

# KIC 007033044

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007033044-01	OBS	No	0.566764	131.882340	30.3	4.122	8.8	8.9	0.91	6139	0.52	5934.88
007033044-02	OBS	No	46.790661	157.902540	1030.4	0.756	10.3	12.3	0.91	6139	3.00	16.51
007033044-03	OBS	No	13.119008	142.469158	699.0	1.032	11.7	13.7	0.91	6139	2.46	89.97

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007033044-01	OBS	FP	0.00	1	0	0	1	LPP_DV—EPHEM_MATCH
007033044-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
007033044-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

**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.

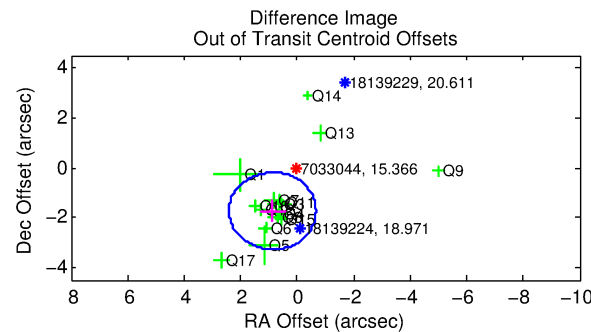
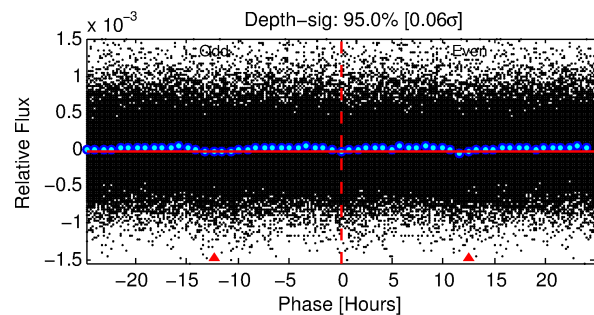
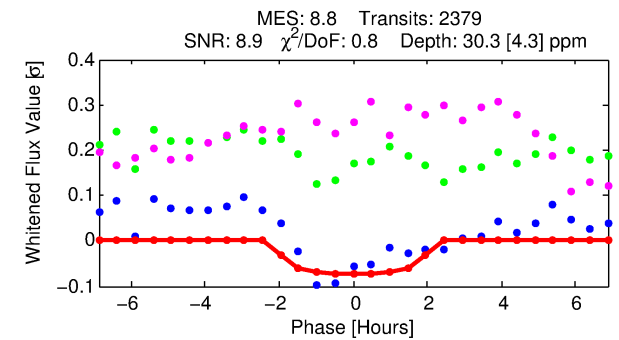
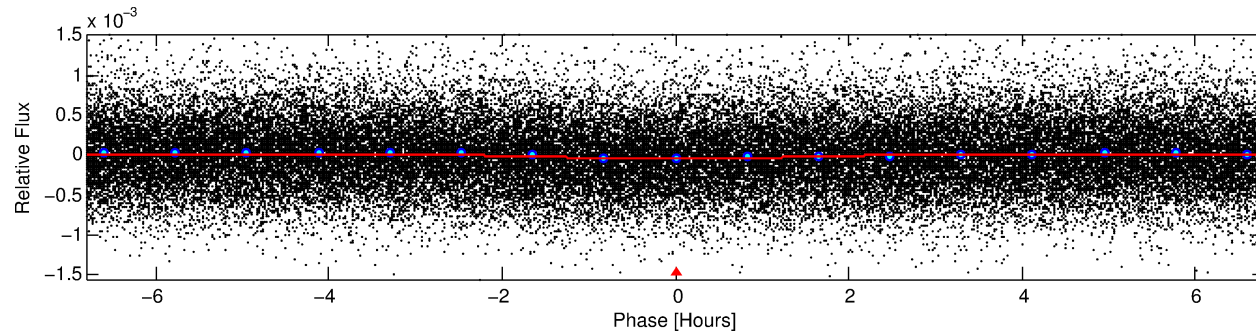
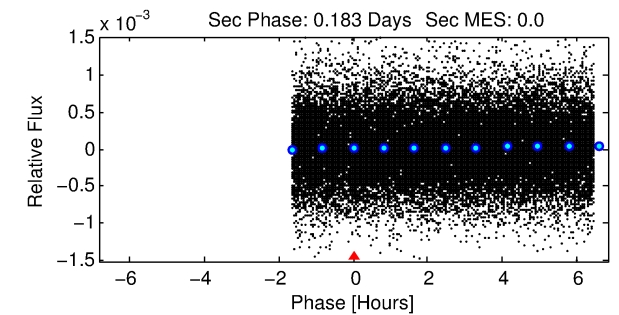
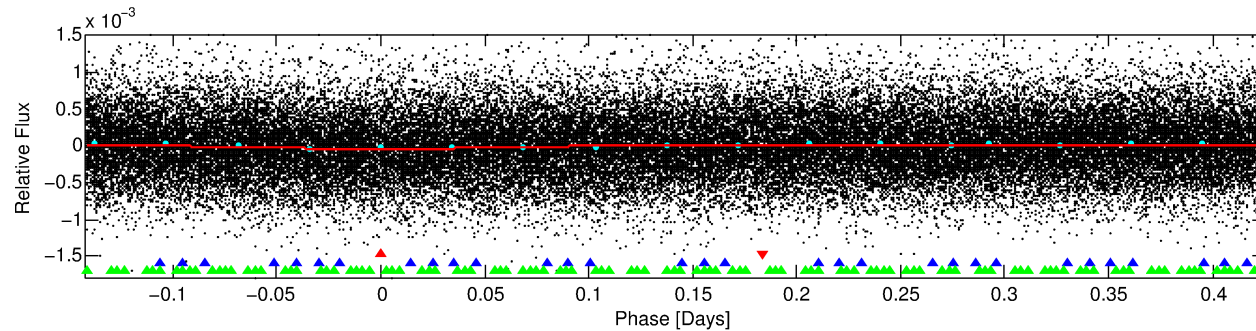
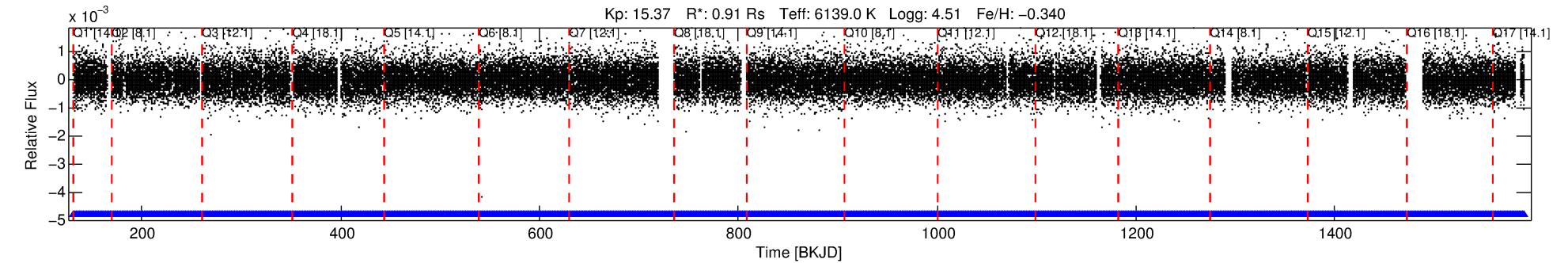
## Ephemeris Match Information For 007033044-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist ( $\mu$ )	$\Delta$ Row	$\Delta$ Col	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	$\sigma_P$	$\sigma_T$
007033044-01	7033044	RR-Lyr-pri	7198959	1:1	1026.8	257	28	7.86	15.36	20777.00	Direct-PRF	0	3.24	20.37

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 7033044 Candidate: 1 of 3 Period: 0.567 d



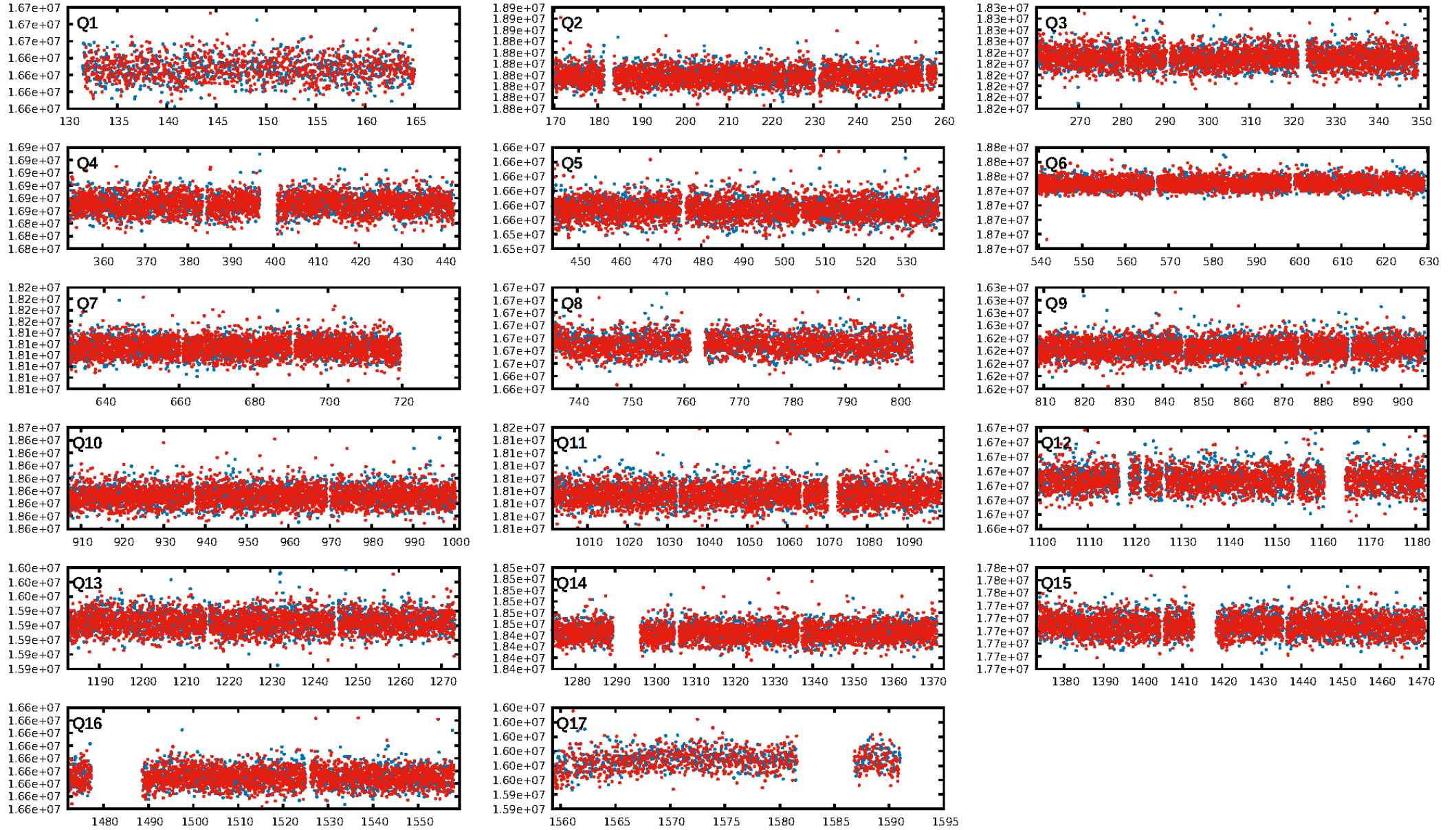
## DV Fit Results:

Period = 0.56676 [0.00001] d  
Epoch = 131.8823 [0.0054] BKJD  
Rp/R\* = 0.0052 [0.0061]  
a/R\* = 1.19 [2.09]  
b = 0.46 [10.44]  
Seff = 5934.88 [2301.42]  
Teff = 2238 [217] K  
Rp = 0.51 [0.63] Re  
a = 0.0134 [0.0032] AU  
Ag = N/A  
Teffp = N/A

## DV Diagnostic Results:

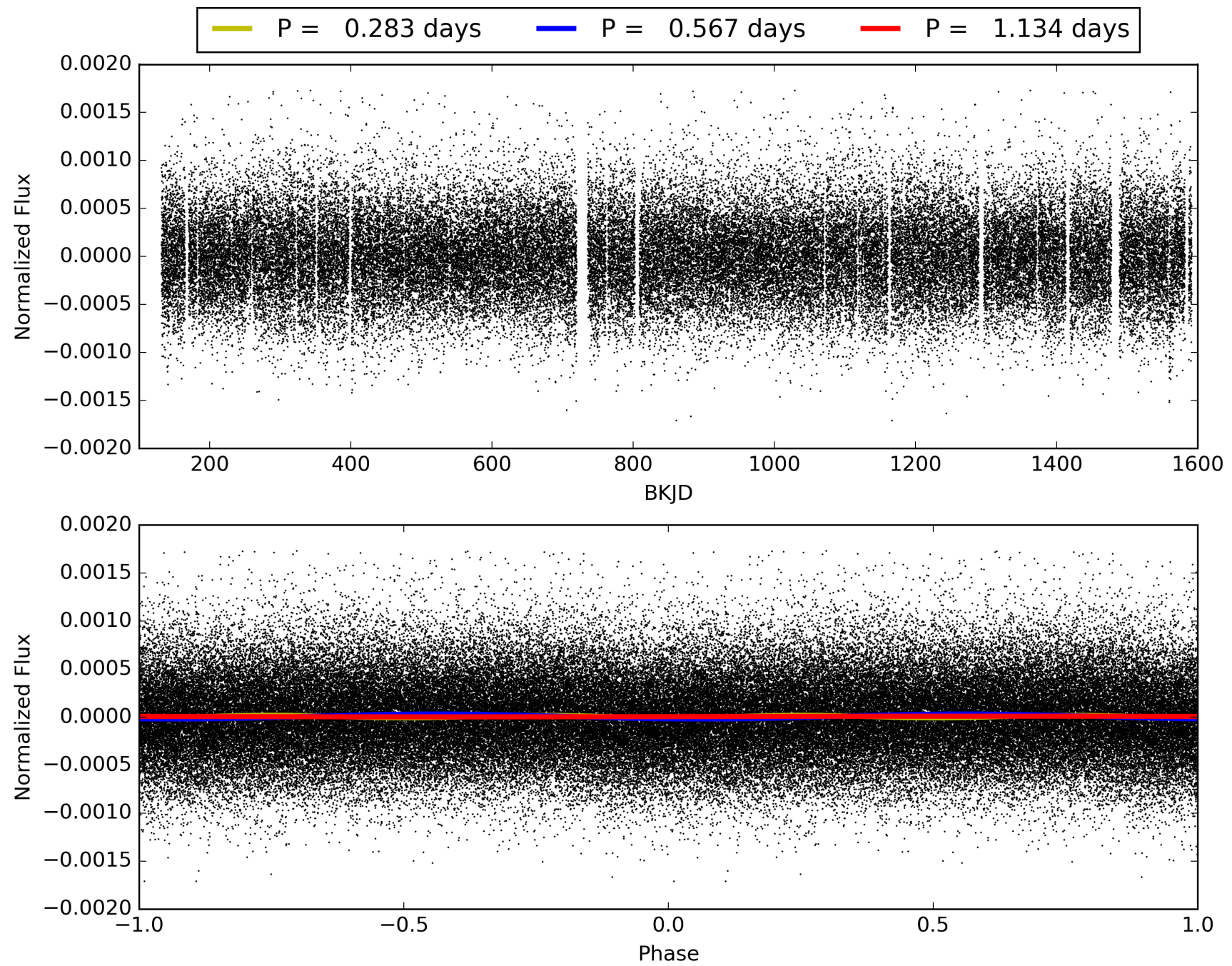
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [70.90 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 5.95e-08  
RollingBand-fgt: 1.00 [2272/2272]  
GhostDiagnostic-chr: 0.2797  
Centroid-sig: 12.1%  
Centroid-so: 1.703 arcsec [0.98 $\sigma$ ]  
OotOffset-rm: 1.945 arcsec [3.78 $\sigma$ ]  
KicOffset-rm: 2.055 arcsec [4.22 $\sigma$ ]  
OotOffset-st: 2/4/4/5 [15]  
KicOffset-st: 2/4/4/5 [15]  
DiffImageQuality-fgm: 0.53 [8/15]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 007033044-01, PDC Light Curves



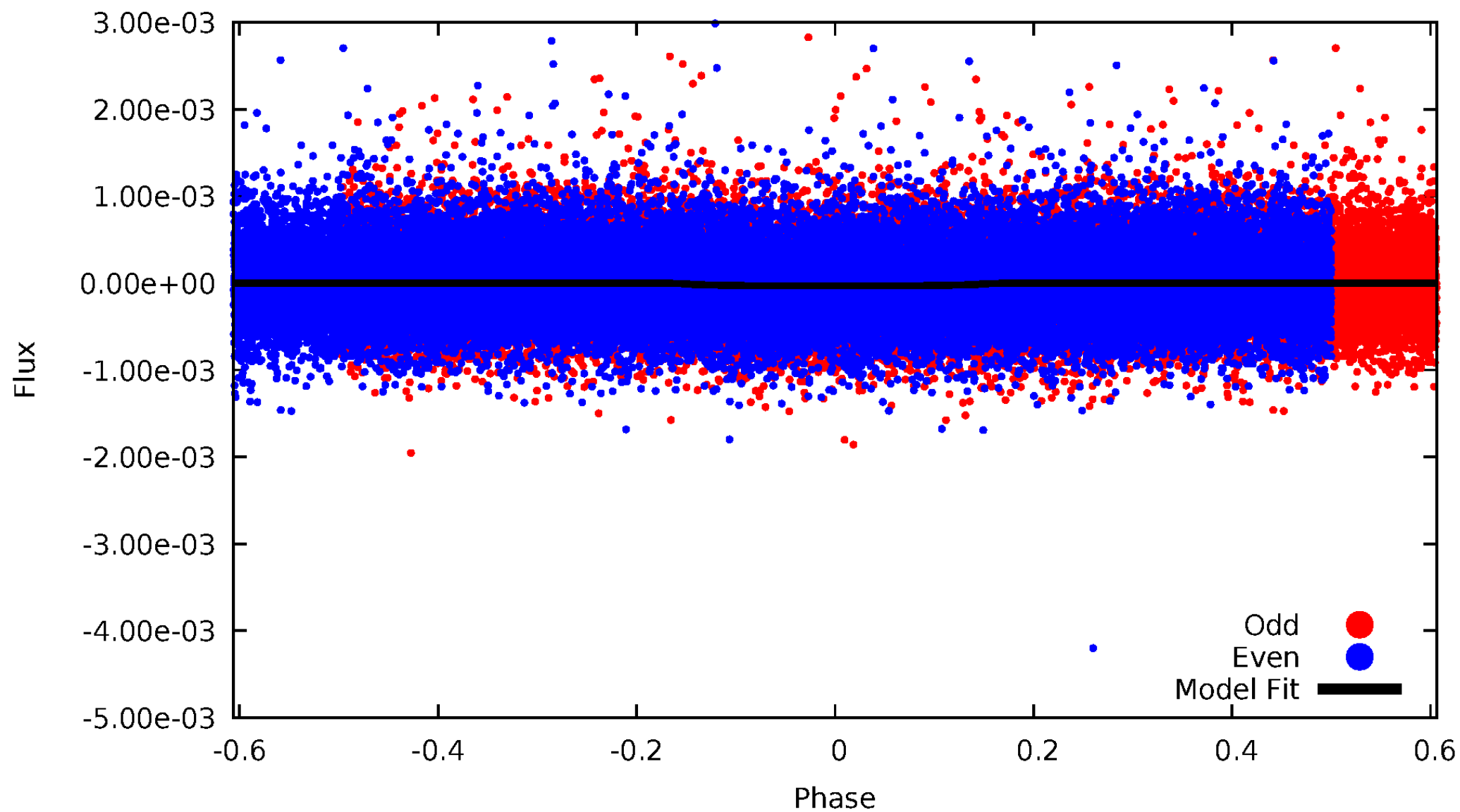


TCE 007033044-01



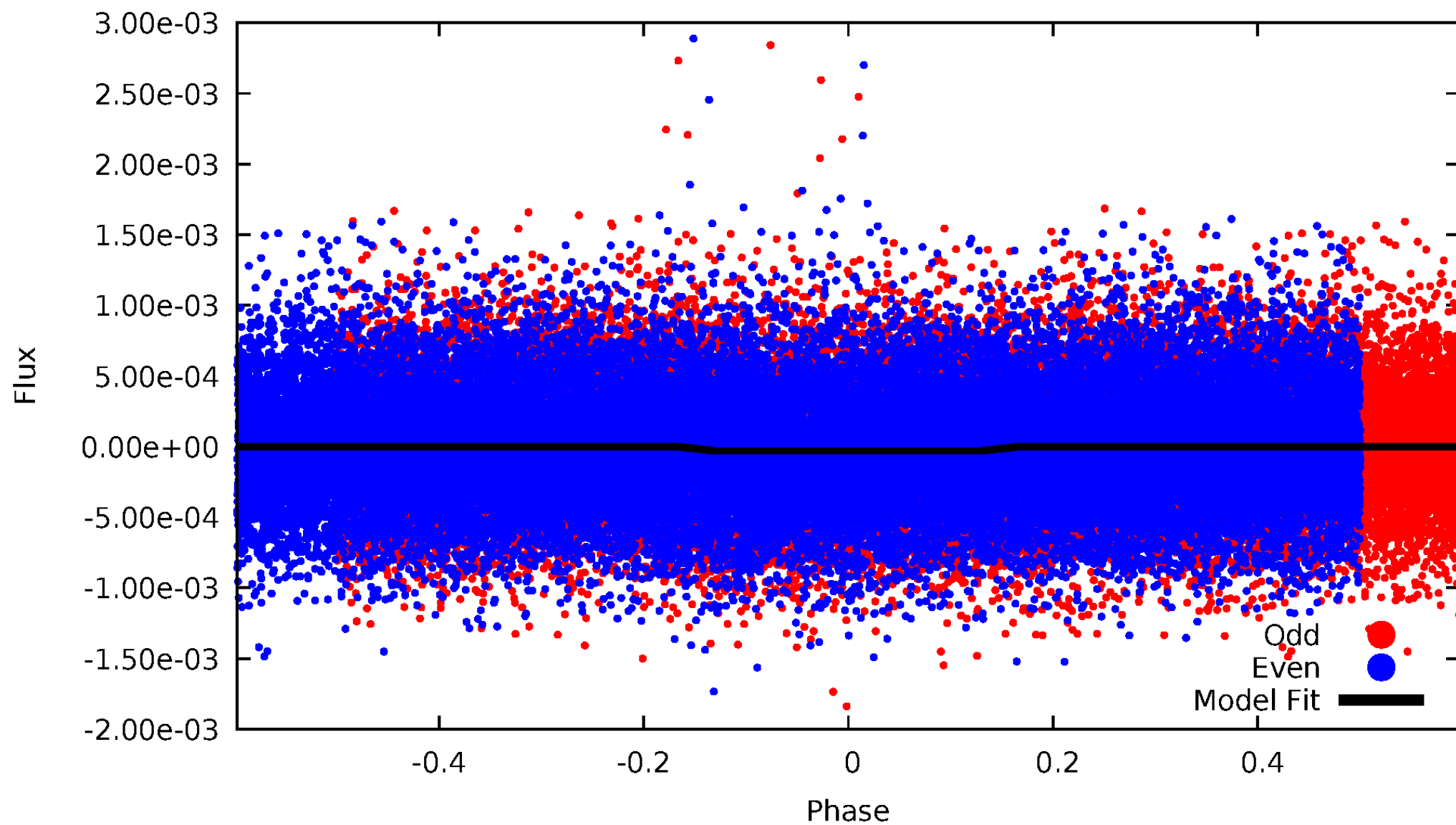
# DV Odd/Even

TCE 007033044-01



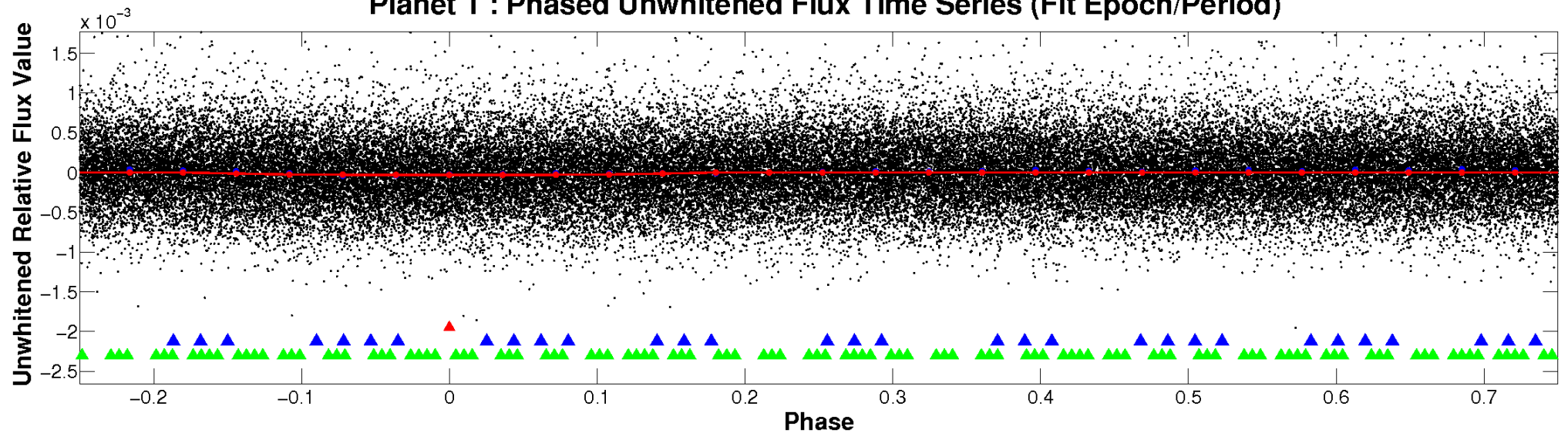
# ALT Odd/Even

TCE 007033044-01

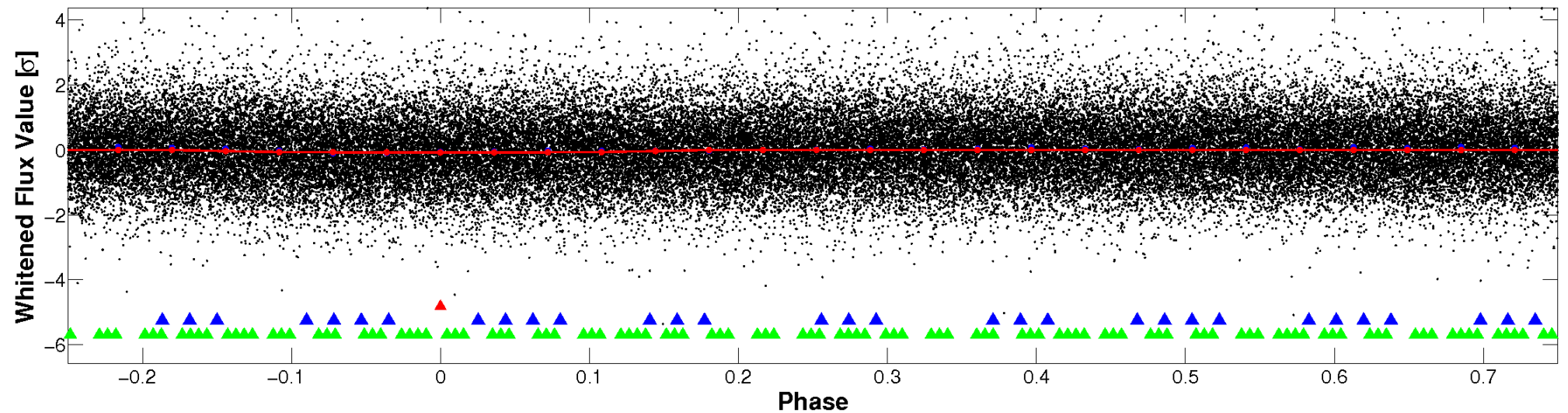


# Non-Whitened Vs. Whitened Light Curve

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



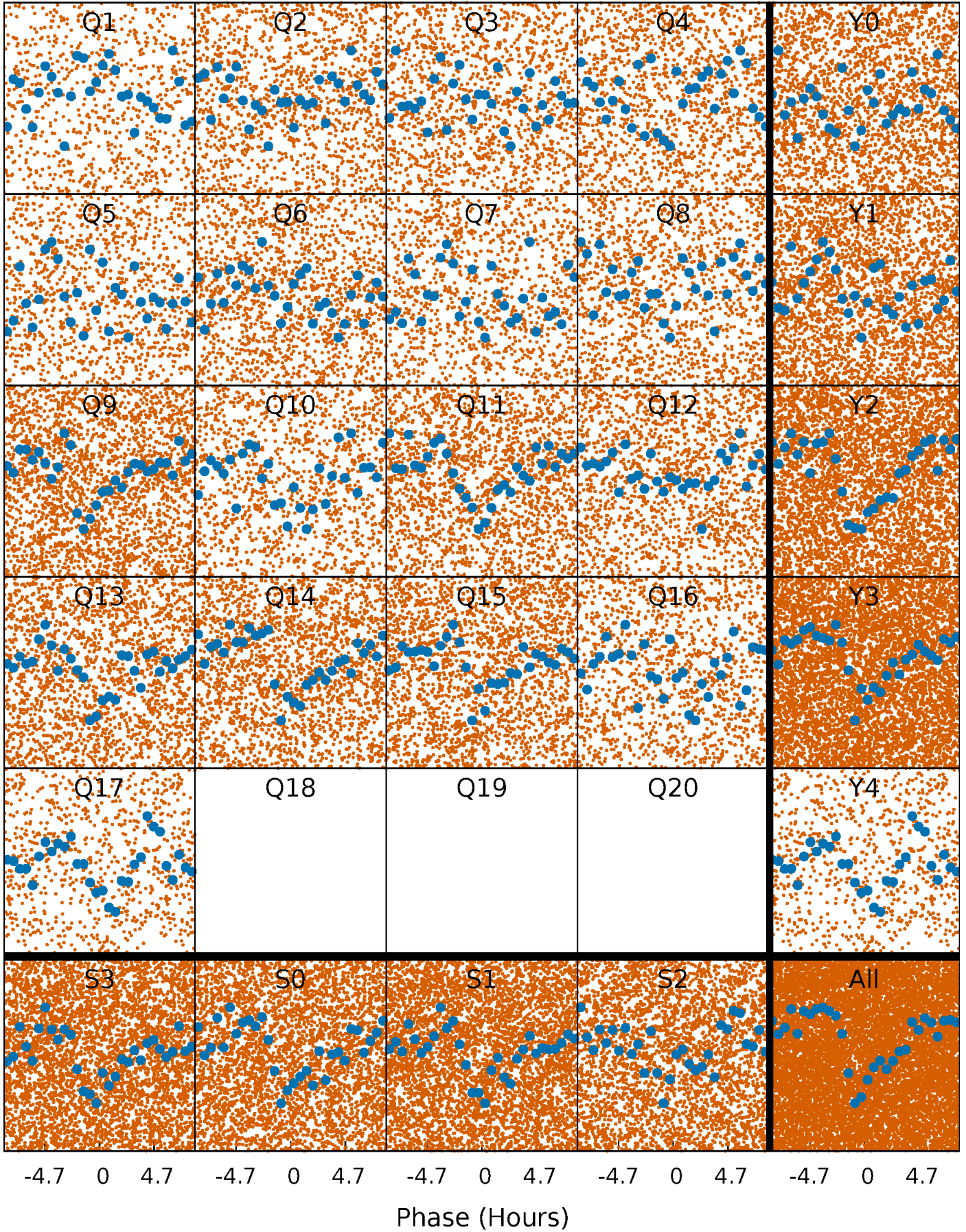
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

