

# KIC 005466537

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005466537-01	OBS	No	1.110152	132.265968	109.7	5.896	9.5	10.3	1.72	7232	1.83	12164.93
005466537-02	OBS	No	1.445629	132.702691	288.4	9.109	11.3	14.6	1.72	7232	3.62	8554.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005466537-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
005466537-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_SATURATED

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

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

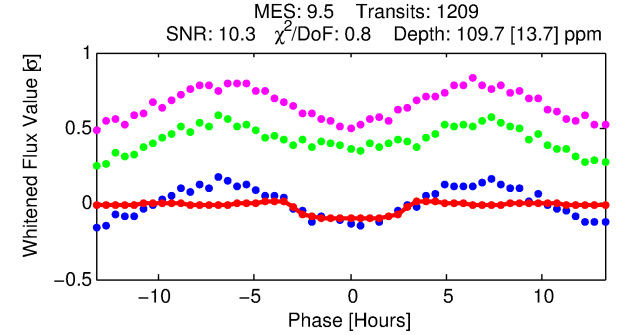
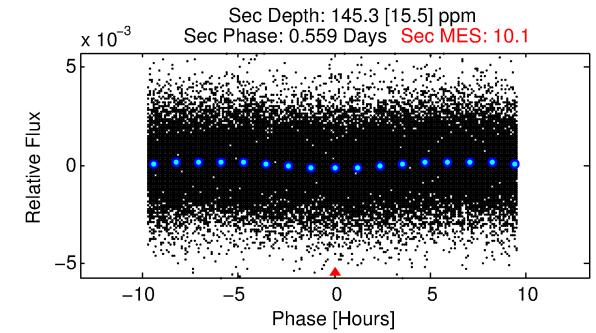
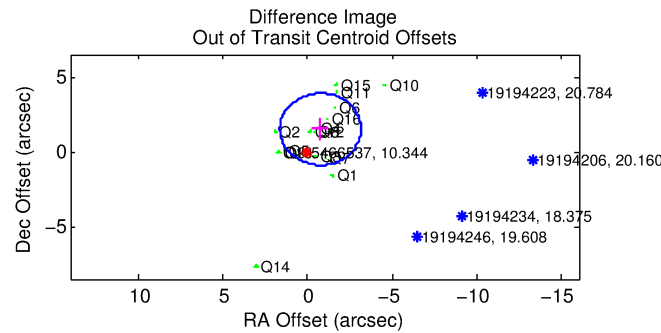
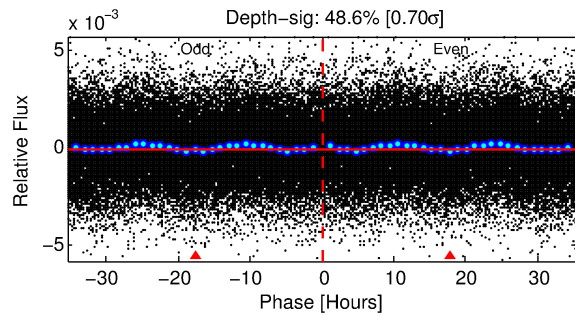
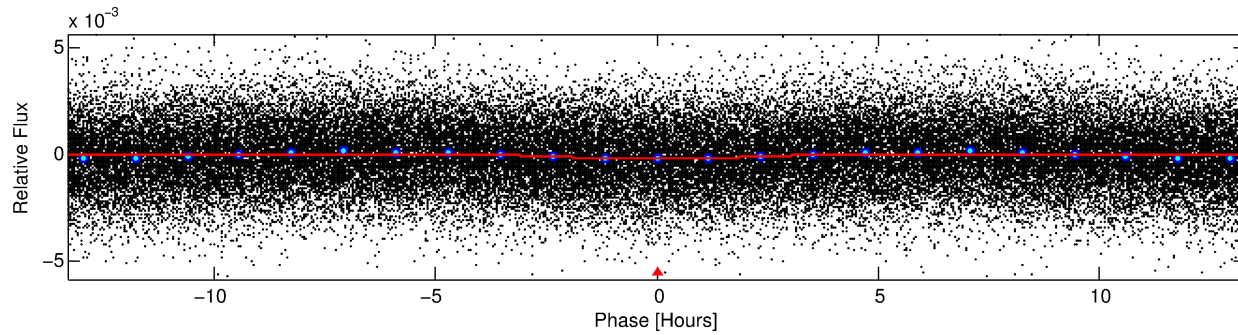
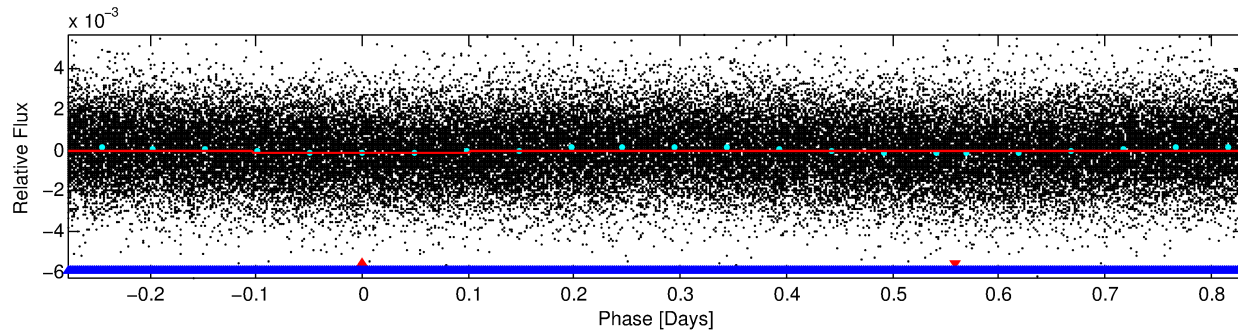
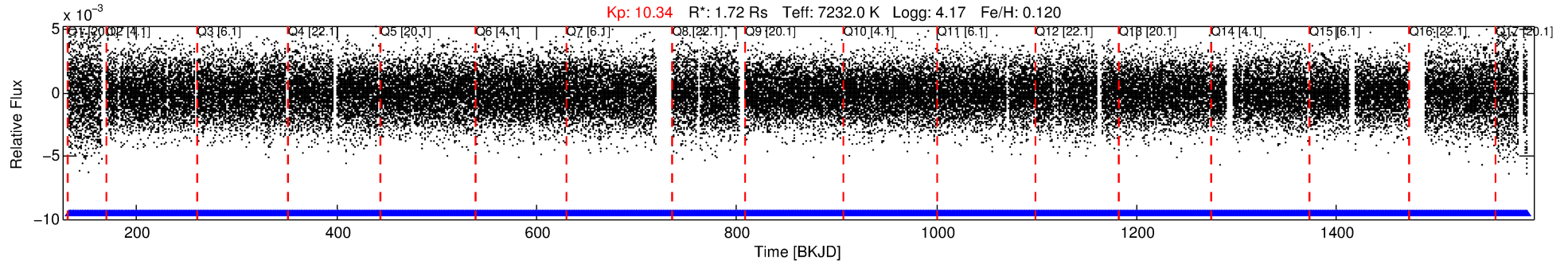
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005466537-01

No Significant Match Found

# DV One-Page Summary

KIC: 5466537 Candidate: 1 of 2 Period: 1.110 d



## DV Fit Results:

Period = 1.11015 [0.00002] d  
Epoch = 132.2660 [0.0068] BKJD  
 $R_p/R^* = 0.0097$  [0.0148]  
 $a/R^* = 1.58$  [8.30]  
 $b = 0.05$  [163.64]  
 $S_{\text{eff}} = 12164.93$  [5046.86]  
 $T_{\text{eq}} = 2678$  [278] K  
 $R_p = 1.83$  [2.85]  $R_e$   
 $a = 0.0245$  [0.0068] AU  
 $A_g = 14.32$  [43.86] [0.30 $\sigma$ ]  
 $T_{\text{eff}} = 8054$  [6127] K [0.88 $\sigma$ ]

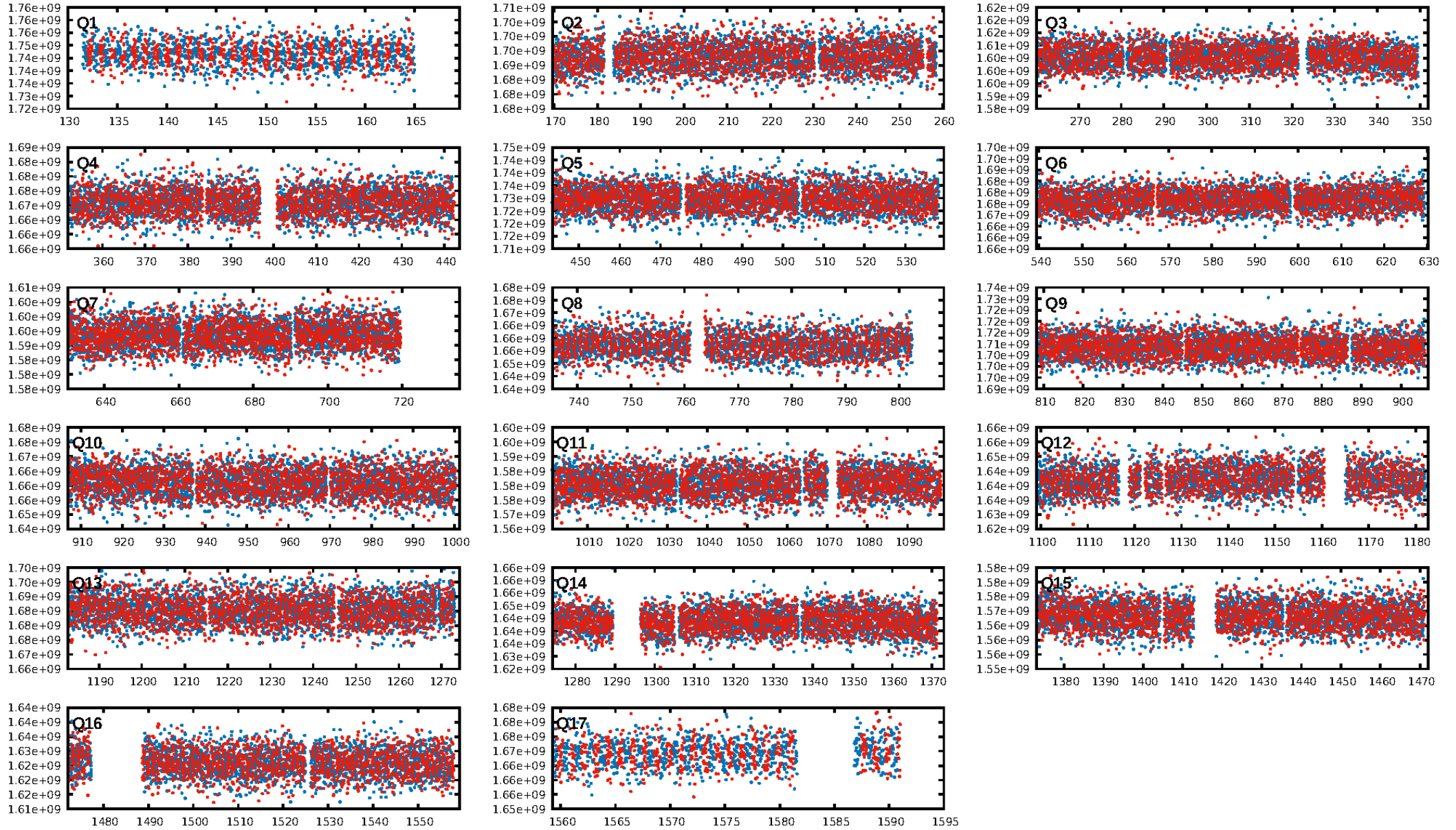
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 54.2% [0.74 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 6.41e-01**  
RollingBand-fgt: 1.00 [1155/1155]  
GhostDiagnostic-chr: 1.262  
**Centroid-sig: 0.1%**  
Centroid-so: 0.457 arcsec [2.17 $\sigma$ ]  
OotOffset-rm: 1.678 arcsec [2.10 $\sigma$ ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-rm: 2.281 arcsec [2.85 $\sigma$ ]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.19 [3/16]  
DiffImageOverlap-fno: 0.94 [16/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:57:35 Z

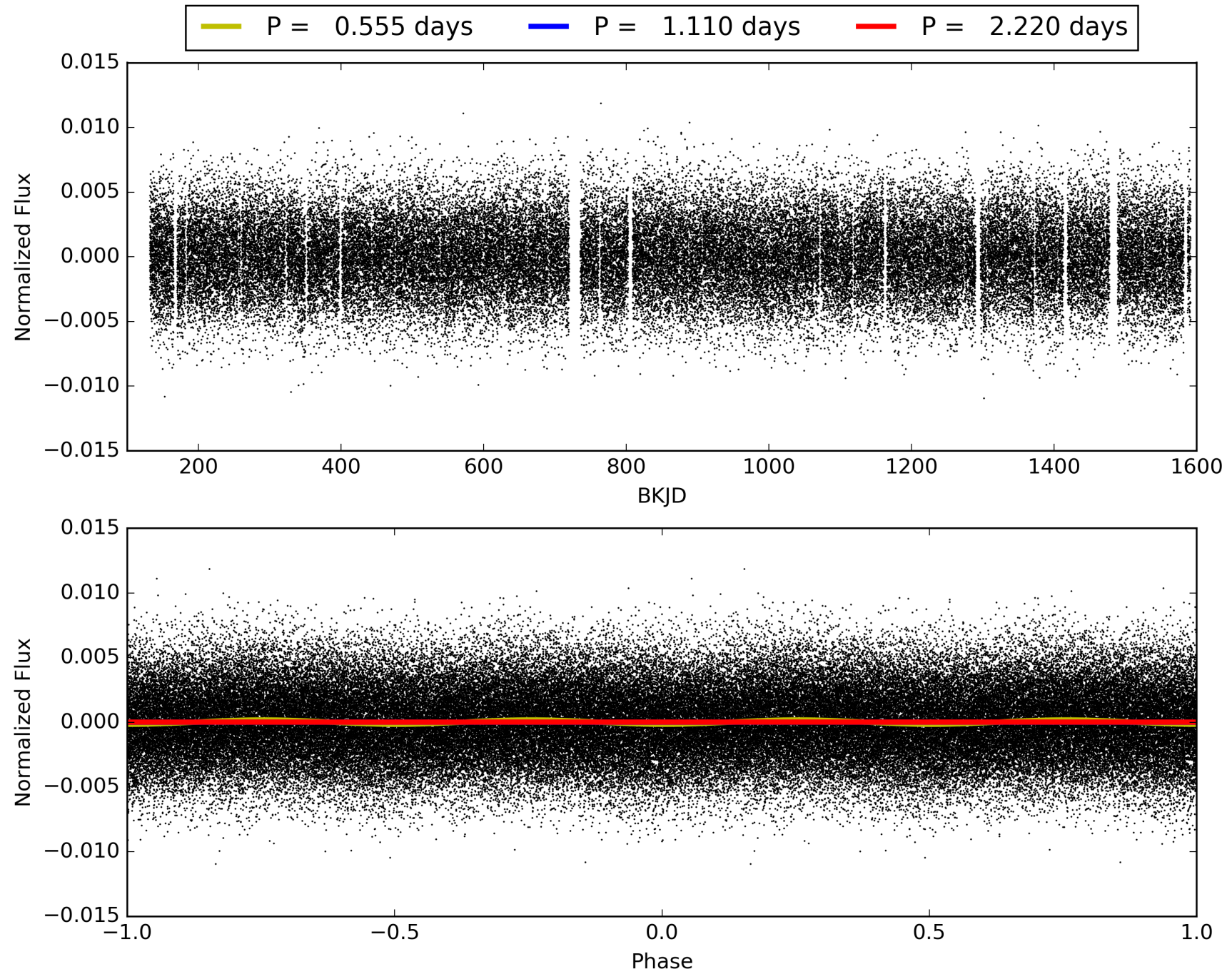
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005466537-01, PDC Light Curves



