

# KIC 004636464

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004636464-01	OBS	No	3.656120	132.091570	0.0	2.075	9.9	0.0	1.11	6299	0.01	785.20
004636464-02	OBS	No	3.656301	132.517731	18.2	1.035	10.6	2.1	1.11	6299	0.56	785.15
004636464-03	OBS	No	3.656076	135.322071	0.1	31.229	10.4	0.0	1.11	6299	0.04	785.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004636464-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004636464-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
004636464-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD

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

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

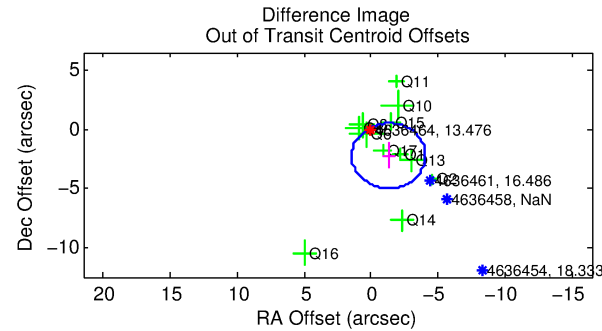
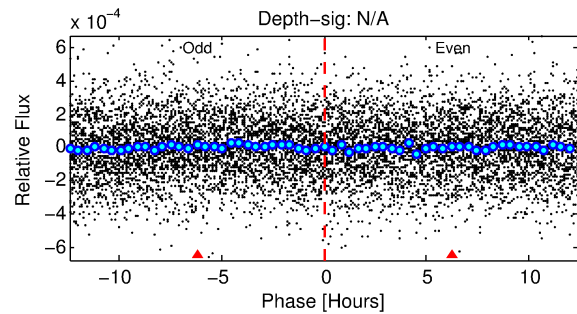
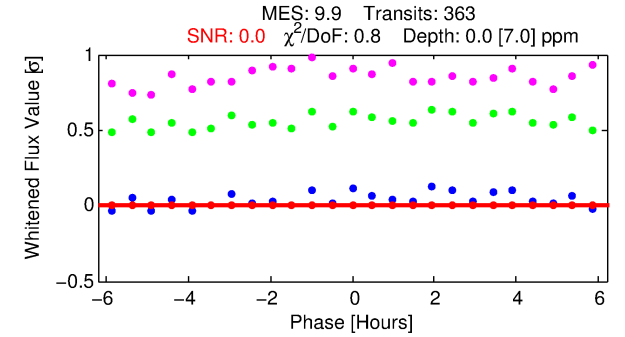
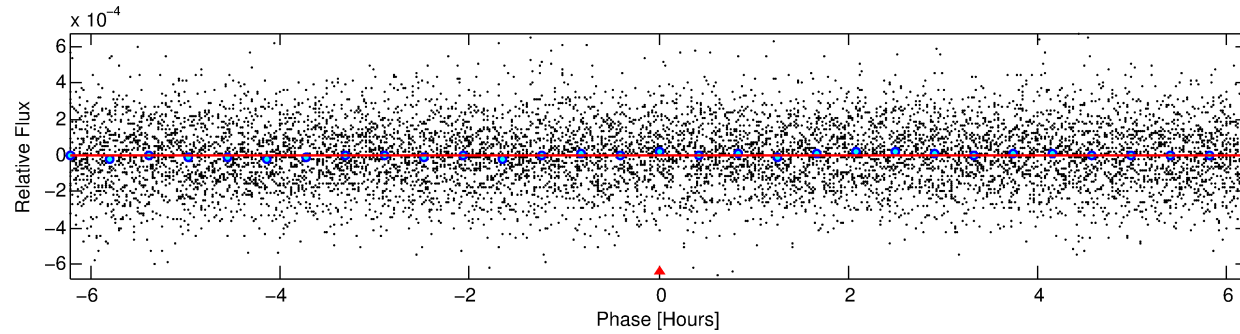
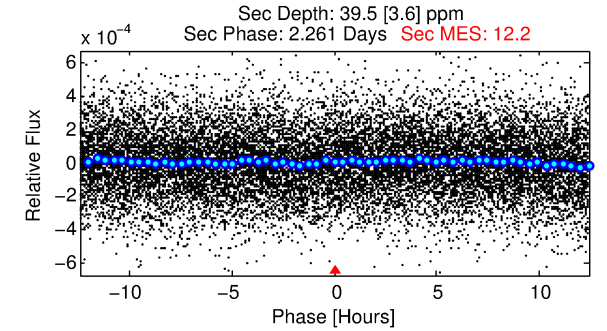
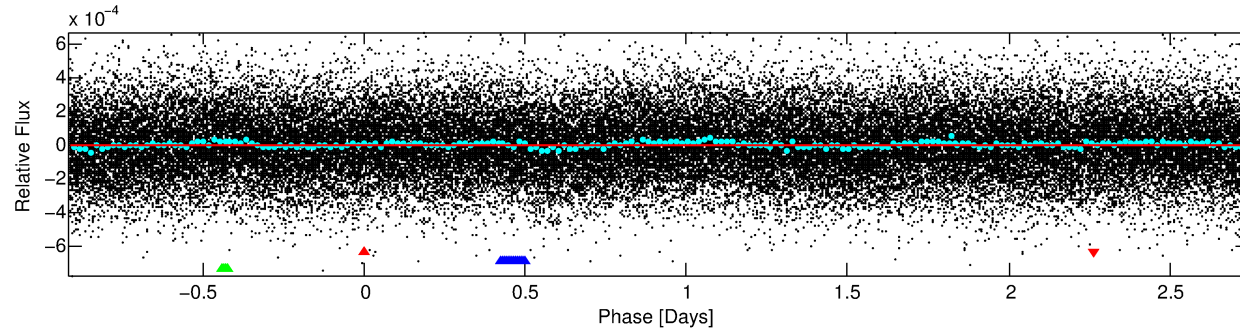
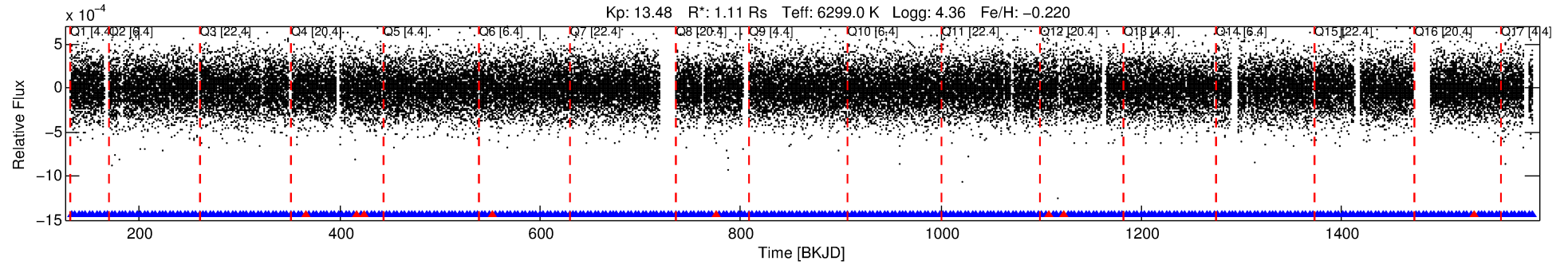
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004636464-01

No Significant Match Found

# DV One-Page Summary

KIC: 4636464 Candidate: 1 of 3 Period: 3.656 d



## DV Fit Results:

Period = 3.65612 [0.68017] d  
Epoch = 132.0916 [112.4955] BKJD  
Rp/R\* = 0.0000 [0.0915]  
a/R\* = 5.16 [2017.76]  
b = 0.93 [130.99]  
Seff = 785.20 [360.25]  
Teq = 1350 [155] K  
Rp = 0.01 [11.07] Re  
a = 0.0470 [0.0135] AU  
Ag = 1468015.22 [5684453559.53] [0.00σ]  
Teffp = 72643 [70323945] K [0.00σ]

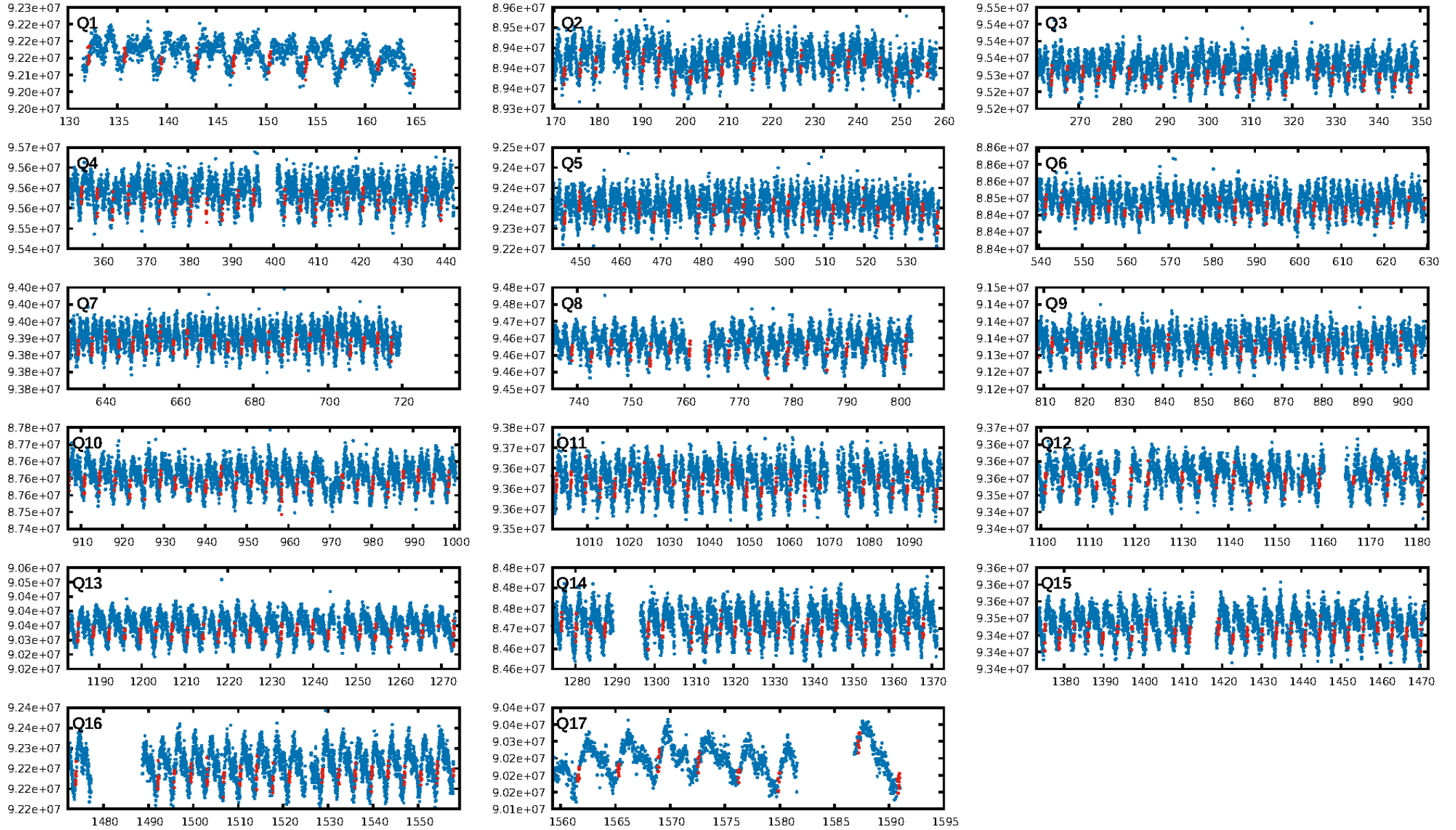
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 0.1% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.98 [337/345]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 2.600 arcsec [2.83σ]  
KicOffset-rm: 2.652 arcsec [2.82σ]  
OotOffset-st: 4/3/2/3 [12]  
KicOffset-st: 4/3/2/3 [12]  
DiffImageQuality-fgm: 0.50 [6/12]  
DiffImageOverlap-fno: 0.00 [0/17]

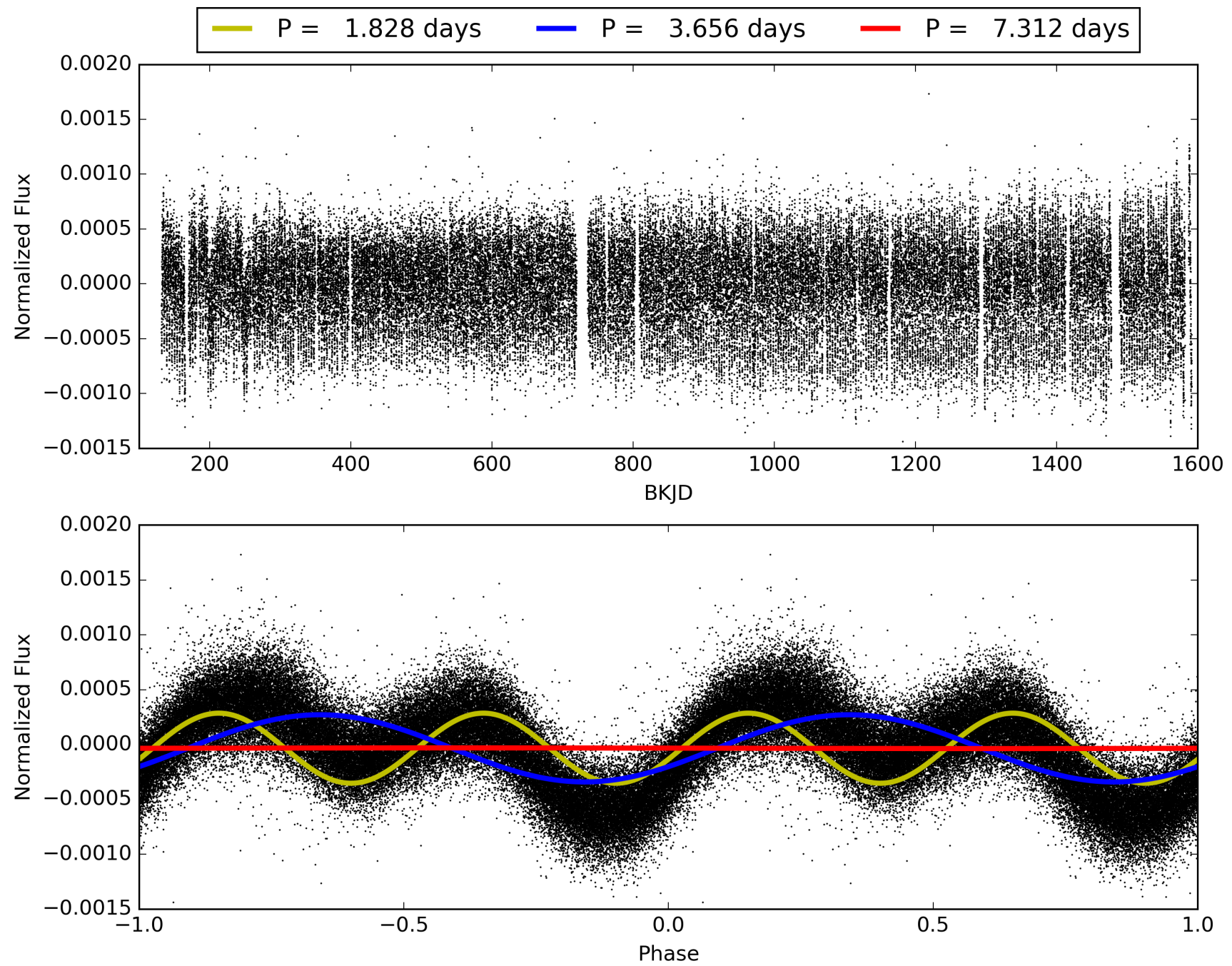
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:29:34 Z

