

# KIC 005895238

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005895238-01	OBS	No	5.002378	134.036259	53.5	1.610	9.9	3.9	1.89	7110	1.59	1957.60
005895238-02	OBS	No	1.471223	132.032379	102.0	4.706	9.6	10.5	1.89	7110	2.21	10008.94
005895238-03	OBS	No	1.471336	131.722484	218.6	5.917	9.2	13.3	1.89	7110	3.25	10007.92
005895238-04	OBS	No	448.670232	446.130586	1987.7	7.935	9.2	10.0	1.89	7110	14.79	4.88
005895238-05	OBS	No	25.749875	147.677345	238.8	5.000	9.6	-1.0	1.89	7110	2.96	220.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005895238-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
005895238-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005895238-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005895238-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES
005895238-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

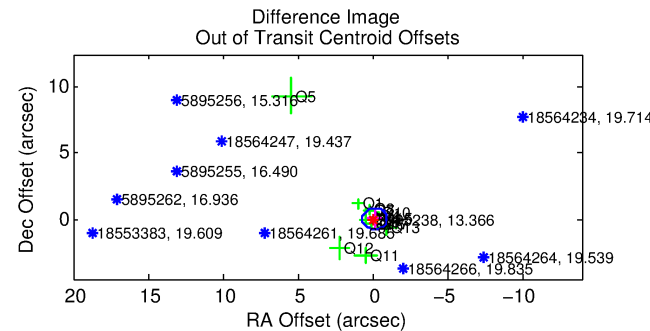
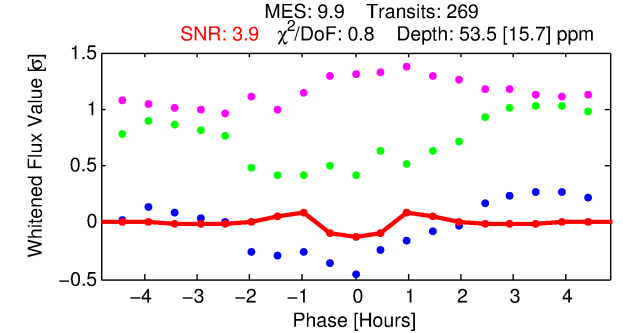
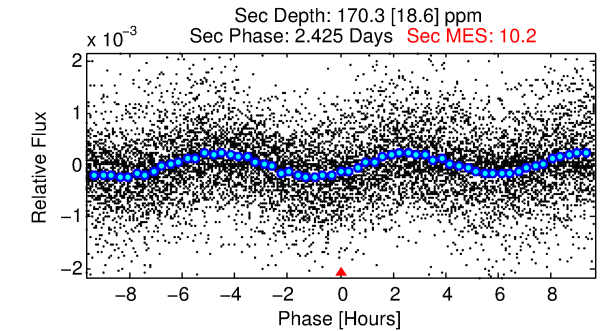
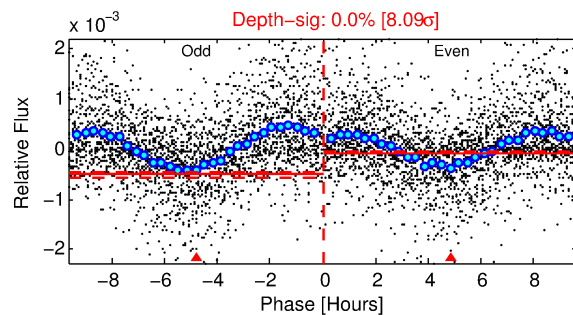
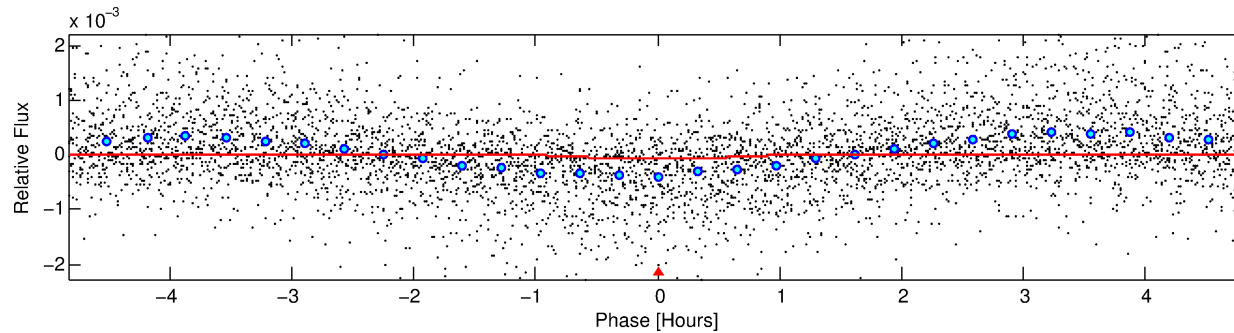
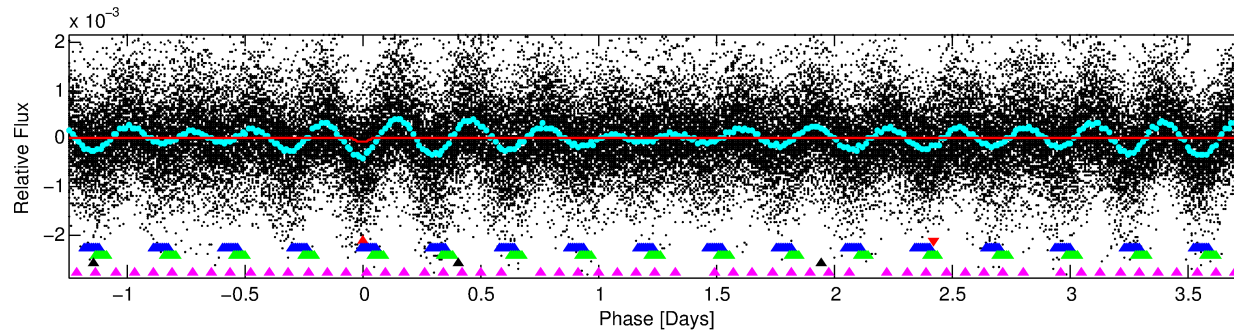
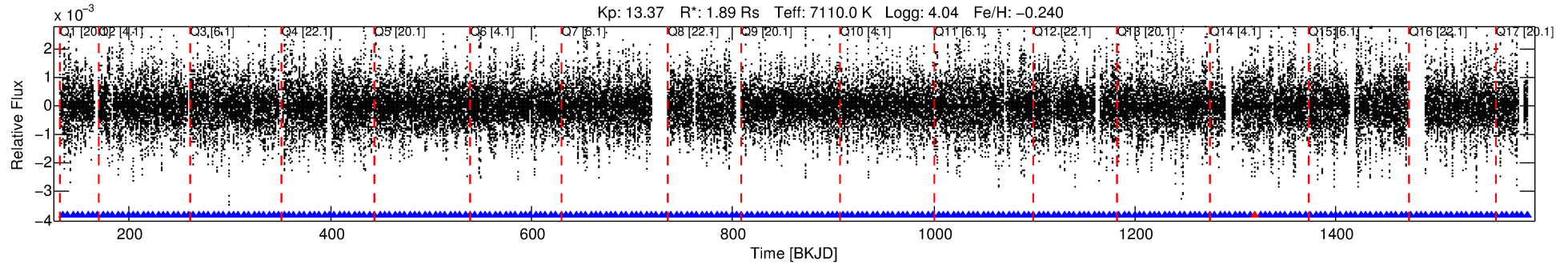
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005895238-01

No Significant Match Found

# DV One-Page Summary

KIC: 5895238 Candidate: 1 of 5 Period: 5.002 d



## DV Fit Results:

Period = 5.00238 [0.00004] d  
Epoch = 134.0363 [0.0046] BKJD  
Rp/R\* = 0.0077 [0.0045]  
a/R\* = 11.51 [40.15]  
b = 0.88 [0.88]  
Seff = 1957.60 [869.41]  
Teq = 1696 [188] K  
Rp = 1.59 [1.04] Re  
a = 0.0648 [0.0171] AU  
Ag = 154.78 [191.76] [0.80σ]  
Teffp = 9250 [2736] K [2.75σ]

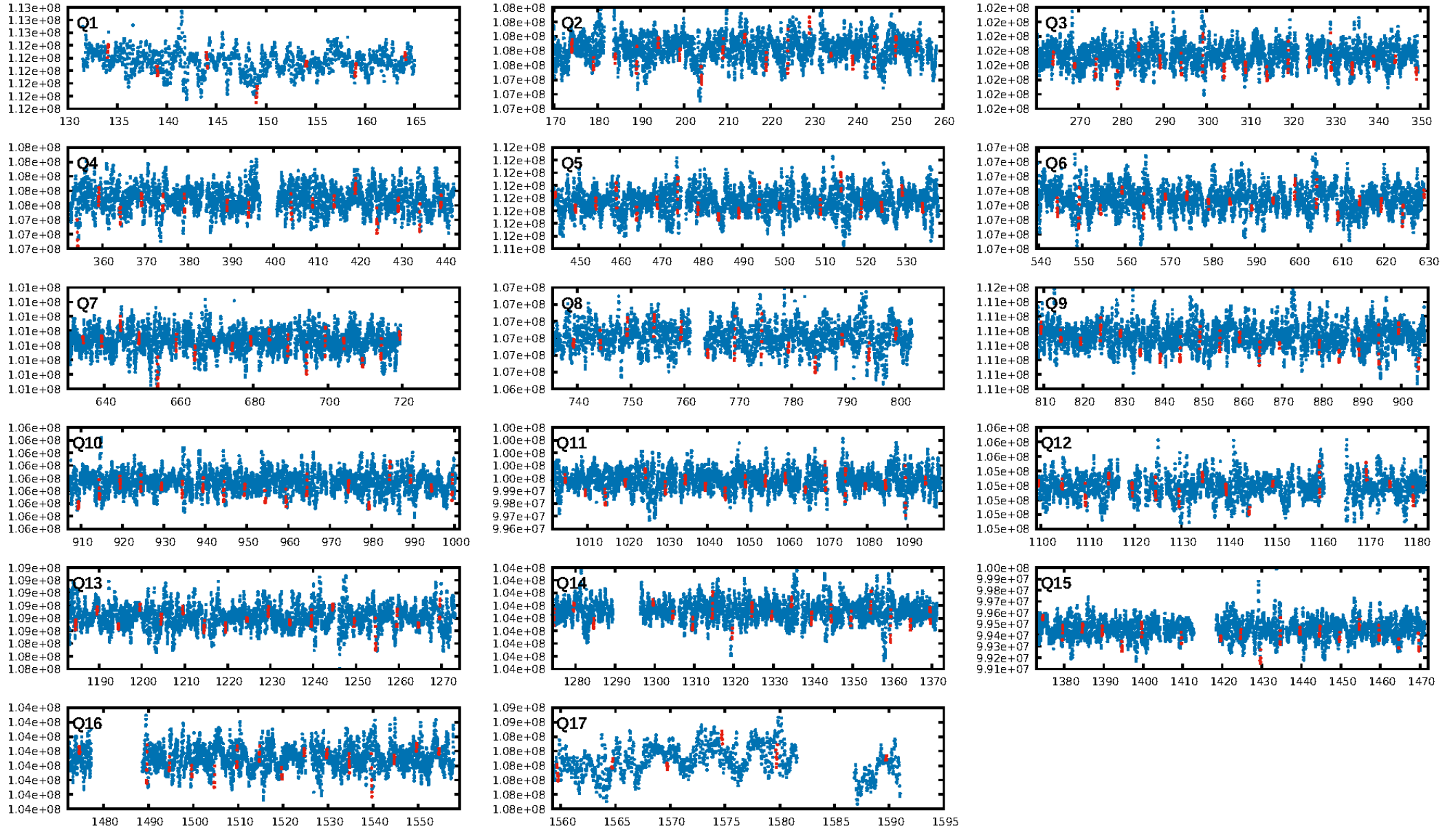
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [13.82σ]  
LongPeriod-sig: 100.0% [94.79σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [255/256]  
GhostDiagnostic-chr: 0.1259  
Centroid-sig: N/A  
Centroid-so: 2.071 arcsec [1.44σ]  
OotOffset-rm: 0.168 arcsec [0.62σ]  
KicOffset-rm: 0.294 arcsec [1.14σ]  
OotOffset-st: 2/3/4/5 [14]  
KicOffset-st: 2/3/4/5 [14]  
DiffImageQuality-fgm: 0.57 [8/14]  
DiffImageOverlap-fno: 1.00 [17/17]

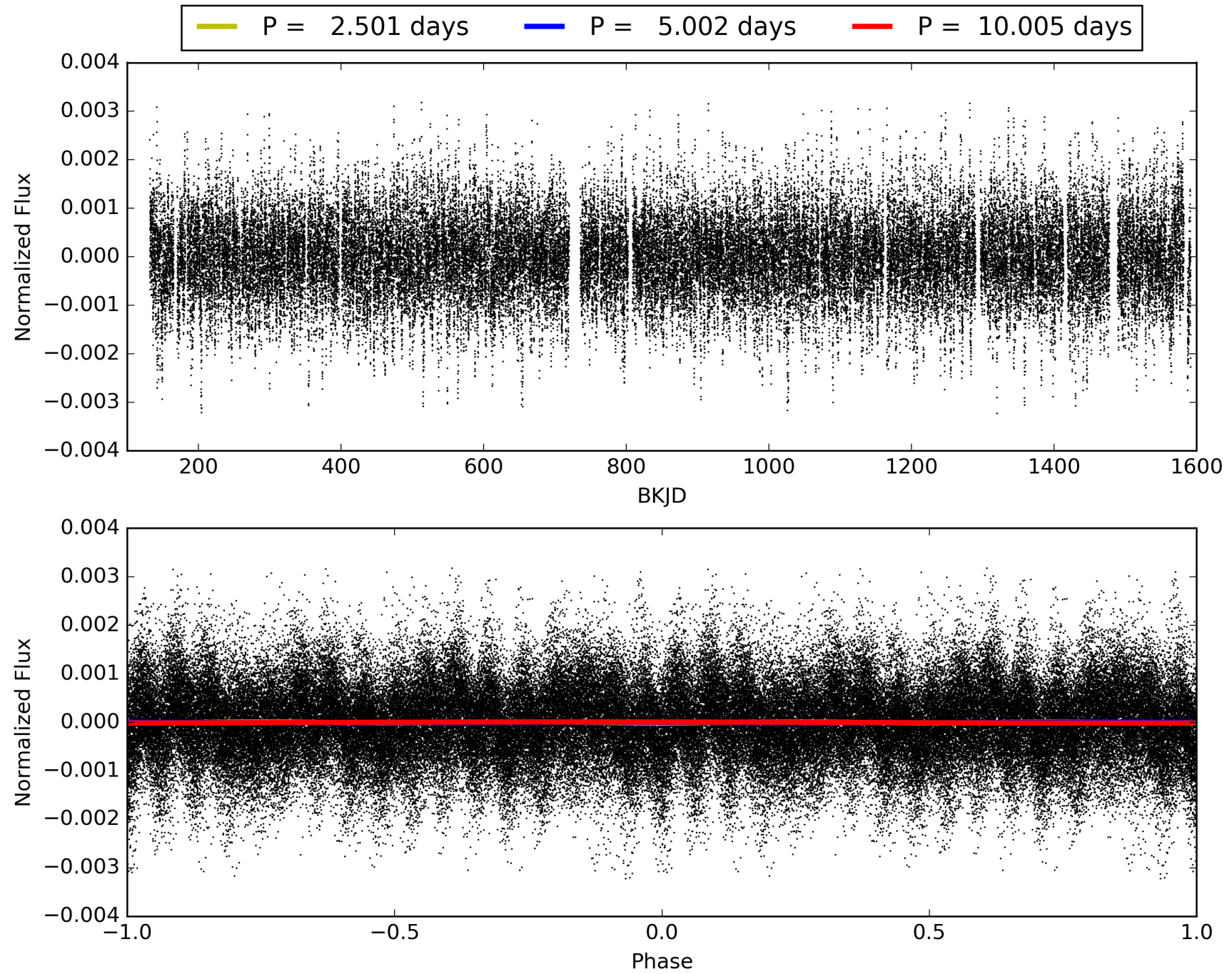
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:56:23 Z

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

# TCE 005895238-01, PDC Light Curves



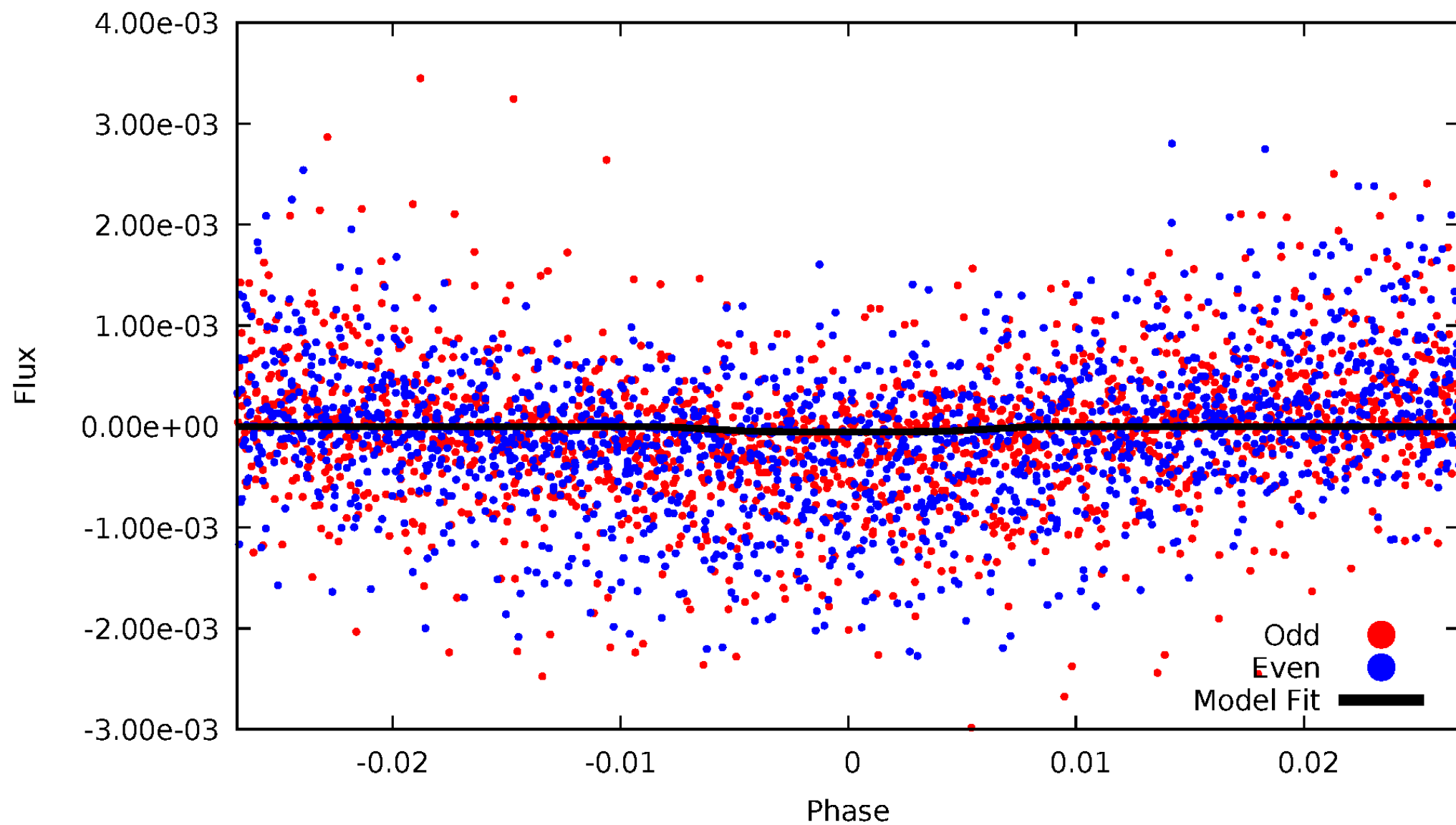
TCE 005895238-01





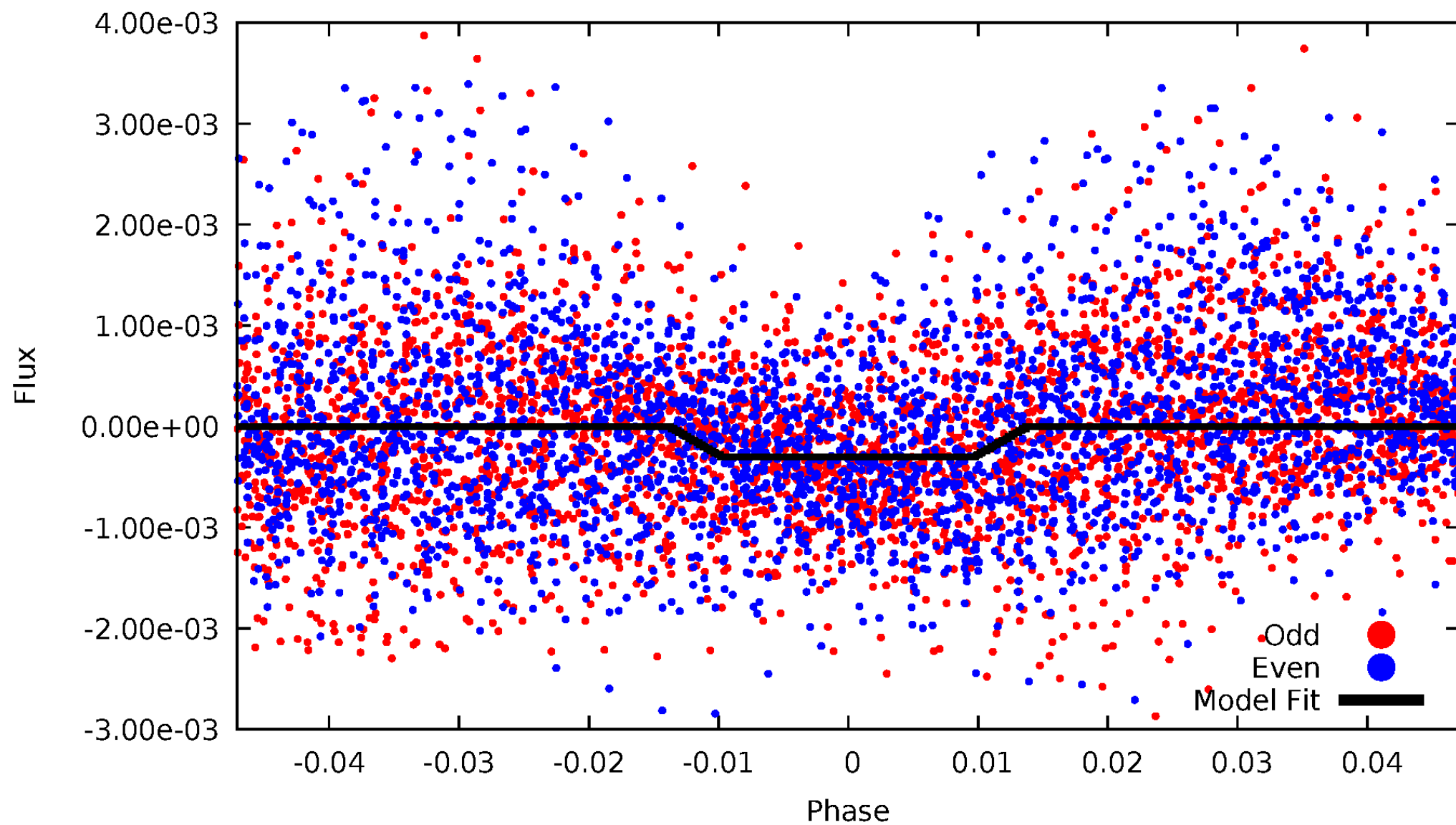
# DV Odd/Even

TCE 005895238-01



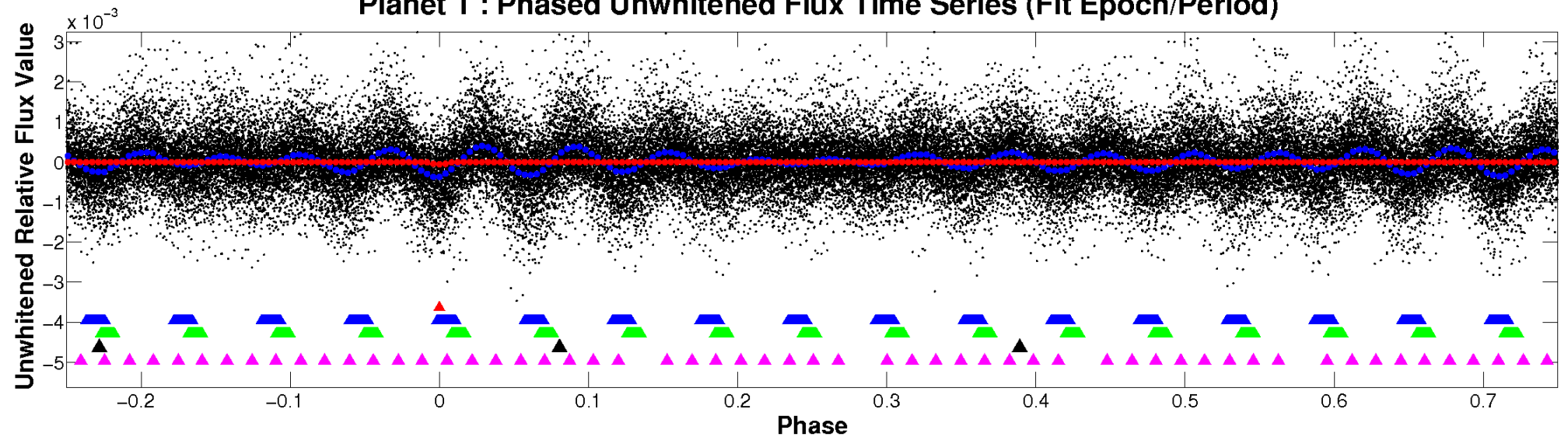
# ALT Odd/Even

TCE 005895238-01

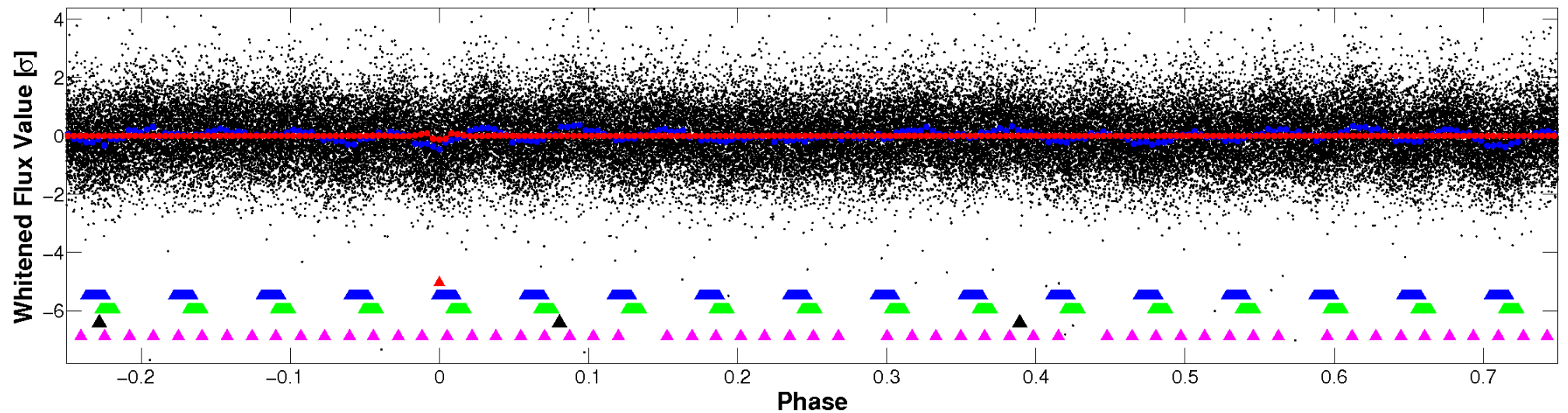


# Non-Whitened Vs. Whitened Light Curve

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

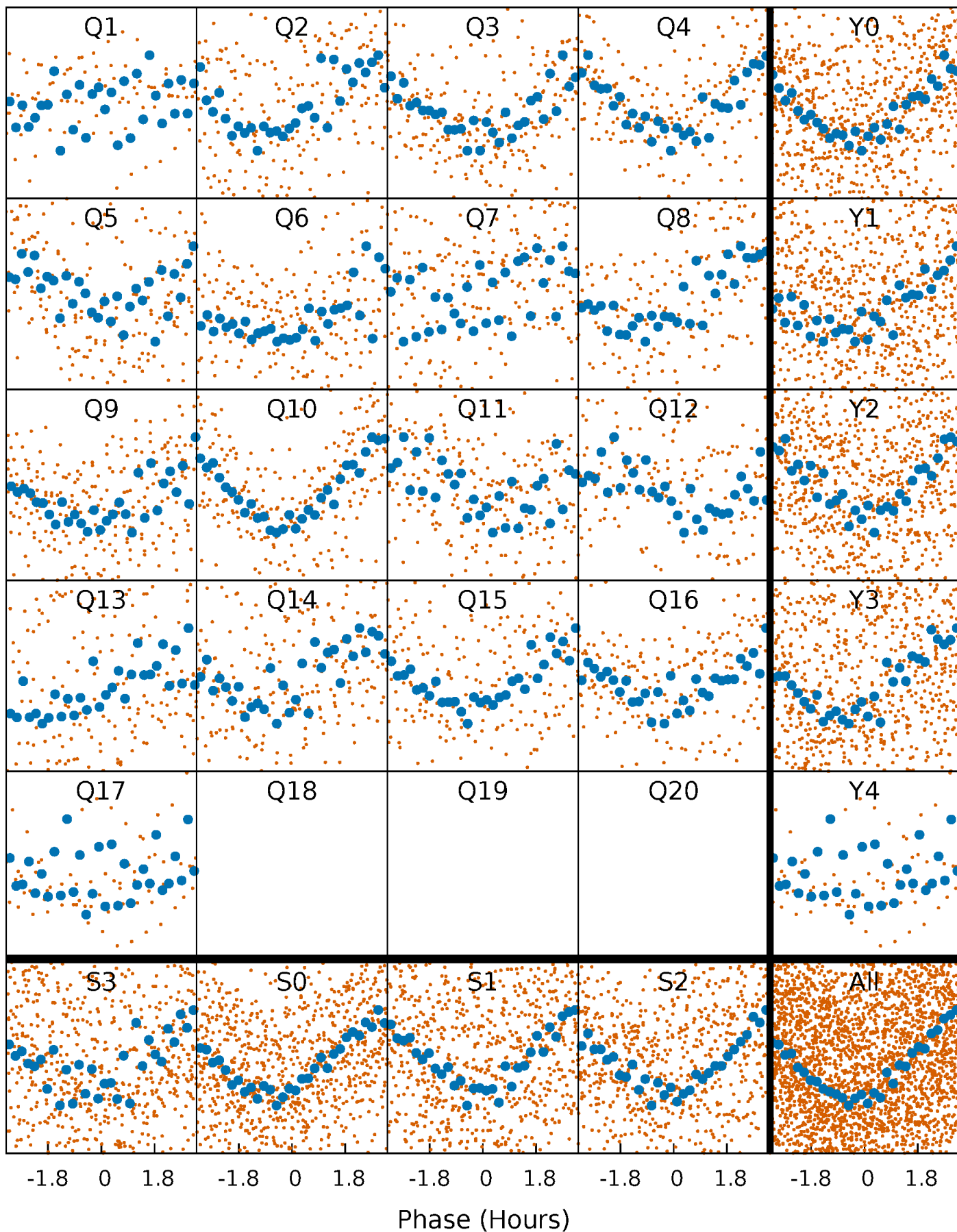


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

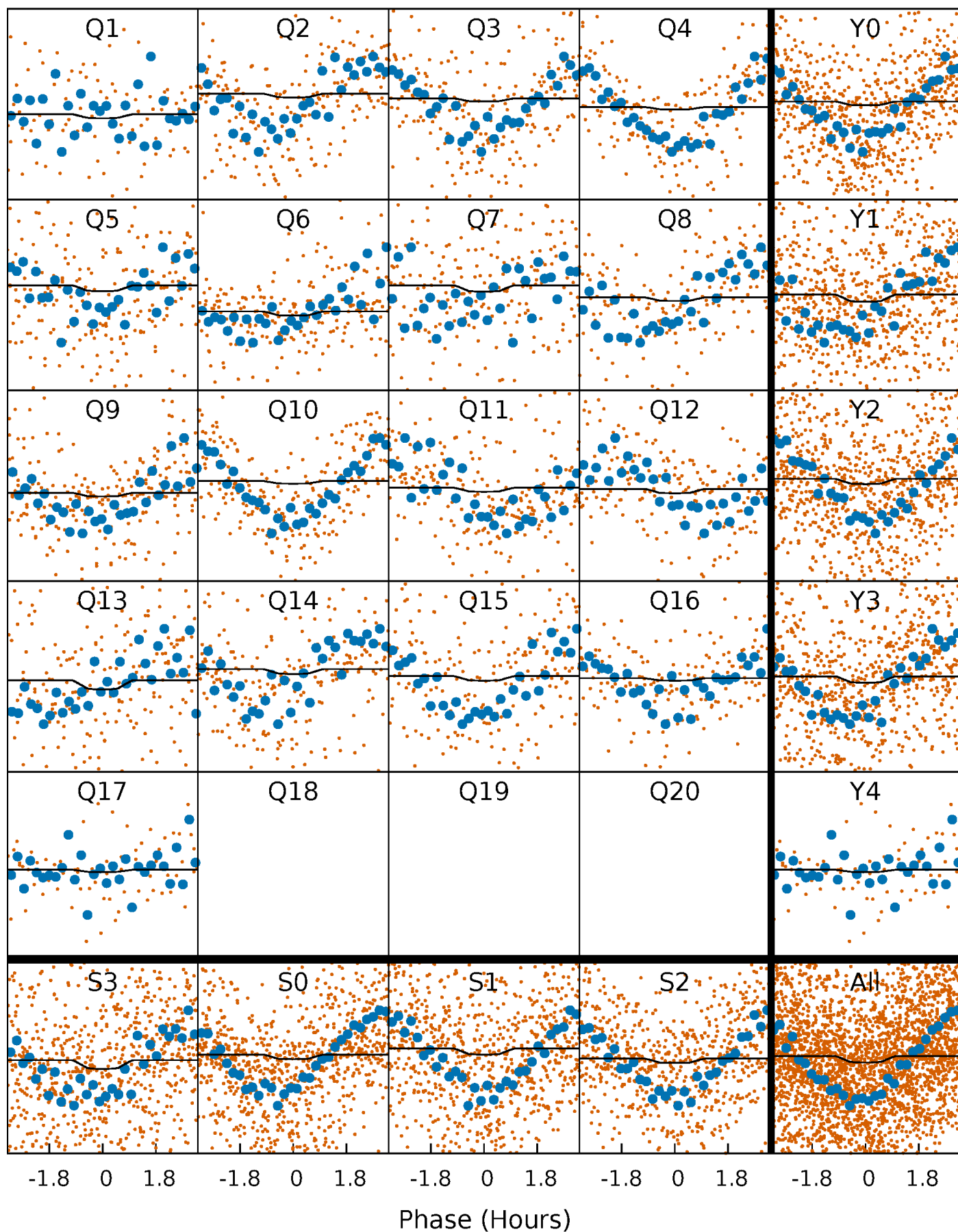
TCE 005895238-01 P= 5.002378 Days  $T_0=134.036259$  (BKJD)





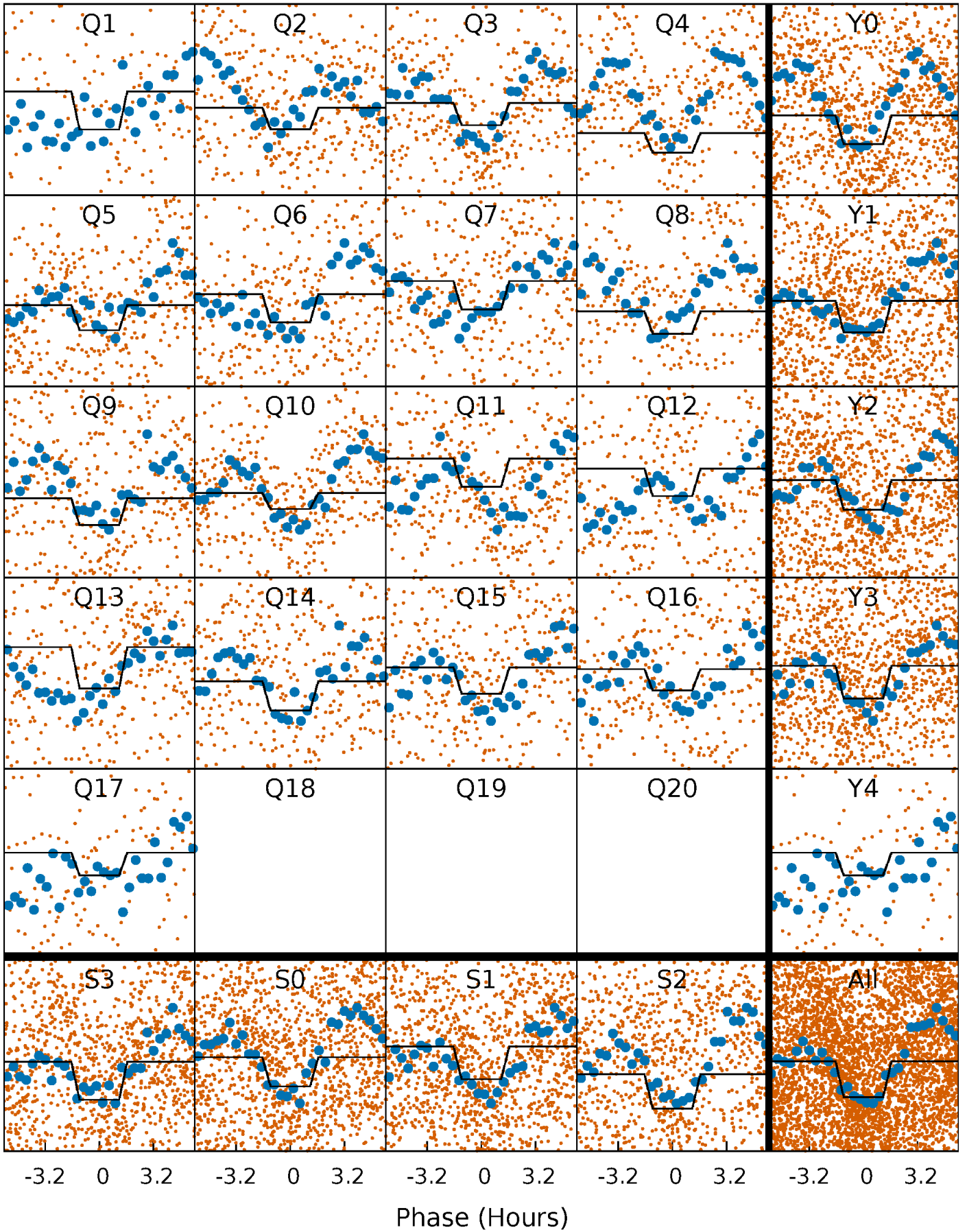
# DV Quarter-Phased Transit Curves

TCE 005895238-01 P= 5.002378 Days  $T_0=134.036259$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

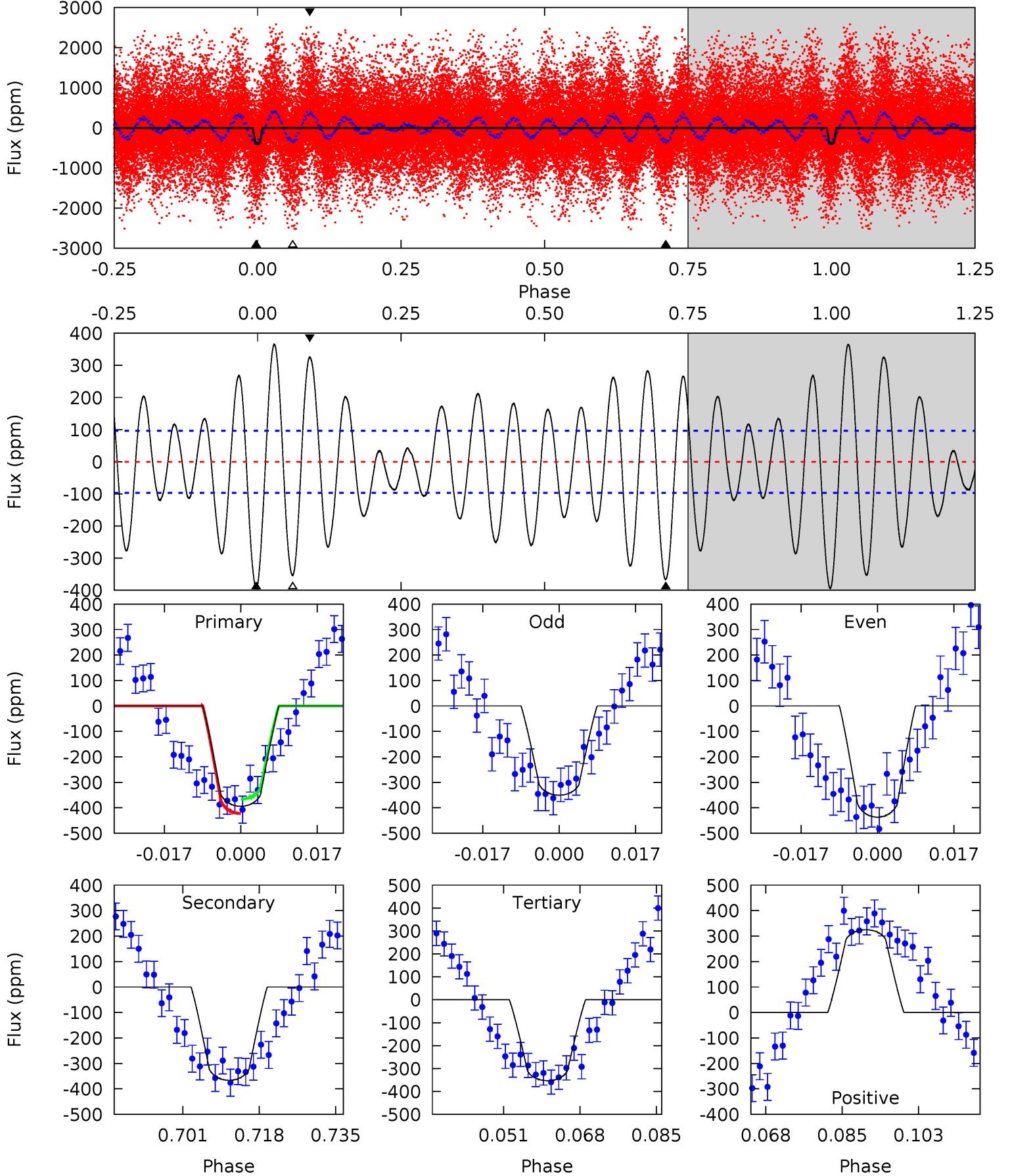
TCE 005895238-01 P= 5.002148 Days  $T_0=134.046331$  (BKJD)



# DV Model-Shift Uniqueness Test

005895238-01, P = 5.002378 Days, E = 129.033881 Days

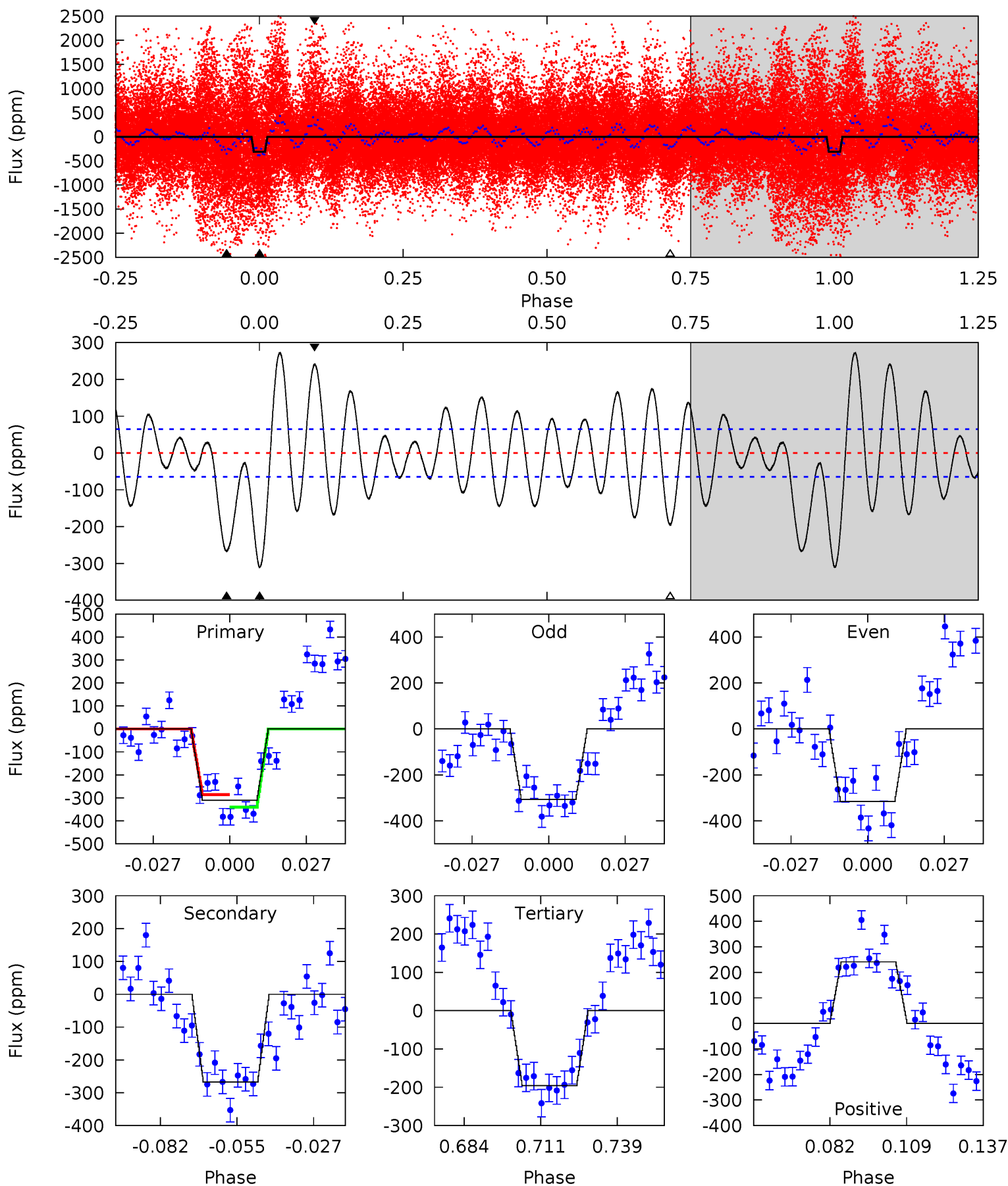
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.1	18.7	18.0	16.6	4.92	2.38	8.18	2.09	3.52	0.67	2.10	2.21	1.27	0.48	1.45



# Alt Model-Shift Uniqueness Test

005895238-01, P = 5.002148 Days, E = 129.044183 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
23.2	19.9	14.6	18.0	4.83	2.21	7.37	8.58	5.18	5.36	1.95	0.34	0.85	0.47	2.00





### Stellar Parameters For KIC 005895238

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7110^{+199}_{-313}$	$4.044^{+0.234}_{-0.156}$	$-0.240^{+0.300}_{-0.300}$	$1.894^{+0.548}_{-0.548}$	$1.447^{+0.218}_{-0.267}$	$0.300^{+0.381}_{-0.148}$
	+3%/-4%	+6%/-4%	+125%/-125%	+29%/-29%	+15%/-18%	+127%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005895238-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-366 \pm 20$	$1.60^{+0.86}_{-0.88}$	$2331^{+182}_{-179}$	$13190^{+16546}_{-3666}$	$331^{+1249}_{-188}$
Alt.	$-267 \pm 13$	$3.43^{+1.14}_{-0.98}$	$2339^{+176}_{-193}$	$6863^{+1389}_{-900}$	$51^{+50}_{-21}$

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

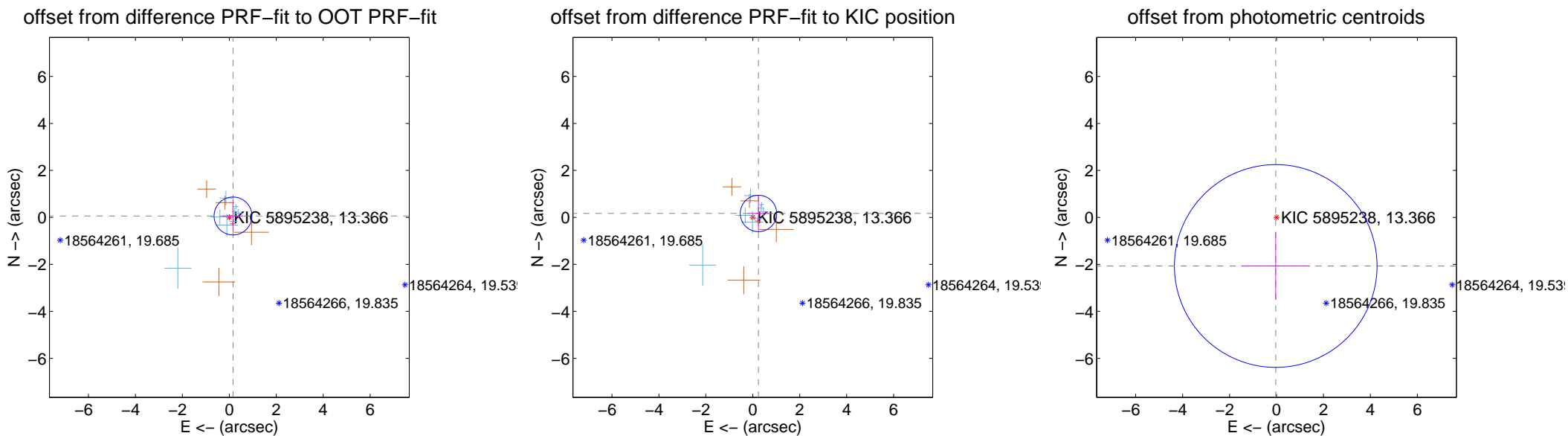
## DV Centroid Data

Supplemental centroid analysis for 005895238-01. Kepler magnitude: 13.37. Transit SNR 3.89

