

# KIC 008058211

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008058211-01	OBS	No	343.392695	241.273619	2812.1	3.204	15.4	8.0	0.68	4261	3.43	0.19
008058211-02	OBS	No	0.562463	131.933666	122.1	3.675	8.1	9.0	0.68	4261	0.73	999.03
008058211-03	OBS	No	53.312622	184.886035	565.5	3.045	15.3	2.0	0.68	4261	1.83	2.31
008058211-04	OBS	No	44.573914	148.164955	1138.8	22.043	9.5	4.1	0.68	4261	2.48	2.94
008058211-05	OBS	No	66.573288	164.259179	1019.0	3.500	7.3	-1.0	0.68	4261	2.07	1.72

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008058211-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008058211-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
008058211-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008058211-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_ALT
008058211-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS—HALO_GHOST

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

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

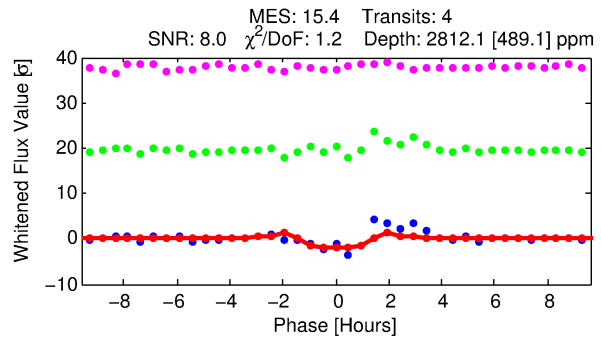
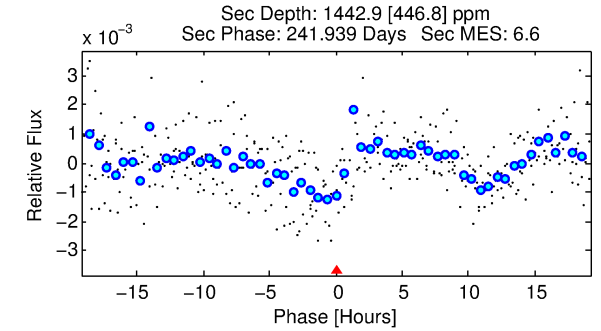
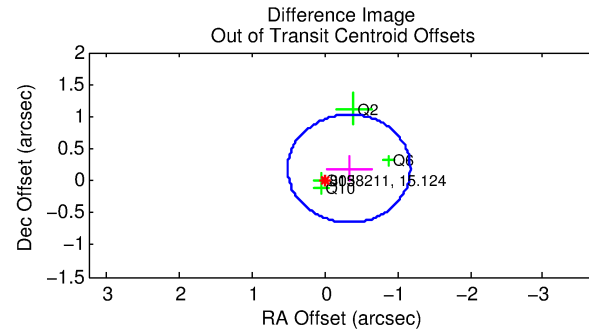
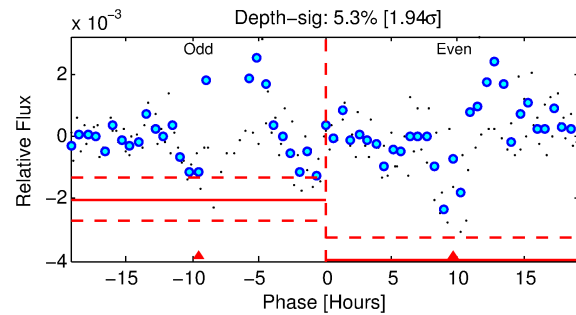
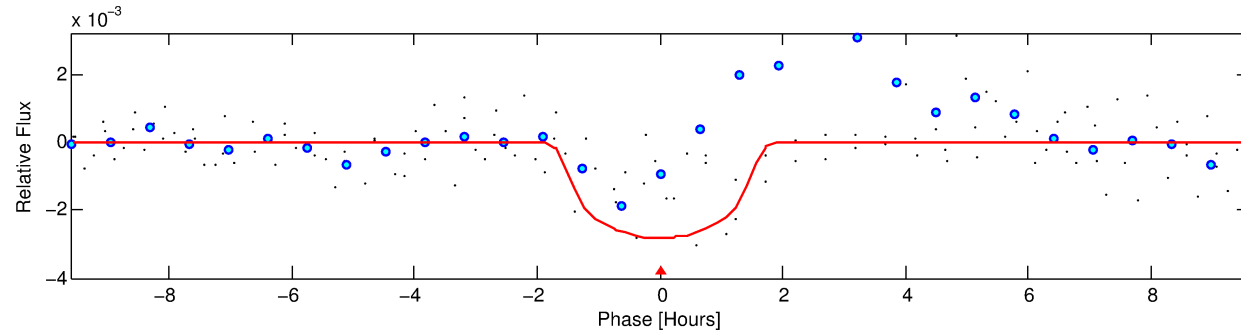
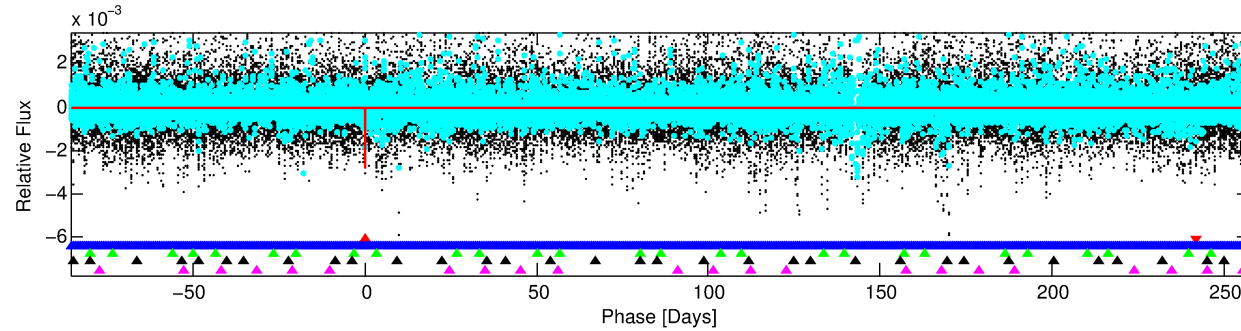
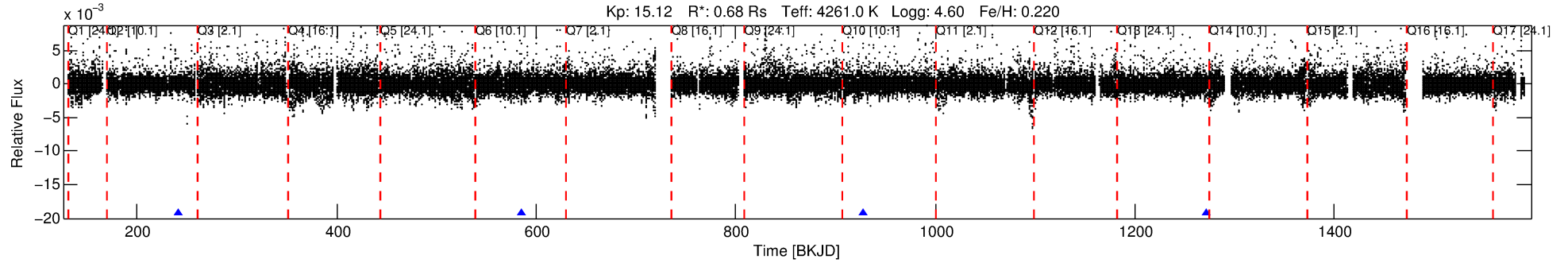
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008058211-01

No Significant Match Found

# DV One-Page Summary

KIC: 8058211 Candidate: 1 of 5 Period: 343.393 d



## DV Fit Results:

Period = 343.39270 [0.00406] d  
Epoch = 241.2736 [0.0070] BKJD  
Rp/R\* = 0.0462 [0.0642]  
a/R\* = 856.46 [3257.01]  
b = 0.00 [2674.24]  
Seff = 0.19 [0.03]  
Teq = 169 [7] K  
Rp = 3.43 [4.78] Re  
a = 0.8427 [0.0582] AU  
Ag = 47866.73 [133968.37] [0.36 $\sigma$ ]  
Teffp = 3865 [2705] K [1.37 $\sigma$ ]

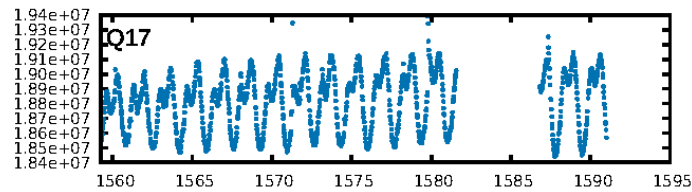
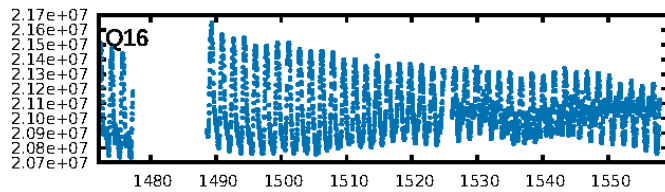
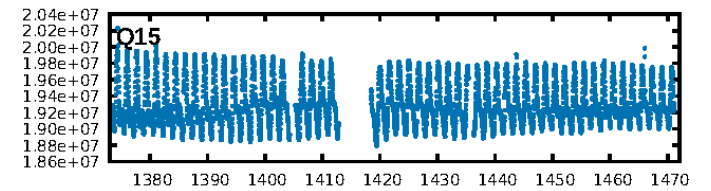
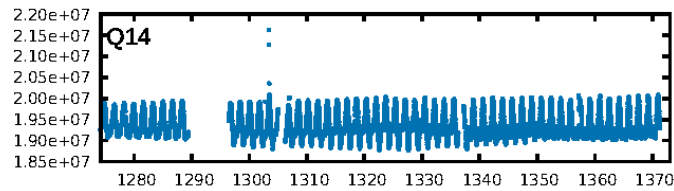
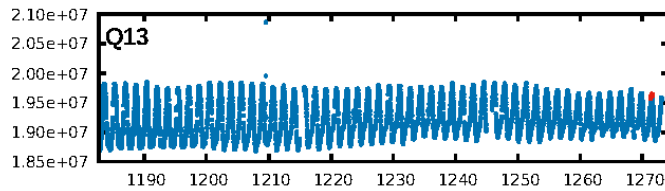
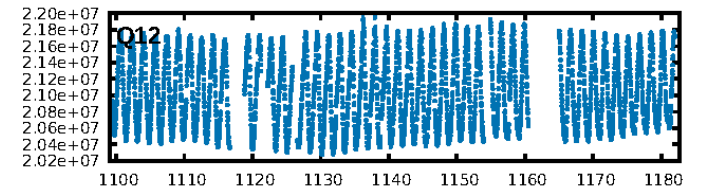
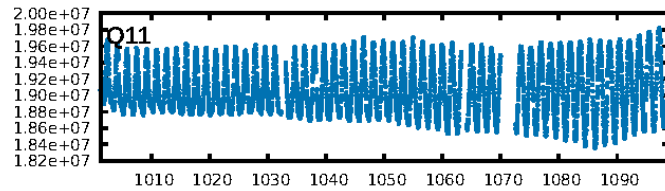
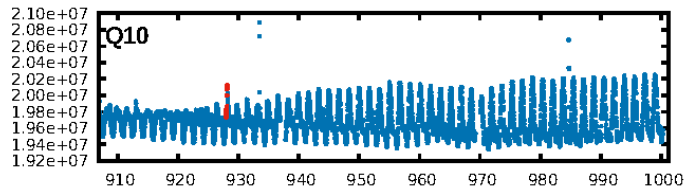
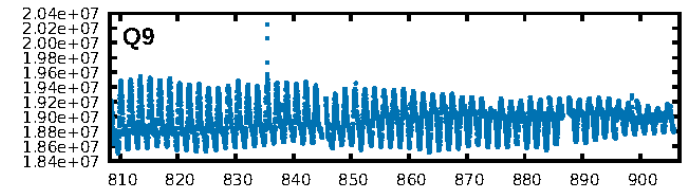
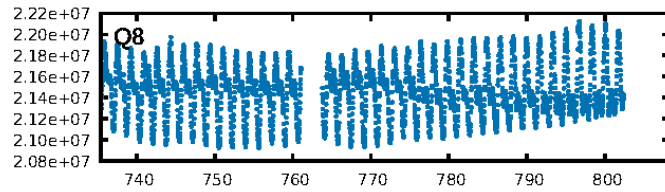
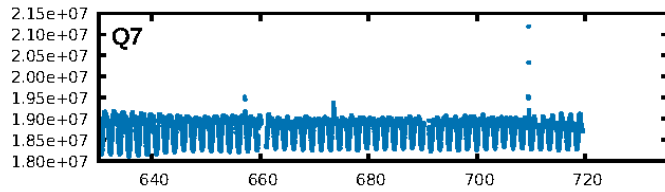
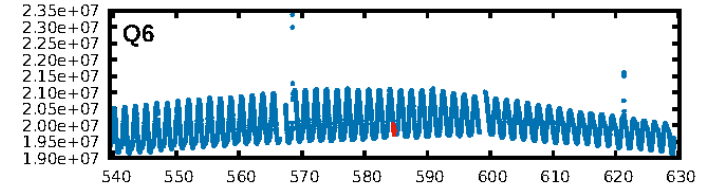
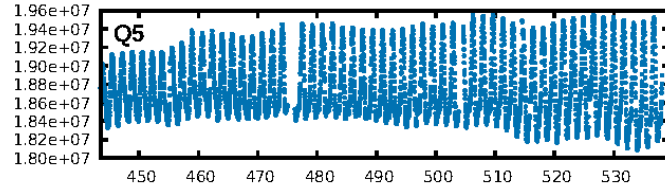
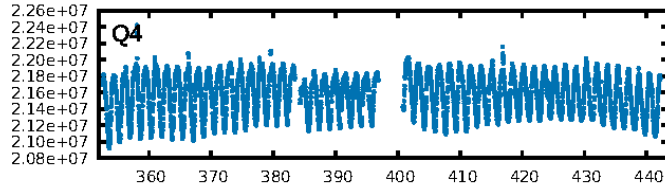
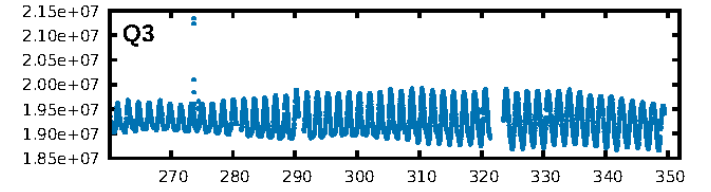
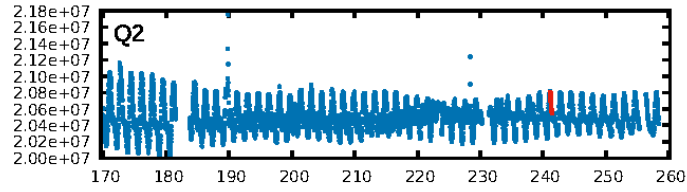
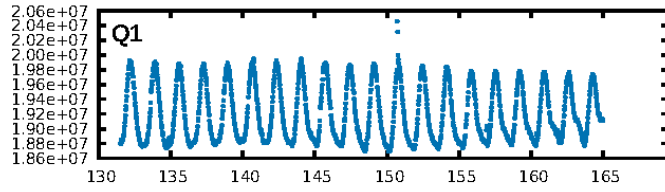
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1400.04 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 5.4%  
ModelChiSquareGof-sig: 66.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 2.089  
Centroid-sig: 6.7%  
Centroid-so: 1.941 arcsec [3.53 $\sigma$ ]  
OotOffset-rm: 0.384 arcsec [1.37 $\sigma$ ]  
OotOffset-st: 3/0/0/1 [4]  
KicOffset-rm: 0.503 arcsec [4.57 $\sigma$ ]  
KicOffset-st: 3/0/0/1 [4]  
DiffImageQuality-fgm: 0.25 [1/4]  
DiffImageOverlap-fno: 0.00 [0/4]

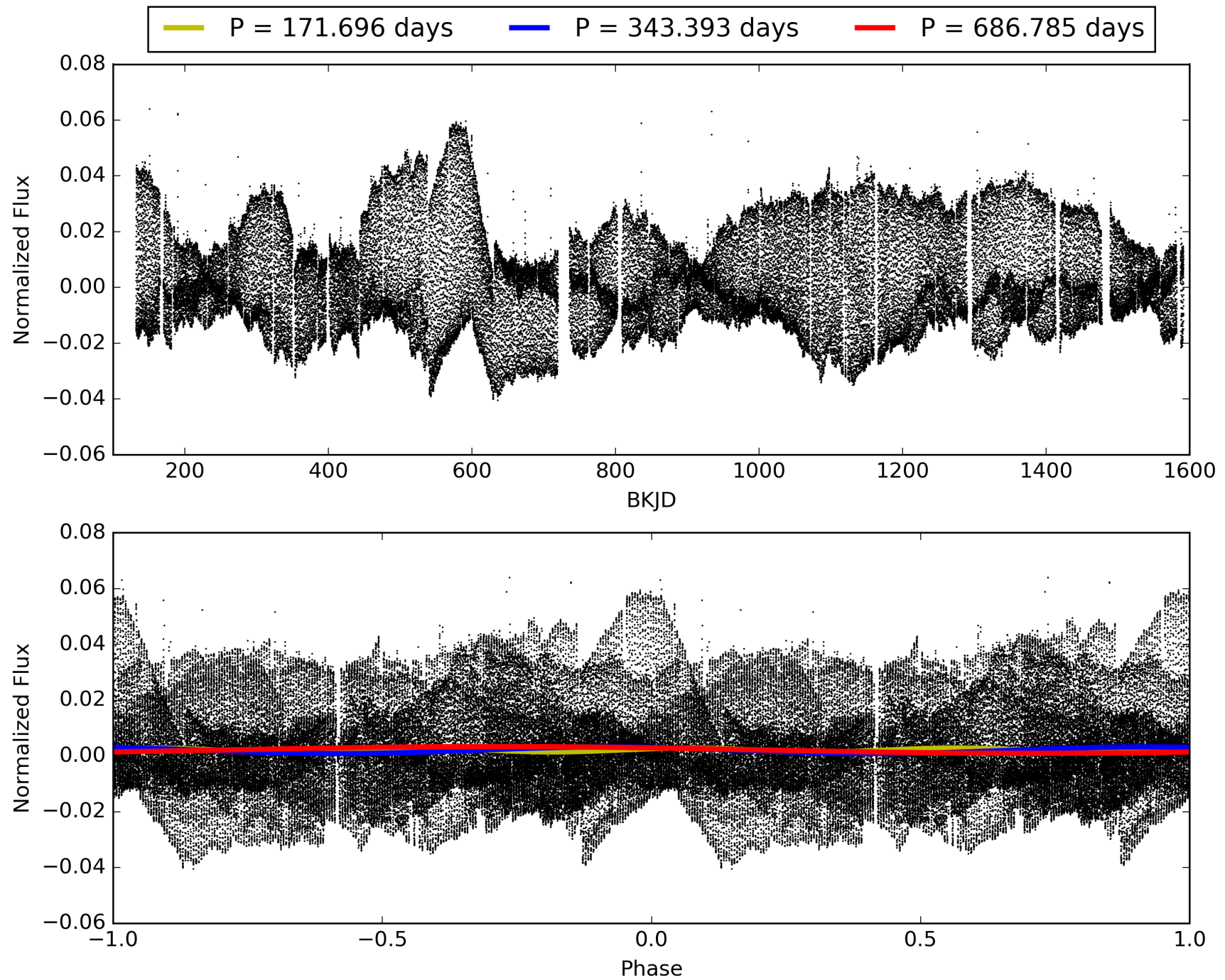
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:26:04 Z

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

# TCE 008058211-01, PDC Light Curves



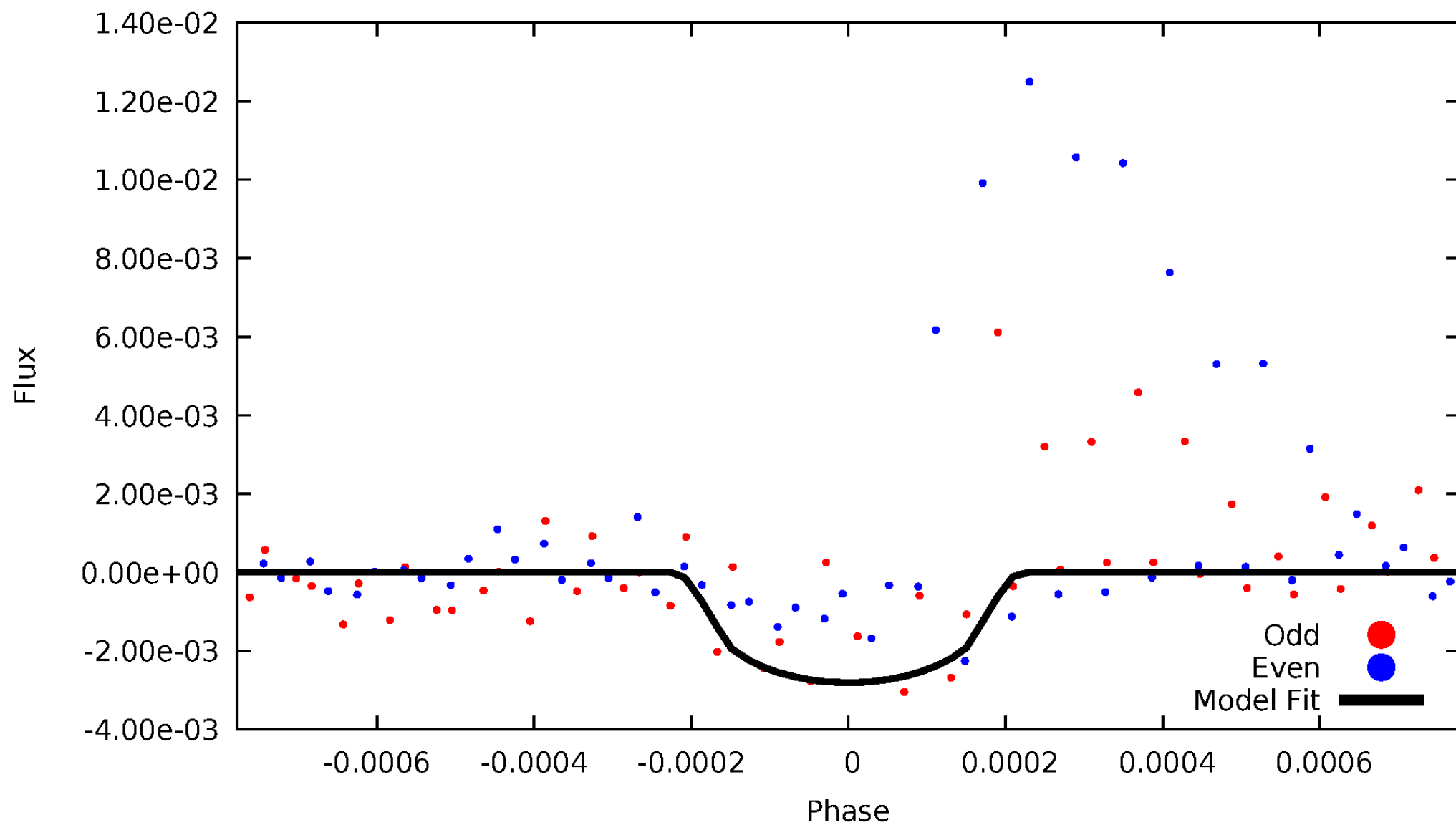
TCE 008058211-01





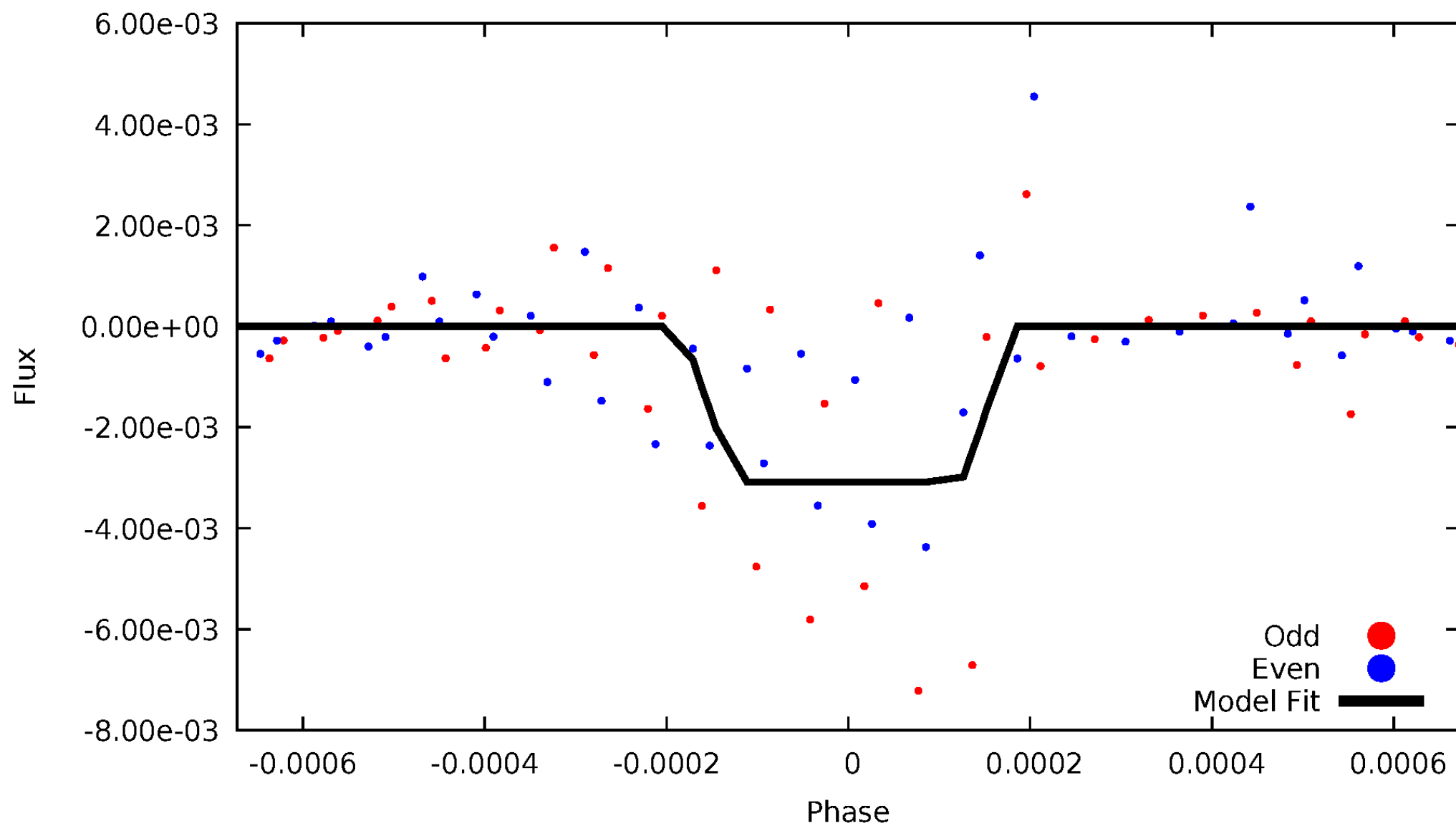
# DV Odd/Even

TCE 008058211-01

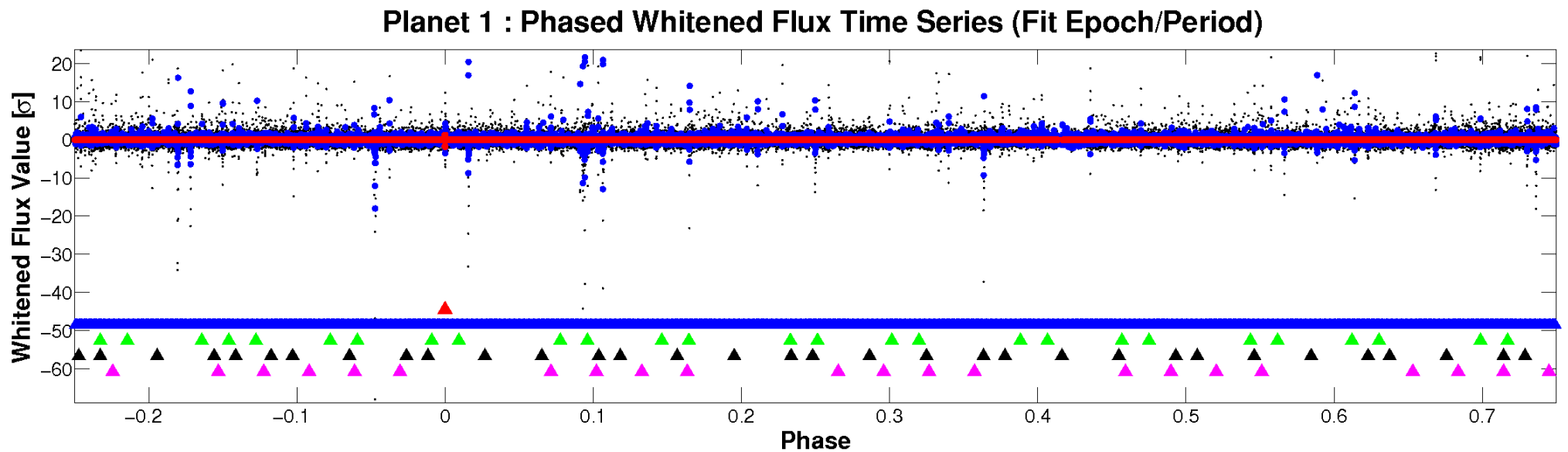
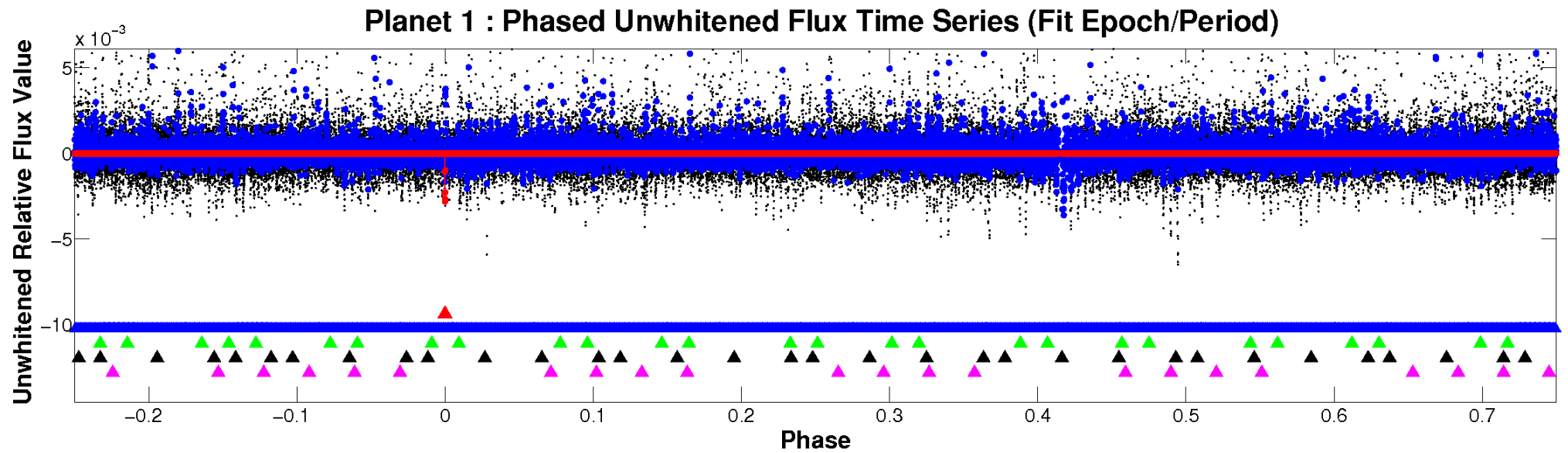


# ALT Odd/Even

TCE 008058211-01

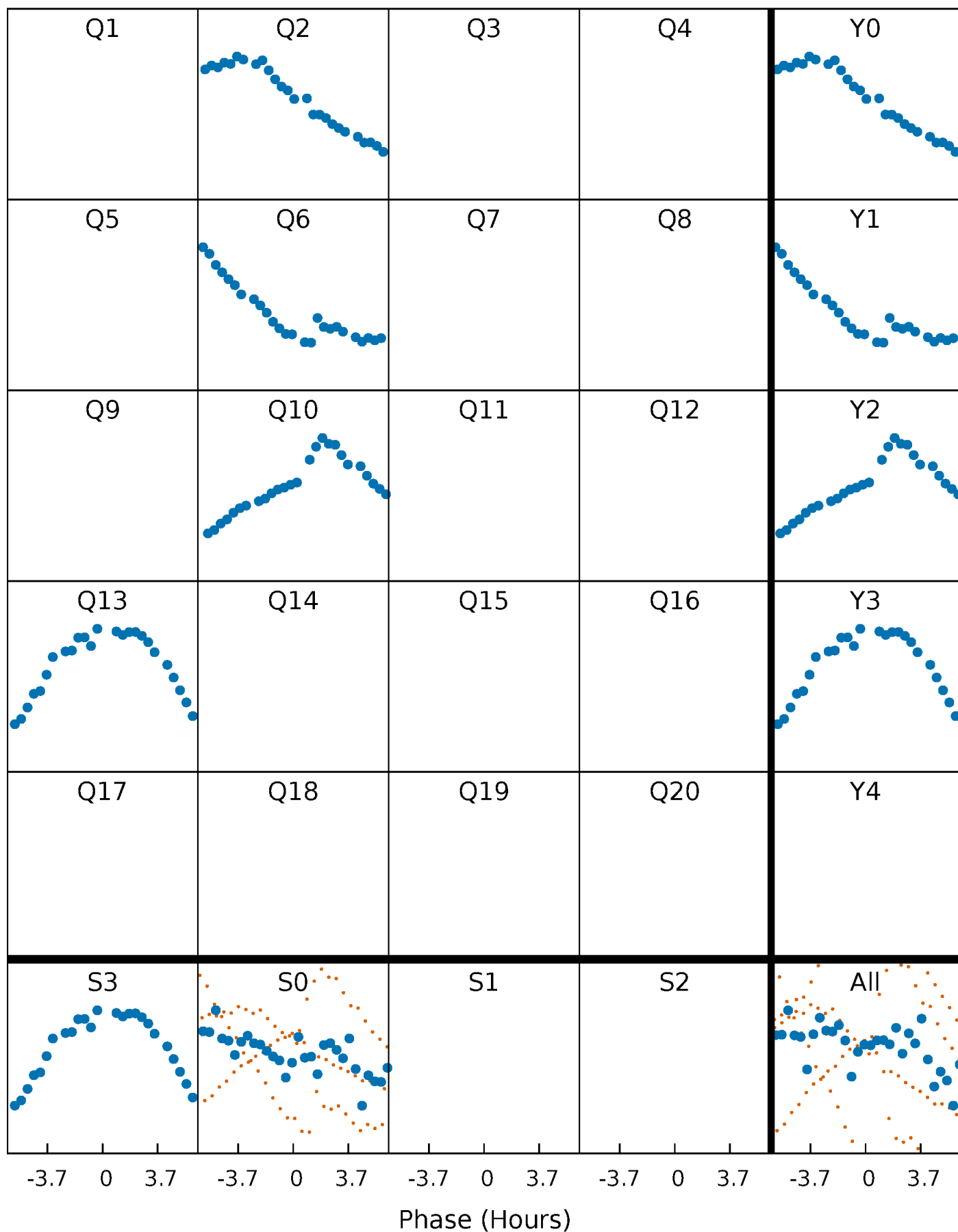


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

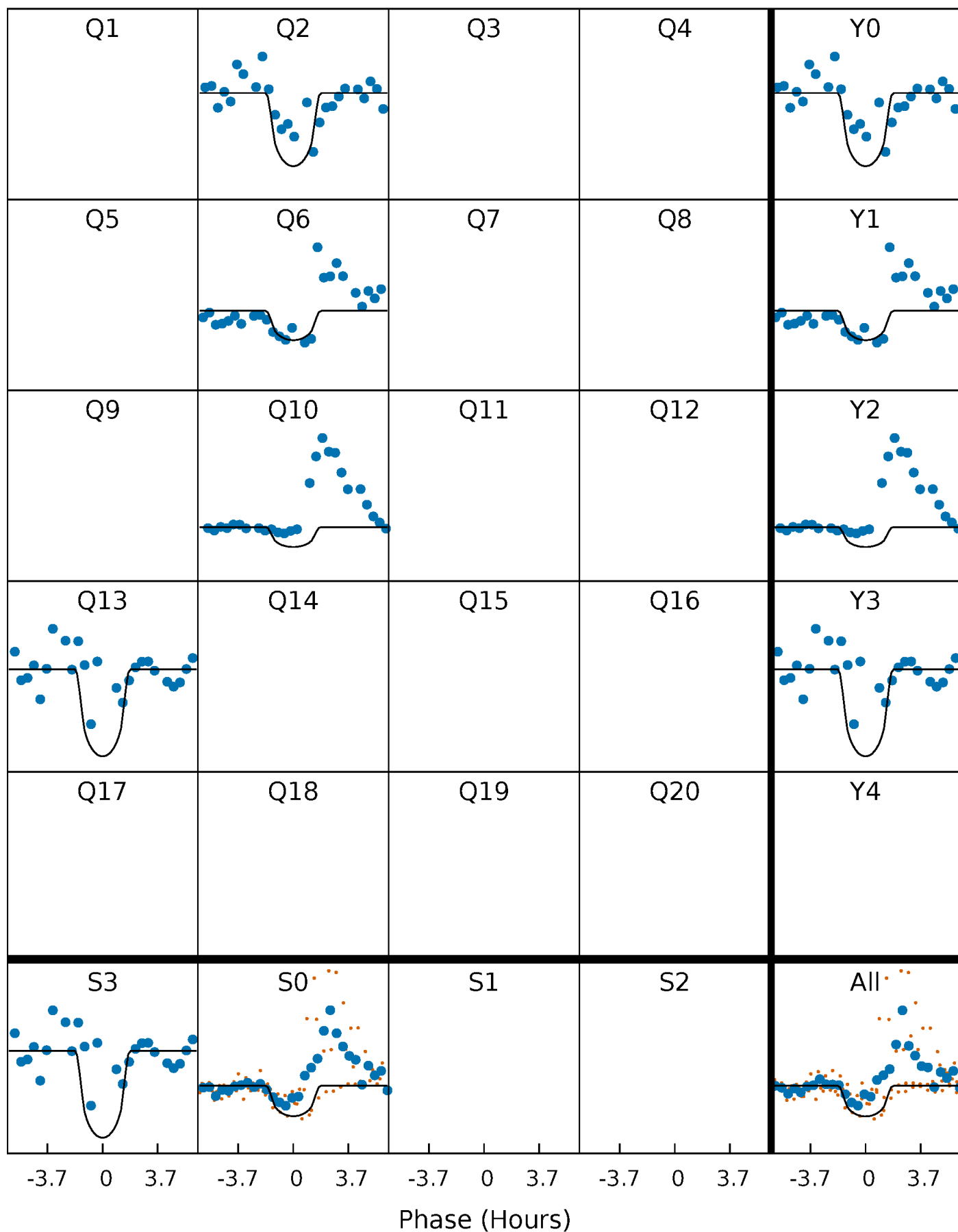
TCE 008058211-01 P=343.392695 Days  $T_0=241.273619$  (BKJD)





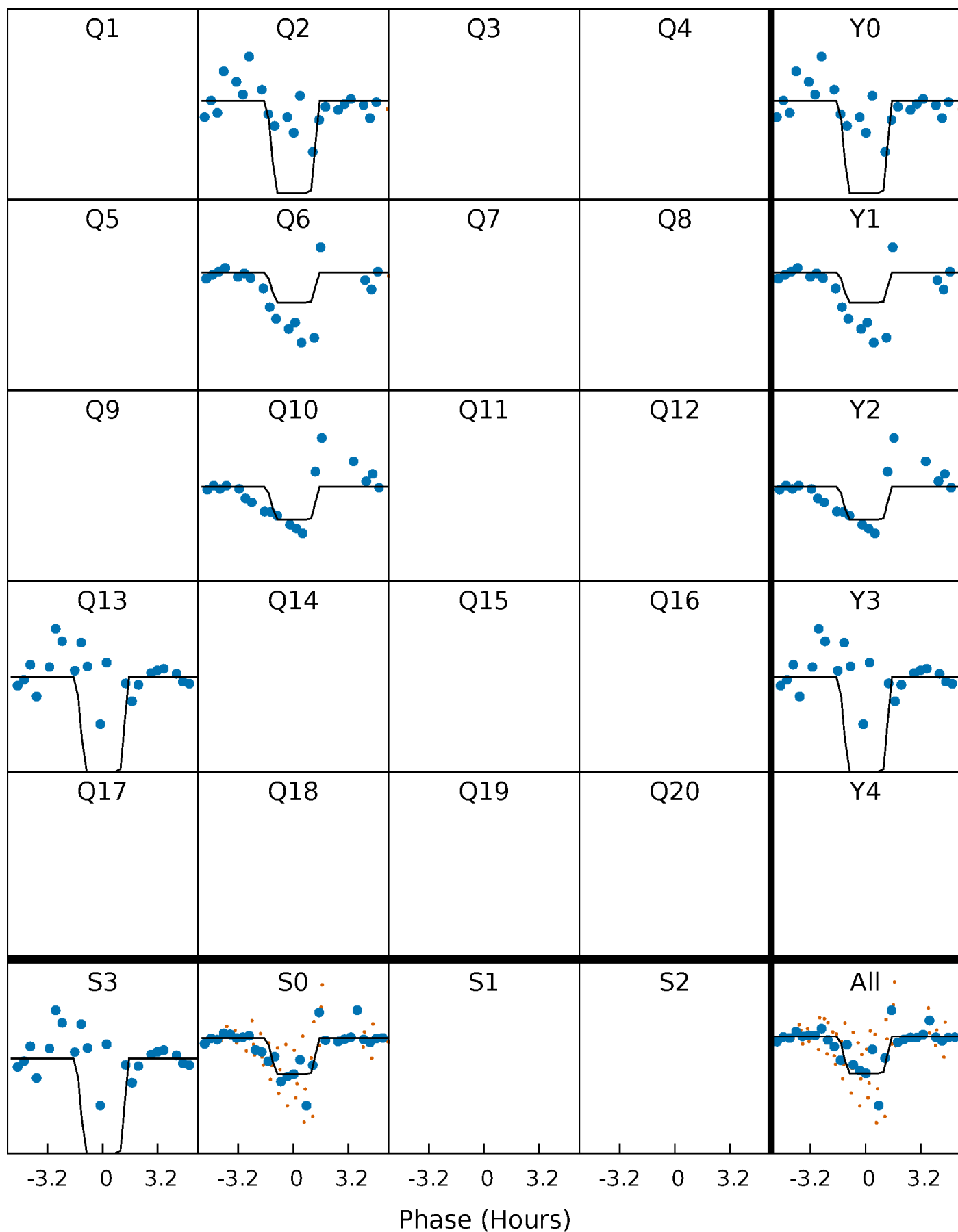
# DV Quarter-Phased Transit Curves

TCE 008058211-01 P=343.392695 Days  $T_0=241.273619$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

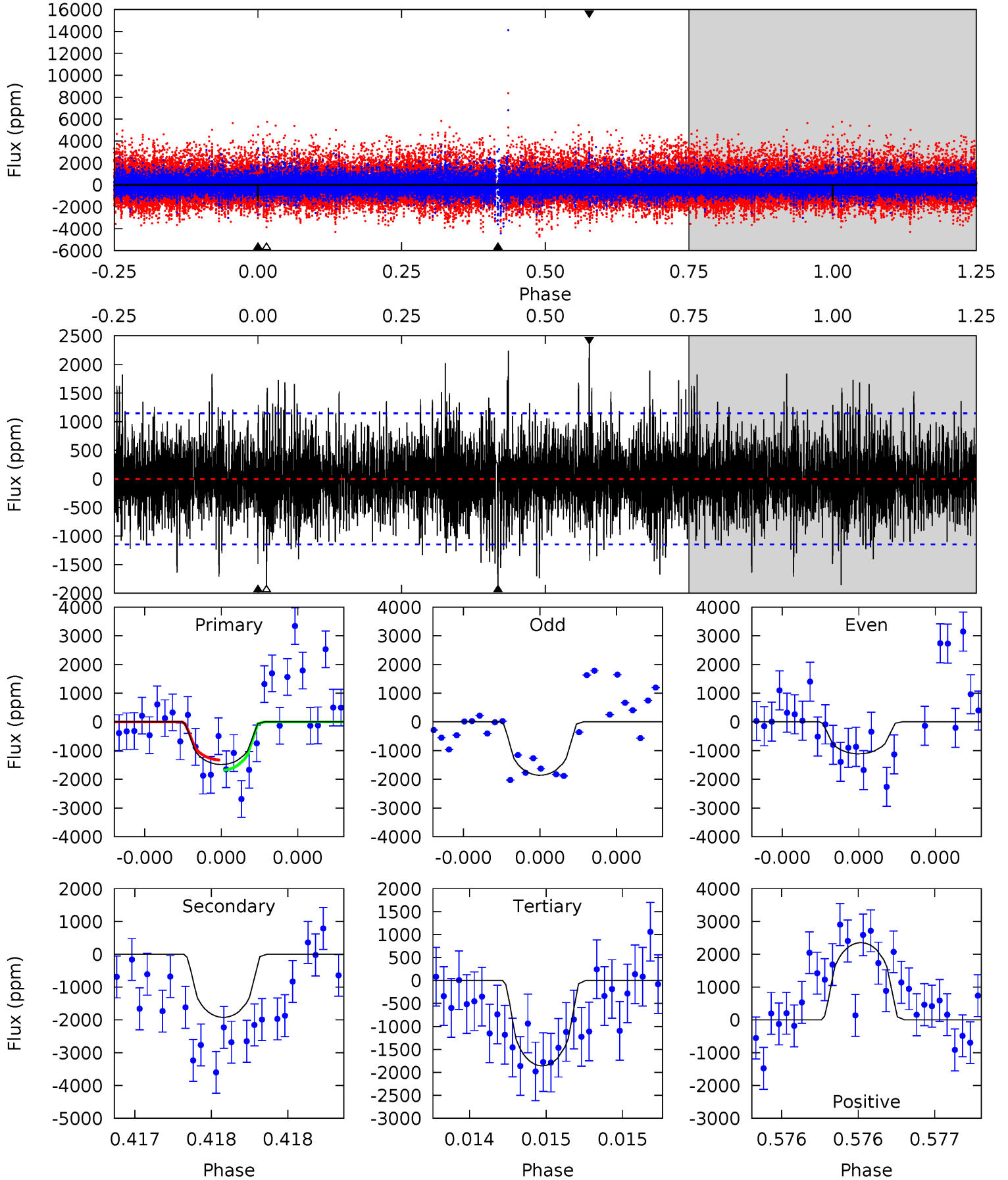
TCE 008058211-01 P=343.383182 Days  $T_0=241.281139$  (BKJD)



# DV Model-Shift Uniqueness Test

008058211-01, P = 343.392695 Days, E = 241.273619 Days

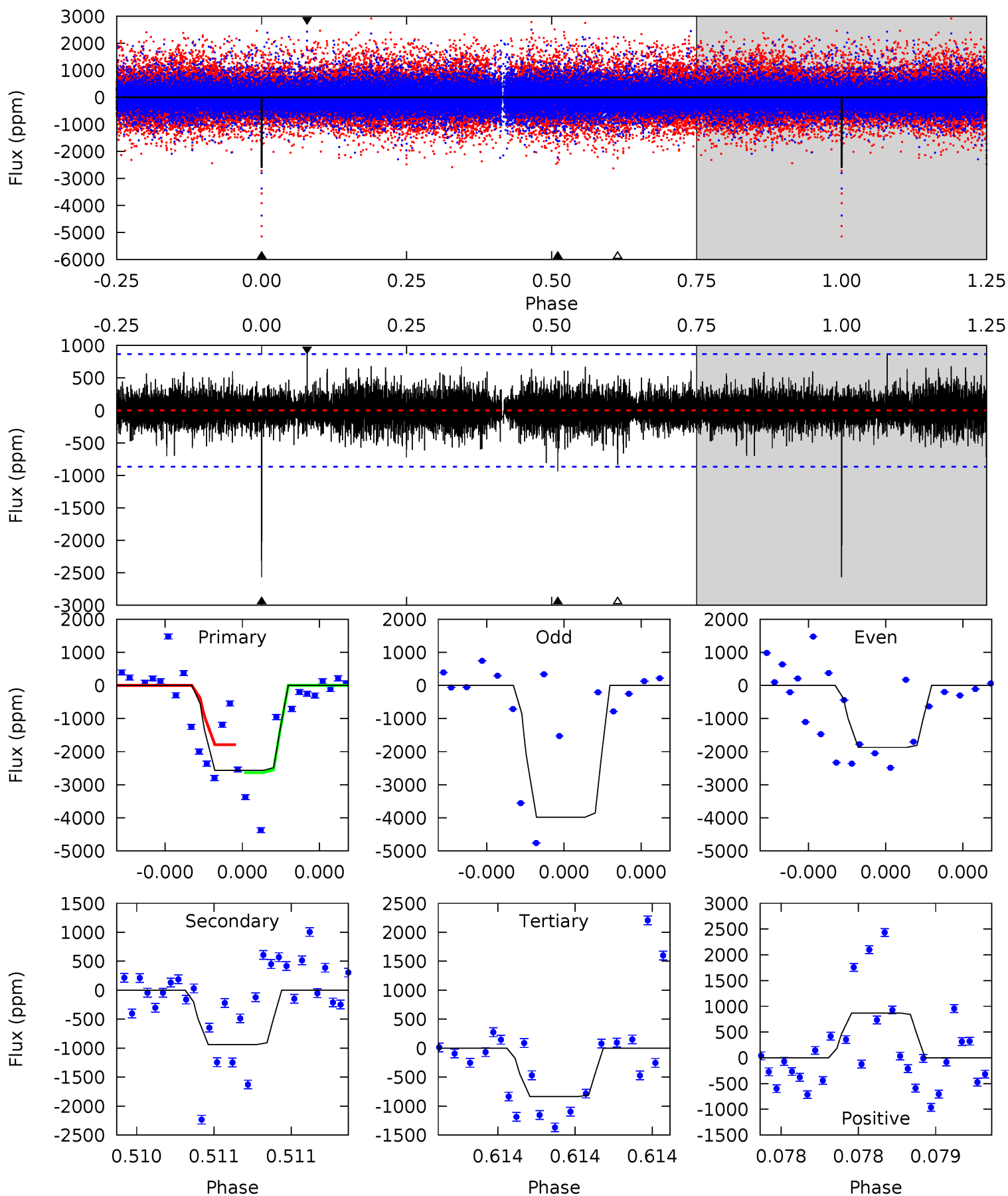
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.25	9.38	9.07	11.5	5.60	3.52	2.26	-1.82	-4.23	0.32	-2.10	1.72	0.70	0.55	0.87



# Alt Model-Shift Uniqueness Test

008058211-01, P = 343.383182 Days, E = 241.281139 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.7	6.11	5.44	5.67	5.65	3.60	1.08	11.3	11.1	0.67	0.44	7.16	1.29	0.25	2.44





### Stellar Parameters For KIC 008058211

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4261^{+129}_{-142}$	$4.602^{+0.053}_{-0.018}$	$0.220^{+0.200}_{-0.300}$	$0.681^{+0.028}_{-0.057}$	$0.677^{+0.042}_{-0.052}$	$3.016^{+0.695}_{-0.201}$
	+3%/-3%	+1%/-0%	+91%/-136%	+4%/-8%	+6%/-8%	+23%/-7%
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 008058211-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1922 \pm 205$	$4.98^{+3.82}_{-3.27}$	$235^{+8}_{-9}$	$3671^{+1906}_{-600}$	$30129^{+233674}_{-20265}$
Alt.	$-938 \pm 153$	$5.34^{+4.14}_{-3.55}$	$234^{+8}_{-8}$	$3201^{+1409}_{-486}$	$12738^{+99752}_{-8686}$

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

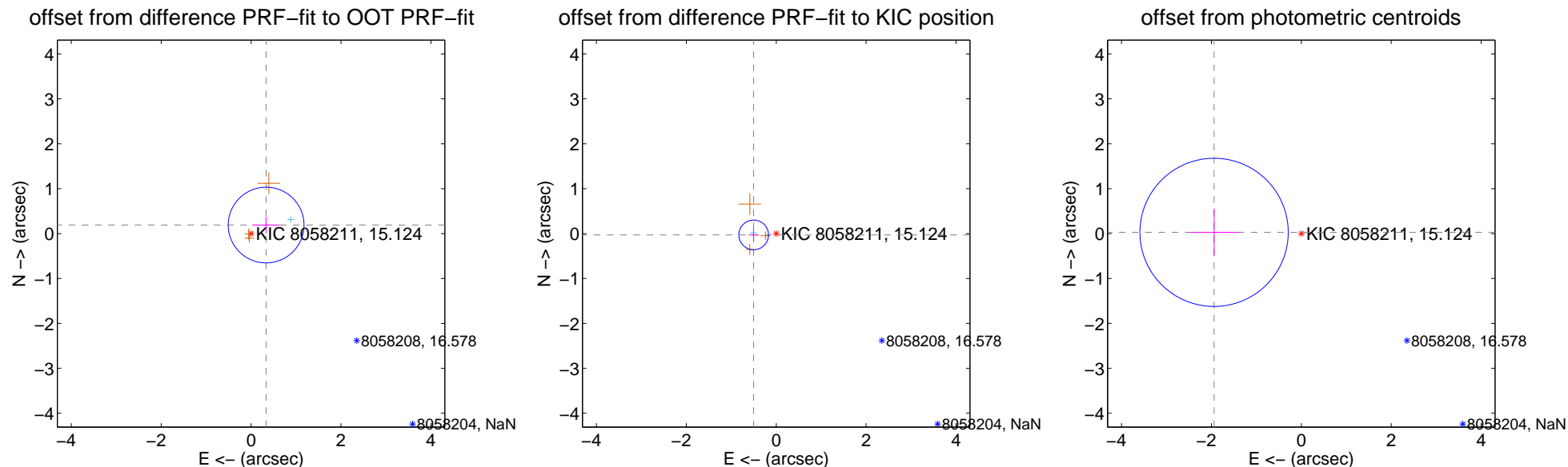
## DV Centroid Data

Supplemental centroid analysis for 008058211-01. Kepler magnitude: 15.12. Transit SNR 8.04

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.63 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.384 \pm 0.281$	1.37	$-0.334 \pm 0.306$	$0.190 \pm 0.185$
PRF-fit source offset from KIC position	$0.503 \pm 0.110$	4.57	$0.502 \pm 0.110$	$-0.030 \pm 0.140$
photometric centroid source offset	$1.94 \pm 0.55$	3.53	$1.94 \pm 0.55$	$0.03 \pm 0.53$