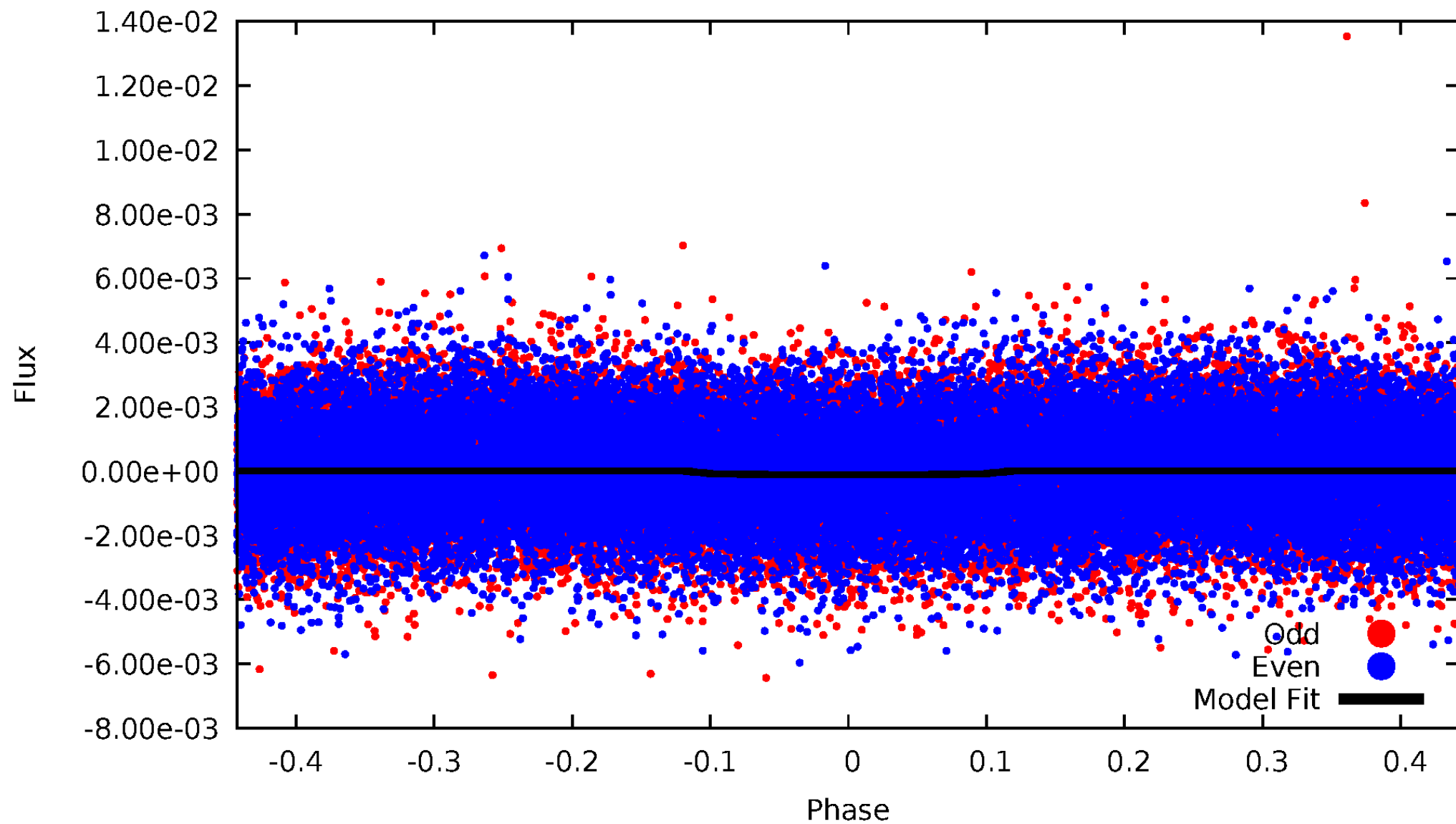


TCE 005466537-01



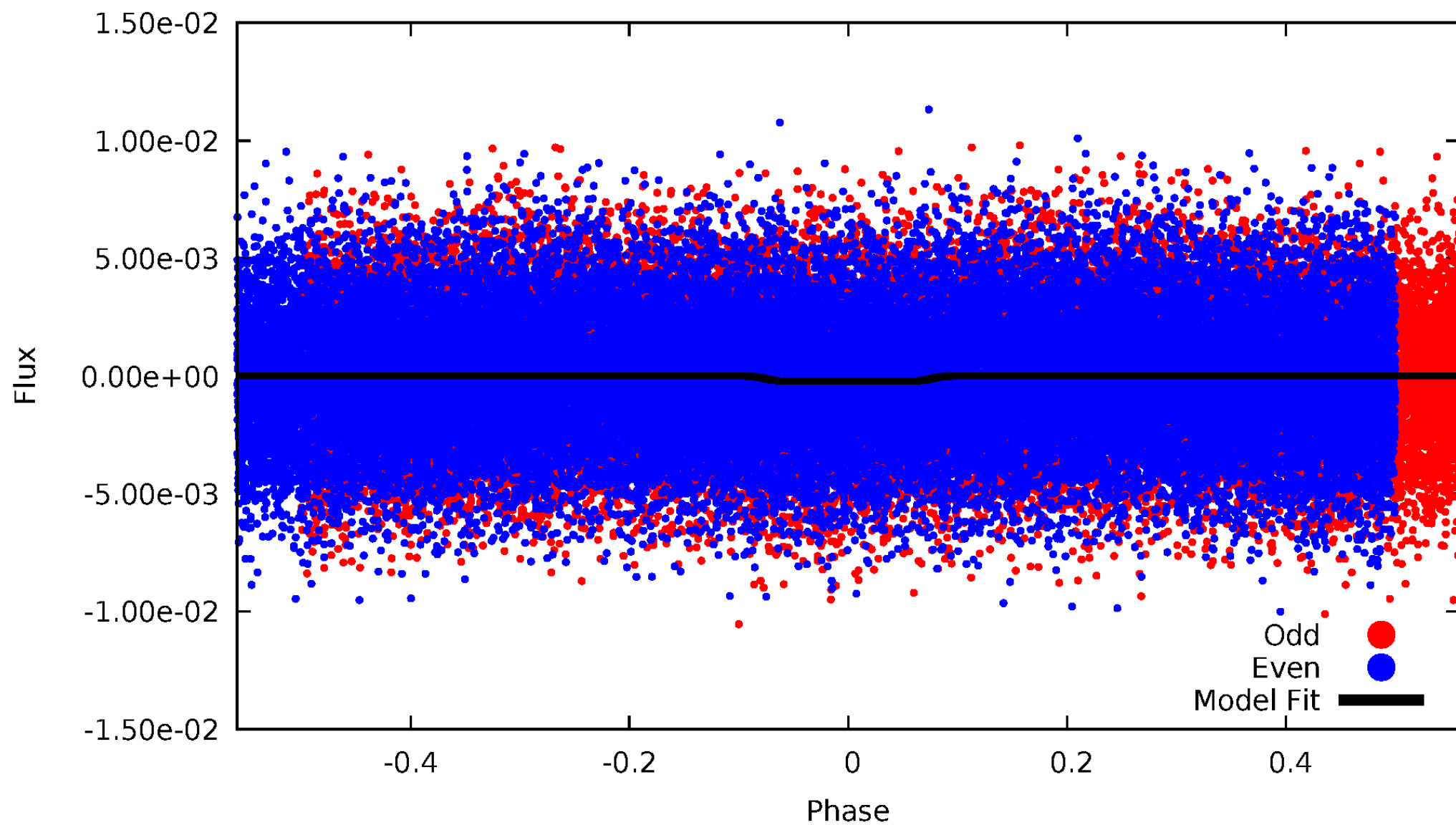
# DV Odd/Even

TCE 005466537-01



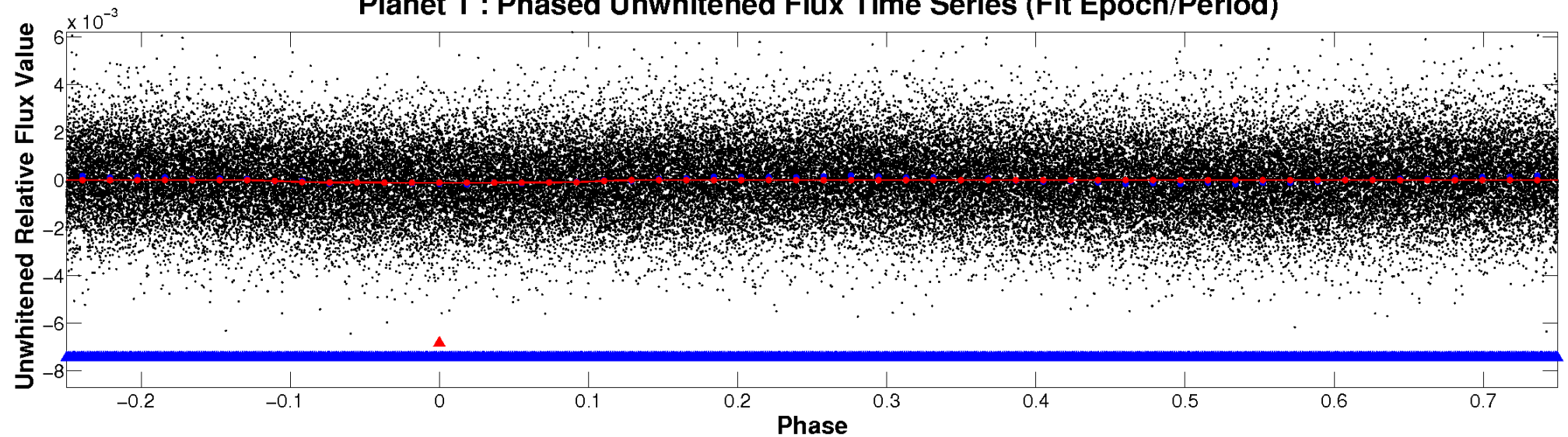
# ALT Odd/Even

TCE 005466537-01

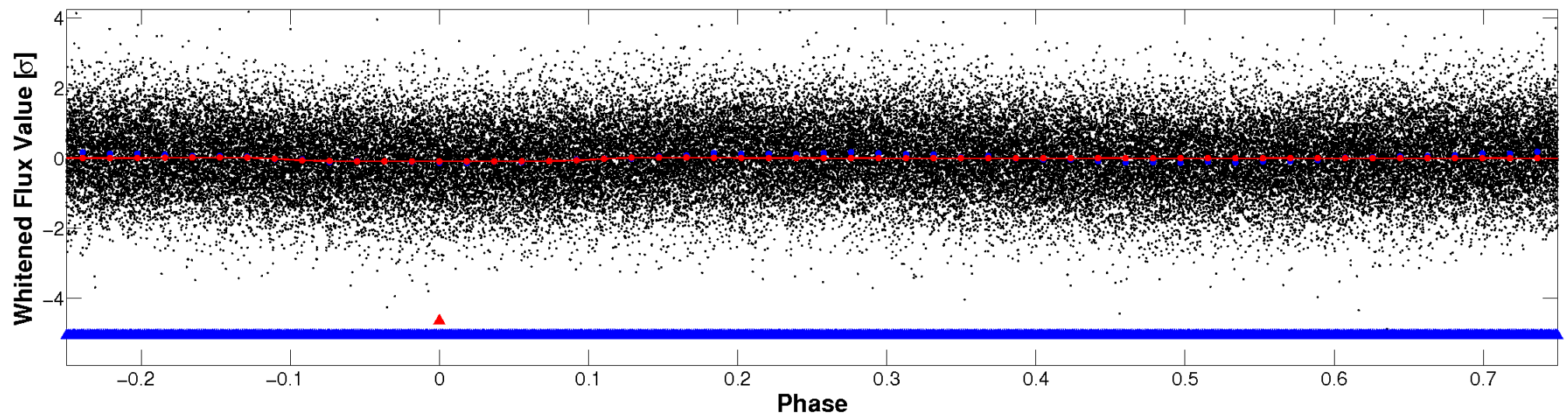


# Non-Whitened Vs. Whitened Light Curve

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



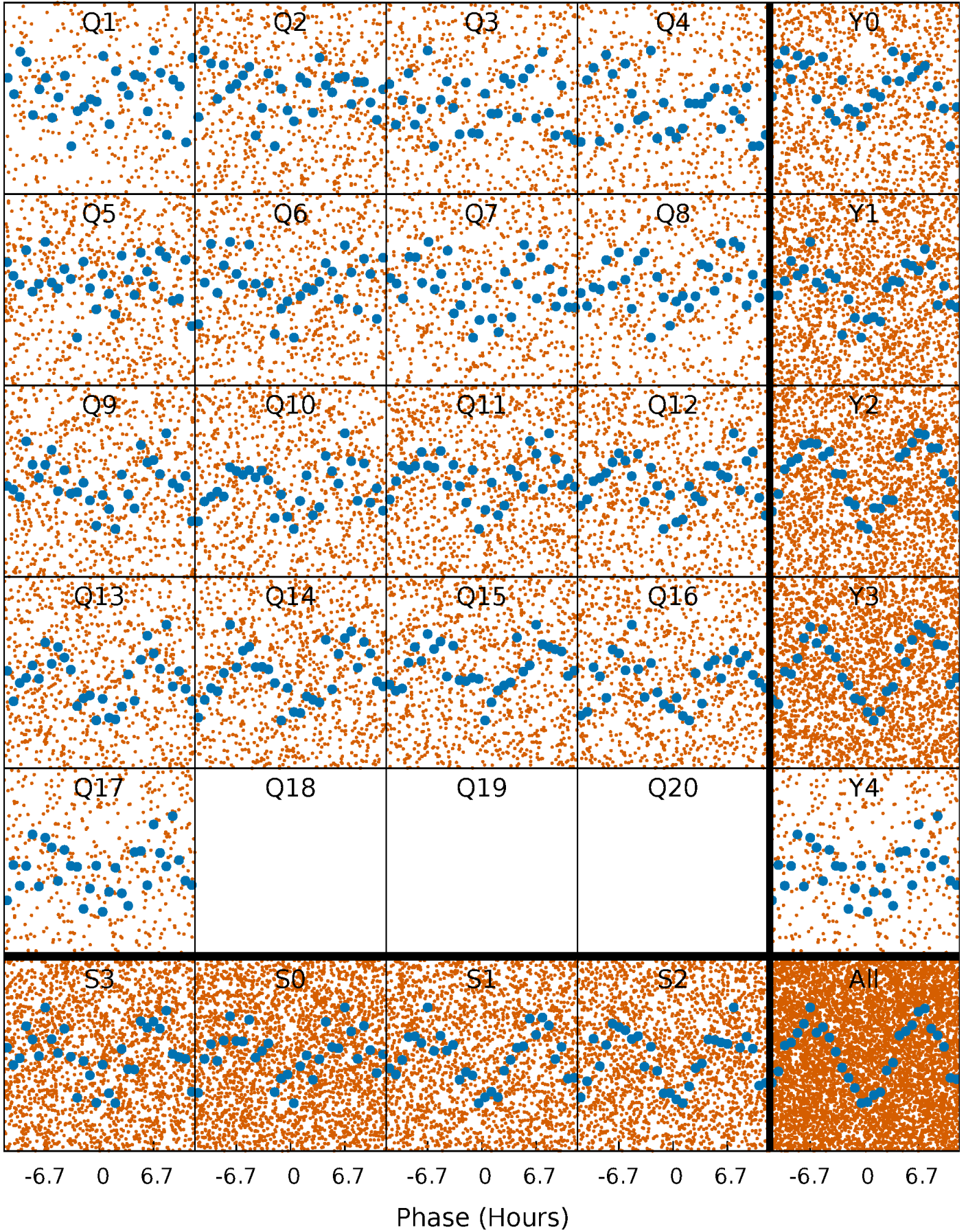
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

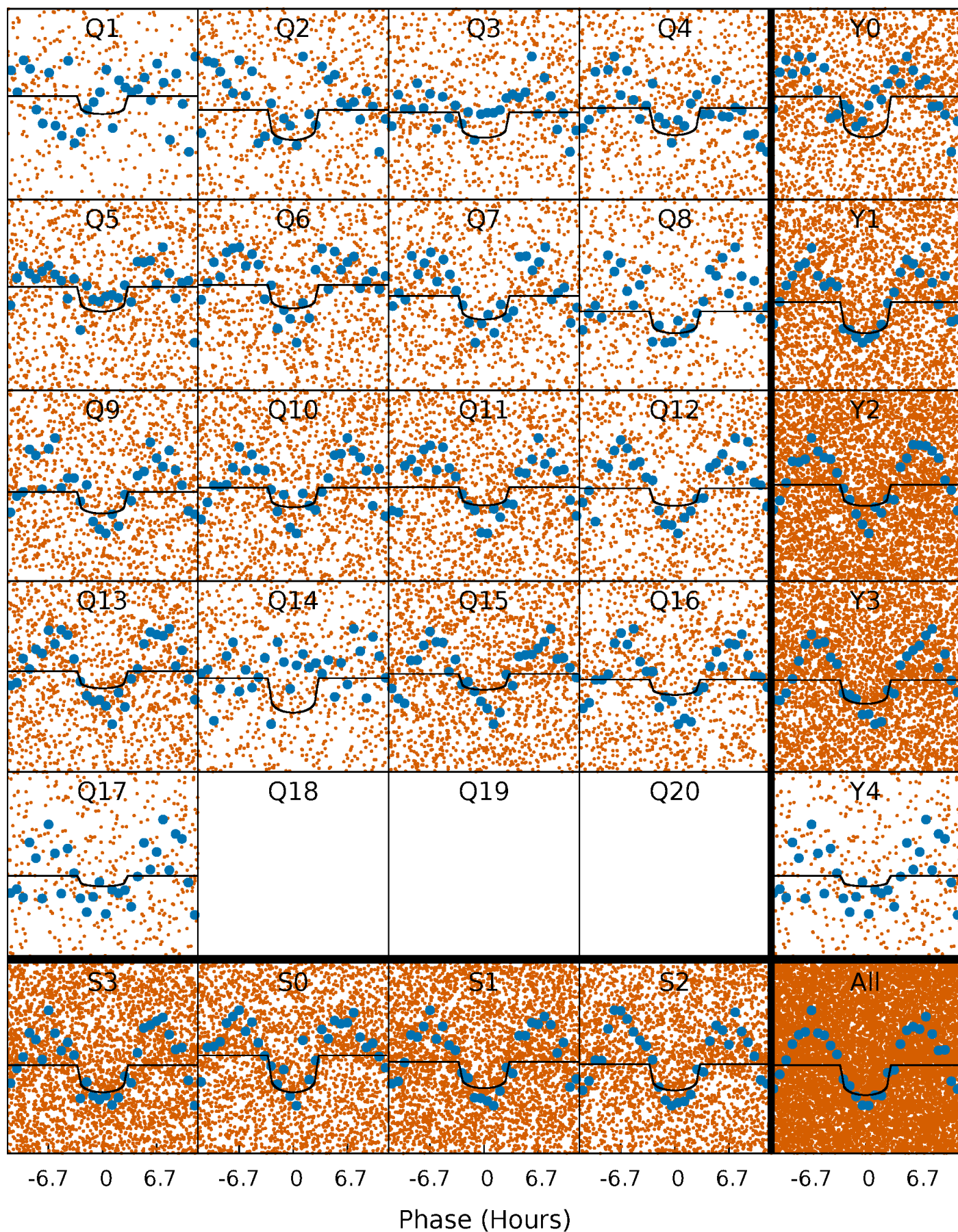
TCE 005466537-01 P= 1.110152 Days  $T_0=132.265968$  (BKJD)





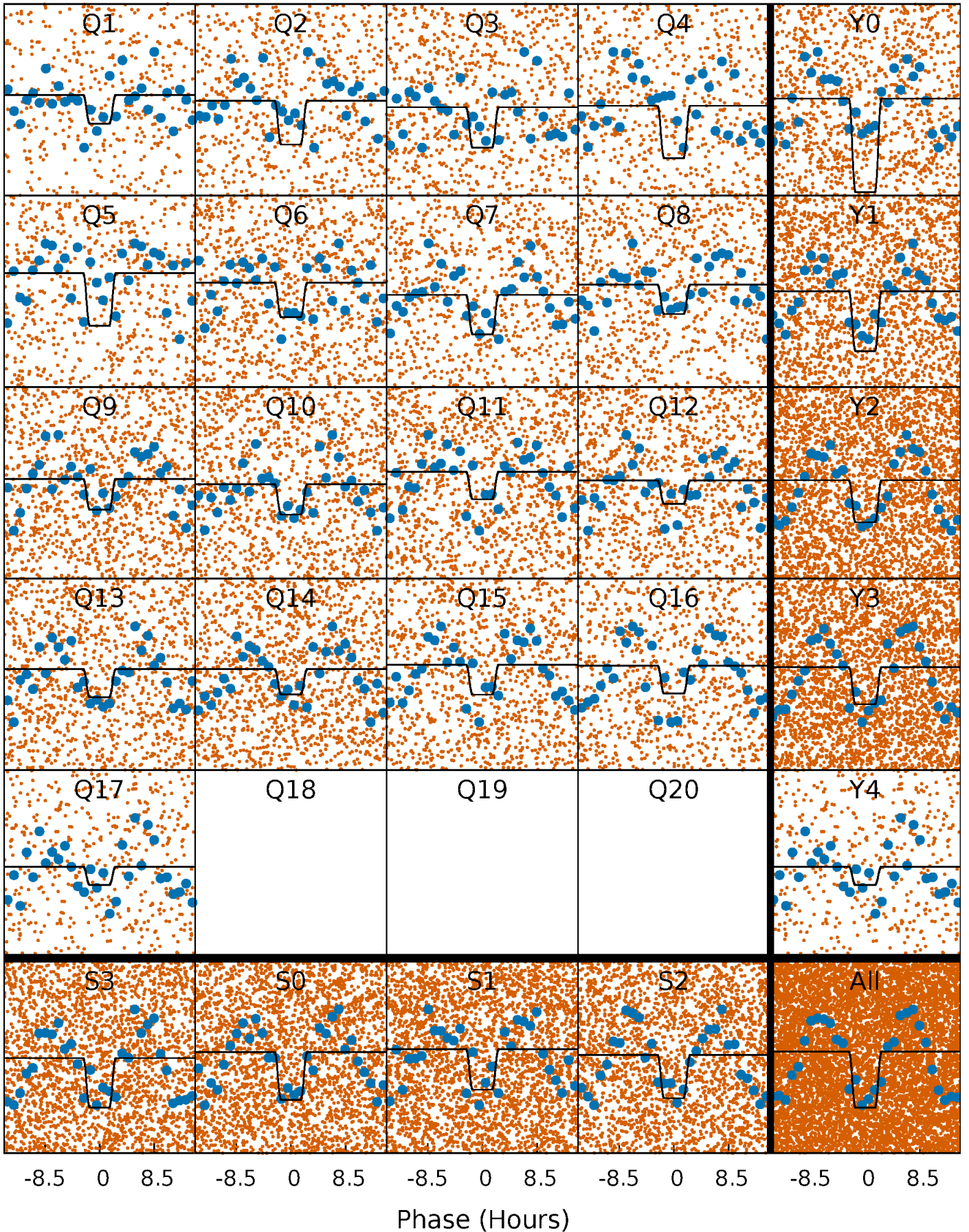
# DV Quarter-Phased Transit Curves

TCE 005466537-01 P= 1.110152 Days  $T_0=132.265968$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005466537-01 P= 1.110224 Days  $T_0=132.216845$  (BKJD)

