

# KIC 007035099

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007035099-01	OBS	No	1.158689	132.486873	189.7	2.462	8.1	8.4	1.97	7473	3.18	17167.60
007035099-02	OBS	No	2.881518	132.428495	213.6	34.578	9.0	15.8	1.97	7473	3.17	5095.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007035099-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007035099-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—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.

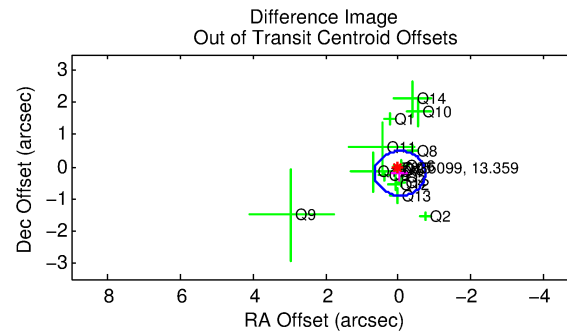
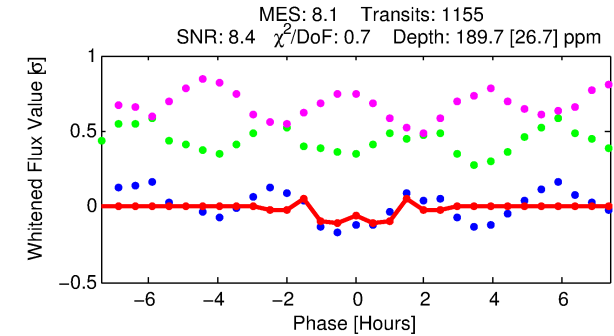
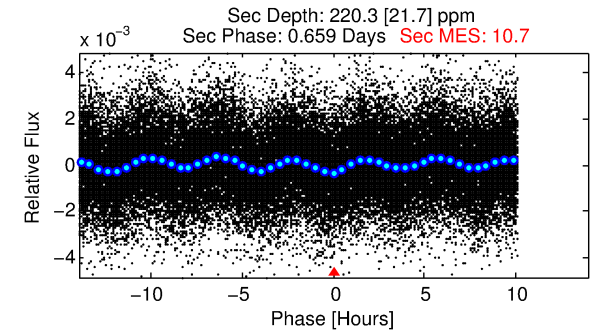
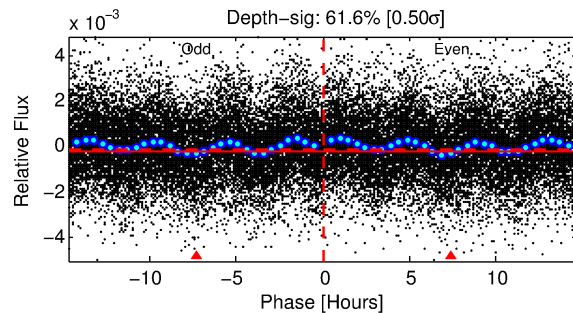
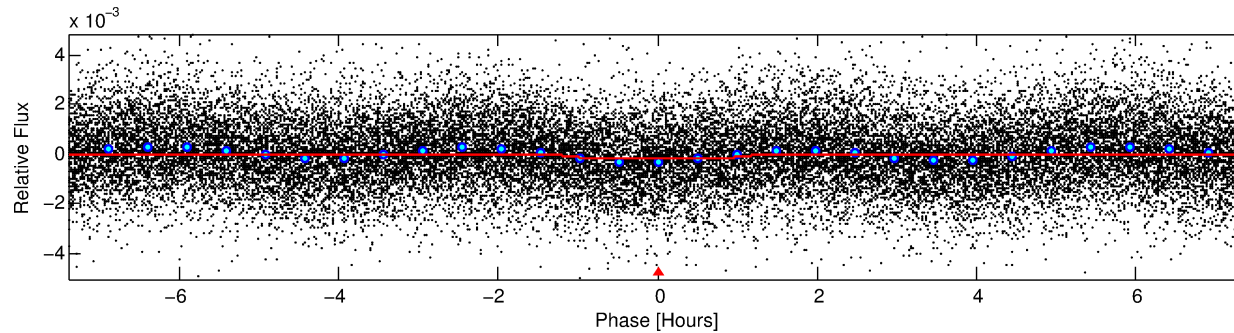
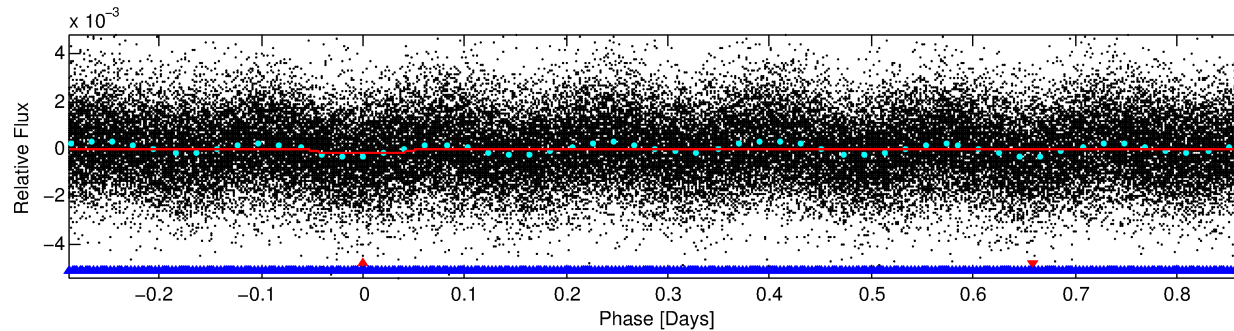
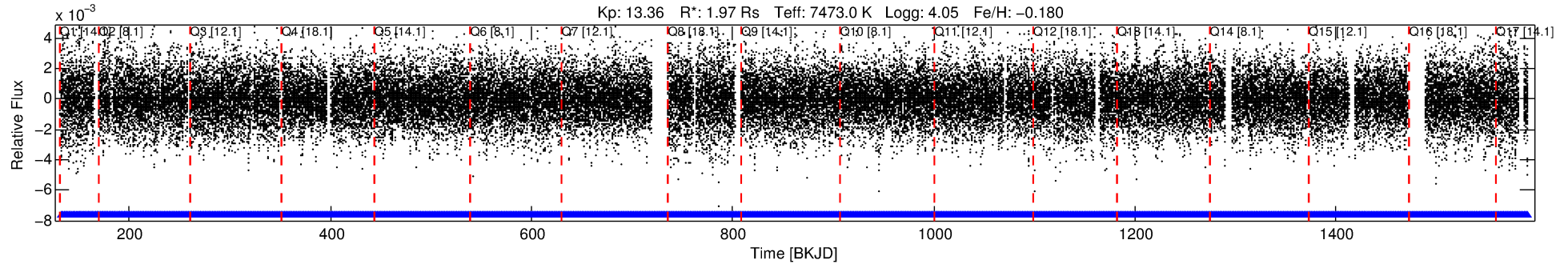
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007035099-01

No Significant Match Found

# DV One-Page Summary

KIC: 7035099 Candidate: 1 of 2 Period: 1.159 d



## DV Fit Results:

Period = 1.15869 [0.00001] d  
Epoch = 132.4869 [0.0015] BKJD  
Rp/R\* = 0.0148 [0.0032]  
a/R\* = 1.93 [1.58]  
b = 0.90 [0.24]  
Seff = 17167.60 [6213.44]  
Teq = 2919 [264] K  
Rp = 3.18 [1.08] Re  
a = 0.0251 [0.0055] AU  
Ag = 7.56 [4.11] [1.60 $\sigma$ ]  
**Teffp = 7484 [880] K [4.97 $\sigma$ ]**

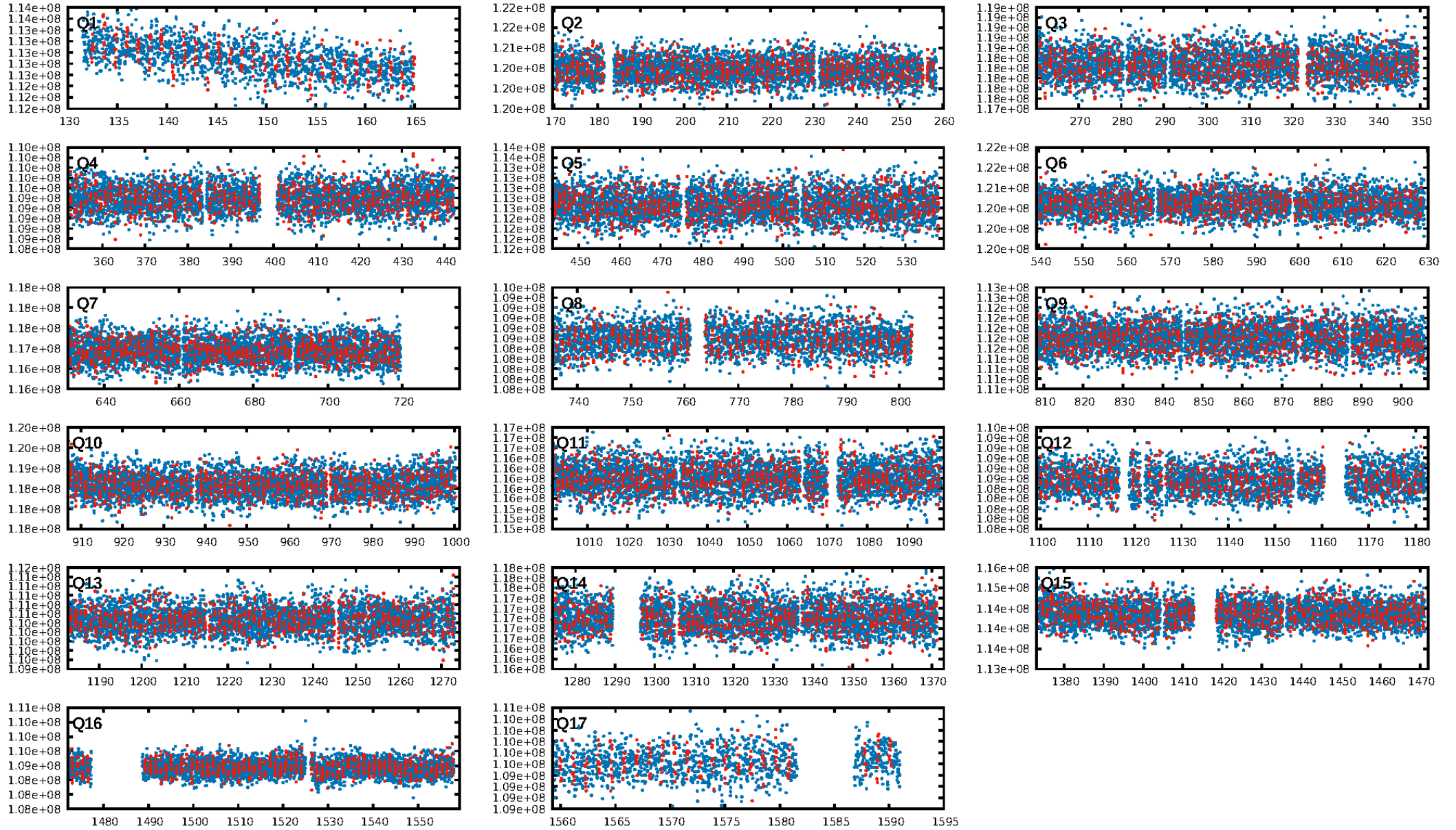
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 76.7% [1.19 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1104/1104]  
**GhostDiagnostic-chr: 0.7117**  
Centroid-sig: 5.5%  
Centroid-so: 0.362 arcsec [2.88 $\sigma$ ]  
OotOffset-rm: 0.213 arcsec [0.92 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 0.143 arcsec [0.80 $\sigma$ ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.35 [6/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:38:38 Z

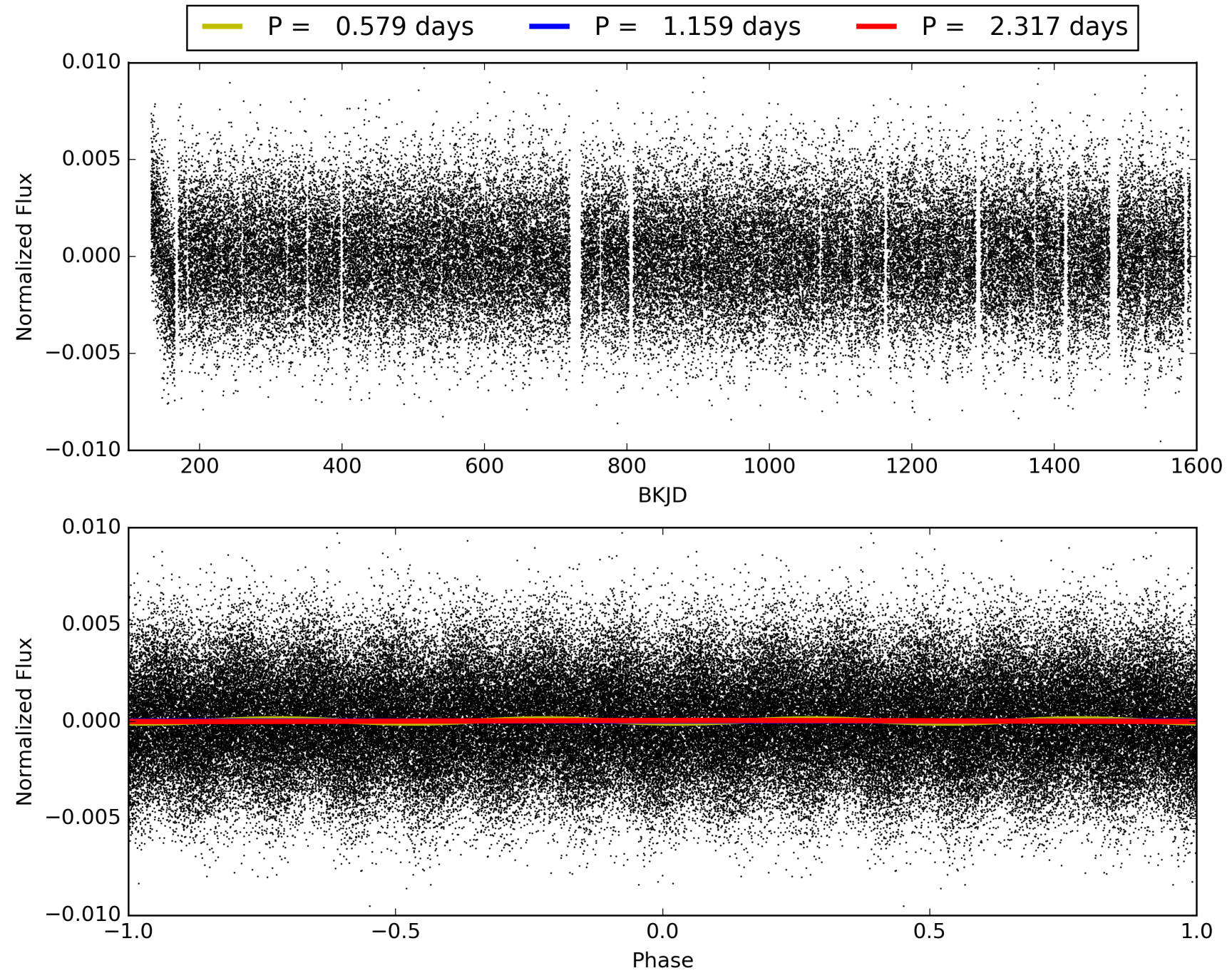
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007035099-01, PDC Light Curves