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

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

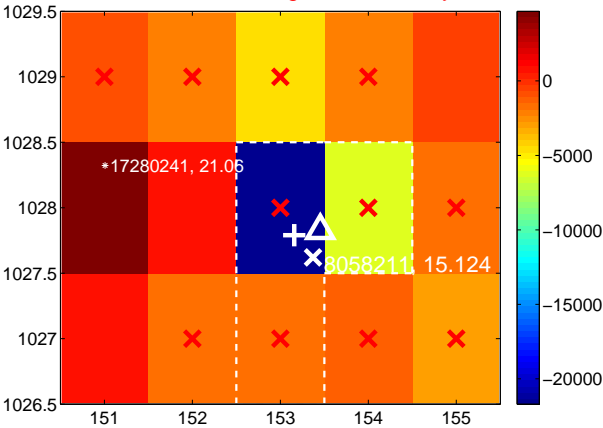
Q1 no difference image



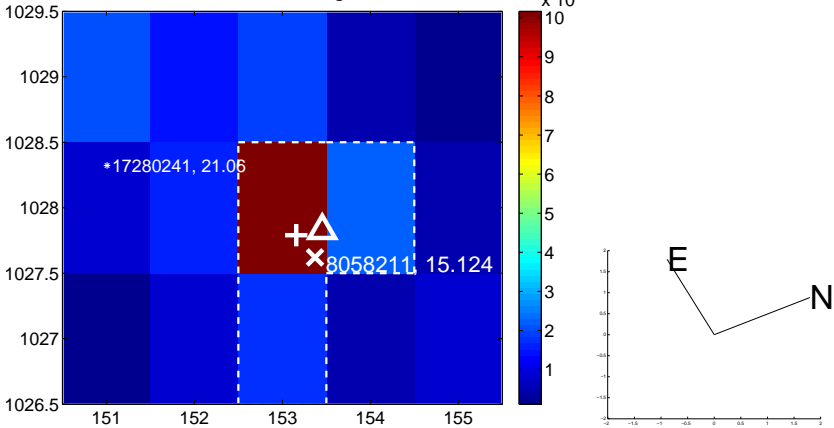
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



Q3 no difference image



Q3 no OOT image



Q4 no difference image



Q4 no OOT image

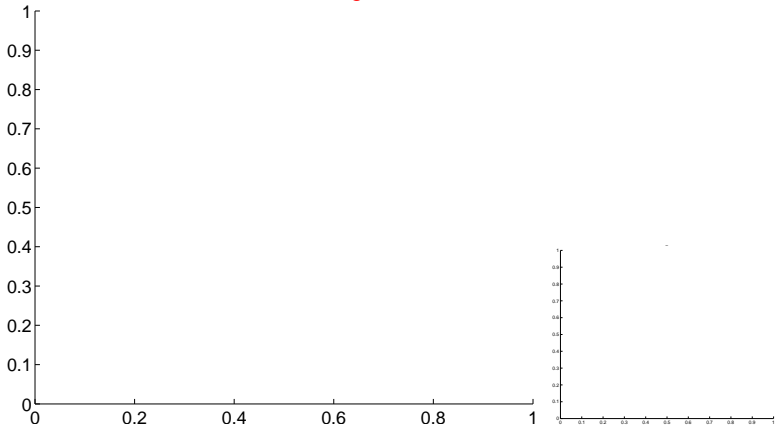


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

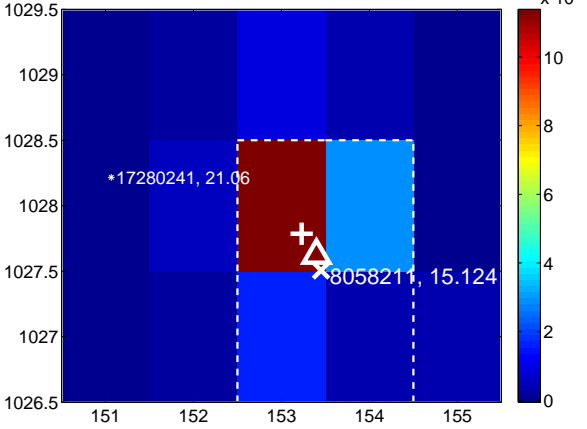
Q5 no difference image



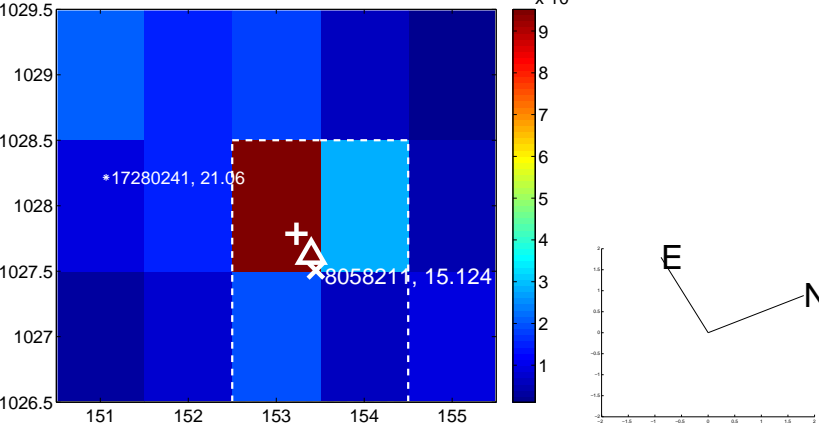
Q5 no OOT image



Q6 difference image



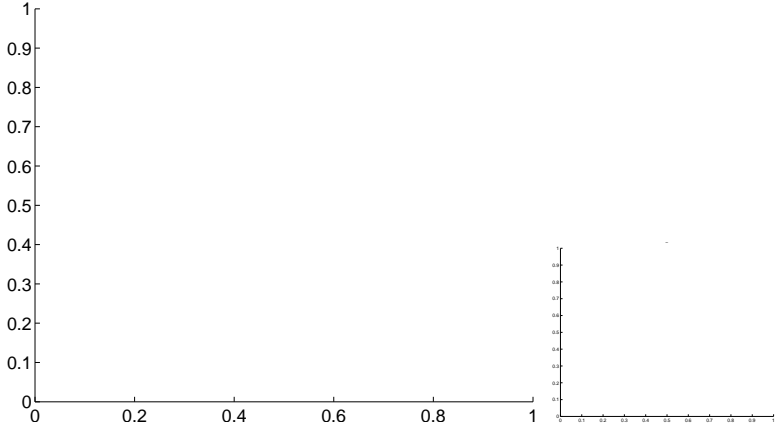
Q6 OOT image



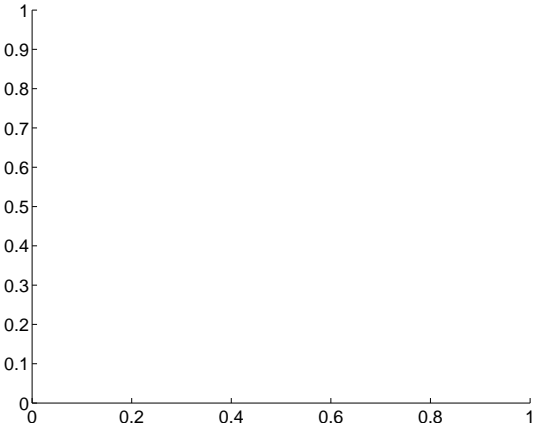
Q7 no difference image



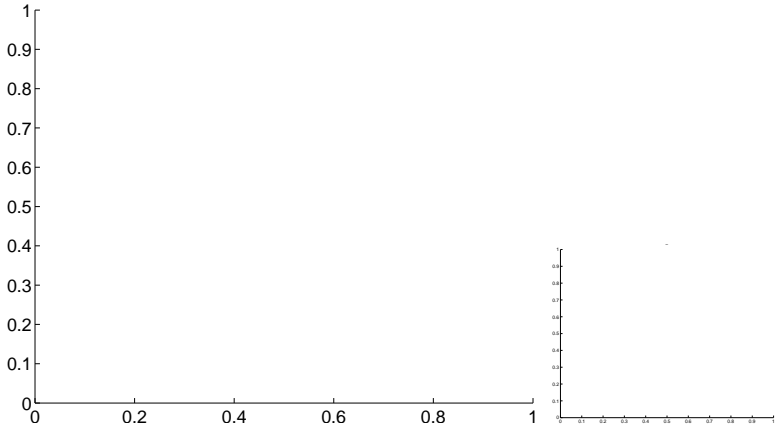
Q7 no OOT image



Q8 no difference image



Q8 no OOT image





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

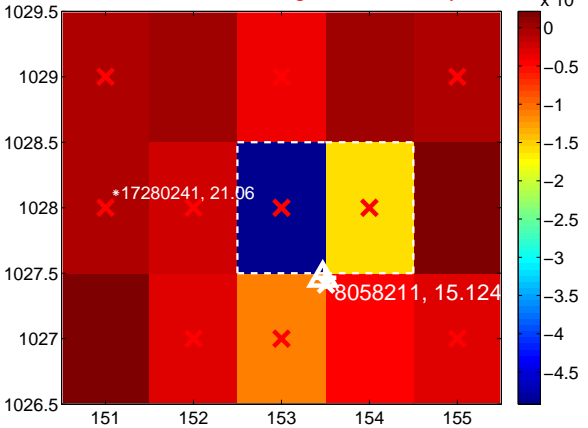
Q9 no difference image



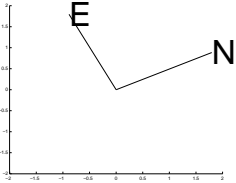
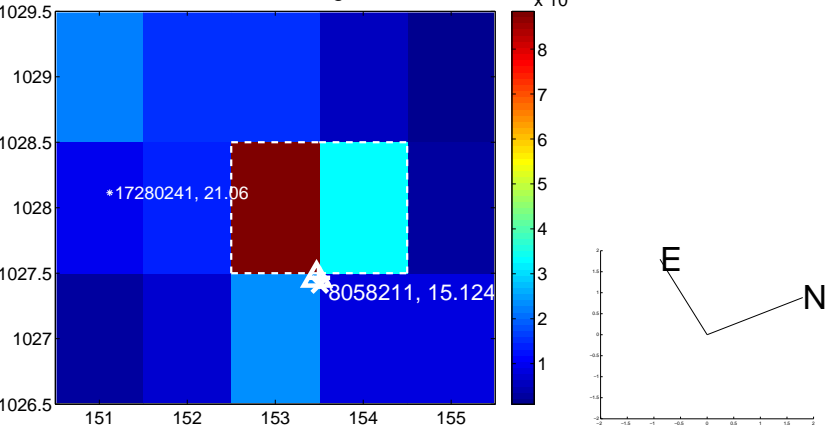
Q9 no OOT image



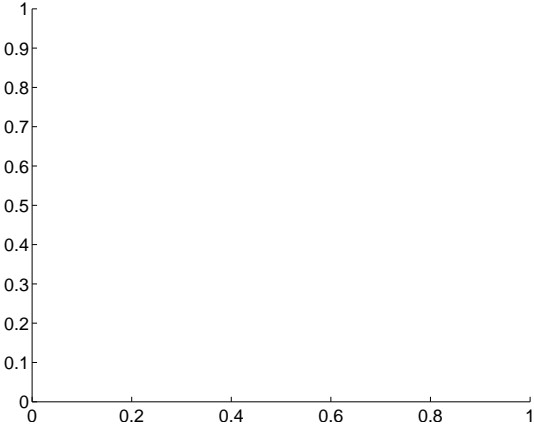
Q10 difference image. Poor Quality



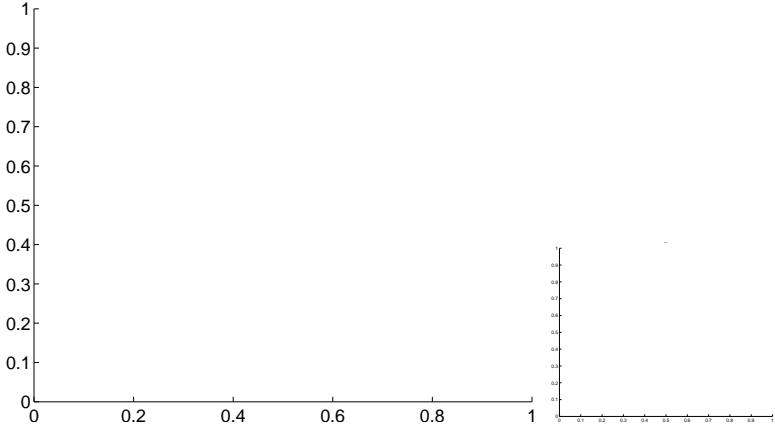
Q10 OOT image



Q11 no difference image



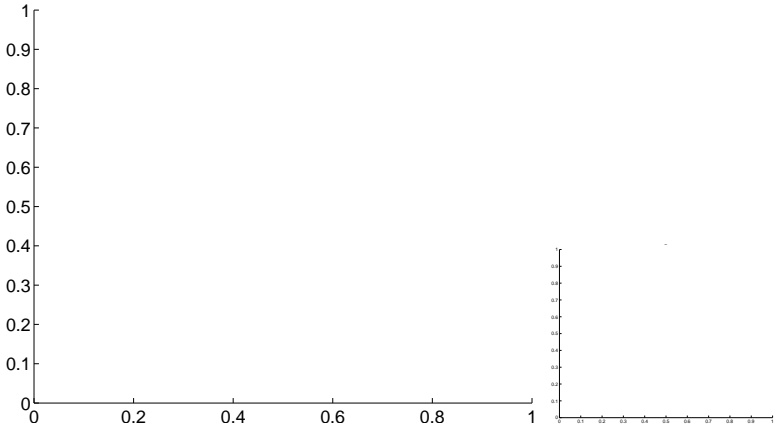
Q11 no OOT image



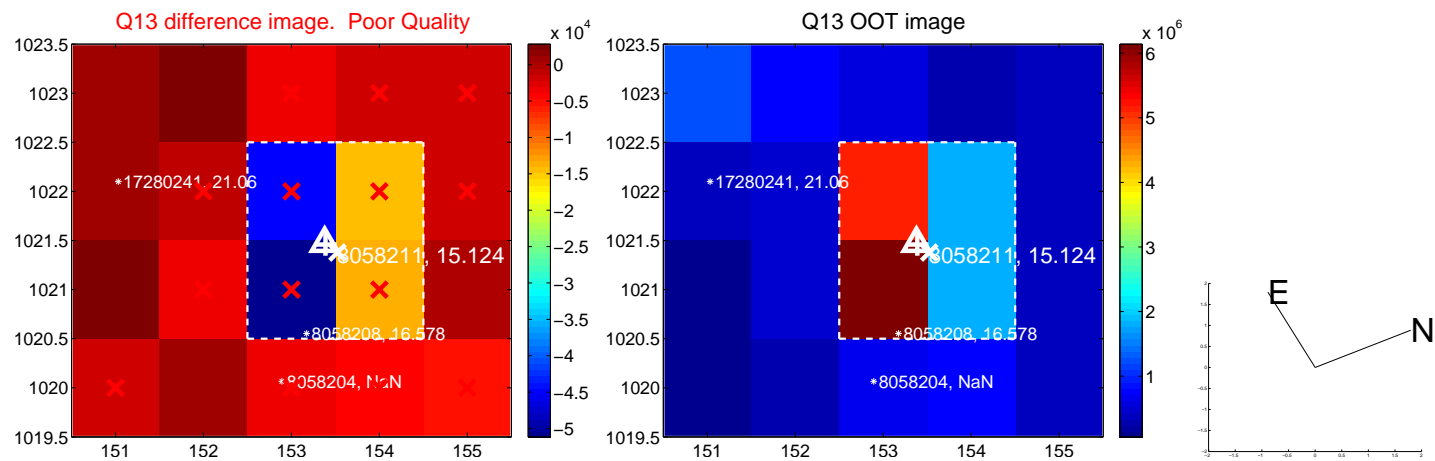
Q12 no difference image



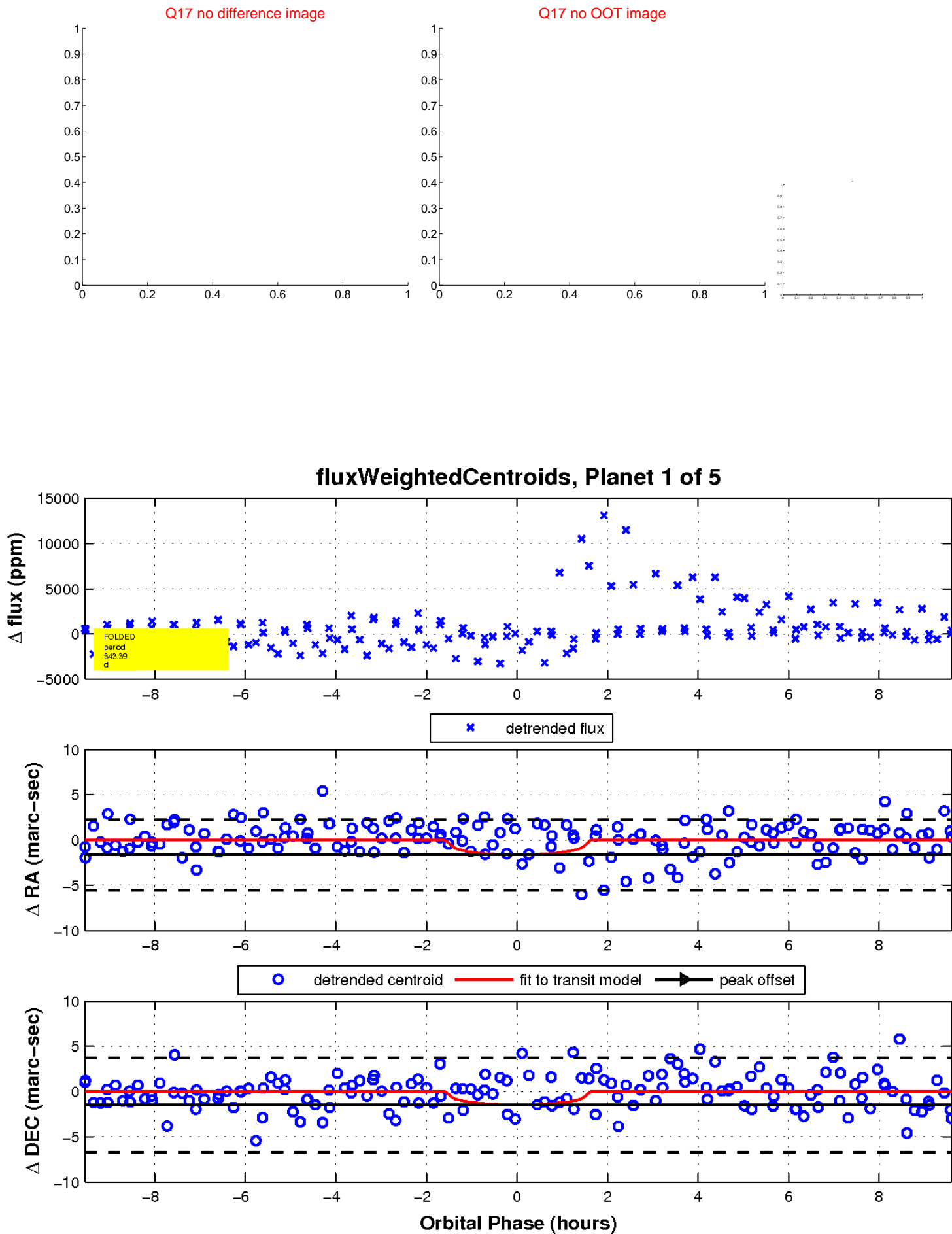
Q12 no OOT image



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

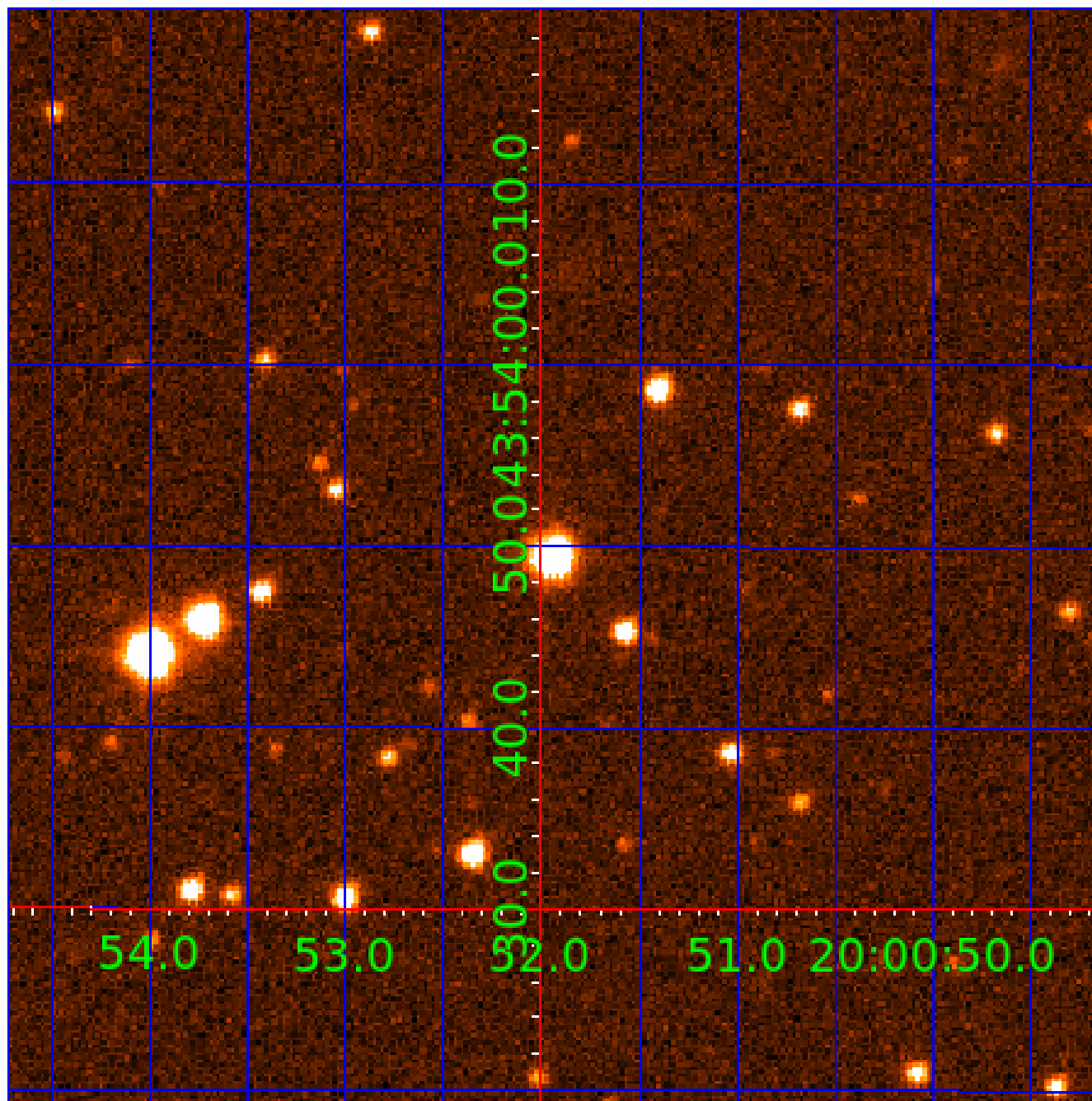


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008058211

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008058211-01	OBS	No	343.392695	241.273619	2812.1	3.204	15.4	8.0	0.68	4261	3.43	0.19
008058211-02	OBS	No	0.562463	131.933666	122.1	3.675	8.1	9.0	0.68	4261	0.73	999.03
008058211-03	OBS	No	53.312622	184.886035	565.5	3.045	15.3	2.0	0.68	4261	1.83	2.31
008058211-04	OBS	No	44.573914	148.164955	1138.8	22.043	9.5	4.1	0.68	4261	2.48	2.94
008058211-05	OBS	No	66.573288	164.259179	1019.0	3.500	7.3	-1.0	0.68	4261	2.07	1.72

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008058211-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008058211-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
008058211-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008058211-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_ALT
008058211-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS—HALO_GHOST

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

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

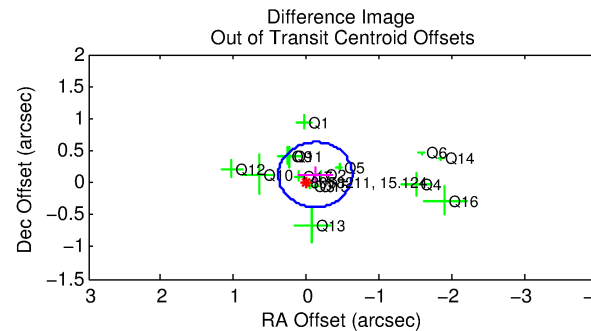
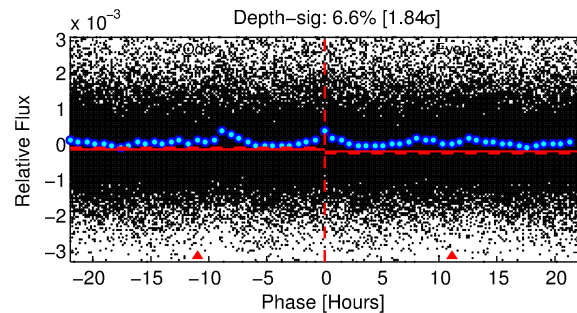
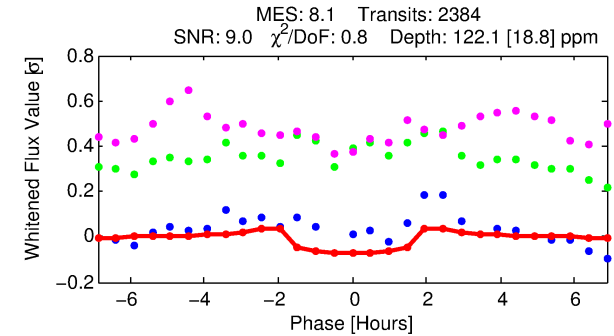
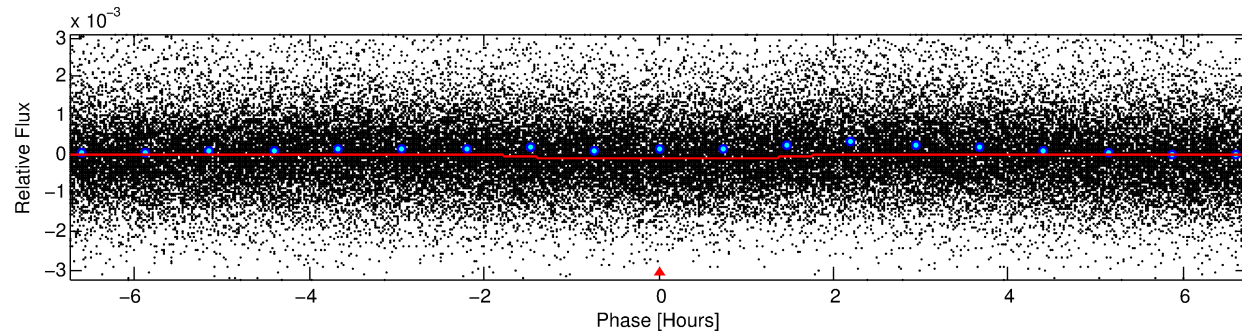
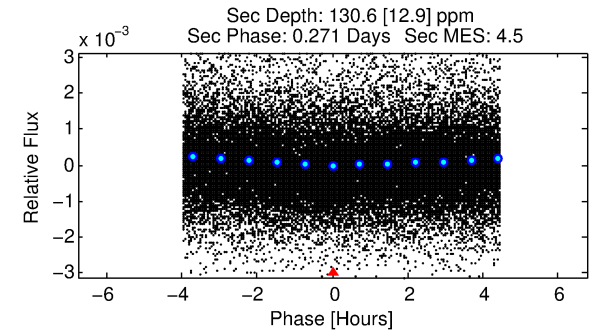
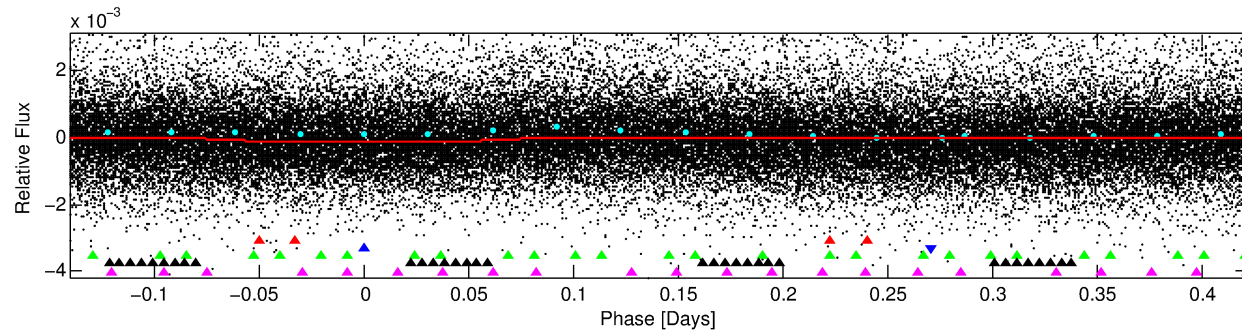
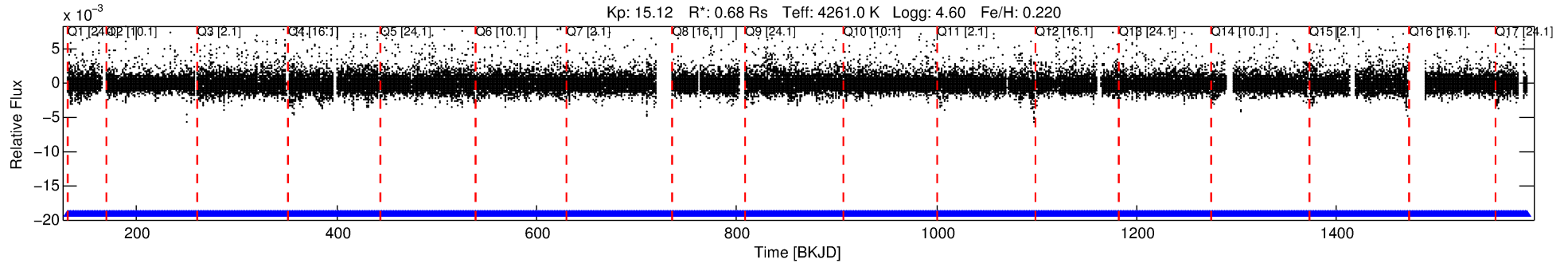
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008058211-02

No Significant Match Found

# DV One-Page Summary

KIC: 8058211 Candidate: 2 of 5 Period: 0.562 d



## DV Fit Results:

Period = 0.56246 [0.00001] d  
Epoch = 131.9337 [0.0027] BKJD  
Rp/R\* = 0.0098 [0.0047]  
a/R\* = 1.31 [0.73]  
b = 0.29 [4.37]  
Seff = 999.03 [165.68]  
Teff = 1434 [59] K  
Rp = 0.73 [0.36] Re  
a = 0.0117 [0.0008] AU  
Ag = 18.68 [18.20] [0.97σ]  
Teffp = 4608 [1128] K [2.81σ]

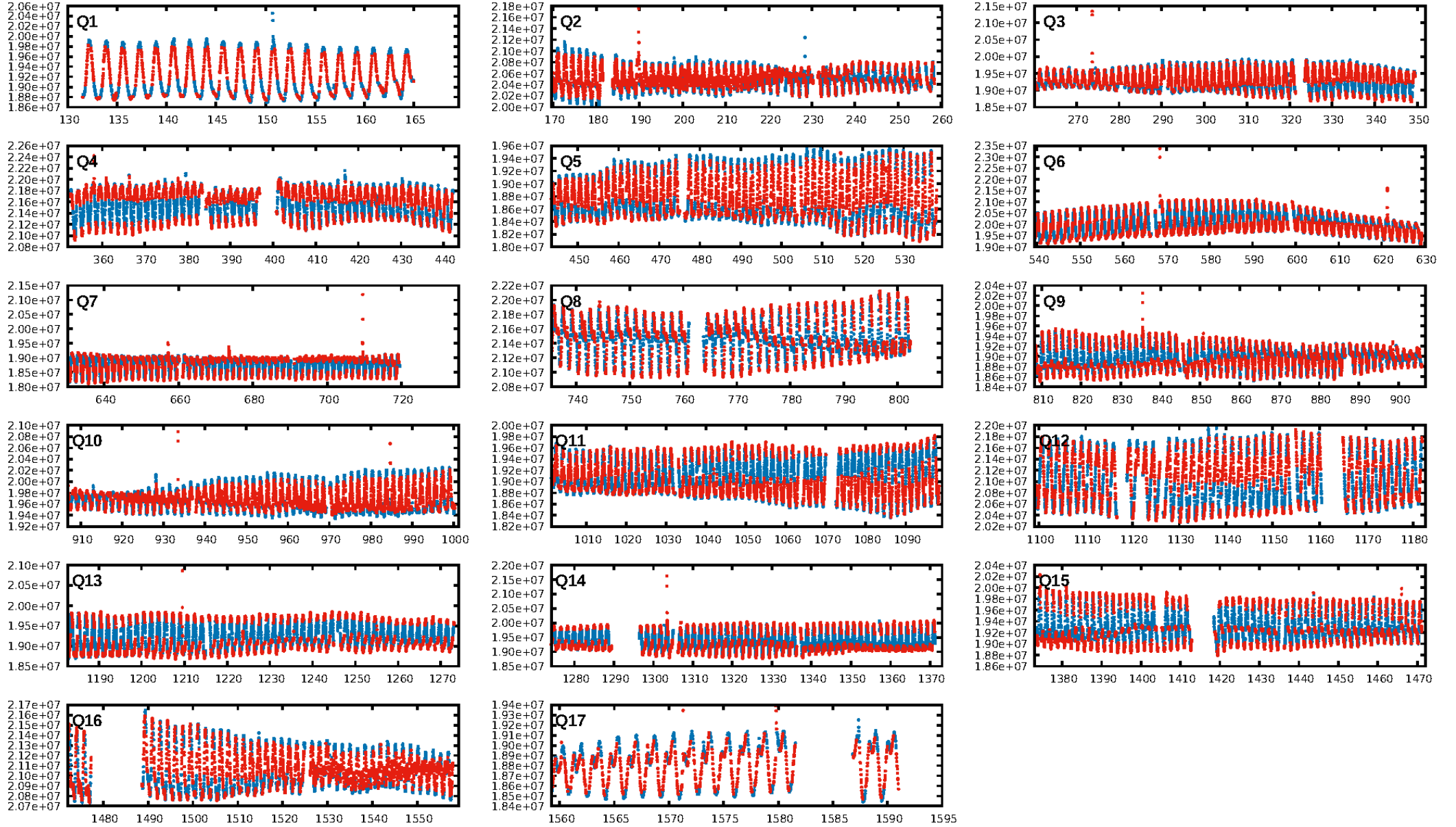
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [47.27σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2277/2277]  
GhostDiagnostic-chr: -0.768  
Centroid-sig: 0.0%  
Centroid-so: 1.300 arcsec [2.45σ]  
OotOffset-rm: 0.176 arcsec [1.04σ]  
KicOffset-rm: 0.154 arcsec [0.74σ]  
OotOffset-st: 4/3/3/5 [15]  
KicOffset-st: 4/3/3/5 [15]  
DiffImageQuality-fgm: 0.53 [8/15]  
DiffImageOverlap-fno: 1.00 [17/17]

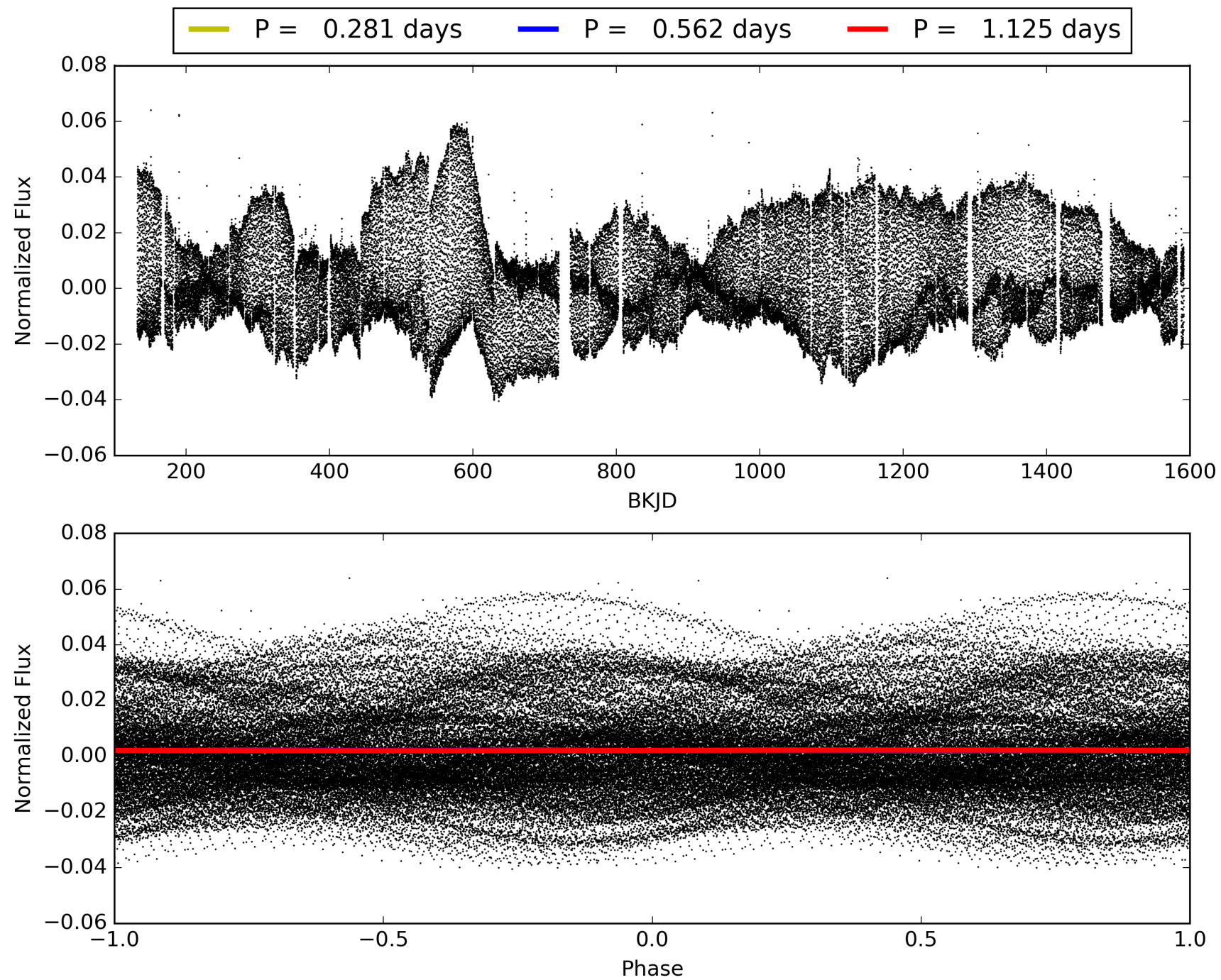
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:26:14 Z

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

# TCE 008058211-02, PDC Light Curves



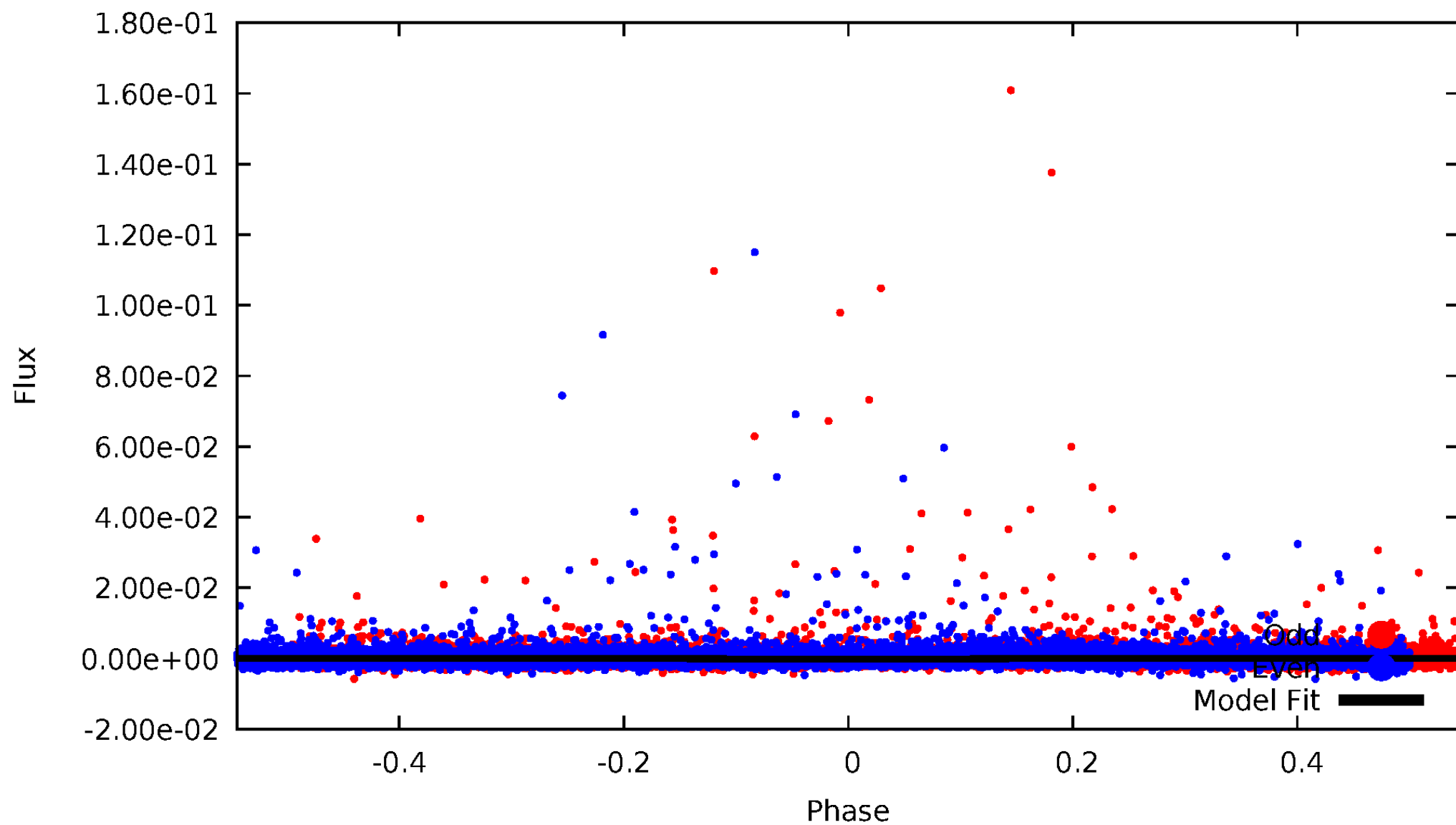
TCE 008058211-02





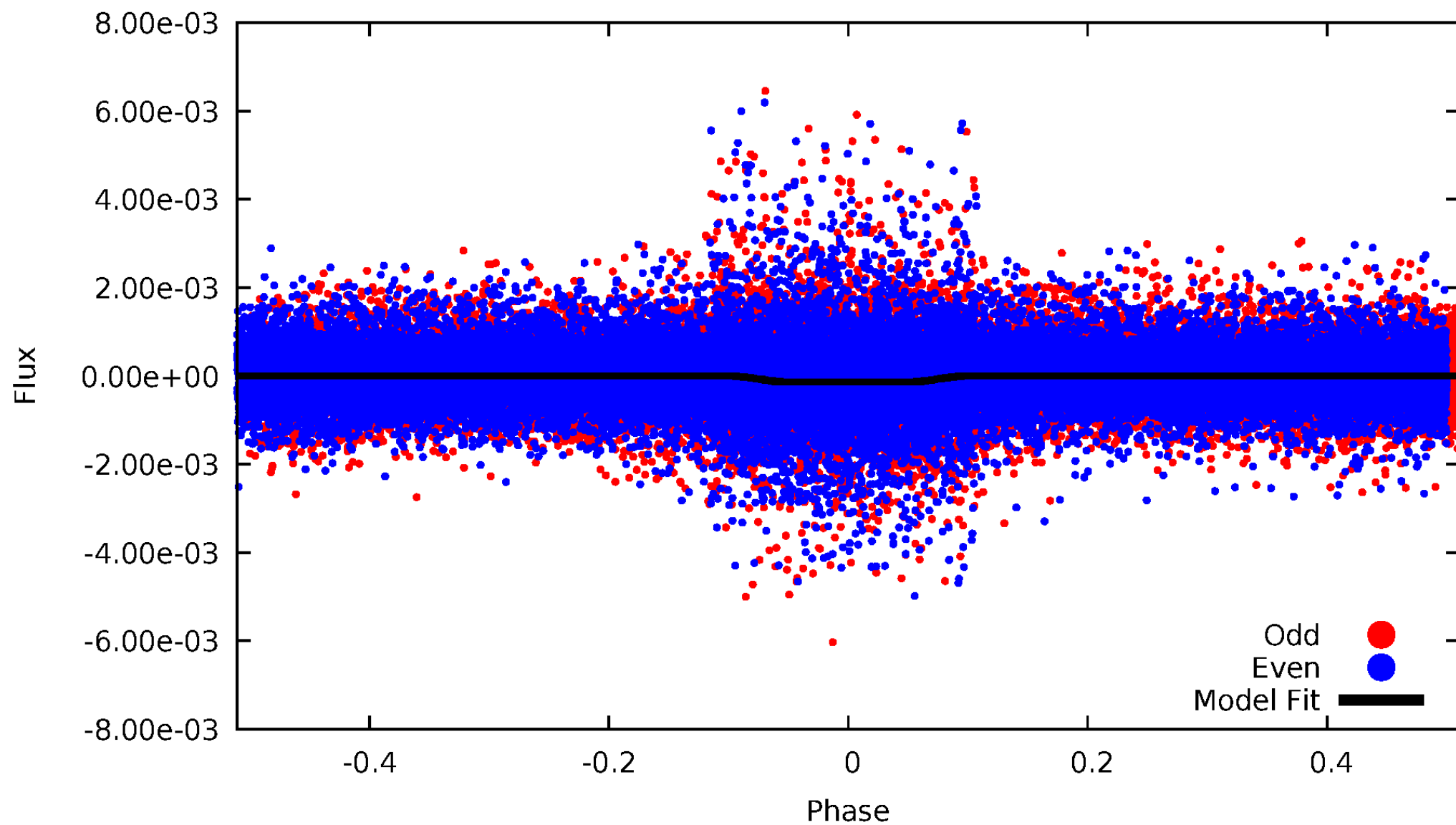
# DV Odd/Even

TCE 008058211-02



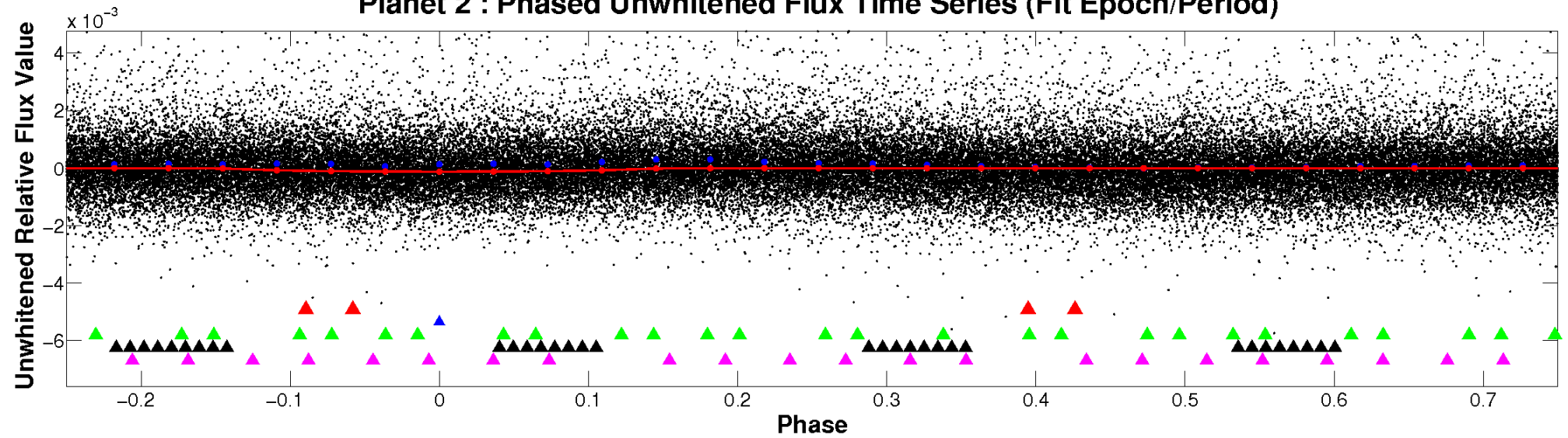
# ALT Odd/Even

TCE 008058211-02

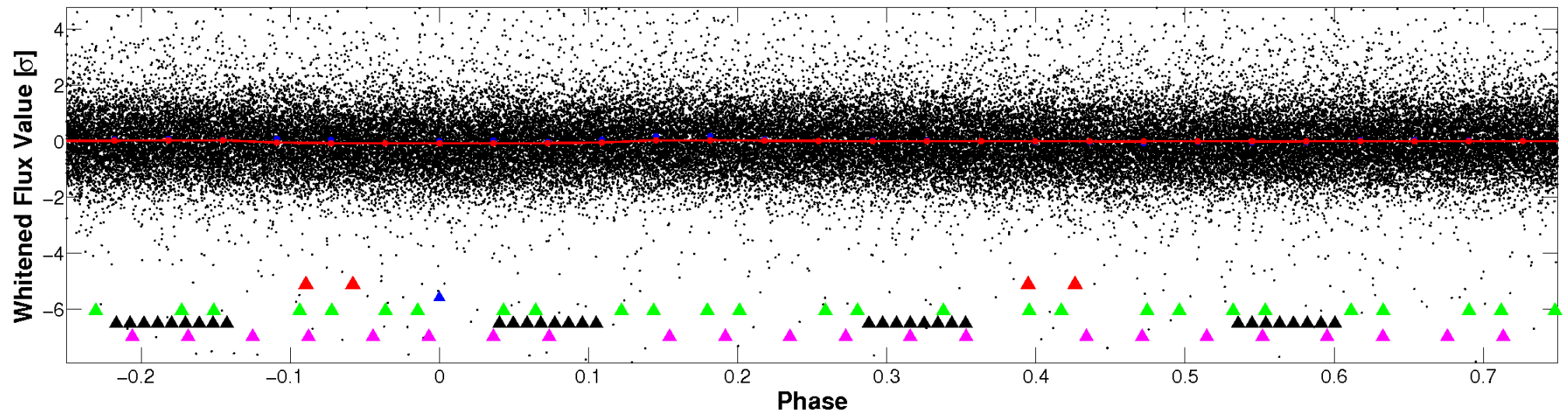


# Non-Whitened Vs. Whitened Light Curve

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

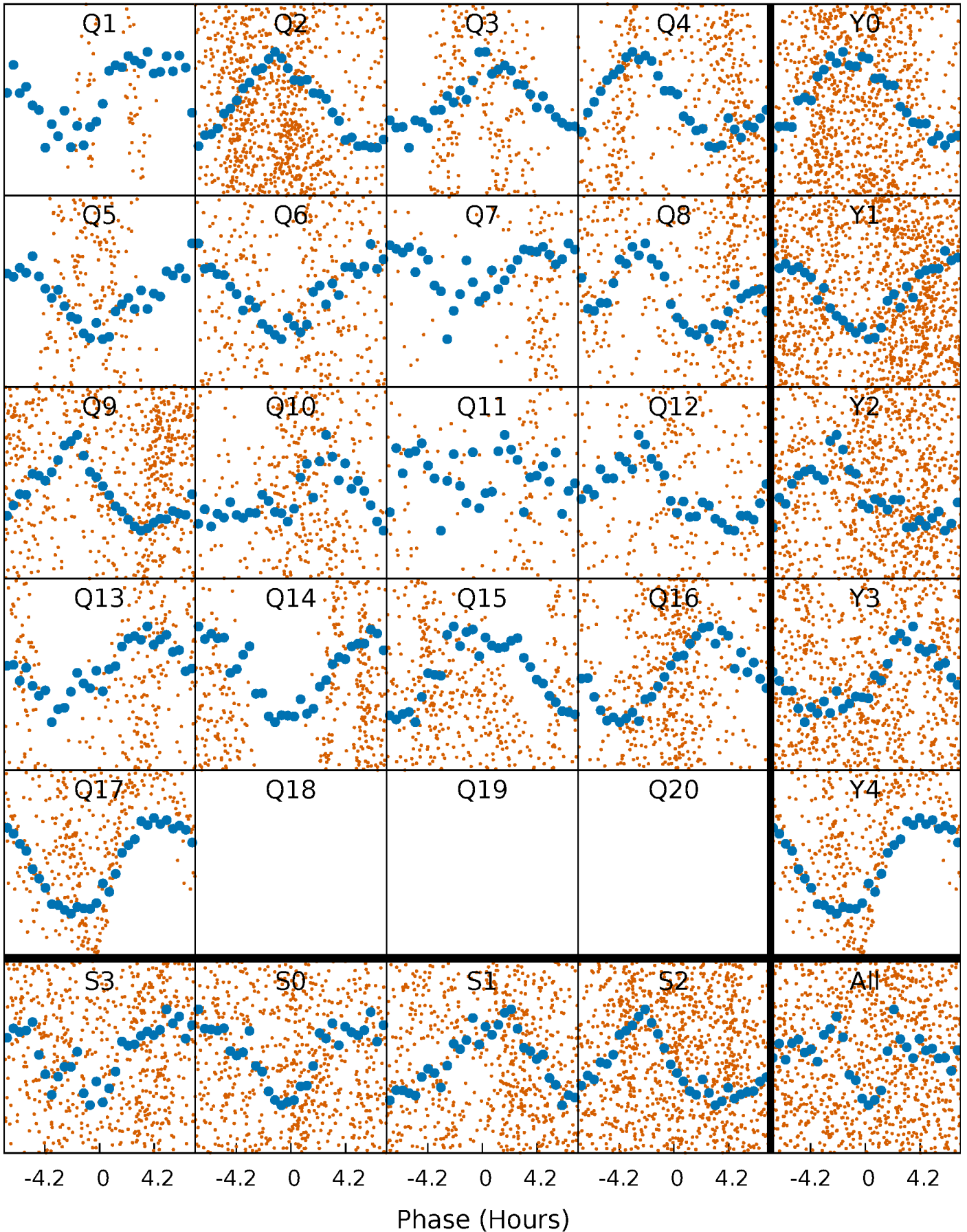


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

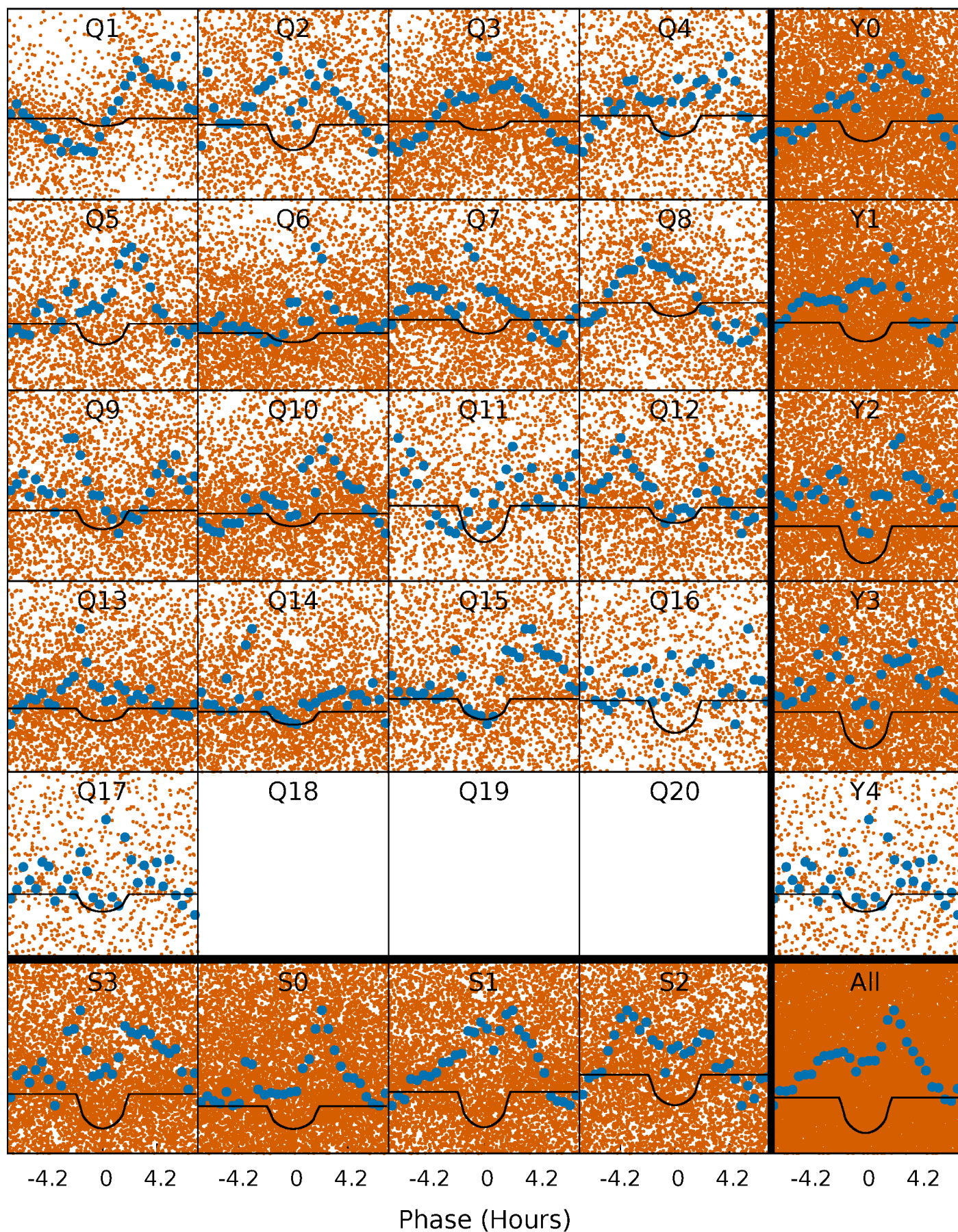
TCE 008058211-02   P= 0.562463 Days    $T_0=131.933666$  (BKJD)