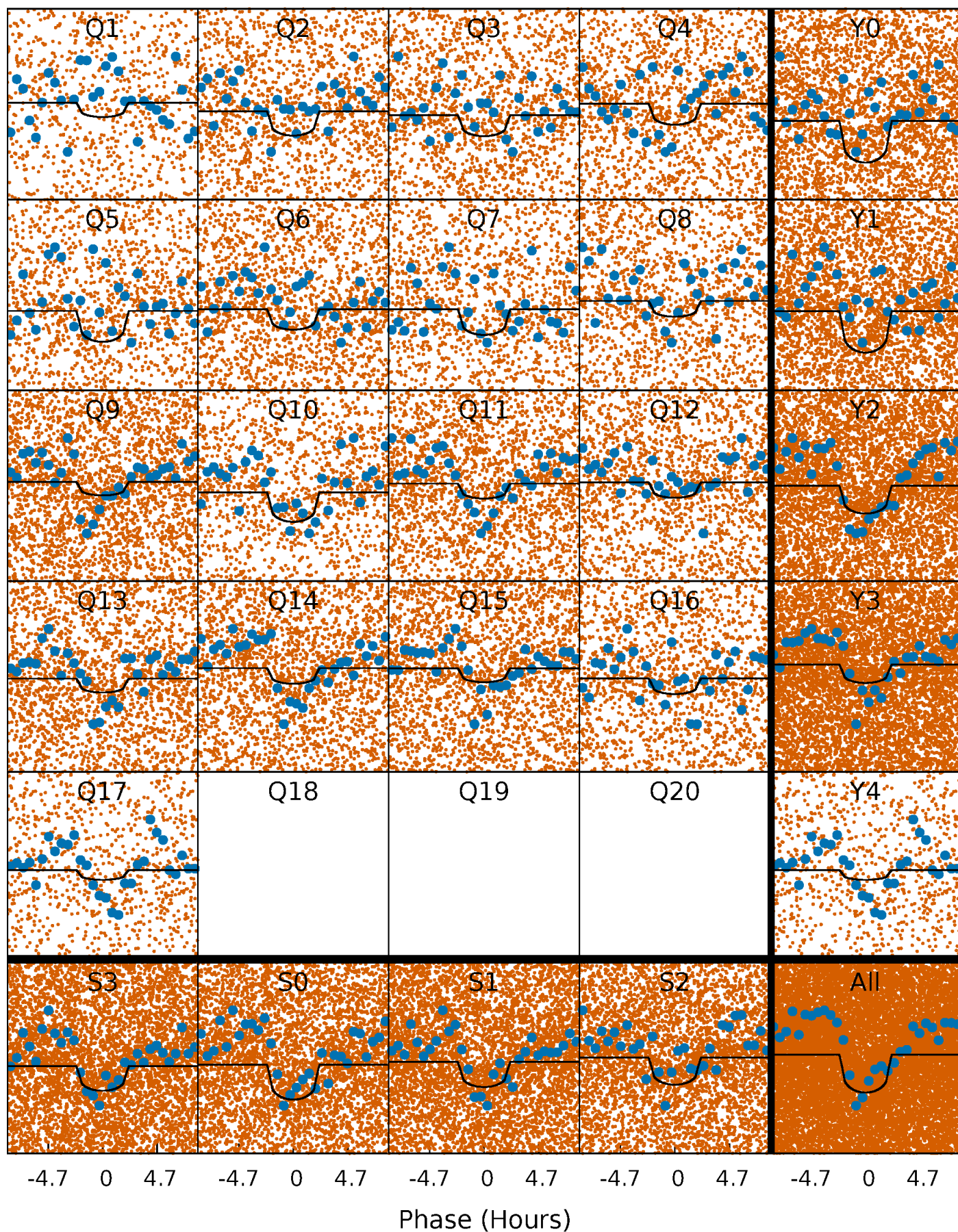
TCE 007033044-01 P= 0.566764 Days  $T_0=131.882340$  (BKJD)





# DV Quarter-Phased Transit Curves

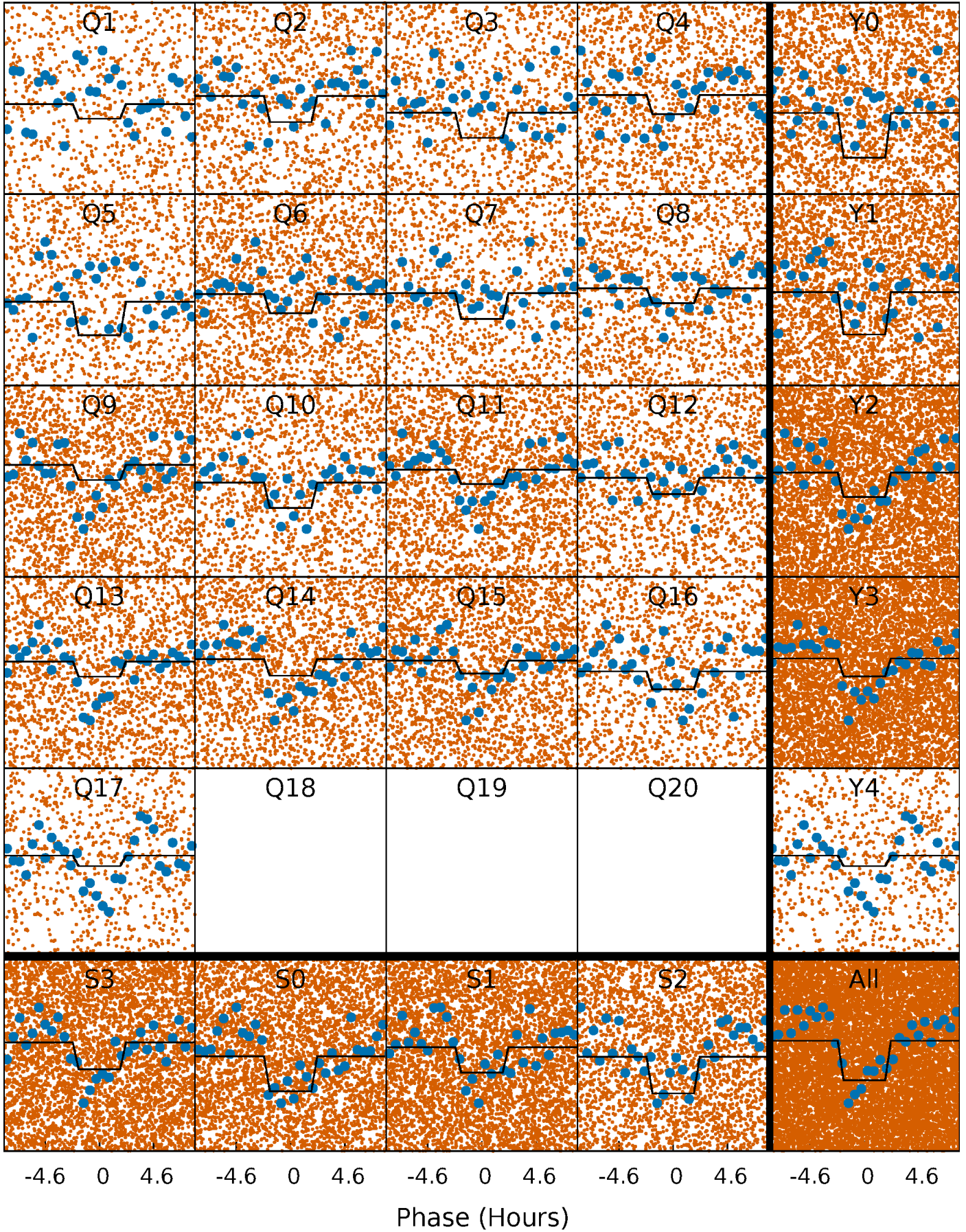
TCE 007033044-01 P= 0.566764 Days  $T_0=131.882340$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

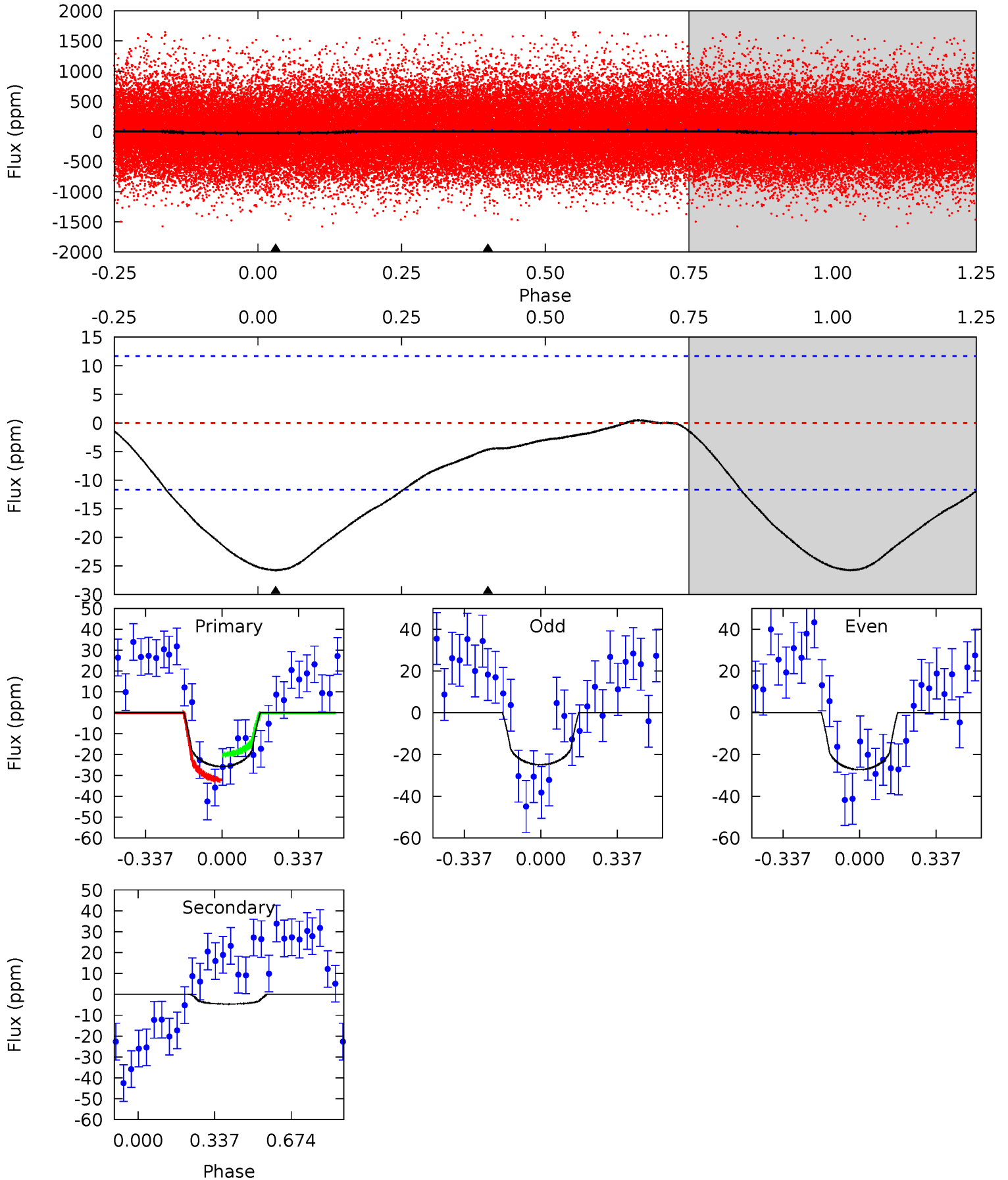
TCE 007033044-01 P= 0.566775 Days  $T_0=131.881397$  (BKJD)



# DV Model-Shift Uniqueness Test

007033044-01, P = 0.566764 Days, E = 131.315576 Days

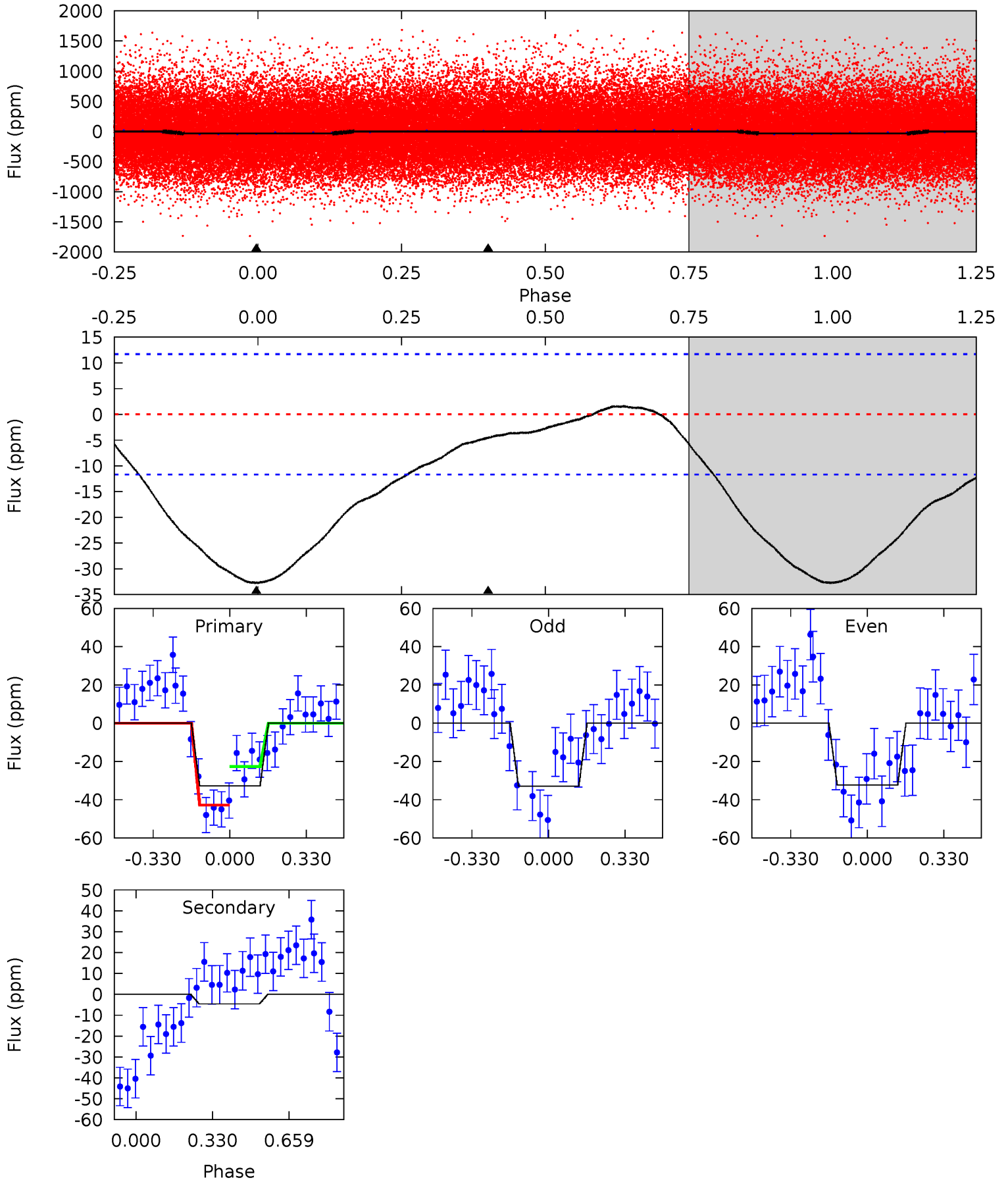
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.49	1.72	0	0	4.30	0.96	0.32	9.49	9.49	1.72	1.72	0.43	1.21	0.02	2.20



# Alt Model-Shift Uniqueness Test

007033044-01, P = 0.566775 Days, E = 131.314622 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
12.1	1.69	0	0	4.31	0.98	0.79	12.1	12.1	1.69	1.69	0.10	1.04	0.05	3.67





### Stellar Parameters For KIC 007033044

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6139^{+165}_{-220}$	$4.513^{+0.050}_{-0.200}$	$-0.340^{+0.300}_{-0.300}$	$0.912^{+0.258}_{-0.086}$	$0.991^{+0.117}_{-0.129}$	$1.837^{+0.462}_{-0.900}$
	+3%/-4%	+1%/-4%	+88%/-88%	+28%/-9%	+12%/-13%	+25%/-49%
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 007033044-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-5 \pm 3$	$0.67^{+0.61}_{-0.42}$	$3196^{+205}_{-153}$	$3528^{+2197}_{-6340}$	$0.857^{+6.065}_{-0.676}$
Alt.	$-5 \pm 3$	$0.74^{+0.59}_{-0.45}$	$3176^{+228}_{-149}$	$3429^{+1741}_{-6287}$	$0.768^{+3.919}_{-0.602}$

$T_{max}$  = 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

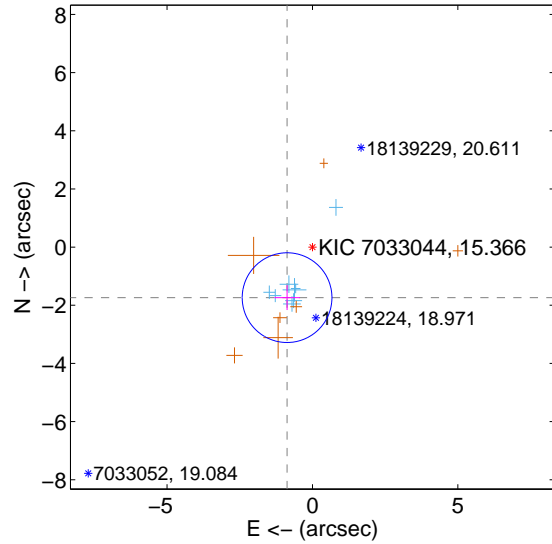
Supplemental centroid analysis for 007033044-01. Kepler magnitude: 15.37. Transit SNR 8.94

There are 8 quarters with good PRF difference image offsets

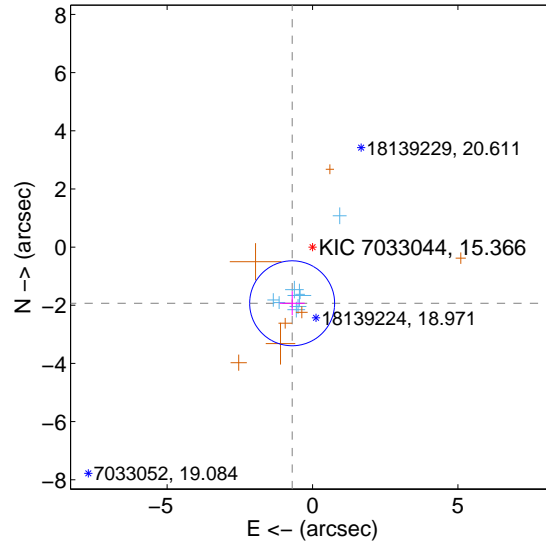
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.945 \pm 0.514$	$3.78$	$0.872 \pm 0.441$	$-1.738 \pm 0.427$
PRF-fit source offset from KIC position	$2.055 \pm 0.487$	$4.22$	$0.701 \pm 0.432$	$-1.932 \pm 0.415$
photometric centroid source offset	$1.70 \pm 1.74$	0.98	$0.77 \pm 1.81$	$1.52 \pm 1.73$

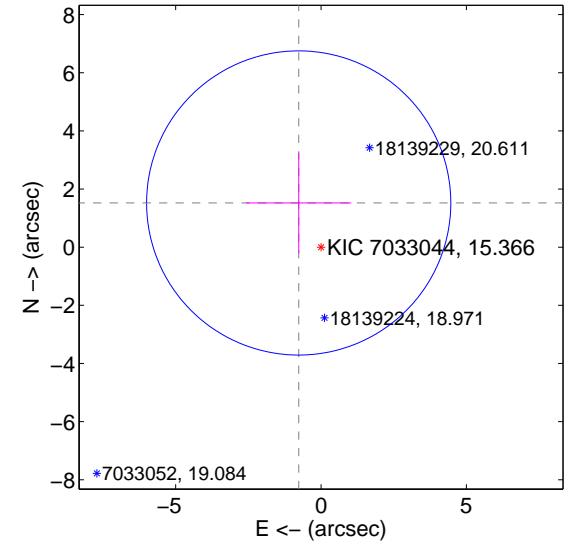
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

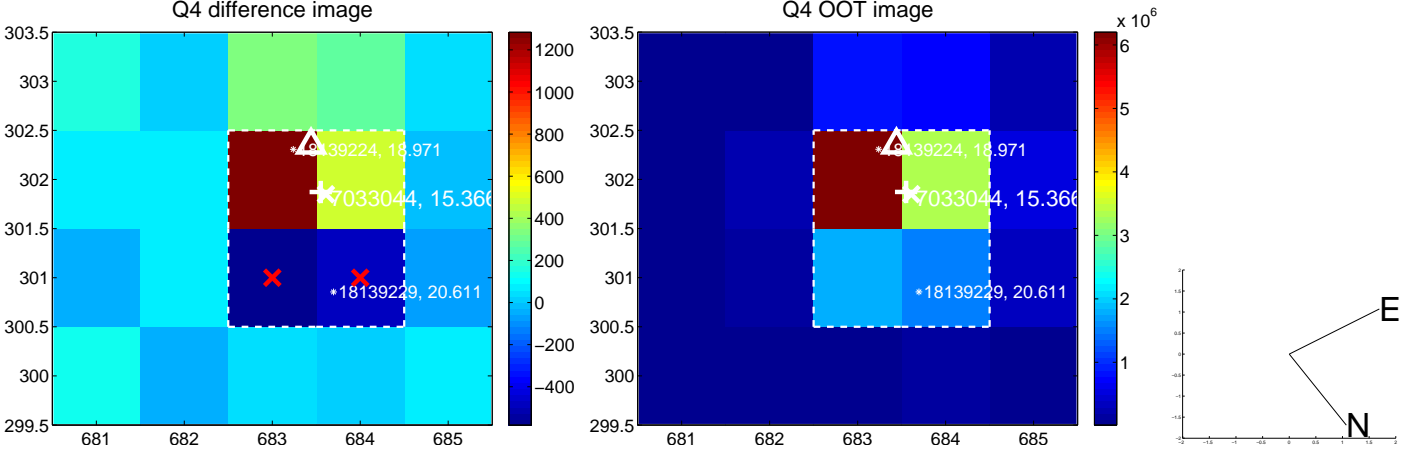
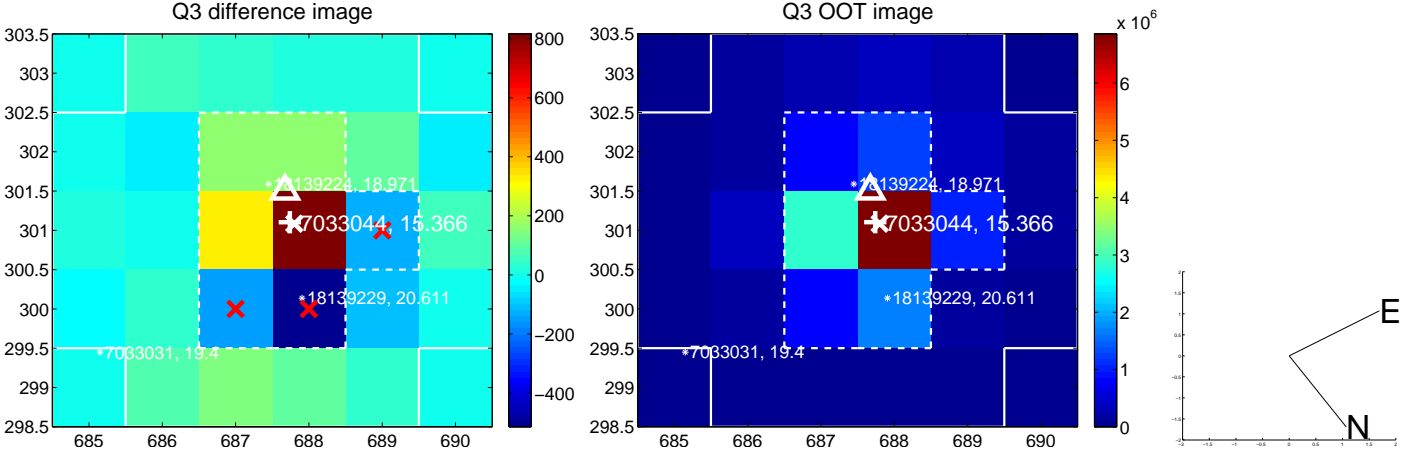
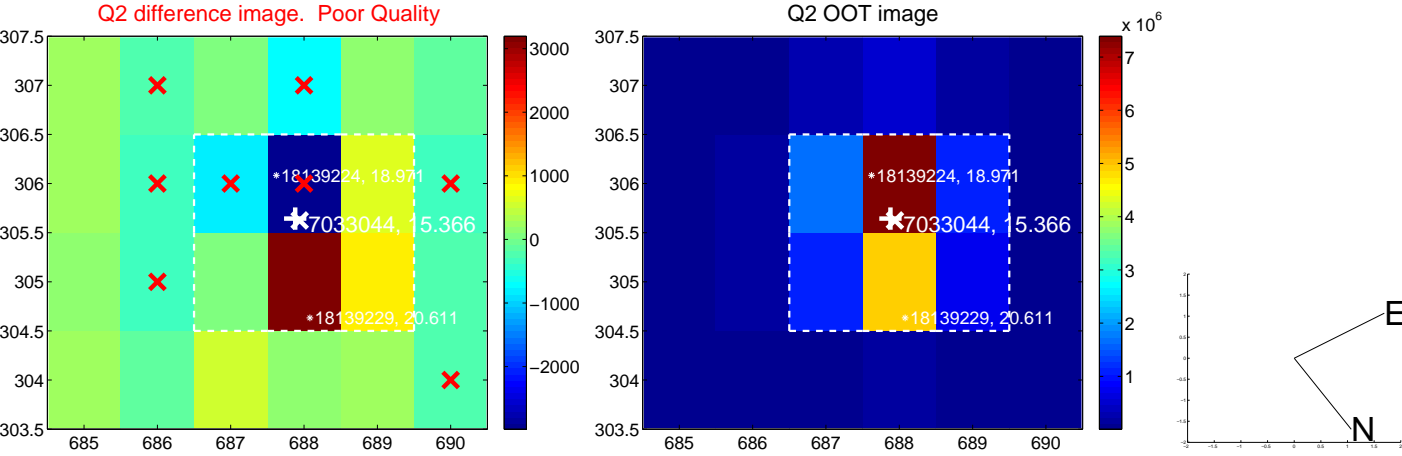
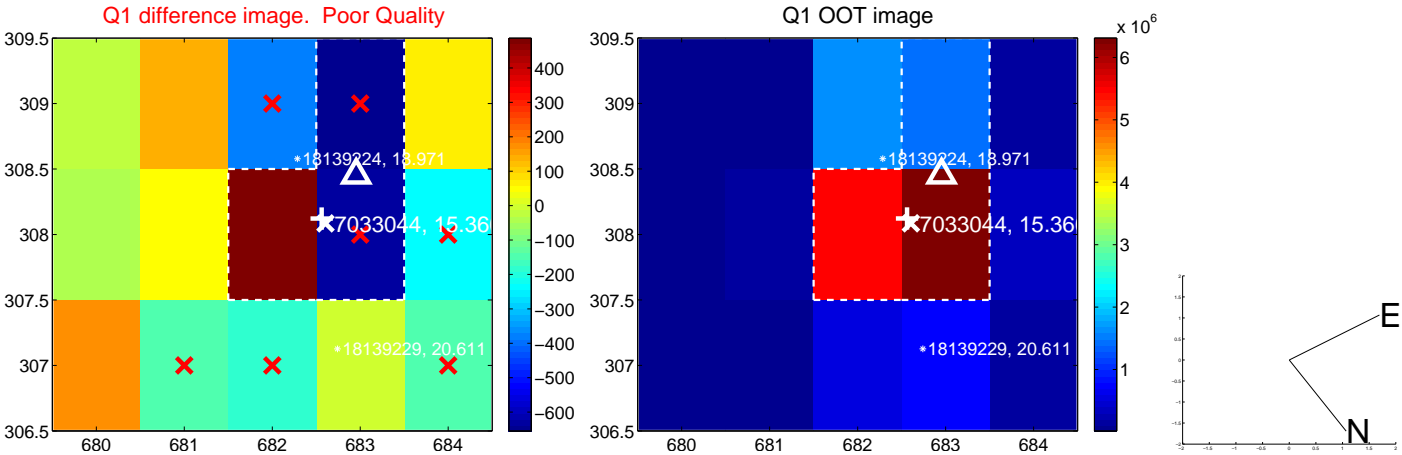


