

# KIC 007950994

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007950994-01	OBS	No	0.827091	132.007865	9.6	4.235	10.3	8.8	1.35	6321	0.49	9076.66
007950994-02	OBS	No	508.663205	370.625206	164.1	7.275	17.1	8.6	1.35	6321	1.94	1.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007950994-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET—HALO_GHOST
007950994-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—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.

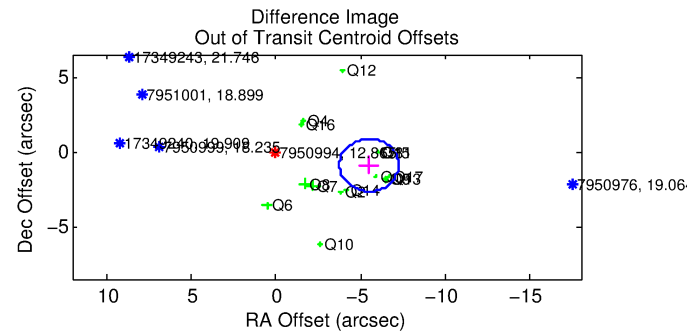
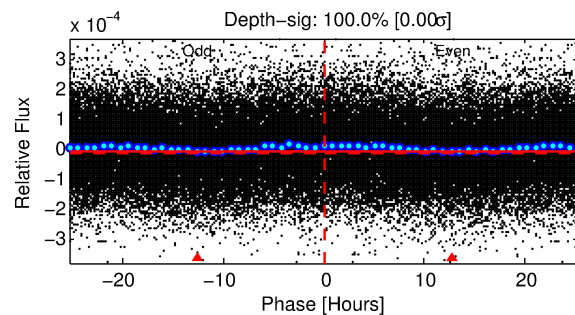
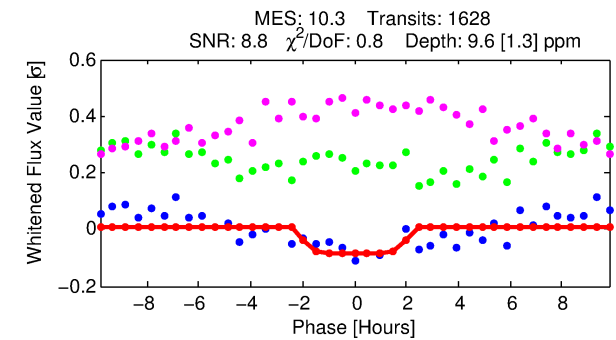
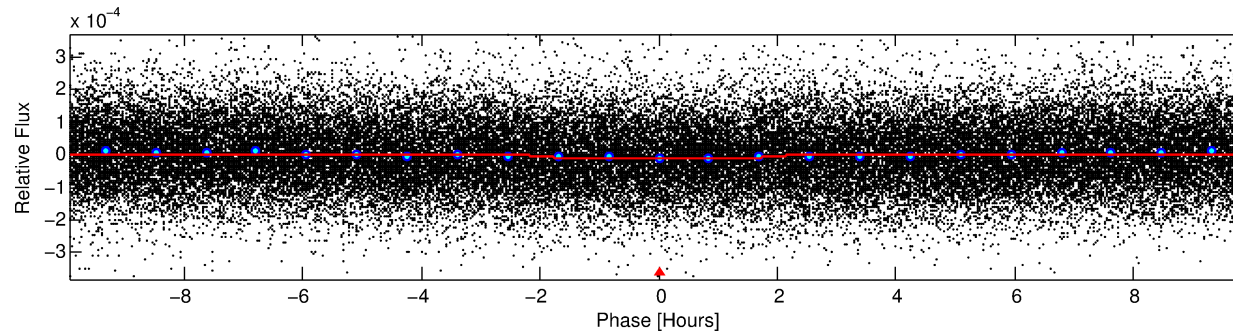
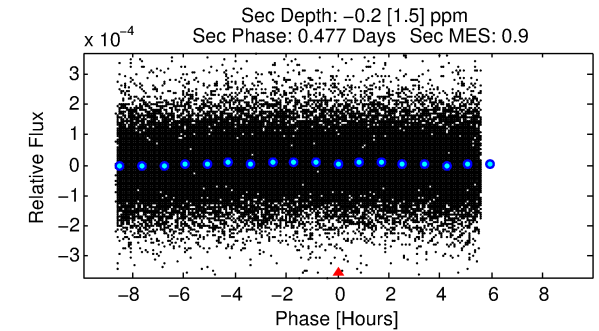
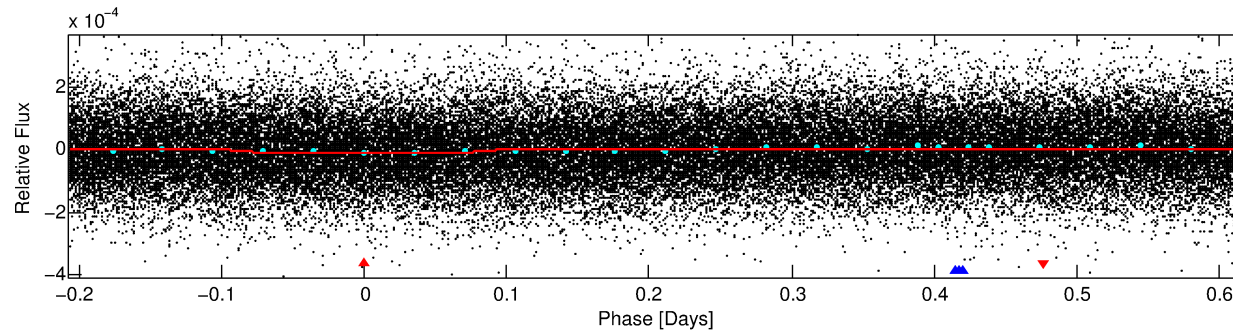
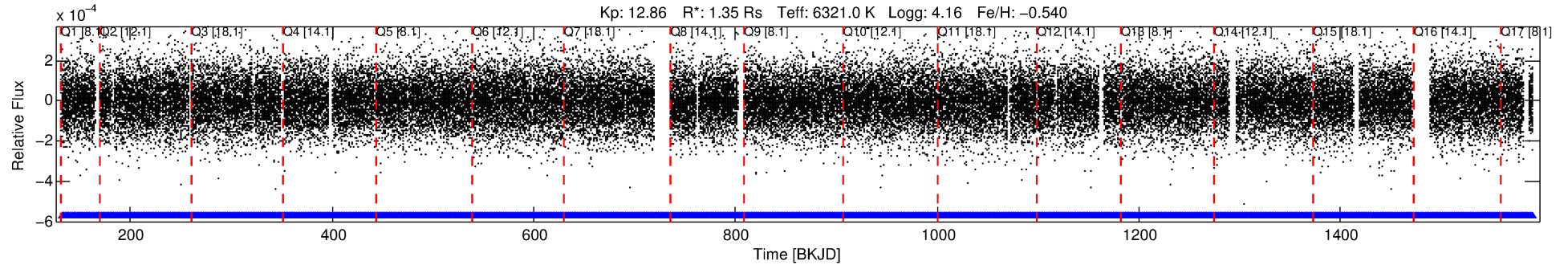
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007950994-01

No Significant Match Found

# DV One-Page Summary

KIC: 7950994 Candidate: 1 of 2 Period: 0.827 d



## DV Fit Results:

Period = 0.82709 [0.00001] d  
Epoch = 132.0079 [0.0050] BKJD  
Rp/R\* = 0.0033 [0.0012]  
a/R\* = 1.15 [0.56]  
b = 0.90 [0.43]  
Seff = 9076.66 [3746.10]  
Teq = 2489 [257] K  
Rp = 0.49 [0.21] Re  
a = 0.0170 [0.0041] AU  
Ag = N/A  
Teff = N/A

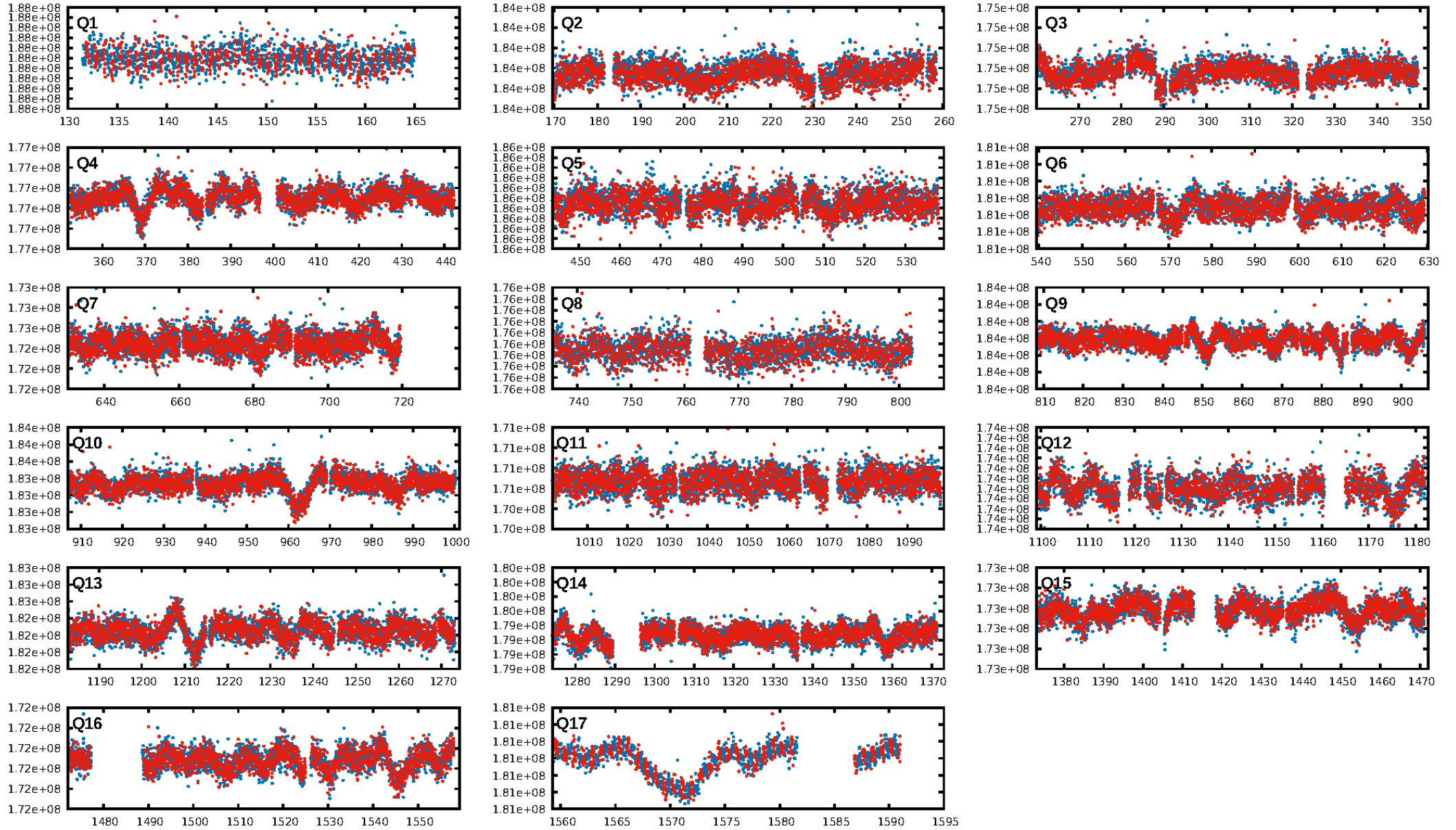
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [1447.86σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.12e-18  
RollingBand-fgt: 1.00 [1555/1555]  
**GhostDiagnostic-chr: 0.2357**  
Centroid-sig: 0.0%  
Centroid-so: 6.884 arcsec [5.83σ]  
OotOffset-rm: 5.563 arcsec [9.55σ]  
KicOffset-rm: 5.671 arcsec [11.09σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.00 [0/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 07:09:53 Z

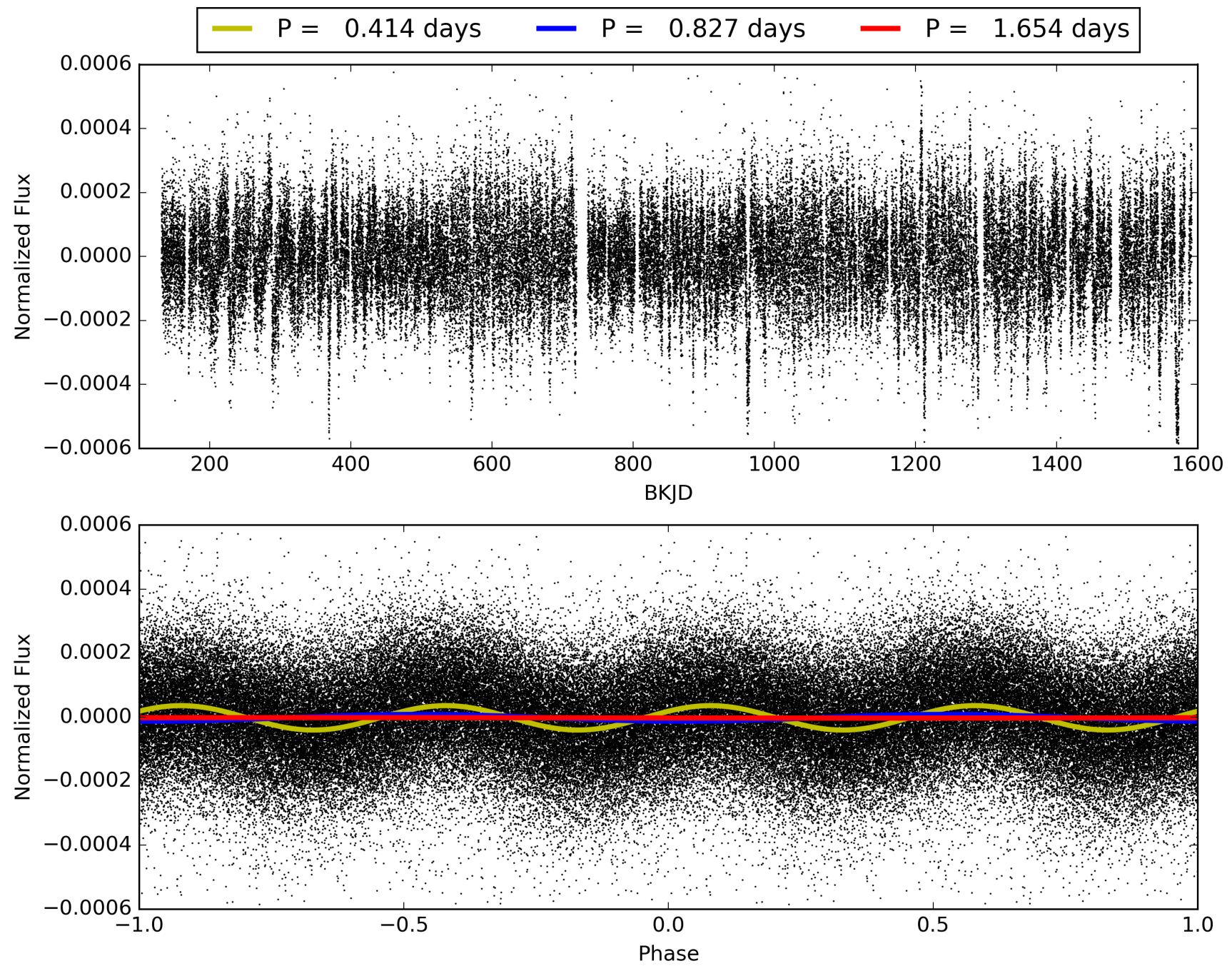
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007950994-01, PDC Light Curves