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

# TCE 004636464-01, PDC Light Curves



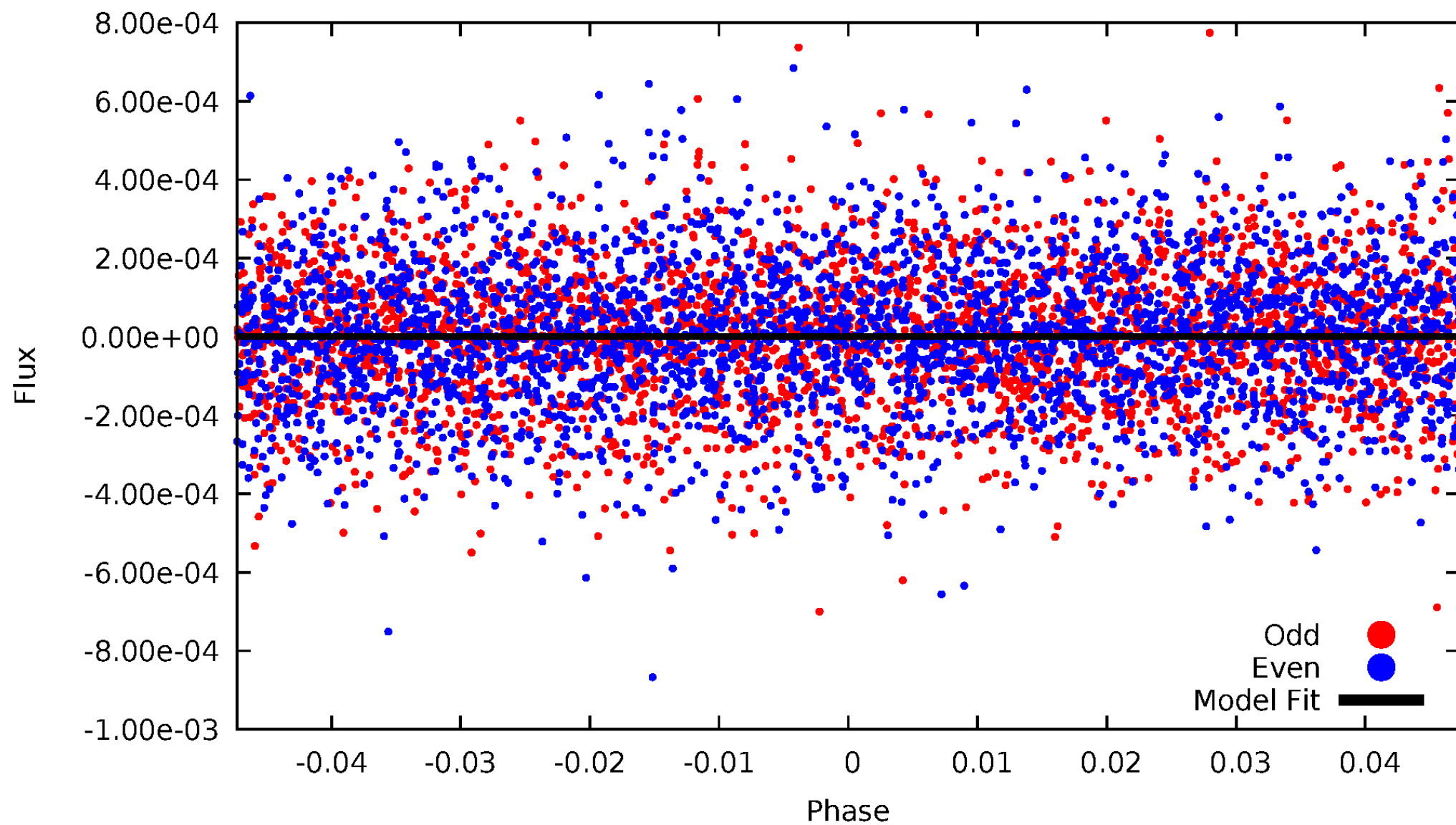
TCE 004636464-01





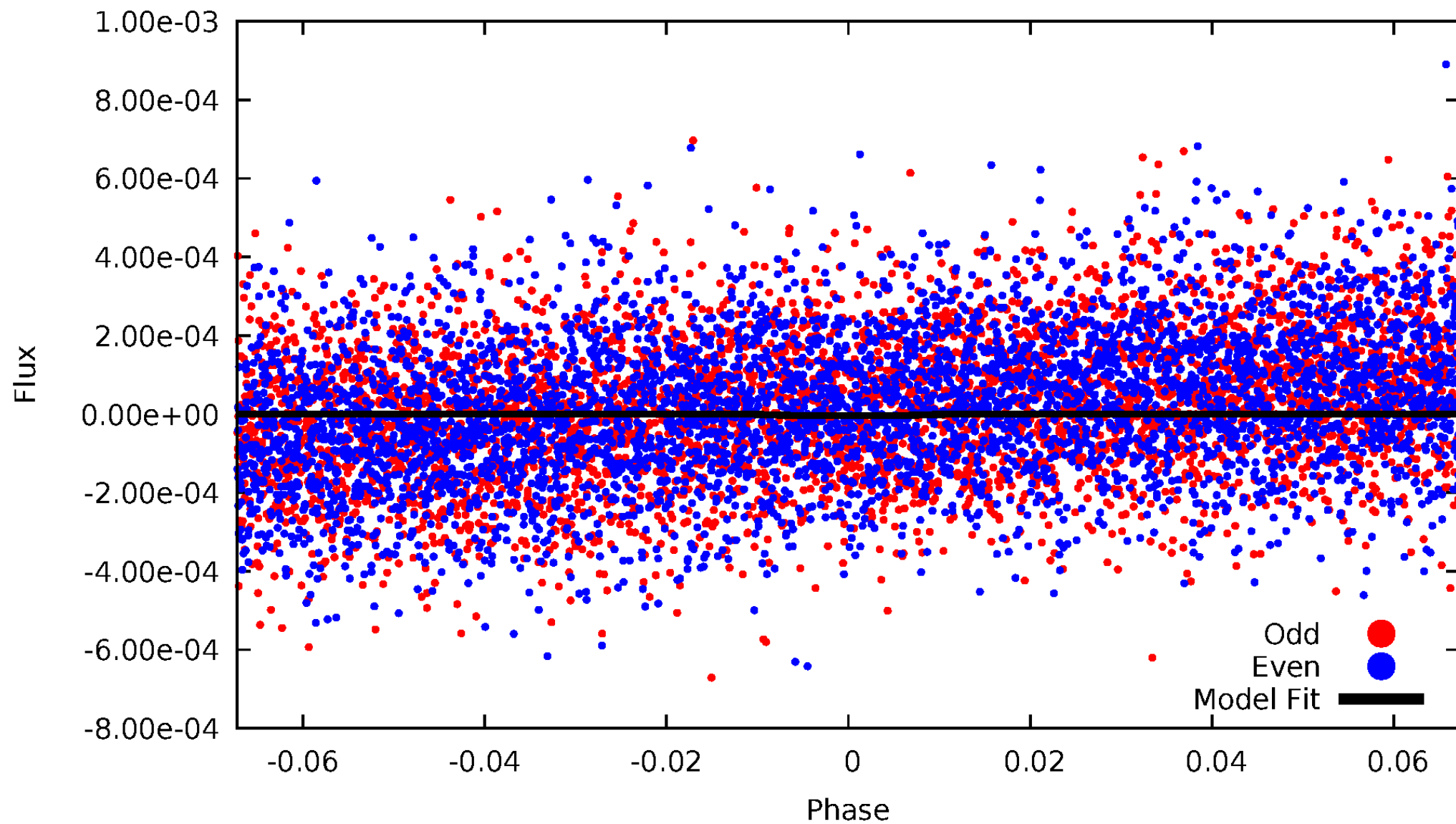
DV Odd/Even

TCE 004636464-01



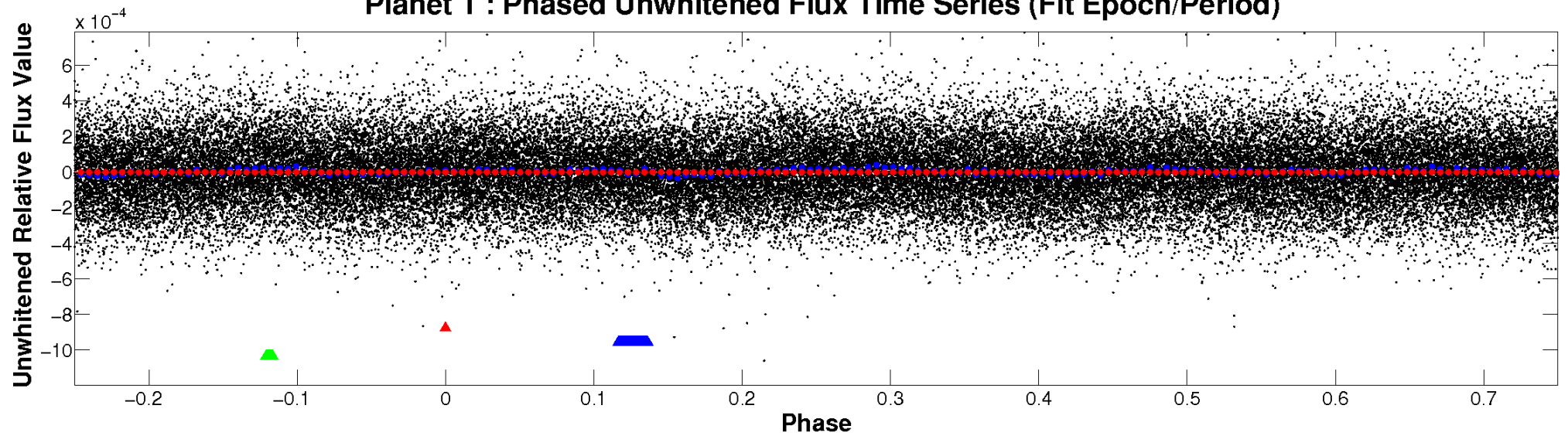
# ALT Odd/Even

TCE 004636464-01

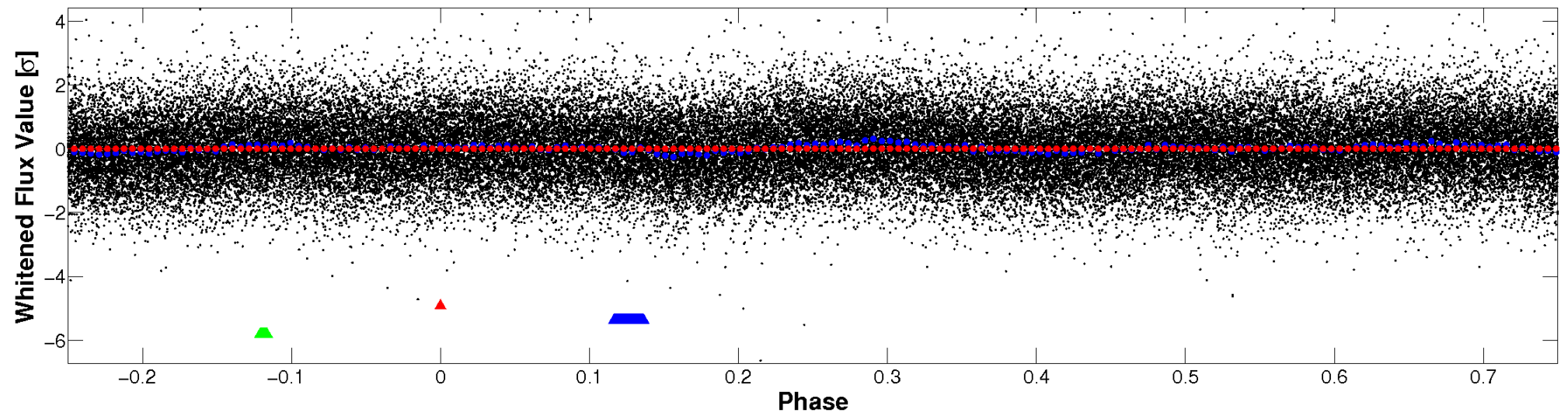


# Non-Whitened Vs. Whitened Light Curve

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

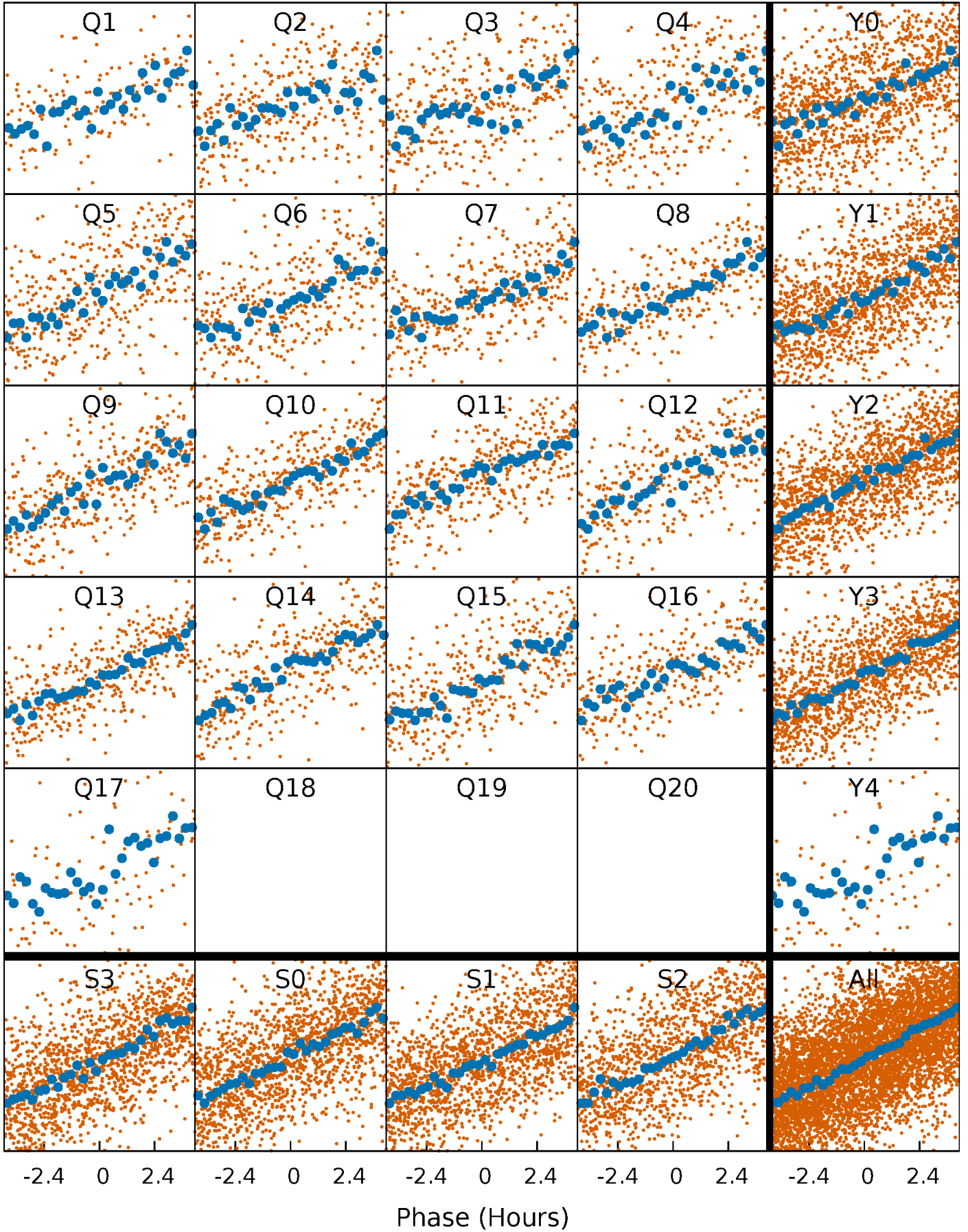


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

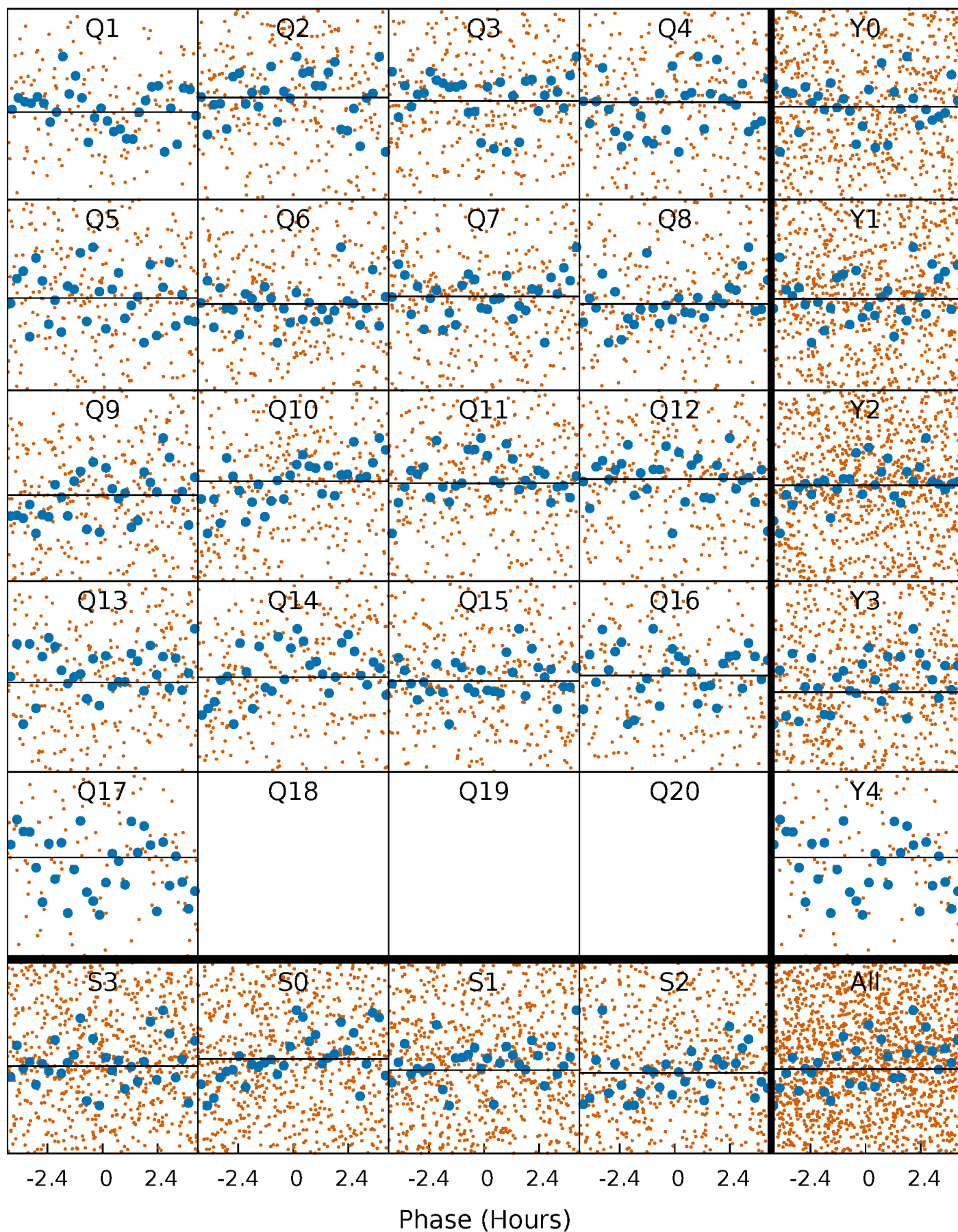
TCE 004636464-01 P= 3.656120 Days  $T_0=132.091570$  (BKJD)





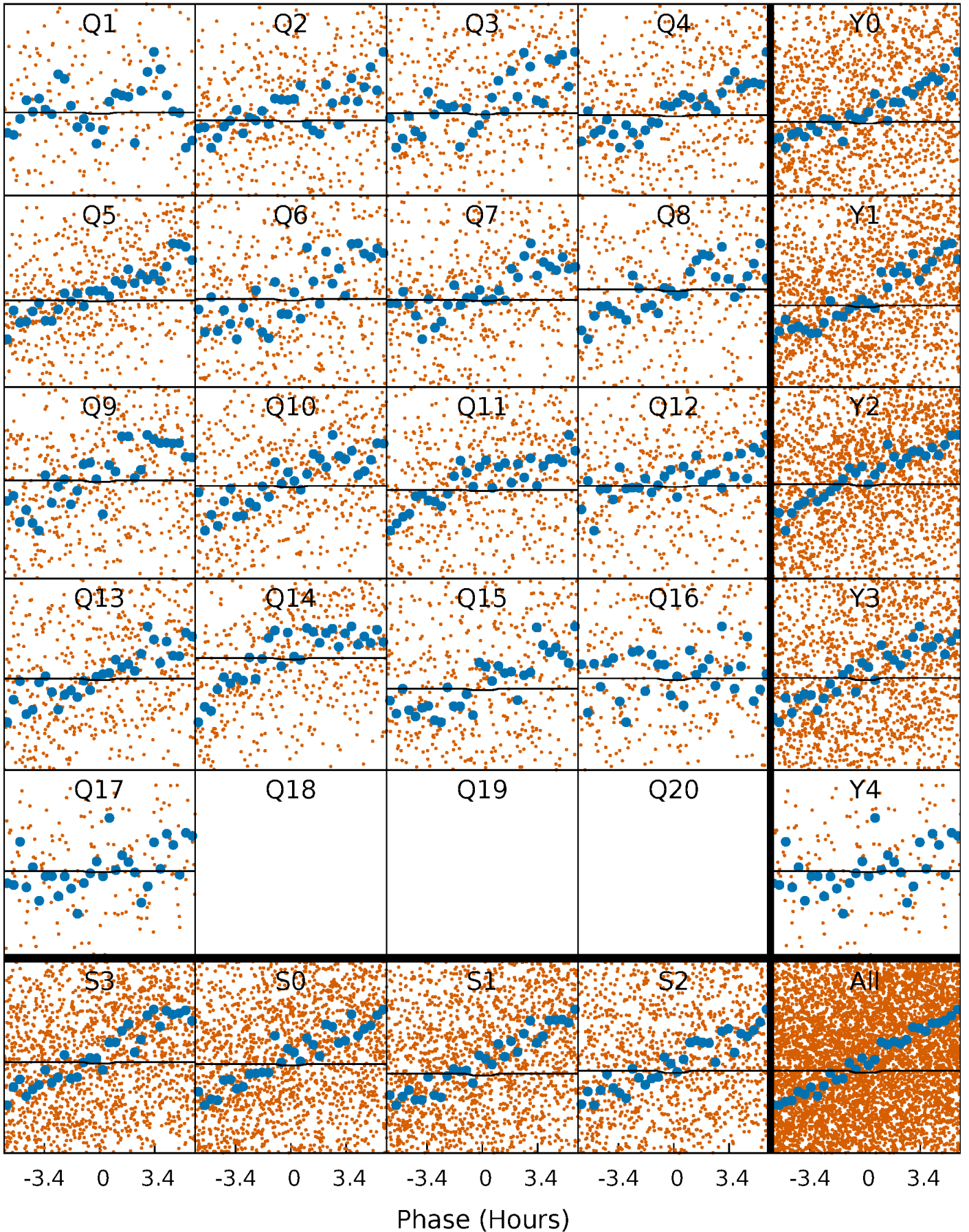
# DV Quarter-Phased Transit Curves

TCE 004636464-01 P= 3.656120 Days  $T_0=132.091570$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

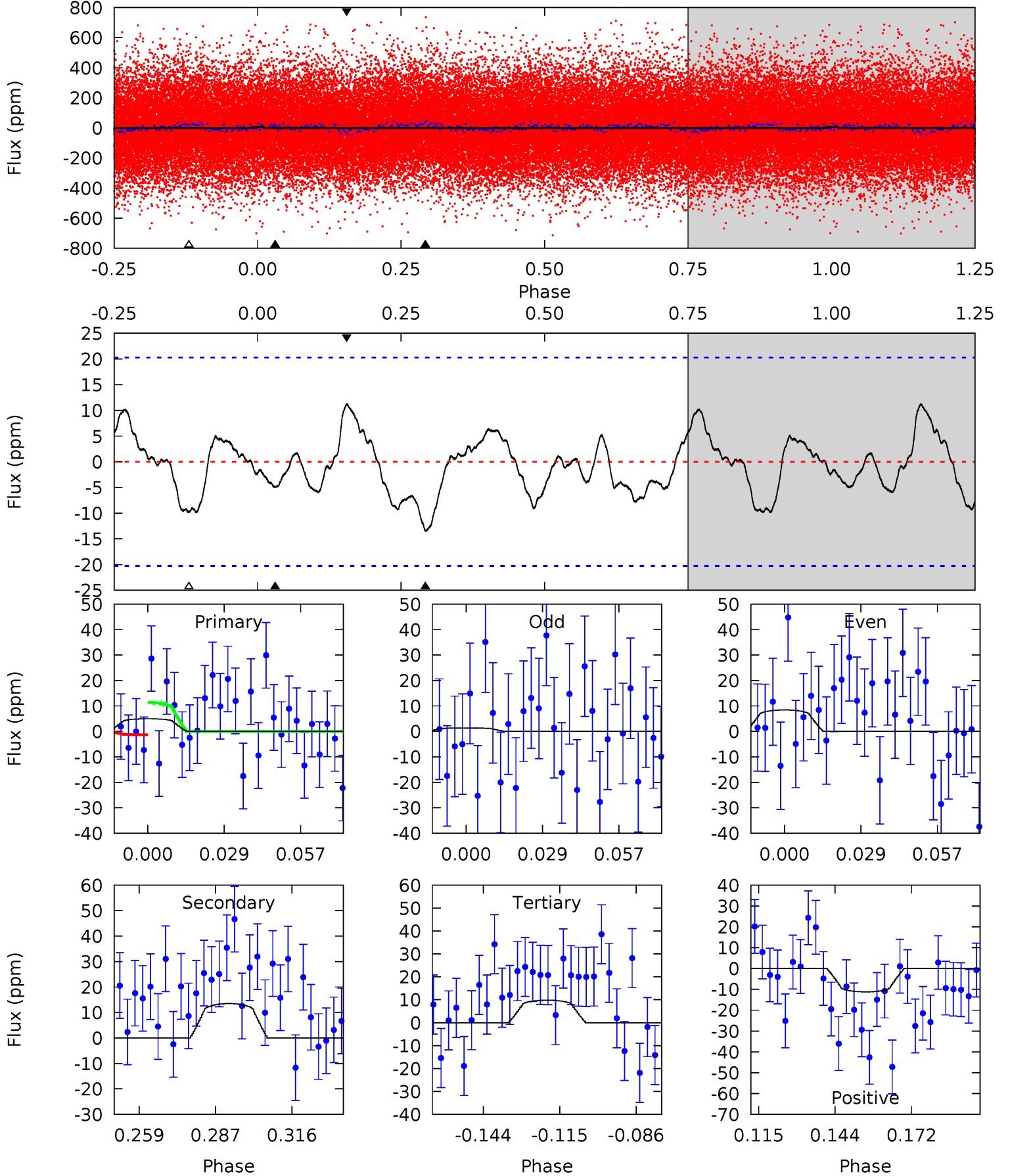
TCE 004636464-01 P= 3.656136 Days  $T_0=132.135649$  (BKJD)



# DV Model-Shift Uniqueness Test

004636464-01, P = 3.656120 Days, E = 128.435450 Days

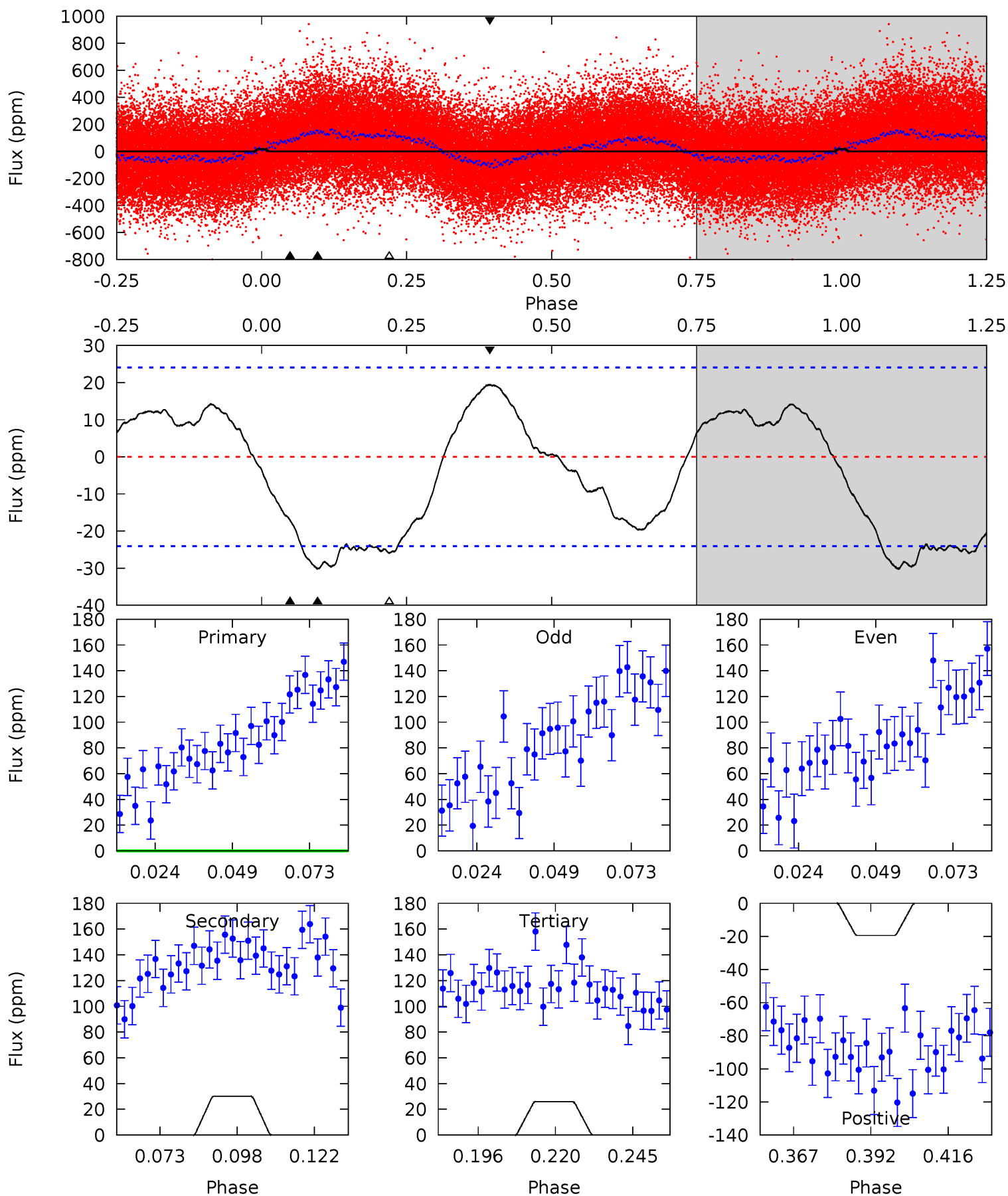
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.18	3.21	2.33	2.67	4.82	2.19	1.17	-1.15	-1.48	0.88	0.54	0.84	0.81	0.45	1.19



# Alt Model-Shift Uniqueness Test

004636464-01, P = 3.656136 Days, E = 128.479513 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
3.44	6.08	5.23	3.91	4.85	2.25	2.83	-1.78	-0.47	0.85	2.16	1.15	1.05	0.39	0.58





### Stellar Parameters For KIC 004636464

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6299^{+150}_{-188}$	$4.363^{+0.090}_{-0.195}$	$-0.220^{+0.250}_{-0.300}$	$1.108^{+0.353}_{-0.151}$	$1.029^{+0.174}_{-0.107}$	$1.064^{+0.429}_{-0.559}$
	+2%/-3%	+2%/-4%	+114%/-136%	+32%/-14%	+17%/-10%	+40%/-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 004636464-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-14 \pm 4$	$8.14^{+9.42}_{-5.98}$	$1926^{+179}_{-154}$	$-2060^{+5371}_{-376}$	$0.230^{+3.178}_{-0.186}$
Alt.	$-30 \pm 5$	$7.54^{+8.38}_{-5.41}$	$1919^{+188}_{-144}$	$2457^{+1449}_{-4745}$	$0.612^{+7.227}_{-0.476}$

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

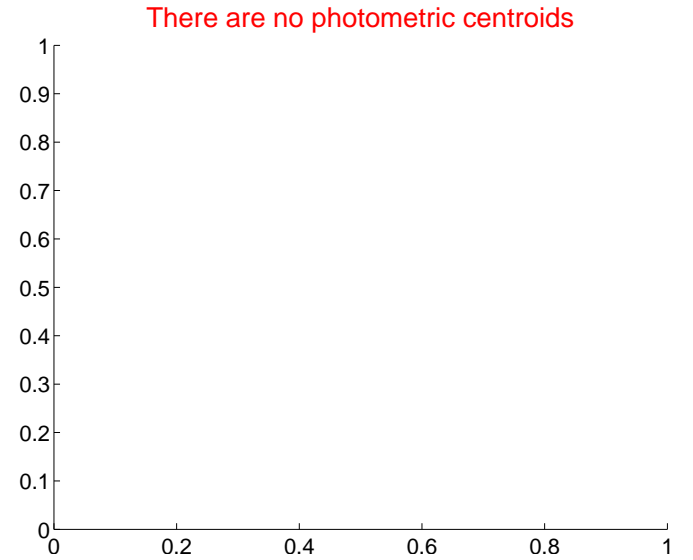
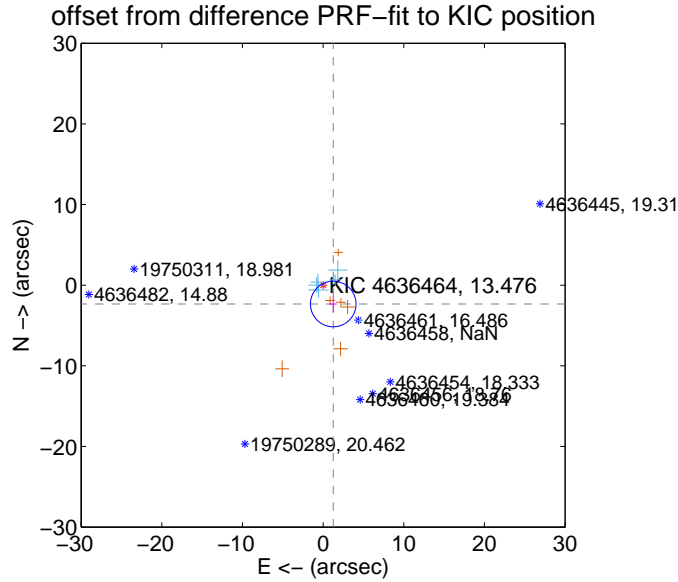
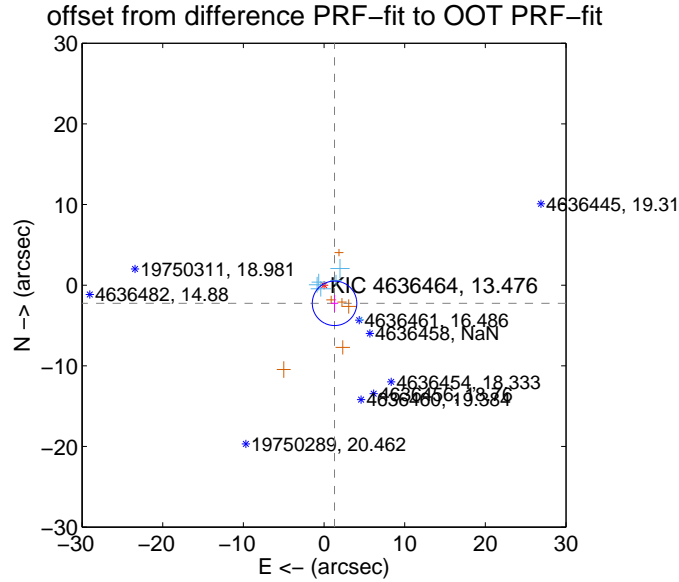
## DV Centroid Data

Supplemental centroid analysis for 004636464-01. Kepler magnitude: 13.48. Transit SNR 0.00

There are 6 quarters with good PRF difference image offsets

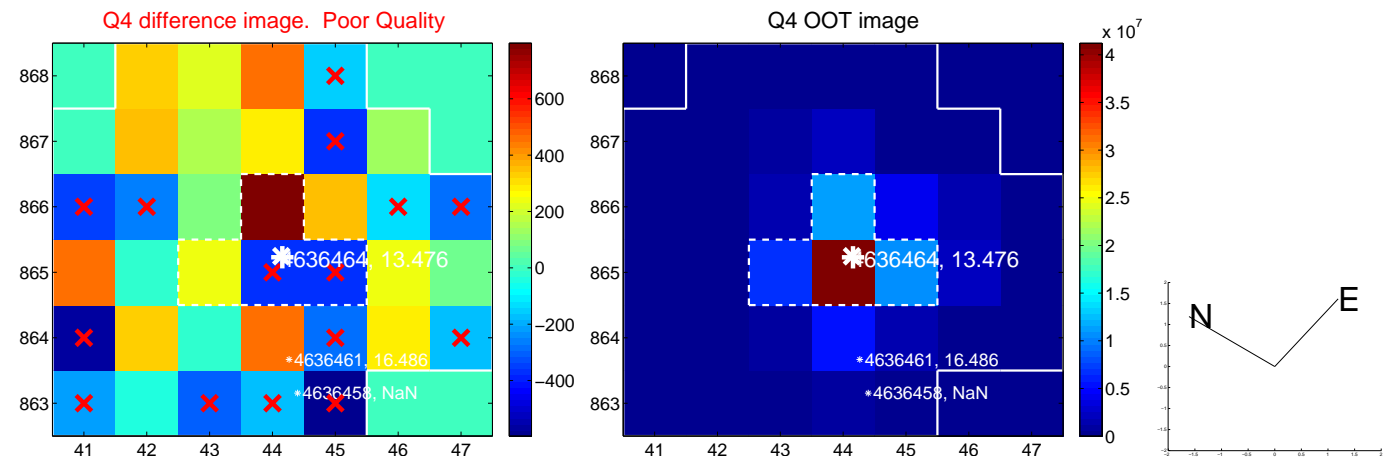
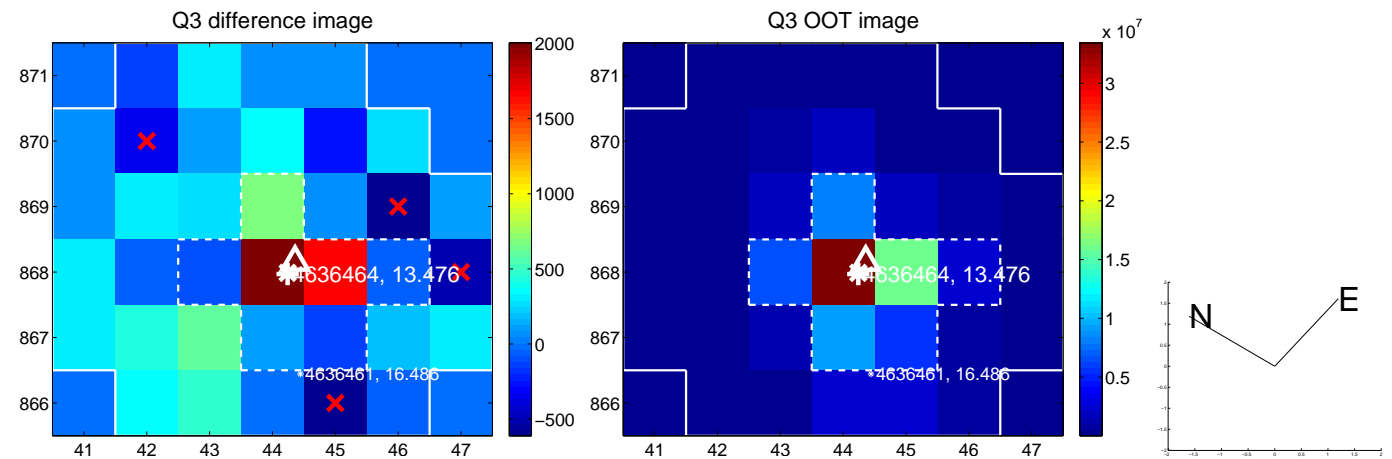
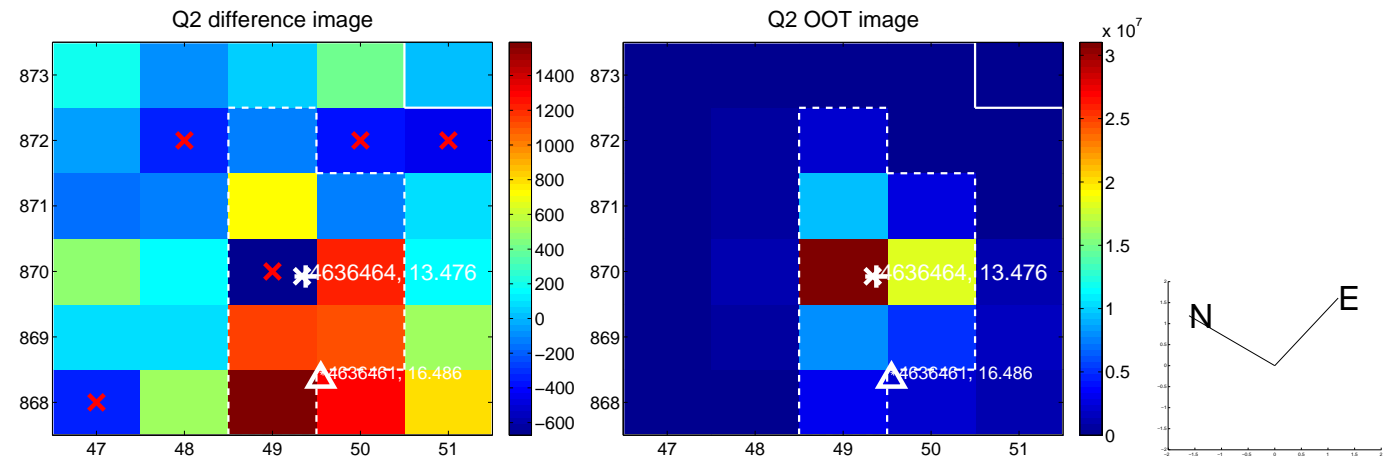
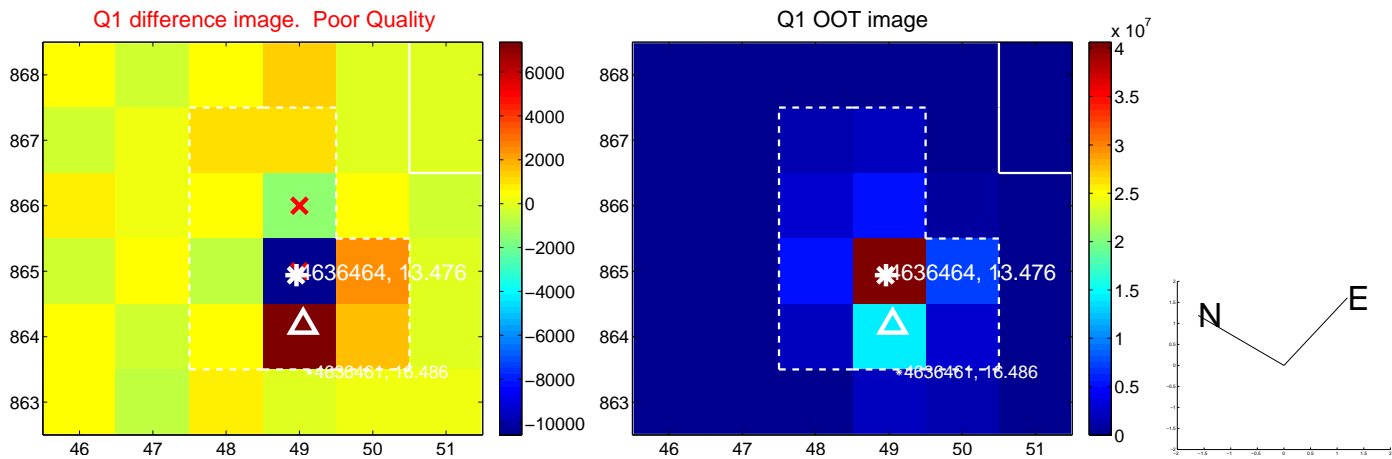
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.600 \pm 0.920$	2.83	$-1.304 \pm 0.444$	$-2.249 \pm 1.031$
PRF-fit source offset from KIC position	$2.652 \pm 0.942$	2.82	$-1.254 \pm 0.446$	$-2.337 \pm 1.042$
photometric centroid source offset	—	—	—	—

