

## KIC 003560301

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003560301-01	OBS	0968.01	4.650516	135.703516	48.0	14.378	13.4	11.0	3.48	6980	2.84	6159.33
003560301-02	OBS	No	4.649908	133.451011	83.9	16.883	14.4	16.5	3.48	6980	5.57	6160.41
003560301-03	OBS	No	118.507880	246.508723	514.3	19.733	25.7	16.3	3.48	6980	15.00	82.14
003560301-04	OBS	No	59.120616	149.996311	153.3	5.042	15.3	7.1	3.48	6980	5.25	207.59
003560301-05	OBS	No	53.692713	134.661858	214.8	5.861	12.2	9.5	3.48	6980	5.48	236.04
003560301-06	OBS	No	43.782493	169.101103	77.0	0.639	9.8	1.8	3.48	6980	3.30	309.84
003560301-07	OBS	No	52.781384	166.241089	260.9	3.022	10.4	9.6	3.48	6980	6.31	241.49
003560301-08	OBS	No	40.144553	134.948745	254.5	2.914	10.0	10.3	3.48	6980	6.57	347.83
003560301-09	OBS	No	174.864198	156.170068	276.4	6.035	9.6	10.4	3.48	6980	6.72	48.90
003560301-10	OBS	No	44.432964	151.915392	186.8	5.412	9.8	9.0	3.48	6980	5.09	303.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003560301-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
003560301-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
003560301-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003560301-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
003560301-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

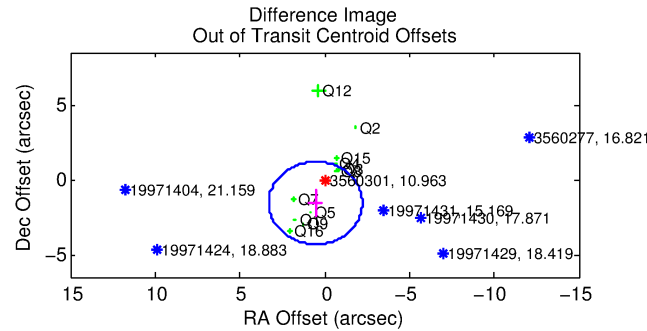
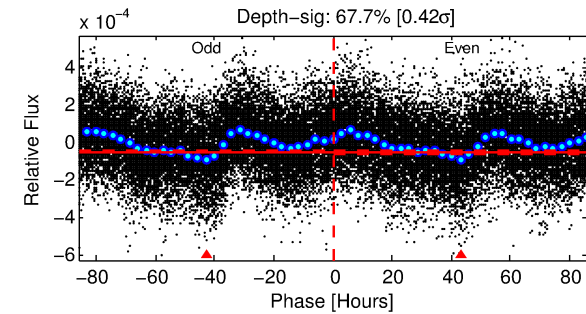
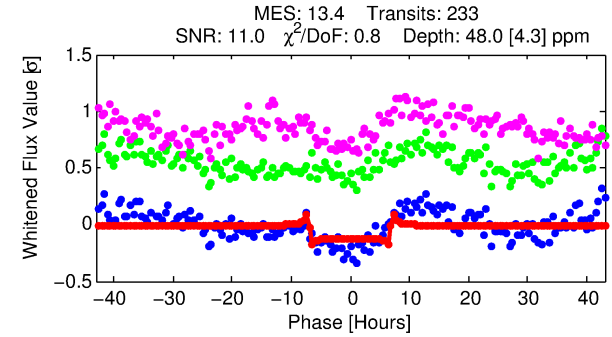
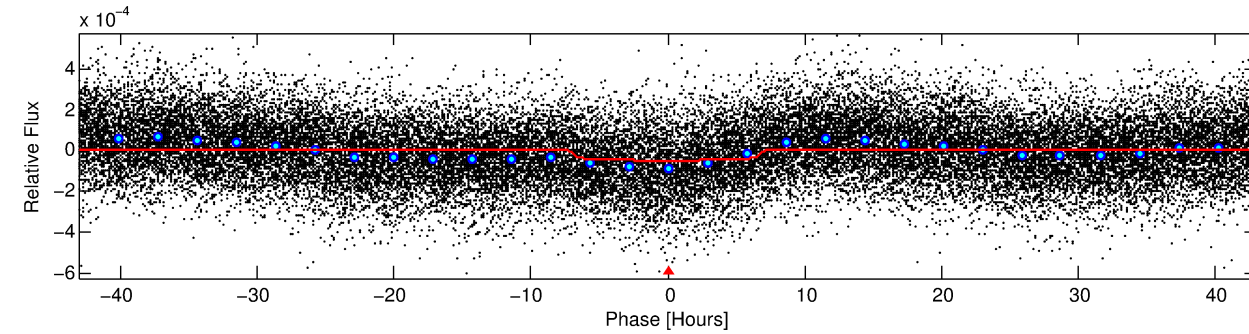
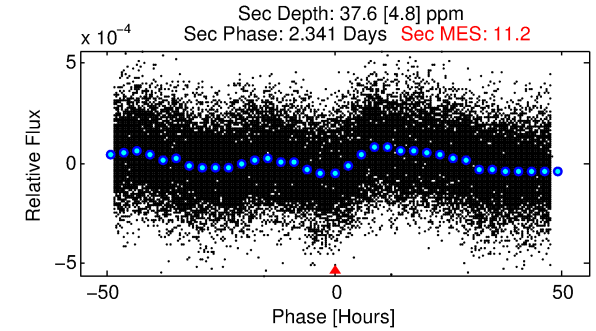
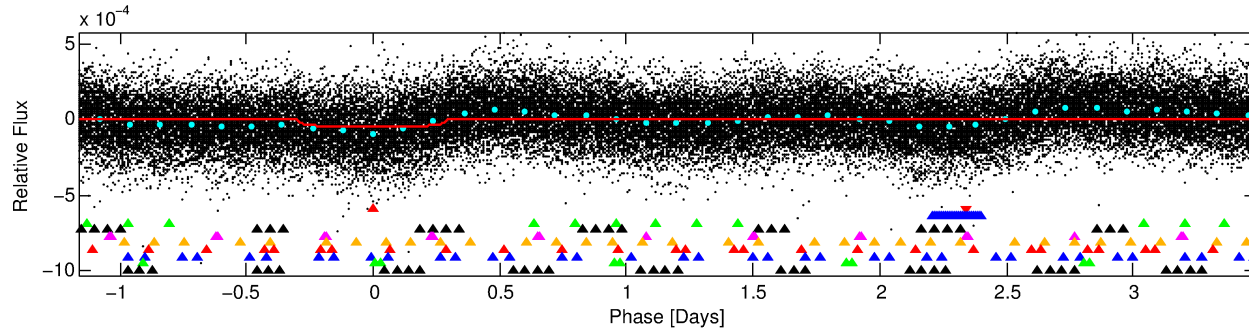
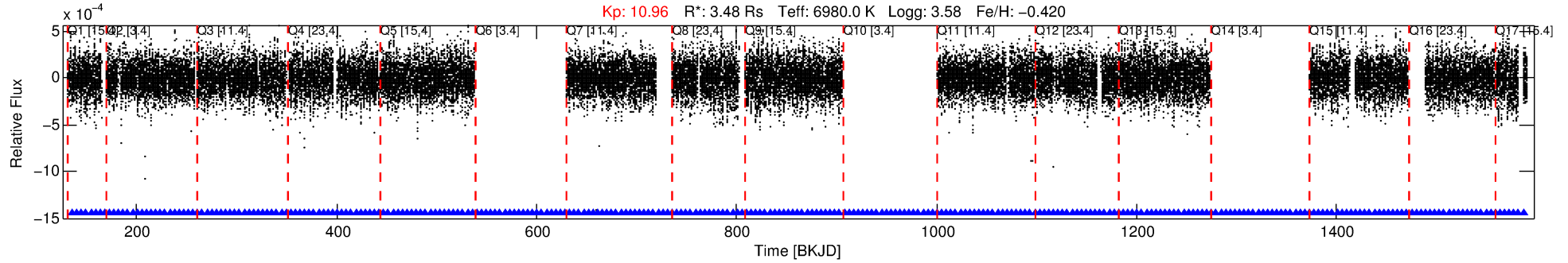
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003560301-01

No Significant Match Found

# DV One-Page Summary

KIC: 3560301 Candidate: 1 of 10 Period: 4.651 d  
KOI: K00968.01 Corr: 0.838



## DV Fit Results:

Period = 4.65052 [0.00004] d  
Epoch = 135.7035 [0.0047] BKJD  
Rp/R\* = 0.0075 [0.0004]  
a/R\* = 1.41 [0.15]  
b = 0.92 [0.04]  
Seff = 6159.33 [3827.19]  
Teq = 2259 [351] K  
Rp = 2.84 [1.19] Re  
a = 0.0647 [0.0250] AU  
Ag = 10.78 [6.81] [1.44σ]  
Teffp = 6328 [346] K [8.26σ]

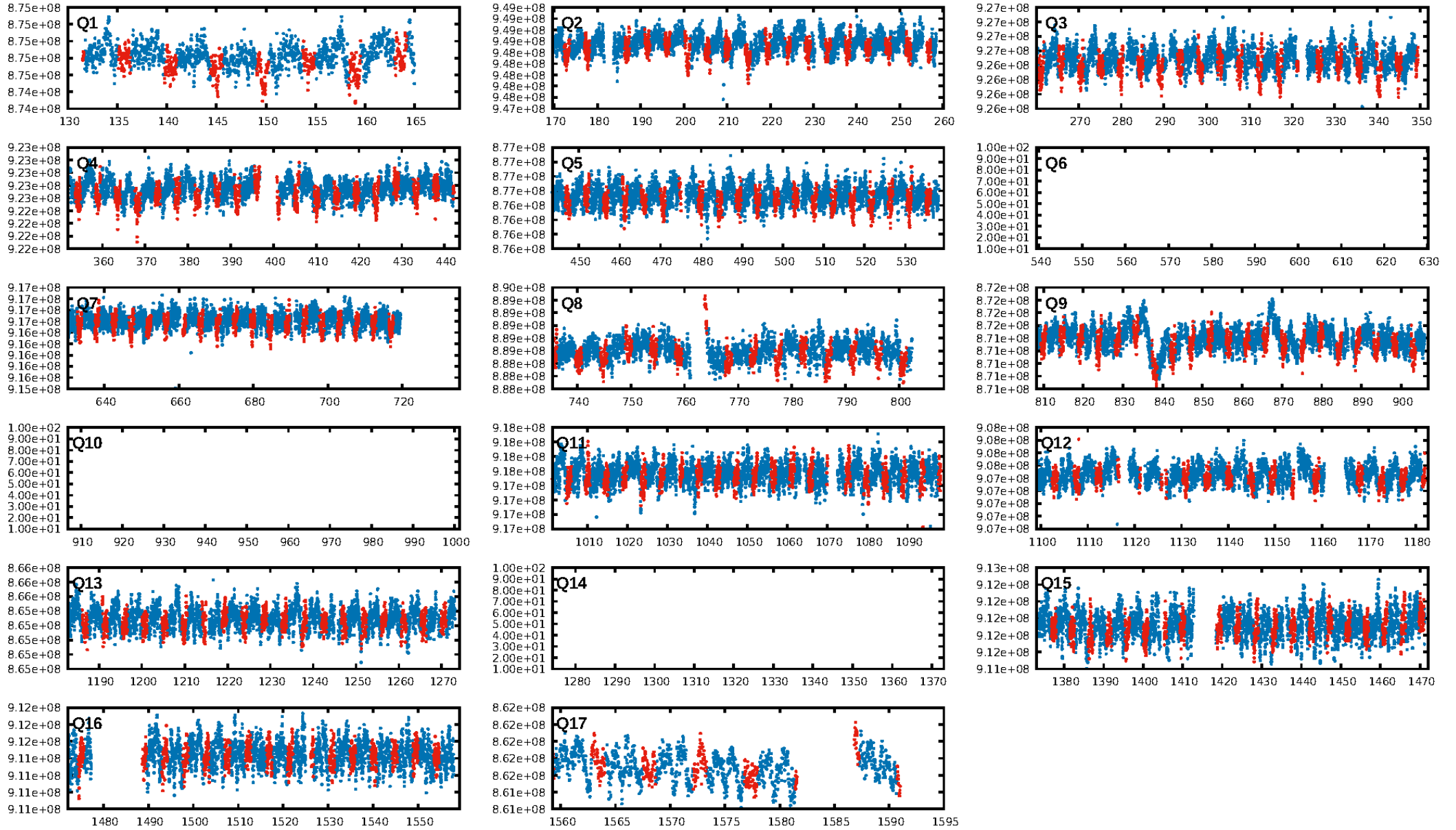
## DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]  
LongPeriod-sig: 100.0% [58.07σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [221/221]  
GhostDiagnostic-chr: 4.076  
Centroid-sig: 93.7%  
Centroid-so: 0.067 arcsec [0.16σ]  
OotOffset-rm: 1.660 arcsec [1.80σ]  
OotOffset-st: 1/3/4/3 [11]  
KicOffset-rm: 1.640 arcsec [1.71σ]  
KicOffset-st: 1/3/4/3 [11]  
DiffImageQuality-fgm: 0.73 [8/11]  
DiffImageOverlap-fno: 1.00 [14/14]

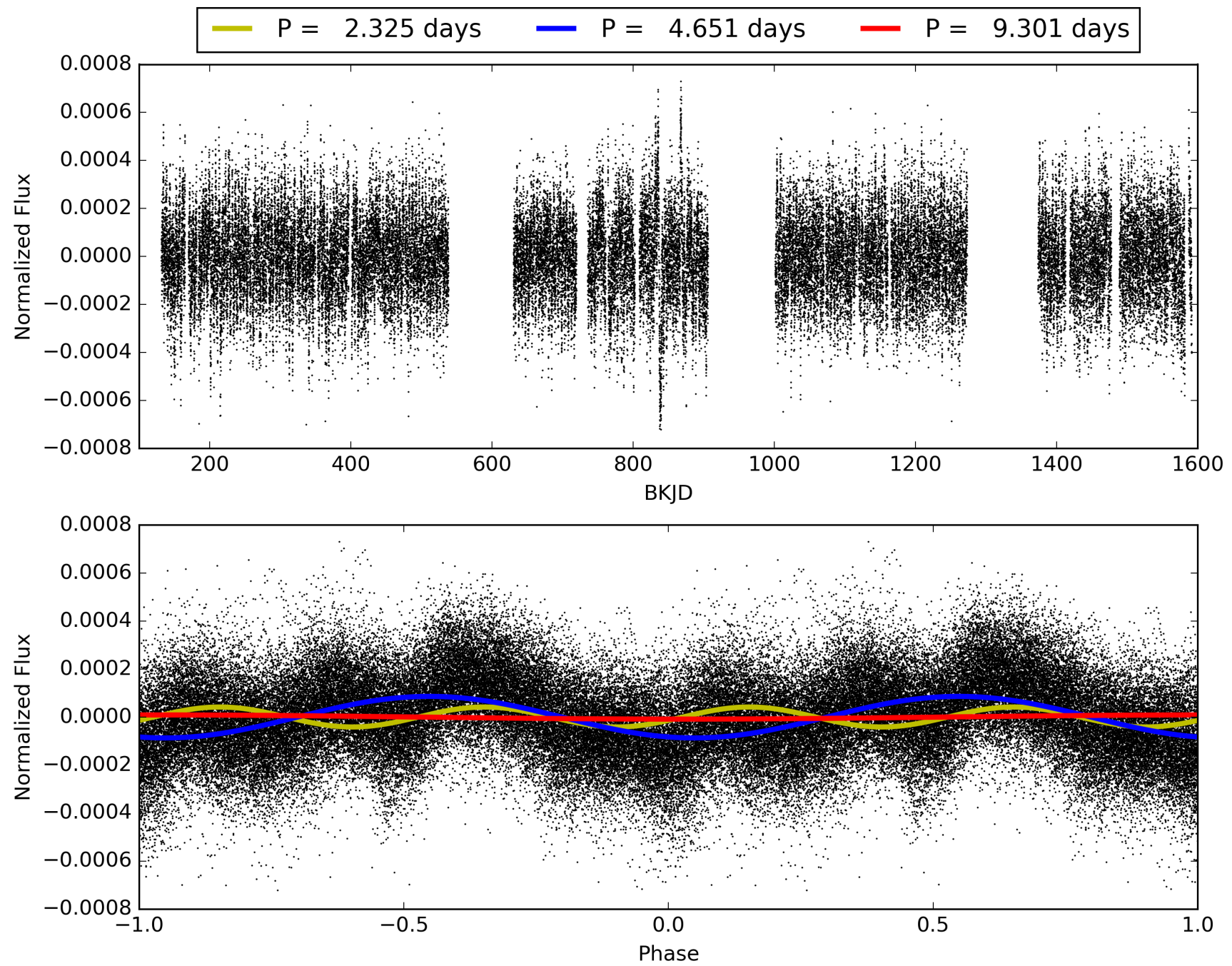
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:26:02 Z

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

# TCE 003560301-01, PDC Light Curves



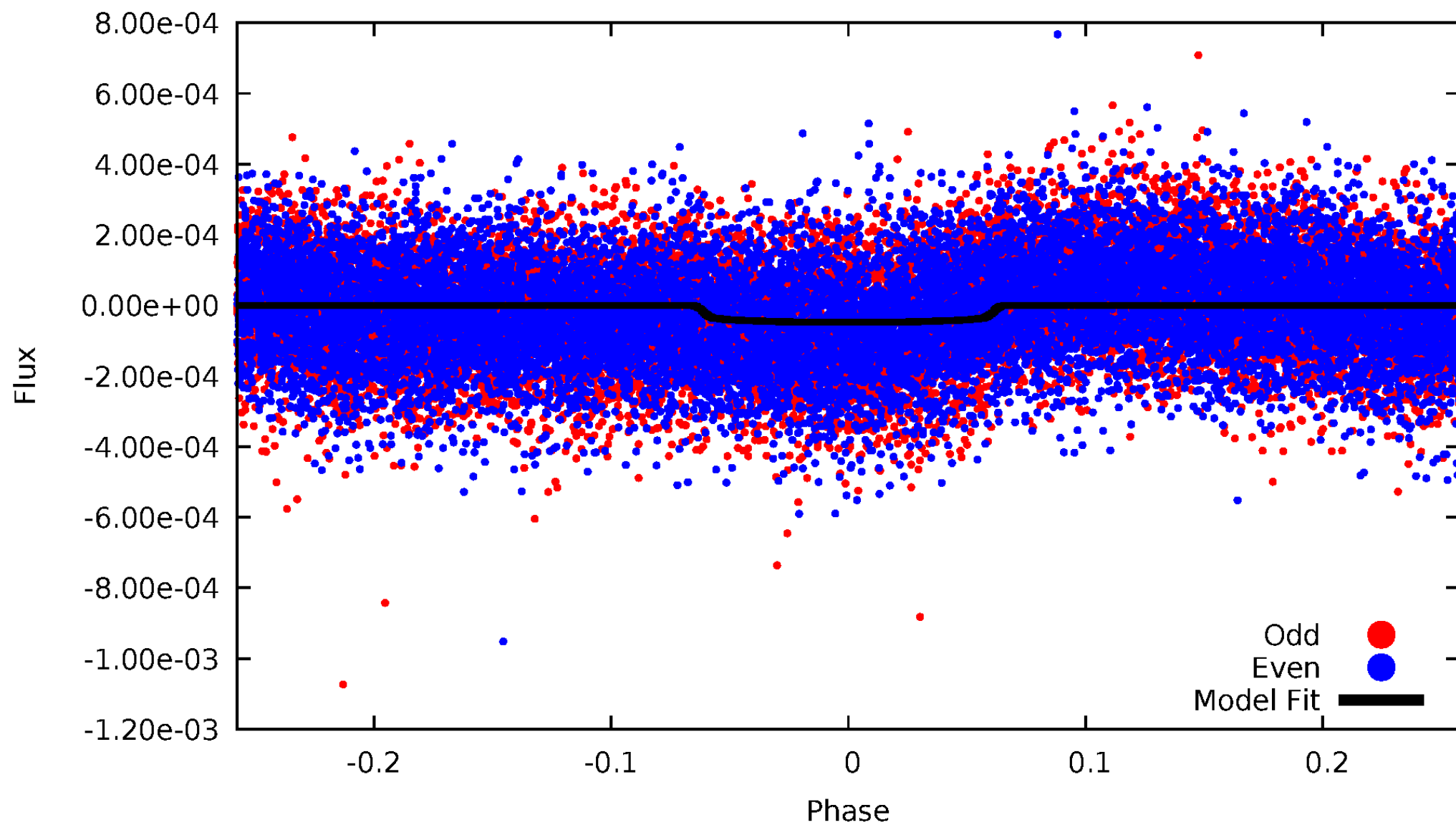
TCE 003560301-01





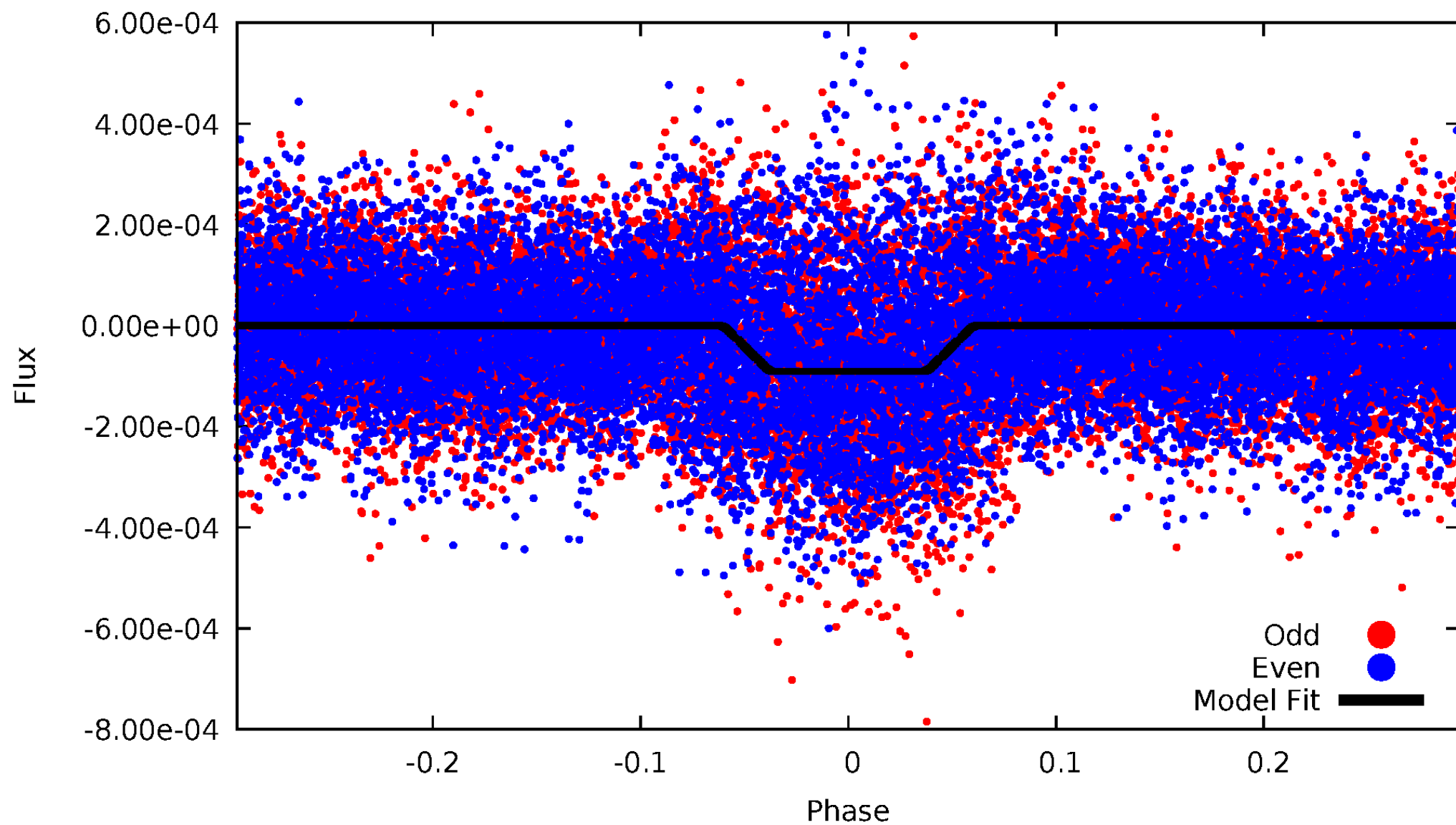
# DV Odd/Even

TCE 003560301-01



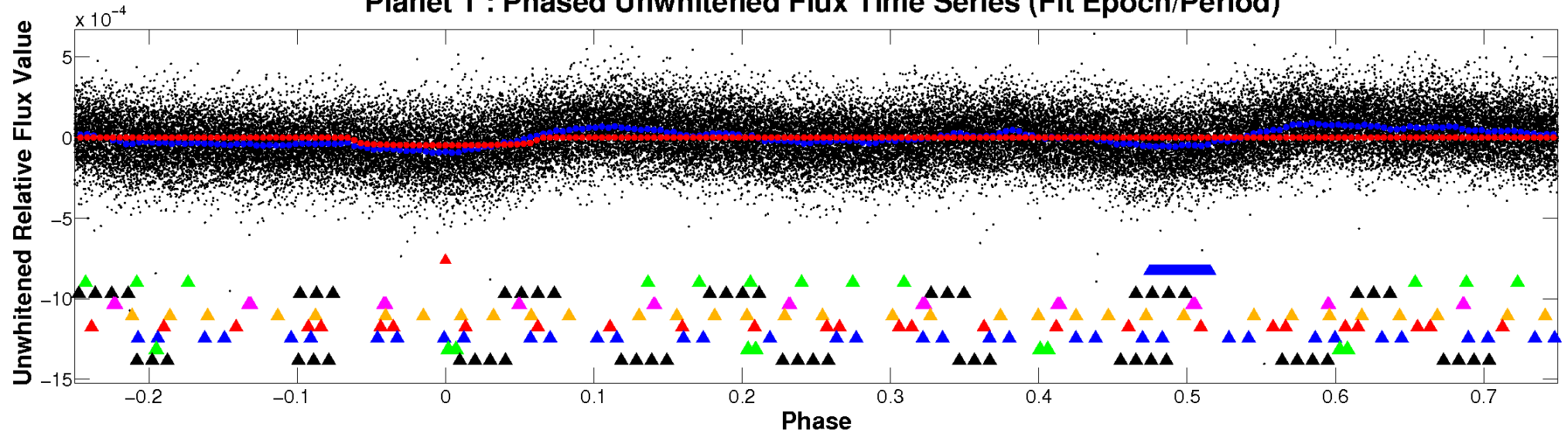
# ALT Odd/Even

TCE 003560301-01

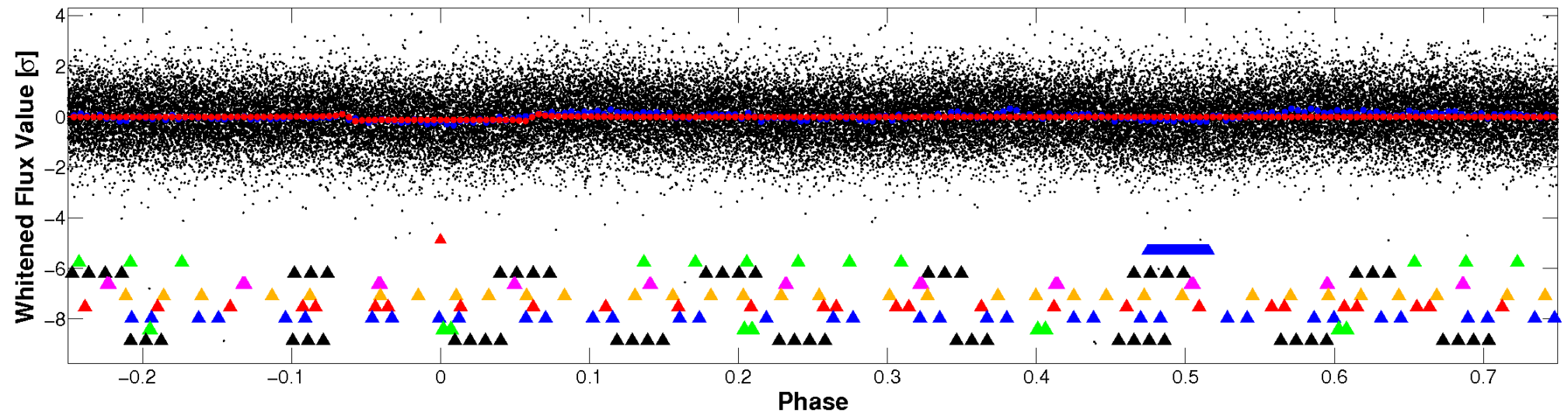


# Non-Whitened Vs. Whitened Light Curve

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

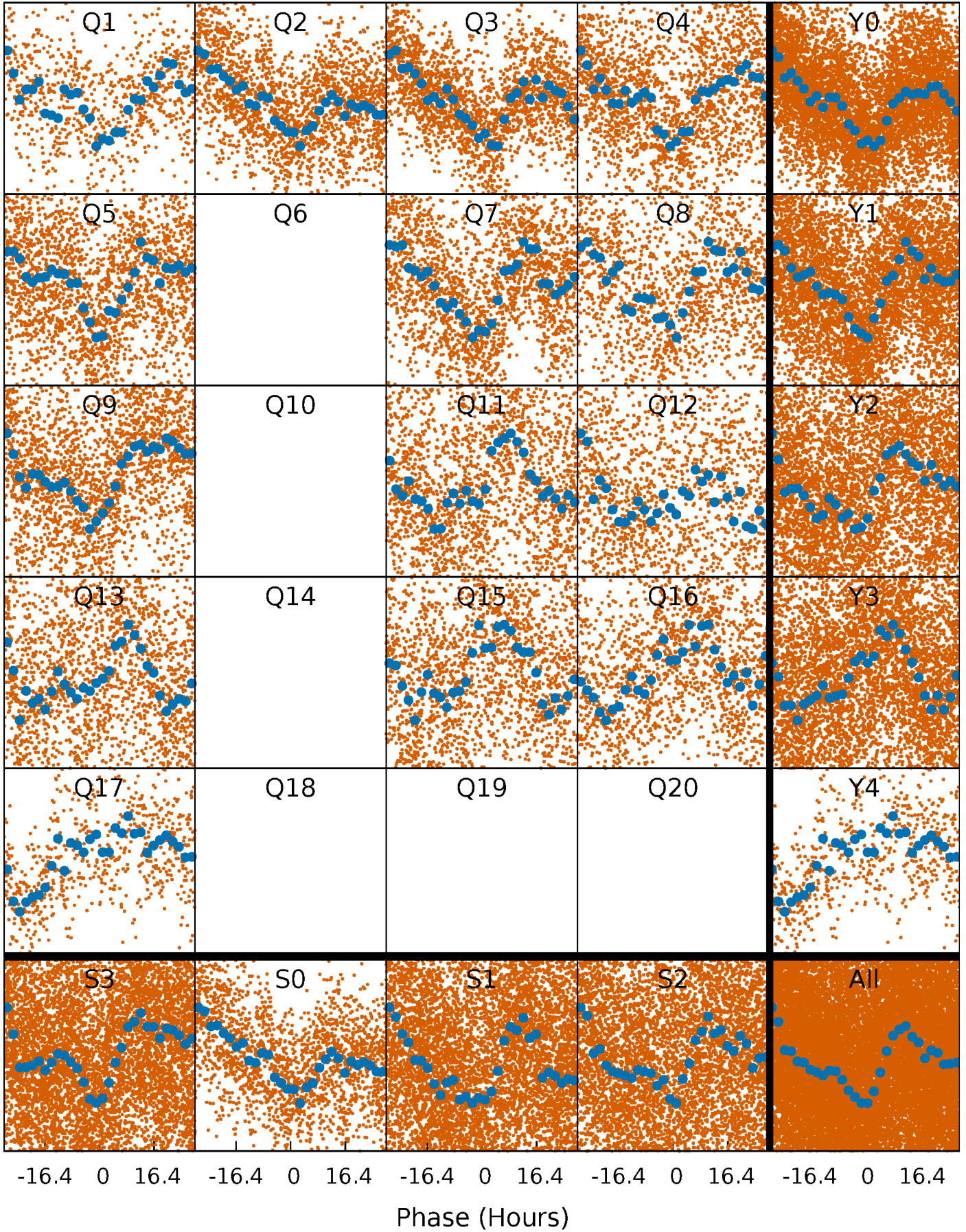


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

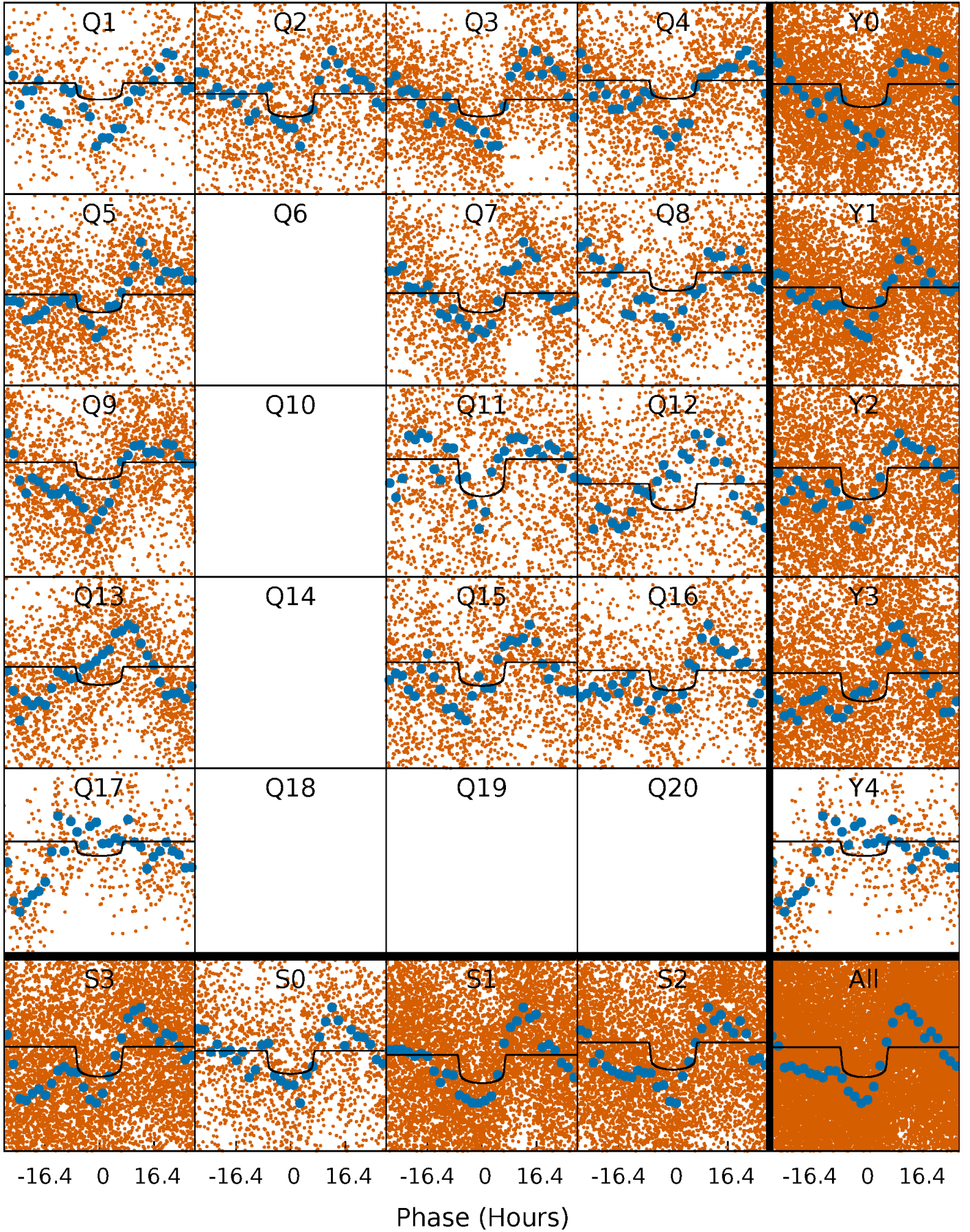
TCE 003560301-01 P= 4.650516 Days  $T_0=135.703516$  (BKJD)





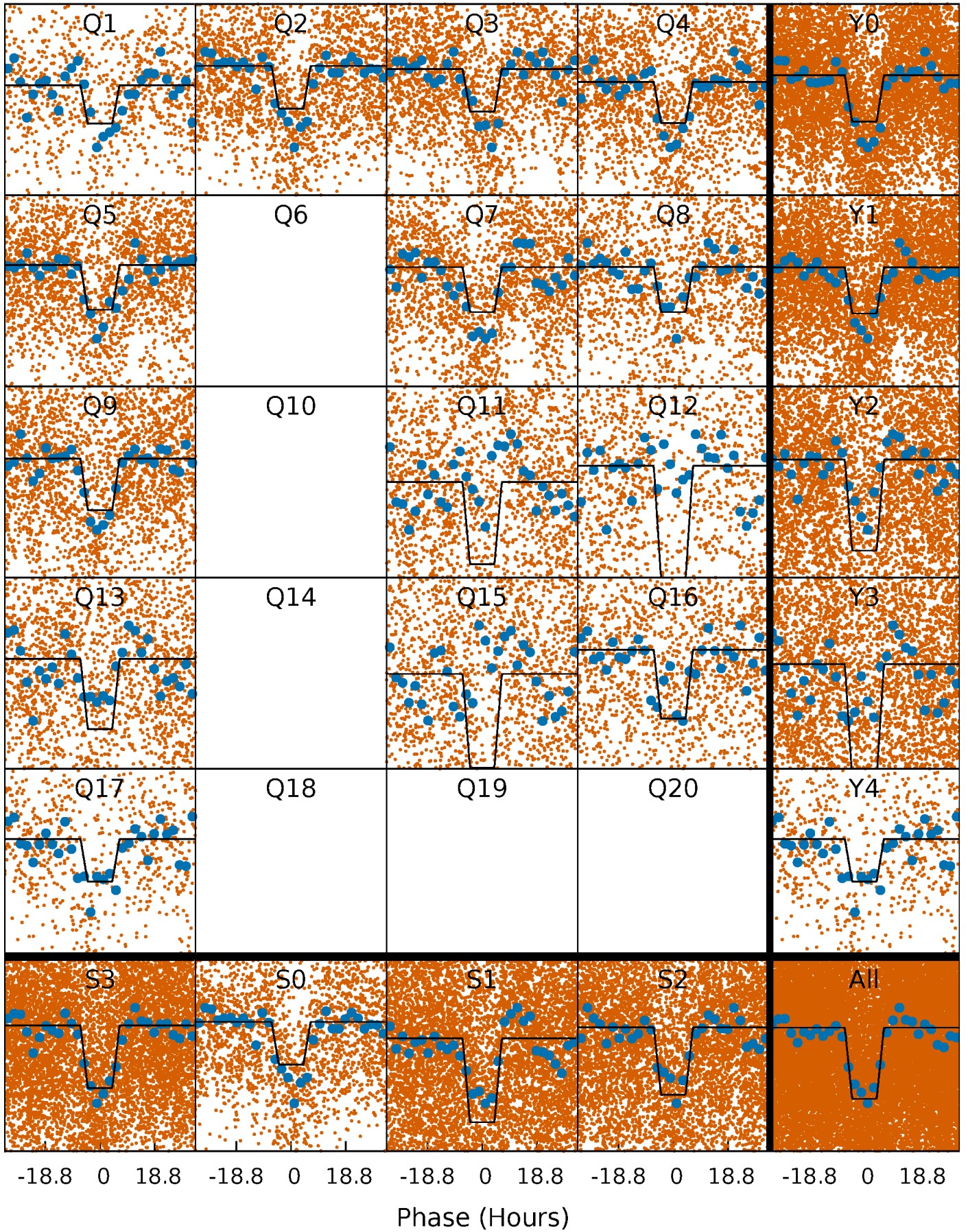
# DV Quarter-Phased Transit Curves

TCE 003560301-01   P= 4.650516 Days    $T_0=135.703516$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003560301-01 P= 4.650180 Days  $T_0=135.738112$  (BKJD)

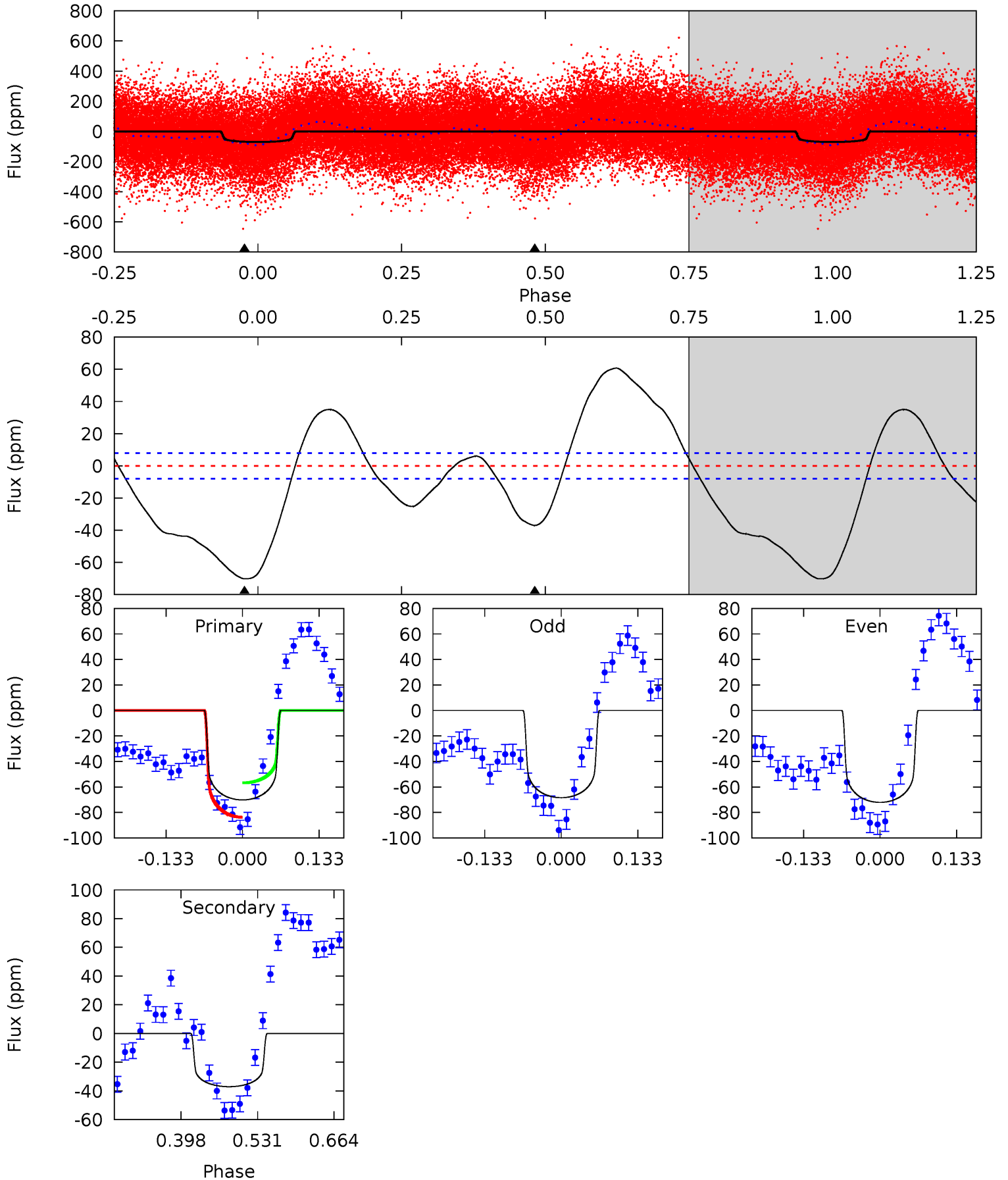




# DV Model-Shift Uniqueness Test

003560301-01, P = 4.650516 Days, E = 131.053000 Days

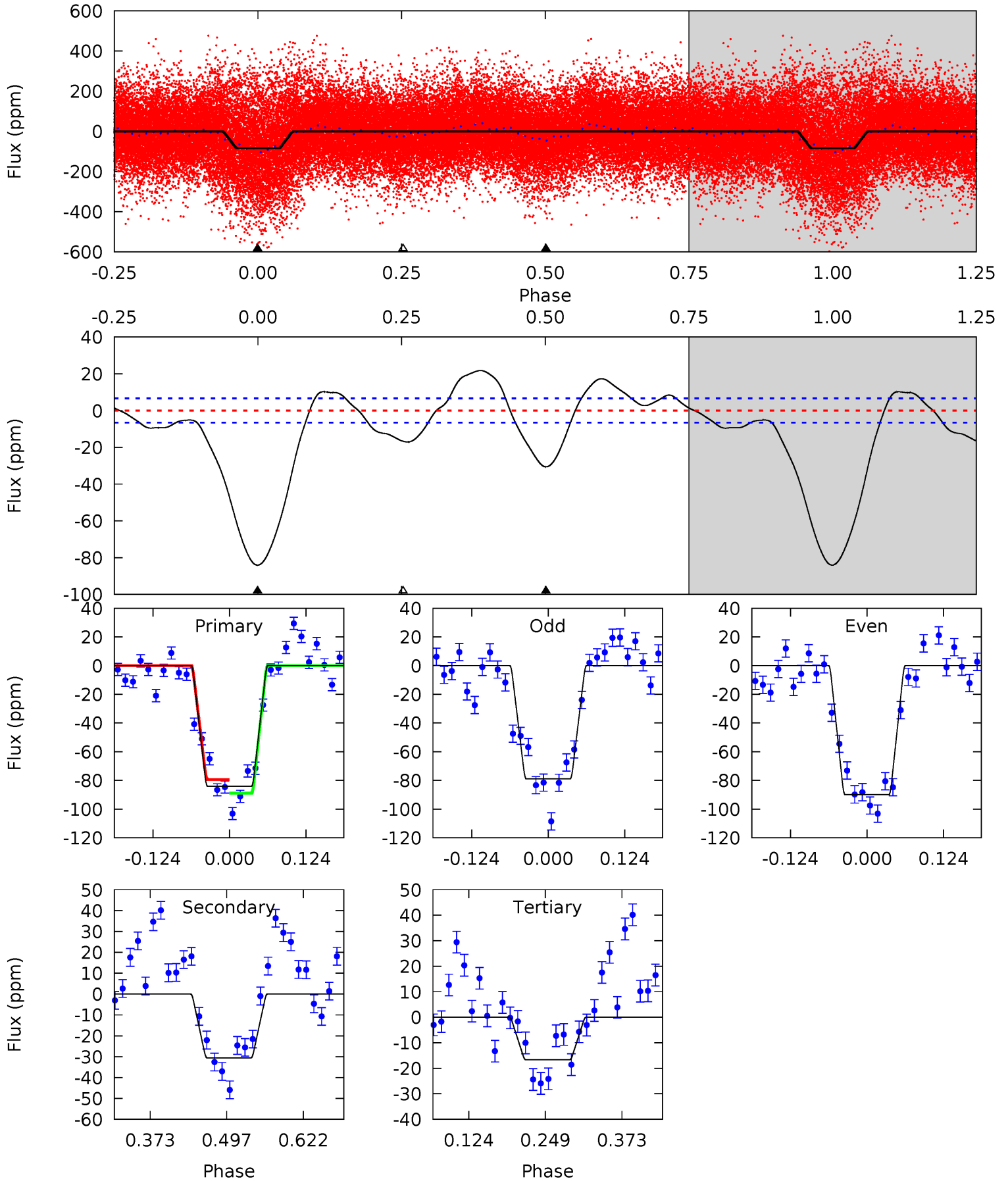
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.8	21.0	0	0	4.50	1.50	16.5	39.8	39.8	21.0	21.0	1.04	0.96	0.46	7.70



# Alt Model-Shift Uniqueness Test

003560301-01, P = 4.650180 Days, E = 131.087932 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
57.8	21.0	11.4	0	4.52	1.54	6.57	46.3	57.8	9.55	21.0	3.77	0.88	0.21	3.23





### Stellar Parameters For KIC 003560301

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6980^{+167}_{-230}$	$3.577^{+0.352}_{-0.088}$	$-0.420^{+0.350}_{-0.250}$	$3.482^{+0.362}_{-1.447}$	$1.671^{+0.203}_{-0.377}$	$0.056^{+0.150}_{-0.012}$
	+2%/-3%	+10%/-2%	+83%/-60%	+10%/-42%	+12%/-23%	+270%/-22%
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 003560301-01 / KOI 0968.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-37 \pm 2$	$2.76^{+0.35}_{-0.59}$	$3086^{+164}_{-305}$	$6200^{+290}_{-257}$	$11^{+6}_{-2}$
Alt.	$-31 \pm 1$	$3.54^{+0.39}_{-0.76}$	$3092^{+167}_{-316}$	$5246^{+176}_{-162}$	$5.718^{+2.995}_{-1.087}$

$T_{\text{max}}$  = 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

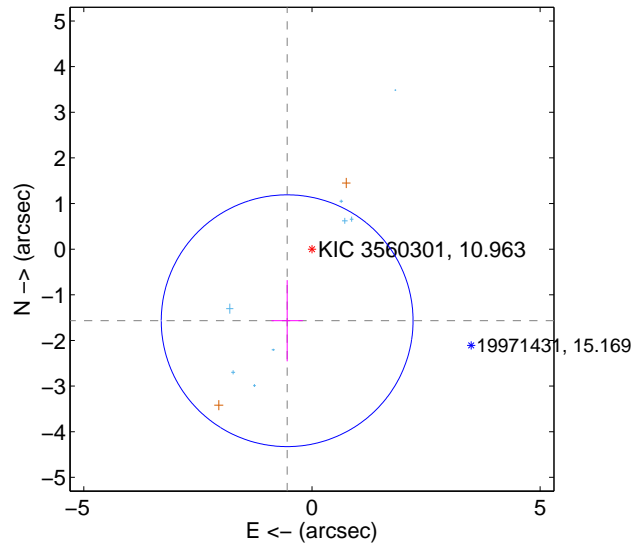
Supplemental centroid analysis for 003560301-01. **Kepler magnitude: 10.96.** Transit SNR 10.97

There are 8 quarters with good PRF difference image offsets

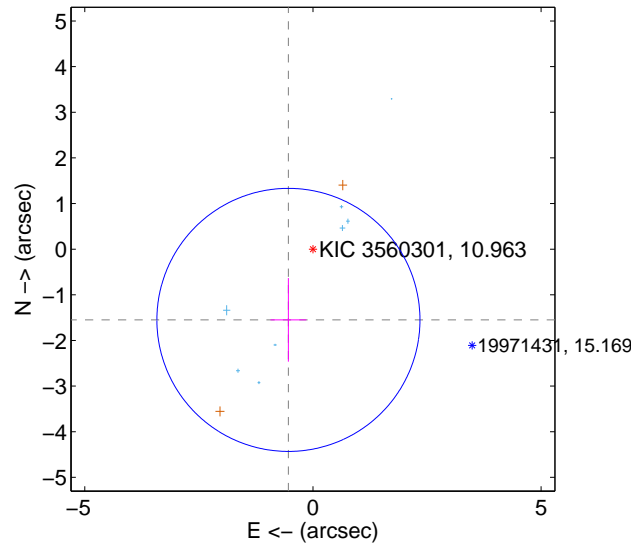
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.660 \pm 0.920$	1.80	$0.544 \pm 0.343$	$-1.568 \pm 0.889$
PRF-fit source offset from KIC position	$1.640 \pm 0.961$	1.71	$0.537 \pm 0.393$	$-1.550 \pm 0.915$
photometric centroid source offset	$0.07 \pm 0.43$	0.16	$-0.03 \pm 0.29$	$-0.06 \pm 0.46$

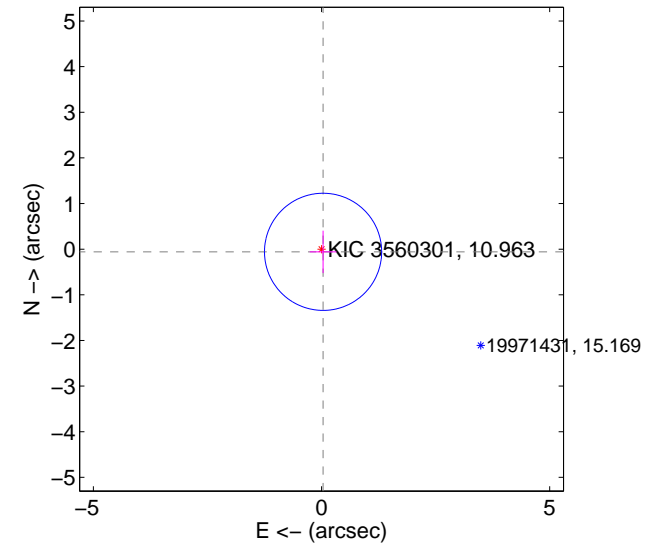
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

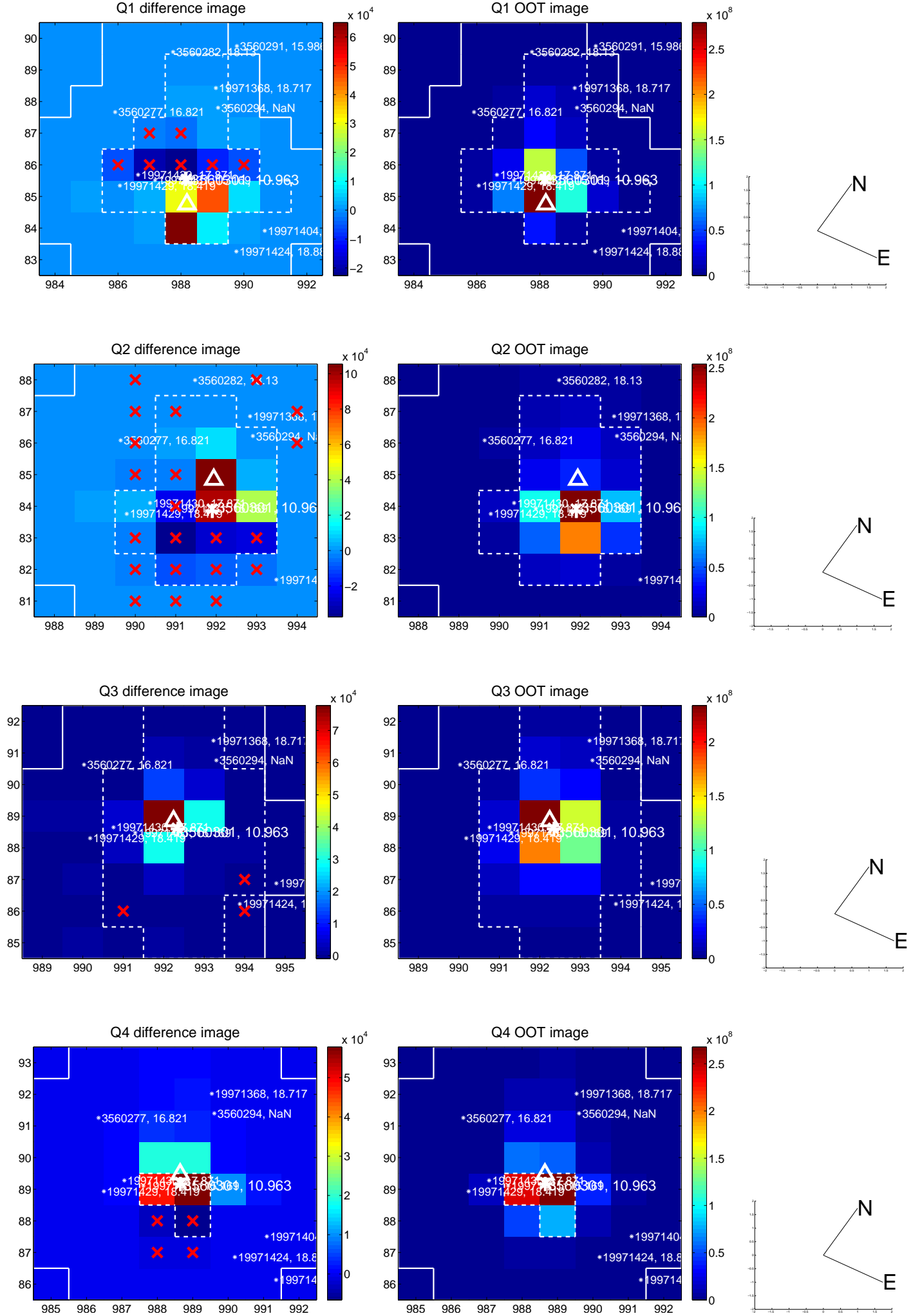


offset from photometric centroids

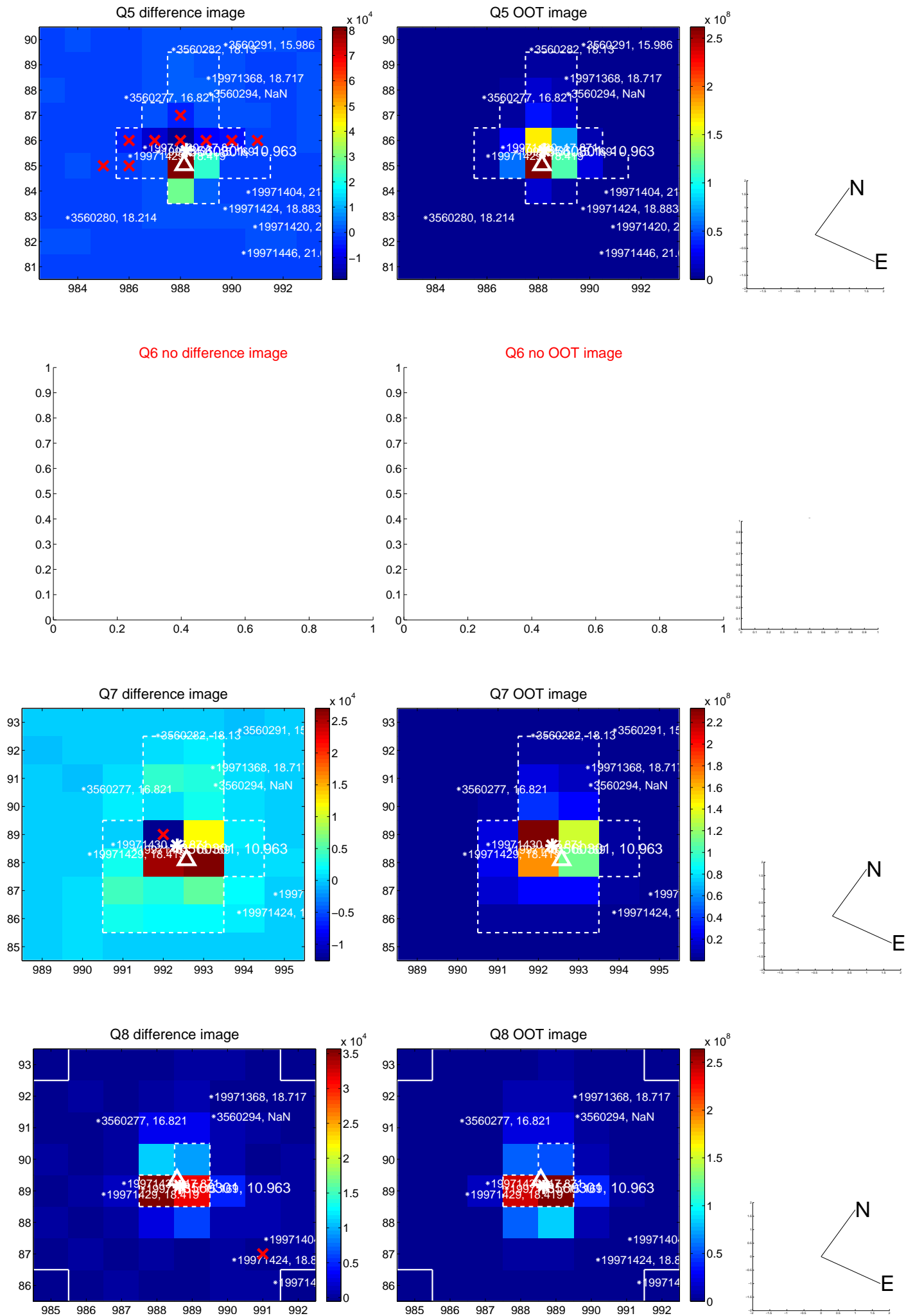


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

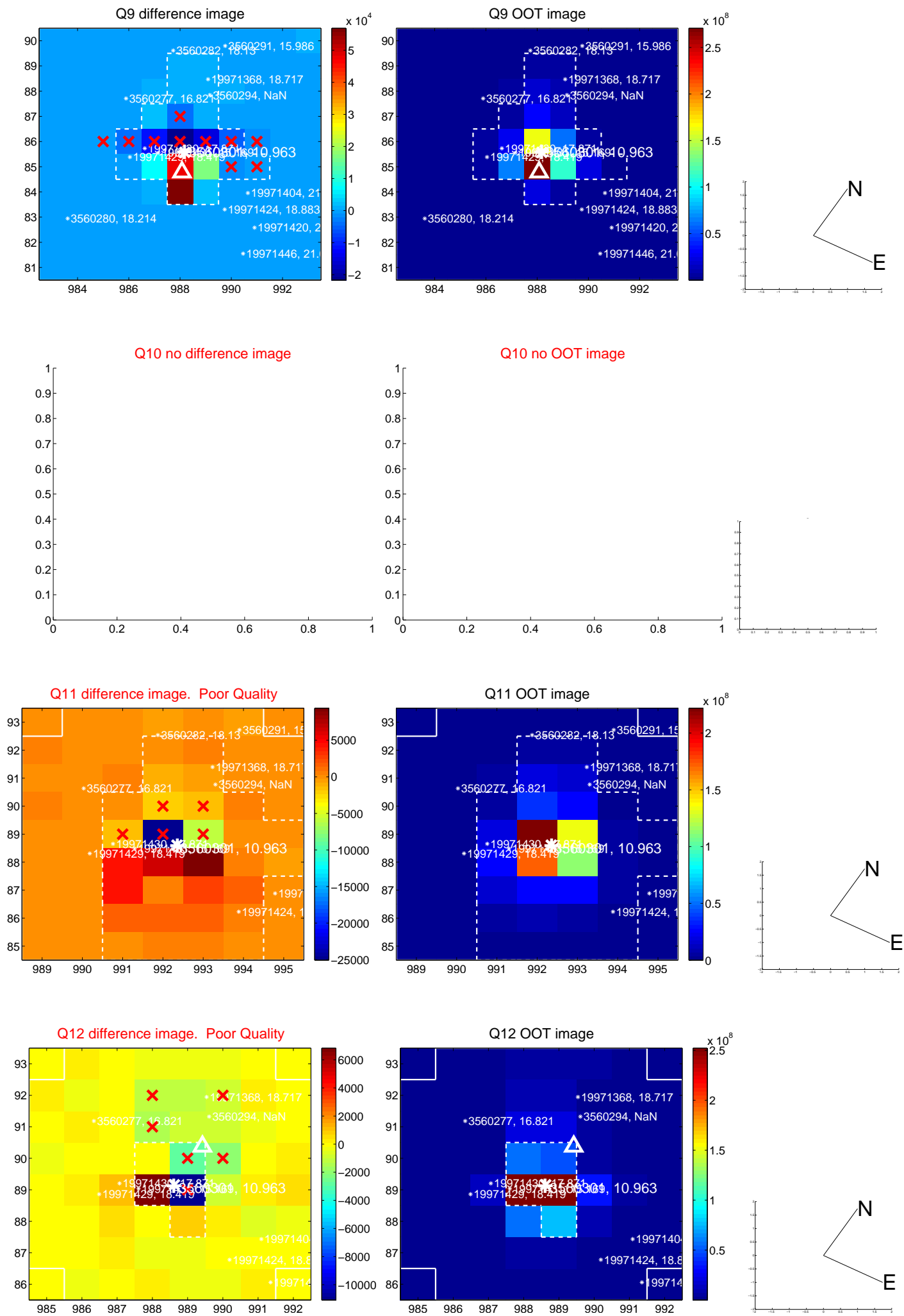


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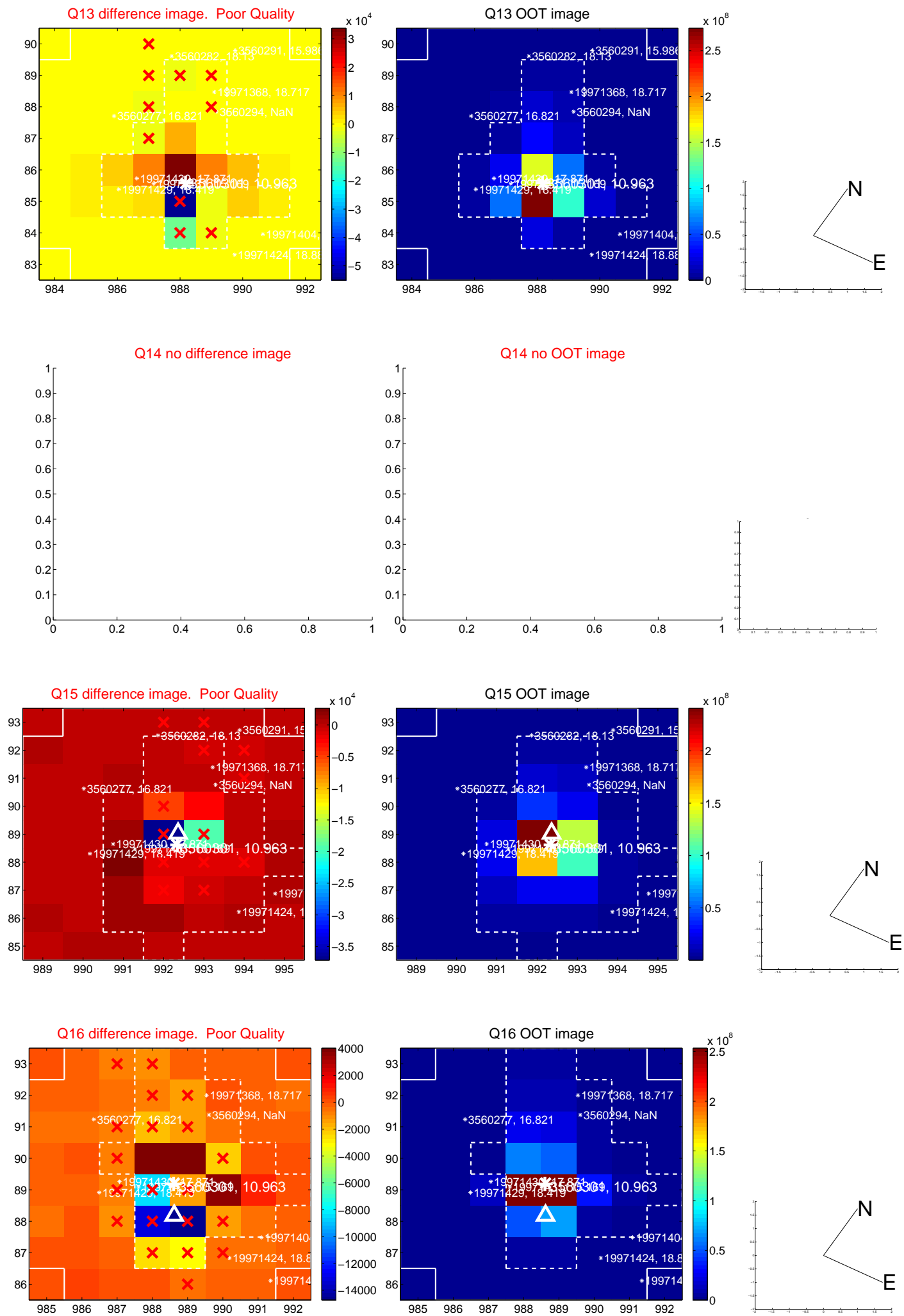




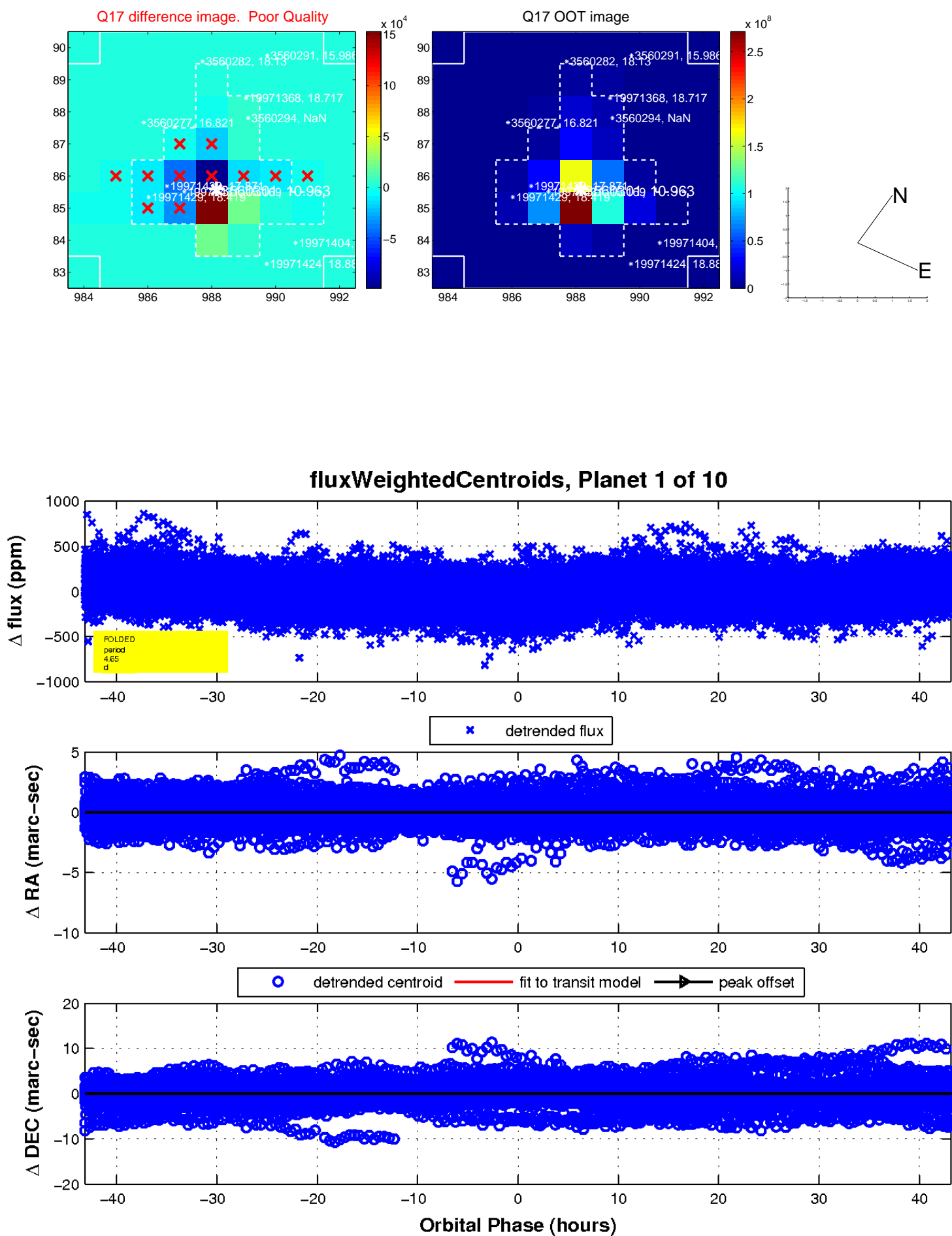
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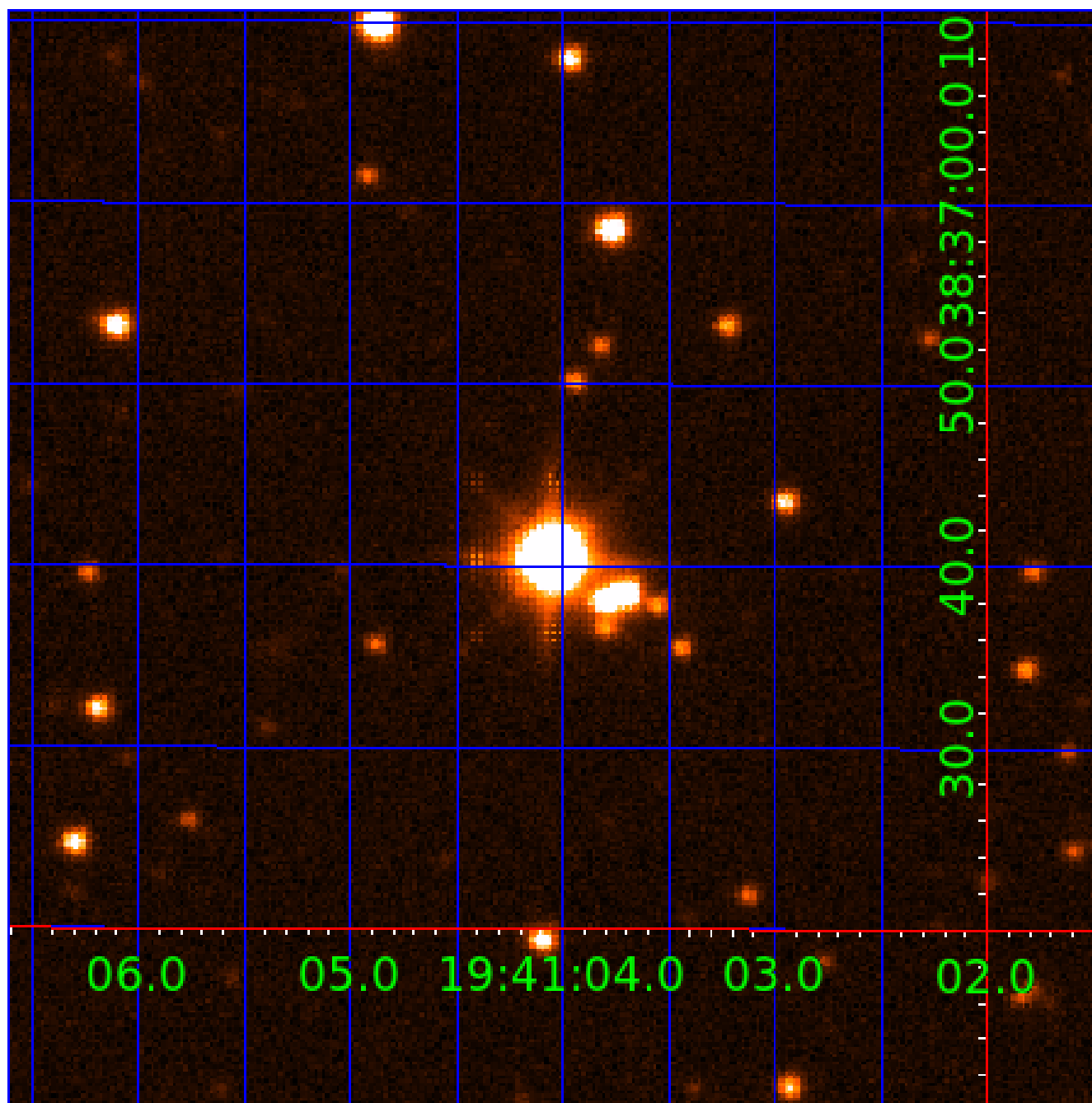


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UKIRT Image

Declination





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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.

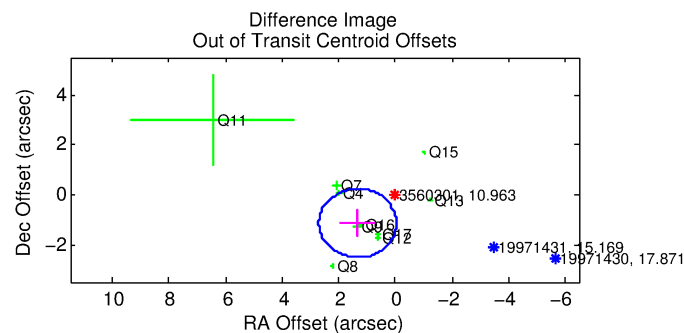
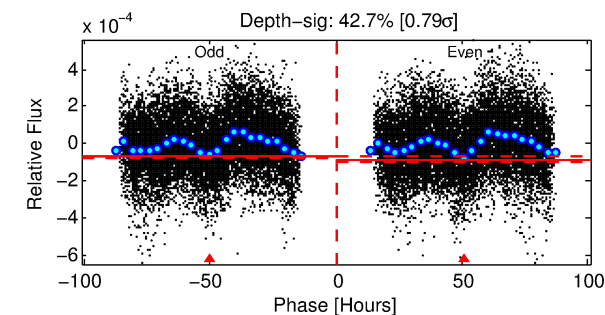
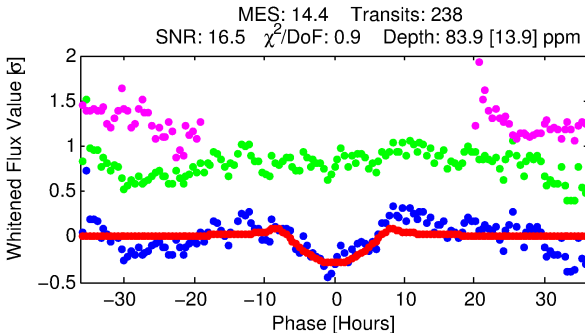
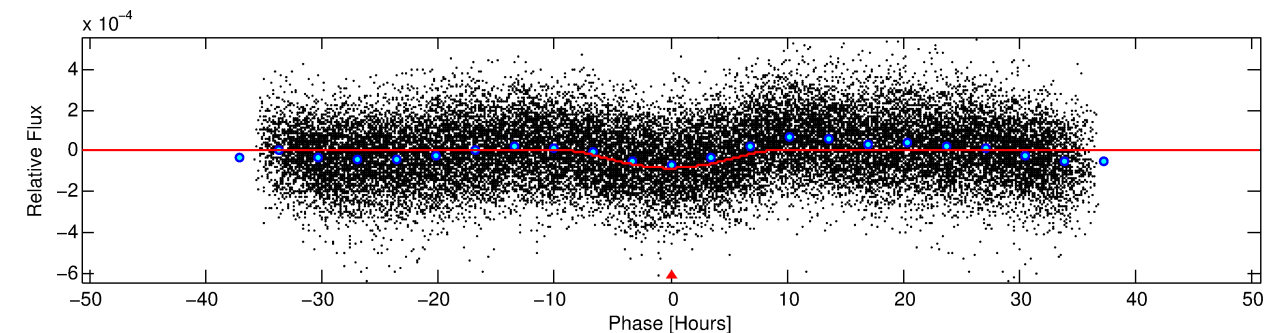
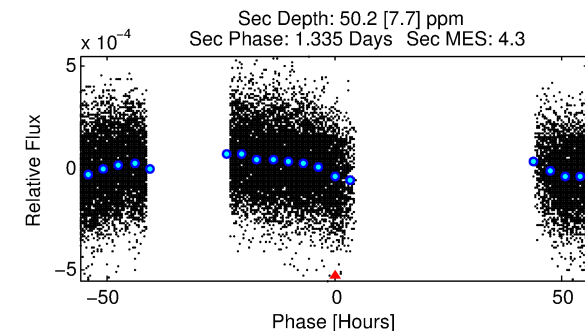
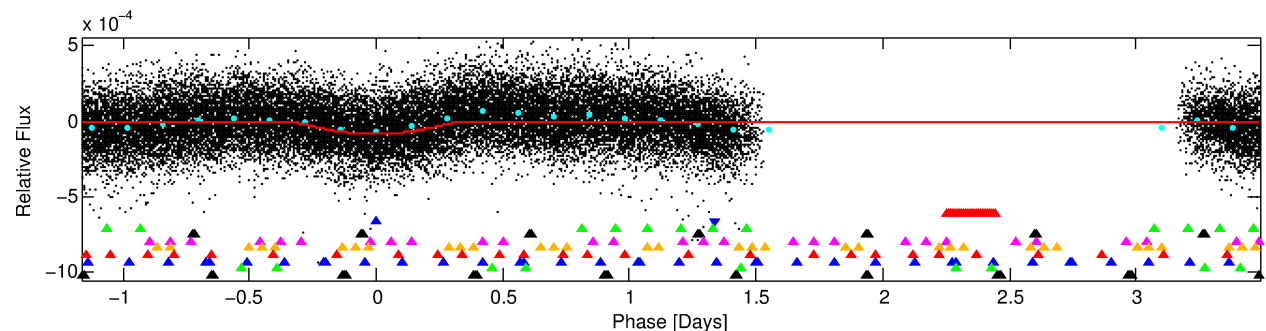
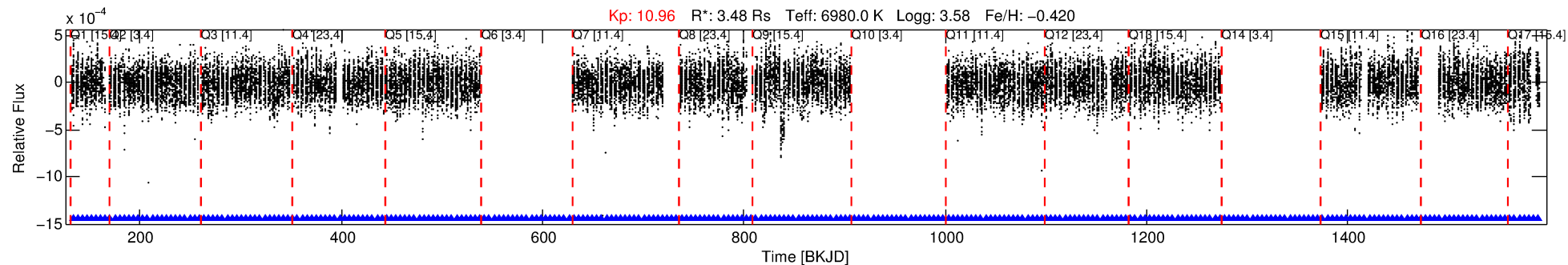
Ephemeris Match Information For 003560301-02

No Significant Match Found

# DV One-Page Summary

KIC: 3560301 Candidate: 2 of 10 Period: 4.650 d  
KOI: K00968 Corr: No Ephemeris Match

Kp: 10.96 R\*: 3.48 Rs Teff: 6980.0 K Logg: 3.58 Fe/H: -0.420



## DV Fit Results:

Period = 4.64991 [0.00010] d  
Epoch = 133.4510 [0.0173] BKJD  
Rp/R\* = 0.0147 [0.0094]  
a/R\* = 1.08 [0.02]  
b = 1.00 [0.02]  
Seff = 6160.41 [3827.86]  
Teq = 2259 [351] K  
Rp = 5.57 [4.25] Re  
a = 0.0647 [0.0250] AU  
Ag = 3.73 [5.31] [0.51σ]  
Teffp = 4853 [1571] K [1.61σ]

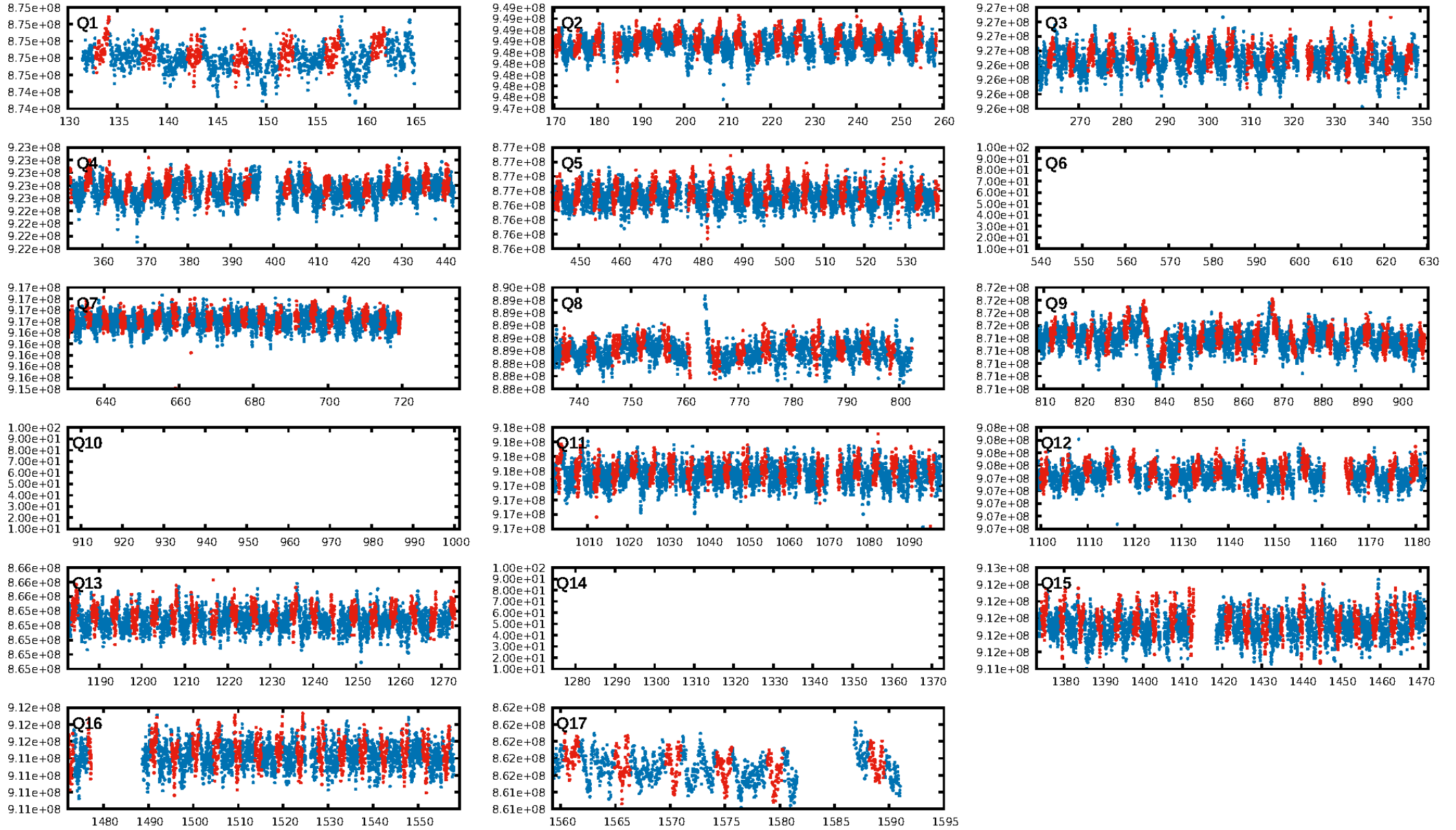
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.1% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [225/225]  
GhostDiagnostic-chr: 0.7589  
Centroid-sig: 0.3%  
Centroid-so: 0.553 arcsec [1.69σ]  
OotOffset-rm: 1.758 arcsec [3.84σ]  
KicOffset-rm: 1.761 arcsec [3.27σ]  
OotOffset-st: 0/3/4/3 [10]  
KicOffset-st: 0/3/4/3 [10]  
DiffImageQuality-fgm: 0.70 [7/10]  
DiffImageOverlap-fno: 1.00 [14/14]

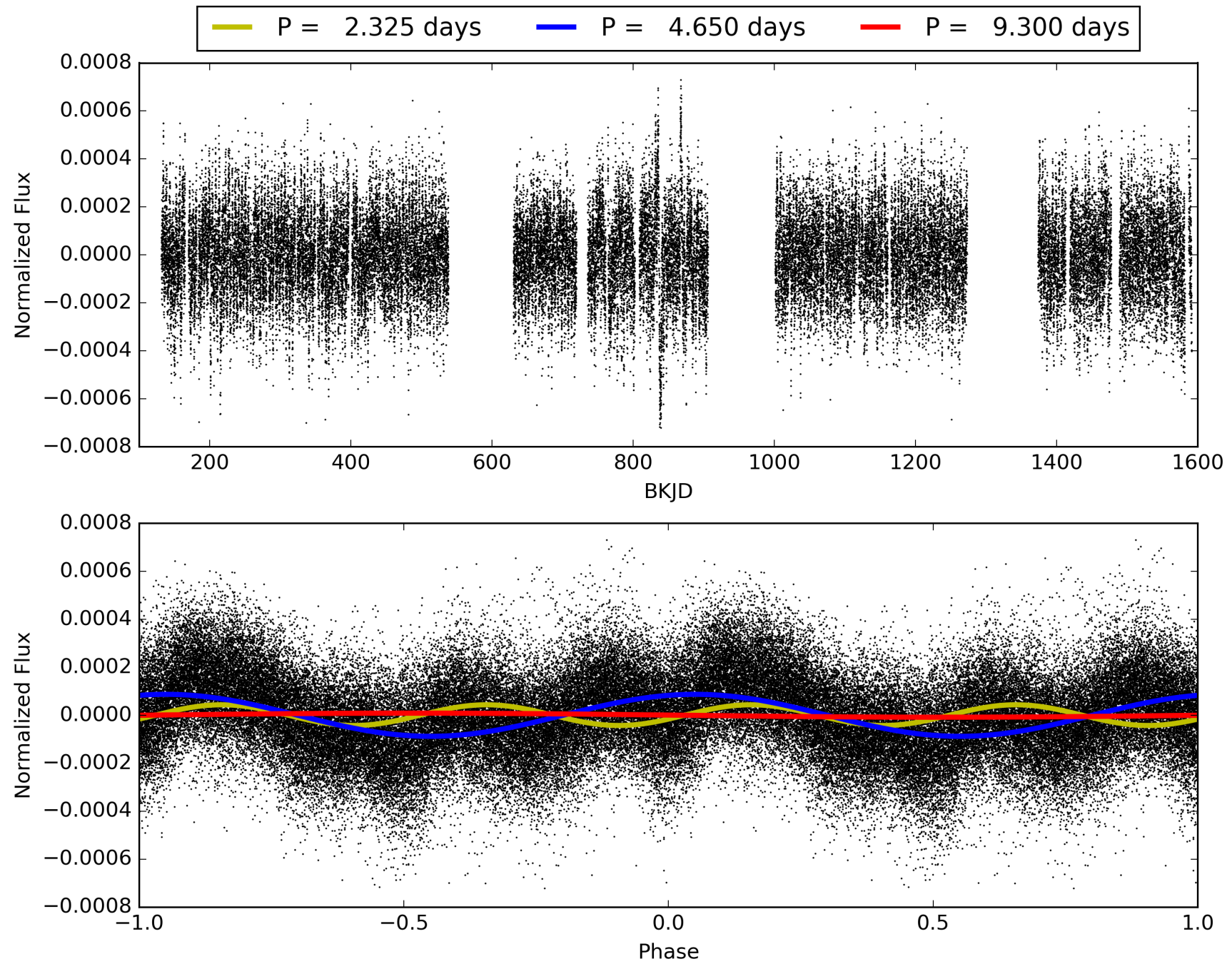
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:26:20 Z