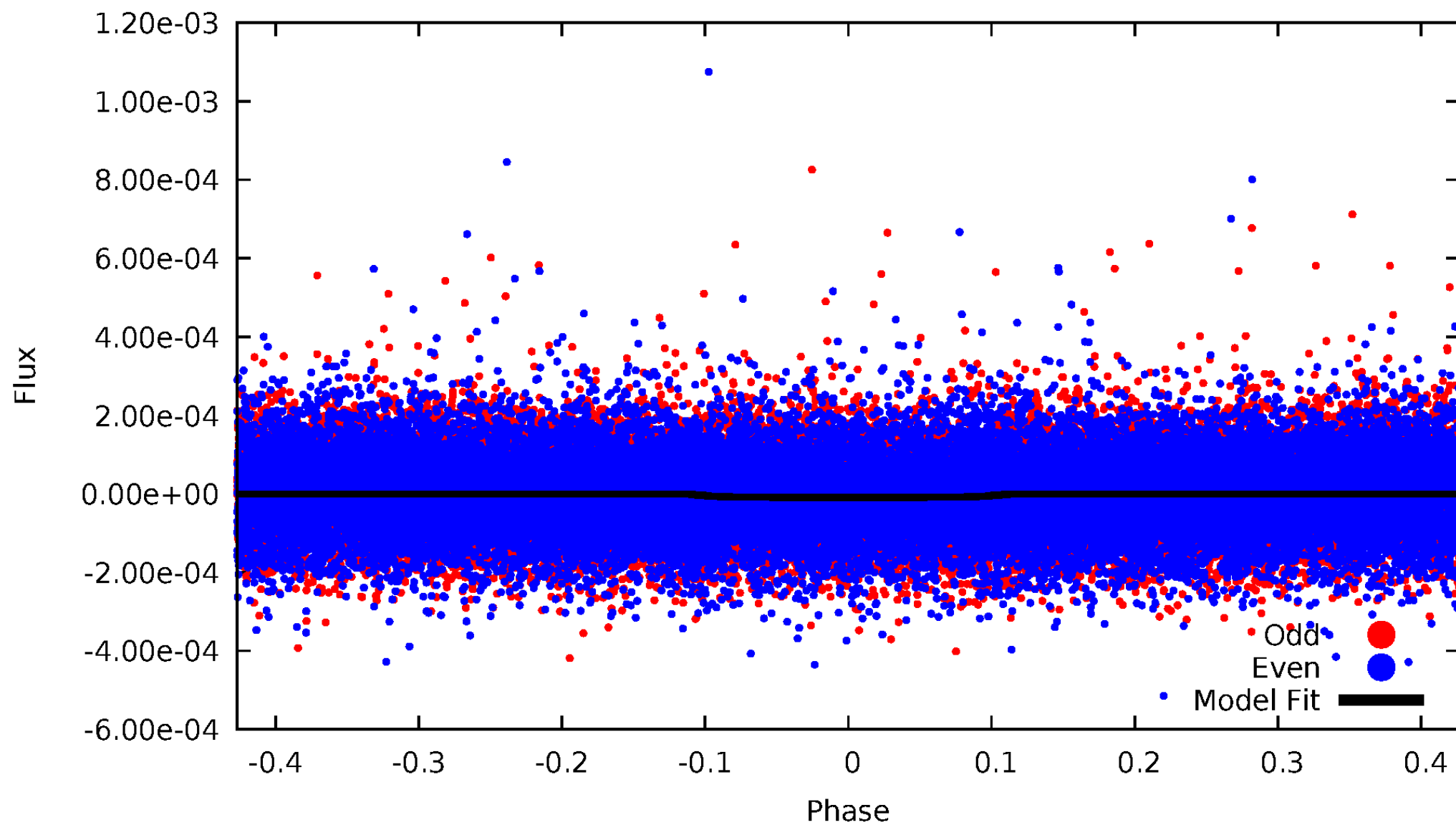


TCE 007950994-01



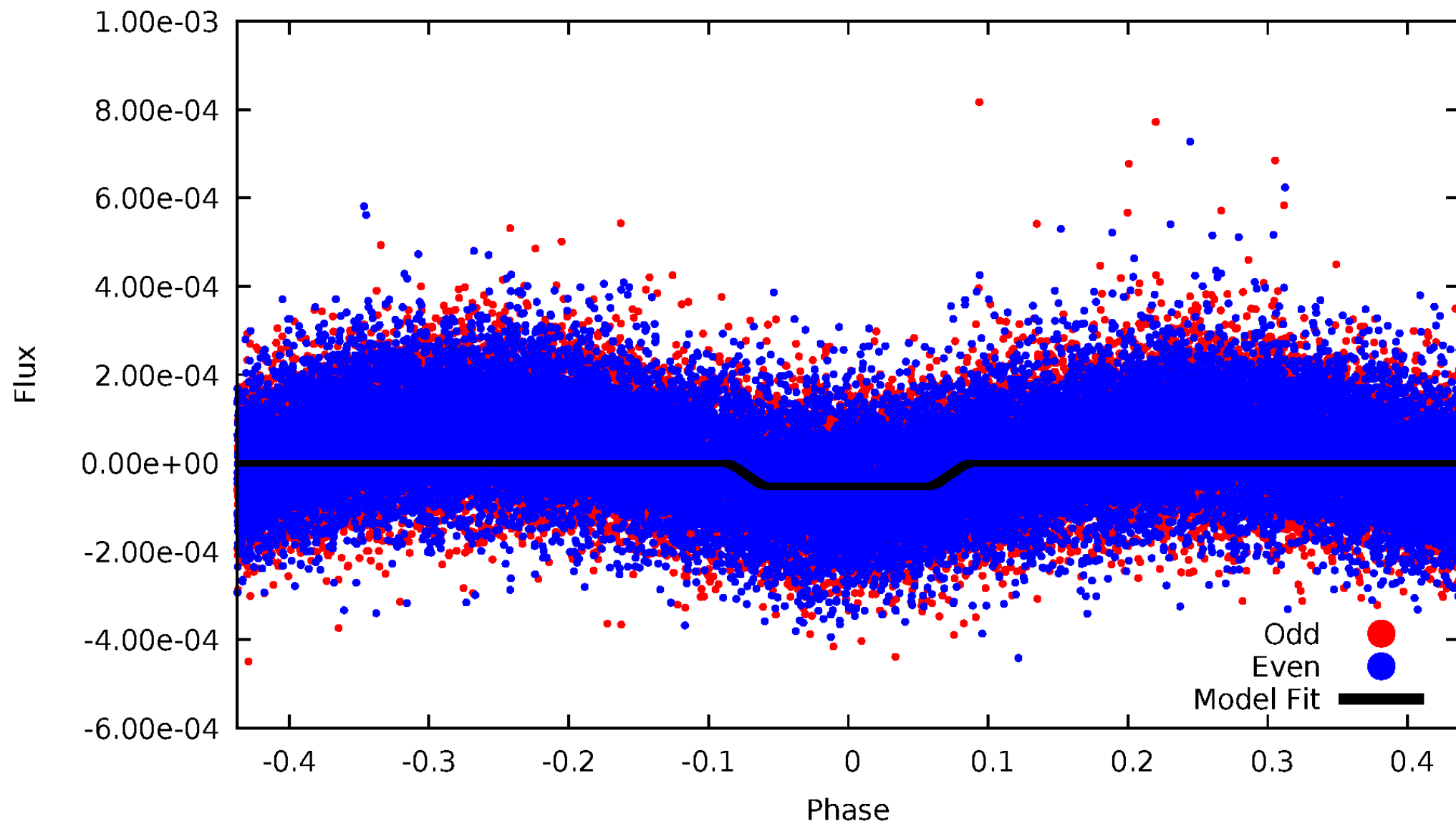
# DV Odd/Even

TCE 007950994-01



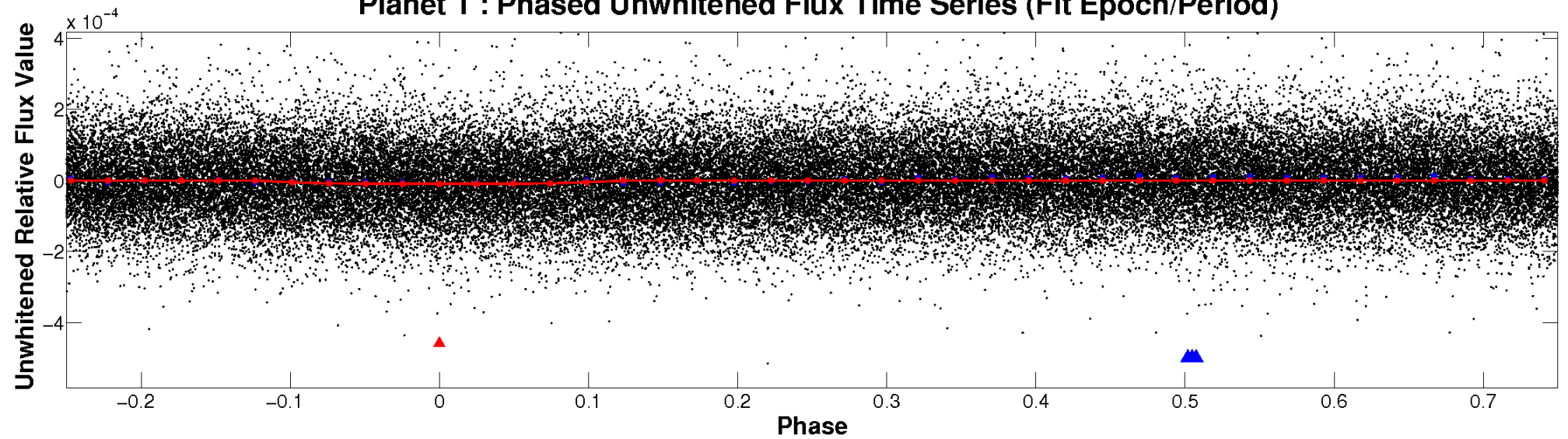
# ALT Odd/Even

TCE 007950994-01

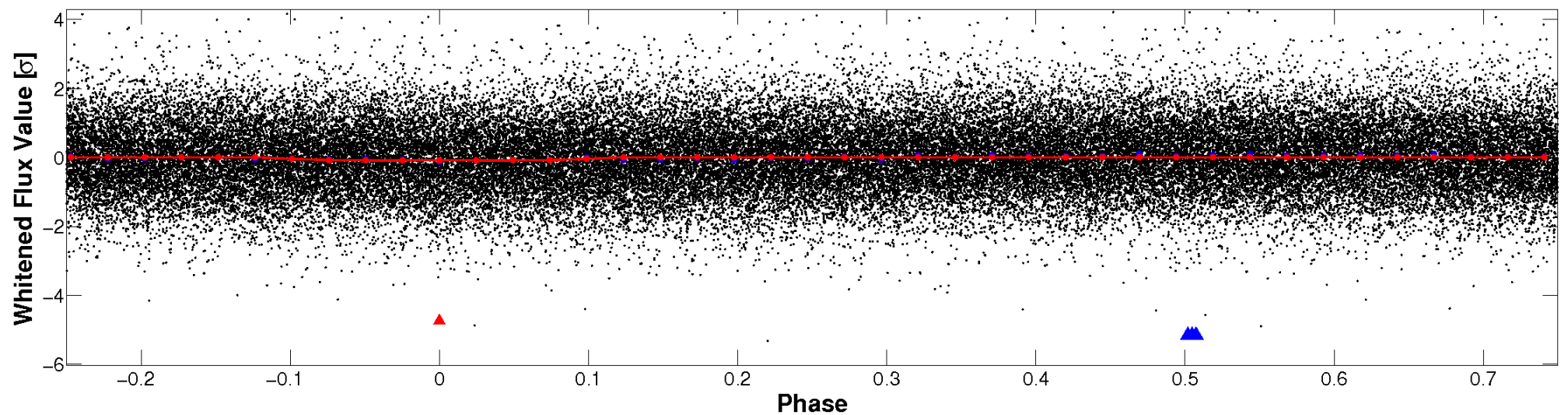


# Non-Whitened Vs. Whitened Light Curve

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



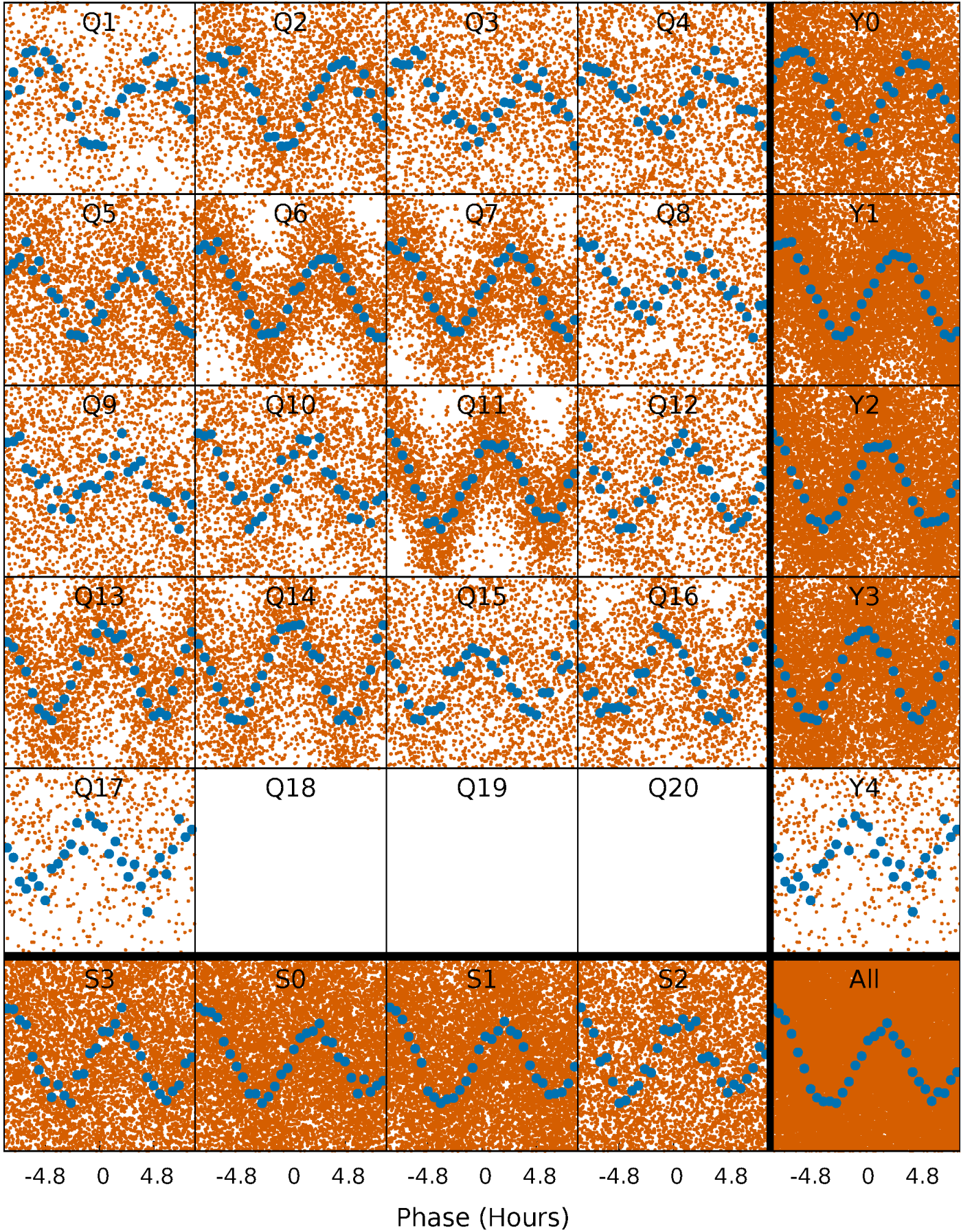
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

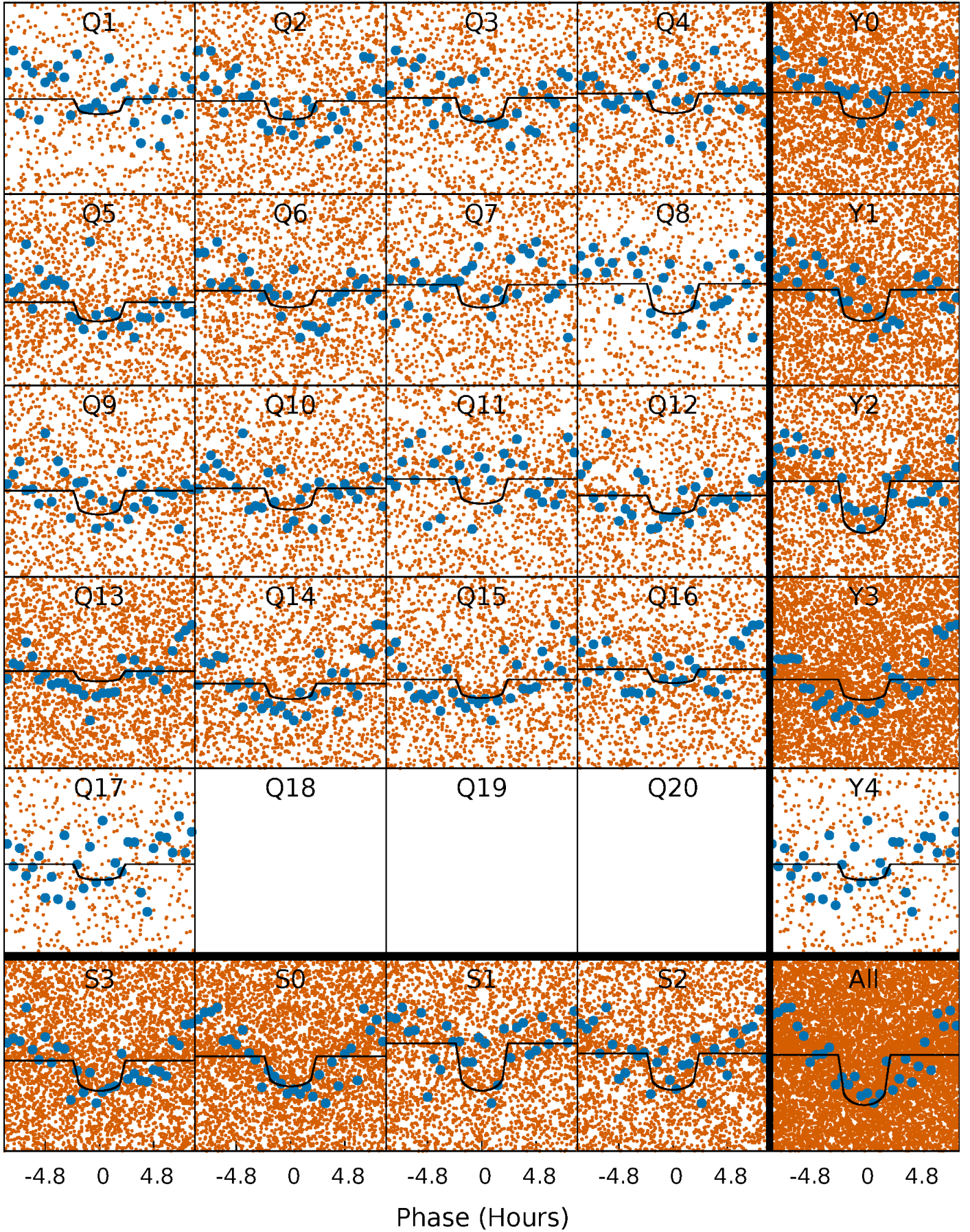
TCE 007950994-01   P= 0.827091 Days    $T_0=132.007865$  (BKJD)