# DV Quarter-Phased Transit Curves

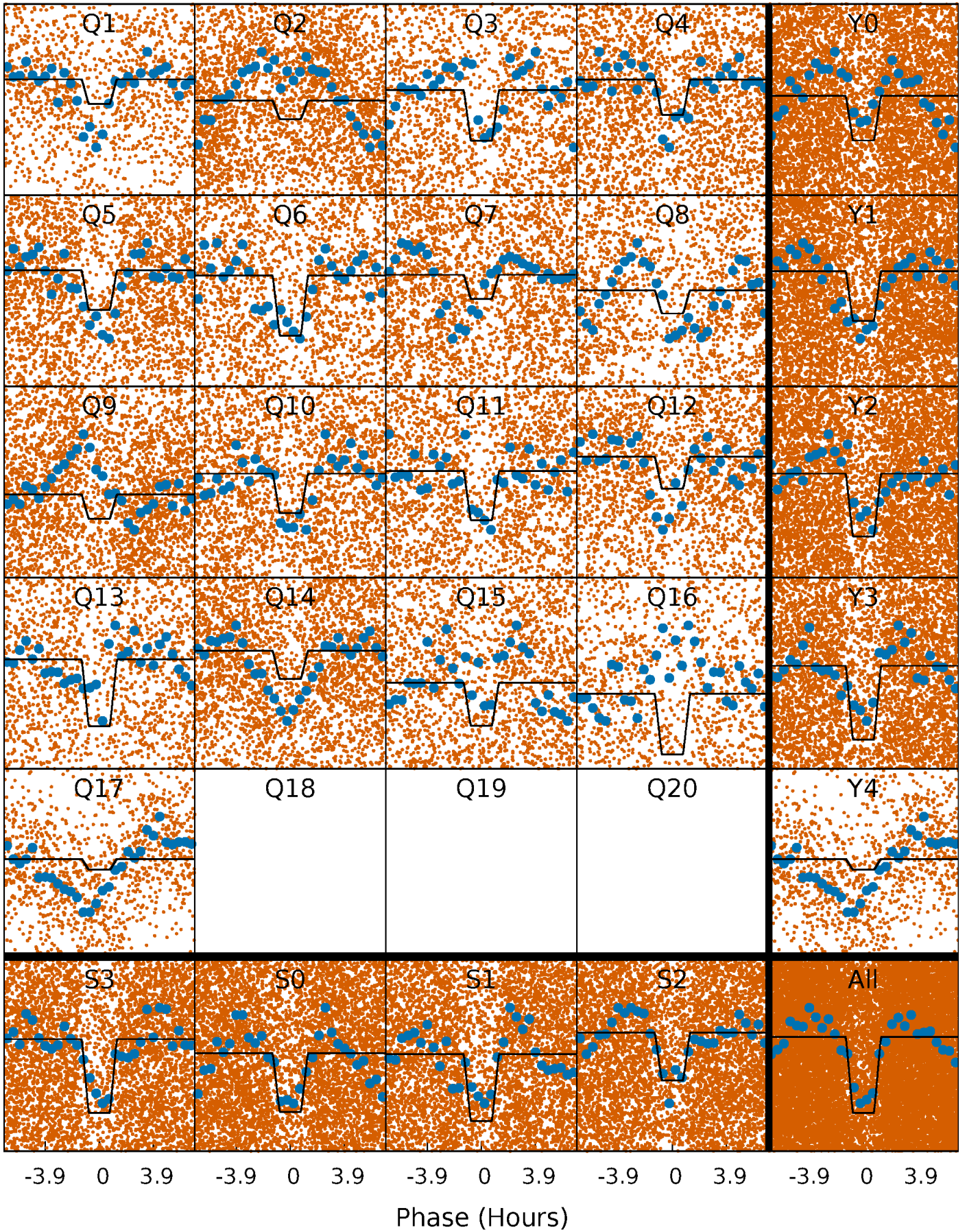
TCE 008058211-02   P= 0.562463 Days    $T_0=131.933666$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

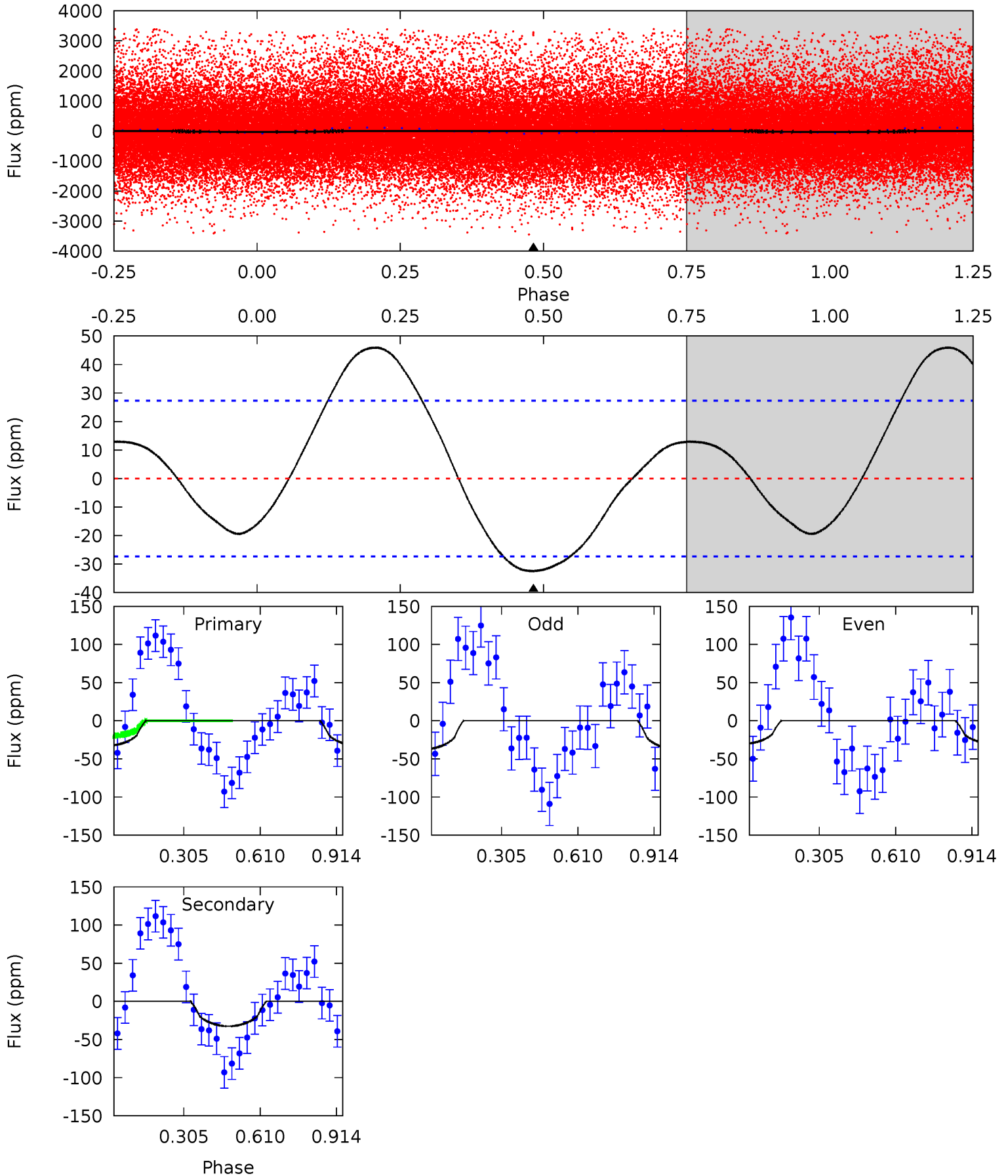
TCE 008058211-02   P= 0.562476 Days    $T_0=131.922612$  (BKJD)



# DV Model-Shift Uniqueness Test

008058211-02, P = 0.562463 Days, E = 131.371203 Days

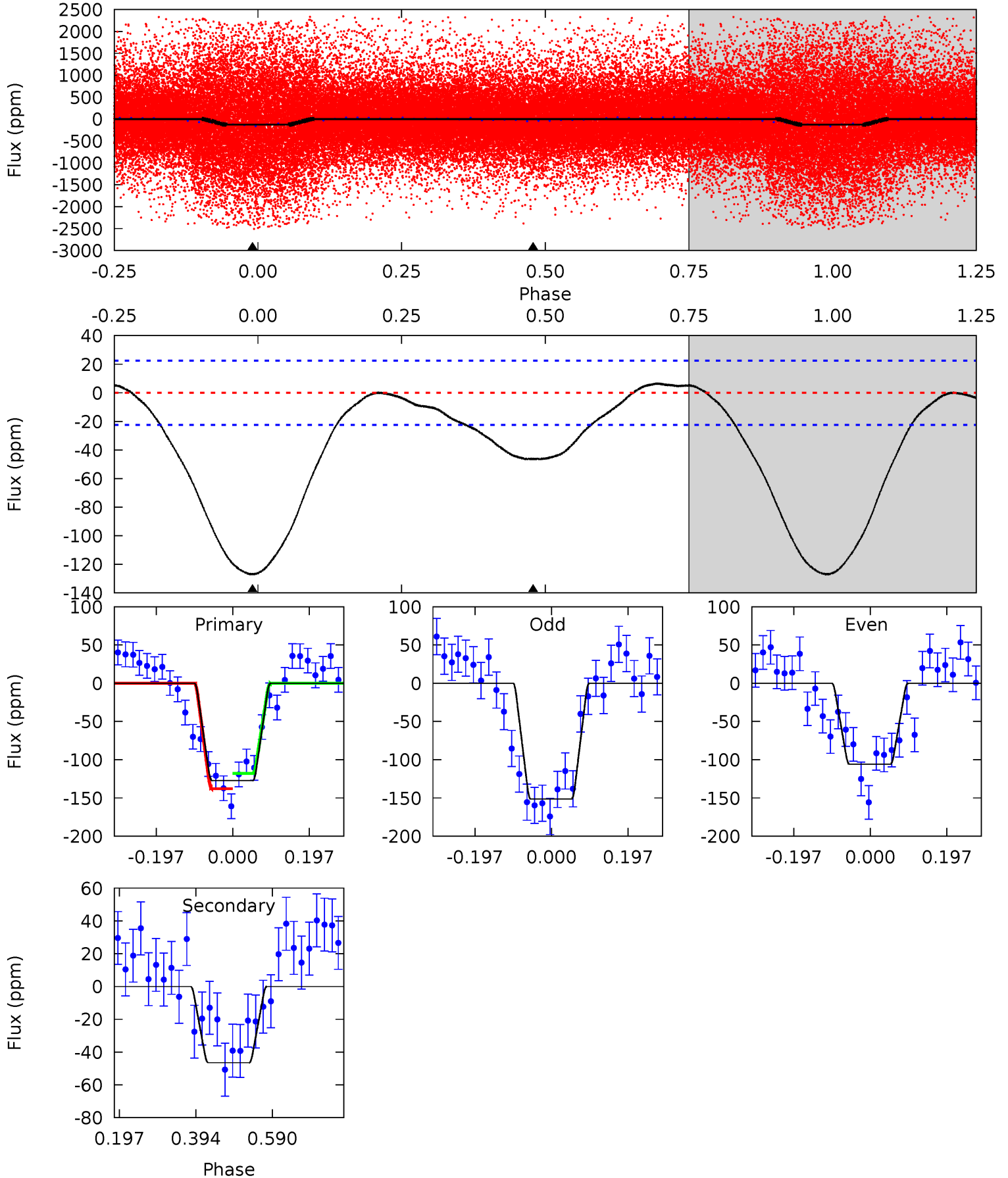
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.16	5.16	0	0	4.33	1.03	2.87	5.16	5.16	5.16	5.16	0.55	-9.85	0.59	2.21



# Alt Model-Shift Uniqueness Test

008058211-02, P = 0.562476 Days, E = 131.360136 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
25.0	9.14	0	0	4.42	1.29	0.88	25.0	25.0	9.14	9.14	4.48	1.17	0.05	1.97



### Stellar Parameters For KIC 008058211

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4261^{+129}_{-142}$	$4.602^{+0.053}_{-0.018}$	$0.220^{+0.200}_{-0.300}$	$0.681^{+0.028}_{-0.057}$	$0.677^{+0.042}_{-0.052}$	$3.016^{+0.695}_{-0.201}$
	+3%/-3%	+1%/-0%	+91%/-136%	+4%/-8%	+6%/-8%	+23%/-7%
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 008058211-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-33 \pm 6$	$0.72^{+0.34}_{-0.32}$	$1986^{+69}_{-71}$	$3484^{+841}_{-439}$	$4.703^{+10.183}_{-2.542}$
Alt.	$-46 \pm 5$	$0.84^{+0.33}_{-0.33}$	$1988^{+62}_{-71}$	$3521^{+679}_{-393}$	$5.044^{+8.458}_{-2.555}$

$T_{\text{max}}$  = 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

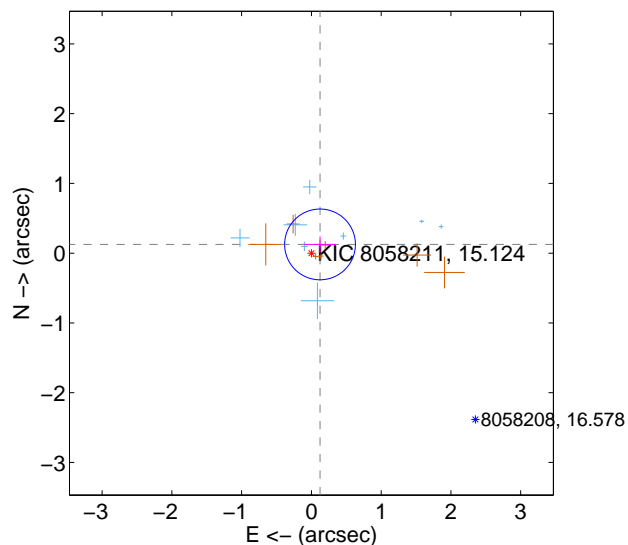
Supplemental centroid analysis for 008058211-02. Kepler magnitude: 15.12. Transit SNR 8.97

There are 8 quarters with good PRF difference image offsets

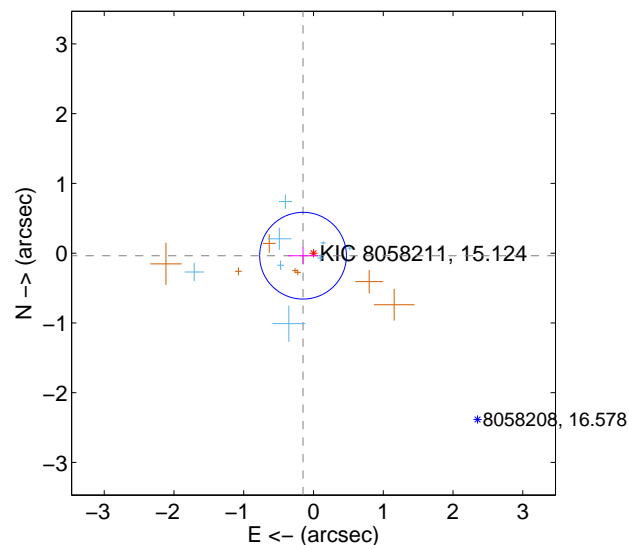
The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.176 \pm 0.169$	1.04	$-0.124 \pm 0.224$	$0.125 \pm 0.114$
PRF-fit source offset from KIC position	$0.154 \pm 0.207$	0.74	$0.150 \pm 0.215$	$-0.036 \pm 0.120$
photometric centroid source offset	$1.30 \pm 0.53$	2.45	$-0.61 \pm 0.59$	$-1.15 \pm 0.51$

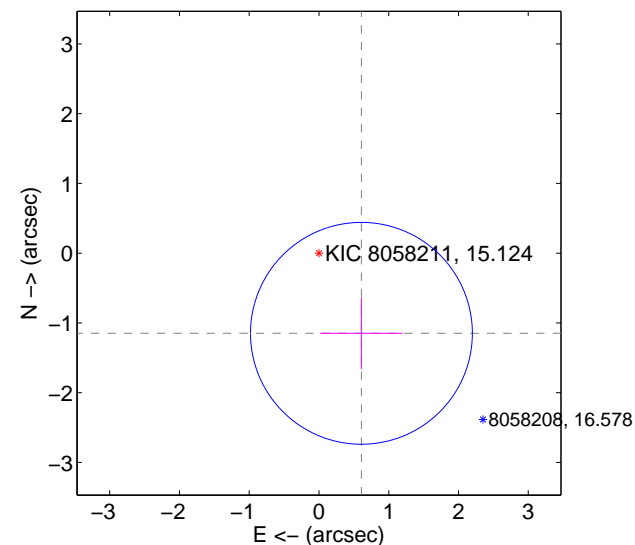
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



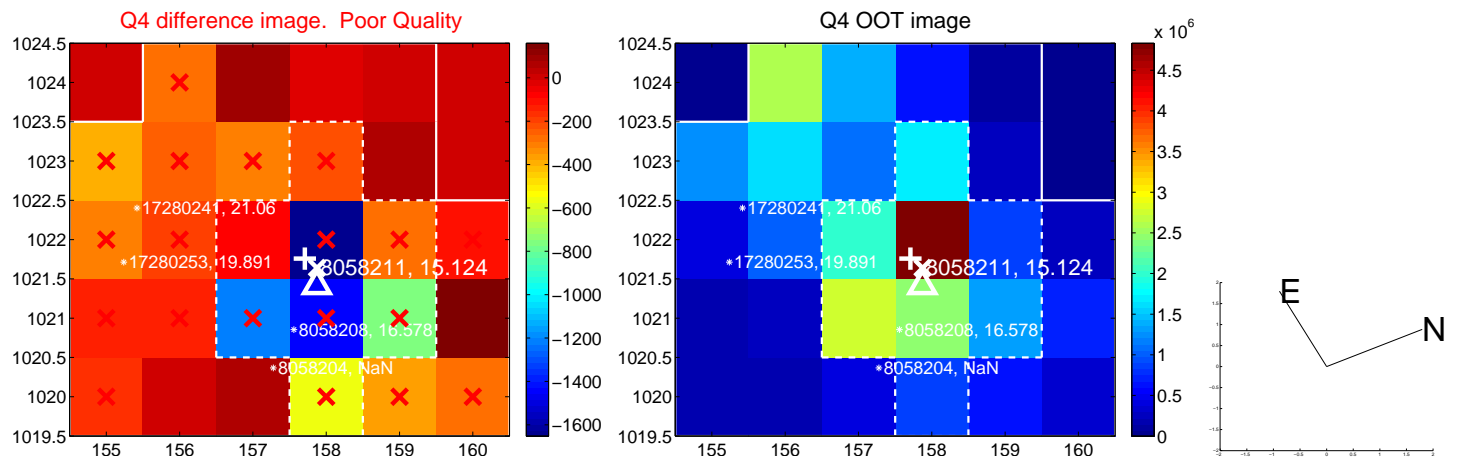
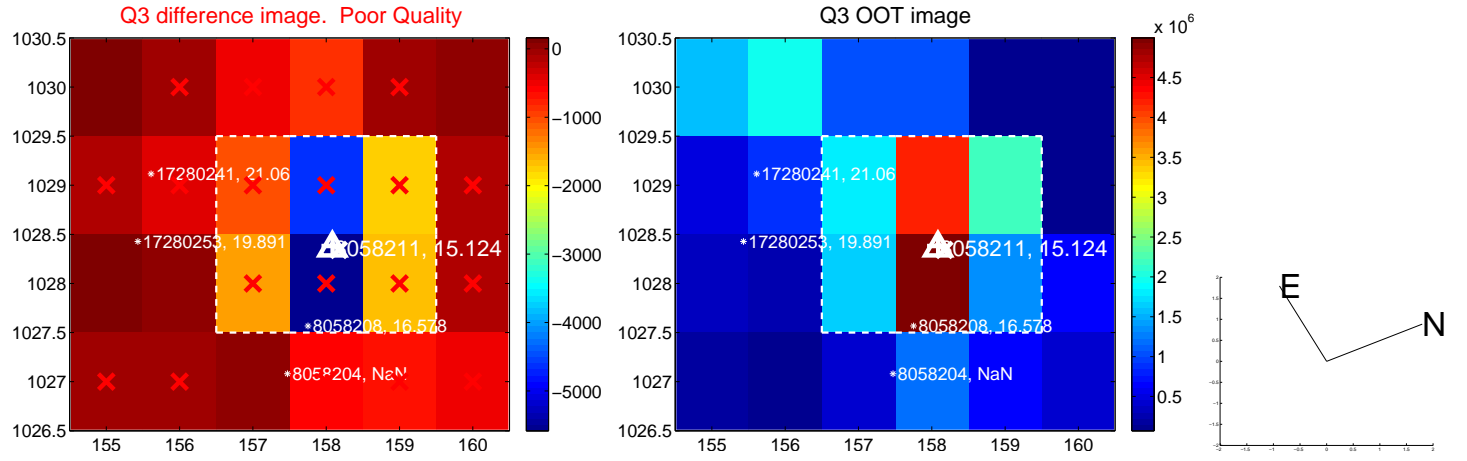
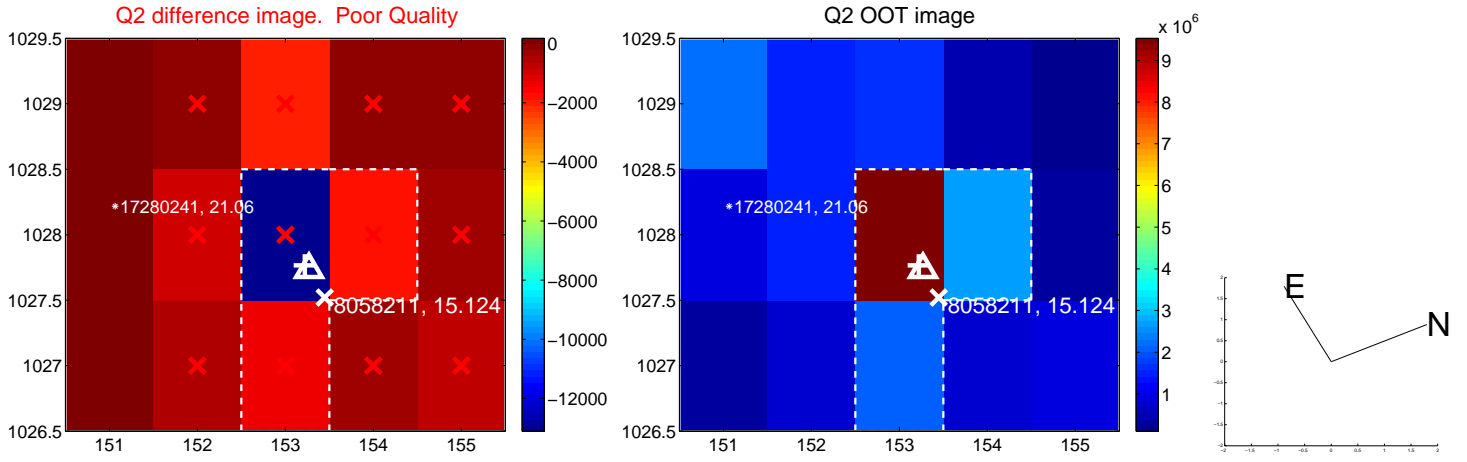
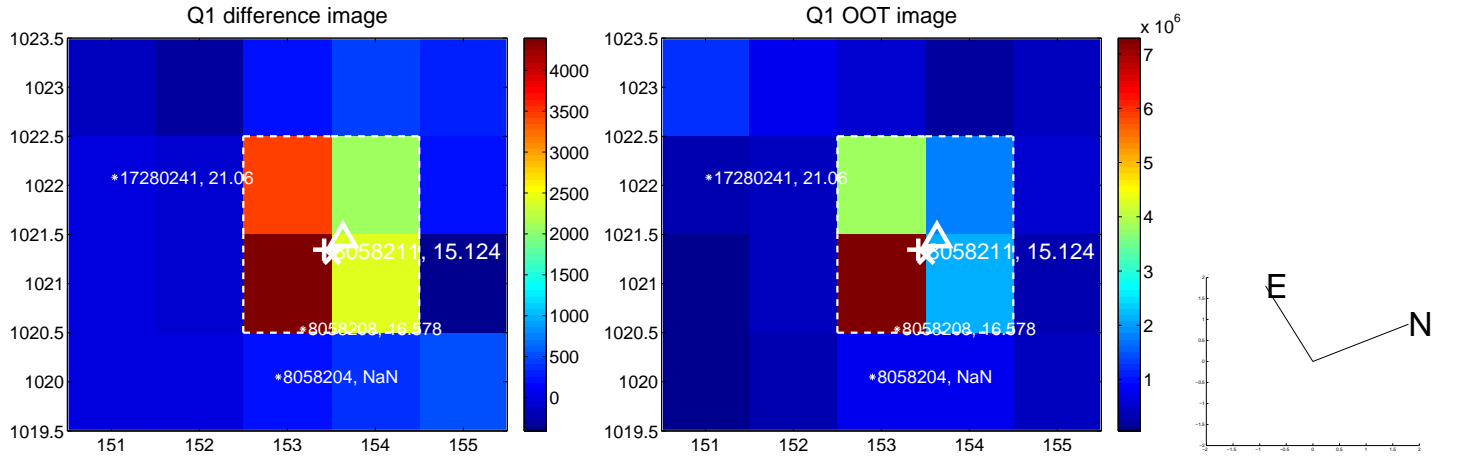
offset from photometric centroids



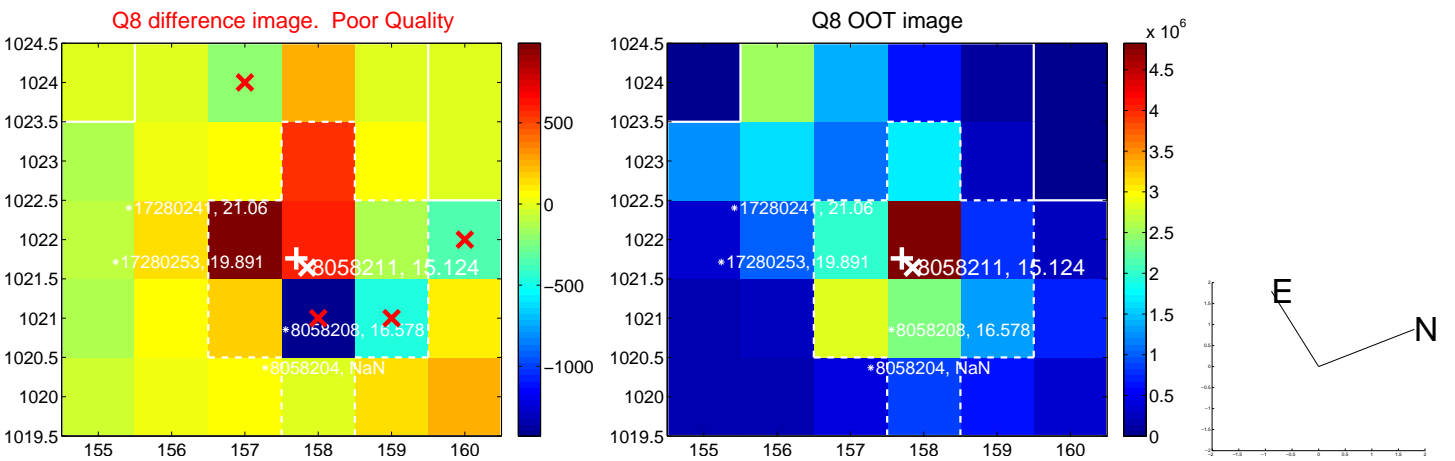
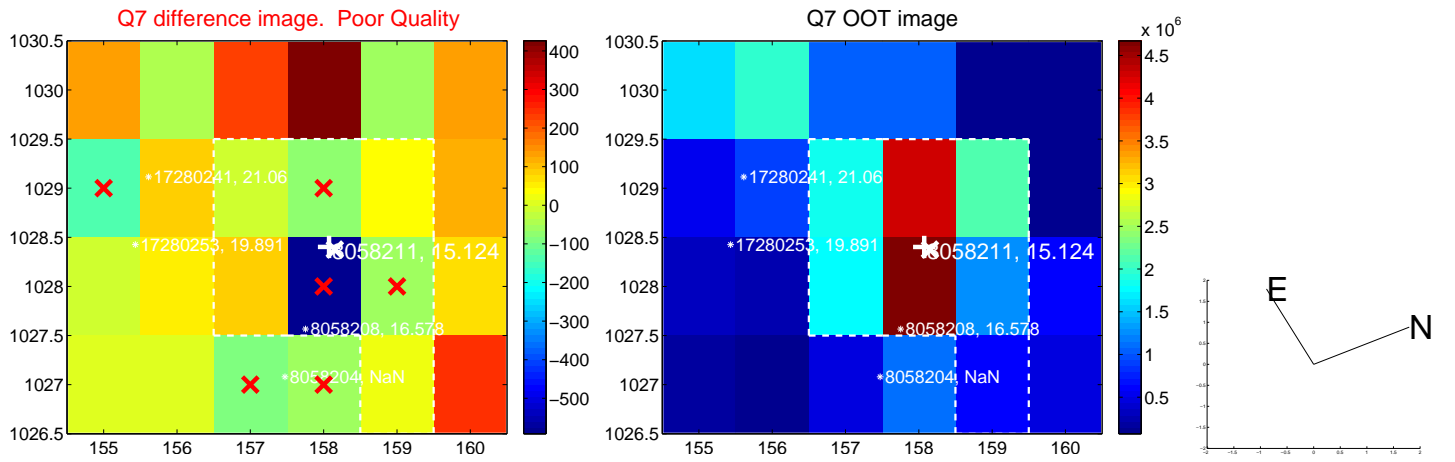
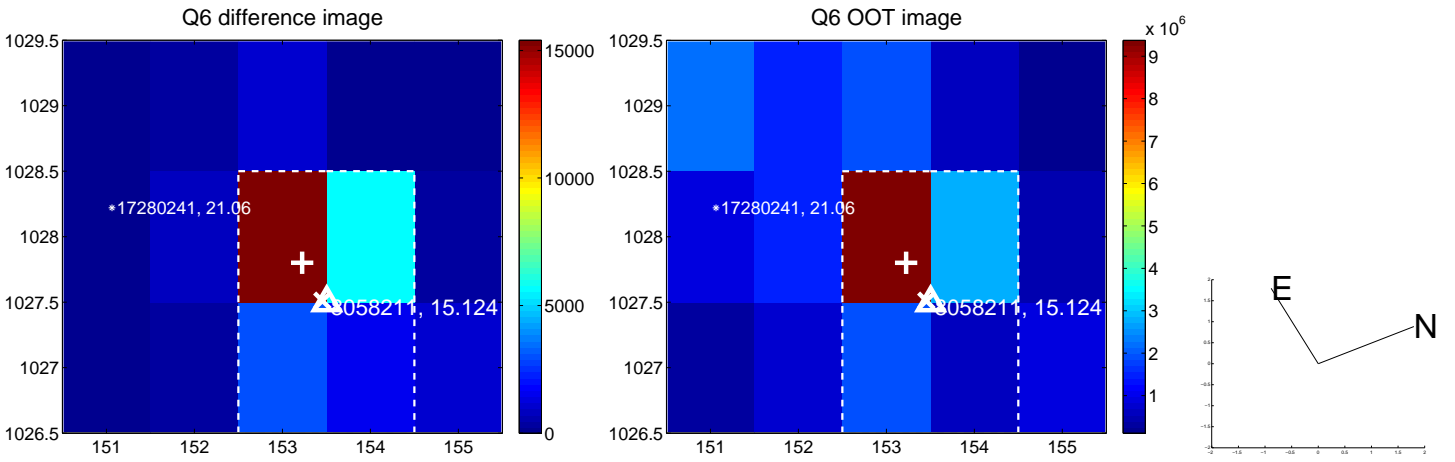
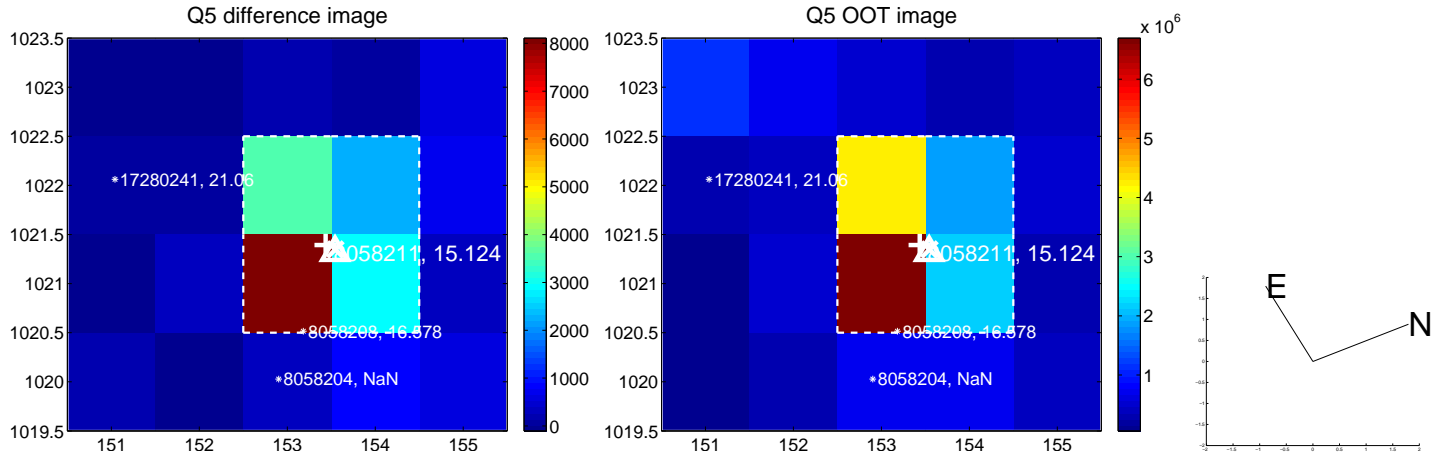
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

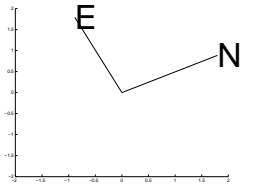
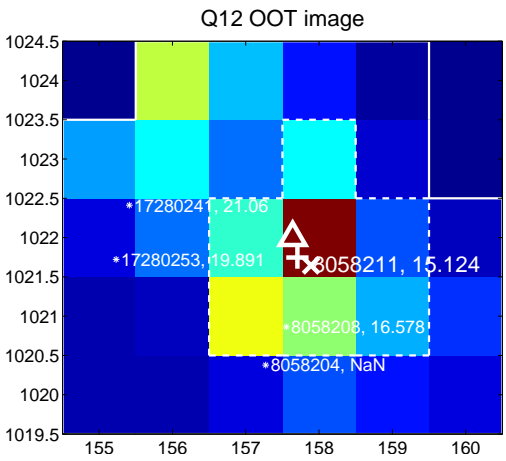
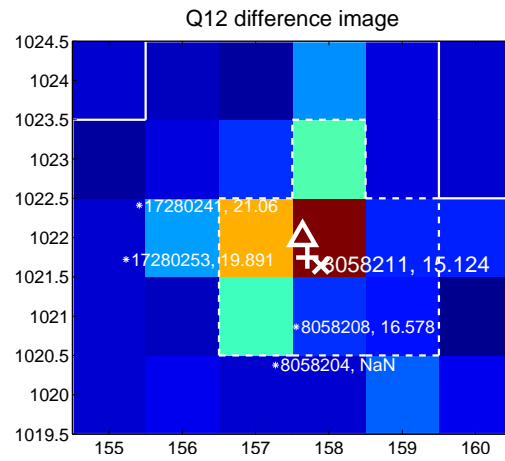
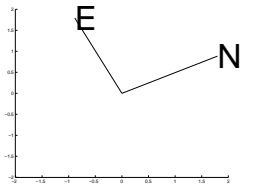
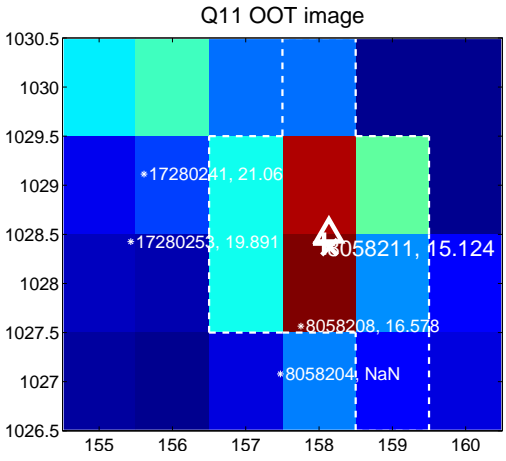
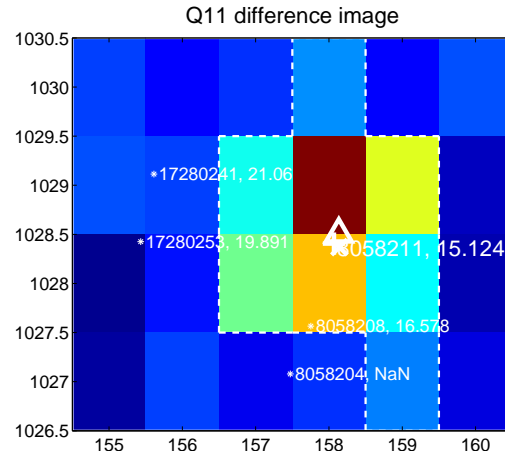
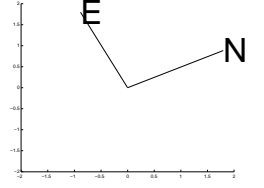
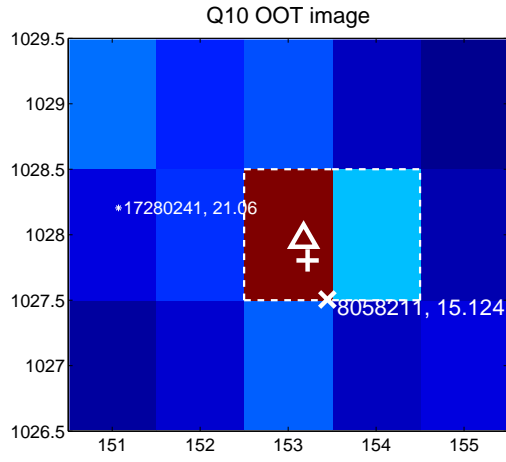
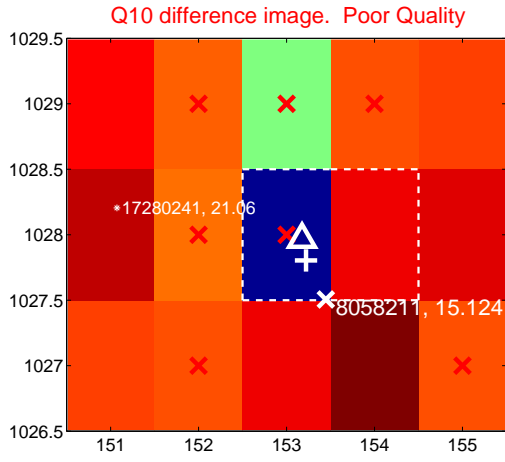
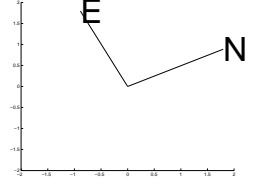
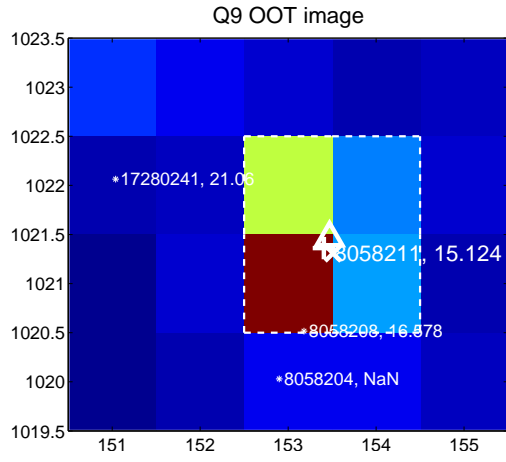
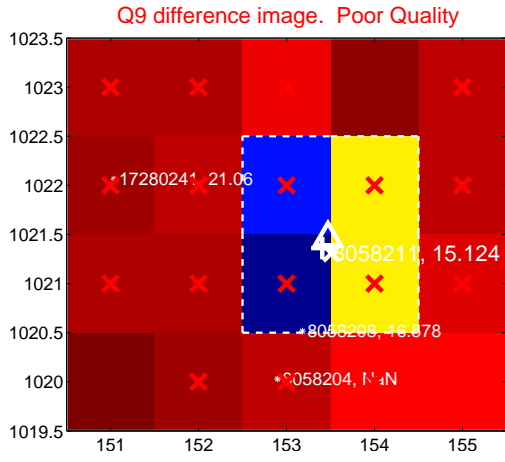


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

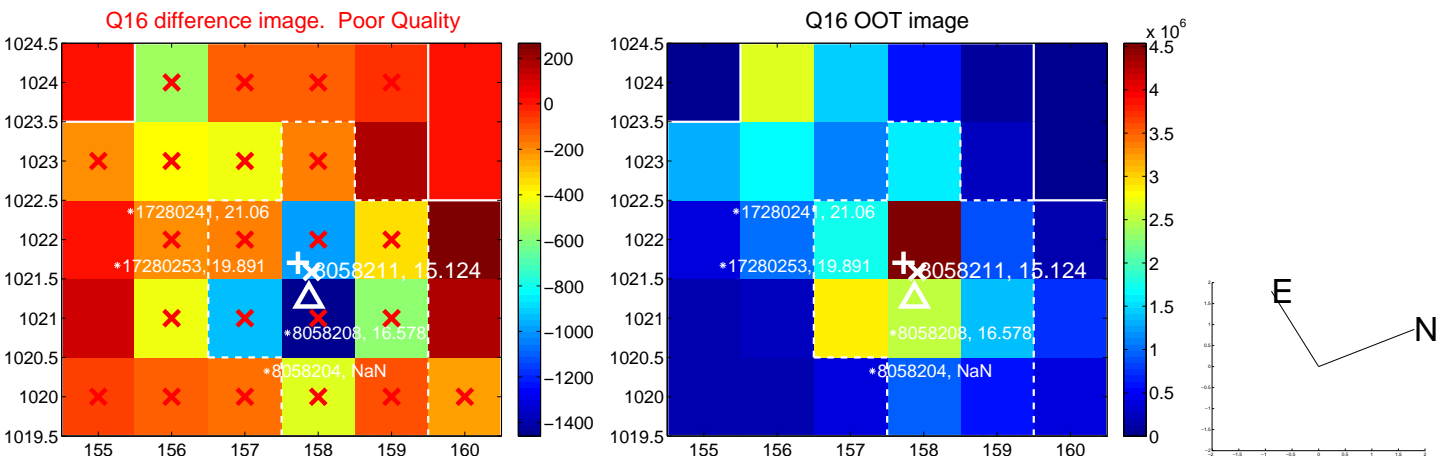
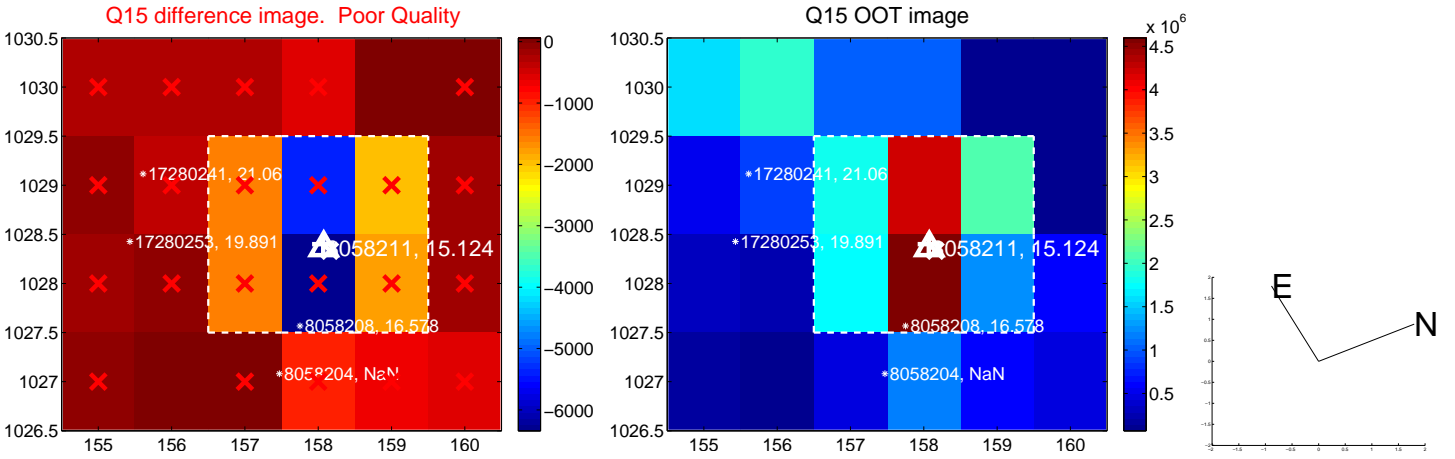
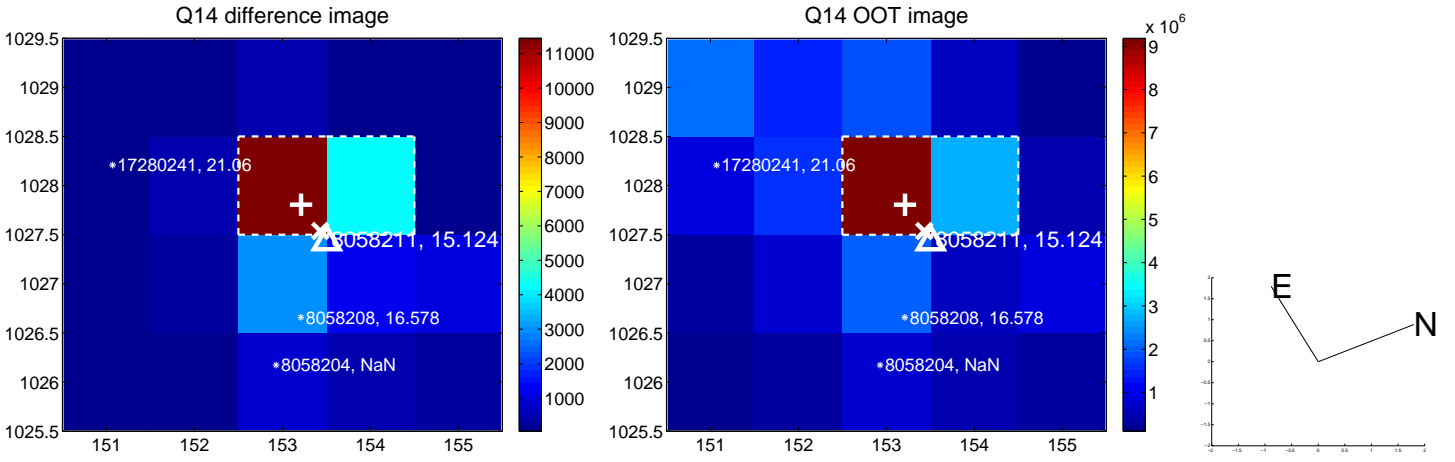
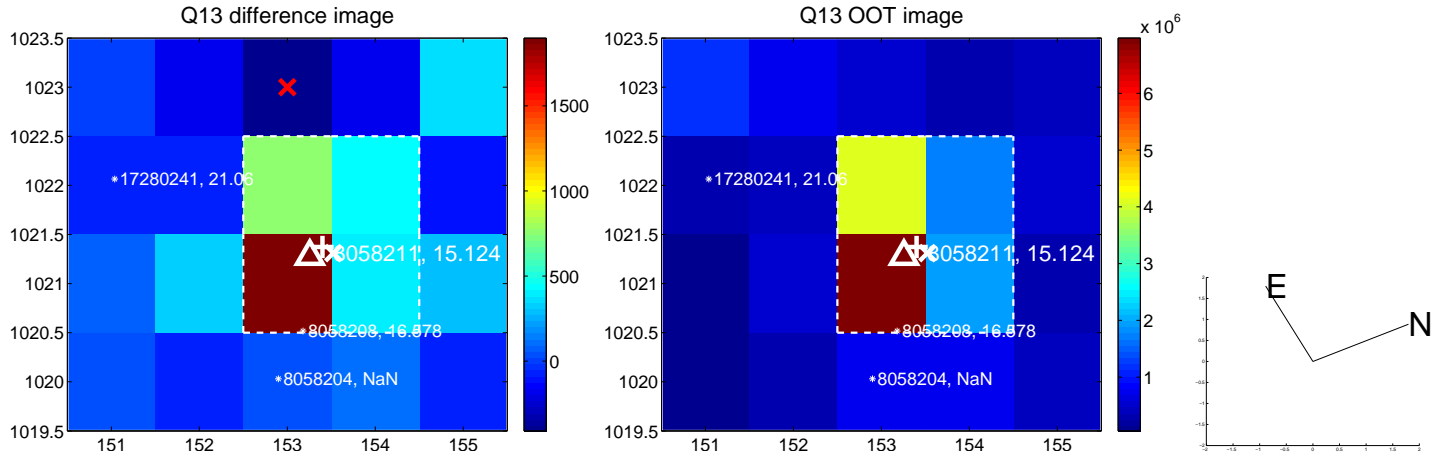




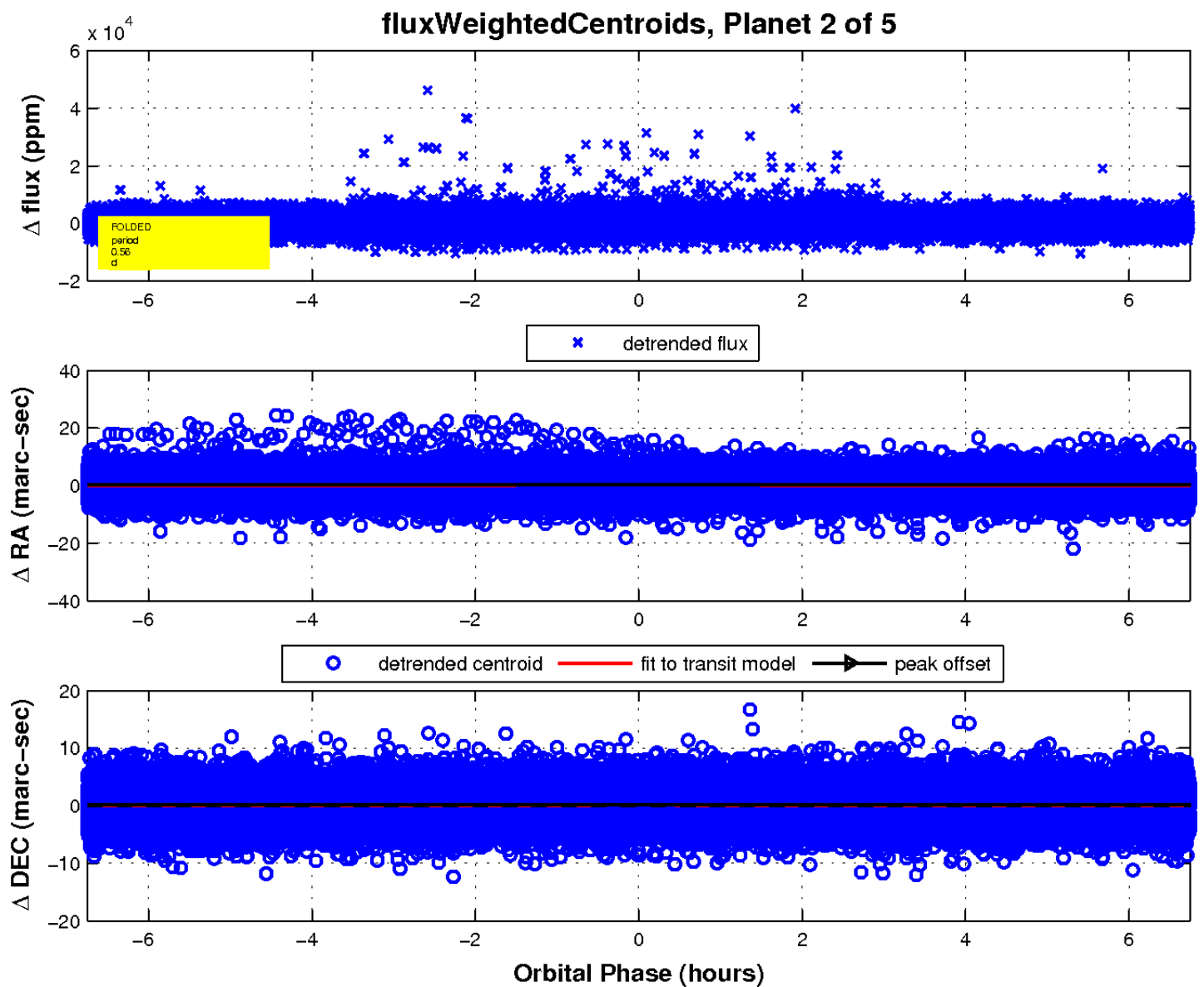
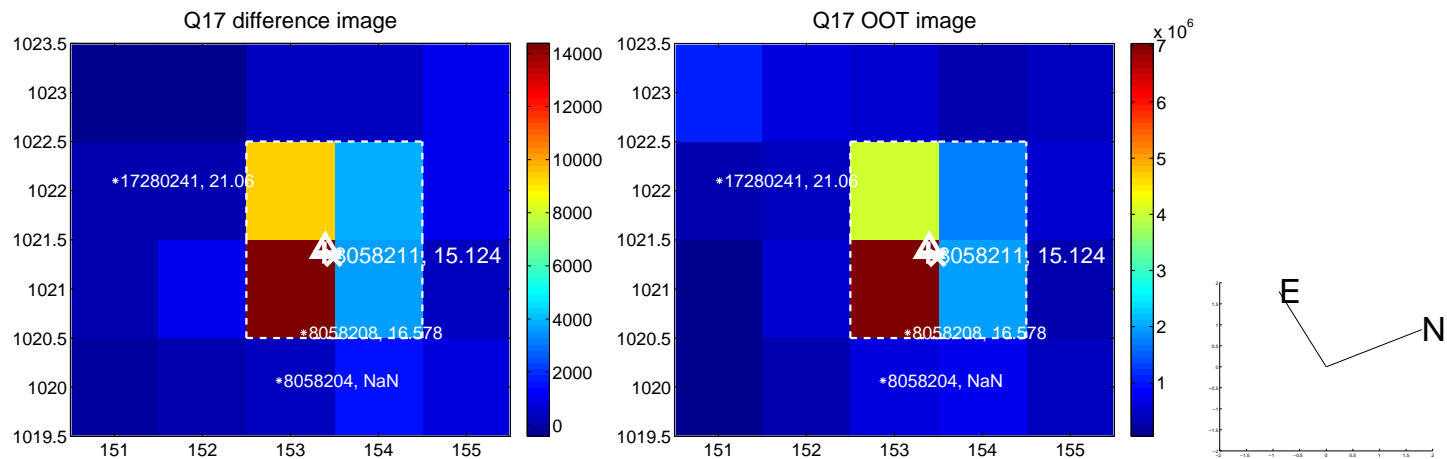
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

