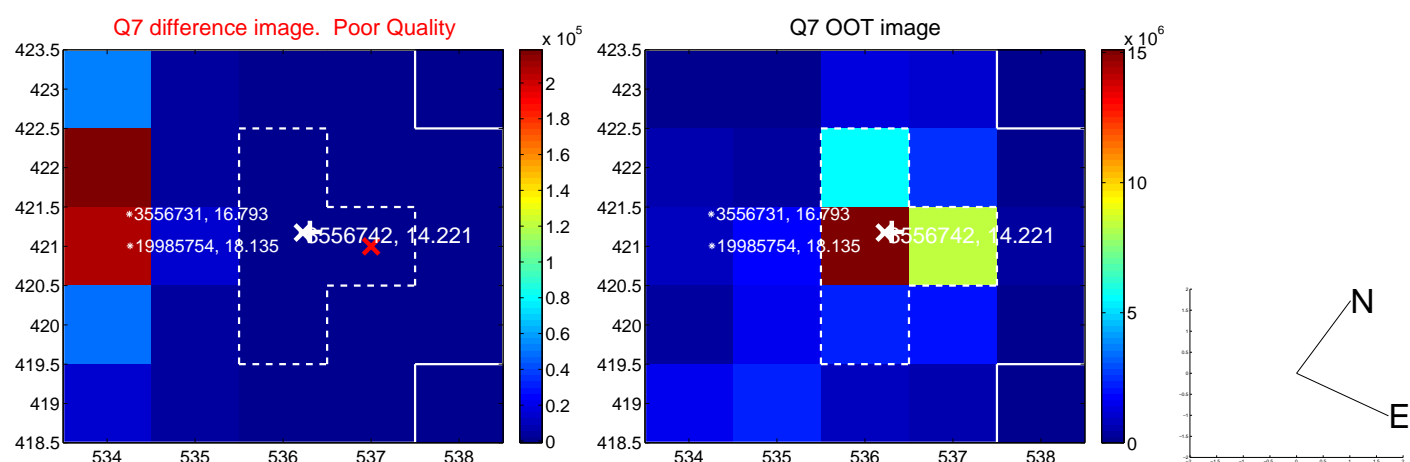
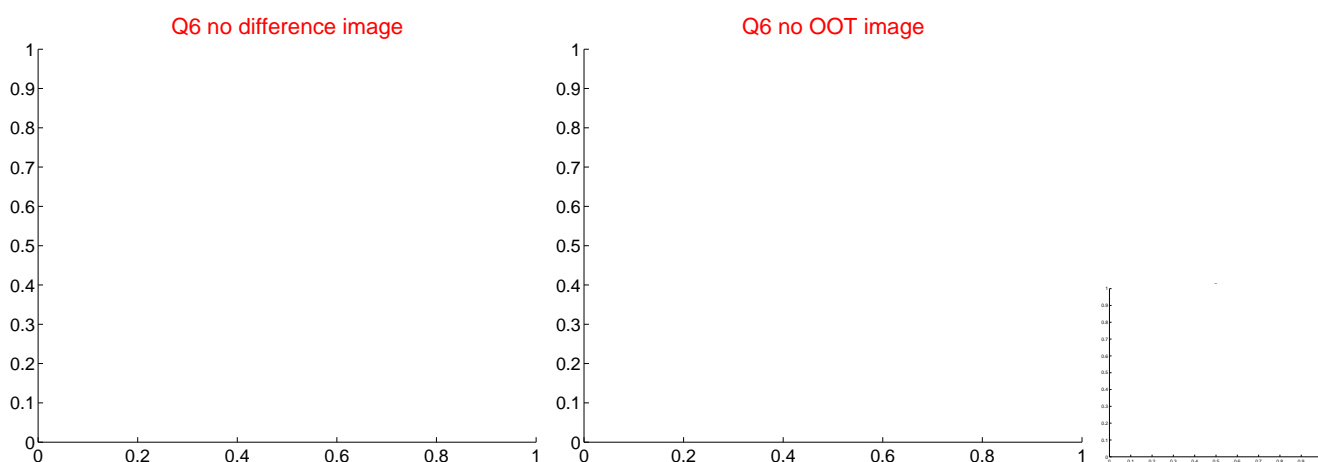
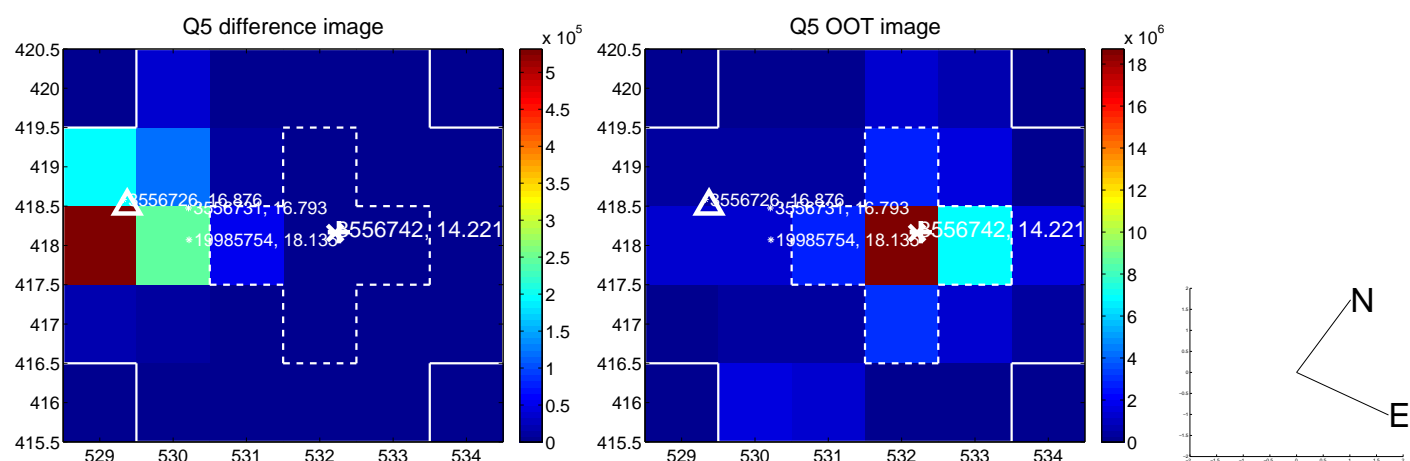


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

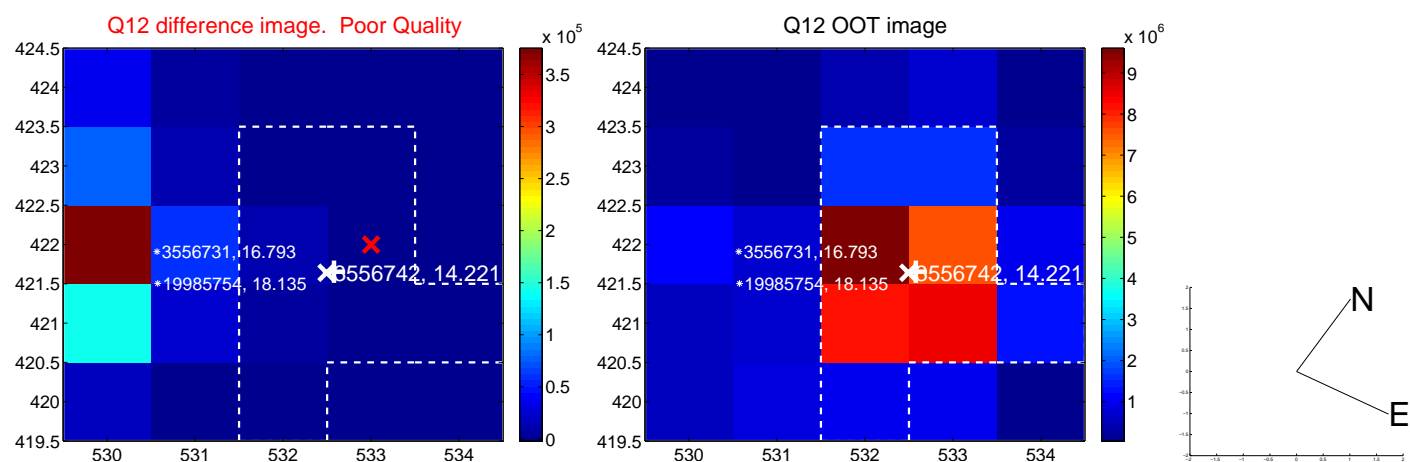
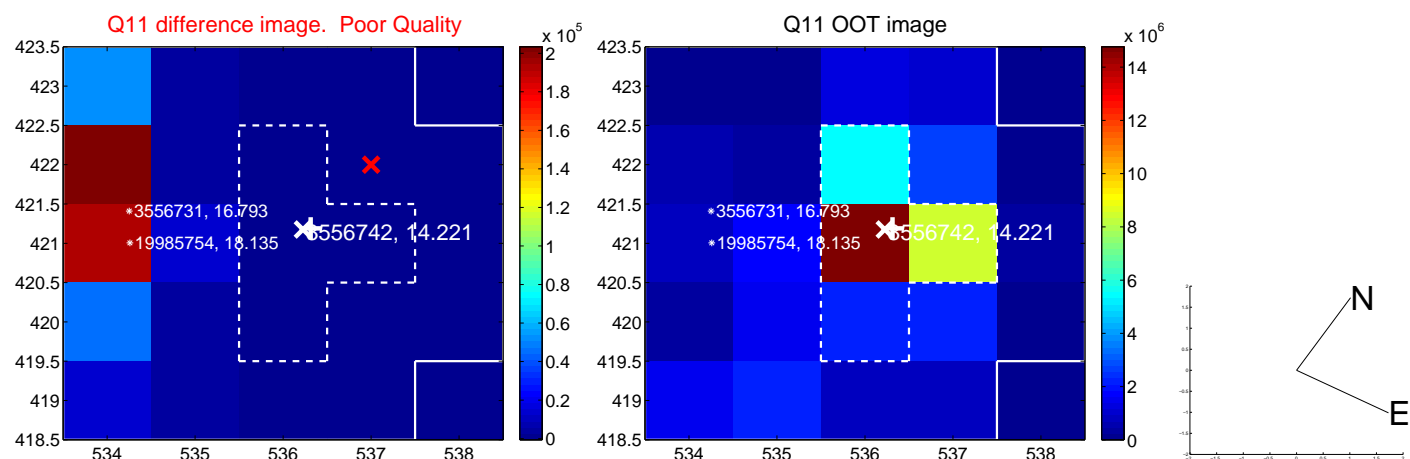
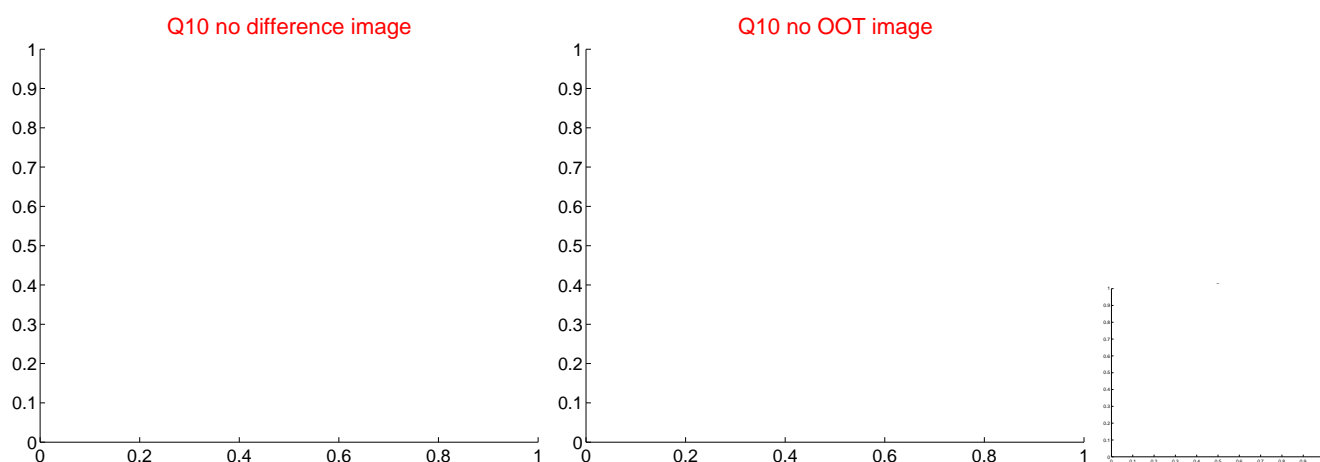
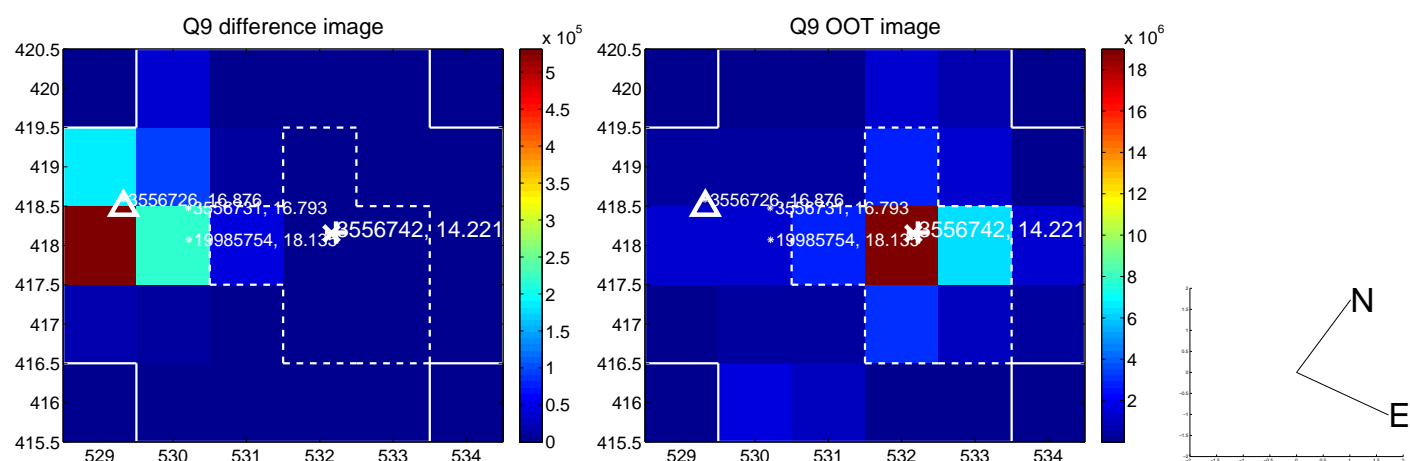