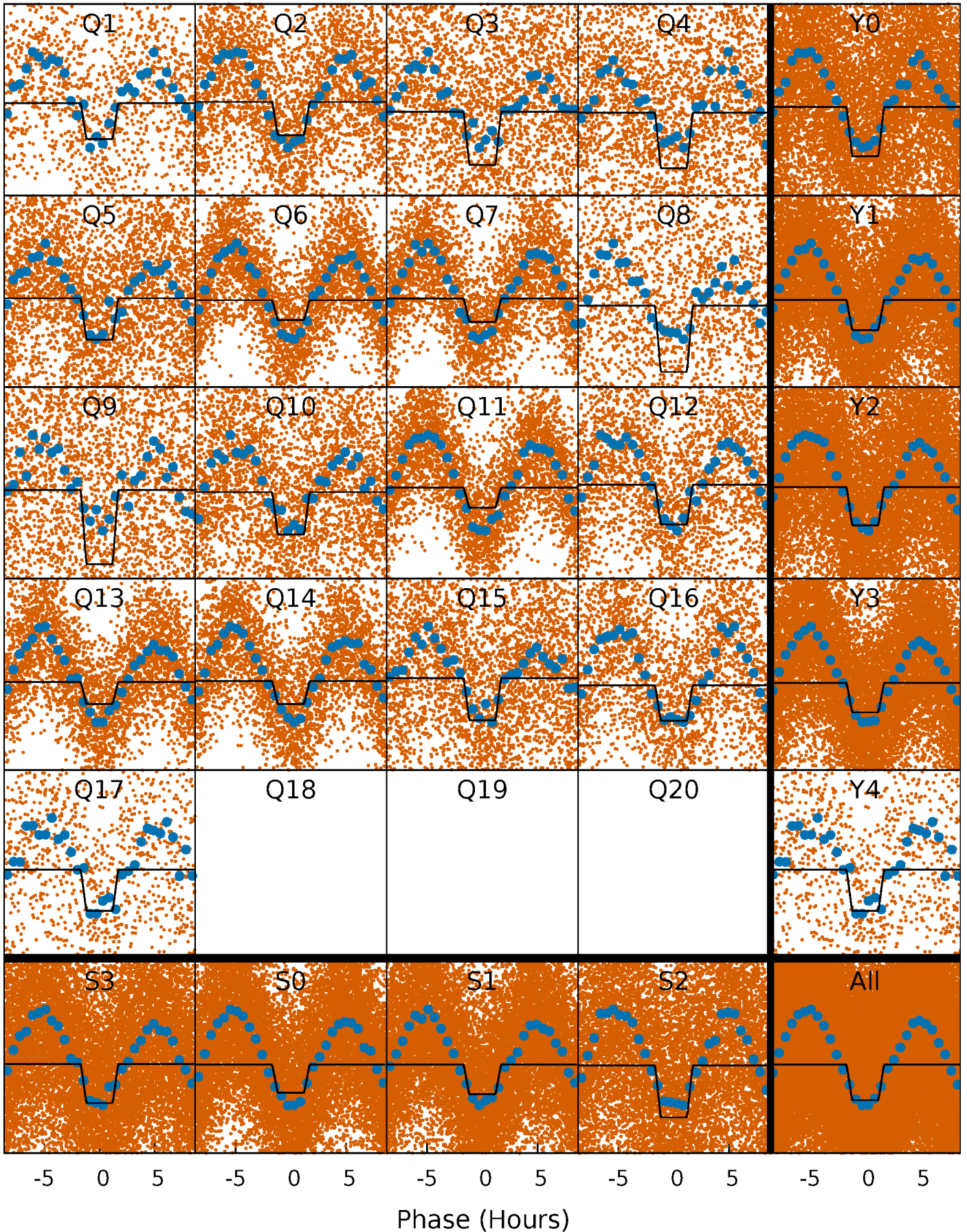
# DV Quarter-Phased Transit Curves

TCE 007950994-01   P= 0.827091 Days    $T_0=132.007865$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007950994-01 P= 0.826953 Days  $T_0=132.001163$  (BKJD)

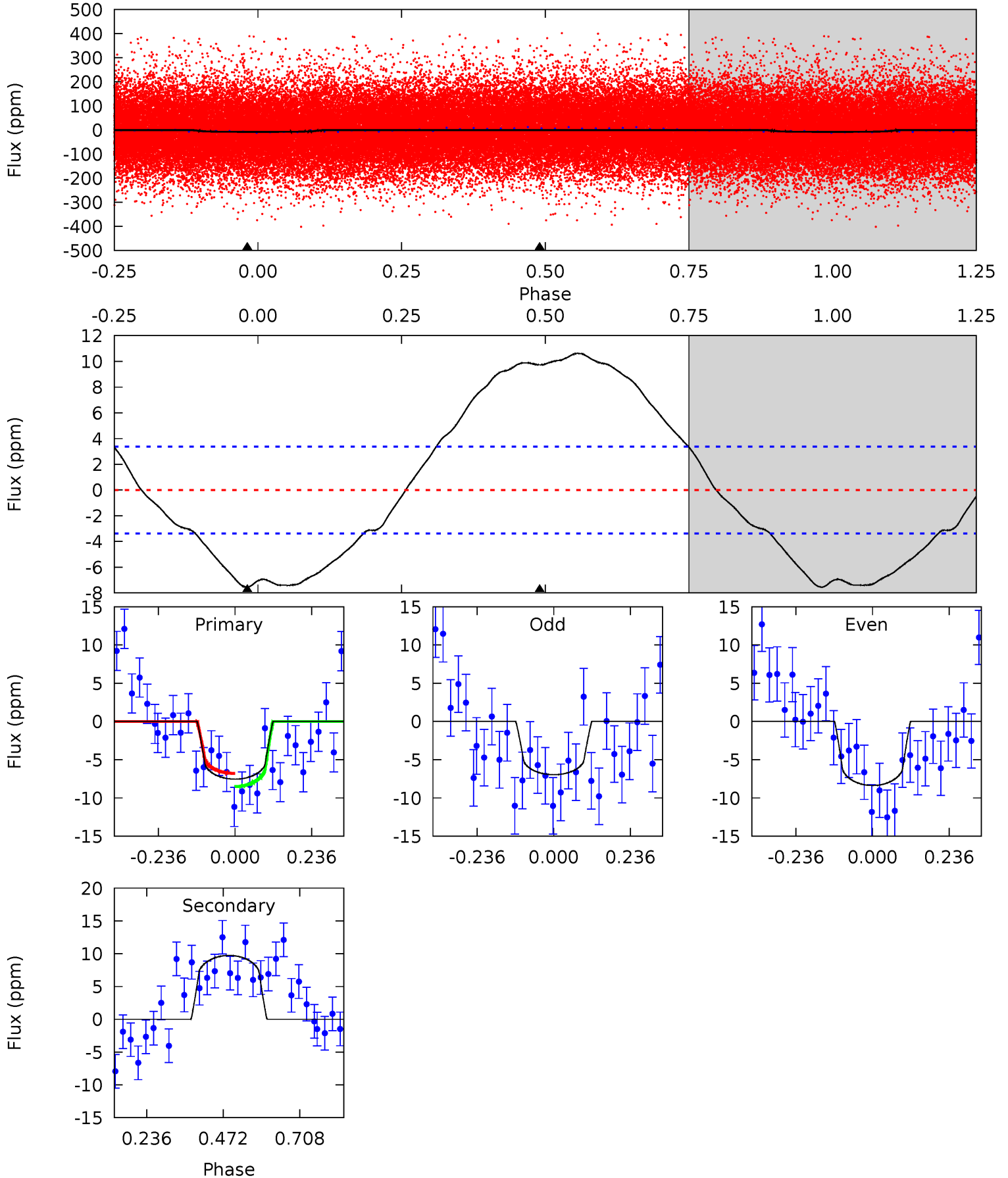




# DV Model-Shift Uniqueness Test

007950994-01, P = 0.827091 Days, E = 131.180774 Days

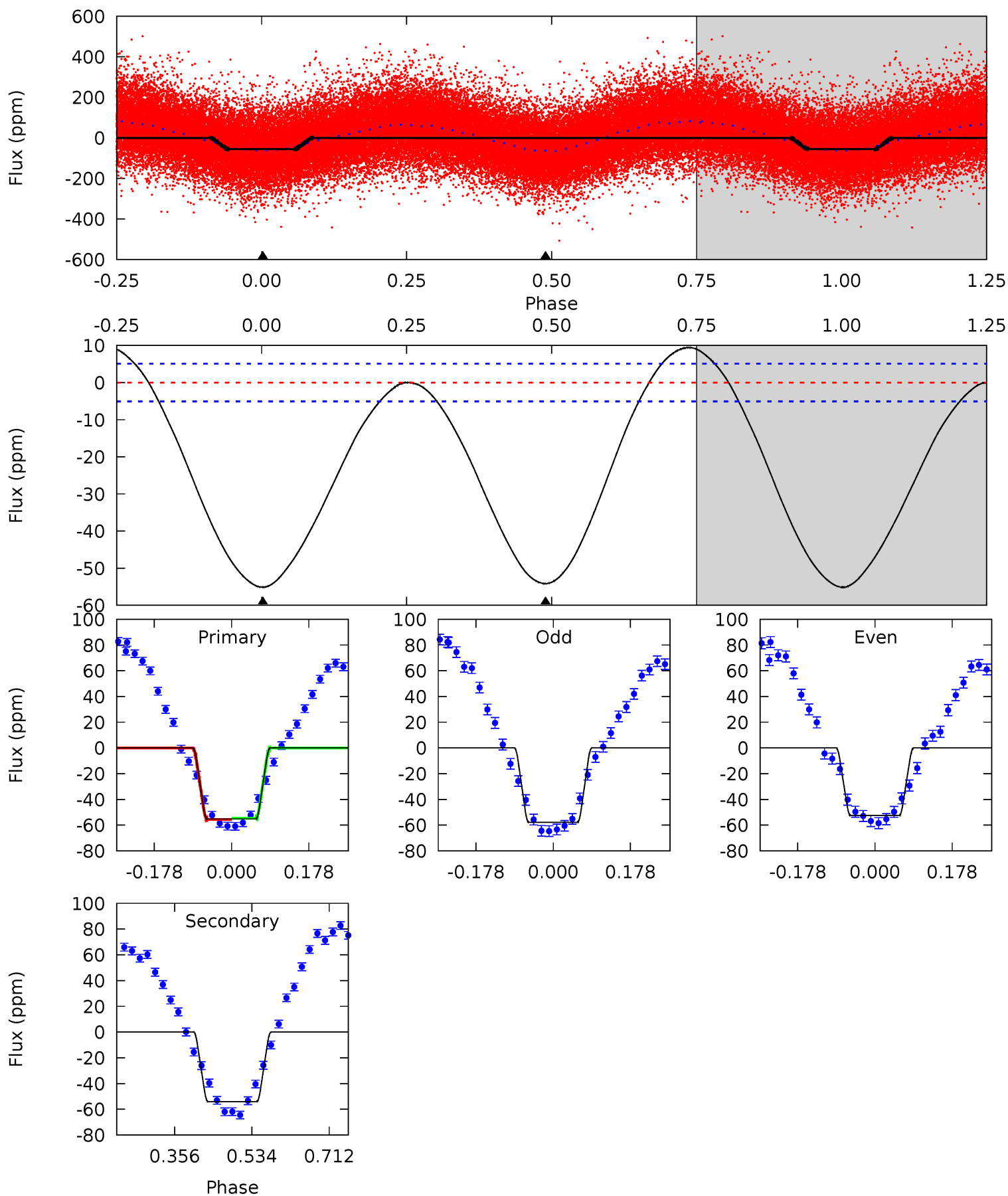
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.80	-12.6	0	0	4.38	1.19	3.67	9.80	9.80	-12.6	-12.6	0.91	1.10	0.58	1.10



# Alt Model-Shift Uniqueness Test

007950994-01, P = 0.826953 Days, E = 131.174210 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
48.1	47.2	0	0	4.44	1.35	4.65	48.1	48.1	47.2	47.2	2.32	1.02	0.15	0.40





### Stellar Parameters For KIC 007950994

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$6321^{+170}_{-189}$	$4.156^{+0.234}_{-0.126}$	$-0.540^{+0.300}_{-0.300}$	$1.355^{+0.273}_{-0.334}$	$0.958^{+0.144}_{-0.105}$	$0.542^{+0.661}_{-0.188}$
	+3%/-3%	+6%/-3%	+56%/-56%	+20%/-25%	+15%/-11%	+122%/-35%
Source	PHO1	FLK73	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 007950994-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$10 \pm 1$	$0.47^{+0.19}_{-0.18}$	$3438^{+220}_{-240}$	$-6275^{+880}_{-1894}$	$-7.283^{+3.700}_{-11.916}$
Alt.	$-54 \pm 1$	$1.06^{+0.22}_{-0.21}$	$3453^{+222}_{-240}$	$6311^{+558}_{-498}$	$7.892^{+3.989}_{-2.528}$

$T_{\text{max}}$  = 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

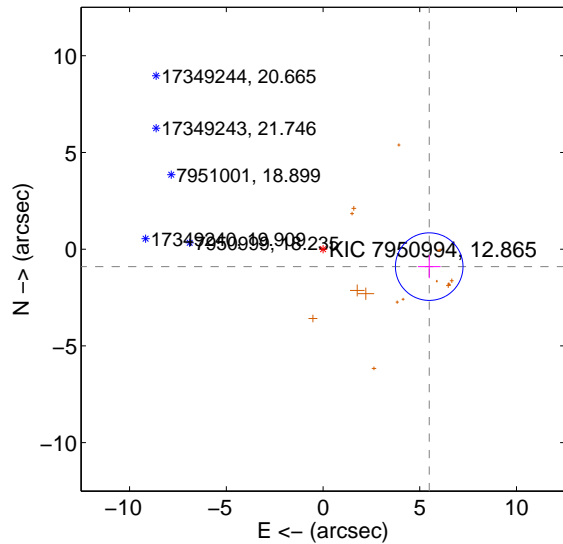
Supplemental centroid analysis for 007950994-01. Kepler magnitude: 12.87. Transit SNR 8.78

There are 0 quarters with good PRF difference image offsets

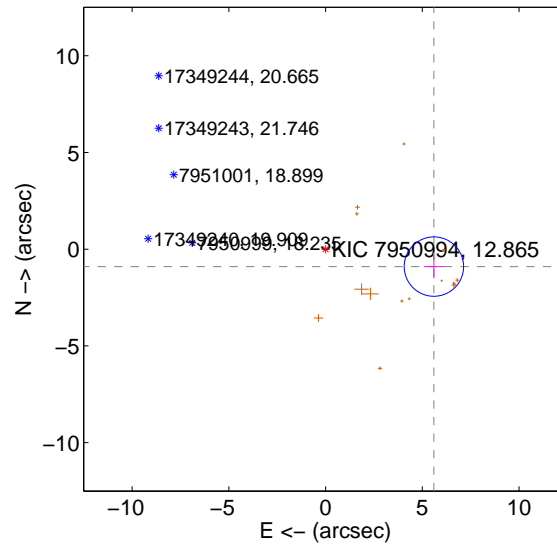
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.563 \pm 0.582$	9.55	$-5.489 \pm 0.587$	$-0.902 \pm 0.597$
PRF-fit source offset from KIC position	$5.671 \pm 0.512$	11.09	$-5.599 \pm 0.520$	$-0.900 \pm 0.610$
photometric centroid source offset	$6.88 \pm 1.18$	5.83	$-6.09 \pm 1.14$	$-3.21 \pm 1.31$

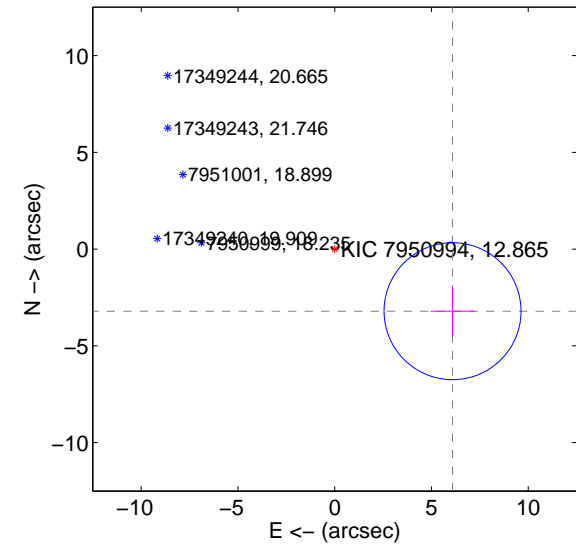
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

