

# KIC 005201593

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005201593-01	OBS	7721.01	0.507255	131.772261	25.4	3.515	17.2	9.3	1.14	5970	0.60	8521.59
005201593-02	OBS	No	5.075689	136.089120	857.1	2.500	15.6	-1.0	1.14	5970	3.31	395.21
005201593-03	OBS	No	10.151530	141.658647	3721.7	0.896	14.3	10.2	1.14	5970	11.32	156.84
005201593-04	OBS	No	5.075700	135.575729	2499.8	0.578	14.1	6.8	1.14	5970	9.65	395.21
005201593-05	OBS	No	5.572889	134.576249	1761.1	1.780	10.8	5.8	1.14	5970	7.71	348.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005201593-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005201593-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_POS_ALT—CENT_NOFITS
005201593-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET
005201593-04	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET—HALO_GHOST
005201593-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET

**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.

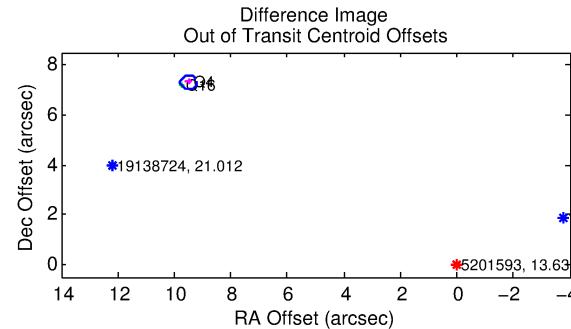
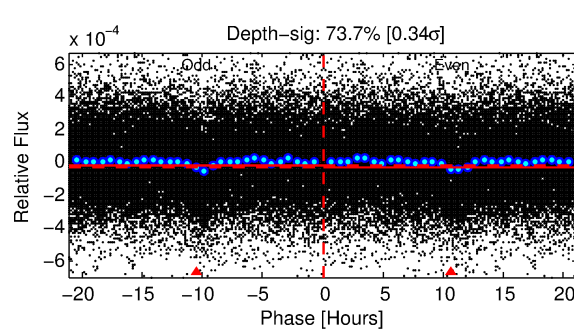
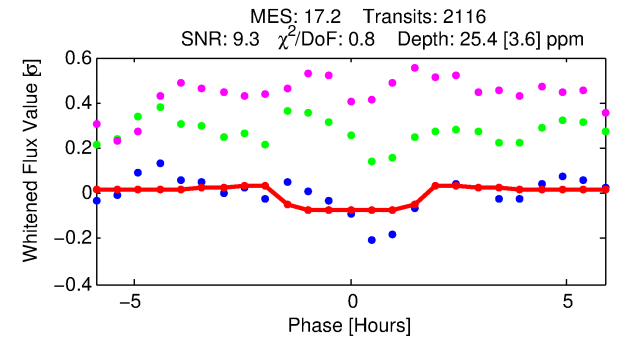
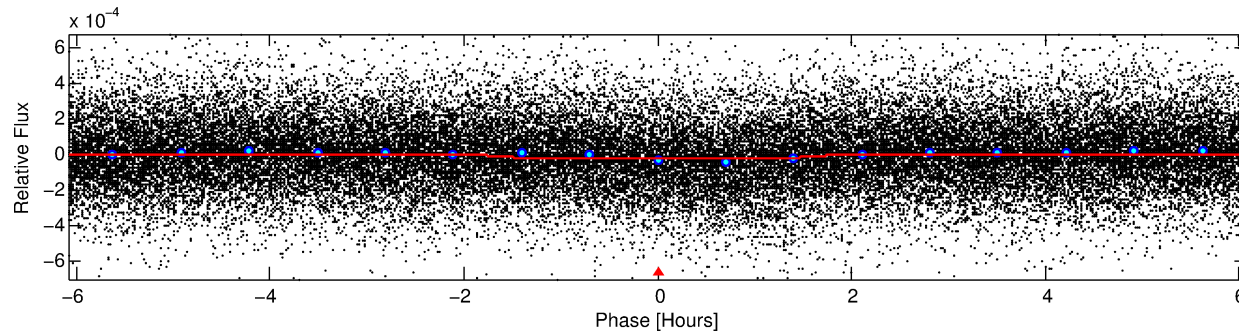
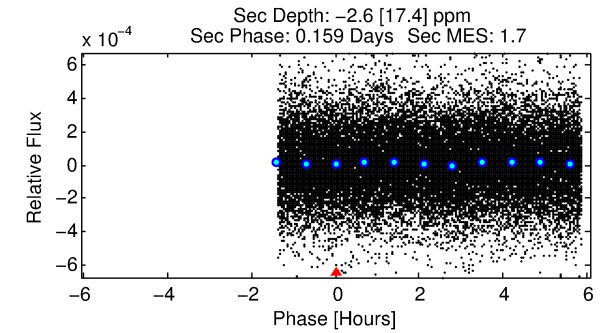
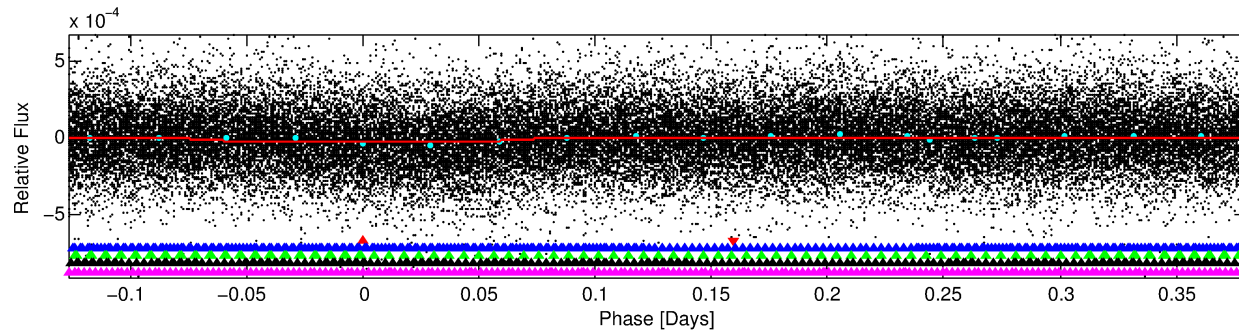
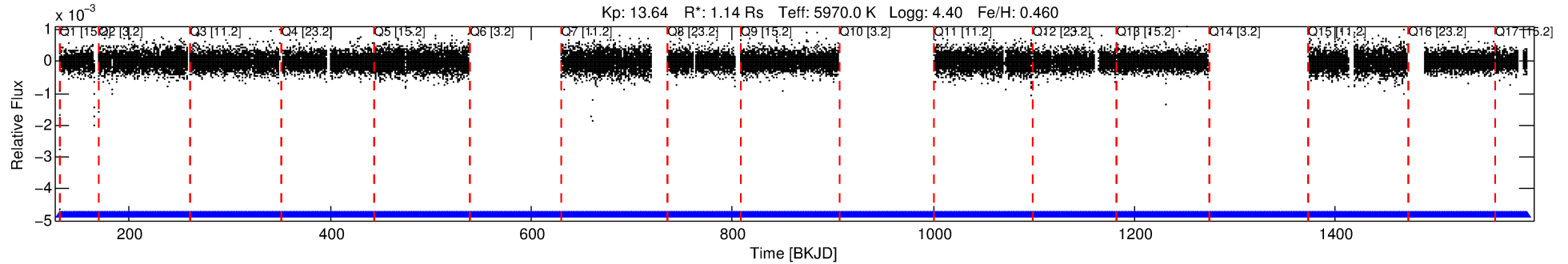
## Ephemeris Match Information For 005201593-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
005201593-01	5201593	005201619-pri	5201619	1:1	21.3	1	5	13.05	13.64	15708.00	Direct-PRF	0	4.91	0.23

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 5201593 Candidate: 1 of 5 Period: 0.507 d



## DV Fit Results:

Period = 0.50726 [0.00001] d  
Epoch = 131.7723 [0.0031] BKJD  
Rp/R\* = 0.0048 [0.0027]  
a/R\* = 1.18 [0.79]  
b = 0.63 [2.39]  
Seff = 8521.59 [1435.56]  
Teff = 2450 [103] K  
Rp = 0.60 [0.35] Re  
a = 0.0132 [0.0014] AU  
Ag = N/A  
Teffp = N/A

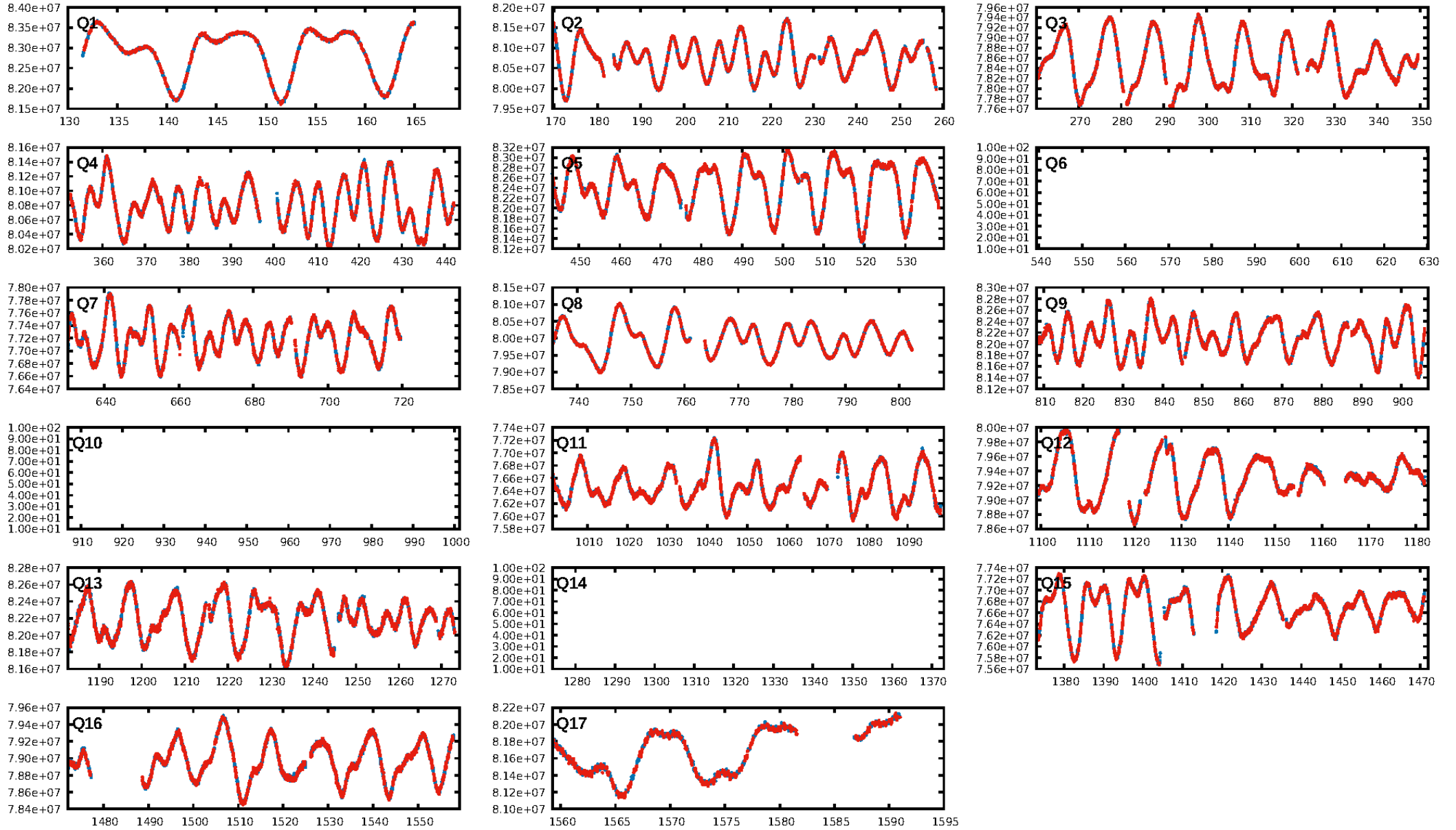
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [25.42σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1997/1997]  
GhostDiagnostic-chr: -0.91  
Centroid-sig: 0.0%  
Centroid-so: 8.262 arcsec [7.95σ]  
OotOffset-rm: 11.977 arcsec [123.69σ]  
KicOffset-rm: 12.023 arcsec [128.51σ]  
OotOffset-st: 0/0/2/0 [2]  
KicOffset-st: 0/0/2/0 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [14/14]

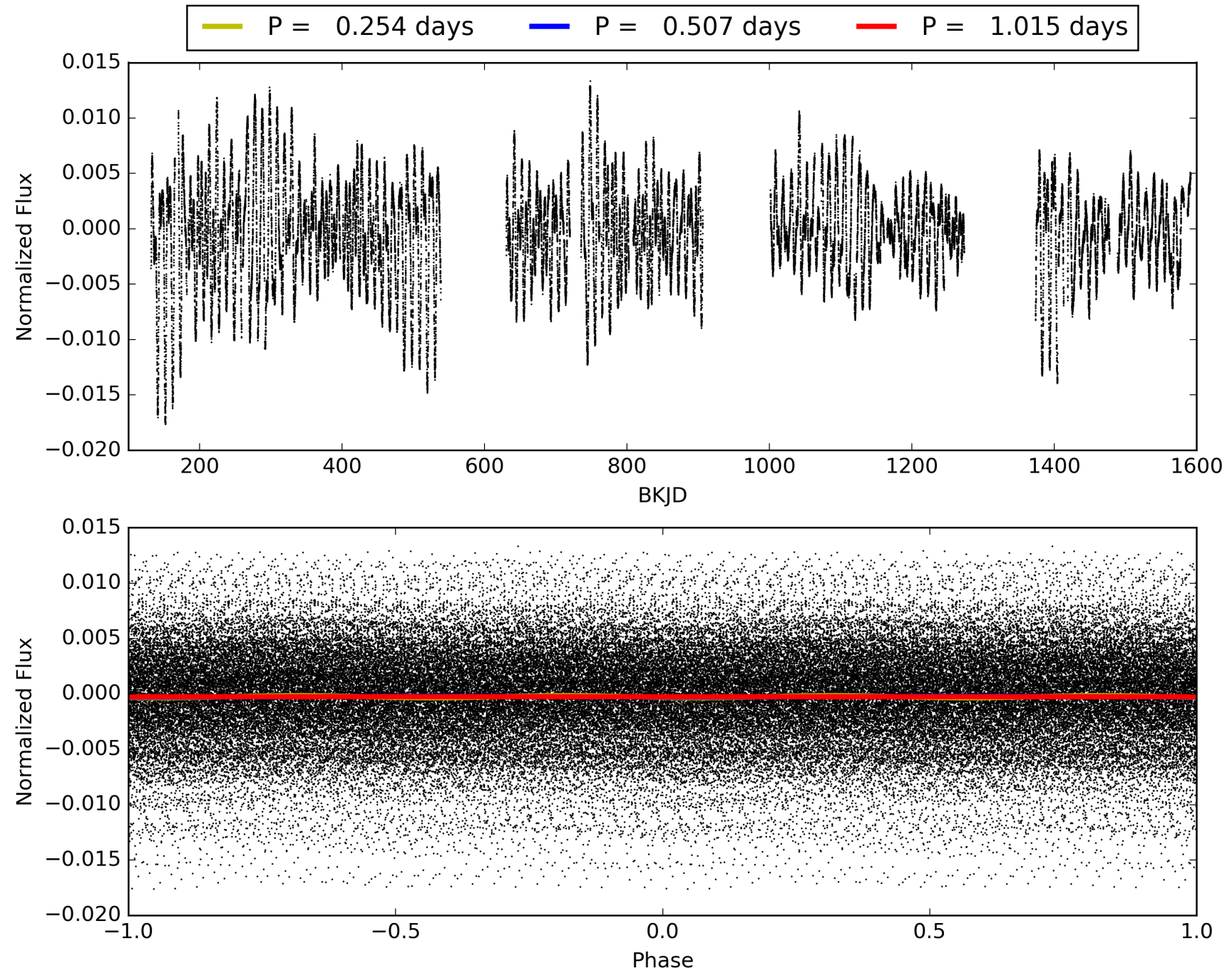
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:50:34 Z

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

# TCE 005201593-01, PDC Light Curves



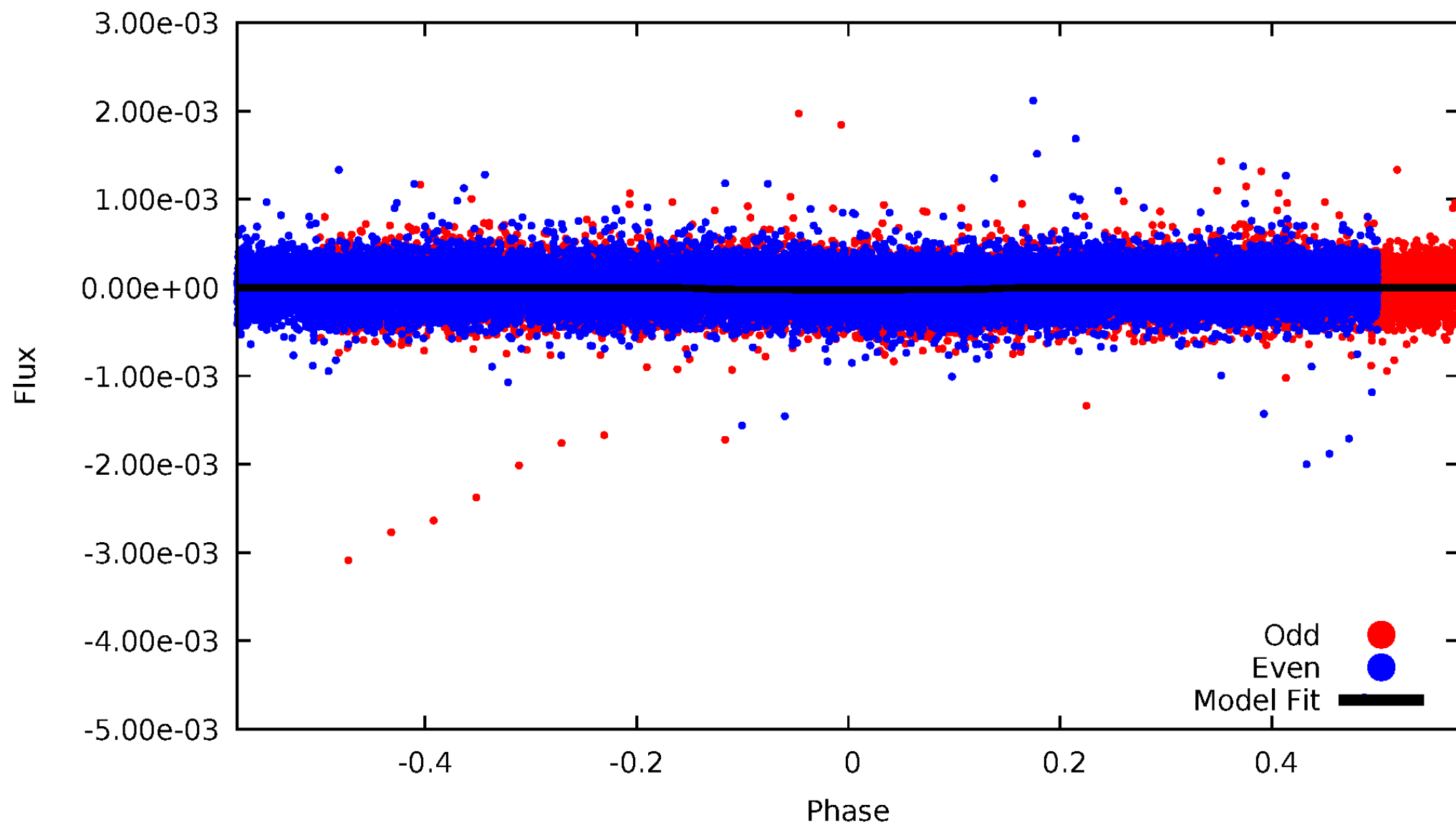
TCE 005201593-01





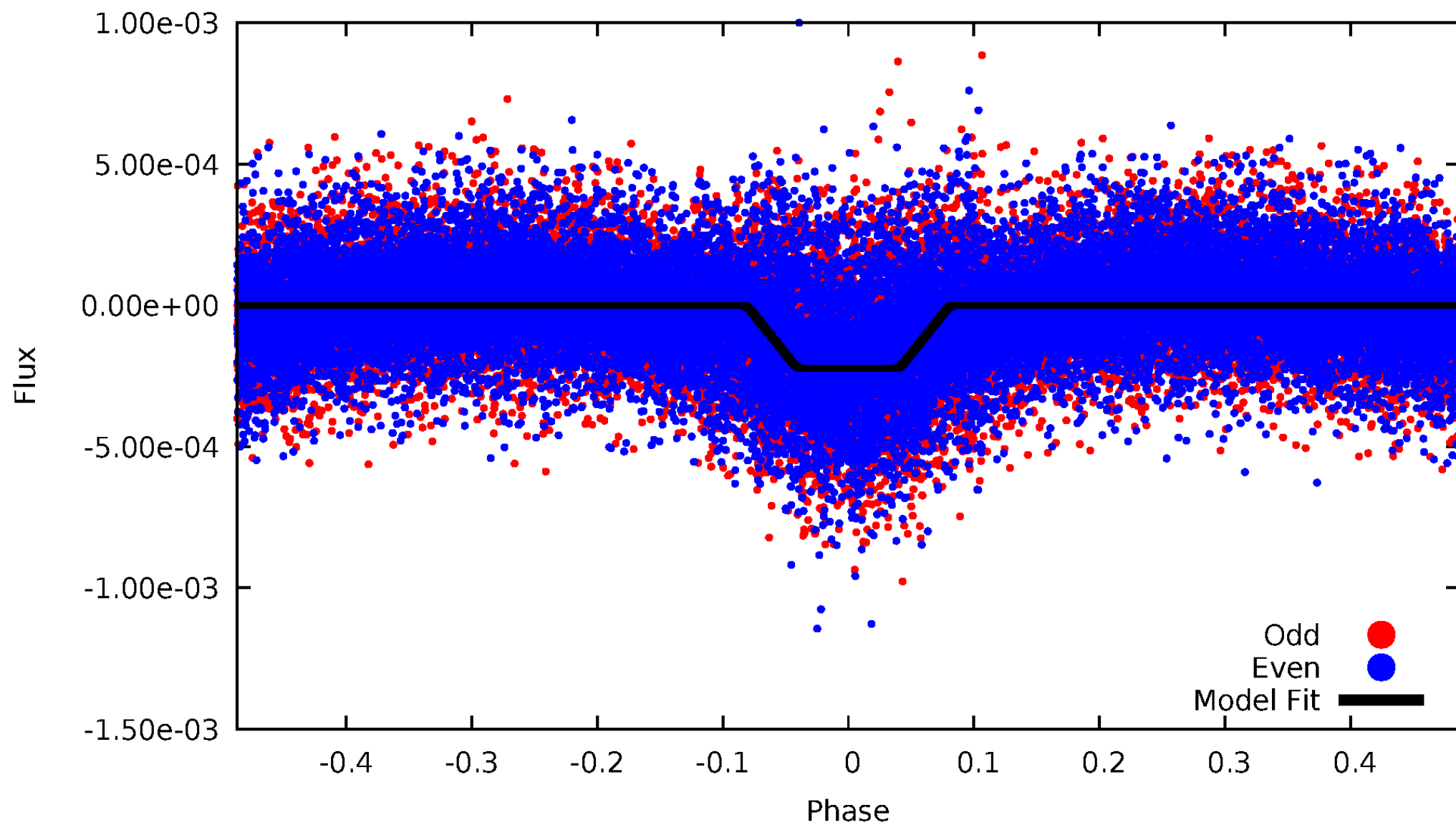
# DV Odd/Even

TCE 005201593-01

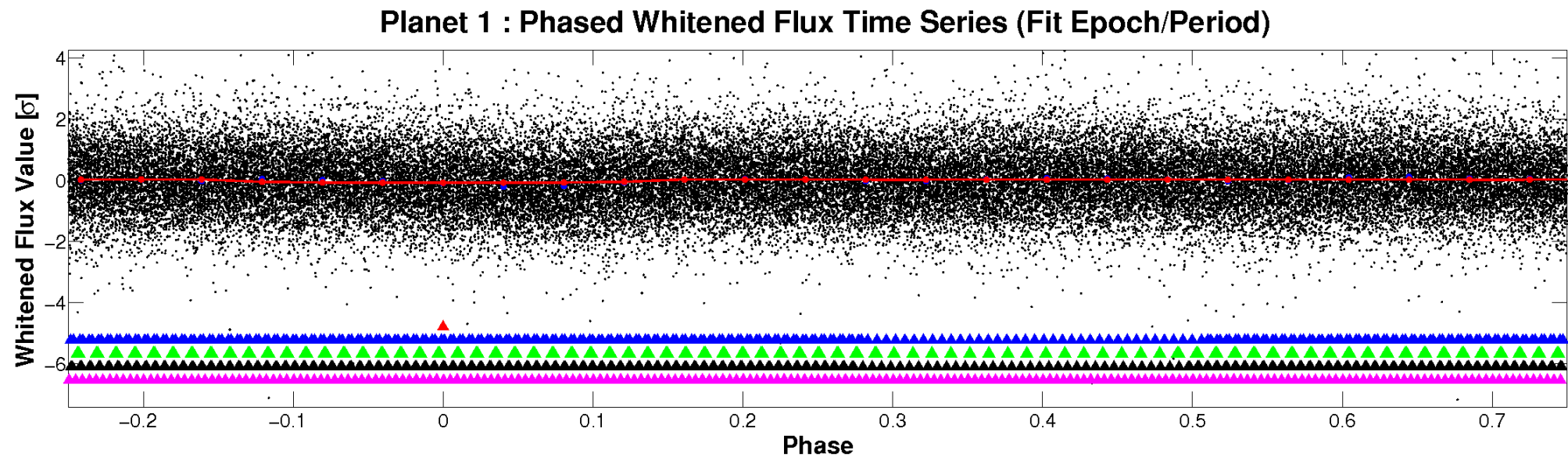
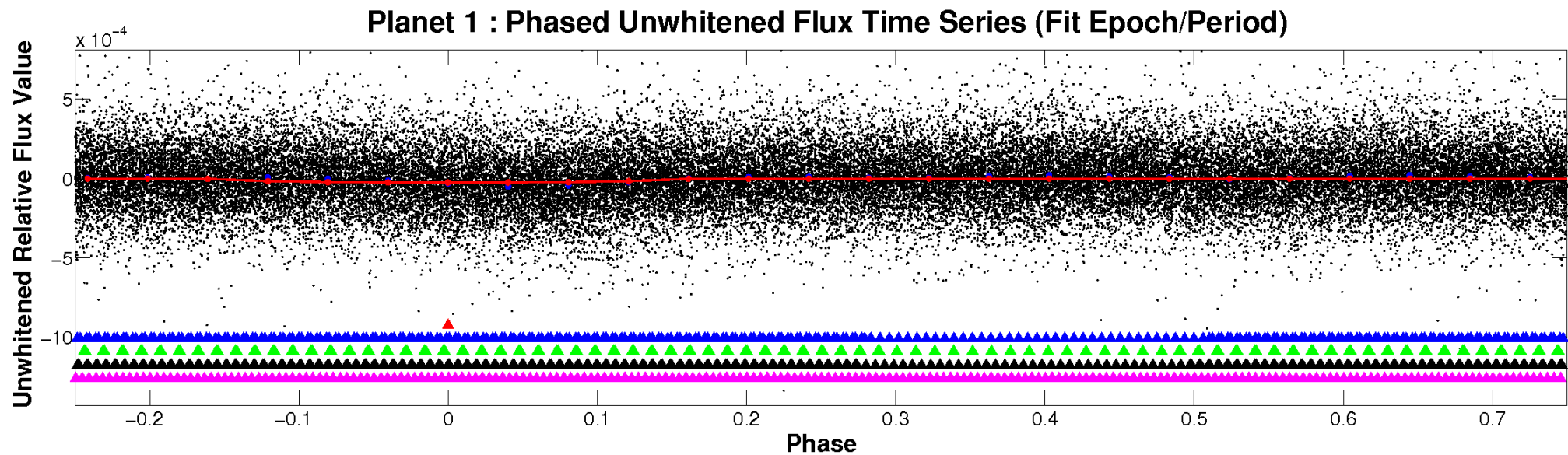


# ALT Odd/Even

TCE 005201593-01

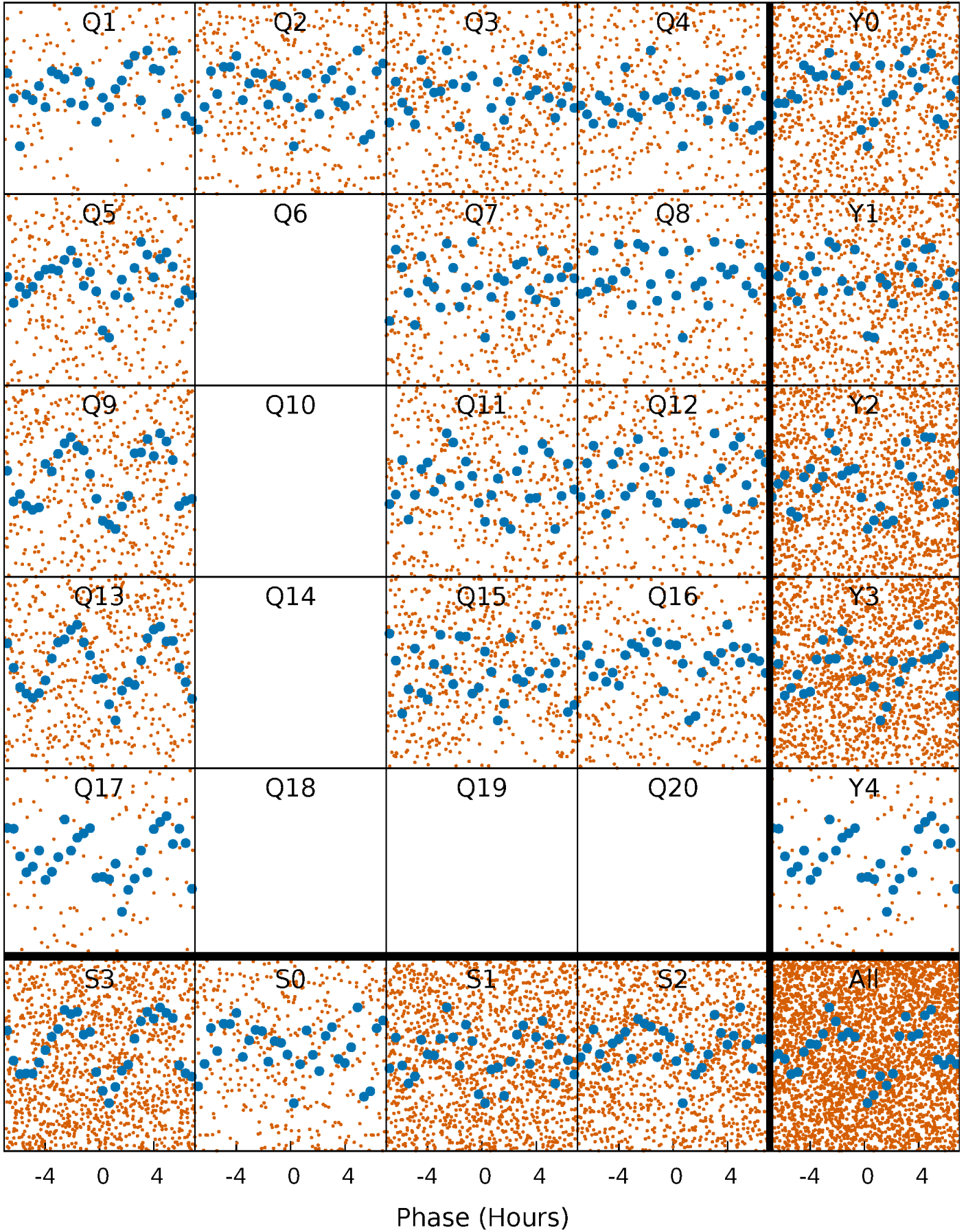


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

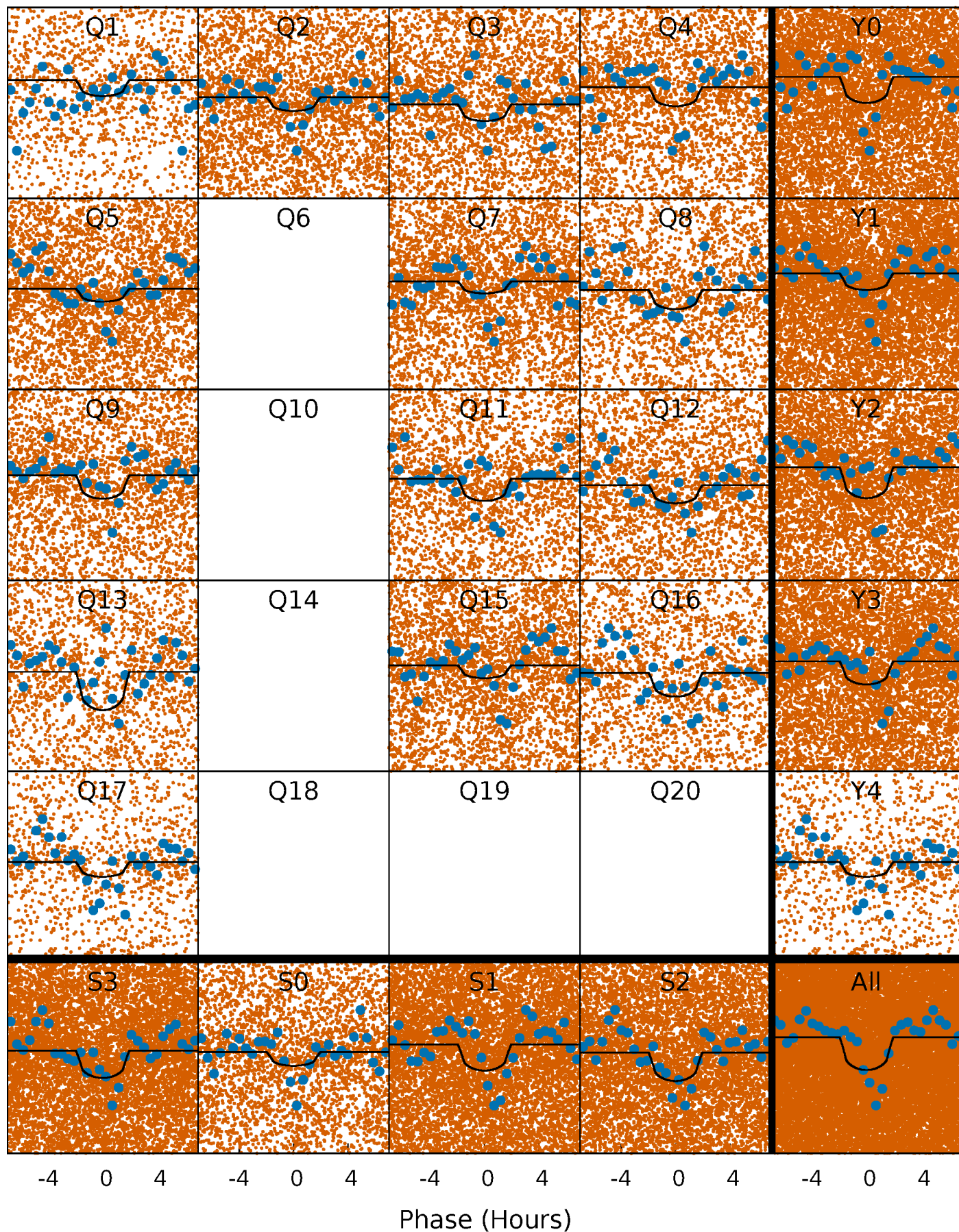
TCE 005201593-01 P= 0.507255 Days  $T_0=131.772261$  (BKJD)





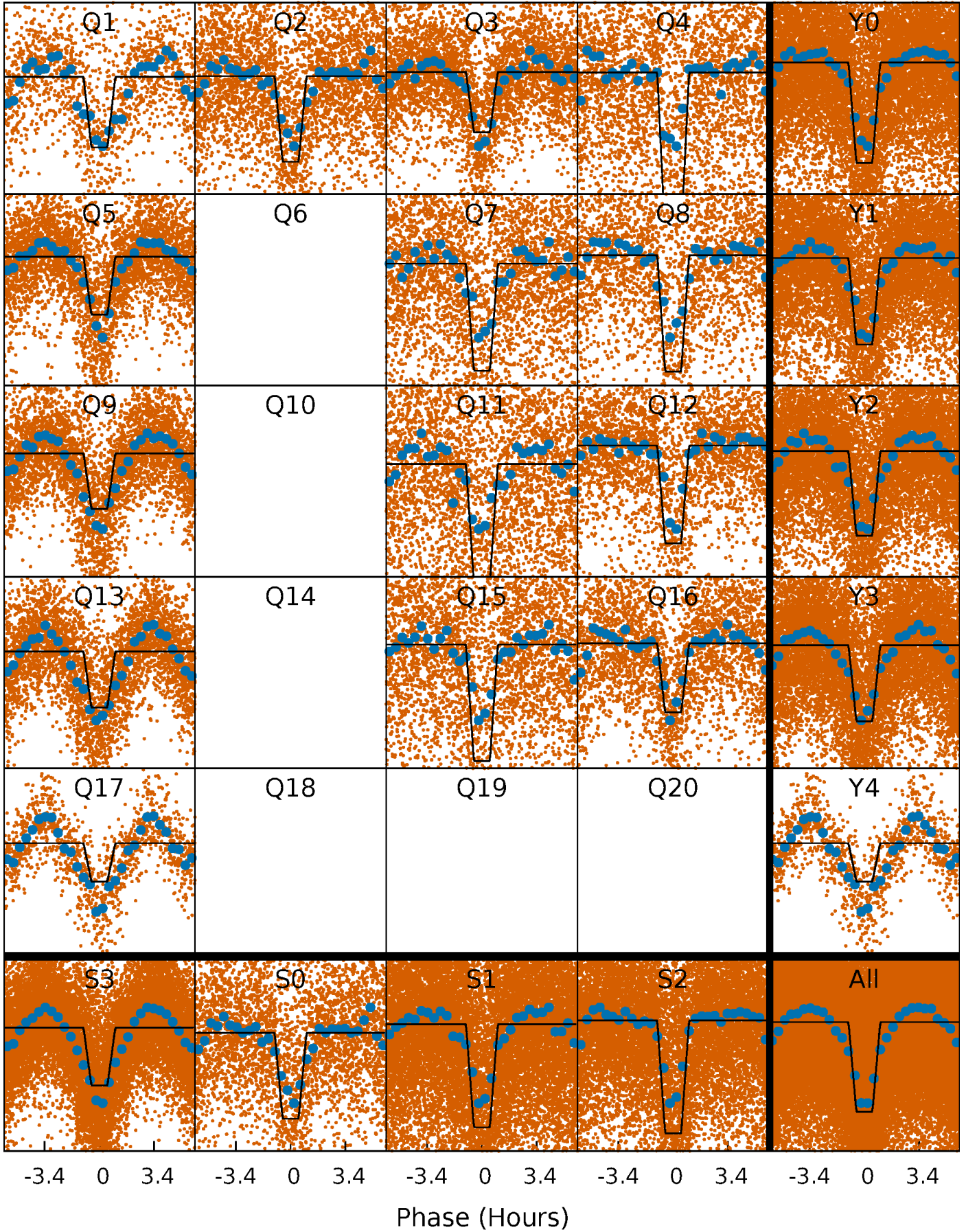
# DV Quarter-Phased Transit Curves

TCE 005201593-01 P= 0.507255 Days  $T_0=131.772261$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005201593-01 P= 0.507280 Days  $T_0=131.769931$  (BKJD)

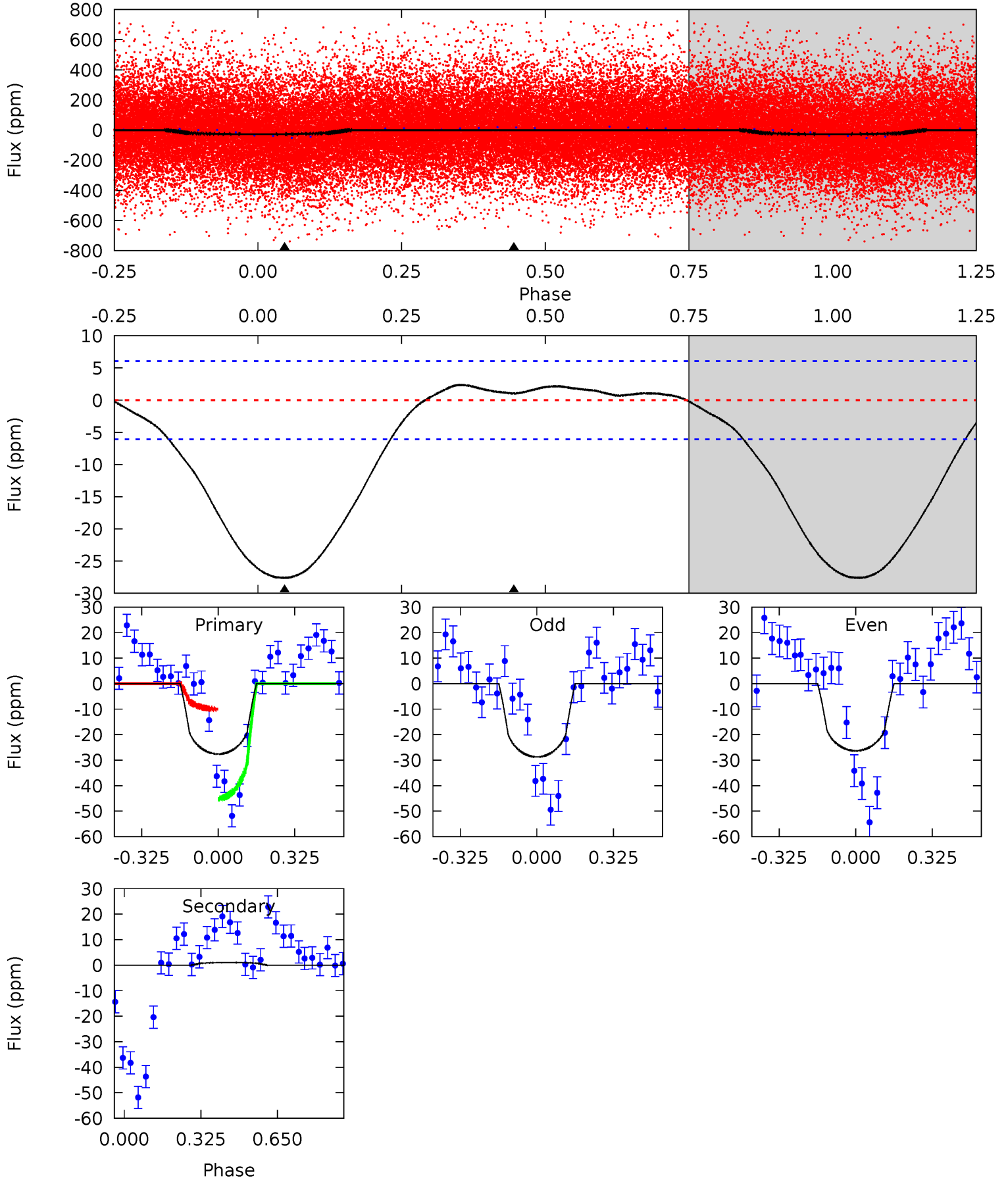




# DV Model-Shift Uniqueness Test

005201593-01, P = 0.507255 Days, E = 131.265006 Days

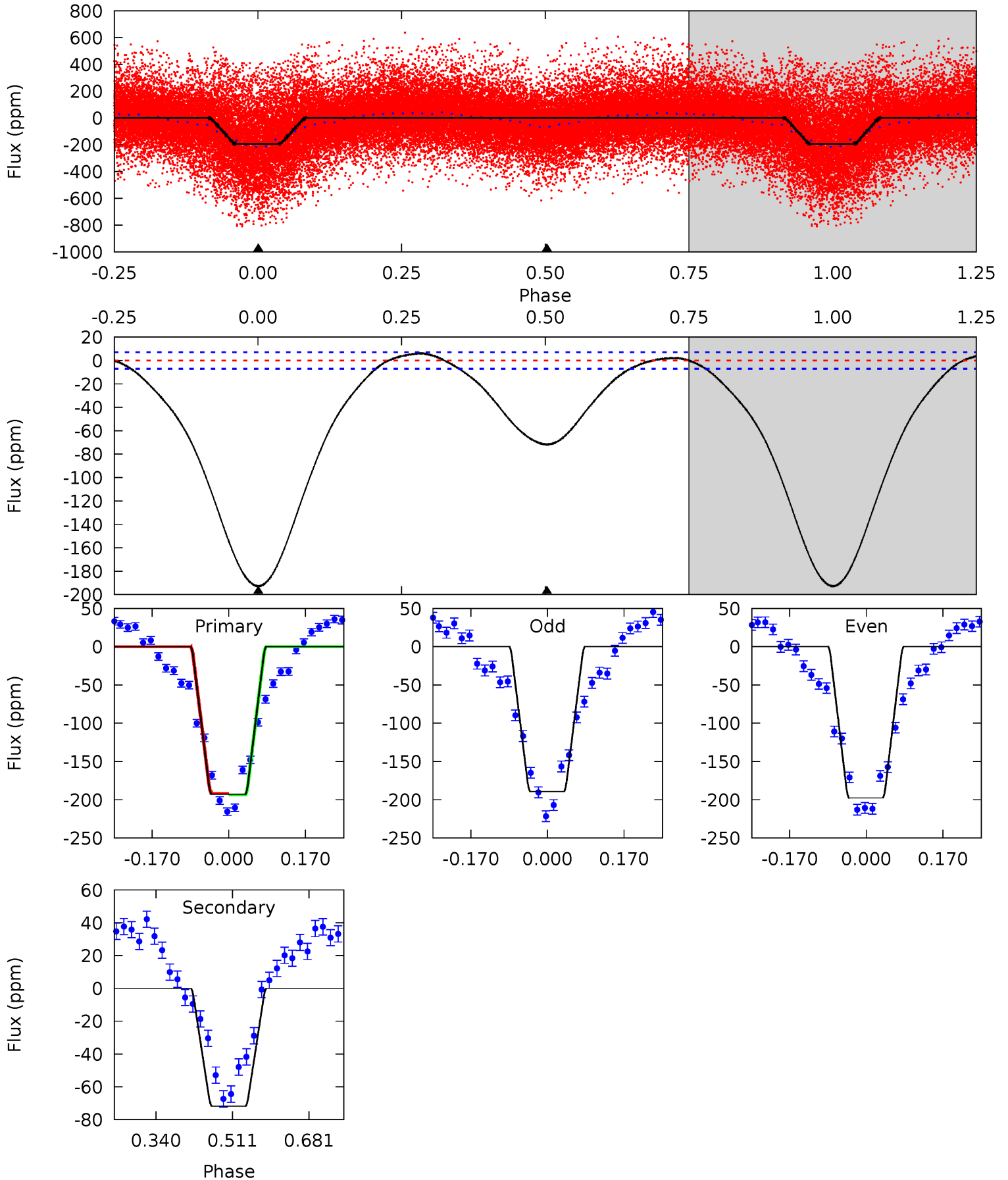
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.6	-0.73	0	0	4.31	0.98	0.78	19.6	19.6	-0.73	-0.73	0.86	1.04	0.08	12.2



# Alt Model-Shift Uniqueness Test

005201593-01, P = 0.507280 Days, E = 131.262651 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
121.1	45.0	0	0	4.45	1.37	5.74	121.1	121.1	45.0	45.0	2.65	1.01	0.03	0.63





### Stellar Parameters For KIC 005201593

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5970^{+77}_{-83}$	$4.399^{+0.030}_{-0.090}$	$0.460^{+0.050}_{-0.150}$	$1.143^{+0.135}_{-0.052}$	$1.195^{+0.043}_{-0.057}$	$1.128^{+0.130}_{-0.296}$
	+1%/-1%	+1%/-2%	+11%/-33%	+12%/-5%	+4%/-5%	+11%/-26%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005201593-01 / KOI 7721.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$1\pm 1$	$0.62^{+0.35}_{-0.32}$	$3444^{+106}_{-69}$	$-3684^{+422}_{-807}$	$-0.227^{+0.275}_{-1.064}$
Alt.	$-72\pm 2$	$1.91^{+0.35}_{-0.37}$	$3446^{+102}_{-75}$	$4481^{+450}_{-327}$	$1.887^{+0.967}_{-0.531}$

