

# KIC 003533195

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003533195-01	OBS	No	0.896297	132.136834	38.3	1.248	10.0	11.3	1.30	6170	0.96	6855.86
003533195-02	OBS	No	0.896304	131.686296	40.5	1.157	9.9	11.7	1.30	6170	0.98	6855.79

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003533195-01	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
003533195-02	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET

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

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

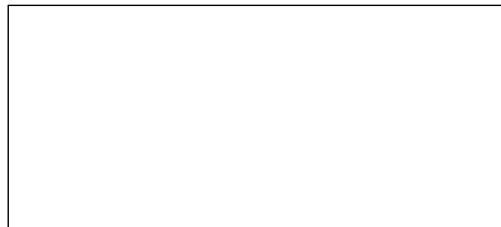
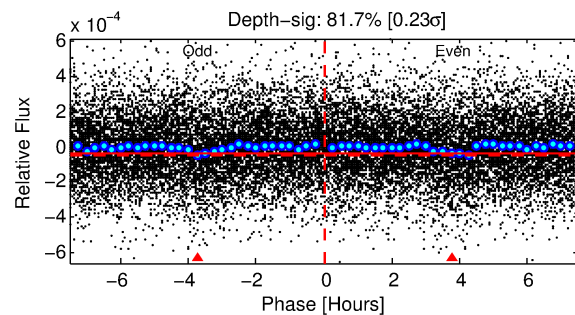
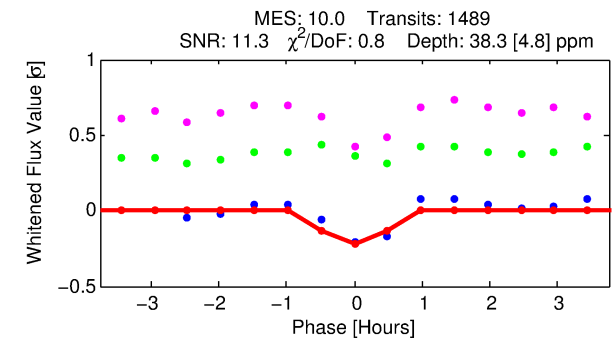
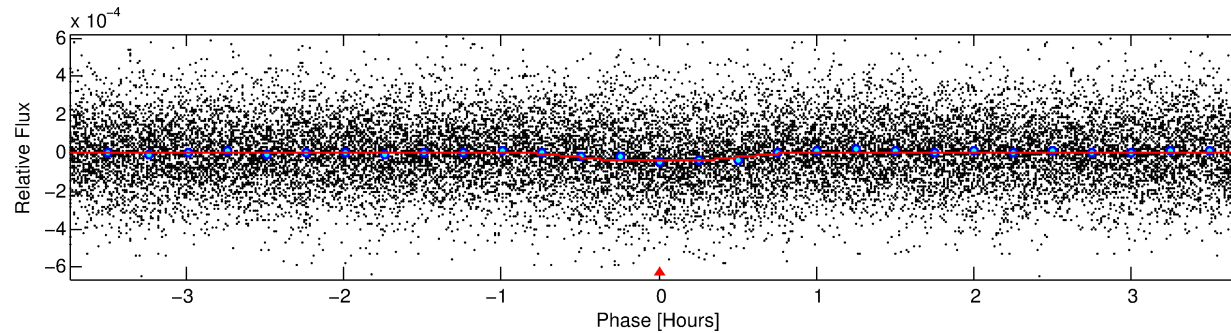
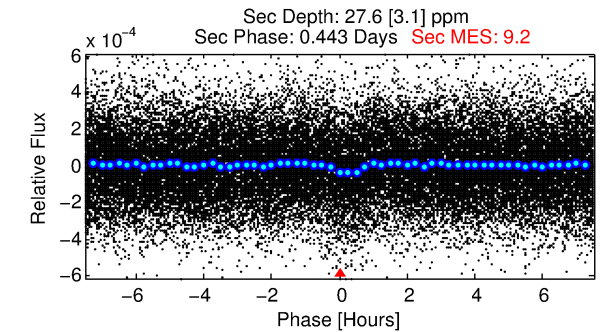
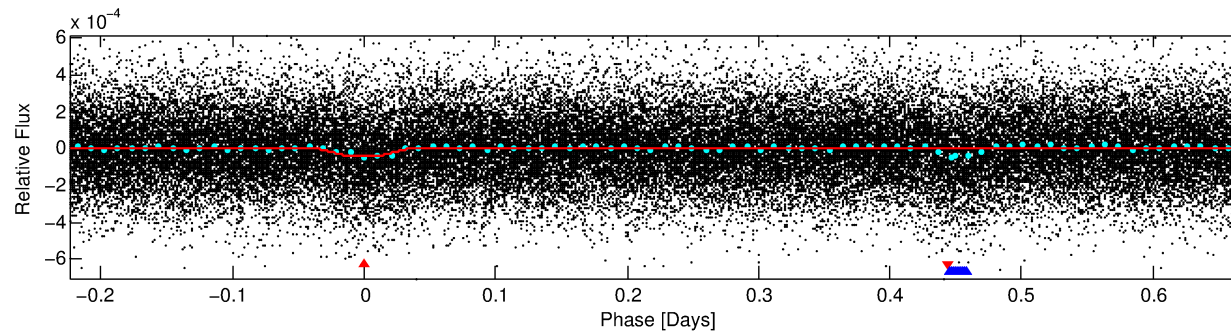
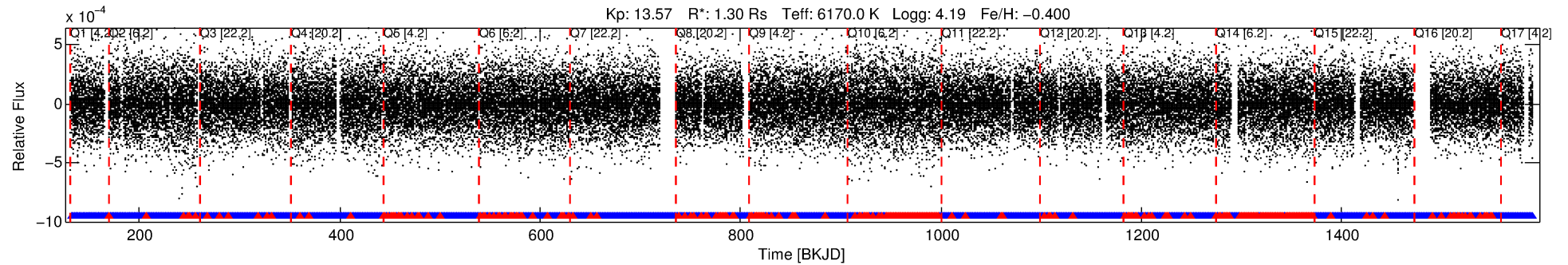
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003533195-01

No Significant Match Found

# DV One-Page Summary

KIC: 3533195 Candidate: 1 of 2 Period: 0.896 d



## DV Fit Results:

Period = 0.89630 [0.00001] d  
Epoch = 132.1368 [0.0018] BKJD  
Rp/R\* = 0.0067 [0.0021]  
a/R\* = 2.54 [3.68]  
b = 0.91 [0.33]  
Seff = 6855.86 [3120.41]  
Teff = 2320 [264] K  
Rp = 0.96 [0.40] Re  
a = 0.0179 [0.0049] AU  
Ag = 5.32 [4.10] [1.05σ]  
Teffp = 5449 [878] K [3.41σ]

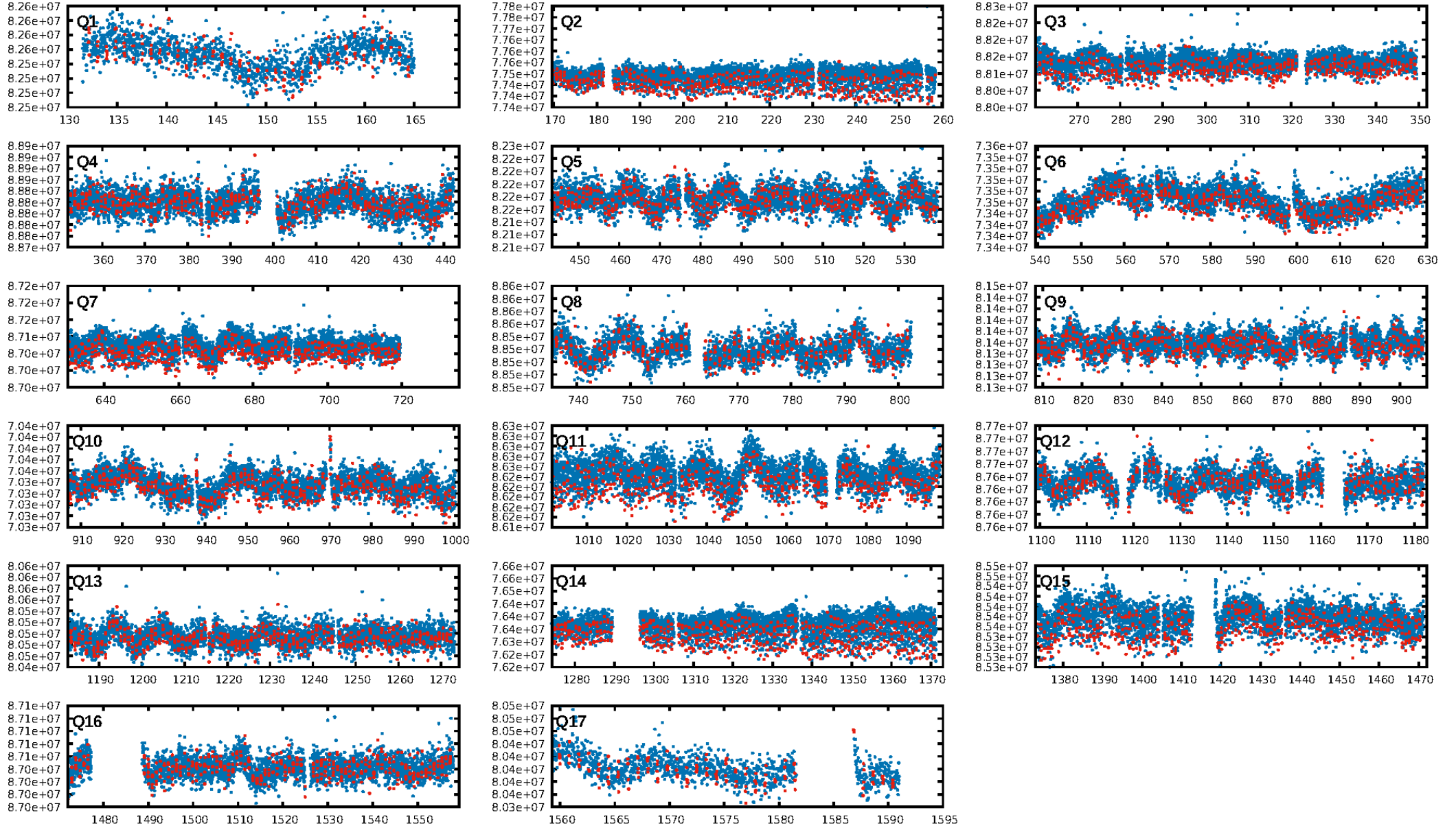
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: 8.97e-24  
RollingBand-fgt: 0.79 [1127/1422]  
GhostDiagnostic-chr: -1.116  
Centroid-sig: N/A  
Centroid-so: 7.879 arcsec [6.90σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0 [0]  
KicOffset-st: 0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [17/17]

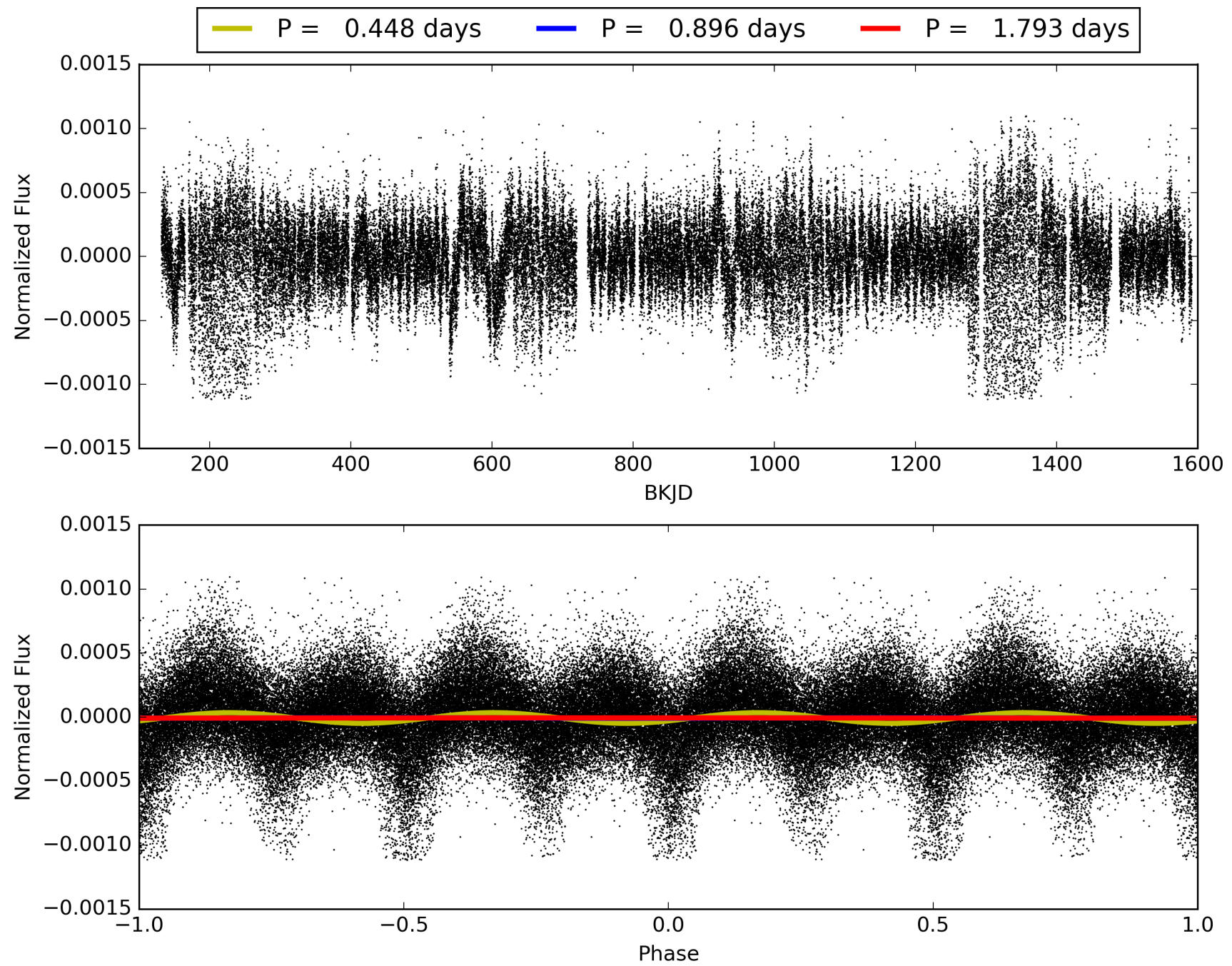
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:37:59 Z