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

# TCE 003560301-02, PDC Light Curves

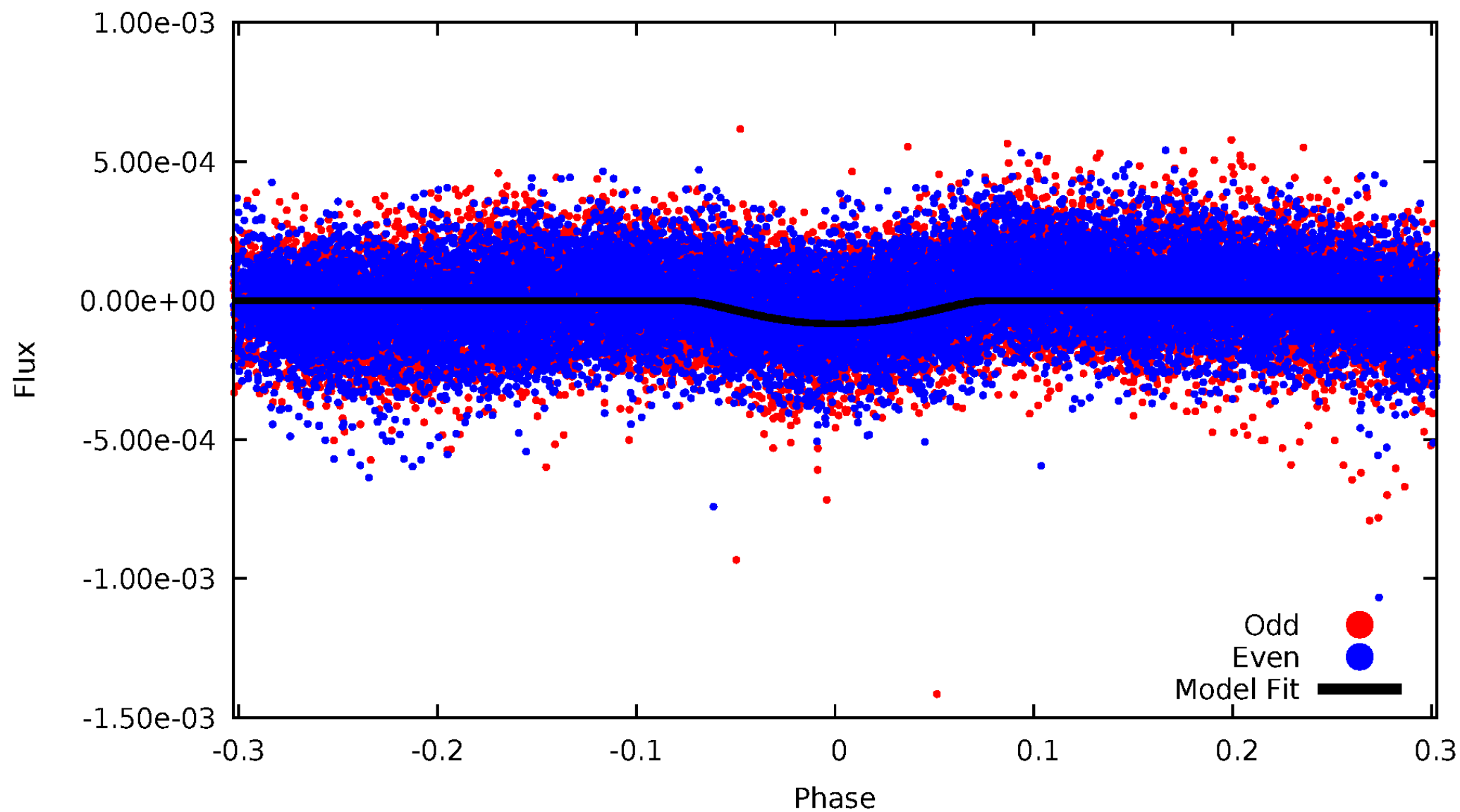


TCE 003560301-02



# DV Odd/Even

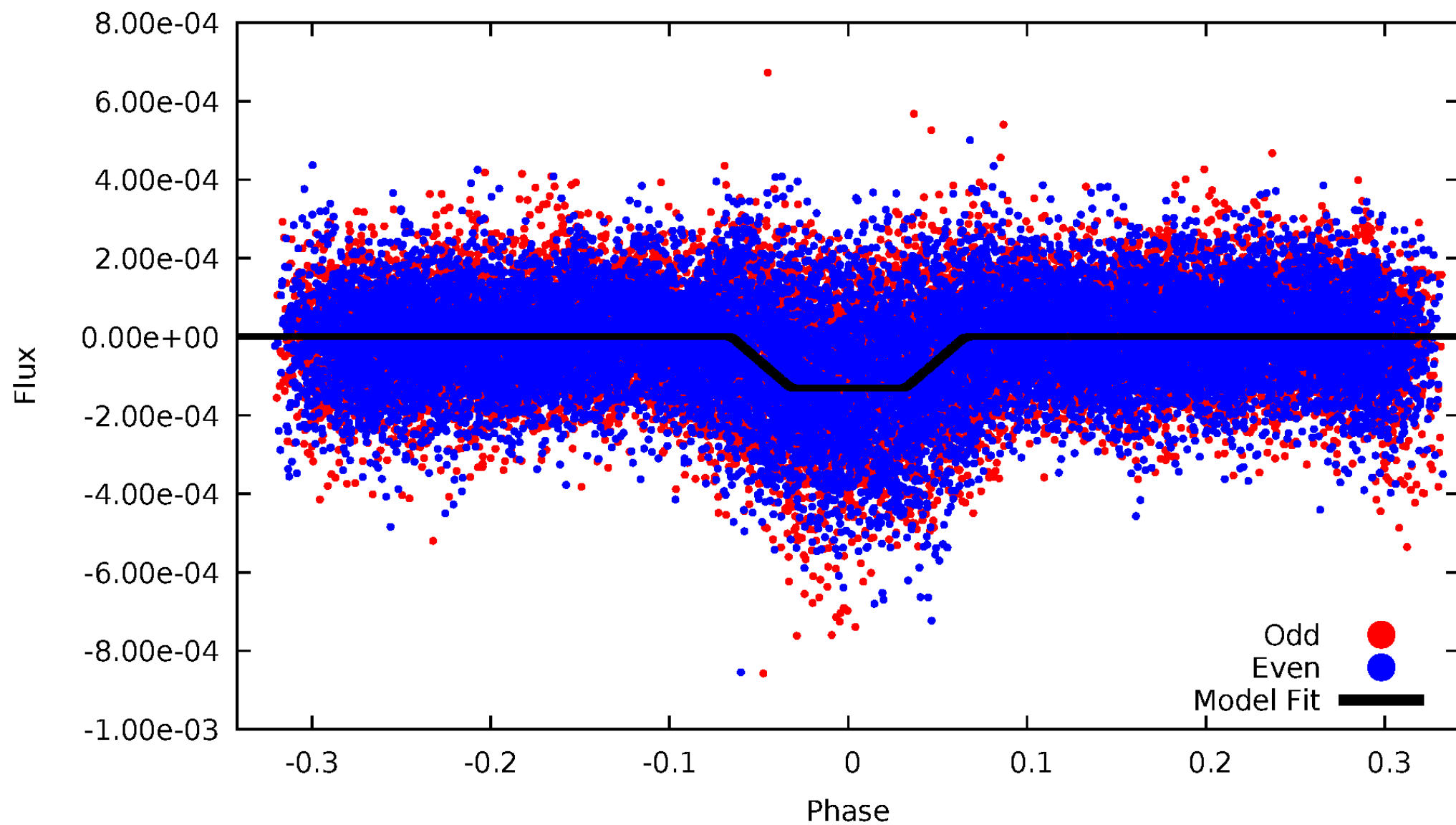
TCE 003560301-02





# ALT Odd/Even

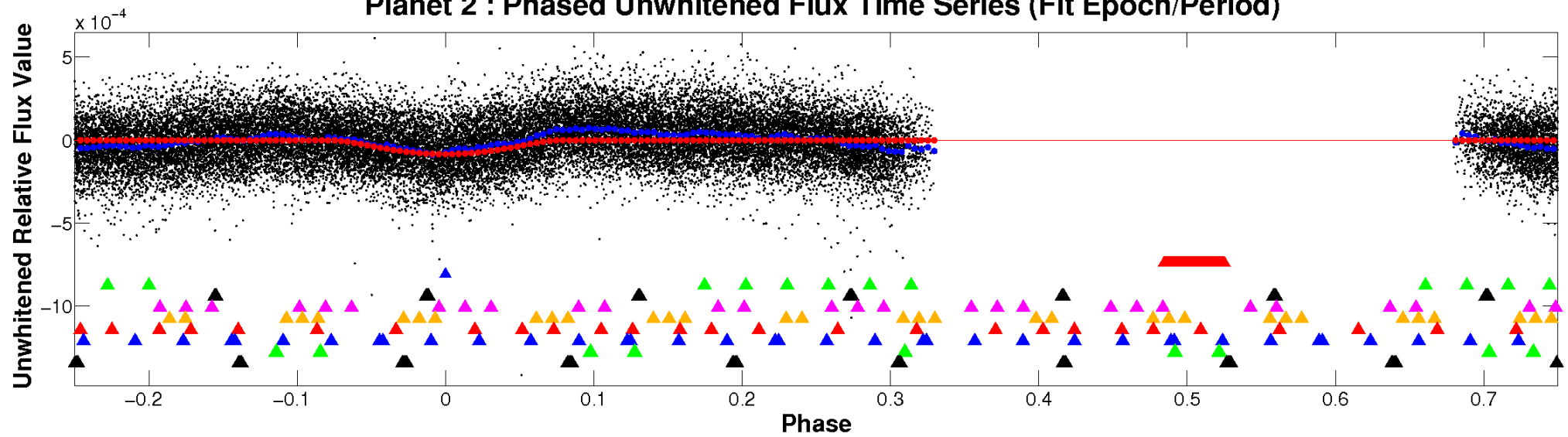
TCE 003560301-02



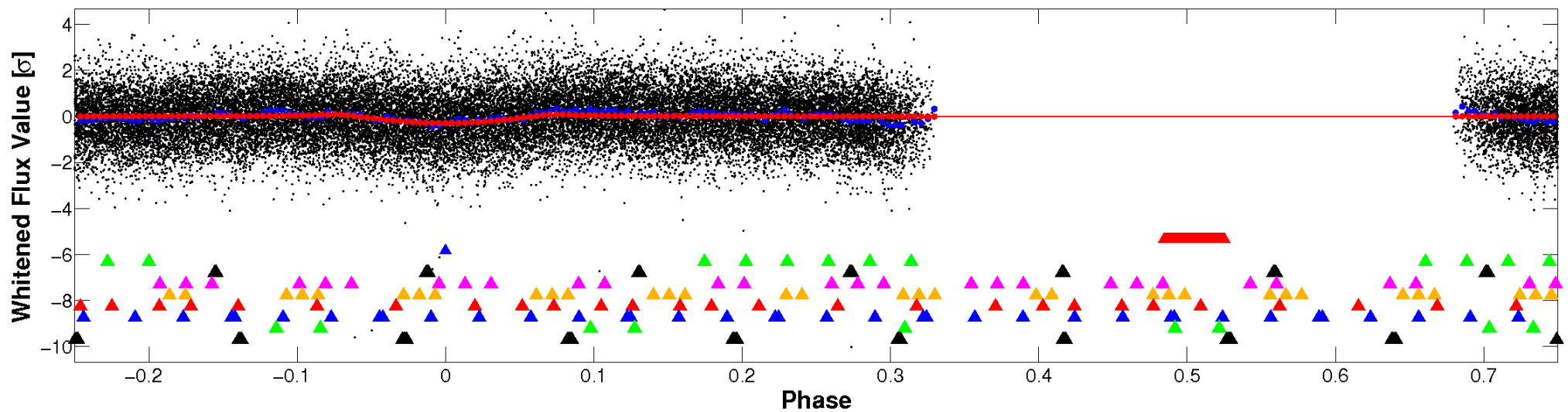


# Non-Whitened Vs. Whitened Light Curve

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

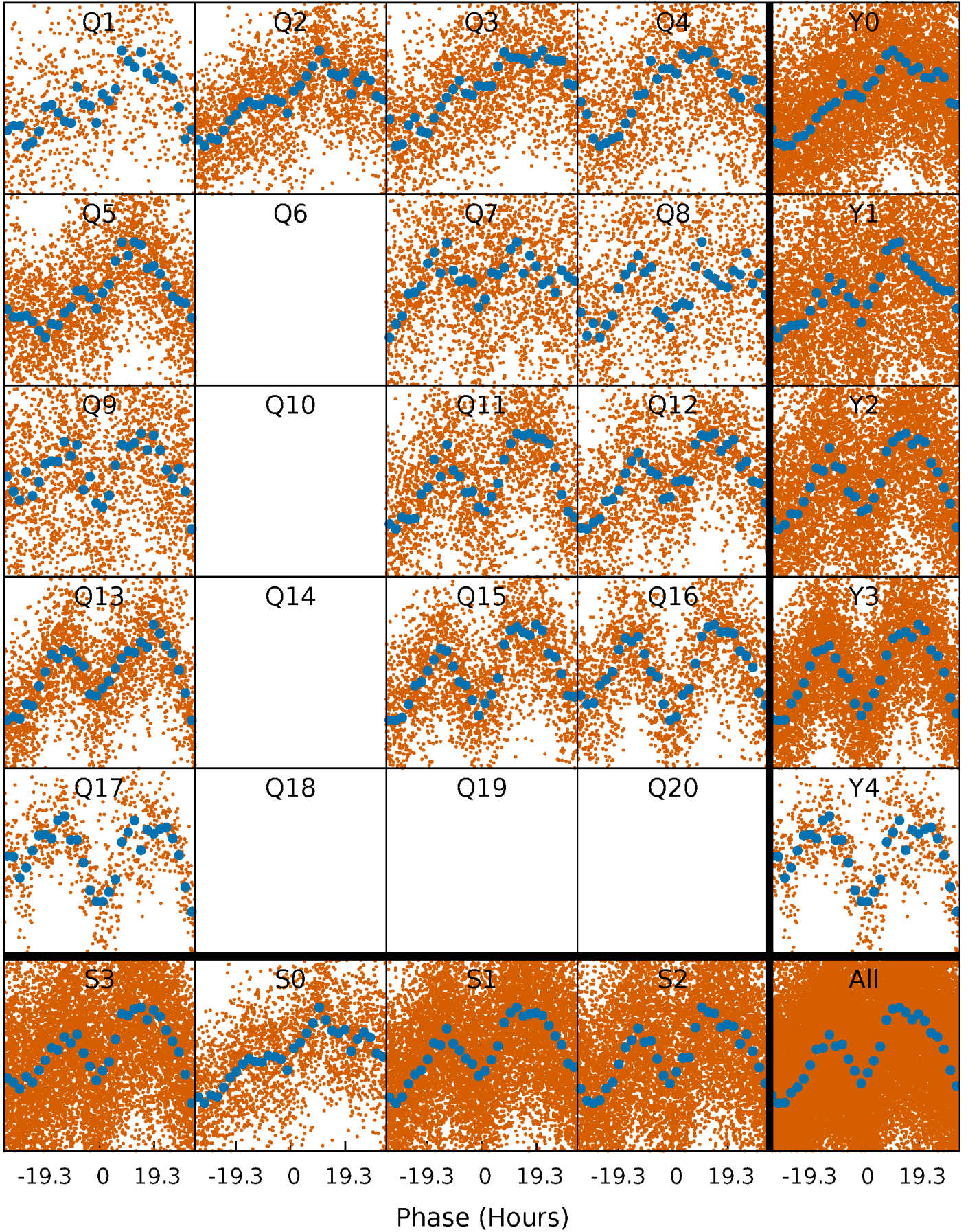


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

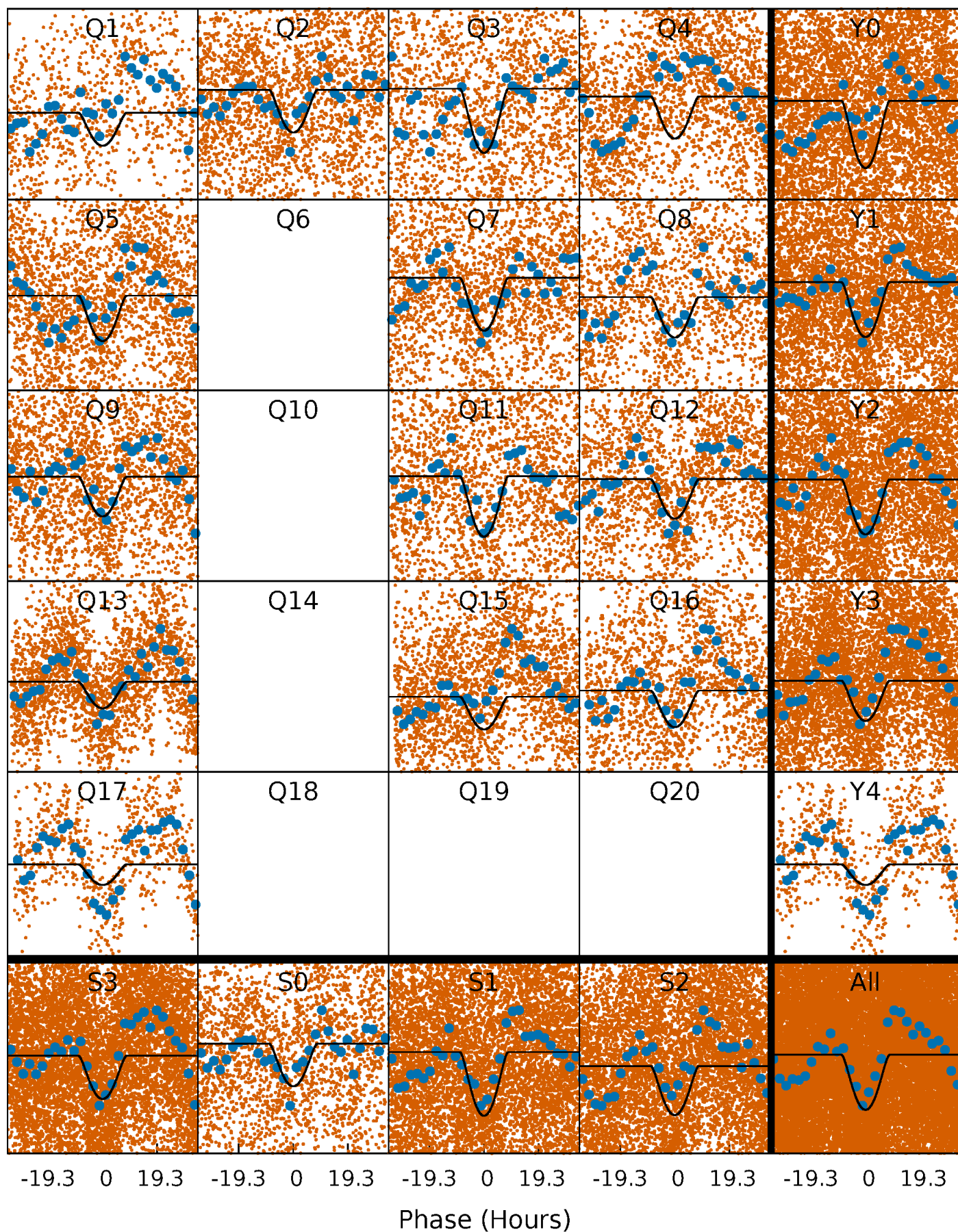
TCE 003560301-02     $P = 4.649908$  Days     $T_0 = 133.451011$  (BKJD)





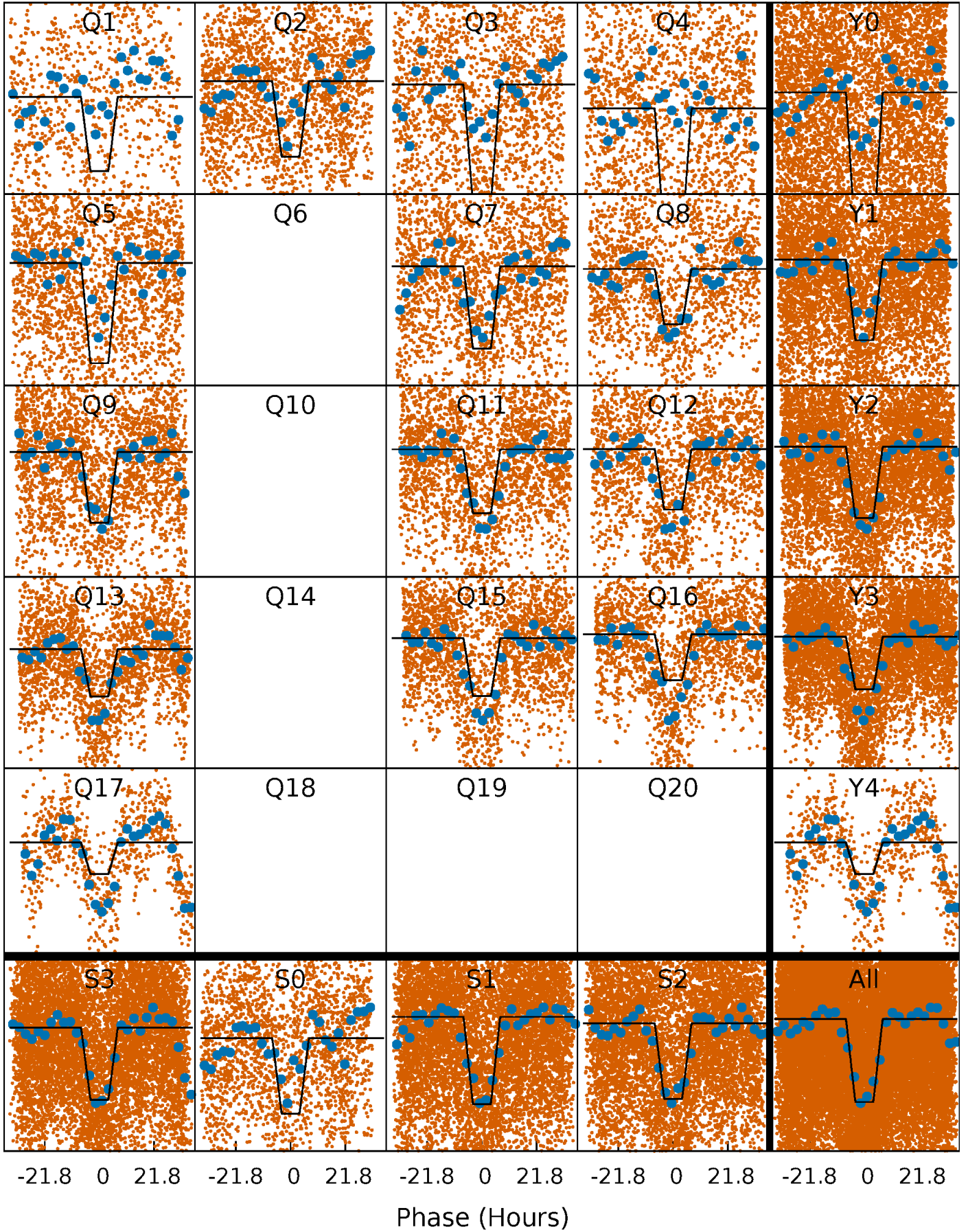
# DV Quarter-Phased Transit Curves

TCE 003560301-02     $P = 4.649908$  Days     $T_0 = 133.451011$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003560301-02   P= 4.649848 Days    $T_0=133.453057$  (BKJD)

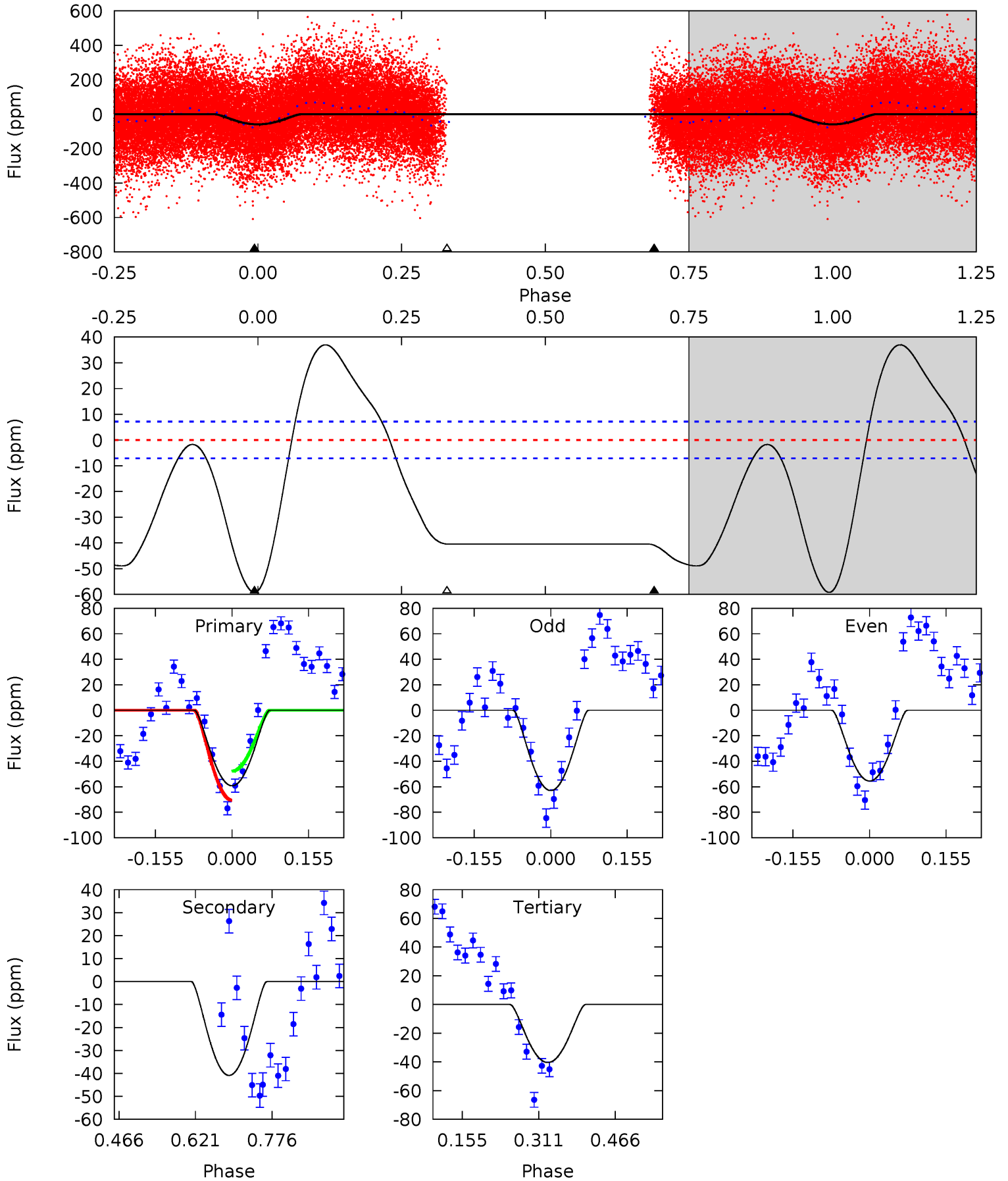




# DV Model-Shift Uniqueness Test

003560301-02, P = 4.649908 Days, E = 128.801103 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
37.2	25.7	25.4	0	4.47	1.42	13.5	11.8	37.2	0.28	25.7	2.34	1.01	0.38	7.04

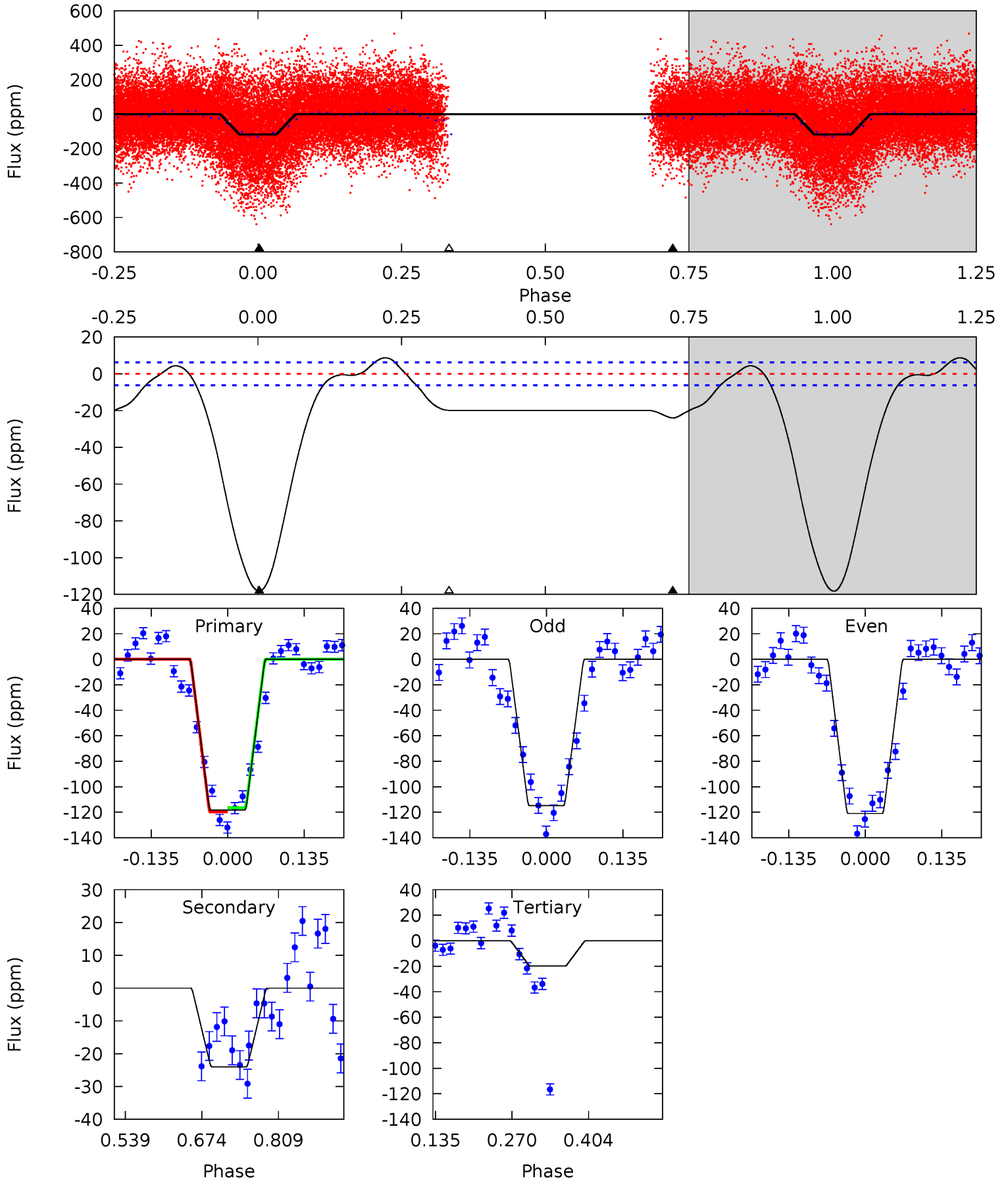




# Alt Model-Shift Uniqueness Test

003560301-02, P = 4.649848 Days, E = 128.803209 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
85.5	17.4	14.4	0	4.50	1.50	5.17	71.1	85.5	3.00	17.4	2.20	1.05	0.07	1.27



### Stellar Parameters For KIC 003560301

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6980^{+167}_{-230}$	$3.577^{+0.352}_{-0.088}$	$-0.420^{+0.350}_{-0.250}$	$3.482^{+0.362}_{-1.447}$	$1.671^{+0.203}_{-0.377}$	$0.056^{+0.150}_{-0.012}$
	+2%/-3%	+10%/-2%	+83%/-60%	+10%/-42%	+12%/-23%	+270%/-22%
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 003560301-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-41 \pm 2$	$5.42^{+3.68}_{-2.98}$	$3091^{+167}_{-292}$	$4506^{+2034}_{-817}$	$3.162^{+12.950}_{-1.999}$
Alt.	$-24 \pm 1$	$4.47^{+3.21}_{-2.73}$	$3096^{+164}_{-278}$	$4375^{+2470}_{-866}$	$2.781^{+15.190}_{-1.845}$

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

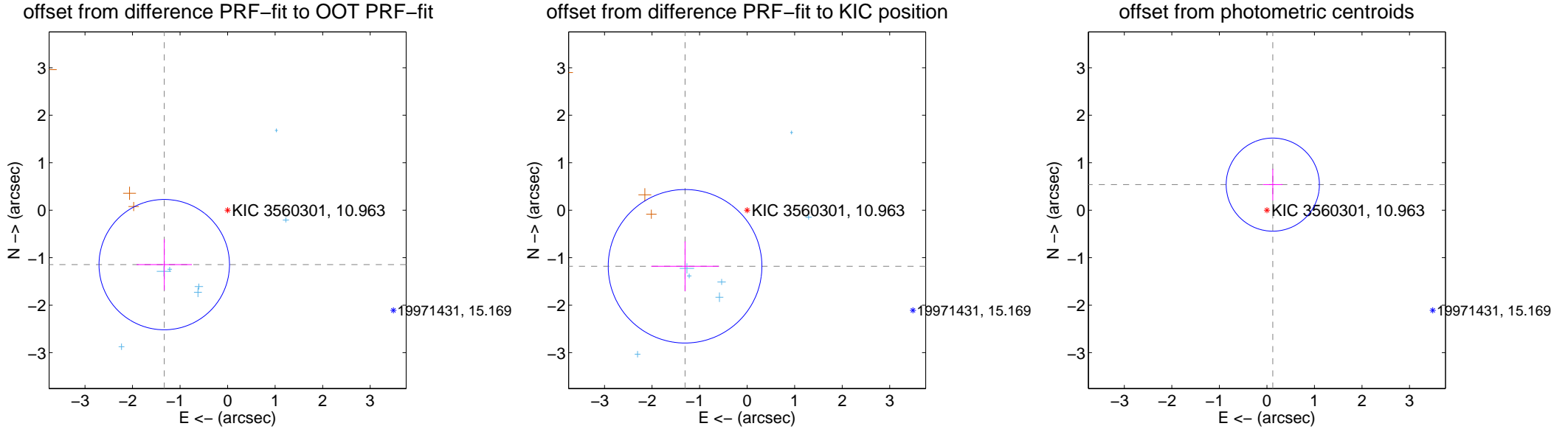
## DV Centroid Data

Supplemental centroid analysis for 003560301-02. **Kepler magnitude: 10.96.** Transit SNR 16.48

There are 7 quarters with good PRF difference image offsets

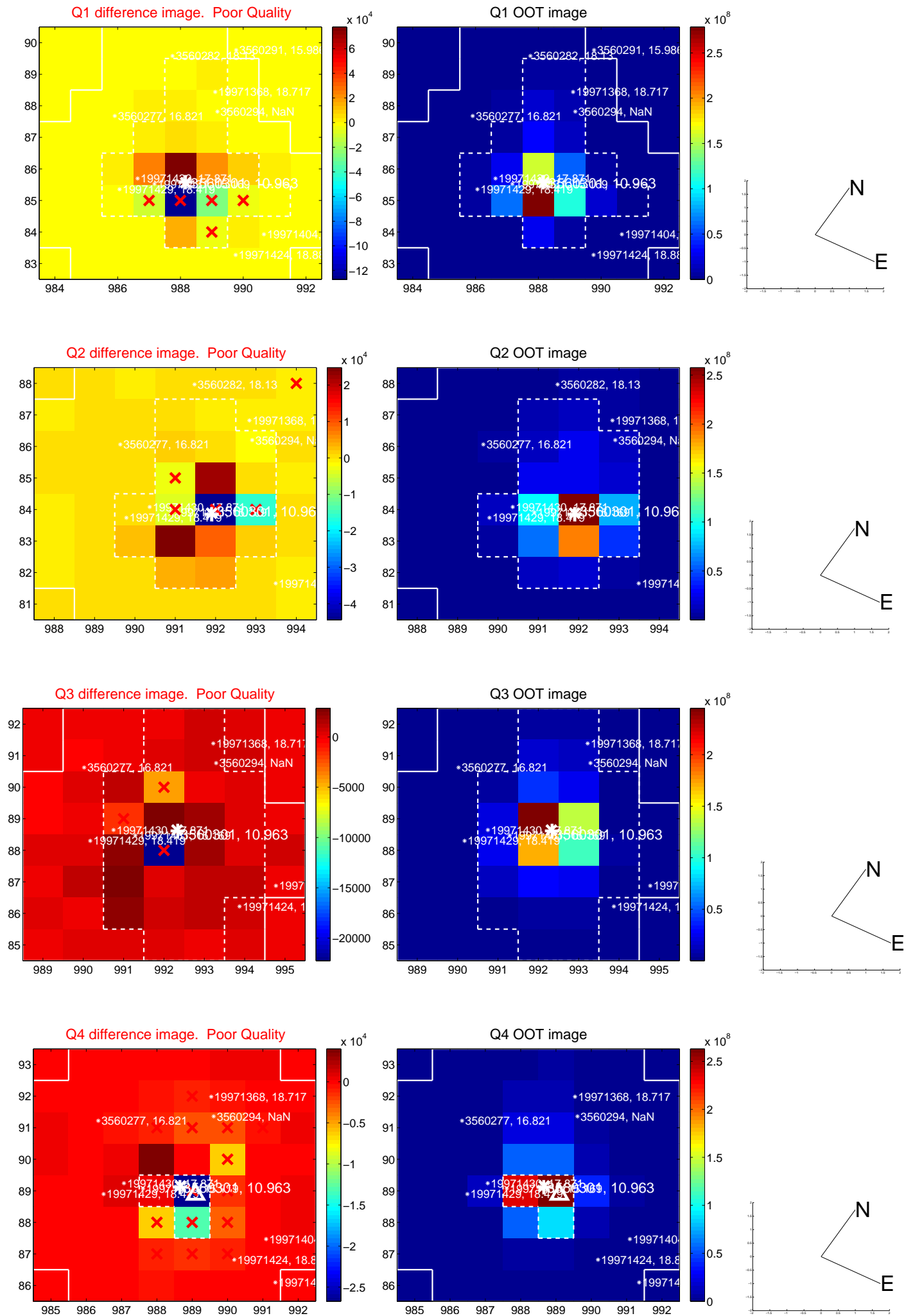
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>1.758 \pm 0.457</math></b>	<b>3.84</b>	$1.333 \pm 0.581$	$-1.146 \pm 0.538$
PRF-fit source offset from KIC position	<b><math>1.761 \pm 0.539</math></b>	<b>3.27</b>	$1.306 \pm 0.712$	$-1.181 \pm 0.523$
photometric centroid source offset	$0.55 \pm 0.33$	1.69	$-0.12 \pm 0.20$	$0.54 \pm 0.33$

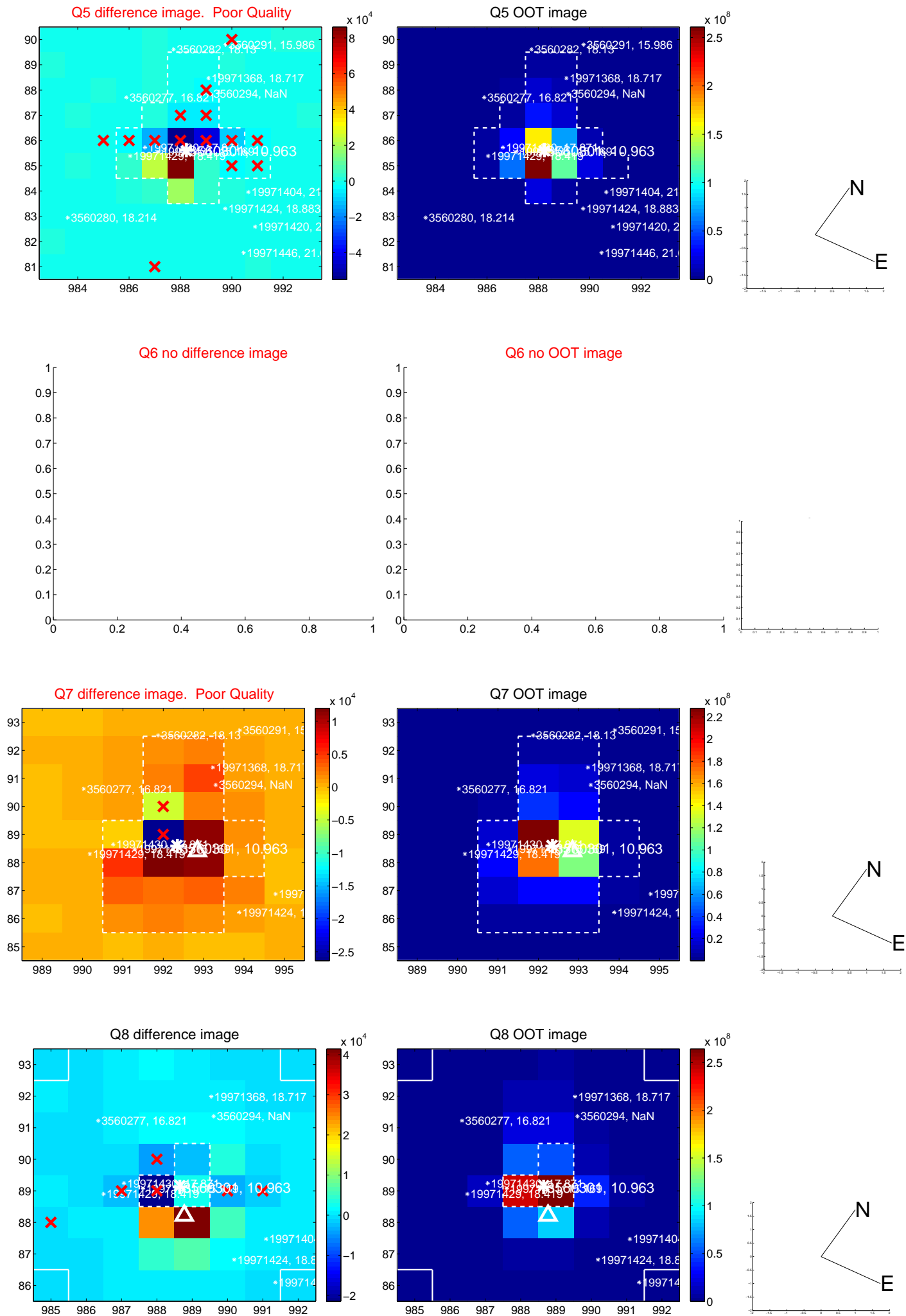


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

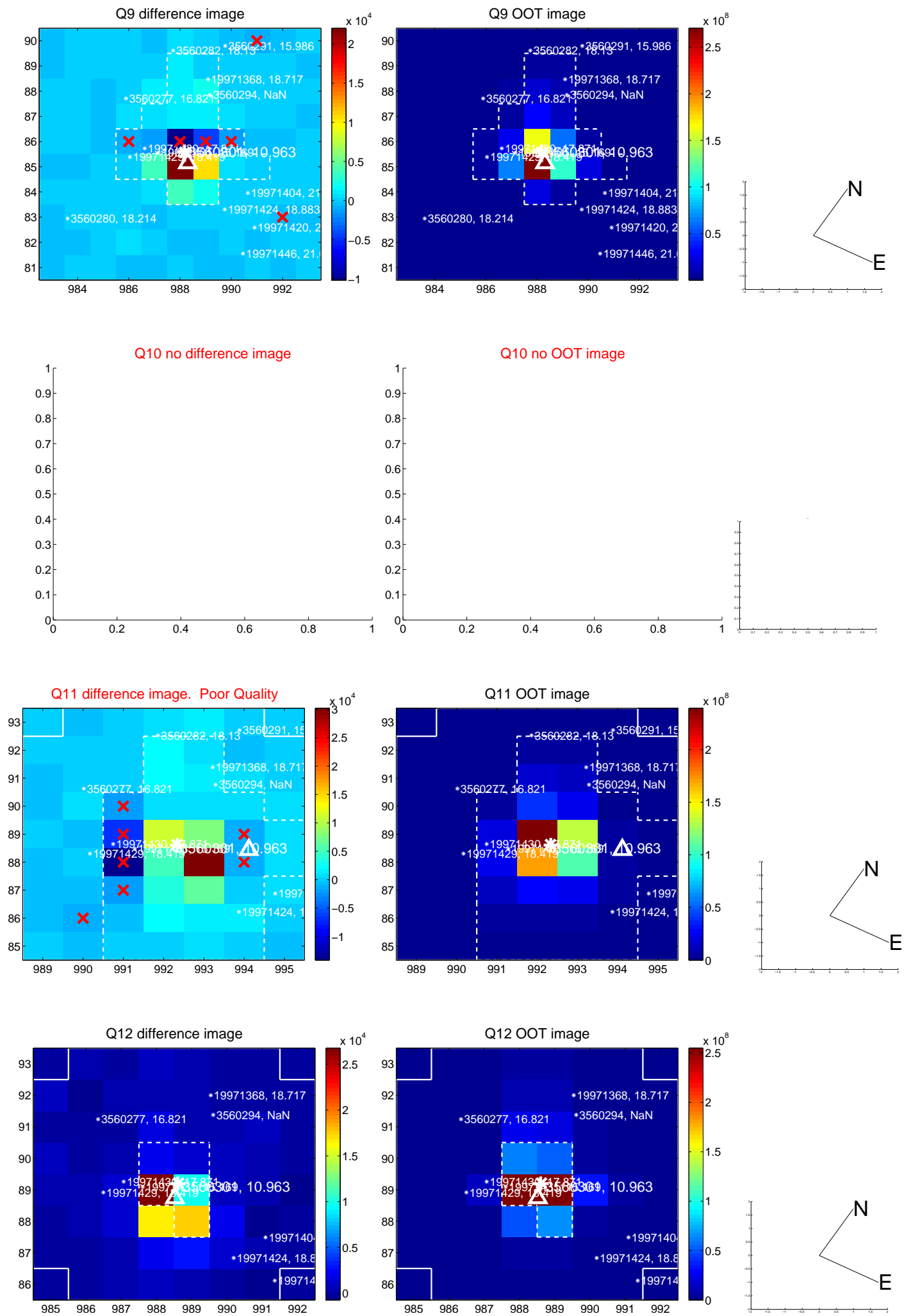


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

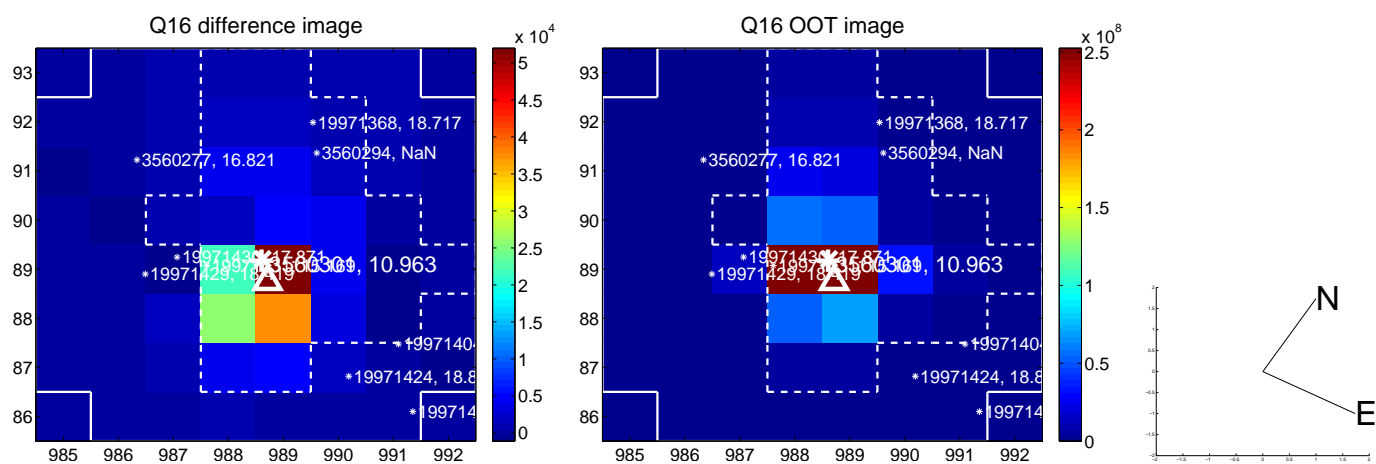
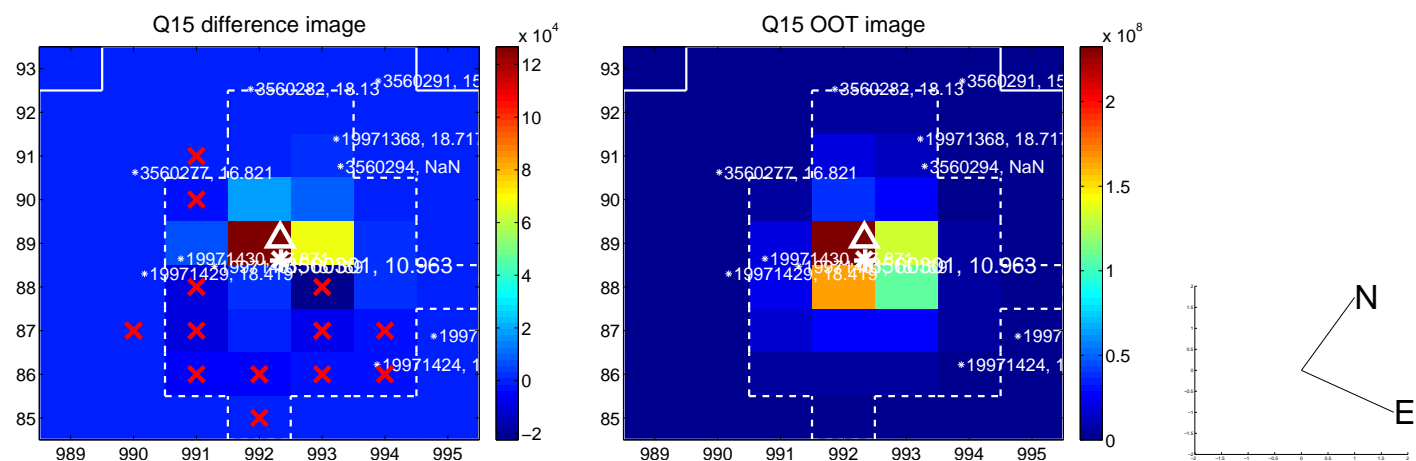
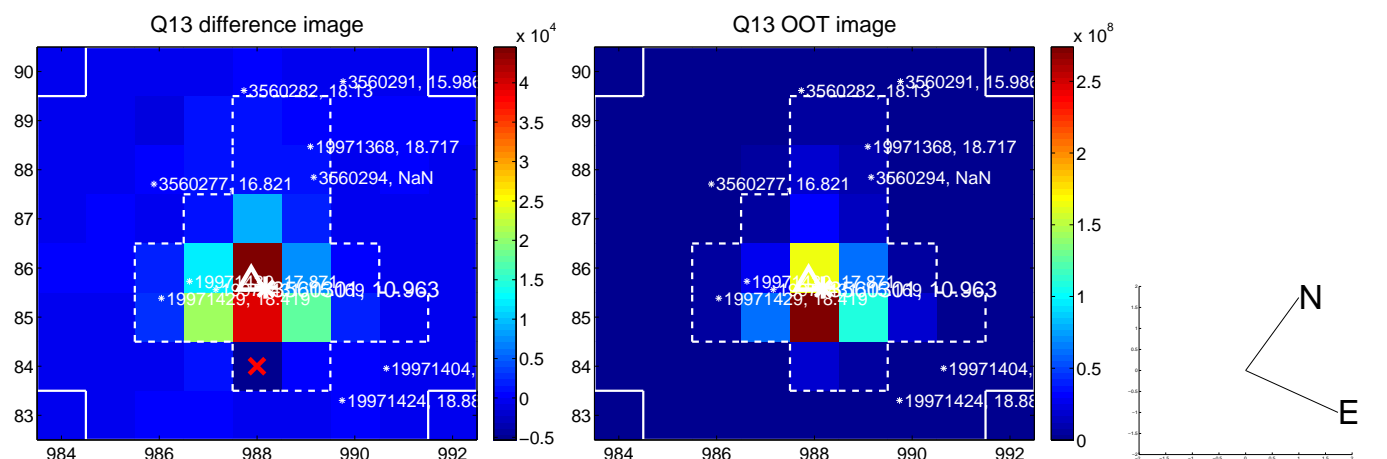




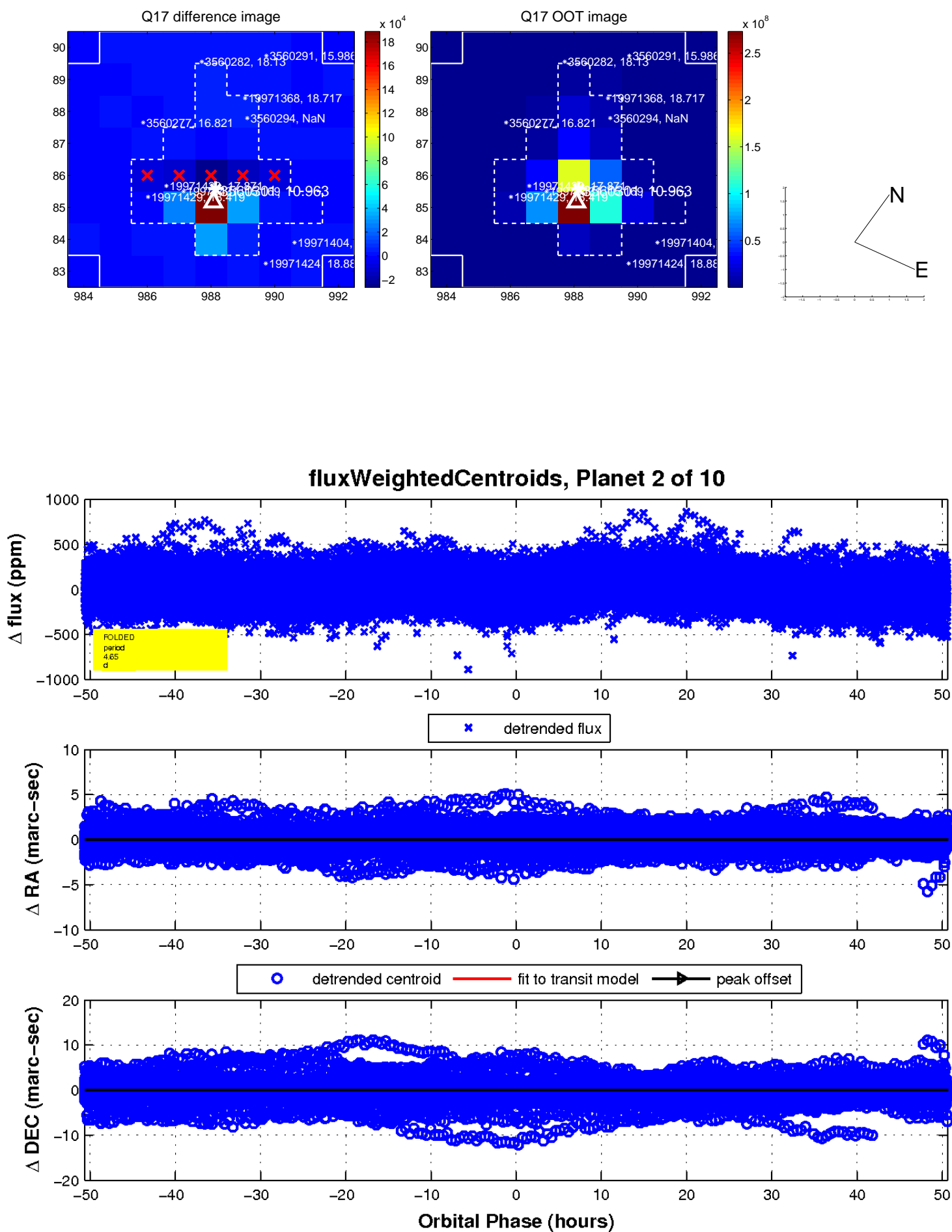
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

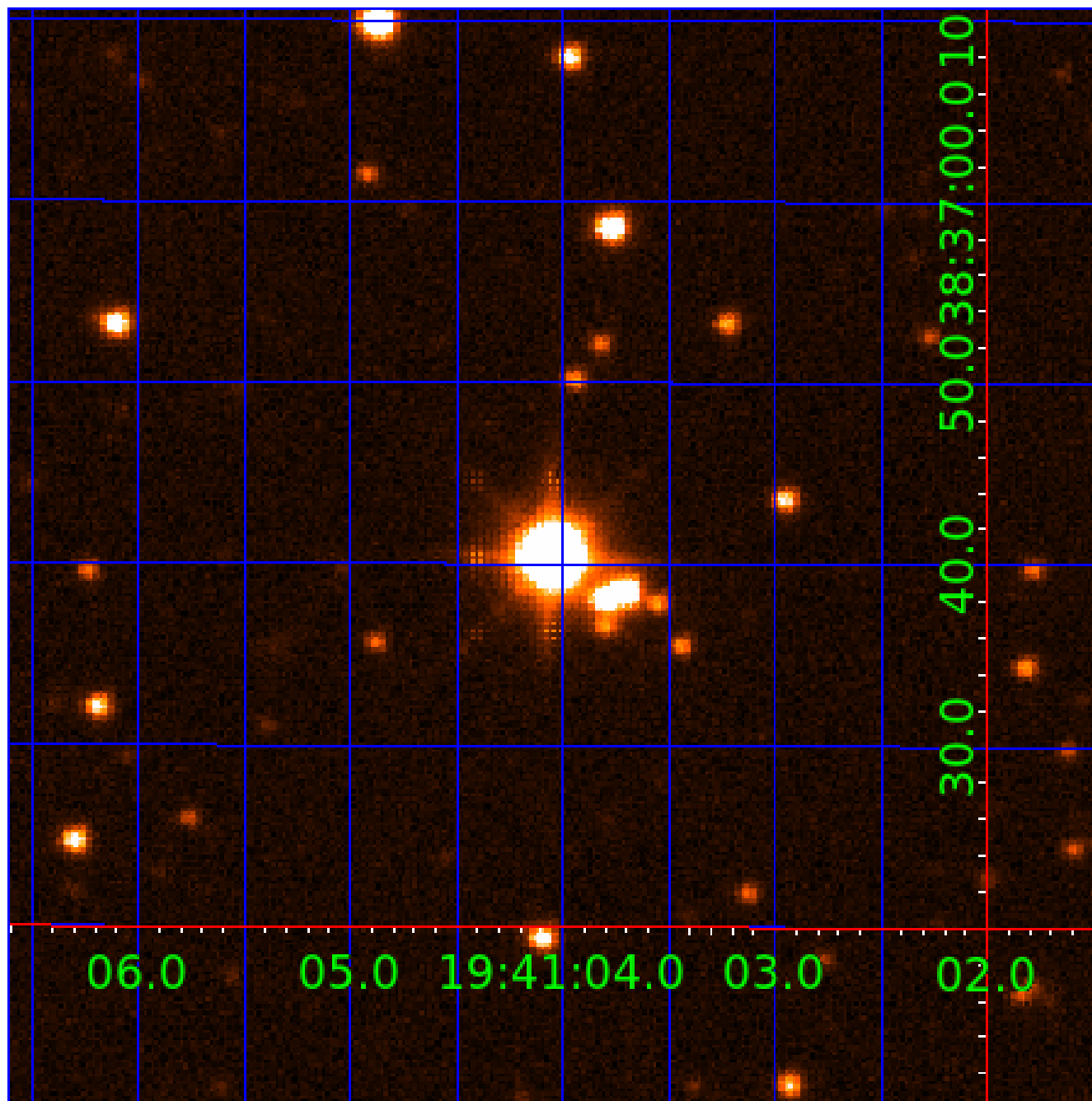


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## KIC 003560301

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003560301-01	OBS	0968.01	4.650516	135.703516	48.0	14.378	13.4	11.0	3.48	6980	2.84	6159.33
003560301-02	OBS	No	4.649908	133.451011	83.9	16.883	14.4	16.5	3.48	6980	5.57	6160.41
003560301-03	OBS	No	118.507880	246.508723	514.3	19.733	25.7	16.3	3.48	6980	15.00	82.14
003560301-04	OBS	No	59.120616	149.996311	153.3	5.042	15.3	7.1	3.48	6980	5.25	207.59
003560301-05	OBS	No	53.692713	134.661858	214.8	5.861	12.2	9.5	3.48	6980	5.48	236.04
003560301-06	OBS	No	43.782493	169.101103	77.0	0.639	9.8	1.8	3.48	6980	3.30	309.84
003560301-07	OBS	No	52.781384	166.241089	260.9	3.022	10.4	9.6	3.48	6980	6.31	241.49
003560301-08	OBS	No	40.144553	134.948745	254.5	2.914	10.0	10.3	3.48	6980	6.57	347.83
003560301-09	OBS	No	174.864198	156.170068	276.4	6.035	9.6	10.4	3.48	6980	6.72	48.90
003560301-10	OBS	No	44.432964	151.915392	186.8	5.412	9.8	9.0	3.48	6980	5.09	303.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003560301-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
003560301-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
003560301-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003560301-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
003560301-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

**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.

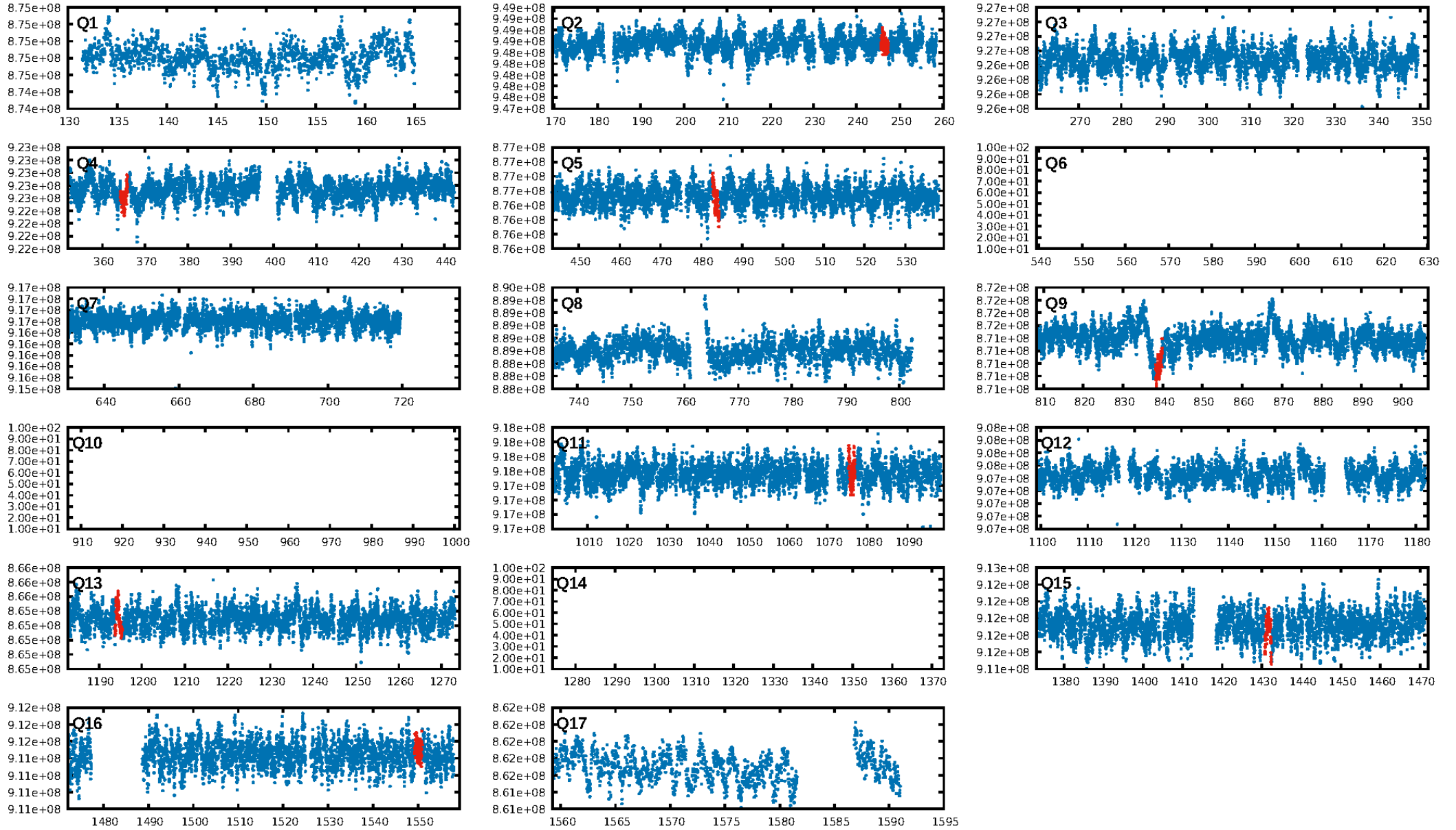
Ephemeris Match Information For 003560301-03

No Significant Match Found

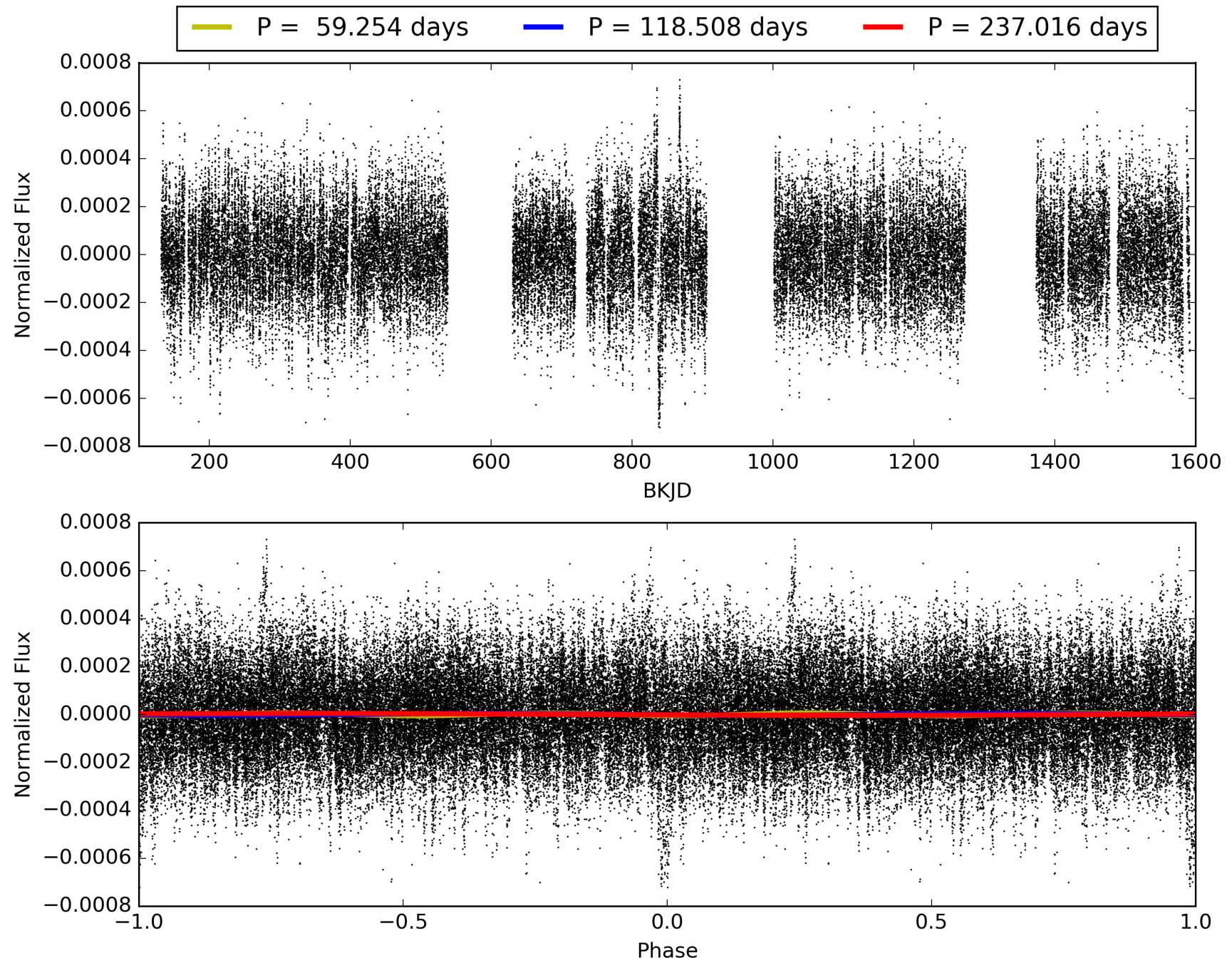


This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003560301-03, PDC Light Curves

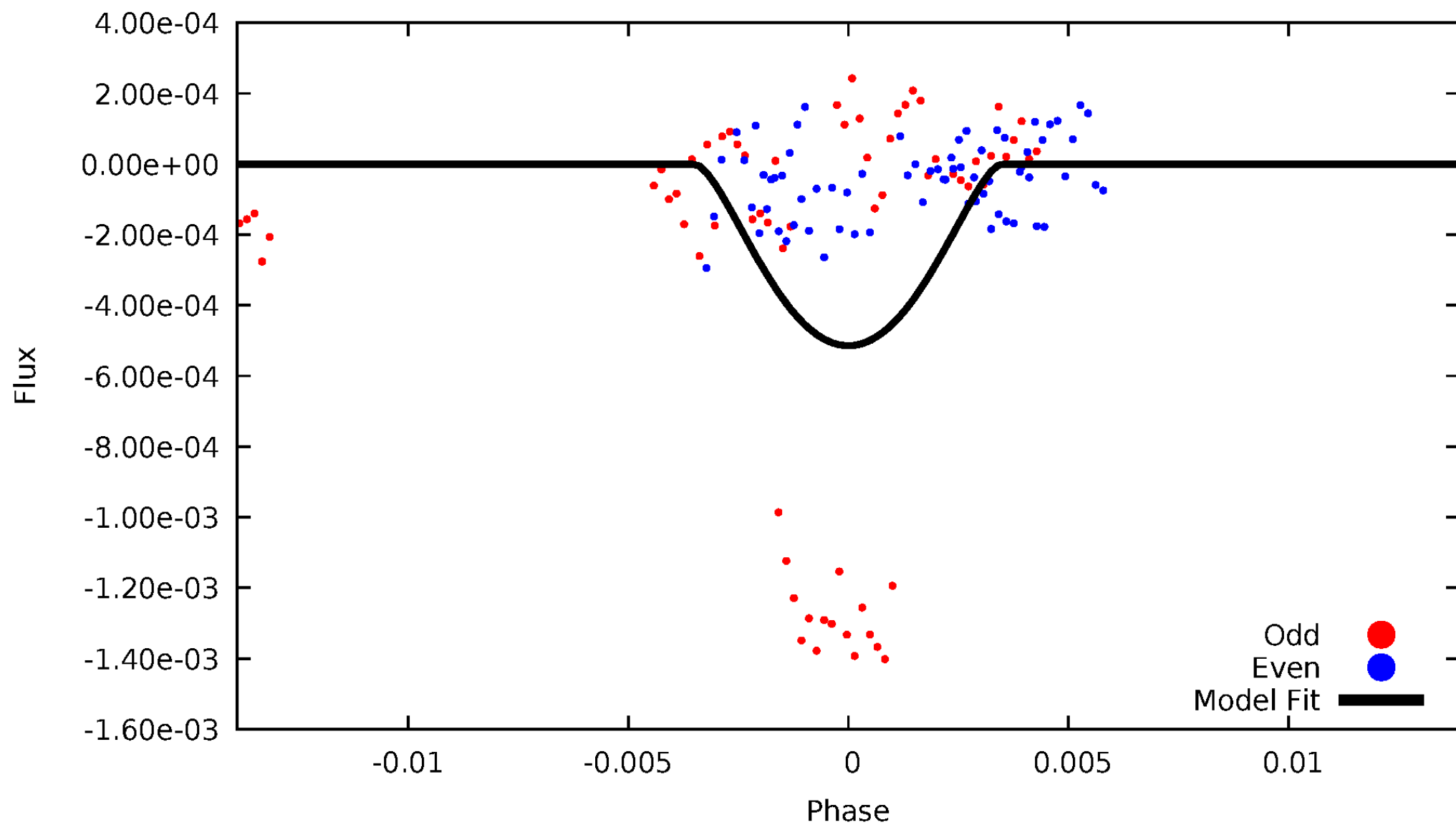


TCE 003560301-03



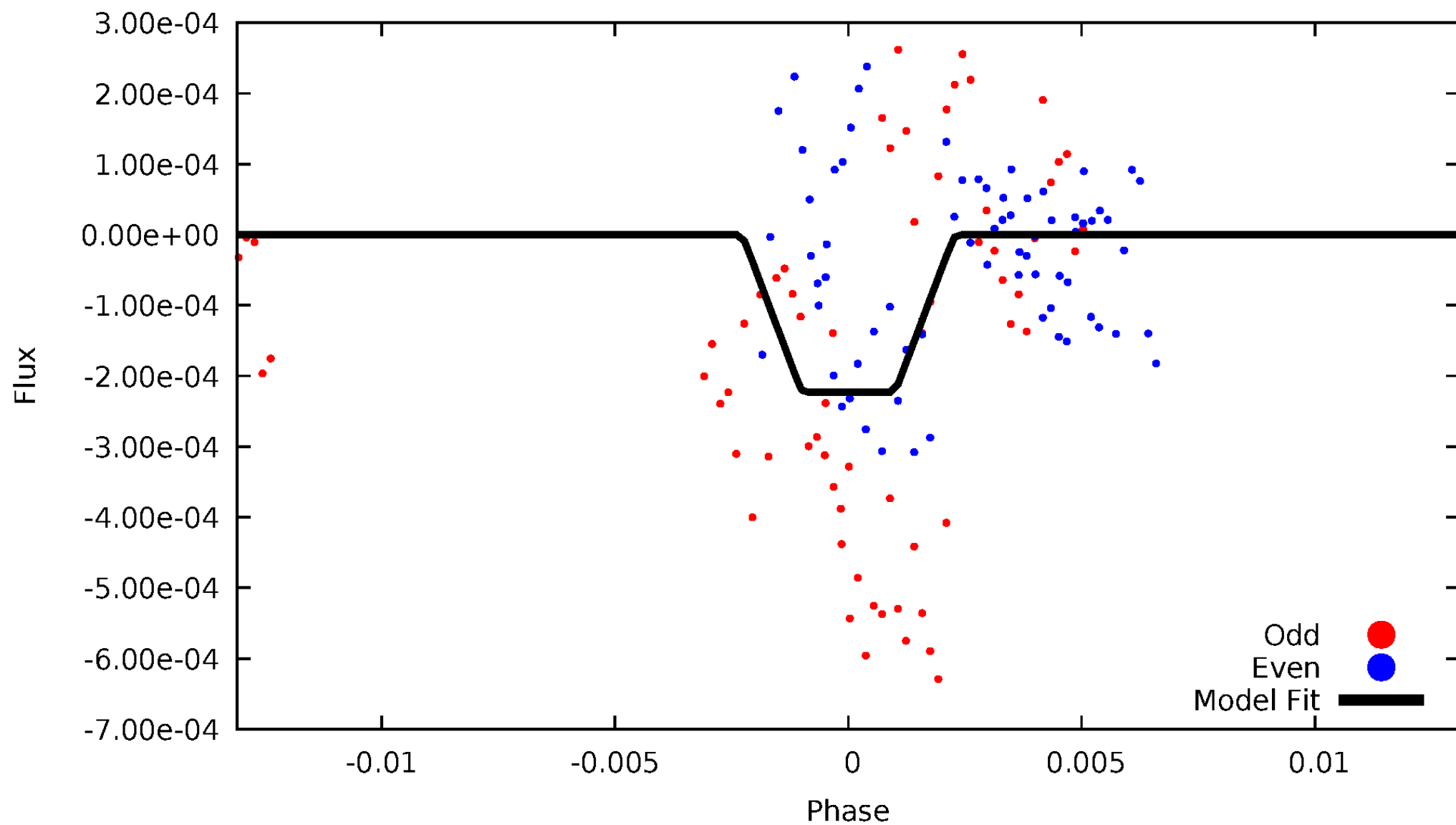
# DV Odd/Even

TCE 003560301-03



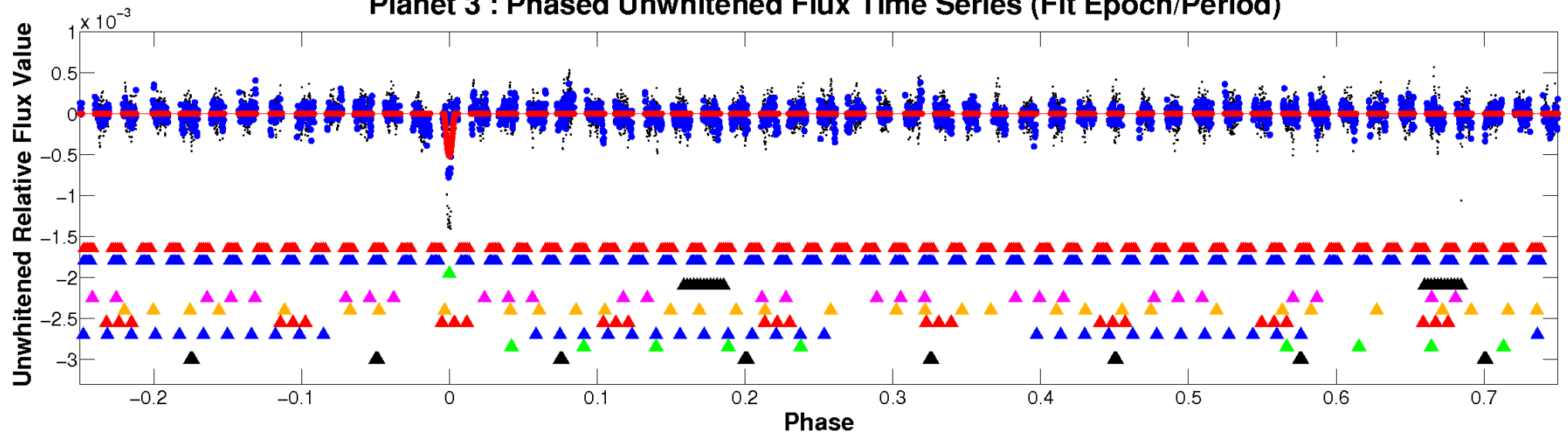
# ALT Odd/Even

TCE 003560301-03

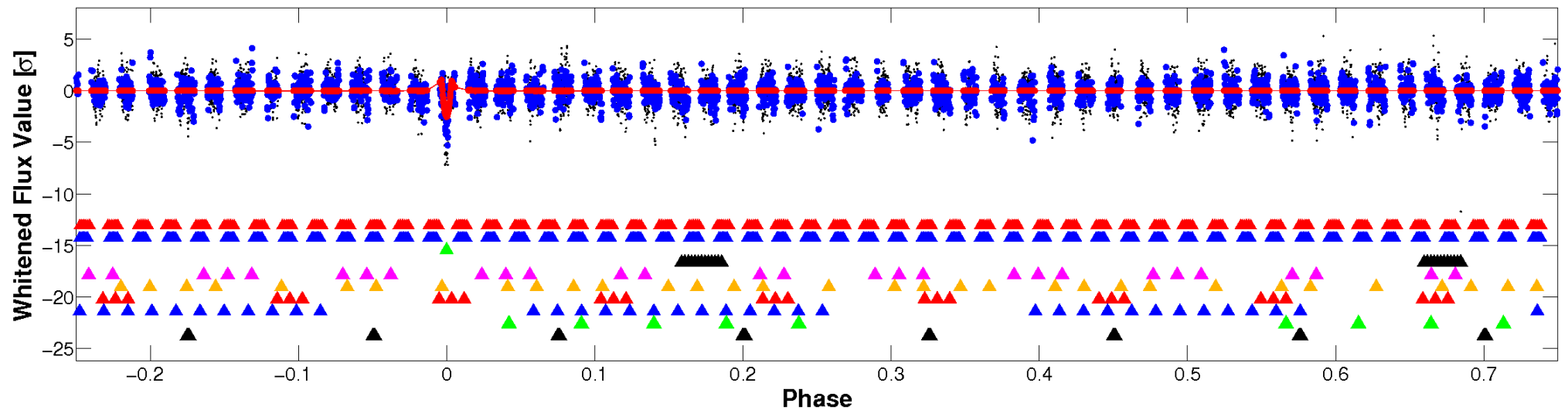


# Non-Whitened Vs. Whitened Light Curve

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



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





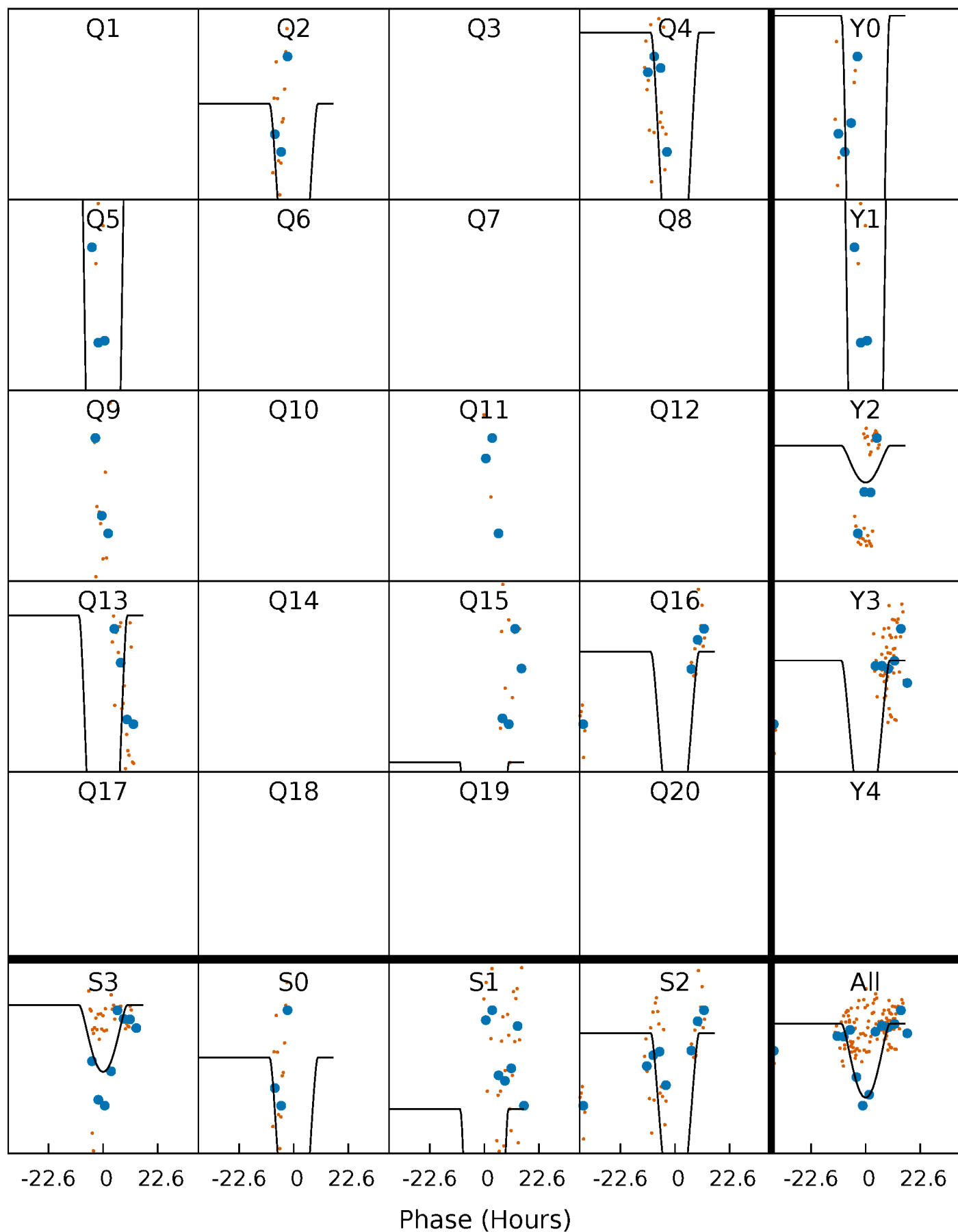
# PDC Quarter-Phased Transit Curves

TCE 003560301-03     $P=118.507880$  Days     $T_0=246.508723$  (BKJD)



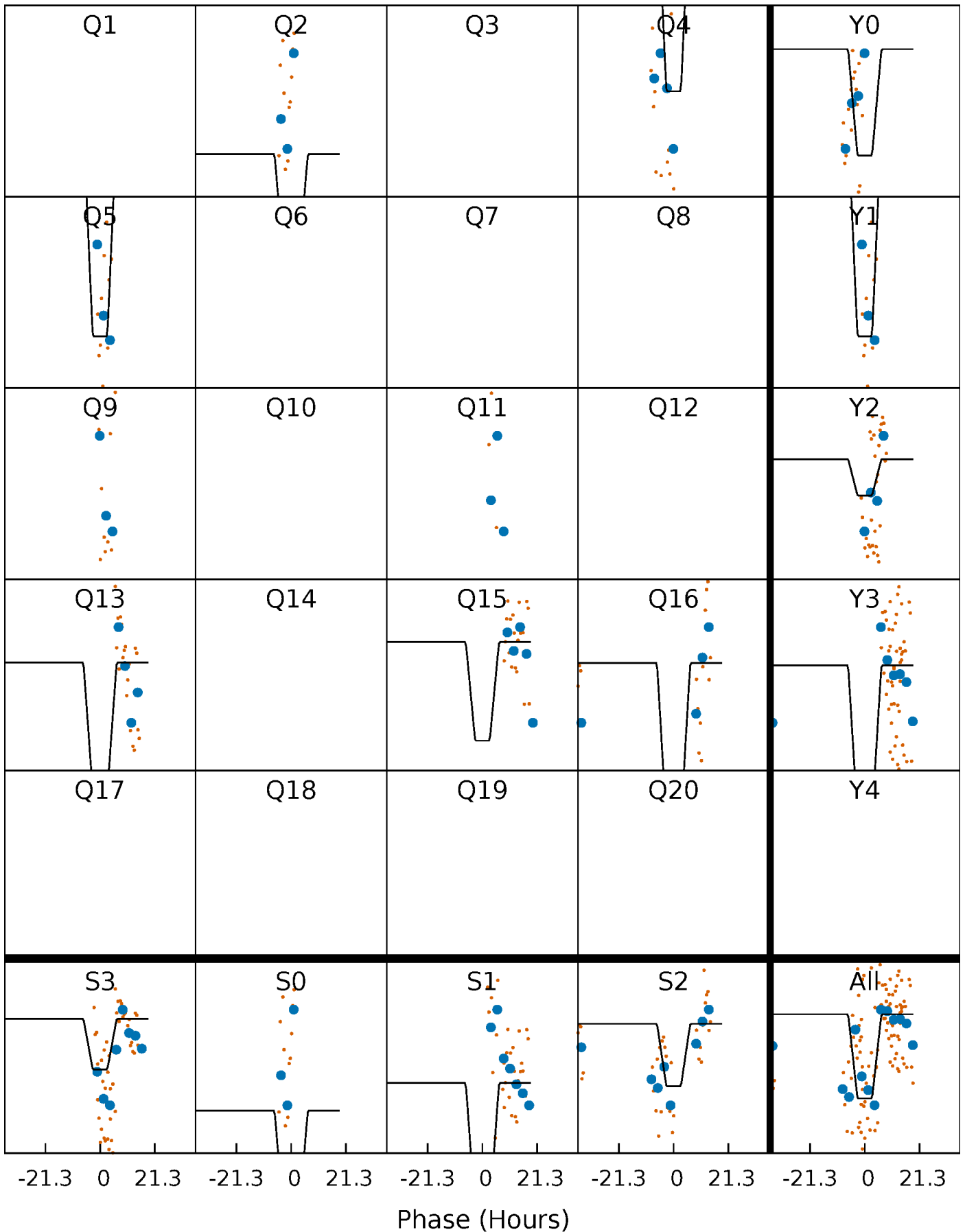
# DV Quarter-Phased Transit Curves

TCE 003560301-03     $P=118.507880$  Days     $T_0=246.508723$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

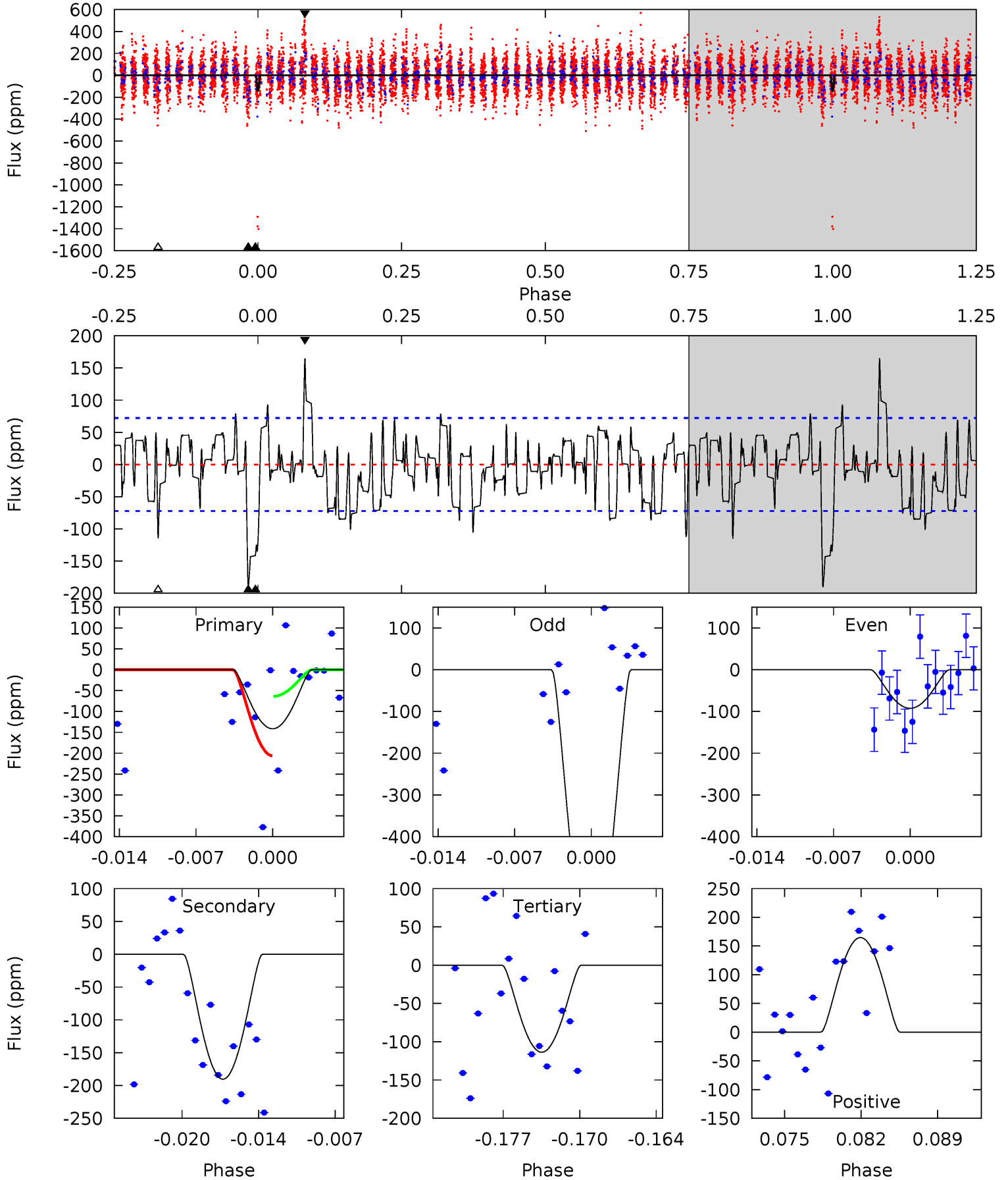
TCE 003560301-03     $P=118.514648$  Days     $T_0=246.344951$  (BKJD)



# DV Model-Shift Uniqueness Test

003560301-03, P = 118.507880 Days, E = 128.000843 Days

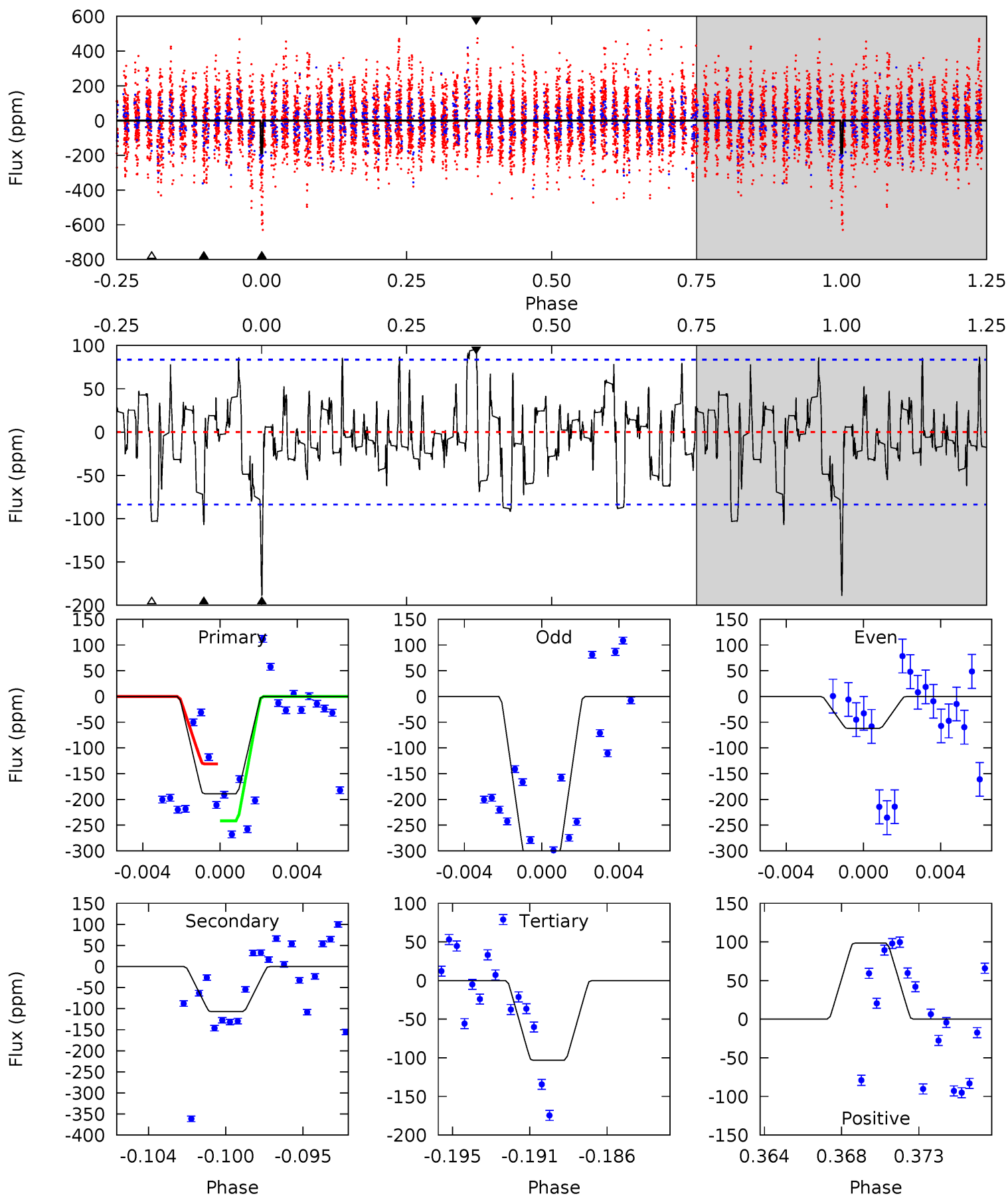
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.99	13.4	8.03	11.6	5.10	2.71	2.70	1.96	-1.64	5.42	1.81	22.3	2.62	0.46	5.02



# Alt Model-Shift Uniqueness Test

003560301-03, P = 118.514648 Days, E = 127.830303 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
11.7	6.64	6.40	6.10	5.18	2.85	2.07	5.33	5.63	0.24	0.54	7.69	-0.84	0.34	3.39



### Stellar Parameters For KIC 003560301

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6980^{+167}_{-230}$	$3.577^{+0.352}_{-0.088}$	$-0.420^{+0.350}_{-0.250}$	$3.482^{+0.362}_{-1.447}$	$1.671^{+0.203}_{-0.377}$	$0.056^{+0.150}_{-0.012}$
	+2%/-3%	+10%/-2%	+83%/-60%	+10%/-42%	+12%/-23%	+270%/-22%
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 003560301-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-190 \pm 14$	$28.83^{+36.33}_{-19.71}$	$1053^{+59}_{-109}$	$3362^{+1757}_{-661}$	$40^{+349}_{-33}$
Alt.	$-107 \pm 16$	$26.05^{+32.04}_{-18.24}$	$1051^{+58}_{-100}$	$3182^{+1601}_{-604}$	$27^{+282}_{-21}$

$T_{max}$  = 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

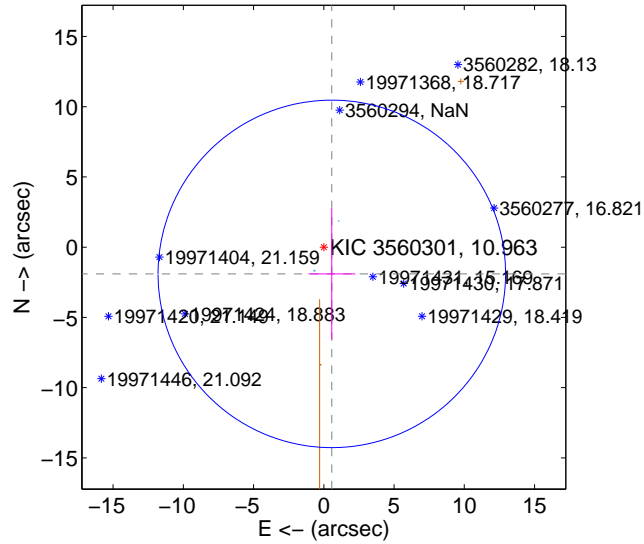
Supplemental centroid analysis for 003560301-03. **Kepler magnitude: 10.96.** Transit SNR 16.27

**There are 2 quarters with good PRF difference image offsets**

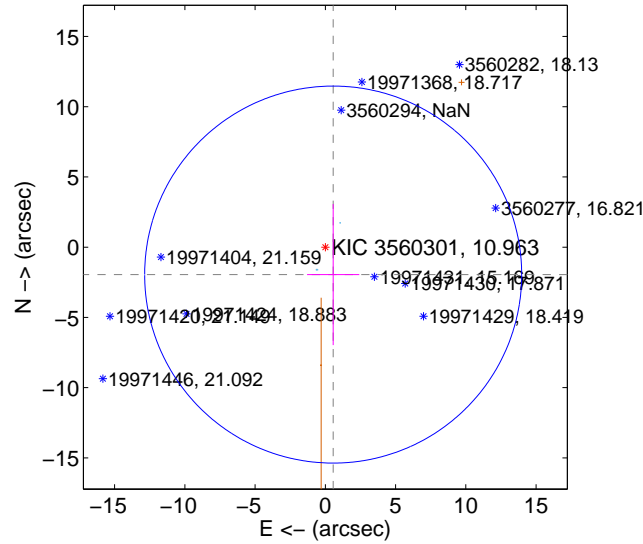
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.986 \pm 4.123$	0.48	$-0.570 \pm 1.667$	$-1.902 \pm 4.661$
PRF-fit source offset from KIC position	$2.030 \pm 4.474$	0.45	$-0.558 \pm 1.862$	$-1.952 \pm 5.021$
photometric centroid source offset	$0.10 \pm 0.29$	0.34	$-0.07 \pm 0.22$	$0.06 \pm 0.36$

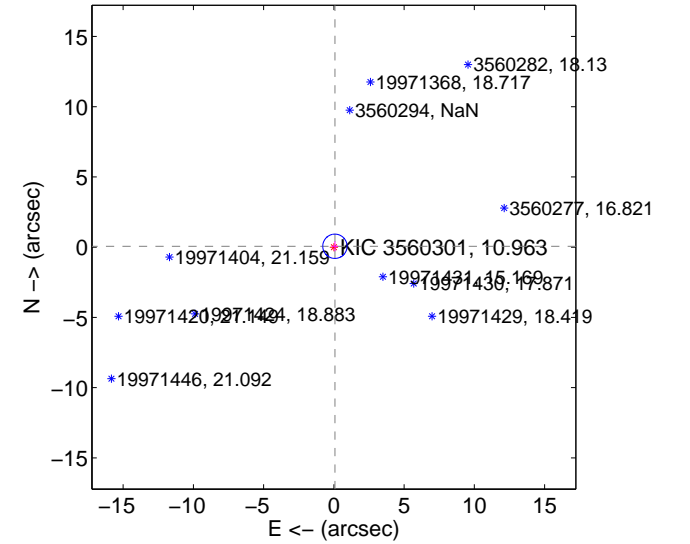
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