There are 8 quarters with good PRF difference image offsets

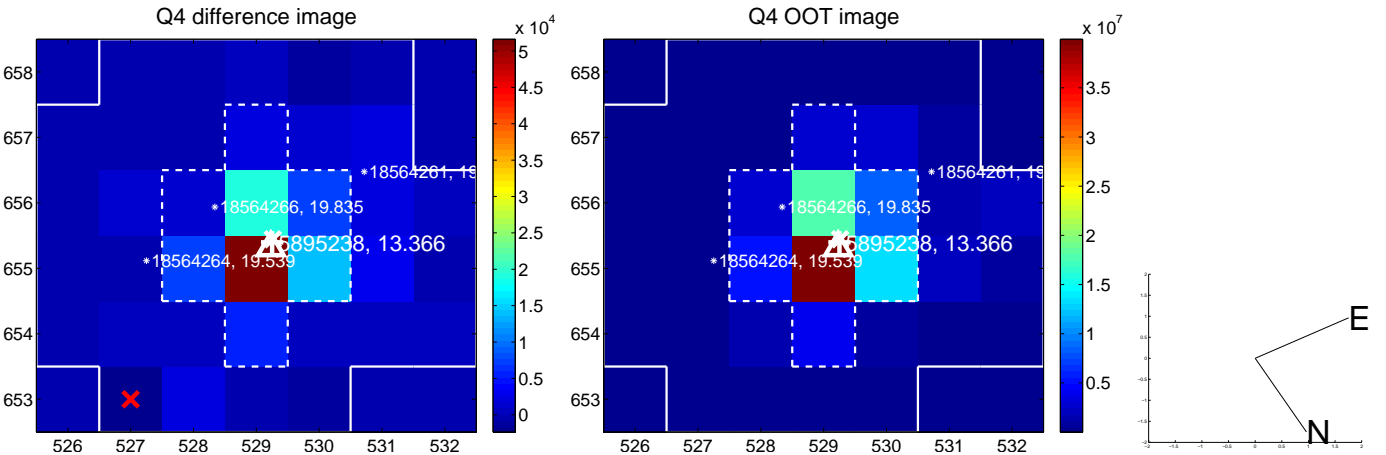
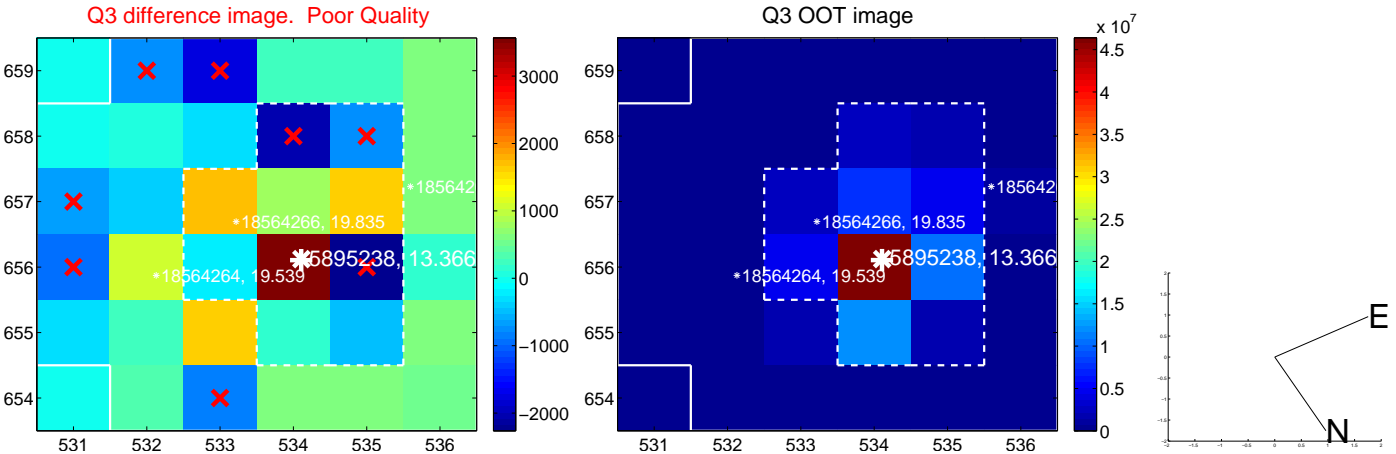
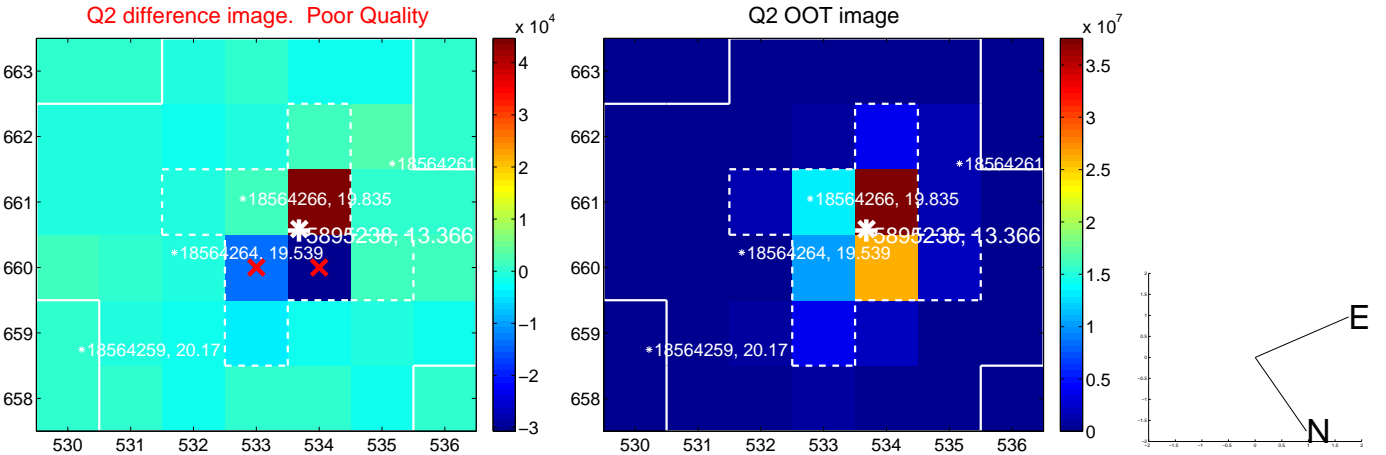
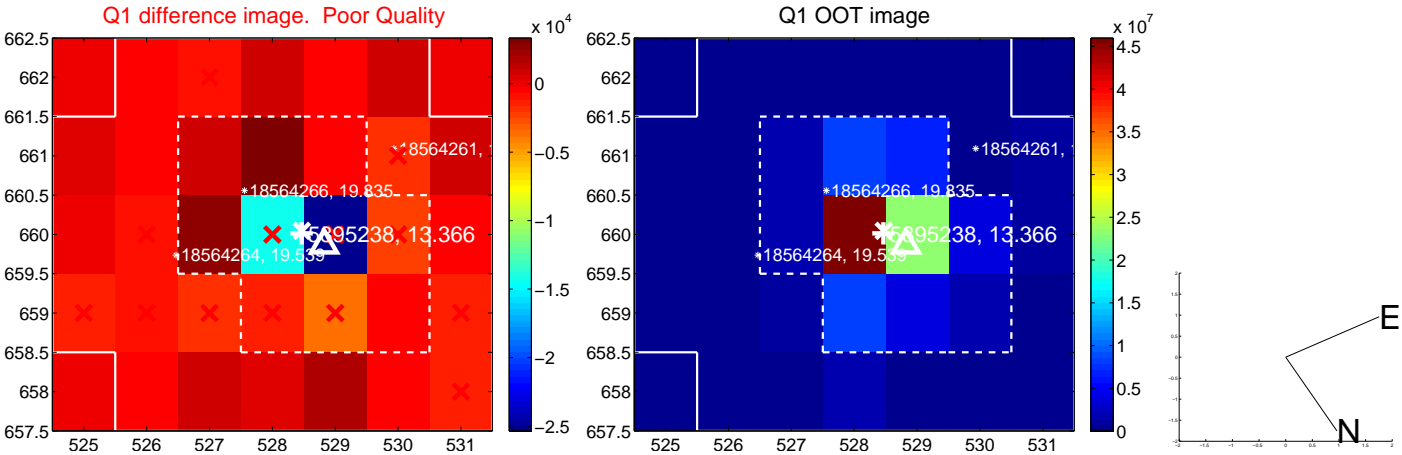
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.168 \pm 0.269$	0.62	$-0.157 \pm 0.438$	$0.059 \pm 0.678$
PRF-fit source offset from KIC position	$0.294 \pm 0.258$	1.14	$-0.242 \pm 0.446$	$0.168 \pm 0.757$
photometric centroid source offset	$2.07 \pm 1.44$	1.44	$0.03 \pm 1.46$	$-2.07 \pm 1.44$

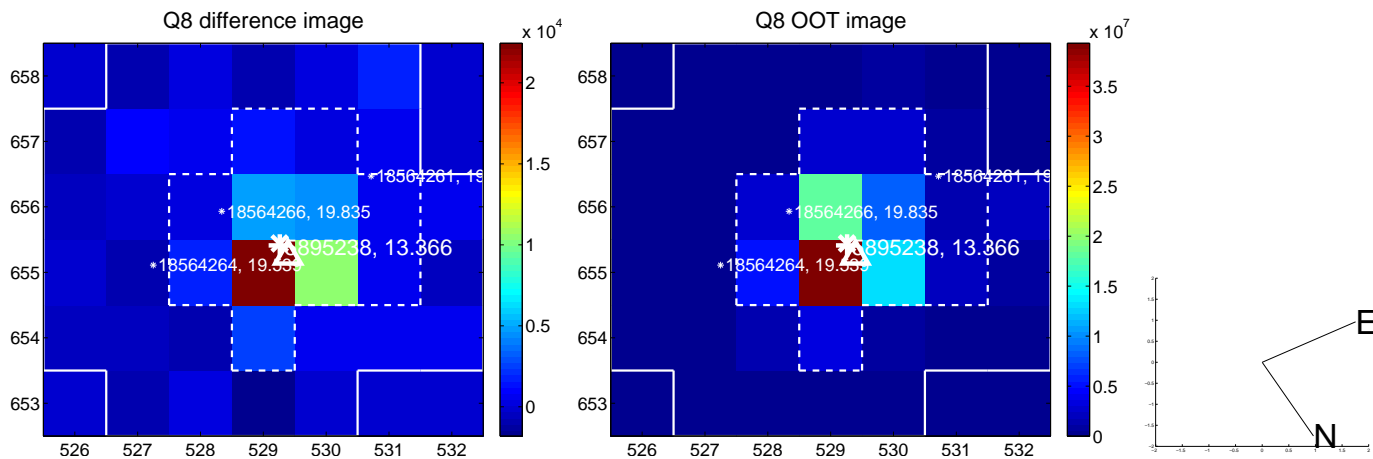
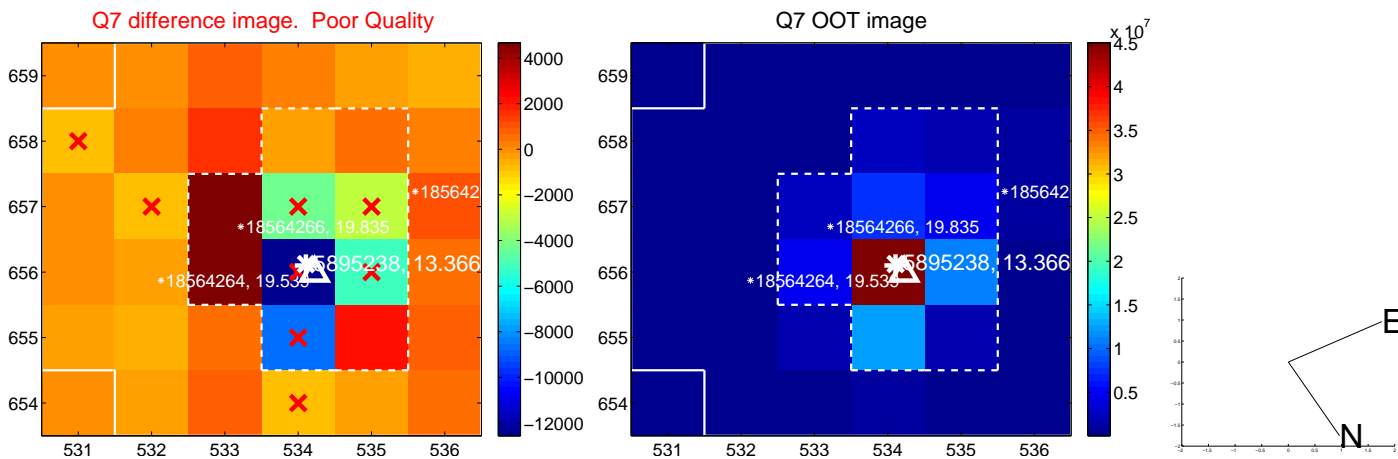
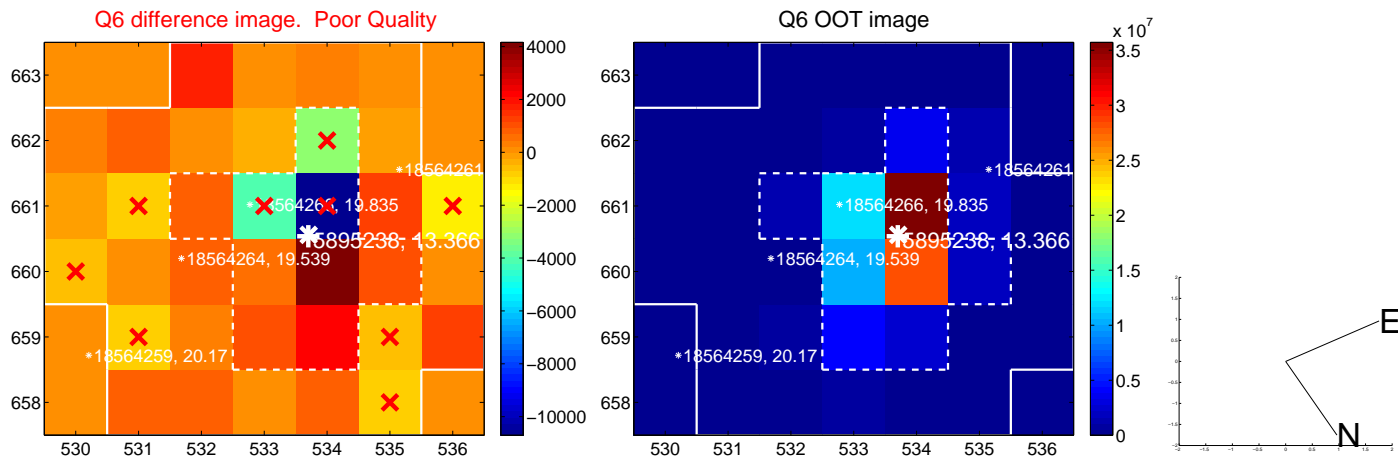
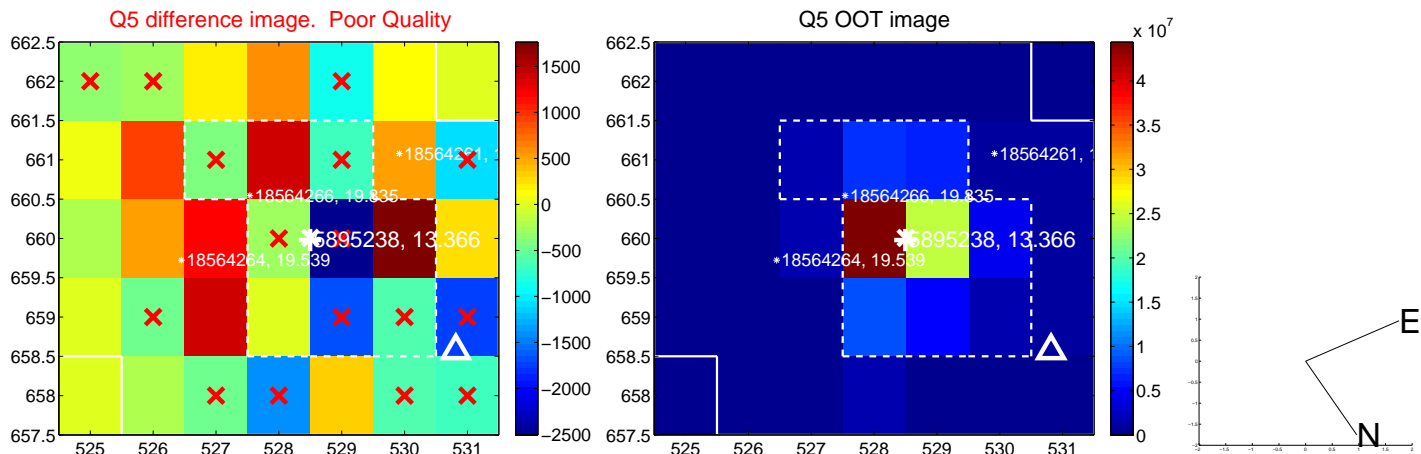


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



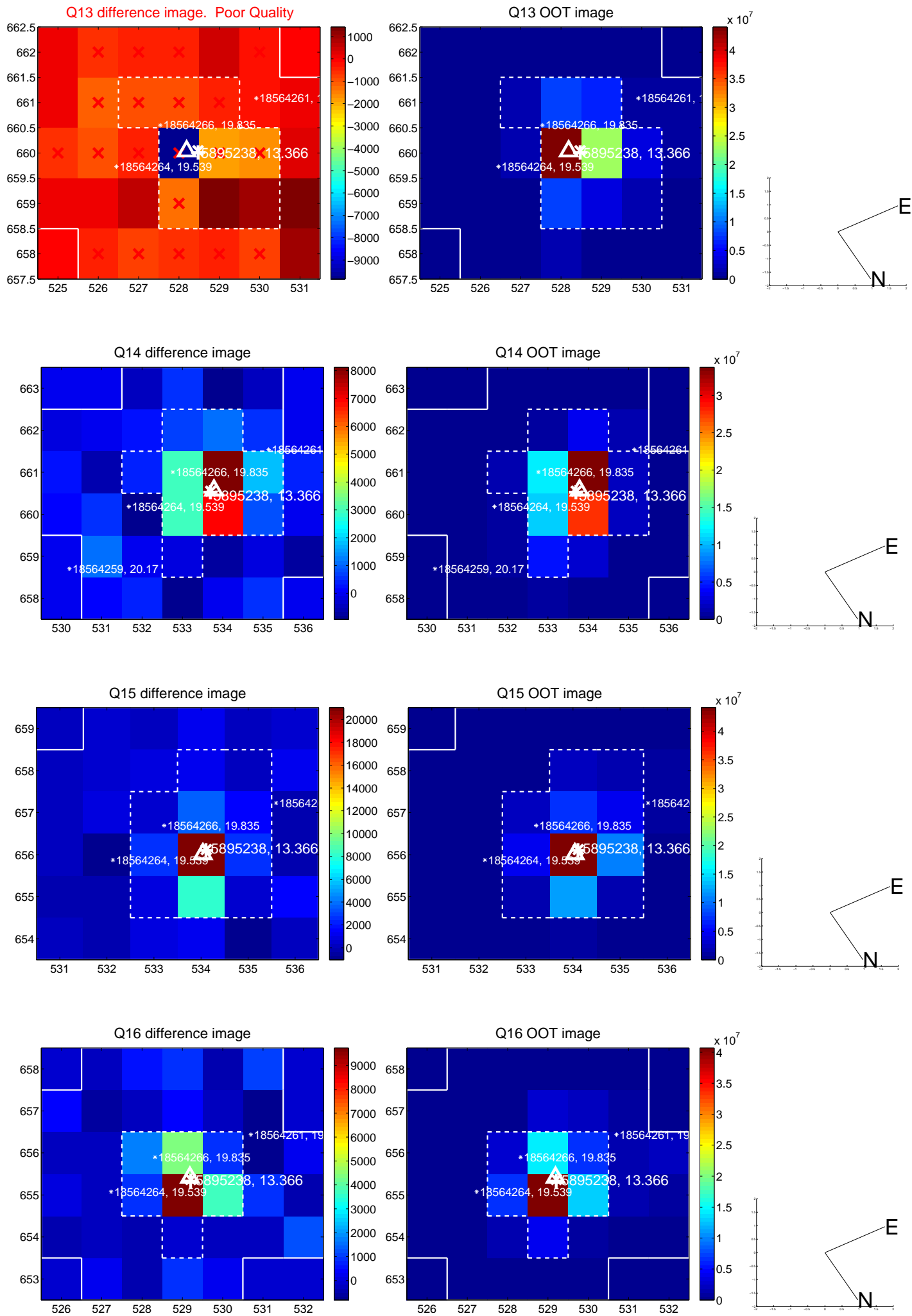
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.







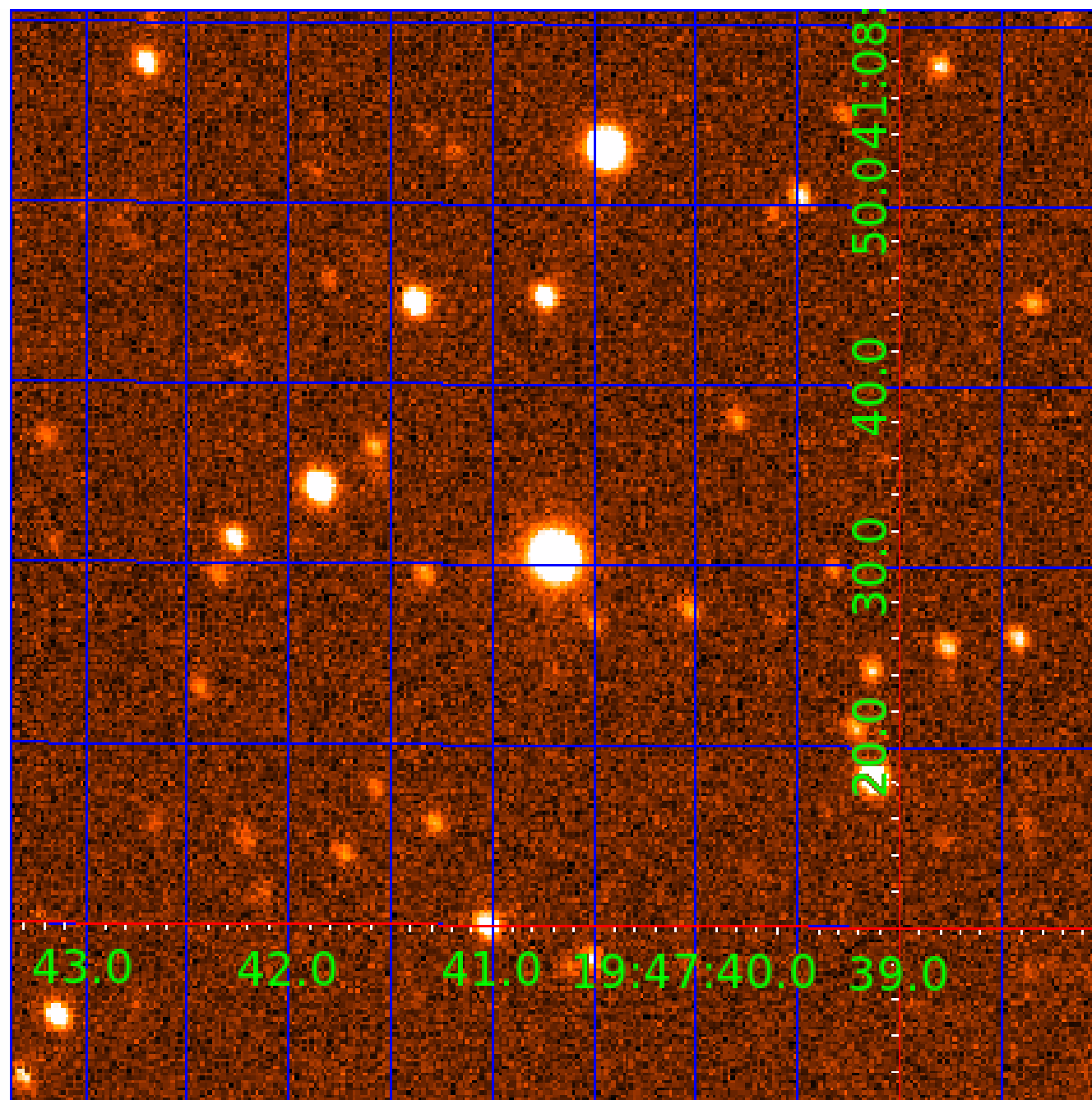
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination





# KIC 005895238

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005895238-01	OBS	No	5.002378	134.036259	53.5	1.610	9.9	3.9	1.89	7110	1.59	1957.60
005895238-02	OBS	No	1.471223	132.032379	102.0	4.706	9.6	10.5	1.89	7110	2.21	10008.94
005895238-03	OBS	No	1.471336	131.722484	218.6	5.917	9.2	13.3	1.89	7110	3.25	10007.92
005895238-04	OBS	No	448.670232	446.130586	1987.7	7.935	9.2	10.0	1.89	7110	14.79	4.88
005895238-05	OBS	No	25.749875	147.677345	238.8	5.000	9.6	-1.0	1.89	7110	2.96	220.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005895238-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
005895238-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005895238-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005895238-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES
005895238-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

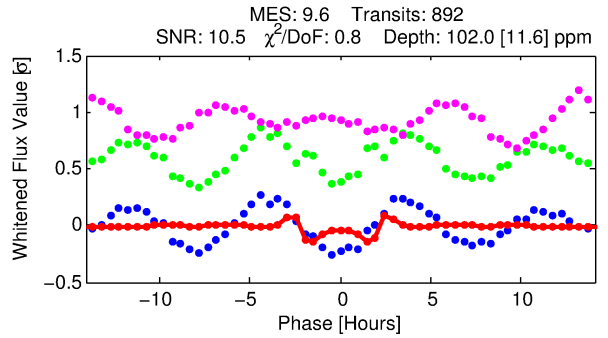
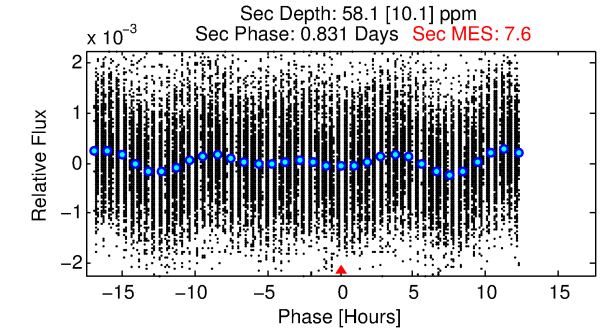
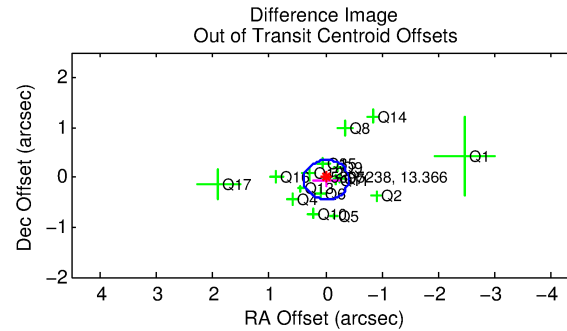
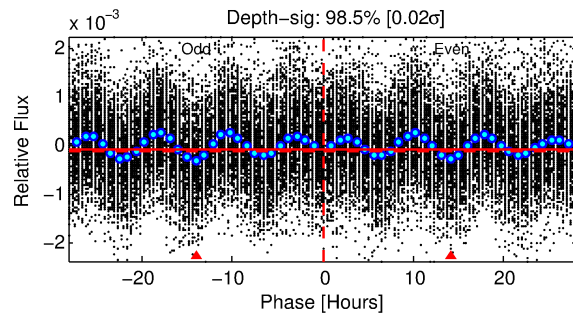
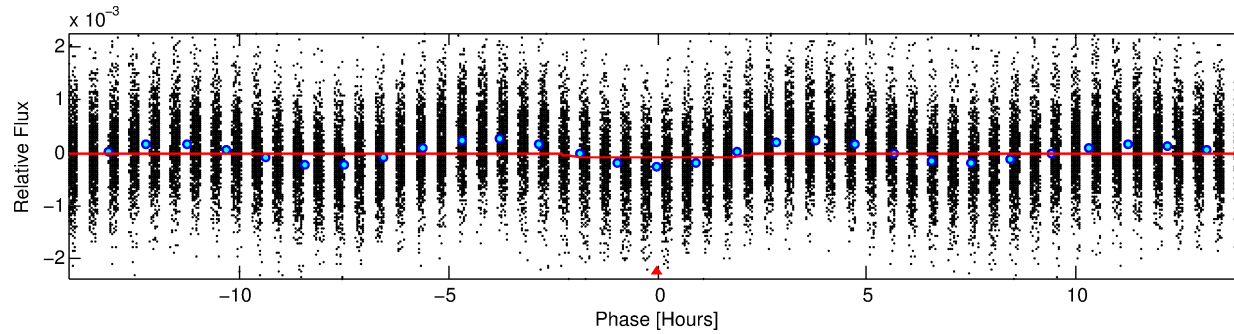
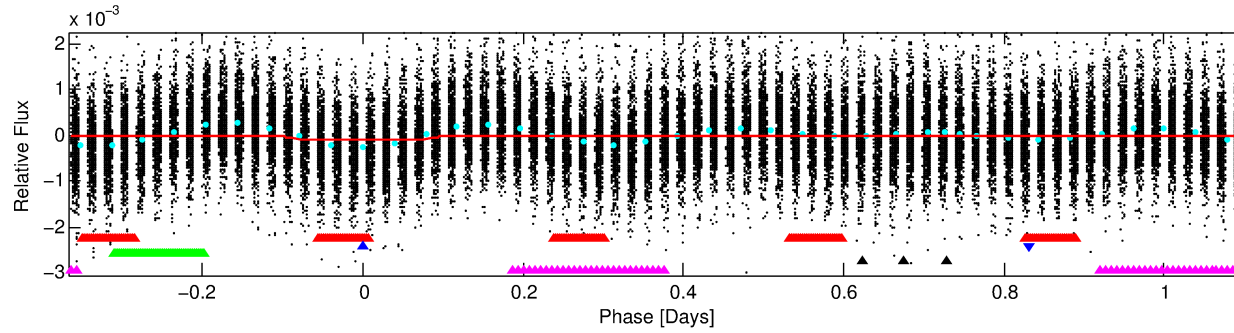
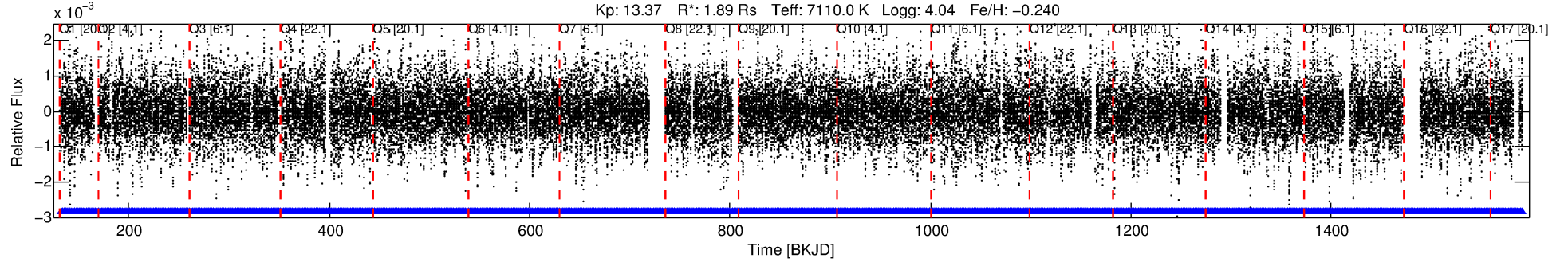
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005895238-02

No Significant Match Found

# DV One-Page Summary

KIC: 5895238 Candidate: 2 of 5 Period: 1.471 d



## DV Fit Results:

Period = 1.47122 [0.00001] d  
Epoch = 132.0324 [0.0011] BKJD  
Rp/R\* = 0.0107 [0.0028]  
a/R\* = 1.47 [1.29]  
b = 0.89 [0.38]  
Seff = 10008.94 [4445.16]  
Teq = 2550 [283] K  
Rp = 2.21 [0.86] Re  
a = 0.0286 [0.0075] AU  
Ag = 5.38 [3.67] [1.19σ]  
Teffp = 6005 [864] K [3.80σ]

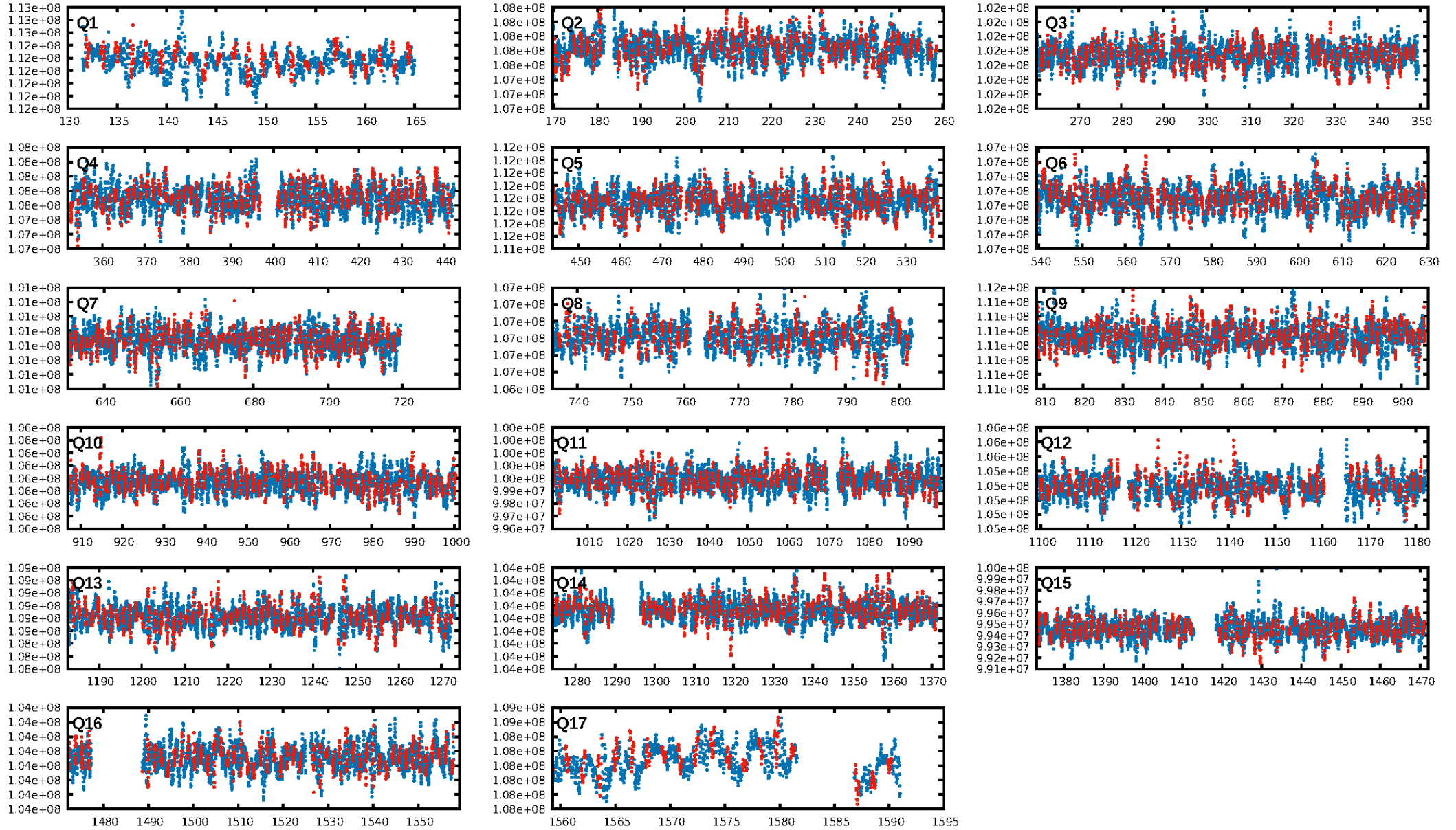
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [852/852]  
GhostDiagnostic-chr: 0.8497  
Centroid-sig: N/A  
Centroid-so: 0.189 arcsec [0.76σ]  
OotOffset-rm: 0.055 arcsec [0.41σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 0.083 arcsec [0.41σ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.94 [16/17]  
DiffImageOverlap-fno: 0.00 [0/17]

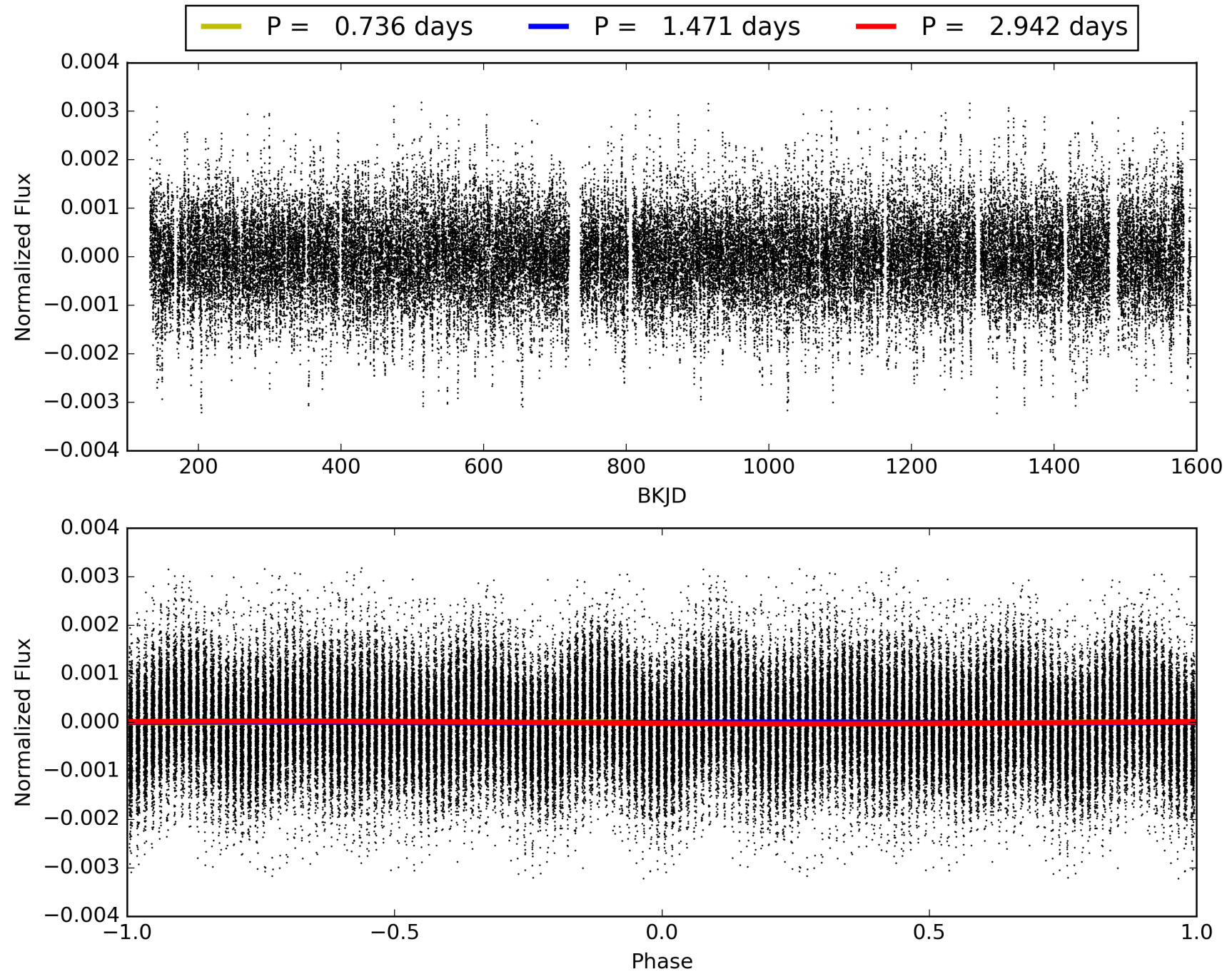
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:56:31 Z