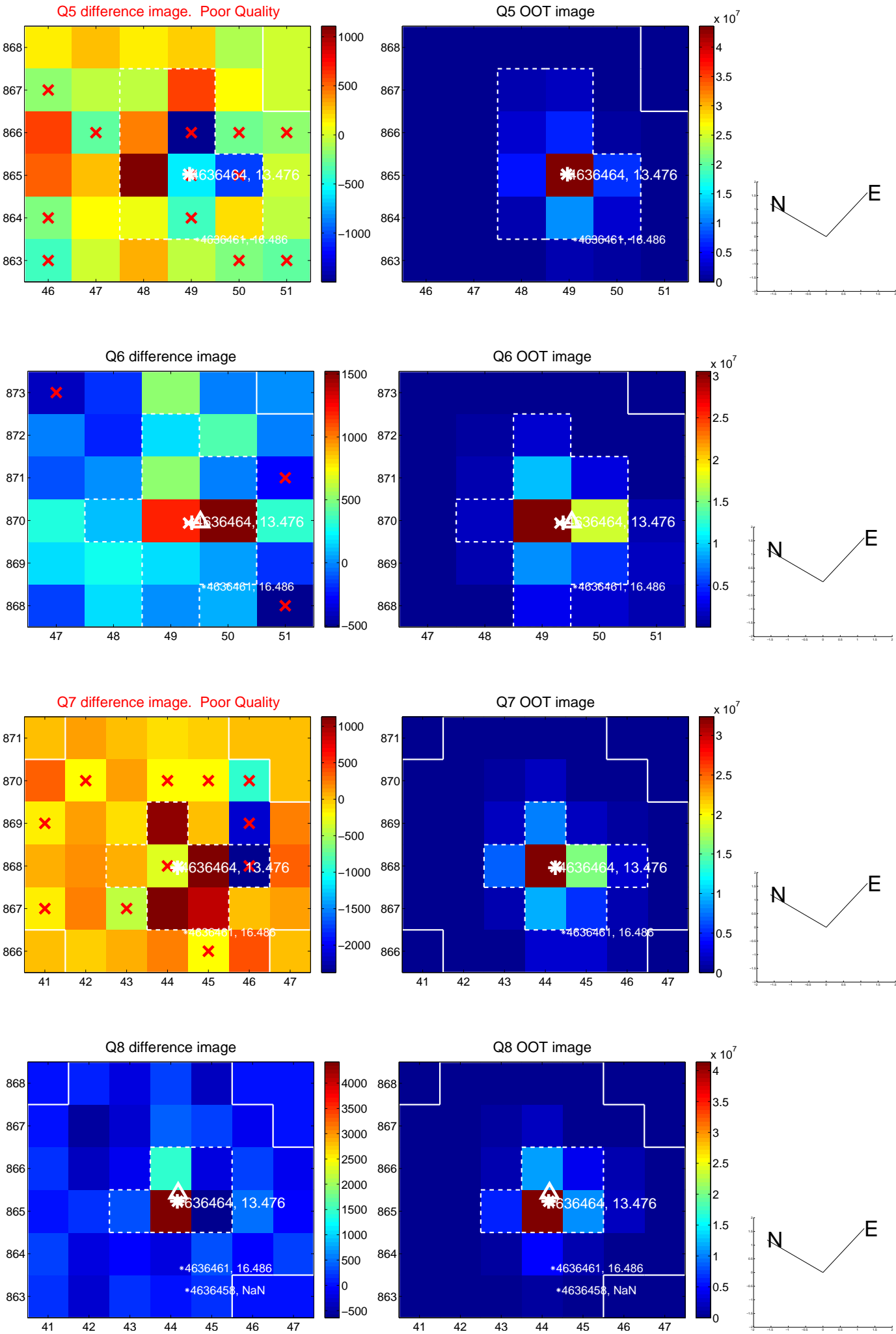


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

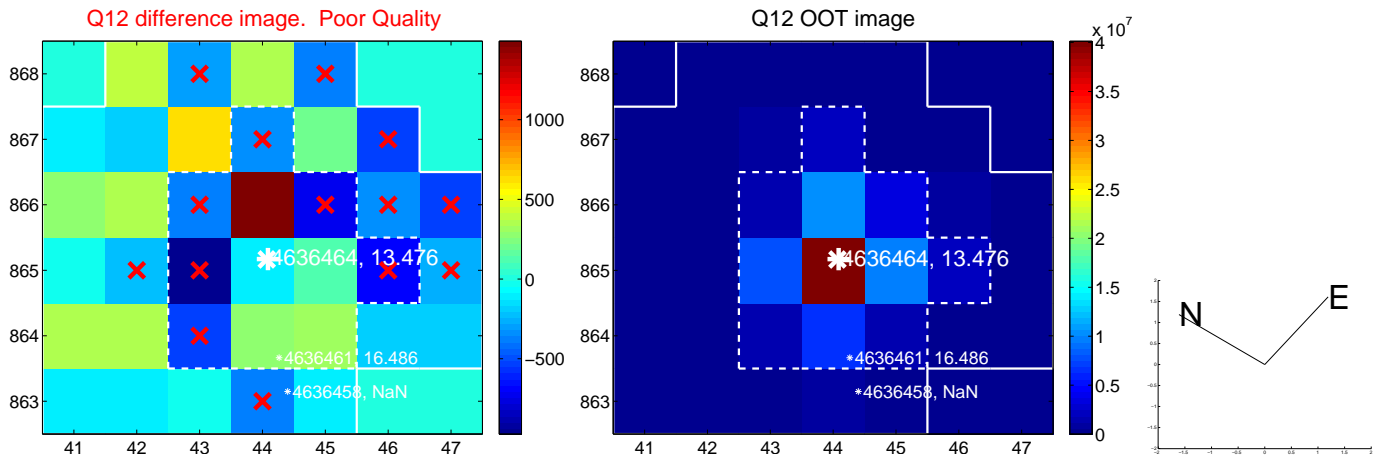
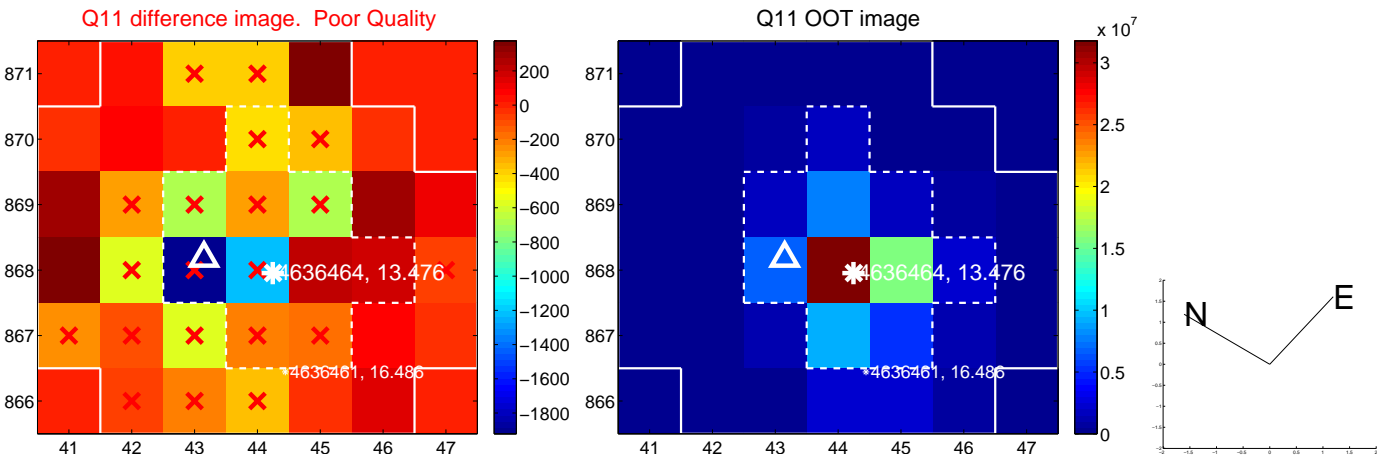
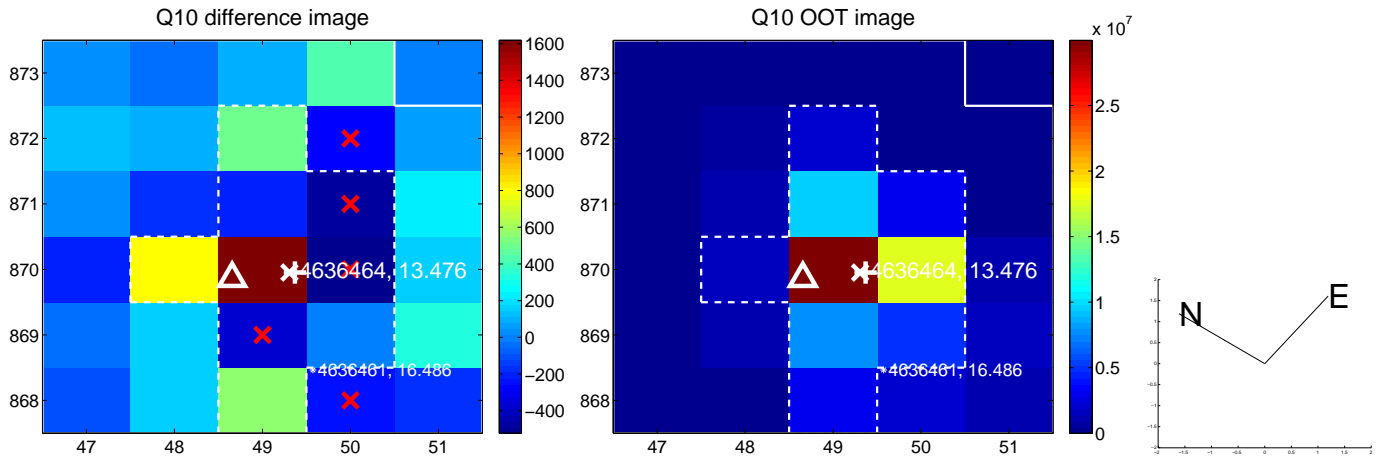
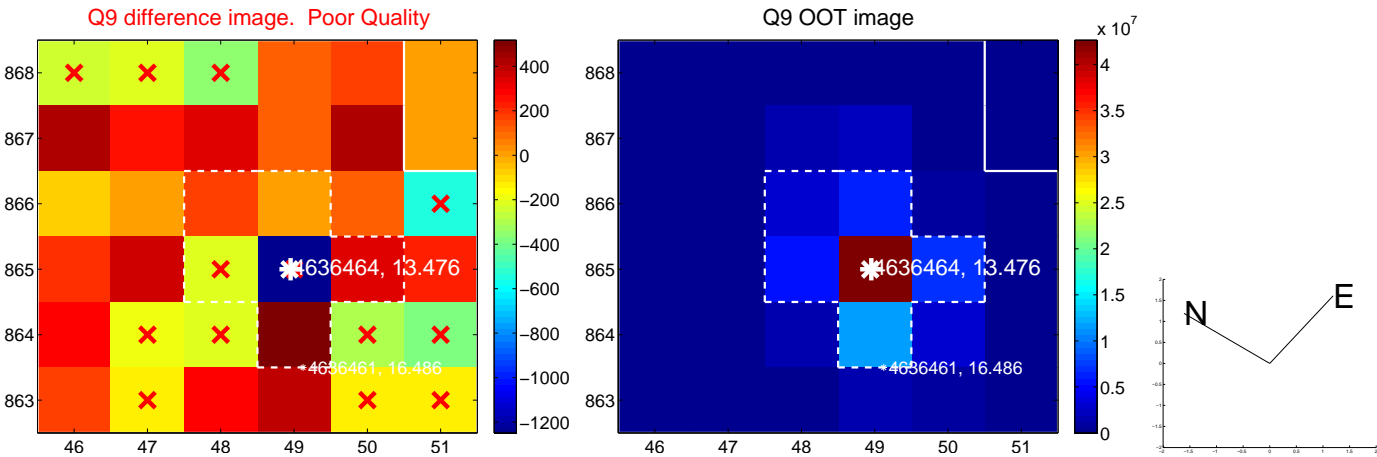


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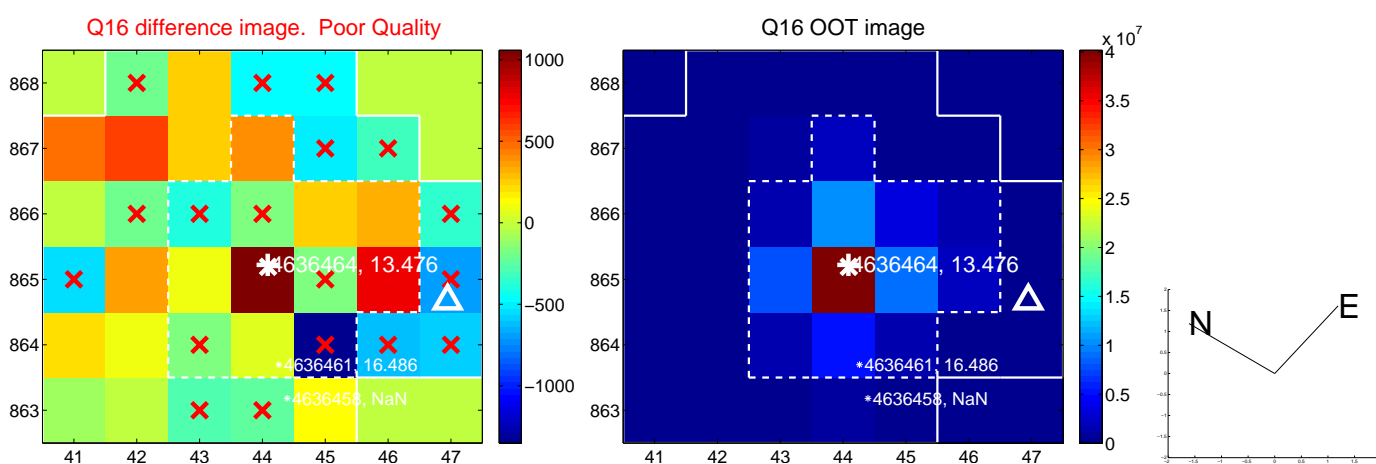
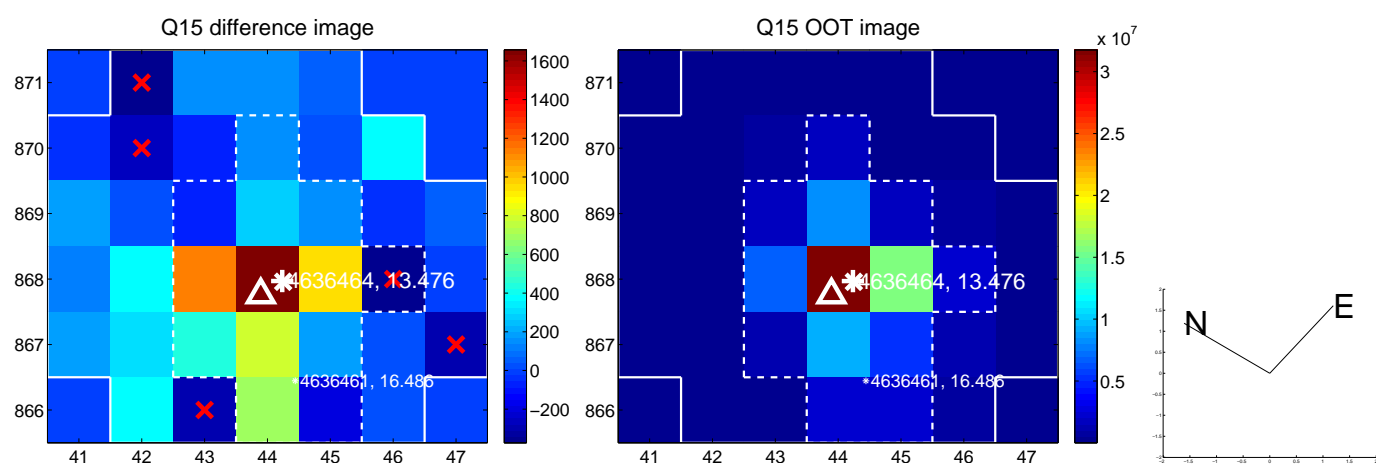
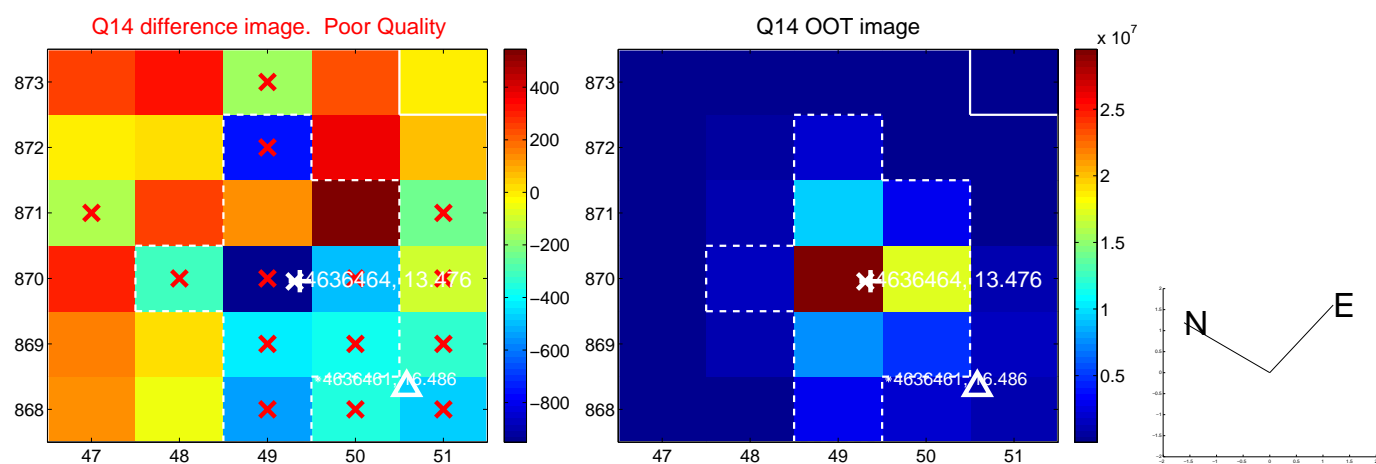
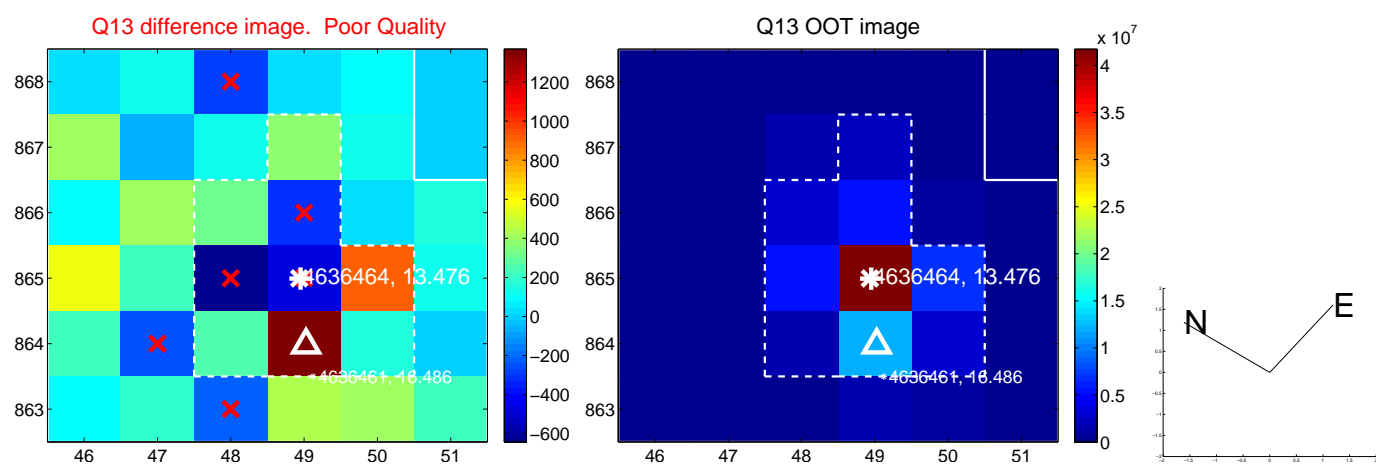




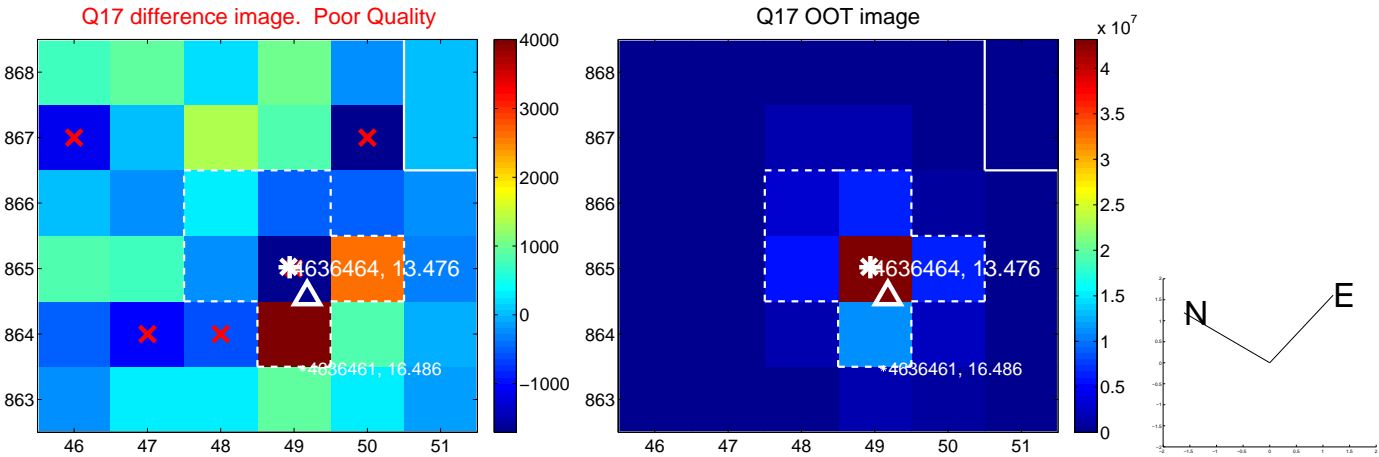
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



folded centroid time series figure for this object.

Declination



# KIC 004636464

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004636464-01	OBS	No	3.656120	132.091570	0.0	2.075	9.9	0.0	1.11	6299	0.01	785.20
004636464-02	OBS	No	3.656301	132.517731	18.2	1.035	10.6	2.1	1.11	6299	0.56	785.15
004636464-03	OBS	No	3.656076	135.322071	0.1	31.229	10.4	0.0	1.11	6299	0.04	785.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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004636464-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
004636464-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD

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

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

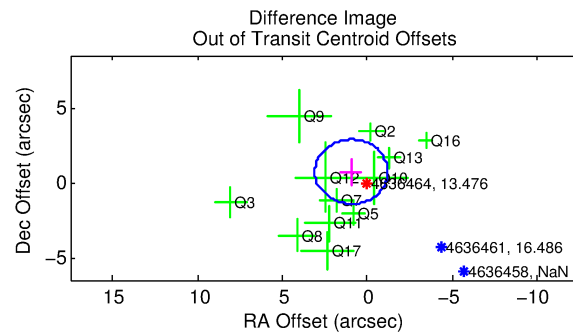
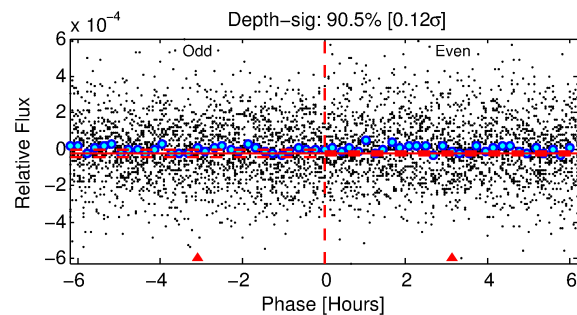
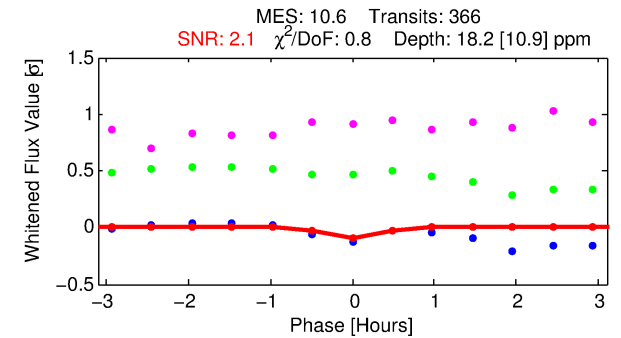
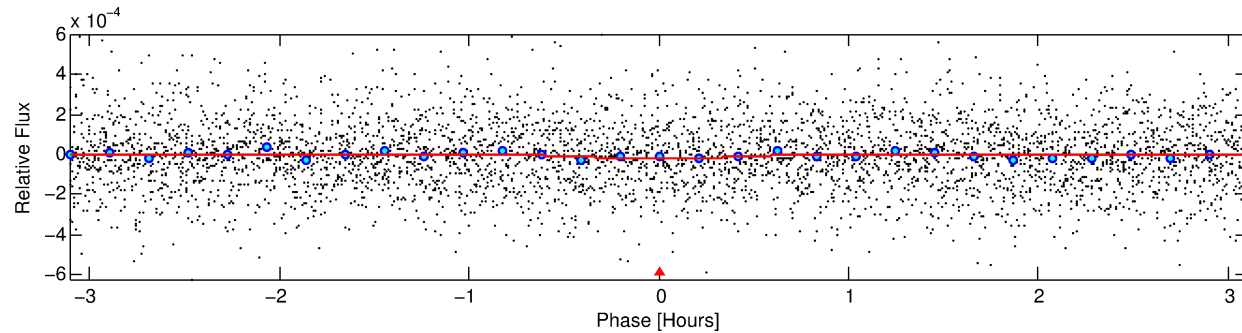
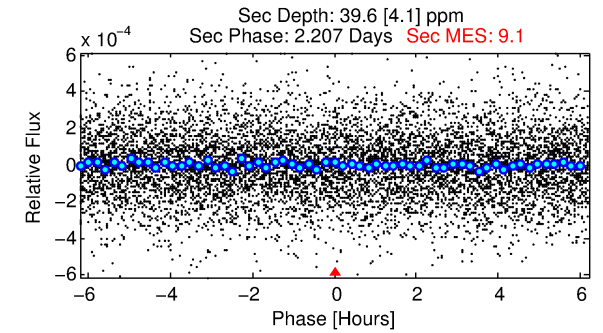
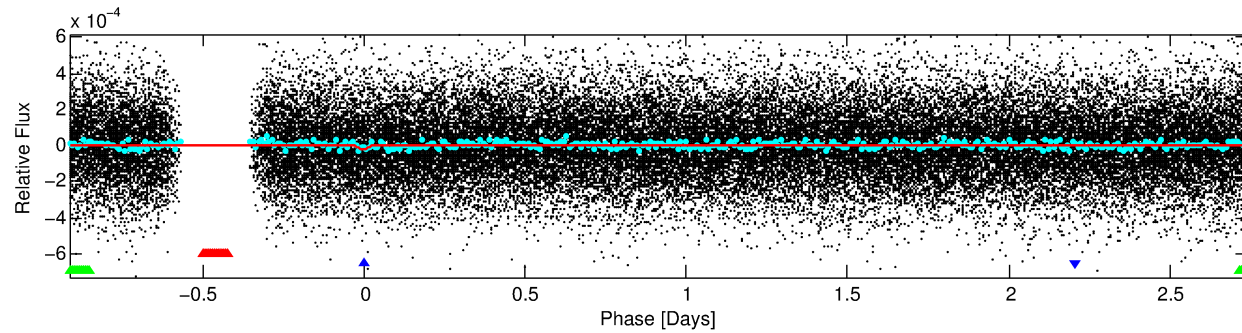
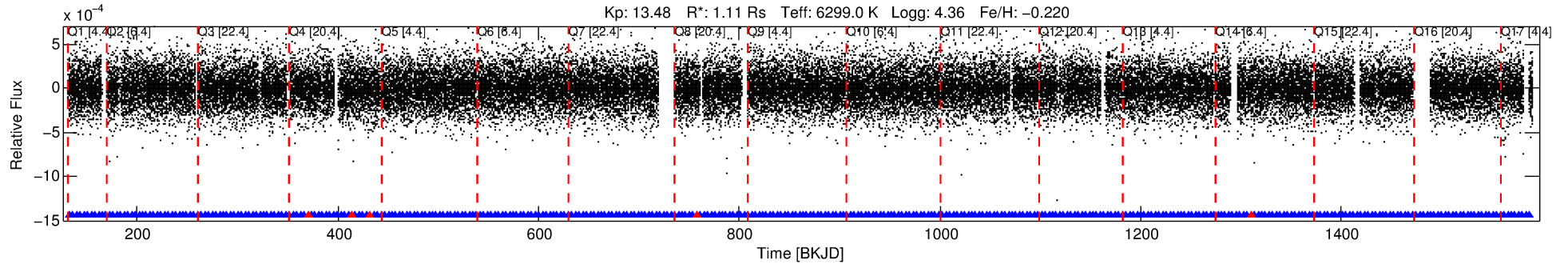
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## Ephemeris Match Information For 004636464-02

No Significant Match Found

# DV One-Page Summary

KIC: 4636464 Candidate: 2 of 3 Period: 3.656 d



## DV Fit Results:

Period = 3.65630 [0.00007] d  
Epoch = 132.5177 [0.0096] BKJD  
Rp/R\* = 0.0046 [0.0040]  
a/R\* = 12.19 [55.72]  
b = 0.90 [1.00]  
Seff = 785.15 [303.04]  
Teq = 1350 [130] K  
Rp = 0.56 [0.51] Re  
a = 0.0470 [0.0122] AU  
Ag = 154.82 [275.10] [0.56σ]  
Teffp = 7361 [3207] K [1.87σ]