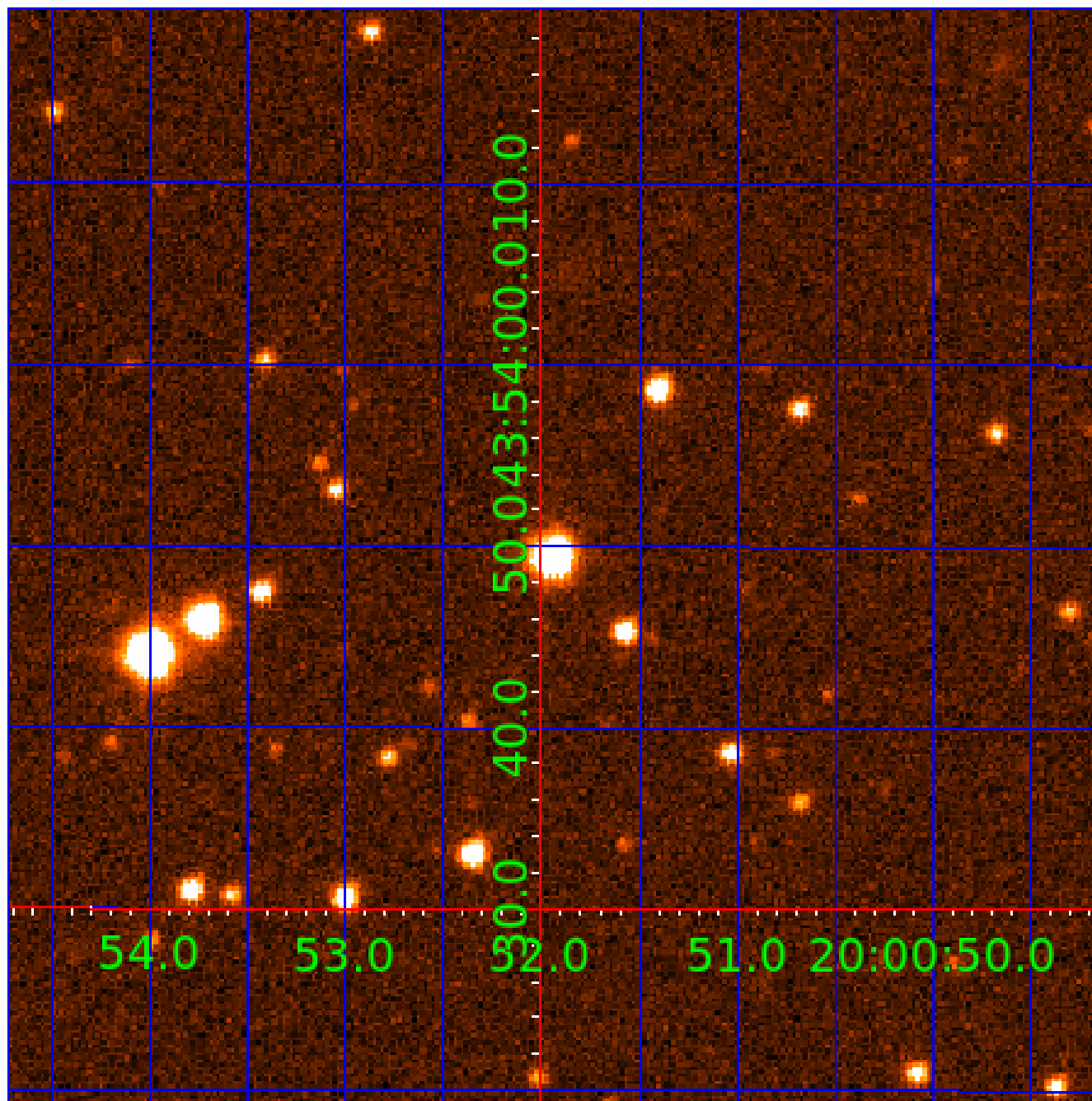


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008058211

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008058211-01	OBS	No	343.392695	241.273619	2812.1	3.204	15.4	8.0	0.68	4261	3.43	0.19
008058211-02	OBS	No	0.562463	131.933666	122.1	3.675	8.1	9.0	0.68	4261	0.73	999.03
008058211-03	OBS	No	53.312622	184.886035	565.5	3.045	15.3	2.0	0.68	4261	1.83	2.31
008058211-04	OBS	No	44.573914	148.164955	1138.8	22.043	9.5	4.1	0.68	4261	2.48	2.94
008058211-05	OBS	No	66.573288	164.259179	1019.0	3.500	7.3	-1.0	0.68	4261	2.07	1.72

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008058211-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008058211-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
008058211-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008058211-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_ALT
008058211-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS—HALO_GHOST

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

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

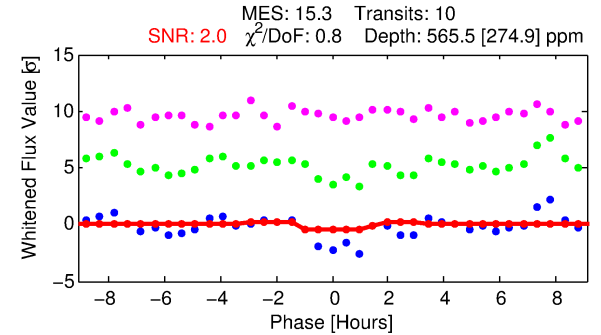
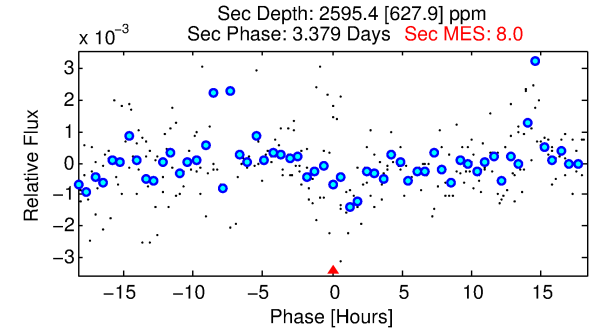
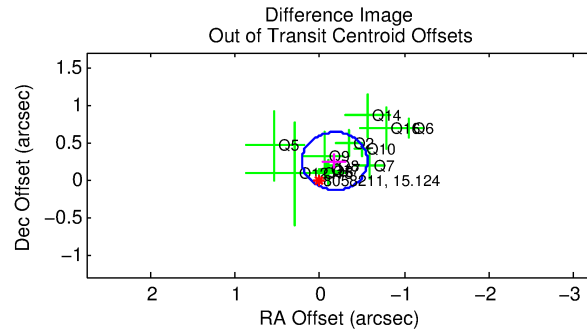
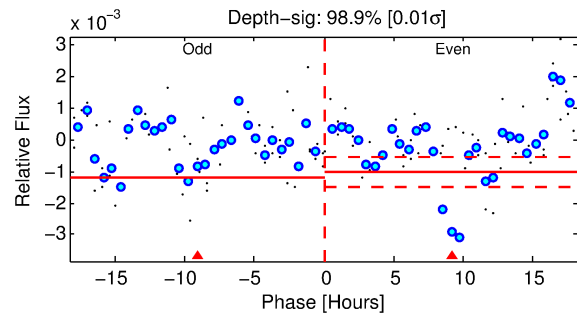
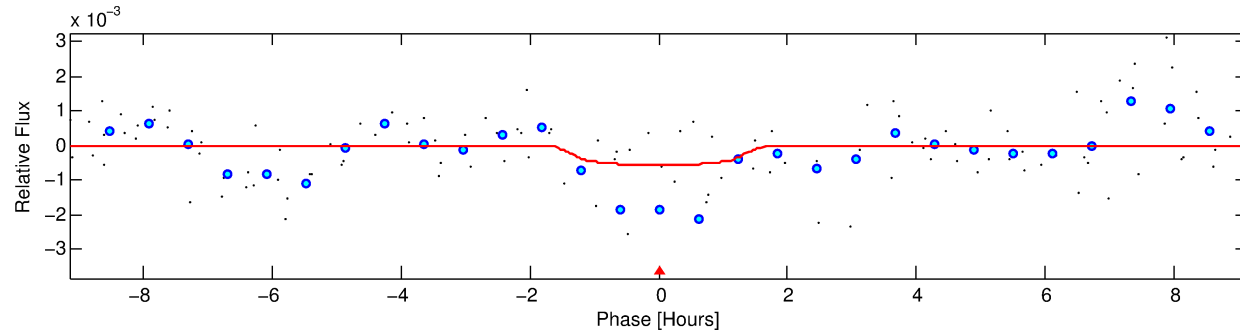
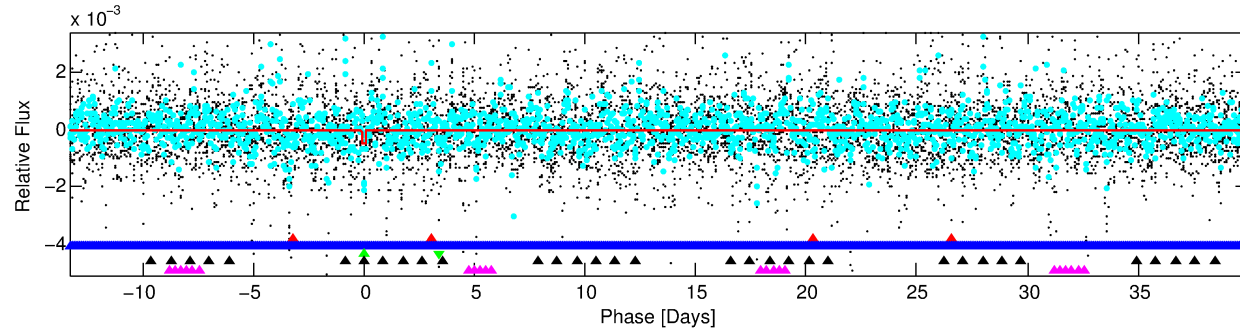
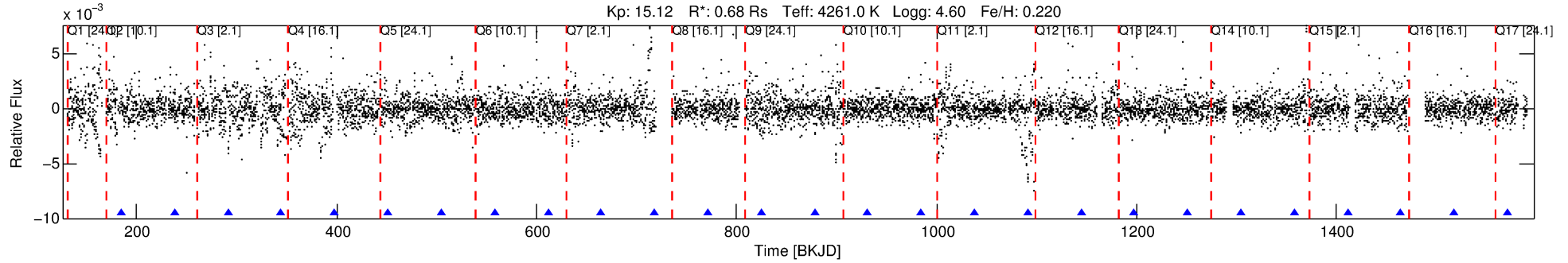
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008058211-03

No Significant Match Found

# DV One-Page Summary

KIC: 8058211 Candidate: 3 of 5 Period: 53.313 d



## DV Fit Results:

Period = 53.31262 [0.00155] d  
Epoch = 184.8860 [0.0227] BKJD  
Rp/R\* = 0.0246 [0.0769]  
a/R\* = 85.52 [853.11]  
b = 0.80 [4.60]  
Seff = 2.31 [0.38]  
Teq = 314 [13] K  
Rp = 1.83 [5.72] Re  
a = 0.2434 [0.0168] AU  
Ag = 25233.15 [157620.82] [0.16σ]  
Teffp = 6127 [9569] K [0.61σ]

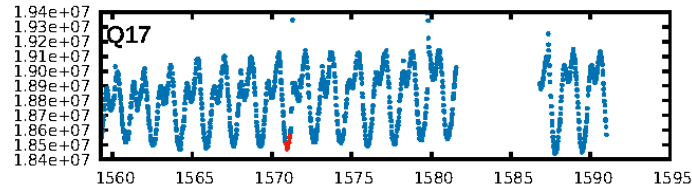
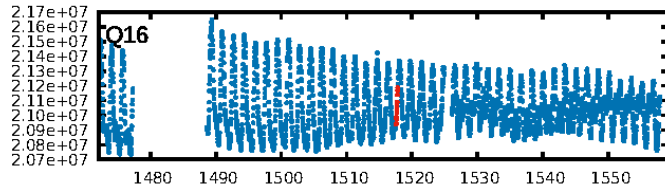
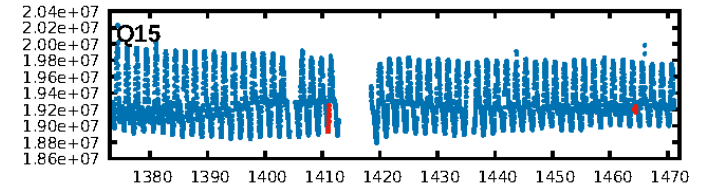
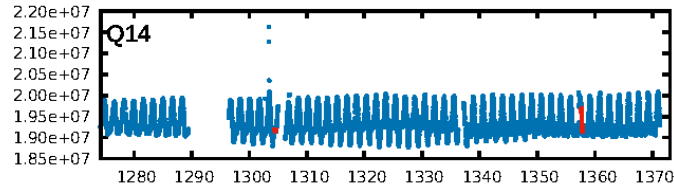
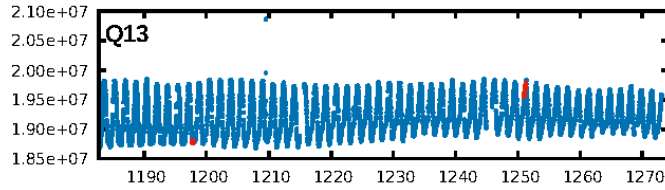
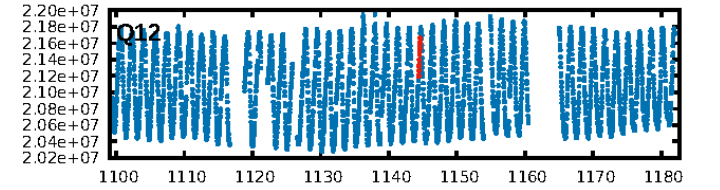
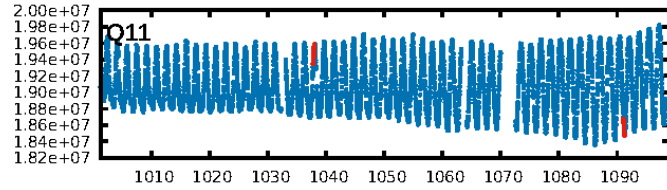
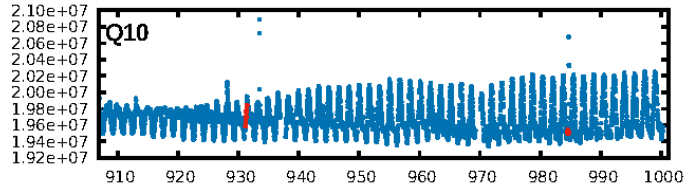
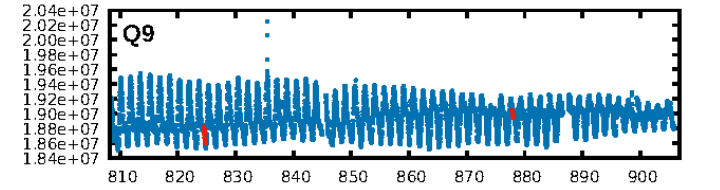
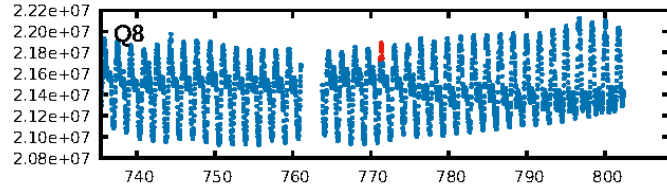
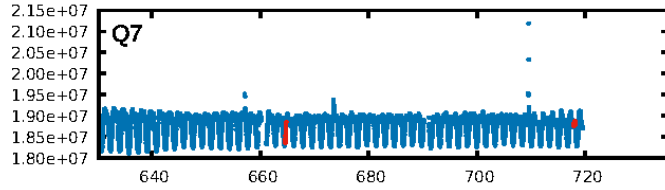
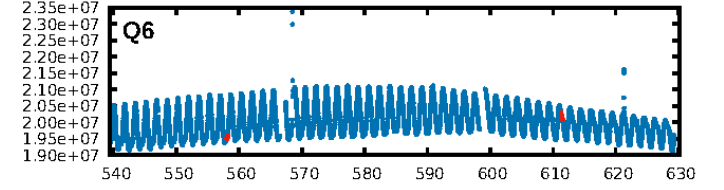
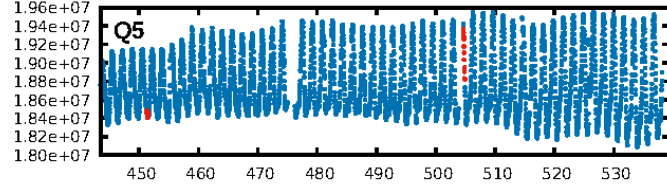
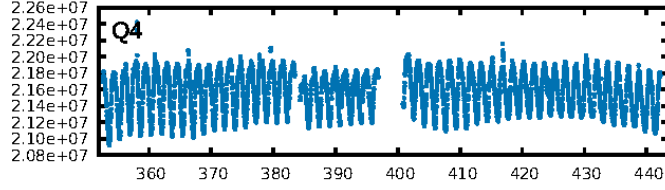
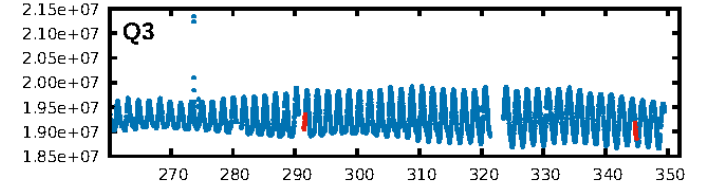
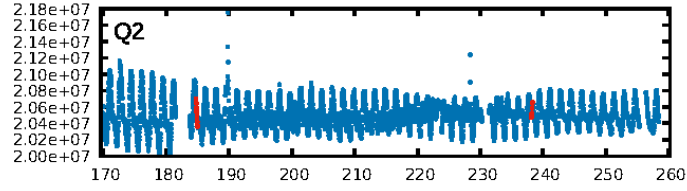
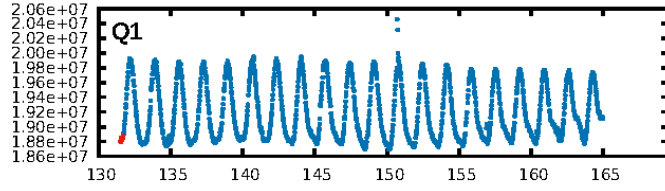
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.42σ]  
LongPeriod-sig: 100.0% [68.60σ]  
ModelChiSquare2-sig: 50.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: 0.514  
Centroid-sig: 1.8%  
Centroid-so: 2.724 arcsec [2.18σ]  
OotOffset-rm: 0.305 arcsec [2.38σ]  
OotOffset-st: 4/3/3/3 [13]  
KicOffset-rm: 0.440 arcsec [3.82σ]  
KicOffset-st: 4/3/3/3 [13]  
DiffImageQuality-fgm: 0.77 [10/13]  
DiffImageOverlap-fno: 0.00 [0/15]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:26:25 Z

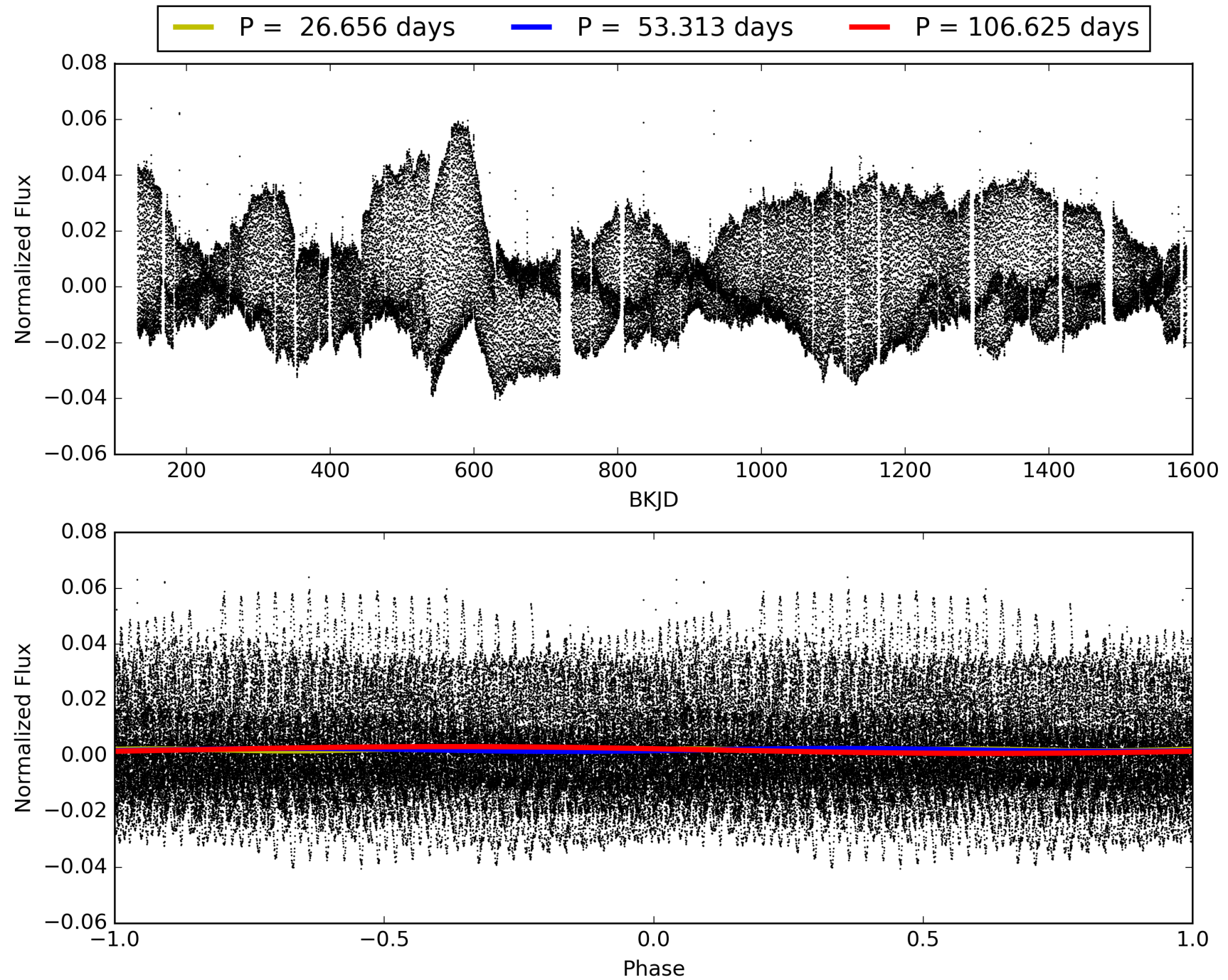
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008058211-03, PDC Light Curves





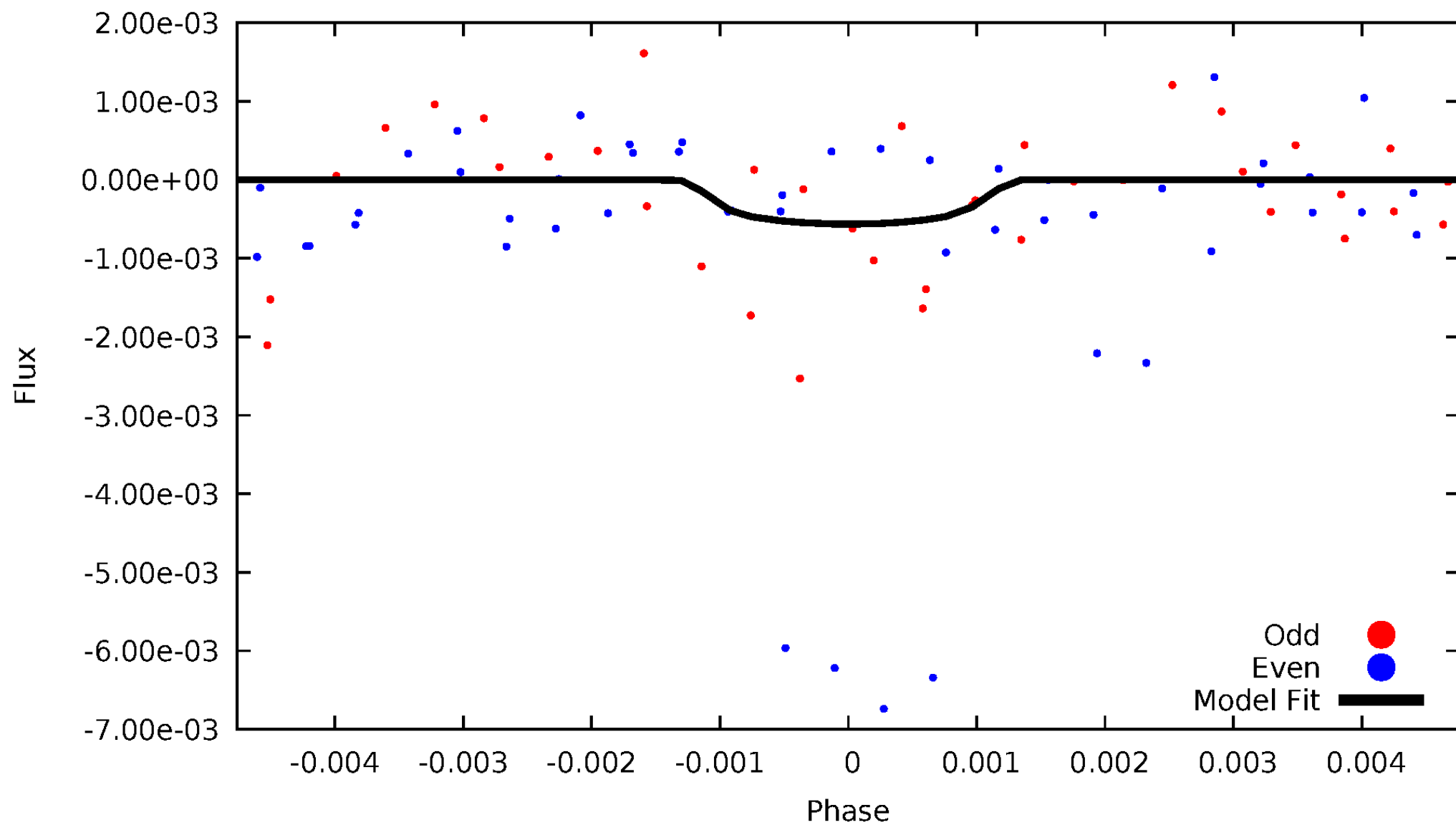
# TCE 008058211-03





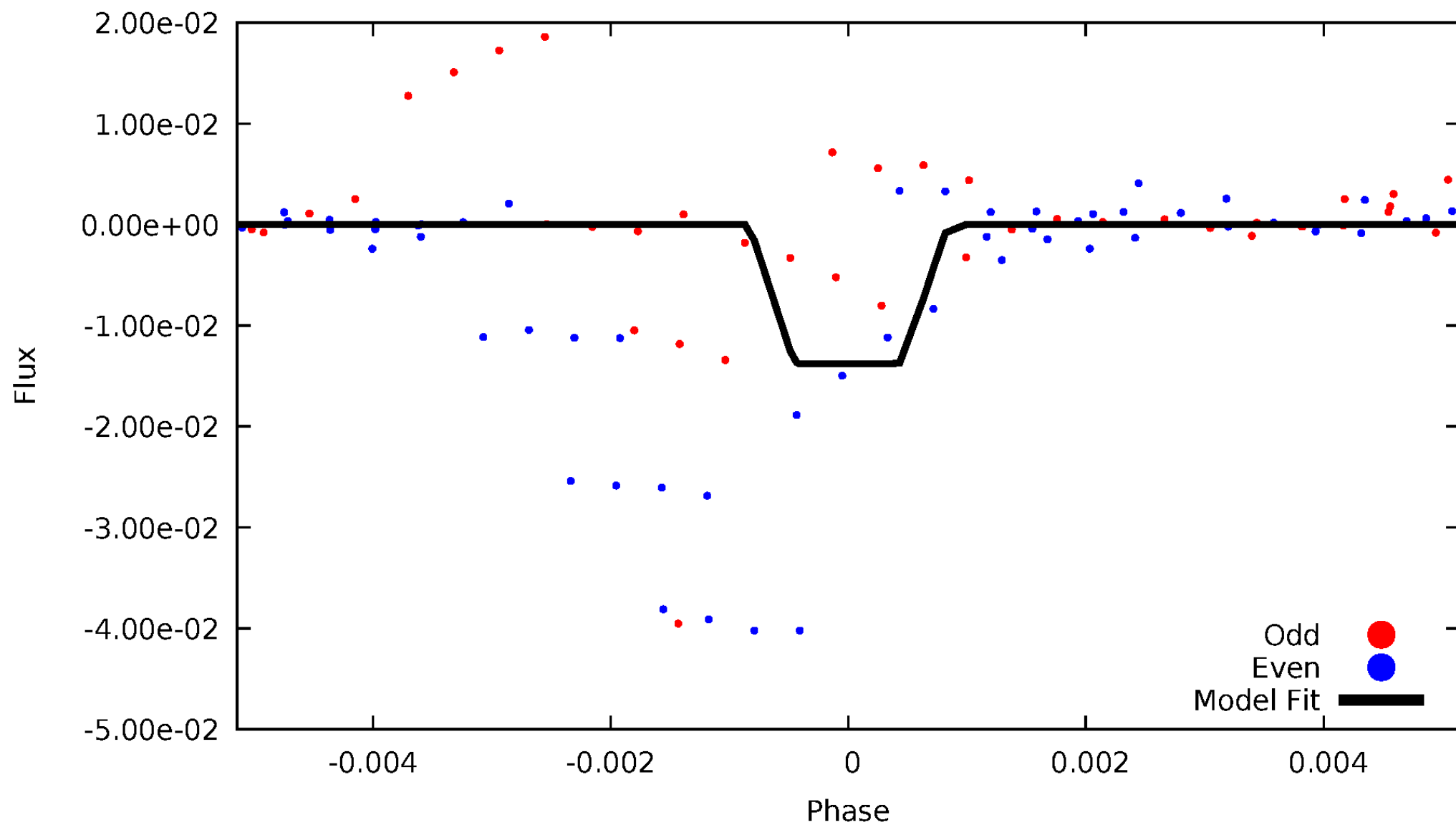
# DV Odd/Even

TCE 008058211-03



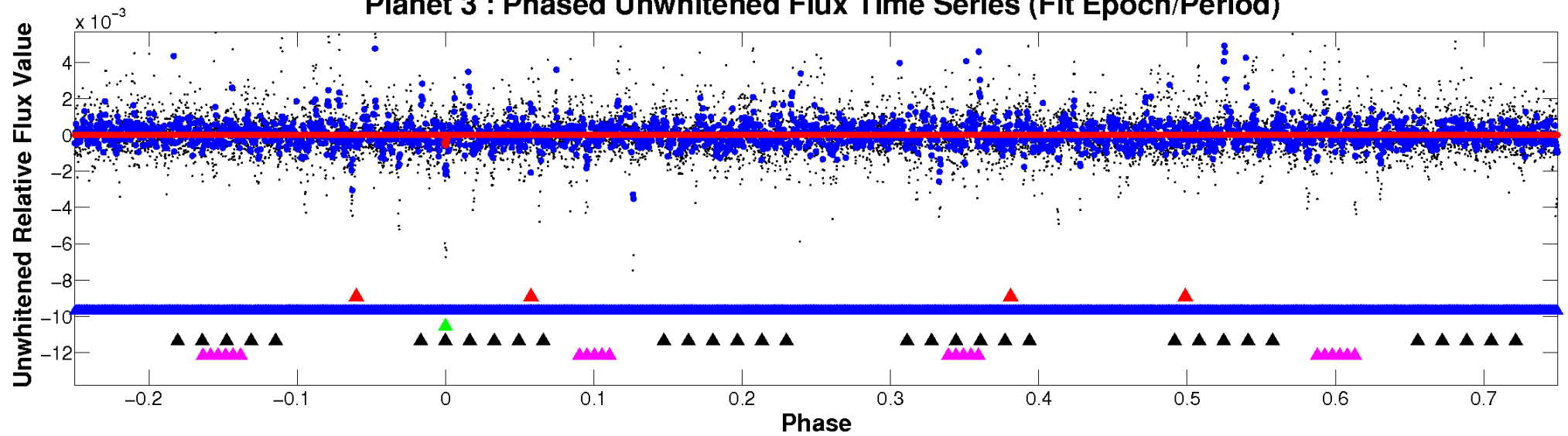
# ALT Odd/Even

TCE 008058211-03

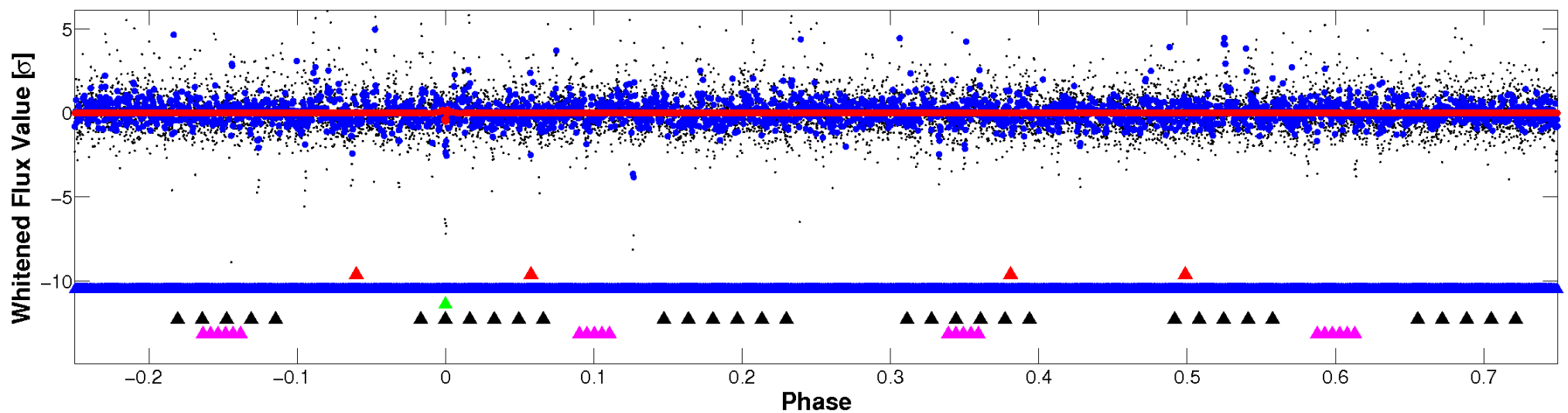


# Non-Whitened Vs. Whitened Light Curve

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

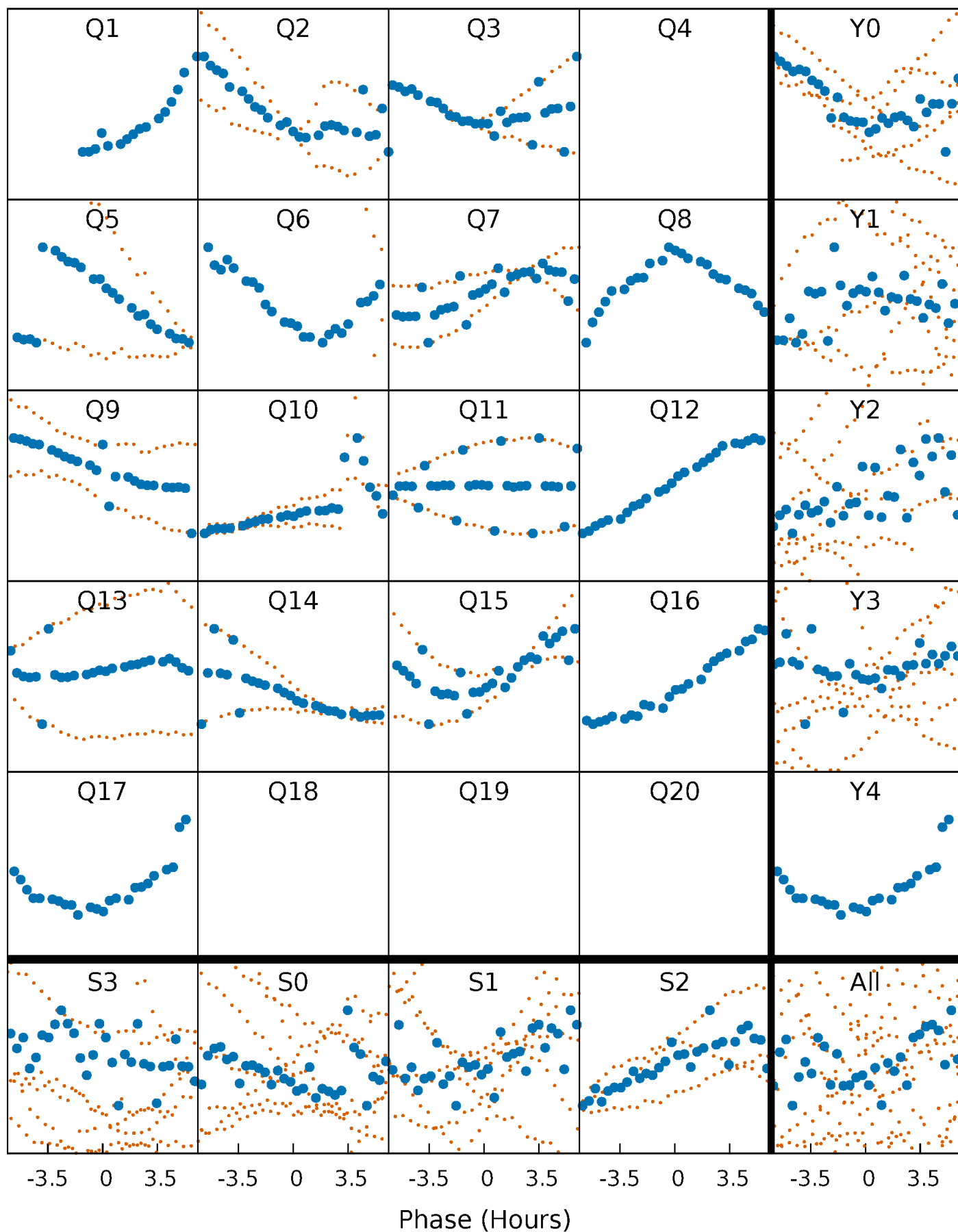


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



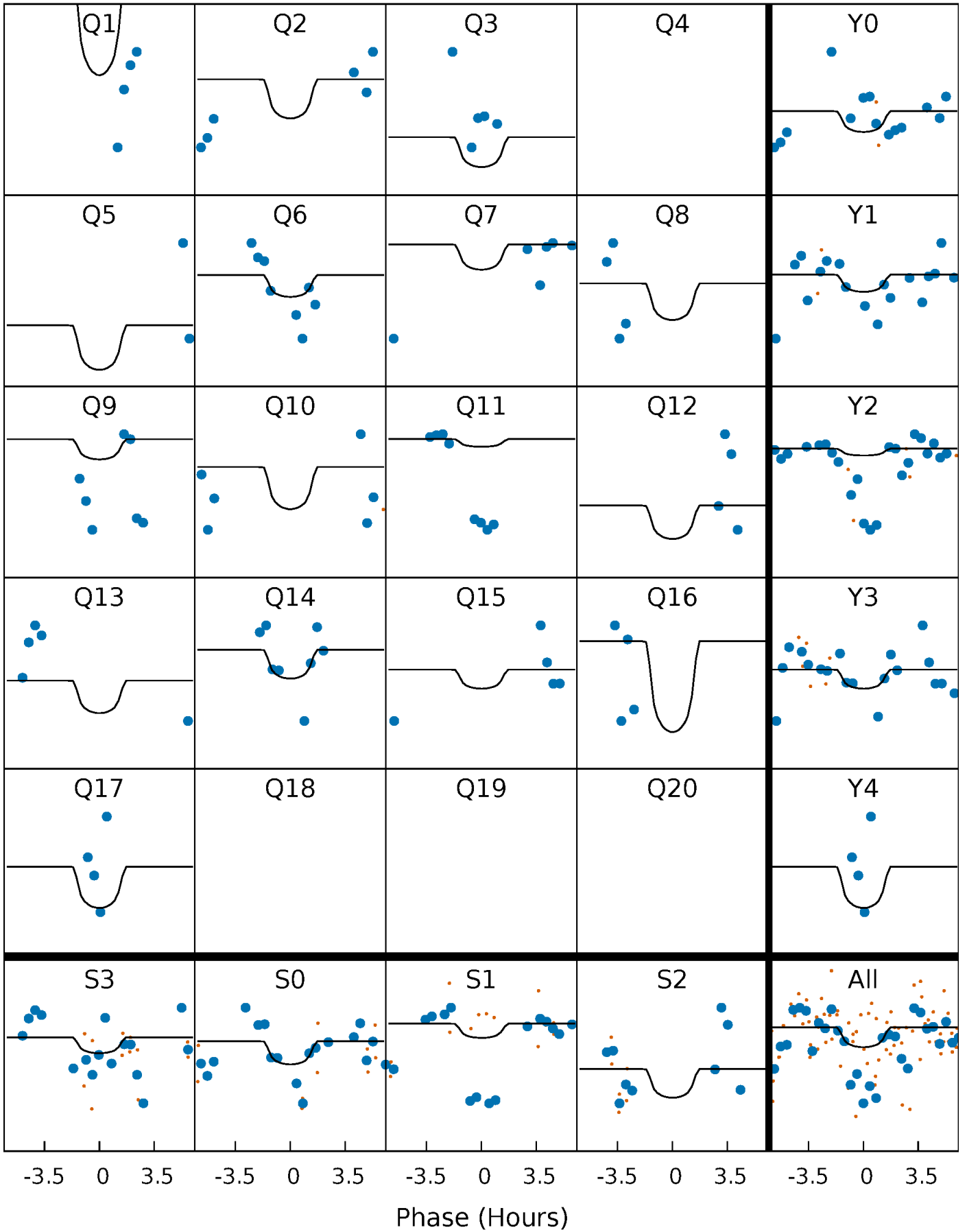
# PDC Quarter-Phased Transit Curves

TCE 008058211-03 P= 53.312622 Days  $T_0=184.886035$  (BKJD)



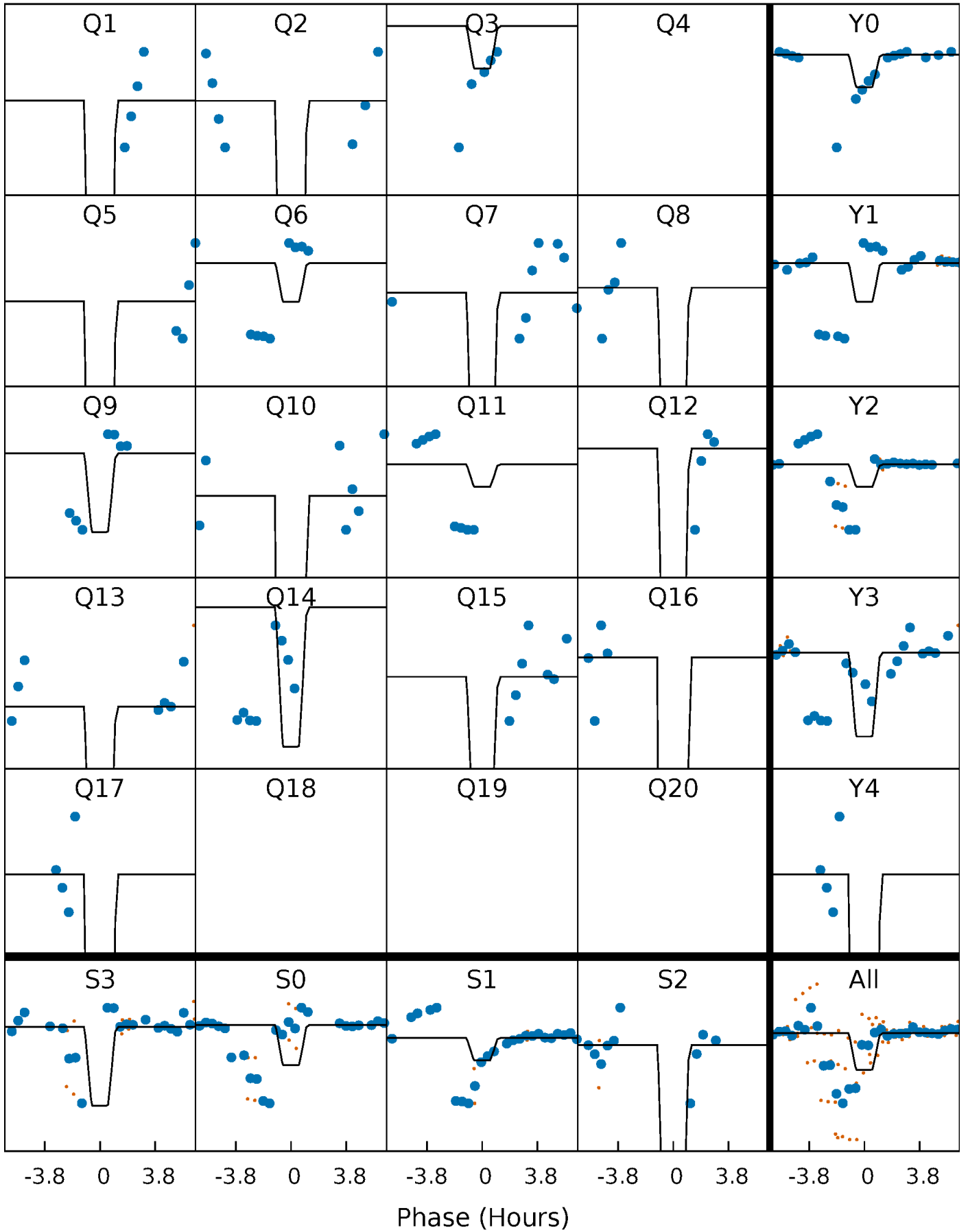
# DV Quarter-Phased Transit Curves

TCE 008058211-03   P= 53.312622 Days    $T_0=184.886035$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

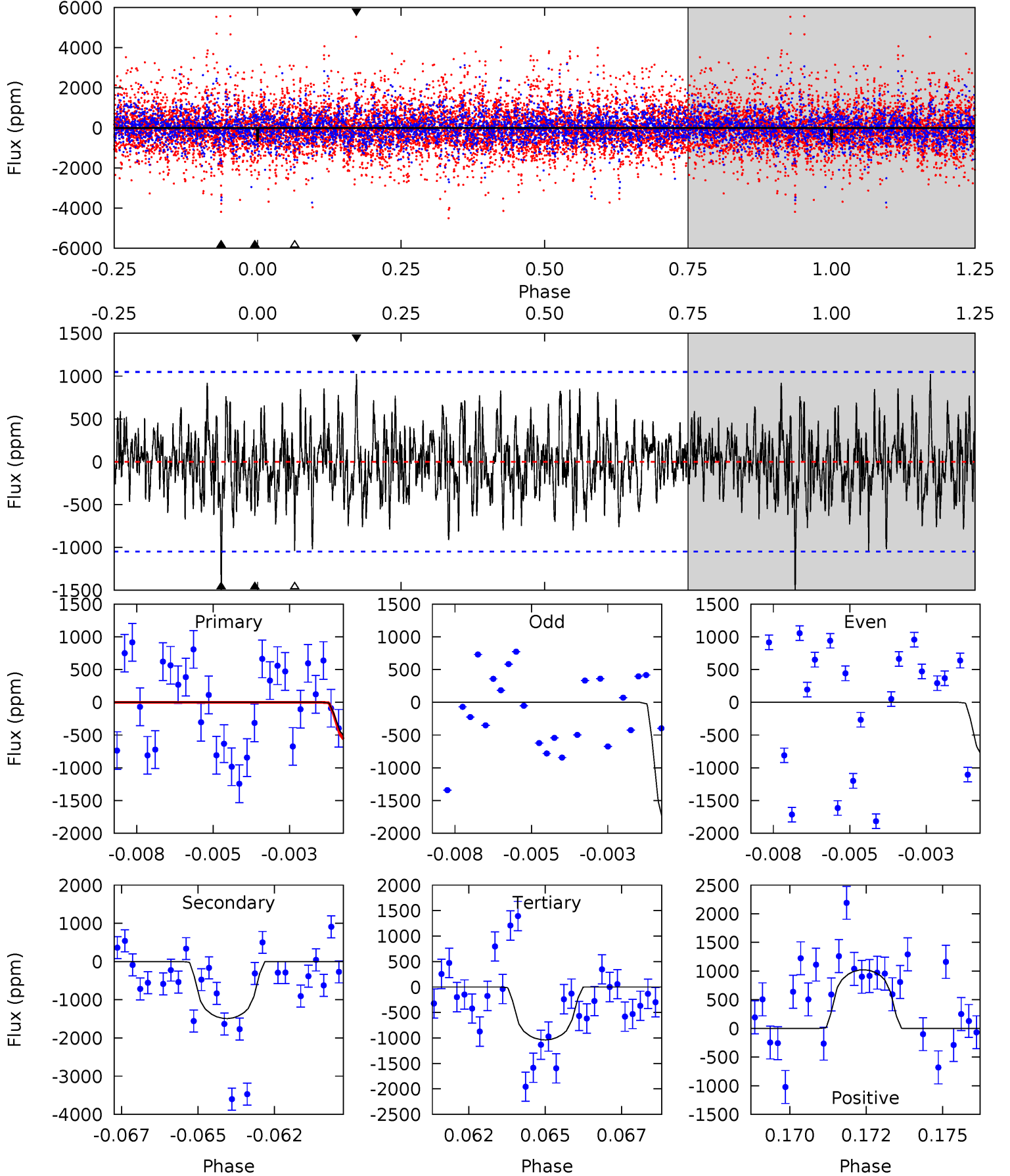
TCE 008058211-03   P= 53.316984 Days    $T_0=184.868778$  (BKJD)



# DV Model-Shift Uniqueness Test

008058211-03, P = 53.312622 Days, E = 131.573413 Days

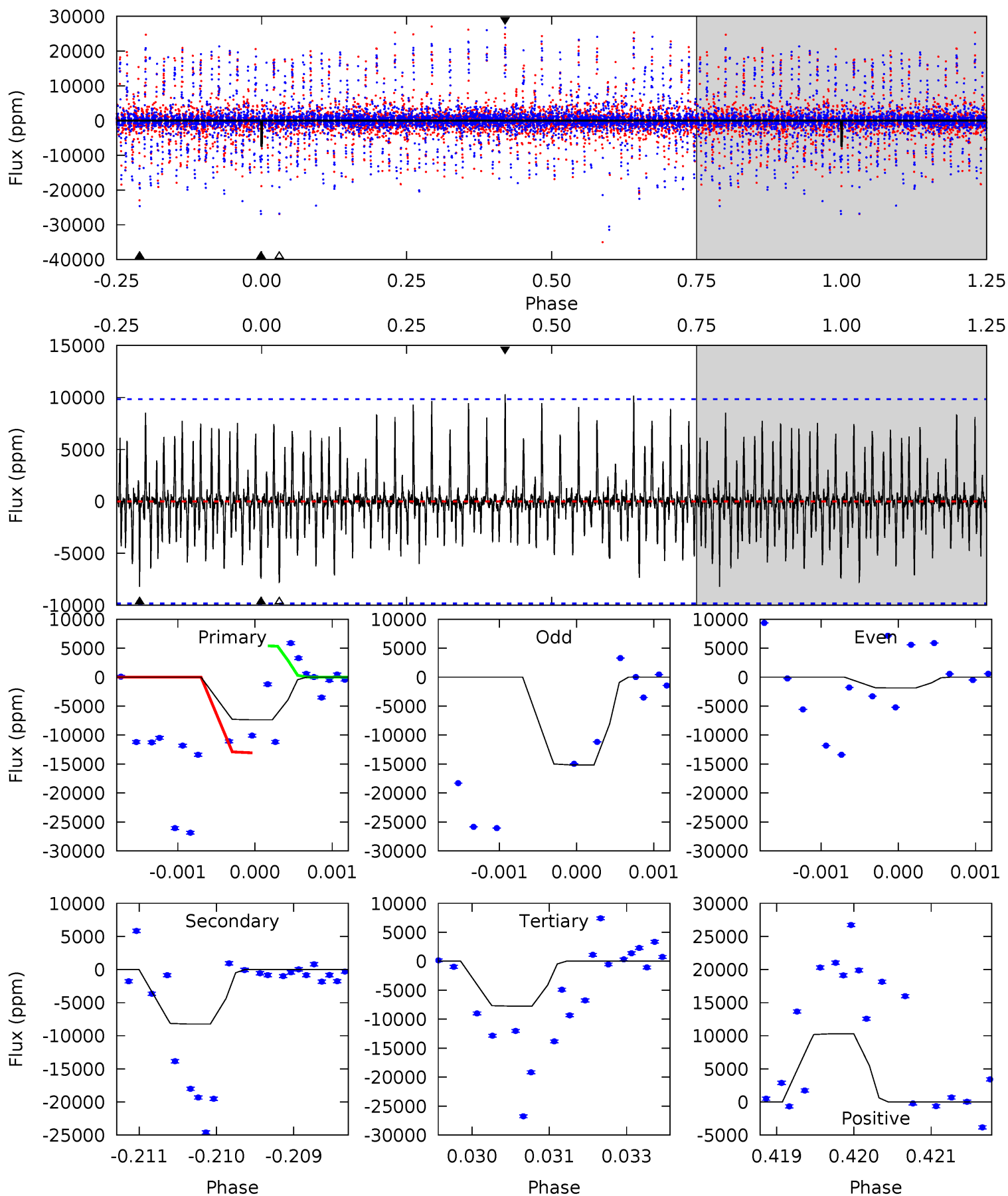
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.16	7.51	5.23	5.15	5.27	3.00	1.56	-2.06	-1.99	2.28	2.36	2.87	1.23	0.41	0



# Alt Model-Shift Uniqueness Test

008058211-03, P = 53.316984 Days, E = 131.551794 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
4.02	4.50	4.23	5.63	5.38	3.18	1.03	-0.21	-1.61	0.27	-1.13	2.32	1.91	0.56	1.97