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

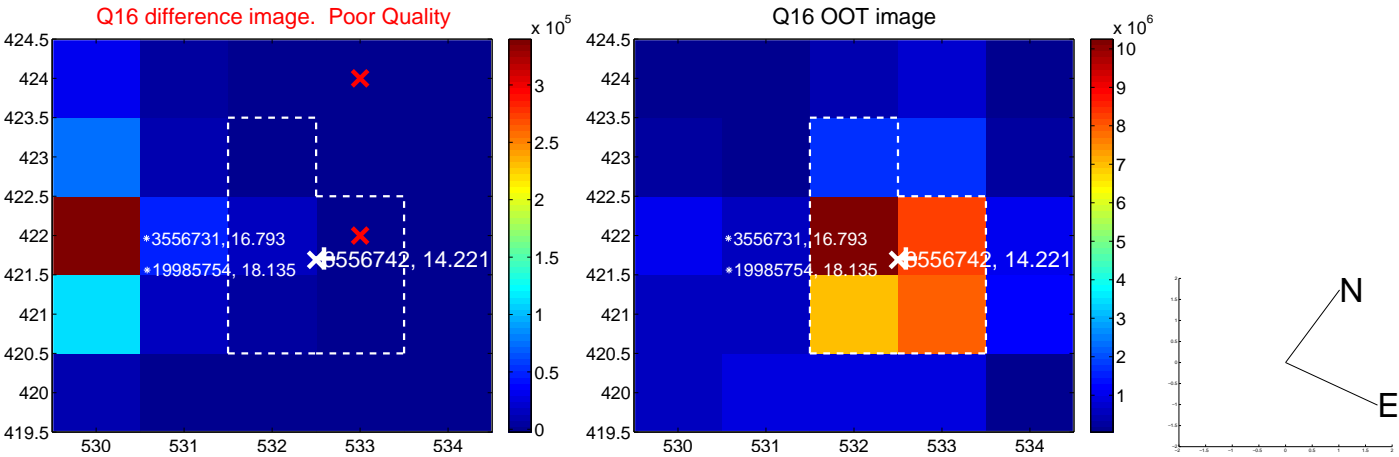
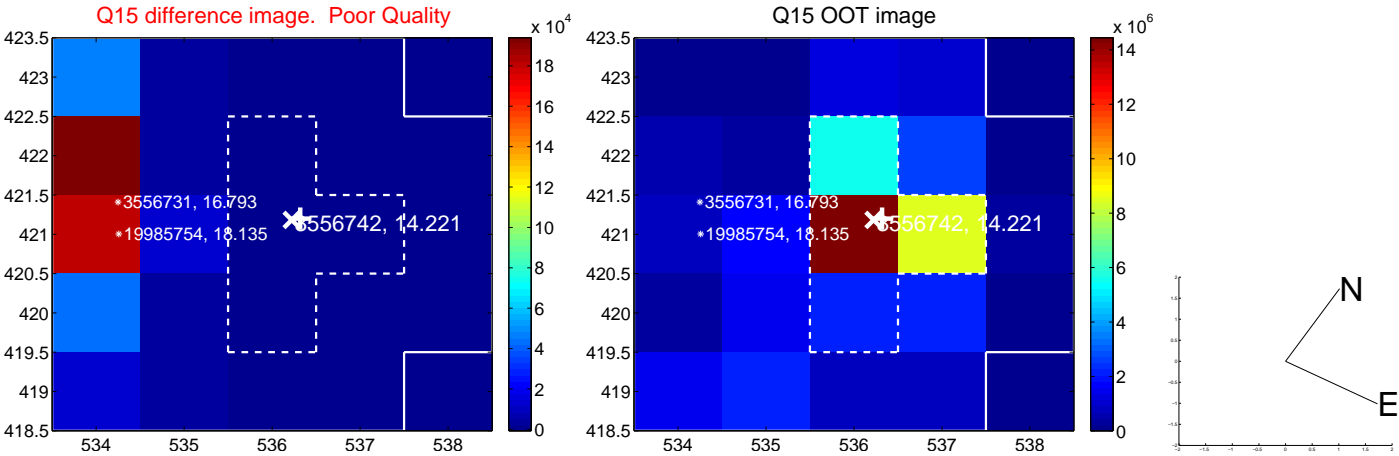
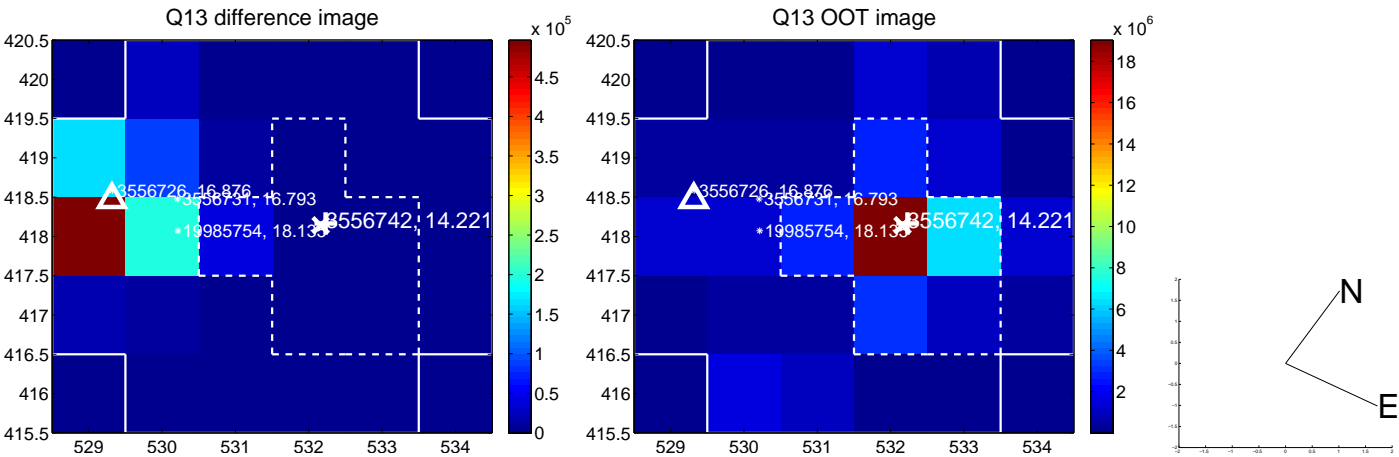




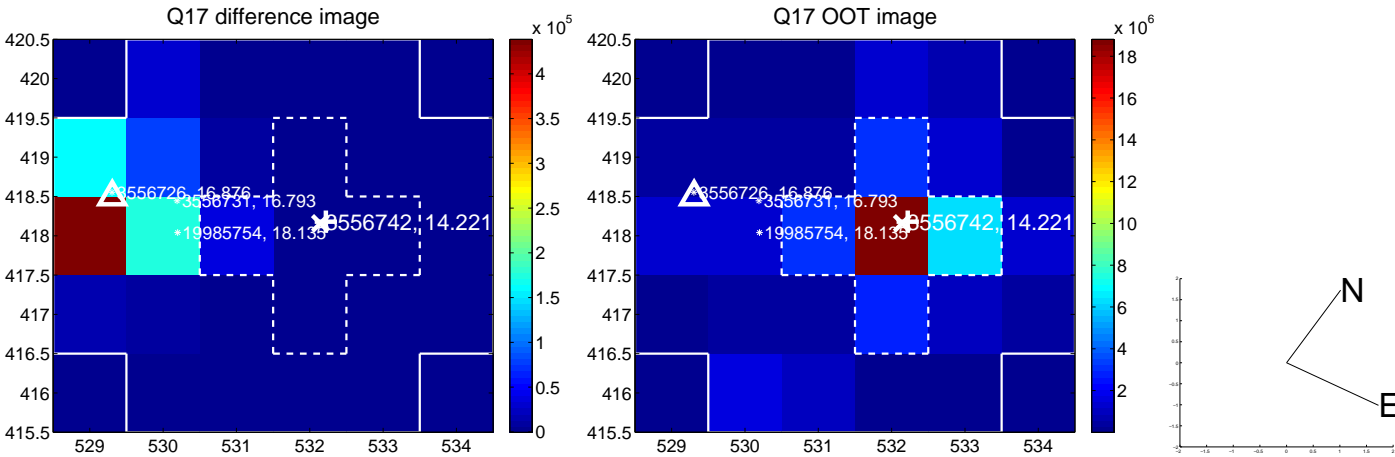
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



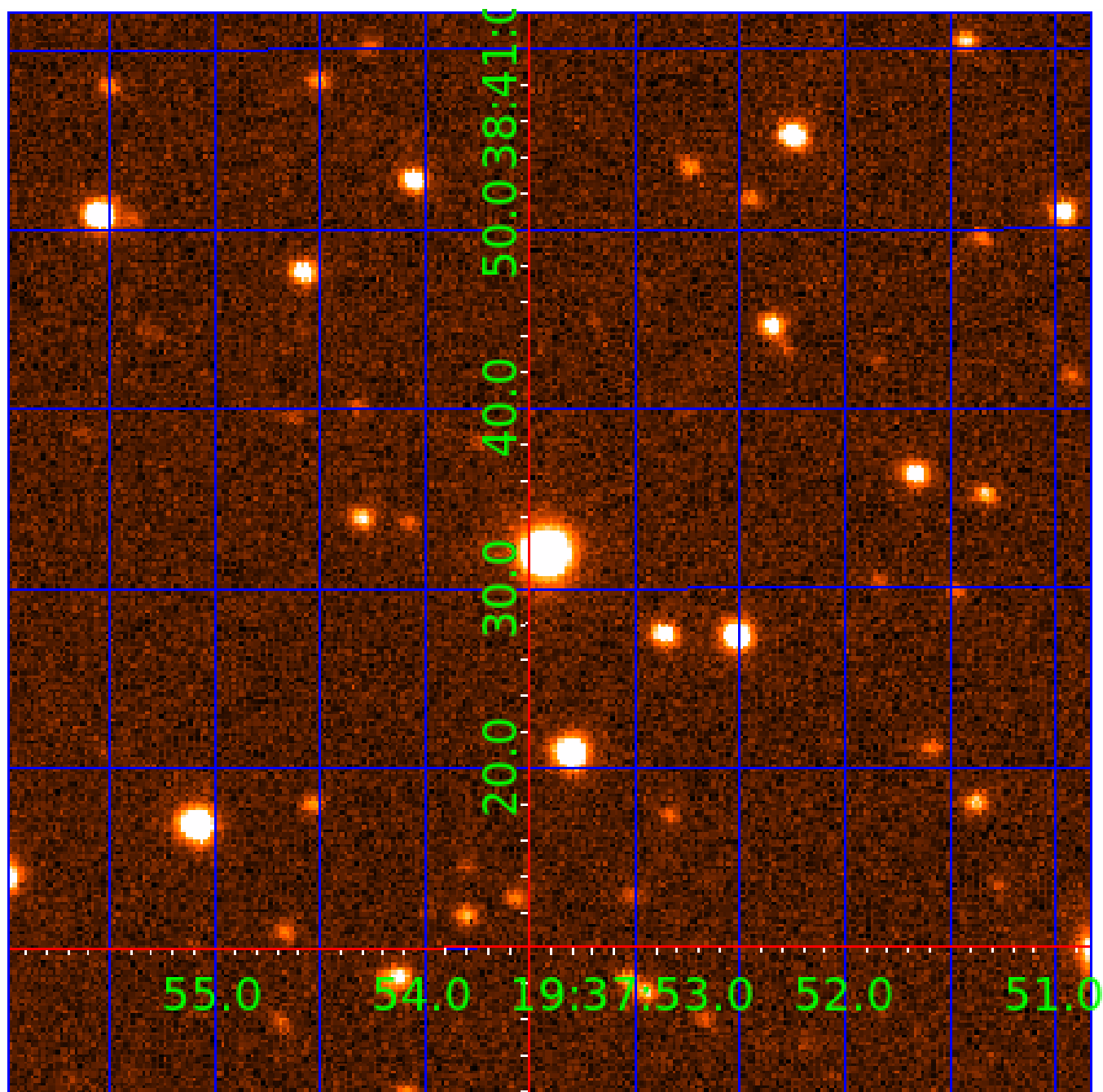
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination





# KIC 003556742

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003556742-01	OBS	6344.01	0.822995	132.171113	148.7	2.140	27.3	28.8	0.72	4975	1.08	1142.95
003556742-02	OBS	No	0.822962	131.784420	26.6	2.504	13.8	6.1	0.72	4975	0.38	1143.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003556742-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
003556742-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—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.