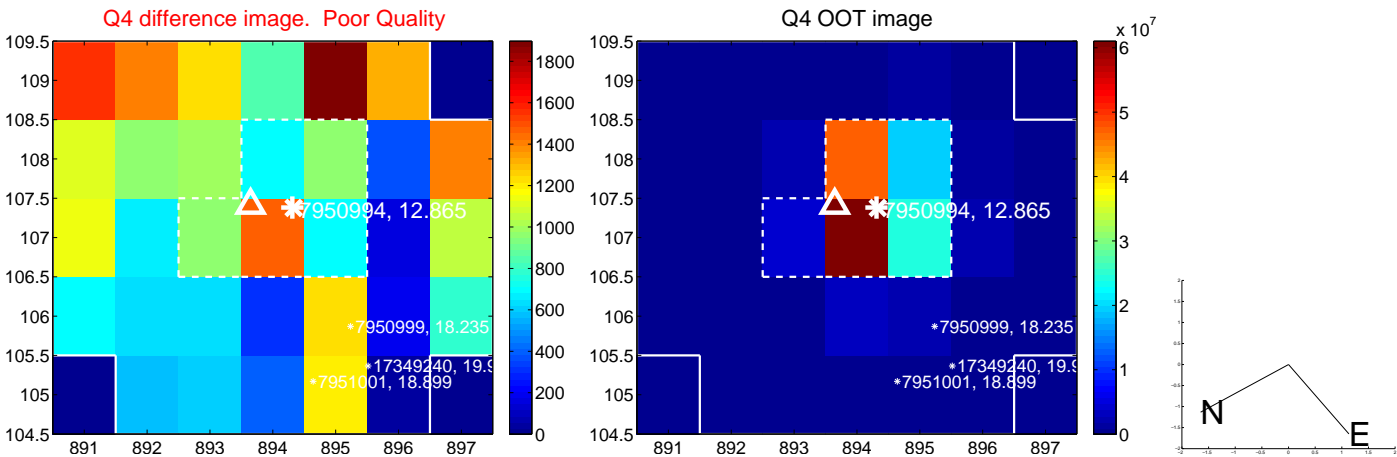
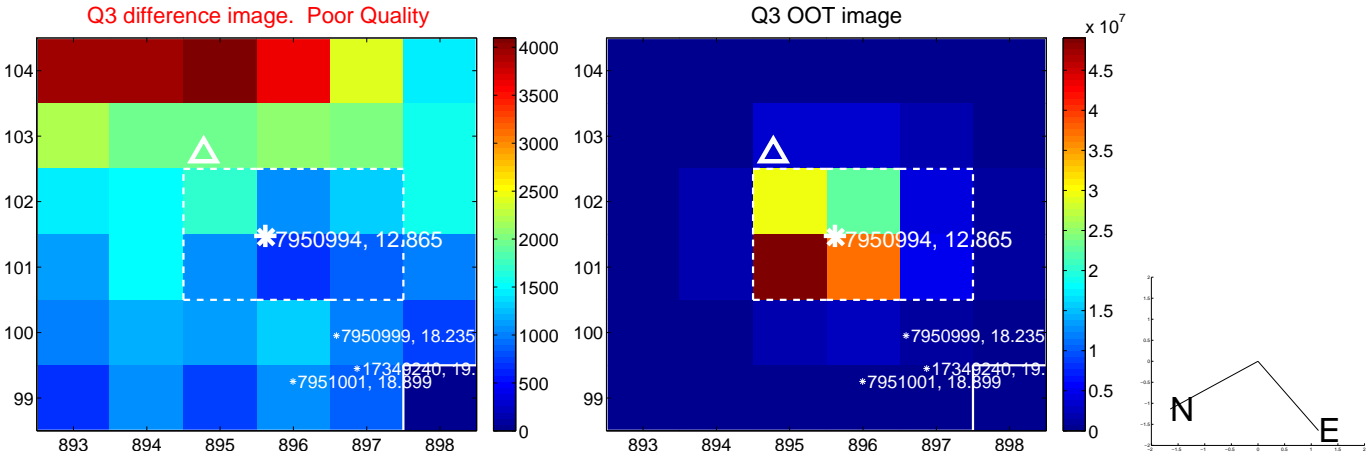
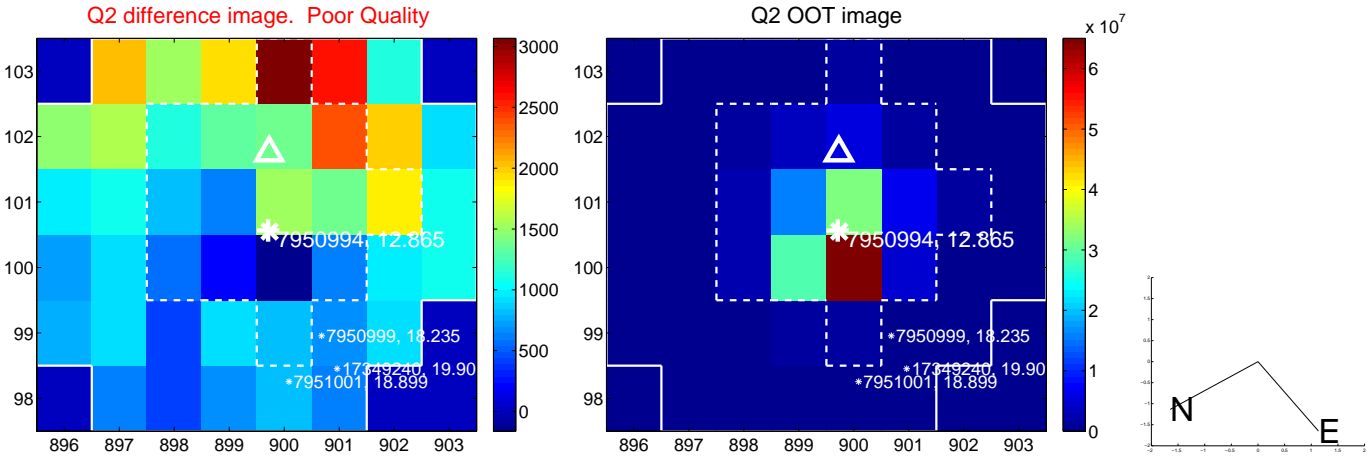
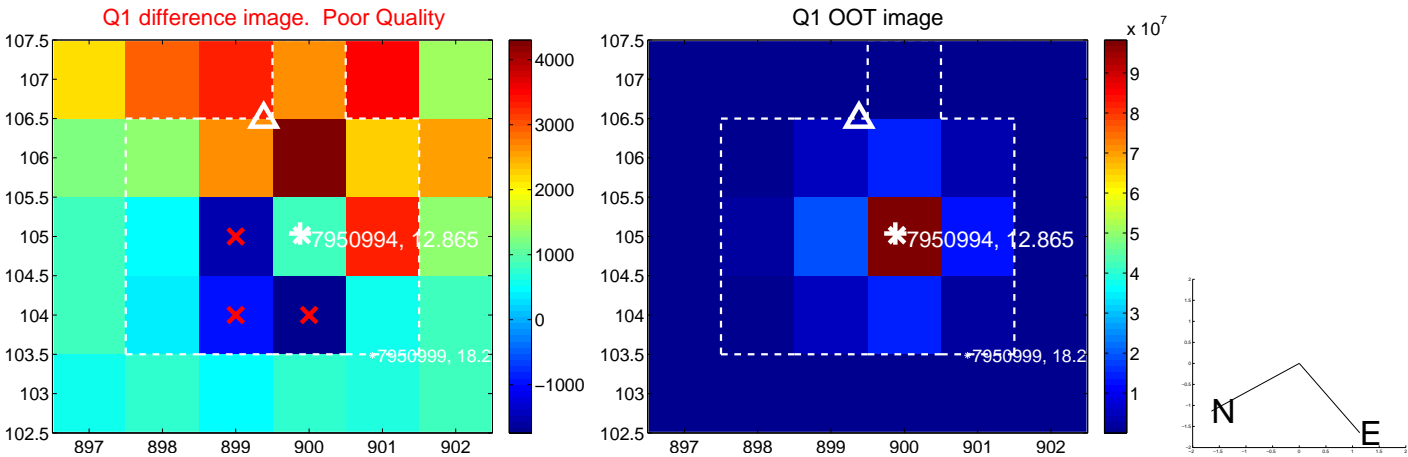


offset from photometric centroids

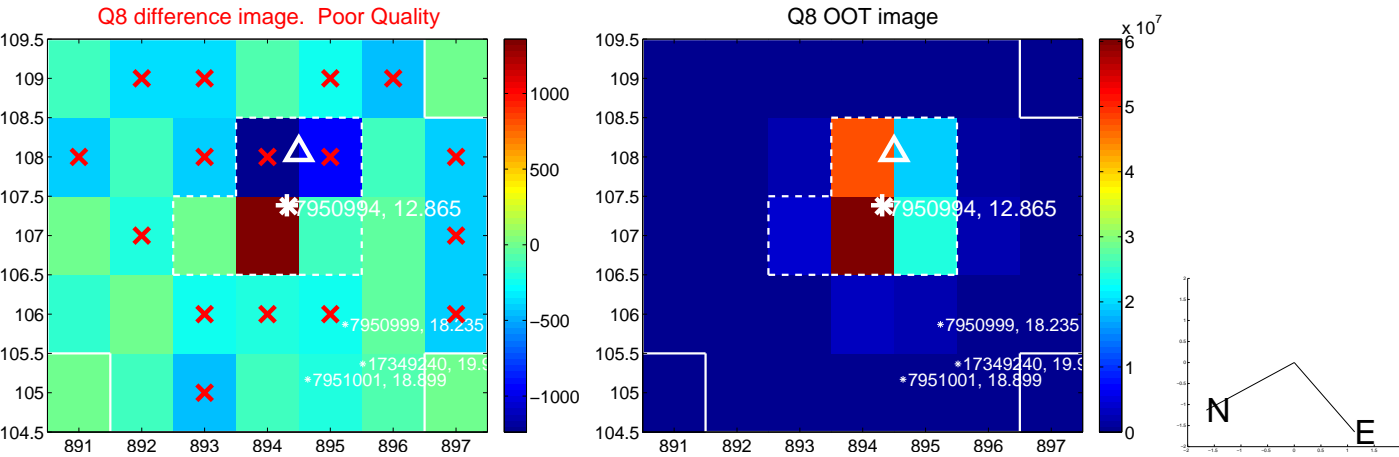
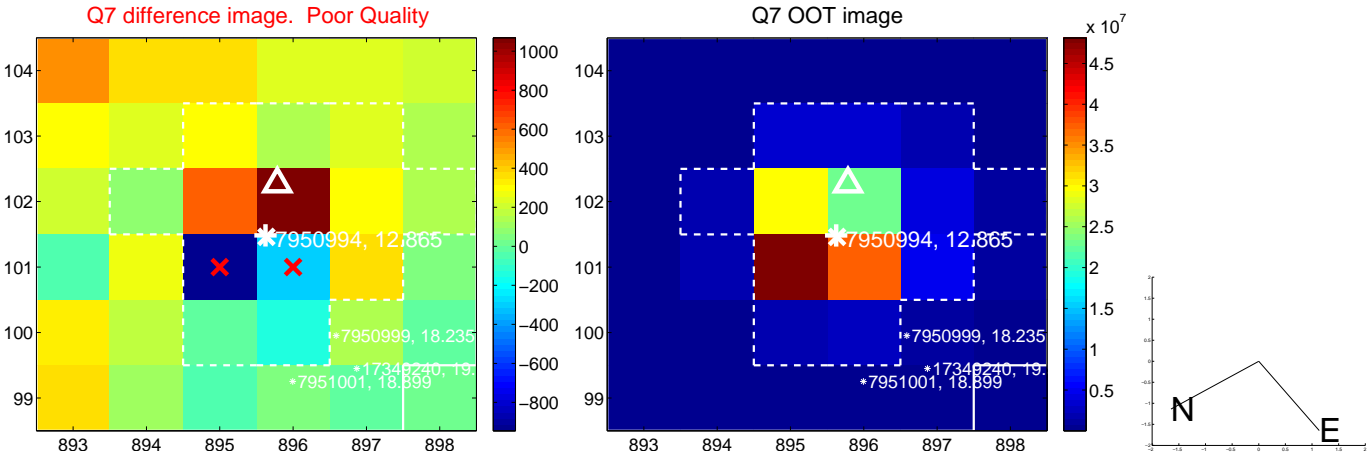
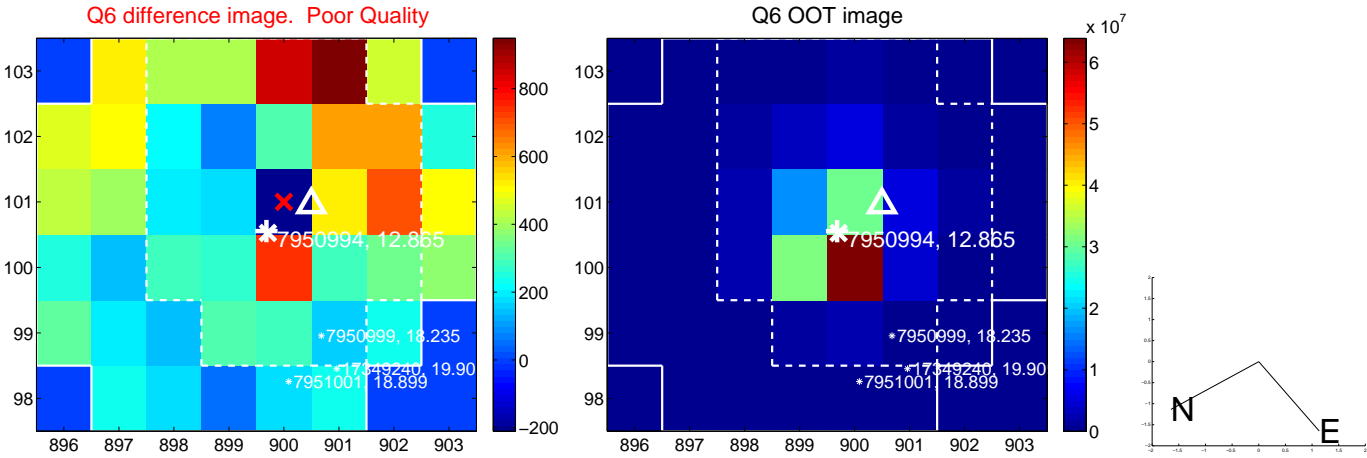
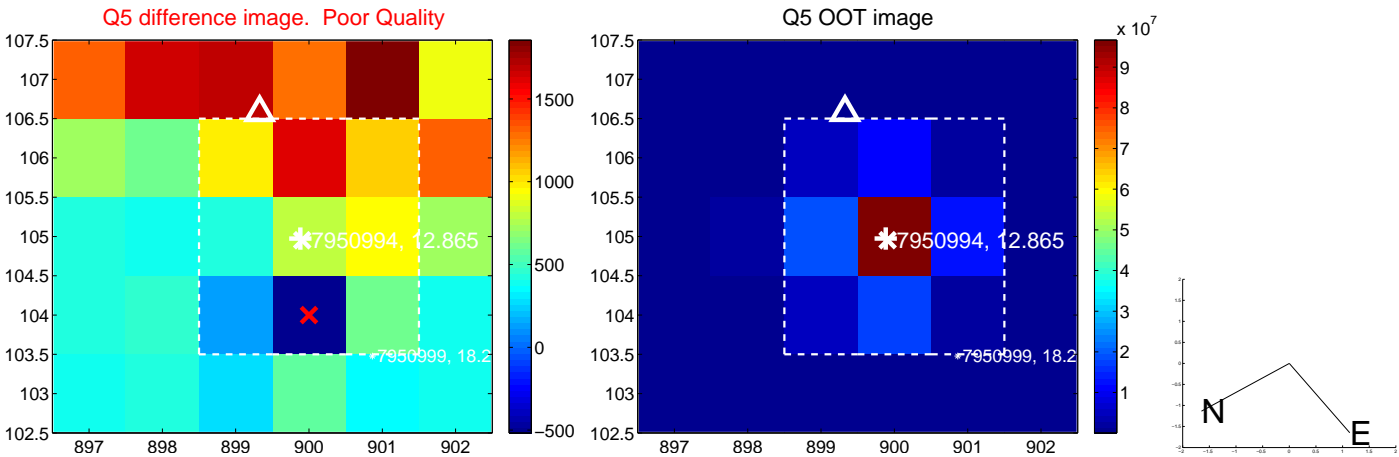


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



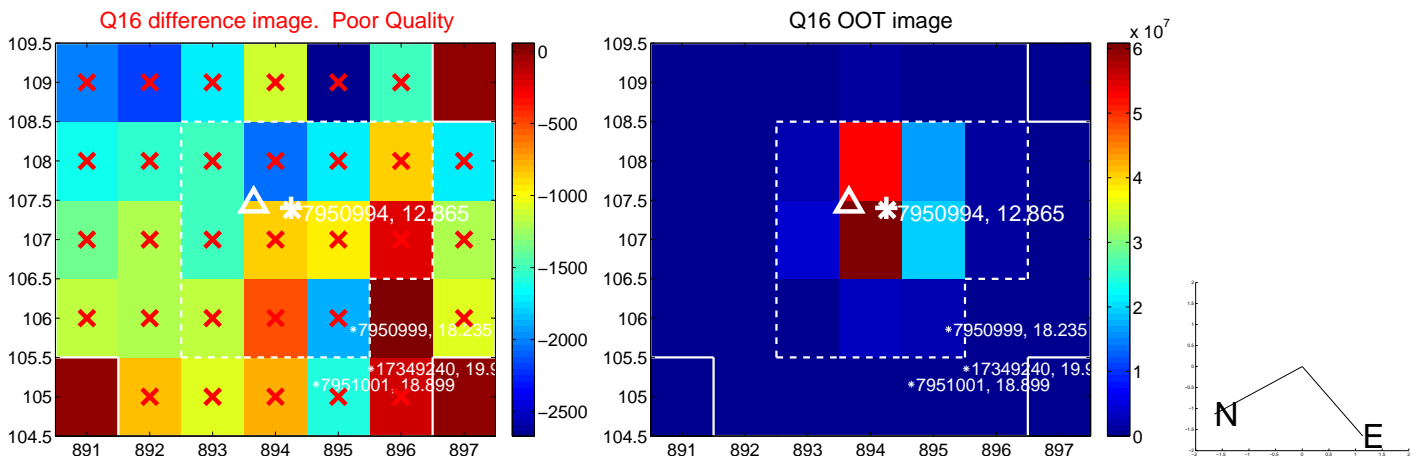
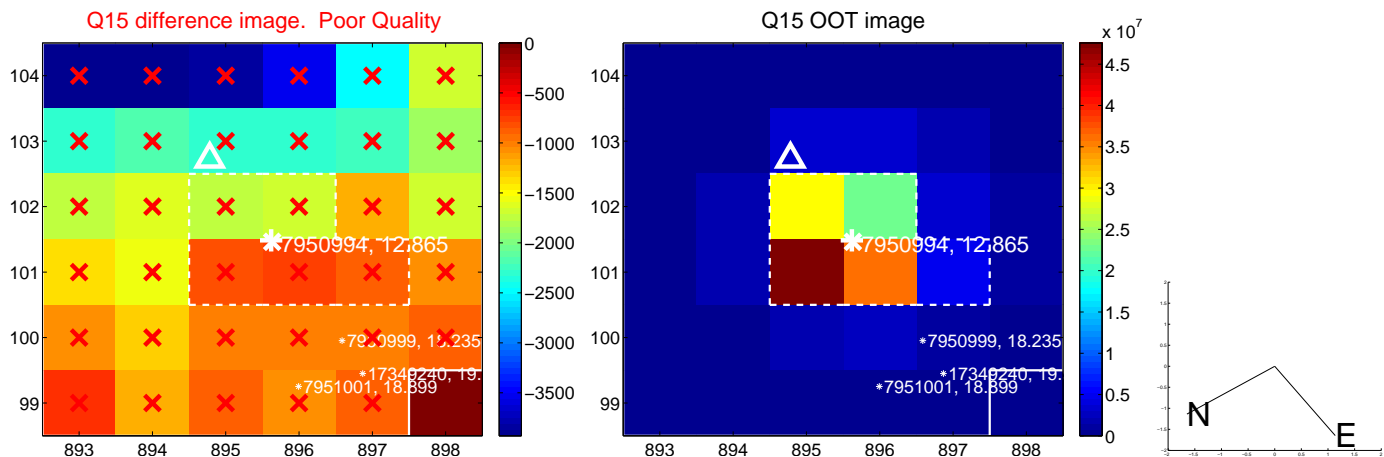
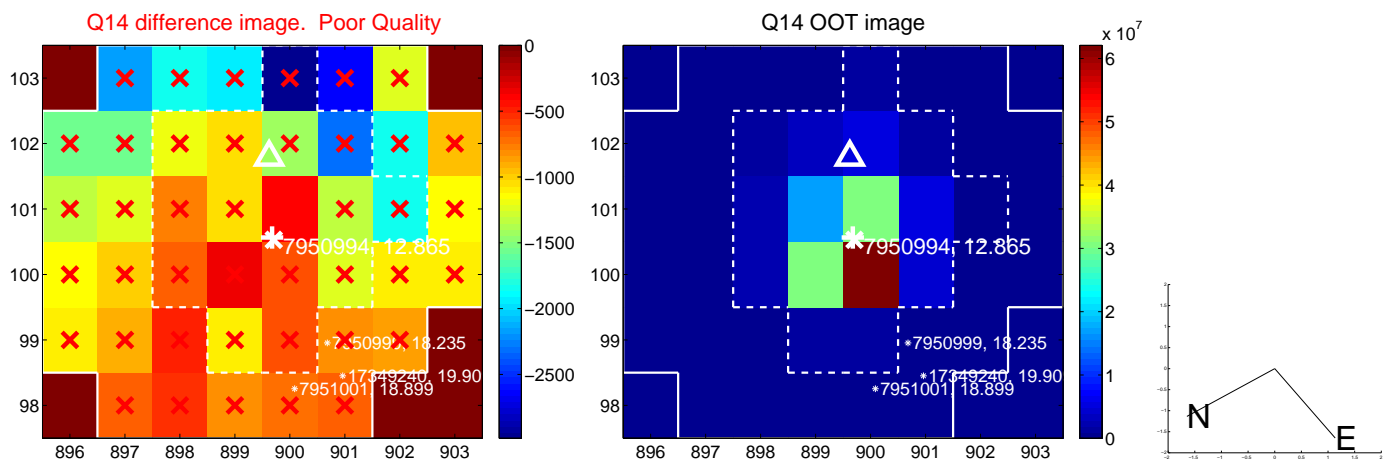
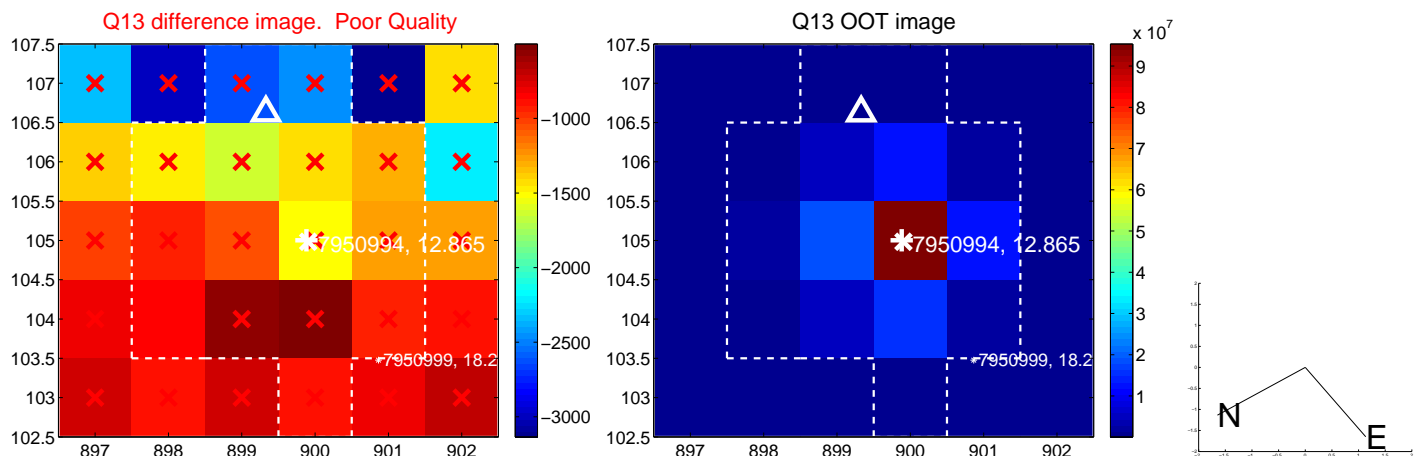
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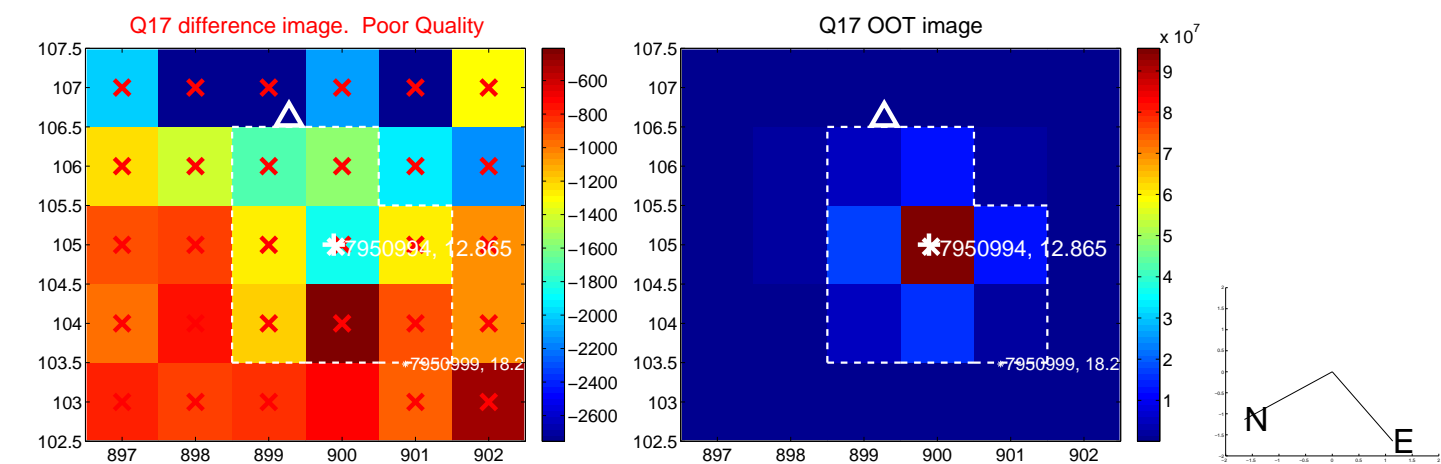