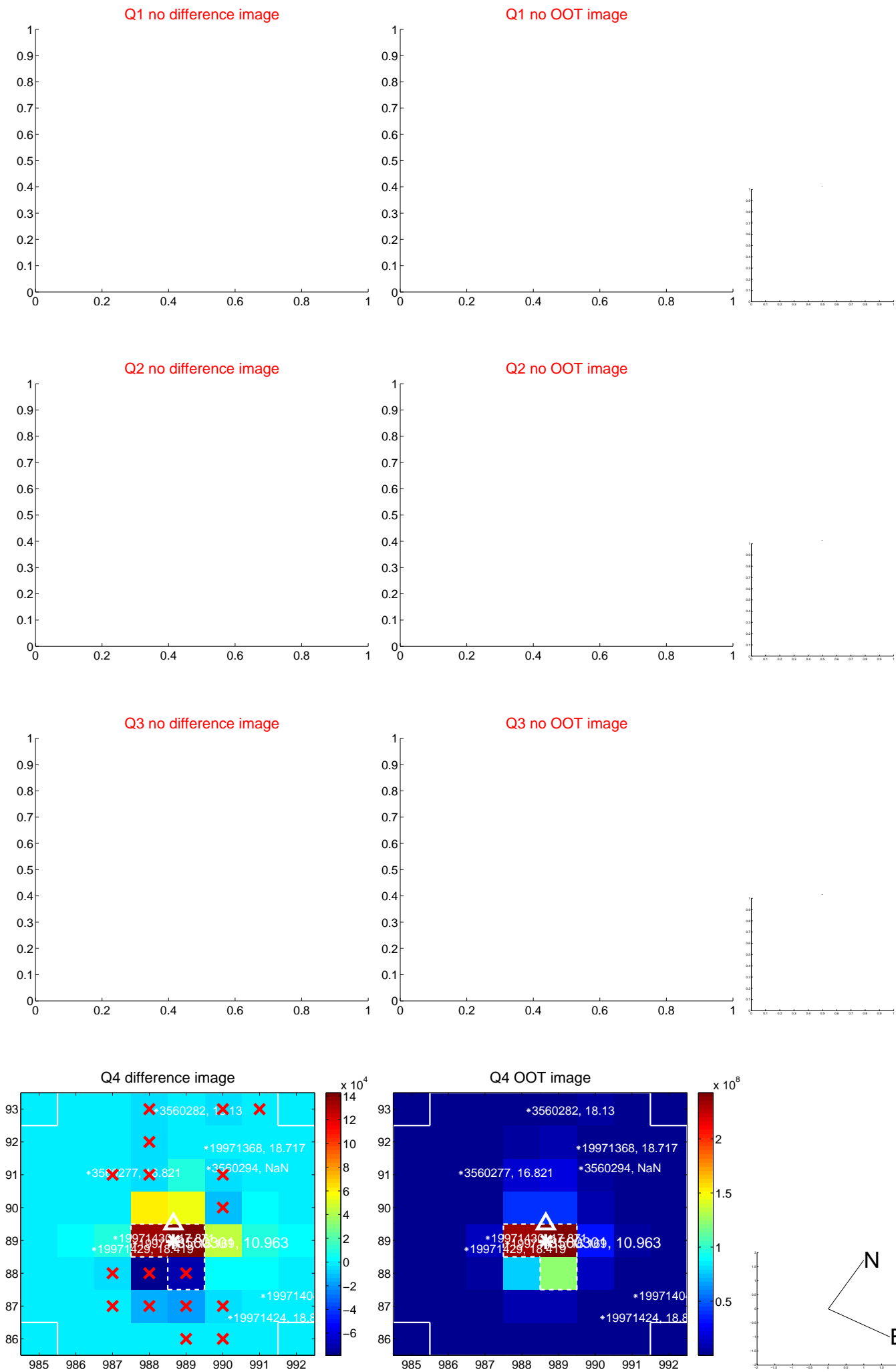


offset from photometric centroids

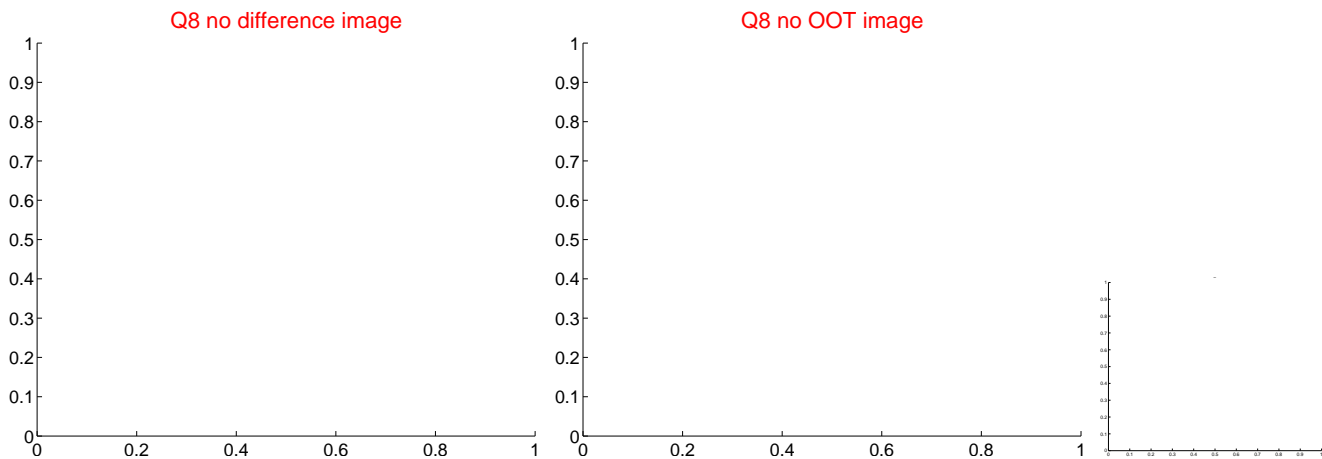
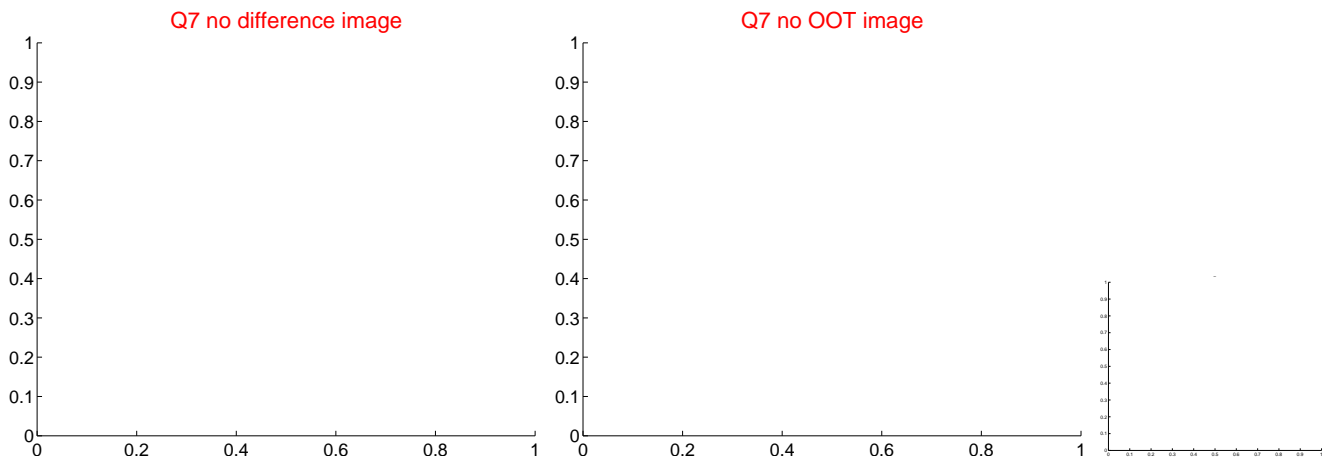
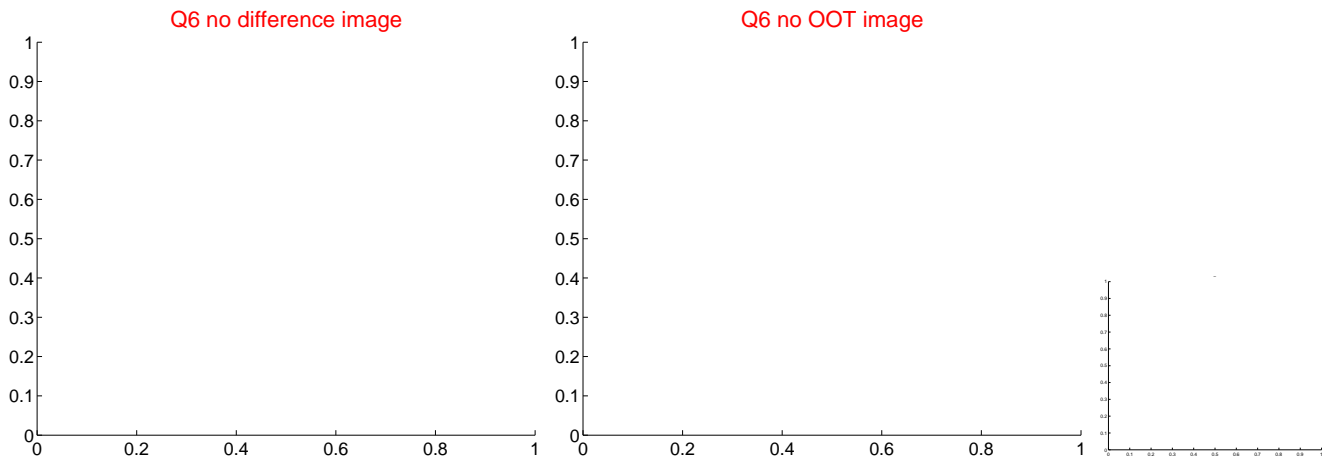
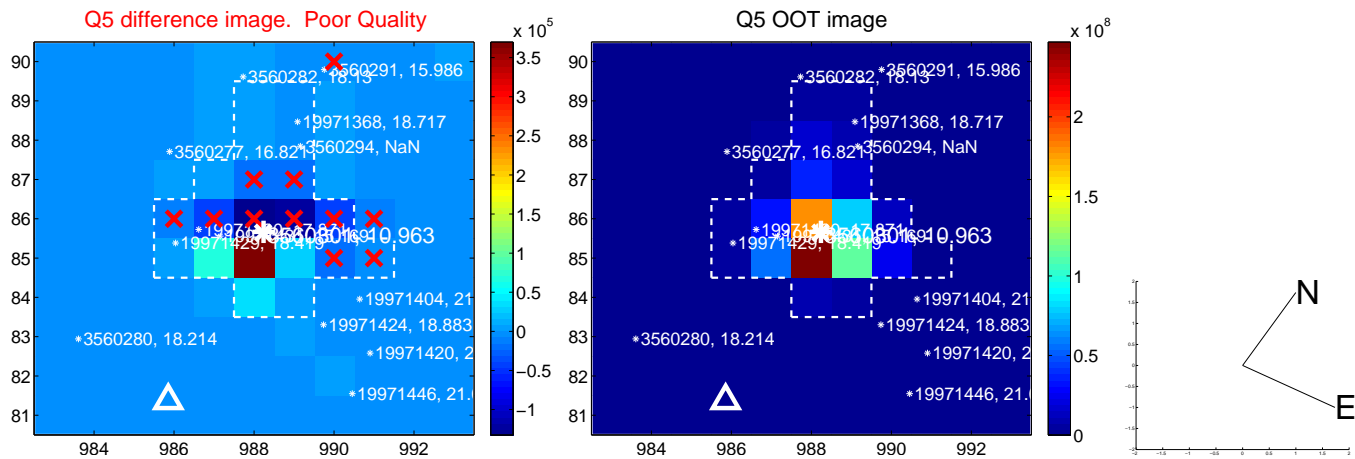


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

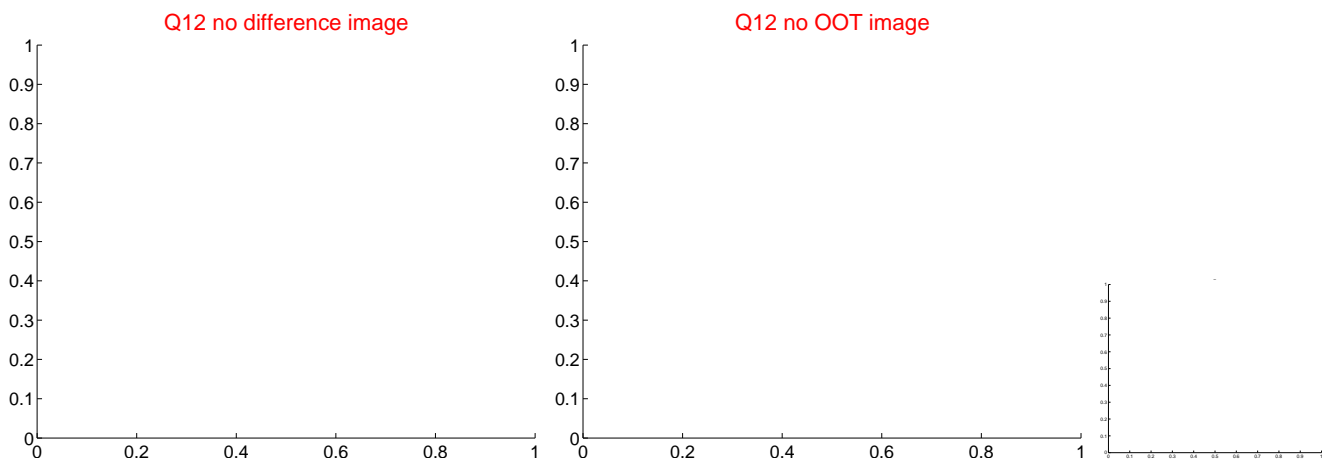
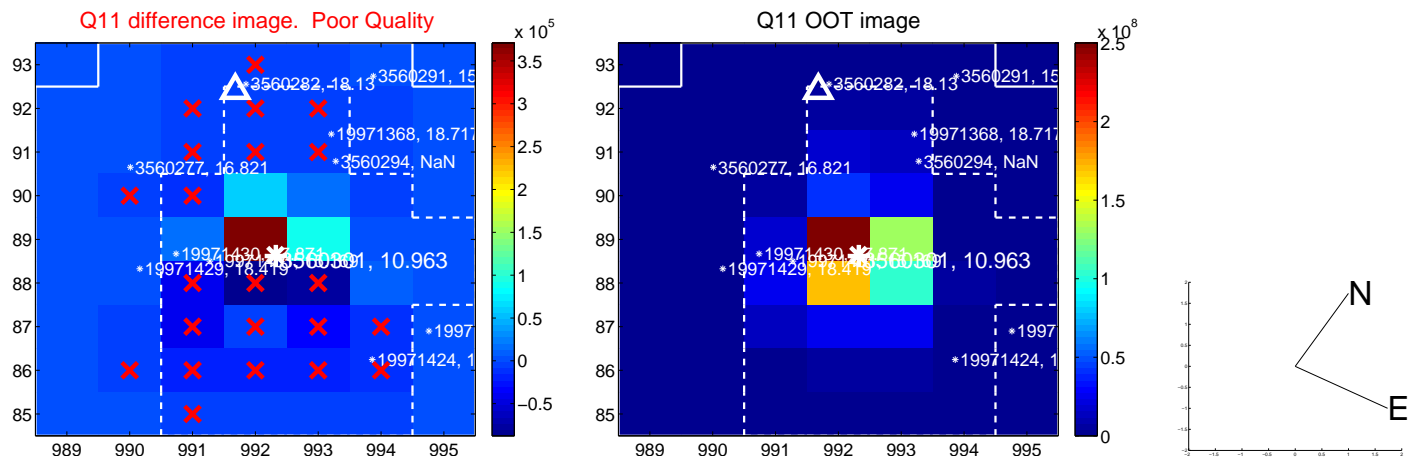
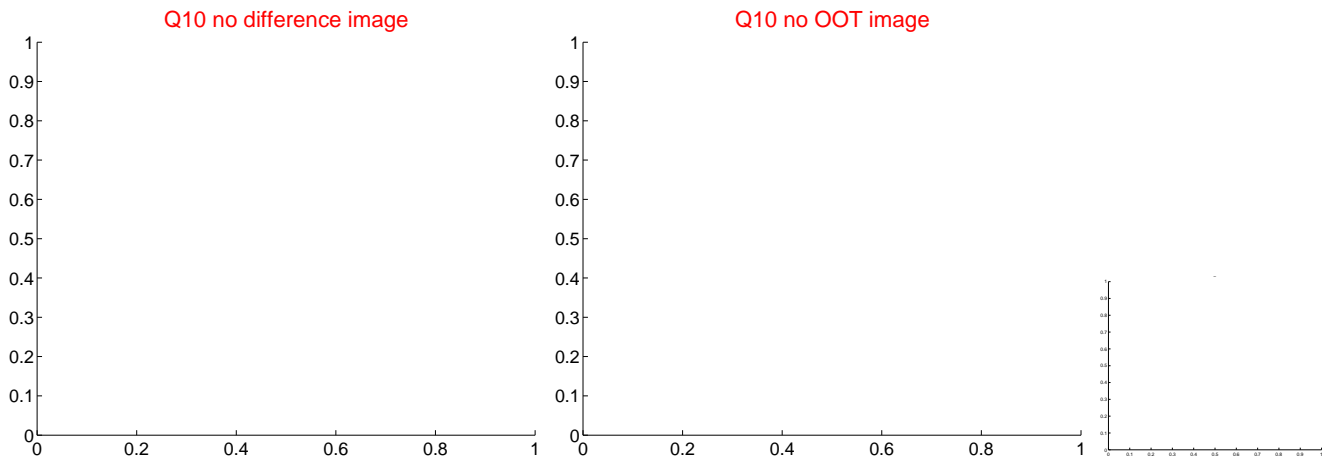
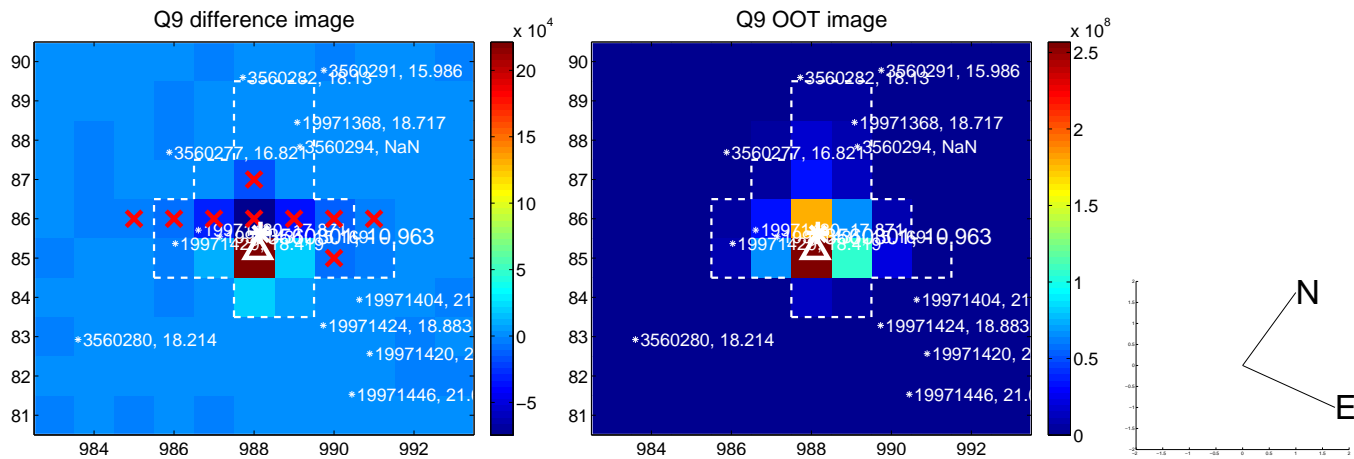
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



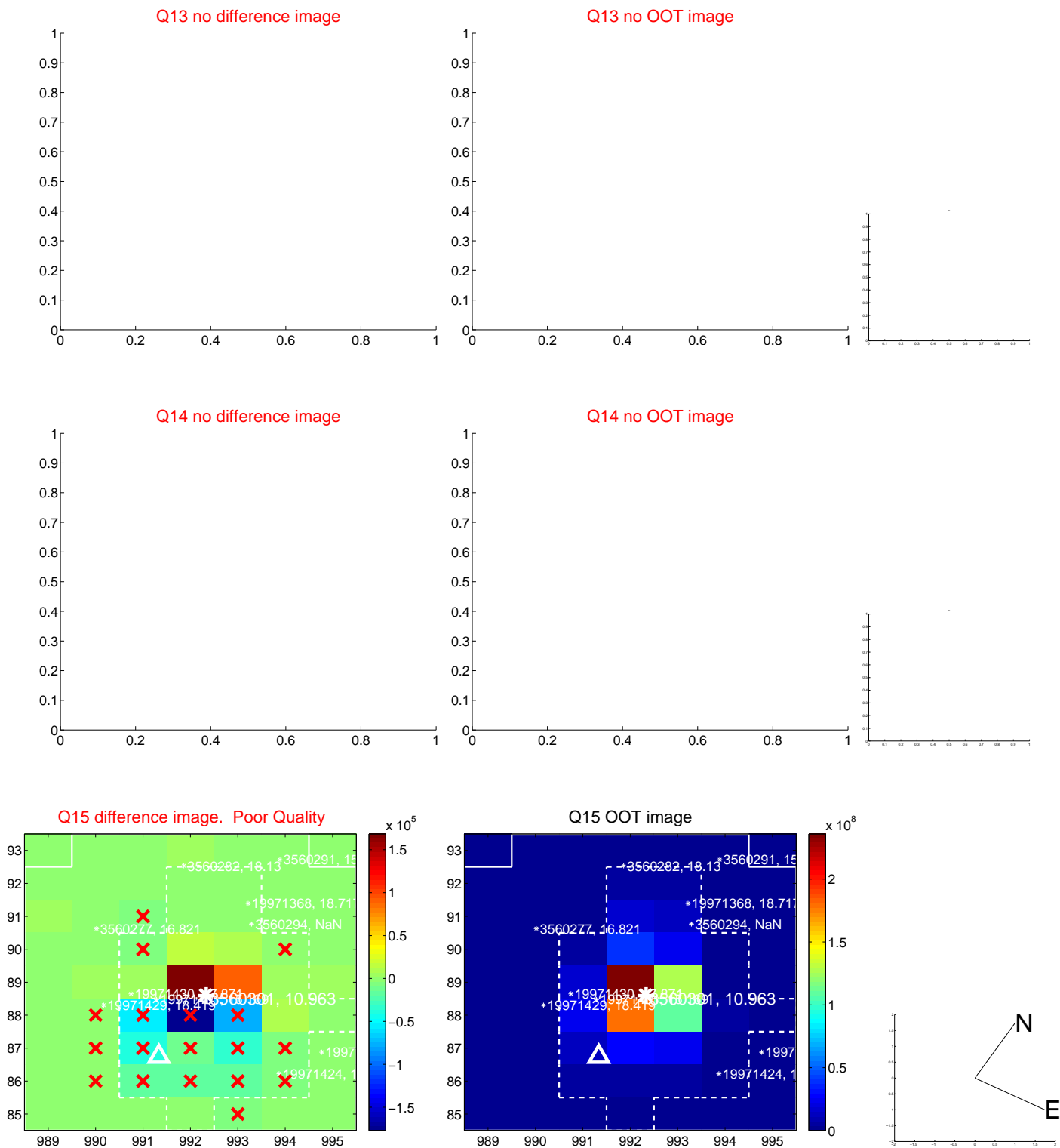
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

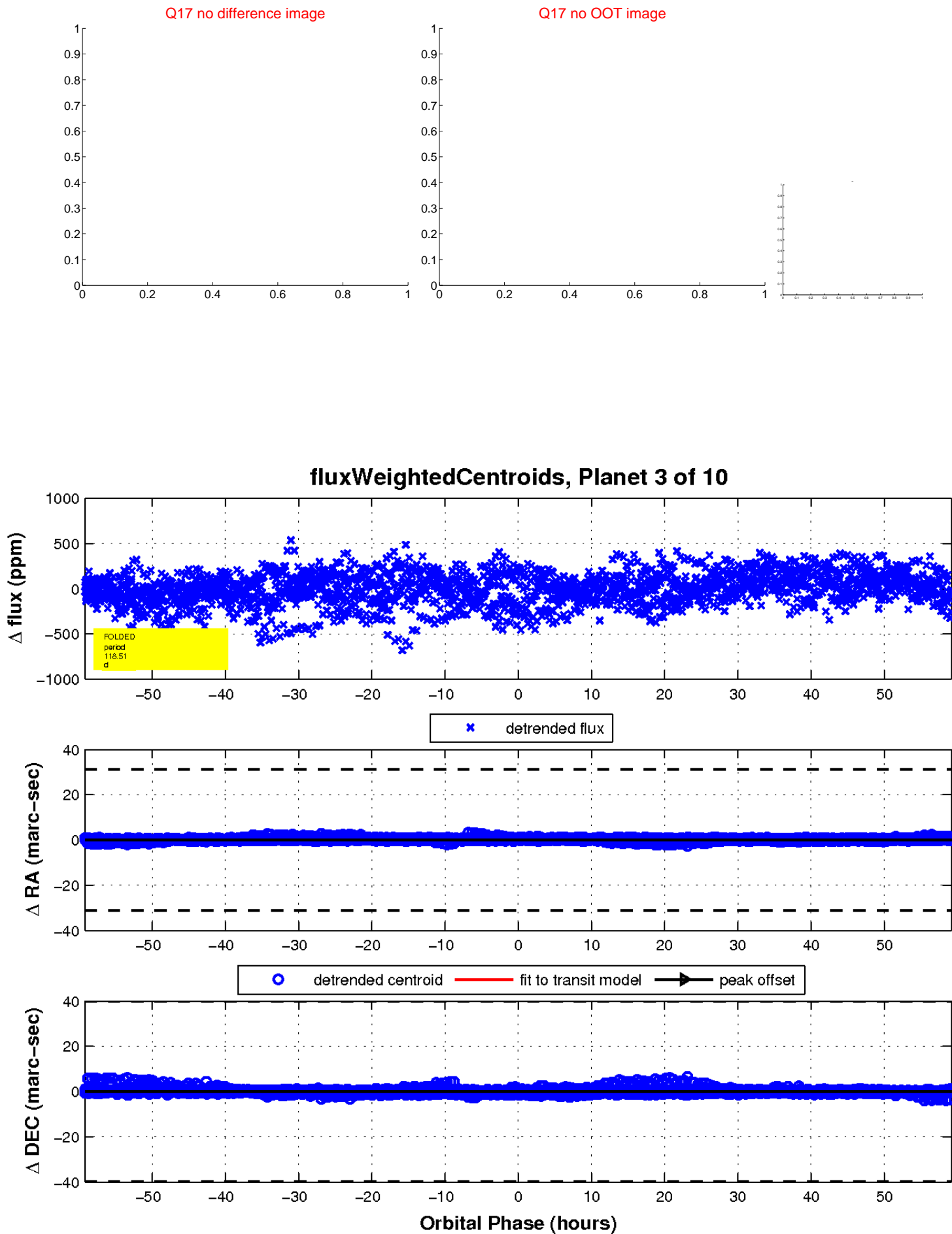


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



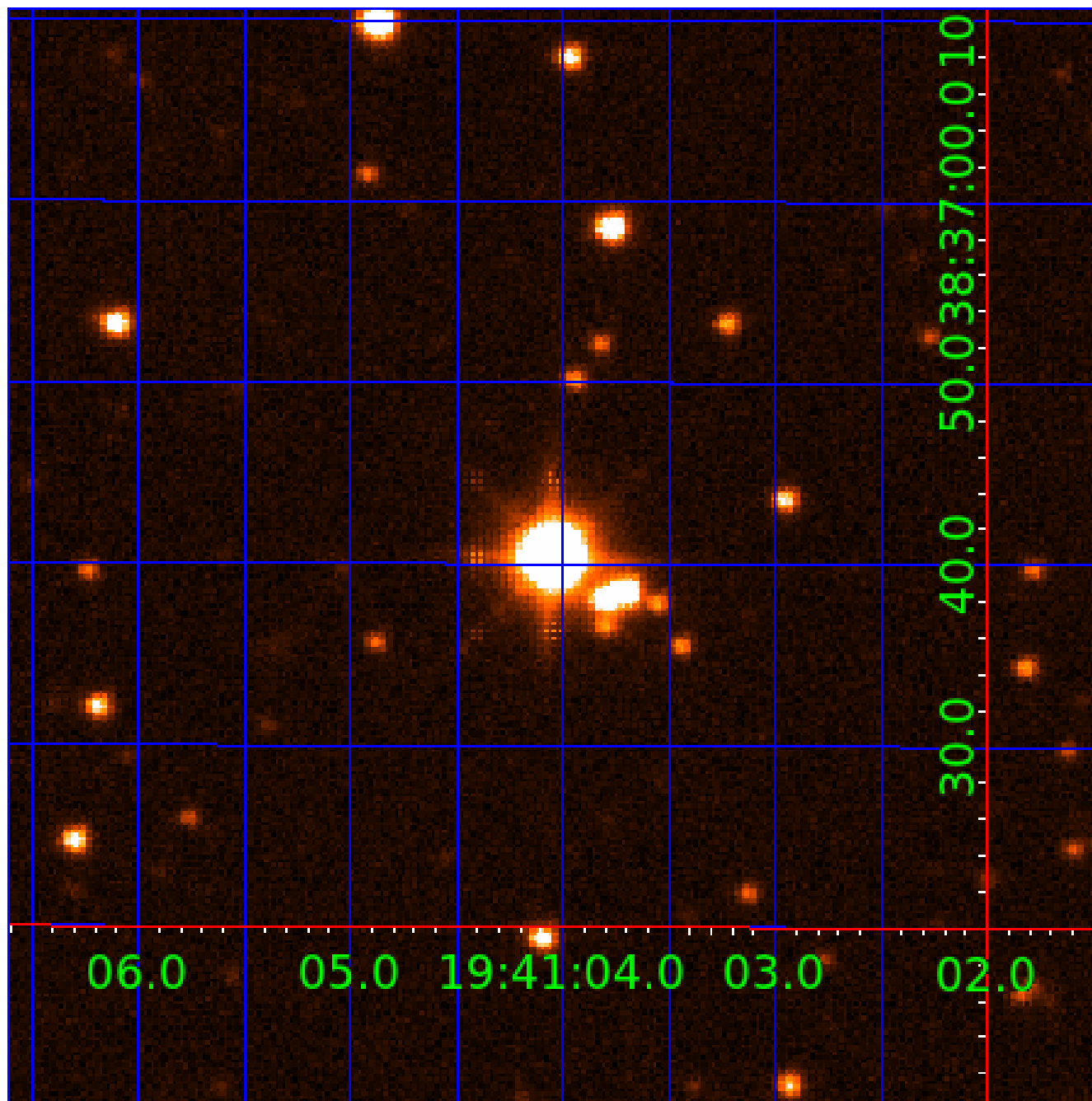


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## KIC 003560301

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003560301-01	OBS	0968.01	4.650516	135.703516	48.0	14.378	13.4	11.0	3.48	6980	2.84	6159.33
003560301-02	OBS	No	4.649908	133.451011	83.9	16.883	14.4	16.5	3.48	6980	5.57	6160.41
003560301-03	OBS	No	118.507880	246.508723	514.3	19.733	25.7	16.3	3.48	6980	15.00	82.14
003560301-04	OBS	No	59.120616	149.996311	153.3	5.042	15.3	7.1	3.48	6980	5.25	207.59
003560301-05	OBS	No	53.692713	134.661858	214.8	5.861	12.2	9.5	3.48	6980	5.48	236.04
003560301-06	OBS	No	43.782493	169.101103	77.0	0.639	9.8	1.8	3.48	6980	3.30	309.84
003560301-07	OBS	No	52.781384	166.241089	260.9	3.022	10.4	9.6	3.48	6980	6.31	241.49
003560301-08	OBS	No	40.144553	134.948745	254.5	2.914	10.0	10.3	3.48	6980	6.57	347.83
003560301-09	OBS	No	174.864198	156.170068	276.4	6.035	9.6	10.4	3.48	6980	6.72	48.90
003560301-10	OBS	No	44.432964	151.915392	186.8	5.412	9.8	9.0	3.48	6980	5.09	303.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003560301-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
003560301-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
003560301-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003560301-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
003560301-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

**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 003560301-04

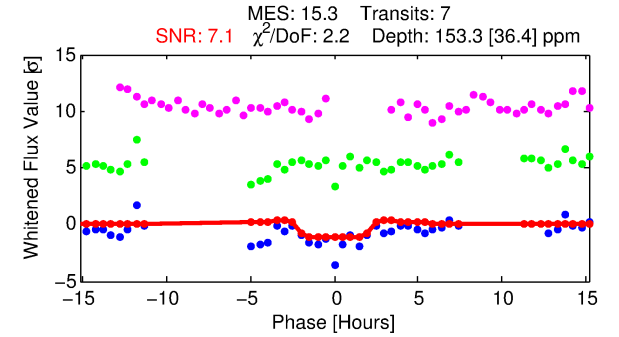
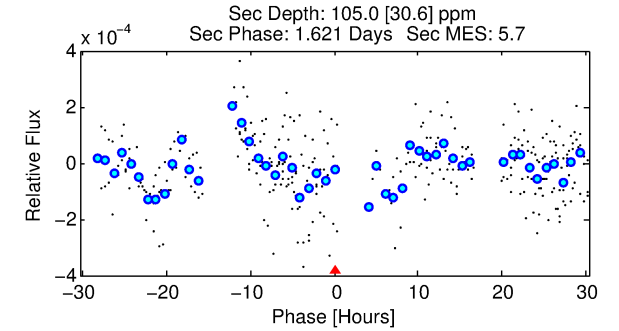
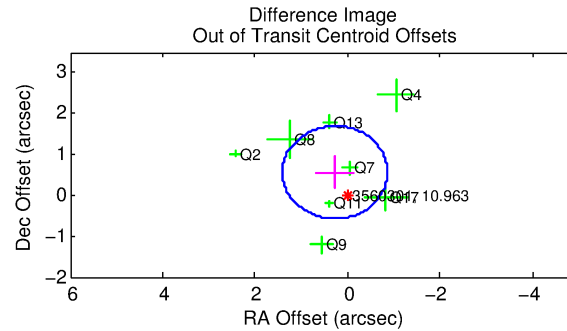
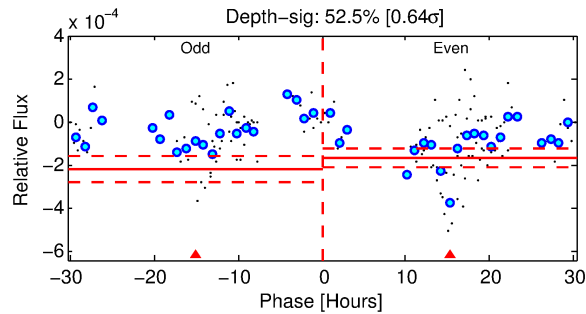
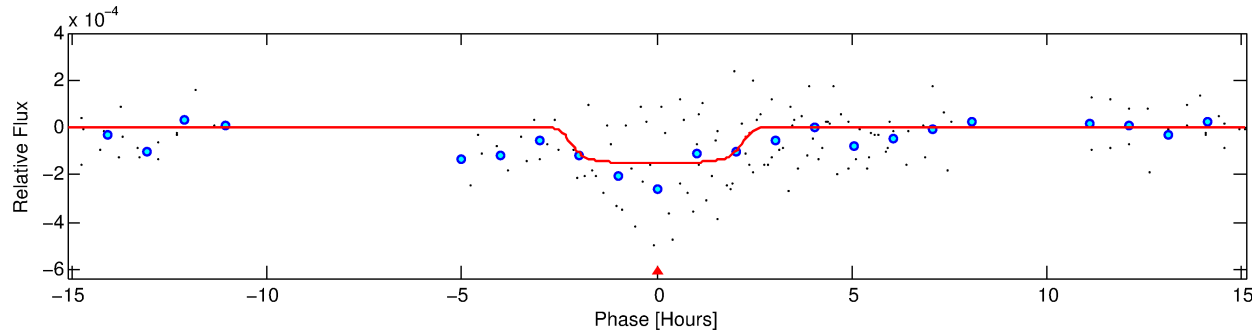
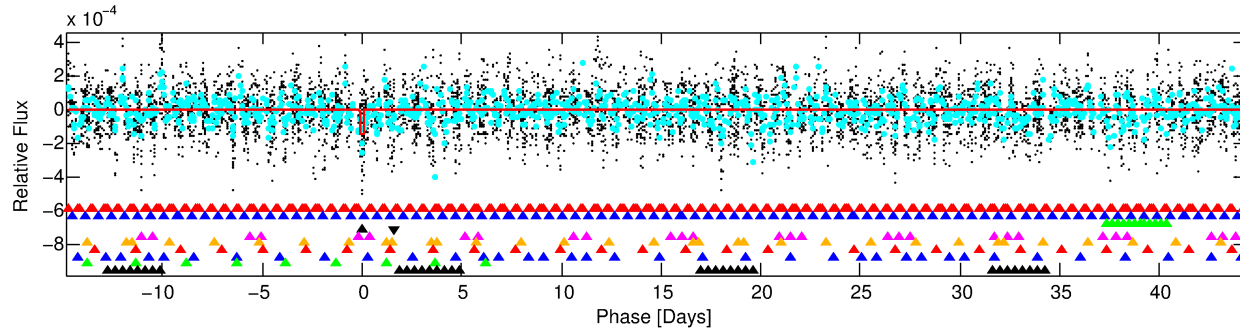
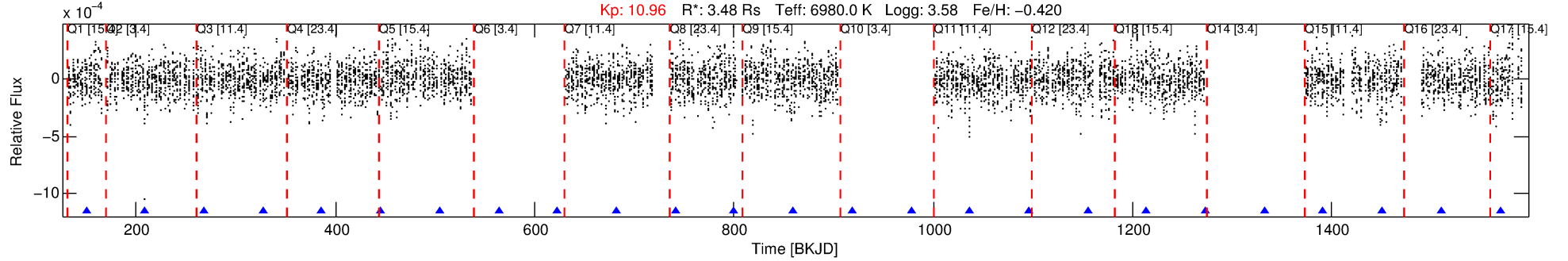
No Significant Match Found

# DV One-Page Summary

KIC: 3560301 Candidate: 4 of 10 Period: 59.121 d

KOI: K00968 Corr: No Ephemeris Match

Kp: 10.96 R\*: 3.48 Rs Teff: 6980.0 K Logg: 3.58 Fe/H: -0.420



## DV Fit Results:

Period = 59.12062 [0.00123] d  
Epoch = 149.9963 [0.0193] BKJD  
Rp/R\* = 0.0138 [0.0035]  
a/R\* = 32.51 [41.32]  
b = 0.95 [0.14]  
Seff = 207.59 [128.99]  
Teq = 968 [150] K  
Rp = 5.25 [2.55] Re  
a = 0.3524 [0.1364] AU  
Ag = 260.58 [218.68] [1.19σ]  
Teffp = 6012 [893] K [5.57σ]

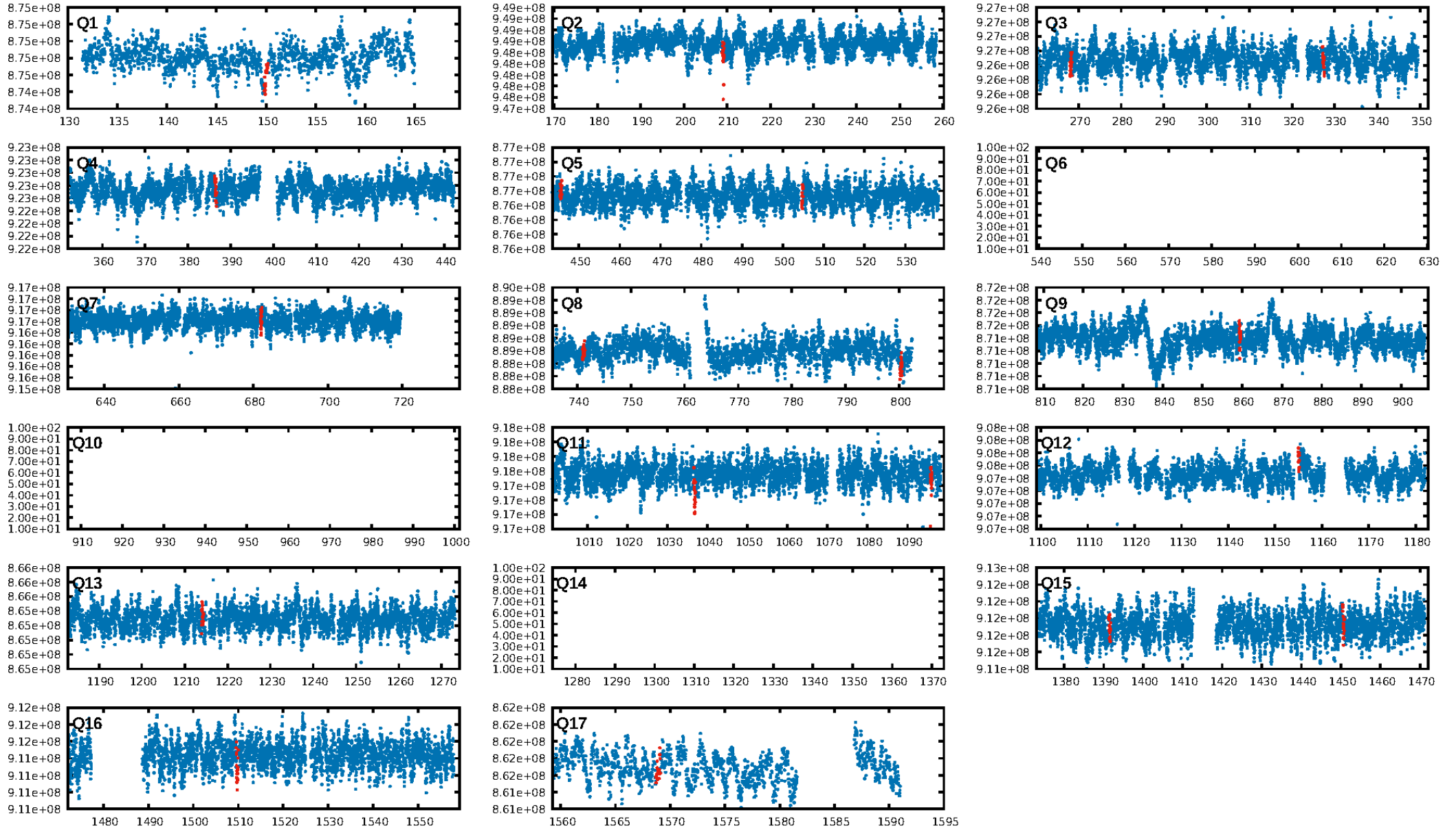
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [16.85σ]  
LongPeriod-sig: 100.0% [69.98σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 3.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: -2.621  
Centroid-sig: 21.7%  
Centroid-so: 0.431 arcsec [0.85σ]  
OotOffset-rm: 0.627 arcsec [1.66σ]  
KicOffset-rm: 0.604 arcsec [1.47σ]  
OotOffset-st: 1/2/2/3 [8]  
KicOffset-st: 1/2/2/3 [8]  
DiffImageQuality-fgm: 0.50 [4/8]  
DiffImageOverlap-fno: 0.42 [5/12]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:26:31 Z

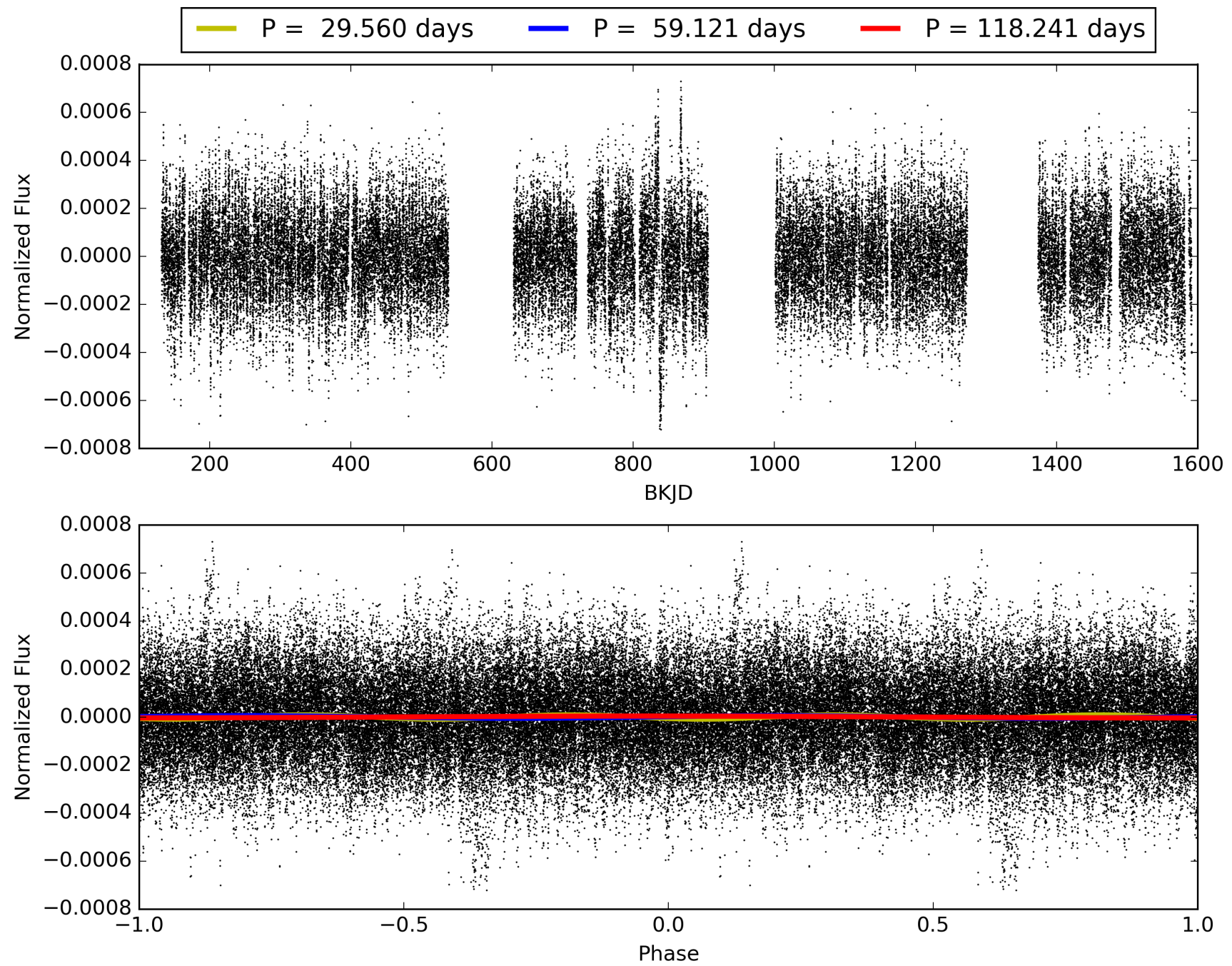
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003560301-04, PDC Light Curves



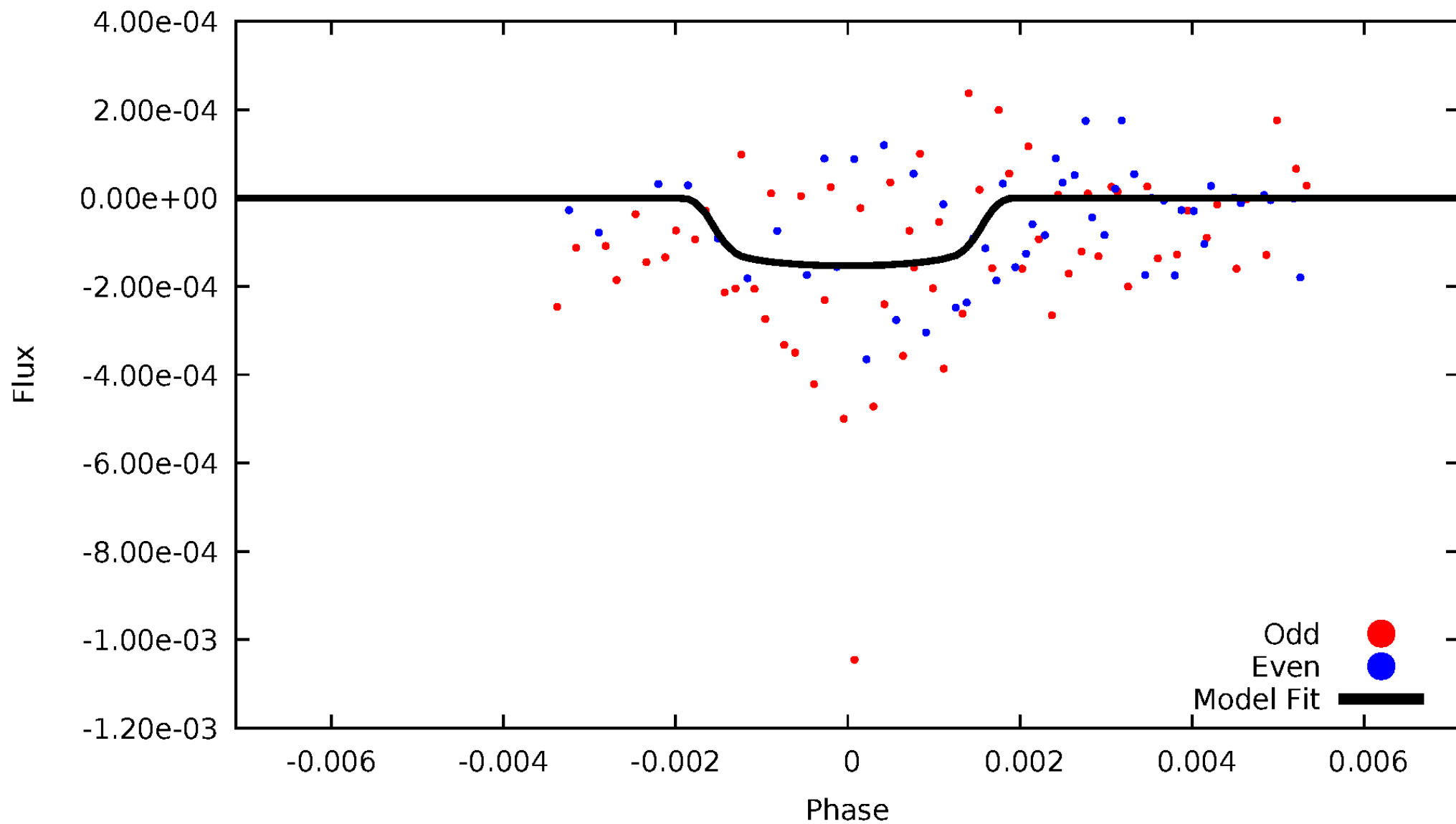


TCE 003560301-04



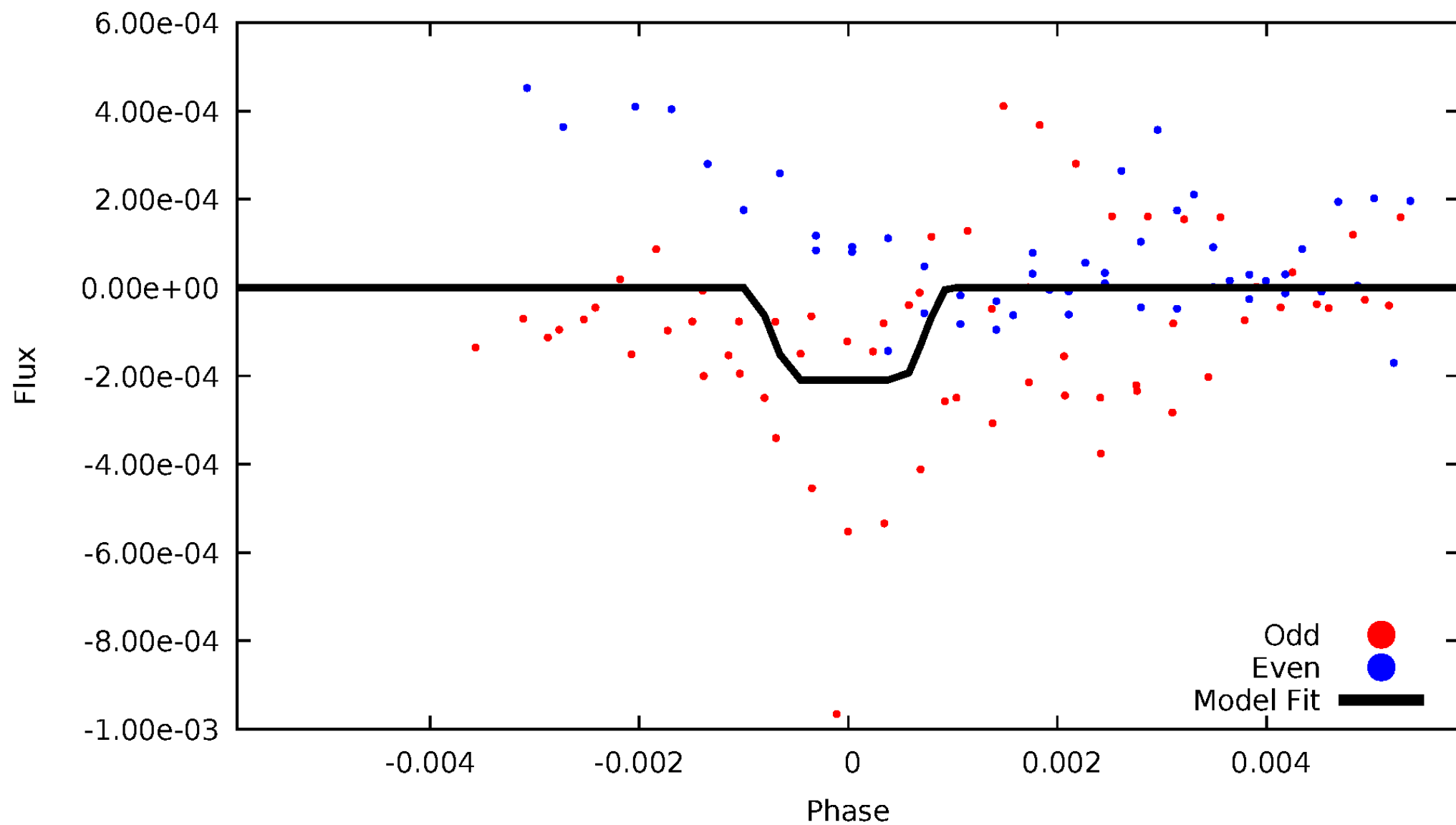
# DV Odd/Even

TCE 003560301-04



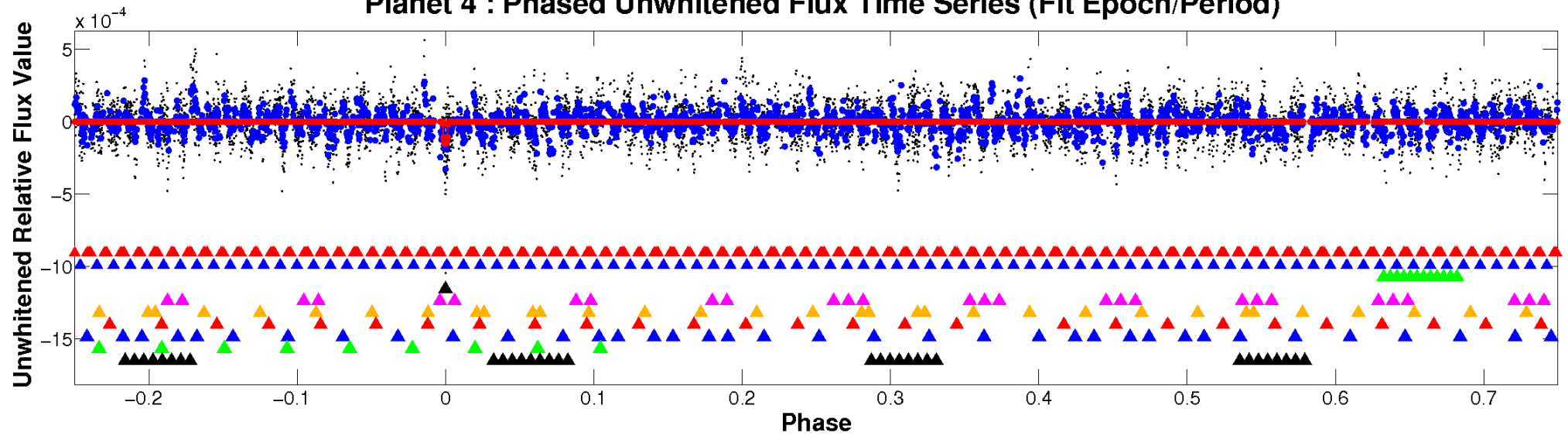
# ALT Odd/Even

TCE 003560301-04

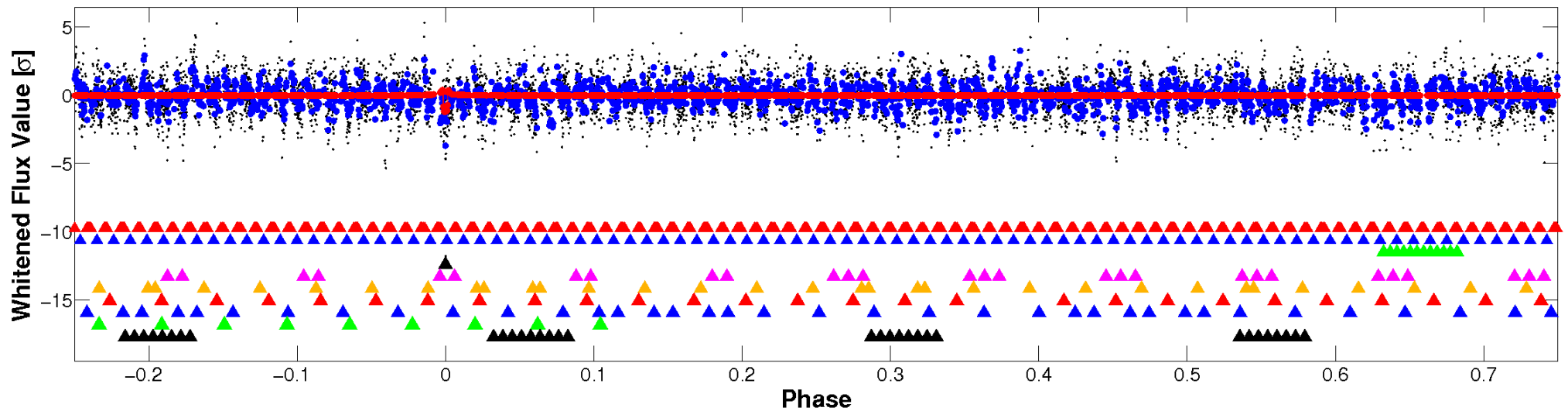


# Non-Whitened Vs. Whitened Light Curve

## Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

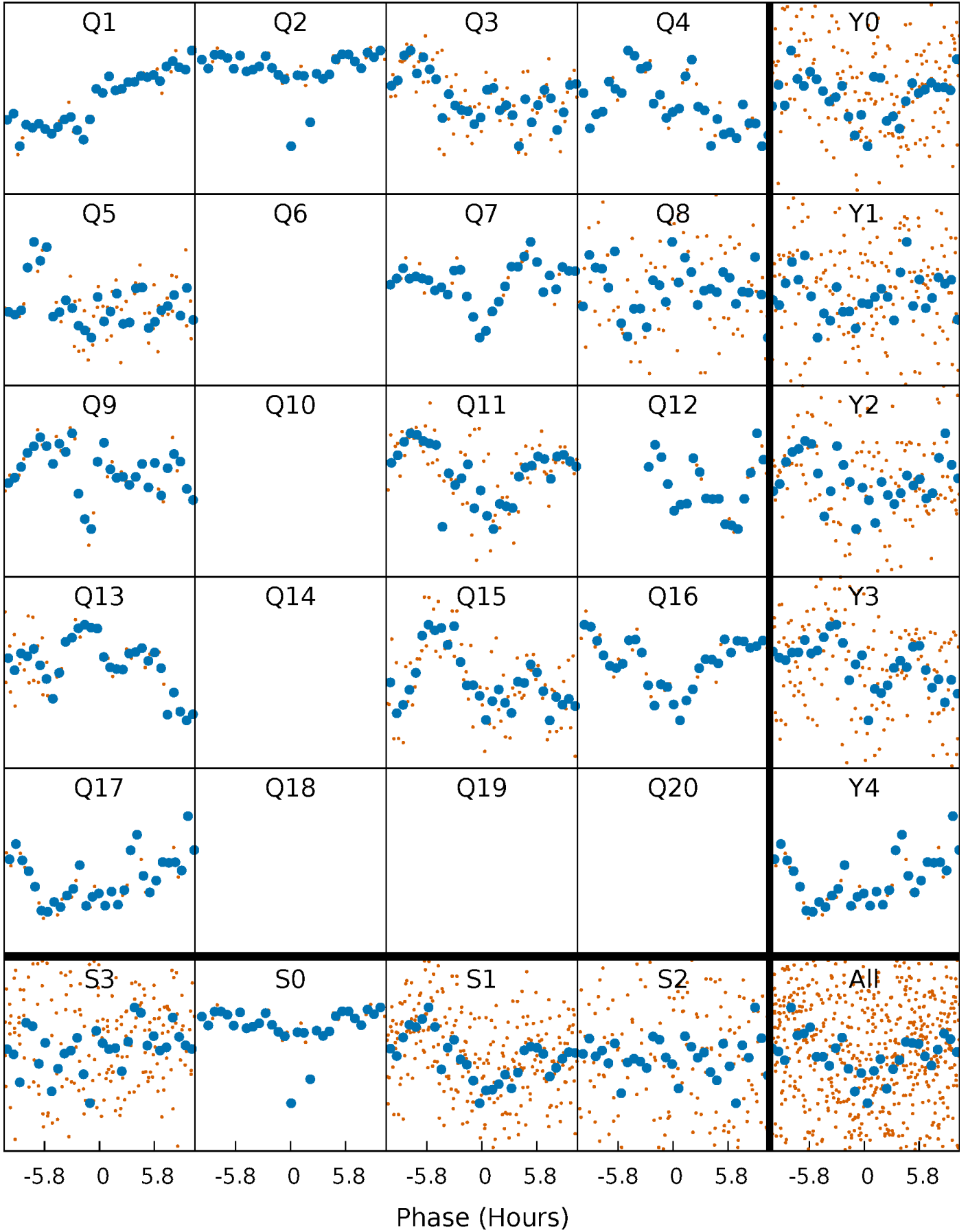


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



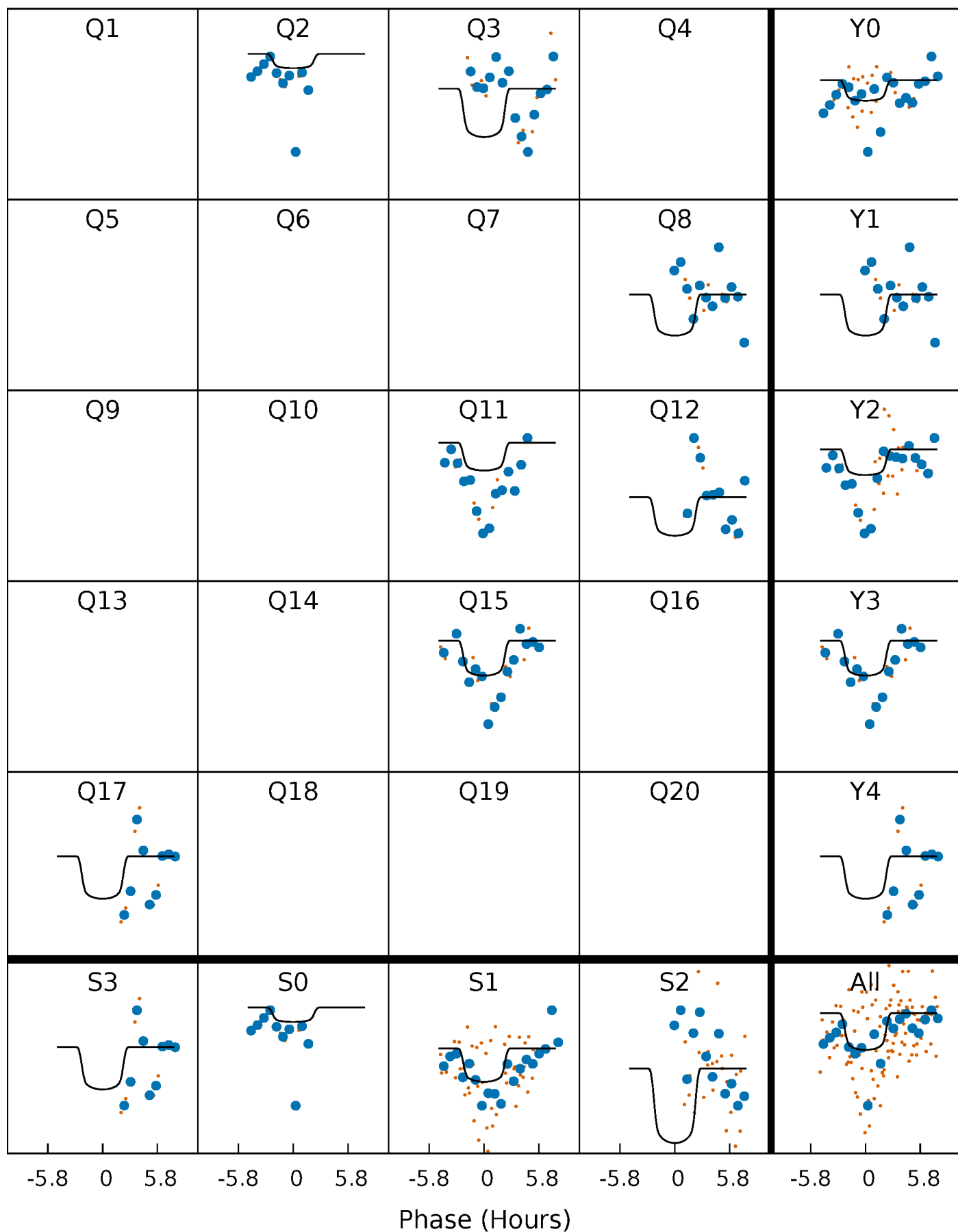
# PDC Quarter-Phased Transit Curves

TCE 003560301-04   P= 59.120616 Days    $T_0=149.996311$  (BKJD)



# DV Quarter-Phased Transit Curves

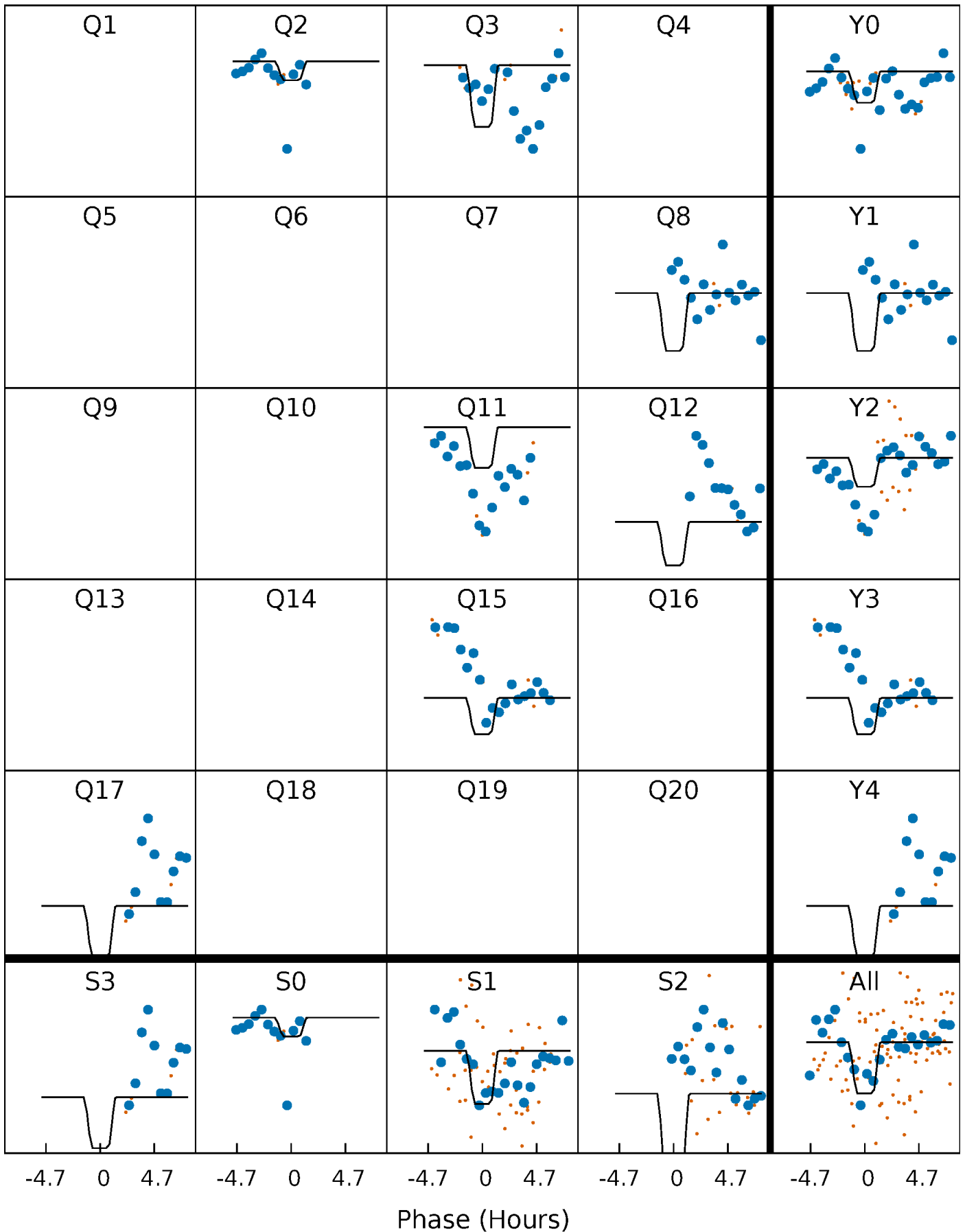
TCE 003560301-04 P= 59.120616 Days  $T_0=149.996311$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

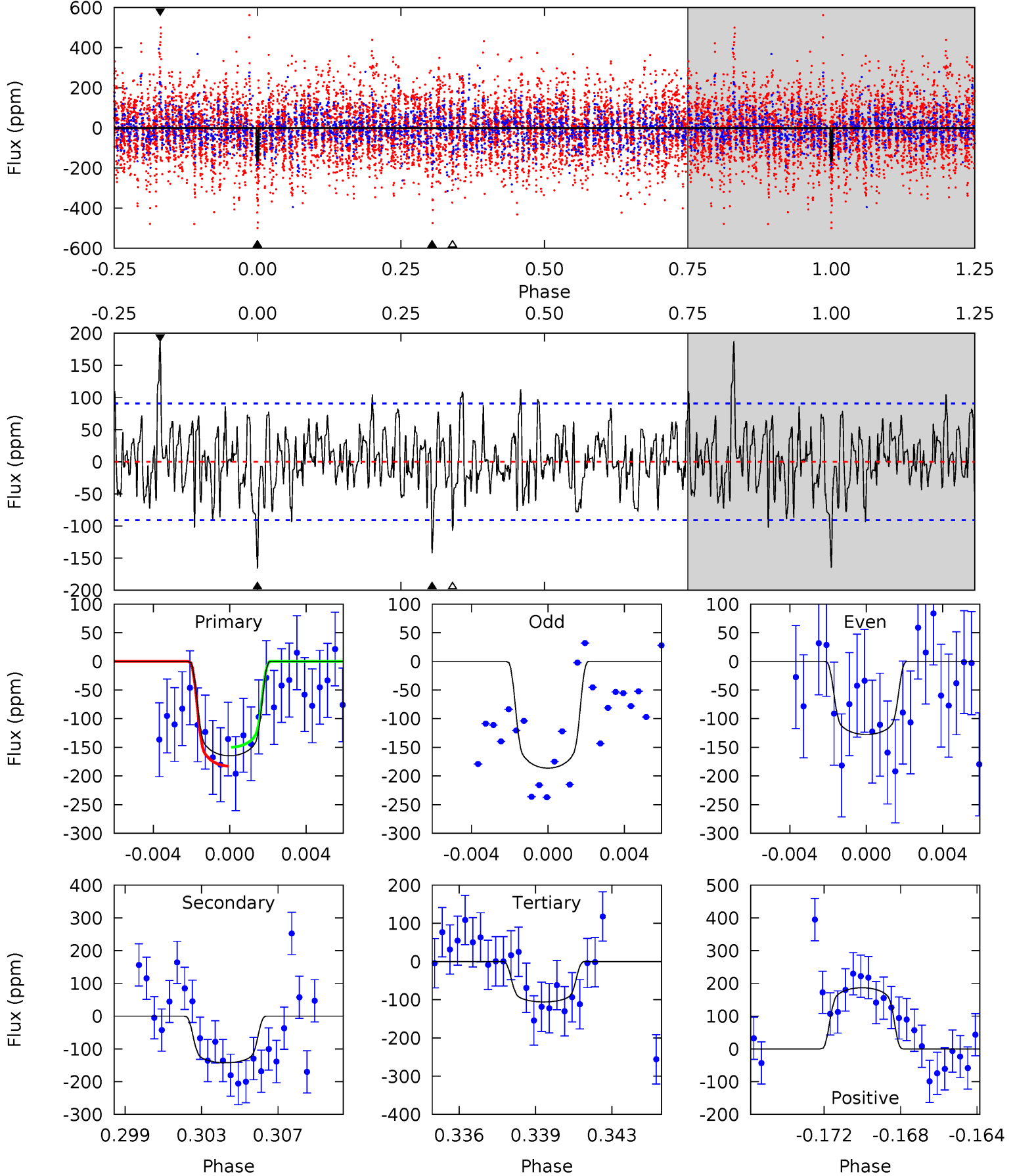
TCE 003560301-04 P= 59.119621 Days  $T_0=150.008560$  (BKJD)



# DV Model-Shift Uniqueness Test

003560301-04, P = 59.120616 Days, E = 90.875695 Days

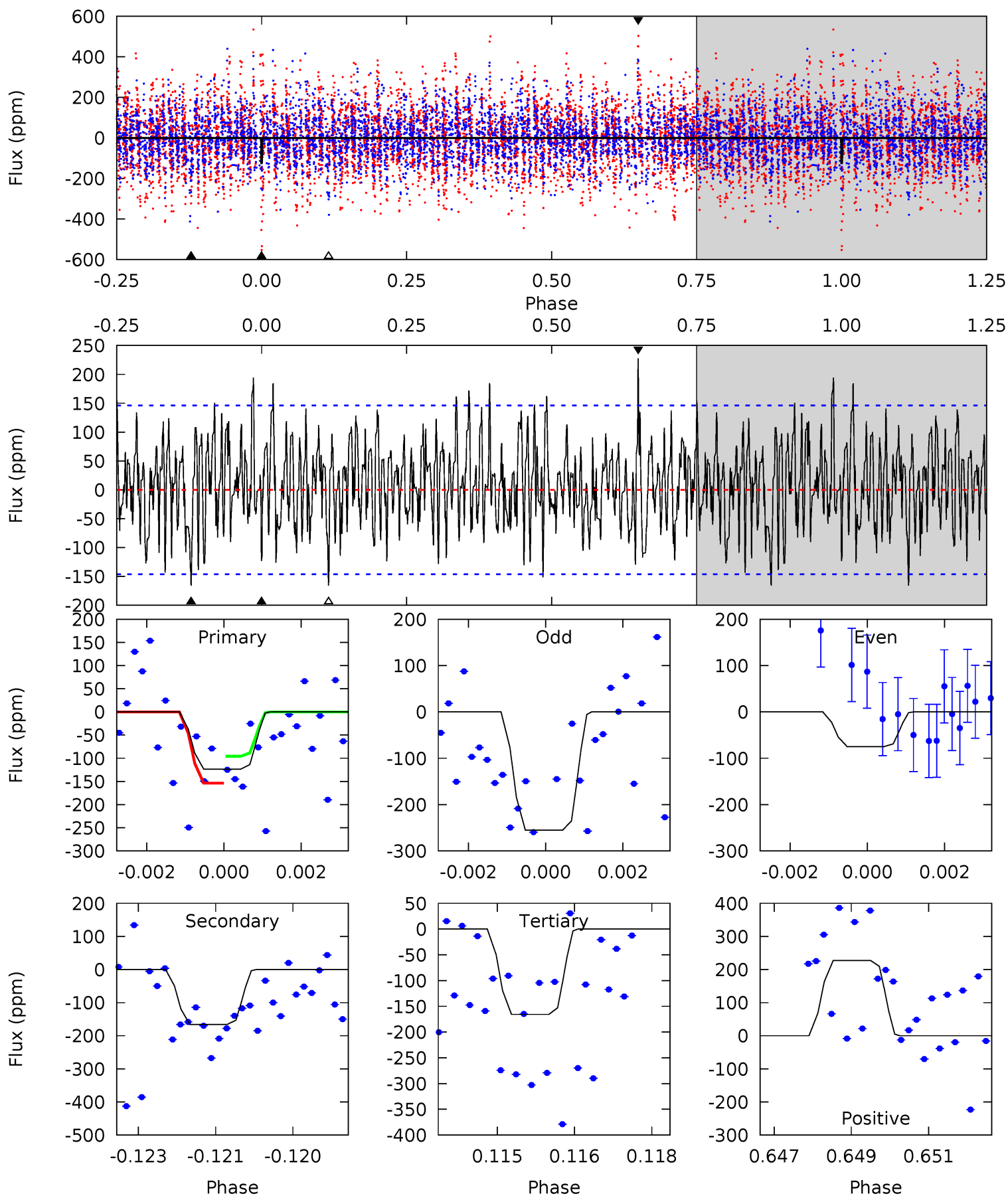
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.46	8.17	6.07	10.7	5.22	2.91	2.26	3.39	-1.26	2.10	-2.54	1.63	0.75	0.53	0.93



# Alt Model-Shift Uniqueness Test

003560301-04, P = 59.119621 Days, E = 90.888939 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
4.51	6.07	6.07	8.32	5.35	3.13	2.23	-1.56	-3.81	0.00	-2.25	3.26	1.92	0.58	1.04



### Stellar Parameters For KIC 003560301

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6980^{+167}_{-230}$	$3.577^{+0.352}_{-0.088}$	$-0.420^{+0.350}_{-0.250}$	$3.482^{+0.362}_{-1.447}$	$1.671^{+0.203}_{-0.377}$	$0.056^{+0.150}_{-0.012}$
	+2%/-3%	+10%/-2%	+83%/-60%	+10%/-42%	+12%/-23%	+270%/-22%
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 003560301-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-142 \pm 17$	$5.04^{+1.42}_{-1.48}$	$1328^{+68}_{-133}$	$6363^{+1140}_{-679}$	$392^{+369}_{-161}$
Alt.	$-166 \pm 27$	$5.03^{+1.76}_{-1.43}$	$1326^{+73}_{-133}$	$6546^{+1106}_{-770}$	$431^{+422}_{-182}$

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

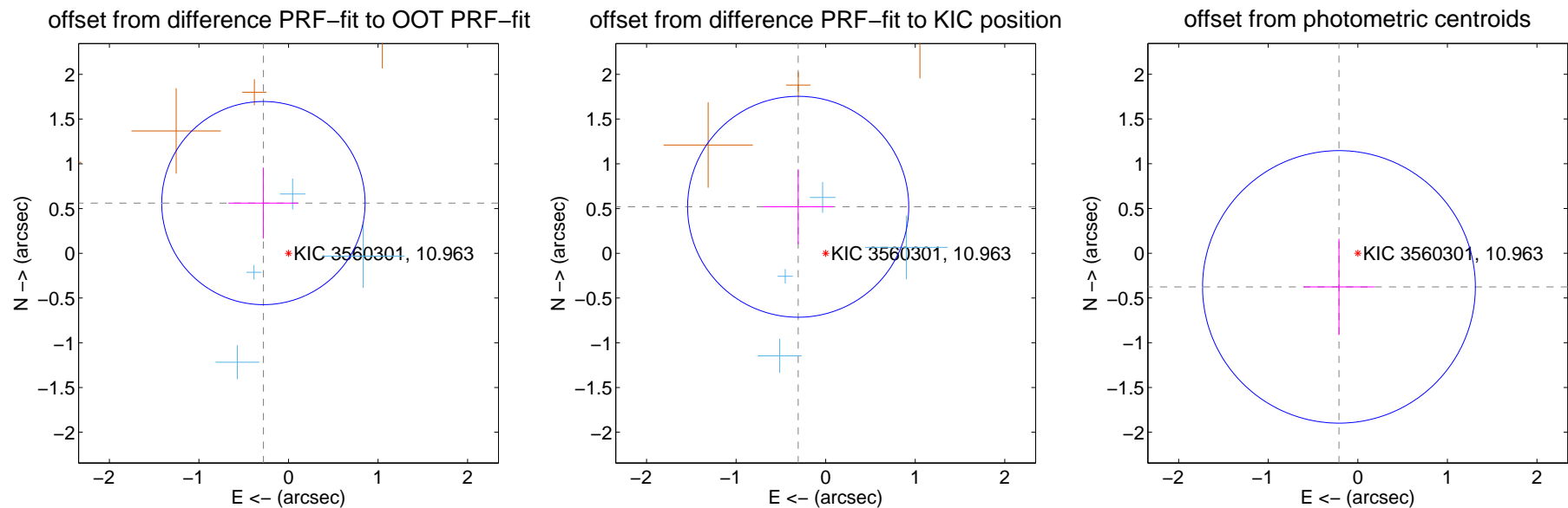
## DV Centroid Data

Supplemental centroid analysis for 003560301-04. **Kepler magnitude: 10.96.** Transit SNR 7.09

There are 4 quarters with good PRF difference image offsets

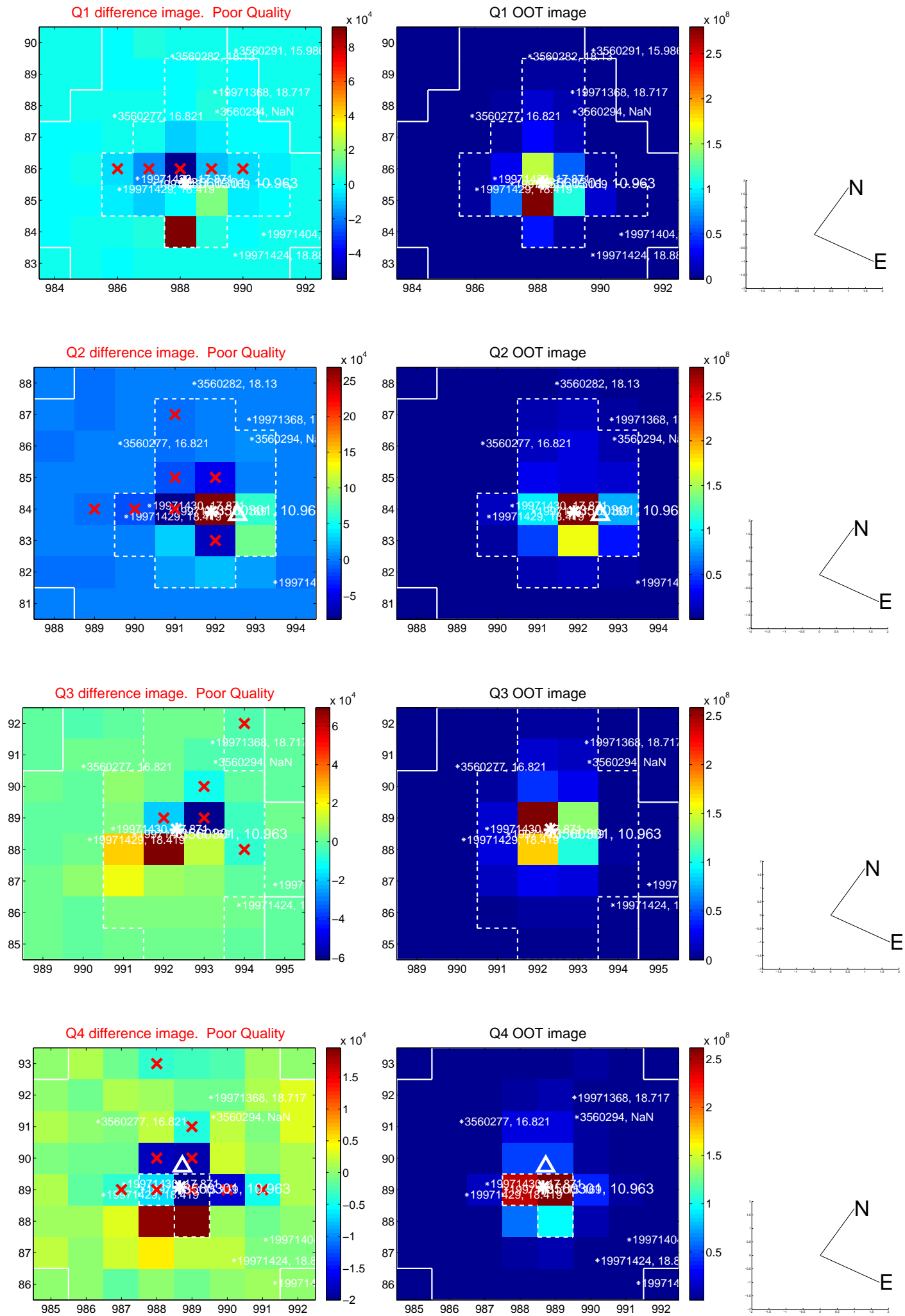
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.627 \pm 0.378$	1.66	$0.280 \pm 0.390$	$0.561 \pm 0.396$
PRF-fit source offset from KIC position	$0.604 \pm 0.411$	1.47	$0.307 \pm 0.392$	$0.520 \pm 0.418$
photometric centroid source offset	$0.43 \pm 0.51$	0.85	$0.21 \pm 0.39$	$-0.38 \pm 0.54$



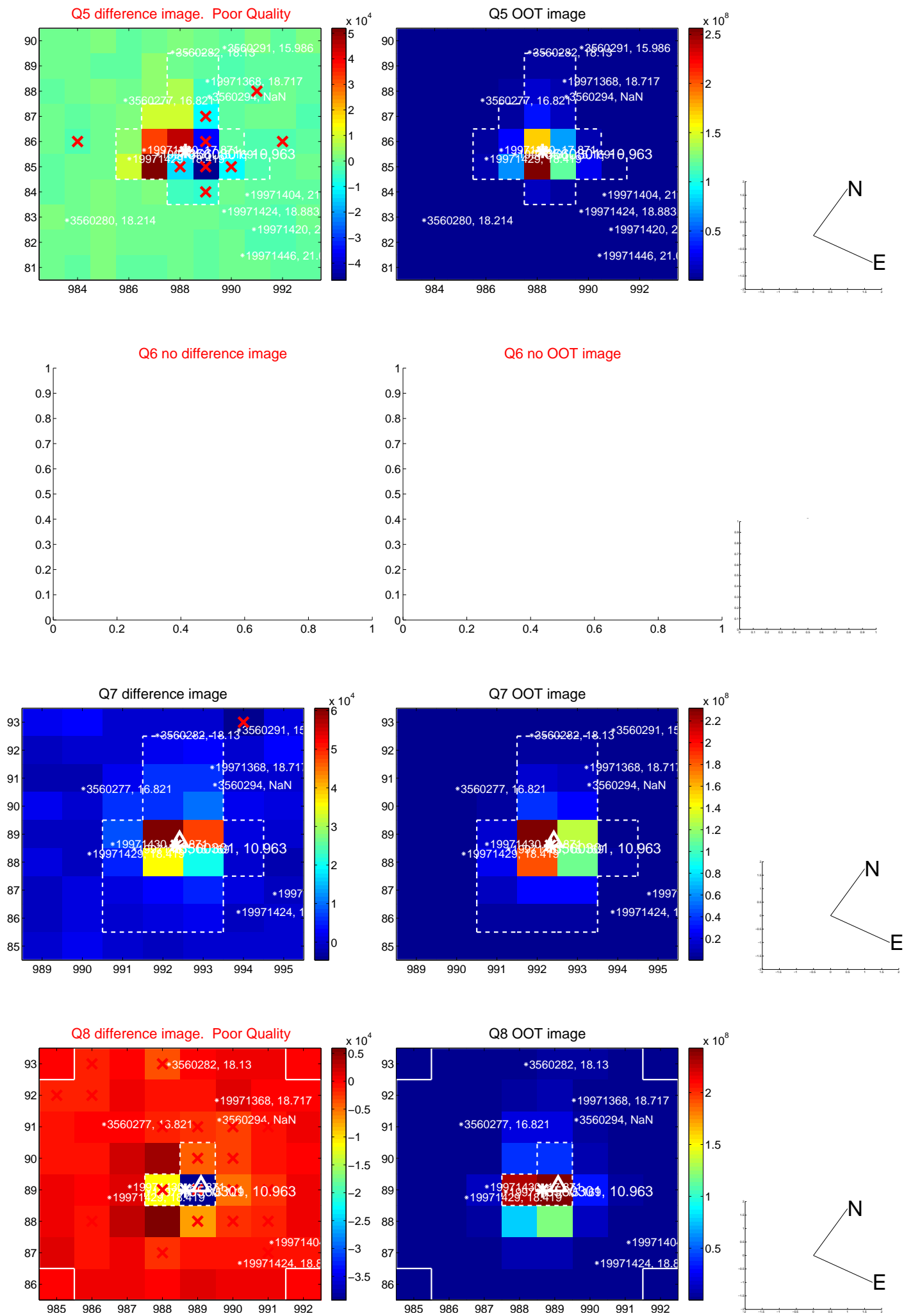
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

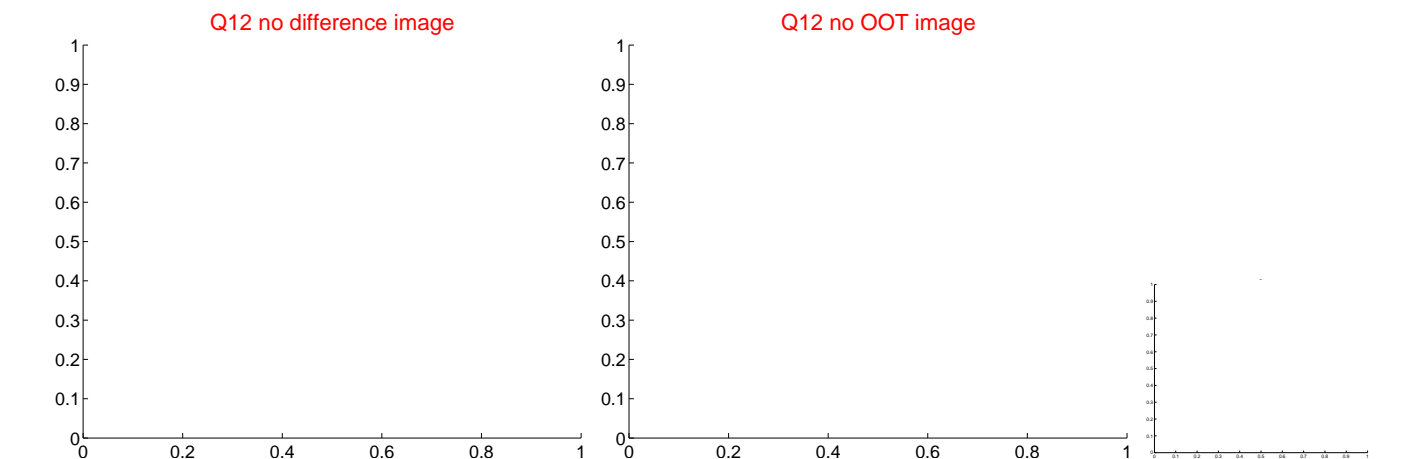
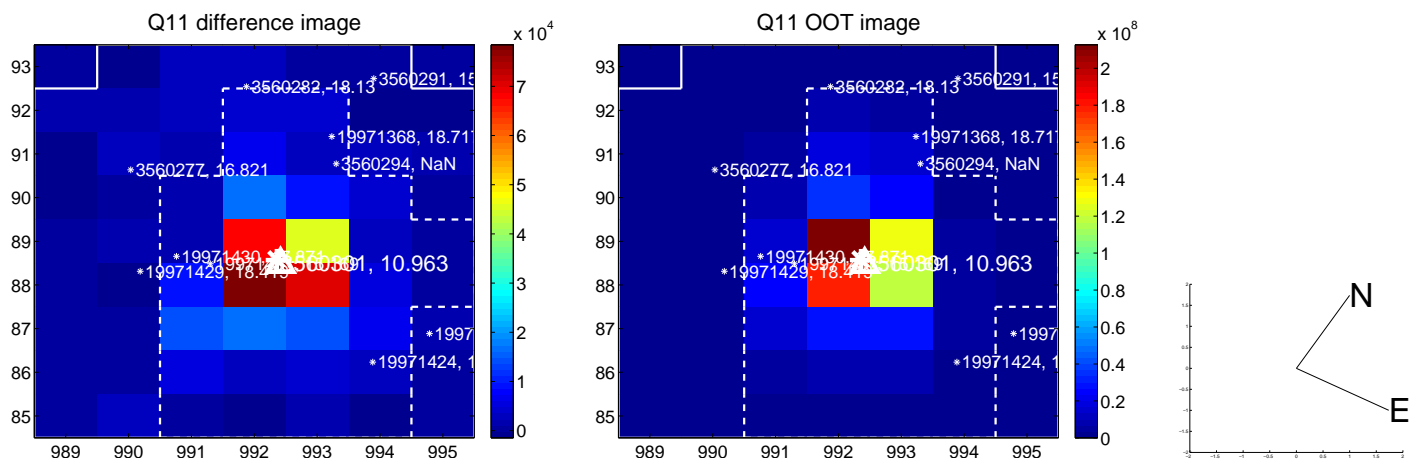
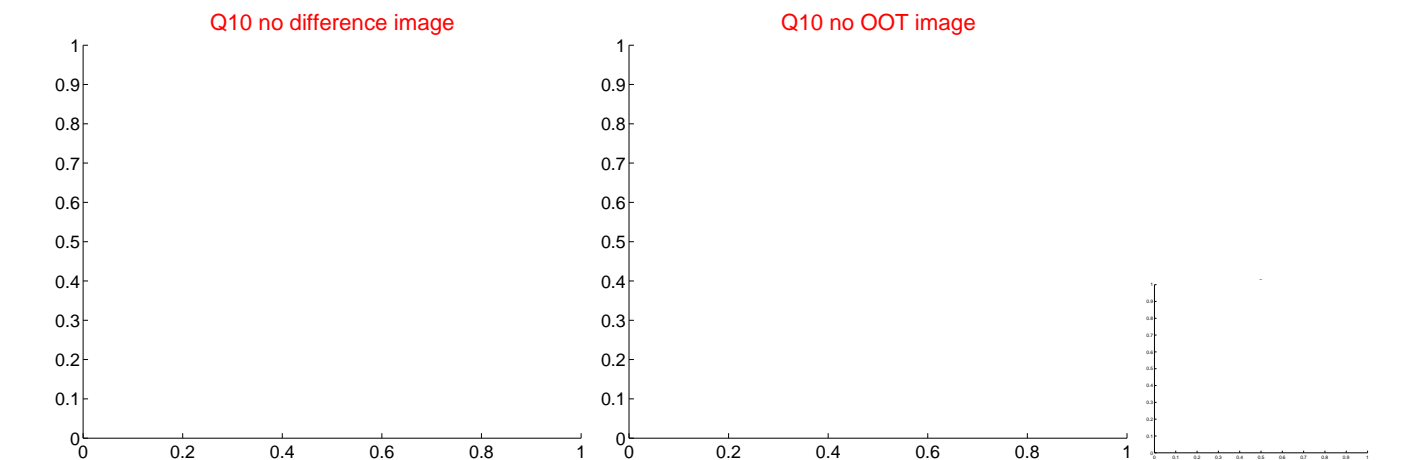
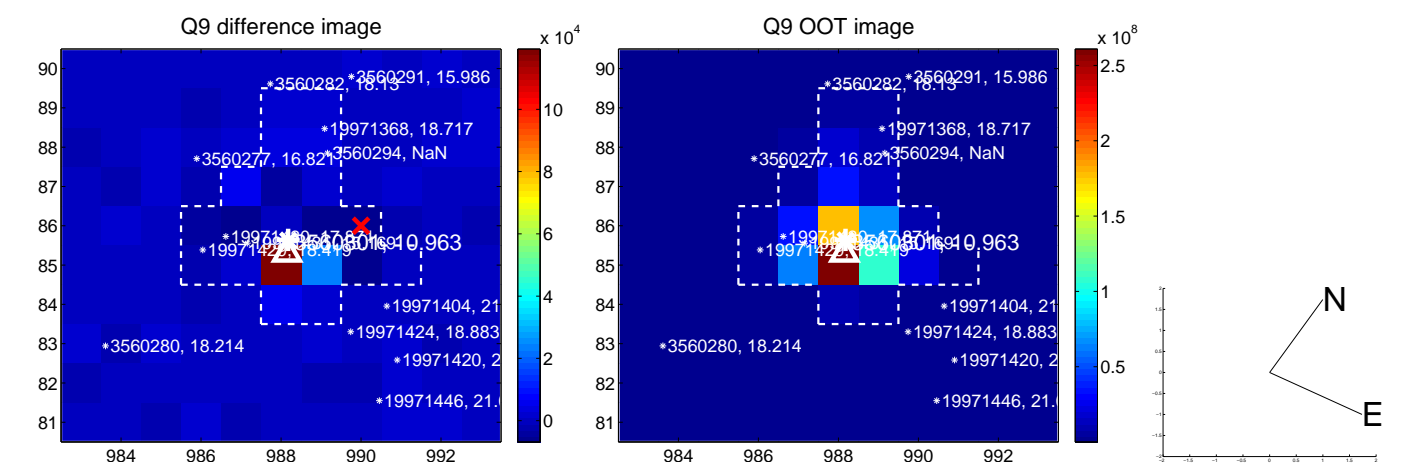




