

# KIC 010001000

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010001000-01	OBS	No	1.783336	131.826395	49.5	7.058	7.3	6.9	0.80	5009	0.67	520.81
010001000-02	OBS	No	320.274944	254.484367	1402.1	44.740	14.4	5.7	0.80	5009	3.18	0.51
010001000-03	OBS	No	189.934865	217.873546	603.0	9.791	12.9	6.0	0.80	5009	1.94	1.03
010001000-04	OBS	No	159.477125	153.119484	723.9	12.000	10.1	-1.0	0.80	5009	2.09	1.30
010001000-05	OBS	No	170.691015	244.057370	814.4	9.412	9.6	7.4	0.80	5009	2.32	1.19

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010001000-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010001000-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010001000-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
010001000-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
010001000-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—INCONSISTENT_TRANS

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

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

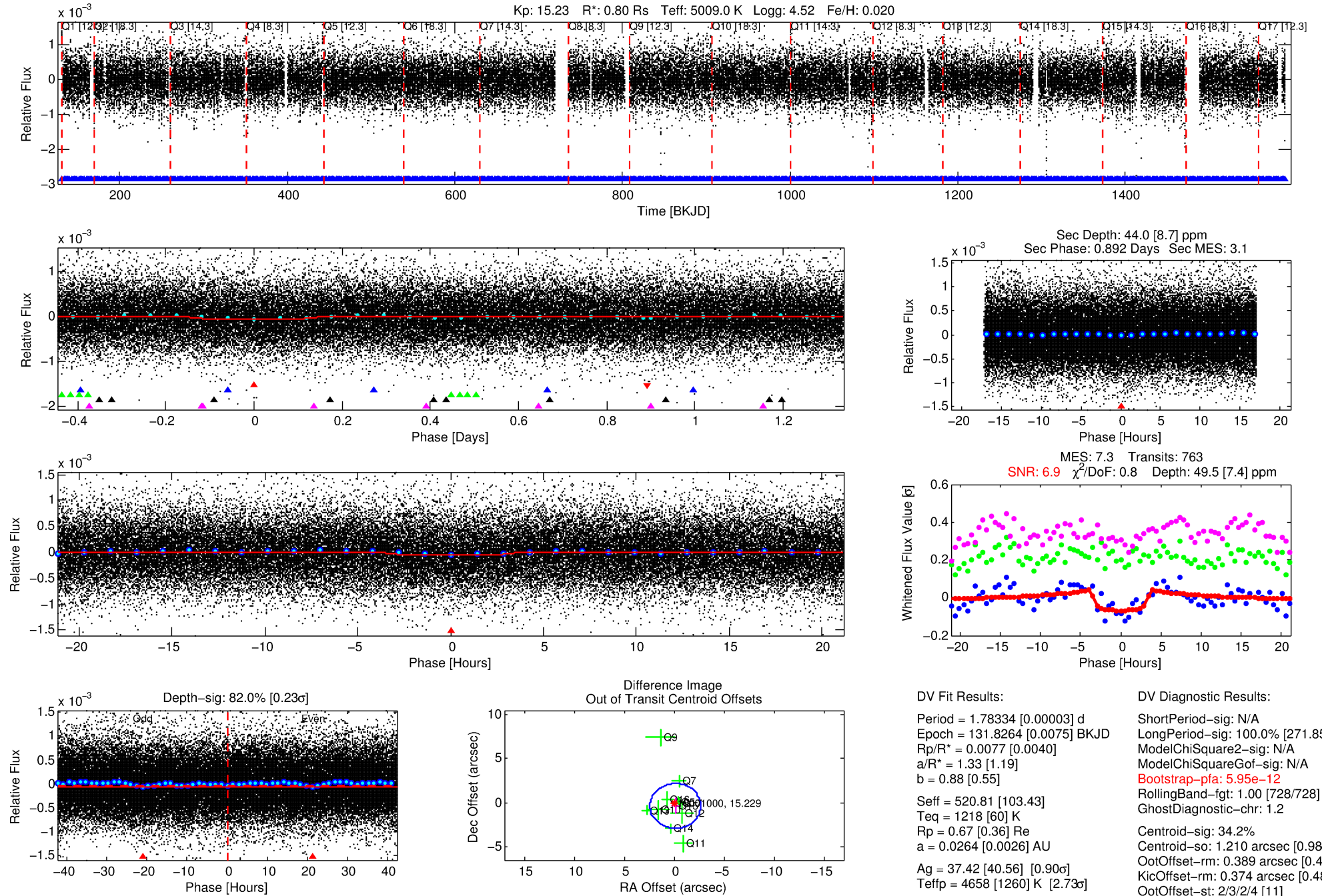
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010001000-01

No Significant Match Found

# DV One-Page Summary

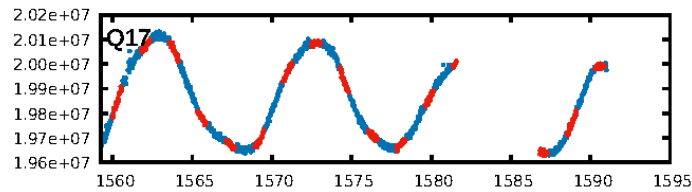
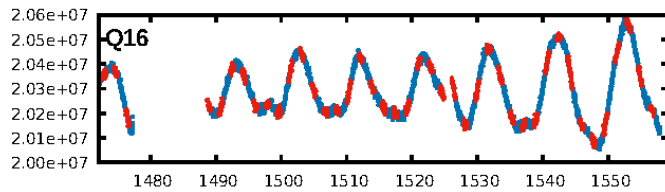
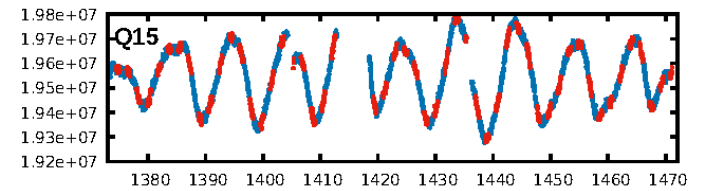
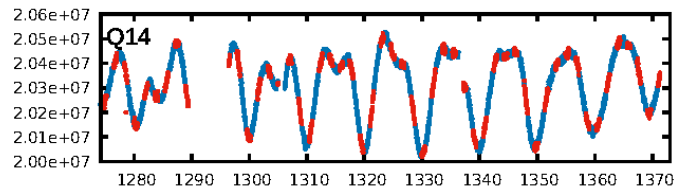
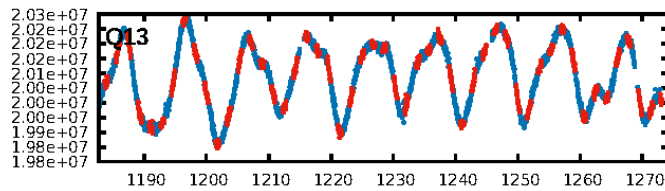
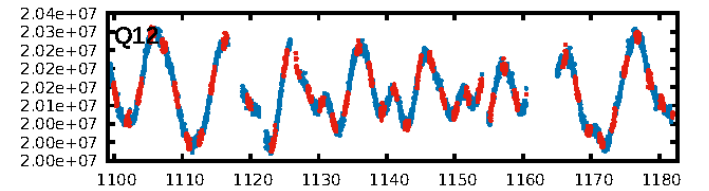
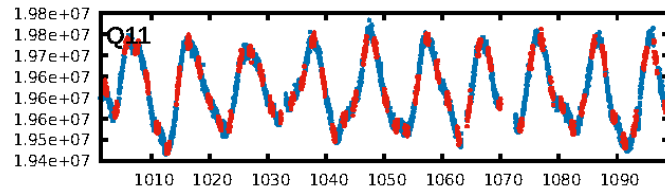
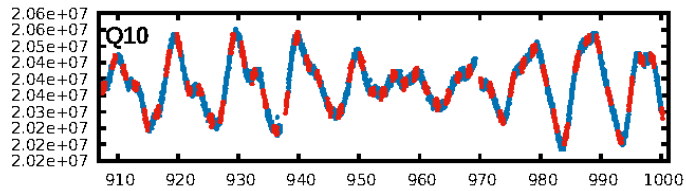
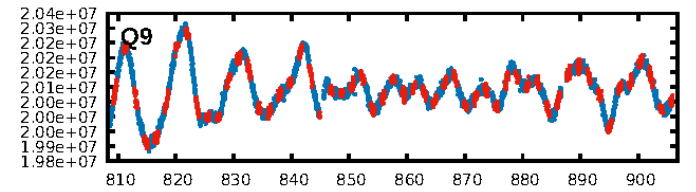
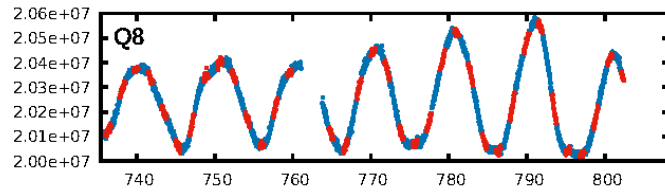
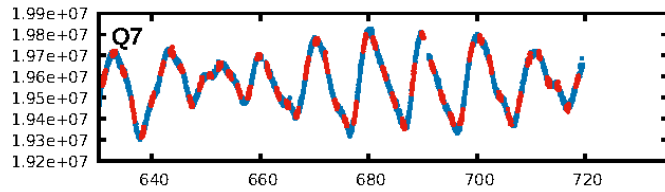
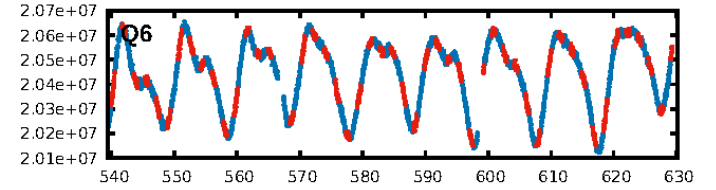
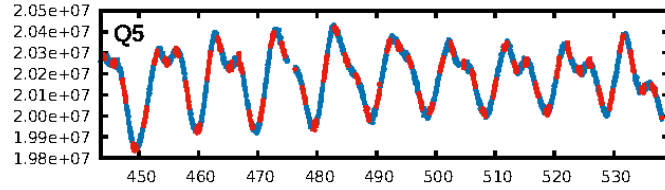
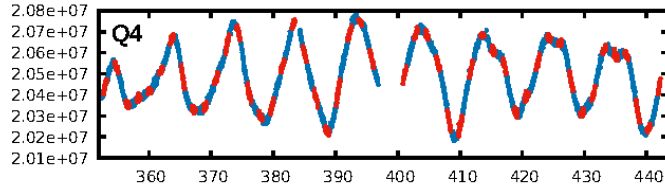
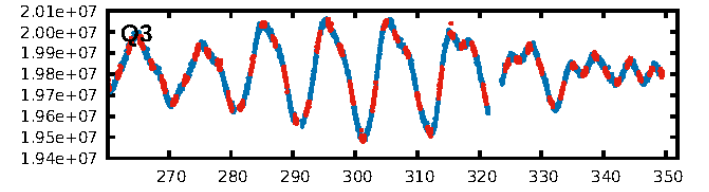
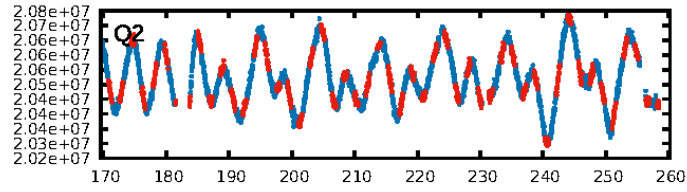
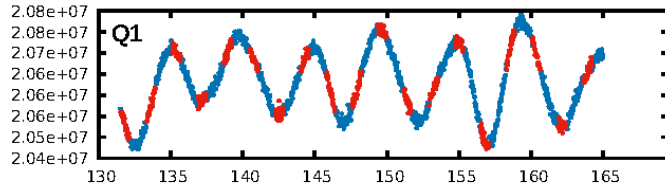
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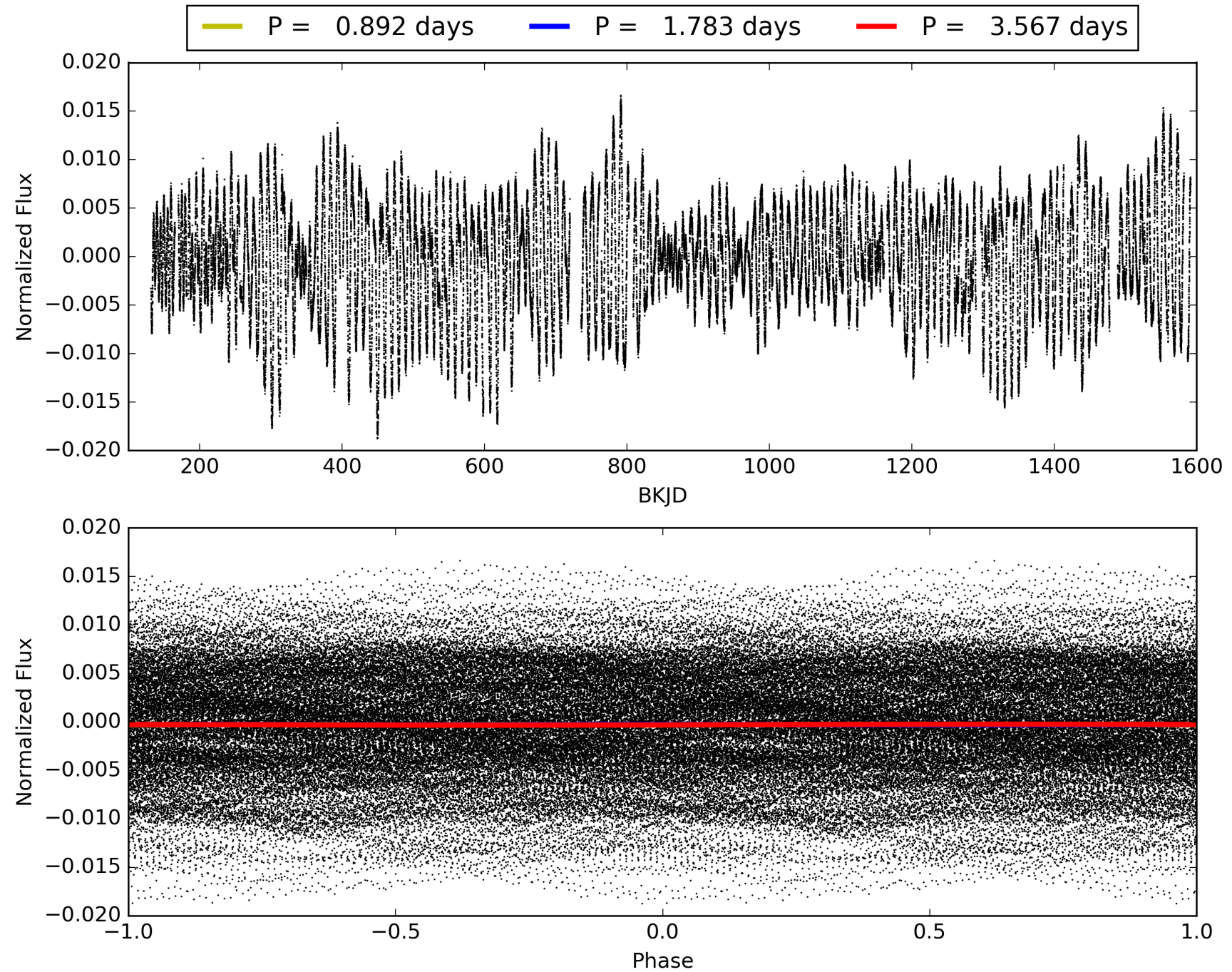
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010001000-01, PDC Light Curves



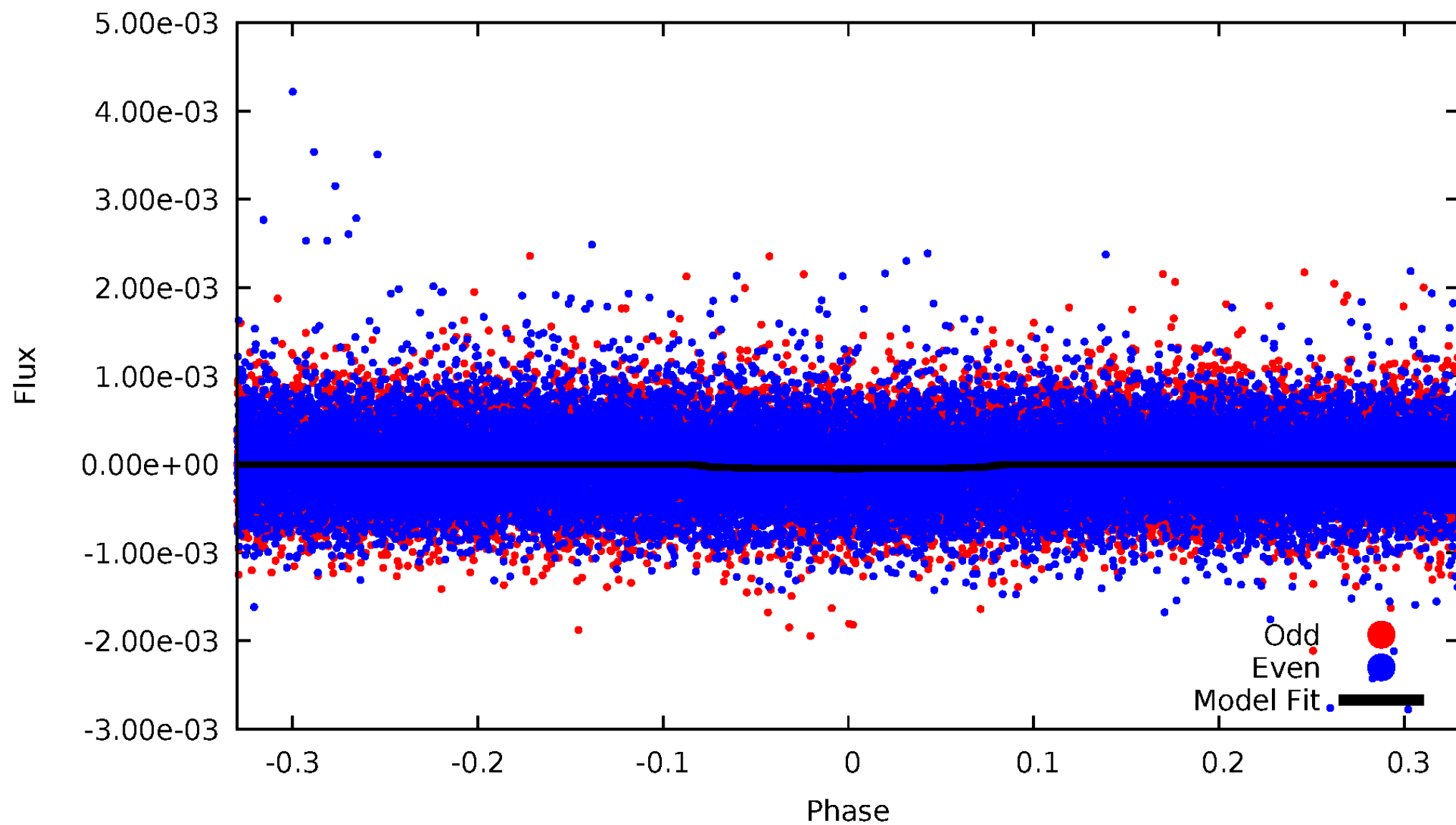
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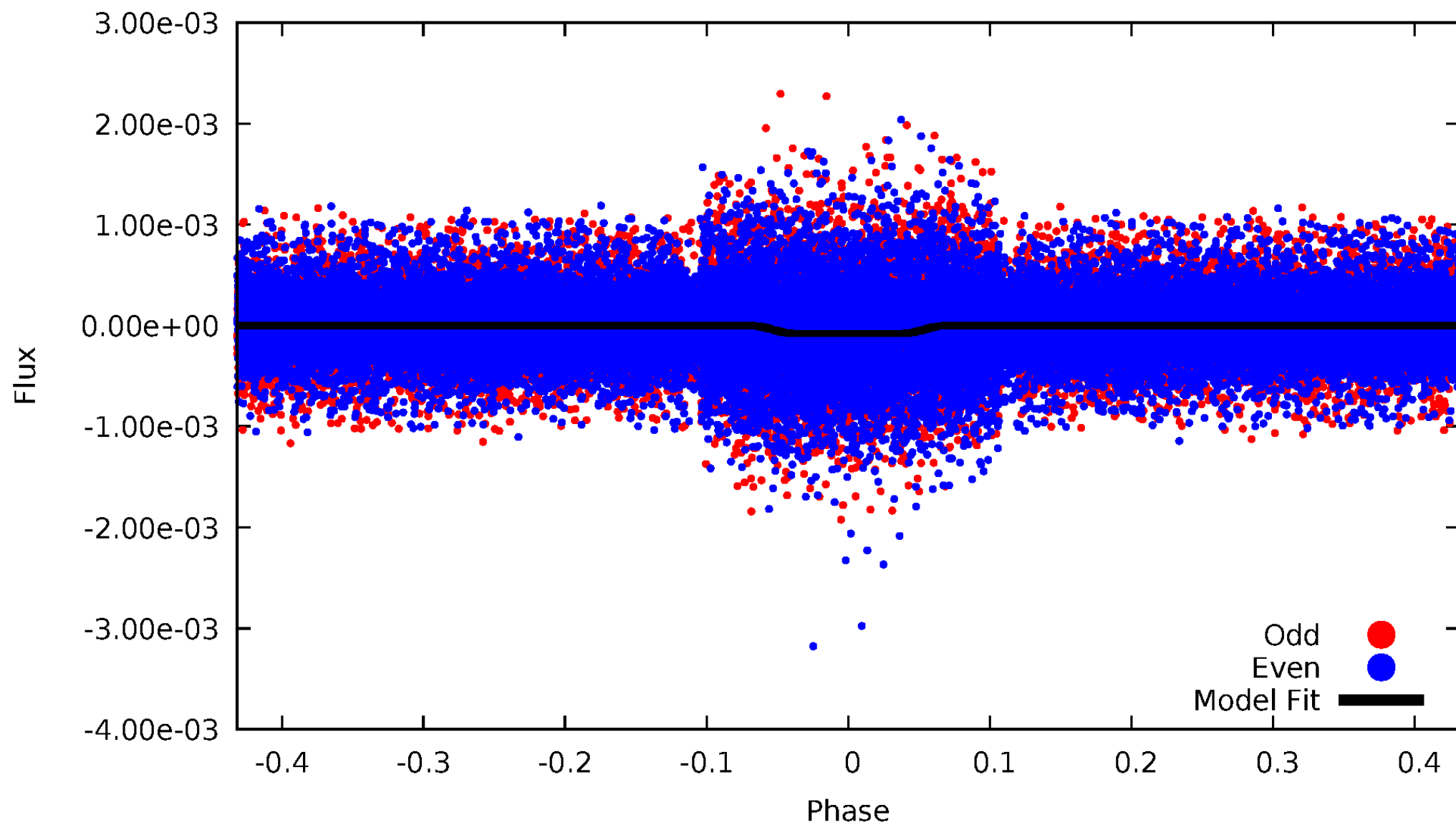
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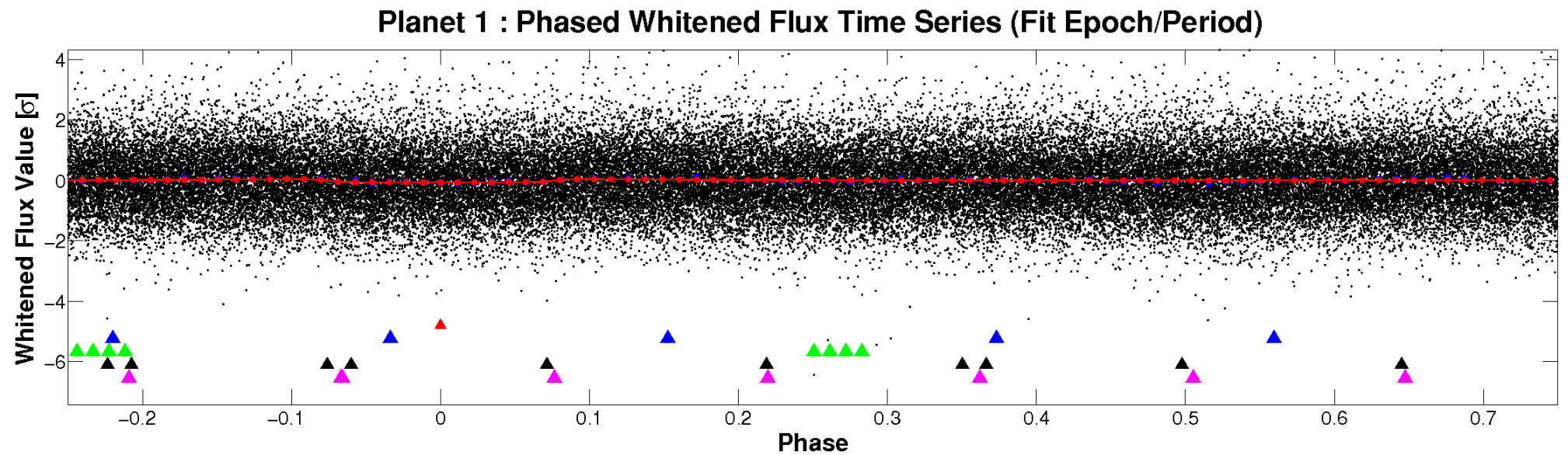
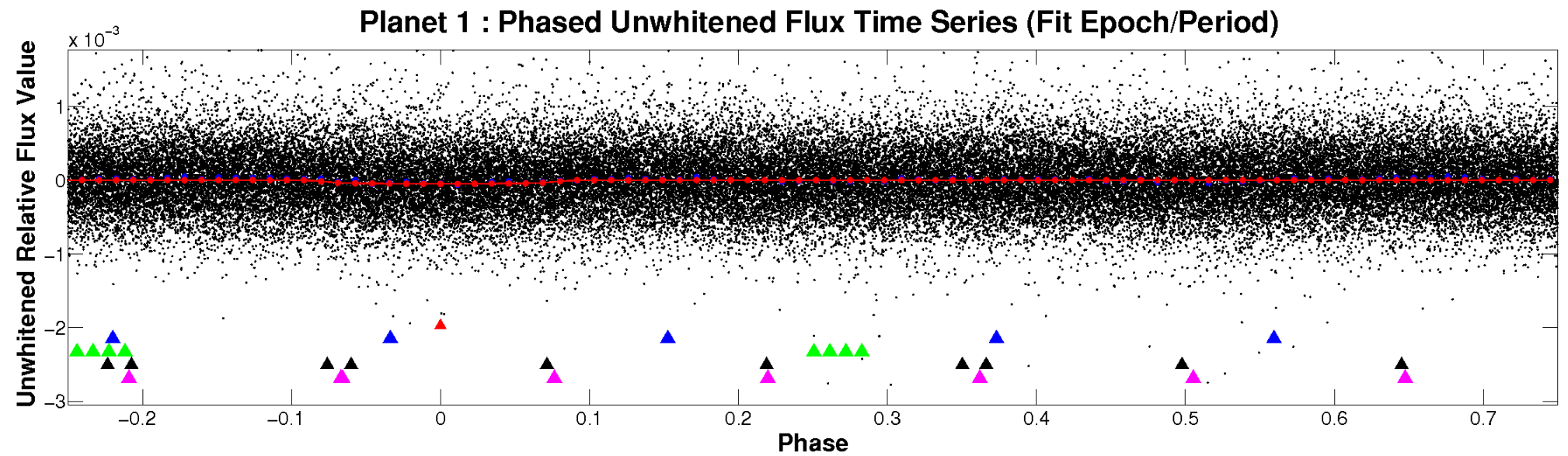


# ALT Odd/Even

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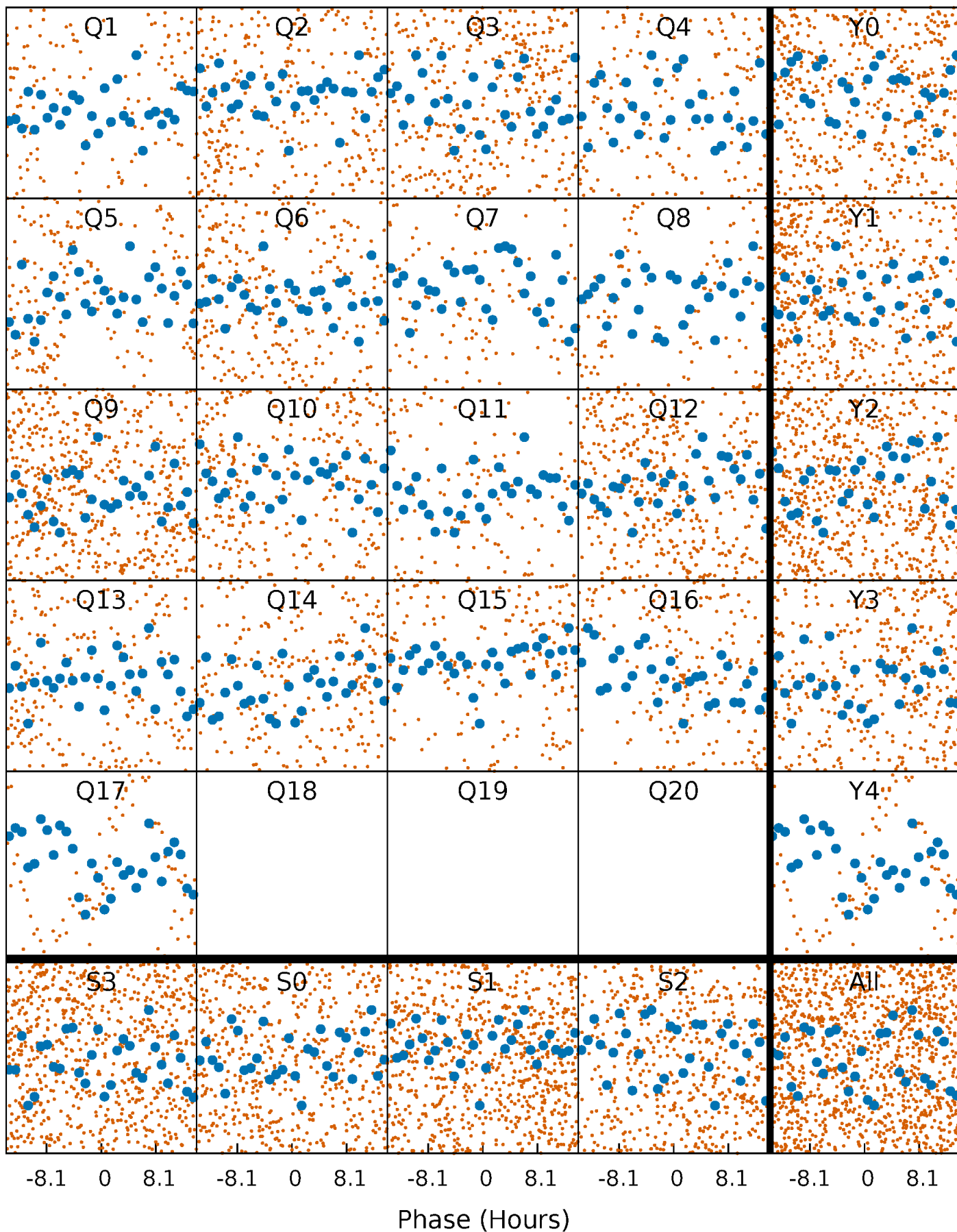


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

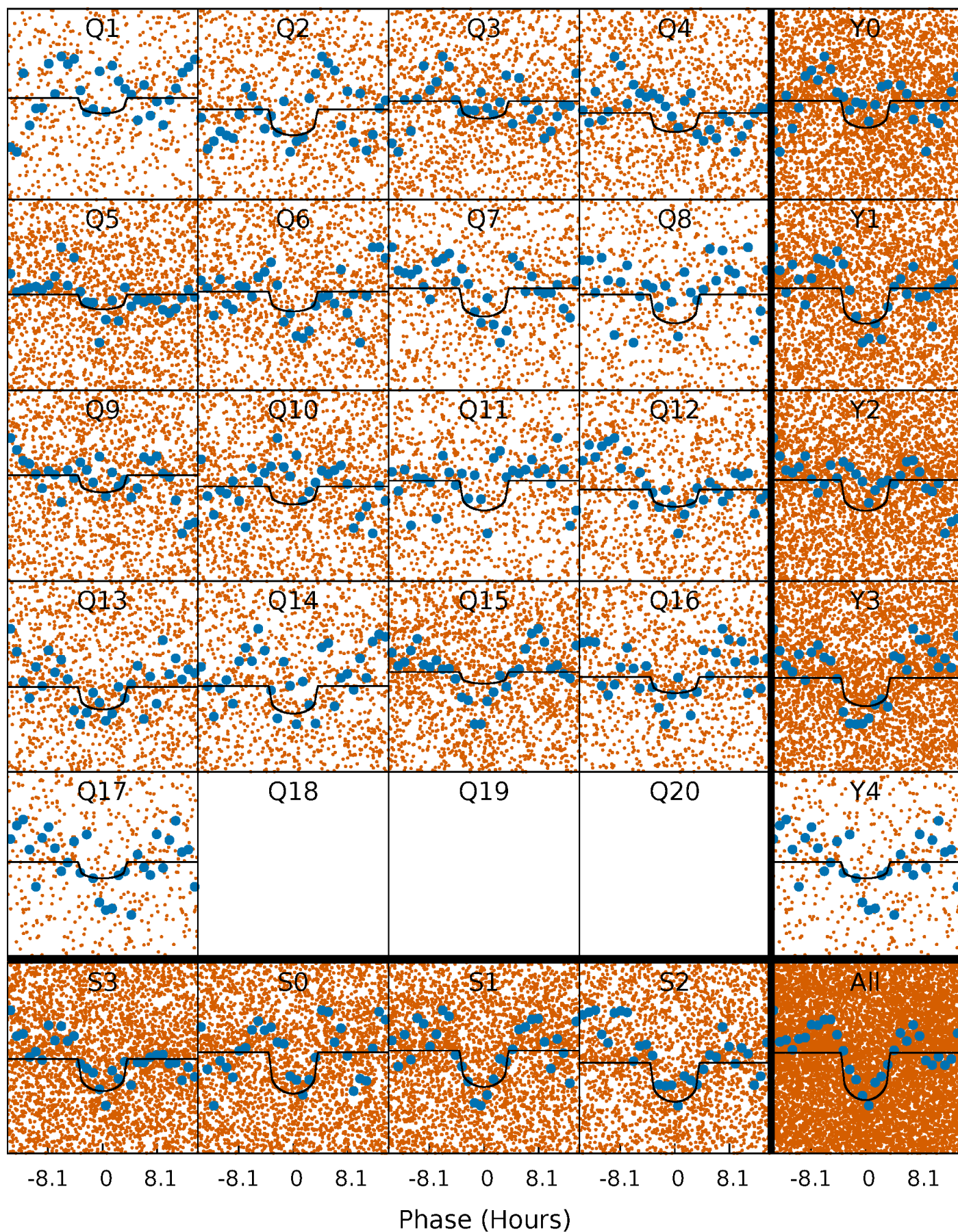
TCE 010001000-01 P= 1.783336 Days  $T_0=131.826395$  (BKJD)





# DV Quarter-Phased Transit Curves

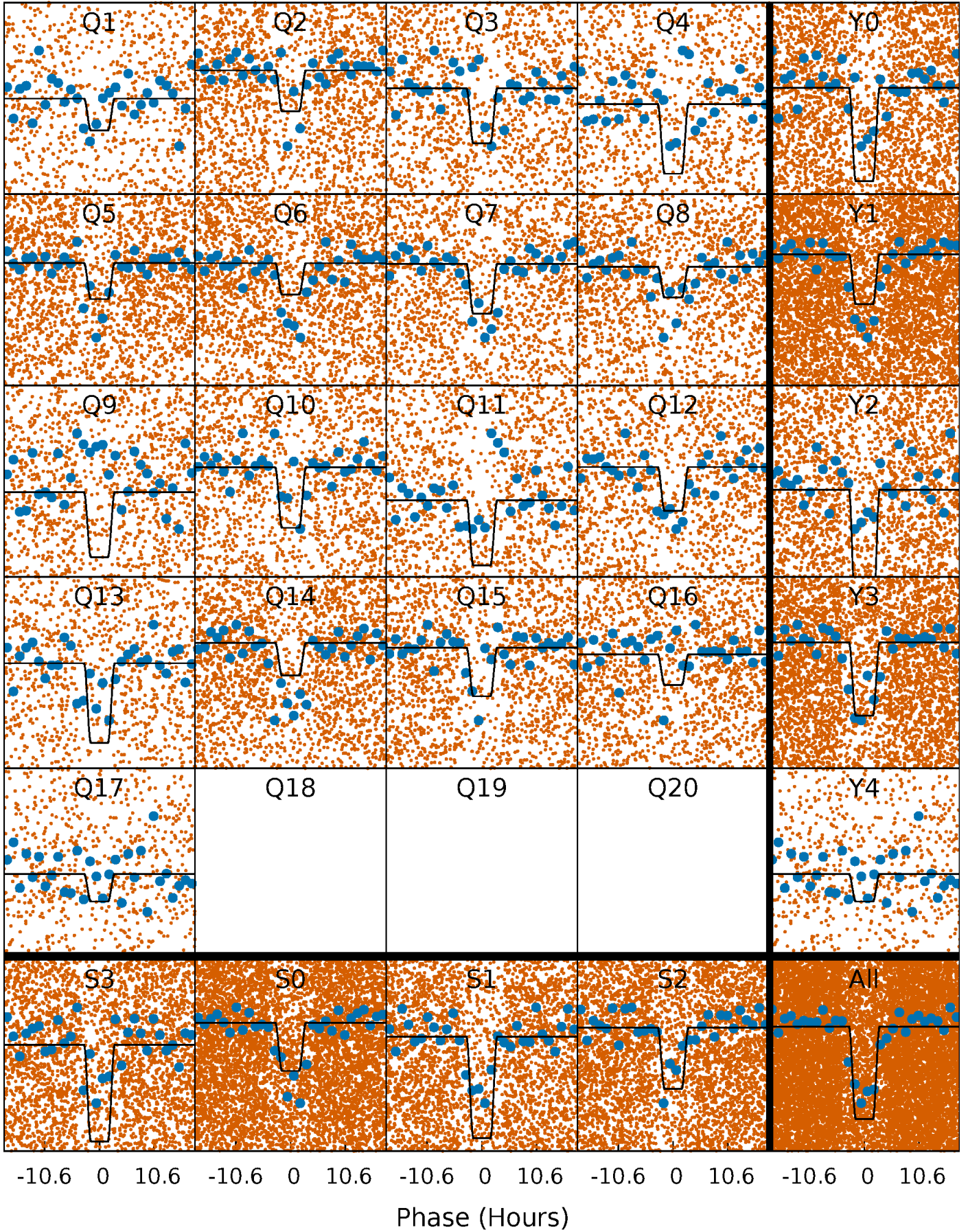
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# Alt. Detrend Quarter-Phased Transit Curves

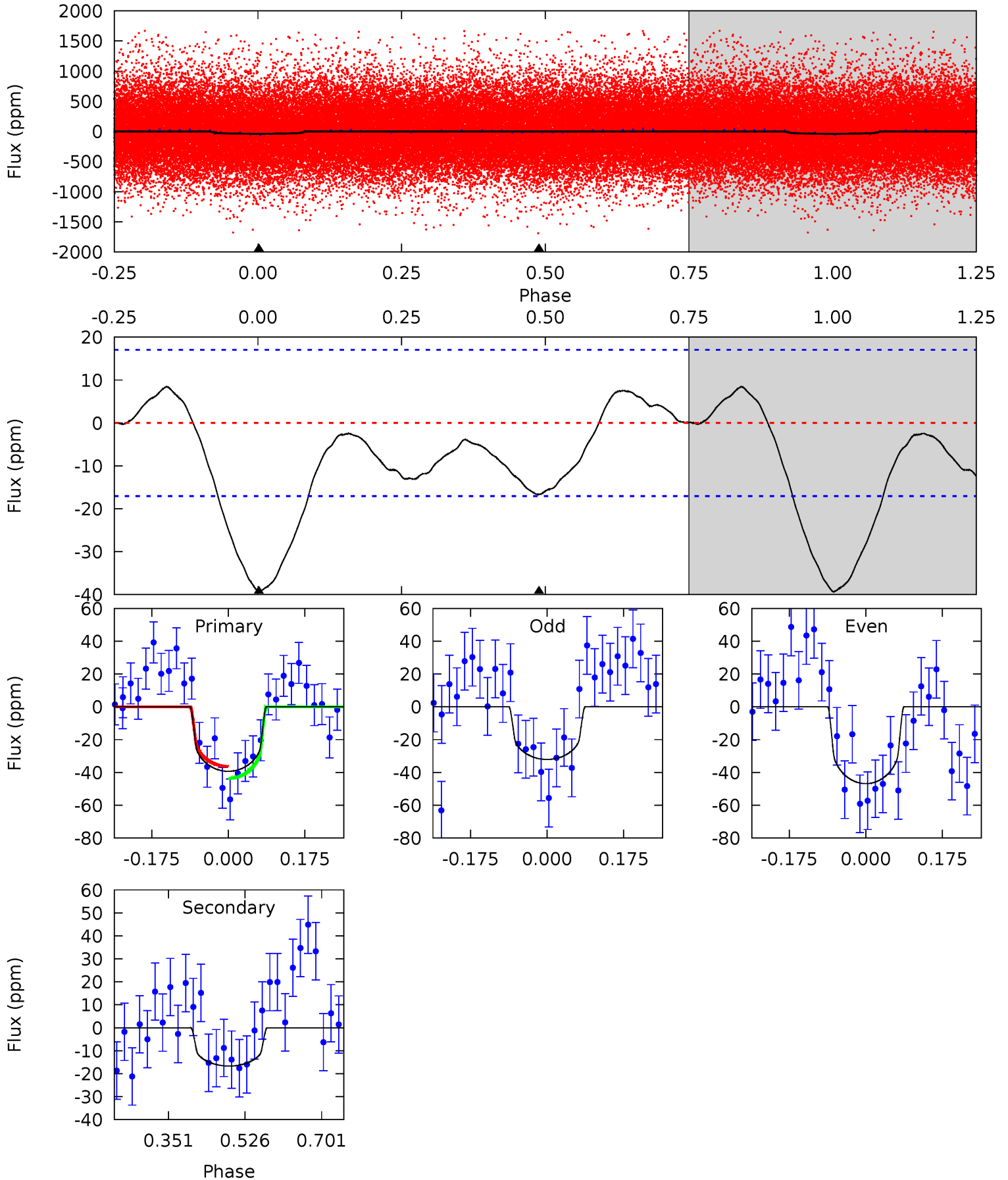
TCE 010001000-01     $P = 1.783326$  Days     $T_0 = 131.837135$  (BKJD)



# DV Model-Shift Uniqueness Test

010001000-01, P = 1.783336 Days, E = 130.043059 Days

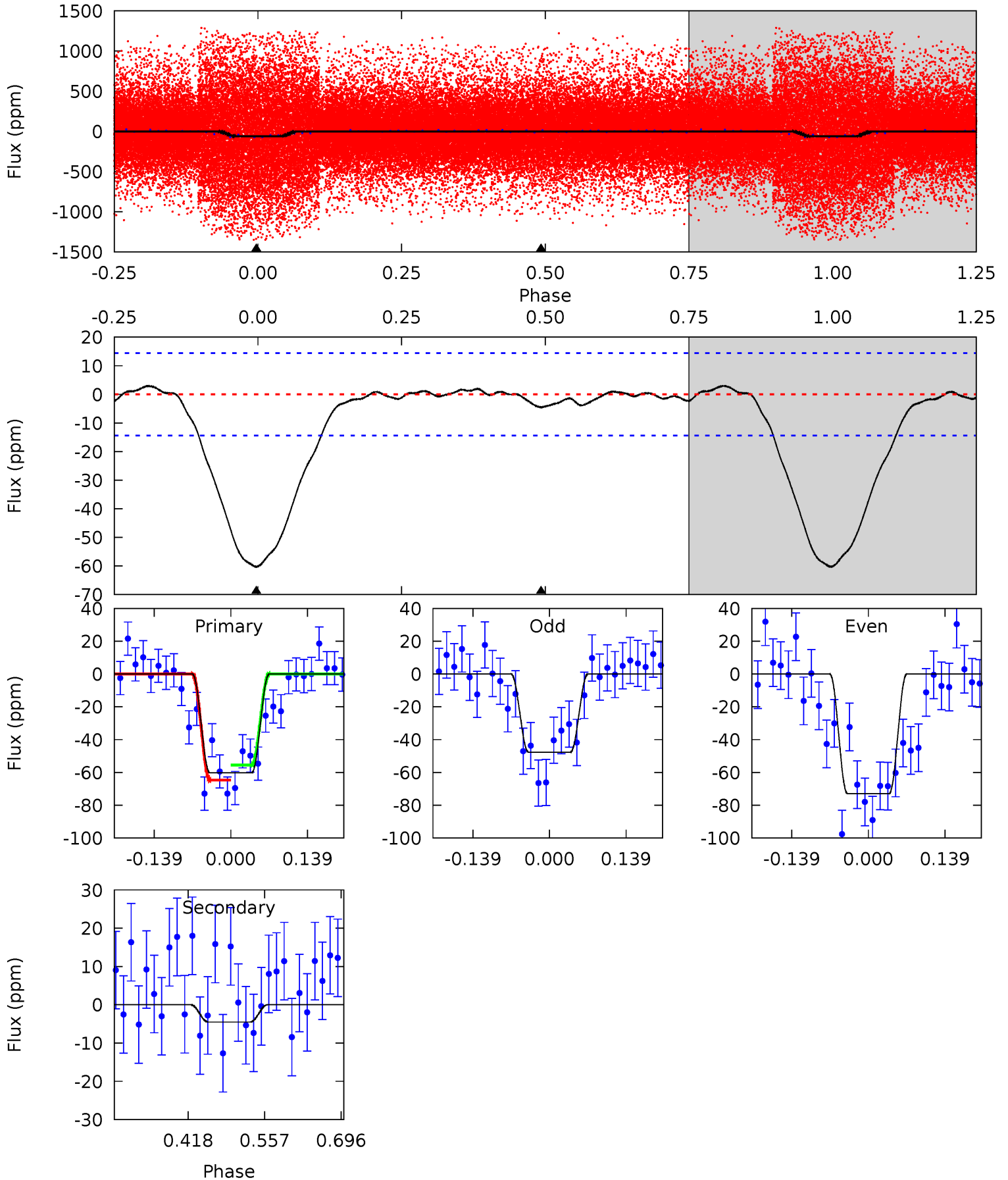
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	4.35	0	0	4.45	1.36	1.77	10.3	10.3	4.35	4.35	1.93	0.95	0.18	0.97



# Alt Model-Shift Uniqueness Test

010001000-01, P = 1.783326 Days, E = 130.053809 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
18.8	1.41	0	0	4.49	1.48	0.43	18.8	18.8	1.41	1.41	3.92	1.38	0.05	1.43





### Stellar Parameters For KIC 010001000

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5009^{+166}_{-151}$	$4.516^{+0.084}_{-0.056}$	$0.020^{+0.250}_{-0.300}$	$0.801^{+0.071}_{-0.087}$	$0.768^{+0.085}_{-0.057}$	$2.106^{+0.742}_{-0.383}$
	+3%/-3%	+2%/-1%	+1250%/-1500%	+9%/-11%	+11%/-7%	+35%/-18%
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 010001000-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-17 \pm 4$	$0.70^{+0.34}_{-0.34}$	$1699^{+68}_{-70}$	$3879^{+1117}_{-539}$	$13^{+34}_{-8}$
Alt.	$-5 \pm 3$	$0.80^{+0.35}_{-0.36}$	$1695^{+70}_{-62}$	$2965^{+697}_{-638}$	$2.668^{+6.545}_{-1.999}$