offset from photometric centroids

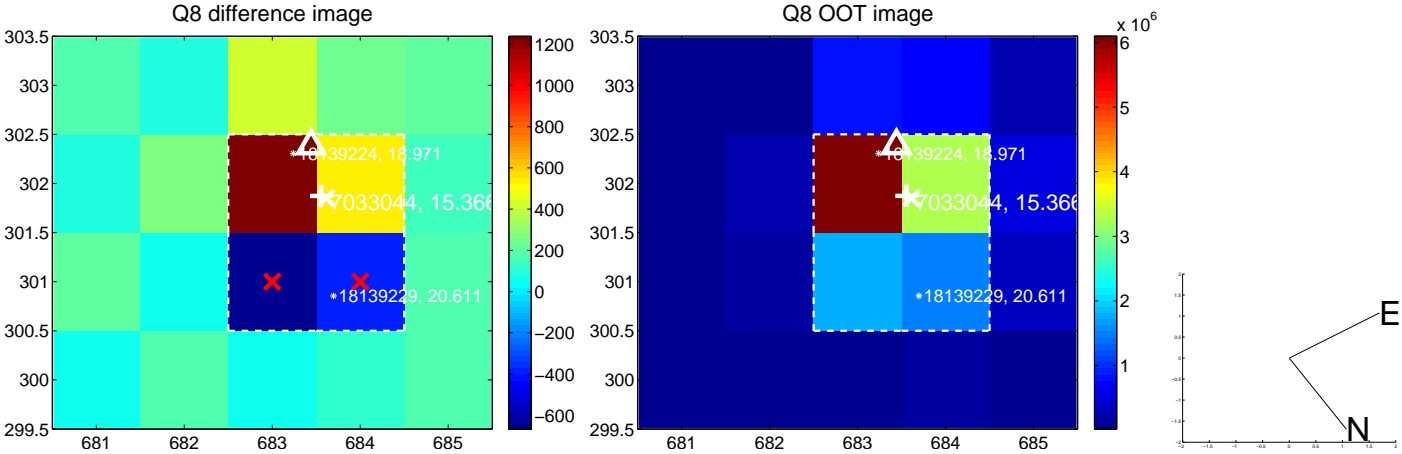
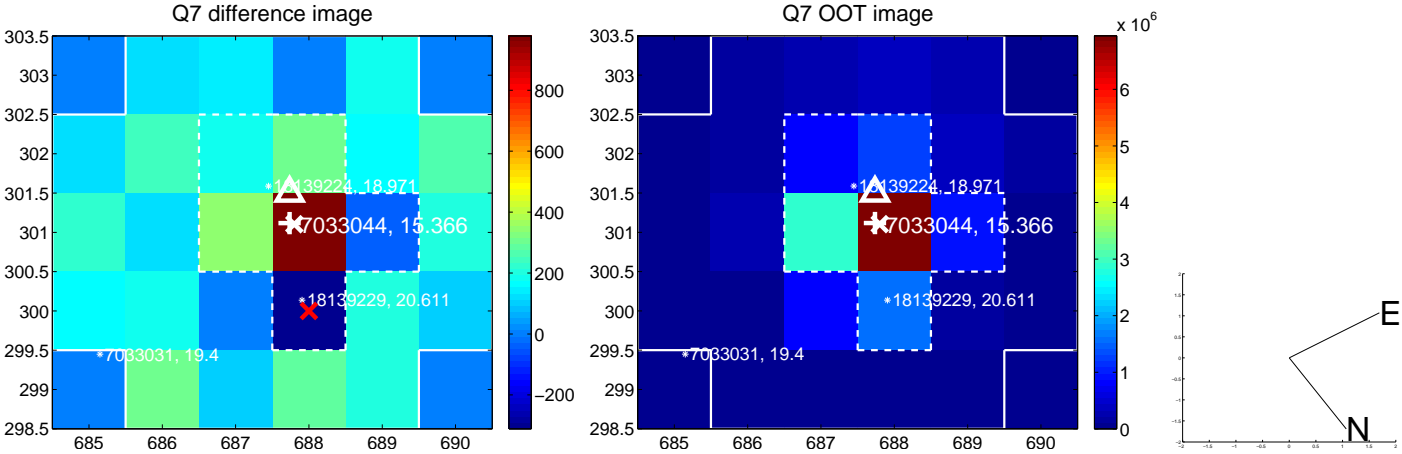
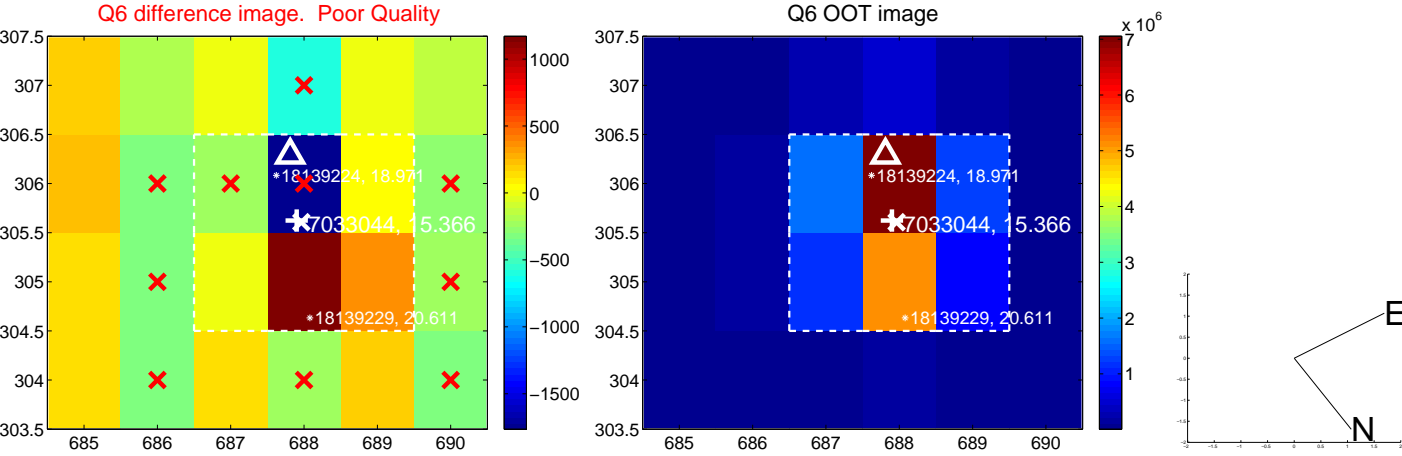
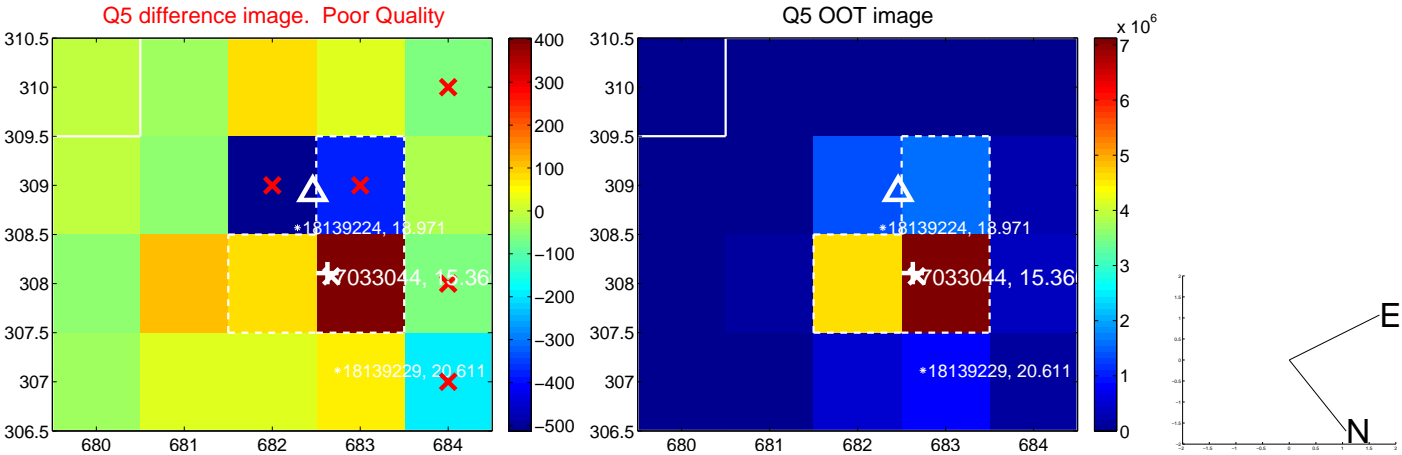


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

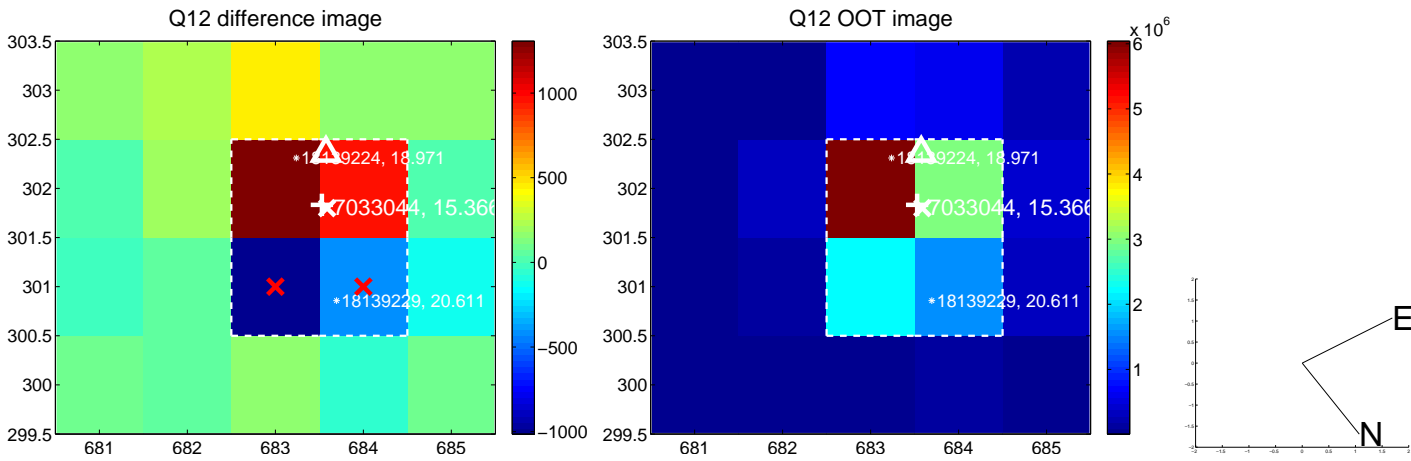
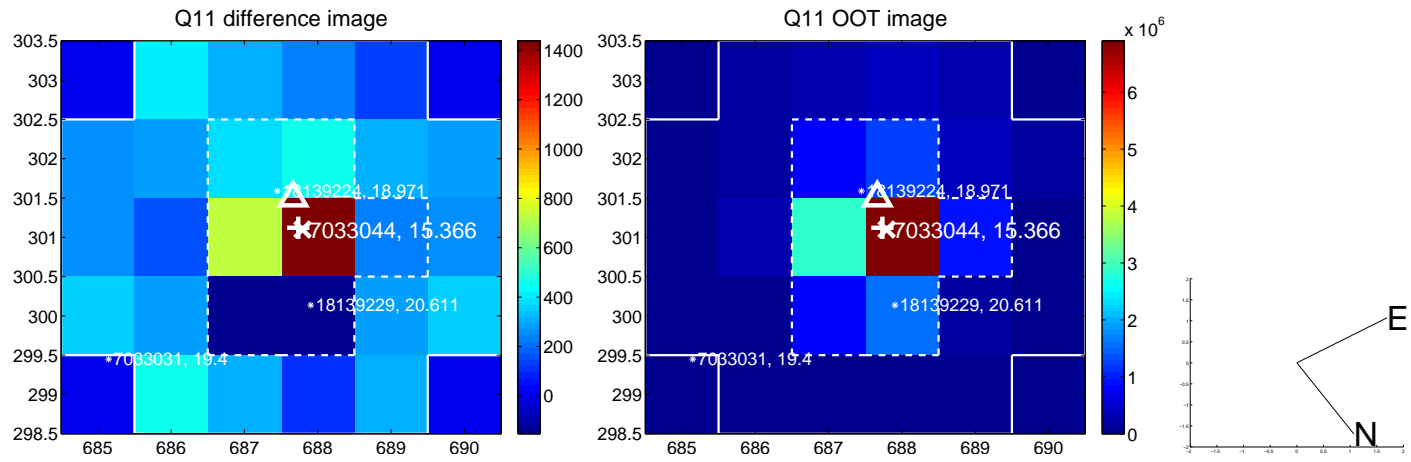
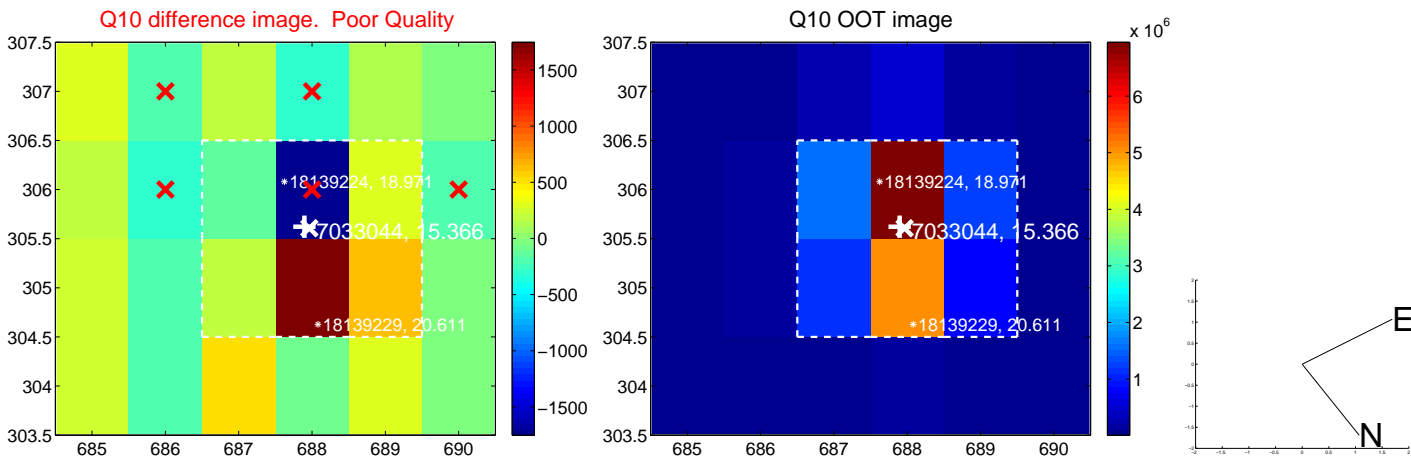
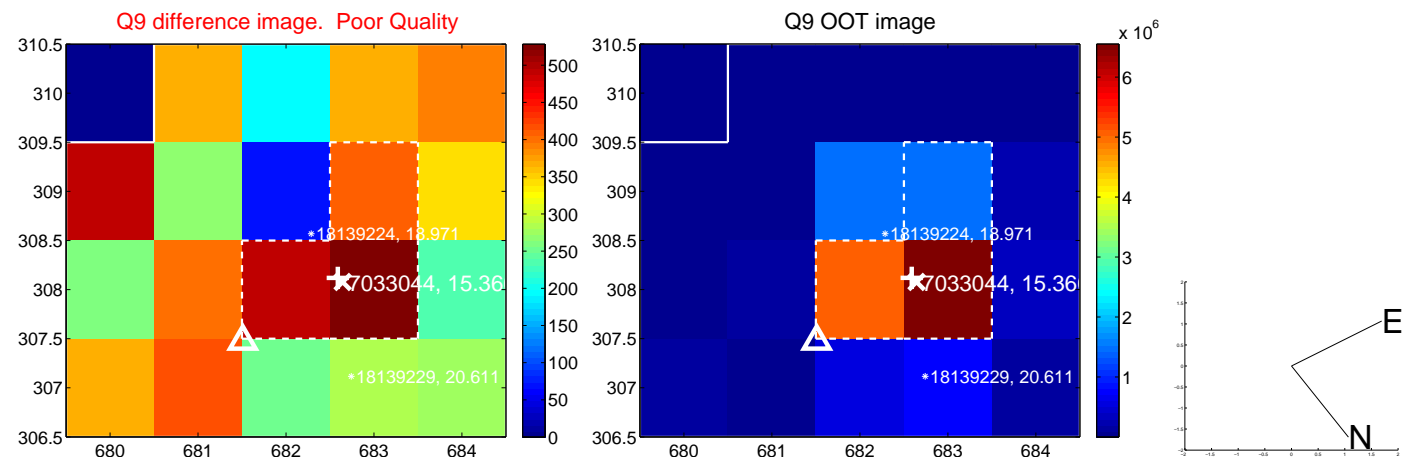


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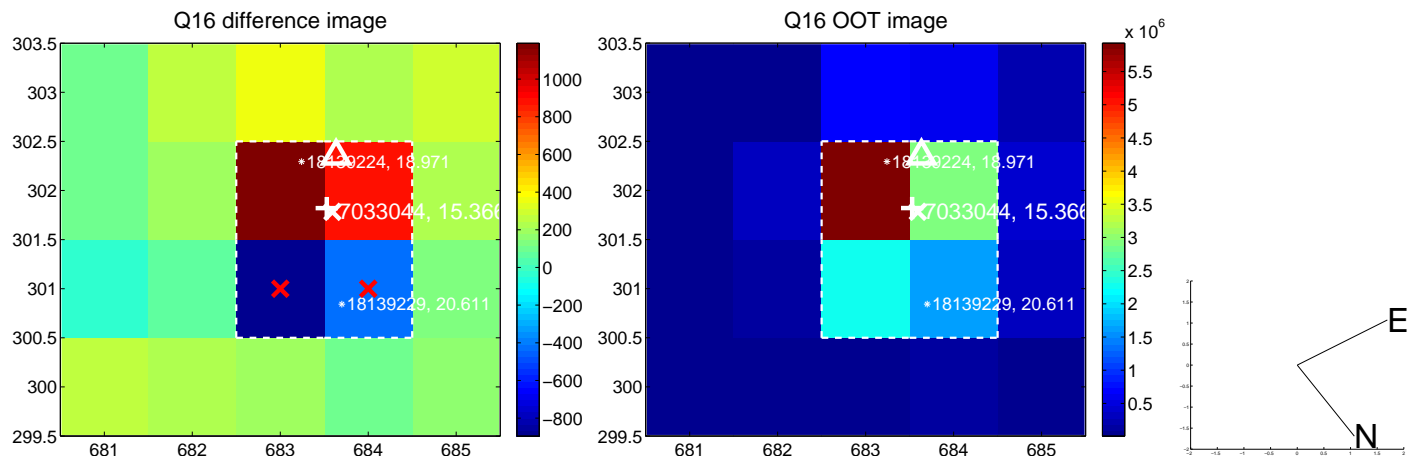
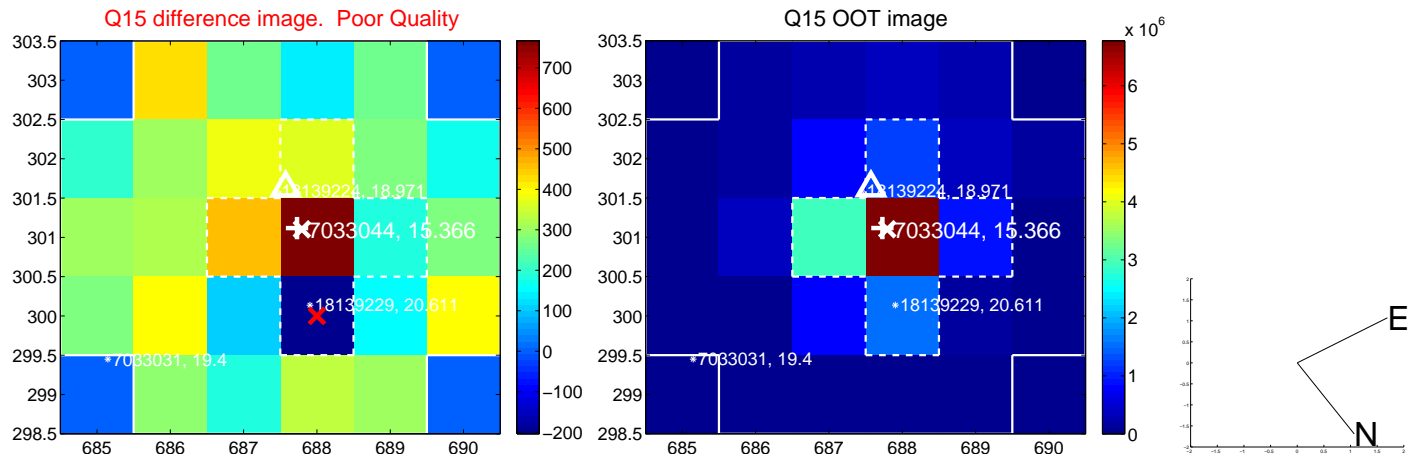
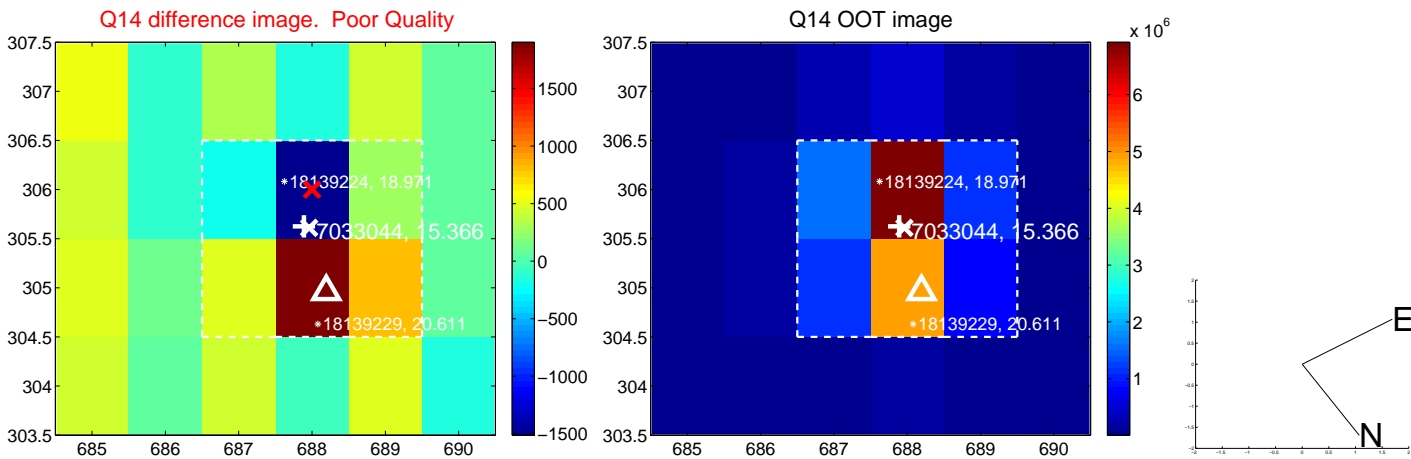
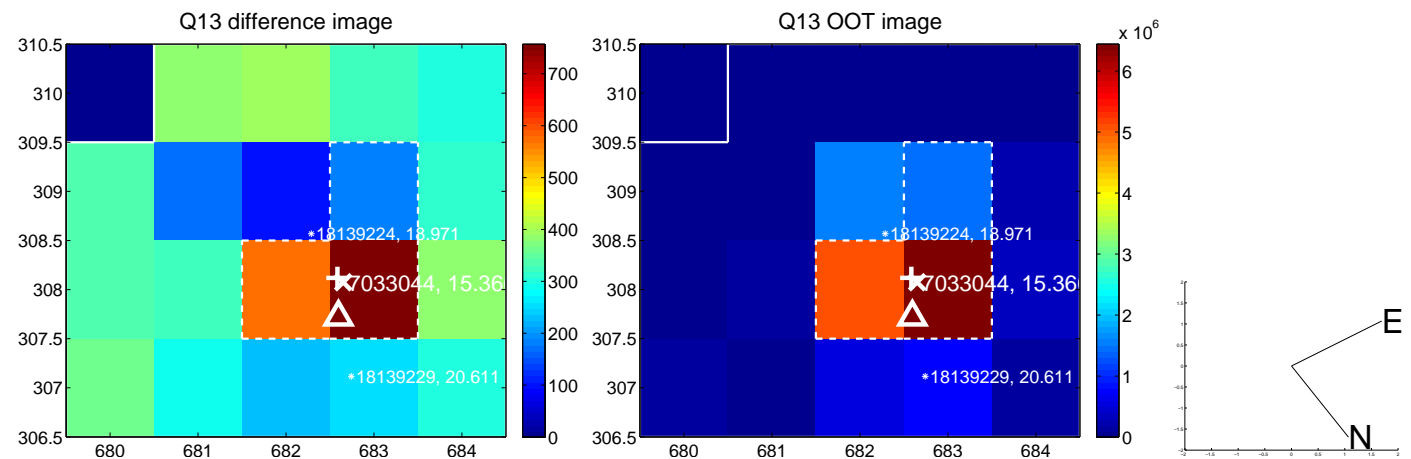




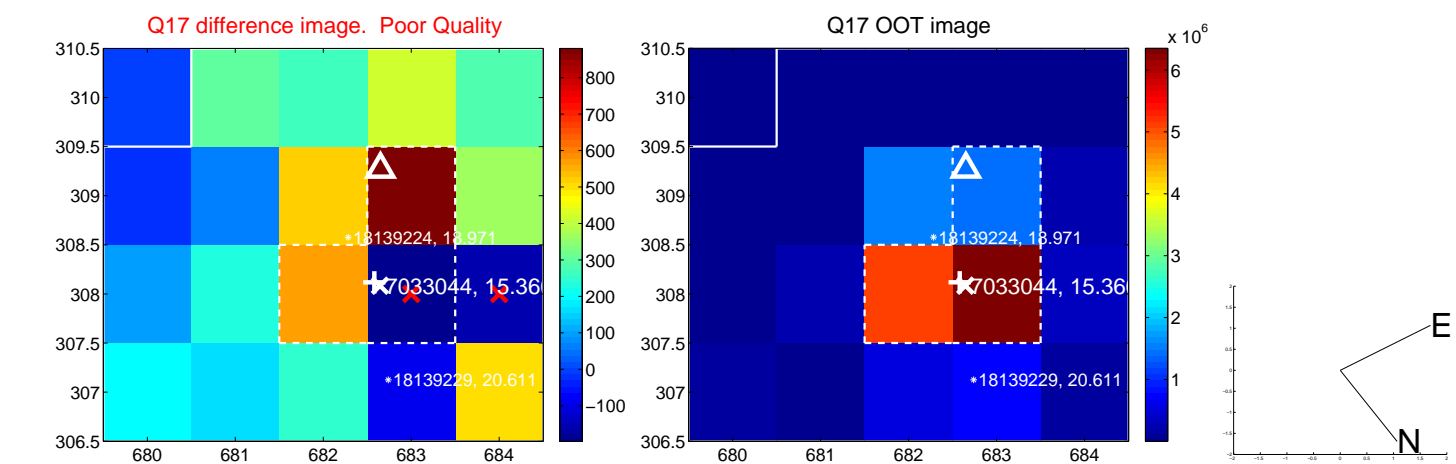
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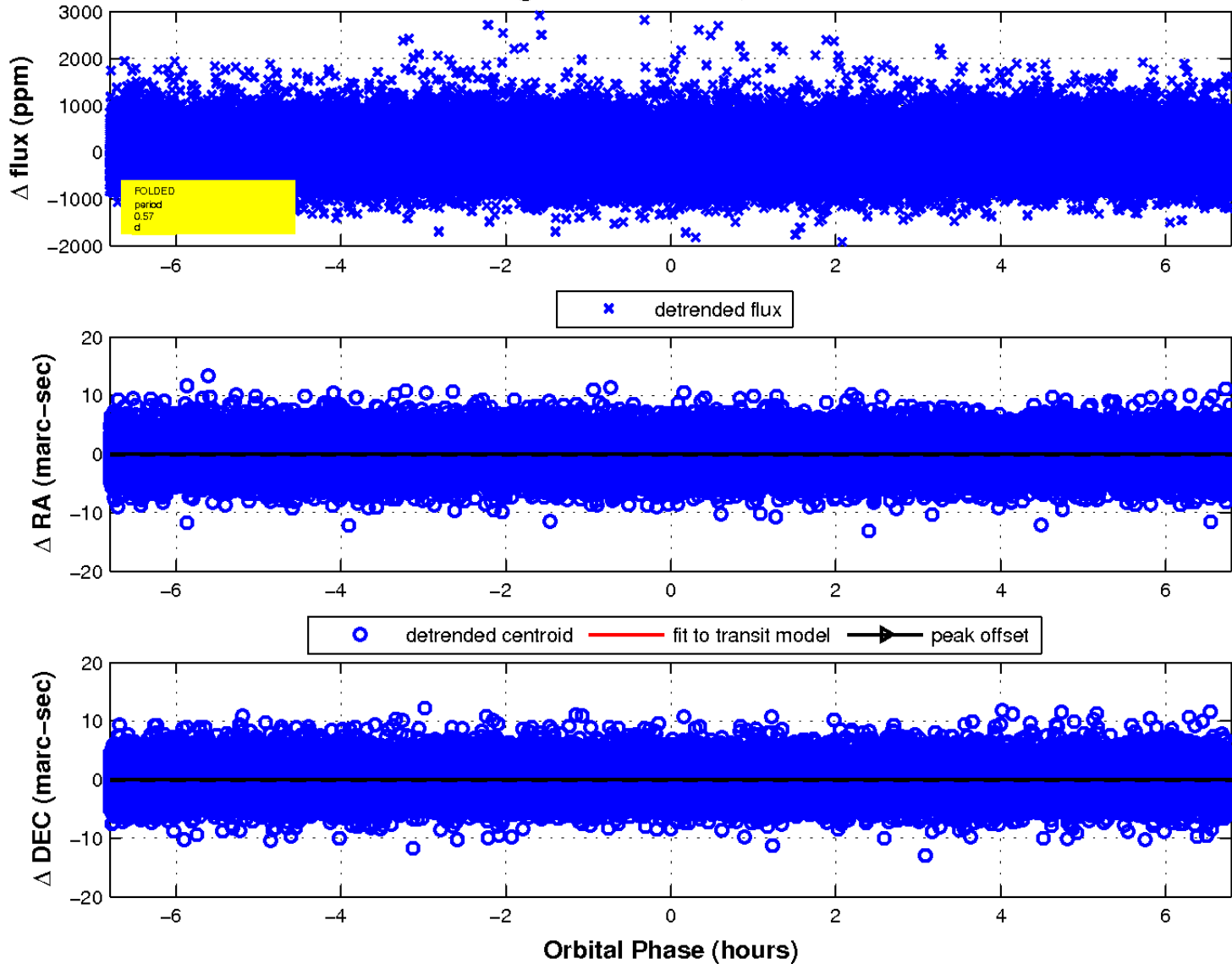
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



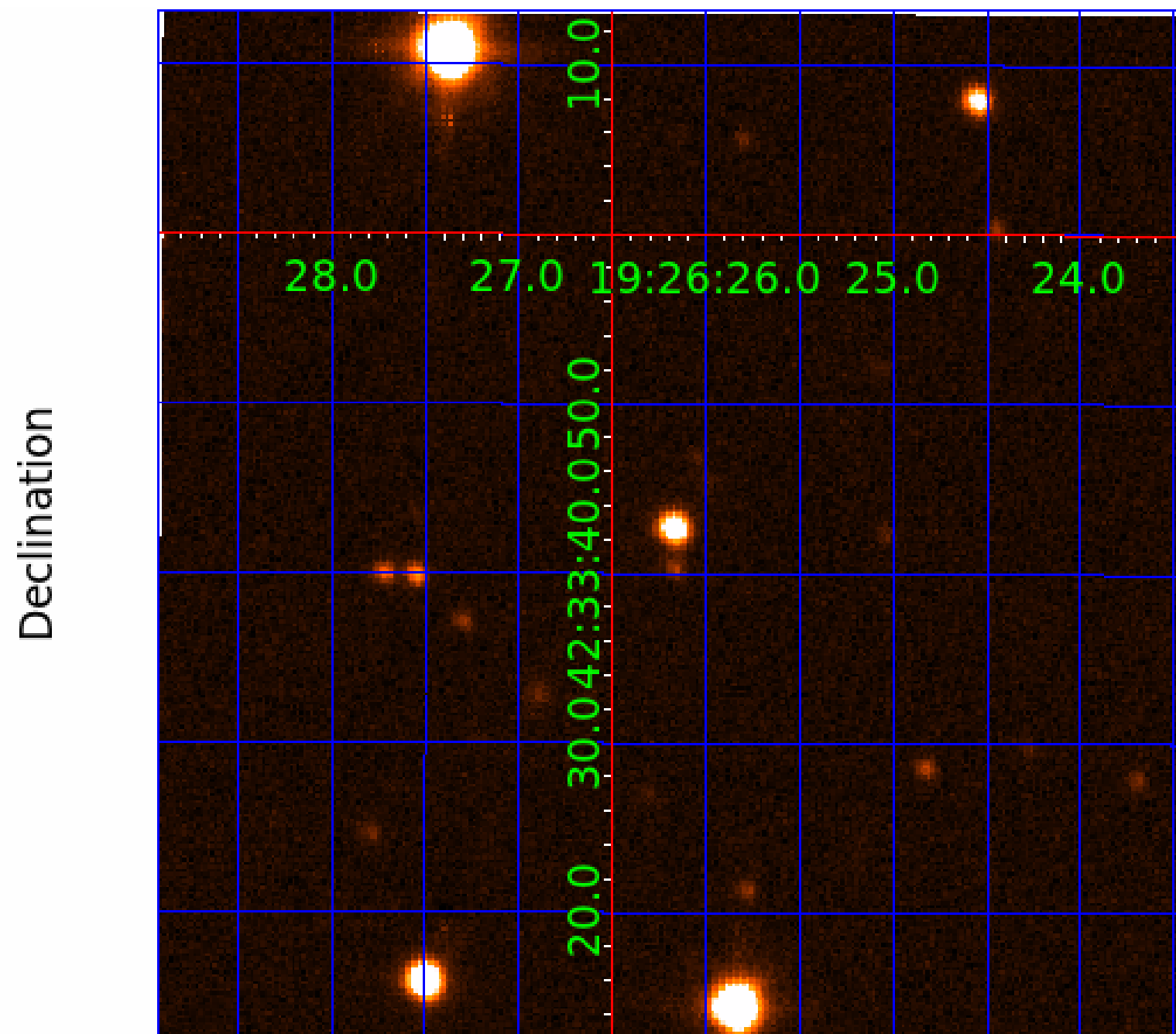
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 3