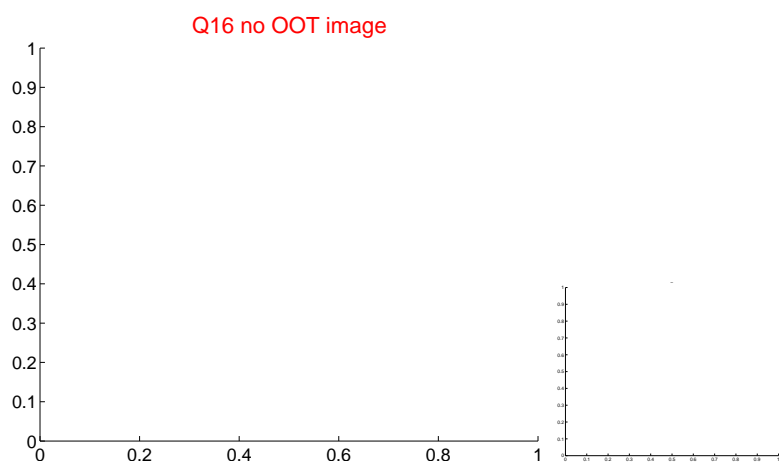
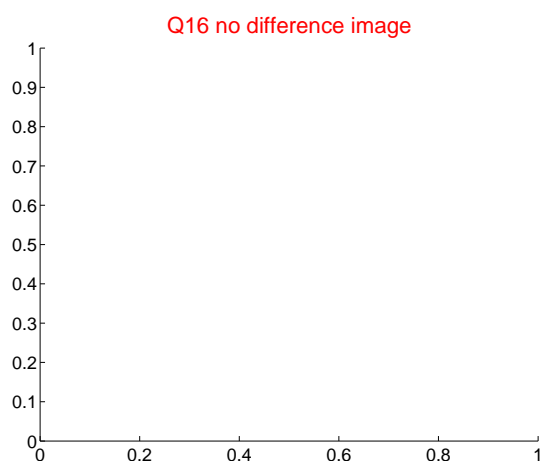
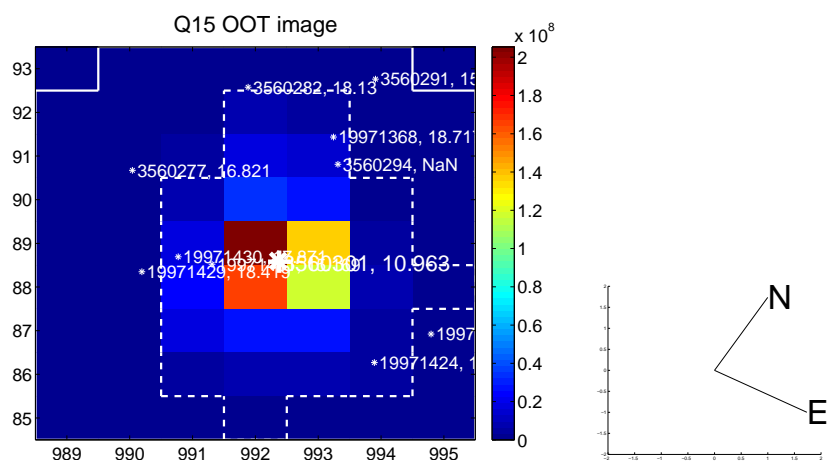
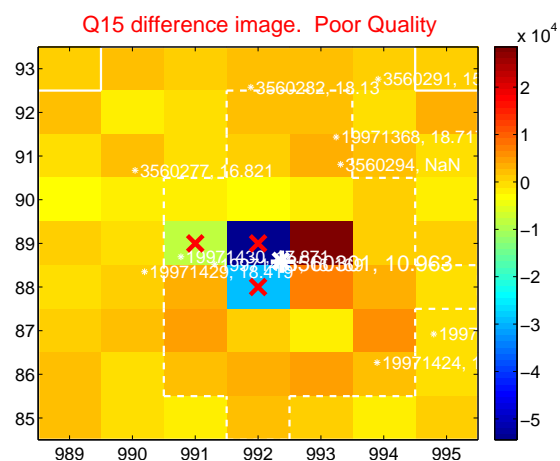
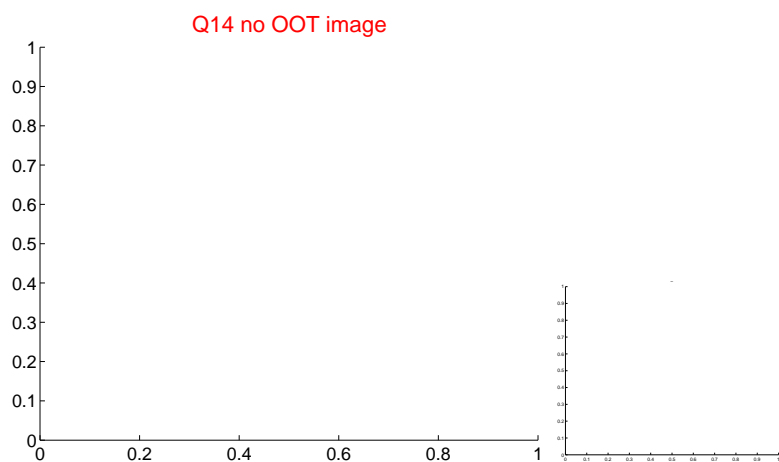
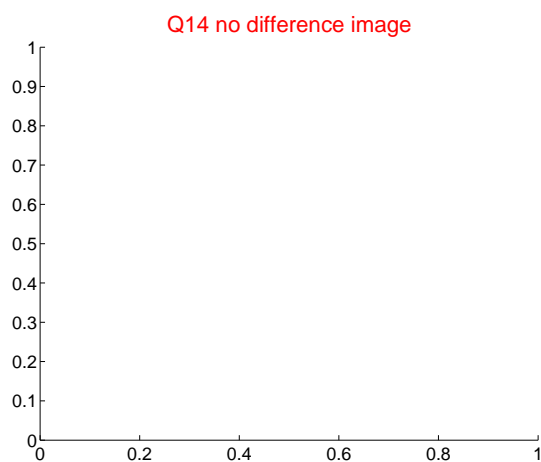
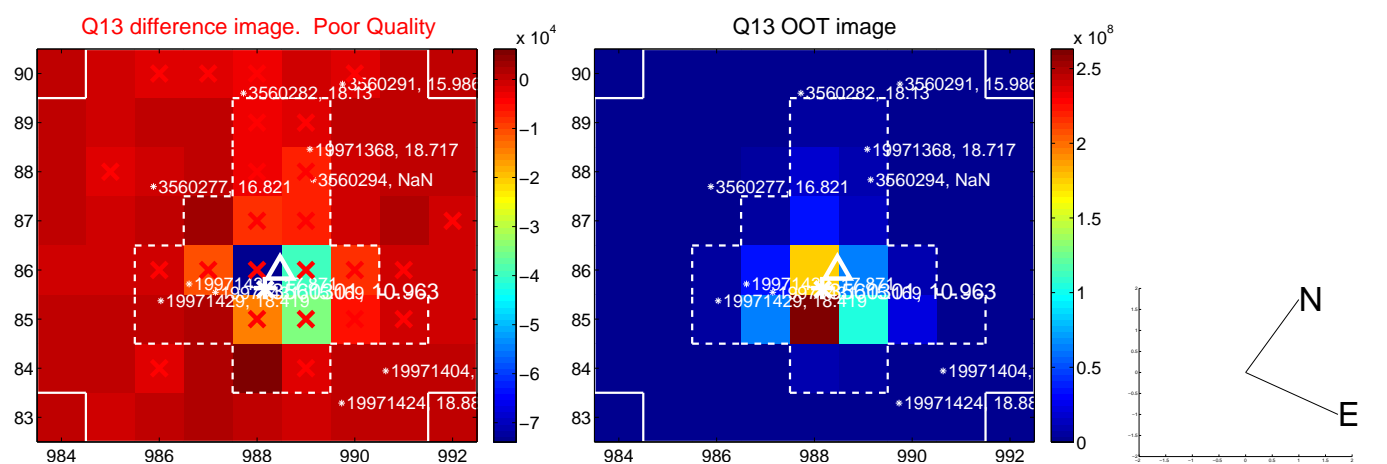
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



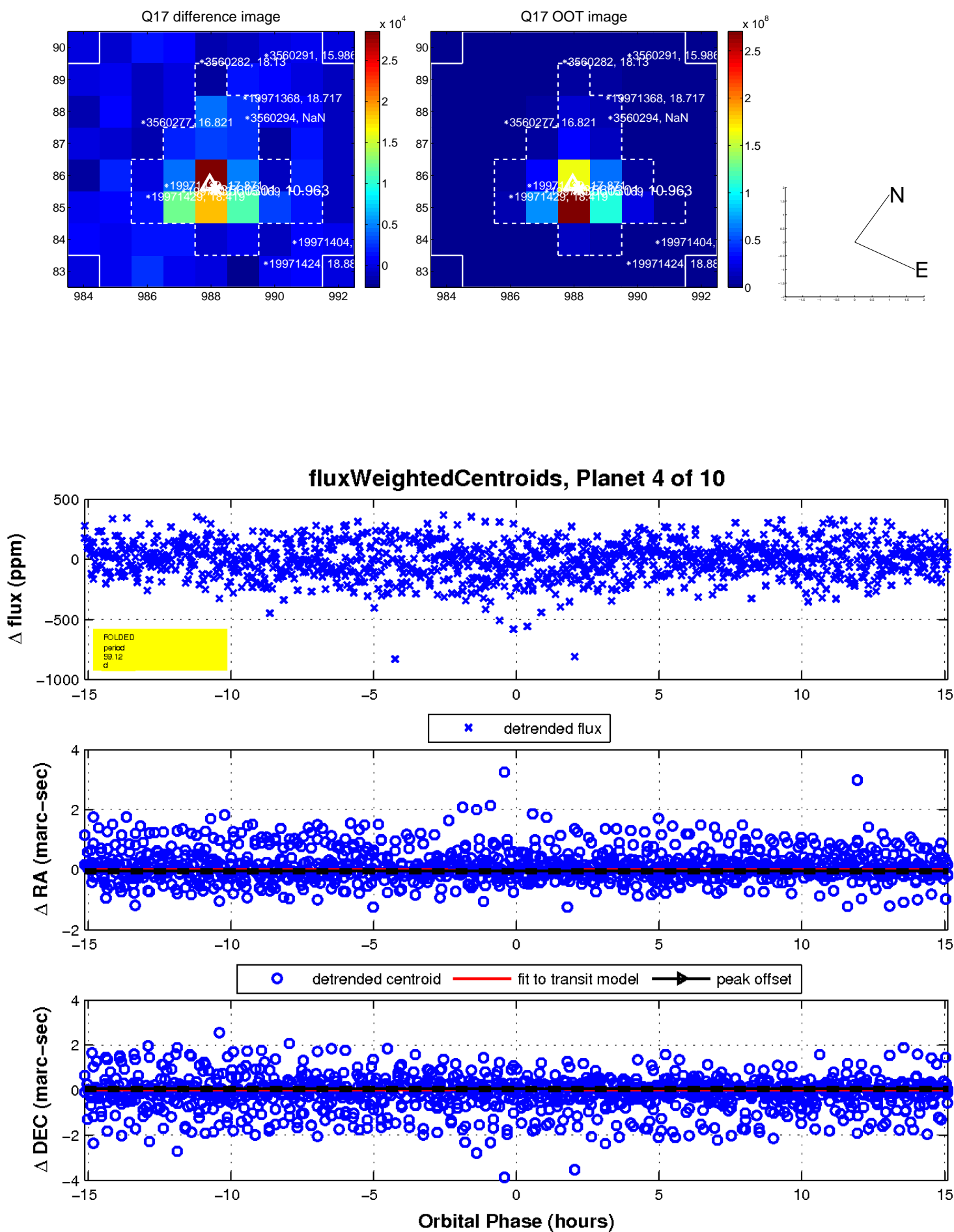
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

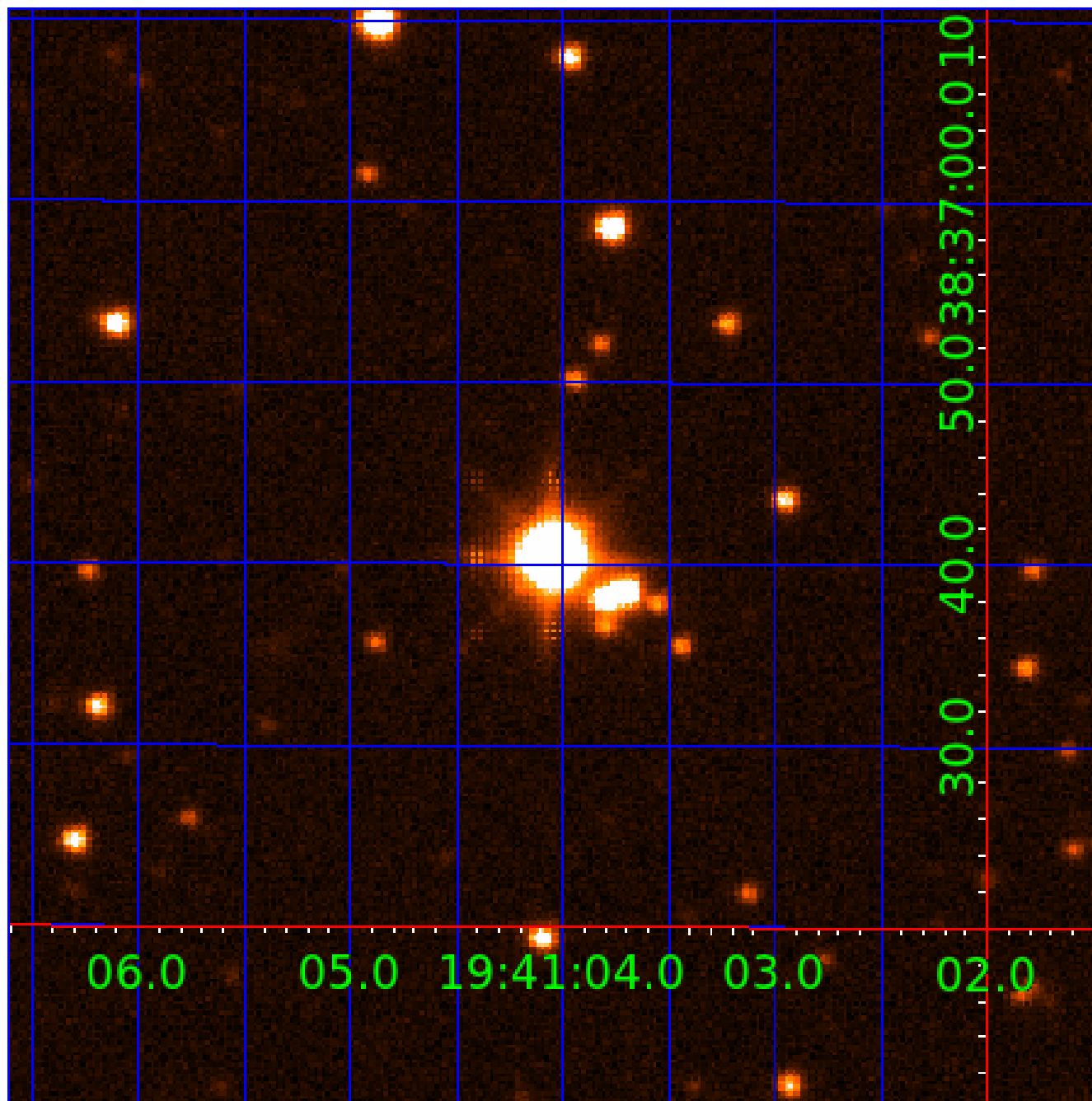


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## KIC 003560301

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003560301-01	OBS	0968.01	4.650516	135.703516	48.0	14.378	13.4	11.0	3.48	6980	2.84	6159.33
003560301-02	OBS	No	4.649908	133.451011	83.9	16.883	14.4	16.5	3.48	6980	5.57	6160.41
003560301-03	OBS	No	118.507880	246.508723	514.3	19.733	25.7	16.3	3.48	6980	15.00	82.14
003560301-04	OBS	No	59.120616	149.996311	153.3	5.042	15.3	7.1	3.48	6980	5.25	207.59
003560301-05	OBS	No	53.692713	134.661858	214.8	5.861	12.2	9.5	3.48	6980	5.48	236.04
003560301-06	OBS	No	43.782493	169.101103	77.0	0.639	9.8	1.8	3.48	6980	3.30	309.84
003560301-07	OBS	No	52.781384	166.241089	260.9	3.022	10.4	9.6	3.48	6980	6.31	241.49
003560301-08	OBS	No	40.144553	134.948745	254.5	2.914	10.0	10.3	3.48	6980	6.57	347.83
003560301-09	OBS	No	174.864198	156.170068	276.4	6.035	9.6	10.4	3.48	6980	6.72	48.90
003560301-10	OBS	No	44.432964	151.915392	186.8	5.412	9.8	9.0	3.48	6980	5.09	303.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003560301-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
003560301-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
003560301-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003560301-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
003560301-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

**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 003560301-05

No Significant Match Found

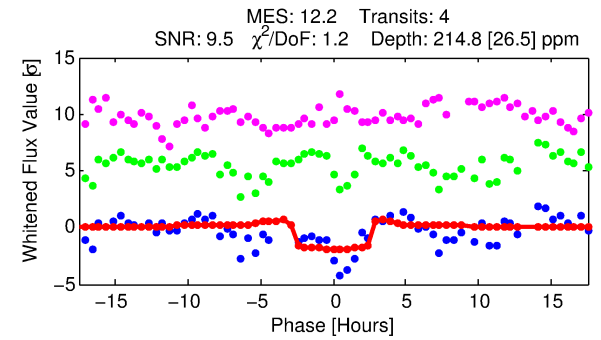
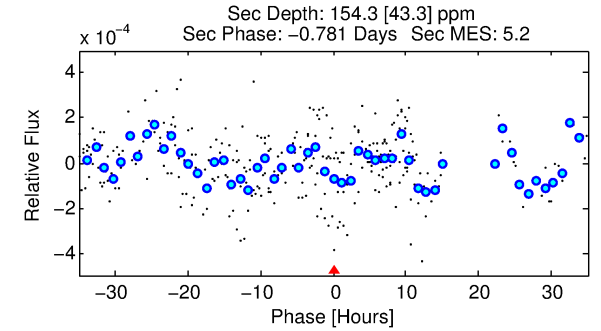
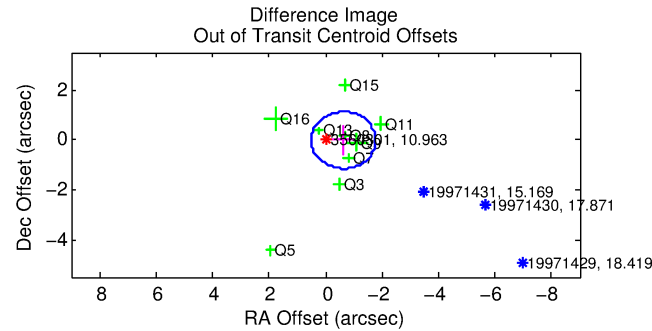
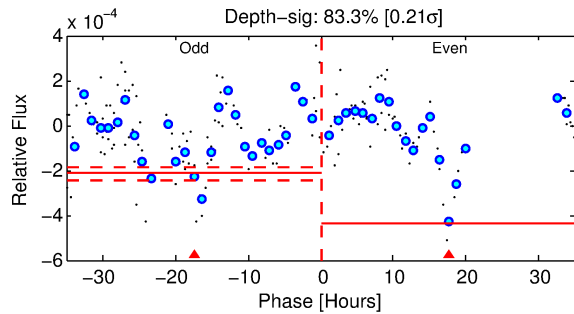
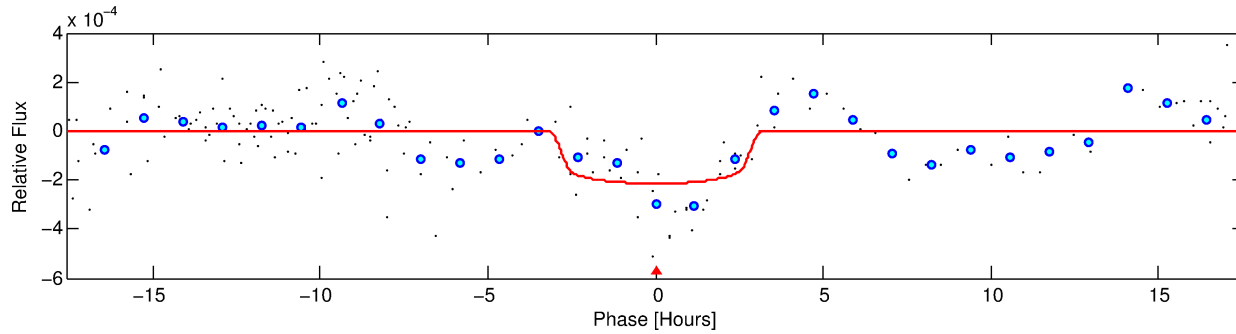
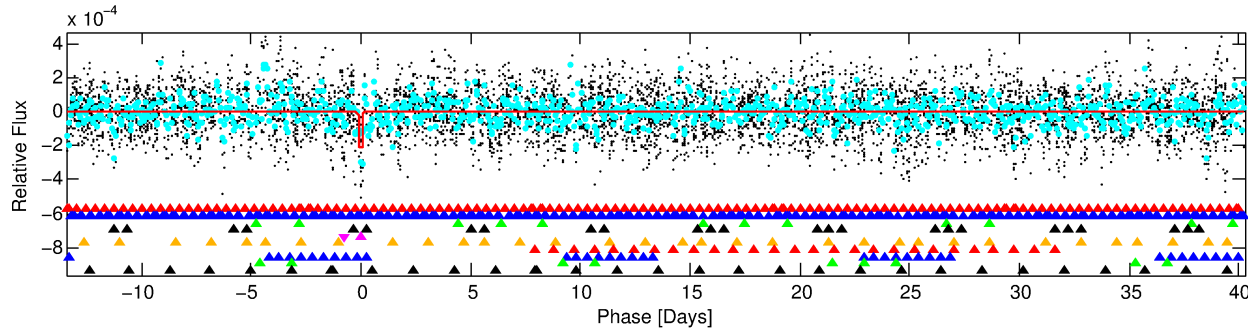
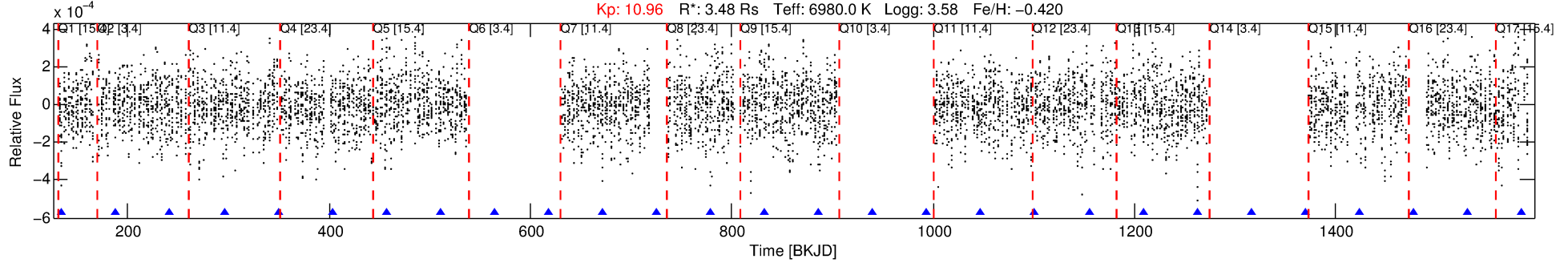


# DV One-Page Summary

KIC: 3560301 Candidate: 5 of 10 Period: 53.693 d

KOI: K00968 Corr: No Ephemeris Match

Kp: 10.96 R\*: 3.48 Rs Teff: 6980.0 K Logg: 3.58 Fe/H: -0.420



## DV Fit Results:

Period = 53.69271 [0.00090] d  
Epoch = 134.6619 [0.0094] BKJD  
Rp/R\* = 0.0144 [0.0165]  
a/R\* = 50.93 [346.71]  
b = 0.71 [4.87]  
Seff = 236.04 [146.67]  
Teq = 999 [155] K  
Rp = 5.48 [6.68] Re  
a = 0.3305 [0.1279] AU  
Ag = 309.21 [739.00] [0.42σ]  
Teffp = 6480 [3751] K [1.46σ]

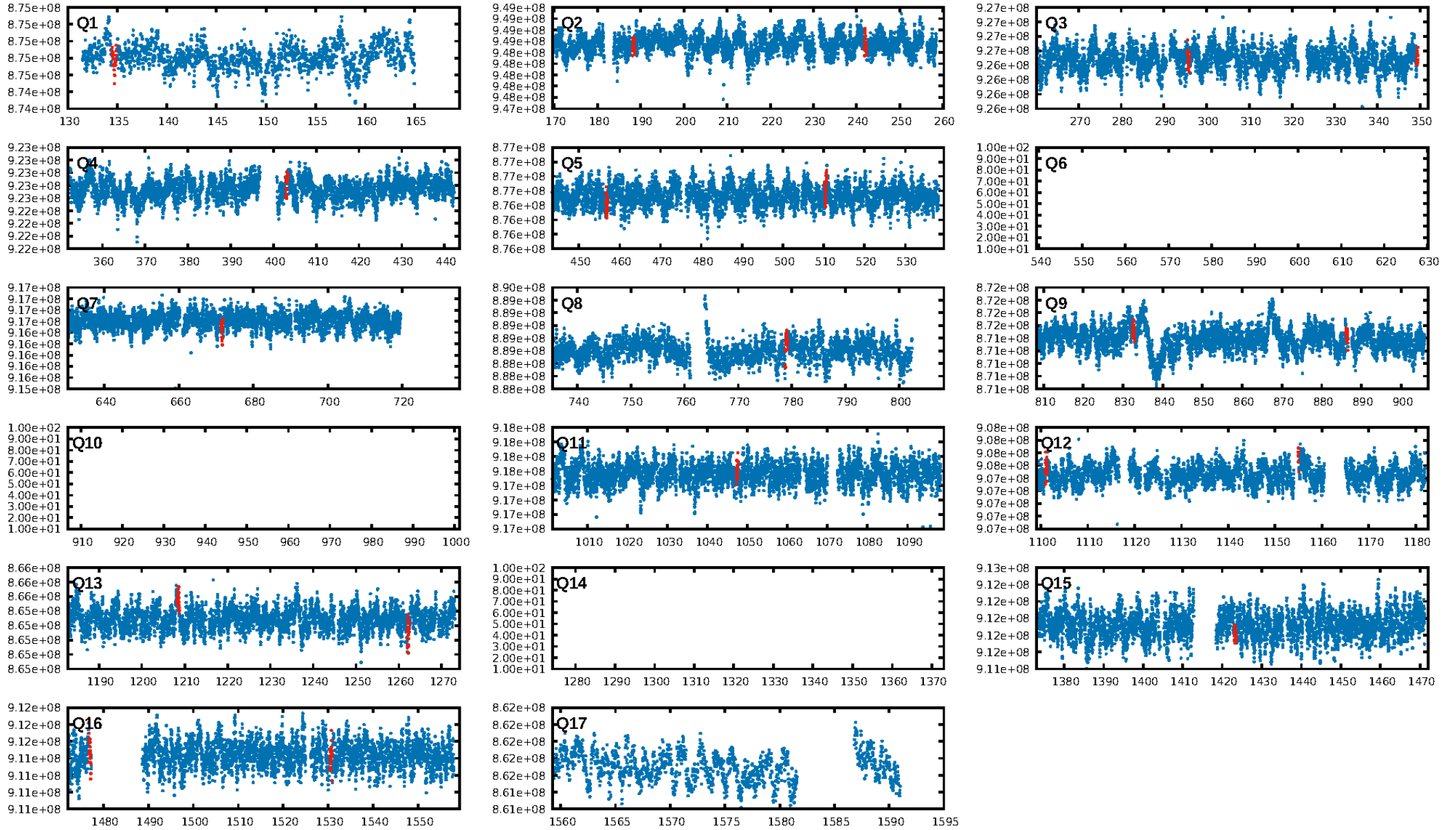
## DV Diagnostic Results:

ShortPeriod-sig: 99.9% [3.32σ]  
LongPeriod-sig: 100.0% [16.85σ]  
ModelChiSquare2-sig: 80.9%  
ModelChiSquareGof-sig: 99.1%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 106.6**  
Centroid-sig: 1.5%  
Centroid-so: 0.706 arcsec [1.77σ]  
OotOffset-rm: 0.629 arcsec [1.66σ]  
KicOffset-rm: 0.600 arcsec [1.70σ]  
OotOffset-st: 0/4/2/3 [9]  
KicOffset-st: 0/4/2/3 [9]  
DiffImageQuality-fgm: 0.33 [3/9]  
DiffImageOverlap-fno: 0.23 [3/13]

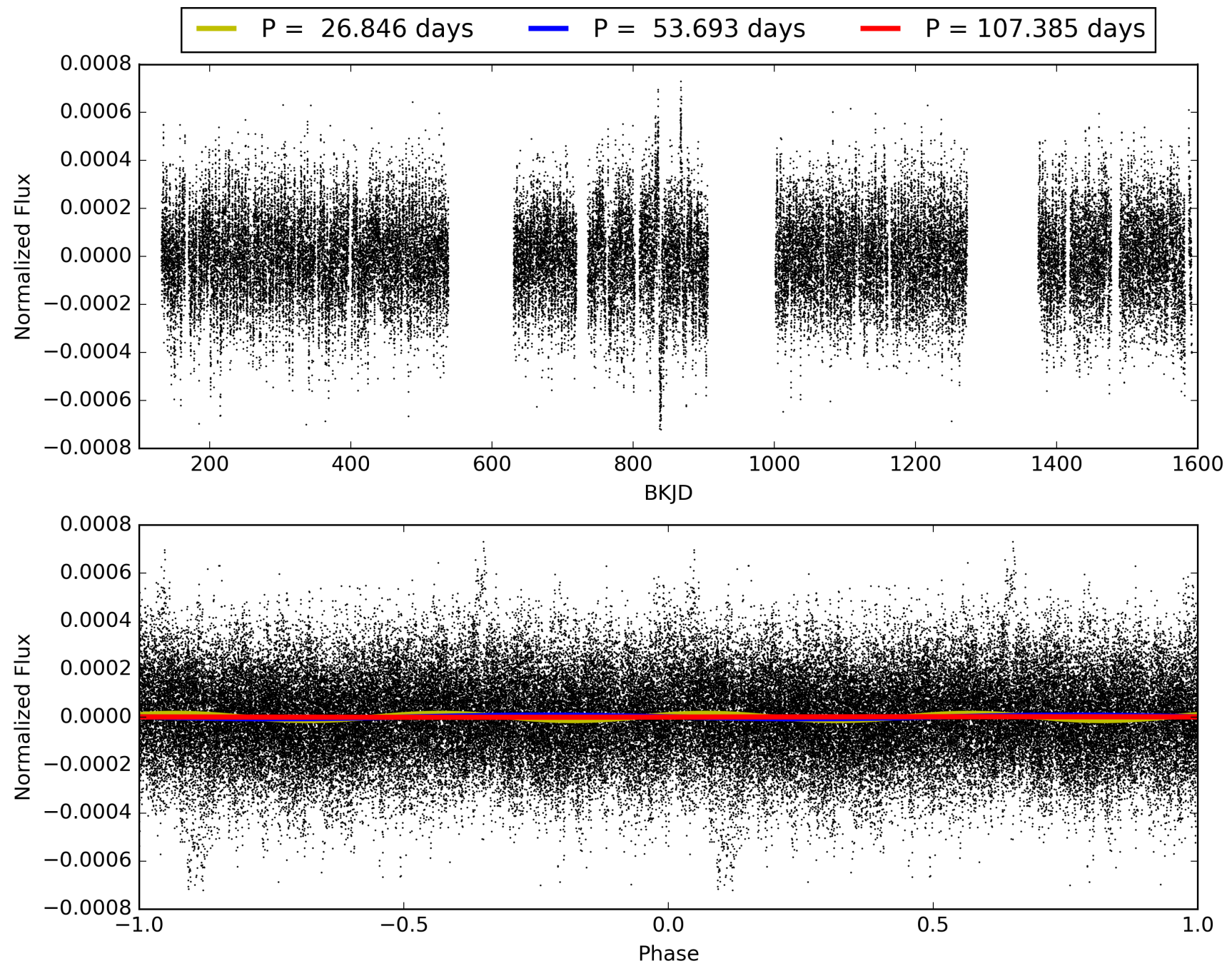
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:26:34 Z

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

# TCE 003560301-05, PDC Light Curves

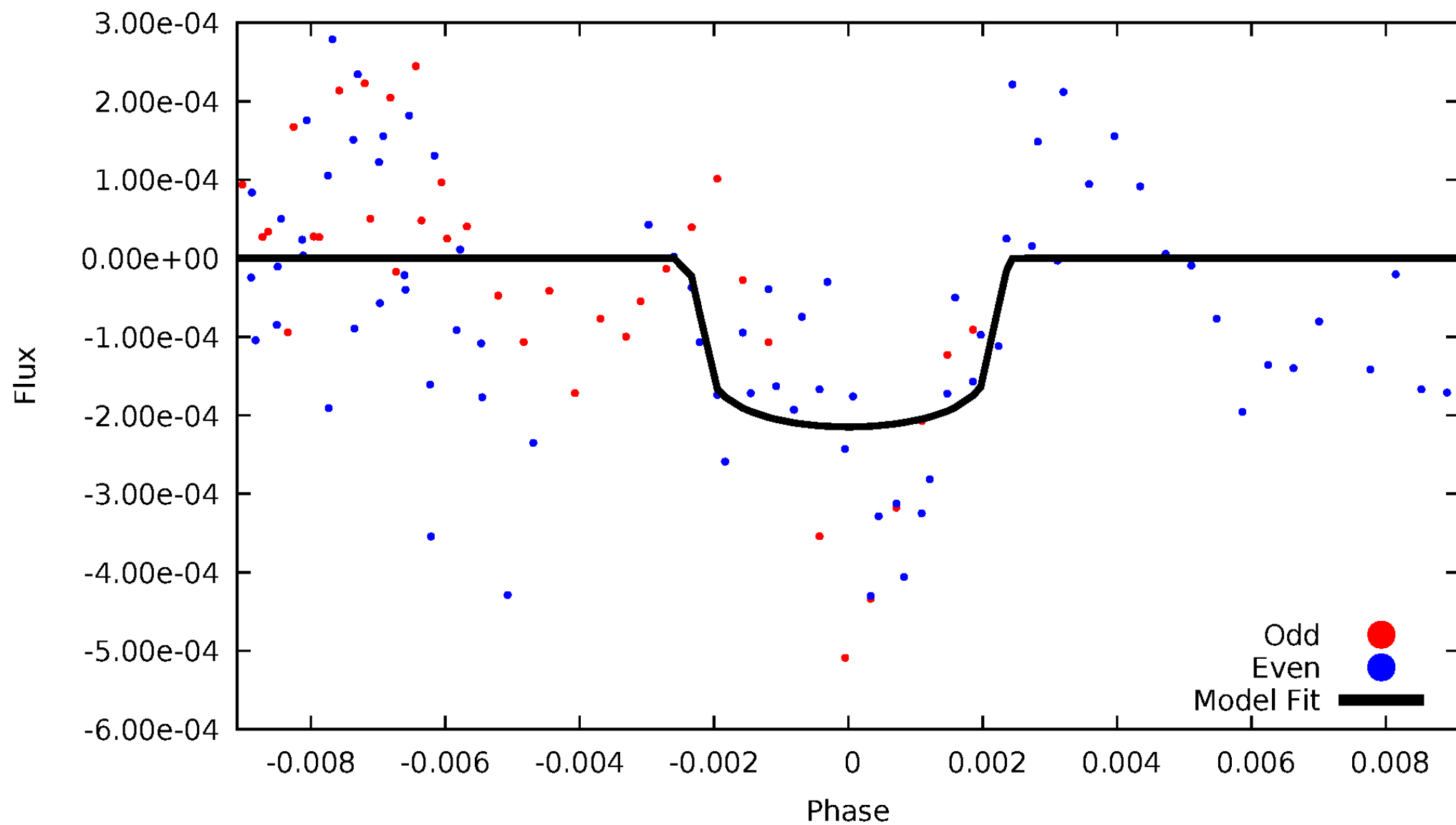


TCE 003560301-05



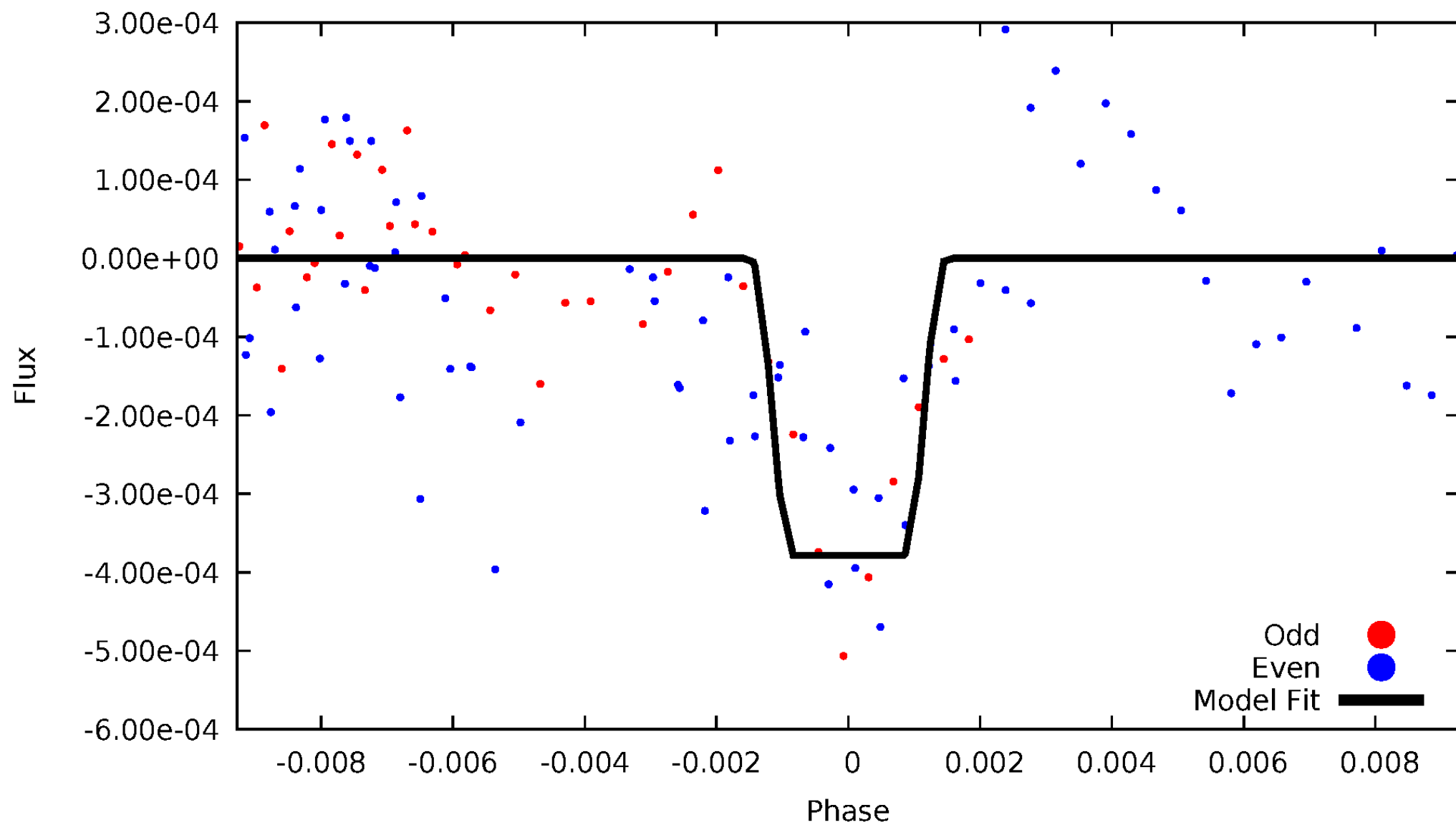
# DV Odd/Even

TCE 003560301-05



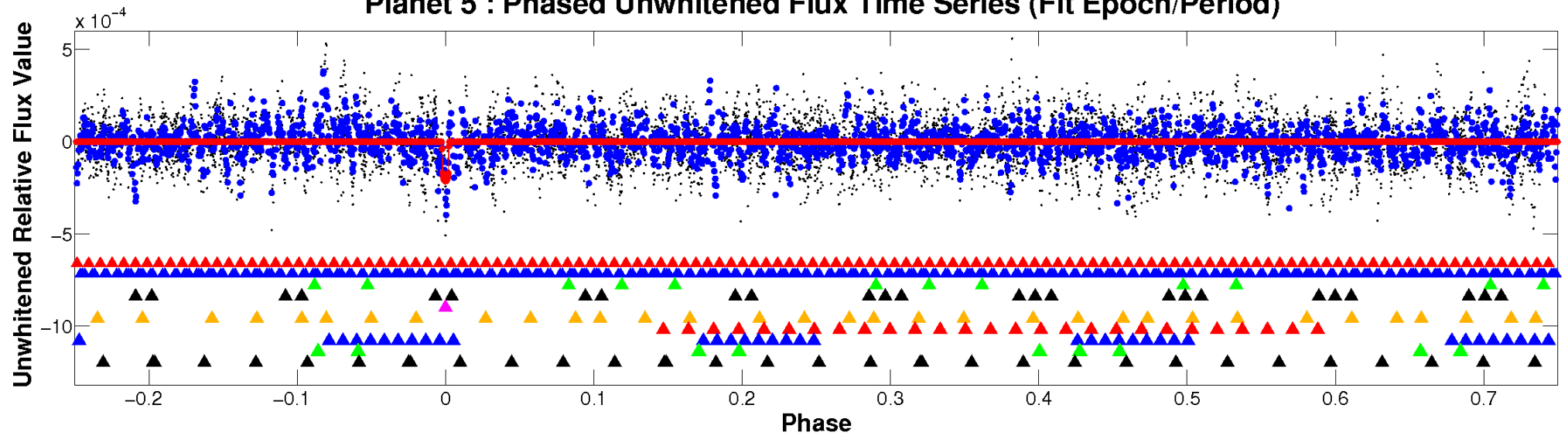
# ALT Odd/Even

TCE 003560301-05

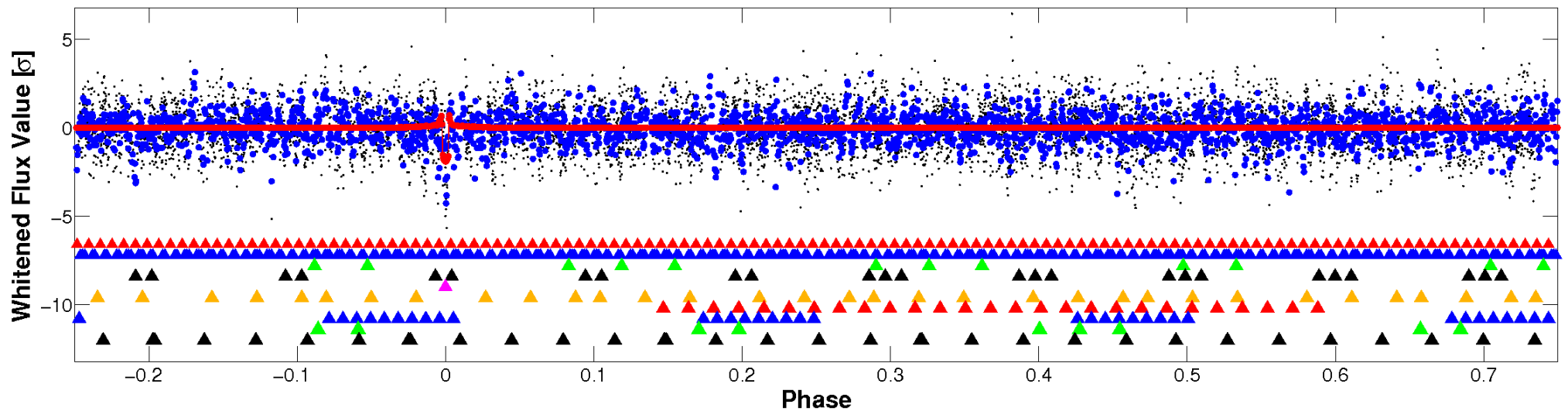


# Non-Whitened Vs. Whitened Light Curve

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



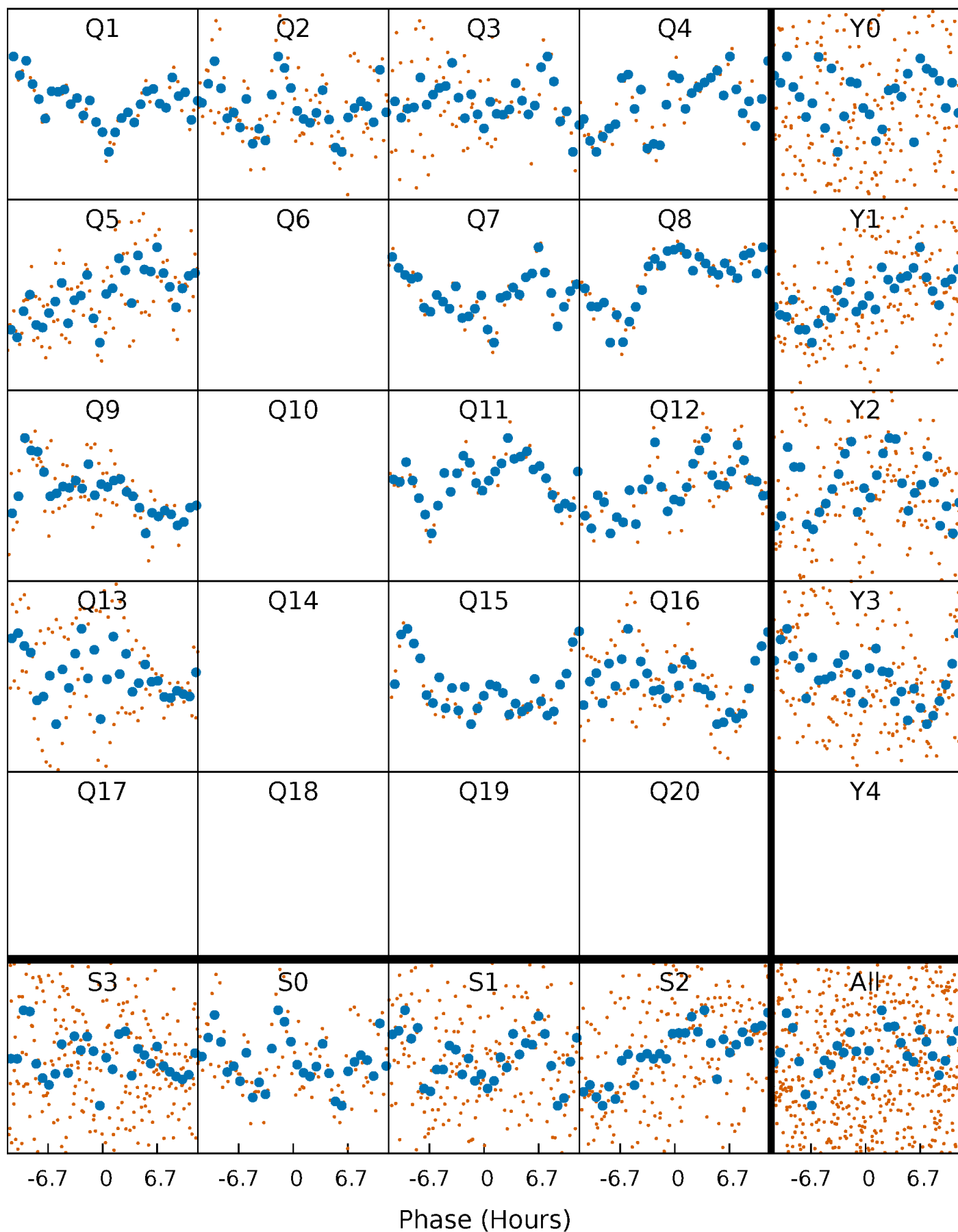
Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)





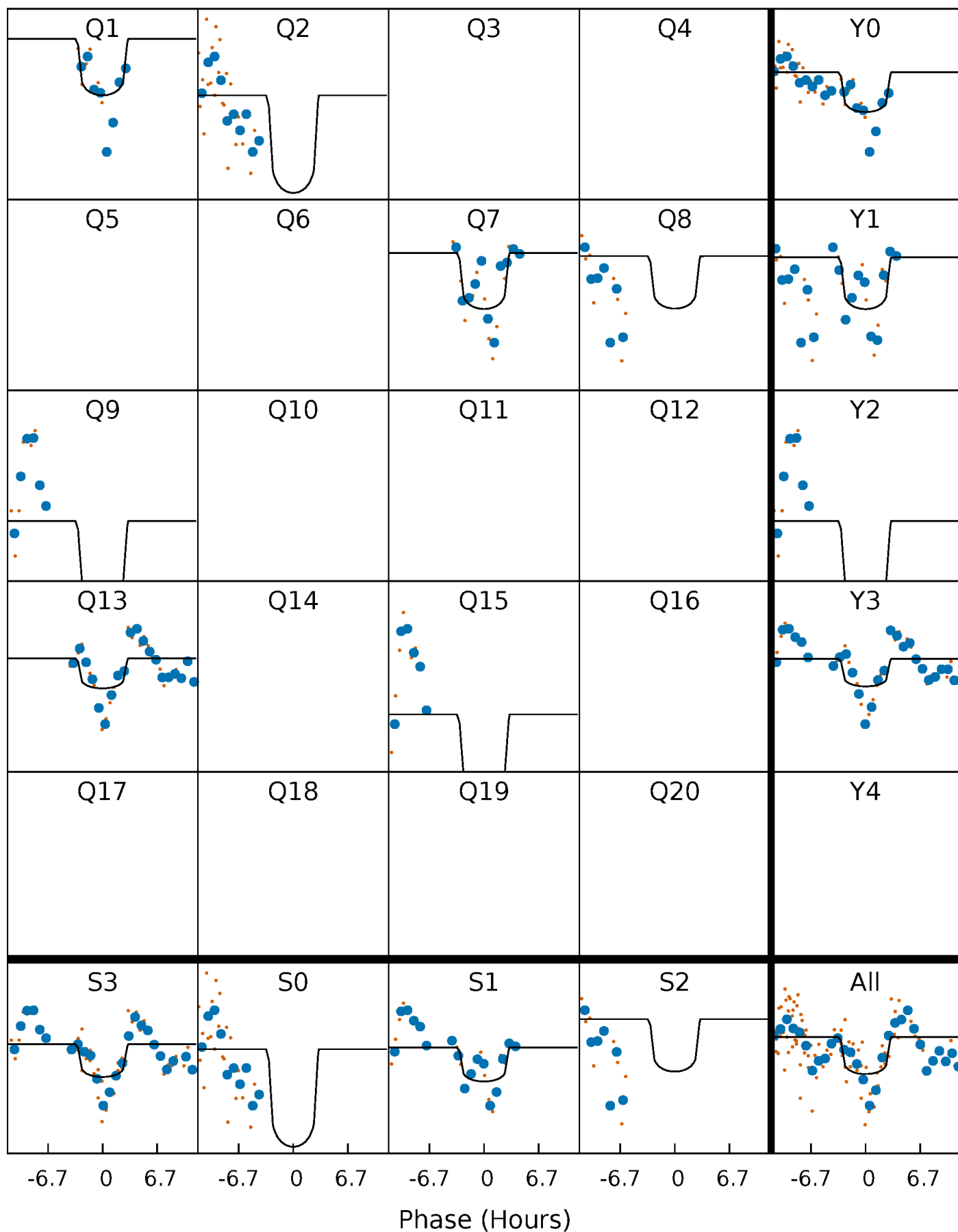
# PDC Quarter-Phased Transit Curves

TCE 003560301-05     $P = 53.692713$  Days     $T_0 = 134.661858$  (BKJD)



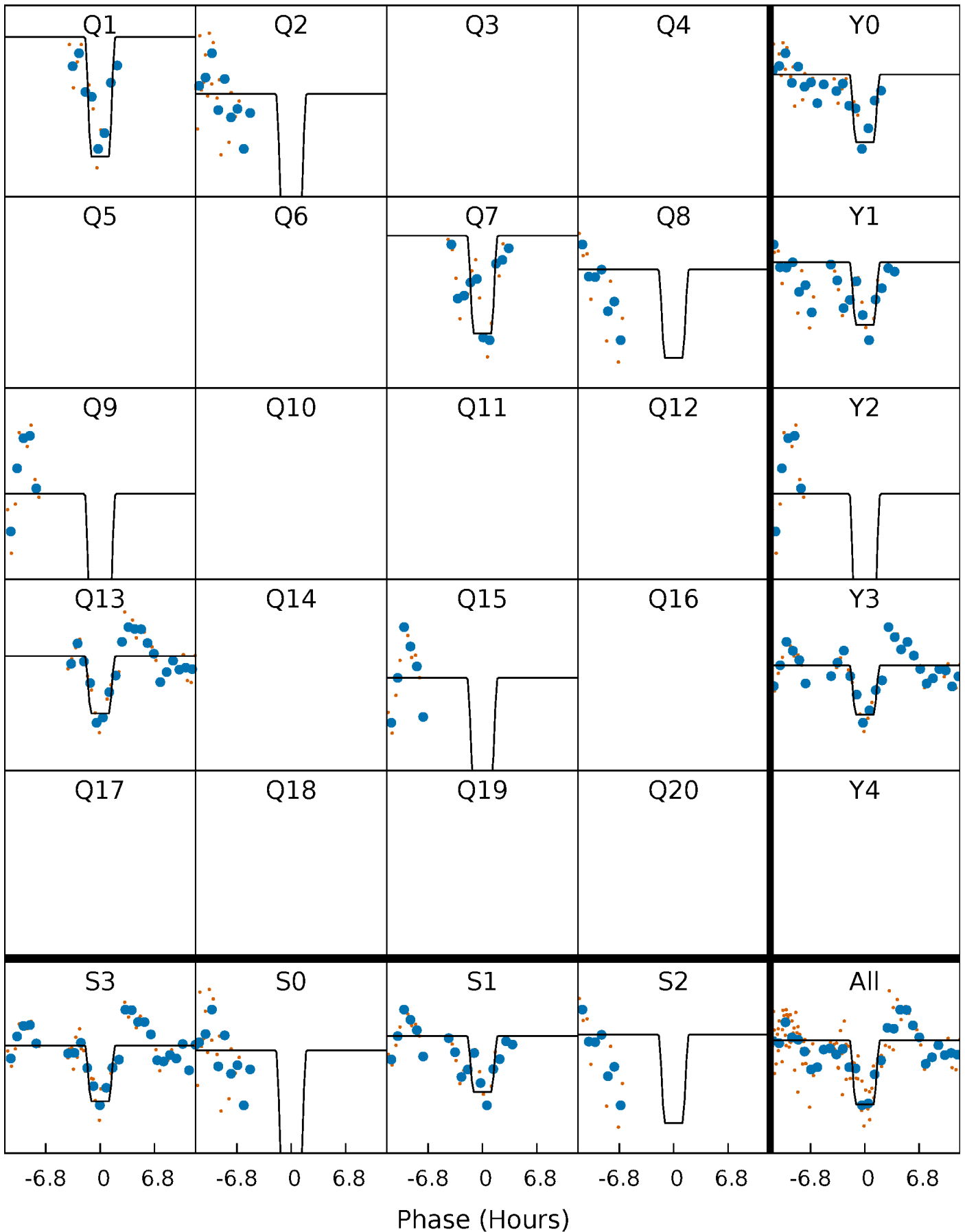
# DV Quarter-Phased Transit Curves

TCE 003560301-05     $P = 53.692713$  Days     $T_0 = 134.661858$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

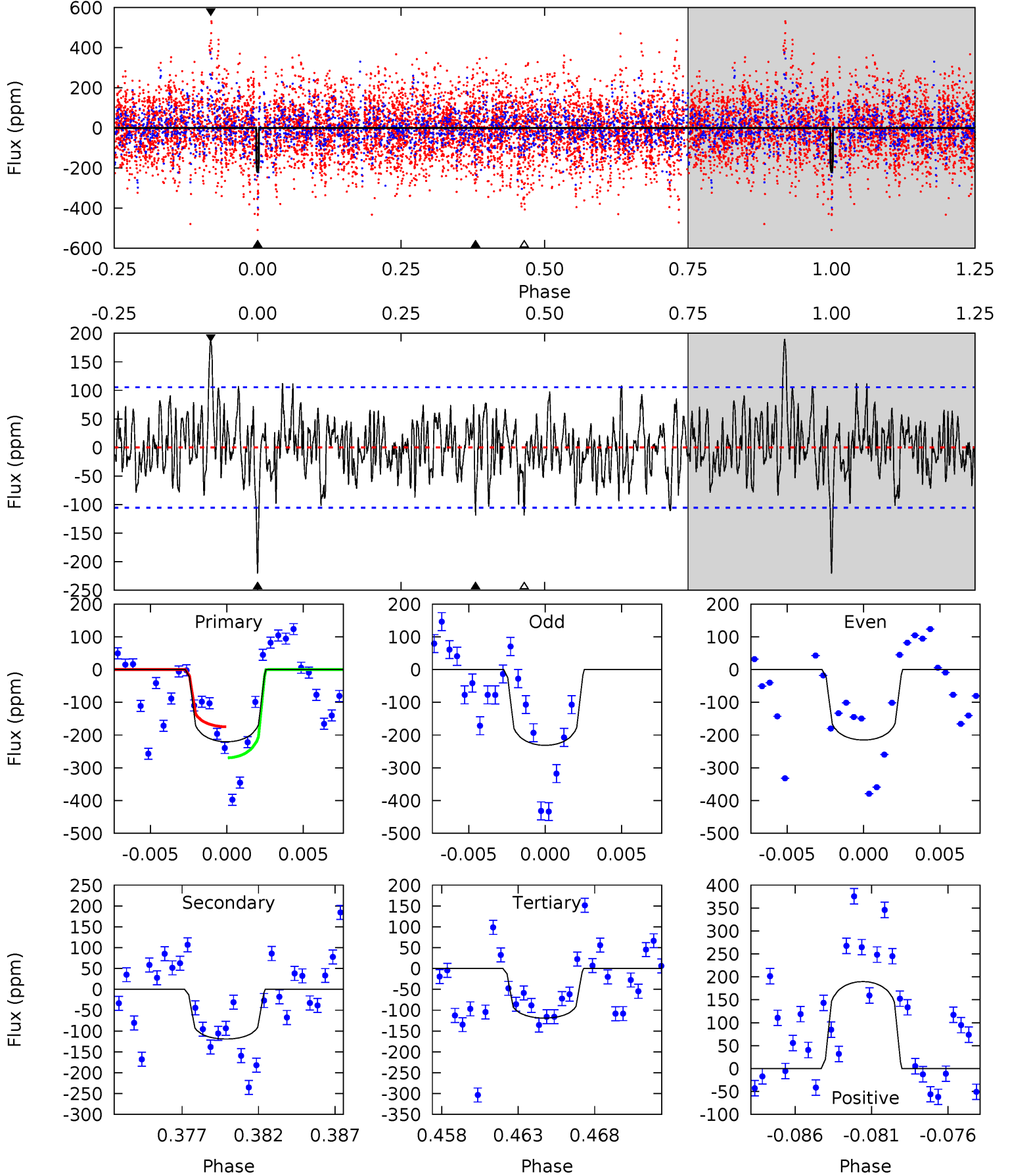
TCE 003560301-05     $P = 53.691161$  Days     $T_0 = 134.695881$  (BKJD)



# DV Model-Shift Uniqueness Test

003560301-05, P = 53.692713 Days, E = 80.969145 Days

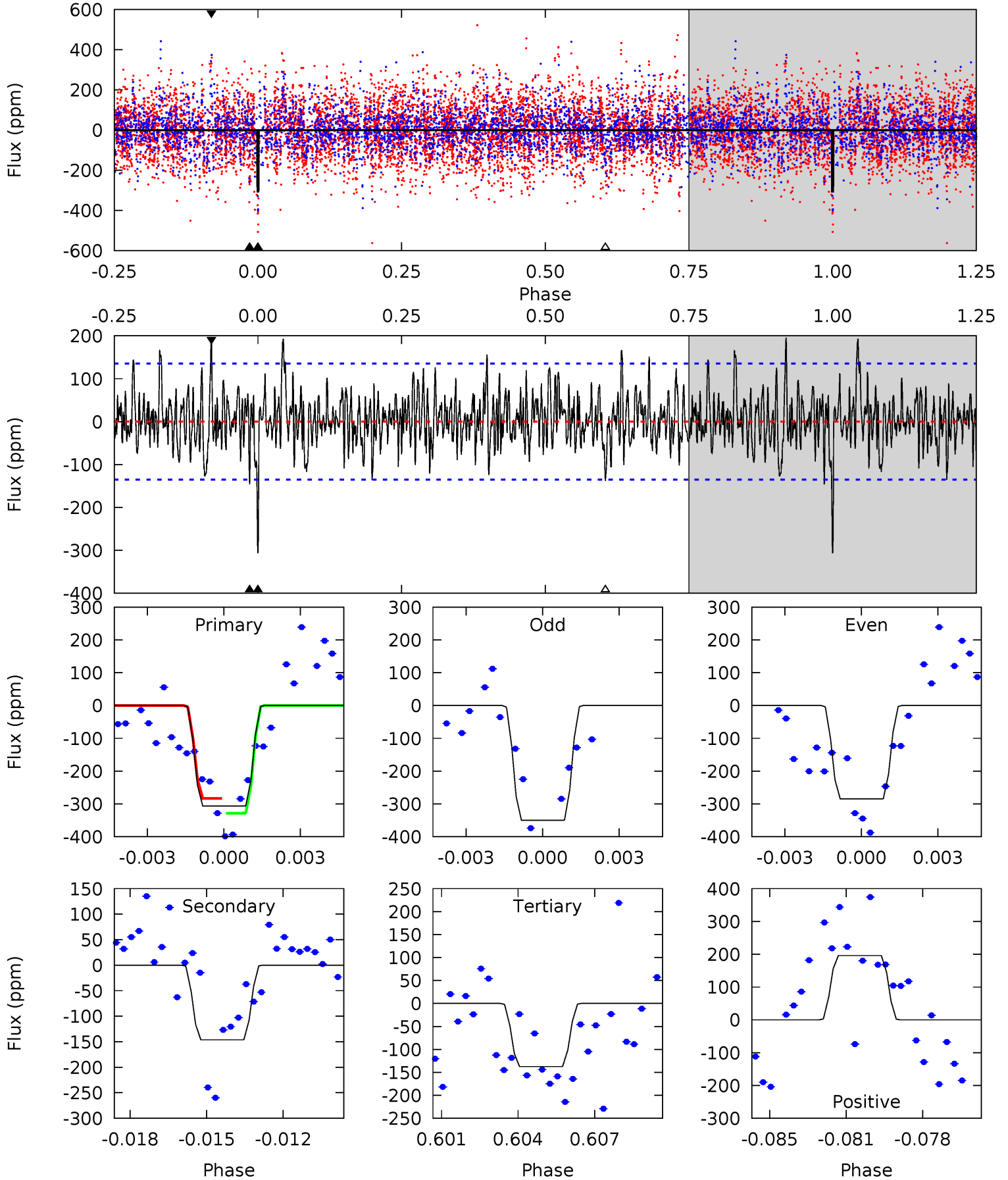
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	5.84	5.82	9.28	5.17	2.82	2.04	4.98	1.51	0.02	-3.45	0.37	0.96	0.46	2.32



# Alt Model-Shift Uniqueness Test

003560301-05, P = 53.691161 Days, E = 81.004720 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
11.9	5.68	5.34	7.60	5.25	2.97	1.92	6.56	4.29	0.34	-1.93	1.22	1.04	0.39	0.86



### Stellar Parameters For KIC 003560301

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6980^{+167}_{-230}$	$3.577^{+0.352}_{-0.088}$	$-0.420^{+0.350}_{-0.250}$	$3.482^{+0.362}_{-1.447}$	$1.671^{+0.203}_{-0.377}$	$0.056^{+0.150}_{-0.012}$
	+2%/-3%	+10%/-2%	+83%/-60%	+10%/-42%	+12%/-23%	+270%/-22%
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 003560301-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-119 \pm 20$	$6.34^{+5.60}_{-4.13}$	$1368^{+78}_{-132}$	$5385^{+4261}_{-1214}$	$177^{+1155}_{-127}$
Alt.	$-146 \pm 26$	$7.99^{+5.89}_{-4.87}$	$1369^{+76}_{-124}$	$5126^{+3137}_{-972}$	$137^{+778}_{-91}$

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

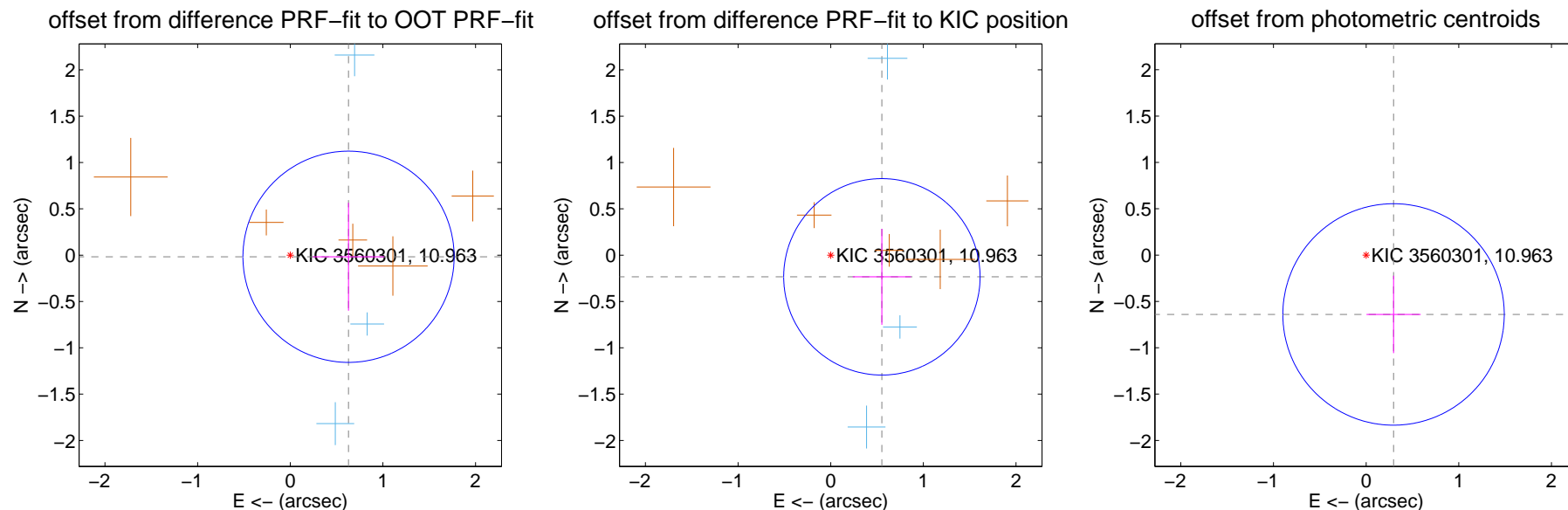
## DV Centroid Data

Supplemental centroid analysis for 003560301-05. **Kepler magnitude: 10.96.** Transit SNR 9.54

**There are 3 quarters with good PRF difference image offsets**

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

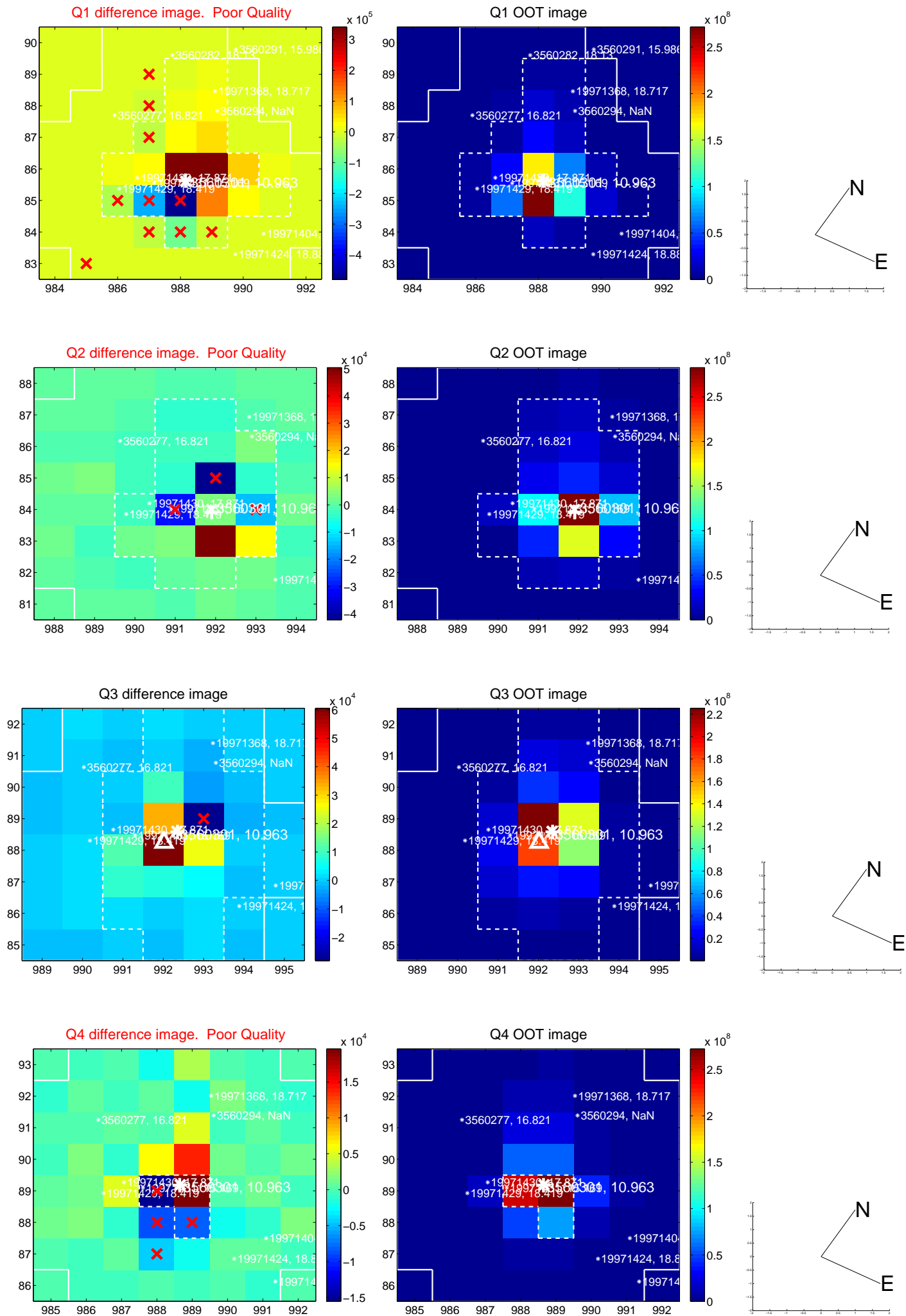
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.629 \pm 0.380$	1.66	$-0.629 \pm 0.387$	$-0.017 \pm 0.583$
PRF-fit source offset from KIC position	$0.600 \pm 0.353$	1.70	$-0.552 \pm 0.315$	$-0.234 \pm 0.518$
photometric centroid source offset	$0.71 \pm 0.40$	1.77	$-0.30 \pm 0.29$	$-0.64 \pm 0.42$



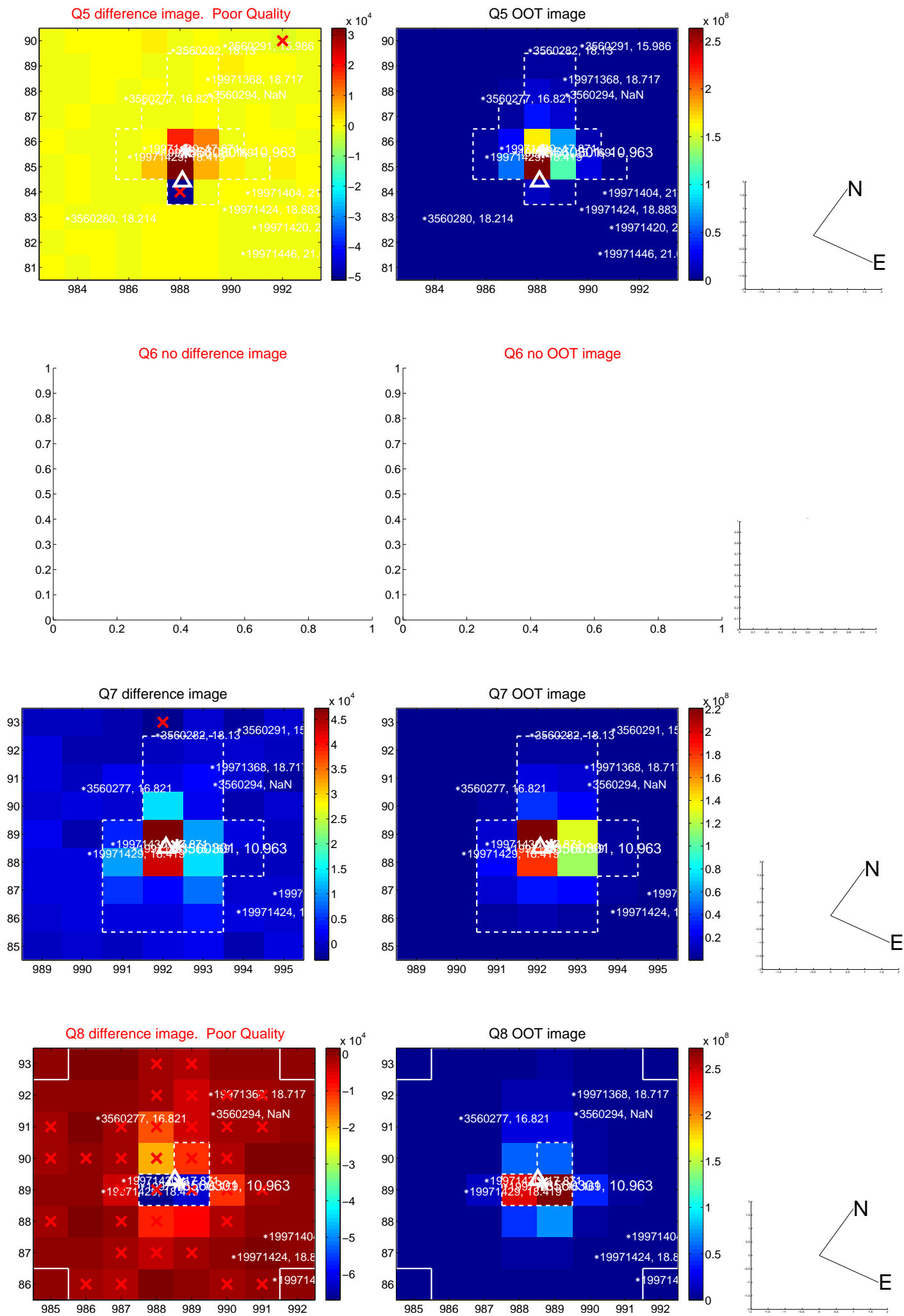
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



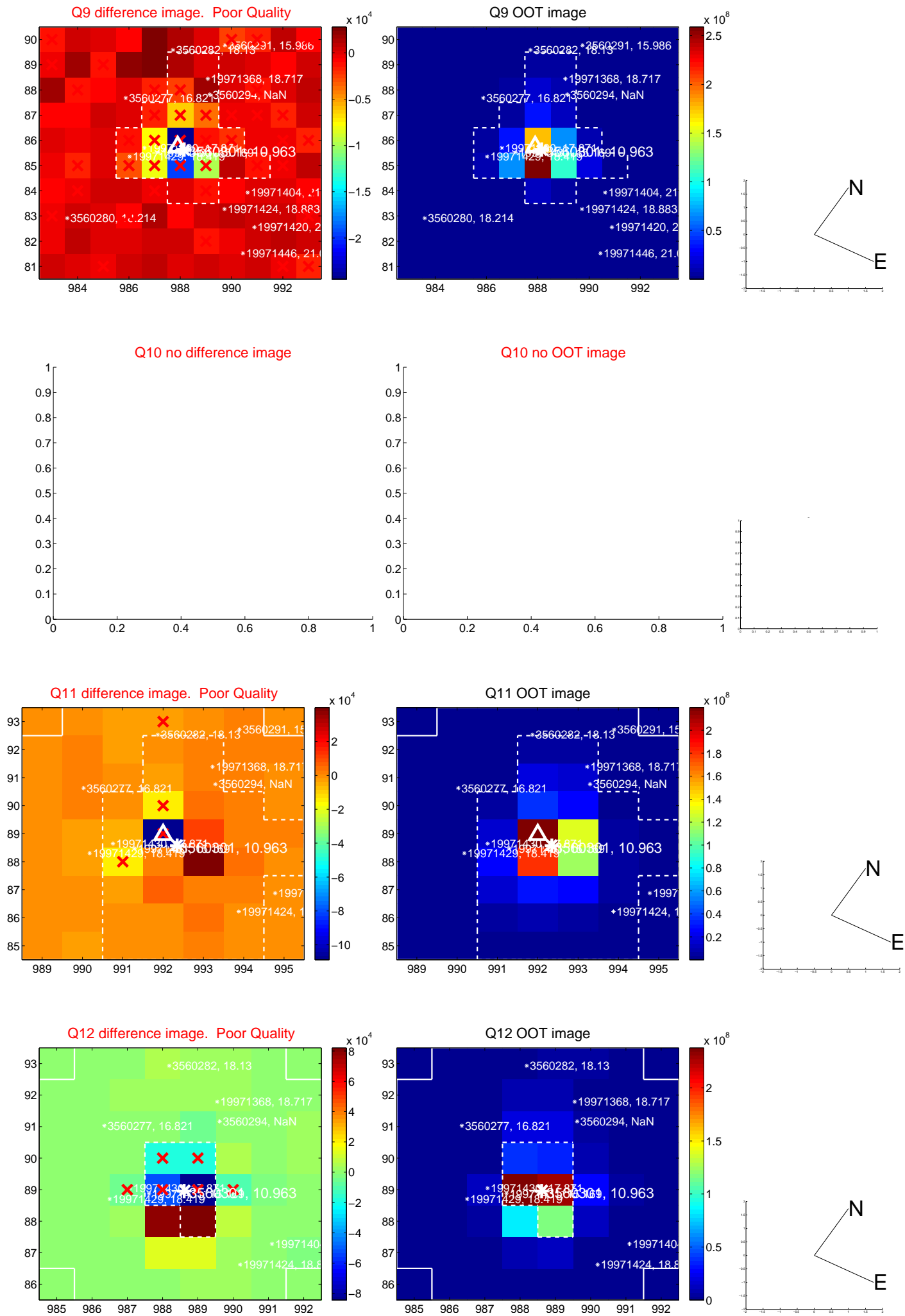
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



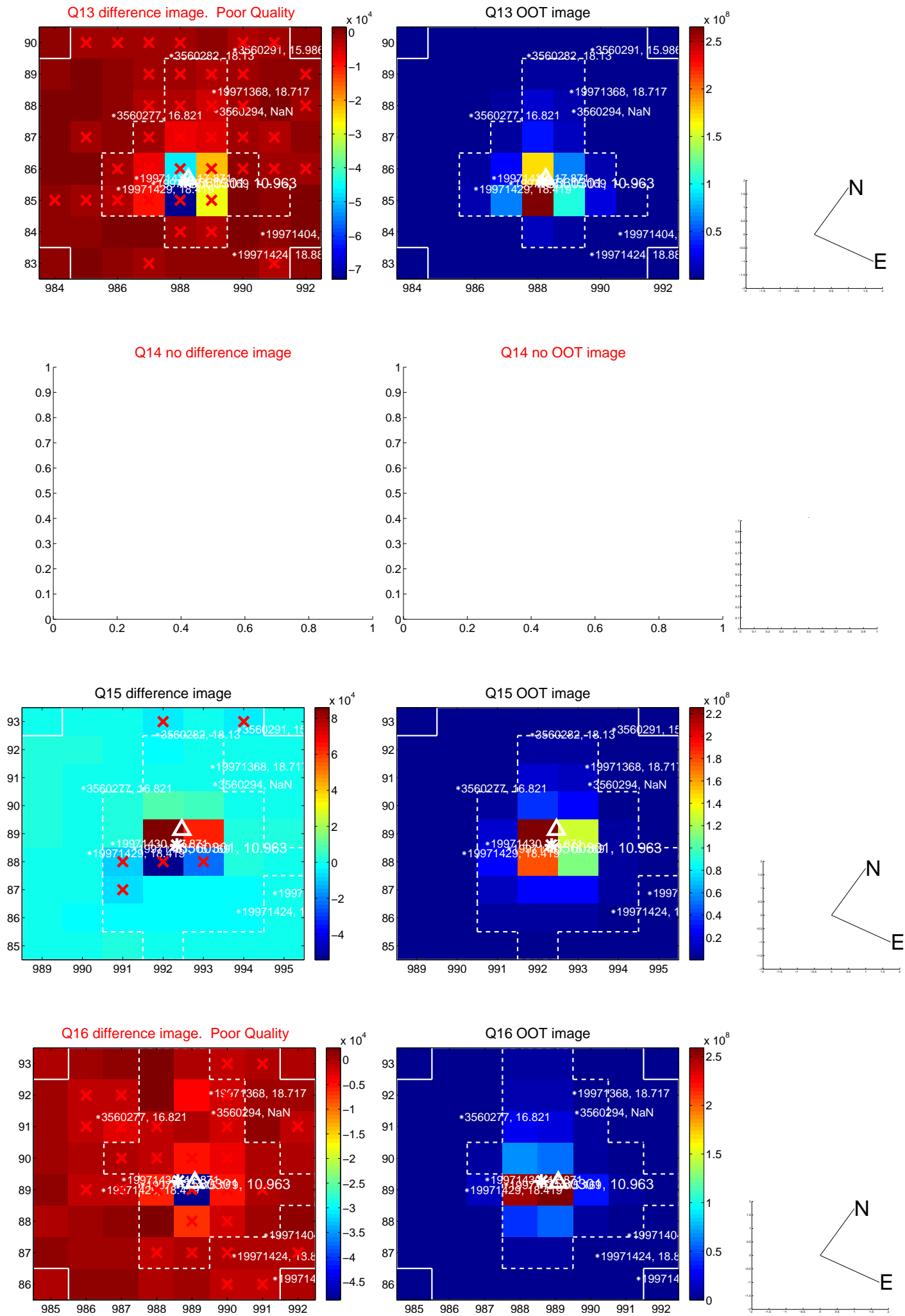
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



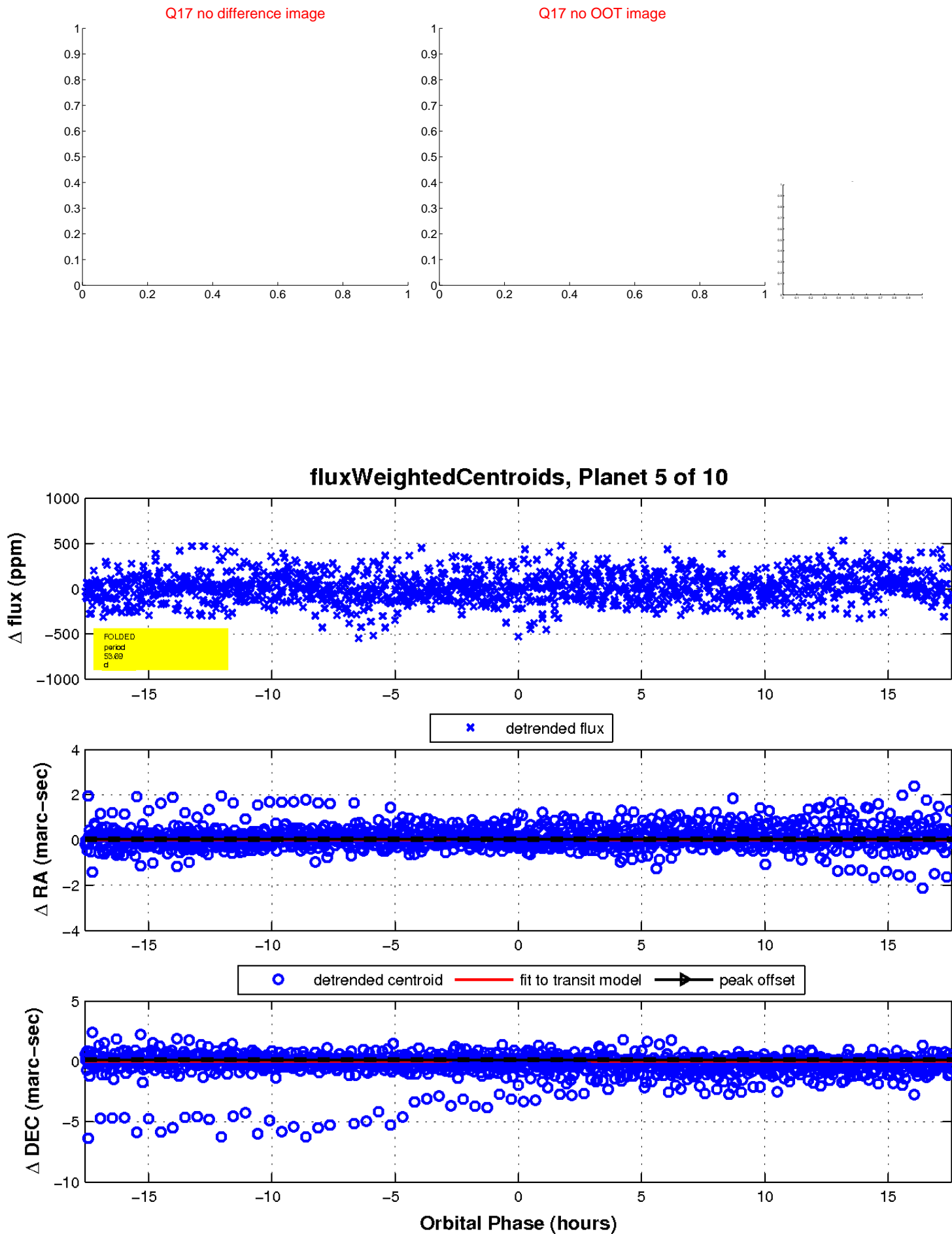
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

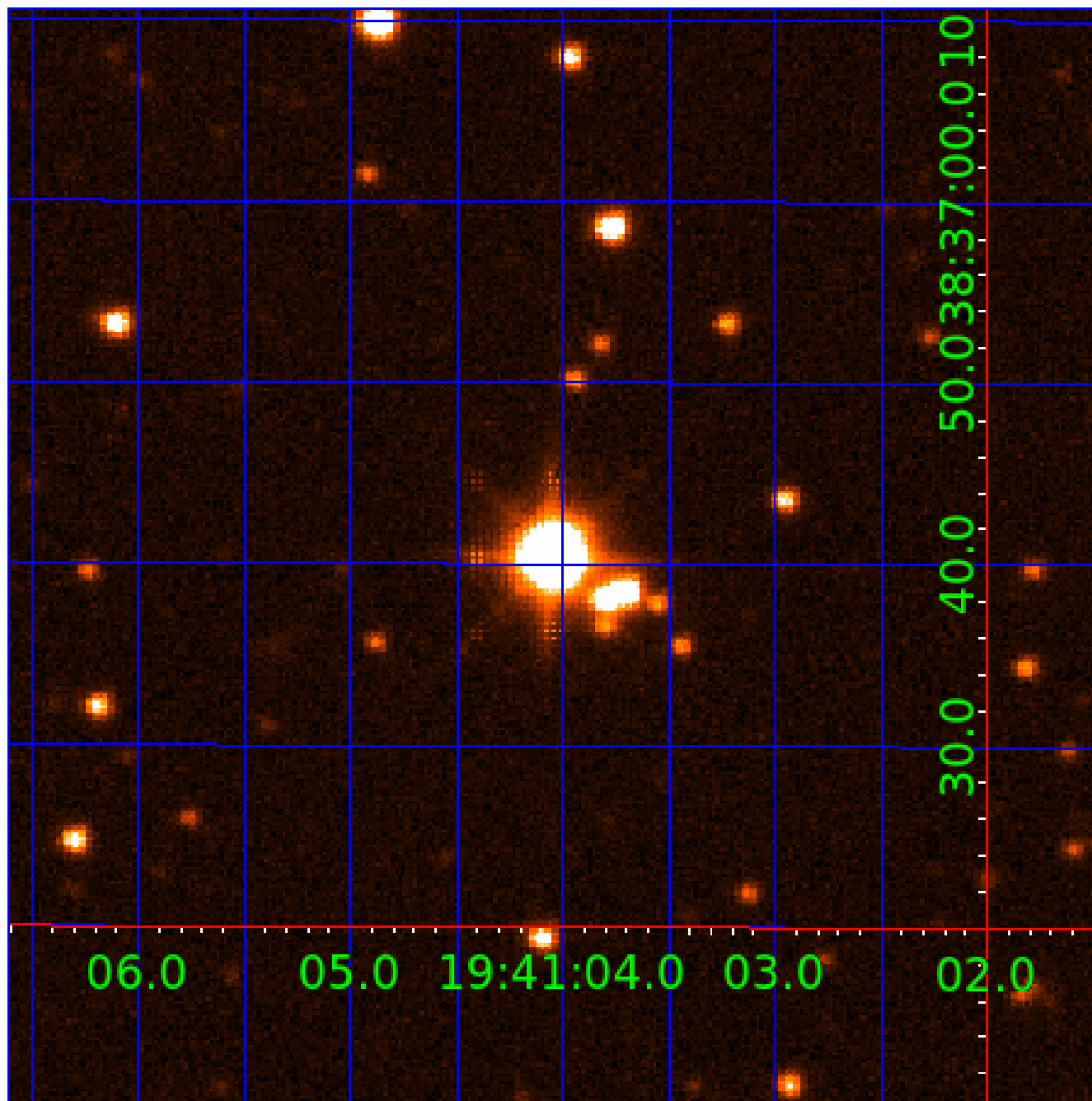


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## KIC 003560301

## 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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003560301-09	OBS	No	174.864198	156.170068	276.4	6.035	9.6	10.4	3.48	6980	6.72	48.90
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003560301-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
003560301-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
003560301-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003560301-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
003560301-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

**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 003560301-06

No Significant Match Found

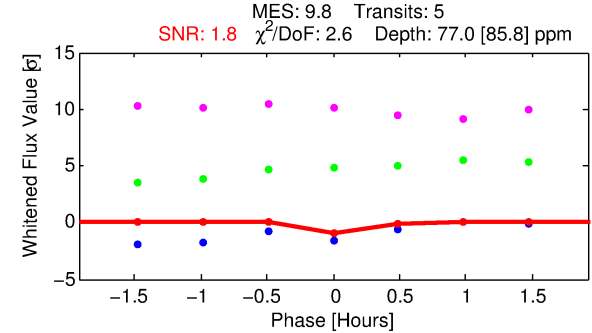
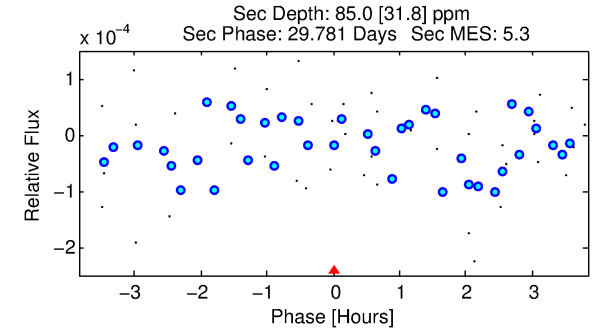
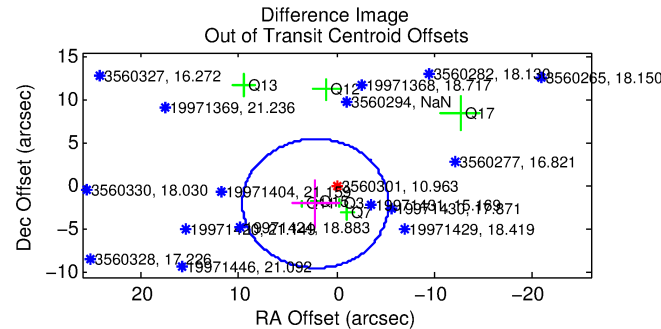
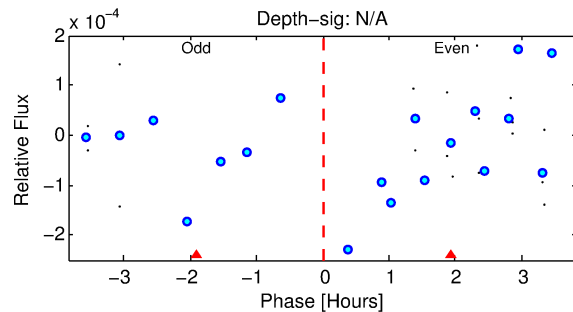
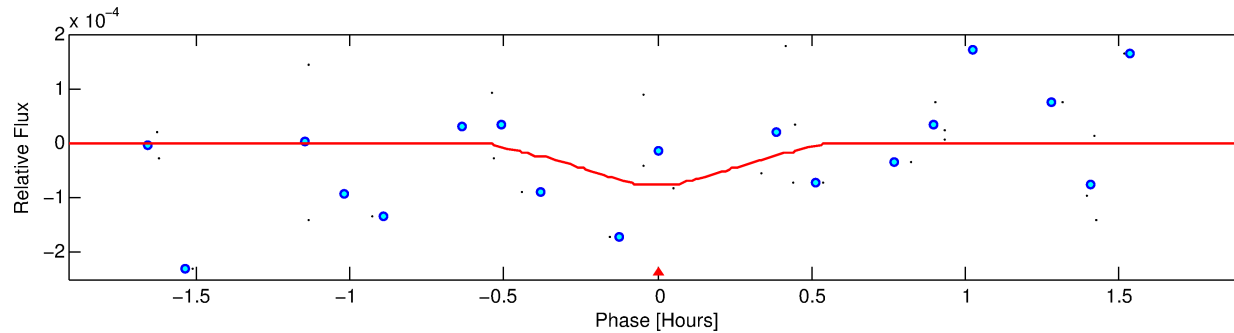
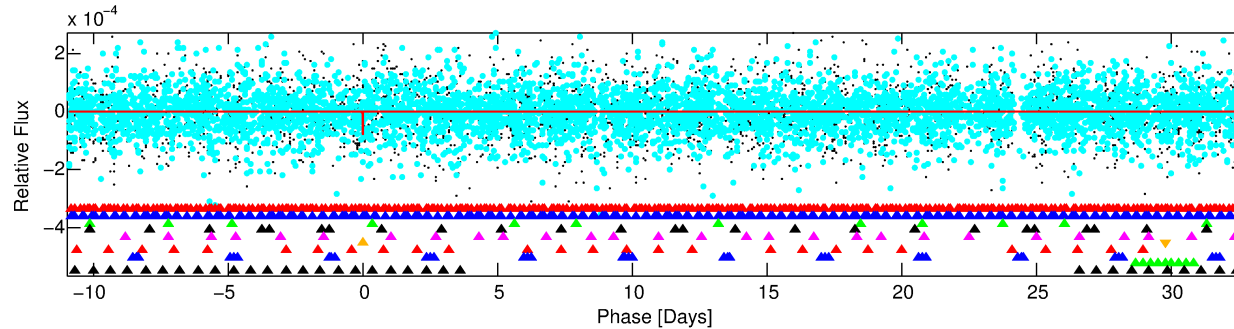
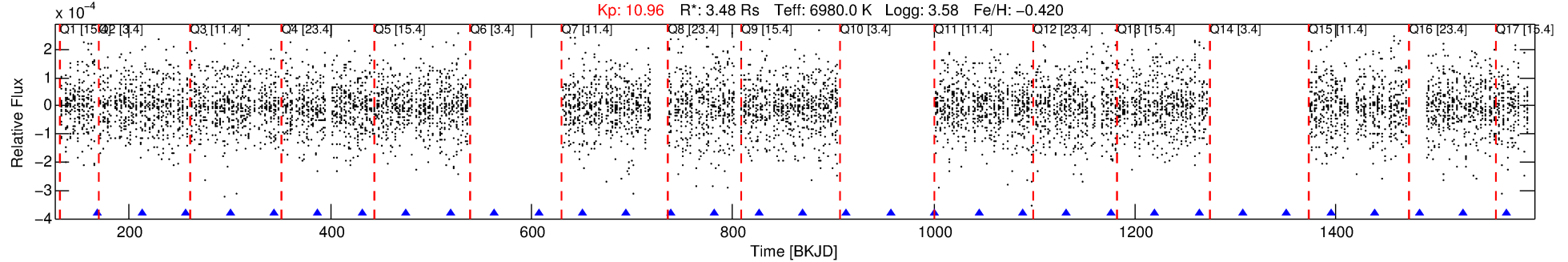