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

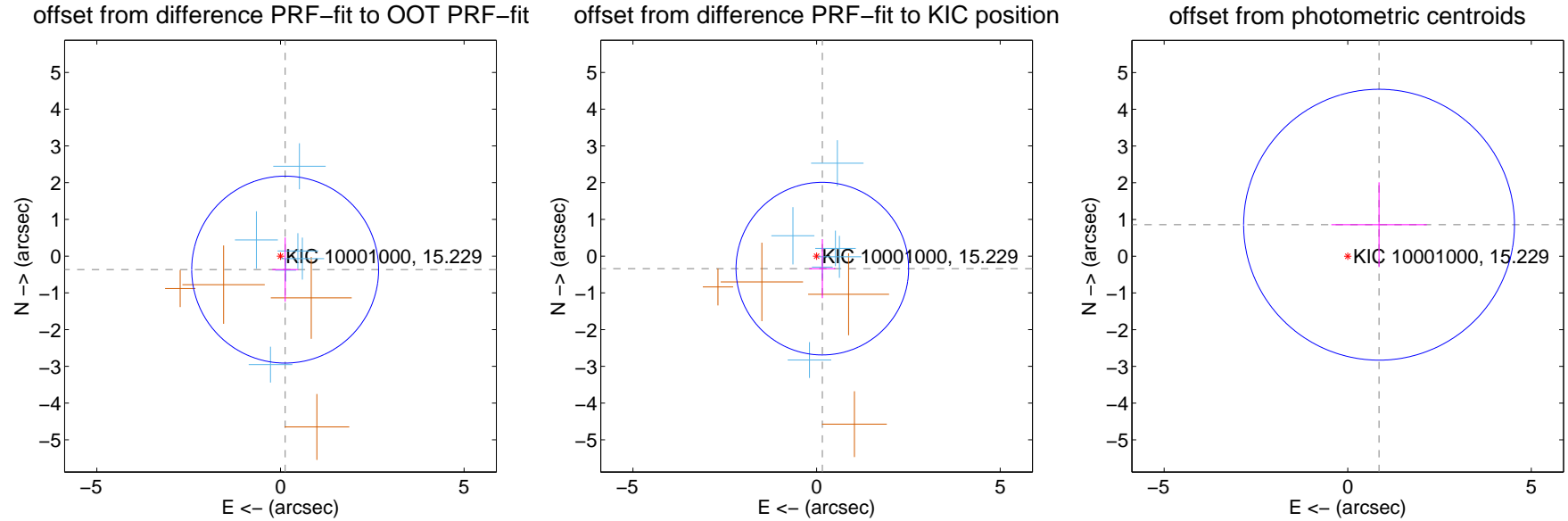
## DV Centroid Data

Supplemental centroid analysis for 010001000-01. Kepler magnitude: 15.23. Transit SNR 6.91

There are 6 quarters with good PRF difference image offsets

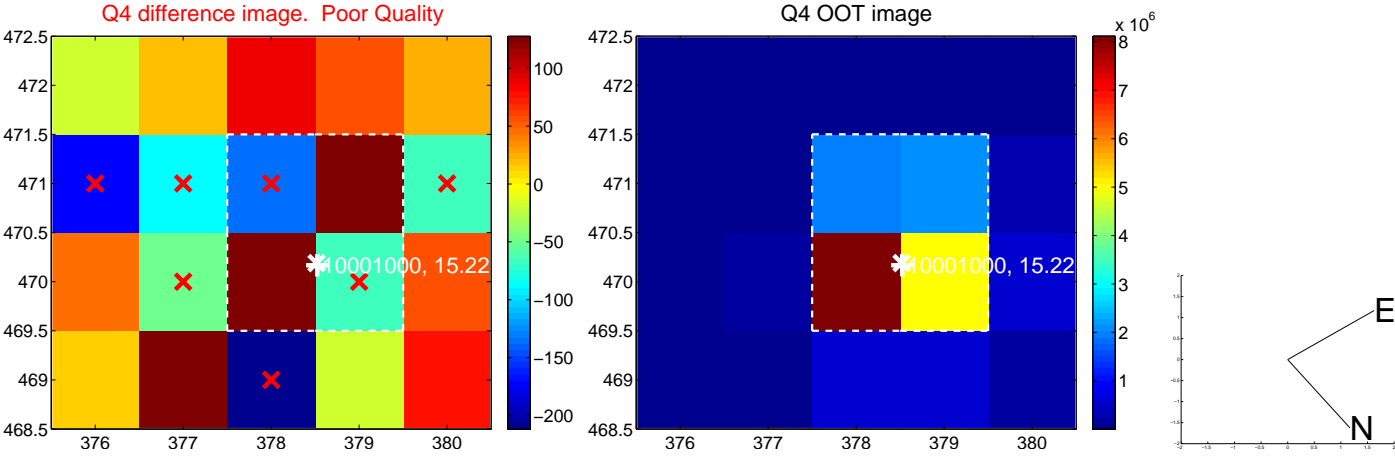
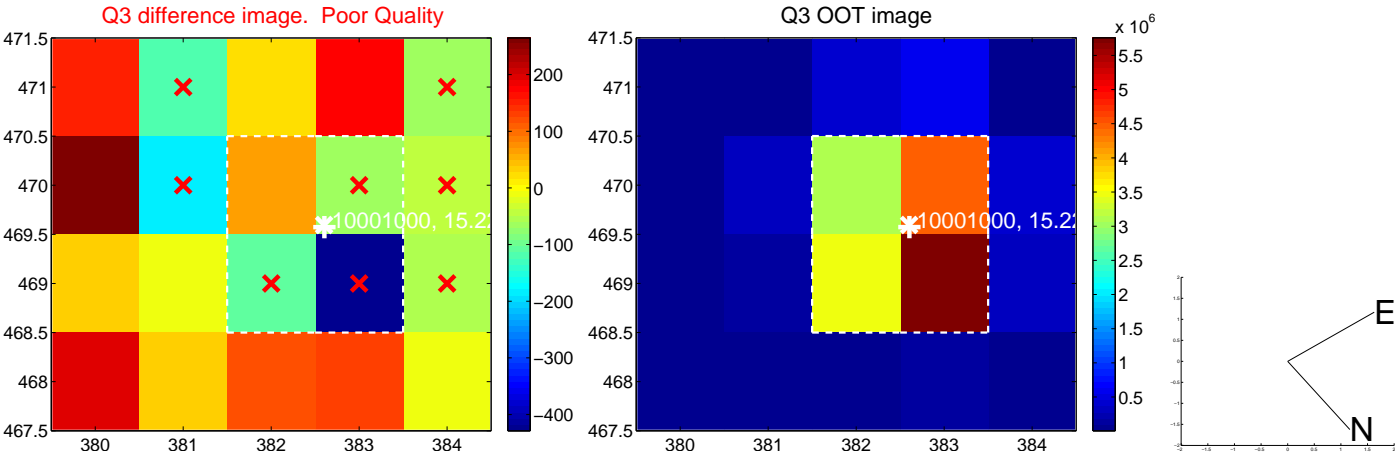
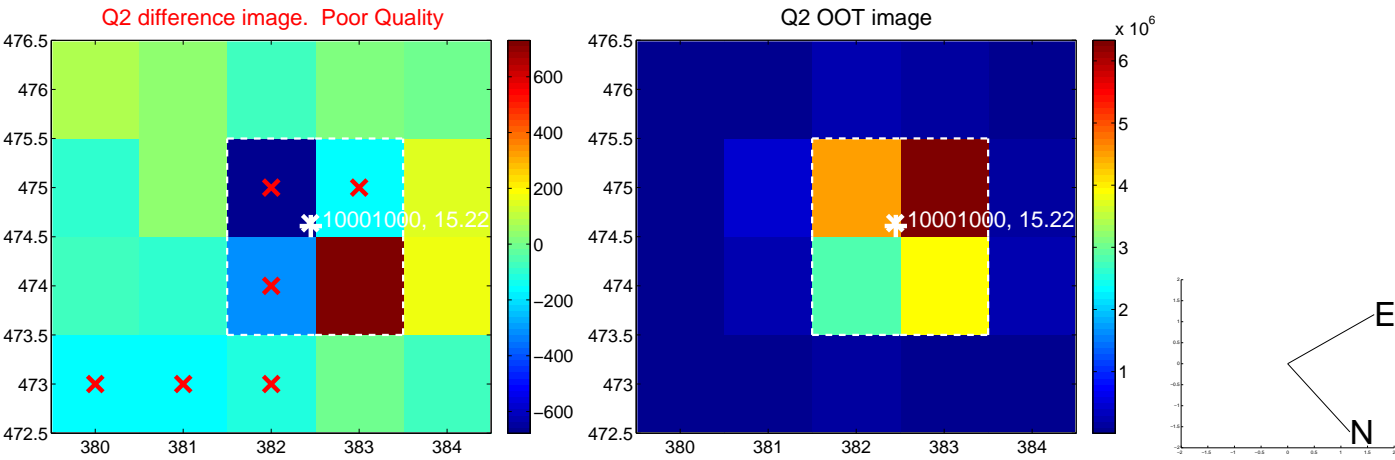
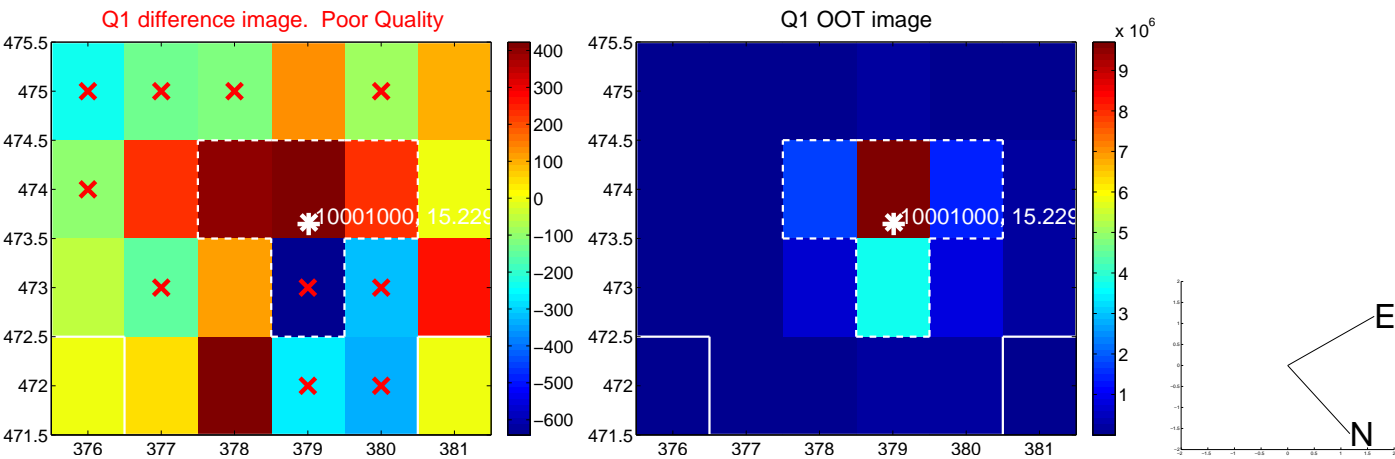
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.389 \pm 0.848$	0.46	$-0.128 \pm 0.351$	$-0.367 \pm 0.874$
PRF-fit source offset from KIC position	$0.374 \pm 0.783$	0.48	$-0.157 \pm 0.355$	$-0.340 \pm 0.804$
photometric centroid source offset	$1.21 \pm 1.23$	0.98	$-0.85 \pm 1.30$	$0.86 \pm 1.15$

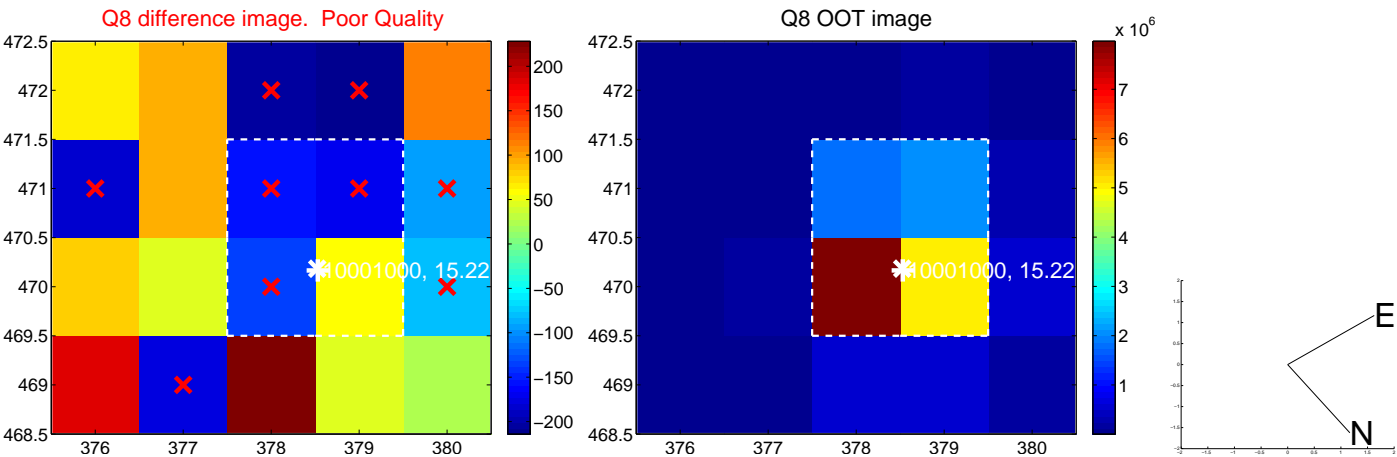
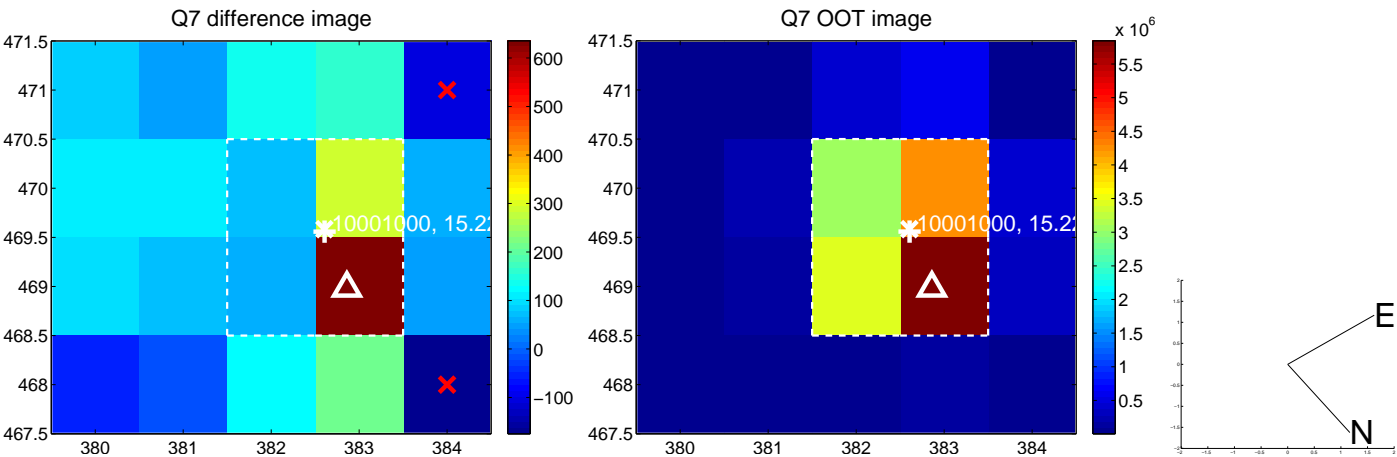
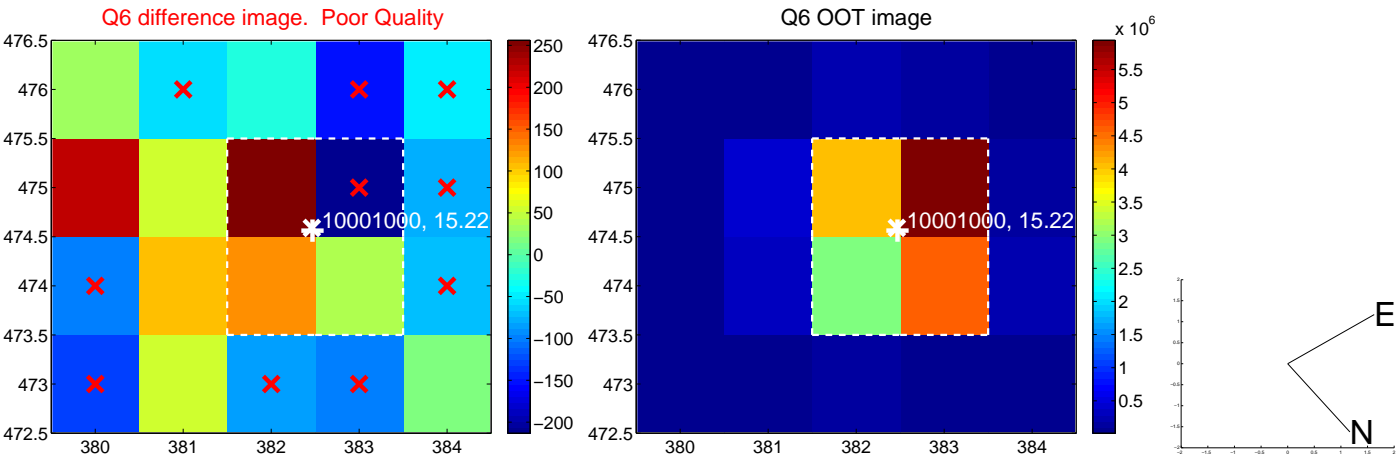
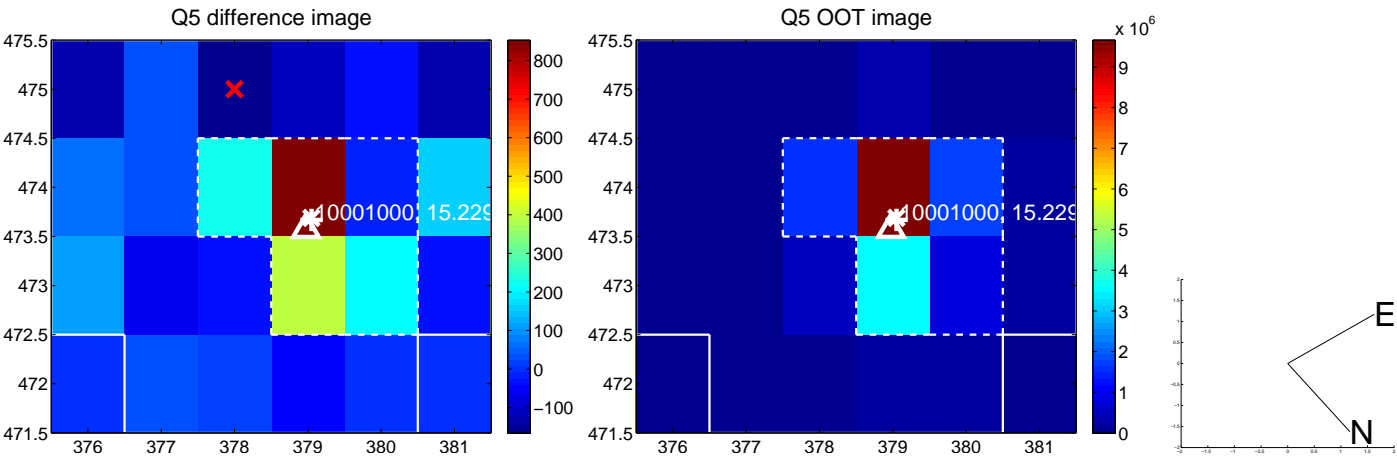


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



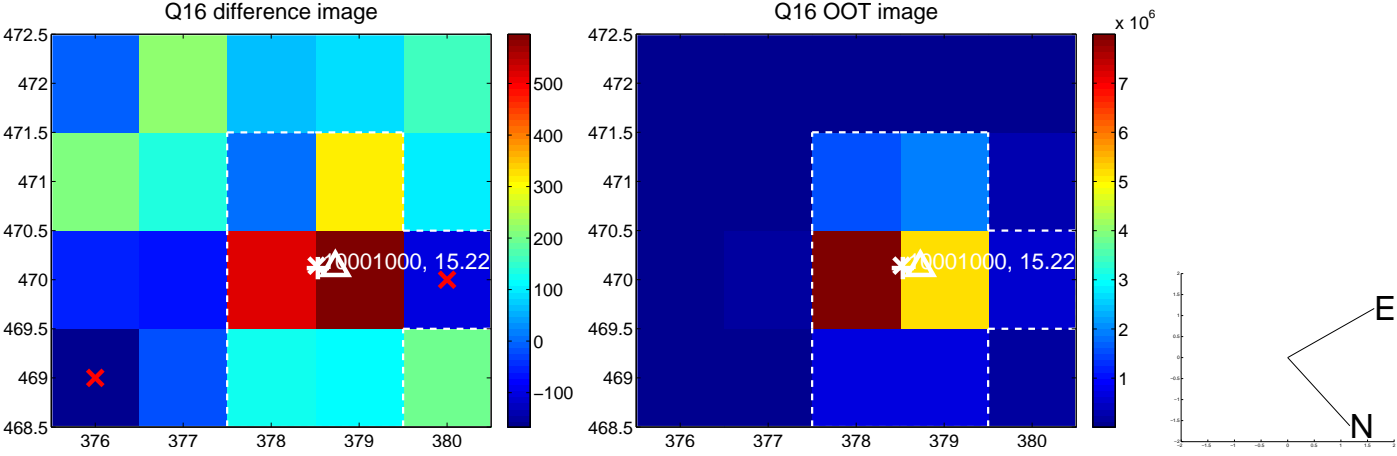
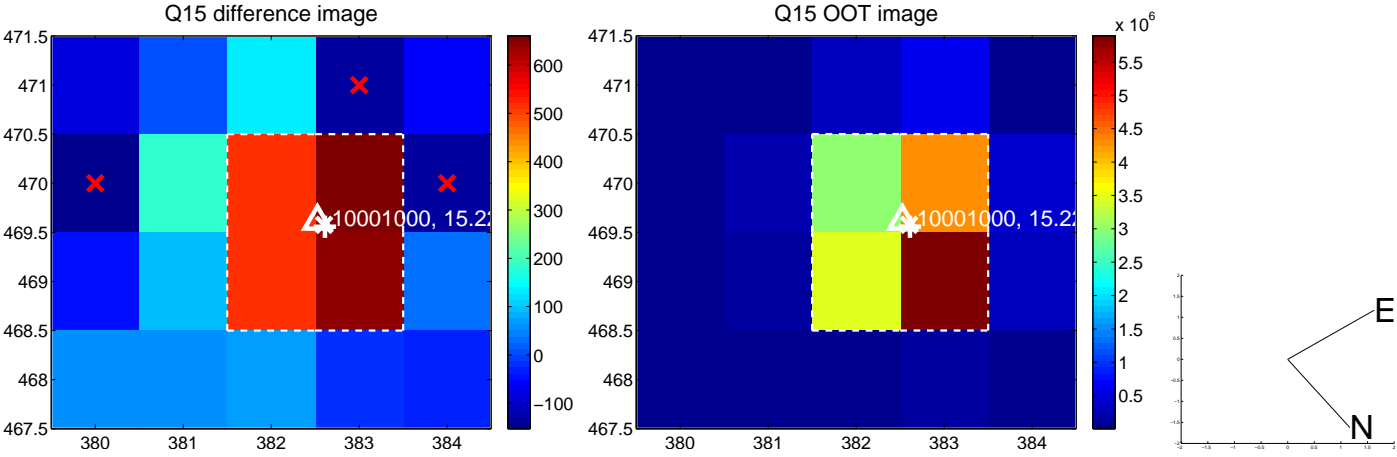
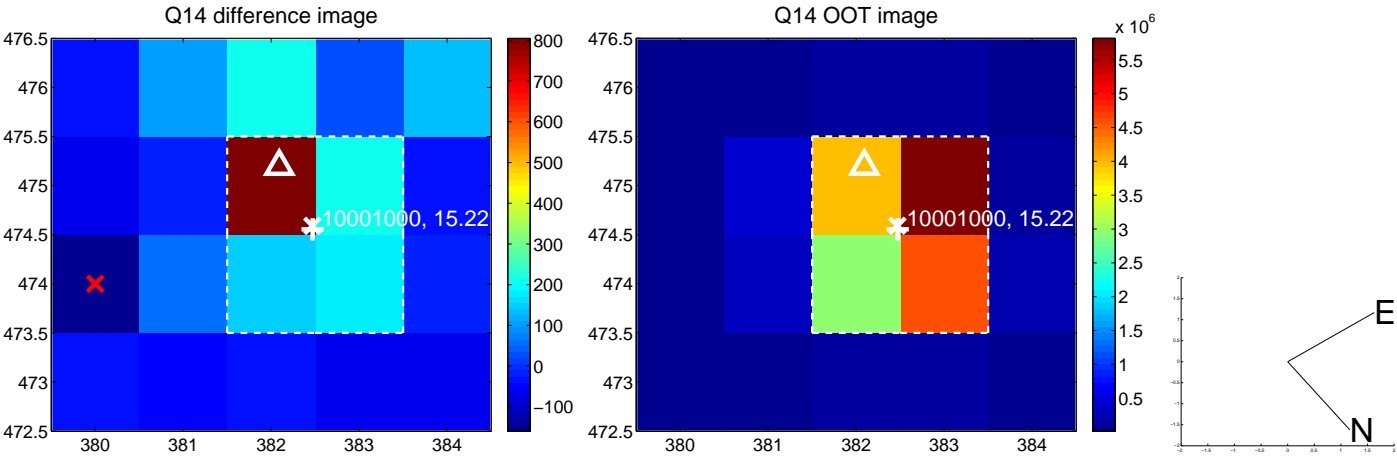
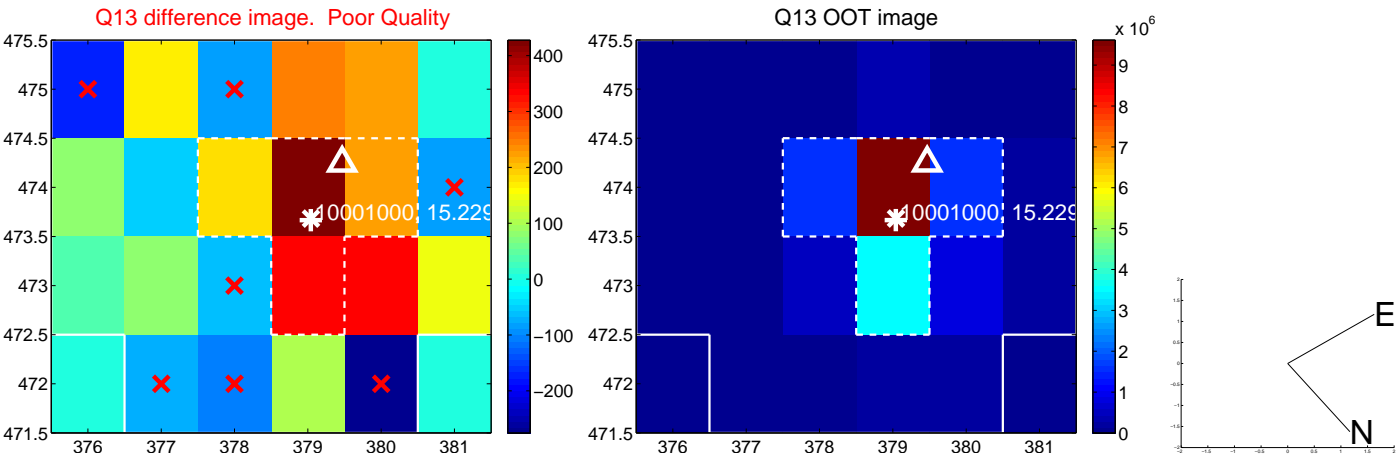
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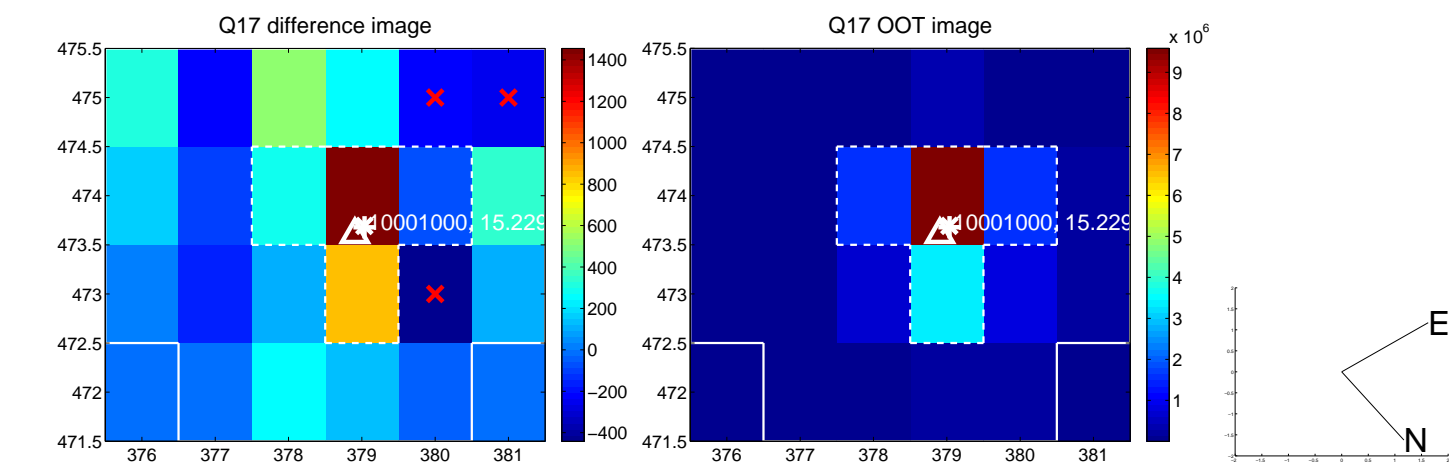




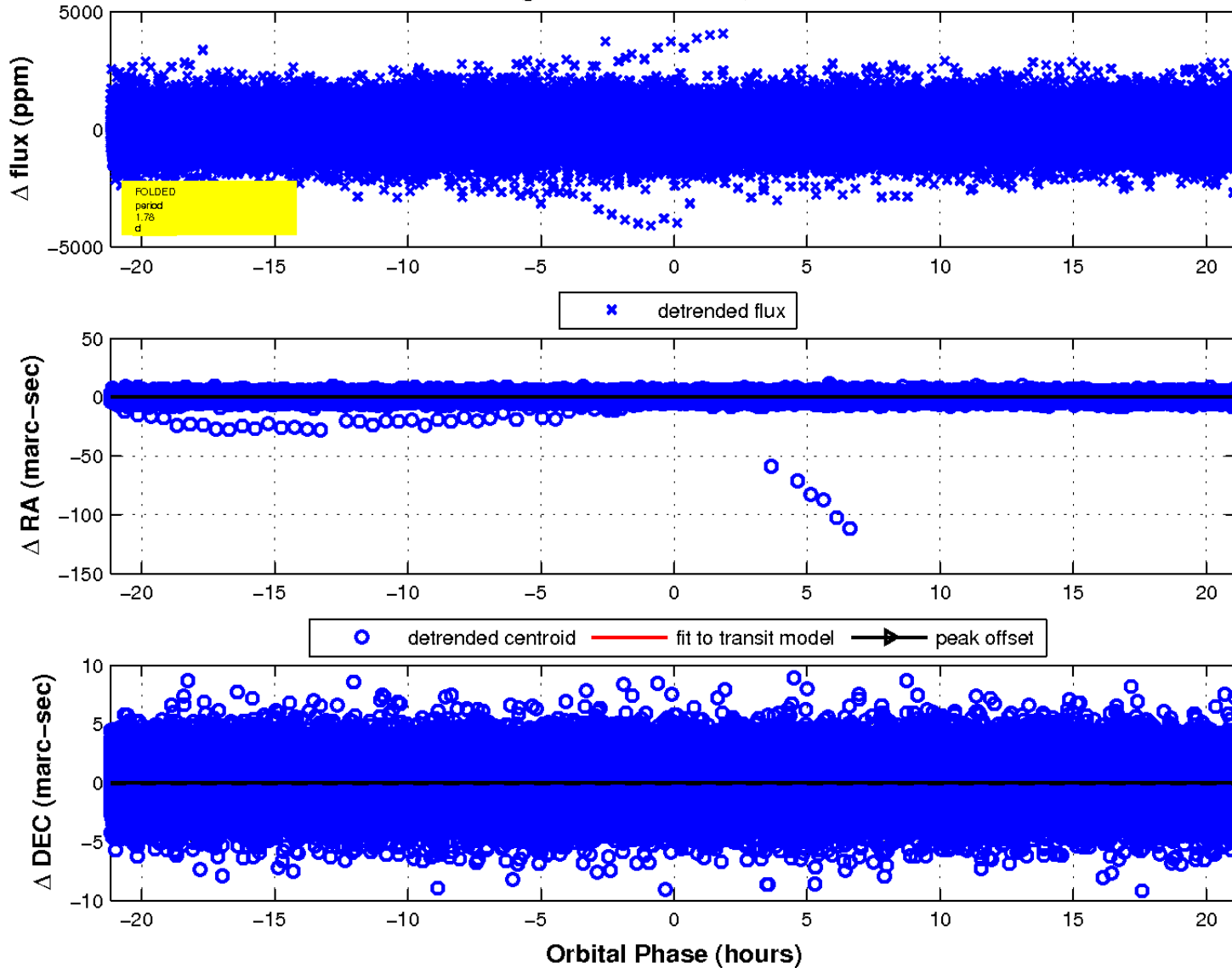
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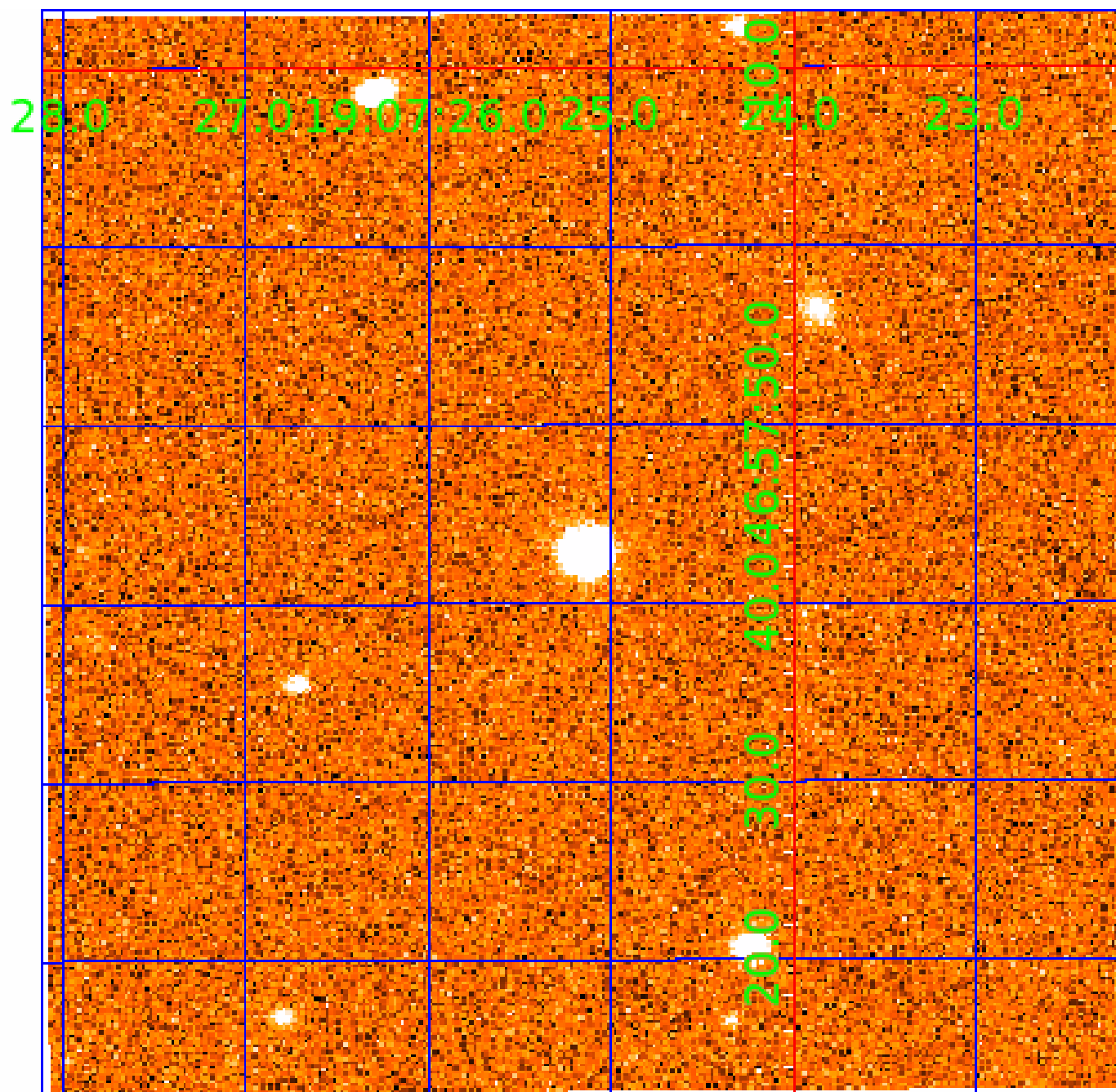


fluxWeightedCentroids, Planet 1 of 5



# UKIRT Image

Declination





# KIC 010001000

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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010001000-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010001000-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
010001000-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
010001000-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—INCONSISTENT_TRANS

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

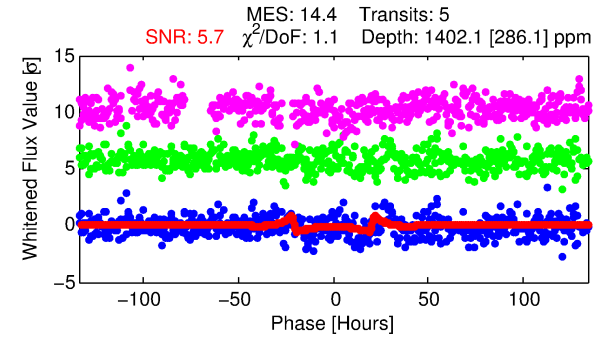
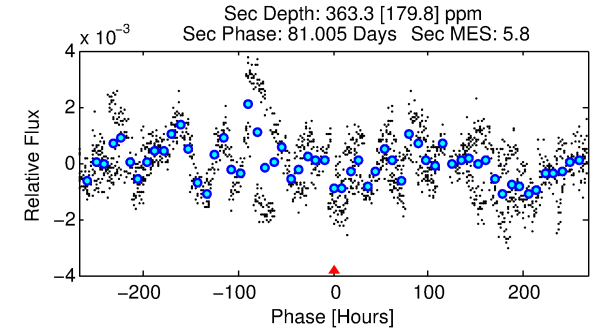
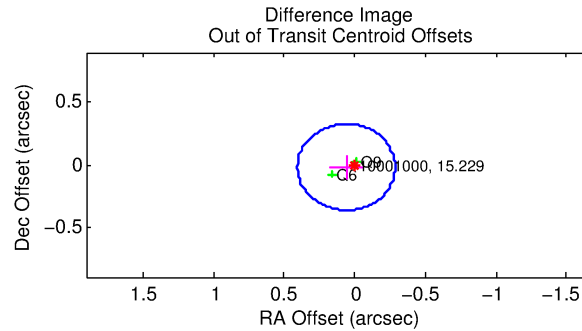
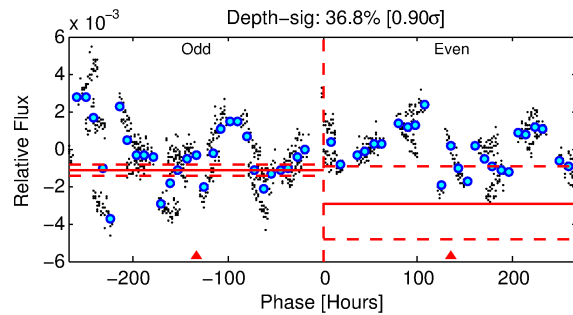
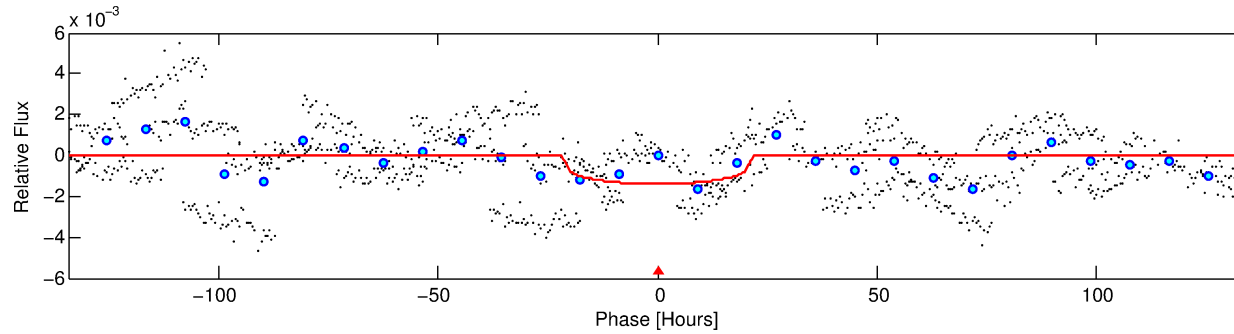
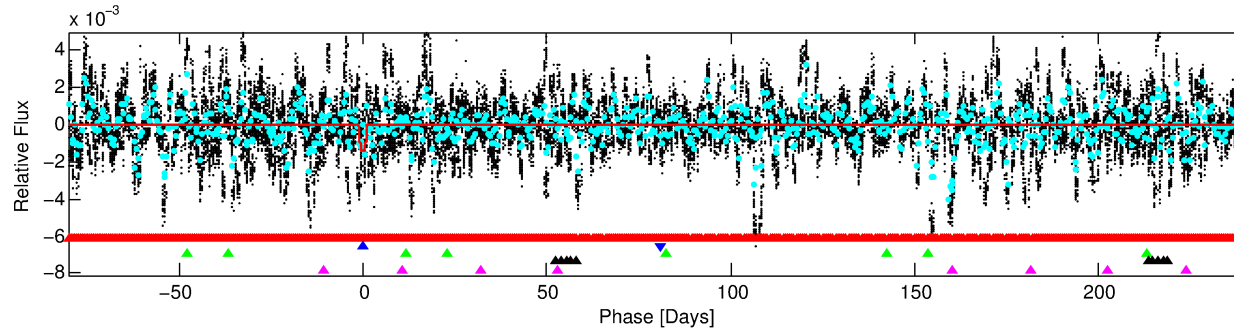
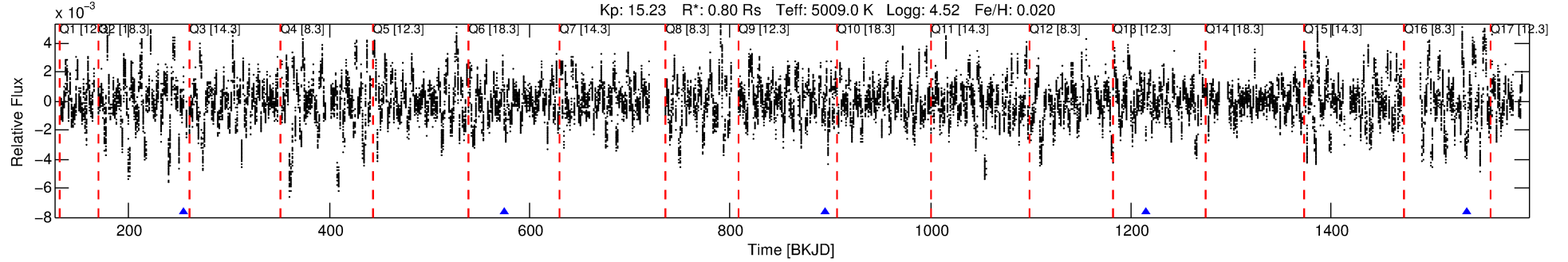
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## Ephemeris Match Information For 010001000-02

No Significant Match Found

# DV One-Page Summary

KIC: 10001000 Candidate: 2 of 5 Period: 320.275 d



## DV Fit Results:

Period = 320.27494 [0.00943] d  
Epoch = 254.4844 [0.0258] BKJD  
Rp/R\* = 0.0363 [0.0047]  
a/R\* = 42.67 [9.65]  
b = 0.68 [0.18]  
Seff = 0.51 [0.10]  
Teq = 216 [11] K  
Rp = 3.18 [0.54] Re  
a = 0.8391 [0.0814] AU  
Ag = 13949.96 [8058.00] [1.73 $\sigma$ ]  
Teffp = 3628 [521] K [6.55 $\sigma$ ]

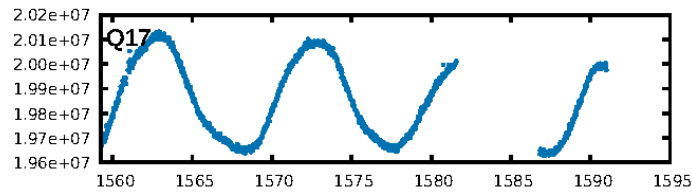
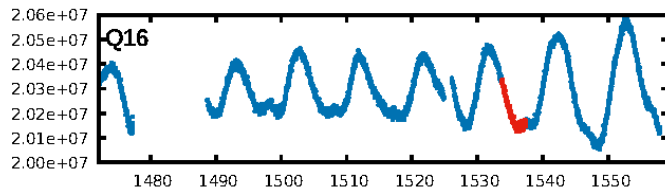
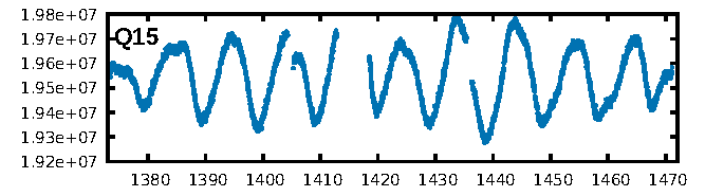
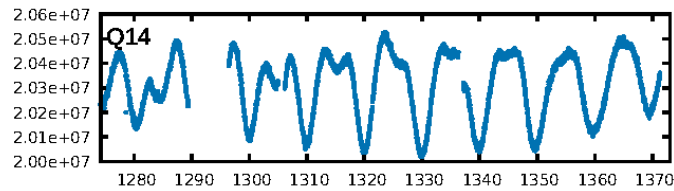
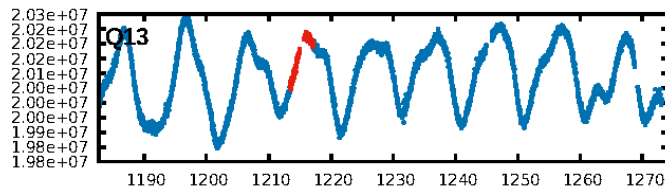
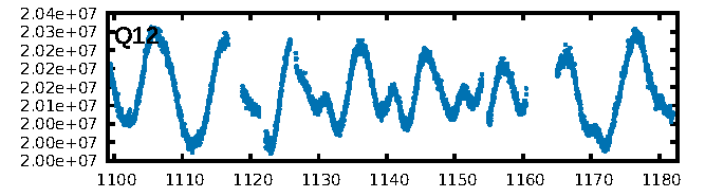
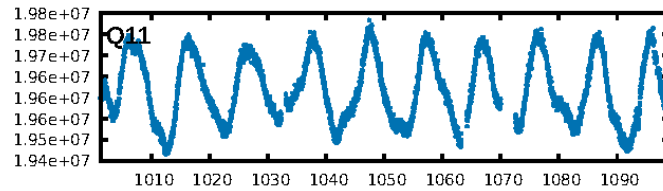
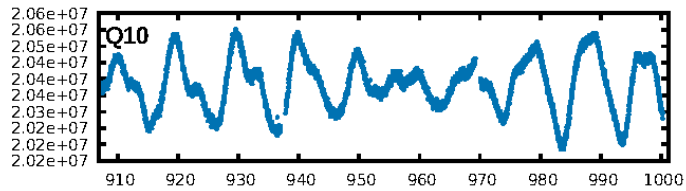
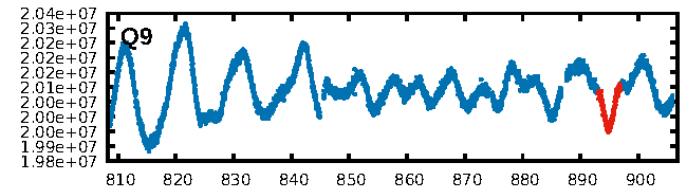
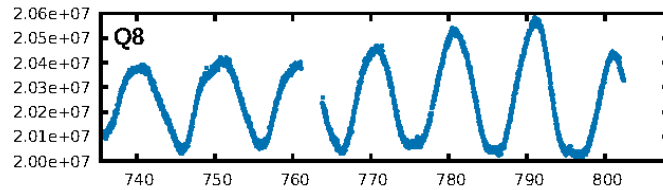
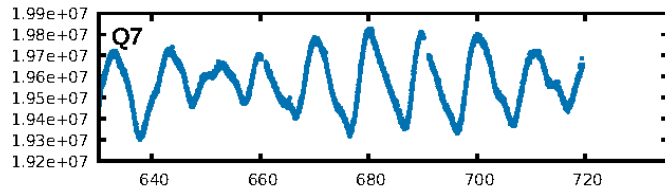
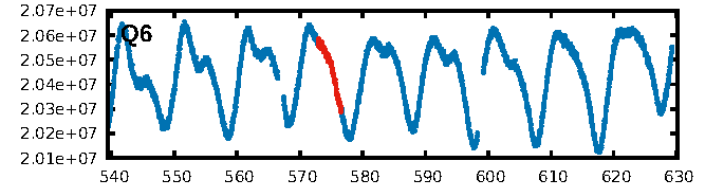
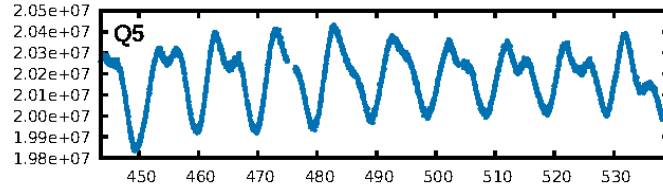
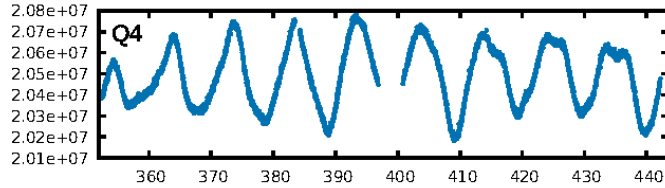
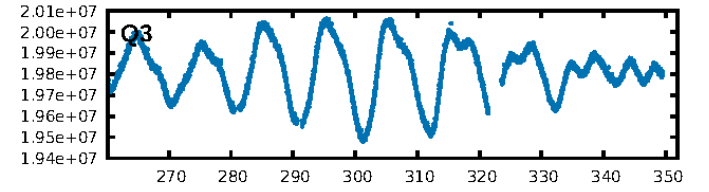
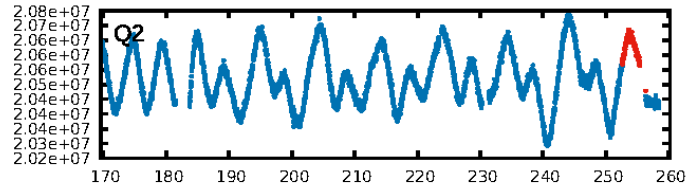
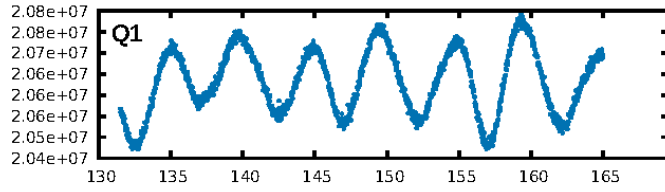
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [68.30 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 20.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 5.96e-23  
RollingBand-fgt: 1.00 [5/5]  
**GhostDiagnostic-chr: -0.1518**  
Centroid-sig: 3.1%  
Centroid-so: 0.383 arcsec [1.54 $\sigma$ ]  
OotOffset-rm: 0.063 arcsec [0.54 $\sigma$ ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-rm: 0.083 arcsec [0.89 $\sigma$ ]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.00 [0/2]