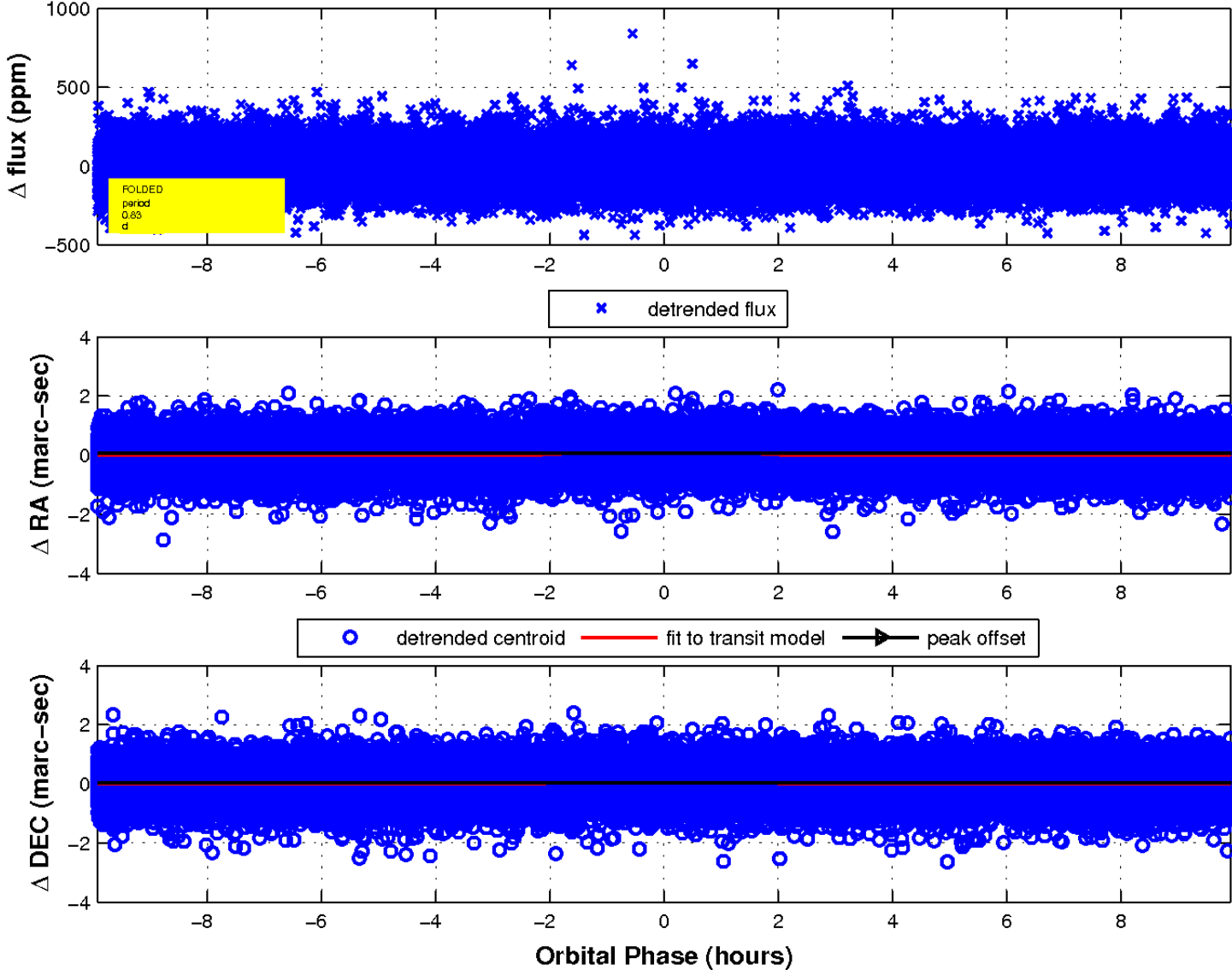
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

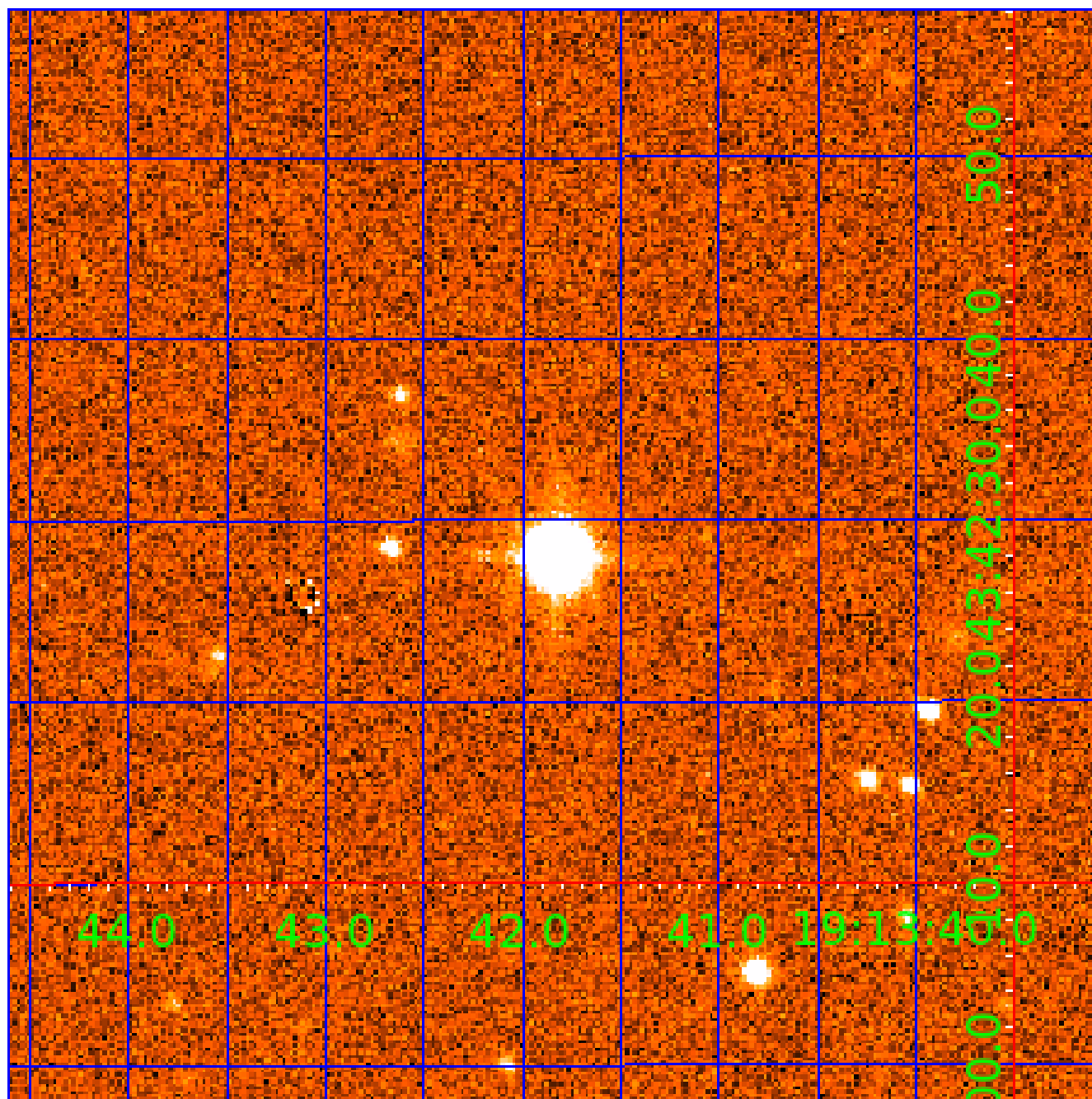


fluxWeightedCentroids, Planet 1 of 2



# UKIRT Image

Declination





# KIC 007950994

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007950994-01	OBS	No	0.827091	132.007865	9.6	4.235	10.3	8.8	1.35	6321	0.49	9076.66
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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007950994-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

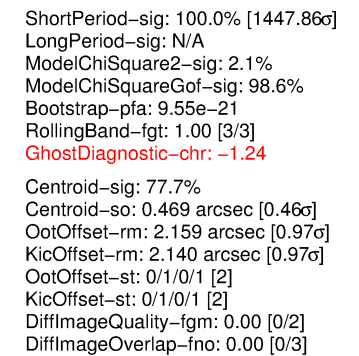
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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 007950994-02