# DV One-Page Summary

KIC: 3560301 Candidate: 6 of 10 Period: 43.782 d

KOI: K00968 Corr: No Ephemeris Match

Kp: 10.96 R\*: 3.48 Rs Teff: 6980.0 K Logg: 3.58 Fe/H: -0.420



## DV Fit Results:

Period = 43.78249 [0.00147] d  
Epoch = 169.1011 [0.0344] BKJD  
Rp/R\* = 0.0087 [0.0232]  
a/R\* = 405.68 [6381.74]  
b = 0.65 [14.25]  
Seff = 309.84 [192.52]  
Teq = 1070 [166] K  
Rp = 3.30 [8.94] Re  
a = 0.2885 [0.1116] AU  
Ag = 356.83 [1925.61] [0.18σ]  
Teffp = 7189 [9640] K [0.63σ]

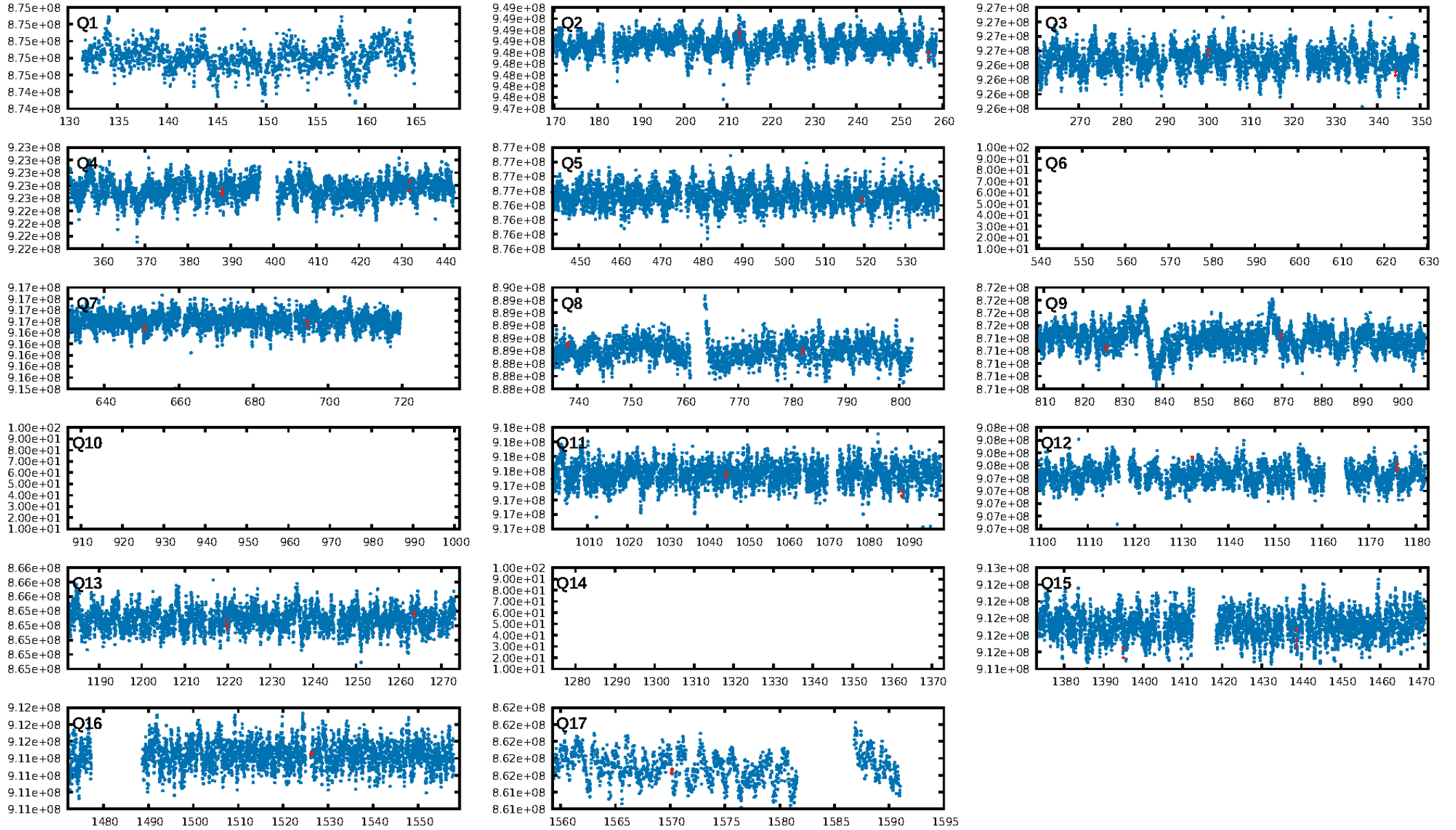
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [29.26σ]  
LongPeriod-sig: 99.6% [2.86σ]  
ModelChiSquare2-sig: 1.5%  
ModelChiSquareGof-sig: 10.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 8.413  
Centroid-sig: 81.4%  
Centroid-so: 0.619 arcsec [0.33σ]  
OotOffset-rm: 2.941 arcsec [1.18σ]  
OotOffset-st: 0/4/1/2 [7]  
KicOffset-rm: 3.062 arcsec [1.31σ]  
KicOffset-st: 0/4/1/2 [7]  
DiffImageQuality-fgm: 0.57 [4/7]  
DiffImageOverlap-fno: 0.67 [8/12]

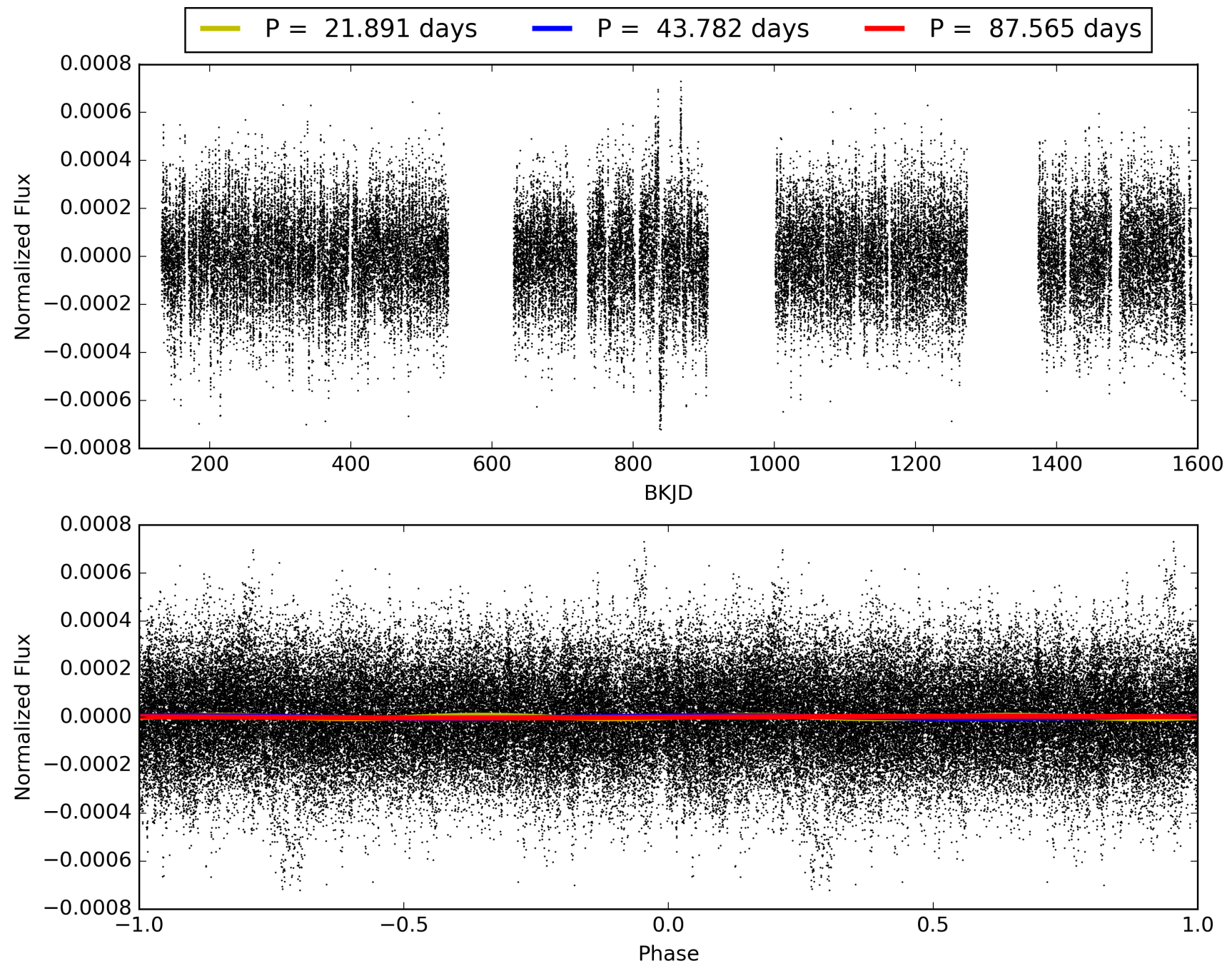
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:26:38 Z

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

# TCE 003560301-06, PDC Light Curves

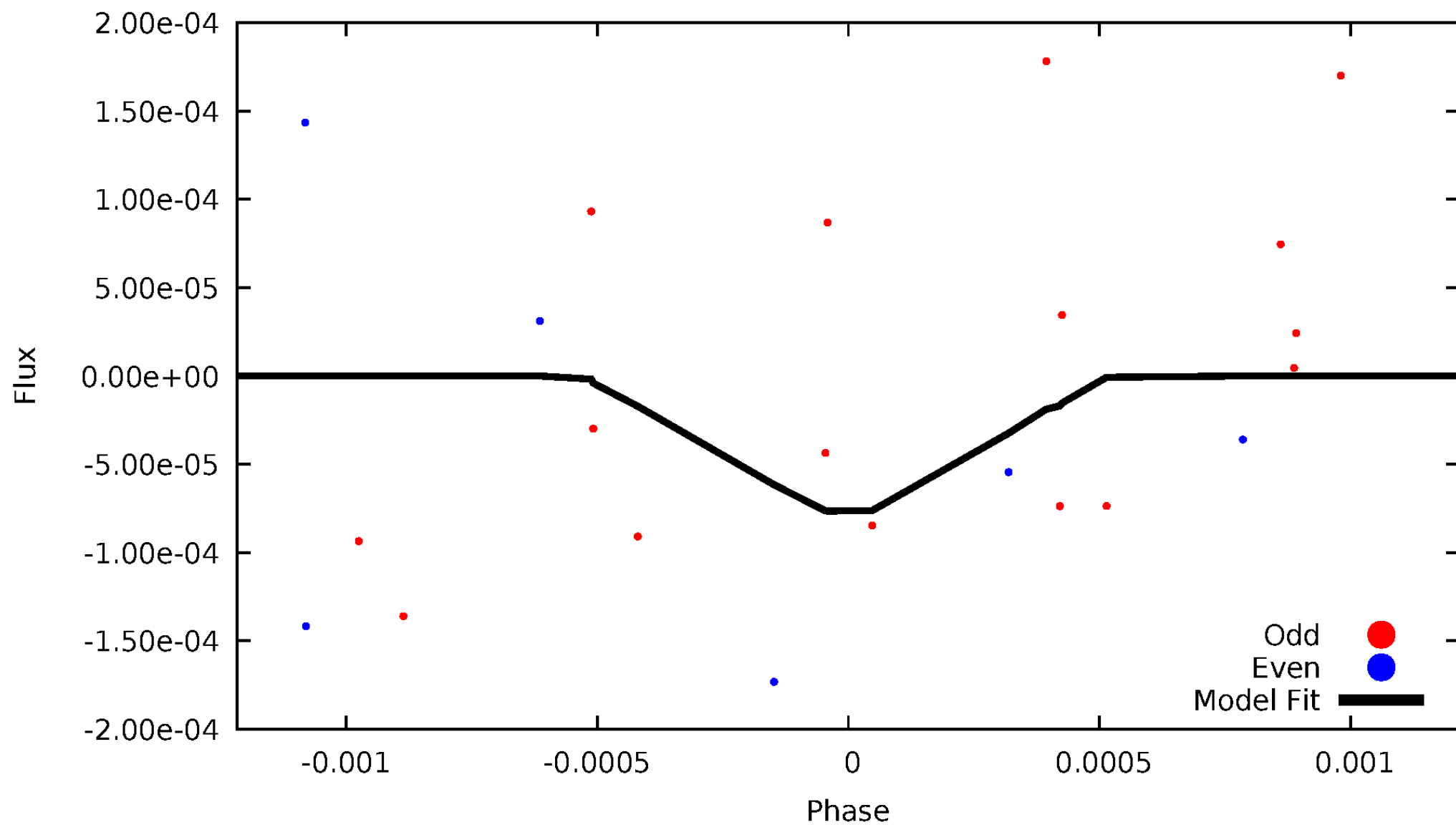


TCE 003560301-06



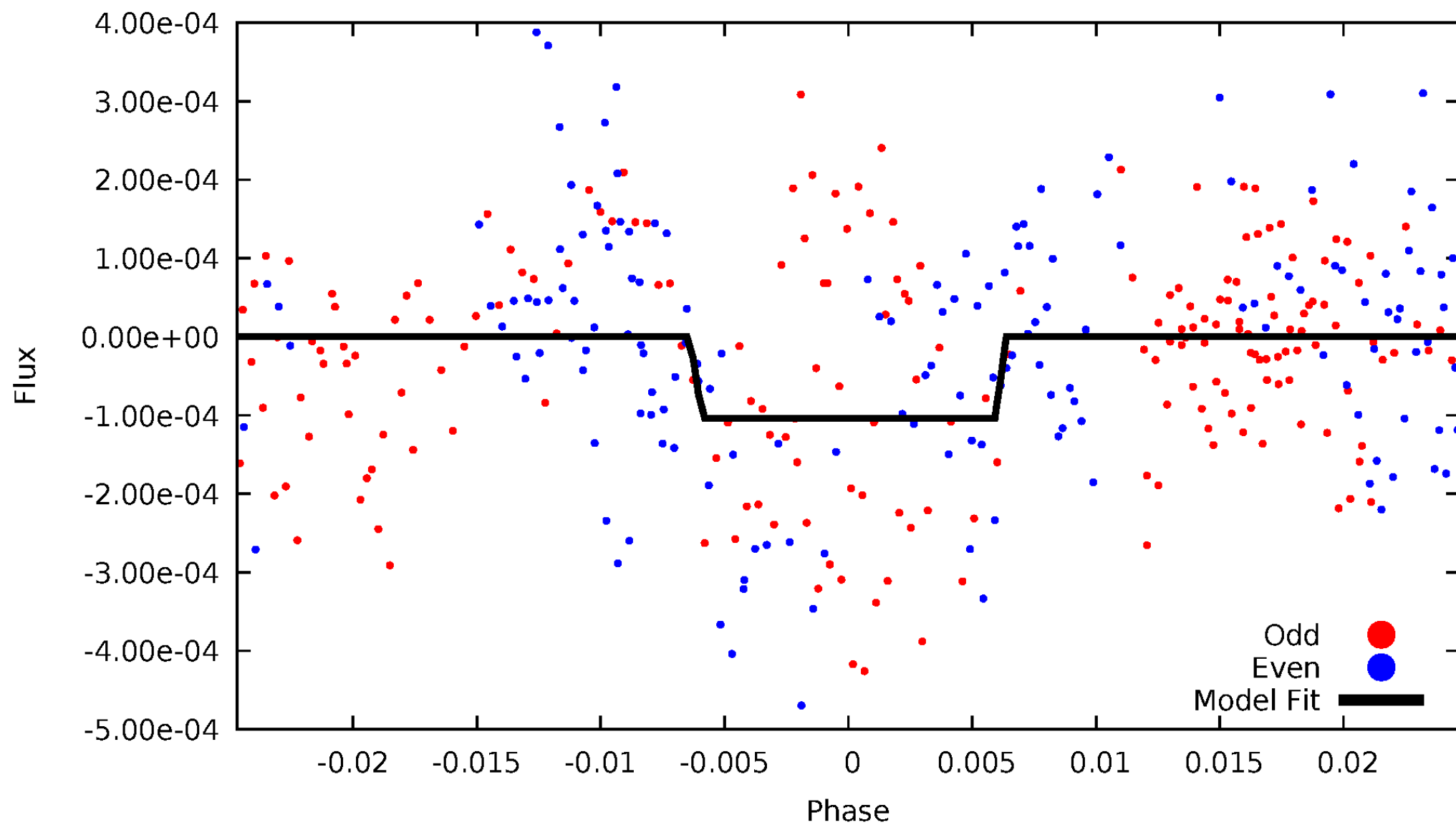
# DV Odd/Even

TCE 003560301-06



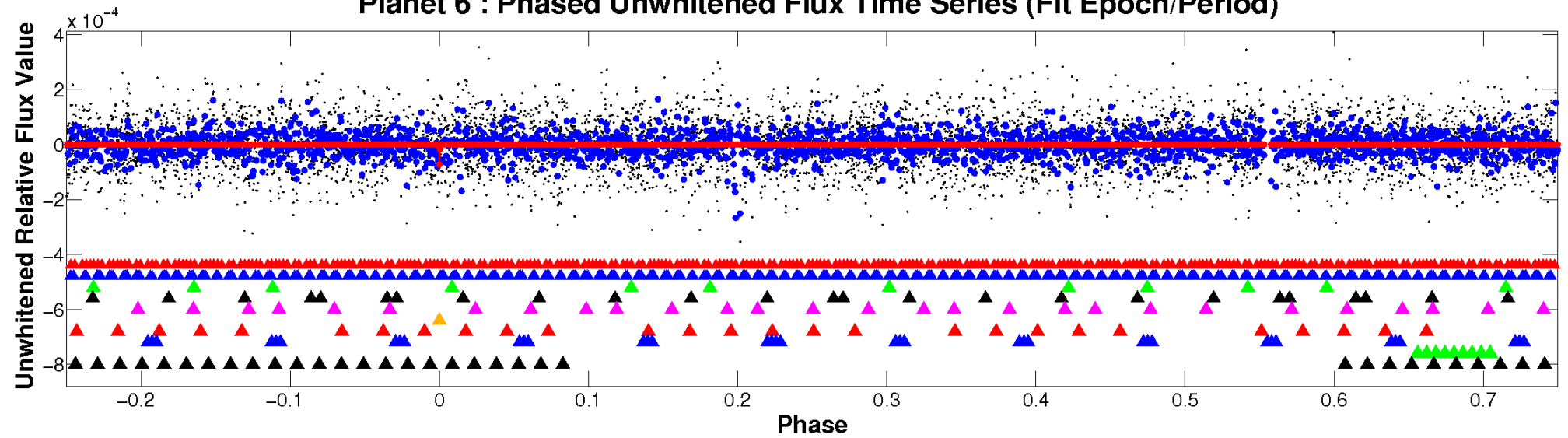
# ALT Odd/Even

TCE 003560301-06

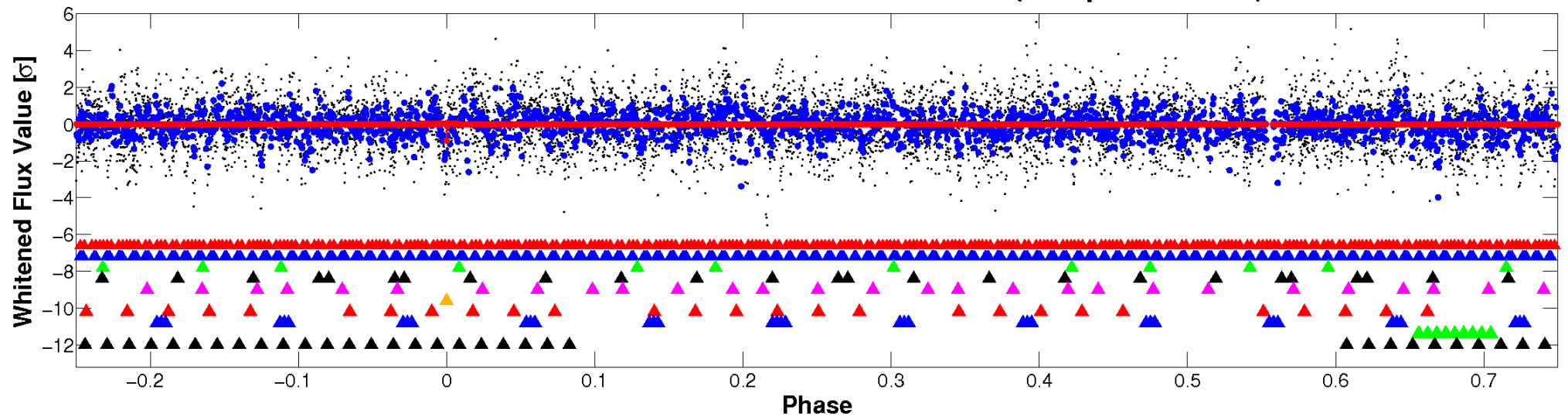


# Non-Whitened Vs. Whitened Light Curve

## Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

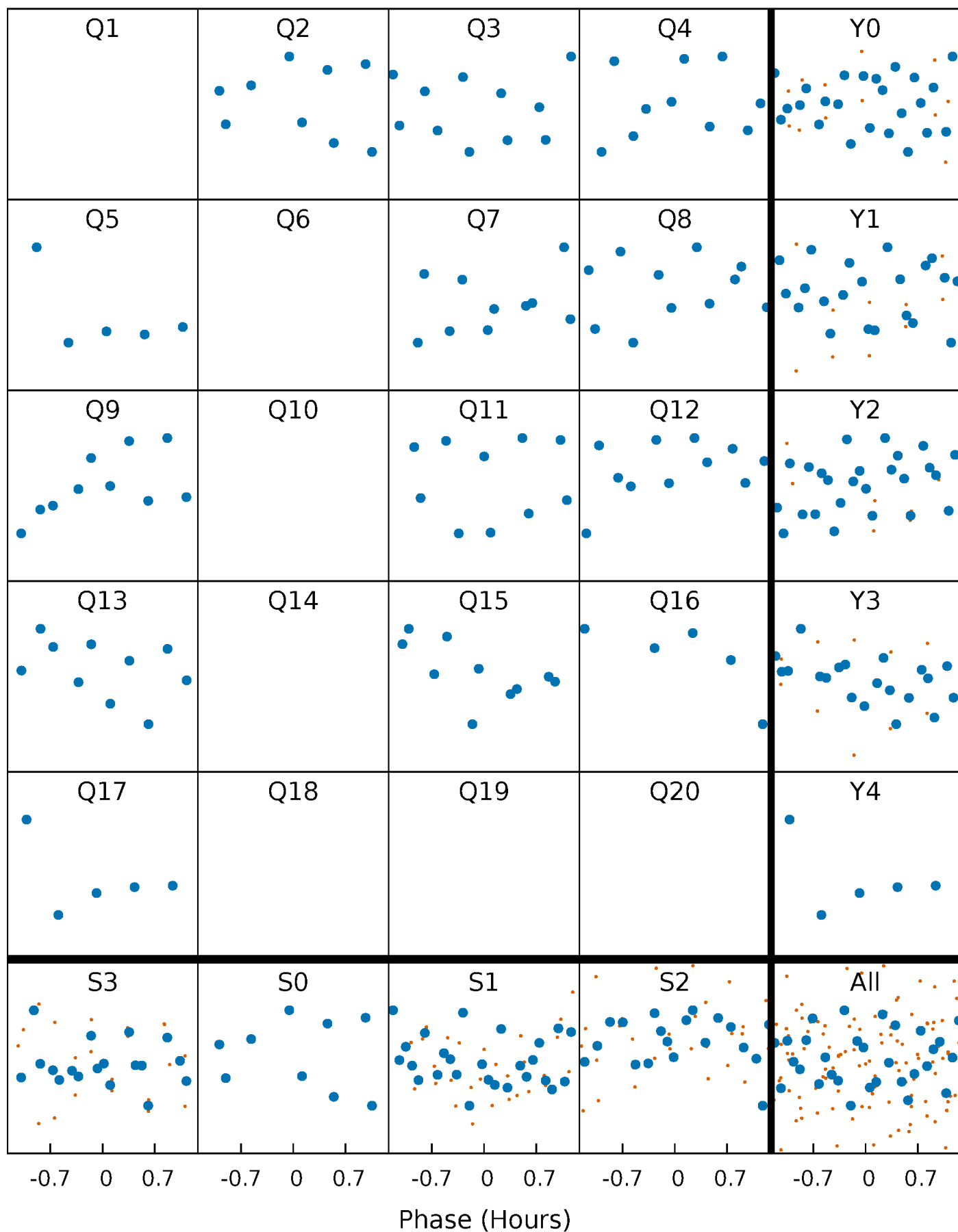


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

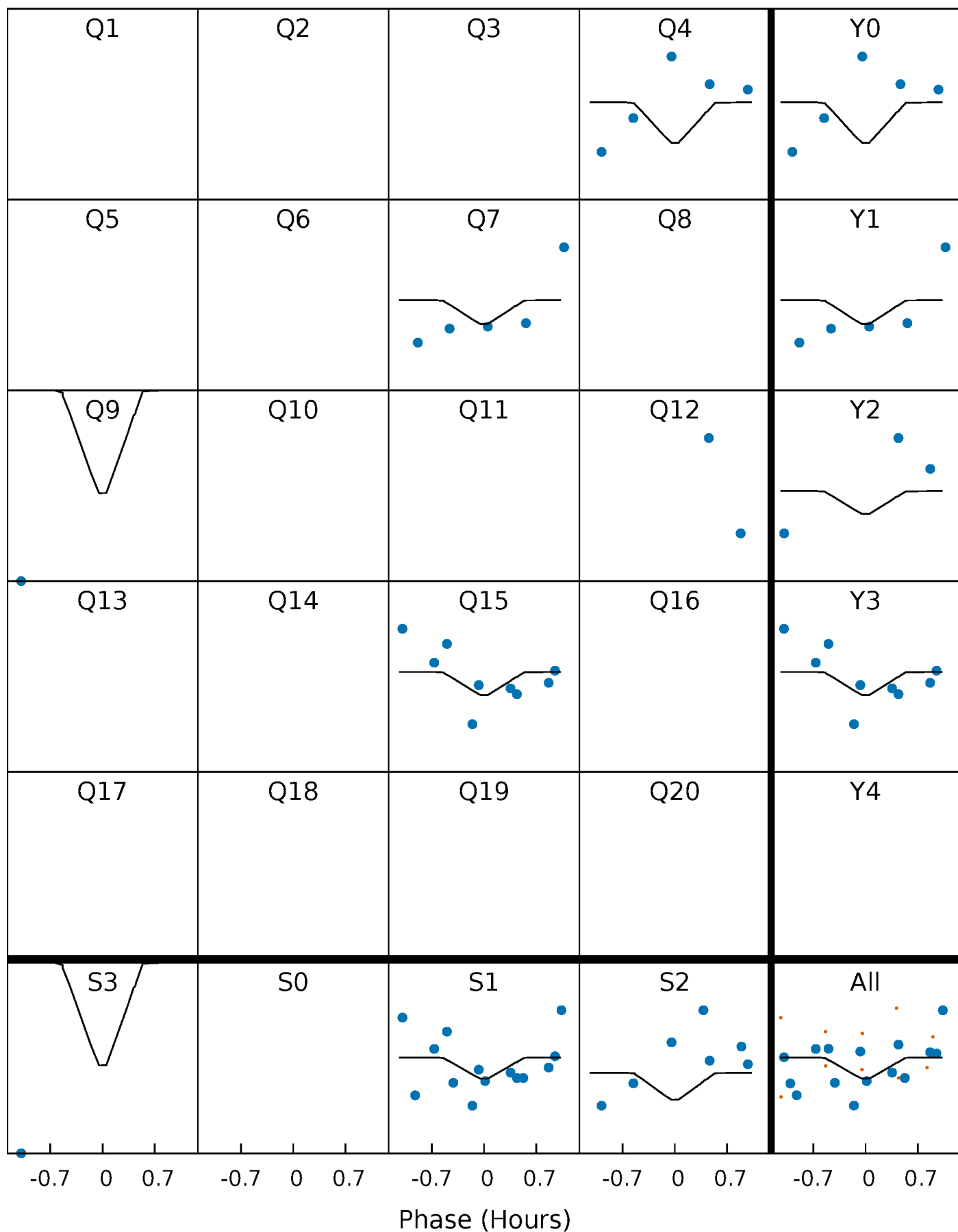
TCE 003560301-06     $P = 43.782493$  Days     $T_0 = 169.101103$  (BKJD)





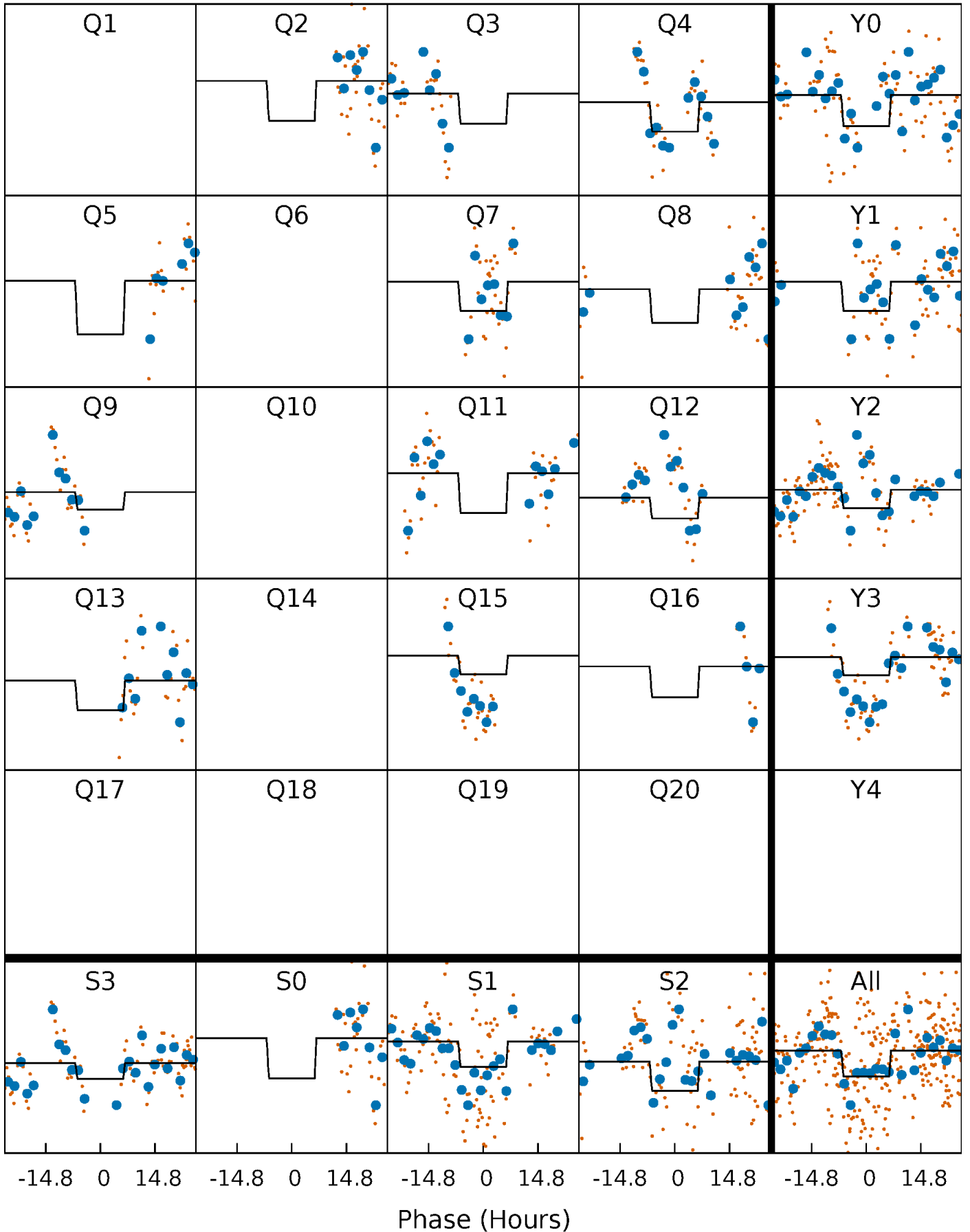
# DV Quarter-Phased Transit Curves

TCE 003560301-06 P= 43.782493 Days  $T_0=169.101103$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

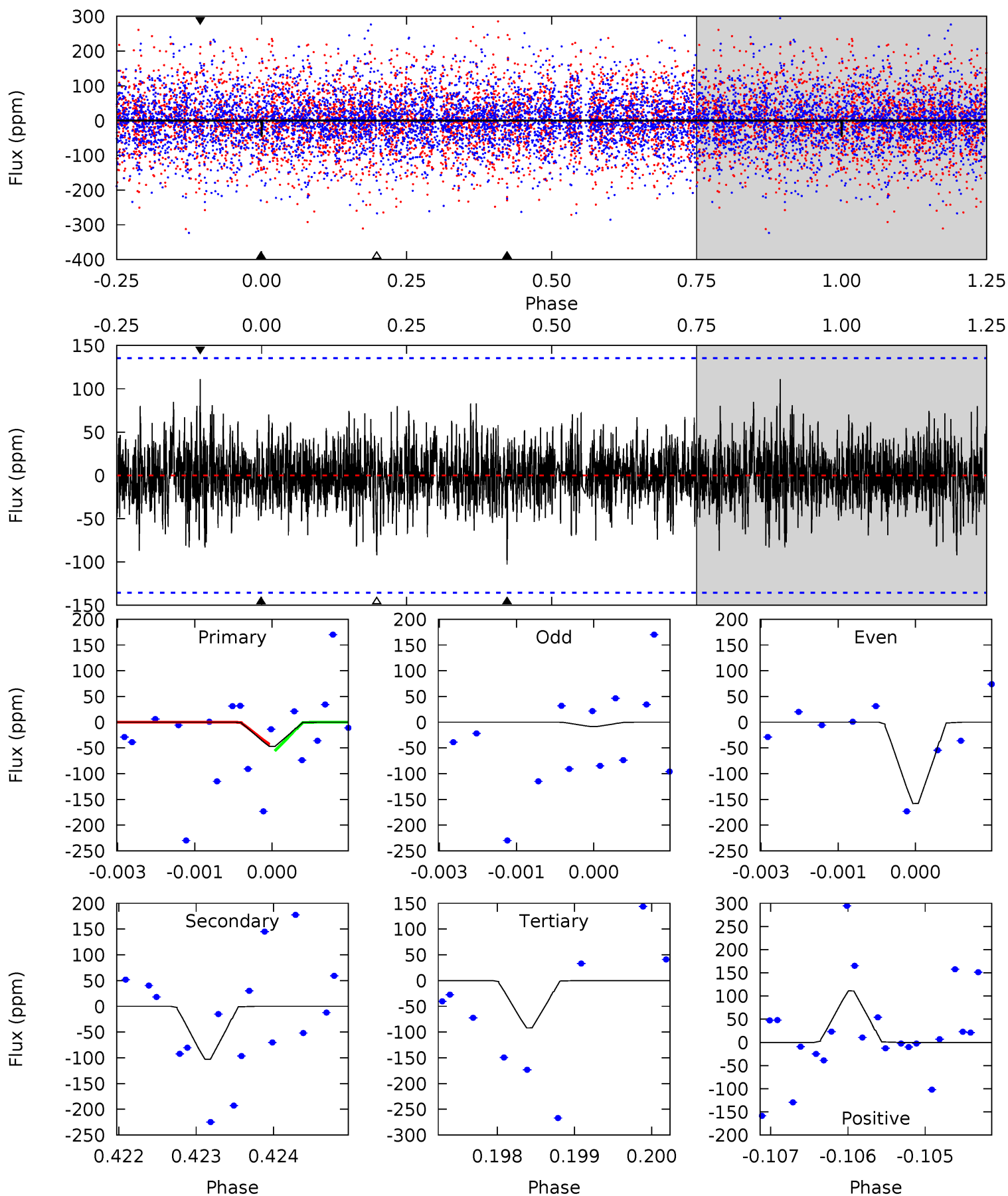
TCE 003560301-06 P= 43.777526 Days  $T_0=169.316747$  (BKJD)



# DV Model-Shift Uniqueness Test

003560301-06,  $P = 43.782493$  Days,  $E = 125.318610$  Days

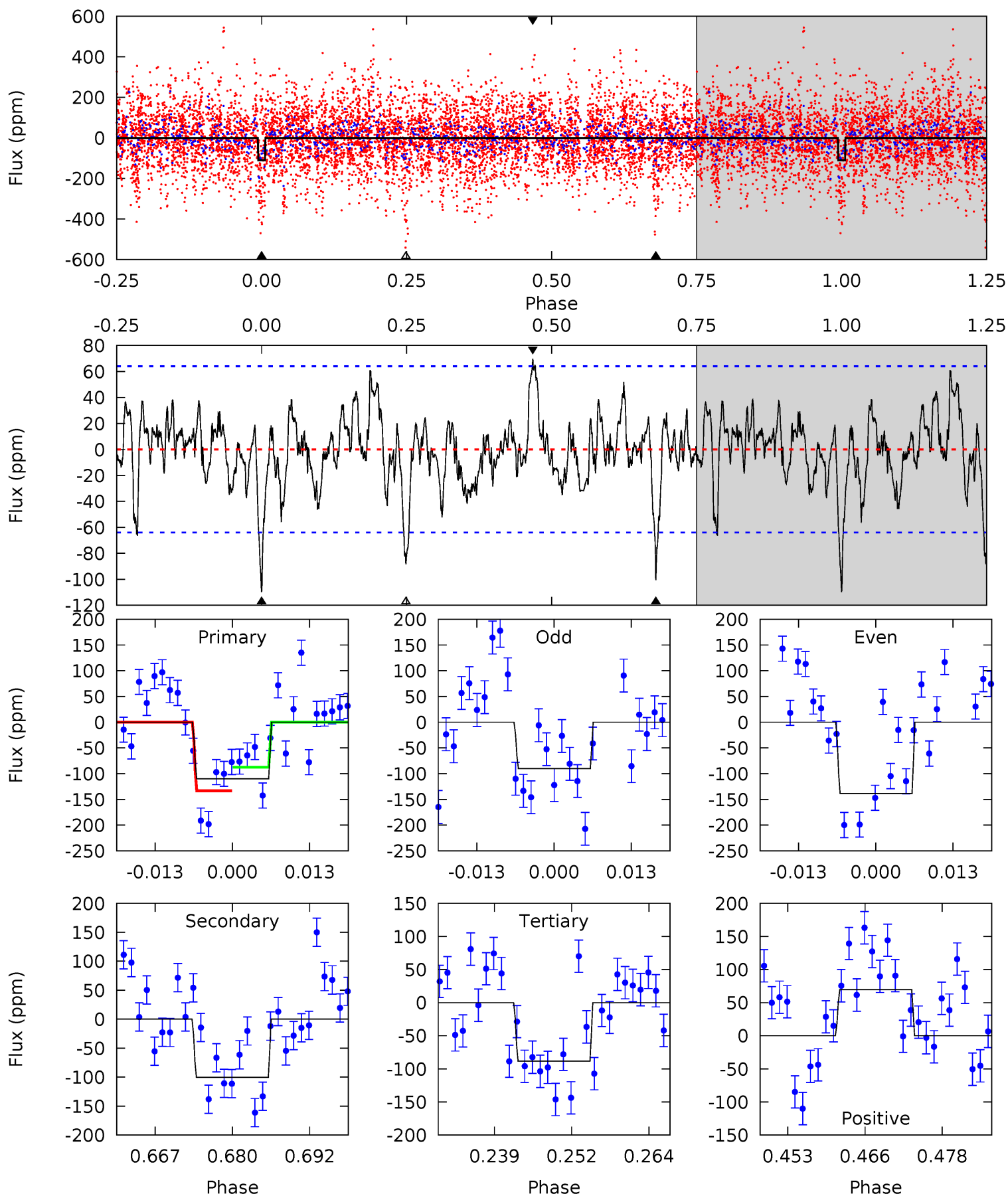
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.88	4.11	3.67	4.43	5.41	3.22	1.01	-1.79	-2.55	0.43	-0.32	2.38	0.85	0.52	0.25



# Alt Model-Shift Uniqueness Test

003560301-06,  $P = 43.777526$  Days,  $E = 125.539221$  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
8.55	7.83	6.87	5.42	4.98	2.50	1.73	1.68	3.13	0.95	2.41	1.85	0.90	0.39	1.78



### Stellar Parameters For KIC 003560301

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6980^{+167}_{-230}$	$3.577^{+0.352}_{-0.088}$	$-0.420^{+0.350}_{-0.250}$	$3.482^{+0.362}_{-1.447}$	$1.671^{+0.203}_{-0.377}$	$0.056^{+0.150}_{-0.012}$
	+2%/-3%	+10%/-2%	+83%/-60%	+10%/-42%	+12%/-23%	+270%/-22%
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 003560301-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-103 \pm 25$	$6.63^{+6.64}_{-4.44}$	$1465^{+84}_{-150}$	$5097^{+3919}_{-1187}$	$107^{+842}_{-81}$
Alt.	$-101 \pm 13$	$7.48^{+7.08}_{-5.09}$	$1469^{+81}_{-131}$	$4921^{+3522}_{-1138}$	$83^{+663}_{-62}$

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

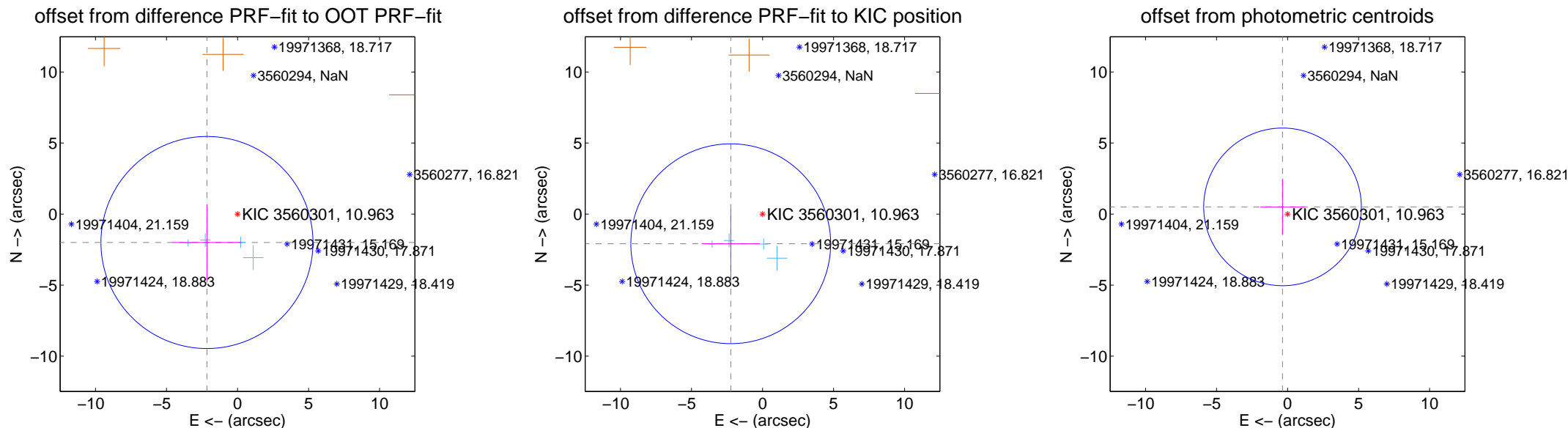
## DV Centroid Data

Supplemental centroid analysis for 003560301-06. **Kepler magnitude: 10.96.** Transit SNR 1.82

There are 4 quarters with good PRF difference image offsets

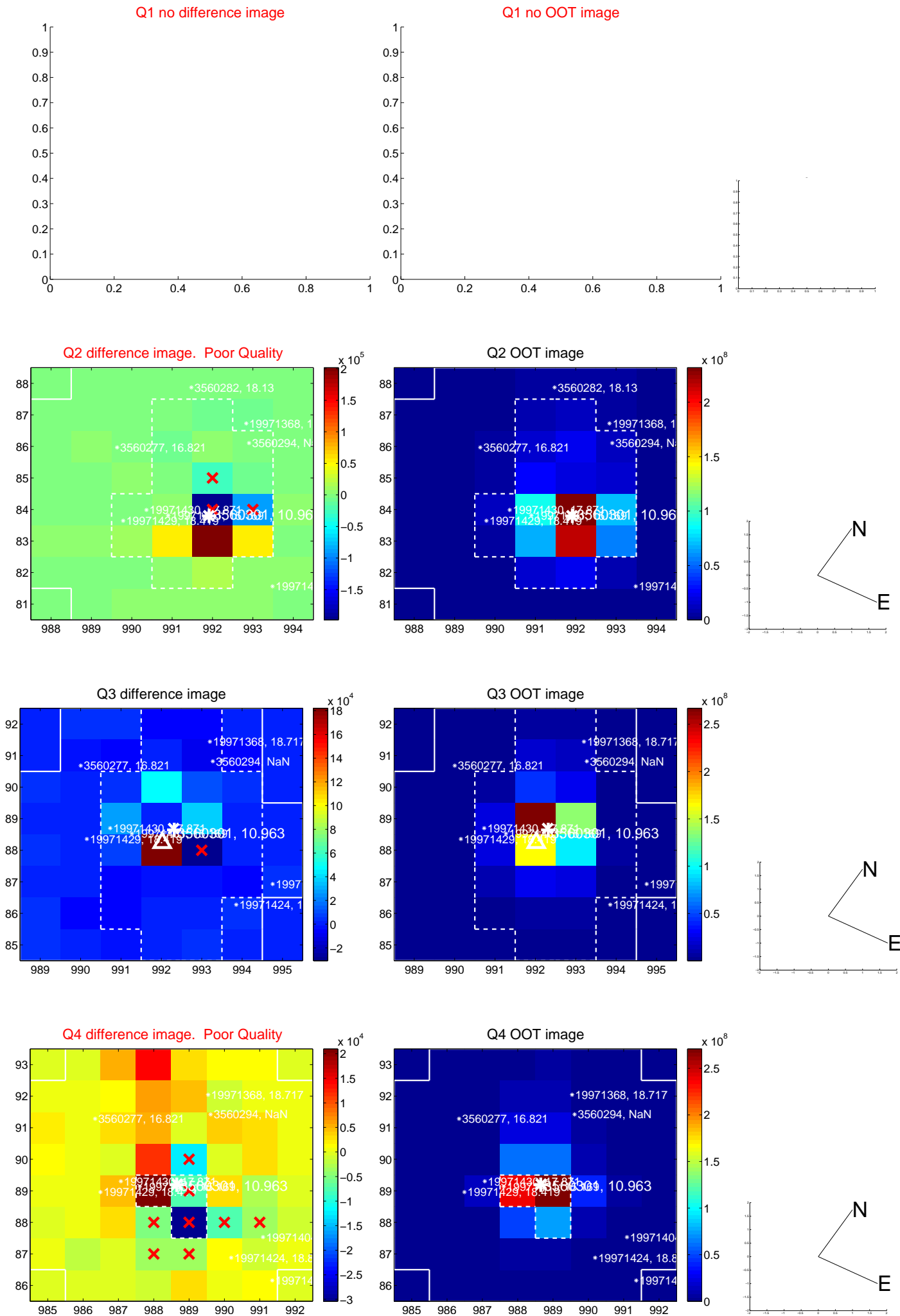
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.941 \pm 2.488$	1.18	$2.154 \pm 2.422$	$-2.002 \pm 2.680$
PRF-fit source offset from KIC position	$3.062 \pm 2.345$	1.31	$2.240 \pm 2.050$	$-2.089 \pm 2.436$
photometric centroid source offset	$0.62 \pm 1.85$	0.33	$0.36 \pm 1.57$	$0.51 \pm 1.97$



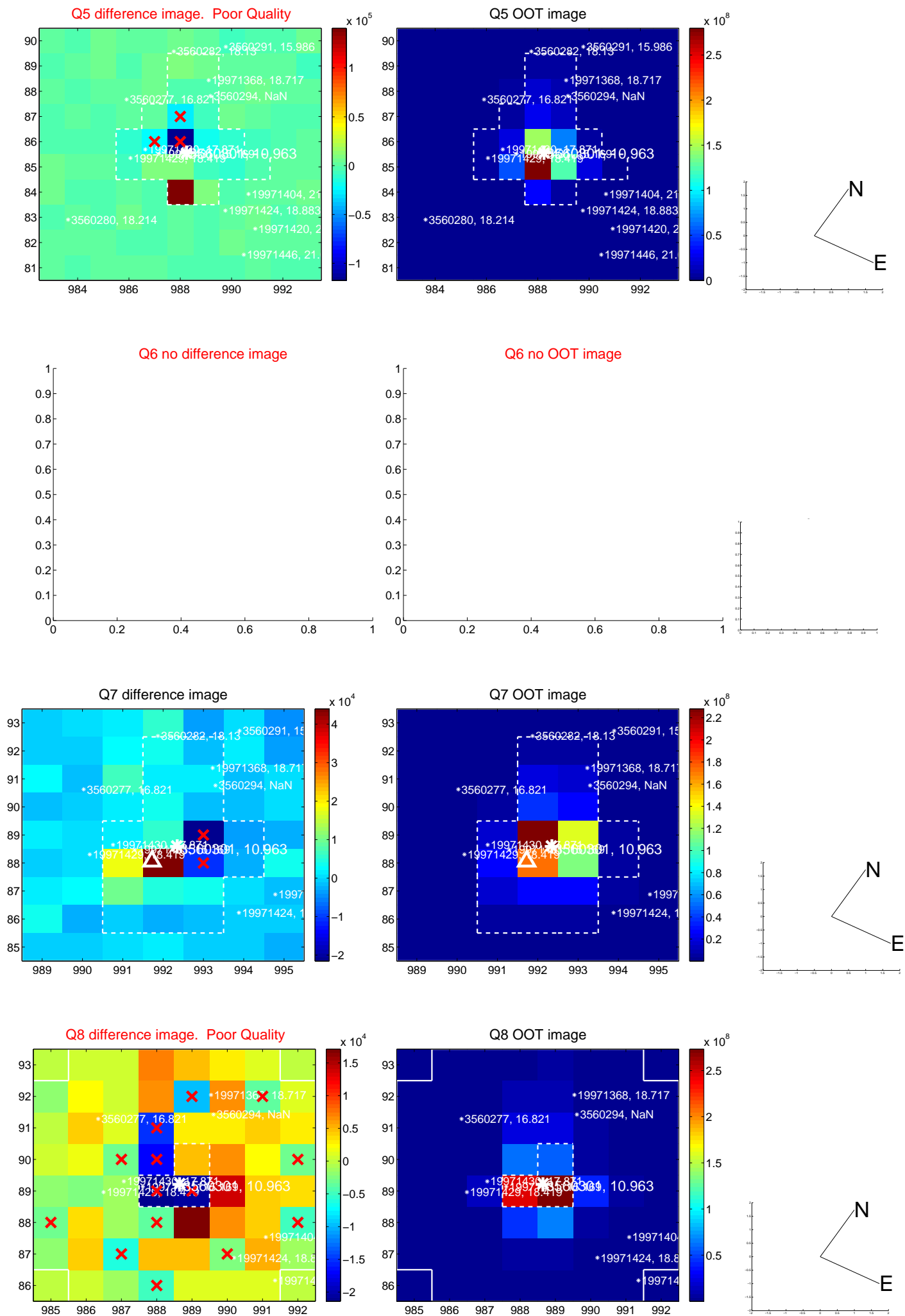
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

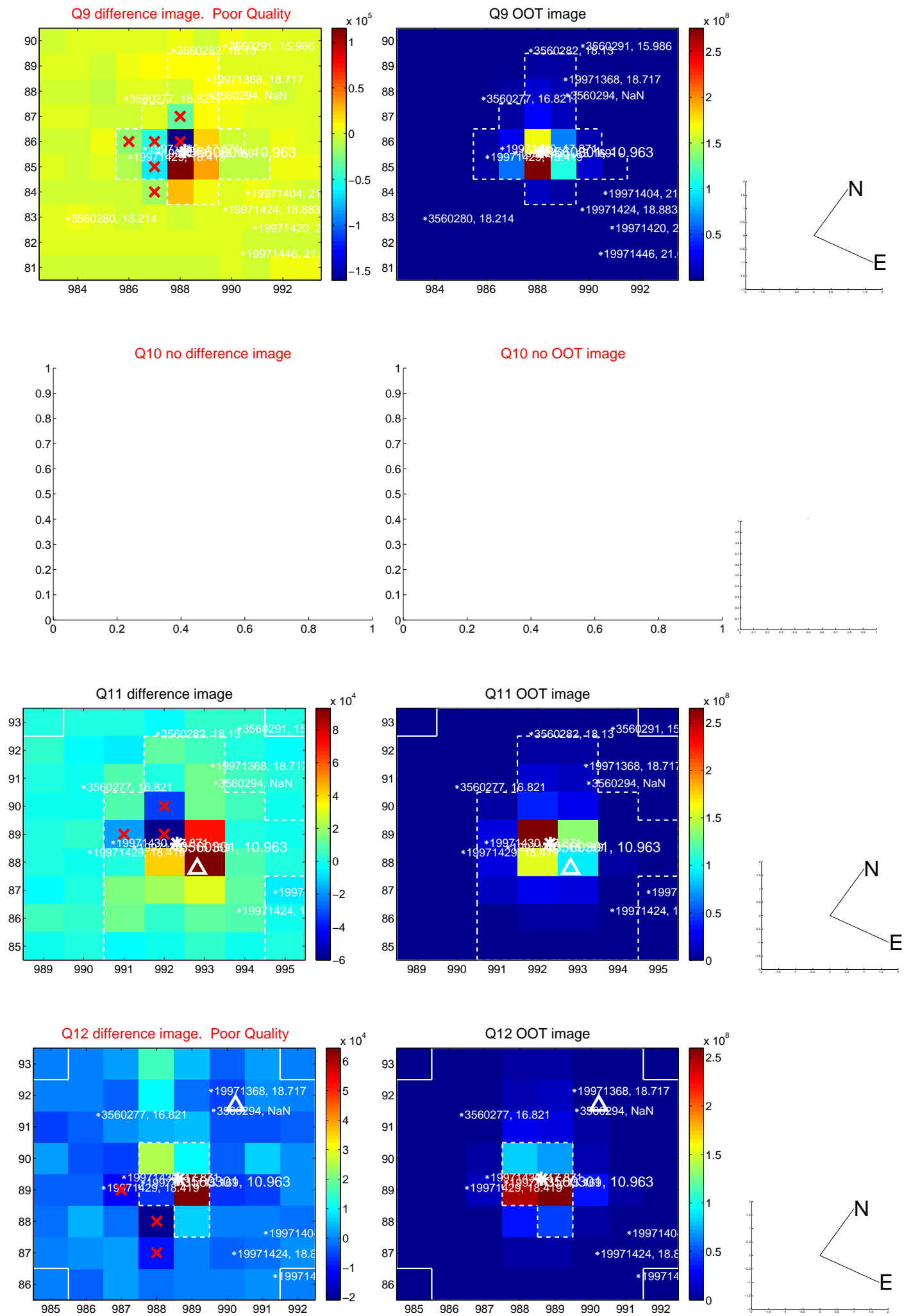




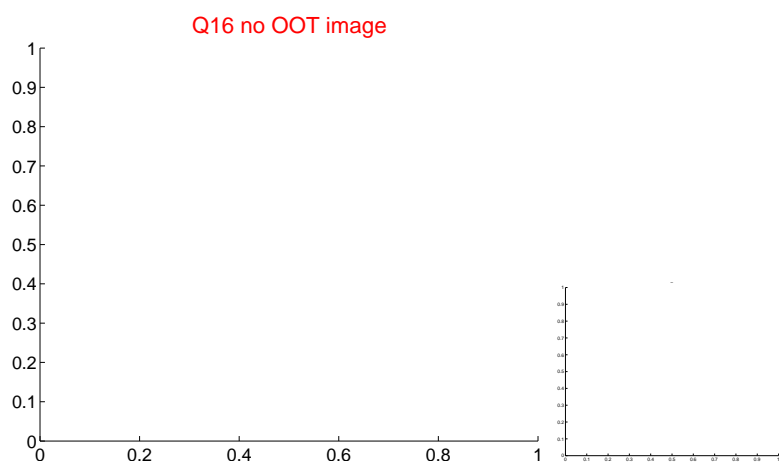
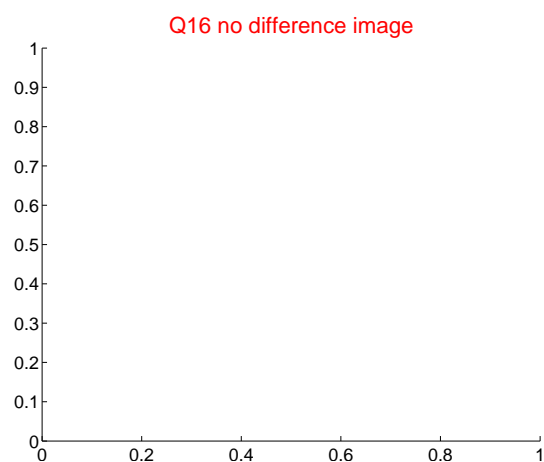
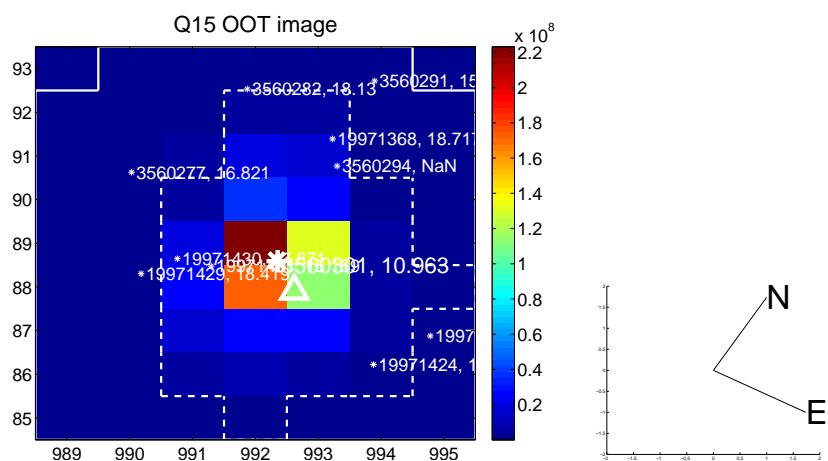
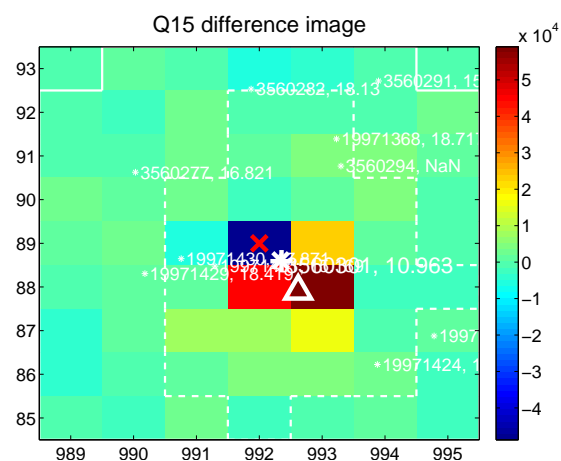
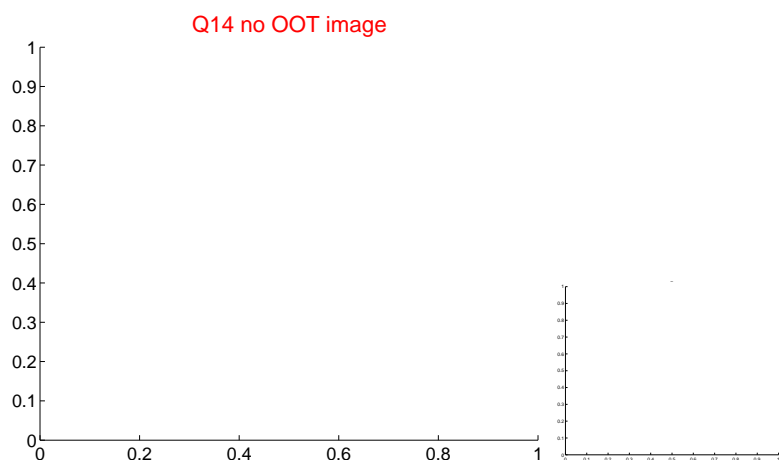
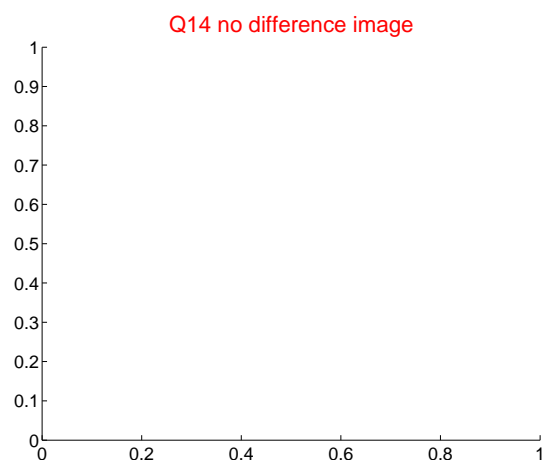
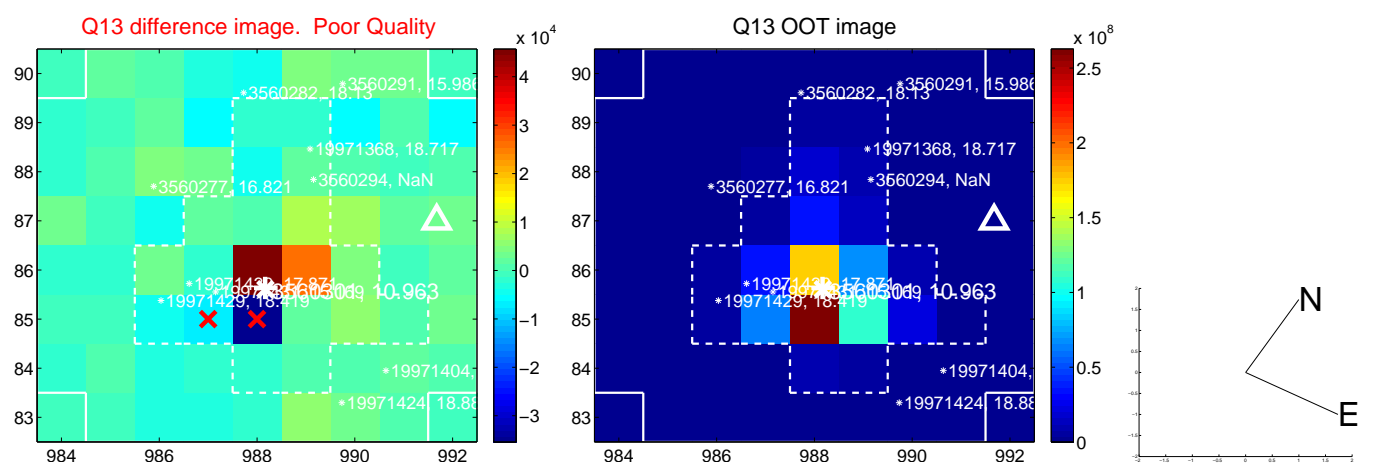
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



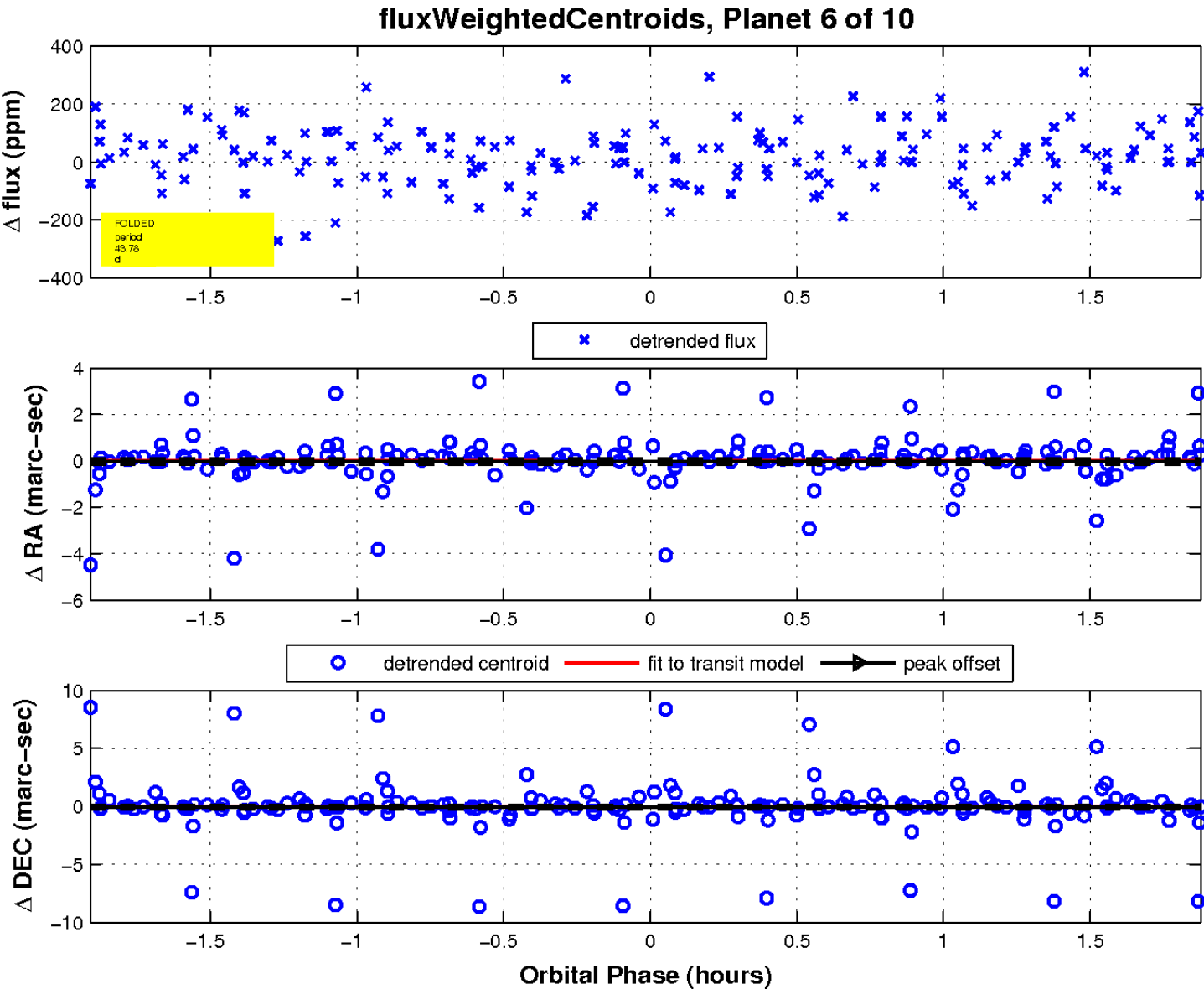
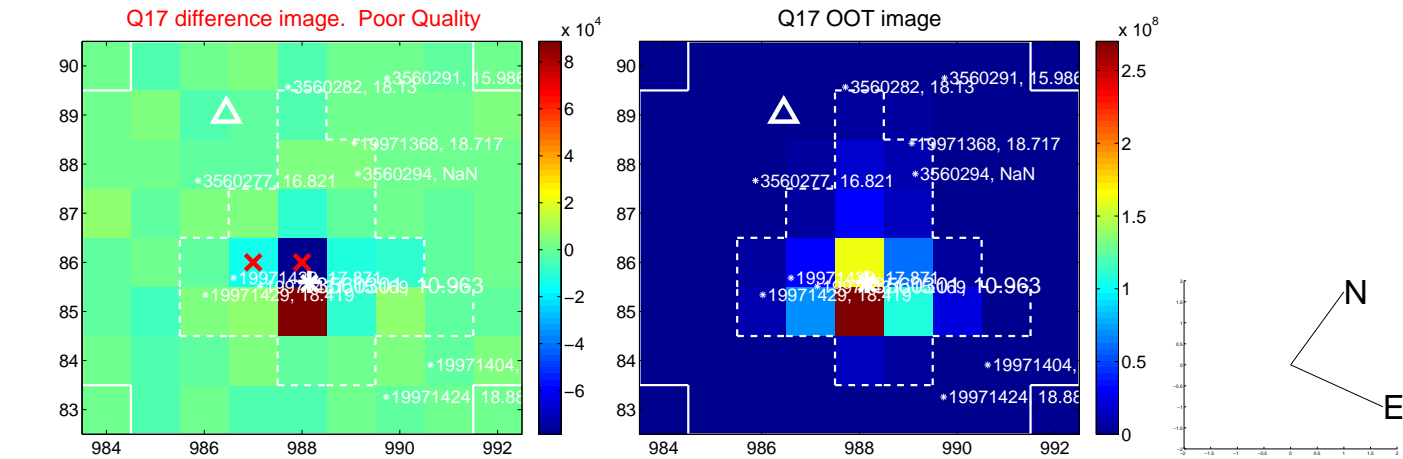
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

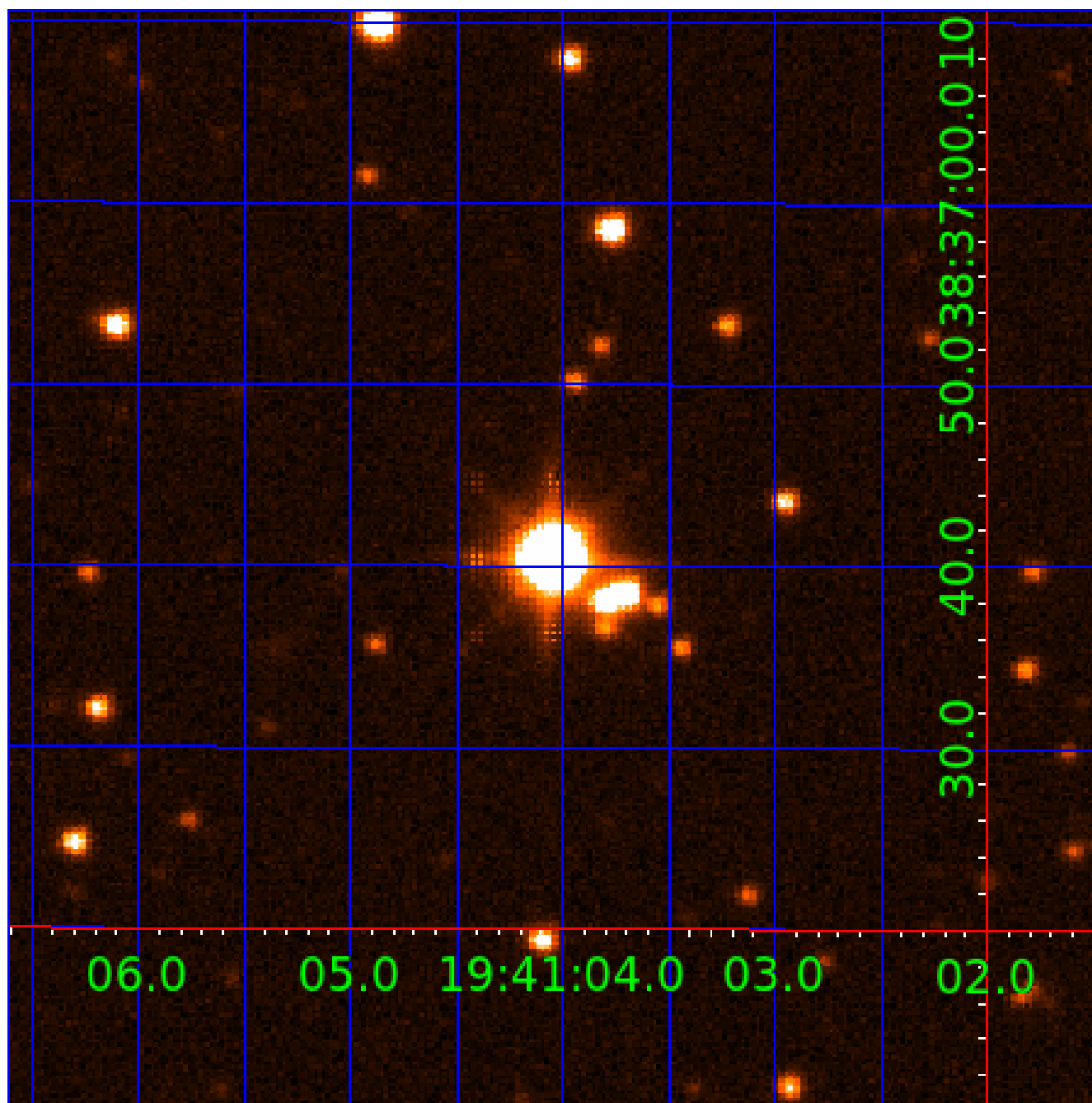


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003560301-01	OBS	0968.01	4.650516	135.703516	48.0	14.378	13.4	11.0	3.48	6980	2.84	6159.33
003560301-02	OBS	No	4.649908	133.451011	83.9	16.883	14.4	16.5	3.48	6980	5.57	6160.41
003560301-03	OBS	No	118.507880	246.508723	514.3	19.733	25.7	16.3	3.48	6980	15.00	82.14
003560301-04	OBS	No	59.120616	149.996311	153.3	5.042	15.3	7.1	3.48	6980	5.25	207.59
003560301-05	OBS	No	53.692713	134.661858	214.8	5.861	12.2	9.5	3.48	6980	5.48	236.04
003560301-06	OBS	No	43.782493	169.101103	77.0	0.639	9.8	1.8	3.48	6980	3.30	309.84
003560301-07	OBS	No	52.781384	166.241089	260.9	3.022	10.4	9.6	3.48	6980	6.31	241.49
003560301-08	OBS	No	40.144553	134.948745	254.5	2.914	10.0	10.3	3.48	6980	6.57	347.83
003560301-09	OBS	No	174.864198	156.170068	276.4	6.035	9.6	10.4	3.48	6980	6.72	48.90
003560301-10	OBS	No	44.432964	151.915392	186.8	5.412	9.8	9.0	3.48	6980	5.09	303.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003560301-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
003560301-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
003560301-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003560301-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
003560301-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

**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 003560301-07

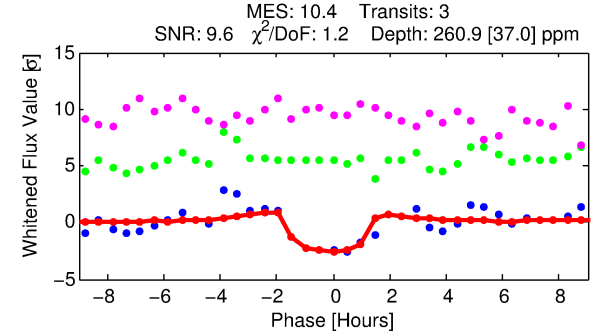
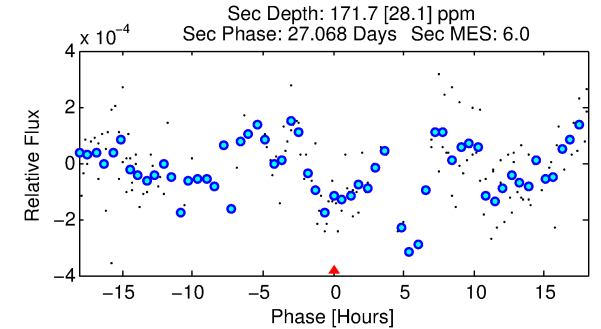
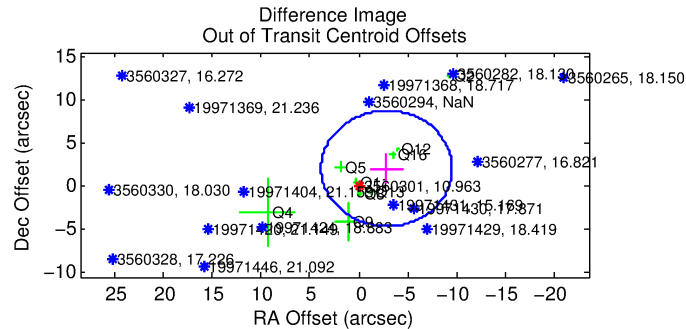
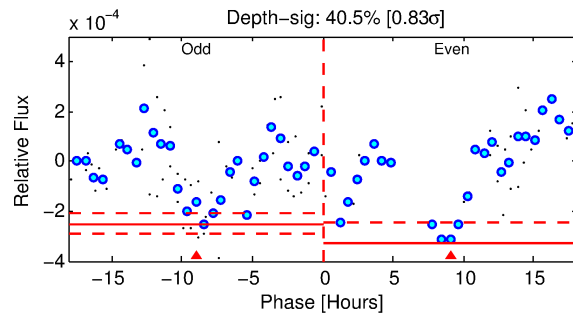
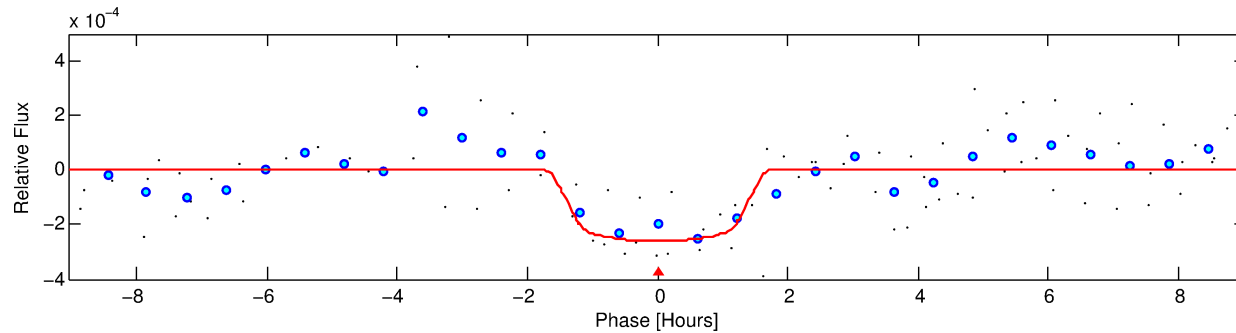
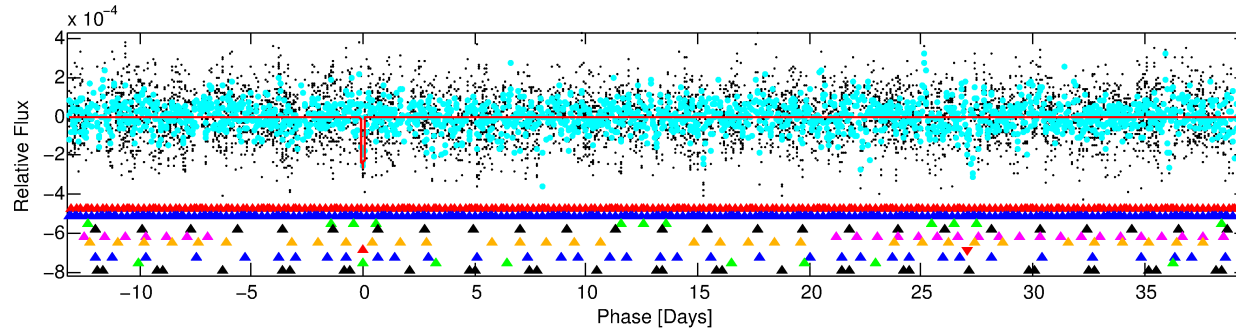
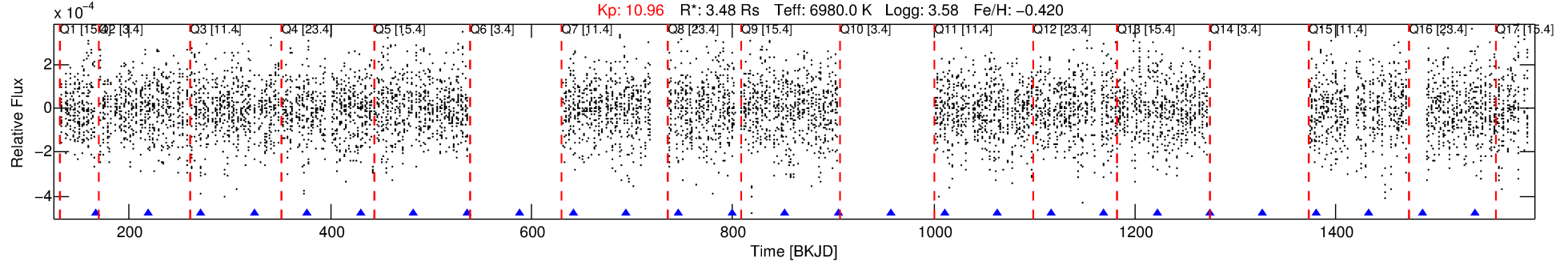
No Significant Match Found

# DV One-Page Summary

KIC: 3560301 Candidate: 7 of 10 Period: 52.781 d

KOI: K00968 Corr: No Ephemeris Match

Kp: 10.96 R\*: 3.48 Rs Teff: 6980.0 K Logg: 3.58 Fe/H: -0.420



## DV Fit Results:

Period = 52.78138 [0.00075] d  
Epoch = 166.2411 [0.0088] BKJD  
Rp/R\* = 0.0166 [0.0104]  
a/R\* = 76.49 [284.90]  
b = 0.84 [1.32]  
Seff = 241.49 [150.05]  
Teq = 1005 [156] K  
Rp = 6.31 [4.75] Re  
a = 0.3268 [0.1264] AU  
Ag = 253.53 [356.51] [0.71σ]  
Teffp = 6202 [1977] K [2.62σ]

## DV Diagnostic Results:

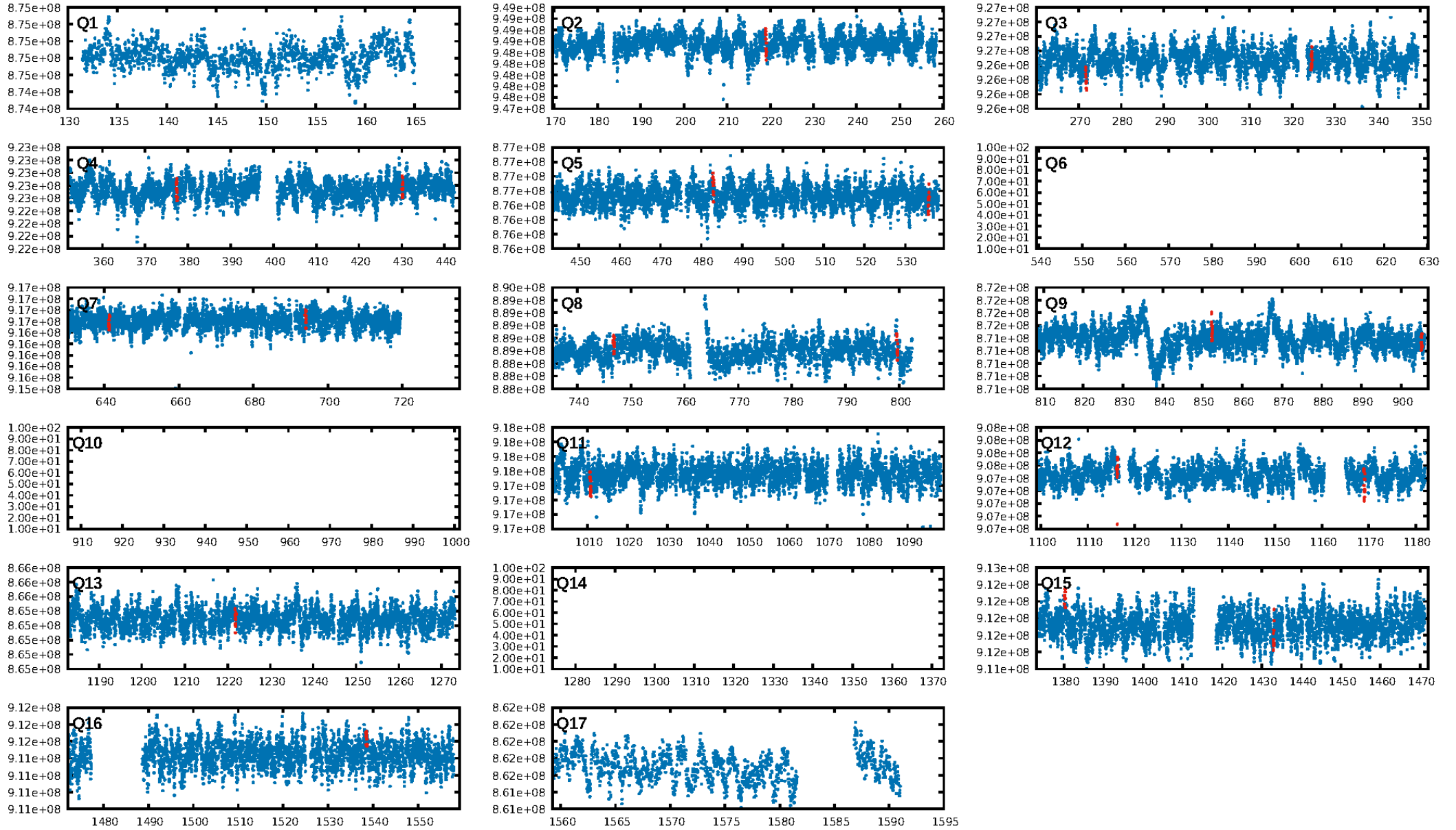
ShortPeriod-sig: 100.0% [32.32σ]  
LongPeriod-sig: 99.9% [3.32σ]  
ModelChiSquare2-sig: 11.8%  
ModelChiSquareGof-sig: 99.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -6.821  
Centroid-sig: 13.7%  
Centroid-so: 0.213 arcsec [0.85σ]  
OotOffset-rm: 3.489 arcsec [1.56σ]  
OotOffset-st: 1/1/4/3 [9]  
KicOffset-rm: 3.430 arcsec [1.81σ]  
KicOffset-st: 1/1/4/3 [9]  
DiffImageQuality-fgm: 0.33 [3/9]  
DiffImageOverlap-fno: 0.55 [6/11]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:26:41 Z

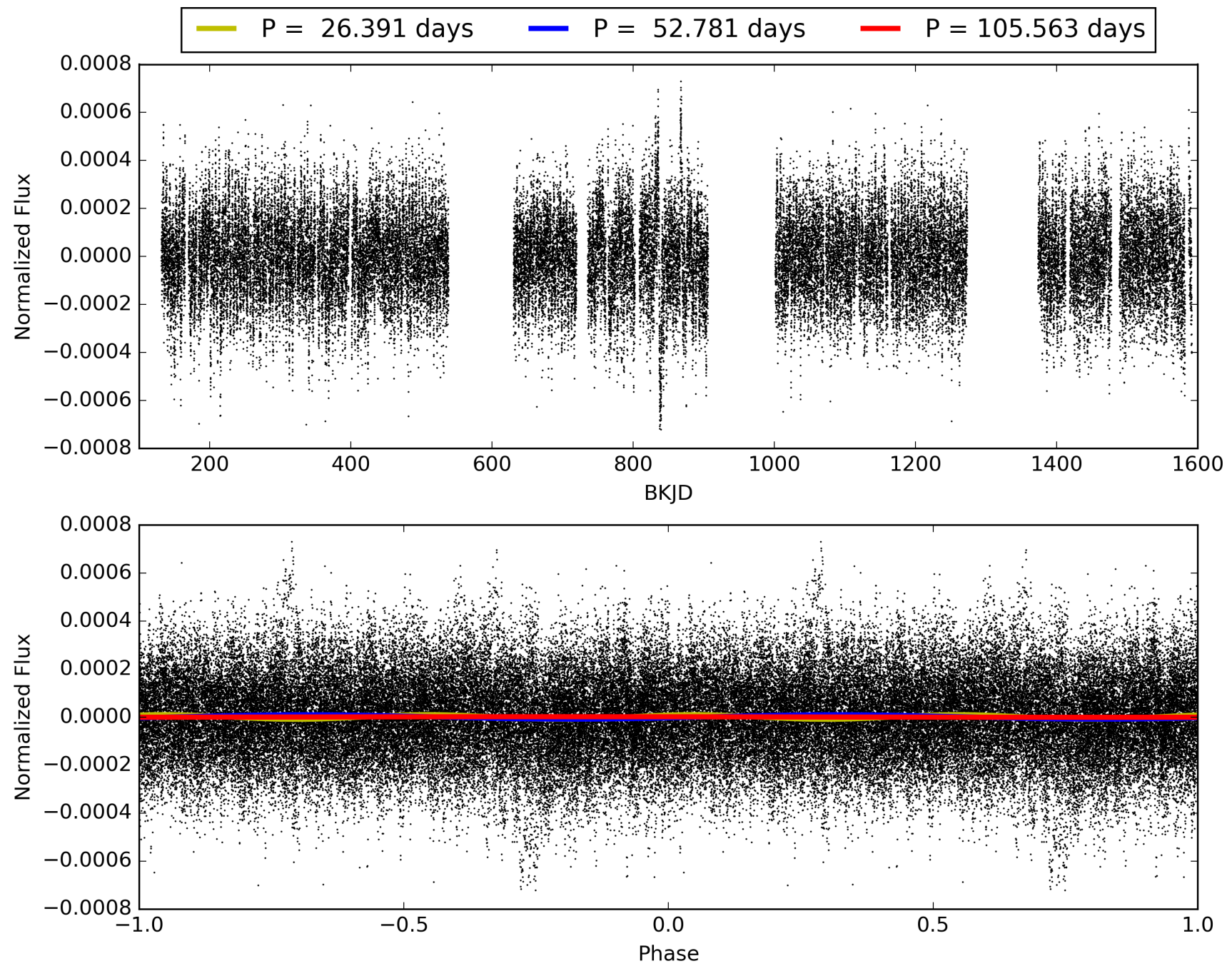
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 003560301-07, PDC Light Curves