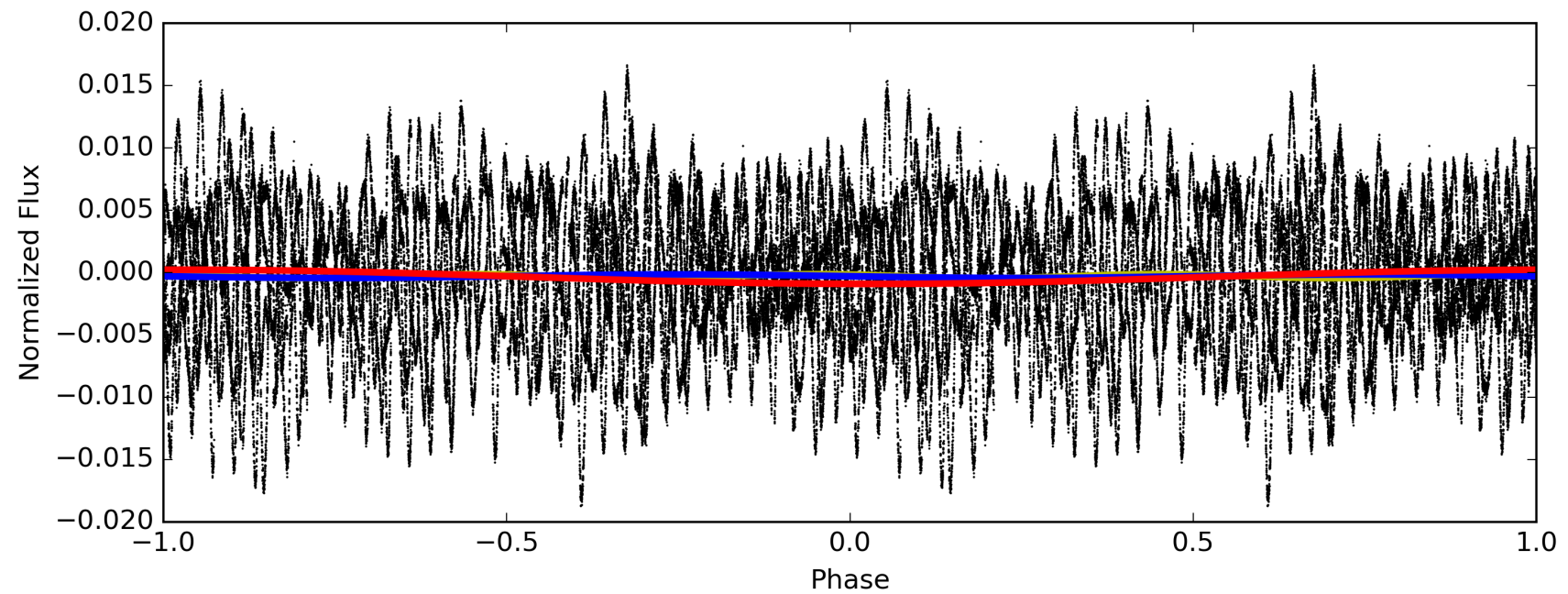
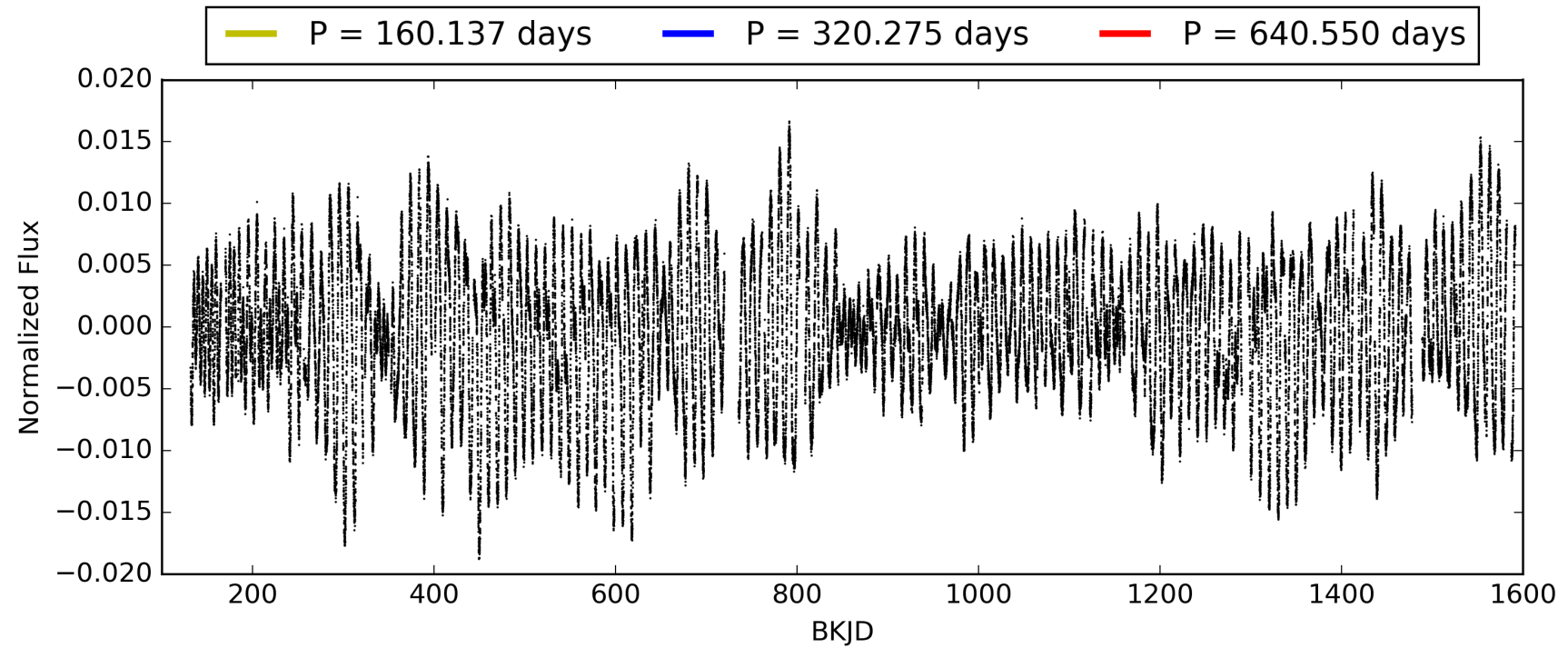
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:30:40 Z

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

# TCE 010001000-02, PDC Light Curves

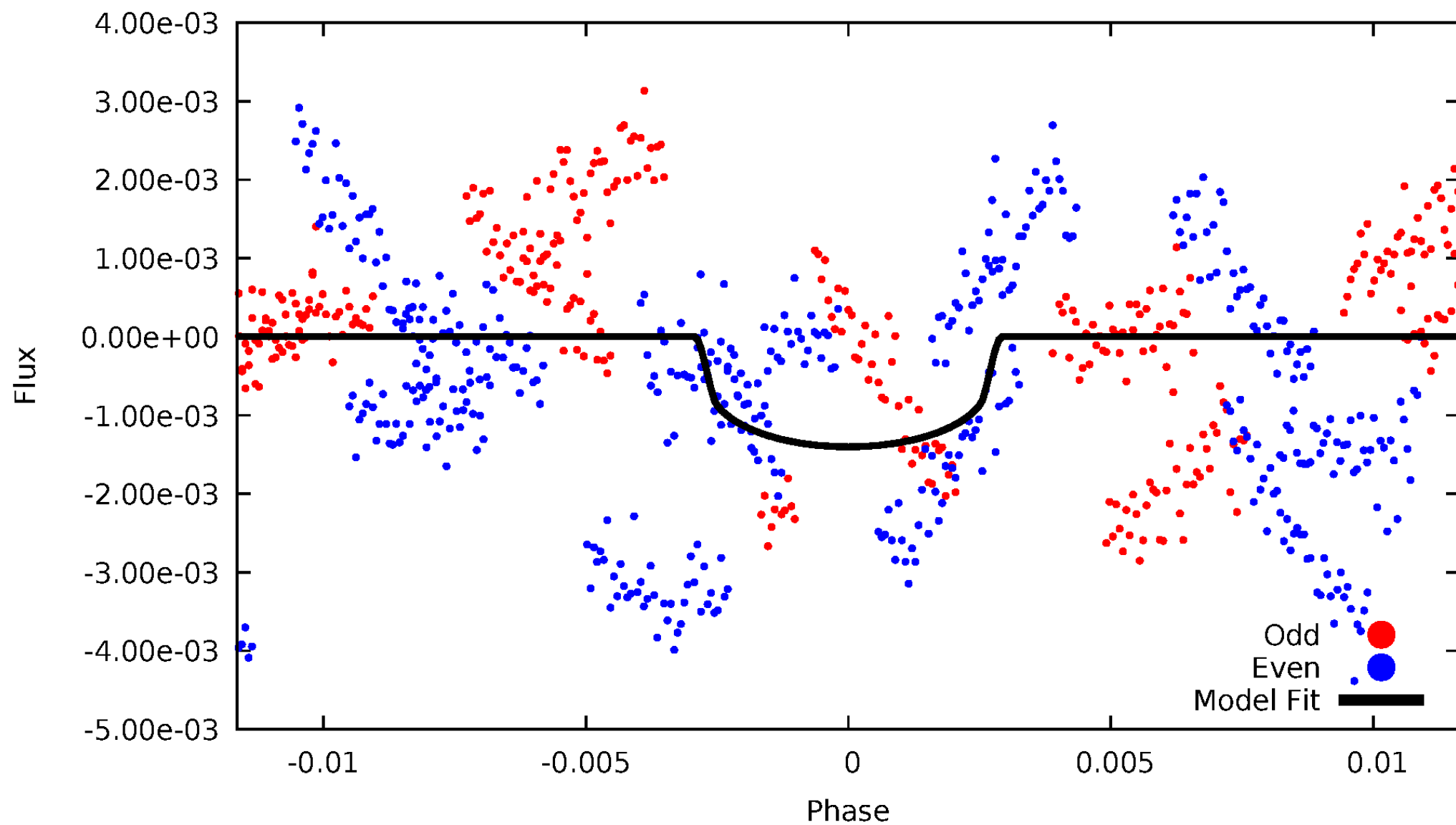


TCE 010001000-02



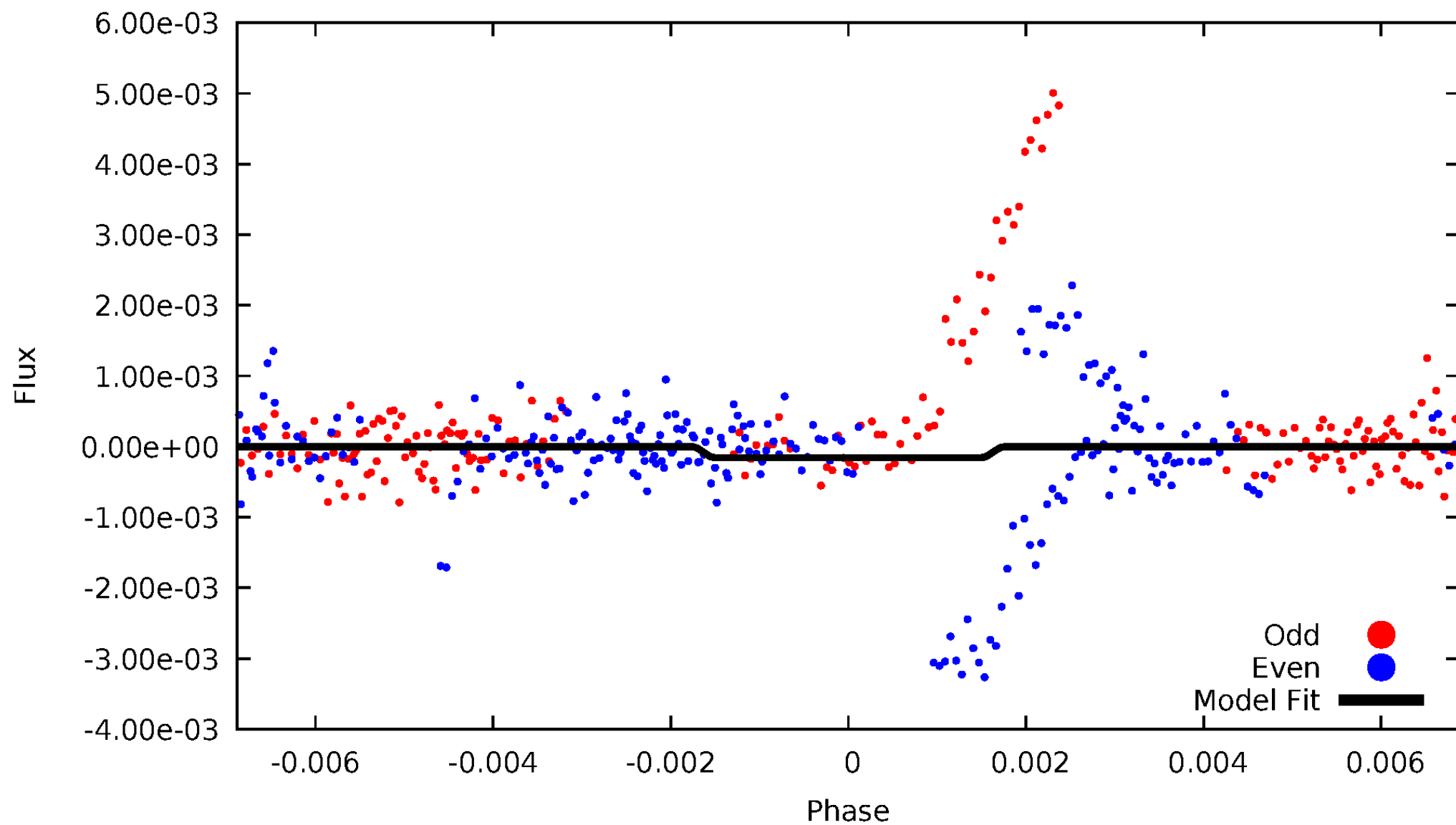
# DV Odd/Even

TCE 010001000-02



# ALT Odd/Even

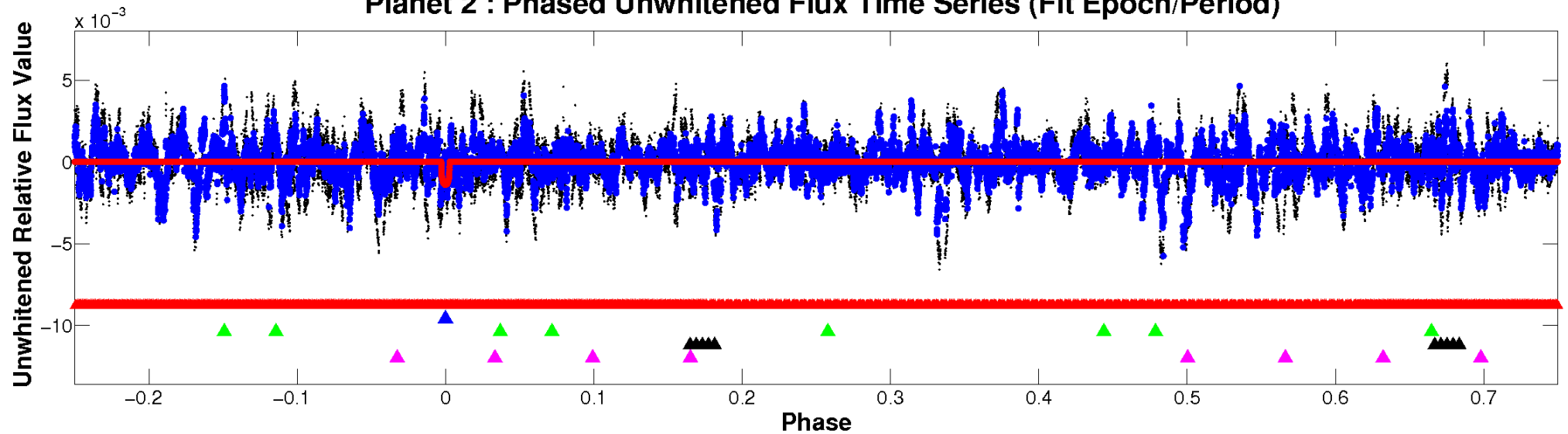
TCE 010001000-02



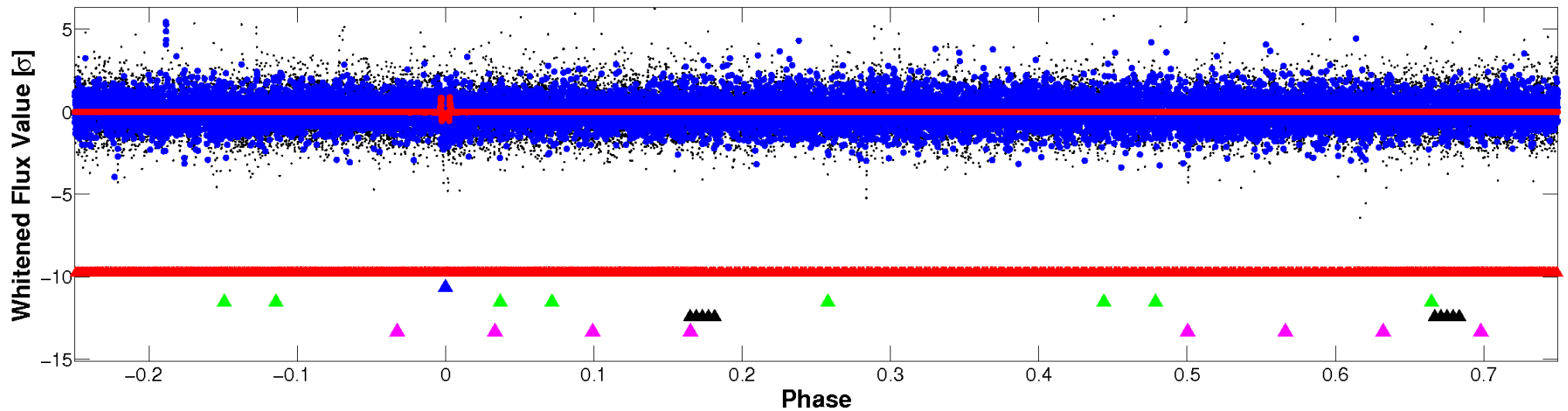


# Non-Whitened Vs. Whitened Light Curve

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

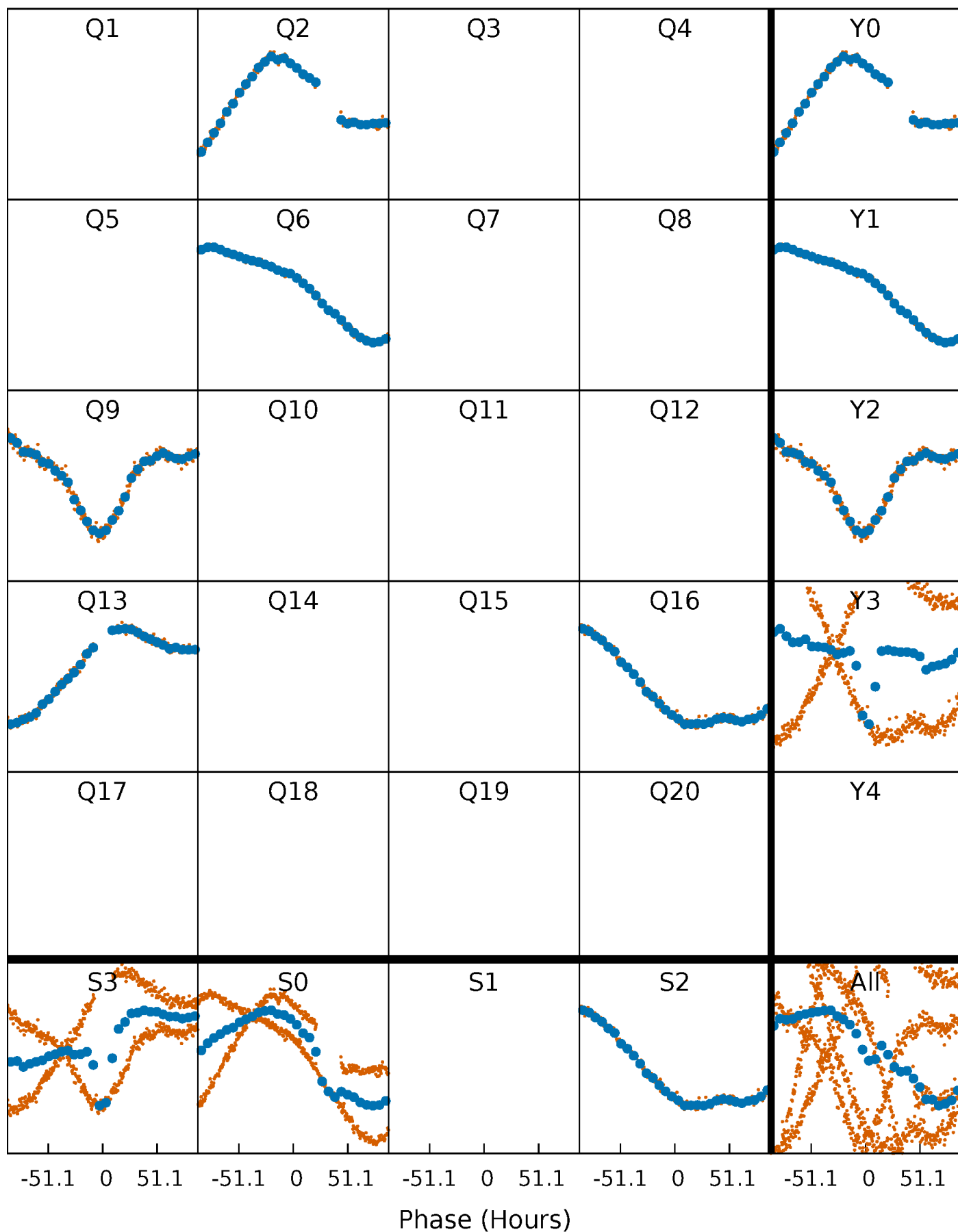


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



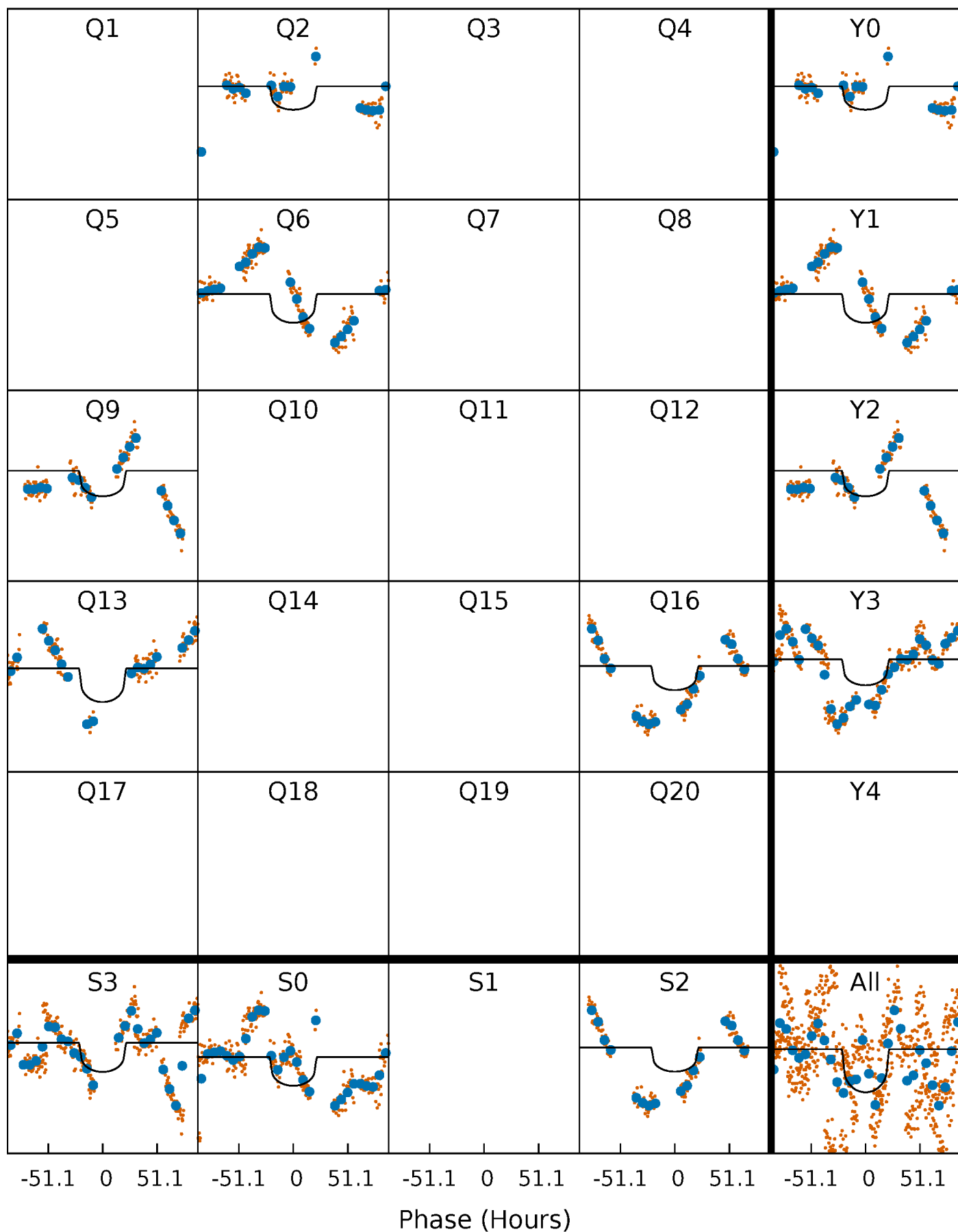
# PDC Quarter-Phased Transit Curves

TCE 010001000-02     $P=320.274944$  Days     $T_0=254.484367$  (BKJD)



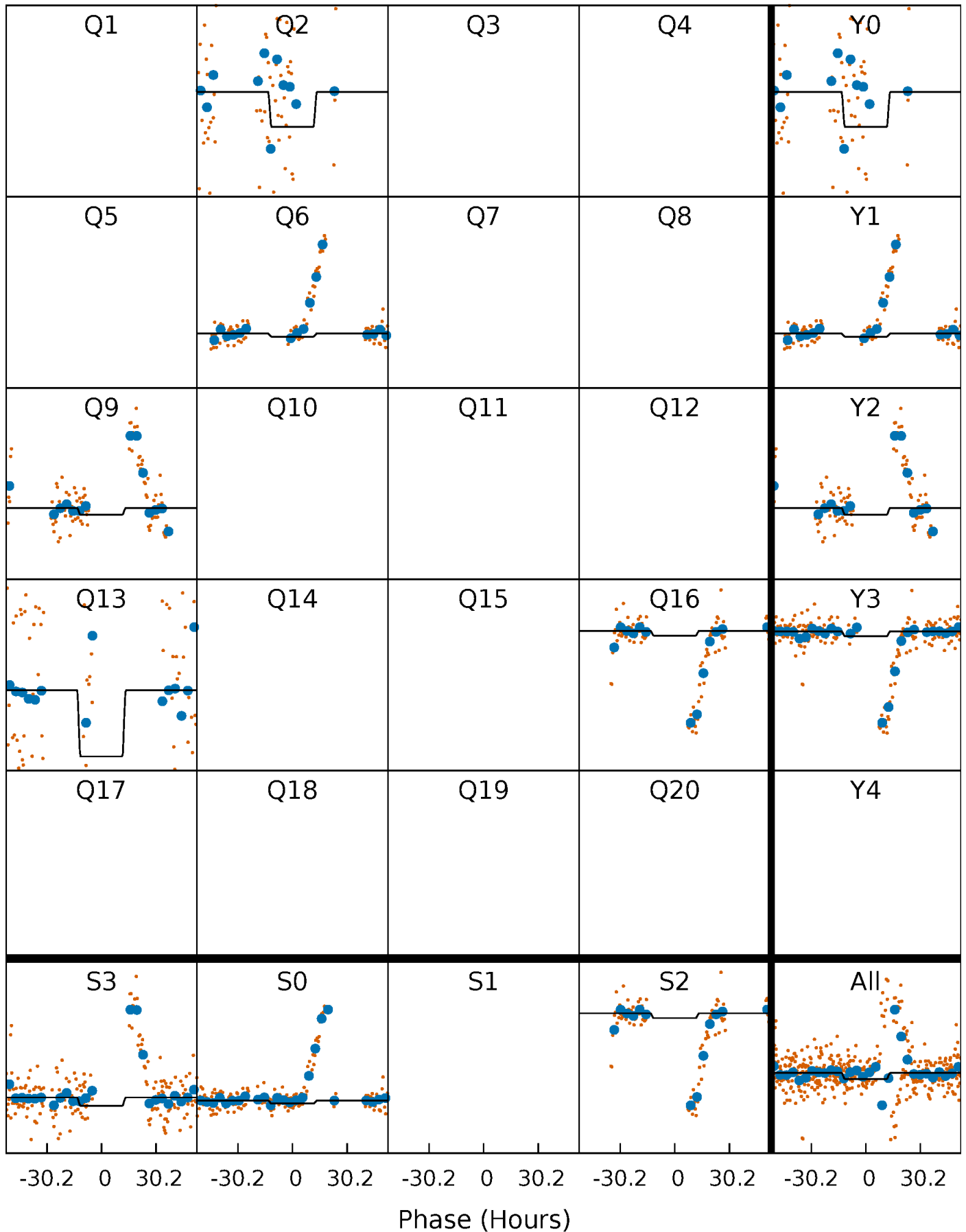
# DV Quarter-Phased Transit Curves

TCE 010001000-02     $P=320.274944$  Days     $T_0=254.484367$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

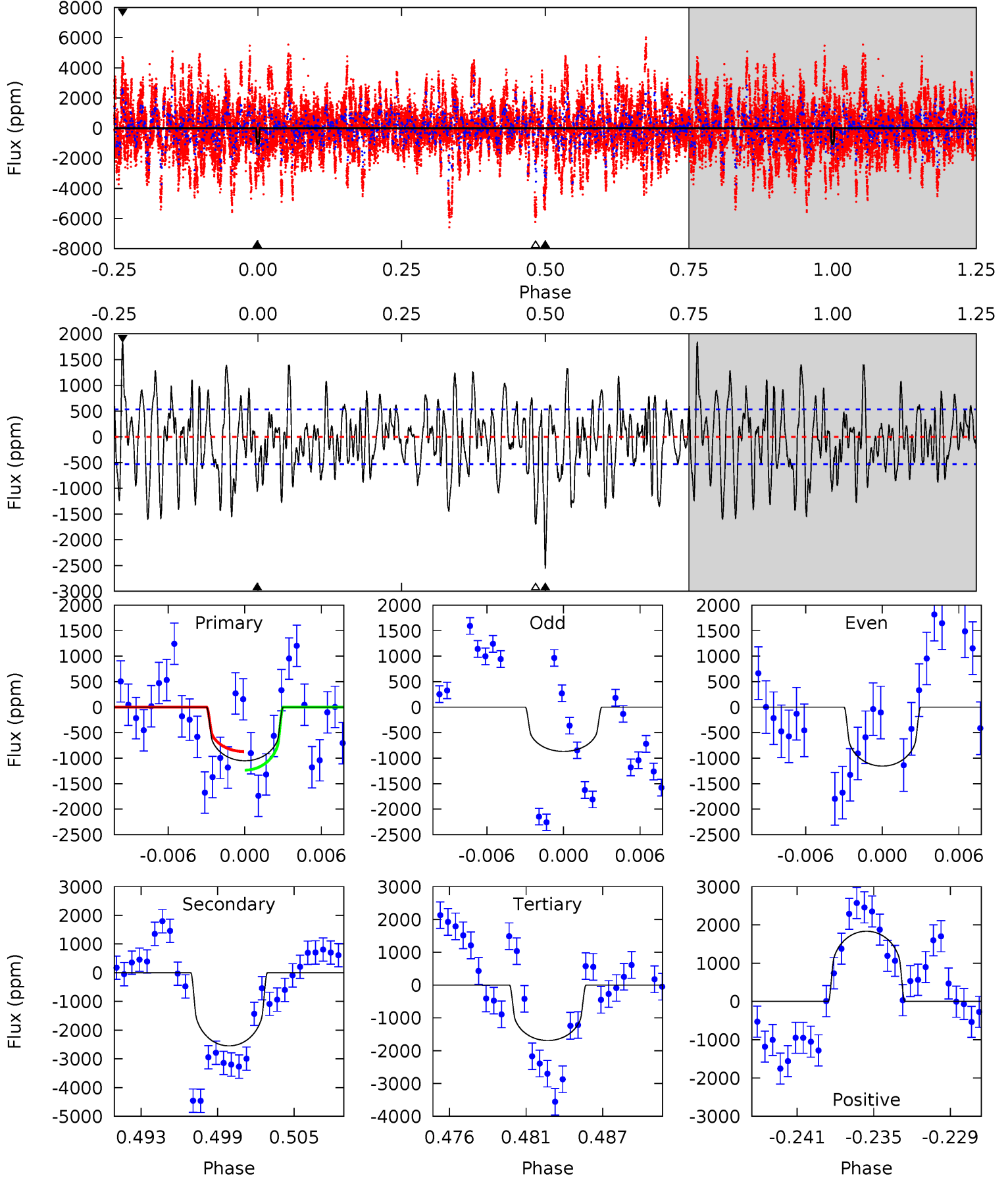
TCE 010001000-02     $P=320.268808$  Days     $T_0=254.385229$  (BKJD)



# DV Model-Shift Uniqueness Test

010001000-02, P = 320.274944 Days, E = 254.484367 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
10.1	24.5	16.2	17.6	5.13	2.75	5.63	-6.14	-7.53	8.23	6.85	1.31	1.98	0.42	1.76

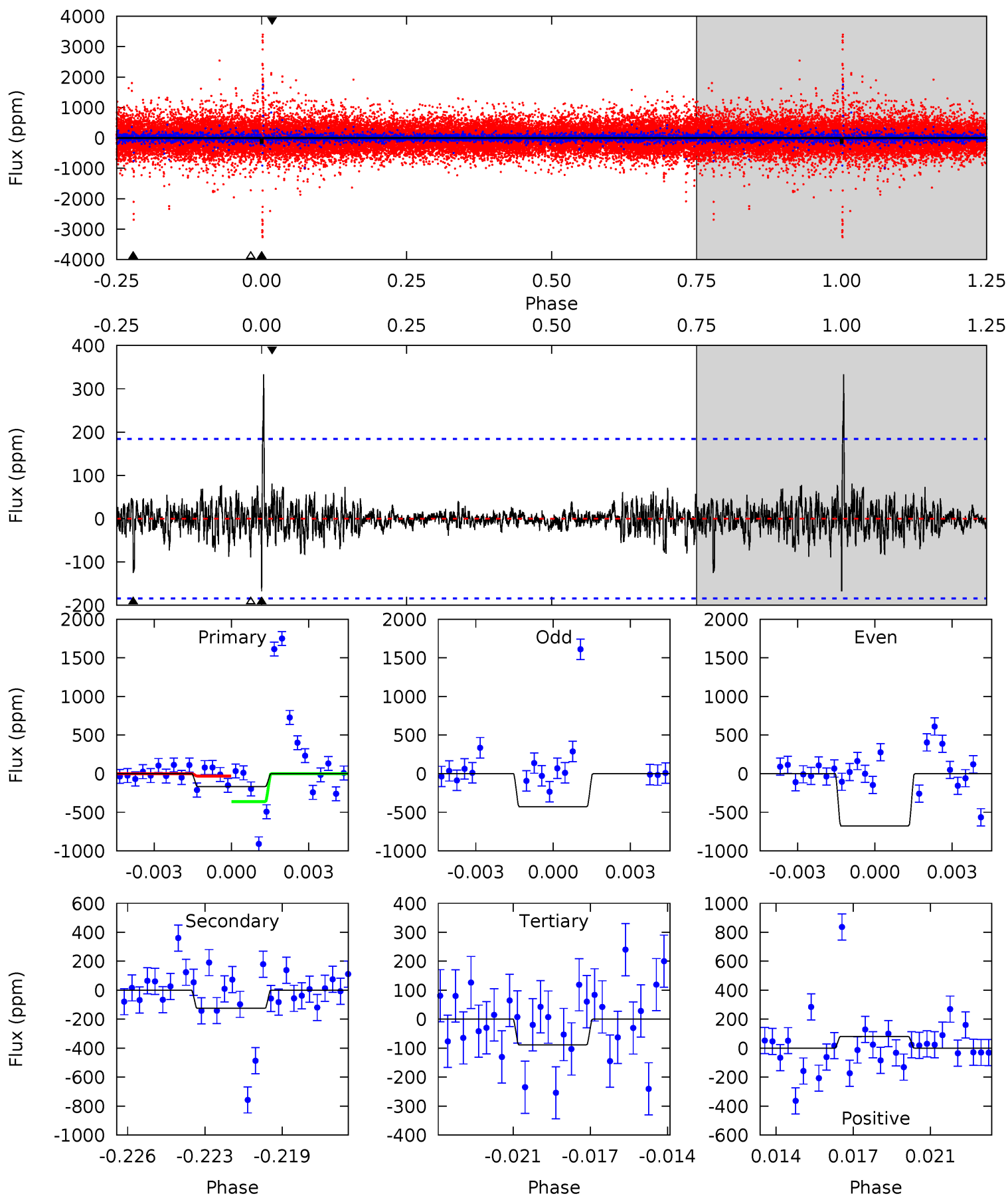




# Alt Model-Shift Uniqueness Test

010001000-02, P = 320.268808 Days, E = 254.385229 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
4.76	3.56	2.52	2.29	5.23	2.93	0.68	2.24	2.47	1.04	1.27	3.40	41.0	0.67	4.71



### Stellar Parameters For KIC 010001000

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5009^{+166}_{-151}$	$4.516^{+0.084}_{-0.056}$	$0.020^{+0.250}_{-0.300}$	$0.801^{+0.071}_{-0.087}$	$0.768^{+0.085}_{-0.057}$	$2.106^{+0.742}_{-0.383}$
	+3%/-3%	+2%/-1%	+1250%/-1500%	+9%/-11%	+11%/-7%	+35%/-18%
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 010001000-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2547 \pm 104$	$3.19^{+0.42}_{-0.48}$	$300^{+13}_{-13}$	$5803^{+456}_{-383}$	$98214^{+35141}_{-20545}$
Alt.	$-125 \pm 35$	$1.07^{+0.42}_{-0.41}$	$300^{+13}_{-12}$	$4788^{+1209}_{-622}$	$41912^{+67695}_{-21299}$

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

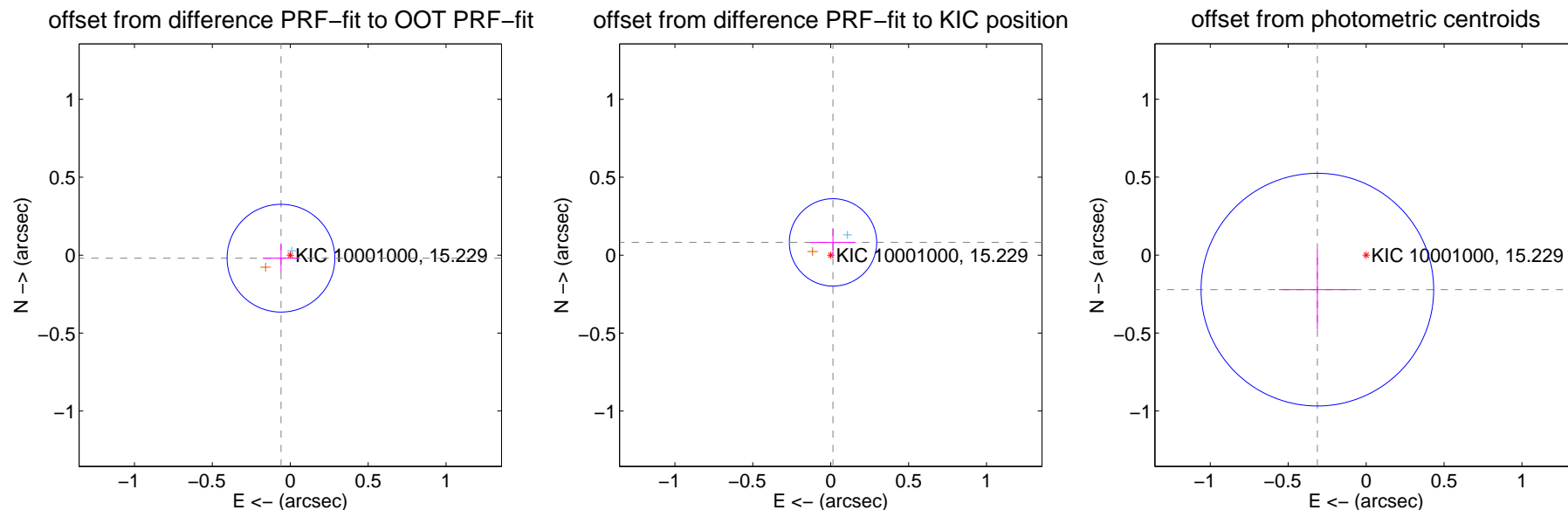
## DV Centroid Data

Supplemental centroid analysis for 010001000-02. Kepler magnitude: 15.23. Transit SNR 5.72

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.063 \pm 0.115$	0.54	$0.060 \pm 0.118$	$-0.019 \pm 0.091$
PRF-fit source offset from KIC position	$0.083 \pm 0.093$	0.89	$-0.015 \pm 0.145$	$0.082 \pm 0.091$
photometric centroid source offset	$0.38 \pm 0.25$	1.54	$0.31 \pm 0.25$	$-0.22 \pm 0.25$