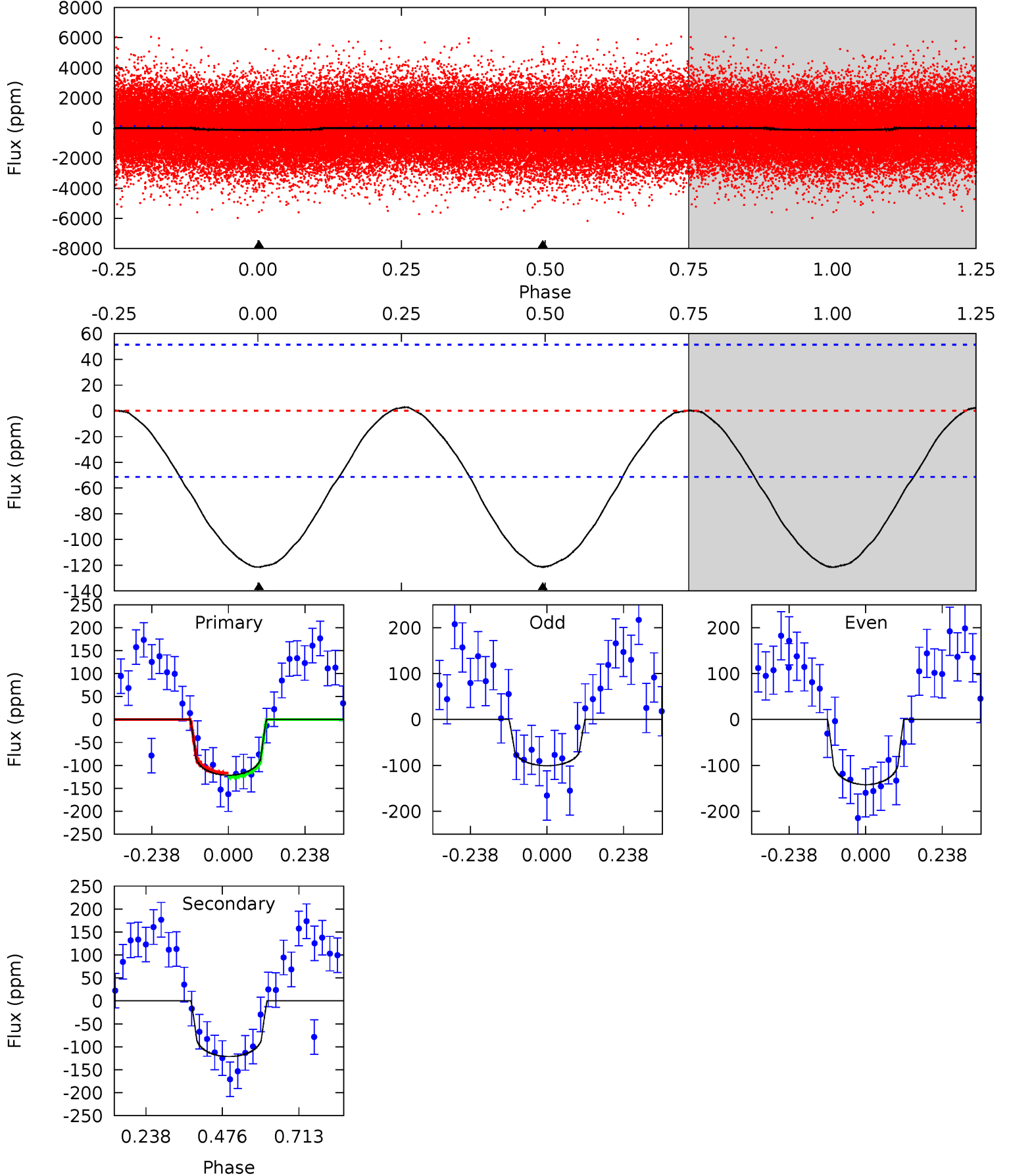




# DV Model-Shift Uniqueness Test

005466537-01, P = 1.110152 Days, E = 131.155816 Days

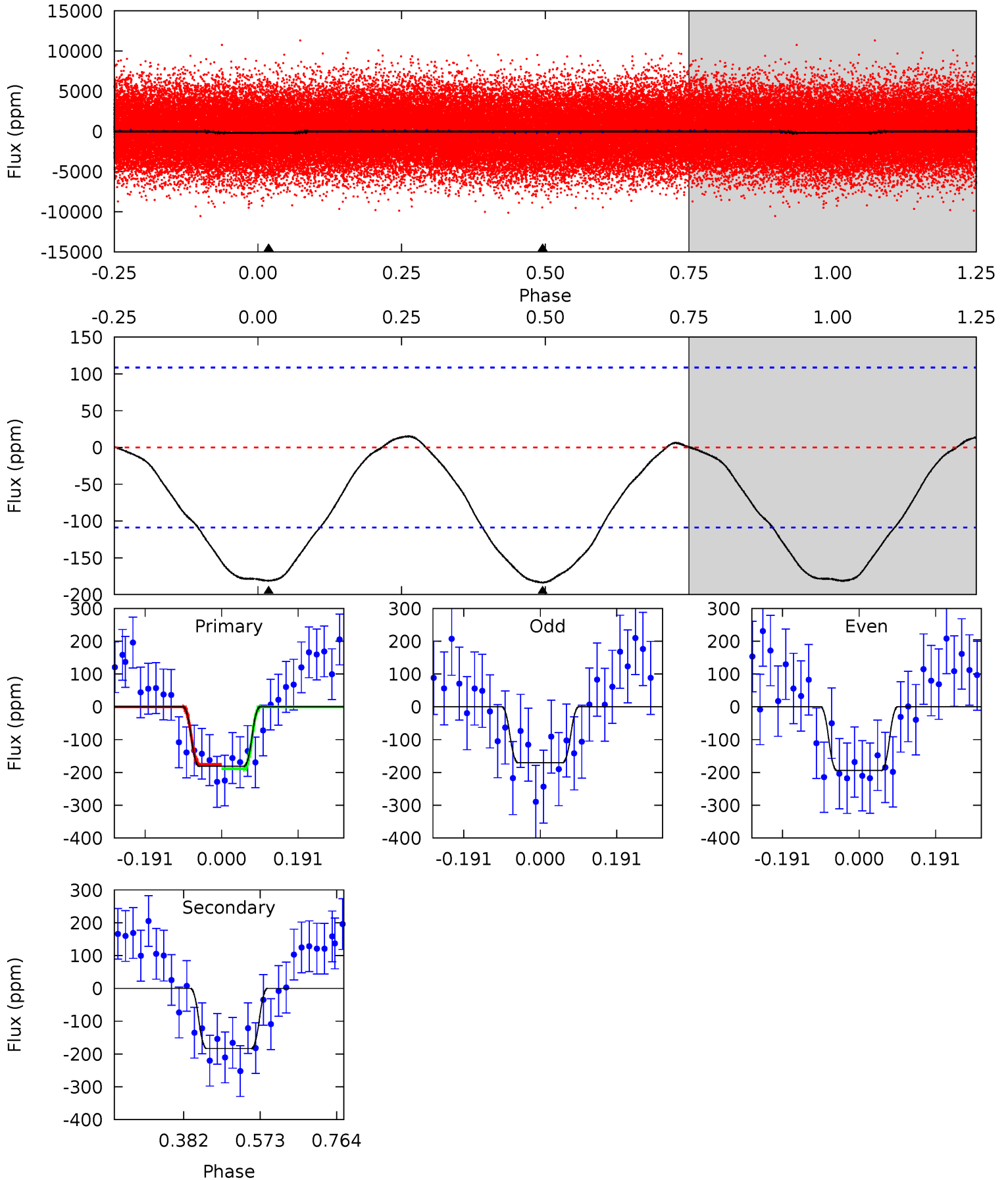
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	10.3	0	0	4.38	1.18	0.12	10.4	10.4	10.3	10.3	1.76	1.04	0.02	0.38



# Alt Model-Shift Uniqueness Test

005466537-01, P = 1.110224 Days, E = 131.106621 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
7.38	7.47	0	0	4.43	1.31	0.50	7.38	7.38	7.47	7.47	0.49	1.05	0.08	0.28





### Stellar Parameters For KIC 005466537

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7232^{+200}_{-275}$	$4.165^{+0.087}_{-0.203}$	$0.120^{+0.200}_{-0.350}$	$1.724^{+0.589}_{-0.252}$	$1.583^{+0.211}_{-0.211}$	$0.435^{+0.218}_{-0.231}$
	+3%/-4%	+2%/-5%	+167%/-292%	+34%/-15%	+13%/-13%	+50%/-53%
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 005466537-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	-121±12	$2.78^{+2.51}_{-1.78}$	$3795^{+279}_{-208}$	$6160^{+5610}_{-1672}$	$5.082^{+32.403}_{-3.663}$
Alt.	-184±25	$3.55^{+2.61}_{-2.14}$	$3784^{+298}_{-216}$	$5935^{+4732}_{-1312}$	$4.827^{+26.092}_{-3.292}$

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

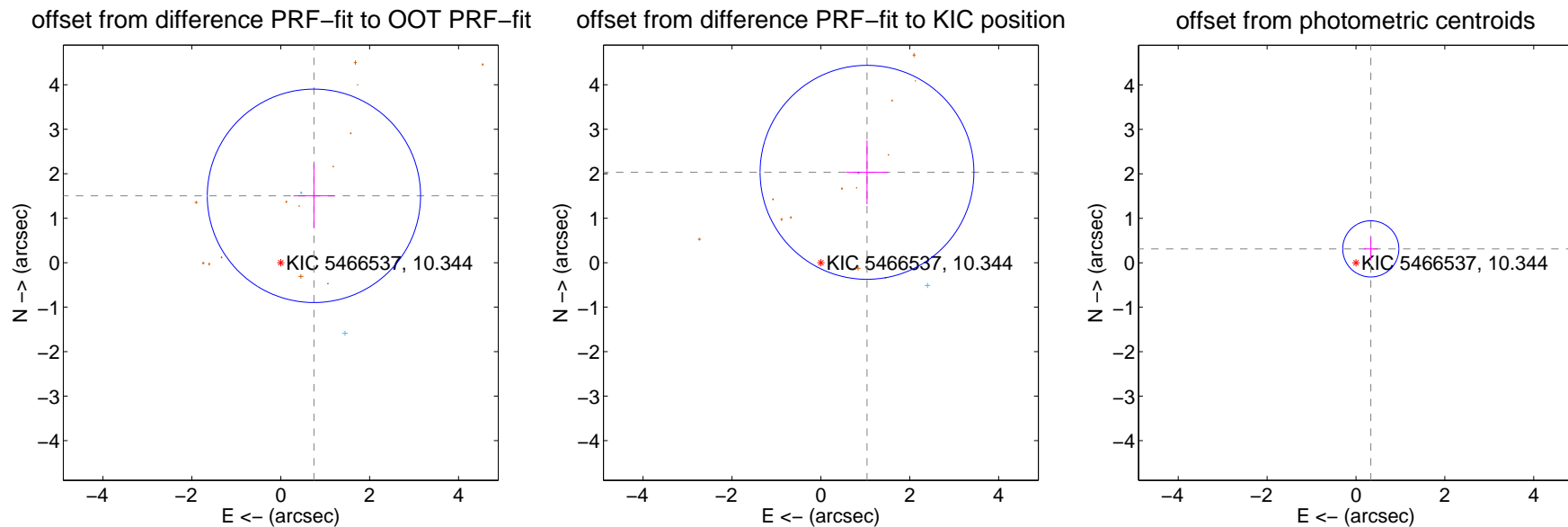
## DV Centroid Data

Supplemental centroid analysis for 005466537-01. **Kepler magnitude: 10.34.** Transit SNR 10.31

**There are 3 quarters with good PRF difference image offsets**

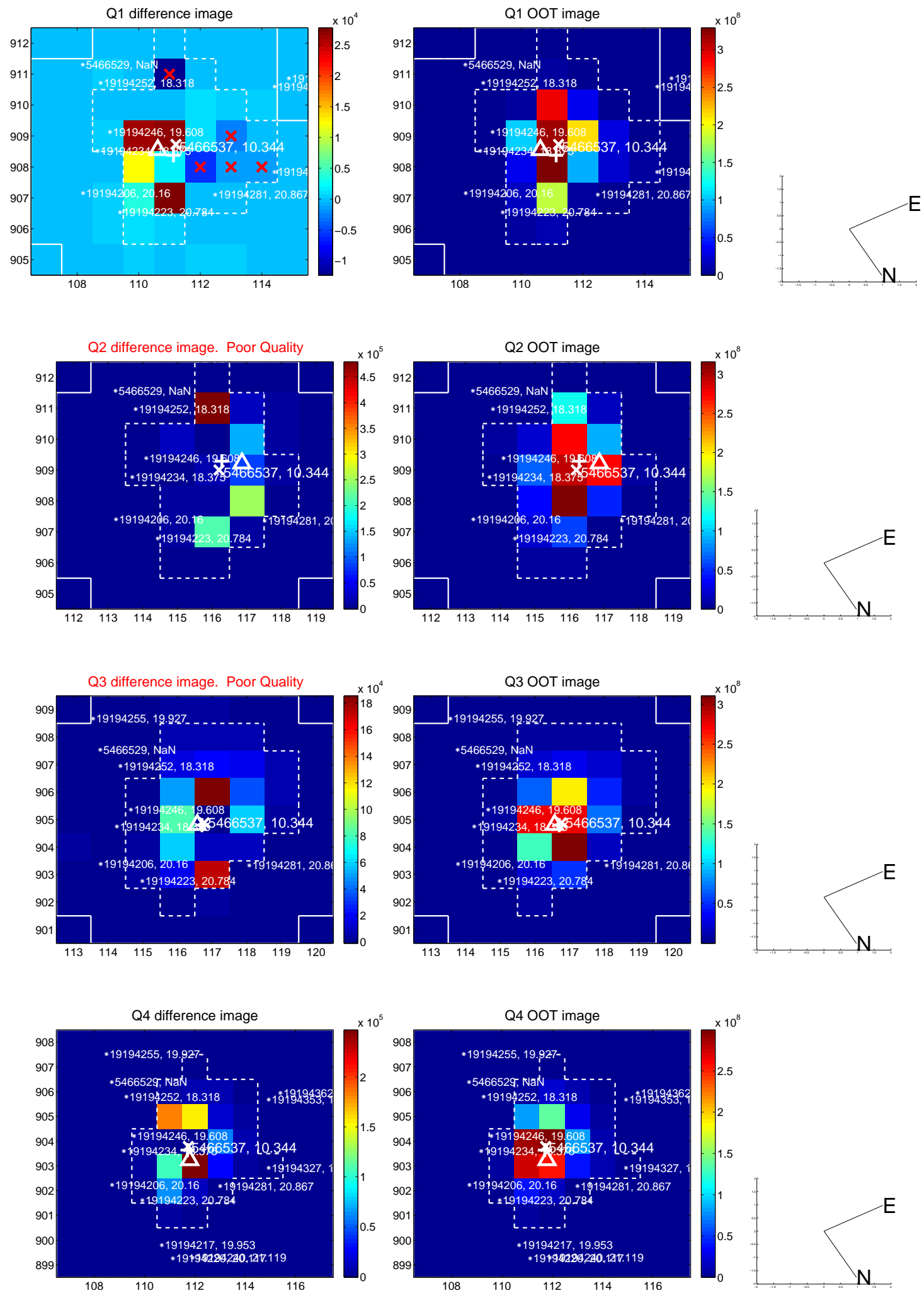
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.678 \pm 0.799$	2.10	$-0.746 \pm 0.462$	$1.503 \pm 0.718$
PRF-fit source offset from KIC position	$2.281 \pm 0.802$	2.85	$-1.038 \pm 0.469$	$2.031 \pm 0.717$
photometric centroid source offset	$0.46 \pm 0.21$	2.17	$-0.33 \pm 0.16$	$0.31 \pm 0.26$