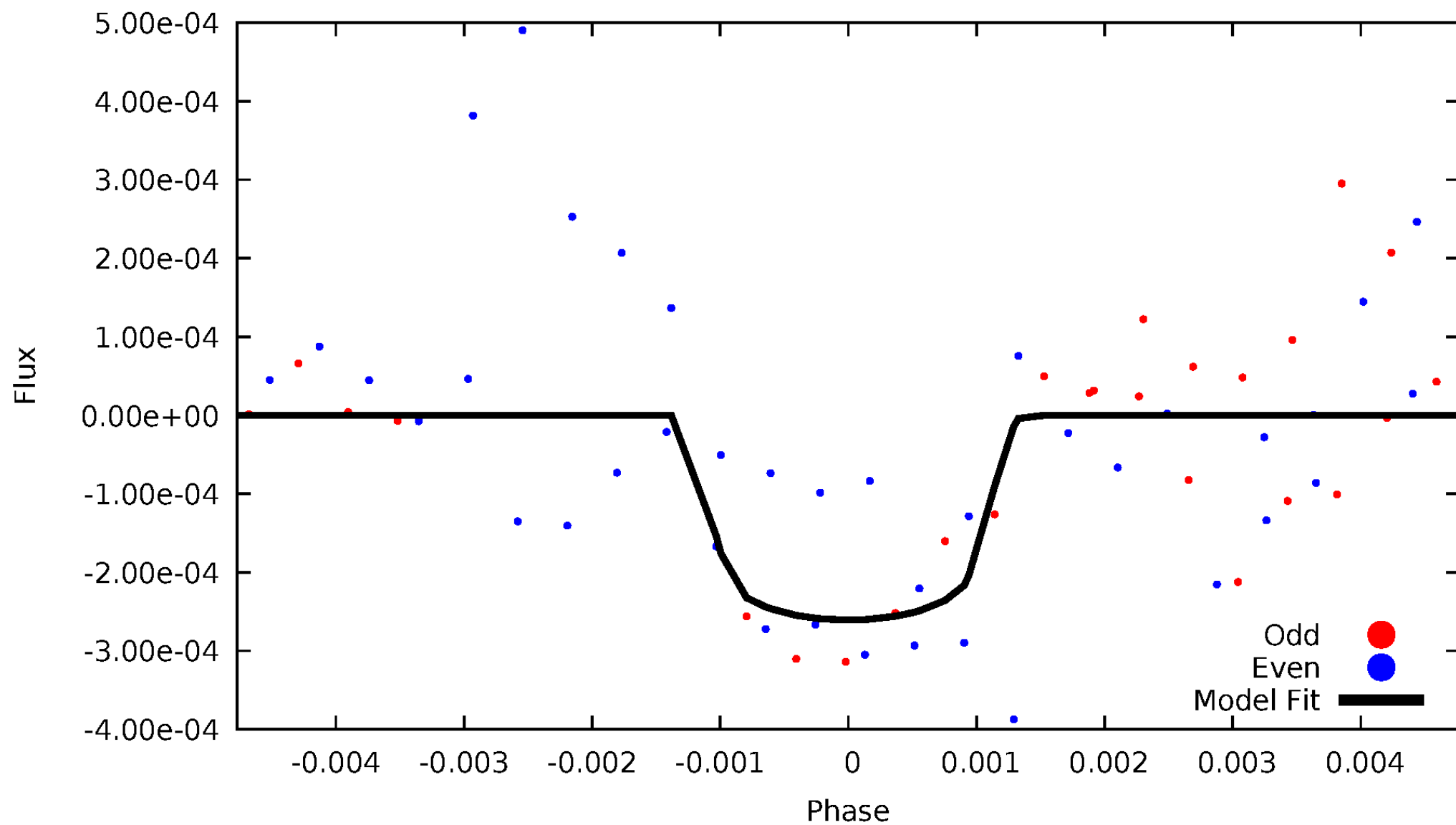


TCE 003560301-07



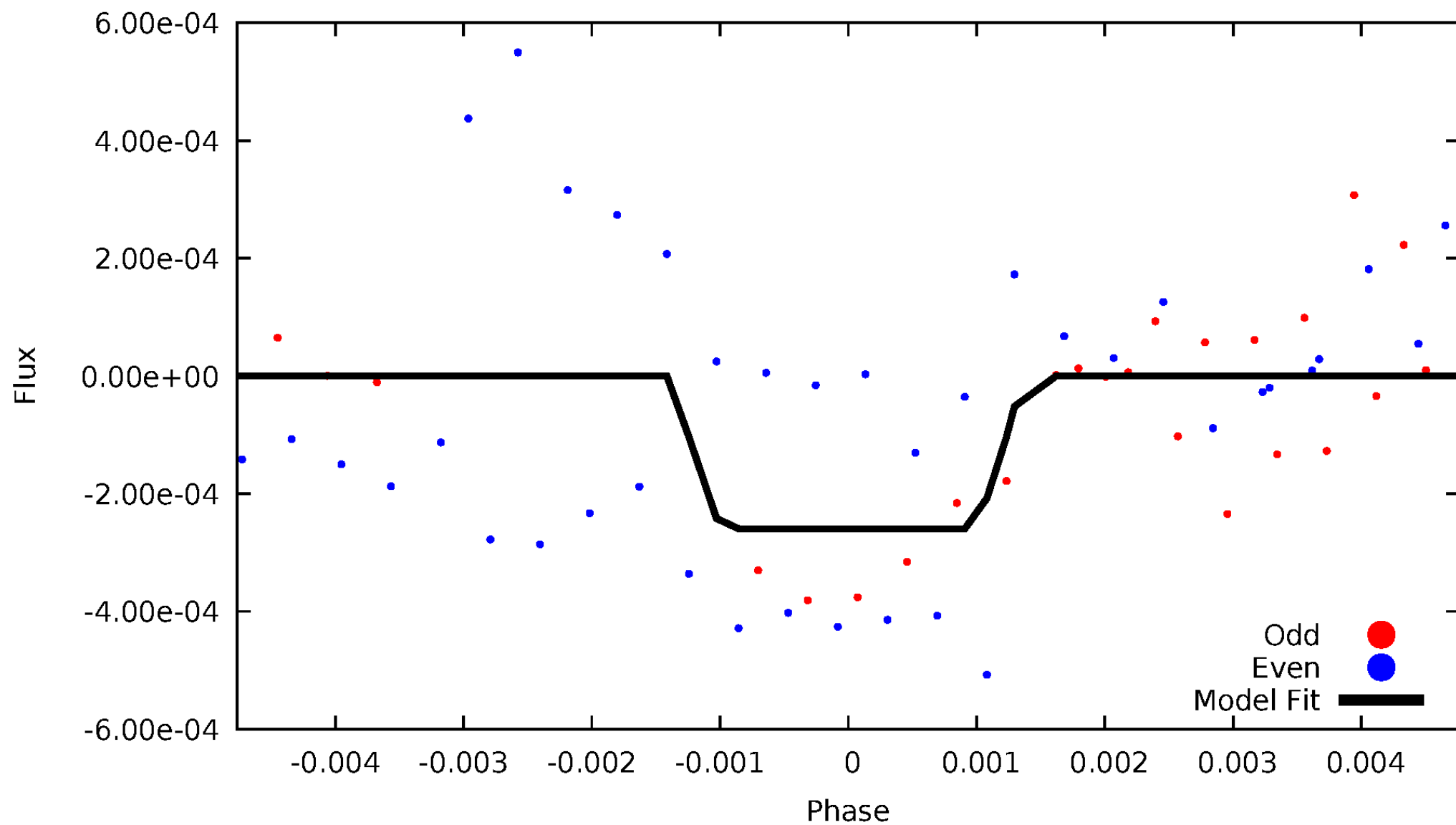
# DV Odd/Even

TCE 003560301-07



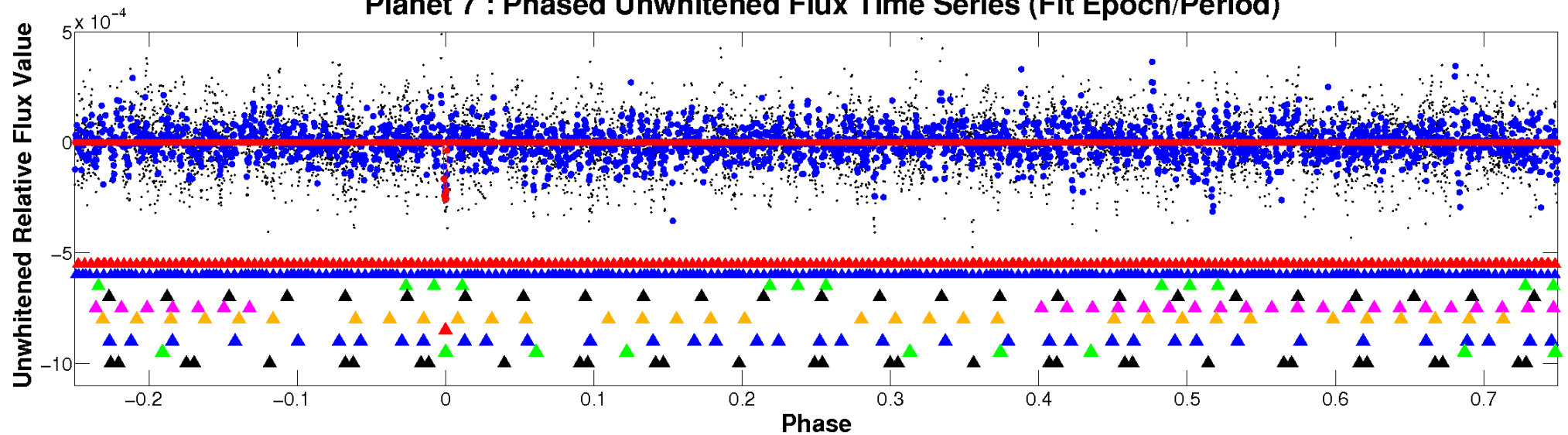
# ALT Odd/Even

TCE 003560301-07

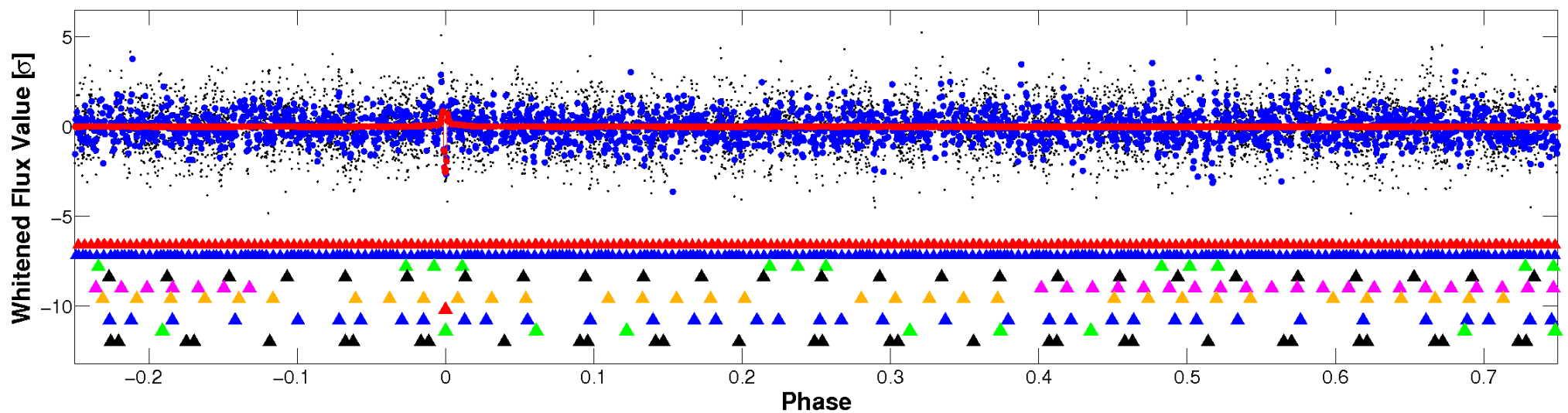


# Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

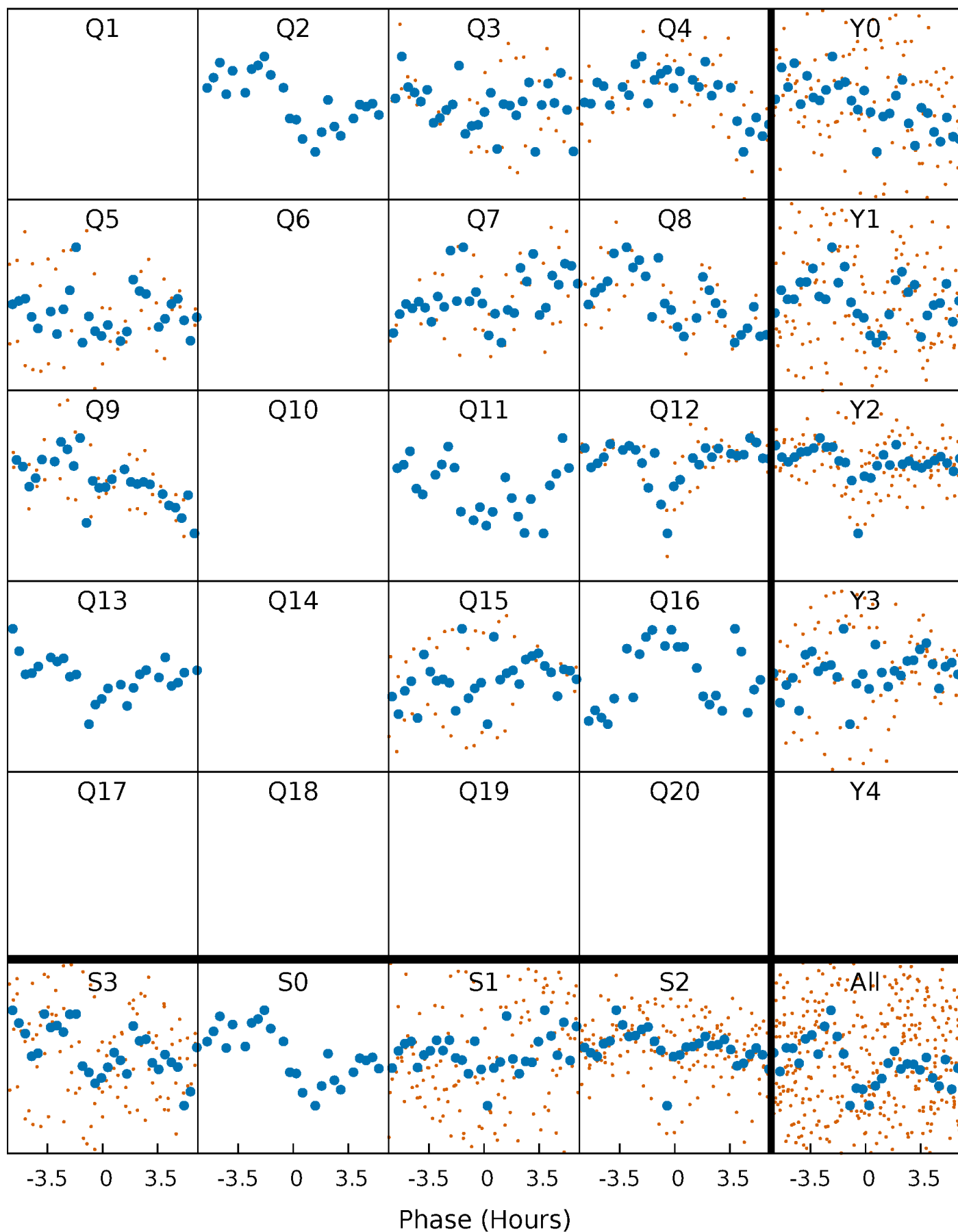


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



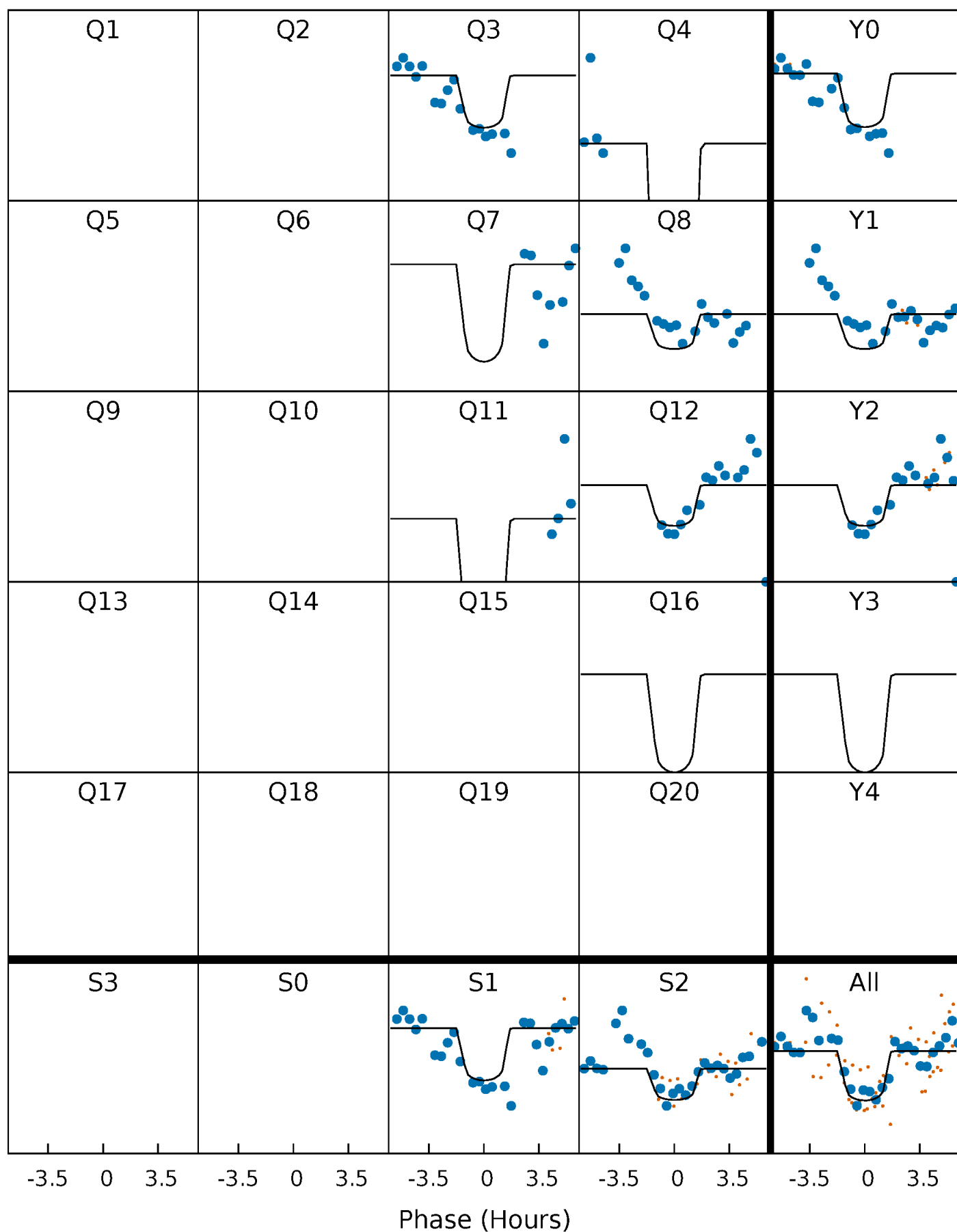
# PDC Quarter-Phased Transit Curves

TCE 003560301-07     $P = 52.781384$  Days     $T_0 = 166.241089$  (BKJD)



# DV Quarter-Phased Transit Curves

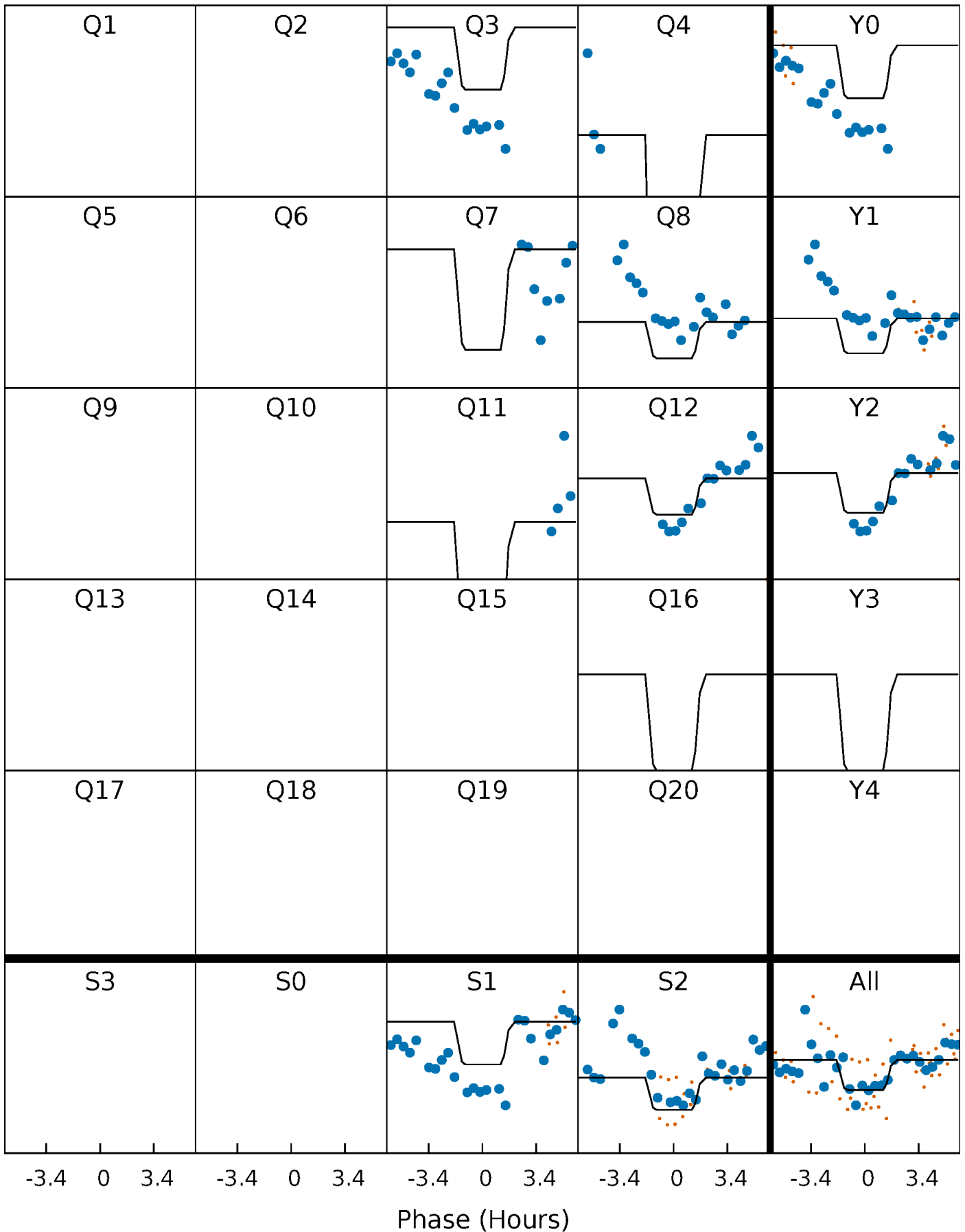
TCE 003560301-07     $P = 52.781384$  Days     $T_0 = 166.241089$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

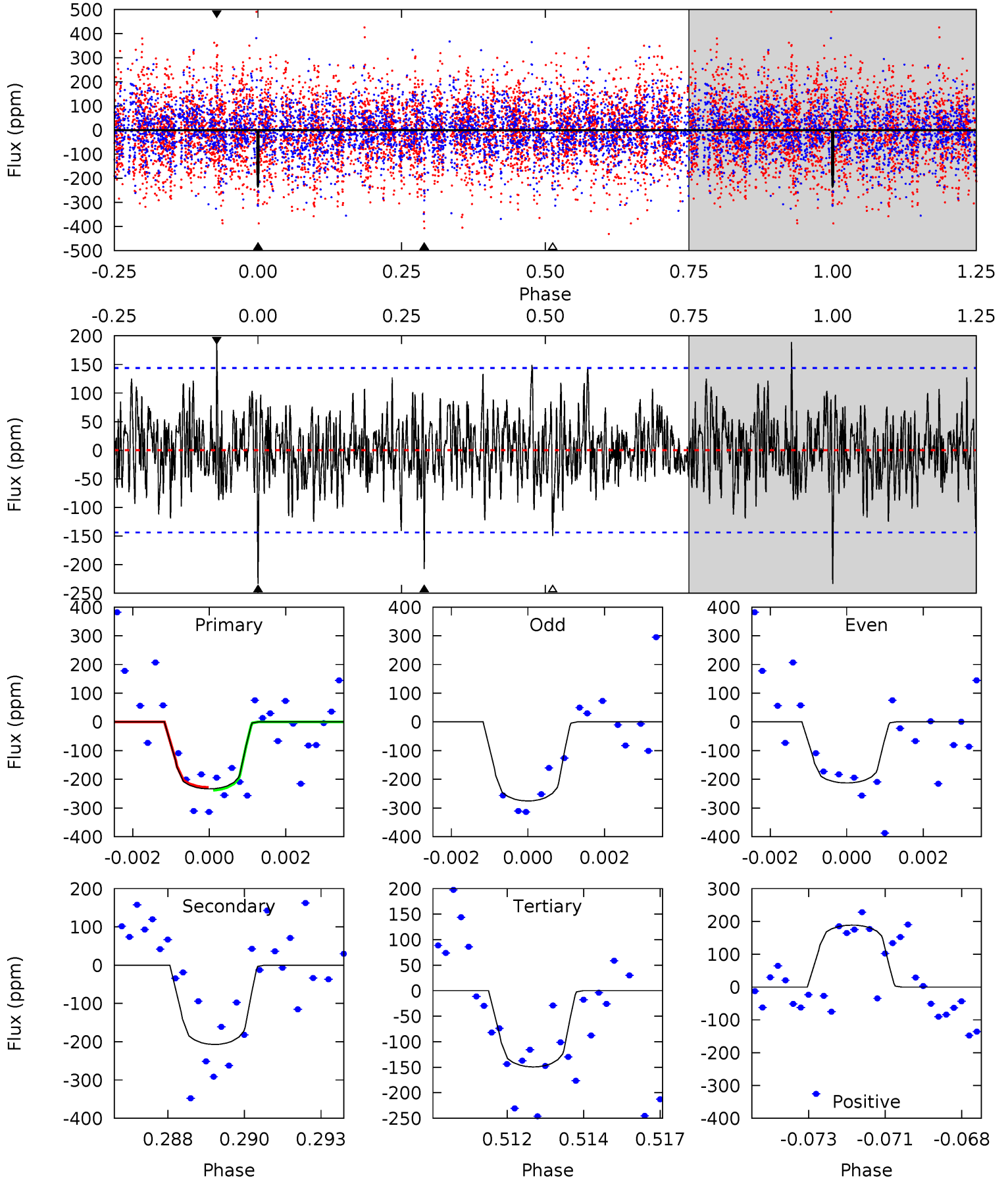
TCE 003560301-07     $P = 52.780446$  Days     $T_0 = 166.254110$  (BKJD)



# DV Model-Shift Uniqueness Test

003560301-07, P = 52.781384 Days, E = 113.459705 Days

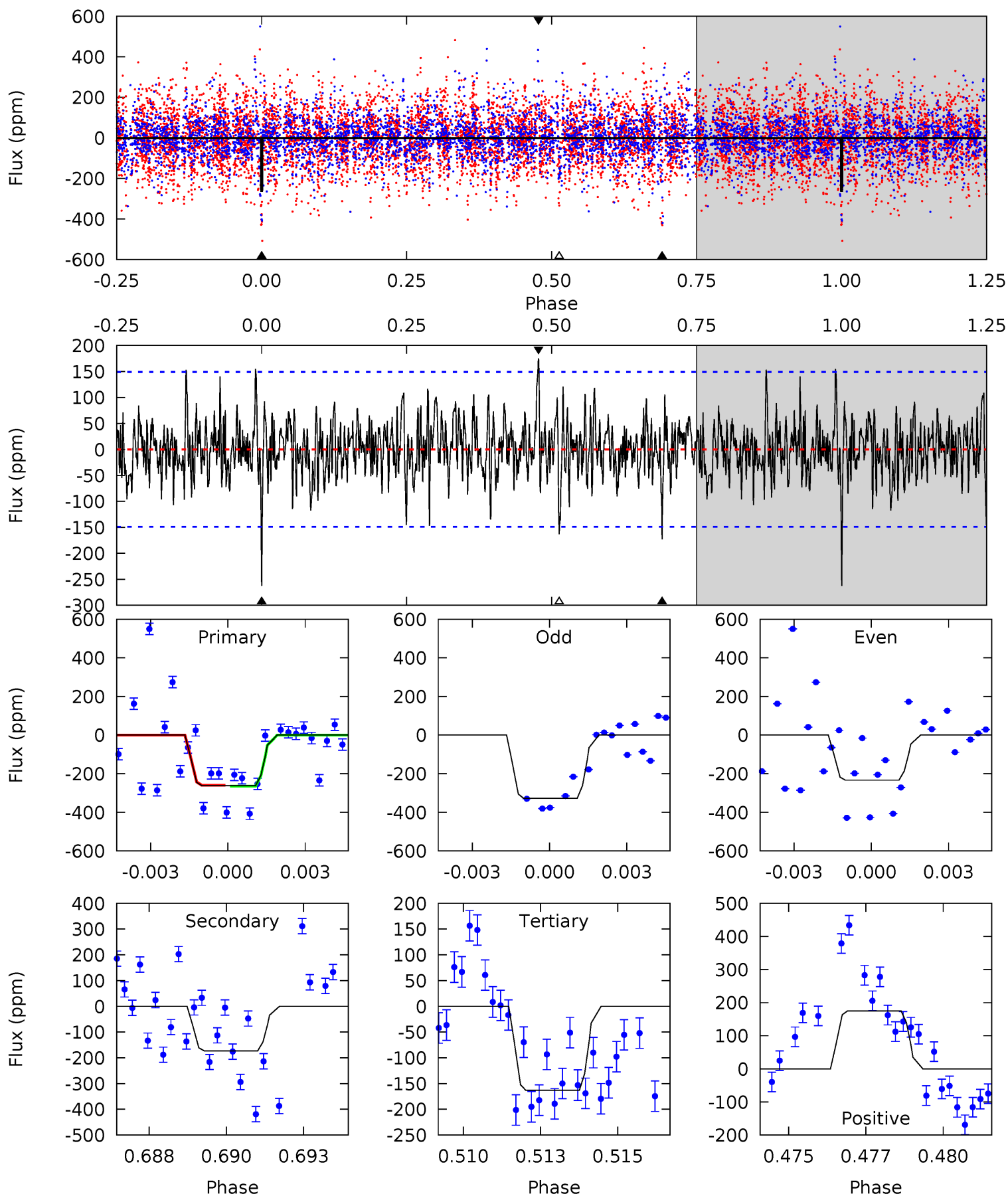
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.60	7.63	5.50	6.95	5.30	3.04	1.67	3.10	1.65	2.13	0.68	1.09	0.85	0.45	0.18



# Alt Model-Shift Uniqueness Test

003560301-07, P = 52.780446 Days, E = 113.473664 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
9.30	6.12	5.78	6.21	5.28	3.02	1.52	3.52	3.09	0.34	-0.08	1.57	0.81	0.40	0.07



### Stellar Parameters For KIC 003560301

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6980^{+167}_{-230}$	$3.577^{+0.352}_{-0.088}$	$-0.420^{+0.350}_{-0.250}$	$3.482^{+0.362}_{-1.447}$	$1.671^{+0.203}_{-0.377}$	$0.056^{+0.150}_{-0.012}$
	+2%/-3%	+10%/-2%	+83%/-60%	+10%/-42%	+12%/-23%	+270%/-22%
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 003560301-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-207 \pm 27$	$5.91^{+4.03}_{-3.23}$	$1377^{+75}_{-133}$	$6408^{+3696}_{-1327}$	$351^{+1319}_{-225}$
Alt.	$-173 \pm 28$	$5.97^{+3.76}_{-3.33}$	$1377^{+80}_{-121}$	$6075^{+4023}_{-1218}$	$276^{+1132}_{-167}$

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

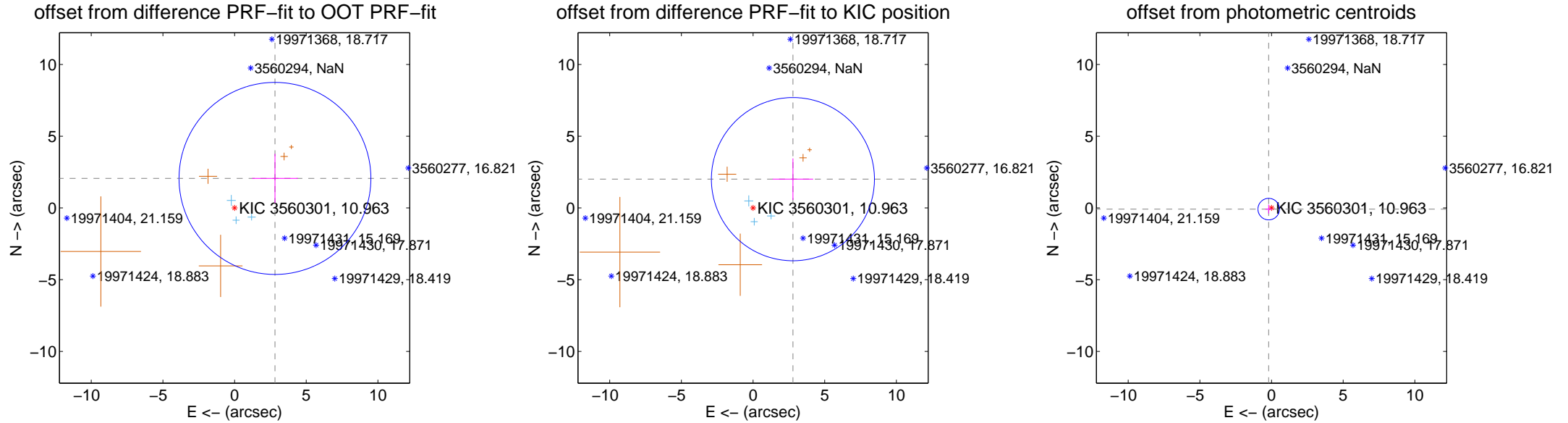
## DV Centroid Data

Supplemental centroid analysis for 003560301-07. **Kepler magnitude: 10.96.** Transit SNR 9.56

**There are 3 quarters with good PRF difference image offsets**

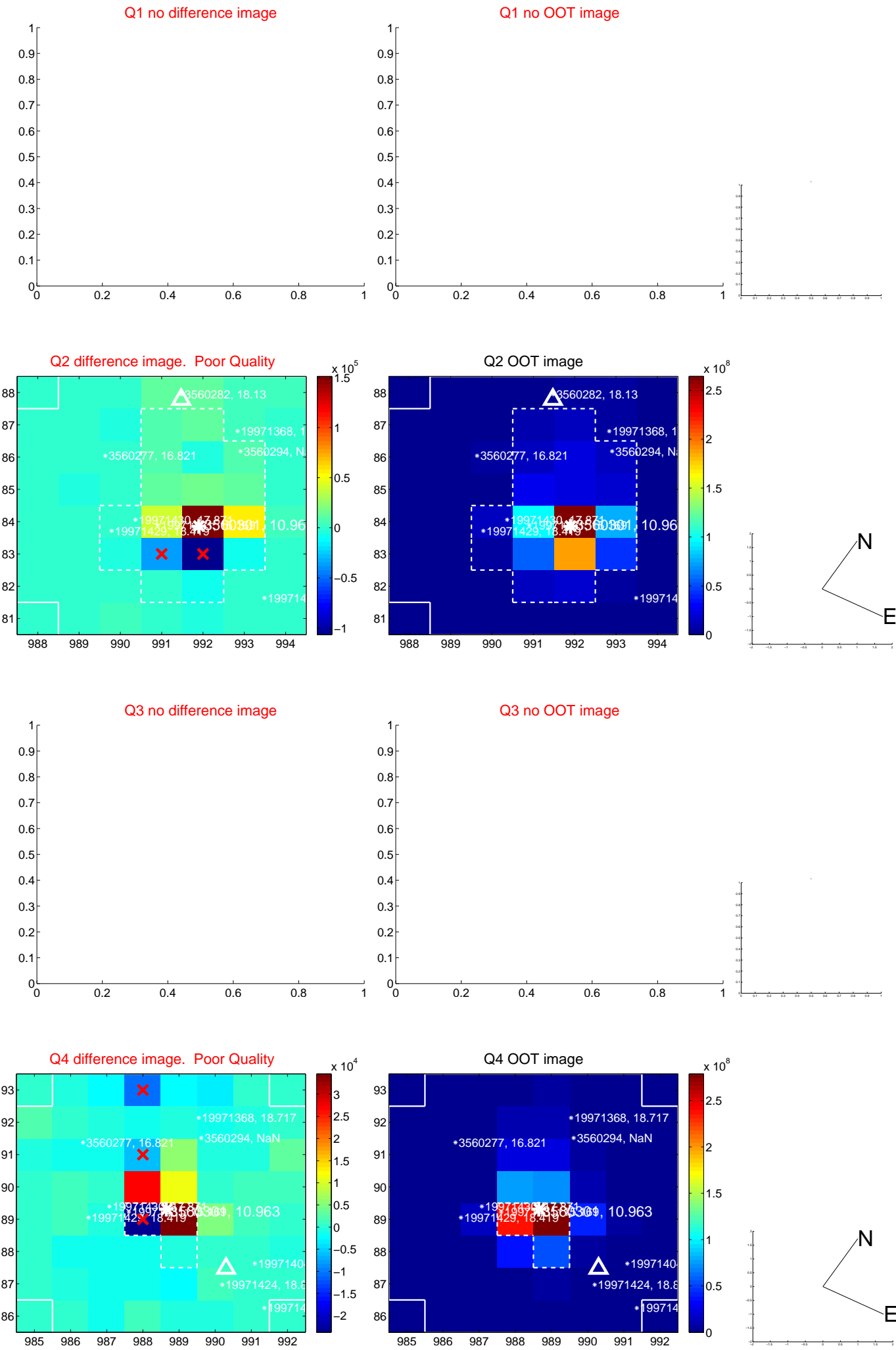
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.489 \pm 2.231$	1.56	$-2.817 \pm 1.596$	$2.059 \pm 1.717$
PRF-fit source offset from KIC position	$3.430 \pm 1.896$	1.81	$-2.781 \pm 1.412$	$2.008 \pm 1.447$
photometric centroid source offset	$0.21 \pm 0.25$	0.85	$0.20 \pm 0.24$	$-0.08 \pm 0.31$

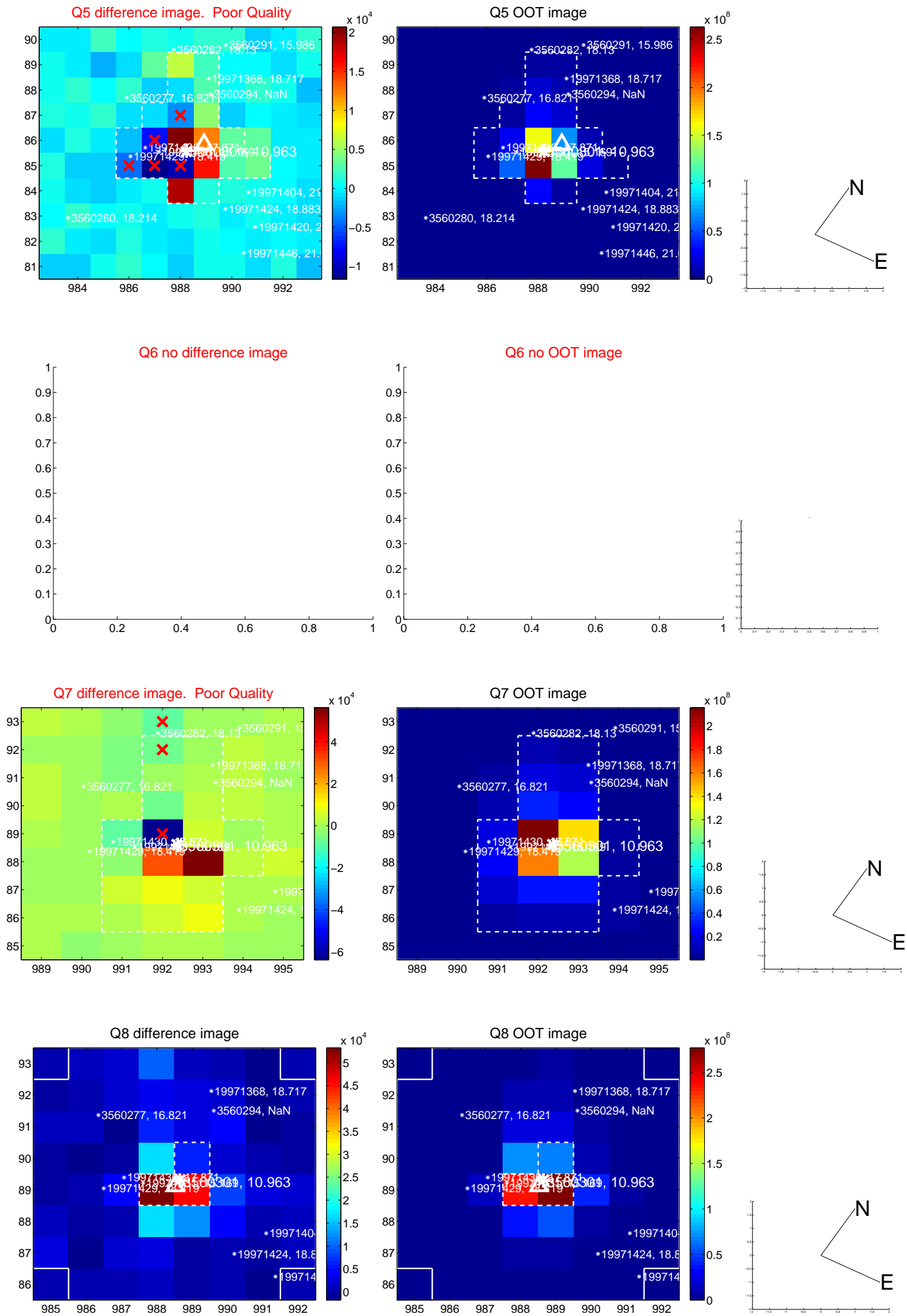


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

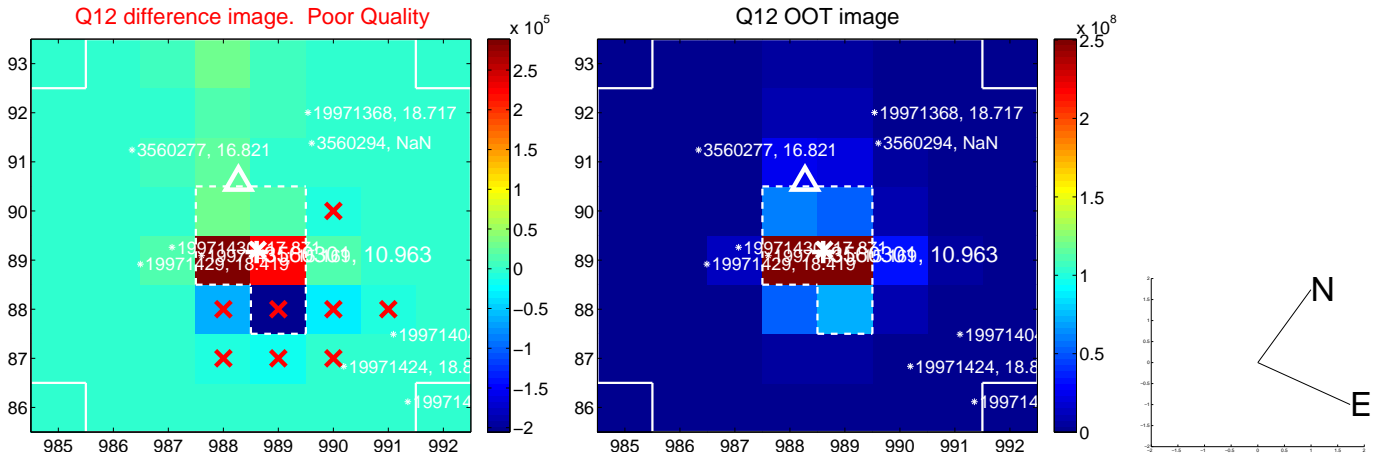
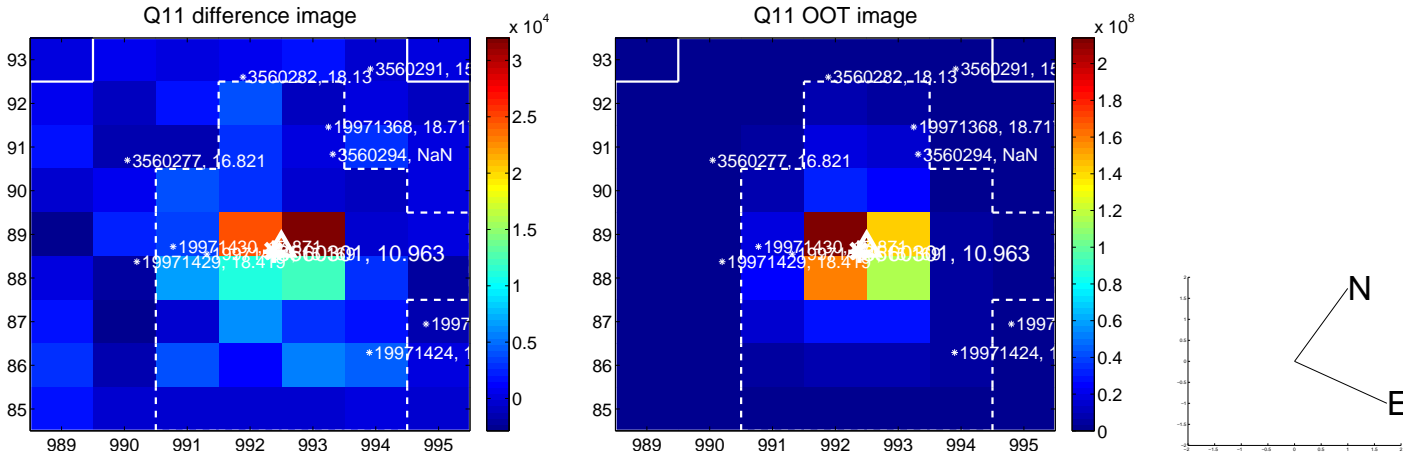
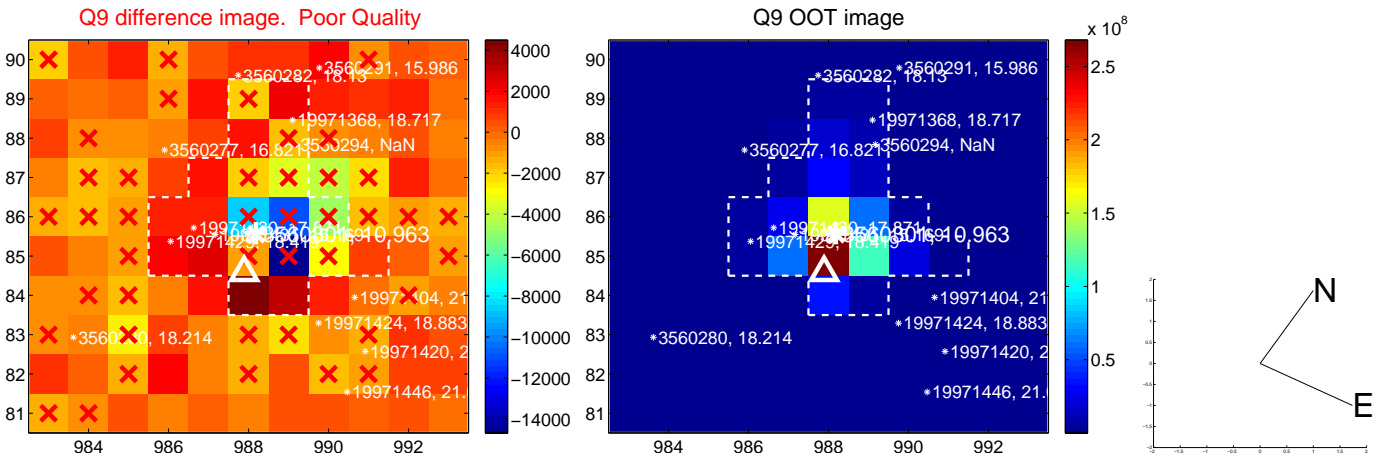


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

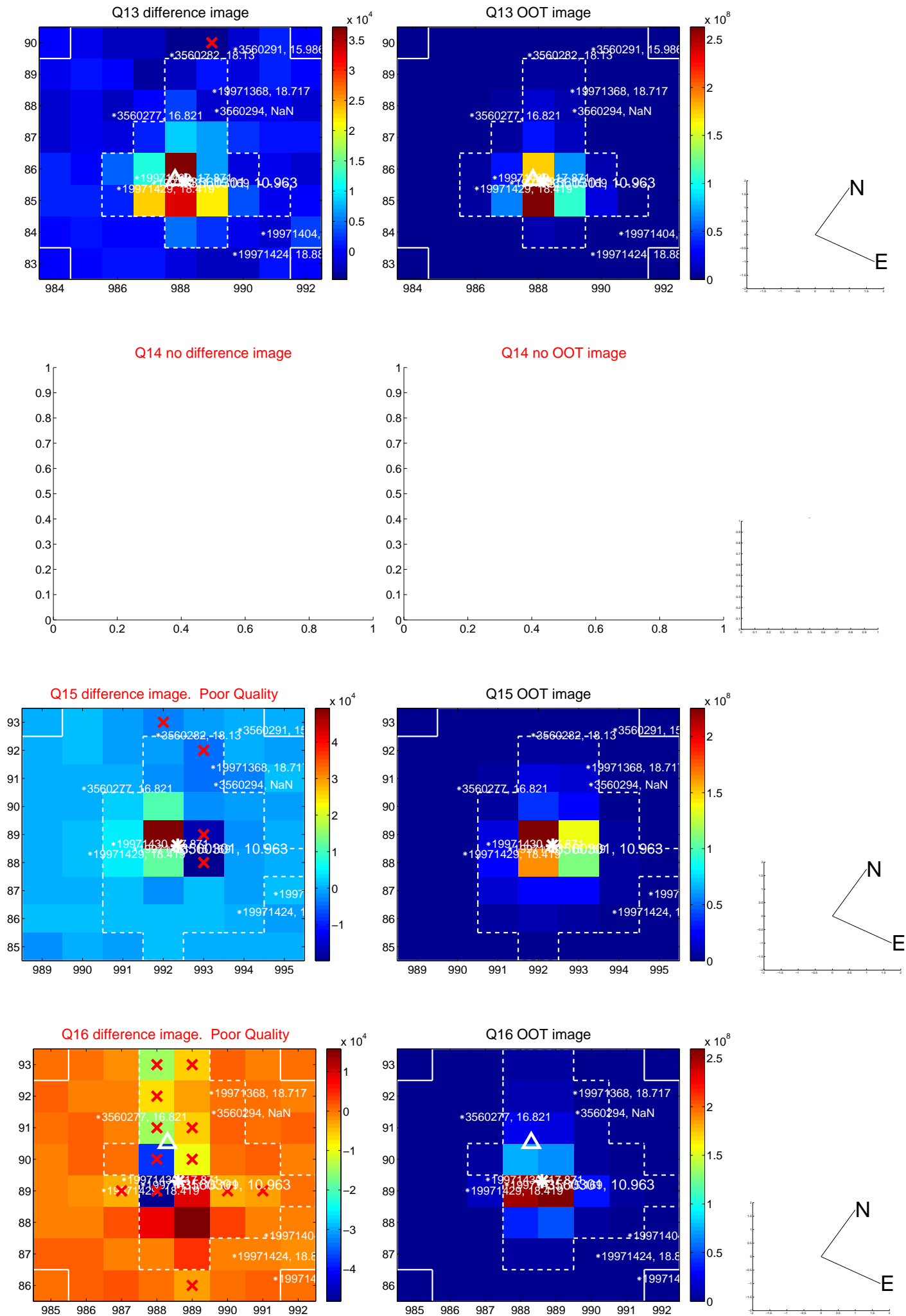




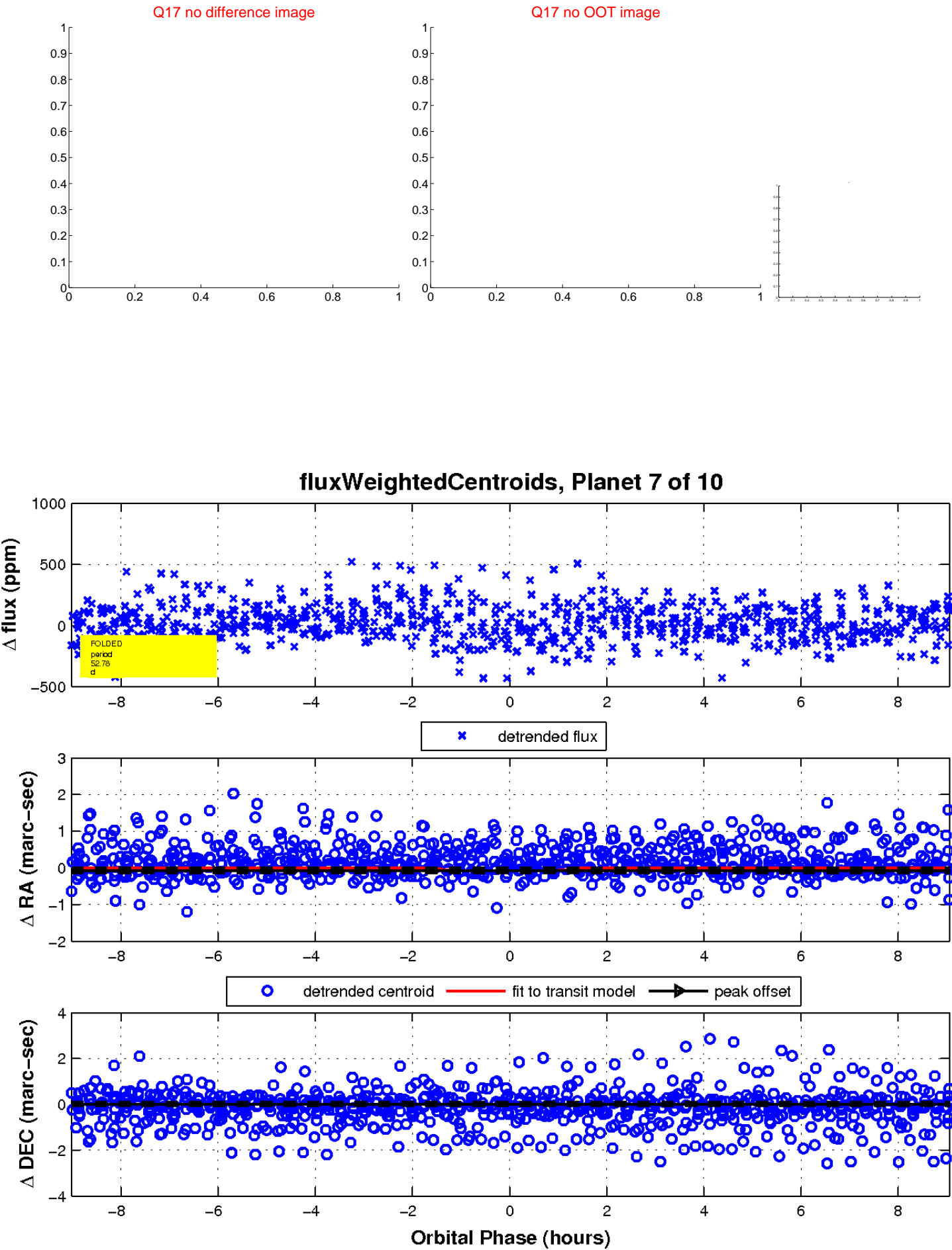
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

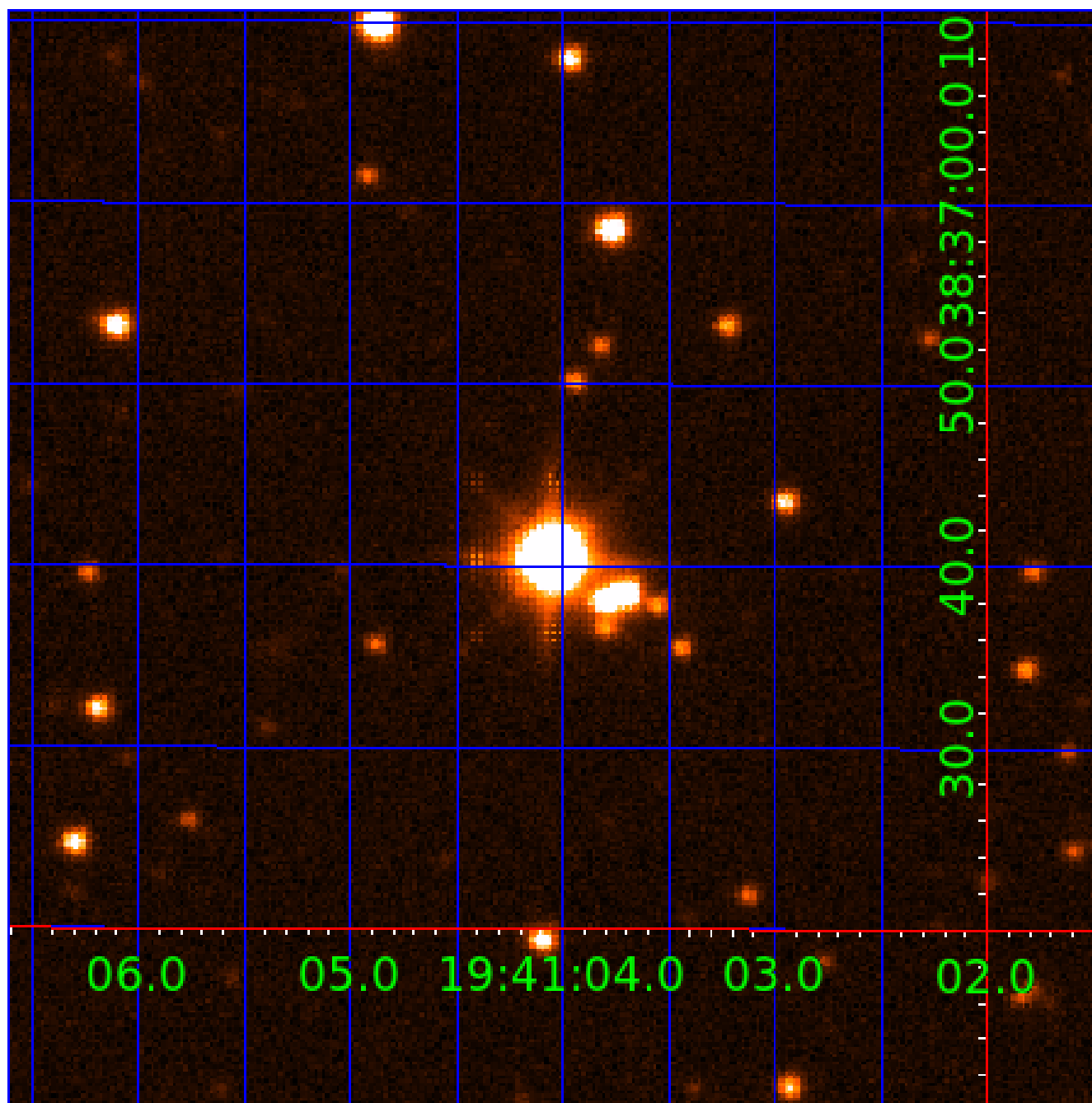


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003560301-01	OBS	0968.01	4.650516	135.703516	48.0	14.378	13.4	11.0	3.48	6980	2.84	6159.33
003560301-02	OBS	No	4.649908	133.451011	83.9	16.883	14.4	16.5	3.48	6980	5.57	6160.41
003560301-03	OBS	No	118.507880	246.508723	514.3	19.733	25.7	16.3	3.48	6980	15.00	82.14
003560301-04	OBS	No	59.120616	149.996311	153.3	5.042	15.3	7.1	3.48	6980	5.25	207.59
003560301-05	OBS	No	53.692713	134.661858	214.8	5.861	12.2	9.5	3.48	6980	5.48	236.04
003560301-06	OBS	No	43.782493	169.101103	77.0	0.639	9.8	1.8	3.48	6980	3.30	309.84
003560301-07	OBS	No	52.781384	166.241089	260.9	3.022	10.4	9.6	3.48	6980	6.31	241.49
003560301-08	OBS	No	40.144553	134.948745	254.5	2.914	10.0	10.3	3.48	6980	6.57	347.83
003560301-09	OBS	No	174.864198	156.170068	276.4	6.035	9.6	10.4	3.48	6980	6.72	48.90
003560301-10	OBS	No	44.432964	151.915392	186.8	5.412	9.8	9.0	3.48	6980	5.09	303.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003560301-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
003560301-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
003560301-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003560301-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
003560301-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

**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.

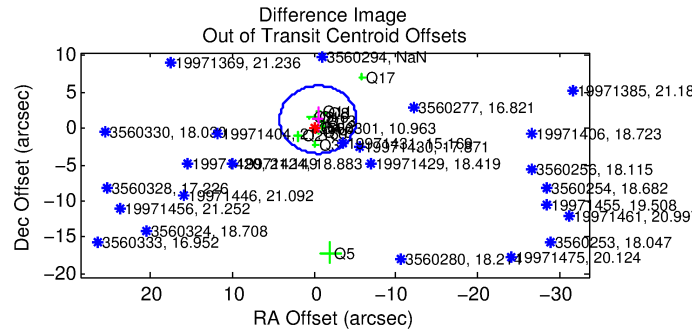
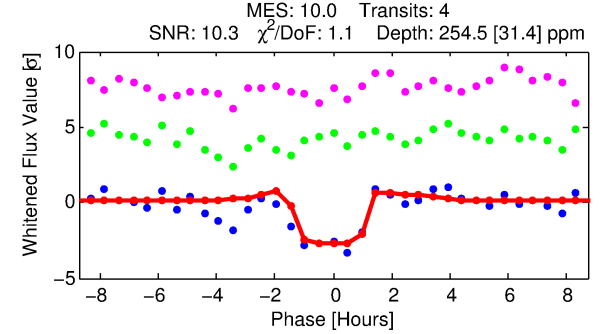
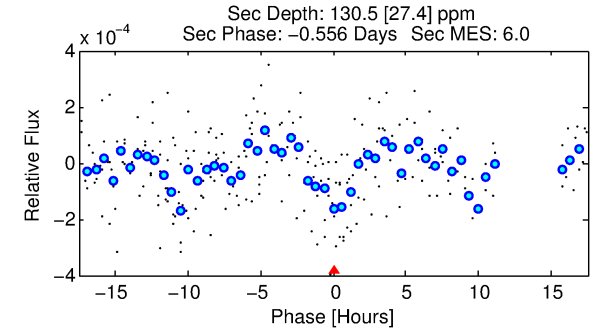
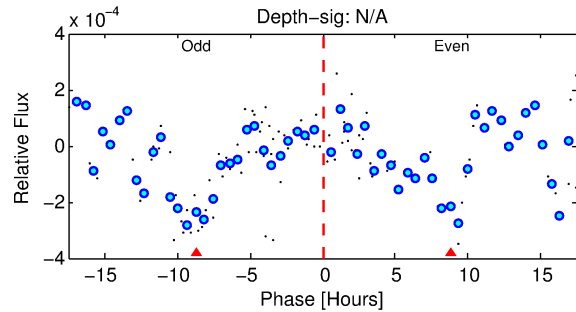
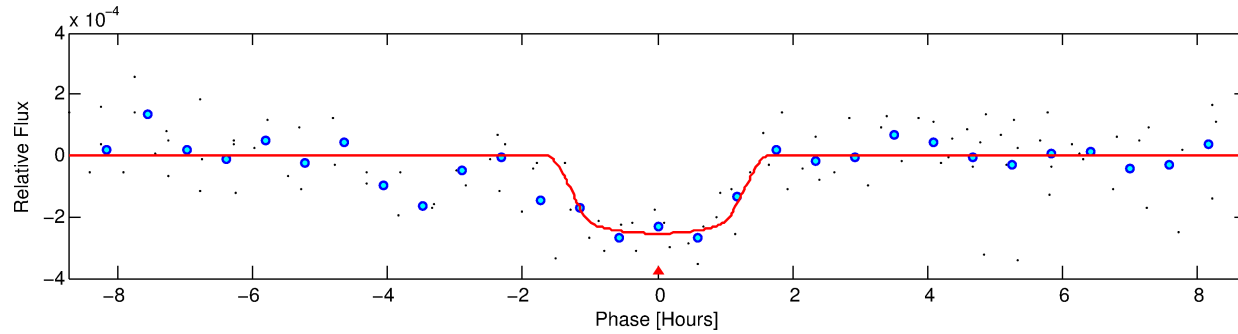
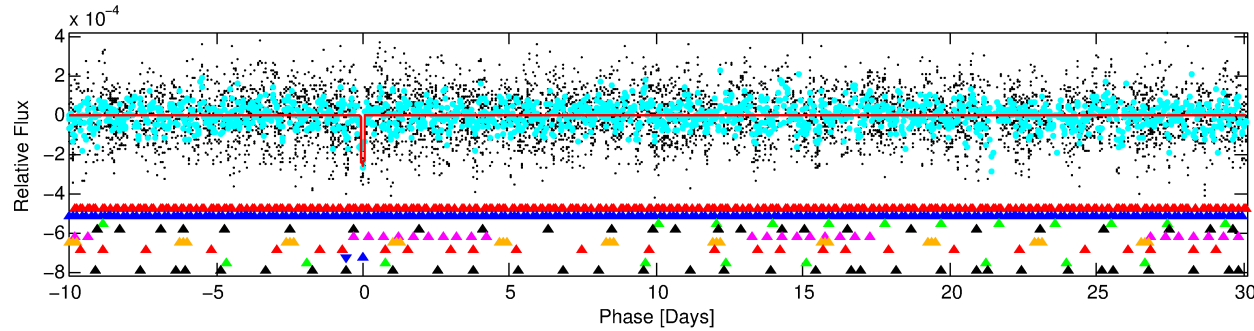
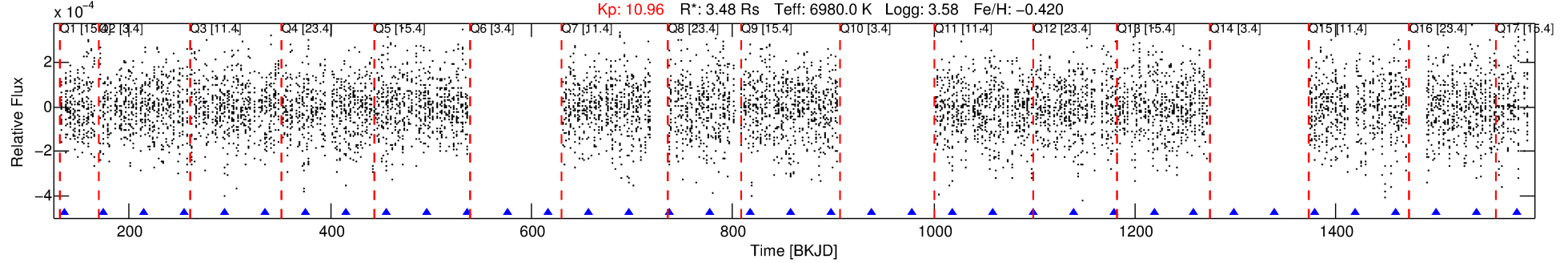
Ephemeris Match Information For 003560301-08

No Significant Match Found

# DV One-Page Summary

KIC: 3560301 Candidate: 8 of 10 Period: 40.145 d  
KOI: K00968 Corr: No Ephemeris Match

Kp: 10.96 R\*: 3.48 Rs Teff: 6980.0 K Logg: 3.58 Fe/H: -0.420



## DV Fit Results:

Period = 40.14455 [0.00038] d  
Epoch = 134.9487 [0.0079] BKJD  
Rp/R\* = 0.0173 [0.0045]  
a/R\* = 45.53 [68.17]  
b = 0.92 [0.25]  
Seff = 347.83 [216.13]  
Teq = 1101 [171] K  
Rp = 6.57 [3.22] Re  
a = 0.2723 [0.1054] AU  
Ag = 123.26 [101.92] [1.20σ]  
Teffp = 5673 [818] K [5.47σ]

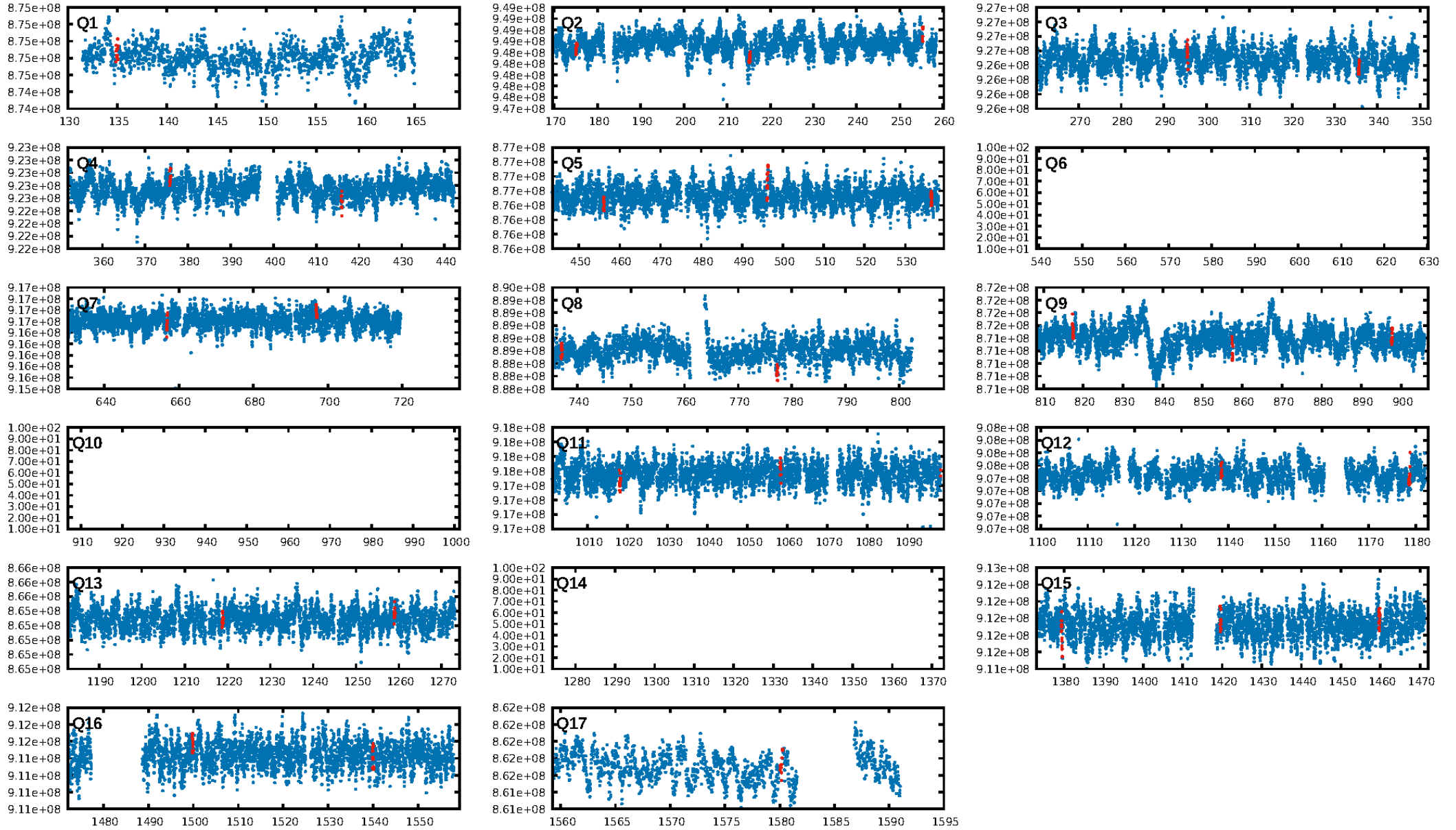
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [58.07σ]  
LongPeriod-sig: 100.0% [29.26σ]  
ModelChiSquare2-sig: 50.8%  
ModelChiSquareGof-sig: 98.8%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.2434  
Centroid-sig: 12.5%  
Centroid-so: 0.426 arcsec [1.72σ]  
OotOffset-rm: 1.304 arcsec [0.84σ]  
KicOffset-rm: 1.242 arcsec [0.75σ]  
OotOffset-st: 1/3/4/4 [12]  
KicOffset-st: 1/3/4/4 [12]  
DiffImageQuality-fgm: 0.42 [5/12]  
DiffImageOverlap-fno: 0.57 [8/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:26:45 Z

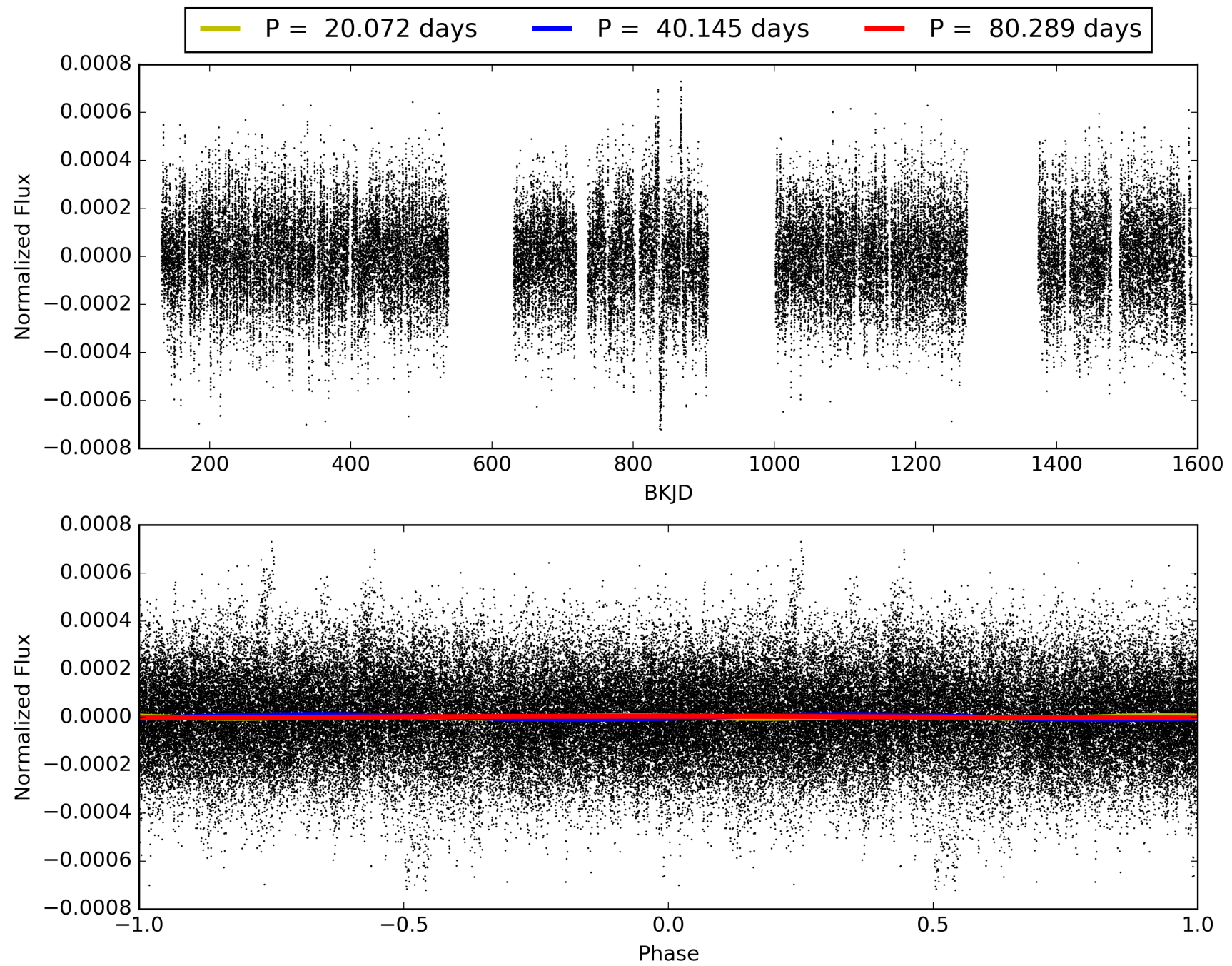
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003560301-08, PDC Light Curves



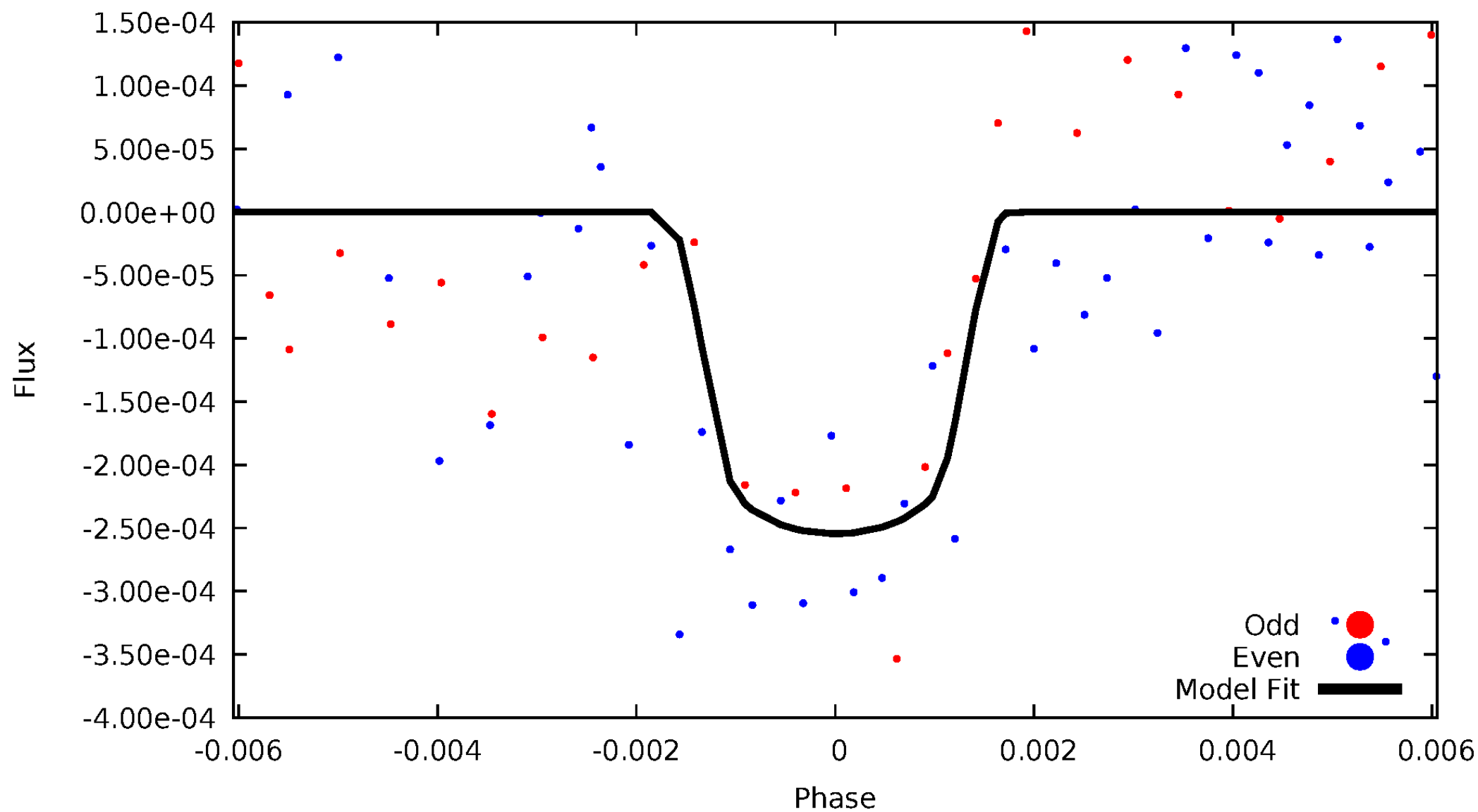


TCE 003560301-08



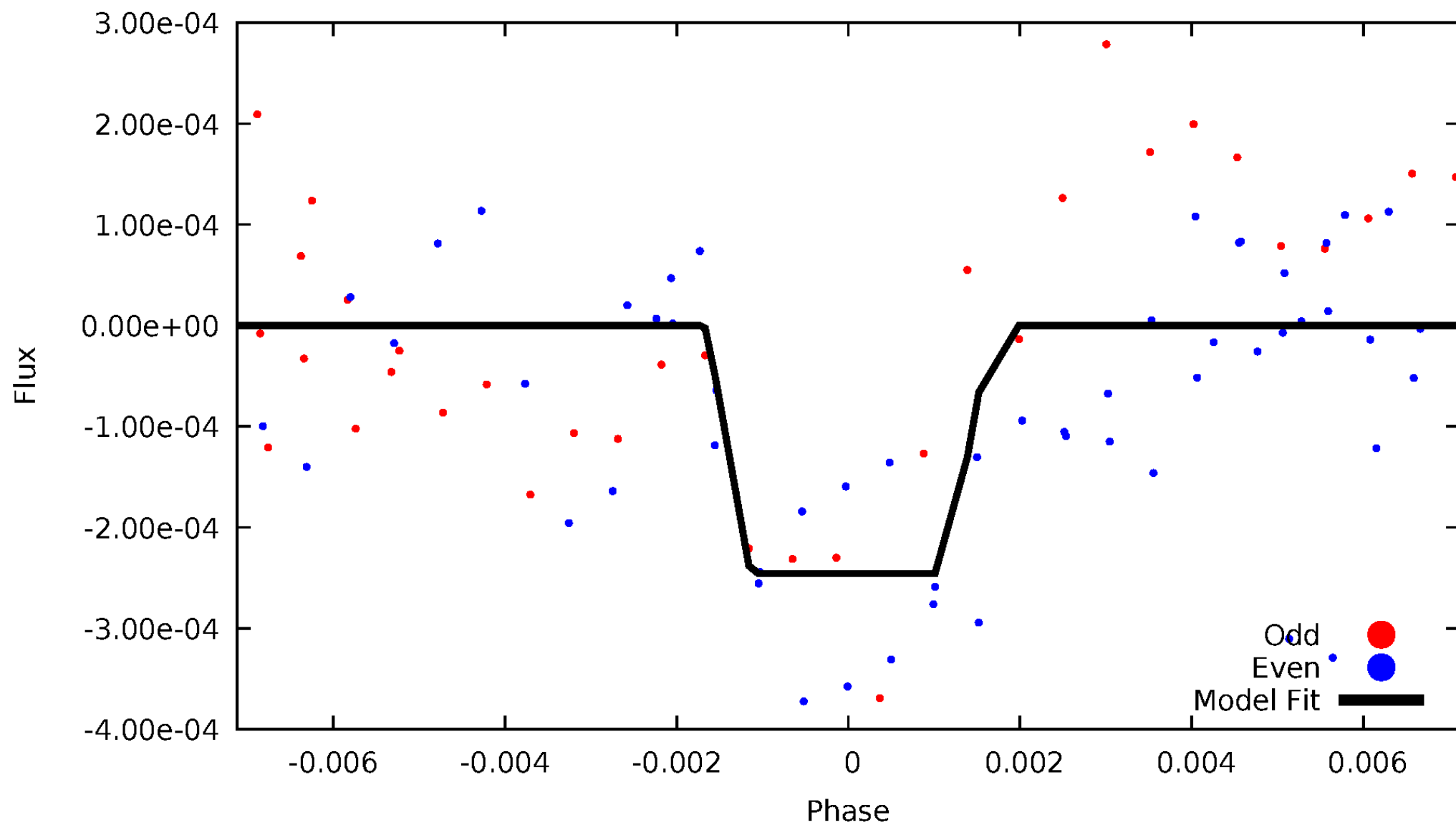
# DV Odd/Even

TCE 003560301-08



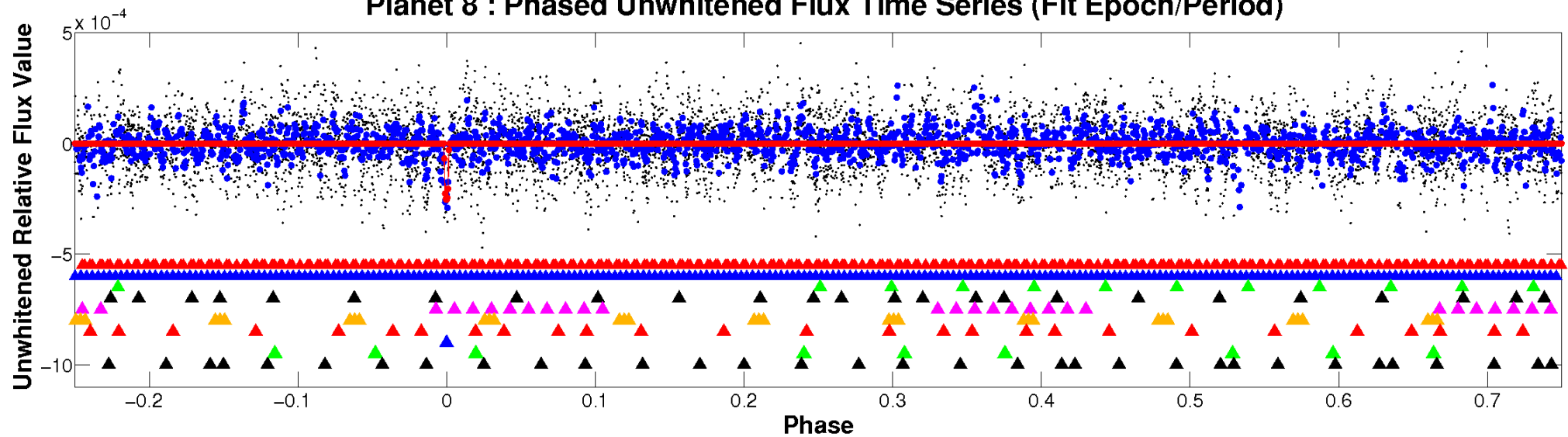
# ALT Odd/Even

TCE 003560301-08

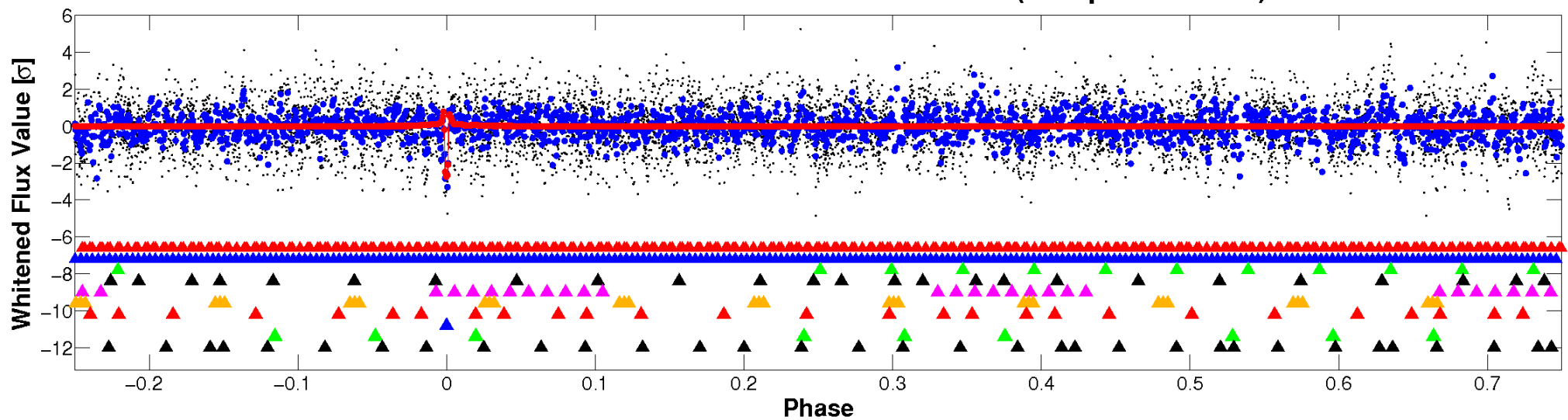


# Non-Whitened Vs. Whitened Light Curve

## Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

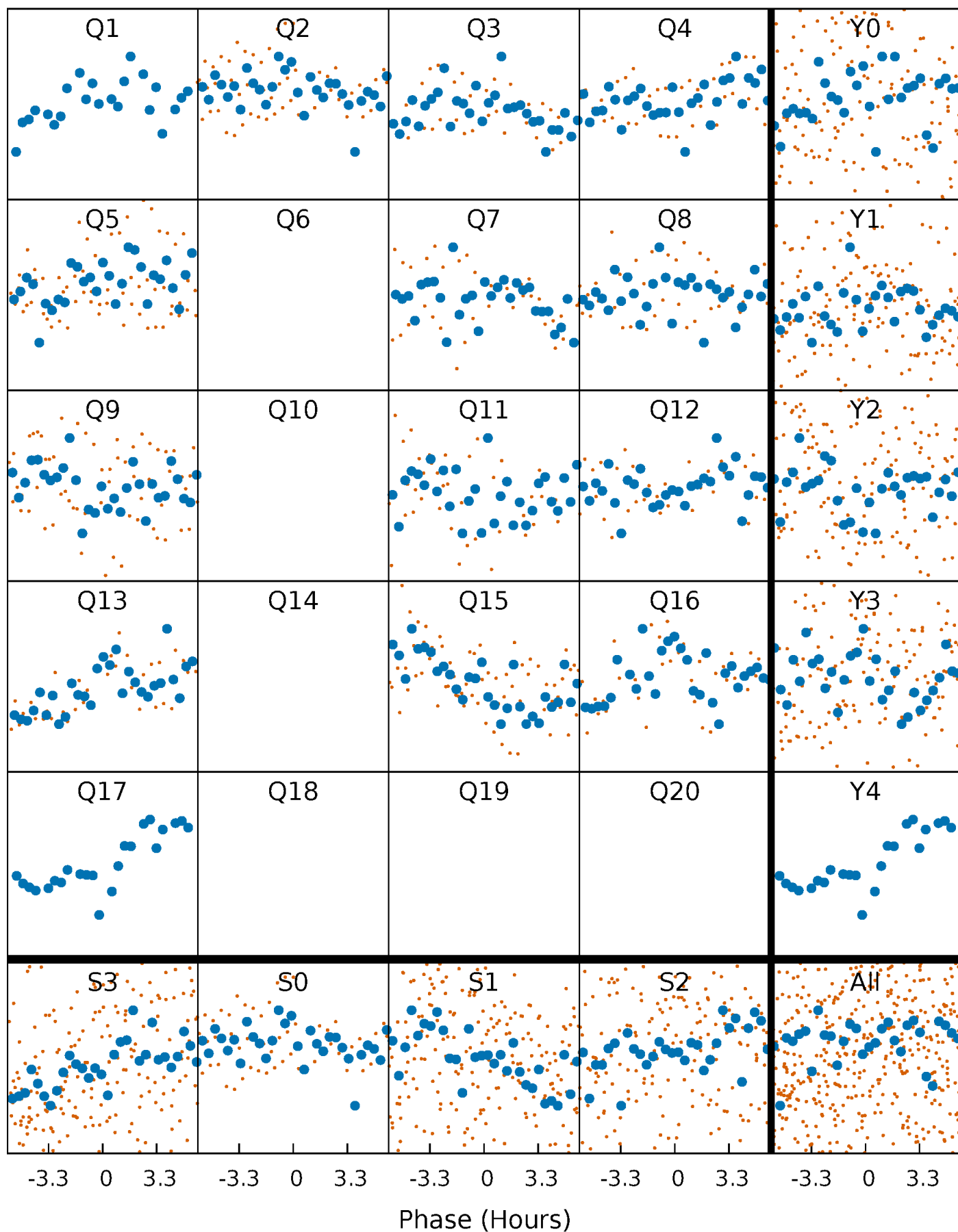


## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



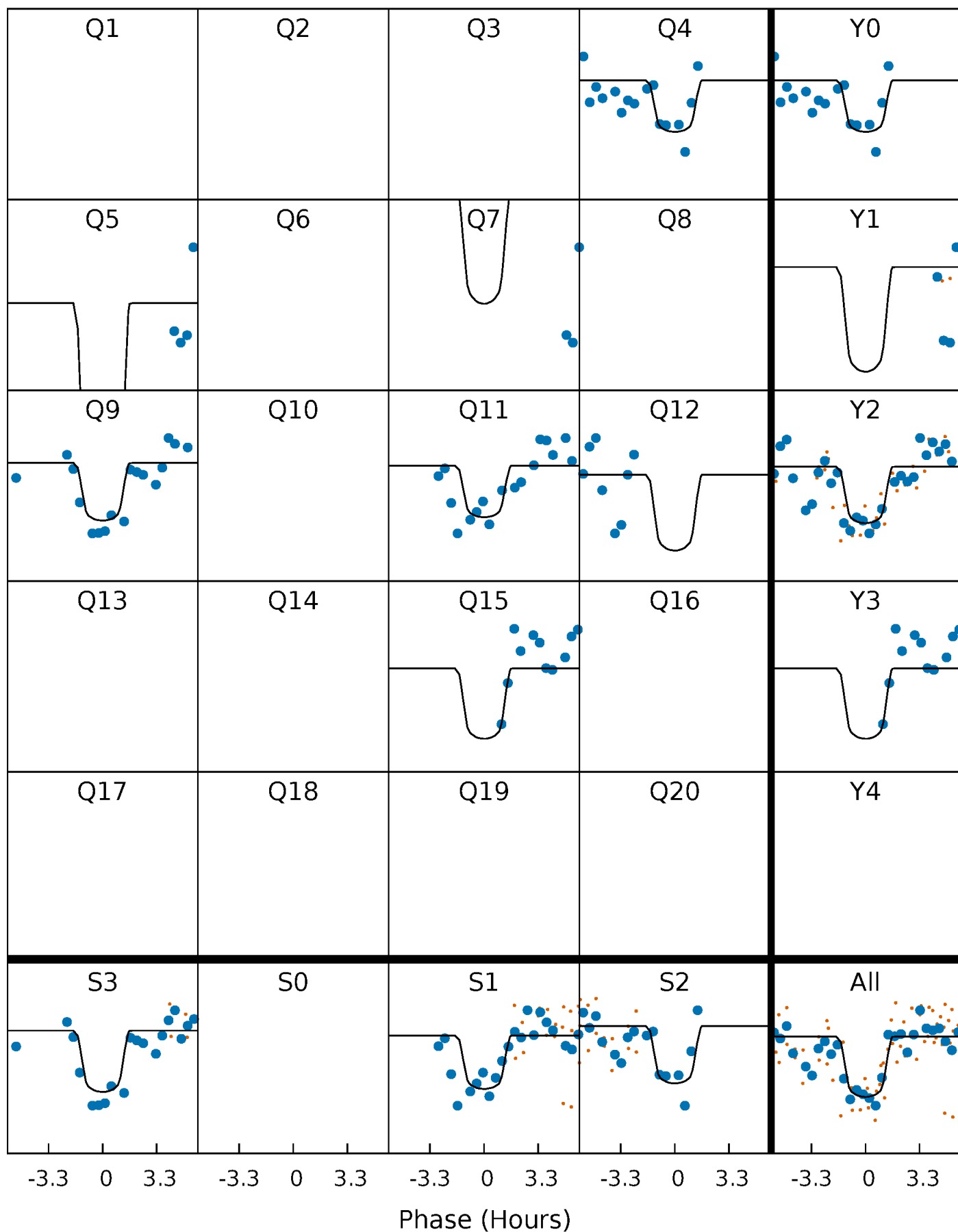
# PDC Quarter-Phased Transit Curves

TCE 003560301-08   P= 40.144553 Days    $T_0=134.948745$  (BKJD)



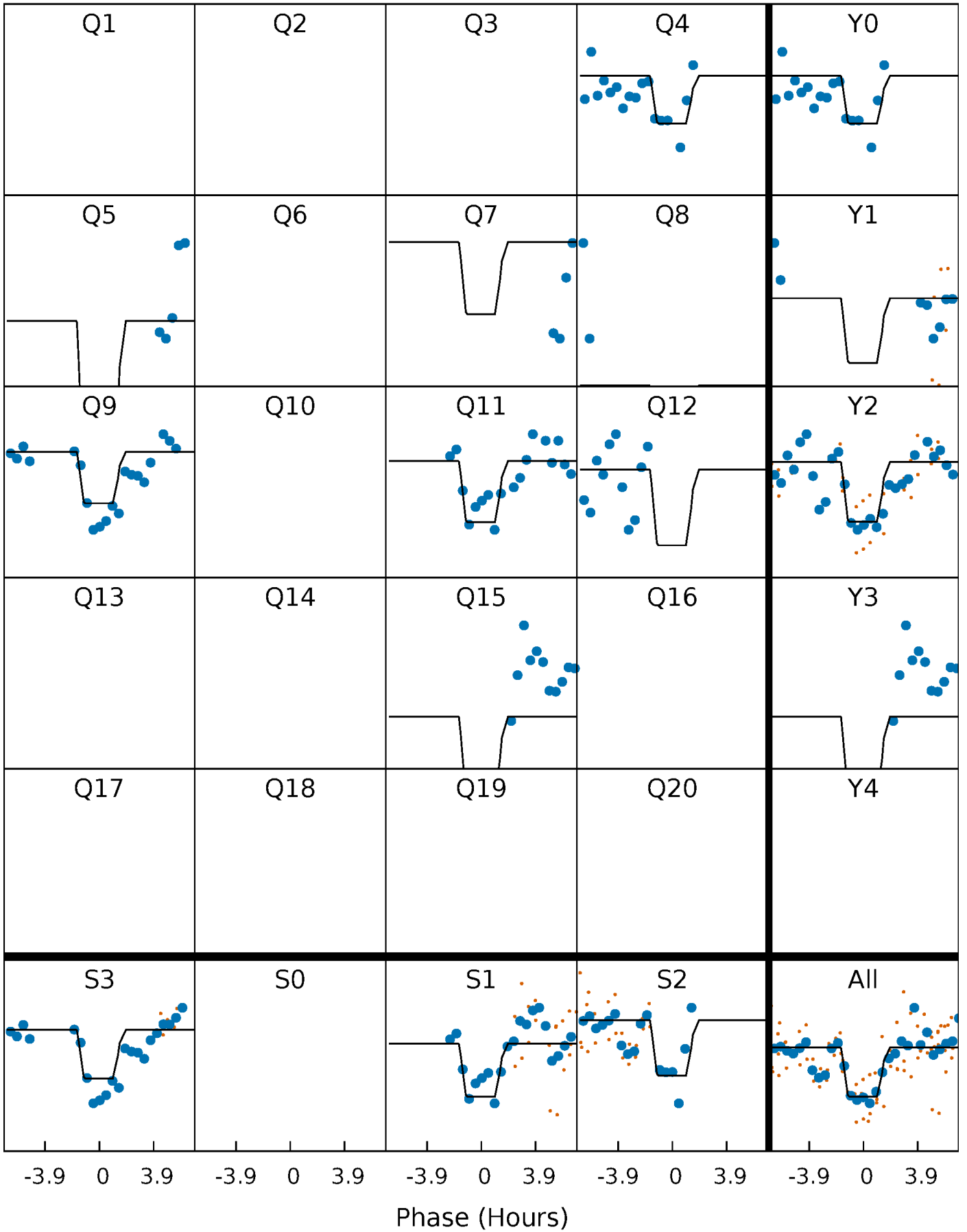
# DV Quarter-Phased Transit Curves

TCE 003560301-08     $P = 40.144553$  Days     $T_0 = 134.948745$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003560301-08     $P = 40.142495$  Days     $T_0 = 134.973190$  (BKJD)