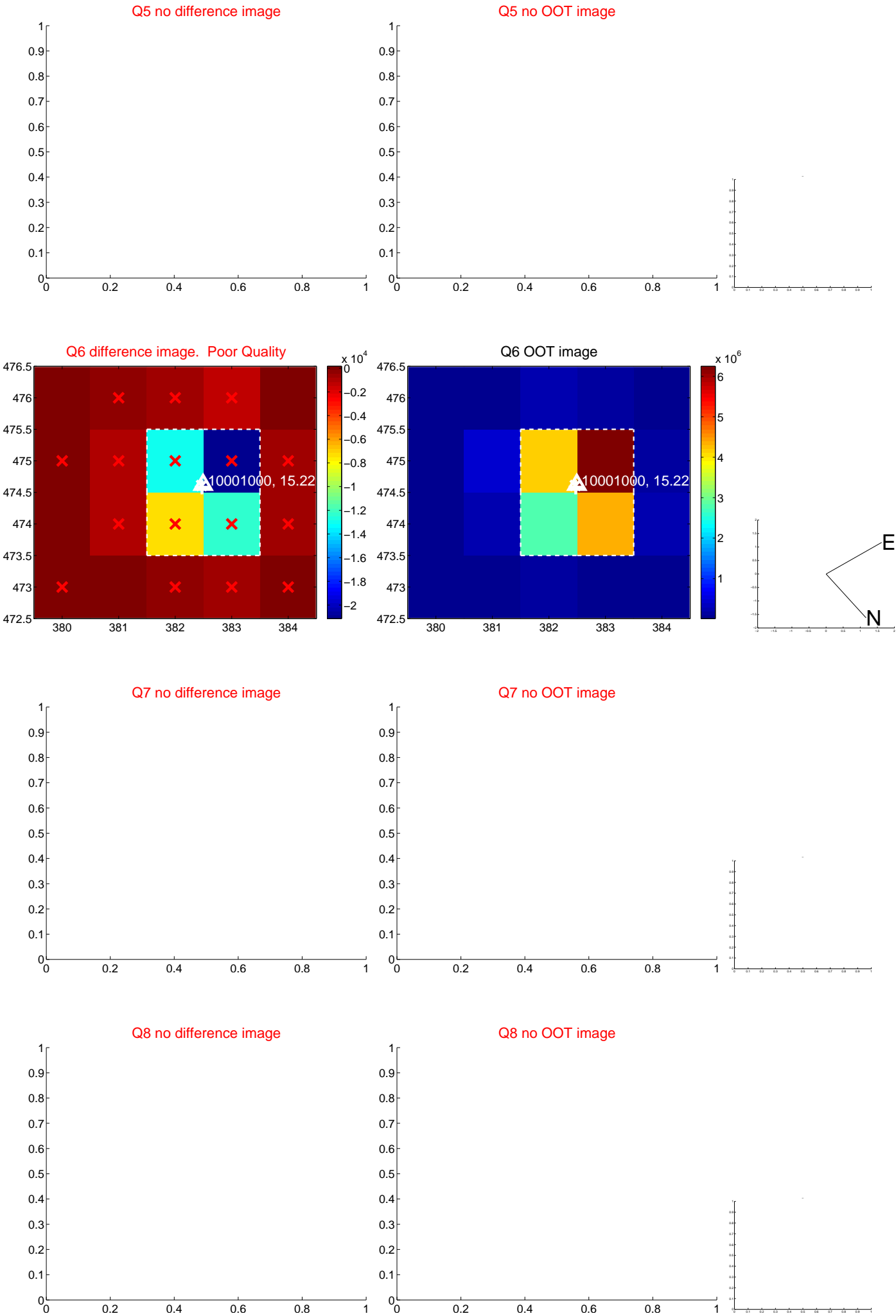


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

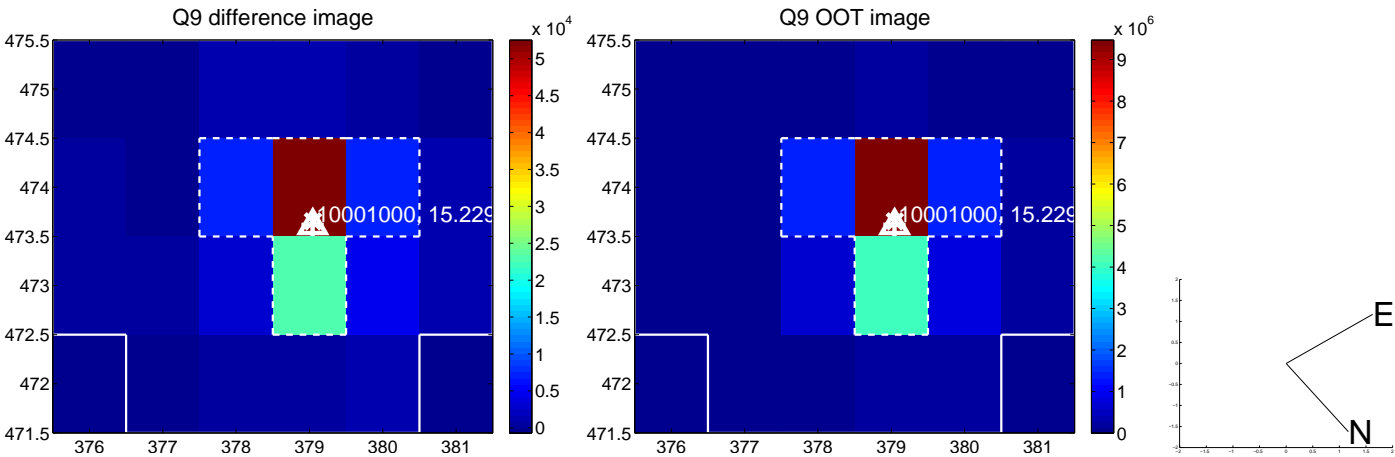


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





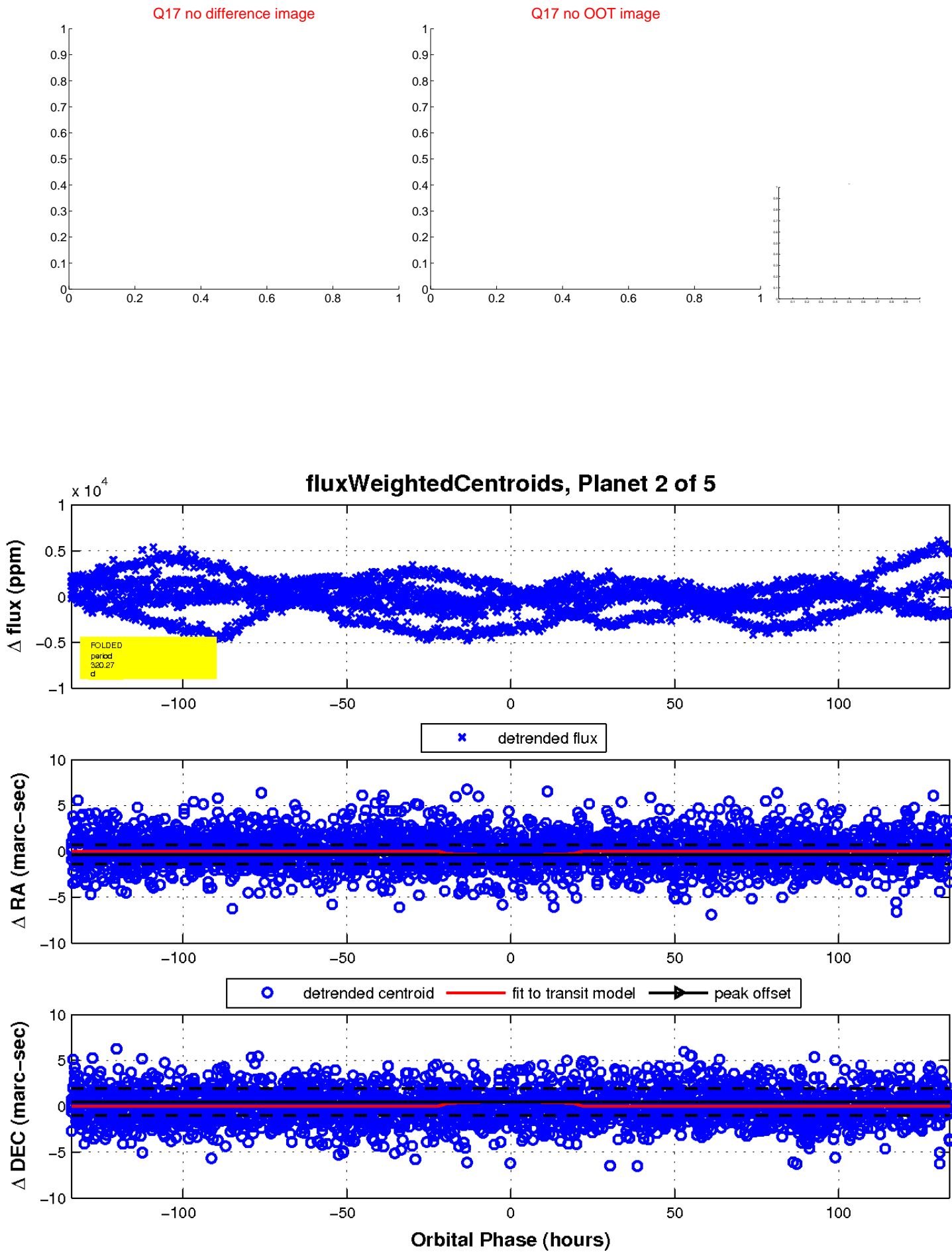
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

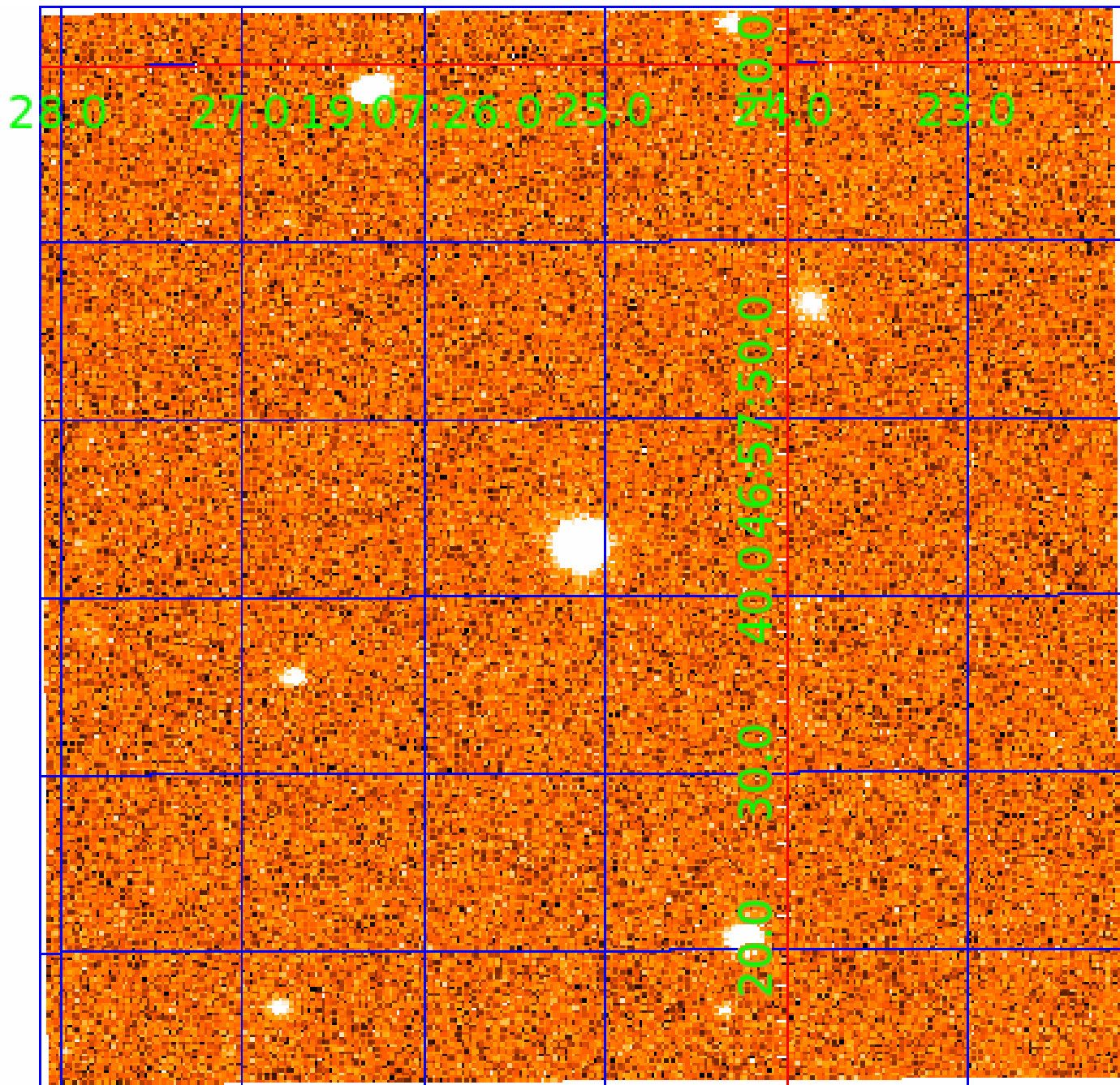


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 010001000

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010001000-01	OBS	No	1.783336	131.826395	49.5	7.058	7.3	6.9	0.80	5009	0.67	520.81
010001000-02	OBS	No	320.274944	254.484367	1402.1	44.740	14.4	5.7	0.80	5009	3.18	0.51
010001000-03	OBS	No	189.934865	217.873546	603.0	9.791	12.9	6.0	0.80	5009	1.94	1.03
010001000-04	OBS	No	159.477125	153.119484	723.9	12.000	10.1	-1.0	0.80	5009	2.09	1.30
010001000-05	OBS	No	170.691015	244.057370	814.4	9.412	9.6	7.4	0.80	5009	2.32	1.19

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010001000-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010001000-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010001000-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
010001000-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
010001000-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—INCONSISTENT_TRANS

**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.

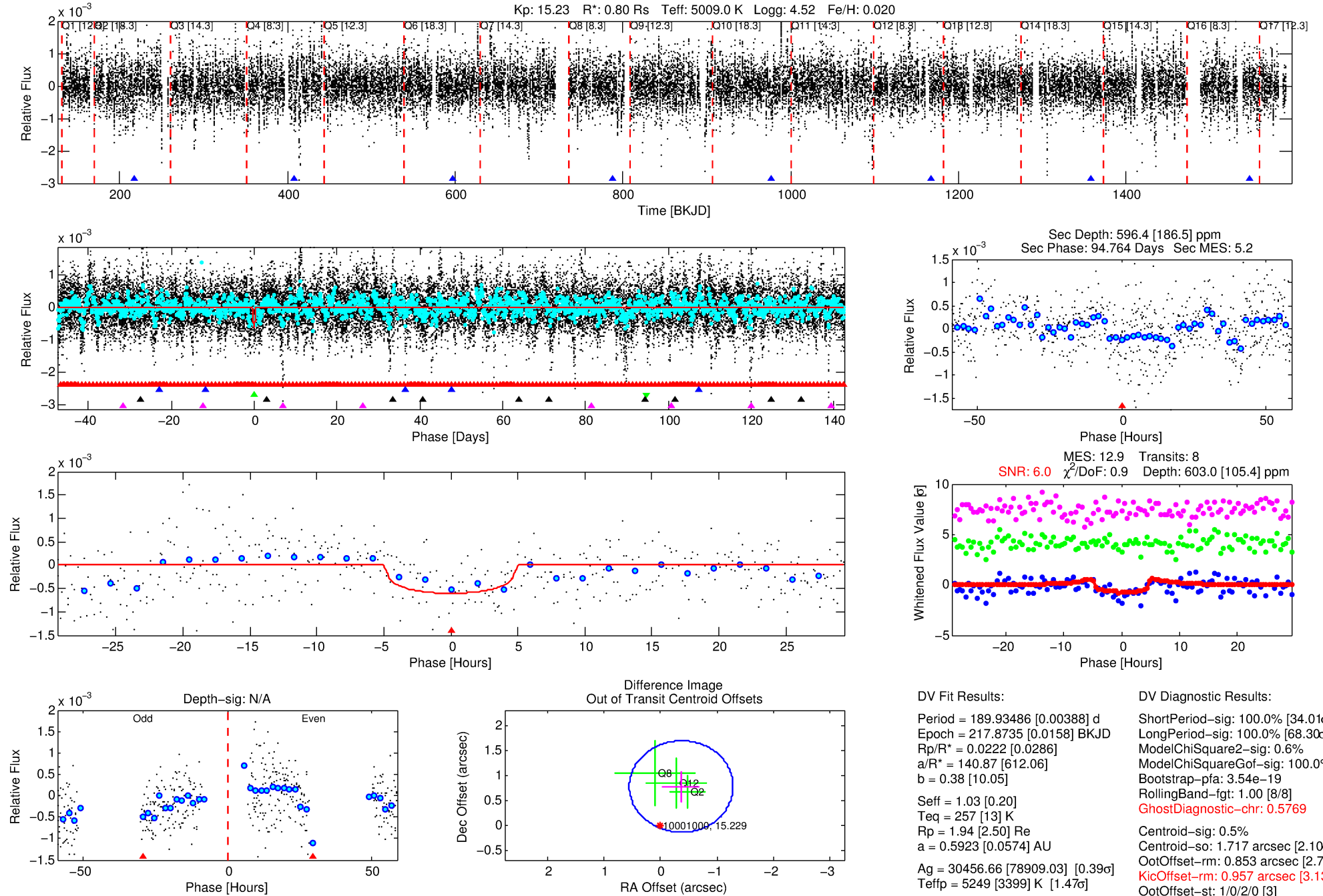
## Ephemeris Match Information For 010001000-03

No Significant Match Found



# DV One-Page Summary

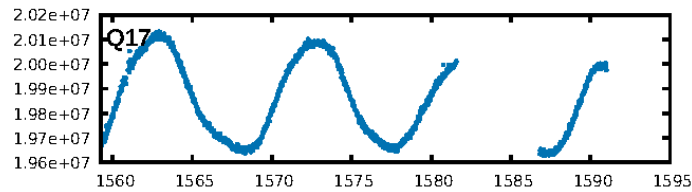
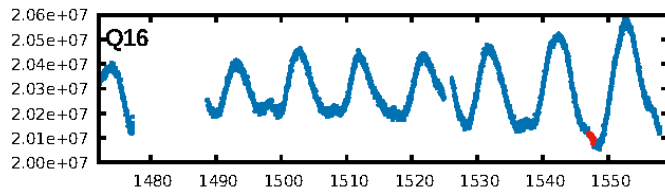
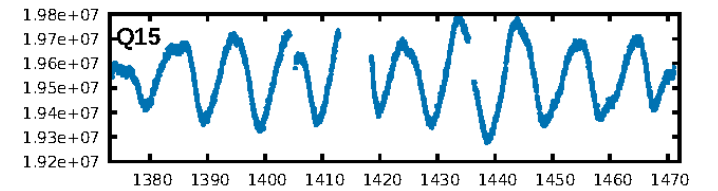
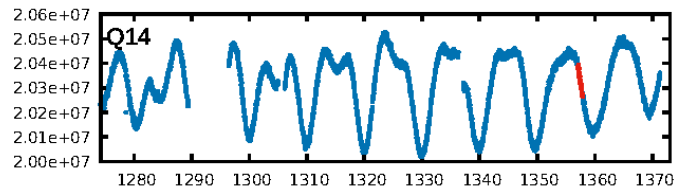
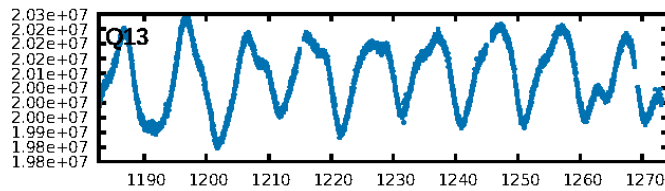
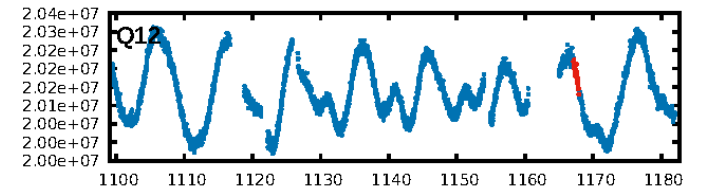
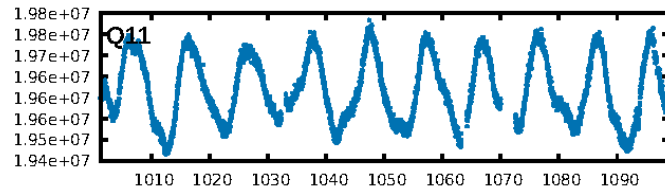
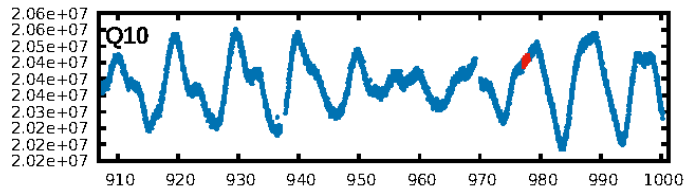
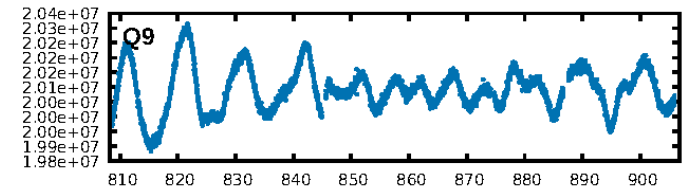
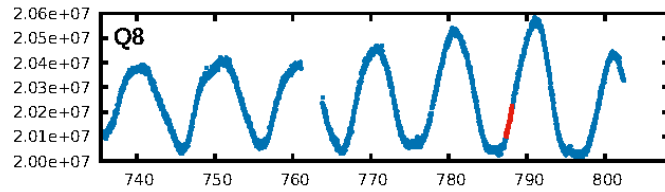
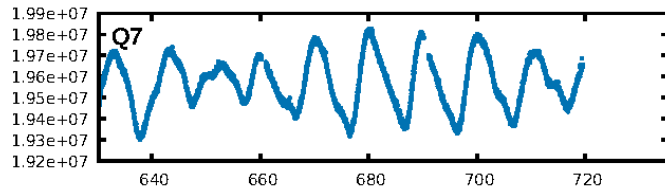
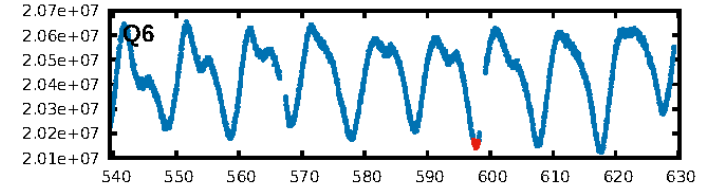
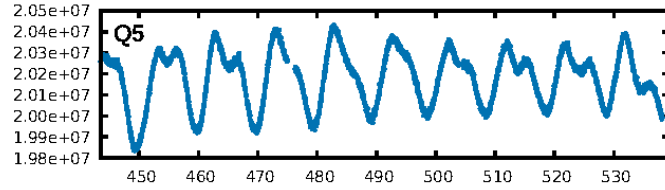
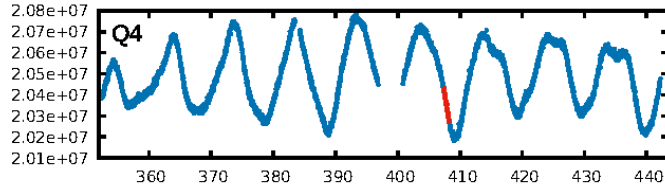
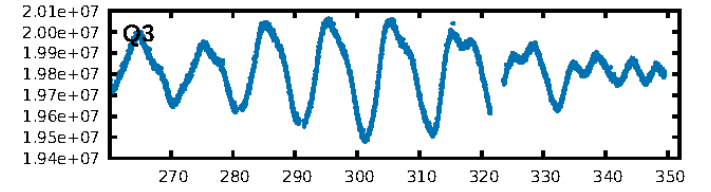
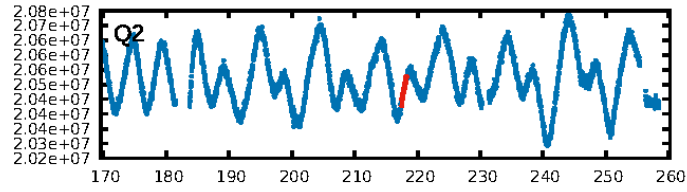
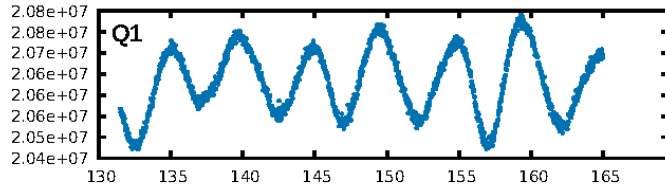
KIC: 10001000 Candidate: 3 of 5 Period: 189.935 d



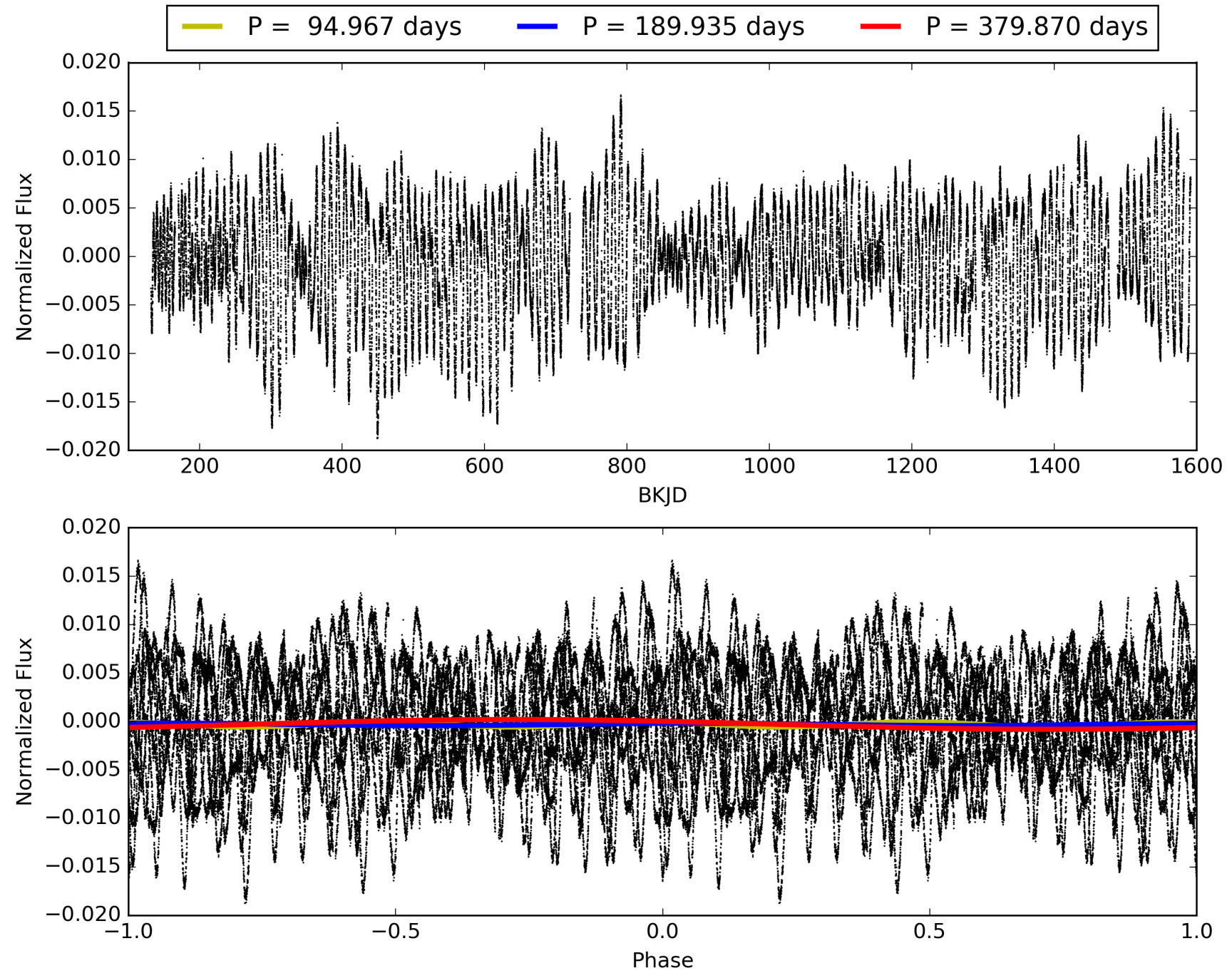
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:30:46 Z

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

# TCE 010001000-03, PDC Light Curves

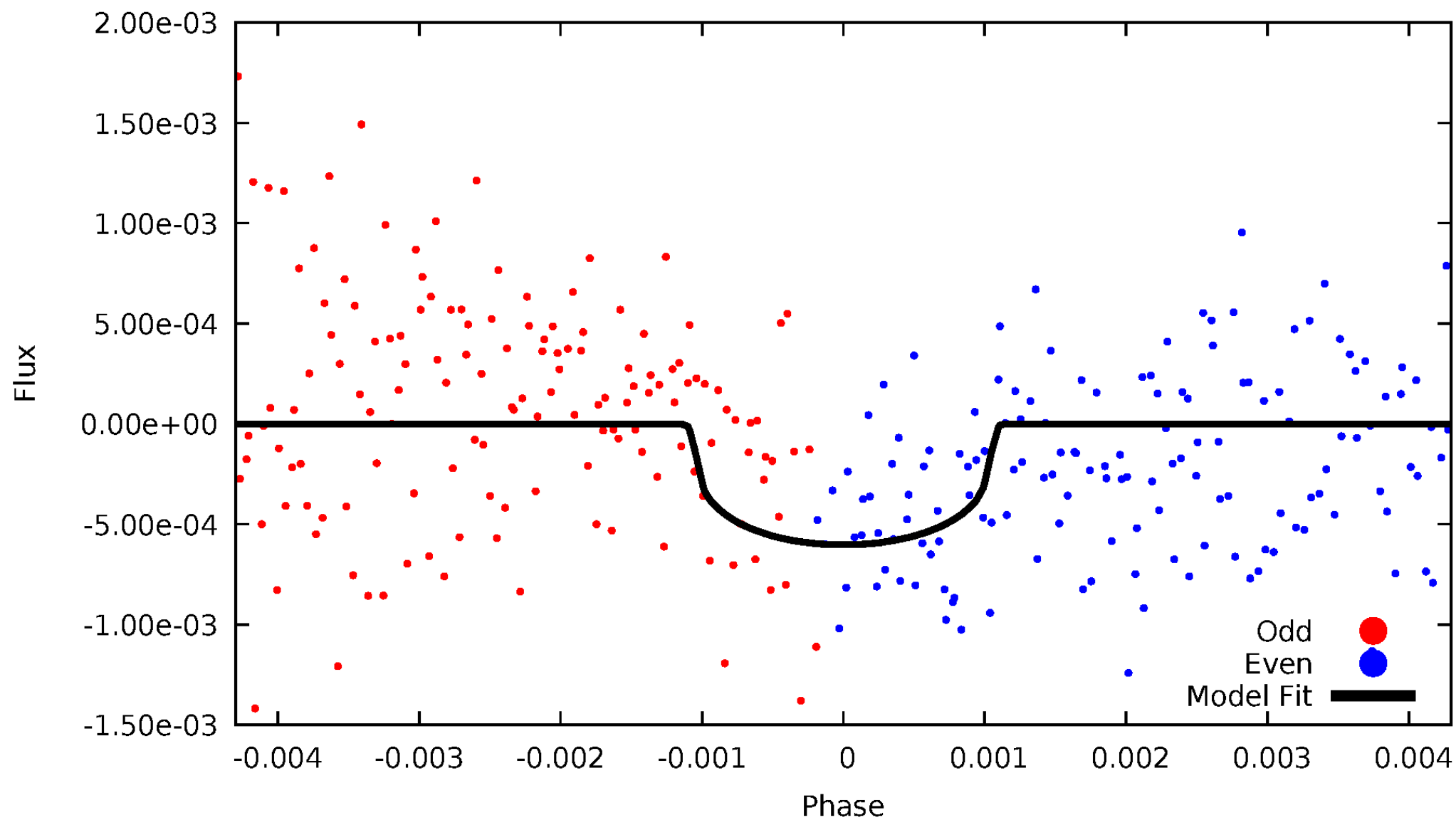


TCE 010001000-03



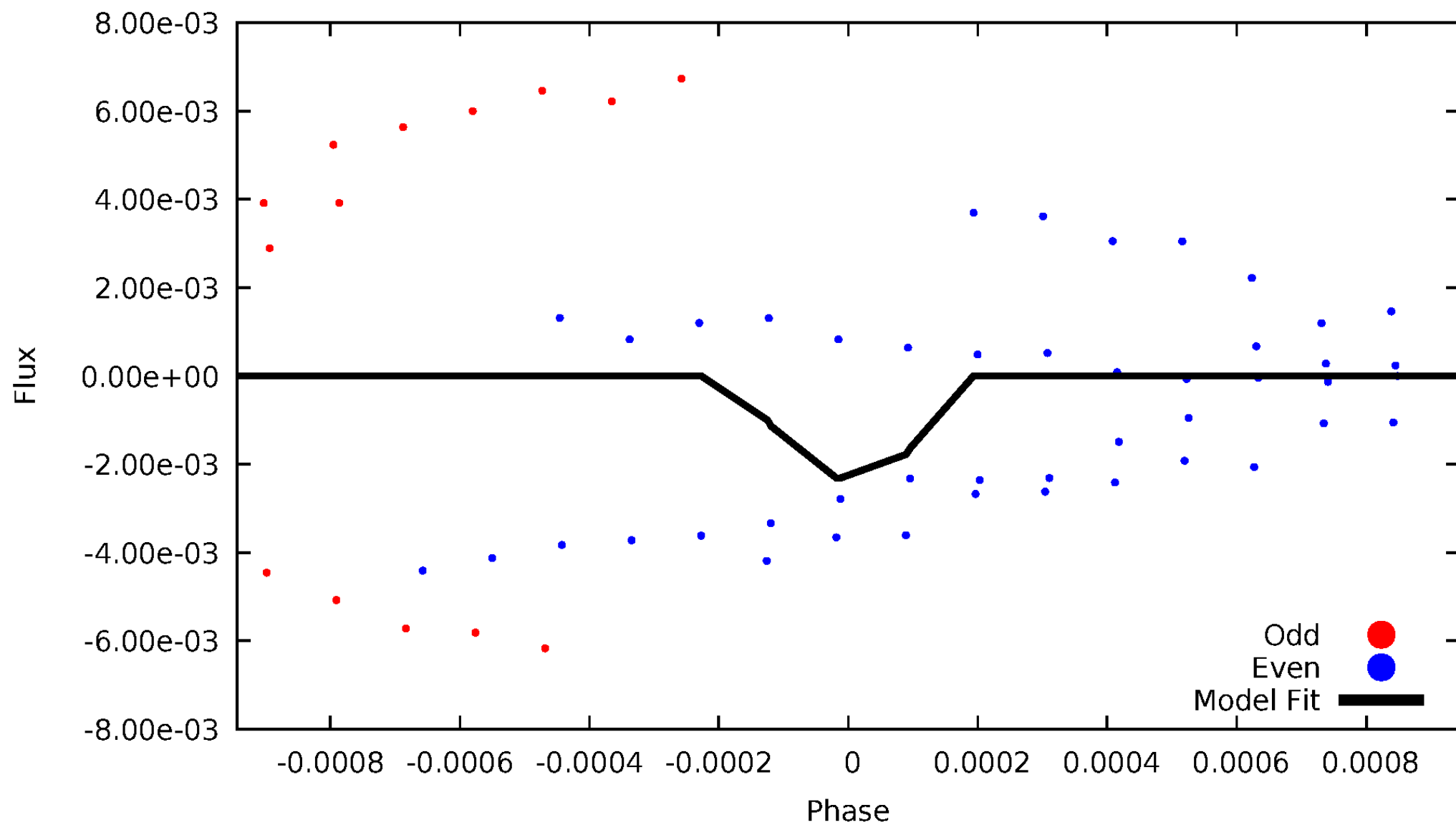
# DV Odd/Even

TCE 010001000-03



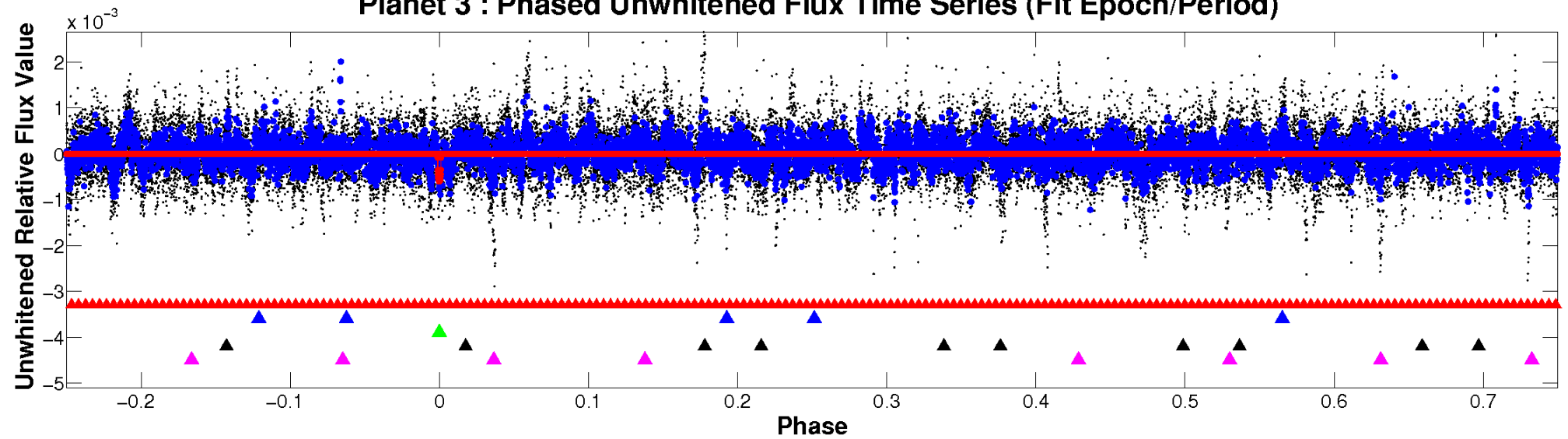
# ALT Odd/Even

TCE 010001000-03

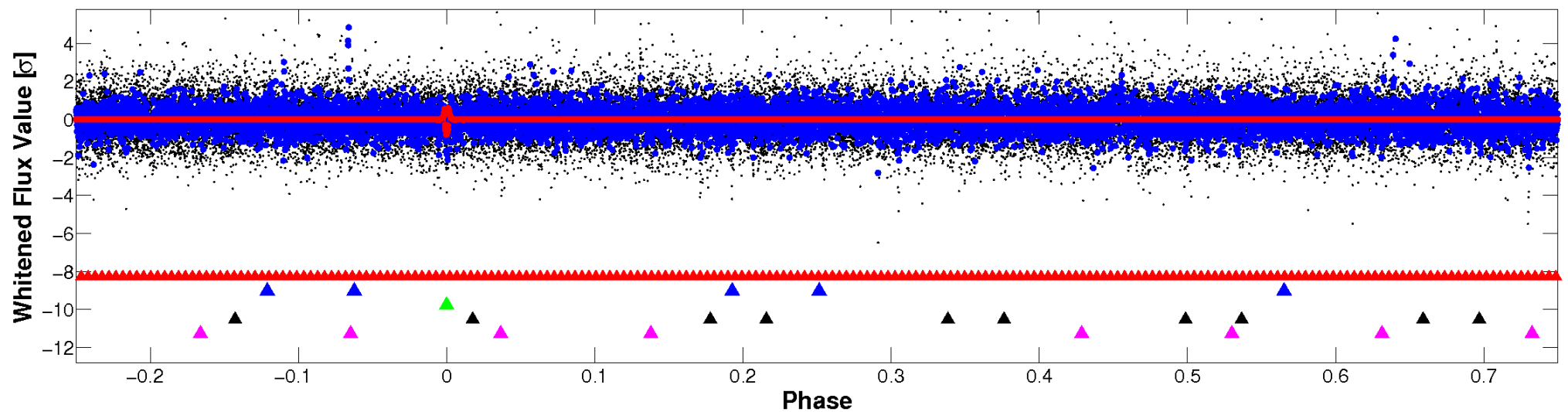


# Non-Whitened Vs. Whitened Light Curve

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

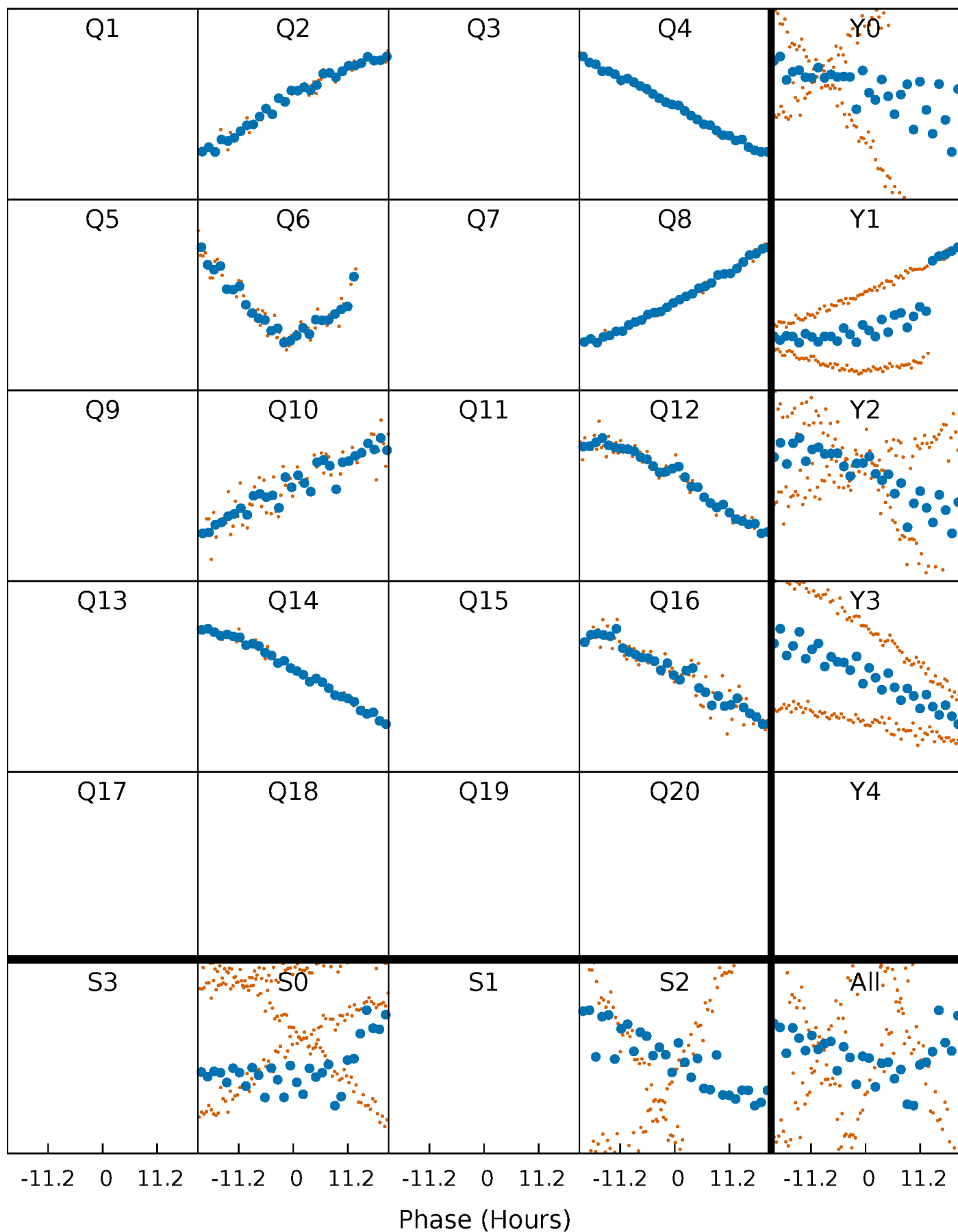


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

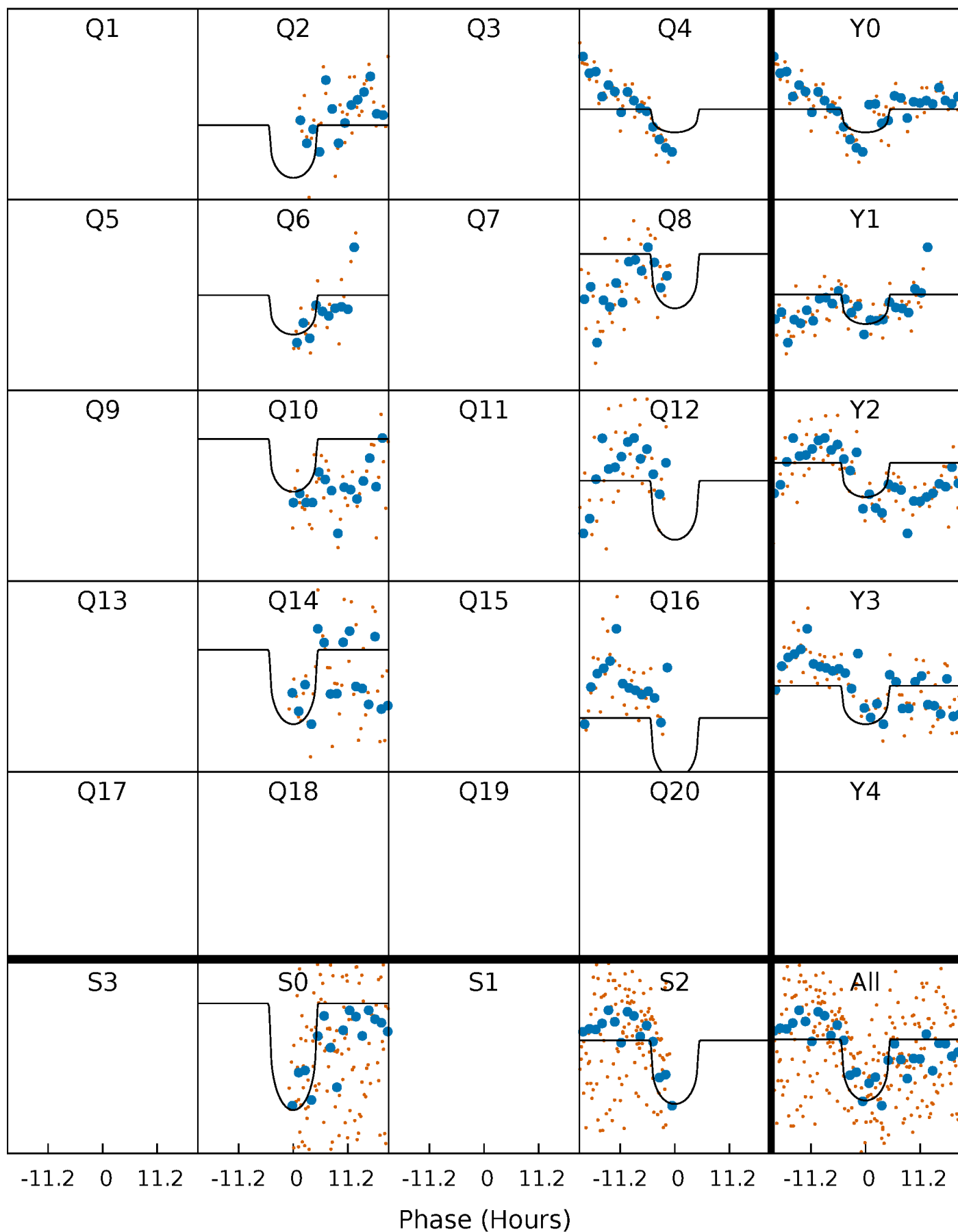
TCE 010001000-03 P=189.934865 Days  $T_0=217.873546$  (BKJD)





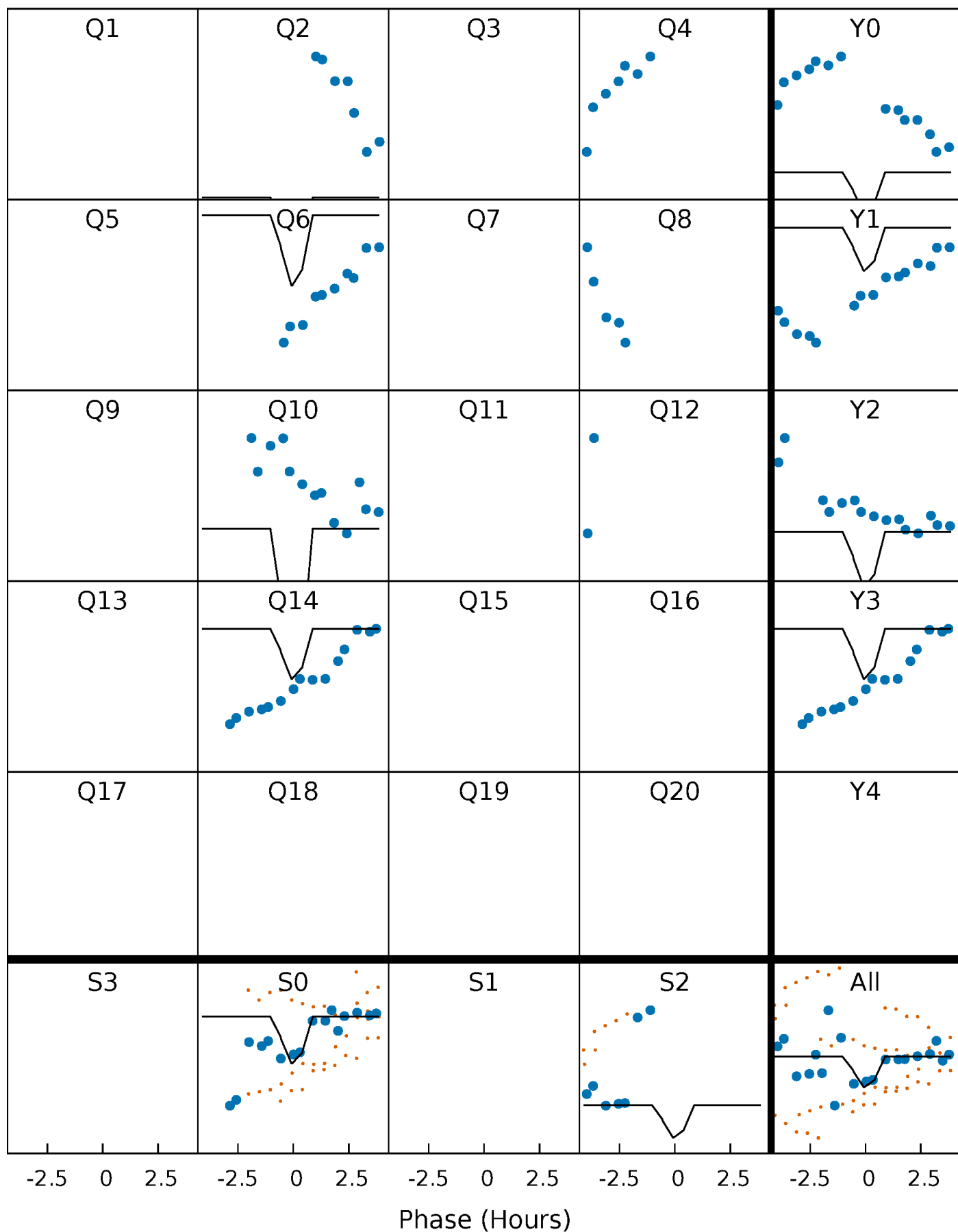
# DV Quarter-Phased Transit Curves

TCE 010001000-03     $P=189.934865$  Days     $T_0=217.873546$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