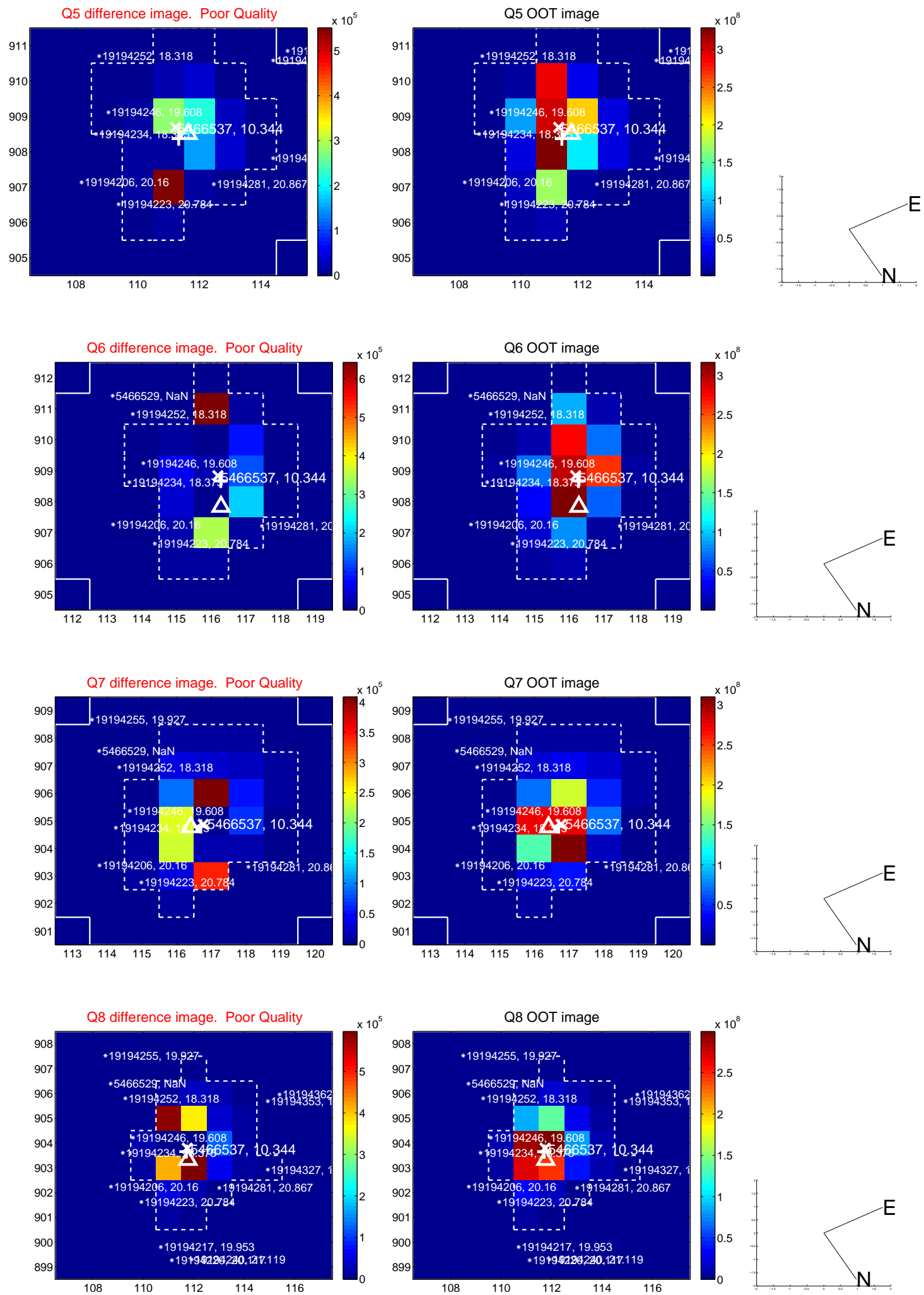


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

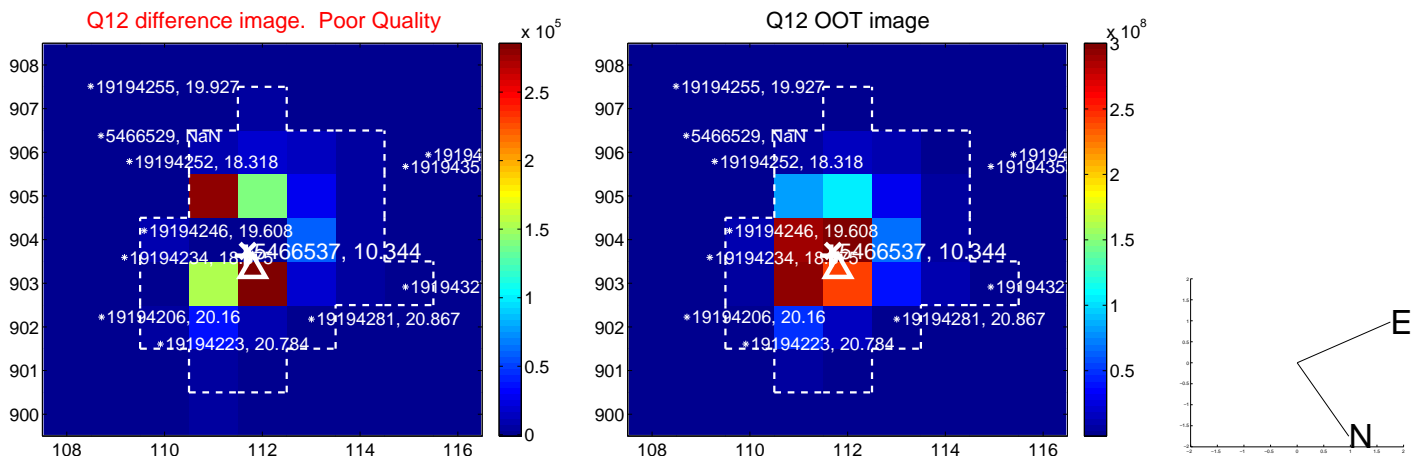
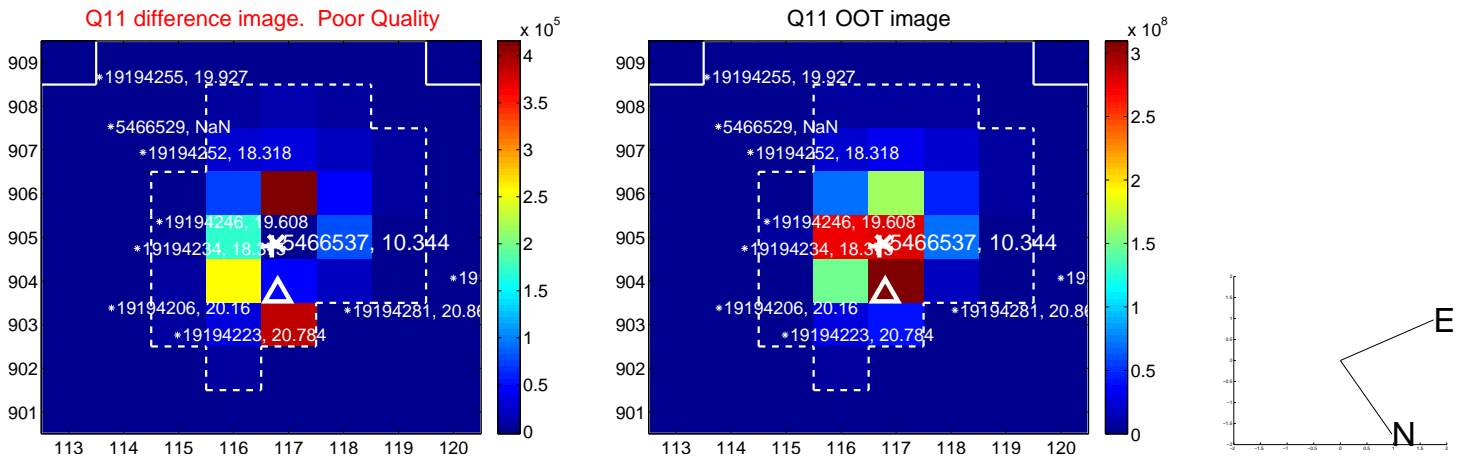
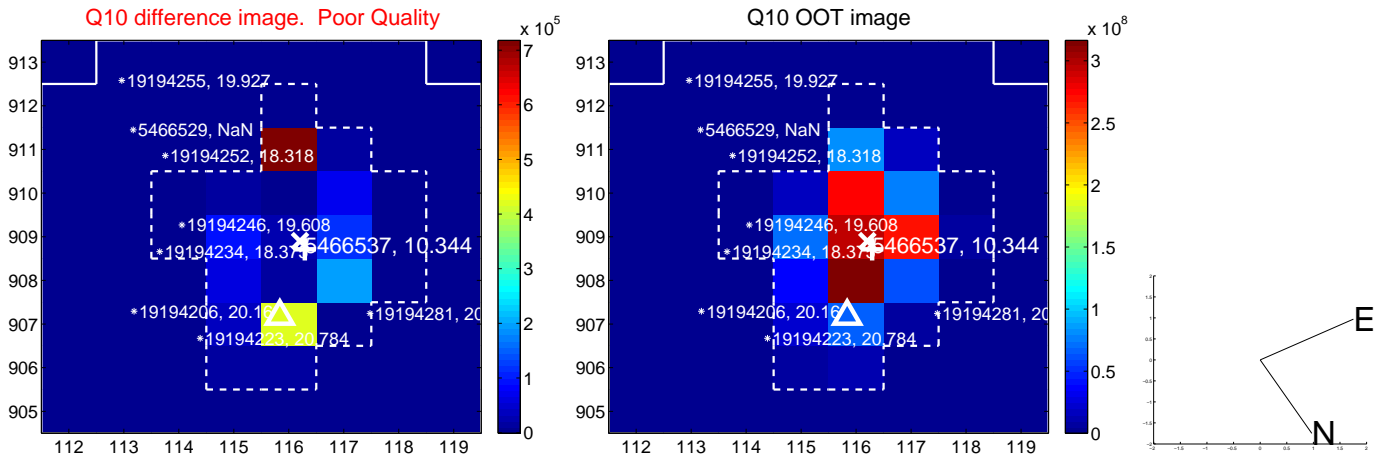
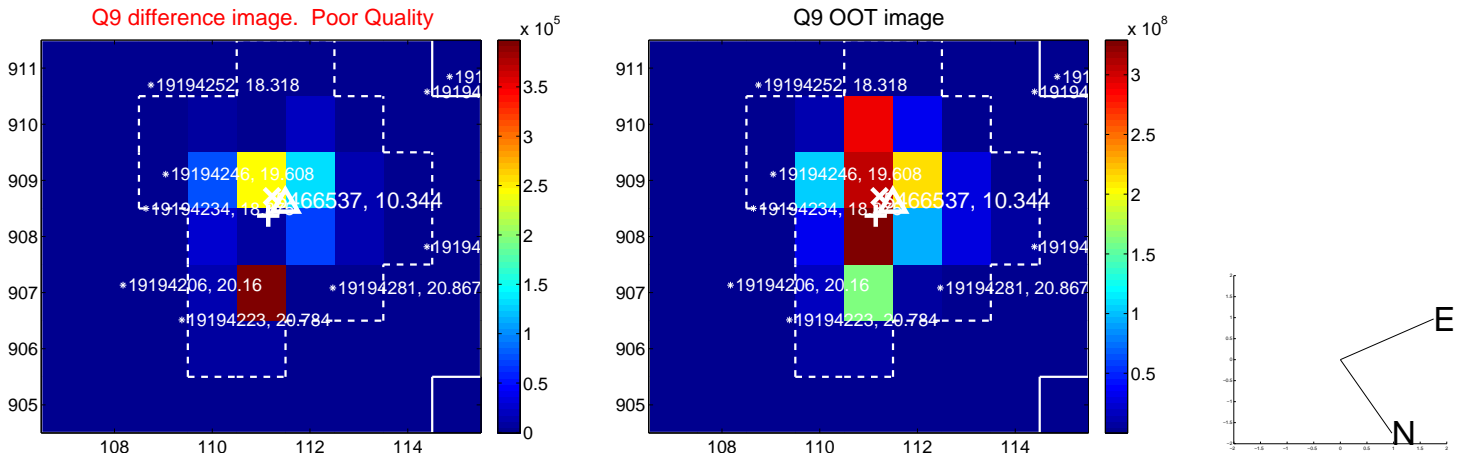


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

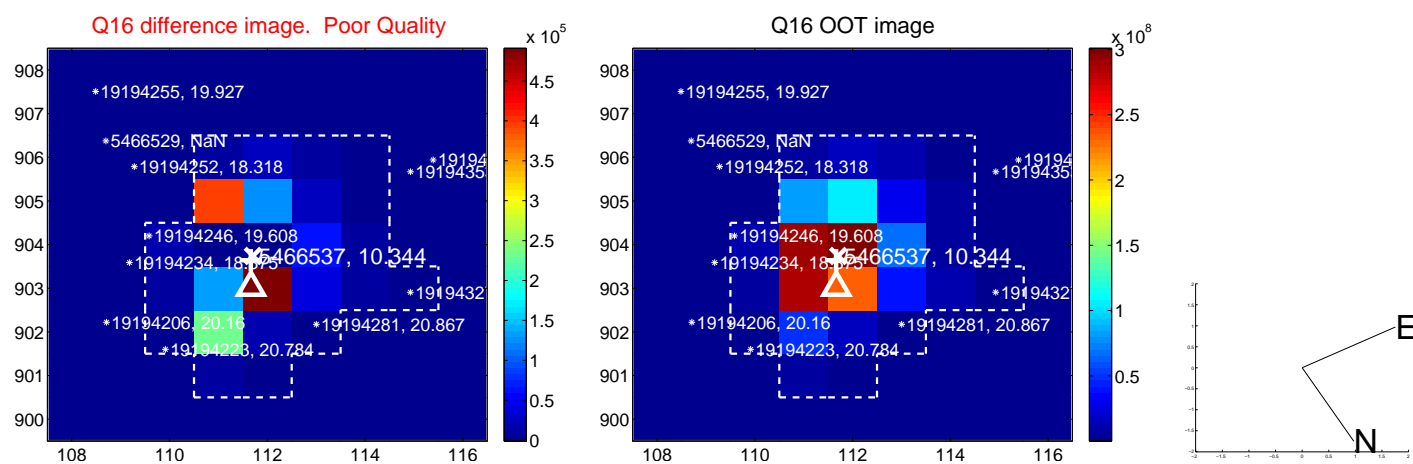
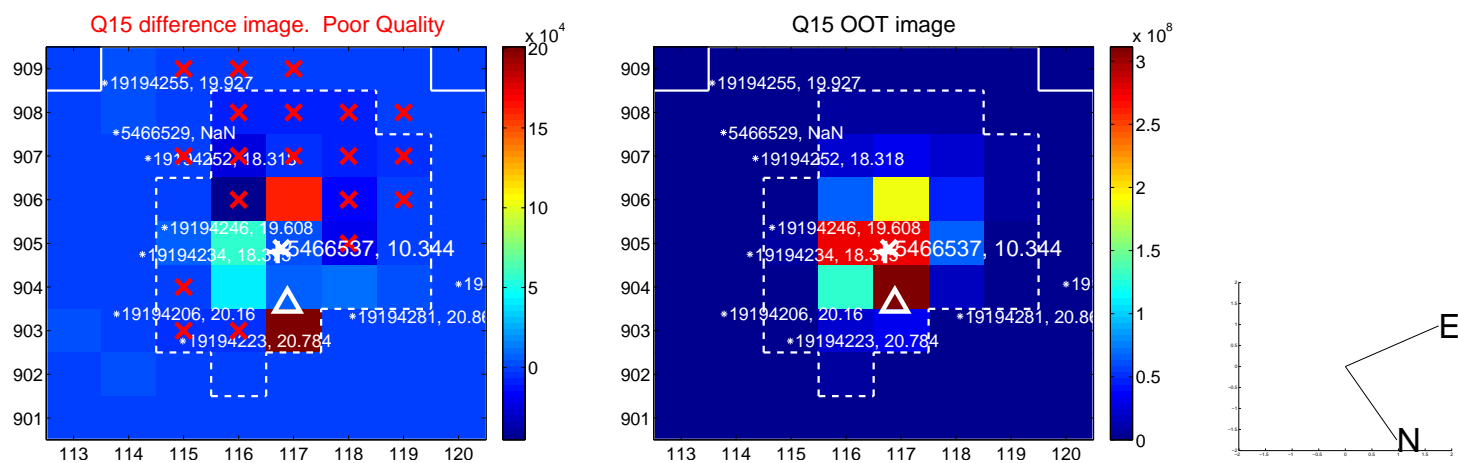
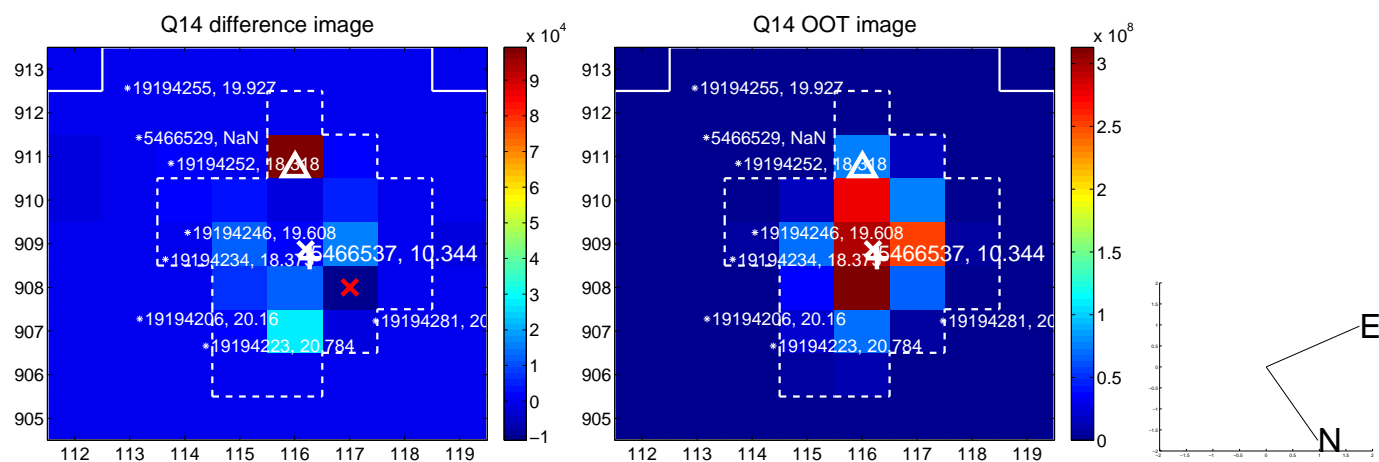
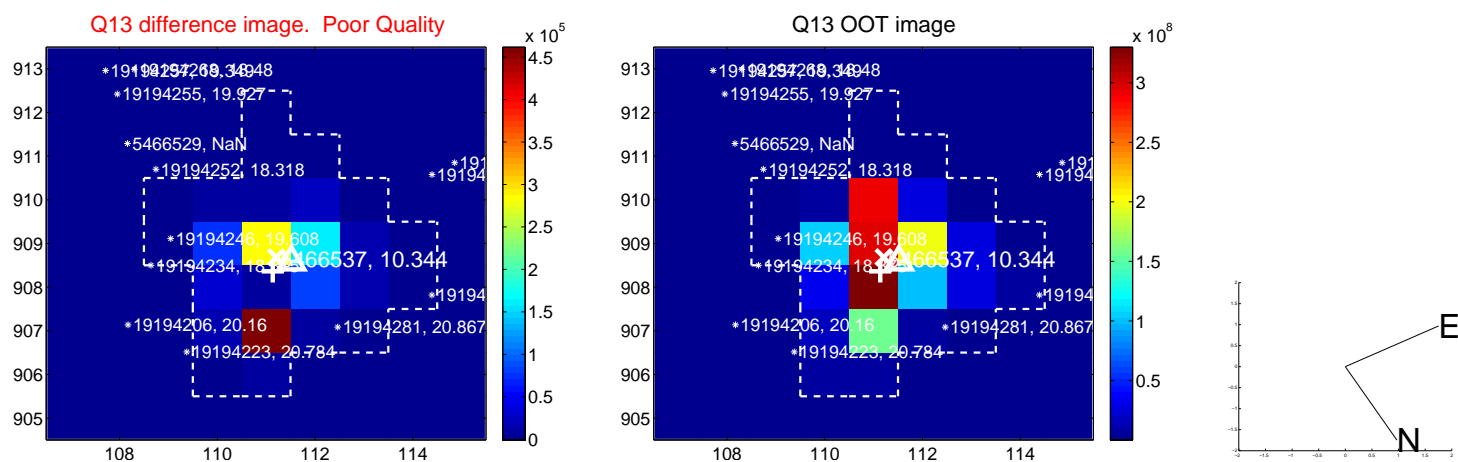




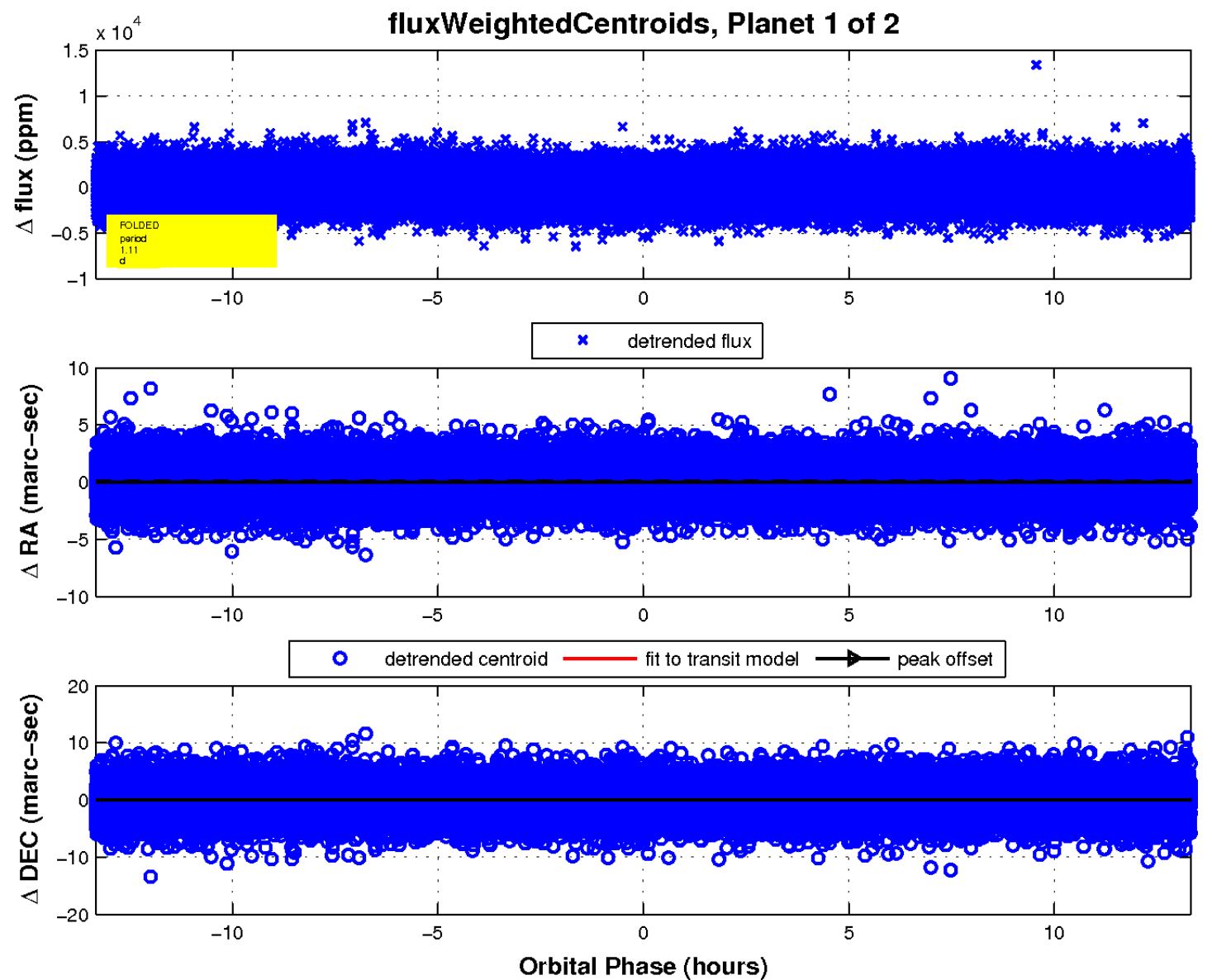
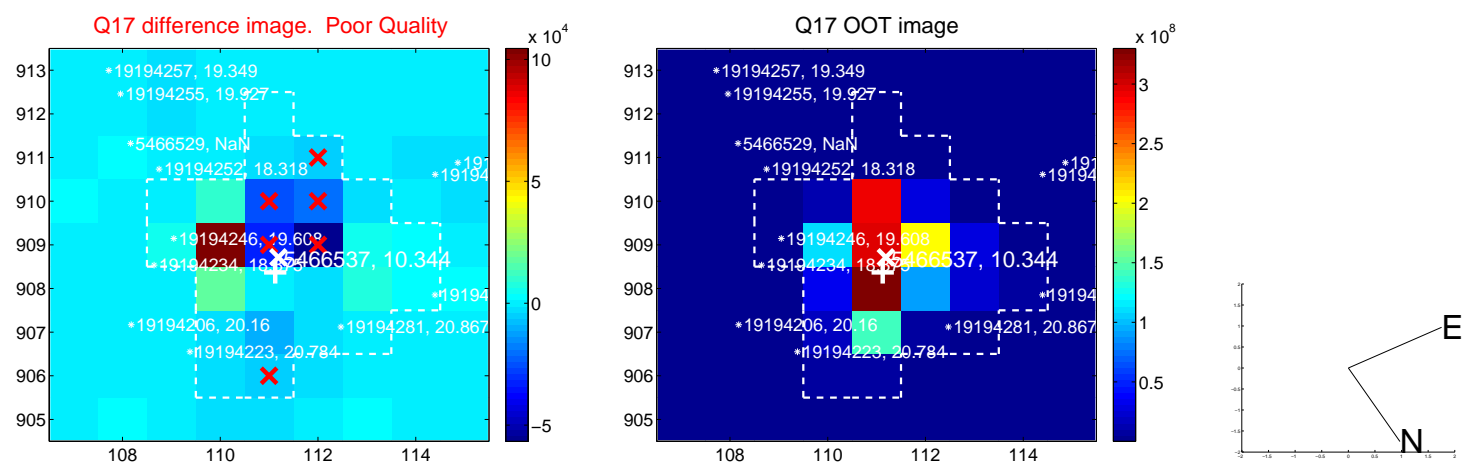
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