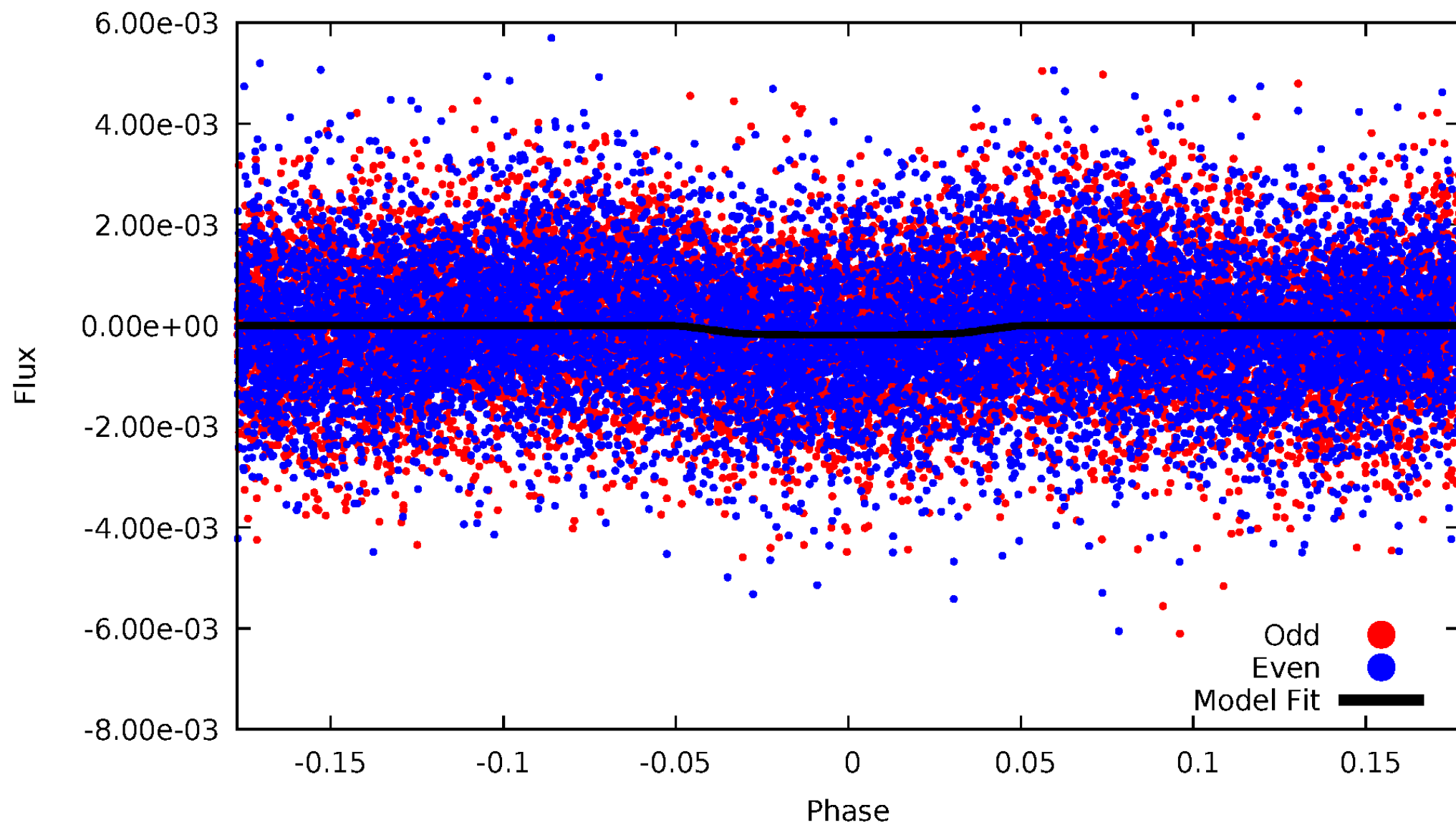


TCE 007035099-01



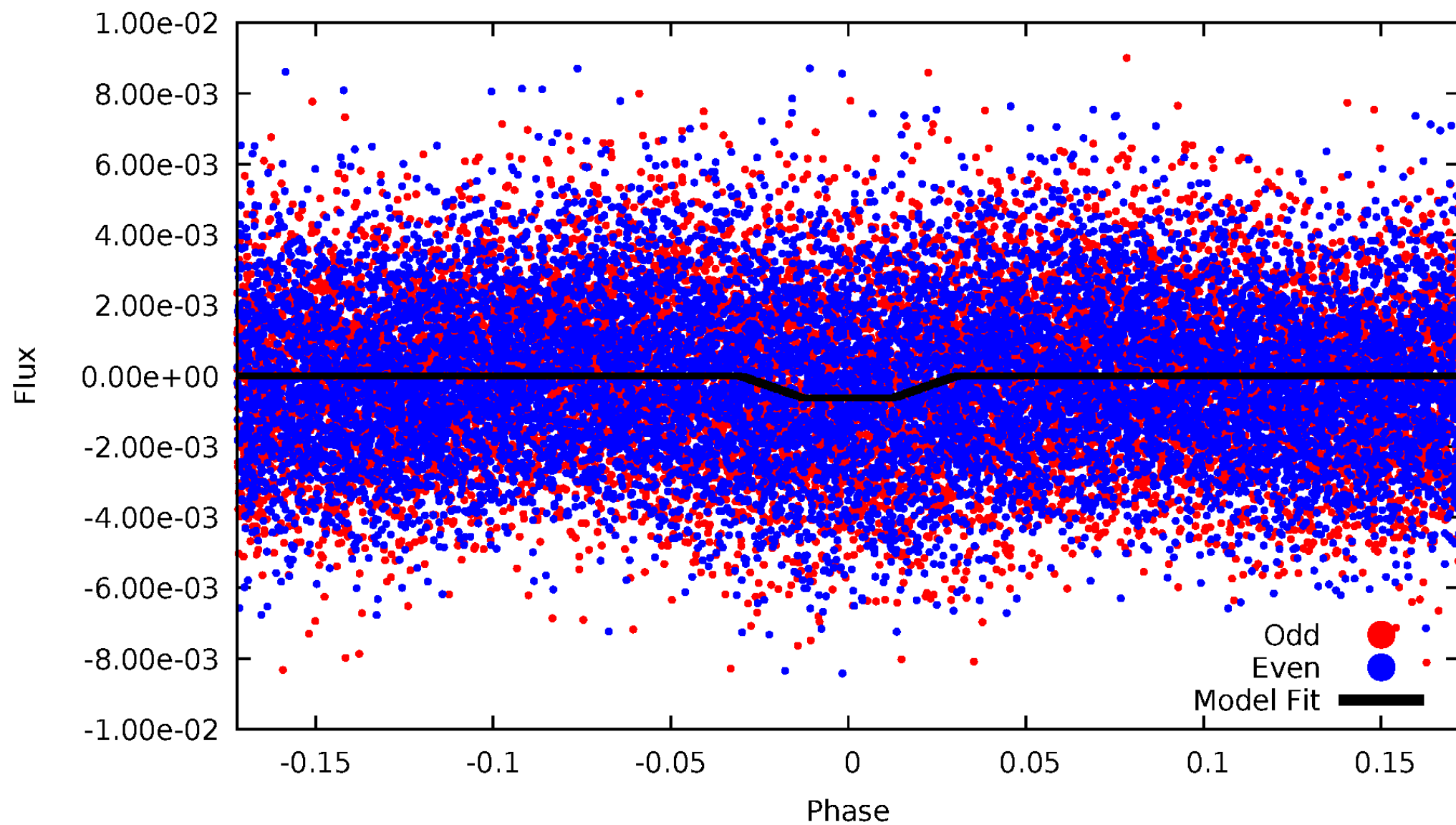
# DV Odd/Even

TCE 007035099-01

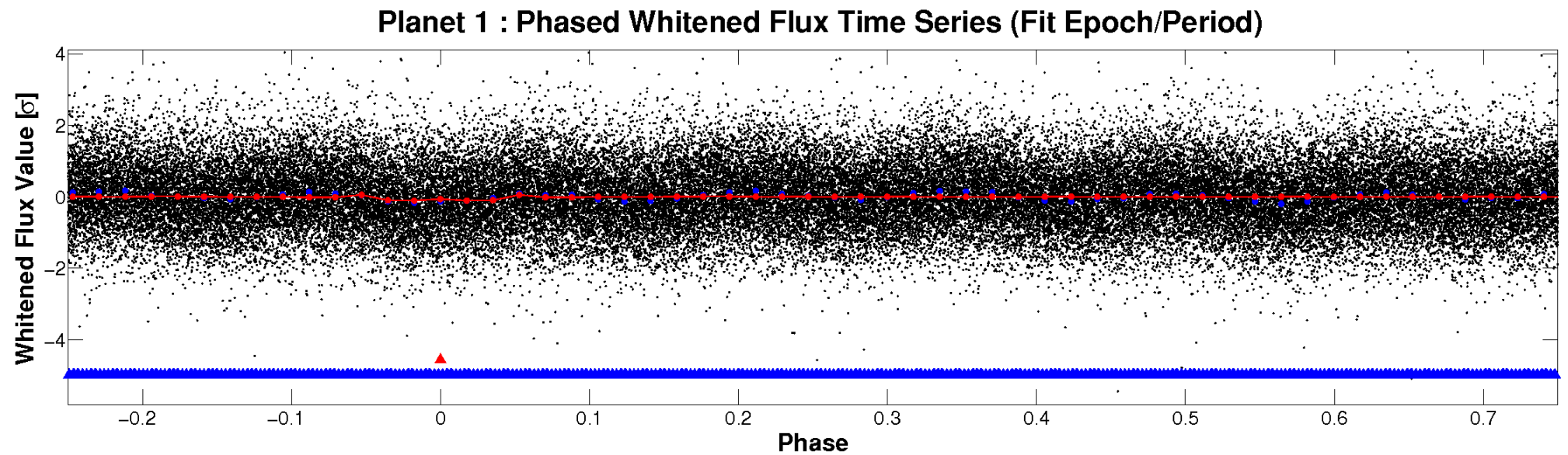
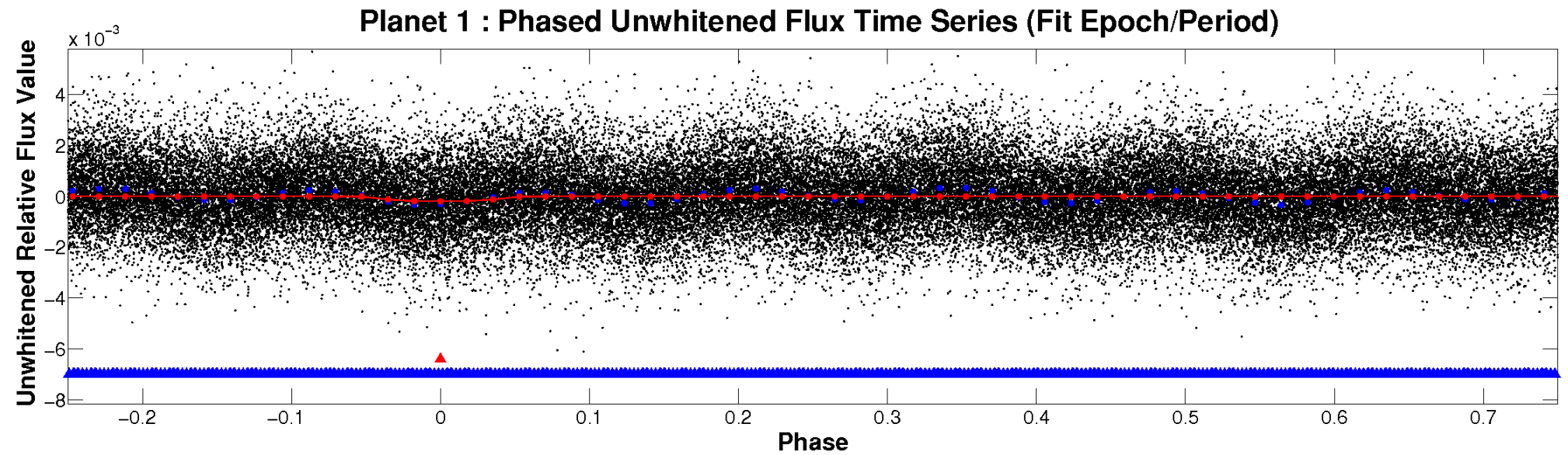


# ALT Odd/Even

TCE 007035099-01



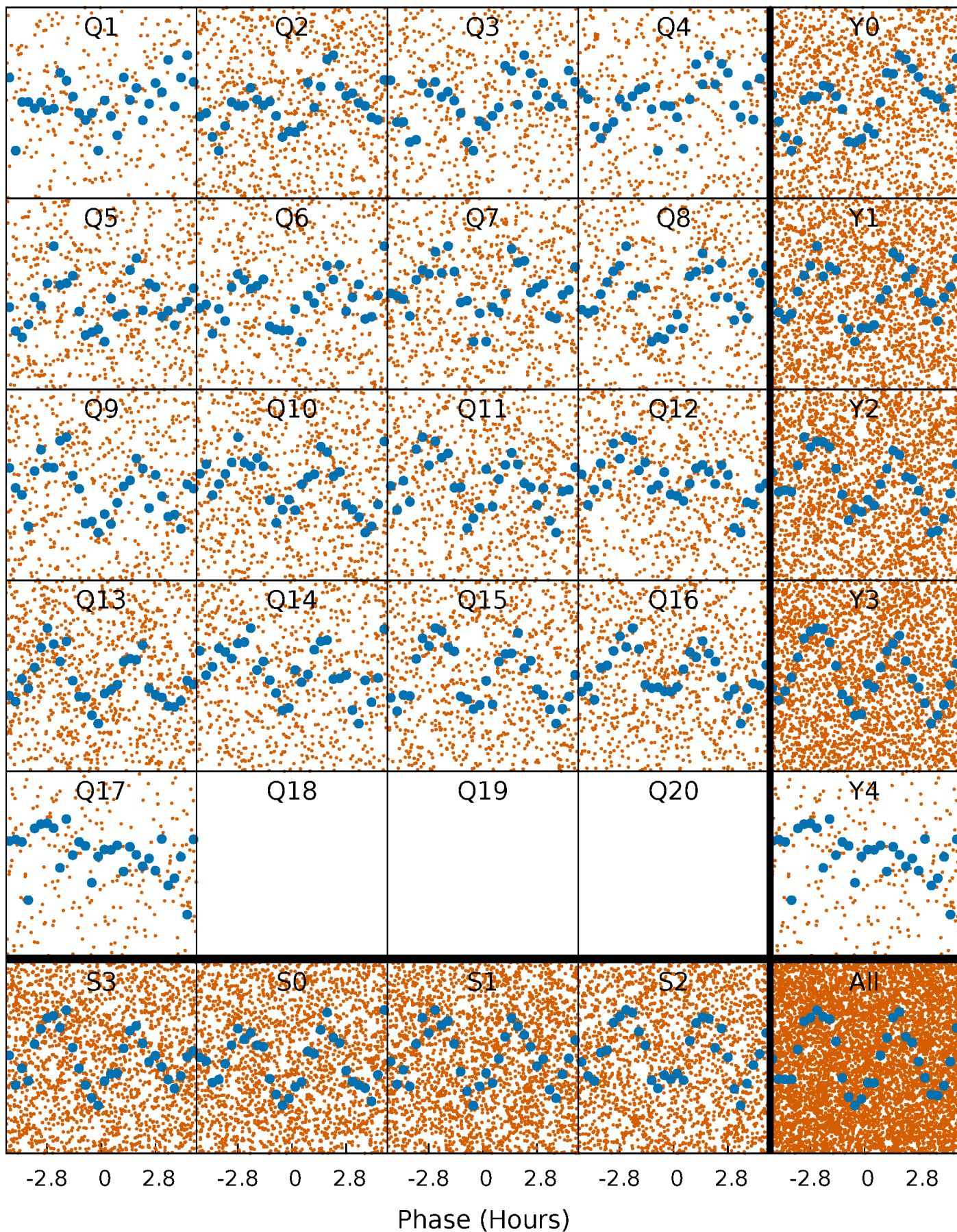
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

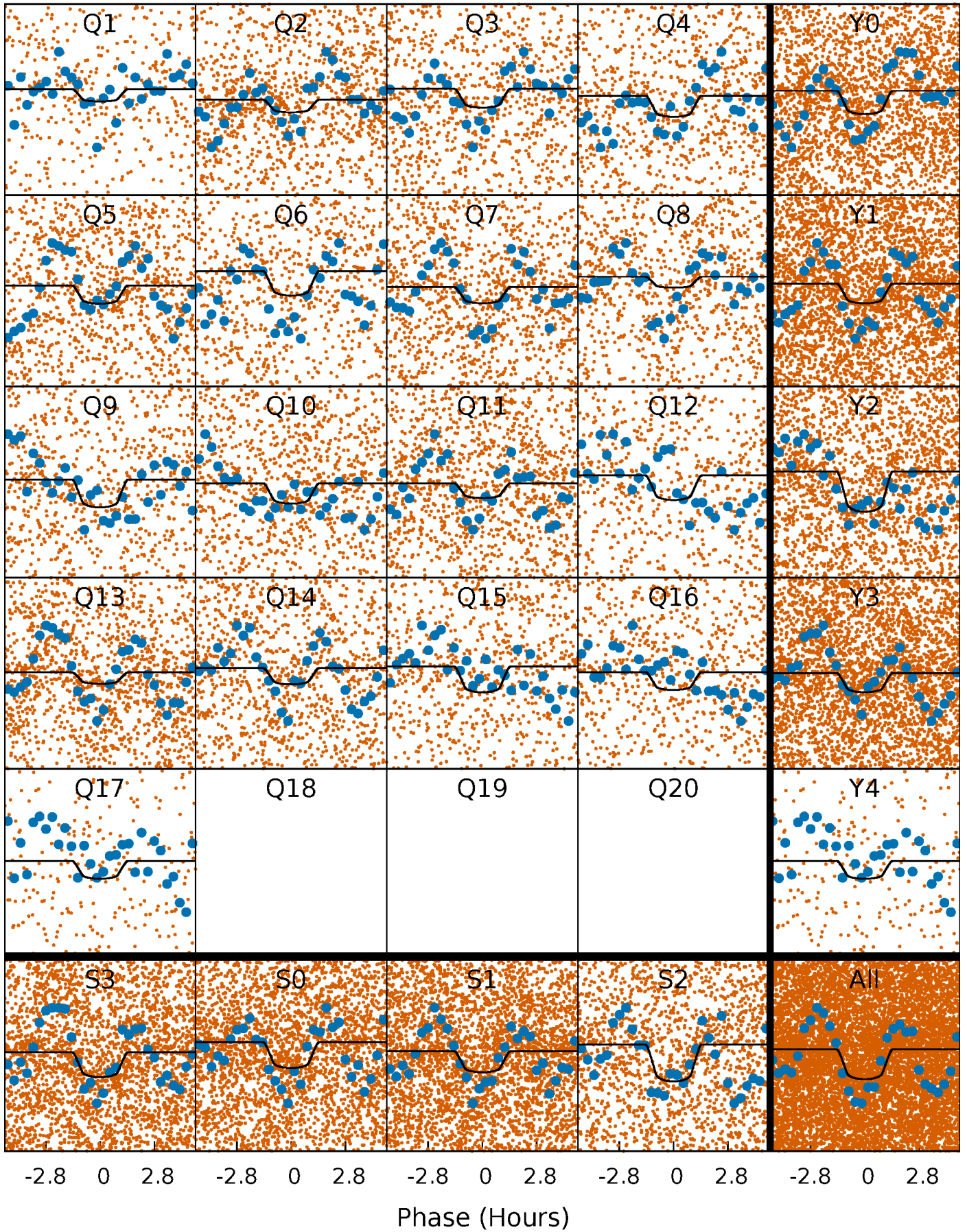
TCE 007035099-01 P= 1.158689 Days  $T_0=132.486873$  (BKJD)





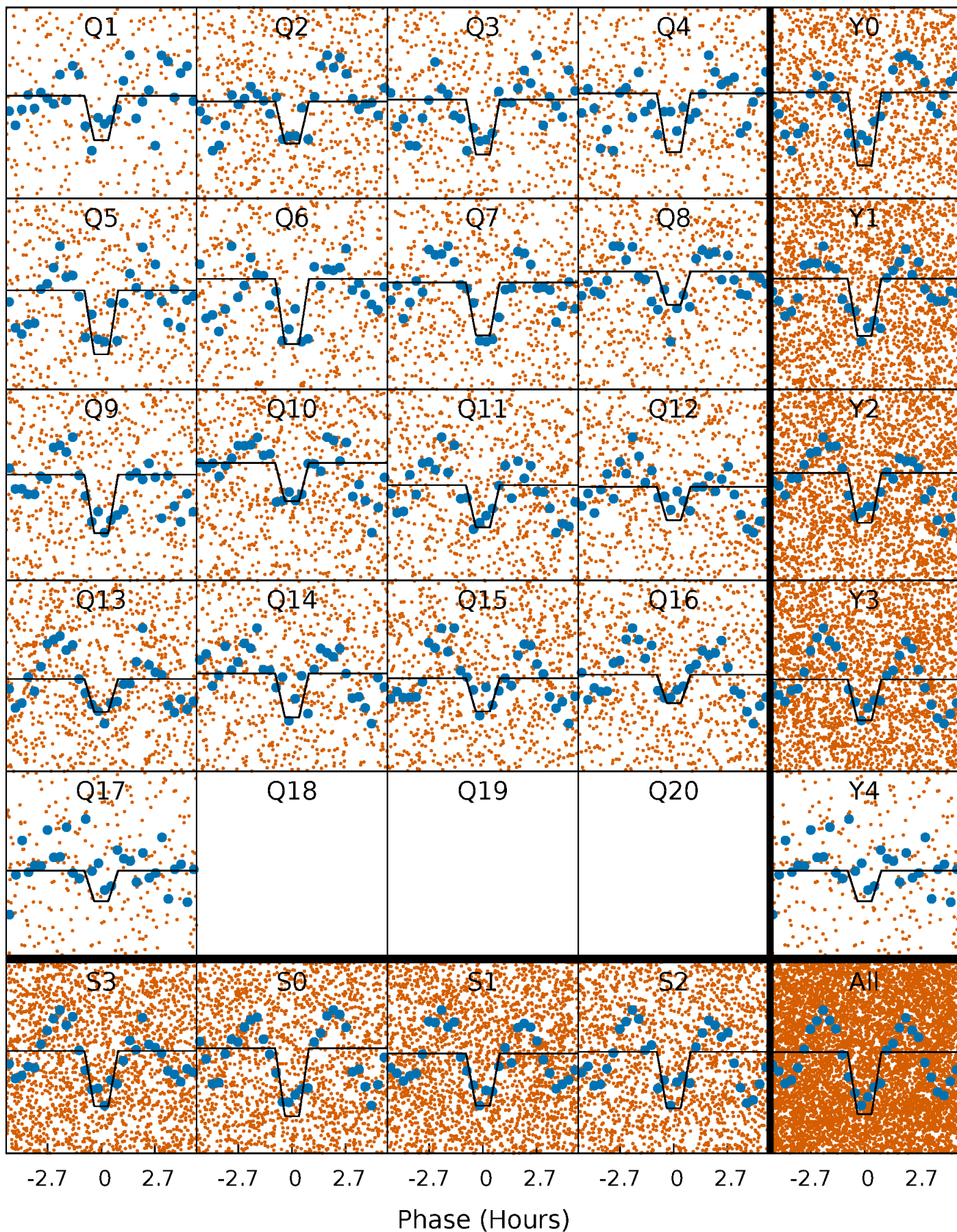
# DV Quarter-Phased Transit Curves

TCE 007035099-01 P= 1.158689 Days  $T_0=132.486873$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

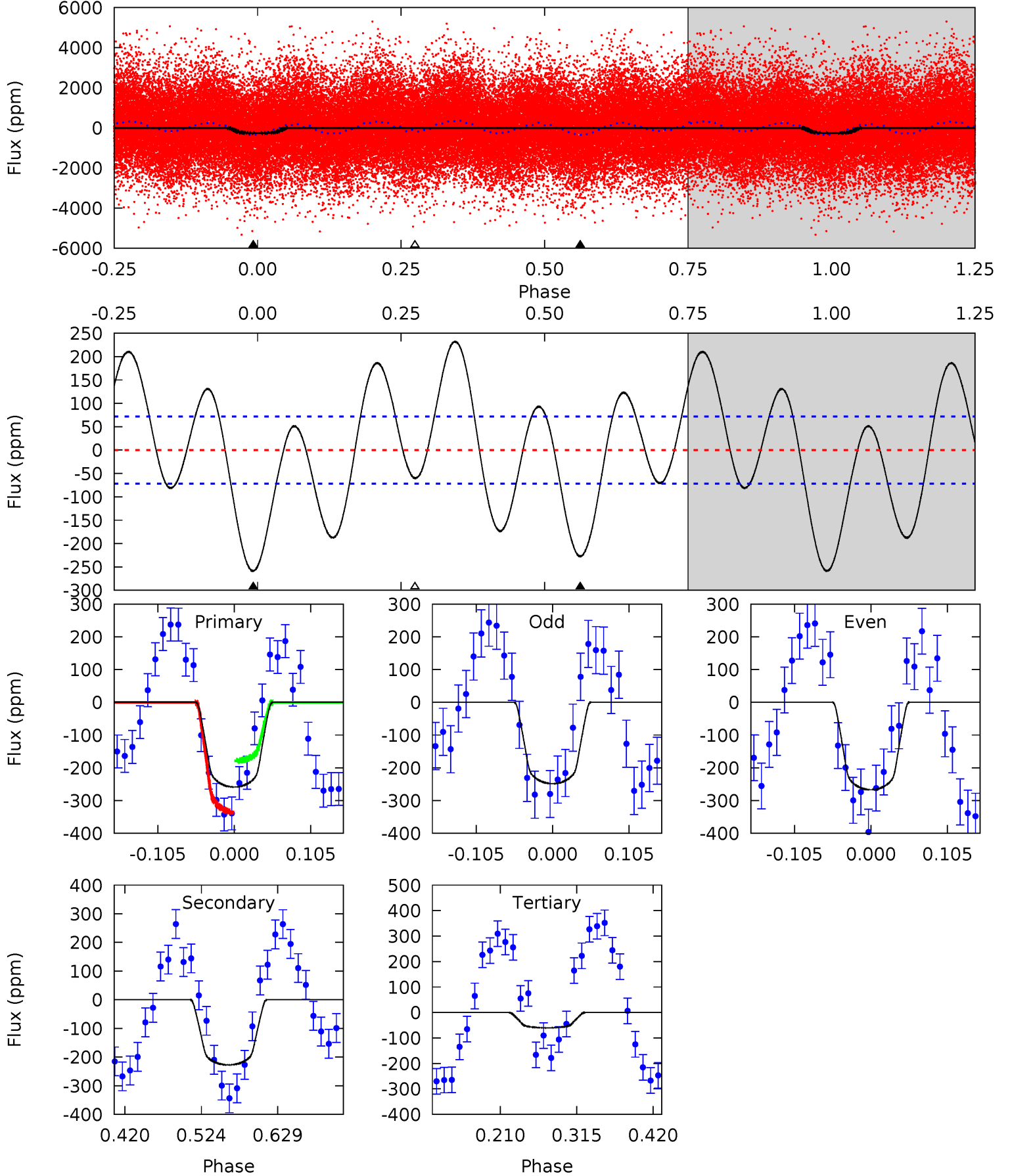
TCE 007035099-01 P= 1.158674 Days  $T_0=132.483511$  (BKJD)