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

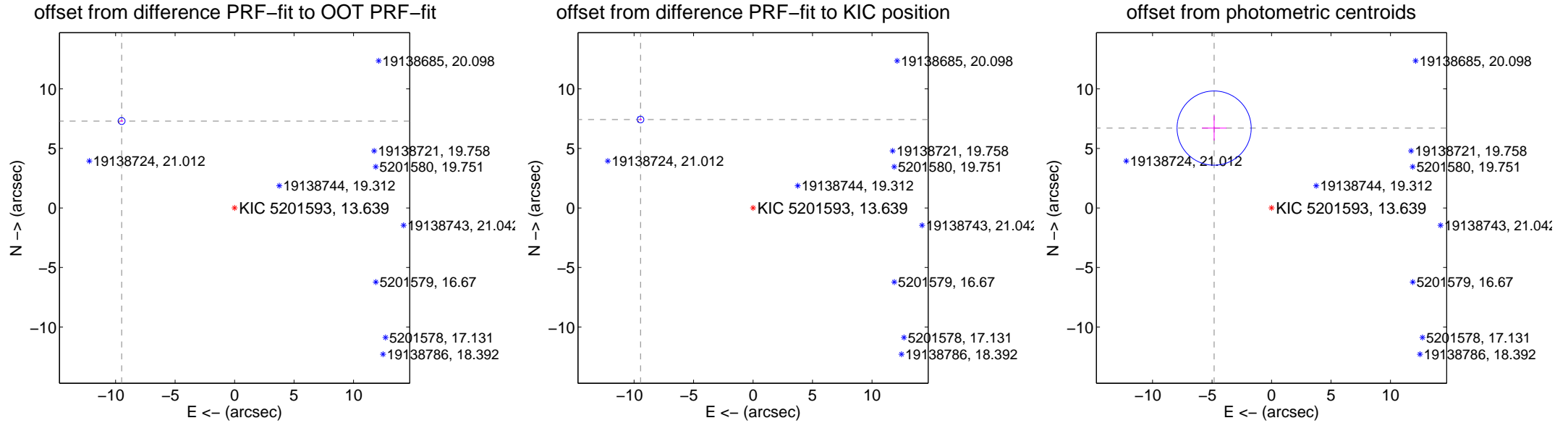
## DV Centroid Data

Supplemental centroid analysis for 005201593-01. Kepler magnitude: 13.64. Transit SNR 9.31

There are 0 quarters with good PRF difference image offsets

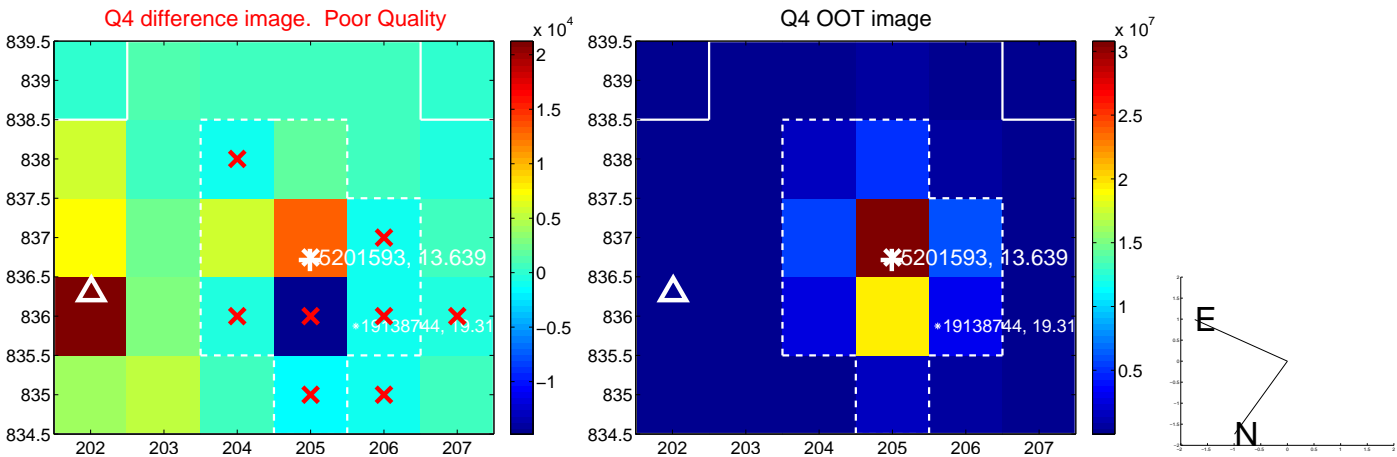
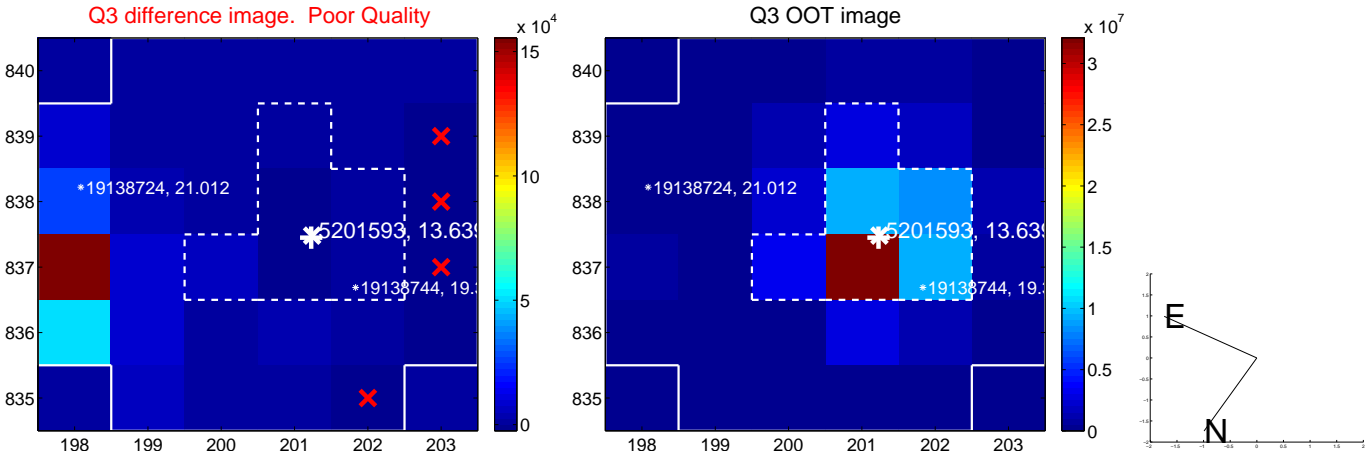
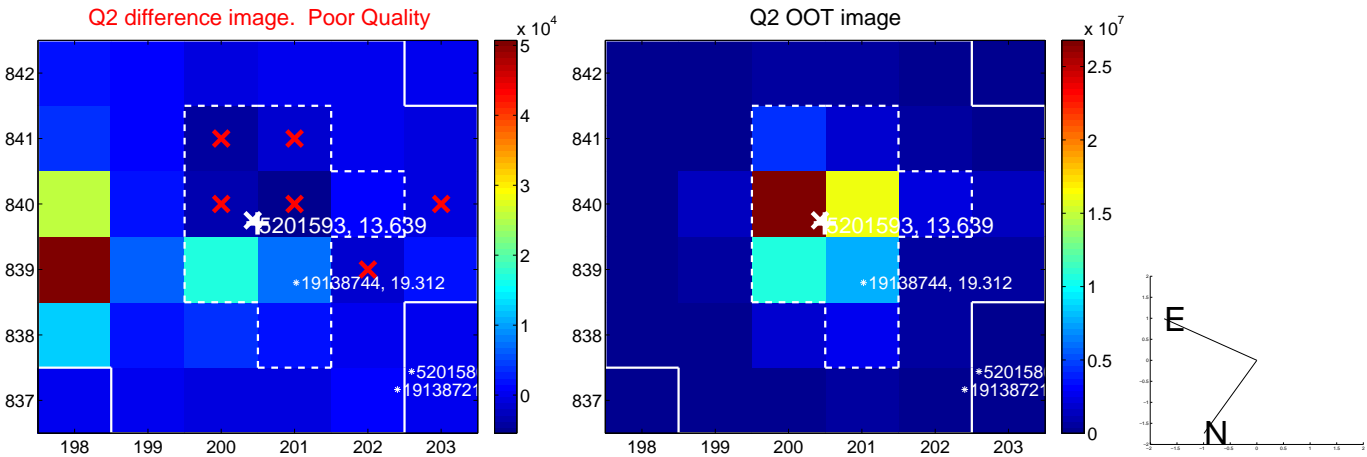
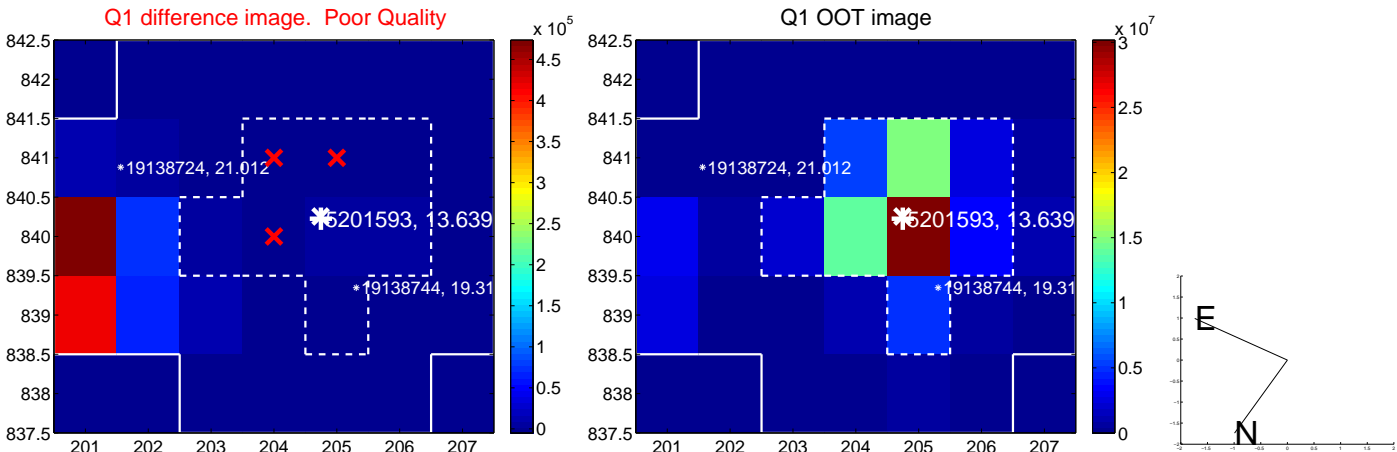
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$11.977 \pm 0.097$	123.69	$9.495 \pm 0.108$	$7.300 \pm 0.075$
PRF-fit source offset from KIC position	$12.023 \pm 0.094$	128.51	$9.458 \pm 0.097$	$7.424 \pm 0.088$
photometric centroid source offset	$8.26 \pm 1.04$	7.95	$4.83 \pm 1.03$	$6.71 \pm 1.04$

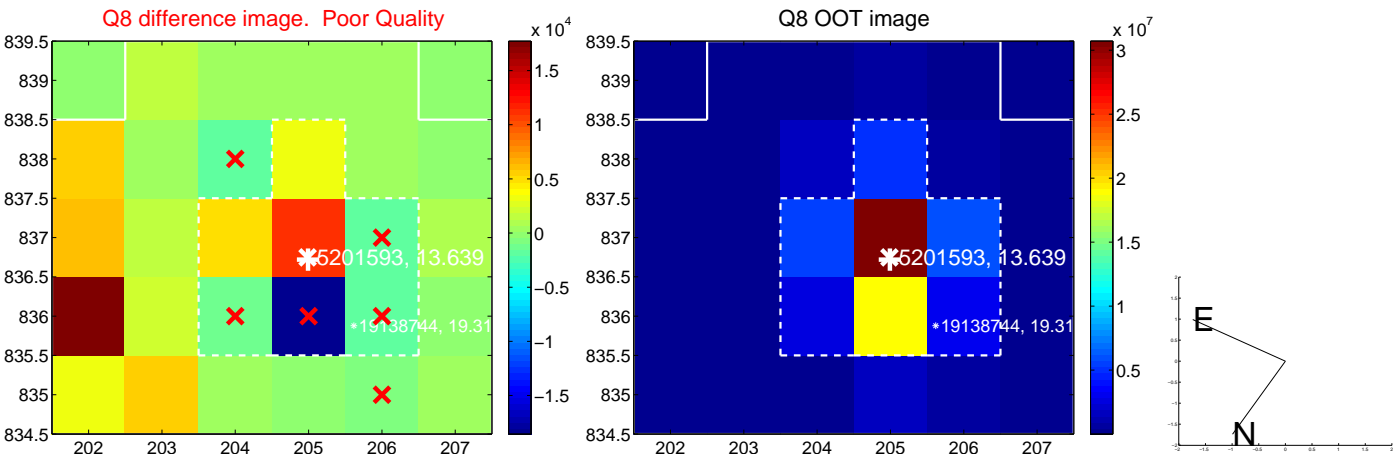
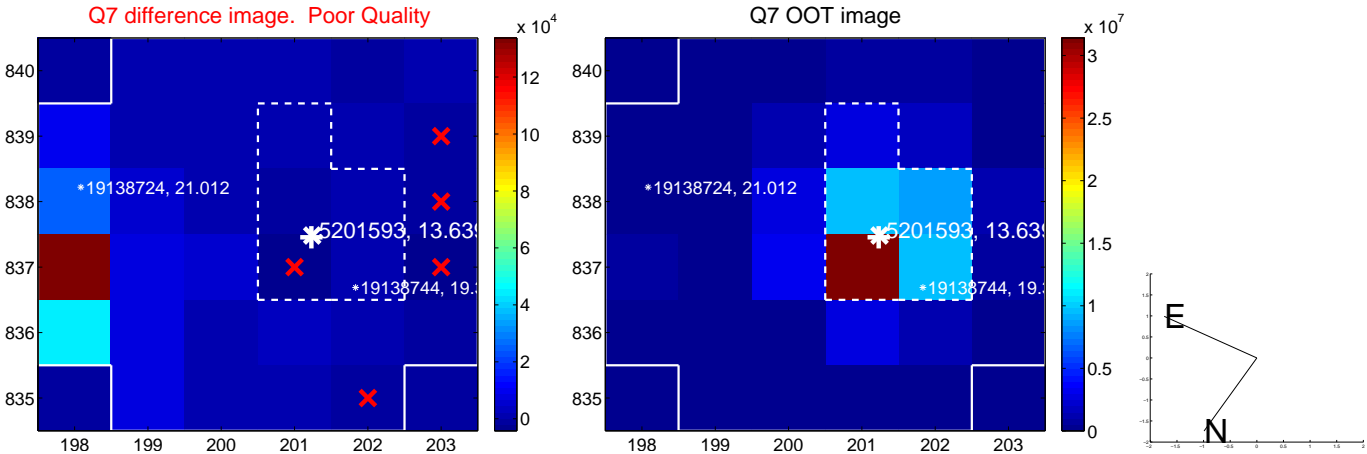
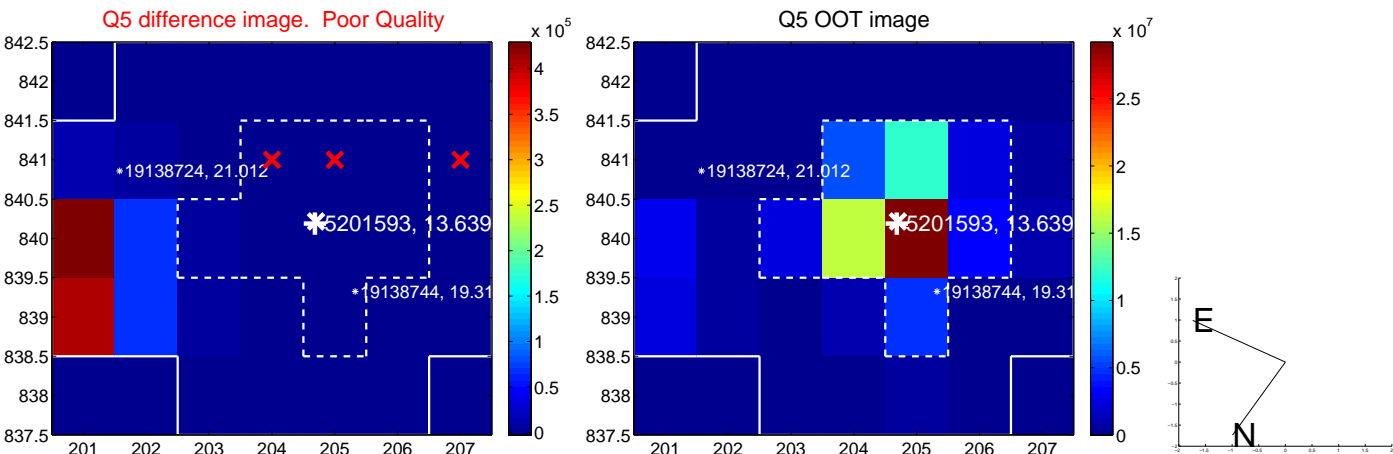


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

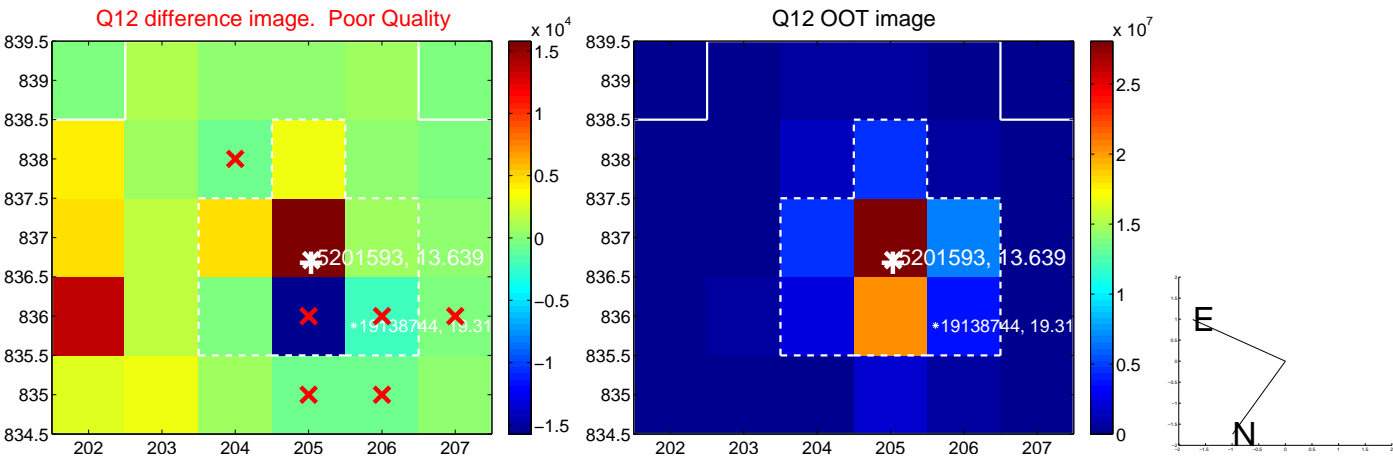
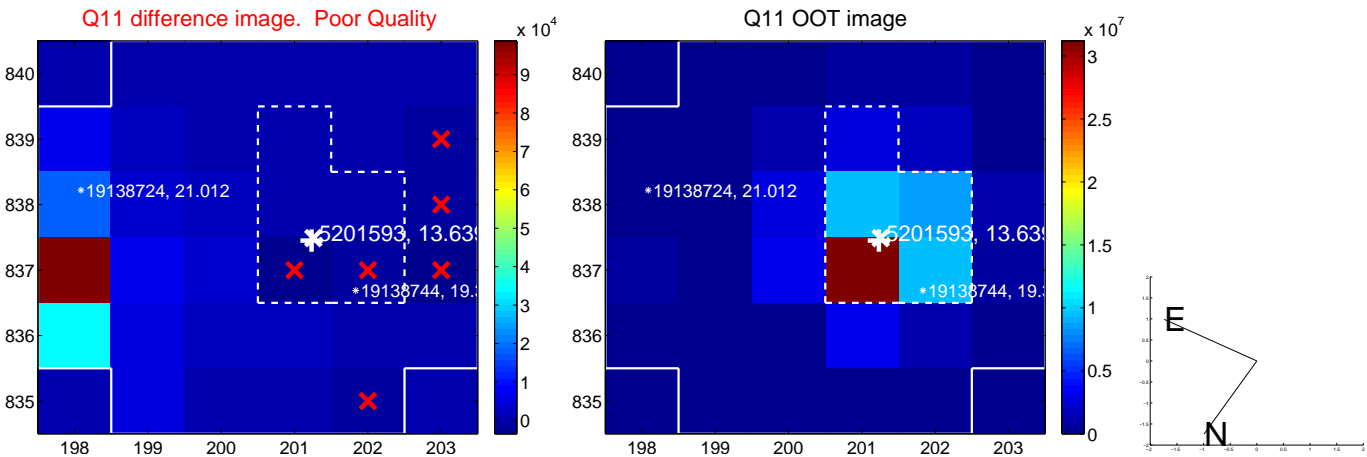
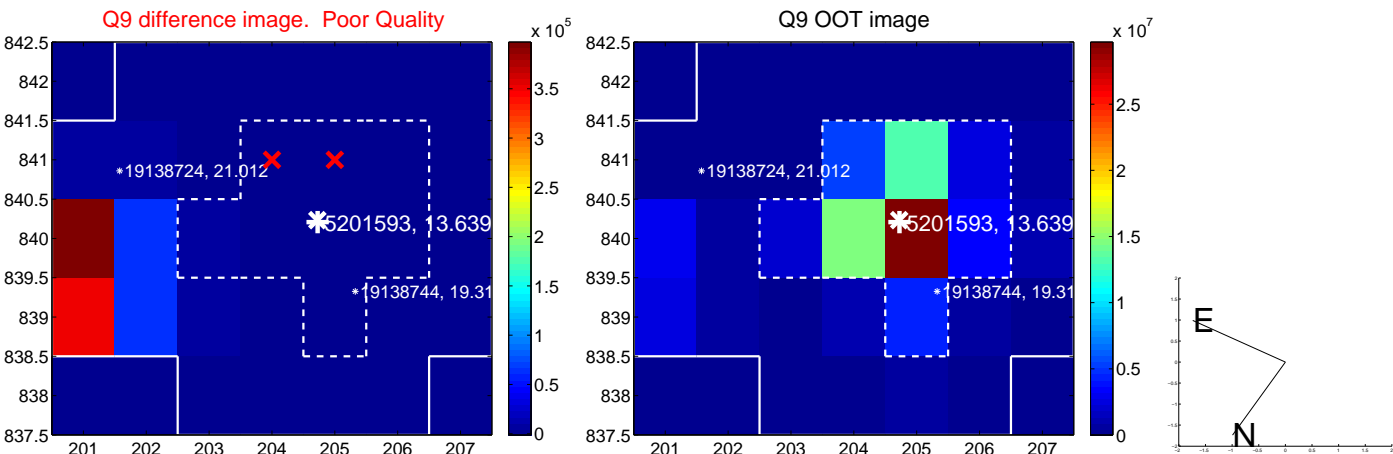


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

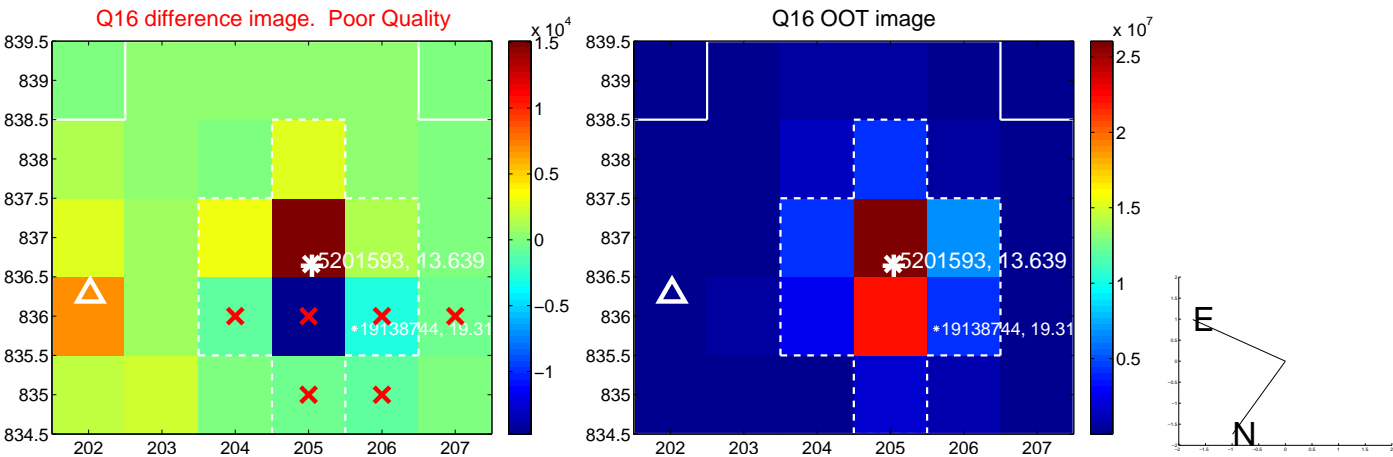
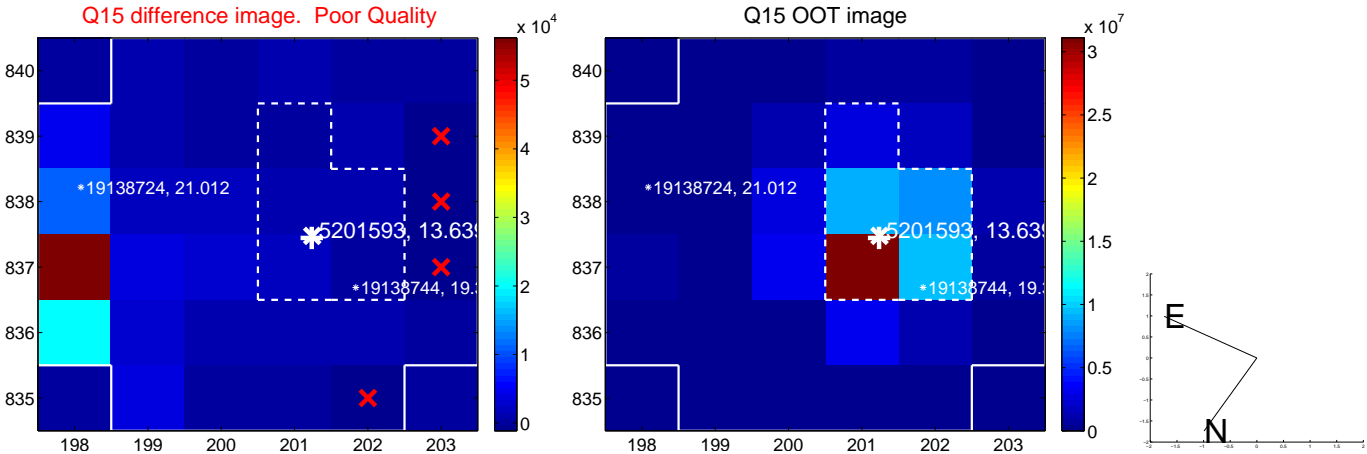
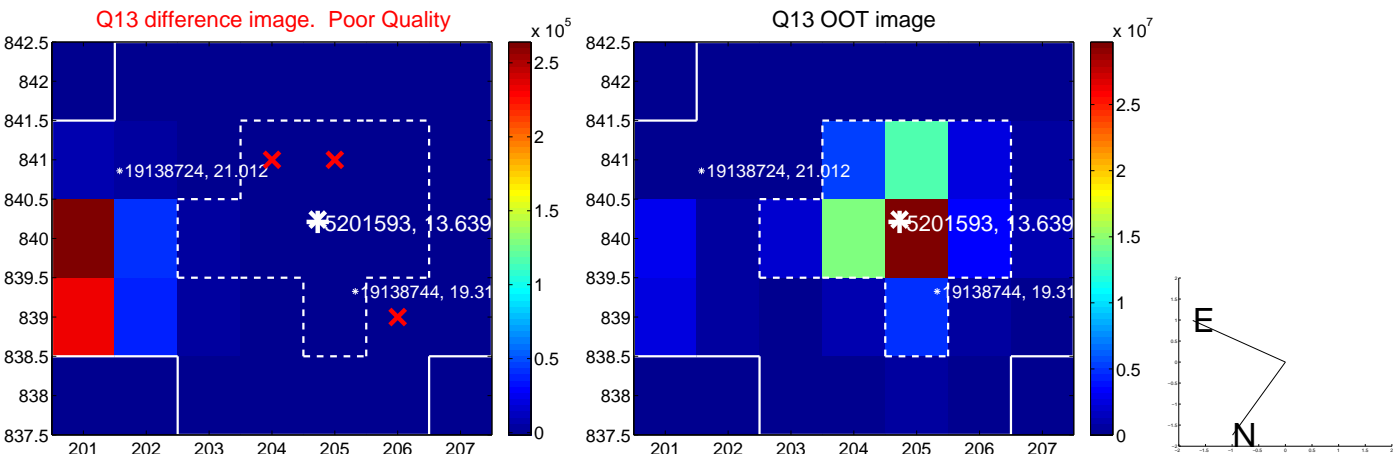




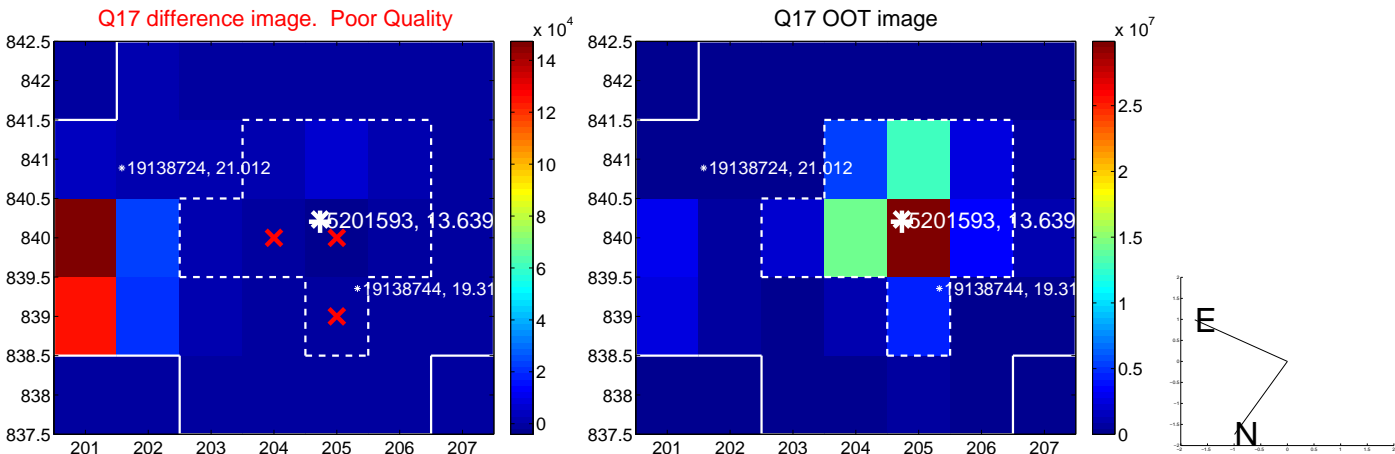
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



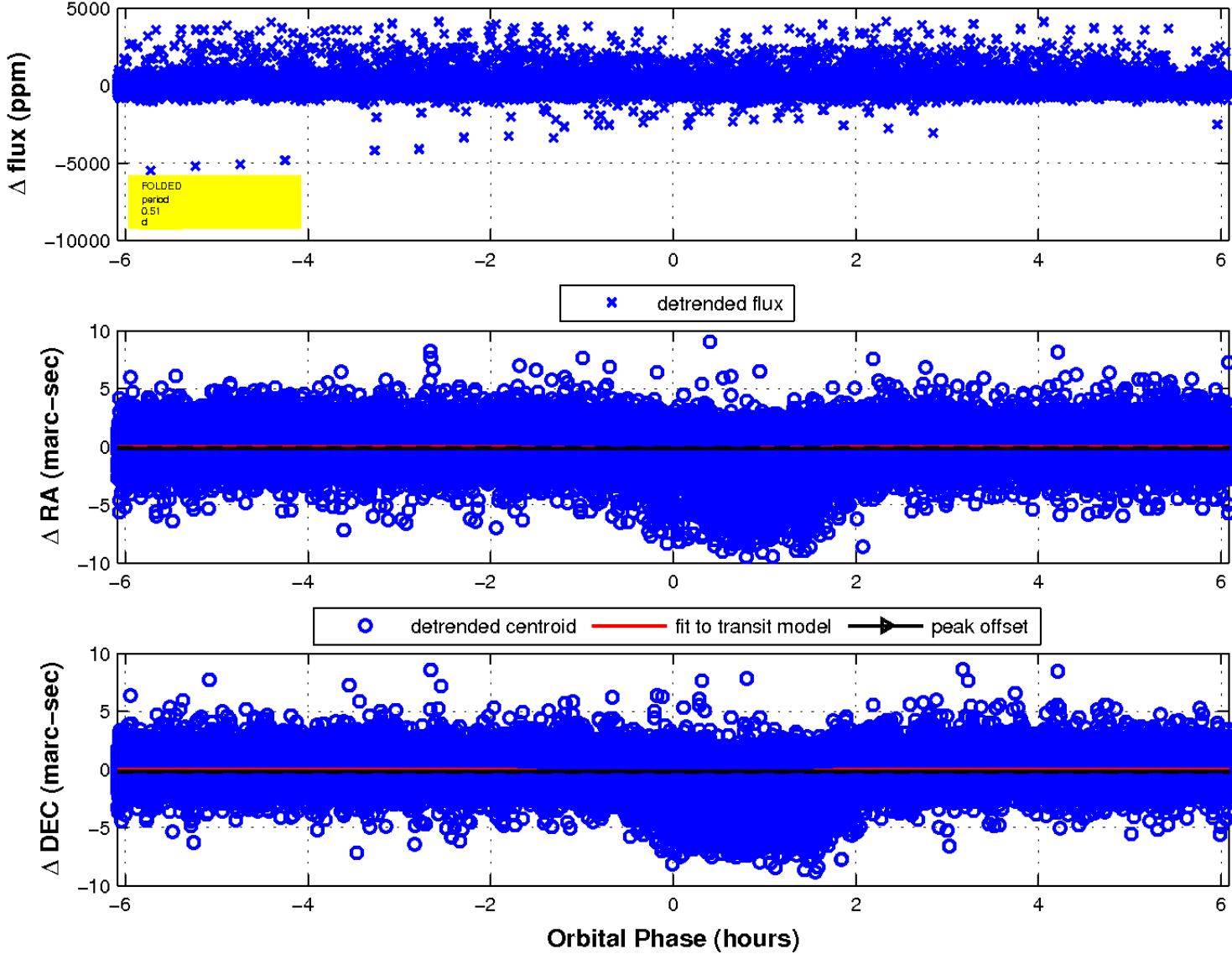
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

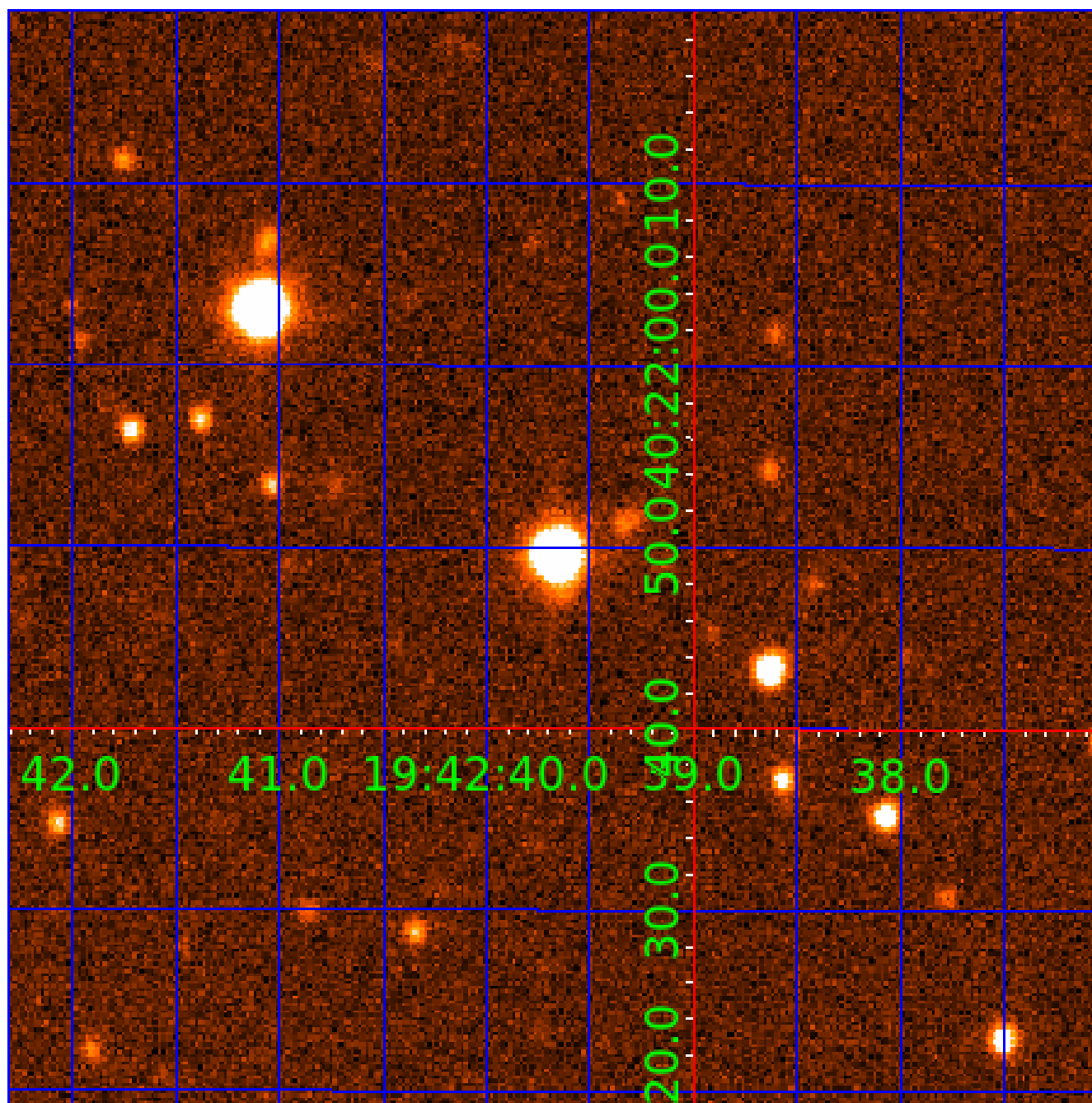


fluxWeightedCentroids, Planet 1 of 5



UKIRT Image

Declination





# KIC 005201593

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005201593-01	OBS	7721.01	0.507255	131.772261	25.4	3.515	17.2	9.3	1.14	5970	0.60	8521.59
005201593-02	OBS	No	5.075689	136.089120	857.1	2.500	15.6	-1.0	1.14	5970	3.31	395.21
005201593-03	OBS	No	10.151530	141.658647	3721.7	0.896	14.3	10.2	1.14	5970	11.32	156.84
005201593-04	OBS	No	5.075700	135.575729	2499.8	0.578	14.1	6.8	1.14	5970	9.65	395.21
005201593-05	OBS	No	5.572889	134.576249	1761.1	1.780	10.8	5.8	1.14	5970	7.71	348.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005201593-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005201593-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_POS_ALT—CENT_NOFITS
005201593-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET
005201593-04	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET—HALO_GHOST
005201593-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET

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

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

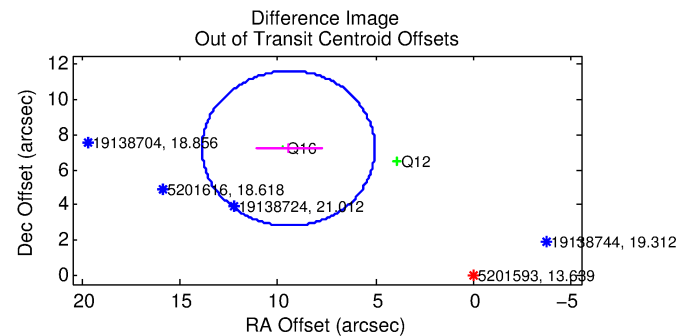
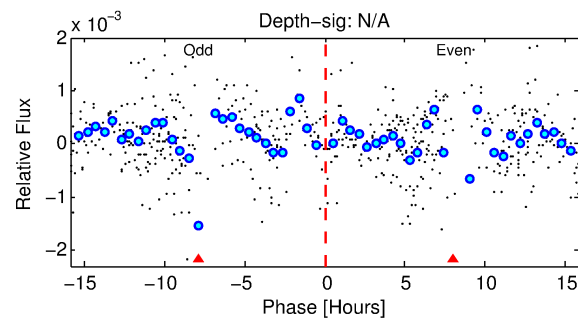
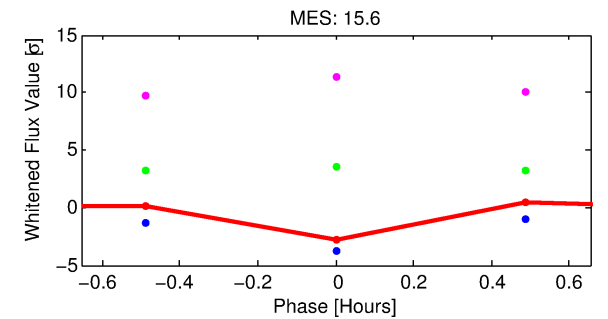
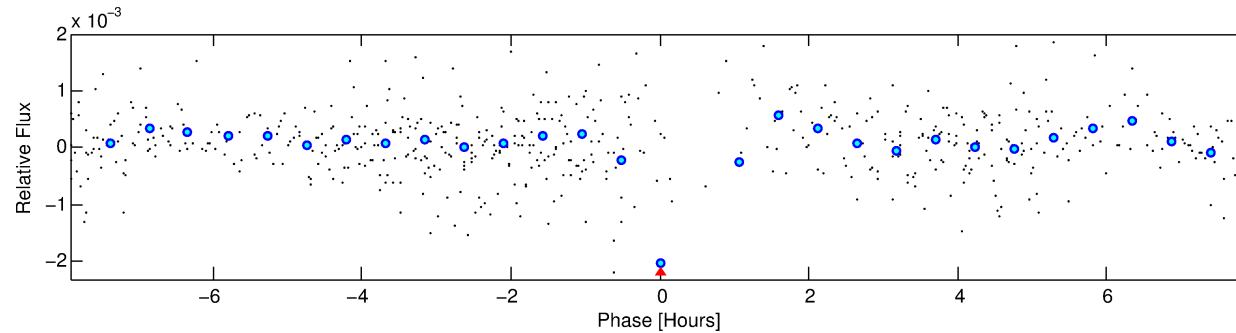
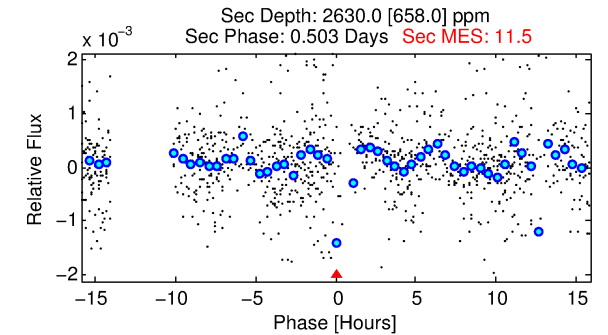
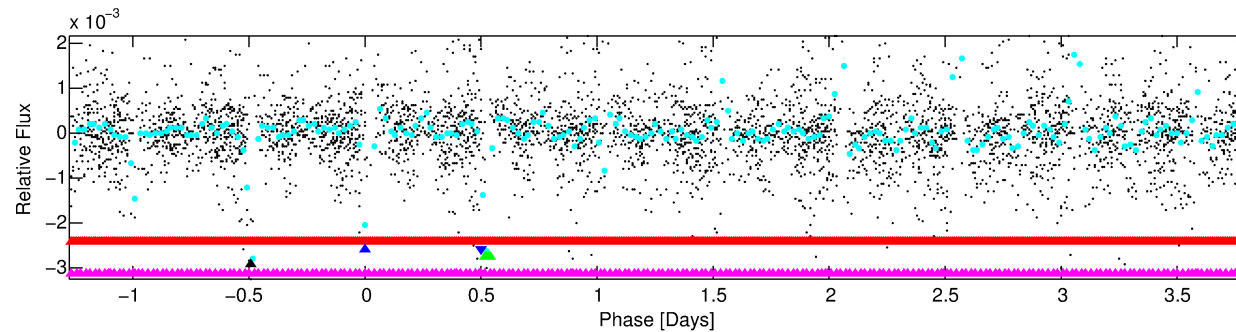
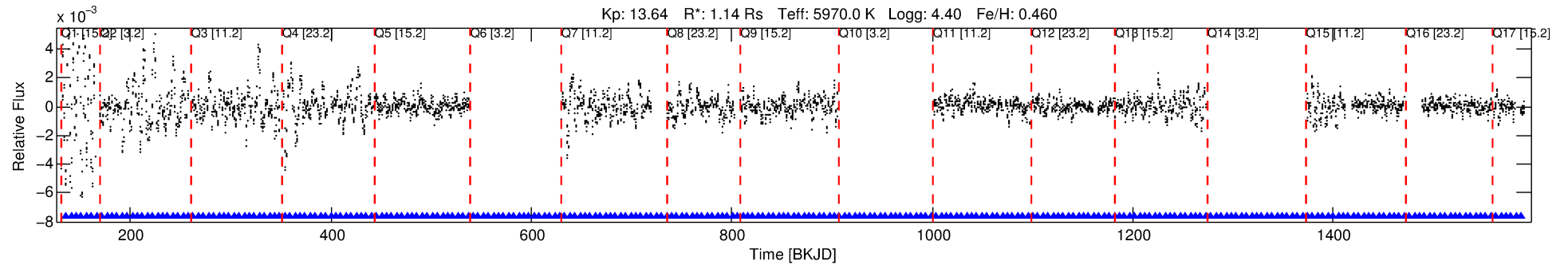
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005201593-02