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

# TCE 003533195-01, PDC Light Curves



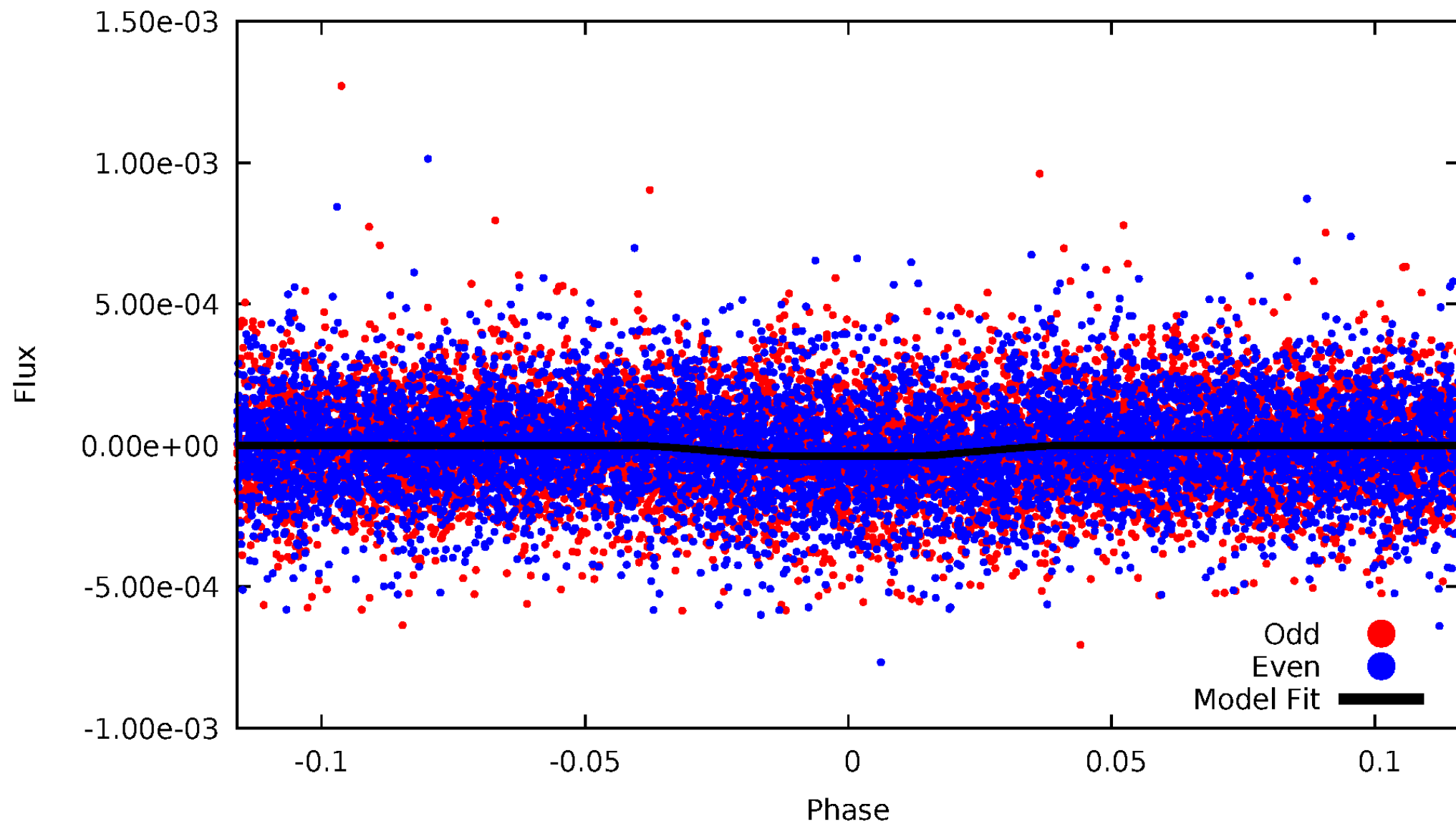
TCE 003533195-01





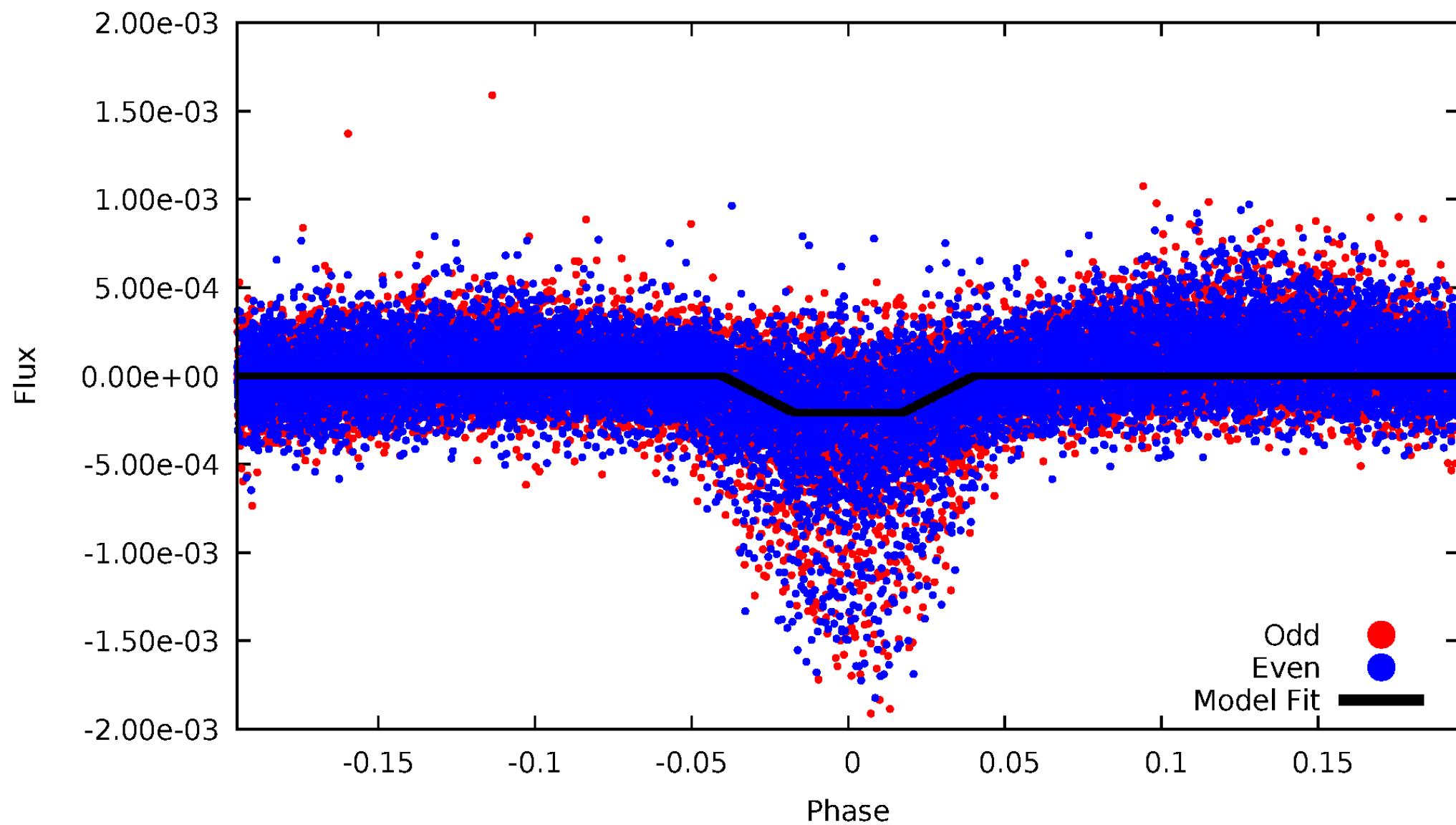
# DV Odd/Even

TCE 003533195-01

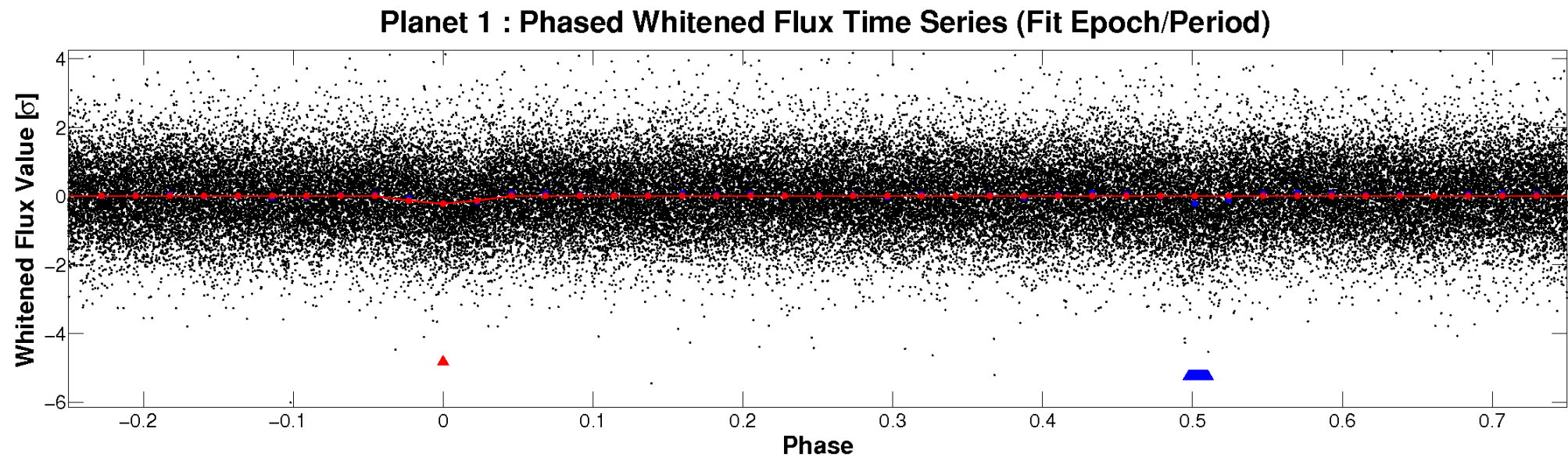
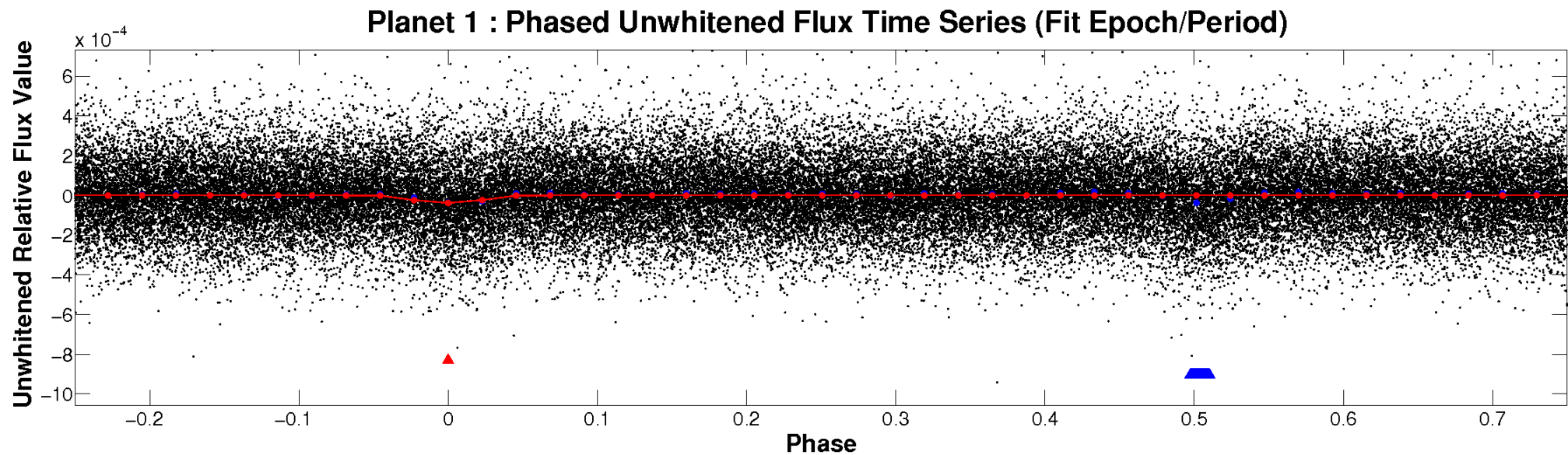


# ALT Odd/Even

TCE 003533195-01

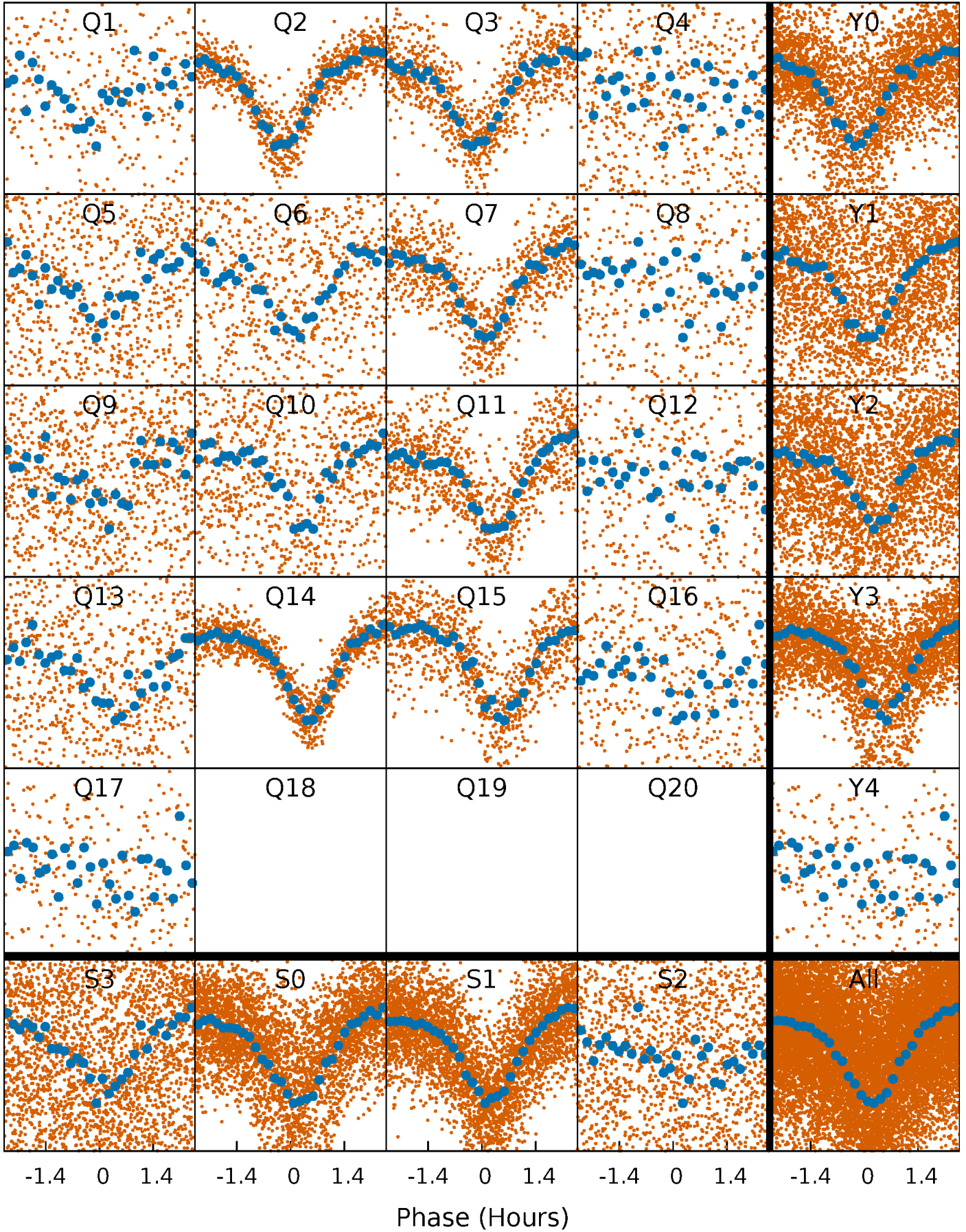


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

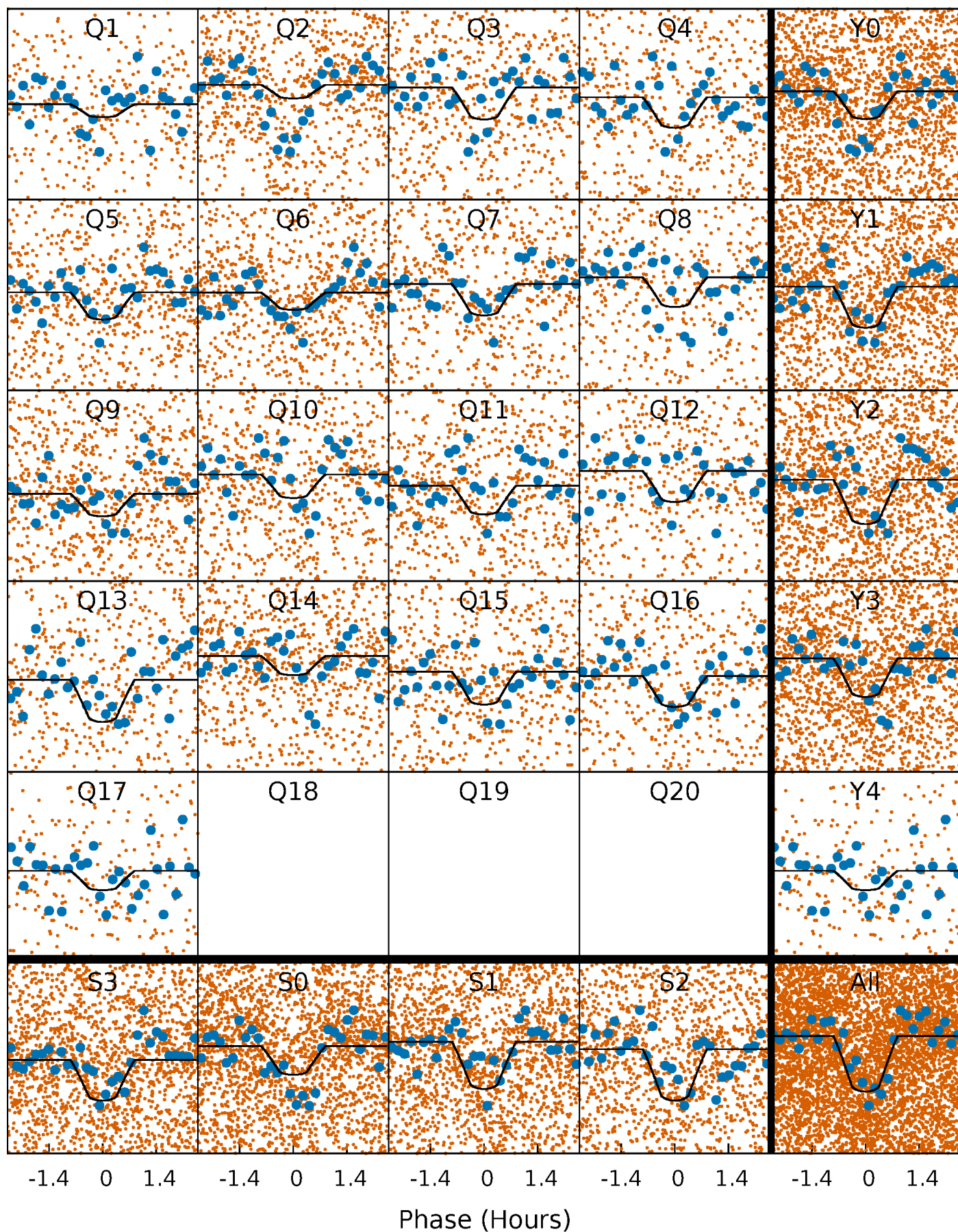
TCE 003533195-01   P= 0.896297 Days    $T_0=132.136834$  (BKJD)





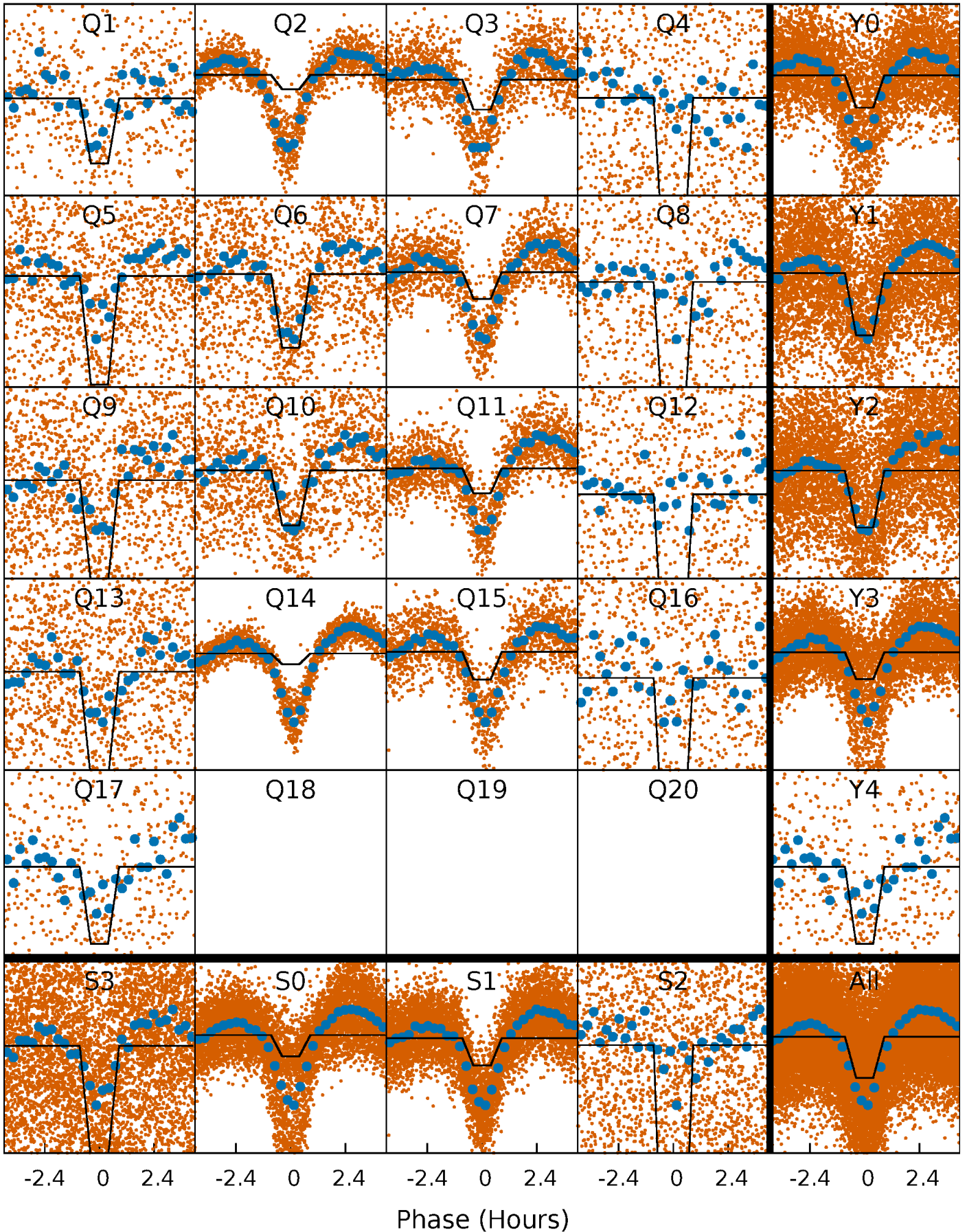
# DV Quarter-Phased Transit Curves

TCE 003533195-01 P= 0.896297 Days  $T_0=132.136834$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