# DV Model-Shift Uniqueness Test

007035099-01, P = 1.158689 Days, E = 131.328184 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
16.4	14.4	3.83	0	4.55	1.62	7.68	12.6	16.4	10.6	14.4	0.59	1.03	0.47	4.98

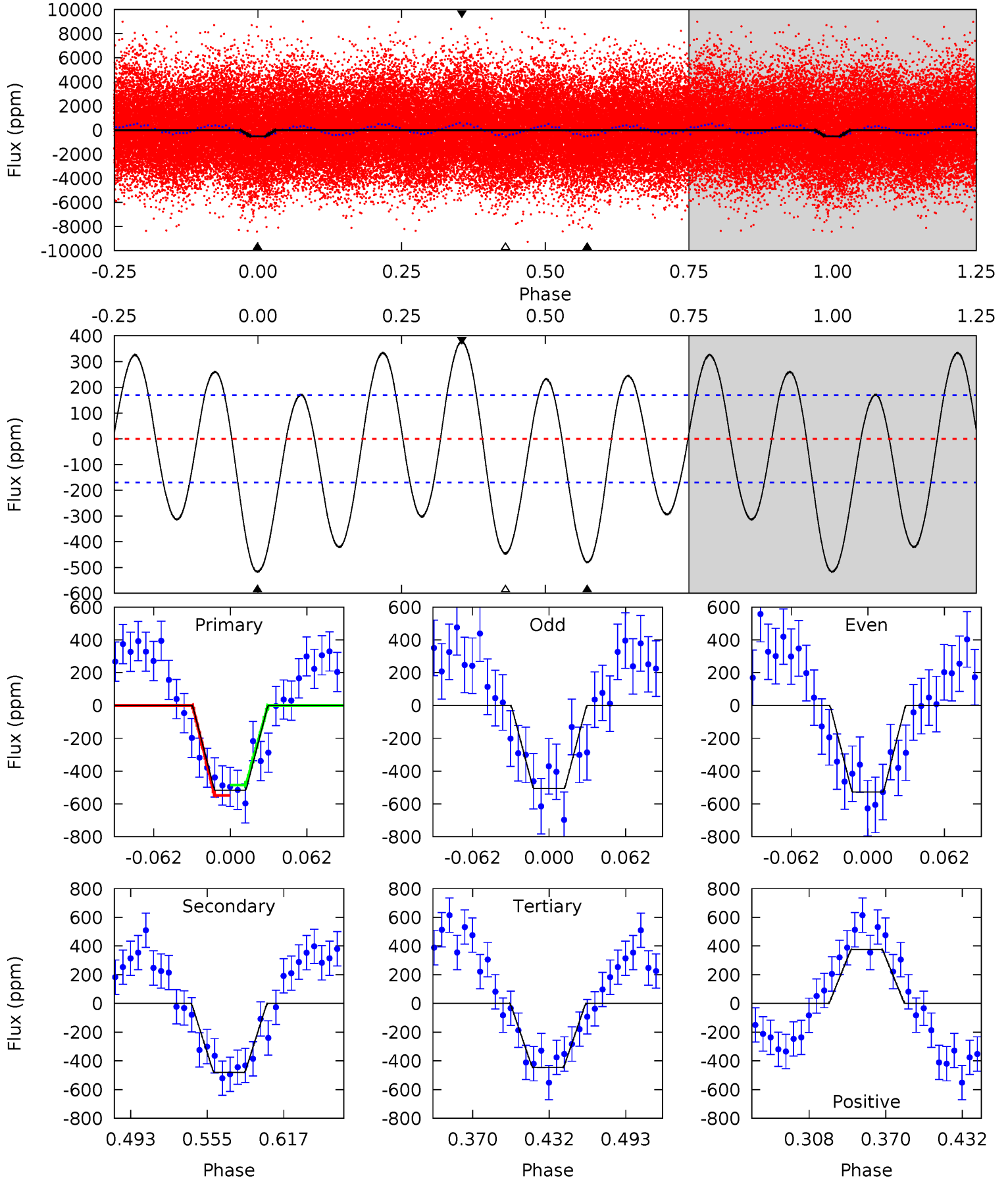




# Alt Model-Shift Uniqueness Test

007035099-01, P = 1.158674 Days, E = 131.324837 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
14.2	13.2	12.3	10.4	4.67	1.87	6.55	1.95	3.86	0.94	2.85	0.29	0.90	0.42	0.87



### Stellar Parameters For KIC 007035099

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7473^{+235}_{-314}$	$4.047^{+0.175}_{-0.175}$	$-0.180^{+0.250}_{-0.300}$	$1.971^{+0.517}_{-0.517}$	$1.576^{+0.212}_{-0.259}$	$0.290^{+0.311}_{-0.130}$
	+3%/-4%	+4%/-4%	+139%/-167%	+26%/-26%	+13%/-16%	+107%/-45%
Source	KIC0	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 007035099-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-227 \pm 16$	$3.18^{+0.93}_{-0.80}$	$4091^{+325}_{-281}$	$7444^{+1364}_{-901}$	$7.679^{+6.174}_{-3.016}$
Alt.	$-480 \pm 36$	$5.33^{+1.12}_{-0.95}$	$4066^{+305}_{-291}$	$6792^{+735}_{-491}$	$5.840^{+2.758}_{-1.868}$

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

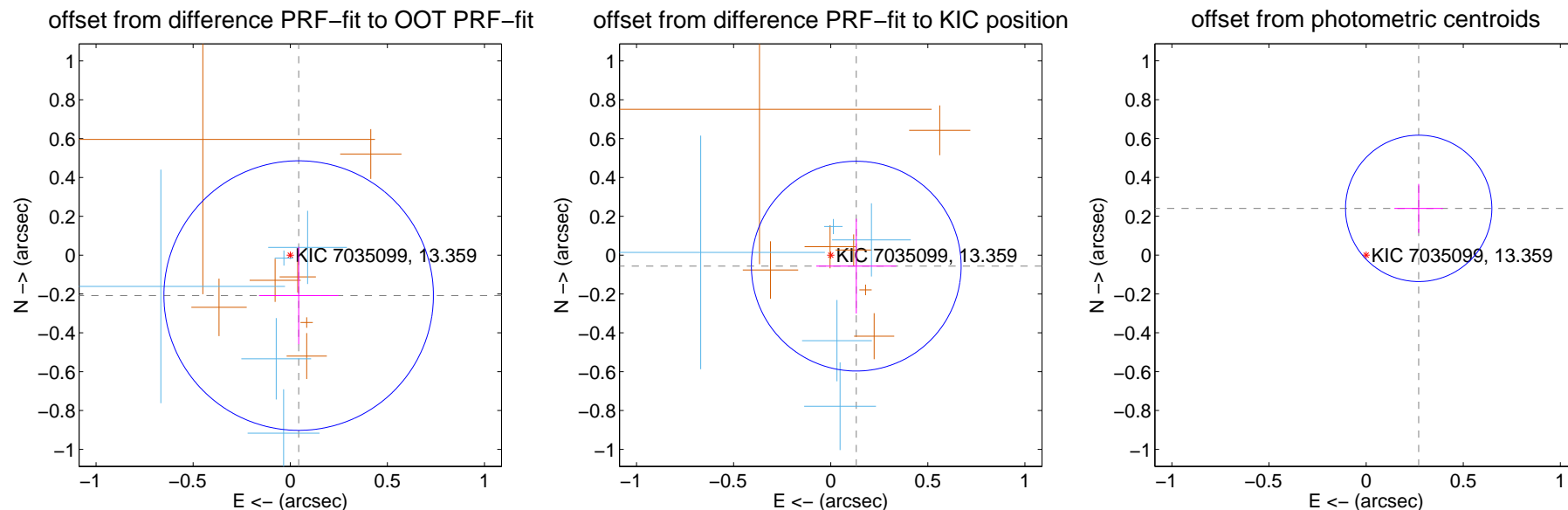
## DV Centroid Data

Supplemental centroid analysis for 007035099-01. Kepler magnitude: 13.36. Transit SNR 8.44

There are 6 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

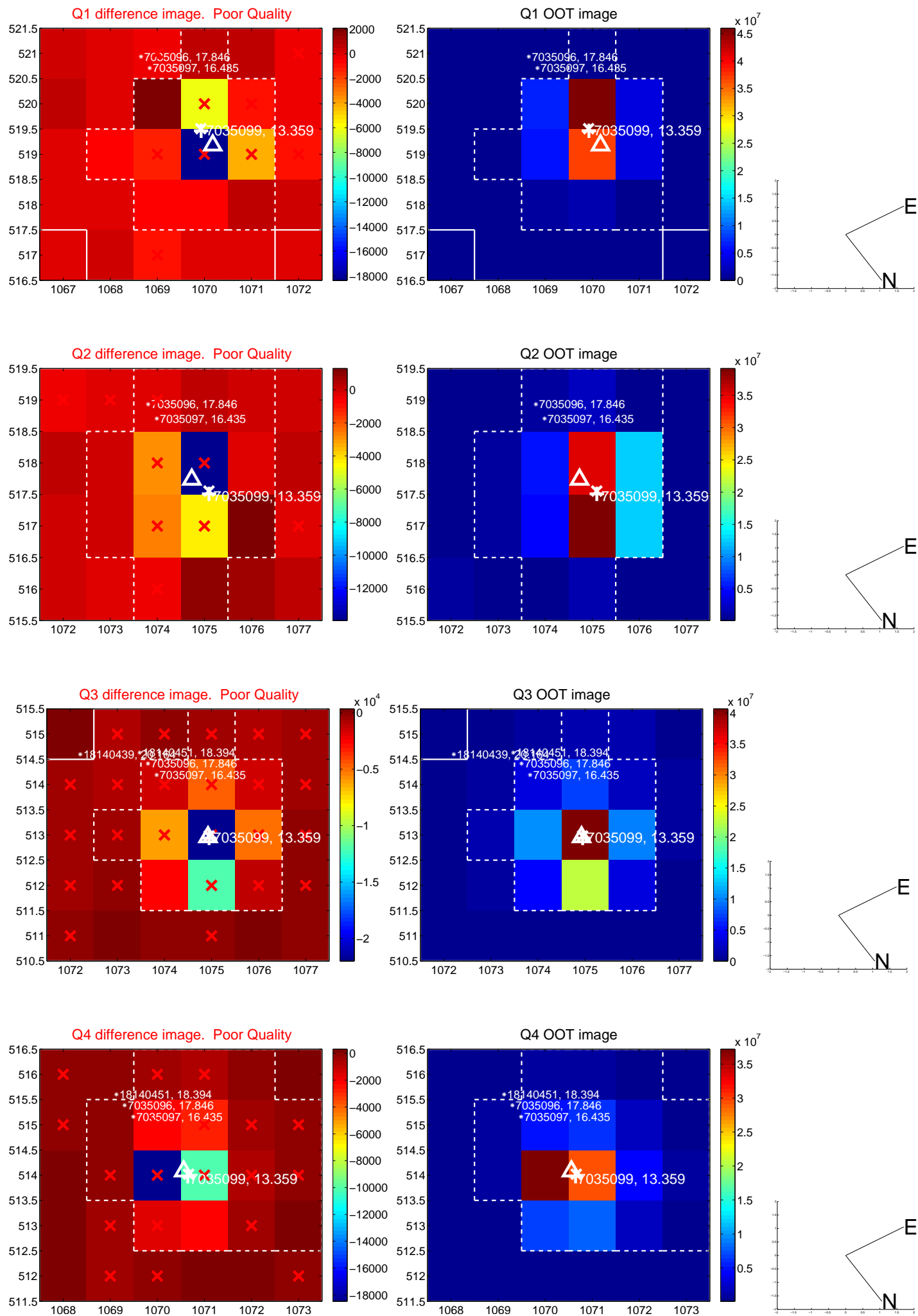
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.213 \pm 0.231$	0.92	$-0.043 \pm 0.204$	$-0.208 \pm 0.250$
PRF-fit source offset from KIC position	$0.143 \pm 0.180$	0.80	$-0.132 \pm 0.206$	$-0.057 \pm 0.244$
photometric centroid source offset	$0.36 \pm 0.13$	2.88	$-0.27 \pm 0.13$	$0.24 \pm 0.13$



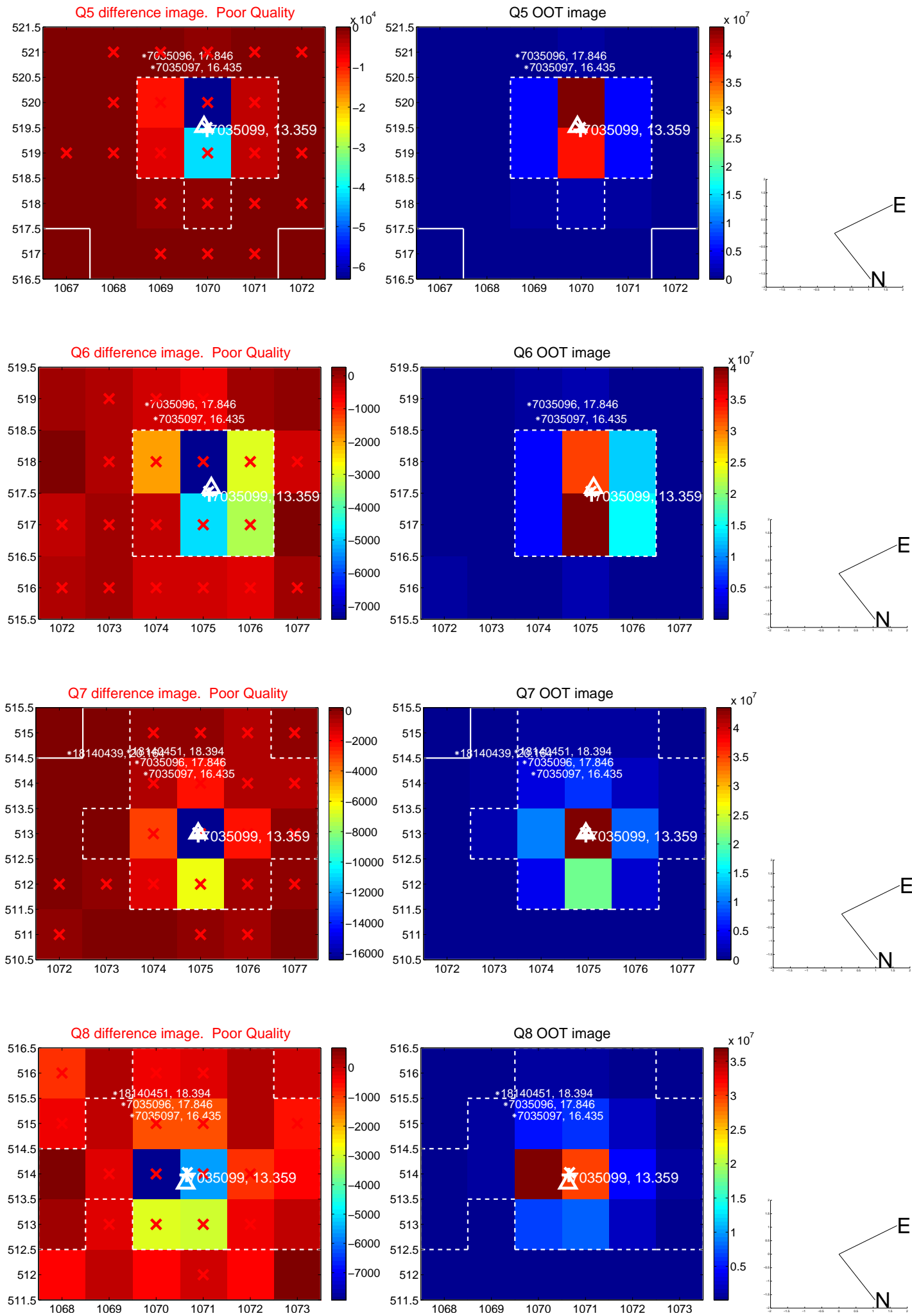
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