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

# TCE 005895238-02, PDC Light Curves



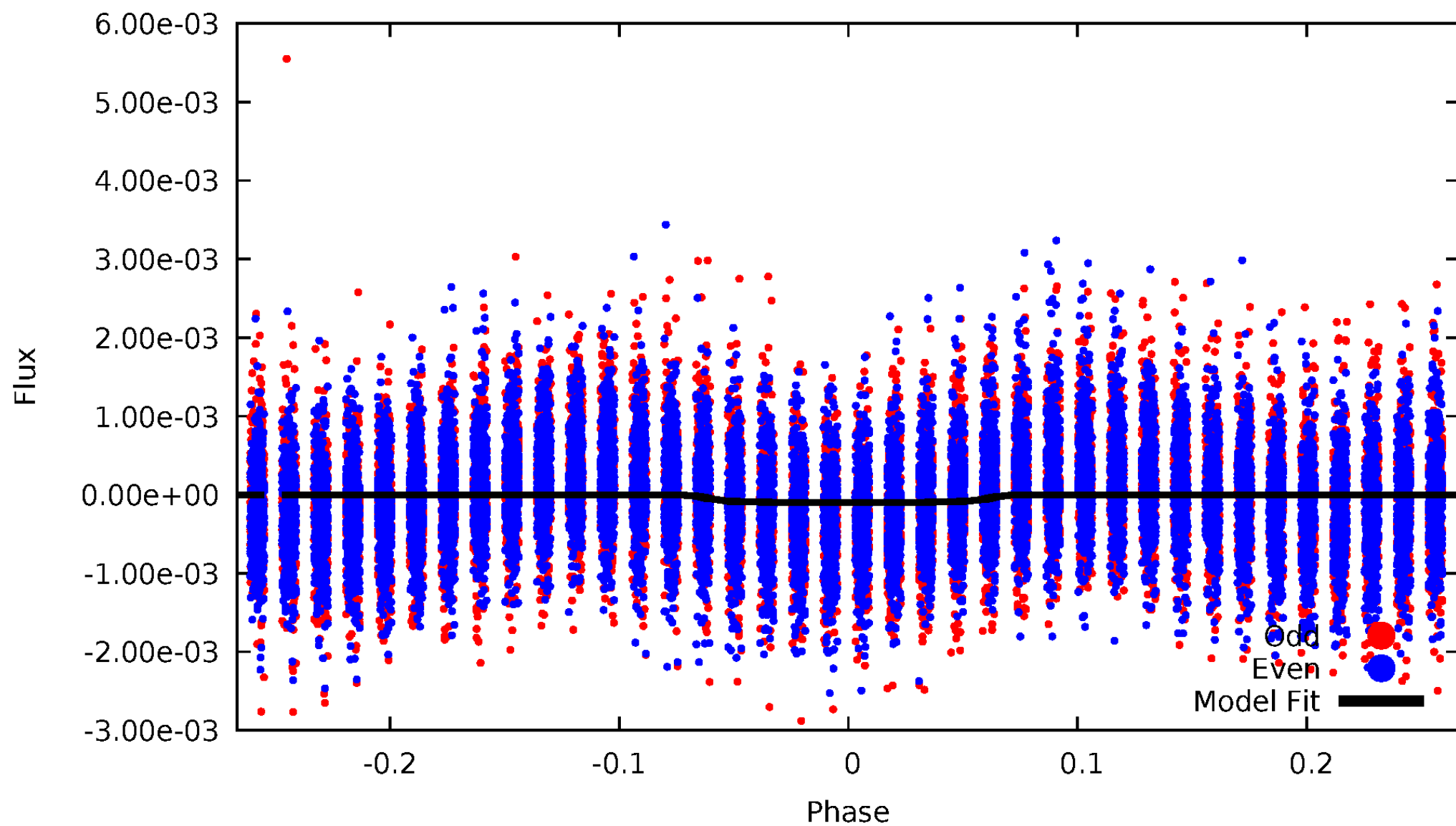
TCE 005895238-02





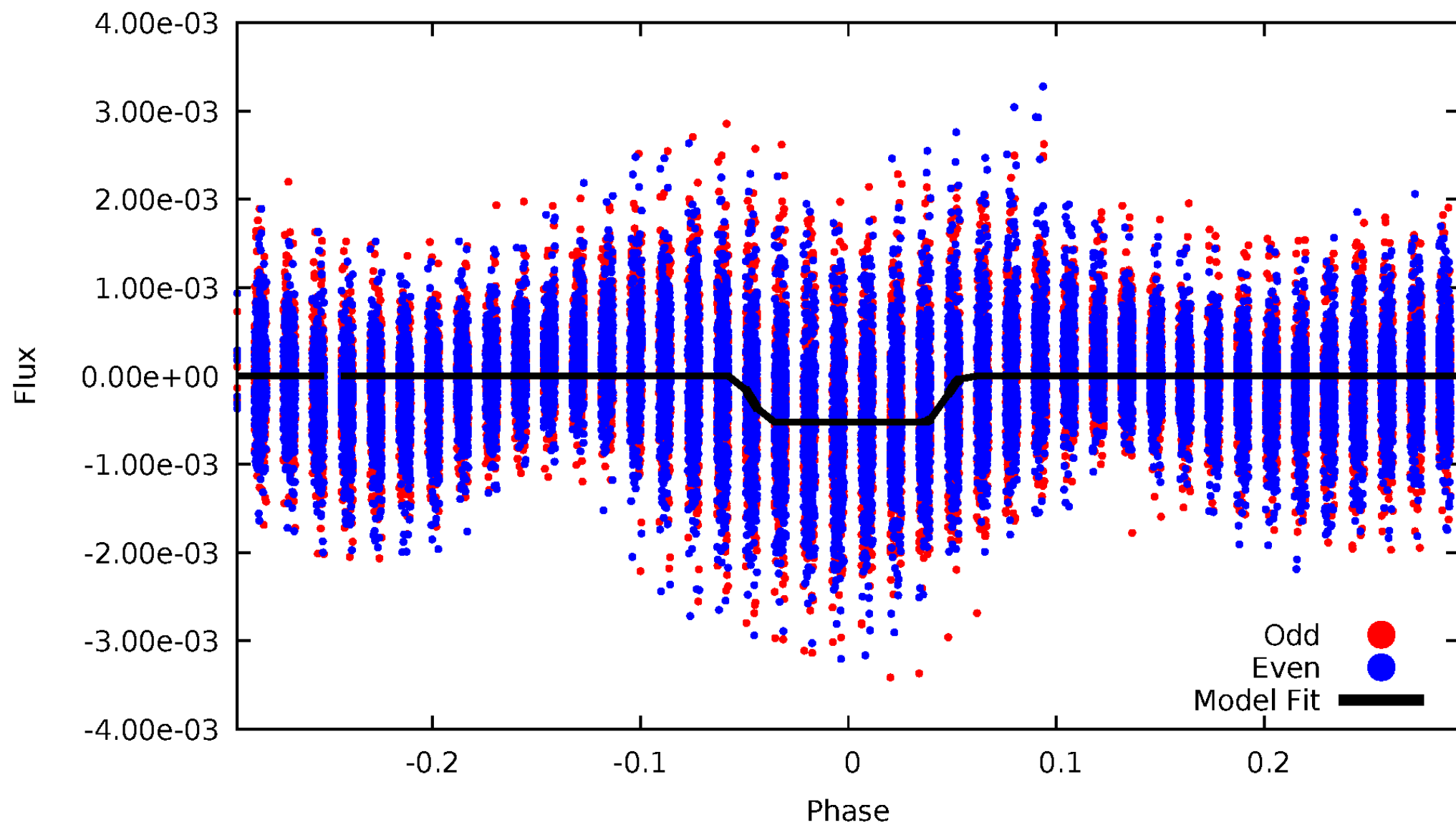
# DV Odd/Even

TCE 005895238-02



# ALT Odd/Even

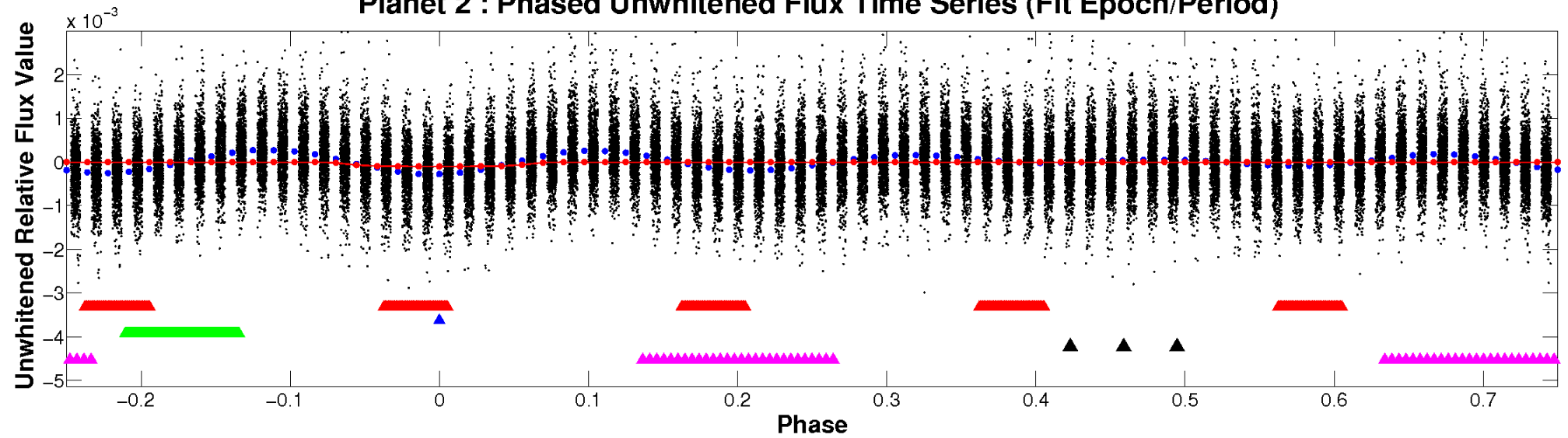
TCE 005895238-02



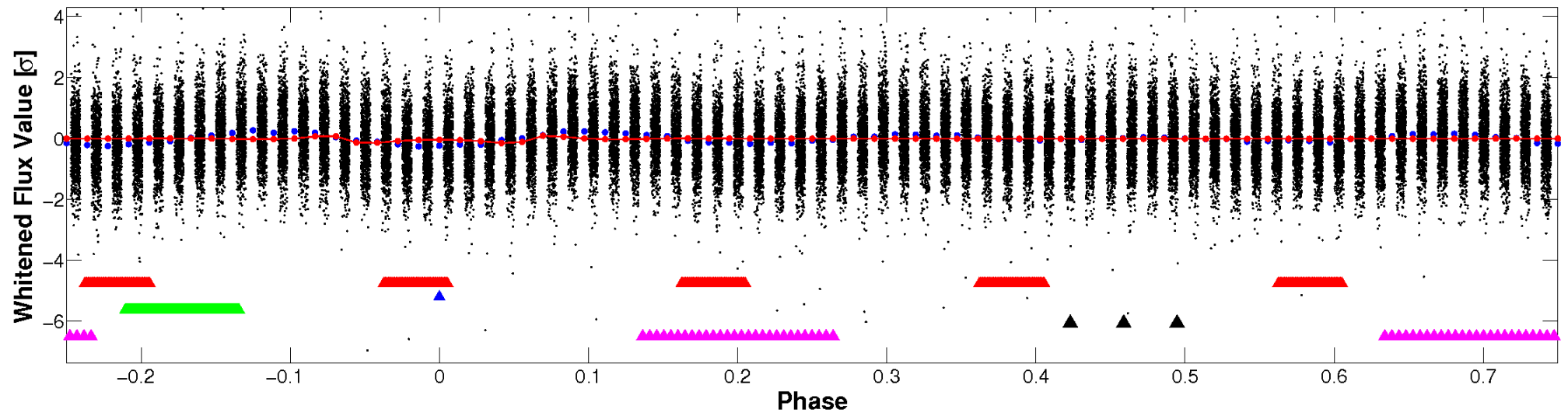


# Non-Whitened Vs. Whitened Light Curve

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

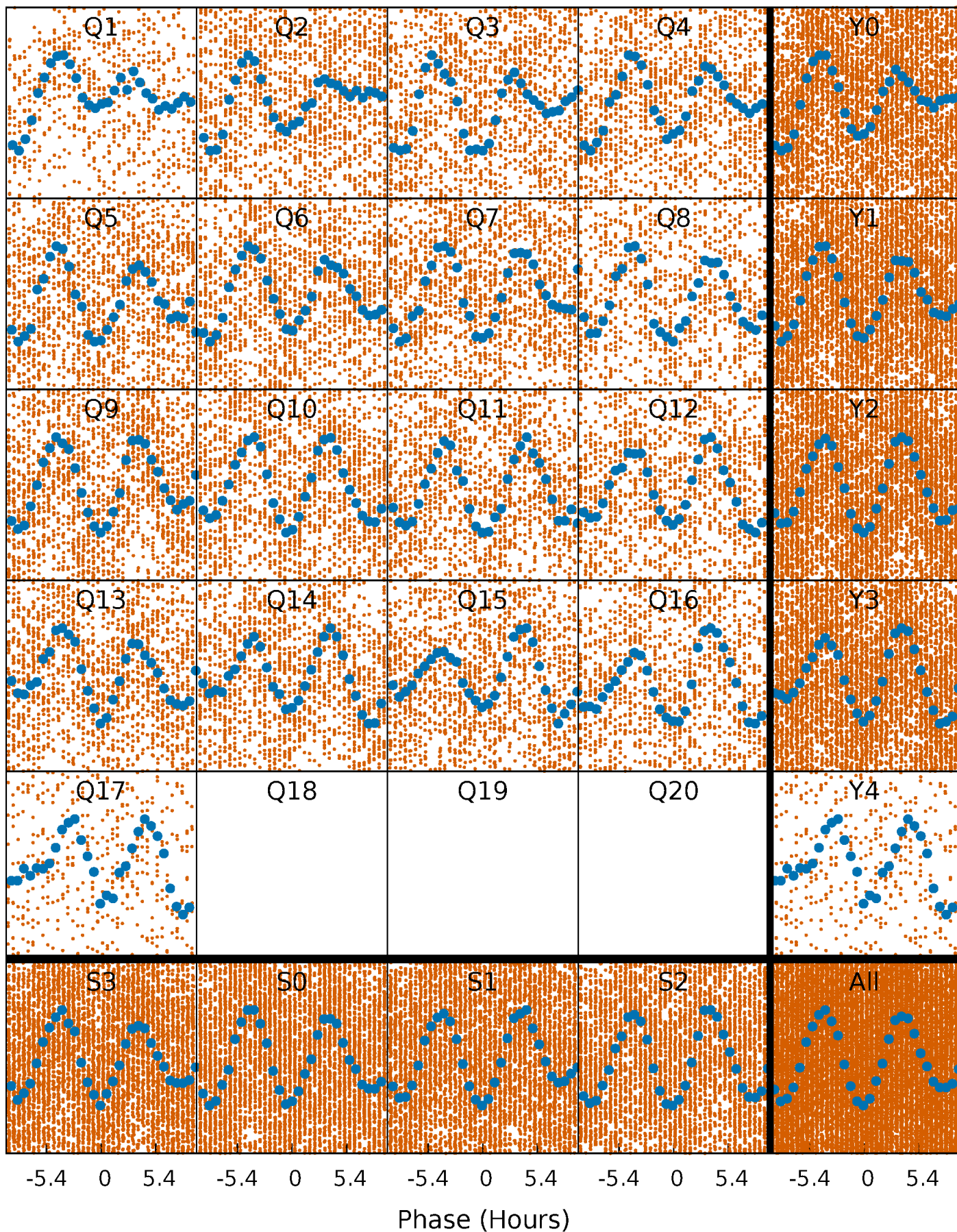


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

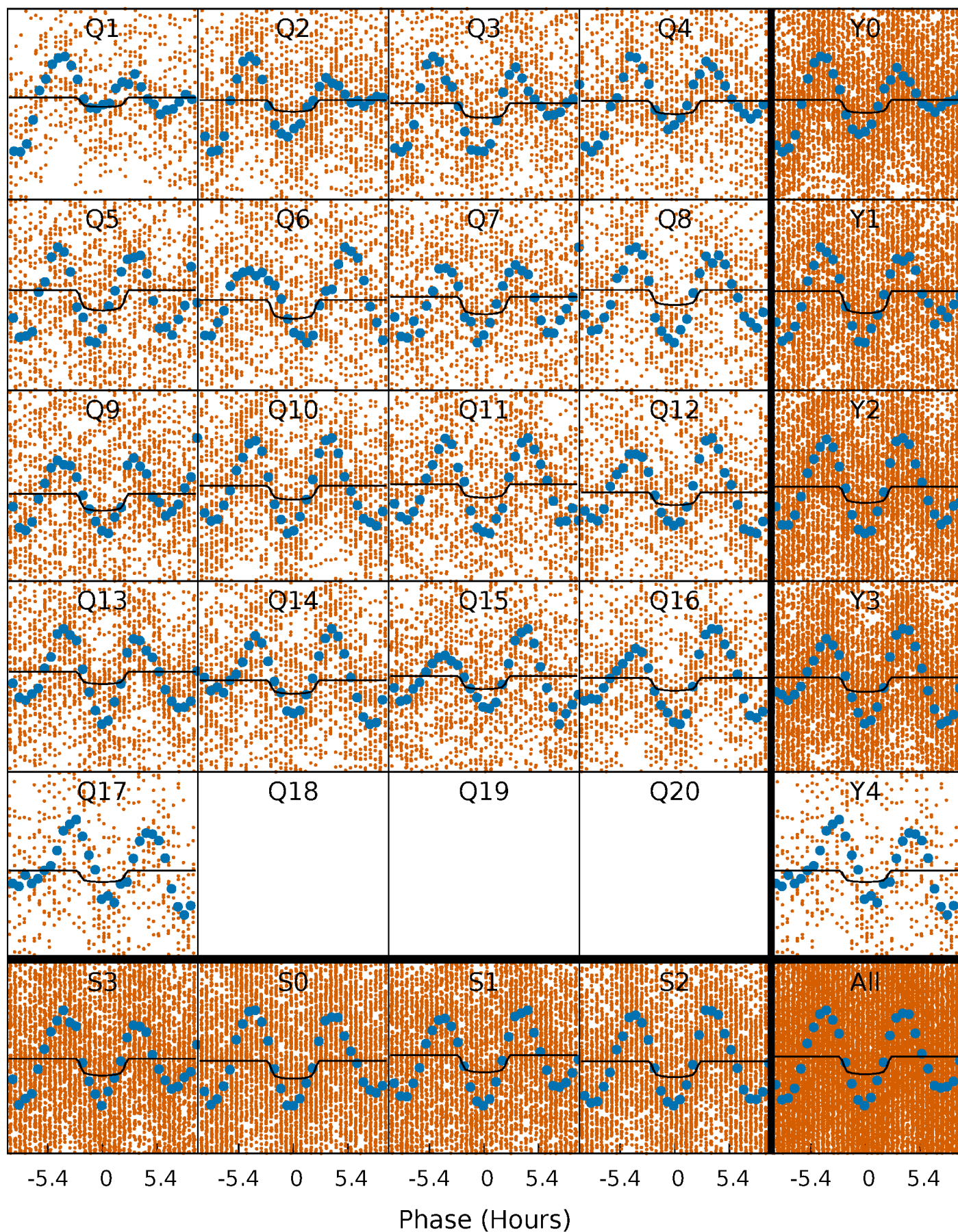
TCE 005895238-02   P= 1.471223 Days    $T_0=132.032379$  (BKJD)





# DV Quarter-Phased Transit Curves

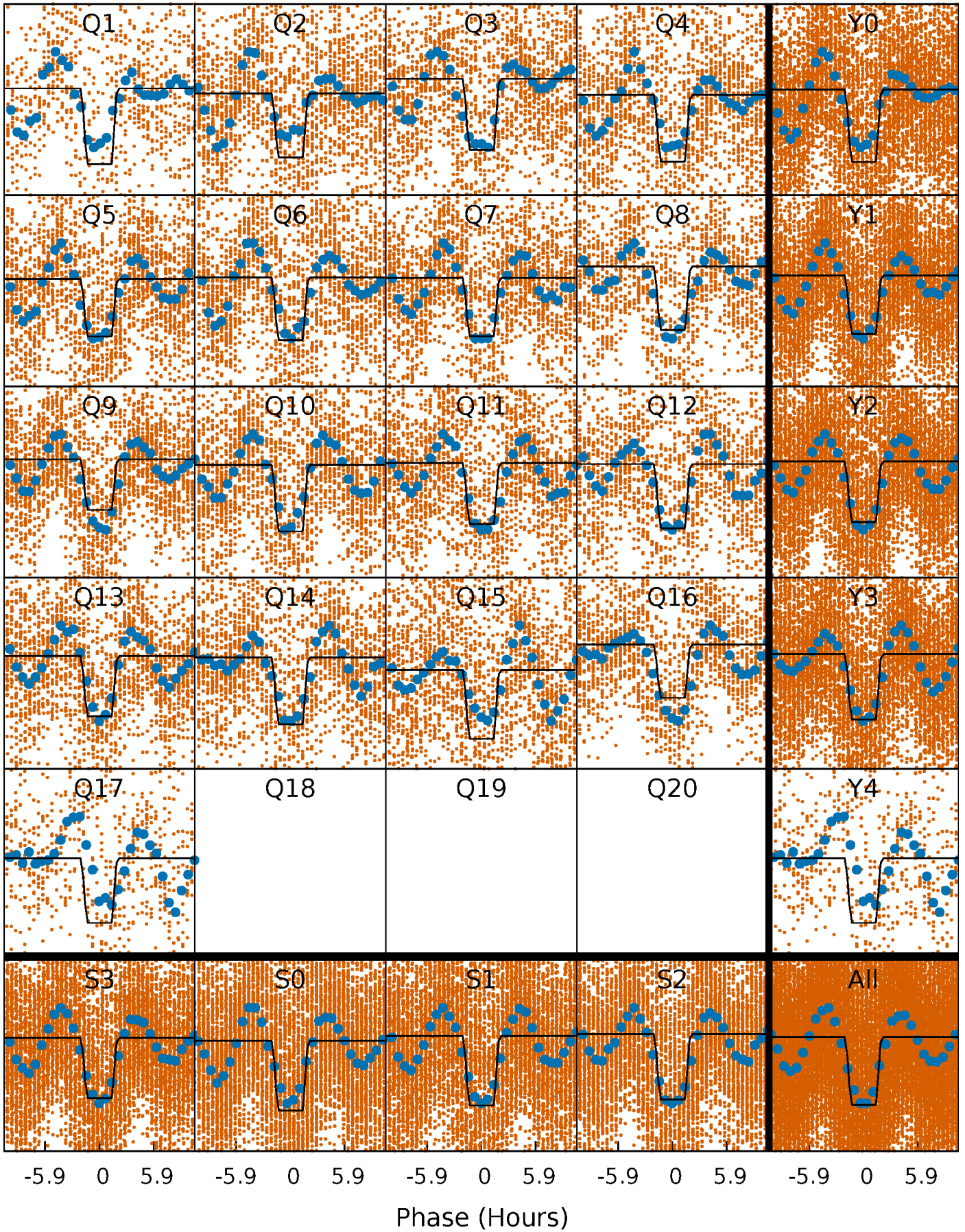
TCE 005895238-02   P= 1.471223 Days    $T_0=132.032379$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

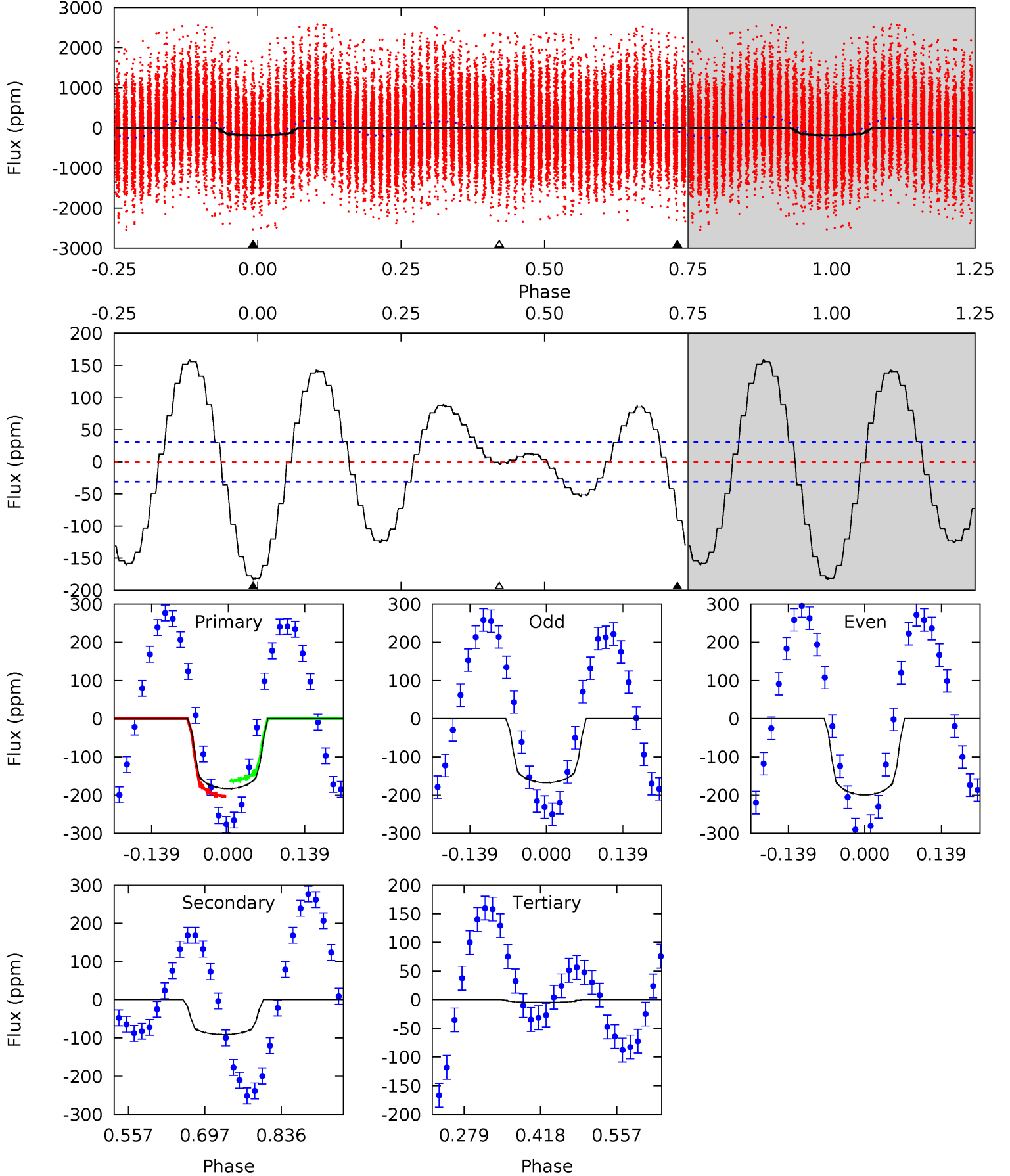
TCE 005895238-02   P= 1.471222 Days    $T_0=132.028429$  (BKJD)



# DV Model-Shift Uniqueness Test

005895238-02, P = 1.471223 Days, E = 130.561156 Days

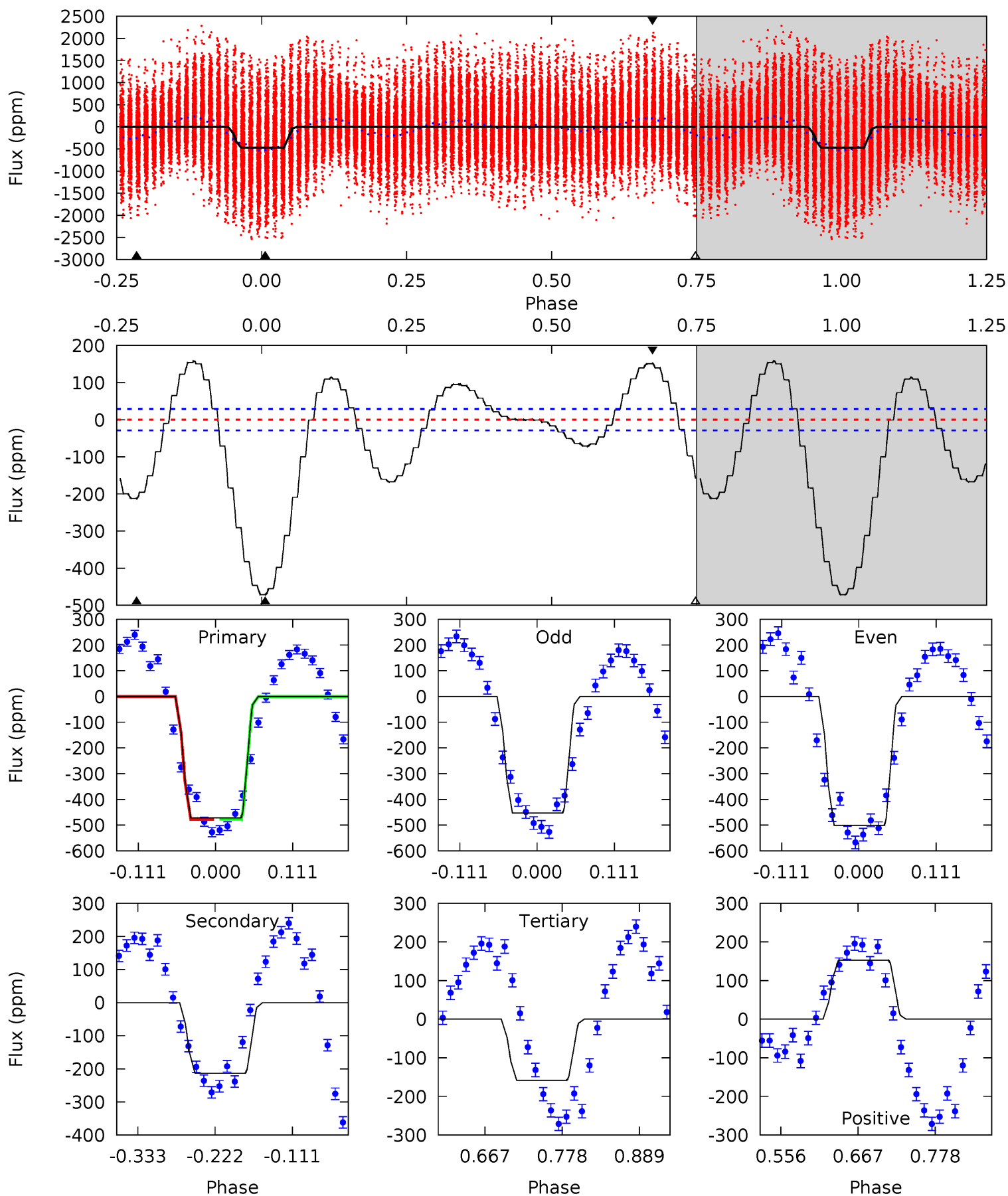
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.6	13.2	0.63	0	4.49	1.48	8.28	26.0	26.6	12.6	13.2	2.32	1.27	0.46	2.98



# Alt Model-Shift Uniqueness Test

005895238-02, P = 1.471222 Days, E = 130.557207 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
74.2	33.6	24.9	24.0	4.54	1.59	13.0	49.4	50.2	8.71	9.58	3.73	0.92	0.25	0.04





### Stellar Parameters For KIC 005895238

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7110^{+199}_{-313}$	$4.044^{+0.234}_{-0.156}$	$-0.240^{+0.300}_{-0.300}$	$1.894^{+0.548}_{-0.548}$	$1.447^{+0.218}_{-0.267}$	$0.300^{+0.381}_{-0.148}$
	+3%/-4%	+6%/-4%	+125%/-125%	+29%/-29%	+15%/-18%	+127%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005895238-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-91 \pm 7$	$2.17^{+0.68}_{-0.62}$	$3512^{+284}_{-278}$	$6523^{+1337}_{-773}$	$8.688^{+8.599}_{-3.699}$
Alt.	$-213 \pm 6$	$4.62^{+0.91}_{-0.80}$	$3532^{+261}_{-290}$	$5525^{+391}_{-335}$	$4.443^{+1.995}_{-1.290}$

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

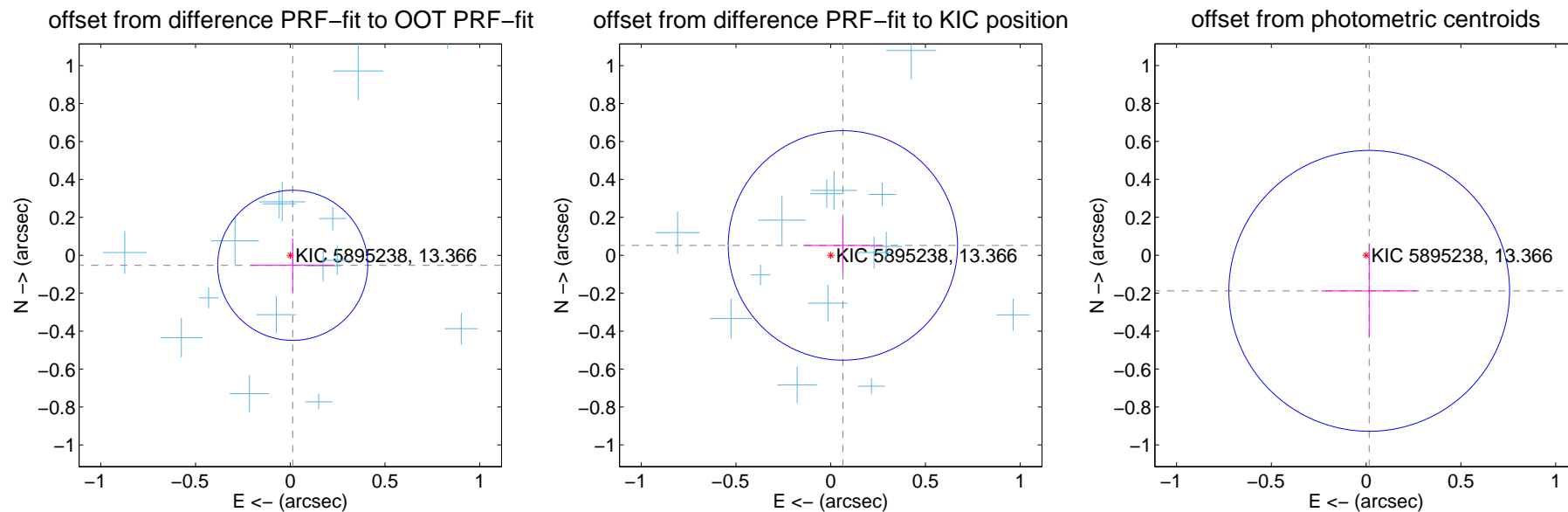
## DV Centroid Data

Supplemental centroid analysis for 005895238-02. Kepler magnitude: 13.37. Transit SNR 10.47

There are 16 quarters with good PRF difference image offsets

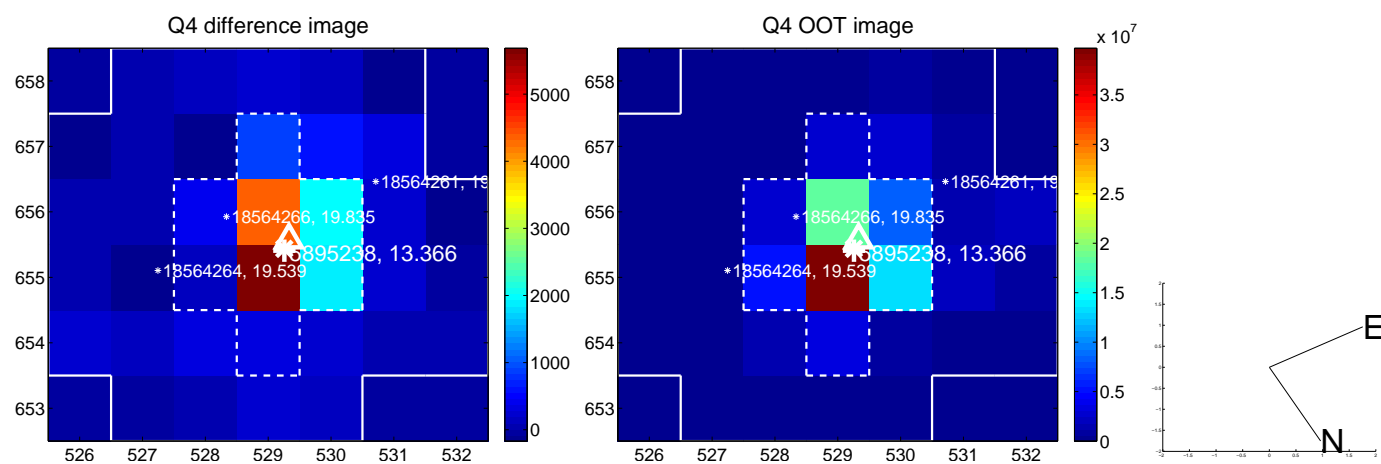
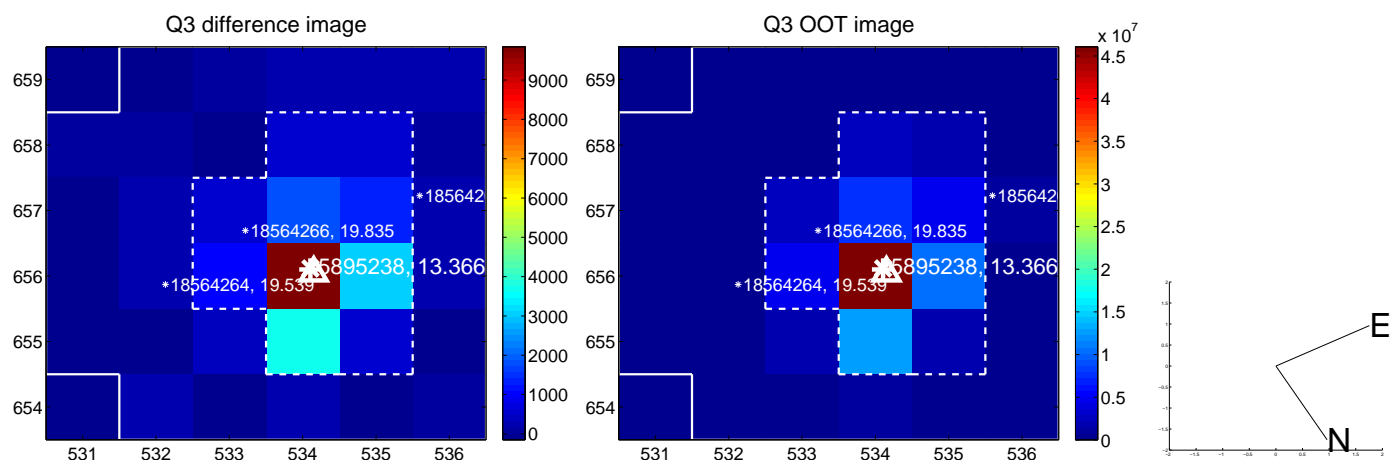
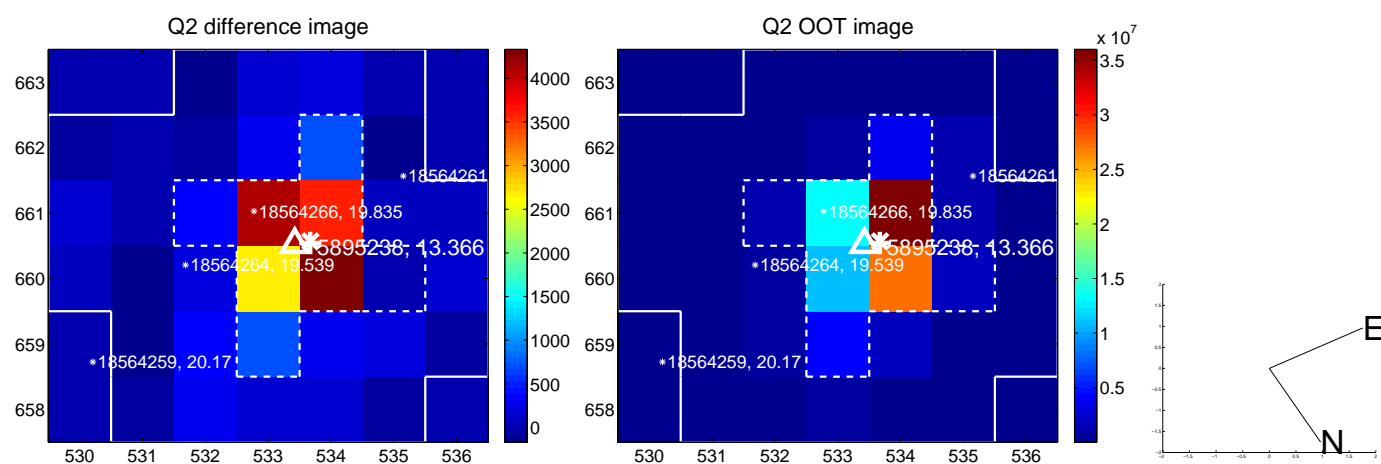
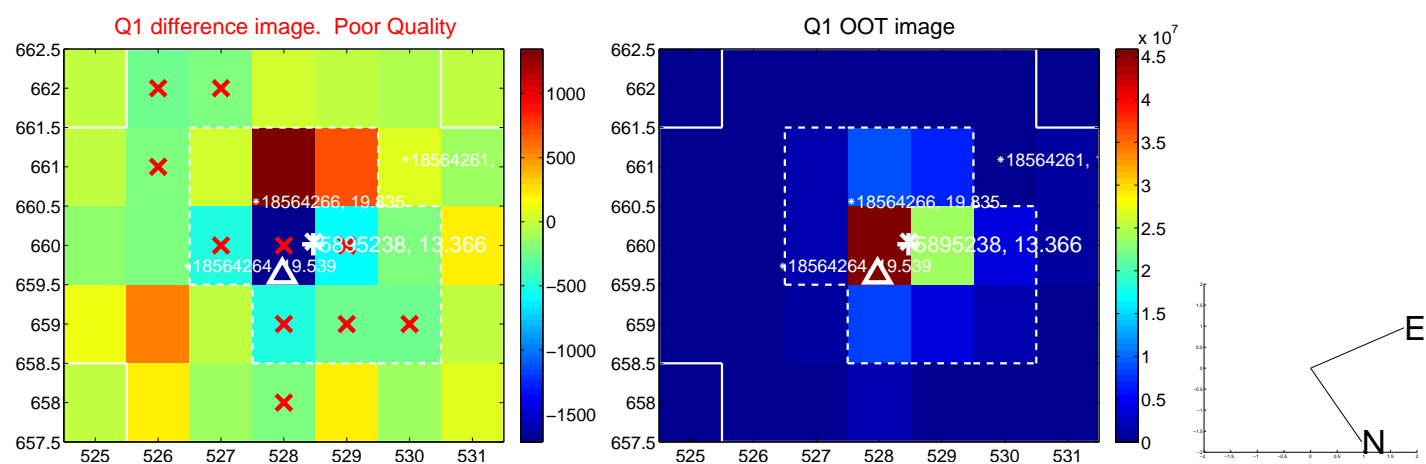
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.055 \pm 0.132$	0.41	$-0.013 \pm 0.222$	$-0.053 \pm 0.141$
PRF-fit source offset from KIC position	$0.083 \pm 0.202$	0.41	$-0.064 \pm 0.208$	$0.052 \pm 0.147$
photometric centroid source offset	$0.19 \pm 0.25$	0.76	$-0.02 \pm 0.25$	$-0.19 \pm 0.25$

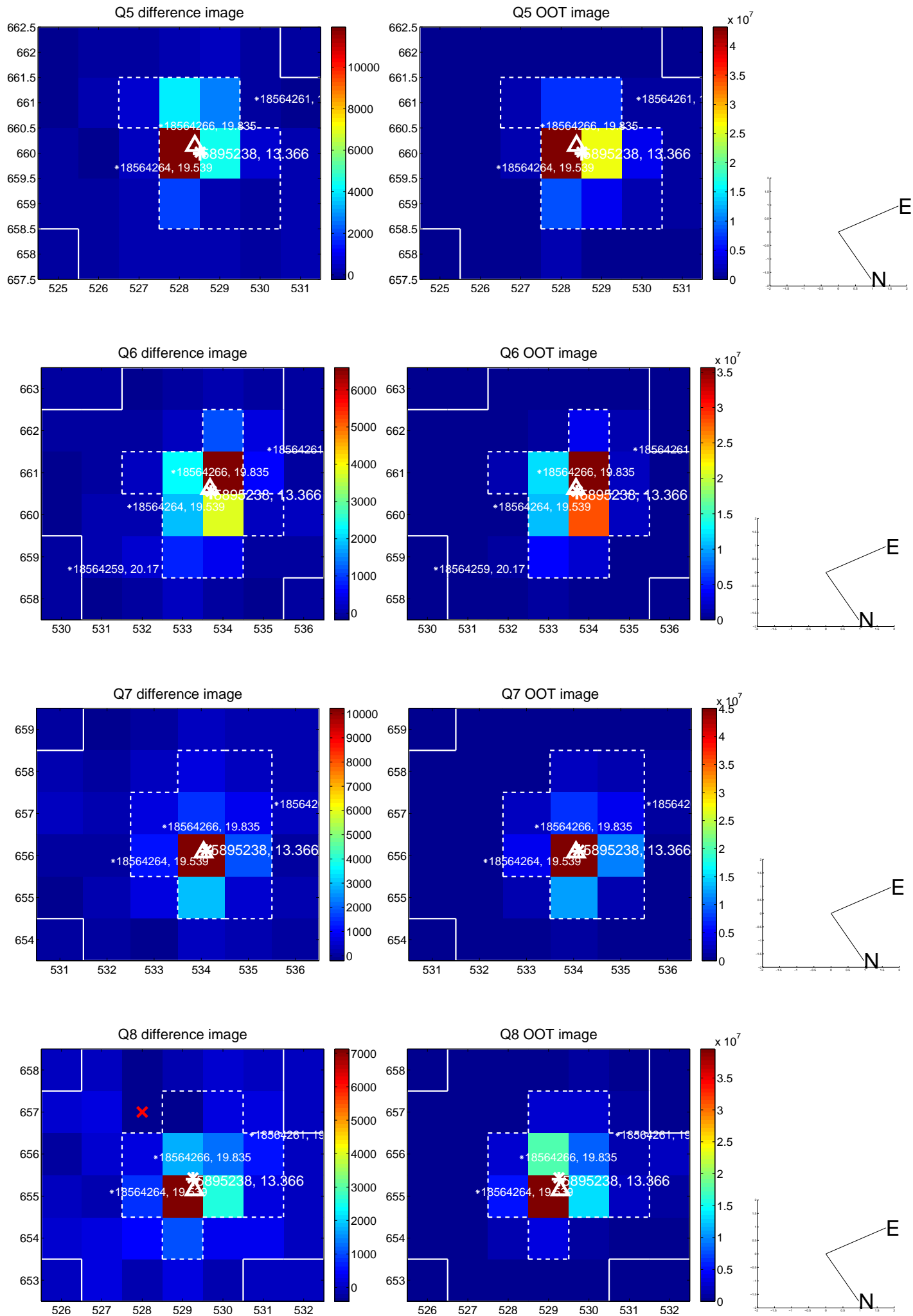


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

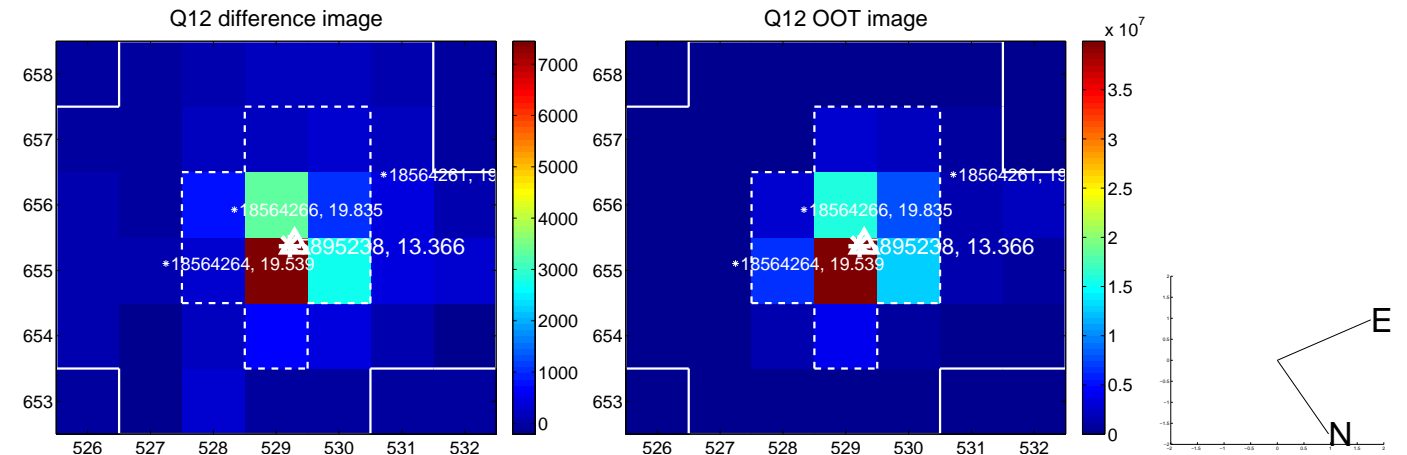
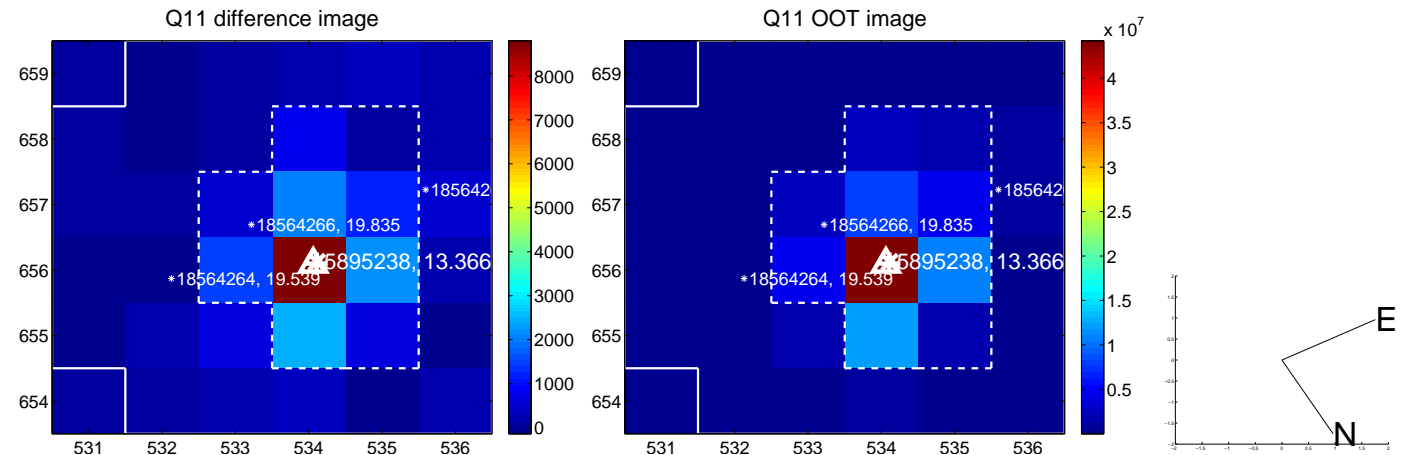
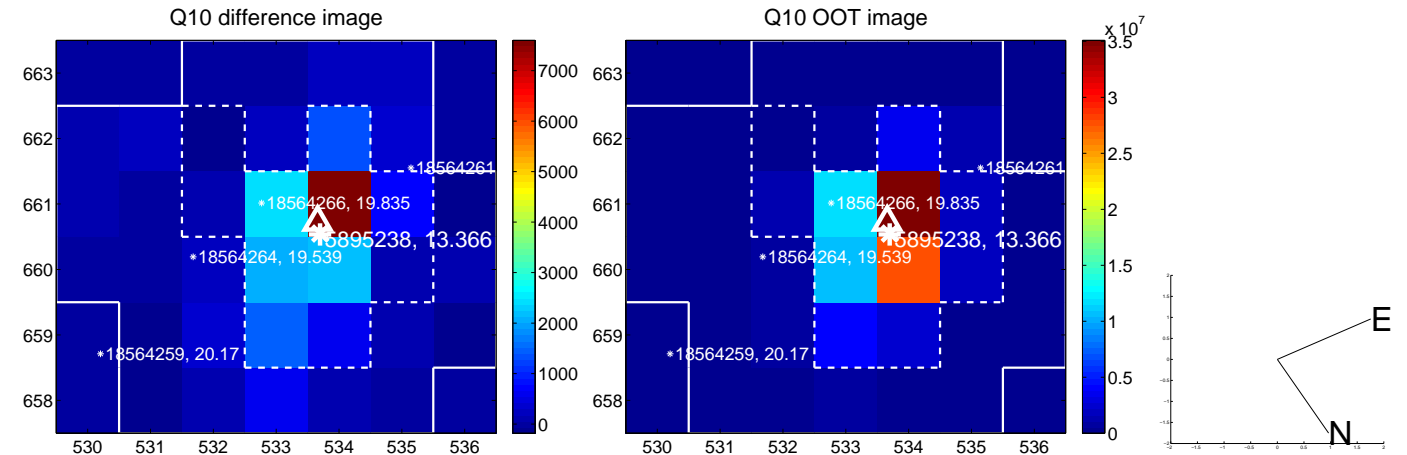
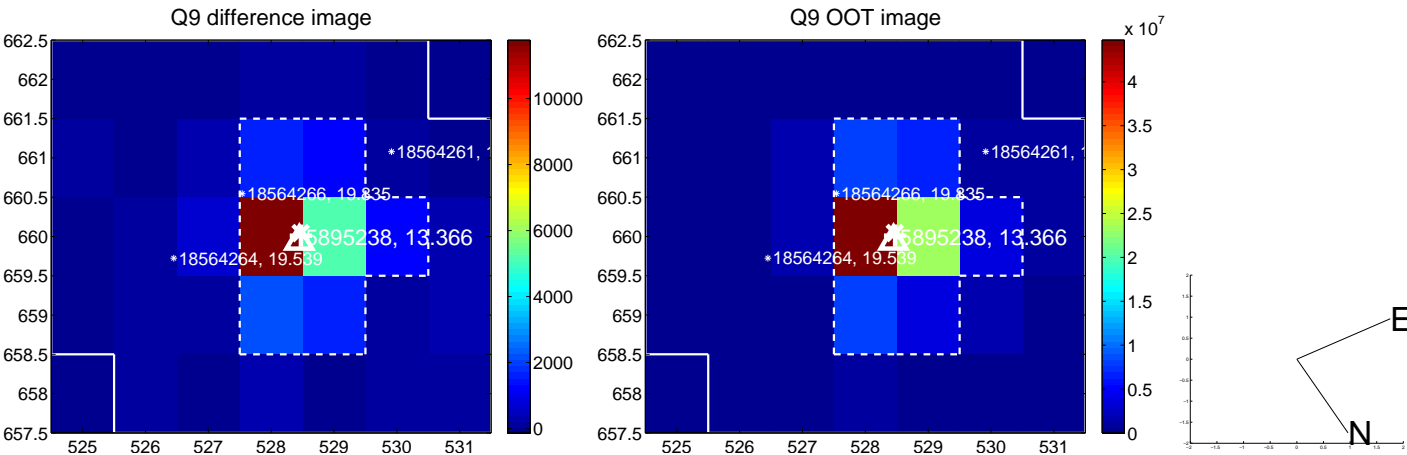
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



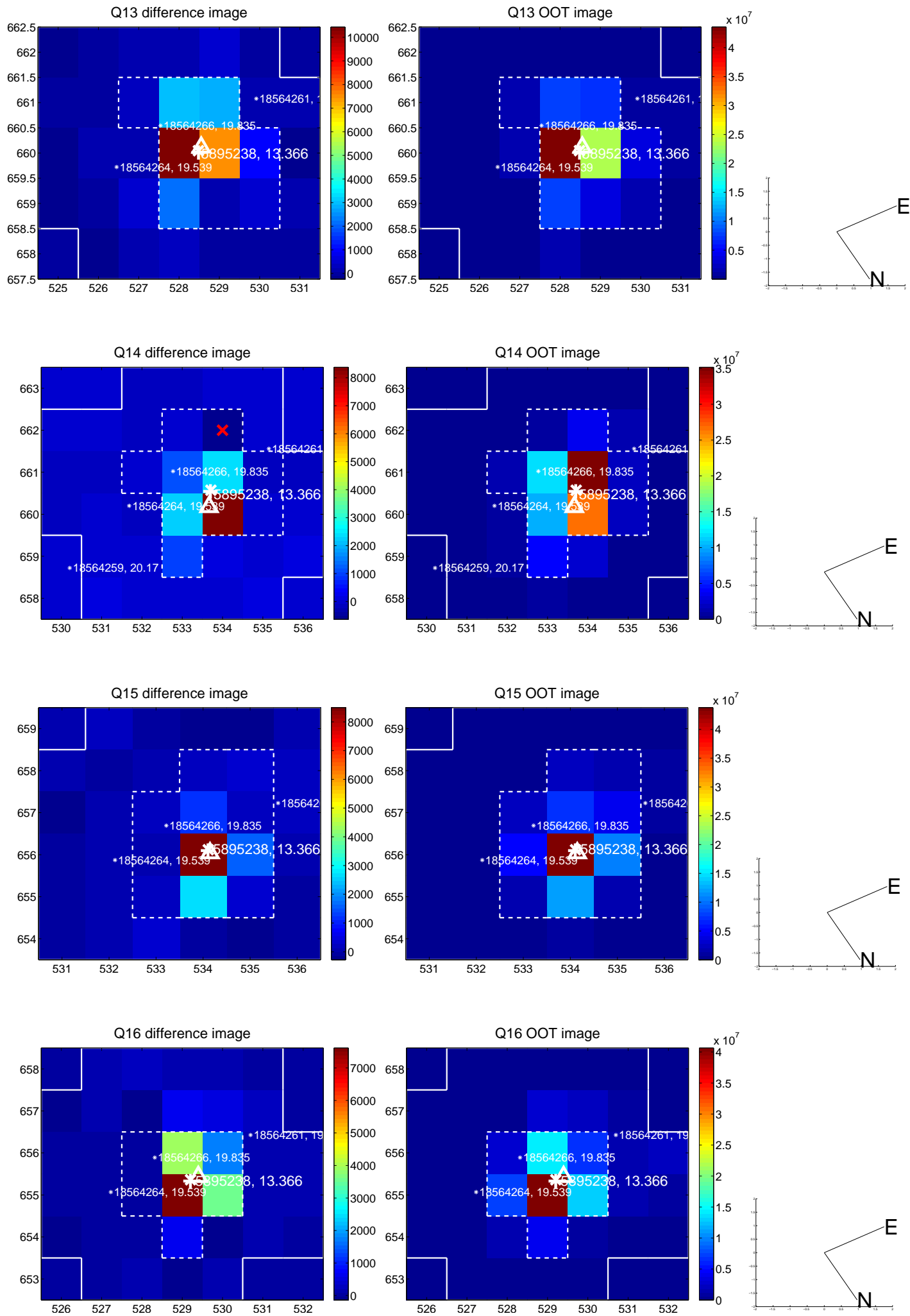
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