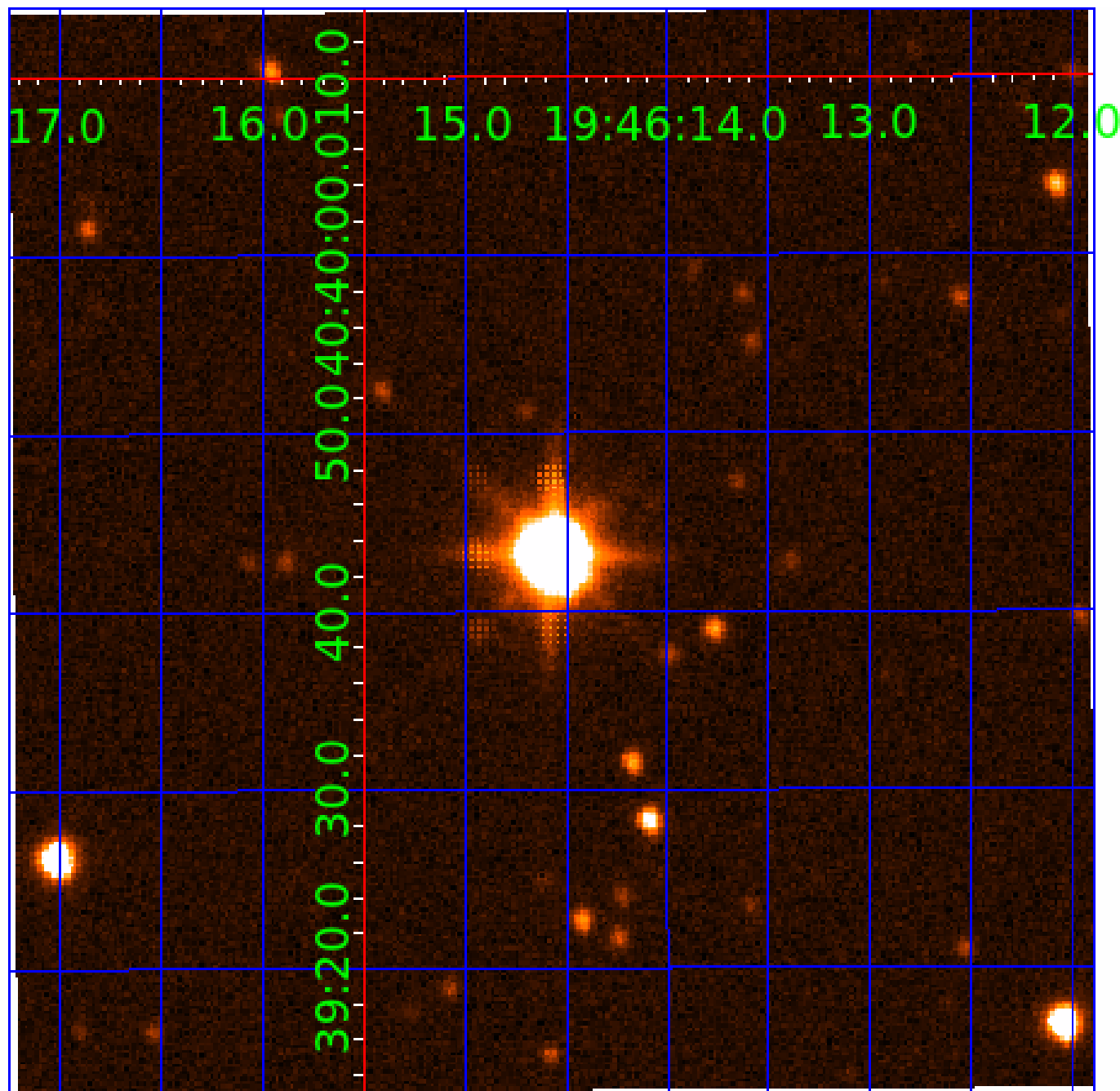


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 005466537

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005466537-01	OBS	No	1.110152	132.265968	109.7	5.896	9.5	10.3	1.72	7232	1.83	12164.93
005466537-02	OBS	No	1.445629	132.702691	288.4	9.109	11.3	14.6	1.72	7232	3.62	8554.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005466537-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
005466537-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_SATURATED

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

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

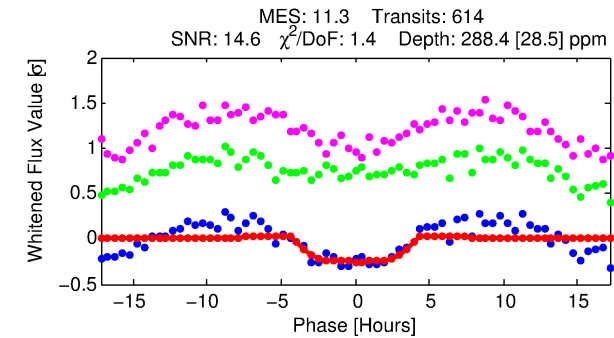
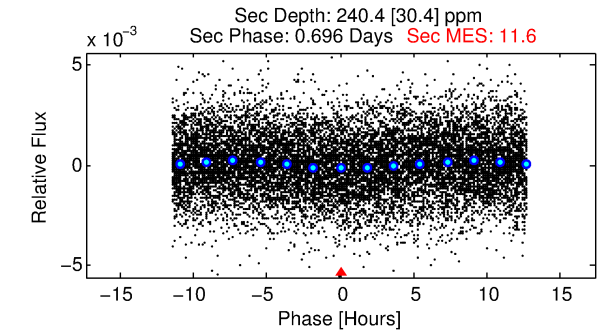
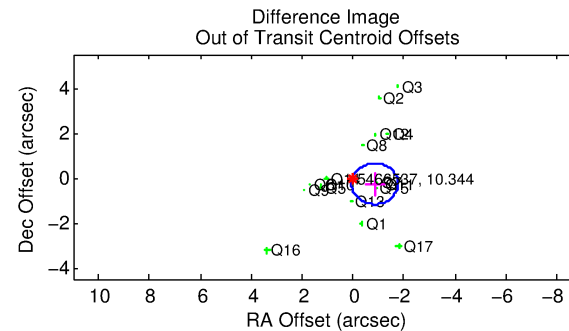
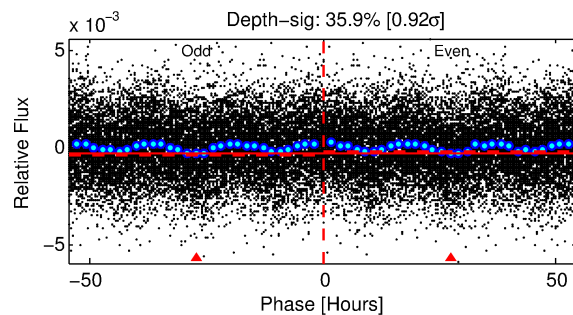
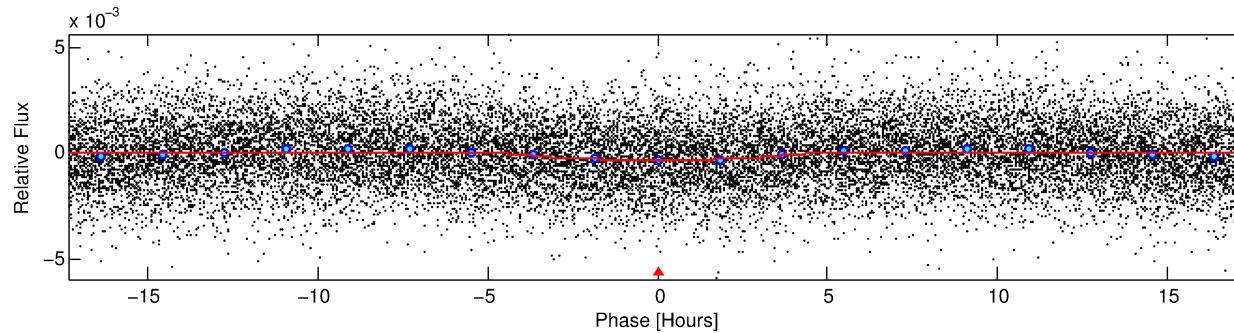
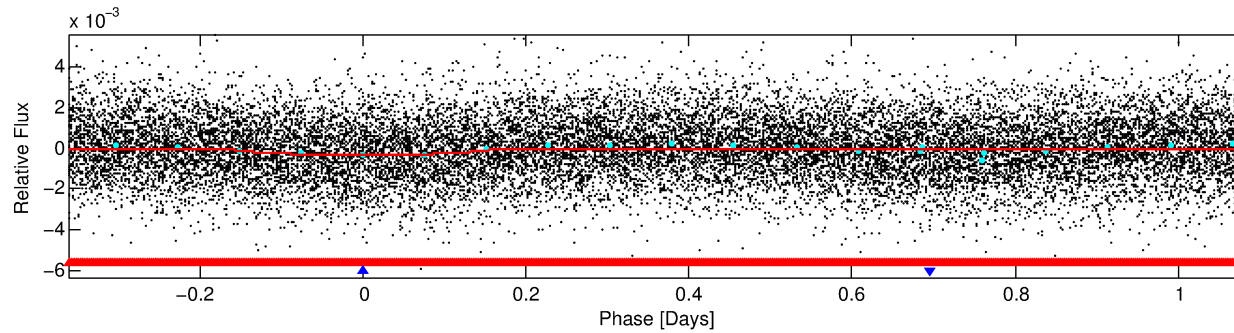
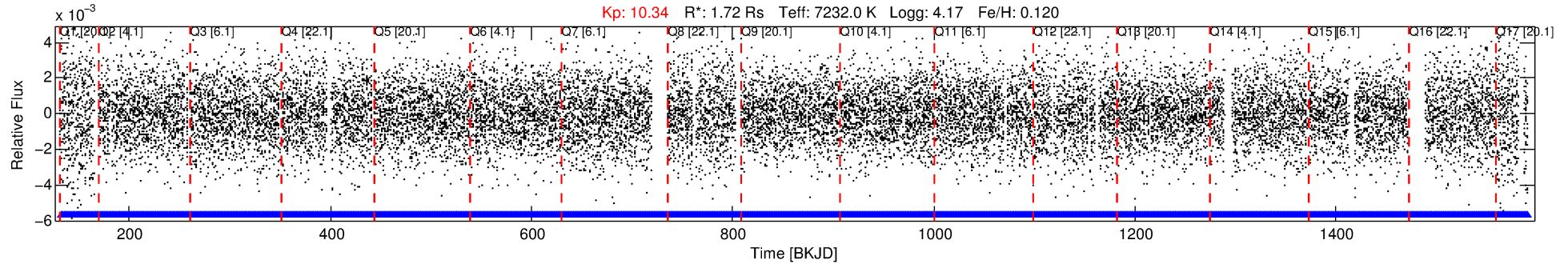
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005466537-02

No Significant Match Found

# DV One-Page Summary

KIC: 5466537 Candidate: 2 of 2 Period: 1.446 d



## DV Fit Results:

Period = 1.44563 [0.00003] d  
Epoch = 132.7027 [0.0120] BKJD  
Rp/R\* = 0.0193 [0.0014]  
a/R\* = 1.07 [0.04]  
b = 0.96 [0.03]  
Seff = 8554.81 [3549.13]  
Teq = 2452 [254] K  
Rp = 3.63 [1.27] Re  
a = 0.0292 [0.0081] AU  
Ag = 8.57 [3.69] [2.05 $\sigma$ ]  
Teffp = 6487 [397] K [8.56 $\sigma$ ]

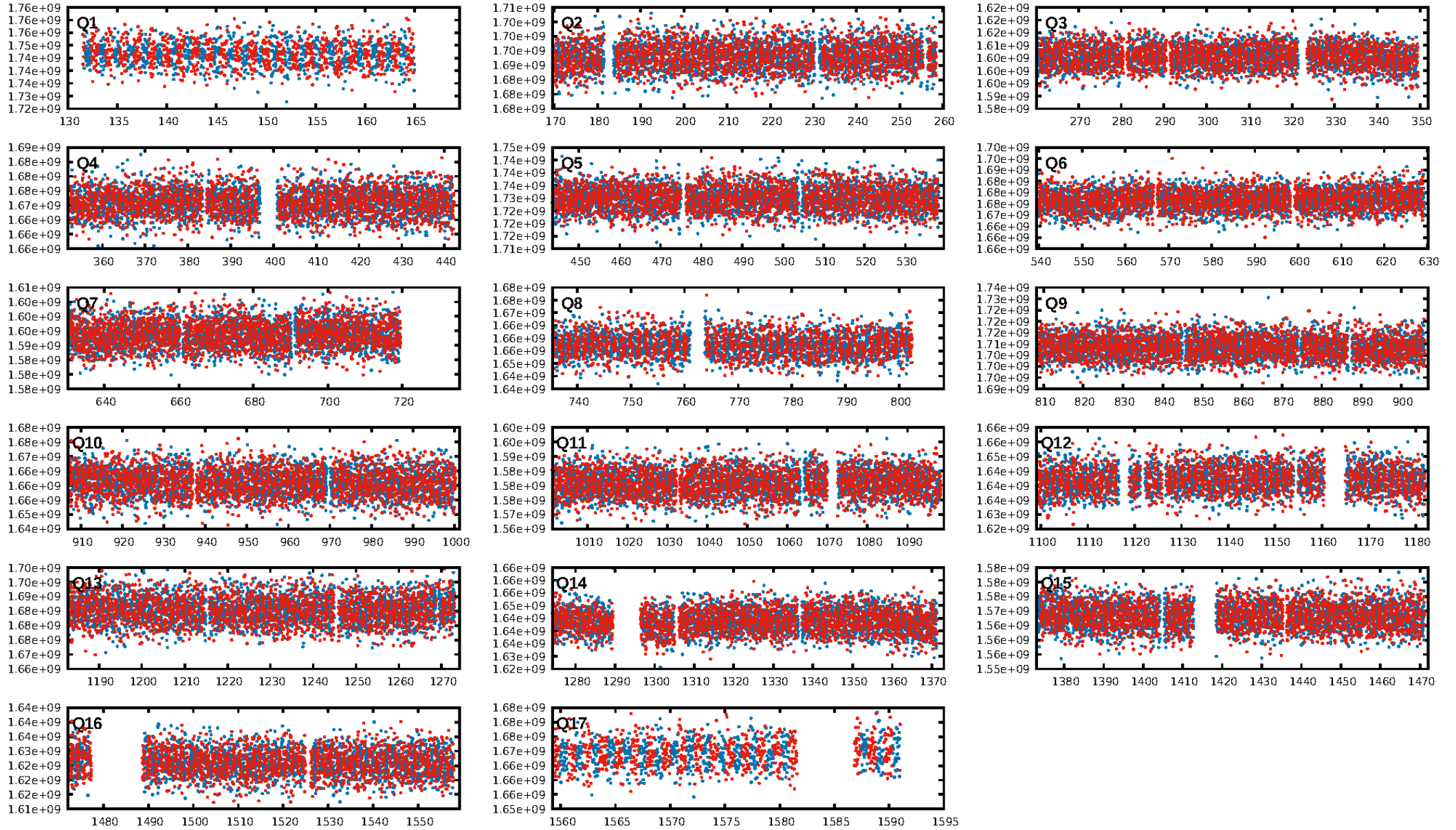
## DV Diagnostic Results:

ShortPeriod-sig: 54.2% [0.74 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.59e-04  
RollingBand-fgt: 1.00 [586/586]  
GhostDiagnostic-chr: 0.989  
Centroid-sig: 1.8%  
Centroid-so: 0.222 arcsec [3.21 $\sigma$ ]  
OotOffset-rm: 0.893 arcsec [2.94 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 0.614 arcsec [1.20 $\sigma$ ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.06 [1/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:57:49 Z

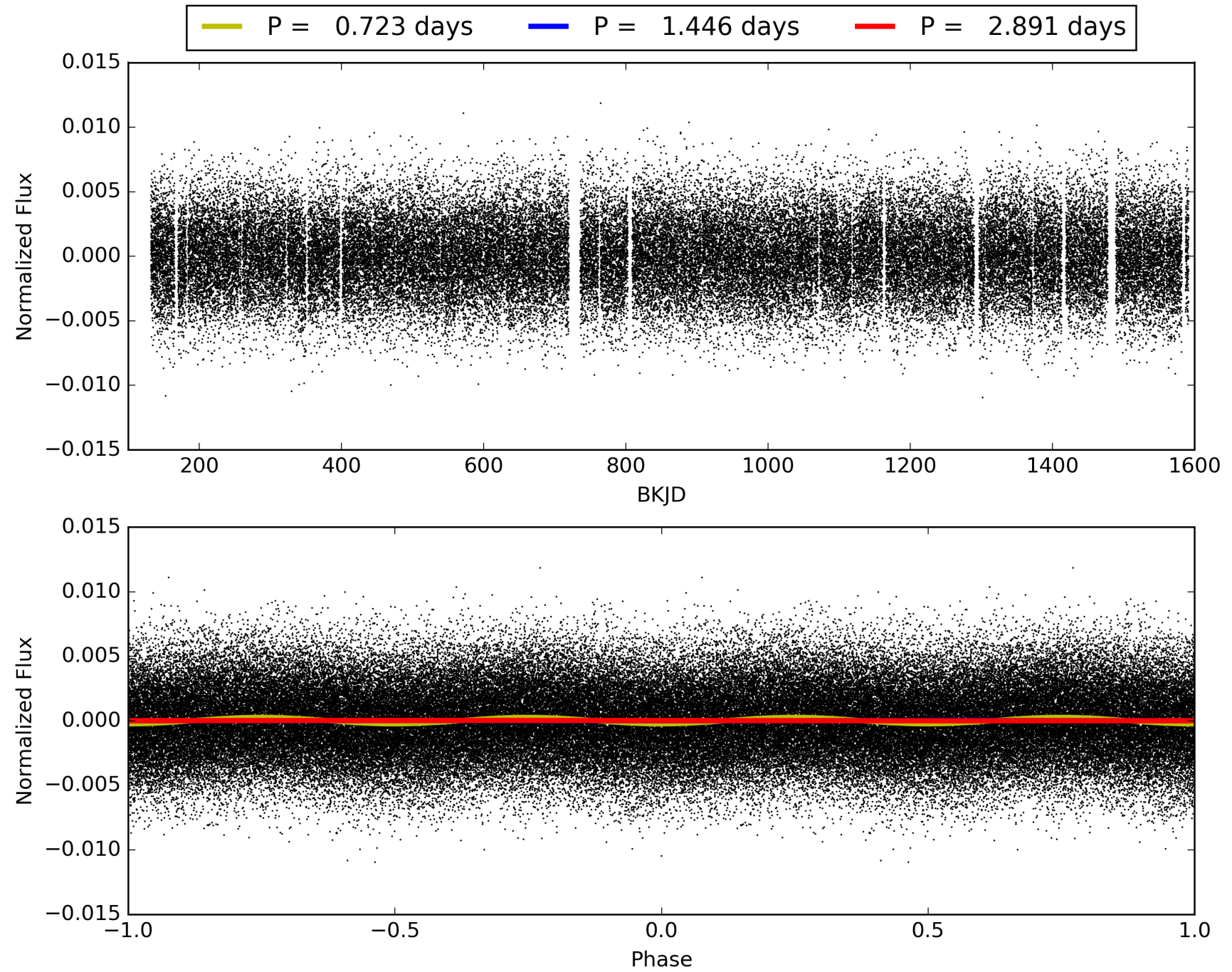
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005466537-02, PDC Light Curves