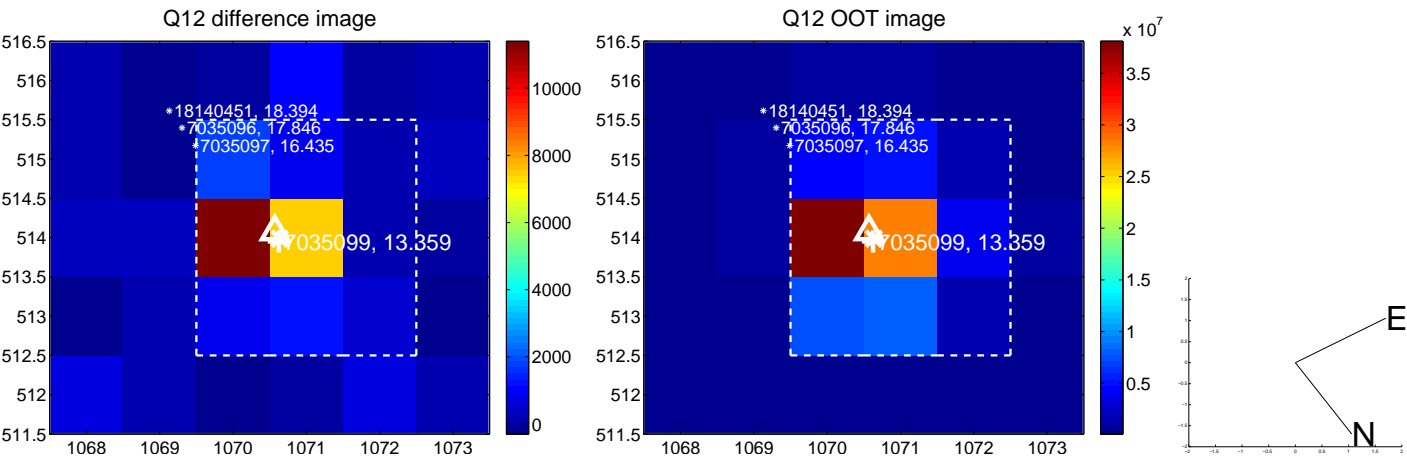
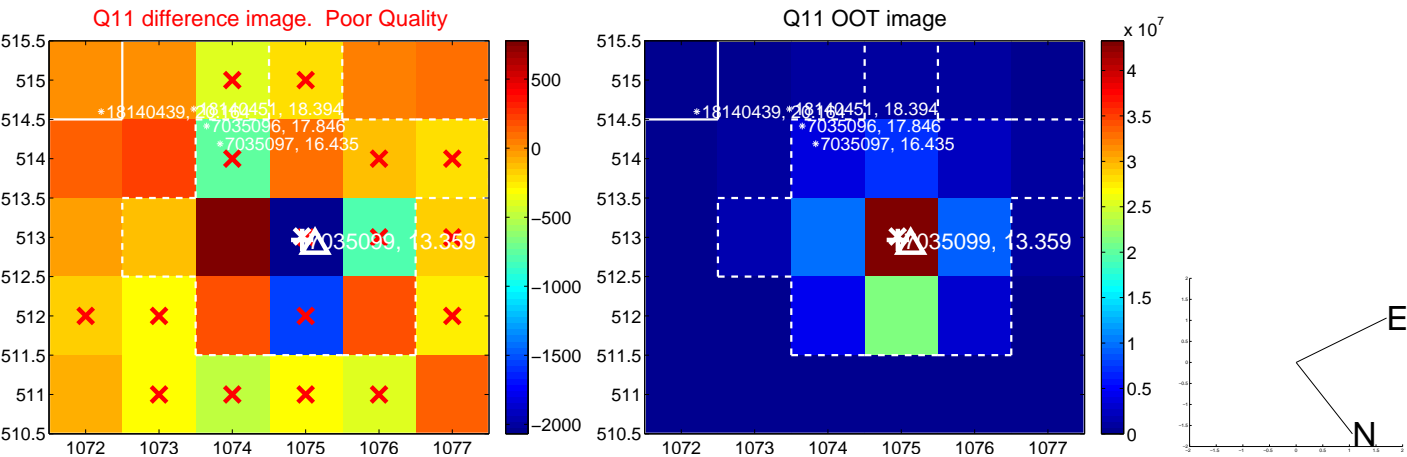
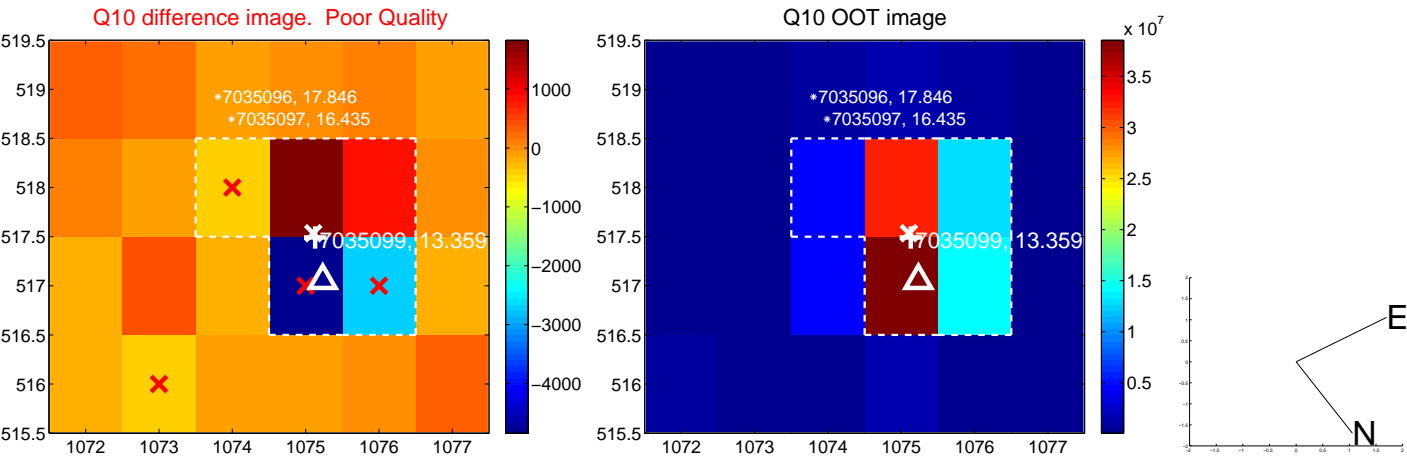
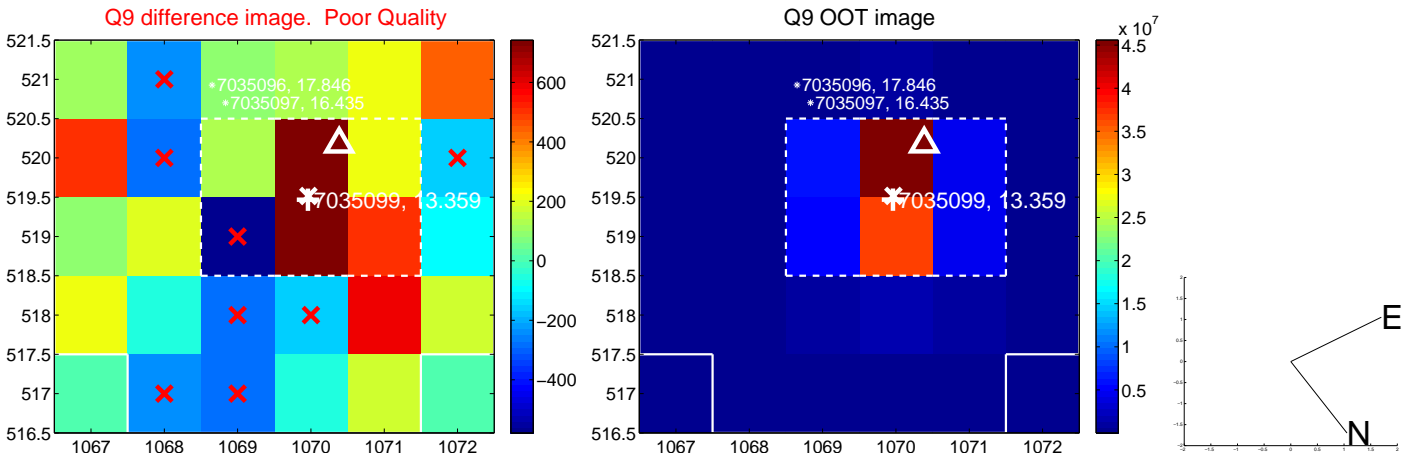
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

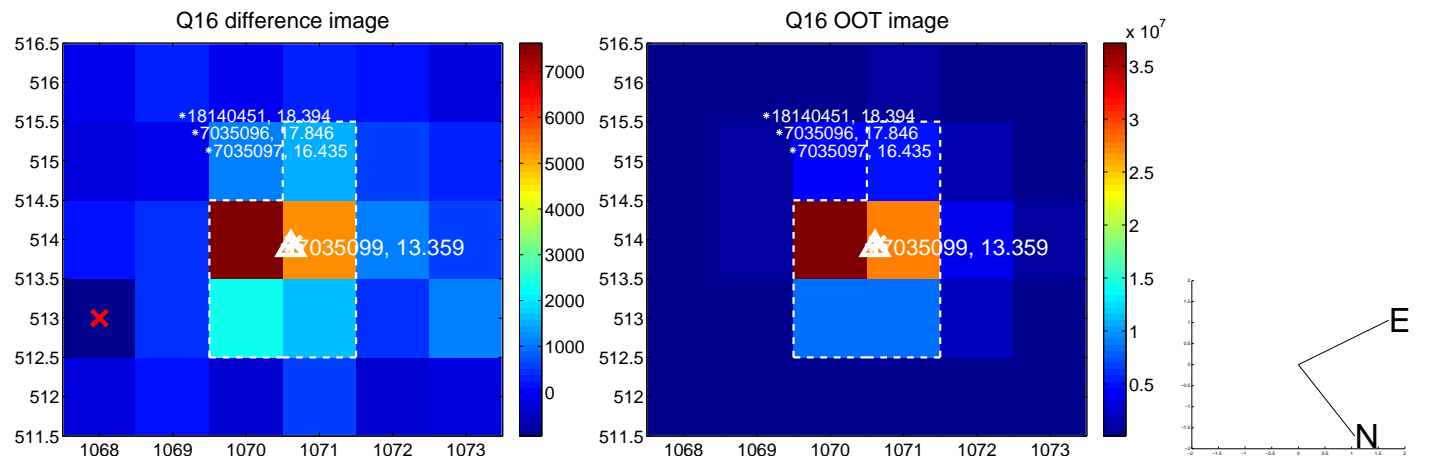
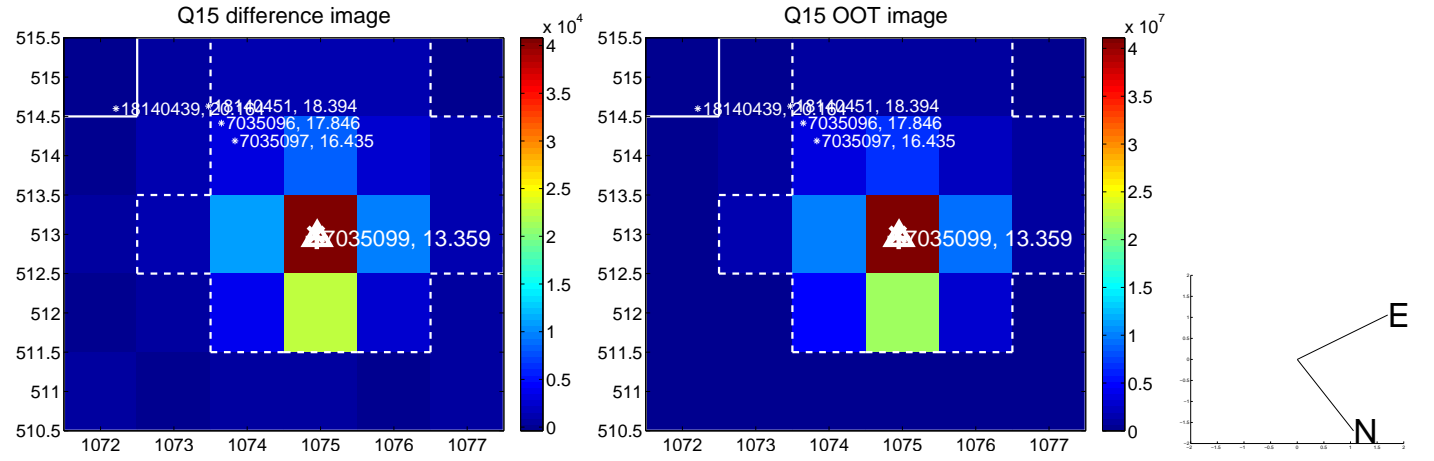
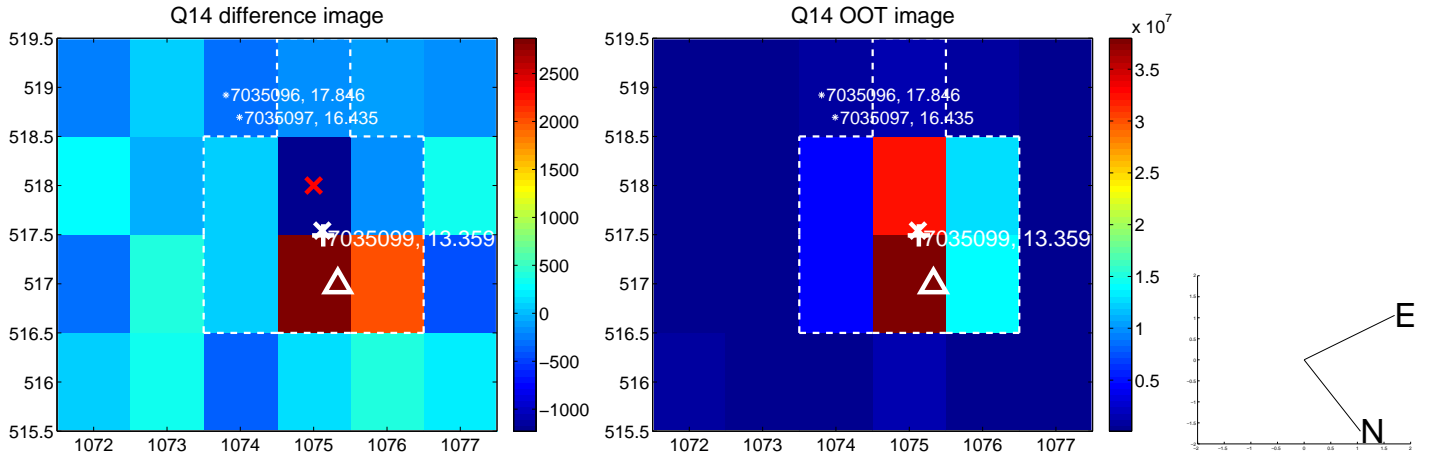
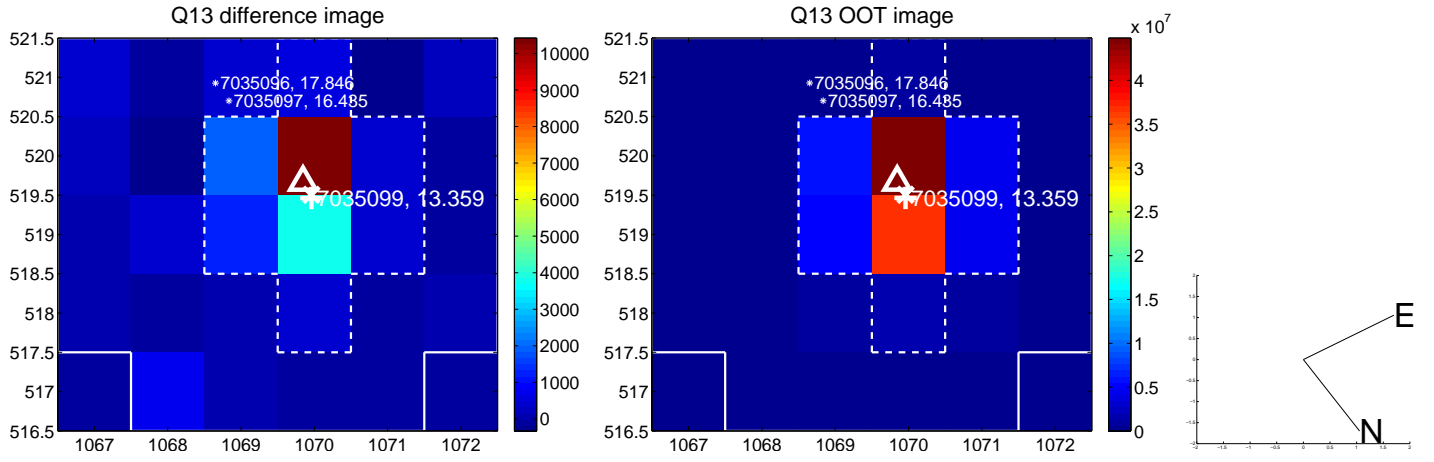


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

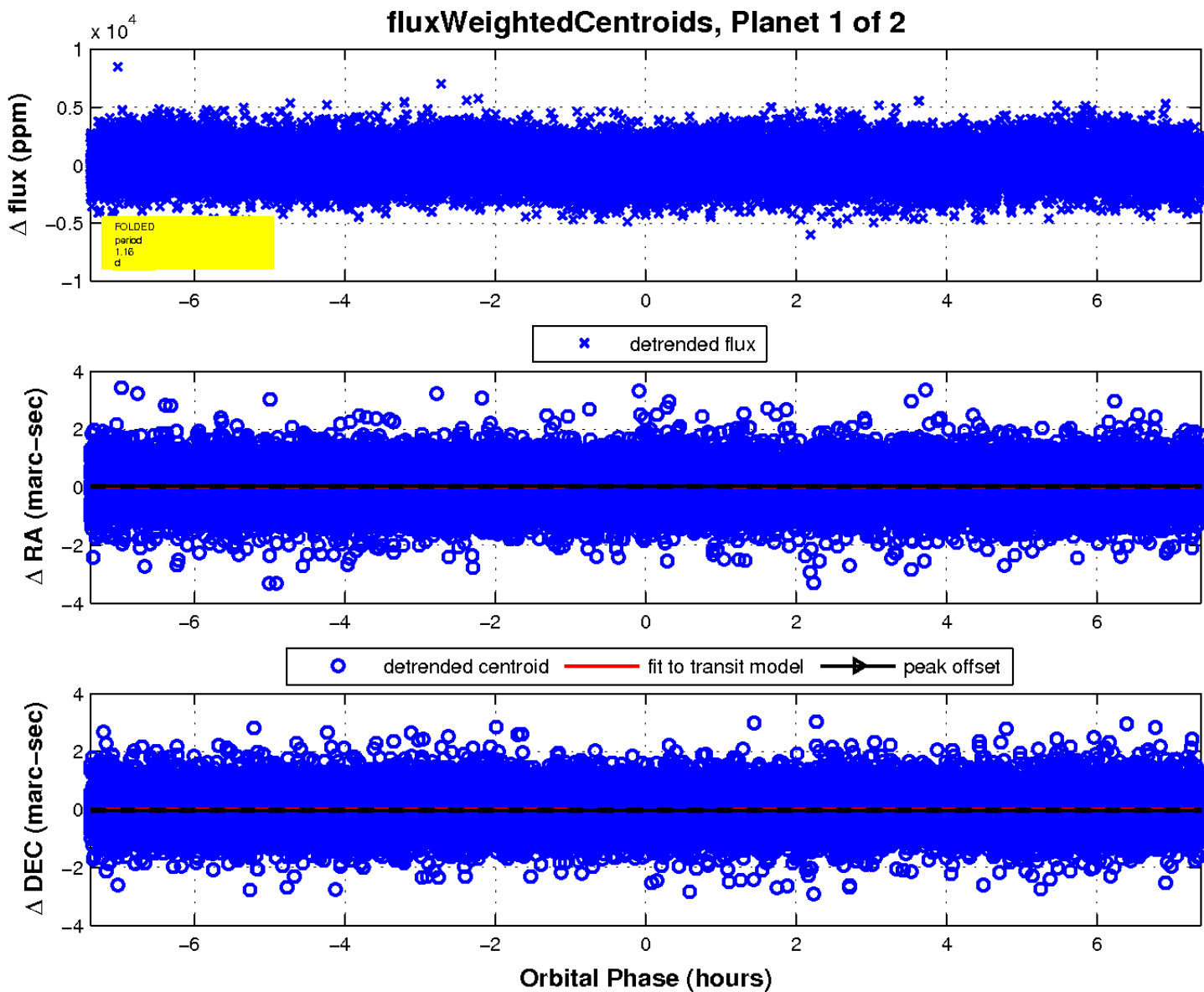
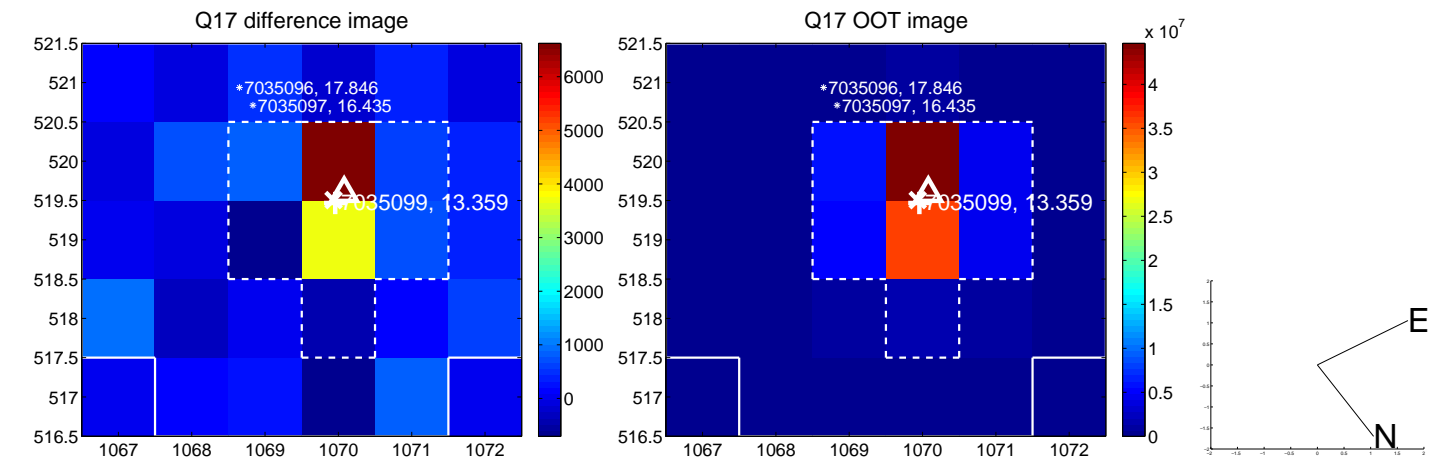




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

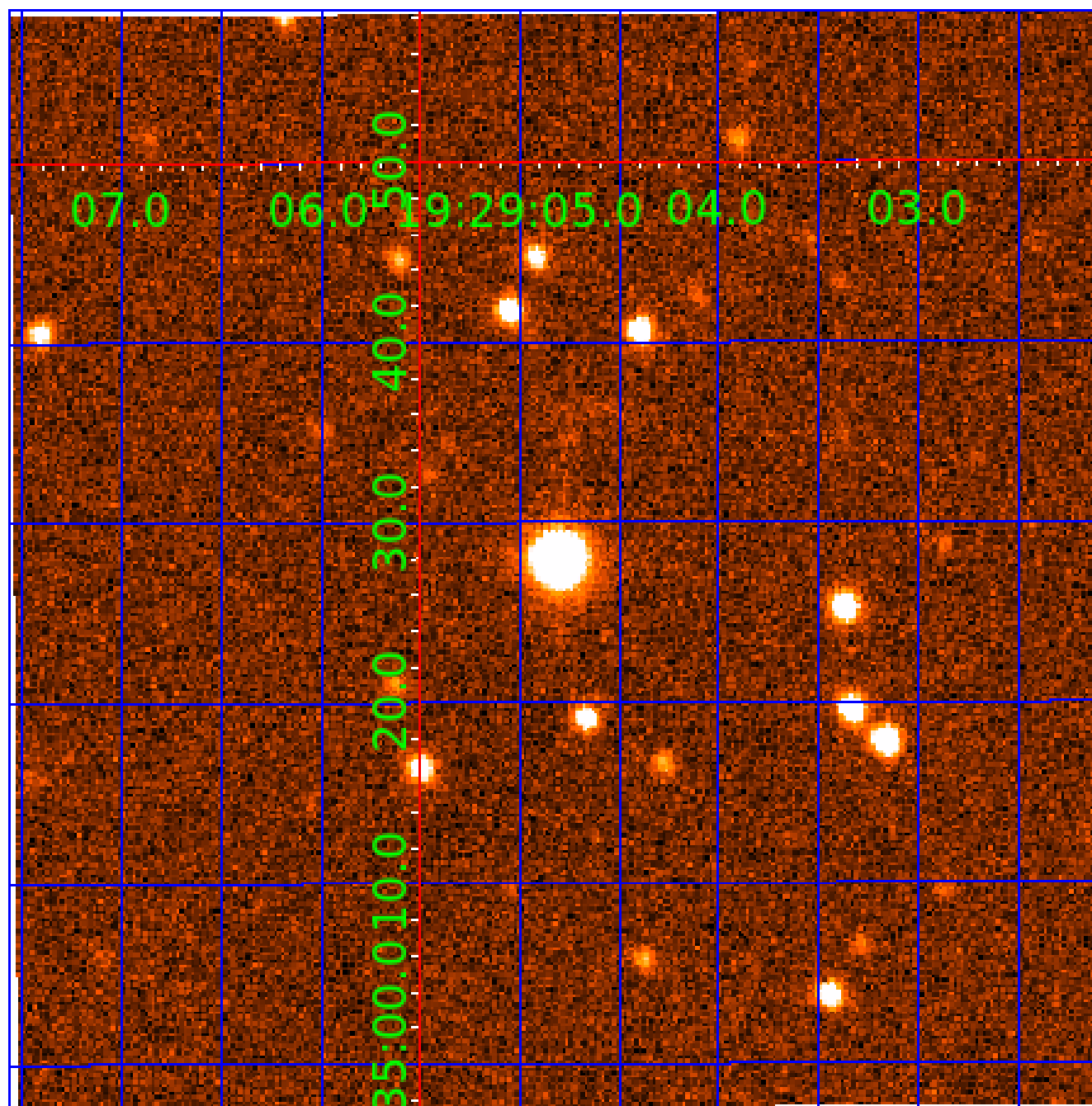


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007035099

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007035099-01	OBS	No	1.158689	132.486873	189.7	2.462	8.1	8.4	1.97	7473	3.18	17167.60
007035099-02	OBS	No	2.881518	132.428495	213.6	34.578	9.0	15.8	1.97	7473	3.17	5095.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007035099-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007035099-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—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.