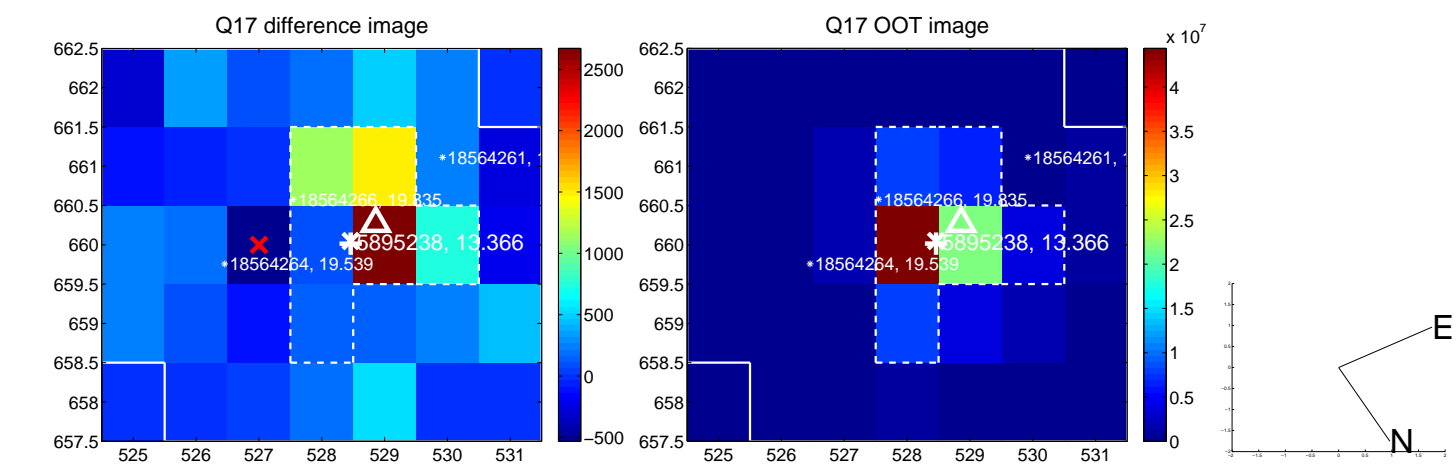


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

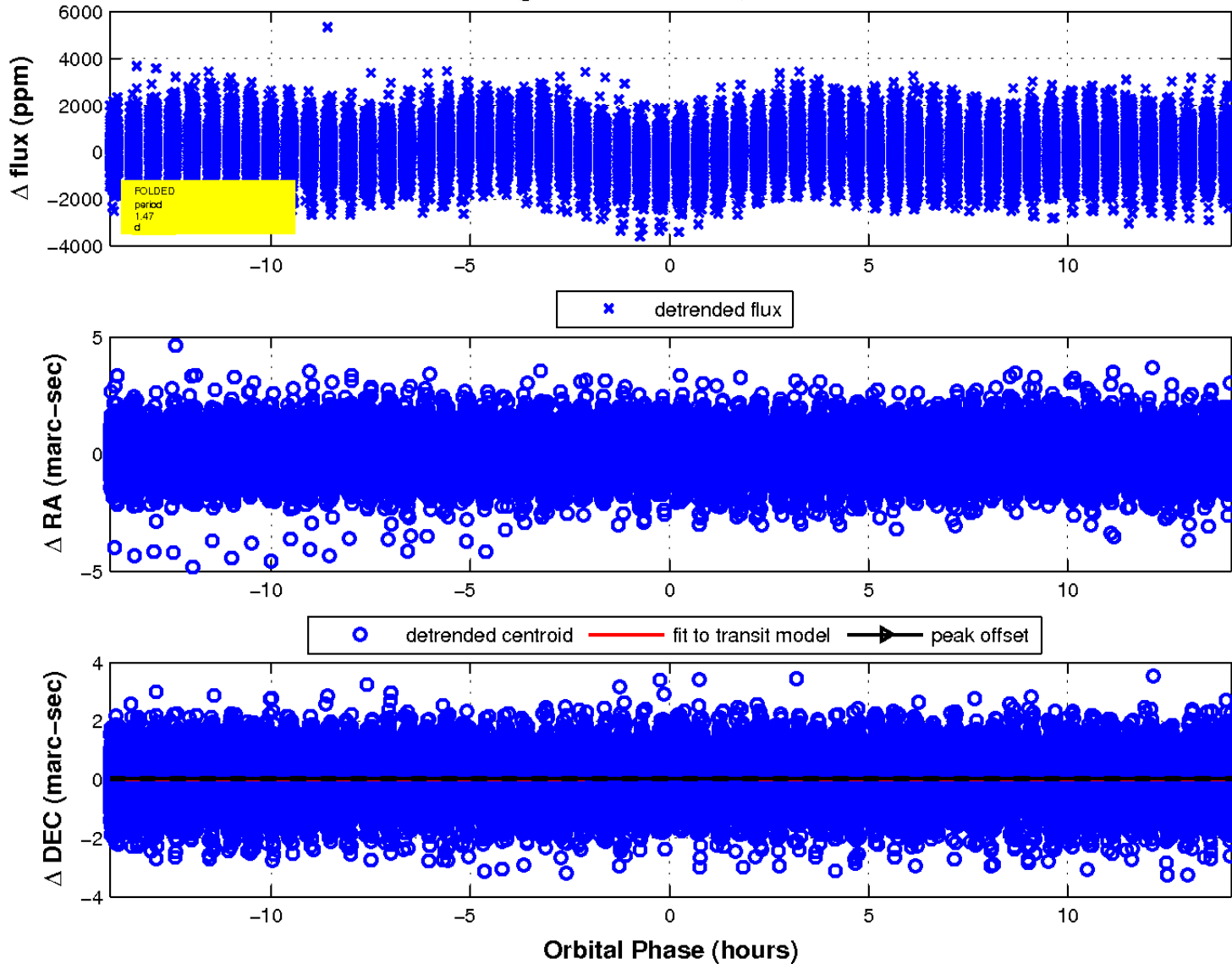




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

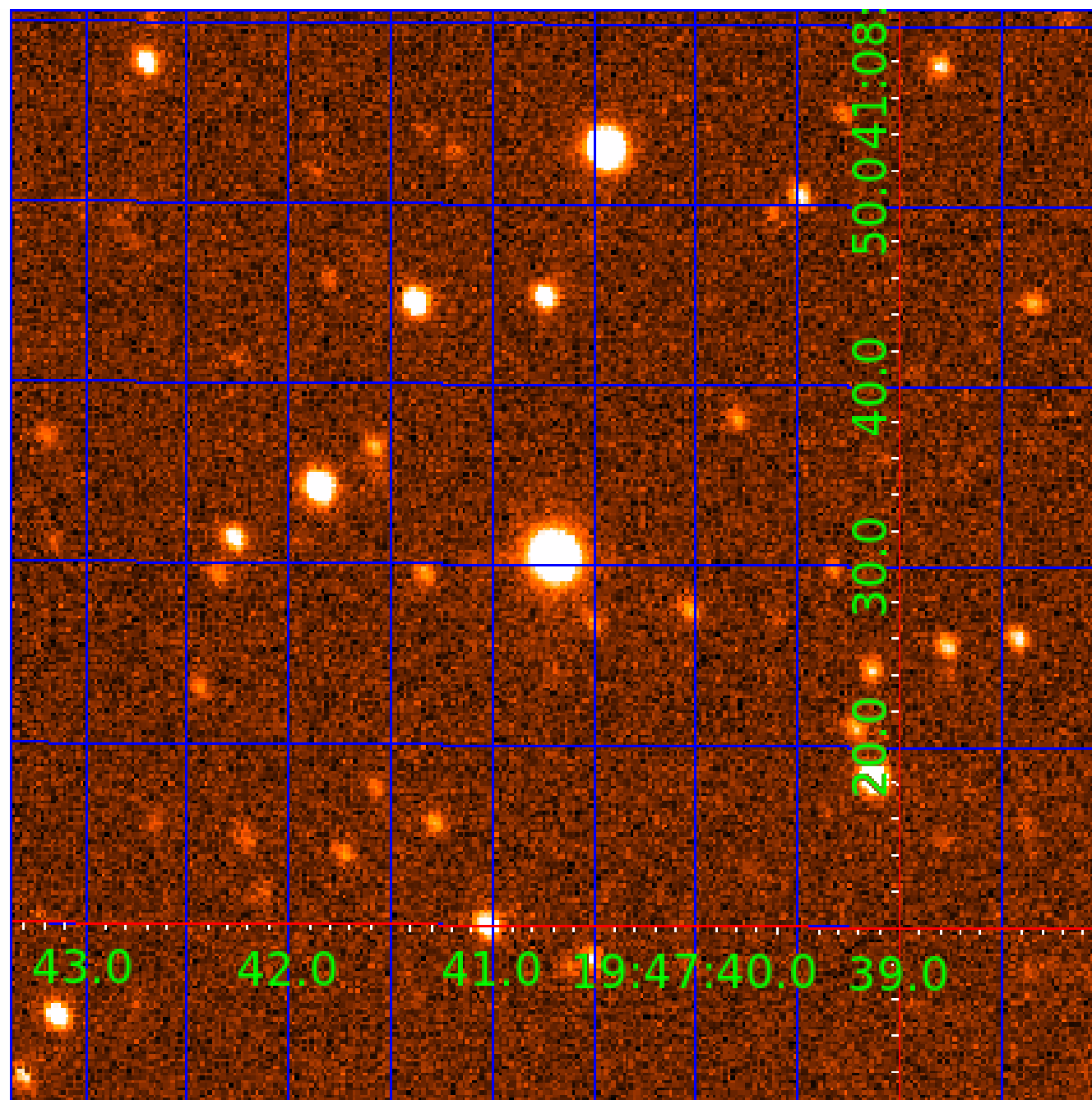


fluxWeightedCentroids, Planet 2 of 5



# UKIRT Image

Declination



# KIC 005895238

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005895238-01	OBS	No	5.002378	134.036259	53.5	1.610	9.9	3.9	1.89	7110	1.59	1957.60
005895238-02	OBS	No	1.471223	132.032379	102.0	4.706	9.6	10.5	1.89	7110	2.21	10008.94
005895238-03	OBS	No	1.471336	131.722484	218.6	5.917	9.2	13.3	1.89	7110	3.25	10007.92
005895238-04	OBS	No	448.670232	446.130586	1987.7	7.935	9.2	10.0	1.89	7110	14.79	4.88
005895238-05	OBS	No	25.749875	147.677345	238.8	5.000	9.6	-1.0	1.89	7110	2.96	220.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005895238-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
005895238-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005895238-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005895238-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES
005895238-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

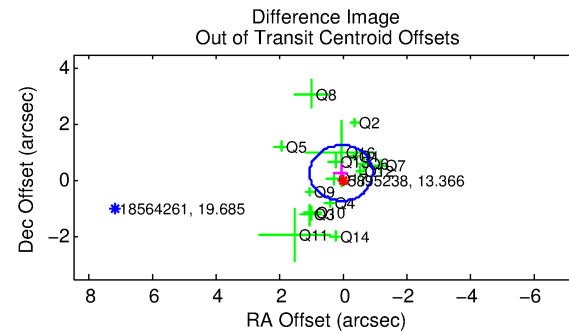
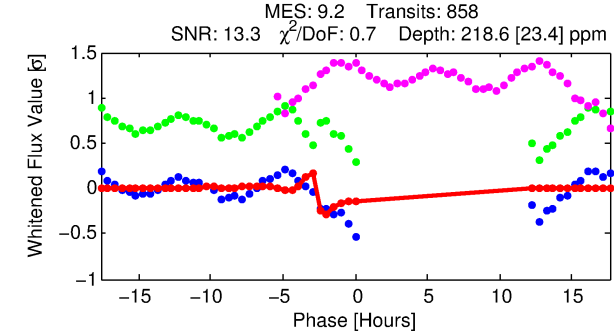
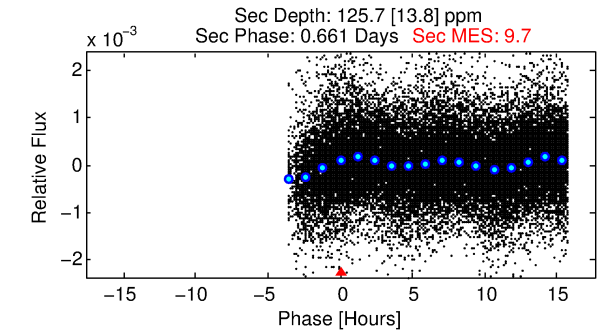
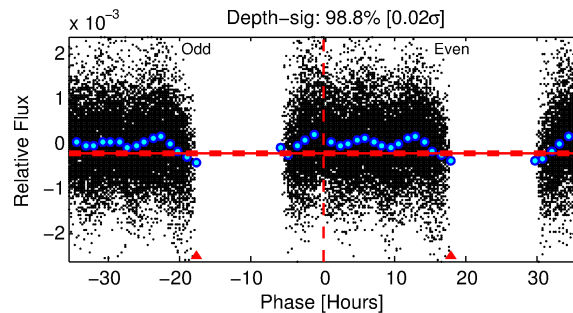
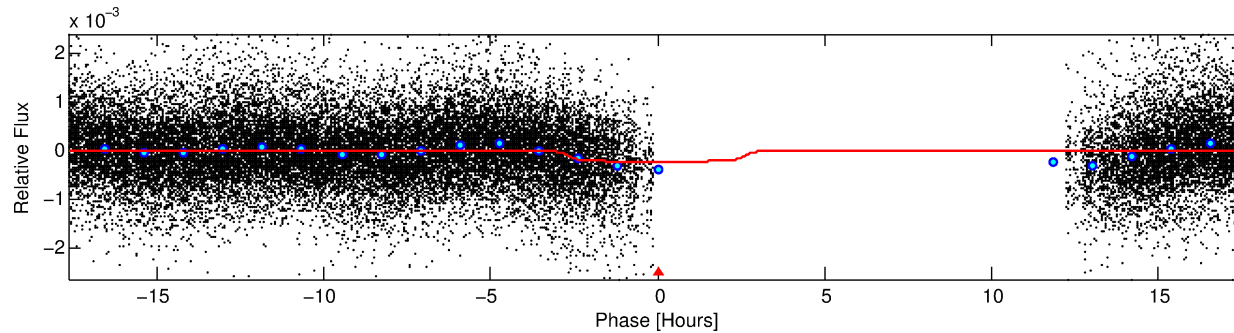
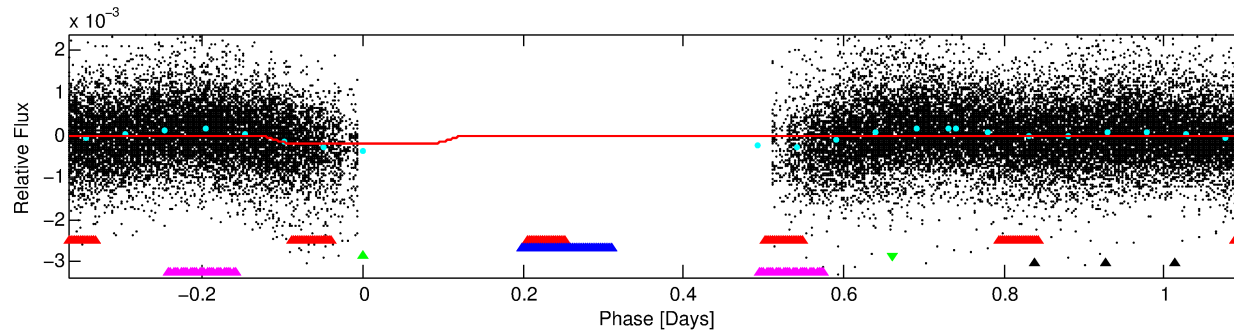
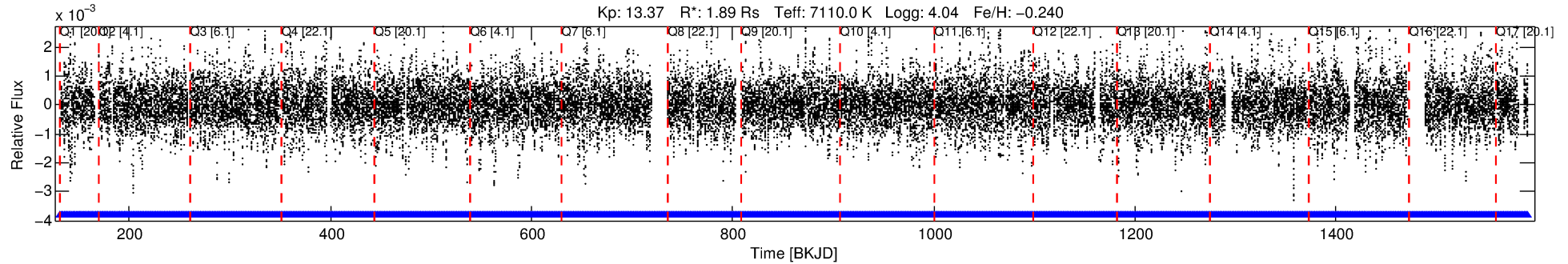
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005895238-03

No Significant Match Found

# DV One-Page Summary

KIC: 5895238 Candidate: 3 of 5 Period: 1.471 d



## DV Fit Results:

Period = 1.47134 [0.00001] d  
Epoch = 131.7225 [0.0154] BKJD  
Rp/R\* = 0.0157 [0.0014]  
a/R\* = 1.30 [0.19]  
b = 0.90 [0.11]  
Seff = 10007.92 [4444.70]  
Teq = 2550 [283] K  
Rp = 3.25 [0.98] Re  
Ag = 5.38 [2.45] [1.78σ]  
Teffp = 6005 [406] K [6.98σ]

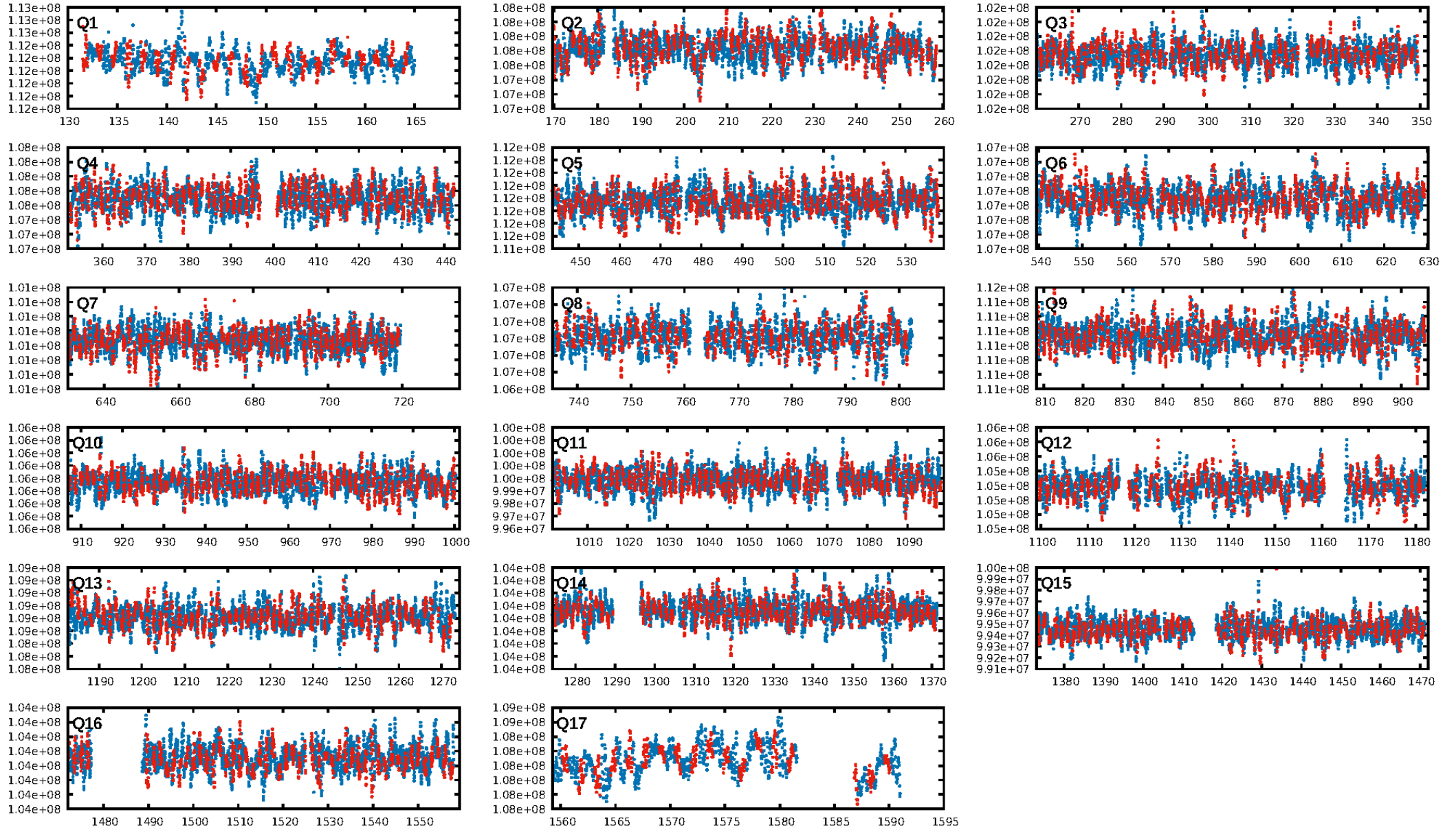
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [13.82σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [822/822]  
GhostDiagnostic-chr: 1.23  
Centroid-sig: N/A  
Centroid-so: 0.096 arcsec [0.91σ]  
OotOffset-rm: 0.282 arcsec [0.86σ]  
KicOffset-rm: 0.373 arcsec [1.10σ]  
OotOffset-st: 4/3/4/5 [16]  
KicOffset-st: 4/3/4/5 [16]  
DiffImageQuality-fgm: 0.44 [7/16]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:56:43 Z

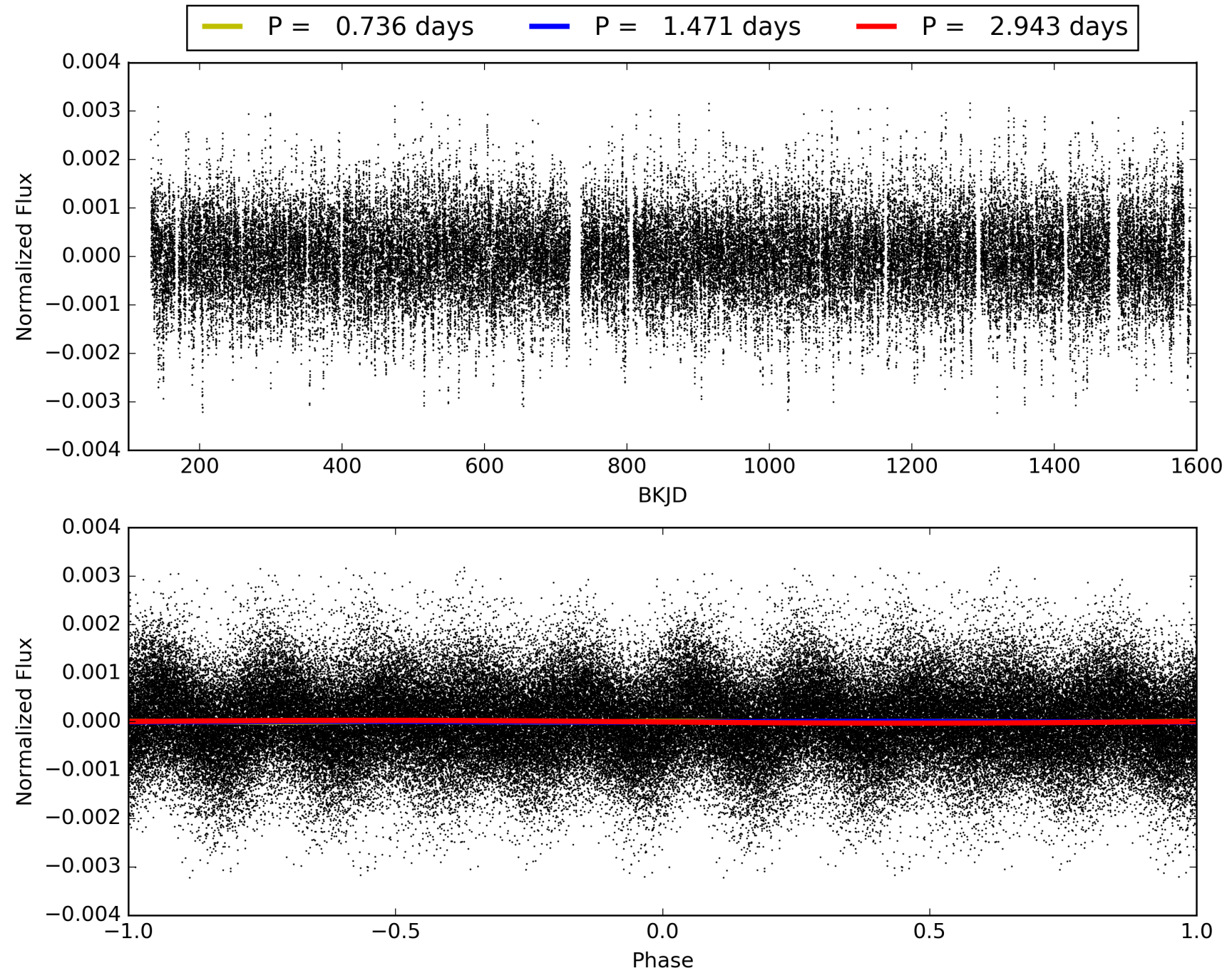
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005895238-03, PDC Light Curves





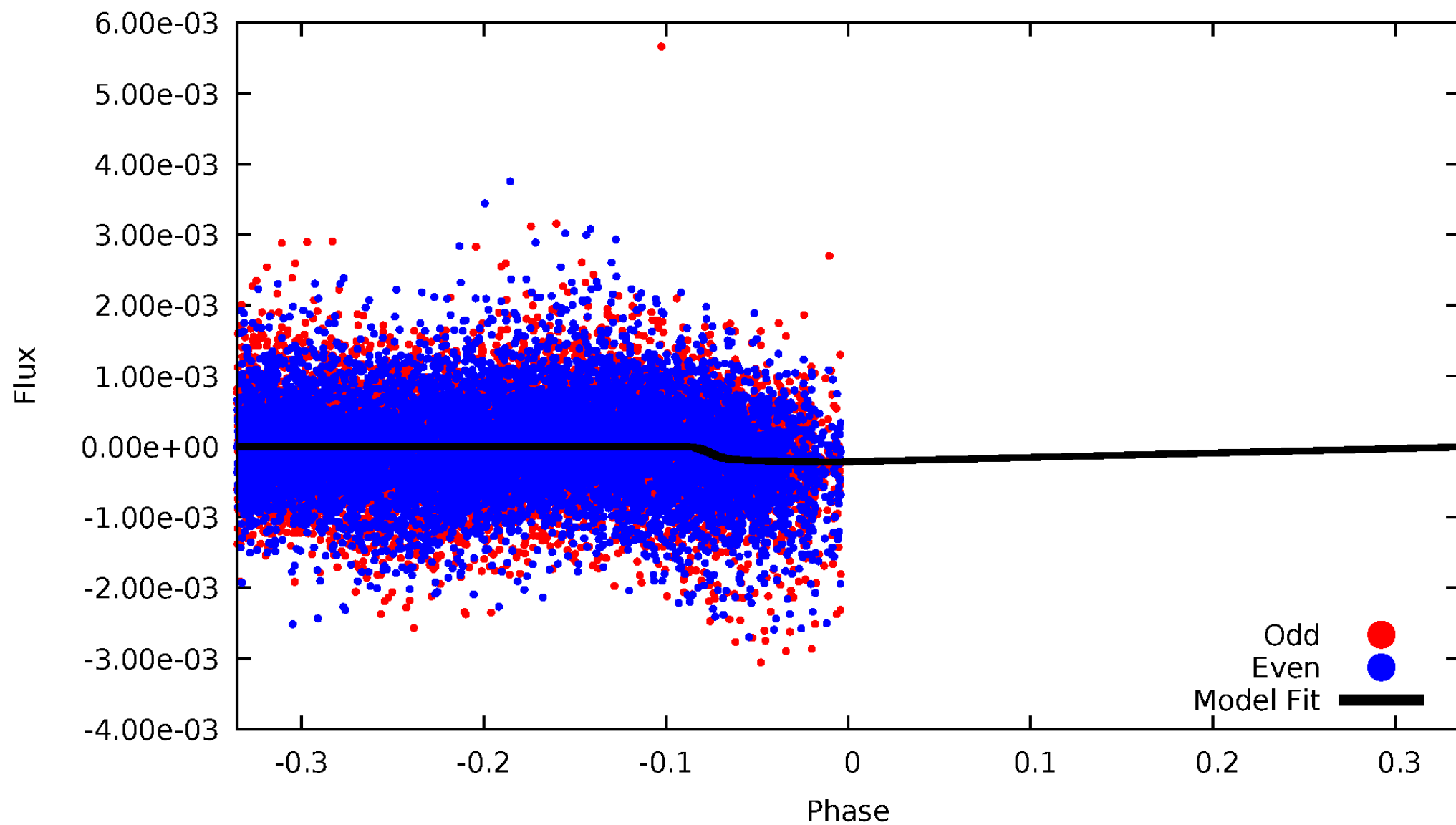
TCE 005895238-03





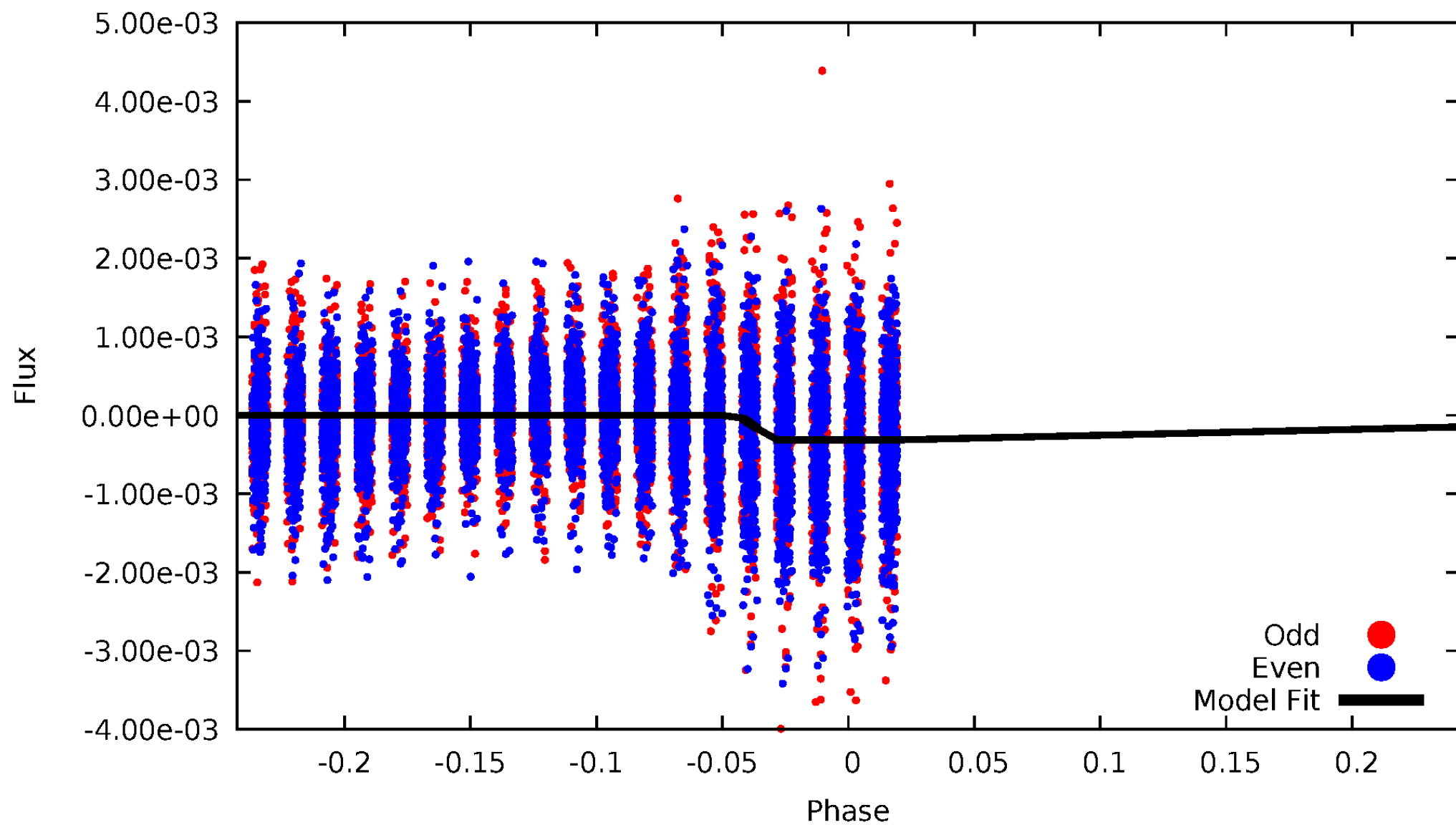
# DV Odd/Even

TCE 005895238-03

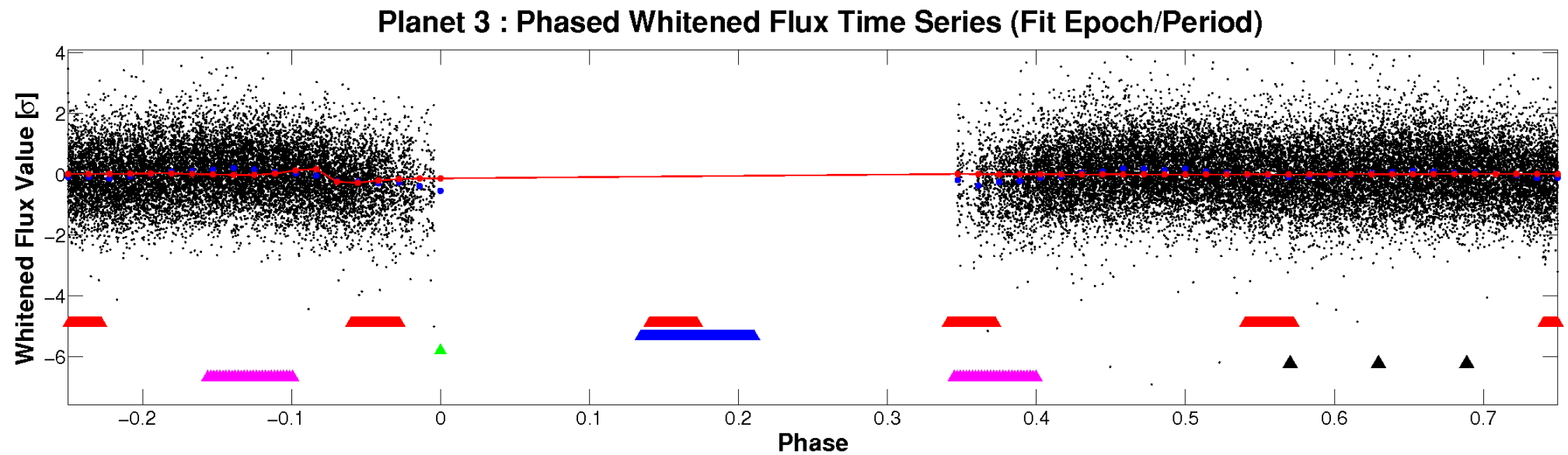
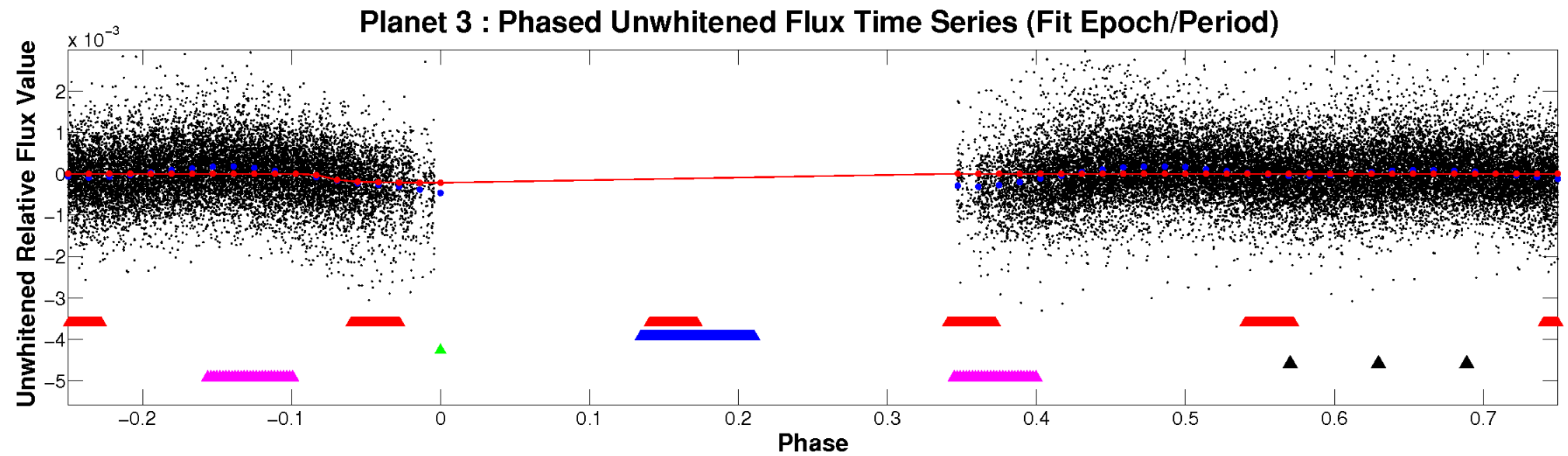


# ALT Odd/Even

TCE 005895238-03

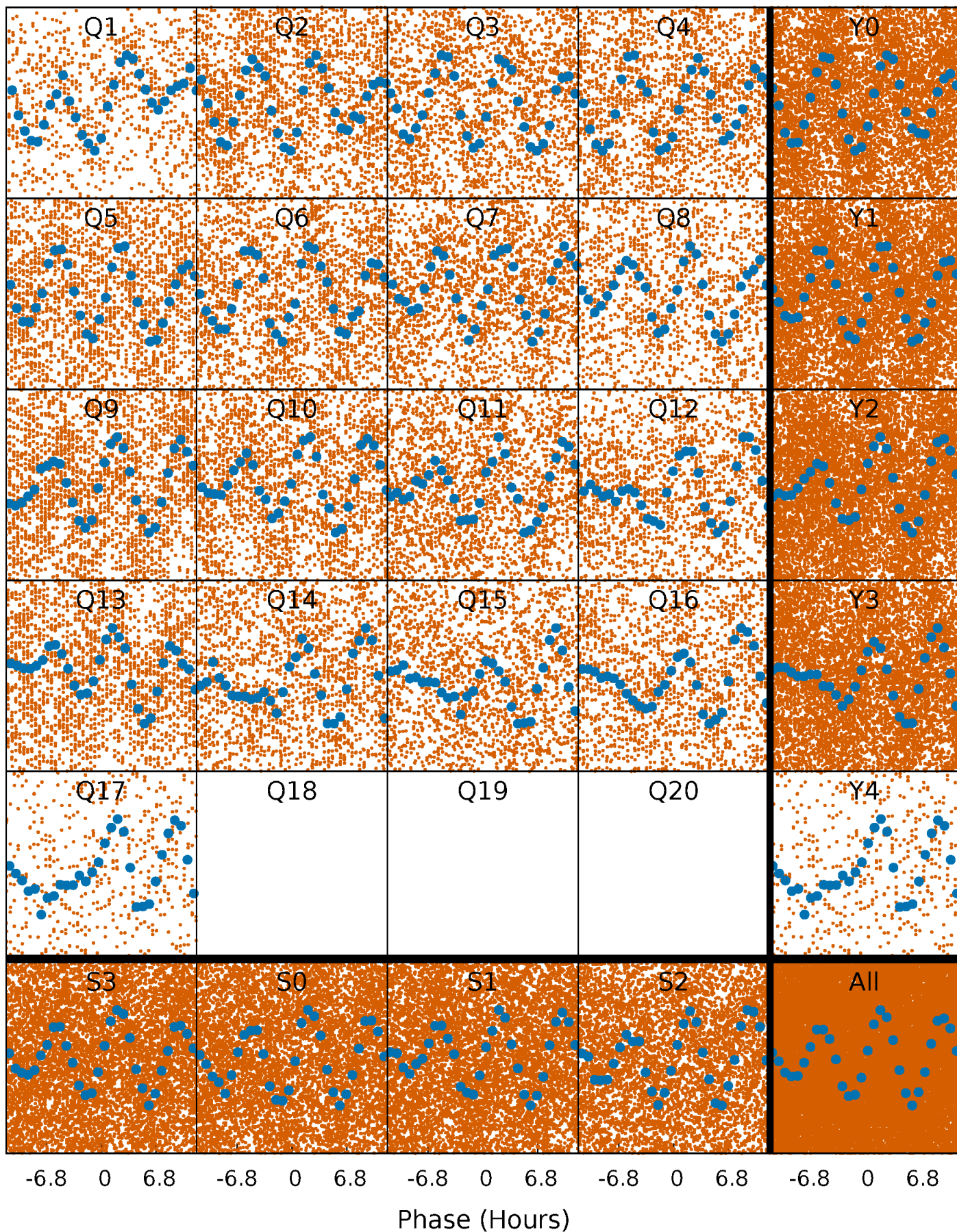


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

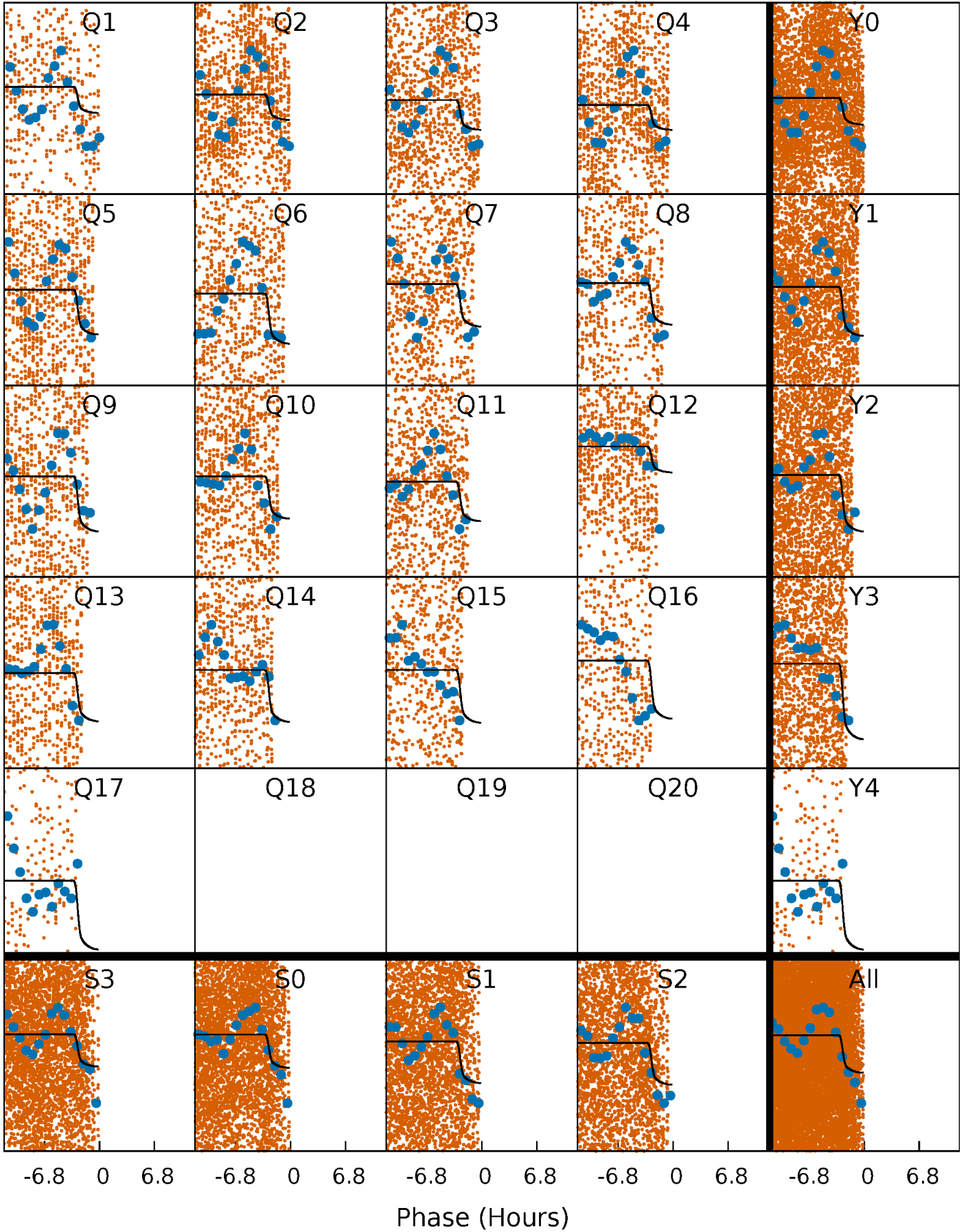
TCE 005895238-03   P= 1.471336 Days    $T_0=131.722484$  (BKJD)





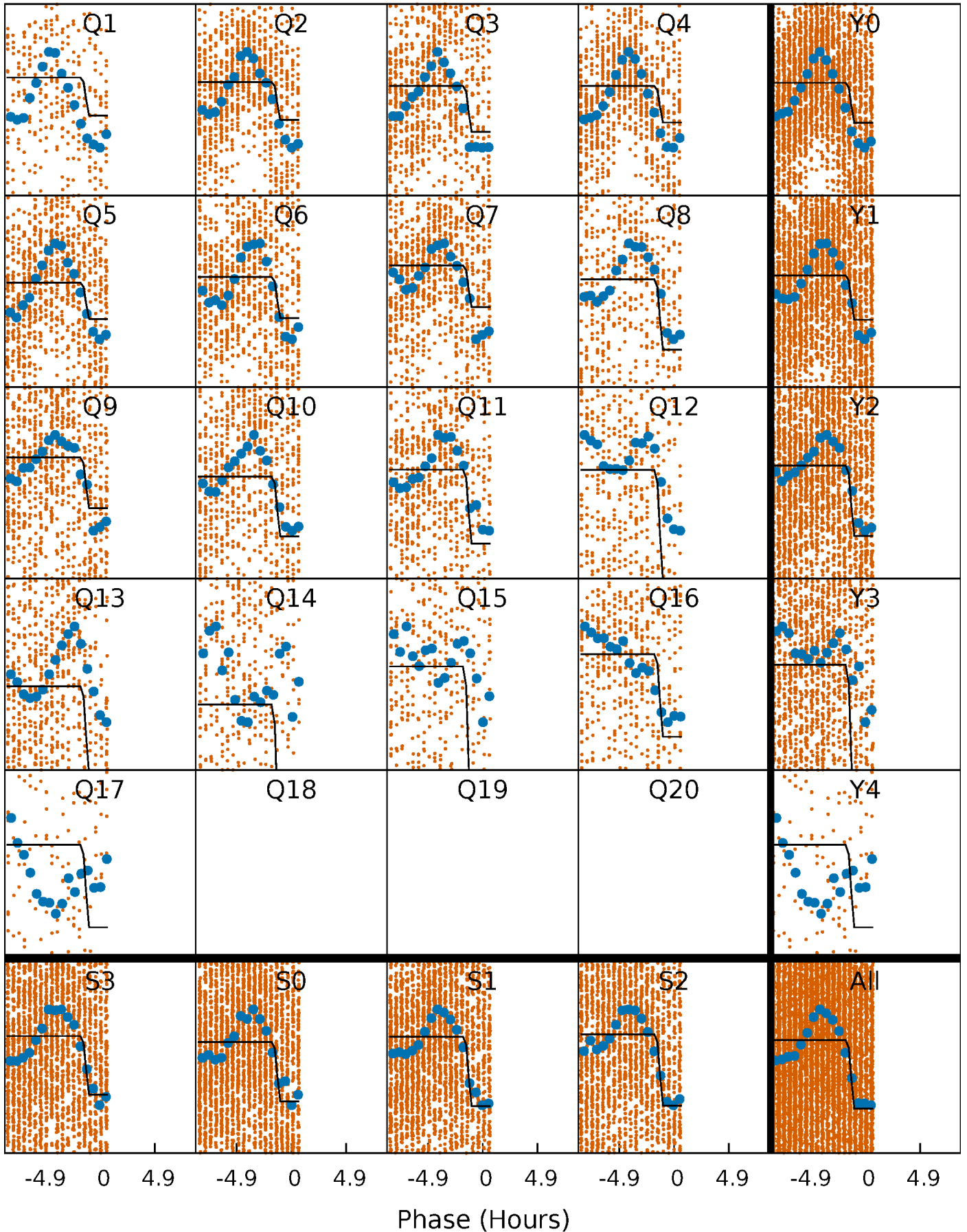
# DV Quarter-Phased Transit Curves

TCE 005895238-03   P= 1.471336 Days    $T_0=131.722484$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005895238-03     $P = 1.471214$  Days     $T_0 = 131.694364$  (BKJD)

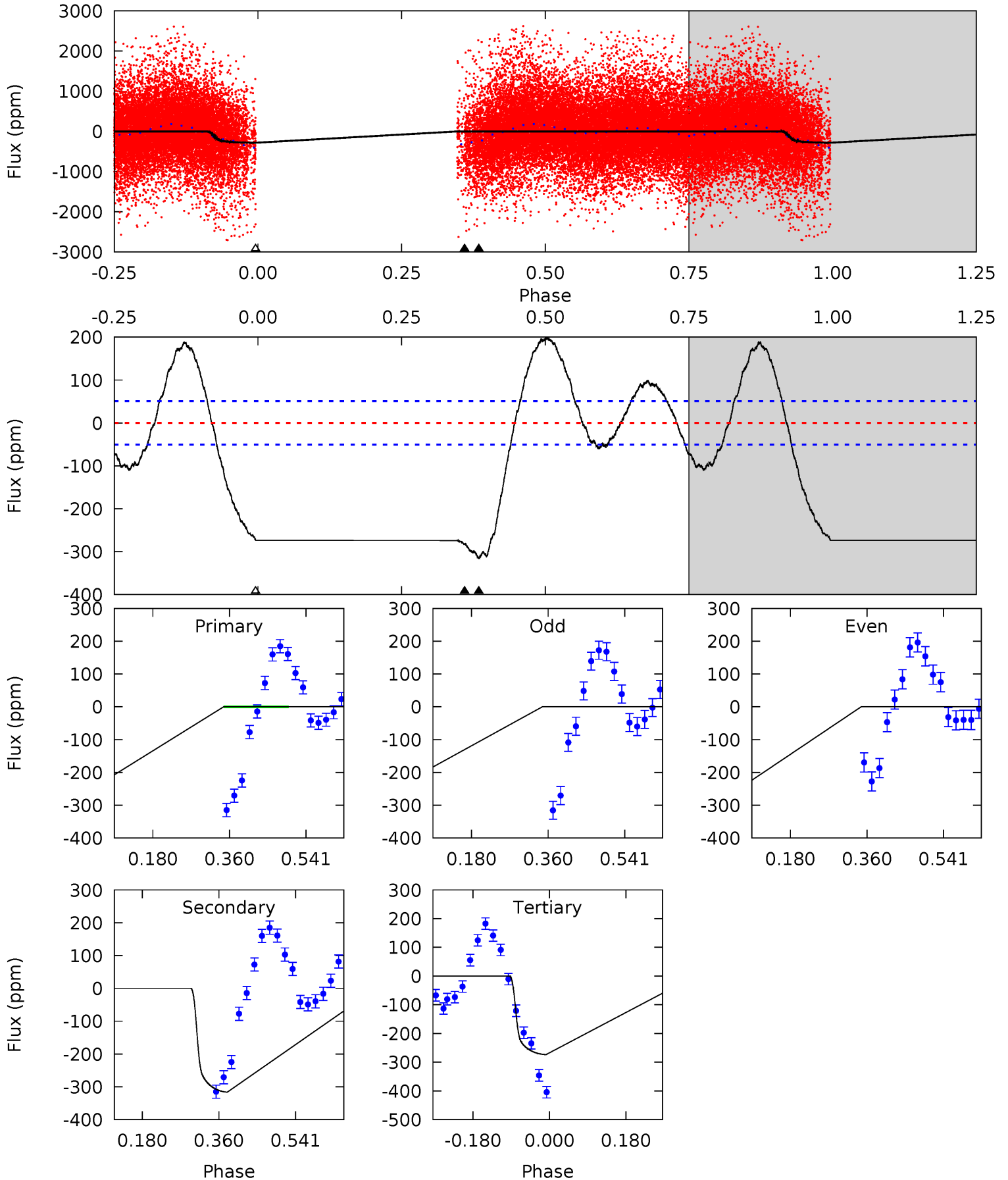




# DV Model-Shift Uniqueness Test

005895238-03, P = 1.471336 Days, E = 130.251148 Days

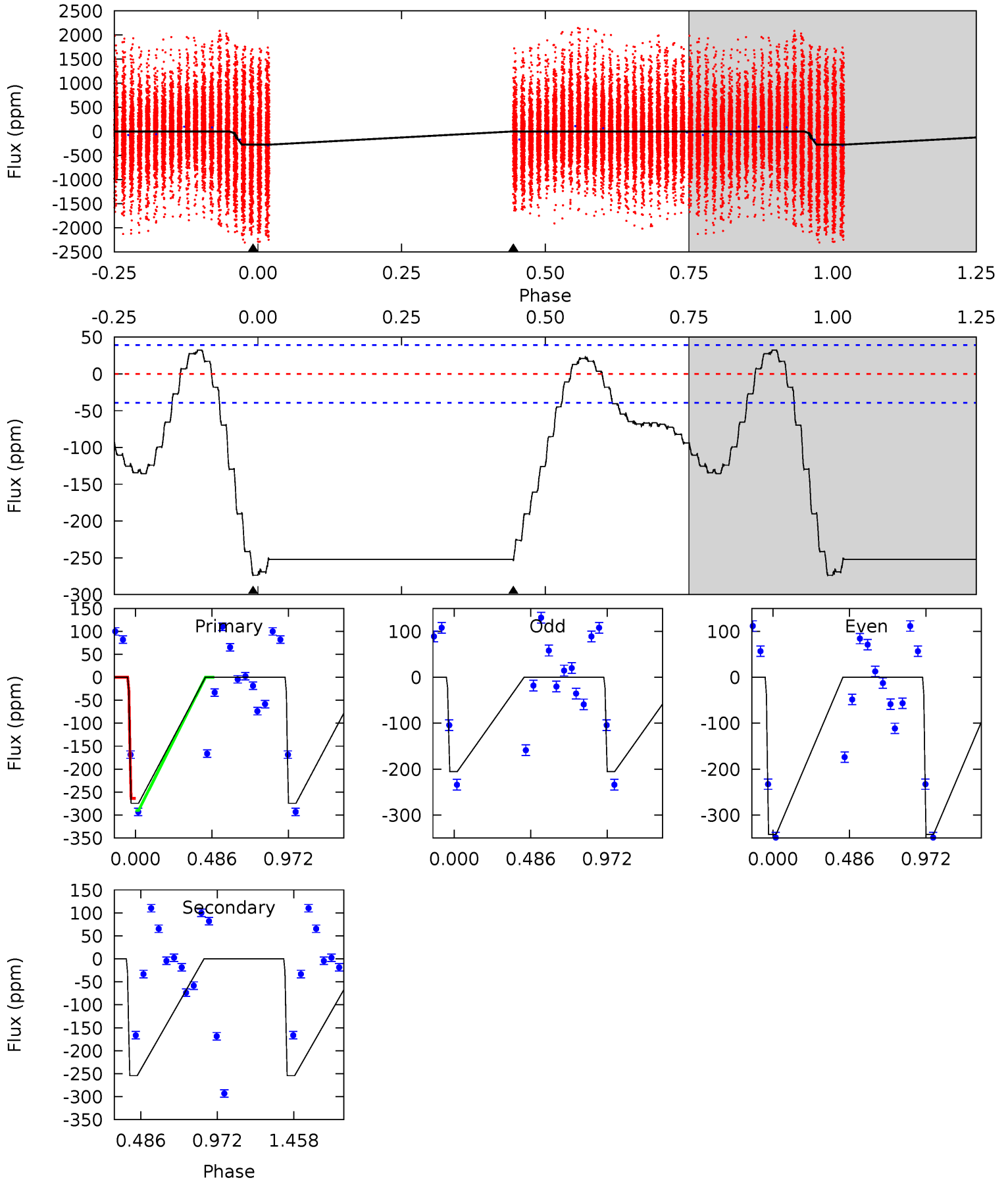
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.8	27.7	24.0	0	4.44	1.34	8.47	0.78	24.8	3.74	27.7	2.43	0	0.39	0