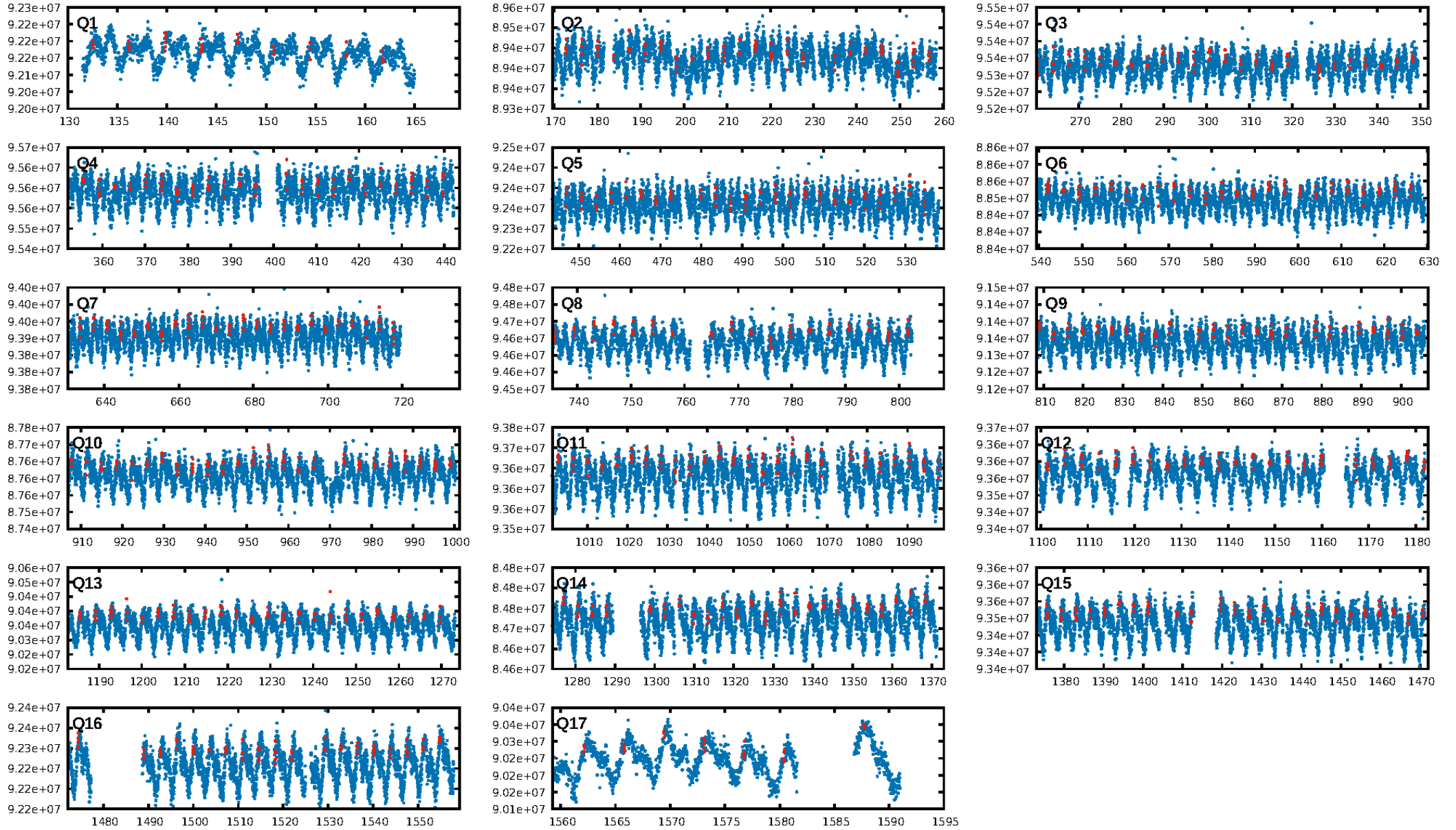
## DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [345/350]  
GhostDiagnostic-chr: 1.158  
Centroid-sig: 1.0%  
Centroid-so: 9.252 arcsec [2.17σ]  
OotOffset-rm: 1.186 arcsec [1.66σ]  
OotOffset-st: 2/3/3/4 [12]  
KicOffset-rm: 1.170 arcsec [1.55σ]  
KicOffset-st: 2/3/3/4 [12]  
DiffImageQuality-fgm: 0.00 [0/12]  
DiffImageOverlap-fno: 0.82 [14/17]

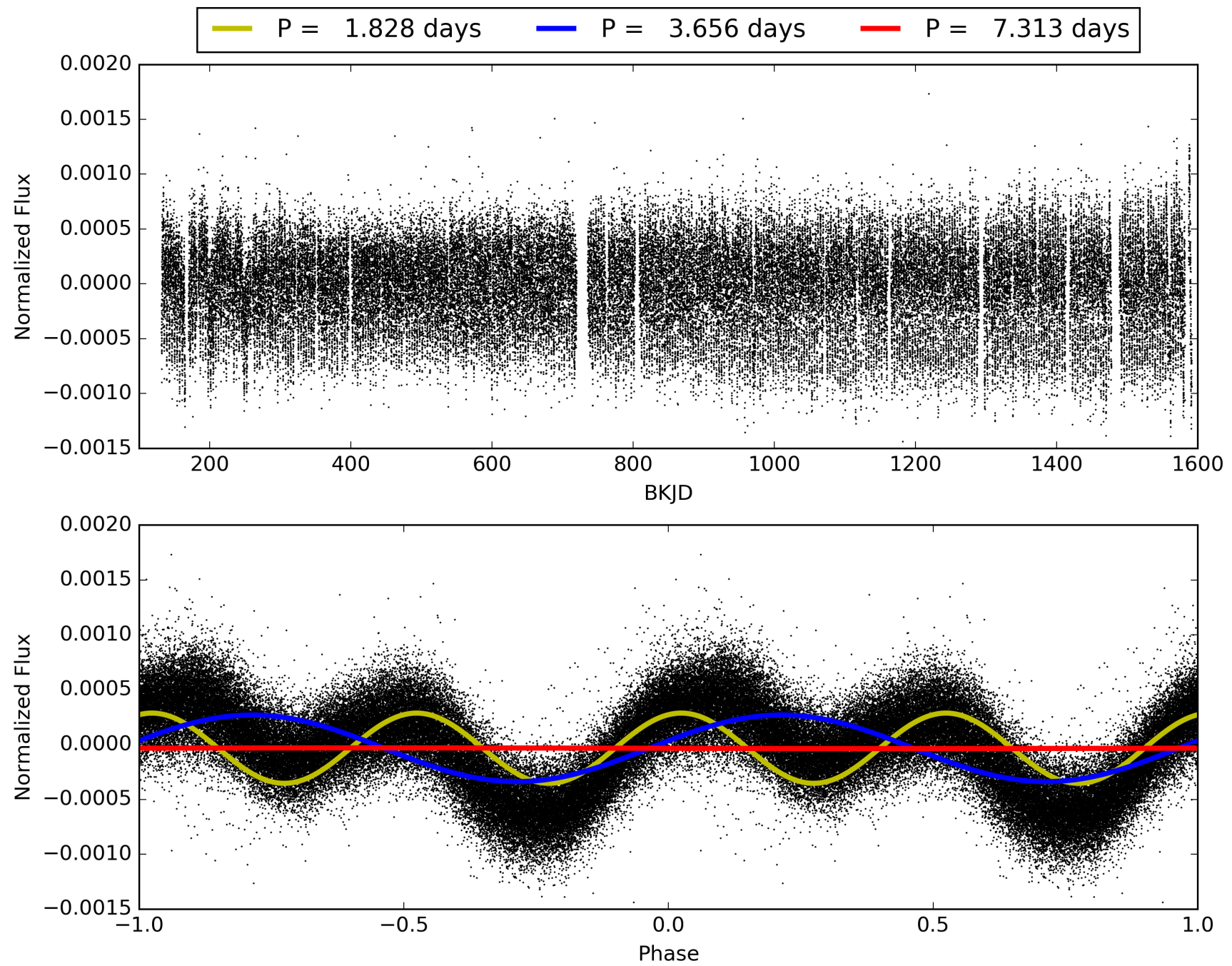
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:29:41 Z

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

# TCE 004636464-02, PDC Light Curves

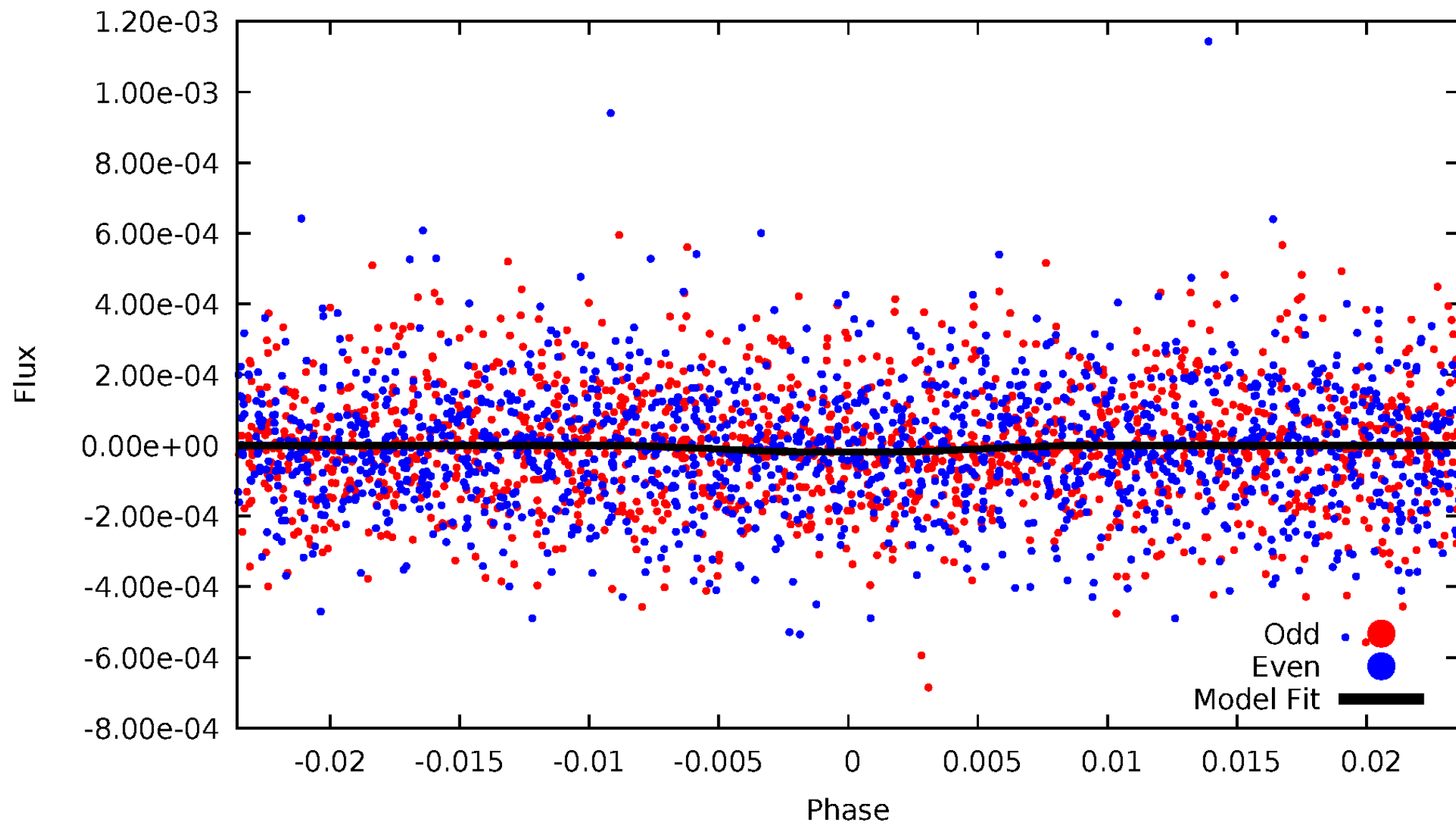


TCE 004636464-02



# DV Odd/Even

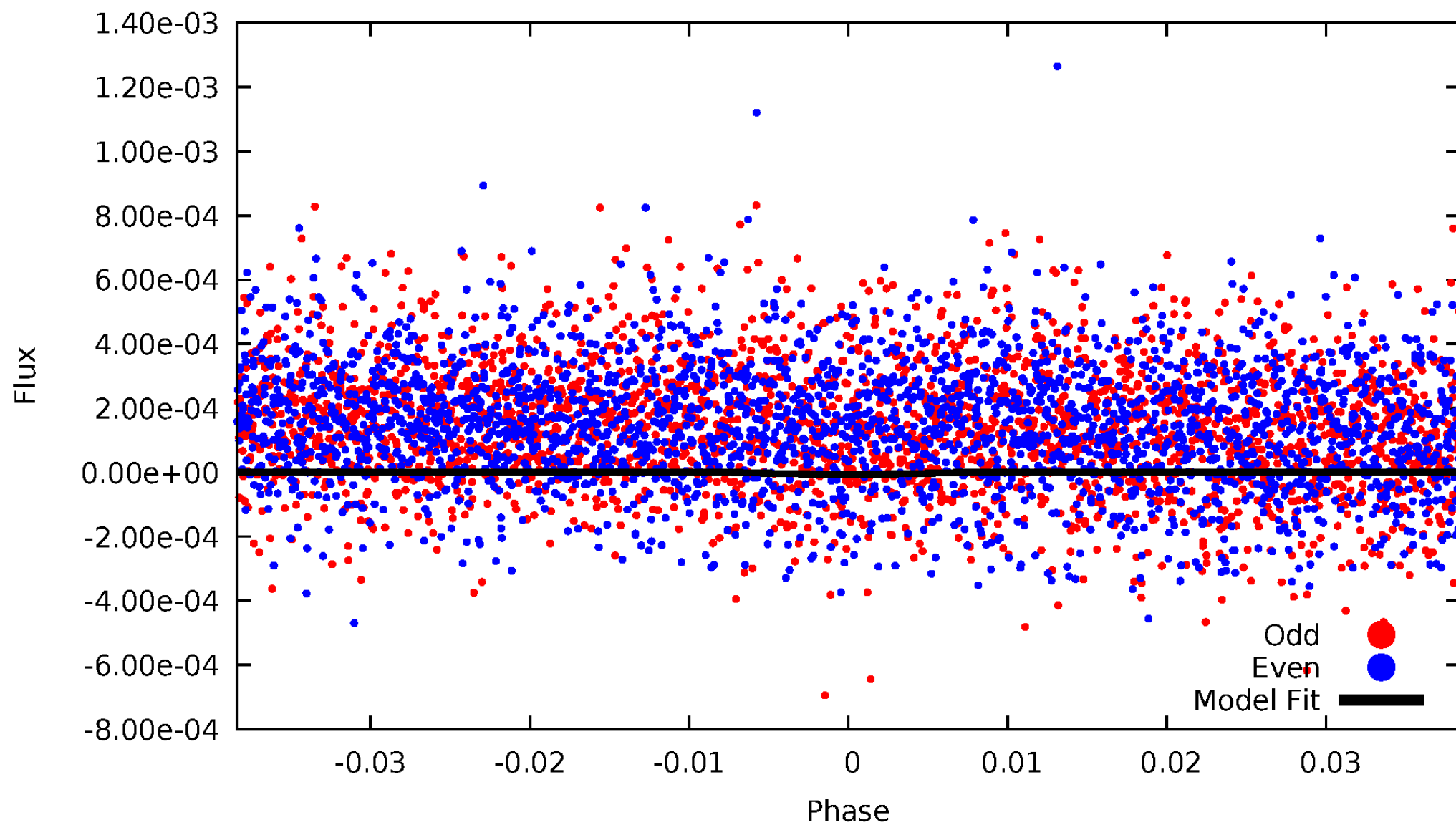
TCE 004636464-02





# ALT Odd/Even

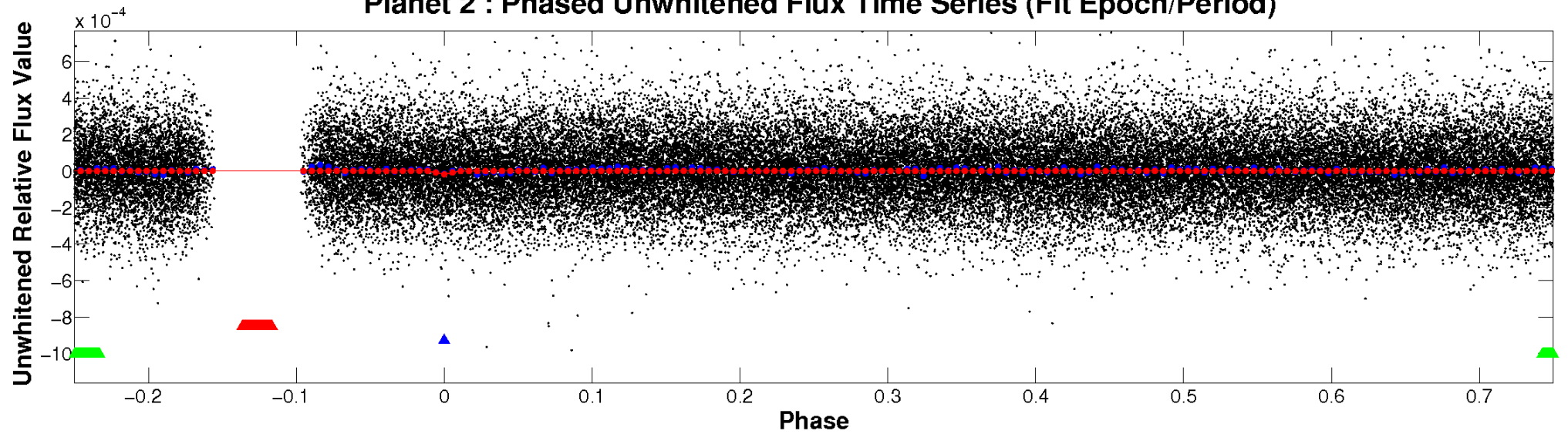
TCE 004636464-02



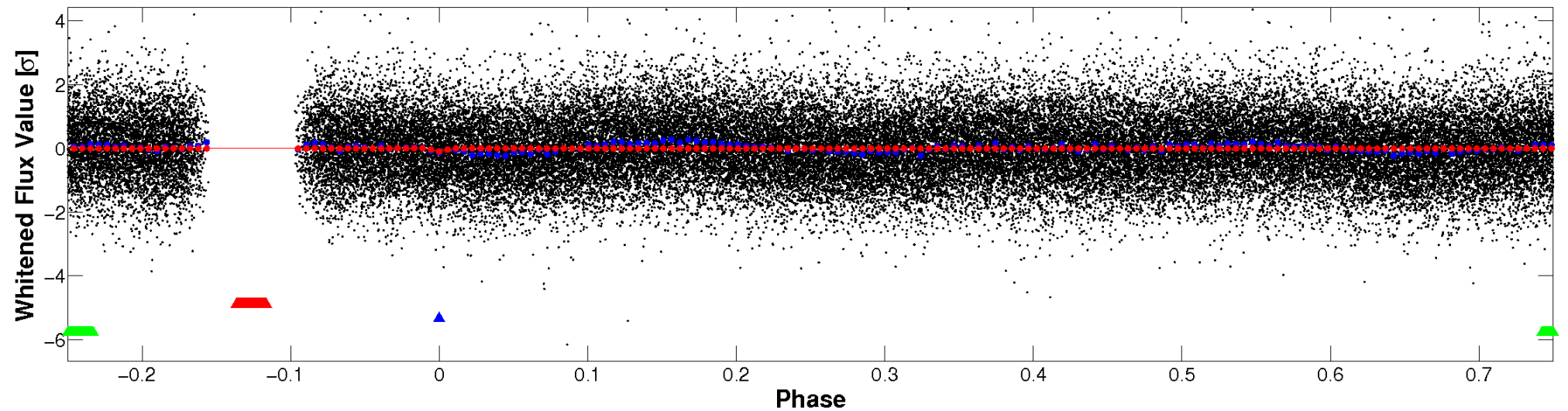


# Non-Whitened Vs. Whitened Light Curve

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

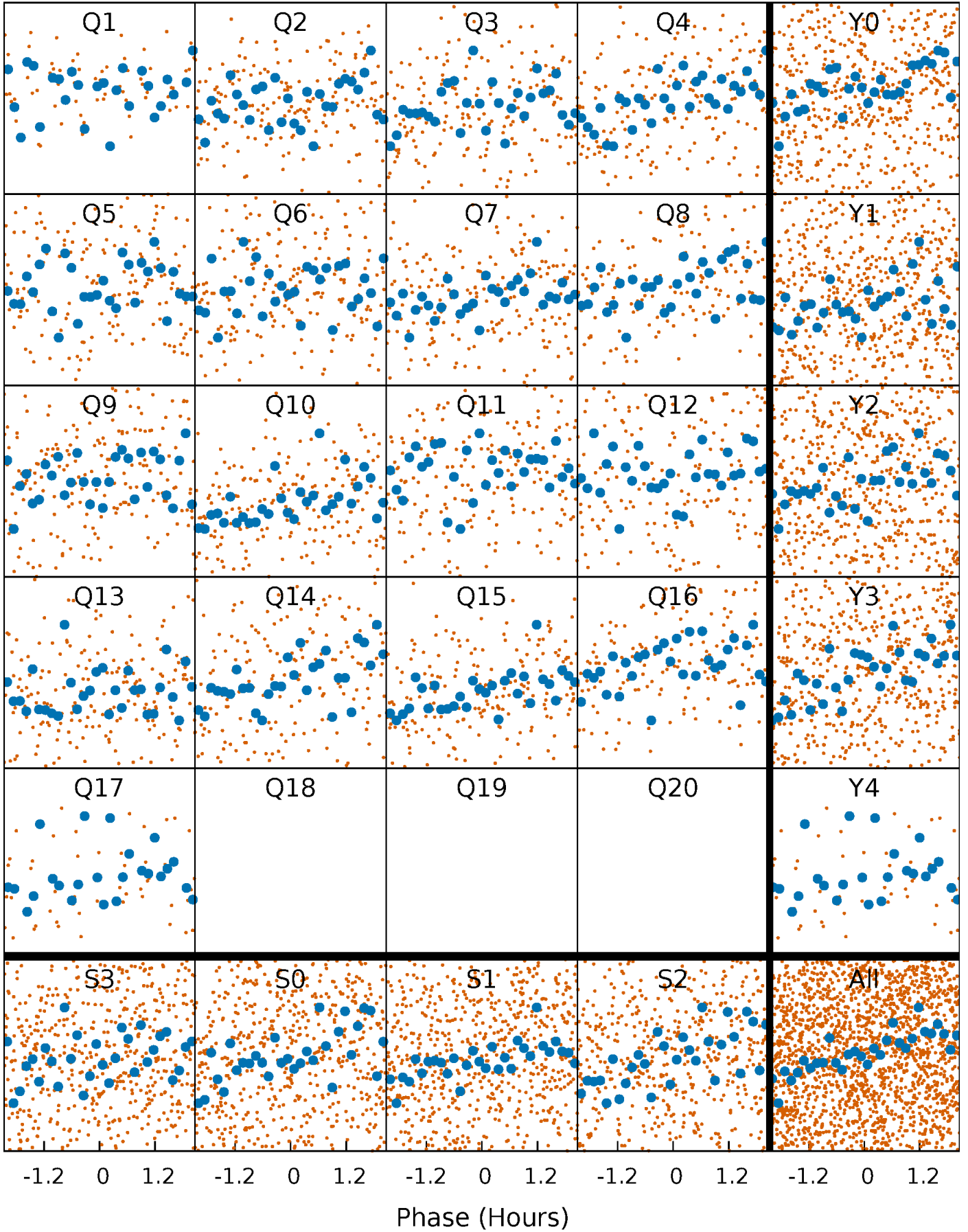


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



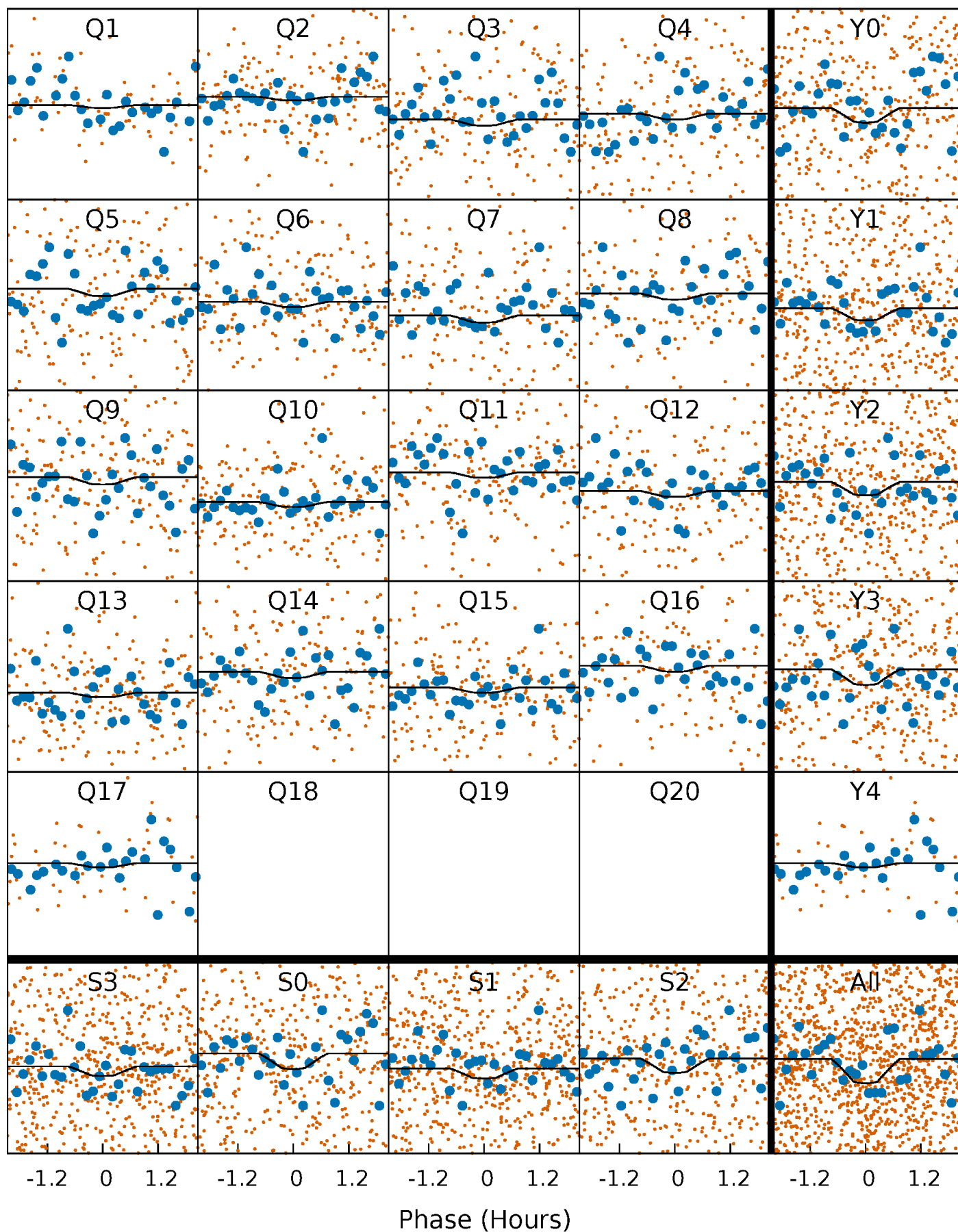
# PDC Quarter-Phased Transit Curves

TCE 004636464-02   P= 3.656301 Days    $T_0=132.517731$  (BKJD)



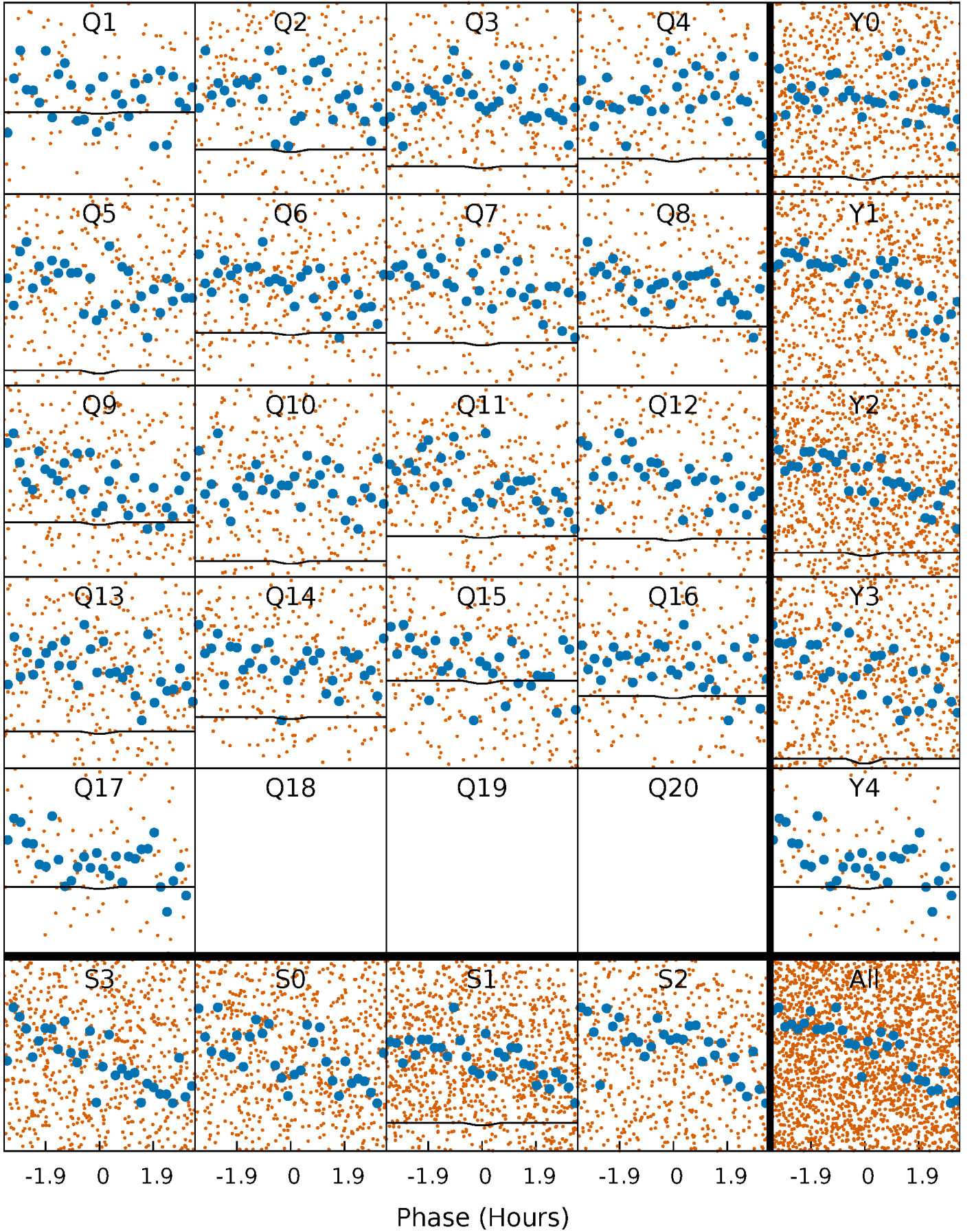
# DV Quarter-Phased Transit Curves

TCE 004636464-02   P= 3.656301 Days    $T_0=132.517731$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 004636464-02     $P = 3.656200$  Days     $T_0 = 132.535894$  (BKJD)