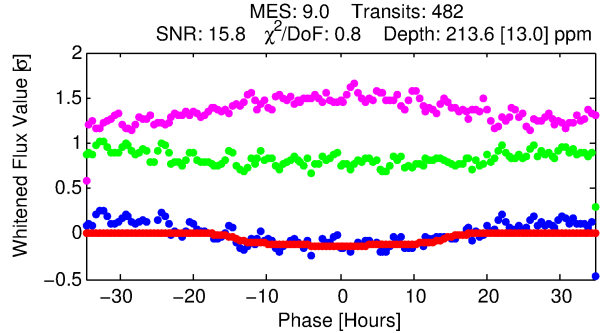
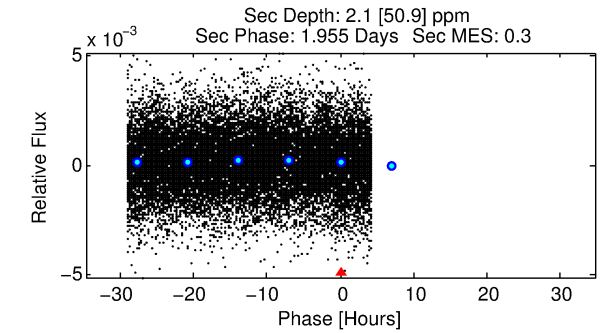
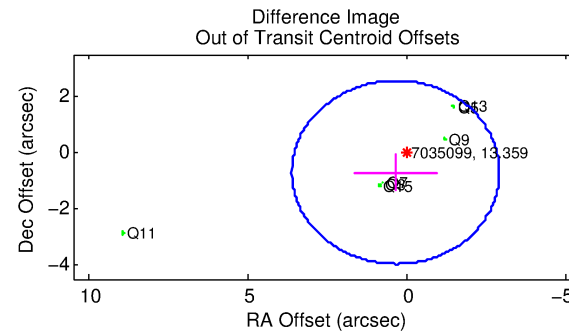
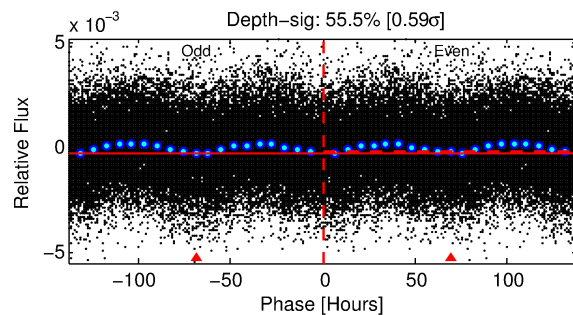
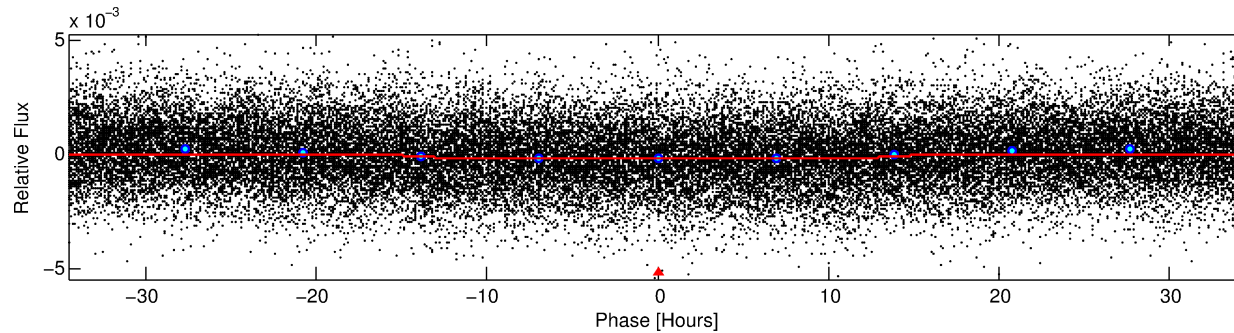
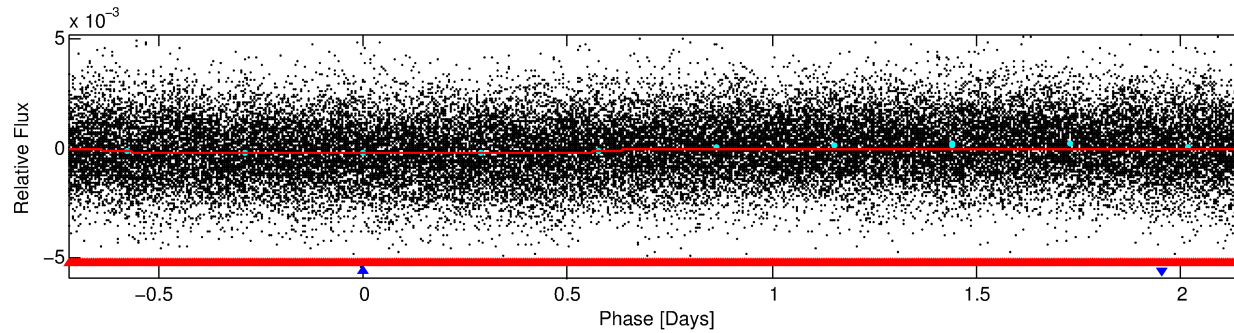
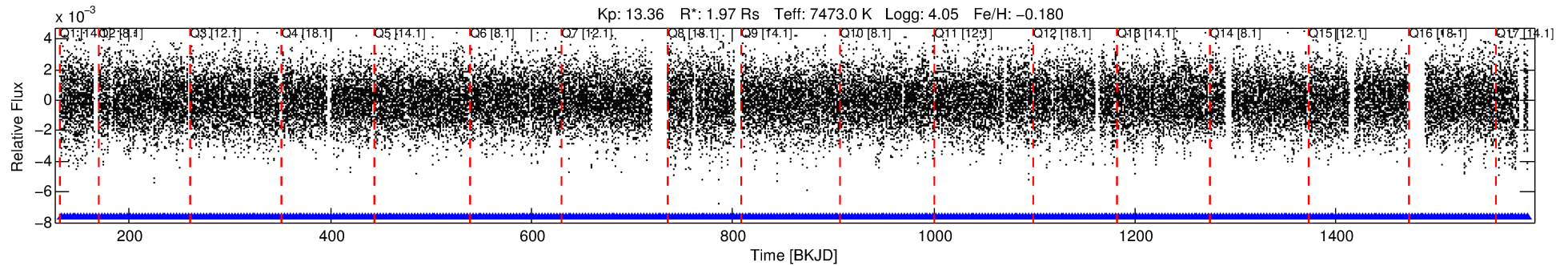
## Ephemeris Match Information For 007035099-02

No Significant Match Found



# DV One-Page Summary

KIC: 7035099 Candidate: 2 of 2 Period: 2.882 d



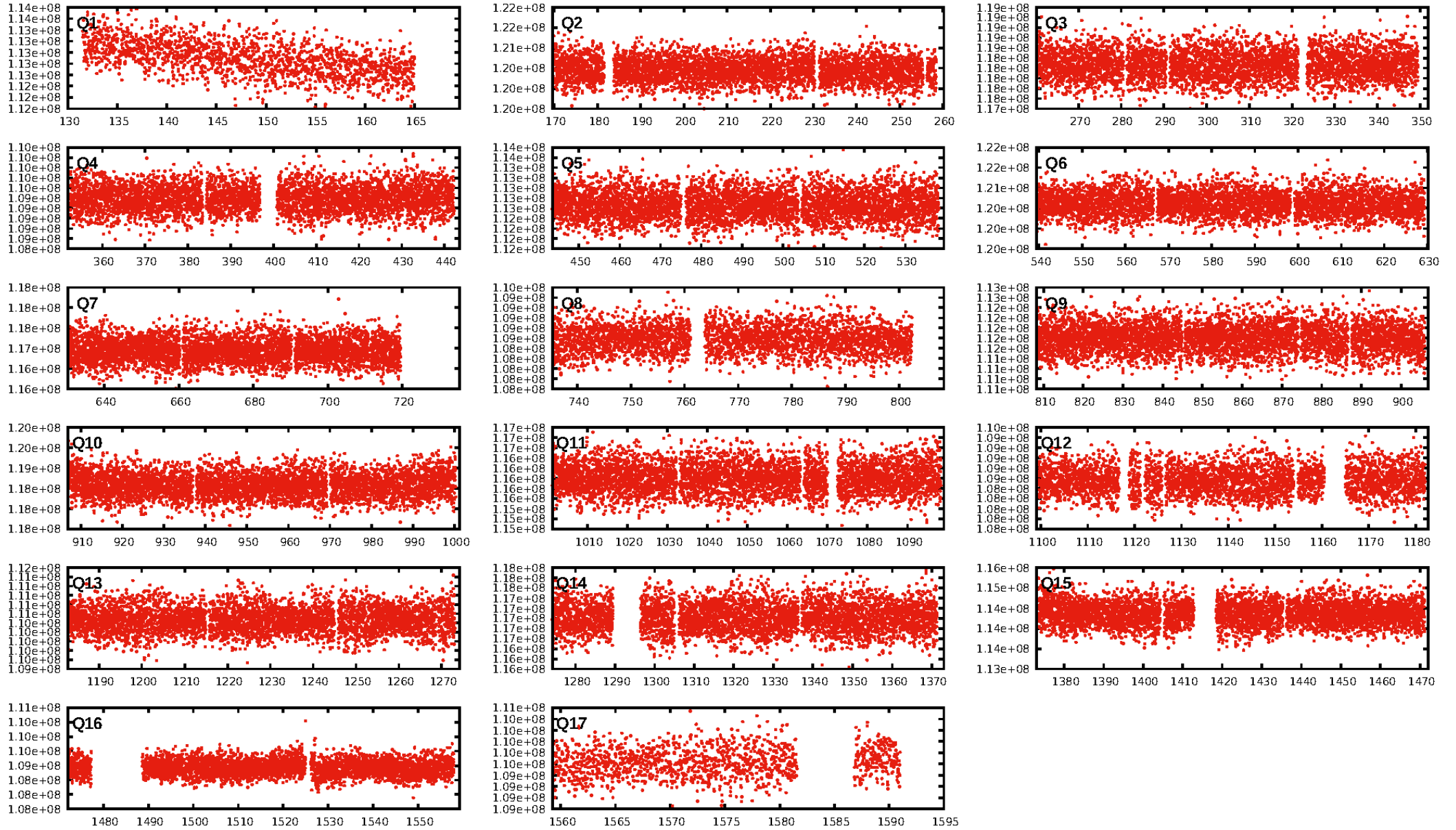
## DV Fit Results:

Period = 2.88152 [0.00011] d  
Epoch = 132.4285 [0.0251] BKJD  
Rp/R\* = 0.0147 [0.0010]  
a/R\* = 1.01 [0.01]  
b = 0.78 [0.16]  
Seff = 5095.31 [1844.13]  
Teq = 2154 [195] K  
Rp = 3.17 [0.86] Re  
a = 0.0462 [0.0102] AU  
Ag = 0.24 [5.96] [-0.13 $\sigma$ ]  
Teffp = 2332 [14459] K [0.01 $\sigma$ ]

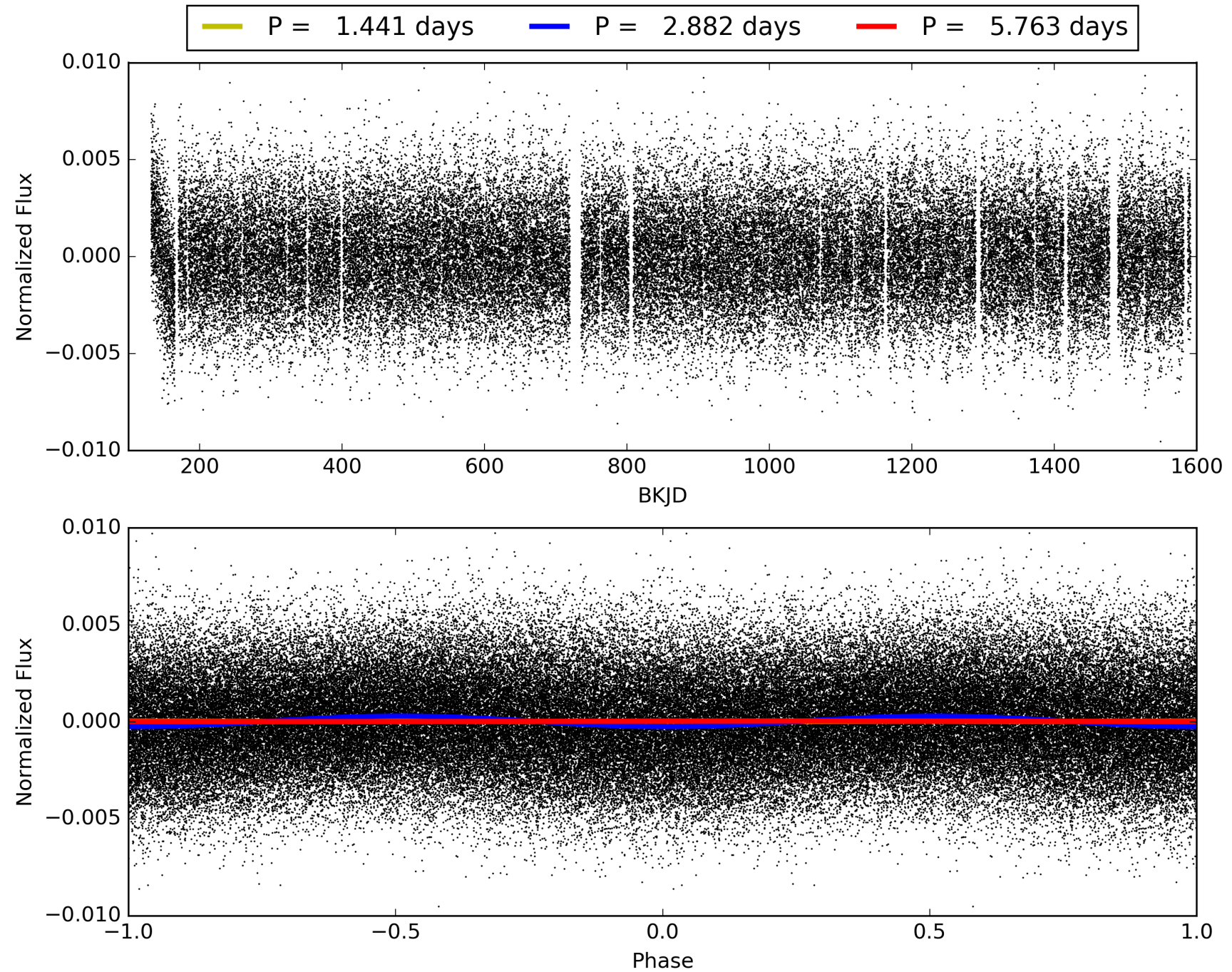
## DV Diagnostic Results:

ShortPeriod-sig: 76.7% [1.19 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [459/459]  
GhostDiagnostic-chr: 1.715  
Centroid-sig: 22.6%  
**Centroid-so: 0.231 arcsec [3.97 $\sigma$ ]**  
OotOffset-rm: 0.787 arcsec [0.72 $\sigma$ ]  
KicOffset-rm: 0.617 arcsec [0.58 $\sigma$ ]  
OotOffset-st: 0/4/0/3 [7]  
KicOffset-st: 0/4/0/3 [7]  
DiffImageQuality-fgm: 0.86 [6/7]  
DiffImageOverlap-fno: 0.00 [0/17]