UKIRT Image





# KIC 007033044

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007033044-01	OBS	No	0.566764	131.882340	30.3	4.122	8.8	8.9	0.91	6139	0.52	5934.88
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007033044-01	OBS	FP	0.00	1	0	0	1	LPP_DV—EPHEM_MATCH
007033044-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
007033044-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

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

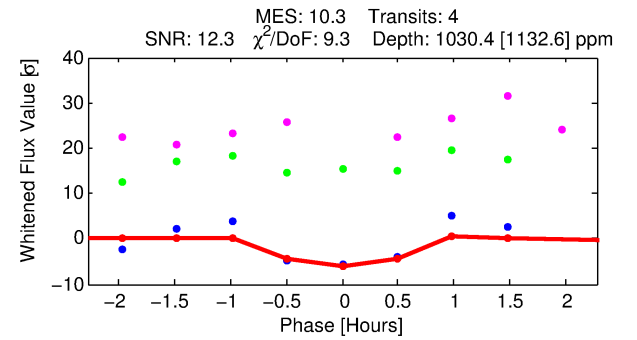
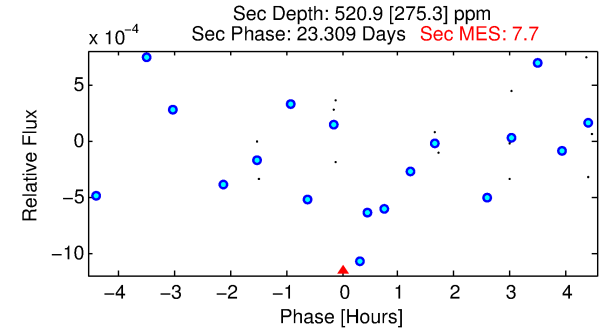
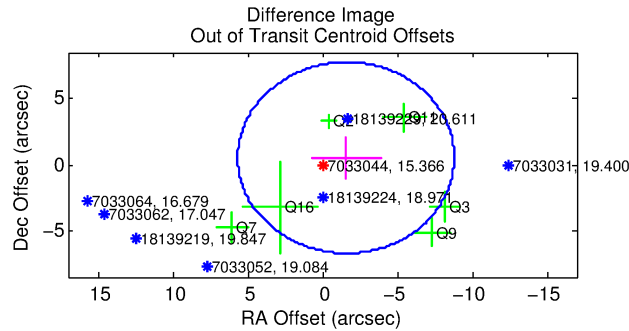
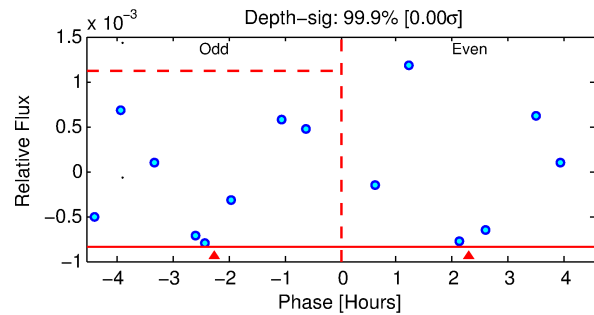
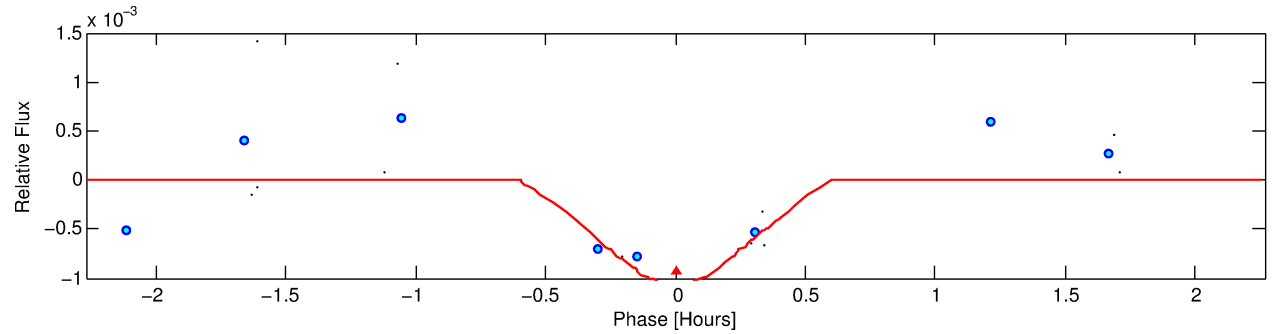
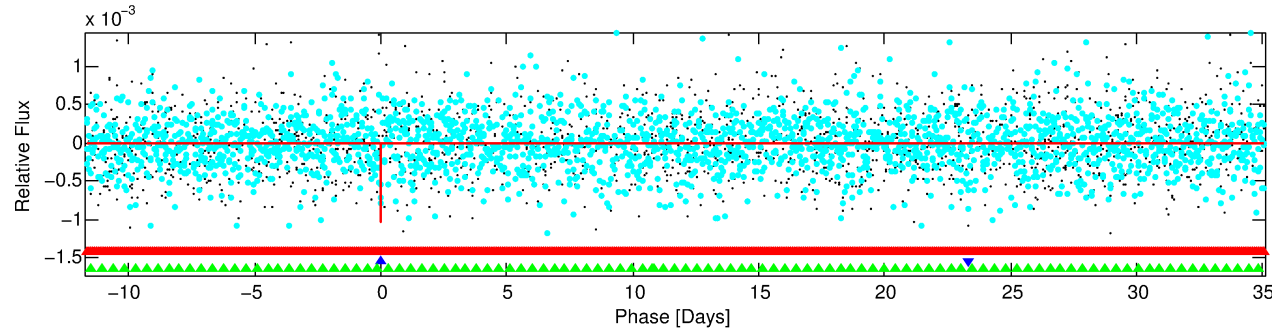
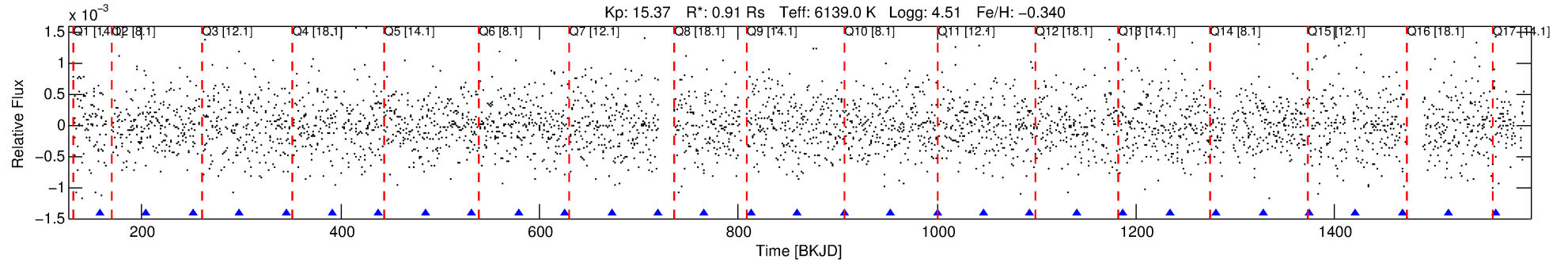
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007033044-02

No Significant Match Found

# DV One-Page Summary

KIC: 7033044 Candidate: 2 of 3 Period: 46.791 d



## DV Fit Results:

Period = 46.79066 [0.00059] d  
Epoch = 157.9025 [0.0147] BKJD  
Rp/R\* = 0.0301 [0.2640]  
a/R\* = 472.99 [20254.68]  
b = 0.25 [167.11]  
Seff = 16.51 [6.40]  
Teq = 514 [50] K  
Rp = 3.00 [26.29] Re  
a = 0.2532 [0.0616] AU  
Ag = 2042.24 [35798.88] [0.06σ]  
Teffp = 5342 [23407] K [0.21σ]

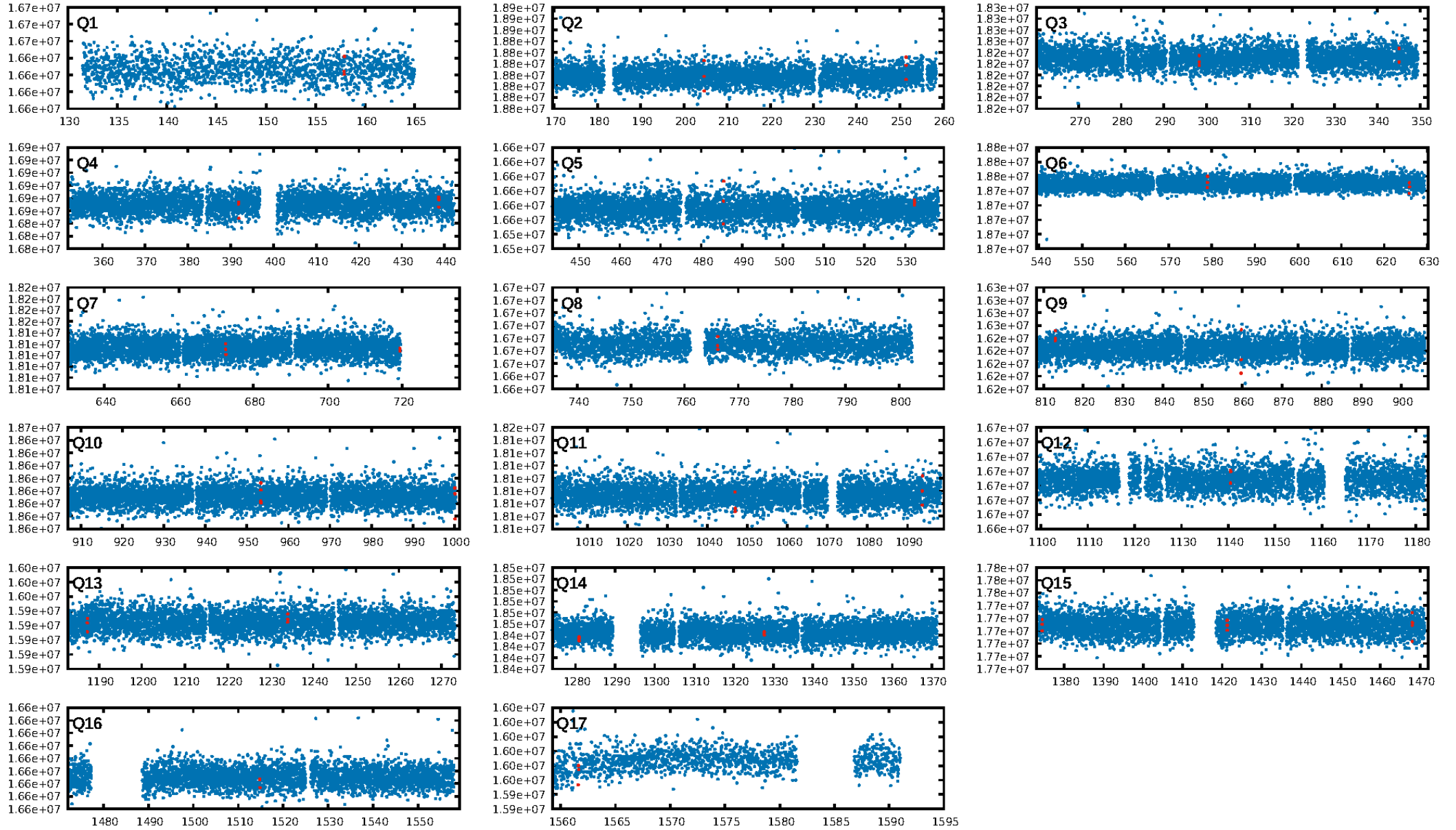
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [631.88σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 57.7%  
ModelChiSquareGof-sig: 93.5%  
Bootstrap-pfa: 5.80e-08  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.4115  
Centroid-sig: 1.2%  
Centroid-so: 1.535 arcsec [1.37σ]  
OotOffset-rm: 1.663 arcsec [0.69σ]  
KicOffset-rm: 1.766 arcsec [0.81σ]  
OotOffset-st: 1/3/1/1 [6]  
KicOffset-st: 1/3/1/1 [6]  
DiffImageQuality-fgm: 0.00 [0/6]  
DiffImageOverlap-fno: 0.00 [0/14]

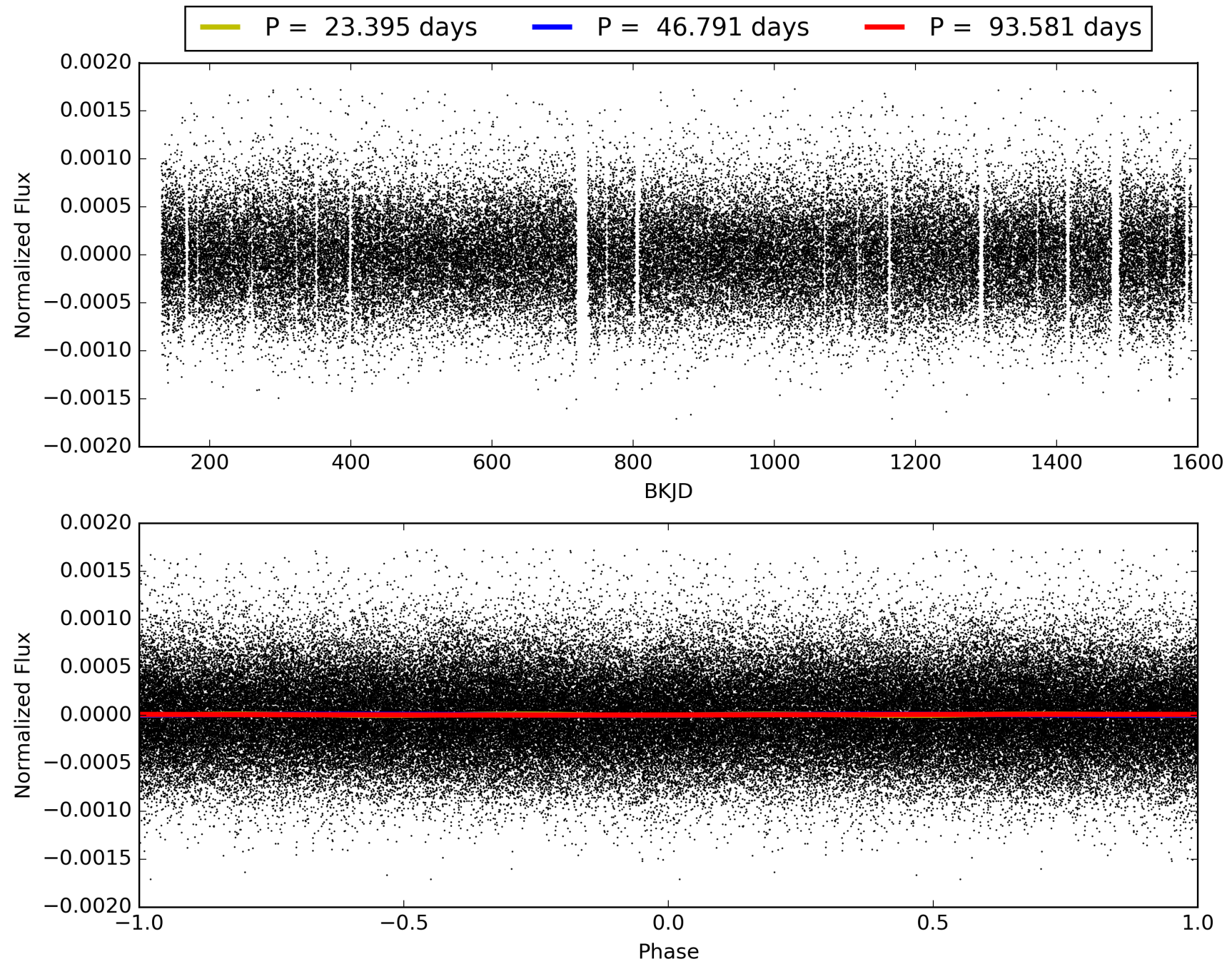
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:58:22 Z

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

# TCE 007033044-02, PDC Light Curves



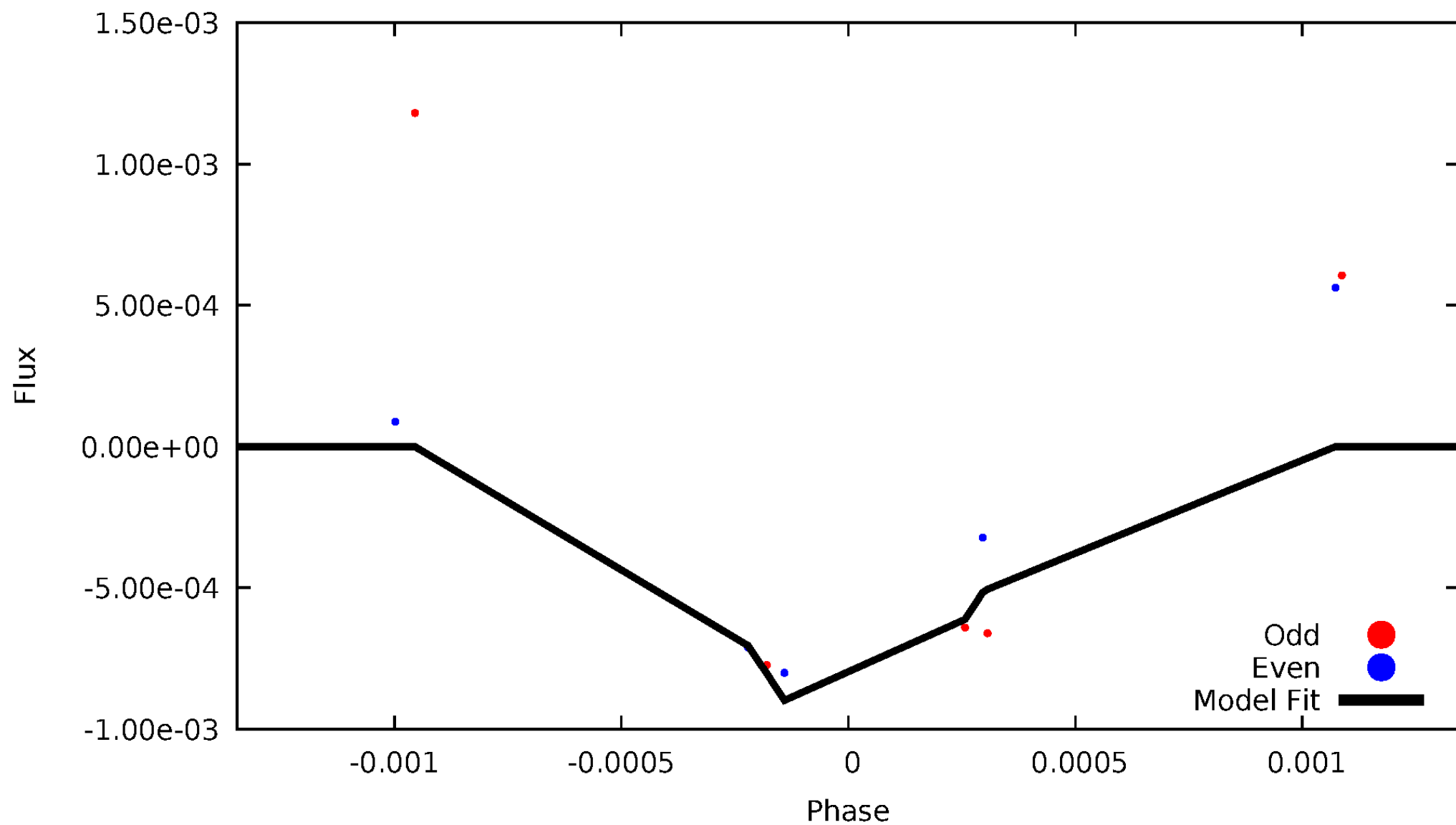
TCE 007033044-02





# DV Odd/Even

TCE 007033044-02



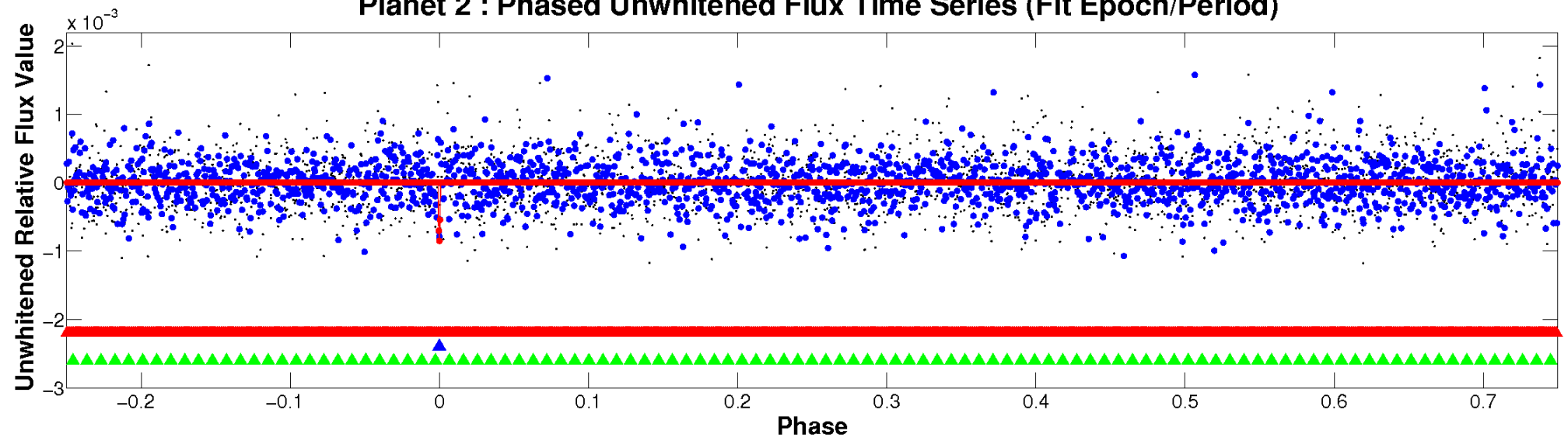


ALT Odd/Even

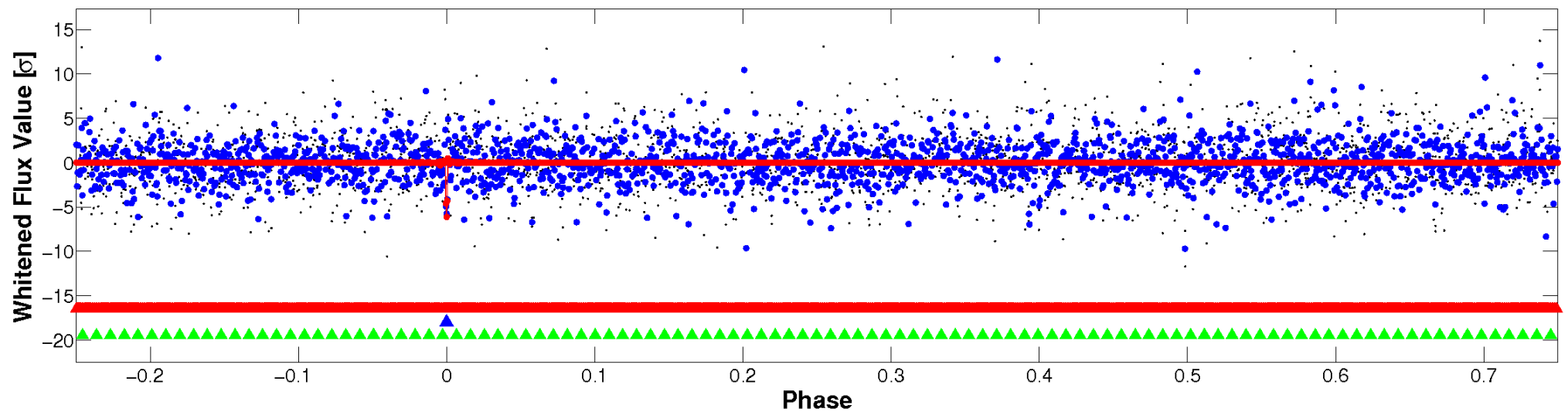
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

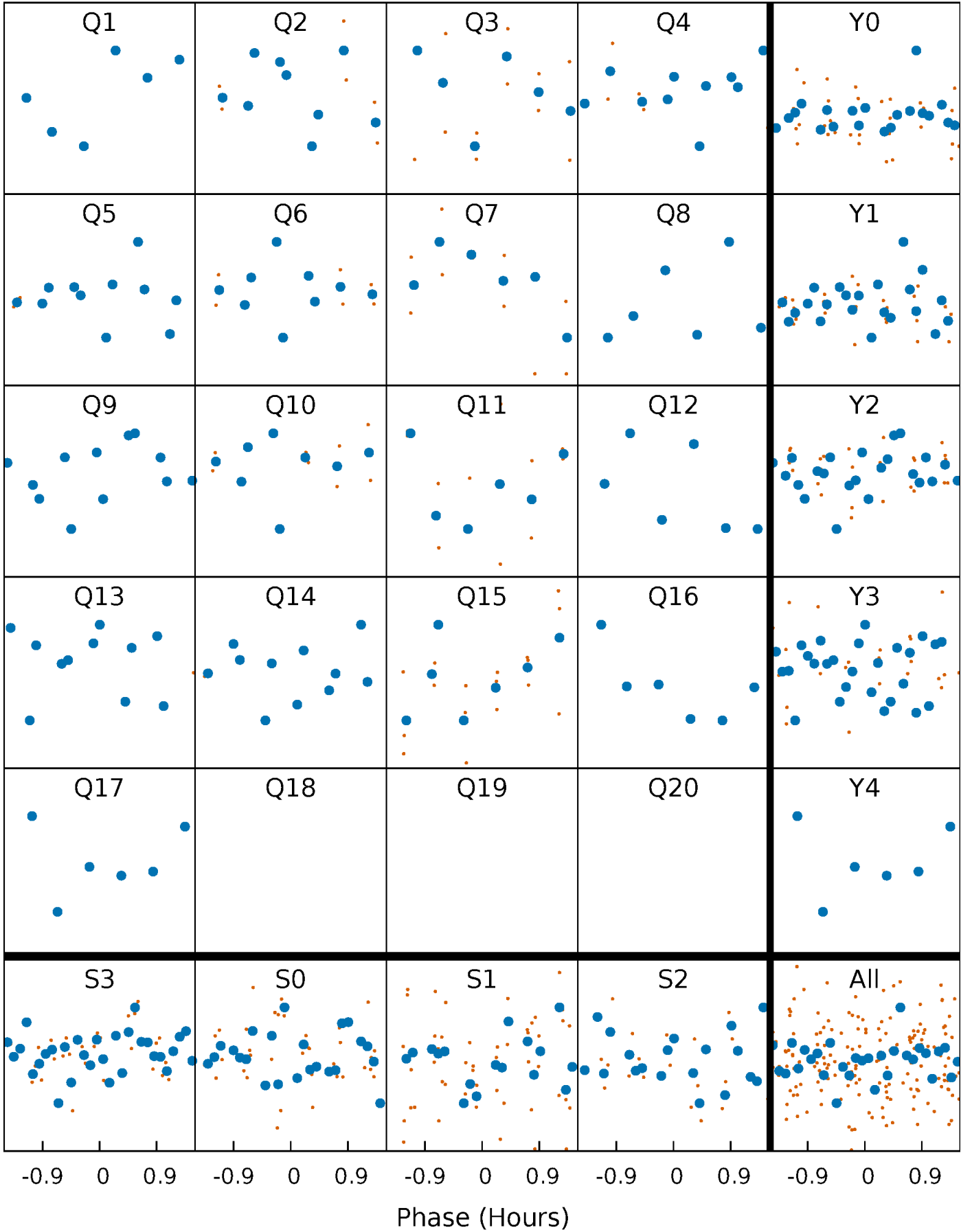


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



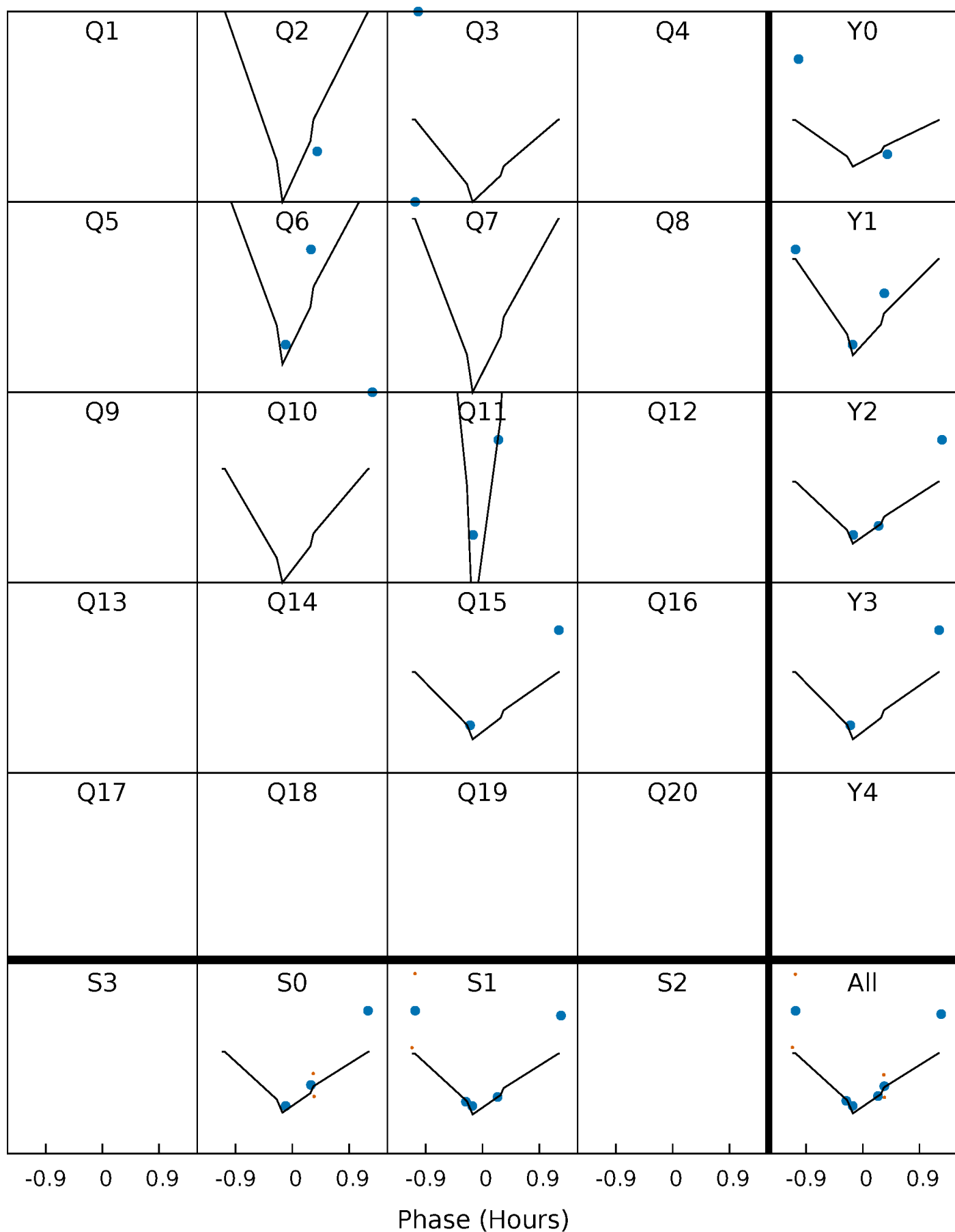
# PDC Quarter-Phased Transit Curves

TCE 007033044-02     $P = 46.790661$  Days     $T_0 = 157.902540$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 007033044-02 P= 46.790661 Days  $T_0=157.902540$  (BKJD)