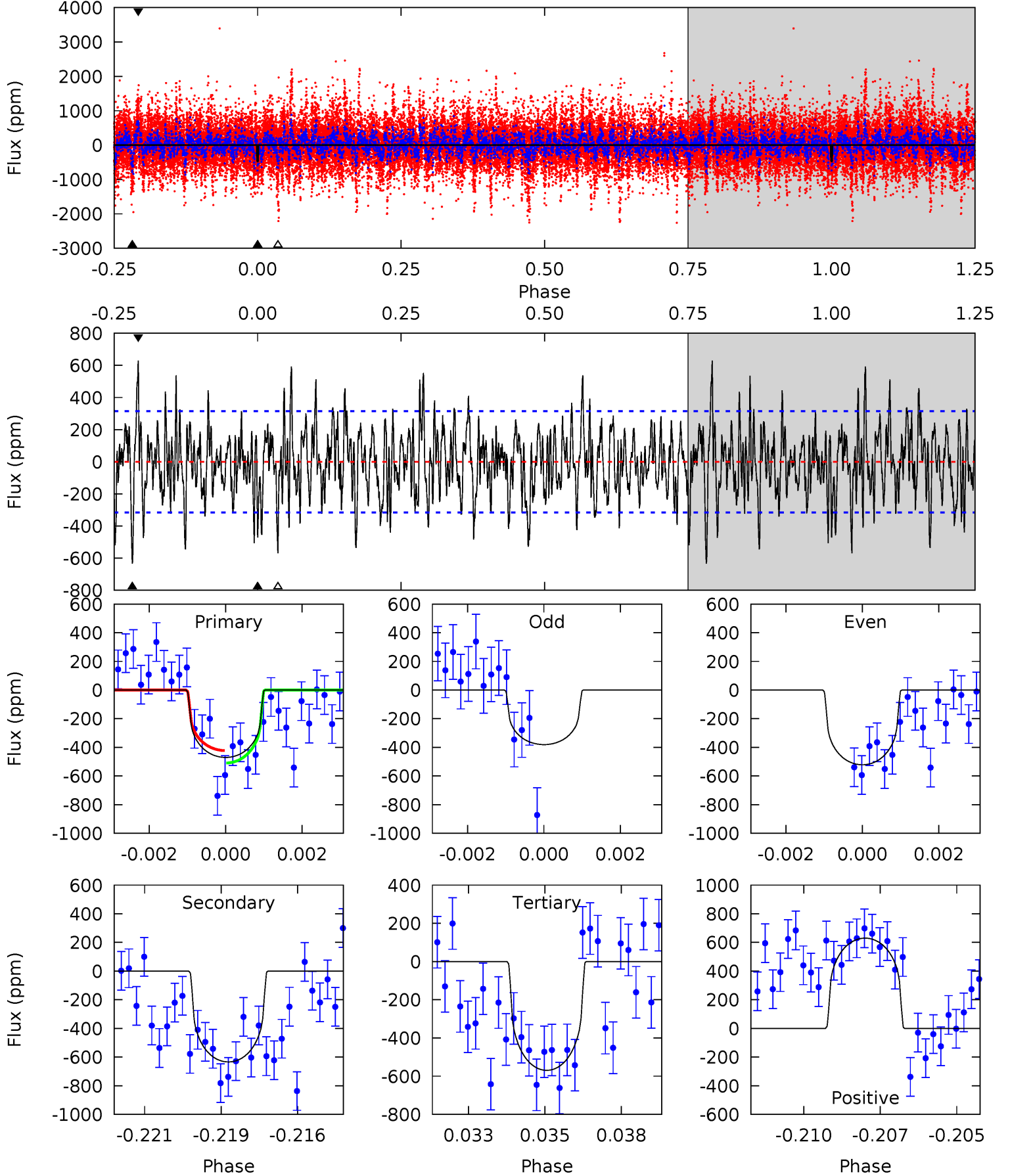
TCE 010001000-03 P=189.950374 Days  $T_0=217.870487$  (BKJD)



# DV Model-Shift Uniqueness Test

010001000-03, P = 189.934865 Days, E = 27.938681 Days

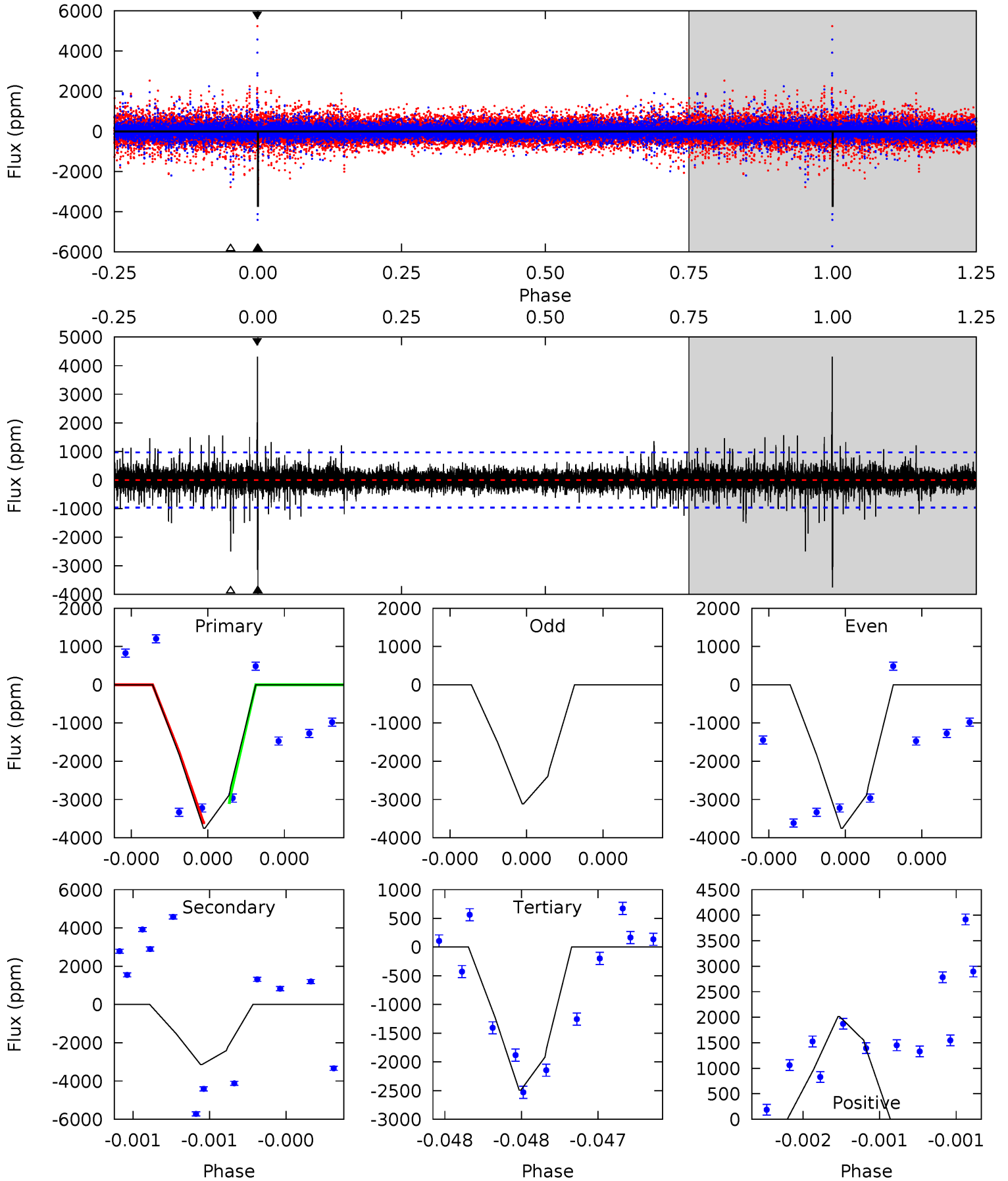
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.92	10.7	9.58	10.6	5.31	3.06	3.14	-1.66	-2.68	1.09	0.07	1.17	1.03	0.50	0.73



# Alt Model-Shift Uniqueness Test

010001000-03, P = 189.950374 Days, E = 27.920113 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
22.0	18.4	14.6	11.8	5.65	3.60	1.34	7.36	10.2	3.77	6.59	2.11	0.67	0.53	1.45



### Stellar Parameters For KIC 010001000

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5009^{+166}_{-151}$	$4.516^{+0.084}_{-0.056}$	$0.020^{+0.250}_{-0.300}$	$0.801^{+0.071}_{-0.087}$	$0.768^{+0.085}_{-0.057}$	$2.106^{+0.742}_{-0.383}$
	+3%/-3%	+2%/-1%	+1250%/-1500%	+9%/-11%	+11%/-7%	+35%/-18%
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 010001000-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-634 \pm 59$	$2.57^{+2.26}_{-1.64}$	$357^{+15}_{-13}$	$4697^{+2844}_{-981}$	$18401^{+117754}_{-13122}$
Alt.	$-3138 \pm 171$	$4.30^{+2.50}_{-2.21}$	$358^{+14}_{-13}$	$5294^{+2375}_{-889}$	$33621^{+103244}_{-20295}$

$T_{\text{max}}$  = 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

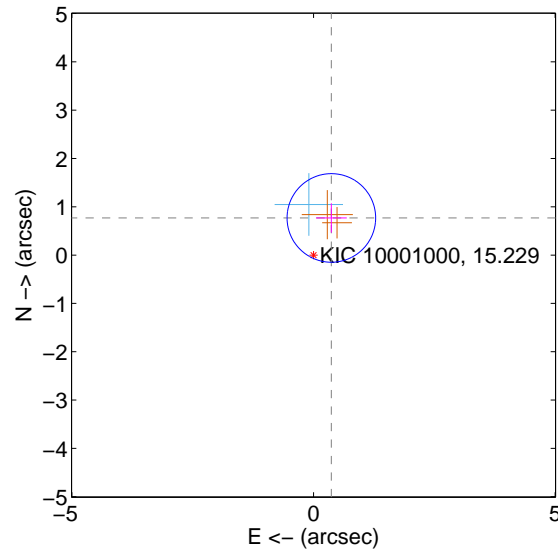
Supplemental centroid analysis for 010001000-03. Kepler magnitude: 15.23. Transit SNR 6.01

There are 1 quarters with good PRF difference image offsets

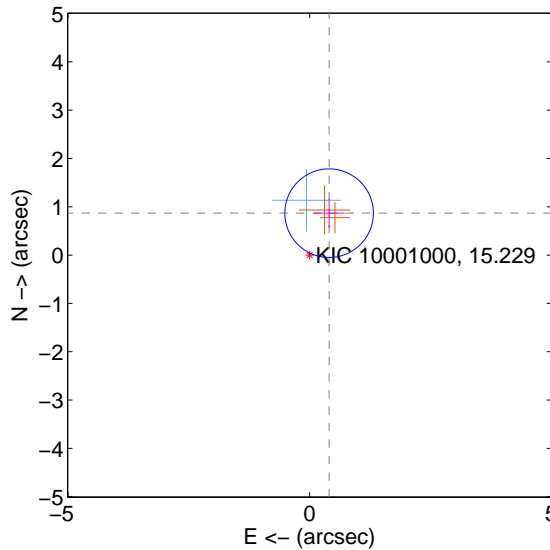
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.853 \pm 0.306$	2.79	$-0.369 \pm 0.319$	$0.769 \pm 0.302$
PRF-fit source offset from KIC position	<b><math>0.957 \pm 0.305</math></b>	<b>3.13</b>	$-0.404 \pm 0.319$	$0.868 \pm 0.302$
photometric centroid source offset	$1.72 \pm 0.82$	2.10	$-0.88 \pm 0.86$	$1.47 \pm 0.81$

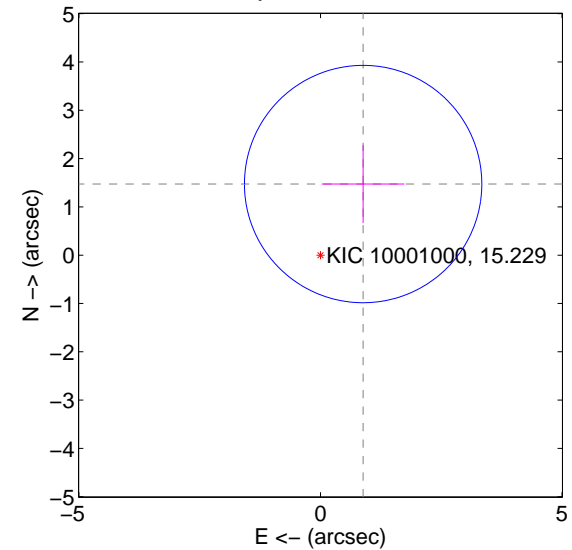
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

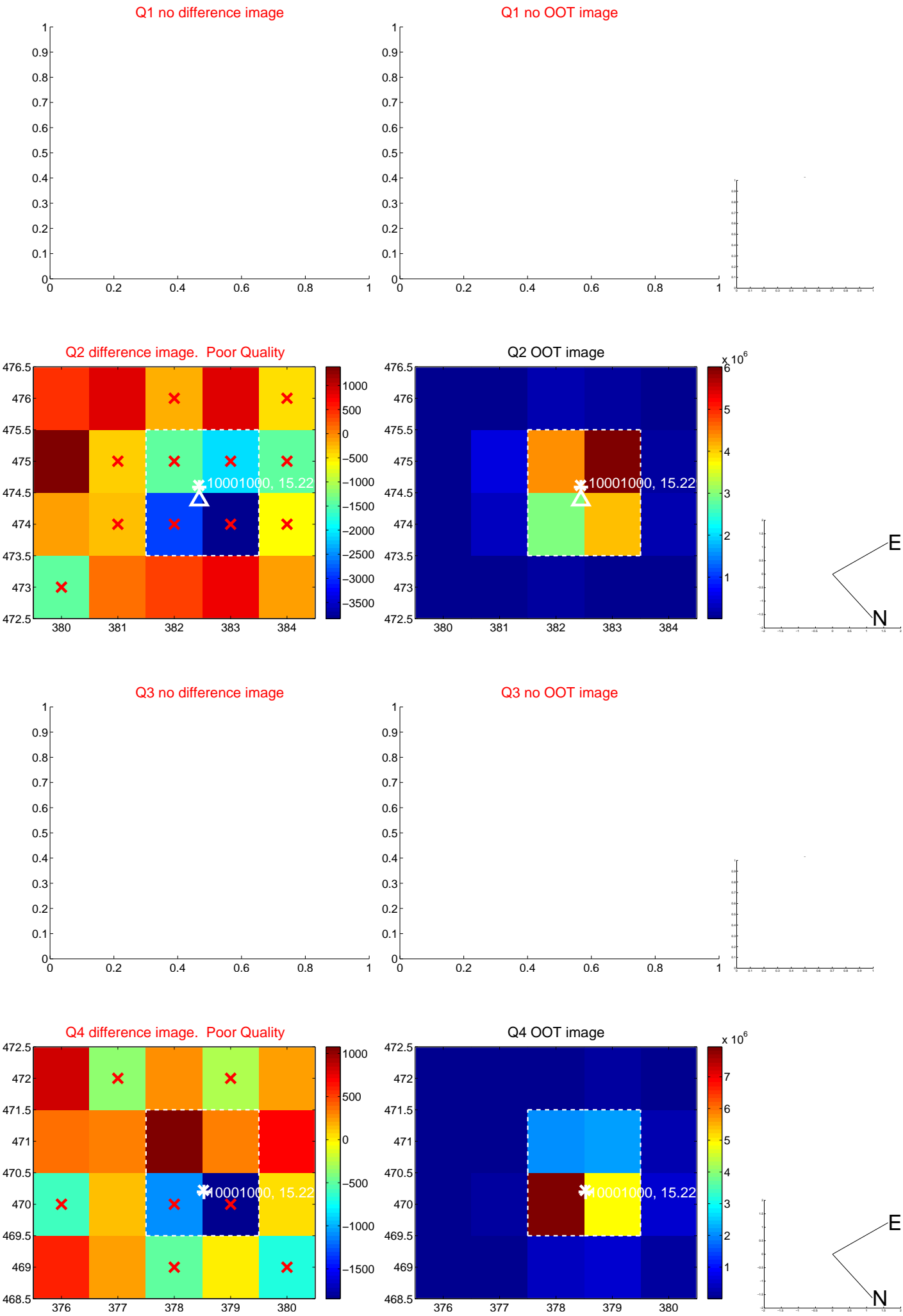


offset from photometric centroids



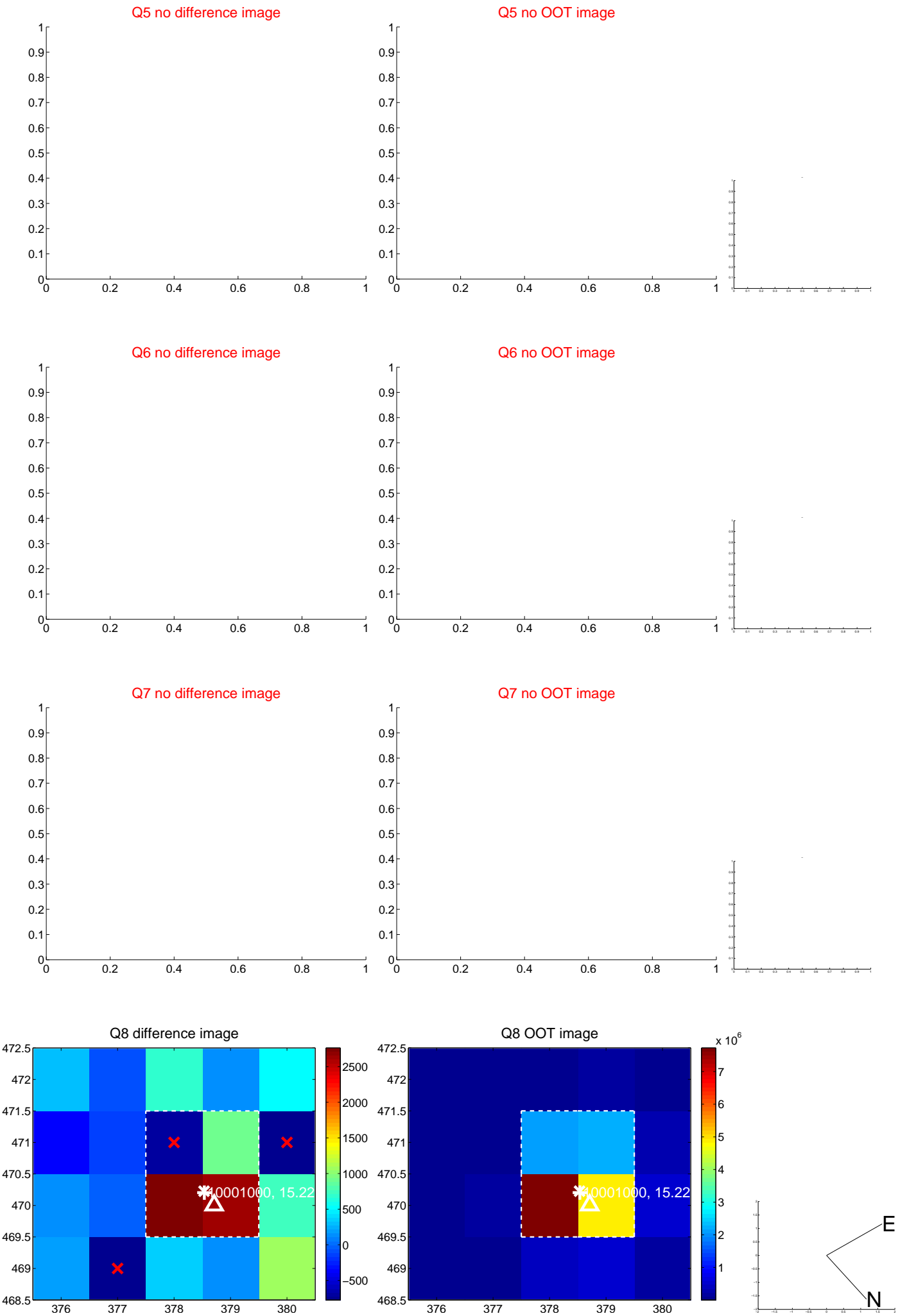
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

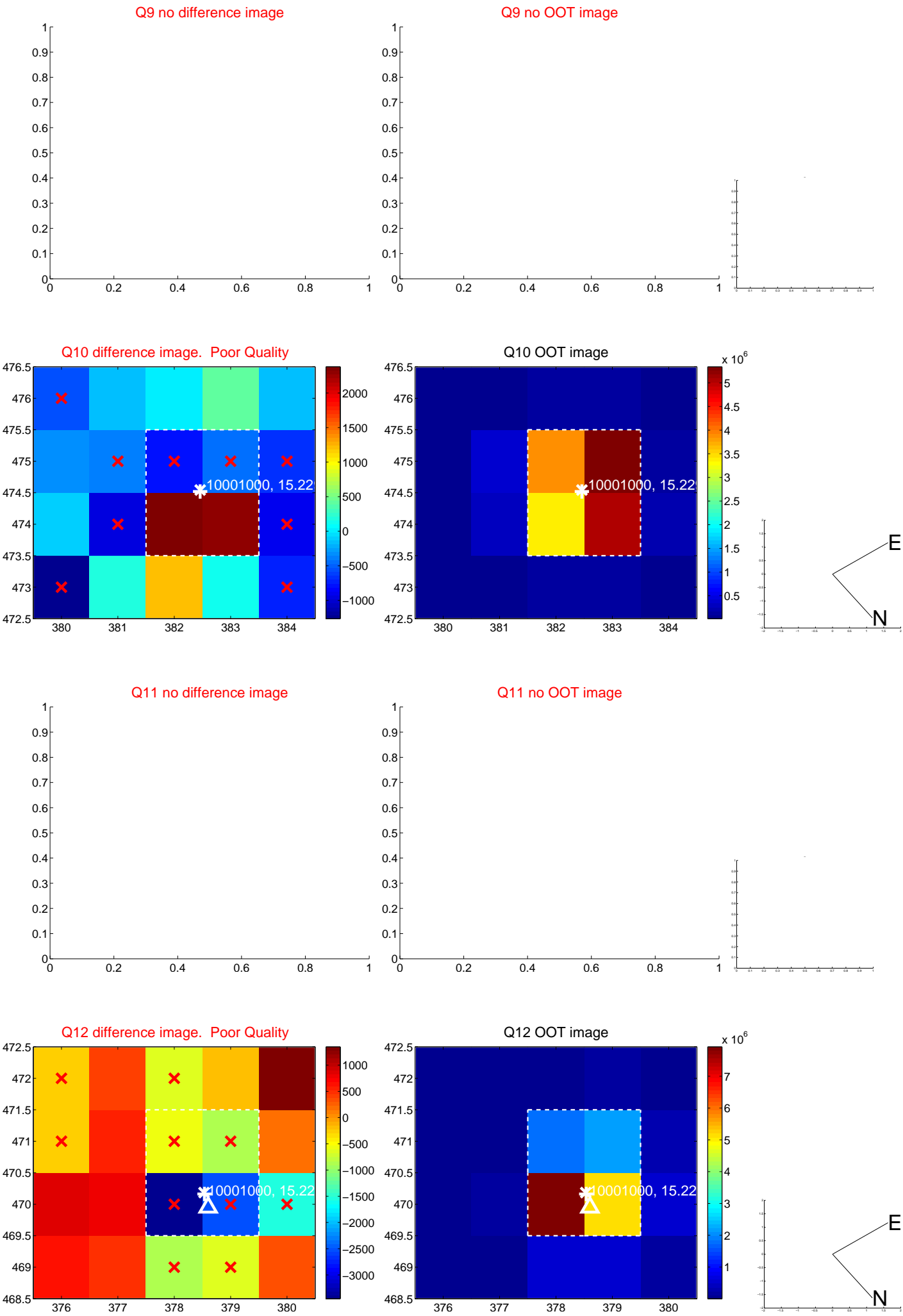




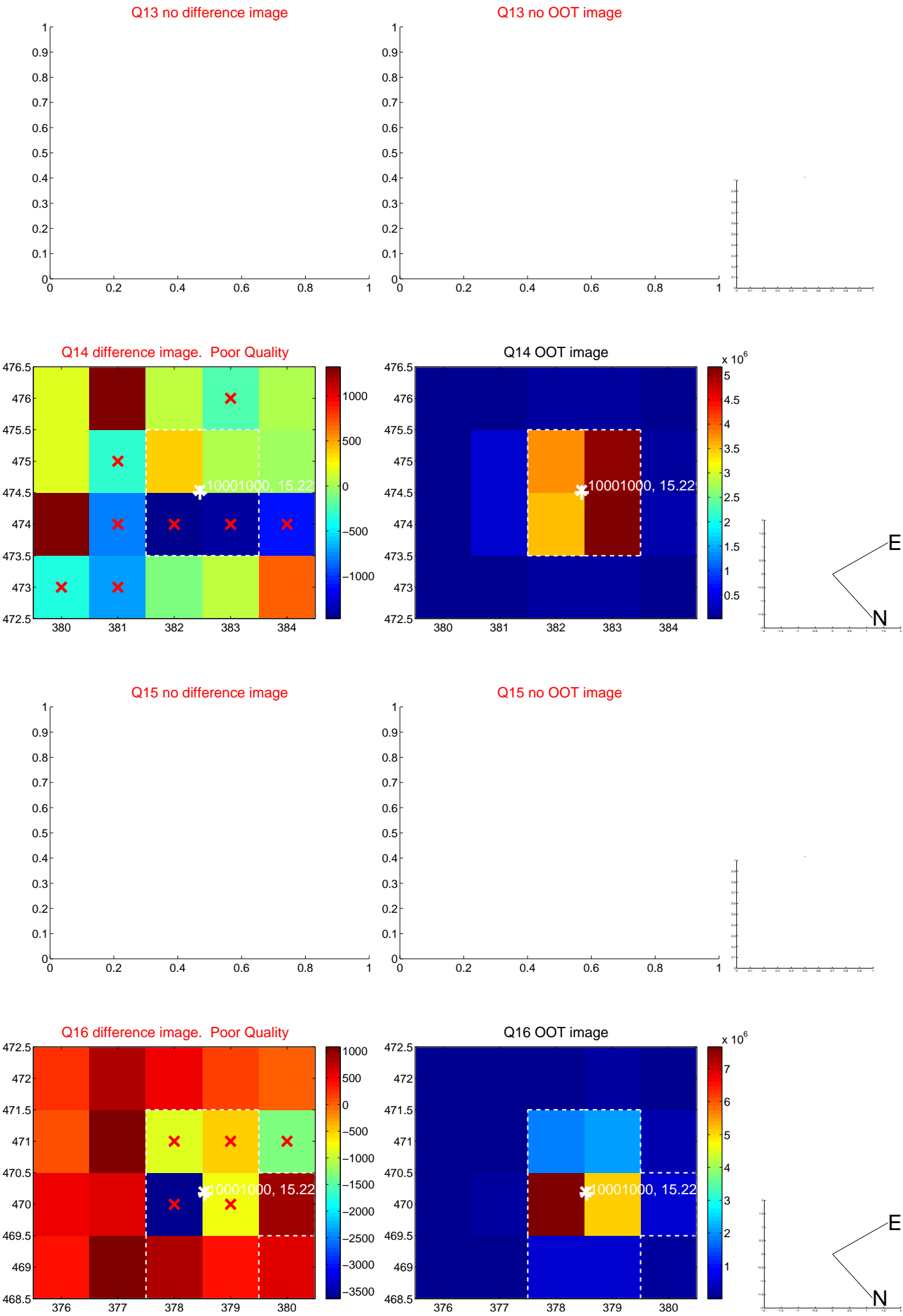
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



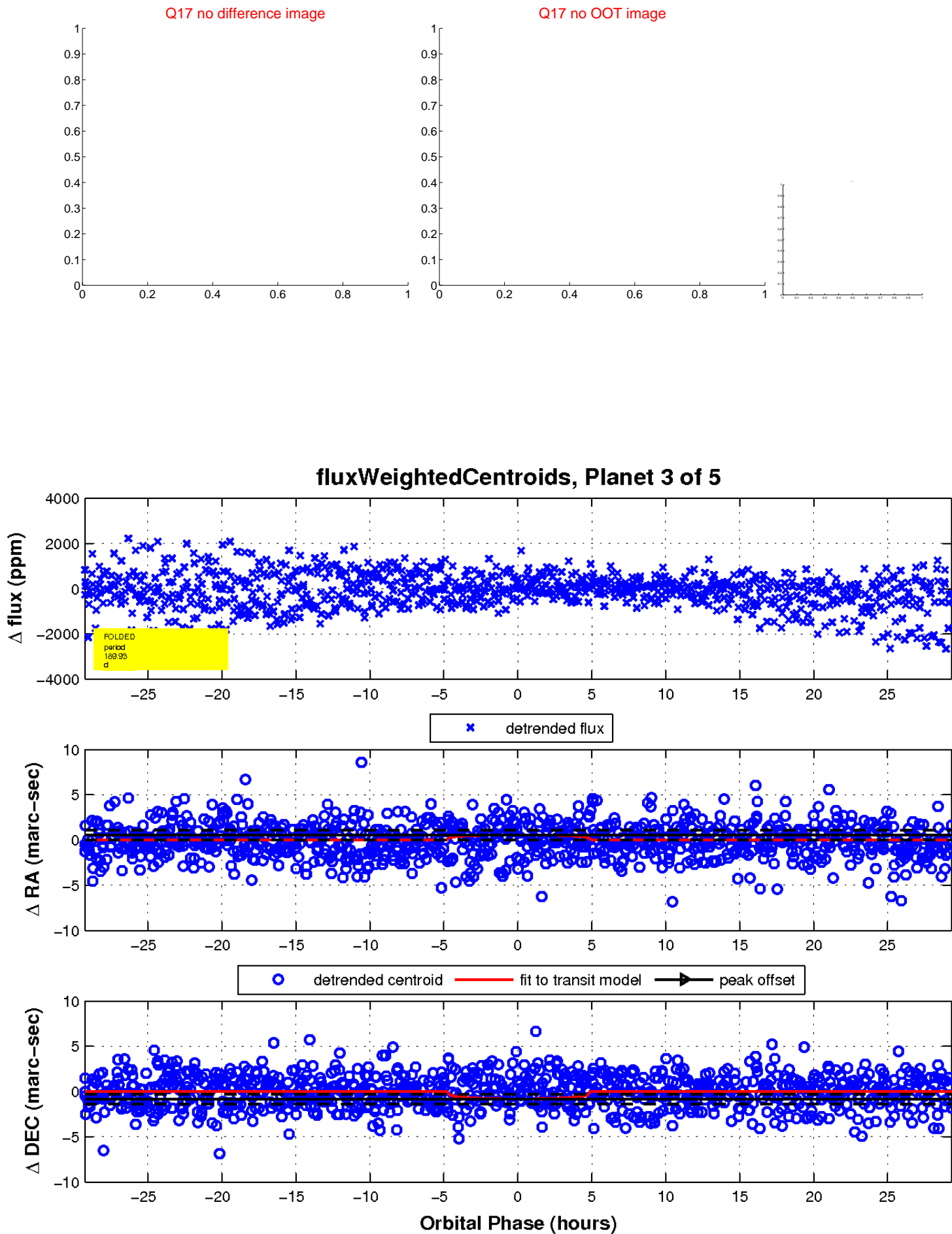
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

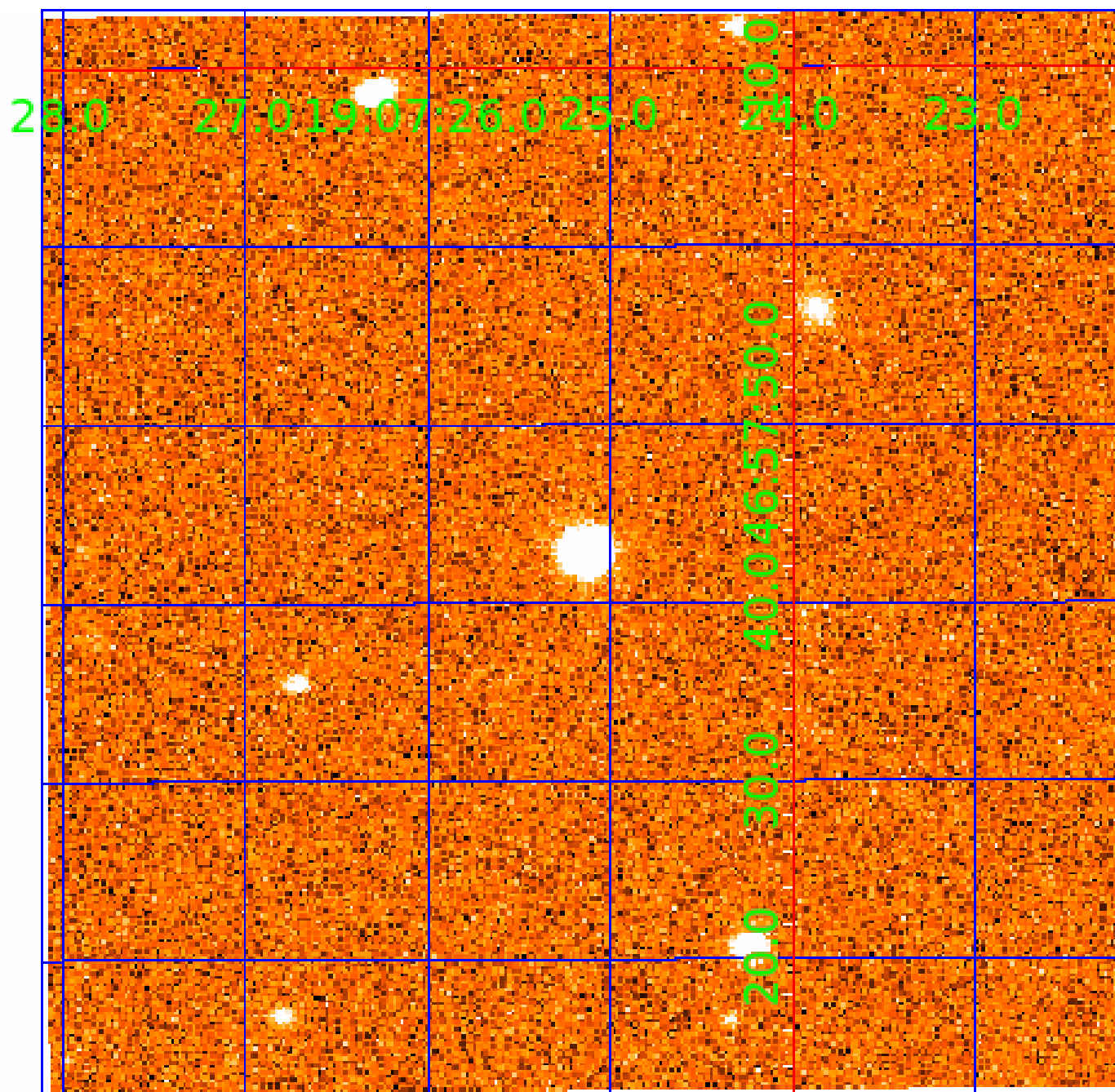


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 010001000

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010001000-01	OBS	No	1.783336	131.826395	49.5	7.058	7.3	6.9	0.80	5009	0.67	520.81
010001000-02	OBS	No	320.274944	254.484367	1402.1	44.740	14.4	5.7	0.80	5009	3.18	0.51
010001000-03	OBS	No	189.934865	217.873546	603.0	9.791	12.9	6.0	0.80	5009	1.94	1.03
010001000-04	OBS	No	159.477125	153.119484	723.9	12.000	10.1	-1.0	0.80	5009	2.09	1.30
010001000-05	OBS	No	170.691015	244.057370	814.4	9.412	9.6	7.4	0.80	5009	2.32	1.19

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010001000-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010001000-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010001000-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
010001000-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
010001000-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—INCONSISTENT_TRANS

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

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

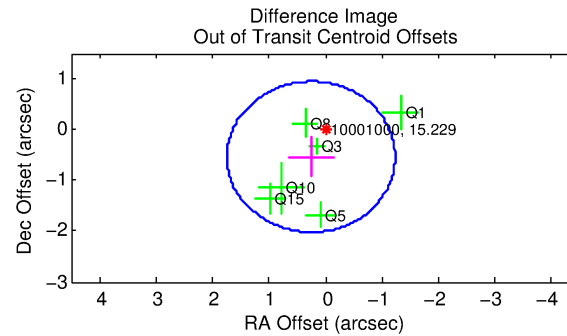
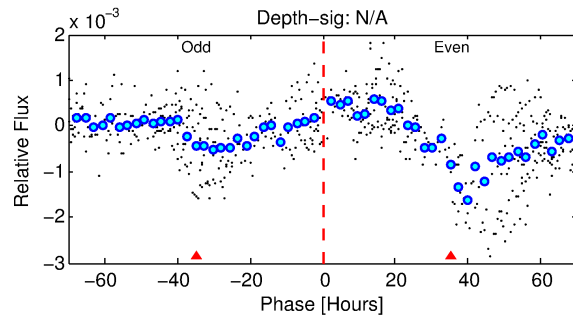
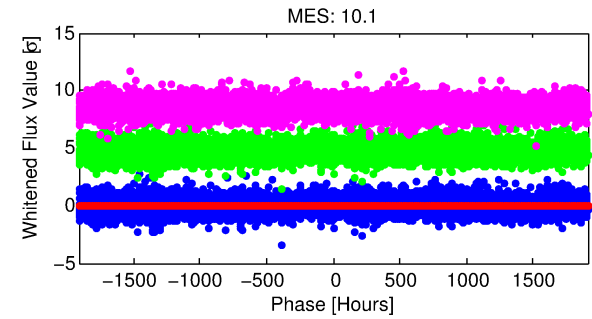
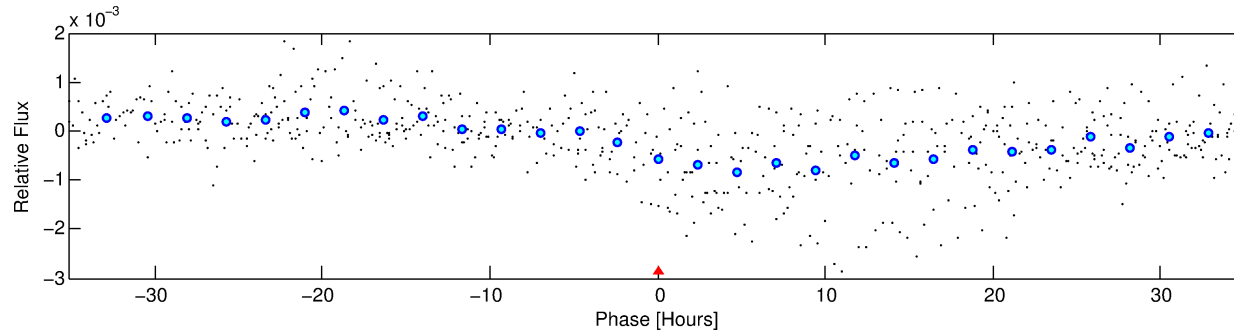
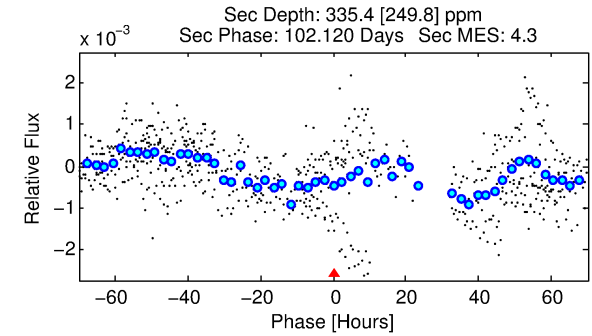
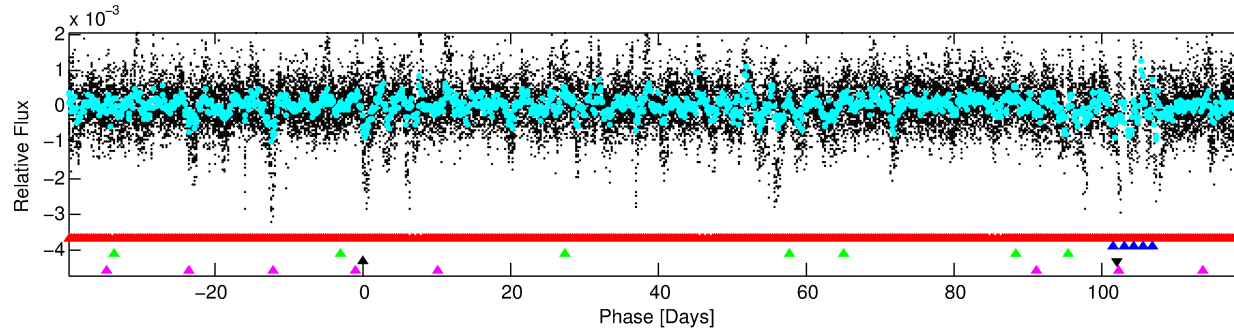
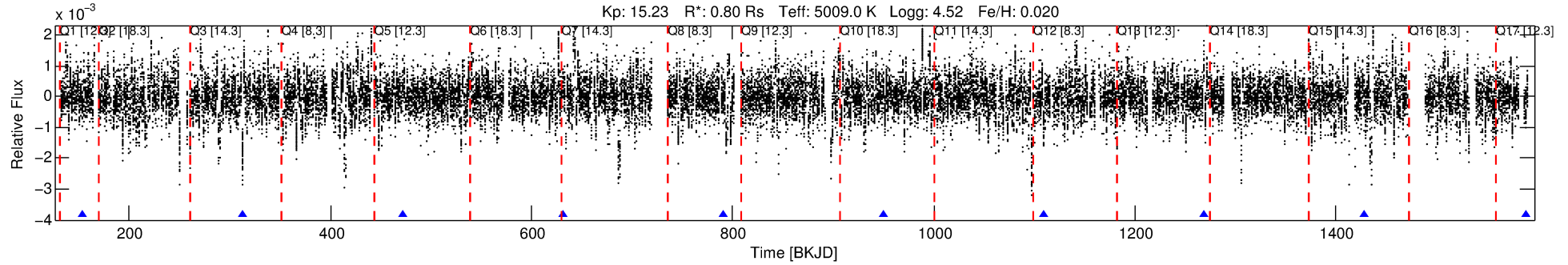
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010001000-04

No Significant Match Found

# DV One-Page Summary

KIC: 10001000 Candidate: 4 of 5 Period: 159.477 d



TPS TCE Results:

Period = 159.47712 d  
Epoch = 153.1195 BKJD

DV fit results are unavailable

DV Diagnostic Results:

ShortPeriod-sig: 100.0% [271.85σ]  
LongPeriod-sig: 100.0% [17.65σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.03e-13  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -13.9

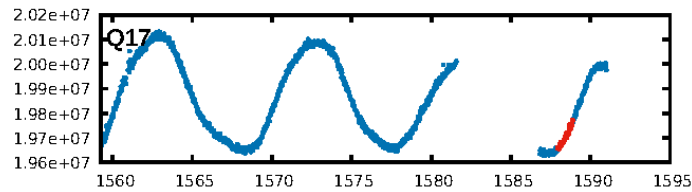
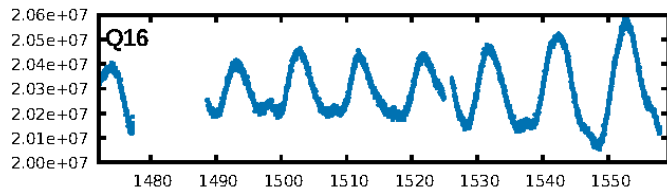
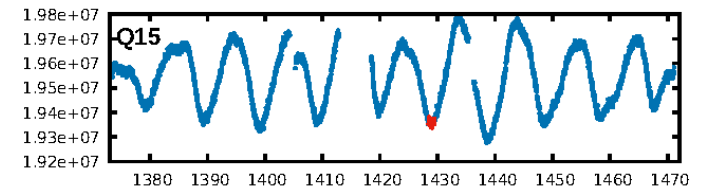
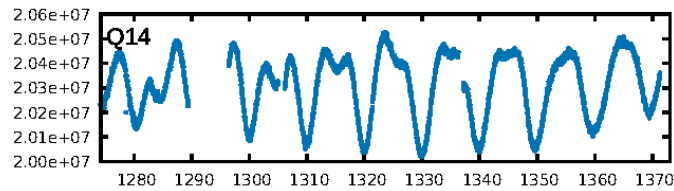
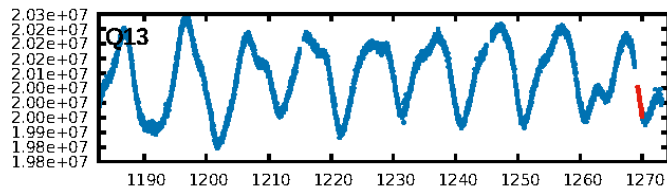
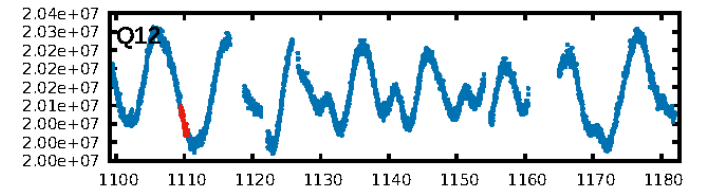
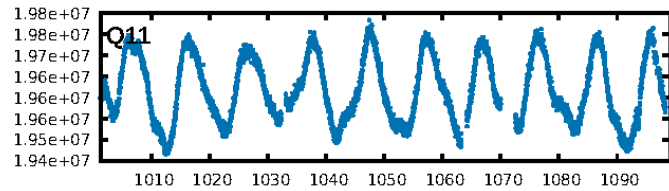
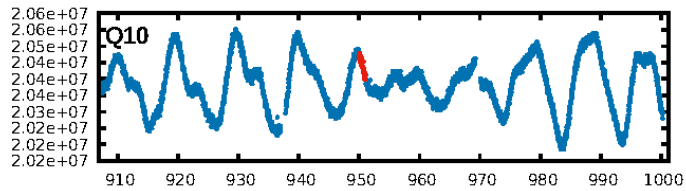
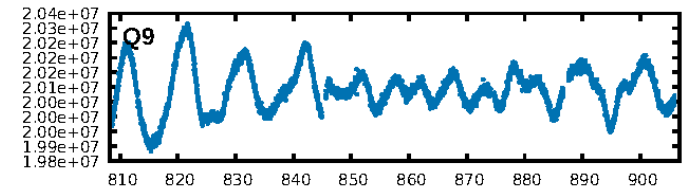
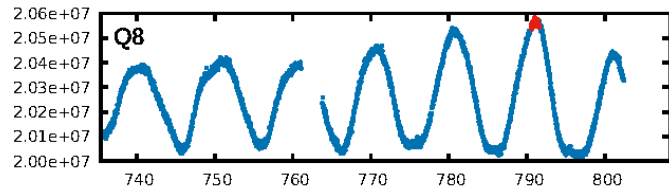
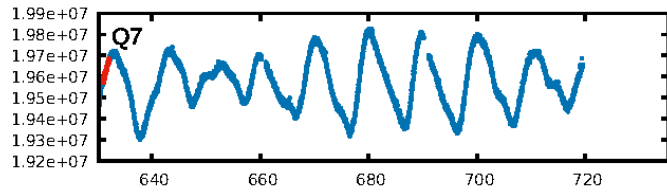
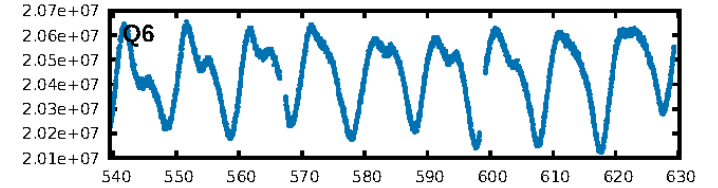
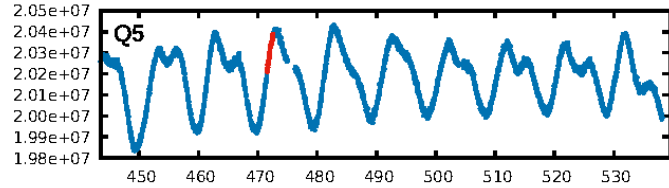
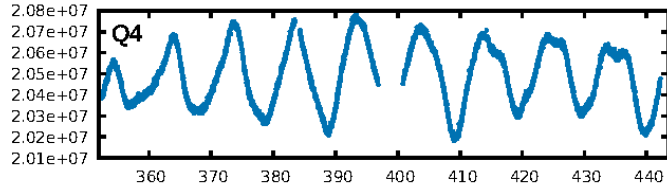
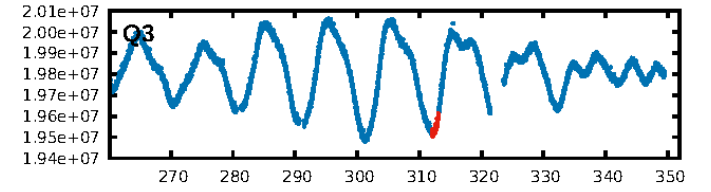
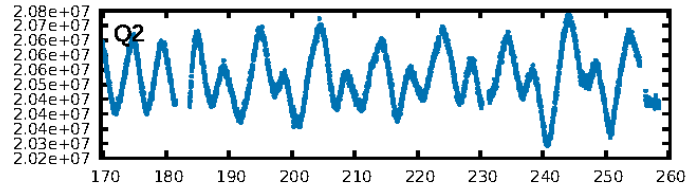
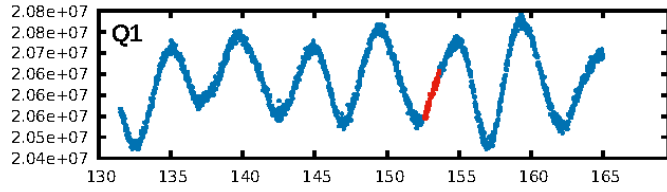
Centroid-sig: 0.2%  
Centroid-so: 0.636 arcsec [2.50σ]  
OotOffset-rm: 0.593 arcsec [1.20σ]  
KicOffset-rm: 0.509 arcsec [1.31σ]  
OotOffset-st: 1/2/1/2 [6]  
KicOffset-st: 1/2/1/2 [6]  
DiffImageQuality-fgm: 0.50 [3/6]  
DiffImageOverlap-fno: 0.00 [0/6]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:30:51 Z