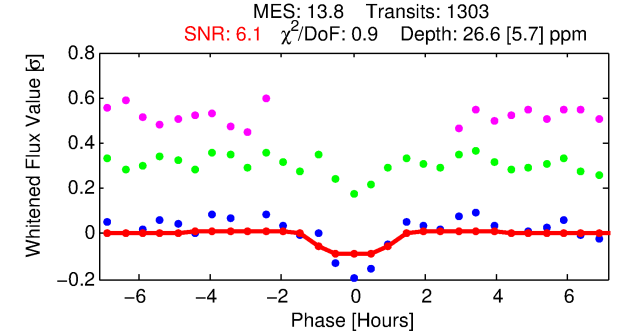
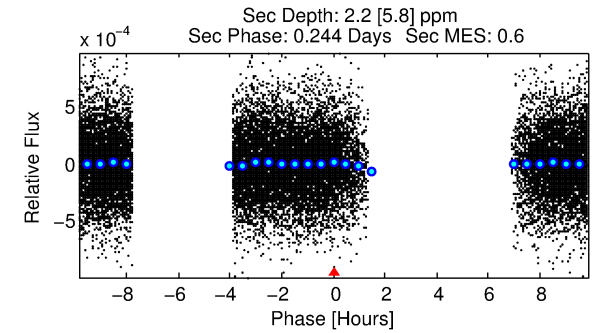
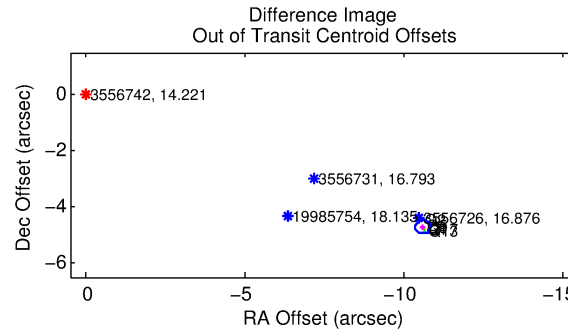
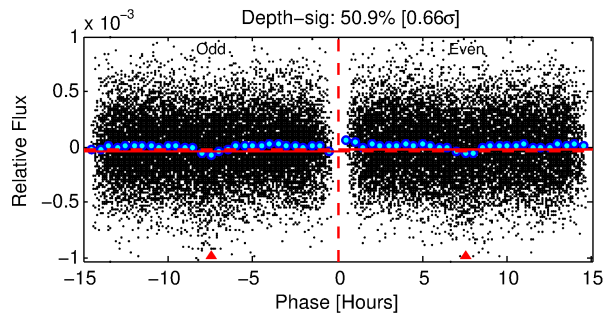
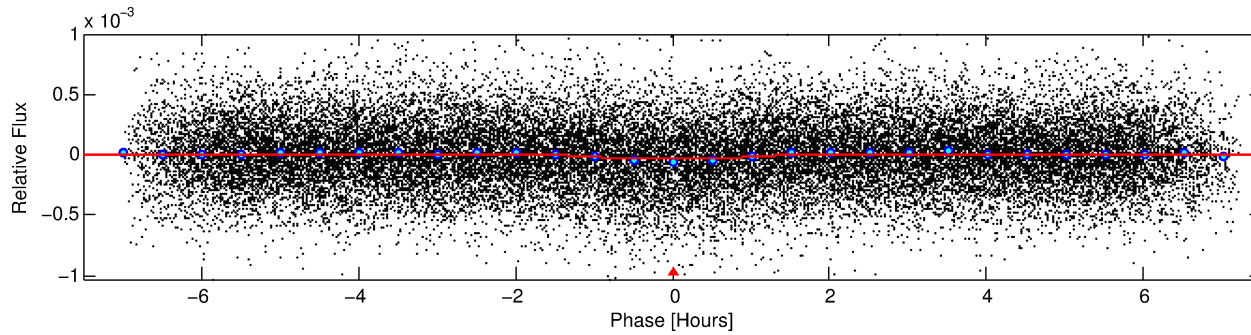
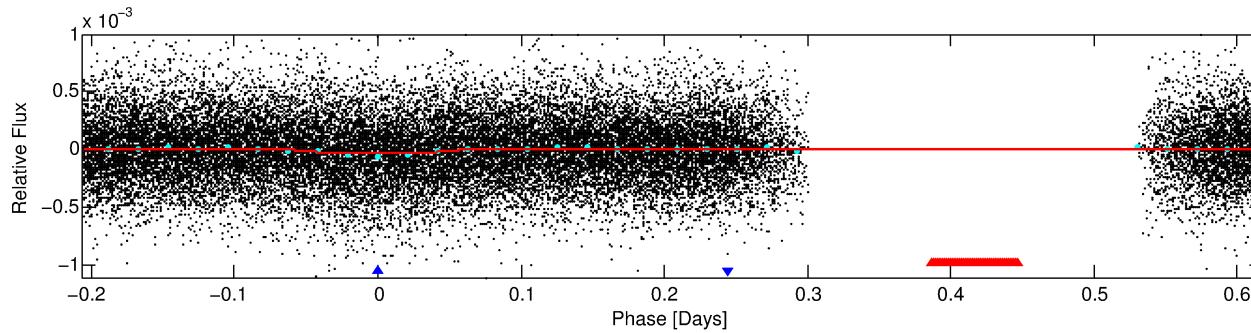
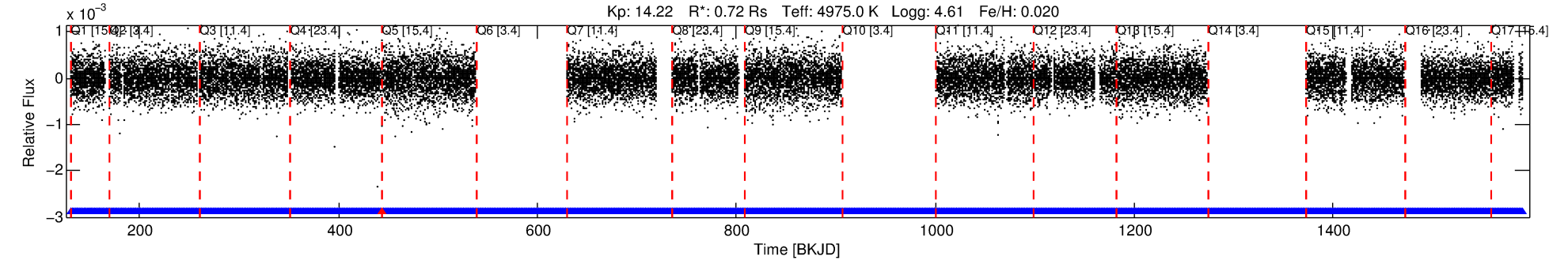
## Ephemeris Match Information For 003556742-02

No Significant Match Found

# DV One-Page Summary

KIC: 3556742 Candidate: 2 of 2 Period: 0.823 d  
KOI: K06344 Corr: No Ephemeris Match

Kp: 14.22 R\*: 0.72 Rs Teff: 4975.0 K Logg: 4.61 Fe/H: 0.020



## DV Fit Results:

Period = 0.82296 [0.00002] d  
Epoch = 131.7844 [0.0053] BKJD  
Rp/R\* = 0.0048 [0.0039]  
a/R\* = 2.24 [4.93]  
b = 0.54 [3.60]  
Seff = 1143.02 [128.49]  
Teq = 1483 [42] K  
Rp = 0.38 [0.31] Re  
a = 0.0159 [0.0010] AU  
Ag = 2.11 [6.57] [0.17σ]  
Teff = 2764 [2147] K [0.60σ]

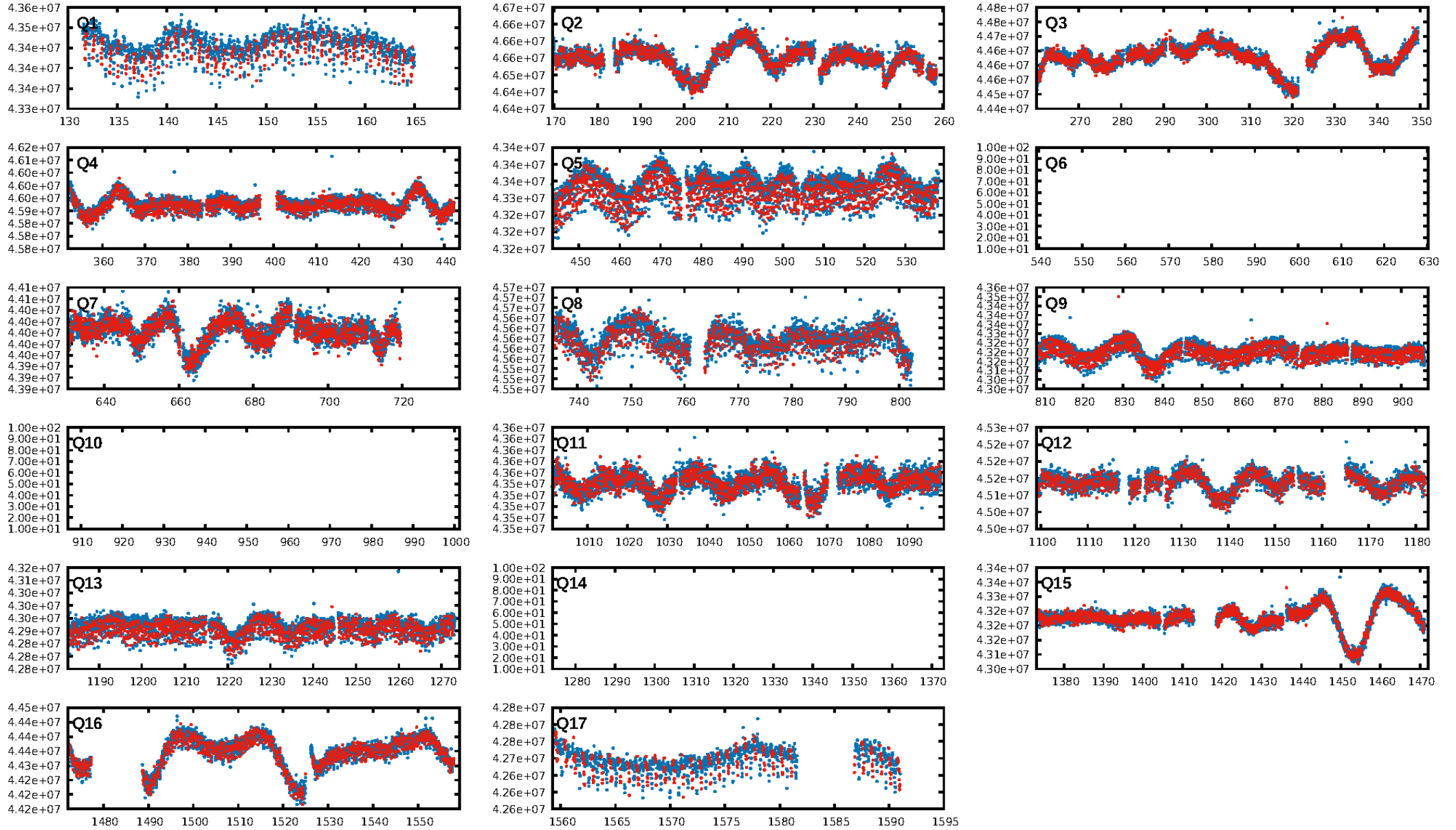
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.58e-39  
RollingBand-fgt: 1.00 [1228/1229]  
GhostDiagnostic-chr: -0.1735  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 11.585 arcsec [144.87σ]  
KicOffset-rm: 11.382 arcsec [152.30σ]  
OotOffset-st: 1/0/0/5 [6]  
KicOffset-st: 1/0/0/5 [6]  
DiffImageQuality-fgm: 1.00 [6/6]  
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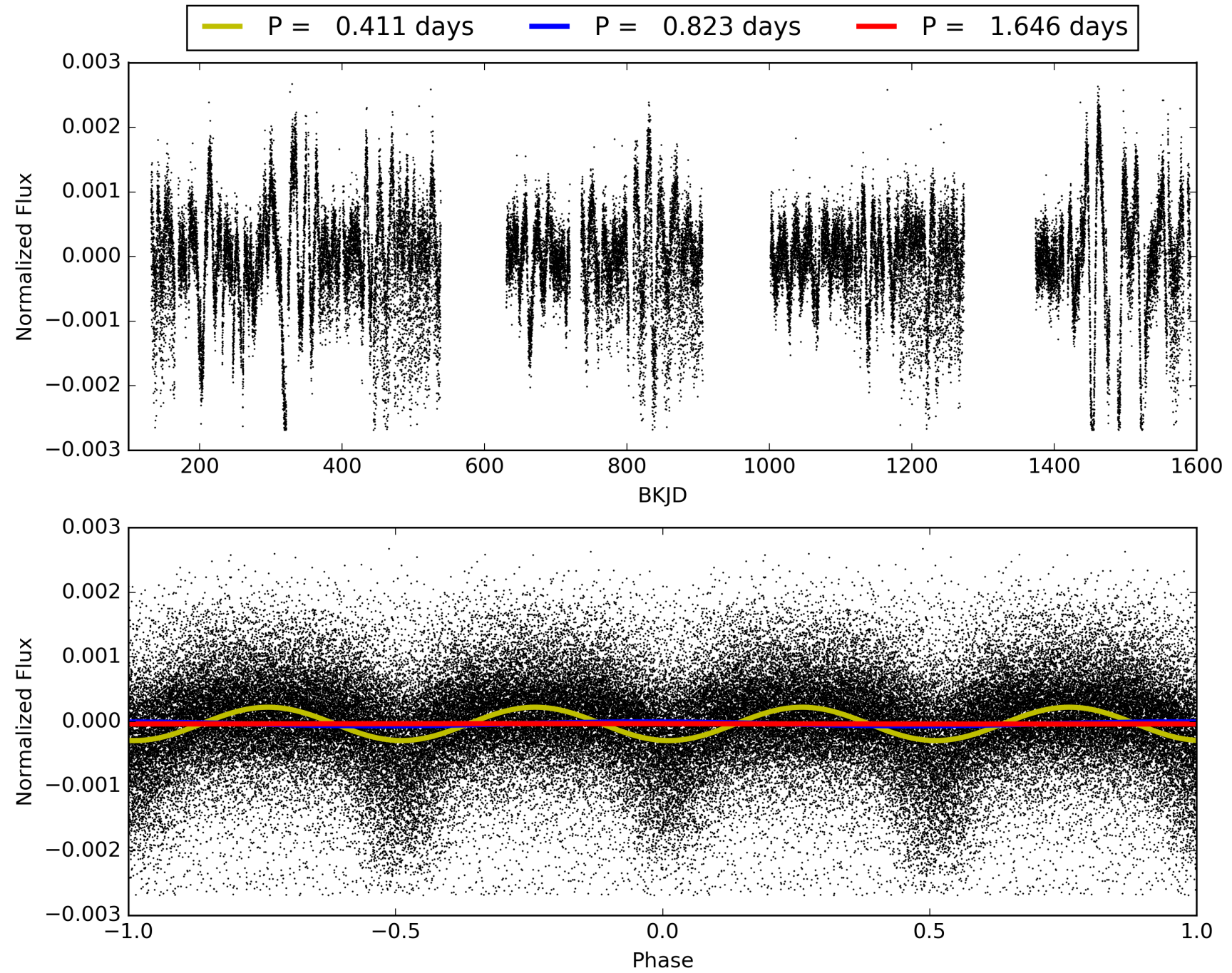
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:23:27 Z