### Stellar Parameters For KIC 008058211

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4261^{+129}_{-142}$	$4.602^{+0.053}_{-0.018}$	$0.220^{+0.200}_{-0.300}$	$0.681^{+0.028}_{-0.057}$	$0.677^{+0.042}_{-0.052}$	$3.016^{+0.695}_{-0.201}$
	+3%/-3%	+1%/-0%	+91%/-136%	+4%/-8%	+6%/-8%	+23%/-7%
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 008058211-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1492 \pm 199$	$4.63^{+4.72}_{-3.22}$	$436^{+15}_{-15}$	$3592^{+2114}_{-667}$	$2301^{+21577}_{-1744}$
Alt.	$-8228 \pm 1829$	$9.09^{+5.32}_{-5.19}$	$436^{+15}_{-16}$	$3816^{+1447}_{-535}$	$3237^{+14742}_{-1928}$

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

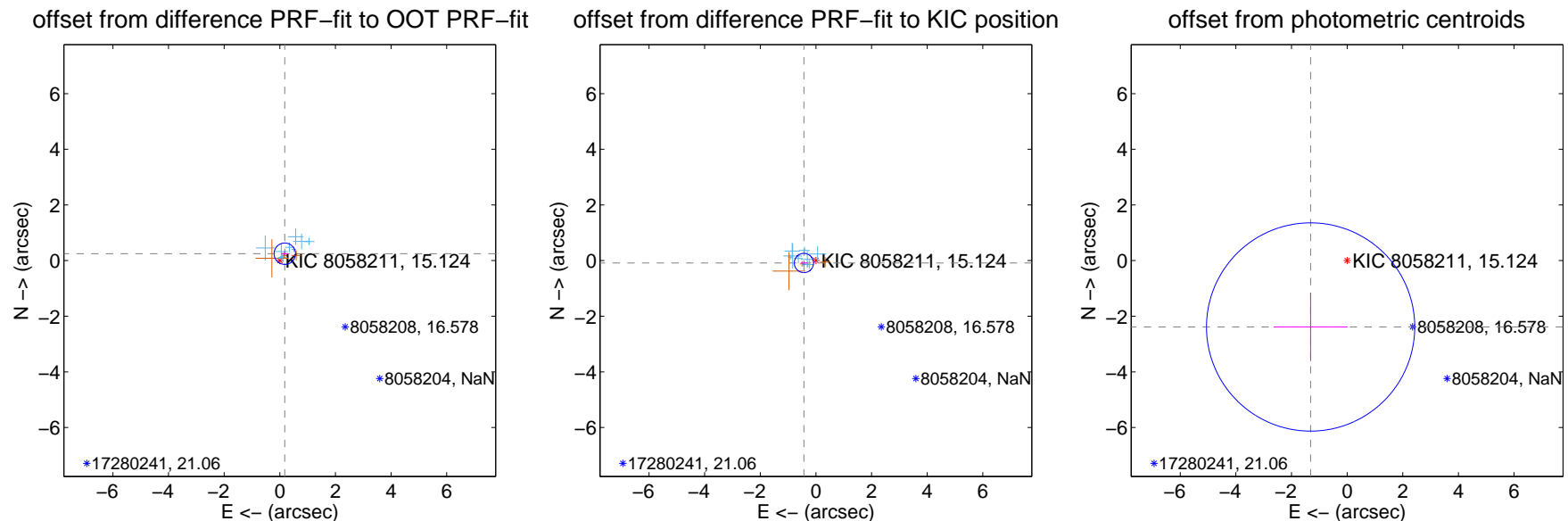
## DV Centroid Data

Supplemental centroid analysis for 008058211-03. Kepler magnitude: 15.12. Transit SNR 2.04

There are 10 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.305 \pm 0.128$	2.38	$-0.180 \pm 0.134$	$0.247 \pm 0.095$
PRF-fit source offset from KIC position	$0.440 \pm 0.115$	3.82	$0.431 \pm 0.117$	$-0.086 \pm 0.087$
photometric centroid source offset	$2.72 \pm 1.25$	2.18	$1.31 \pm 1.33$	$-2.39 \pm 1.22$



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

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

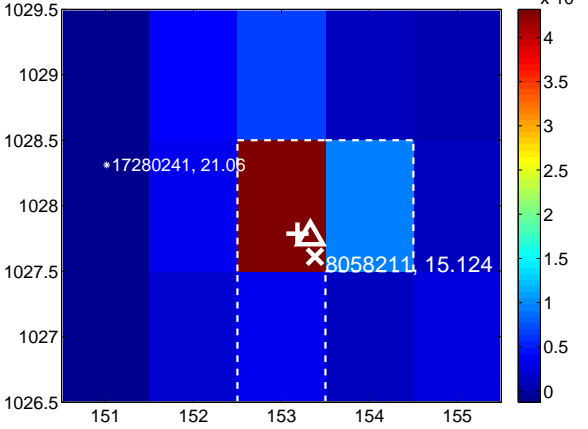
Q1 no difference image



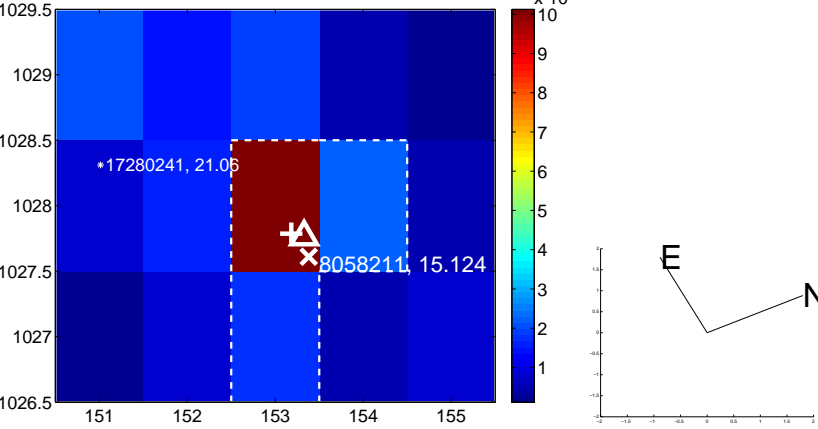
Q1 no OOT image



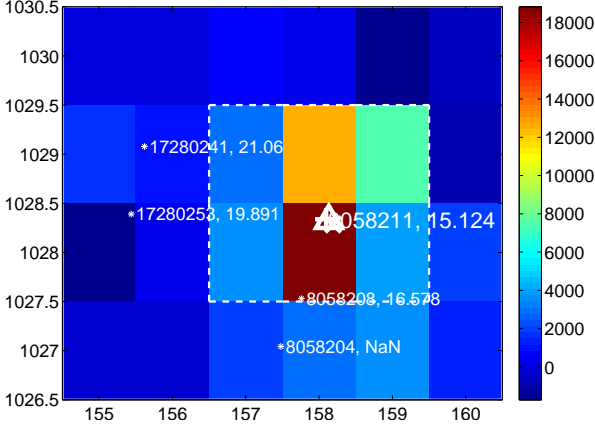
Q2 difference image



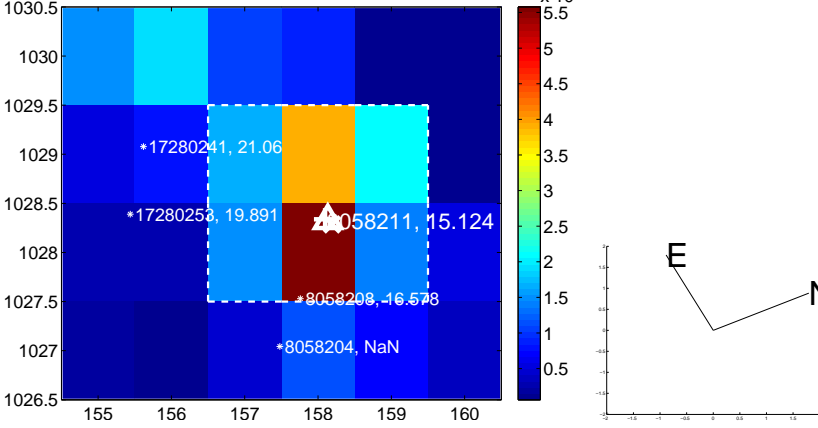
Q2 OOT image



Q3 difference image



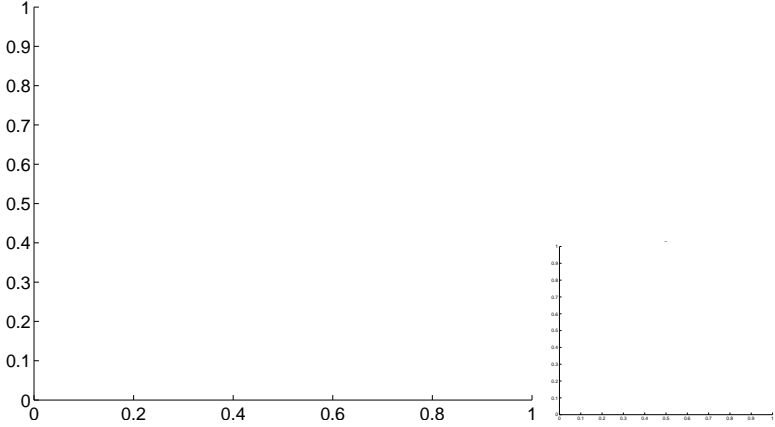
Q3 OOT image



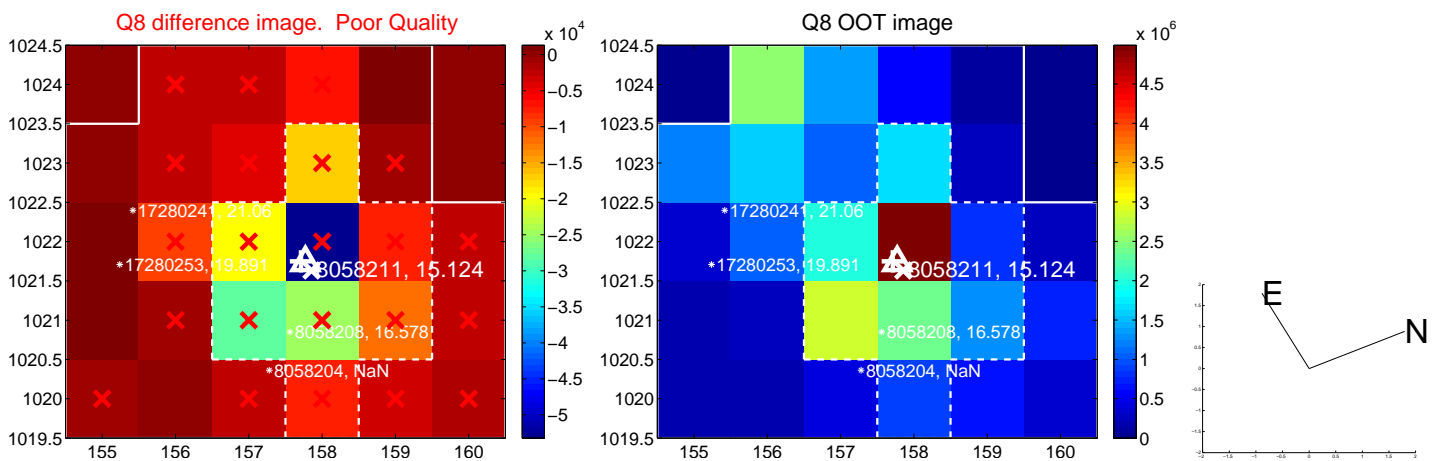
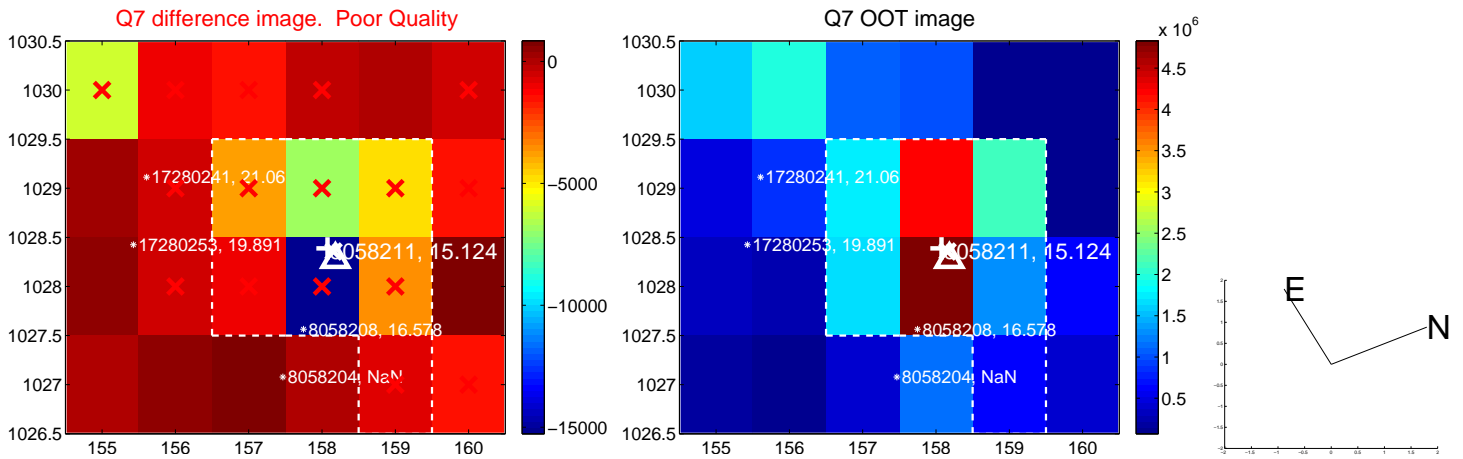
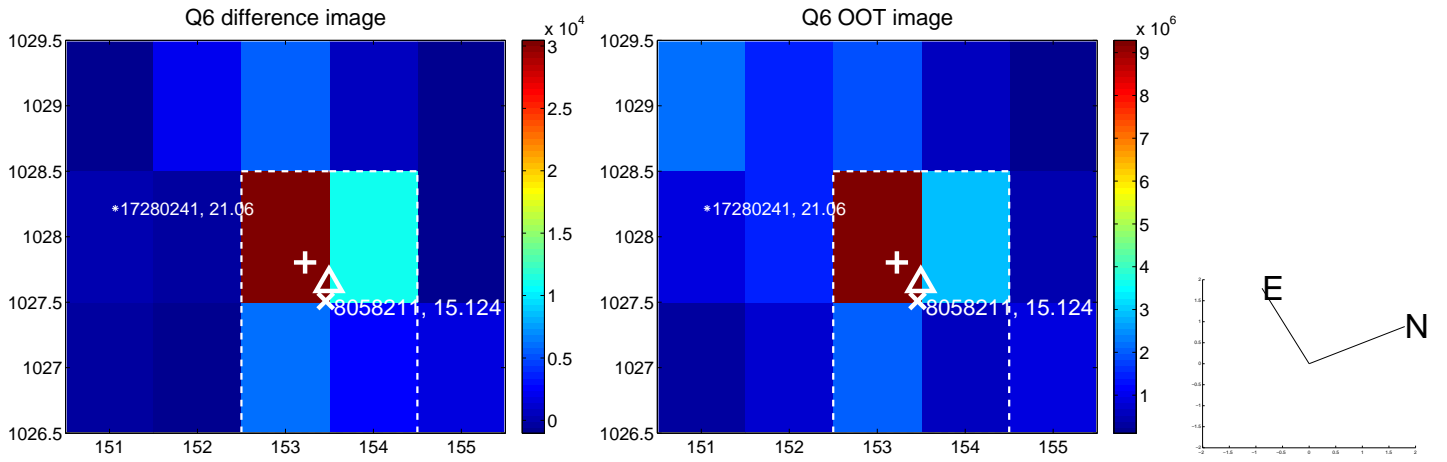
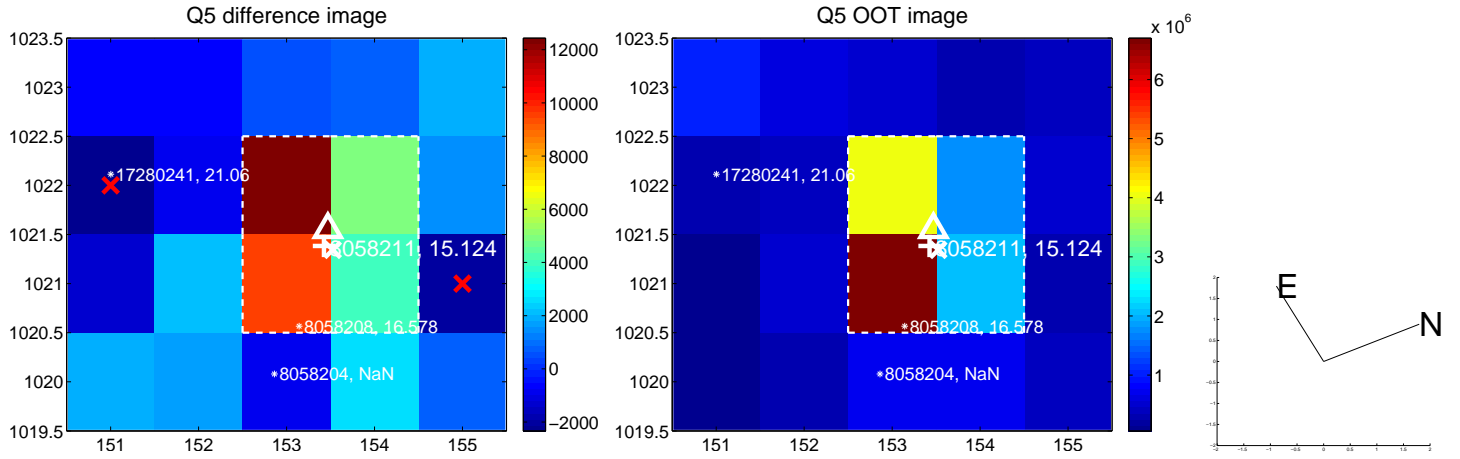
Q4 no difference image



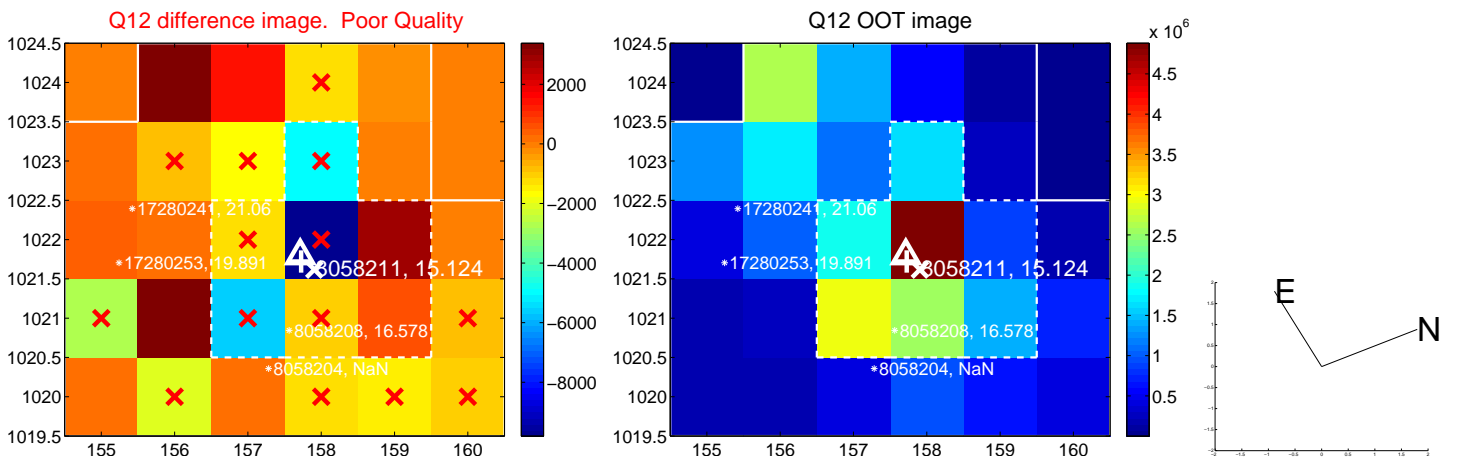
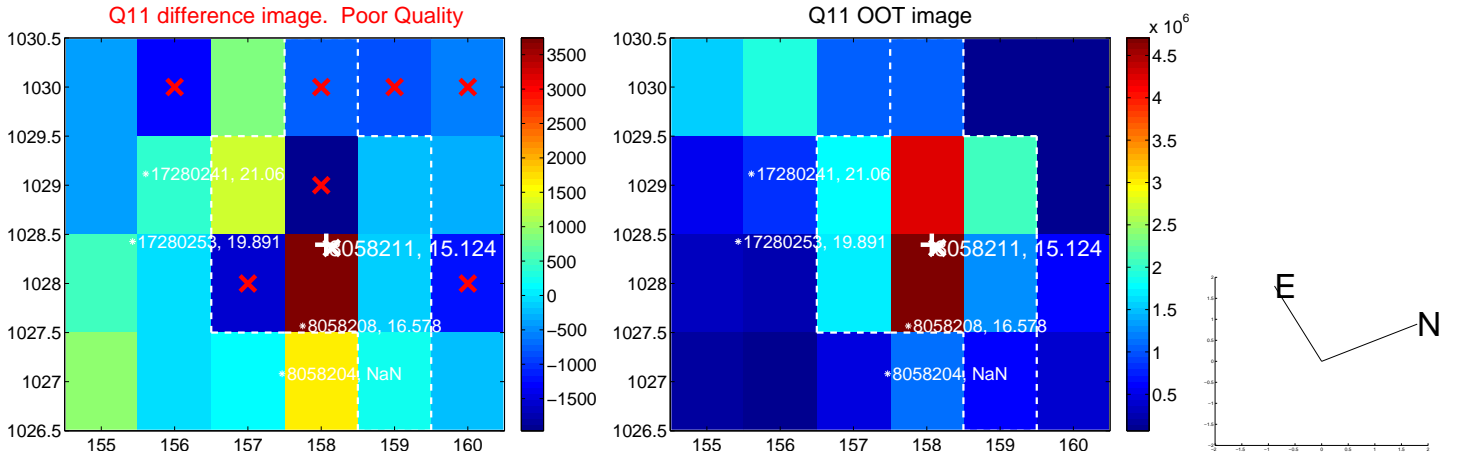
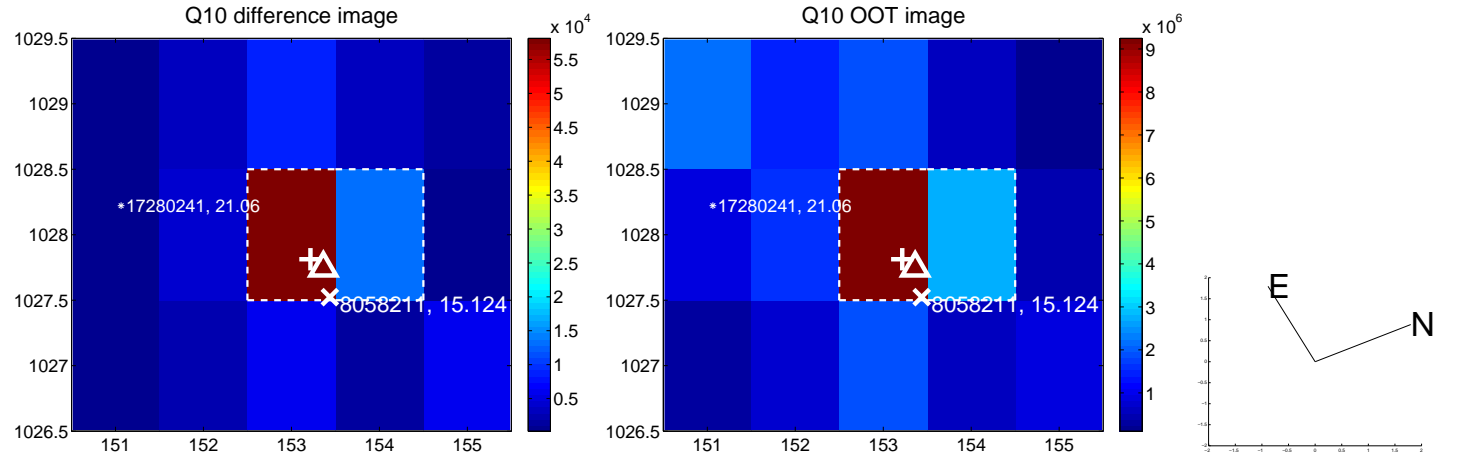
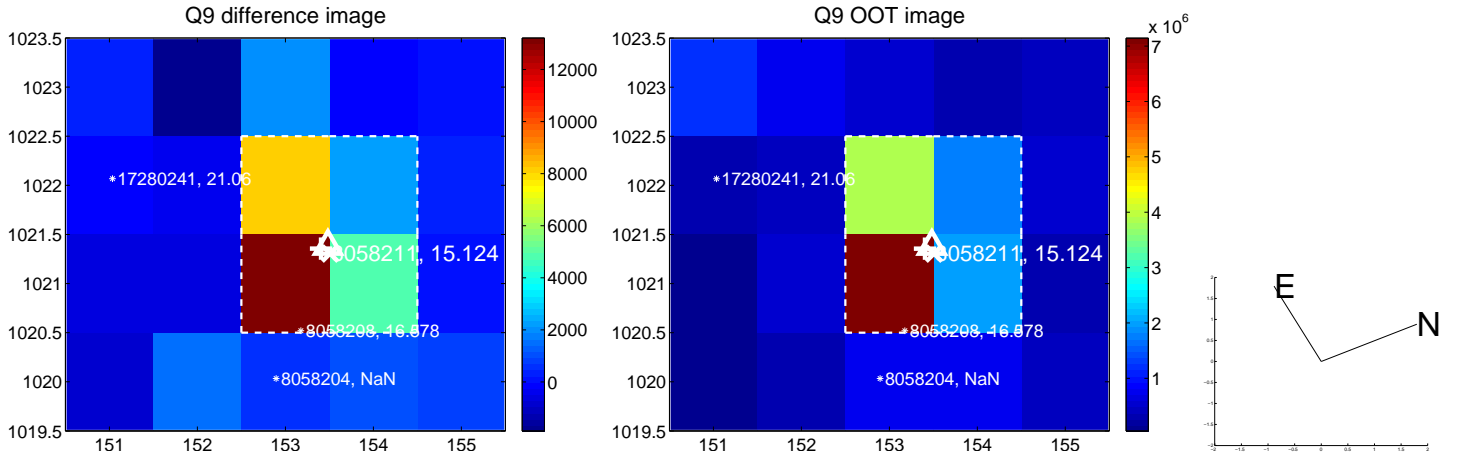
Q4 no OOT image



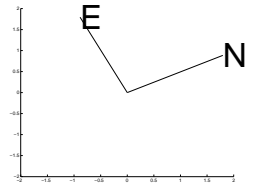
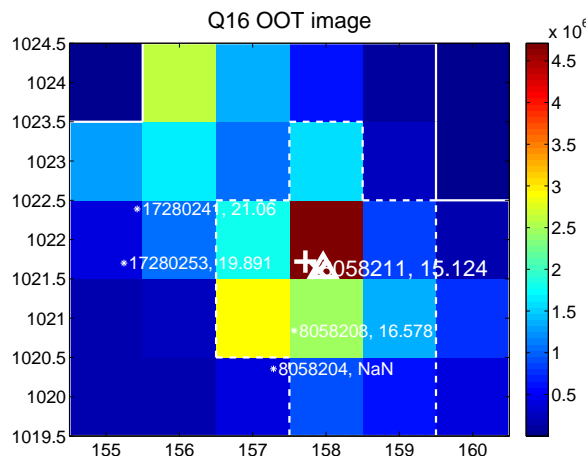
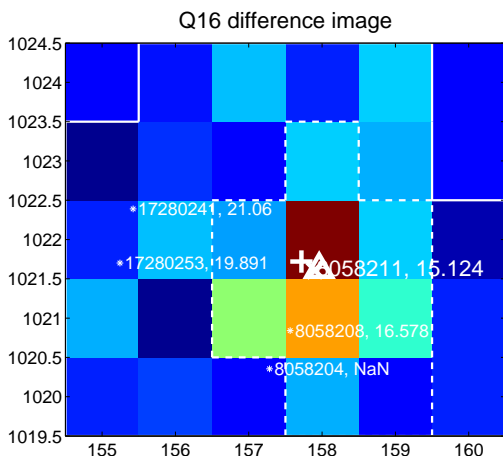
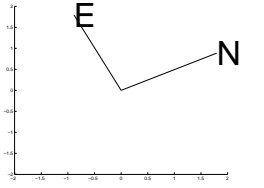
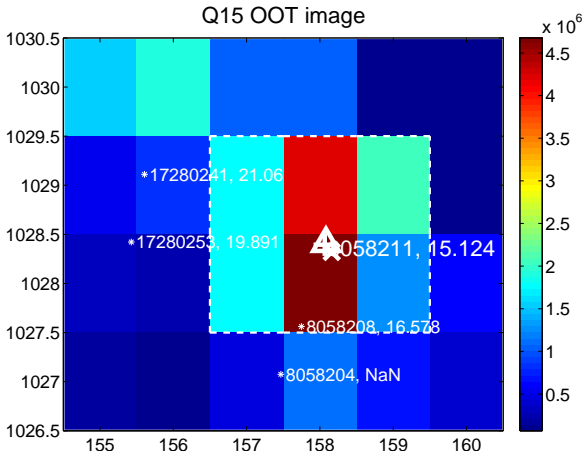
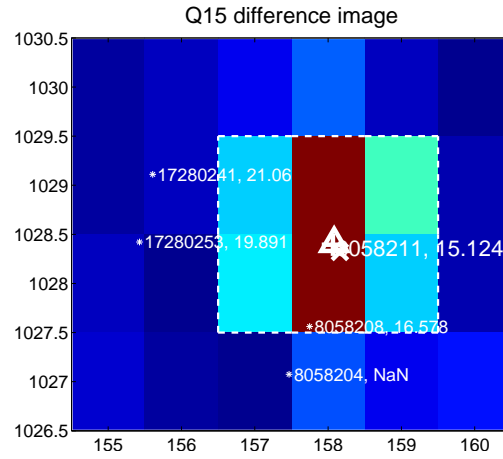
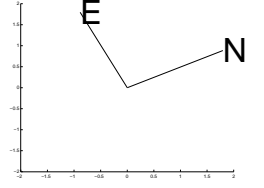
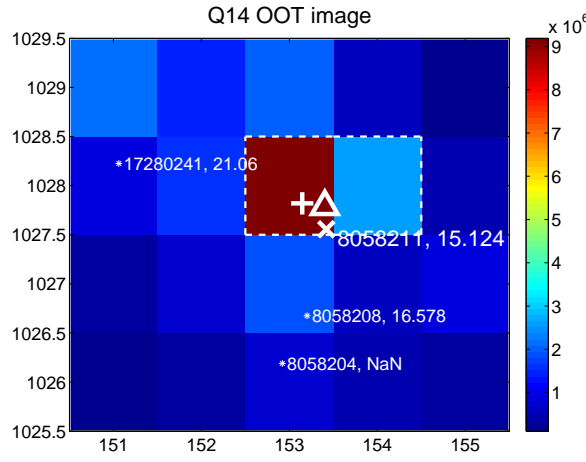
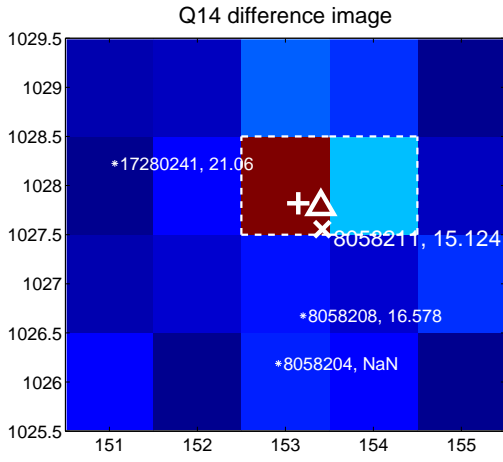
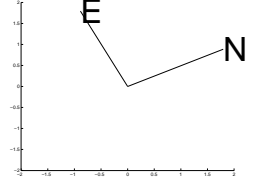
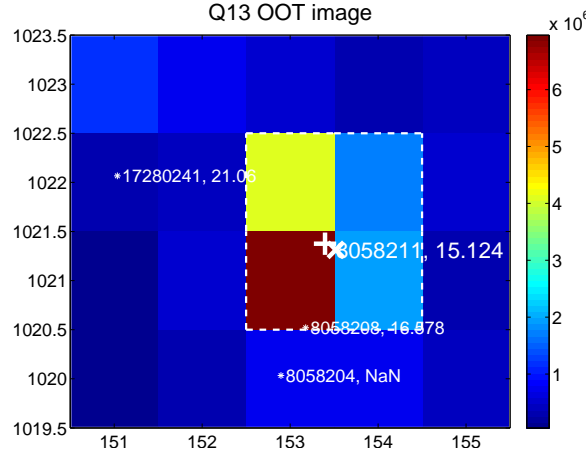
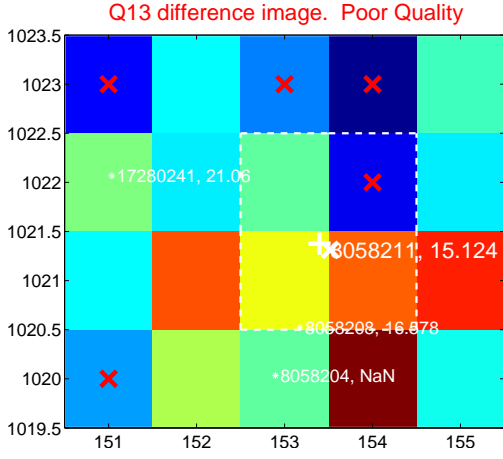
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



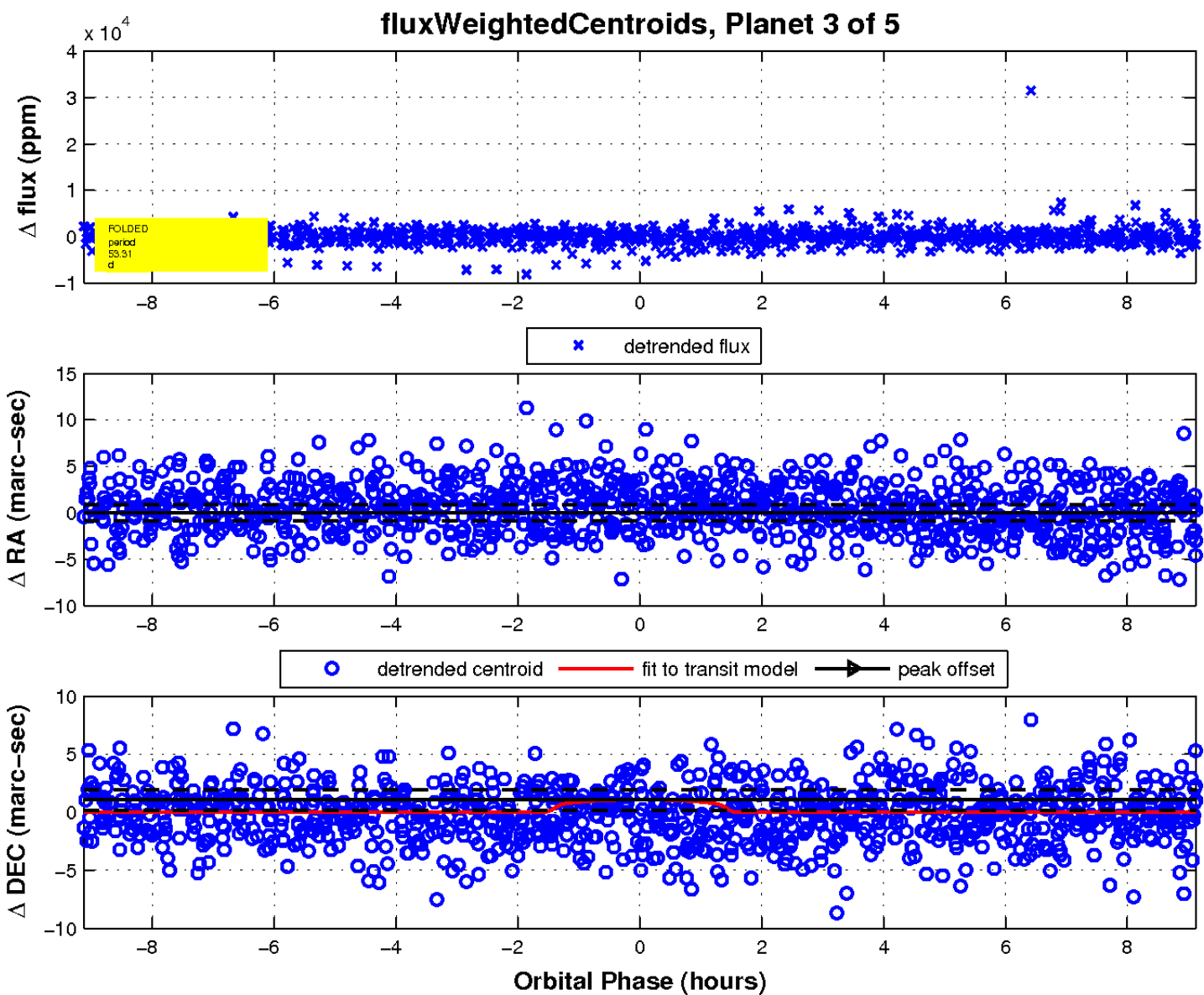
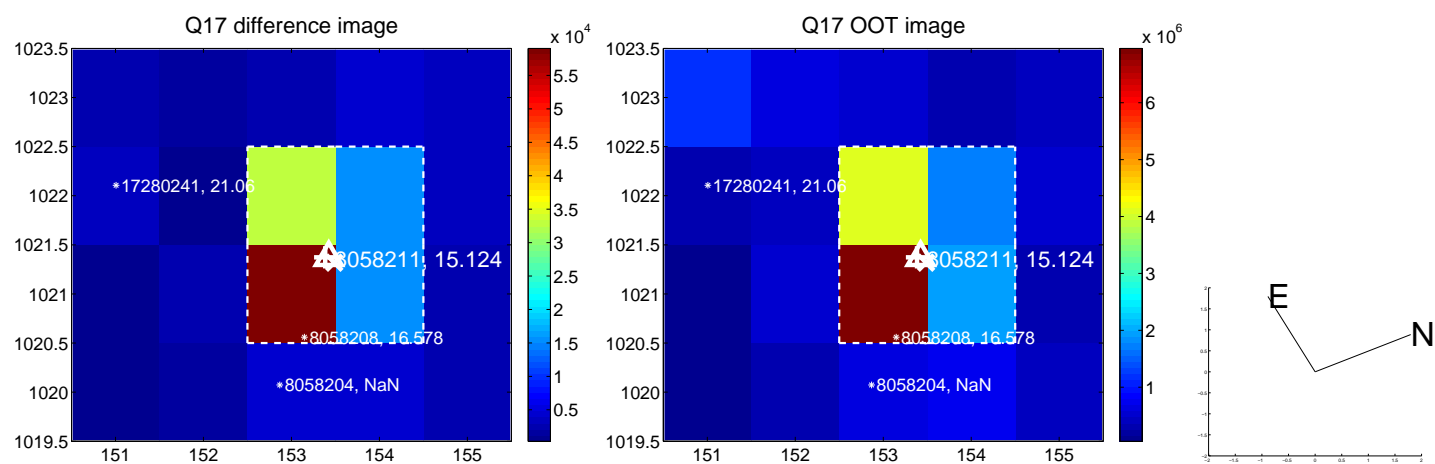
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



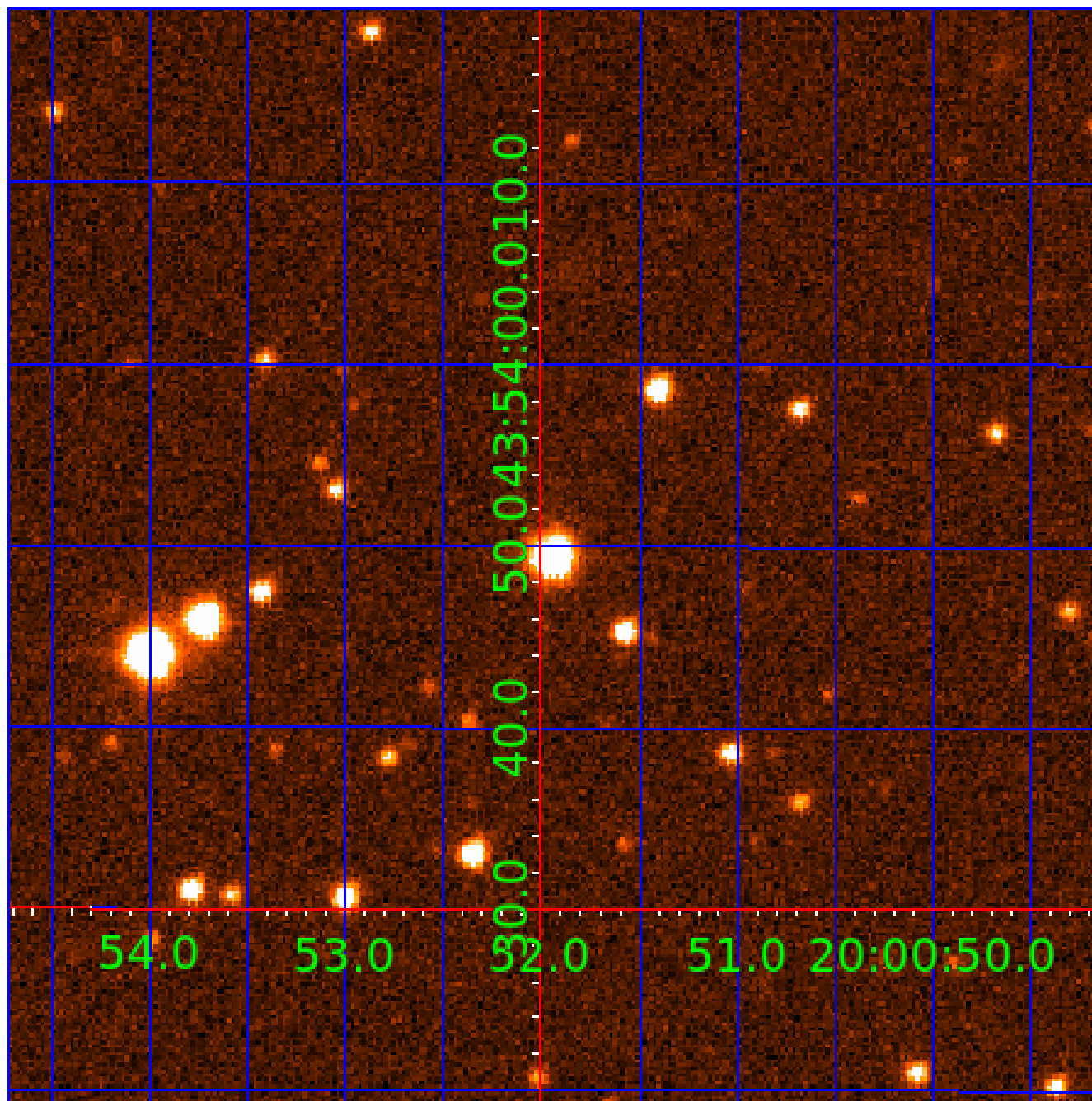
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 008058211

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008058211-01	OBS	No	343.392695	241.273619	2812.1	3.204	15.4	8.0	0.68	4261	3.43	0.19
008058211-02	OBS	No	0.562463	131.933666	122.1	3.675	8.1	9.0	0.68	4261	0.73	999.03
008058211-03	OBS	No	53.312622	184.886035	565.5	3.045	15.3	2.0	0.68	4261	1.83	2.31
008058211-04	OBS	No	44.573914	148.164955	1138.8	22.043	9.5	4.1	0.68	4261	2.48	2.94
008058211-05	OBS	No	66.573288	164.259179	1019.0	3.500	7.3	-1.0	0.68	4261	2.07	1.72

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008058211-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008058211-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
008058211-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008058211-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_ALT
008058211-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS—HALO_GHOST

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

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

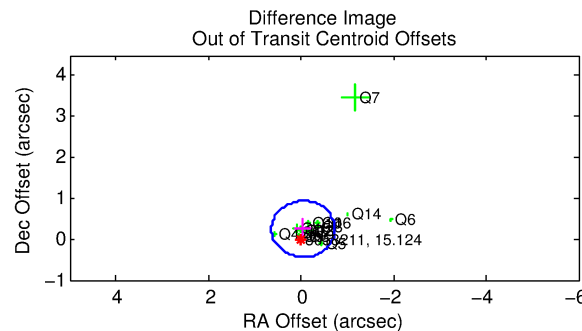
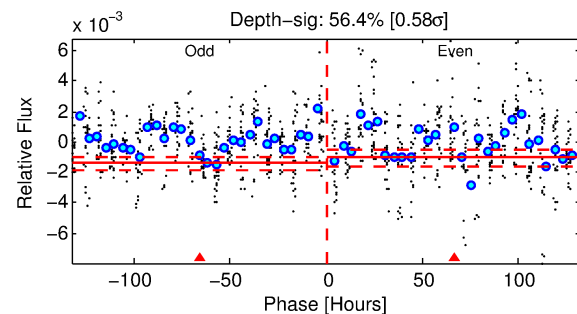
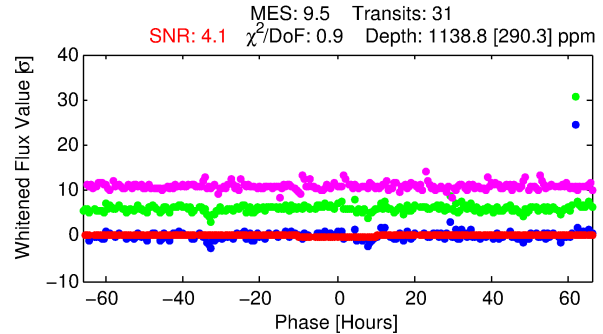
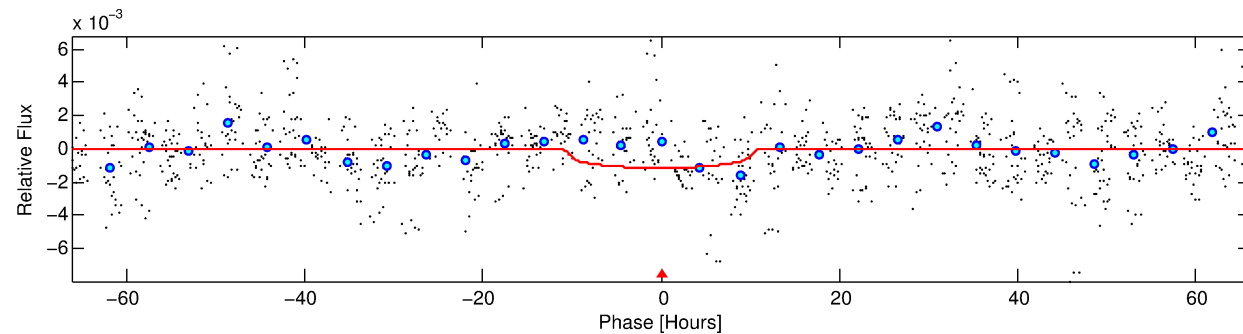
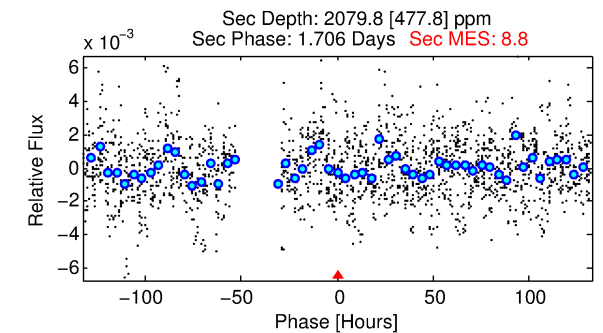
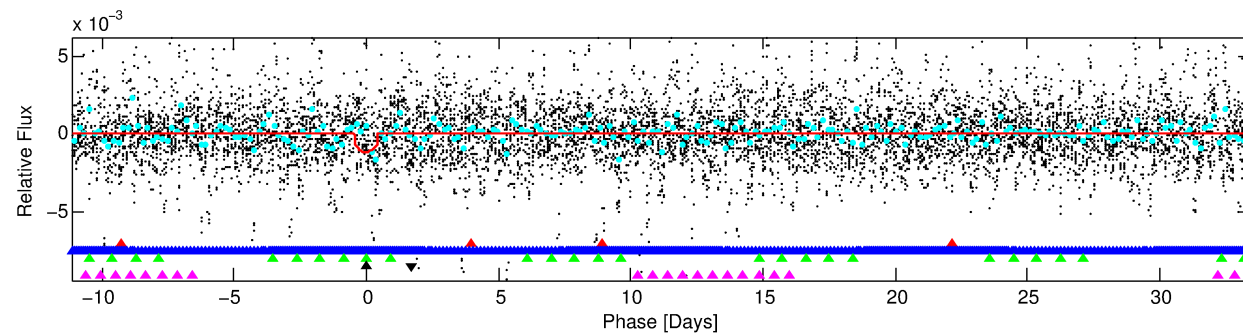
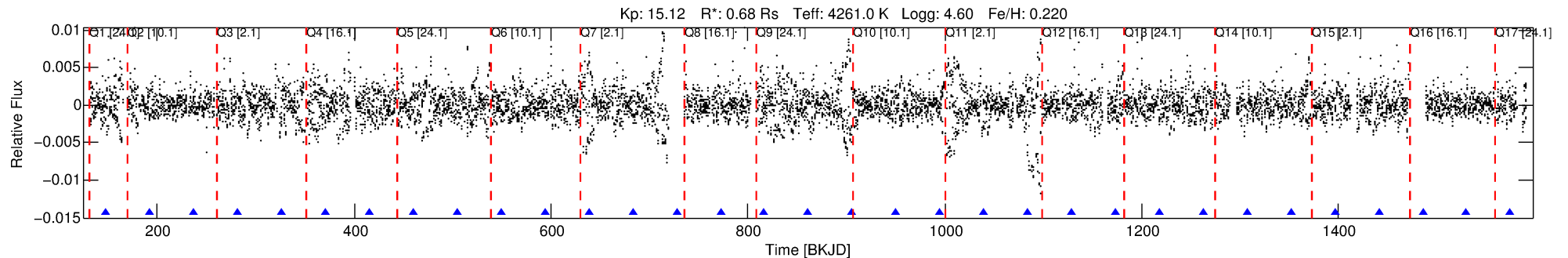
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008058211-04

No Significant Match Found

# DV One-Page Summary

KIC: 8058211 Candidate: 4 of 5 Period: 44.574 d



## DV Fit Results:

Period = 44.57391 [0.00257] d  
Epoch = 148.1650 [0.0608] BKJD  
Rp/R\* = 0.0333 [0.0095]  
a/R\* = 11.47 [9.27]  
b = 0.72 [0.55]  
Seff = 2.93 [0.49]  
Teq = 334 [14] K  
Rp = 2.48 [0.74] Re  
a = 0.2160 [0.0149] AU  
Ag = 8712.51 [5426.38] [1.61σ]  
**Teffp = 4985 [784] K [5.93σ]**

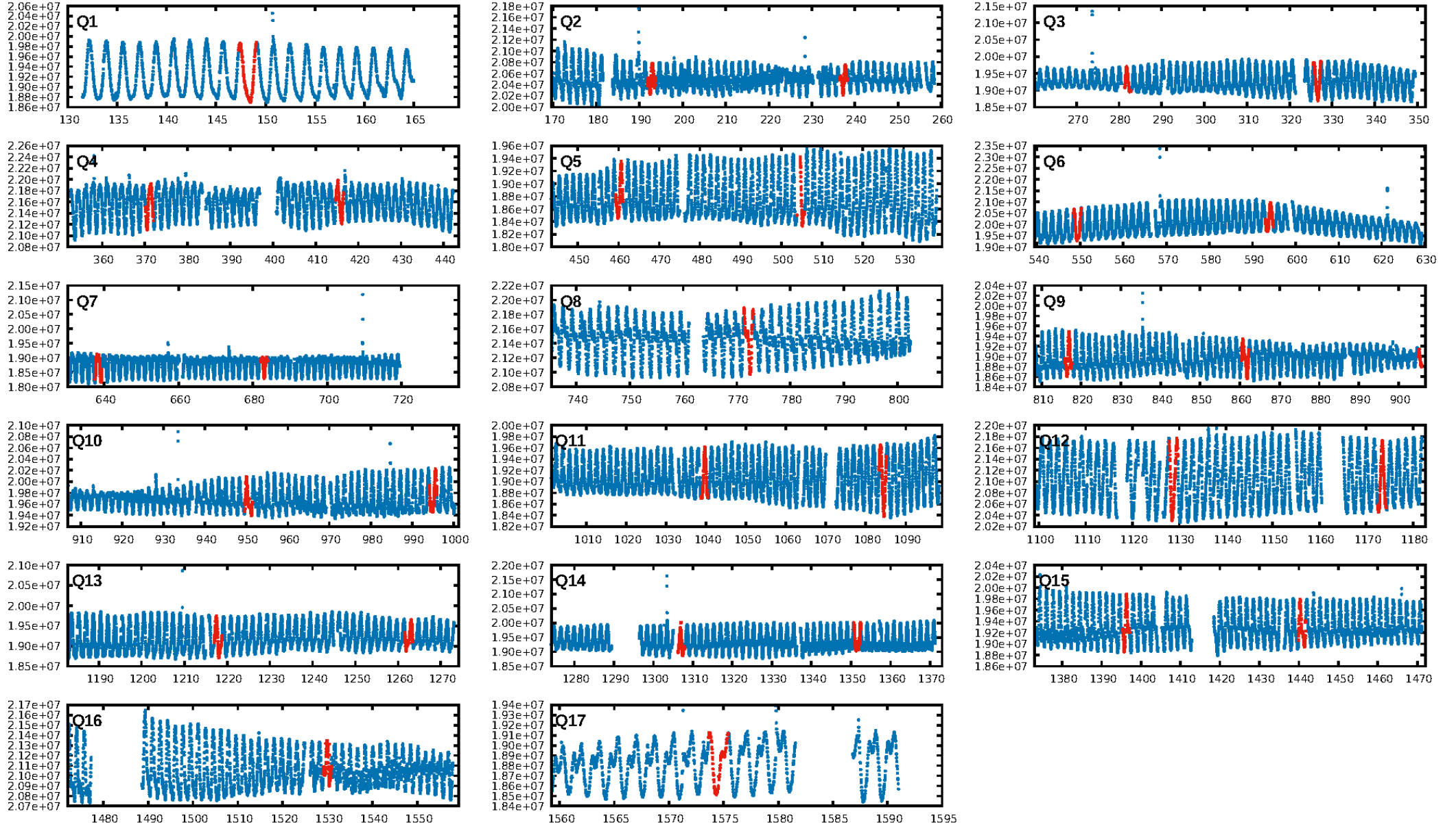
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [47.27σ]  
LongPeriod-sig: 100.0% [9.42σ]  
ModelChiSquare2-sig: 31.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [29/29]  
GhostDiagnostic-chr: 3.12  
Centroid-sig: 13.1%  
Centroid-so: 0.919 arcsec [2.43σ]  
OotOffset-rm: 0.252 arcsec [1.10σ]  
KicOffset-rm: 0.331 arcsec [2.03σ]  
OotOffset-st: 4/3/3/5 [15]  
KicOffset-st: 4/3/3/5 [15]  
DiffImageQuality-fgm: 0.73 [11/15]  
DiffImageOverlap-fno: 0.00 [0/15]