No Significant Match Found

# DV One-Page Summary

KIC: 5201593 Candidate: 2 of 5 Period: 5.076 d



## TPS TCE Results:

Period = 5.07569 d  
Epoch = 136.0891 BKJD

DV fit results are unavailable

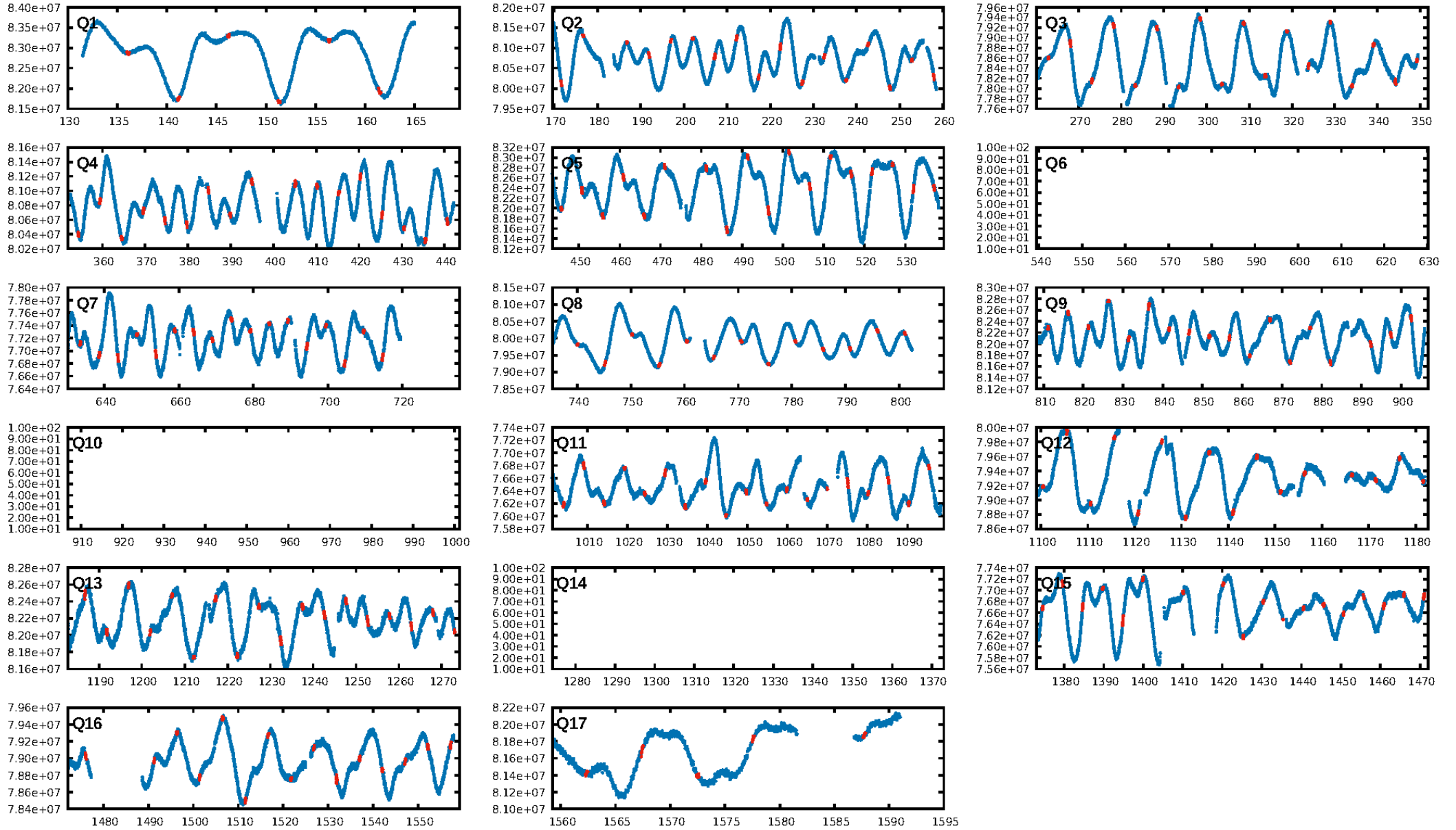
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [25.42σ]  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [54/54]  
GhostDiagnostic-chr: -1.013  
Centroid-sig: 82.1%  
Centroid-so: 0.124 arcsec [0.42σ]  
OotOffset-rm: 11.889 arcsec [8.09σ]  
KicOffset-rm: 11.864 arcsec [4.94σ]  
OotOffset-st: 0/0/2/0 [2]  
KicOffset-st: 0/0/2/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.00 [0/14]

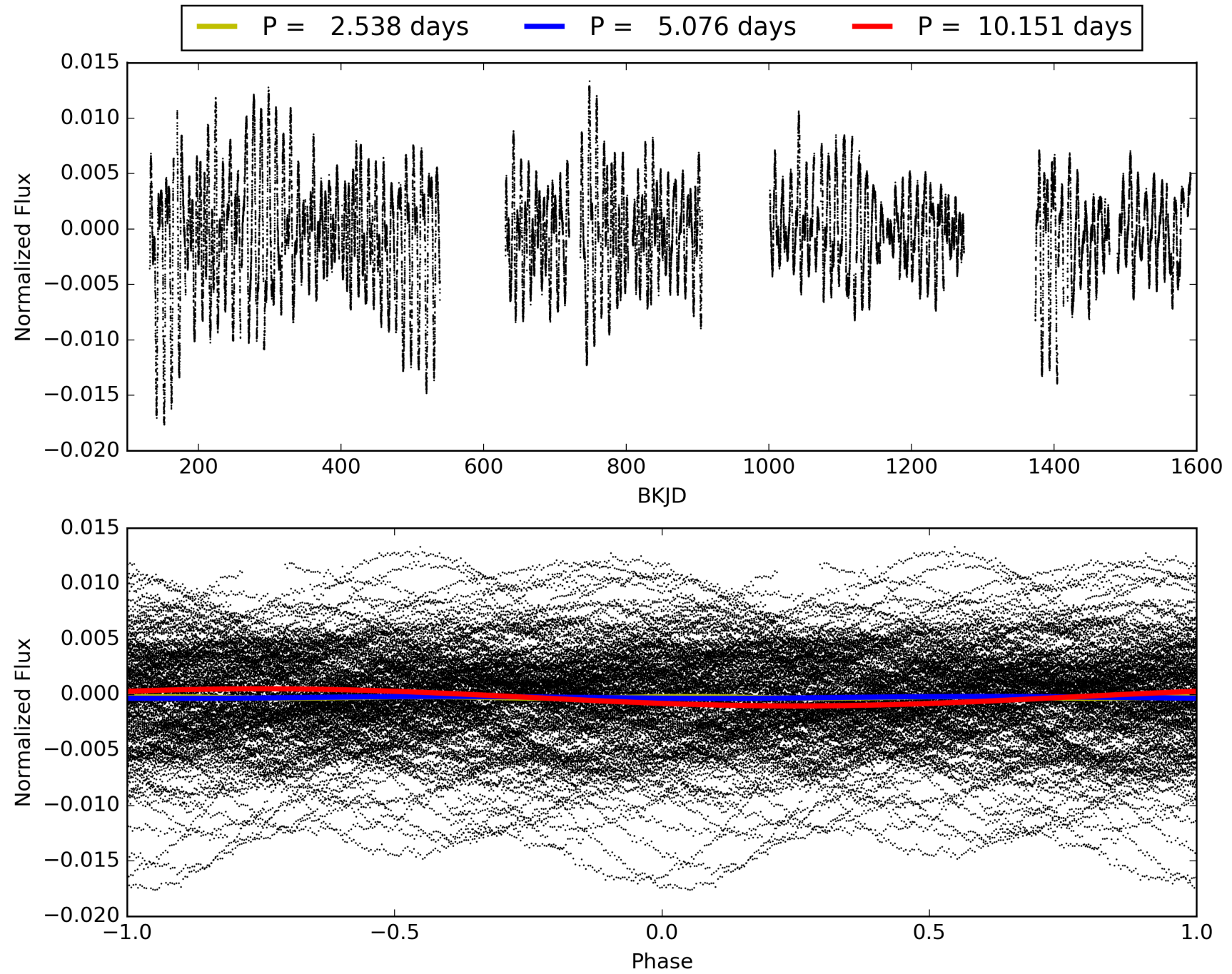
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:50:44 Z

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

# TCE 005201593-02, PDC Light Curves

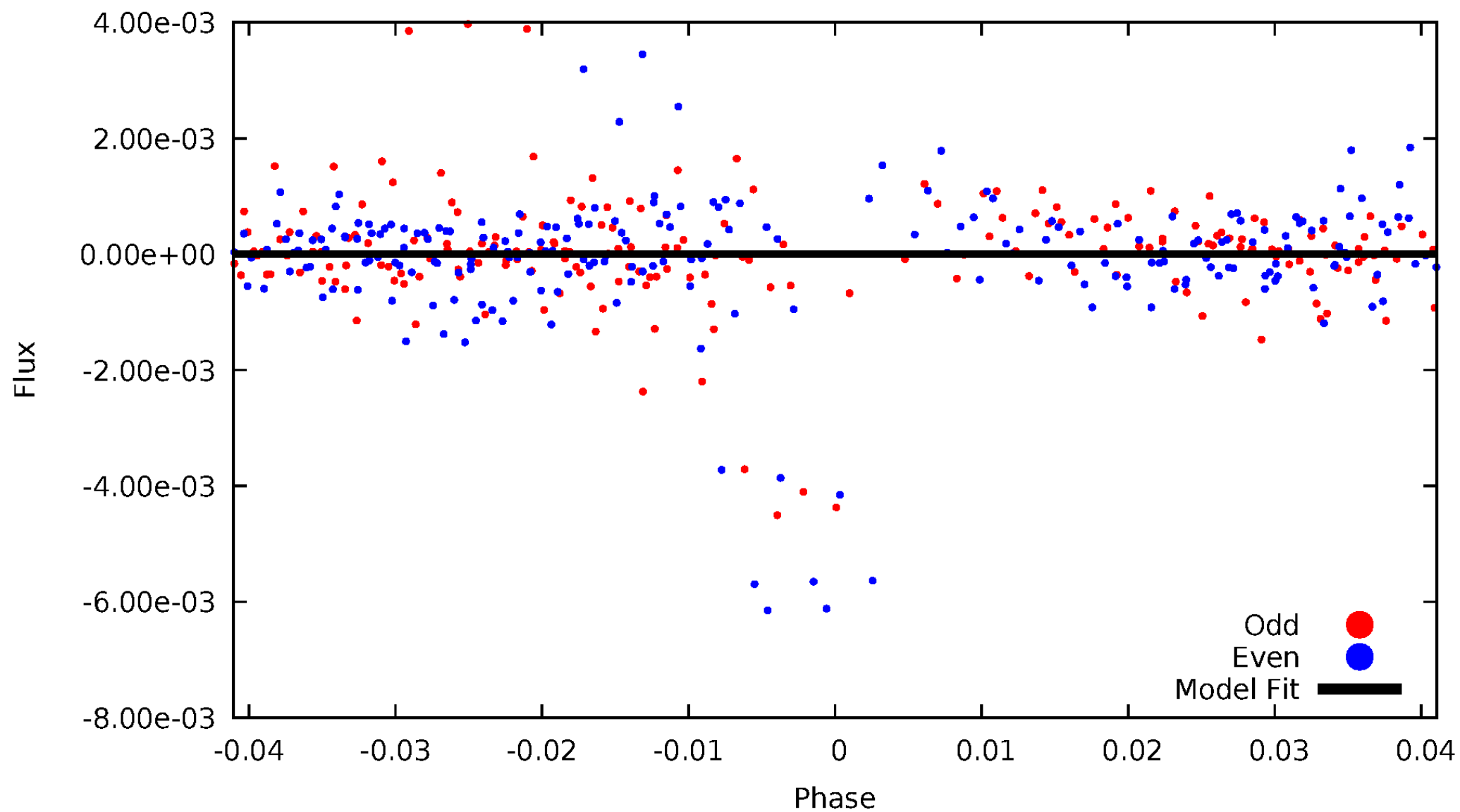


TCE 005201593-02



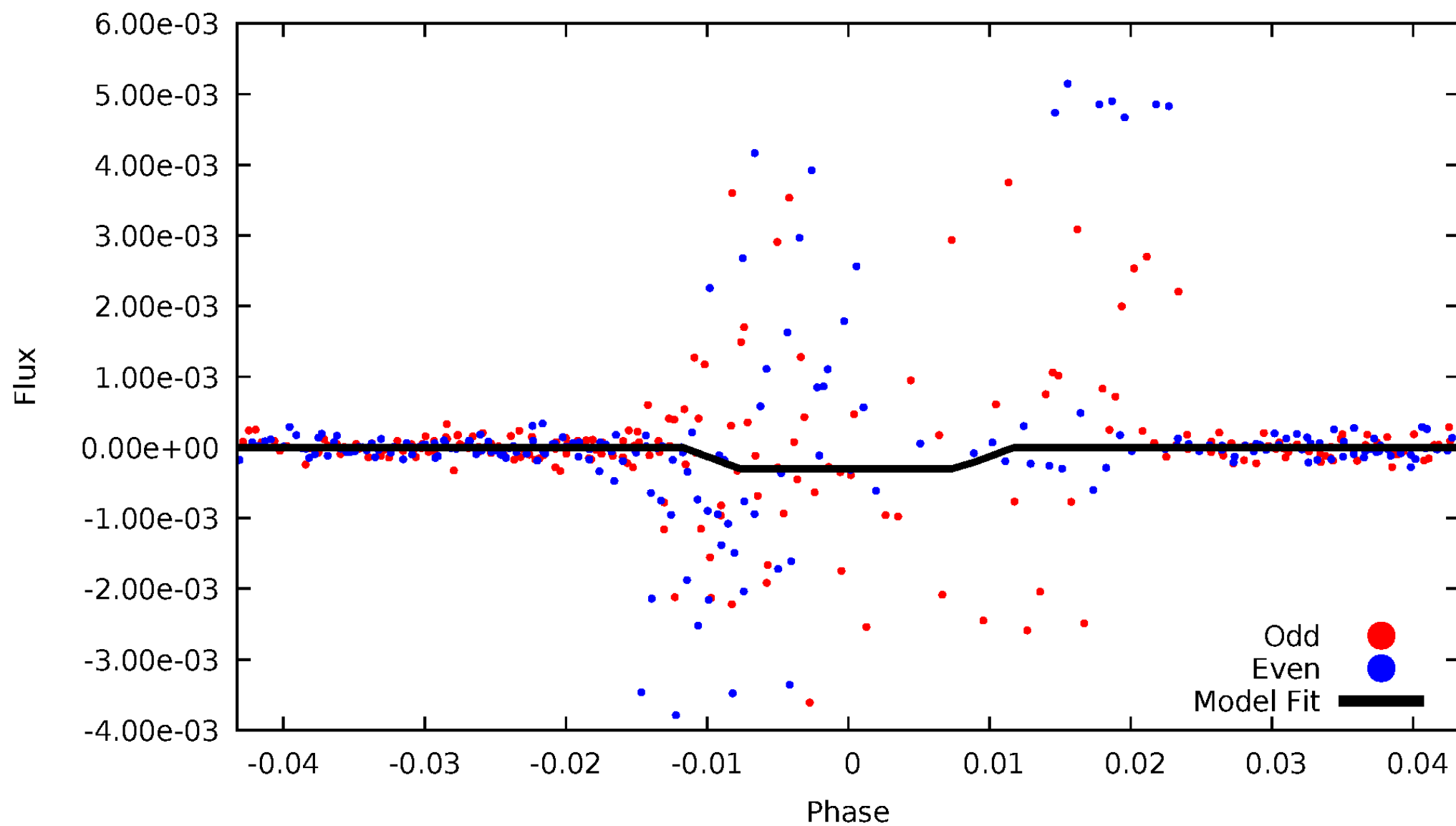
# DV Odd/Even

TCE 005201593-02



# ALT Odd/Even

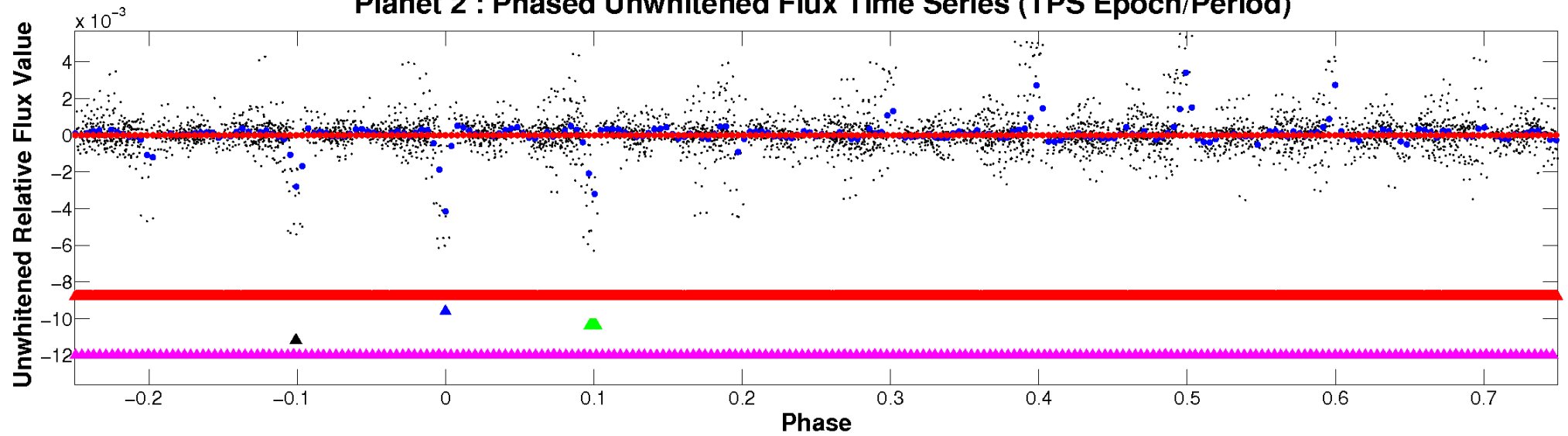
TCE 005201593-02



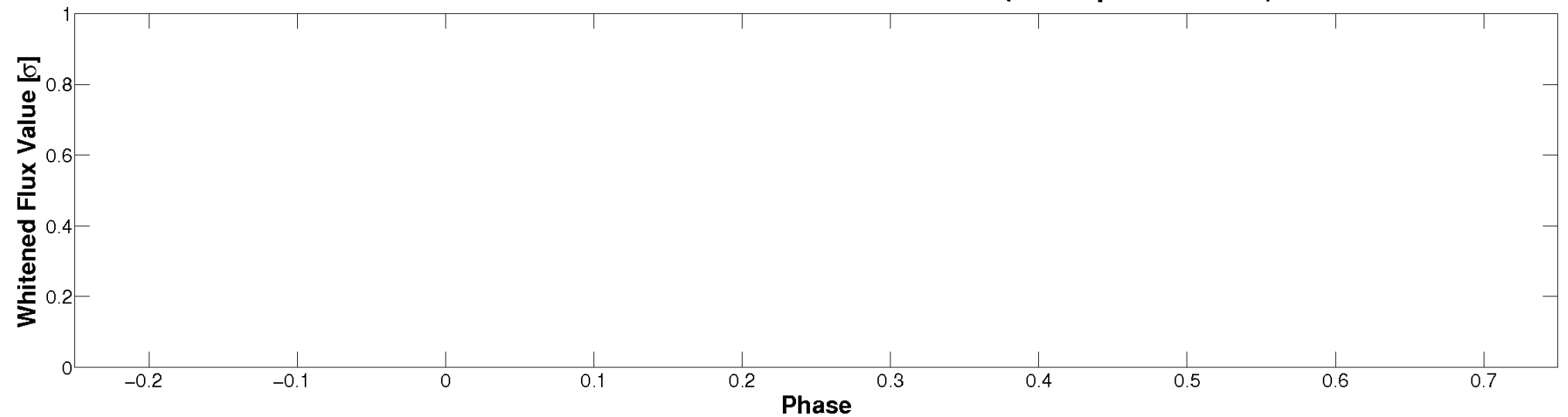


# Non-Whitened Vs. Whitened Light Curve

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

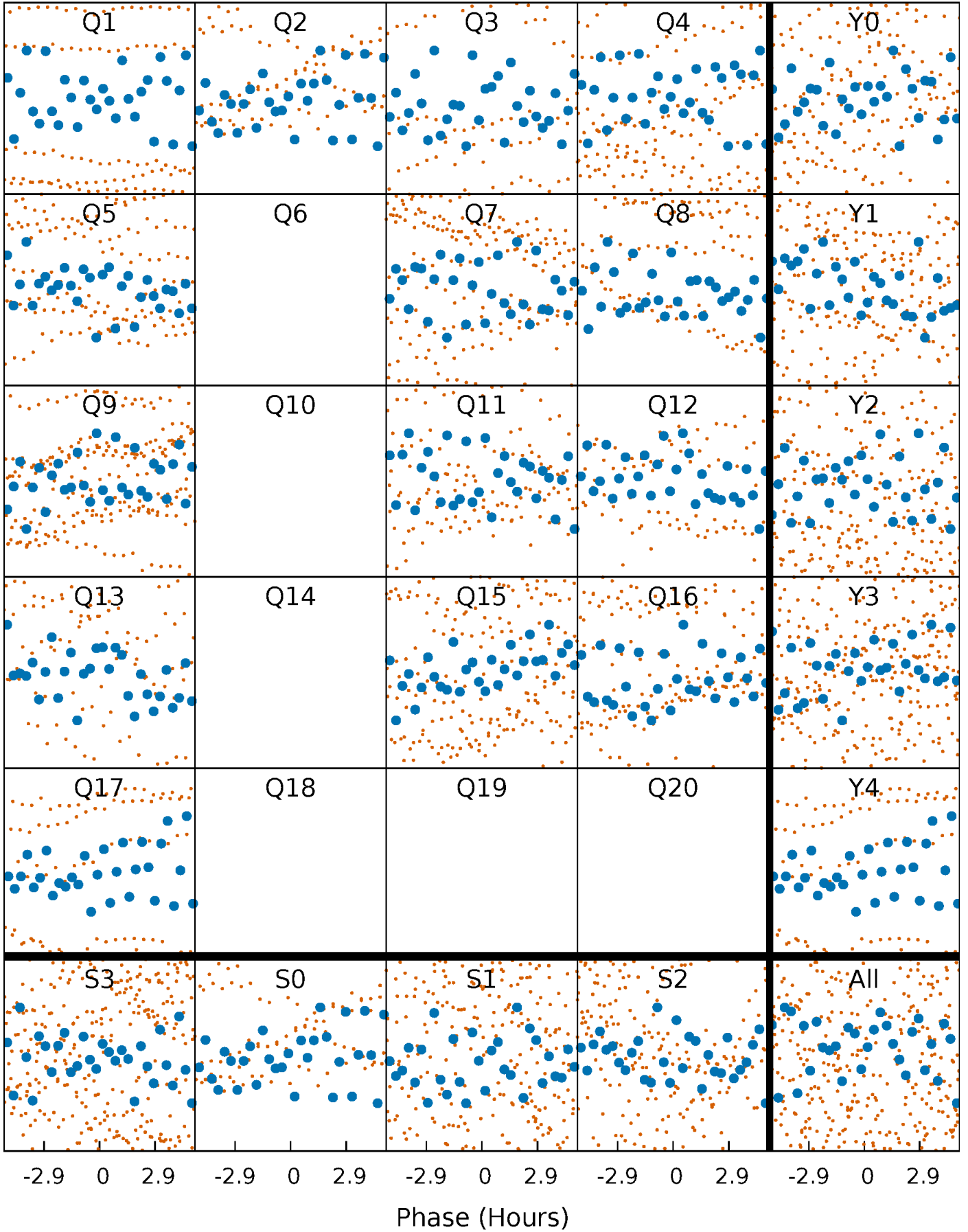


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



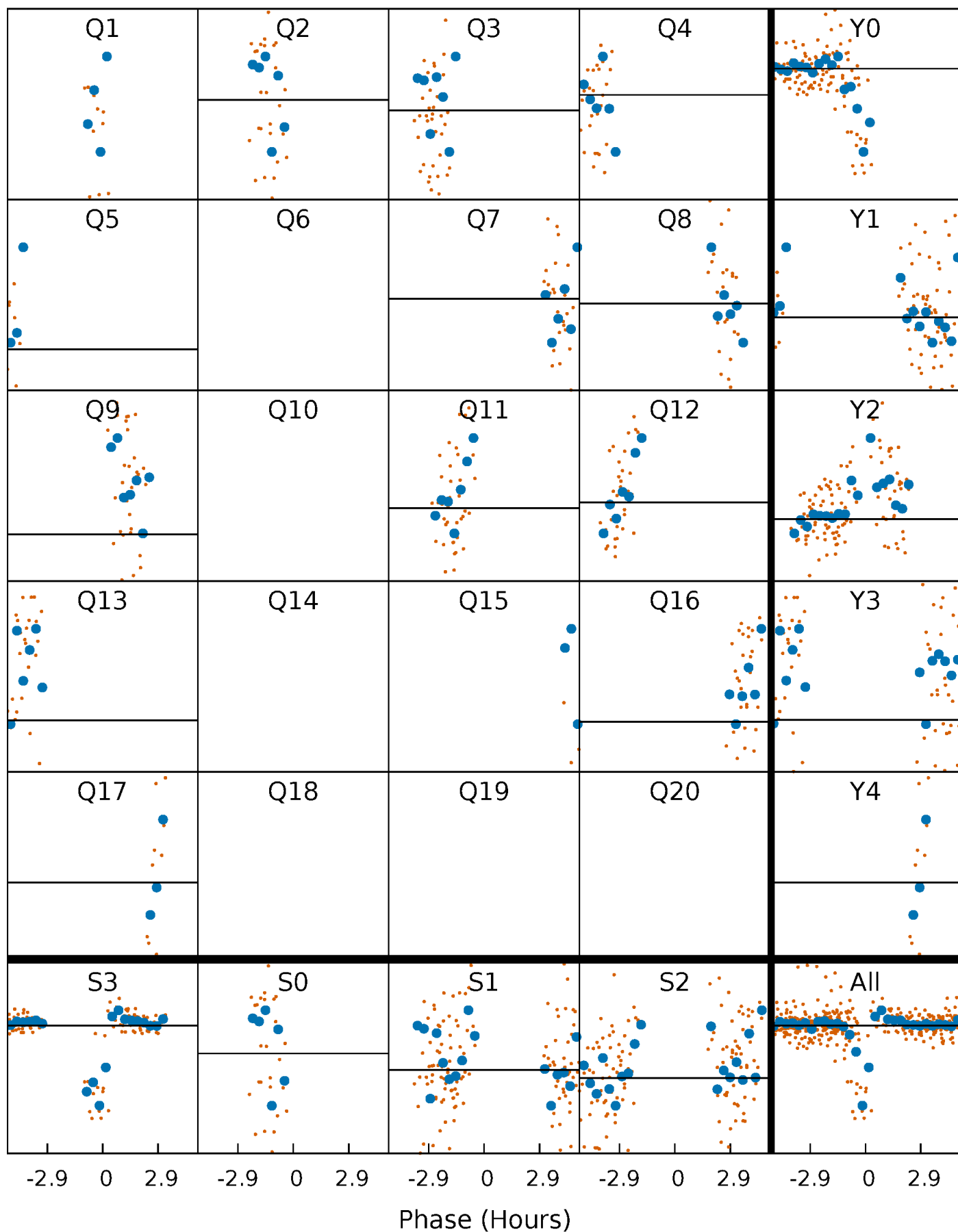
# PDC Quarter-Phased Transit Curves

TCE 005201593-02   P= 5.075689 Days    $T_0=136.089120$  (BKJD)



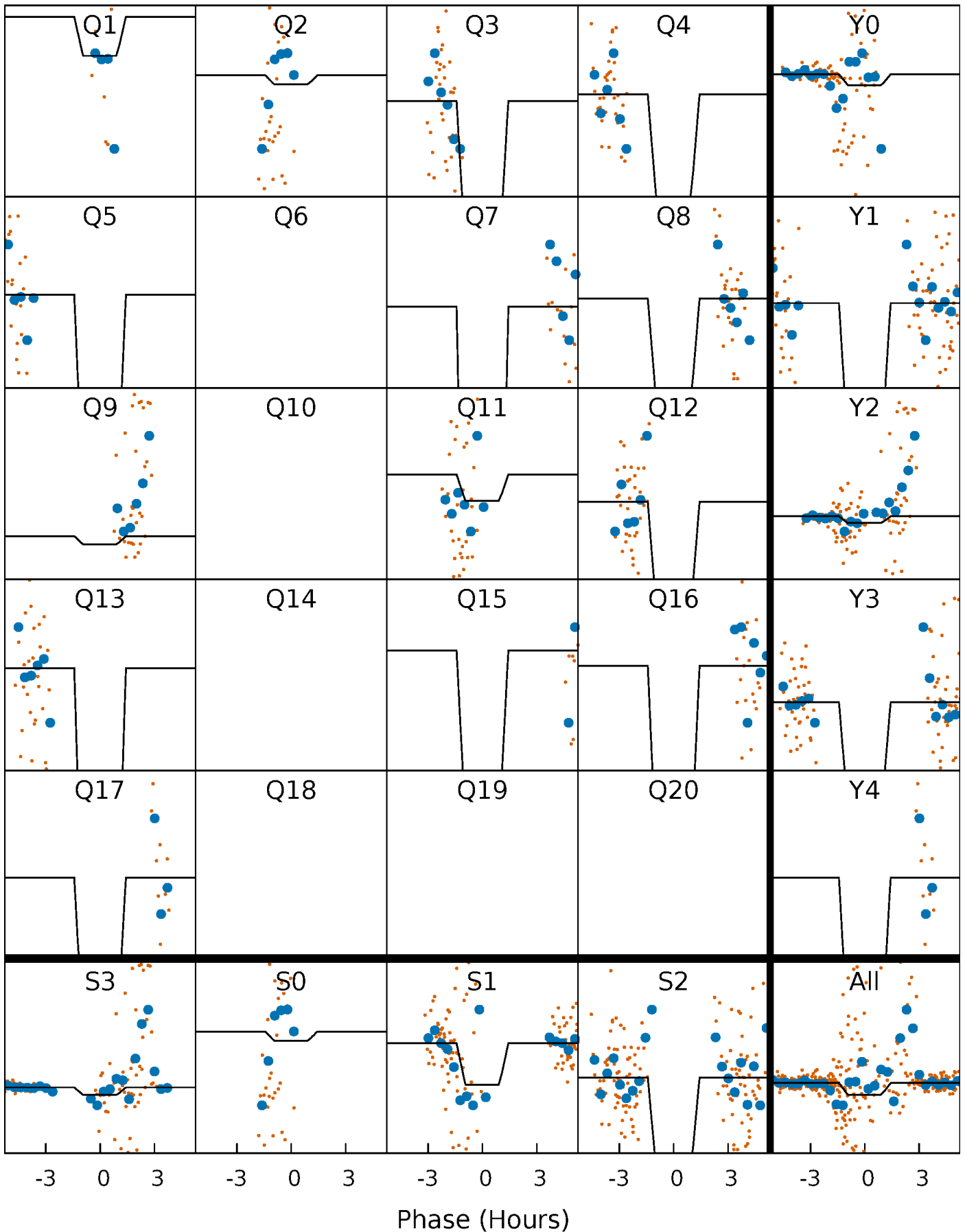
# DV Quarter-Phased Transit Curves

TCE 005201593-02   P= 5.075689 Days    $T_0=136.089120$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

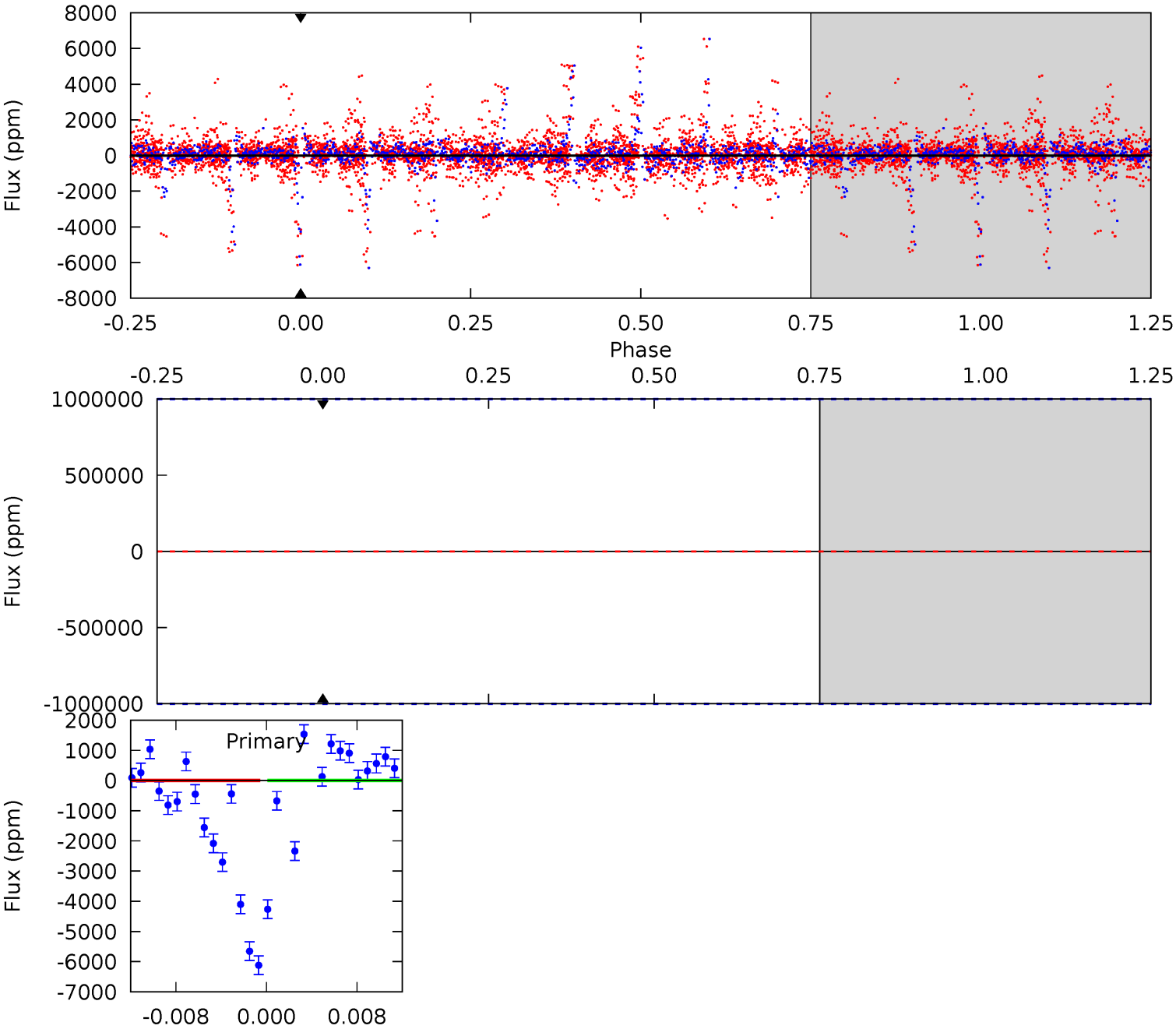
TCE 005201593-02 P= 5.075689 Days  $T_0=136.068252$  (BKJD)



DV Model-Shift Uniqueness Test

005201593-02, P = 5.075689 Days, E = 131.013431 Days

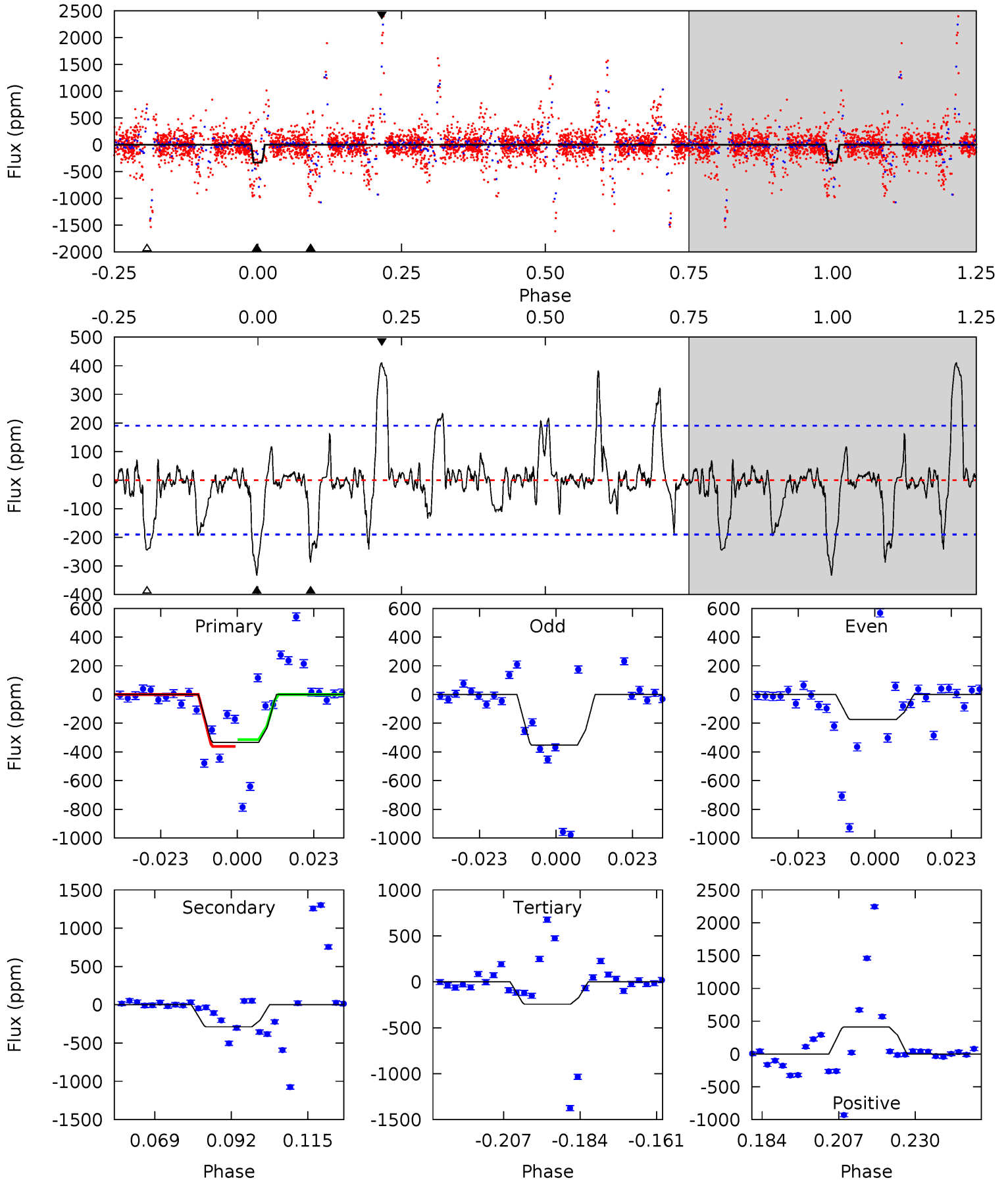
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

005201593-02, P = 5.075689 Days, E = 130.992563 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.53	7.37	6.25	10.5	4.86	2.27	1.85	2.29	-1.95	1.12	-3.11	2.14	0.22	0.55	0



### Stellar Parameters For KIC 005201593

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5970^{+77}_{-83}$	$4.399^{+0.030}_{-0.090}$	$0.460^{+0.050}_{-0.150}$	$1.143^{+0.135}_{-0.052}$	$1.195^{+0.043}_{-0.057}$	$1.128^{+0.130}_{-0.296}$
	+1%/-1%	+1%/-2%	+11%/-33%	+12%/-5%	+4%/-5%	+11%/-26%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005201593-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$9.81^{+9.77}_{-6.38}$	$1596^{+53}_{-32}$	$3853^{+16967}_{-22611}$	$11^{+3659}_{-2889}$
Alt.	$-288 \pm 39$	$9.94^{+9.30}_{-7.28}$	$1597^{+53}_{-32}$	$3284^{+2073}_{-602}$	$5.853^{+77.384}_{-4.318}$

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



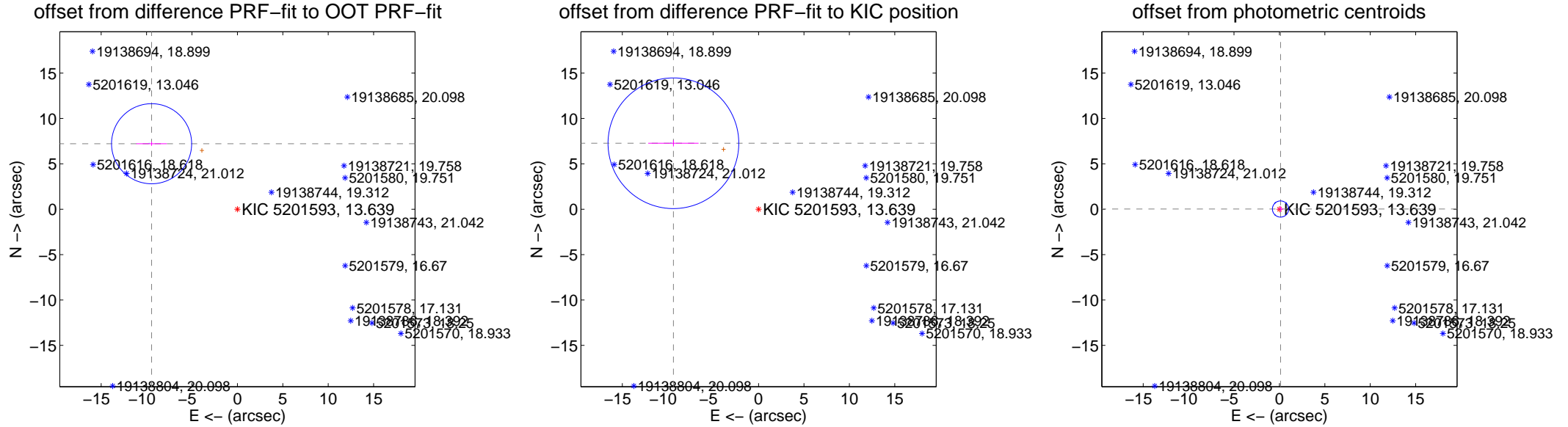
## DV Centroid Data

Supplemental centroid analysis for 005201593-02. Kepler magnitude: 13.64. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

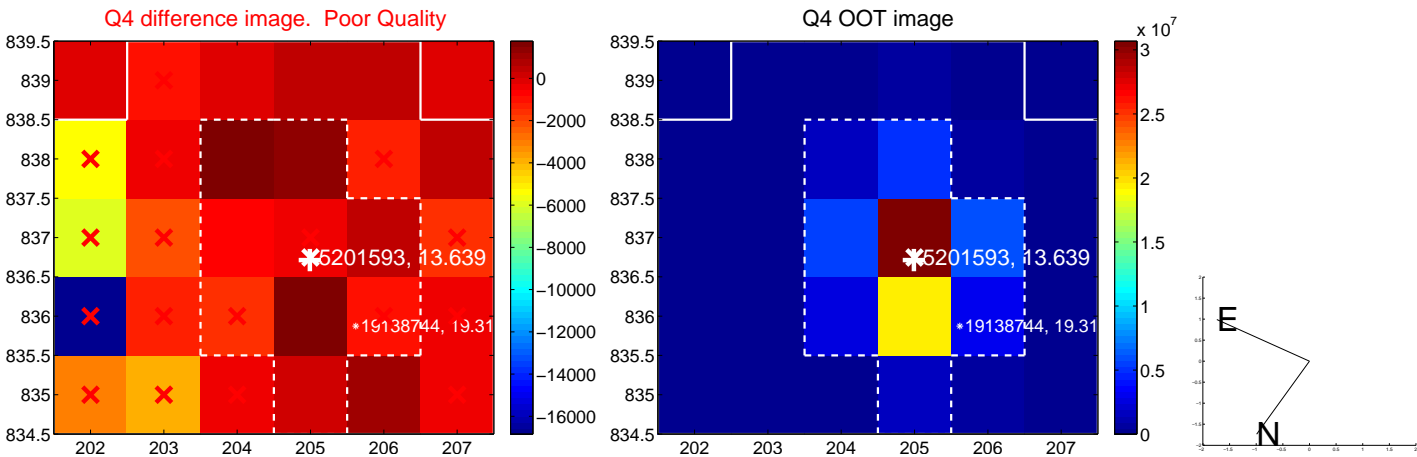
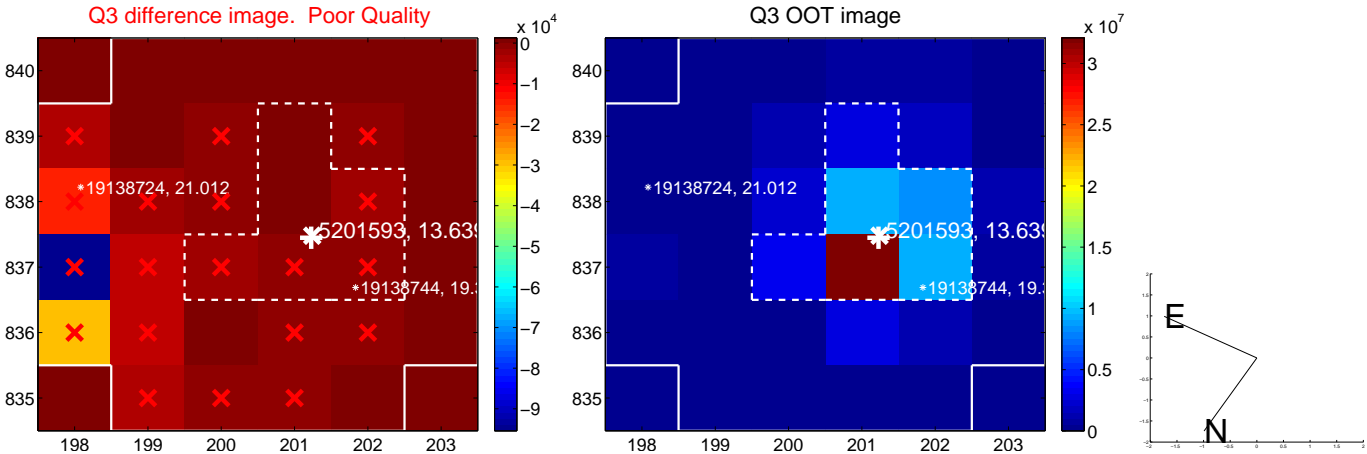
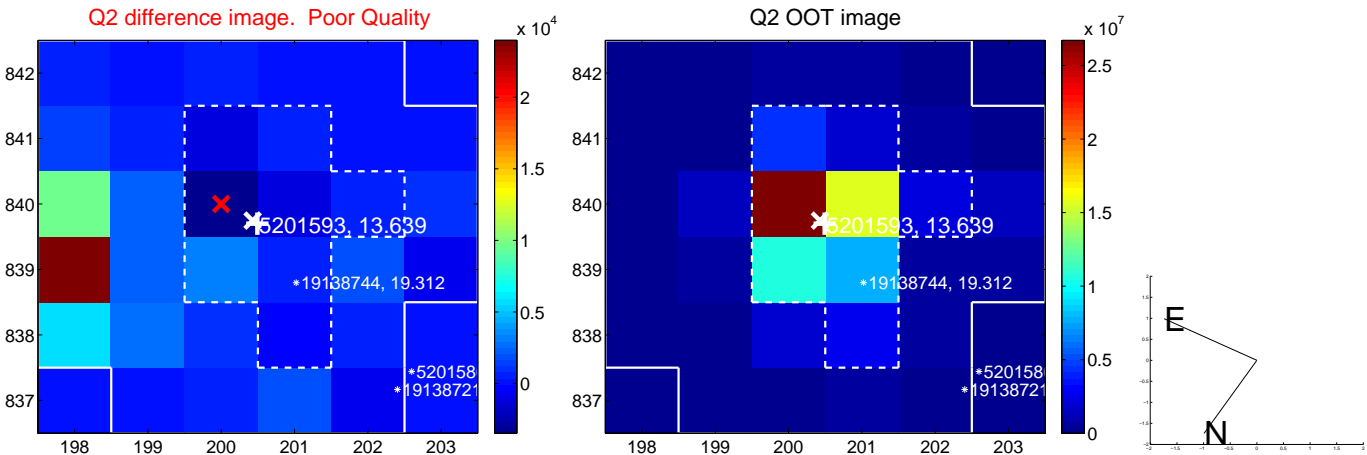
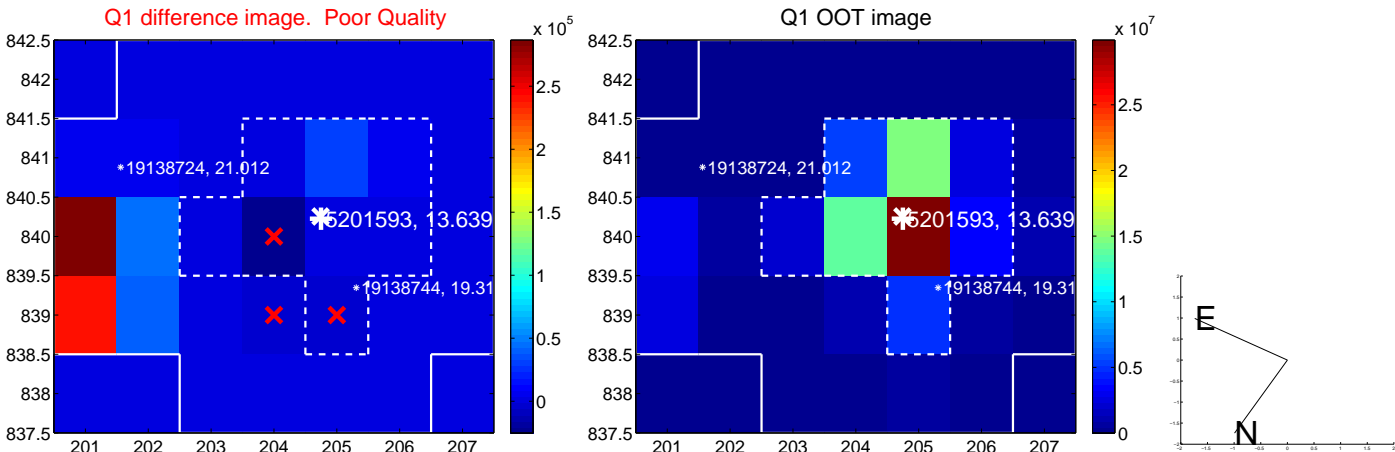
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$11.889 \pm 1.470$	8.09	$9.449 \pm 1.679$	$7.216 \pm 0.233$
PRF-fit source offset from KIC position	$11.864 \pm 2.400$	4.94	$9.376 \pm 2.773$	$7.270 \pm 0.346$
photometric centroid source offset	$0.12 \pm 0.30$	0.42	$-0.12 \pm 0.30$	$0.02 \pm 0.30$