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

# TCE 003556742-02, PDC Light Curves



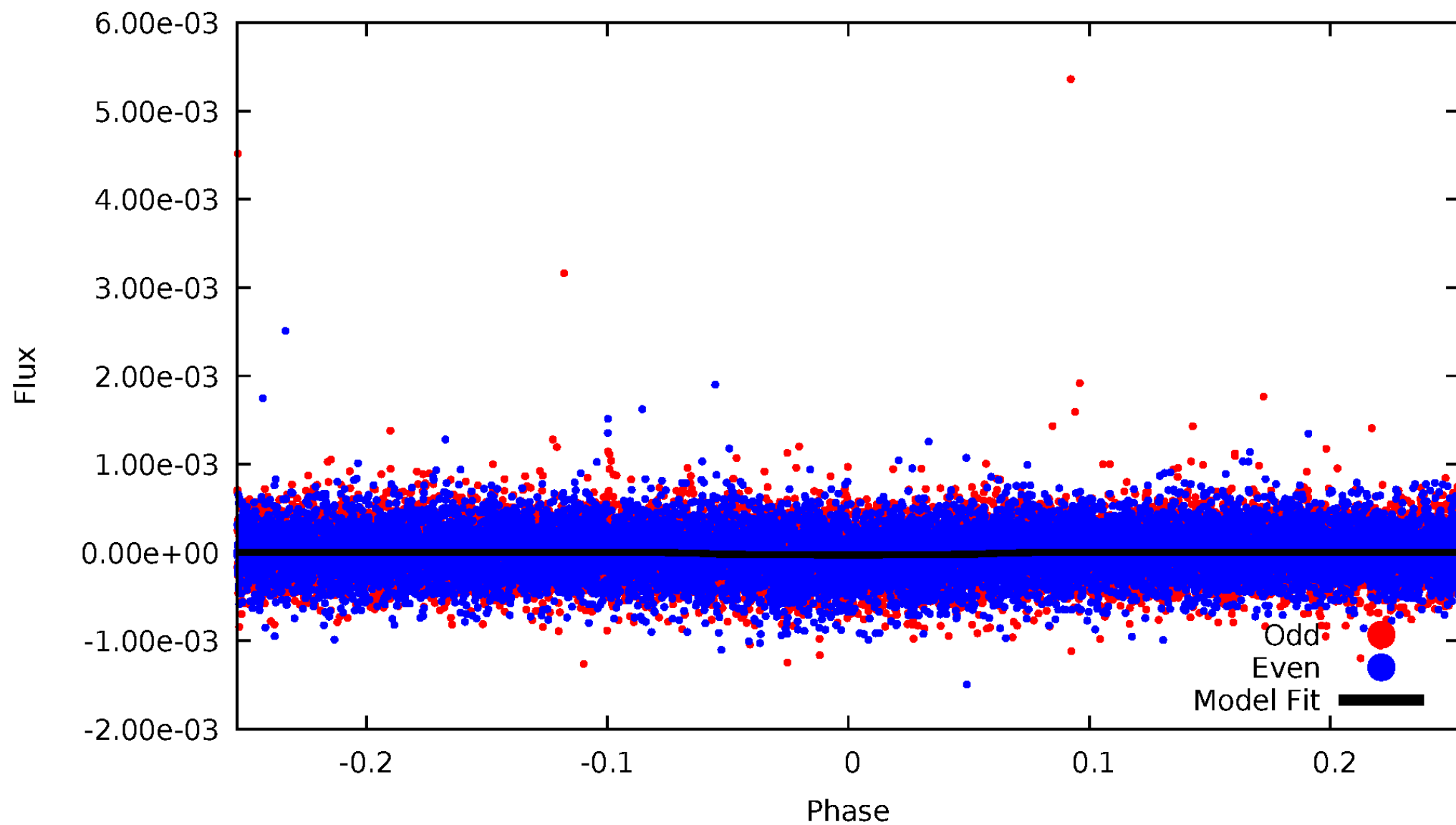
TCE 003556742-02





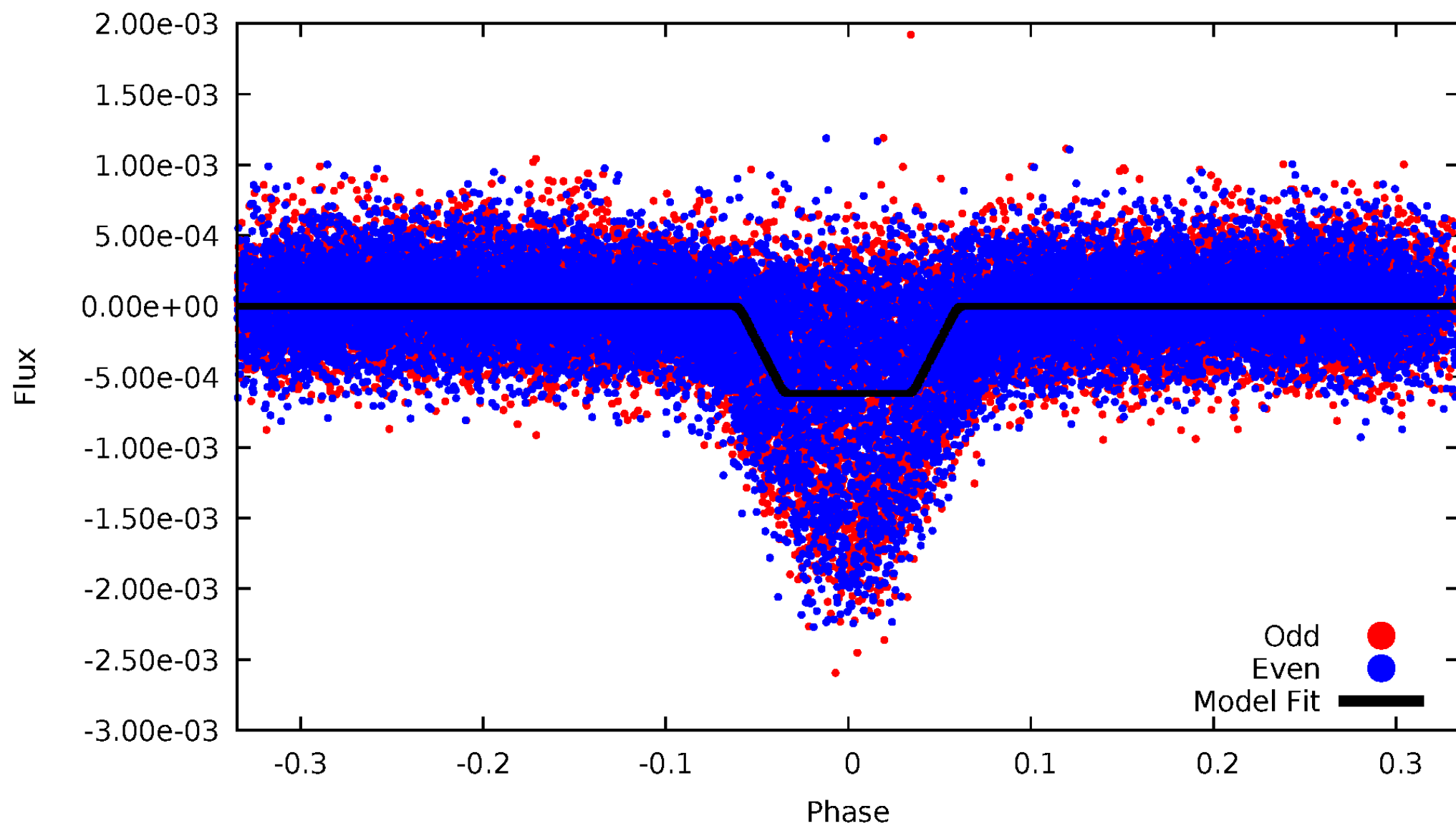
# DV Odd/Even

TCE 003556742-02



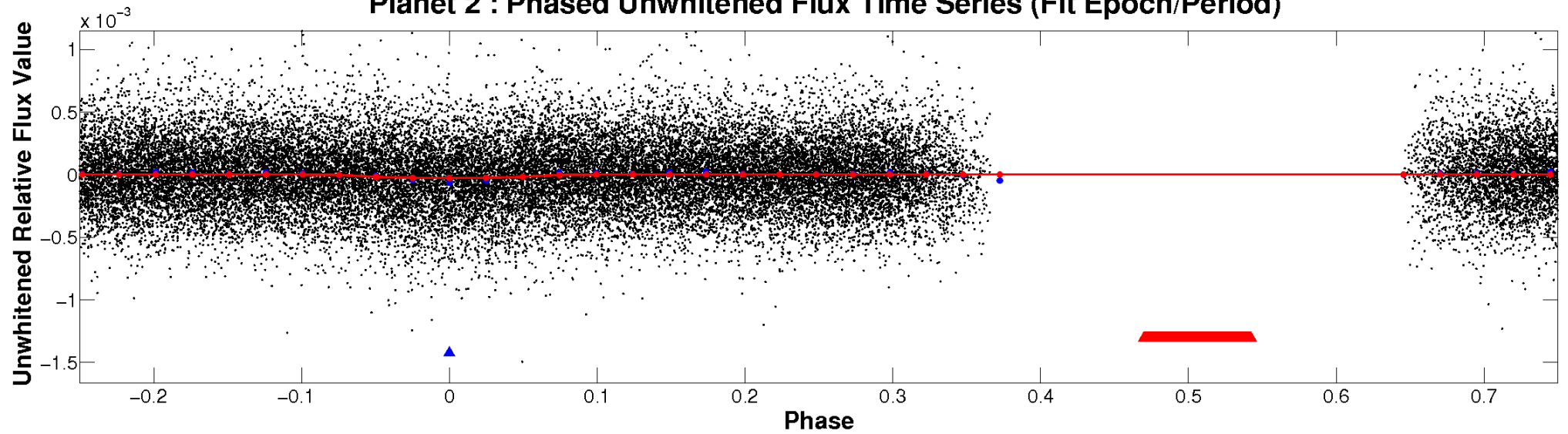
# ALT Odd/Even

TCE 003556742-02

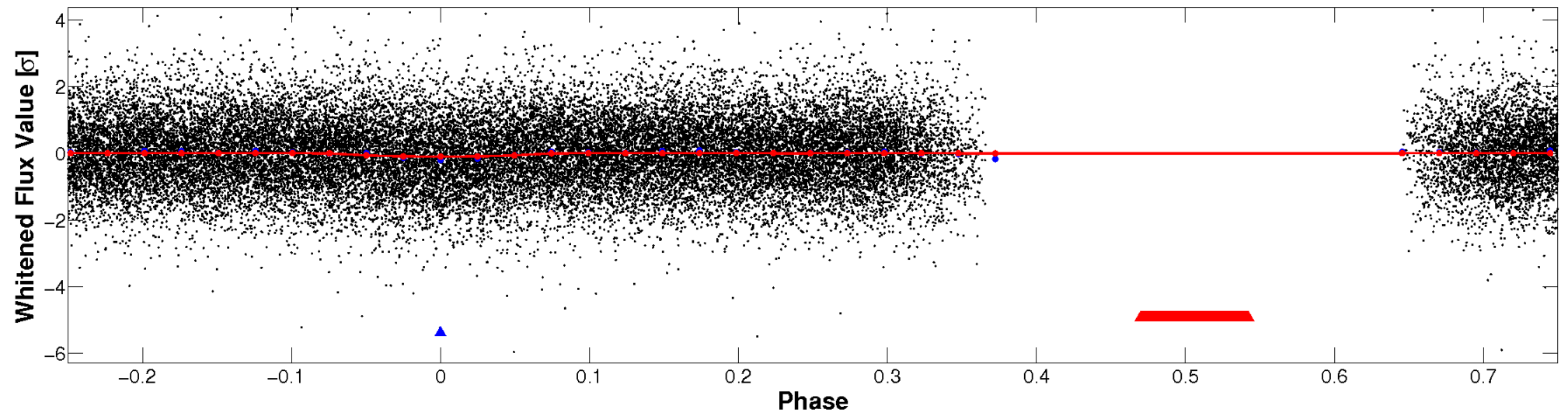


# Non-Whitened Vs. Whitened Light Curve

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

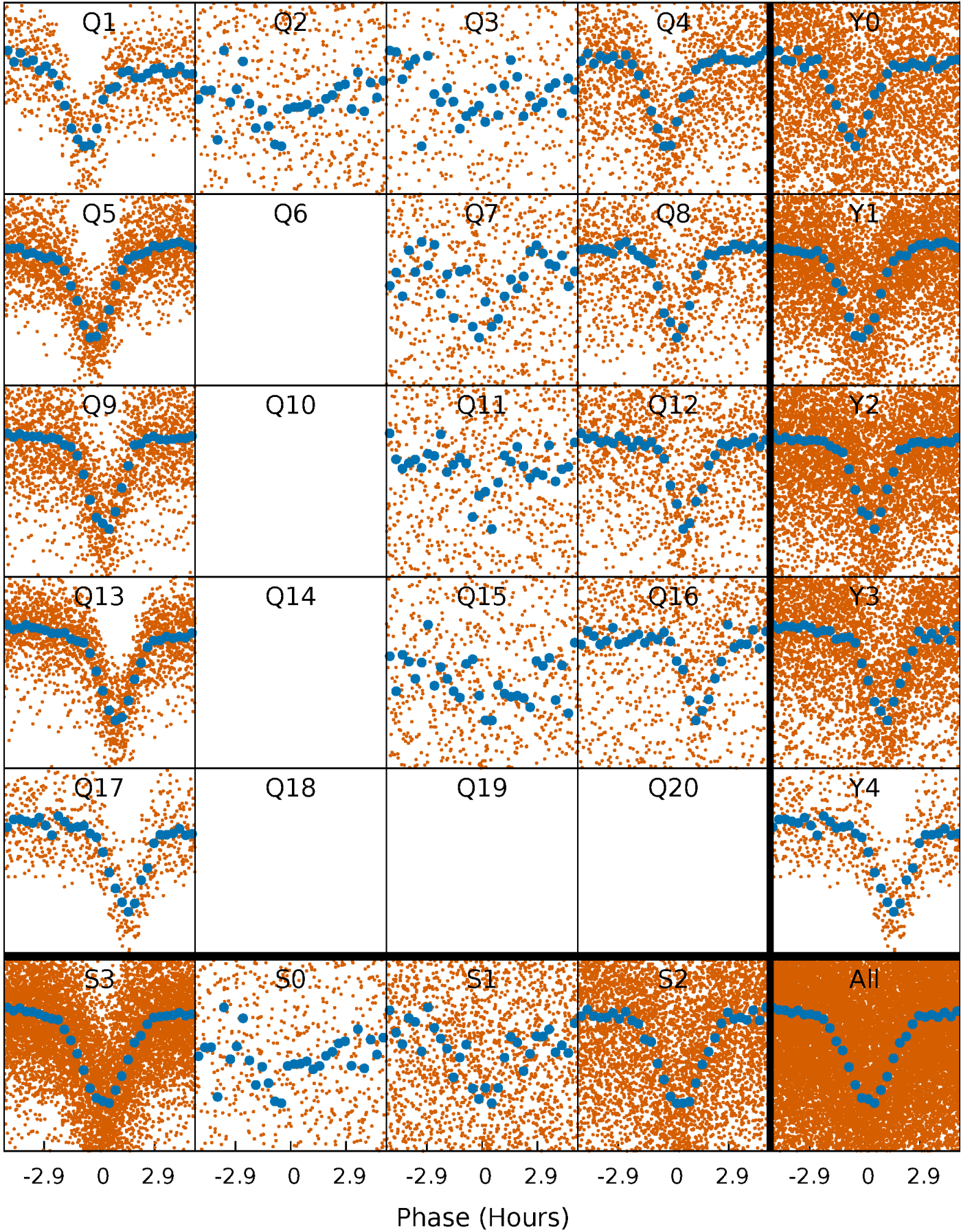


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

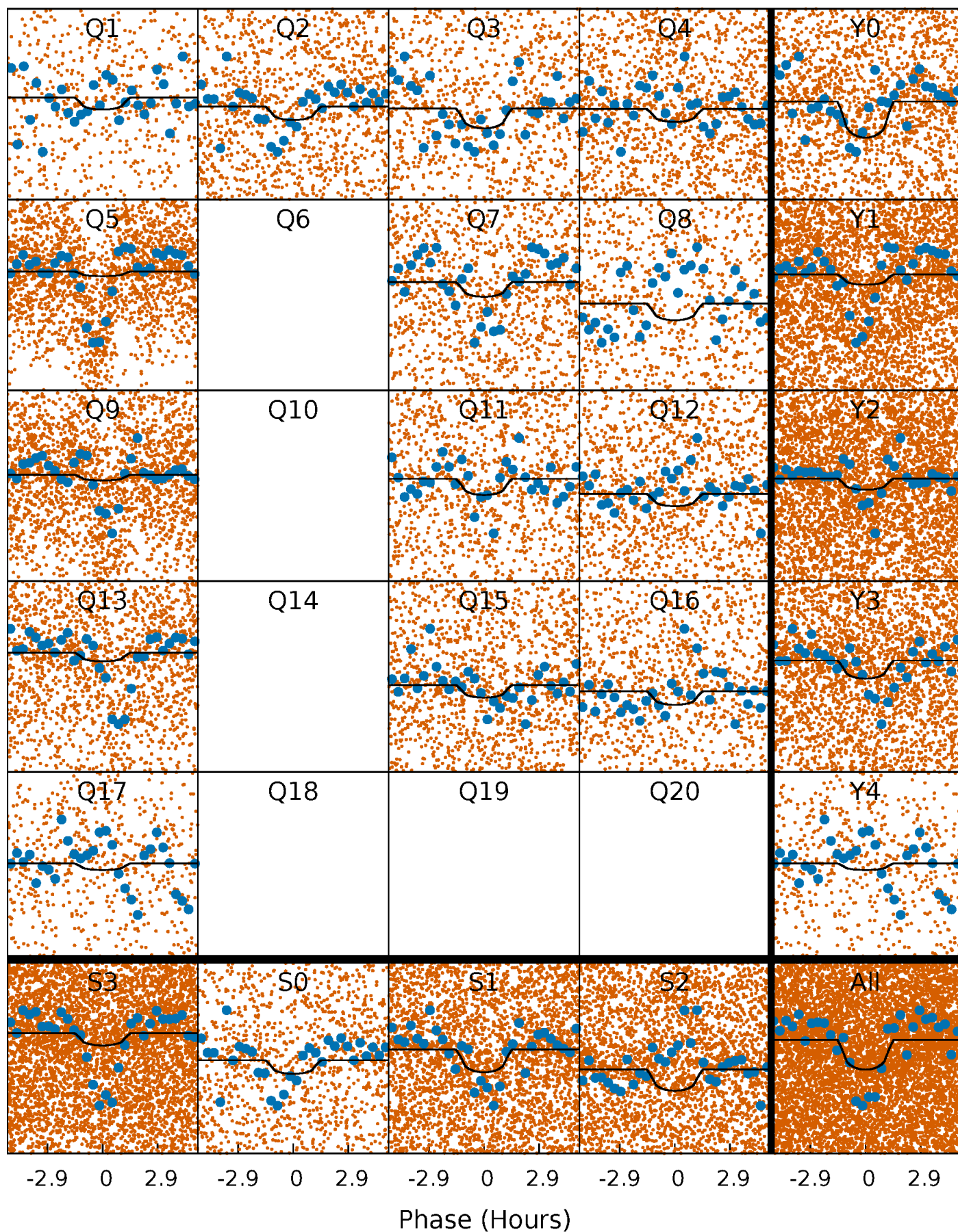