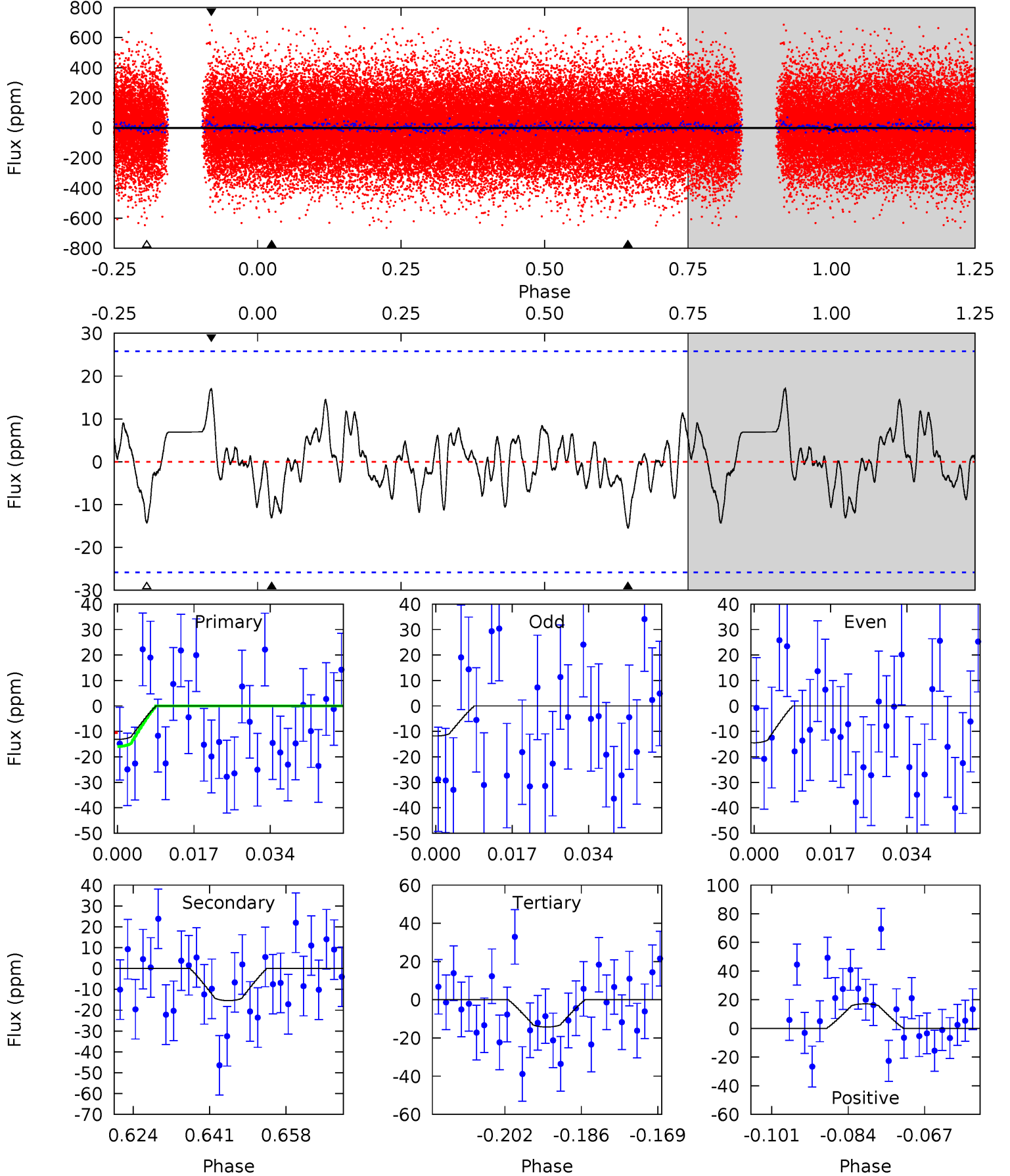




# DV Model-Shift Uniqueness Test

004636464-02, P = 3.656301 Days, E = 128.861430 Days

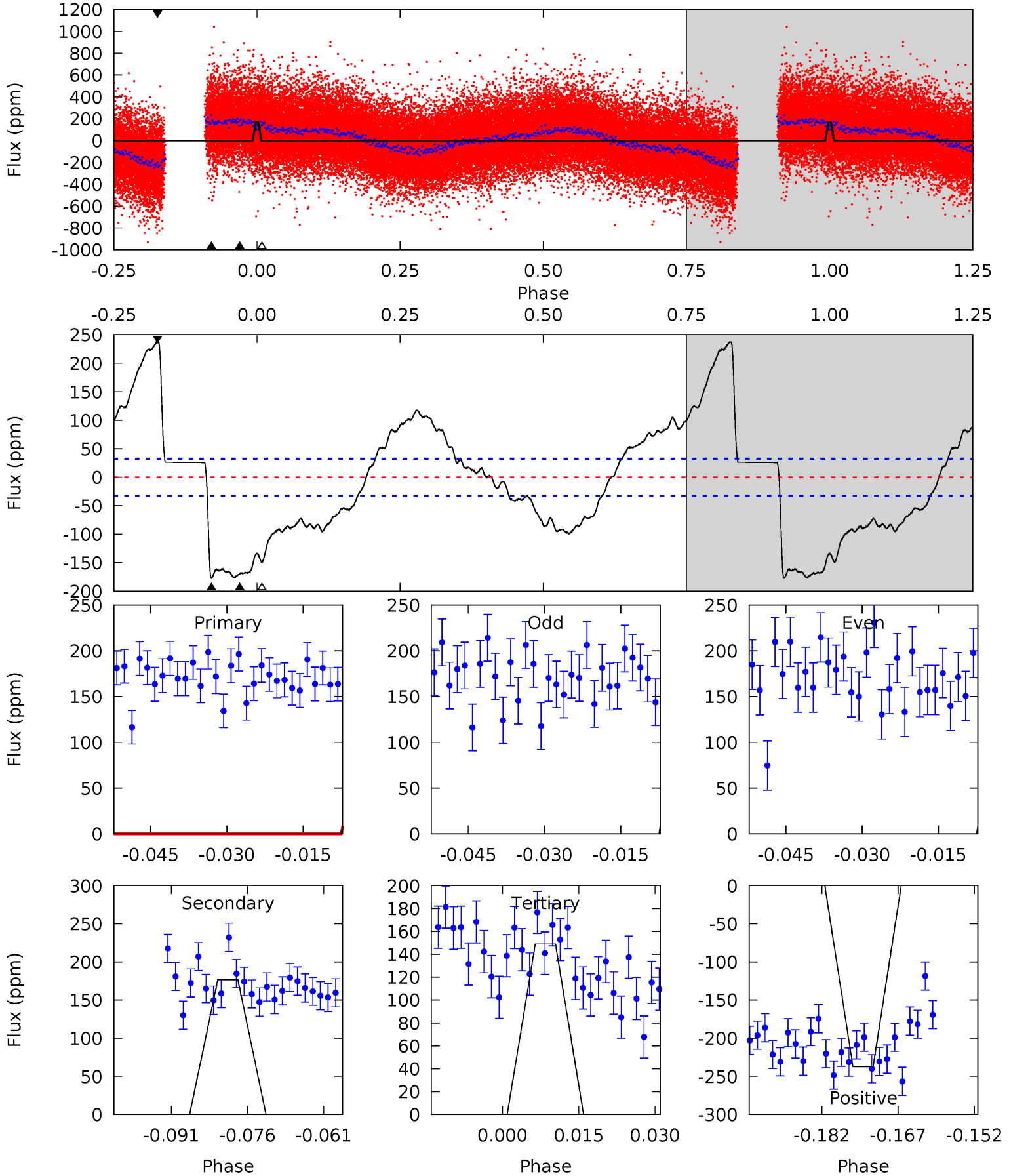
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.51	2.94	2.72	3.27	4.93	2.39	1.02	-0.22	-0.76	0.22	-0.33	0.25	0.87	0.53	0.52



# Alt Model-Shift Uniqueness Test

004636464-02, P = 3.656200 Days, E = 128.879694 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
25.8	26.8	22.7	36.1	4.95	2.43	14.1	3.11	-10.3	4.18	-9.26	0.89	1.00	0.57	1.86





### Stellar Parameters For KIC 004636464

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6299^{+150}_{-188}$	$4.363^{+0.090}_{-0.195}$	$-0.220^{+0.250}_{-0.300}$	$1.108^{+0.353}_{-0.151}$	$1.029^{+0.174}_{-0.107}$	$1.064^{+0.429}_{-0.559}$
	+2%/-3%	+2%/-4%	+114%/-136%	+32%/-14%	+17%/-10%	+40%/-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 004636464-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-15 \pm 5$	$0.67^{+0.50}_{-0.42}$	$1913^{+140}_{-107}$	$5373^{+3976}_{-1140}$	$40^{+248}_{-27}$
Alt.	$-176 \pm 7$	$0.51^{+0.44}_{-0.34}$	$1911^{+123}_{-98}$	$14428^{+44317}_{-5738}$	$829^{+6528}_{-602}$

$T_{\text{max}}$  = 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

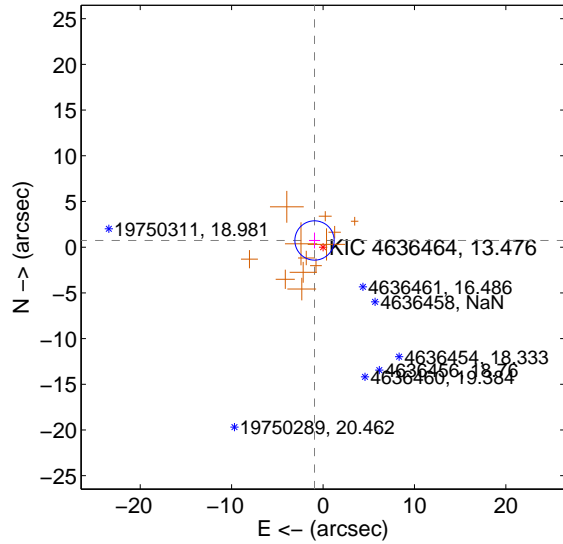
Supplemental centroid analysis for 004636464-02. Kepler magnitude: 13.48. Transit SNR 2.09

There are 0 quarters with good PRF difference image offsets

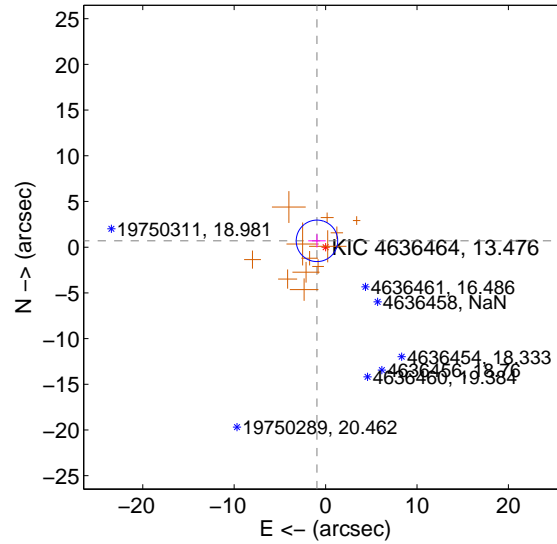
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.186 \pm 0.717$	1.66	$0.932 \pm 0.607$	$0.734 \pm 0.865$
PRF-fit source offset from KIC position	$1.170 \pm 0.757$	1.55	$0.942 \pm 0.962$	$0.693 \pm 0.723$
photometric centroid source offset	$9.25 \pm 4.27$	2.17	$9.23 \pm 4.27$	$-0.64 \pm 4.50$

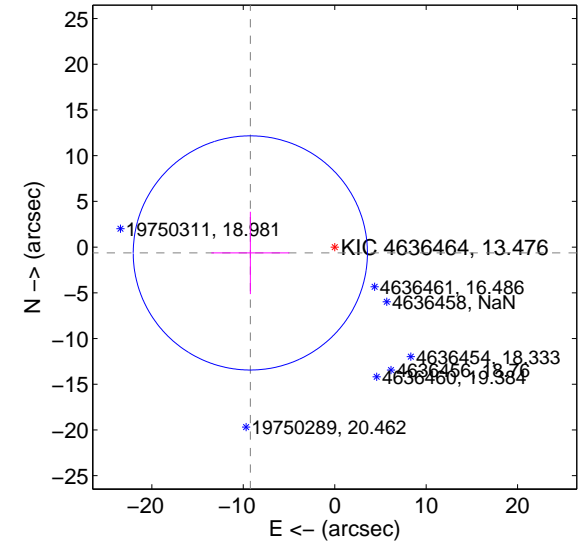
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

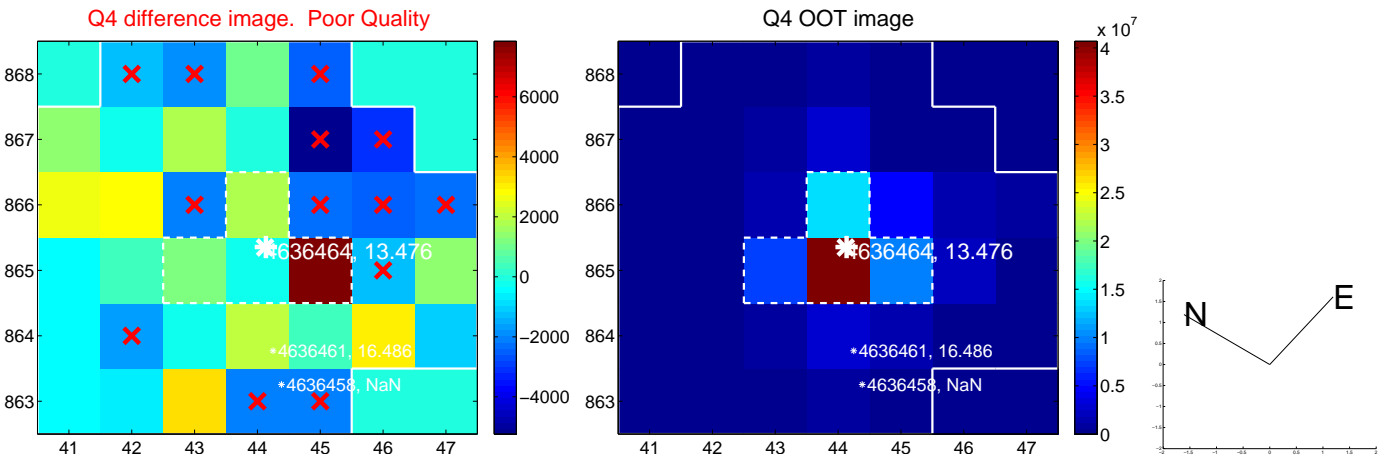
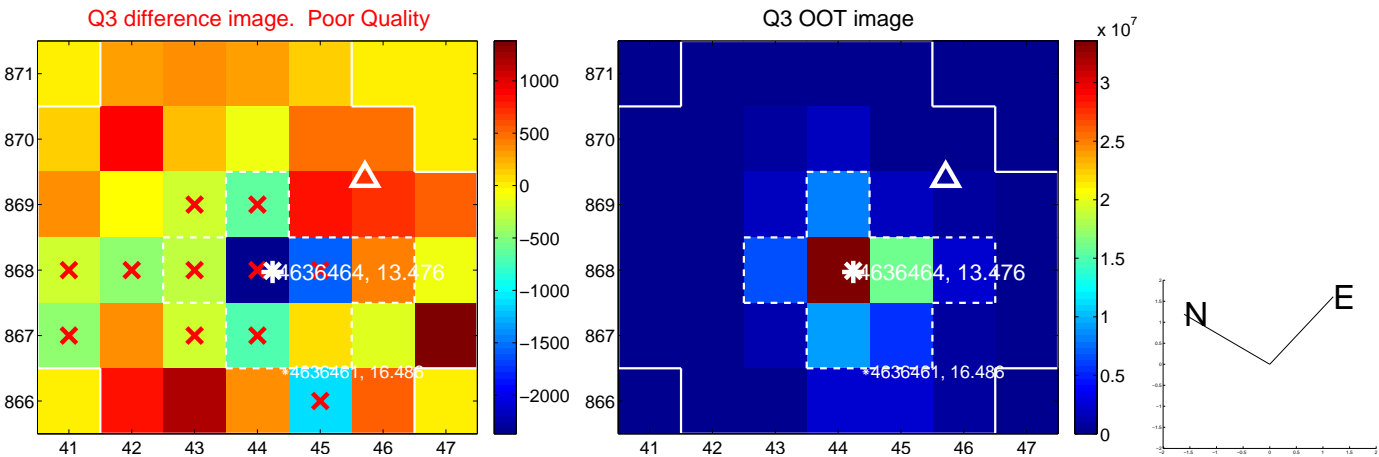
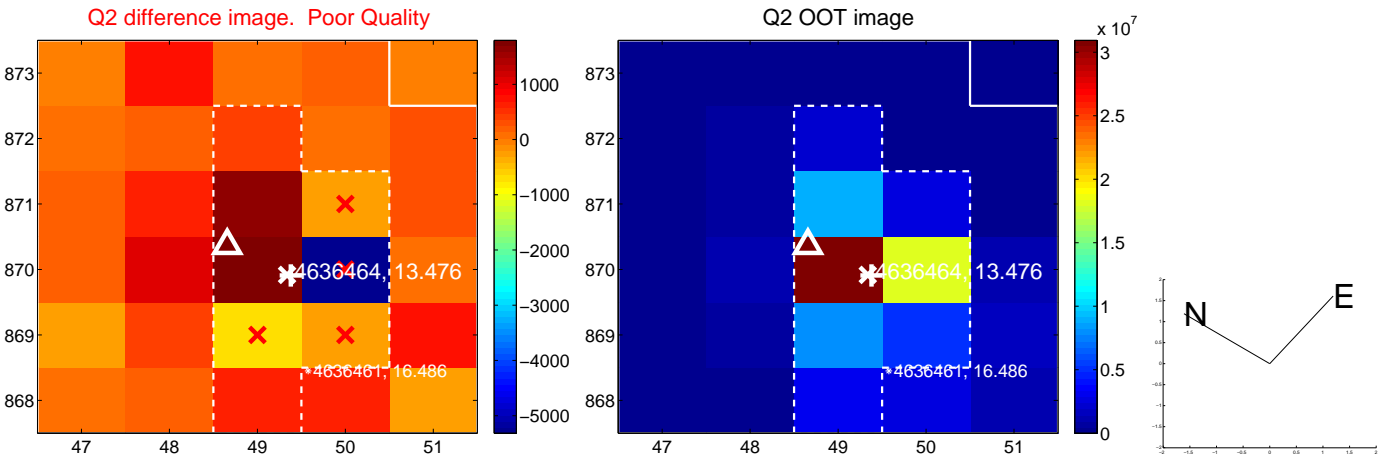
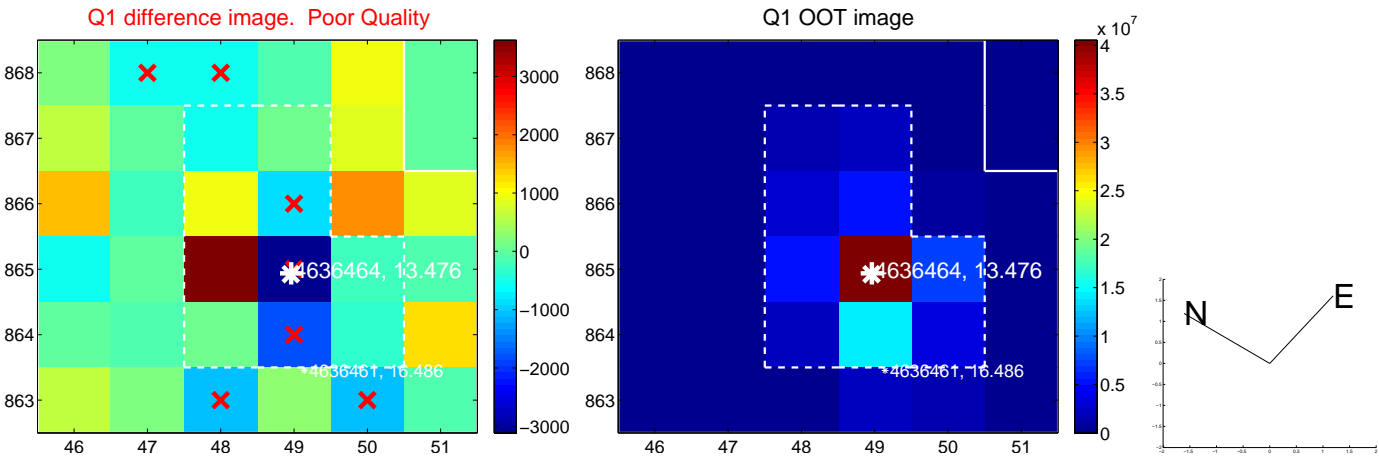


offset from photometric centroids



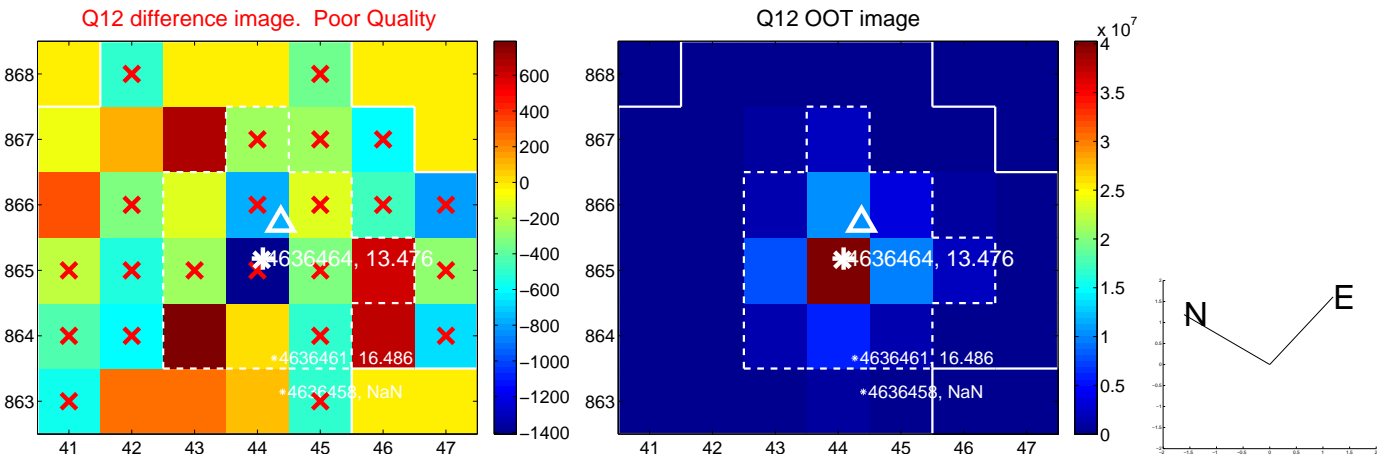
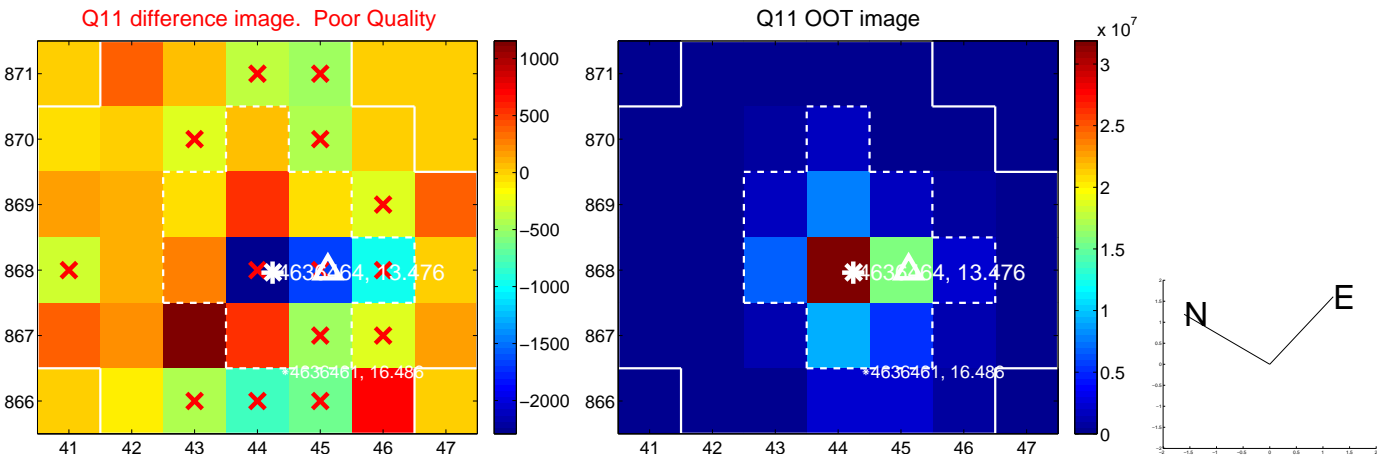
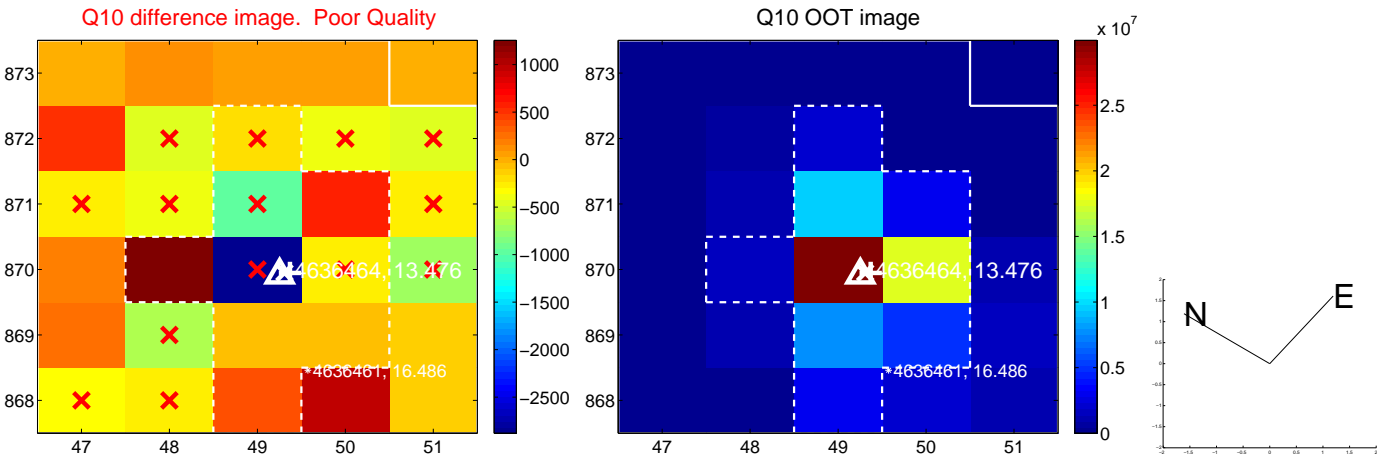
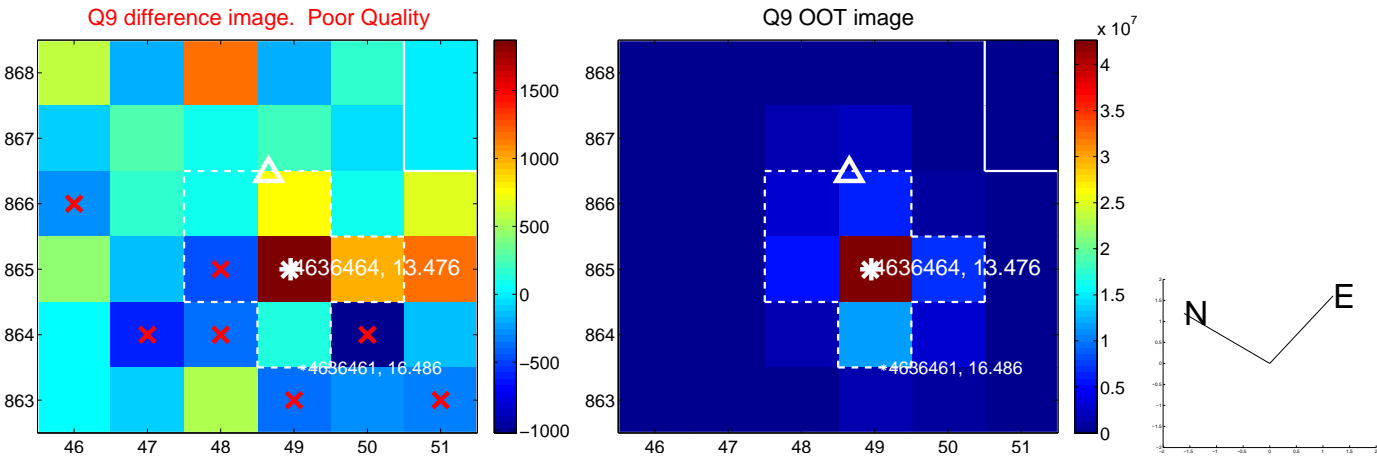
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