# Alt Model-Shift Uniqueness Test

005895238-03, P = 1.471214 Days, E = 130.223150 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
29.6	27.4	0	0	4.22	0.70	5.11	29.6	29.6	27.4	27.4	6.96	1.02	0.11	1.10



### Stellar Parameters For KIC 005895238

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7110^{+199}_{-313}$	$4.044^{+0.234}_{-0.156}$	$-0.240^{+0.300}_{-0.300}$	$1.894^{+0.548}_{-0.548}$	$1.447^{+0.218}_{-0.267}$	$0.300^{+0.381}_{-0.148}$
	+3%/-4%	+6%/-4%	+125%/-125%	+29%/-29%	+15%/-18%	+127%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005895238-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-316 \pm 11$	$3.15^{+0.59}_{-0.51}$	$3524^{+260}_{-295}$	$7581^{+512}_{-480}$	$14^{+6}_{-4}$
Alt.	$-254 \pm 9$	$3.59^{+0.65}_{-0.56}$	$3518^{+260}_{-274}$	$6614^{+369}_{-369}$	$8.901^{+3.331}_{-2.463}$

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

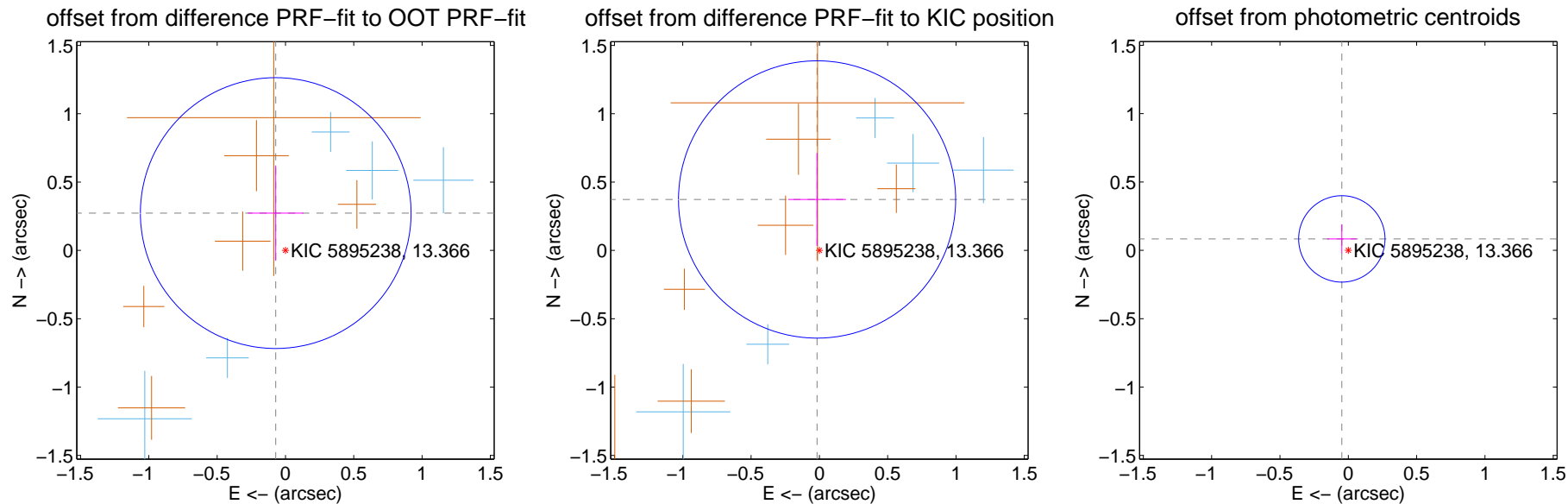
## DV Centroid Data

Supplemental centroid analysis for 005895238-03. Kepler magnitude: 13.37. Transit SNR 13.26

There are 7 quarters with good PRF difference image offsets

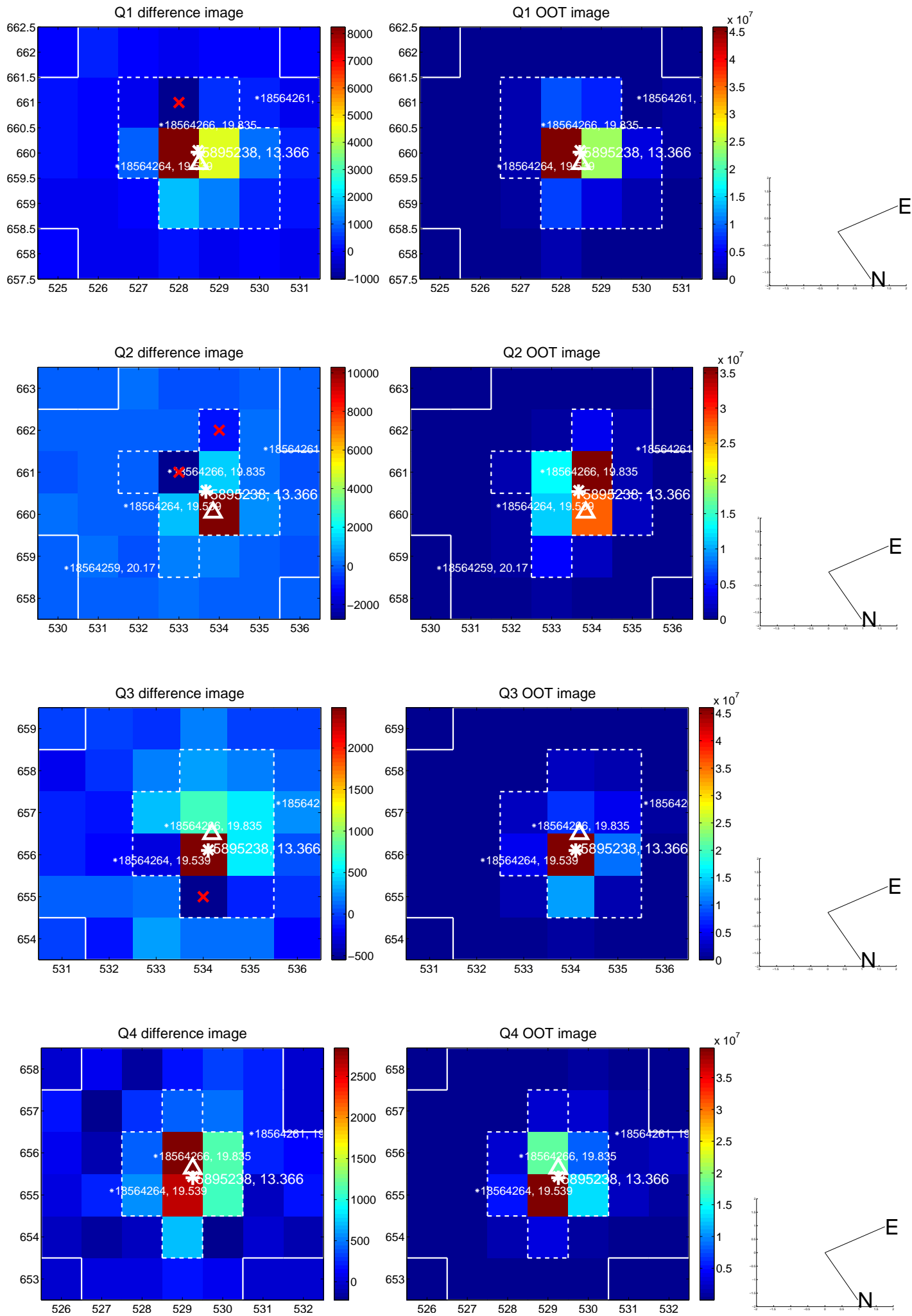
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.282 \pm 0.330$	0.86	$0.071 \pm 0.203$	$0.273 \pm 0.349$
PRF-fit source offset from KIC position	$0.373 \pm 0.338$	1.10	$0.017 \pm 0.212$	$0.373 \pm 0.340$
photometric centroid source offset	$0.10 \pm 0.11$	0.91	$0.05 \pm 0.11$	$0.08 \pm 0.10$



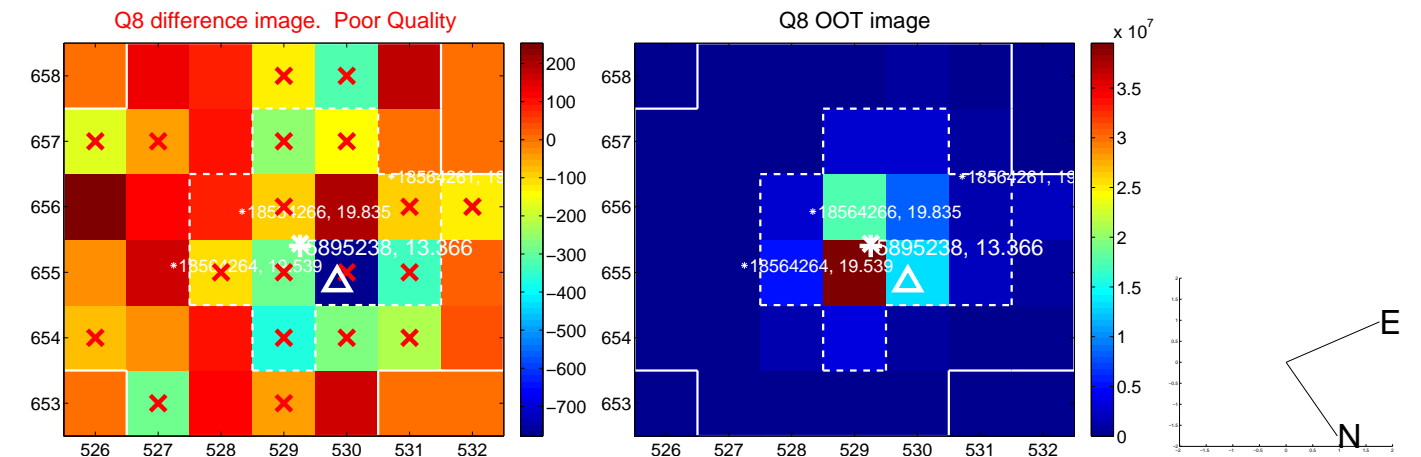
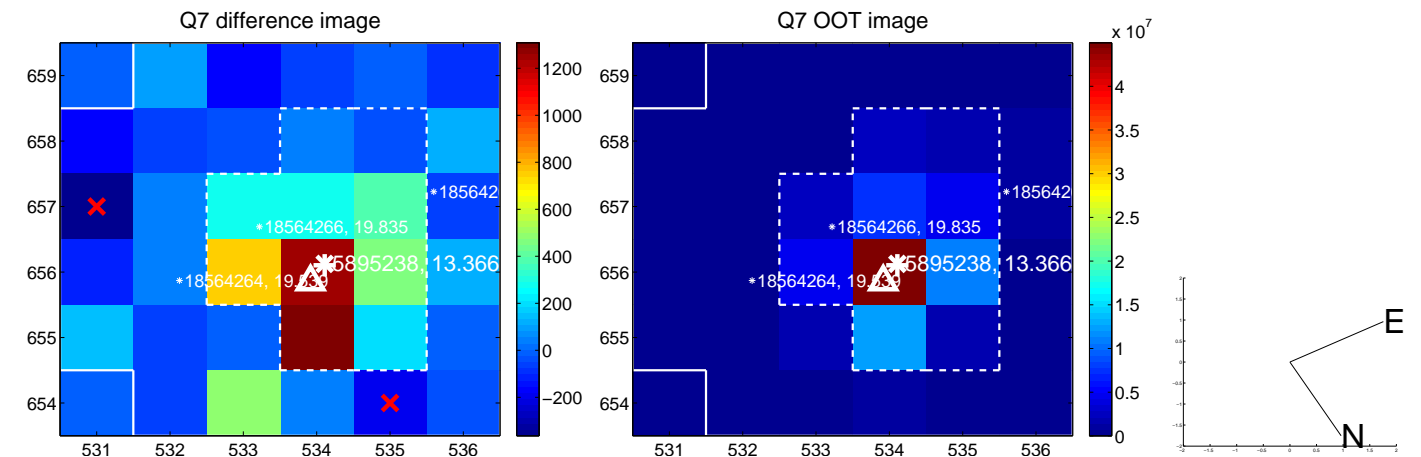
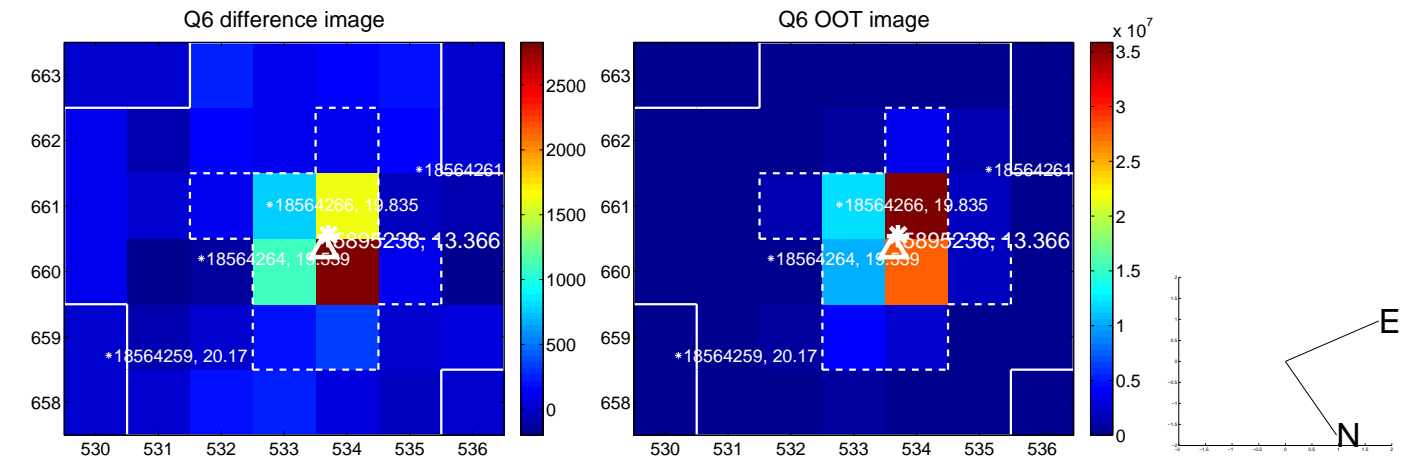
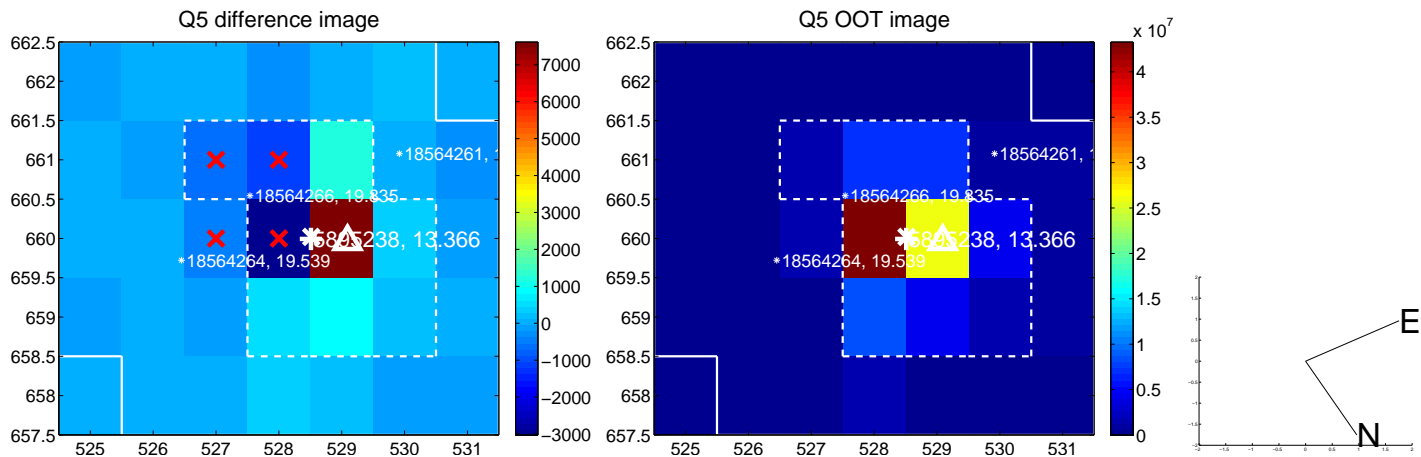
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

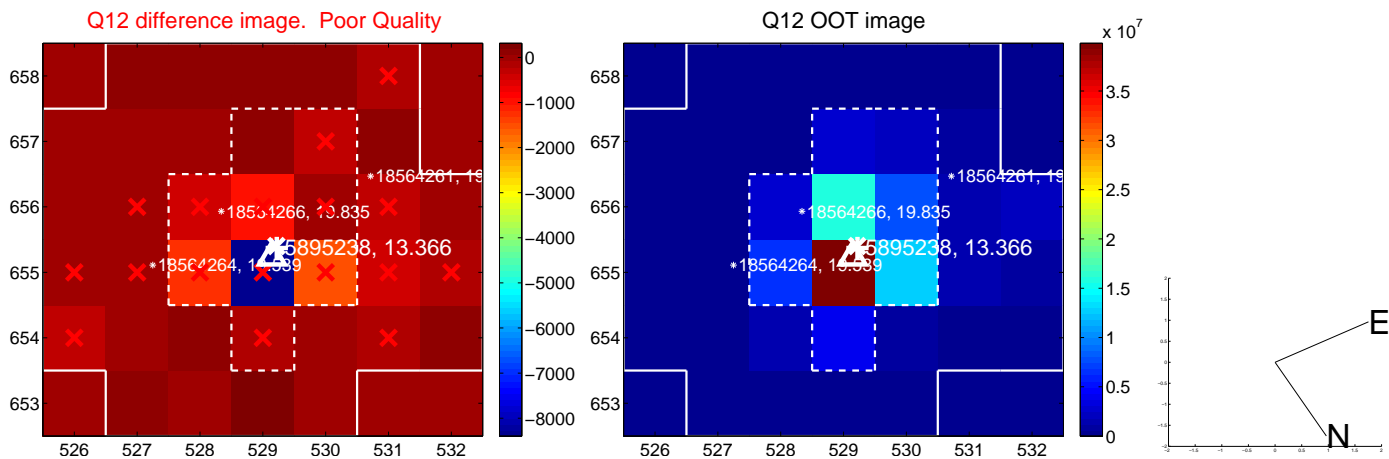
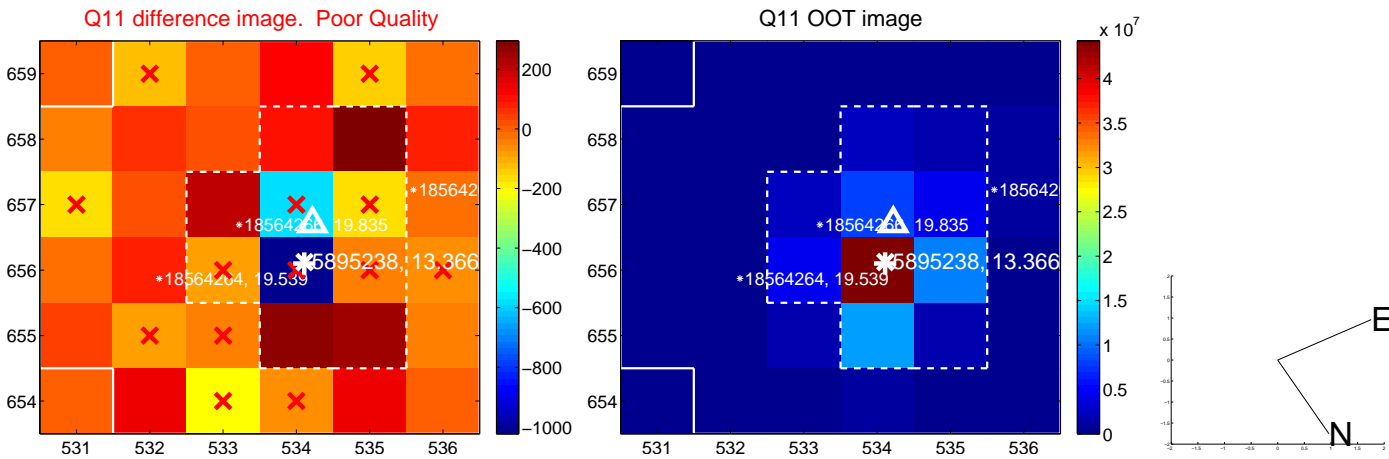
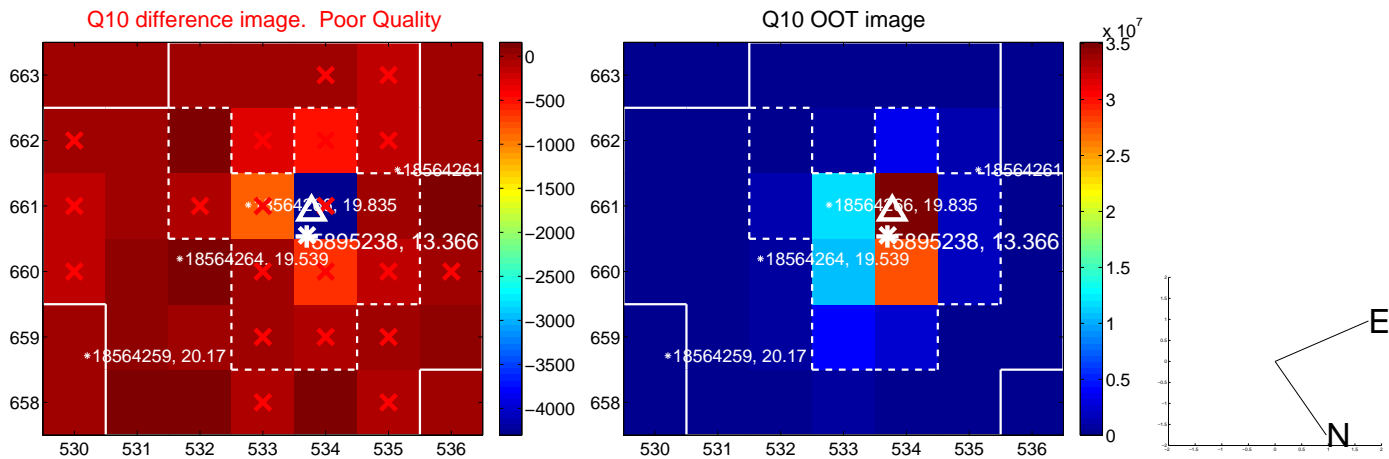
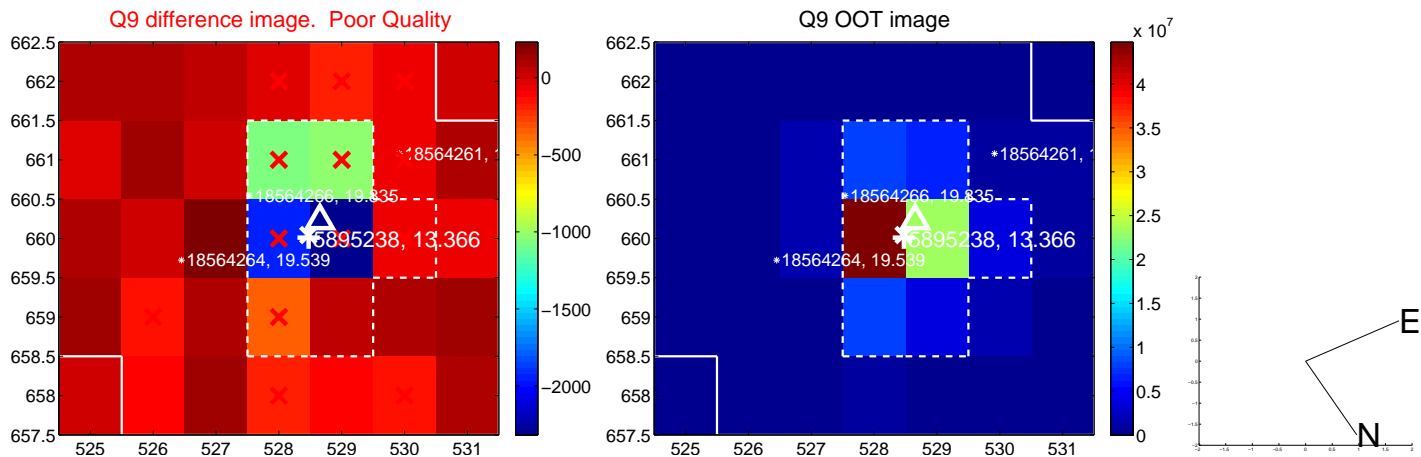




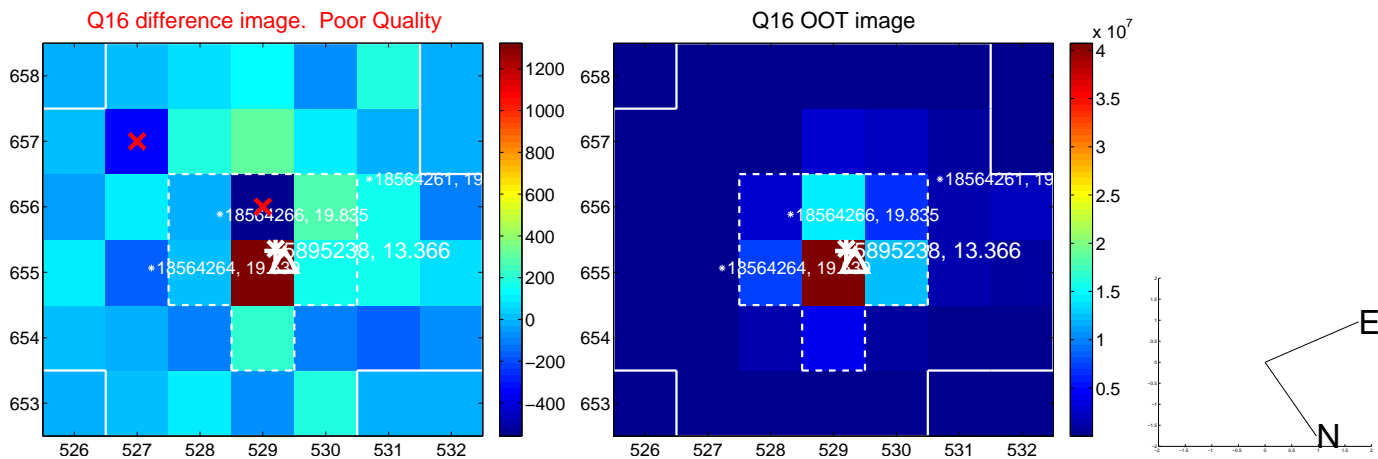
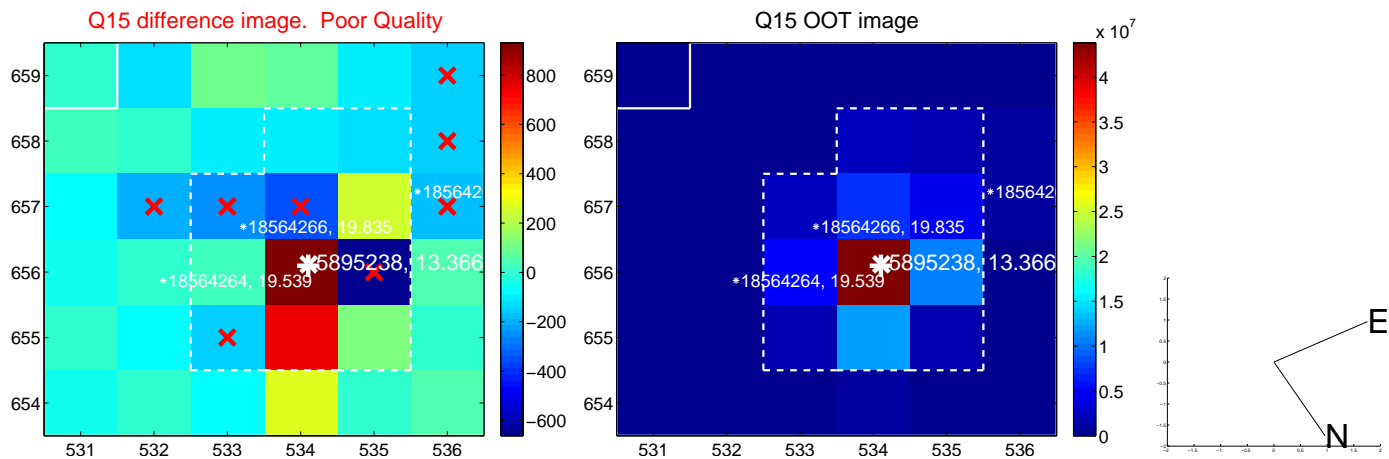
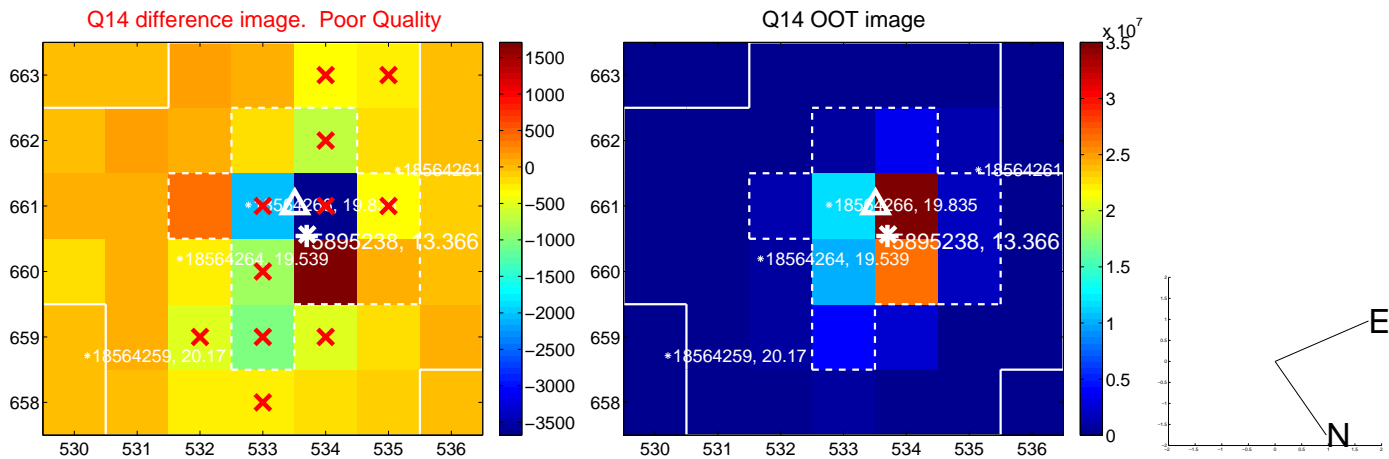
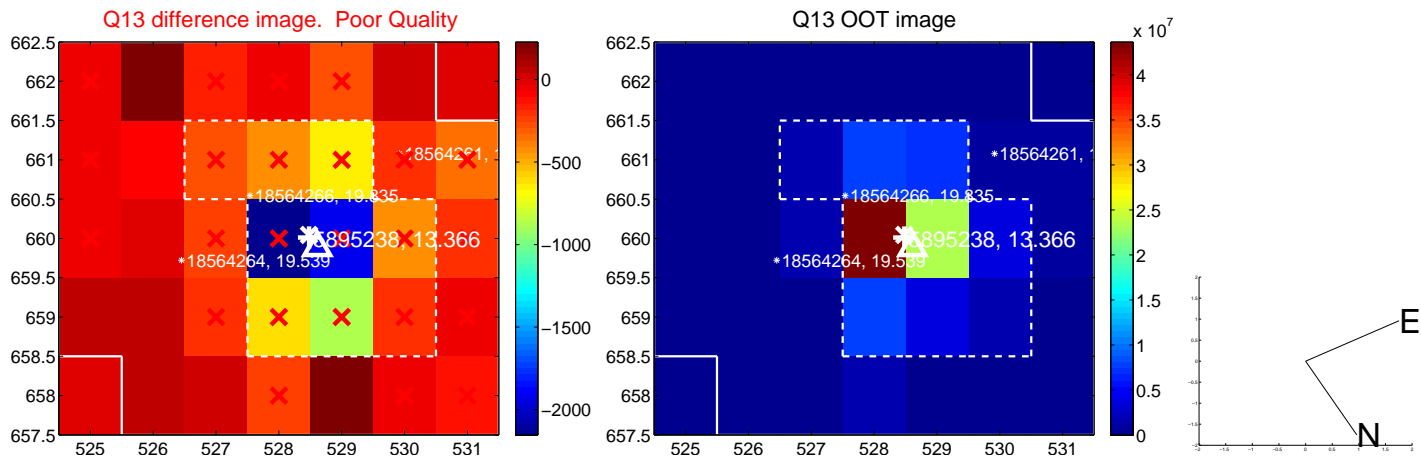
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



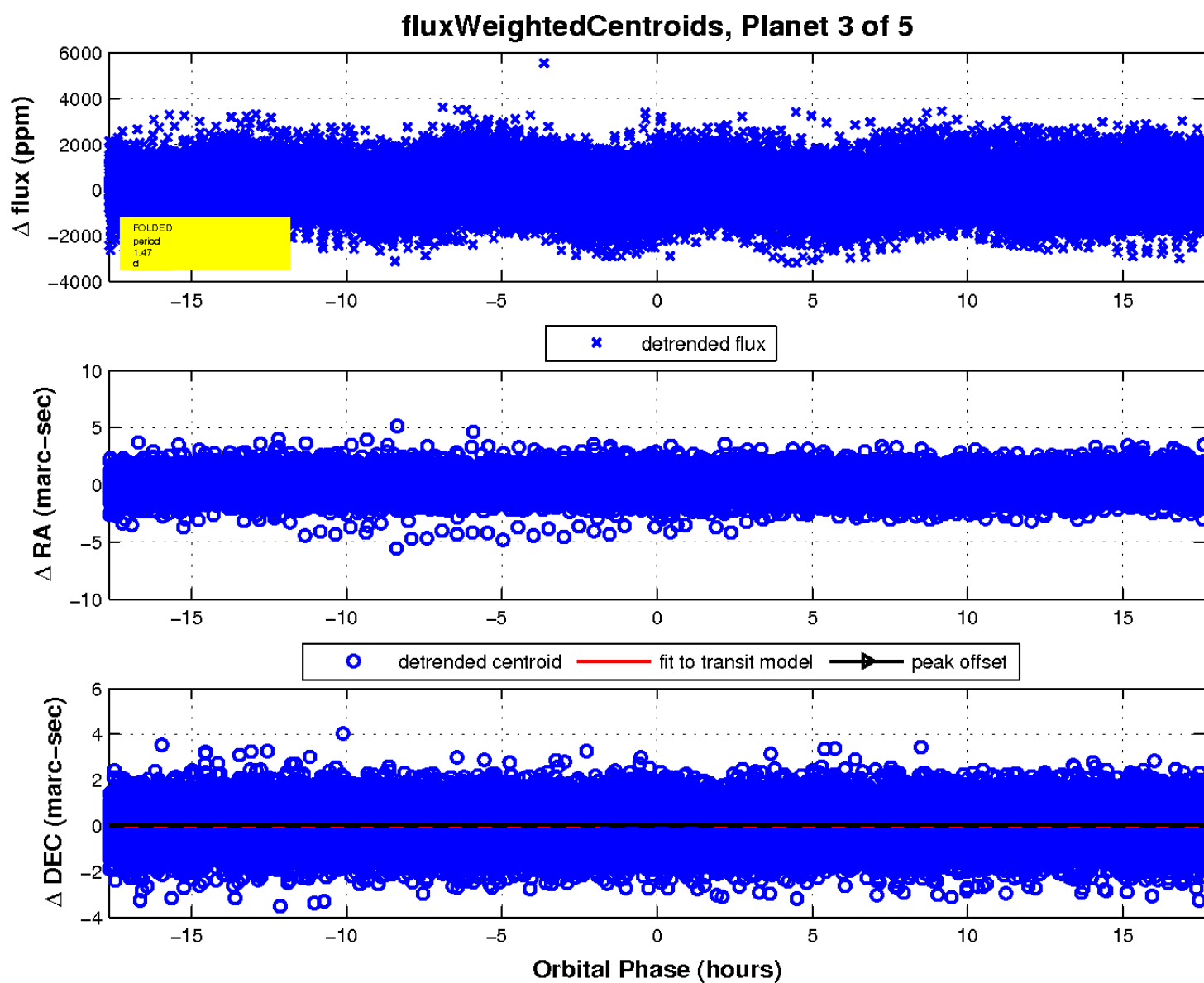
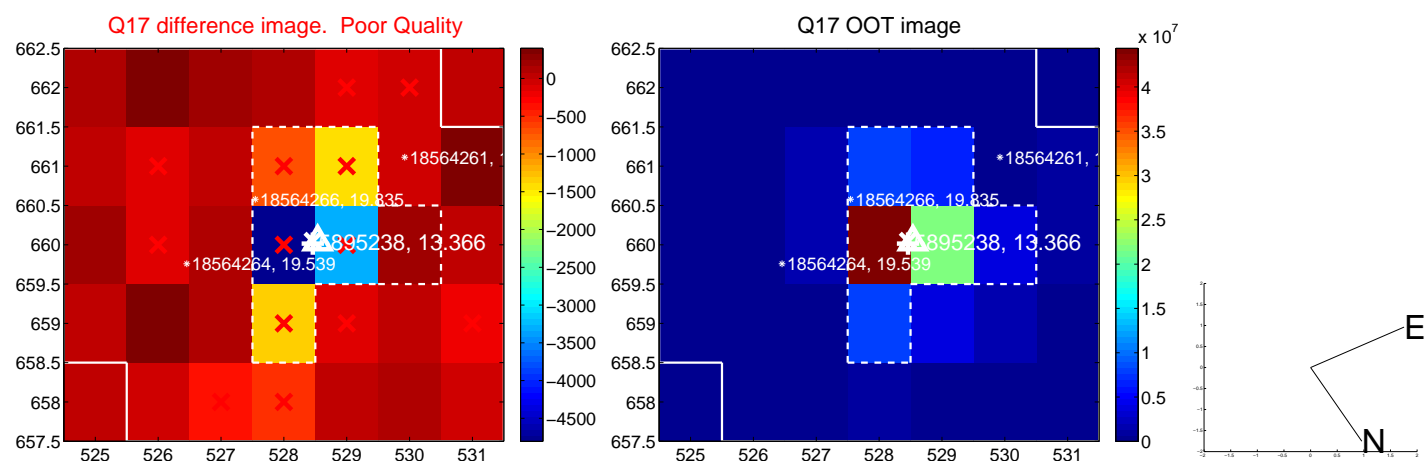
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

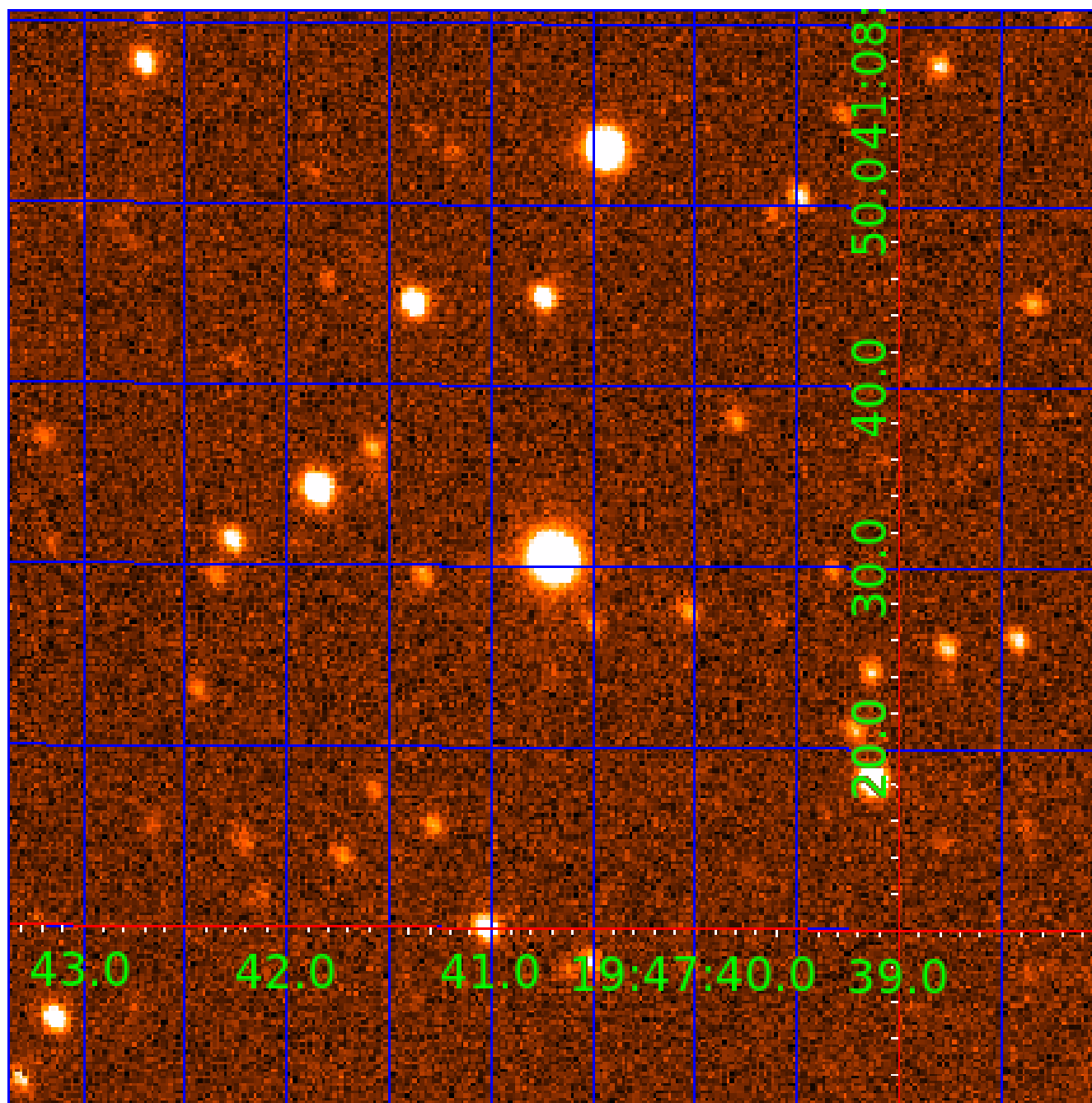


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination





# KIC 005895238

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005895238-01	OBS	No	5.002378	134.036259	53.5	1.610	9.9	3.9	1.89	7110	1.59	1957.60
005895238-02	OBS	No	1.471223	132.032379	102.0	4.706	9.6	10.5	1.89	7110	2.21	10008.94
005895238-03	OBS	No	1.471336	131.722484	218.6	5.917	9.2	13.3	1.89	7110	3.25	10007.92
005895238-04	OBS	No	448.670232	446.130586	1987.7	7.935	9.2	10.0	1.89	7110	14.79	4.88
005895238-05	OBS	No	25.749875	147.677345	238.8	5.000	9.6	-1.0	1.89	7110	2.96	220.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005895238-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
005895238-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005895238-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005895238-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES
005895238-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

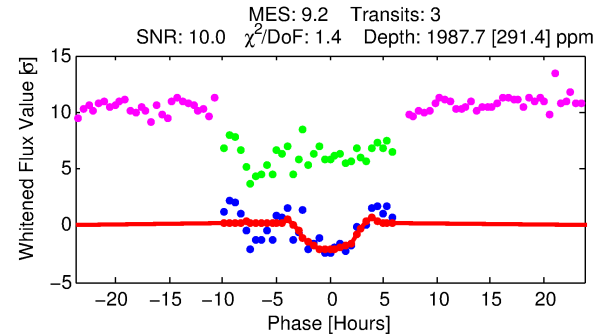
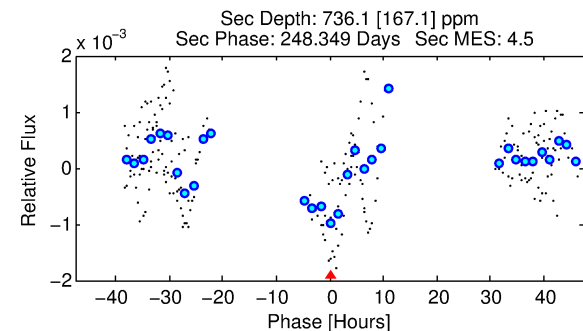
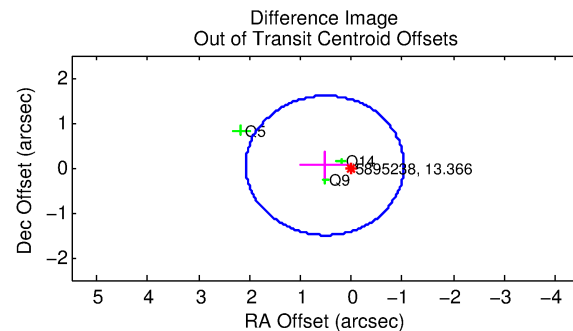
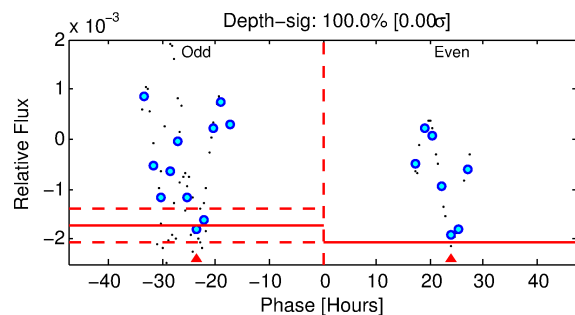
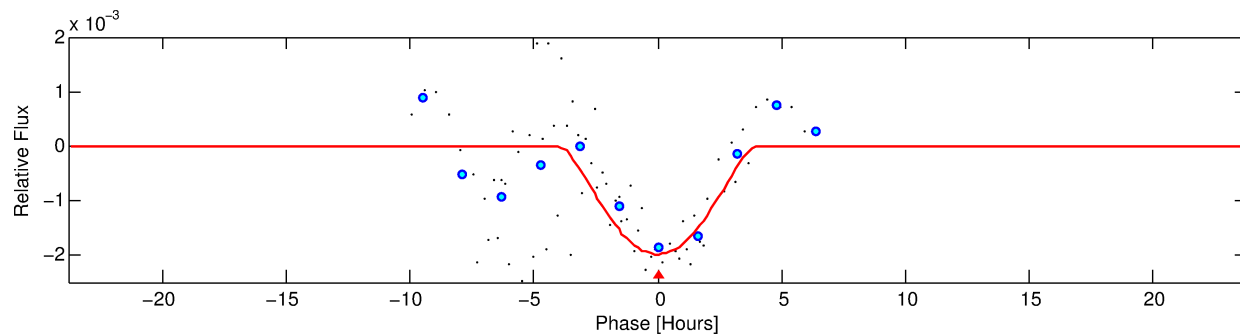
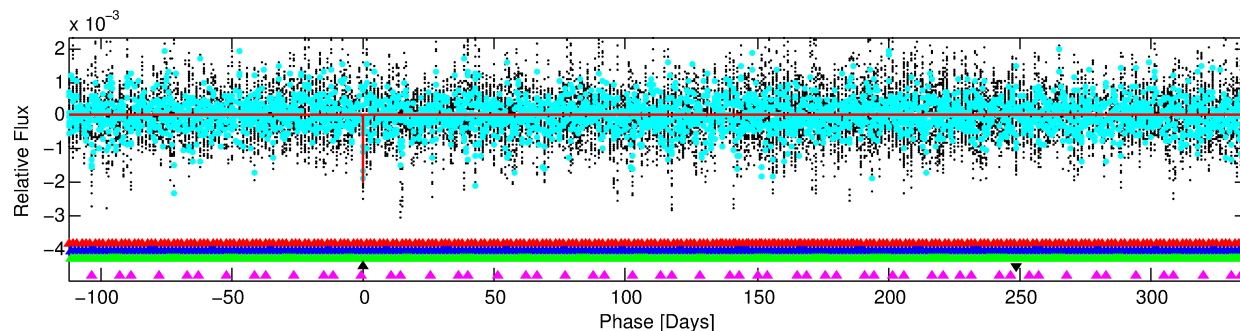
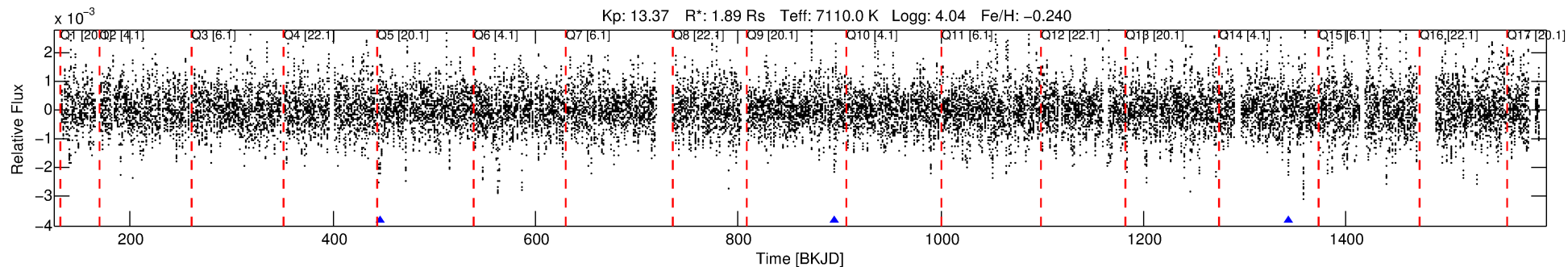
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005895238-04