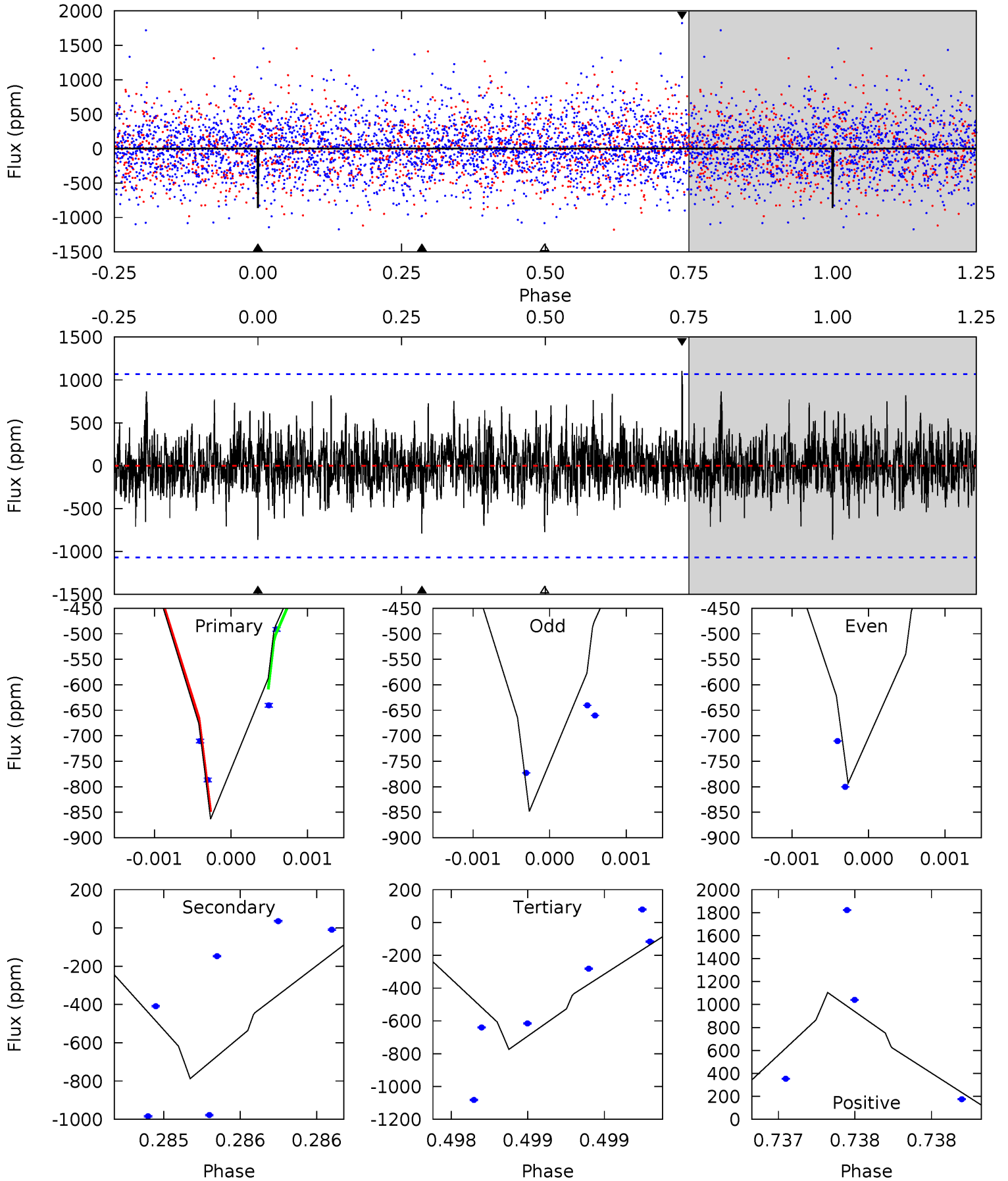


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

007033044-02, P = 46.790661 Days, E = 111.111879 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
4.49	4.10	4.03	5.75	5.56	3.47	1.19	0.47	-1.26	0.07	-1.65	0.14	1.00	0.56	0.63



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 007033044

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6139^{+165}_{-220}$	$4.513^{+0.050}_{-0.200}$	$-0.340^{+0.300}_{-0.300}$	$0.912^{+0.258}_{-0.086}$	$0.991^{+0.117}_{-0.129}$	$1.837^{+0.462}_{-0.900}$
	+3%/-4%	+1%/-4%	+88%/-88%	+28%/-9%	+12%/-13%	+25%/-49%
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 007033044-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-788 \pm 192$	$19.55^{+21.33}_{-13.56}$	$733^{+48}_{-37}$	$3040^{+1521}_{-562}$	$73^{+712}_{-58}$
Alt.	N/A	N/A	N/A	N/A	N/A

$T_{max}$  = 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

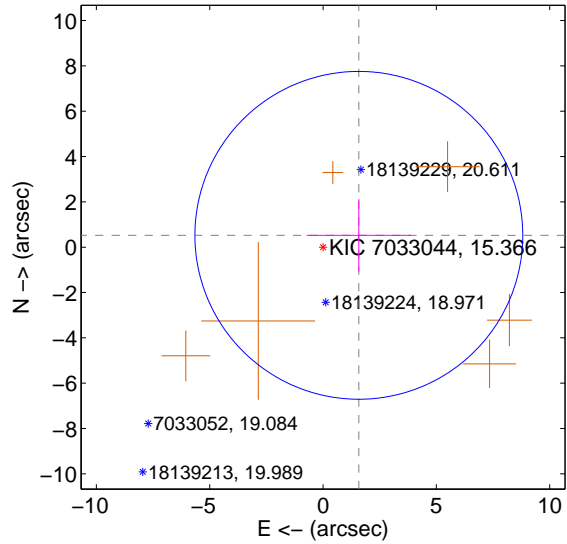
Supplemental centroid analysis for 007033044-02. Kepler magnitude: 15.37. Transit SNR 12.31

There are 0 quarters with good PRF difference image offsets

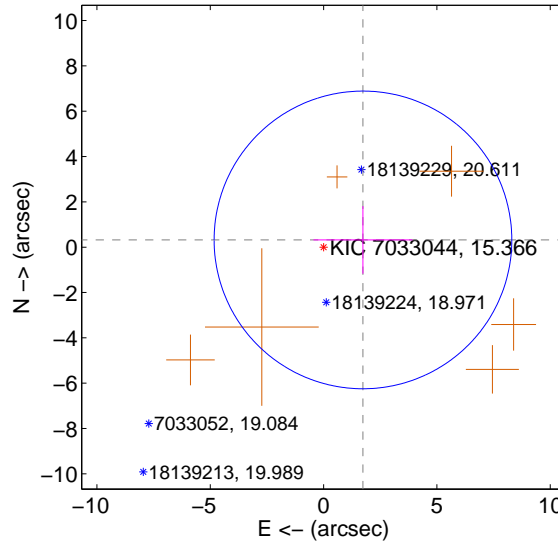
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.663 \pm 2.410$	0.69	$-1.579 \pm 2.303$	$0.522 \pm 1.595$
PRF-fit source offset from KIC position	$1.766 \pm 2.188$	0.81	$-1.737 \pm 2.185$	$0.320 \pm 1.491$
photometric centroid source offset	$1.54 \pm 1.12$	1.37	$-0.36 \pm 1.14$	$1.49 \pm 1.12$

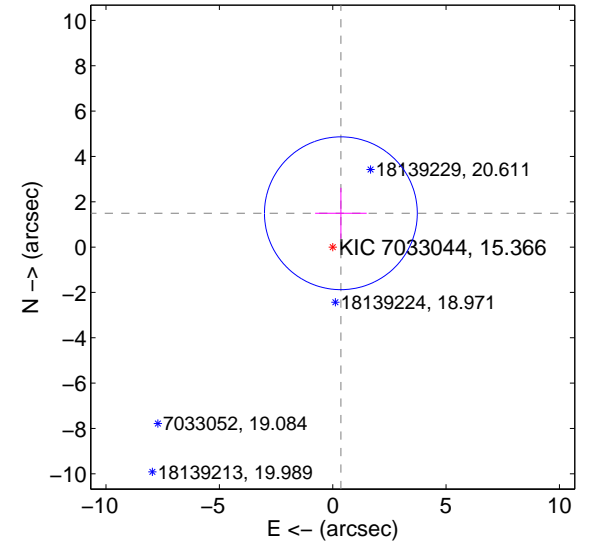
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

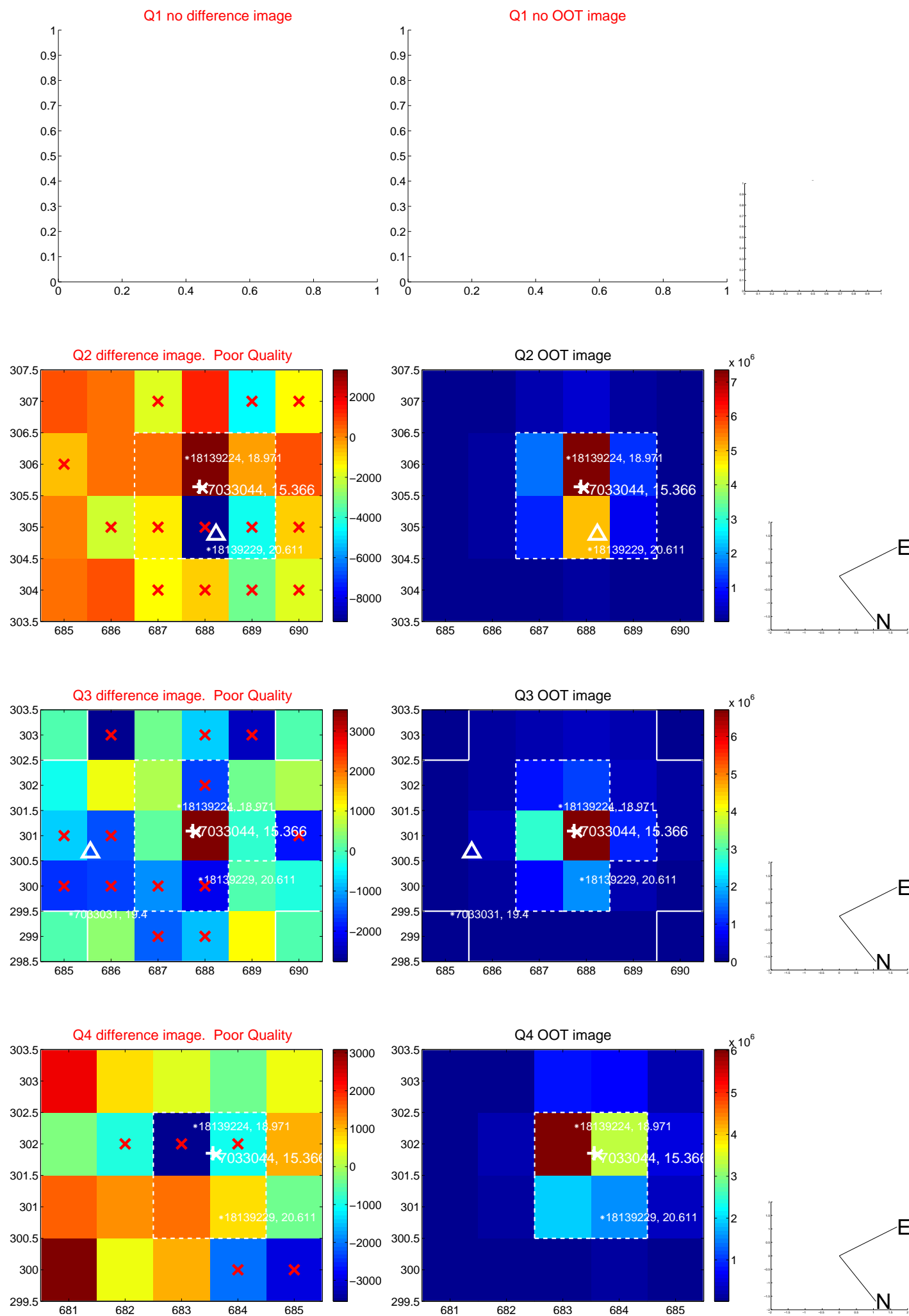


offset from photometric centroids



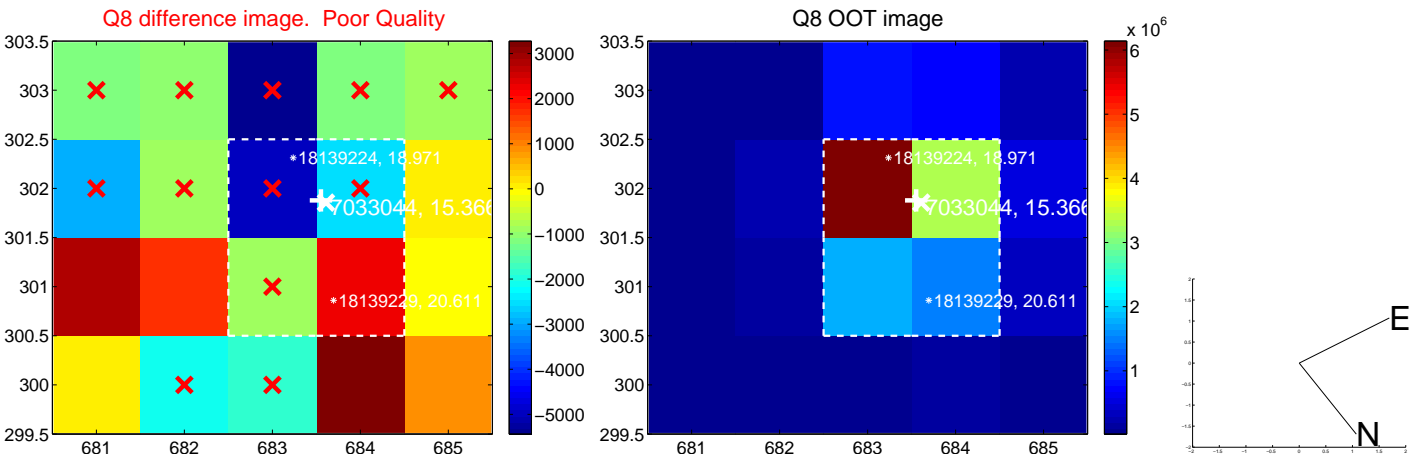
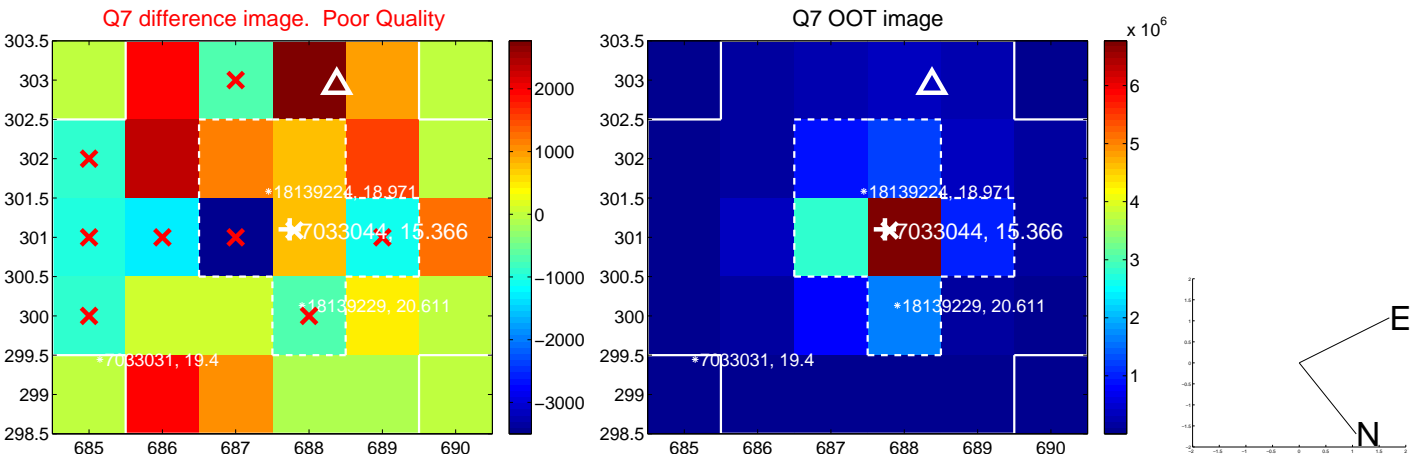
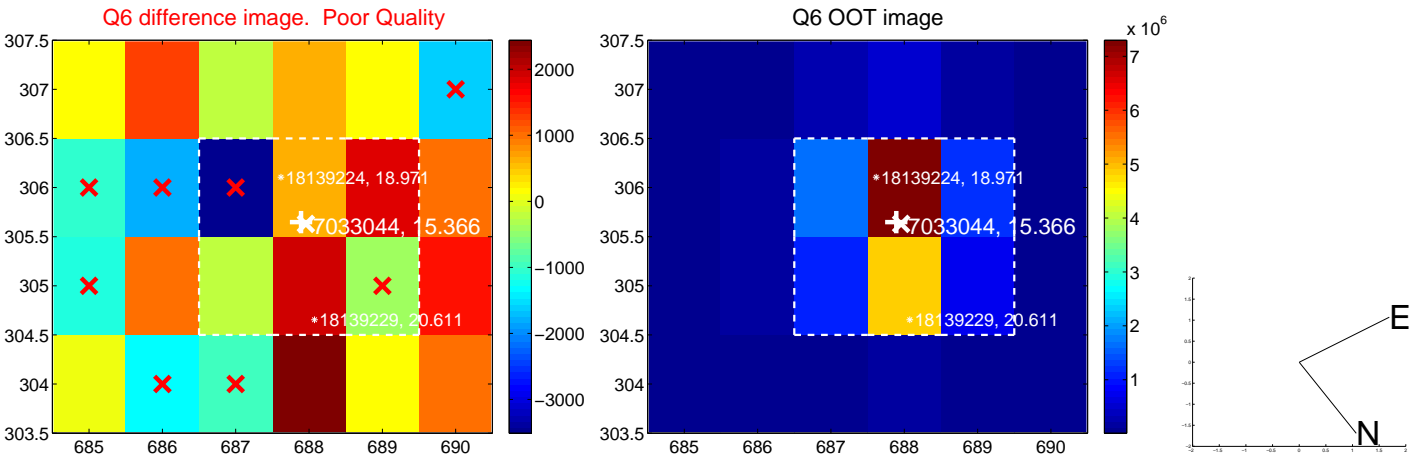
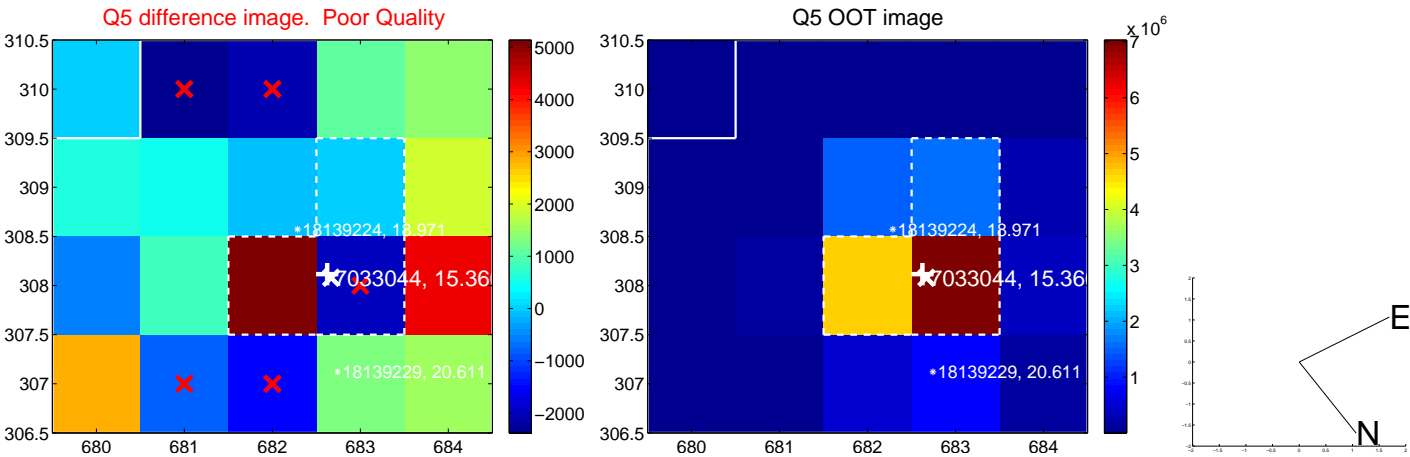
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

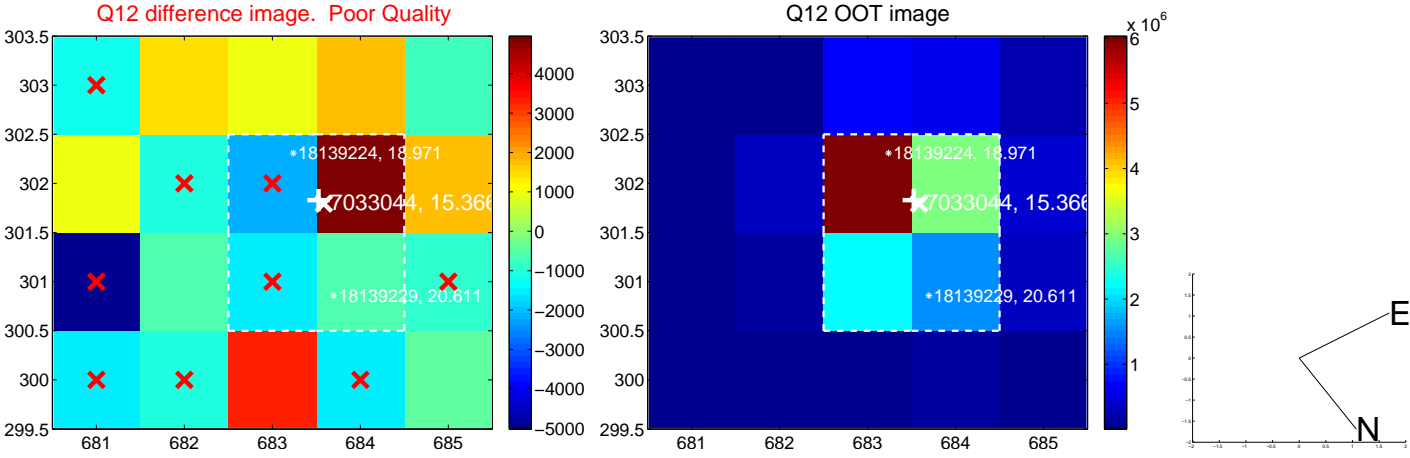
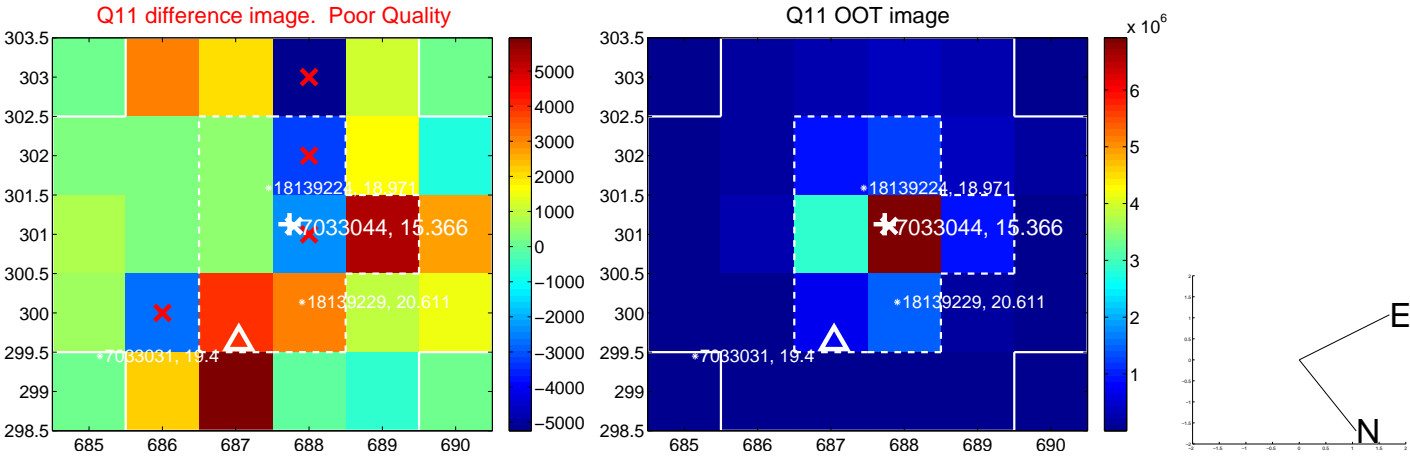
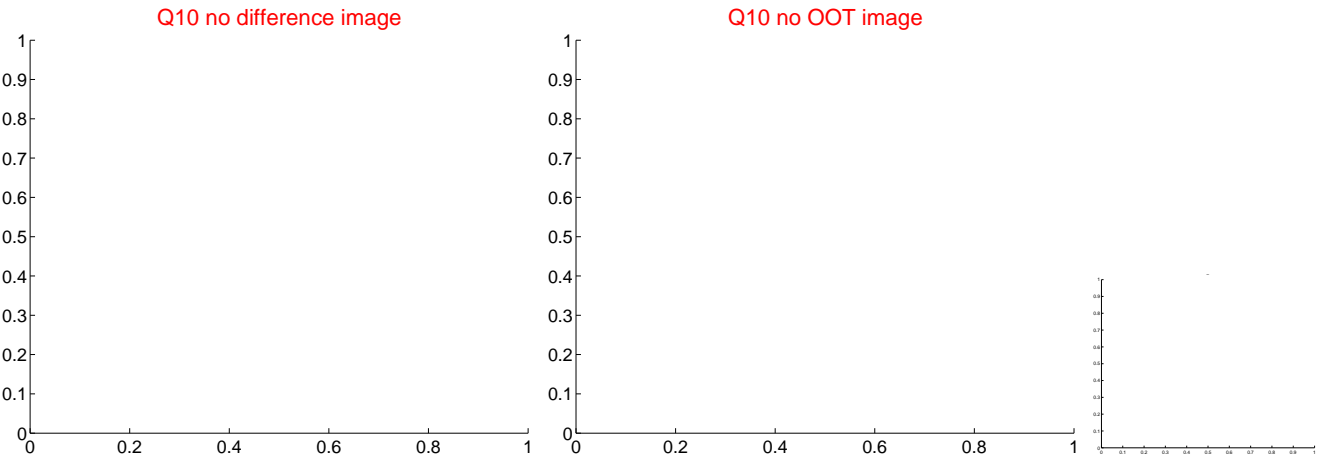
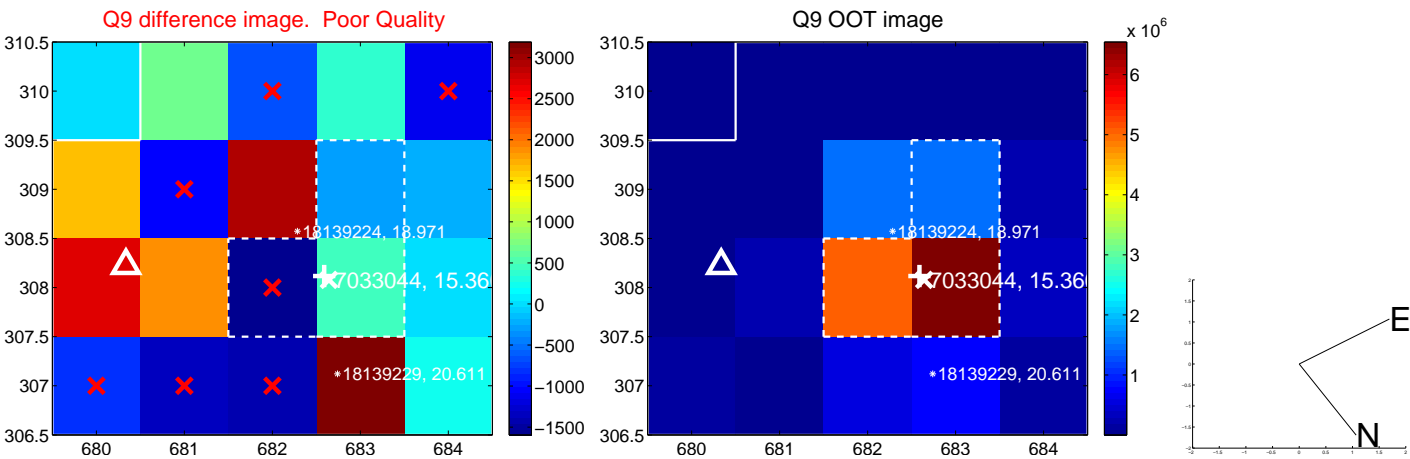