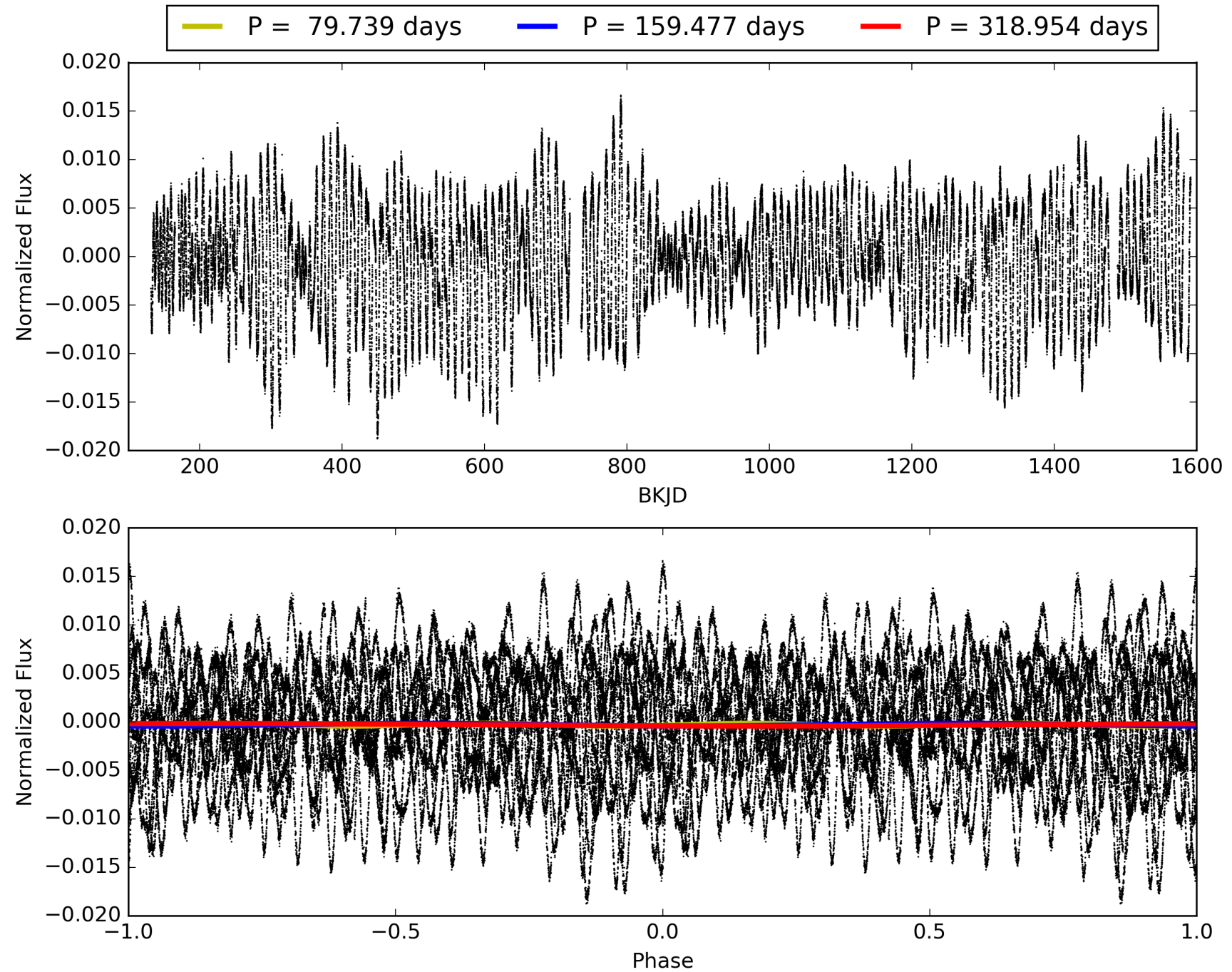
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 010001000-04, PDC Light Curves

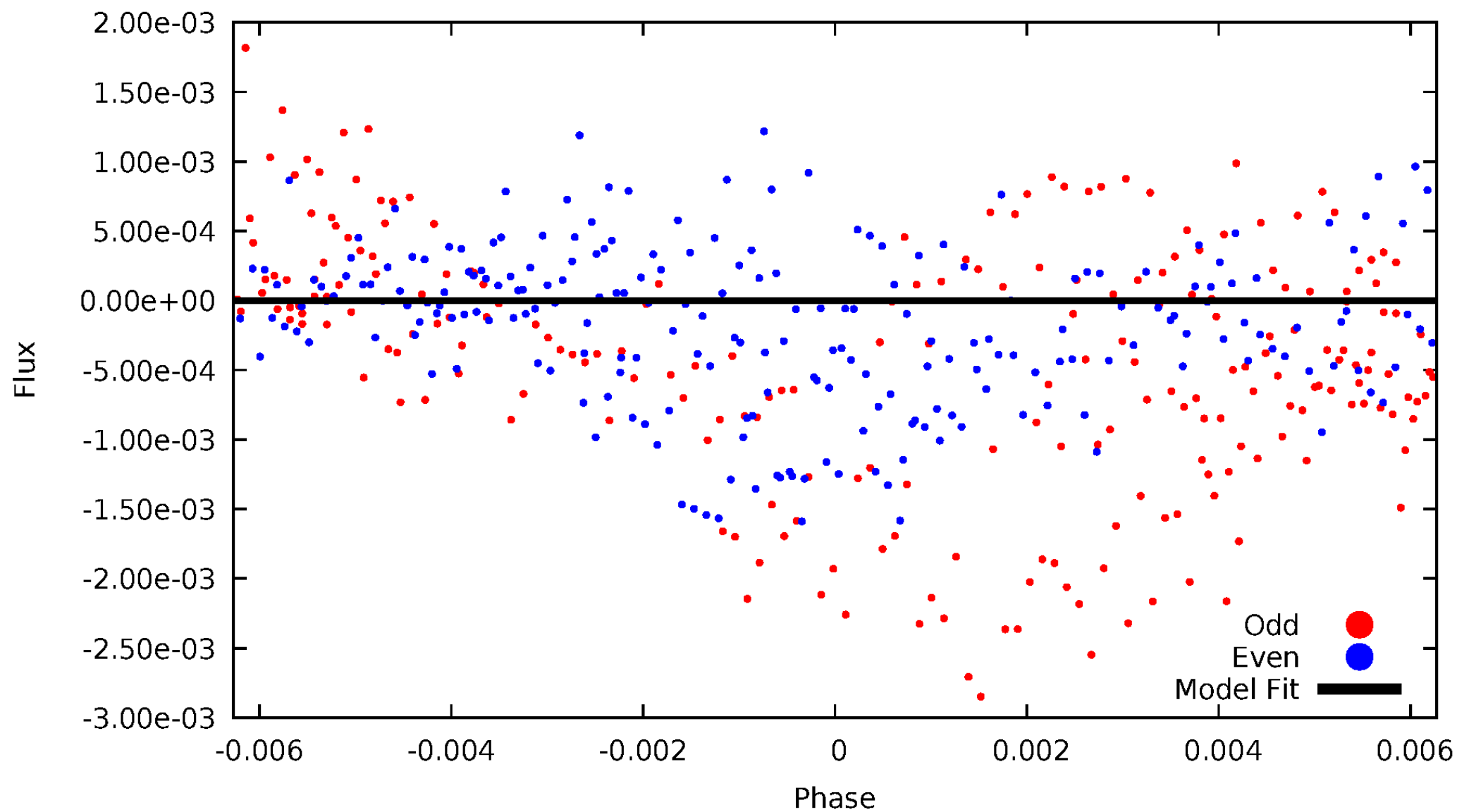


TCE 010001000-04



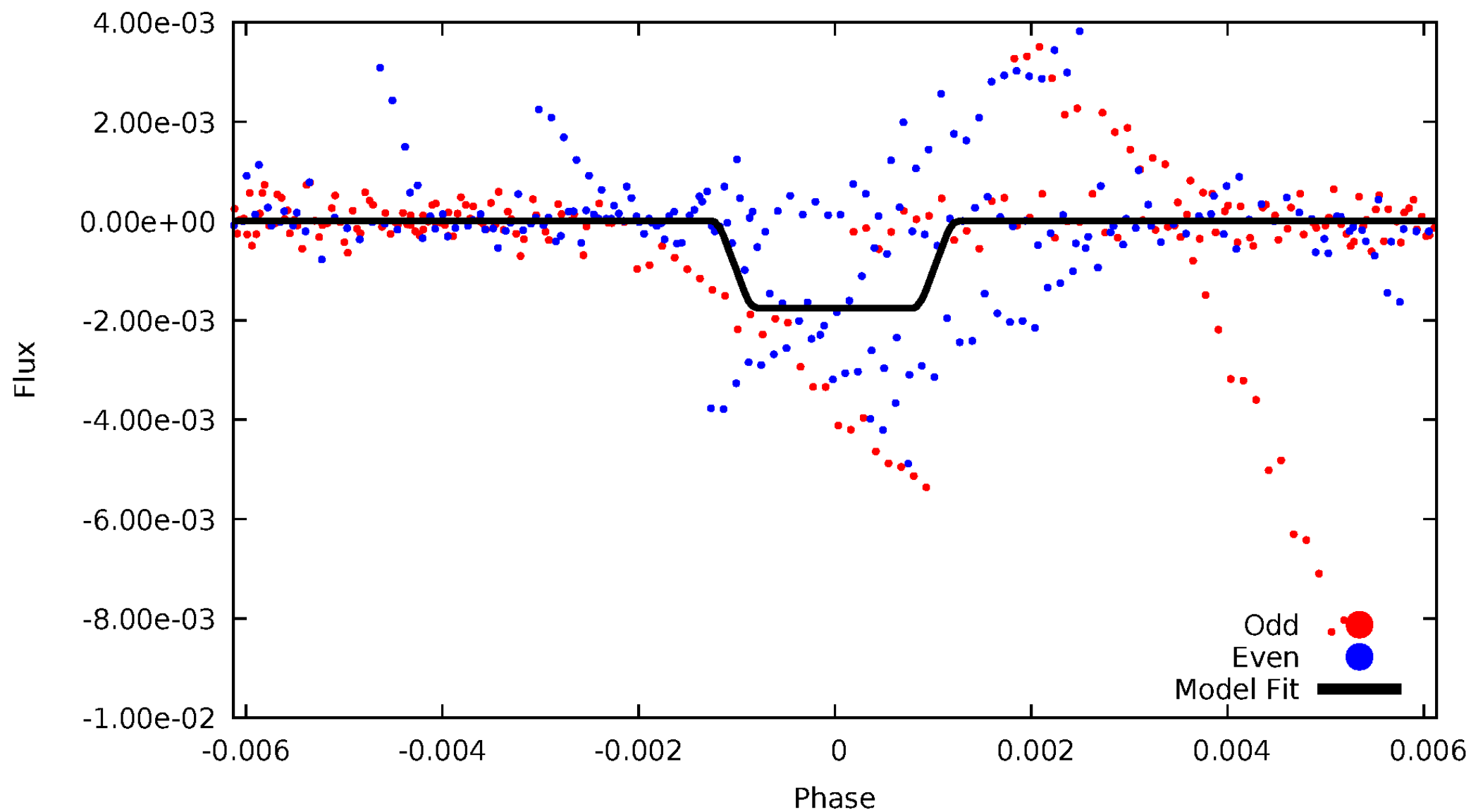
# DV Odd/Even

TCE 010001000-04



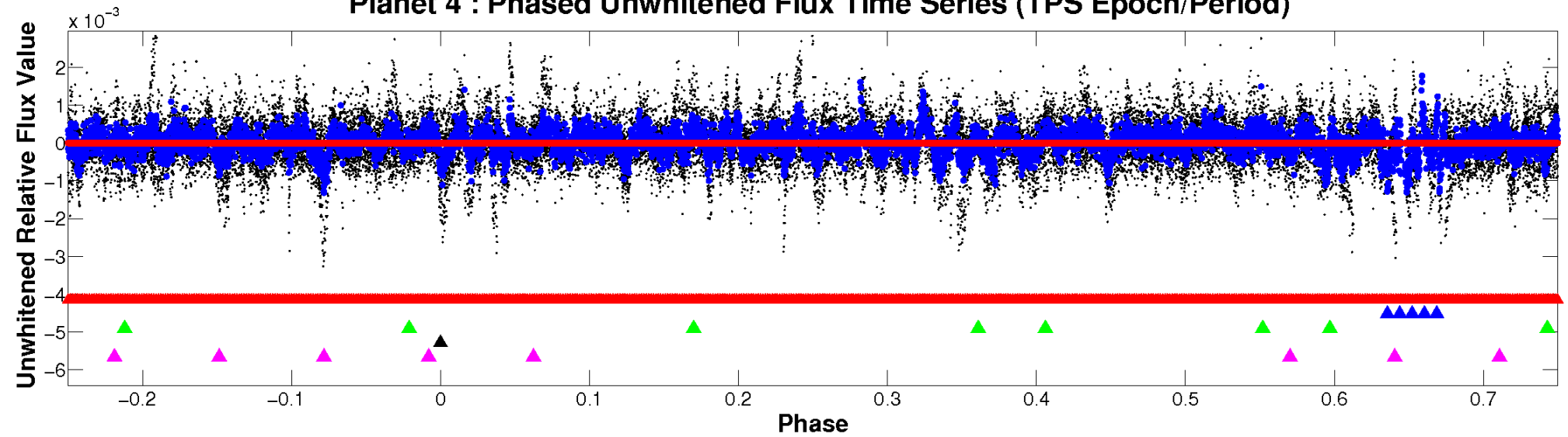
# ALT Odd/Even

TCE 010001000-04

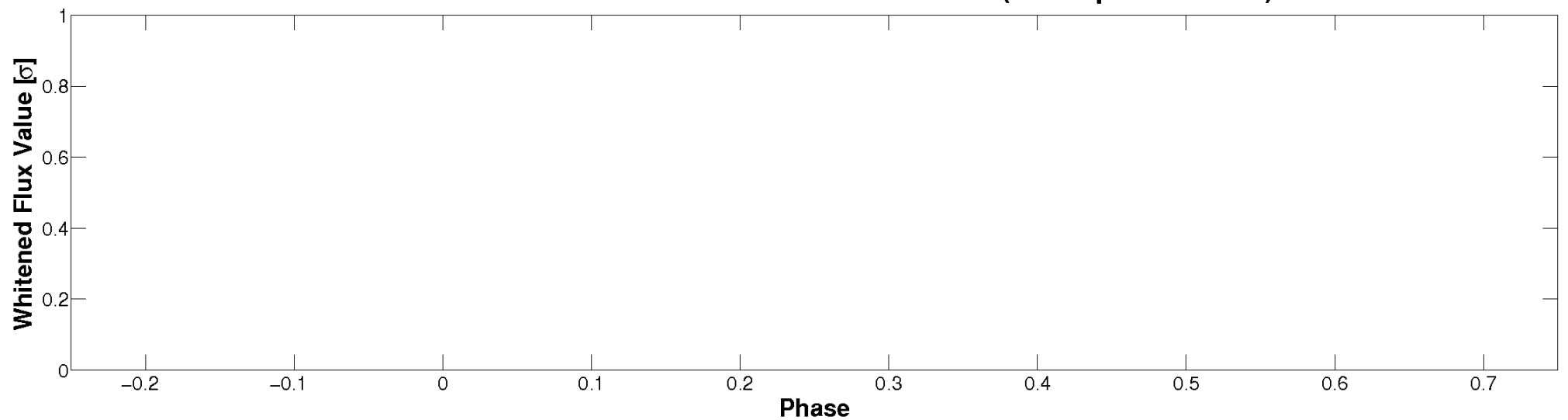


# Non-Whitened Vs. Whitened Light Curve

**Planet 4 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

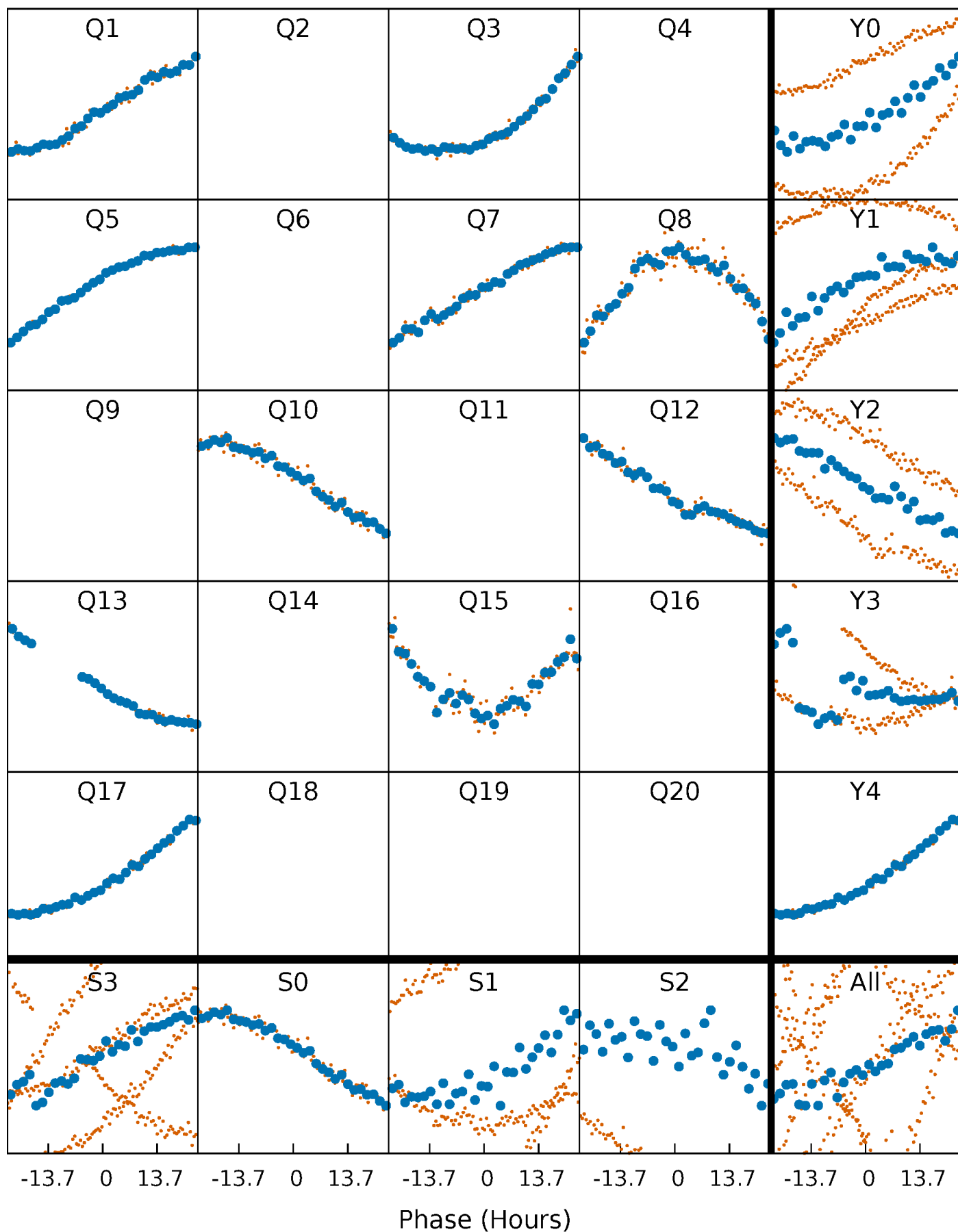


**Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



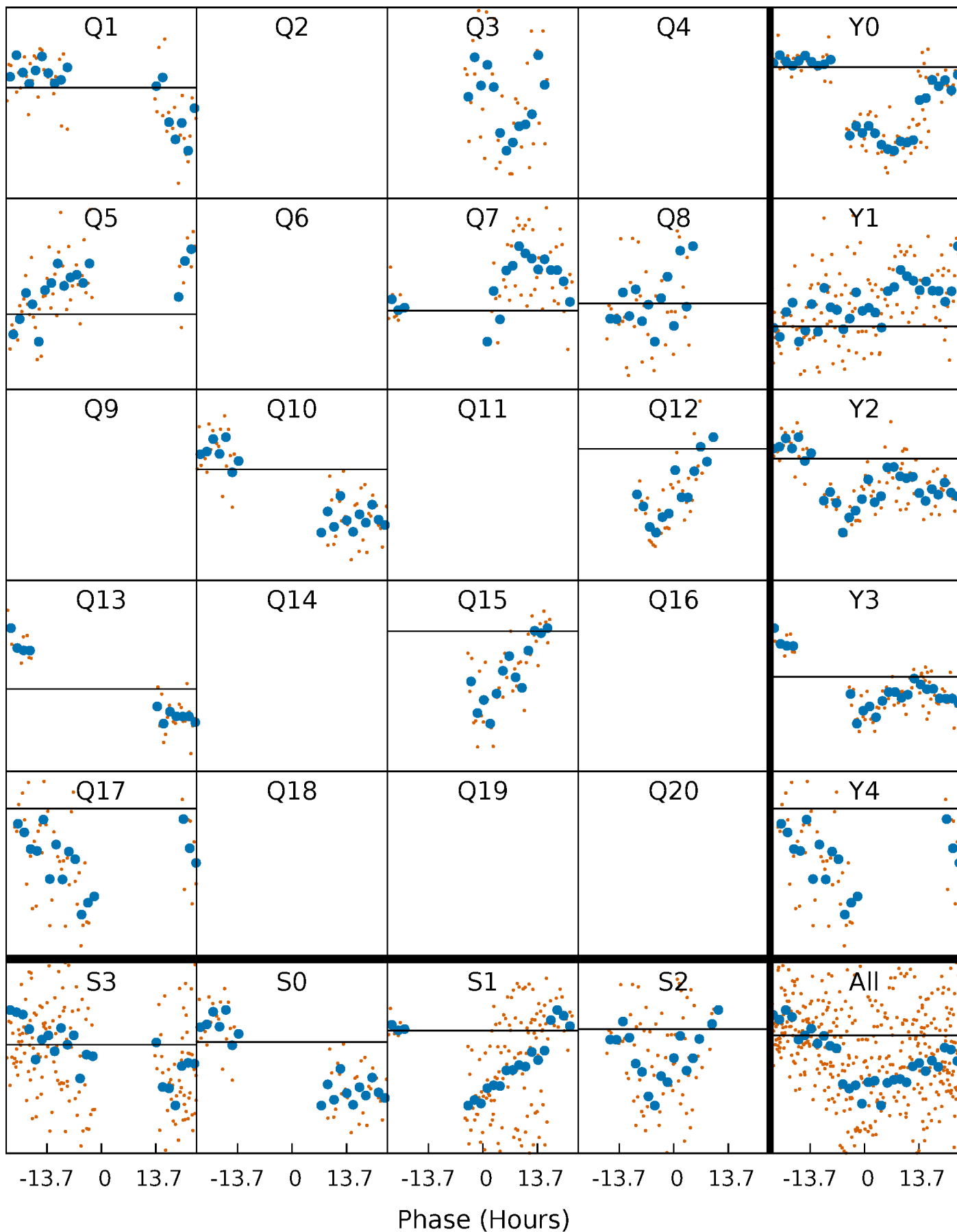
# PDC Quarter-Phased Transit Curves

TCE 010001000-04 P=159.477125 Days  $T_0=153.119484$  (BKJD)



# DV Quarter-Phased Transit Curves

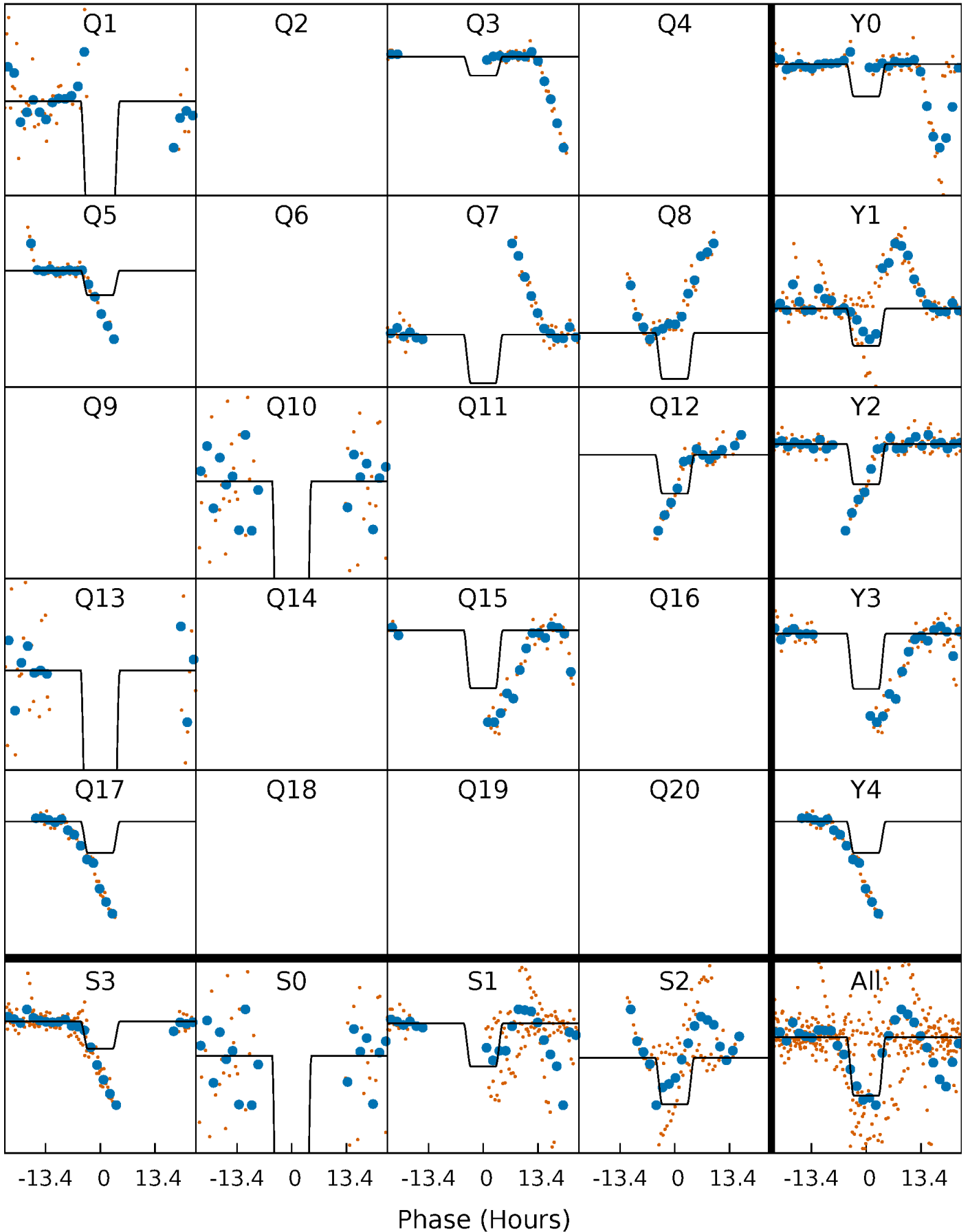
TCE 010001000-04     $P=159.477125$  Days     $T_0=153.119484$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

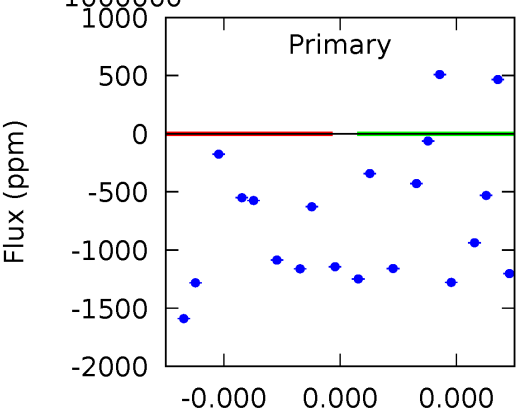
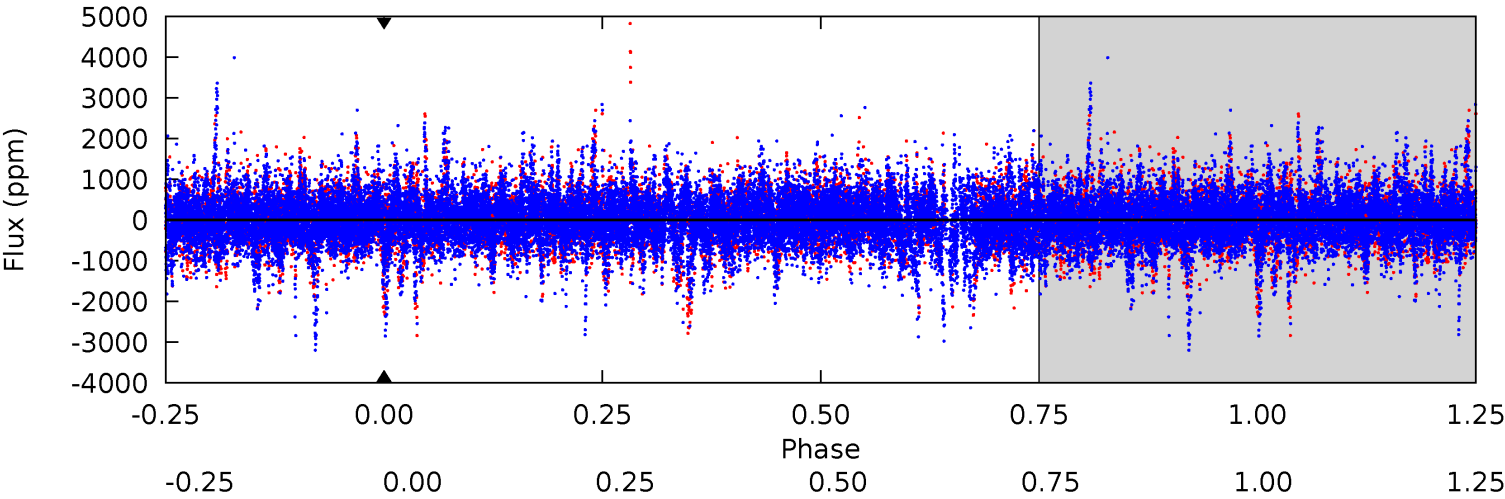
TCE 010001000-04     $P=159.477125$  Days     $T_0=152.902613$  (BKJD)



# DV Model-Shift Uniqueness Test

010001000-04, P = 159.477125 Days, E = 153.119484 Days

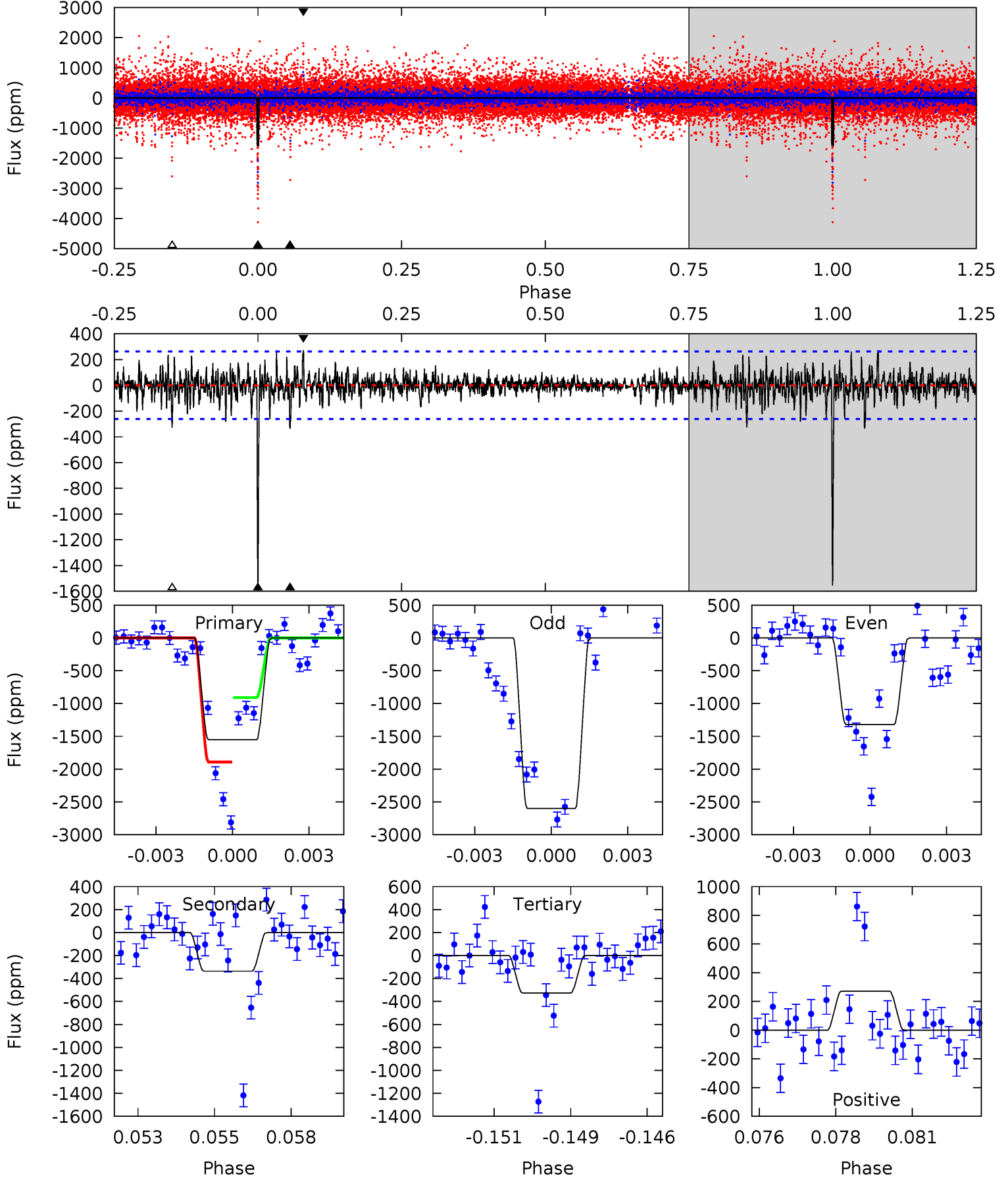
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

010001000-04, P = 159.477125 Days, E = 152.902613 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
31.3	6.76	6.56	5.47	5.28	3.02	1.22	24.7	25.8	0.20	1.29	12.4	0.83	0.15	9.73



### Stellar Parameters For KIC 010001000

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5009^{+166}_{-151}$	$4.516^{+0.084}_{-0.056}$	$0.020^{+0.250}_{-0.300}$	$0.801^{+0.071}_{-0.087}$	$0.768^{+0.085}_{-0.057}$	$2.106^{+0.742}_{-0.383}$
	+3%/-3%	+2%/-1%	+1250%/-1500%	+9%/-11%	+11%/-7%	+35%/-18%
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 010001000-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$6.55^{+6.84}_{-4.38}$	$380^{+16}_{-16}$	$3823^{+10296}_{-18106}$	$5209^{+579313}_{-603733}$
Alt.	$-336 \pm 50$	$7.36^{+7.09}_{-5.07}$	$379^{+15}_{-15}$	$2955^{+1343}_{-476}$	$950^{+8650}_{-700}$

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

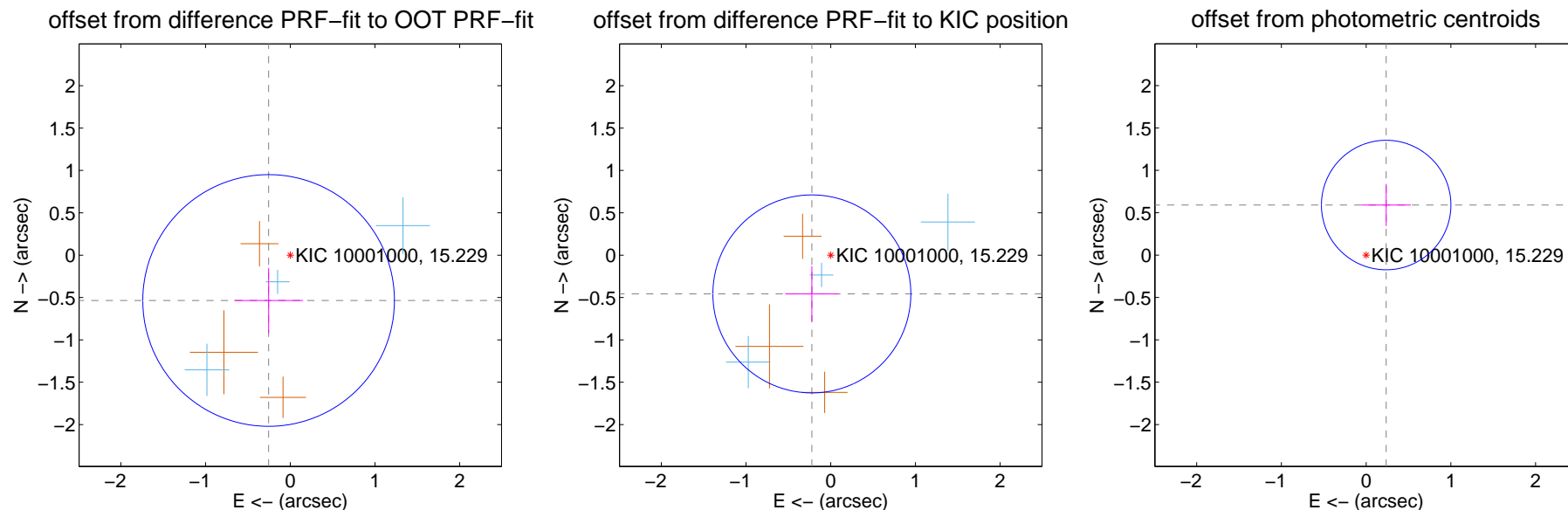
## DV Centroid Data

Supplemental centroid analysis for 010001000-04. Kepler magnitude: 15.23. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

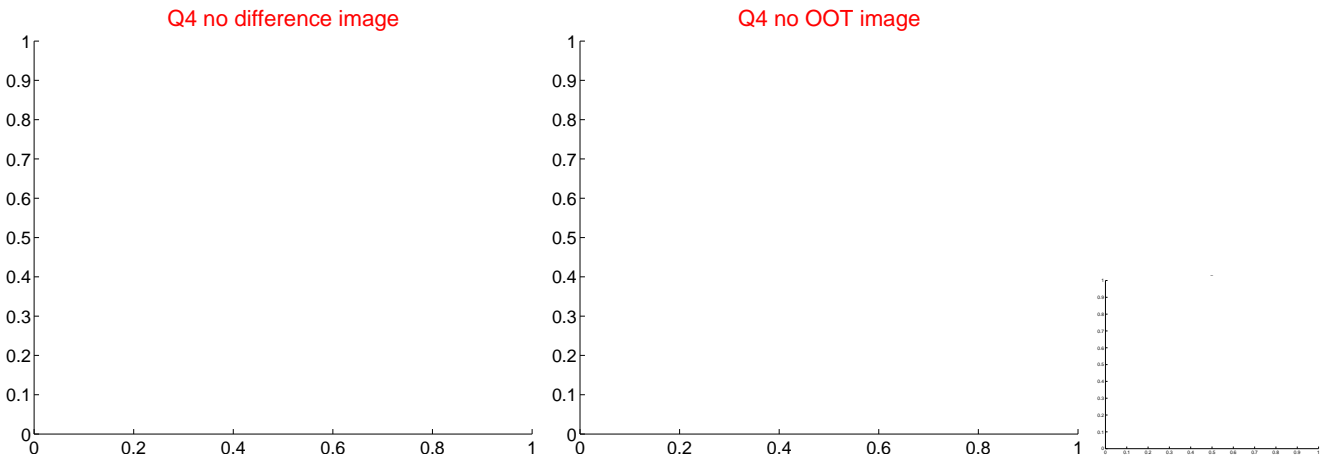
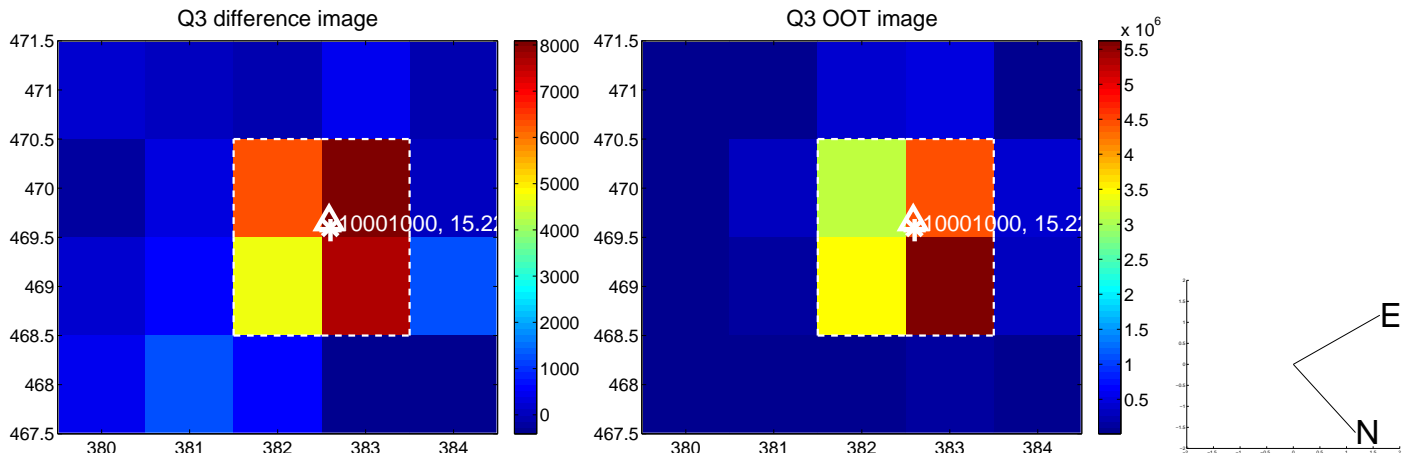
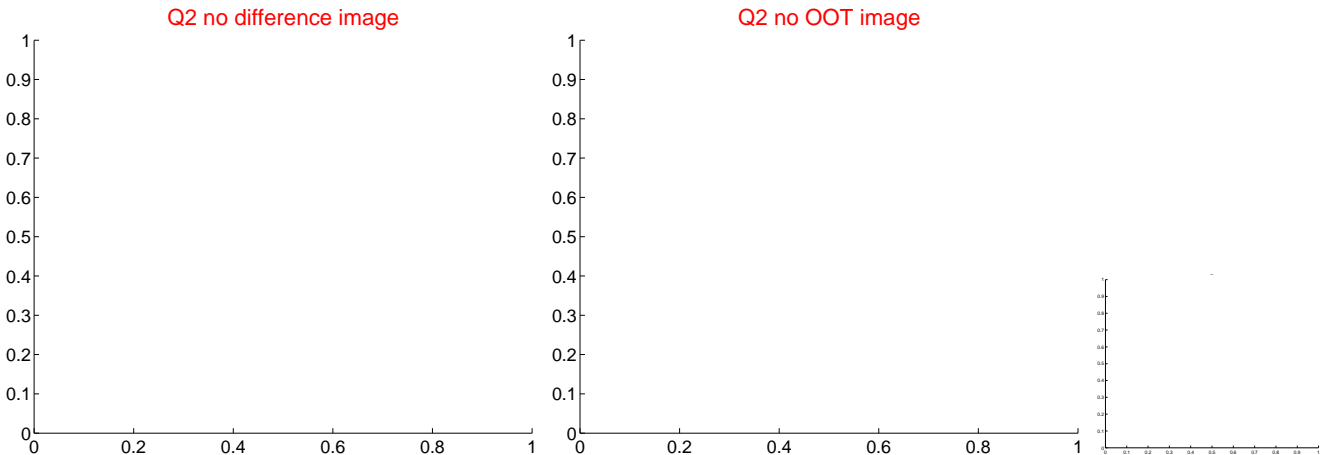
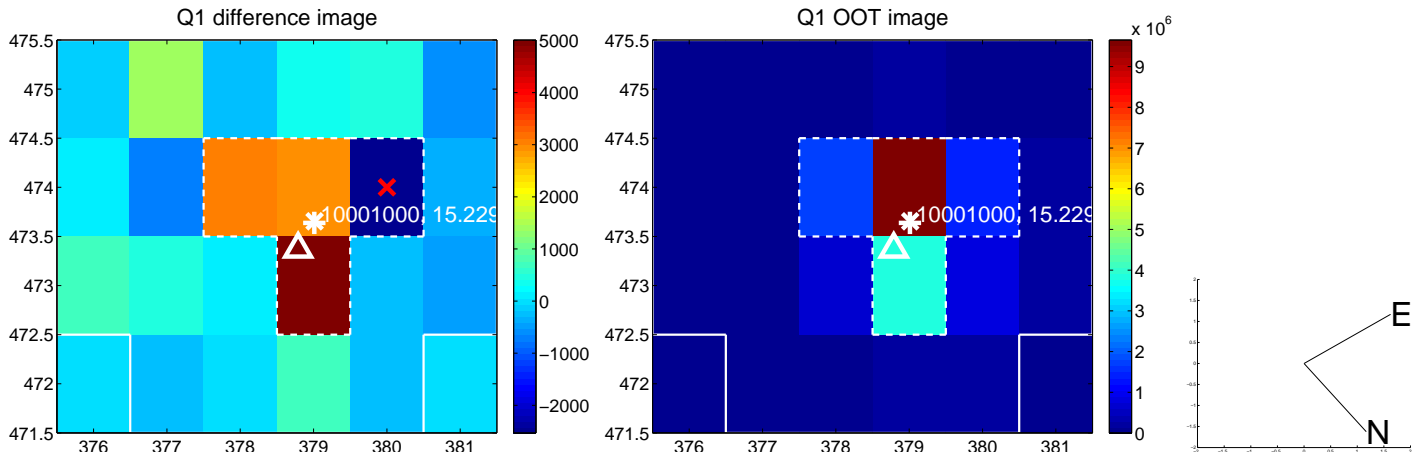
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.593 \pm 0.495$	1.20	$0.256 \pm 0.406$	$-0.535 \pm 0.385$
PRF-fit source offset from KIC position	$0.509 \pm 0.390$	1.31	$0.223 \pm 0.315$	$-0.458 \pm 0.326$
photometric centroid source offset	$0.64 \pm 0.25$	2.50	$-0.24 \pm 0.29$	$0.59 \pm 0.25$