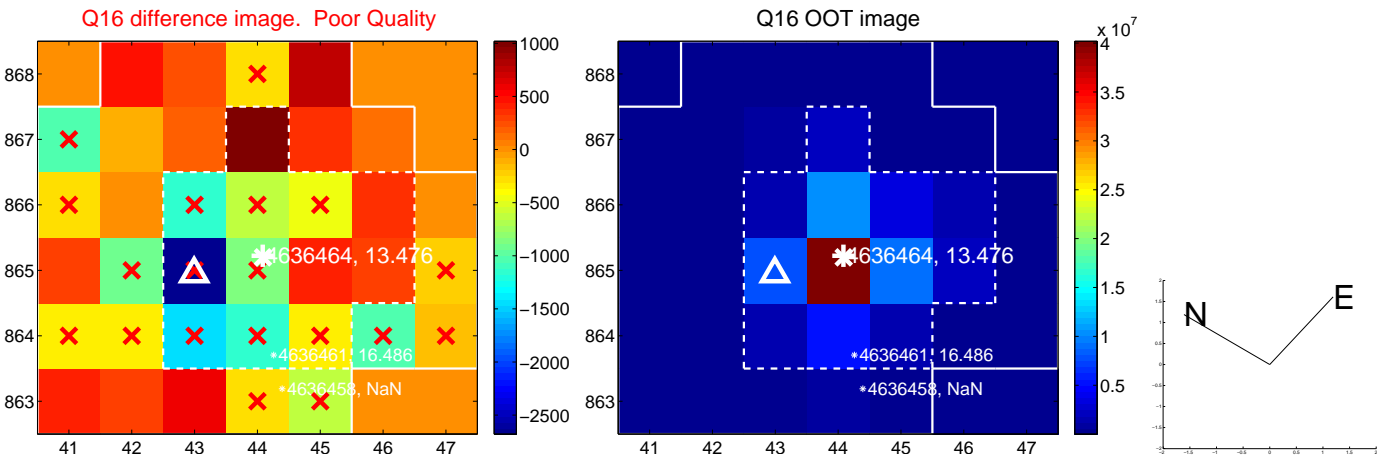
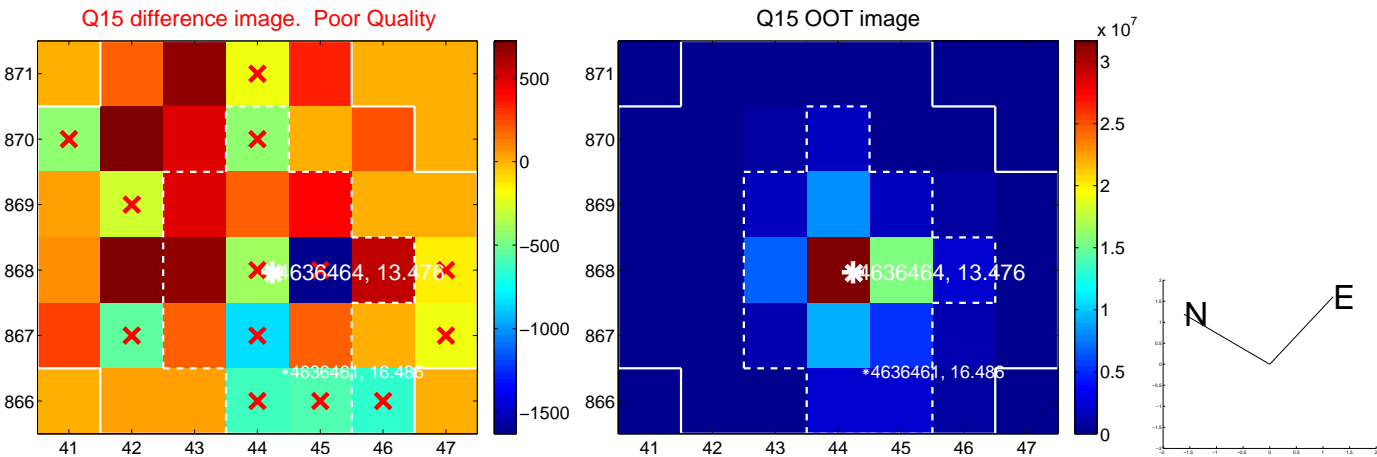
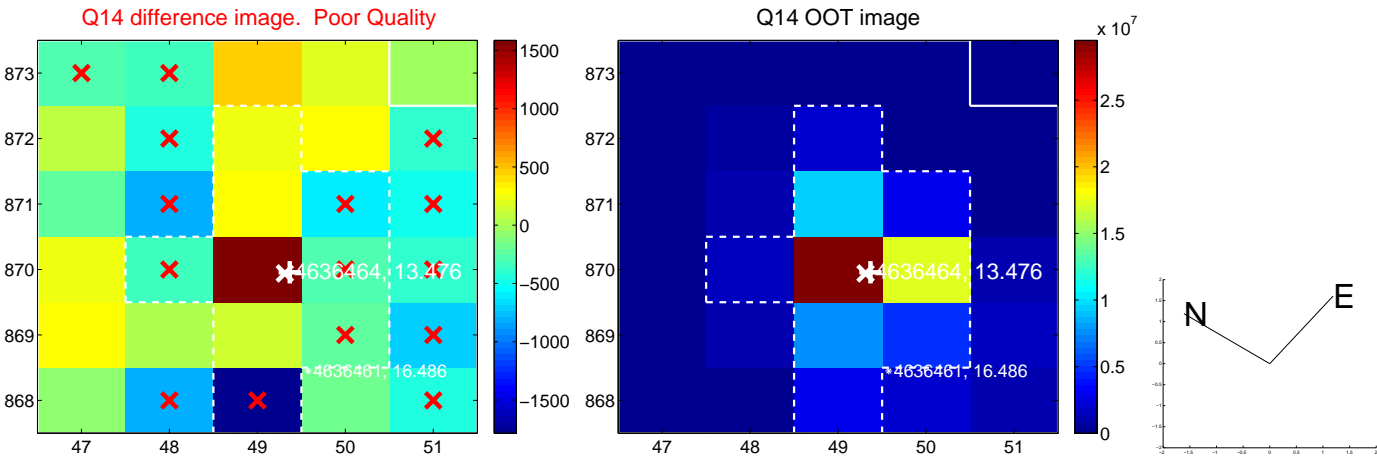
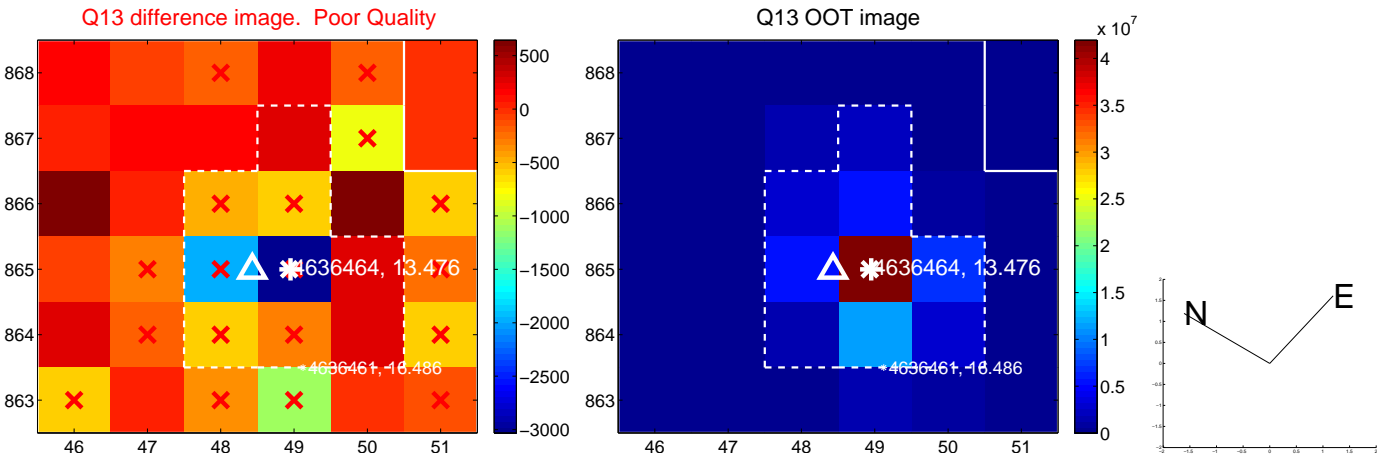




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

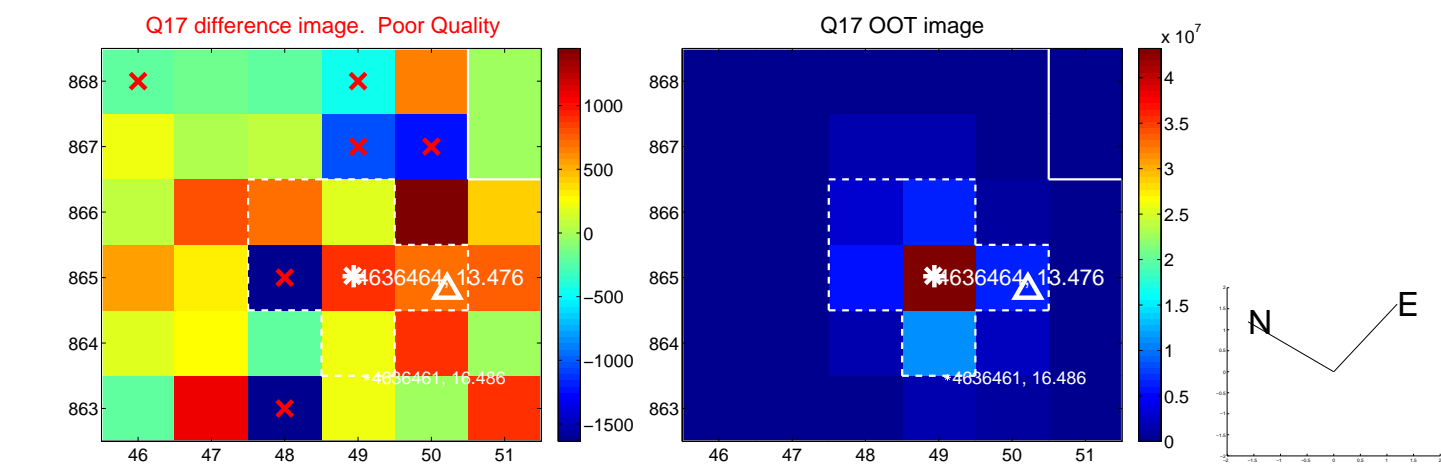


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

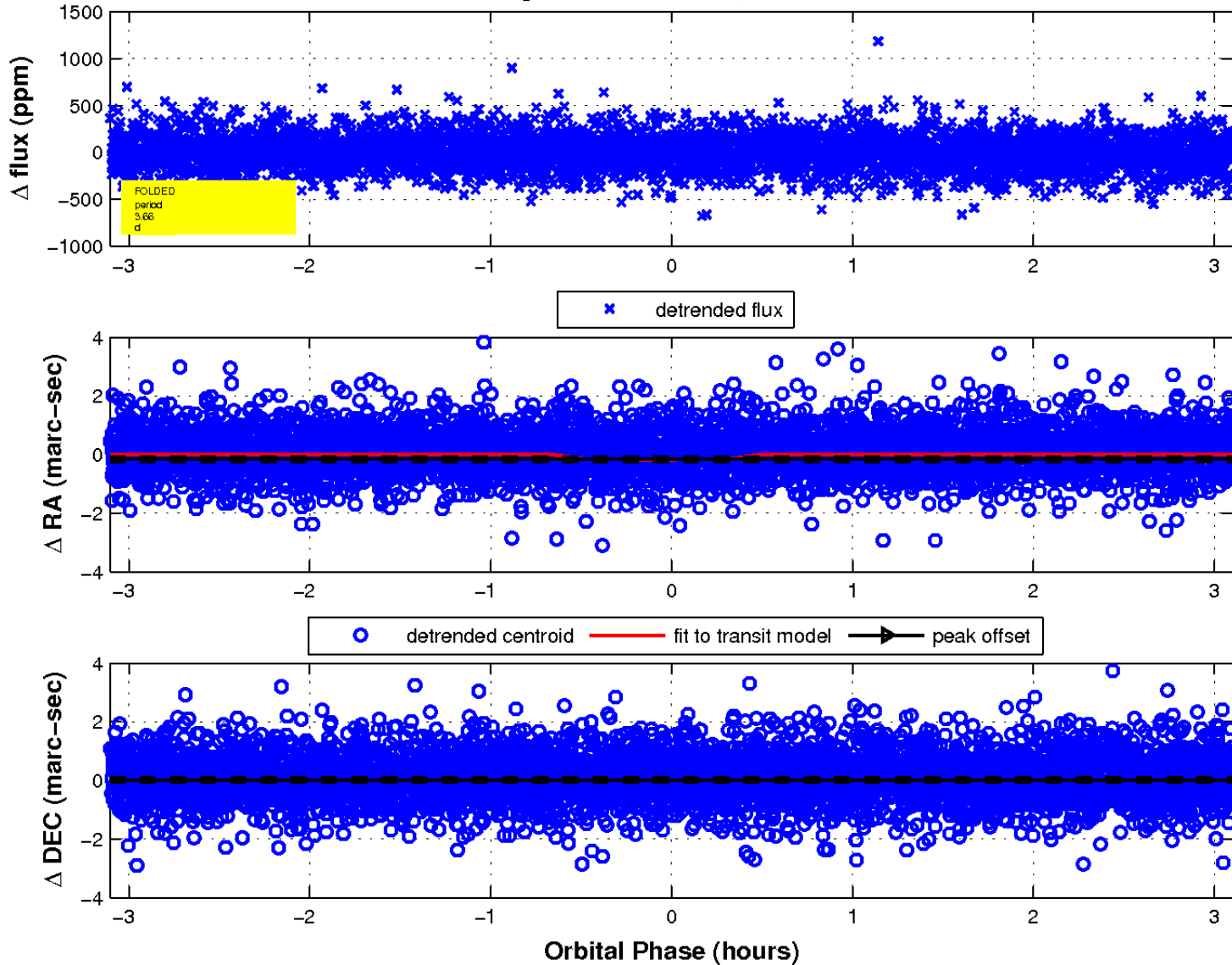




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

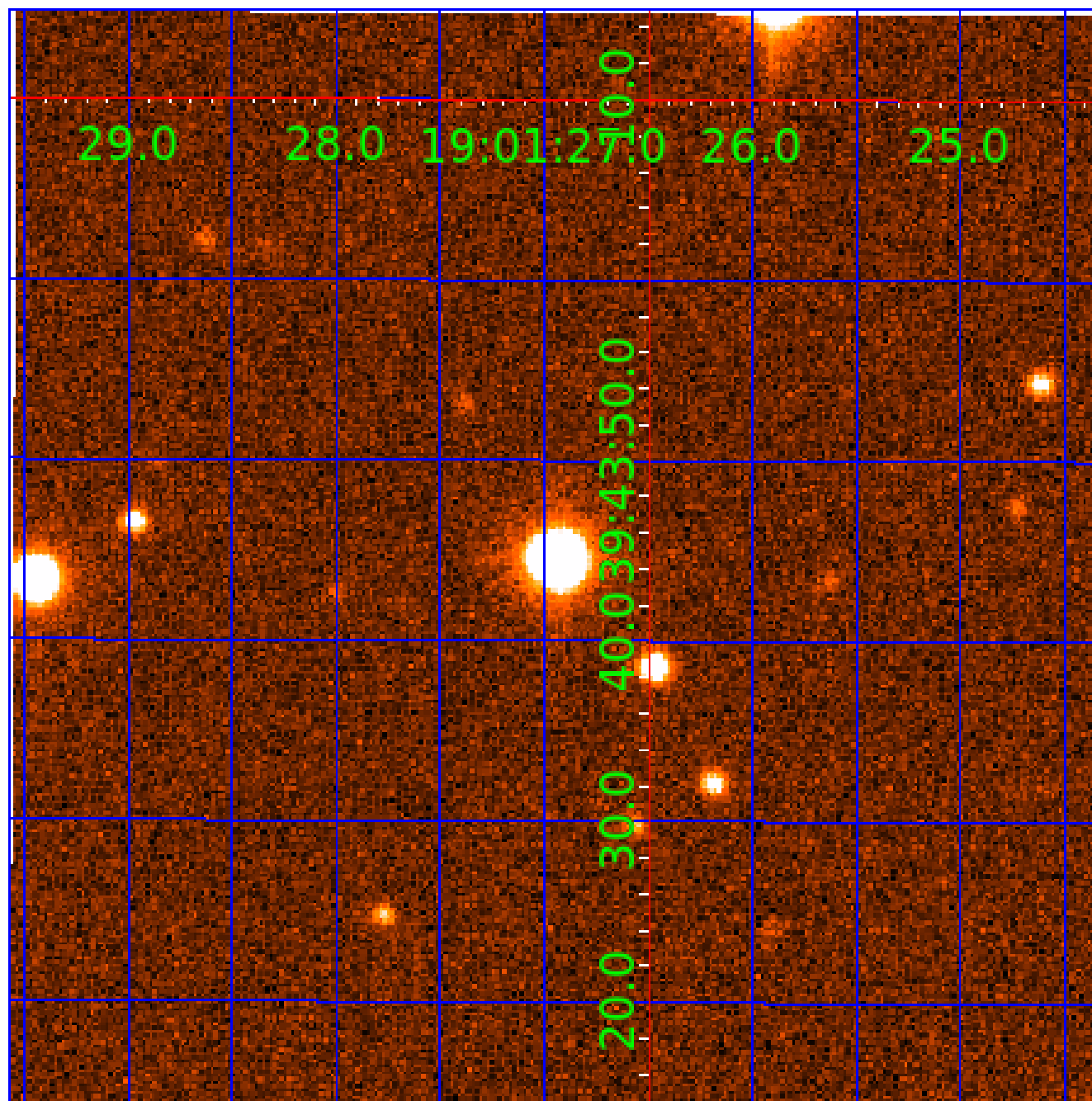


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



# KIC 004636464

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004636464-01	OBS	No	3.656120	132.091570	0.0	2.075	9.9	0.0	1.11	6299	0.01	785.20
004636464-02	OBS	No	3.656301	132.517731	18.2	1.035	10.6	2.1	1.11	6299	0.56	785.15
004636464-03	OBS	No	3.656076	135.322071	0.1	31.229	10.4	0.0	1.11	6299	0.04	785.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004636464-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004636464-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
004636464-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD

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

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

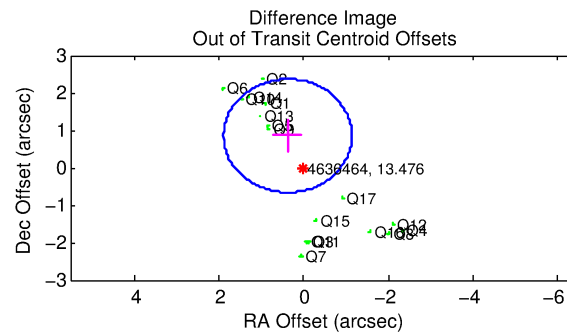
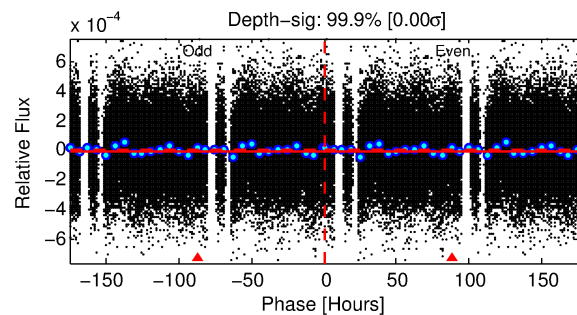
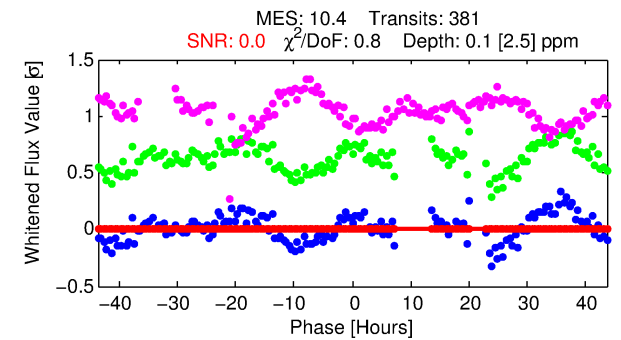
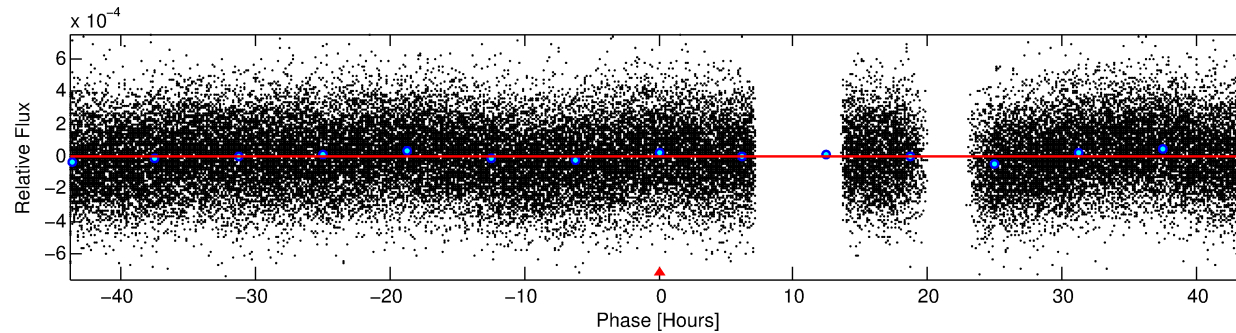
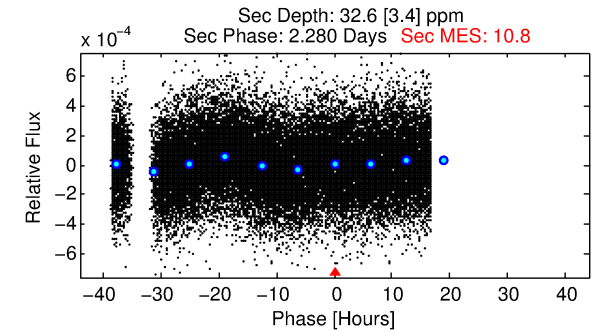
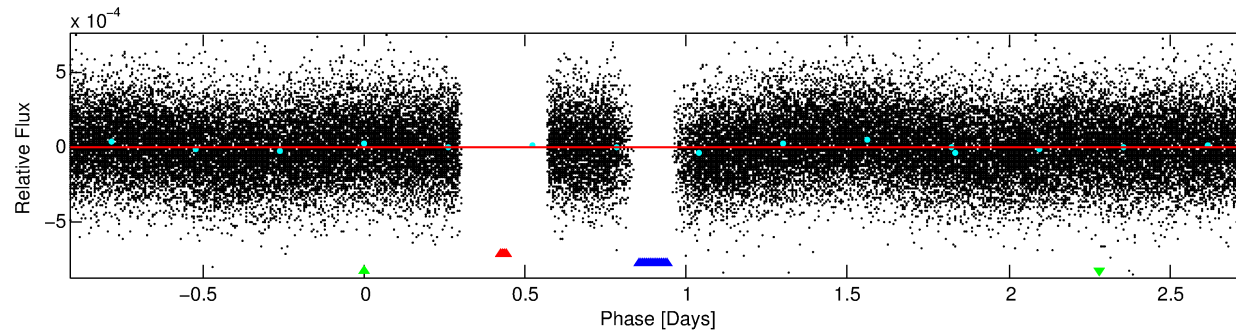
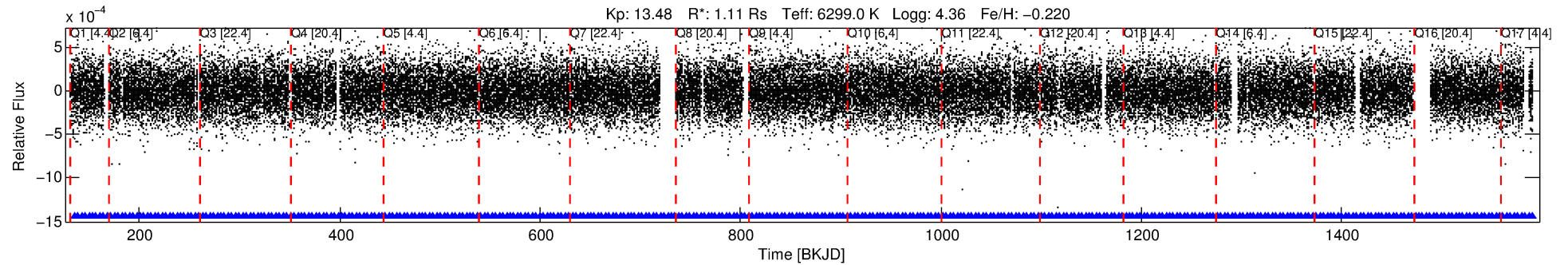
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004636464-03

No Significant Match Found

# DV One-Page Summary

KIC: 4636464 Candidate: 3 of 3 Period: 3.656 d



## DV Fit Results:

Period = 3.65608 [0.01717] d  
Epoch = 135.3221 [2.9934] BKJD  
Rp/R\* = 0.0003 [0.0128]  
a/R\* = 1.10 [37.26]  
b = 0.39 [447.79]  
Seff = 785.21 [303.10]  
Teq = 1350 [130] K  
Rp = 0.04 [1.55] Re  
a = 0.0470 [0.0122] AU  
Ag = 25889.44 [2059082.87] [0.01σ]  
Teffp = 26472 [526362] K [0.05σ]

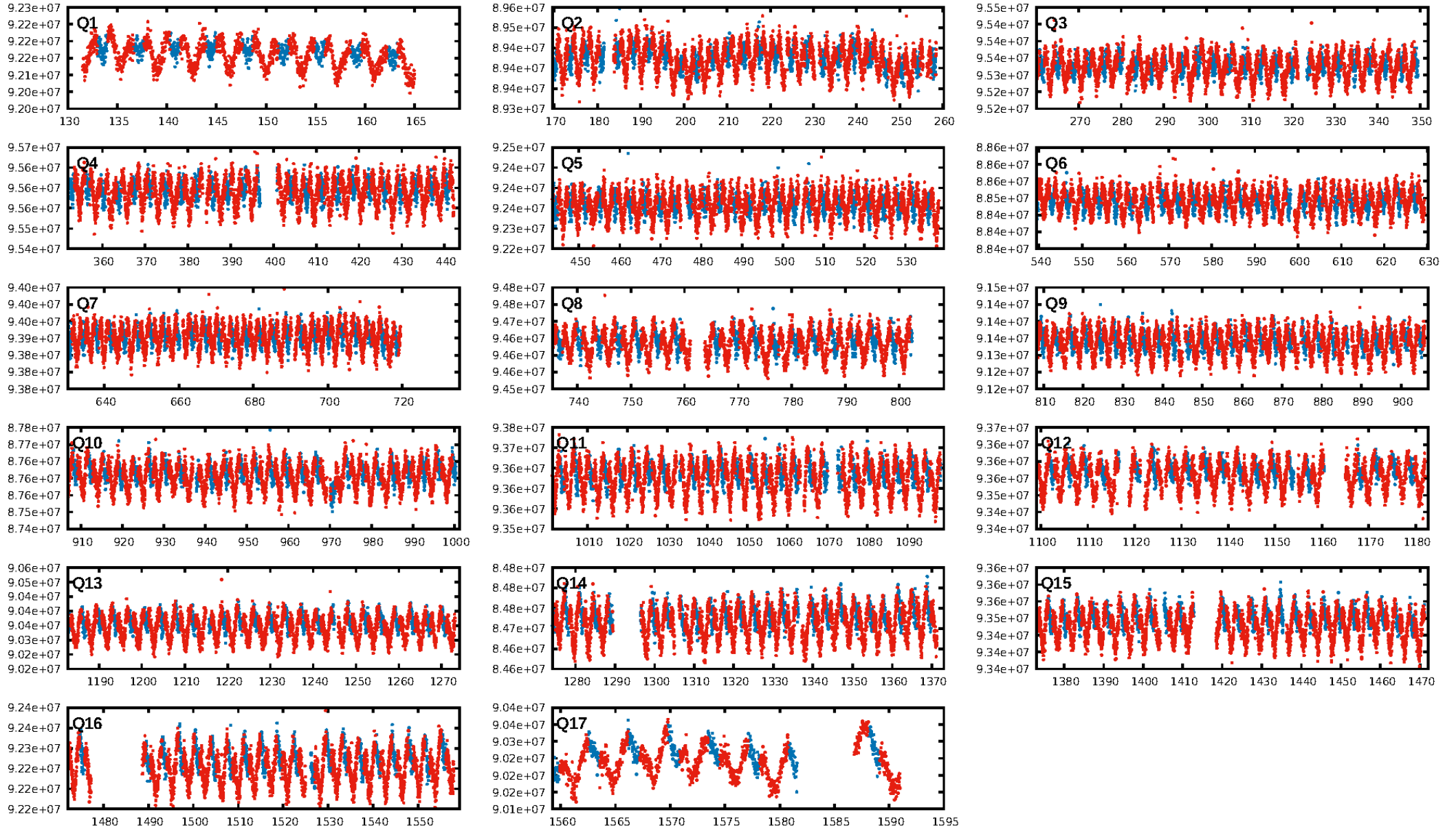
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [363/363]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.929 arcsec [1.84σ]  
KicOffset-rm: 0.864 arcsec [1.69σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:29:52 Z