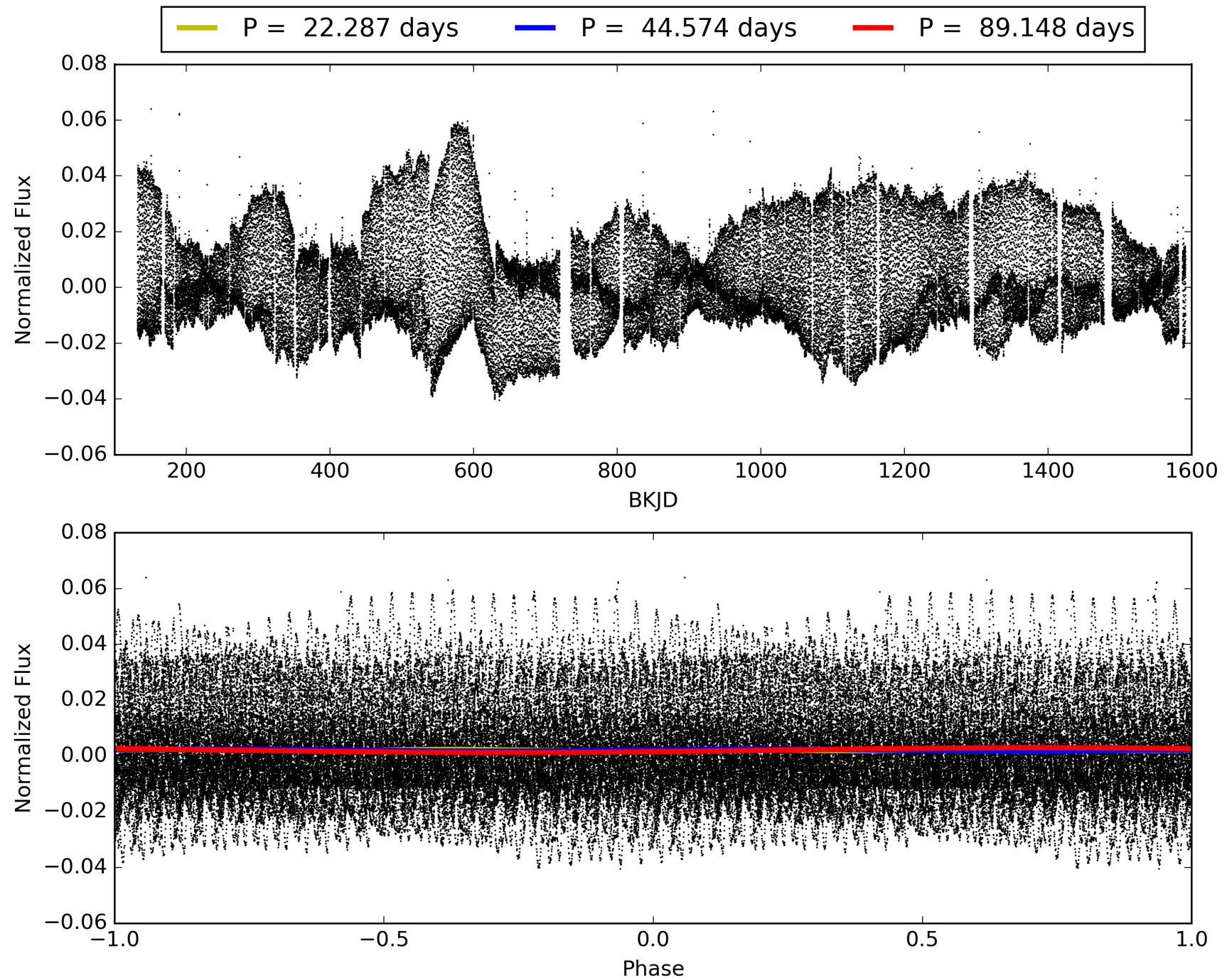
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:26:29 Z

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

# TCE 008058211-04, PDC Light Curves

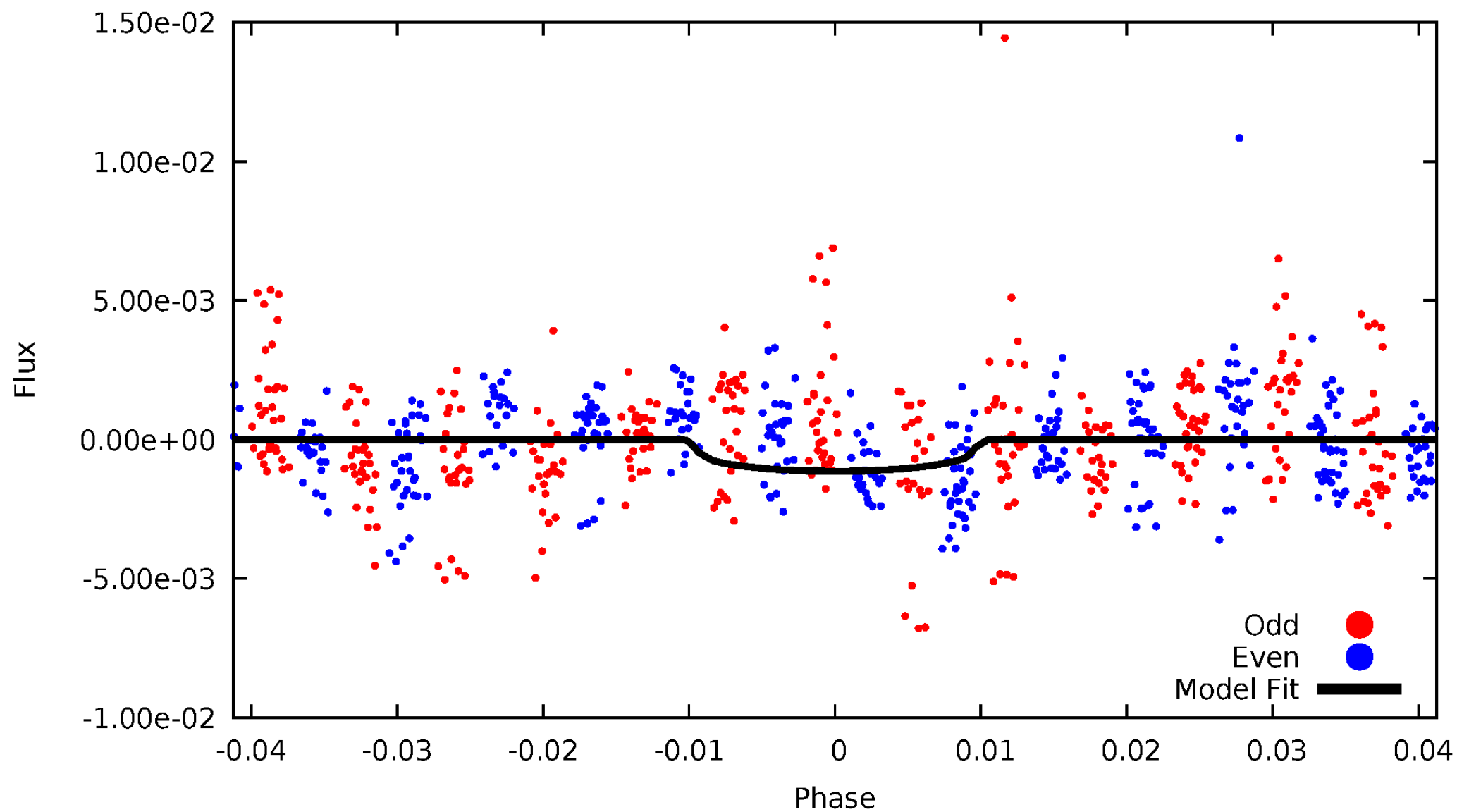


TCE 008058211-04



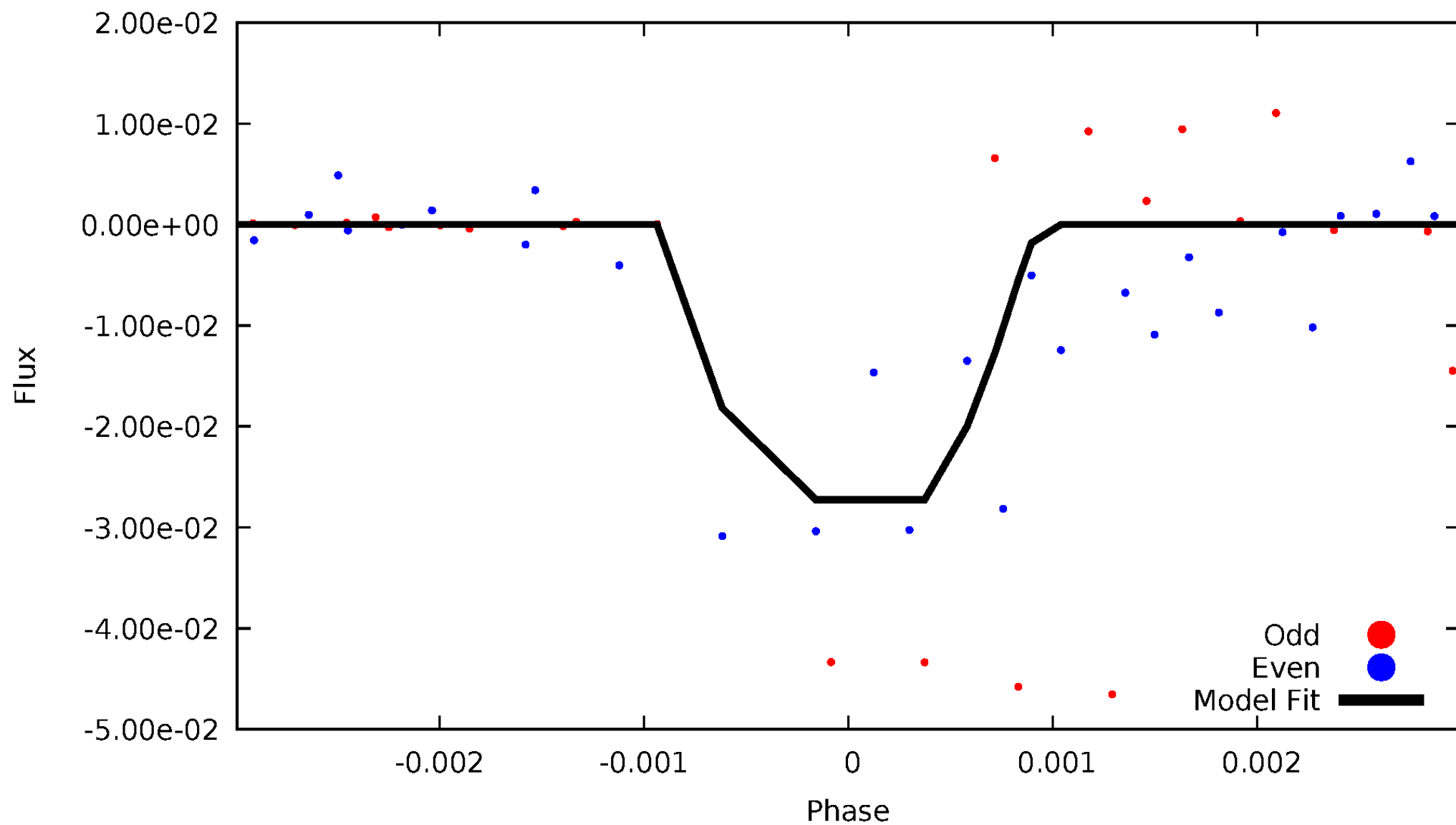
# DV Odd/Even

TCE 008058211-04



# ALT Odd/Even

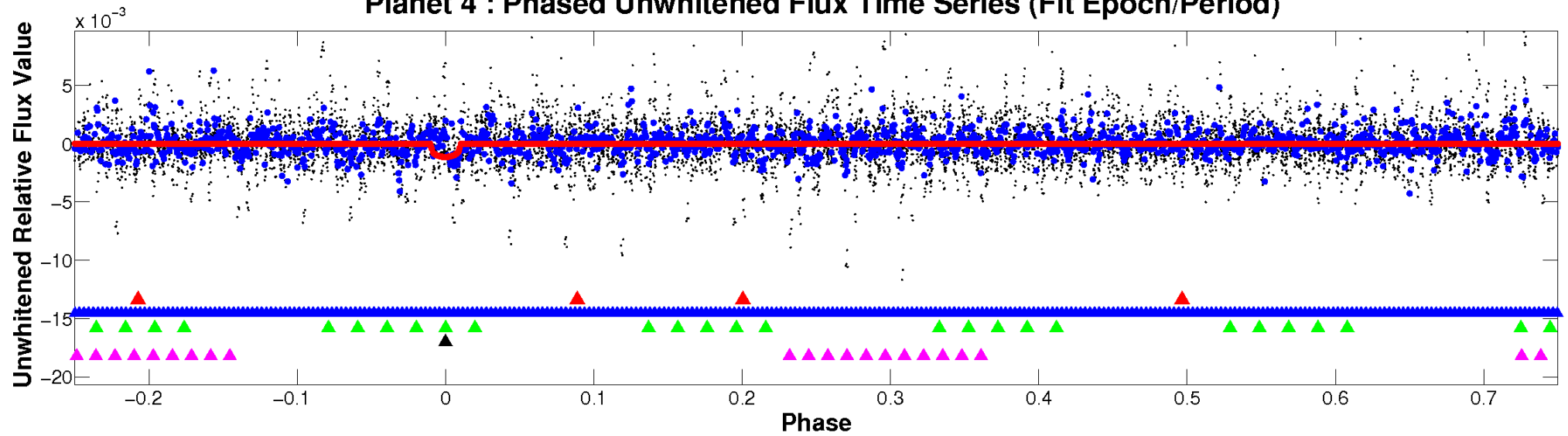
TCE 008058211-04



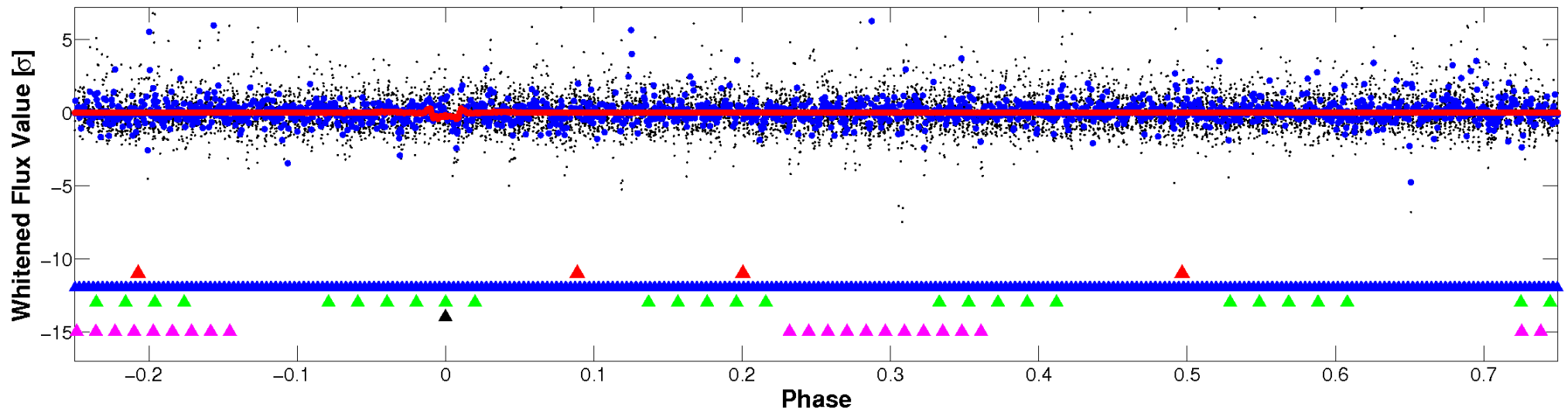


# Non-Whitened Vs. Whitened Light Curve

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

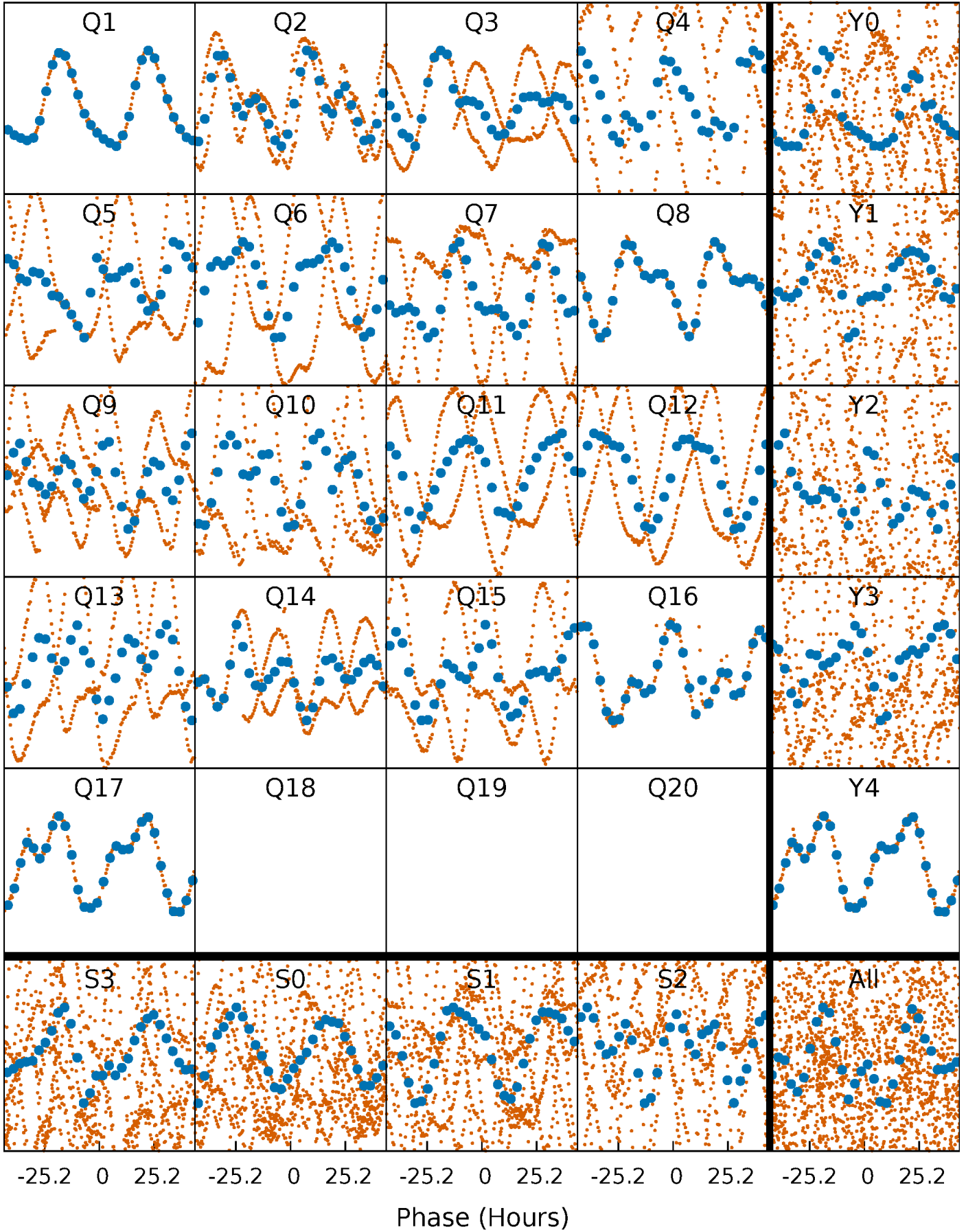


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



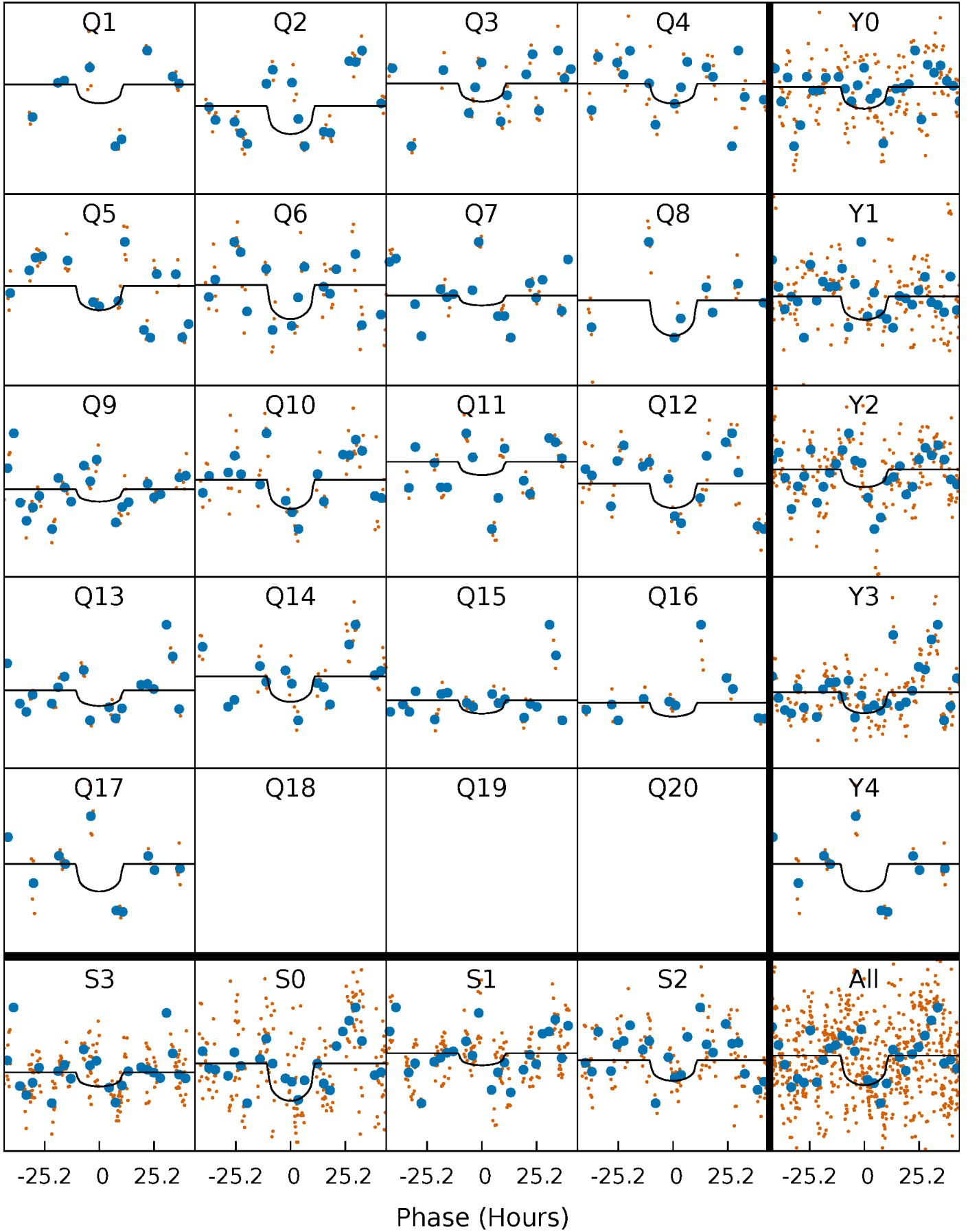
# PDC Quarter-Phased Transit Curves

TCE 008058211-04 P= 44.573914 Days  $T_0=148.164955$  (BKJD)



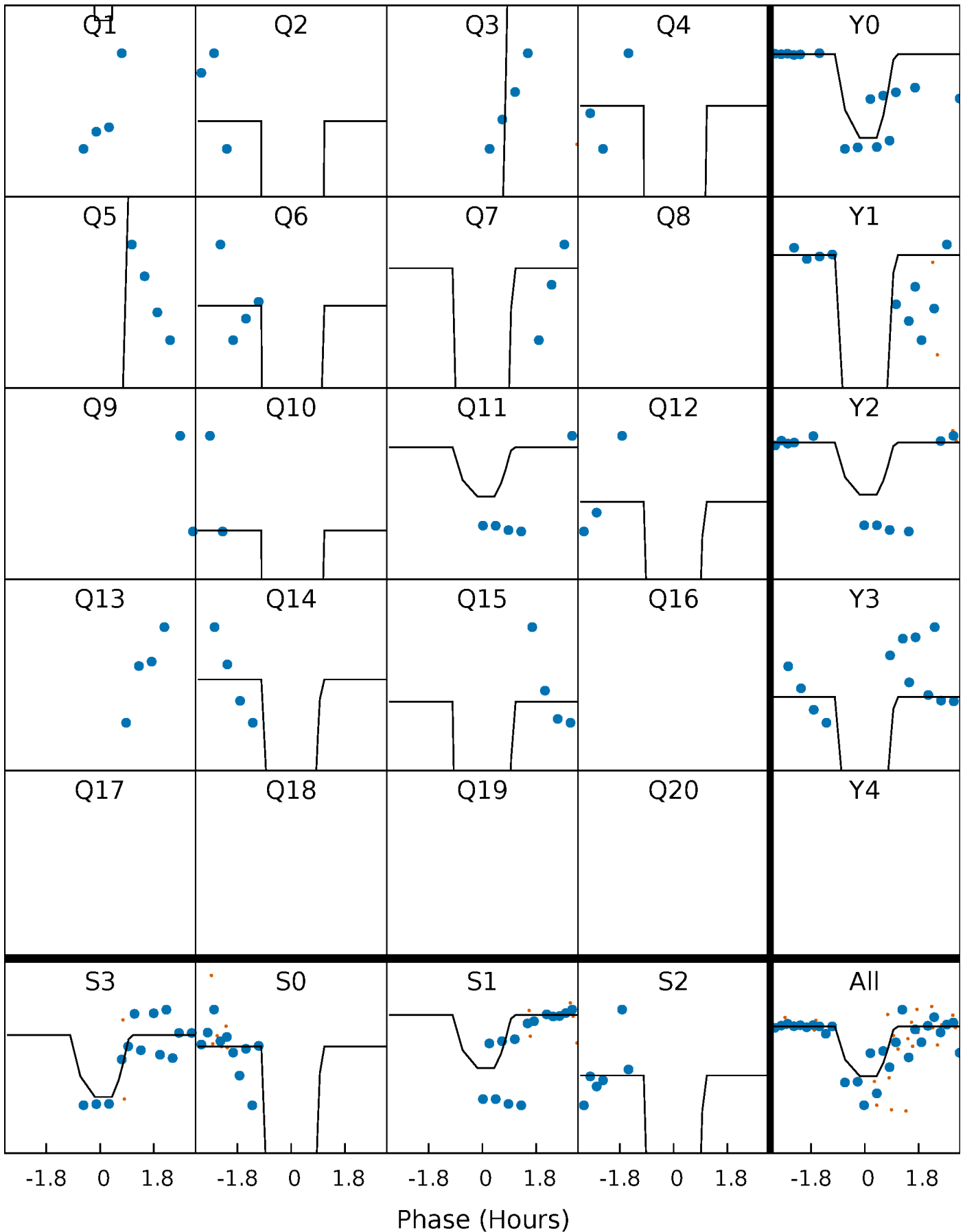
# DV Quarter-Phased Transit Curves

TCE 008058211-04   P= 44.573914 Days    $T_0=148.164955$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

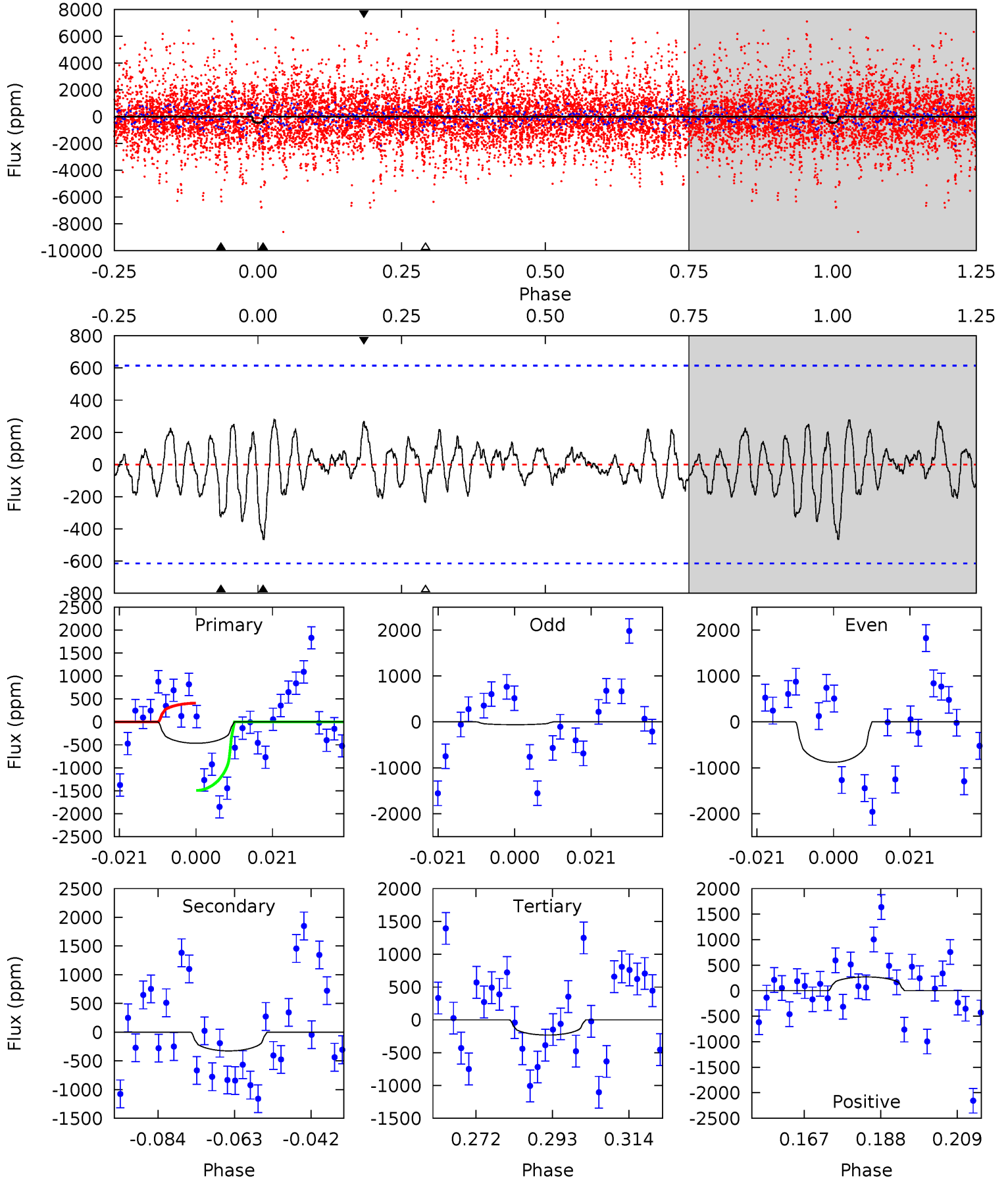
TCE 008058211-04 P= 44.567387 Days  $T_0=148.520317$  (BKJD)



# DV Model-Shift Uniqueness Test

008058211-04, P = 44.573914 Days, E = 103.591041 Days

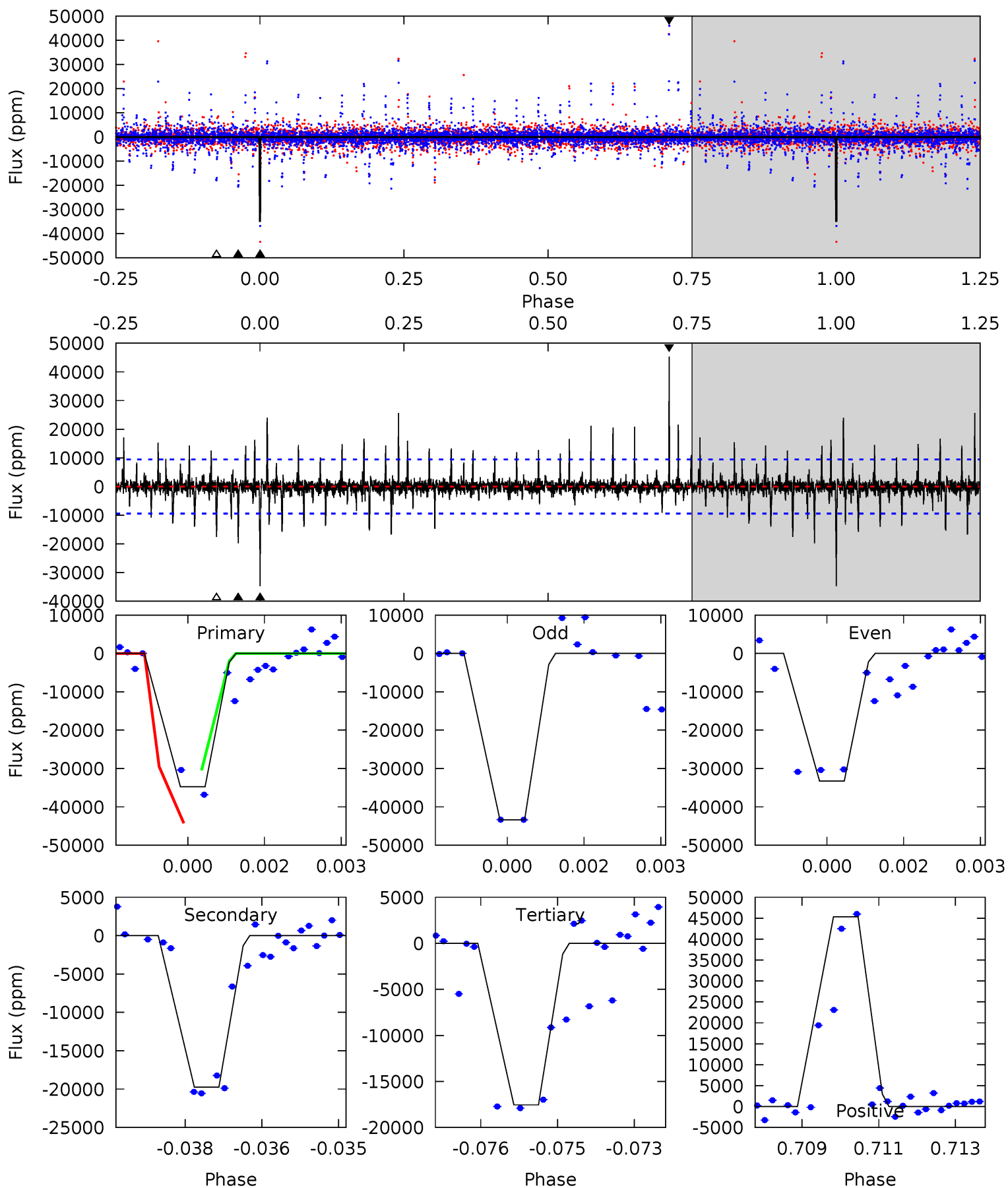
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.70	2.60	1.84	2.14	4.88	2.31	0.84	1.86	1.56	0.75	0.45	3.17	0.42	0.37	4.39



# Alt Model-Shift Uniqueness Test

008058211-04, P = 44.567387 Days, E = 103.952930 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
19.7	11.2	9.96	25.7	5.36	3.15	1.48	9.76	-6.02	1.24	-14.5	1.61	0.92	0.57	3.21



### Stellar Parameters For KIC 008058211

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4261^{+129}_{-142}$	$4.602^{+0.053}_{-0.018}$	$0.220^{+0.200}_{-0.300}$	$0.681^{+0.028}_{-0.057}$	$0.677^{+0.042}_{-0.052}$	$3.016^{+0.695}_{-0.201}$
	+3%/-3%	+1%/-0%	+91%/-136%	+4%/-8%	+6%/-8%	+23%/-7%
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 008058211-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-327 \pm 126$	$2.46^{+0.74}_{-0.70}$	$463^{+16}_{-17}$	$3437^{+465}_{-355}$	$1350^{+1563}_{-673}$
Alt.	$-19727 \pm 1761$	$12.11^{+0.88}_{-0.80}$	$463^{+16}_{-17}$	$4027^{+160}_{-160}$	$3528^{+647}_{-506}$

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



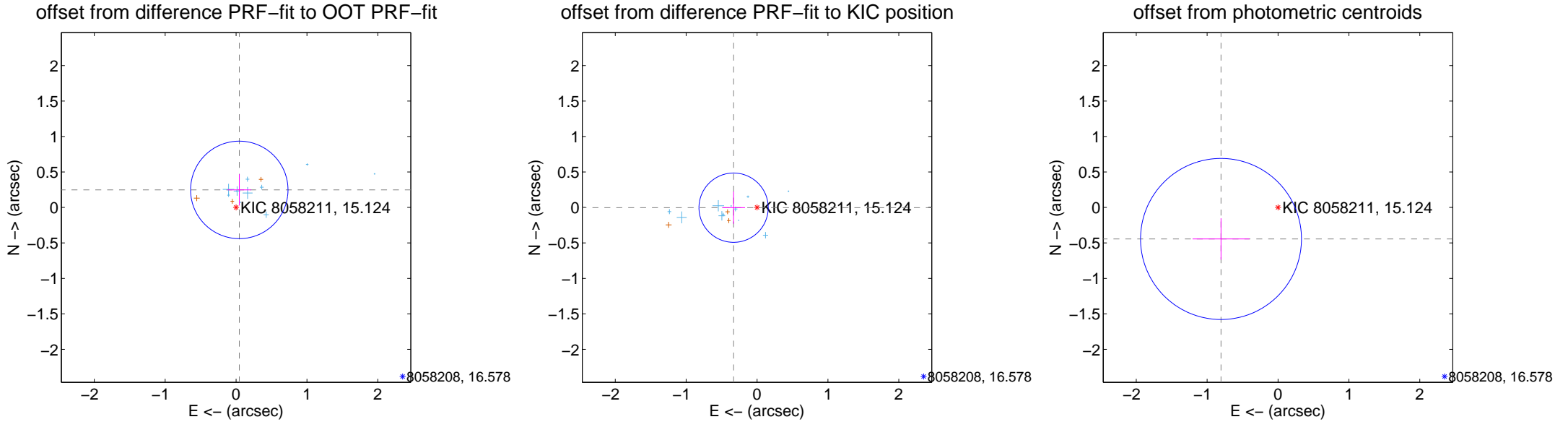
## DV Centroid Data

Supplemental centroid analysis for 008058211-04. Kepler magnitude: 15.12. Transit SNR 4.07

There are 11 quarters with good PRF difference image offsets

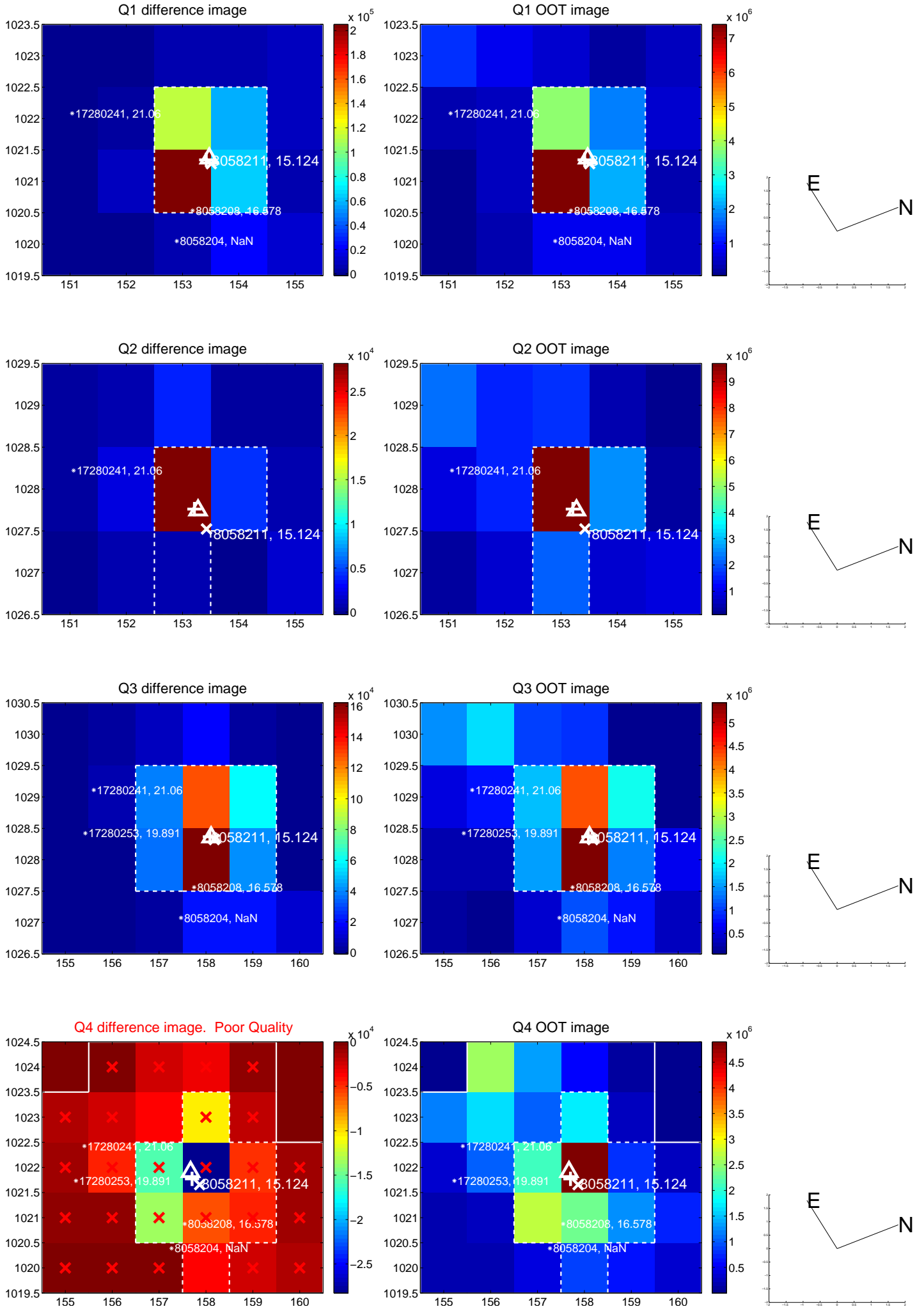
The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.252 \pm 0.229$	1.10	$-0.046 \pm 0.168$	$0.248 \pm 0.220$
PRF-fit source offset from KIC position	$0.331 \pm 0.163$	2.03	$0.331 \pm 0.162$	$-0.003 \pm 0.228$
photometric centroid source offset	$0.92 \pm 0.38$	2.43	$0.80 \pm 0.40$	$-0.44 \pm 0.29$

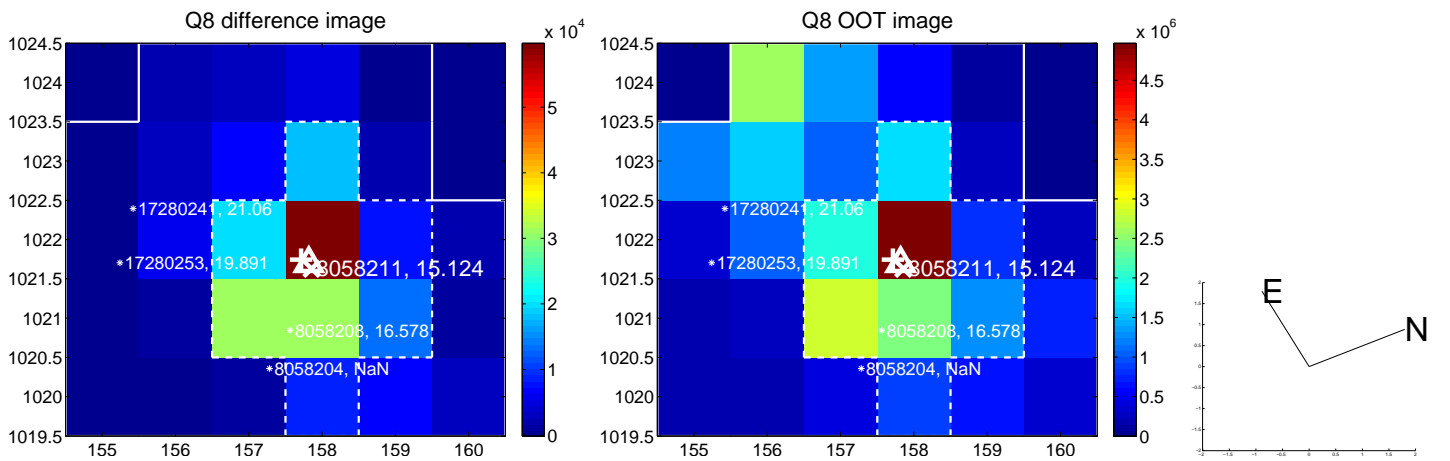
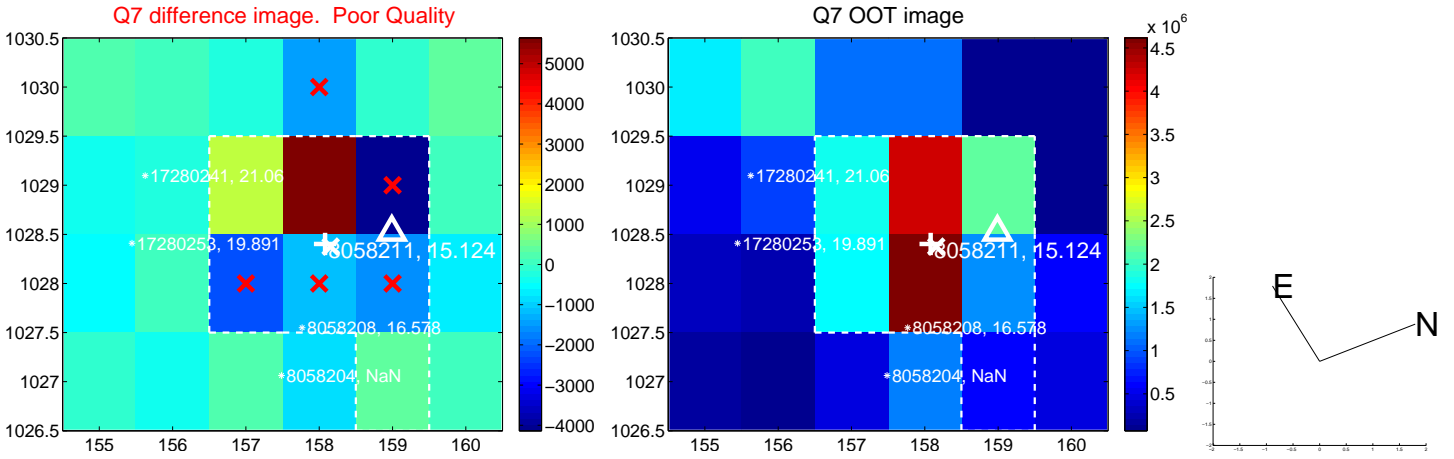
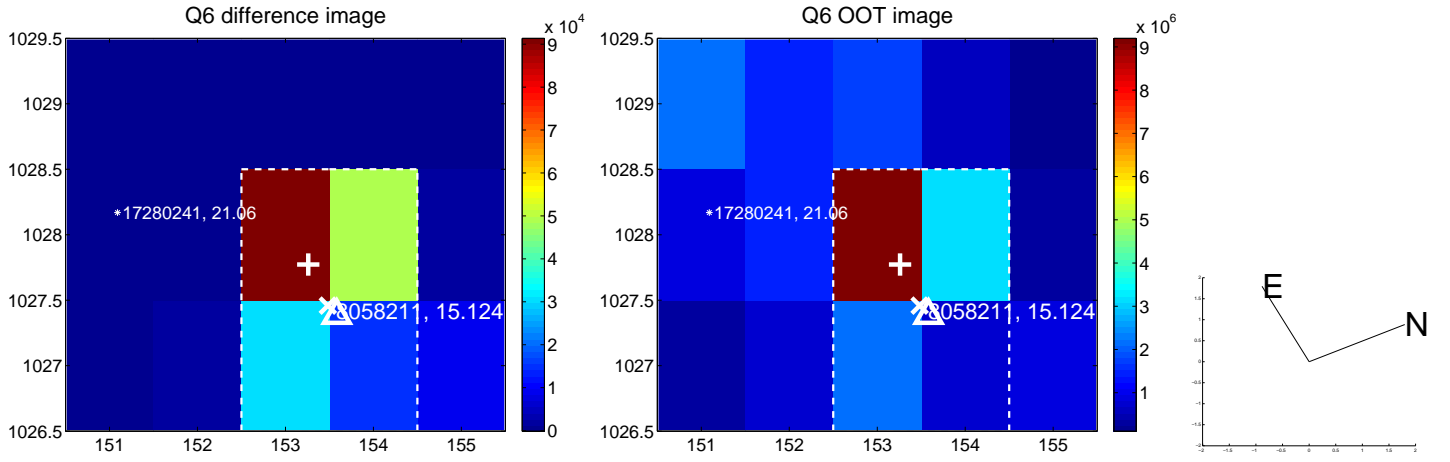
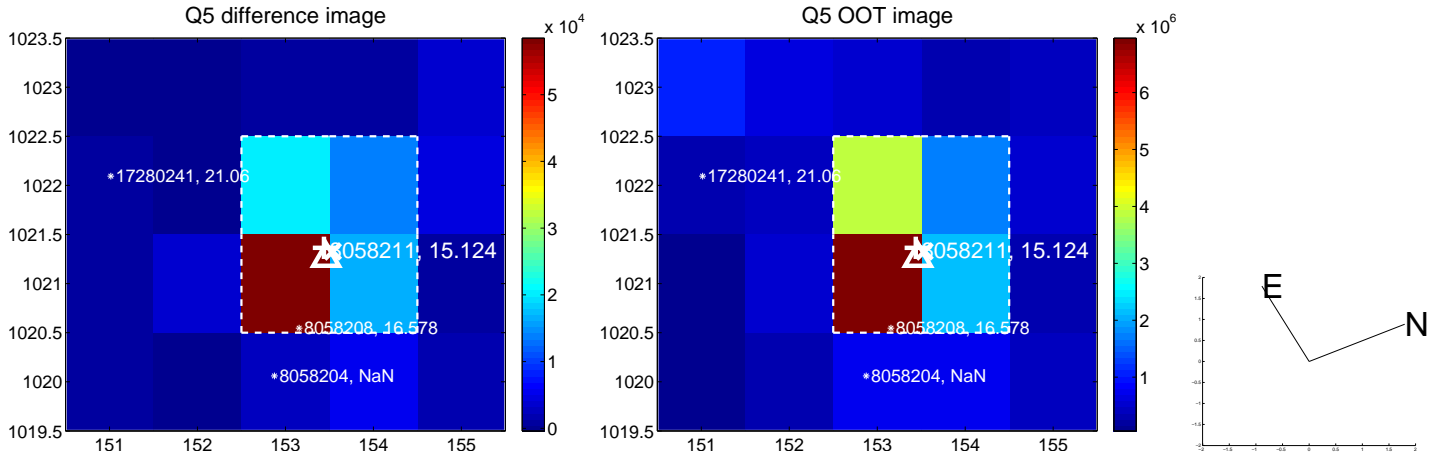


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

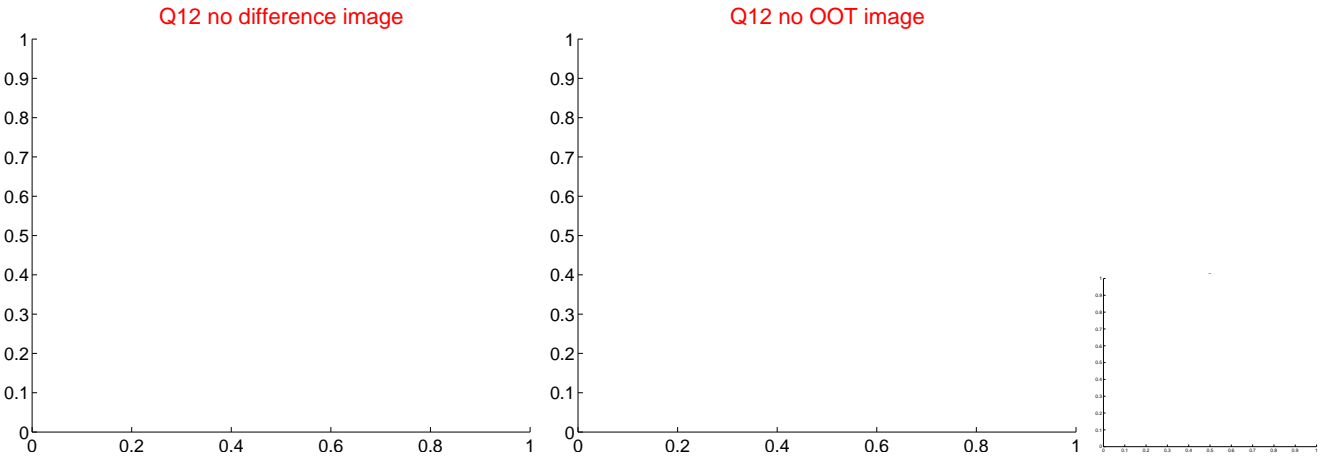
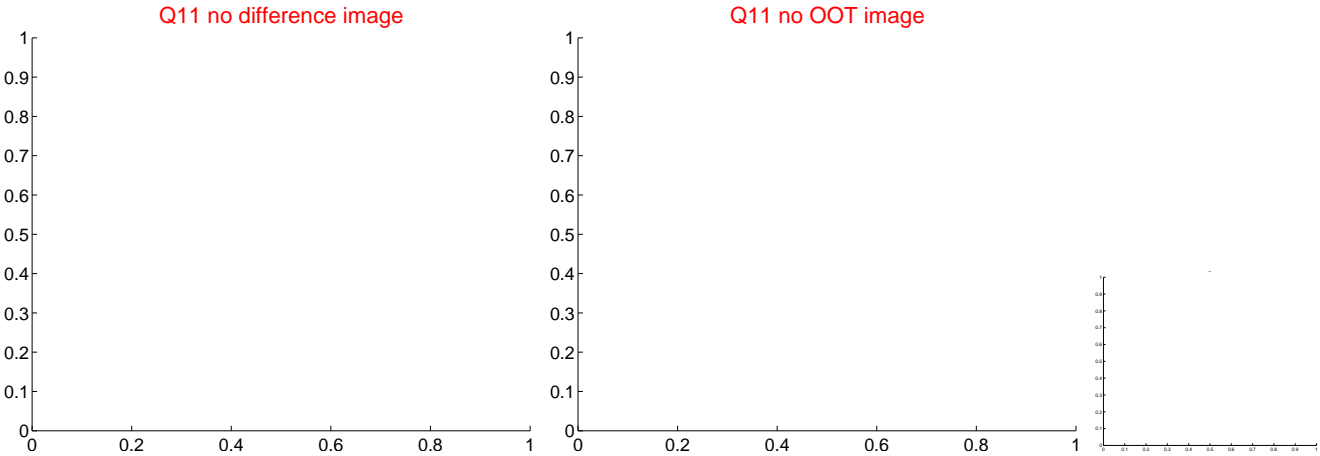
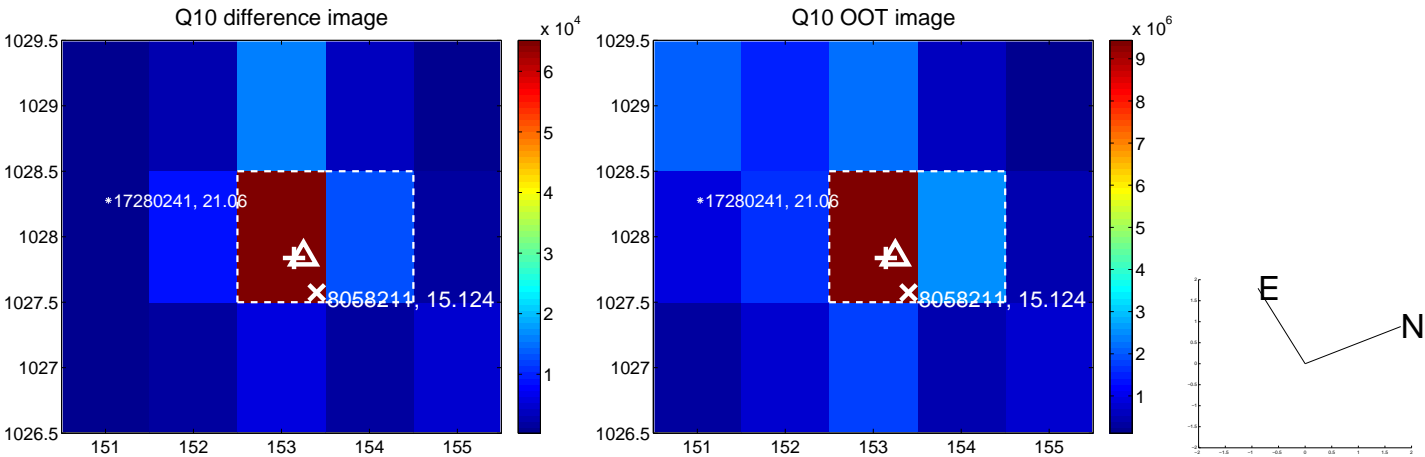
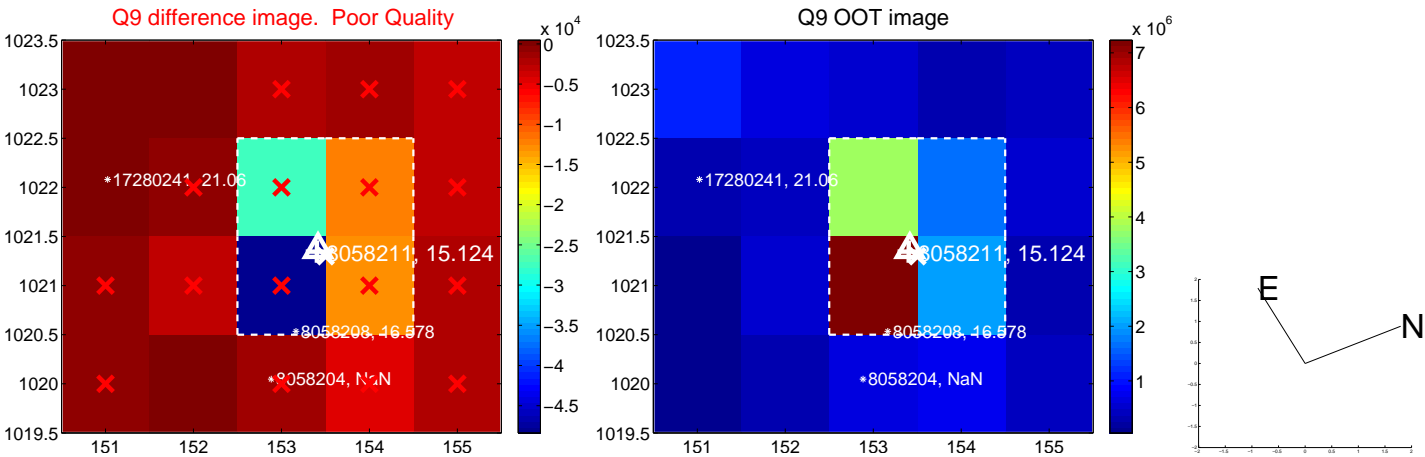
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