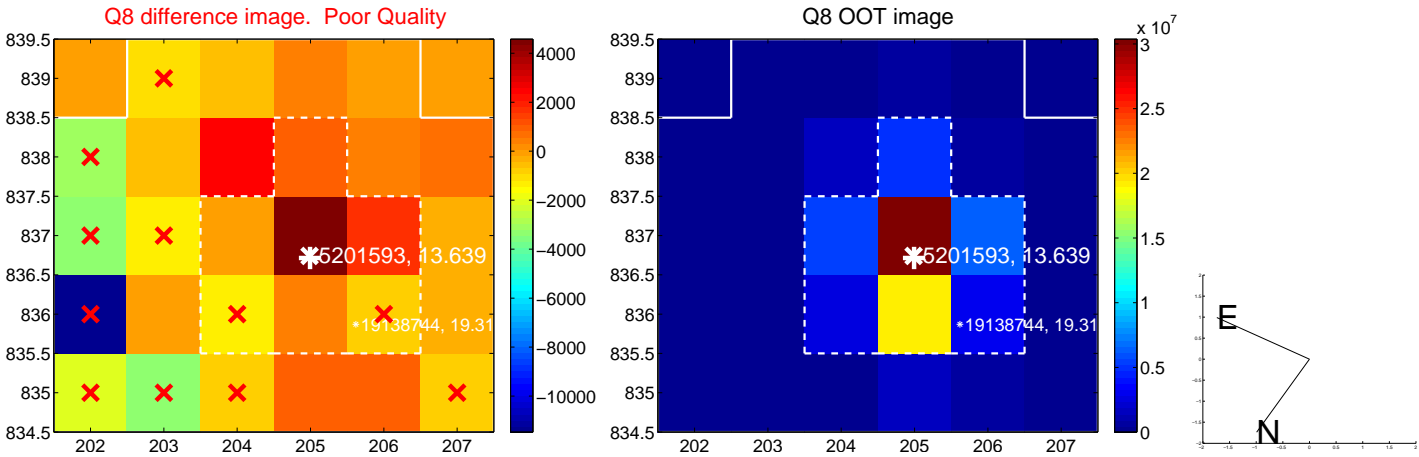
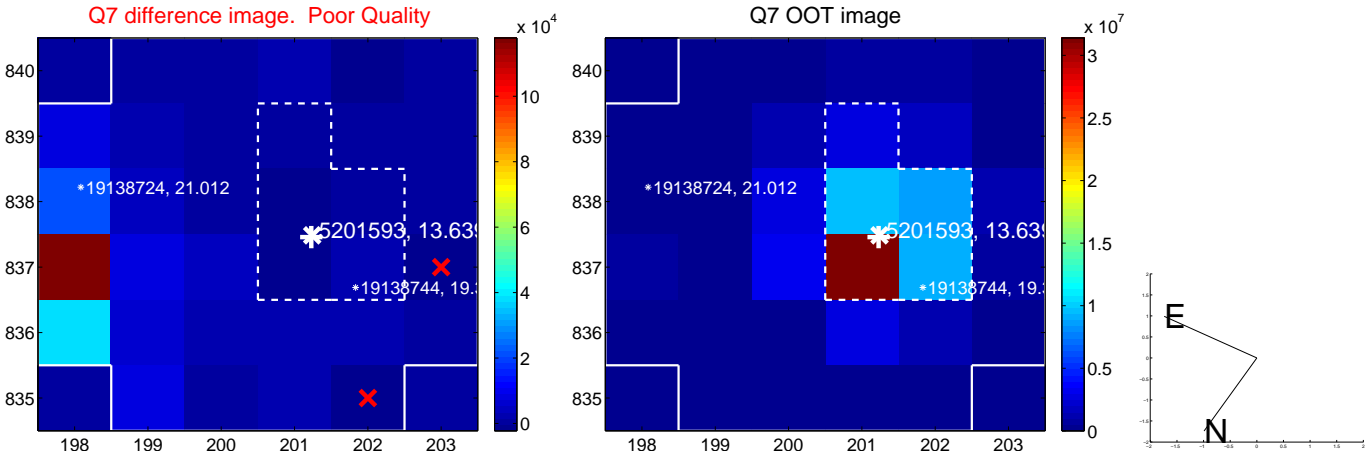
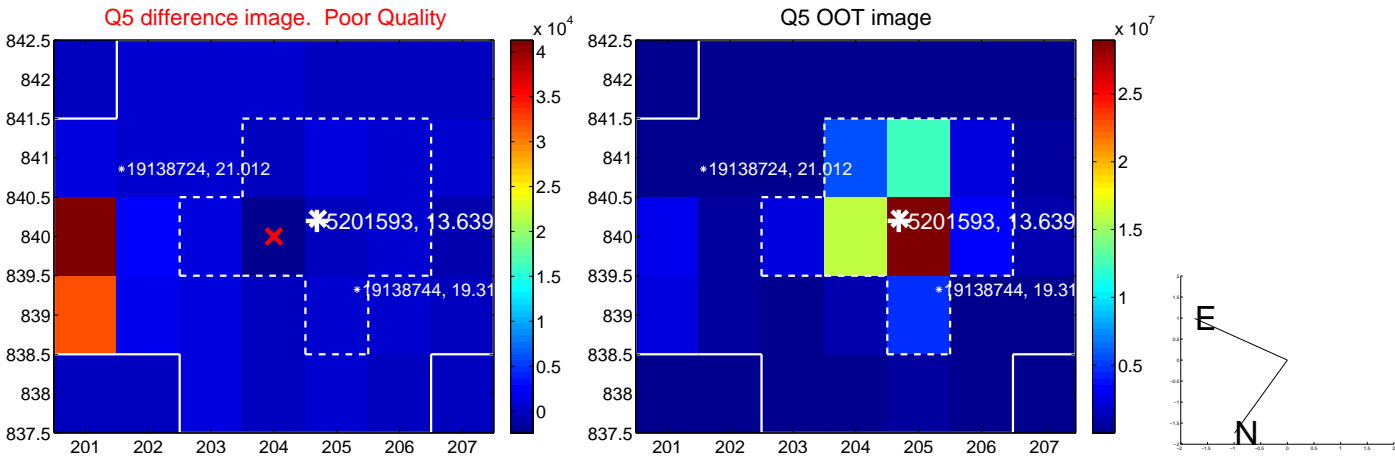


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

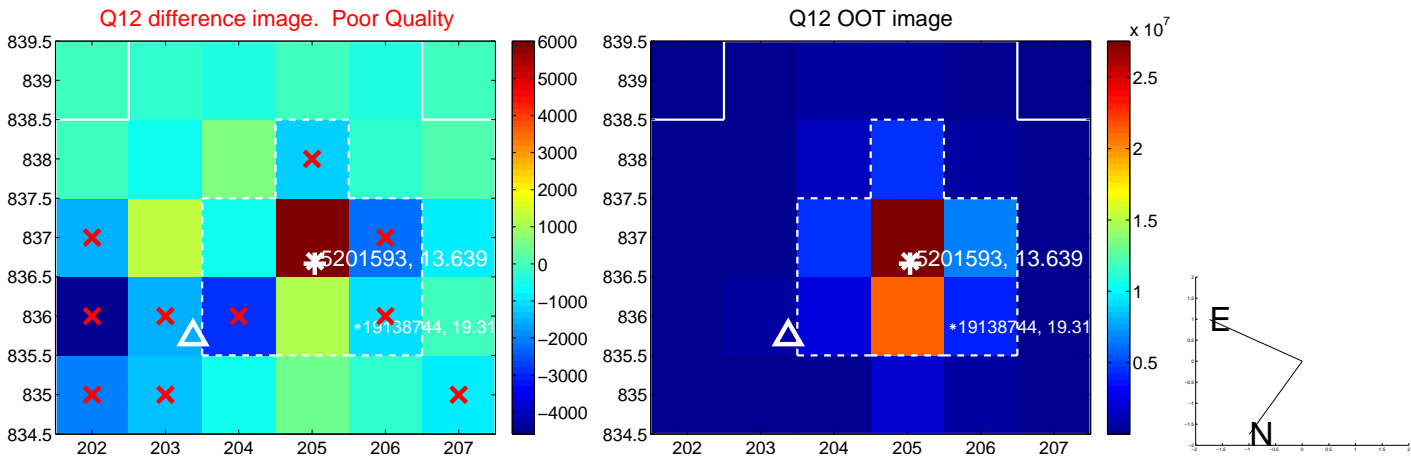
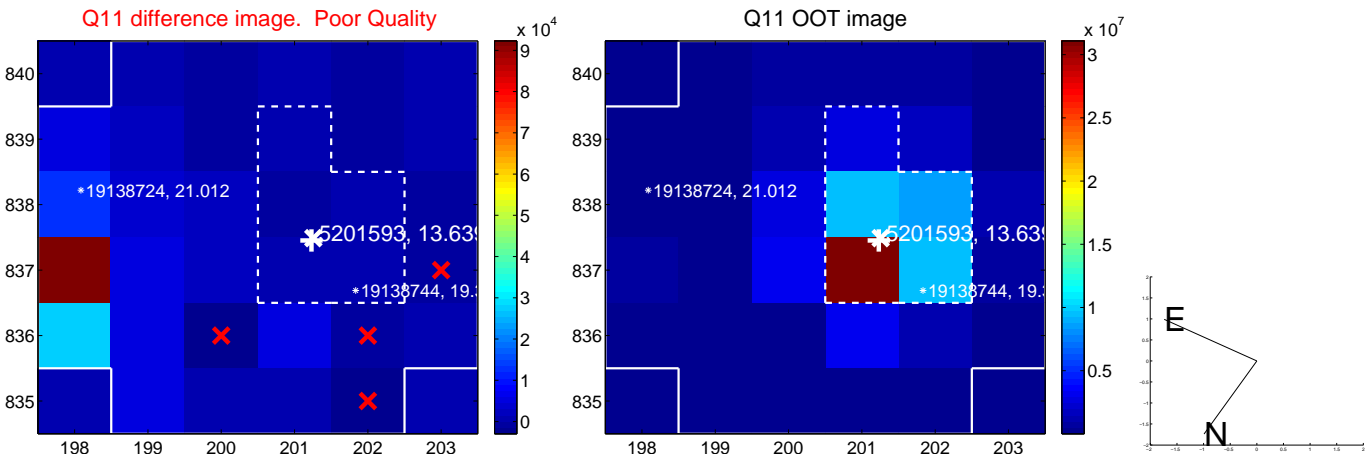
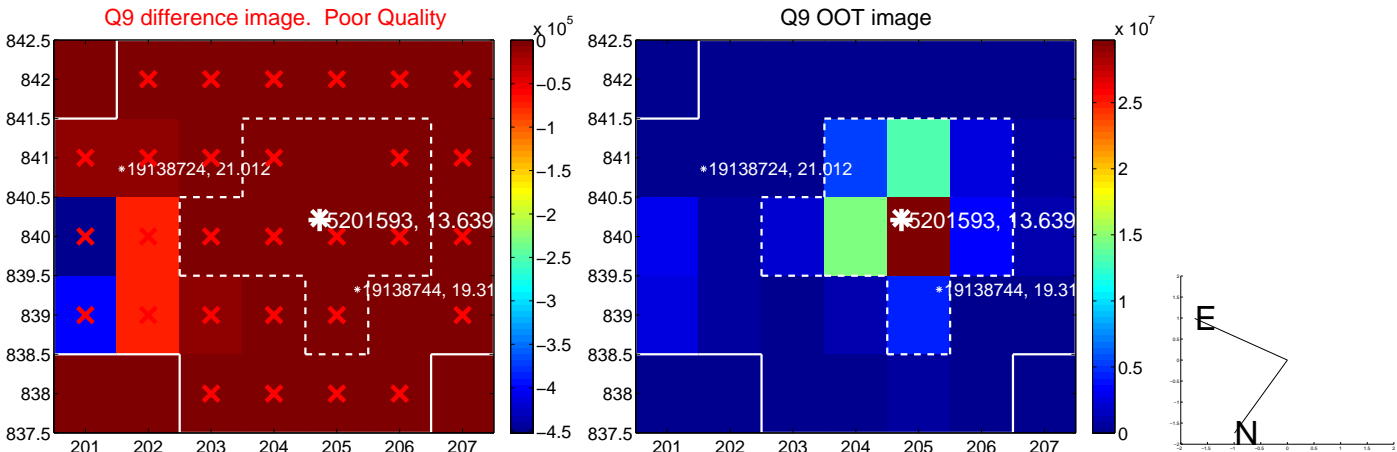
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



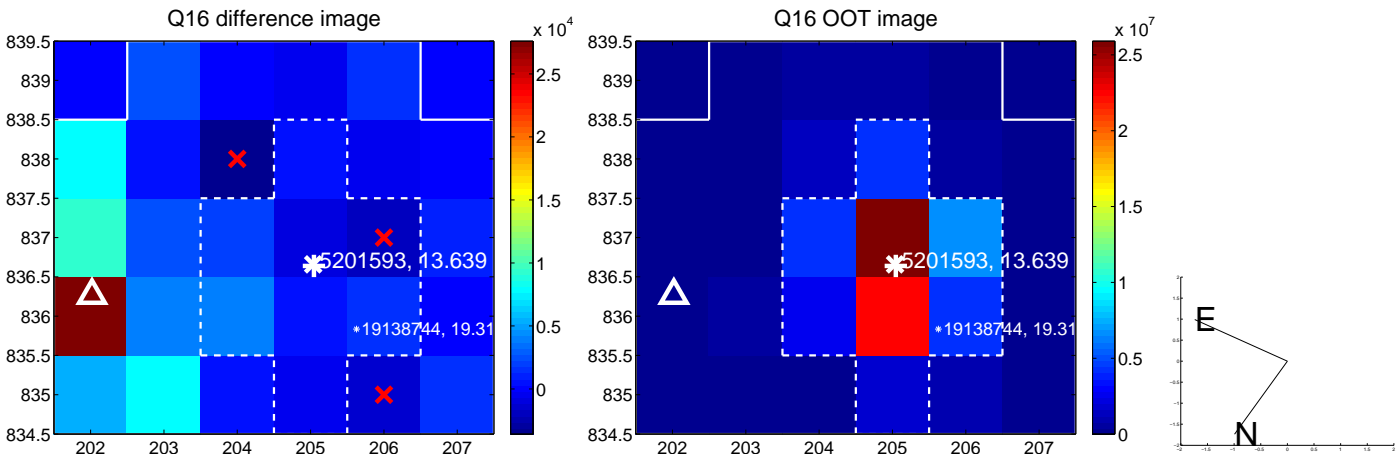
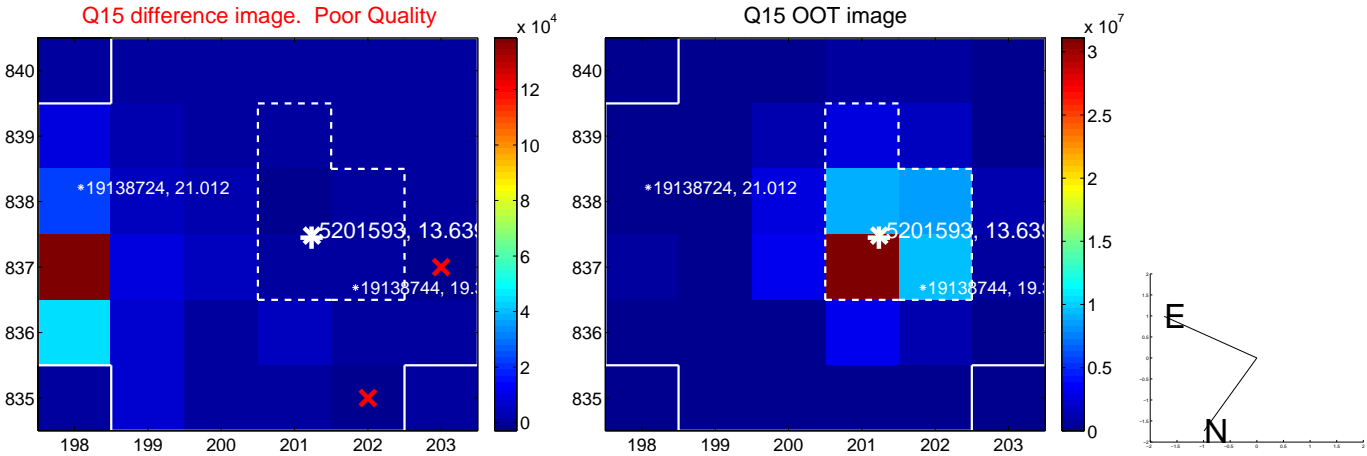
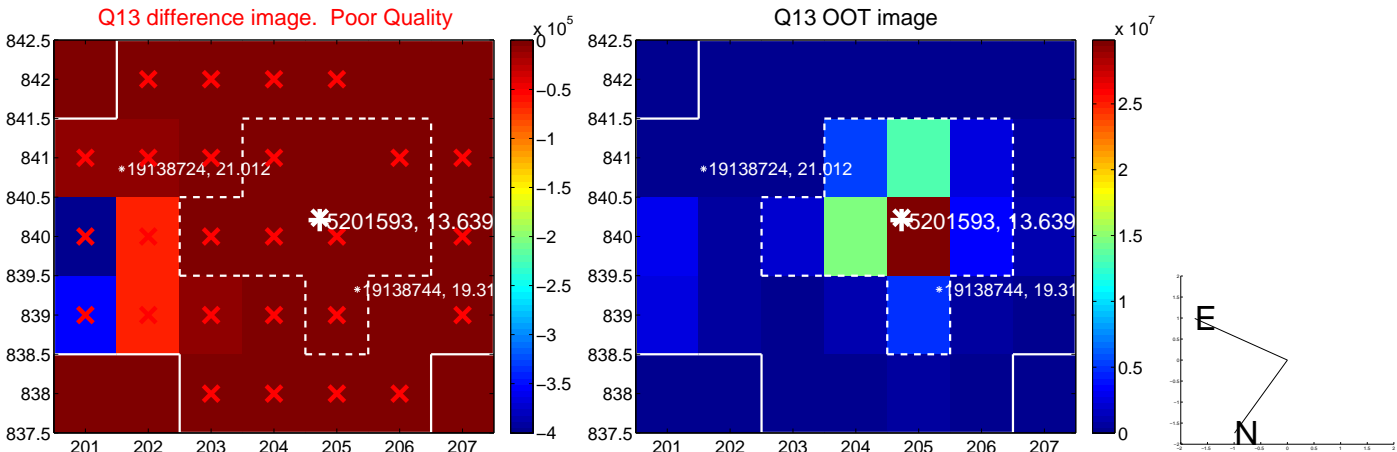
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



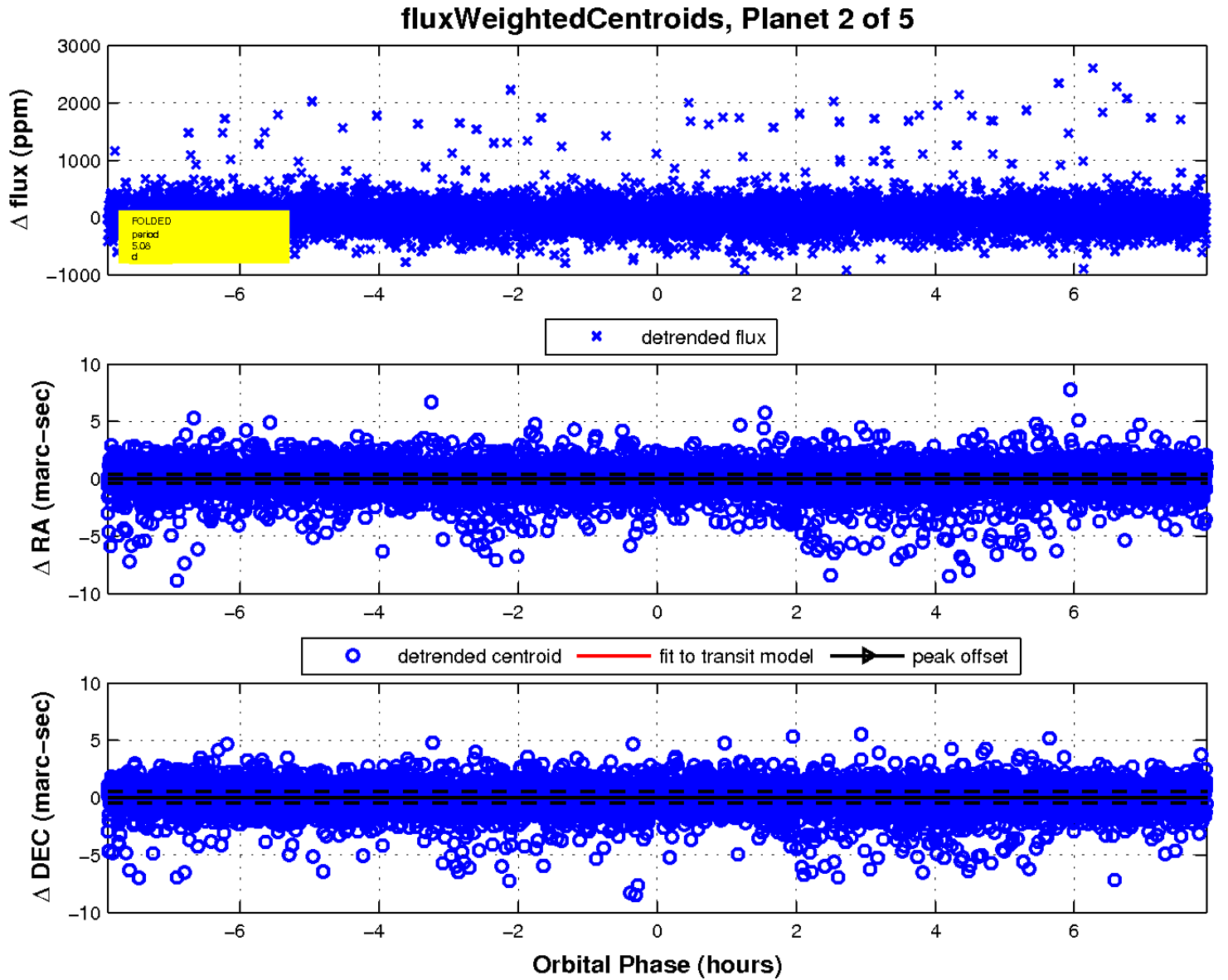
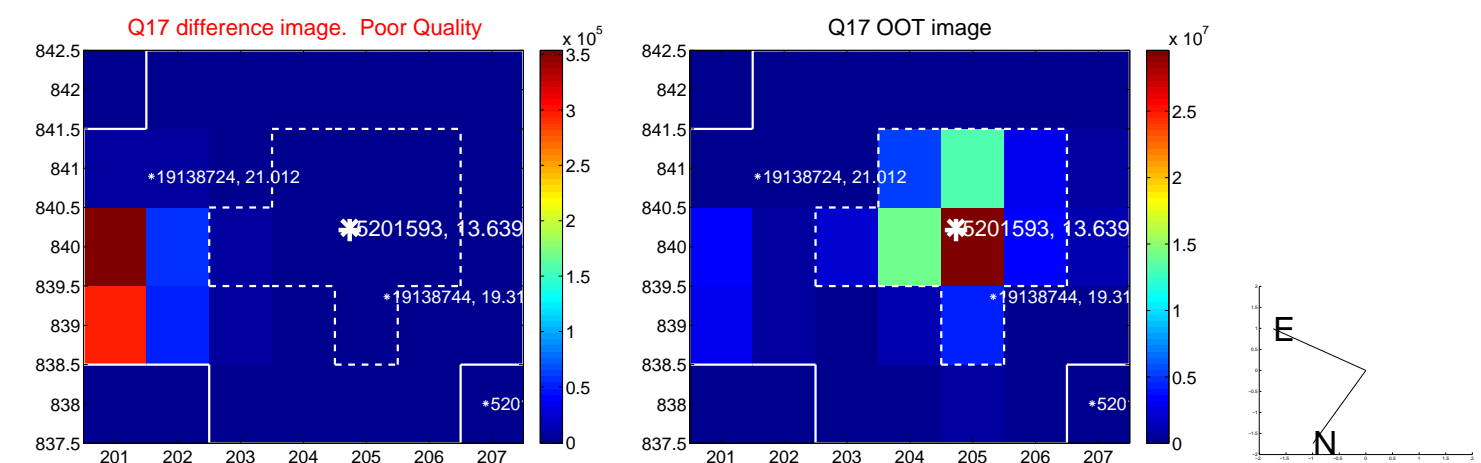
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



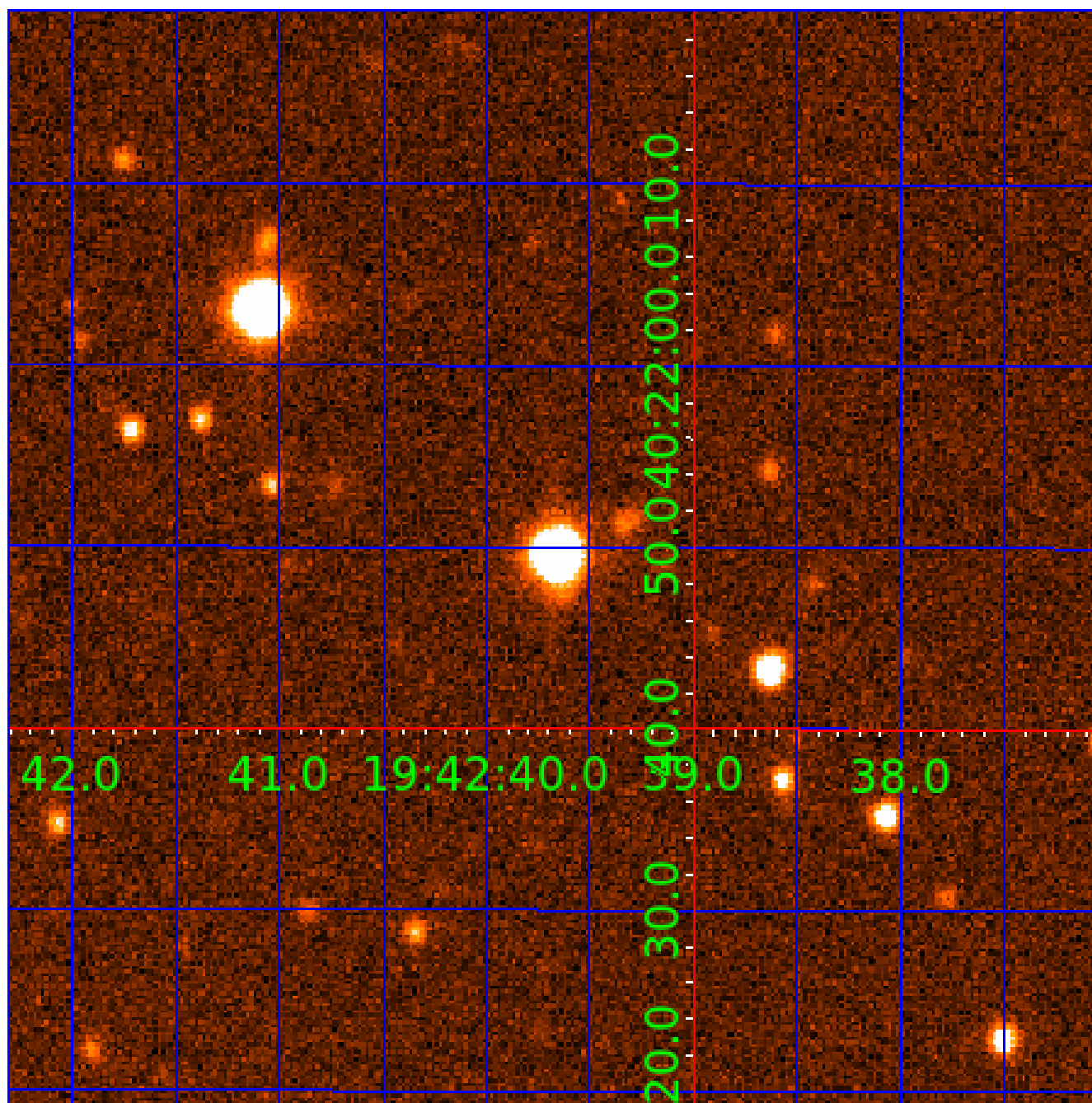
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 005201593

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005201593-01	OBS	7721.01	0.507255	131.772261	25.4	3.515	17.2	9.3	1.14	5970	0.60	8521.59
005201593-02	OBS	No	5.075689	136.089120	857.1	2.500	15.6	-1.0	1.14	5970	3.31	395.21
005201593-03	OBS	No	10.151530	141.658647	3721.7	0.896	14.3	10.2	1.14	5970	11.32	156.84
005201593-04	OBS	No	5.075700	135.575729	2499.8	0.578	14.1	6.8	1.14	5970	9.65	395.21
005201593-05	OBS	No	5.572889	134.576249	1761.1	1.780	10.8	5.8	1.14	5970	7.71	348.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005201593-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005201593-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_POS_ALT—CENT_NOFITS
005201593-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET
005201593-04	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET—HALO_GHOST
005201593-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET

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

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

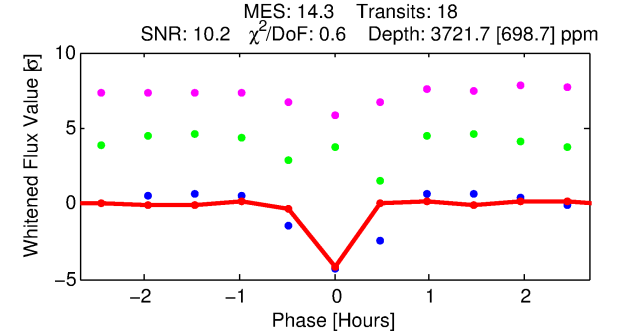
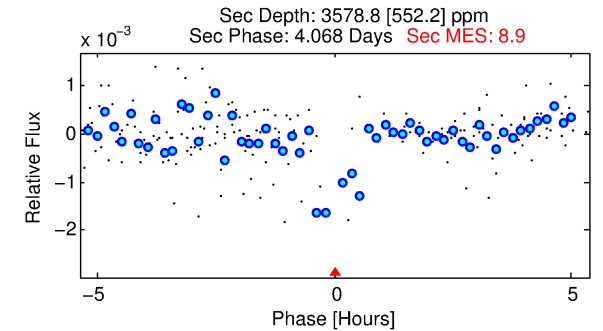
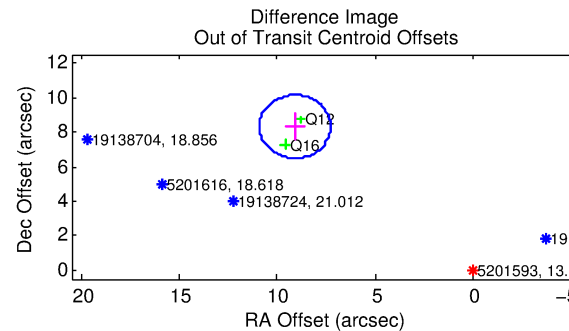
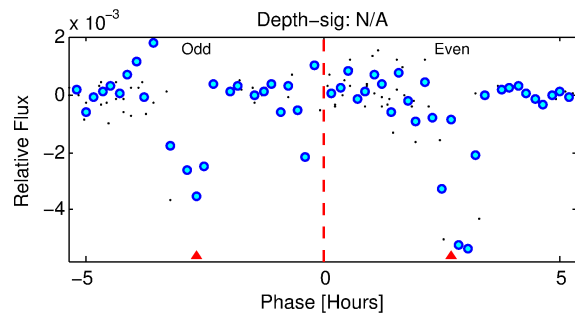
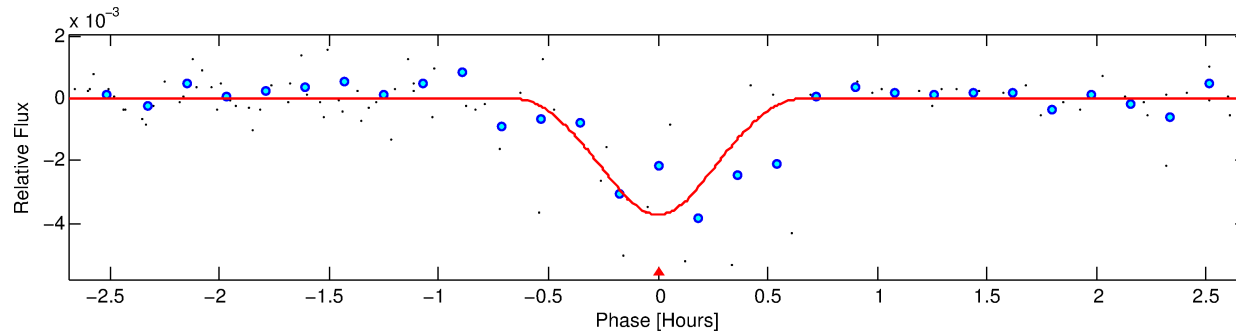
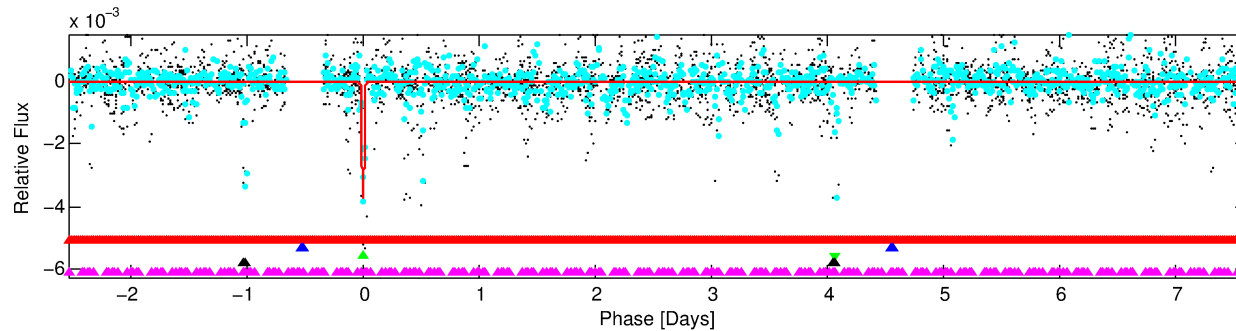
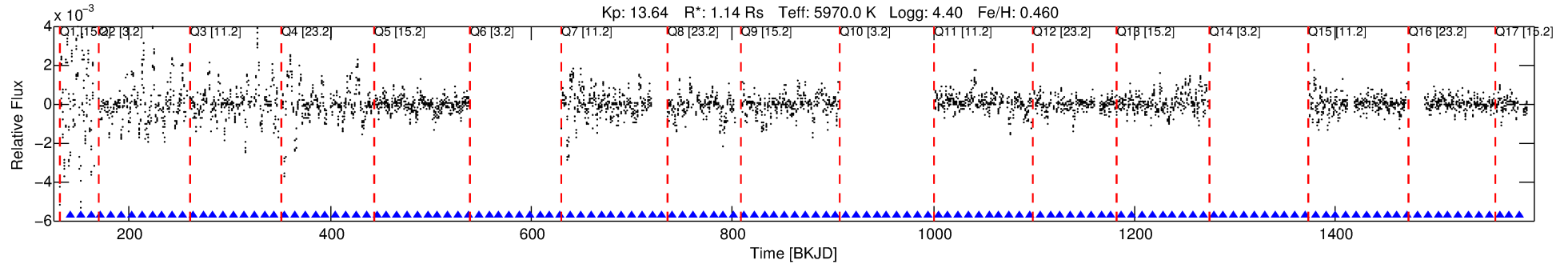
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005201593-03

No Significant Match Found

# DV One-Page Summary

KIC: 5201593 Candidate: 3 of 5 Period: 10.152 d



## DV Fit Results:

Period = 10.15153 [0.00004] d  
Epoch = 141.6586 [0.0015] BKJD  
Rp/R\* = 0.0908 [0.8885]  
a/R\* = 43.88 [120.13]  
b = 0.97 [1.57]  
Seff = 156.84 [26.42]  
Teq = 902 [38] K  
Rp = 11.32 [110.83] Re  
a = 0.0974 [0.0102] AU  
Ag = 145.58 [2849.58] [0.05σ]  
Teffp = 4846 [23715] K [0.17σ]

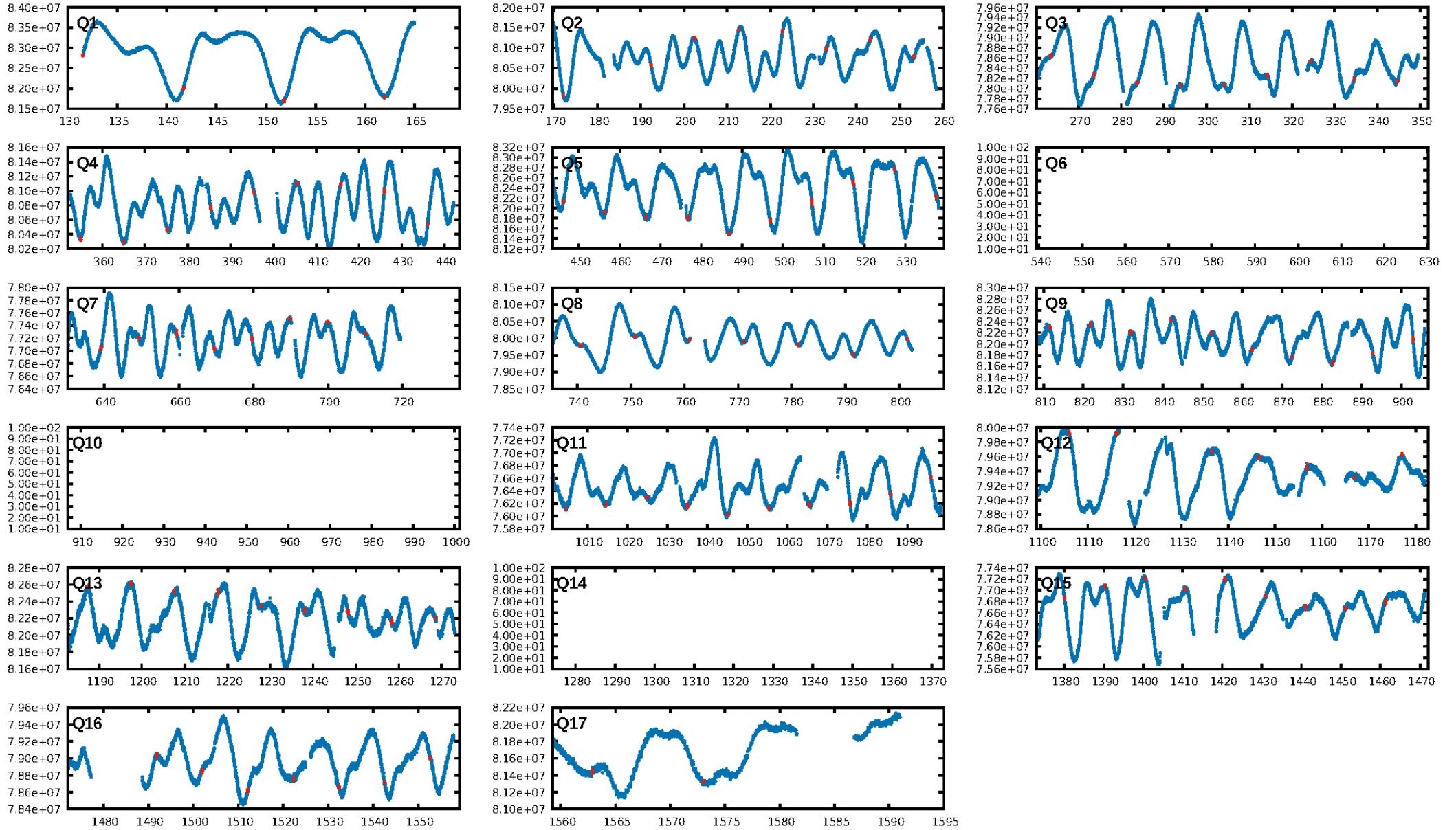
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [55.15σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 53.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [14/14]  
GhostDiagnostic-chr: -2.717  
Centroid-sig: 84.5%  
Centroid-so: 0.144 arcsec [2.04σ]  
OotOffset-rm: 12.327 arcsec [20.25σ]  
KicOffset-rm: 12.349 arcsec [19.66σ]  
OotOffset-st: 0/0/2/0 [2]  
KicOffset-st: 0/0/2/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.00 [0/14]

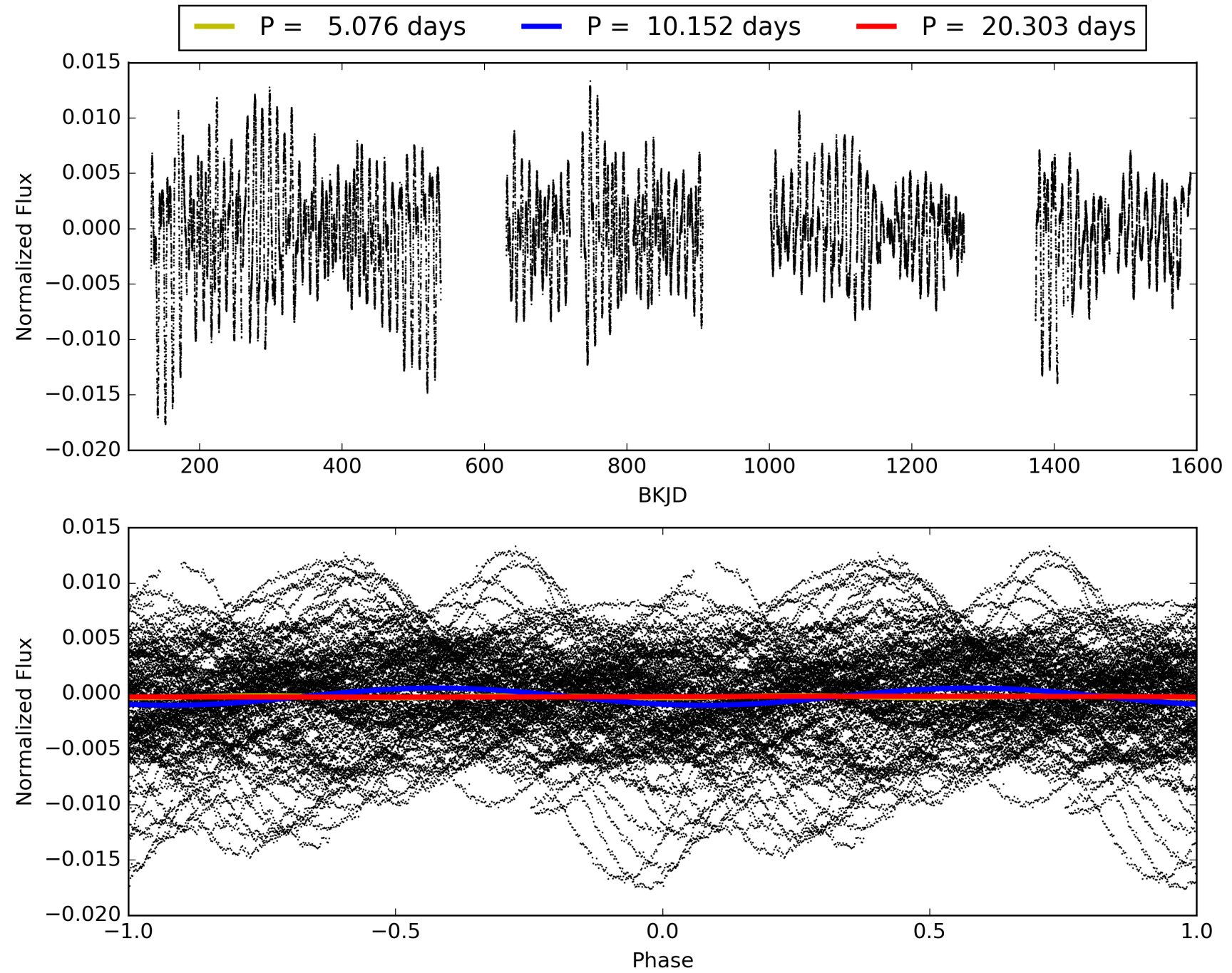
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:50:47 Z