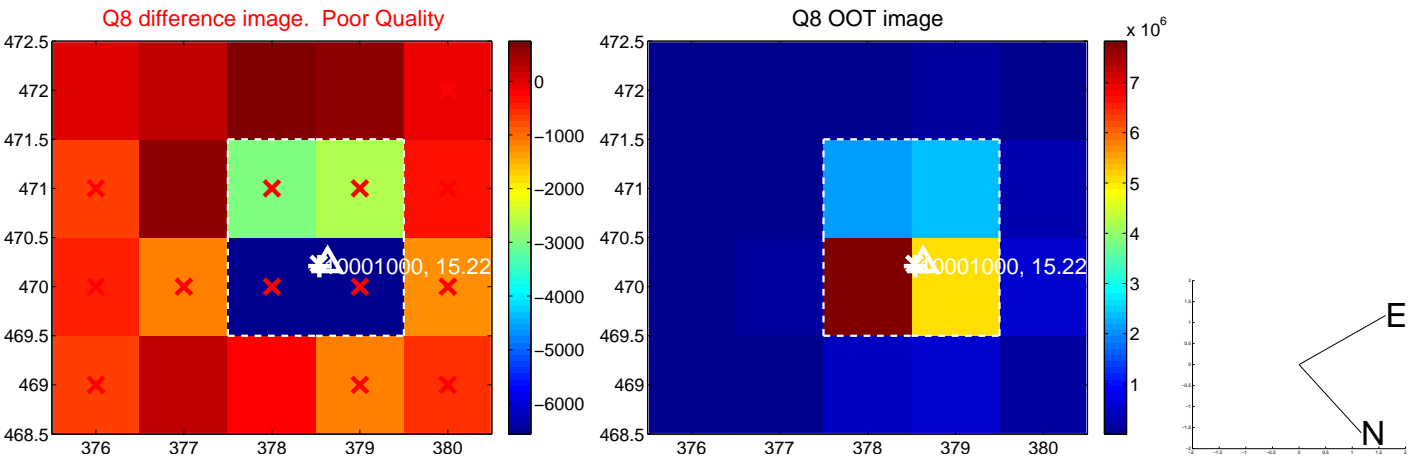
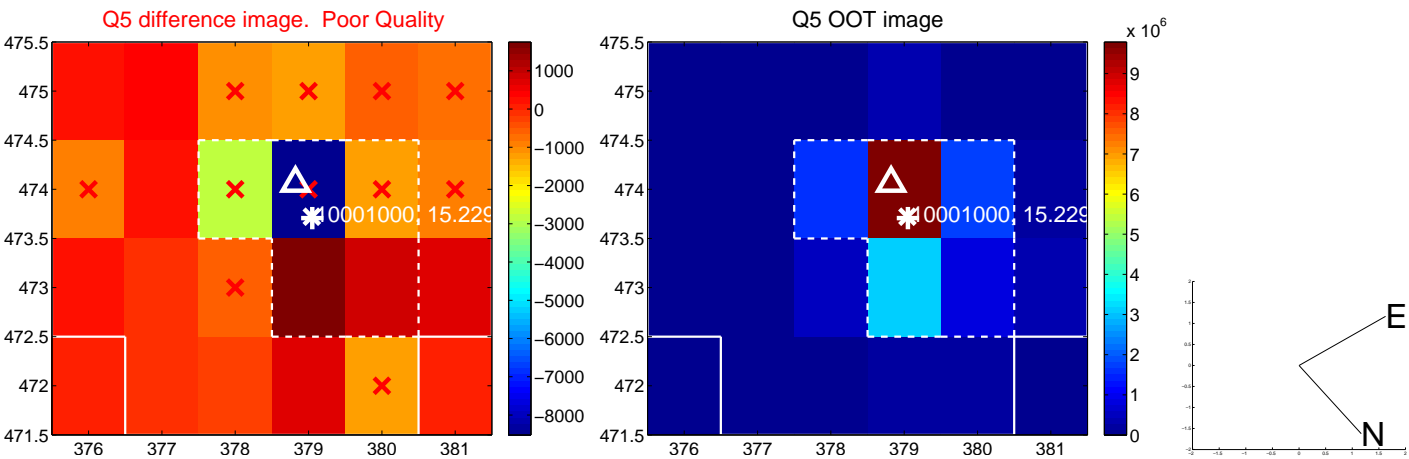


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

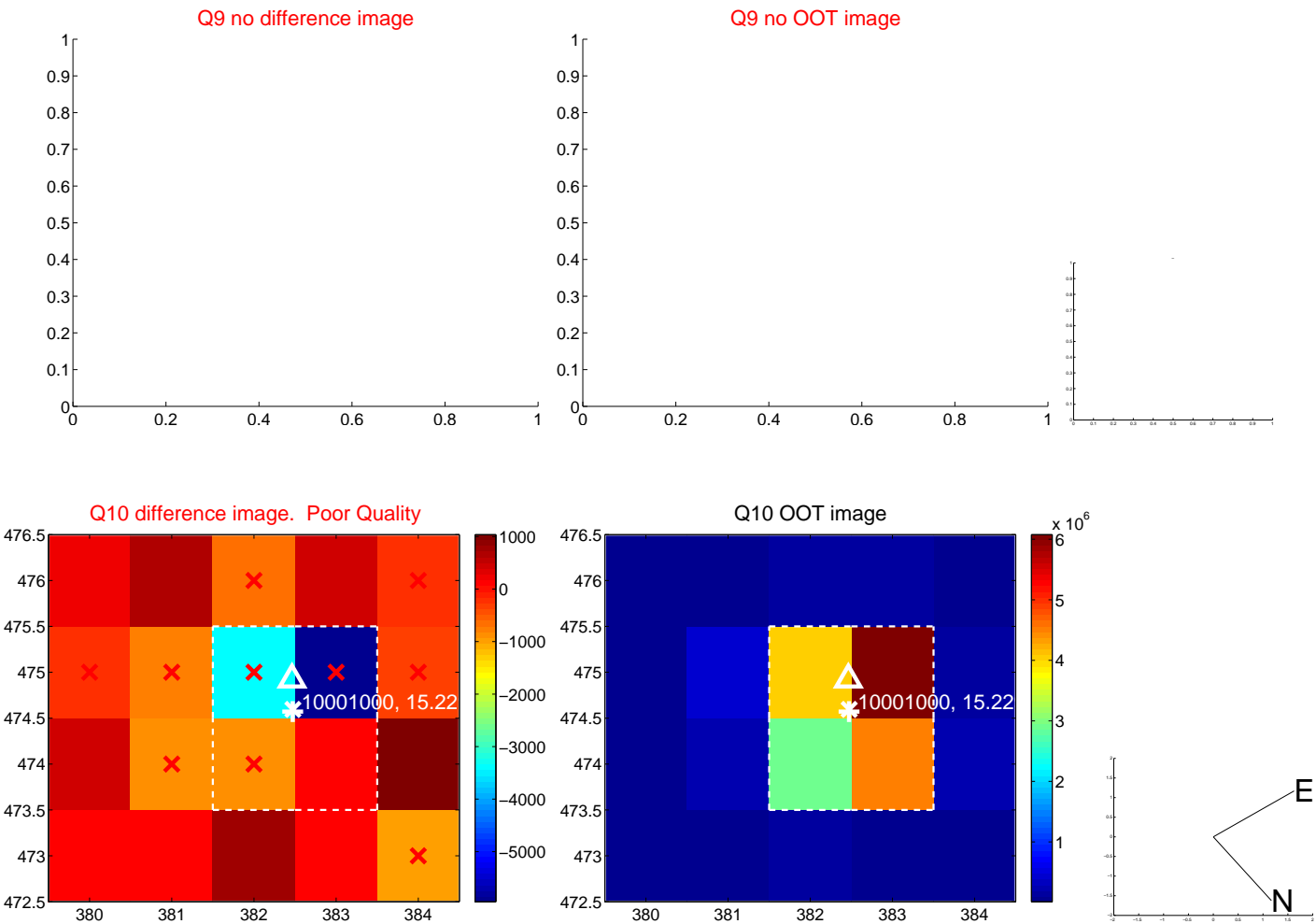
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



Q10 difference image. Poor Quality

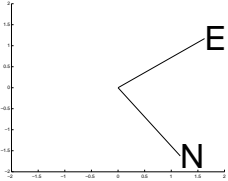
Q10 OOT image

Q11 no difference image

Q11 no OOT image

Q12 no difference image

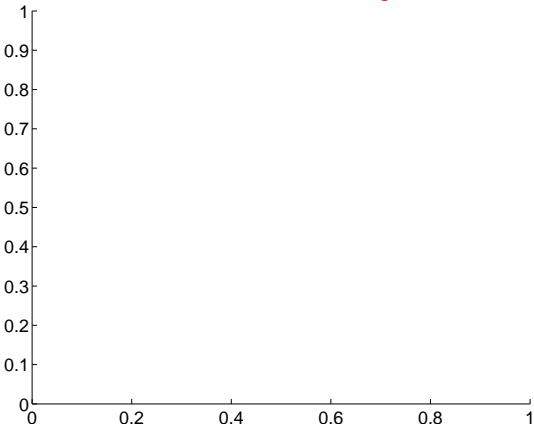
Q12 no OOT image



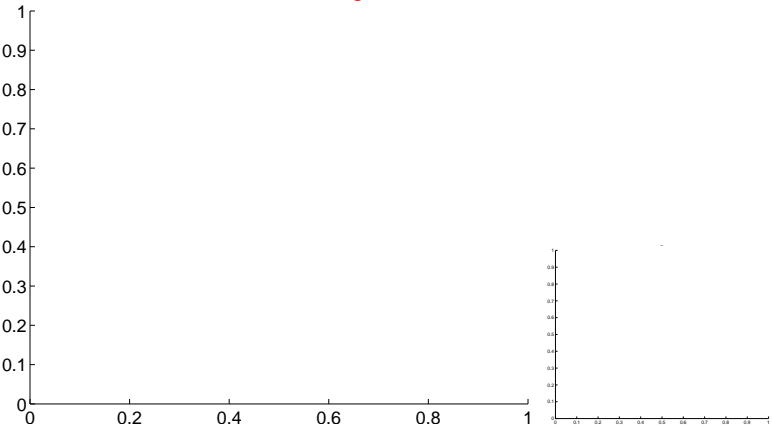


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q13 no difference image



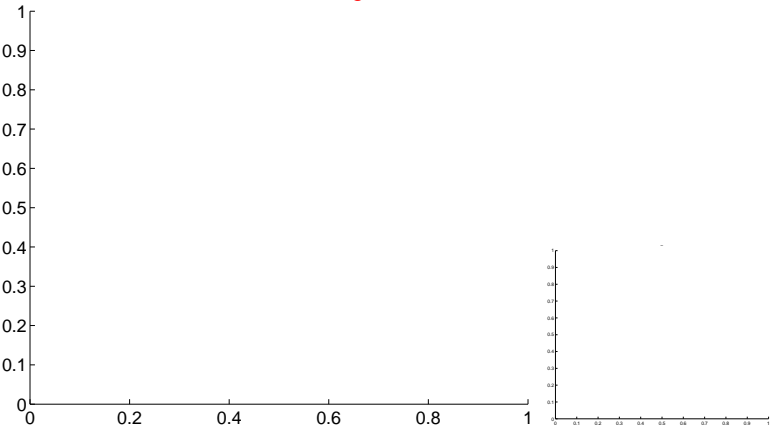
Q13 no OOT image



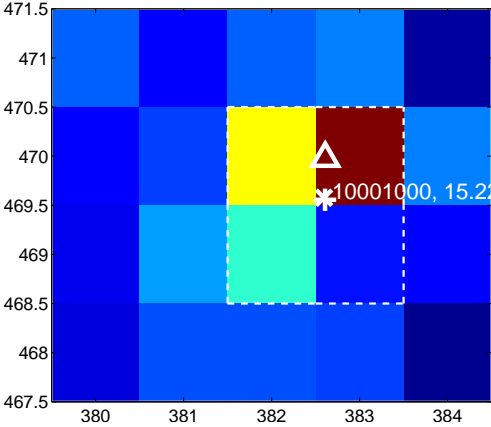
Q14 no difference image



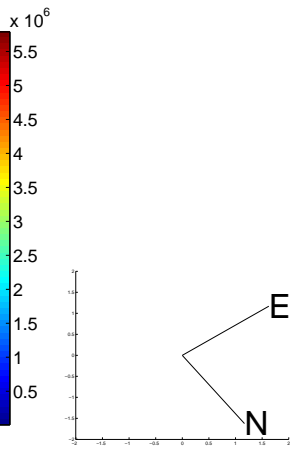
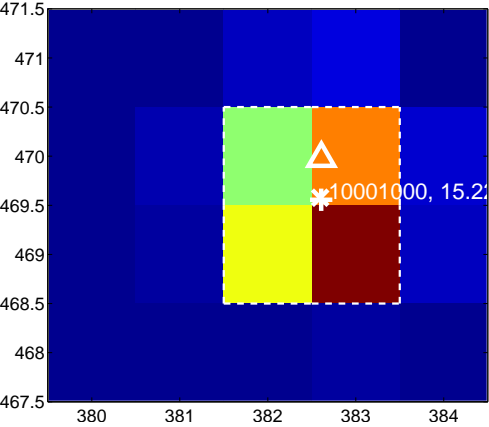
Q14 no OOT image



Q15 difference image



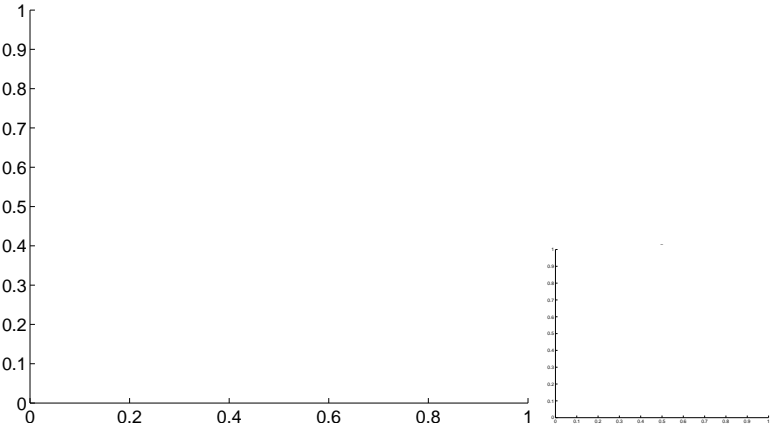
Q15 OOT image



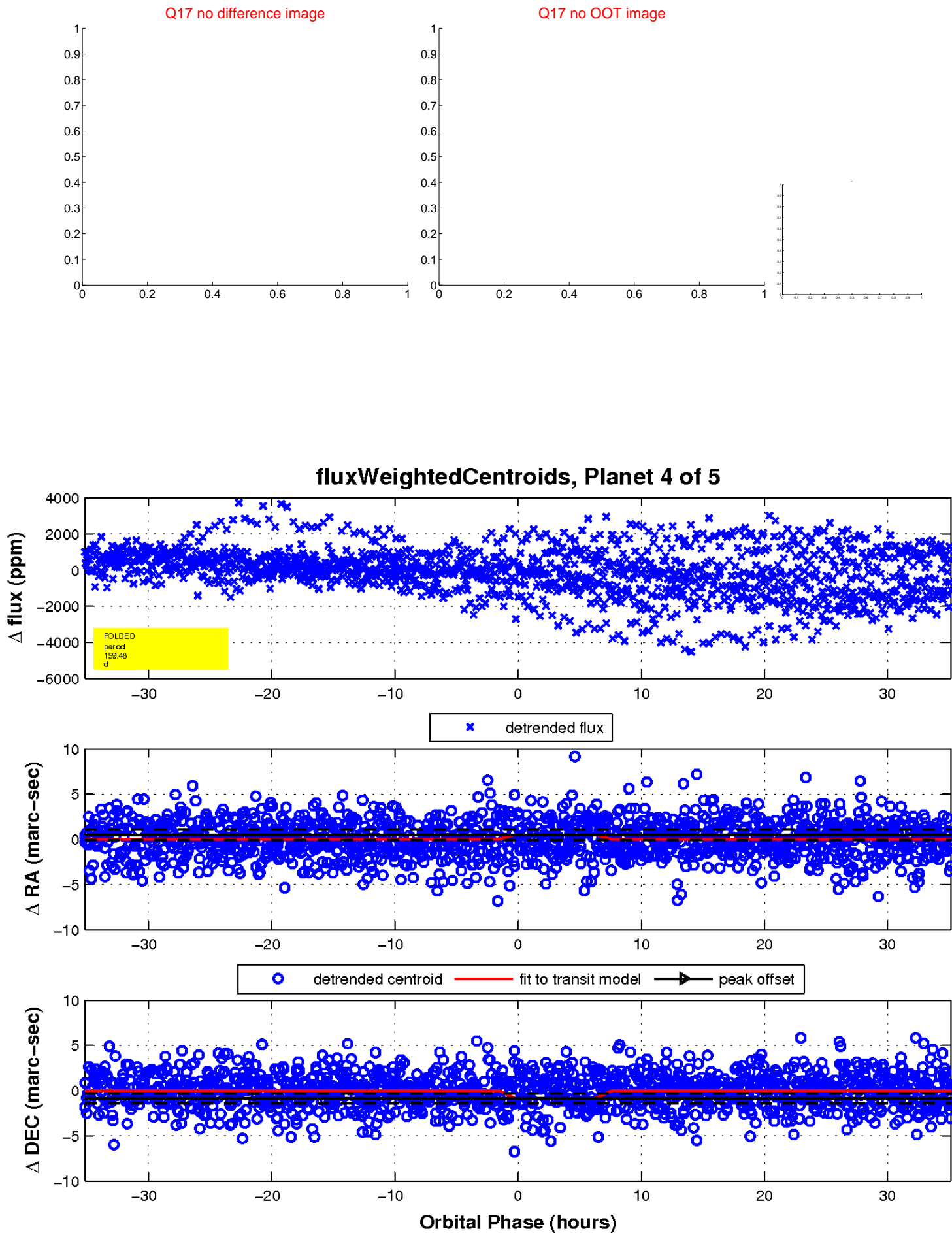
Q16 no difference image



Q16 no OOT image

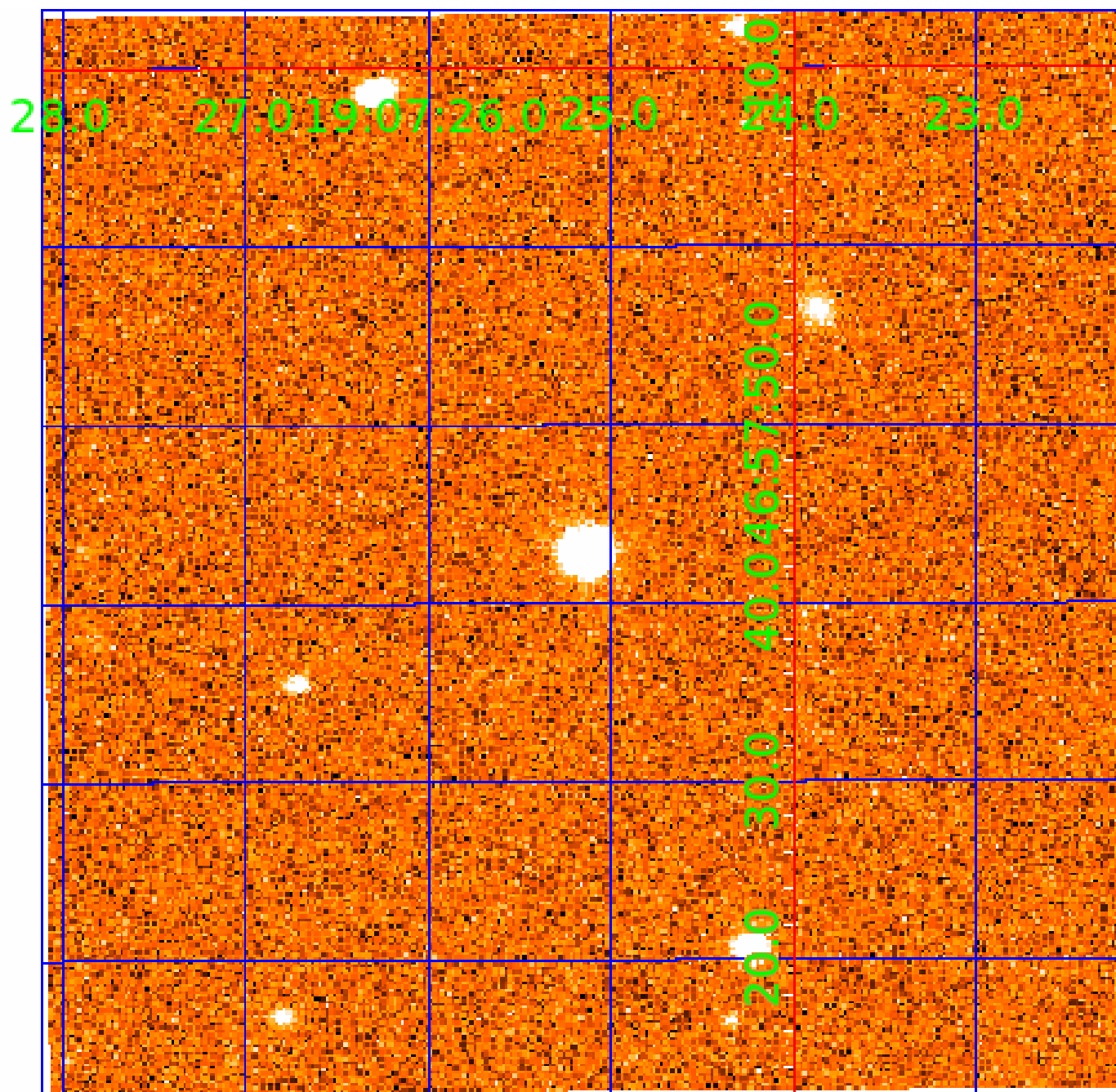


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 010001000

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010001000-01	OBS	No	1.783336	131.826395	49.5	7.058	7.3	6.9	0.80	5009	0.67	520.81
010001000-02	OBS	No	320.274944	254.484367	1402.1	44.740	14.4	5.7	0.80	5009	3.18	0.51
010001000-03	OBS	No	189.934865	217.873546	603.0	9.791	12.9	6.0	0.80	5009	1.94	1.03
010001000-04	OBS	No	159.477125	153.119484	723.9	12.000	10.1	-1.0	0.80	5009	2.09	1.30
010001000-05	OBS	No	170.691015	244.057370	814.4	9.412	9.6	7.4	0.80	5009	2.32	1.19

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010001000-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010001000-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010001000-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
010001000-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
010001000-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—INCONSISTENT_TRANS

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

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

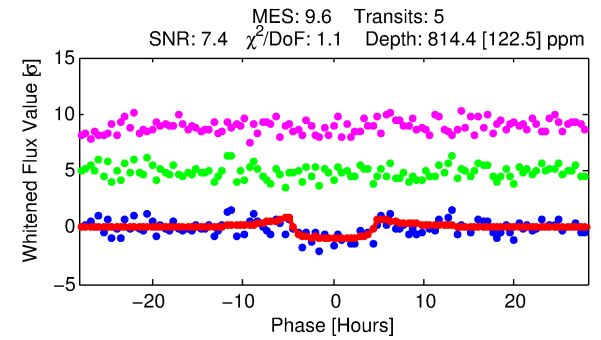
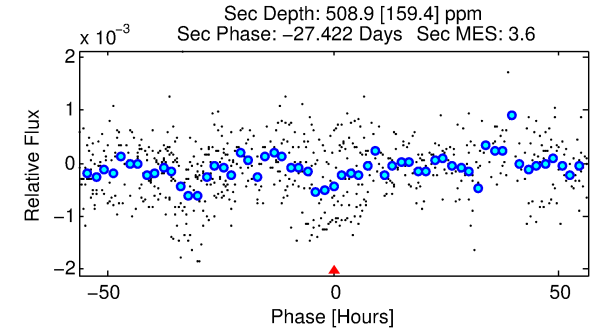
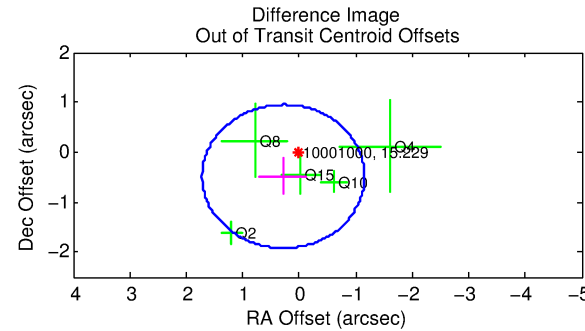
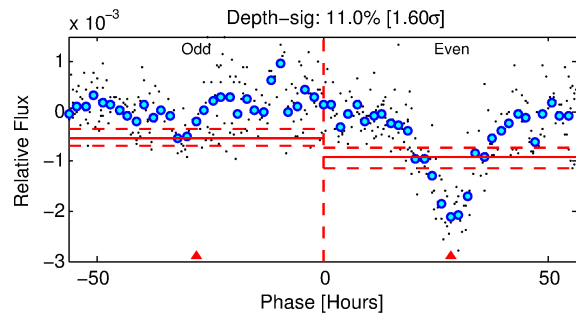
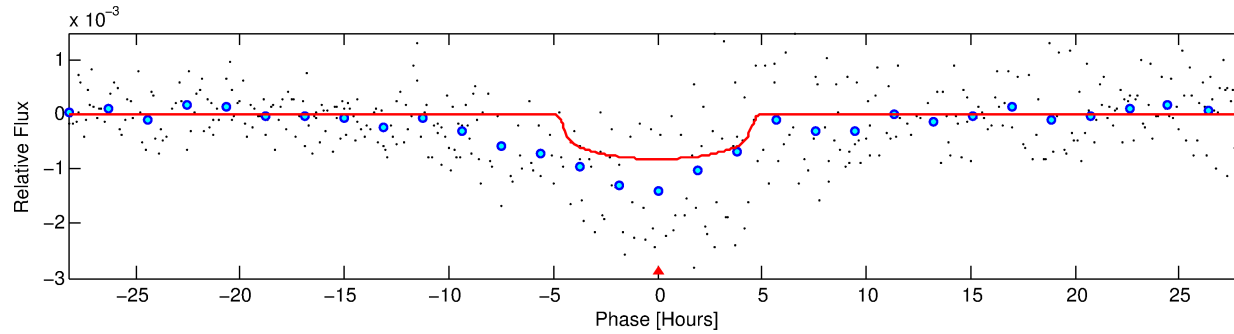
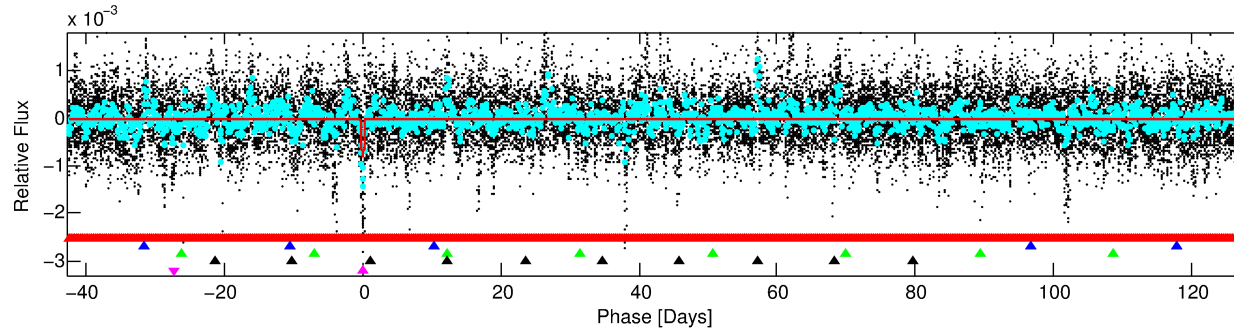
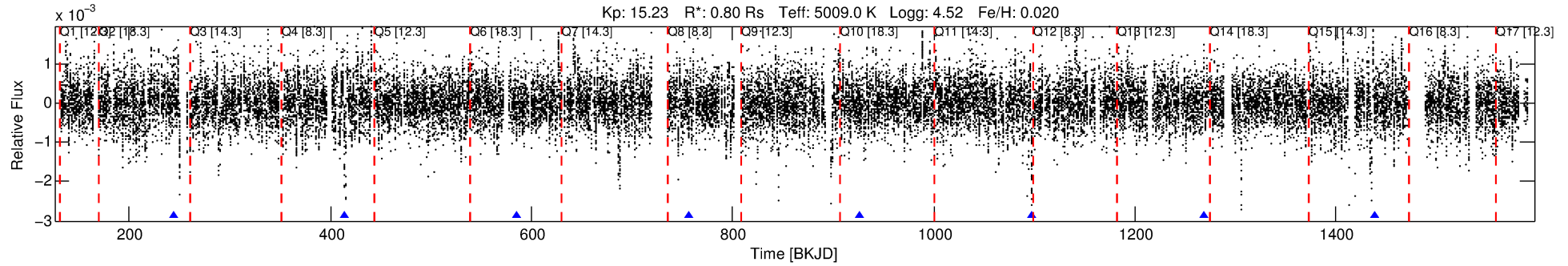
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010001000-05

No Significant Match Found

# DV One-Page Summary

KIC: 10001000 Candidate: 5 of 5 Period: 170.691 d



## DV Fit Results:

Period = 170.69101 [0.00390] d  
Epoch = 244.0574 [0.0155] BKJD  
Rp/R\* = 0.0266 [0.0211]  
a/R\* = 121.14 [328.40]  
b = 0.54 [3.63]  
Seff = 1.19 [0.24]  
Teff = 266 [13] K  
Rp = 2.32 [1.86] Re  
a = 0.5516 [0.0535] AU  
Ag = 15786.98 [25633.58] [0.62 $\sigma$ ]  
Teffp = 4615 [1872] K [2.32 $\sigma$ ]

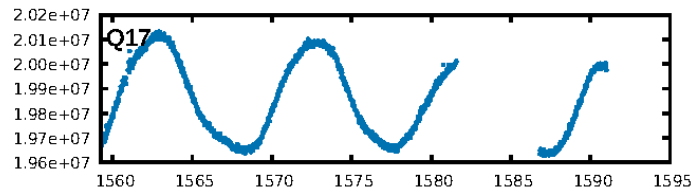
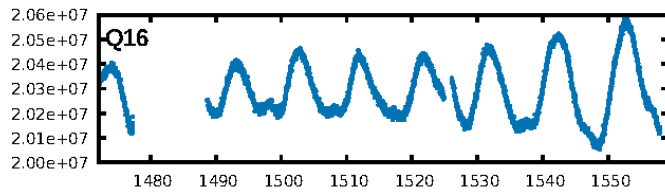
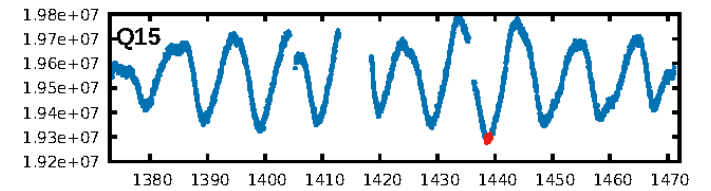
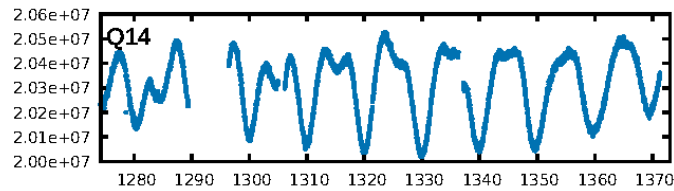
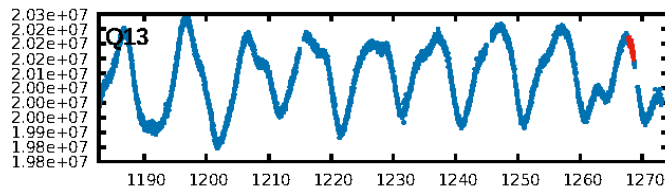
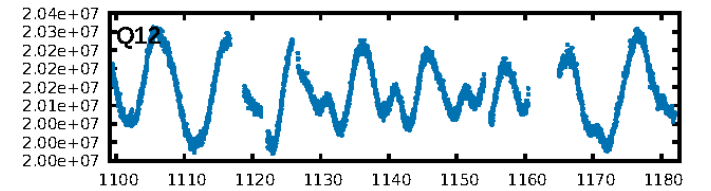
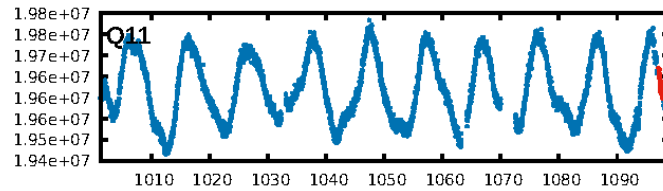
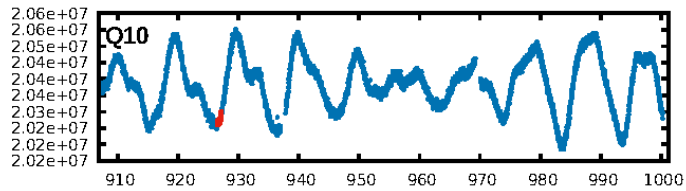
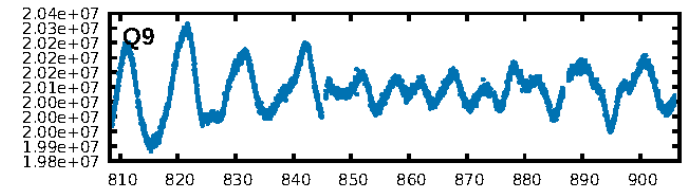
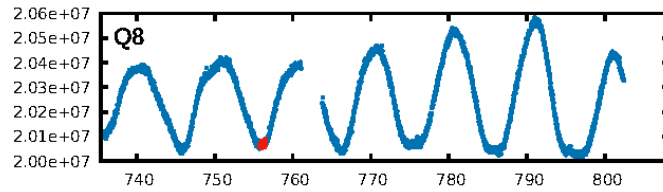
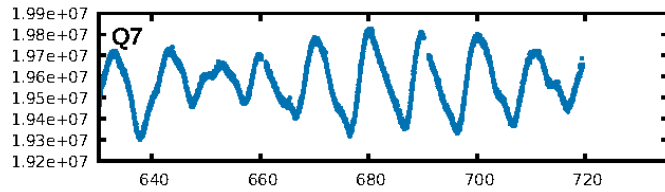
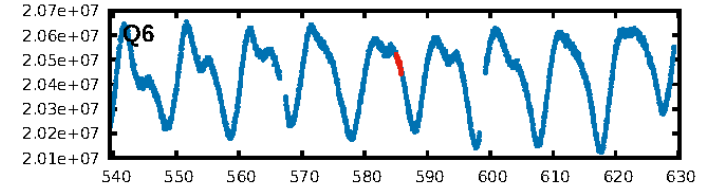
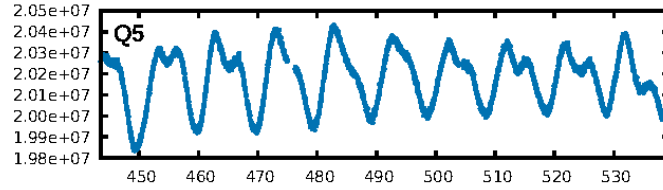
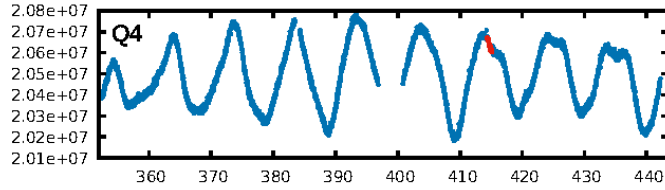
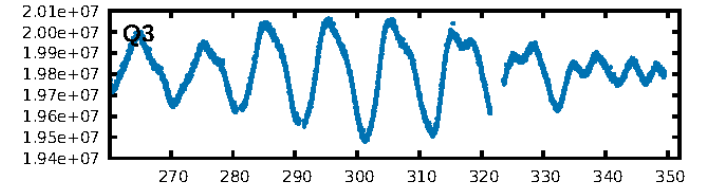
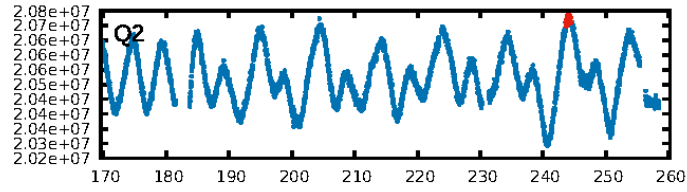
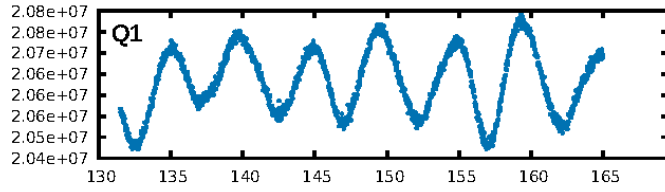
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [17.65 $\sigma$ ]  
LongPeriod-sig: 100.0% [34.01 $\sigma$ ]  
ModelChiSquare2-sig: 4.2%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.63e-11**  
RollingBand-fgt: 1.00 [5/5]  
**GhostDiagnostic-chr: 0.8054**  
Centroid-sig: 10.6%  
Centroid-so: 0.942 arcsec [1.45 $\sigma$ ]  
OotOffset-rm: 0.562 arcsec [1.17 $\sigma$ ]  
OotOffset-st: 2/1/2/0 [5]  
KicOffset-rm: 0.479 arcsec [0.98 $\sigma$ ]  
KicOffset-st: 2/1/2/0 [5]  
DiffImageQuality-fgm: 0.80 [4/5]  
DiffImageOverlap-fno: 0.00 [0/6]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:30:57 Z

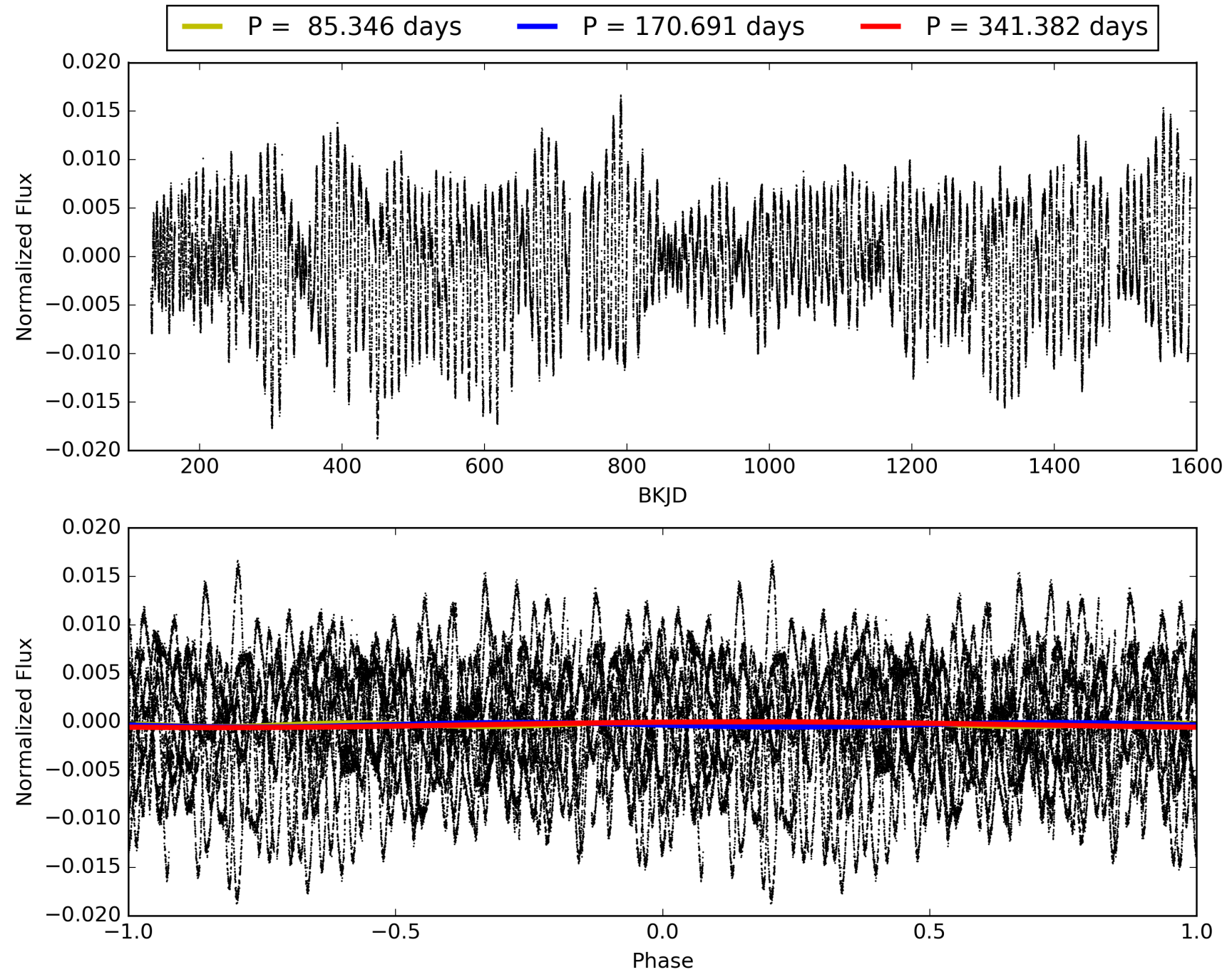
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010001000-05, PDC Light Curves