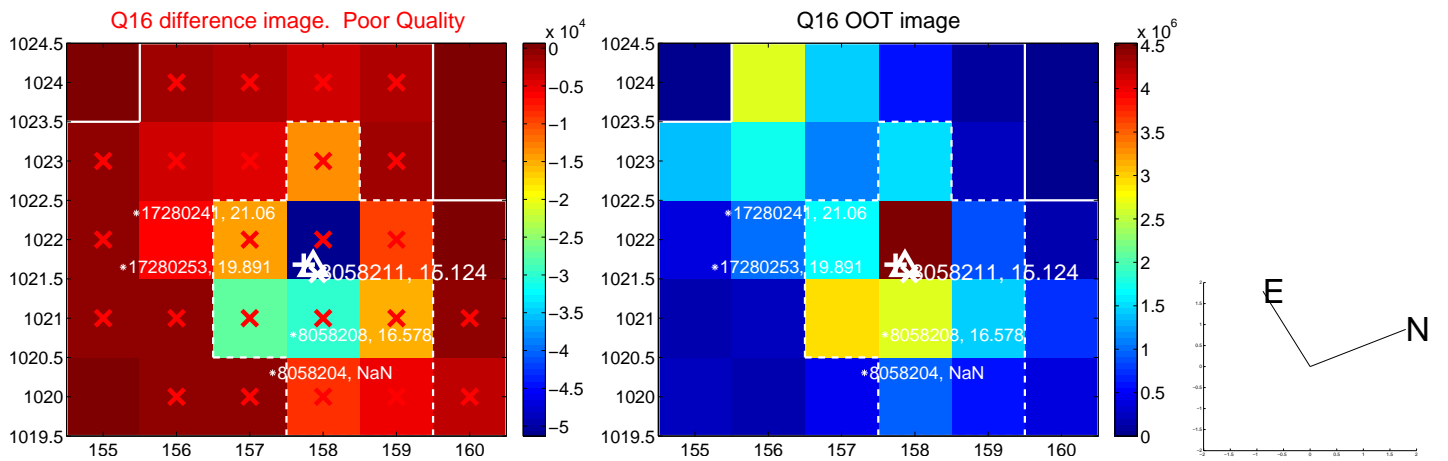
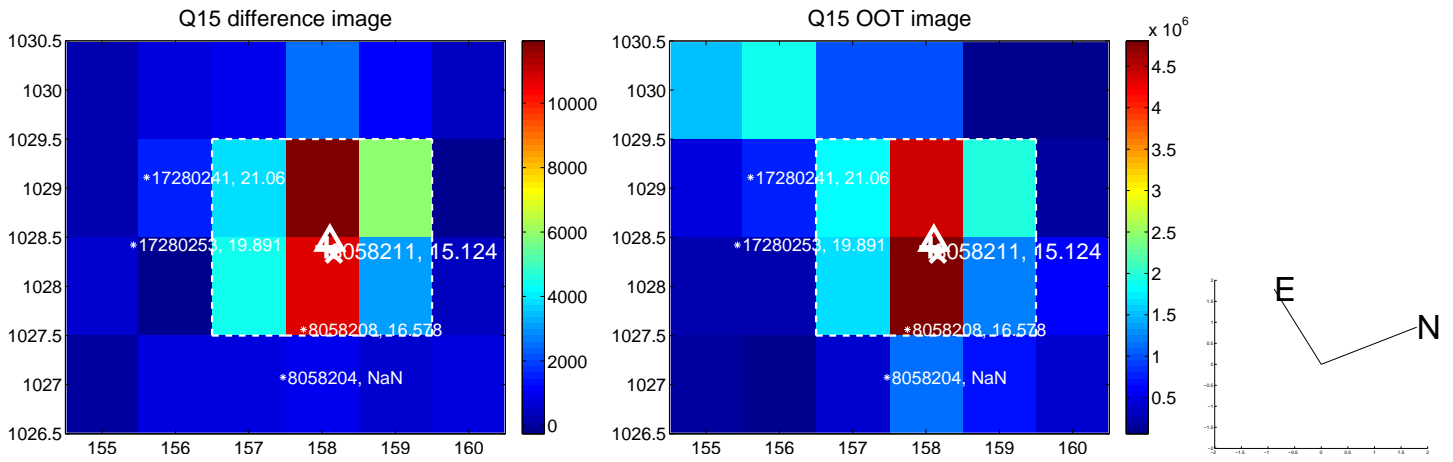
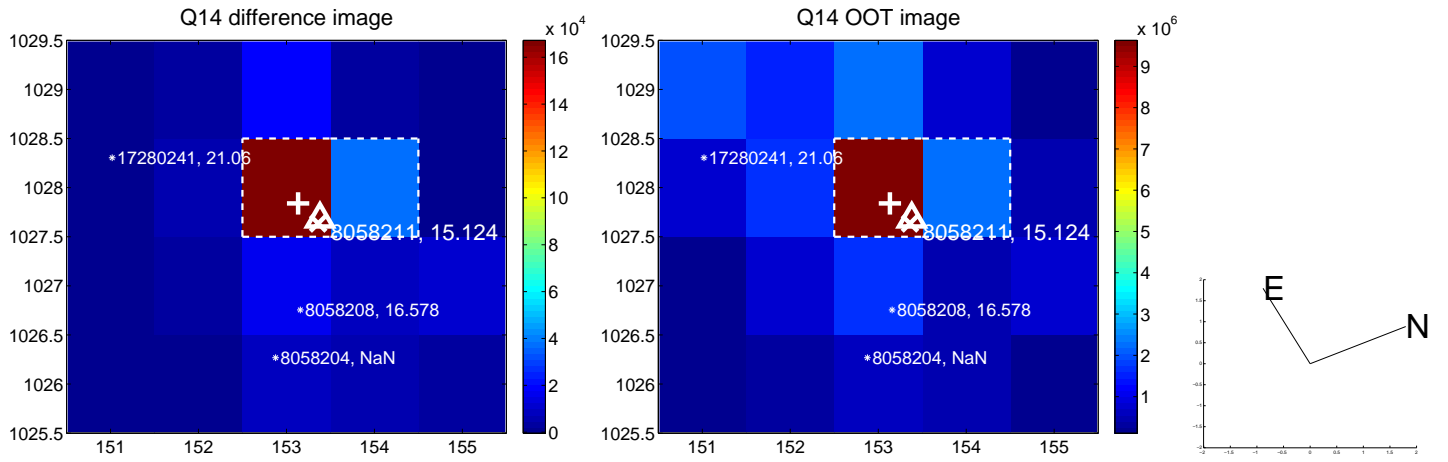
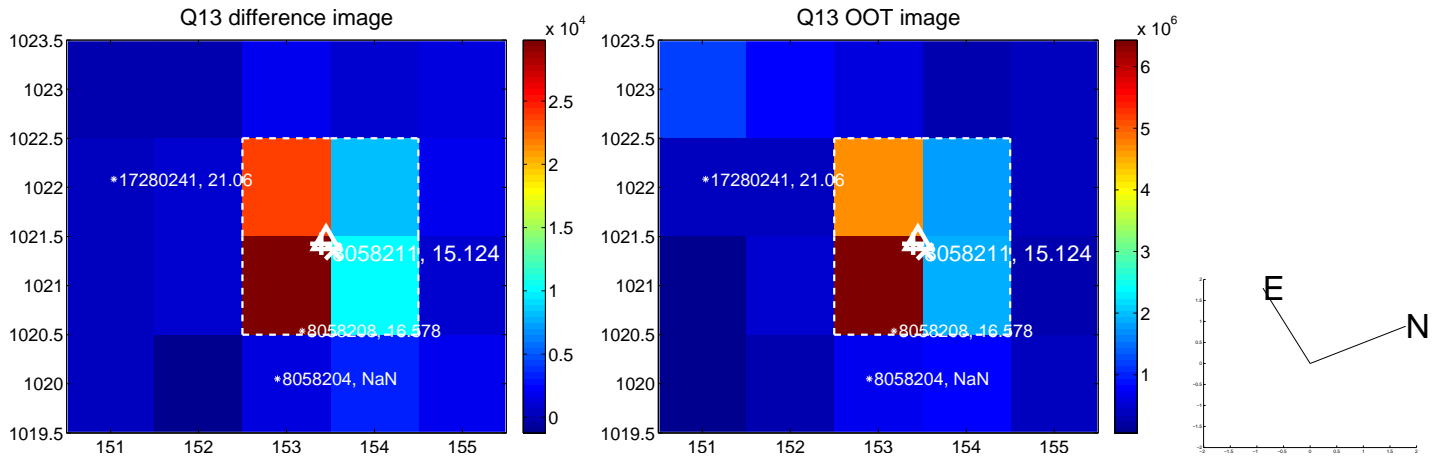
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



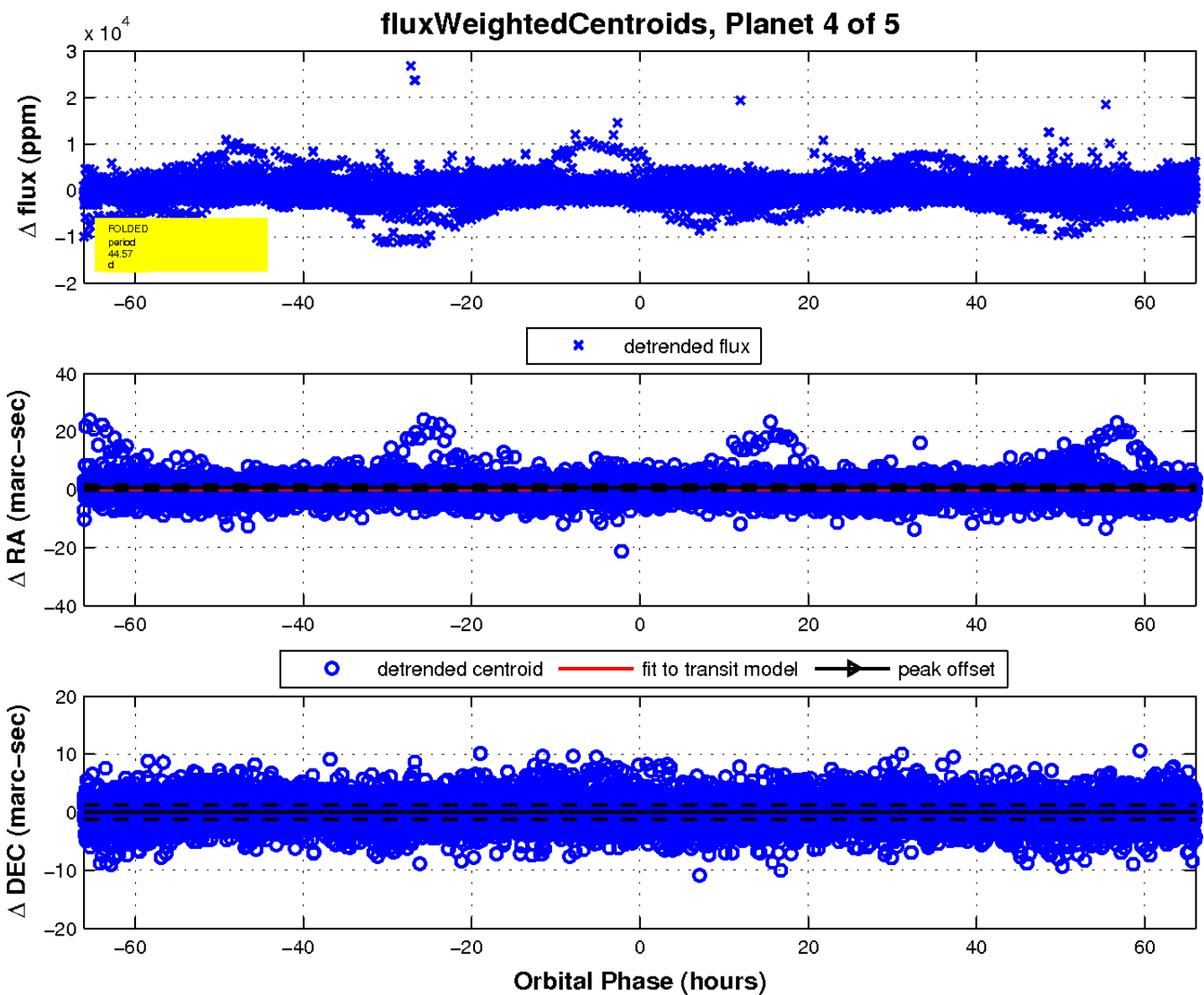
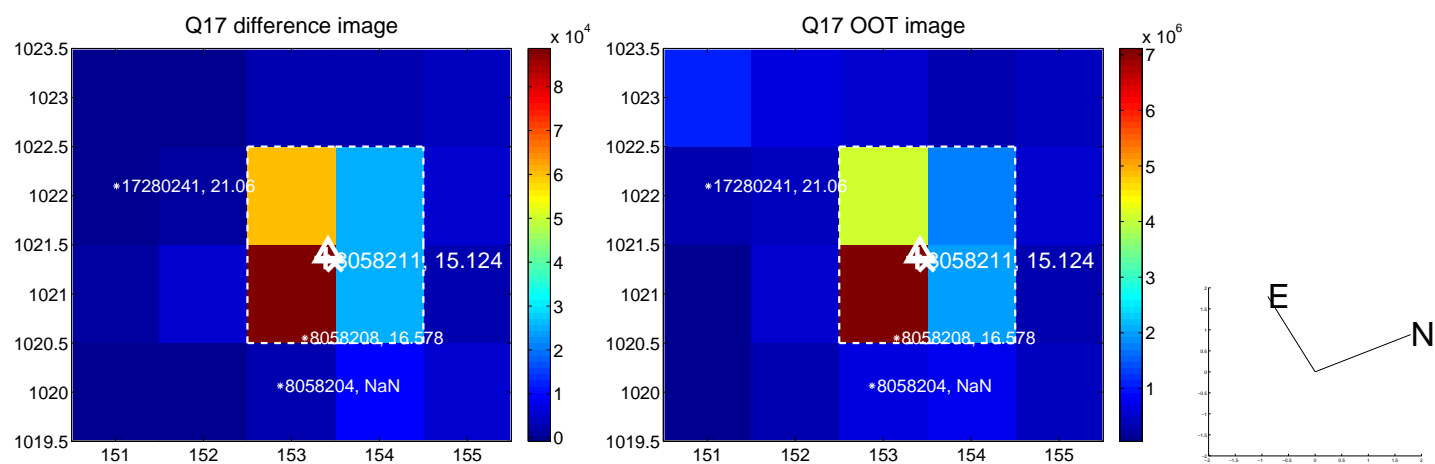
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

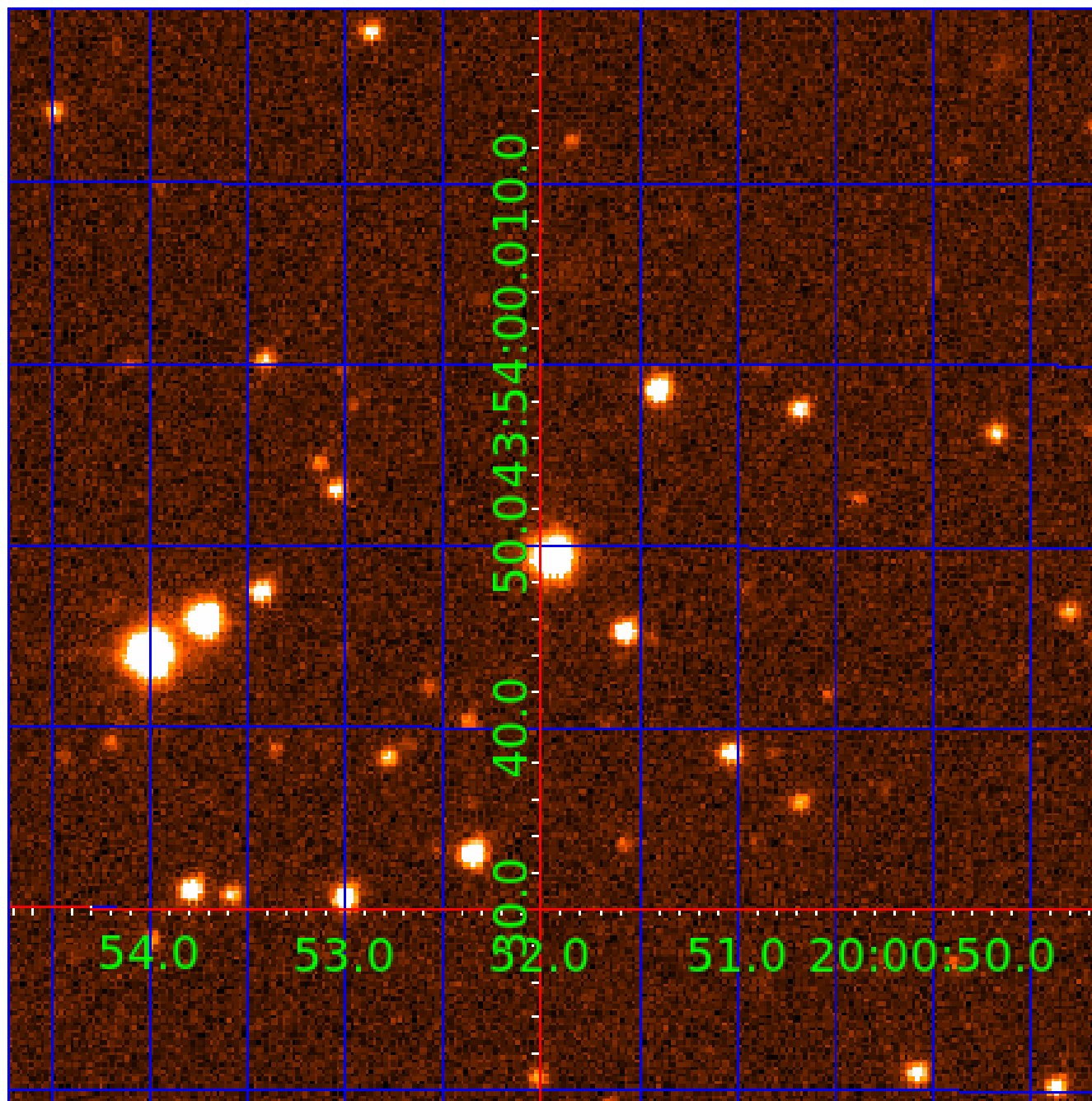


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008058211

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008058211-01	OBS	No	343.392695	241.273619	2812.1	3.204	15.4	8.0	0.68	4261	3.43	0.19
008058211-02	OBS	No	0.562463	131.933666	122.1	3.675	8.1	9.0	0.68	4261	0.73	999.03
008058211-03	OBS	No	53.312622	184.886035	565.5	3.045	15.3	2.0	0.68	4261	1.83	2.31
008058211-04	OBS	No	44.573914	148.164955	1138.8	22.043	9.5	4.1	0.68	4261	2.48	2.94
008058211-05	OBS	No	66.573288	164.259179	1019.0	3.500	7.3	-1.0	0.68	4261	2.07	1.72

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008058211-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008058211-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
008058211-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008058211-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_ALT
008058211-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS—HALO_GHOST

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

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

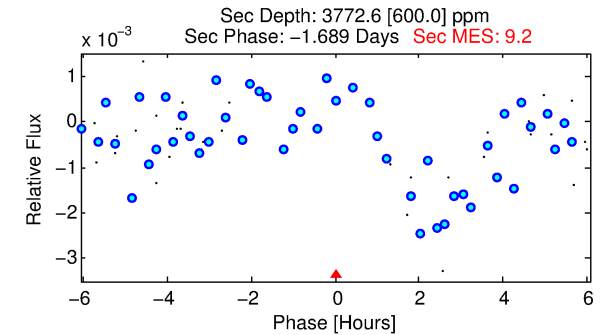
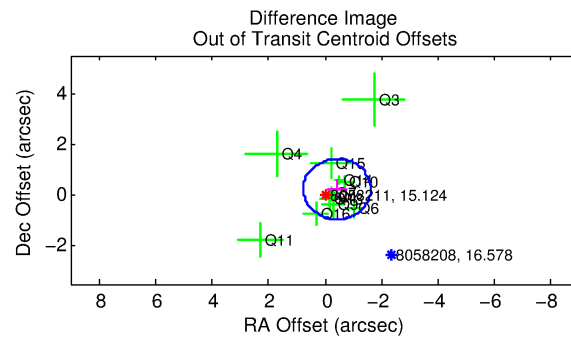
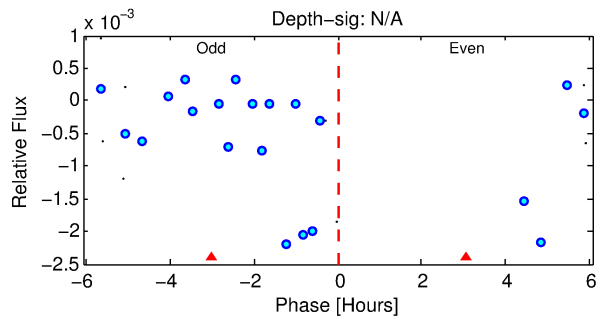
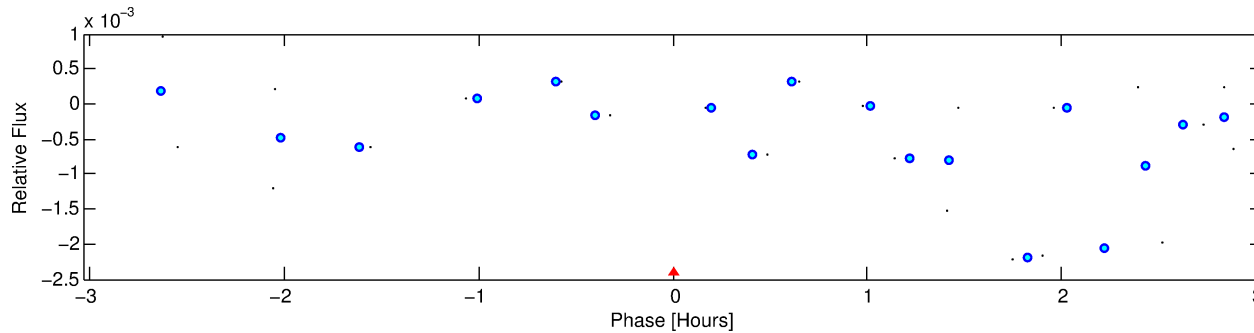
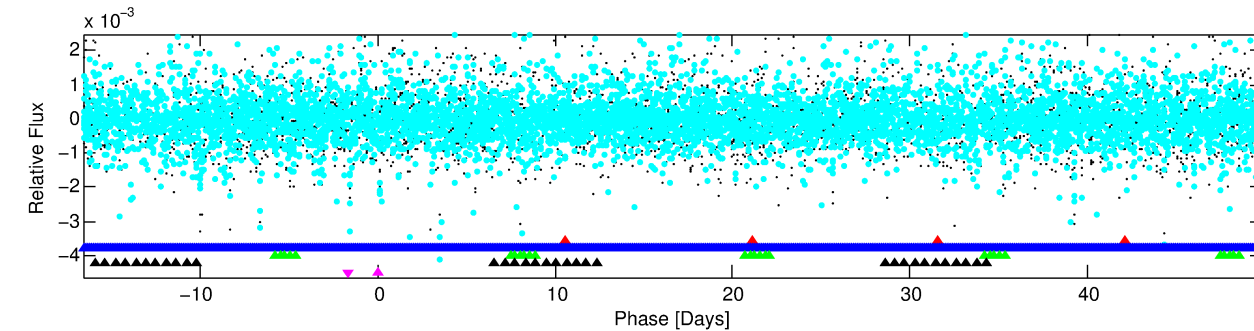
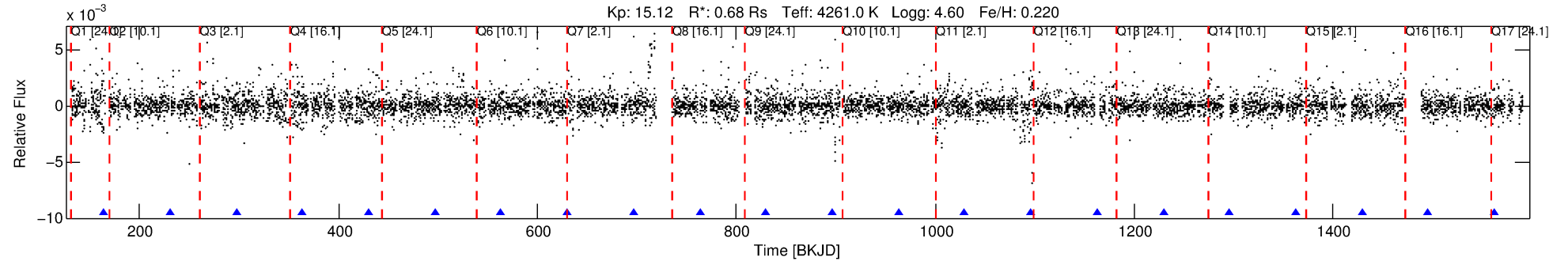
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008058211-05

No Significant Match Found

# DV One-Page Summary

KIC: 8058211 Candidate: 5 of 5 Period: 66.573 d



## TPS TCE Results:

Period = 66.57329 d  
Epoch = 164.2592 BKJD

DV fit results are unavailable

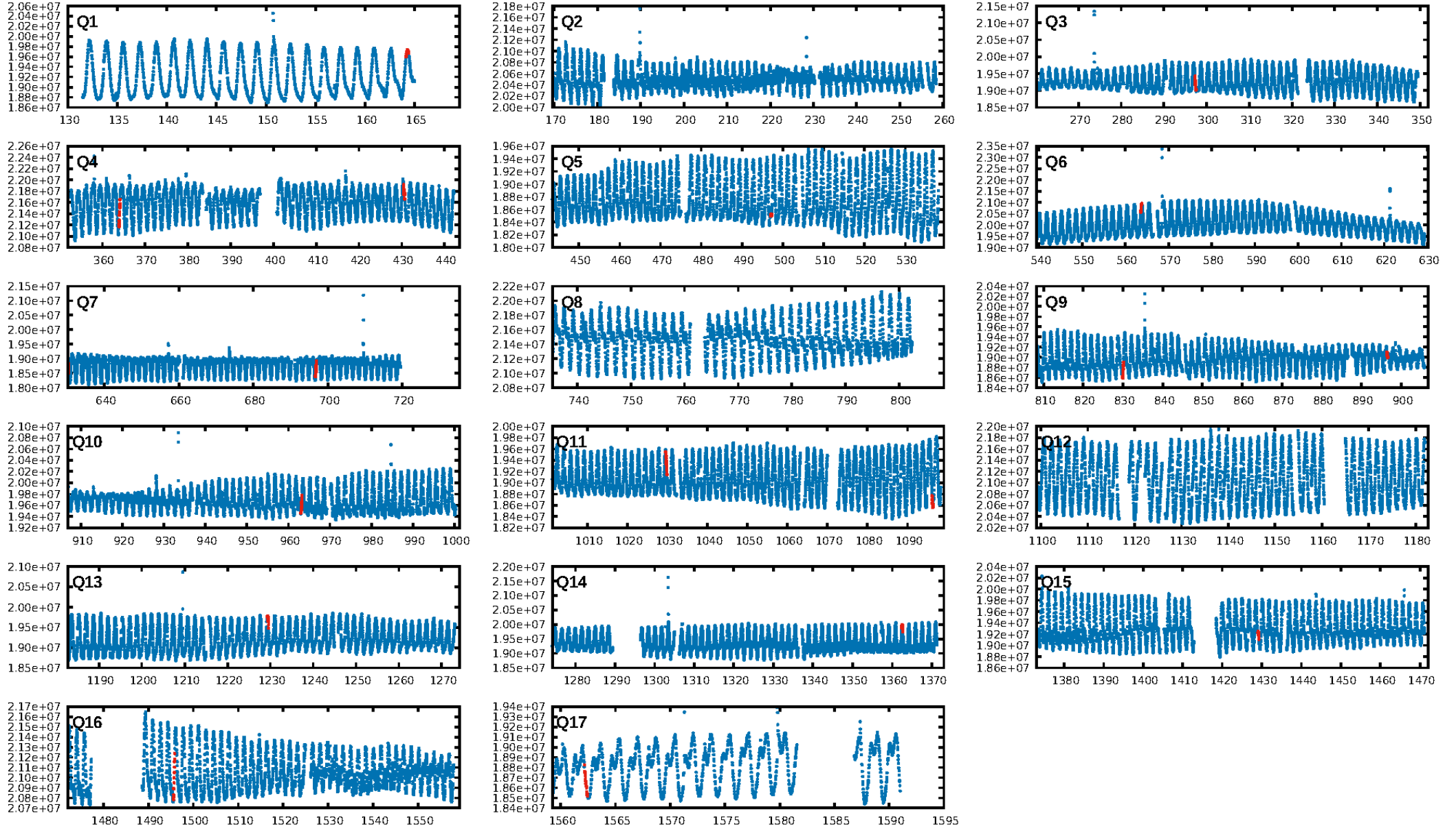
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [68.60σ]  
LongPeriod-sig: 100.0% [1400.04σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.08021  
Centroid-sig: 90.7%  
Centroid-so: 1.731 arcsec [1.57σ]  
OotOffset-rm: 0.480 arcsec [1.21σ]  
KicOffset-rm: 0.378 arcsec [1.16σ]  
OotOffset-st: 3/4/2/3 [12]  
KicOffset-st: 3/4/2/3 [12]  
DiffImageQuality-fgm: 0.42 [5/12]  
DiffImageOverlap-fno: 0.00 [0/14]

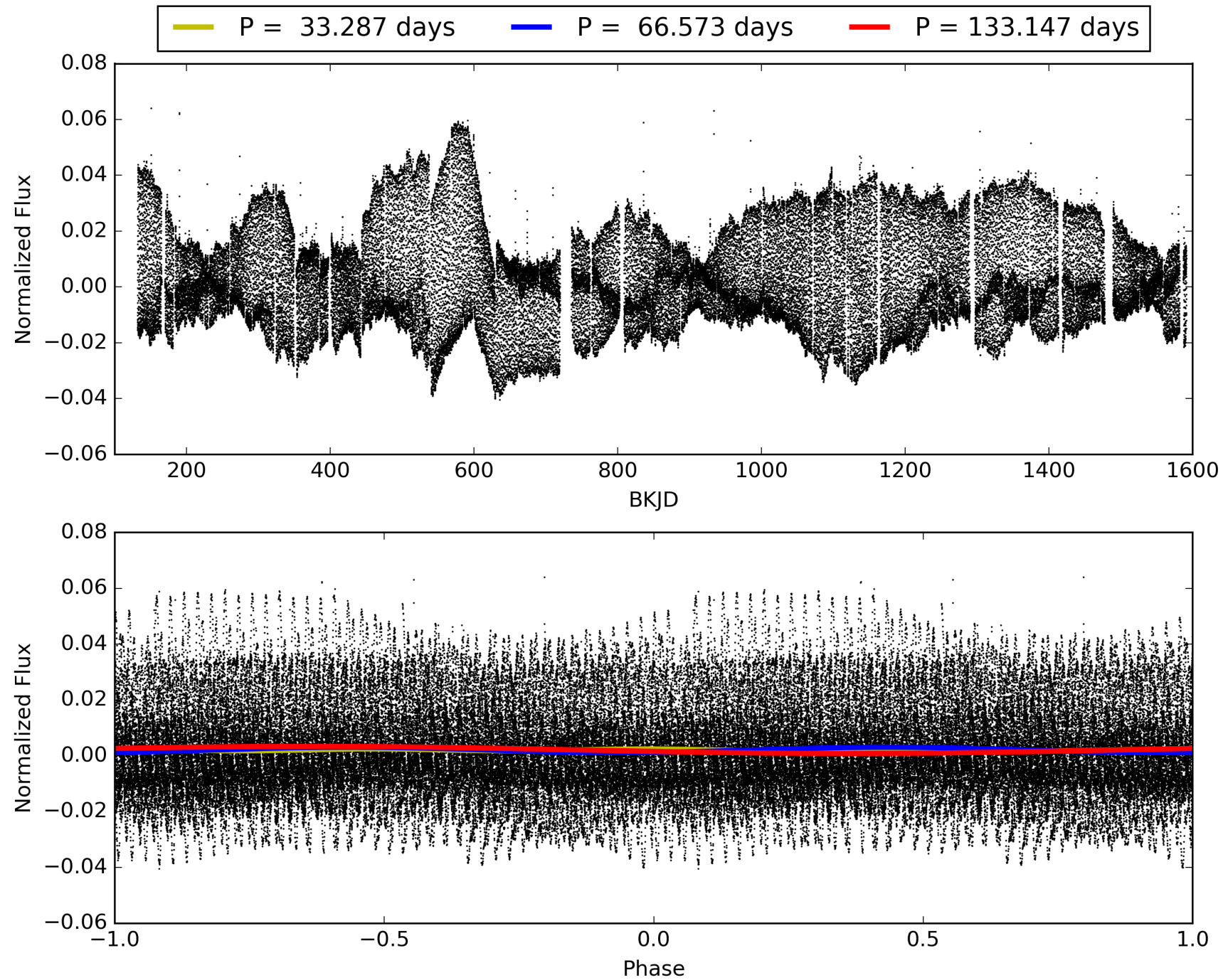
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:26:33 Z

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

# TCE 008058211-05, PDC Light Curves

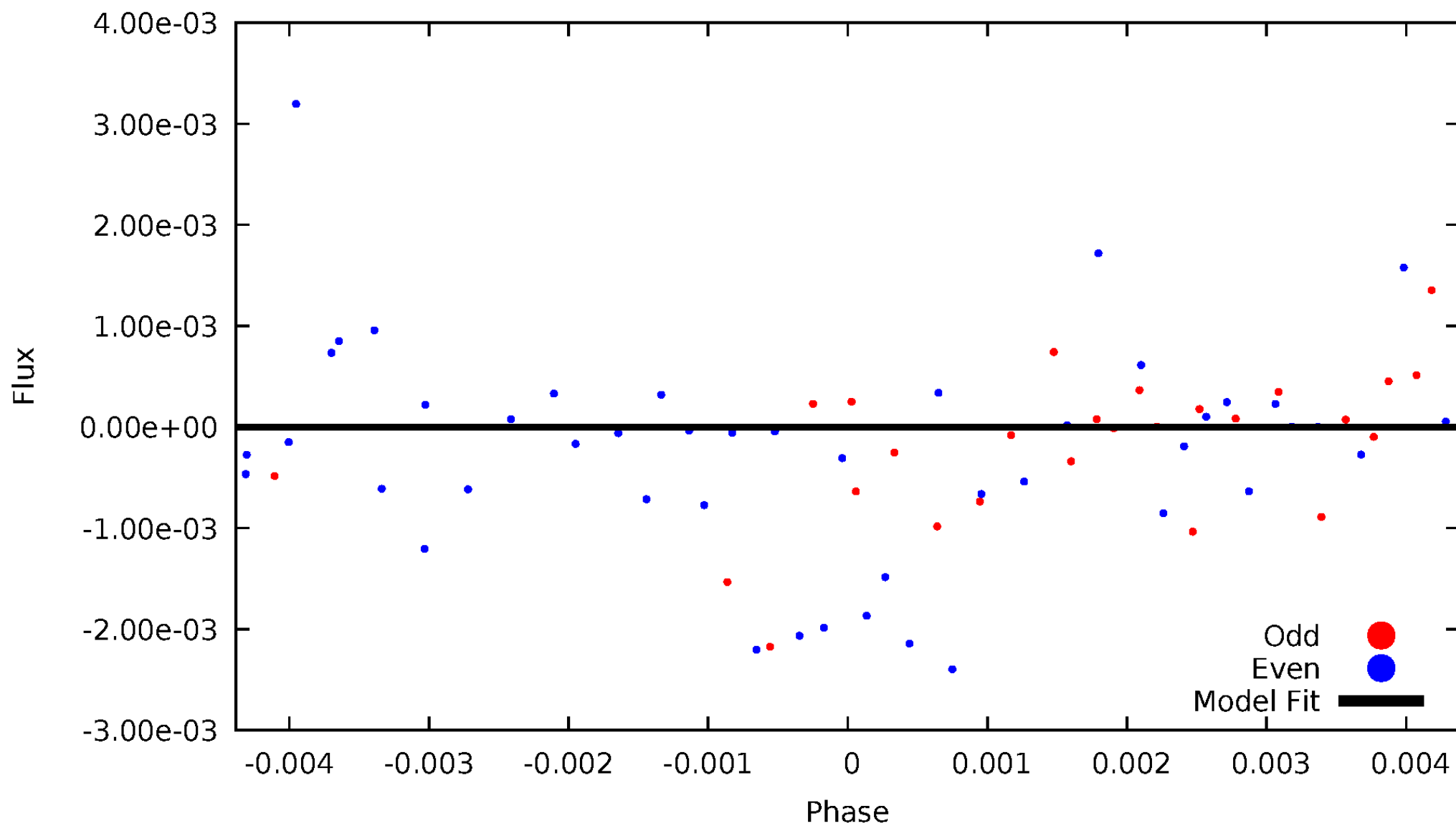


TCE 008058211-05



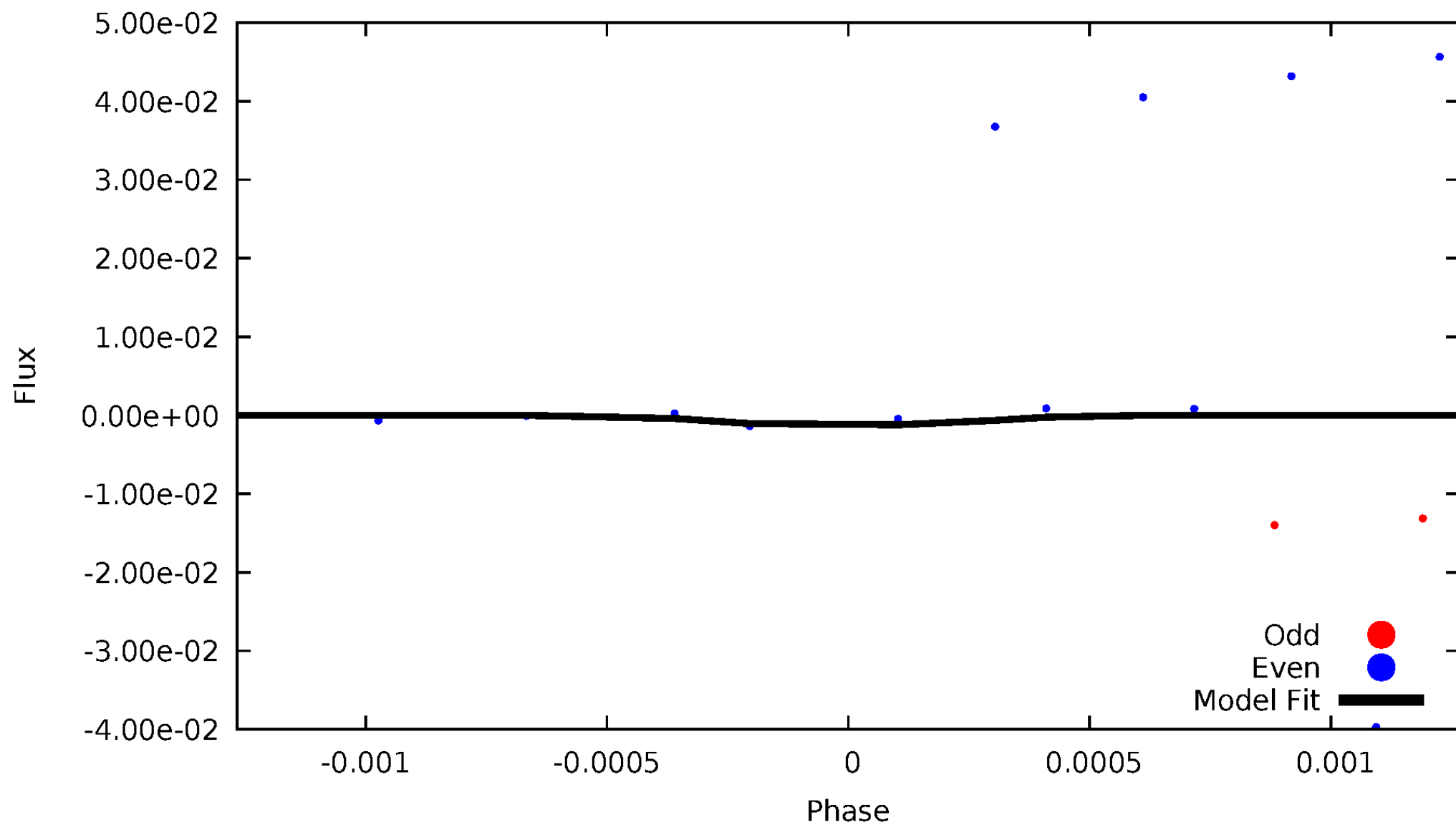
# DV Odd/Even

TCE 008058211-05

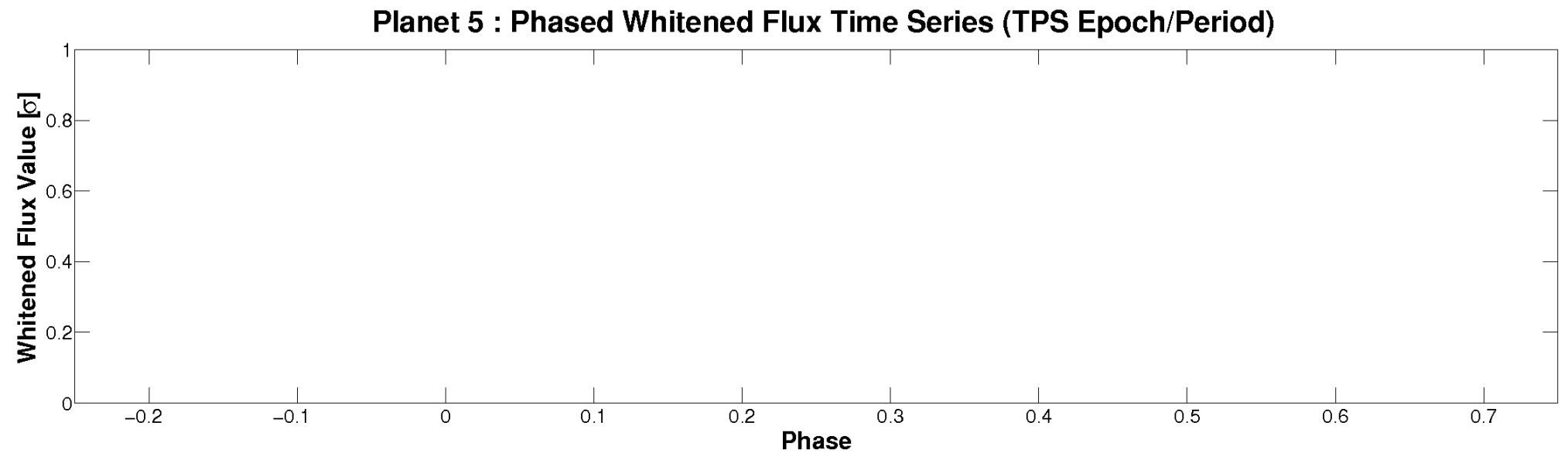
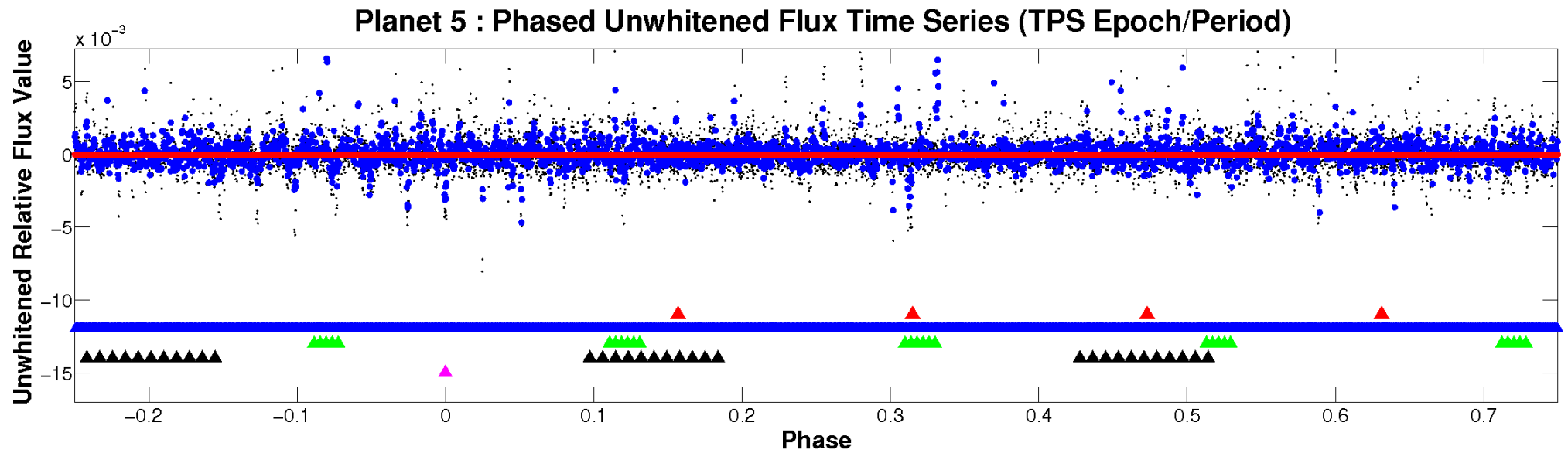


# ALT Odd/Even

TCE 008058211-05



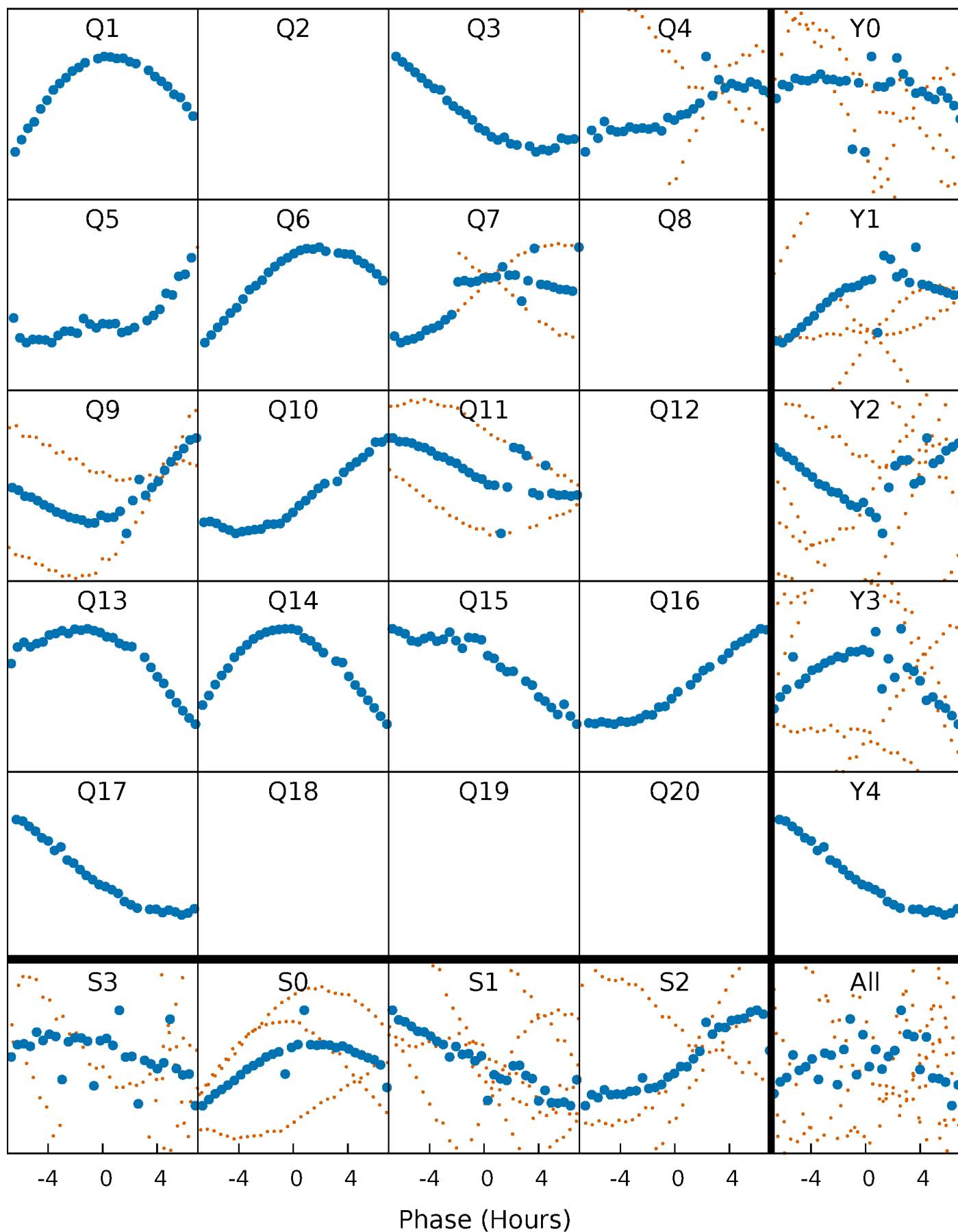
# Non-Whitened Vs. Whitened Light Curve





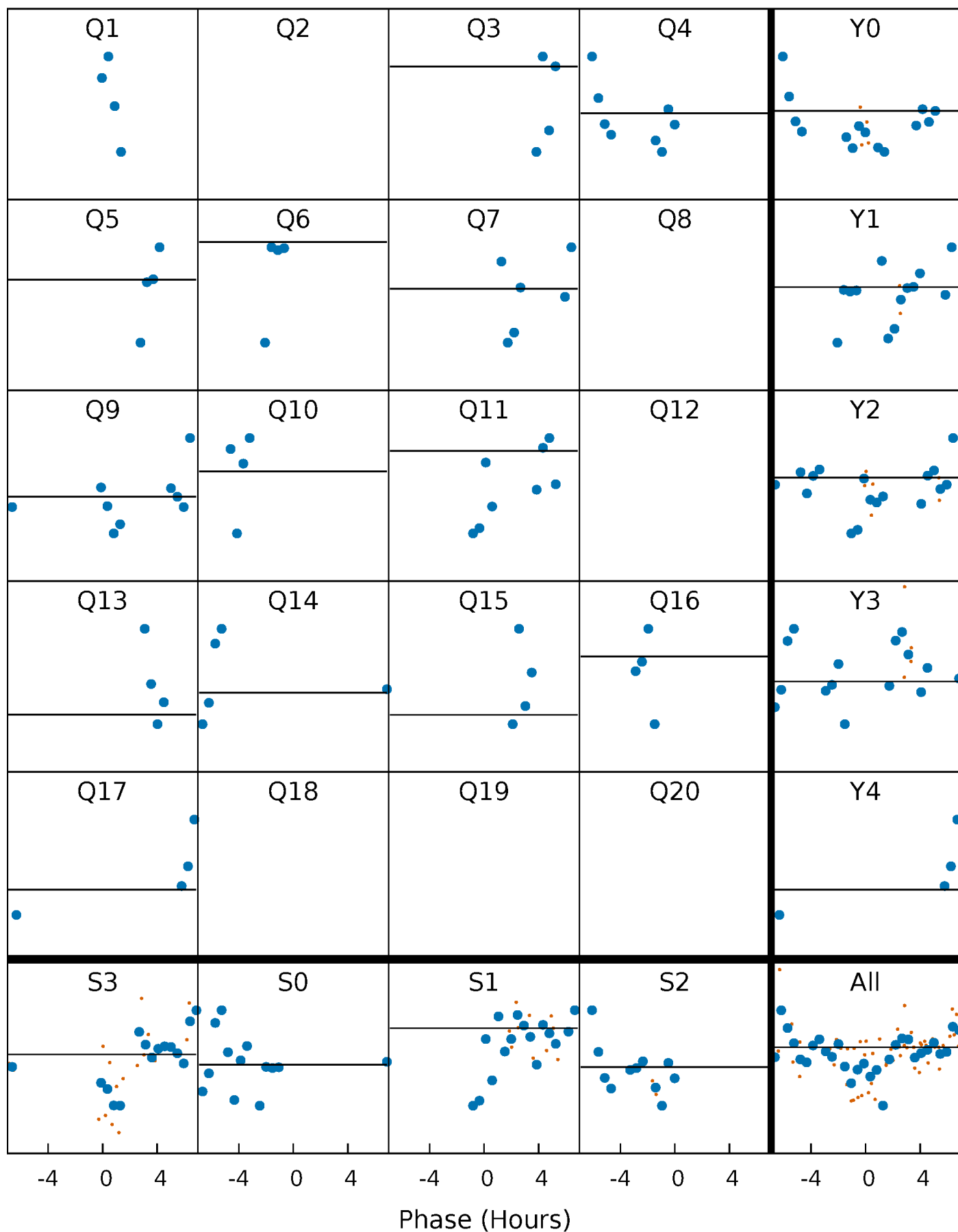
# PDC Quarter-Phased Transit Curves

TCE 008058211-05   P= 66.573288 Days    $T_0=164.259179$  (BKJD)