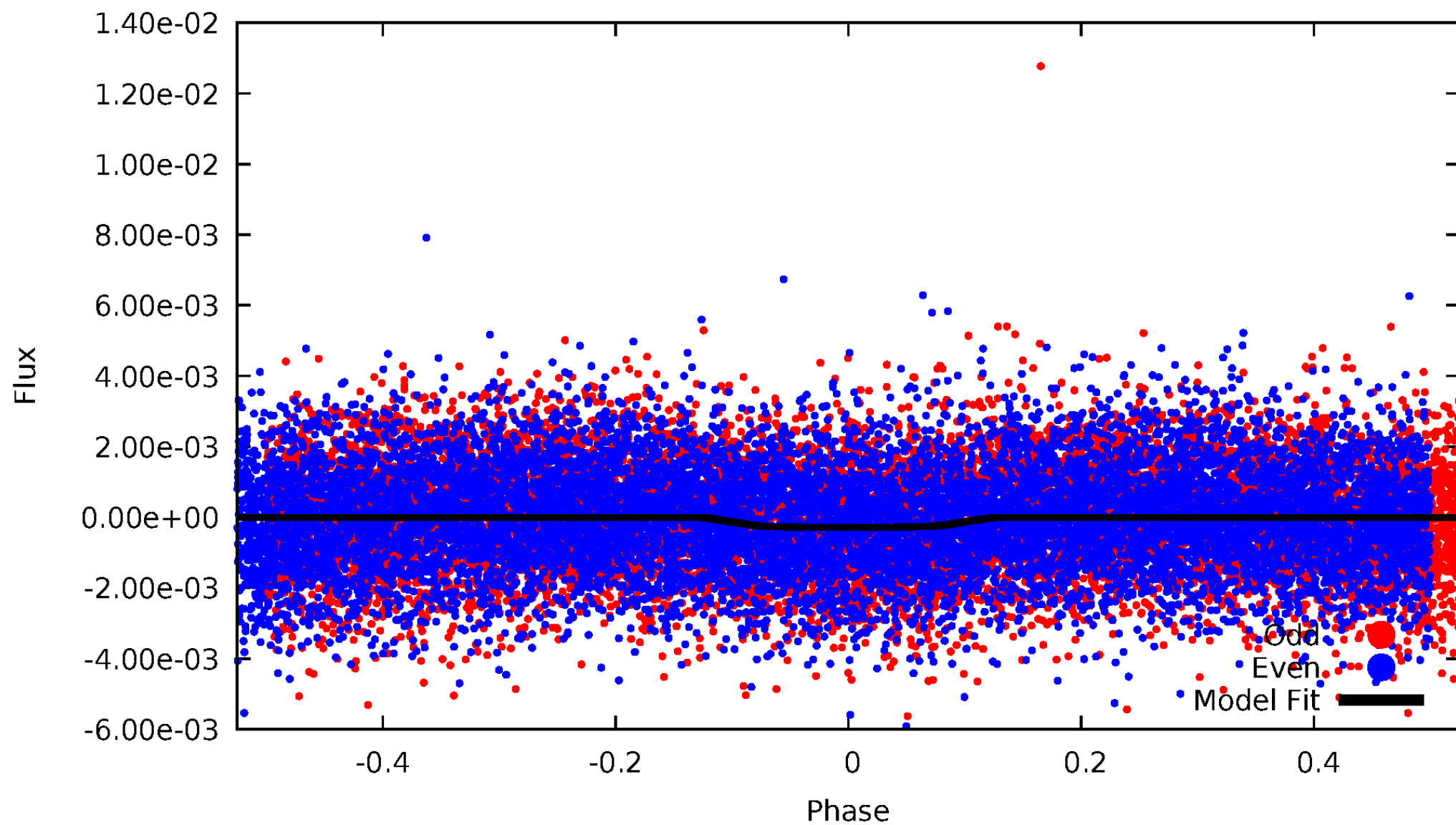


# TCE 005466537-02



# DV Odd/Even

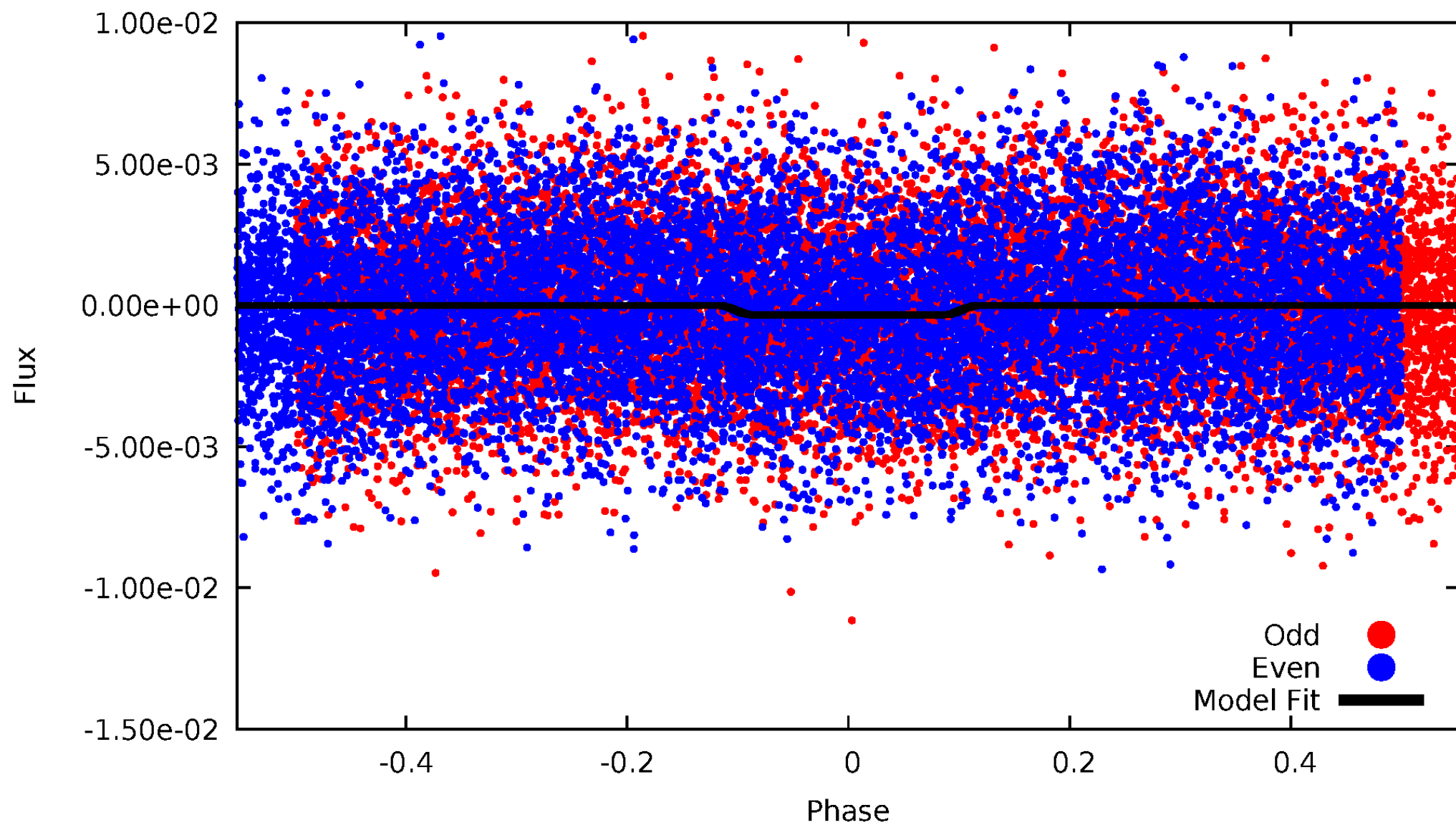
TCE 005466537-02





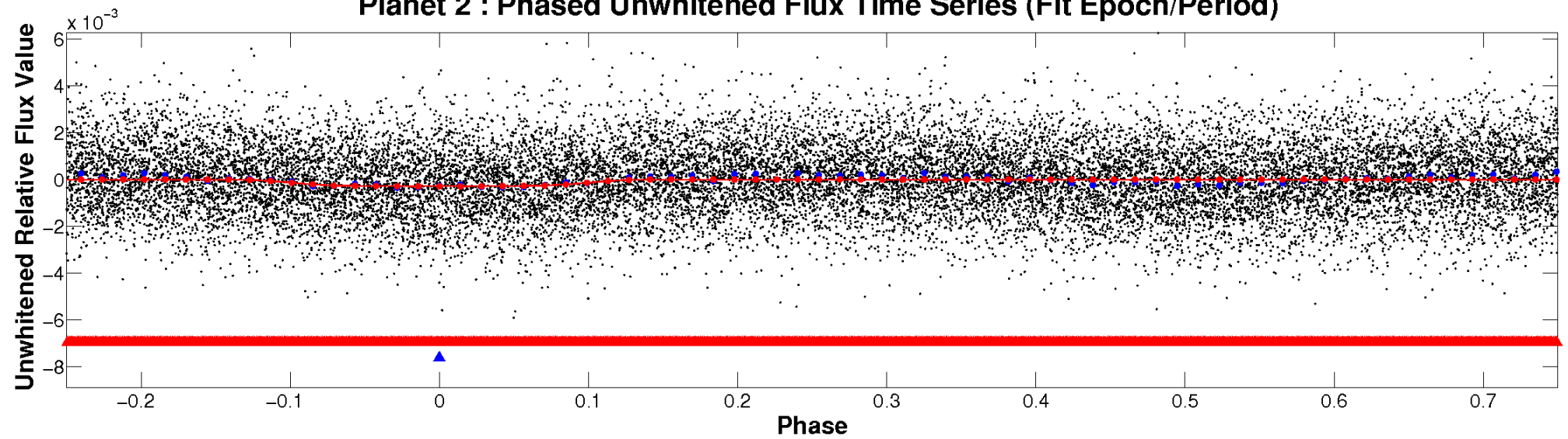
# ALT Odd/Even

TCE 005466537-02

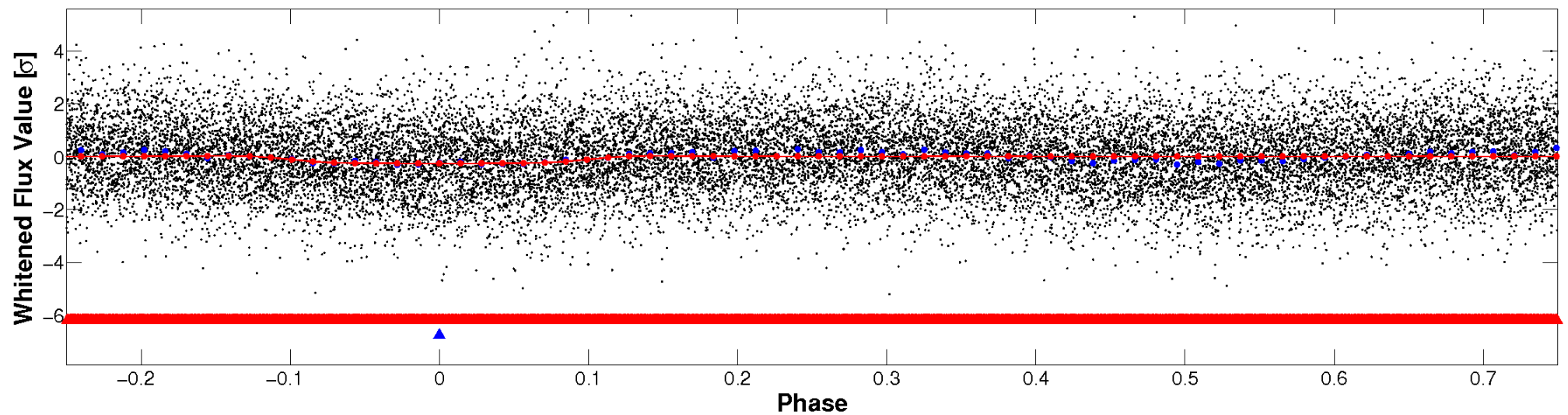


# Non-Whitened Vs. Whitened Light Curve

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

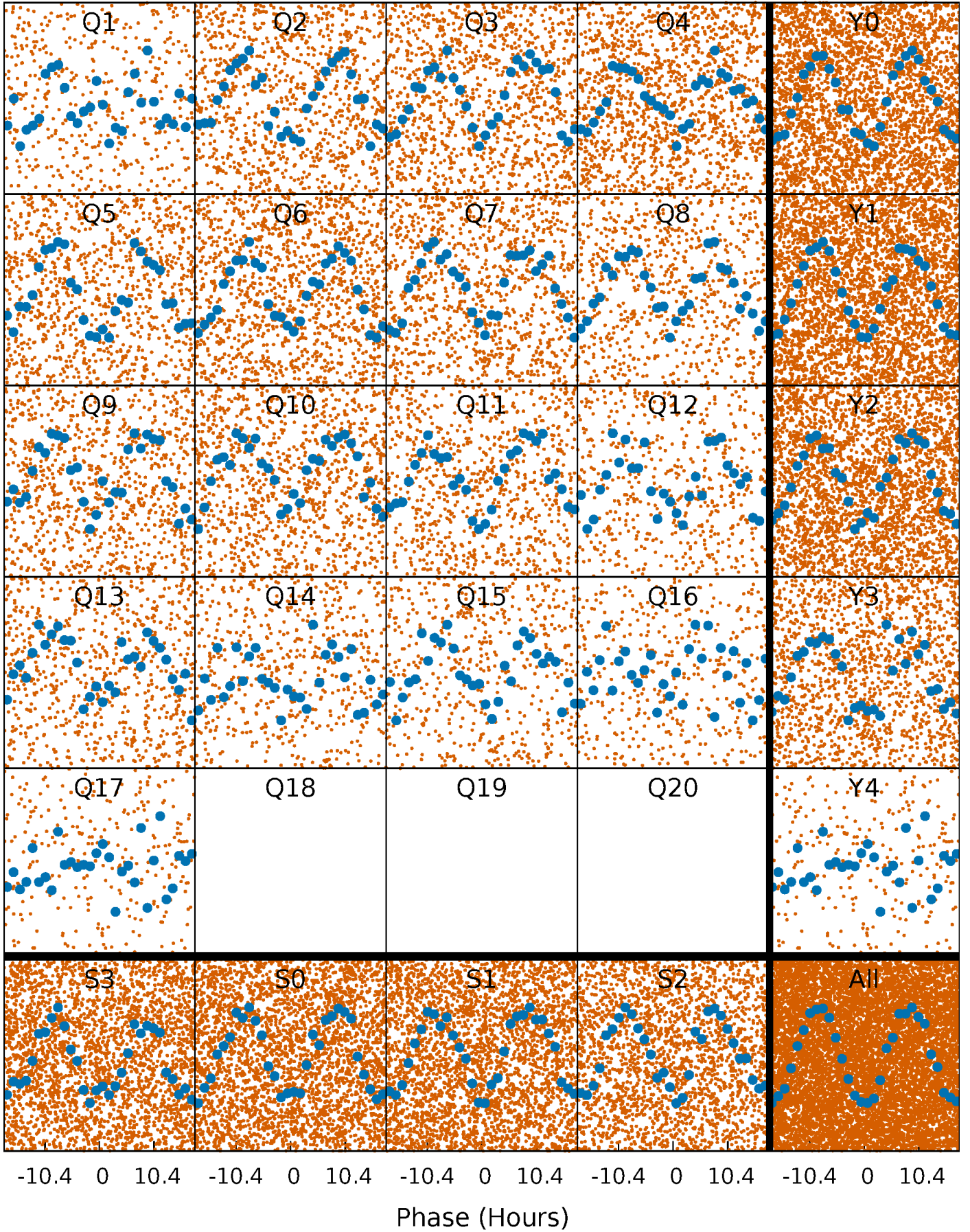


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

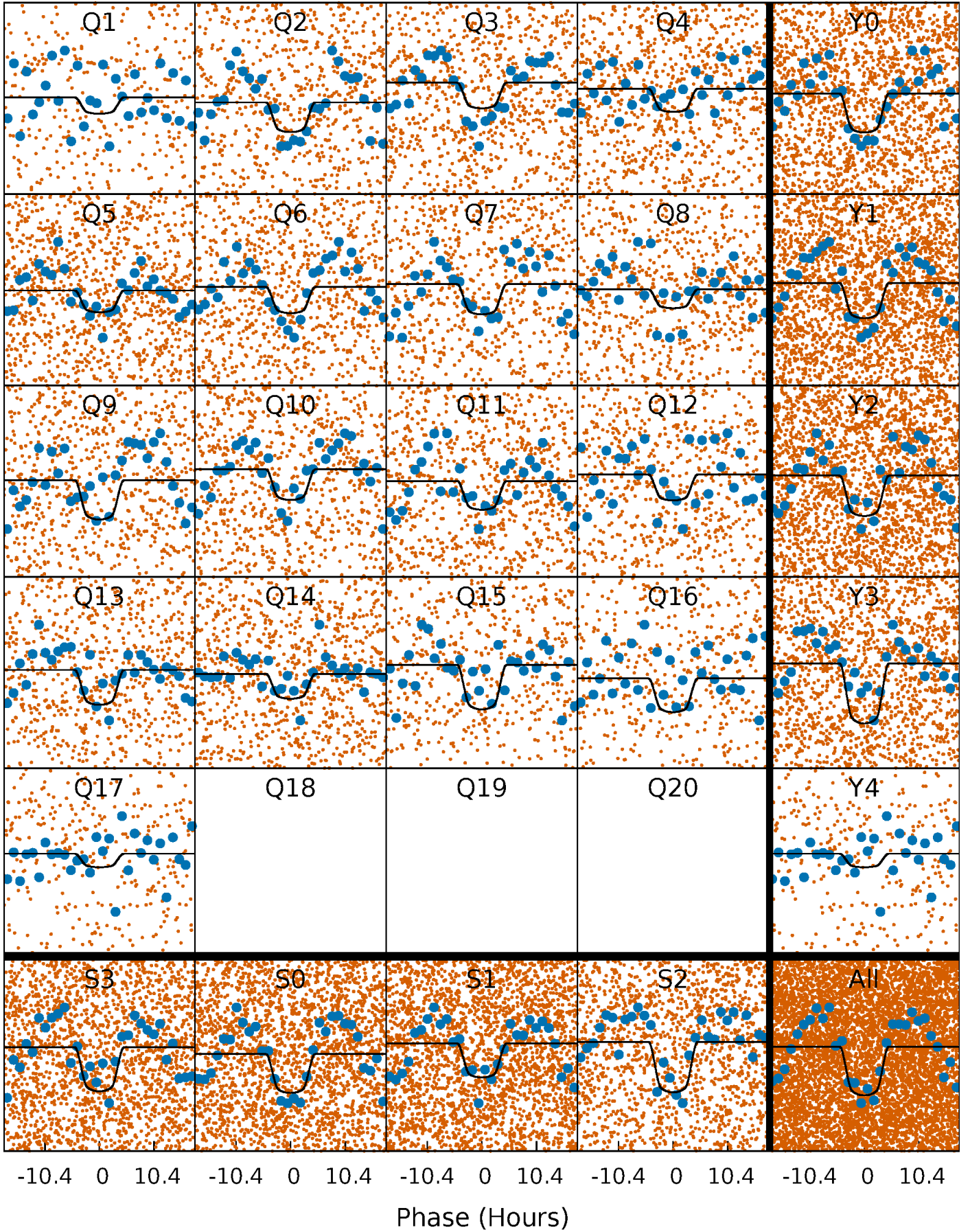
TCE 005466537-02   P= 1.445629 Days    $T_0=132.702691$  (BKJD)





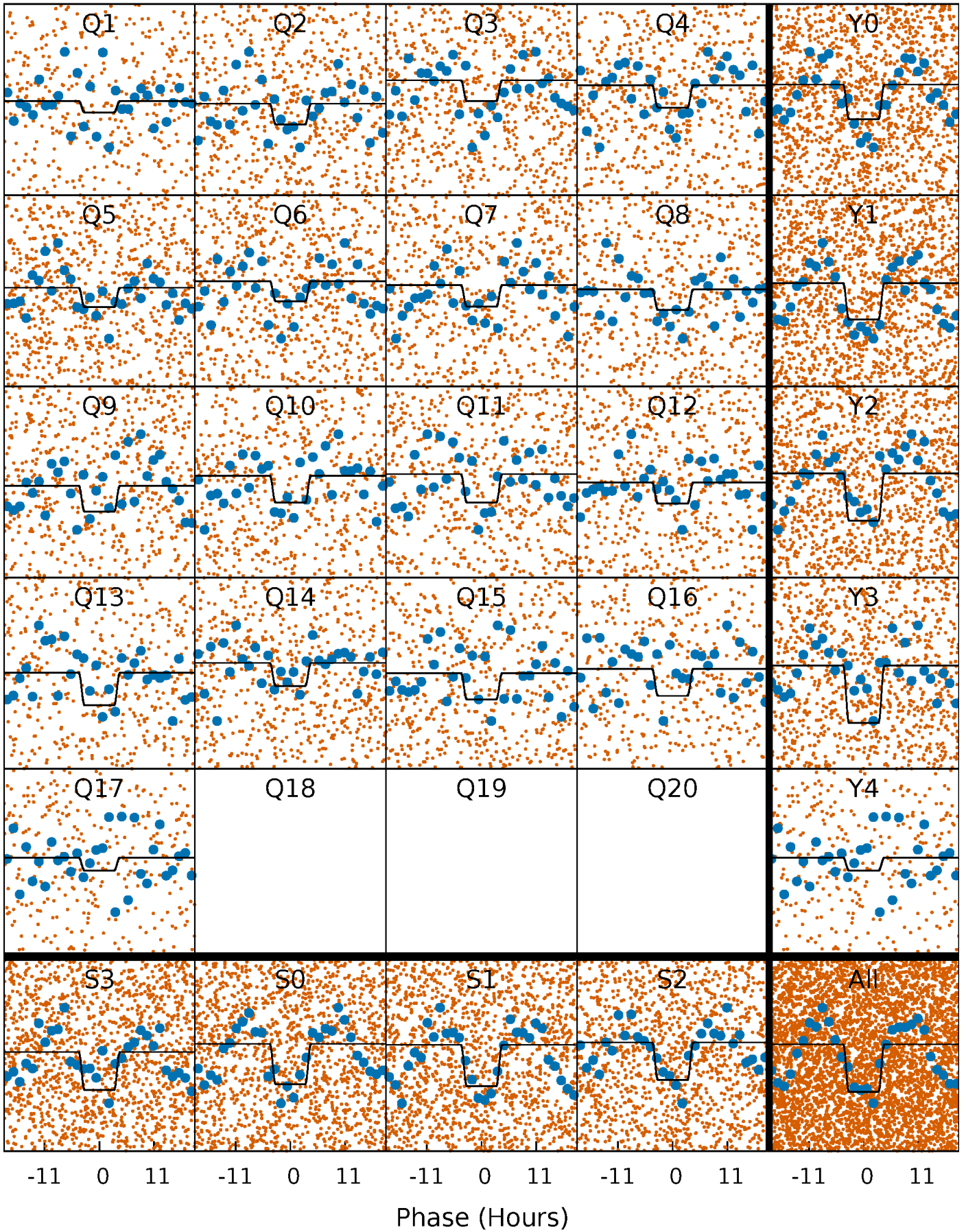
# DV Quarter-Phased Transit Curves

TCE 005466537-02   P= 1.445629 Days    $T_0=132.702691$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005466537-02 P= 1.445630 Days  $T_0=132.697946$  (BKJD)