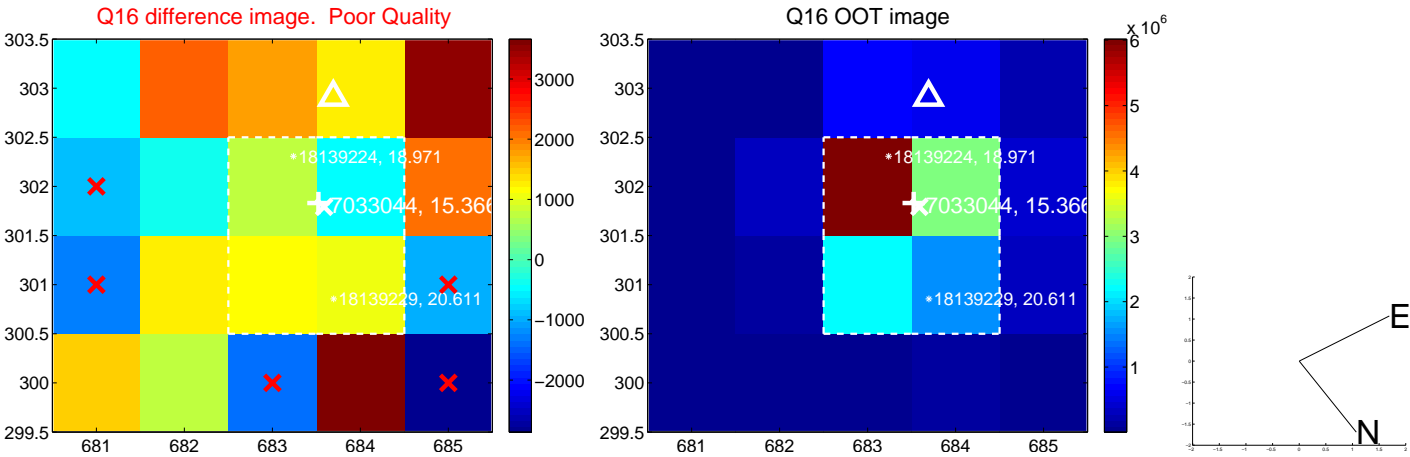
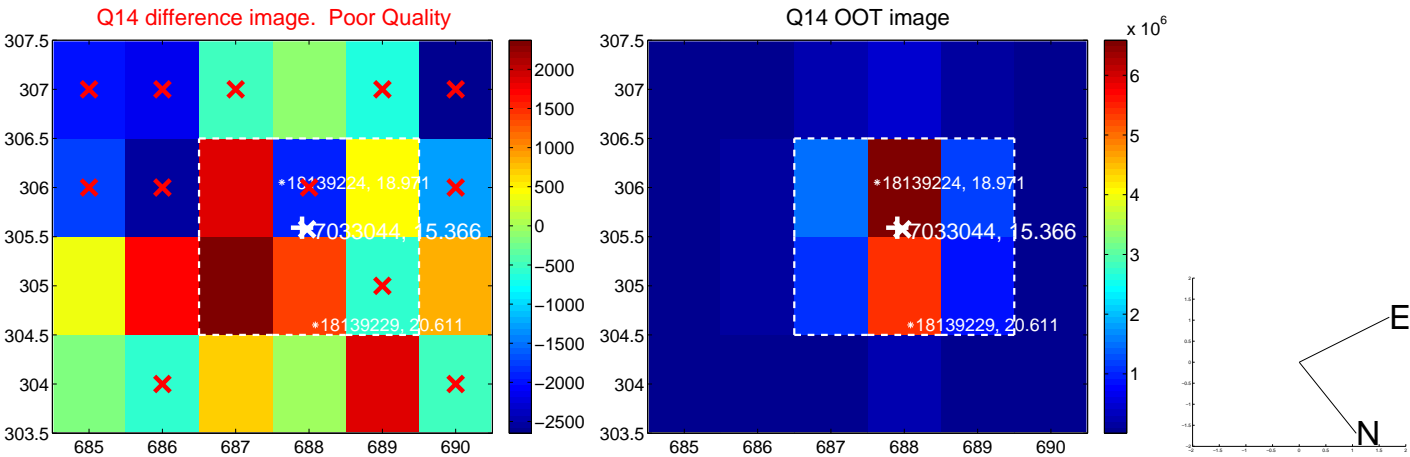
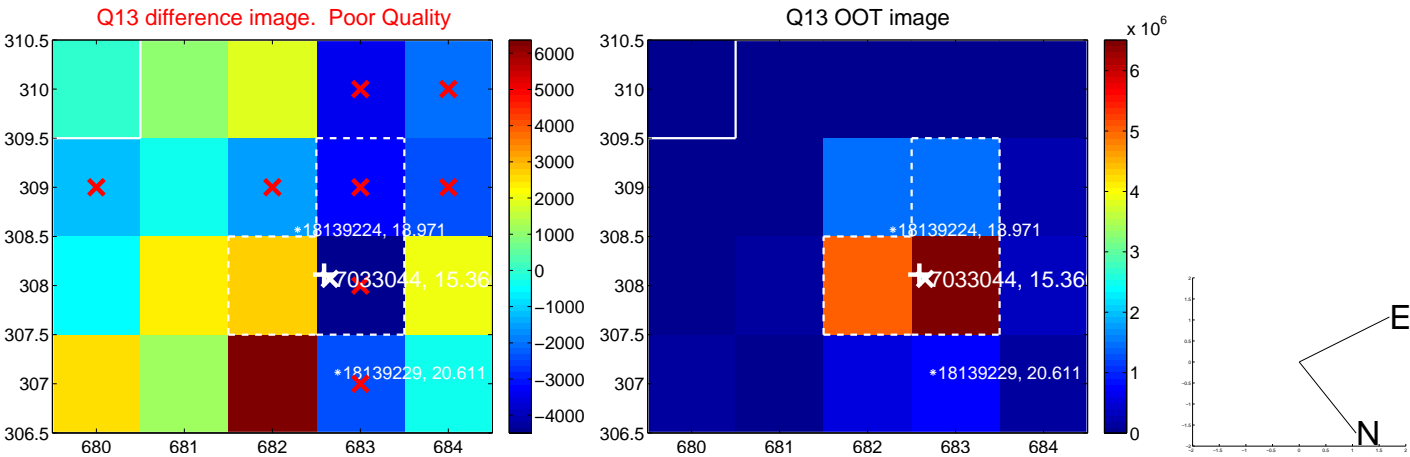
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



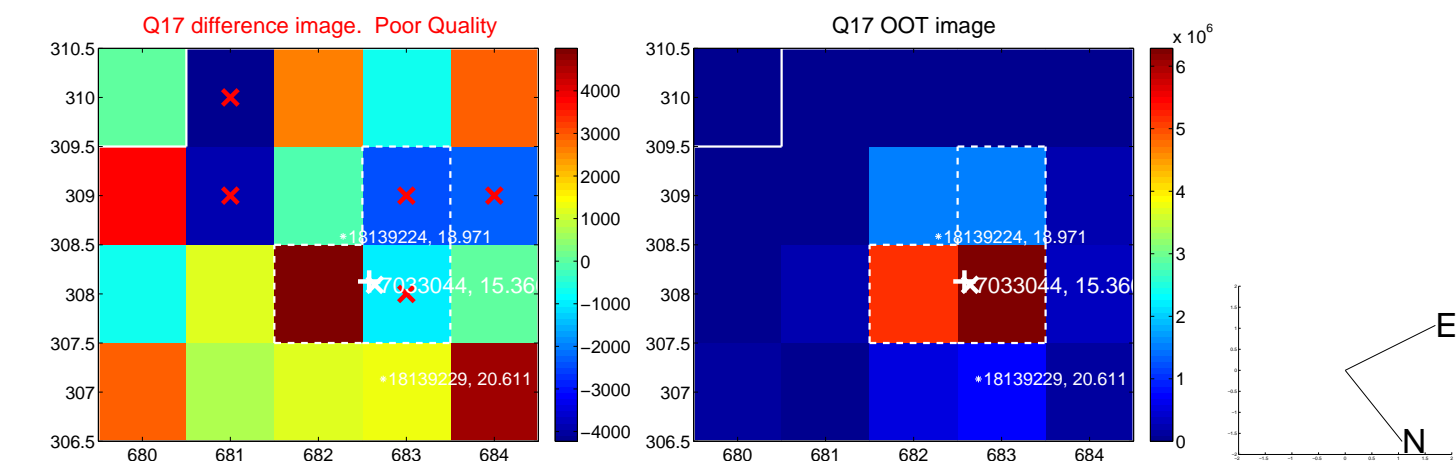
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



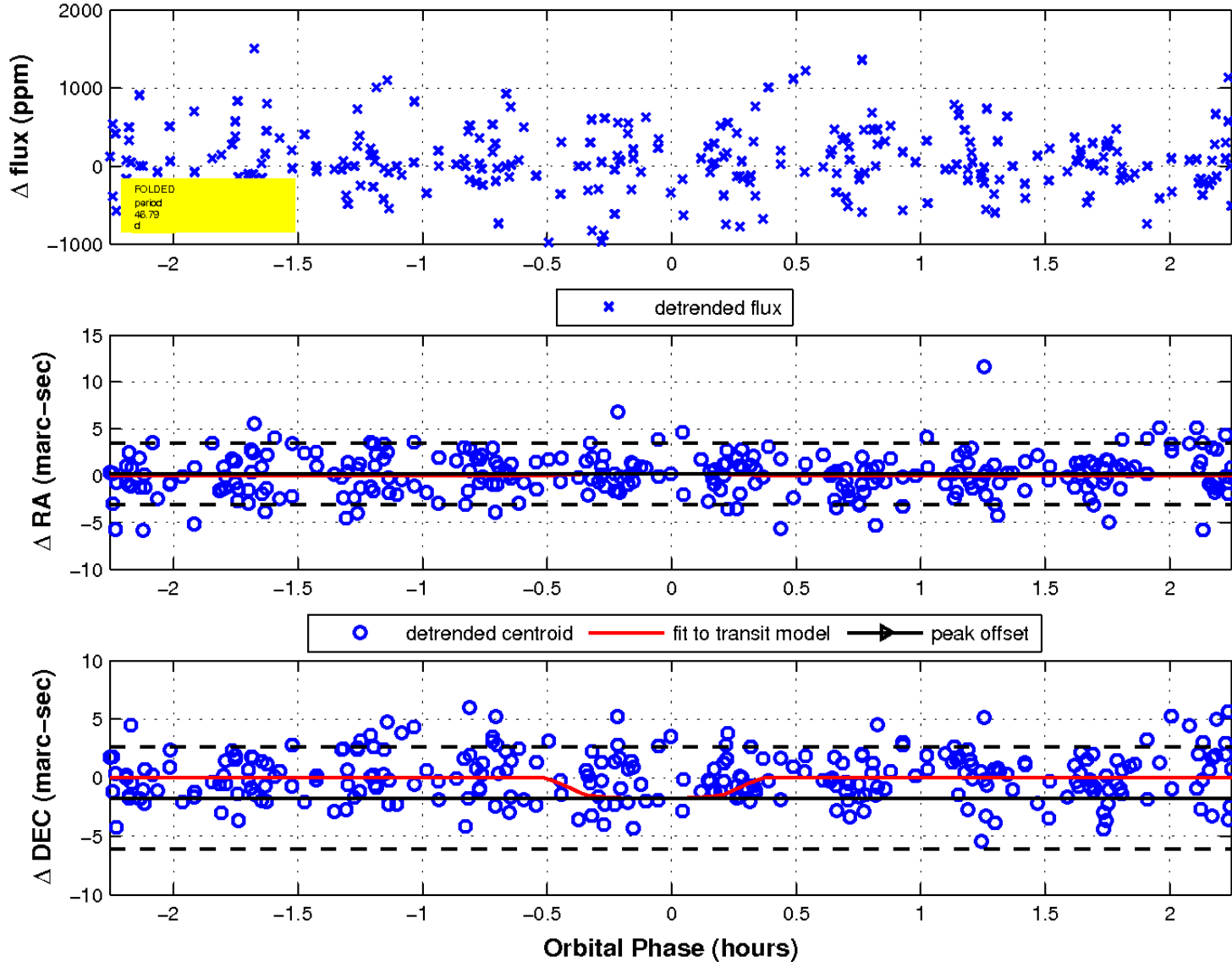
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



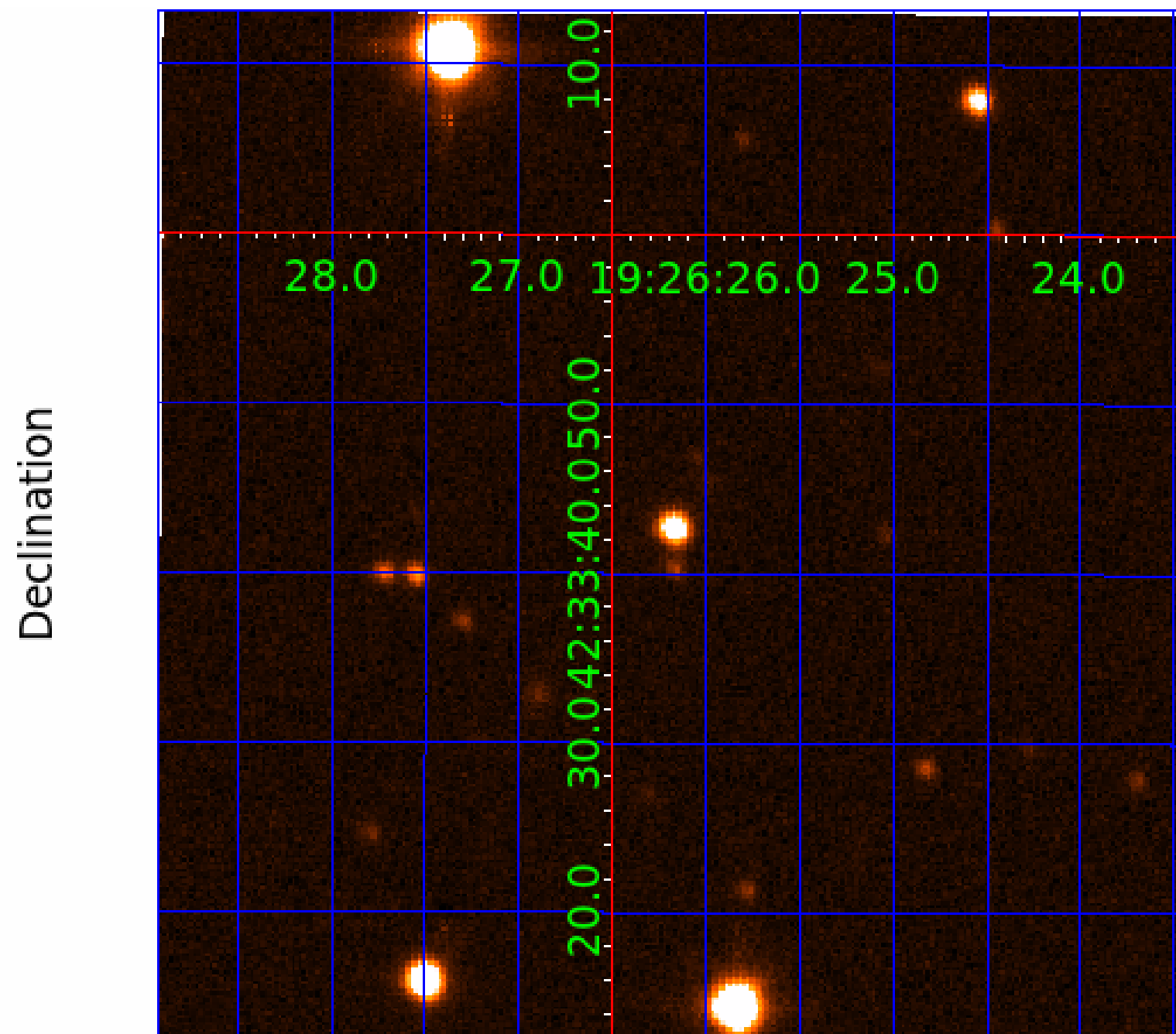
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 3



UKIRT Image





# KIC 007033044

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007033044-01	OBS	No	0.566764	131.882340	30.3	4.122	8.8	8.9	0.91	6139	0.52	5934.88
007033044-02	OBS	No	46.790661	157.902540	1030.4	0.756	10.3	12.3	0.91	6139	3.00	16.51
007033044-03	OBS	No	13.119008	142.469158	699.0	1.032	11.7	13.7	0.91	6139	2.46	89.97

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007033044-01	OBS	FP	0.00	1	0	0	1	LPP_DV—EPHEM_MATCH
007033044-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
007033044-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

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

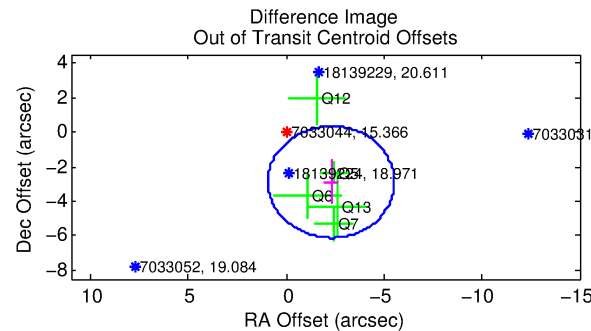
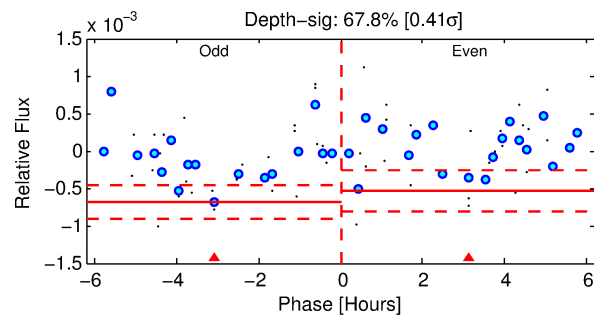
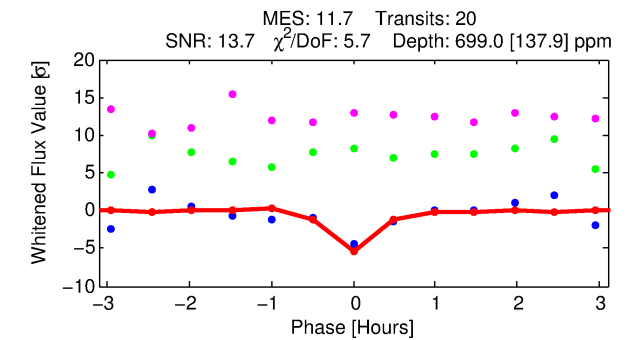
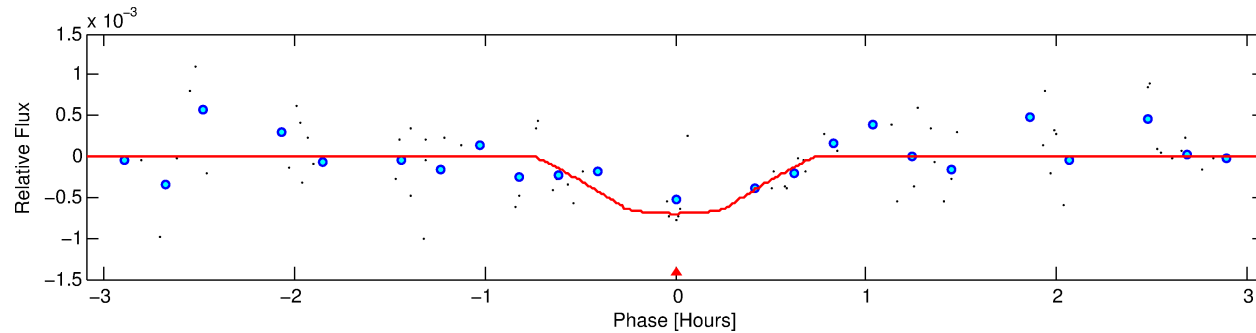
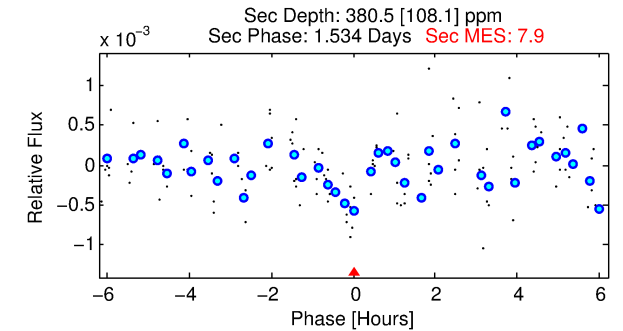
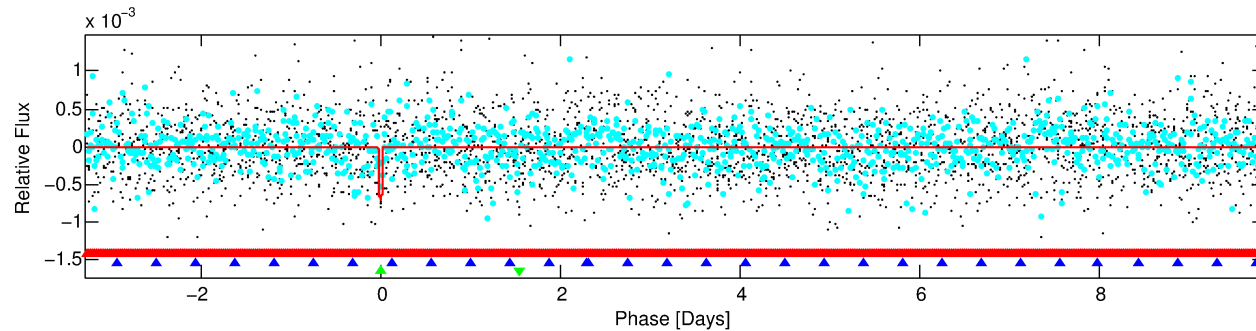
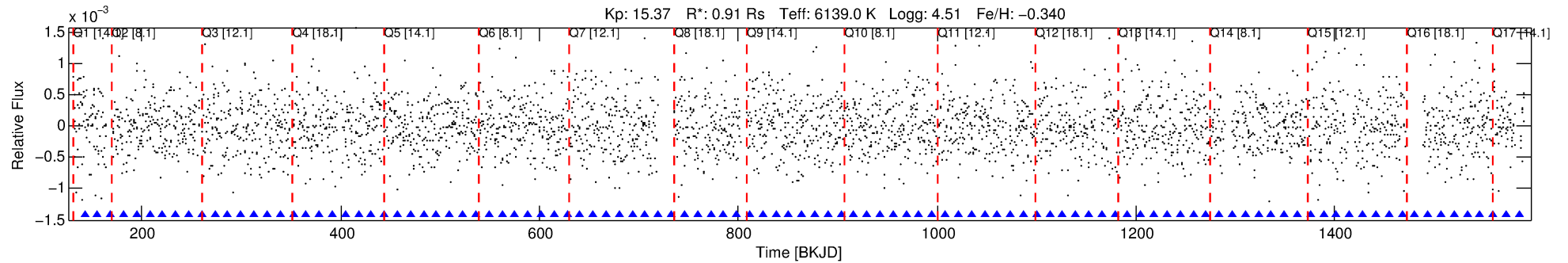
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007033044-03

No Significant Match Found

# DV One-Page Summary

KIC: 7033044 Candidate: 3 of 3 Period: 13.119 d



## DV Fit Results:

Period = 13.11901 [0.00015] d  
Epoch = 142.4692 [0.0089] BKJD  
Rp/R\* = 0.0247 [0.0412]  
a/R\* = 95.32 [802.16]  
b = 0.29 [26.12]  
Seff = 89.97 [34.89]  
Teff = 785 [76] K  
Rp = 2.46 [4.16] Re  
a = 0.1085 [0.0264] AU  
Ag = 408.50 [1376.24] [0.30σ]  
Teffp = 5459 [4575] K [1.02σ]

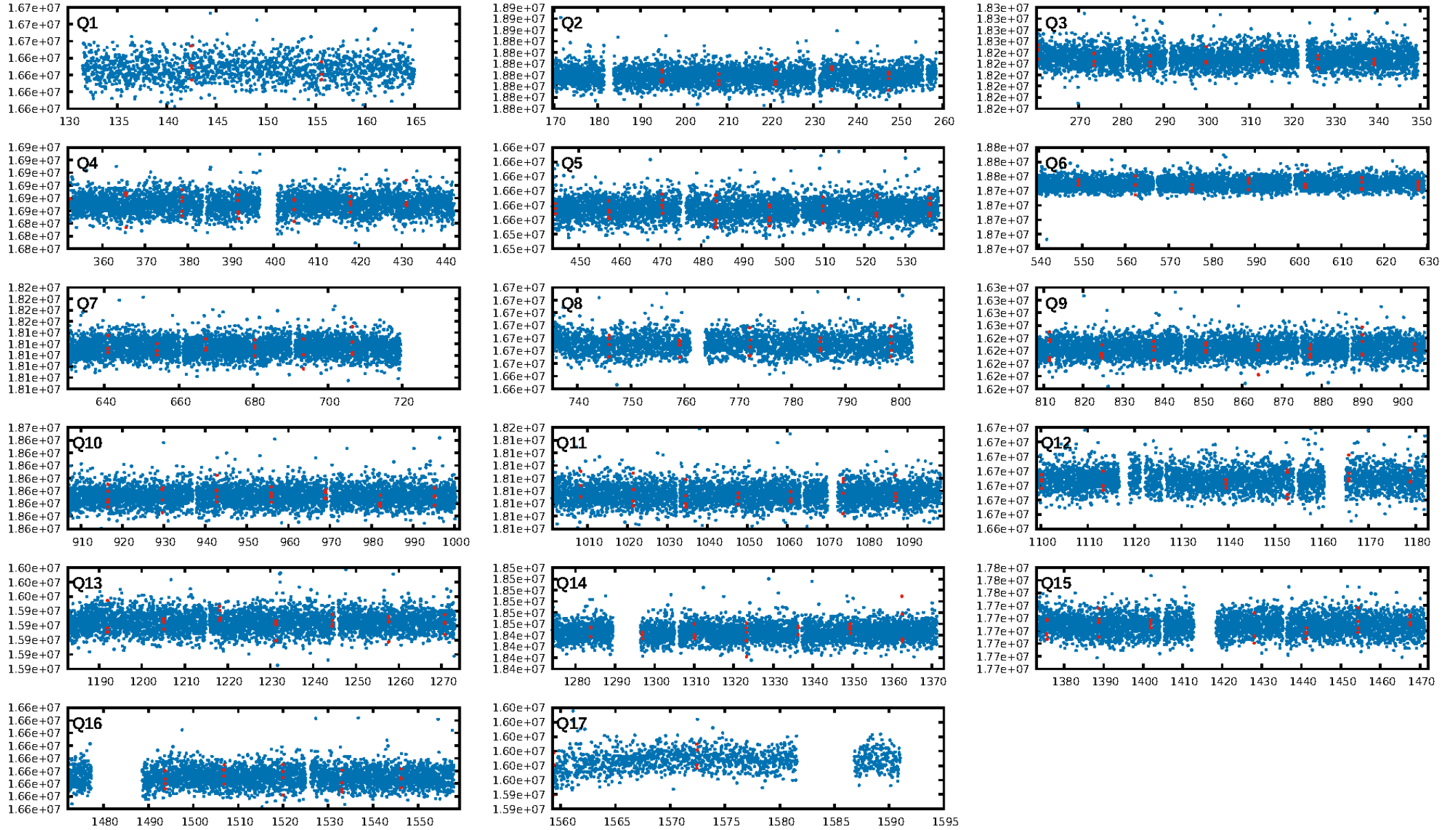
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [70.90σ]  
LongPeriod-sig: 100.0% [631.88σ]  
**ModelChiSquare2-sig: 0.0%**  
ModelChiSquareGof-sig: 83.9%  
**Bootstrap-pfa: 3.00e-10**  
RollingBand-fgt: 1.00 [19/19]  
**GhostDiagnostic-chr: 1.342**  
Centroid-sig: 99.9%  
Centroid-so: 0.259 arcsec [0.34σ]  
**OotOffset-rm: 3.688 arcsec [3.43σ]**  
**KicOffset-rm: 3.945 arcsec [4.56σ]**  
OotOffset-st: 1/1/1/2 [5]  
KicOffset-st: 1/1/1/2 [5]  
DiffImageQuality-fgm: 0.00 [0/5]  
DiffImageOverlap-fno: 0.00 [0/17]

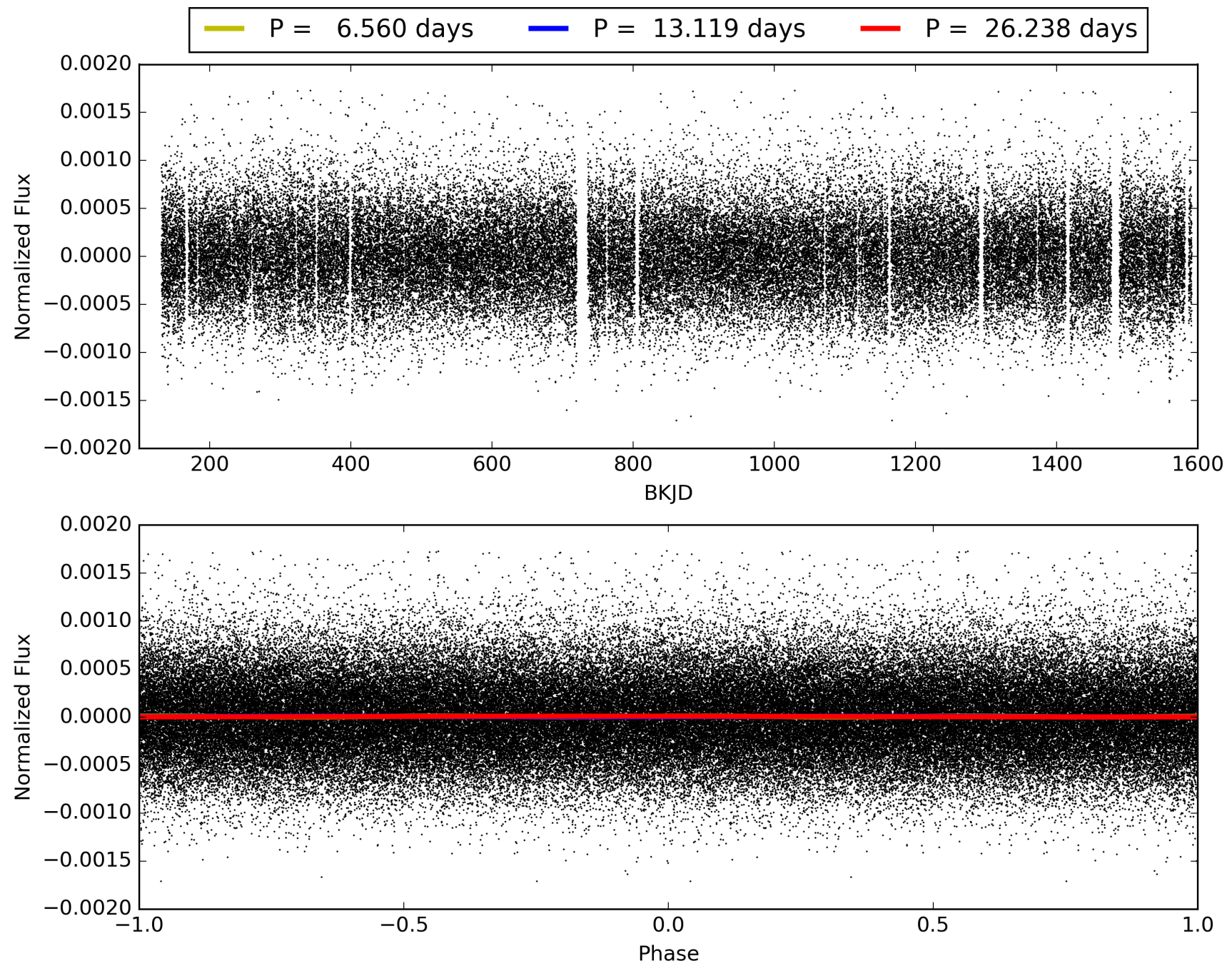
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:58:25 Z