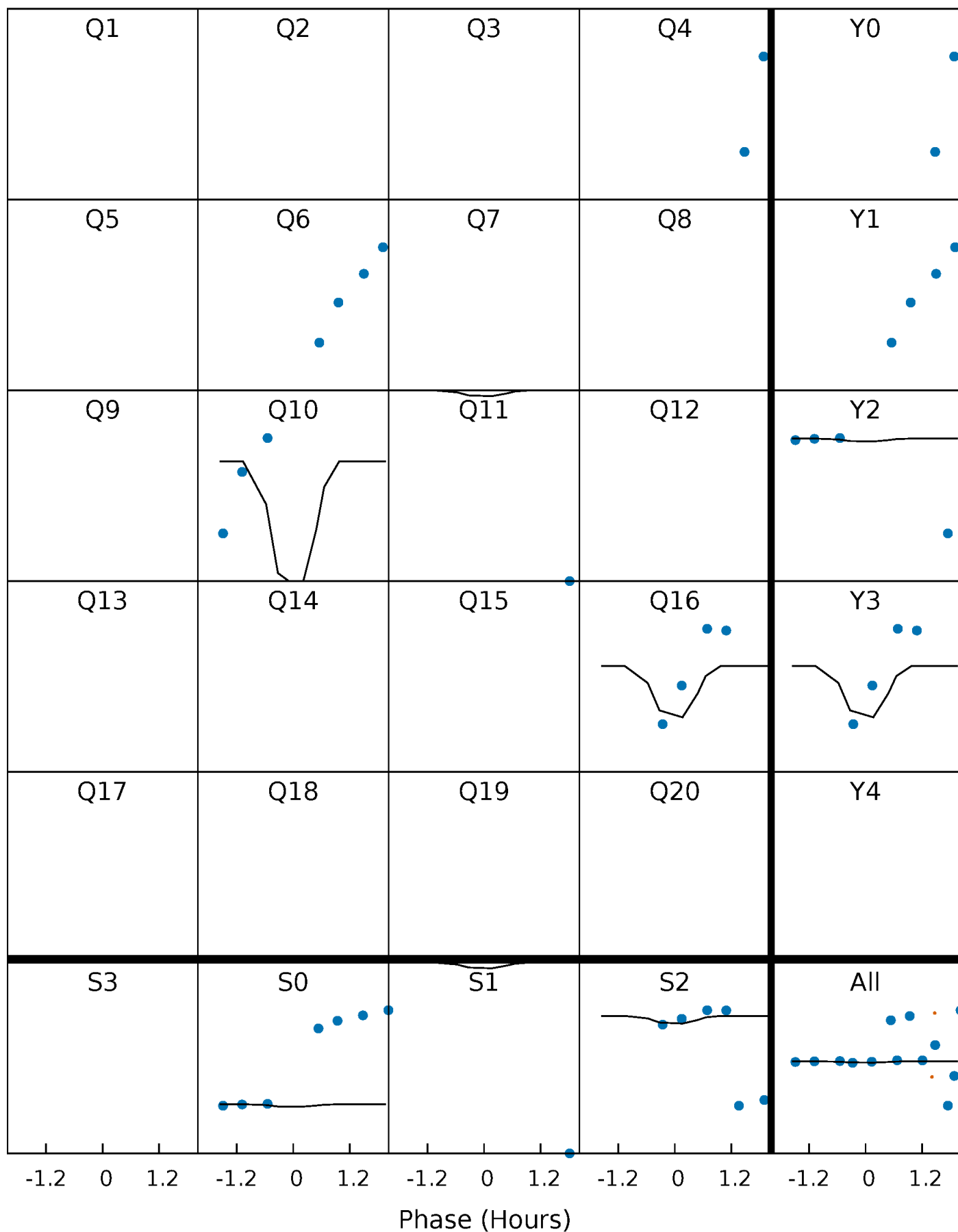
# DV Quarter-Phased Transit Curves

TCE 008058211-05     $P = 66.573288$  Days     $T_0 = 164.259179$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

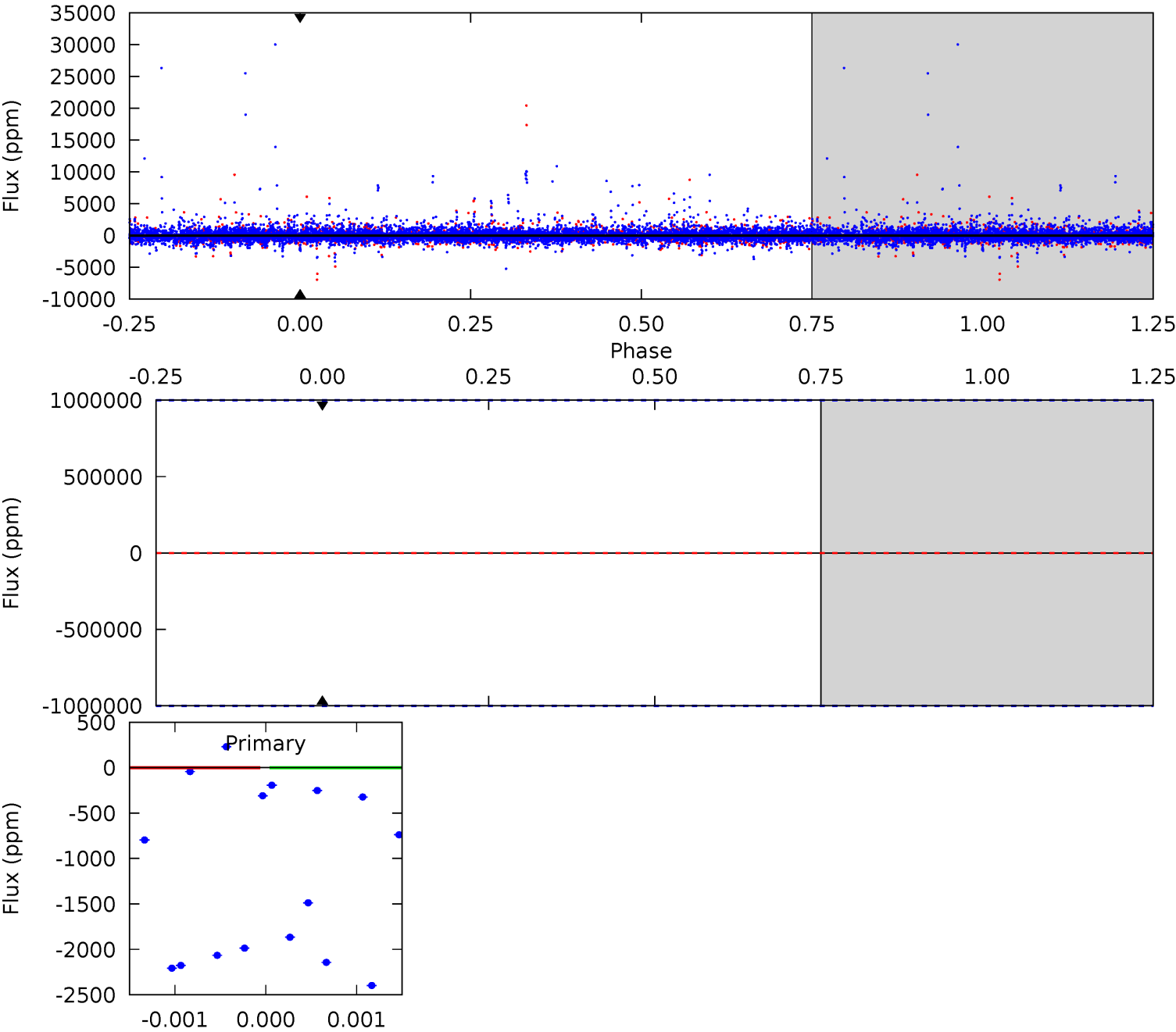
TCE 008058211-05 P= 66.573288 Days  $T_0=164.142974$  (BKJD)



# DV Model-Shift Uniqueness Test

008058211-05, P = 66.573288 Days, E = 97.685891 Days

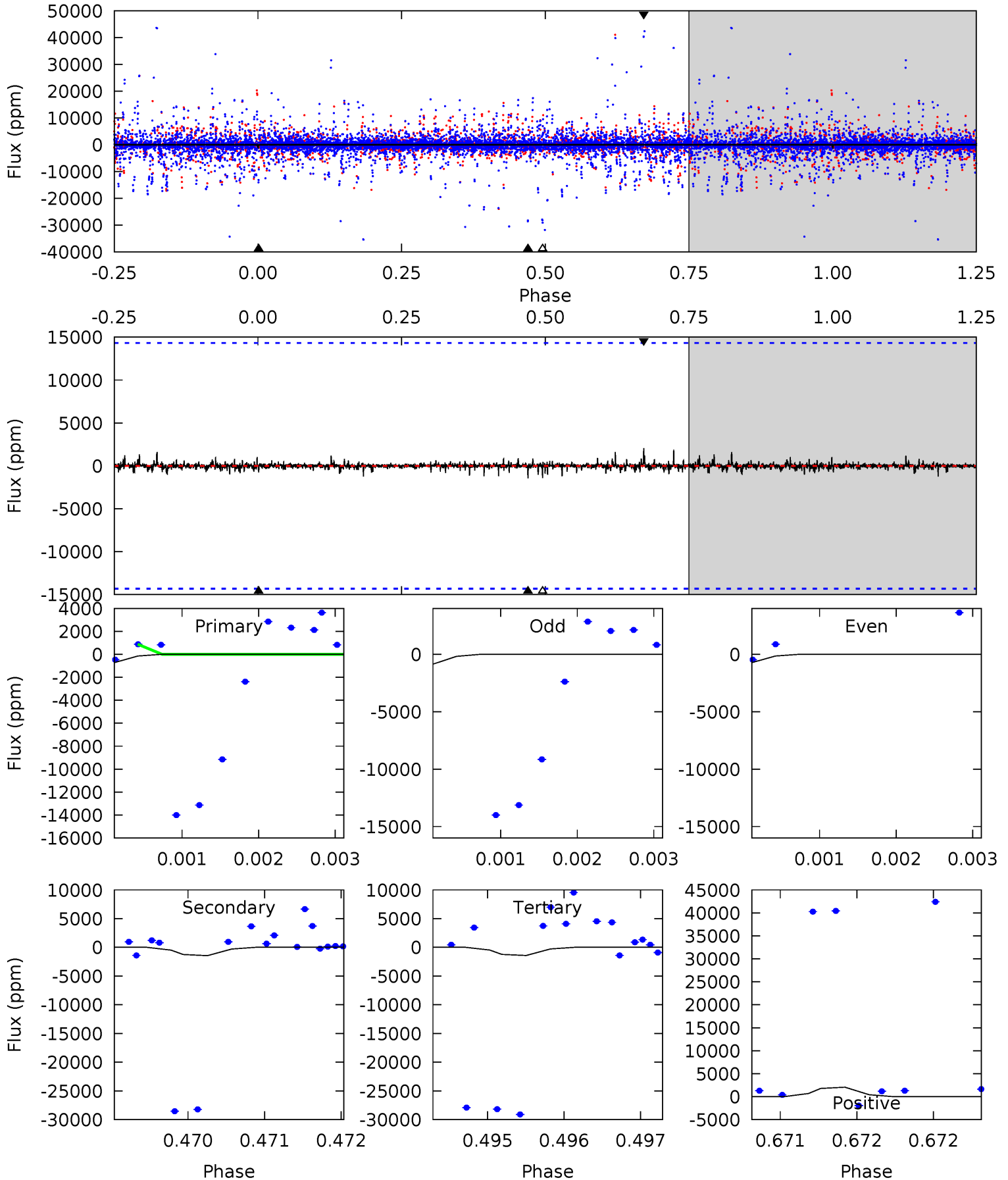
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008058211-05, P = 66.573288 Days, E = 97.569686 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
0.28	0.55	0.54	0.78	5.46	3.30	0.08	-0.26	-0.50	0.01	-0.23	0.02	1.00	0.59	0.04



### Stellar Parameters For KIC 008058211

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4261^{+129}_{-142}$	$4.602^{+0.053}_{-0.018}$	$0.220^{+0.200}_{-0.300}$	$0.681^{+0.028}_{-0.057}$	$0.677^{+0.042}_{-0.052}$	$3.016^{+0.695}_{-0.201}$
	+3%/-3%	+1%/-0%	+91%/-136%	+4%/-8%	+6%/-8%	+23%/-7%
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 008058211-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$5.87^{+5.68}_{-3.97}$	$405^{+14}_{-14}$	$-3043^{+13607}_{-6156}$	$-1006.405^{+268850.553}_{-171201.050}$
Alt.	$-1443 \pm 2624$	$6.17^{+5.90}_{-4.22}$	$405^{+13}_{-15}$	$3042^{+1711}_{-6078}$	$1080^{+13595}_{-2009}$

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

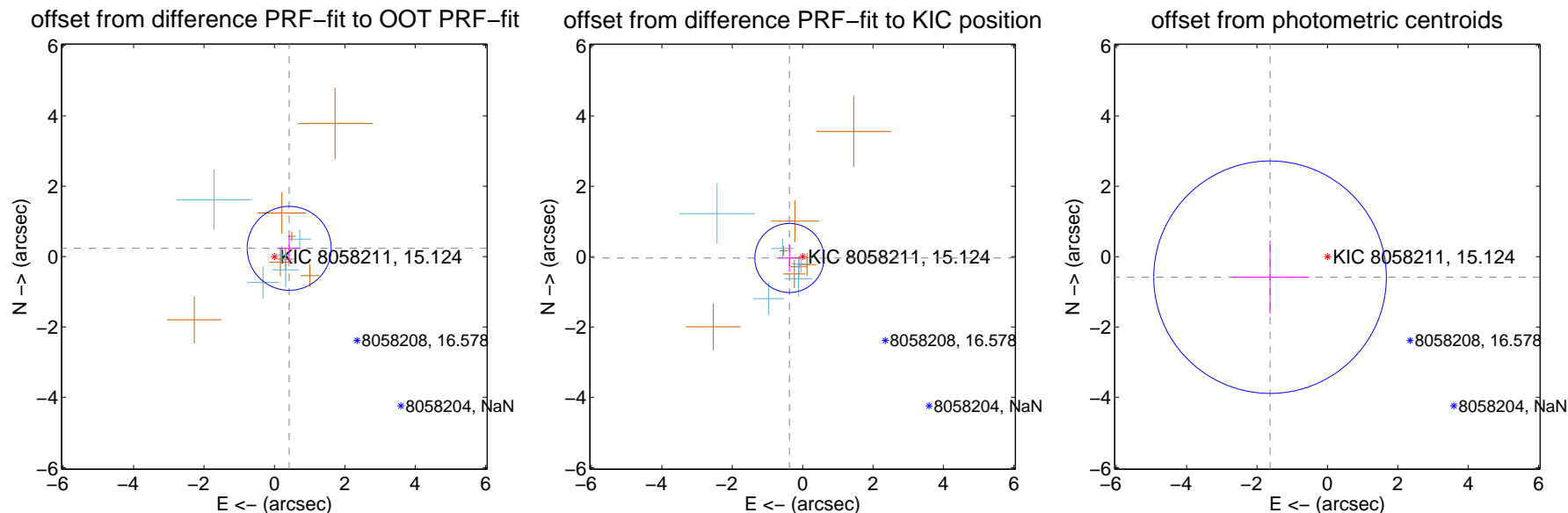
## DV Centroid Data

Supplemental centroid analysis for 008058211-05. Kepler magnitude: 15.12. Transit SNR -1.00

There are 5 quarters with good PRF difference image offsets

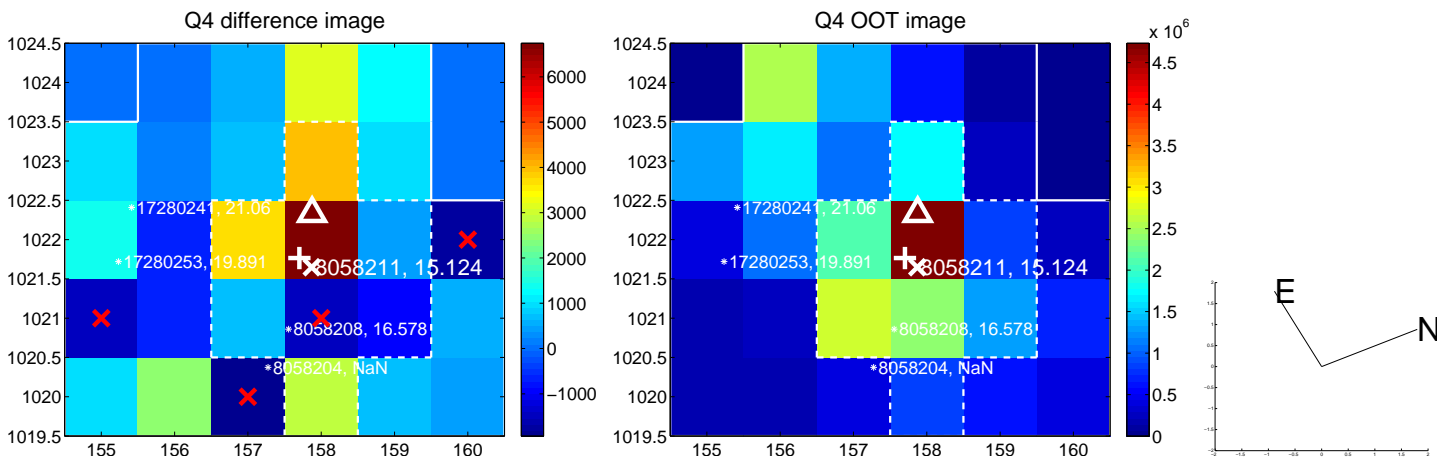
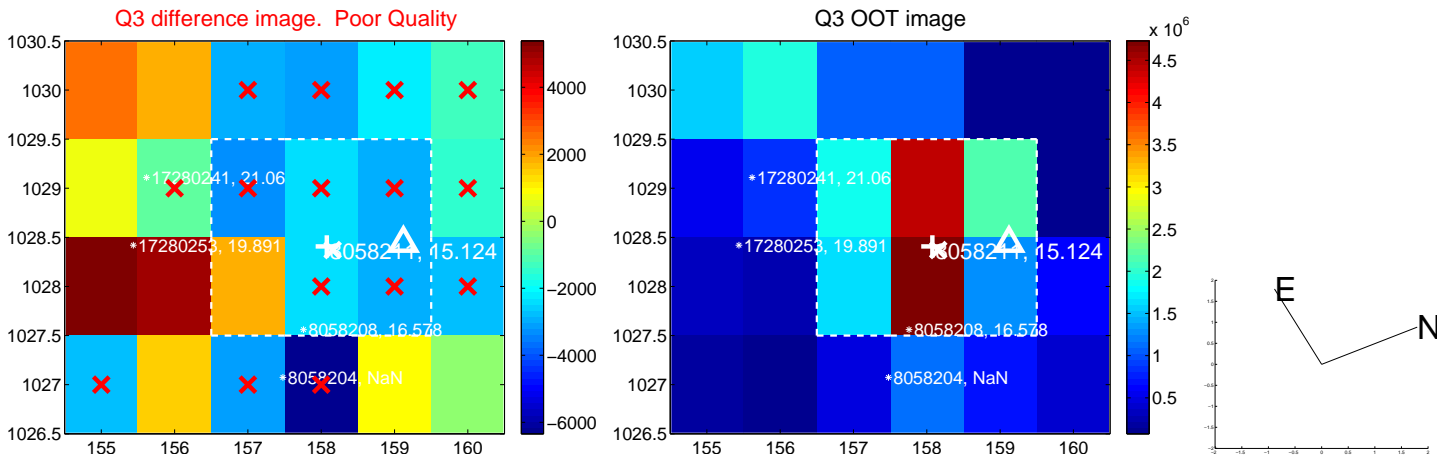
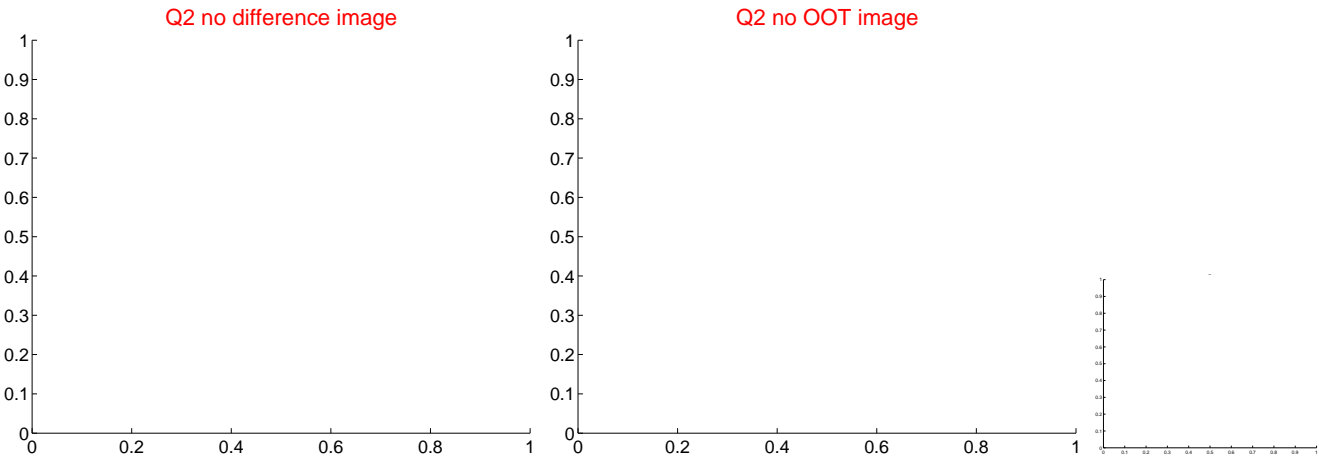
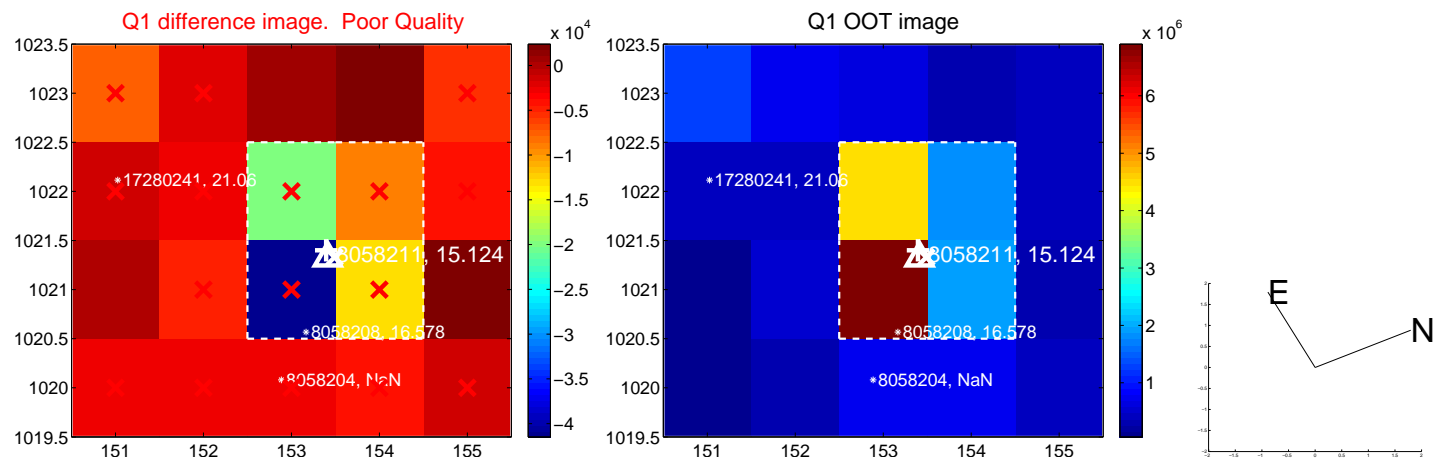
The direct PRF centroid is offset from the target star catalog position by about 0.79 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.480 \pm 0.398$	1.21	$-0.419 \pm 0.321$	$0.235 \pm 0.371$
PRF-fit source offset from KIC position	$0.378 \pm 0.327$	1.16	$0.377 \pm 0.307$	$-0.038 \pm 0.396$
photometric centroid source offset	$1.73 \pm 1.10$	1.57	$1.63 \pm 1.11$	$-0.58 \pm 1.04$



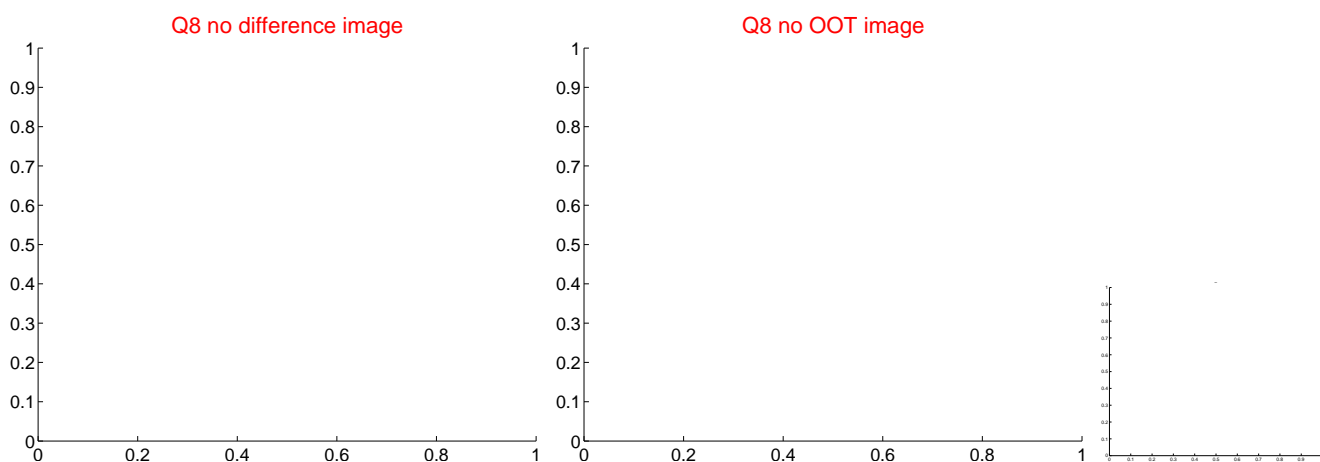
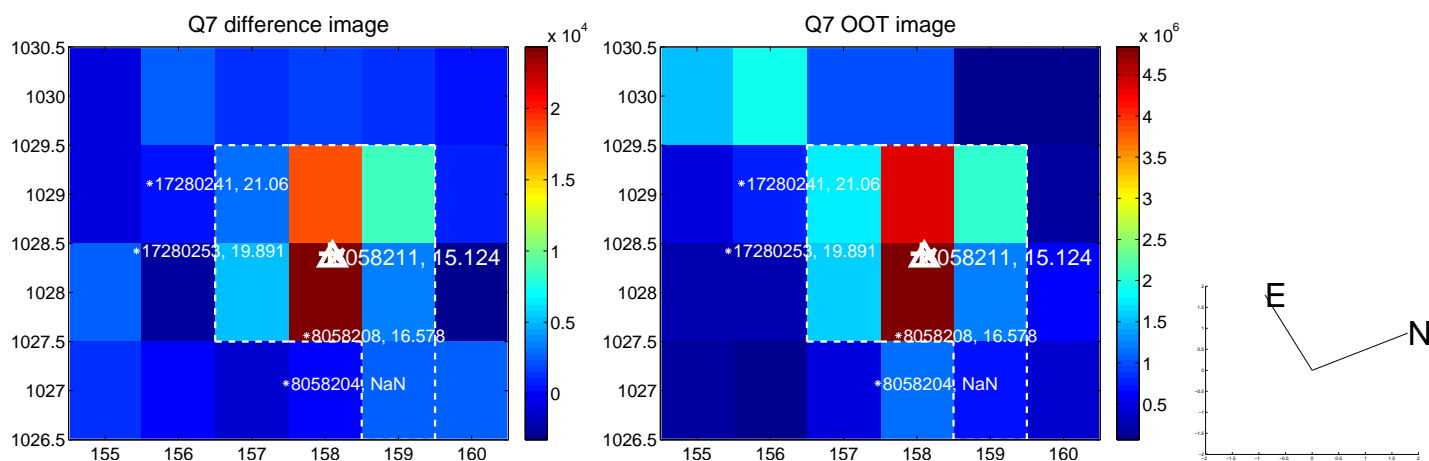
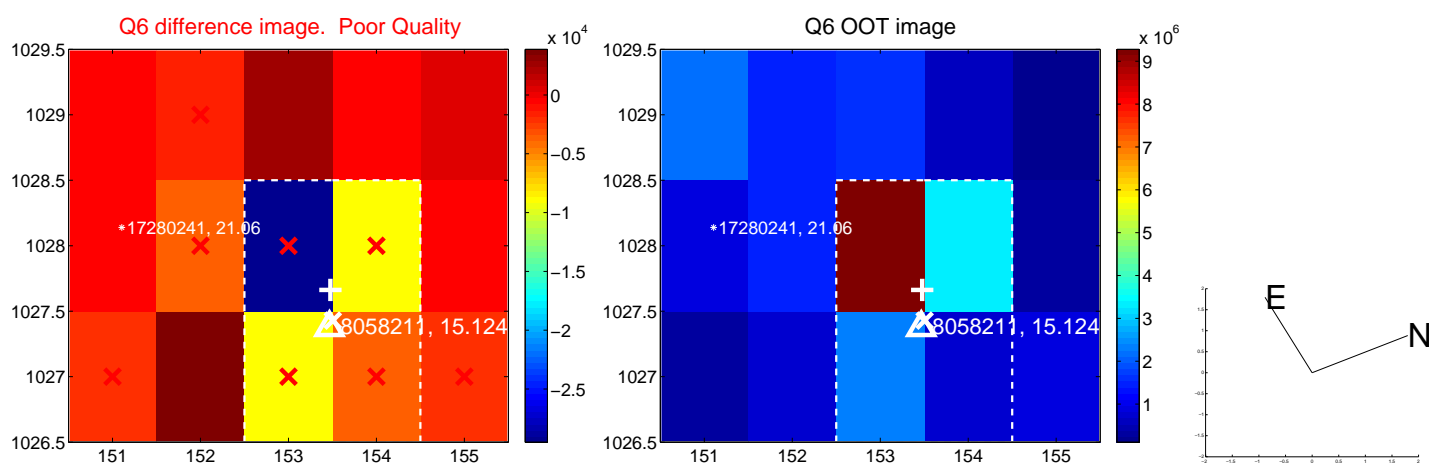
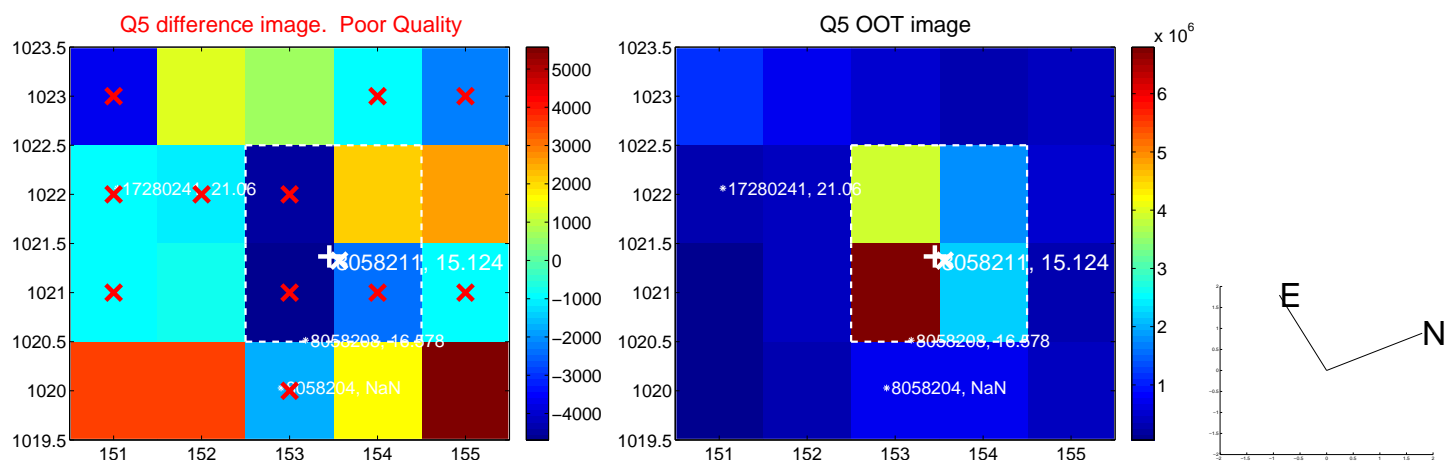
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

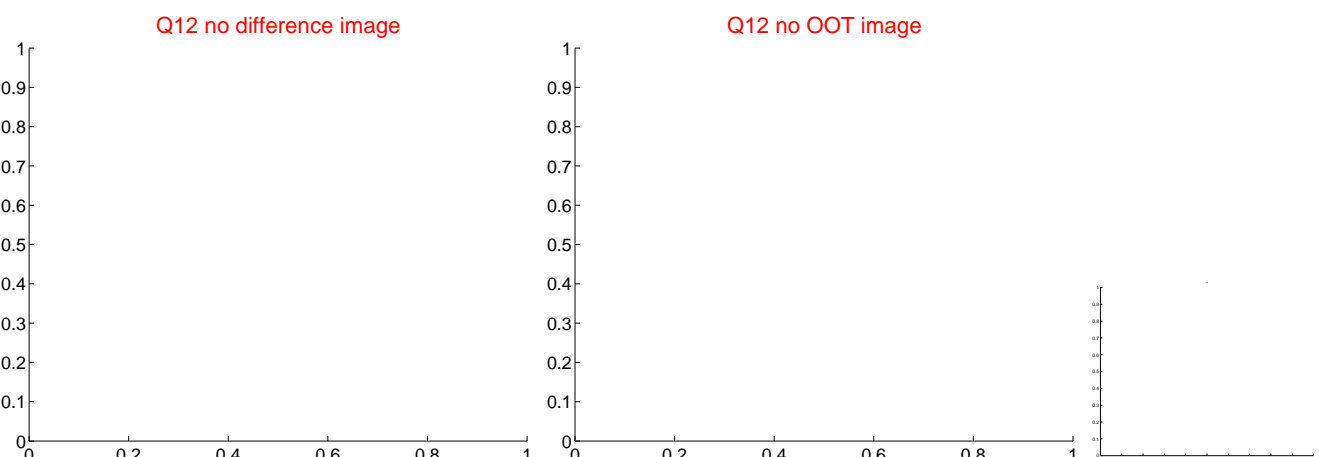
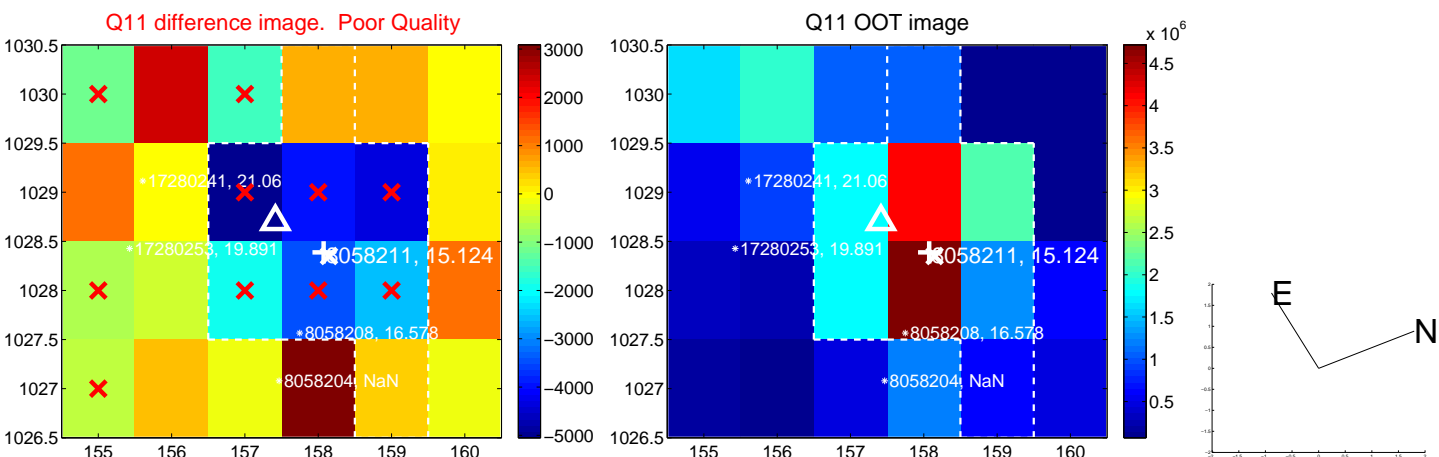
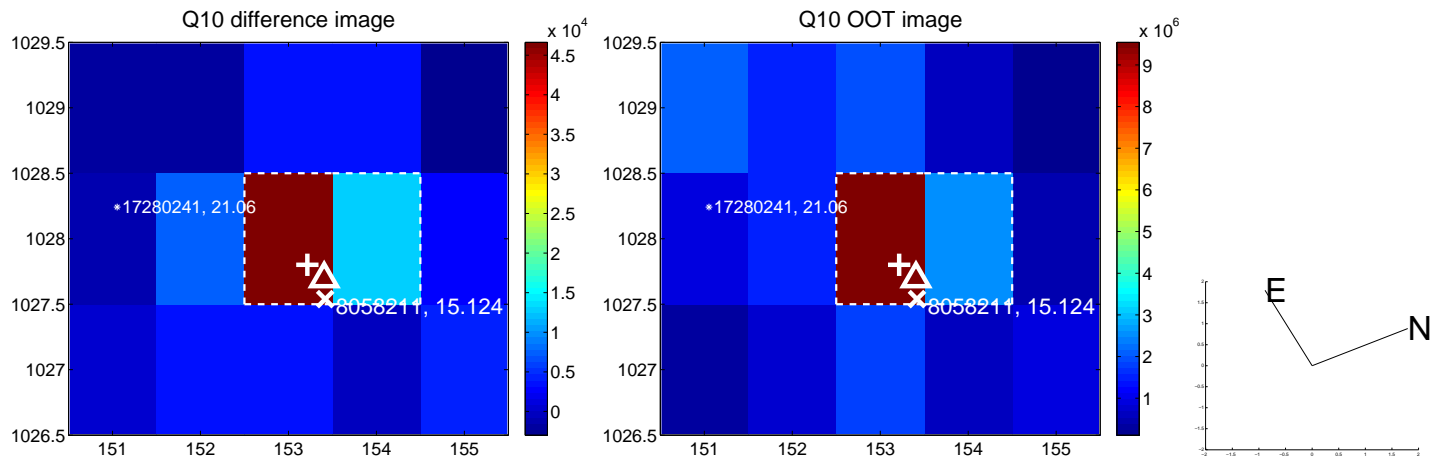
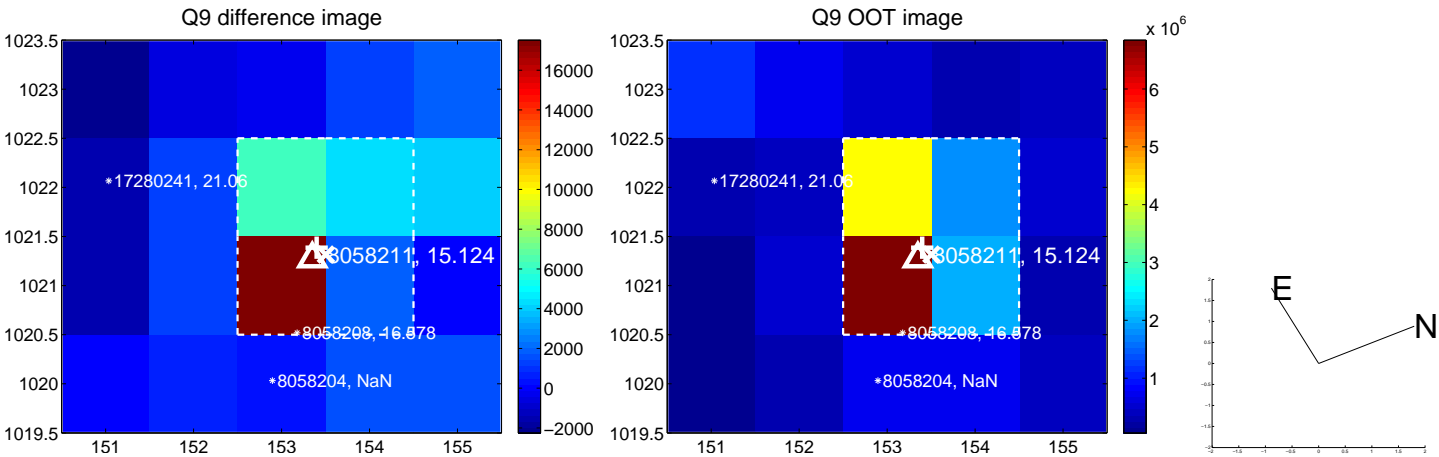




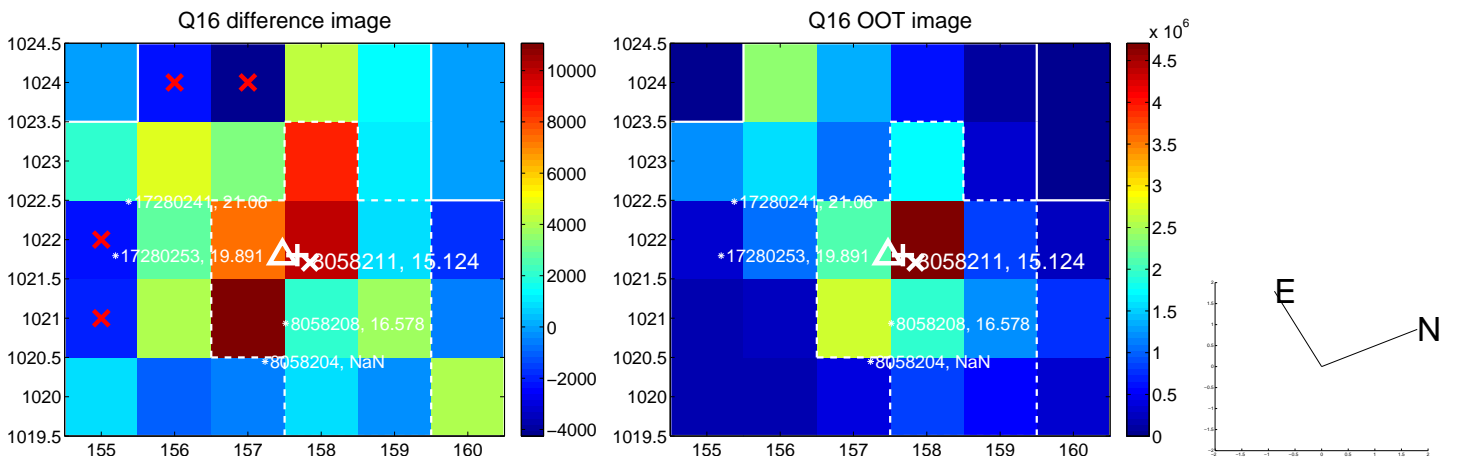
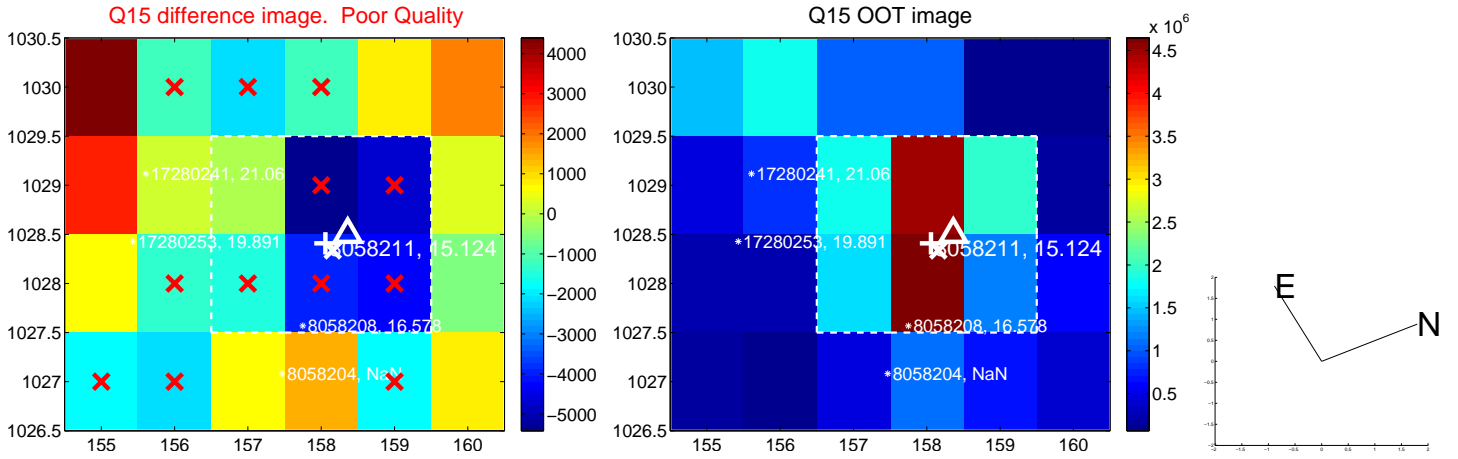
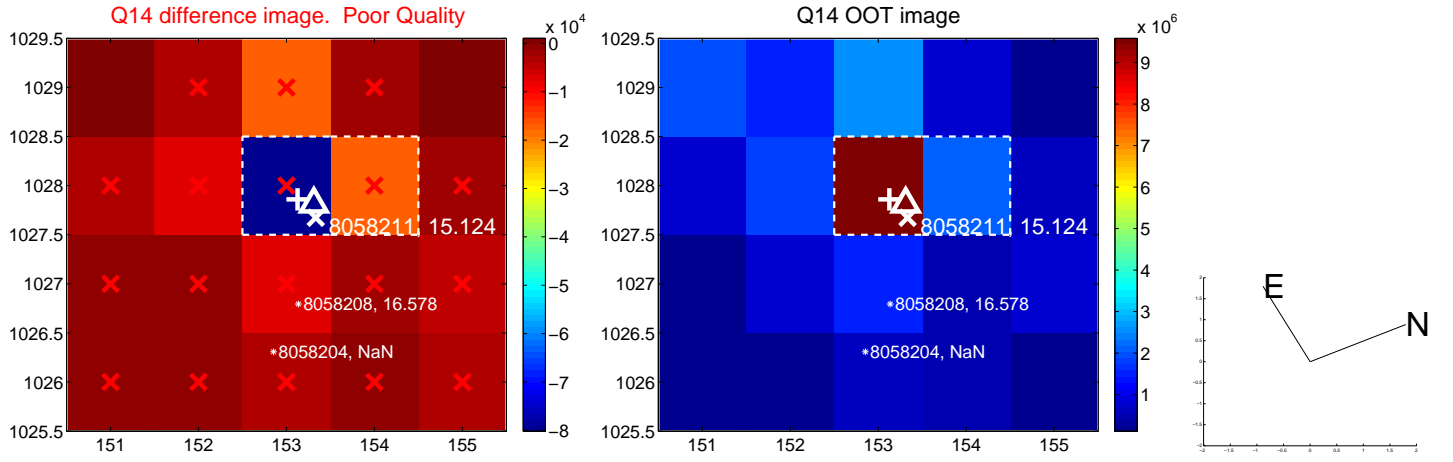
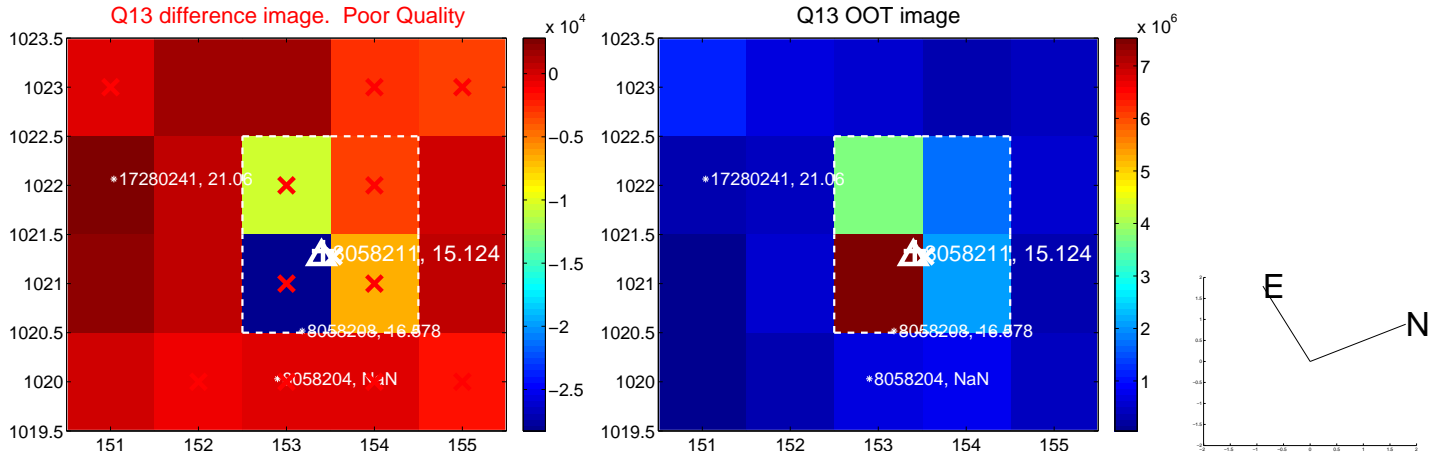
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



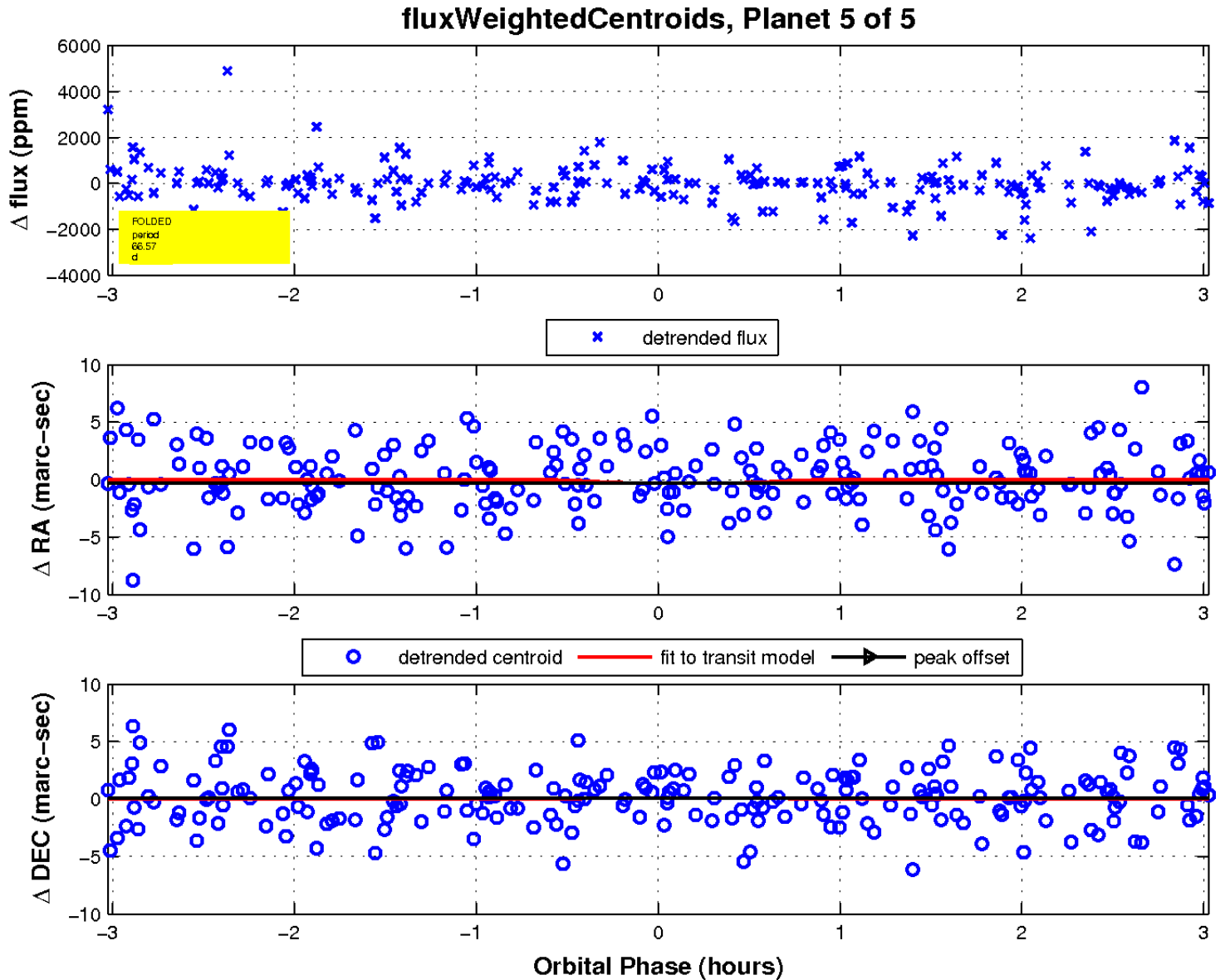
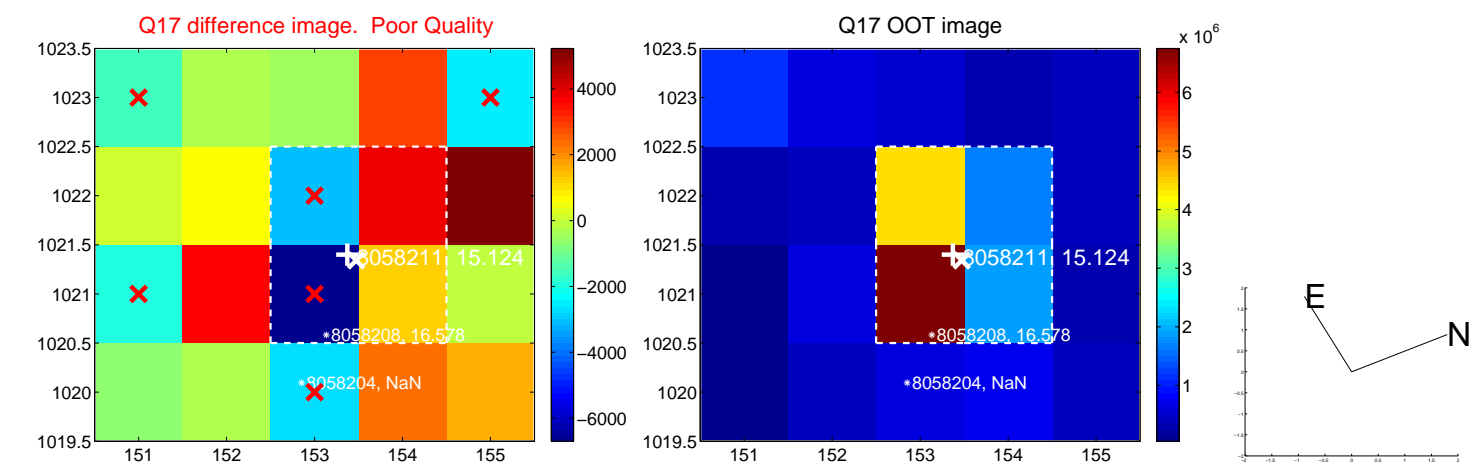
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