TCE 003556742-02   P= 0.822962 Days    $T_0=131.784420$  (BKJD)





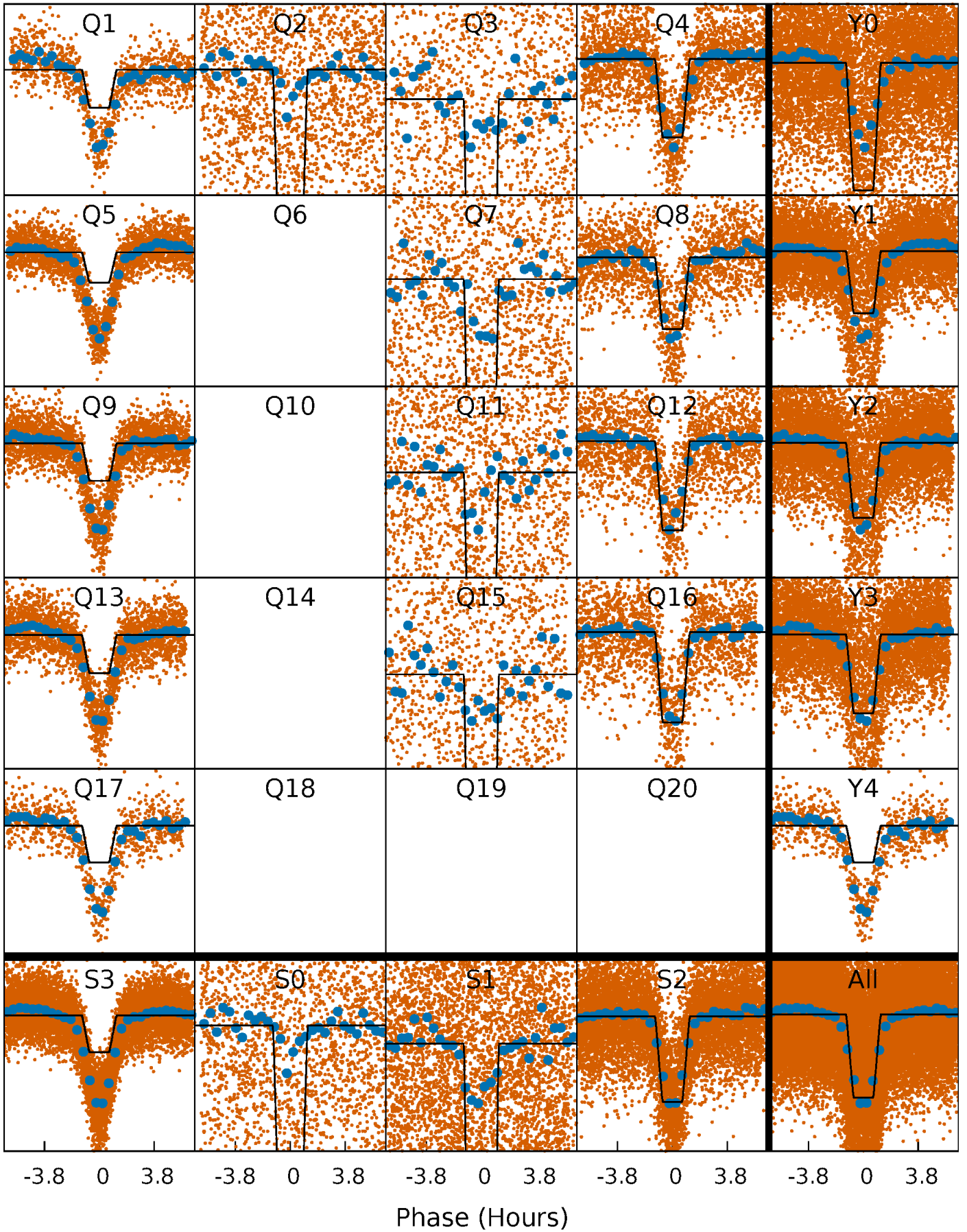
# DV Quarter-Phased Transit Curves

TCE 003556742-02   P= 0.822962 Days    $T_0=131.784420$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

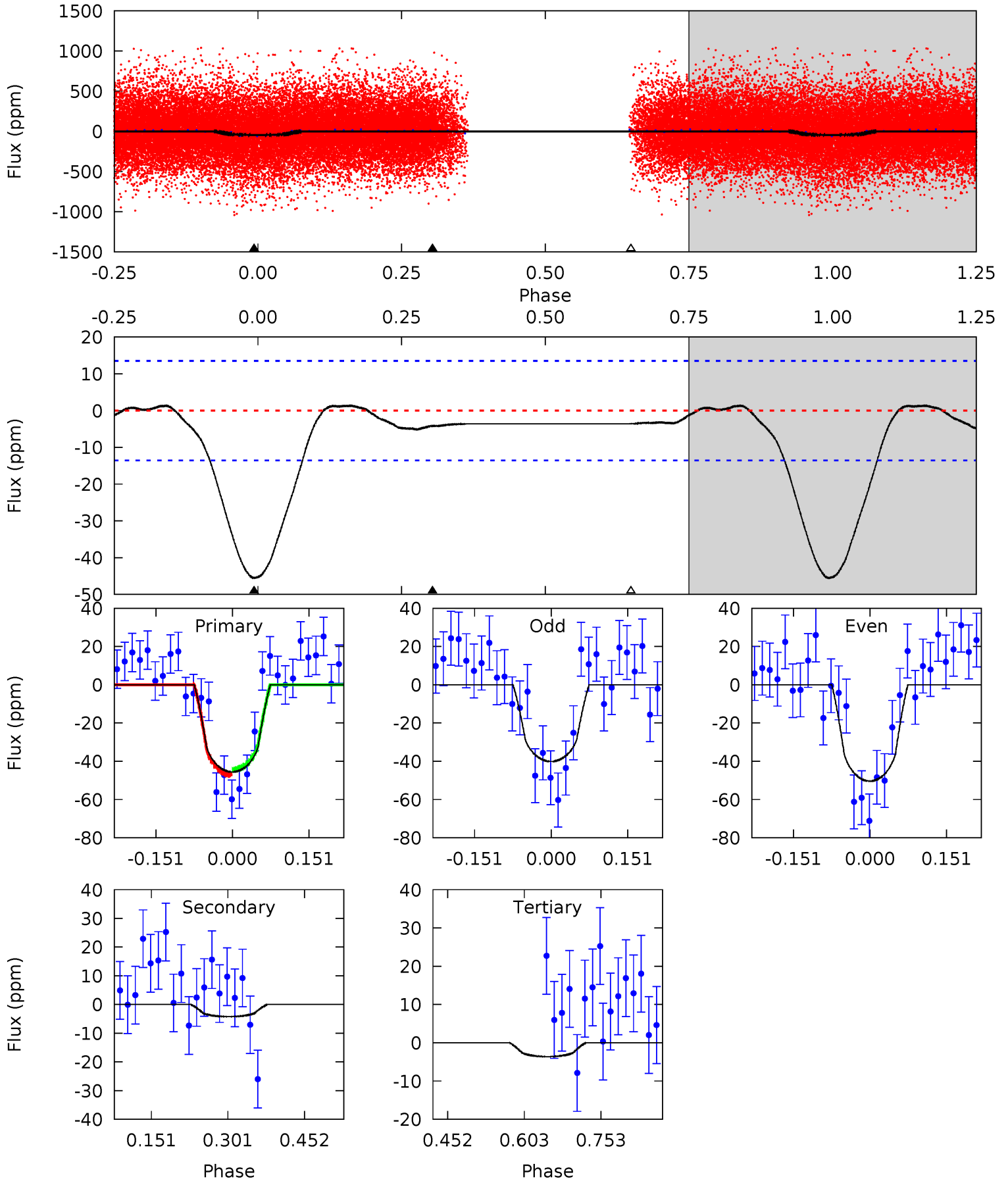
TCE 003556742-02   P= 0.823017 Days    $T_0=131.747585$  (BKJD)



# DV Model-Shift Uniqueness Test

003556742-02, P = 0.822962 Days, E = 130.961458 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
15.1	1.40	1.20	0	4.48	1.44	0.61	13.9	15.1	0.20	1.40	1.71	1.19	0.03	0.44