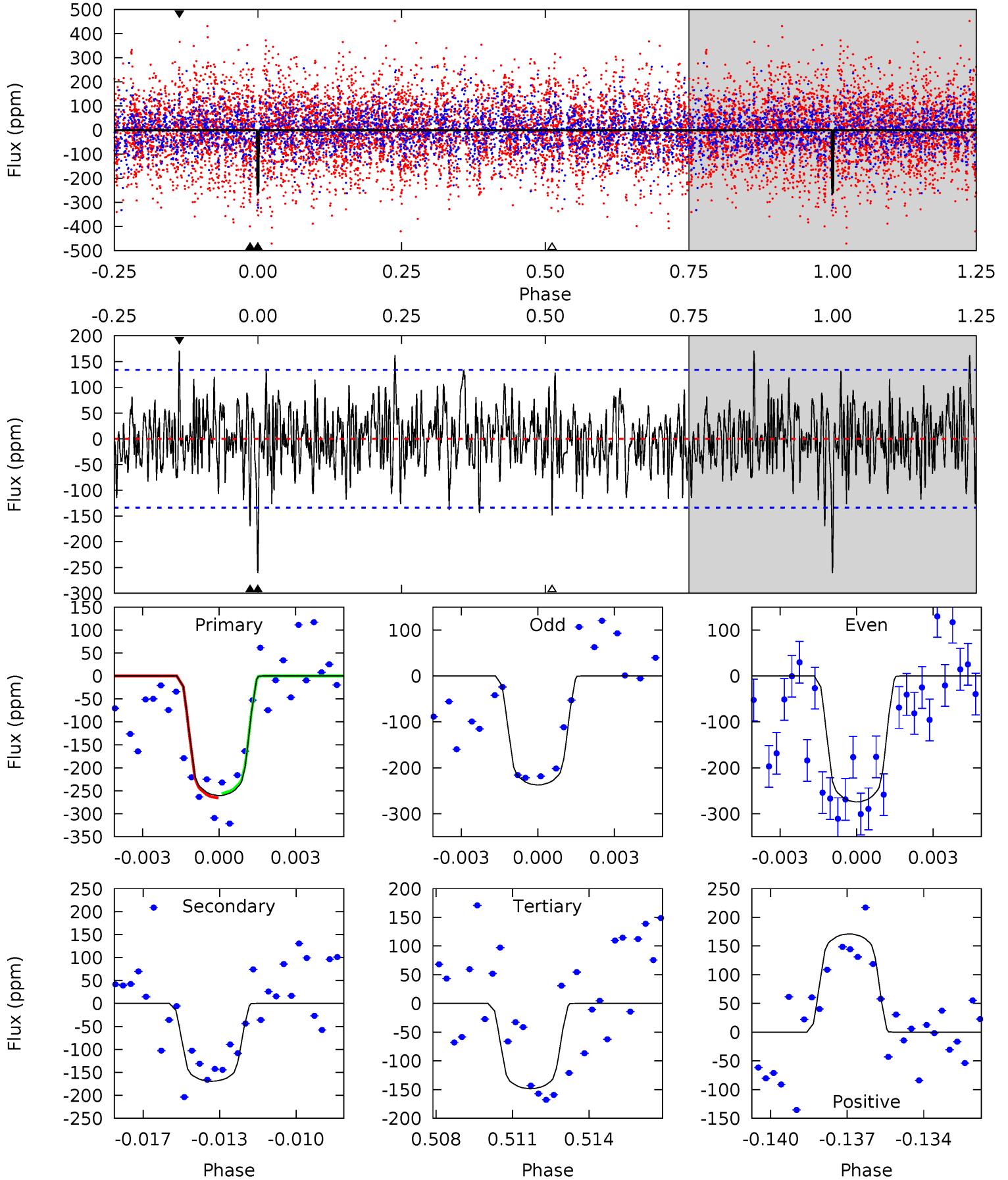




# DV Model-Shift Uniqueness Test

003560301-08, P = 40.144553 Days, E = 94.804192 Days

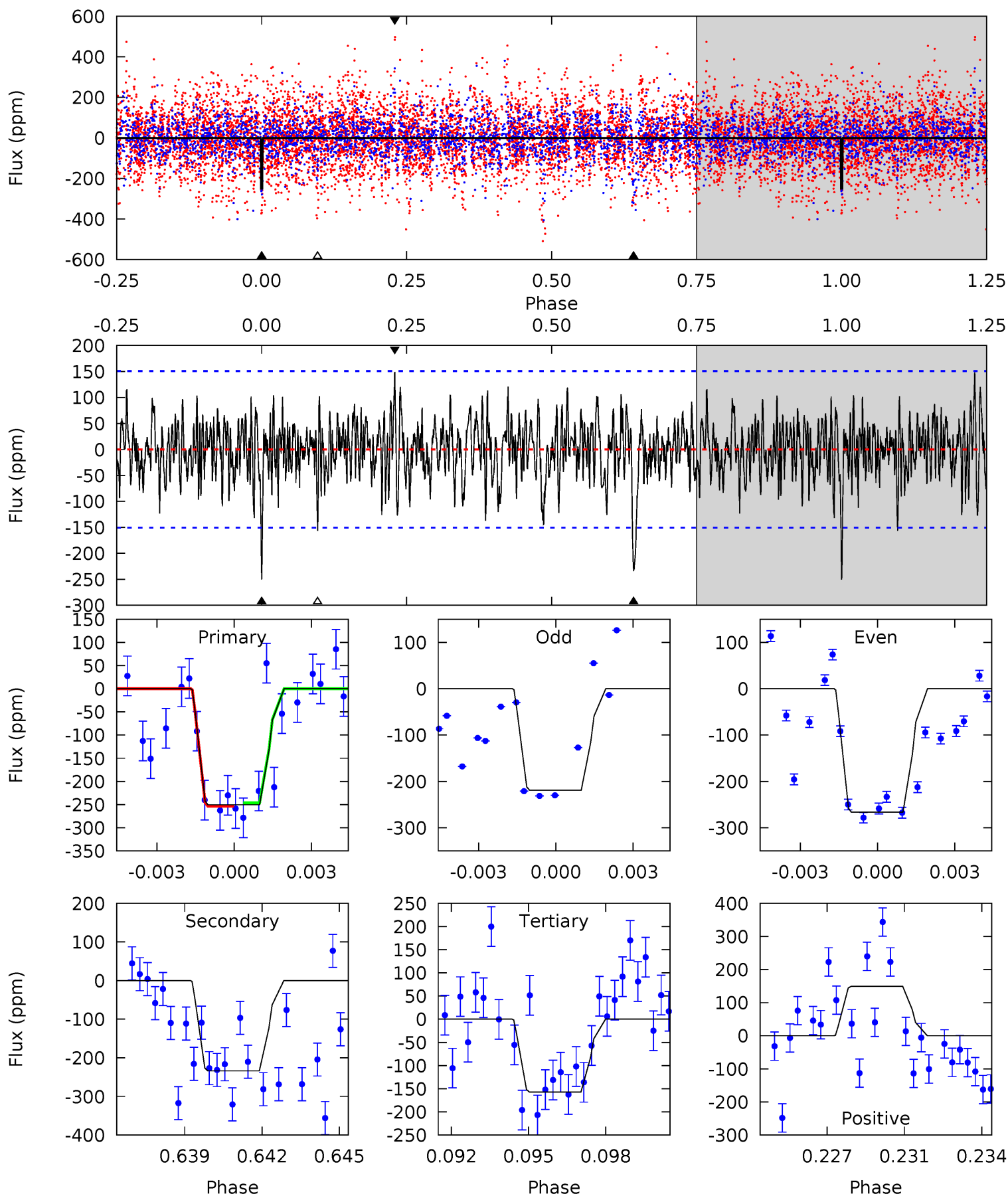
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	6.63	5.81	6.70	5.23	2.93	1.85	4.39	3.50	0.82	-0.06	0.71	1.05	0.40	0.19



# Alt Model-Shift Uniqueness Test

003560301-08, P = 40.142495 Days, E = 94.830695 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
8.72	8.15	5.46	5.19	5.25	2.96	1.60	3.26	3.53	2.68	2.96	0.77	1.14	0.37	0.12



### Stellar Parameters For KIC 003560301

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6980^{+167}_{-230}$	$3.577^{+0.352}_{-0.088}$	$-0.420^{+0.350}_{-0.250}$	$3.482^{+0.362}_{-1.447}$	$1.671^{+0.203}_{-0.377}$	$0.056^{+0.150}_{-0.012}$
	+2%/-3%	+10%/-2%	+83%/-60%	+10%/-42%	+12%/-23%	+270%/-22%
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 003560301-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-169 \pm 26$	$6.04^{+2.15}_{-1.90}$	$1505^{+86}_{-151}$	$5992^{+1145}_{-680}$	$188^{+196}_{-82}$
Alt.	$-234 \pm 29$	$5.50^{+2.02}_{-1.79}$	$1507^{+80}_{-154}$	$6817^{+1649}_{-859}$	$316^{+365}_{-147}$

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

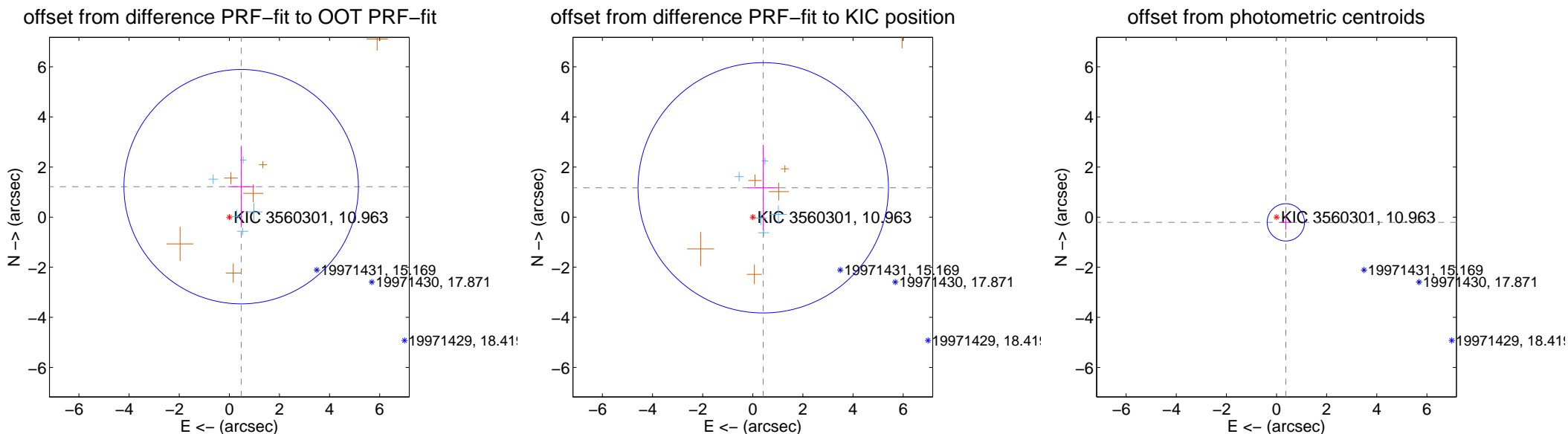
## DV Centroid Data

Supplemental centroid analysis for 003560301-08. **Kepler magnitude: 10.96.** Transit SNR 10.25

There are 5 quarters with good PRF difference image offsets

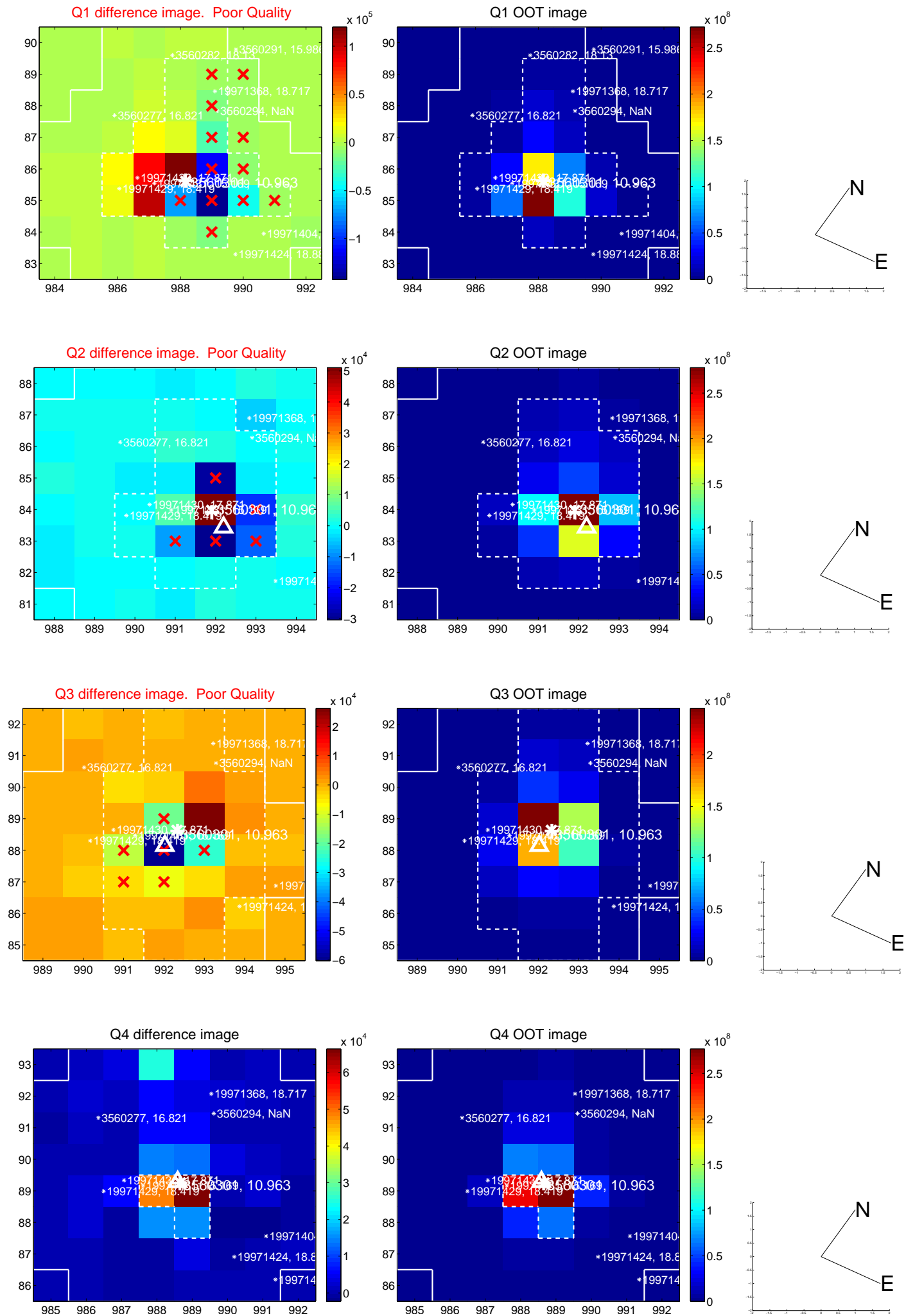
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.304 \pm 1.559$	0.84	$-0.473 \pm 0.521$	$1.215 \pm 1.621$
PRF-fit source offset from KIC position	$1.242 \pm 1.665$	0.75	$-0.416 \pm 0.622$	$1.170 \pm 1.710$
photometric centroid source offset	$0.43 \pm 0.25$	1.72	$-0.37 \pm 0.23$	$-0.21 \pm 0.30$

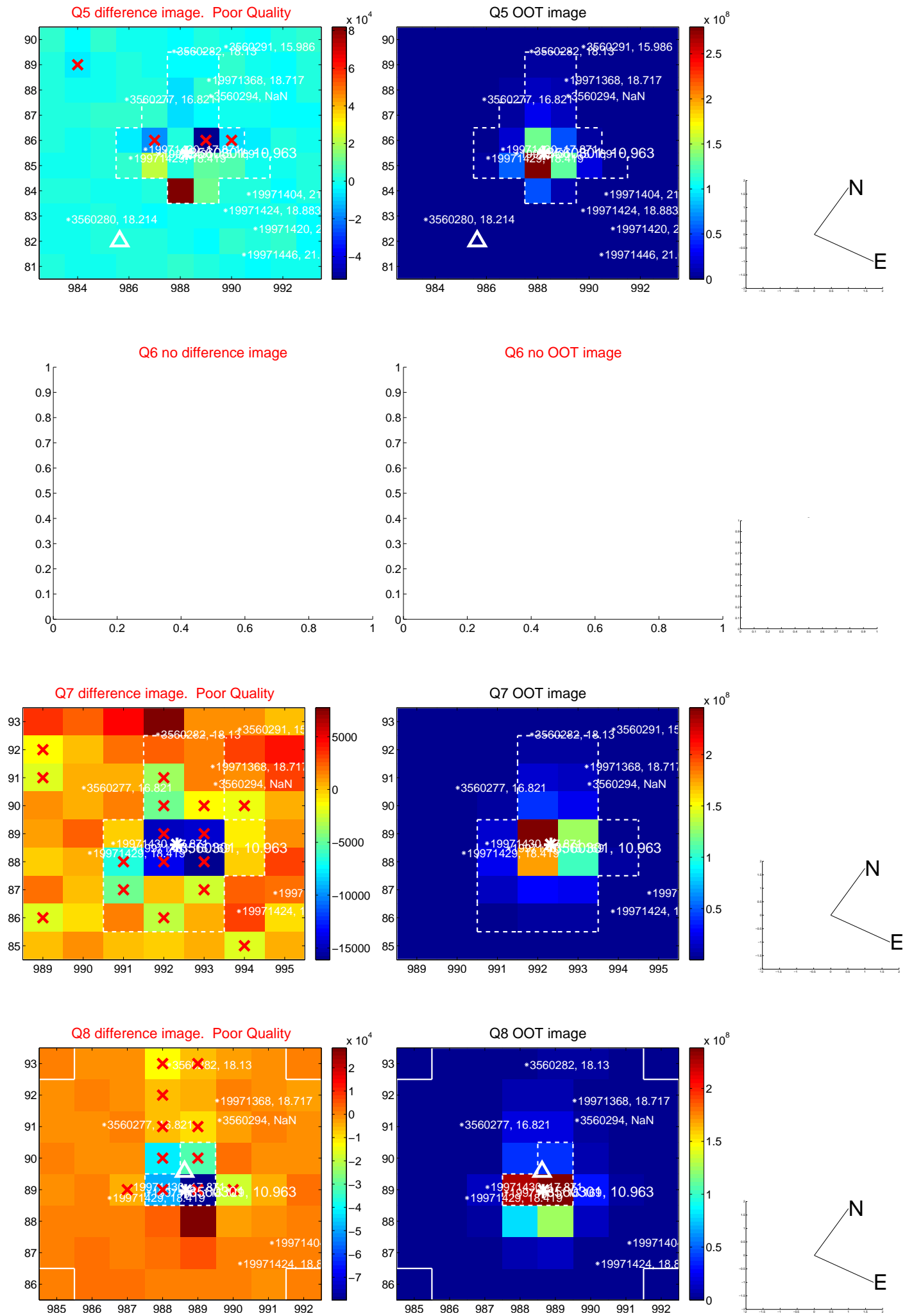


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

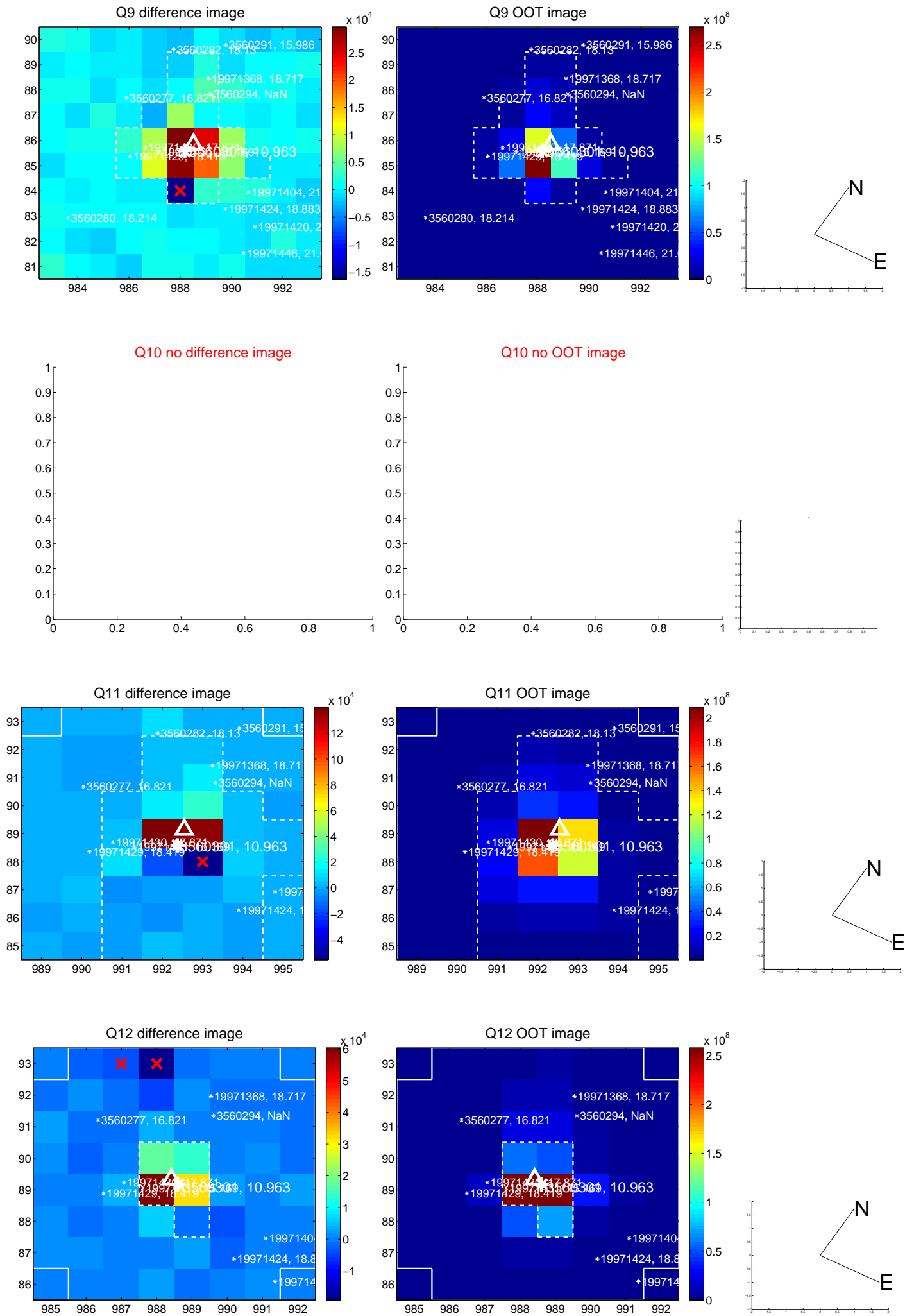
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

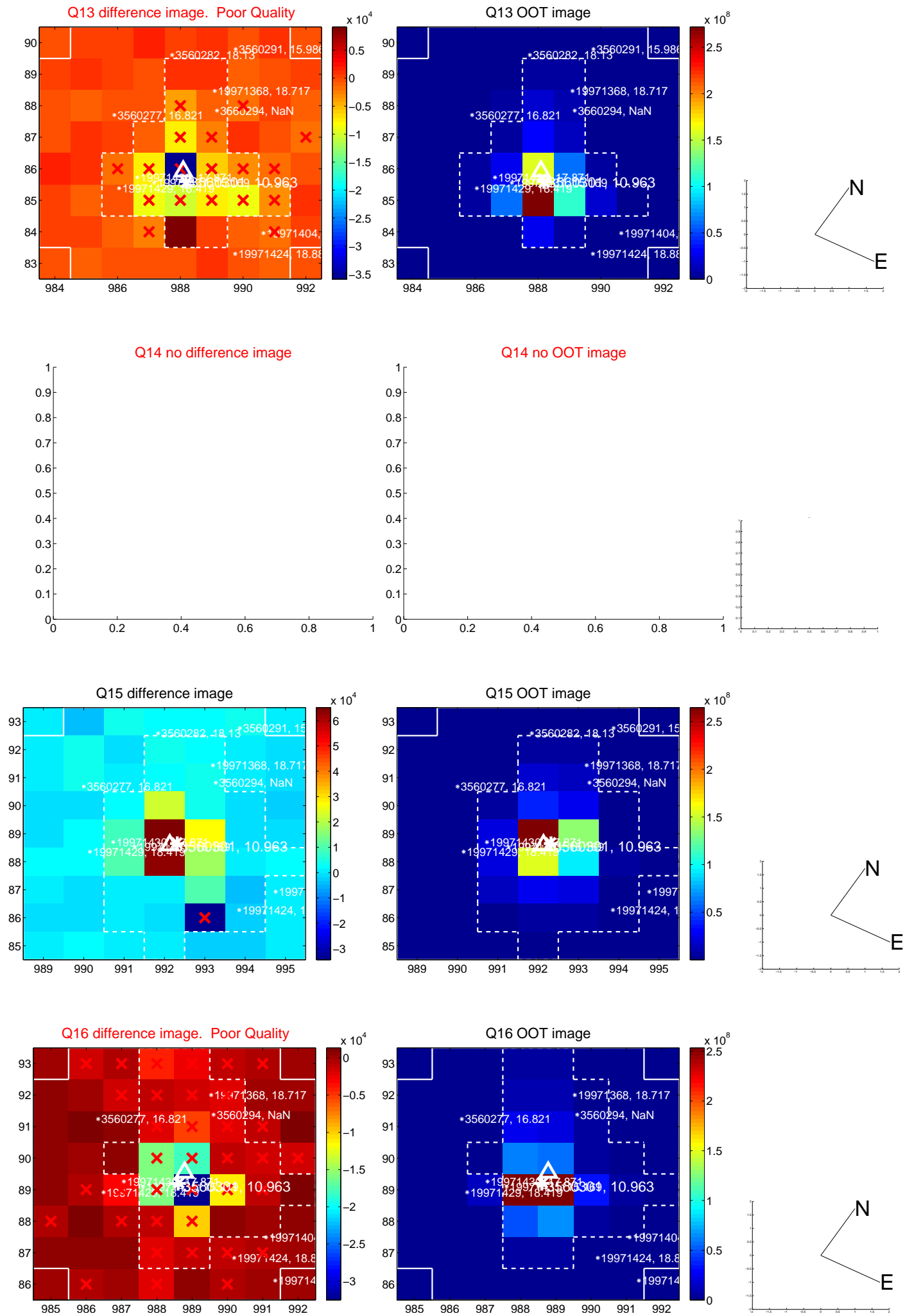


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

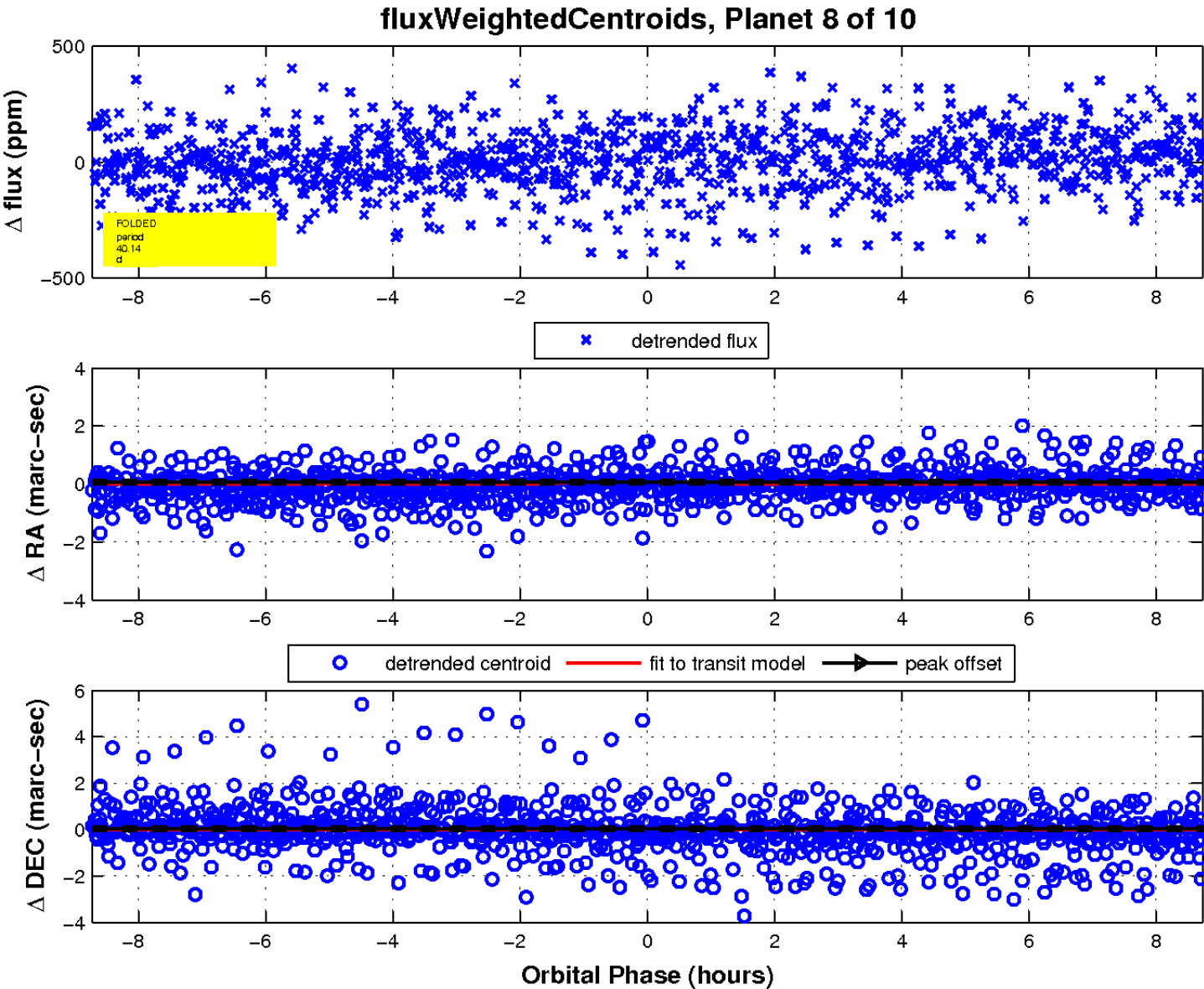
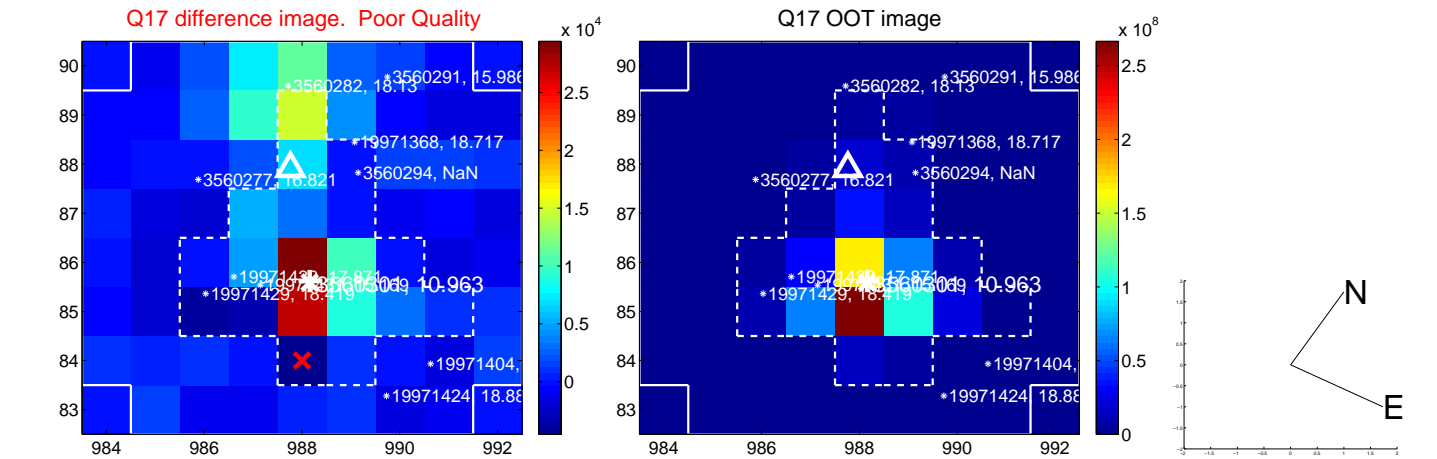




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

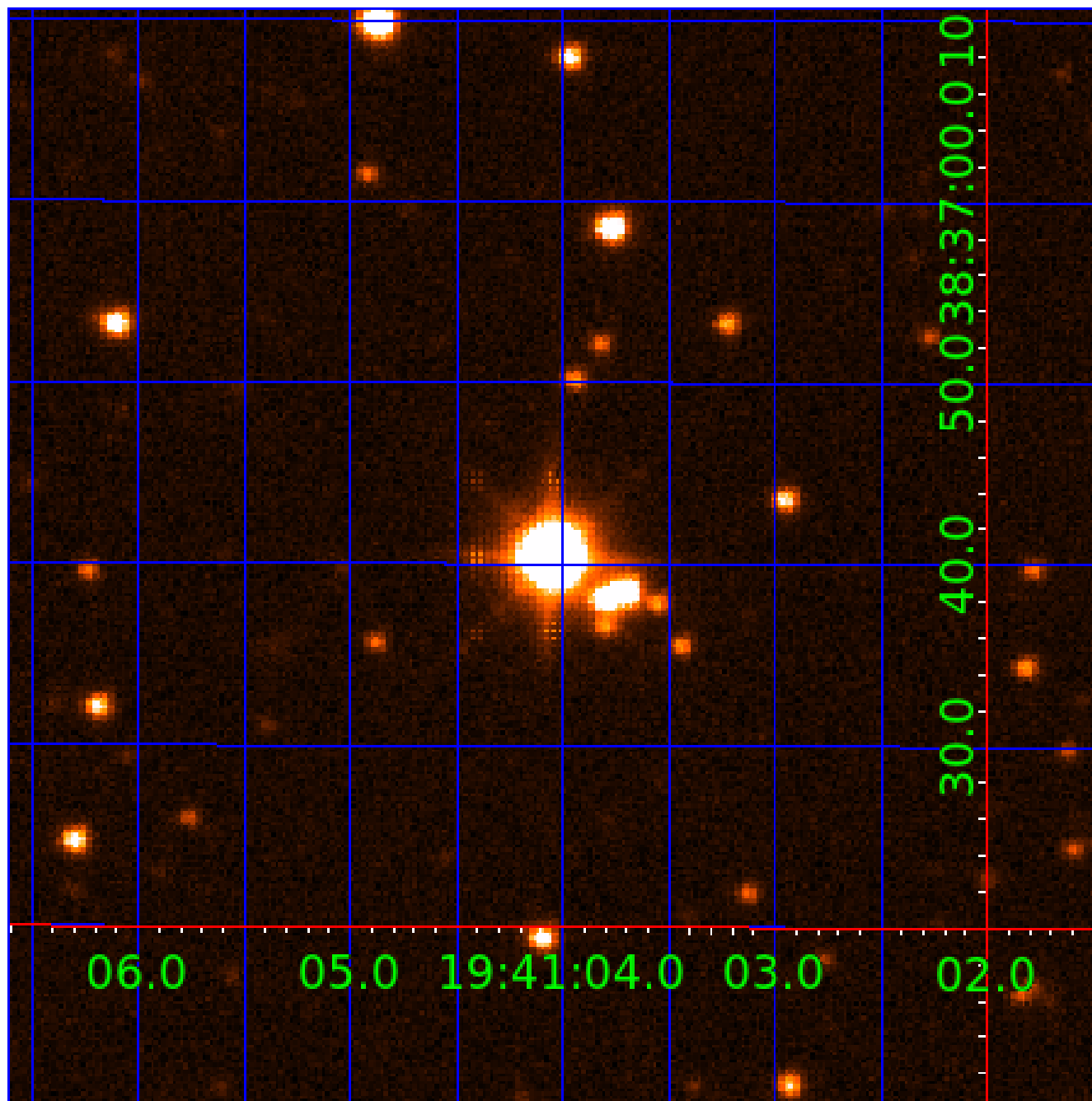


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## KIC 003560301

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003560301-01	OBS	0968.01	4.650516	135.703516	48.0	14.378	13.4	11.0	3.48	6980	2.84	6159.33
003560301-02	OBS	No	4.649908	133.451011	83.9	16.883	14.4	16.5	3.48	6980	5.57	6160.41
003560301-03	OBS	No	118.507880	246.508723	514.3	19.733	25.7	16.3	3.48	6980	15.00	82.14
003560301-04	OBS	No	59.120616	149.996311	153.3	5.042	15.3	7.1	3.48	6980	5.25	207.59
003560301-05	OBS	No	53.692713	134.661858	214.8	5.861	12.2	9.5	3.48	6980	5.48	236.04
003560301-06	OBS	No	43.782493	169.101103	77.0	0.639	9.8	1.8	3.48	6980	3.30	309.84
003560301-07	OBS	No	52.781384	166.241089	260.9	3.022	10.4	9.6	3.48	6980	6.31	241.49
003560301-08	OBS	No	40.144553	134.948745	254.5	2.914	10.0	10.3	3.48	6980	6.57	347.83
003560301-09	OBS	No	174.864198	156.170068	276.4	6.035	9.6	10.4	3.48	6980	6.72	48.90
003560301-10	OBS	No	44.432964	151.915392	186.8	5.412	9.8	9.0	3.48	6980	5.09	303.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003560301-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
003560301-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
003560301-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003560301-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
003560301-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

**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.

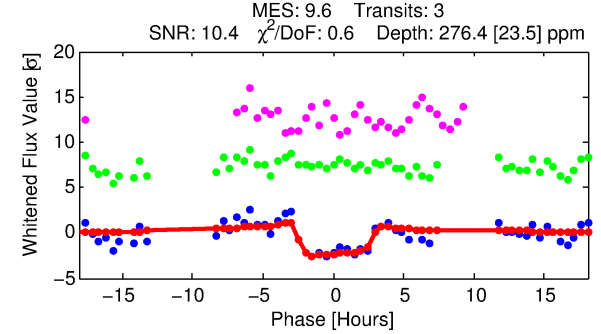
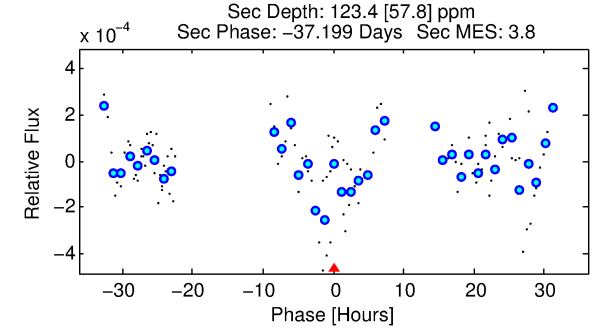
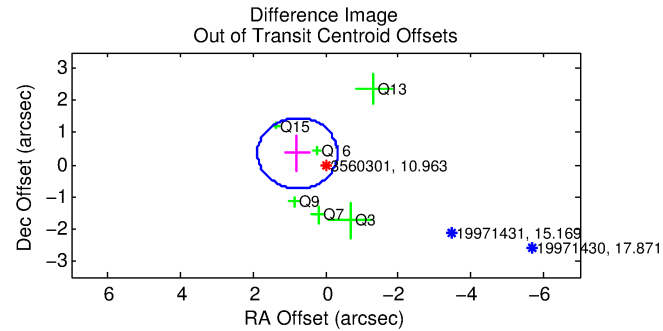
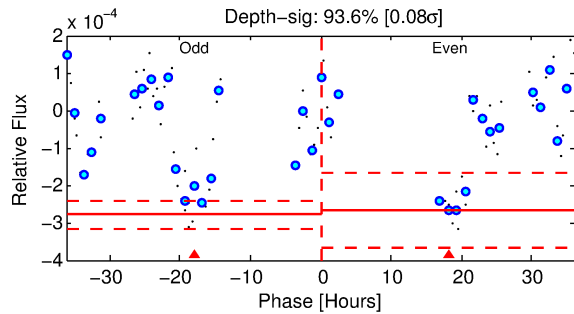
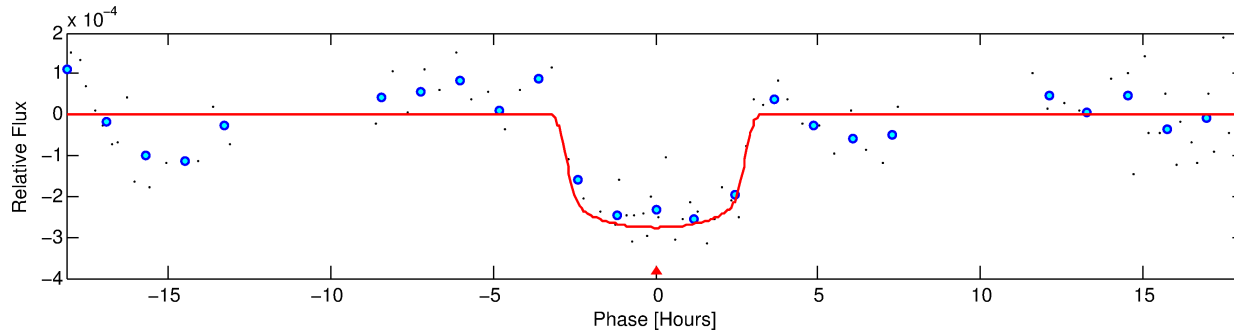
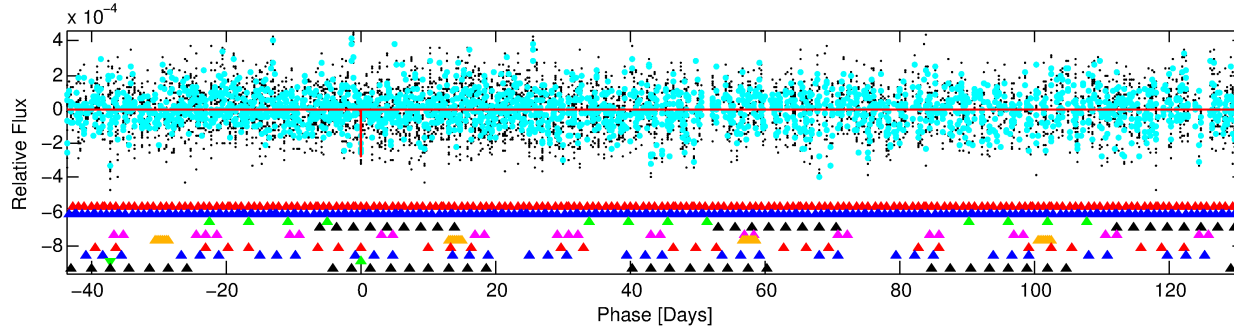
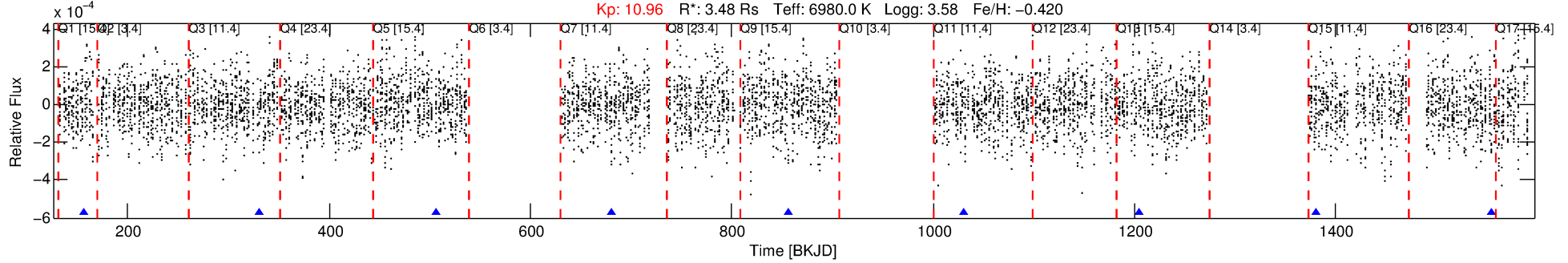
Ephemeris Match Information For 003560301-09

No Significant Match Found

# DV One-Page Summary

KIC: 3560301 Candidate: 9 of 10 Period: 174.864 d  
KOI: K00968 Corr: No Ephemeris Match

Kp: 10.96 R\*: 3.48 Rs Teff: 6980.0 K Logg: 3.58 Fe/H: -0.420



## DV Fit Results:

Period = 174.86420 [0.00249] d  
Epoch = 156.1701 [0.0129] BKJD  
Rp/R\* = 0.0177 [0.0031]  
a/R\* = 105.31 [109.53]  
b = 0.90 [0.22]  
Seff = 48.90 [30.38]  
Teq = 674 [105] K  
Rp = 6.72 [3.04] Re  
a = 0.7262 [0.2810] AU  
Ag = 792.34 [669.56] [1.18σ]  
Teffp = 5531 [833] K [5.79σ]

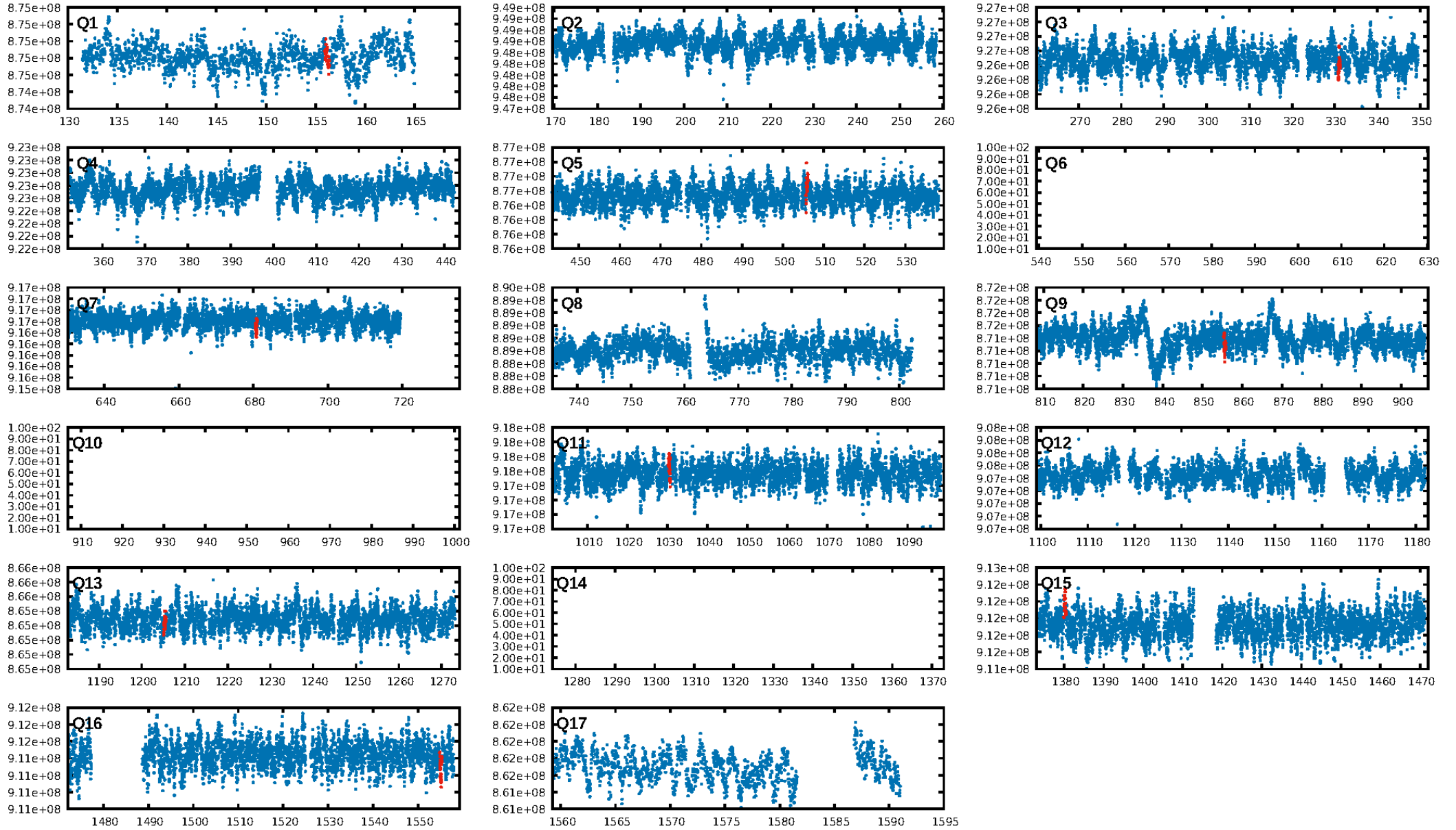
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [65.55σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 45.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -5.093  
Centroid-sig: 88.6%  
Centroid-so: 0.208 arcsec [0.36σ]  
OotOffset-rm: 0.851 arcsec [2.32σ]  
OotOffset-st: 0/3/1/2 [6]  
KicOffset-rm: 0.839 arcsec [1.91σ]  
KicOffset-st: 0/3/1/2 [6]  
DiffImageQuality-fgm: 0.50 [3/6]  
DiffImageOverlap-fno: 0.43 [3/7]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:26:49 Z

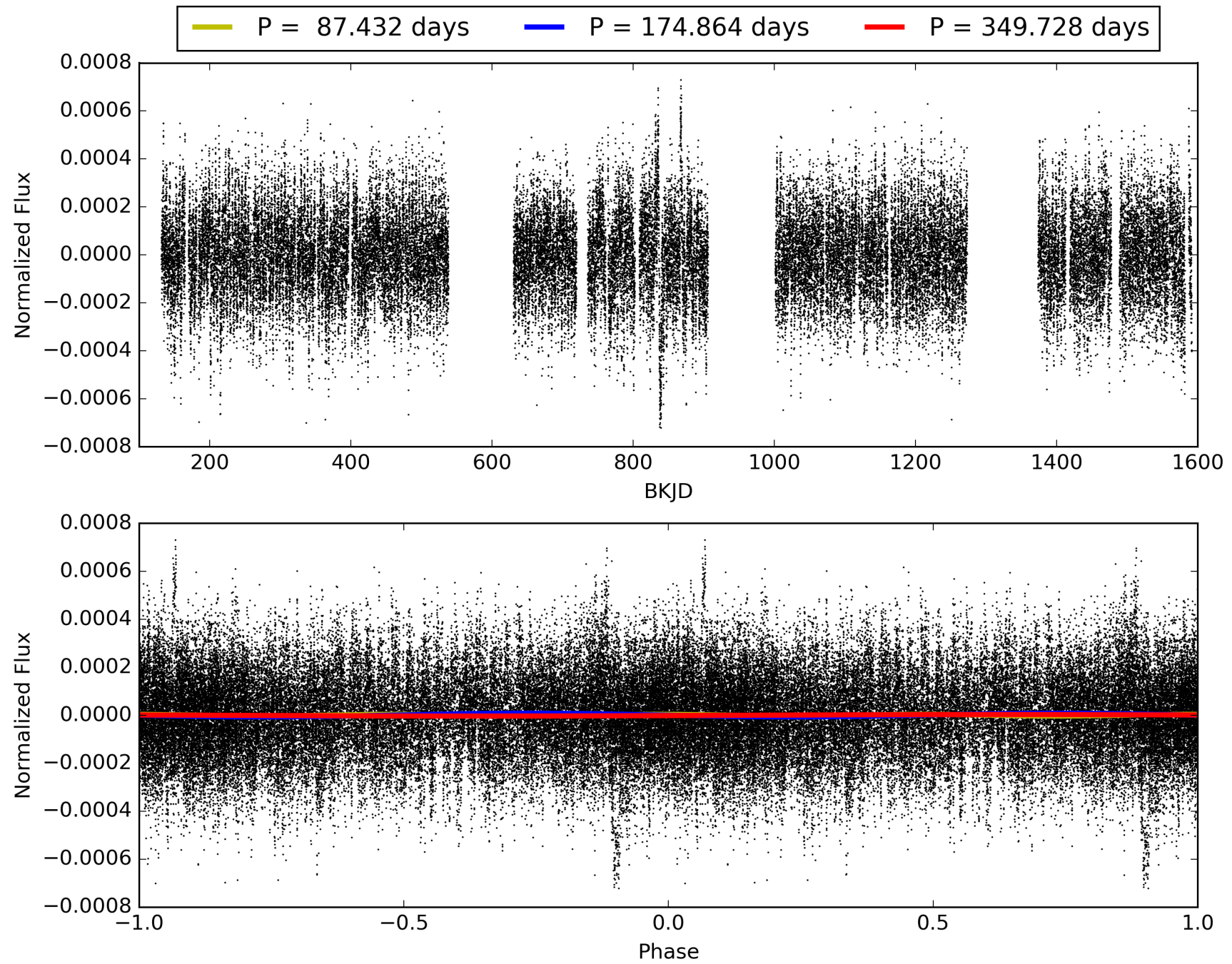
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003560301-09, PDC Light Curves





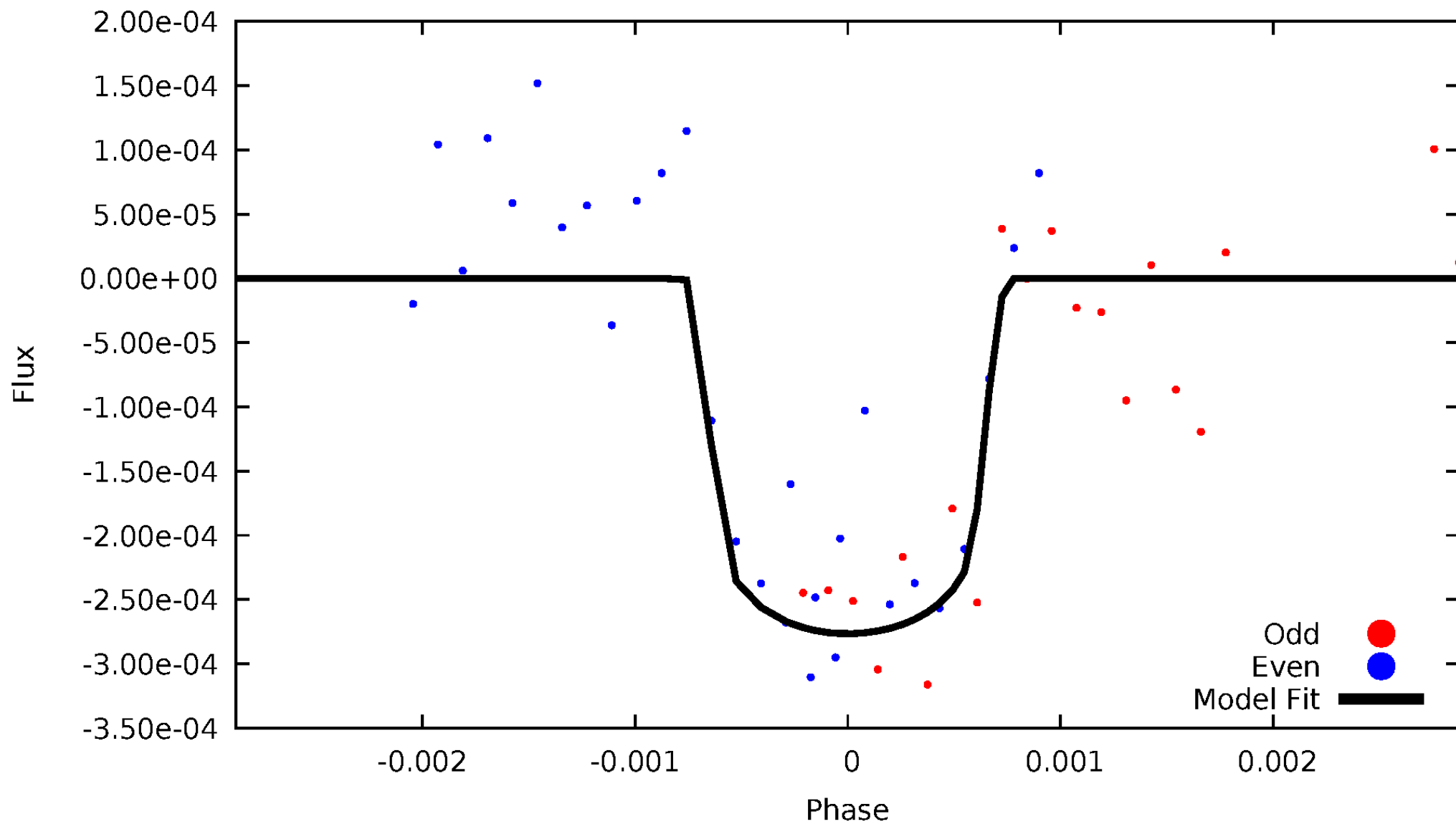
TCE 003560301-09





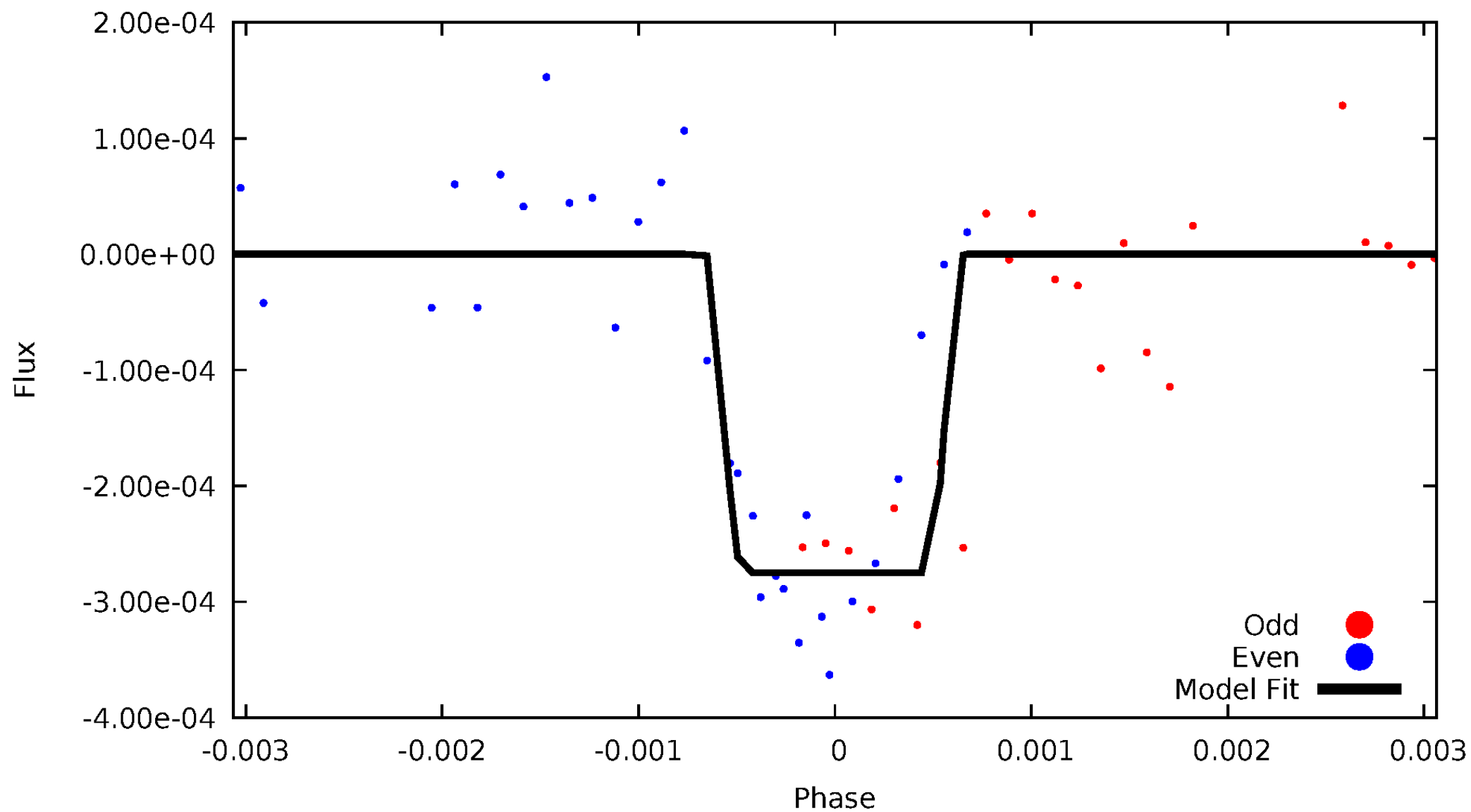
# DV Odd/Even

TCE 003560301-09



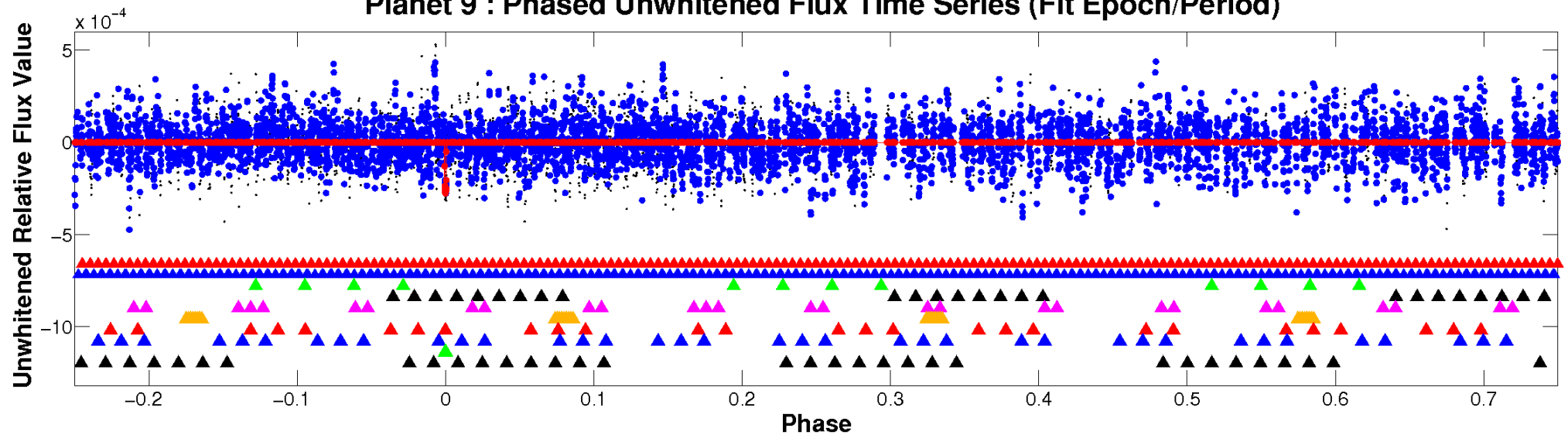
# ALT Odd/Even

TCE 003560301-09

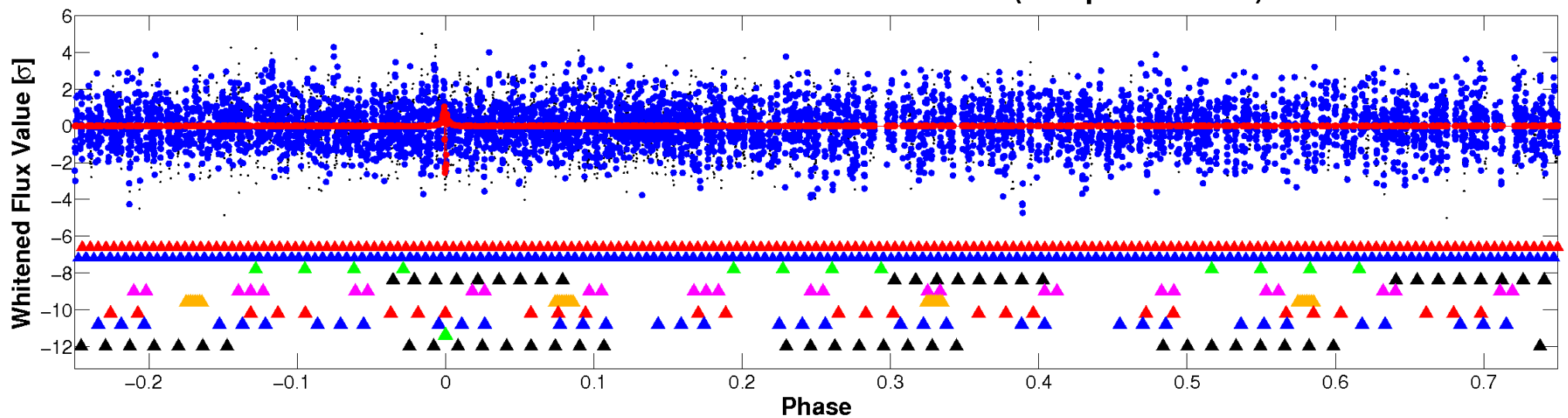


# Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

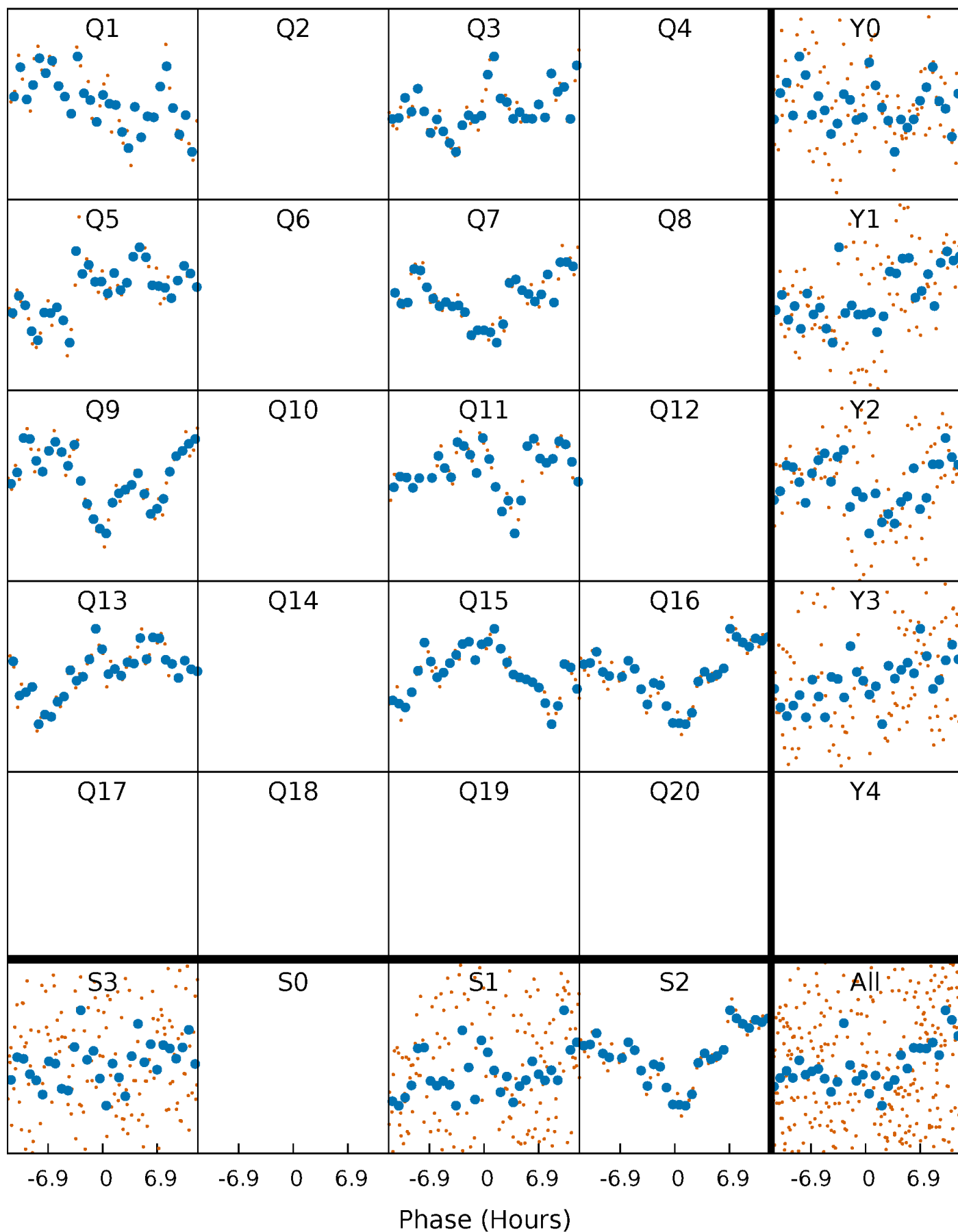


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



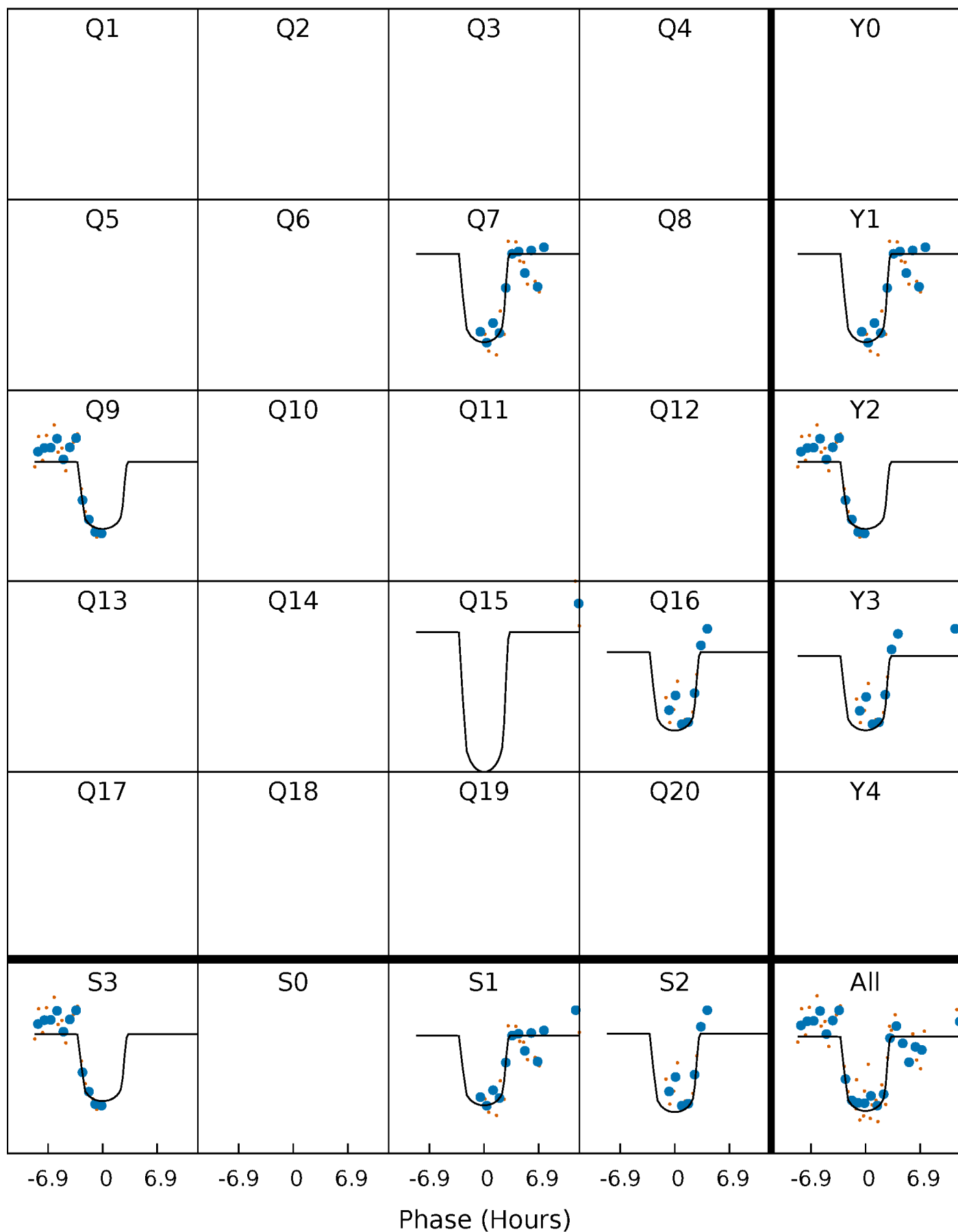
# PDC Quarter-Phased Transit Curves

TCE 003560301-09     $P=174.864198$  Days     $T_0=156.170068$  (BKJD)



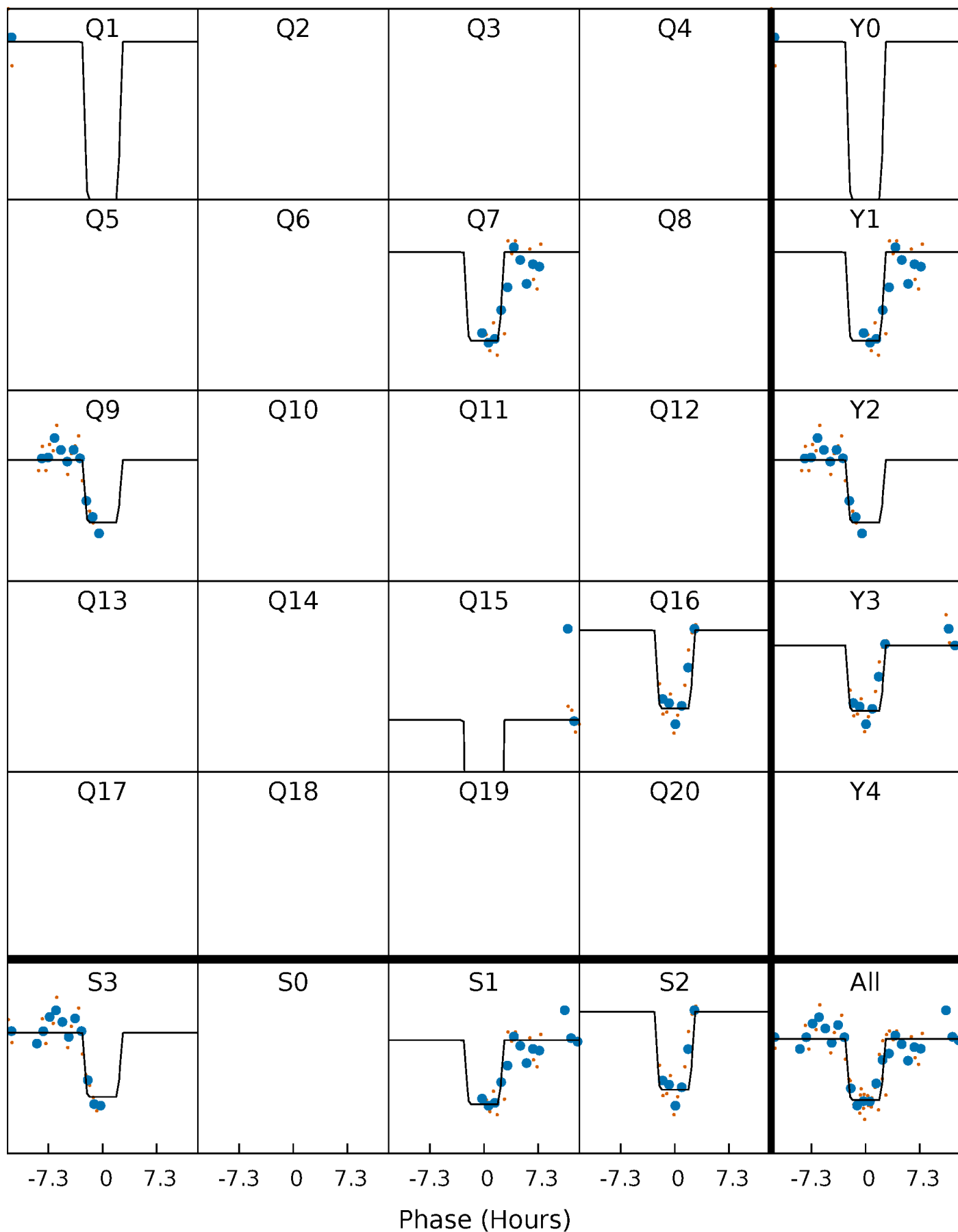
# DV Quarter-Phased Transit Curves

TCE 003560301-09     $P=174.864198$  Days     $T_0=156.170068$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

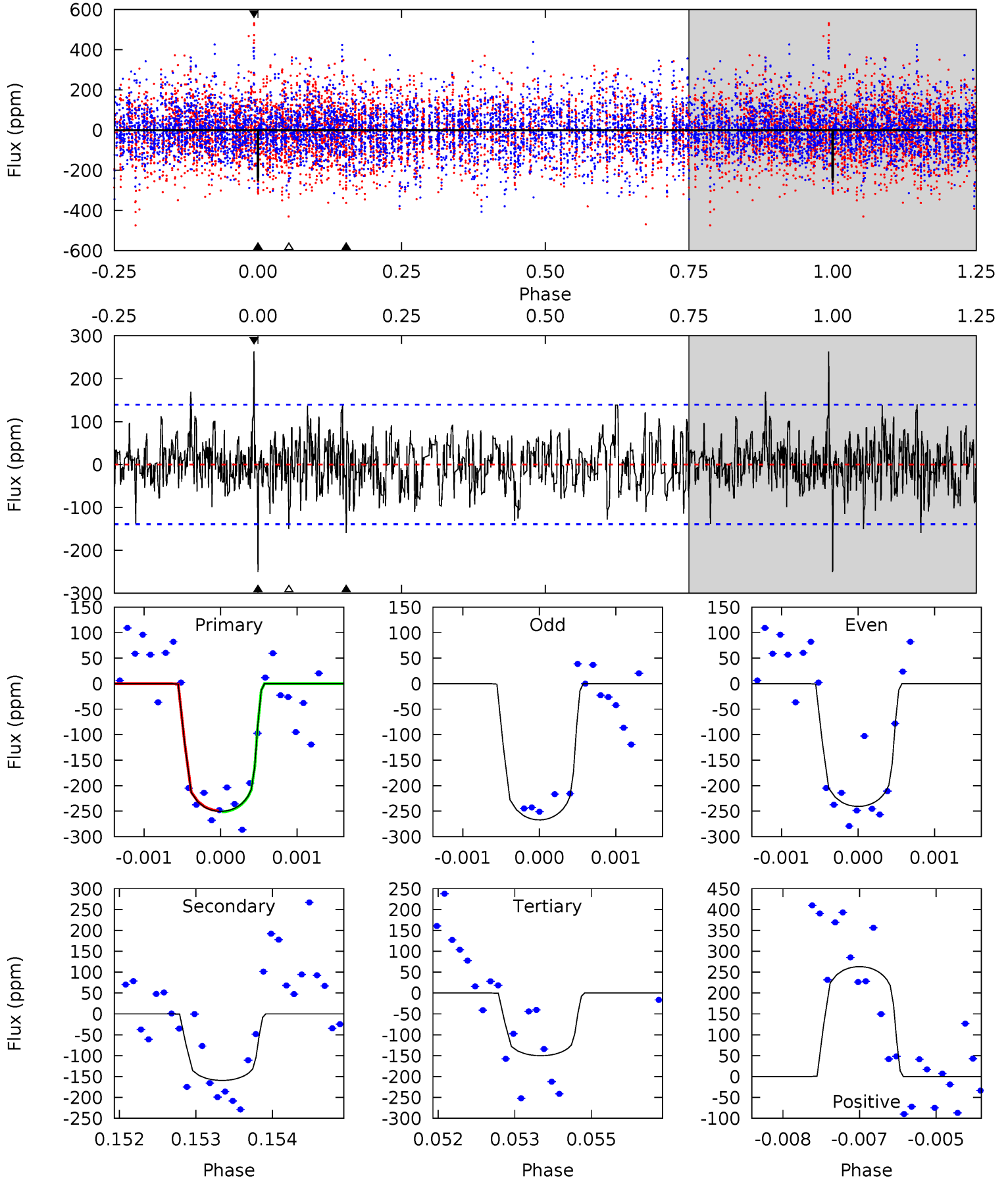
TCE 003560301-09     $P=174.873649$  Days     $T_0=156.133878$  (BKJD)



# DV Model-Shift Uniqueness Test

003560301-09, P = 174.864198 Days, E = 156.170068 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
9.70	6.17	5.82	10.2	5.40	3.20	1.78	3.88	-0.50	0.36	-4.03	0.51	0.95	0.51	0.04

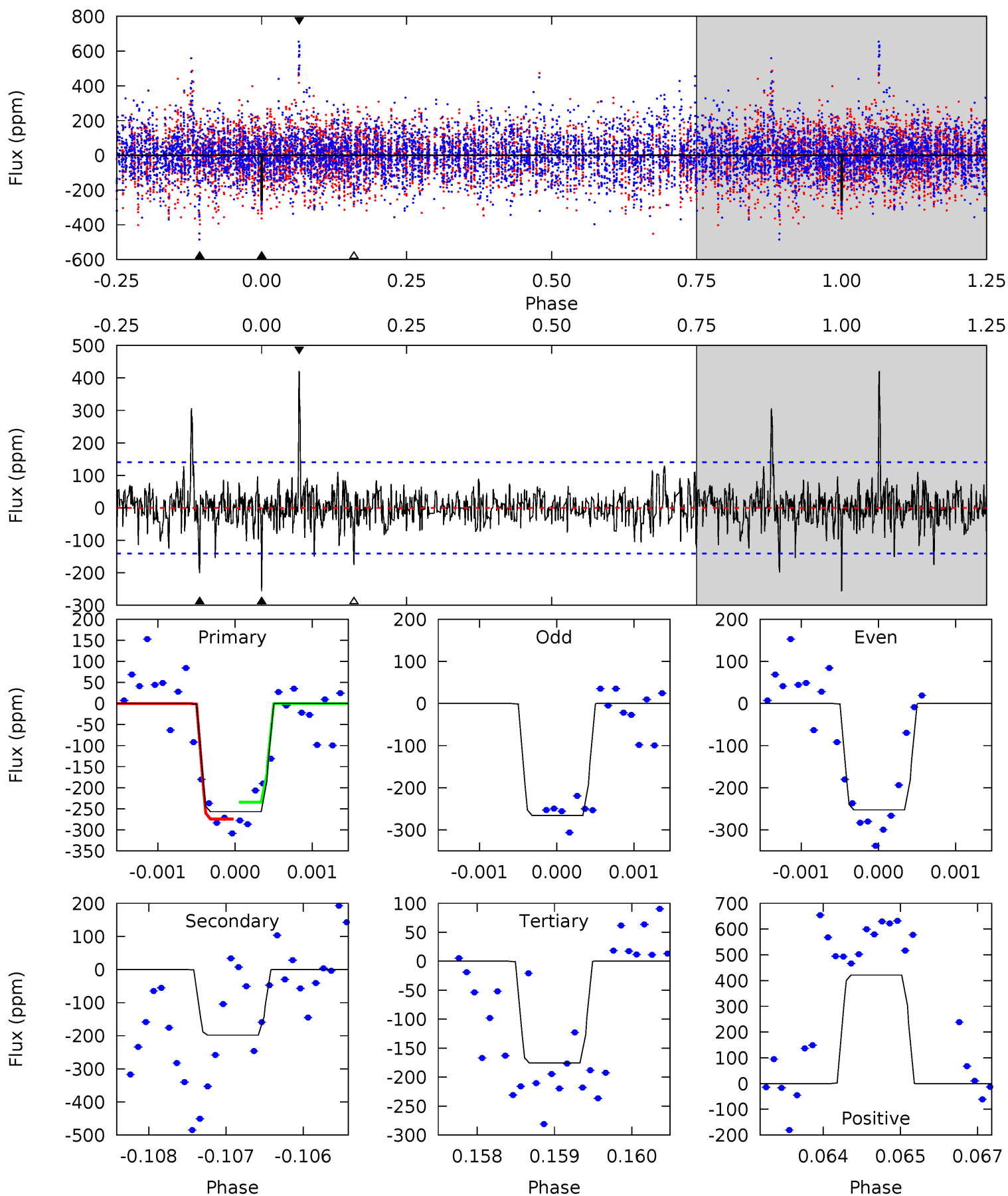




# Alt Model-Shift Uniqueness Test

003560301-09, P = 174.873649 Days, E = 156.133878 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
9.88	7.62	6.74	16.2	5.40	3.22	1.74	3.13	-6.32	0.87	-8.58	0.25	0.99	0.62	0.77



### Stellar Parameters For KIC 003560301

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6980^{+167}_{-230}$	$3.577^{+0.352}_{-0.088}$	$-0.420^{+0.350}_{-0.250}$	$3.482^{+0.362}_{-1.447}$	$1.671^{+0.203}_{-0.377}$	$0.056^{+0.150}_{-0.012}$
	+2%/-3%	+10%/-2%	+83%/-60%	+10%/-42%	+12%/-23%	+270%/-22%
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 003560301-09 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-159 \pm 26$	$6.30^{+1.61}_{-1.54}$	$924^{+51}_{-91}$	$5863^{+687}_{-536}$	$1172^{+858}_{-438}$
Alt.	$-198 \pm 26$	$5.89^{+1.48}_{-1.53}$	$926^{+51}_{-94}$	$6408^{+812}_{-582}$	$1681^{+1234}_{-622}$

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

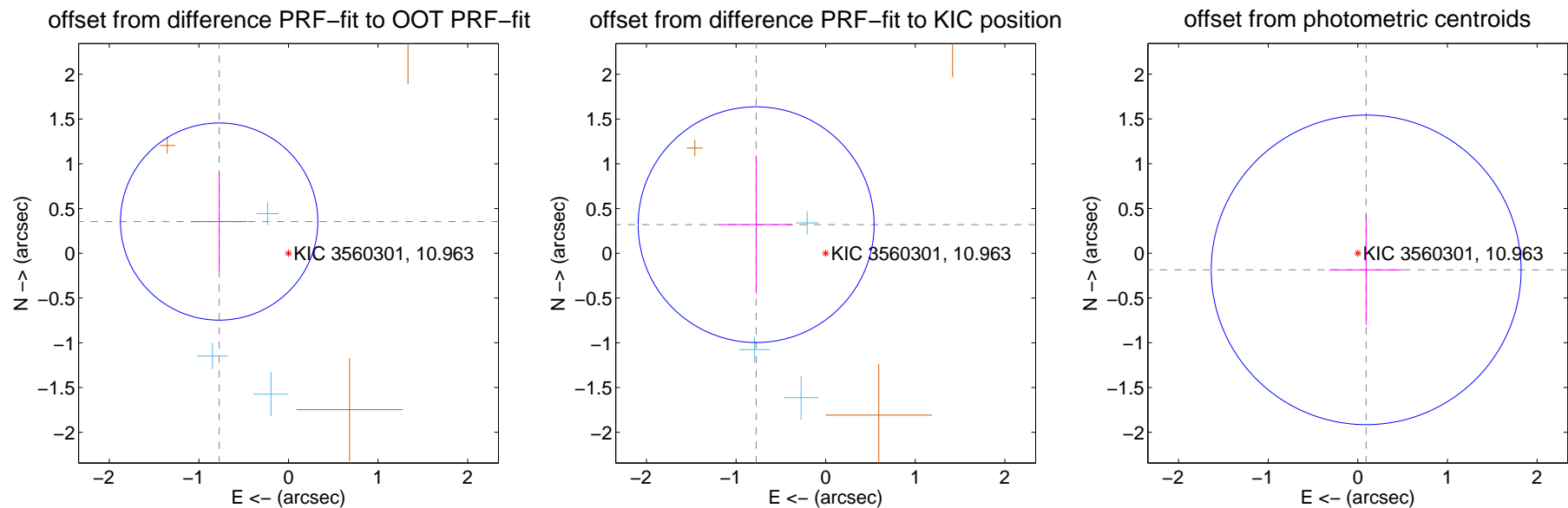
## DV Centroid Data

Supplemental centroid analysis for 003560301-09. **Kepler magnitude: 10.96.** Transit SNR 10.42

**There are 3 quarters with good PRF difference image offsets**

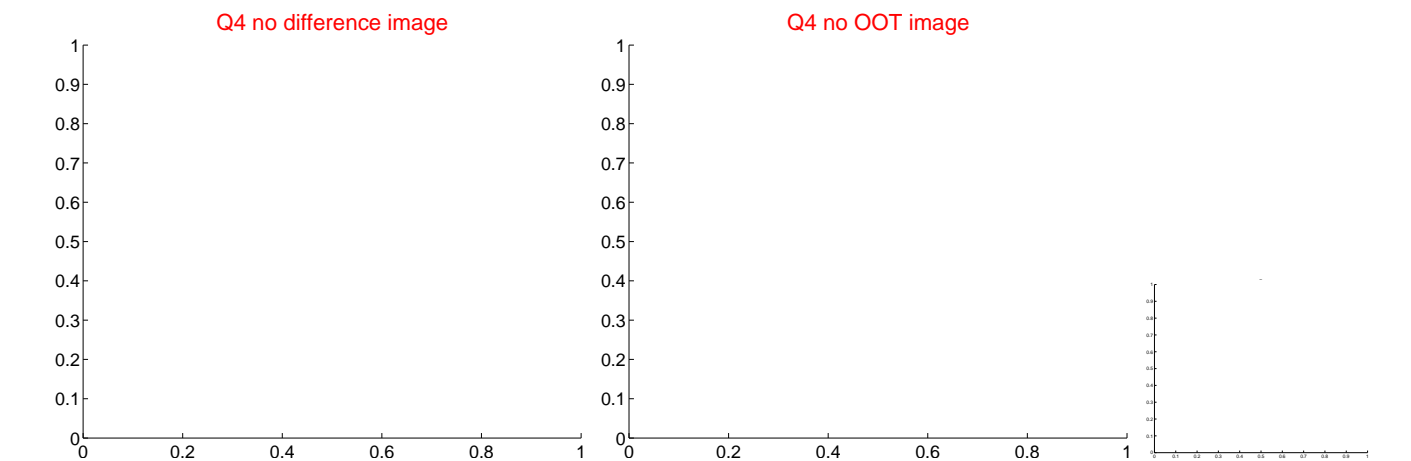
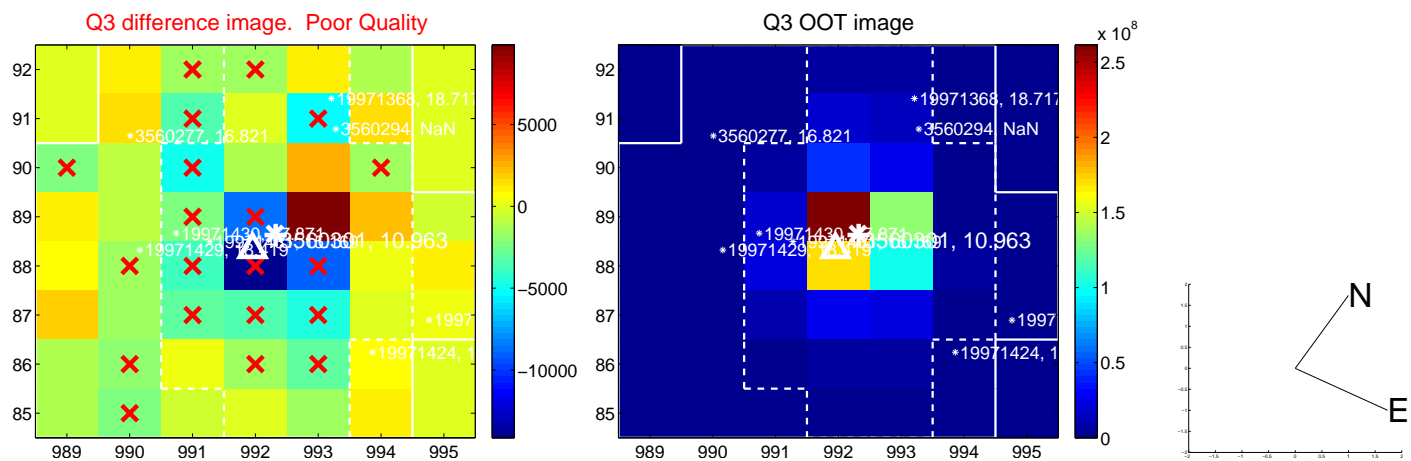
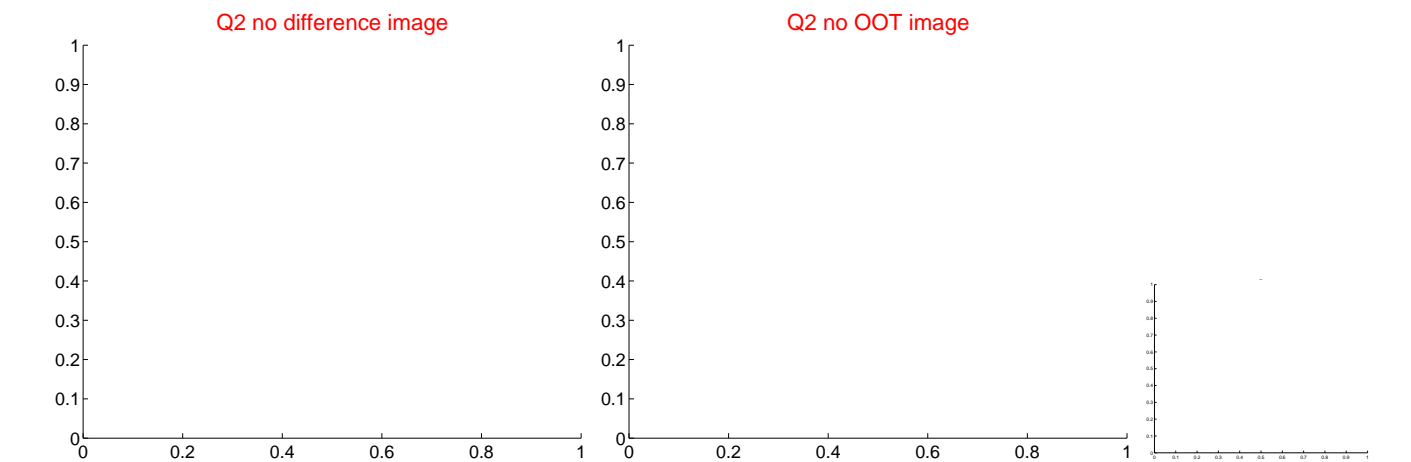
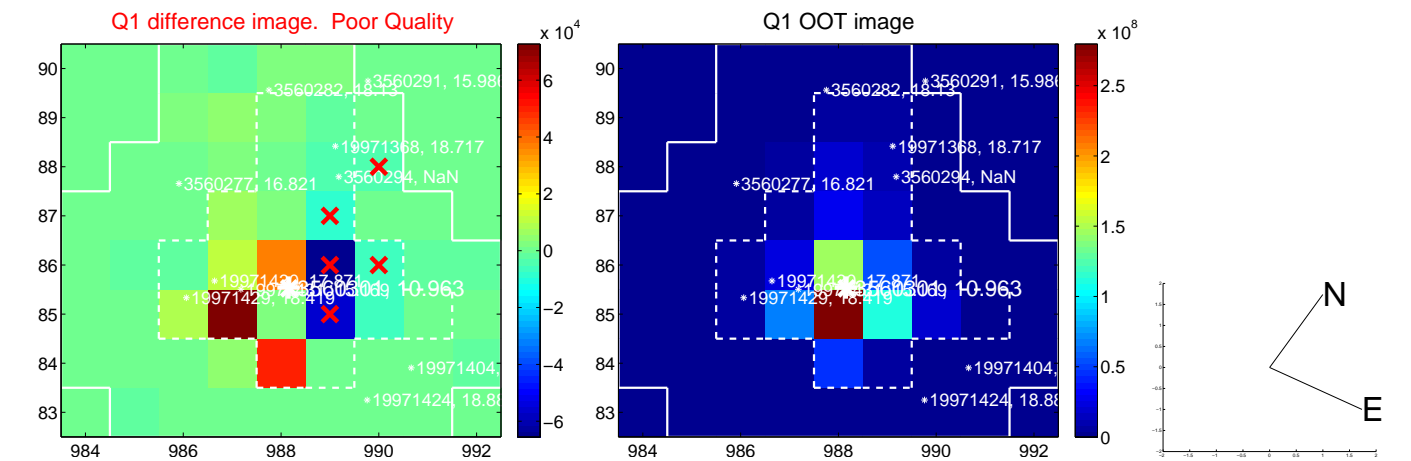
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.851 \pm 0.367$	2.32	$0.774 \pm 0.314$	$0.354 \pm 0.554$
PRF-fit source offset from KIC position	$0.839 \pm 0.439$	1.91	$0.776 \pm 0.409$	$0.320 \pm 0.770$
photometric centroid source offset	$0.21 \pm 0.58$	0.36	$-0.09 \pm 0.41$	$-0.19 \pm 0.61$