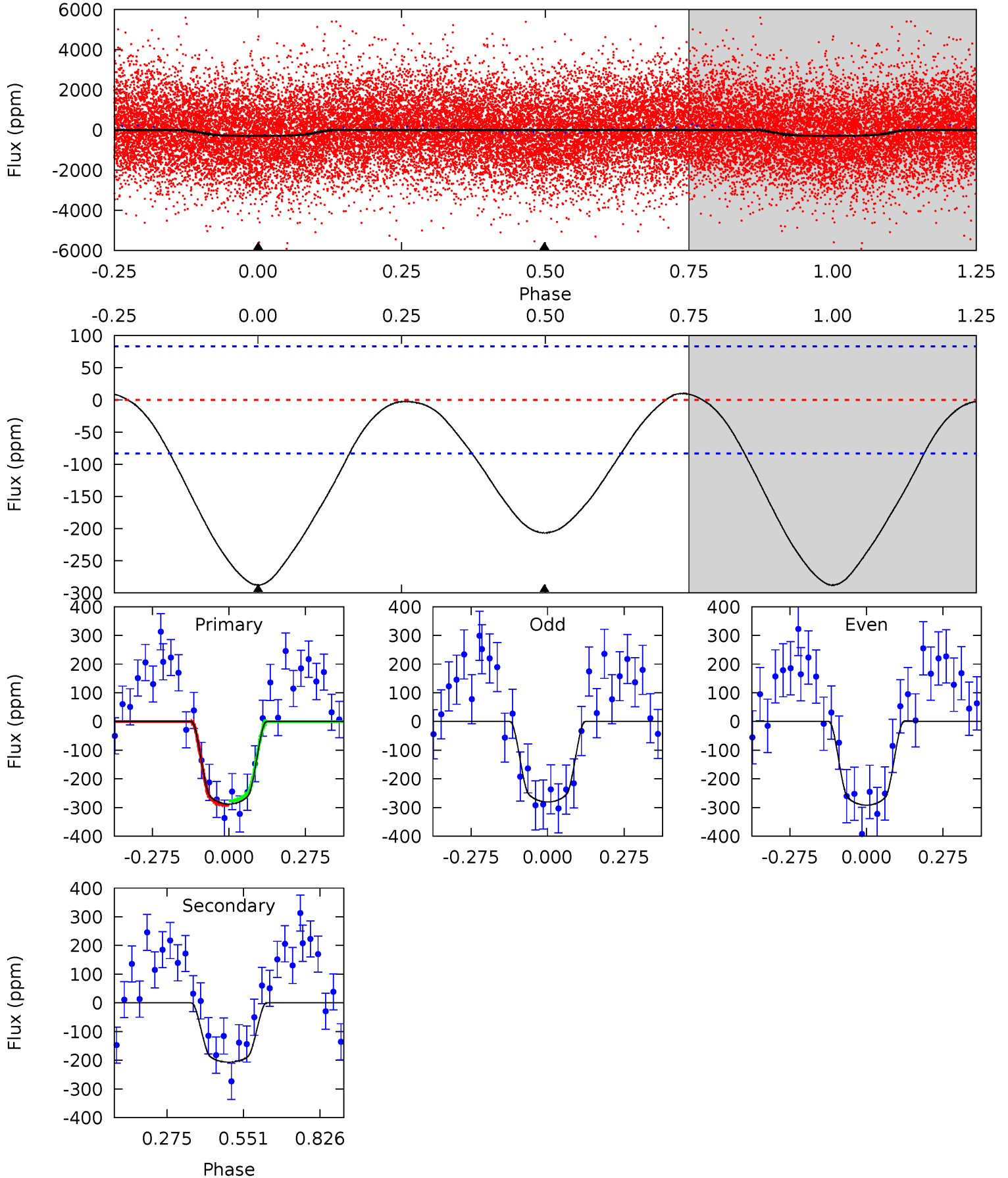




# DV Model-Shift Uniqueness Test

005466537-02, P = 1.445629 Days, E = 131.257062 Days

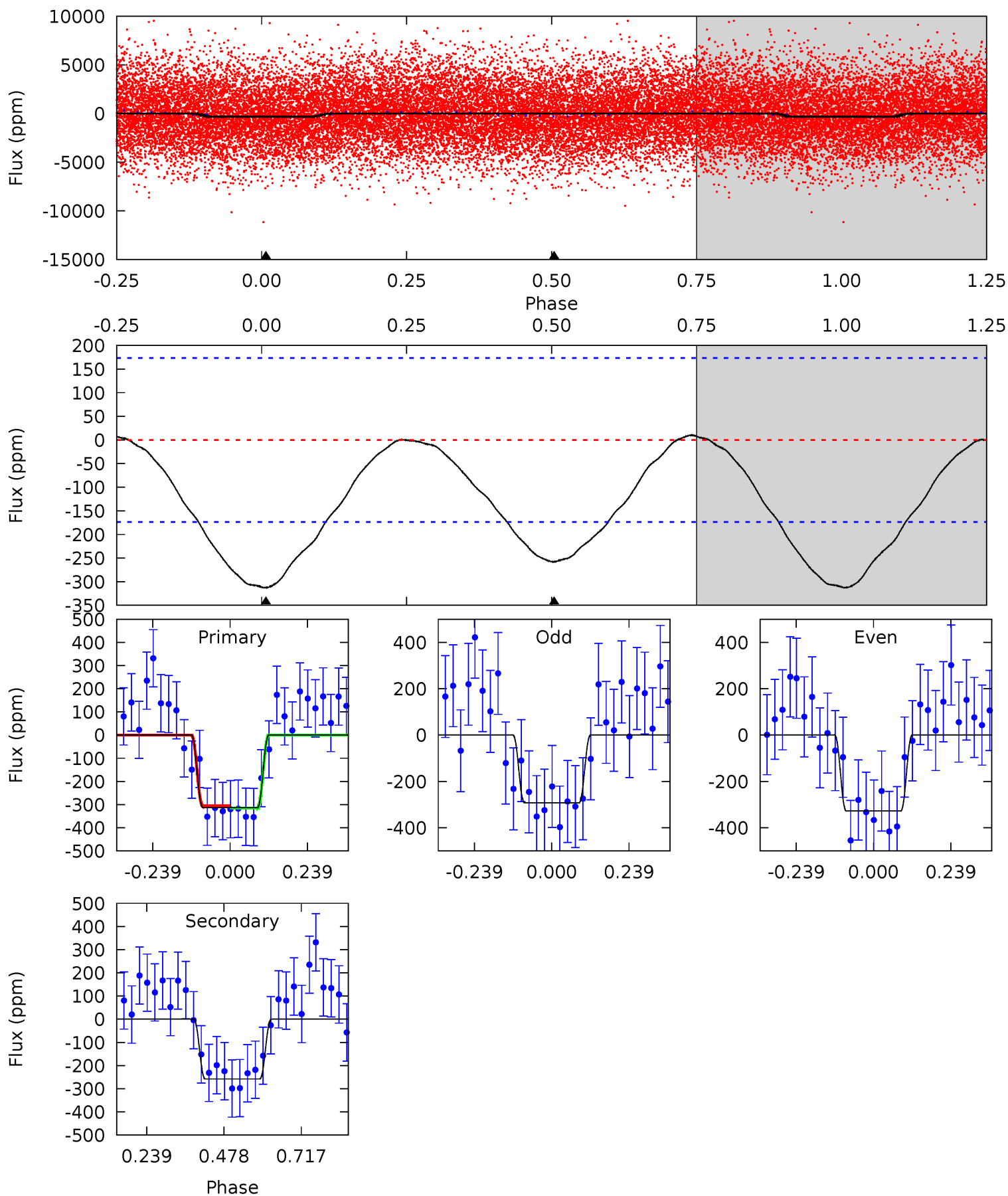
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.0	10.8	0	0	4.35	1.09	0.32	15.0	15.0	10.8	10.8	0.29	0.83	0.03	0.42



# Alt Model-Shift Uniqueness Test

005466537-02, P = 1.445630 Days, E = 131.252316 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
7.89	6.51	0	0	4.38	1.18	0.13	7.89	7.89	6.51	6.51	0.45	1.12	0.03	0.12



### Stellar Parameters For KIC 005466537

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7232^{+200}_{-275}$	$4.165^{+0.087}_{-0.203}$	$0.120^{+0.200}_{-0.350}$	$1.724^{+0.589}_{-0.252}$	$1.583^{+0.211}_{-0.211}$	$0.435^{+0.218}_{-0.231}$
	+3%/-4%	+2%/-5%	+167%/-292%	+34%/-15%	+13%/-13%	+50%/-53%
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 005466537-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-207 \pm 19$	$3.72^{+0.67}_{-0.44}$	$3468^{+275}_{-195}$	$6085^{+329}_{-346}$	$6.786^{+2.103}_{-1.770}$
Alt.	$-258 \pm 40$	$3.53^{+0.62}_{-0.44}$	$3460^{+244}_{-183}$	$6615^{+451}_{-430}$	$9.472^{+3.013}_{-2.735}$

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

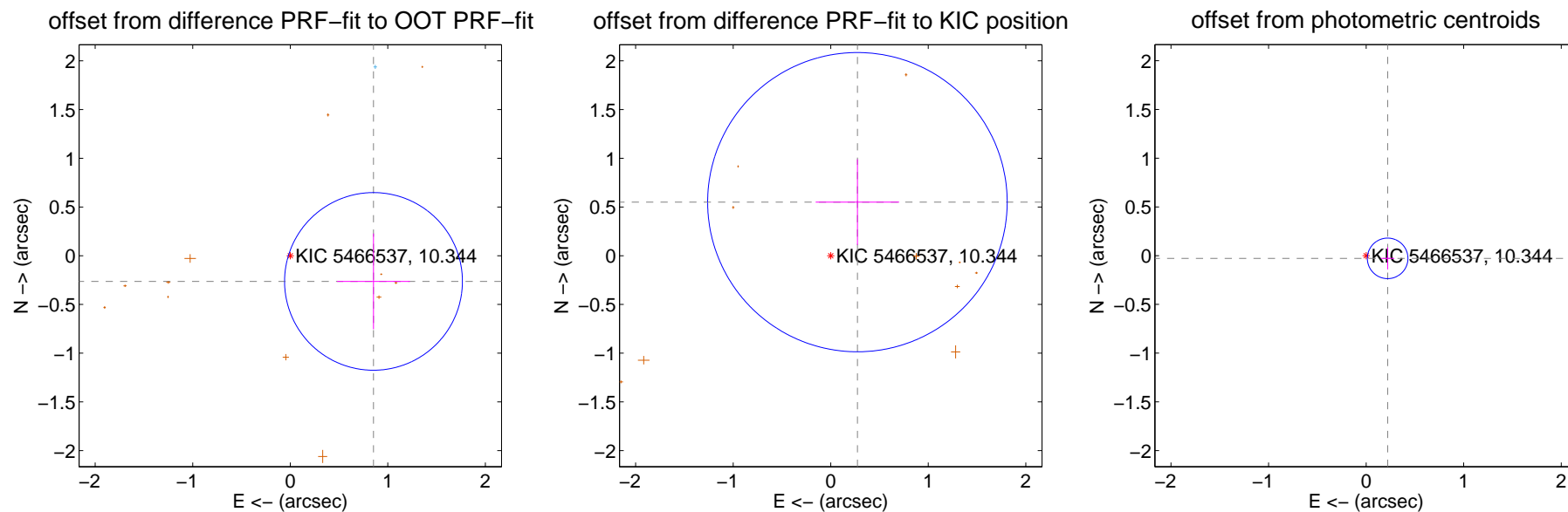
## DV Centroid Data

Supplemental centroid analysis for 005466537-02. **Kepler magnitude: 10.34.** Transit SNR 14.59

**There are 1 quarters with good PRF difference image offsets**

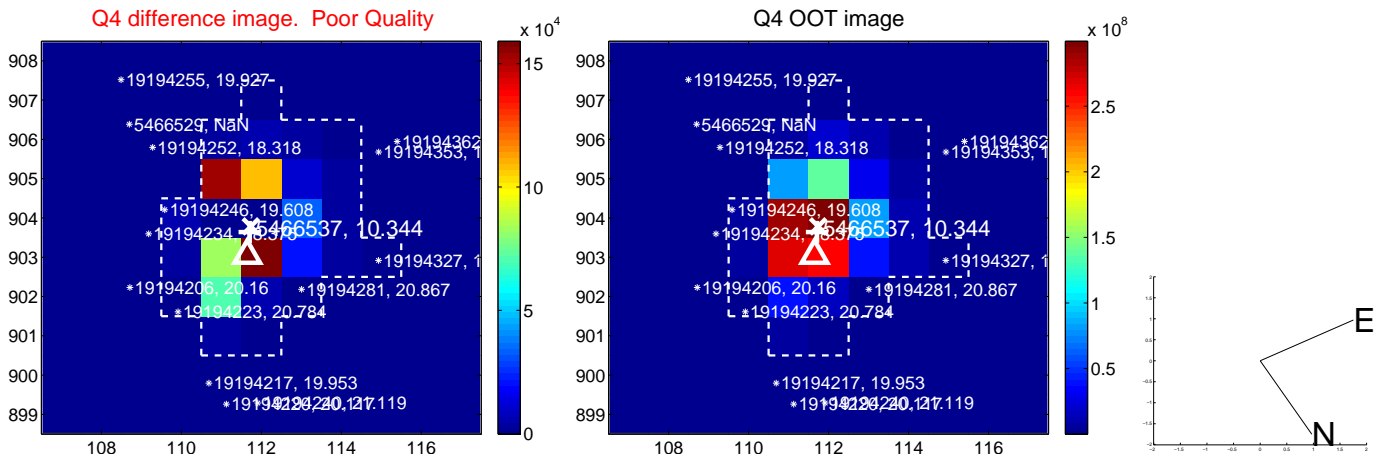
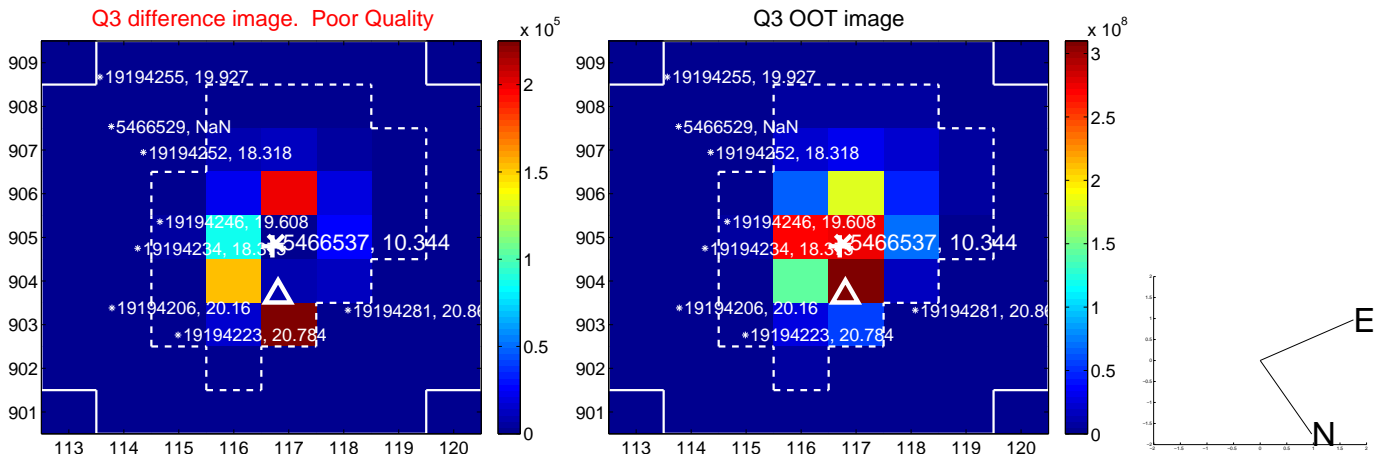
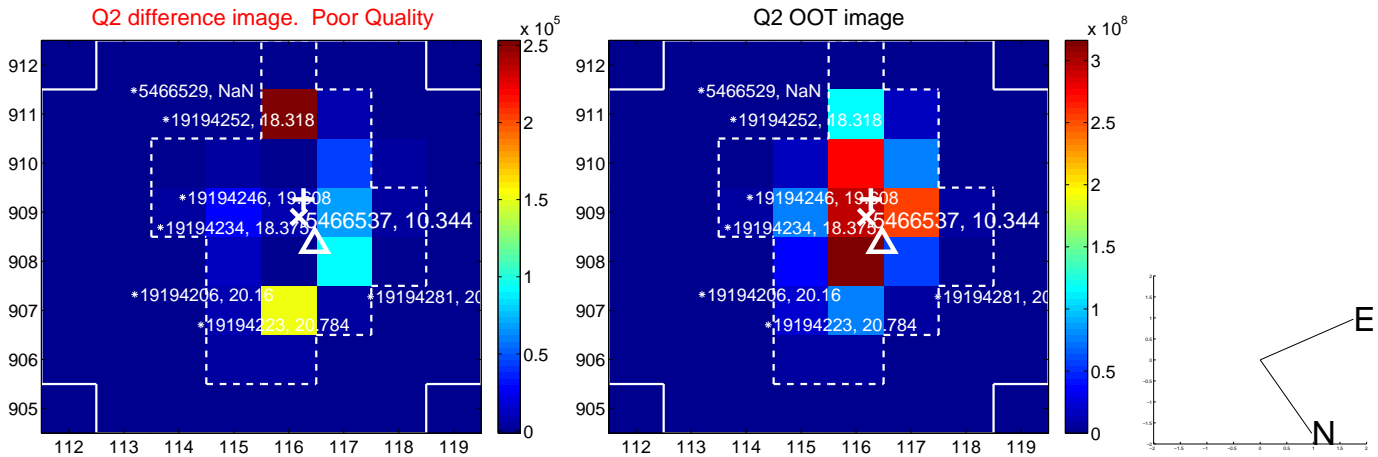
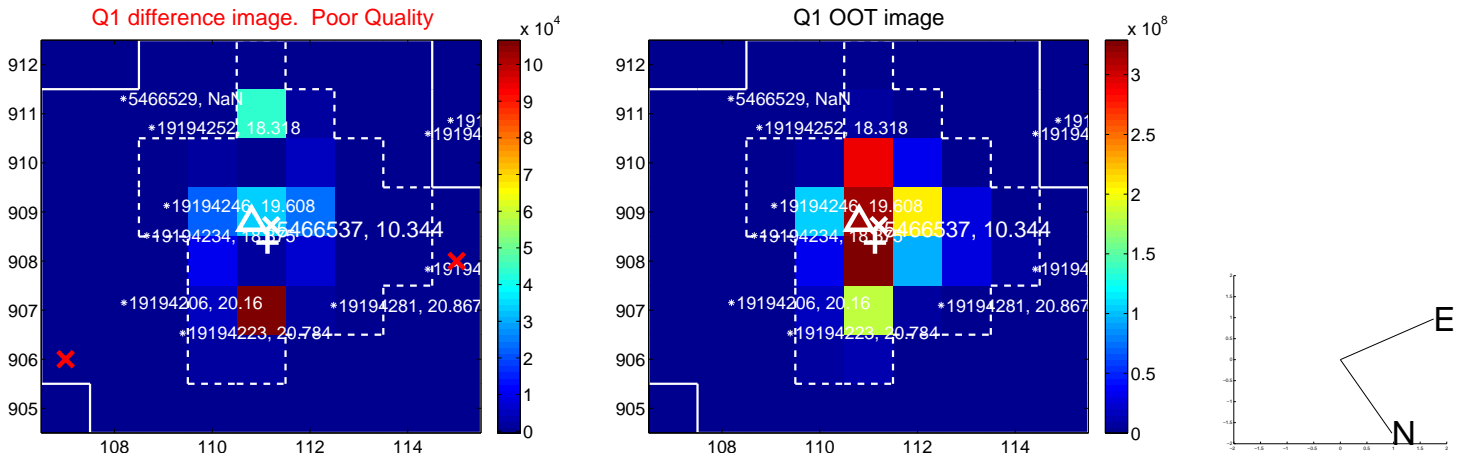
The direct PRF centroid is offset from the target star catalog position by about 1.40 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.893 \pm 0.304$	2.94	$-0.853 \pm 0.373$	$-0.264 \pm 0.491$
PRF-fit source offset from KIC position	$0.614 \pm 0.512$	1.20	$-0.274 \pm 0.428$	$0.550 \pm 0.440$
photometric centroid source offset	$0.22 \pm 0.07$	<b>3.21</b>	$-0.22 \pm 0.07$	$-0.03 \pm 0.11$