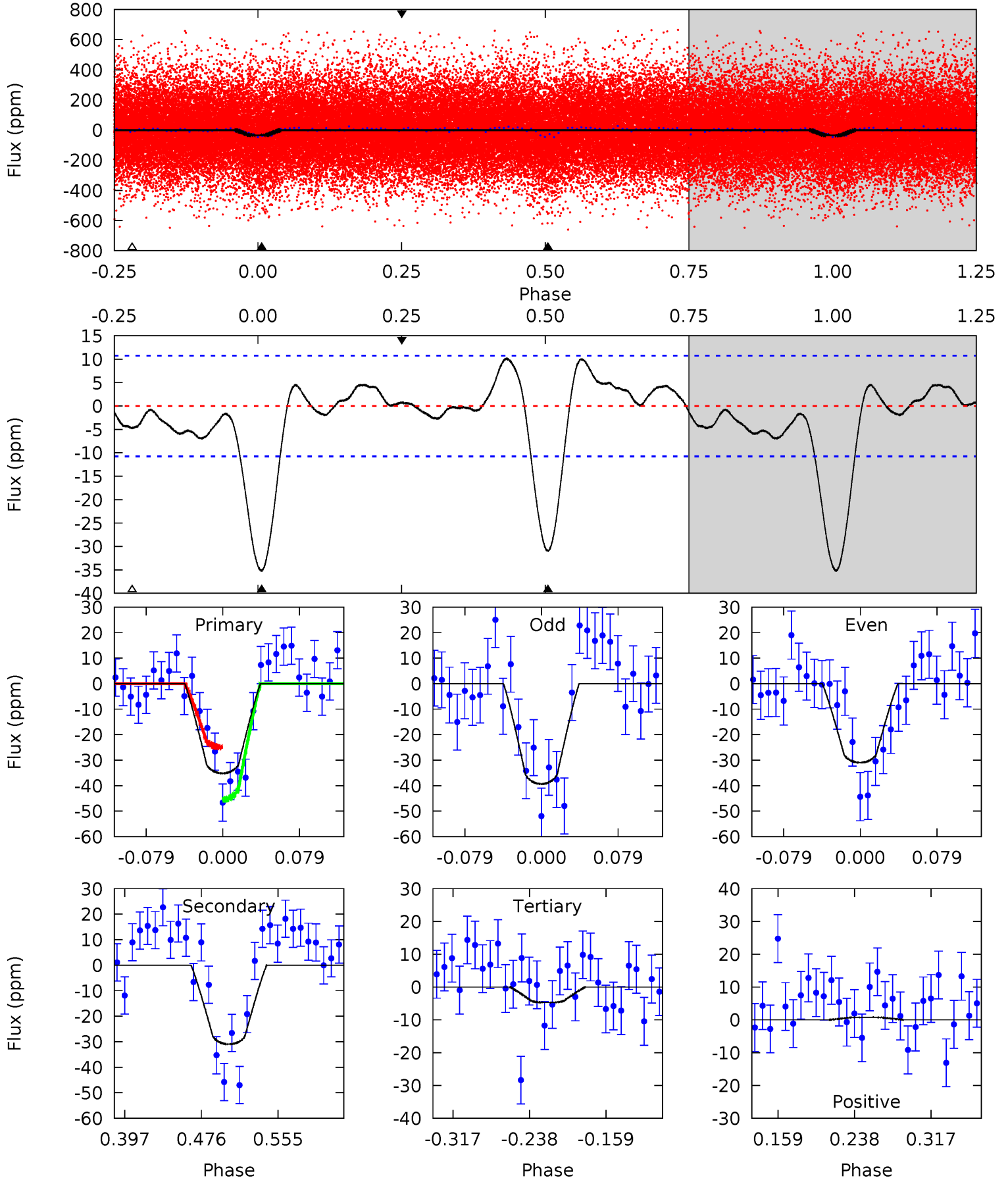
TCE 003533195-01 P= 0.896312 Days  $T_0=132.132069$  (BKJD)



# DV Model-Shift Uniqueness Test

003533195-01, P = 0.896297 Days, E = 131.240537 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	13.3	2.04	0.34	4.61	1.75	1.45	13.0	14.7	11.3	12.9	1.80	0.94	0.22	4.41

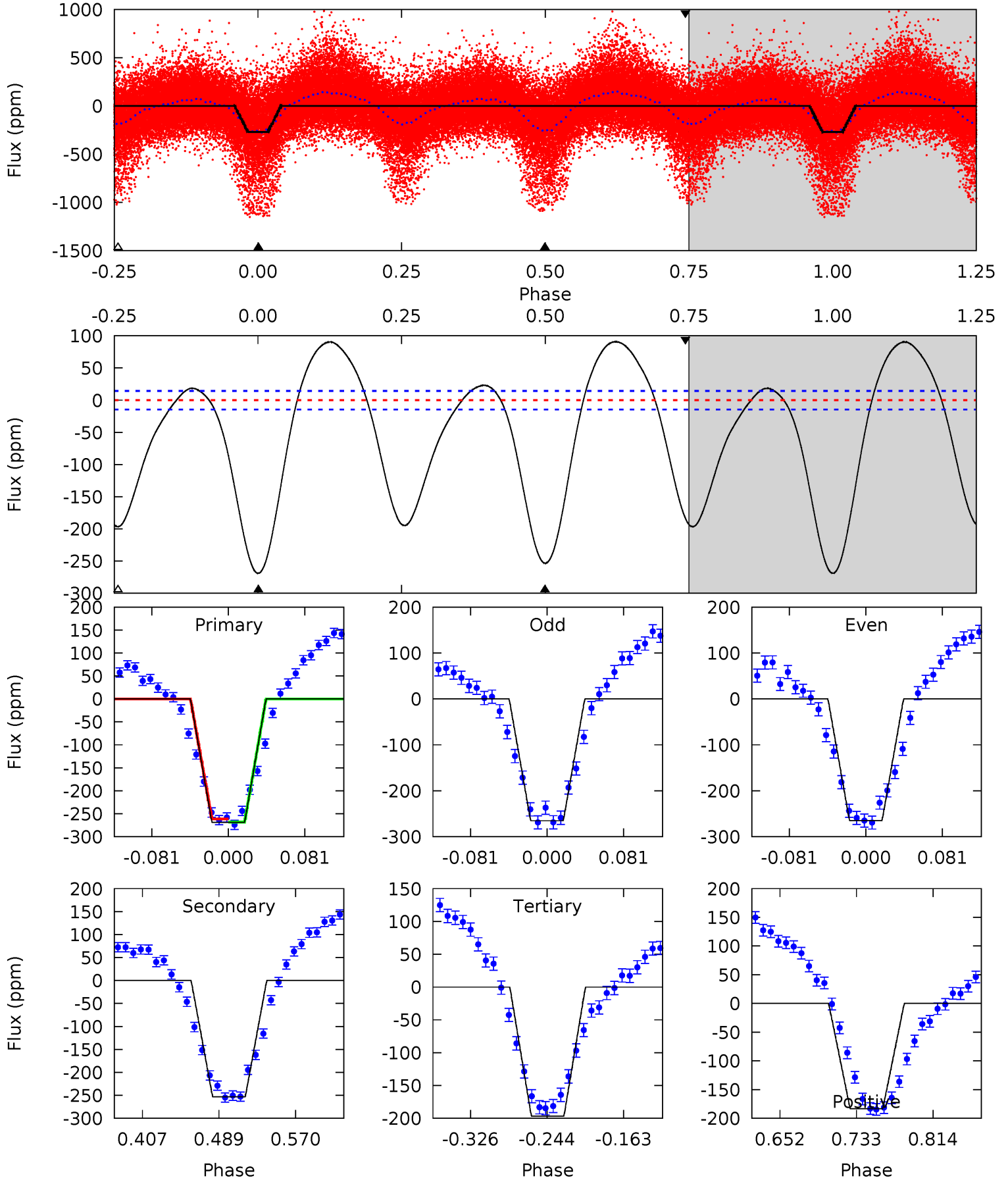




# Alt Model-Shift Uniqueness Test

003533195-01, P = 0.896312 Days, E = 131.235757 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
85.5	80.5	62.4	-58.2	4.61	1.74	28.3	23.0	143.6	18.0	138.7	0.10	1.53	0.25	1.08





### Stellar Parameters For KIC 003533195

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6170^{+188}_{-188}$	$4.189^{+0.258}_{-0.172}$	$-0.400^{+0.300}_{-0.300}$	$1.303^{+0.368}_{-0.368}$	$0.957^{+0.148}_{-0.111}$	$0.609^{+0.905}_{-0.274}$
	+3%/-3%	+6%/-4%	+75%/-75%	+28%/-28%	+15%/-12%	+149%/-45%
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 003533195-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-31 \pm 2$	$0.92^{+0.36}_{-0.29}$	$3211^{+261}_{-247}$	$5597^{+1242}_{-741}$	$6.503^{+7.364}_{-3.179}$
Alt.	$-253 \pm 3$	$2.02^{+0.45}_{-0.40}$	$3204^{+277}_{-226}$	$6457^{+572}_{-483}$	$11^{+6}_{-4}$

$T_{max}$  = 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

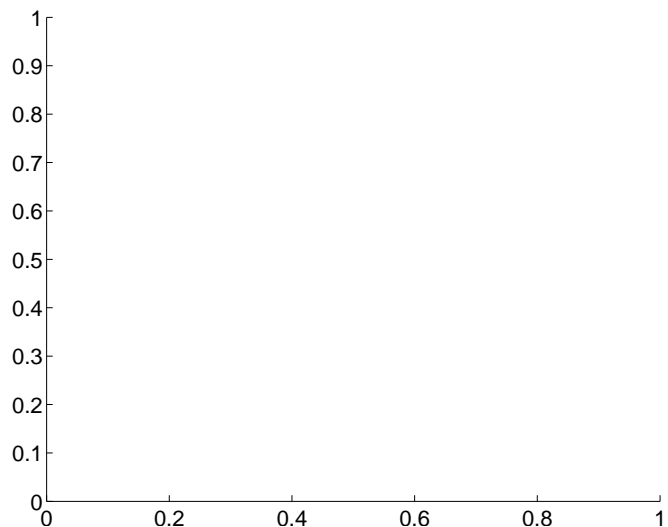
Supplemental centroid analysis for 003533195-01. Kepler magnitude: 13.57. Transit SNR 11.31

There are 0 quarters with good PRF difference image offsets

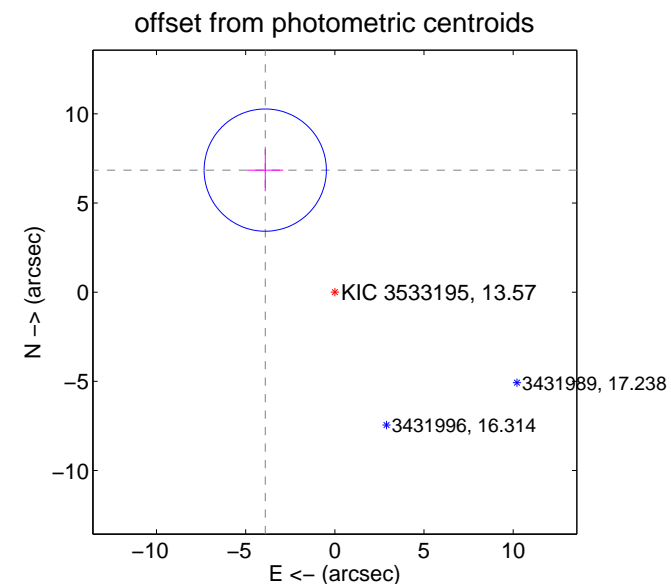
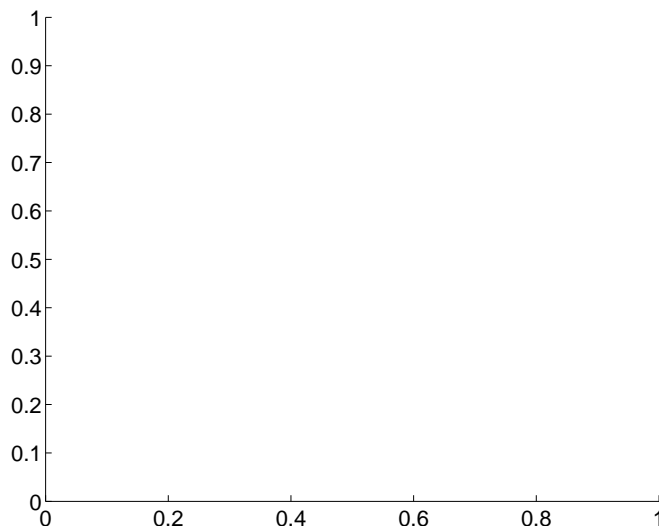
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$7.88 \pm 1.14$	6.90	$3.90 \pm 1.01$	$6.84 \pm 1.18$