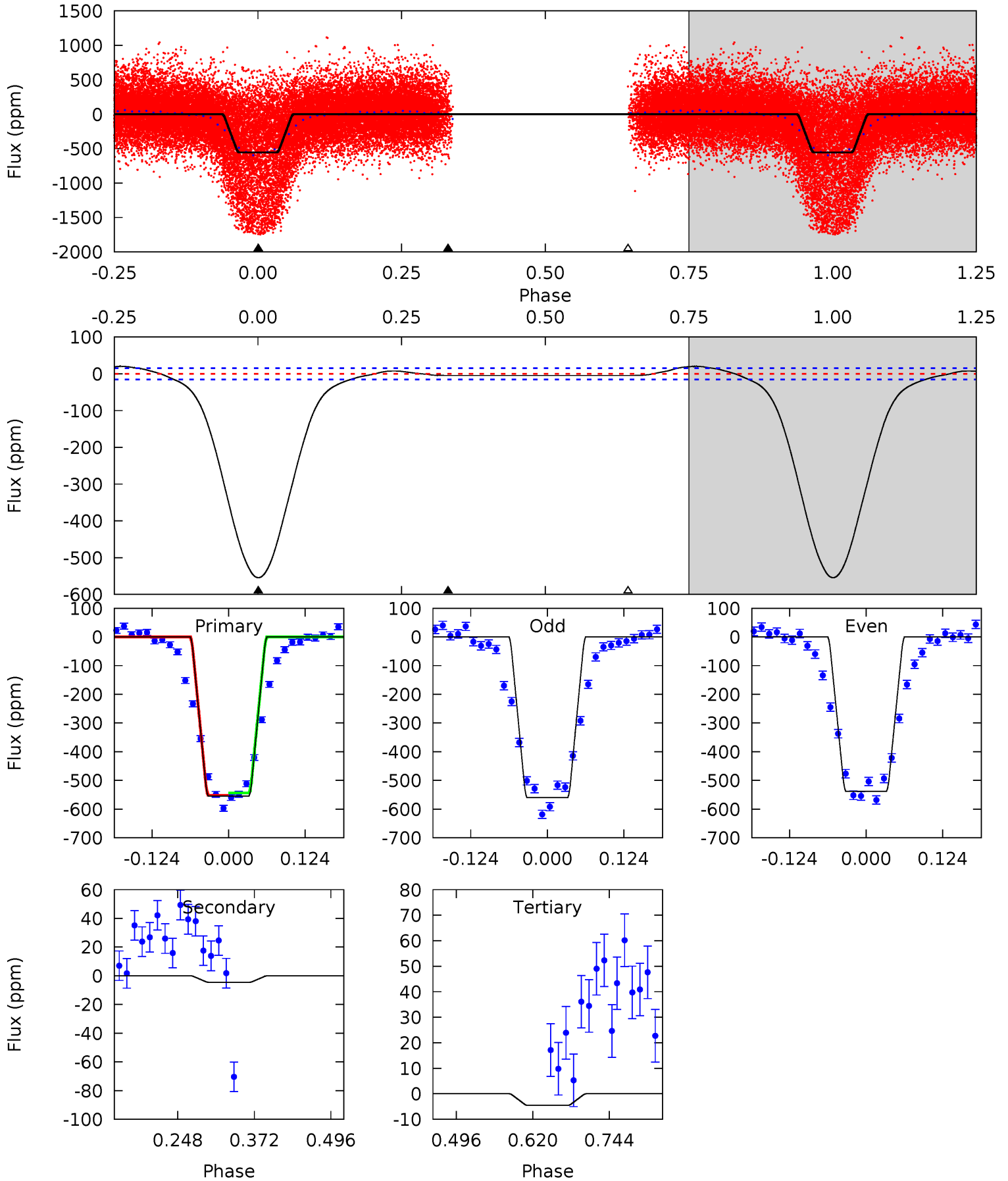




# Alt Model-Shift Uniqueness Test

003556742-02, P = 0.823017 Days, E = 130.924568 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
162.8	1.34	1.33	0	4.52	1.54	4.70	161.5	162.8	0.01	1.34	3.27	1.28	0.04	1.17



### Stellar Parameters For KIC 003556742

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4975^{+79}_{-79}$	$4.614^{+0.012}_{-0.051}$	$0.020^{+0.150}_{-0.150}$	$0.724^{+0.054}_{-0.022}$	$0.818^{+0.029}_{-0.057}$	$3.039^{+0.172}_{-0.566}$
	+2%/-2%	+0%/-1%	+750%/-750%	+7%/-3%	+4%/-7%	+6%/-19%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 003556742-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-4 \pm 3$	$0.43^{+0.28}_{-0.27}$	$2093^{+43}_{-42}$	$3367^{+1577}_{-971}$	$2.745^{+17.147}_{-2.261}$
Alt.	$-5 \pm 3$	$2.02^{+0.33}_{-0.34}$	$2091^{+45}_{-43}$	$-2321^{+3744}_{-175}$	$0.155^{+0.145}_{-0.119}$

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

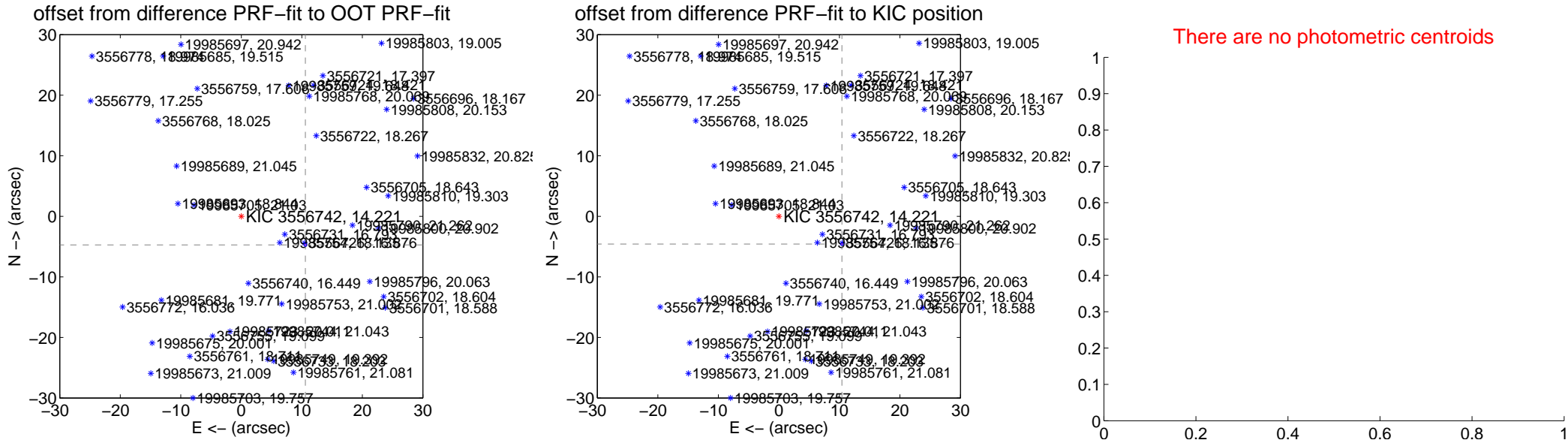
## DV Centroid Data

Supplemental centroid analysis for 003556742-02. Kepler magnitude: 14.22. Transit SNR 6.12

There are 6 quarters with good PRF difference image offsets

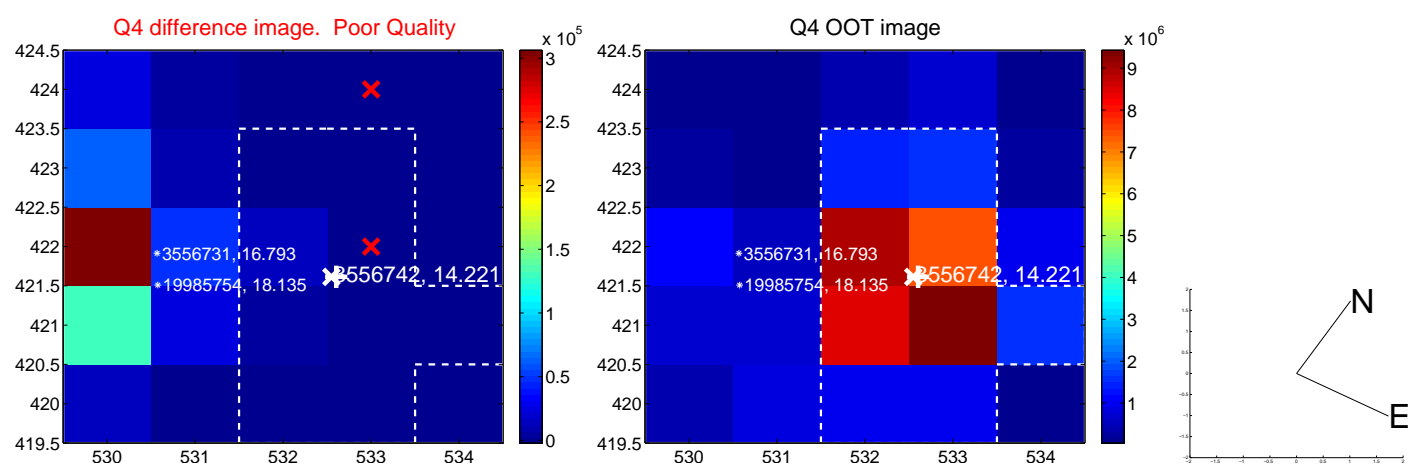
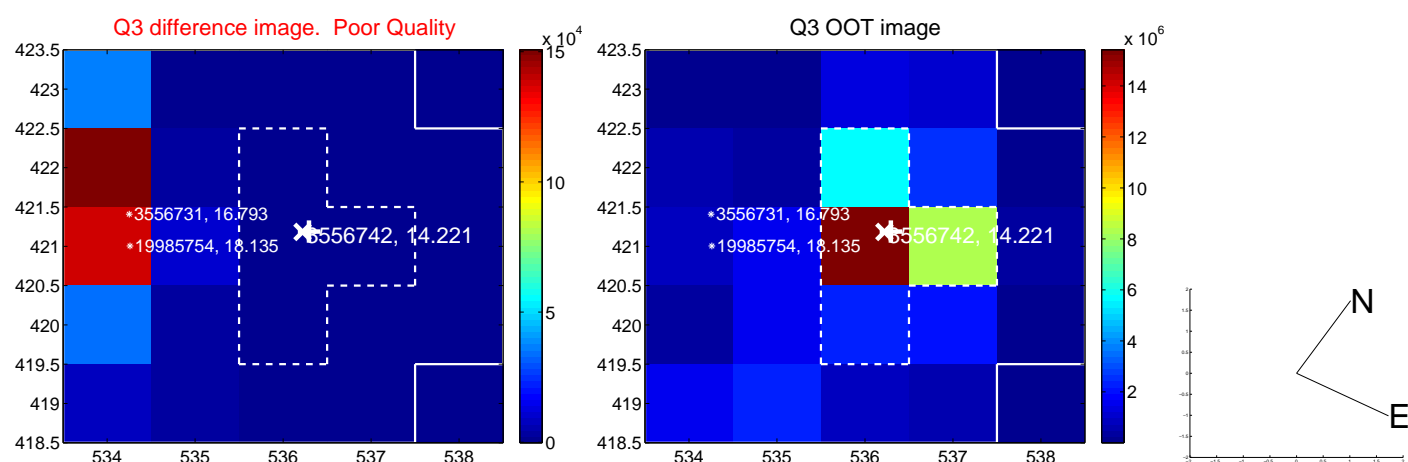
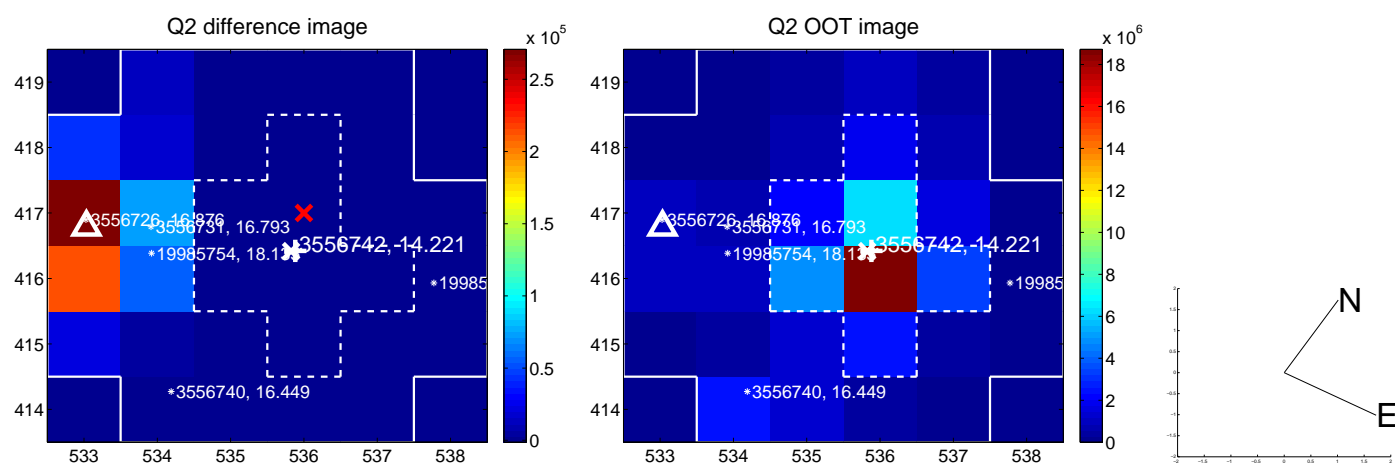
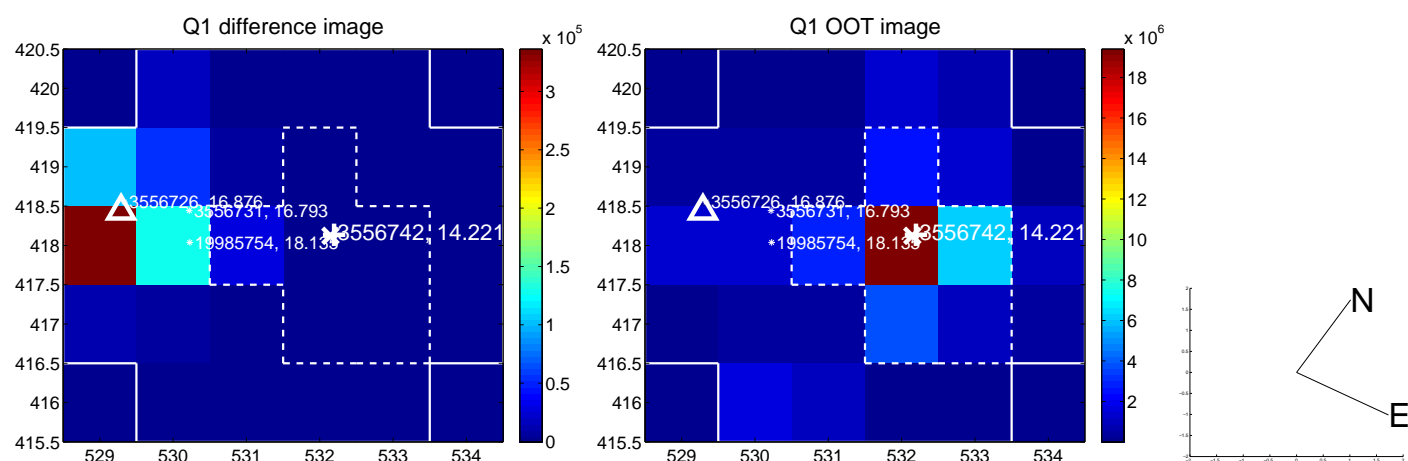
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>11.585 <math>\pm</math> 0.080</b>	<b>144.87</b>	-10.578 $\pm$ 0.070	-4.725 $\pm$ 0.091
PRF-fit source offset from KIC position	<b>11.382 <math>\pm</math> 0.075</b>	<b>152.30</b>	-10.419 $\pm$ 0.069	-4.582 $\pm$ 0.080
photometric centroid source offset	—	—	—	—