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

# TCE 005201593-03, PDC Light Curves

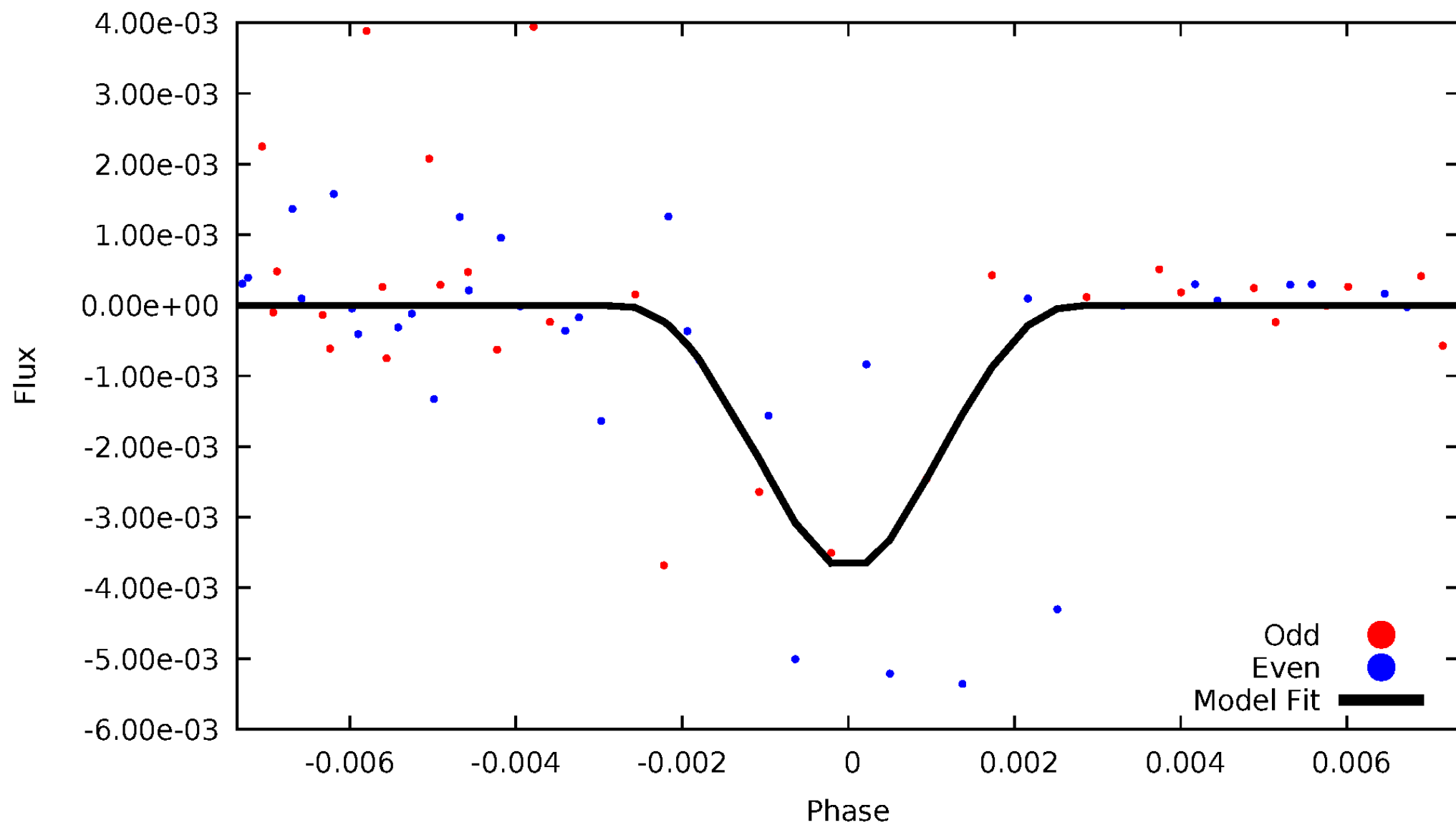


TCE 005201593-03



# DV Odd/Even

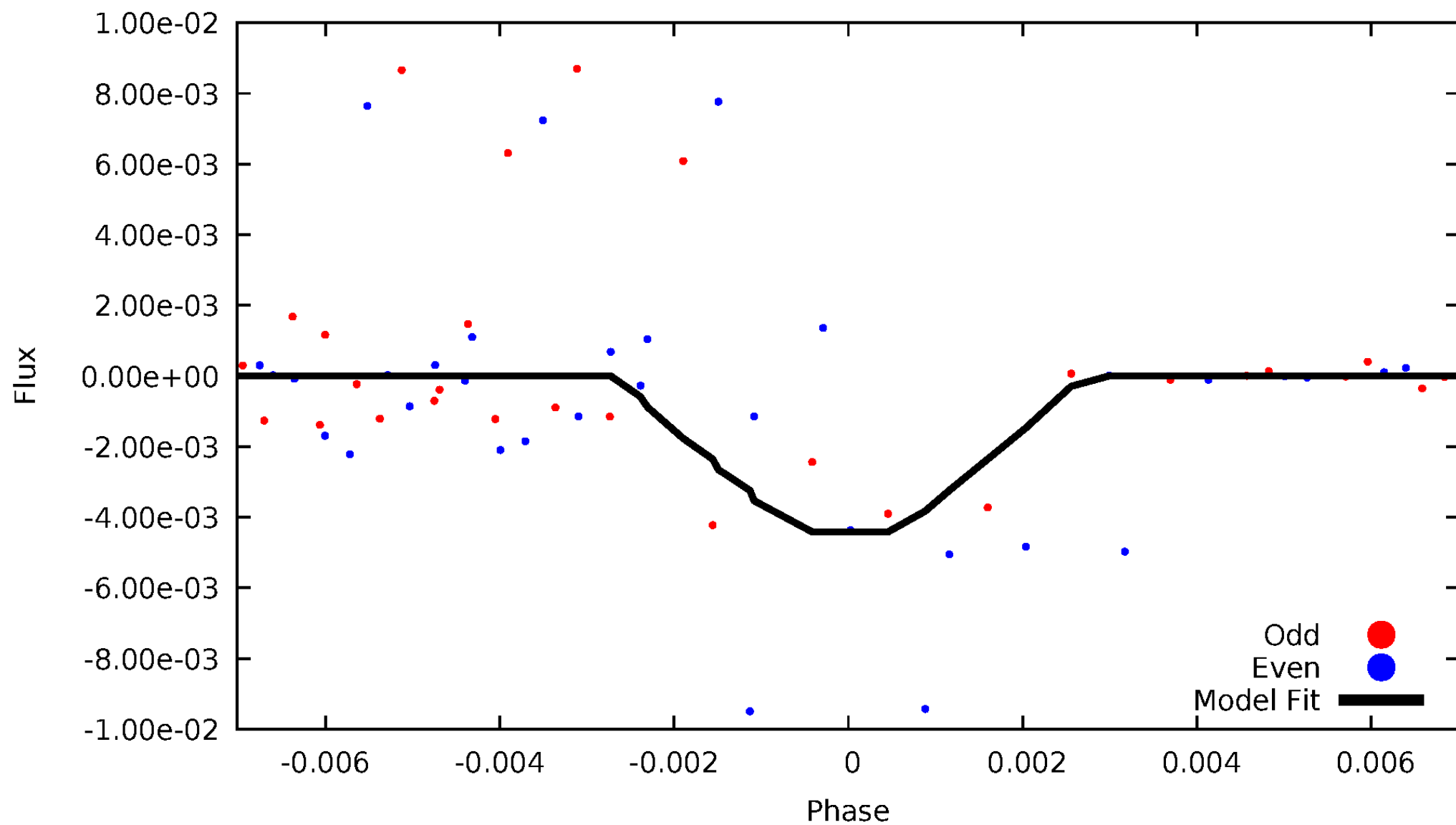
TCE 005201593-03





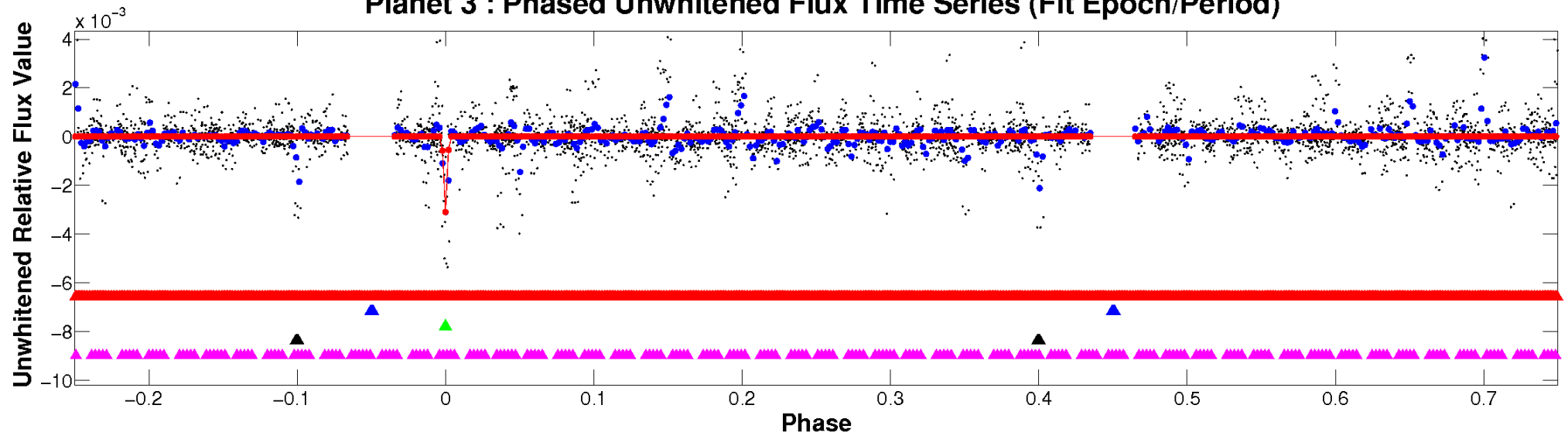
# ALT Odd/Even

TCE 005201593-03

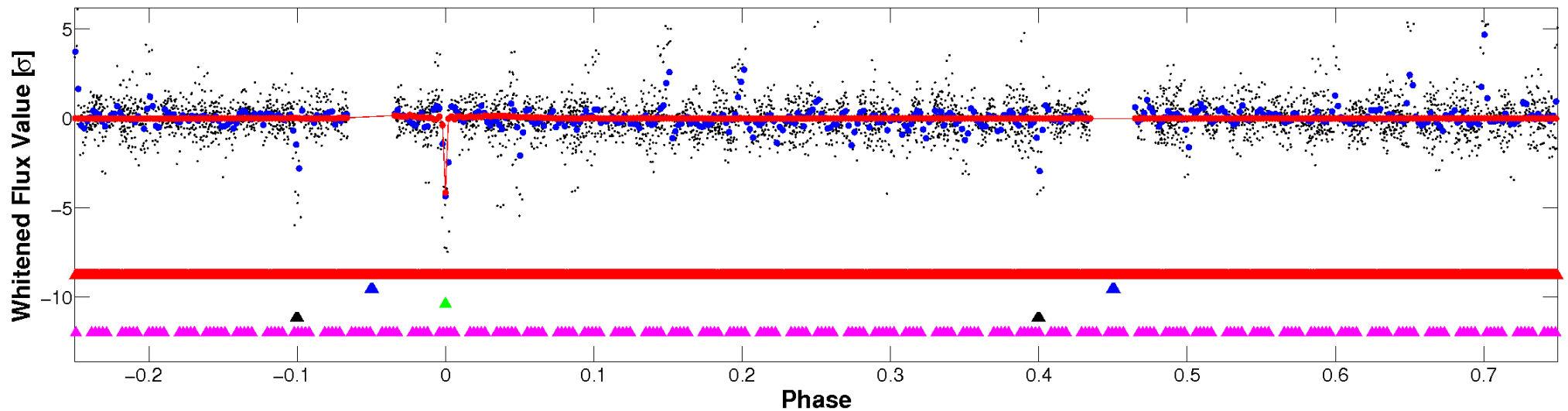


# Non-Whitened Vs. Whitened Light Curve

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

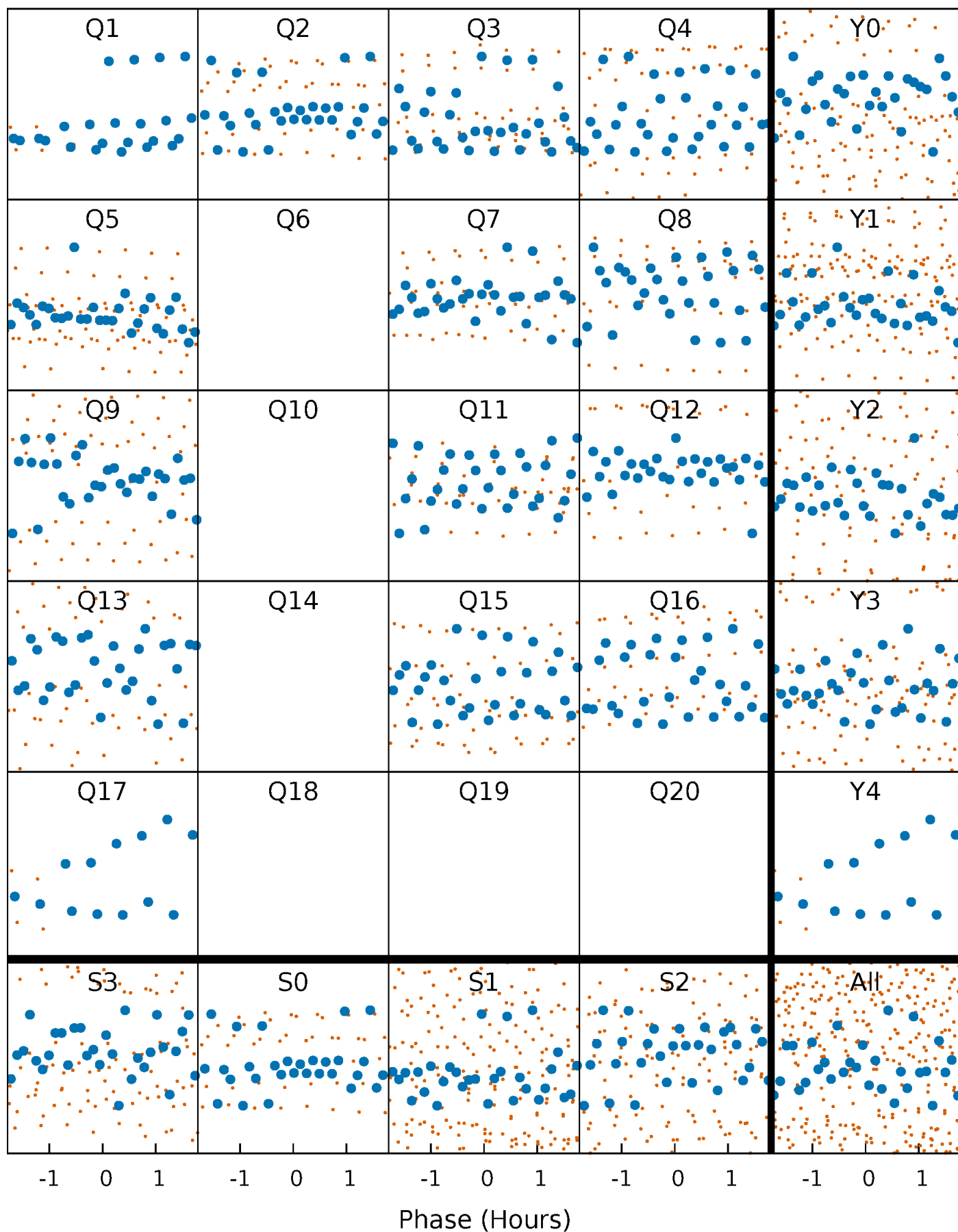


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



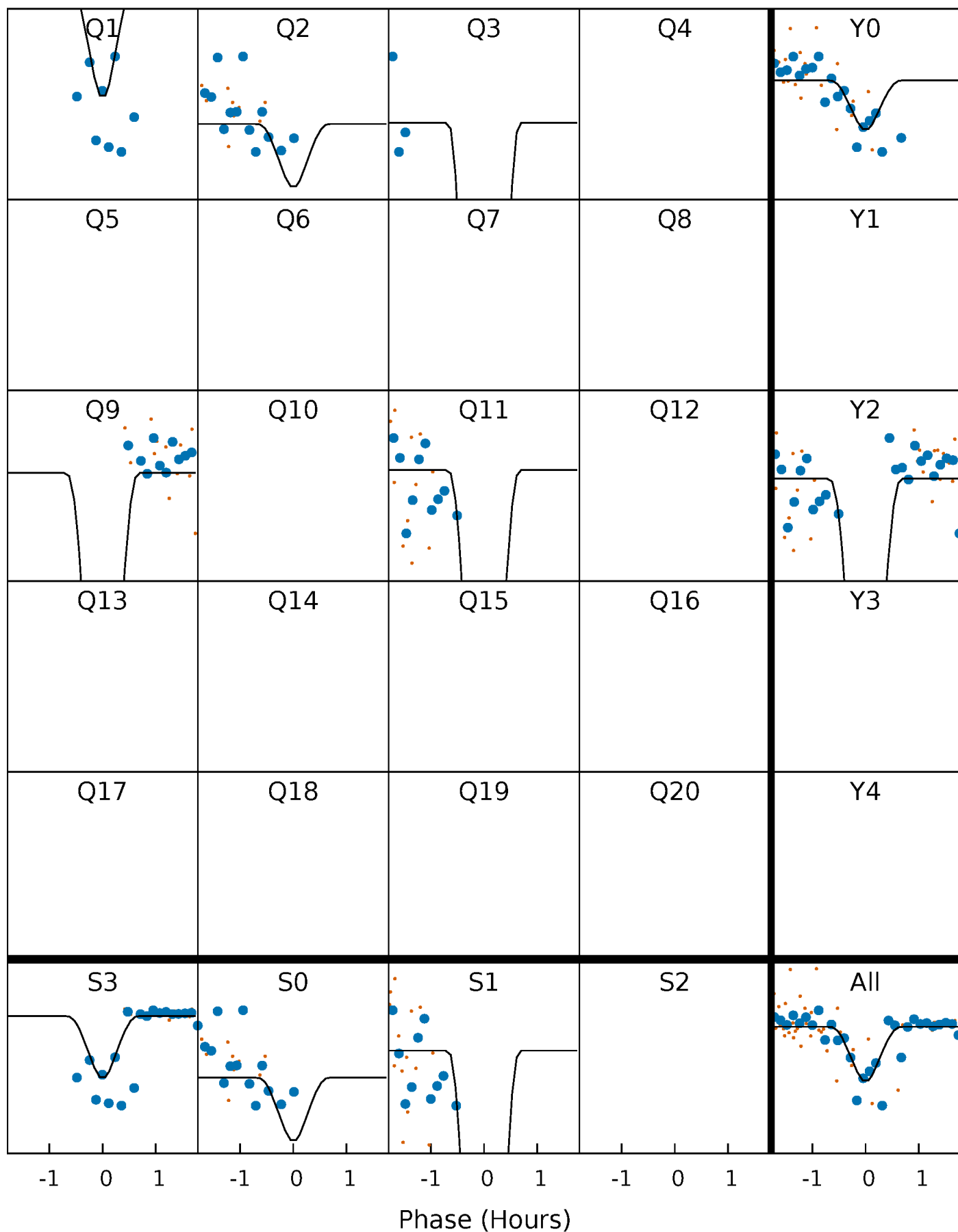
# PDC Quarter-Phased Transit Curves

TCE 005201593-03 P= 10.151530 Days  $T_0=141.658647$  (BKJD)



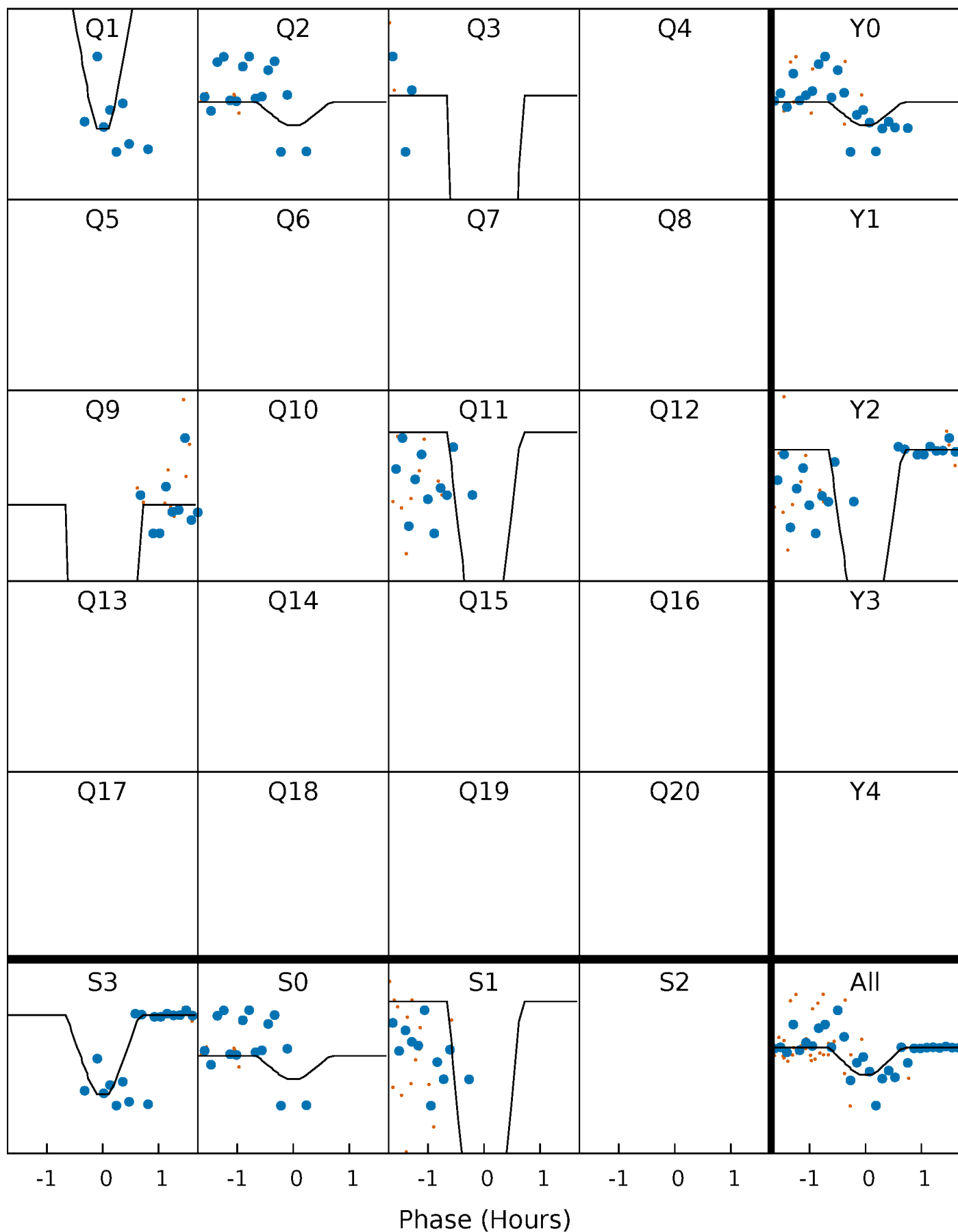
# DV Quarter-Phased Transit Curves

TCE 005201593-03 P= 10.151530 Days  $T_0=141.658647$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

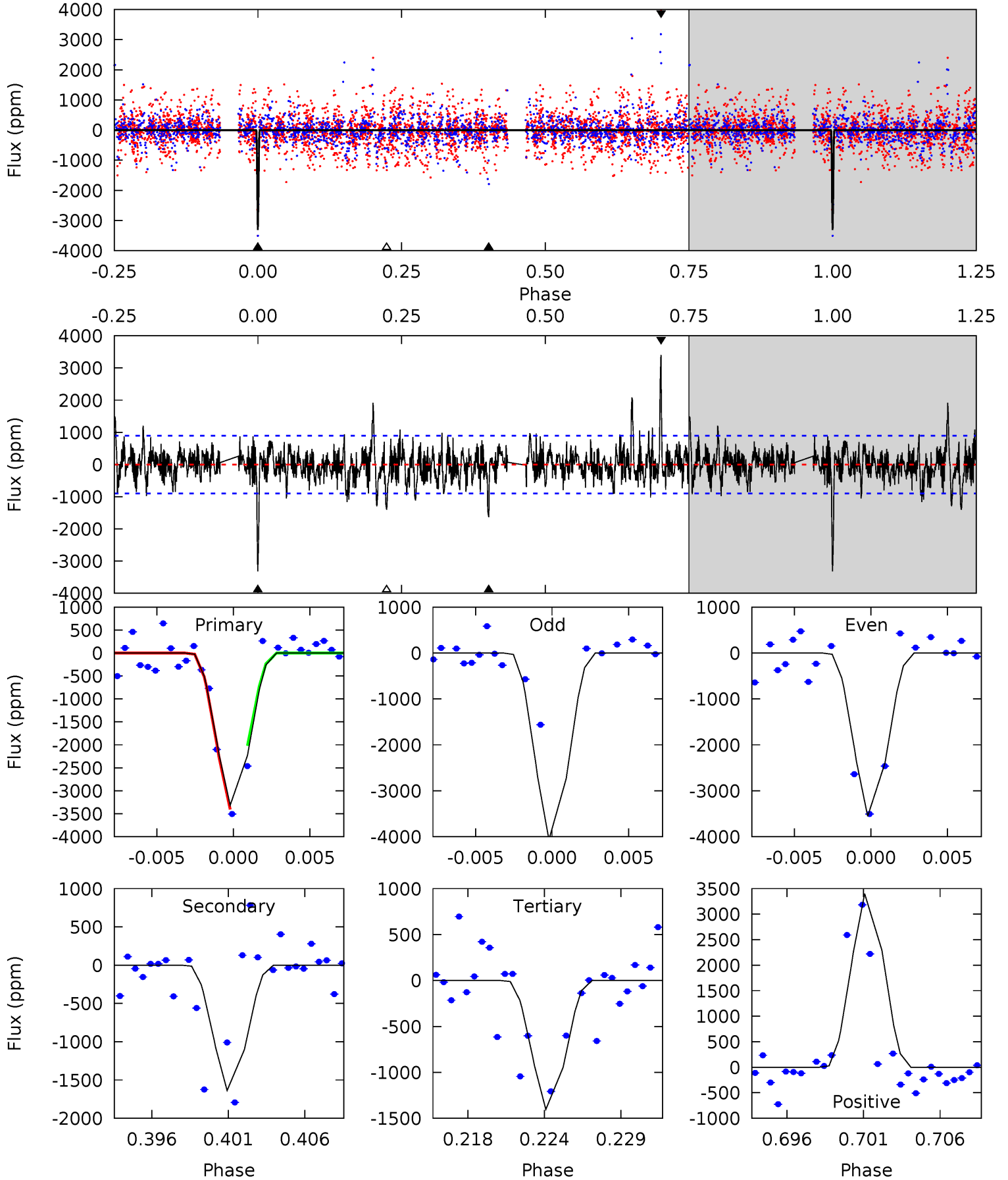
TCE 005201593-03 P= 10.151507 Days  $T_0=141.651956$  (BKJD)



# DV Model-Shift Uniqueness Test

005201593-03, P = 10.151530 Days, E = 131.507117 Days

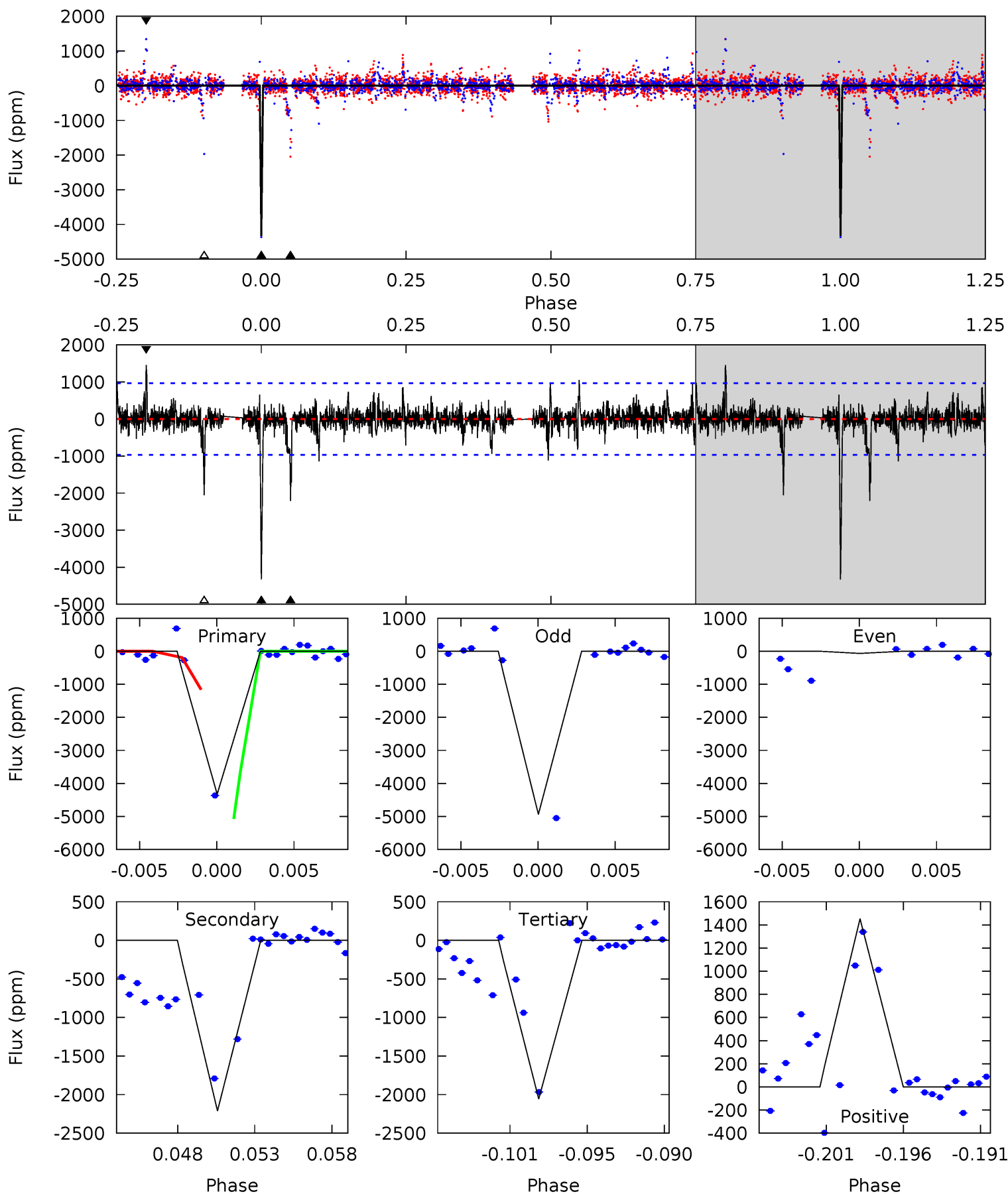
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	9.40	8.06	19.5	5.15	2.80	2.10	11.0	-0.49	1.34	-10.1	1.53	1.09	0.51	3.97



# Alt Model-Shift Uniqueness Test

005201593-03, P = 10.151507 Days, E = 131.500449 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
23.0	11.8	11.0	7.74	5.15	2.79	1.02	12.1	15.3	0.82	4.04	16.0	1.00	0.25	0





### Stellar Parameters For KIC 005201593

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5970^{+77}_{-83}$	$4.399^{+0.030}_{-0.090}$	$0.460^{+0.050}_{-0.150}$	$1.143^{+0.135}_{-0.052}$	$1.195^{+0.043}_{-0.057}$	$1.128^{+0.130}_{-0.296}$
	+1%/-1%	+1%/-2%	+11%/-33%	+12%/-5%	+4%/-5%	+11%/-26%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005201593-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1637 \pm 174$	$81.49^{+84.06}_{-55.53}$	$1268^{+37}_{-27}$	$2329^{+897}_{-814}$	$1.318^{+11.810}_{-1.006}$
Alt.	$-2211 \pm 188$	$74.90^{+84.45}_{-52.70}$	$1269^{+37}_{-27}$	$2483^{+1097}_{-573}$	$2.049^{+21.582}_{-1.591}$

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

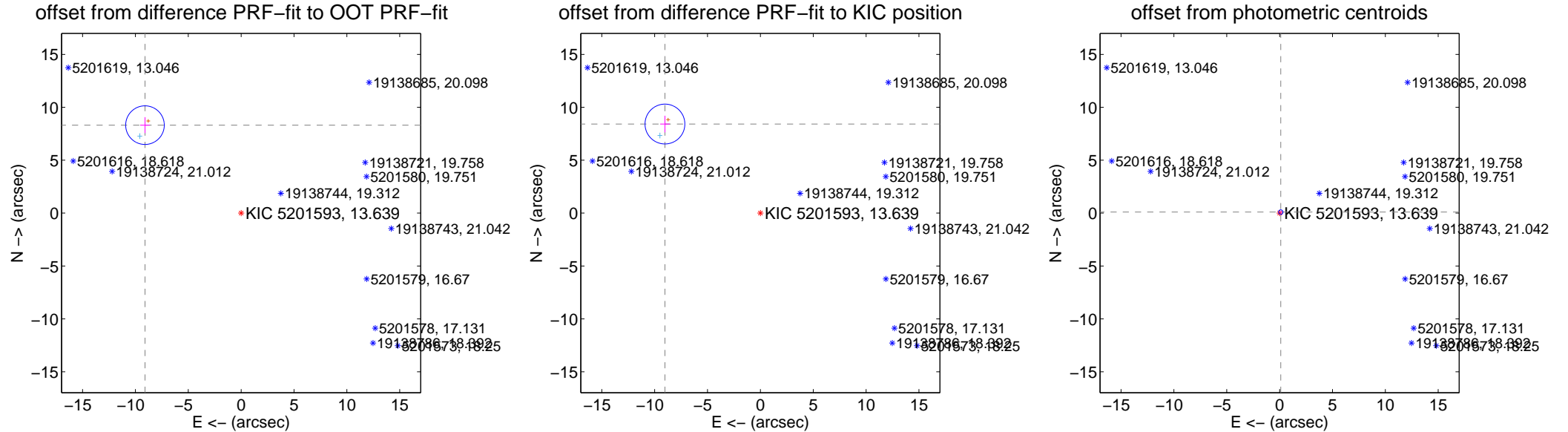
## DV Centroid Data

Supplemental centroid analysis for 005201593-03. Kepler magnitude: 13.64. Transit SNR 10.21

There are 1 quarters with good PRF difference image offsets

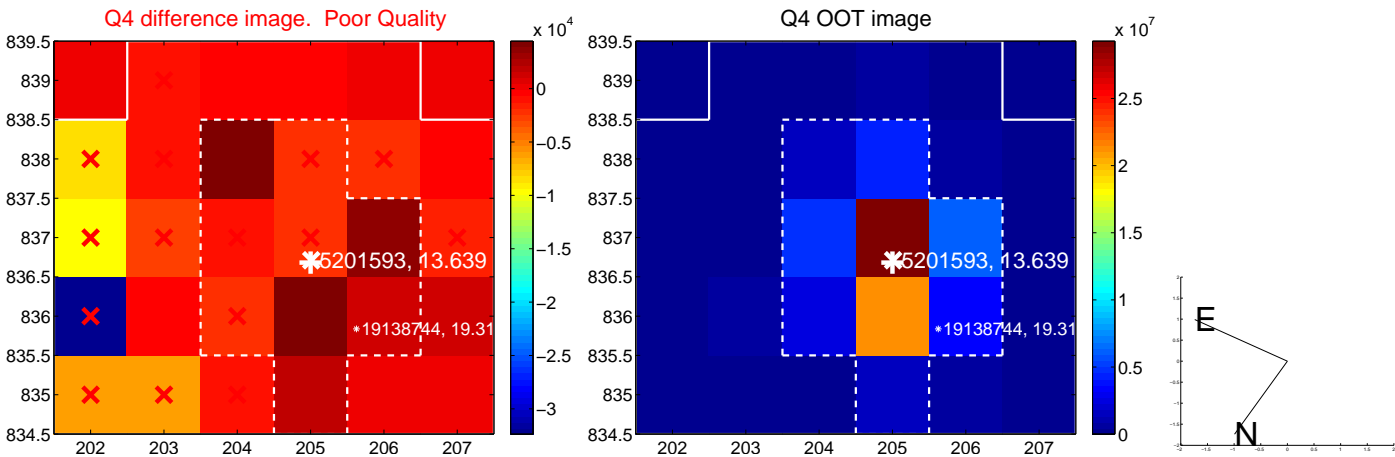
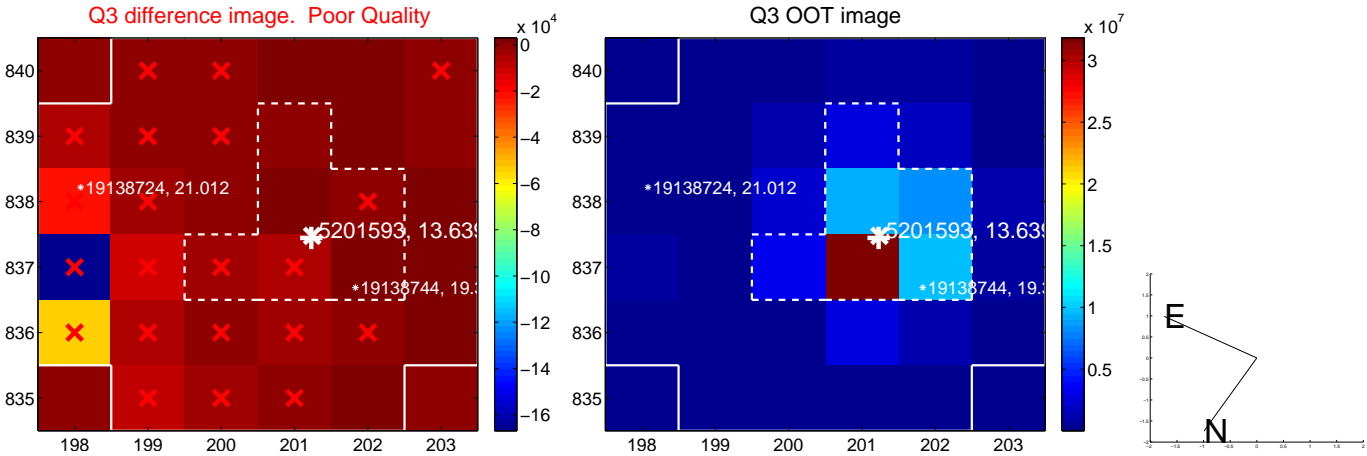
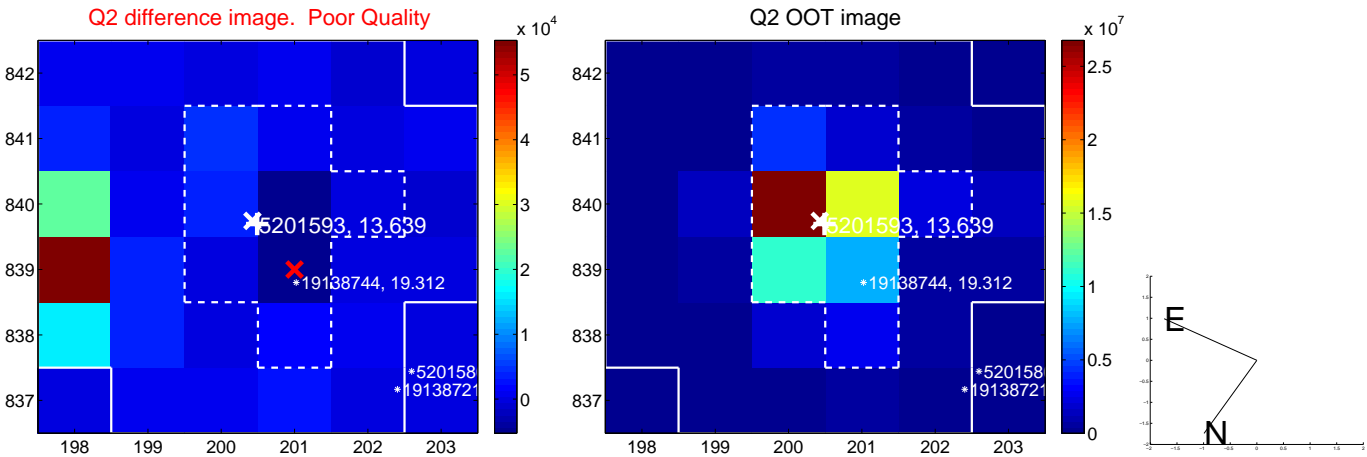
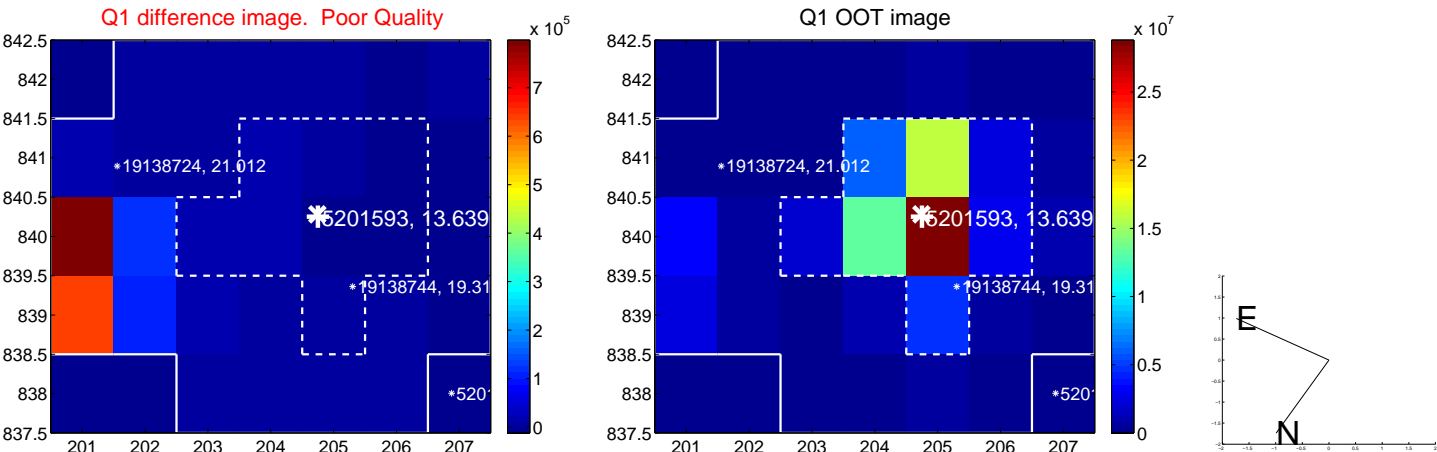
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$12.327 \pm 0.609$	20.25	$9.099 \pm 0.457$	$8.317 \pm 0.751$
PRF-fit source offset from KIC position	$12.349 \pm 0.628$	19.66	$9.031 \pm 0.447$	$8.422 \pm 0.786$
photometric centroid source offset	$0.14 \pm 0.07$	2.04	$-0.11 \pm 0.07$	$0.10 \pm 0.07$

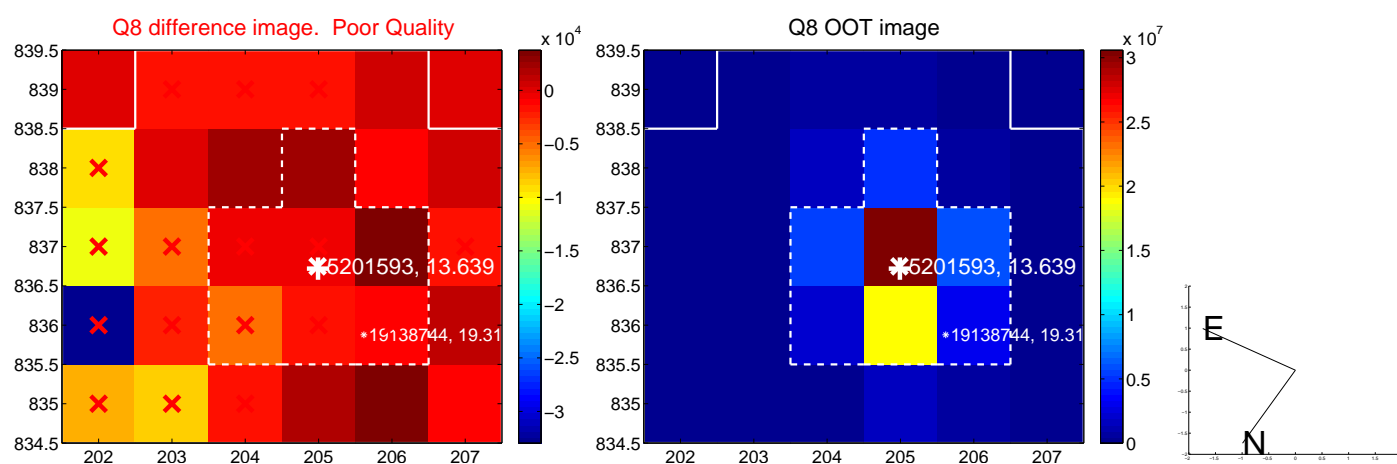
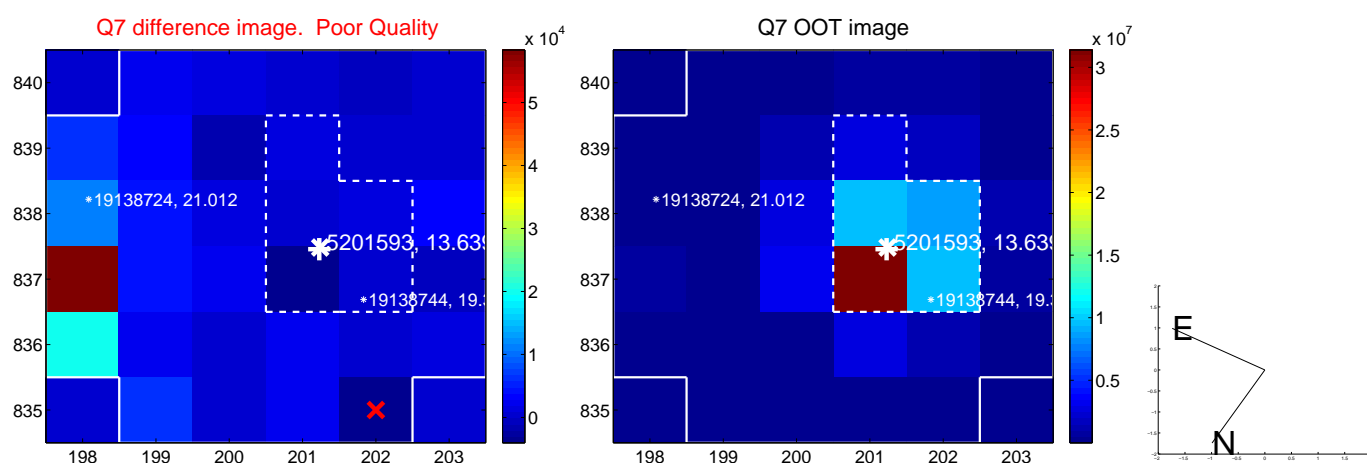
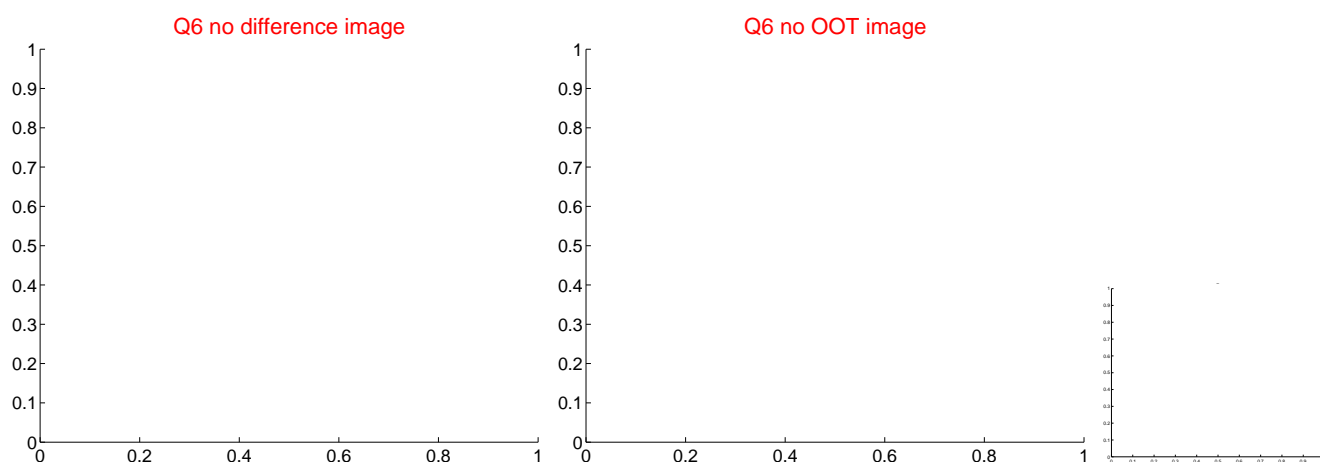
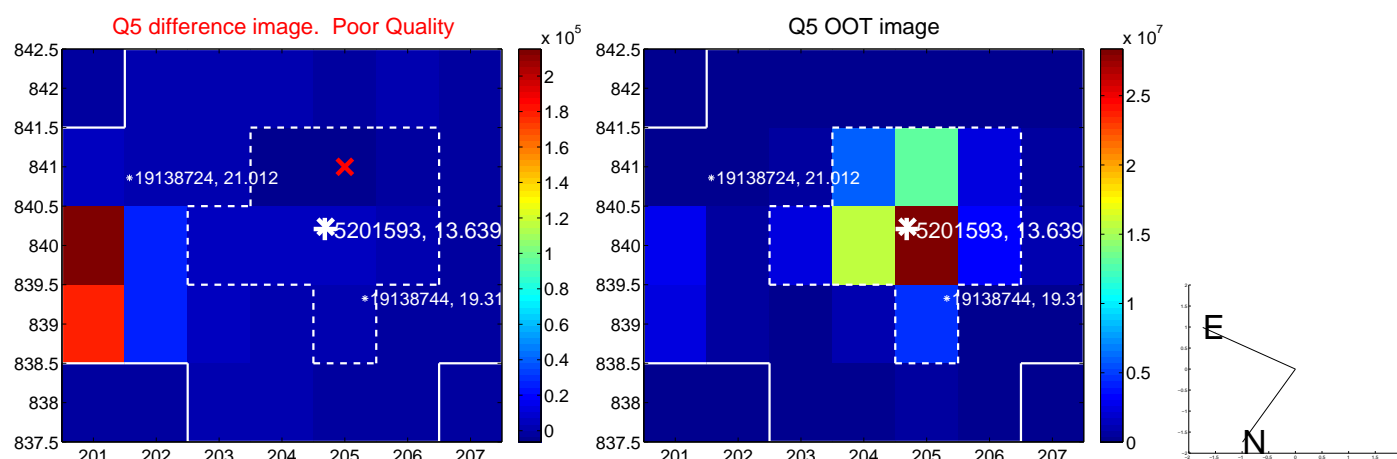