No Significant Match Found

# DV One-Page Summary

KIC: 5895238 Candidate: 4 of 5 Period: 448.670 d



## DV Fit Results:

Period = 448.67023 [0.01488] d  
Epoch = 446.1306 [0.0225] BKJD  
Rp/R\* = 0.0715 [0.1570]  
a/R\* = 171.41 [84.28]  
b = 1.00 [0.24]  
Seff = 4.88 [2.17]  
Teq = 379 [42] K  
Rp = 14.79 [32.73] Re  
a = 1.2979 [0.3421] AU  
Ag = 3119.90 [13771.82] [0.23 $\sigma$ ]  
Teff = 4378 [4815] K [0.83 $\sigma$ ]

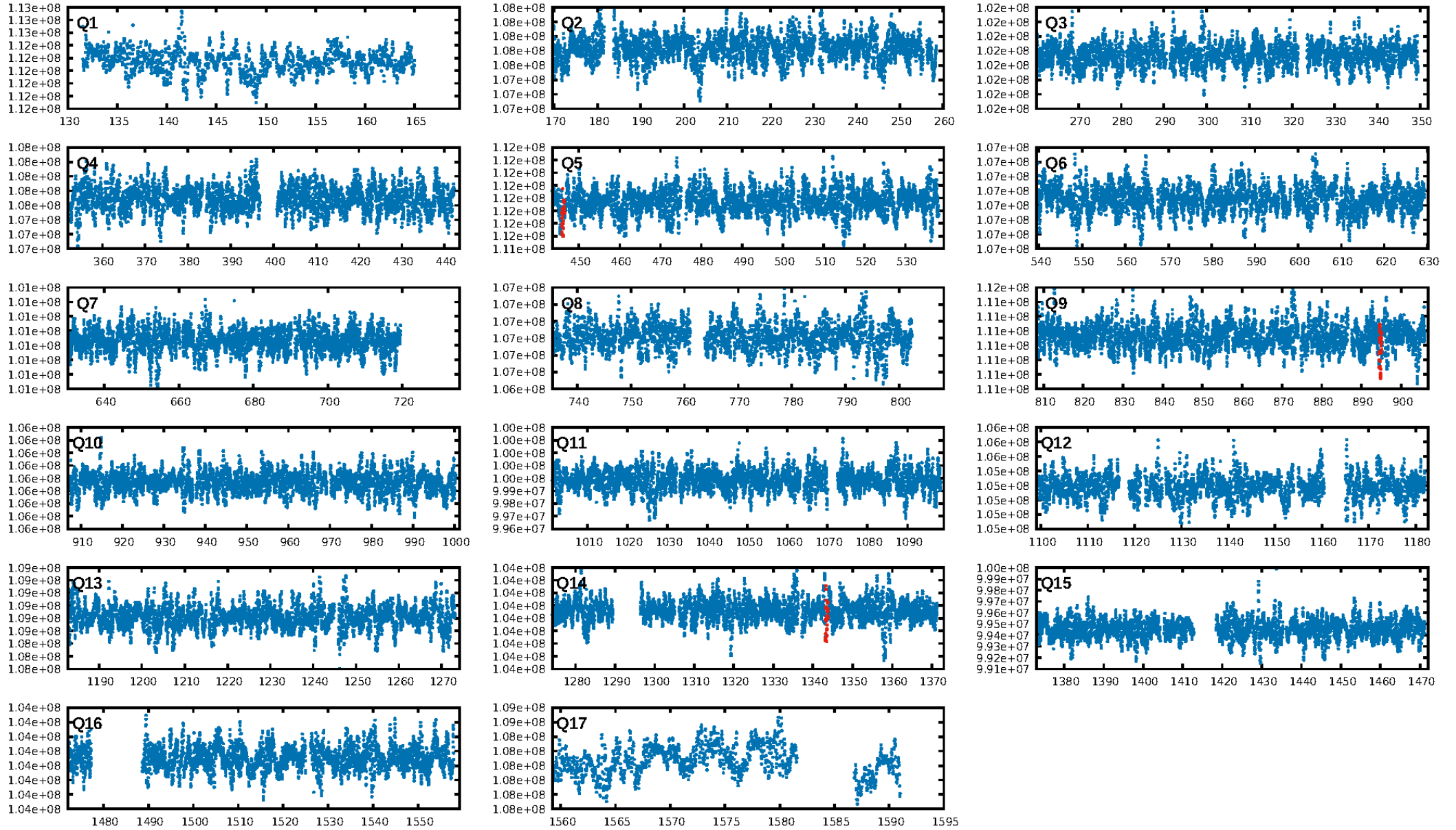
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1082.21 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 96.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.594  
Centroid-sig: N/A  
Centroid-so: 0.206 arcsec [0.89 $\sigma$ ]  
OotOffset-rm: 0.520 arcsec [1.00 $\sigma$ ]  
KicOffset-rm: 0.470 arcsec [1.03 $\sigma$ ]  
OotOffset-st: 1/0/0/2 [3]  
KicOffset-st: 1/0/0/2 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 0.00 [0/3]

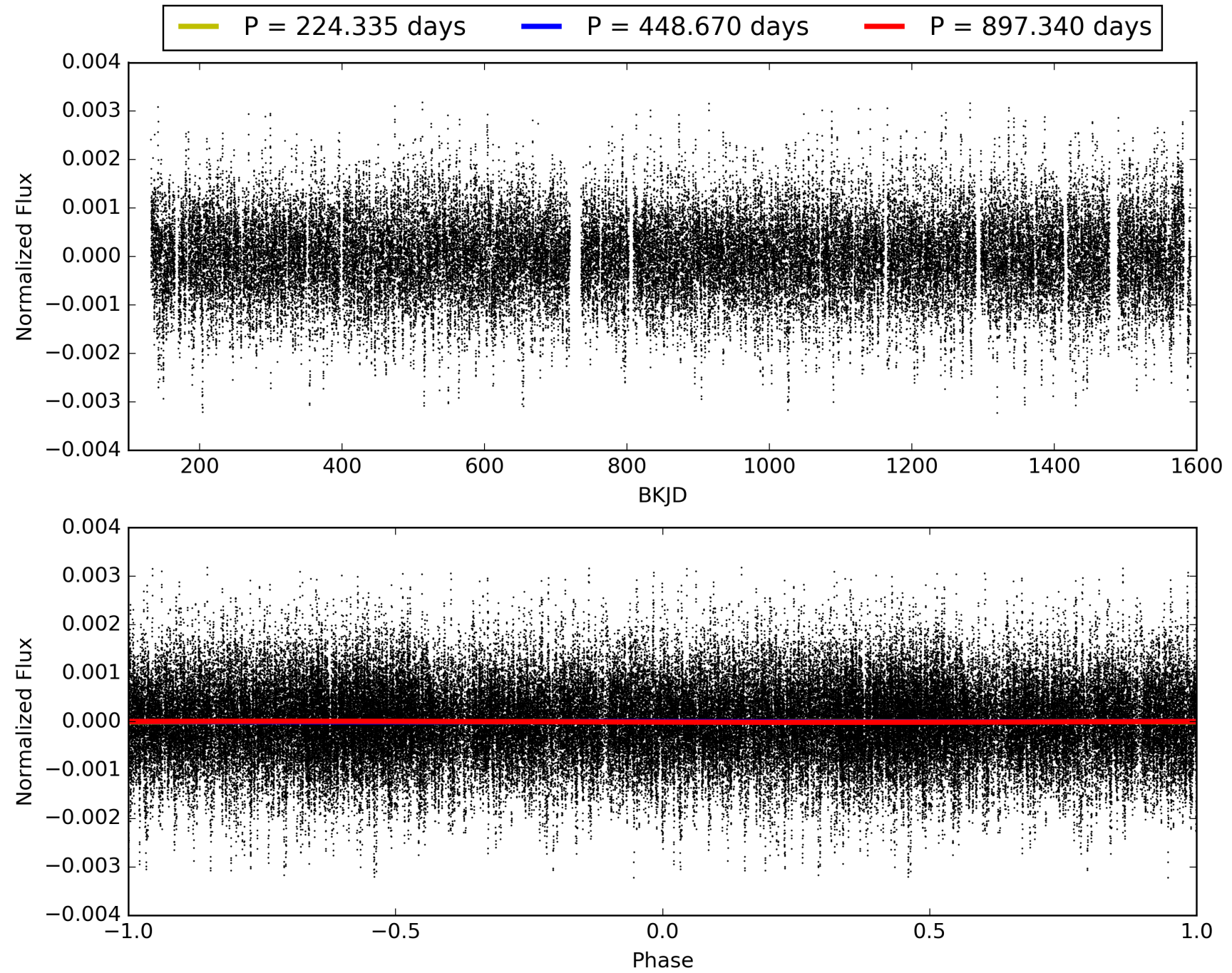
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:56:52 Z

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

# TCE 005895238-04, PDC Light Curves

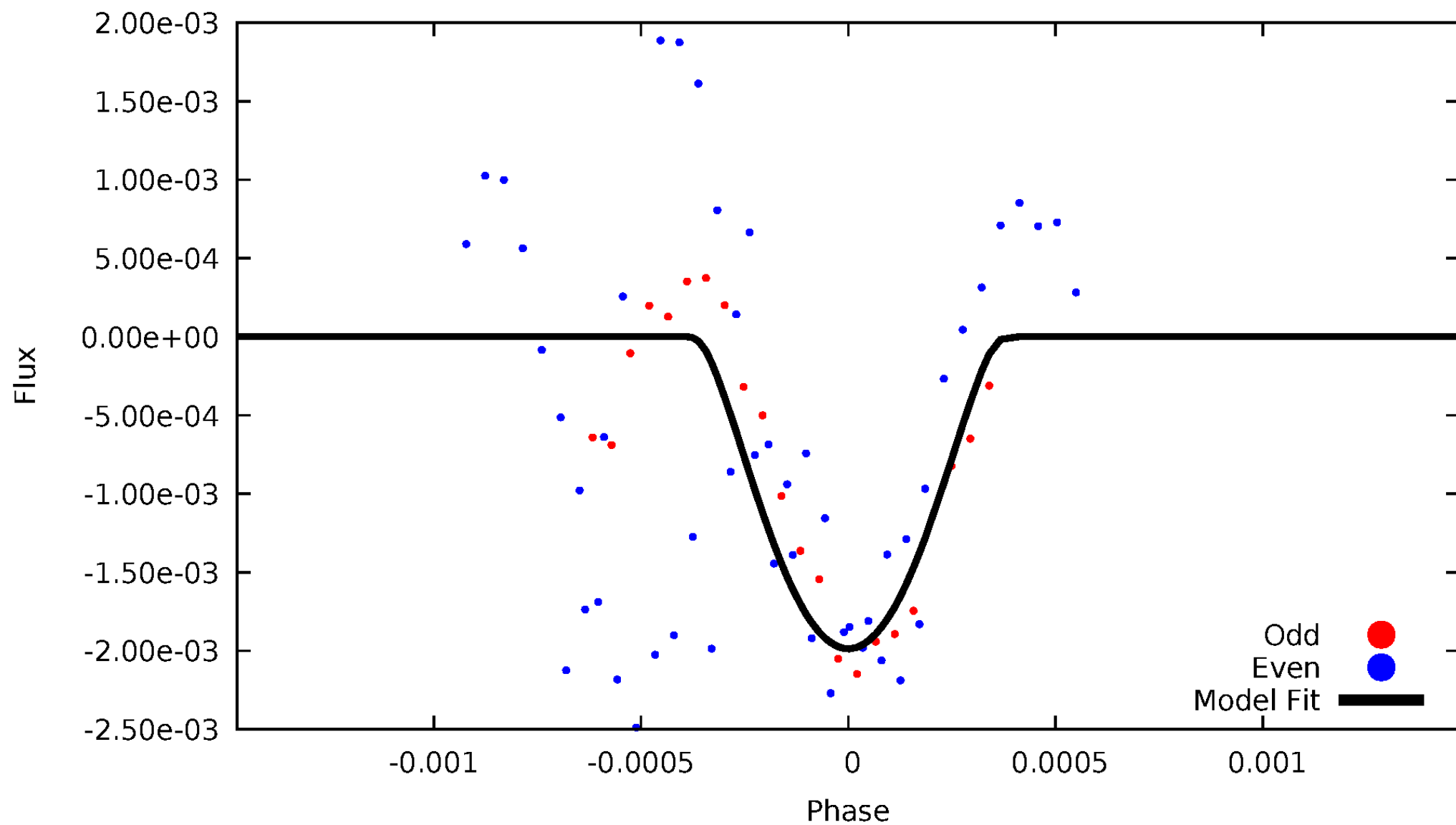


TCE 005895238-04



# DV Odd/Even

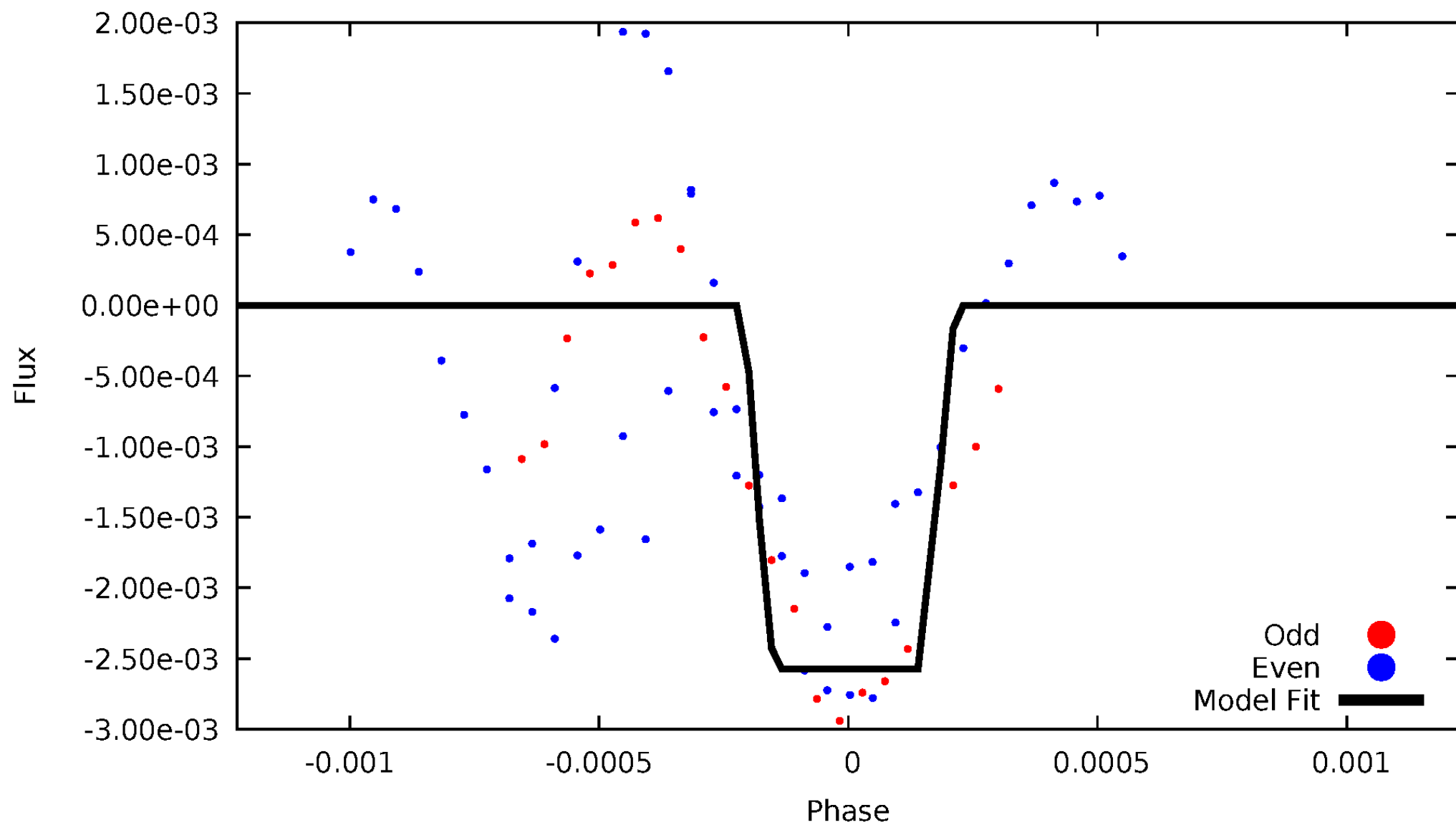
TCE 005895238-04





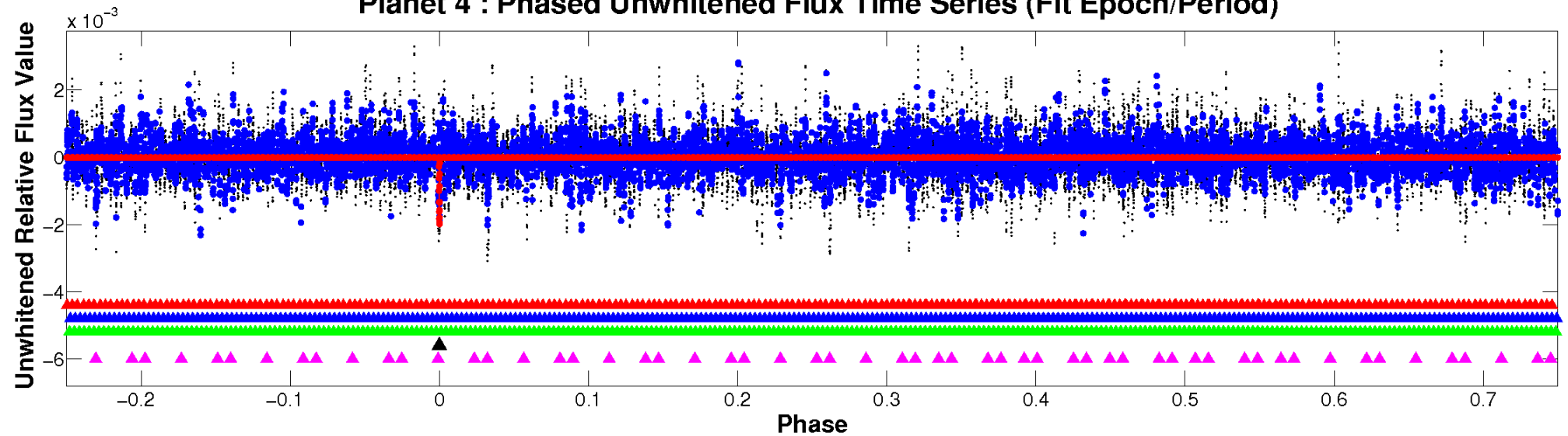
# ALT Odd/Even

TCE 005895238-04

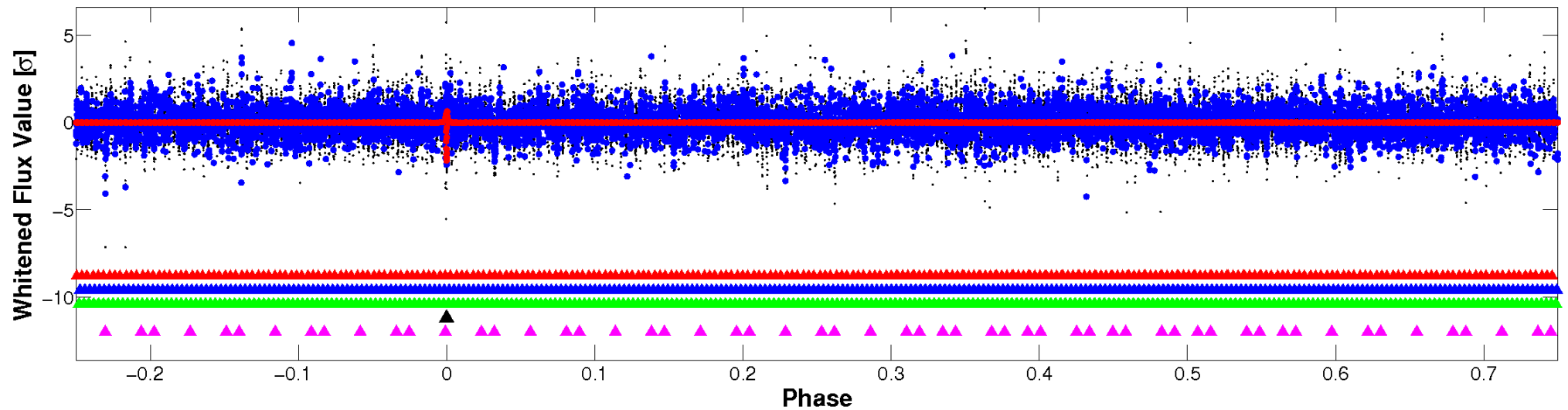


# Non-Whitened Vs. Whitened Light Curve

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

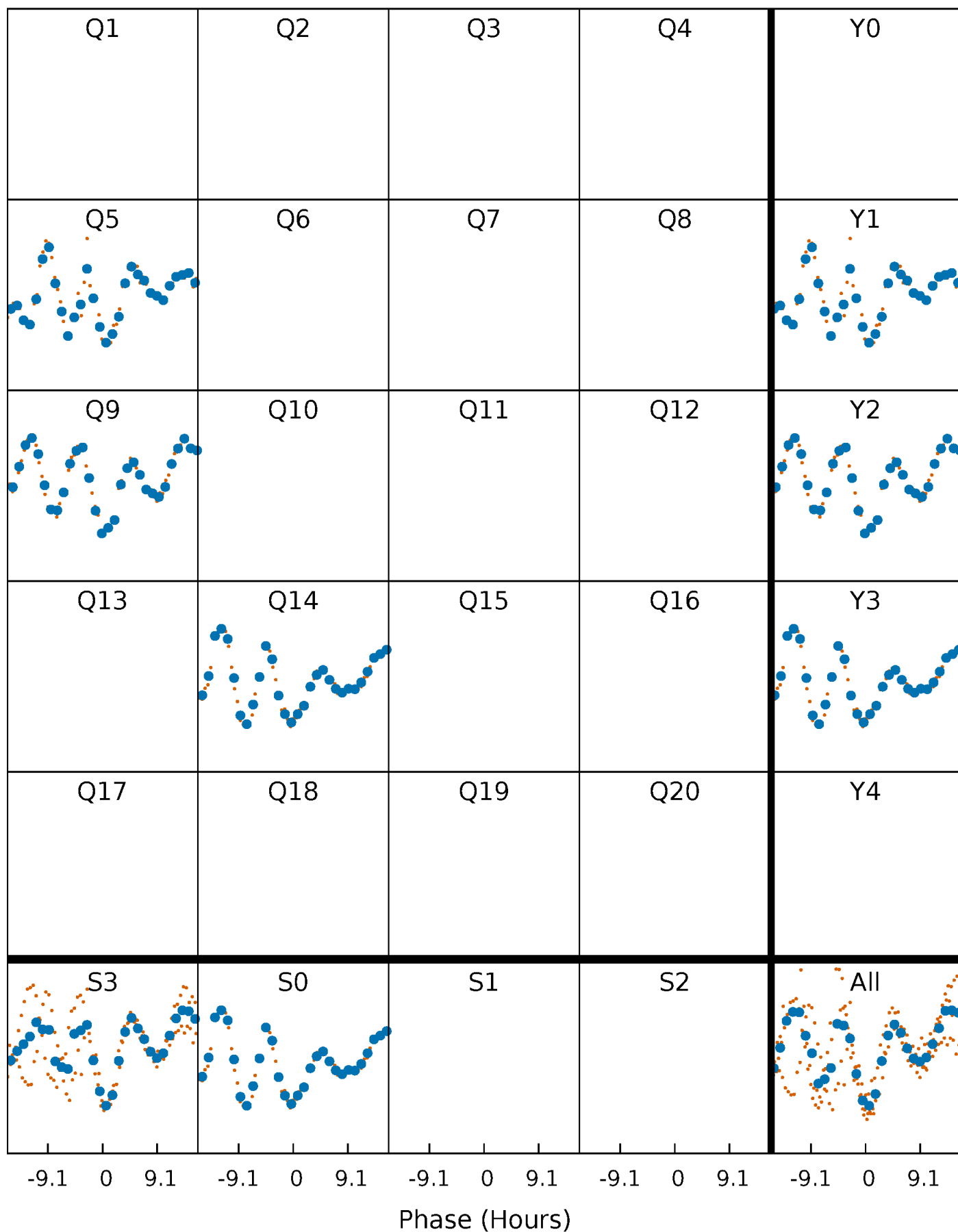


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



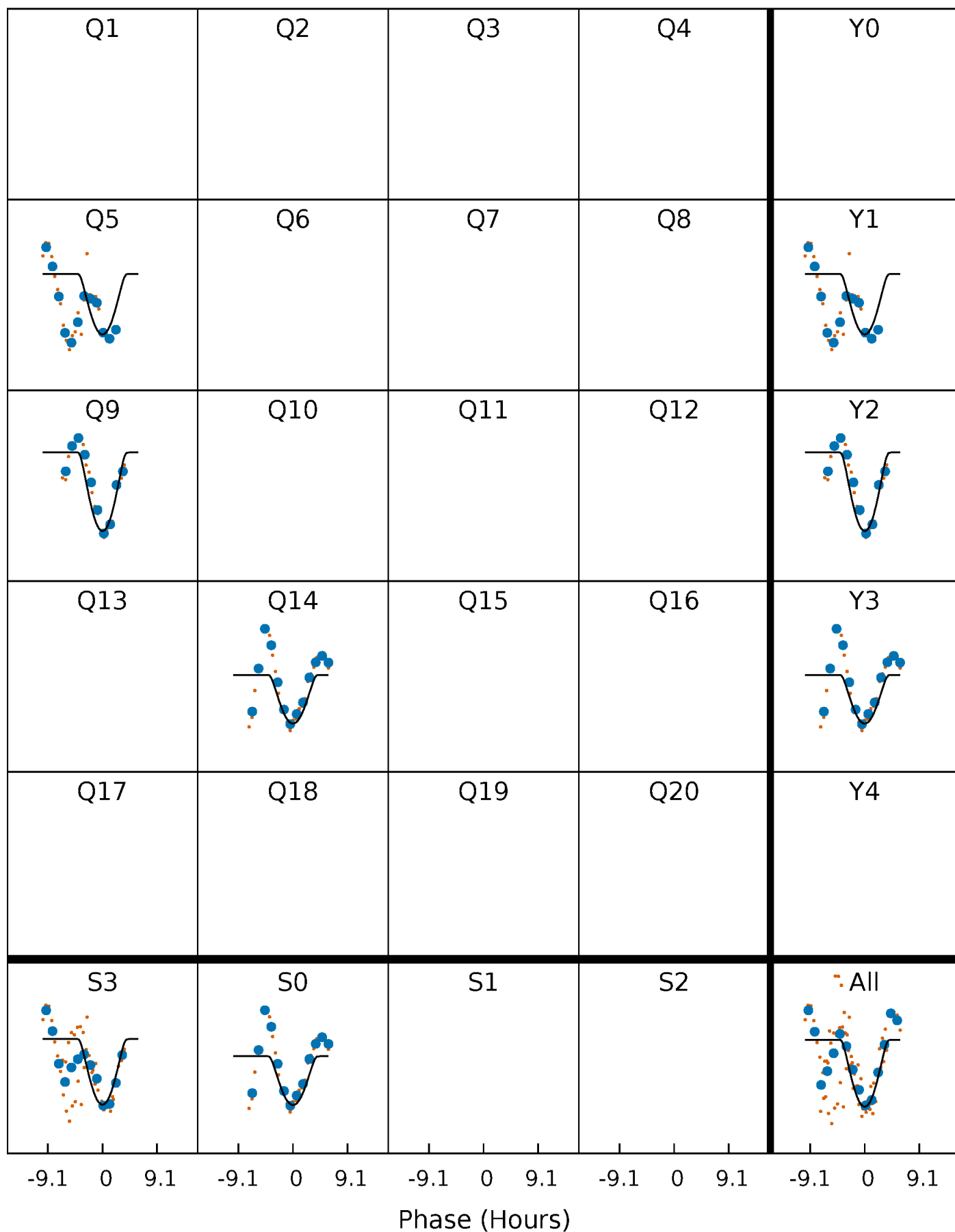
# PDC Quarter-Phased Transit Curves

TCE 005895238-04     $P=448.670232$  Days     $T_0=446.130586$  (BKJD)



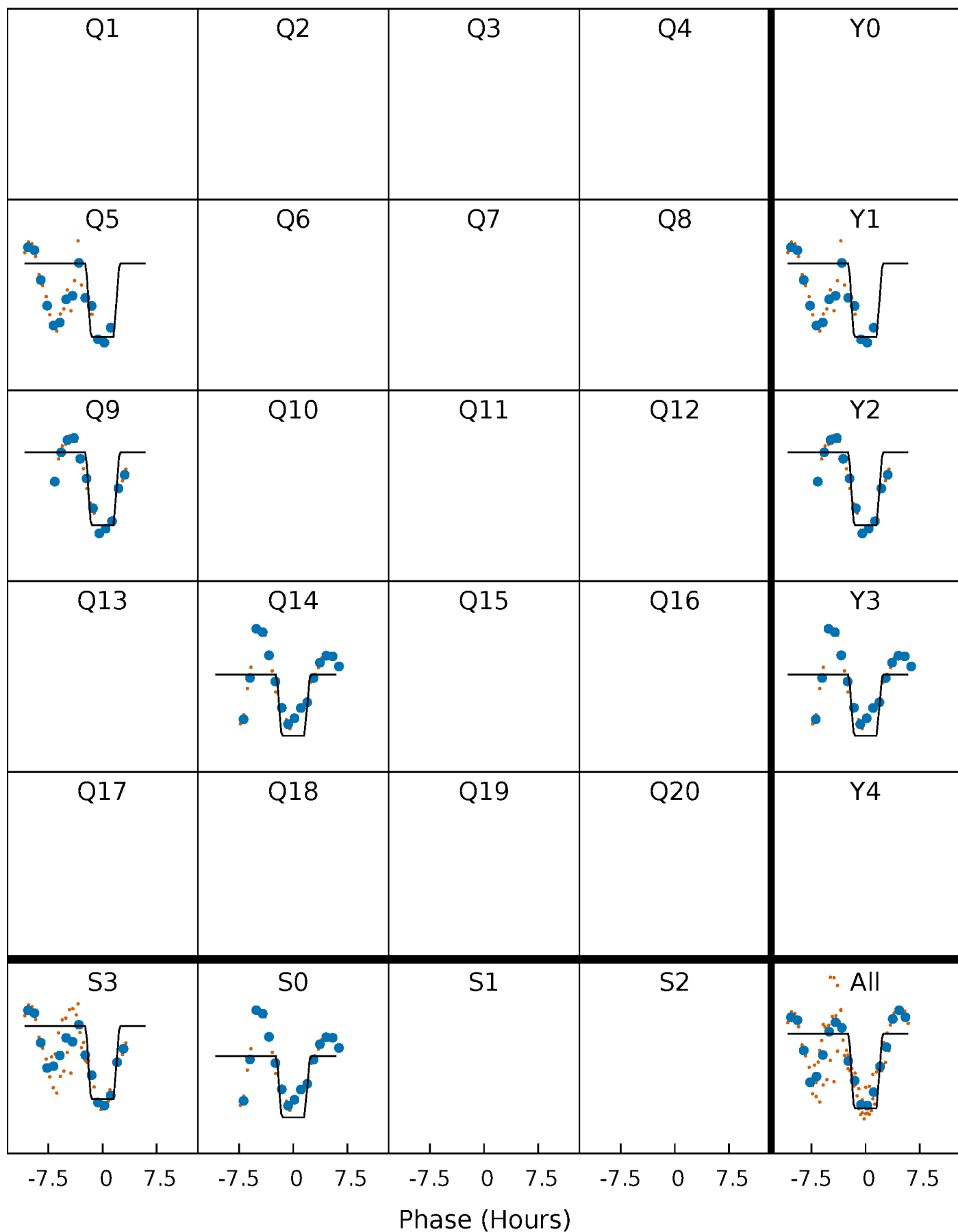
# DV Quarter-Phased Transit Curves

TCE 005895238-04     $P=448.670232$  Days     $T_0=446.130586$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005895238-04 P=448.652866 Days  $T_0=446.165119$  (BKJD)

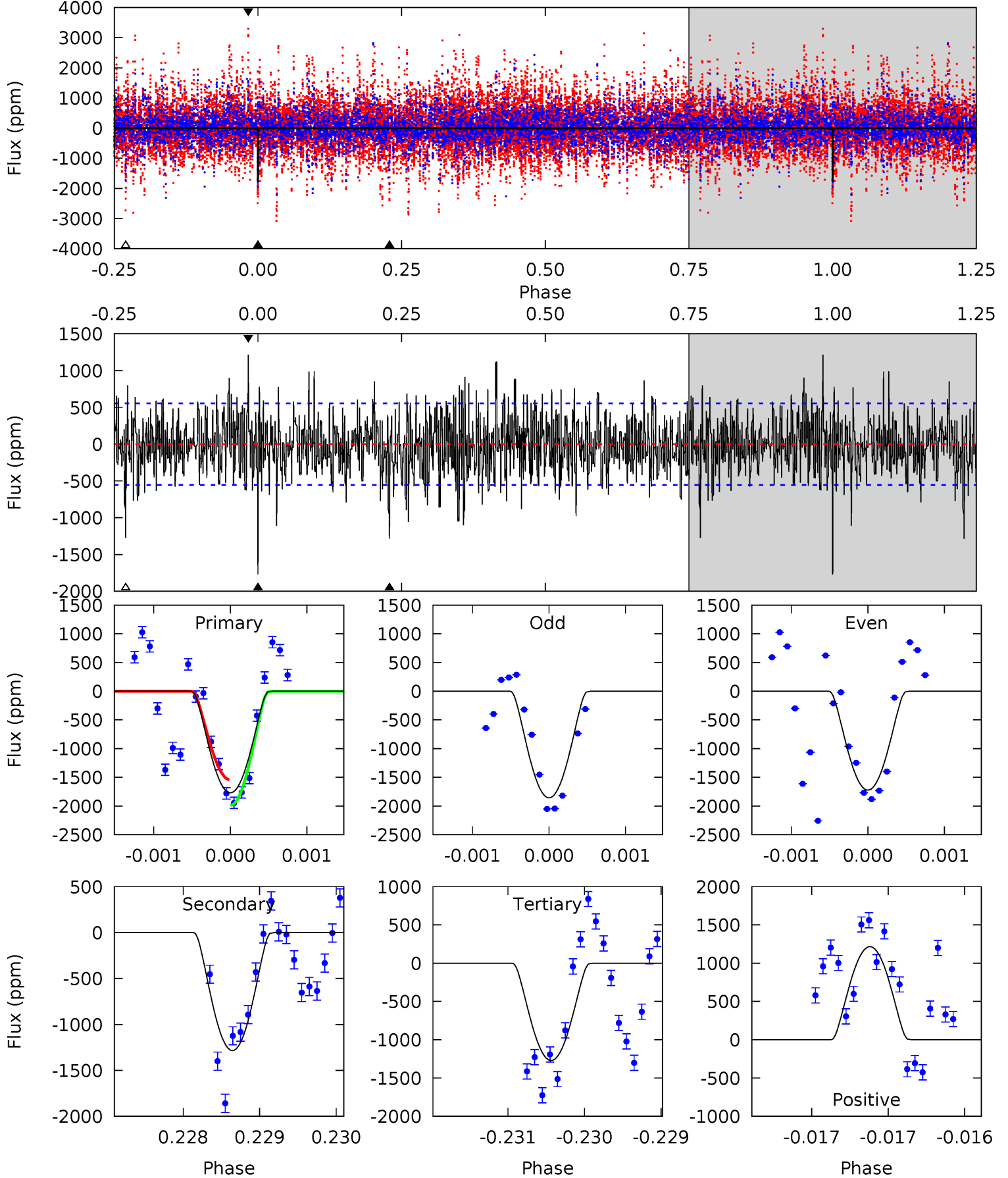




# DV Model-Shift Uniqueness Test

005895238-04, P = 448.670232 Days, E = 446.130586 Days

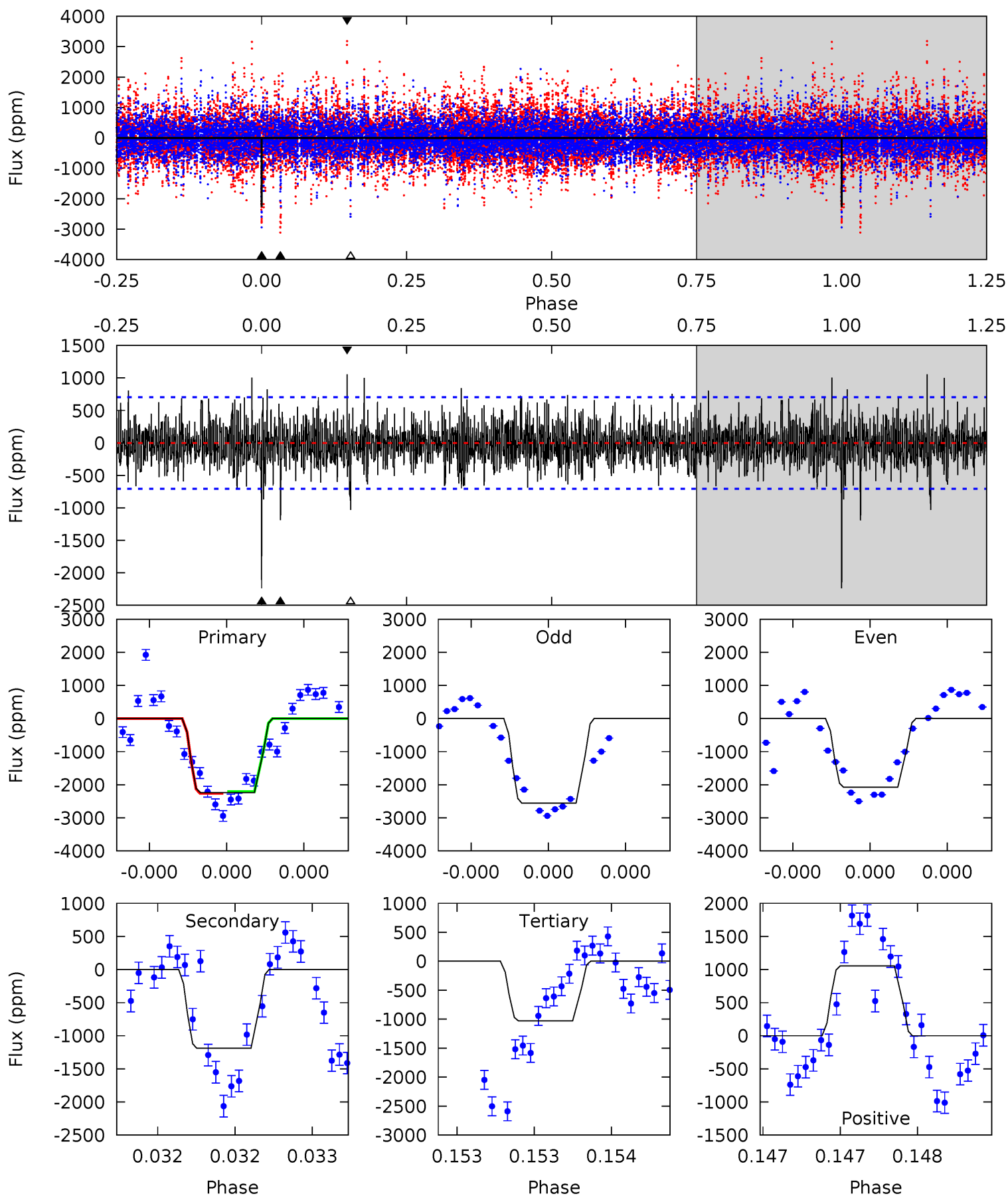
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.6	12.7	12.6	12.1	5.50	3.37	3.08	4.95	5.50	0.14	0.69	0.64	1.02	0.41	2.16



# Alt Model-Shift Uniqueness Test

005895238-04, P = 448.652866 Days, E = 446.165119 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
17.8	9.47	8.19	8.40	5.62	3.55	1.89	9.61	9.41	1.28	1.08	1.82	0.92	0.32	0.20



### Stellar Parameters For KIC 005895238

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7110^{+199}_{-313}$	$4.044^{+0.234}_{-0.156}$	$-0.240^{+0.300}_{-0.300}$	$1.894^{+0.548}_{-0.548}$	$1.447^{+0.218}_{-0.267}$	$0.300^{+0.381}_{-0.148}$
	+3%/-4%	+6%/-4%	+125%/-125%	+29%/-29%	+15%/-18%	+127%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005895238-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1285 \pm 101$	$28.76^{+28.24}_{-19.25}$	$523^{+42}_{-42}$	$3846^{+2275}_{-712}$	$1411^{+12200}_{-1039}$
Alt.	$-1189 \pm 126$	$24.27^{+27.41}_{-16.19}$	$522^{+40}_{-44}$	$4070^{+2492}_{-907}$	$1802^{+14385}_{-1401}$

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

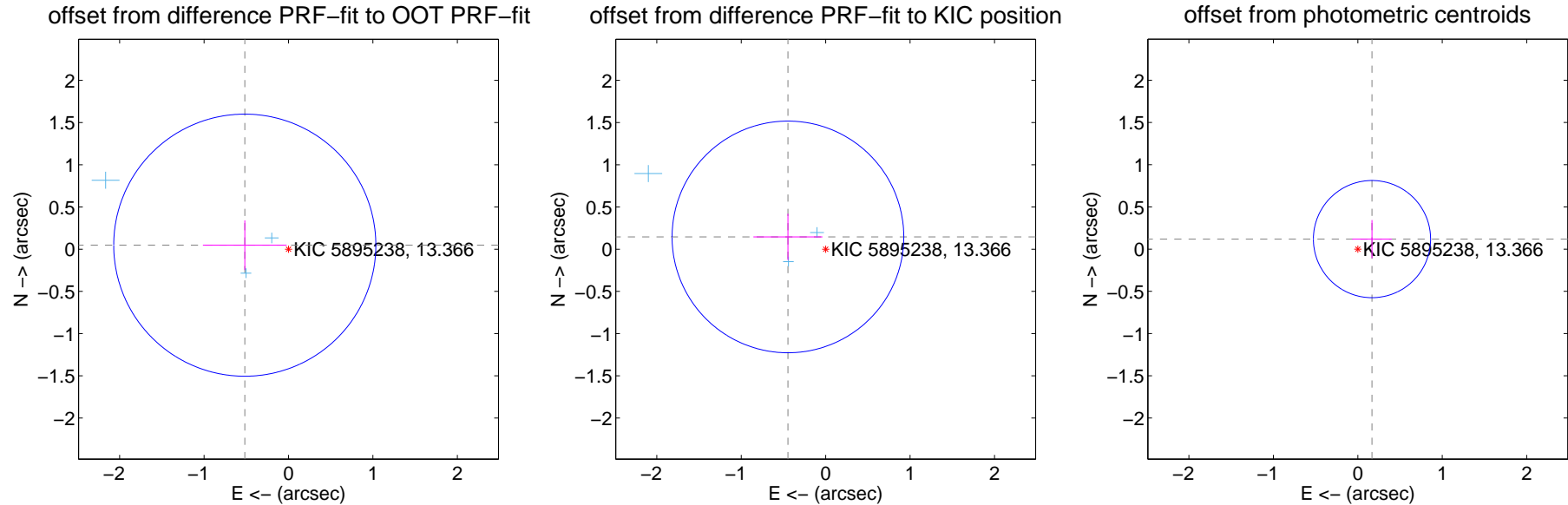
## DV Centroid Data

Supplemental centroid analysis for 005895238-04. Kepler magnitude: 13.37. Transit SNR 10.00

There are 3 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.520 \pm 0.517$	1.00	$0.518 \pm 0.496$	$0.047 \pm 0.294$
PRF-fit source offset from KIC position	$0.470 \pm 0.457$	1.03	$0.447 \pm 0.409$	$0.145 \pm 0.274$
photometric centroid source offset	$0.21 \pm 0.23$	0.89	$-0.17 \pm 0.23$	$0.12 \pm 0.23$



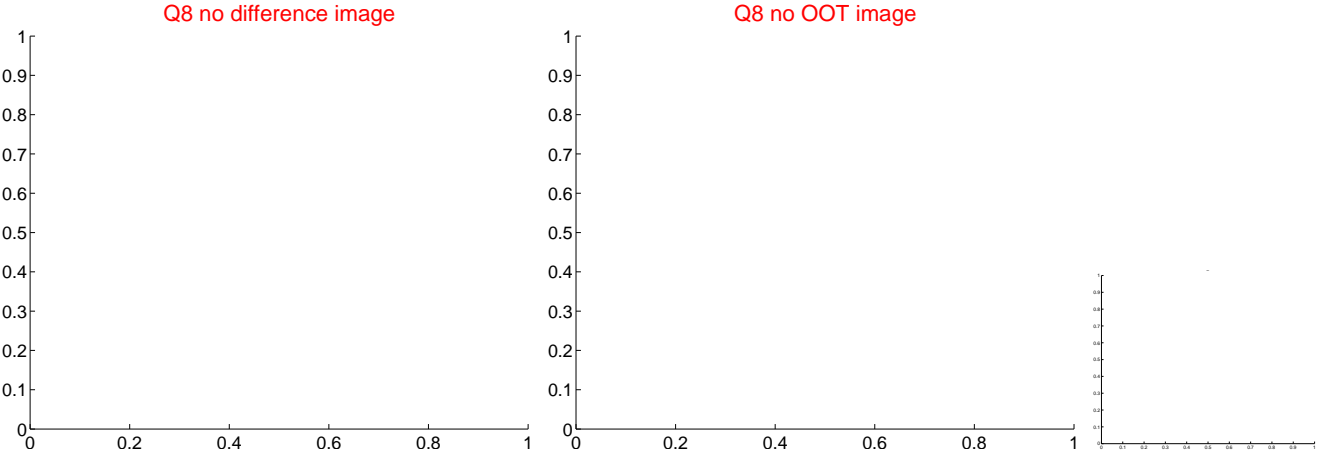
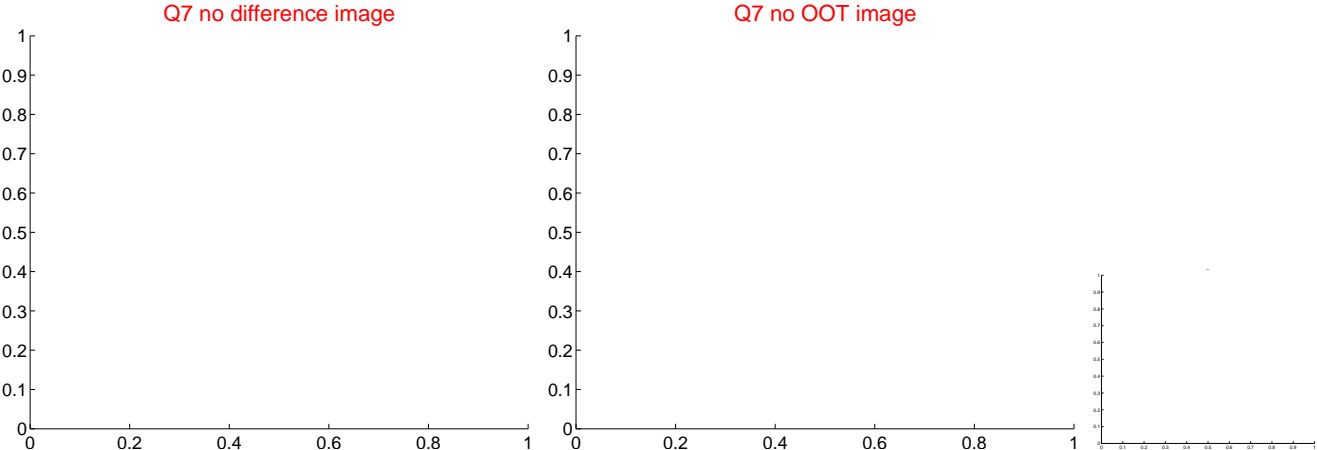
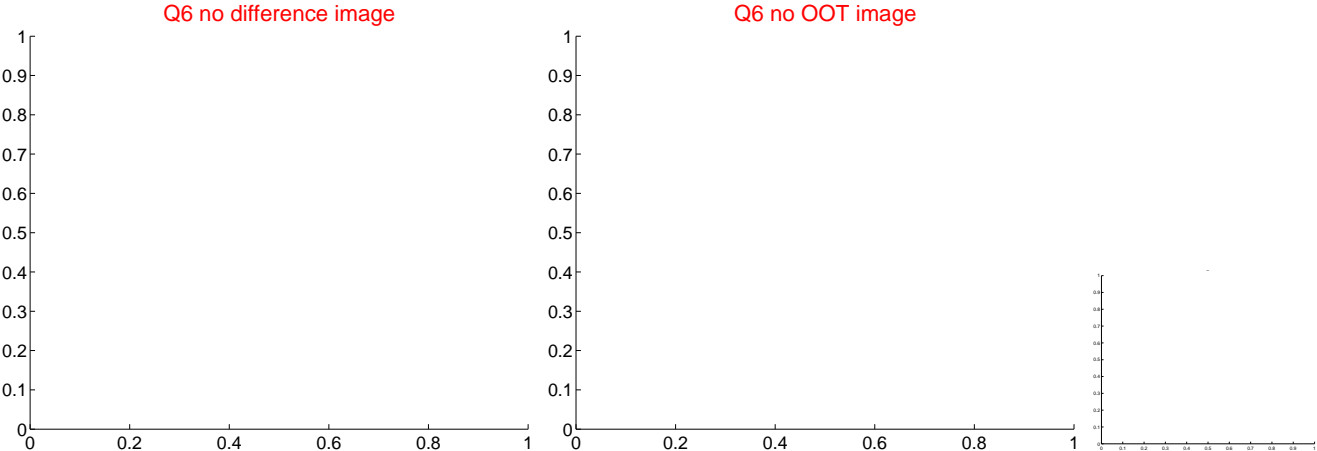
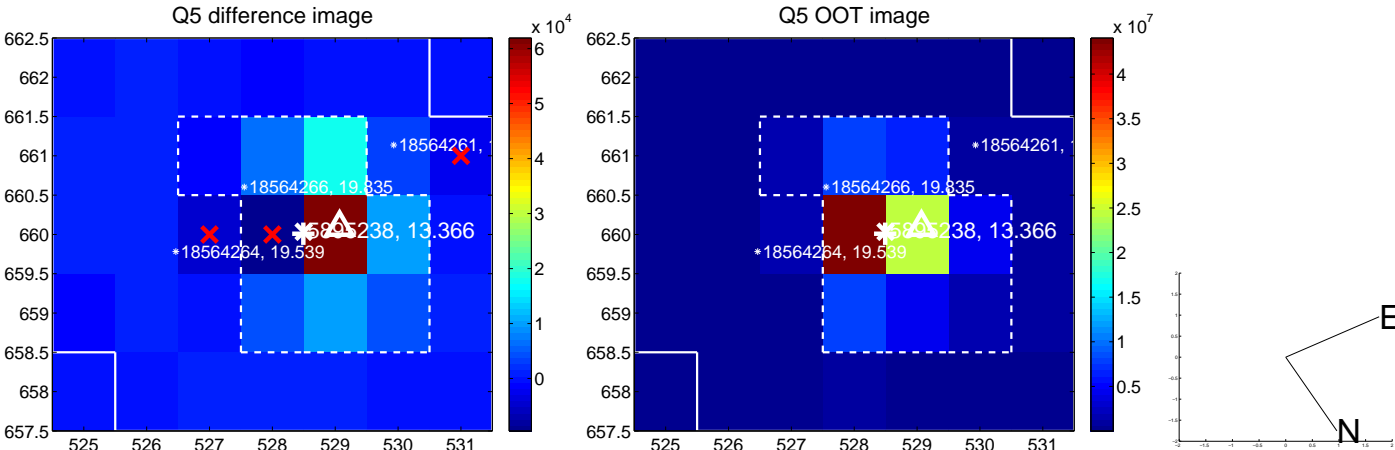
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