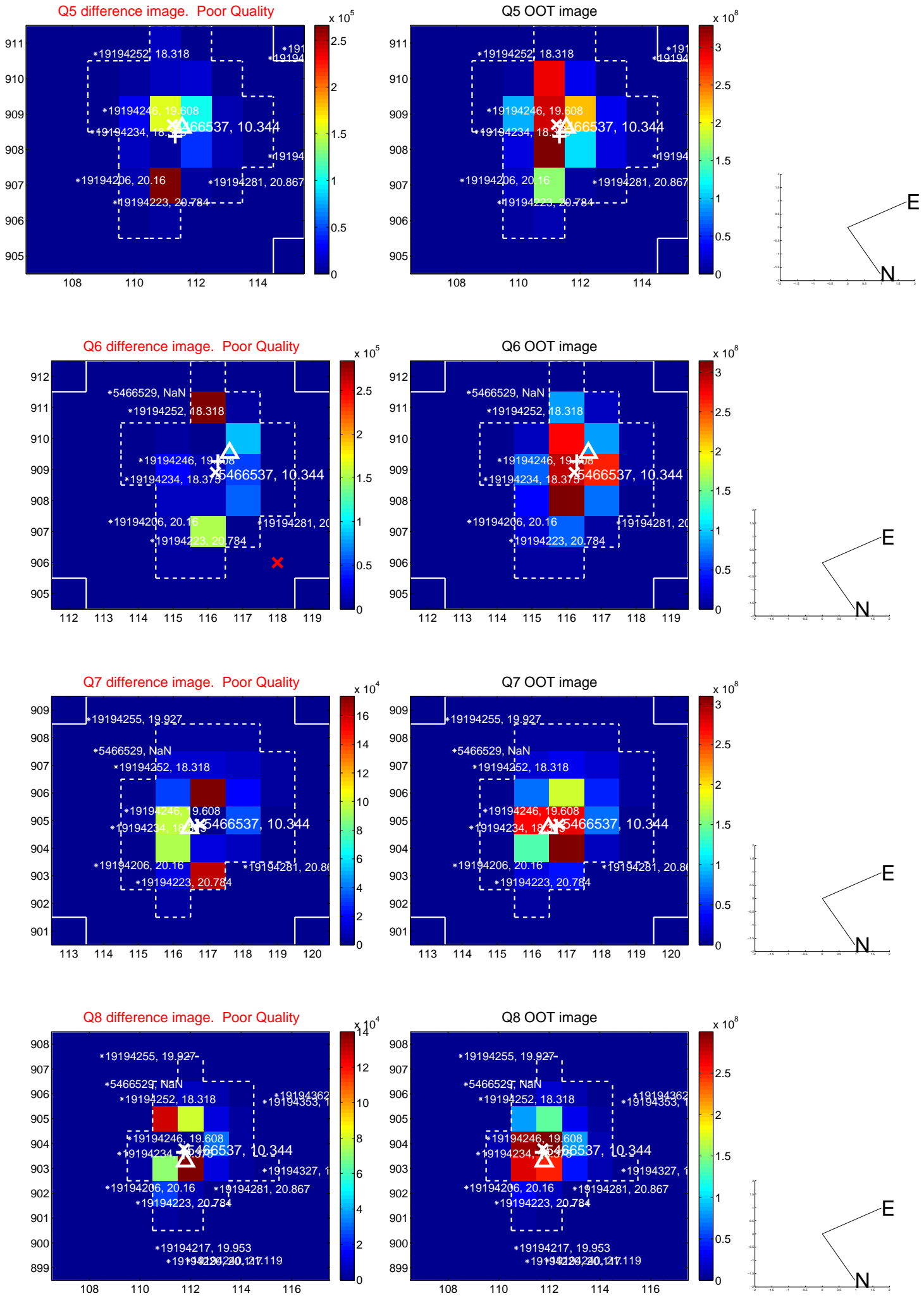
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

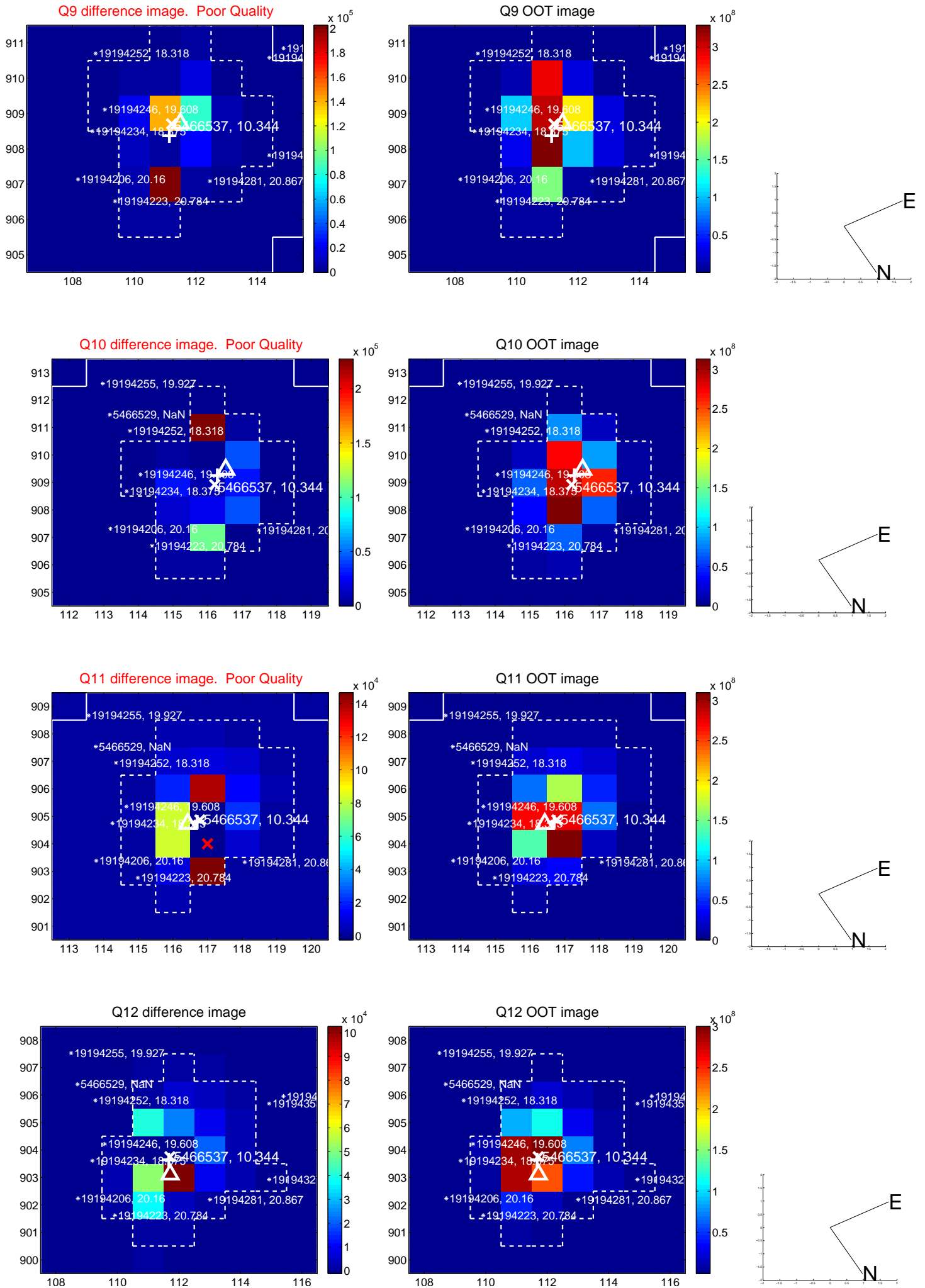




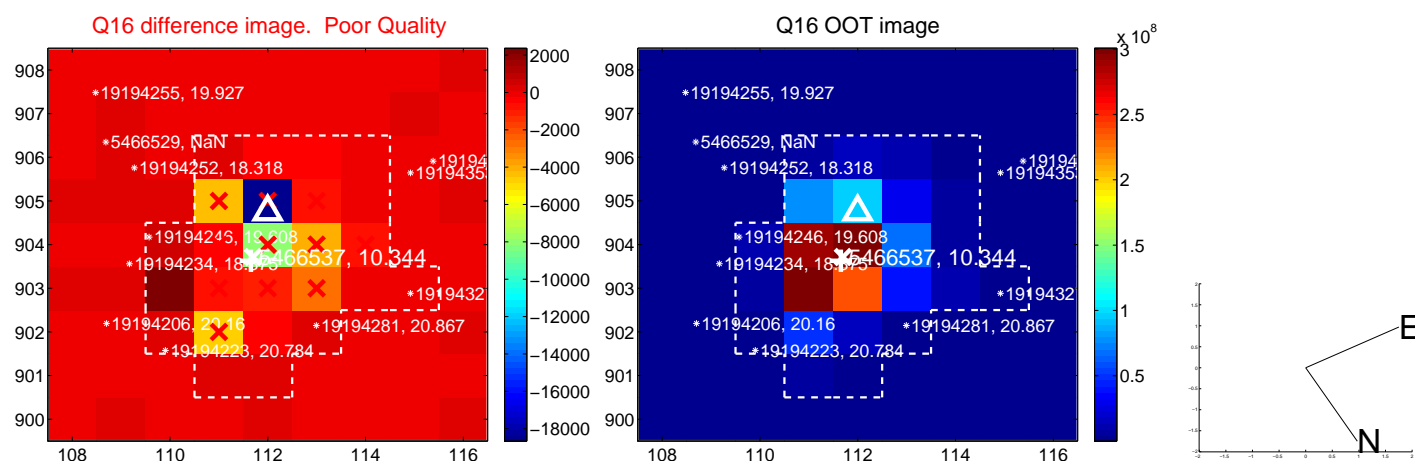
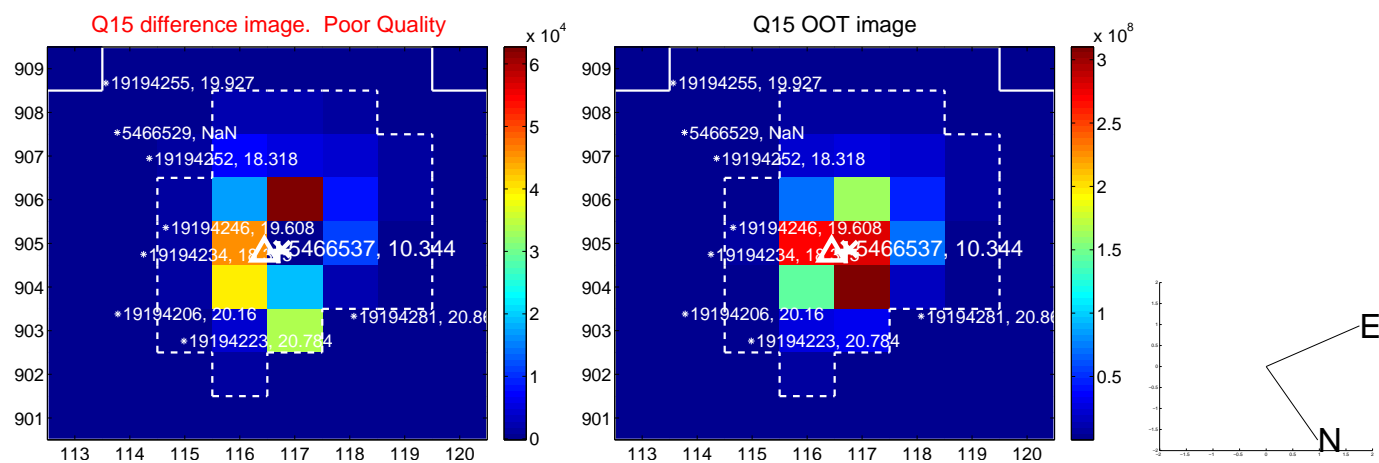
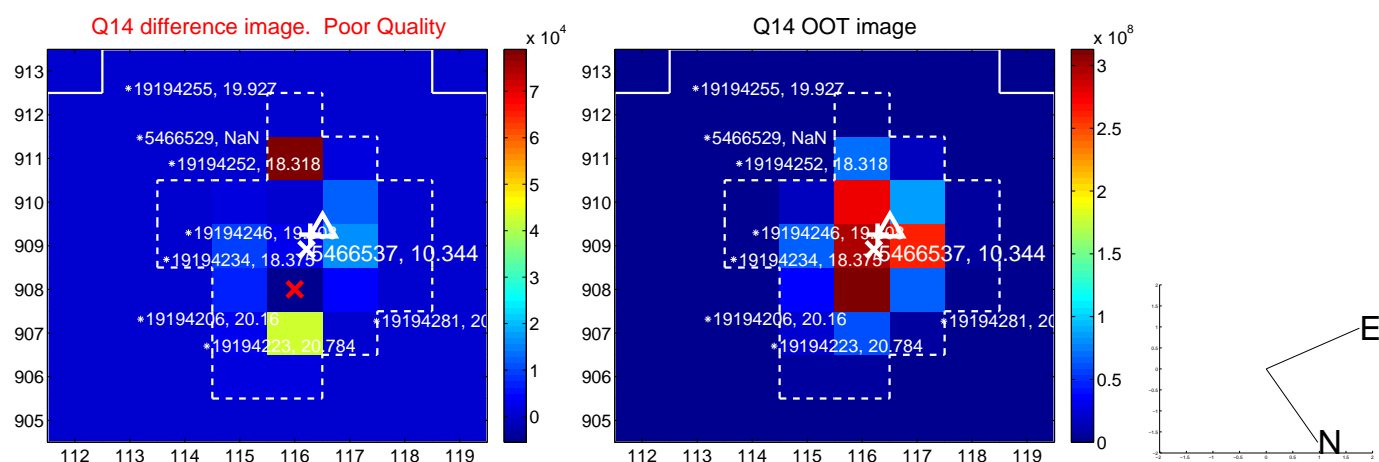
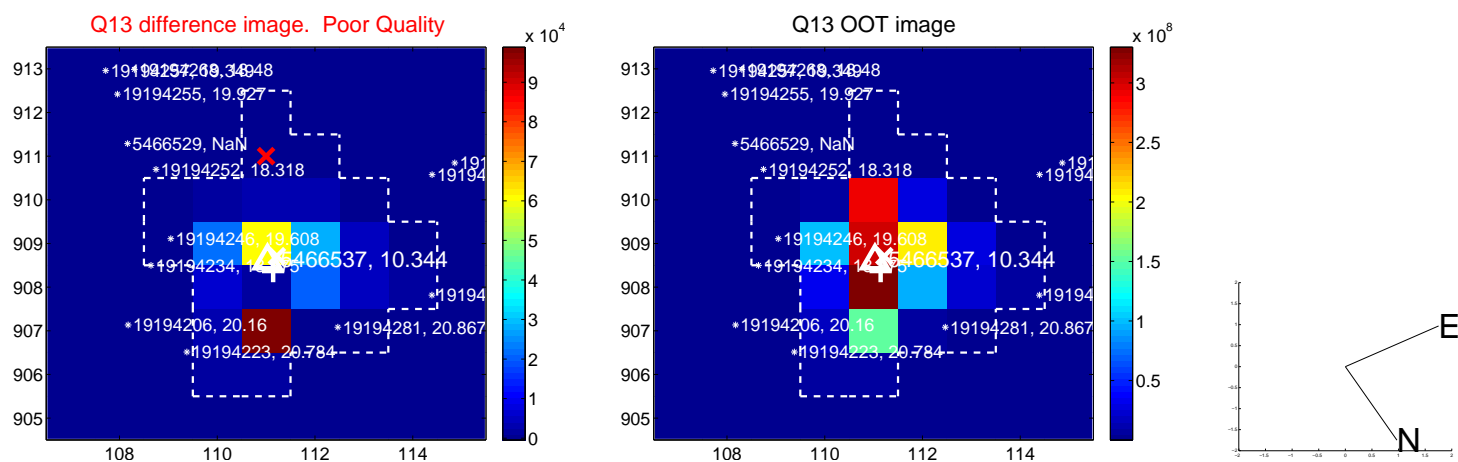
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



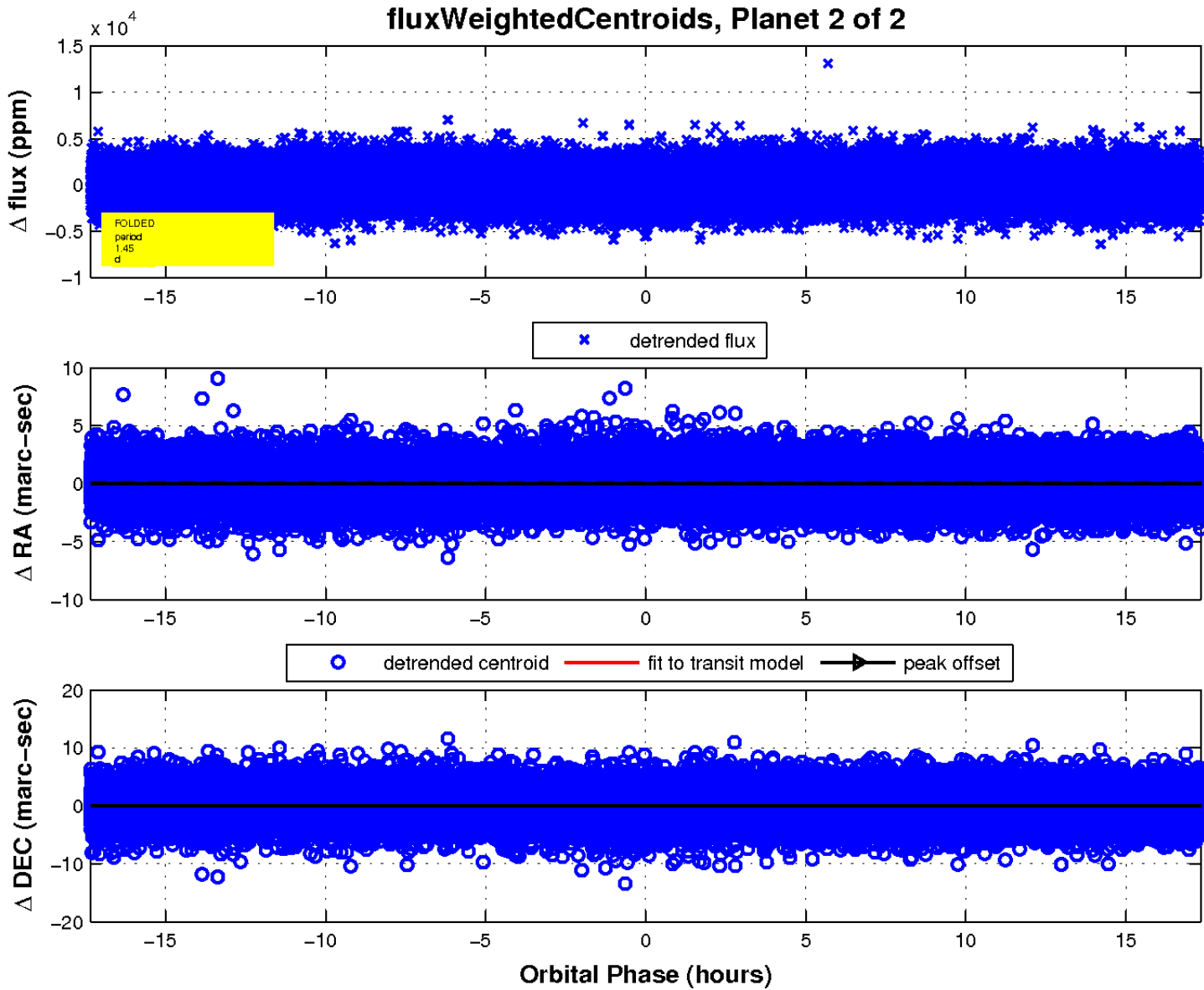
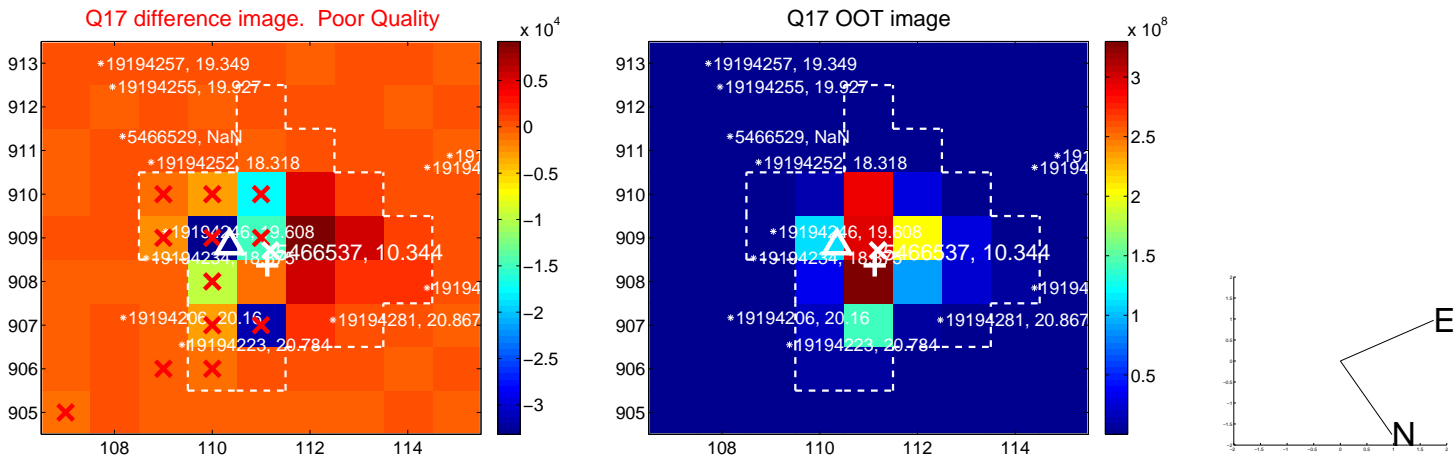
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