There is no PRF-fit offset from OOT-fit

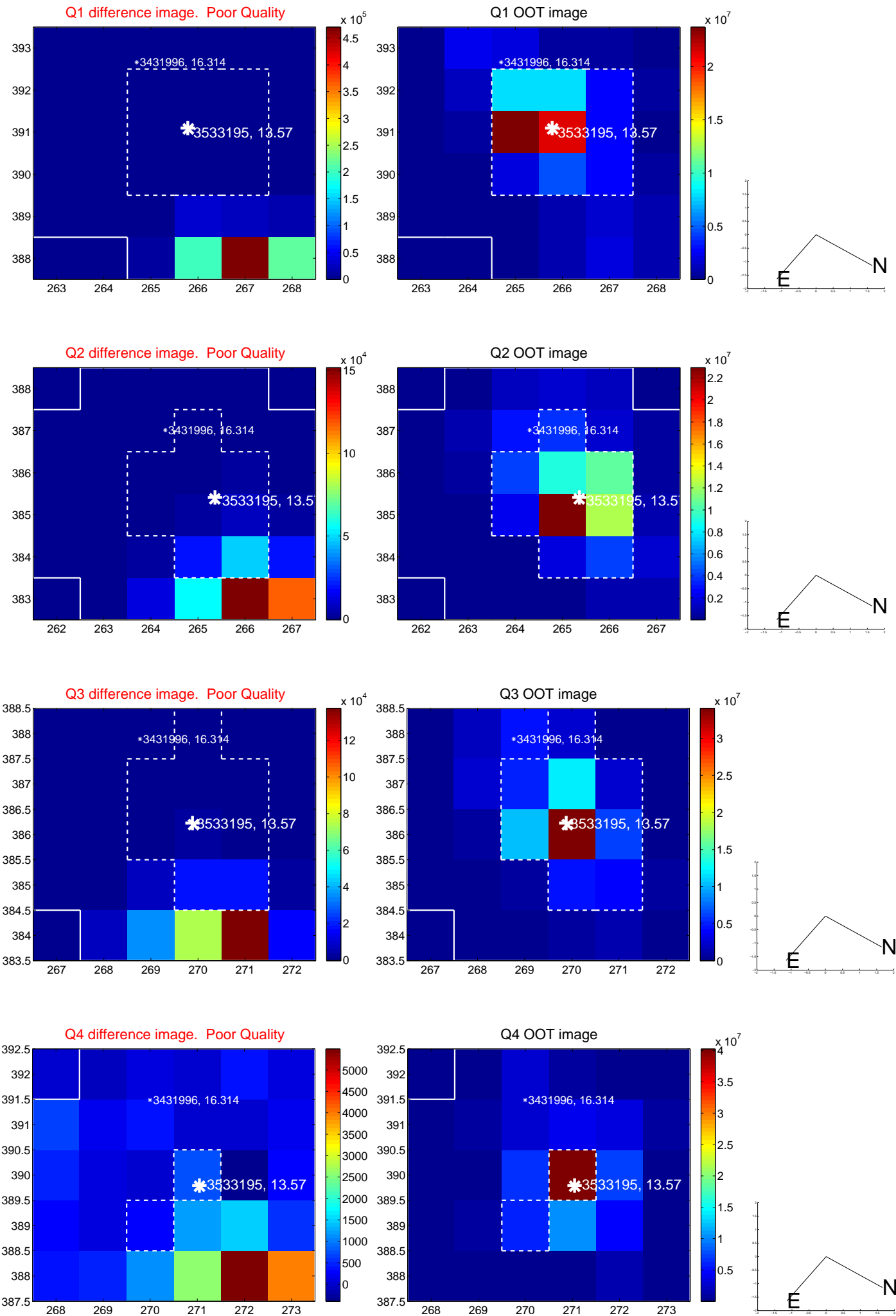


There is no PRF-fit offset from KIC

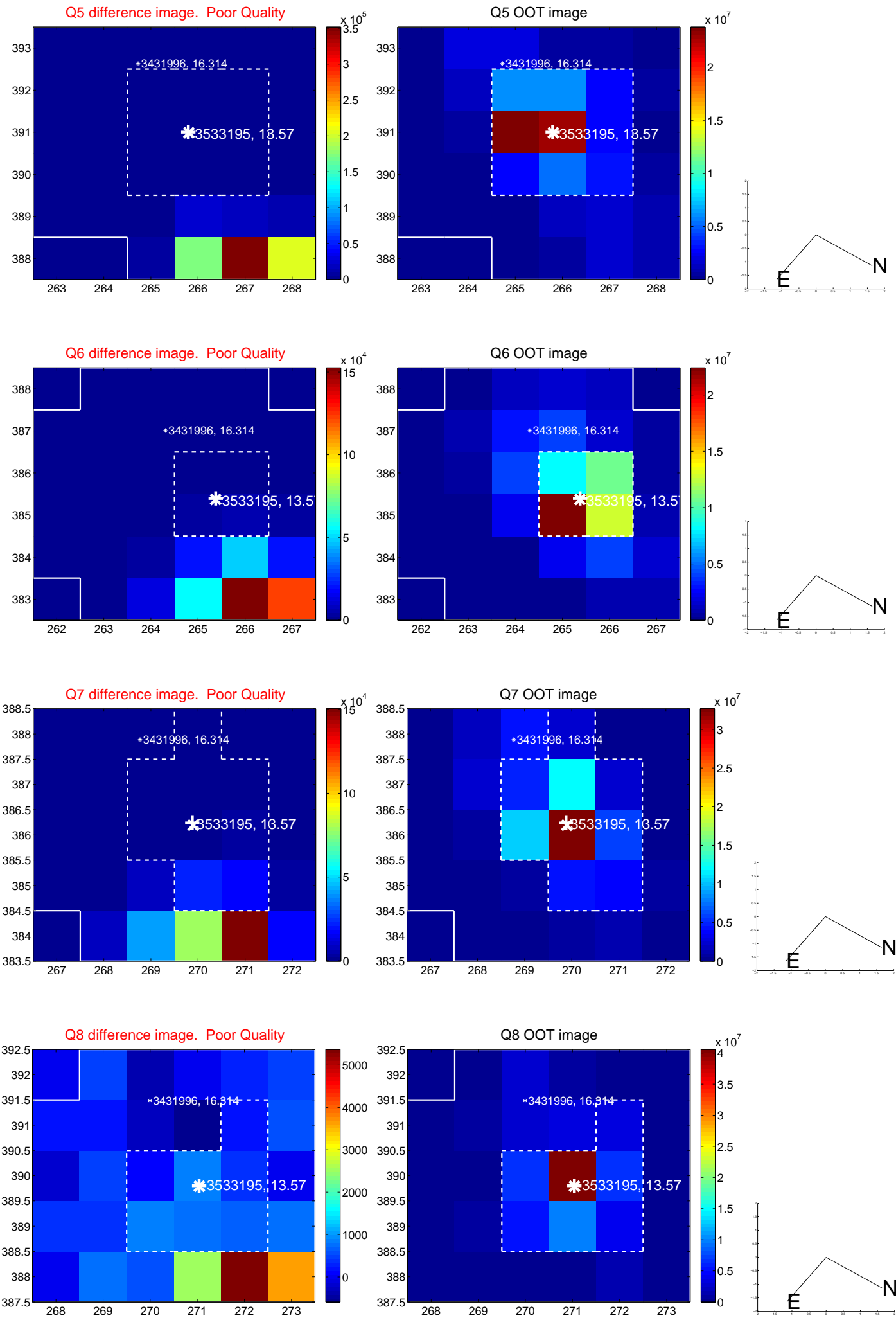


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

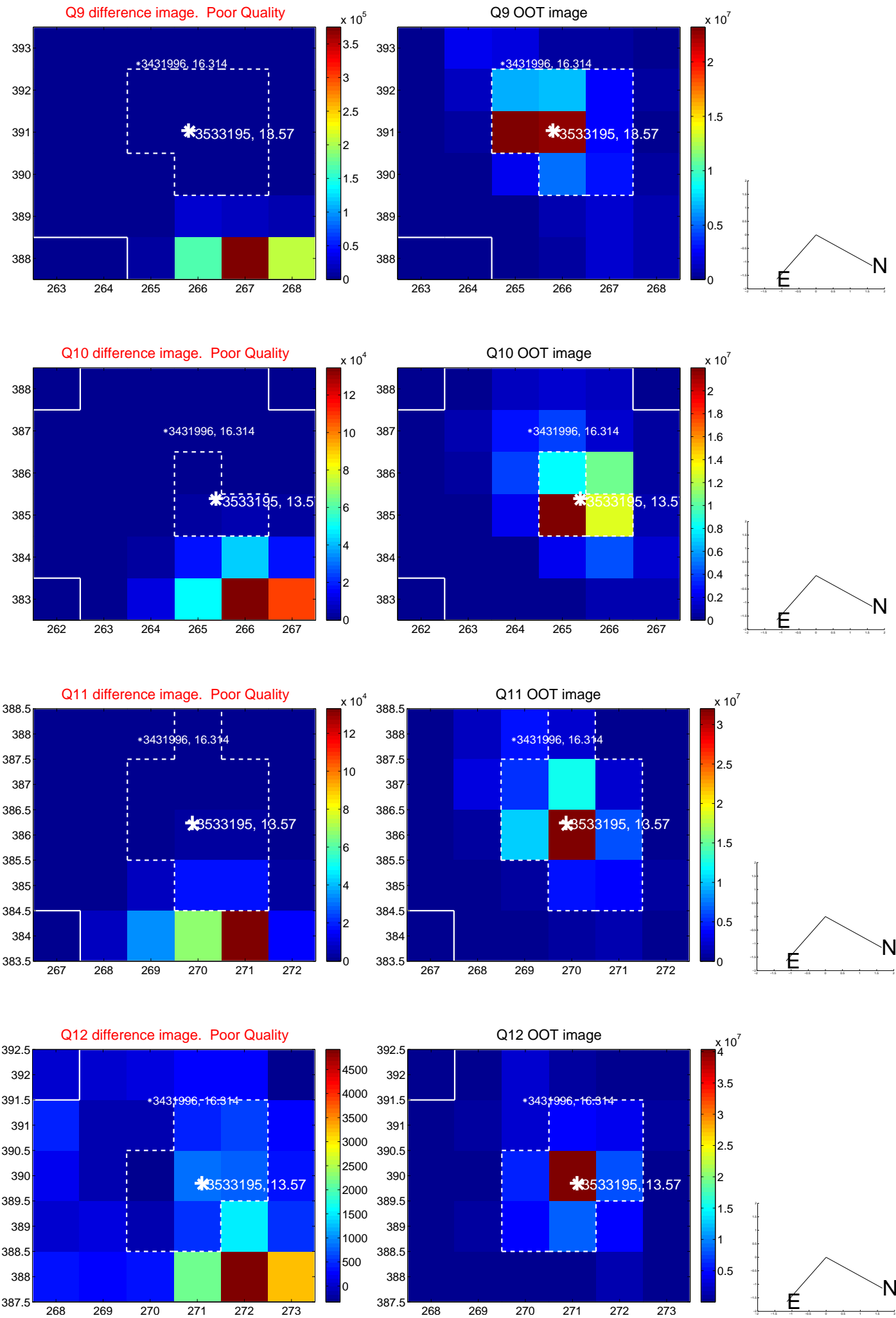


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

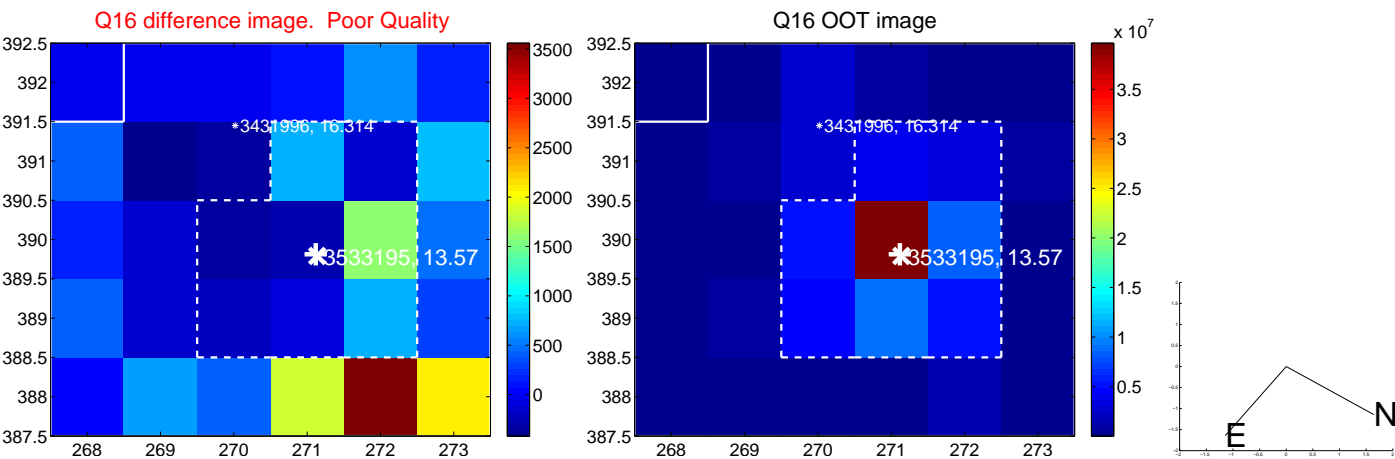
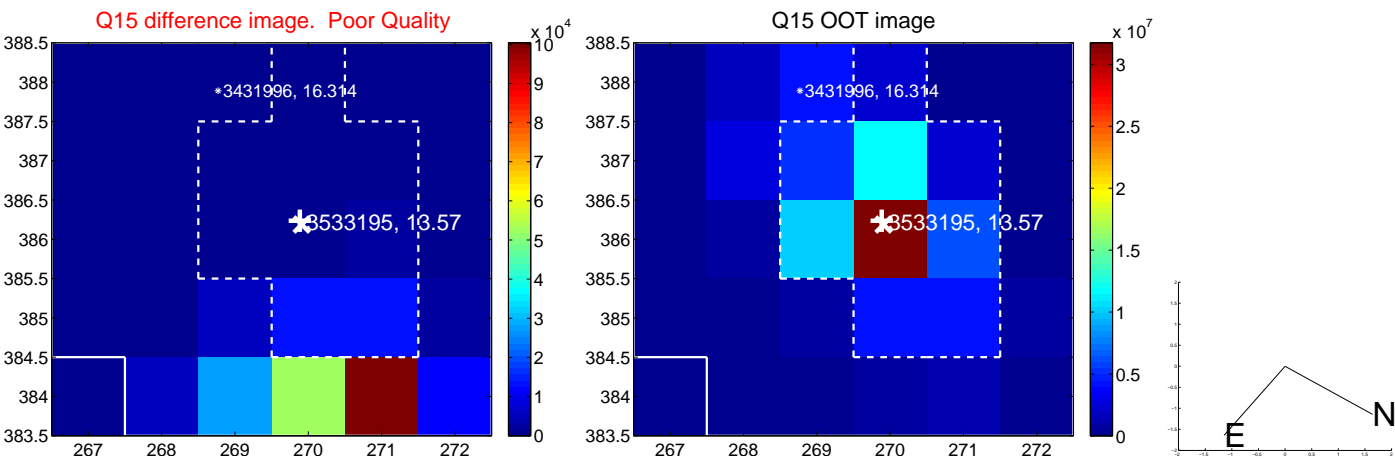
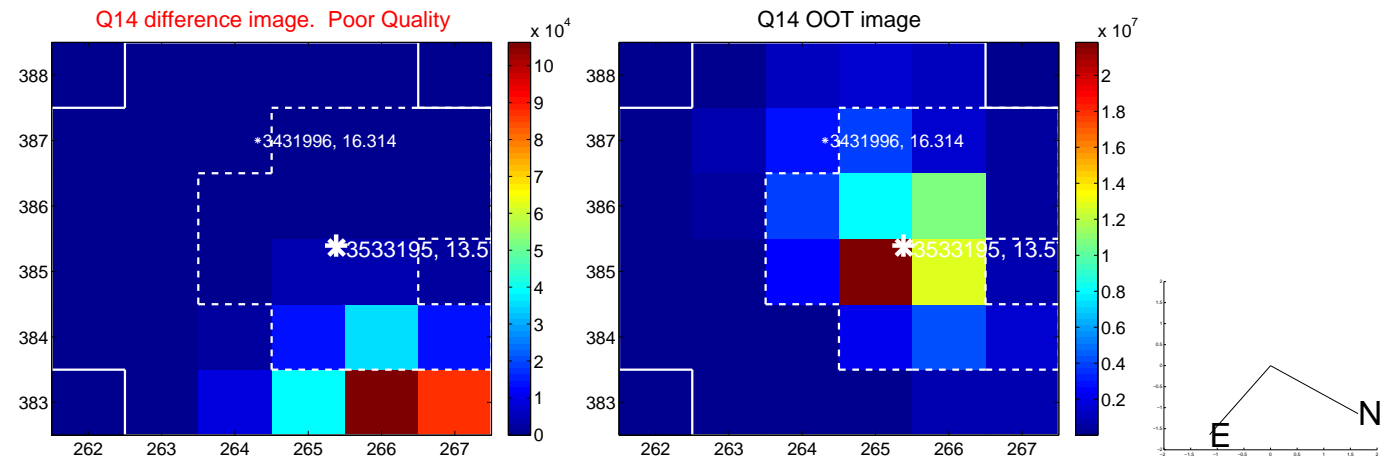
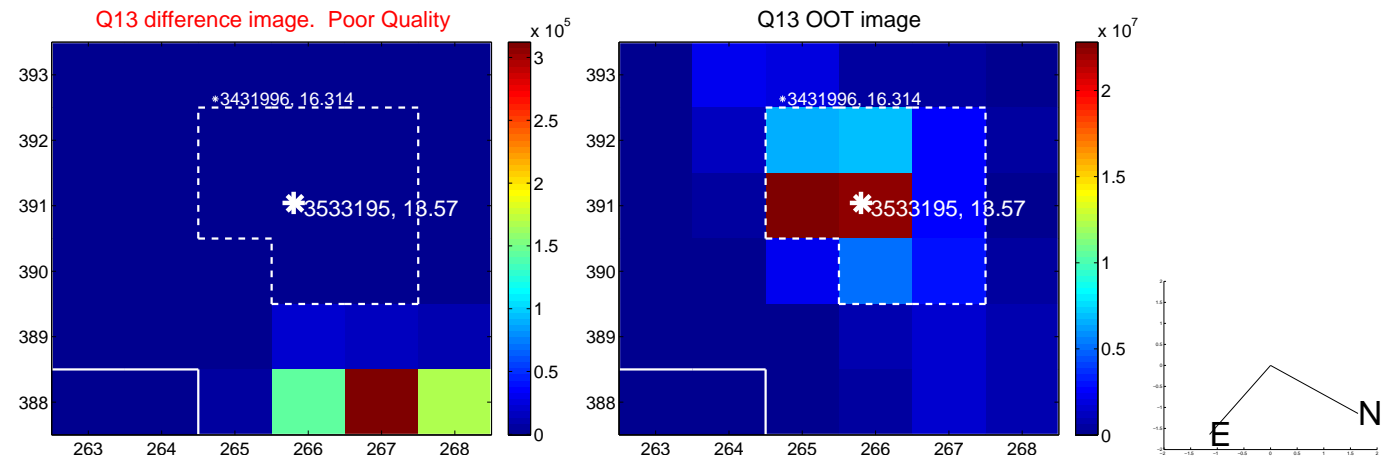




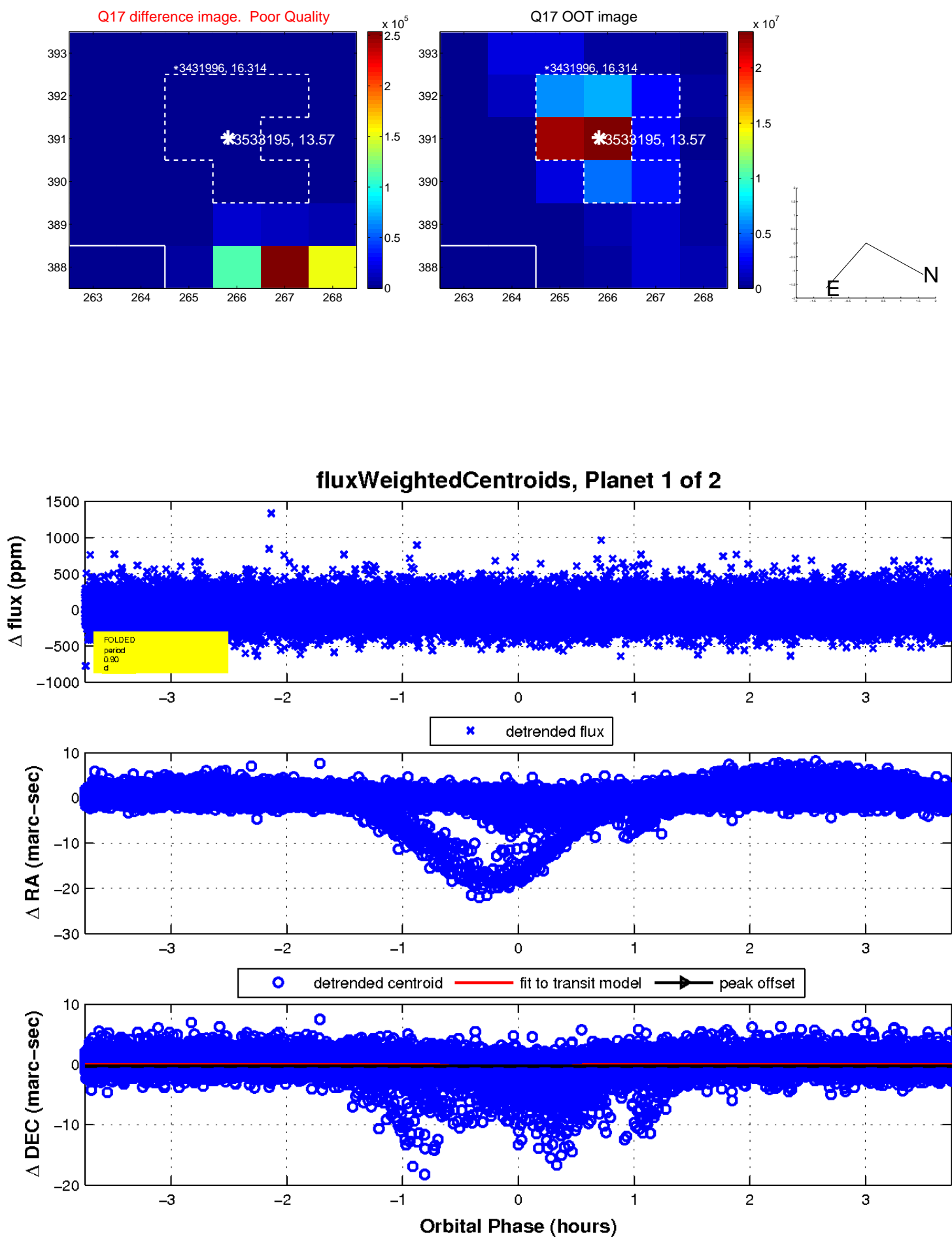
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