# TCE 007035099-02, PDC Light Curves



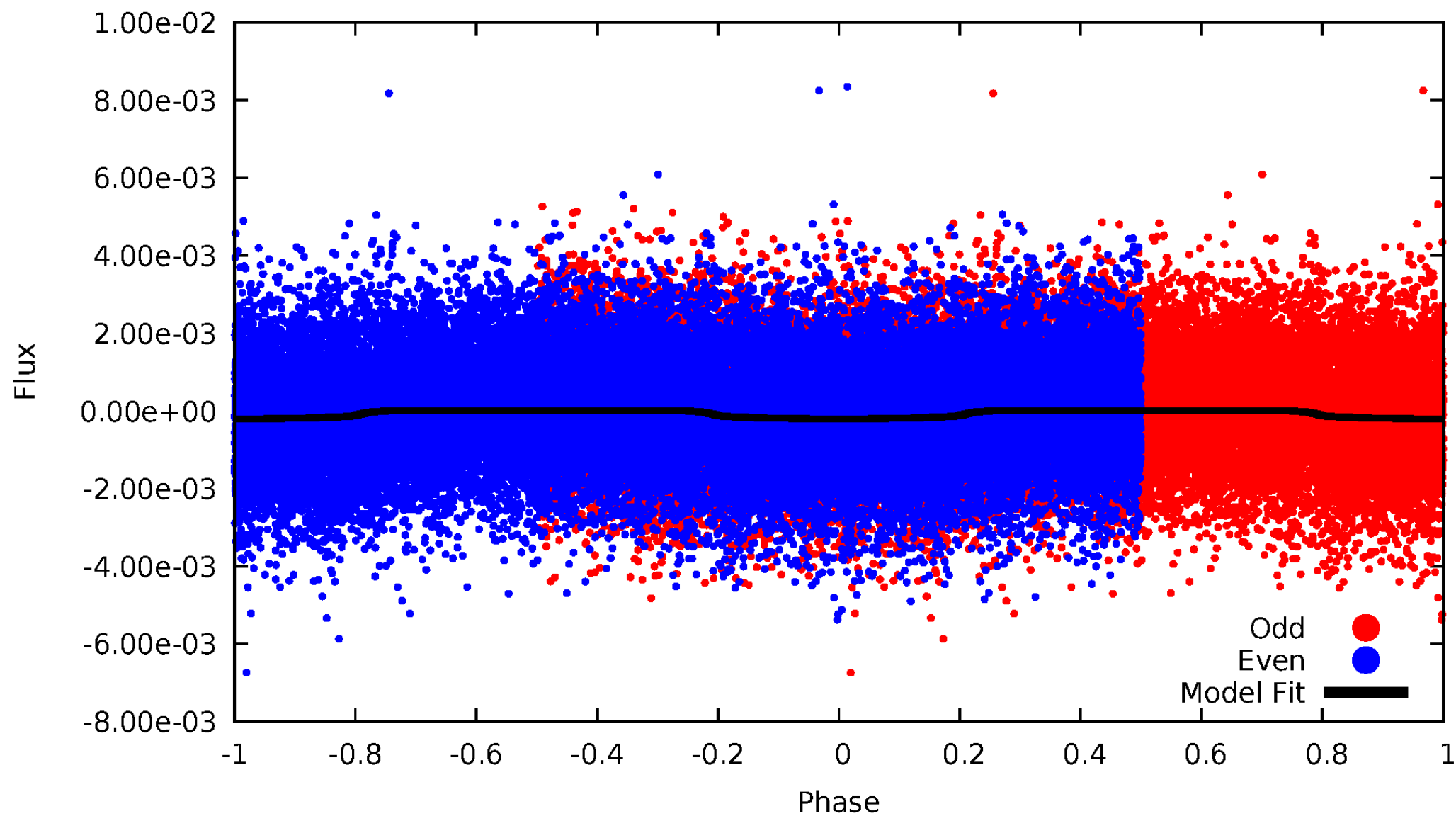
TCE 007035099-02





DV Odd/Even

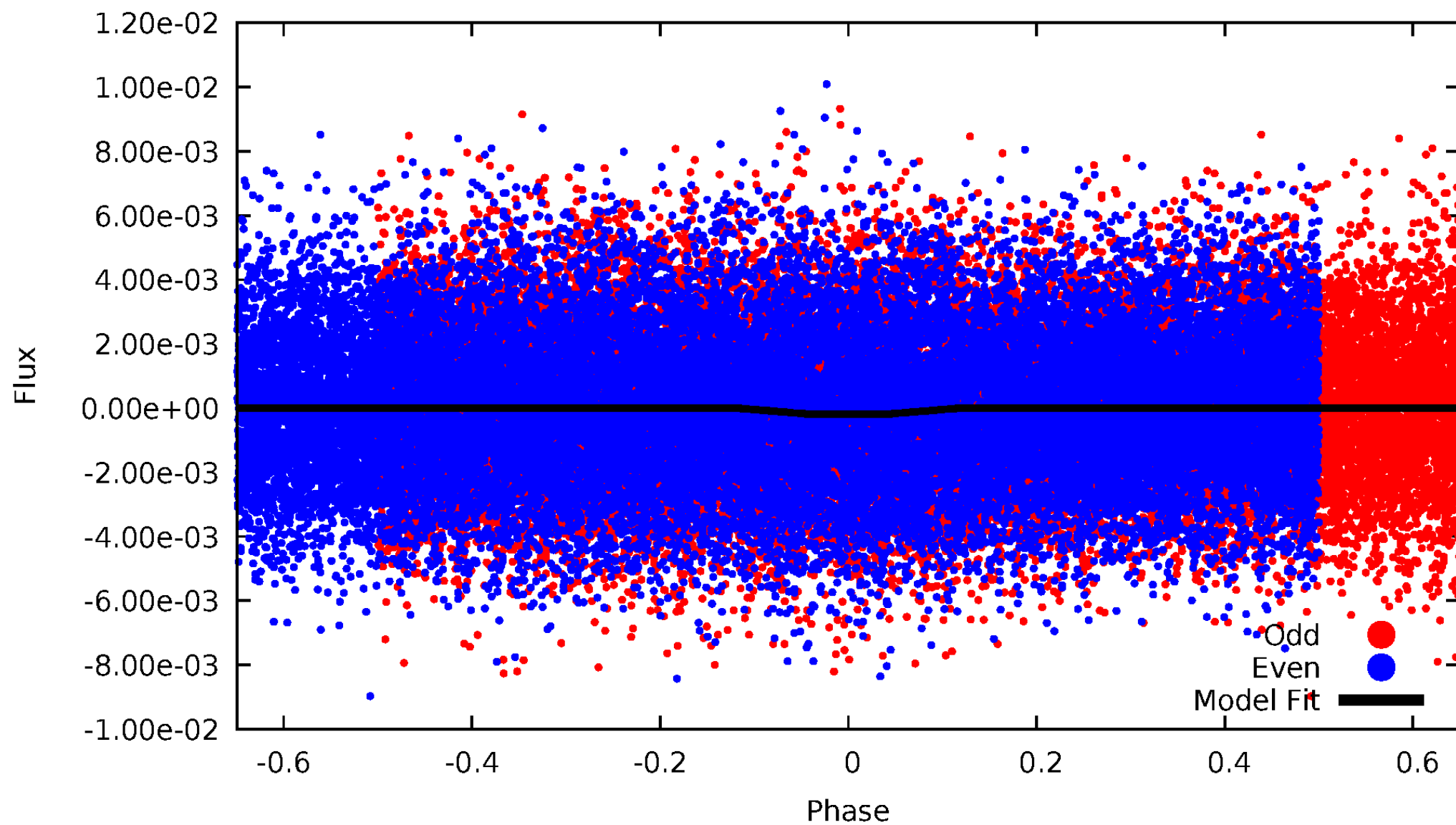
TCE 007035099-02





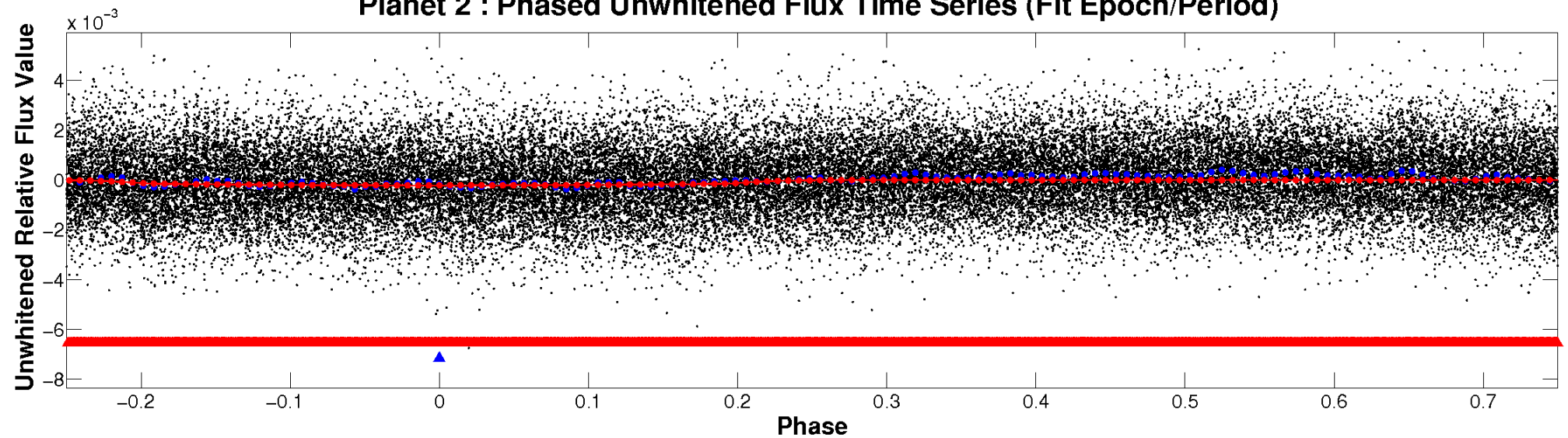
# ALT Odd/Even

TCE 007035099-02

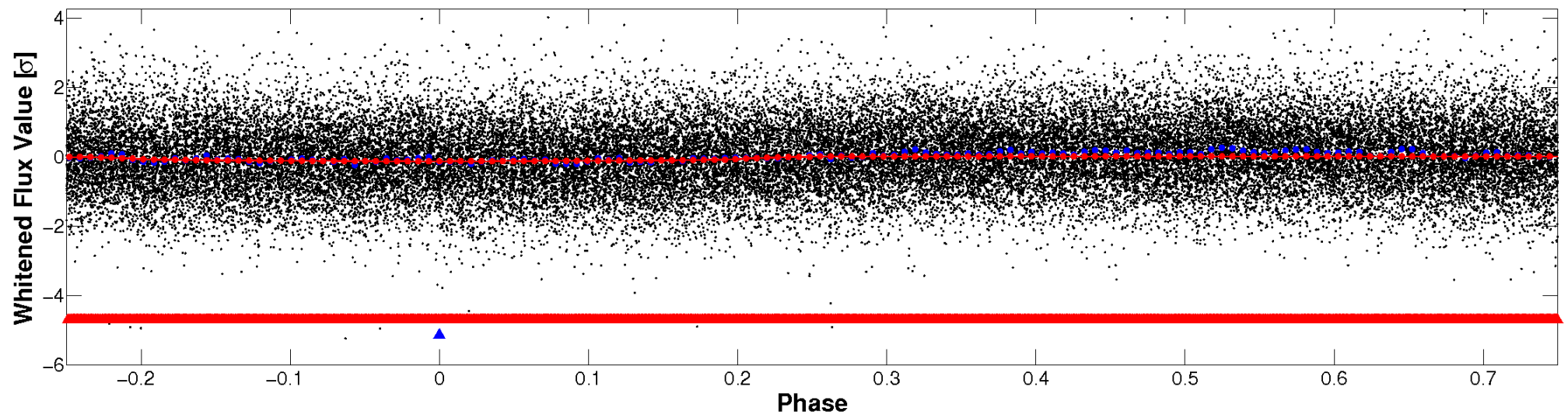


# Non-Whitened Vs. Whitened Light Curve

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

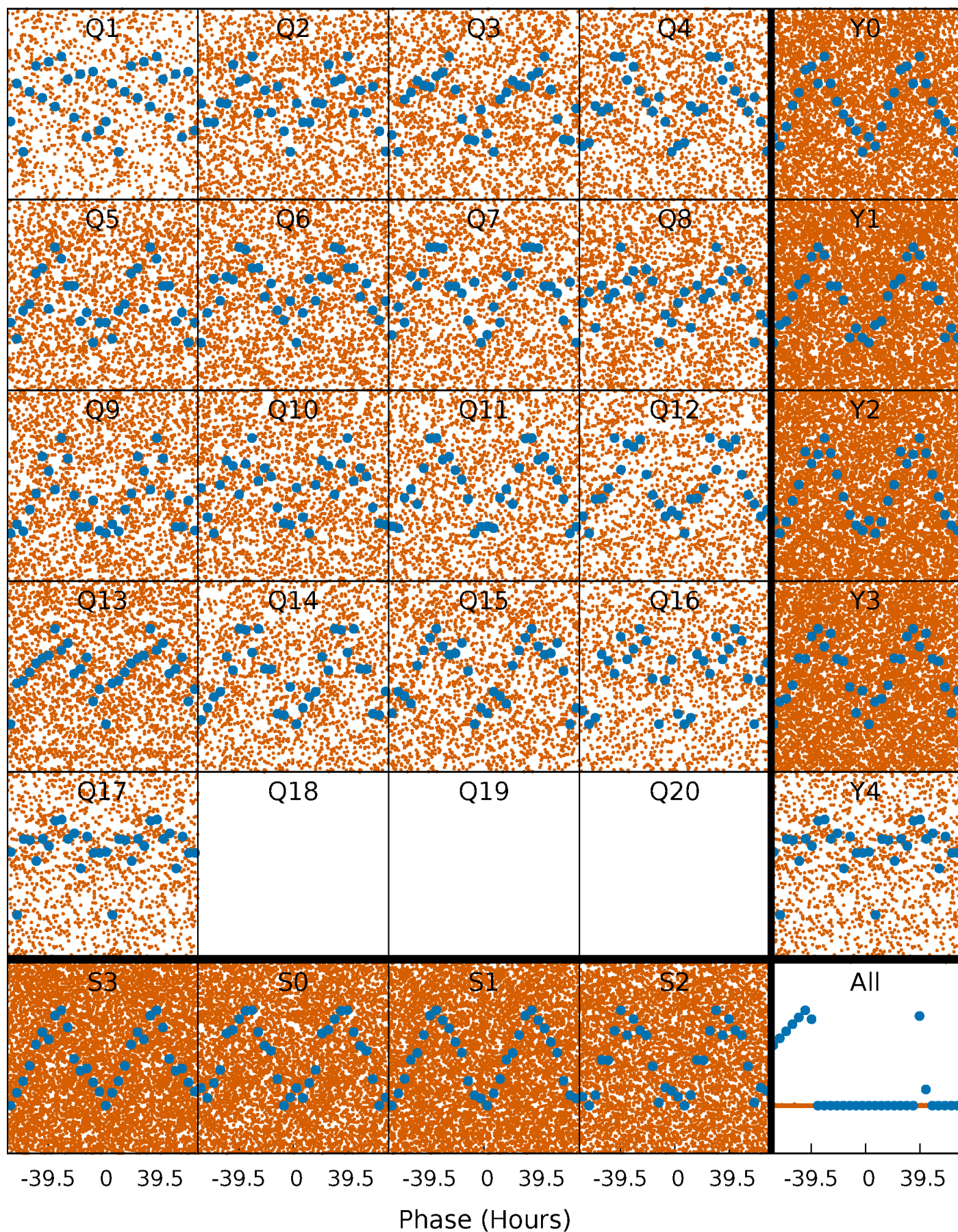


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

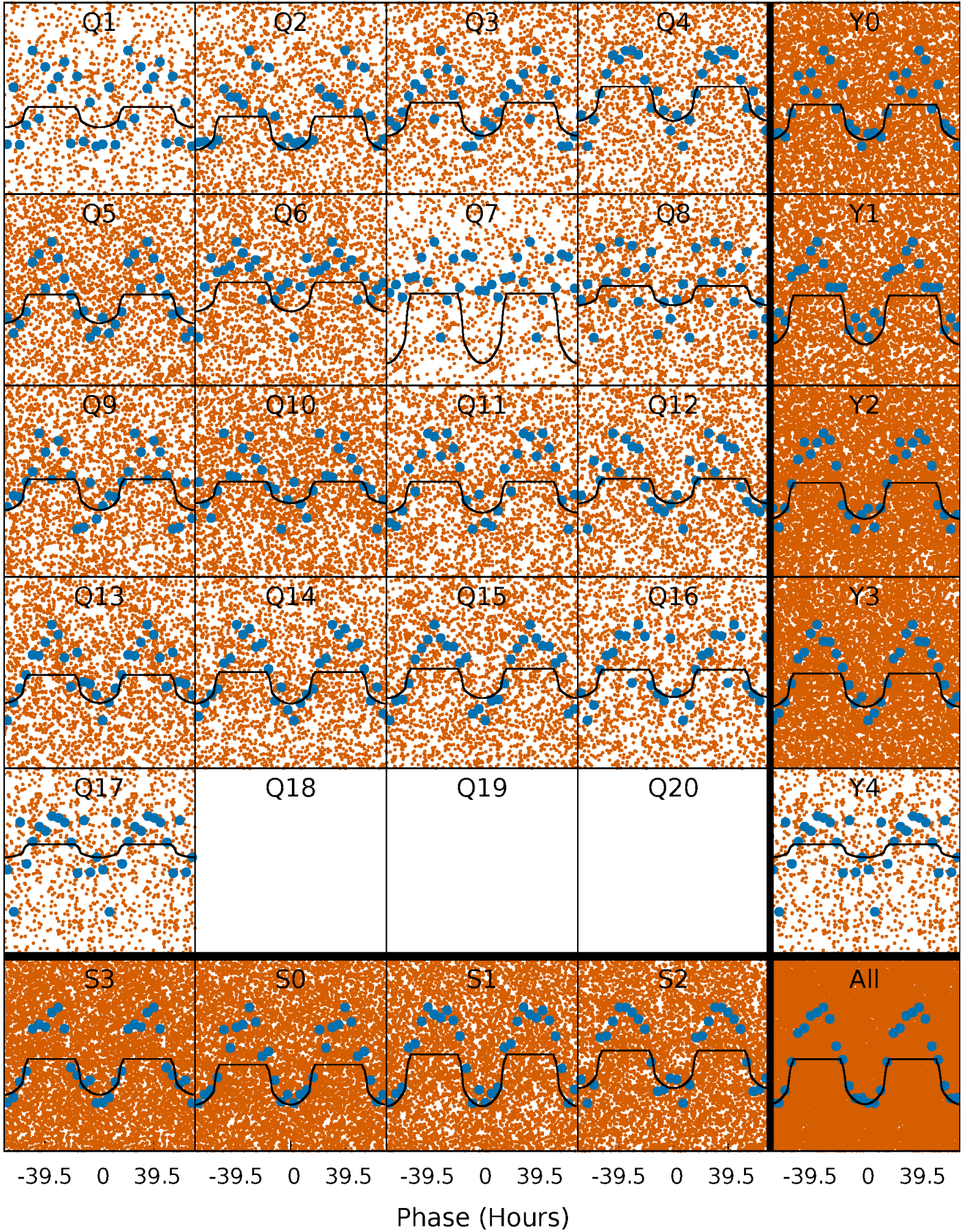
TCE 007035099-02 P= 2.881518 Days  $T_0=132.428495$  (BKJD)





# DV Quarter-Phased Transit Curves

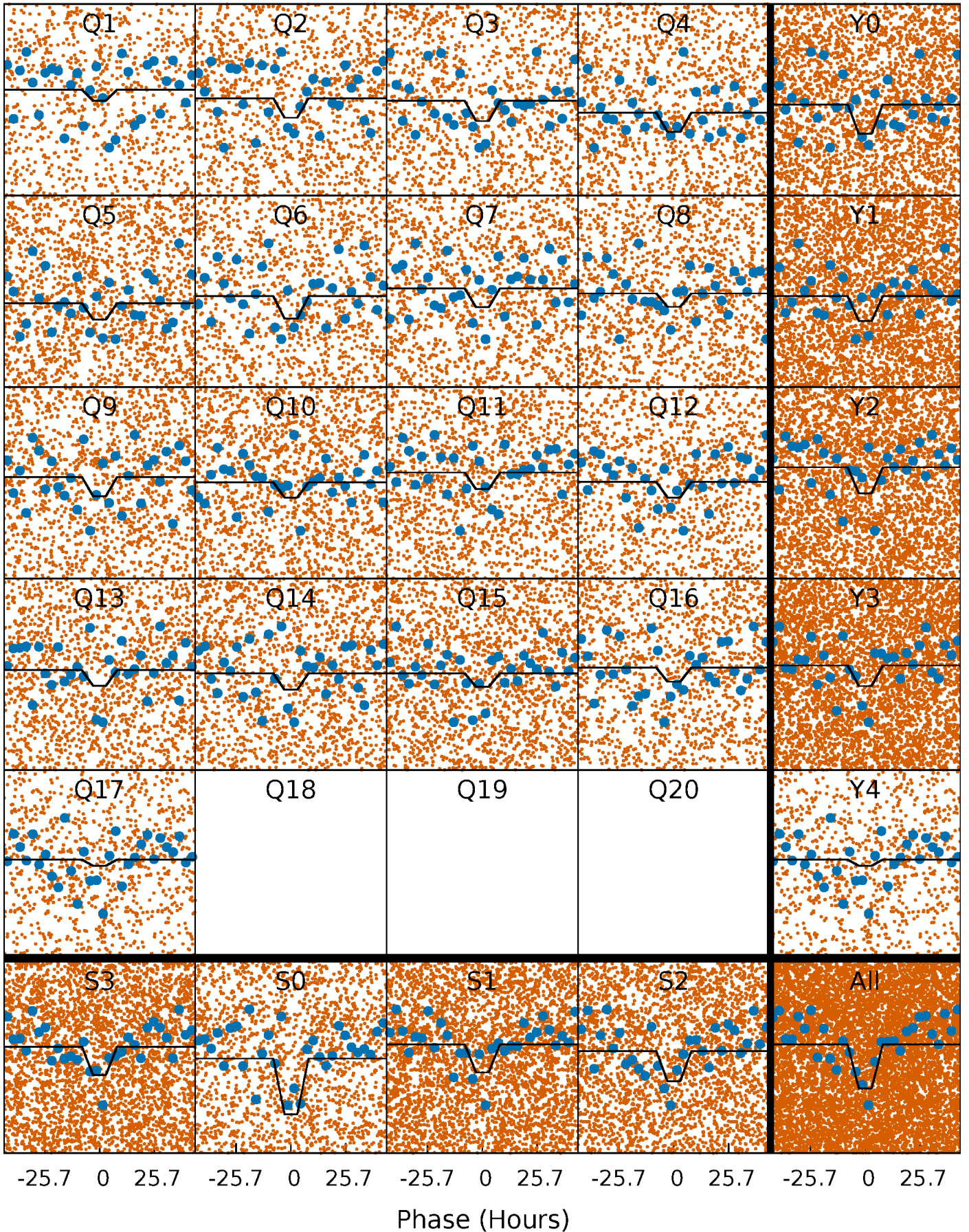
TCE 007035099-02   P= 2.881518 Days    $T_0=132.428495$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