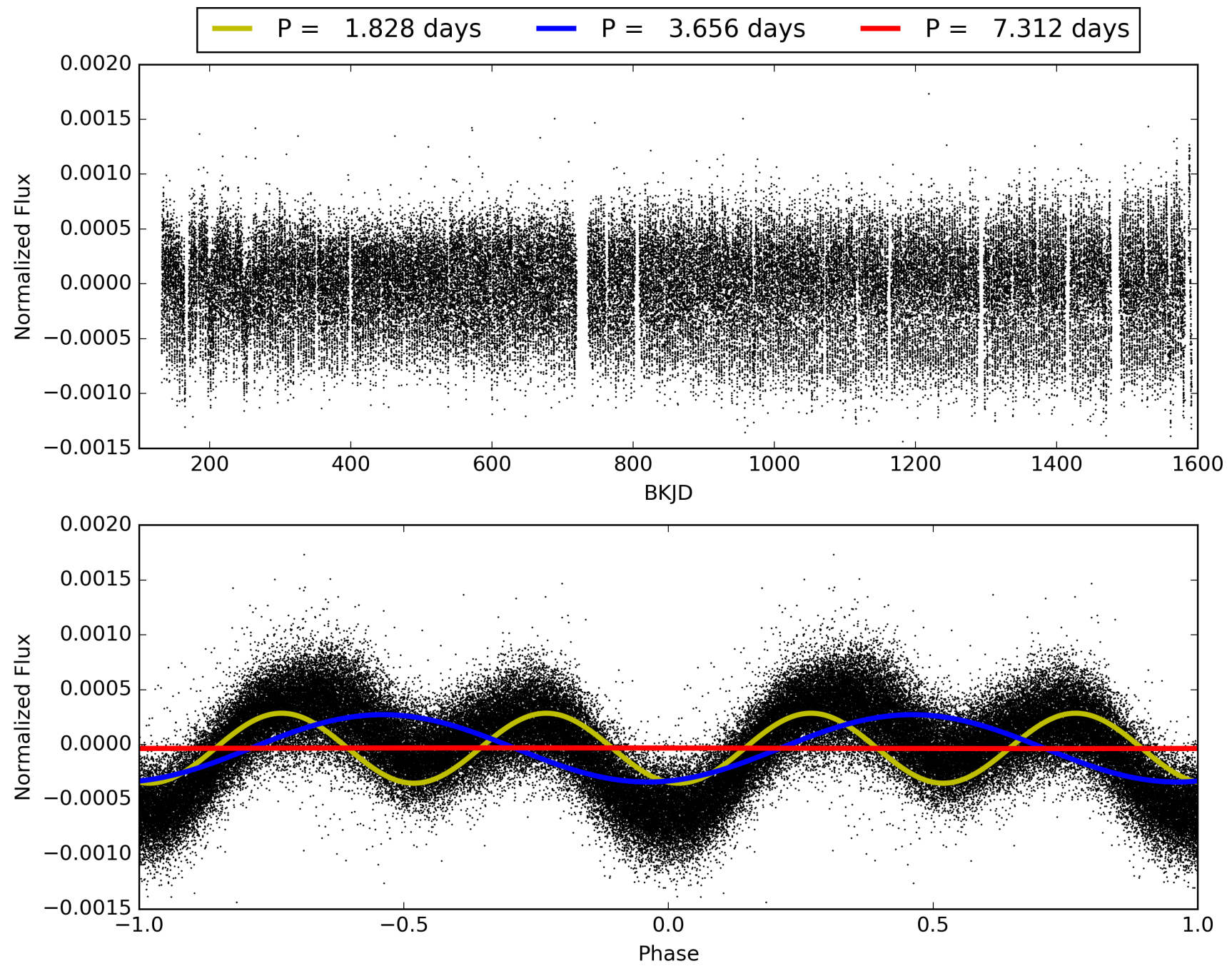
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 004636464-03, PDC Light Curves





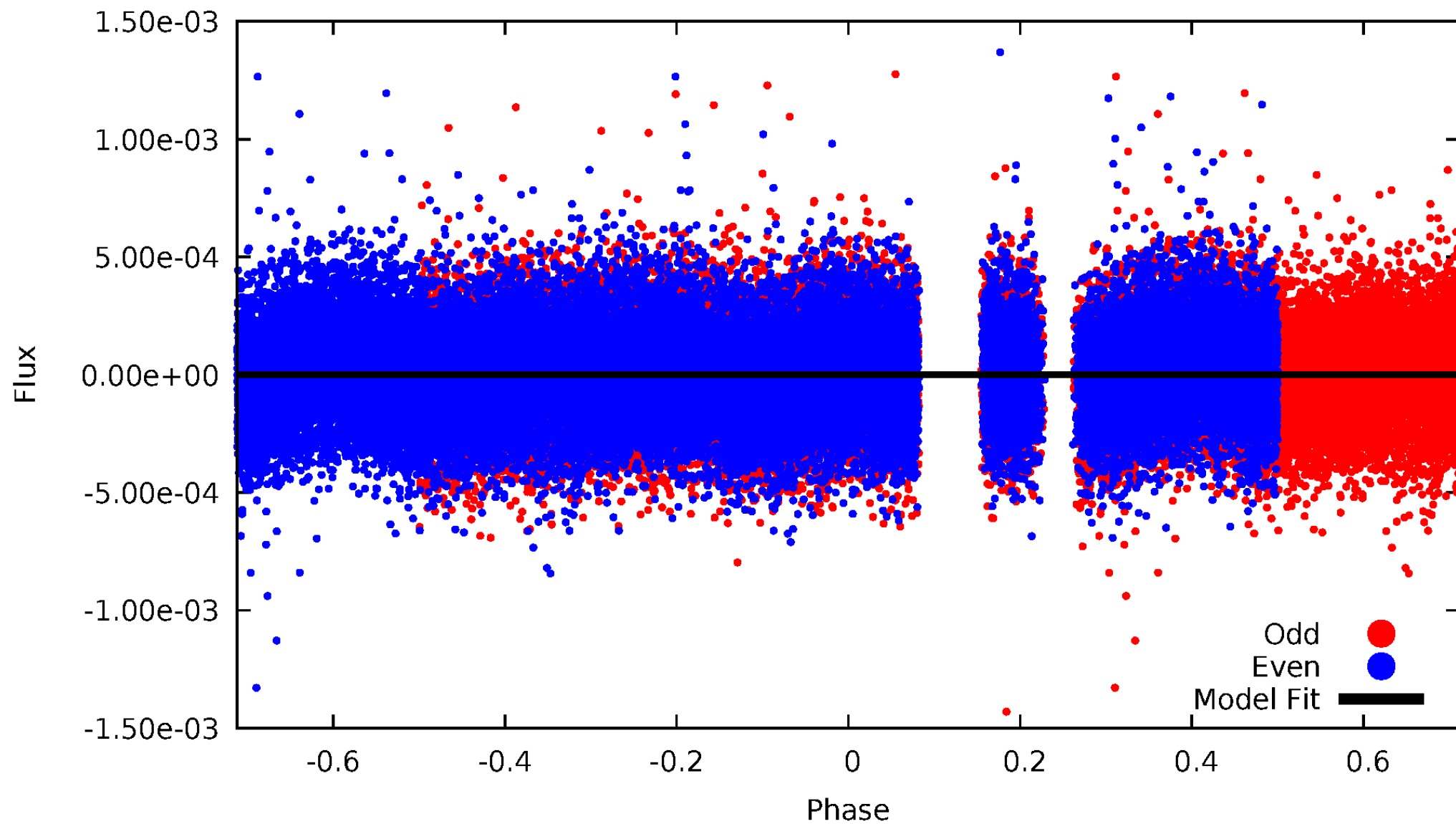
TCE 004636464-03





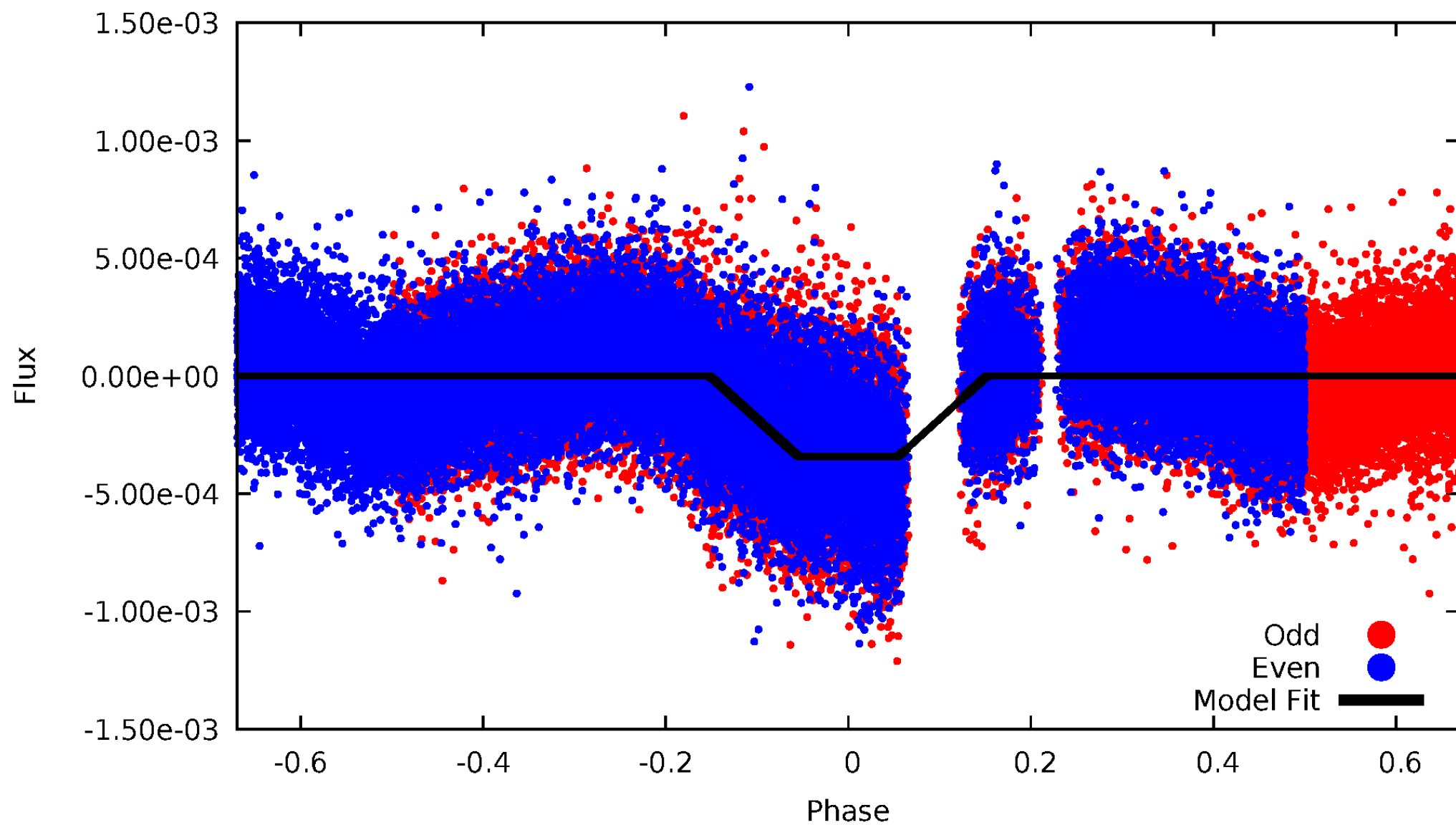
# DV Odd/Even

TCE 004636464-03



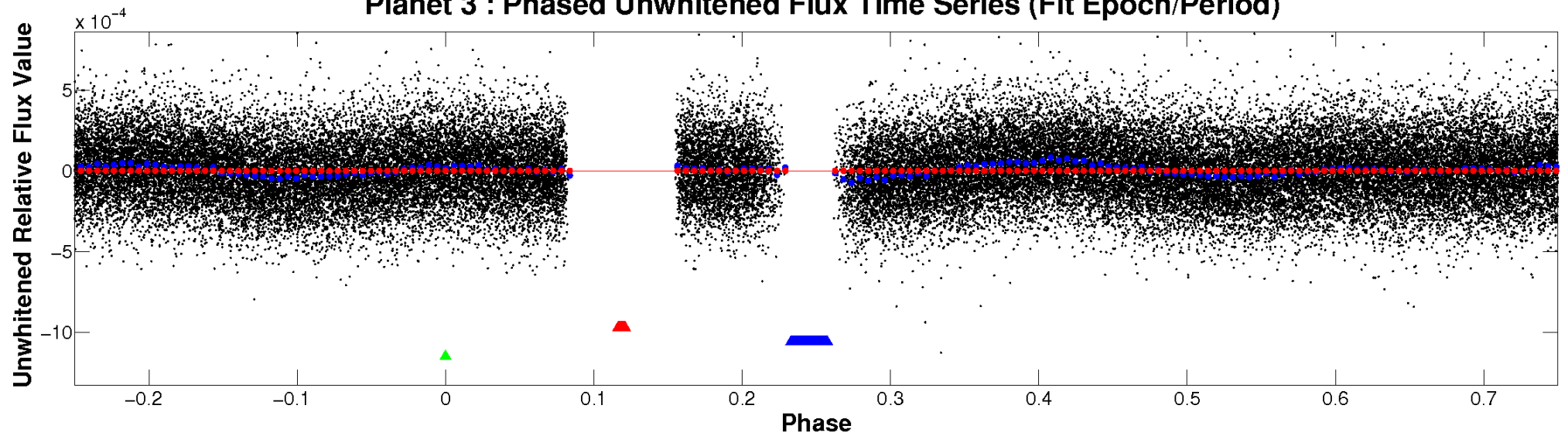
# ALT Odd/Even

TCE 004636464-03

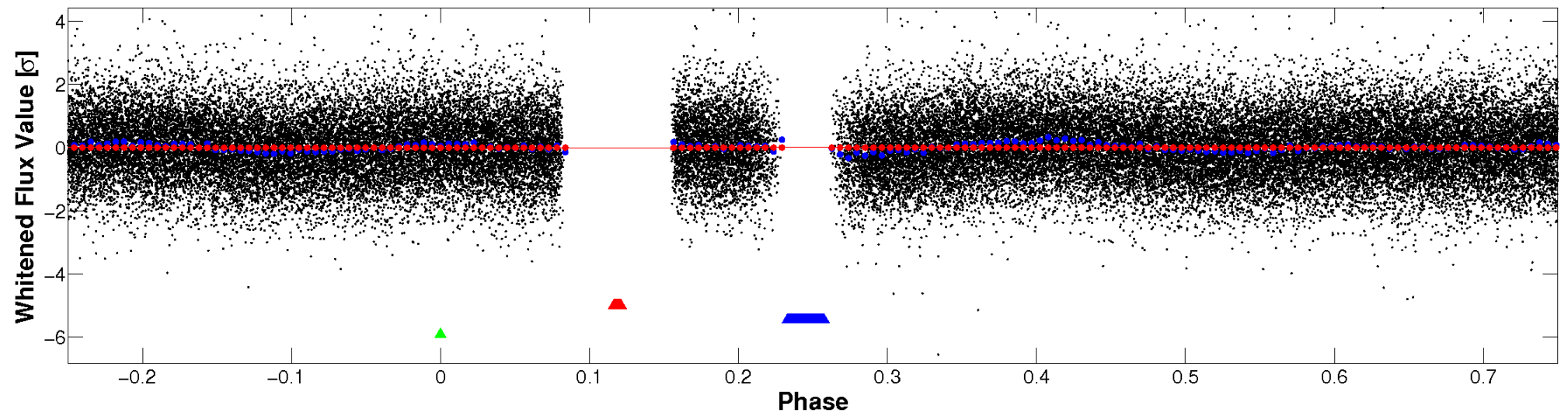


# Non-Whitened Vs. Whitened Light Curve

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

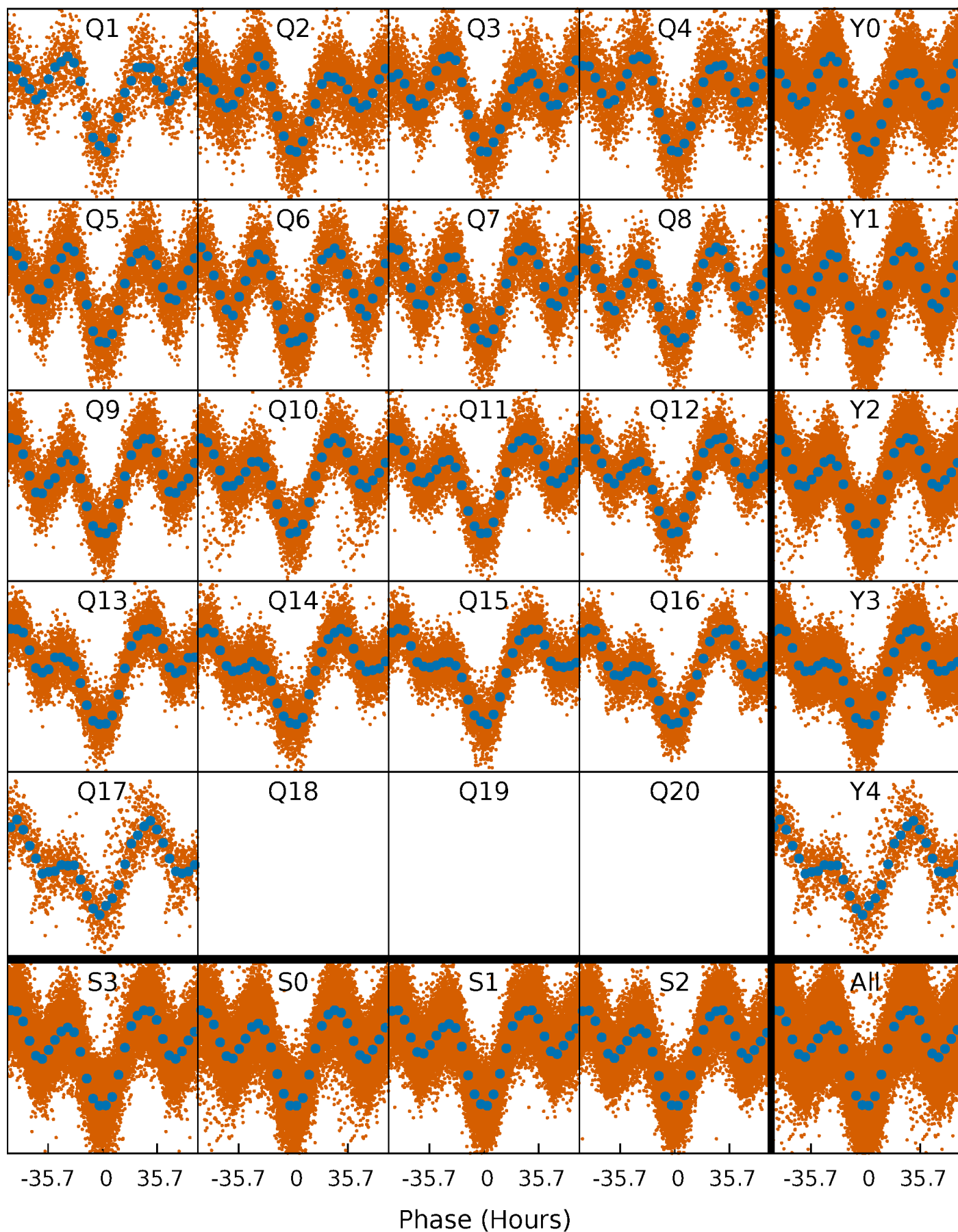


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

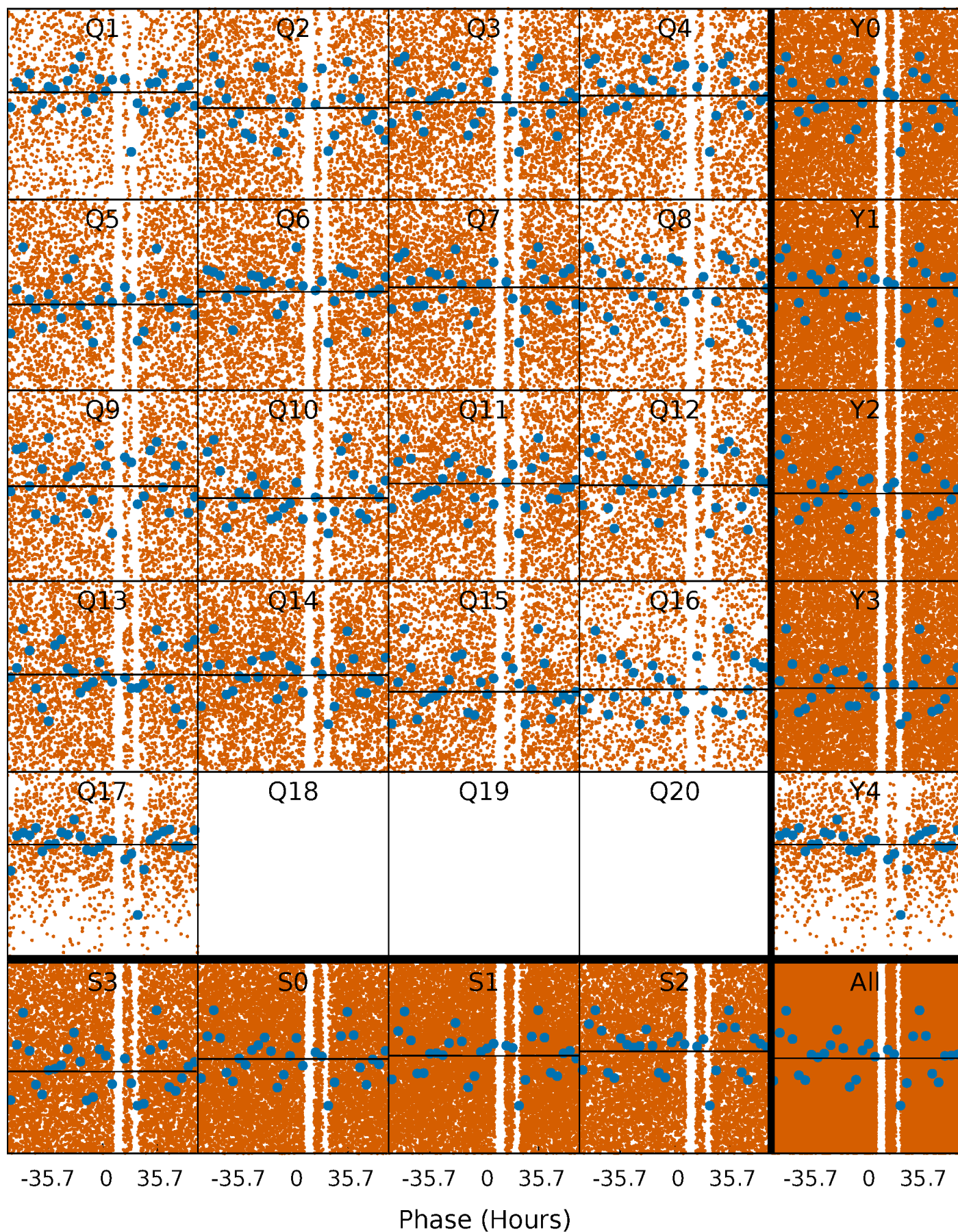
TCE 004636464-03 P= 3.656076 Days  $T_0=135.322071$  (BKJD)





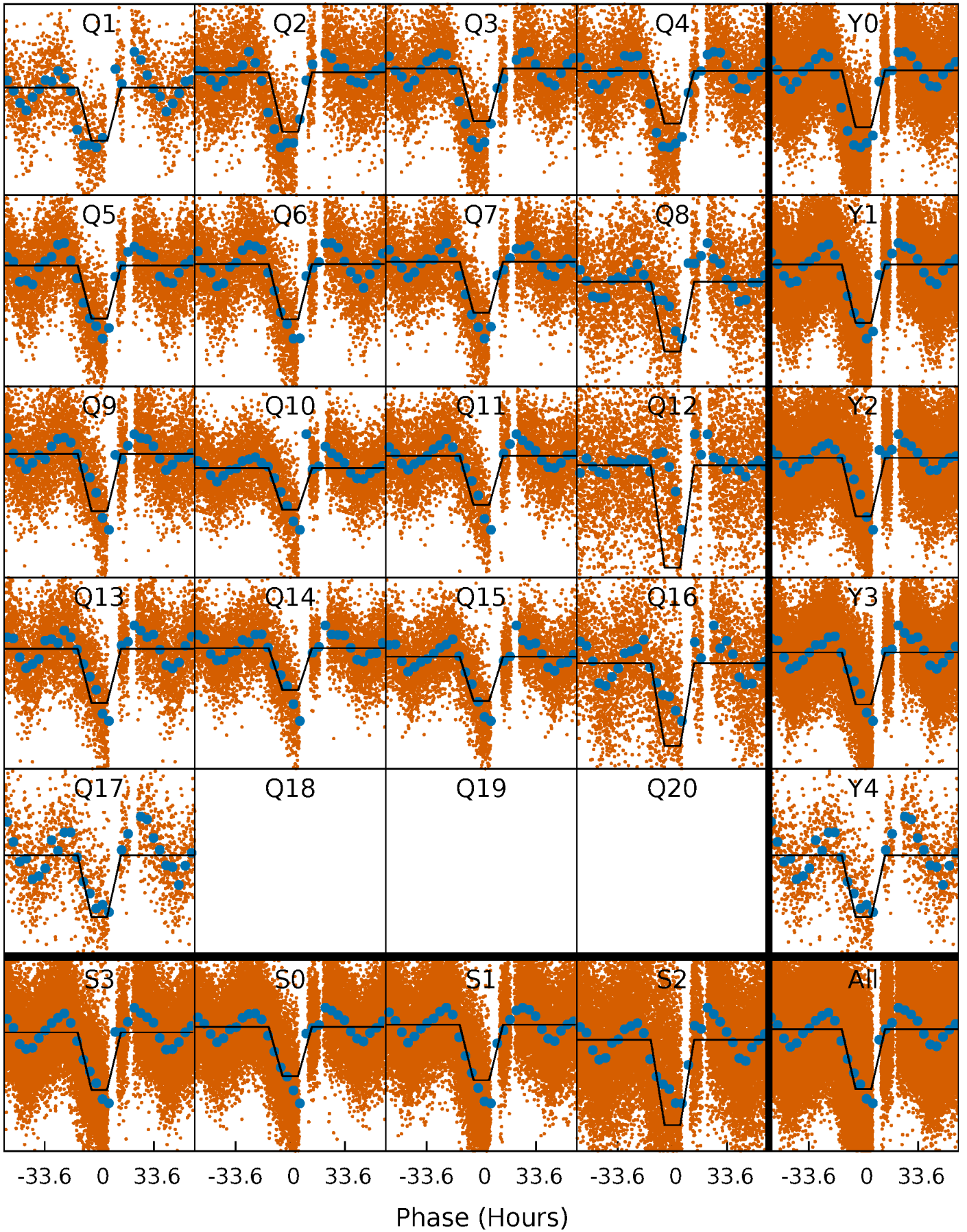
# DV Quarter-Phased Transit Curves

TCE 004636464-03 P= 3.656076 Days  $T_0=135.322071$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

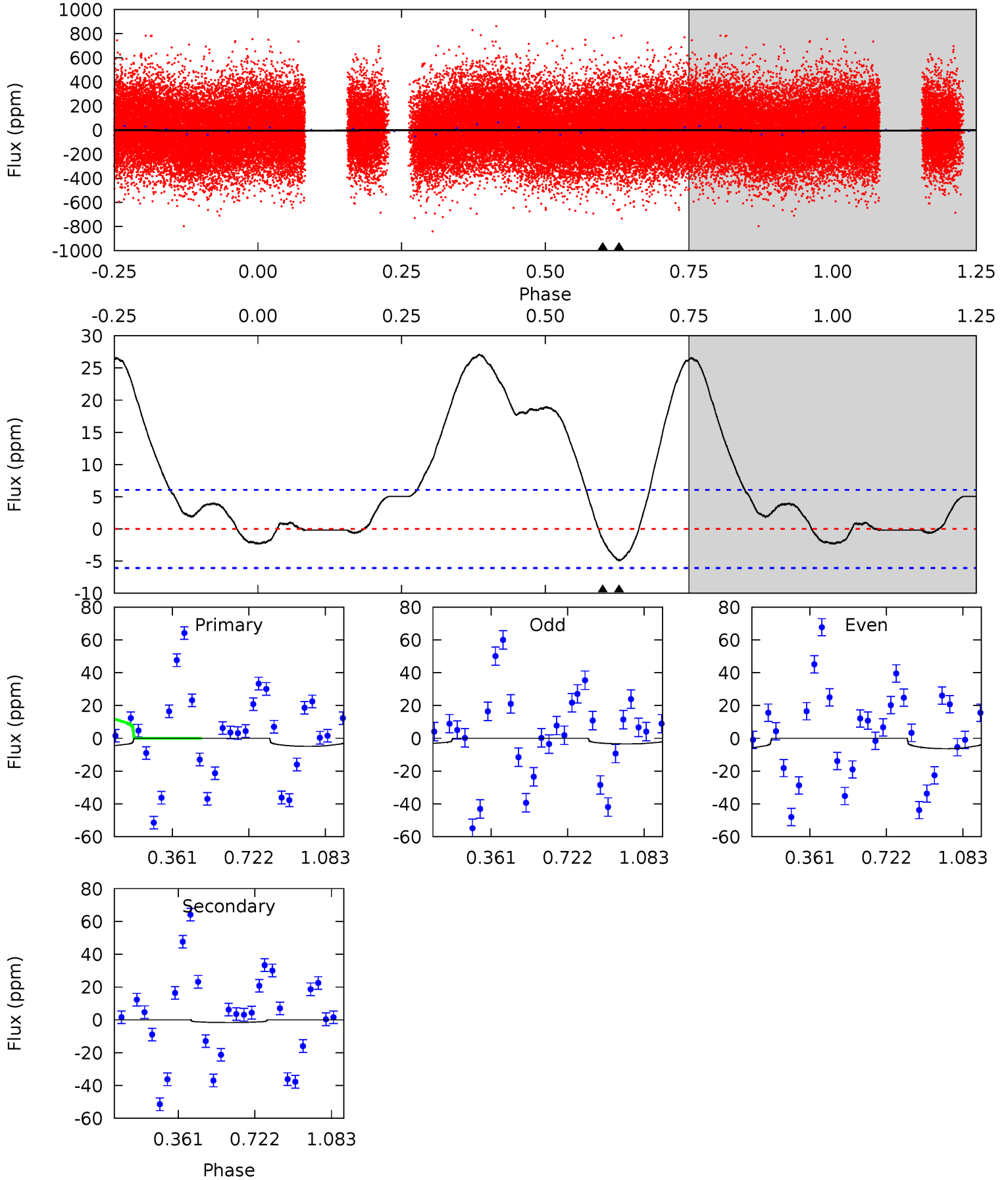
TCE 004636464-03   P= 3.655909 Days    $T_0=135.446830$  (BKJD)