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

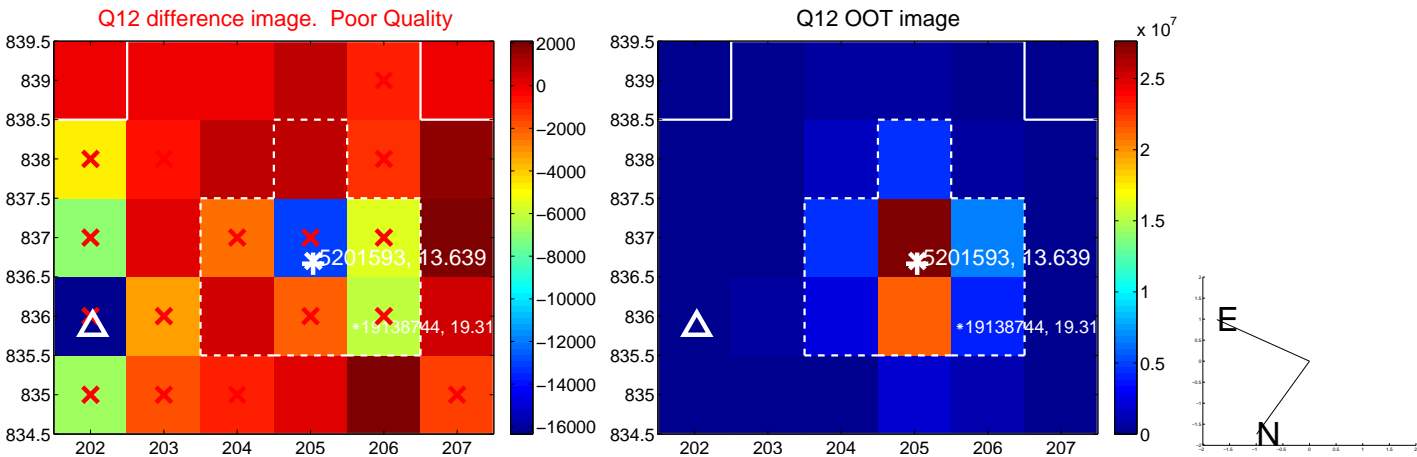
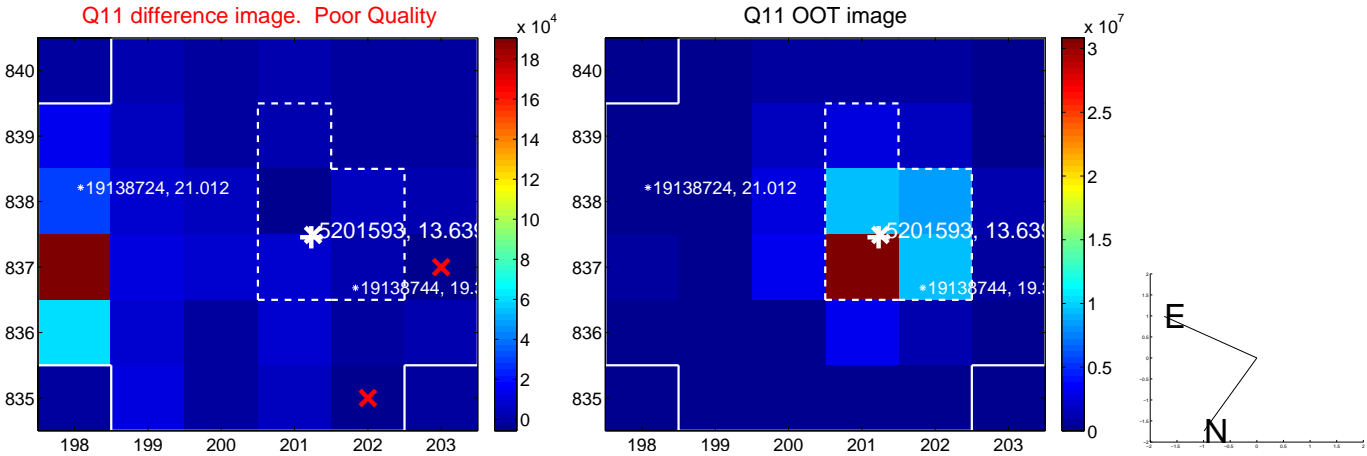
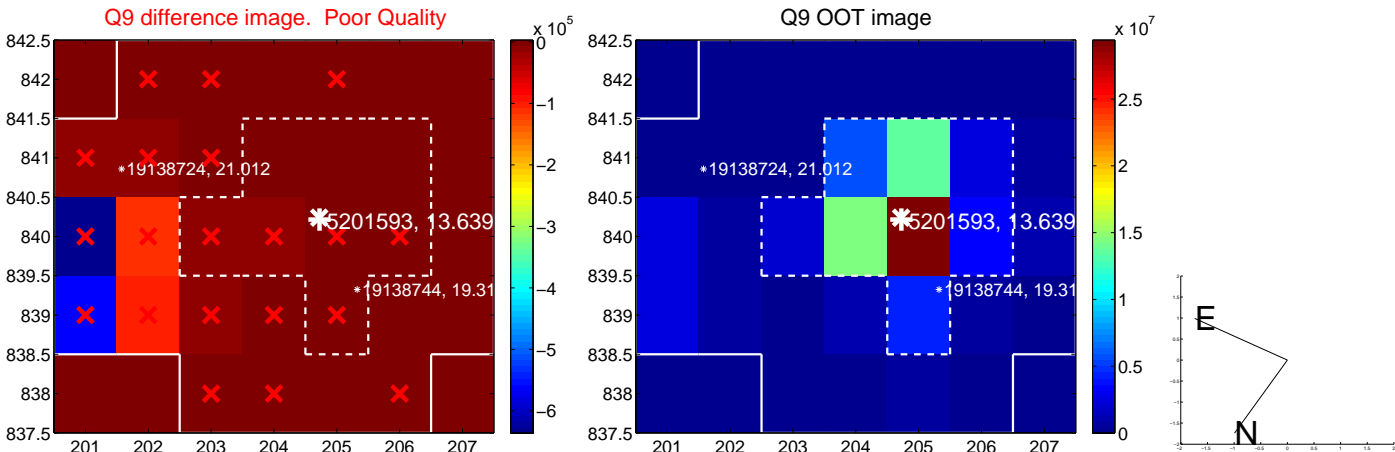
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



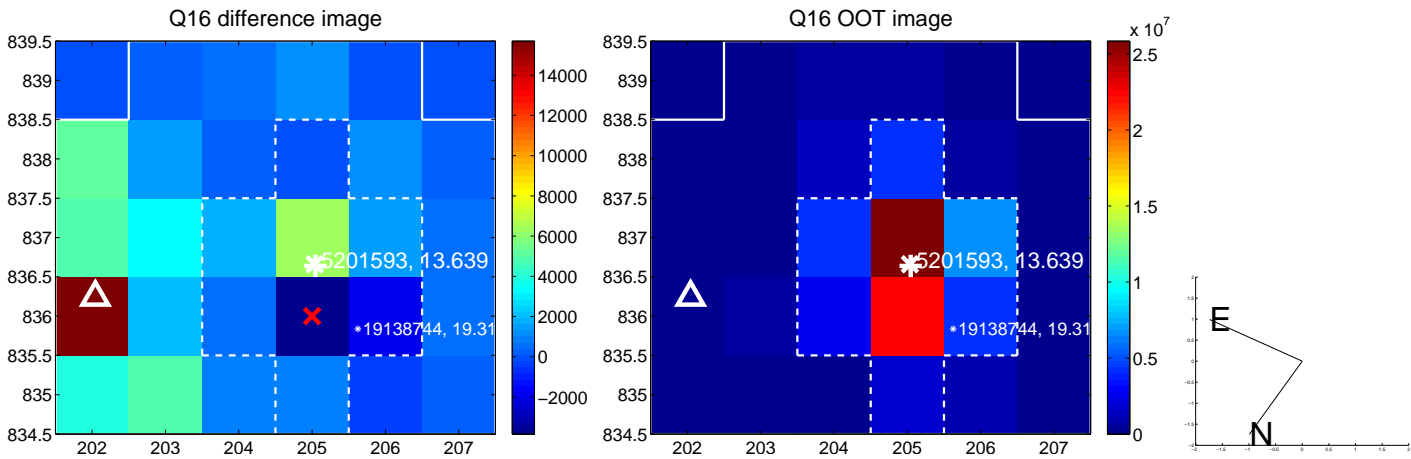
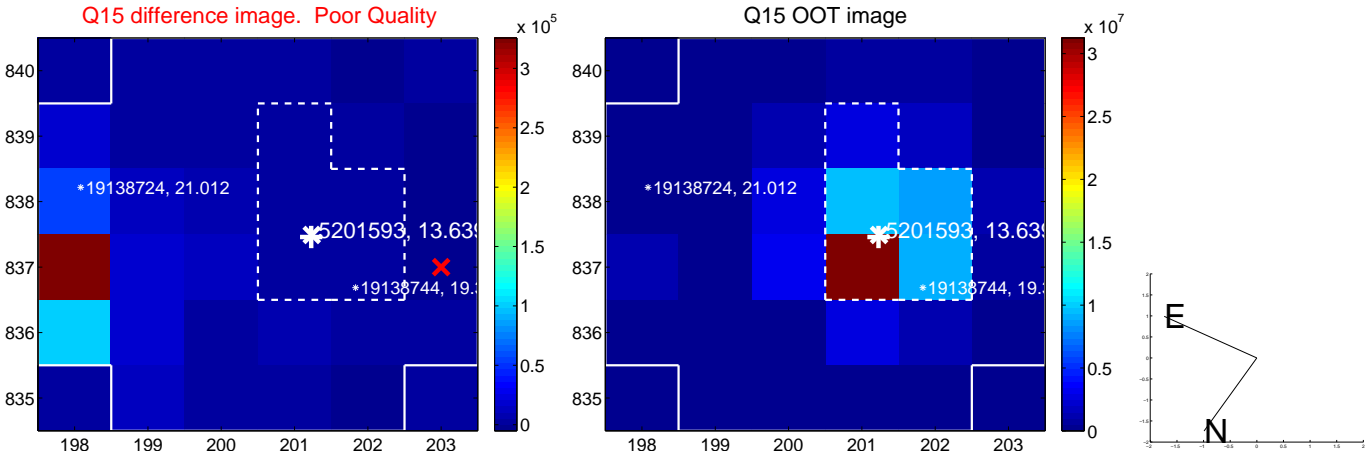
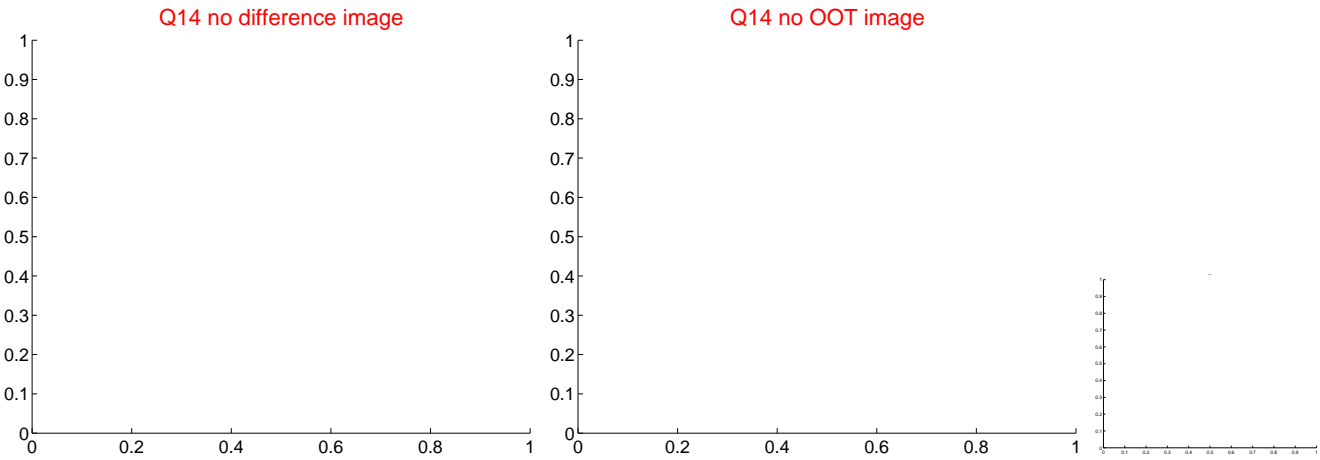
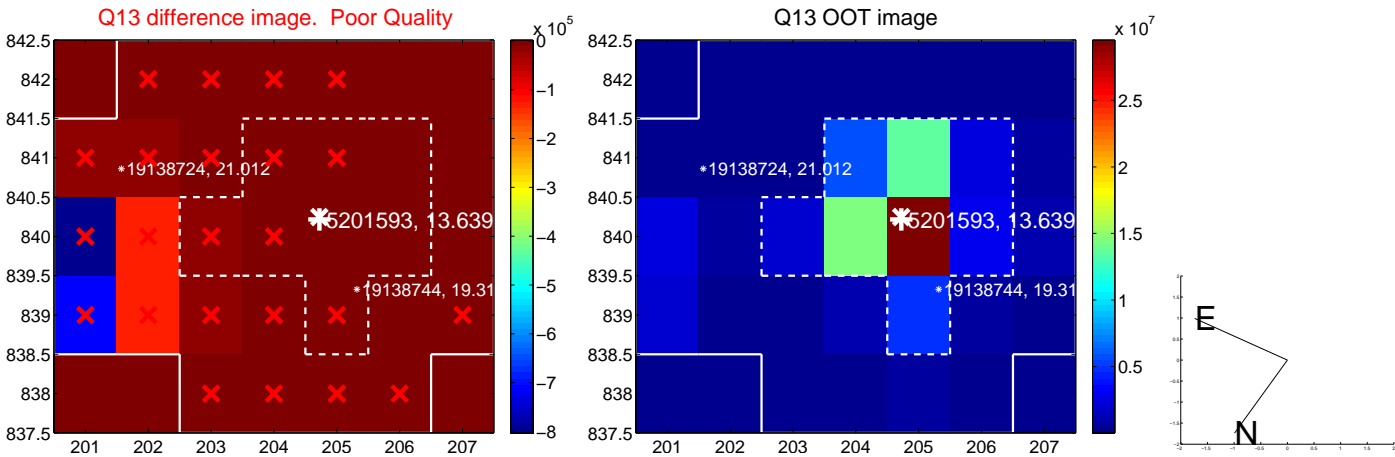
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



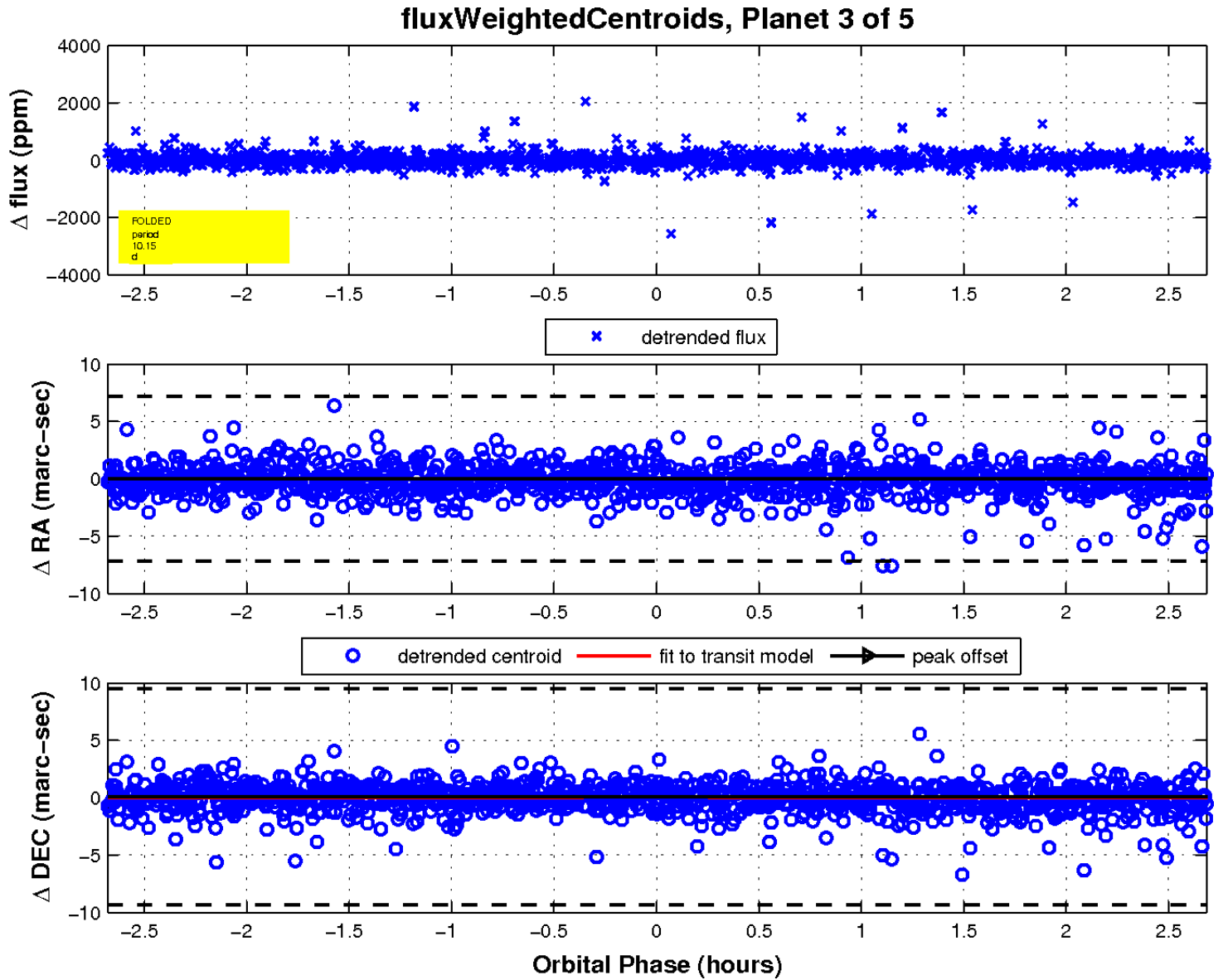
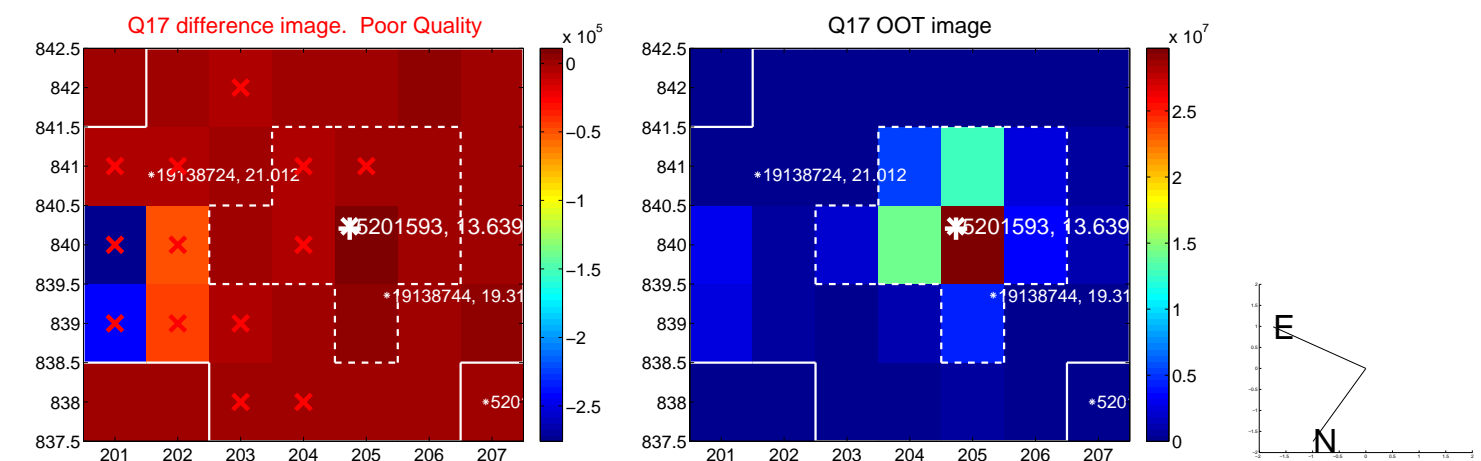
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



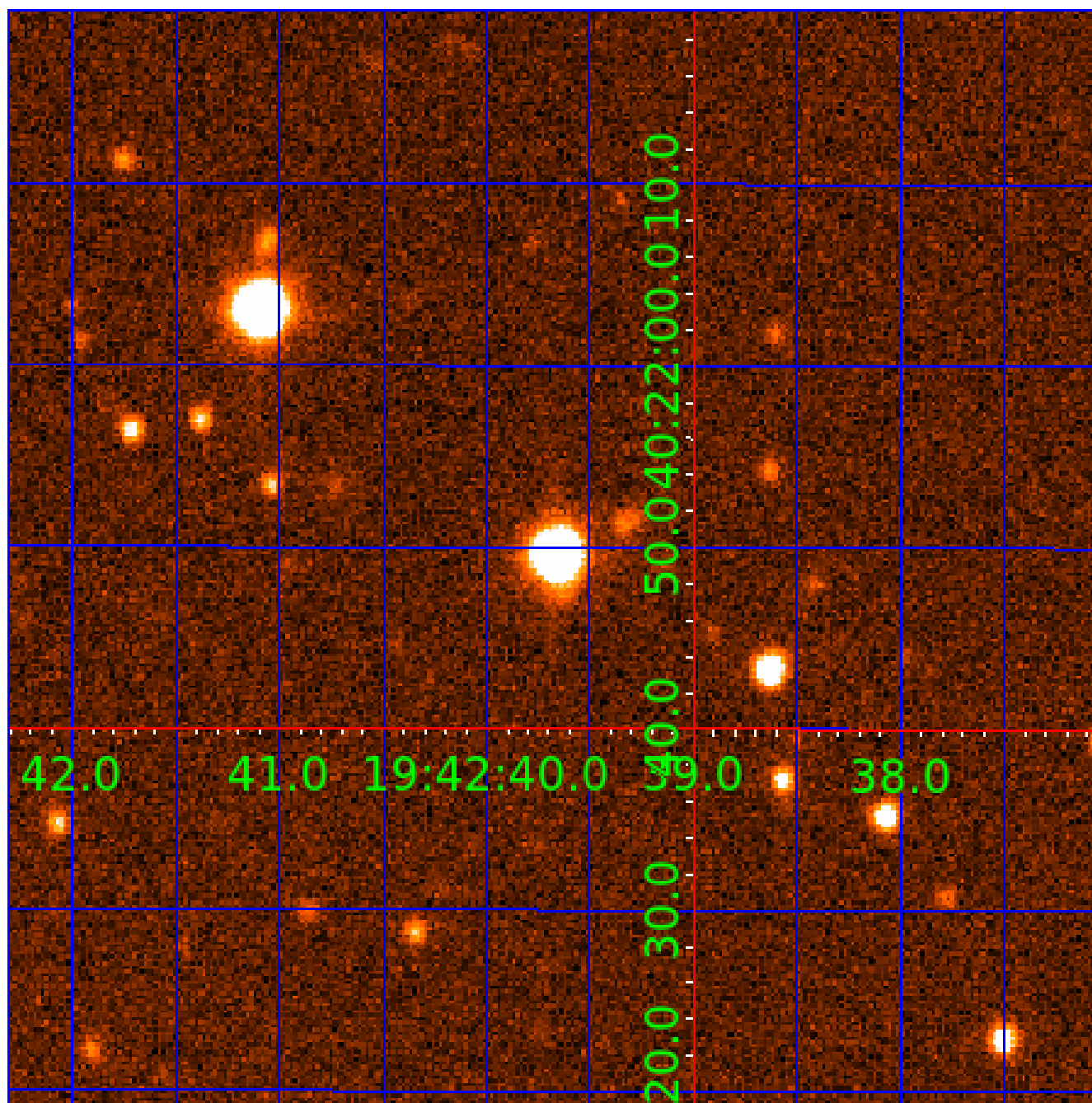
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 005201593

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005201593-01	OBS	7721.01	0.507255	131.772261	25.4	3.515	17.2	9.3	1.14	5970	0.60	8521.59
005201593-02	OBS	No	5.075689	136.089120	857.1	2.500	15.6	-1.0	1.14	5970	3.31	395.21
005201593-03	OBS	No	10.151530	141.658647	3721.7	0.896	14.3	10.2	1.14	5970	11.32	156.84
005201593-04	OBS	No	5.075700	135.575729	2499.8	0.578	14.1	6.8	1.14	5970	9.65	395.21
005201593-05	OBS	No	5.572889	134.576249	1761.1	1.780	10.8	5.8	1.14	5970	7.71	348.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005201593-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005201593-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_POS_ALT—CENT_NOFITS
005201593-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET
005201593-04	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET—HALO_GHOST
005201593-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET

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

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

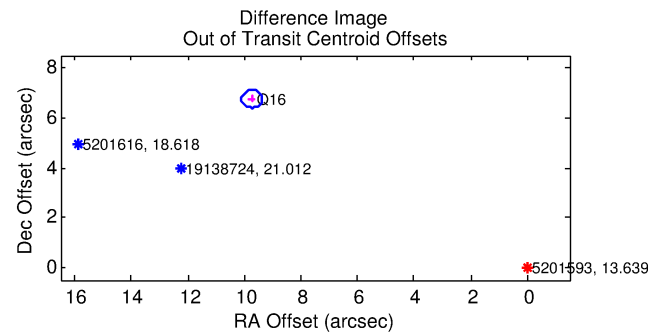
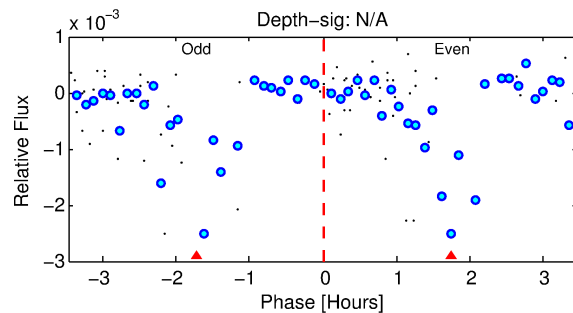
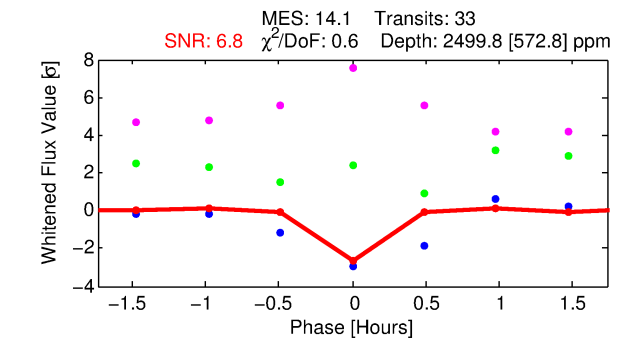
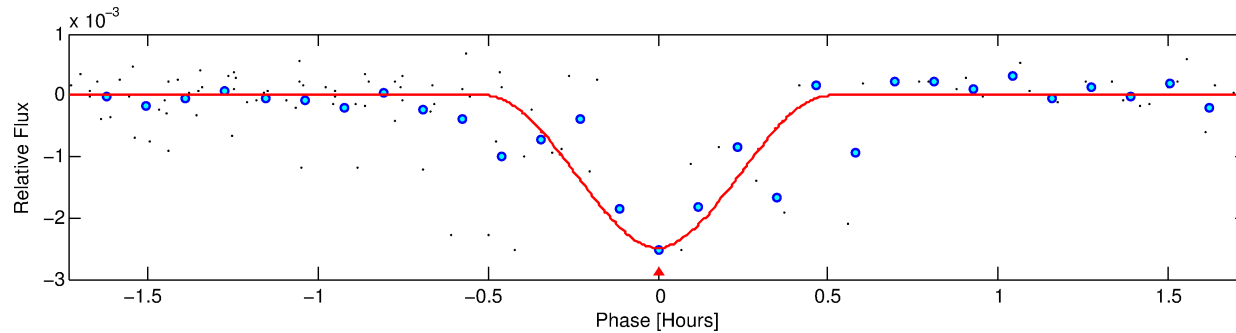
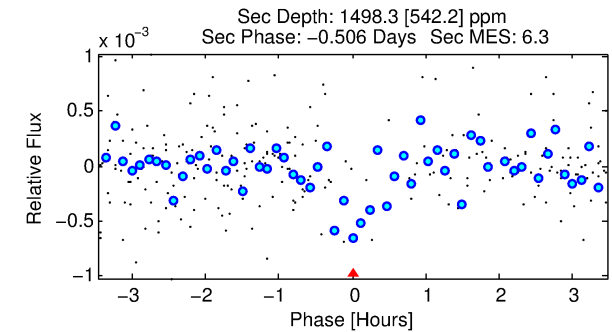
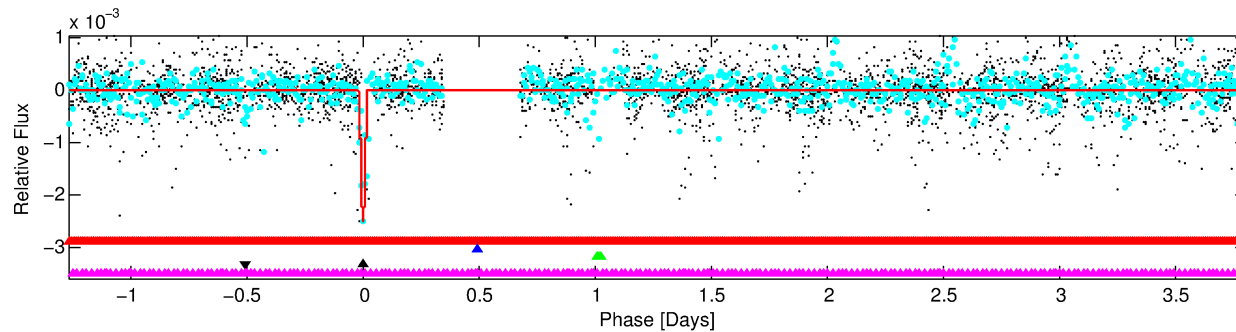
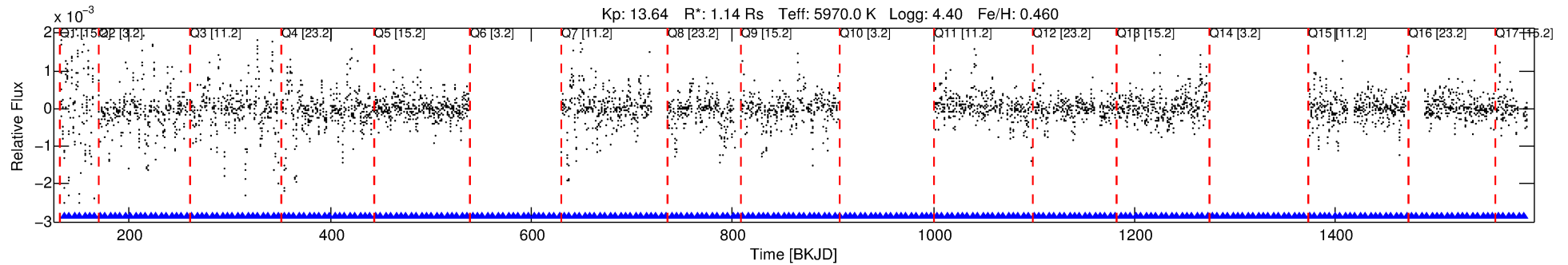
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005201593-04

No Significant Match Found

# DV One-Page Summary

KIC: 5201593 Candidate: 4 of 5 Period: 5.076 d



## DV Fit Results:

Period = 5.07570 [0.00002] d  
Epoch = 135.5757 [0.0012] BKJD  
Rp/R\* = 0.0774 [0.4686]  
a/R\* = 33.25 [79.09]  
b = 0.96 [0.97]  
Seff = 395.21 [66.58]  
Teq = 1137 [48] K  
Rp = 9.66 [58.46] Re  
a = 0.0613 [0.0064] AU  
Ag = 33.26 [402.93] [0.08σ]  
Teffp = 4222 [12783] K [0.24σ]

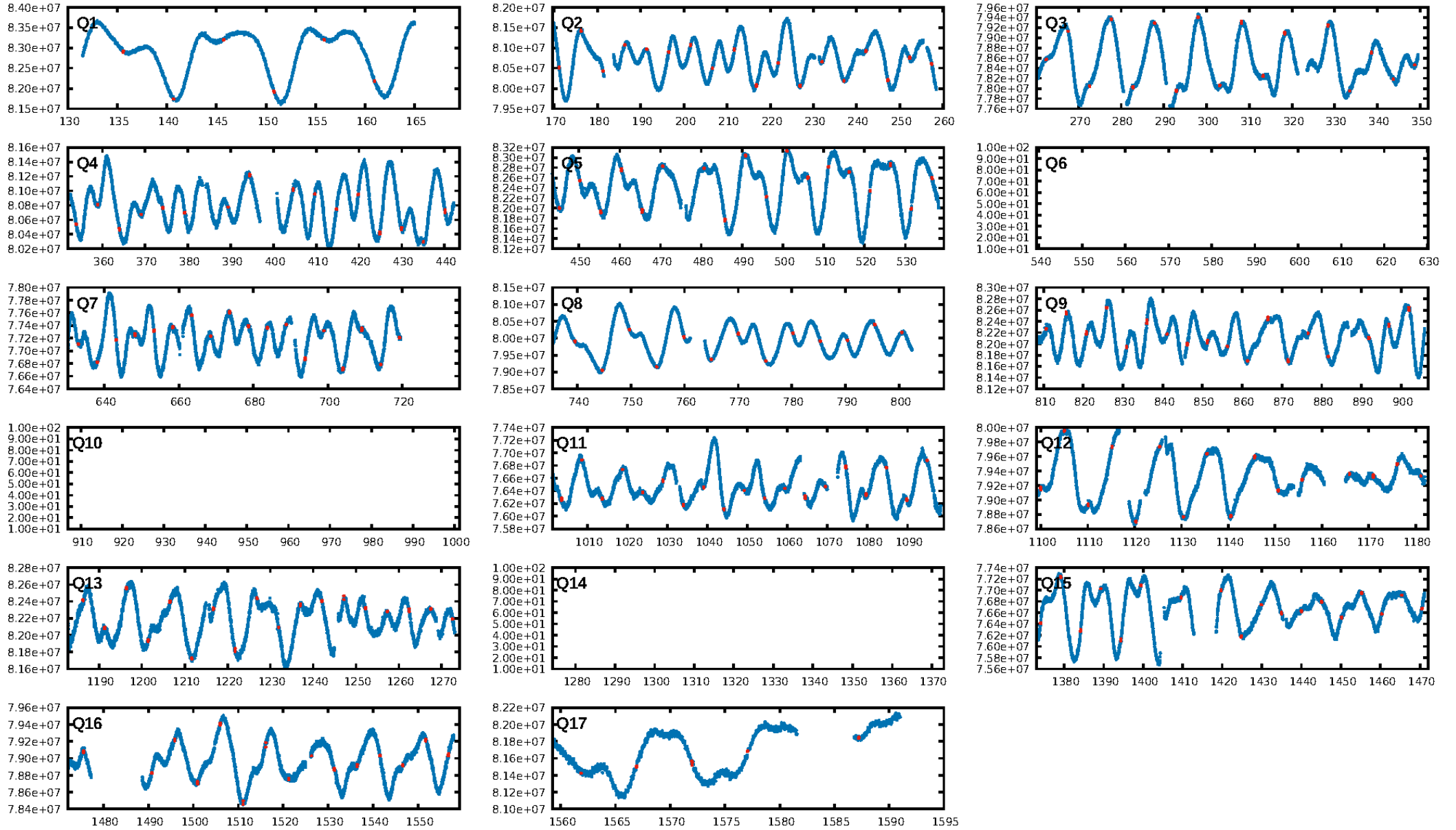
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [6.38σ]  
ModelChiSquare2-sig: 44.8%  
ModelChiSquareGoF-sig: 99.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [27/27]  
GhostDiagnostic-chr: -0.006593  
Centroid-sig: 50.9%  
Centroid-so: 0.205 arcsec [2.56σ]  
OotOffset-rm: 11.856 arcsec [99.69σ]  
KicOffset-rm: 11.826 arcsec [99.50σ]  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 0.00 [0/14]

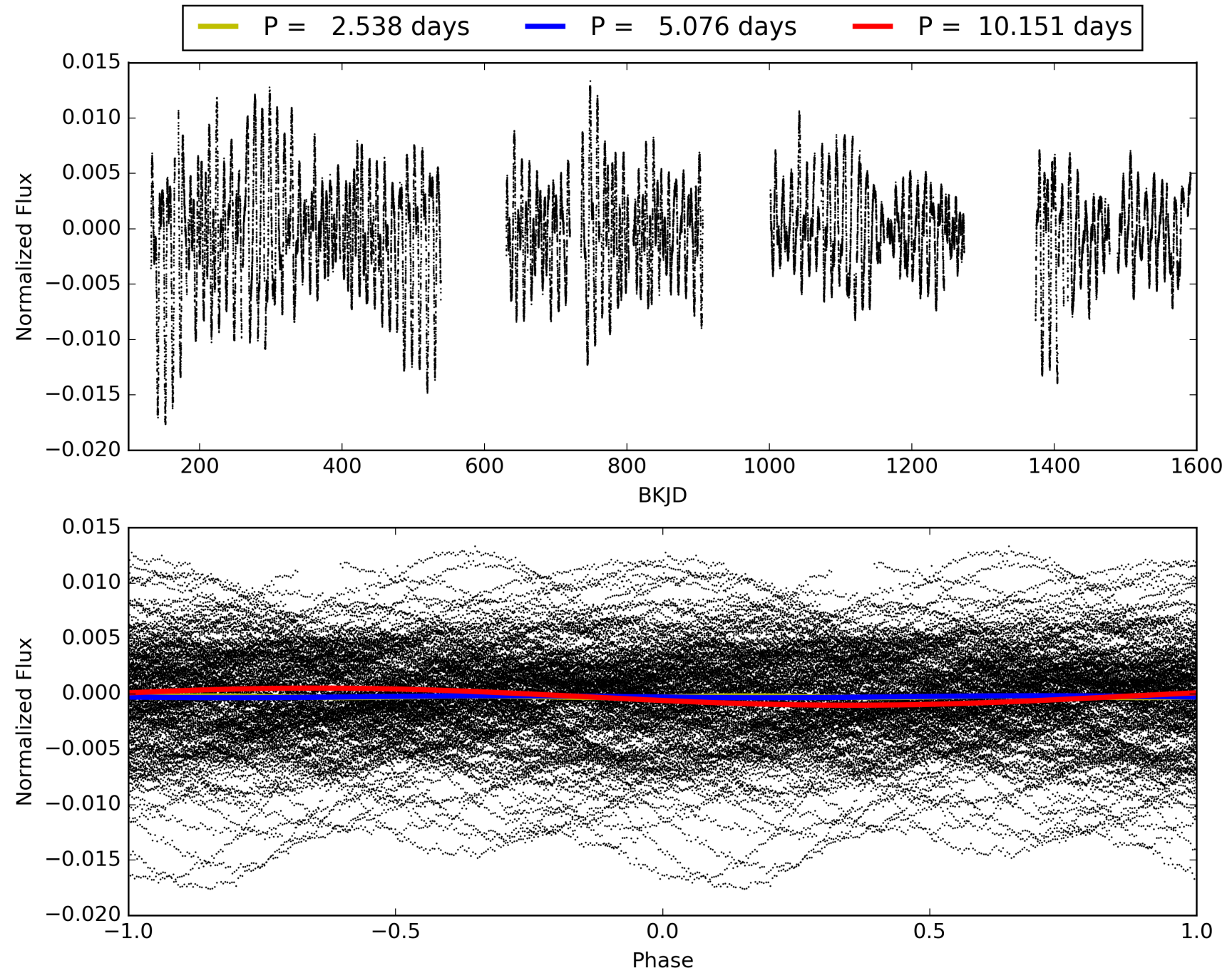
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:50:50 Z