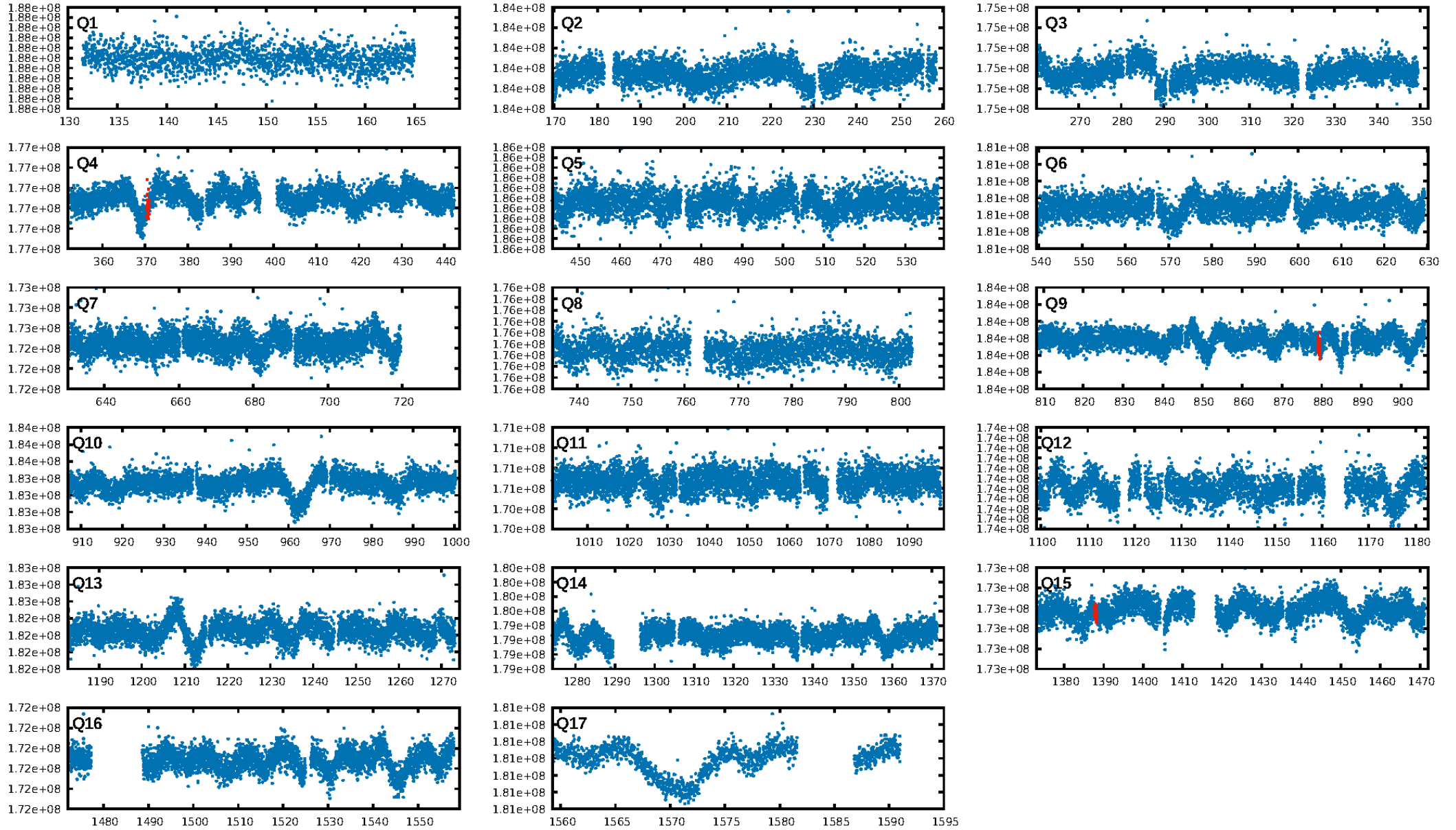
No Significant Match Found

## KIC: 7950994    Candidate: 2 of 2    Period: 508.663 d

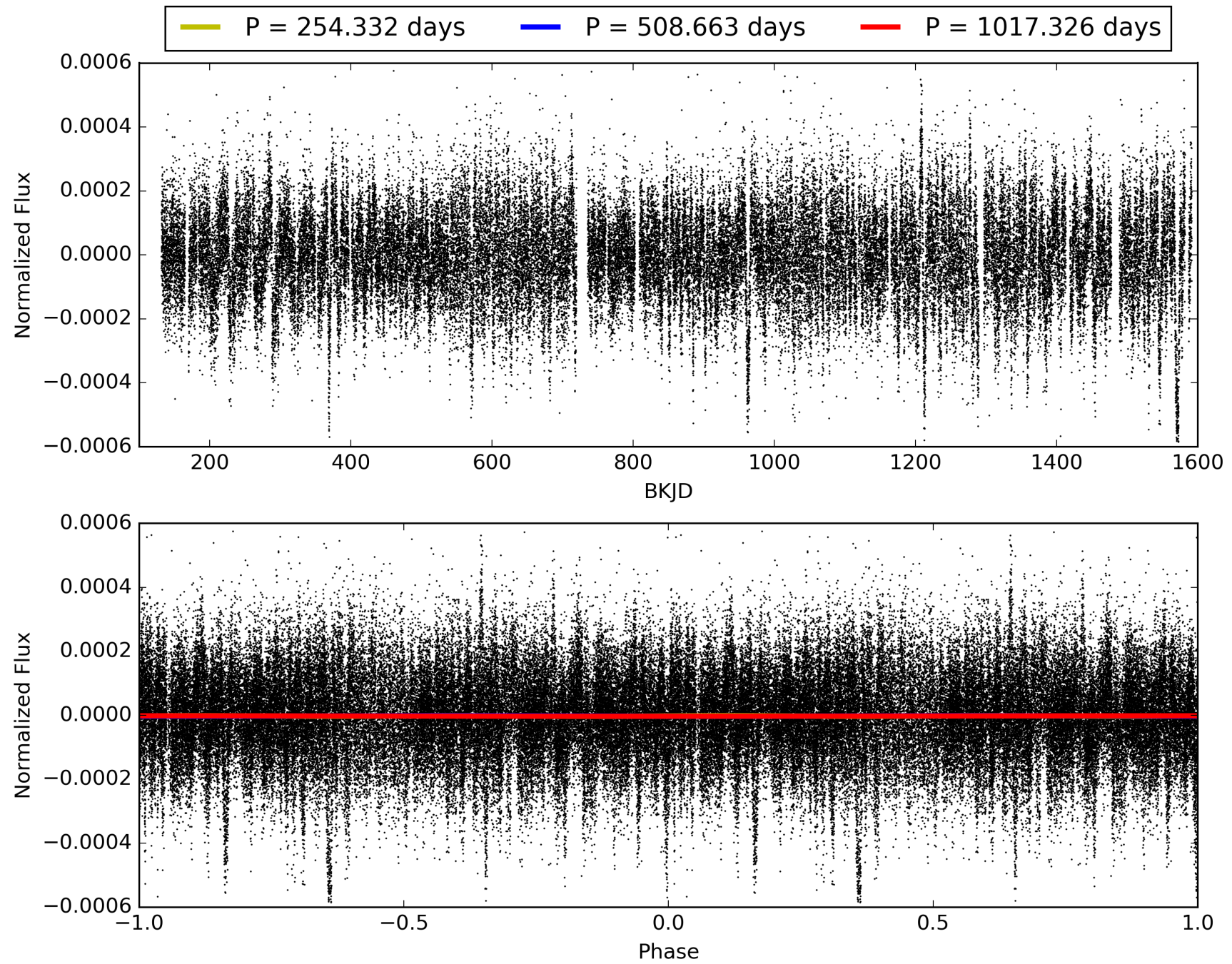


**This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center**

# TCE 007950994-02, PDC Light Curves



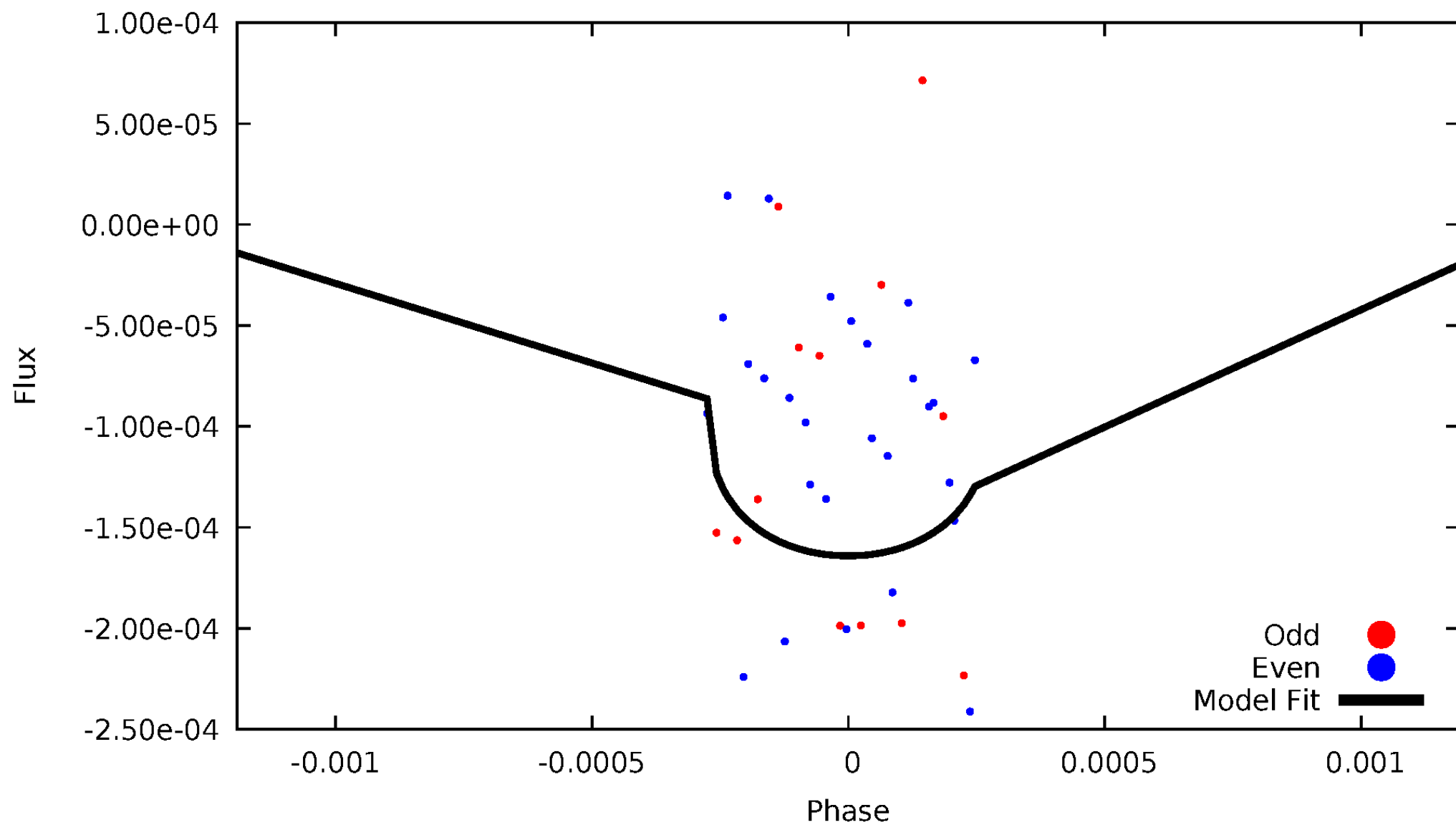
TCE 007950994-02





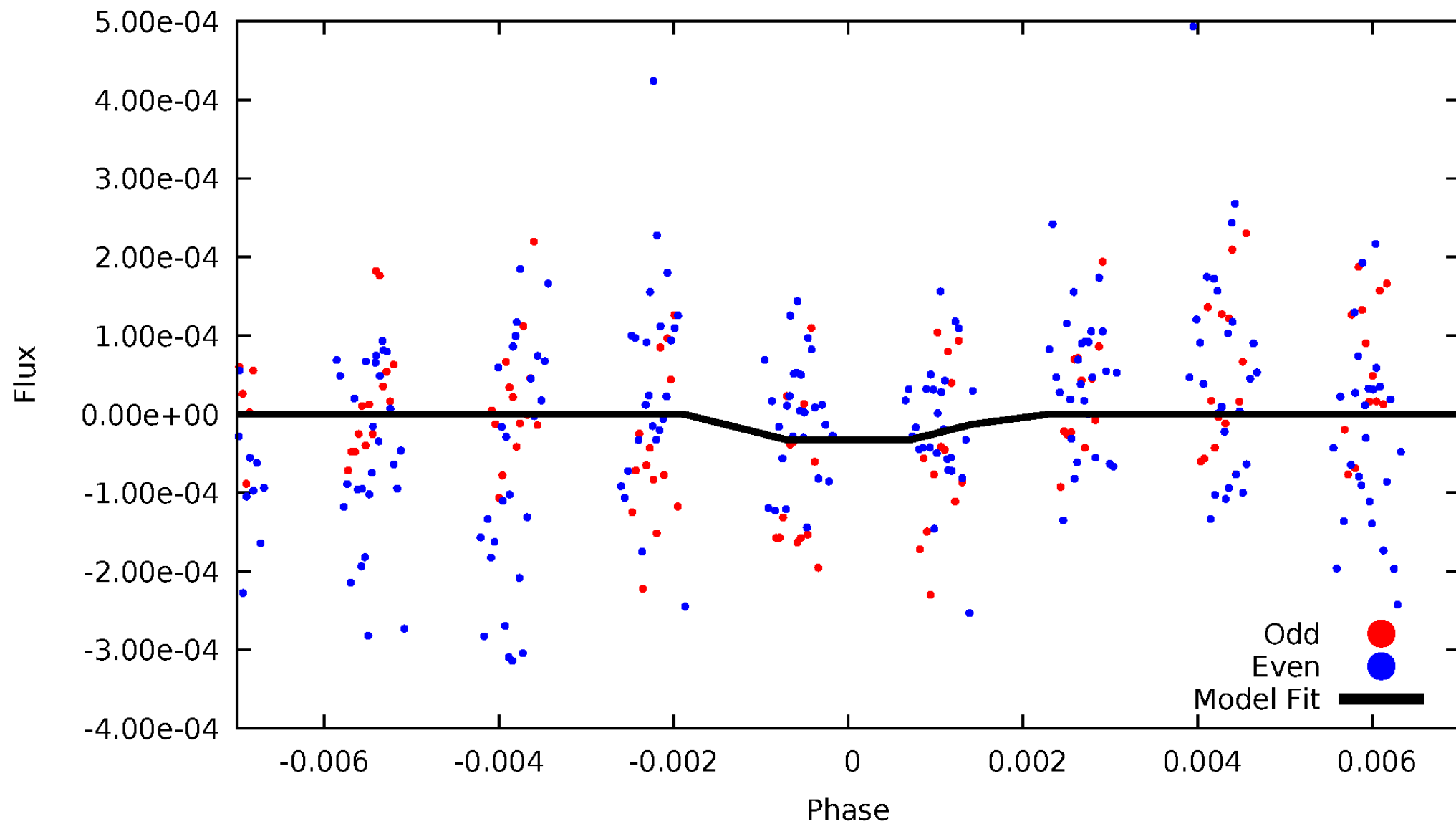
# DV Odd/Even

TCE 007950994-02



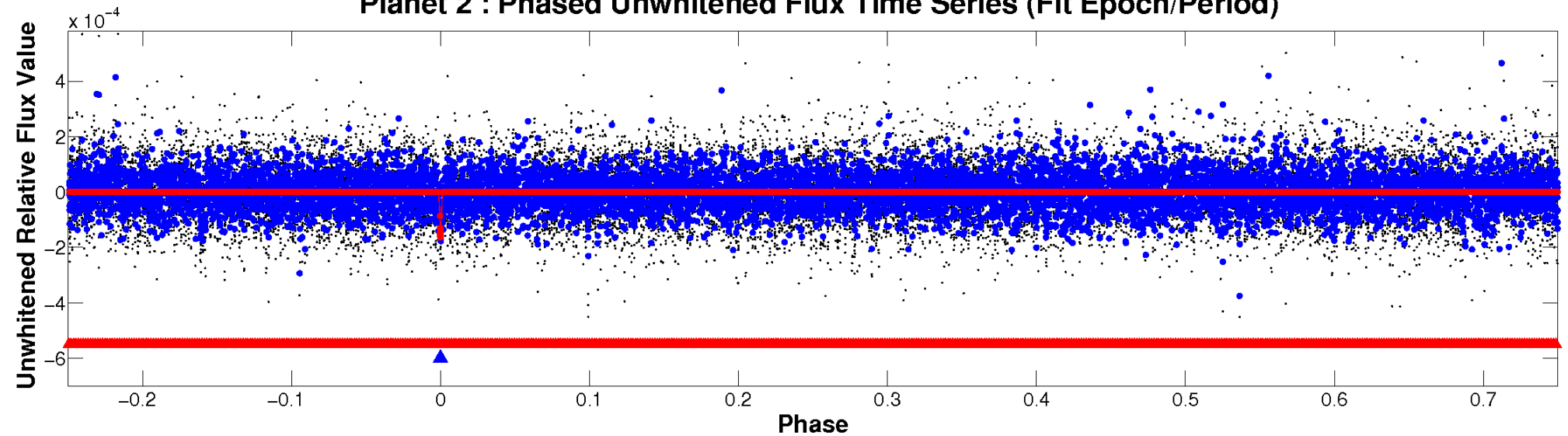
# ALT Odd/Even

TCE 007950994-02

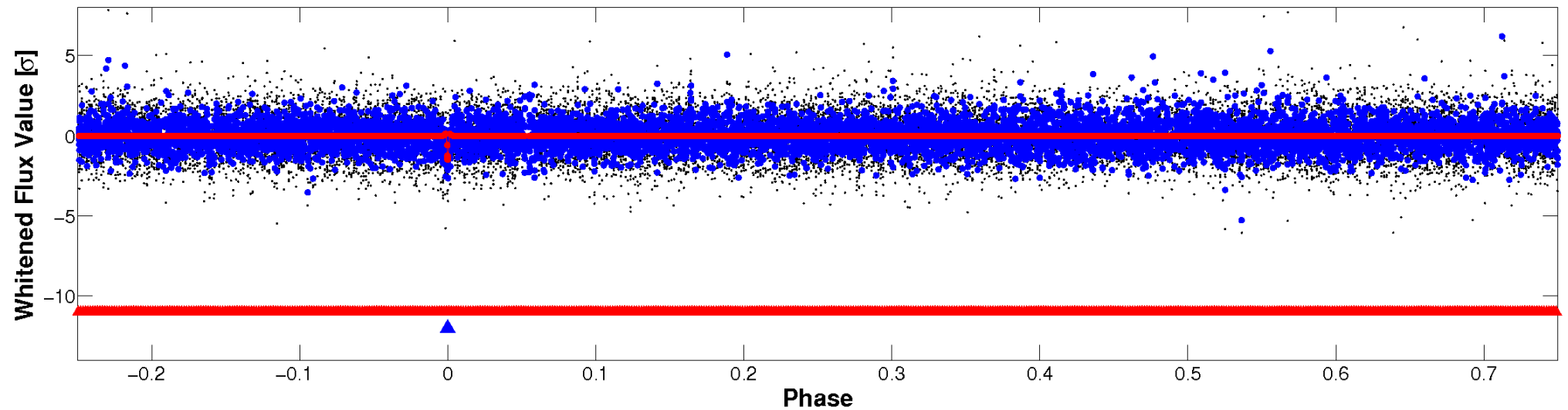


# Non-Whitened Vs. Whitened Light Curve

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

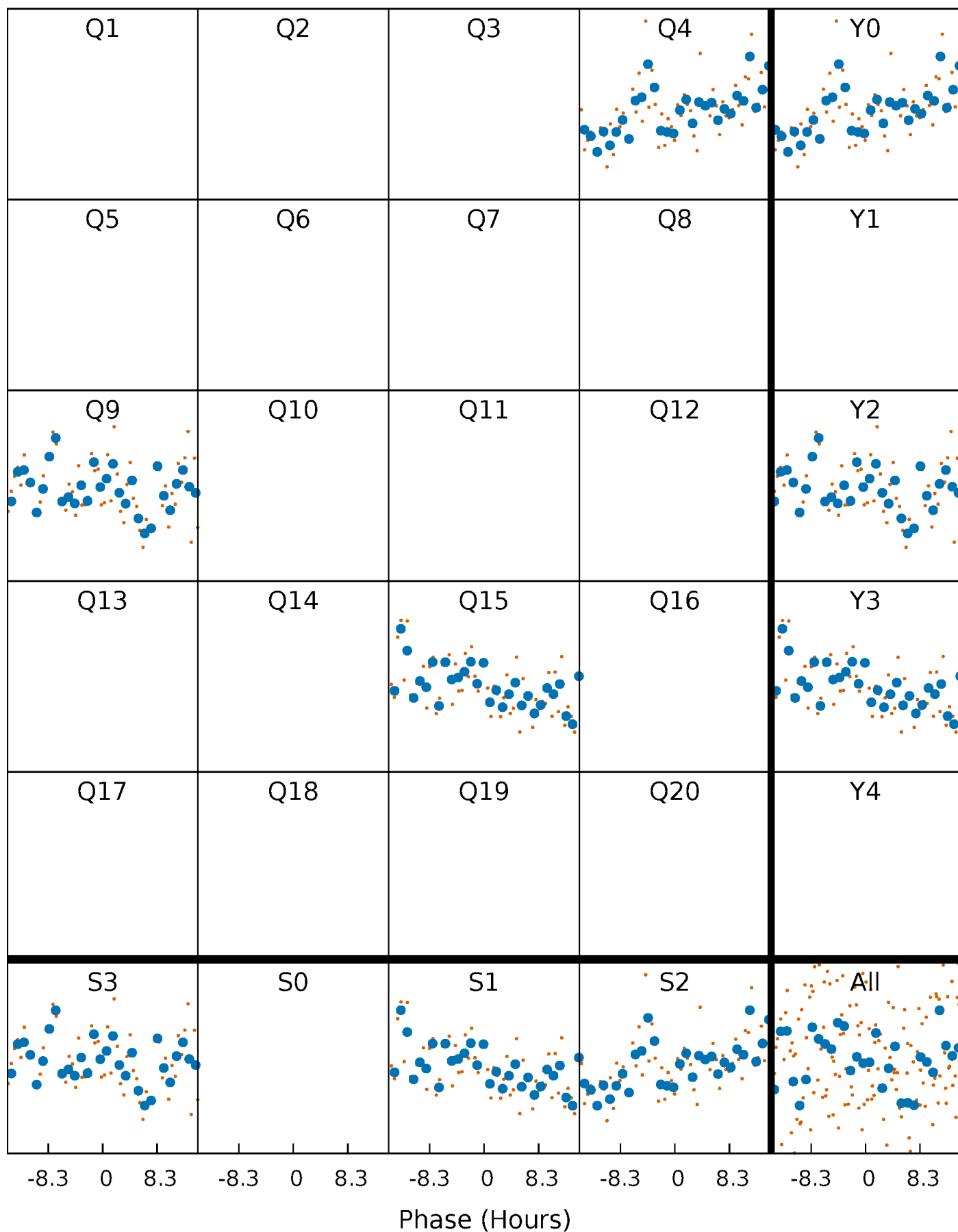


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



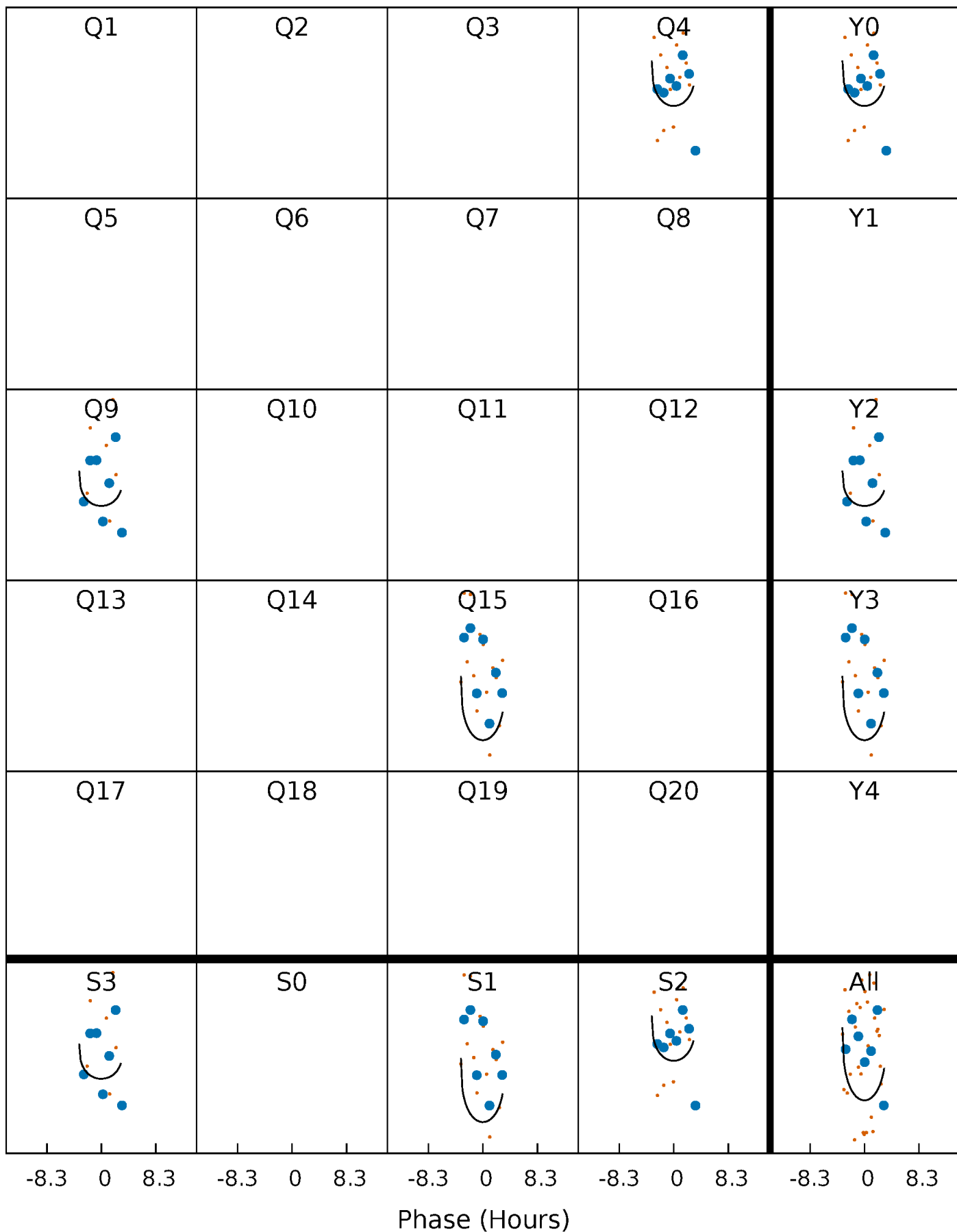
# PDC Quarter-Phased Transit Curves

TCE 007950994-02     $P=508.663206$  Days     $T_0=370.625206$  (BKJD)



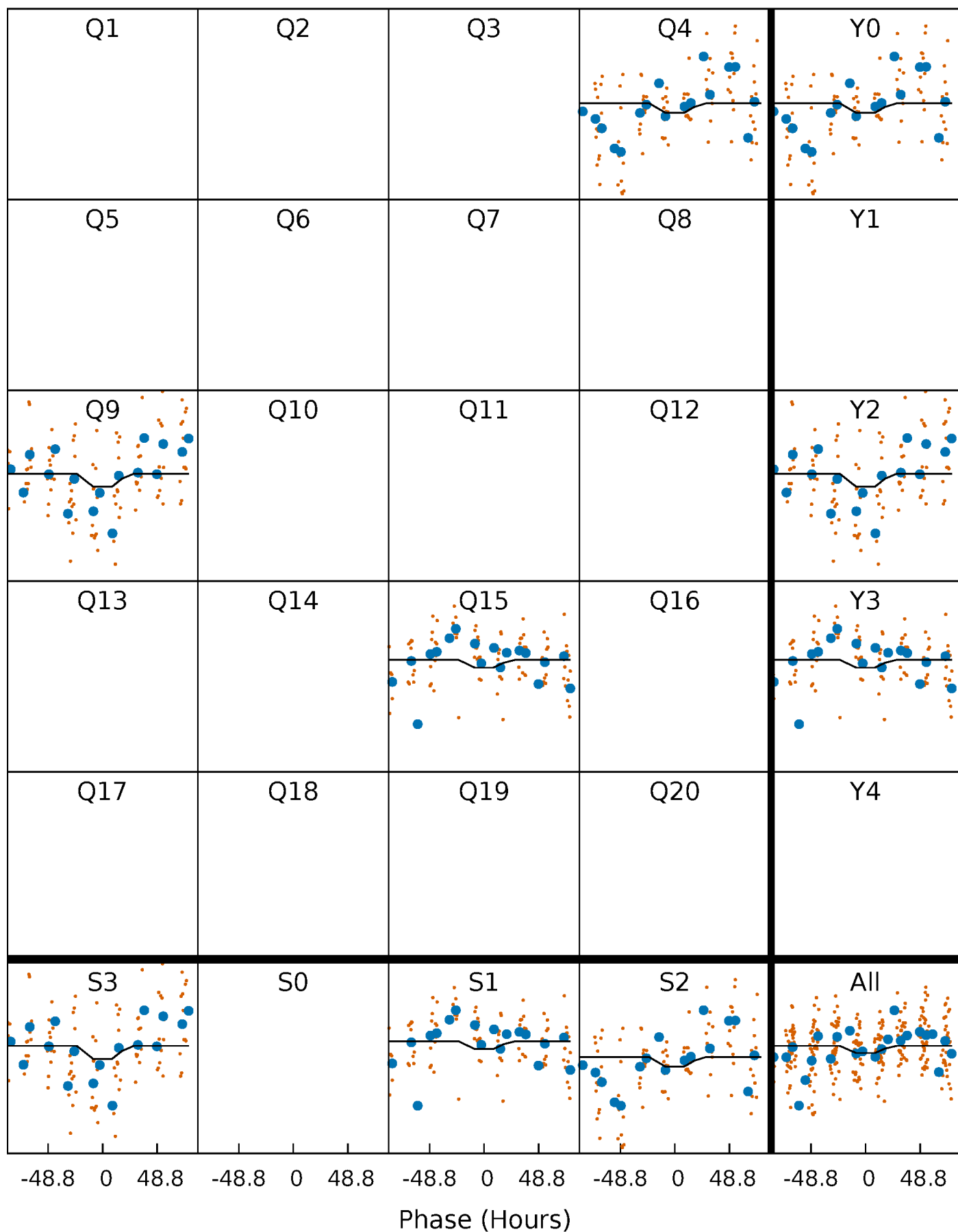
# DV Quarter-Phased Transit Curves

TCE 007950994-02    P=508.663206 Days     $T_0=370.625206$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007950994-02 P=508.591308 Days  $T_0=370.986703$  (BKJD)

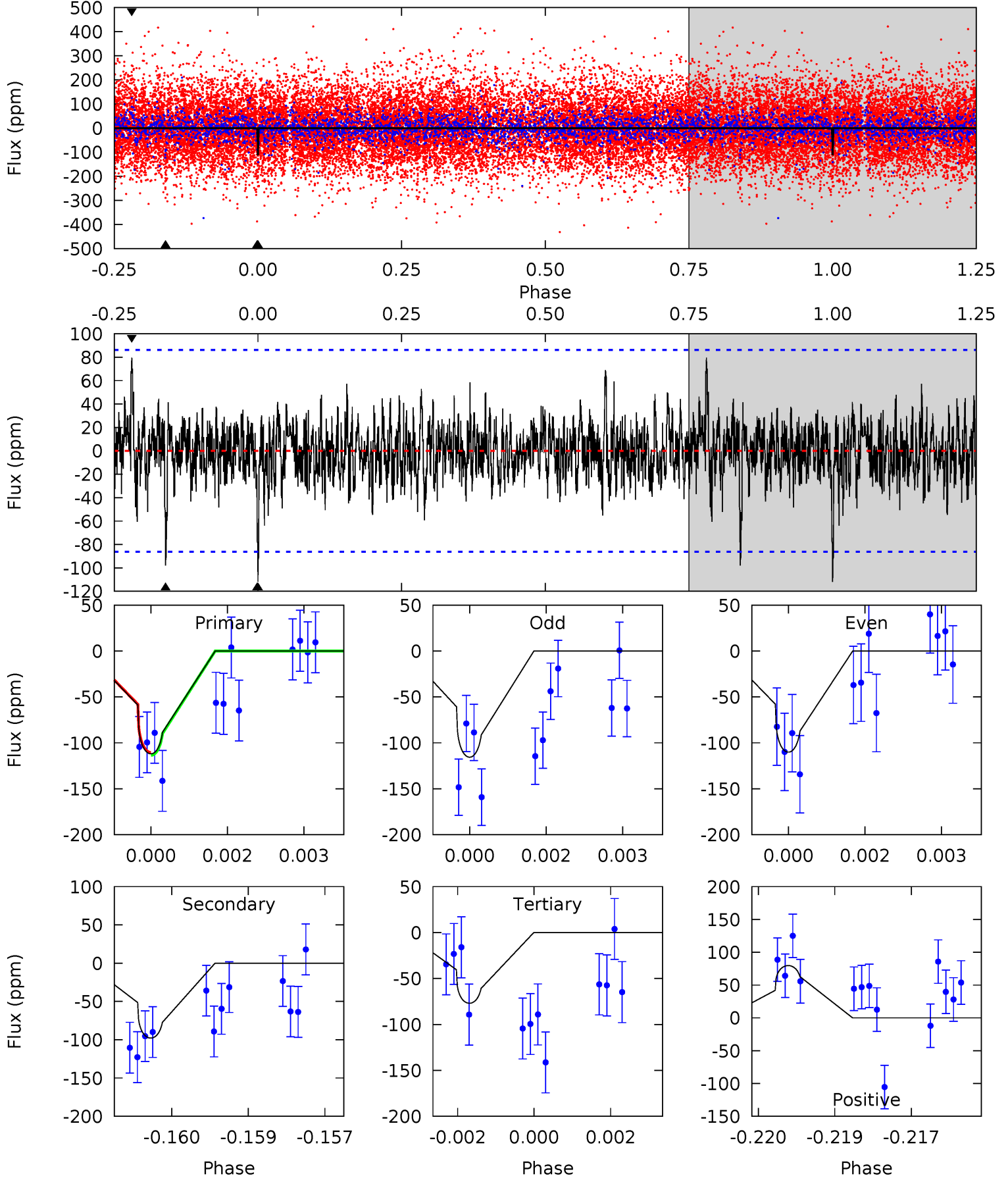




# DV Model-Shift Uniqueness Test

007950994-02, P = 508.663206 Days, E = 370.625206 Days

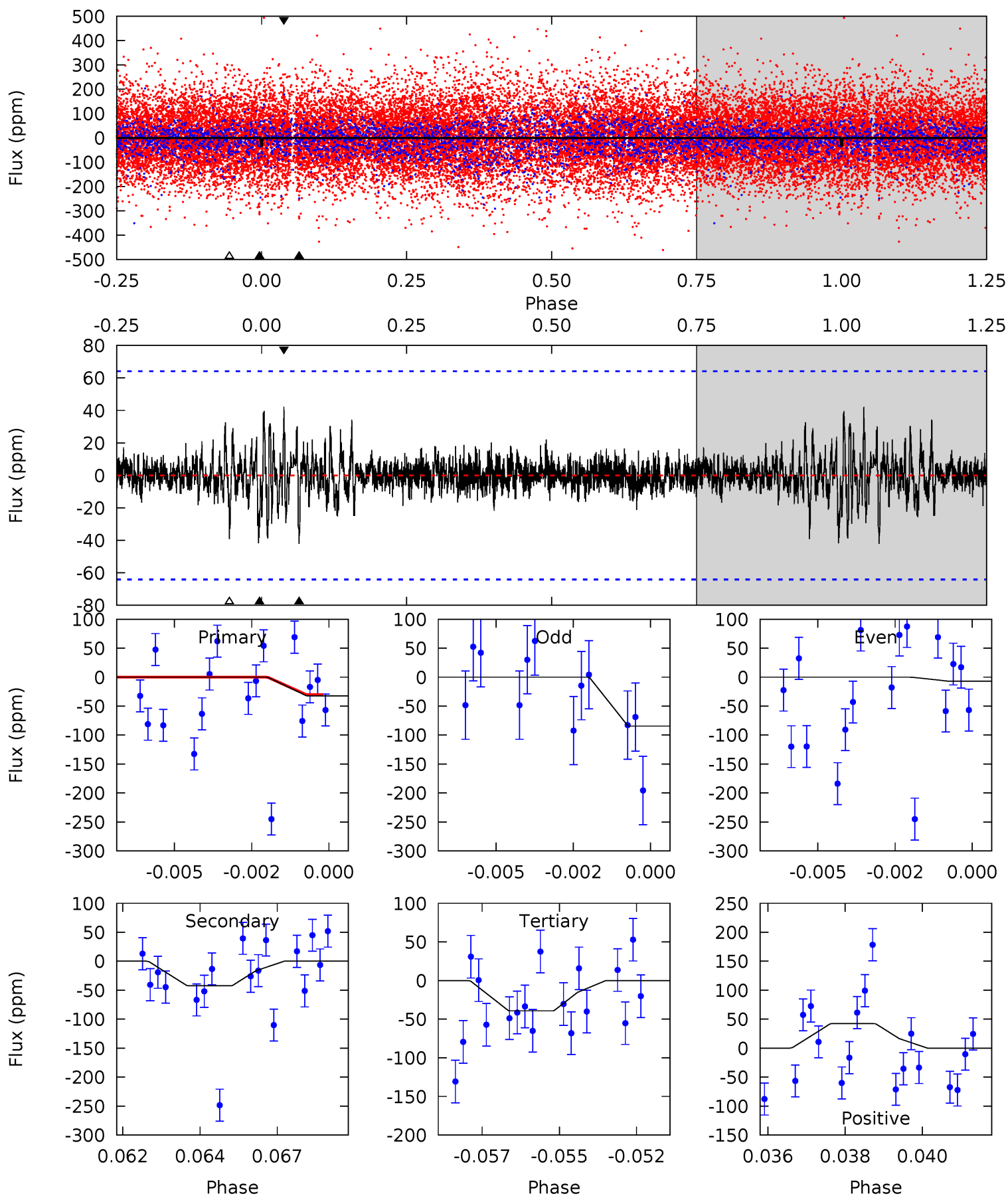
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.96	6.09	4.79	4.95	5.36	3.15	1.18	2.18	2.01	1.30	1.13	0.16	0.97	0.42	0.09