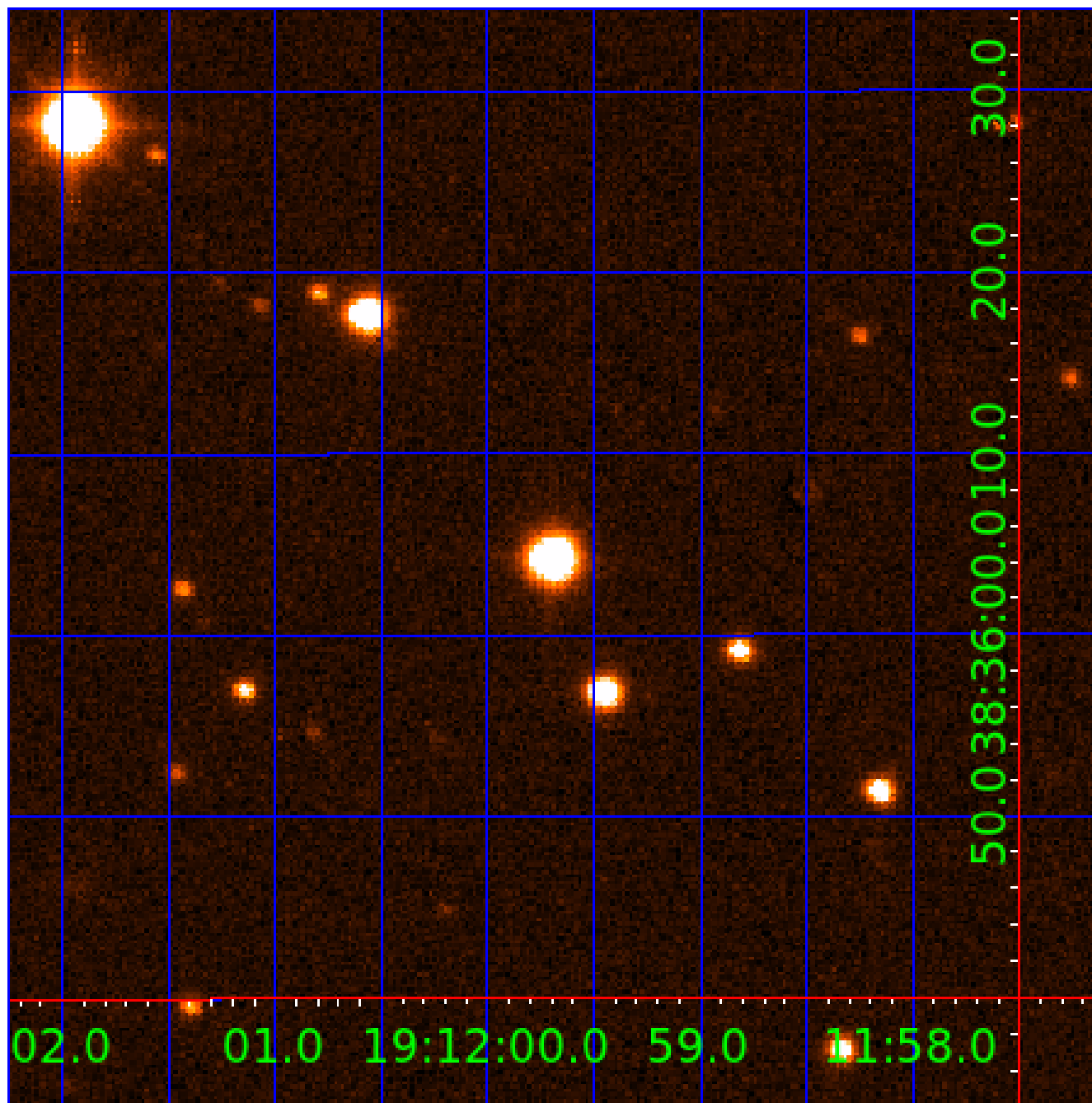


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 003533195

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003533195-01	OBS	No	0.896297	132.136834	38.3	1.248	10.0	11.3	1.30	6170	0.96	6855.86
003533195-02	OBS	No	0.896304	131.686296	40.5	1.157	9.9	11.7	1.30	6170	0.98	6855.79

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003533195-01	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
003533195-02	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET

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

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

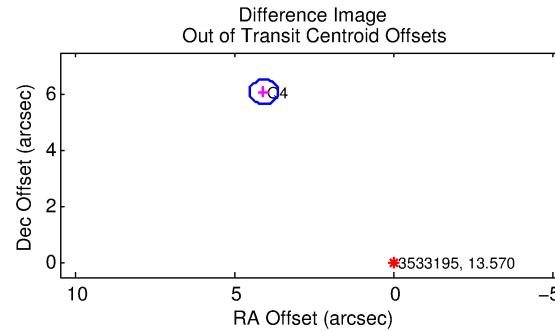
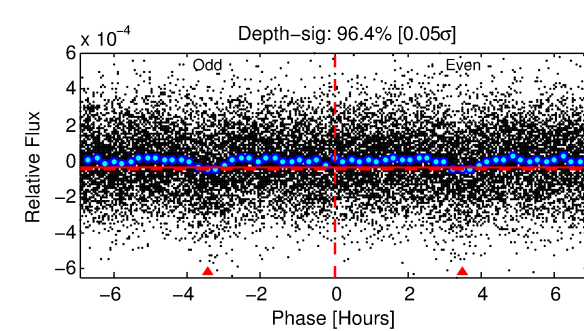
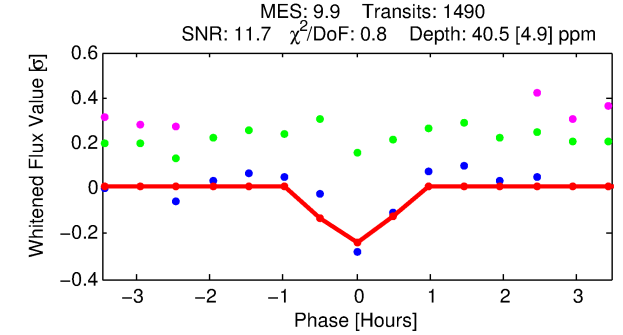
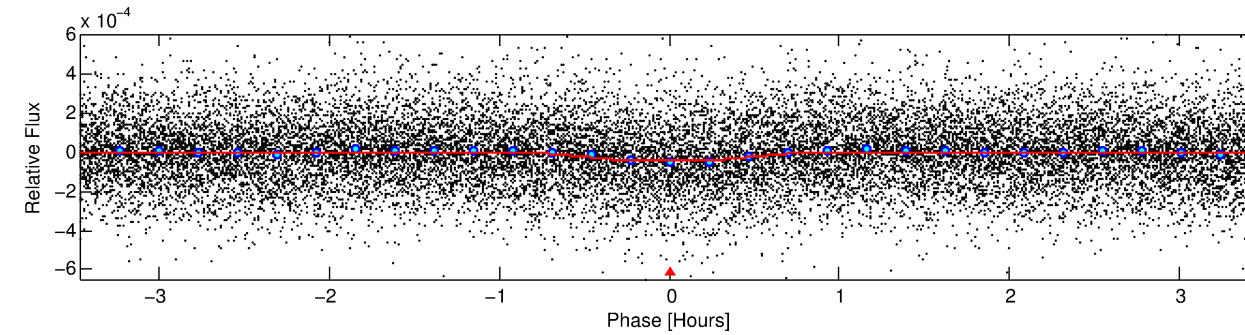
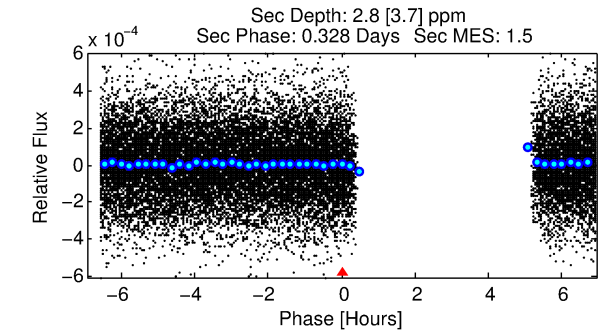
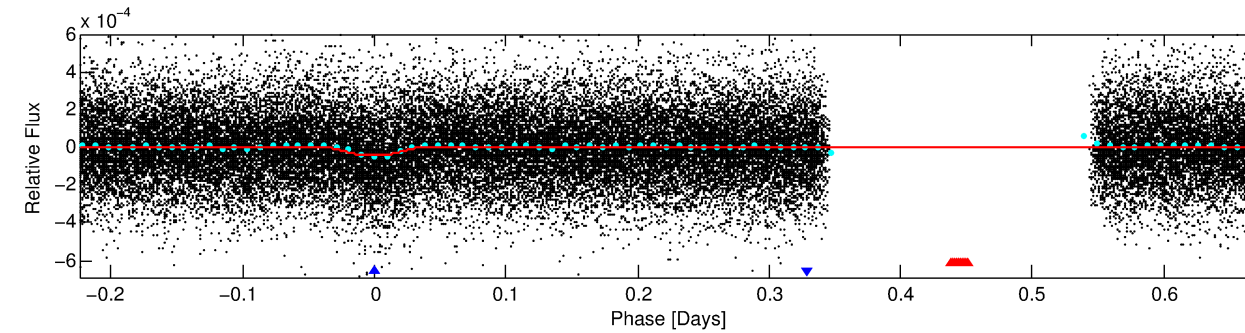
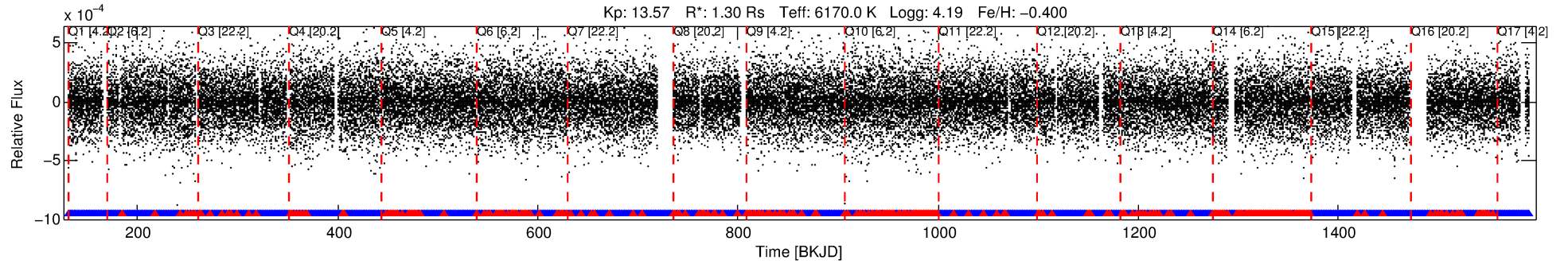
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003533195-02

No Significant Match Found

# DV One-Page Summary

KIC: 3533195 Candidate: 2 of 2 Period: 0.896 d



## DV Fit Results:

Period = 0.89630 [0.00001] d  
Epoch = 131.6863 [0.0016] BKJD  
Rp/R\* = 0.0069 [0.0017]  
a/R\* = 2.79 [3.17]  
b = 0.90 [0.27]  
Seff = 6855.79 [3120.38]  
Teq = 2320 [264] K  
Rp = 0.98 [0.36] Re  
a = 0.0179 [0.0049] AU  
Ag = 0.52 [0.75] [-0.64σ]  
Teffp = 3044 [1057] K [0.66σ]

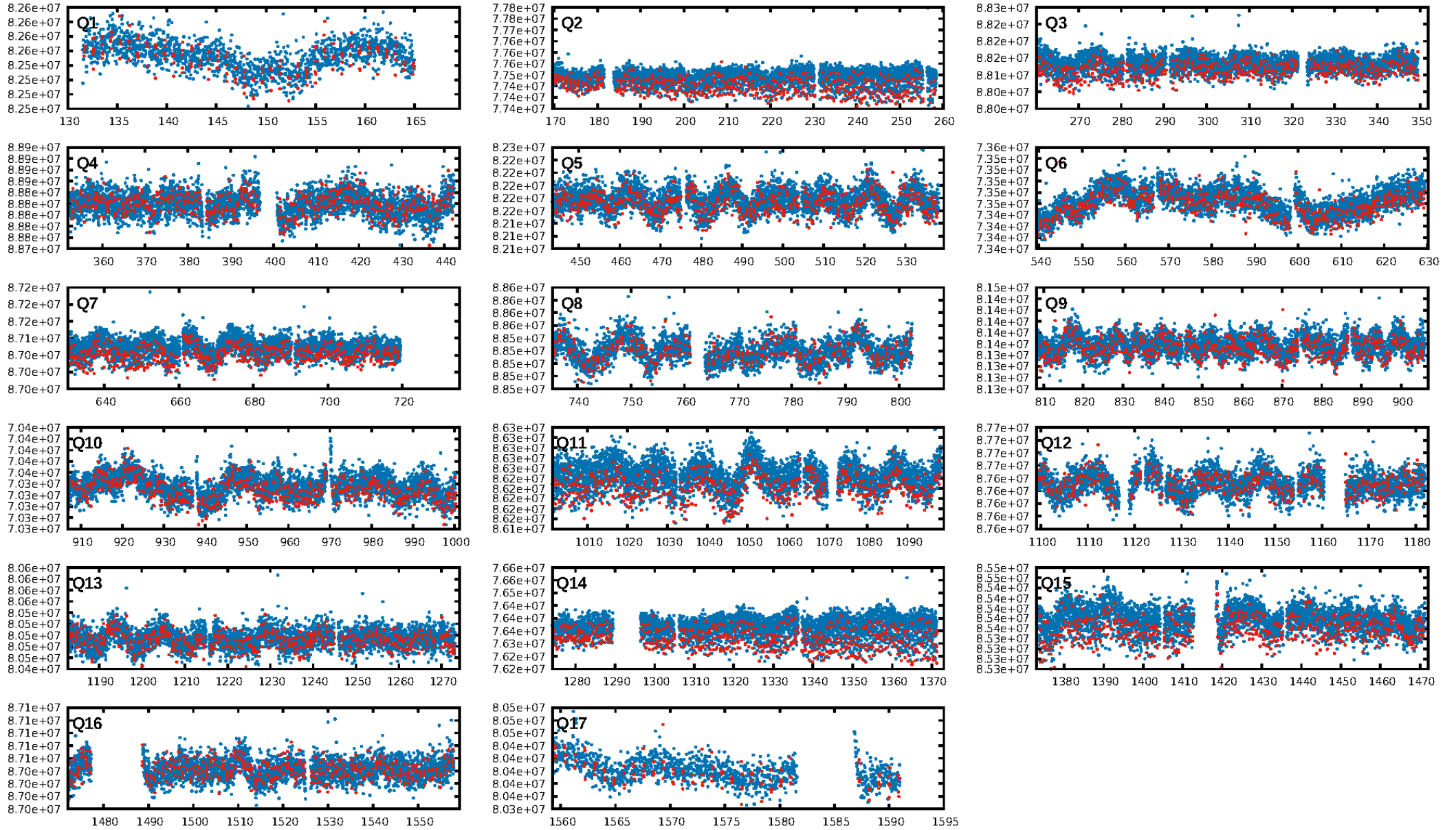
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.34e-23  
RollingBand-fgt: 0.76 [1086/1422]  
GhostDiagnostic-chr: -0.7072  
Centroid-sig: N/A  
Centroid-so: 9.544 arcsec [8.82σ]  
OotOffset-rm: 7.345 arcsec [50.08σ]  
KicOffset-rm: 7.279 arcsec [49.62σ]  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [17/17]

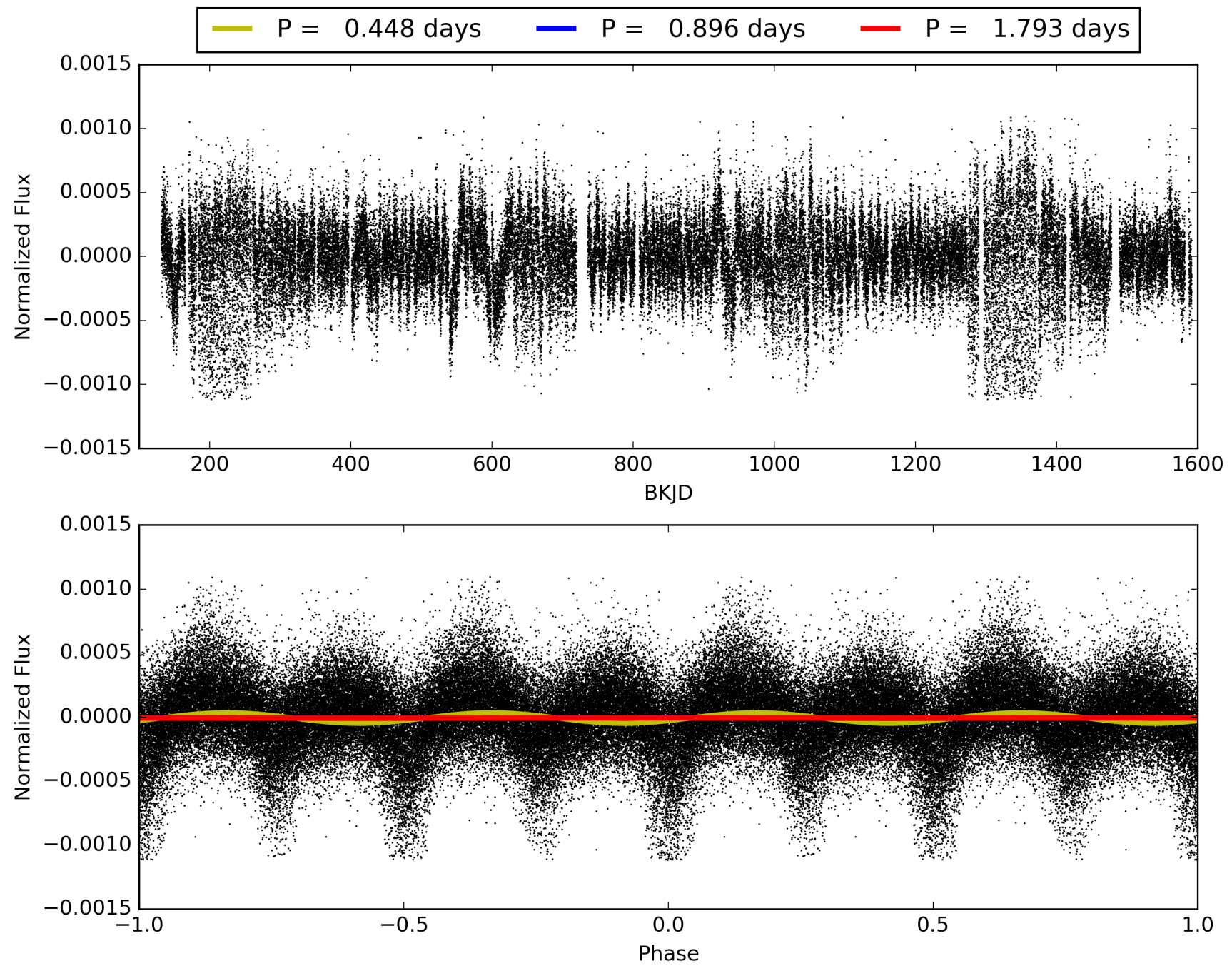
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:38:08 Z