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

# TCE 005201593-04, PDC Light Curves

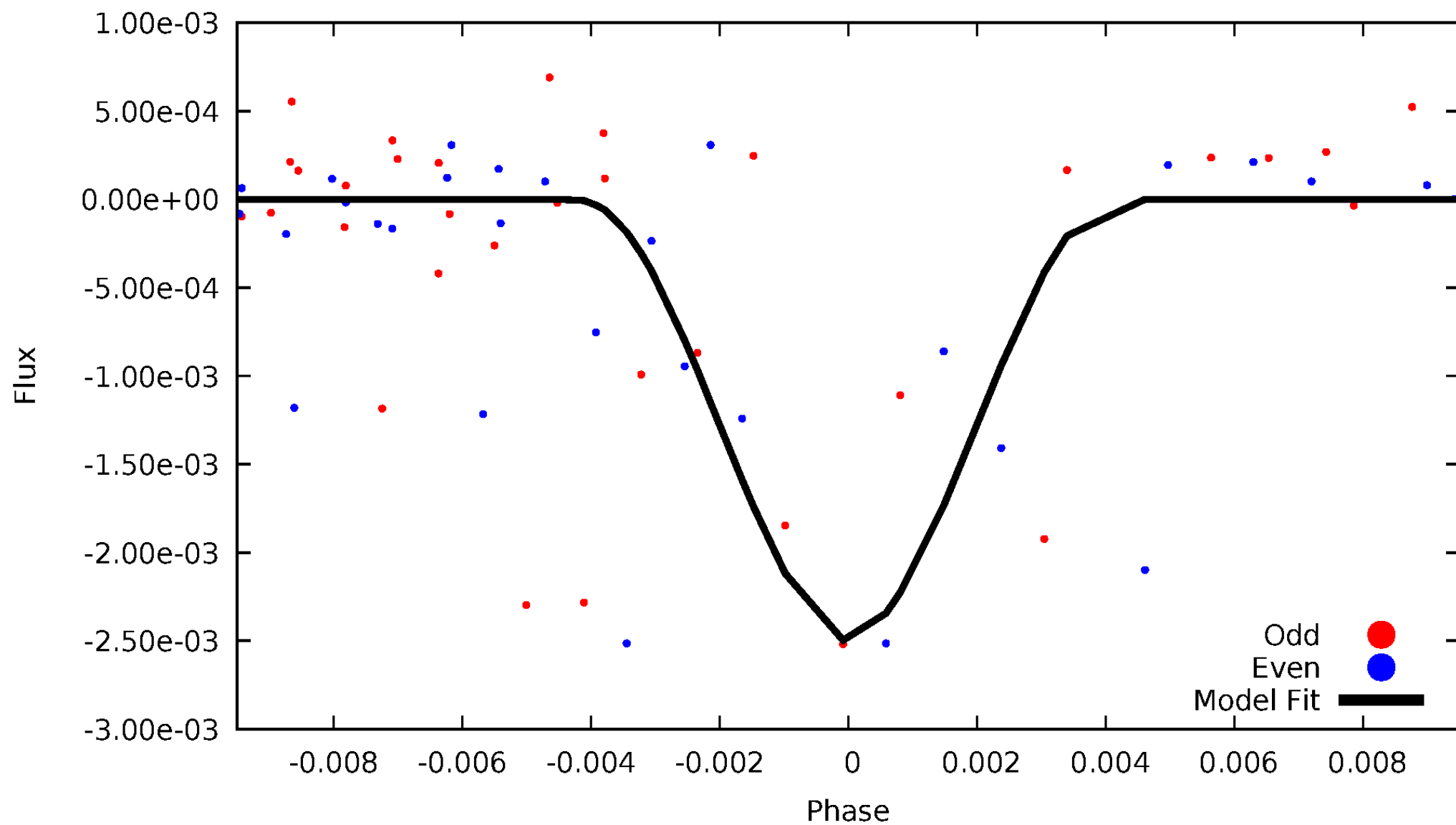


TCE 005201593-04



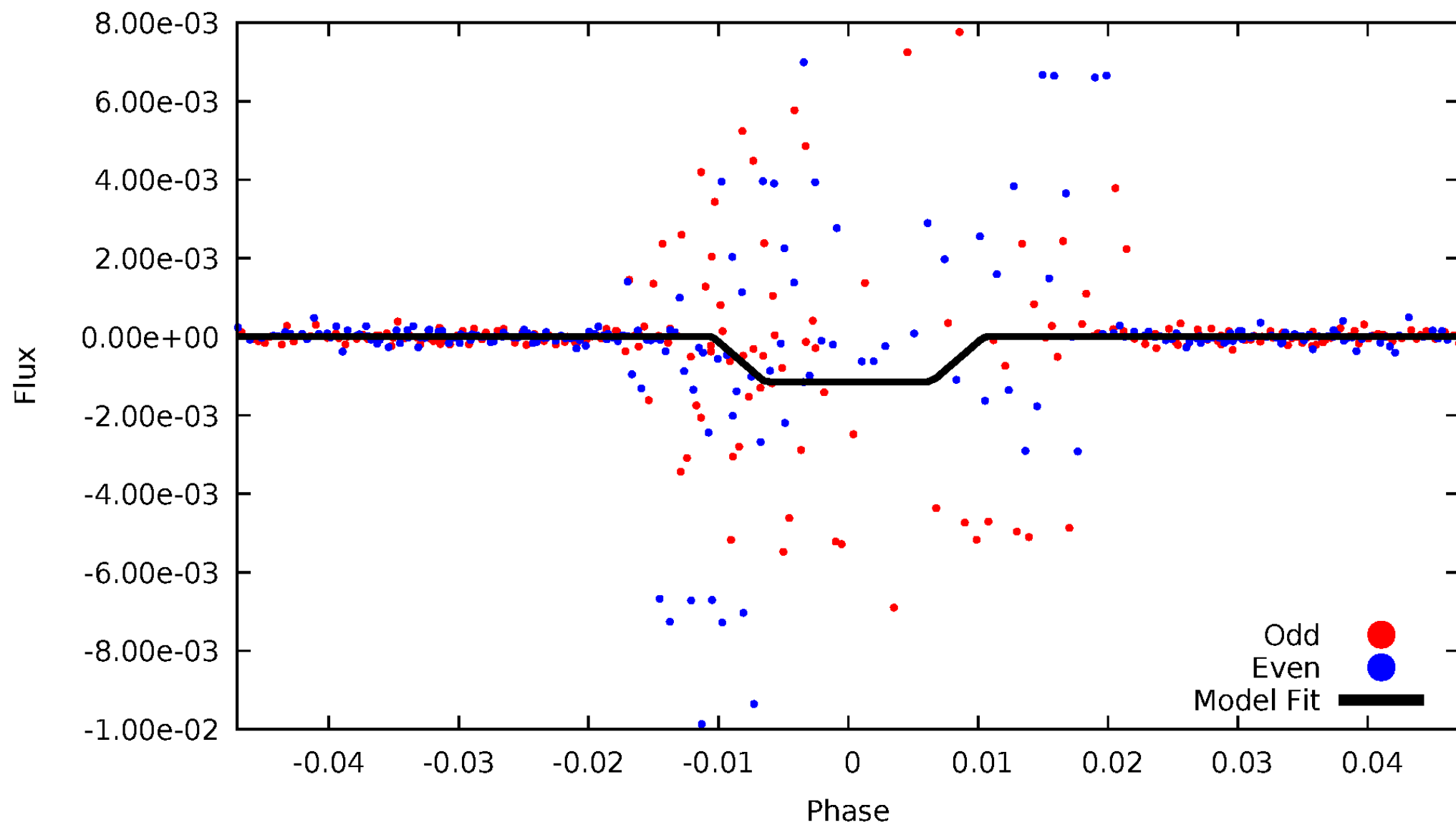
# DV Odd/Even

TCE 005201593-04



# ALT Odd/Even

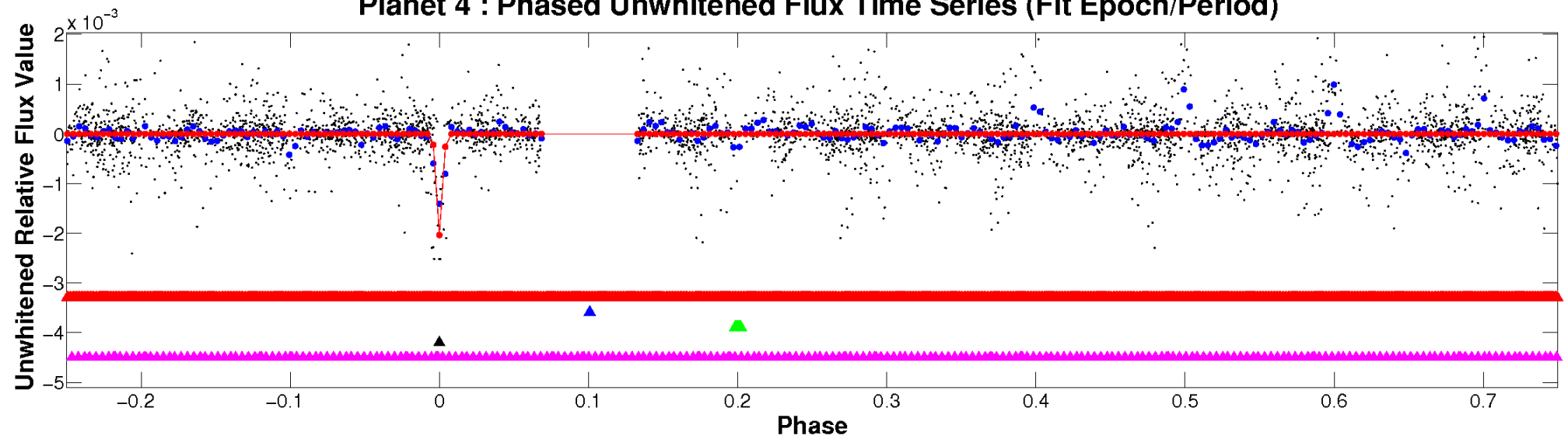
TCE 005201593-04



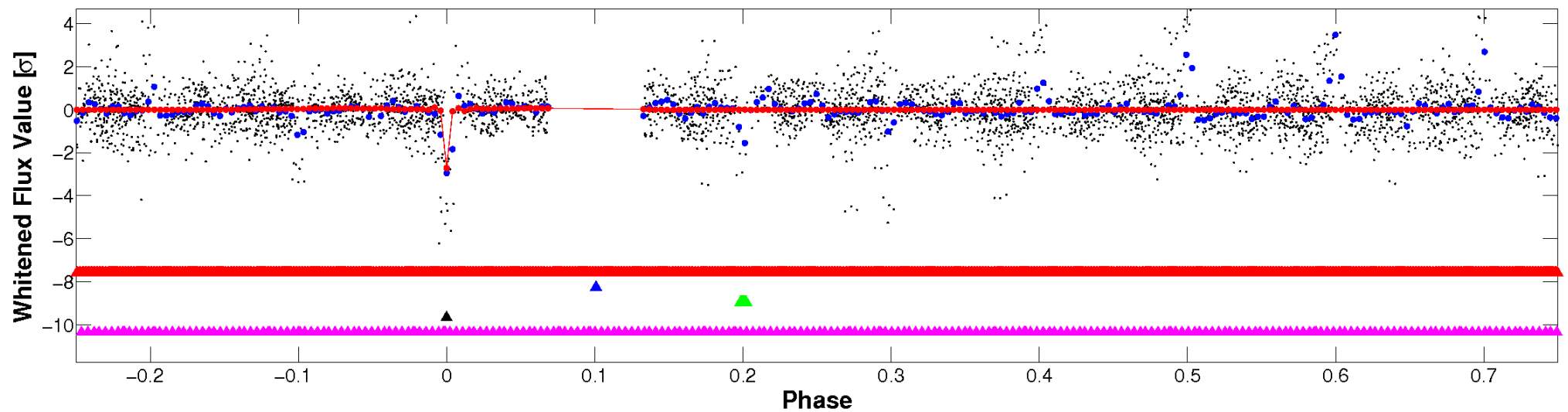


# Non-Whitened Vs. Whitened Light Curve

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

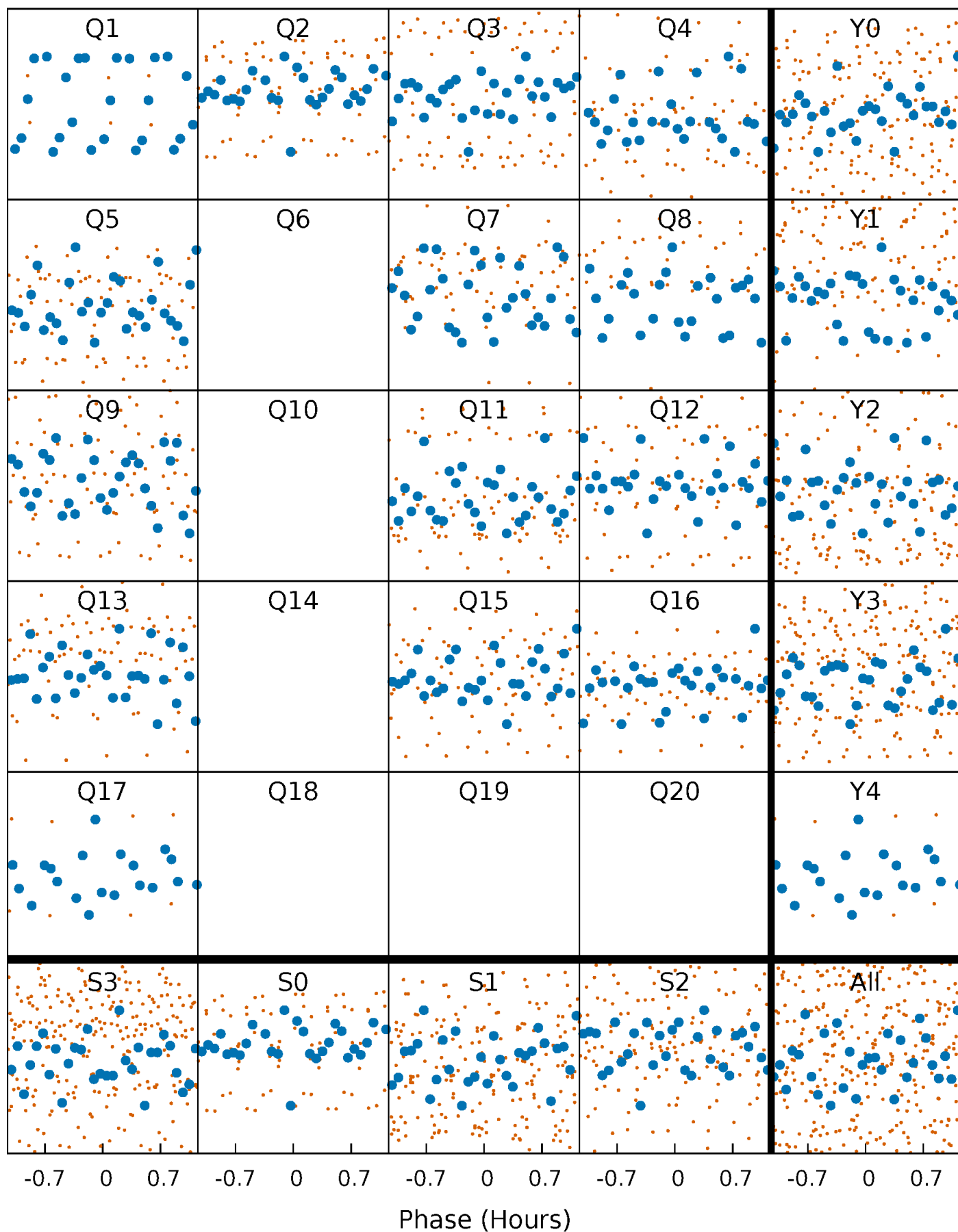


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



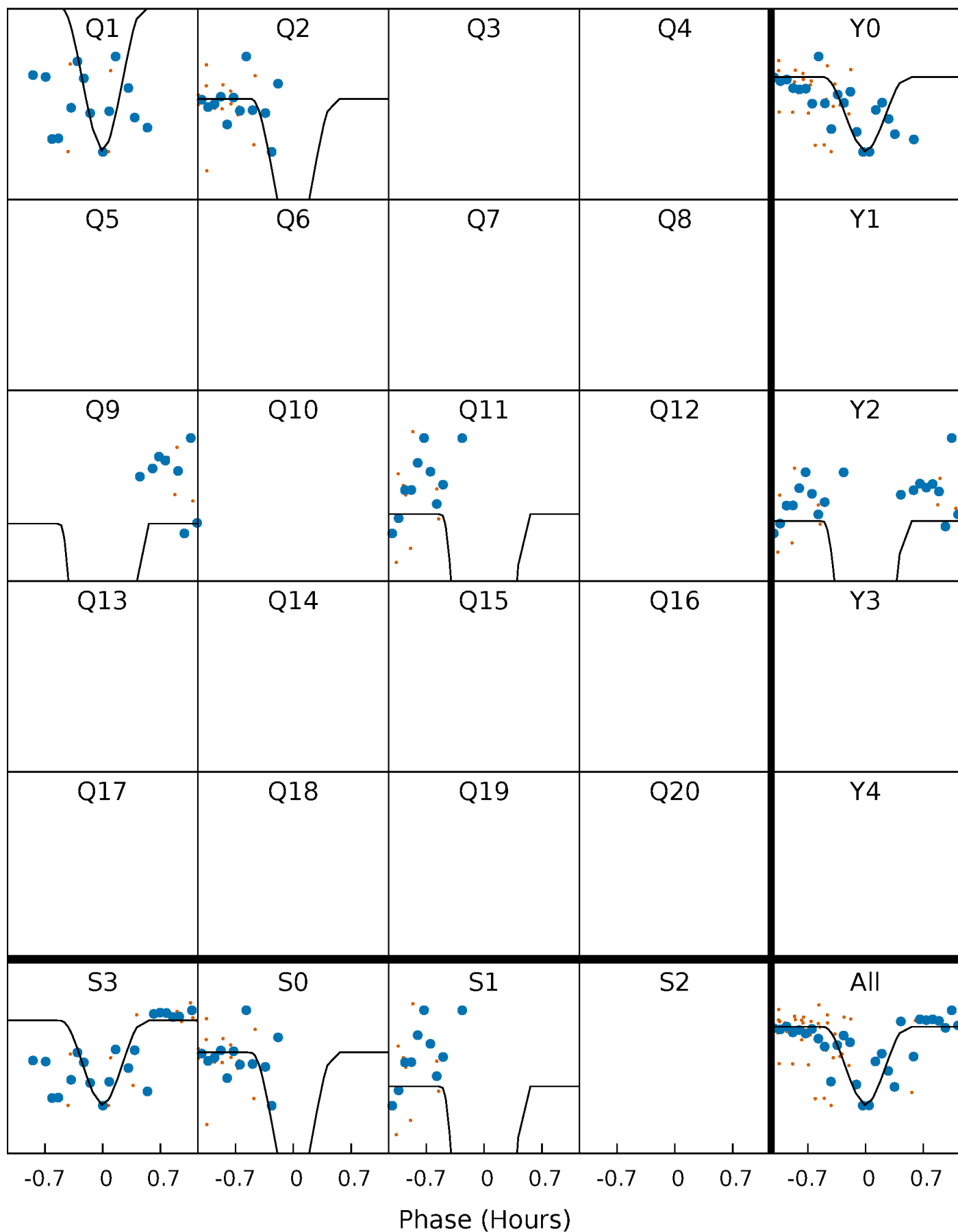
# PDC Quarter-Phased Transit Curves

TCE 005201593-04     $P = 5.075700$  Days     $T_0 = 135.575729$  (BKJD)



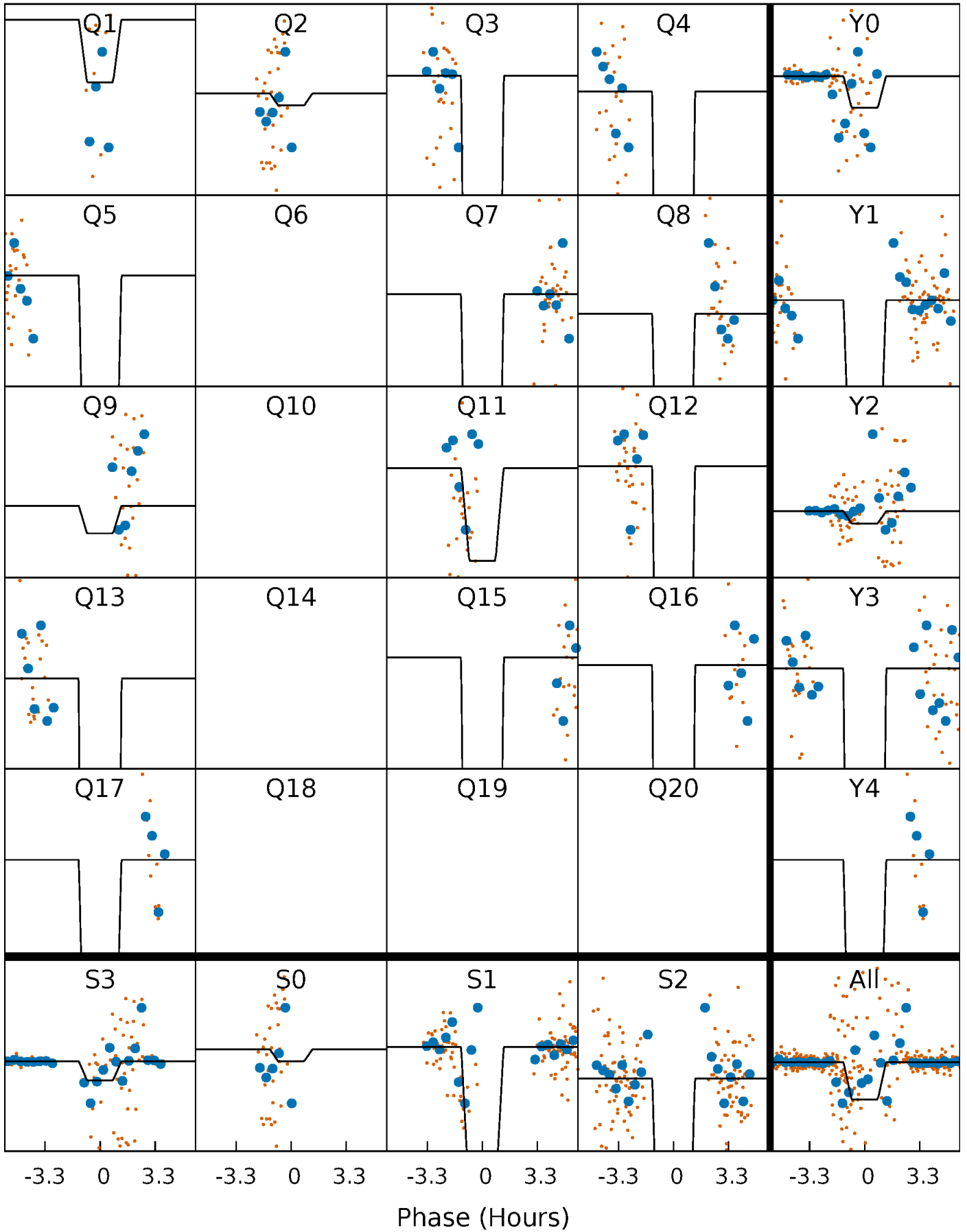
# DV Quarter-Phased Transit Curves

TCE 005201593-04     $P = 5.075700$  Days     $T_0 = 135.575729$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

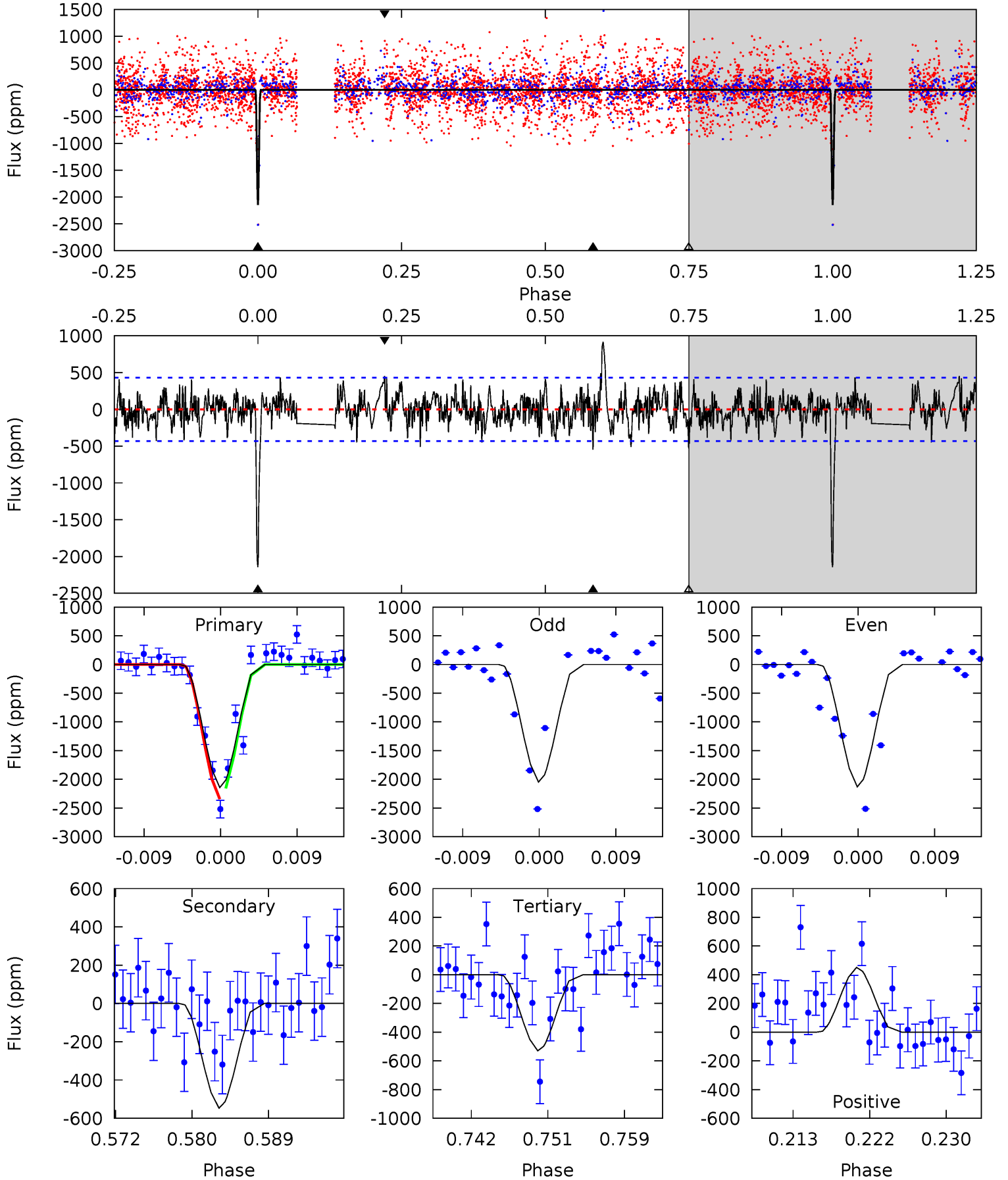
TCE 005201593-04 P= 5.075676 Days  $T_0=135.573418$  (BKJD)



# DV Model-Shift Uniqueness Test

005201593-04, P = 5.075700 Days, E = 130.500029 Days

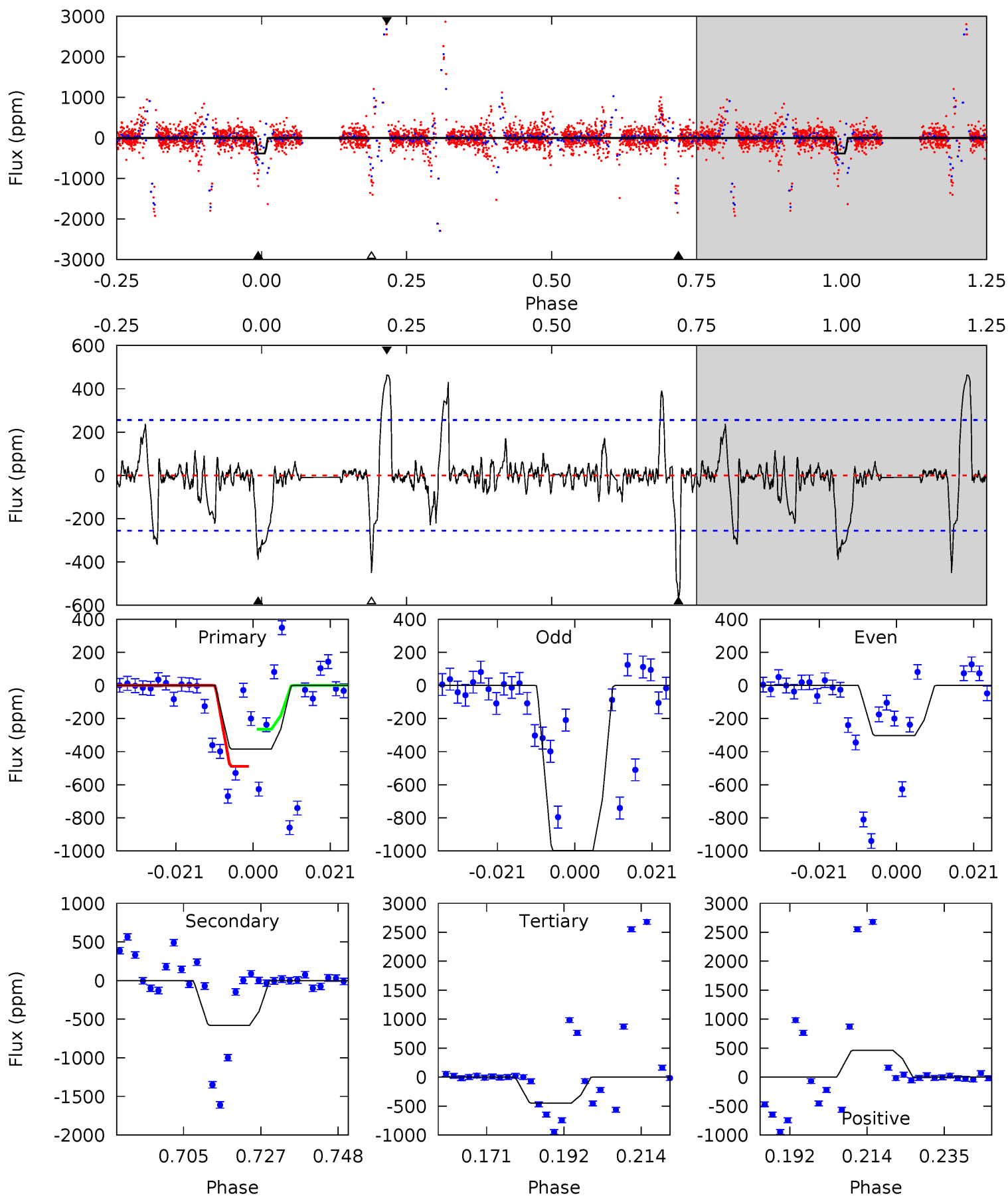
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	6.41	6.21	5.29	5.06	2.63	1.86	18.9	19.8	0.20	1.12	0.49	0.89	0.30	1.02



# Alt Model-Shift Uniqueness Test

005201593-04, P = 5.075676 Days, E = 130.497742 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
7.34	11.1	8.60	8.84	4.88	2.30	1.37	-1.26	-1.50	2.45	2.21	4.60	-3.44	0.44	0



### Stellar Parameters For KIC 005201593

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5970^{+77}_{-83}$	$4.399^{+0.030}_{-0.090}$	$0.460^{+0.050}_{-0.150}$	$1.143^{+0.135}_{-0.052}$	$1.195^{+0.043}_{-0.057}$	$1.128^{+0.130}_{-0.296}$
	+1%/-1%	+1%/-2%	+11%/-33%	+12%/-5%	+4%/-5%	+11%/-26%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005201593-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-547 \pm 85$	$43.96^{+45.12}_{-29.59}$	$1599^{+45}_{-34}$	$2222^{+1018}_{-4324}$	$0.582^{+4.599}_{-0.442}$
Alt.	$-579 \pm 52$	$41.25^{+40.77}_{-28.37}$	$1598^{+47}_{-33}$	$2329^{+1079}_{-4375}$	$0.696^{+6.759}_{-0.522}$

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



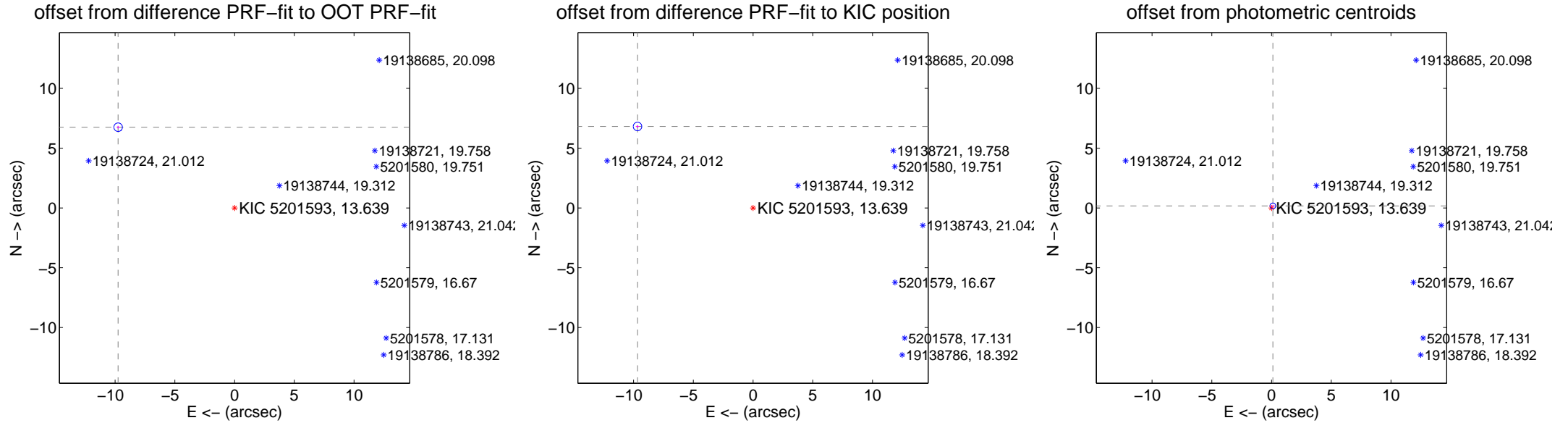
## DV Centroid Data

Supplemental centroid analysis for 005201593-04. Kepler magnitude: 13.64. Transit SNR 6.80

There are 1 quarters with good PRF difference image offsets

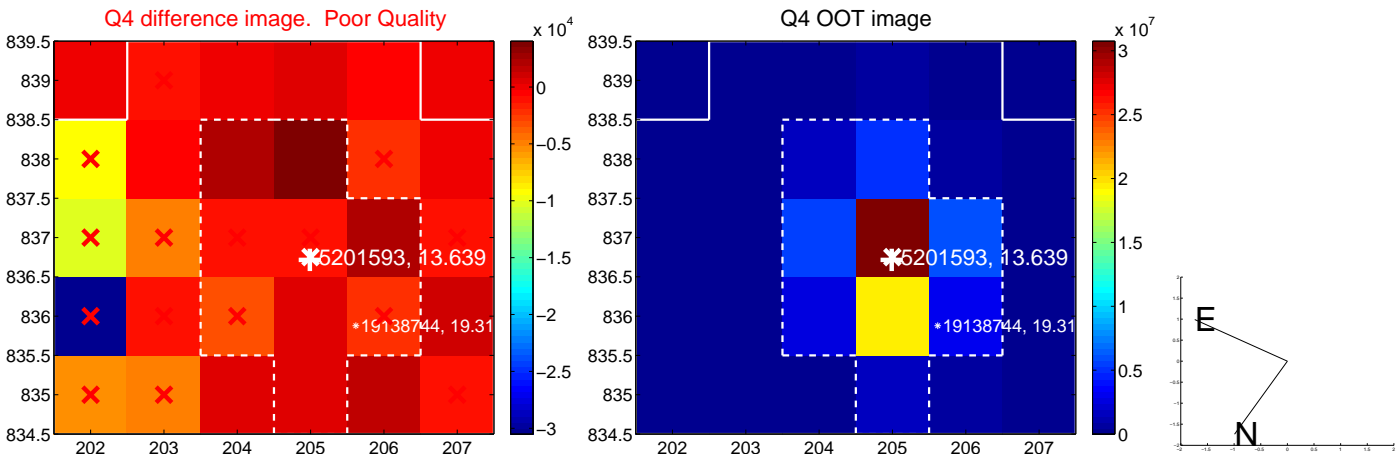
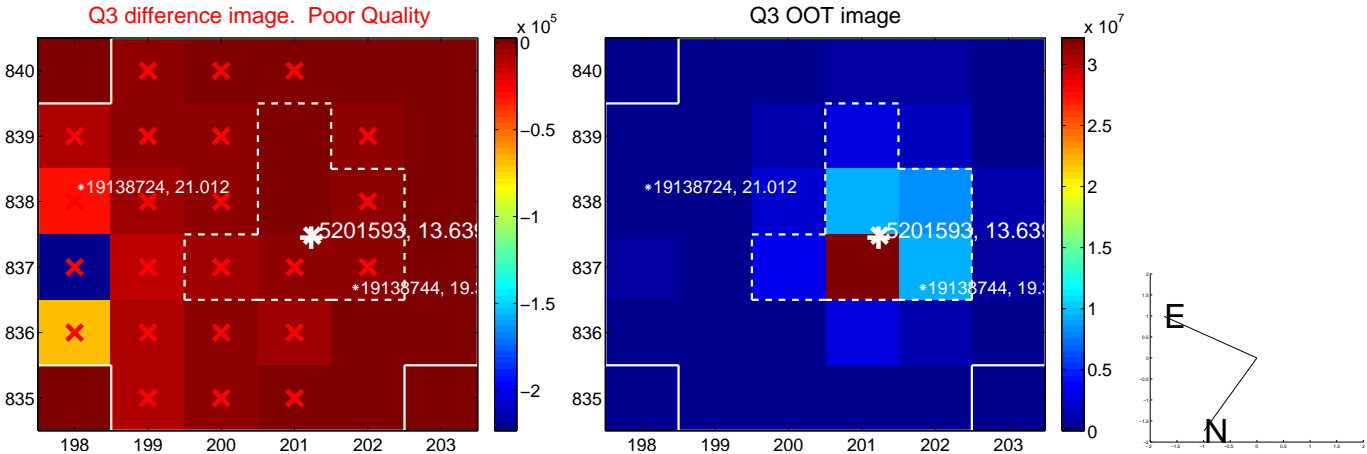
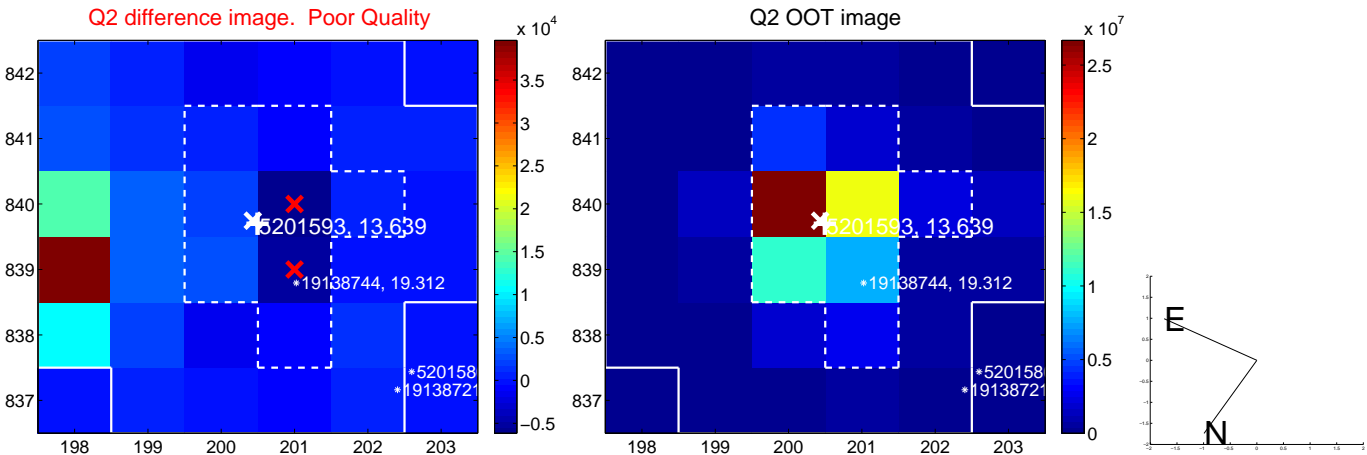
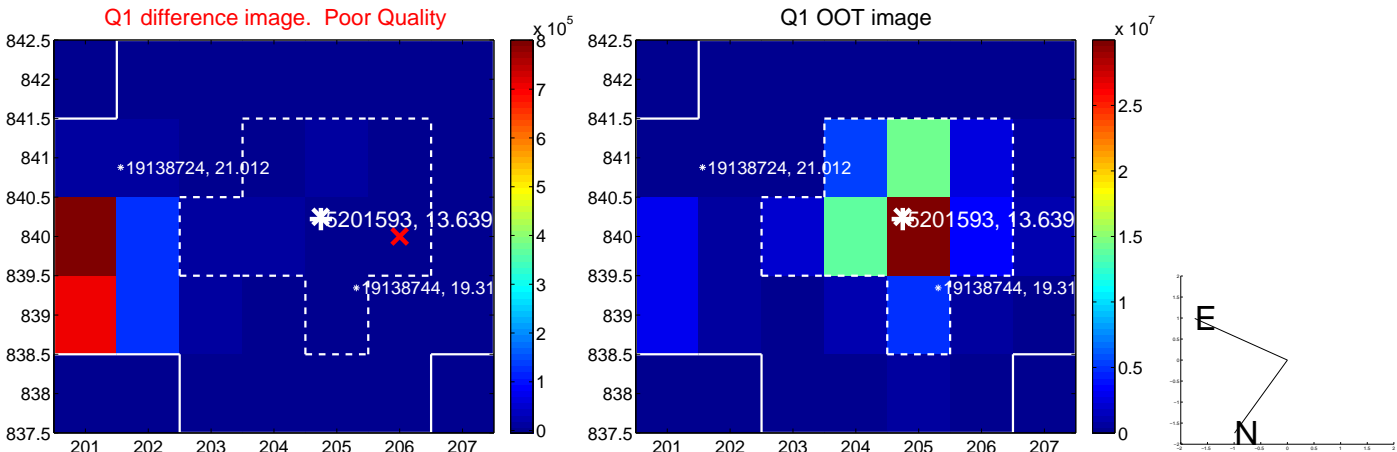
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	11.856 $\pm$ 0.119	99.69	9.746 $\pm$ 0.122	6.752 $\pm$ 0.112
PRF-fit source offset from KIC position	11.826 $\pm$ 0.119	99.50	9.668 $\pm$ 0.122	6.811 $\pm$ 0.112
photometric centroid source offset	0.21 $\pm$ 0.08	2.56	-0.11 $\pm$ 0.08	0.17 $\pm$ 0.08

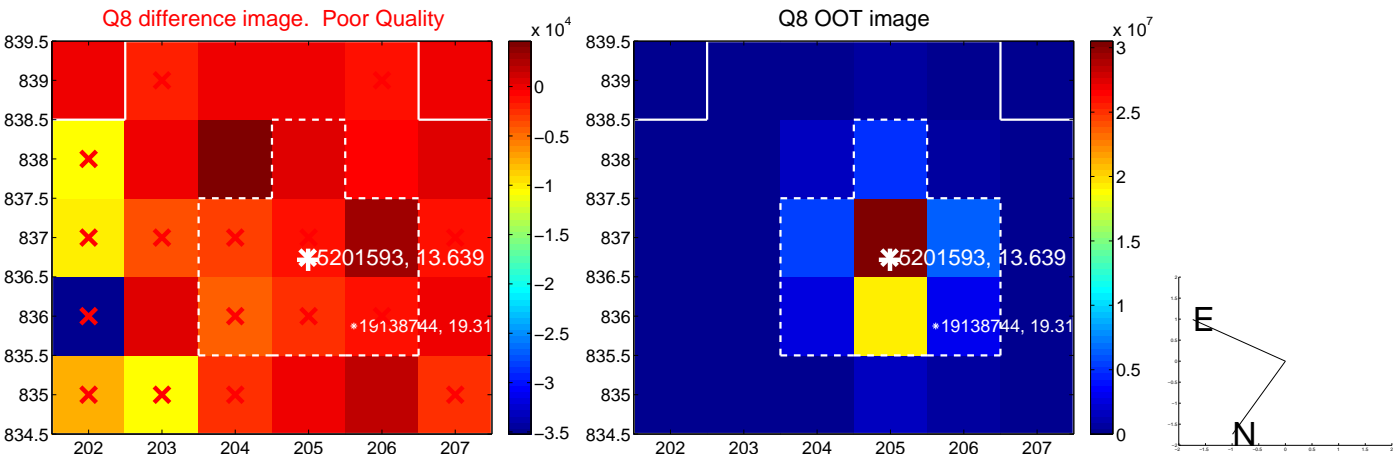
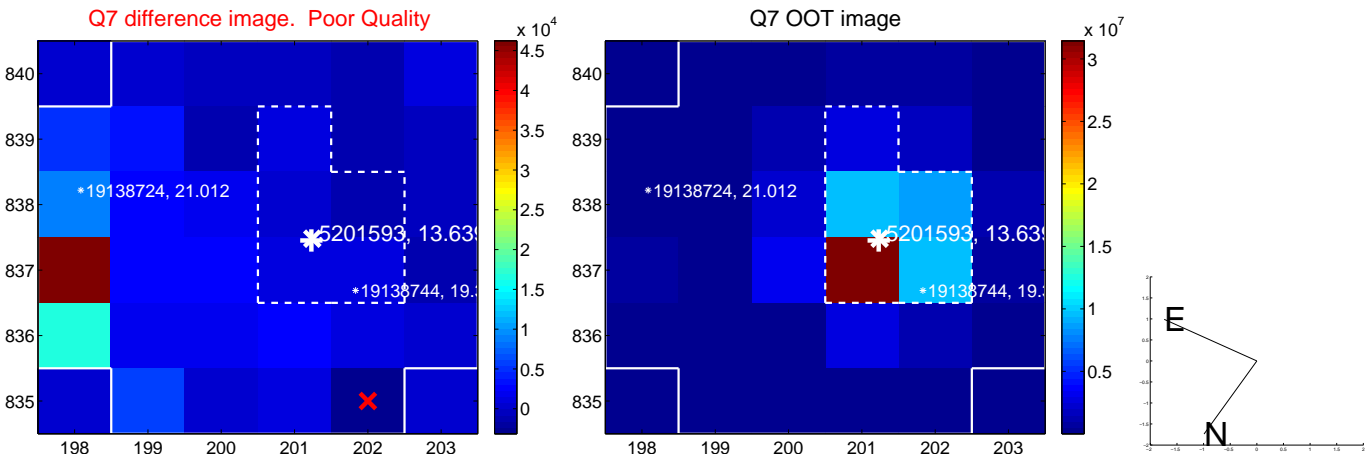
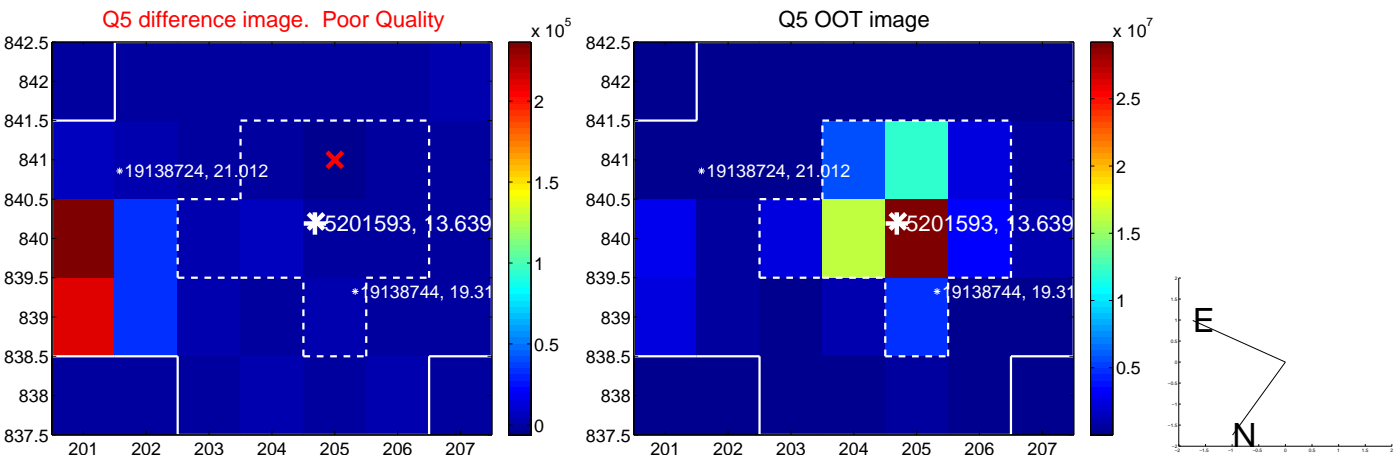


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

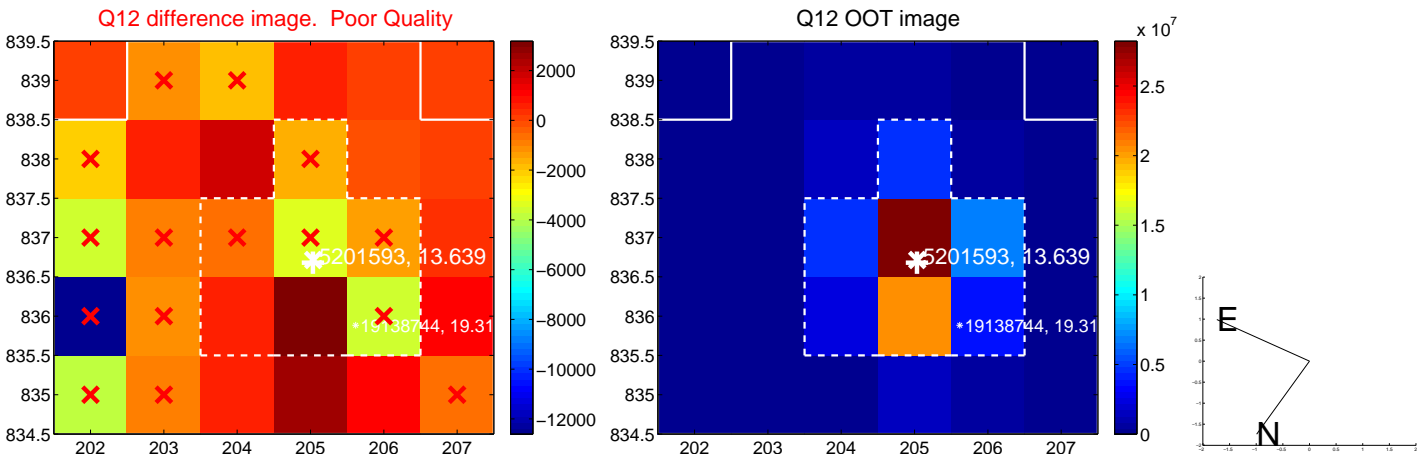
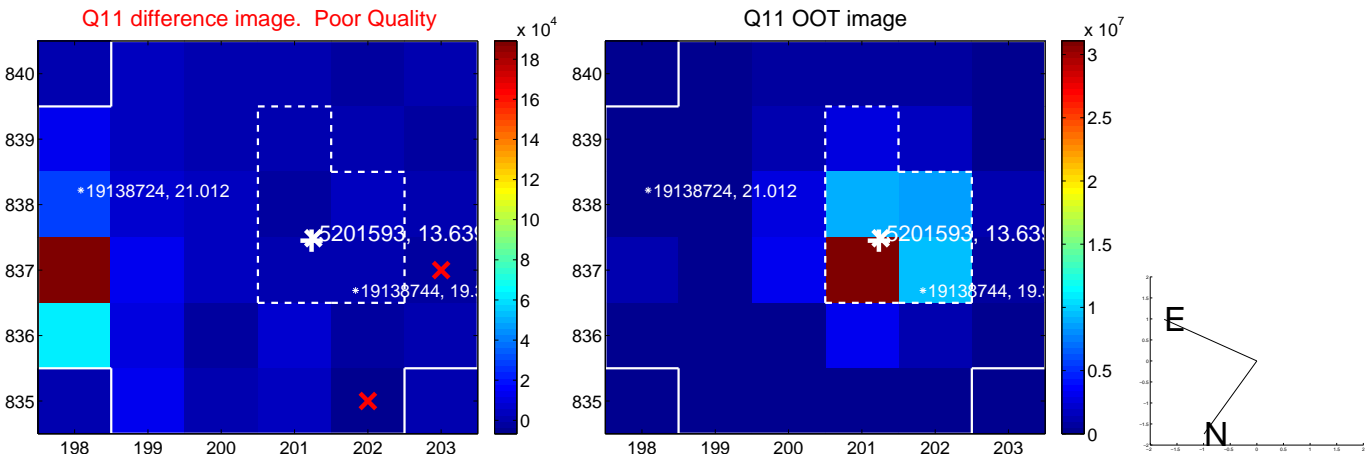
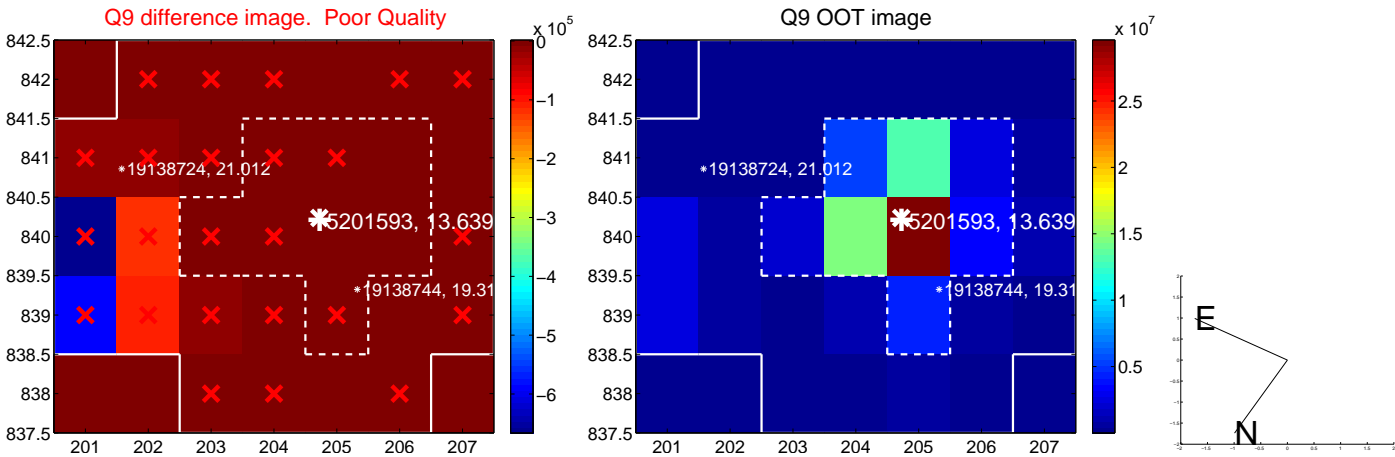
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