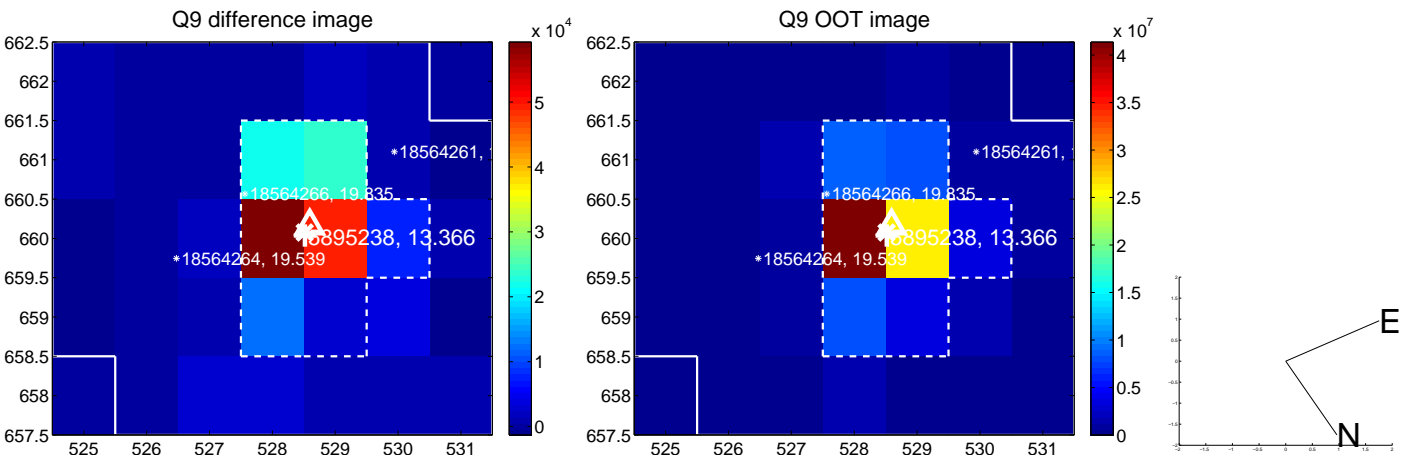




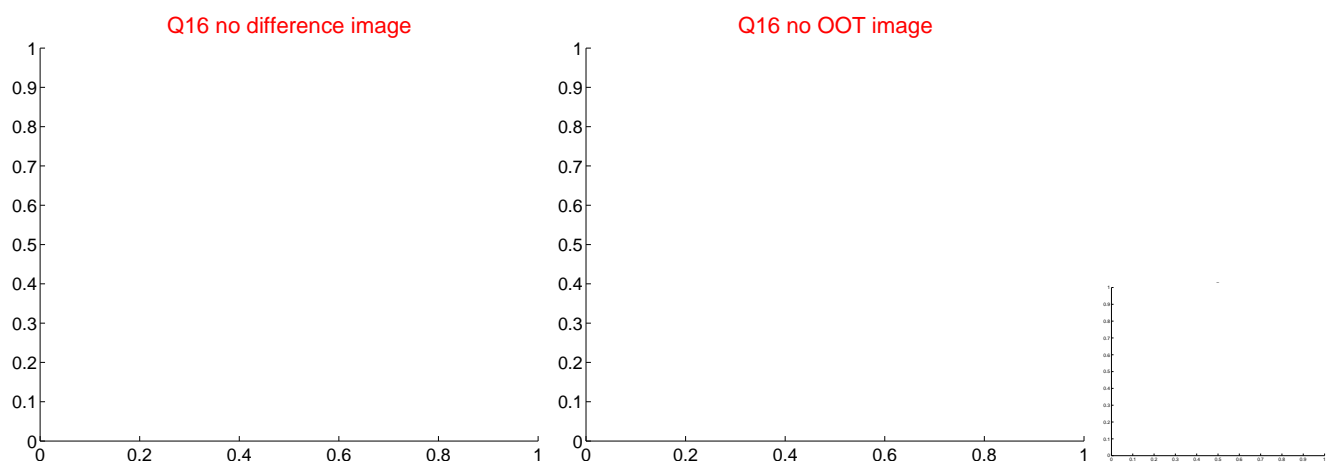
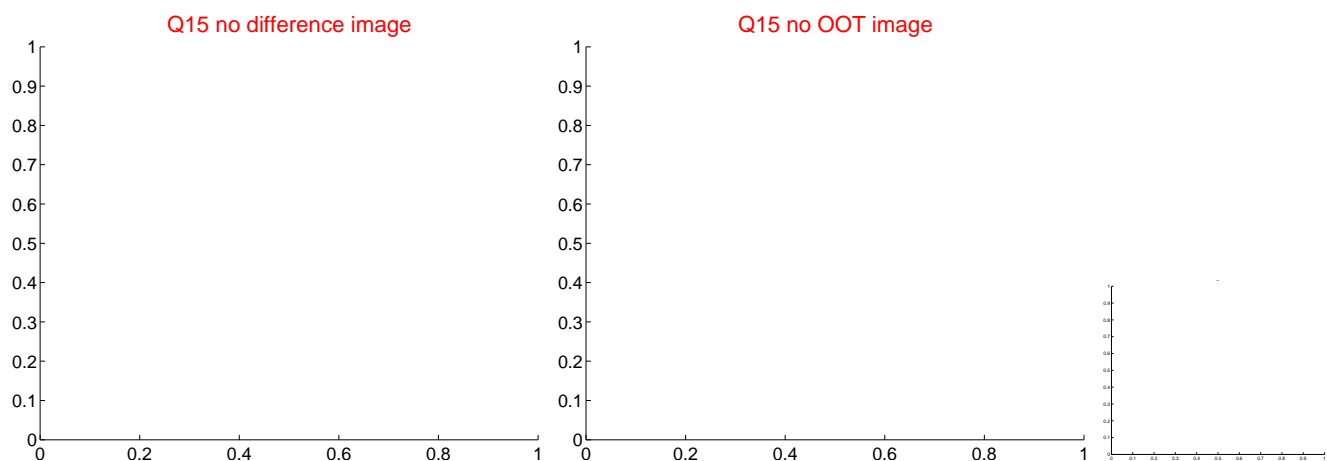
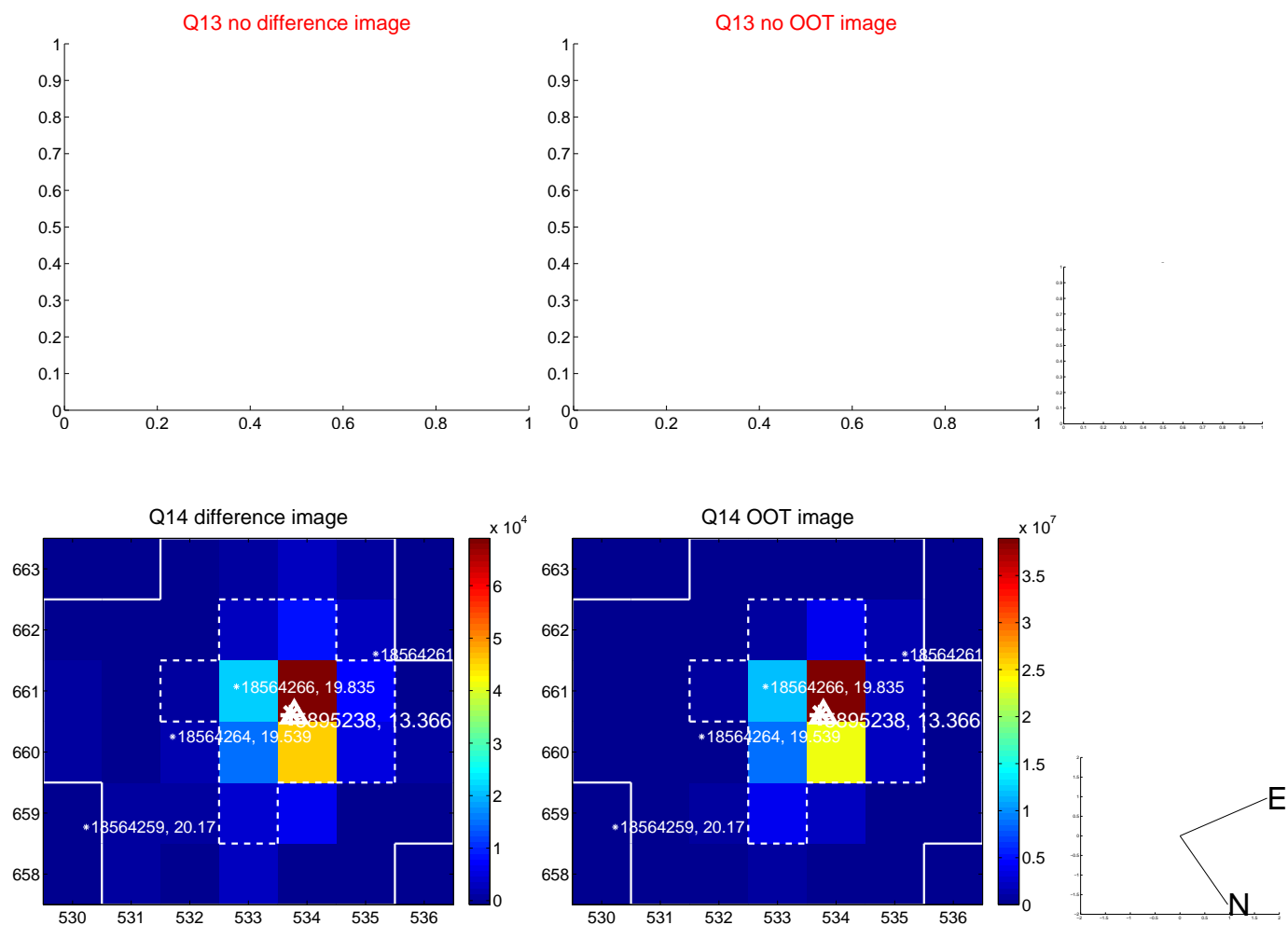
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



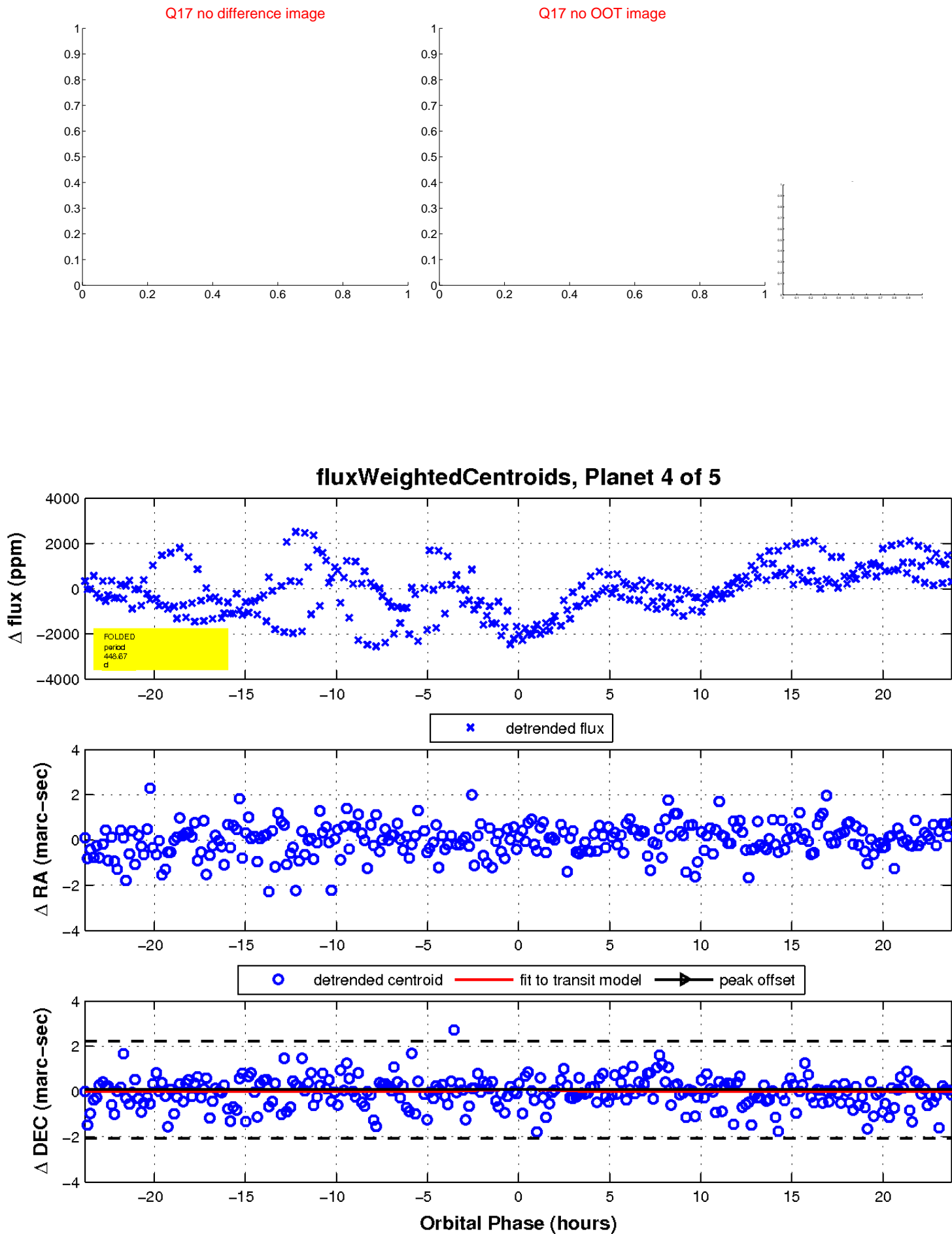
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

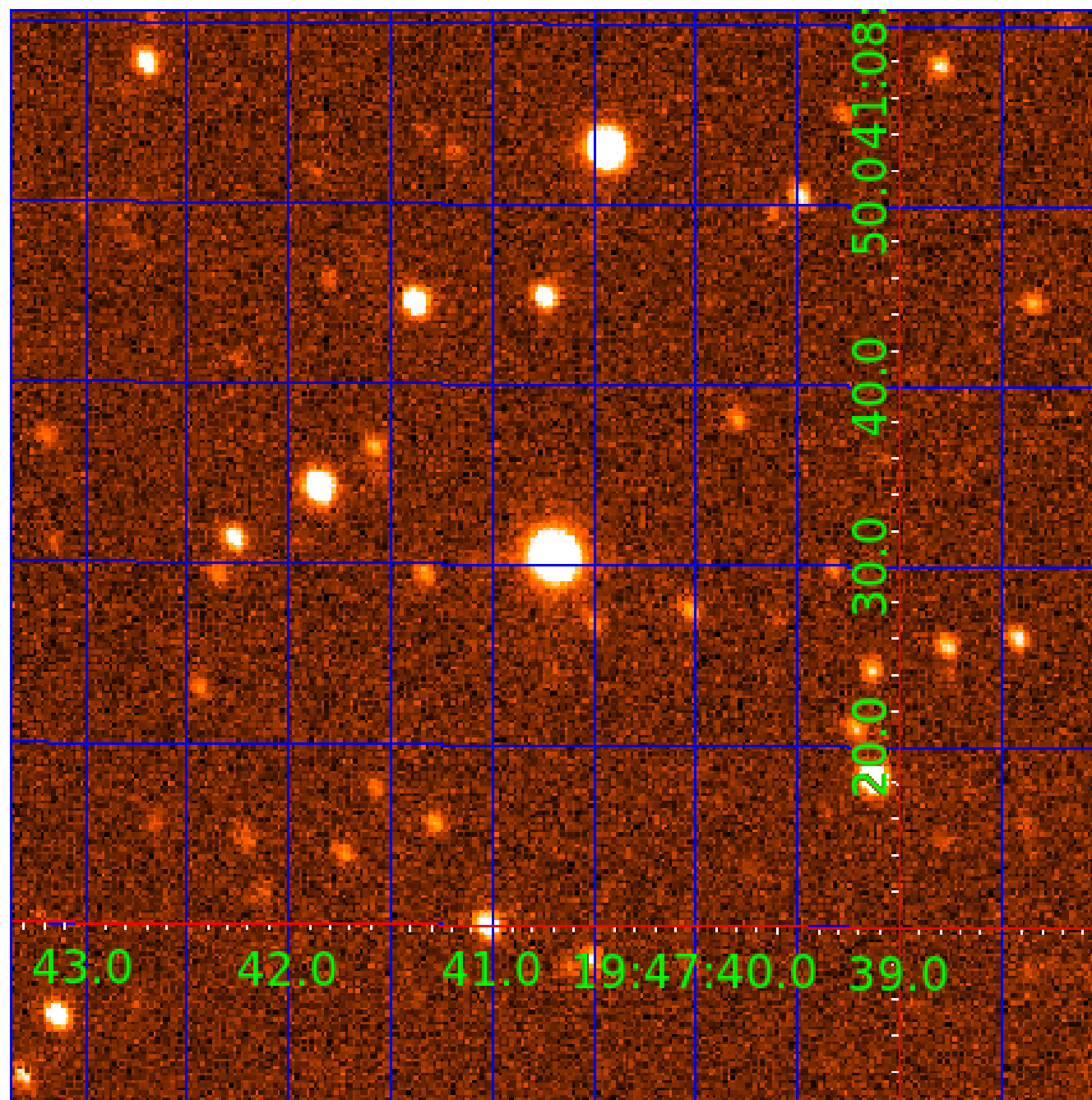


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination





# KIC 005895238

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005895238-01	OBS	No	5.002378	134.036259	53.5	1.610	9.9	3.9	1.89	7110	1.59	1957.60
005895238-02	OBS	No	1.471223	132.032379	102.0	4.706	9.6	10.5	1.89	7110	2.21	10008.94
005895238-03	OBS	No	1.471336	131.722484	218.6	5.917	9.2	13.3	1.89	7110	3.25	10007.92
005895238-04	OBS	No	448.670232	446.130586	1987.7	7.935	9.2	10.0	1.89	7110	14.79	4.88
005895238-05	OBS	No	25.749875	147.677345	238.8	5.000	9.6	-1.0	1.89	7110	2.96	220.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005895238-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
005895238-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005895238-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005895238-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES
005895238-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

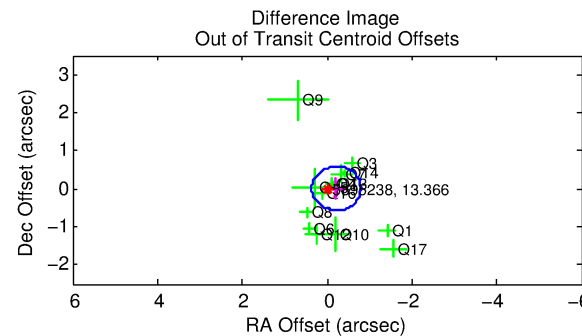
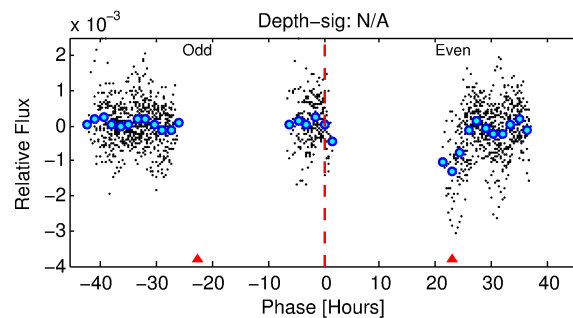
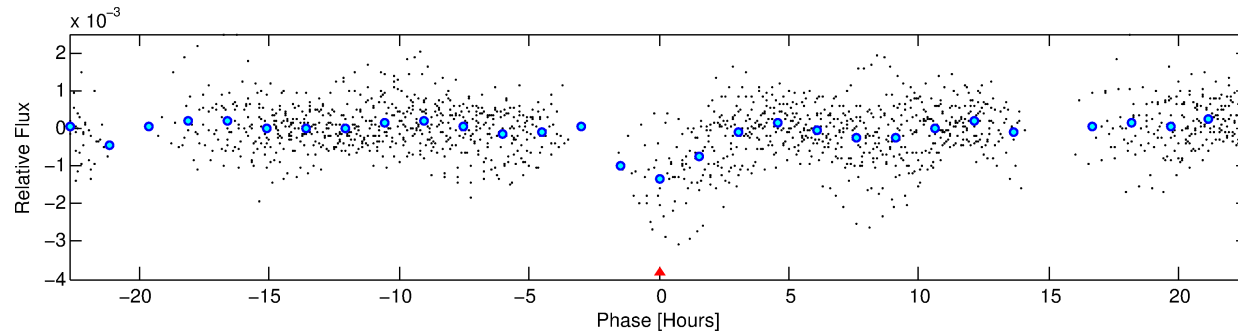
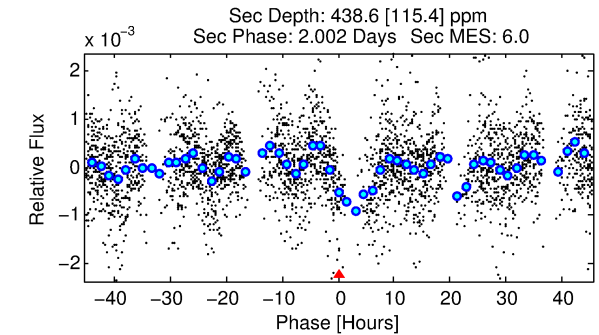
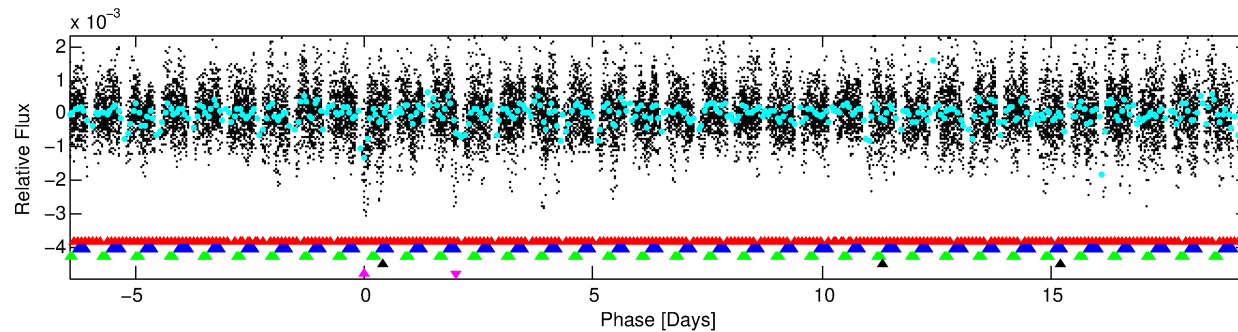
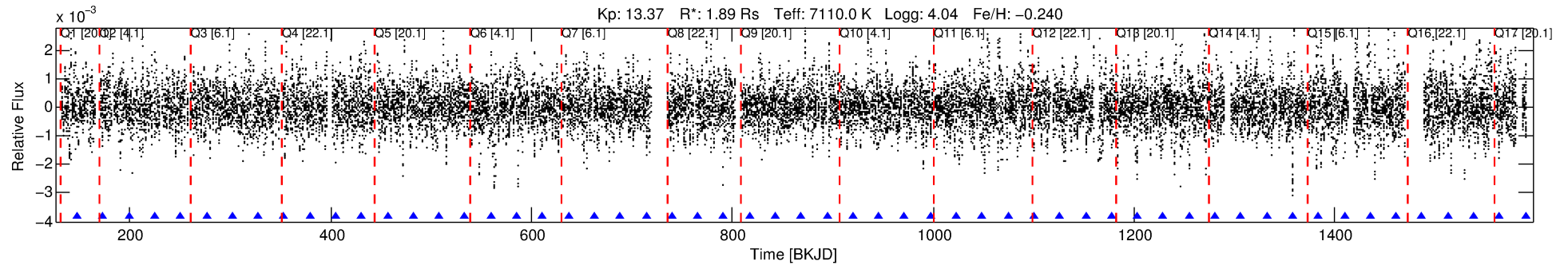
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005895238-05

No Significant Match Found

# DV One-Page Summary

KIC: 5895238 Candidate: 5 of 5 Period: 25.750 d



## TPS TCE Results:

Period = 25.74987 d  
Epoch = 147.6773 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

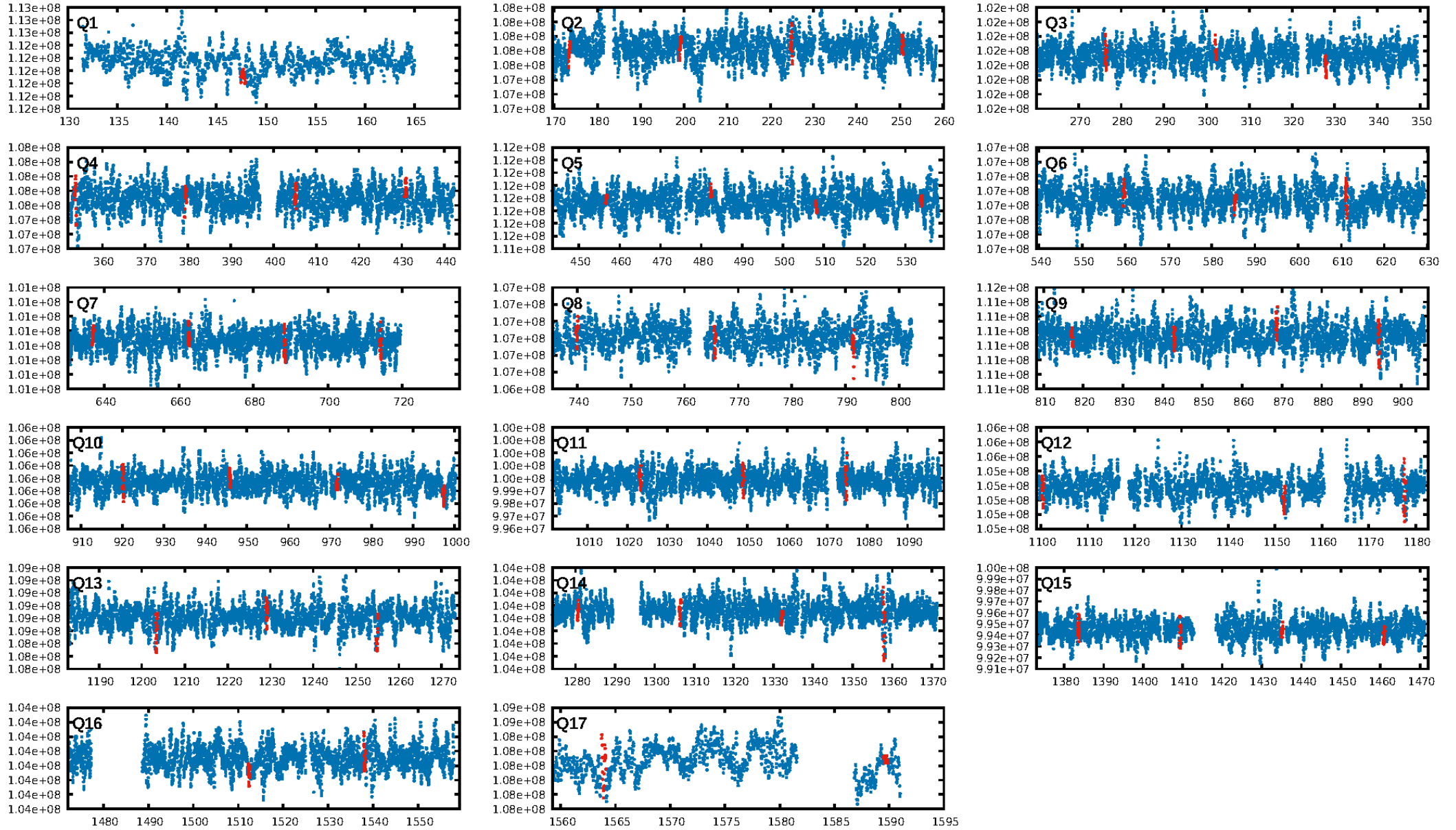
ShortPeriod-sig: 100.0% [94.79σ]  
LongPeriod-sig: 100.0% [1082.21σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [32/32]  
GhostDiagnostic-chr: -0.2523

Centroid-sig: N/A  
Centroid-so: 0.280 arcsec [4.58σ]  
OotOffset-rm: 0.216 arcsec [1.12σ]  
KicOffset-rm: 0.301 arcsec [1.87σ]  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 0.79 [11/14]  
DiffImageOverlap-fno: 0.00 [0/17]

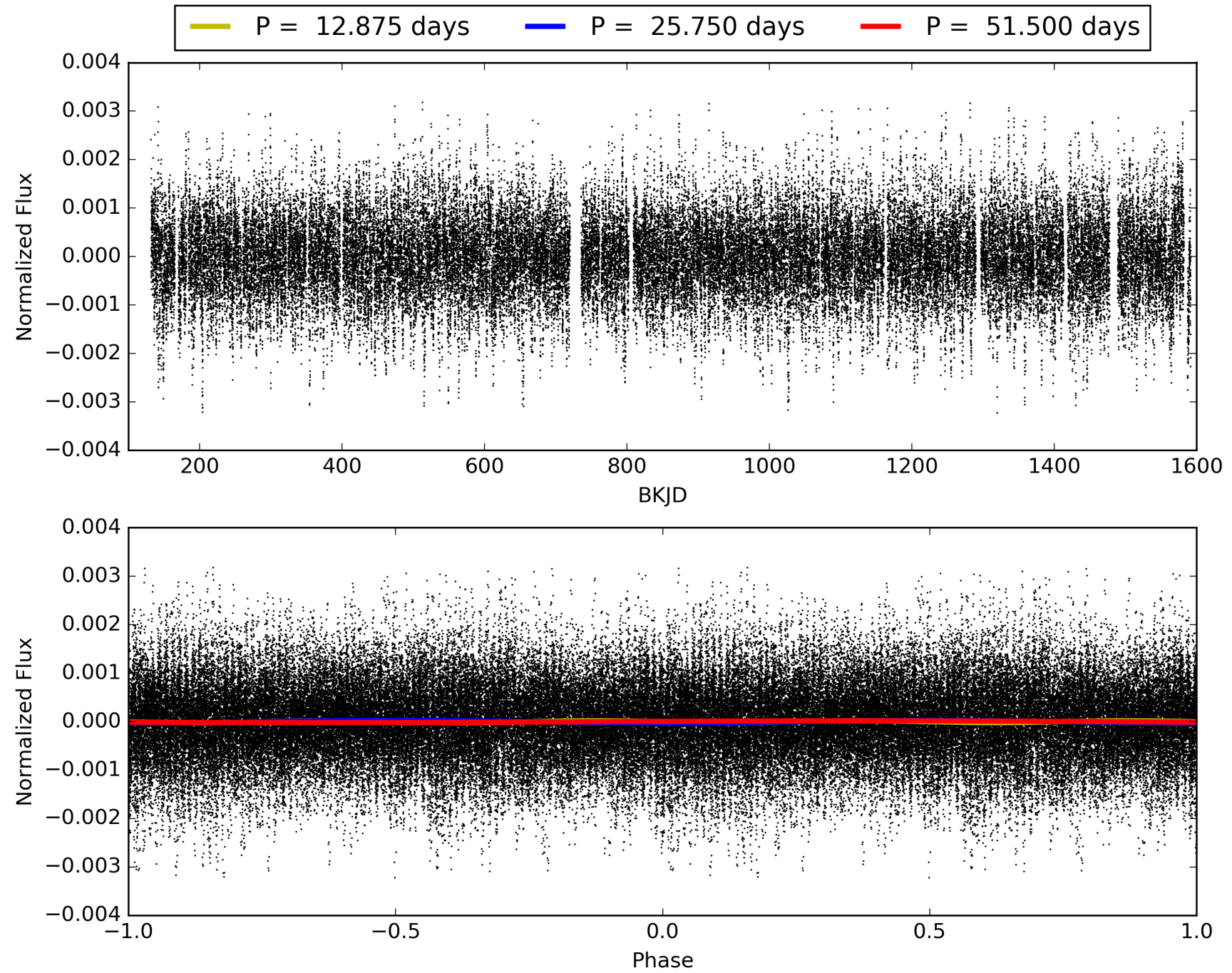
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:56:56 Z

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

# TCE 005895238-05, PDC Light Curves

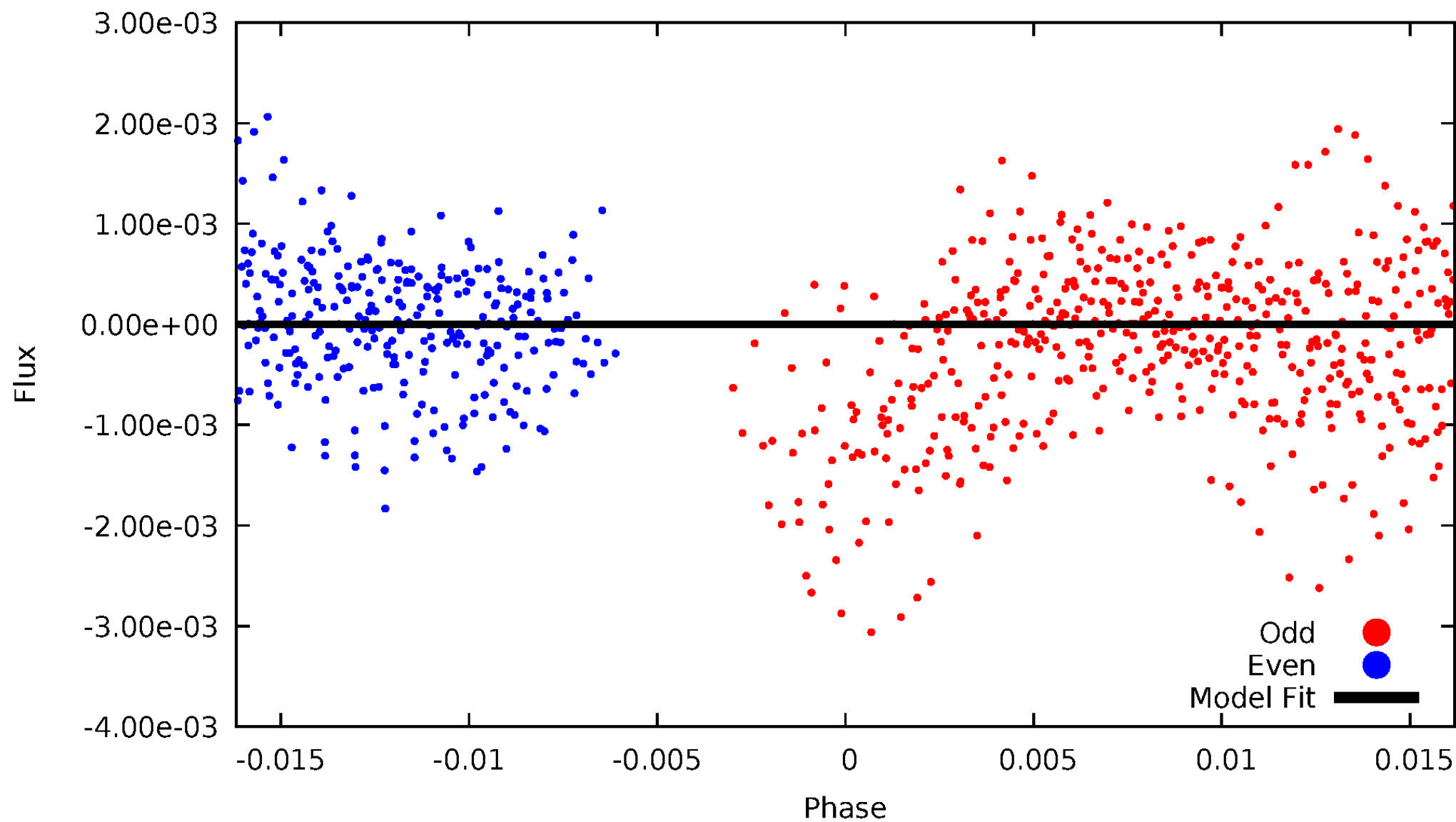


TCE 005895238-05



DV Odd/Even

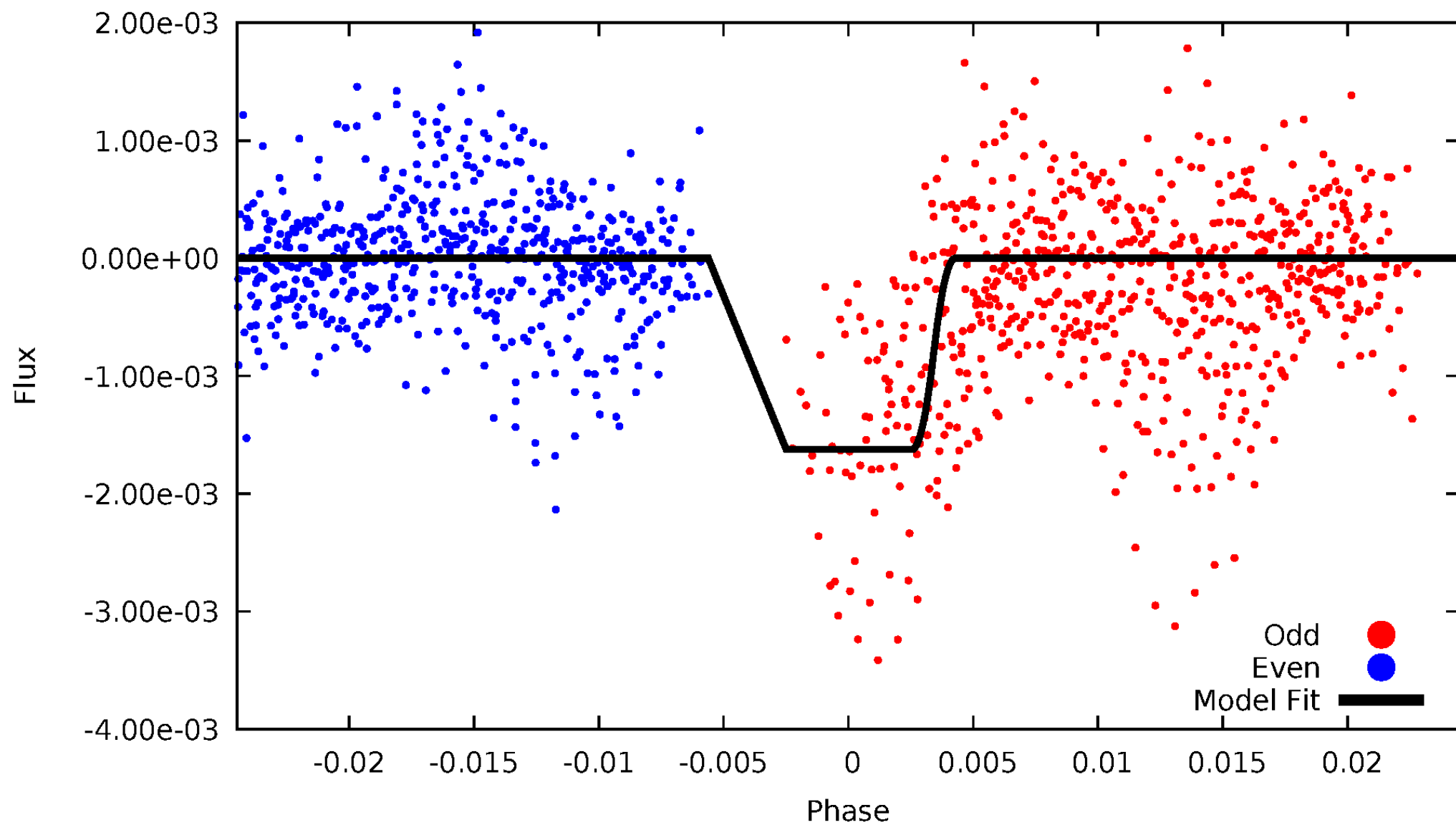
TCE 005895238-05



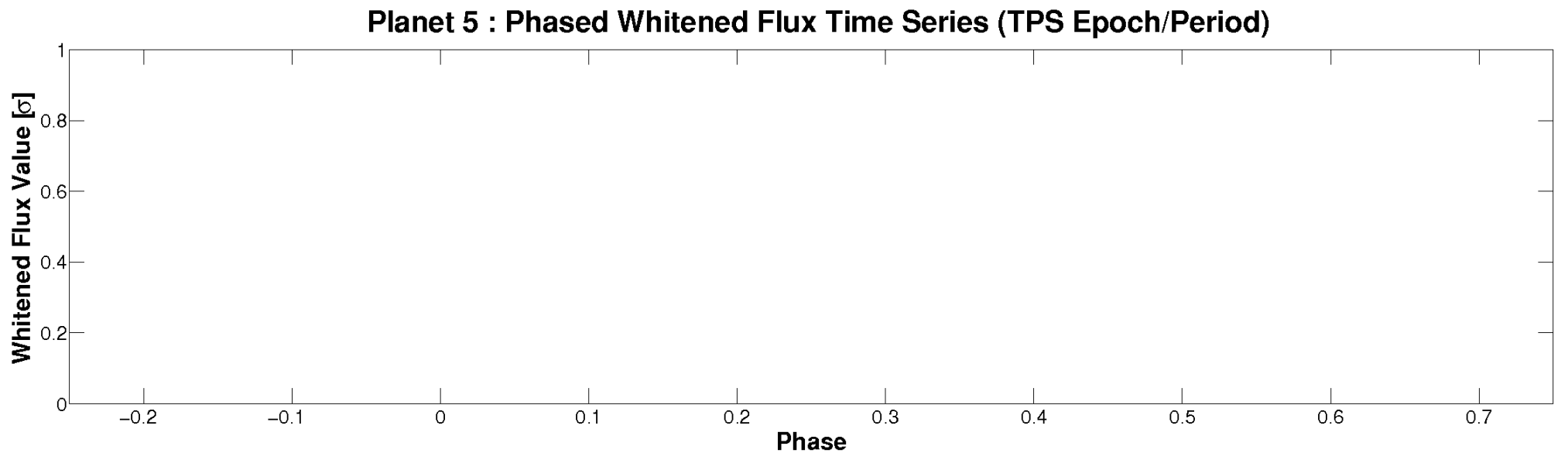
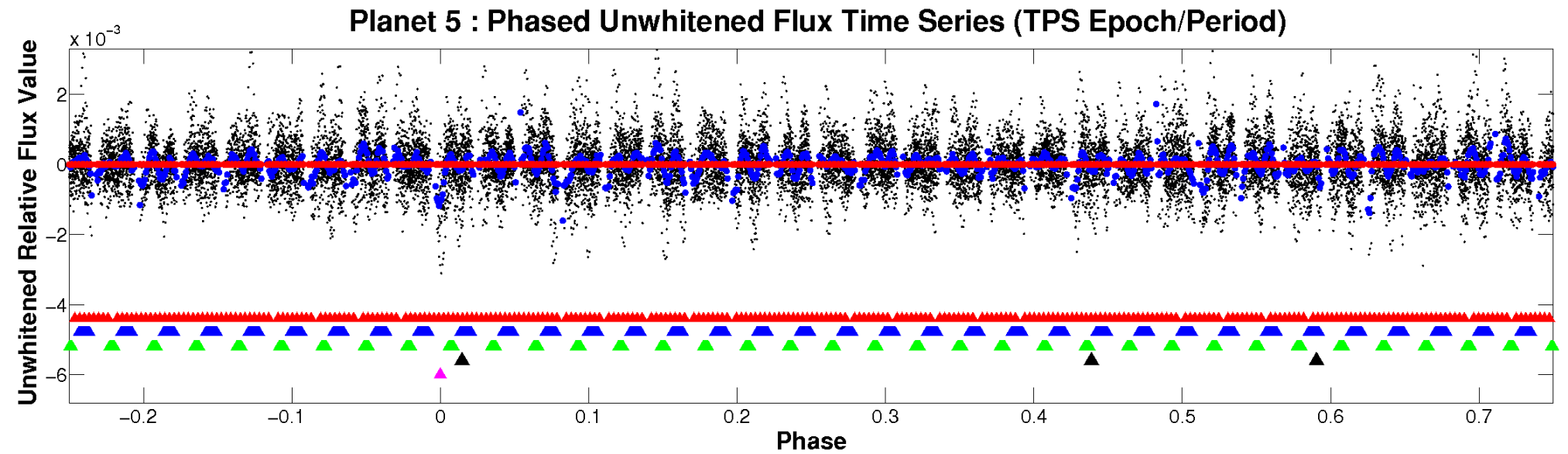


# ALT Odd/Even

TCE 005895238-05

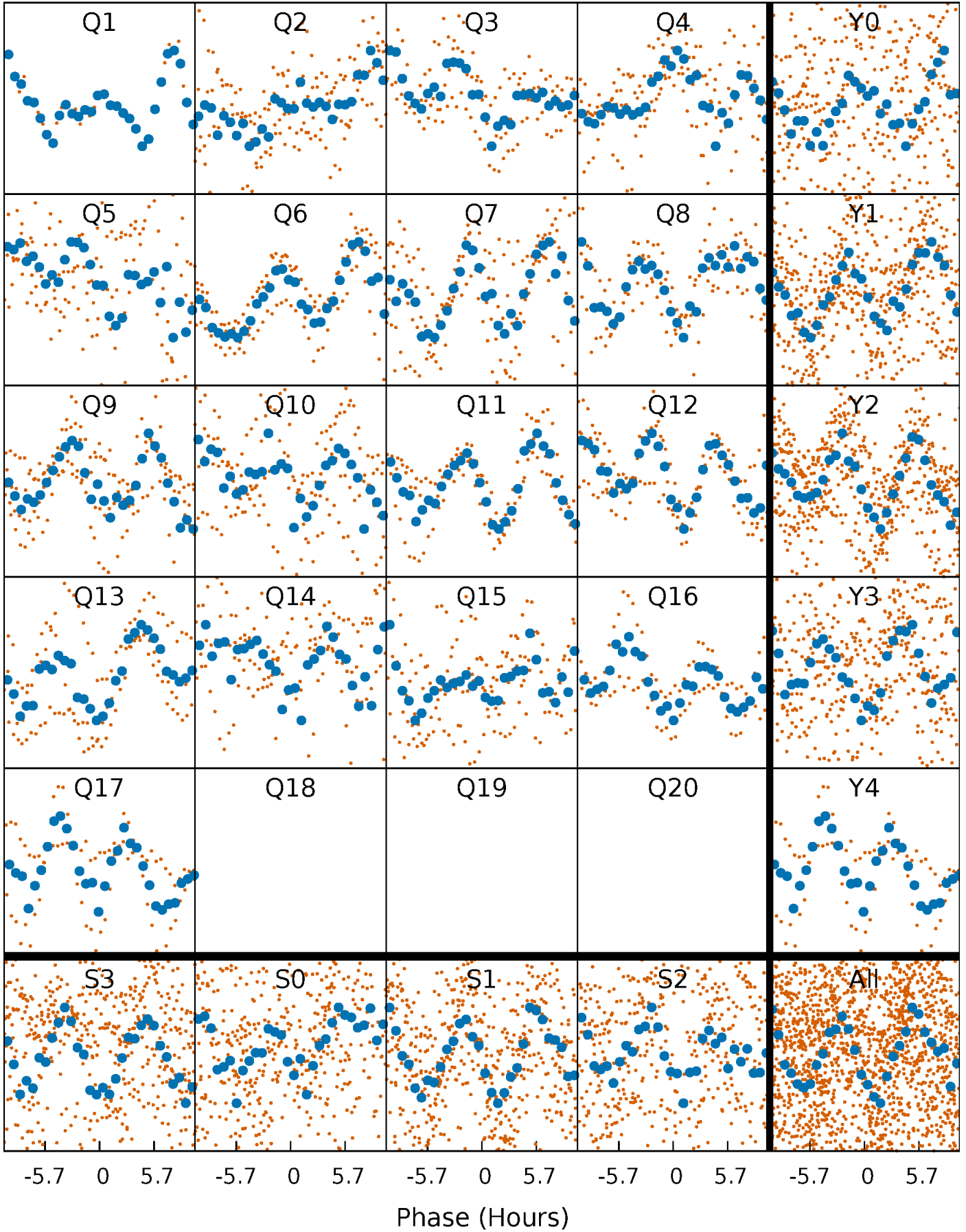


# Non-Whitened Vs. Whitened Light Curve



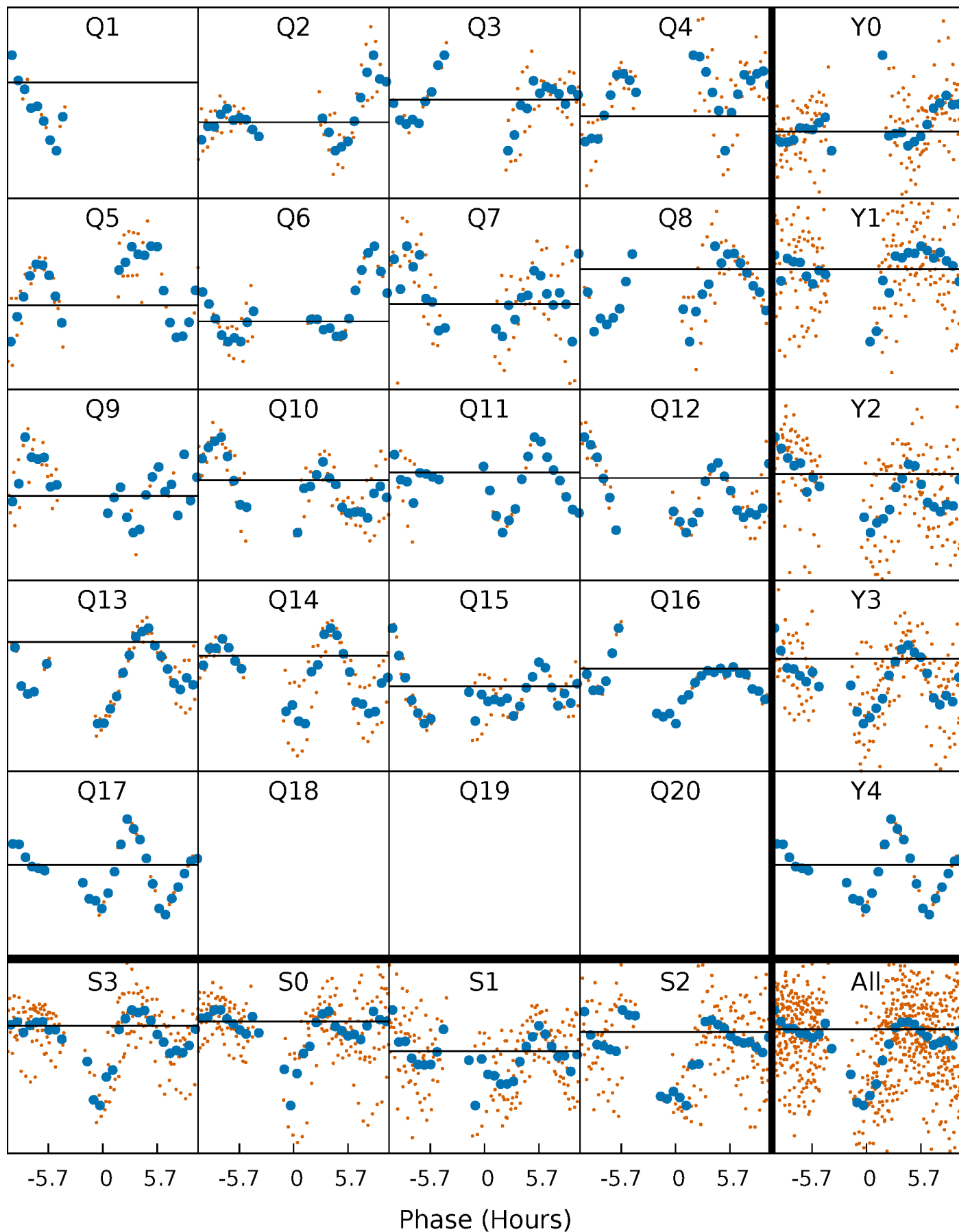
# PDC Quarter-Phased Transit Curves

TCE 005895238-05     $P = 25.749875$  Days     $T_0 = 147.677345$  (BKJD)