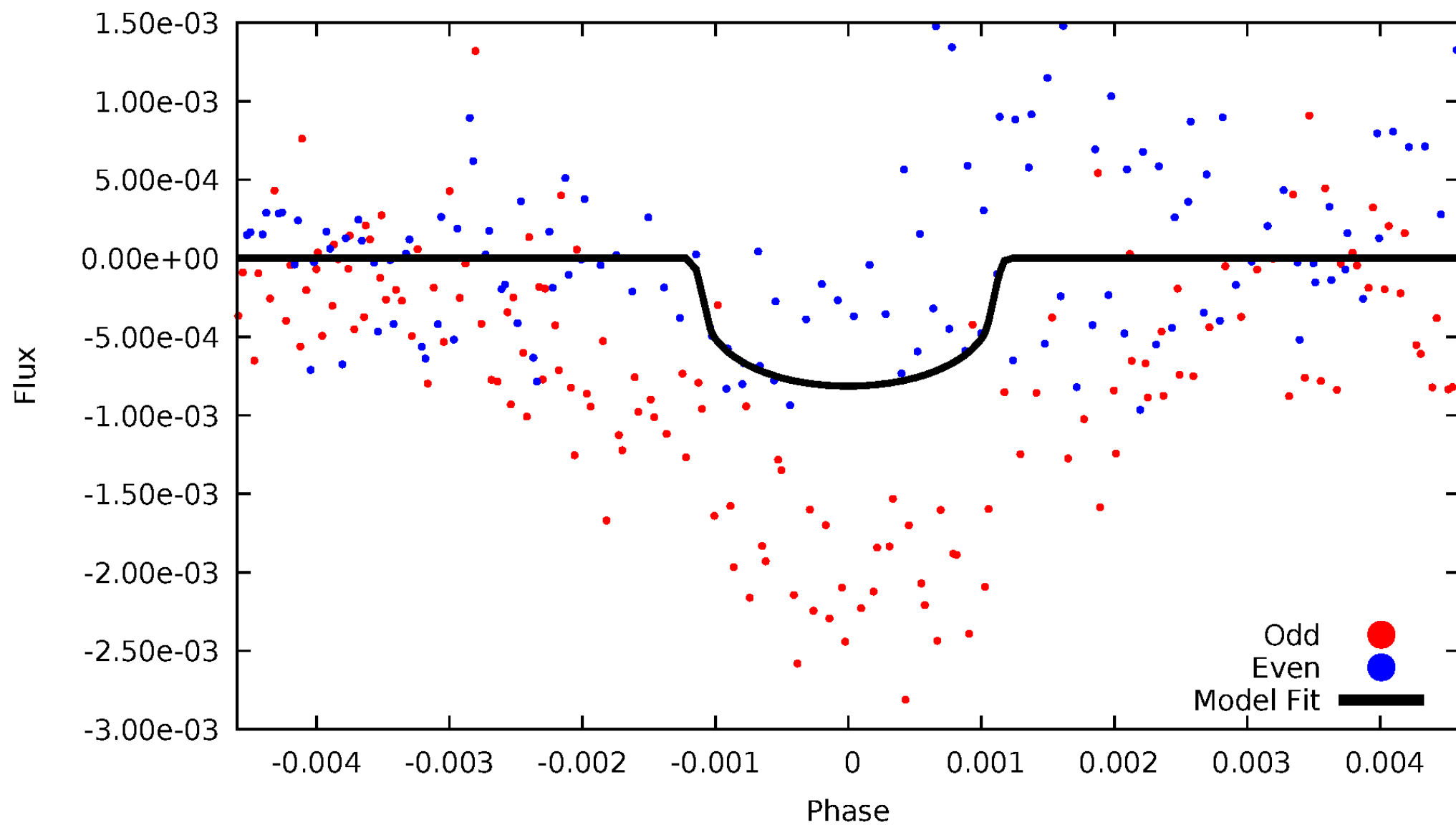


TCE 010001000-05



# DV Odd/Even

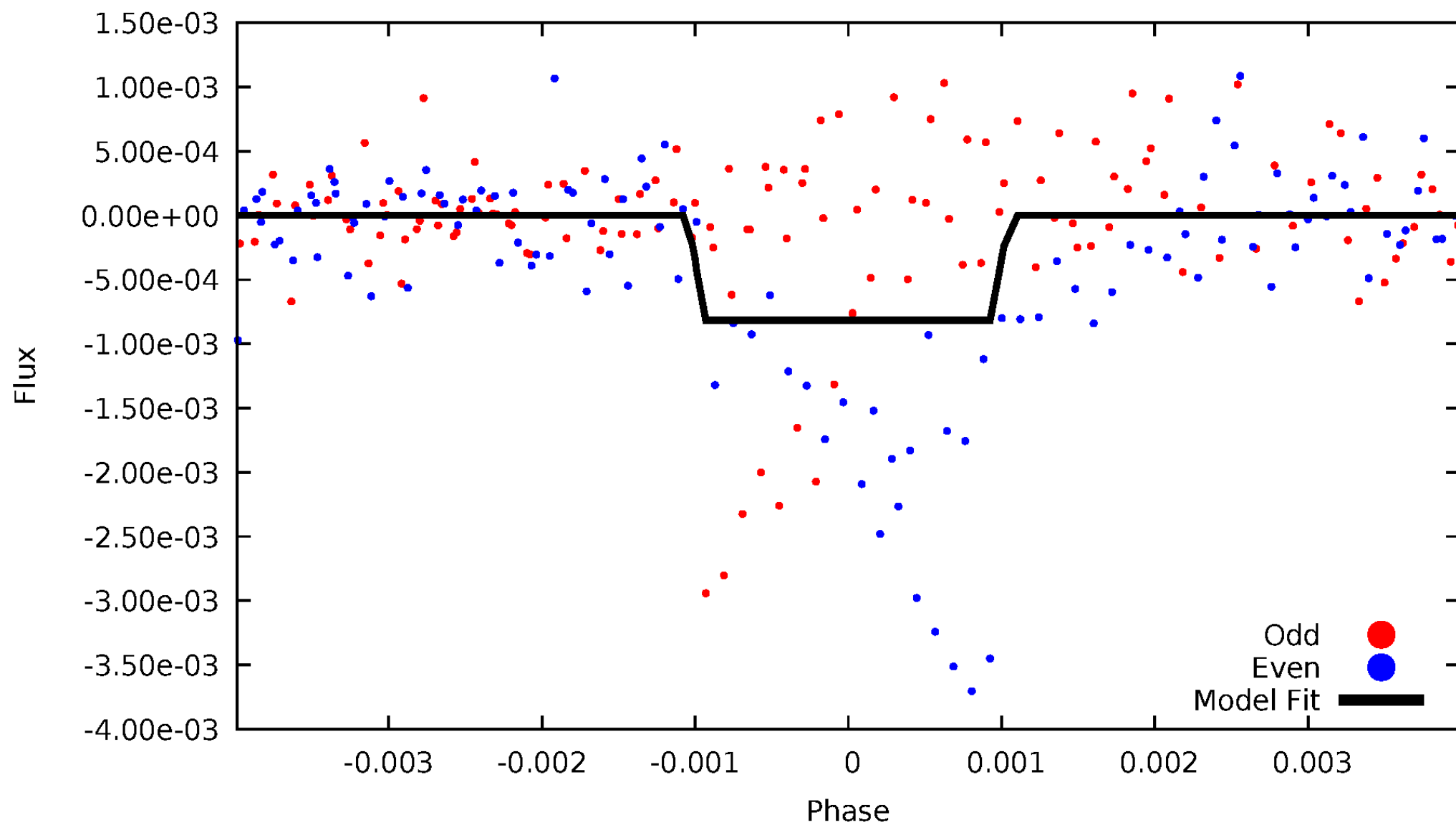
TCE 010001000-05





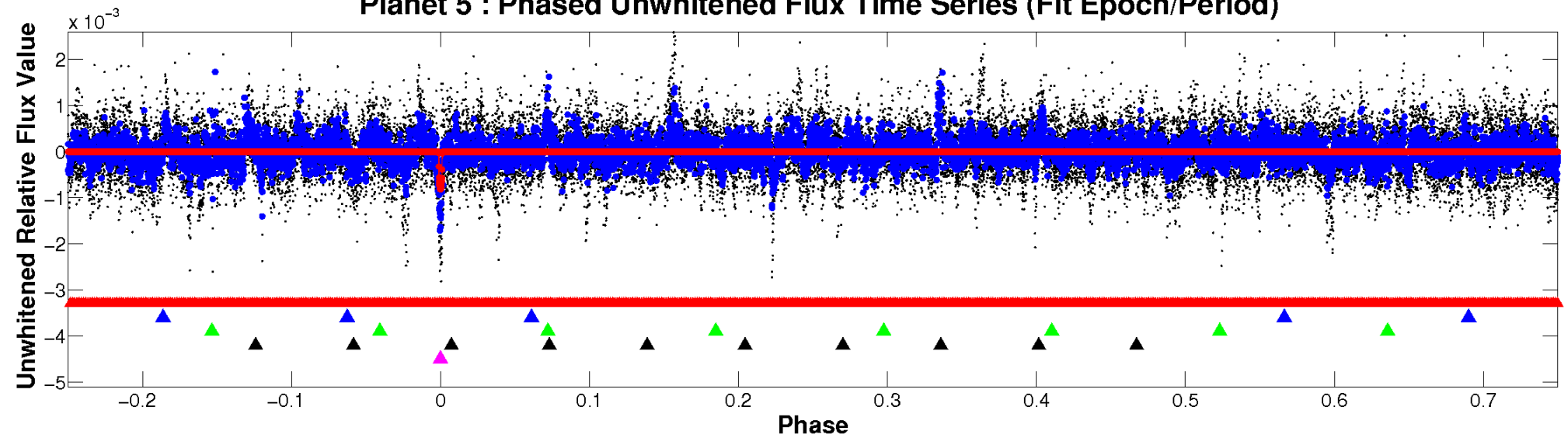
# ALT Odd/Even

TCE 010001000-05

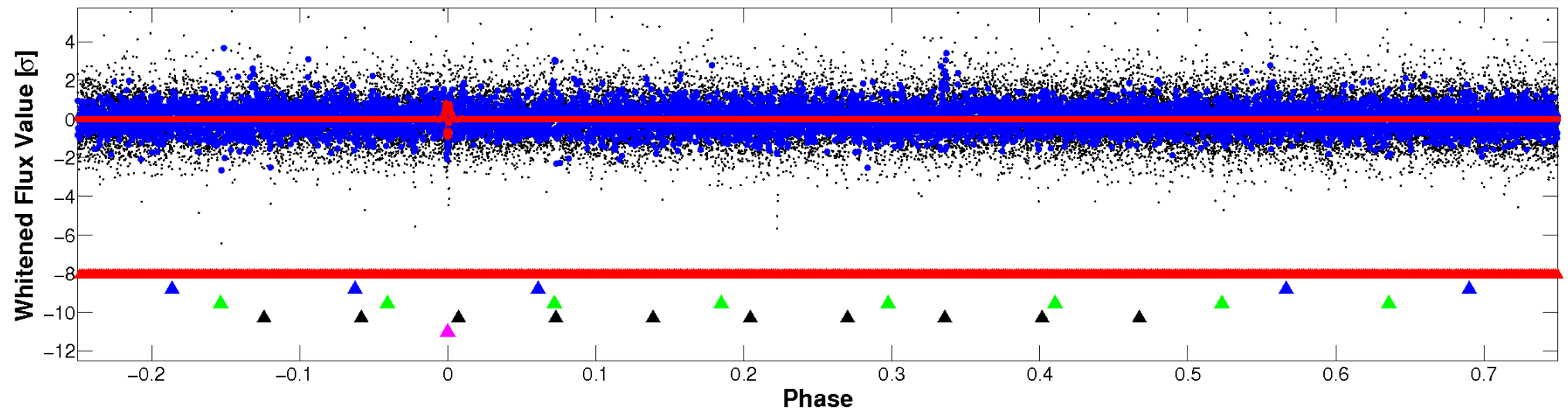


# Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

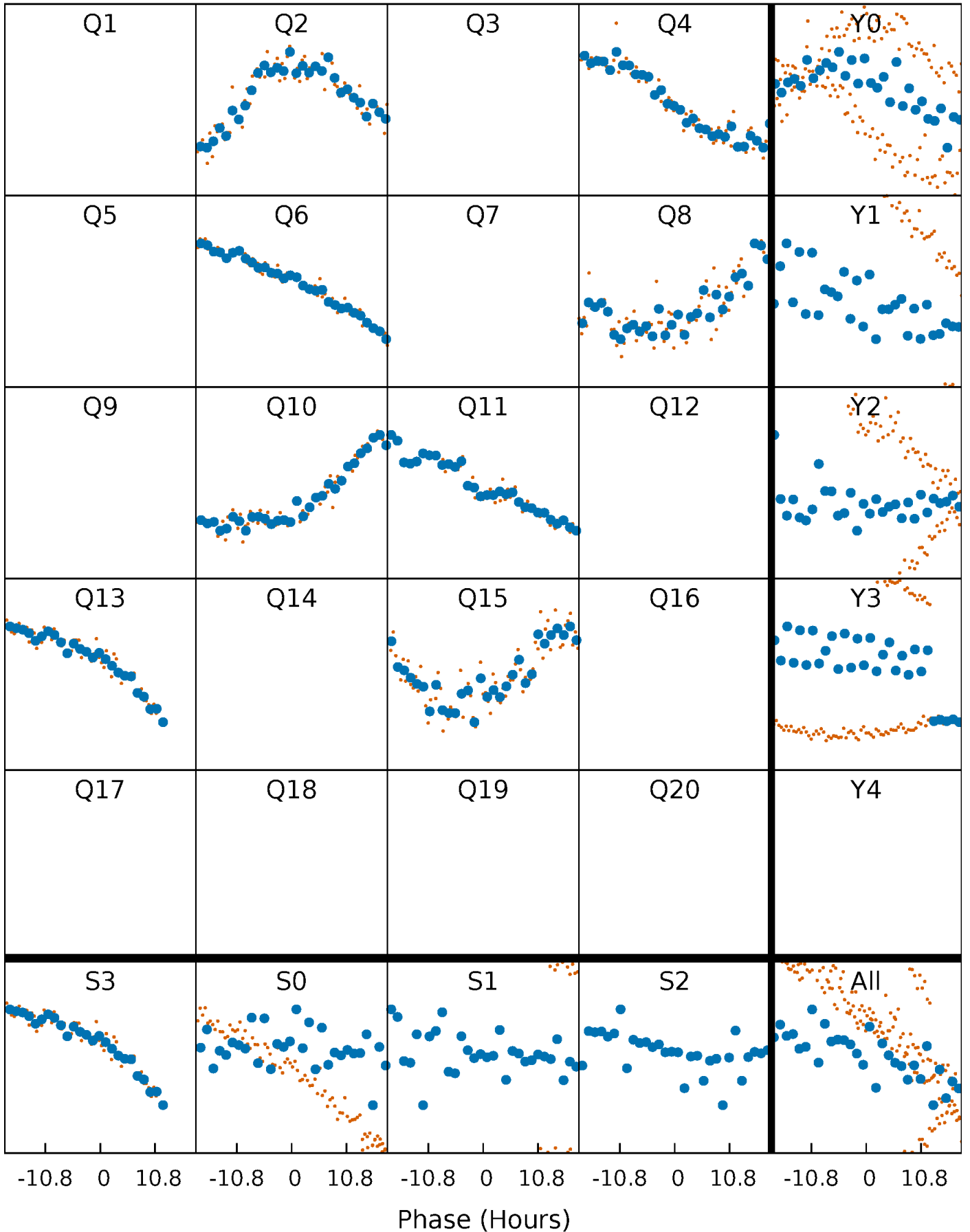


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



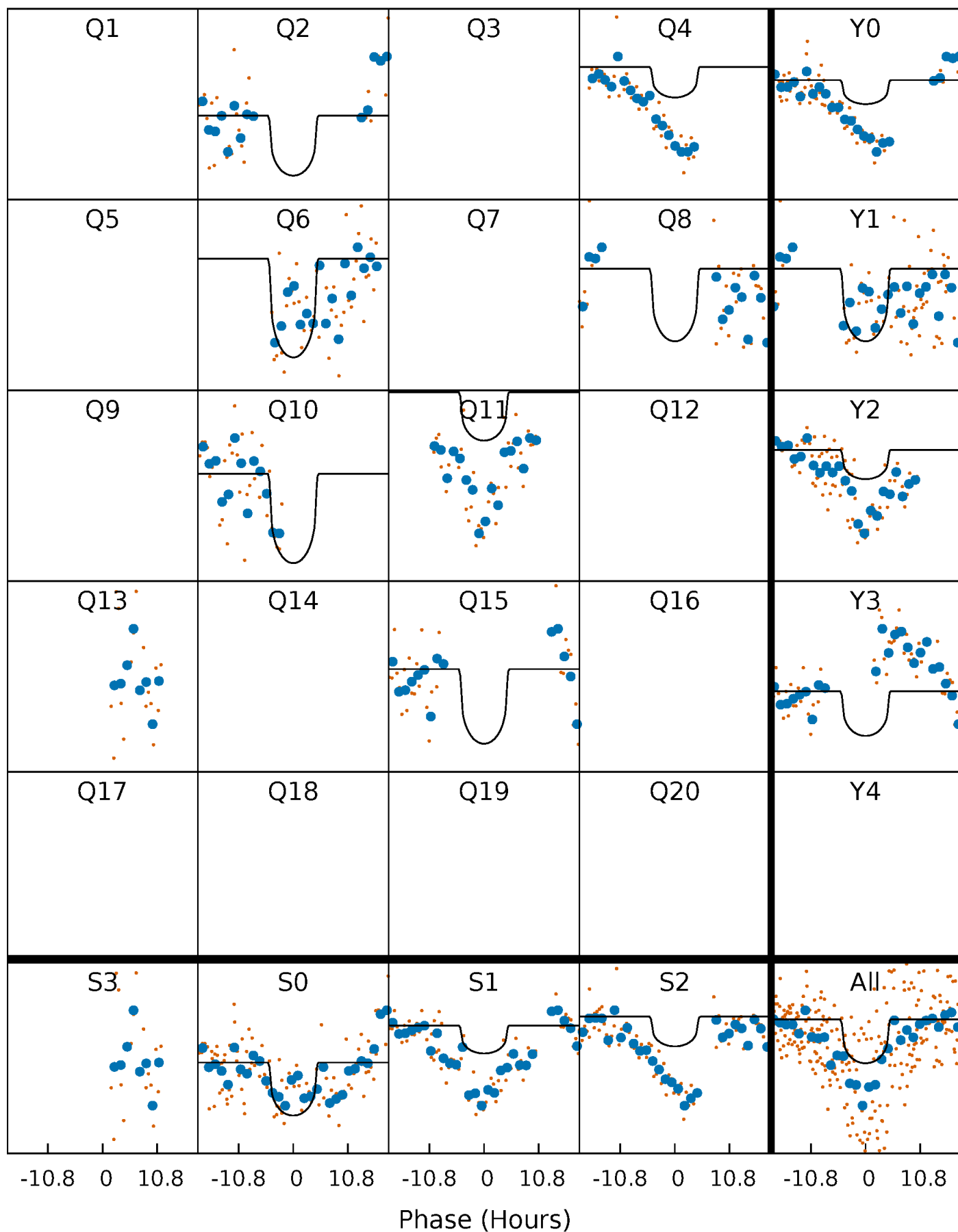
# PDC Quarter-Phased Transit Curves

TCE 010001000-05     $P=170.691015$  Days     $T_0=244.057370$  (BKJD)



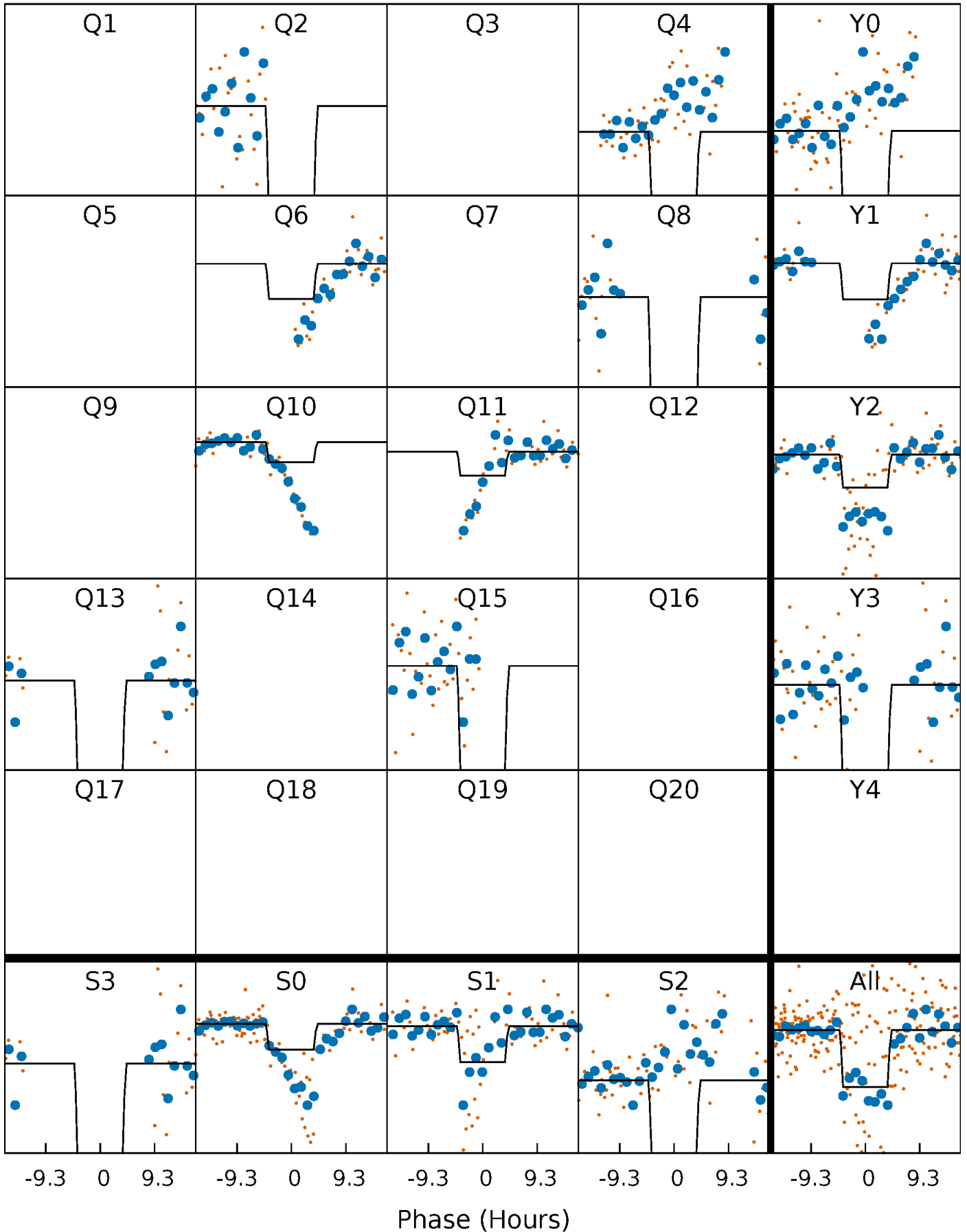
# DV Quarter-Phased Transit Curves

TCE 010001000-05     $P=170.691015$  Days     $T_0=244.057370$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

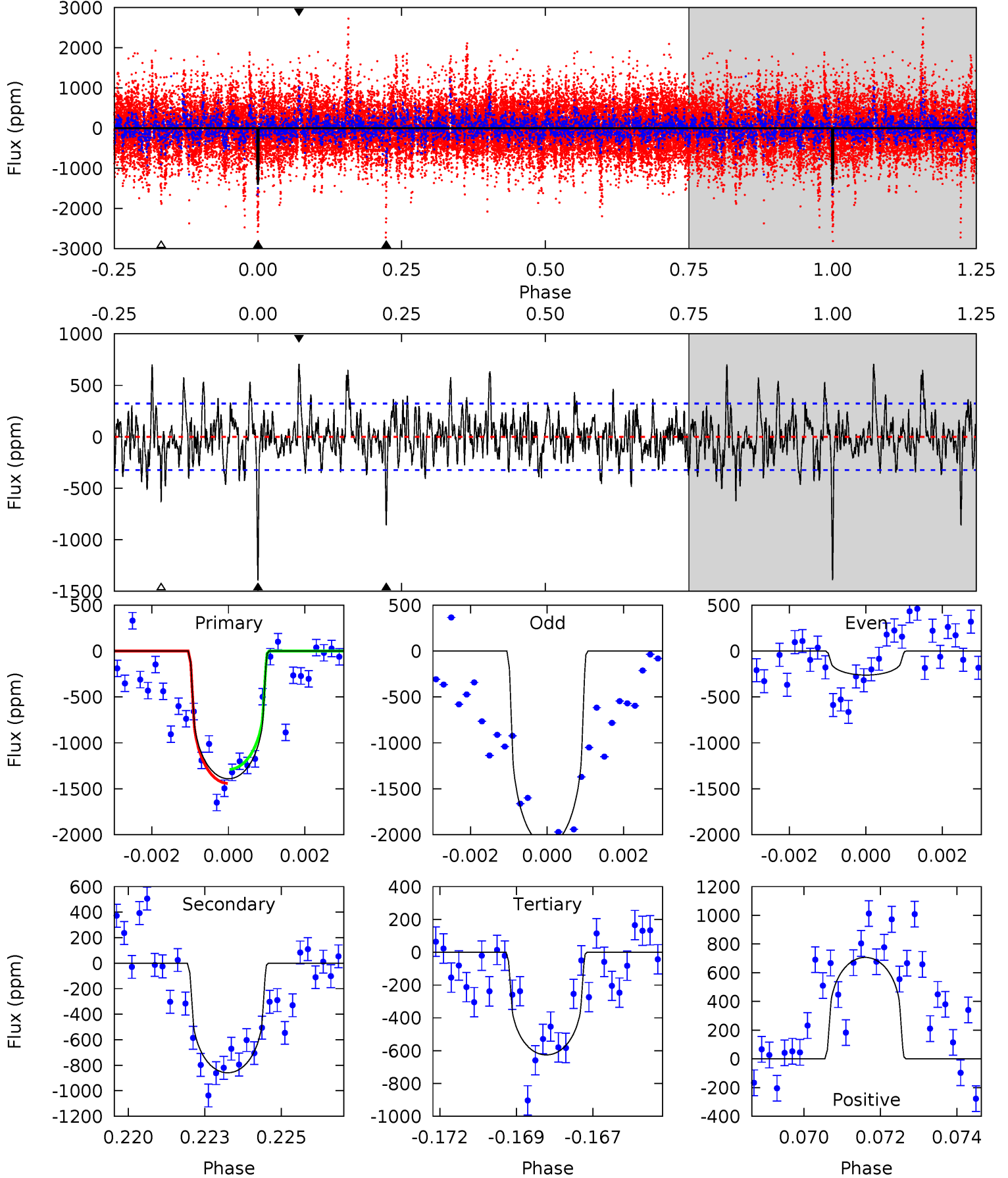
TCE 010001000-05     $P=170.667904$  Days     $T_0=243.898602$  (BKJD)



# DV Model-Shift Uniqueness Test

010001000-05, P = 170.691015 Days, E = 73.366355 Days

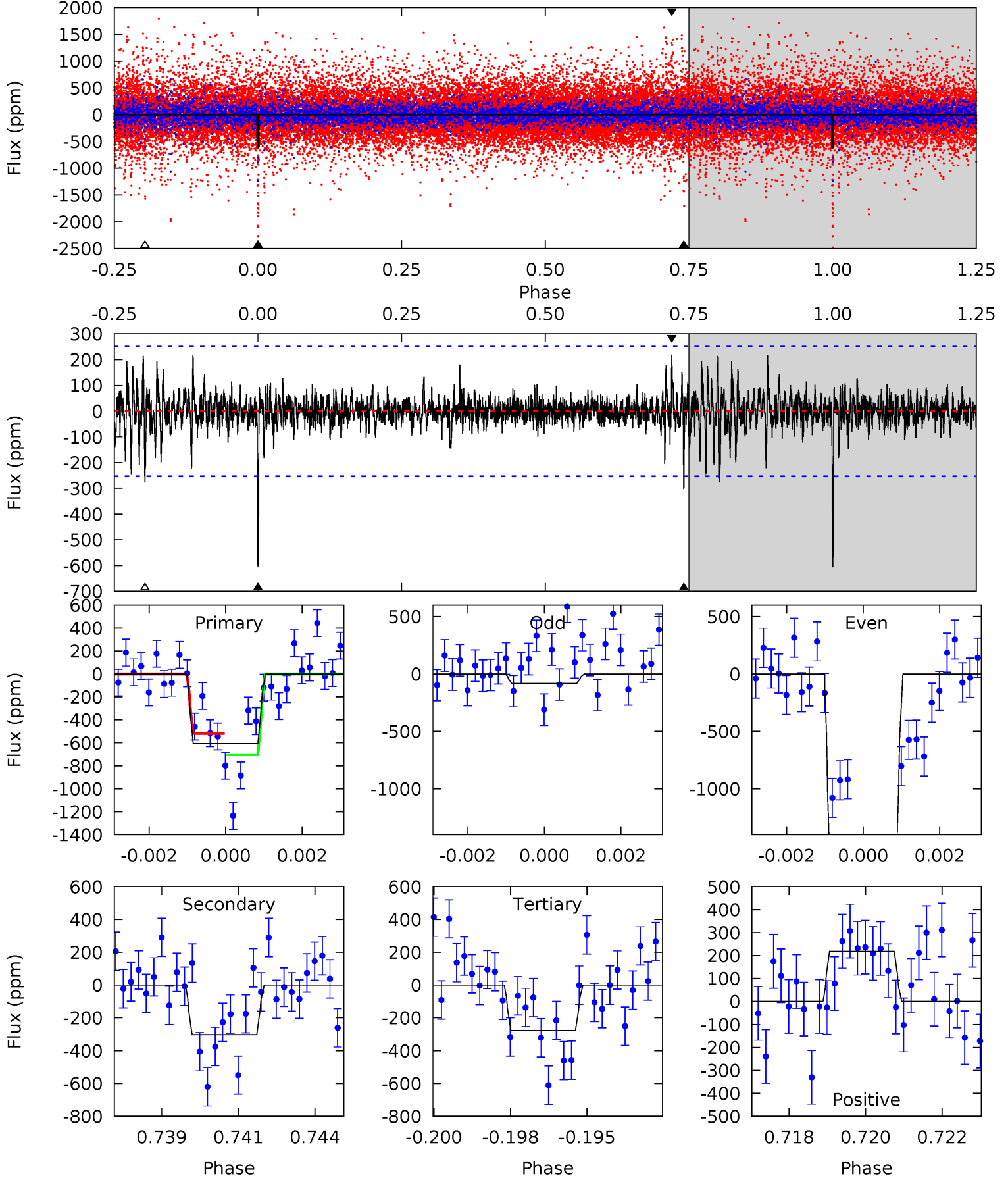
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.8	14.1	10.3	11.6	5.30	3.05	2.94	12.6	11.2	3.82	2.49	15.3	1.35	0.34	1.24



# Alt Model-Shift Uniqueness Test

010001000-05, P = 170.667904 Days, E = 73.230698 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
12.7	6.35	5.81	4.59	5.32	3.07	0.99	6.93	8.15	0.53	1.76	18.4	0.74	0.26	1.91



### Stellar Parameters For KIC 010001000

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5009^{+166}_{-151}$	$4.516^{+0.084}_{-0.056}$	$0.020^{+0.250}_{-0.300}$	$0.801^{+0.071}_{-0.087}$	$0.768^{+0.085}_{-0.057}$	$2.106^{+0.742}_{-0.383}$
	+3%/-3%	+2%/-1%	+1250%/-1500%	+9%/-11%	+11%/-7%	+35%/-18%
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 010001000-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-859 \pm 61$	$2.65^{+1.66}_{-1.59}$	$371^{+16}_{-15}$	$4932^{+2634}_{-864}$	$21153^{+101870}_{-13218}$
Alt.	$-302 \pm 48$	$2.59^{+1.84}_{-1.56}$	$371^{+15}_{-15}$	$4051^{+1913}_{-654}$	$7642^{+40877}_{-5115}$

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



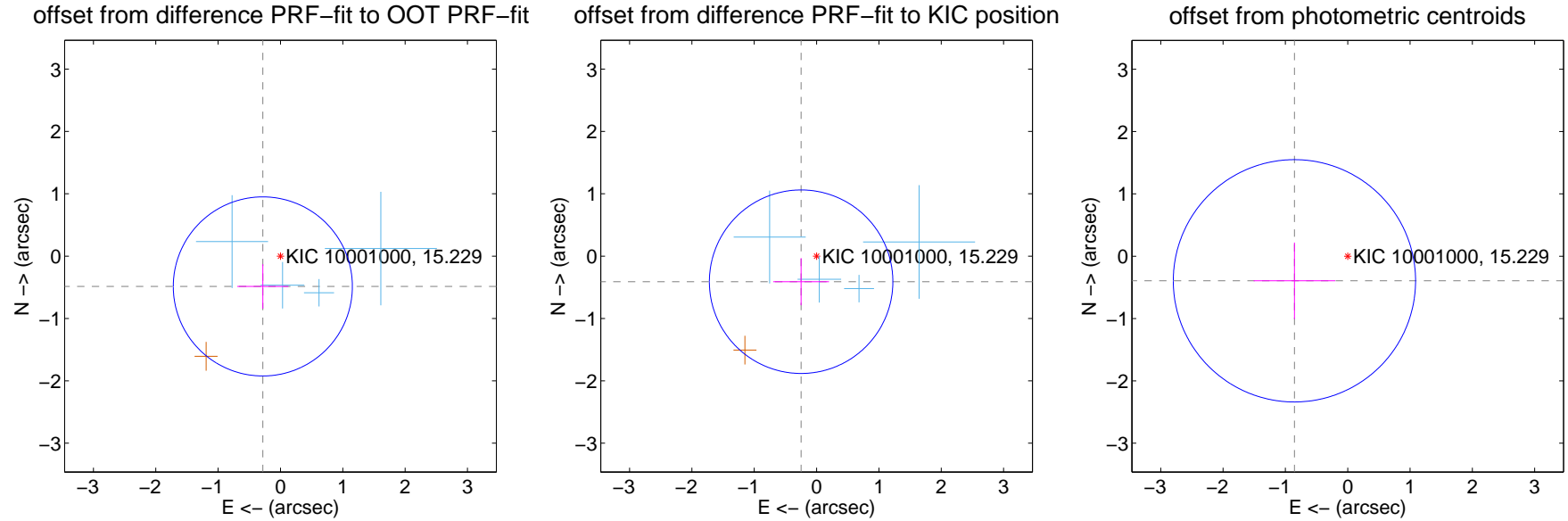
## DV Centroid Data

Supplemental centroid analysis for 010001000-05. Kepler magnitude: 15.23. Transit SNR 7.44

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.562 \pm 0.479$	1.17	$0.283 \pm 0.410$	$-0.486 \pm 0.356$
PRF-fit source offset from KIC position	$0.479 \pm 0.491$	0.98	$0.248 \pm 0.448$	$-0.410 \pm 0.378$
photometric centroid source offset	$0.94 \pm 0.65$	1.45	$0.86 \pm 0.65$	$-0.39 \pm 0.61$



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.

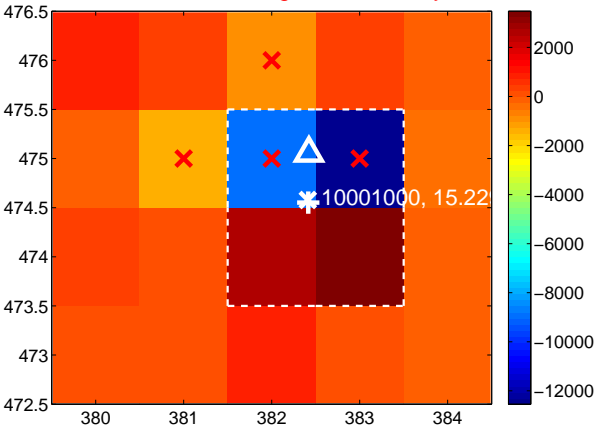
Q1 no difference image



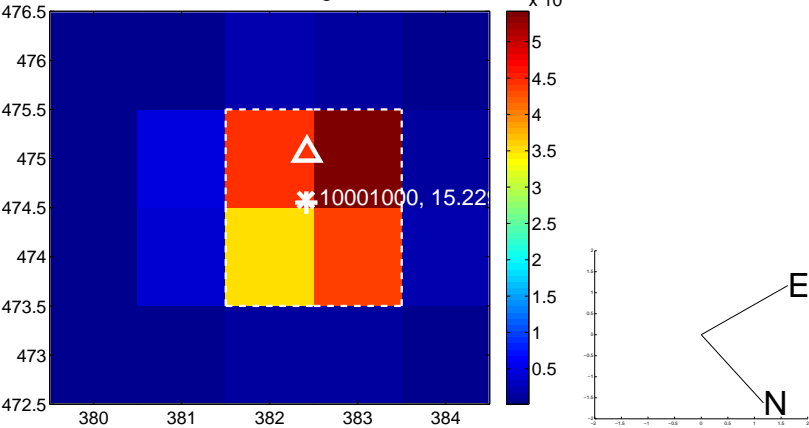
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



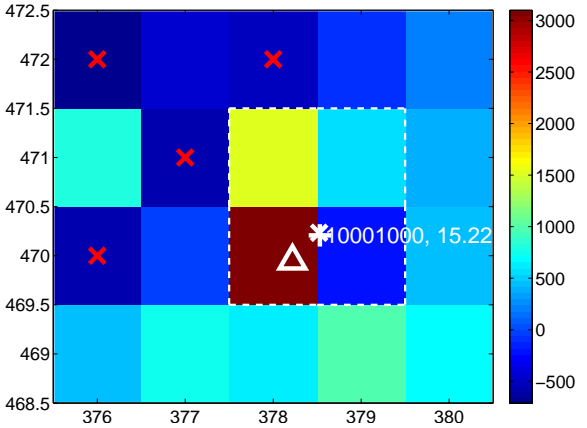
Q3 no difference image



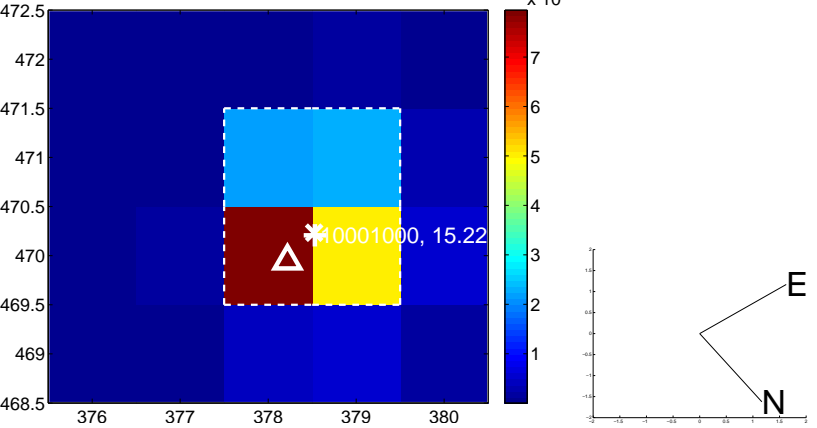
Q3 no OOT image



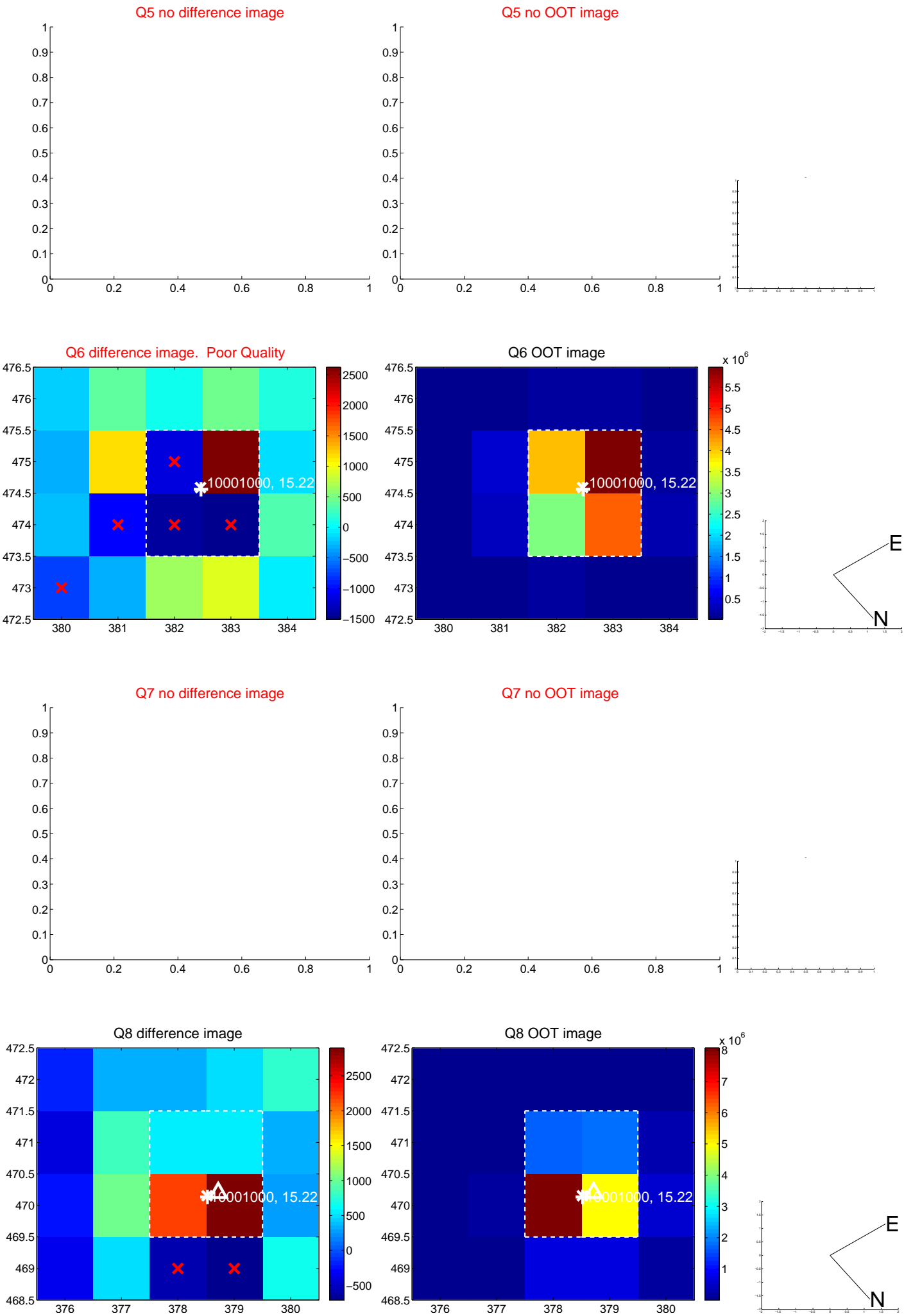
Q4 difference image



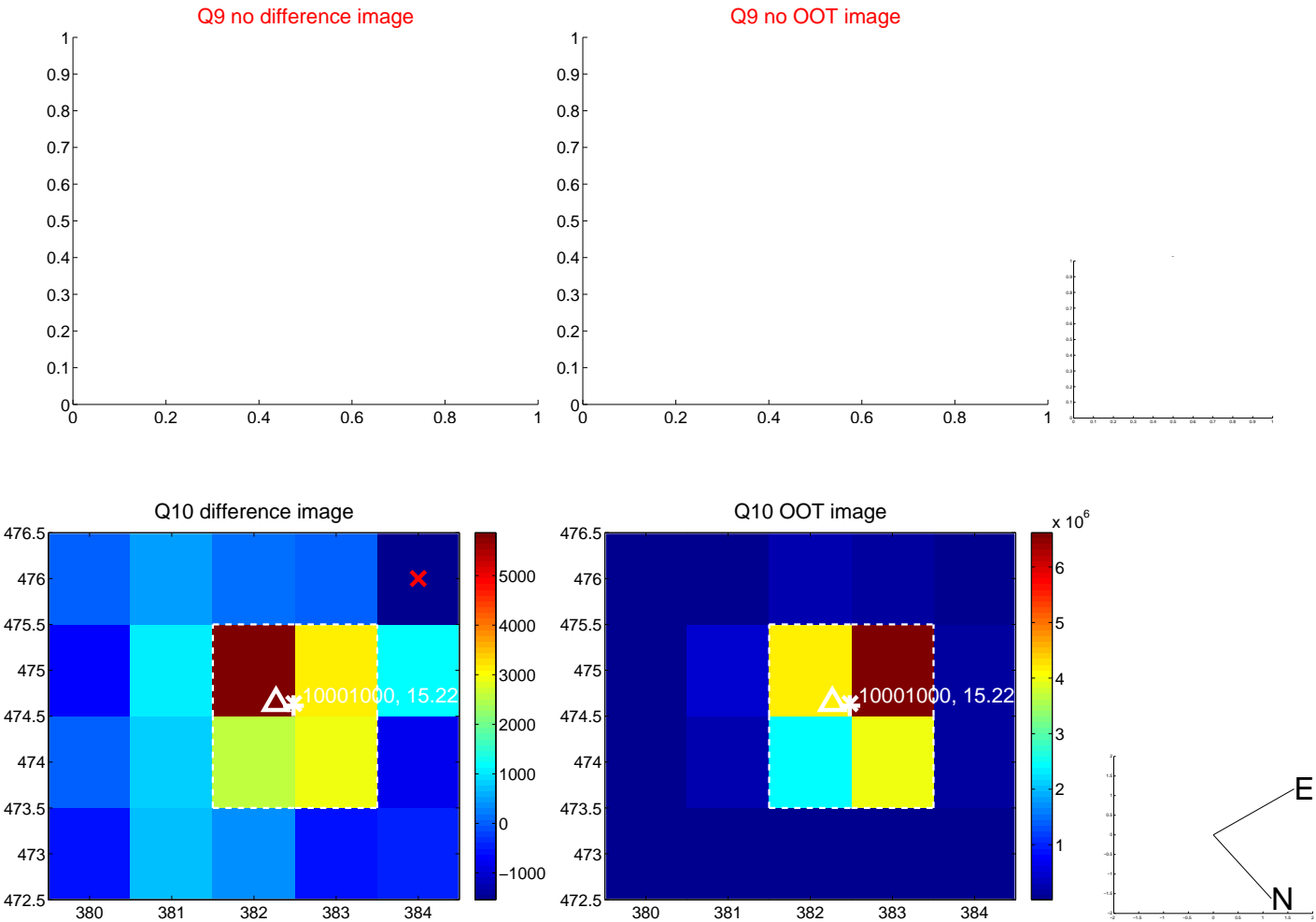
Q4 OOT image



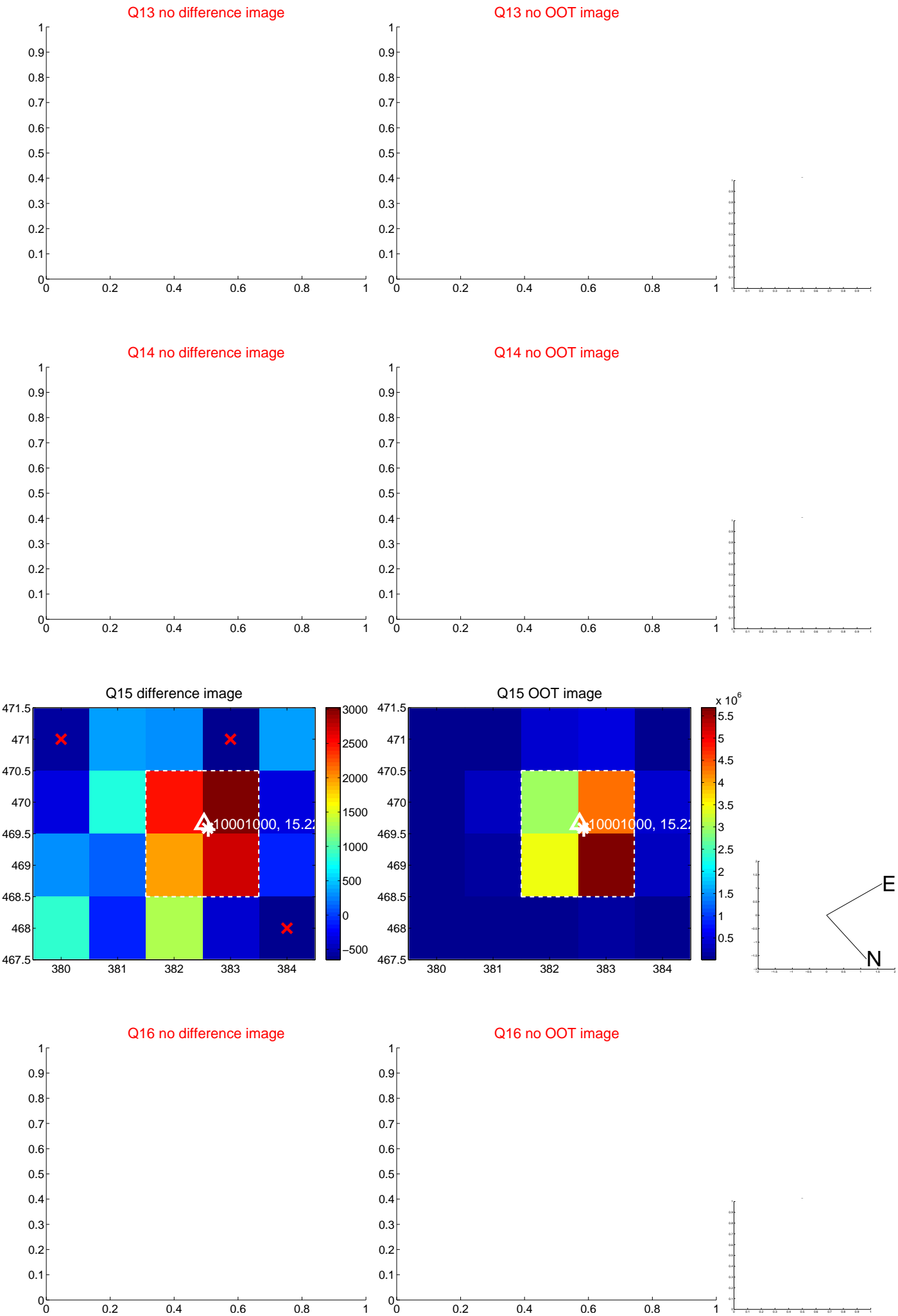
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



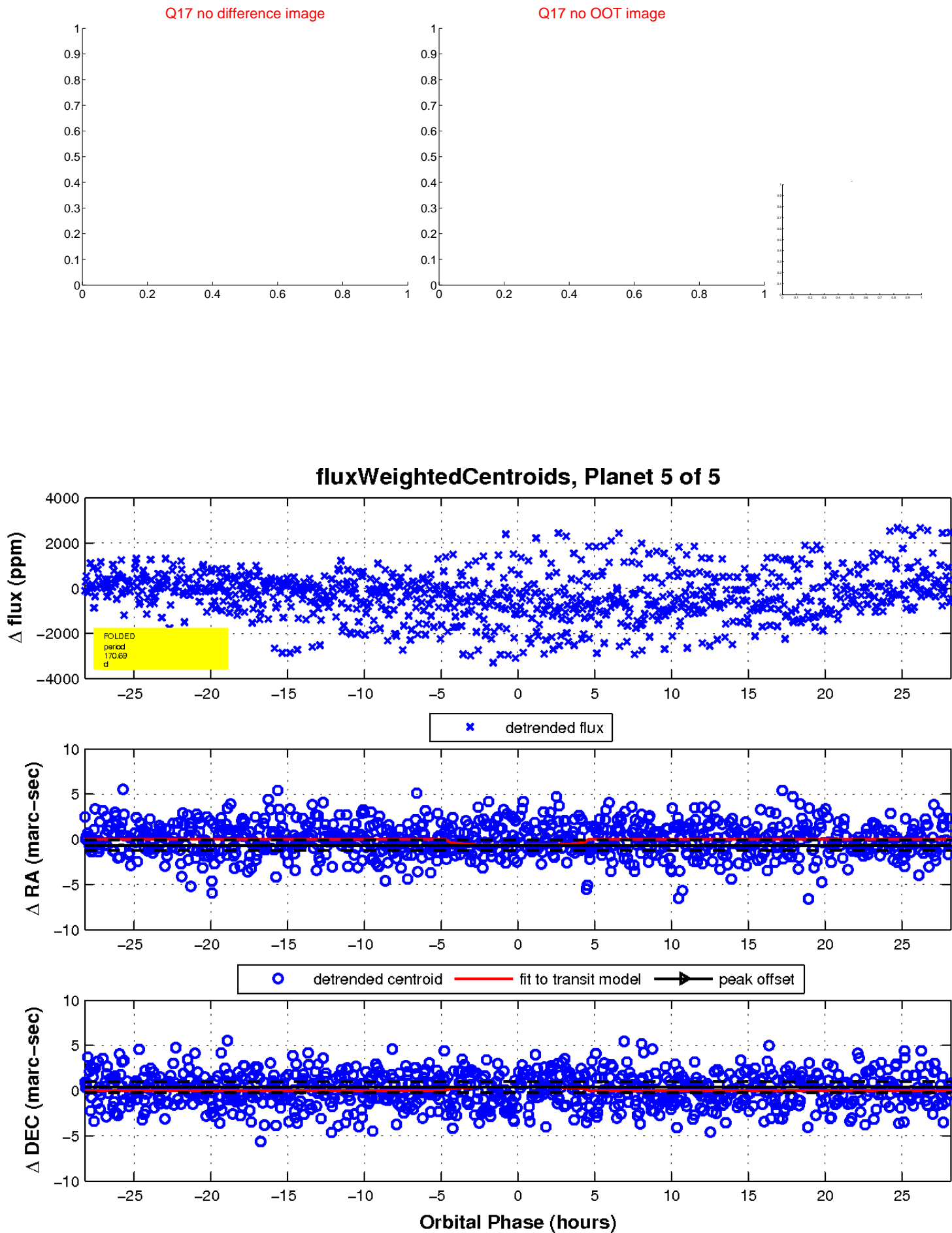
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