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

# TCE 007033044-03, PDC Light Curves

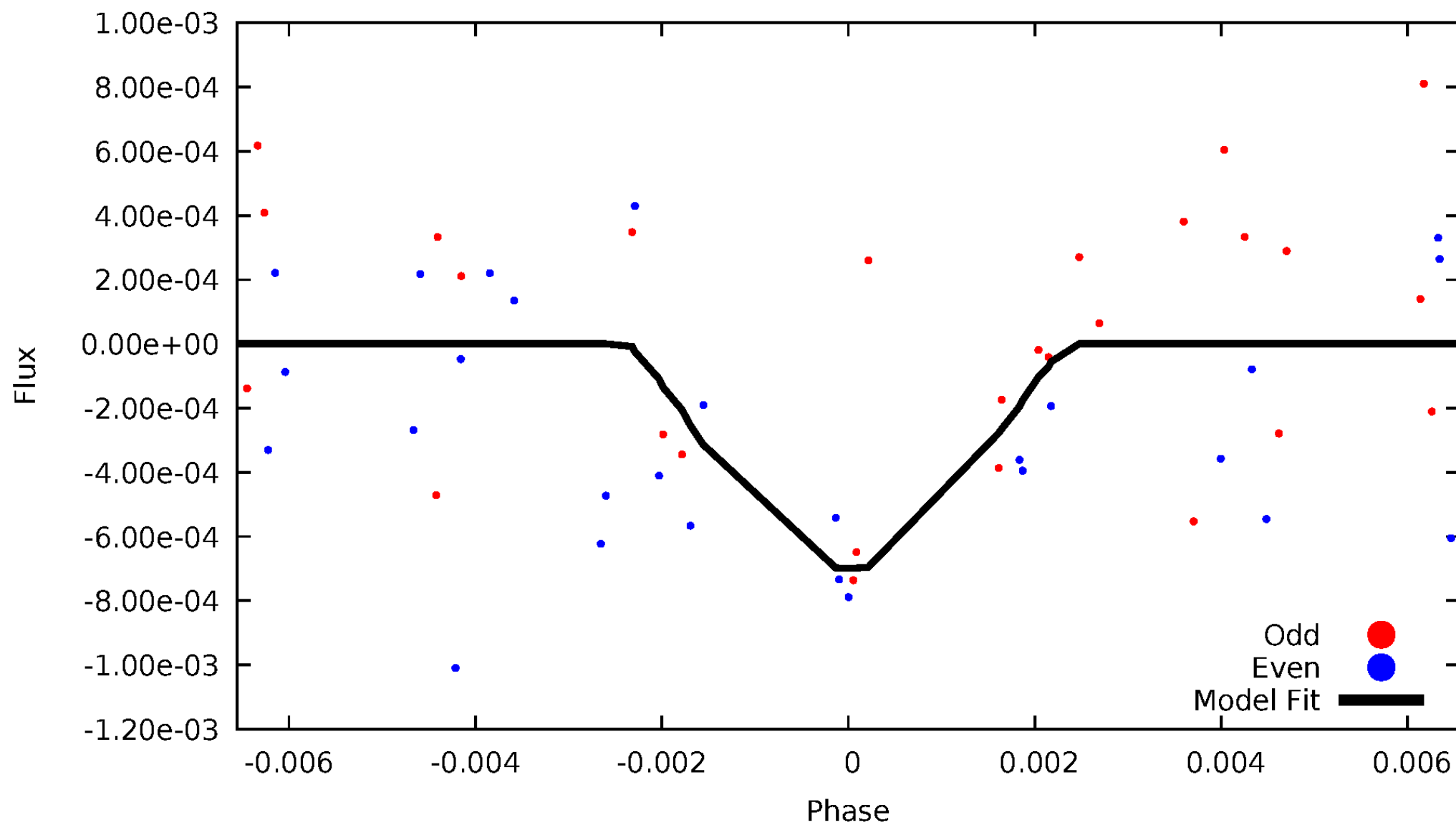


TCE 007033044-03



# DV Odd/Even

TCE 007033044-03





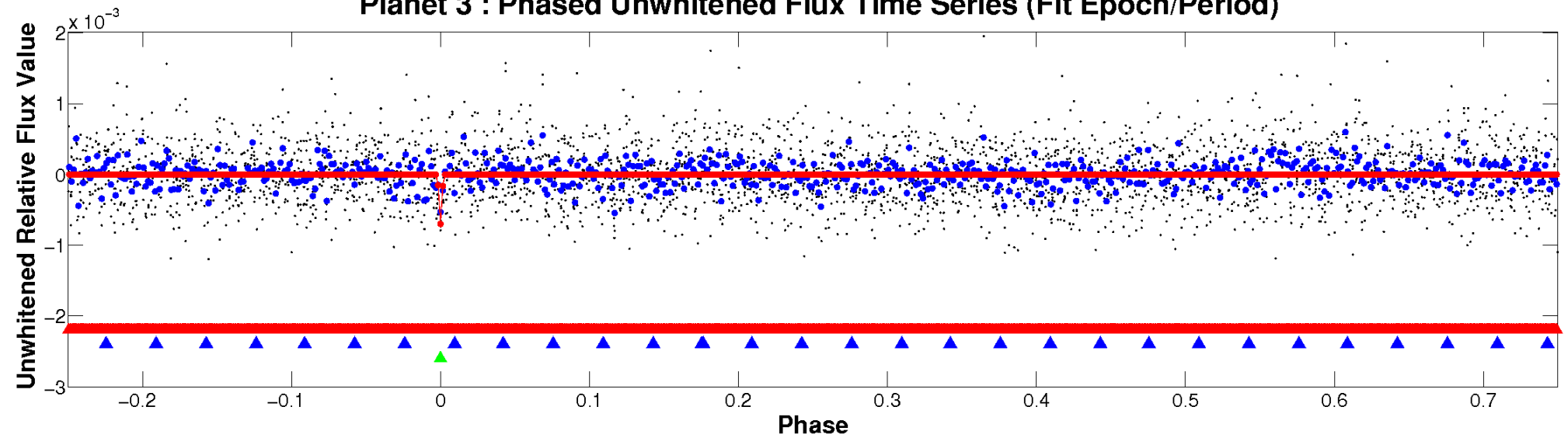


ALT Odd/Even

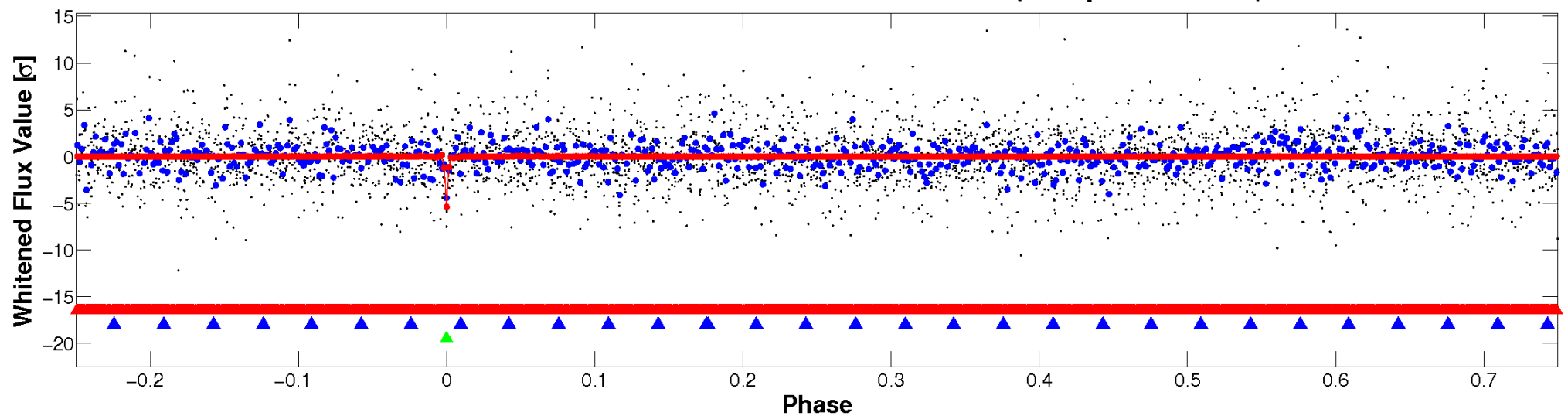
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

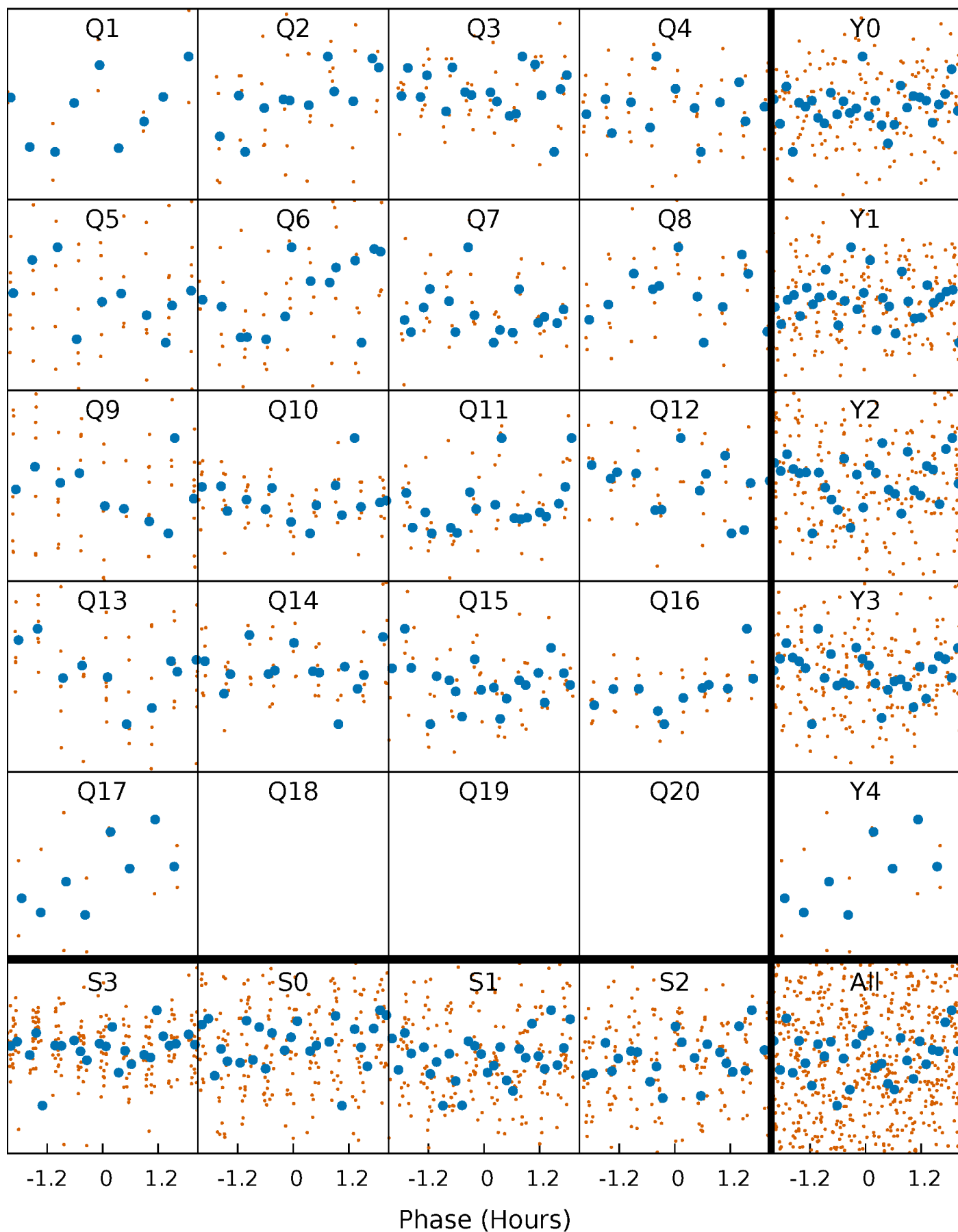


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



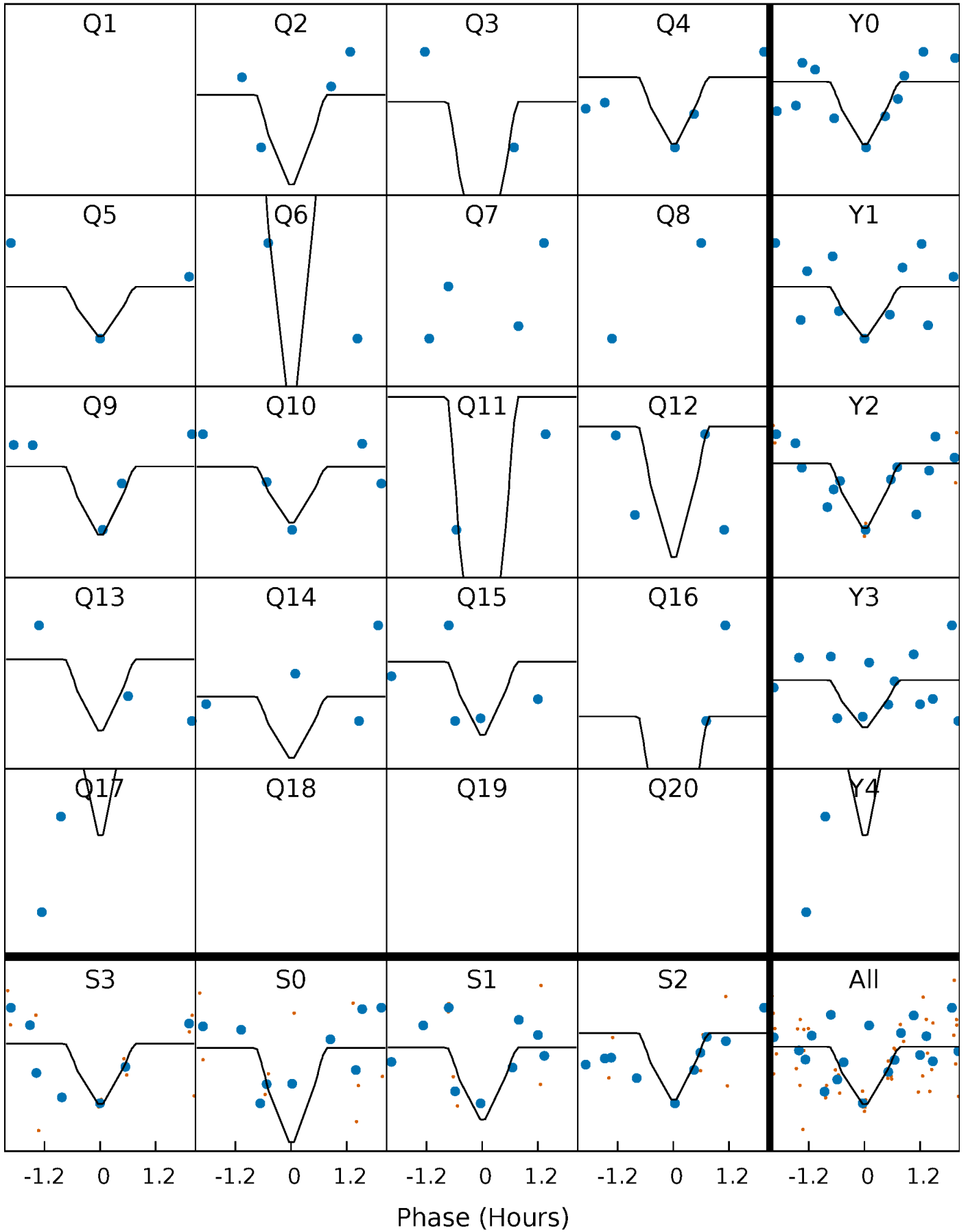
# PDC Quarter-Phased Transit Curves

TCE 007033044-03 P= 13.119008 Days  $T_0=142.469158$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 007033044-03 P= 13.119008 Days  $T_0=142.469158$  (BKJD)

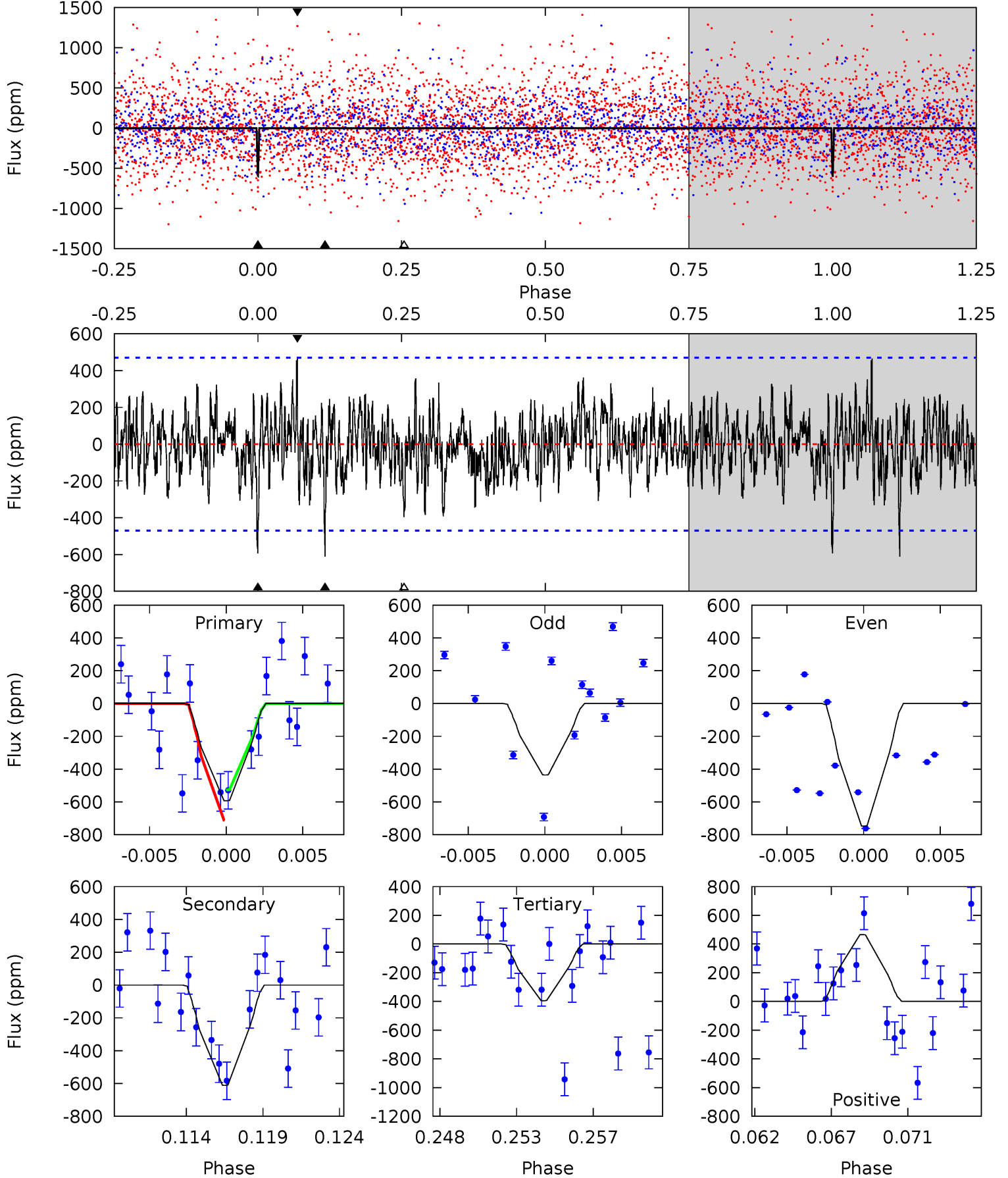


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

007033044-03, P = 13.119008 Days, E = 129.350150 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
6.51	6.72	4.34	5.11	5.17	2.82	1.45	2.18	1.40	2.38	1.60	1.71	1.00	0.43	1.00





## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 007033044

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6139^{+165}_{-220}$	$4.513^{+0.050}_{-0.200}$	$-0.340^{+0.300}_{-0.300}$	$0.912^{+0.258}_{-0.086}$	$0.991^{+0.117}_{-0.129}$	$1.837^{+0.462}_{-0.900}$
	+3%/-4%	+1%/-4%	+88%/-88%	+28%/-9%	+12%/-13%	+25%/-49%
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 007033044-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-612 \pm 91$	$4.22^{+4.03}_{-2.75}$	$1123^{+81}_{-52}$	$4891^{+3476}_{-1071}$	$214^{+1599}_{-158}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

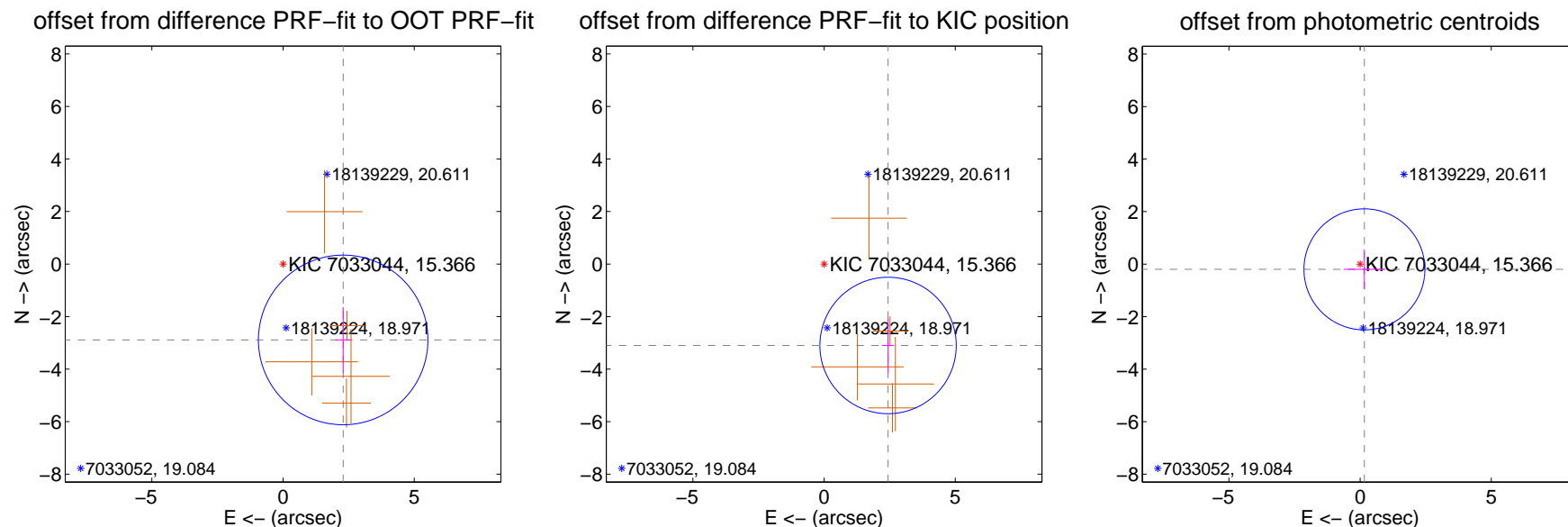
## DV Centroid Data

Supplemental centroid analysis for 007033044-03. Kepler magnitude: 15.37. Transit SNR 13.66

There are 0 quarters with good PRF difference image offsets

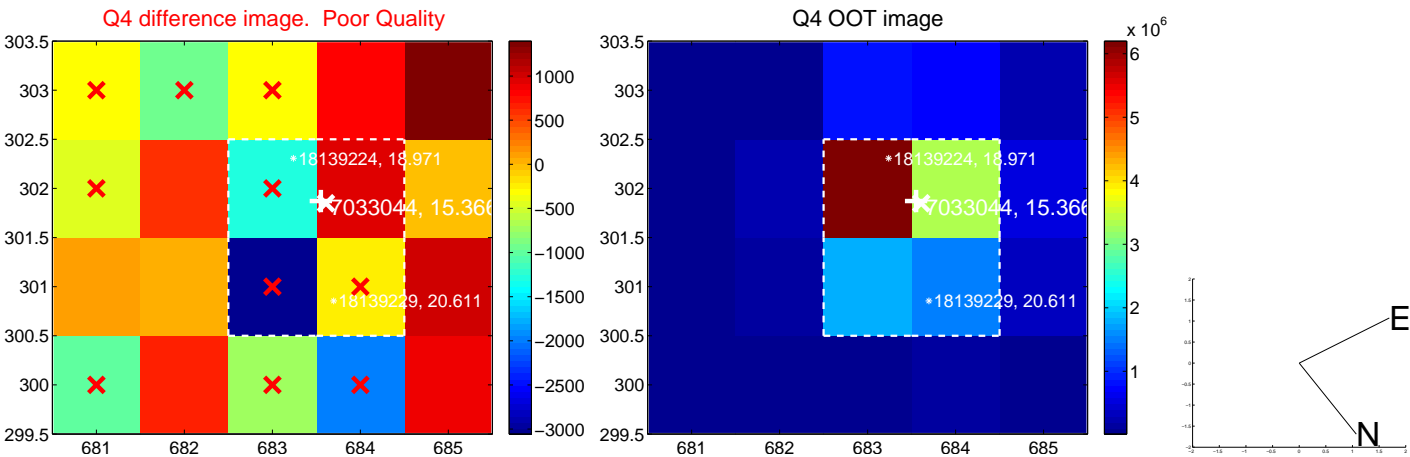
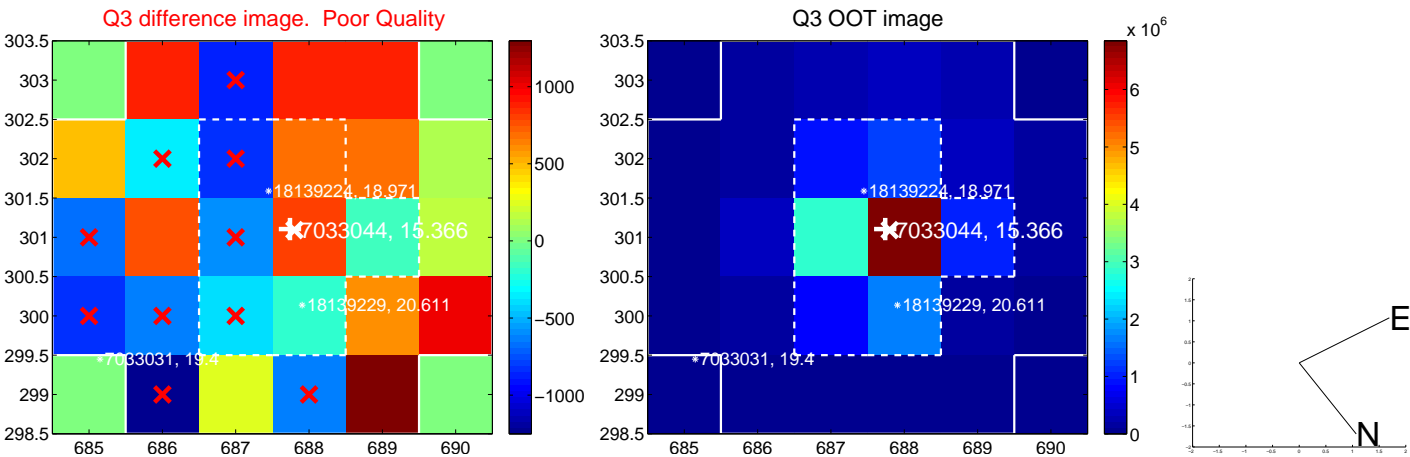
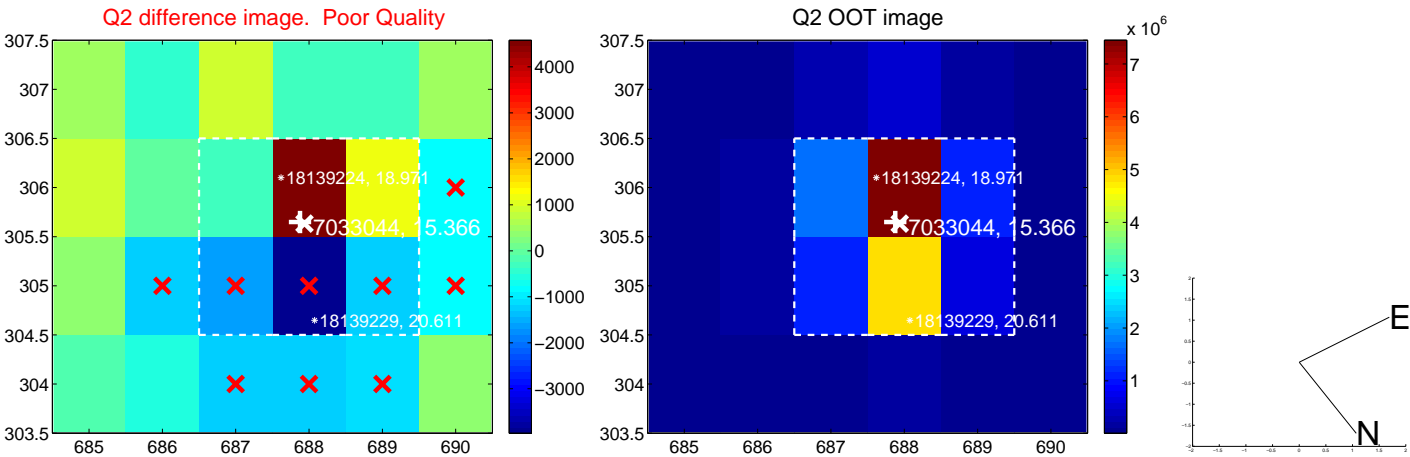
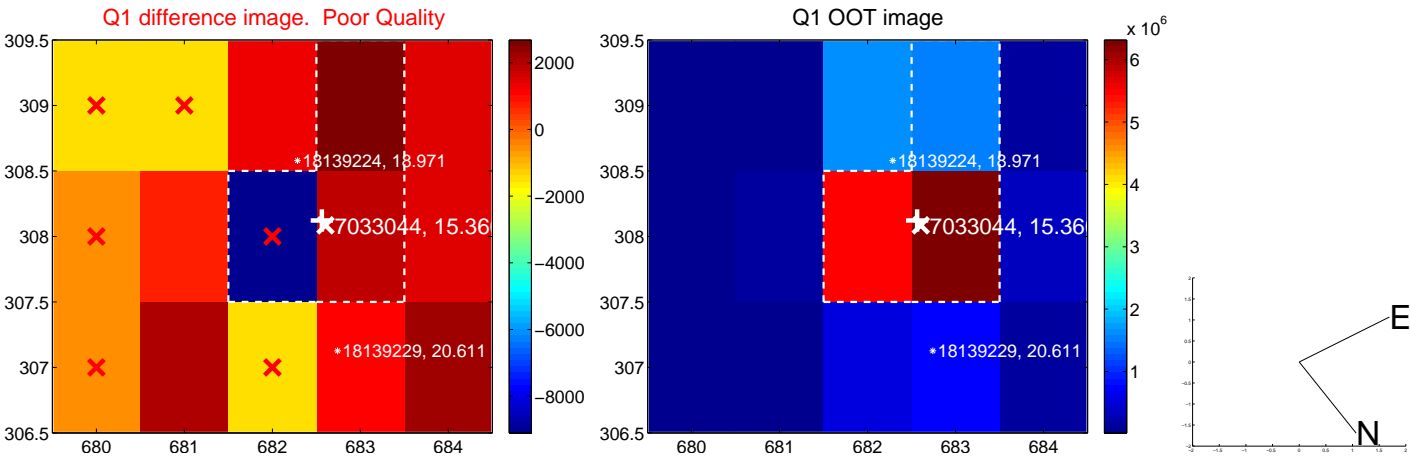
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.688 \pm 1.077$	3.43	$-2.291 \pm 0.312$	$-2.889 \pm 1.245$
PRF-fit source offset from KIC position	$3.945 \pm 0.866$	4.56	$-2.439 \pm 0.226$	$-3.101 \pm 1.043$
photometric centroid source offset	$0.26 \pm 0.77$	0.34	$-0.16 \pm 0.79$	$-0.20 \pm 0.76$