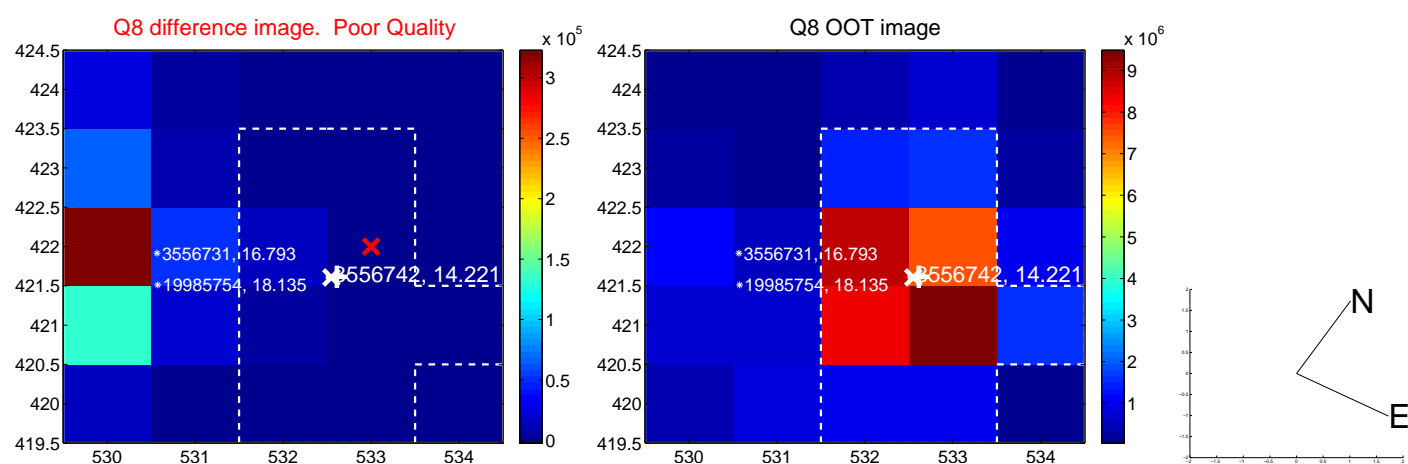
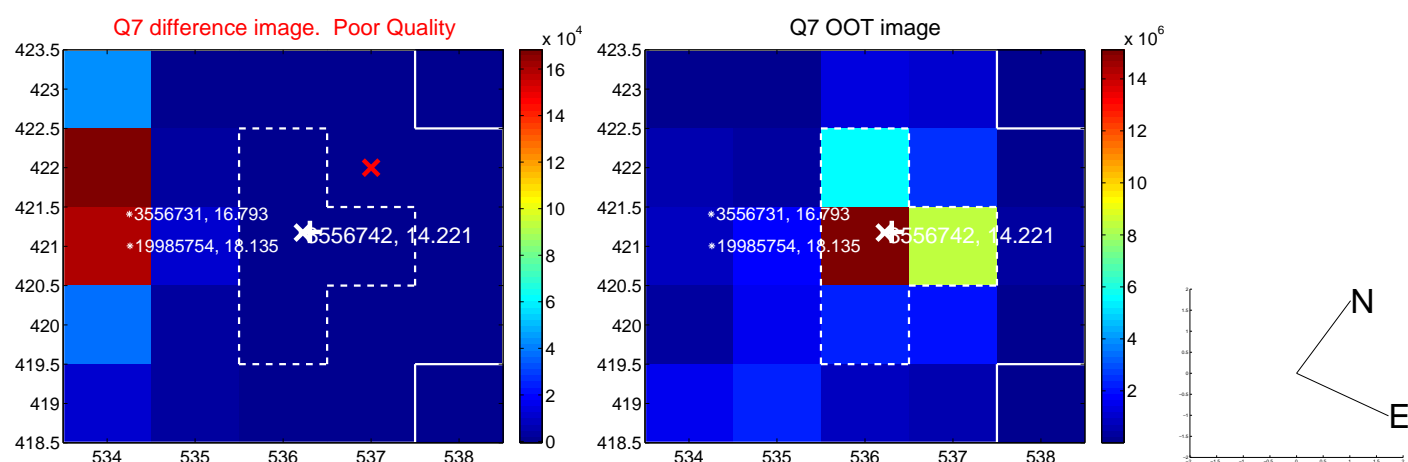
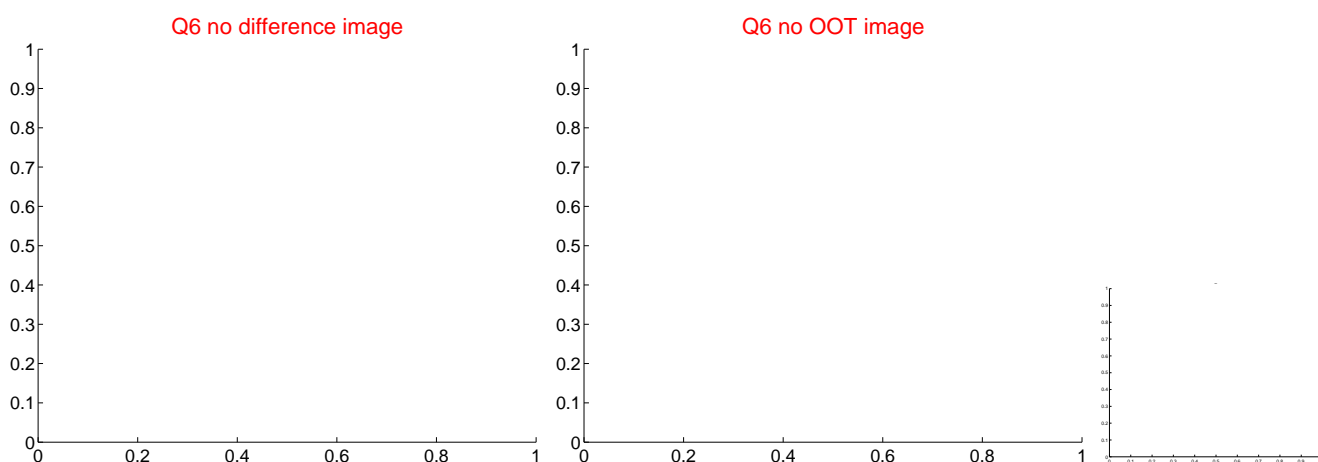
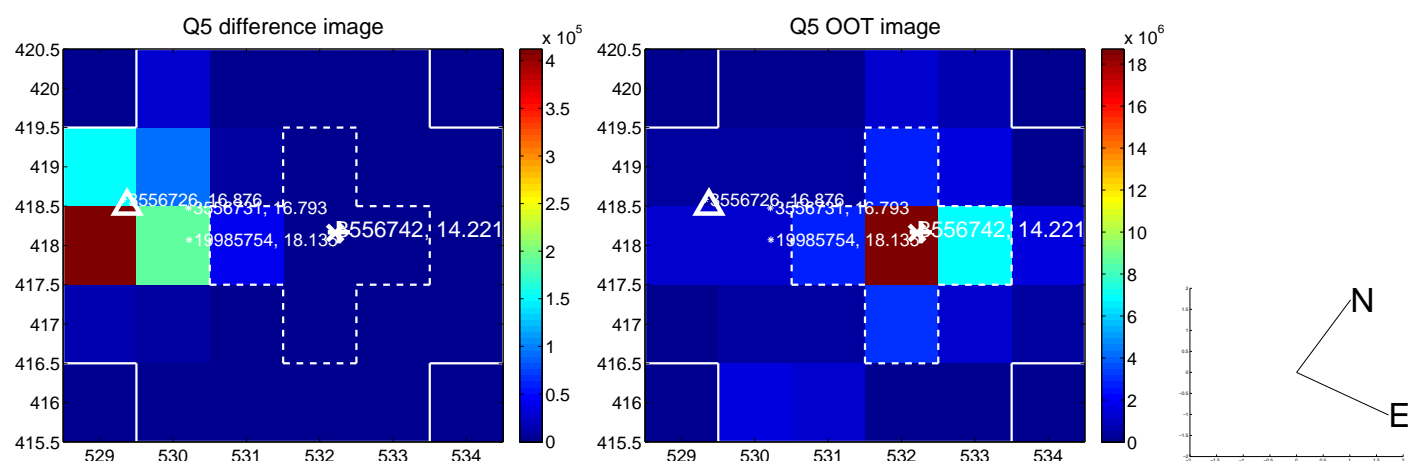


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

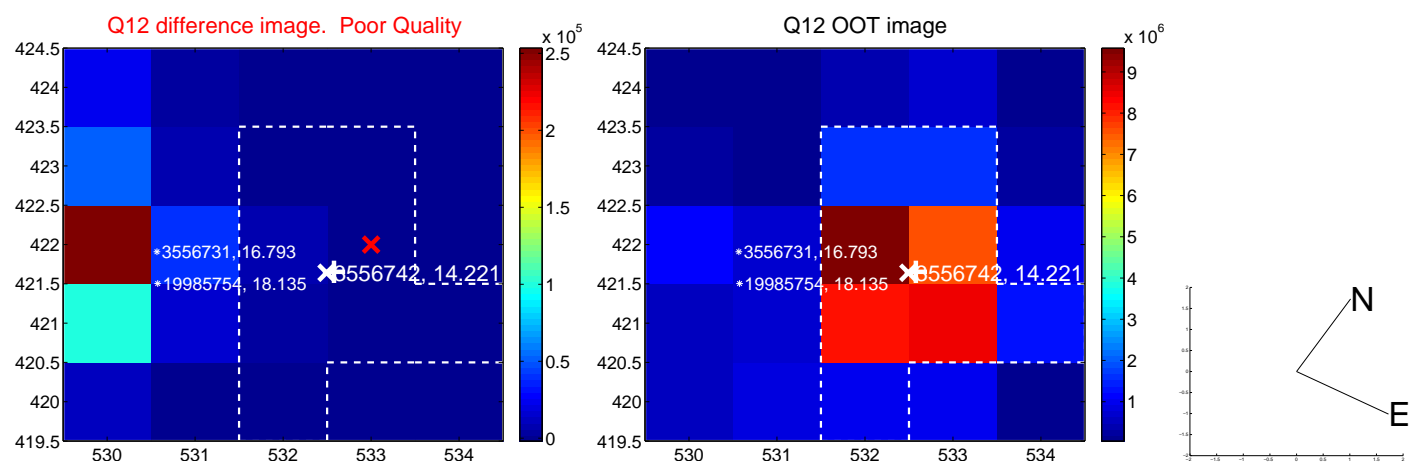
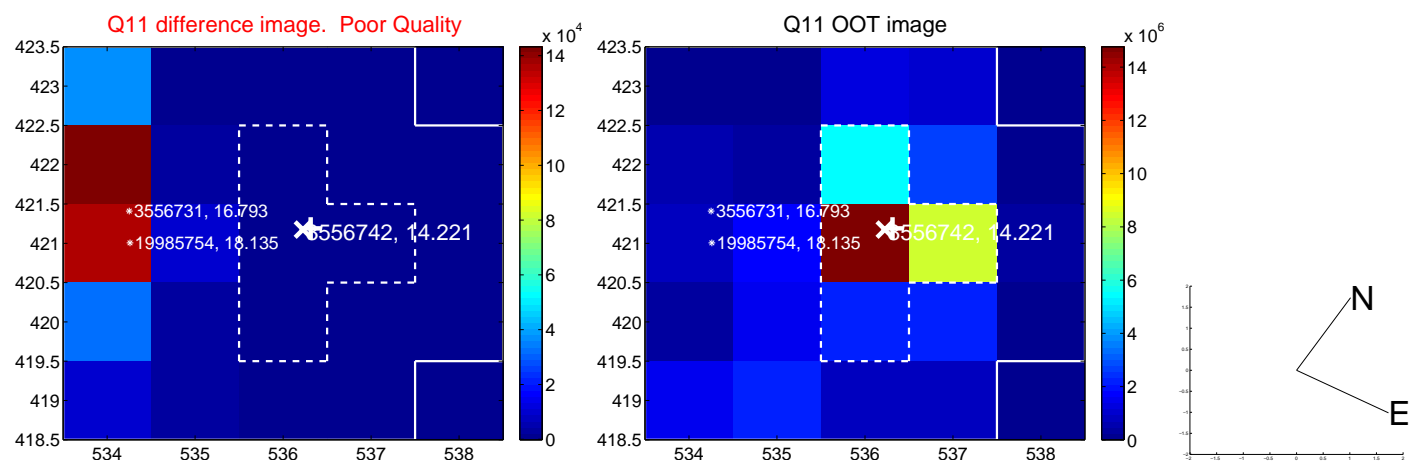
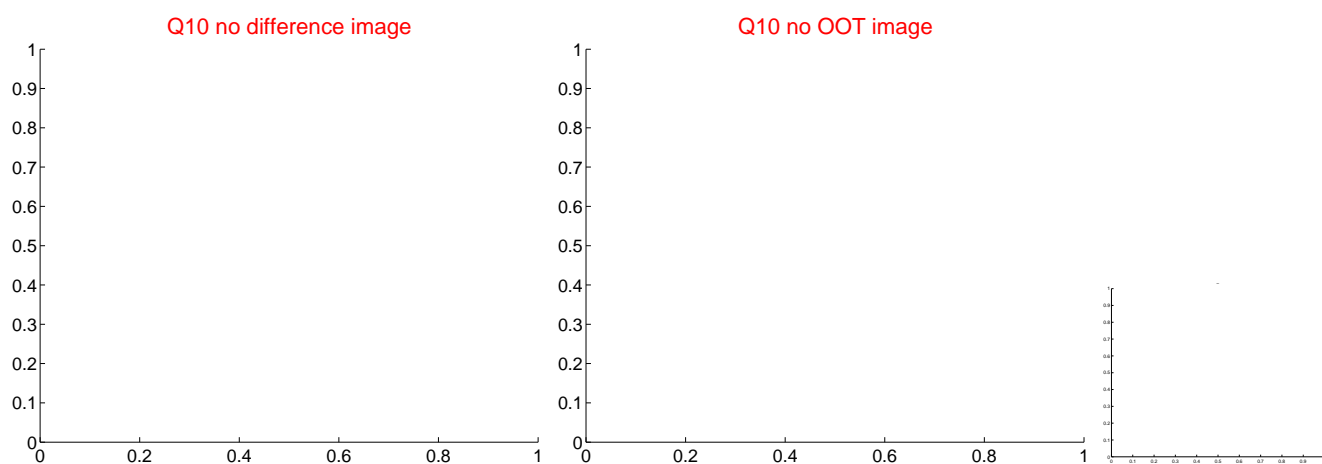
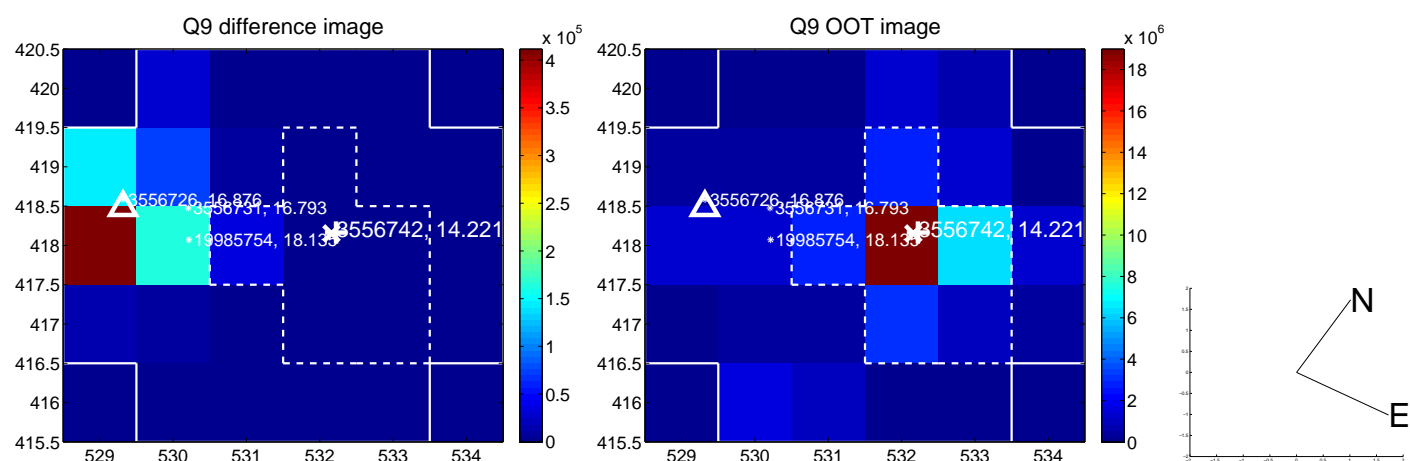
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