# Alt Model-Shift Uniqueness Test

007950994-02, P = 508.591308 Days, E = 370.986703 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
2.66	3.48	3.24	3.49	5.29	3.04	0.72	-0.58	-0.83	0.24	-0.00	3.01	1.31	0.50	0.21



### Stellar Parameters For KIC 007950994

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$\rho_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6321^{+170}_{-189}$	$4.156^{+0.234}_{-0.126}$	$-0.540^{+0.300}_{-0.300}$	$1.355^{+0.273}_{-0.334}$	$0.958^{+0.144}_{-0.105}$	$0.542^{+0.661}_{-0.188}$
	+3%/-3%	+6%/-3%	+56%/-56%	+20%/-25%	+15%/-11%	+122%/-35%
Source	PHO1	FLK73	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 007950994-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-98 \pm 16$	$4.04^{+4.27}_{-2.77}$	$405^{+26}_{-29}$	$4057^{+2598}_{-824}$	$4947^{+45649}_{-3751}$
Alt.	$-42 \pm 12$	$3.72^{+3.63}_{-2.66}$	$403^{+24}_{-28}$	$3554^{+2054}_{-642}$	$2477^{+24743}_{-1861}$

$T_{\text{max}}$  = 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

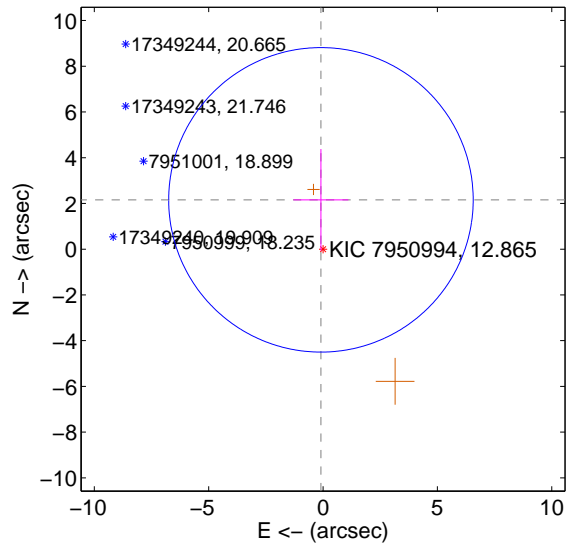
Supplemental centroid analysis for 007950994-02. Kepler magnitude: 12.87. Transit SNR 8.58

There are 0 quarters with good PRF difference image offsets

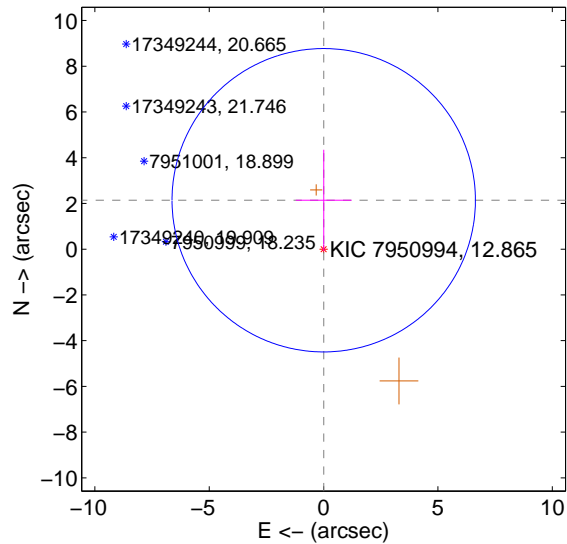
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.159 \pm 2.219$	0.97	$0.092 \pm 1.200$	$2.157 \pm 2.220$
PRF-fit source offset from KIC position	$2.140 \pm 2.211$	0.97	$-0.006 \pm 1.219$	$2.140 \pm 2.211$
photometric centroid source offset	$0.47 \pm 1.01$	0.46	$-0.43 \pm 0.96$	$-0.18 \pm 1.31$