# DV Model-Shift Uniqueness Test

004636464-03, P = 3.656076 Days, E = 128.009919 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
3.46	1.15	0	0	4.29	0.91	1.15	3.46	3.46	1.15	1.15	1.03	1.00	0.85	1.00

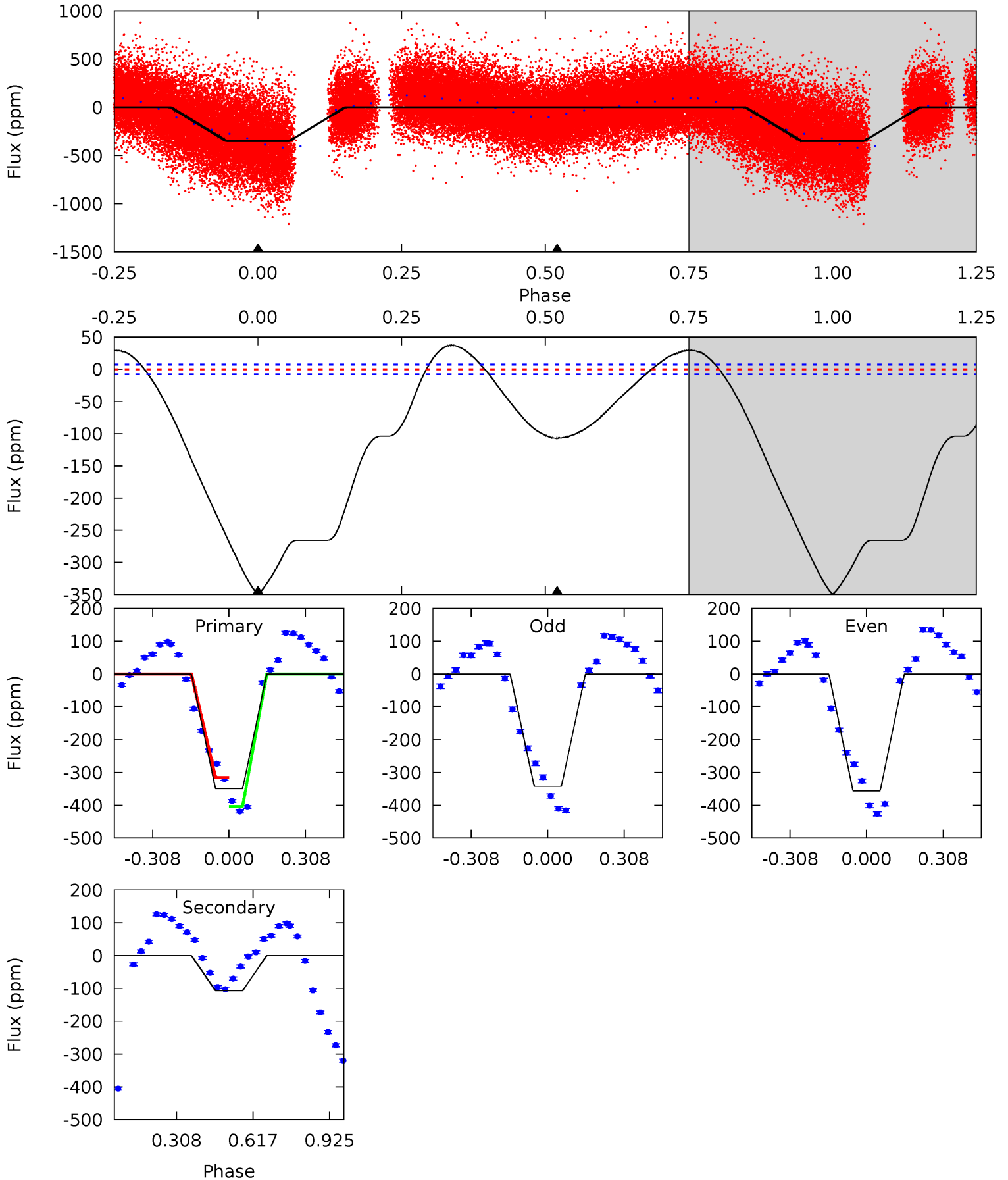




# Alt Model-Shift Uniqueness Test

004636464-03, P = 3.655909 Days, E = 128.135012 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
201.2	61.6	0	0	4.32	1.02	24.3	201.2	201.2	61.6	61.6	4.03	0.99	0.10	22.7



### Stellar Parameters For KIC 004636464

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6299^{+150}_{-188}$	$4.363^{+0.090}_{-0.195}$	$-0.220^{+0.250}_{-0.300}$	$1.108^{+0.353}_{-0.151}$	$1.029^{+0.174}_{-0.107}$	$1.064^{+0.429}_{-0.559}$
	+2%/-3%	+2%/-4%	+114%/-136%	+32%/-14%	+17%/-10%	+40%/-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 004636464-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-2 \pm 1$	$1.09^{+1.18}_{-0.75}$	$1904^{+141}_{-97}$	$2862^{+1477}_{-5191}$	$1.335^{+13.223}_{-1.217}$
Alt.	$-107 \pm 2$	$2.54^{+1.47}_{-1.42}$	$1908^{+129}_{-96}$	$4648^{+2200}_{-753}$	$20^{+83}_{-12}$

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

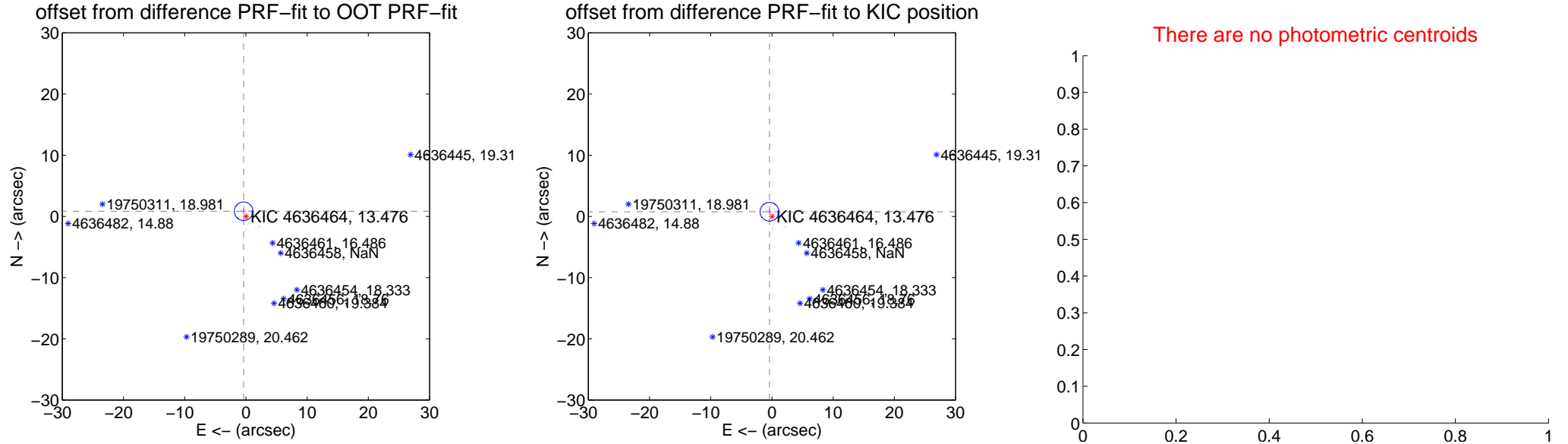
## DV Centroid Data

Supplemental centroid analysis for 004636464-03. Kepler magnitude: 13.48. Transit SNR 0.05

There are 17 quarters with good PRF difference image offsets

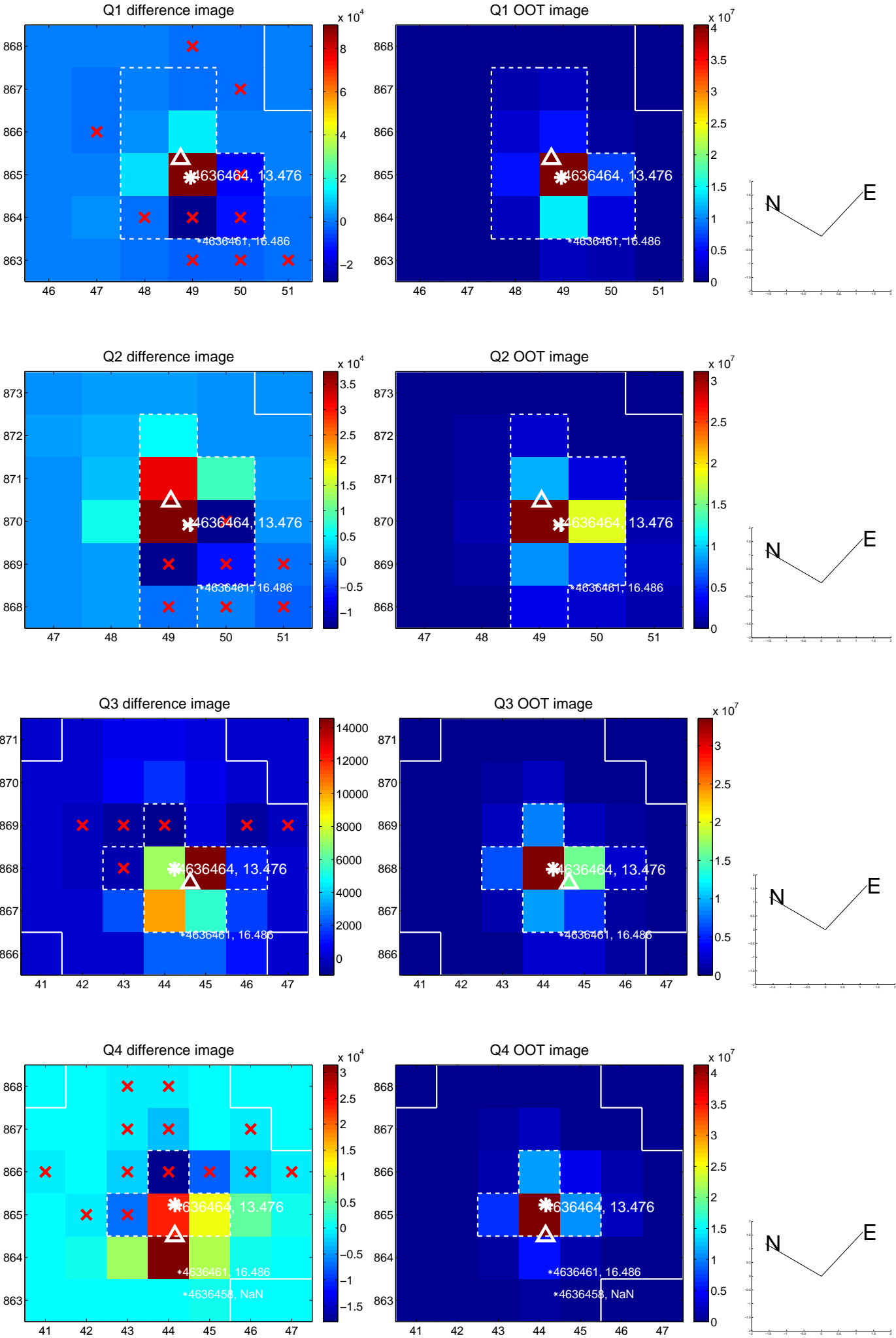
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.929 \pm 0.504$	1.84	$0.373 \pm 0.325$	$0.851 \pm 0.430$
PRF-fit source offset from KIC position	$0.864 \pm 0.510$	1.69	$0.405 \pm 0.344$	$0.763 \pm 0.419$
photometric centroid source offset	—	—	—	—

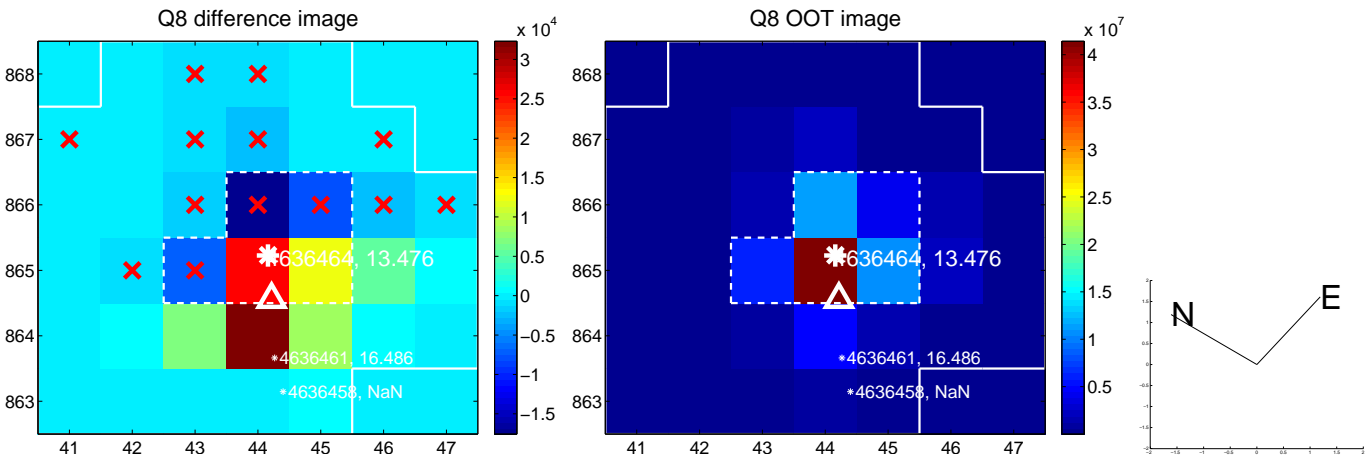
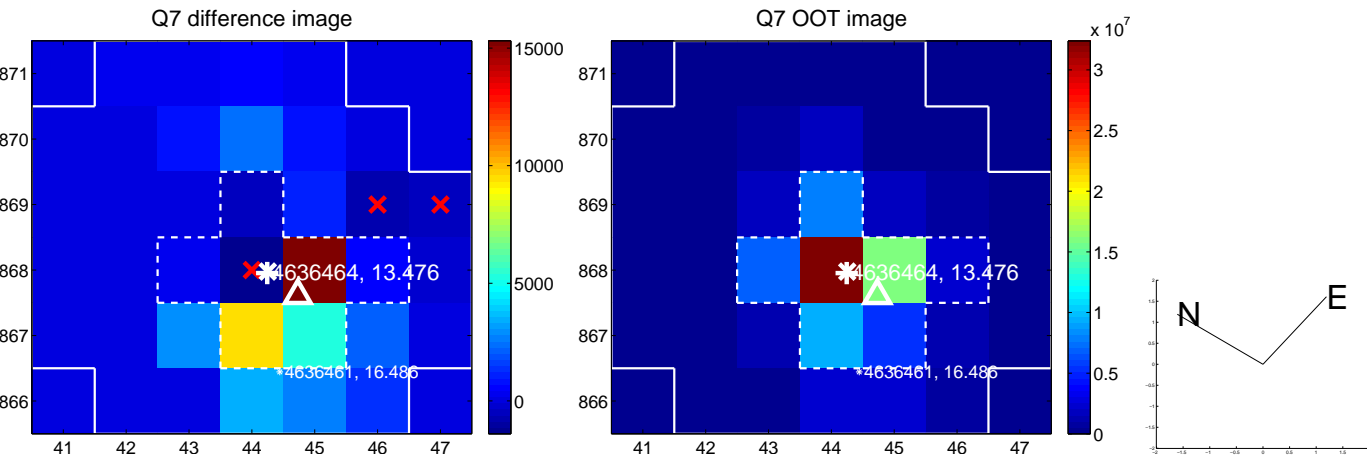
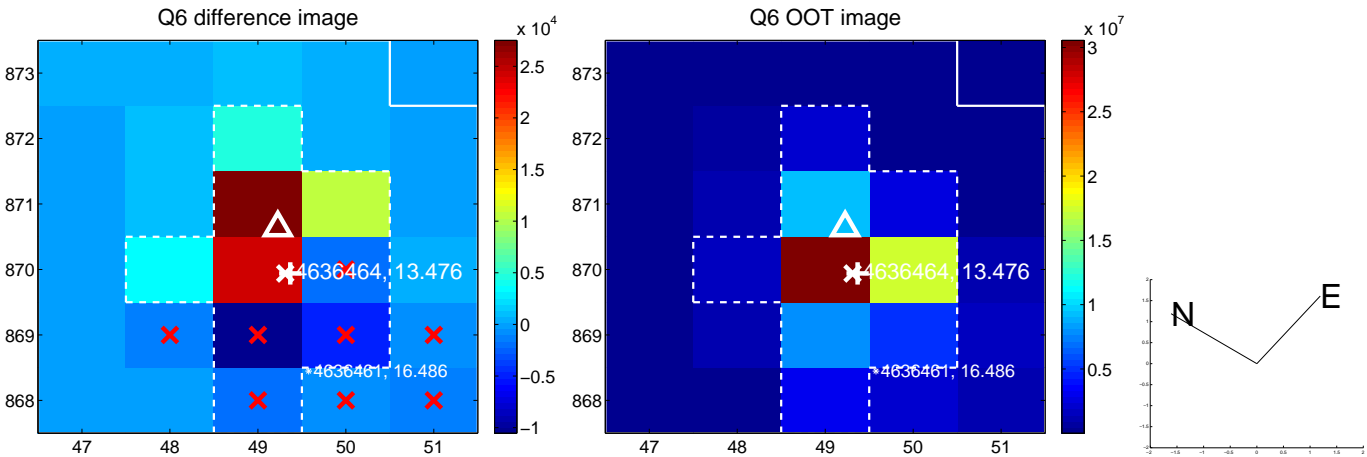
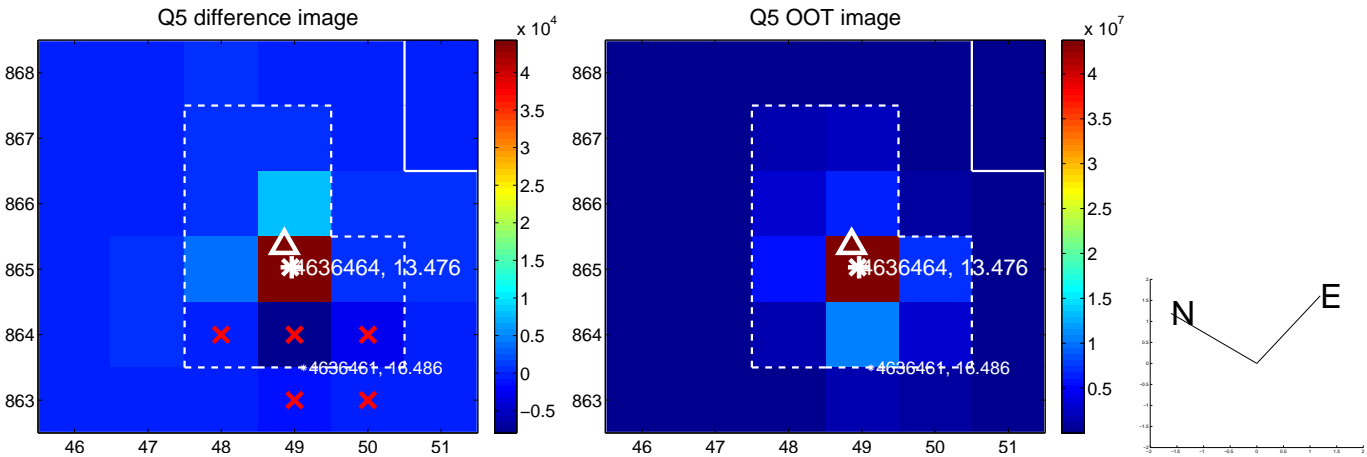


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

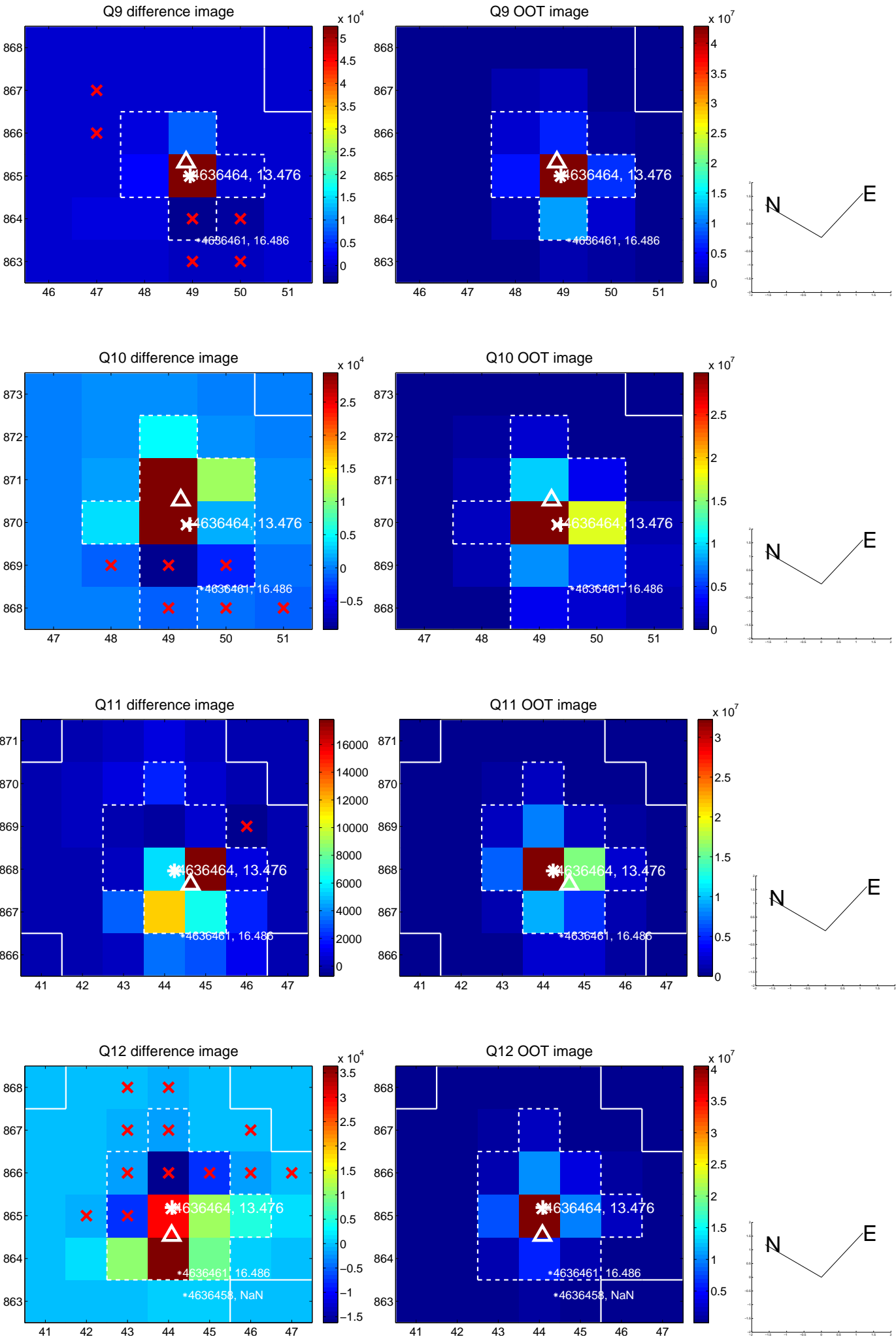
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

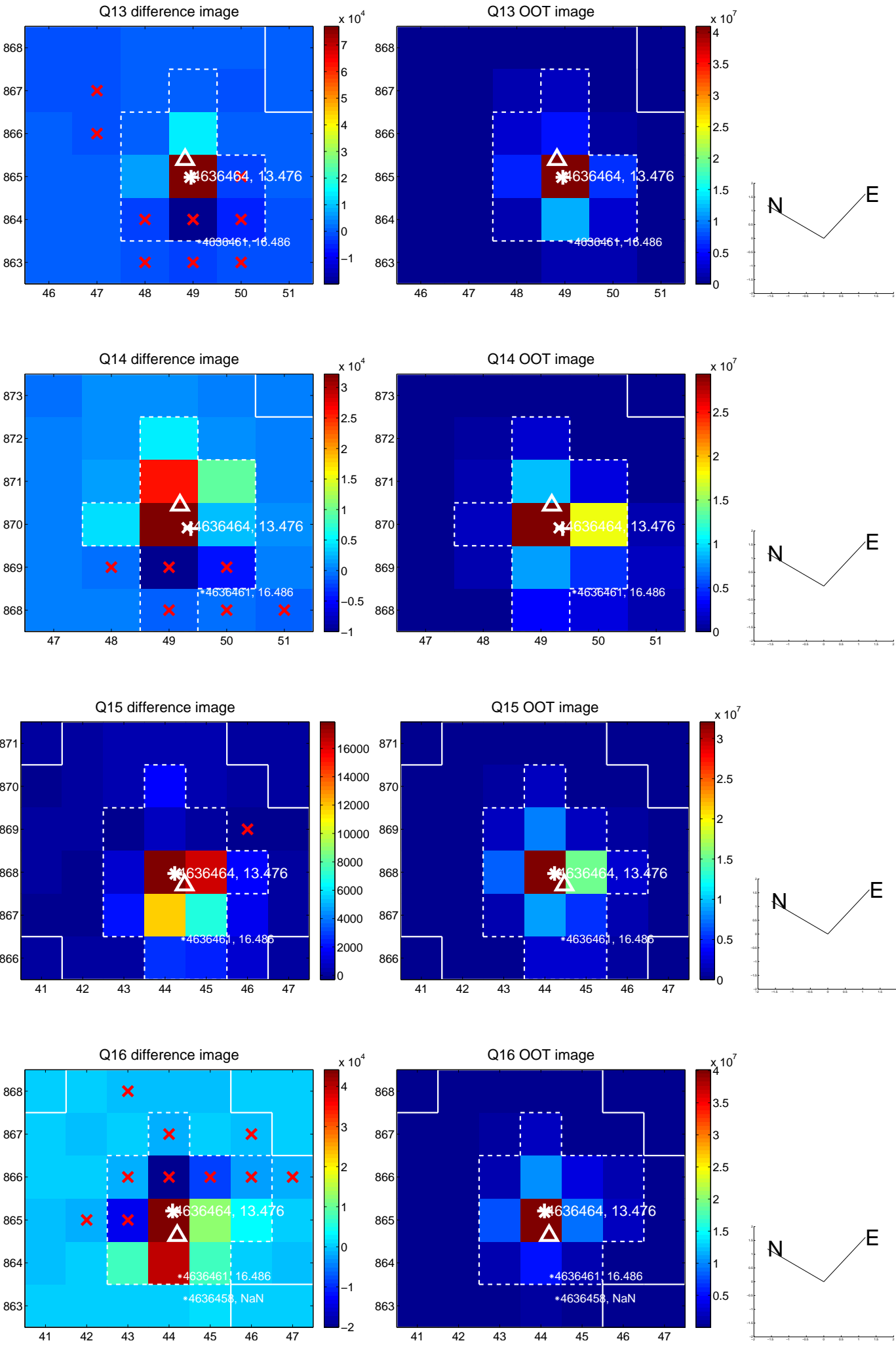


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

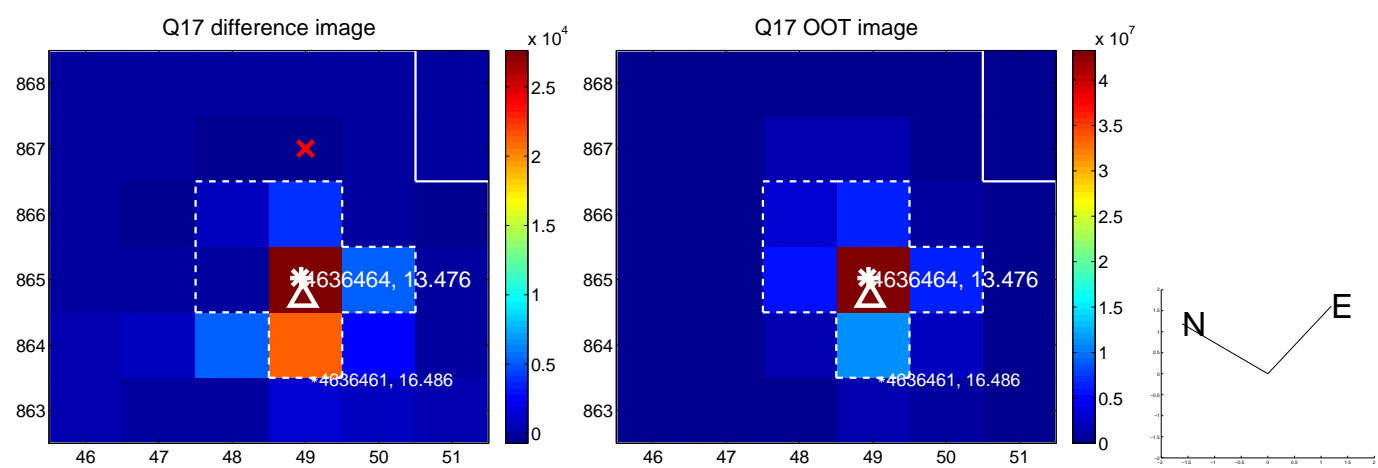




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