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

# TCE 003533195-02, PDC Light Curves



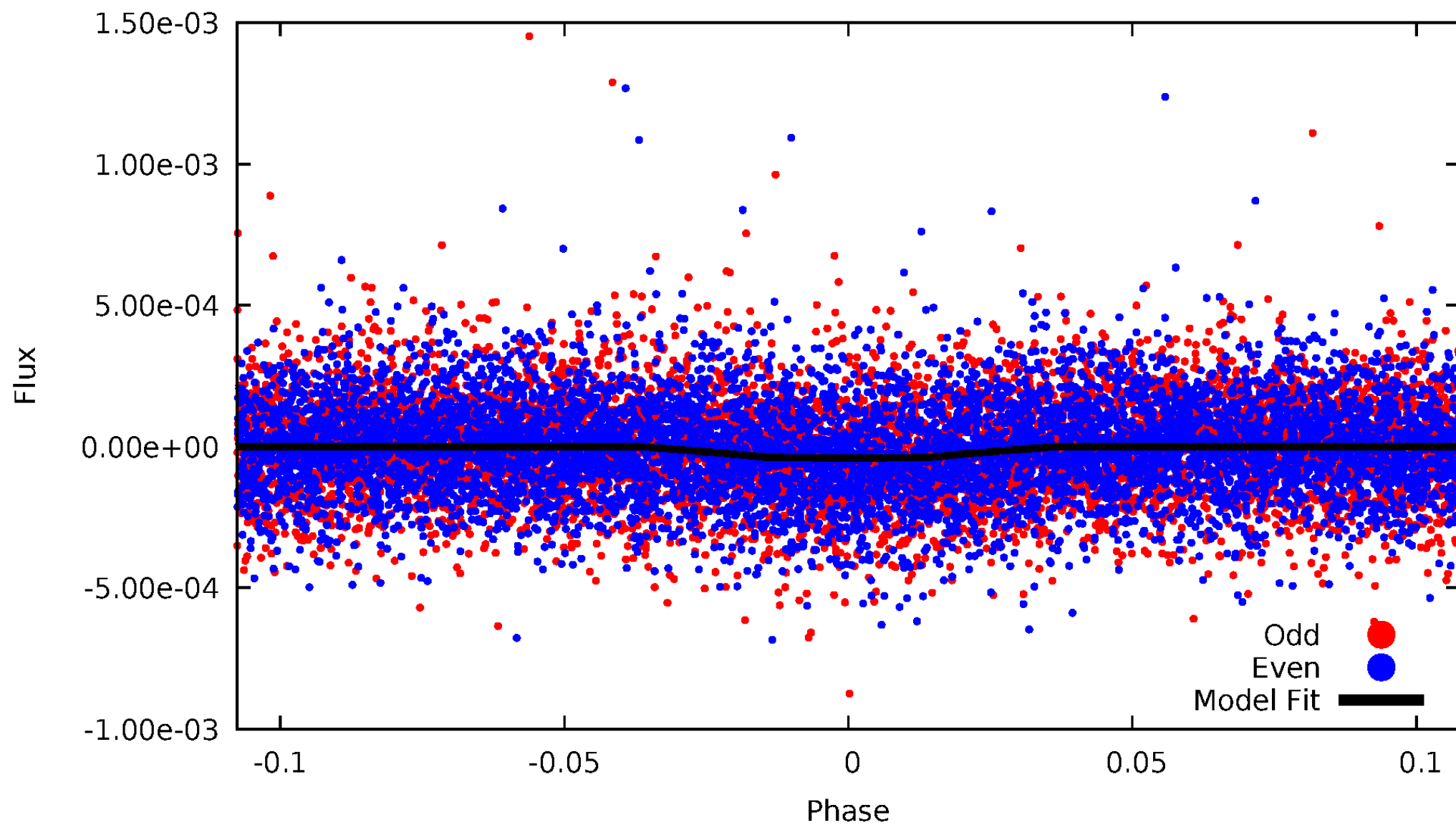
TCE 003533195-02





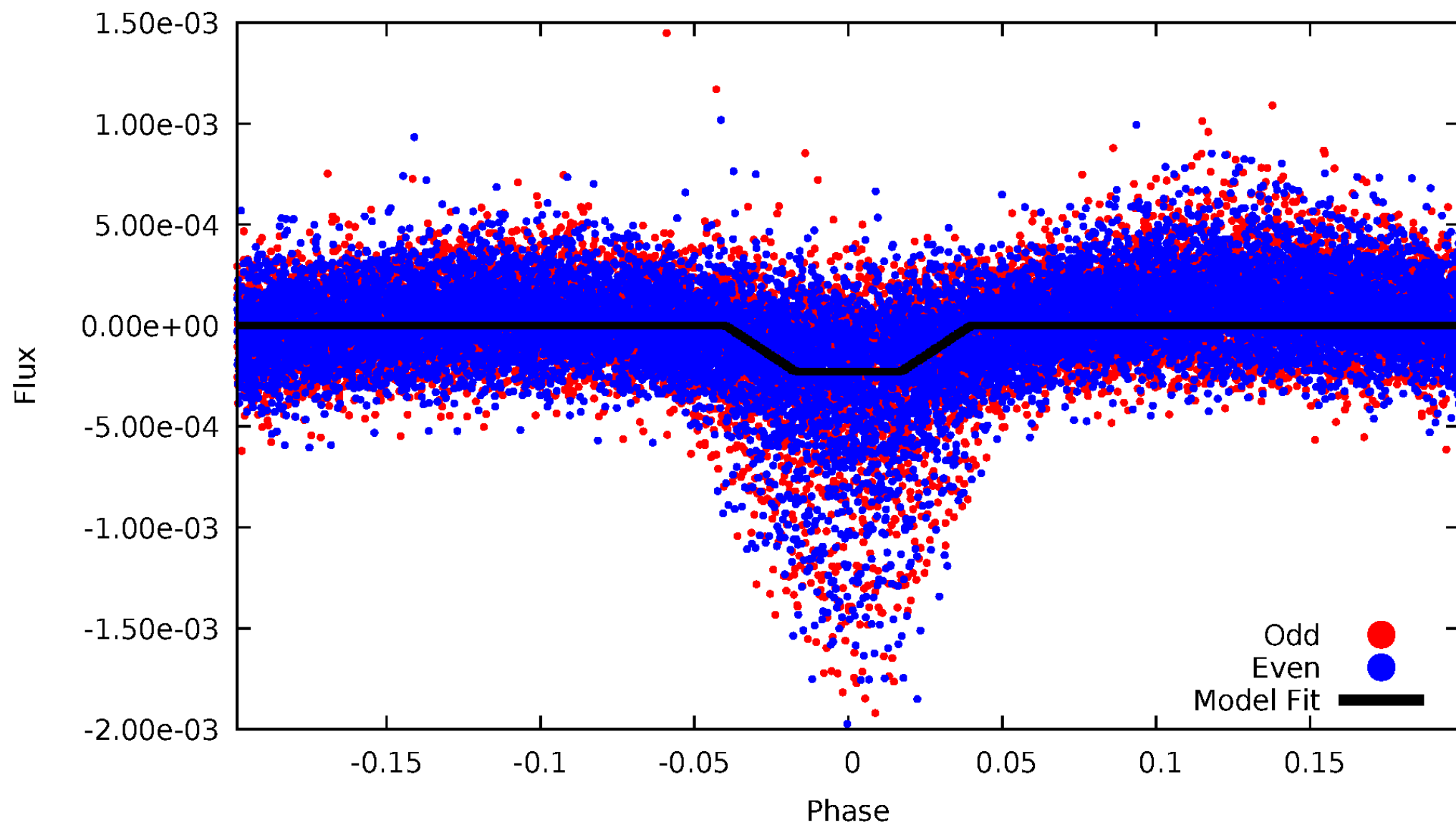
DV Odd/Even

TCE 003533195-02



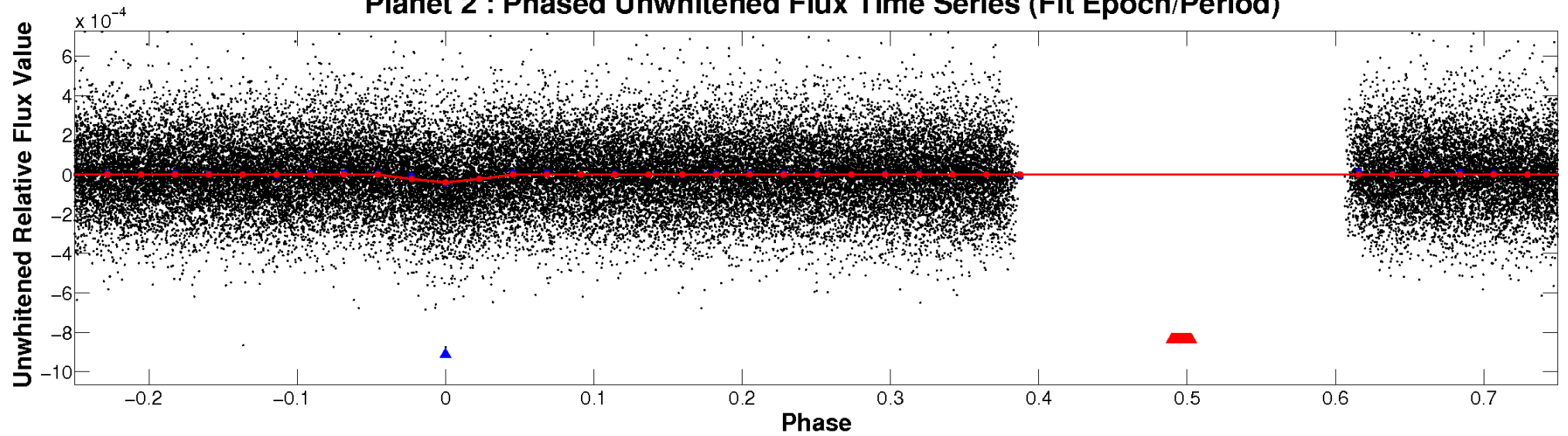
# ALT Odd/Even

TCE 003533195-02

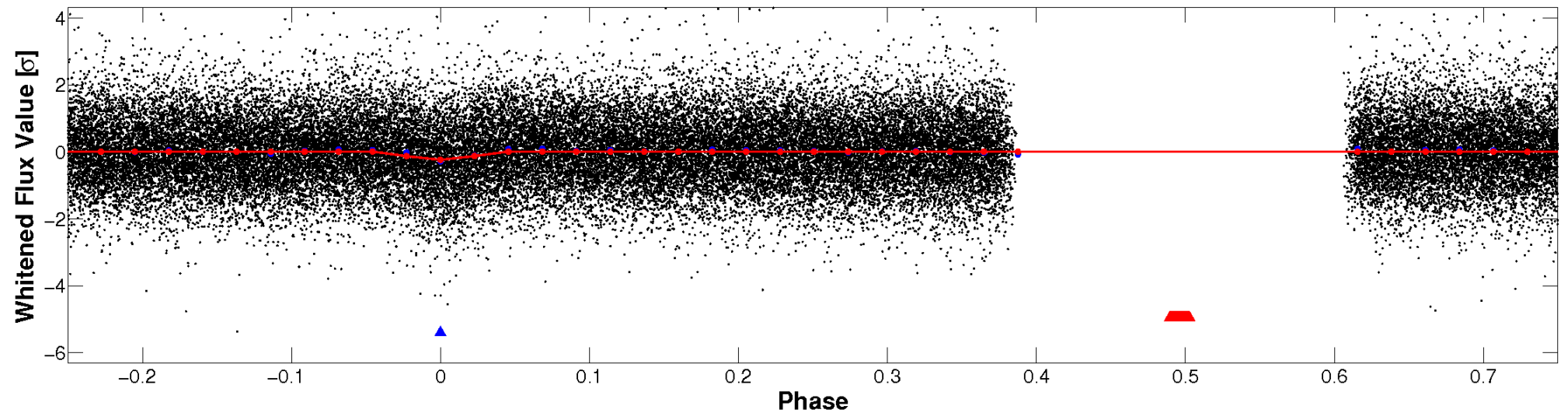


# Non-Whitened Vs. Whitened Light Curve

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

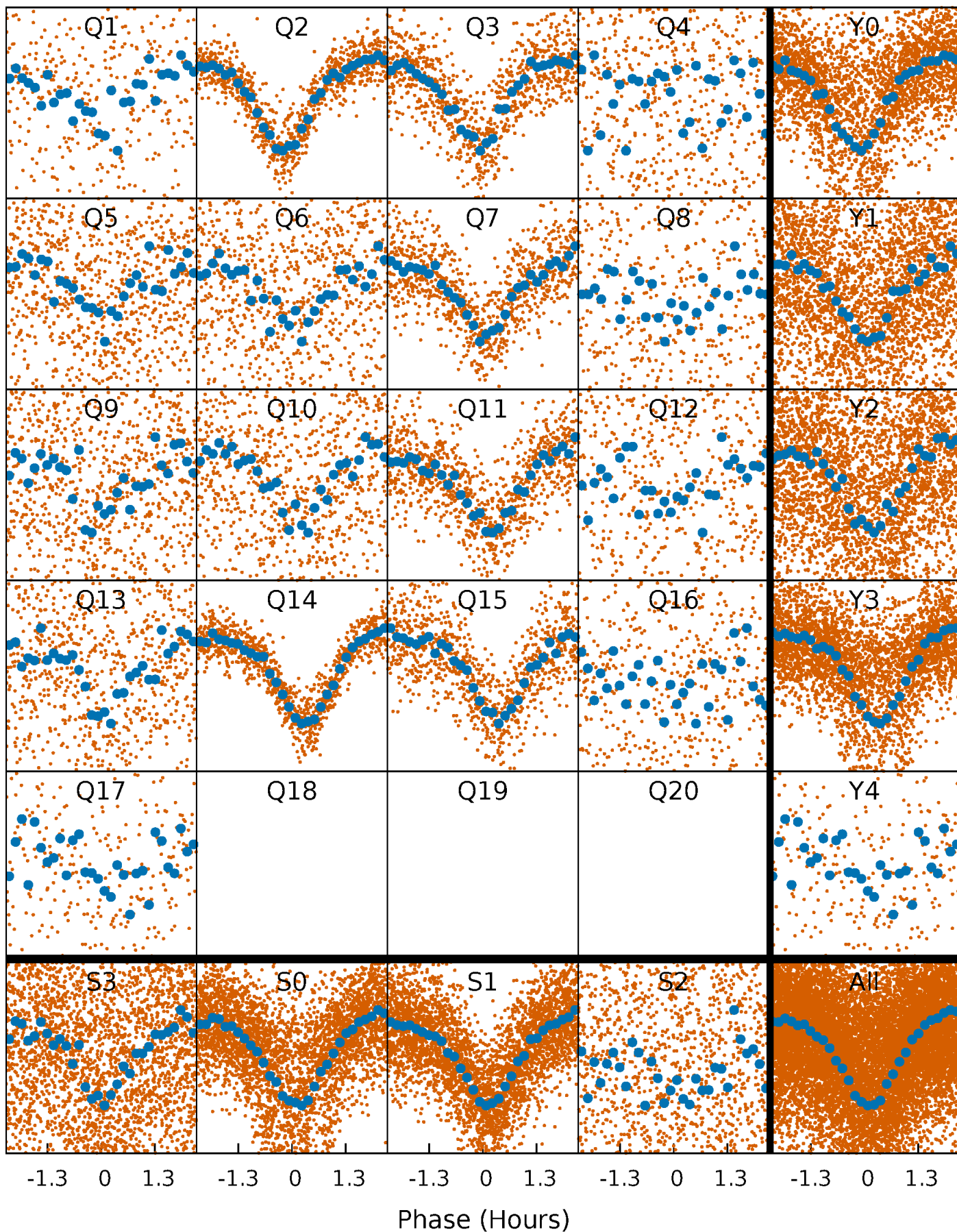


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

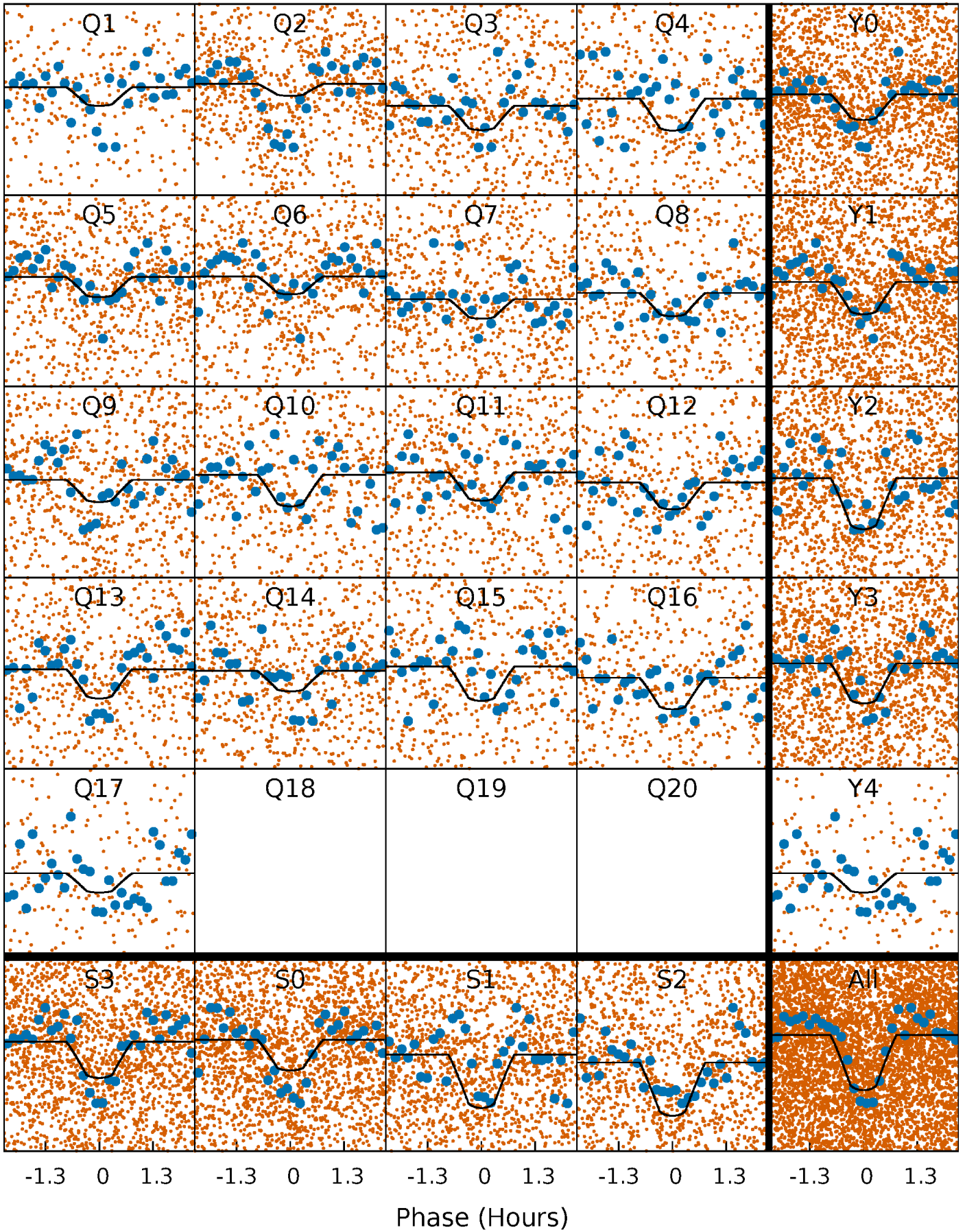
TCE 003533195-02   P= 0.896304 Days    $T_0=131.686296$  (BKJD)