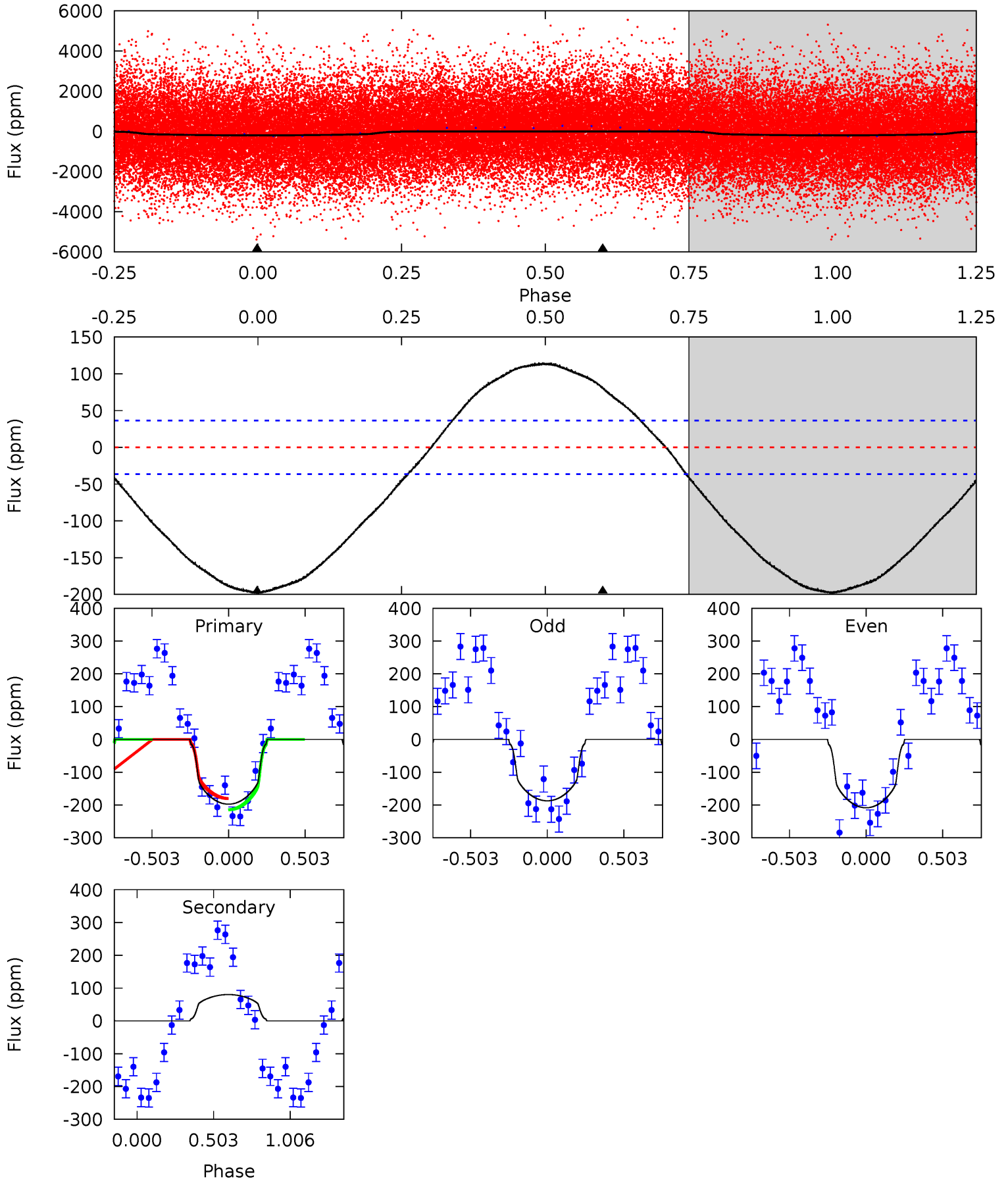
TCE 007035099-02    P= 2.882485 Days     $T_0=132.209272$  (BKJD)



# DV Model-Shift Uniqueness Test

007035099-02, P = 2.881518 Days, E = 129.546977 Days

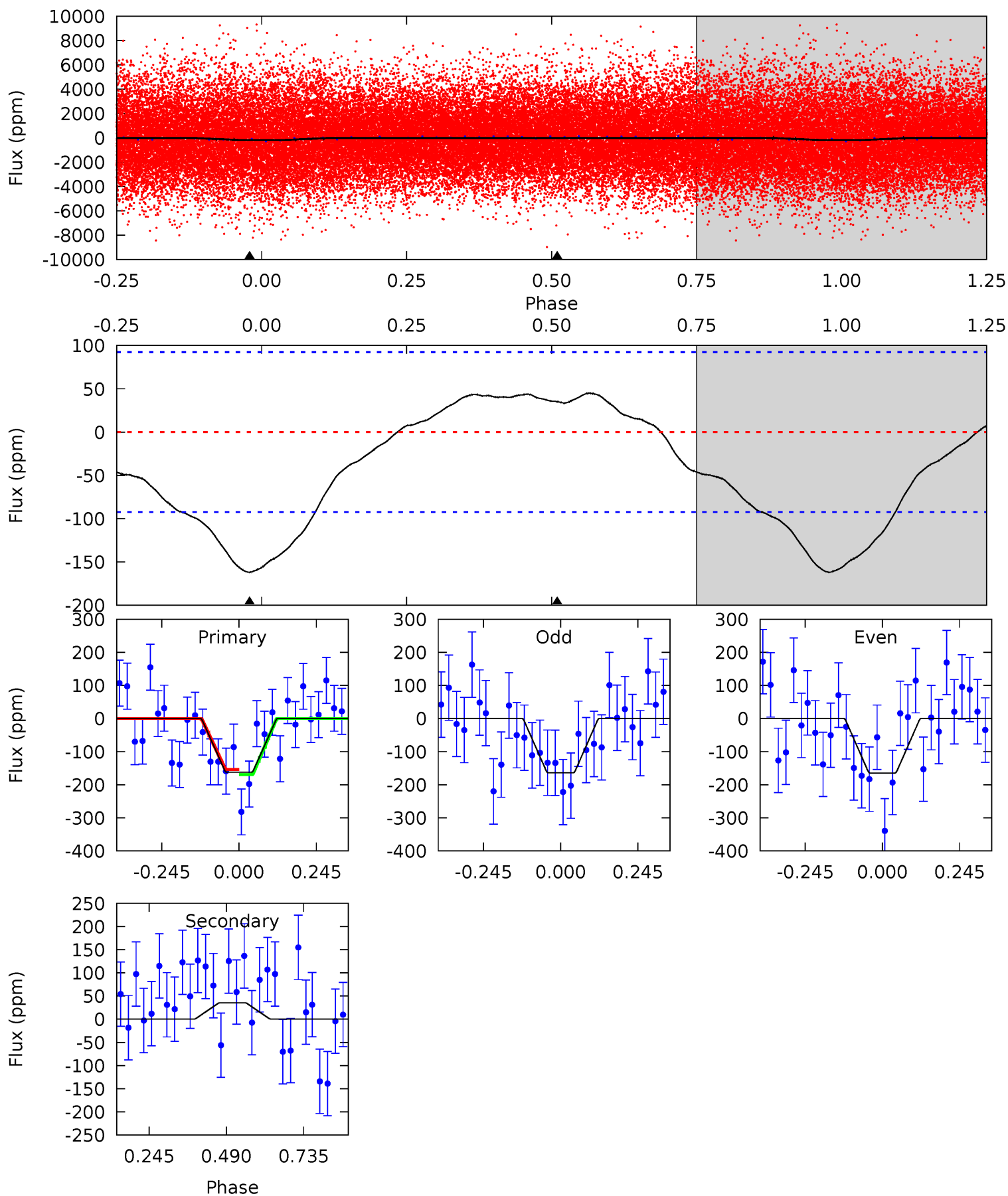
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.9	-9.30	0	0	4.21	0.67	3.24	22.9	22.9	-9.30	-9.30	1.21	0.94	0.37	1.93



# Alt Model-Shift Uniqueness Test

007035099-02, P = 2.882485 Days, E = 129.326787 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.67	-1.67	0	0	4.37	1.16	0.97	7.67	7.67	-1.67	-1.67	0.01	0.40	0.22	0.36



### Stellar Parameters For KIC 007035099

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7473^{+235}_{-314}$	$4.047^{+0.175}_{-0.175}$	$-0.180^{+0.250}_{-0.300}$	$1.971^{+0.517}_{-0.517}$	$1.576^{+0.212}_{-0.259}$	$0.290^{+0.311}_{-0.130}$
	+3%/-4%	+4%/-4%	+139%/-167%	+26%/-26%	+13%/-16%	+107%/-45%
Source	KIC0	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 007035099-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$80 \pm 9$	$3.22^{+0.49}_{-0.50}$	$3013^{+237}_{-233}$	$-5758^{+297}_{-301}$	$-9.021^{+2.384}_{-3.657}$
Alt.	$35 \pm 21$	$2.93^{+0.47}_{-0.42}$	$3002^{+232}_{-203}$	$-4981^{+770}_{-591}$	$-4.559^{+2.694}_{-3.594}$

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

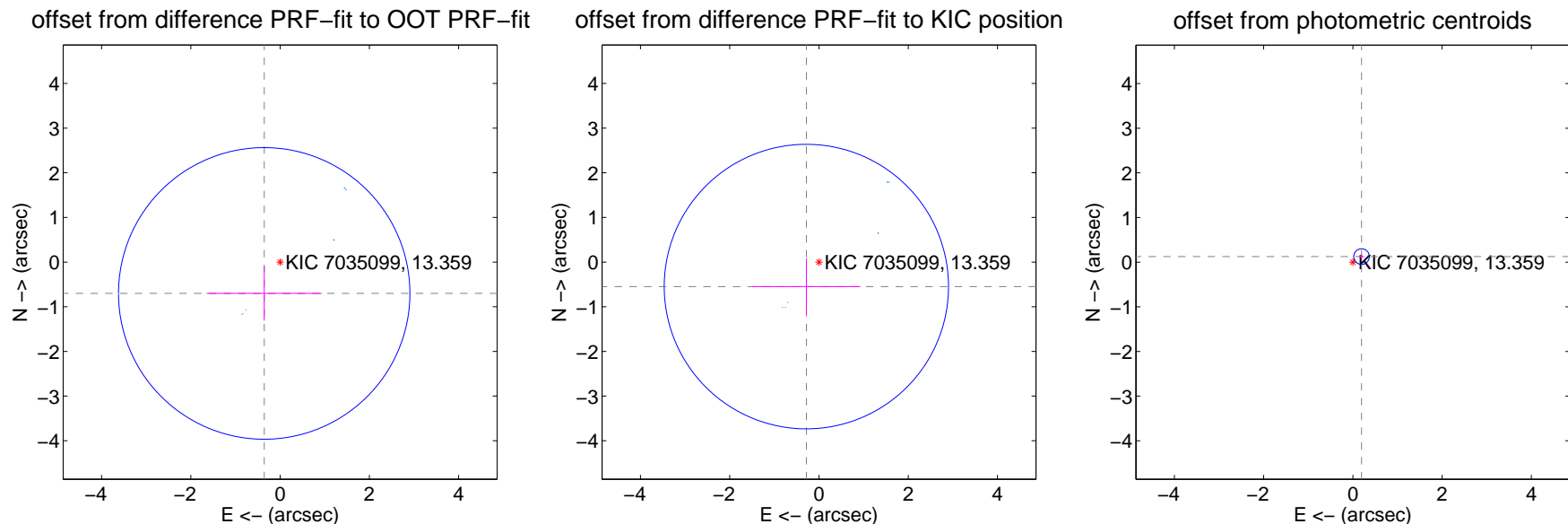
## DV Centroid Data

Supplemental centroid analysis for 007035099-02. Kepler magnitude: 13.36. Transit SNR 15.76

There are 6 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

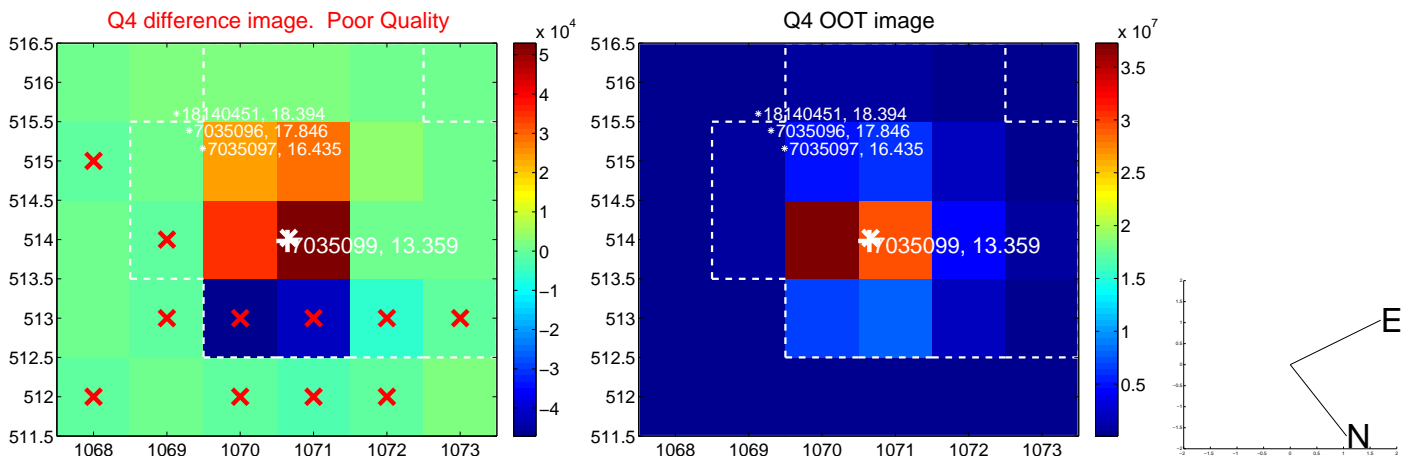
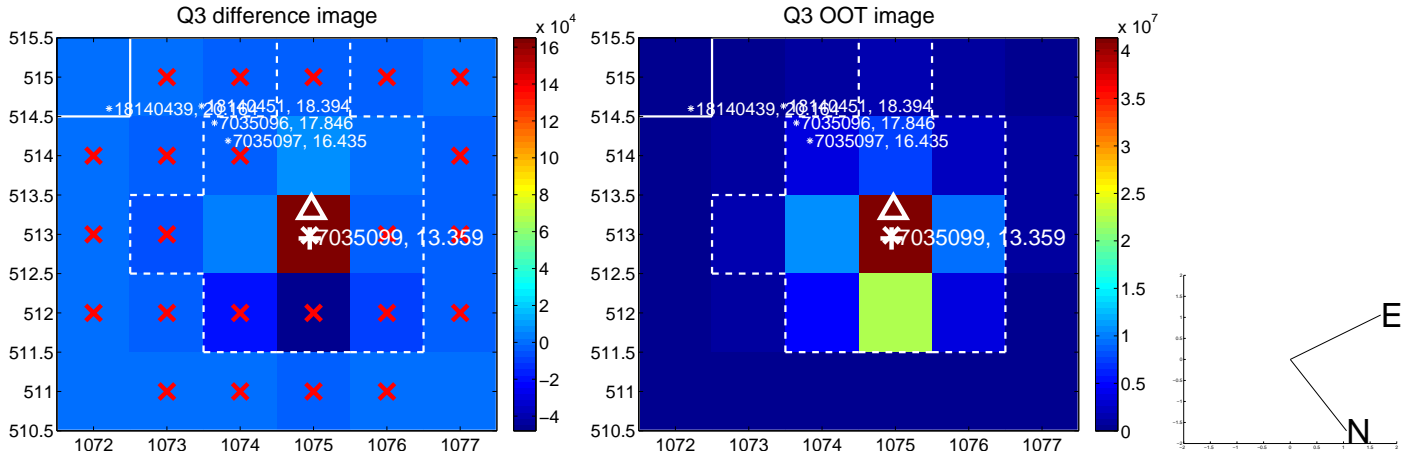
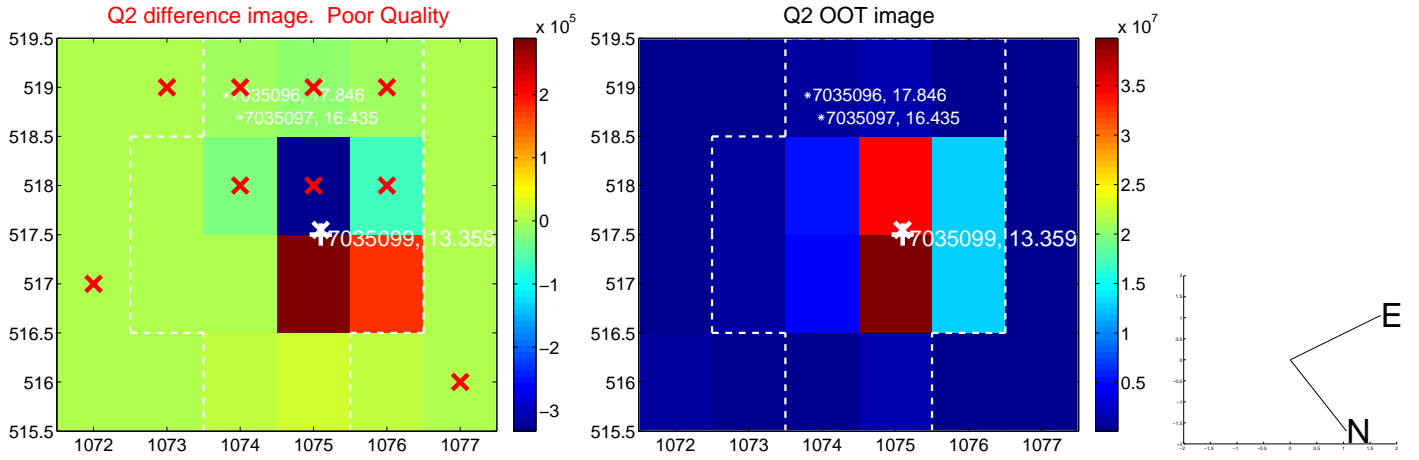
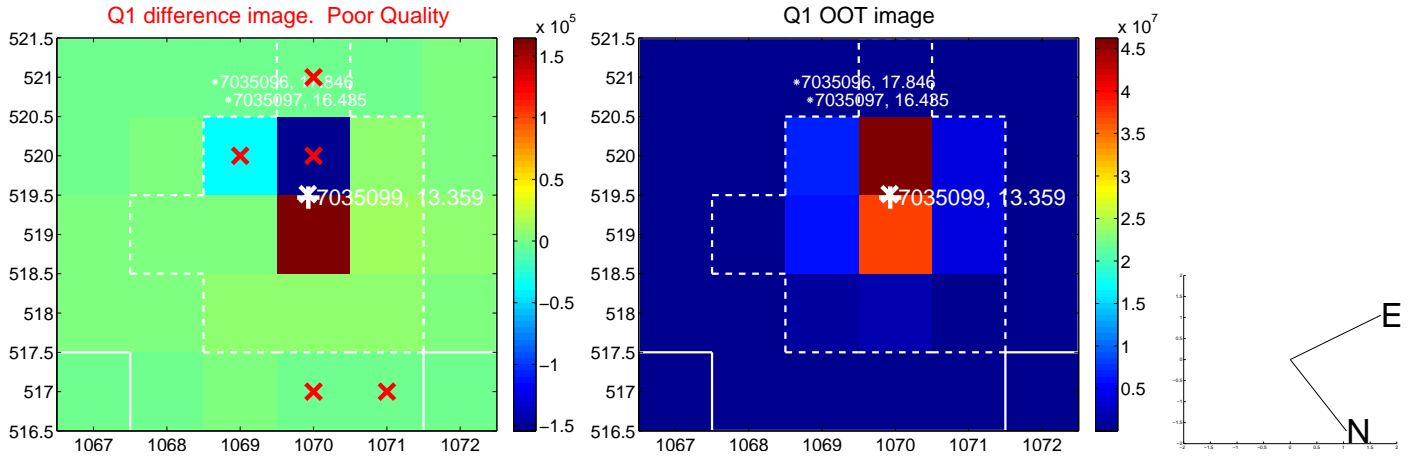
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.787 \pm 1.088$	0.72	$0.356 \pm 1.290$	$-0.702 \pm 0.610$
PRF-fit source offset from KIC position	$0.617 \pm 1.062$	0.58	$0.283 \pm 1.208$	$-0.549 \pm 0.629$
photometric centroid source offset	$0.23 \pm 0.06$	3.97	$-0.19 \pm 0.06$	$0.12 \pm 0.06$