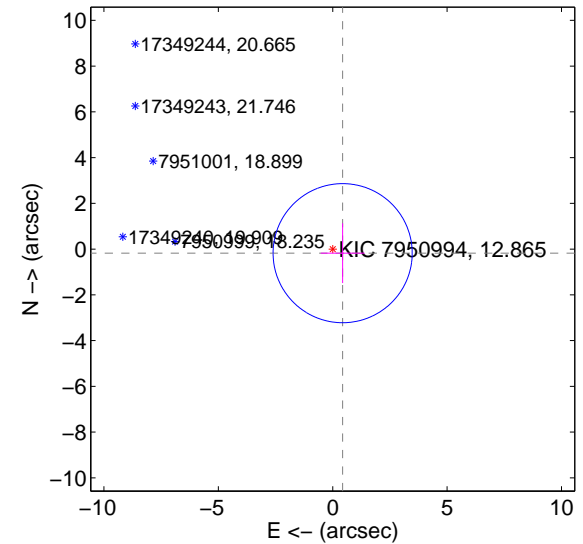
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

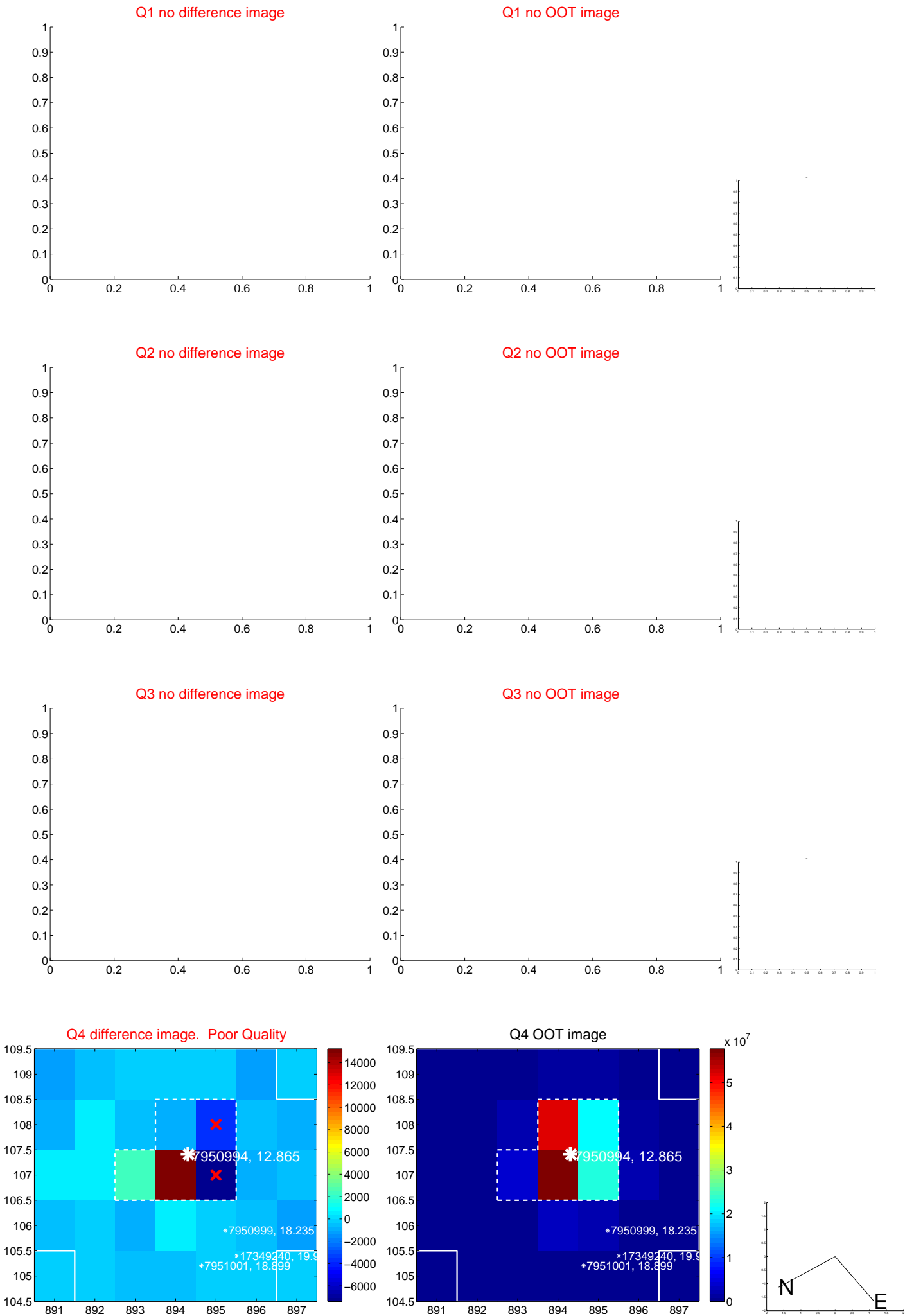


offset from photometric centroids



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.

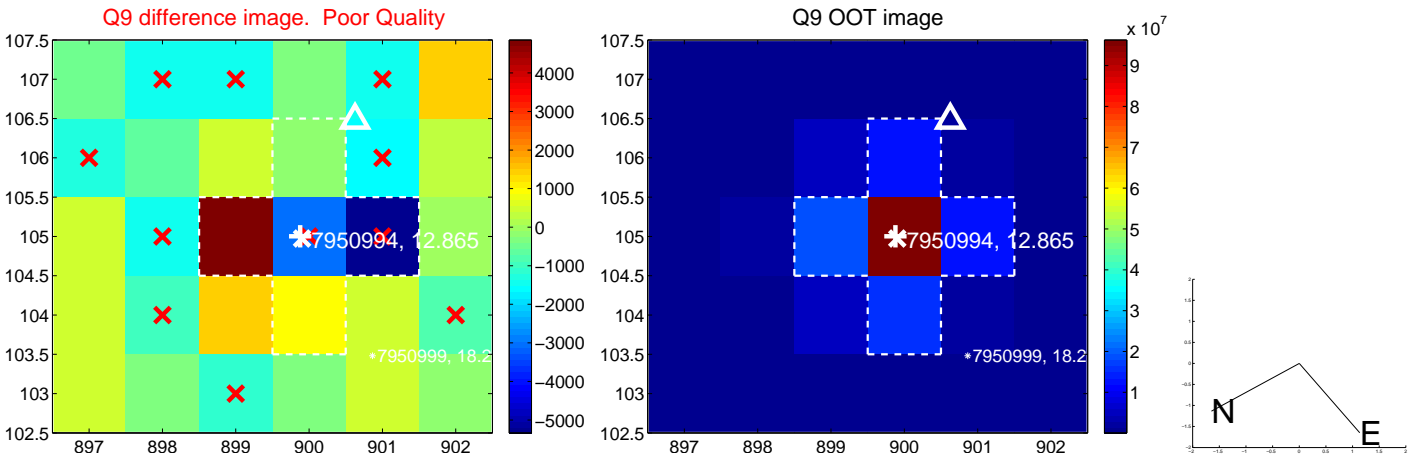


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

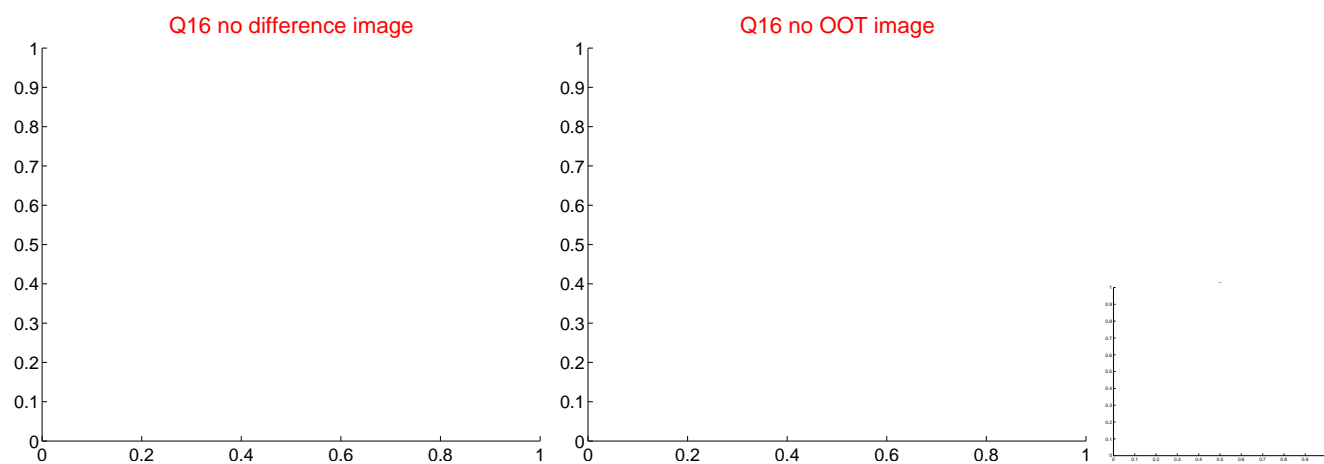
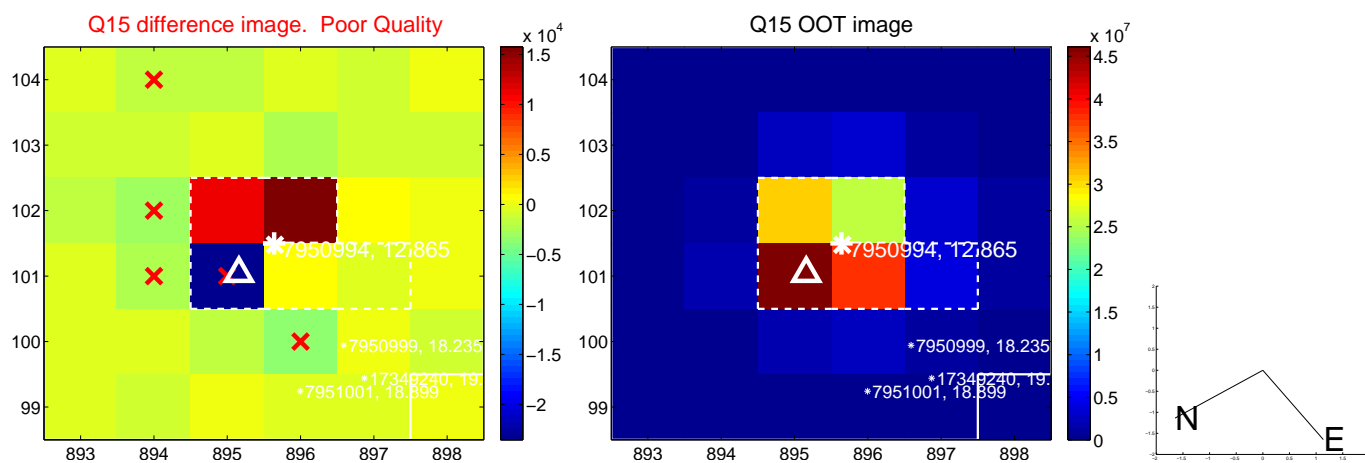
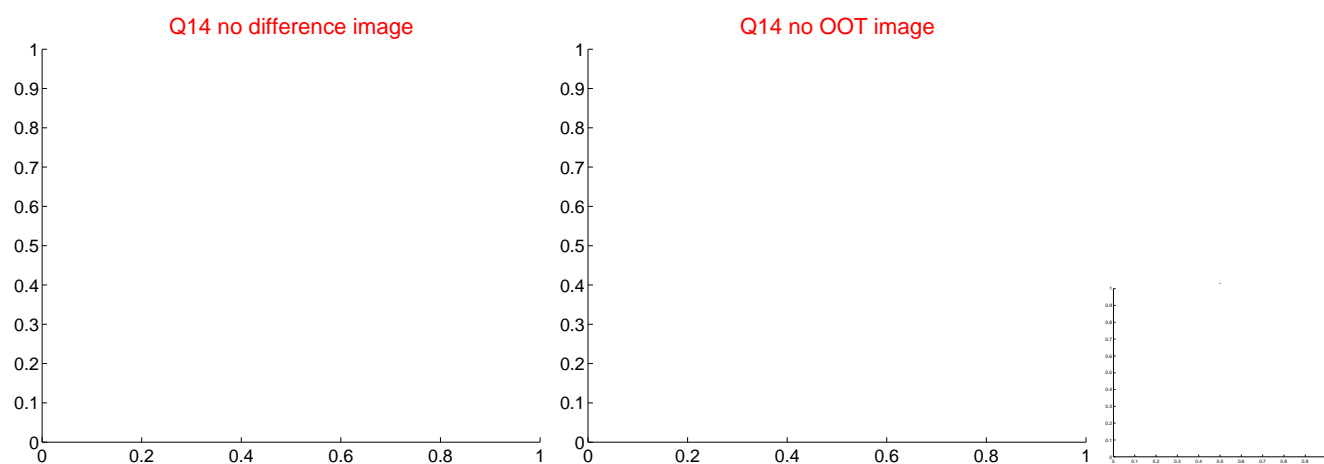
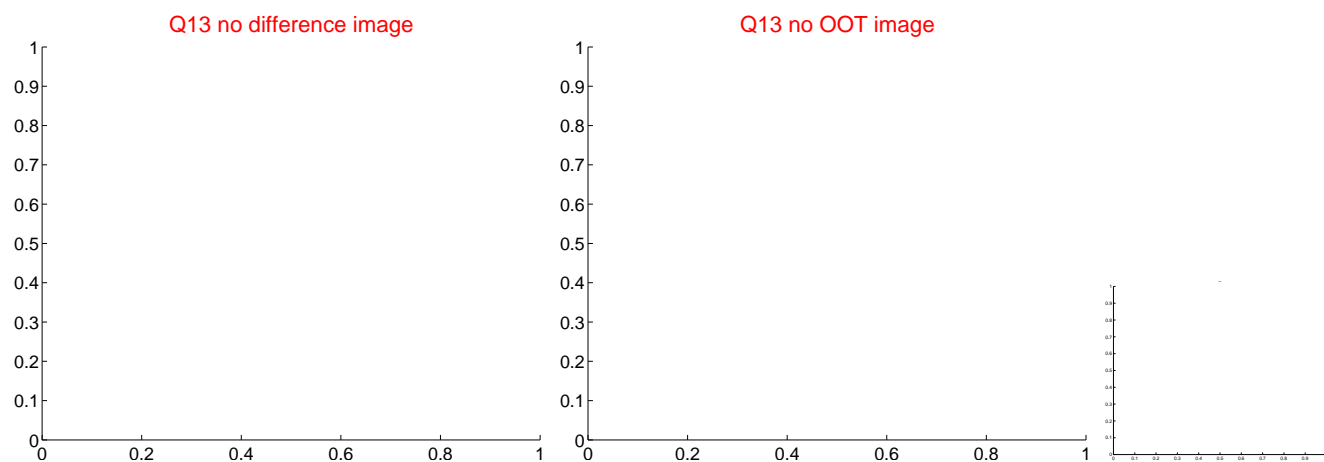




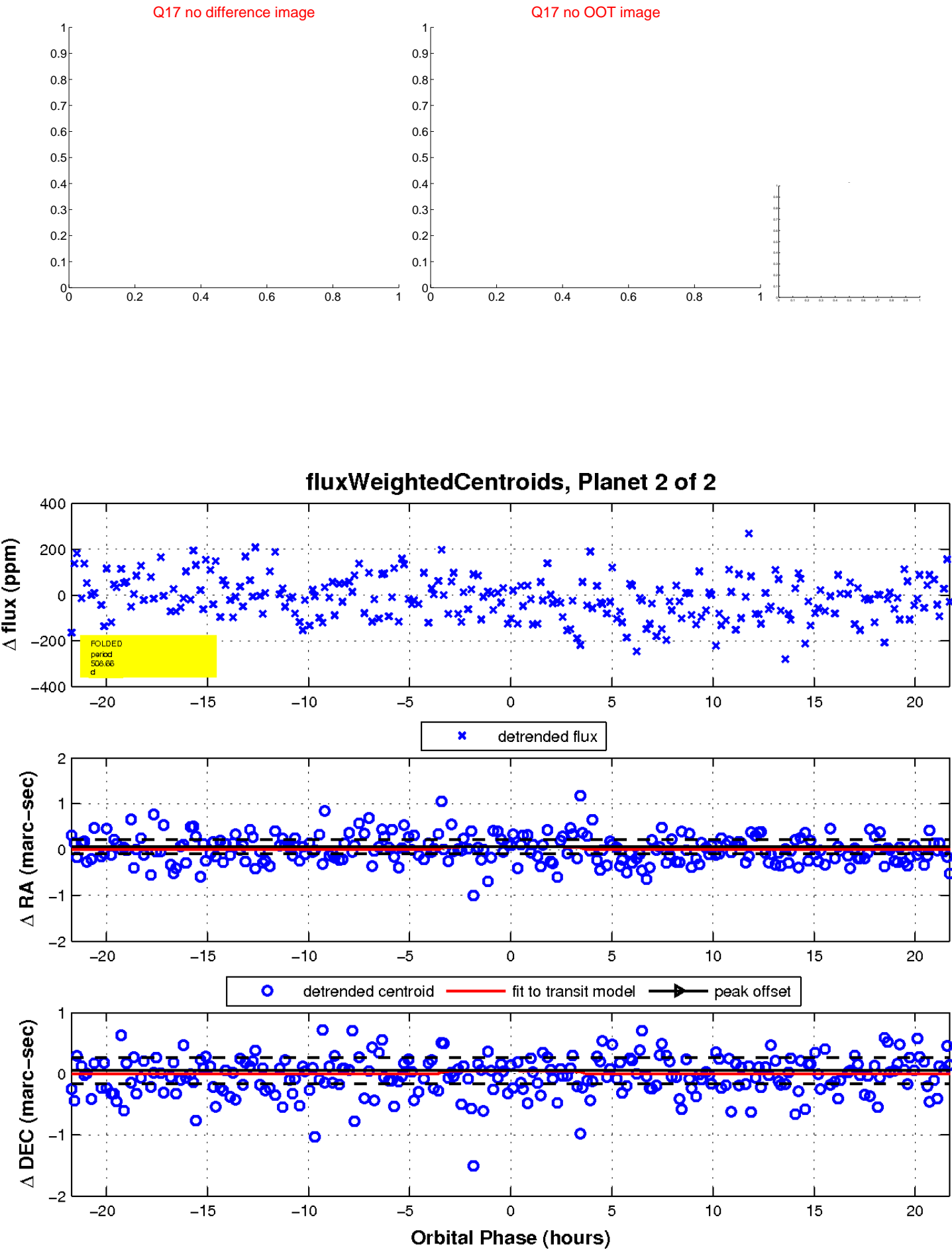
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



# UKIRT Image

Declination