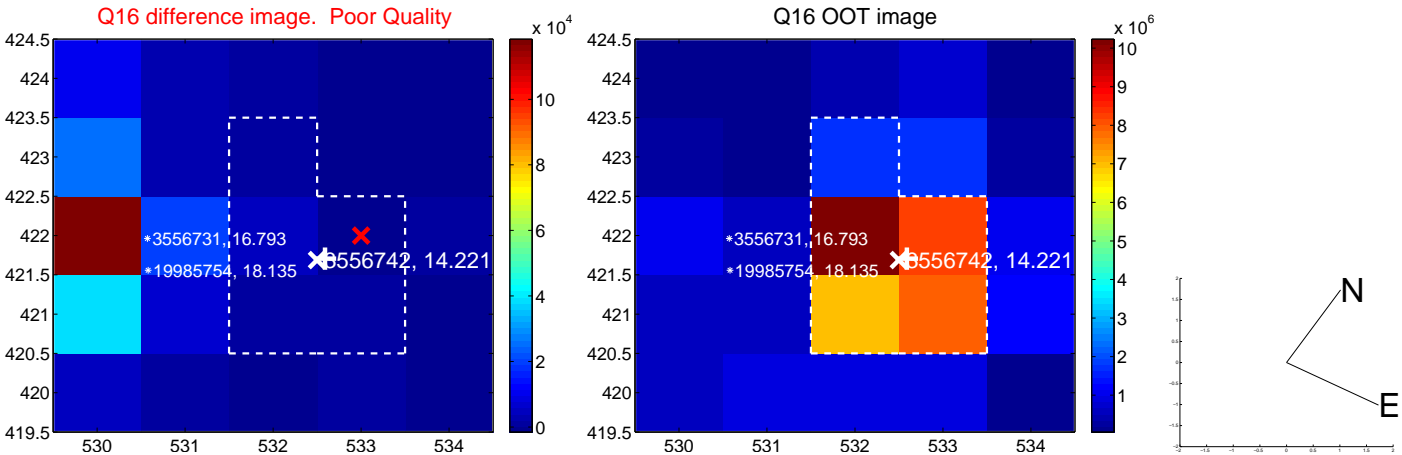
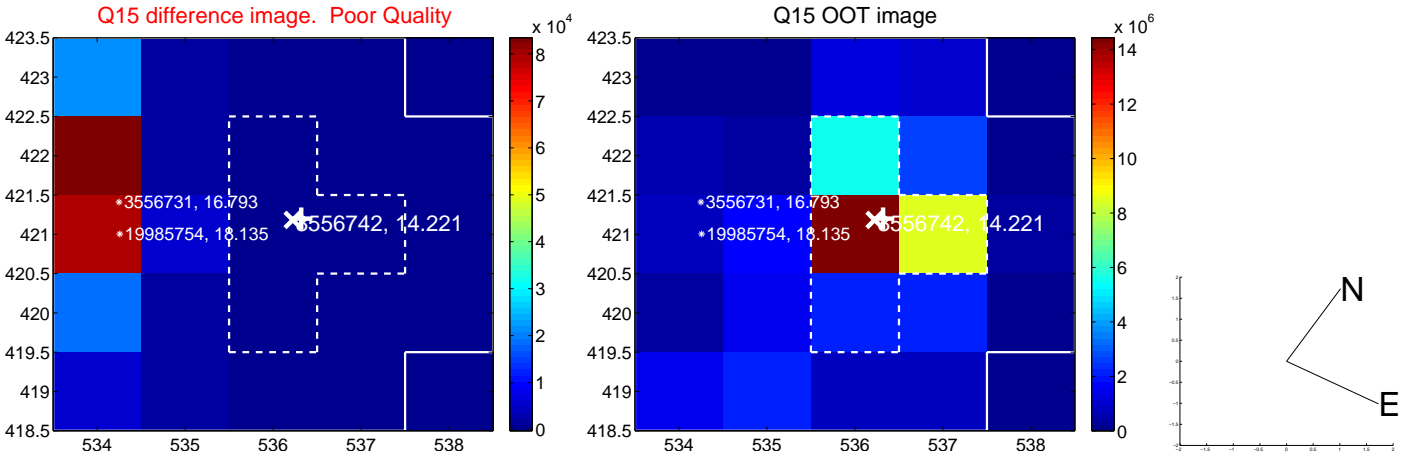
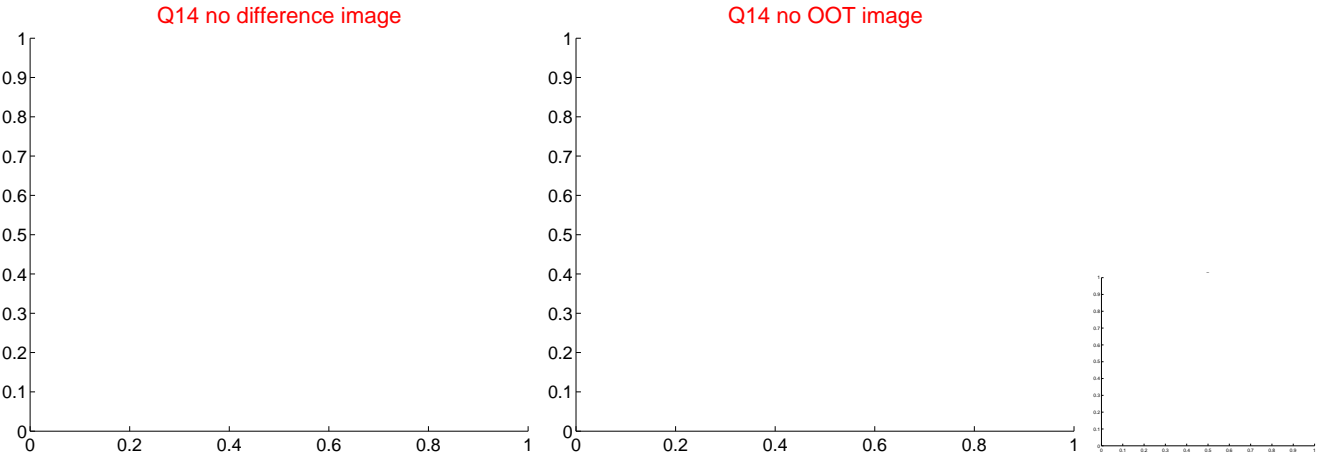
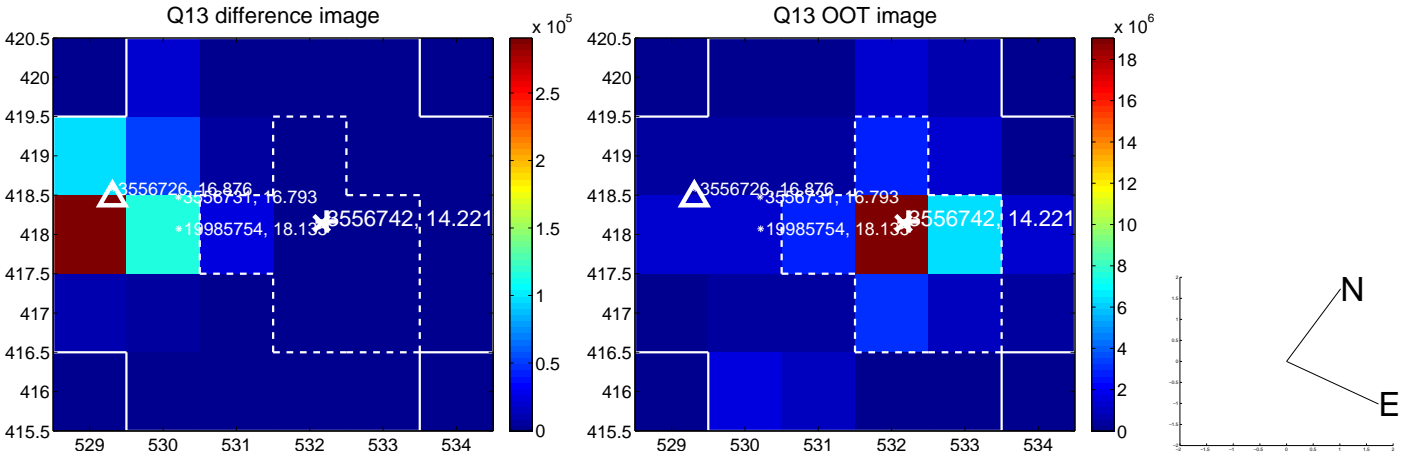
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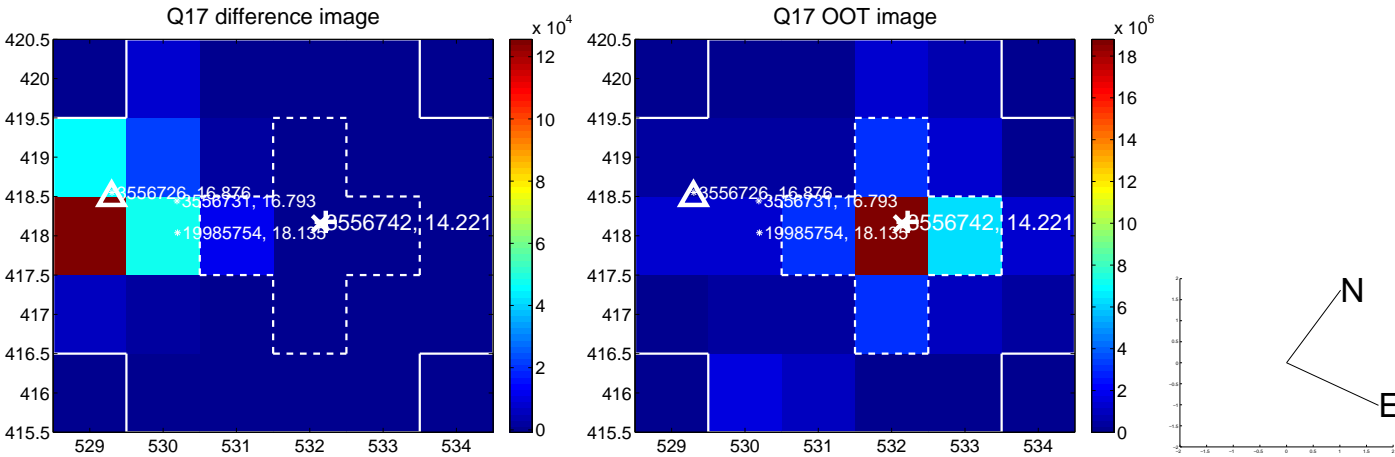


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folded centroid time series figure for this object.

UKIRT Image

Declination