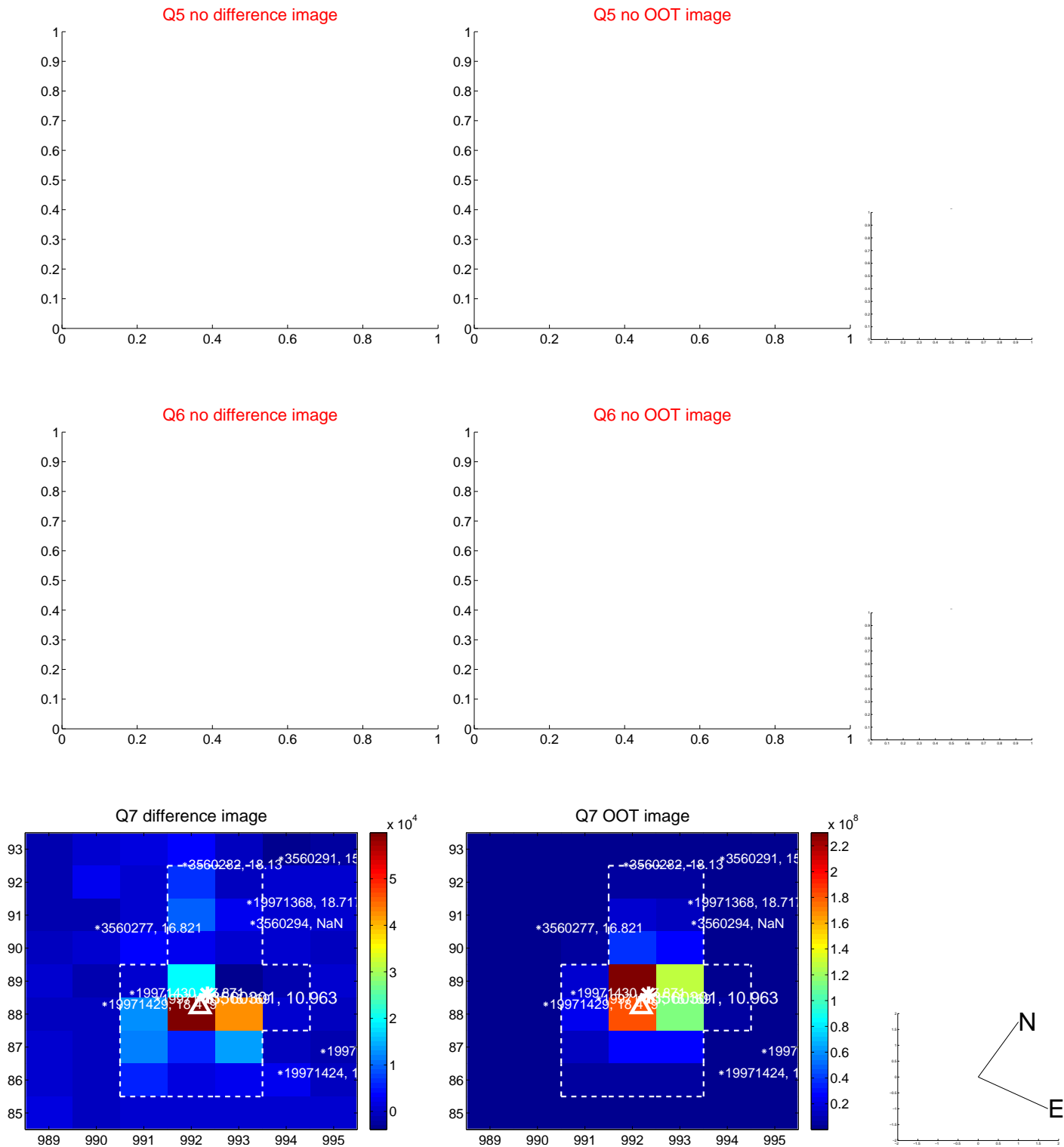


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

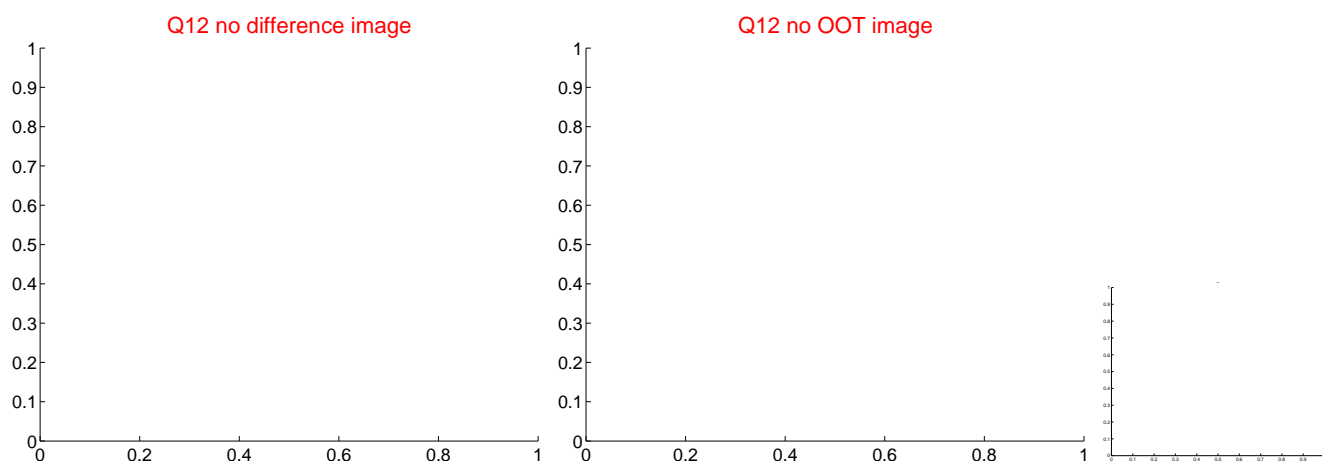
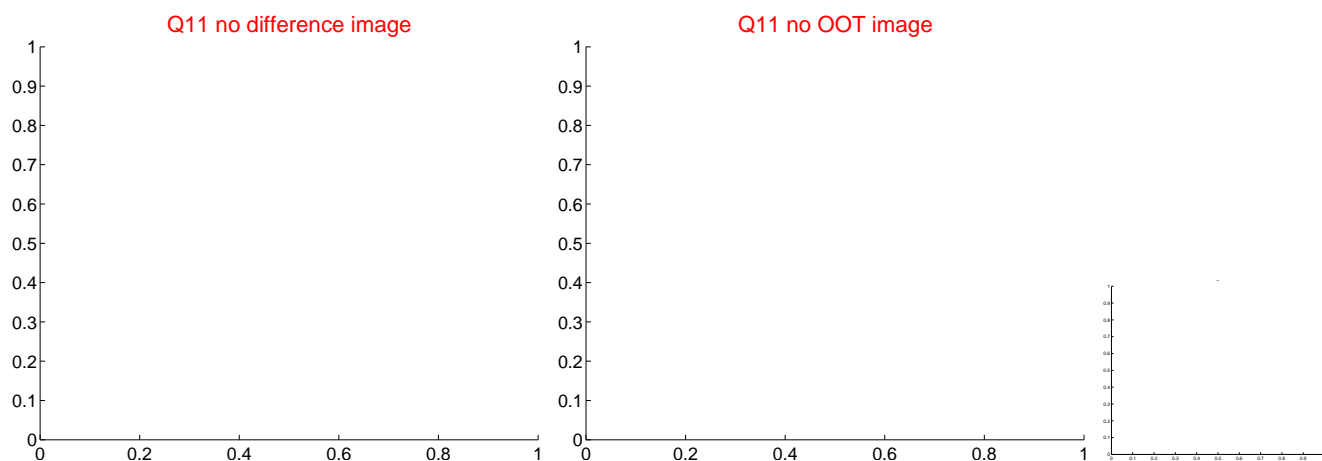
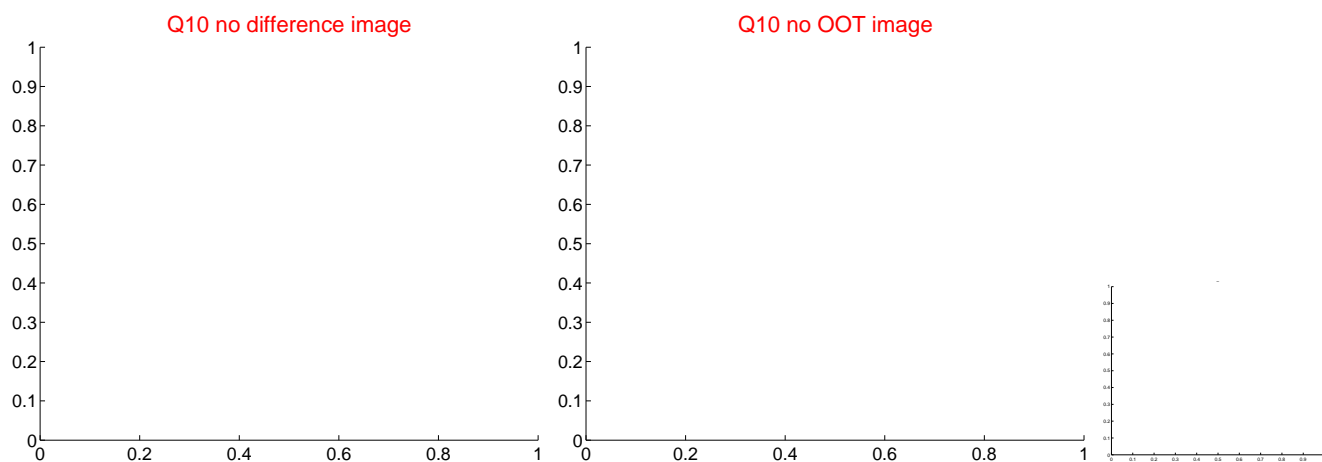
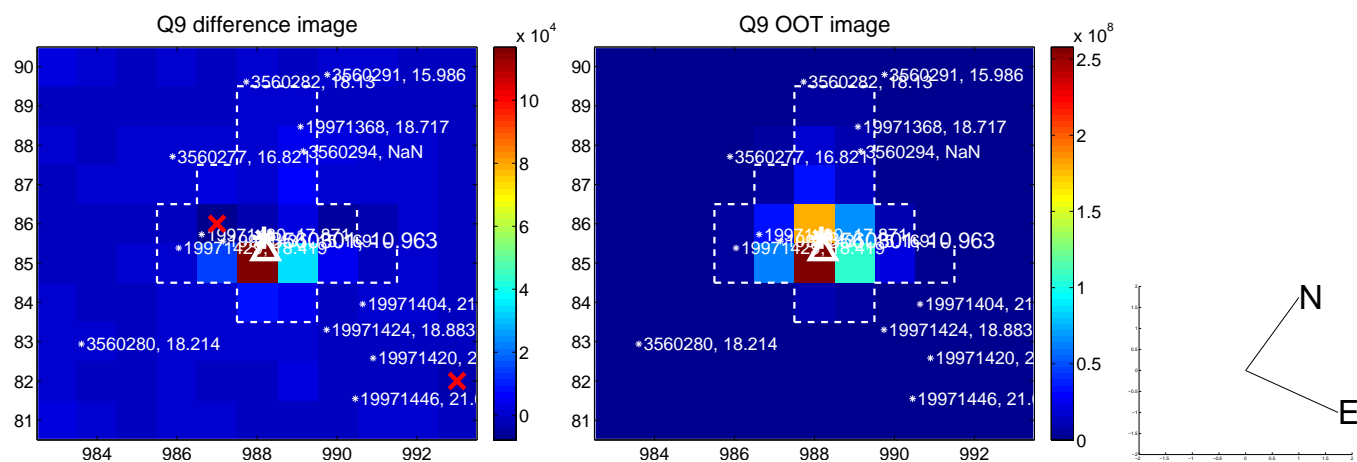
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



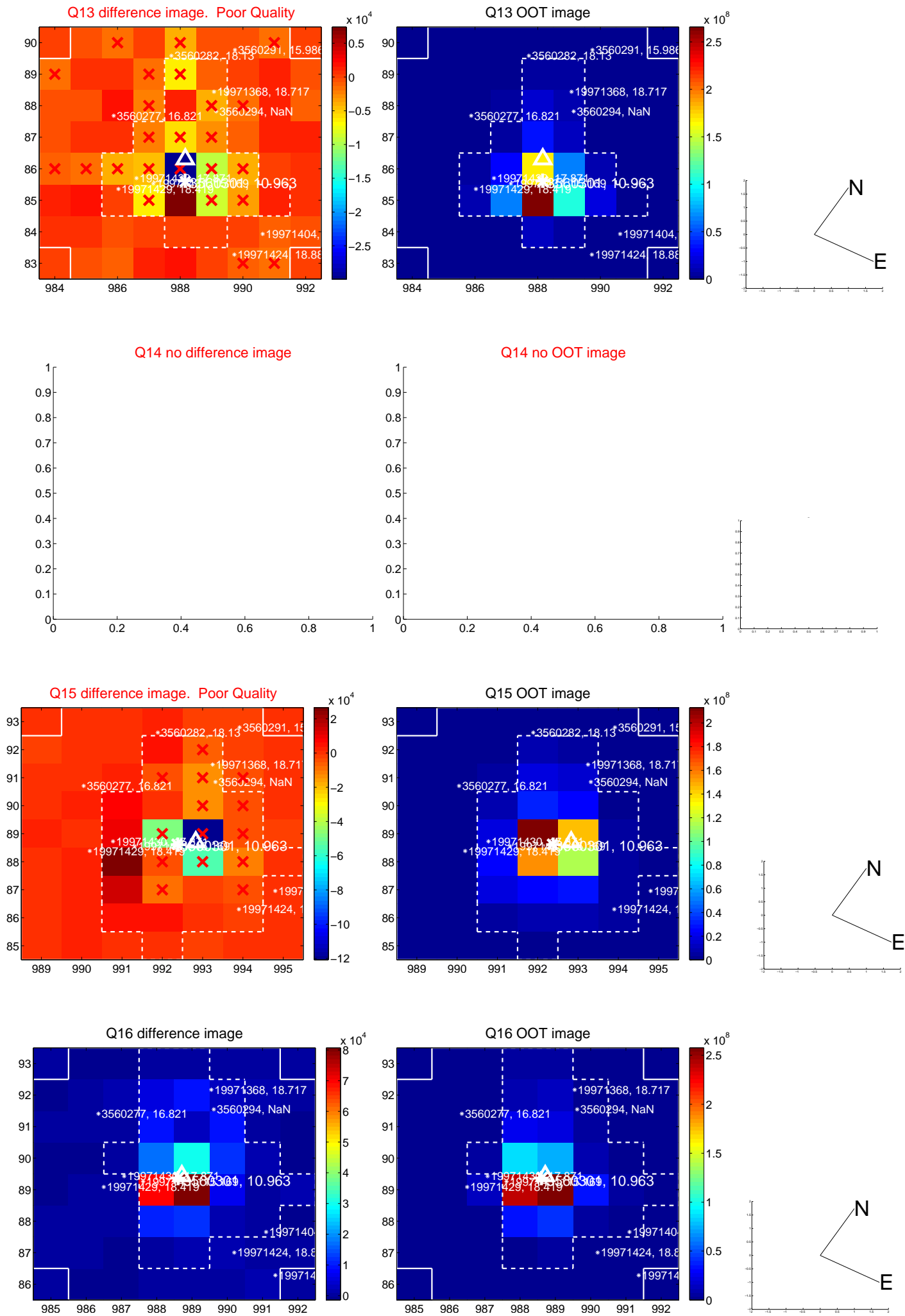
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

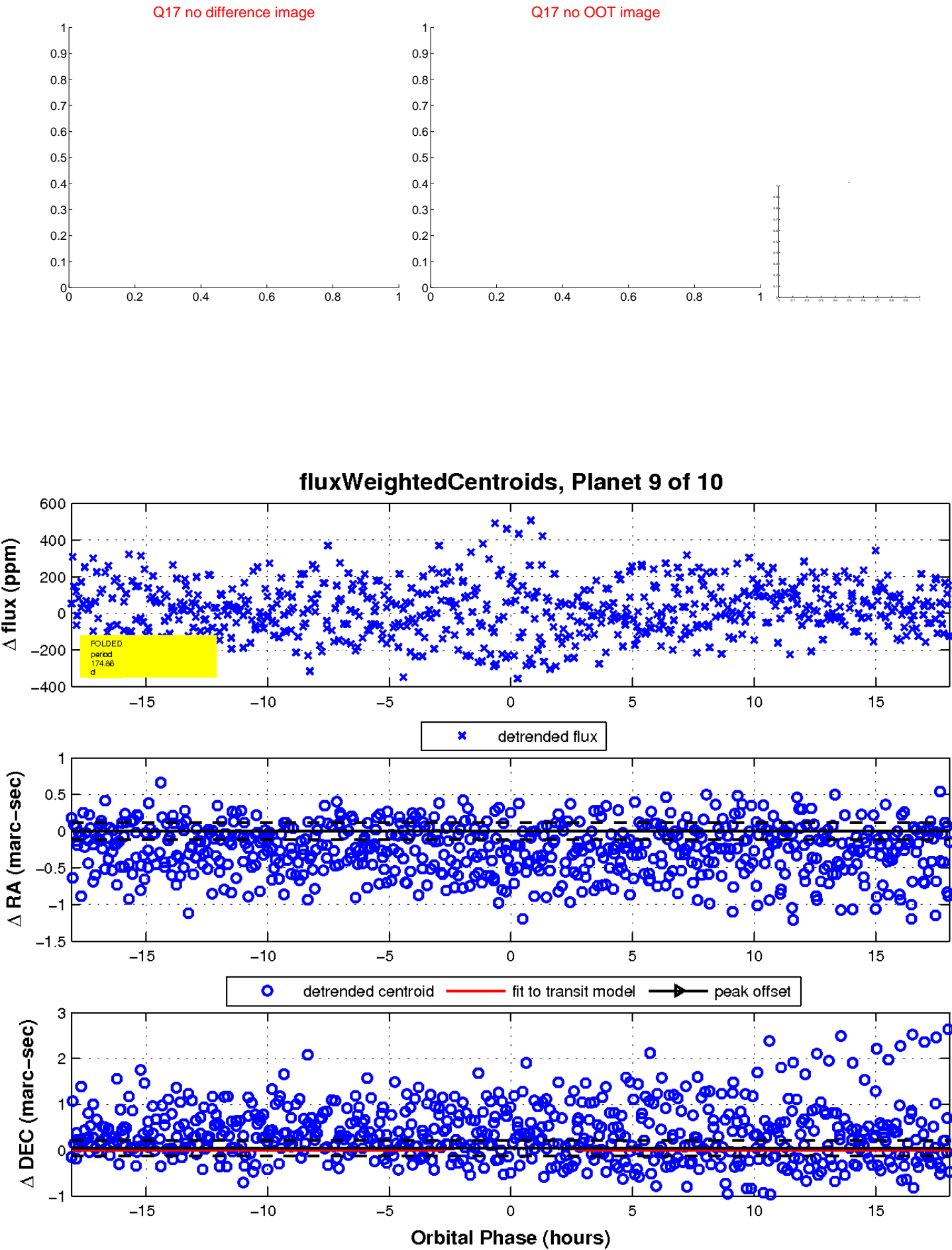


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



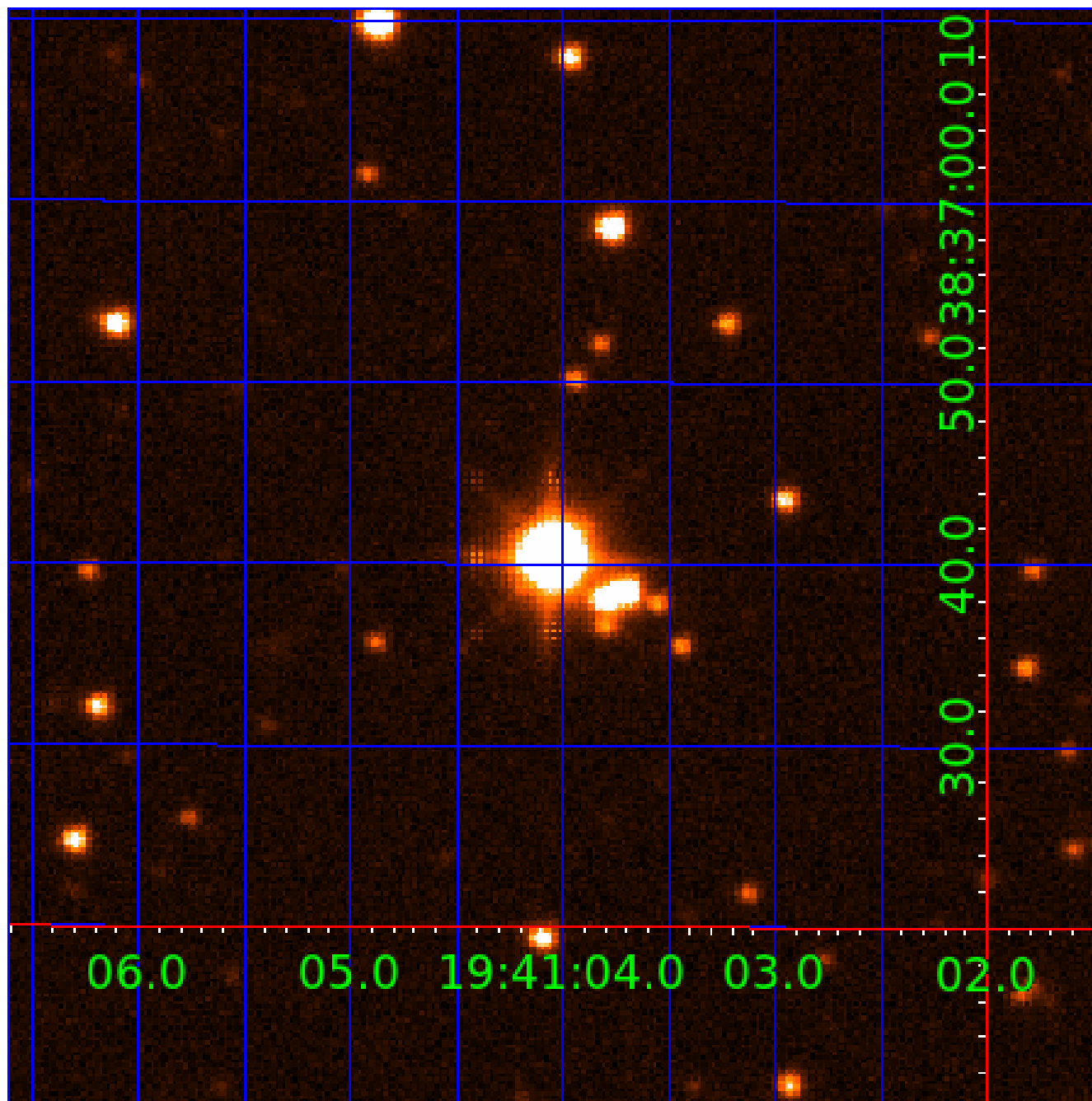


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## KIC 003560301

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003560301-01	OBS	0968.01	4.650516	135.703516	48.0	14.378	13.4	11.0	3.48	6980	2.84	6159.33
003560301-02	OBS	No	4.649908	133.451011	83.9	16.883	14.4	16.5	3.48	6980	5.57	6160.41
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003560301-06	OBS	No	43.782493	169.101103	77.0	0.639	9.8	1.8	3.48	6980	3.30	309.84
003560301-07	OBS	No	52.781384	166.241089	260.9	3.022	10.4	9.6	3.48	6980	6.31	241.49
003560301-08	OBS	No	40.144553	134.948745	254.5	2.914	10.0	10.3	3.48	6980	6.57	347.83
003560301-09	OBS	No	174.864198	156.170068	276.4	6.035	9.6	10.4	3.48	6980	6.72	48.90
003560301-10	OBS	No	44.432964	151.915392	186.8	5.412	9.8	9.0	3.48	6980	5.09	303.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003560301-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
003560301-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
003560301-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003560301-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003560301-08	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
003560301-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
003560301-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

**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 003560301-10

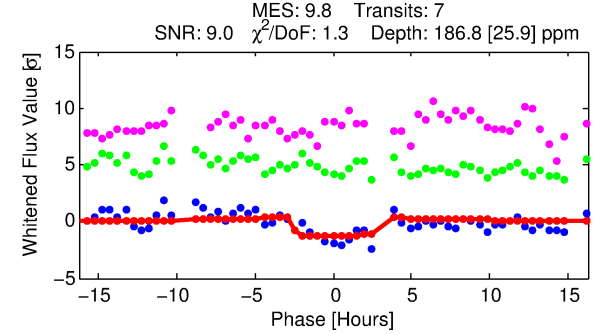
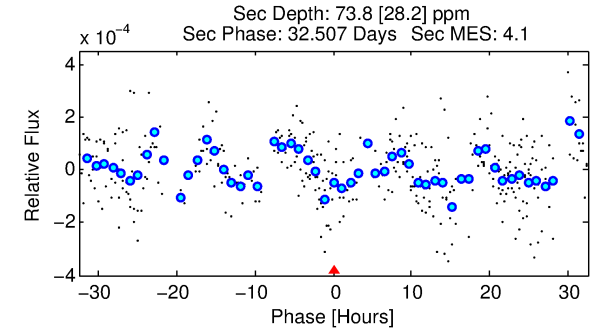
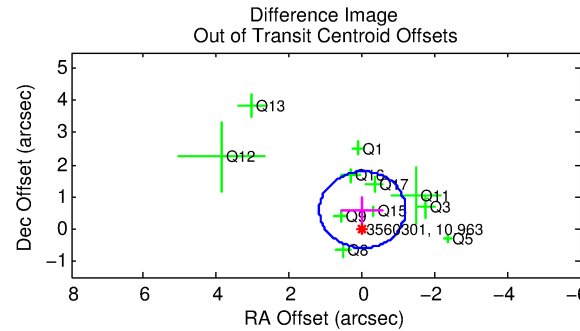
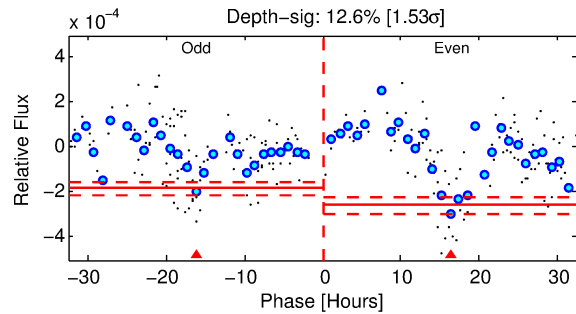
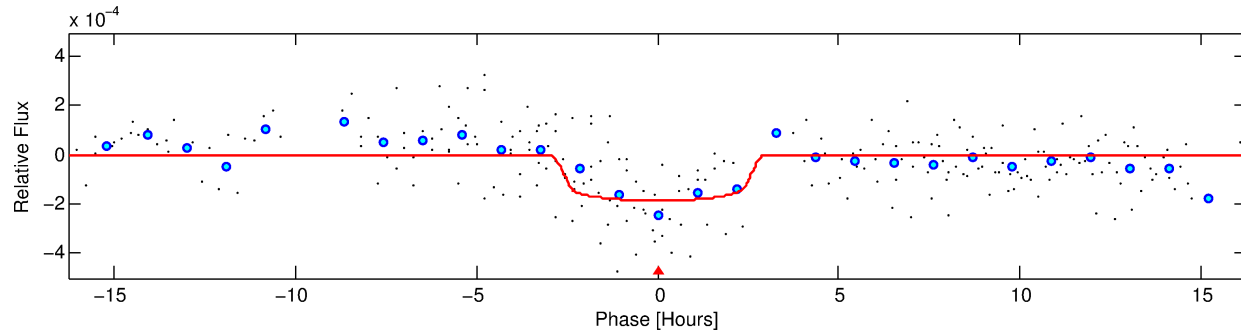
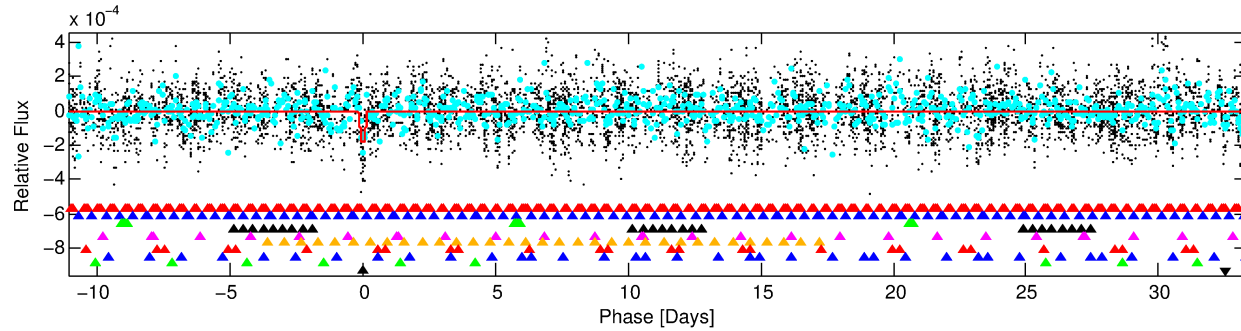
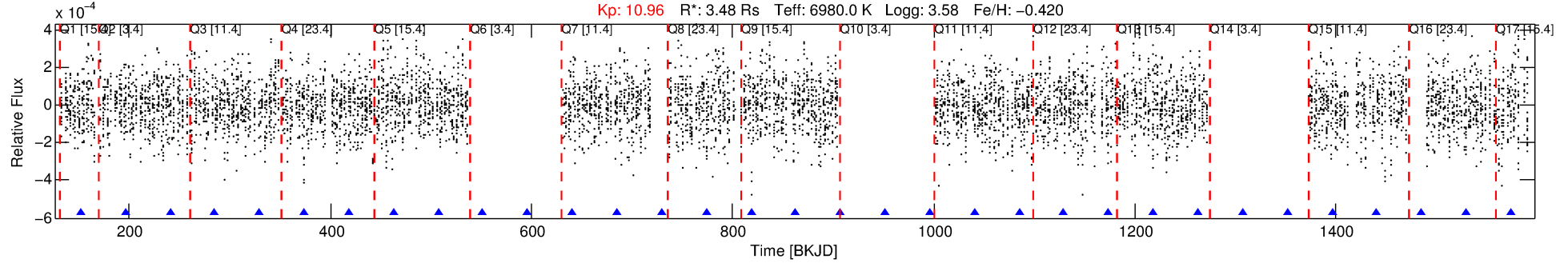
No Significant Match Found

# DV One-Page Summary

KIC: 3560301 Candidate: 10 of 10 Period: 44.433 d

KOI: K00968 Corr: No Ephemeris Match

Kp: 10.96 R\*: 3.48 Rs Teff: 6980.0 K Logg: 3.58 Fe/H: -0.420



## DV Fit Results:

Period = 44.43296 [0.00081] d  
Epoch = 151.9154 [0.0175] BKJD  
Rp/R\* = 0.0134 [0.0143]  
a/R\* = 46.23 [293.91]  
b = 0.70 [4.74]  
Seff = 303.80 [188.77]  
Teq = 1065 [165] K  
Rp = 5.09 [5.84] Re  
a = 0.2913 [0.1127] AU  
Ag = 132.91 [299.78] [0.44σ]  
Teffp = 5589 [3041] K [1.49σ]

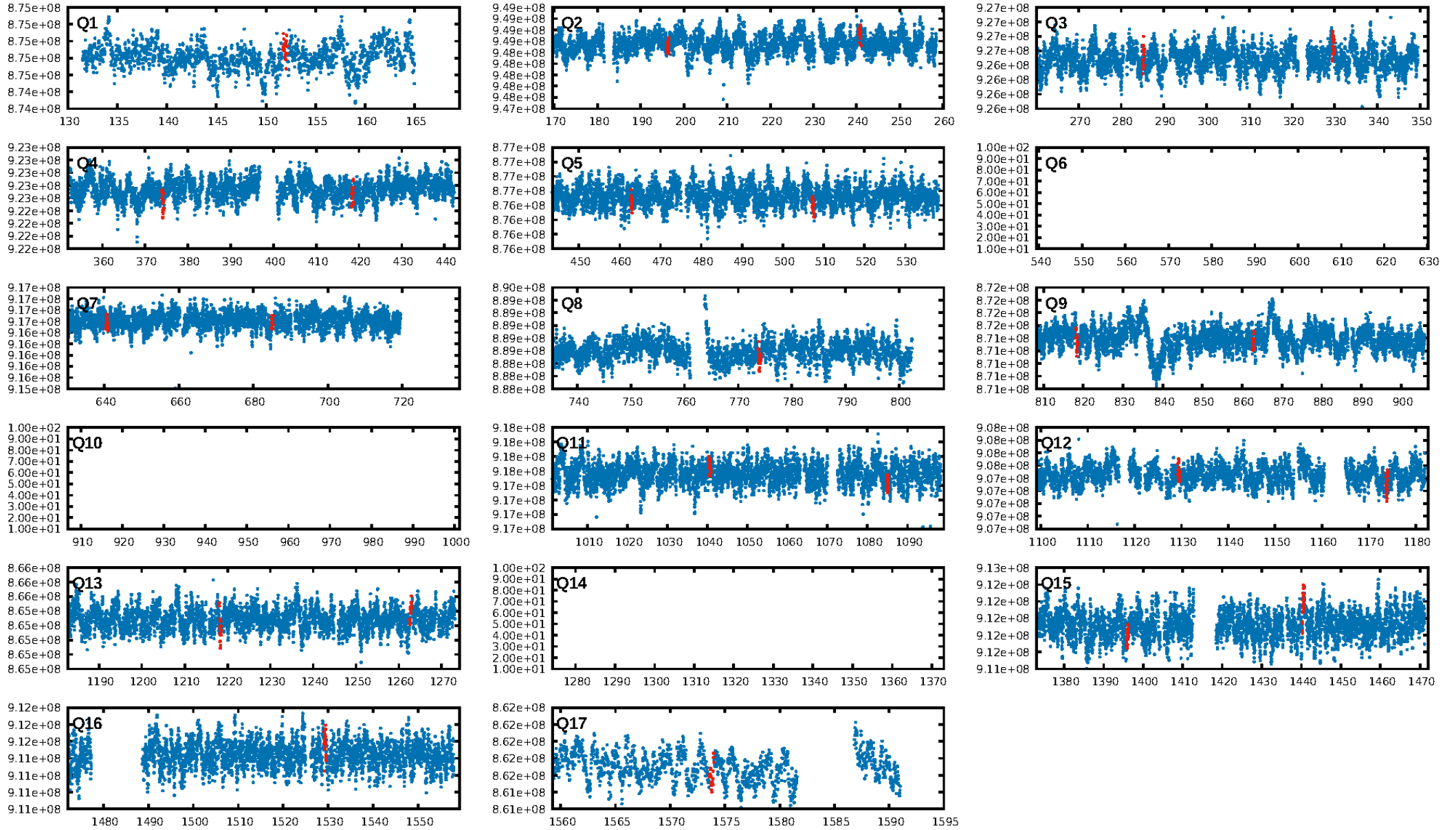
## DV Diagnostic Results:

ShortPeriod-sig: 99.6% [2.86σ]  
LongPeriod-sig: 100.0% [32.32σ]  
ModelChiSquare2-sig: 0.4%  
ModelChiSquareGof-sig: 98.5%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: -0.892  
Centroid-sig: 17.5%  
Centroid-so: 0.486 arcsec [1.67σ]  
OotOffset-rm: 0.595 arcsec [1.50σ]  
KicOffset-rm: 0.591 arcsec [1.28σ]  
OotOffset-st: 0/3/3/5 [11]  
KicOffset-st: 0/3/3/5 [11]  
DiffImageQuality-fgm: 0.45 [5/11]  
DiffImageOverlap-fno: 0.50 [7/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:26:52 Z

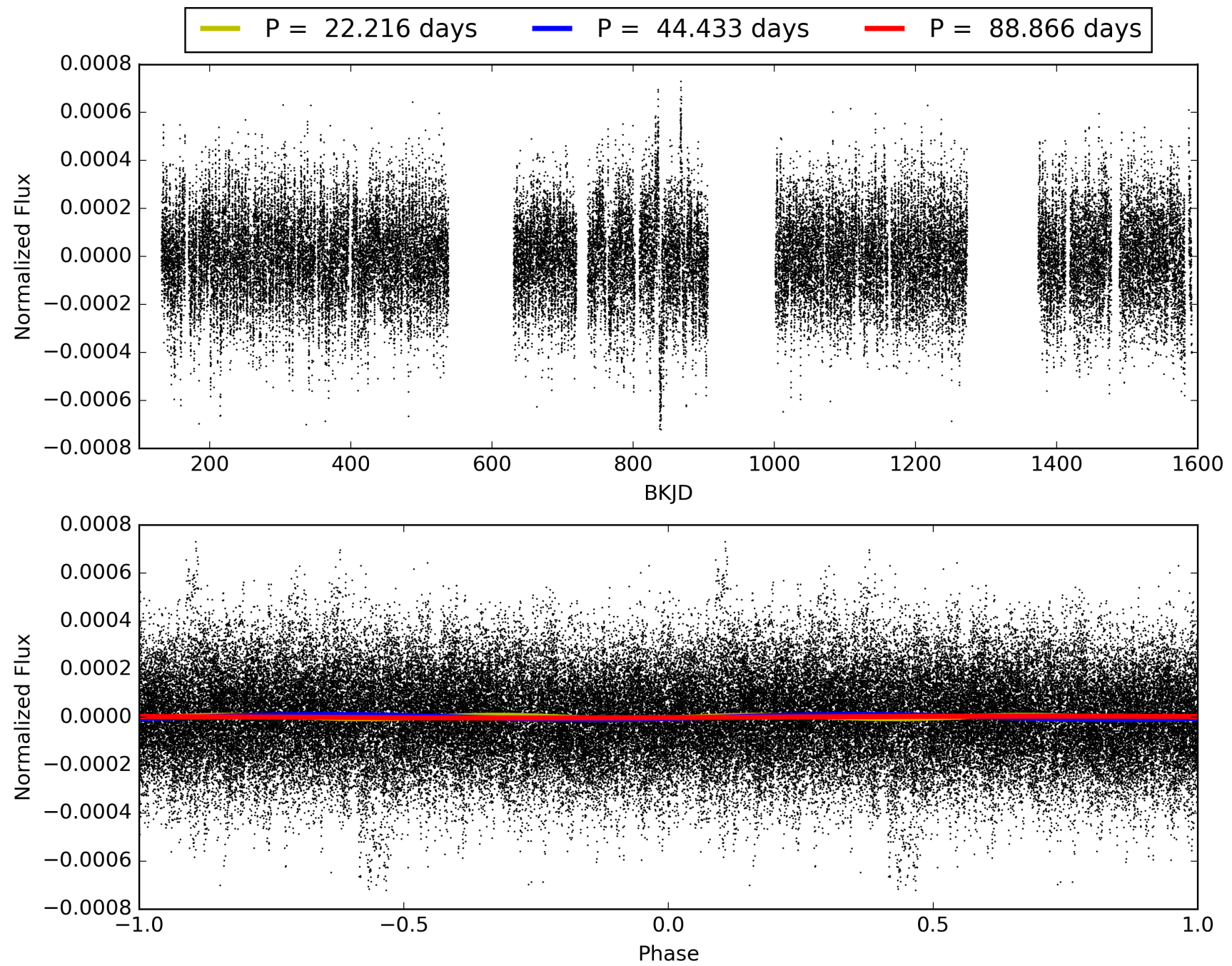
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003560301-10, PDC Light Curves



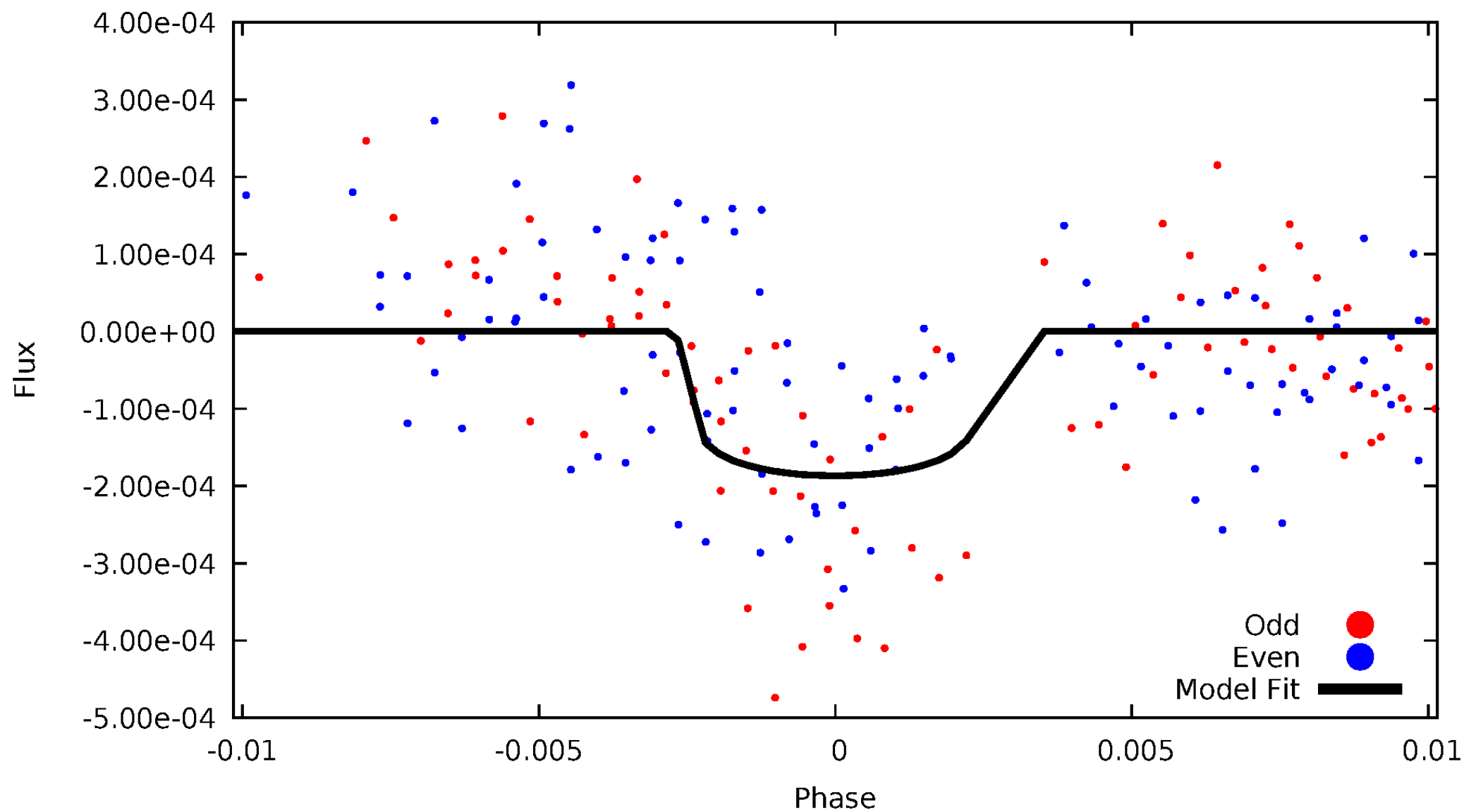


TCE 003560301-10



# DV Odd/Even

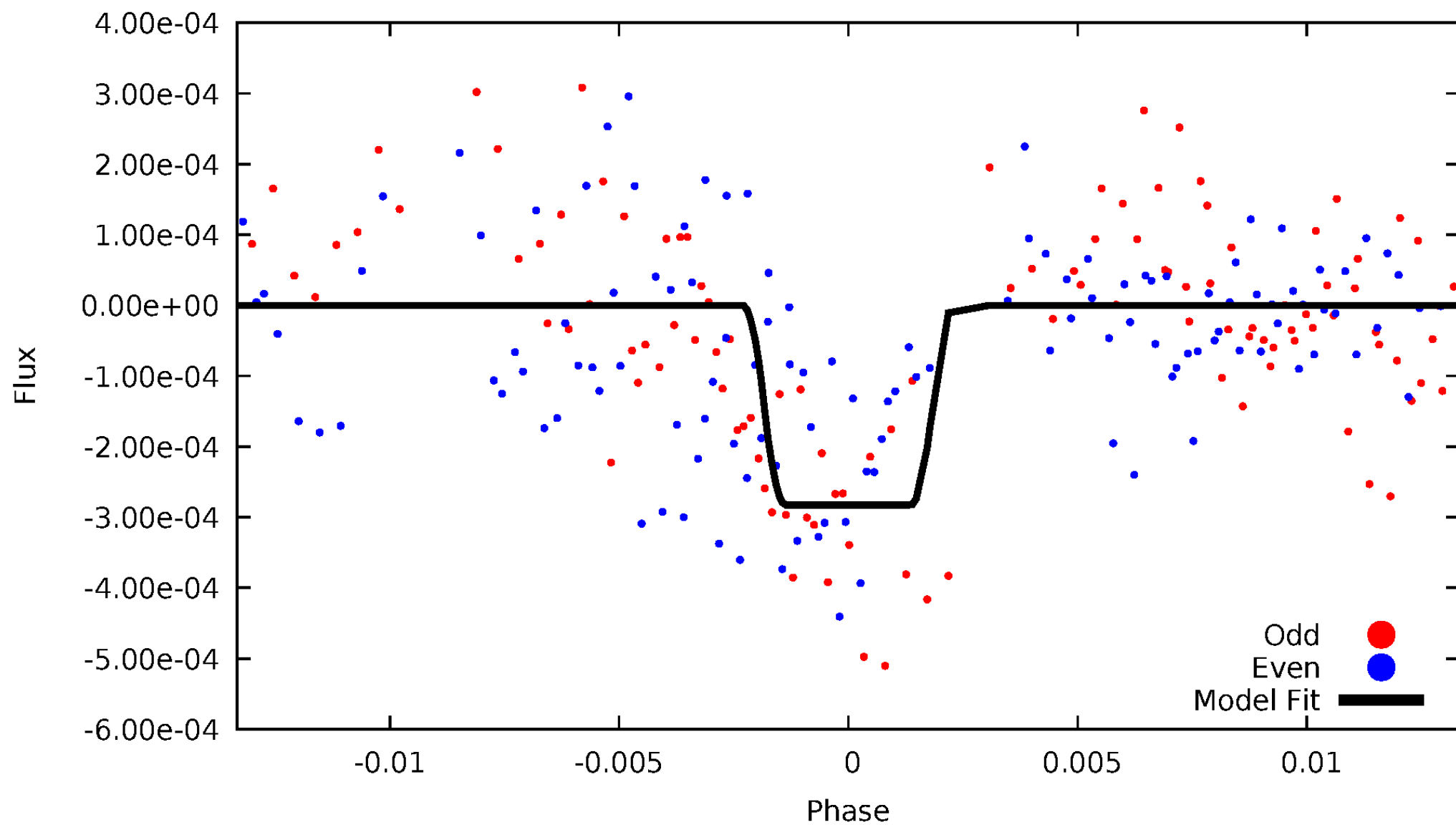
TCE 003560301-10





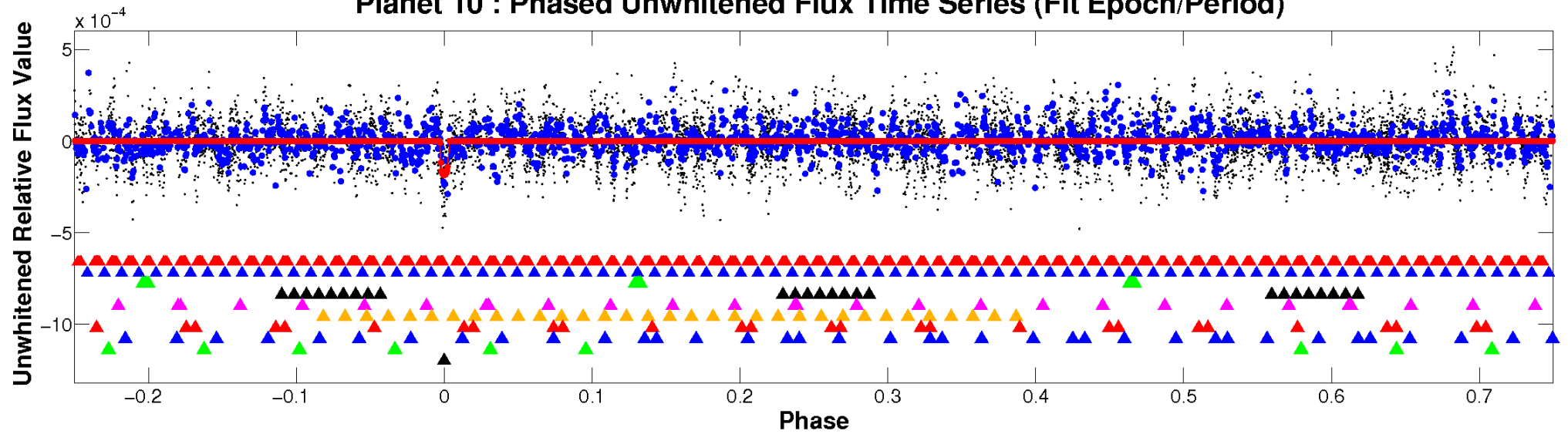
# ALT Odd/Even

TCE 003560301-10

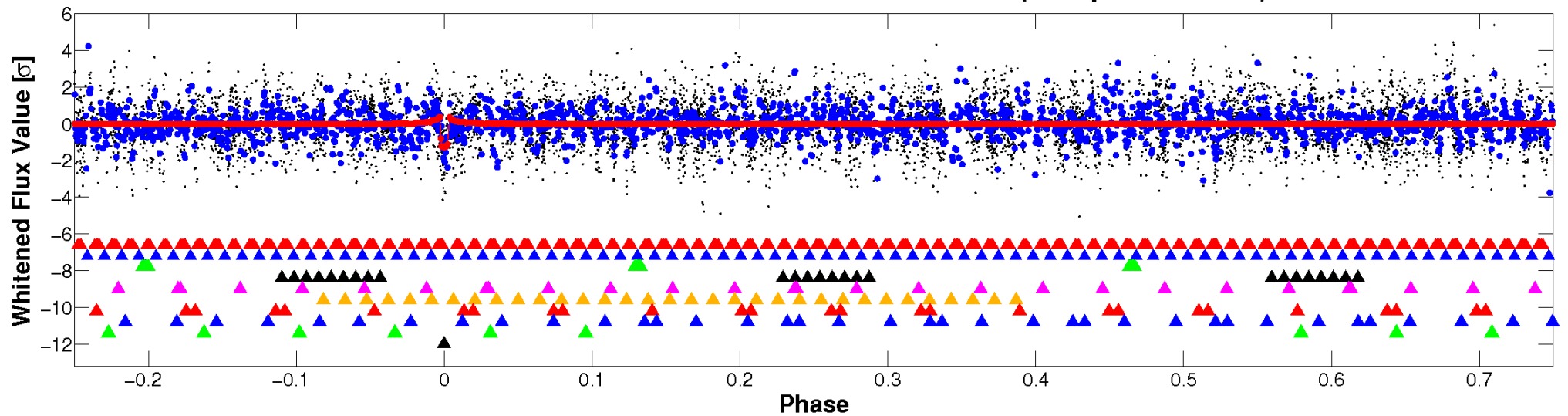


# Non-Whitened Vs. Whitened Light Curve

## Planet 10 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

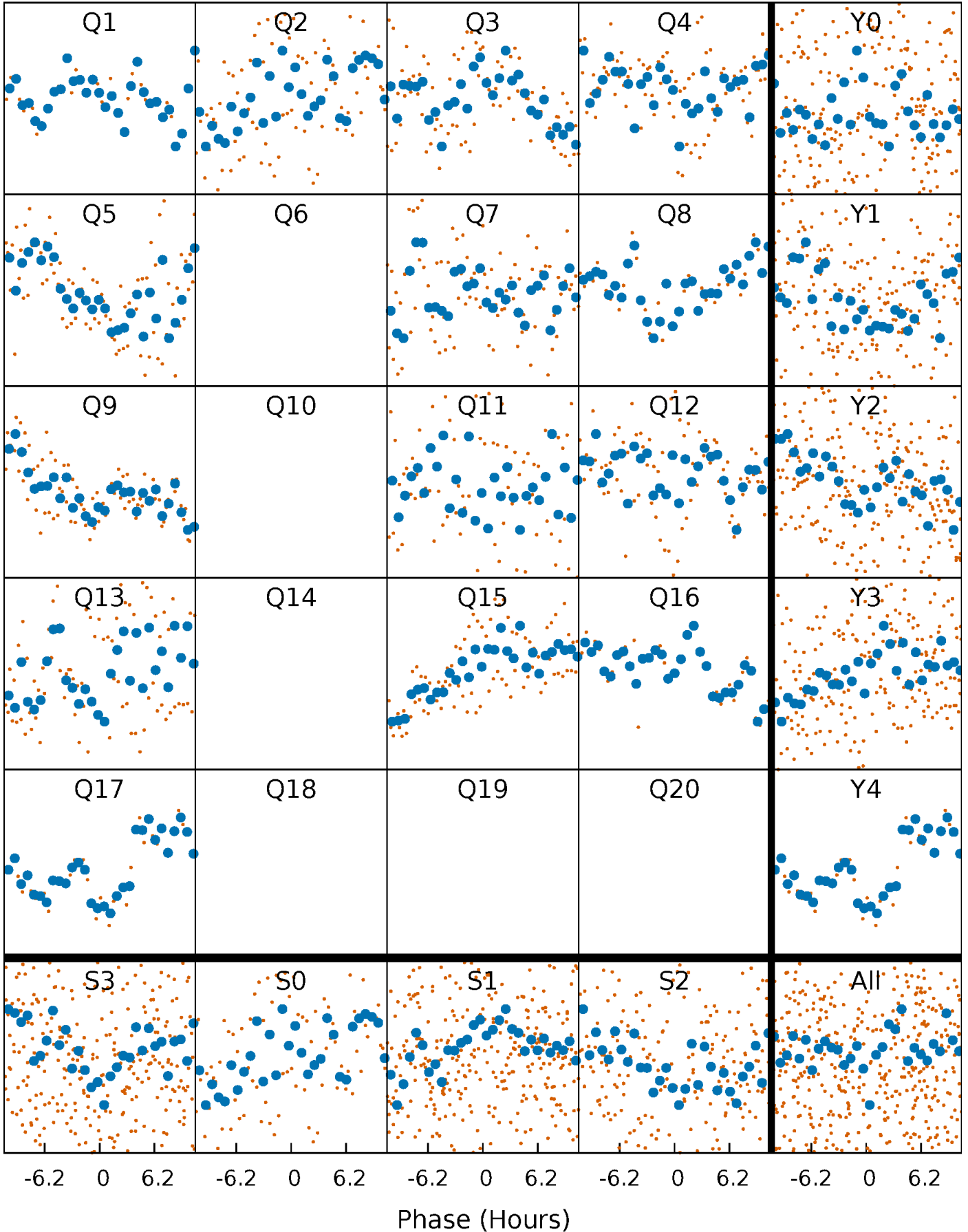


## Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



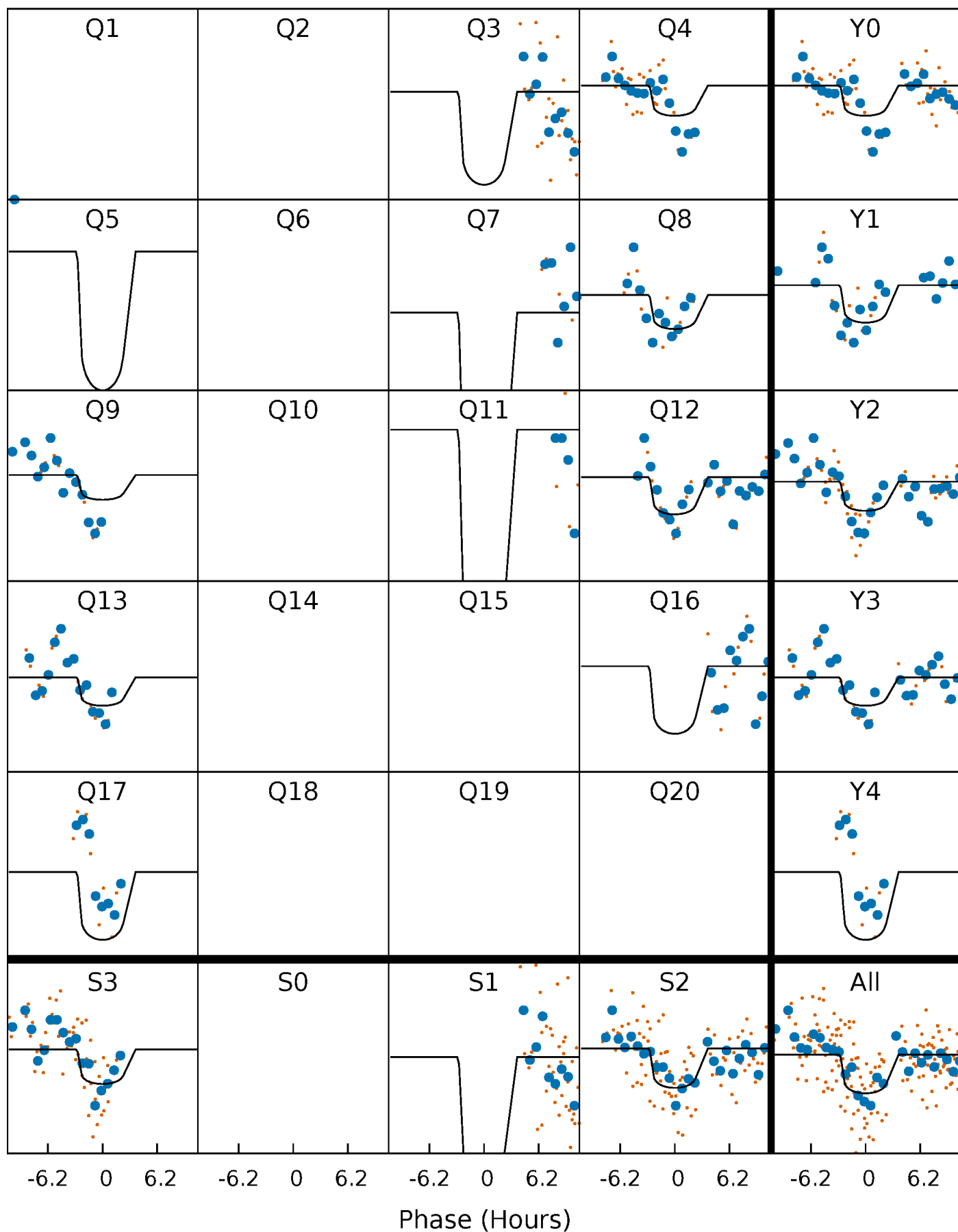
# PDC Quarter-Phased Transit Curves

TCE 003560301-10   P= 44.432964 Days    $T_0=151.915392$  (BKJD)



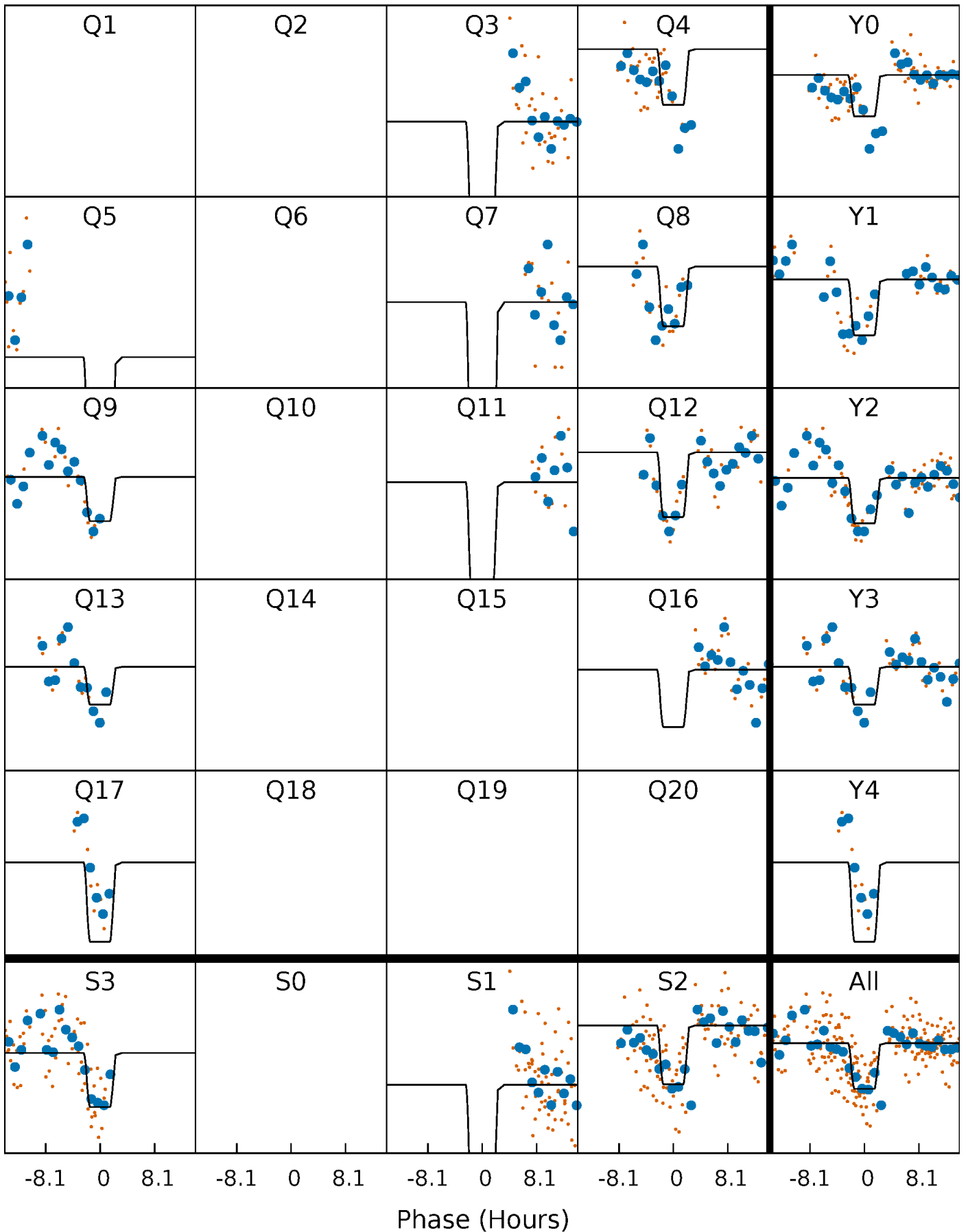
# DV Quarter-Phased Transit Curves

TCE 003560301-10     $P = 44.432964$  Days     $T_0 = 151.915392$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

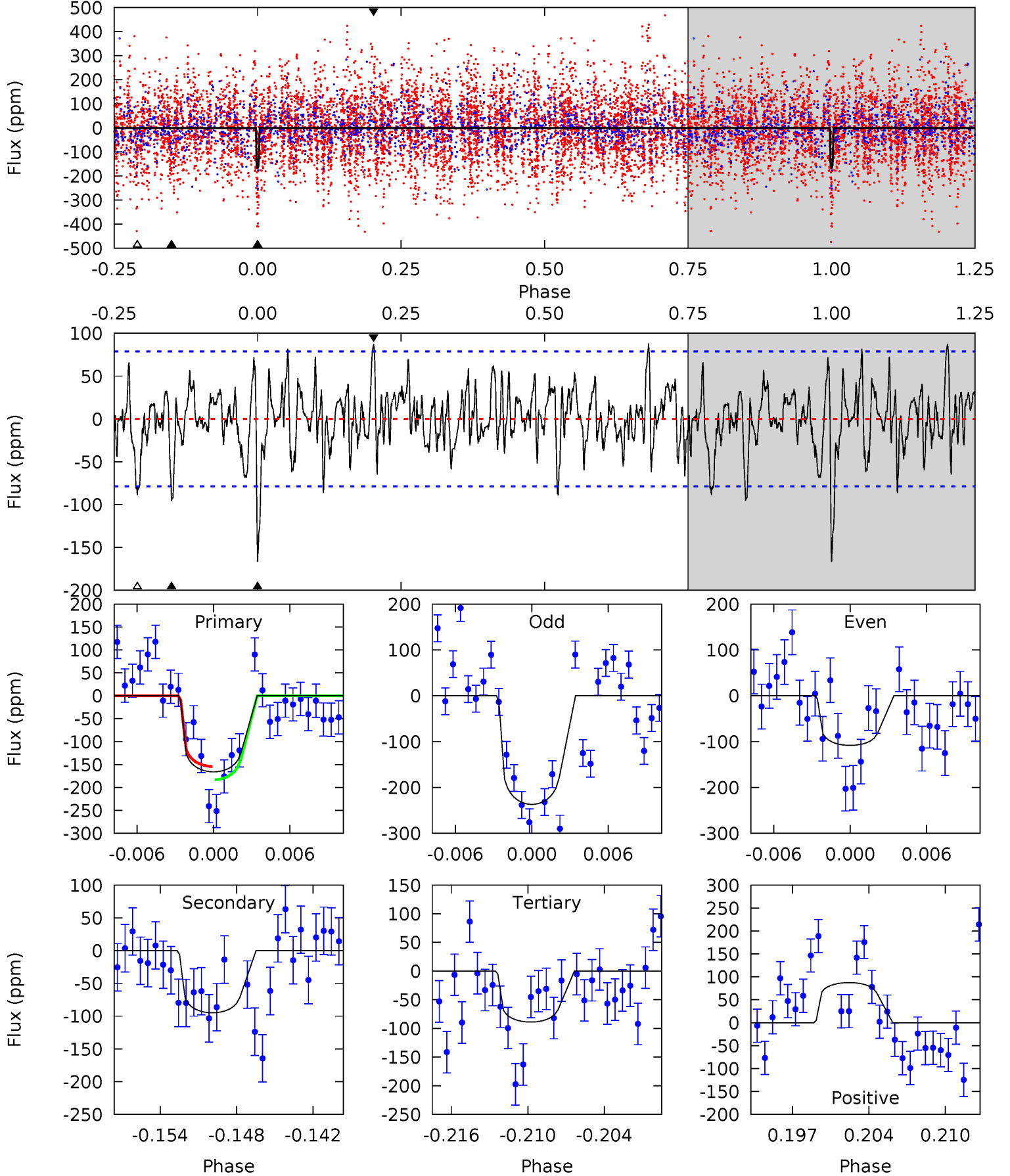
TCE 003560301-10     $P = 44.433671$  Days     $T_0 = 151.913214$  (BKJD)



# DV Model-Shift Uniqueness Test

003560301-10, P = 44.432964 Days, E = 107.482428 Days

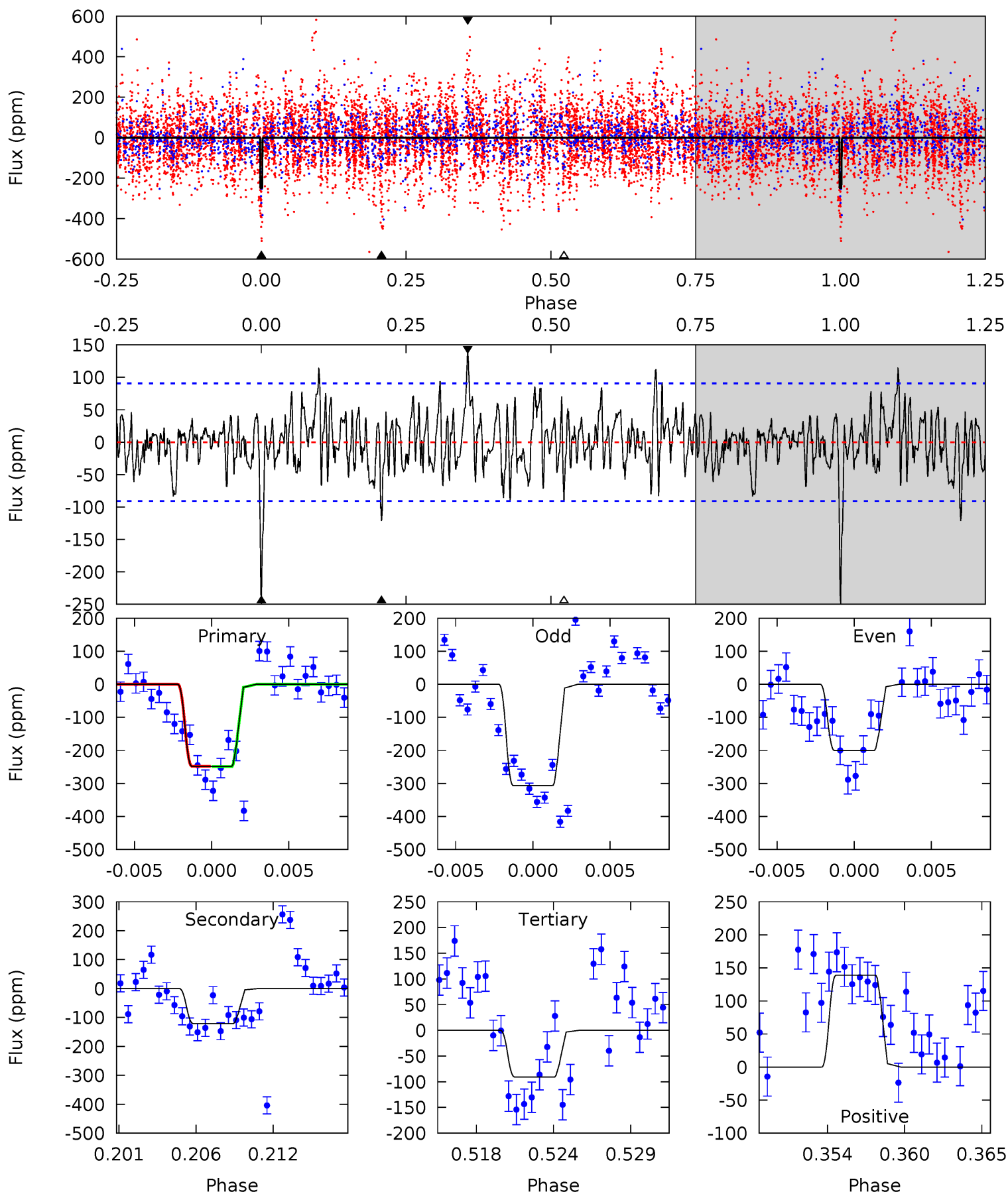
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	6.17	5.78	5.68	5.12	2.74	1.92	5.01	5.11	0.39	0.49	4.20	0.90	0.34	0.90



# Alt Model-Shift Uniqueness Test

003560301-10,  $P = 44.433671$  Days,  $E = 107.479543$  Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	6.89	5.16	7.88	5.15	2.79	2.07	8.95	6.23	1.73	-1.00	2.97	0.85	0.36	0.03





### Stellar Parameters For KIC 003560301

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6980^{+167}_{-230}$	$3.577^{+0.352}_{-0.088}$	$-0.420^{+0.350}_{-0.250}$	$3.482^{+0.362}_{-1.447}$	$1.671^{+0.203}_{-0.377}$	$0.056^{+0.150}_{-0.012}$
	+2%/-3%	+10%/-2%	+83%/-60%	+10%/-42%	+12%/-23%	+270%/-22%
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 003560301-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-95 \pm 15$	$5.99^{+4.67}_{-3.64}$	$1458^{+81}_{-159}$	$5276^{+3547}_{-1048}$	$122^{+678}_{-84}$
Alt.	$-121 \pm 18$	$6.56^{+4.84}_{-4.11}$	$1455^{+81}_{-138}$	$5294^{+3497}_{-1030}$	$127^{+797}_{-86}$

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

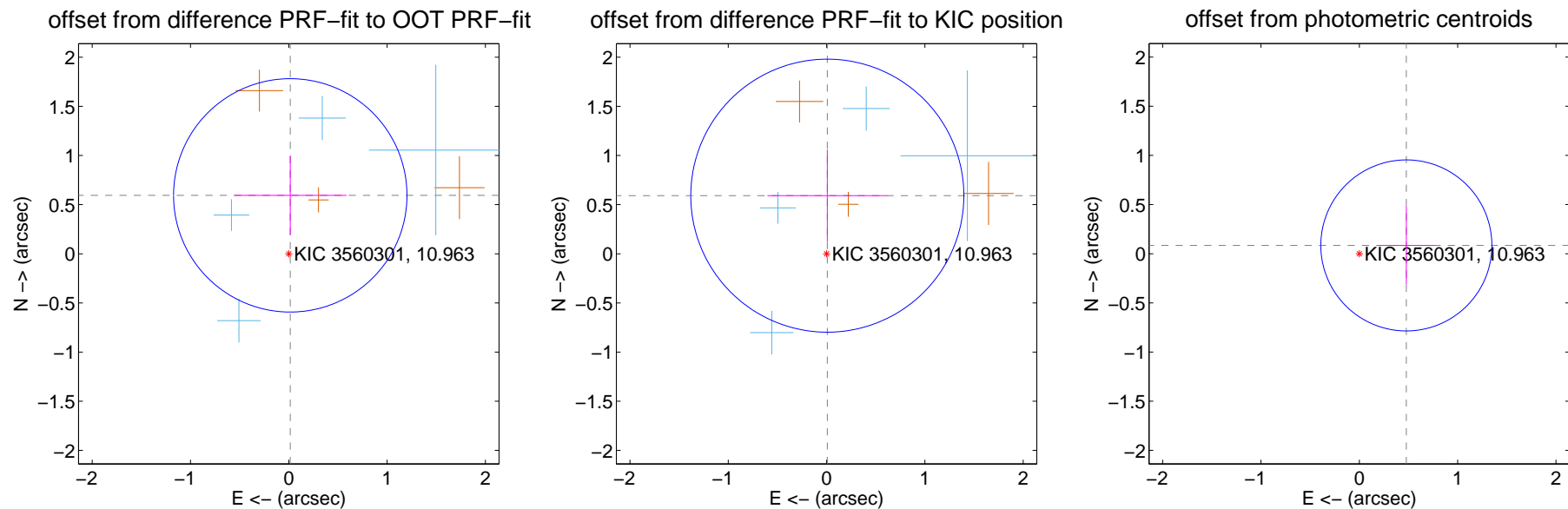
## DV Centroid Data

Supplemental centroid analysis for 003560301-10. **Kepler magnitude: 10.96.** Transit SNR 9.02

There are 5 quarters with good PRF difference image offsets

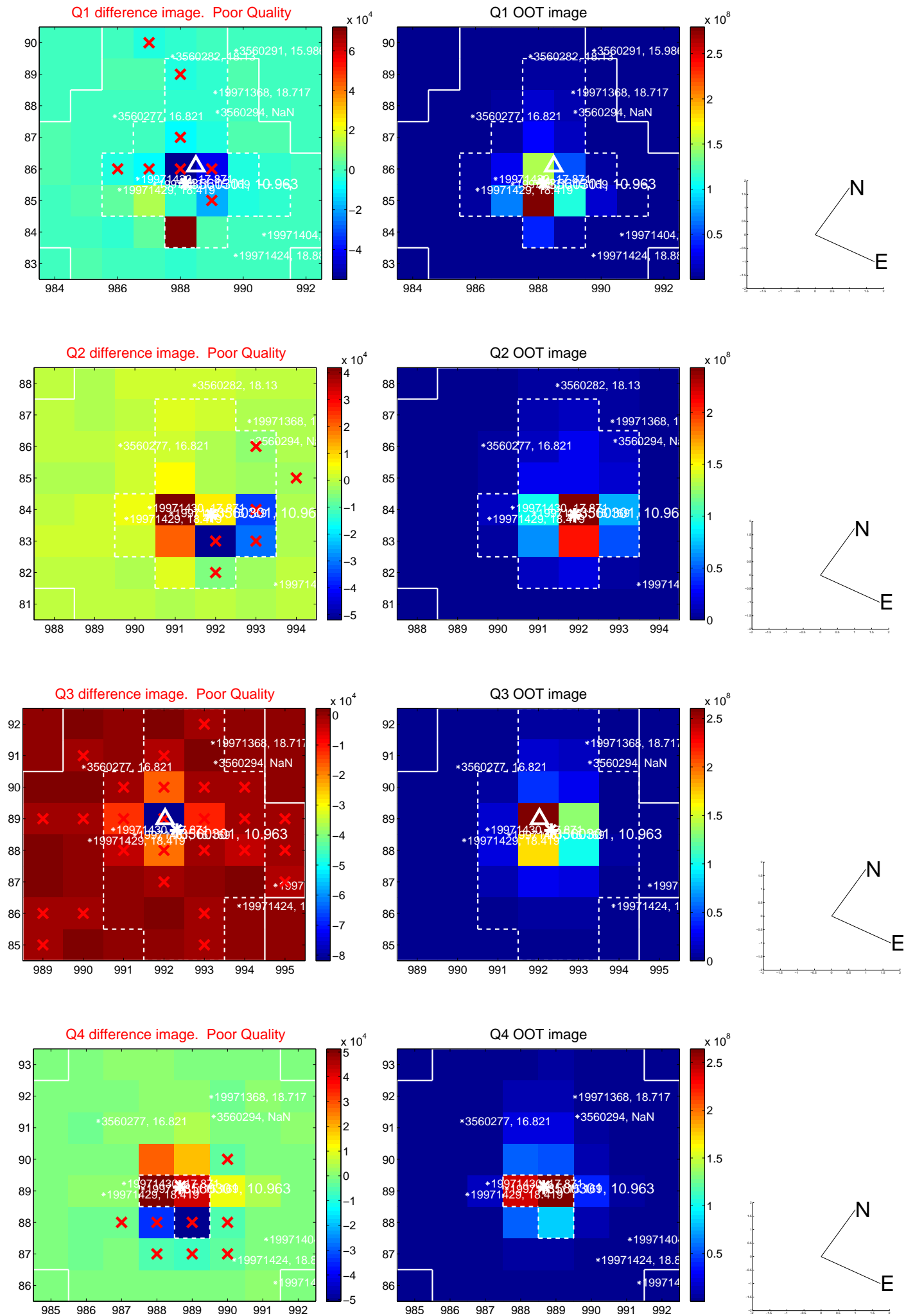
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.595 \pm 0.396$	1.50	$-0.015 \pm 0.571$	$0.595 \pm 0.404$
PRF-fit source offset from KIC position	$0.591 \pm 0.463$	1.28	$-0.007 \pm 0.609$	$0.591 \pm 0.468$
photometric centroid source offset	$0.49 \pm 0.29$	1.67	$-0.48 \pm 0.29$	$0.08 \pm 0.40$

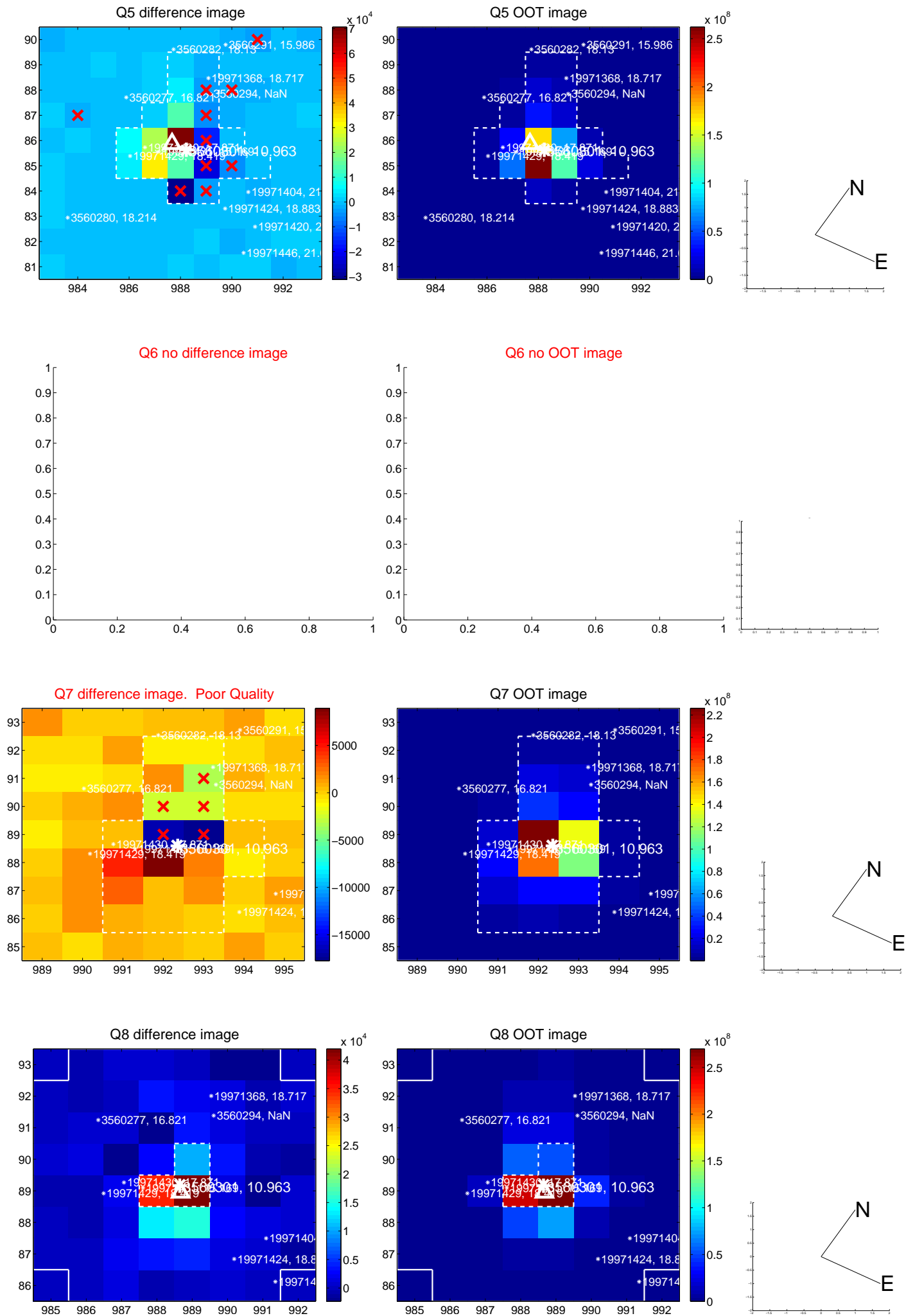


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

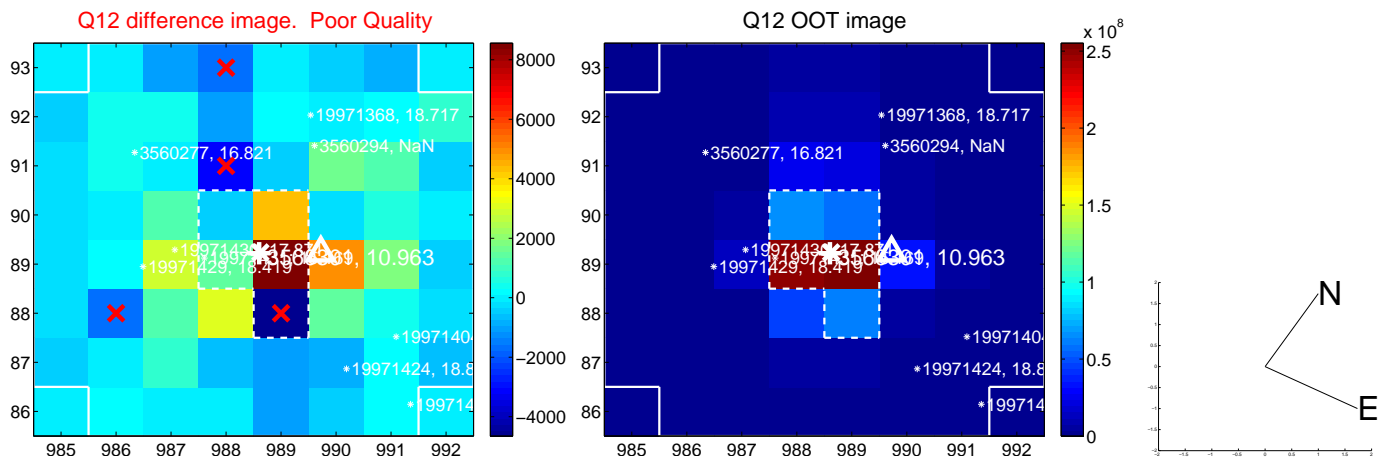
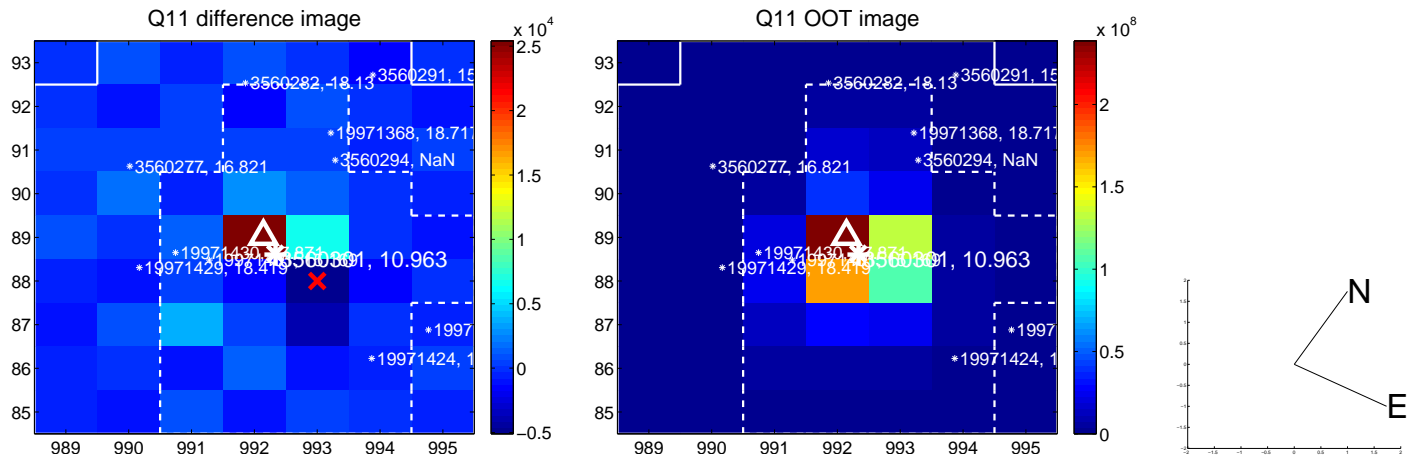
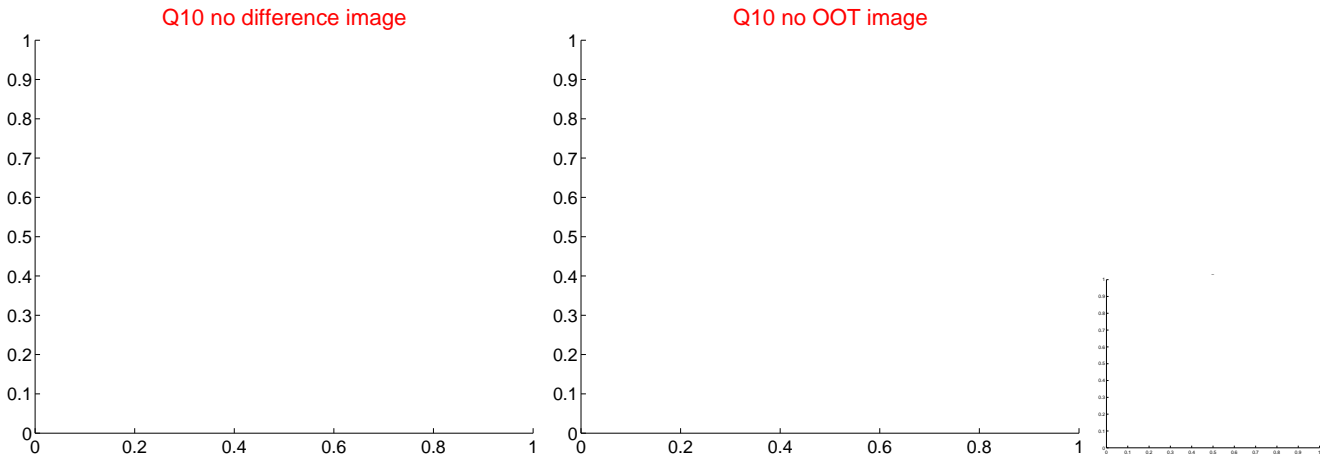
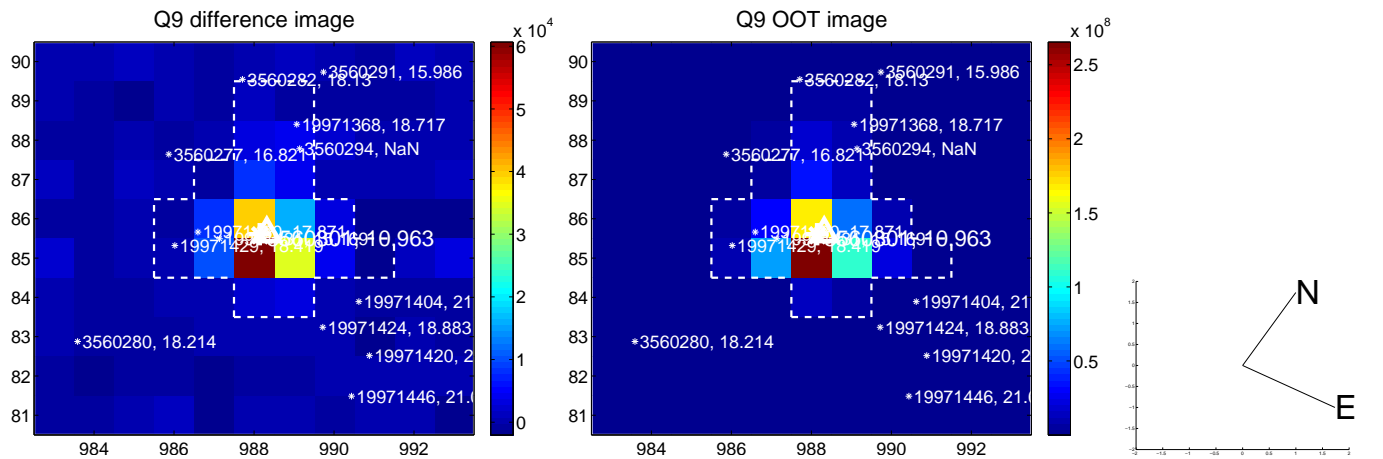
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



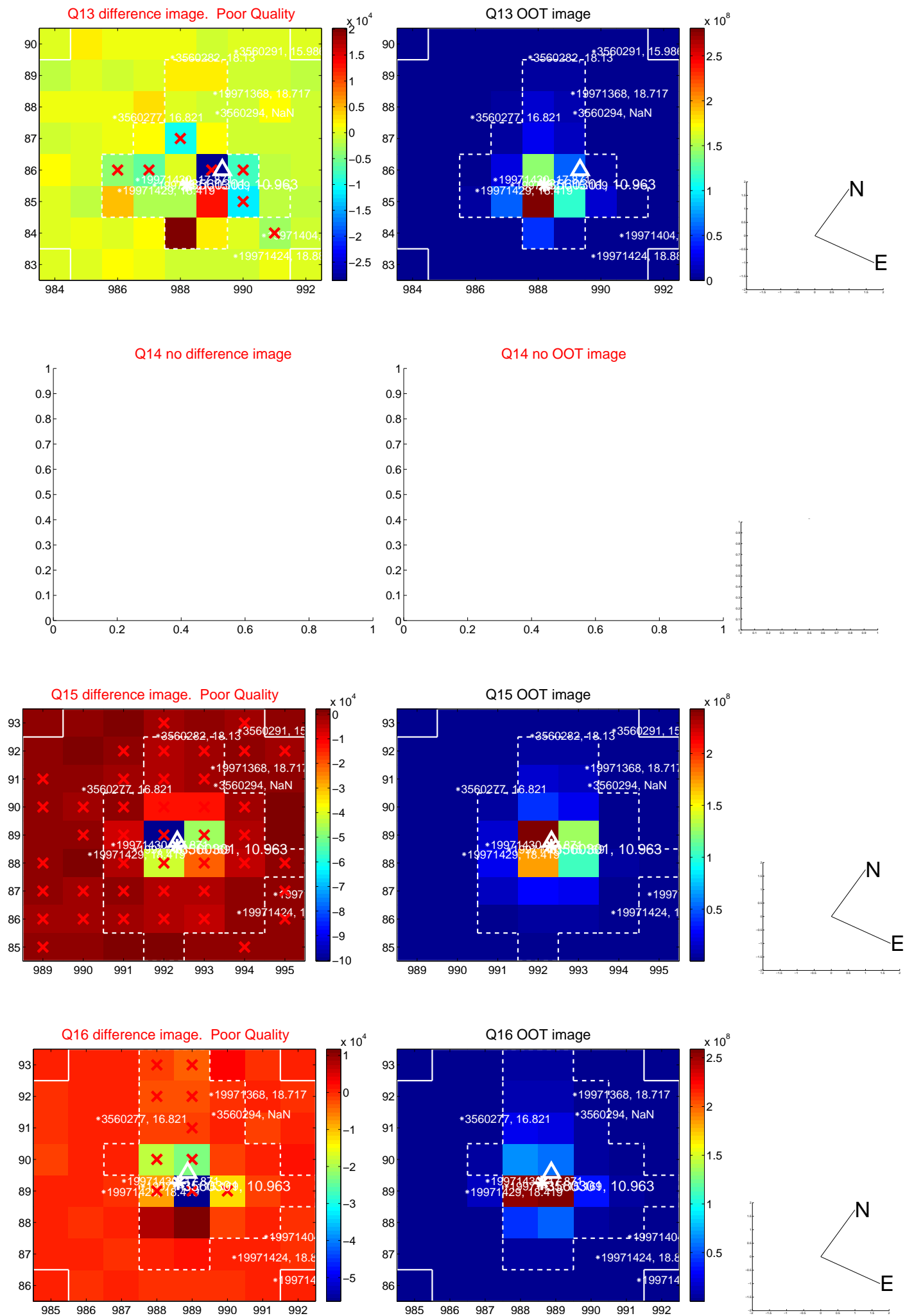
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



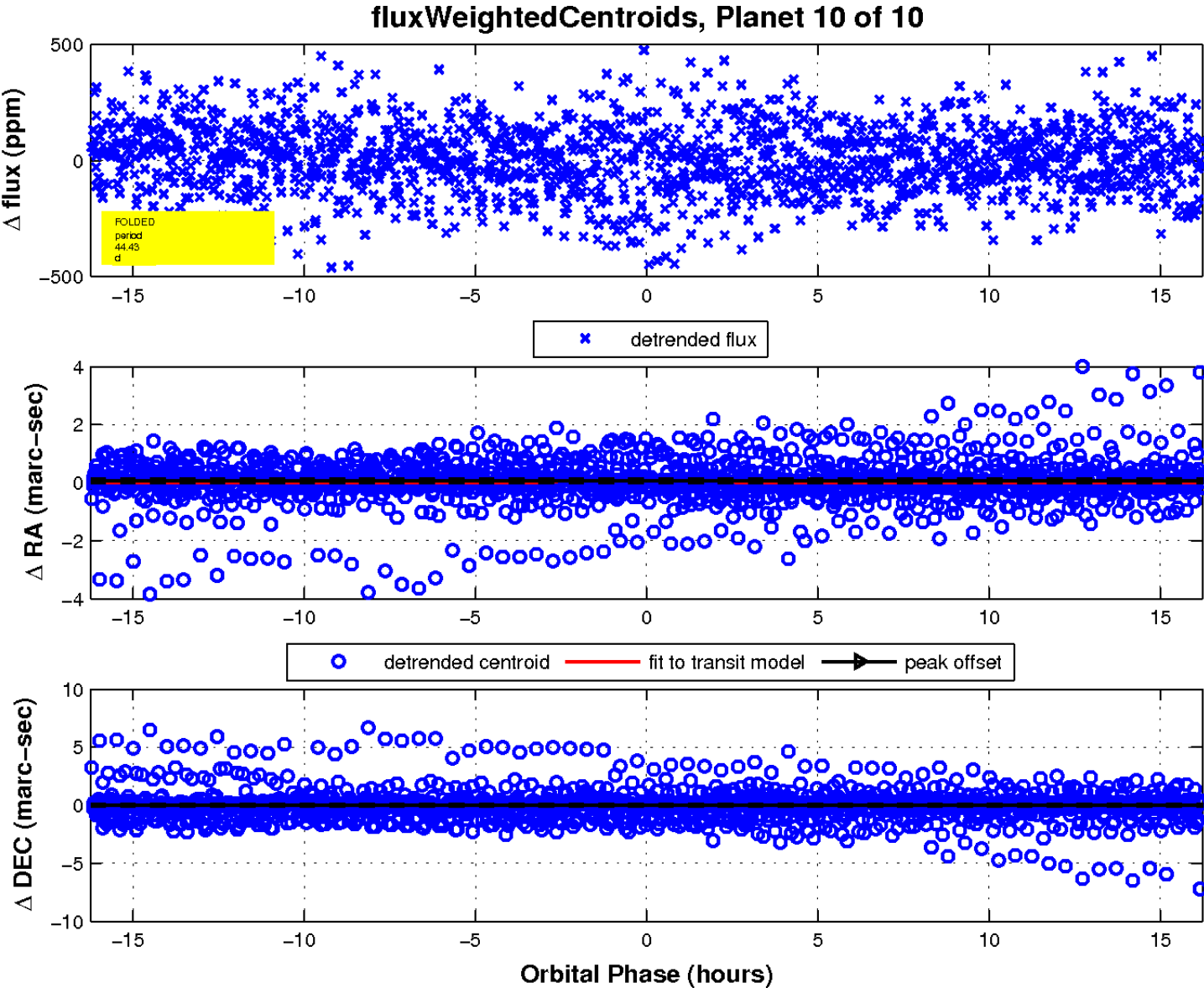
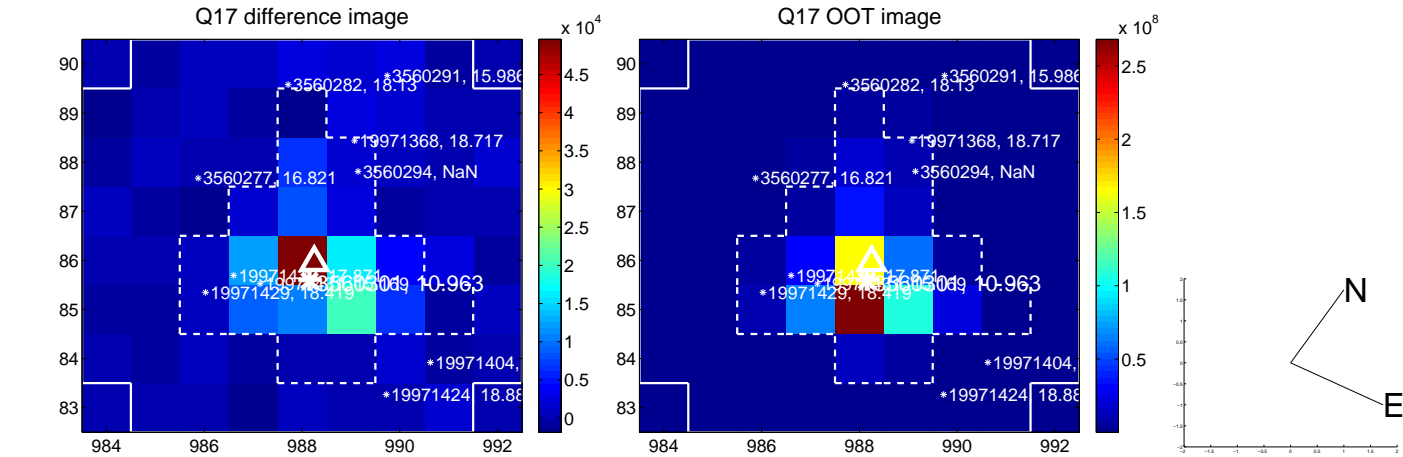
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