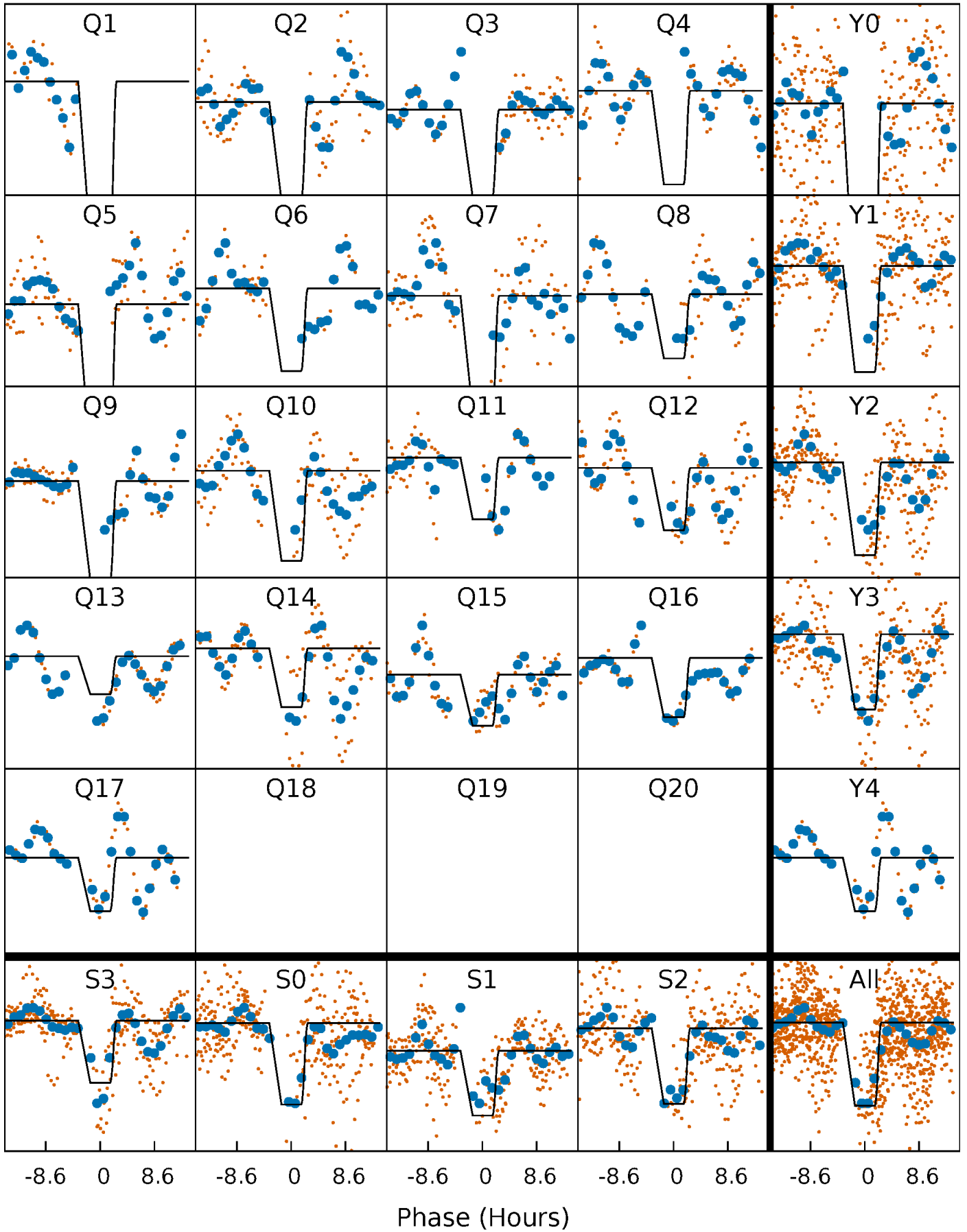
# DV Quarter-Phased Transit Curves

TCE 005895238-05   P= 25.749875 Days    $T_0=147.677345$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

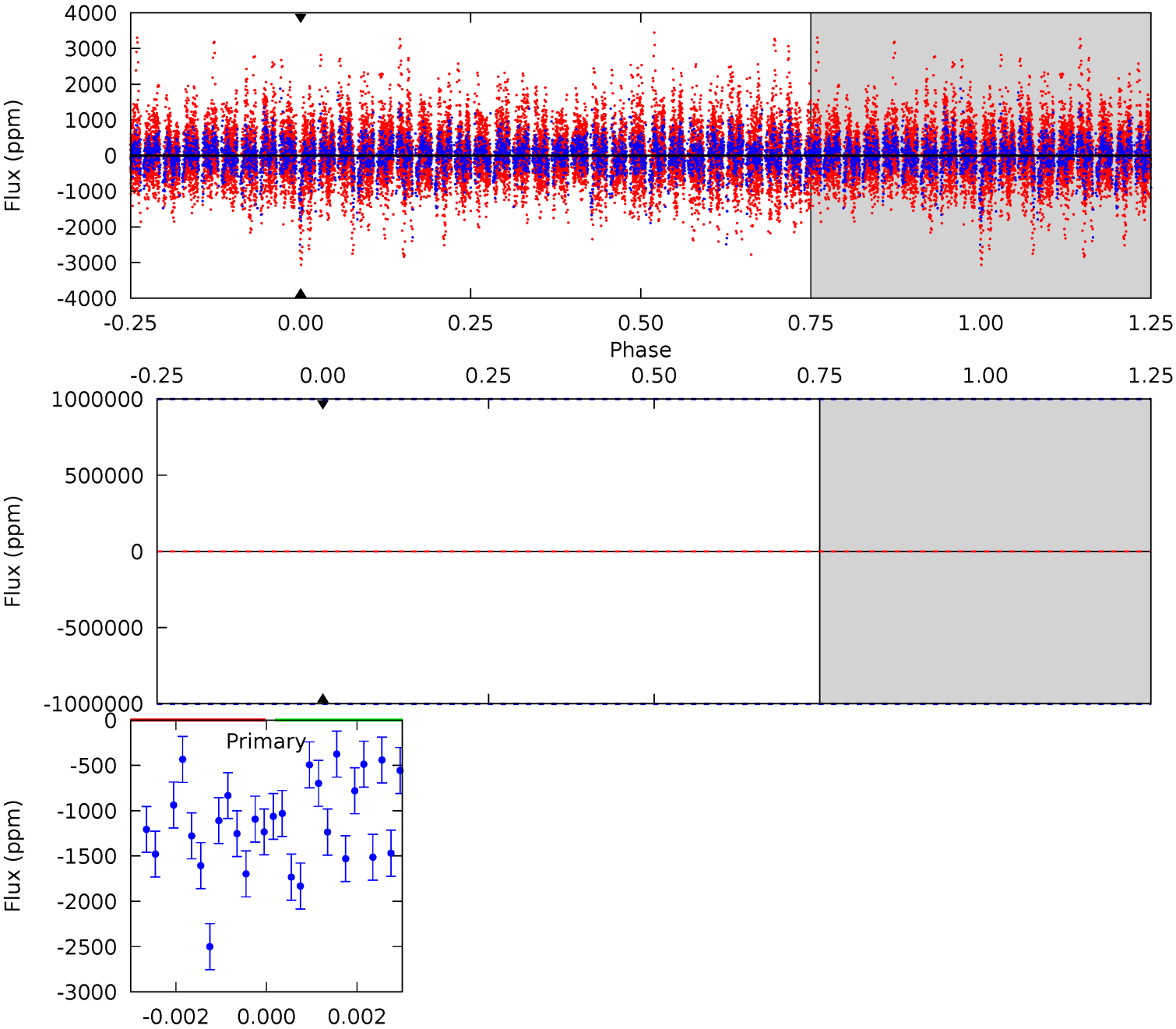
TCE 005895238-05   P= 25.749875 Days    $T_0=147.664499$  (BKJD)



# DV Model-Shift Uniqueness Test

005895238-05, P = 25.749875 Days, E = 121.927470 Days

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

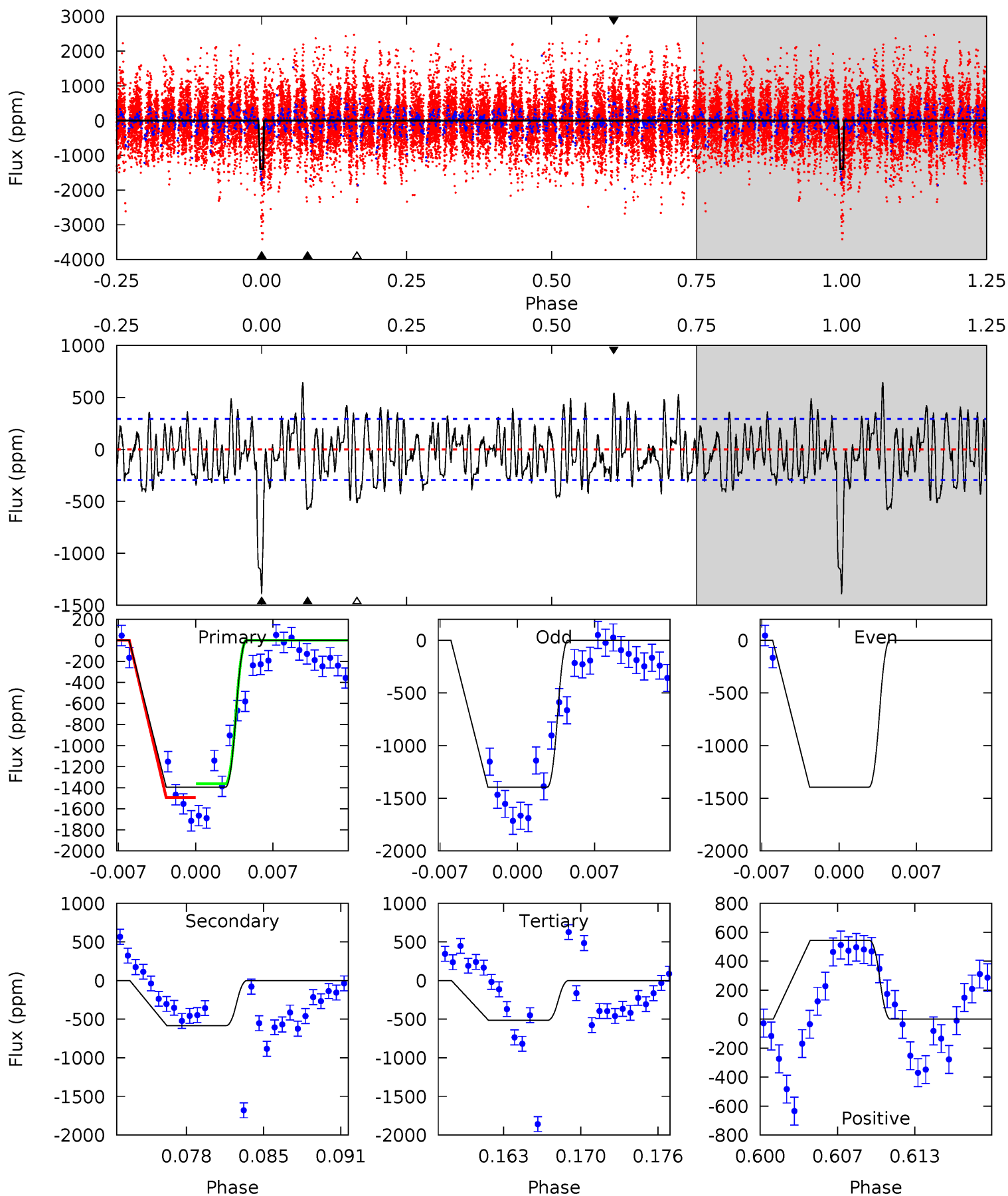




# Alt Model-Shift Uniqueness Test

005895238-05, P = 25.749875 Days, E = 121.914624 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
24.2	10.1	8.94	9.45	5.11	2.72	3.60	15.3	14.8	1.19	0.68	0	0.94	0.32	0.84



### Stellar Parameters For KIC 005895238

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7110^{+199}_{-313}$	$4.044^{+0.234}_{-0.156}$	$-0.240^{+0.300}_{-0.300}$	$1.894^{+0.548}_{-0.548}$	$1.447^{+0.218}_{-0.267}$	$0.300^{+0.381}_{-0.148}$
	+3%/-4%	+6%/-4%	+125%/-125%	+29%/-29%	+15%/-18%	+127%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005895238-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$14.23^{+16.76}_{-9.93}$	$1358^{+105}_{-111}$	$4719^{+31369}_{-42034}$	$63^{+18905}_{-17102}$
Alt.	$-583 \pm 57$	$17.10^{+17.14}_{-12.24}$	$1353^{+107}_{-113}$	$4017^{+2874}_{-818}$	$40^{+471}_{-30}$

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

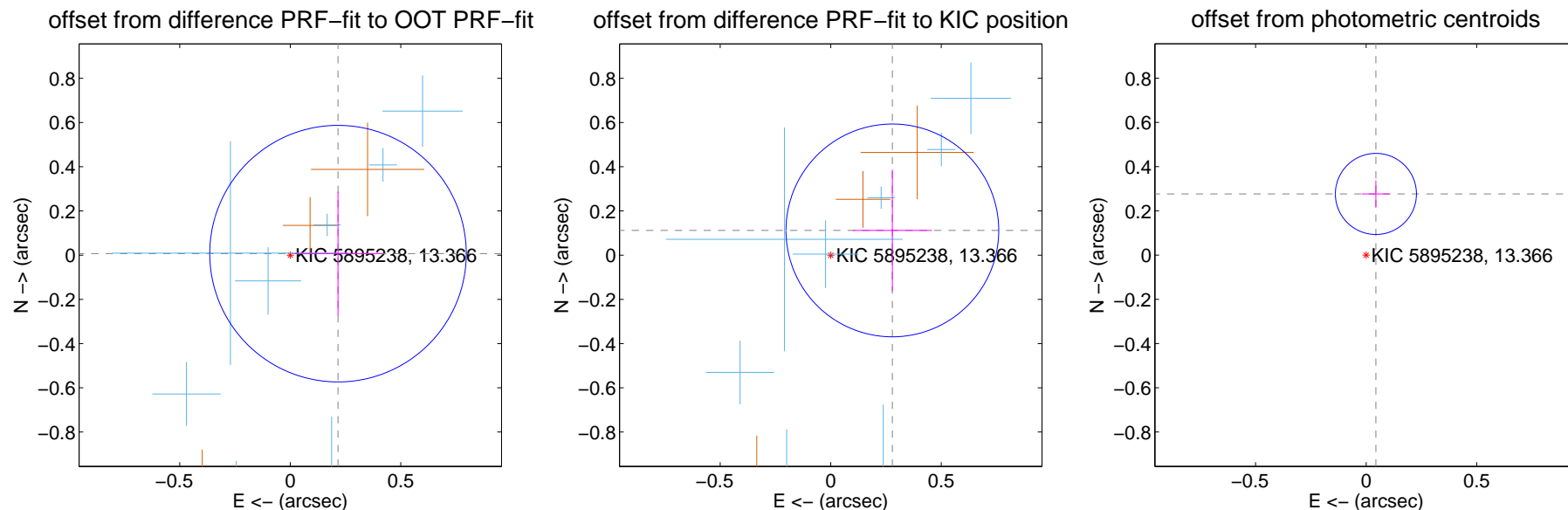
## DV Centroid Data

Supplemental centroid analysis for 005895238-05. Kepler magnitude: 13.37. Transit SNR -1.00

There are 11 quarters with good PRF difference image offsets

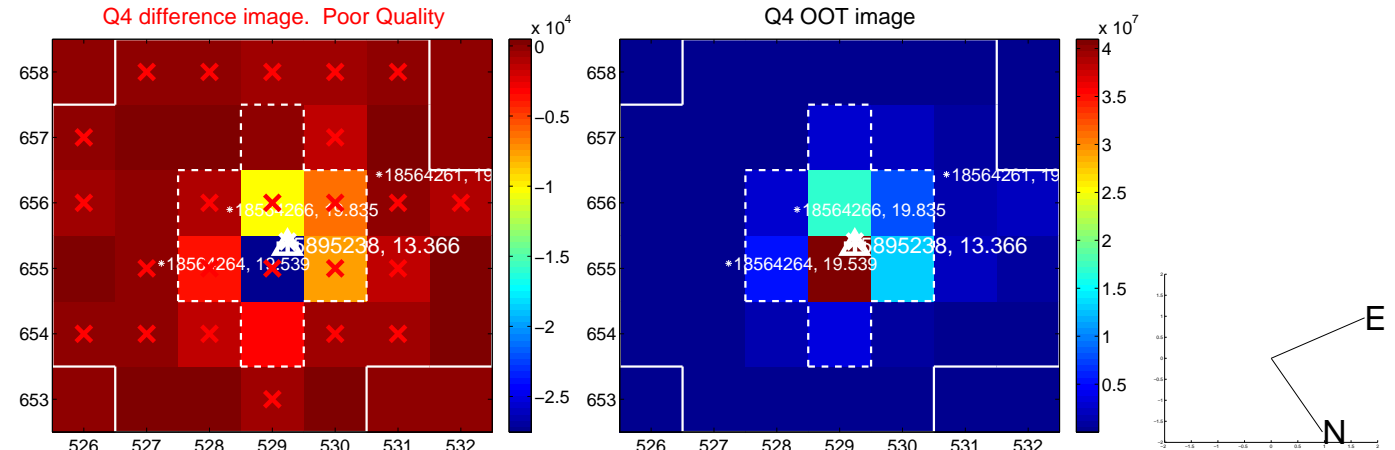
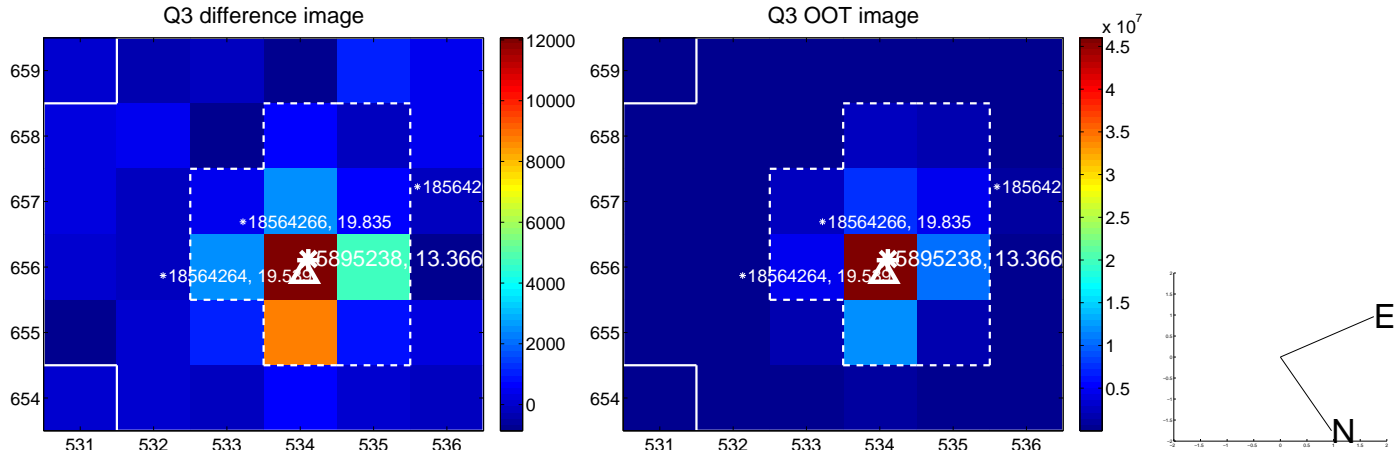
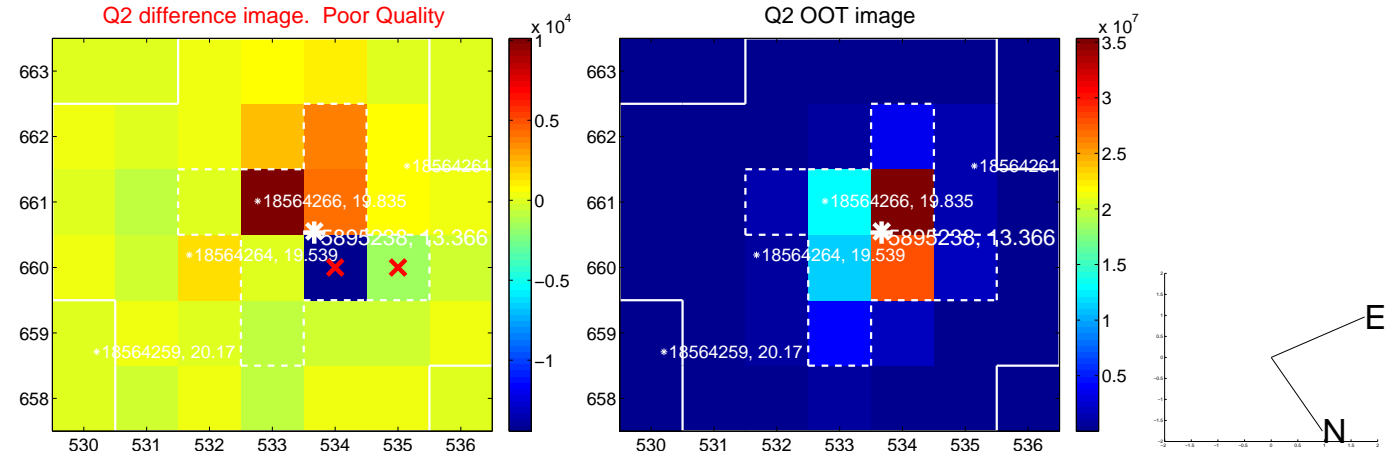
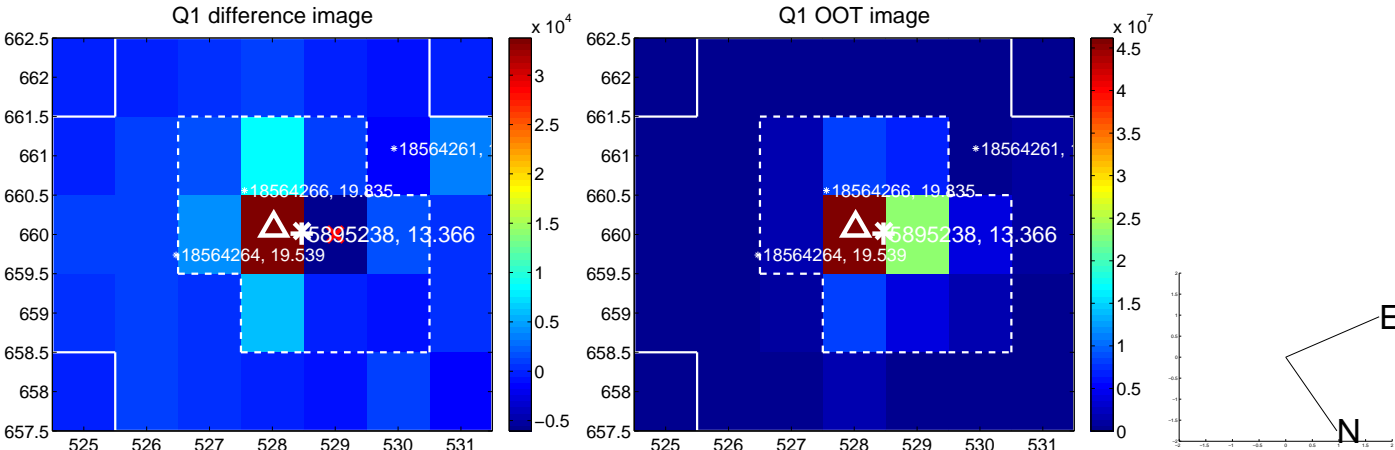
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.216 \pm 0.193$	1.12	$-0.216 \pm 0.196$	$0.007 \pm 0.280$
PRF-fit source offset from KIC position	$0.301 \pm 0.160$	1.87	$-0.279 \pm 0.179$	$0.112 \pm 0.275$
photometric centroid source offset	$0.28 \pm 0.06$	4.58	$-0.04 \pm 0.06$	$0.28 \pm 0.06$

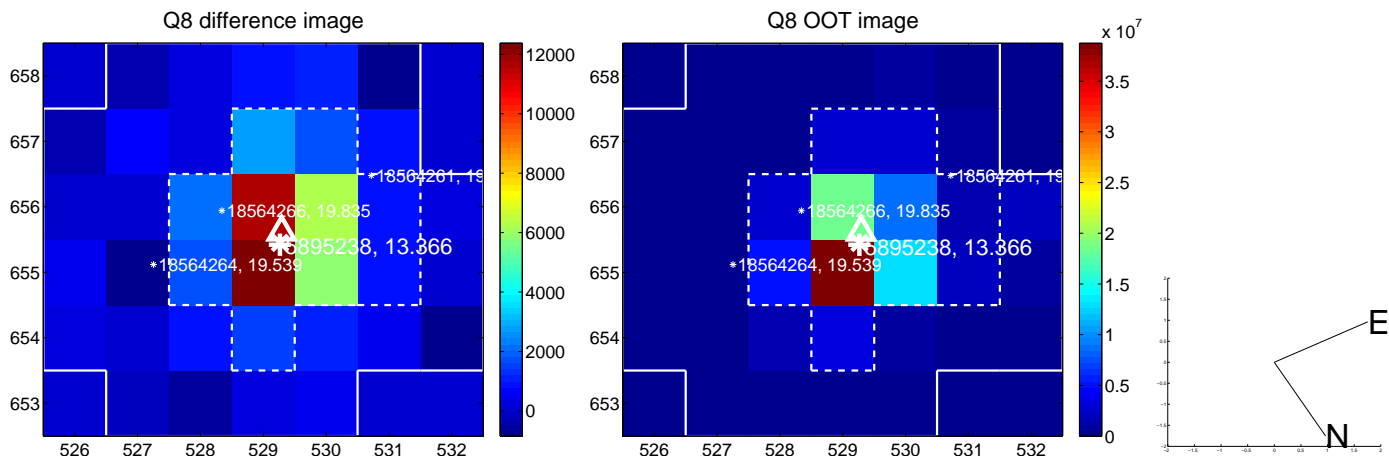
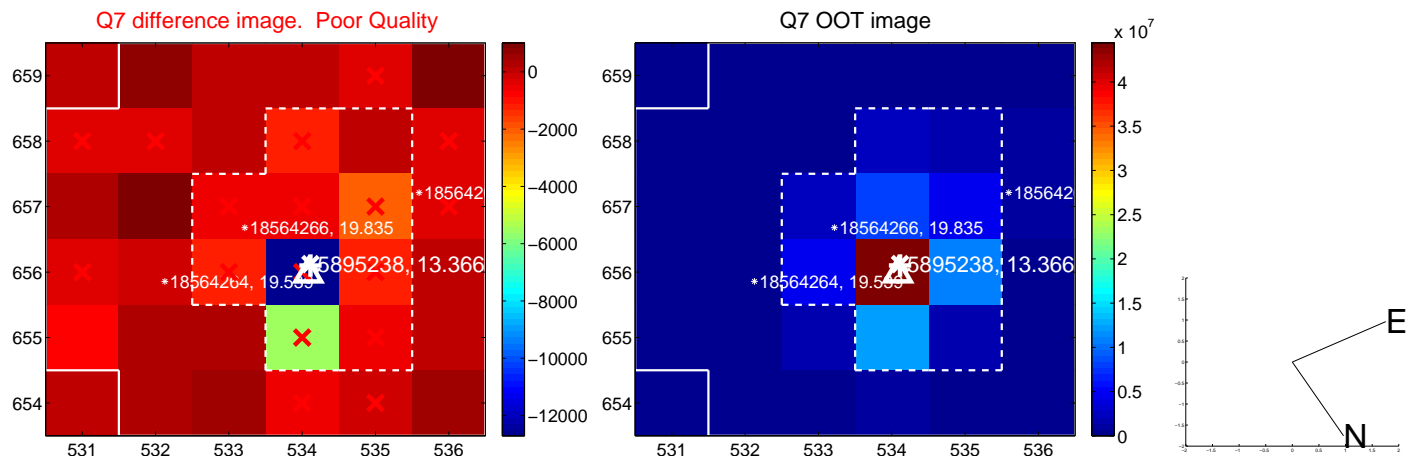
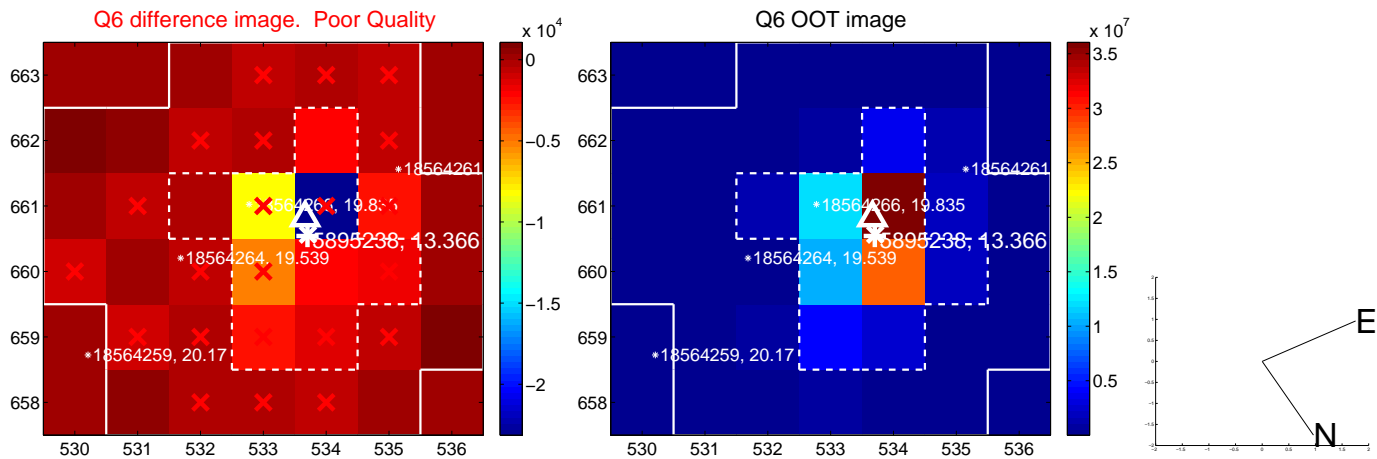
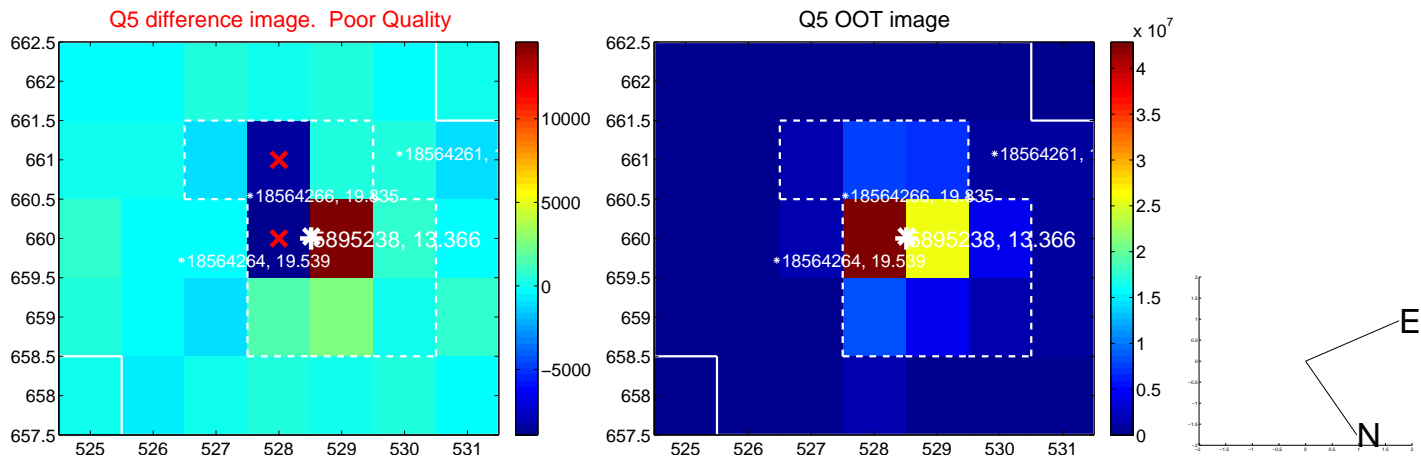


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

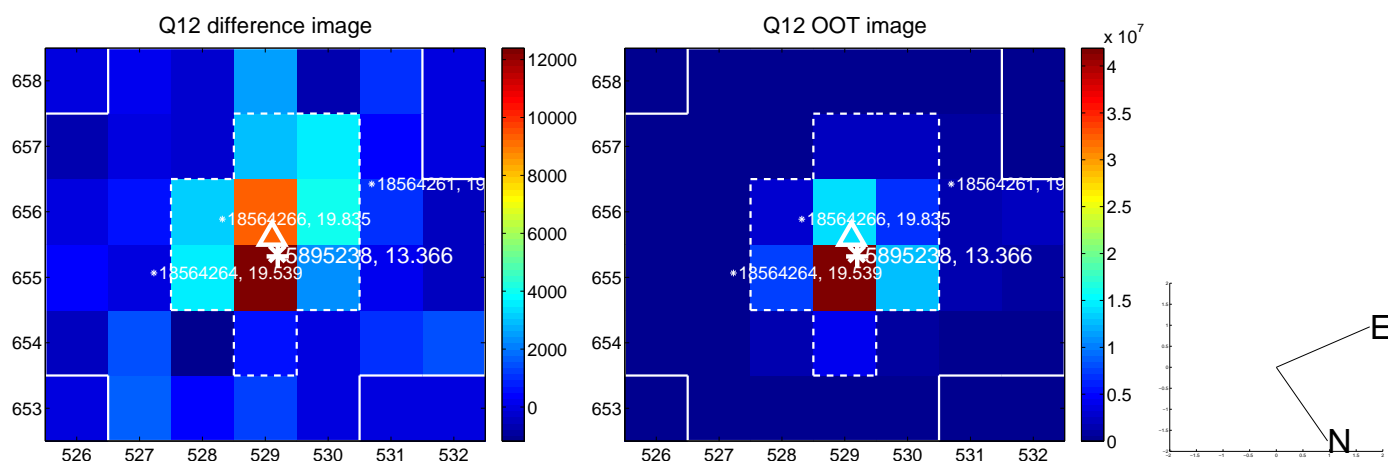
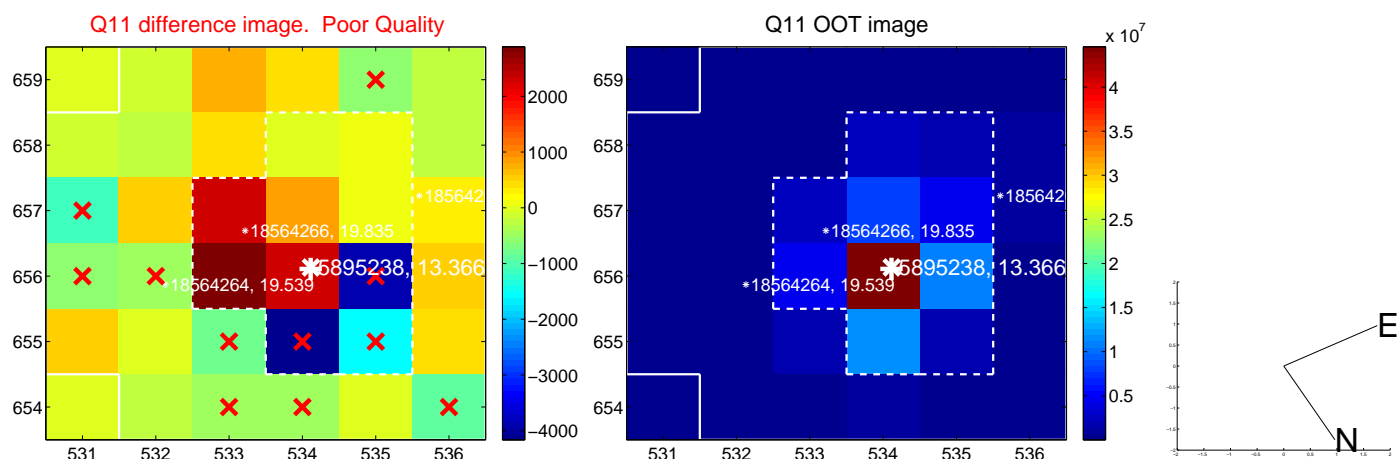
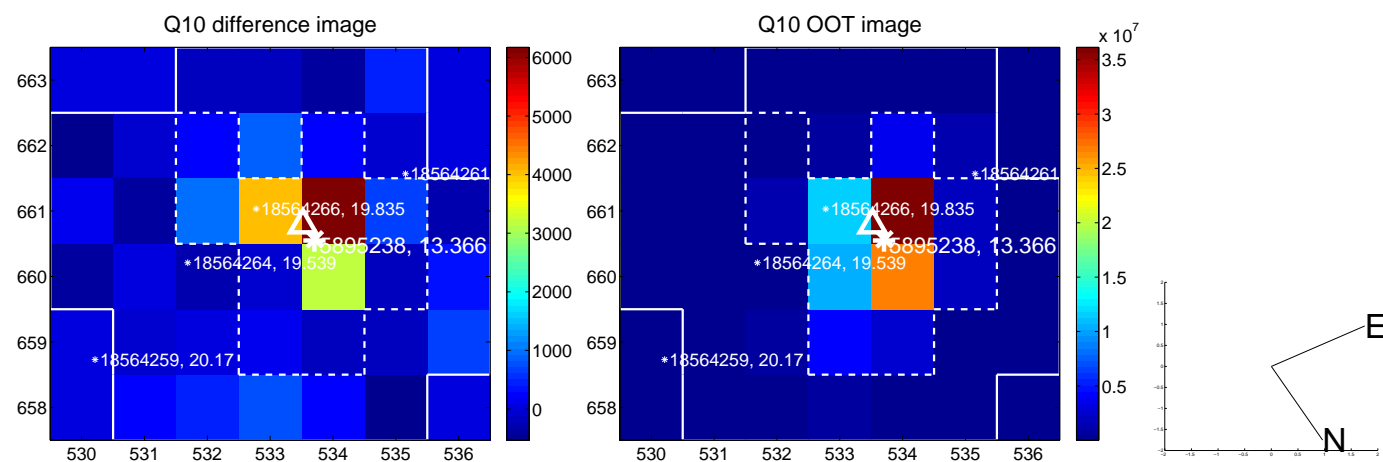
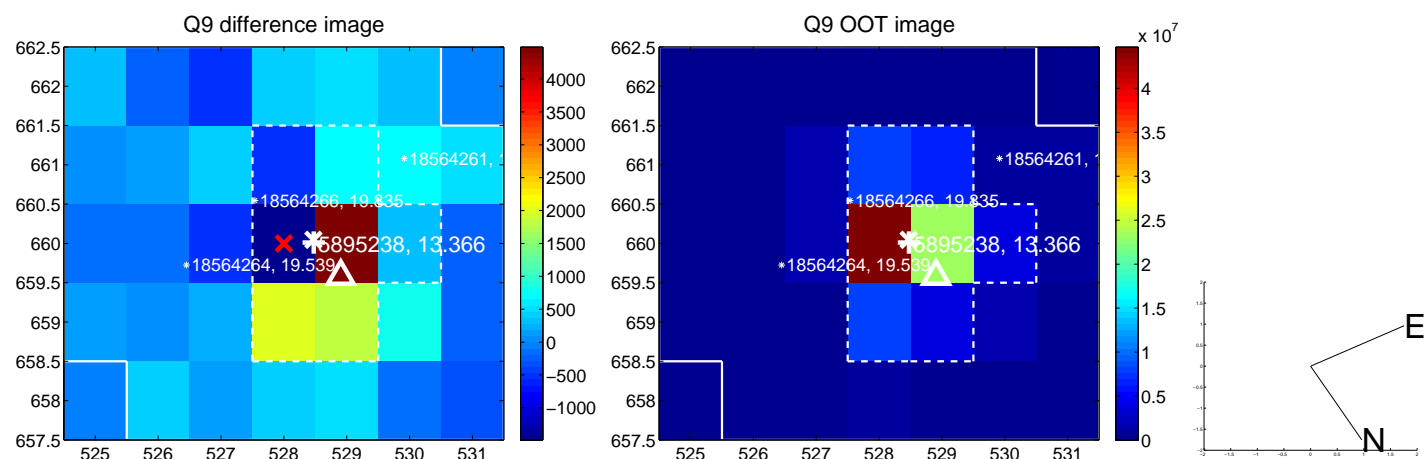
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

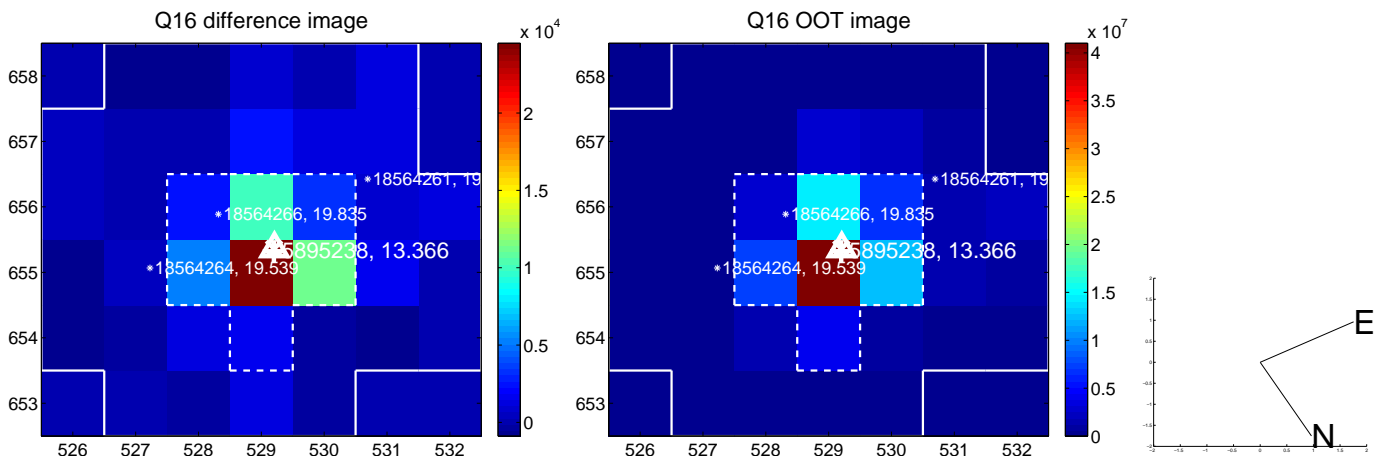
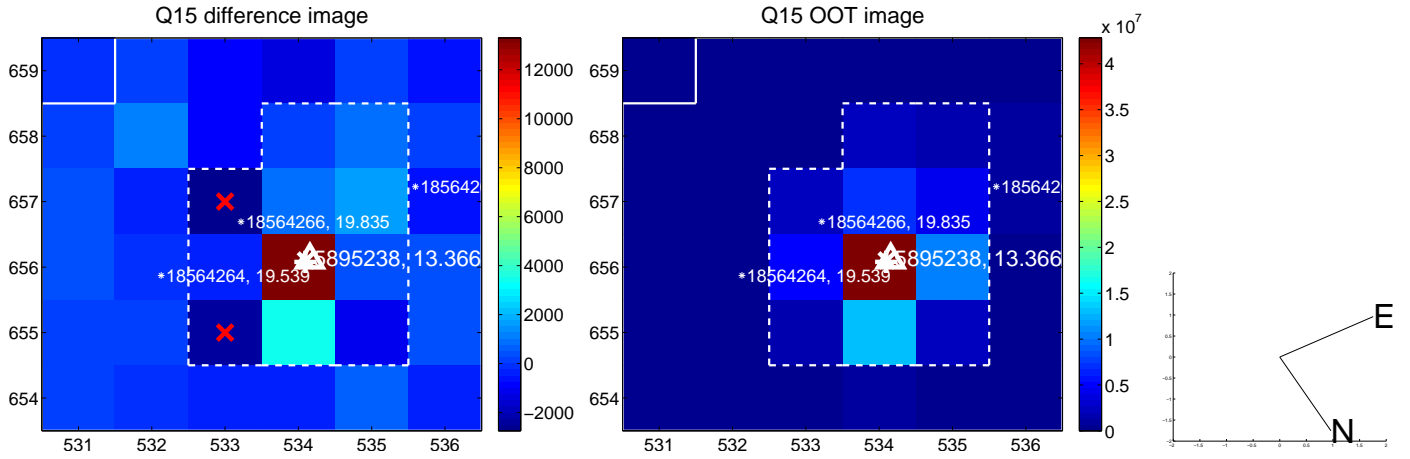
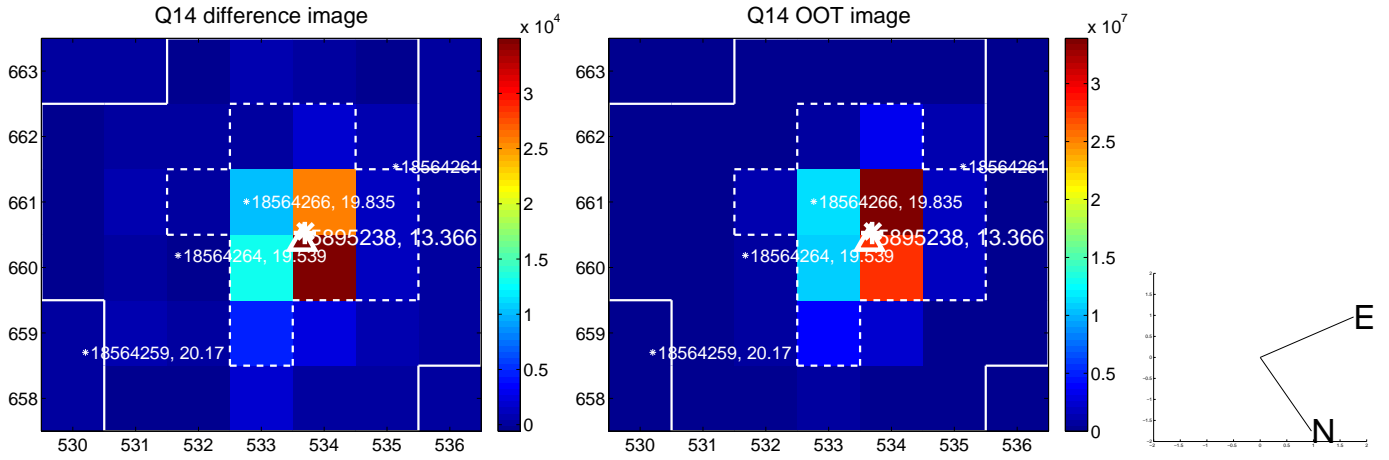
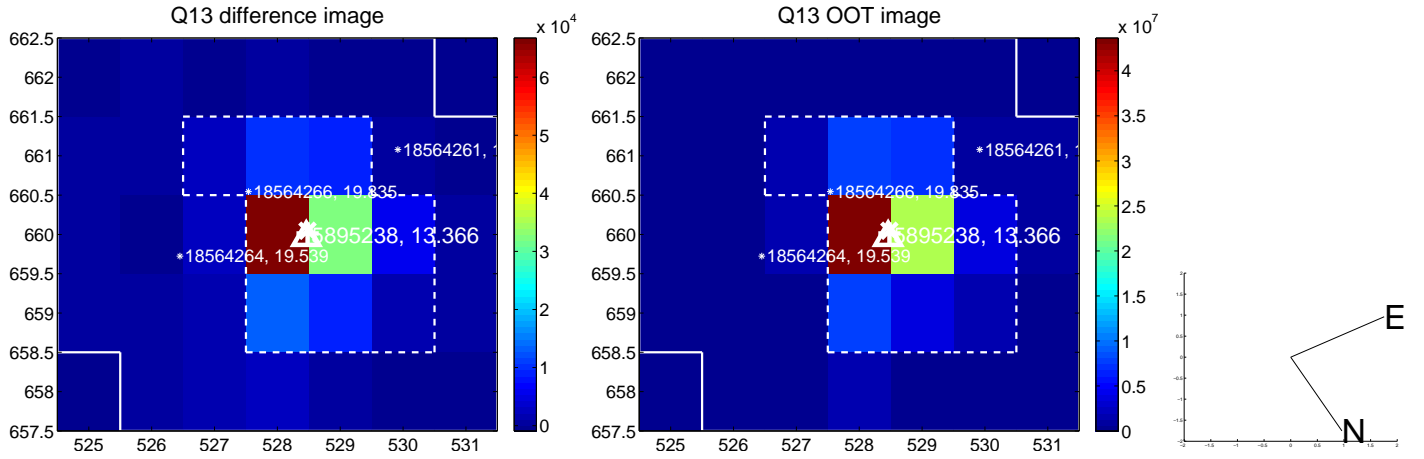


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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





# UKIRT Image

Declination