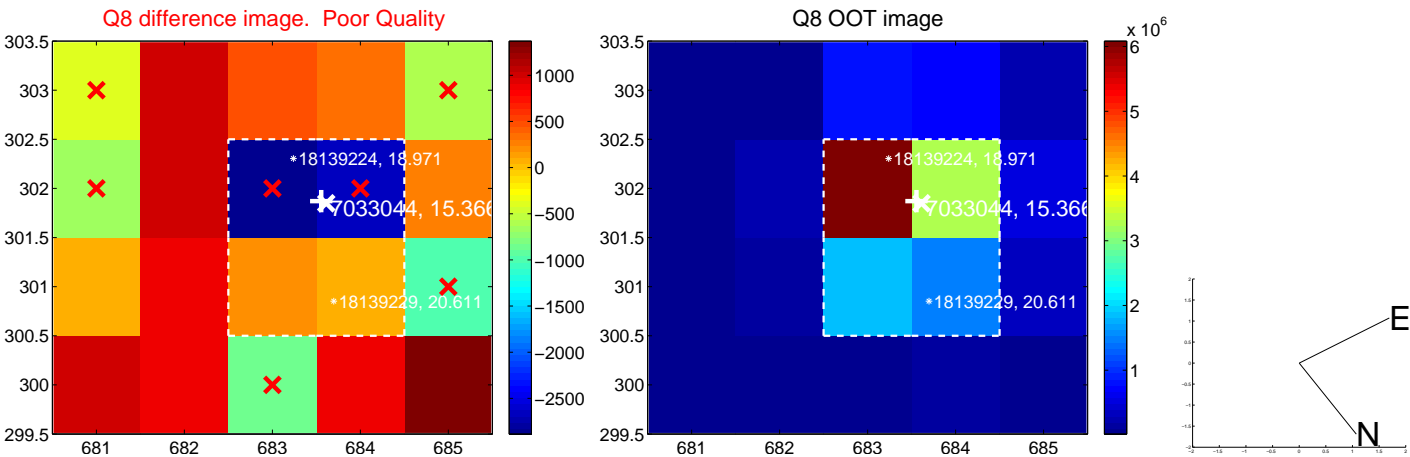
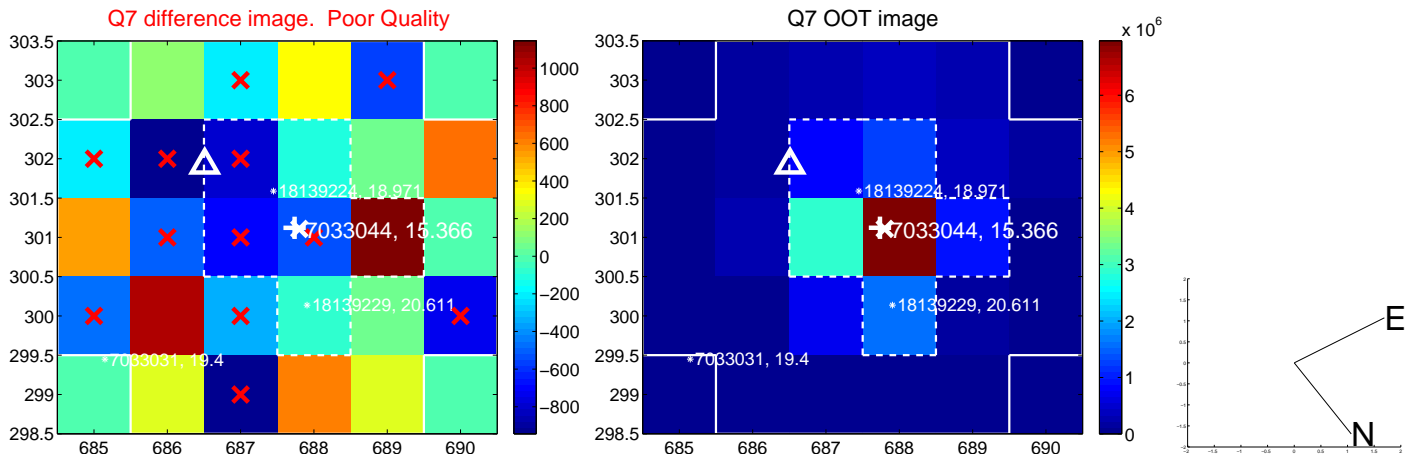
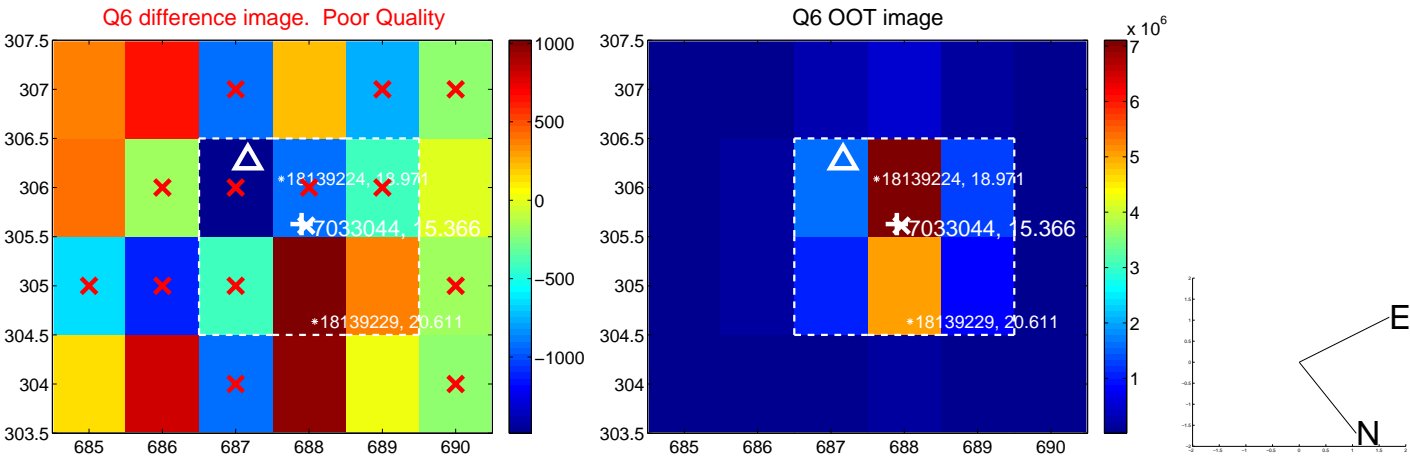
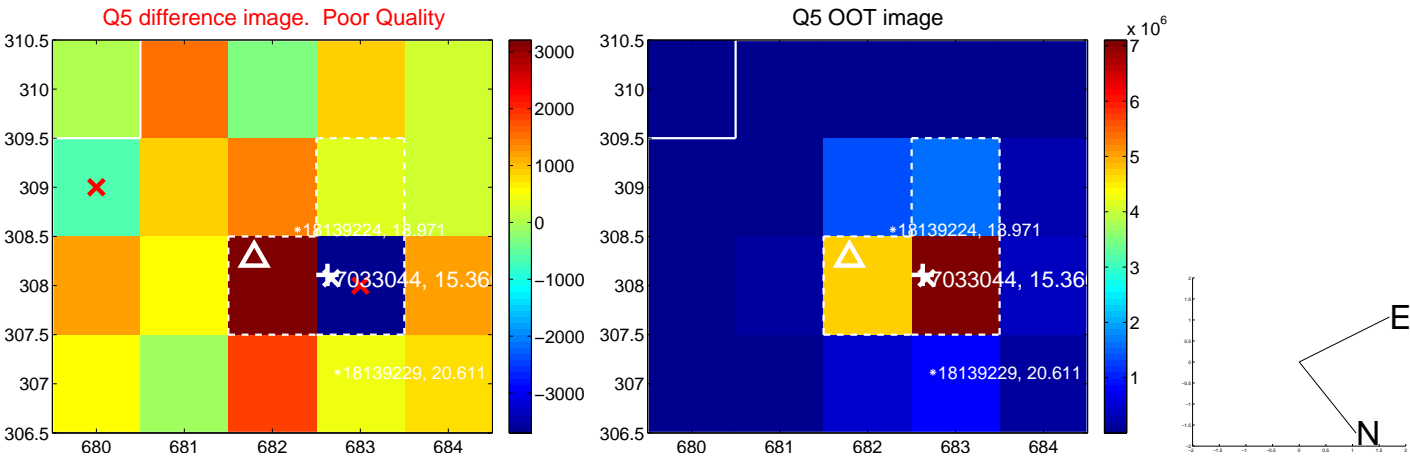


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

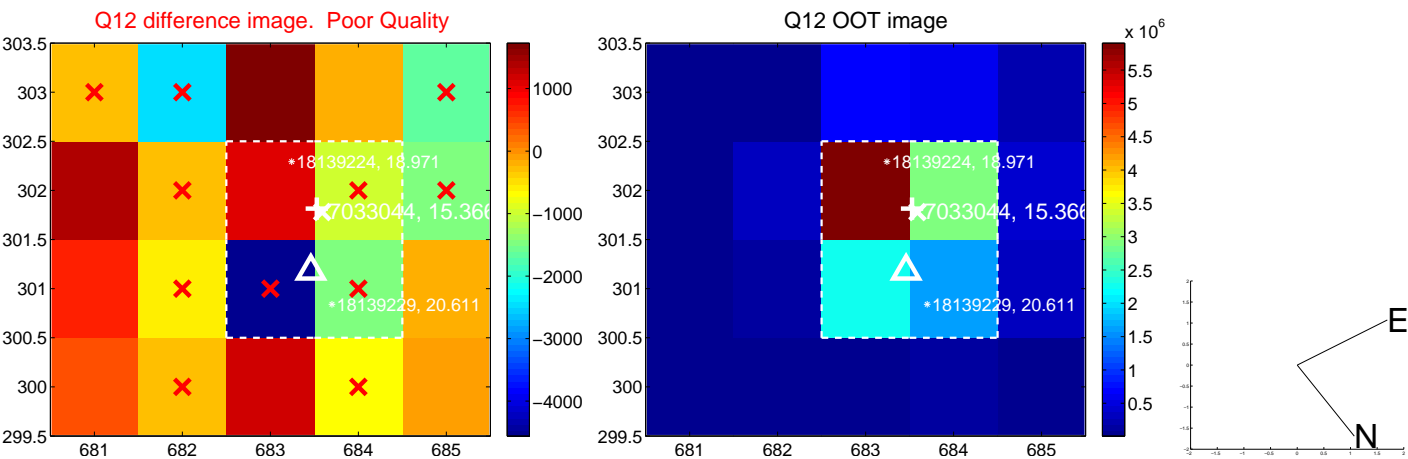
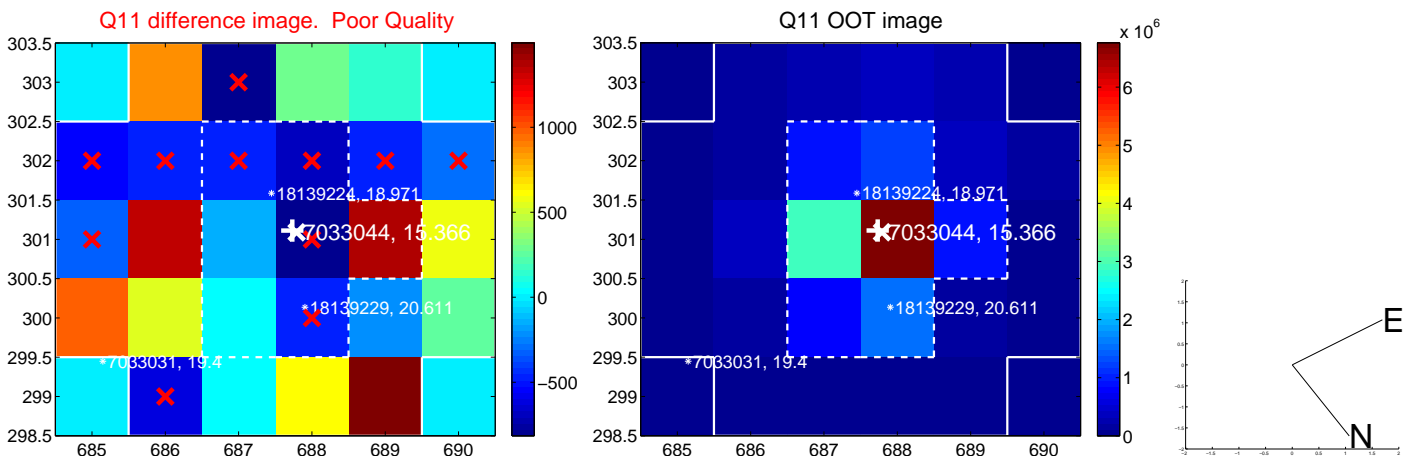
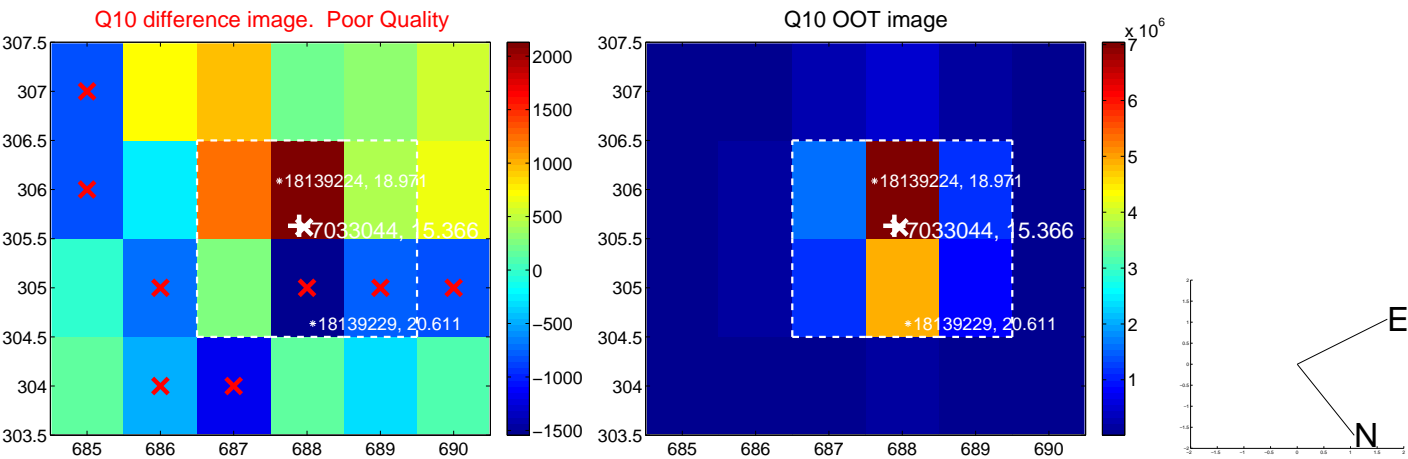
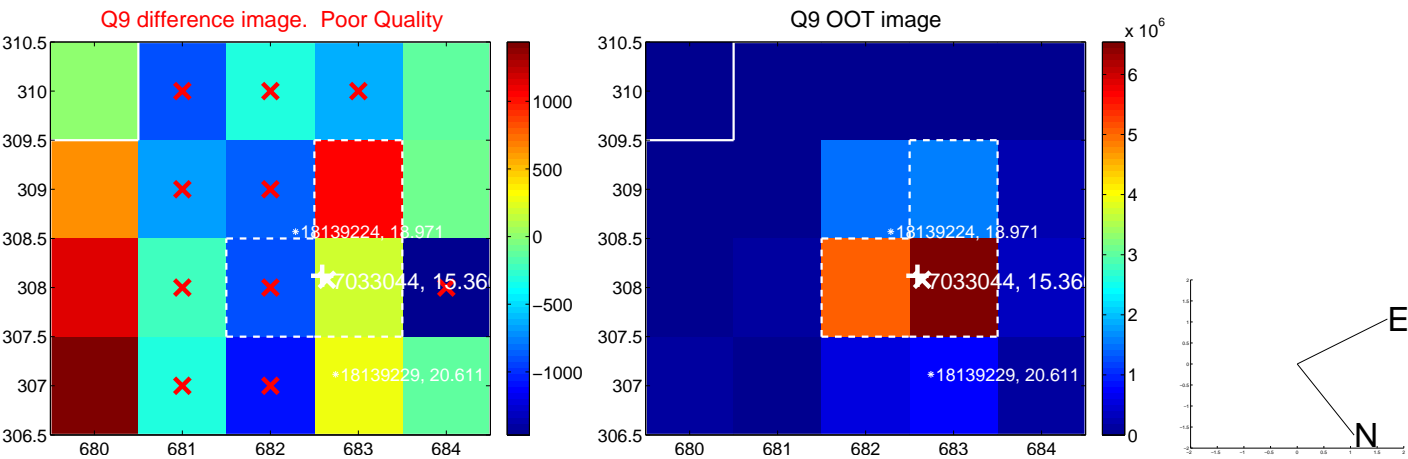
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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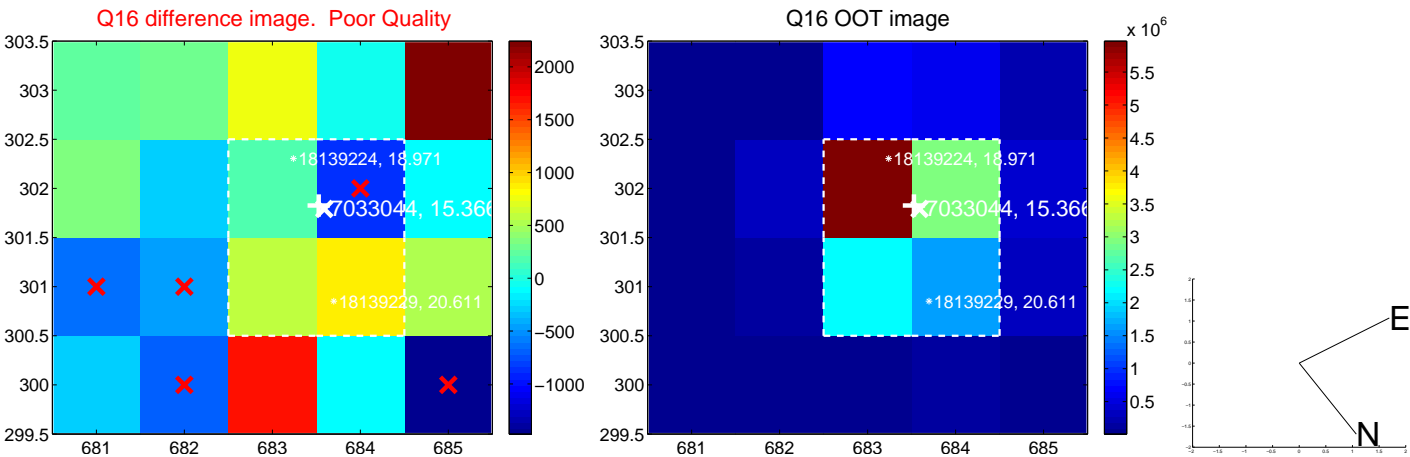
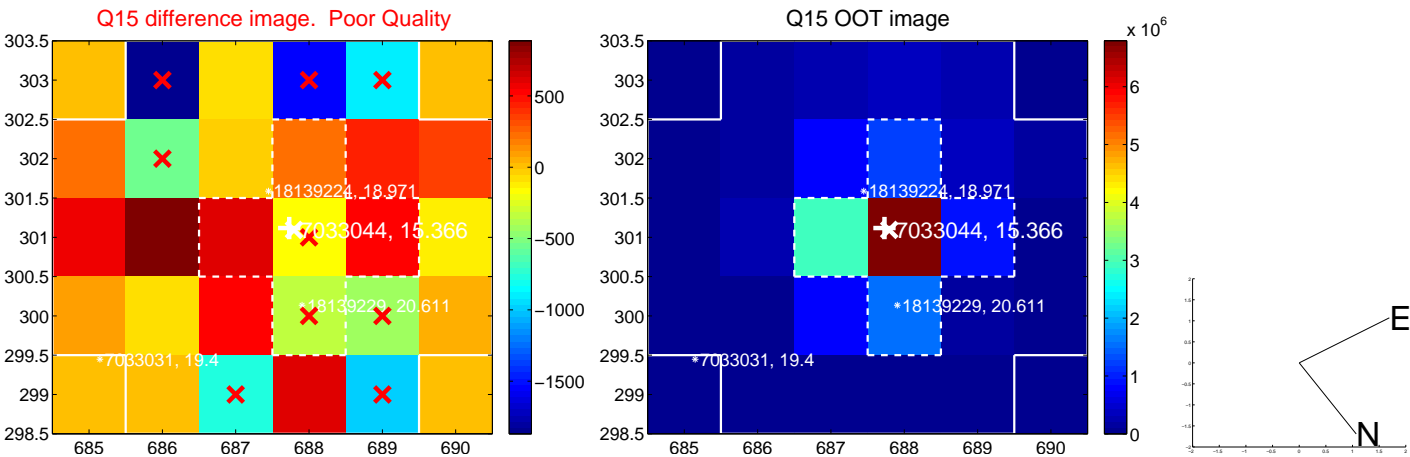
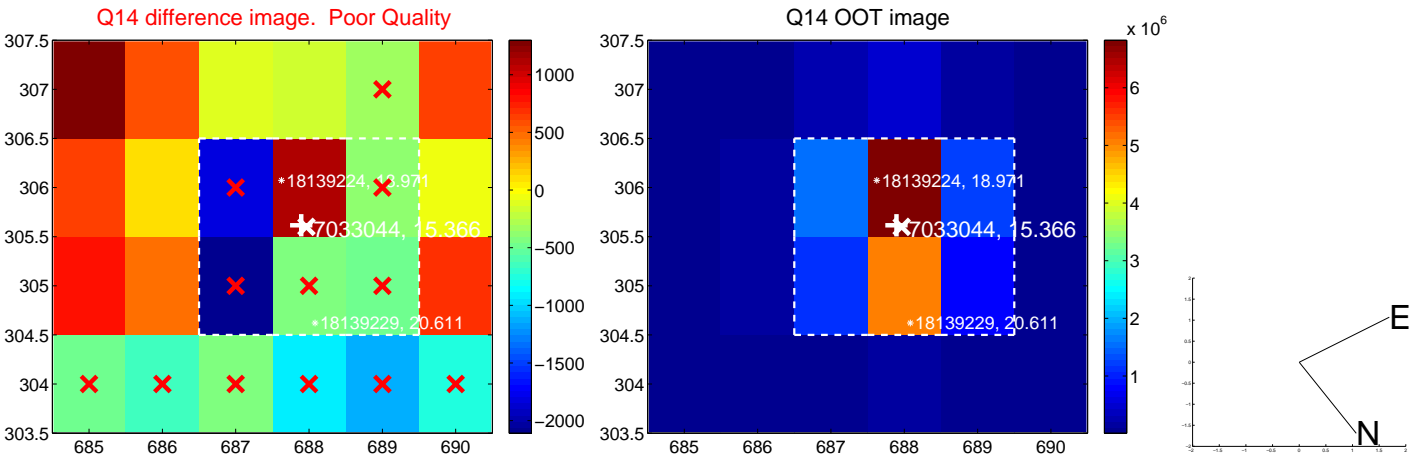
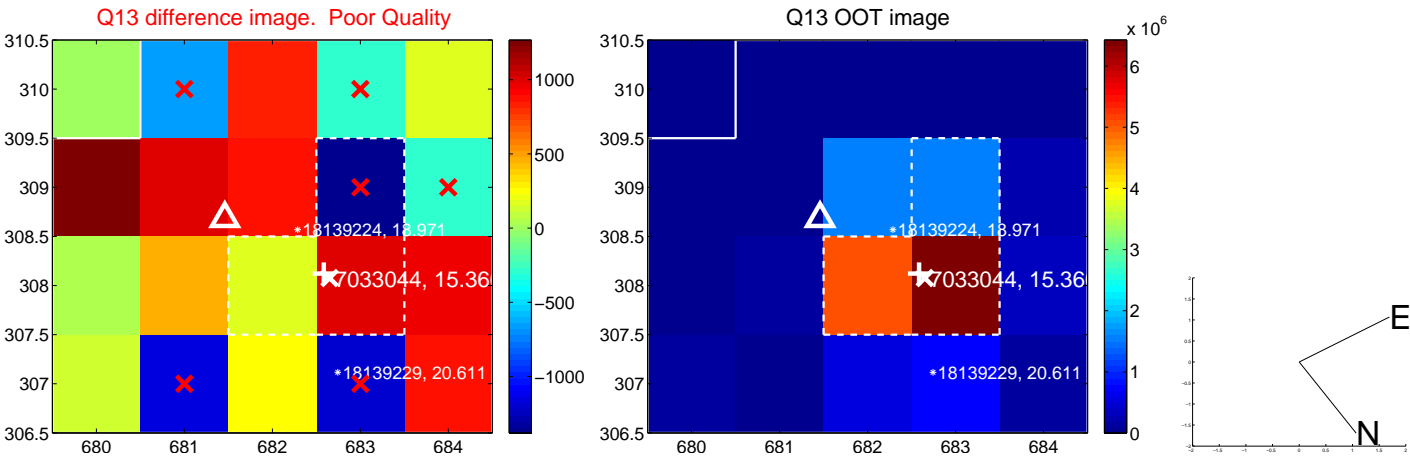


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

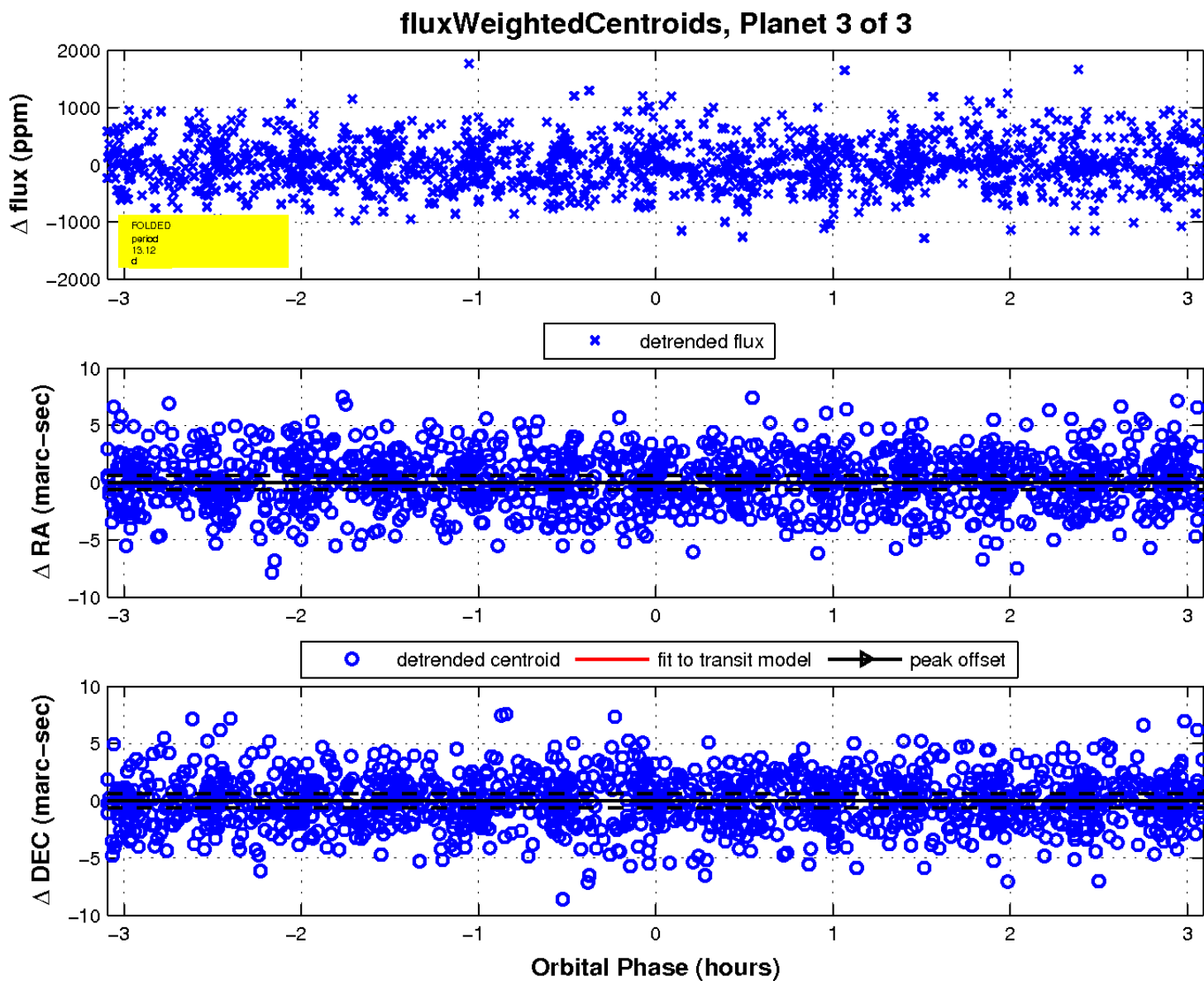
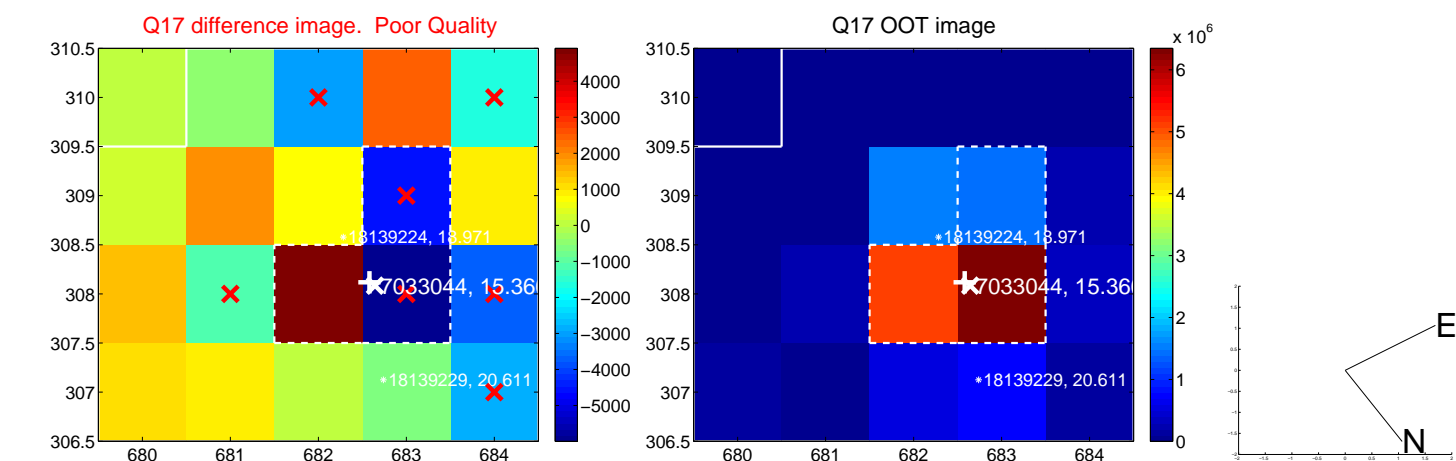




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