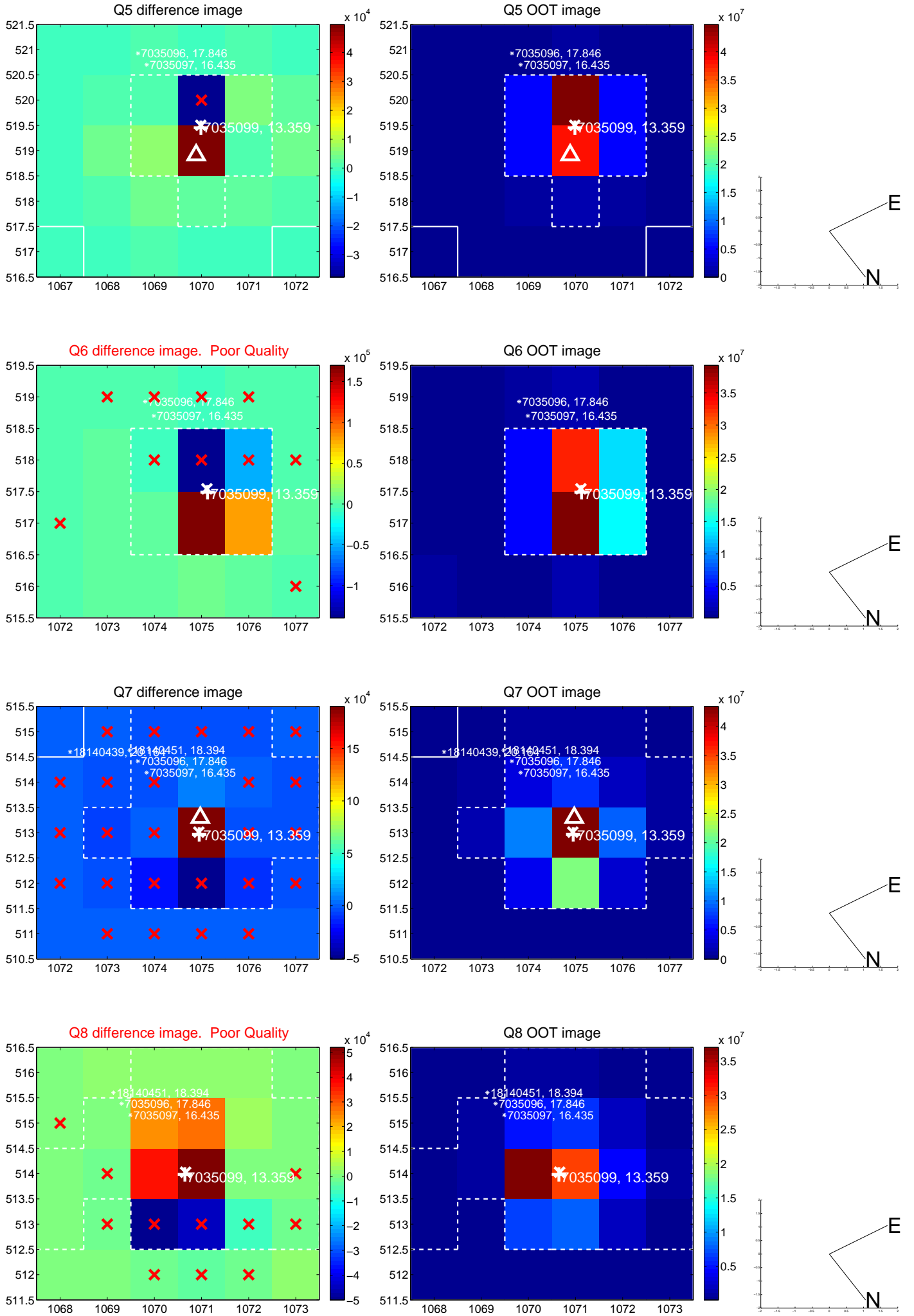
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



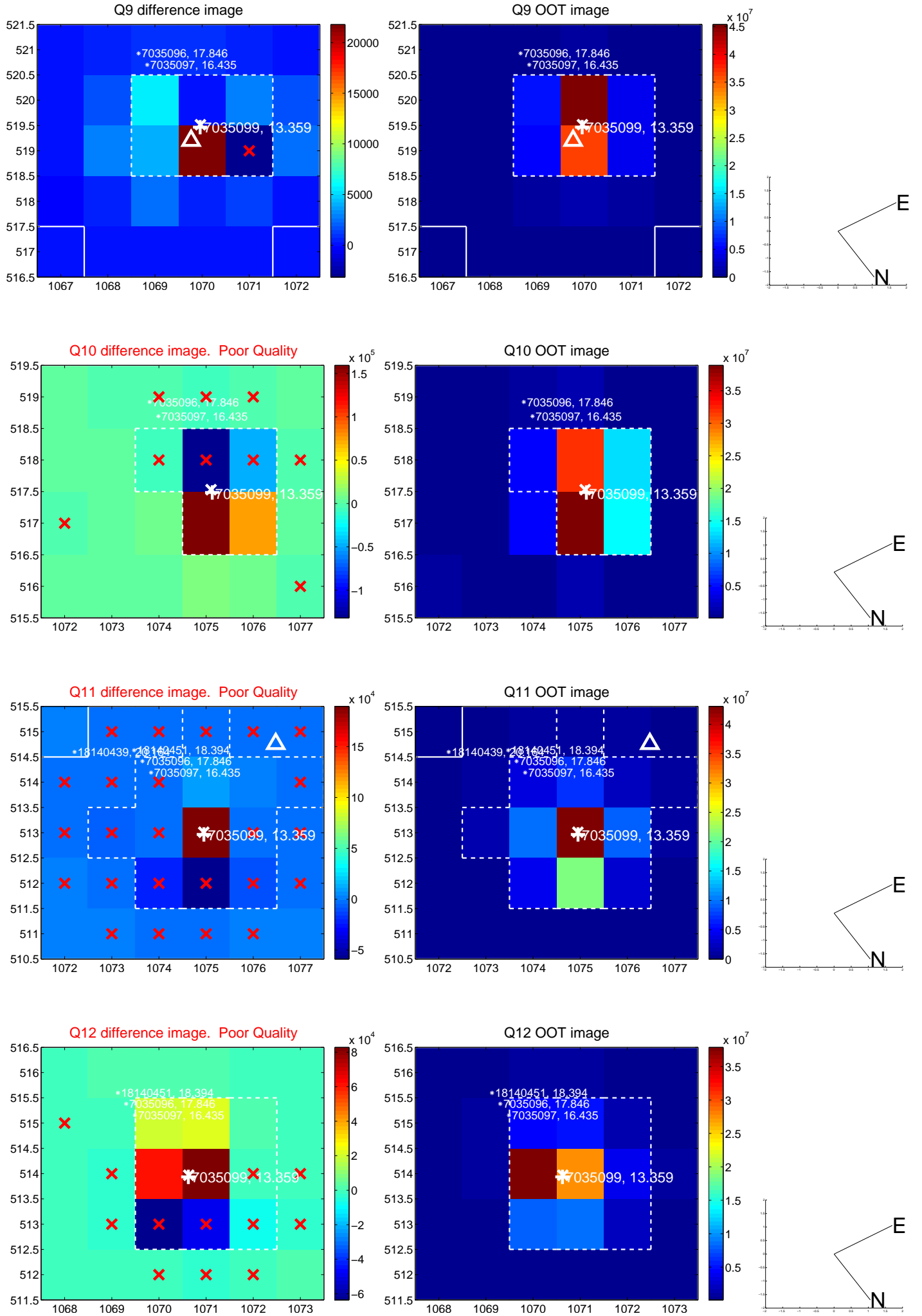
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



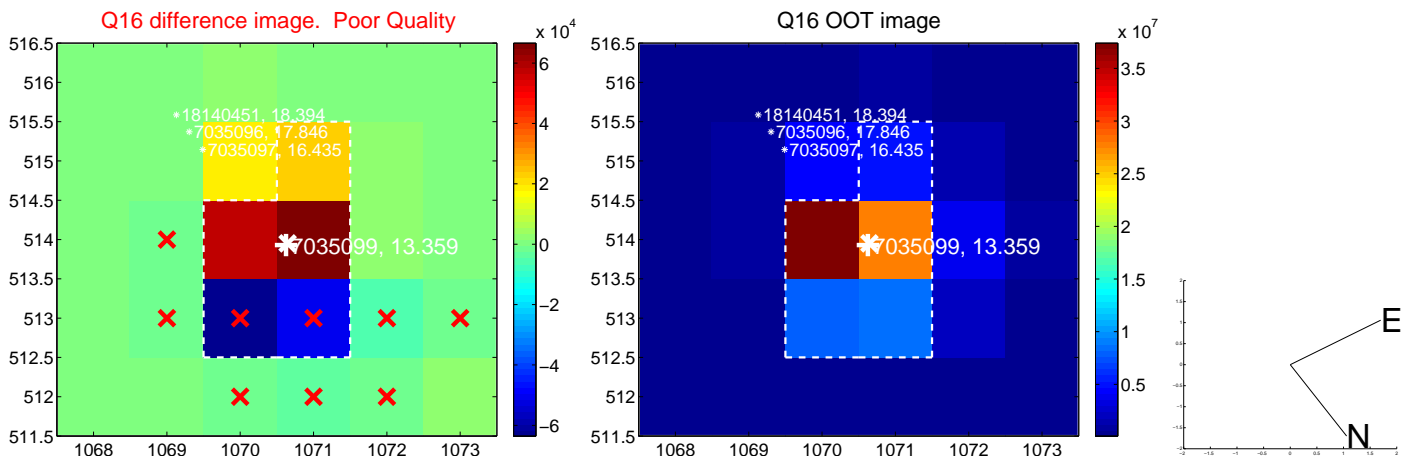
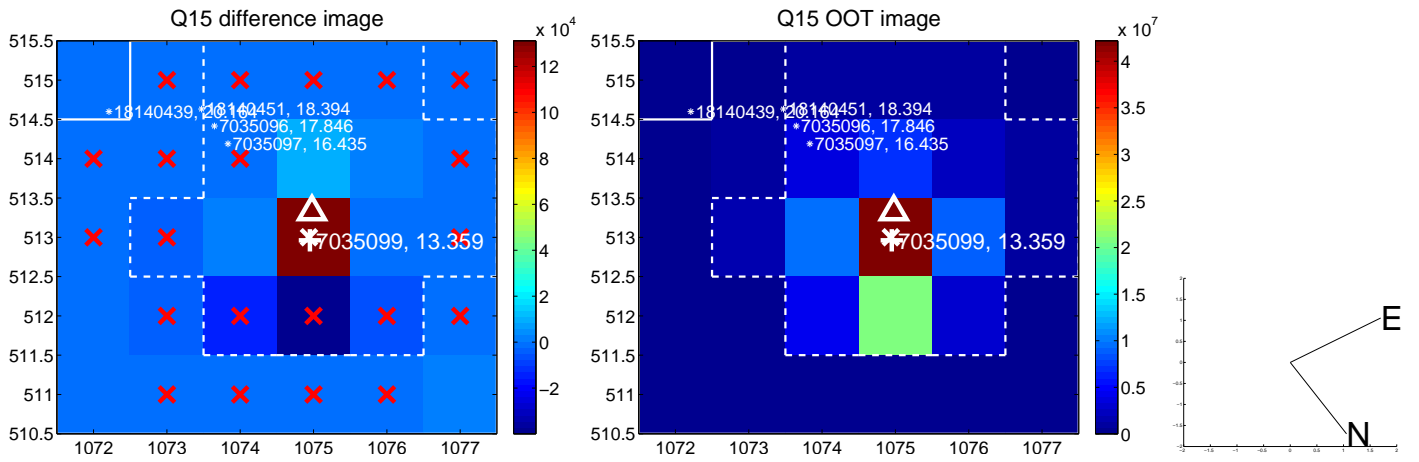
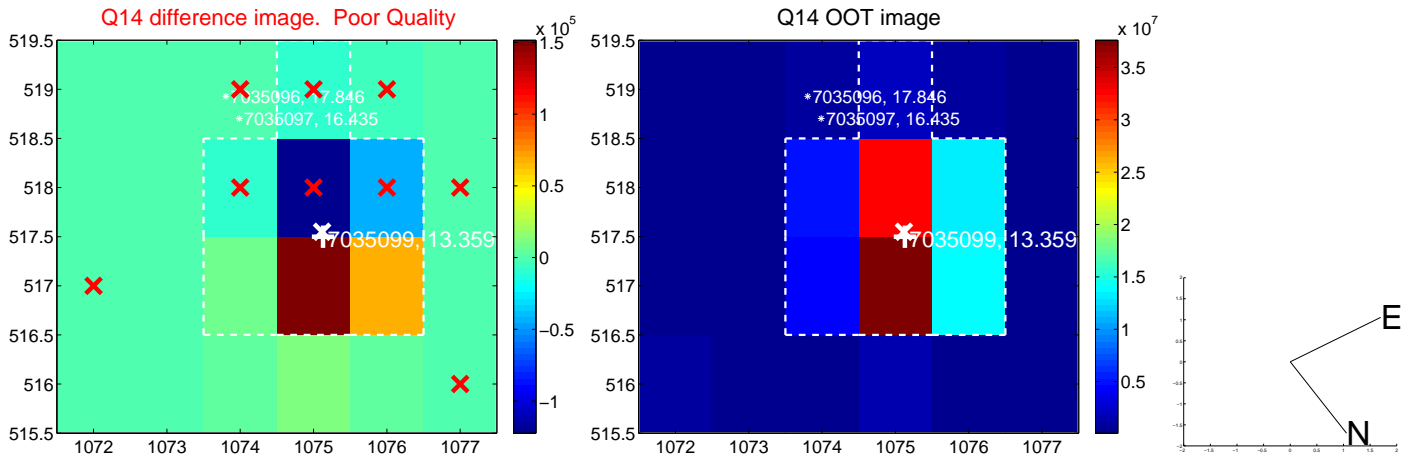
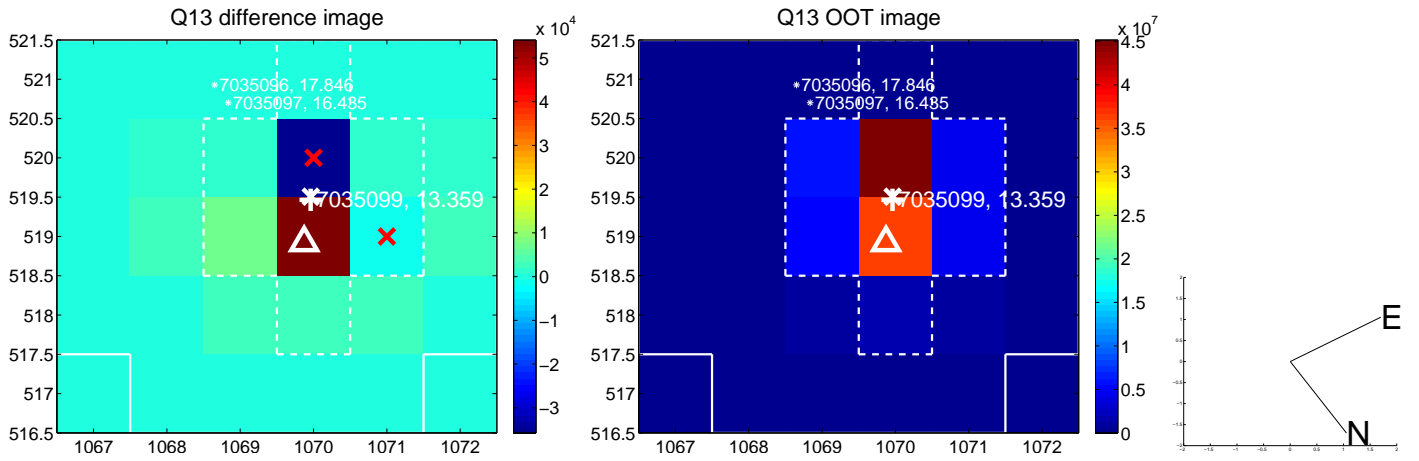
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

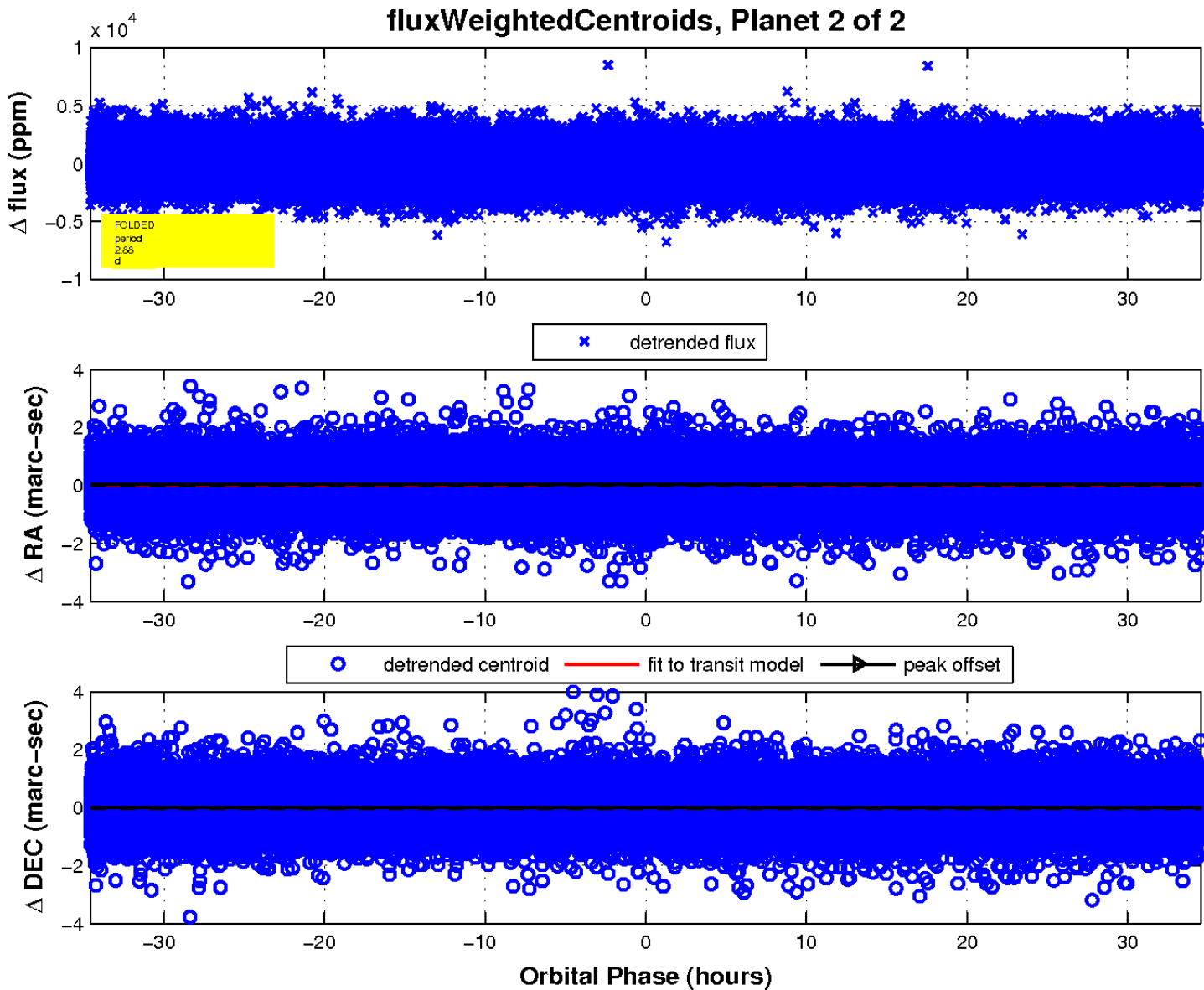
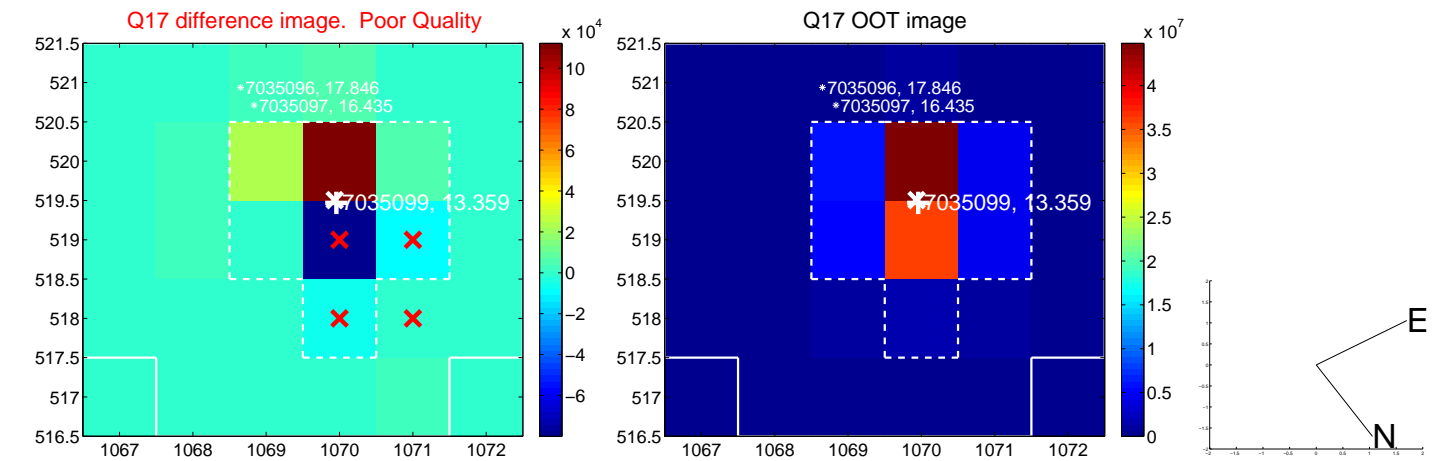


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