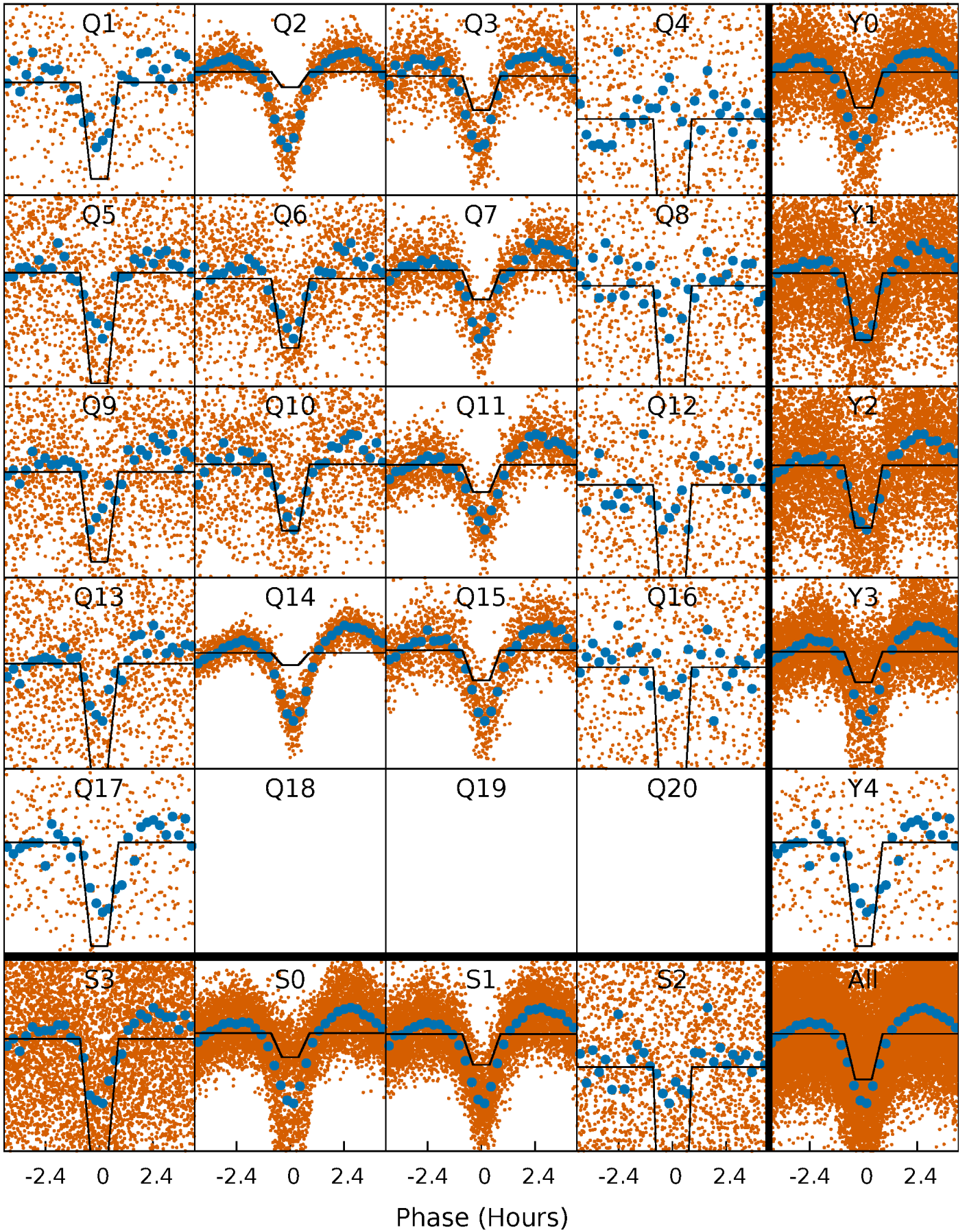
# DV Quarter-Phased Transit Curves

TCE 003533195-02   P= 0.896304 Days    $T_0=131.686296$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003533195-02   P= 0.896312 Days    $T_0=131.683859$  (BKJD)

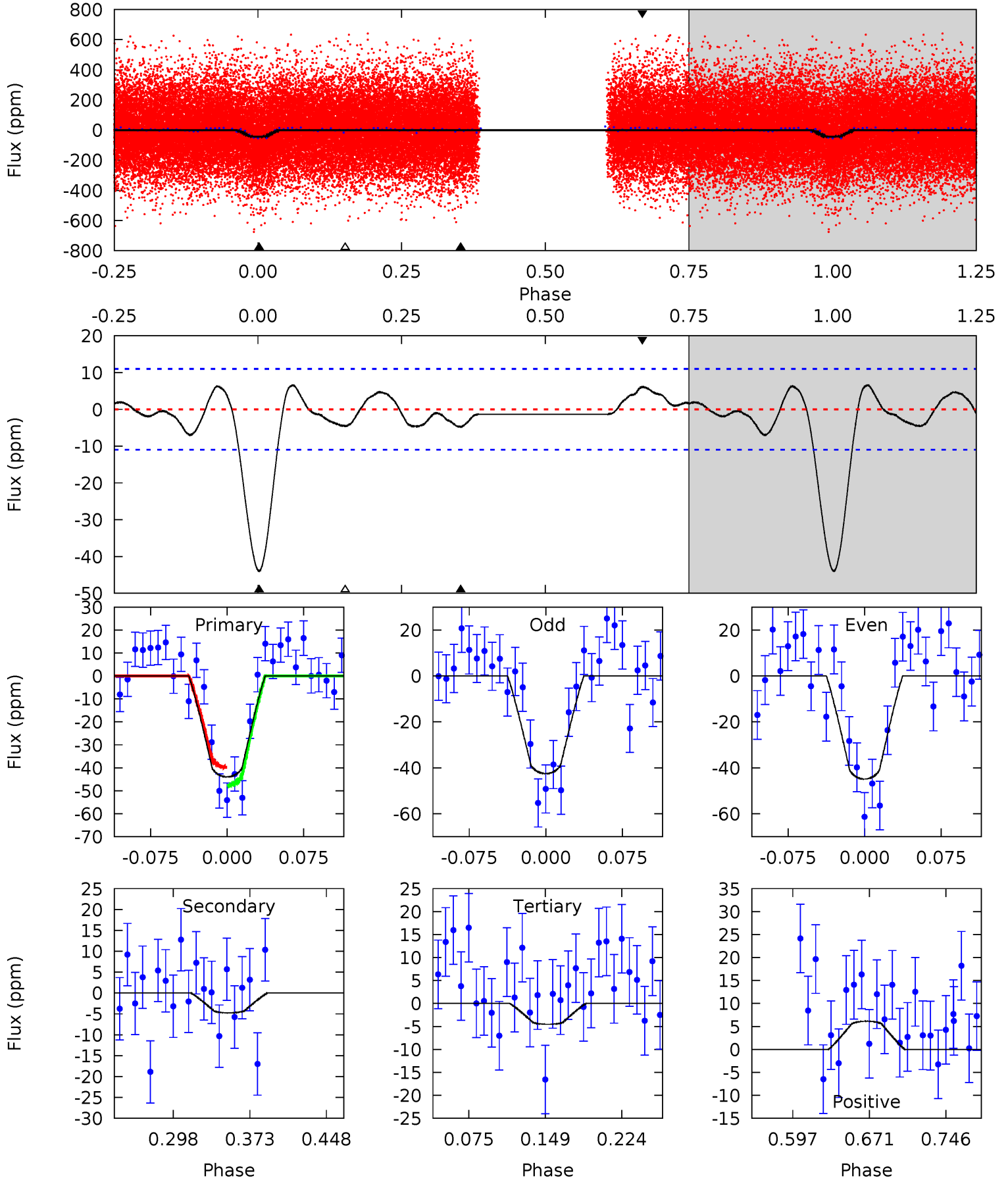




# DV Model-Shift Uniqueness Test

003533195-02, P = 0.896304 Days, E = 130.789992 Days

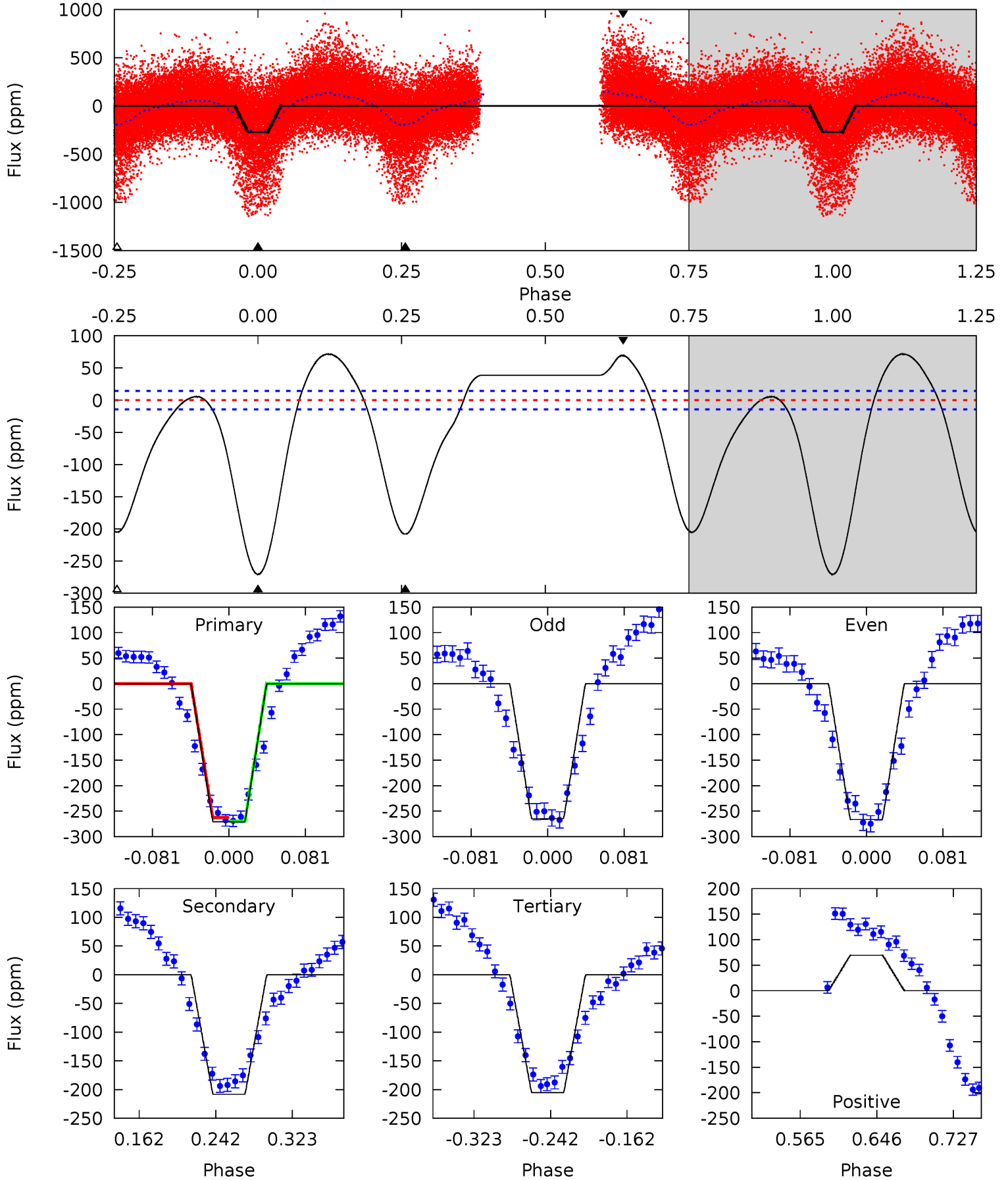
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.5	2.00	1.91	2.58	4.63	1.78	1.37	16.6	15.9	0.09	-0.58	0.50	1.04	0.13	1.66



# Alt Model-Shift Uniqueness Test

003533195-02, P = 0.896312 Days, E = 130.787547 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
86.9	66.8	65.9	22.3	4.61	1.75	26.7	21.0	64.6	0.95	44.5	0.27	1.52	0.21	1.15



### Stellar Parameters For KIC 003533195

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$\rho_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6170^{+188}_{-188}$	$4.189^{+0.258}_{-0.172}$	$-0.400^{+0.300}_{-0.300}$	$1.303^{+0.368}_{-0.368}$	$0.957^{+0.148}_{-0.111}$	$0.609^{+0.905}_{-0.274}$
	+3%/-3%	+6%/-4%	+75%/-75%	+28%/-28%	+15%/-12%	+149%/-45%
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 003533195-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-5 \pm 2$	$0.96^{+0.29}_{-0.27}$	$3210^{+261}_{-242}$	$3546^{+622}_{-810}$	$0.866^{+1.036}_{-0.481}$
Alt.	$-208 \pm 3$	$2.11^{+0.45}_{-0.35}$	$3214^{+267}_{-277}$	$5957^{+415}_{-347}$	$8.360^{+3.644}_{-2.495}$

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

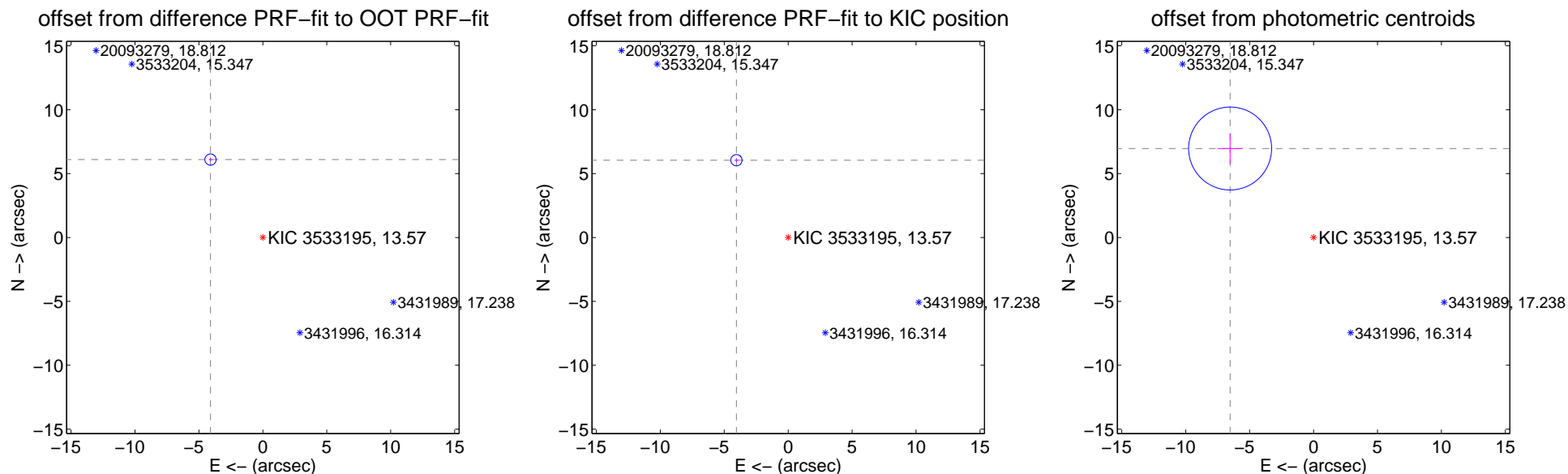
## DV Centroid Data

Supplemental centroid analysis for 003533195-02. Kepler magnitude: 13.57. Transit SNR 11.70

There are 1 quarters with good PRF difference image offsets

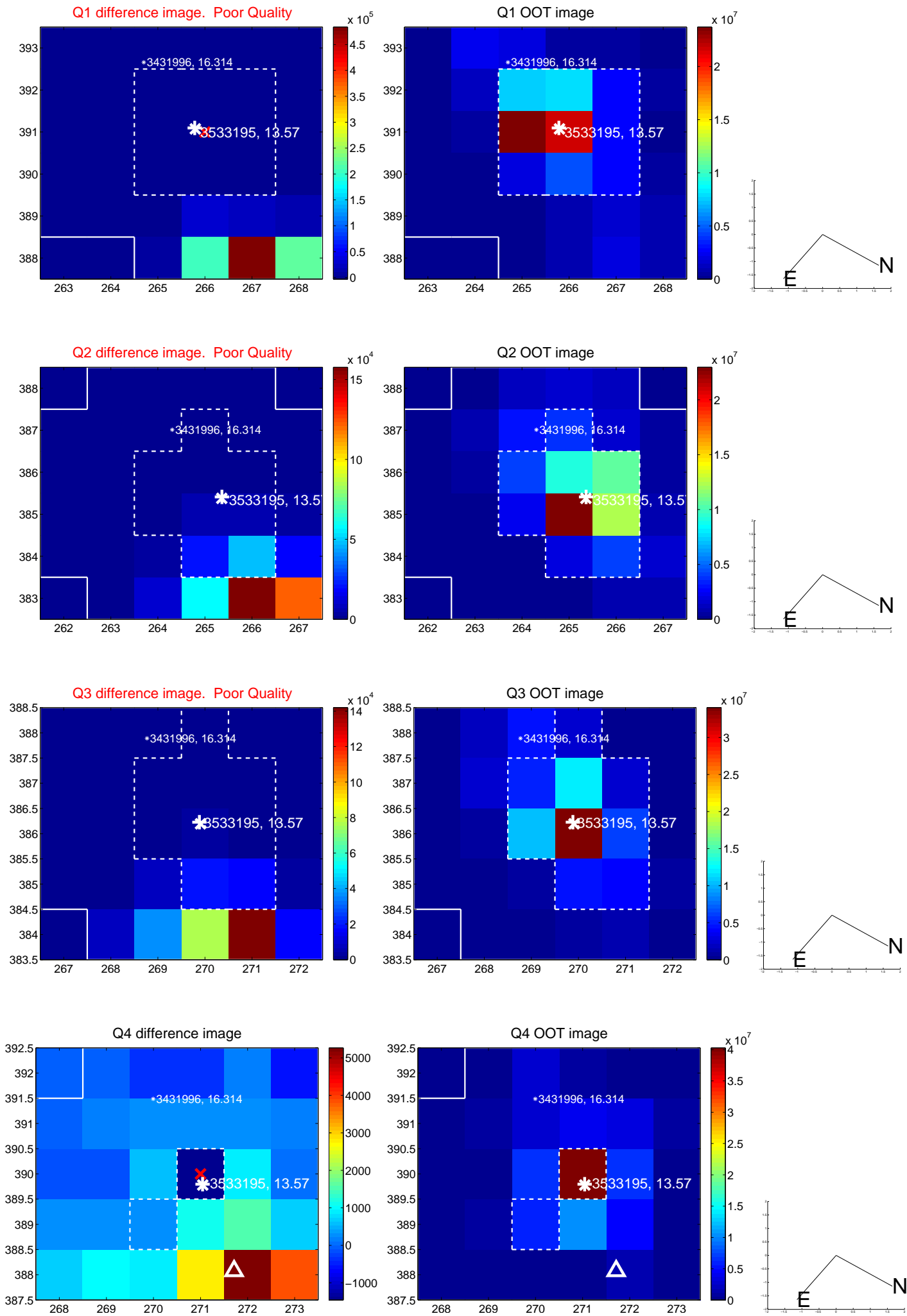
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	7.345 $\pm$ 0.147	50.08	4.093 $\pm$ 0.132	6.098 $\pm$ 0.153
PRF-fit source offset from KIC position	7.279 $\pm$ 0.147	49.62	4.050 $\pm$ 0.132	6.048 $\pm$ 0.153
photometric centroid source offset	9.54 $\pm$ 1.08	8.82	6.53 $\pm$ 0.99	6.96 $\pm$ 1.16

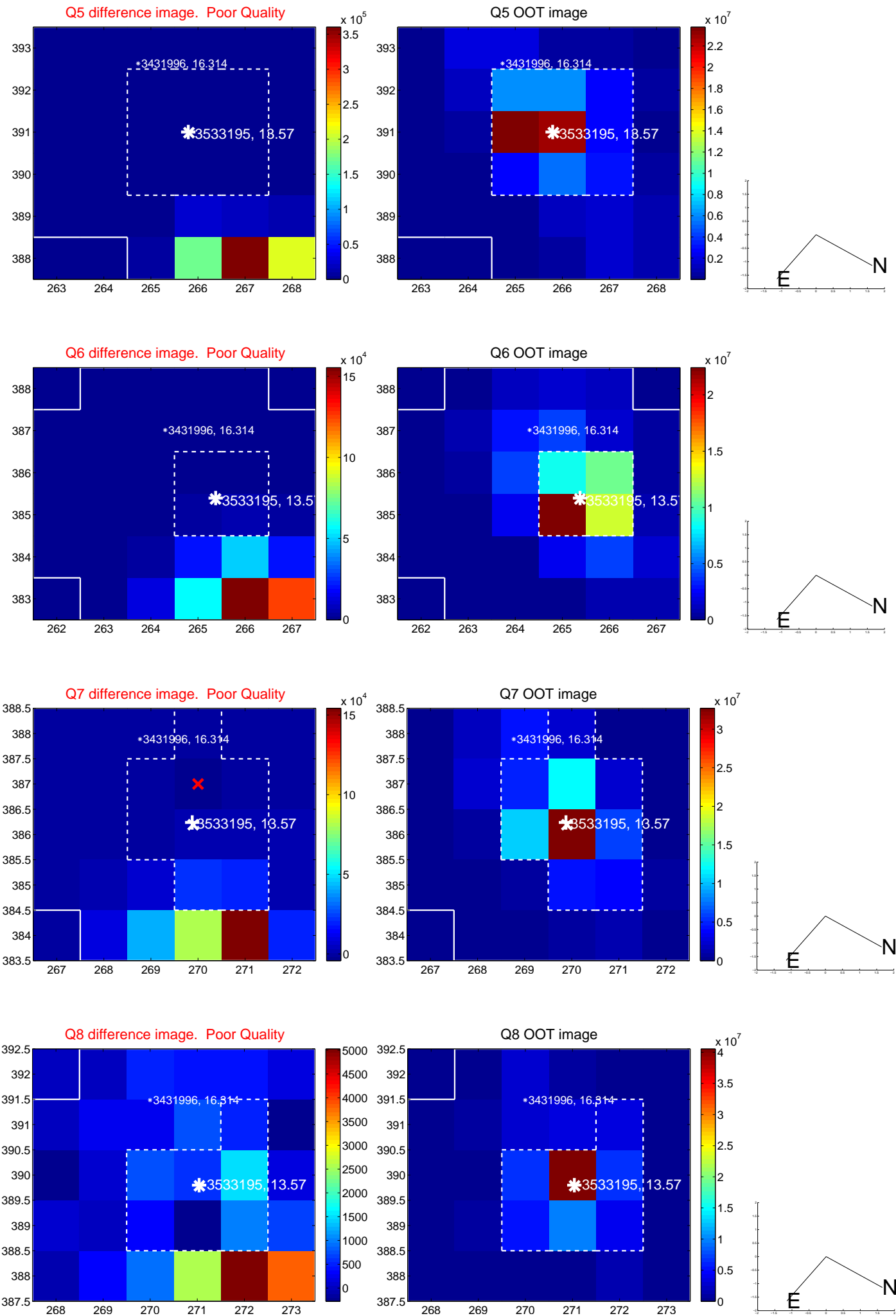


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

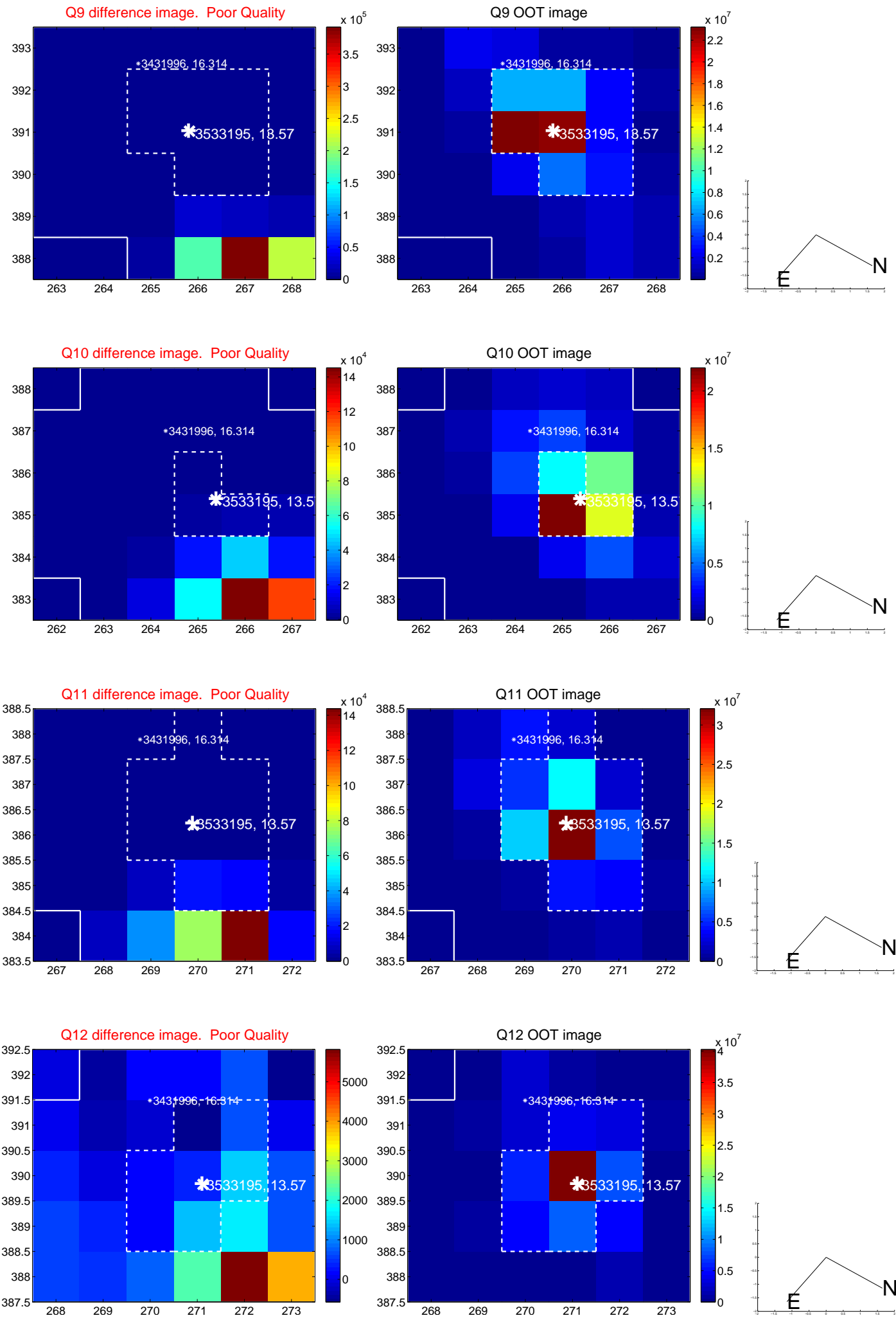


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

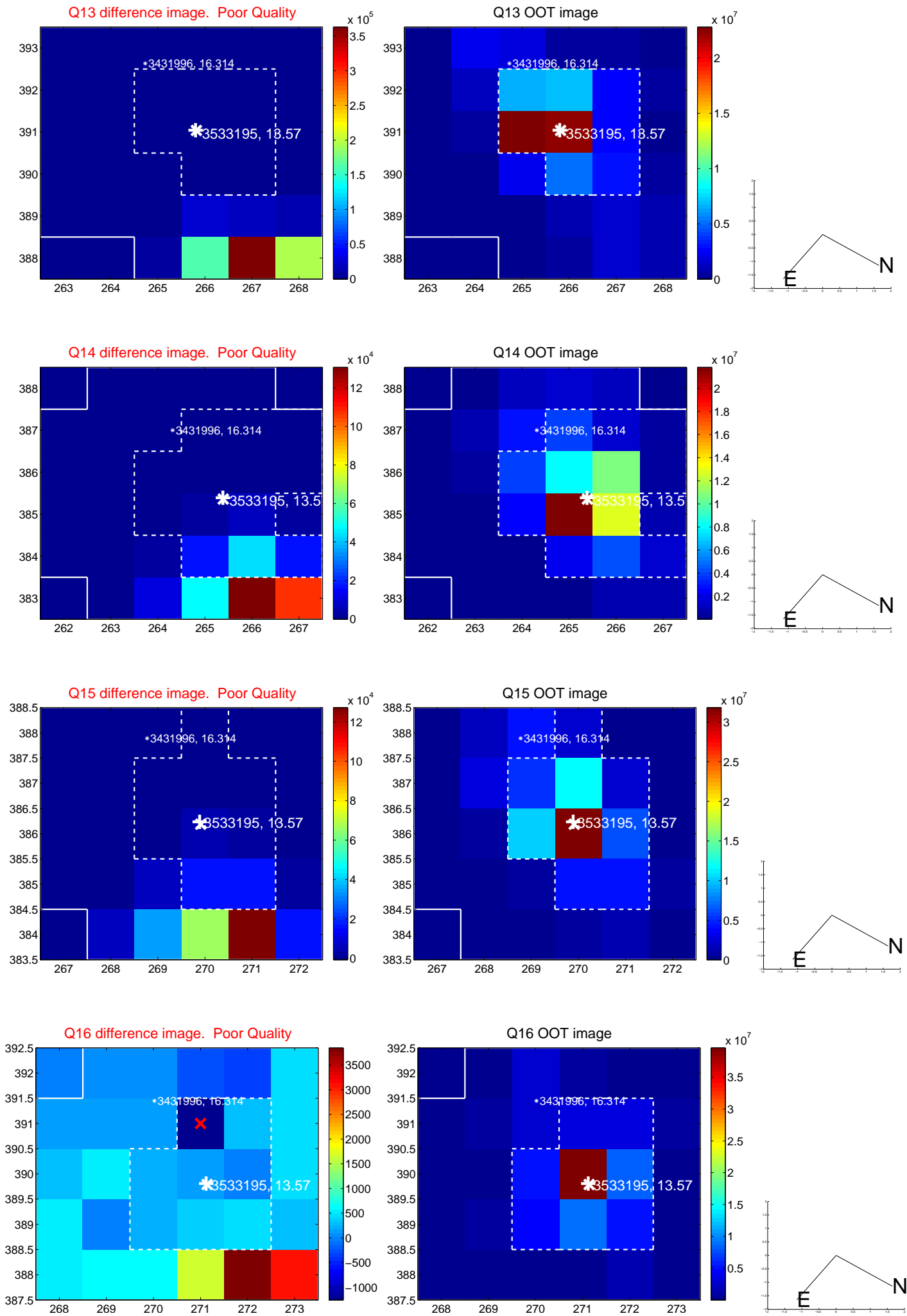




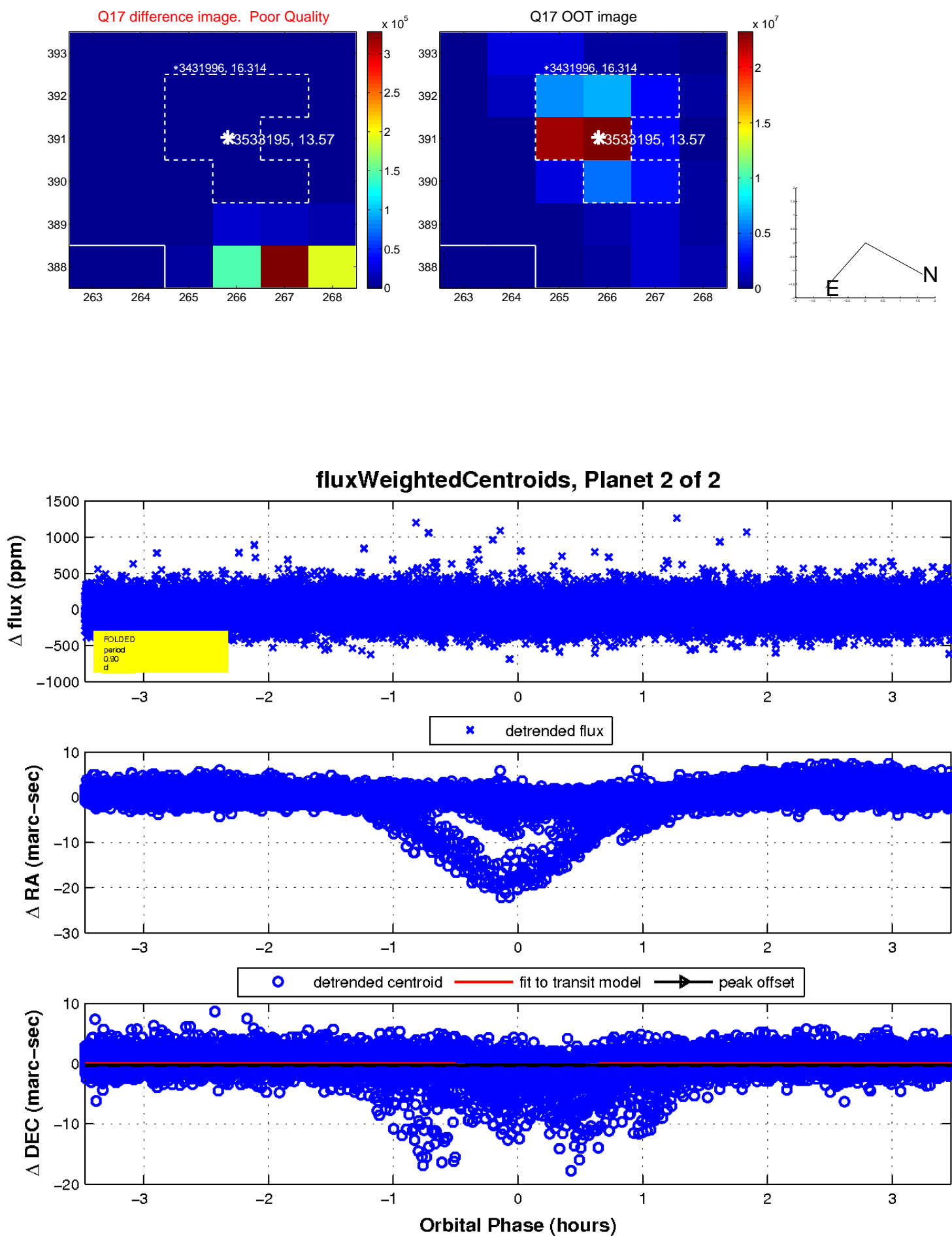
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