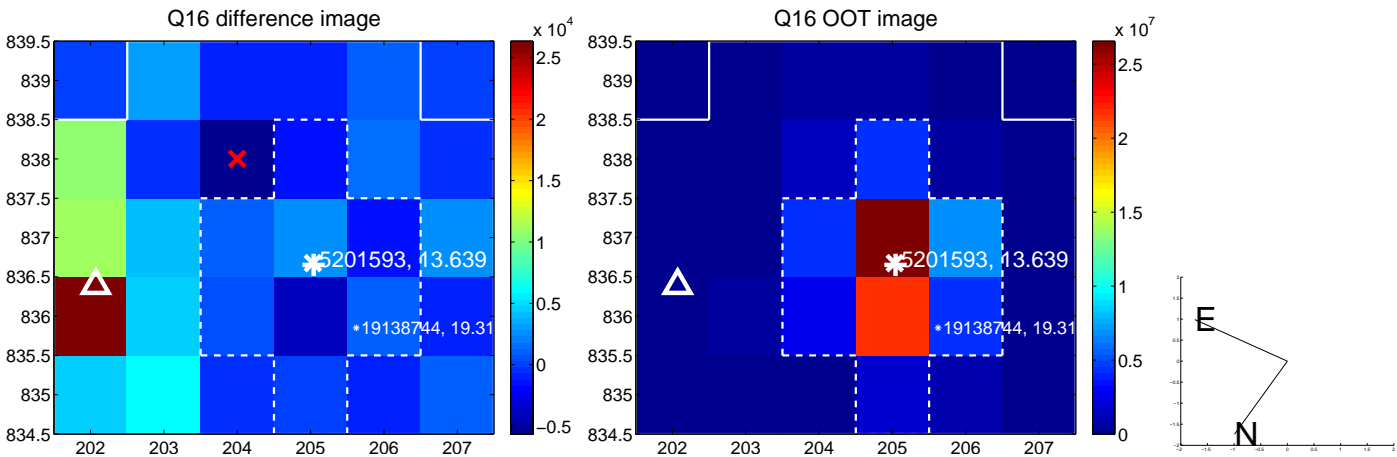
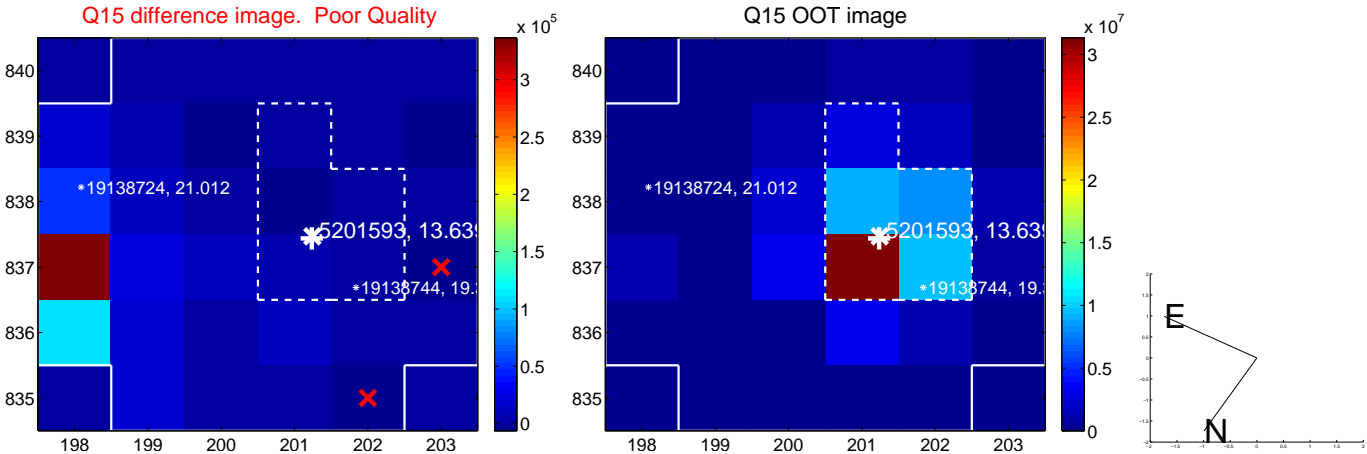
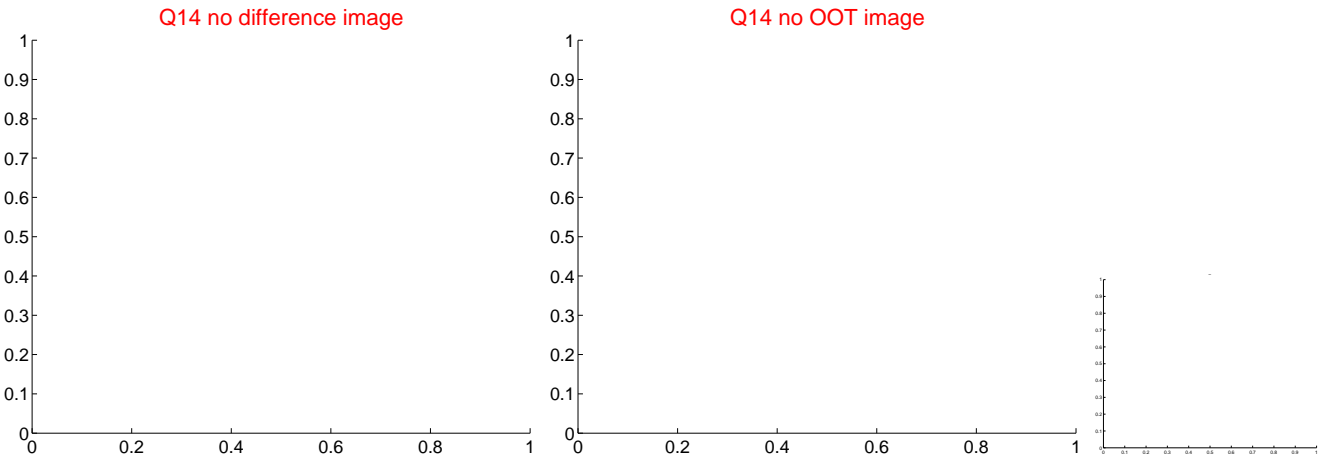
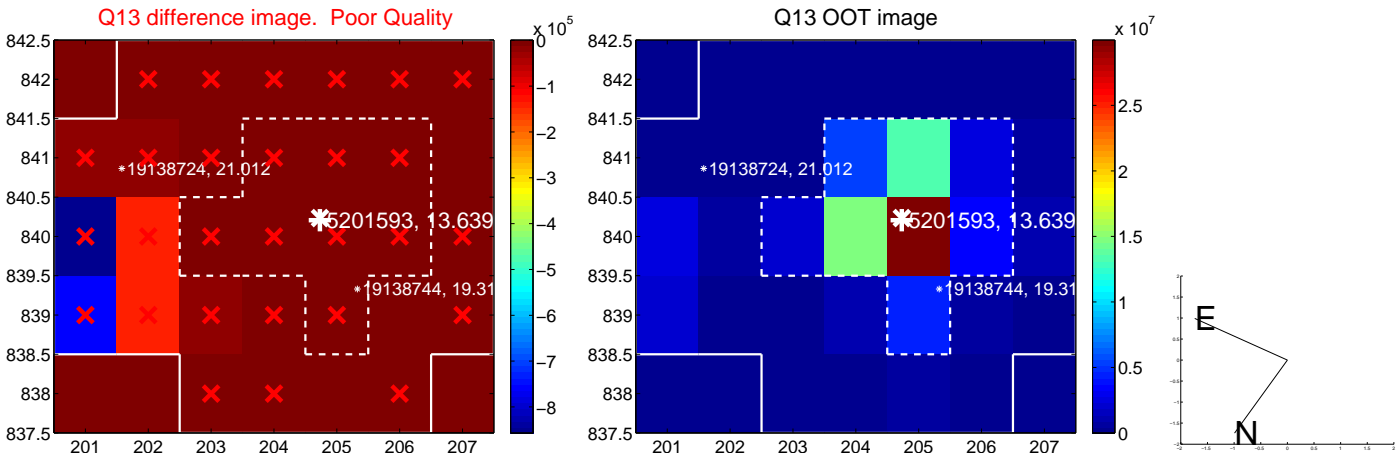
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



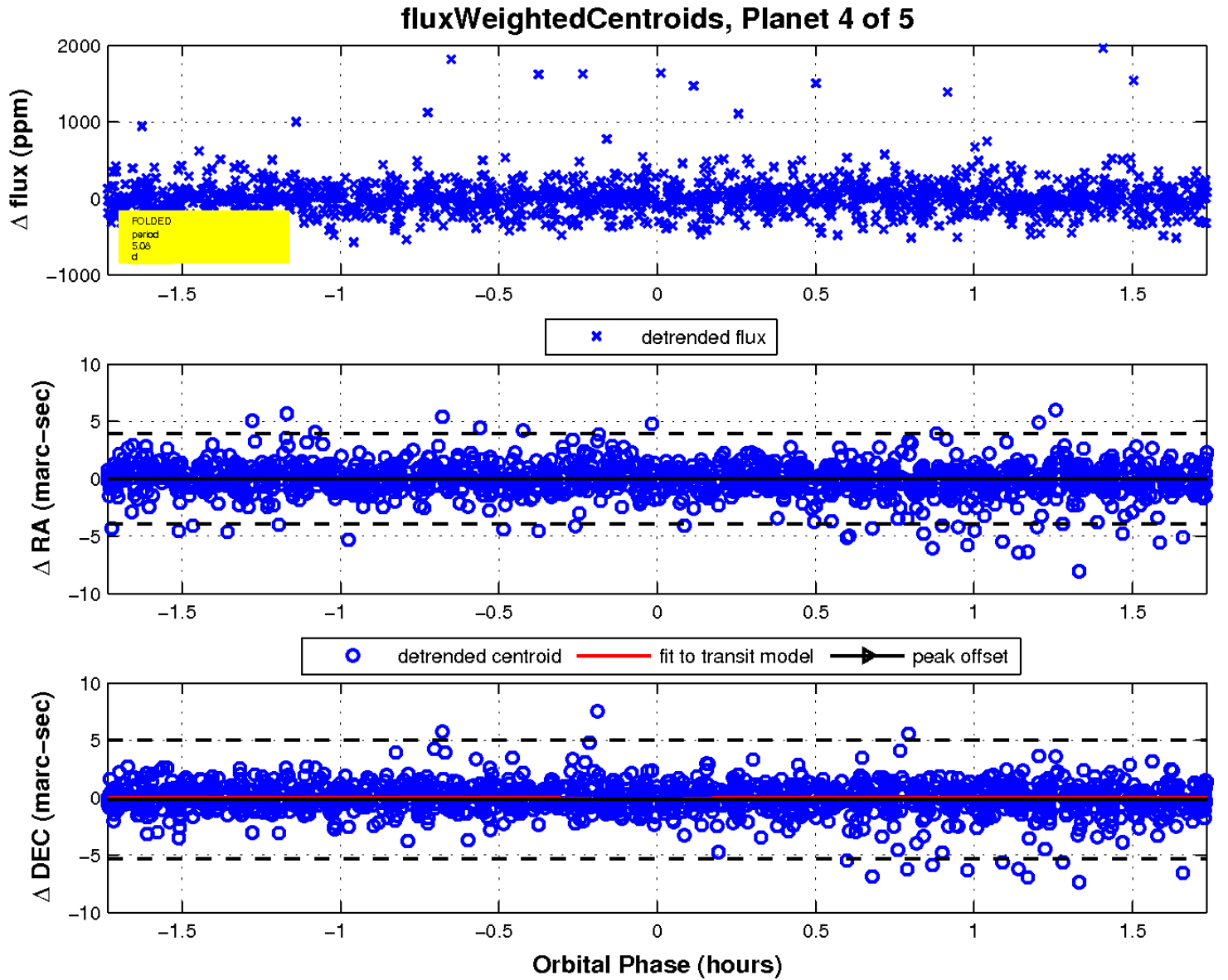
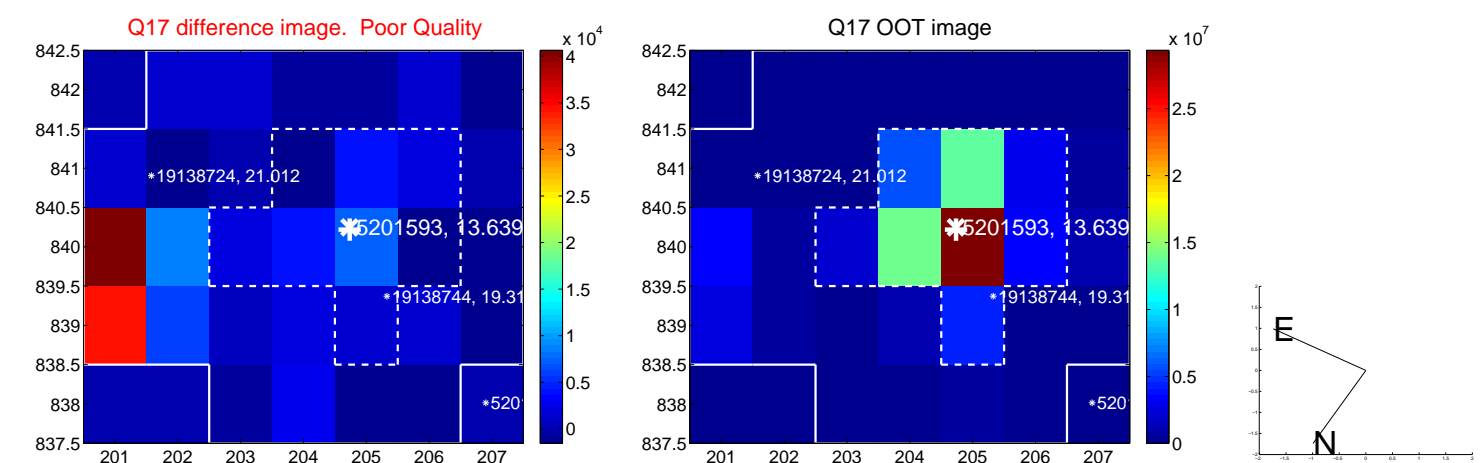
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

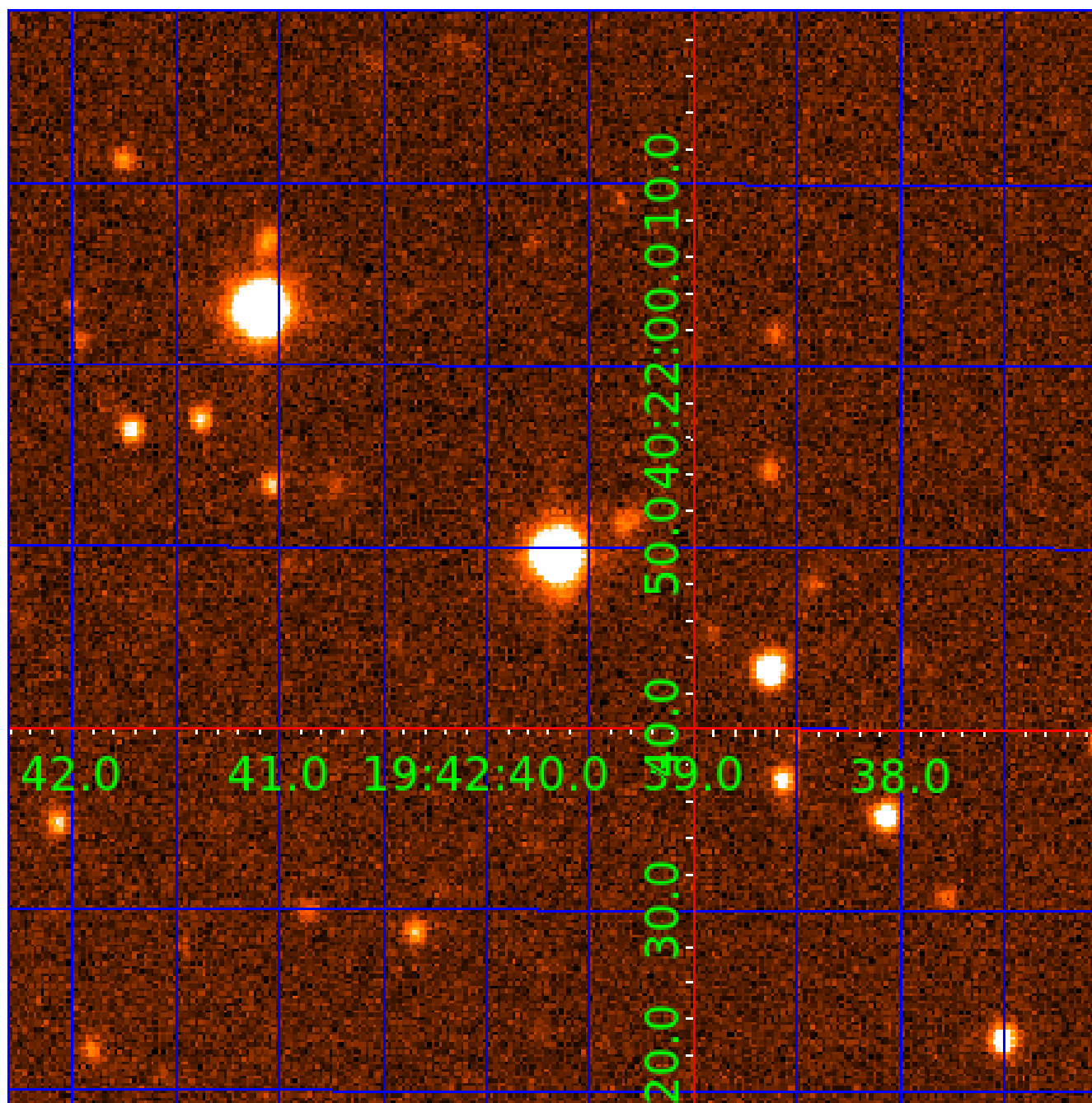


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005201593

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005201593-01	OBS	7721.01	0.507255	131.772261	25.4	3.515	17.2	9.3	1.14	5970	0.60	8521.59
005201593-02	OBS	No	5.075689	136.089120	857.1	2.500	15.6	-1.0	1.14	5970	3.31	395.21
005201593-03	OBS	No	10.151530	141.658647	3721.7	0.896	14.3	10.2	1.14	5970	11.32	156.84
005201593-04	OBS	No	5.075700	135.575729	2499.8	0.578	14.1	6.8	1.14	5970	9.65	395.21
005201593-05	OBS	No	5.572889	134.576249	1761.1	1.780	10.8	5.8	1.14	5970	7.71	348.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005201593-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005201593-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_POS_ALT—CENT_NOFITS
005201593-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET
005201593-04	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET—HALO_GHOST
005201593-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET

**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.

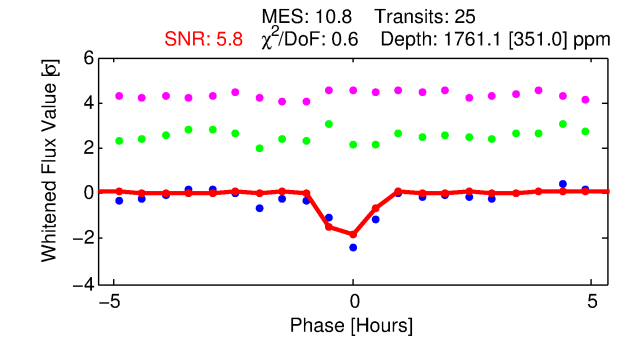
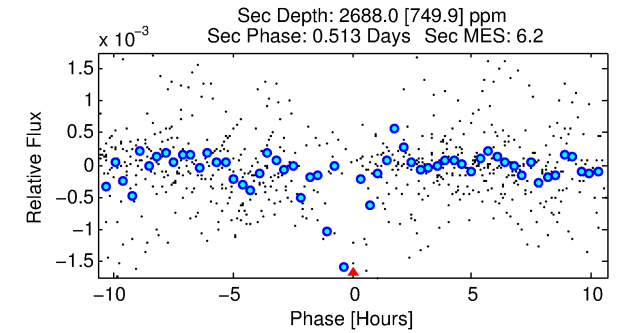
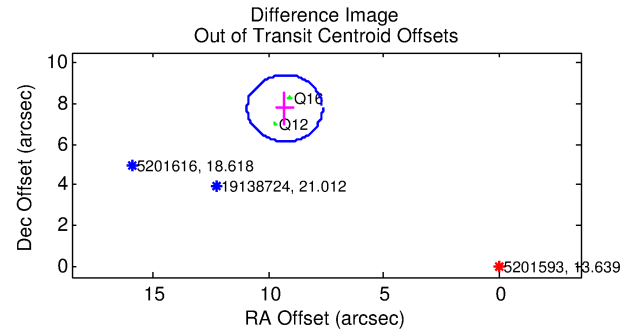
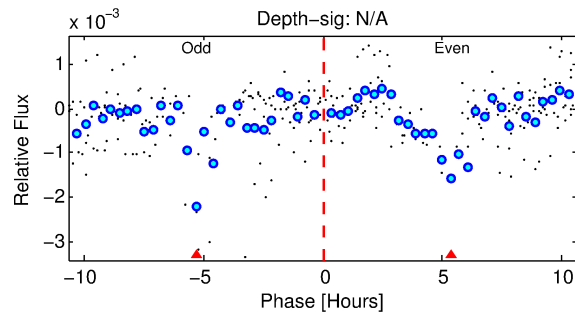
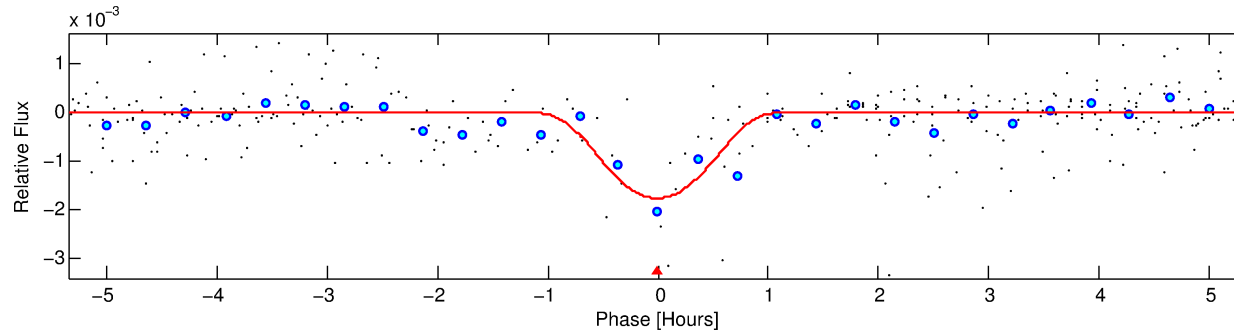
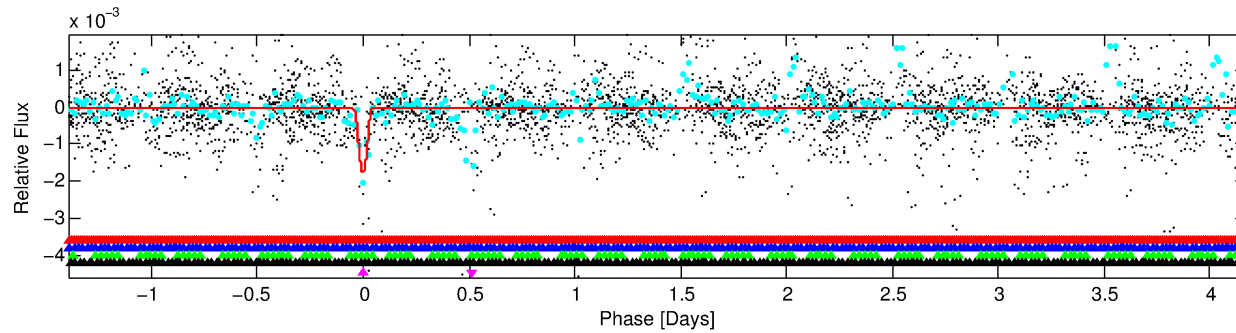
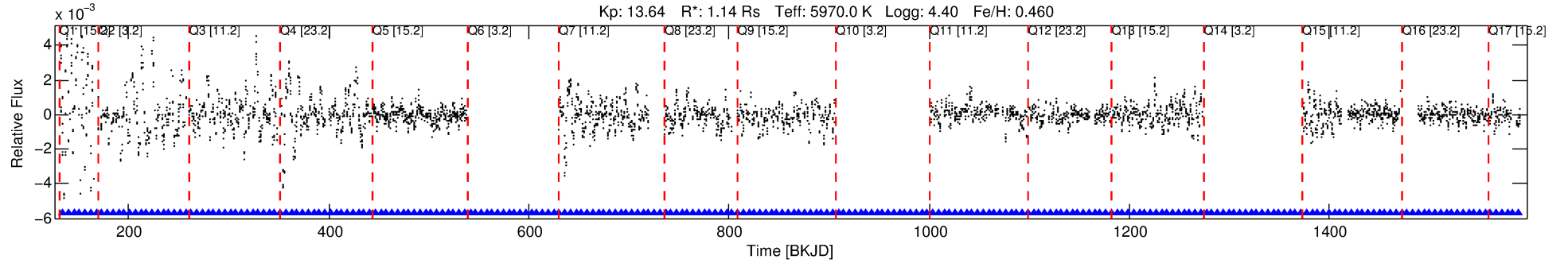
Ephemeris Match Information For 005201593-05

No Significant Match Found



# DV One-Page Summary

KIC: 5201593 Candidate: 5 of 5 Period: 5.573 d



## DV Fit Results:

Period = 5.57289 [0.00003] d  
Epoch = 134.5762 [0.0032] BKJD  
Rp/R\* = 0.0618 [0.2297]  
a/R\* = 9.90 [11.45]  
b = 0.98 [0.40]  
Seff = 348.91 [58.78]  
Teq = 1102 [46] K  
Rp = 7.71 [28.66] Re  
a = 0.0653 [0.0068] AU  
Ag = 106.08 [789.31] [0.13] $\sigma$   
Teff = 5468 [10170] K [0.43] $\sigma$

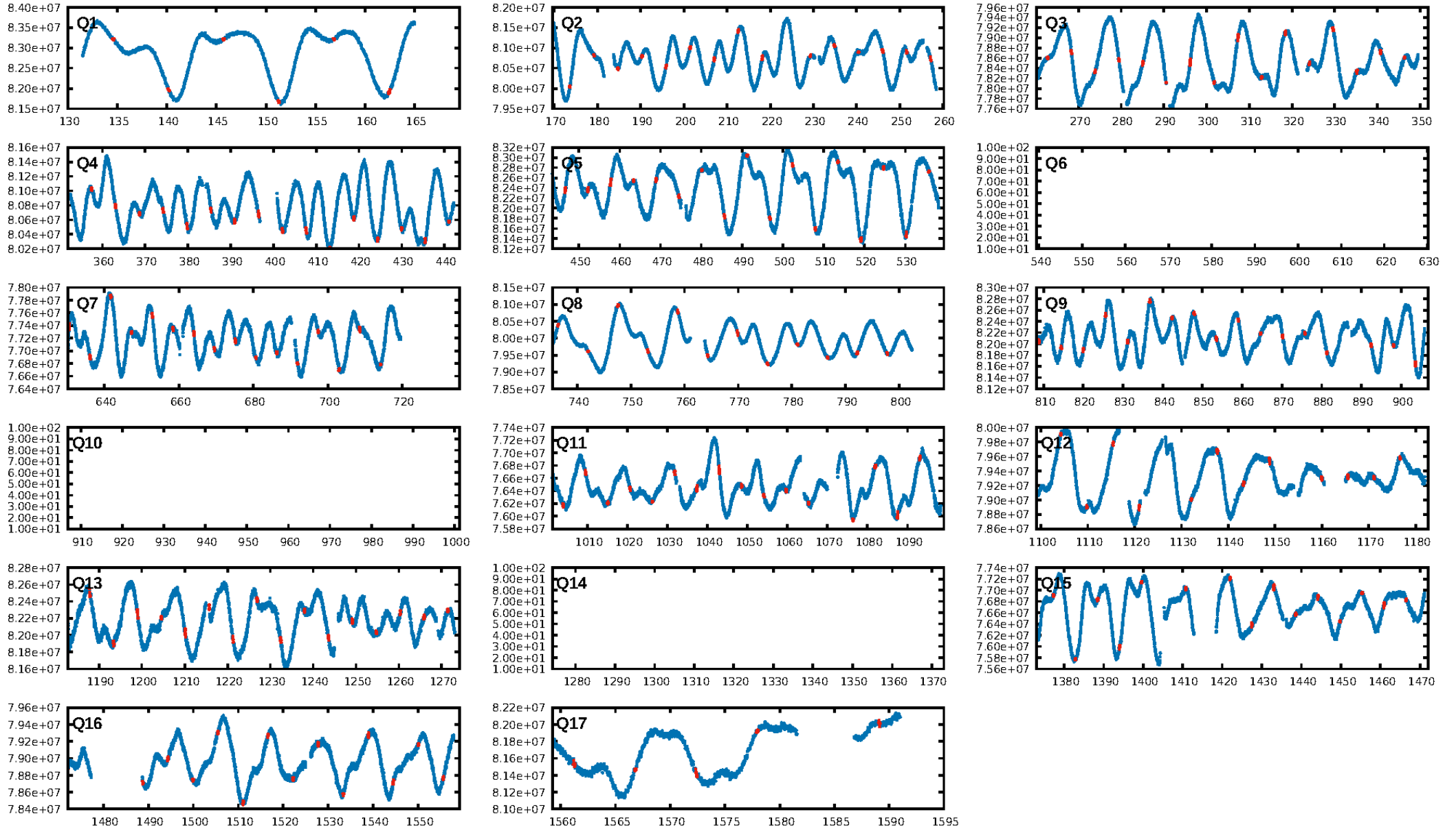
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.38 $\sigma$ ]  
LongPeriod-sig: 100.0% [55.15 $\sigma$ ]  
ModelChiSquare2-sig: 90.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [21/21]  
GhostDiagnostic-chr: -2.171  
Centroid-sig: 73.2%  
Centroid-so: 0.189 arcsec [2.20 $\sigma$ ]  
OotOffset-rm: 12.097 arcsec [22.27 $\sigma$ ]  
KicOffset-rm: 12.093 arcsec [22.34 $\sigma$ ]  
OotOffset-st: 0/0/2/0 [2]  
KicOffset-st: 0/0/2/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 0.00 [0/14]

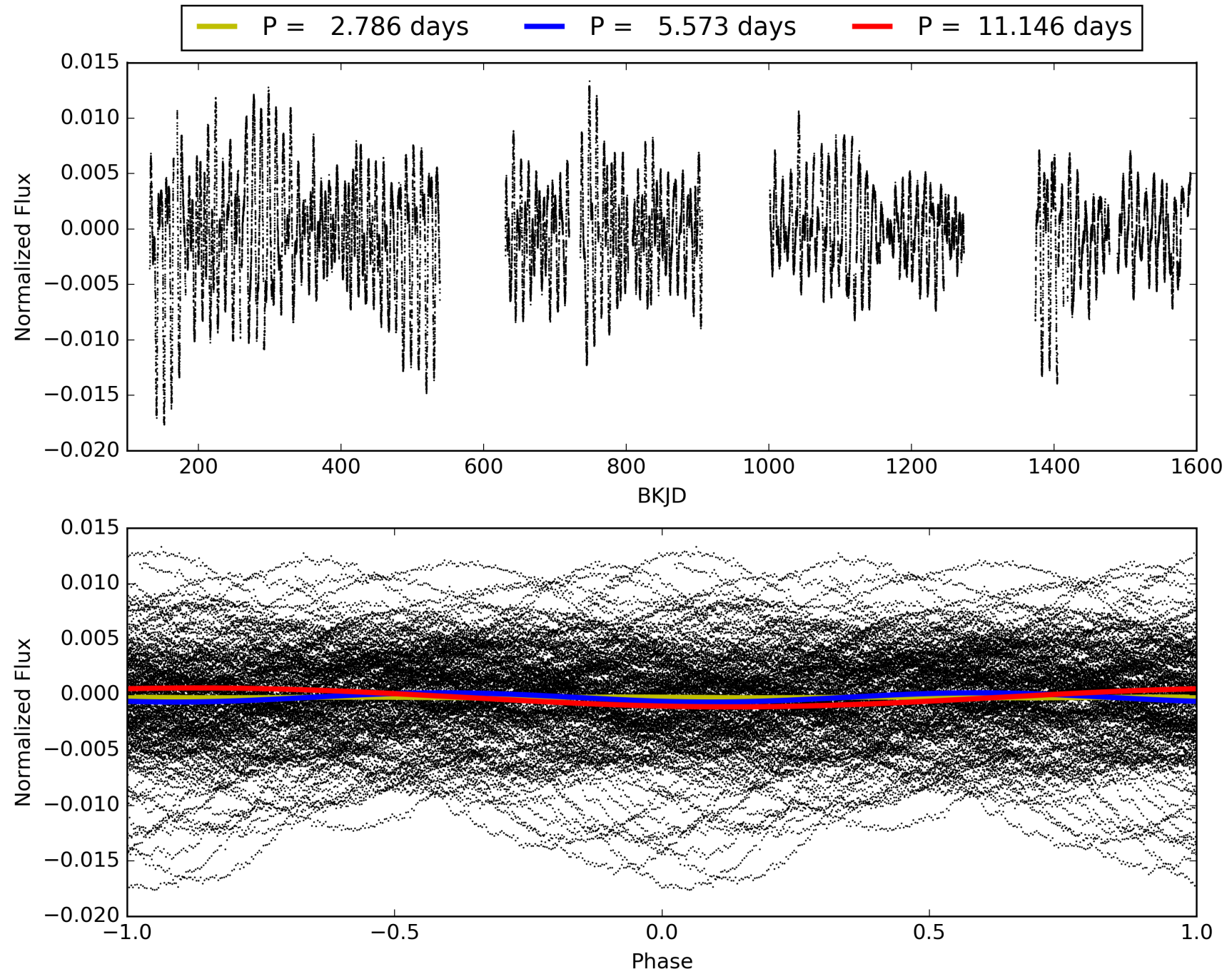
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:50:53 Z

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

# TCE 005201593-05, PDC Light Curves

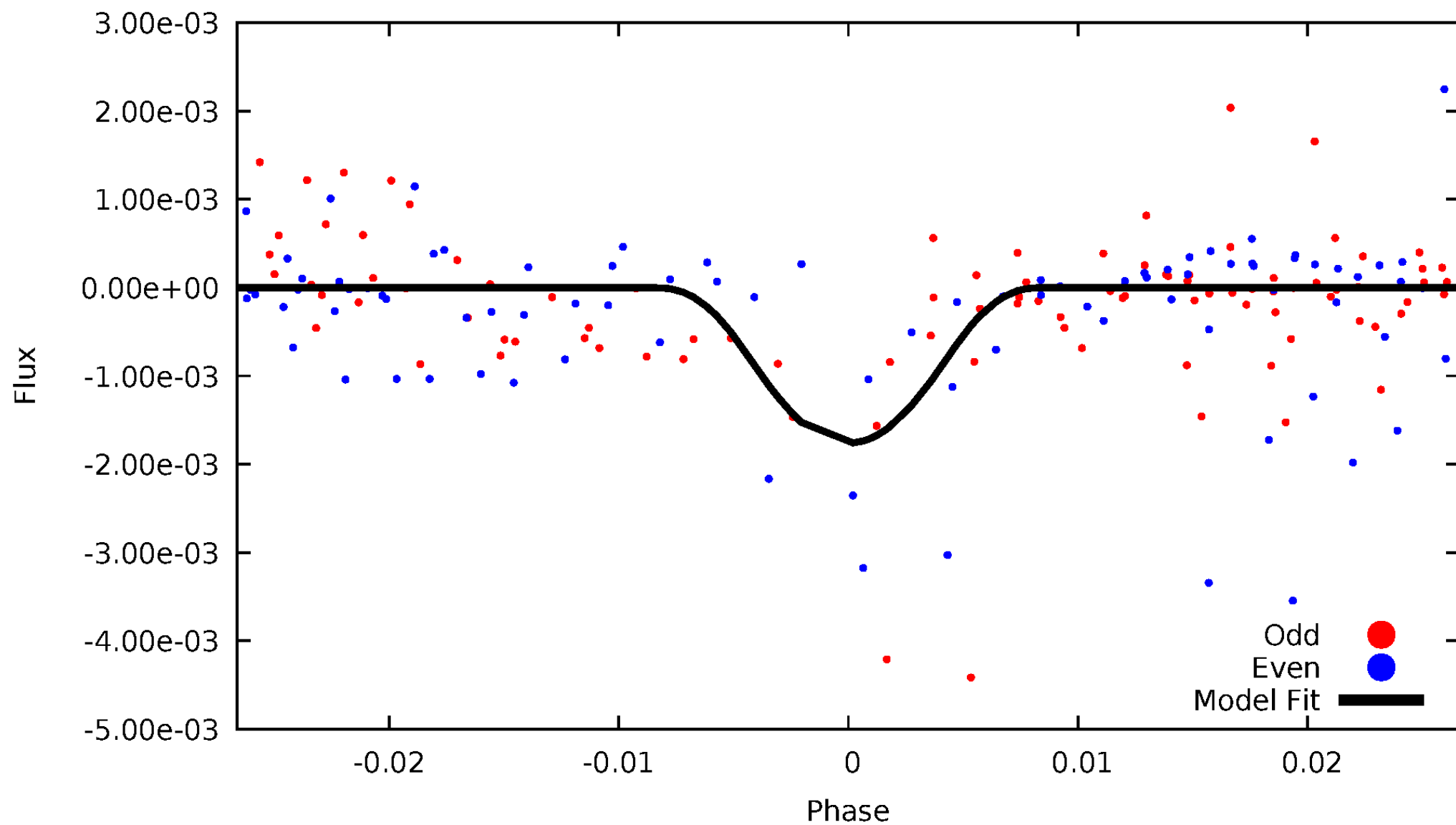


TCE 005201593-05



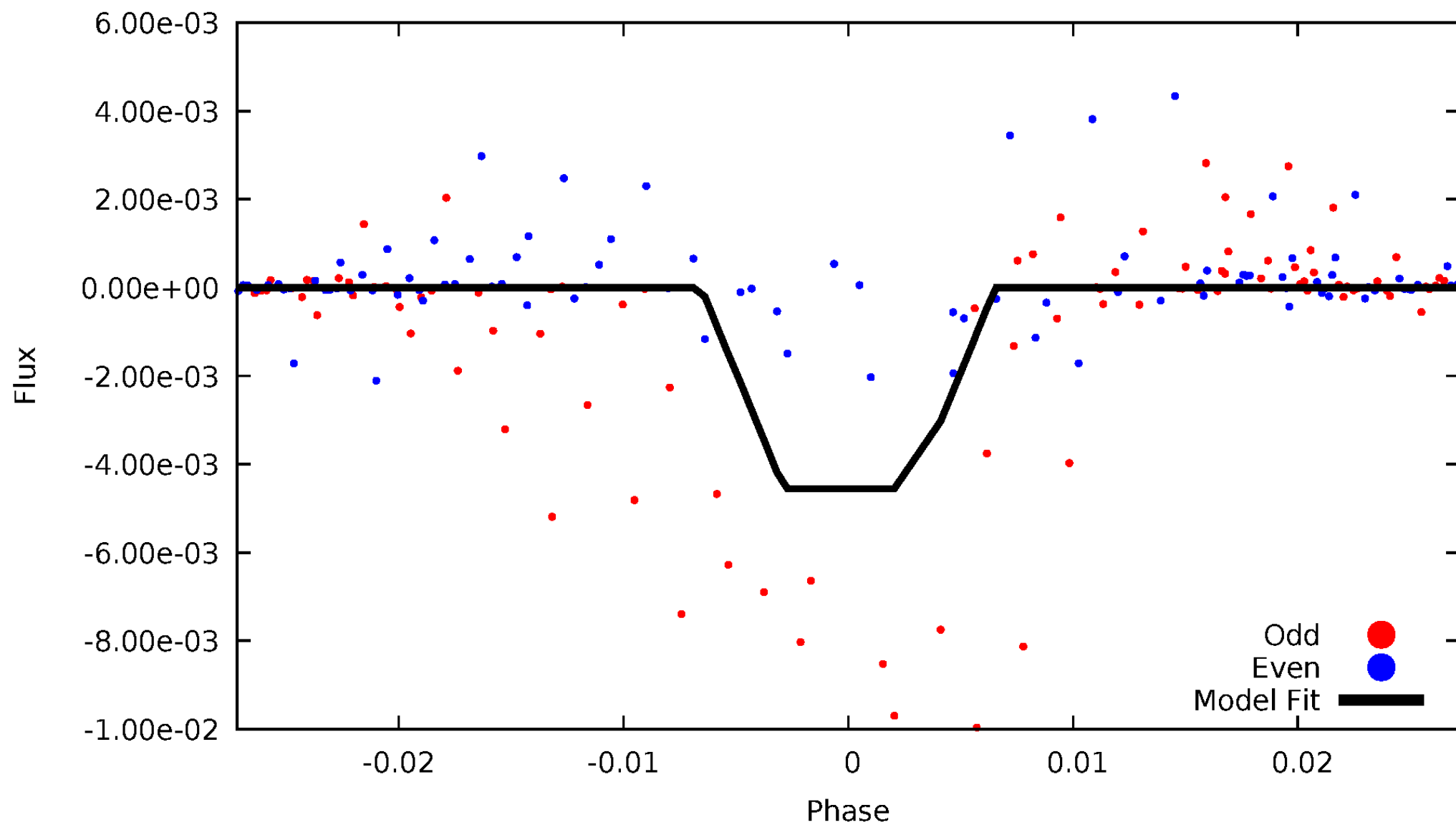
# DV Odd/Even

TCE 005201593-05



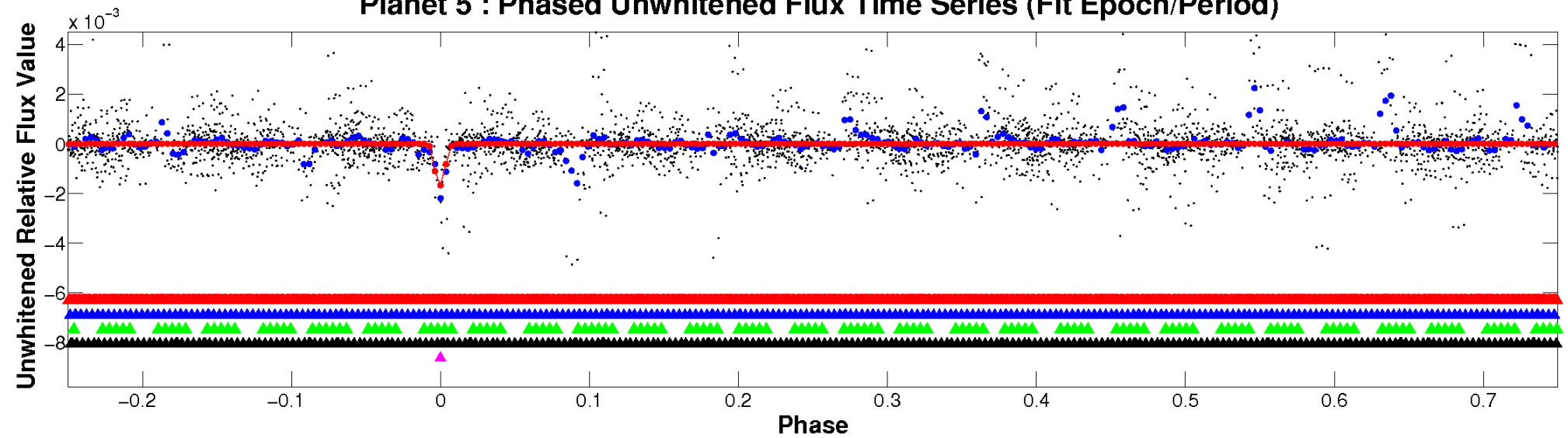
# ALT Odd/Even

TCE 005201593-05

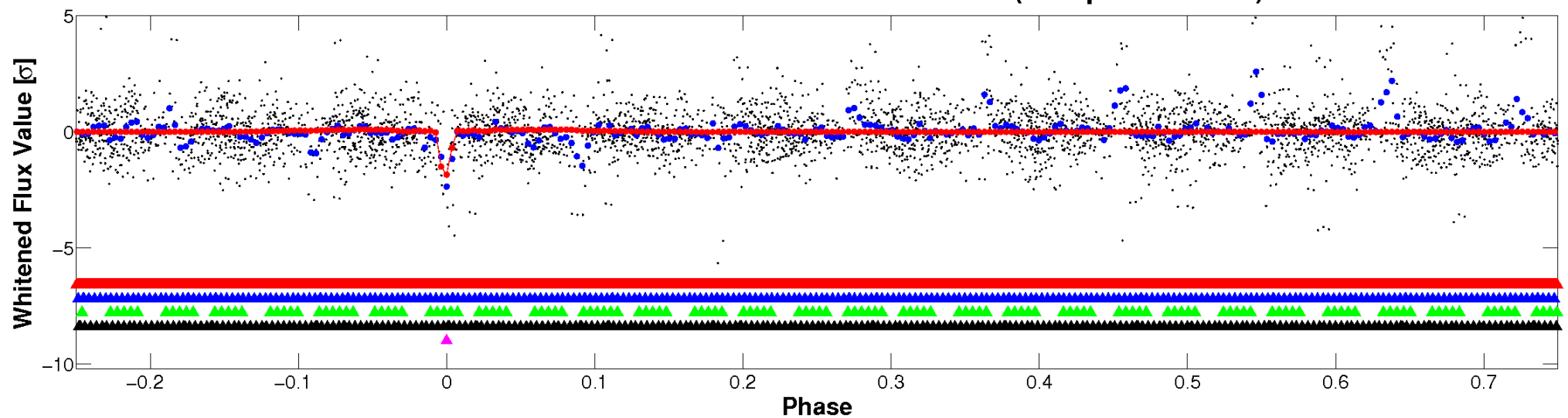


# Non-Whitened Vs. Whitened Light Curve

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

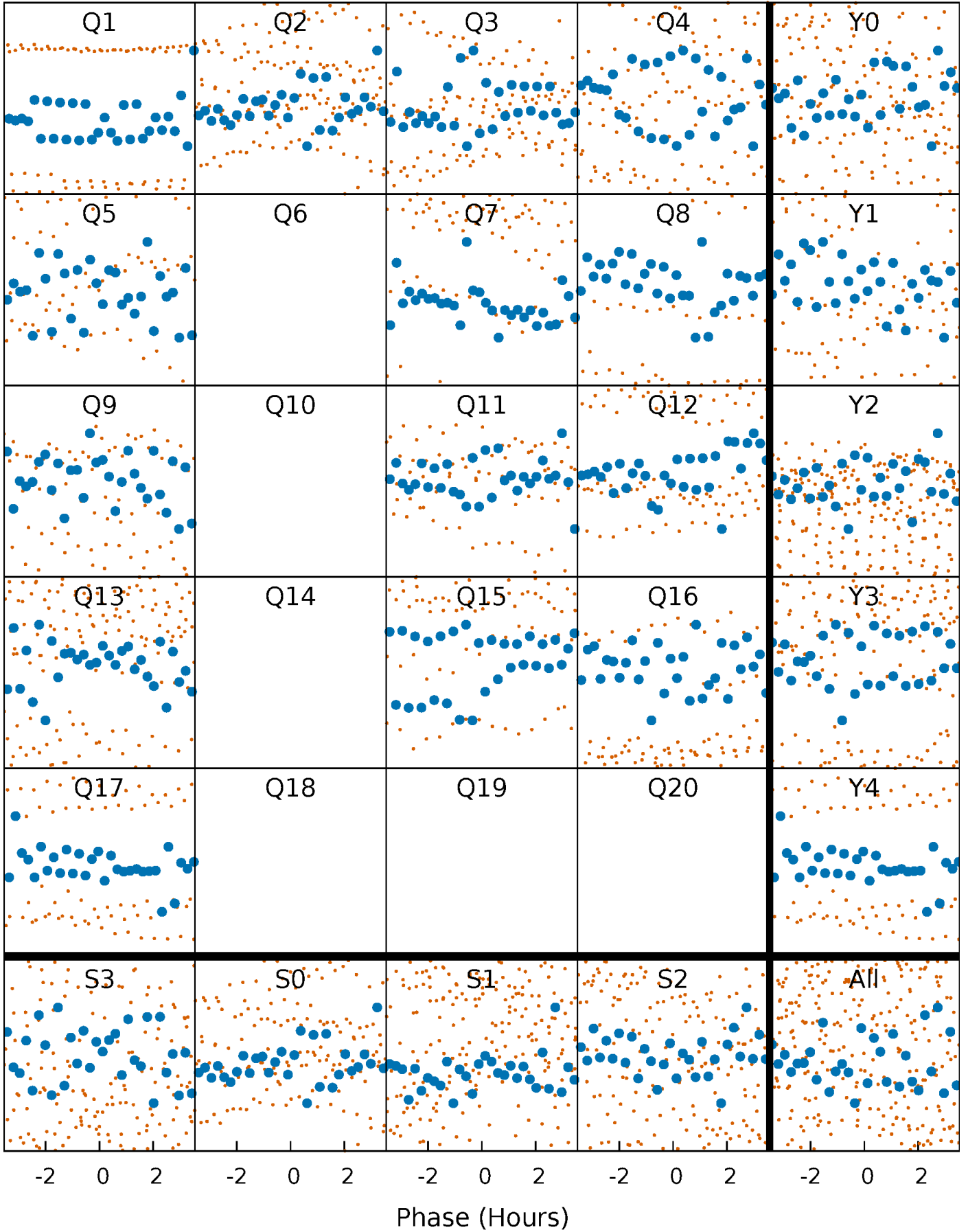


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



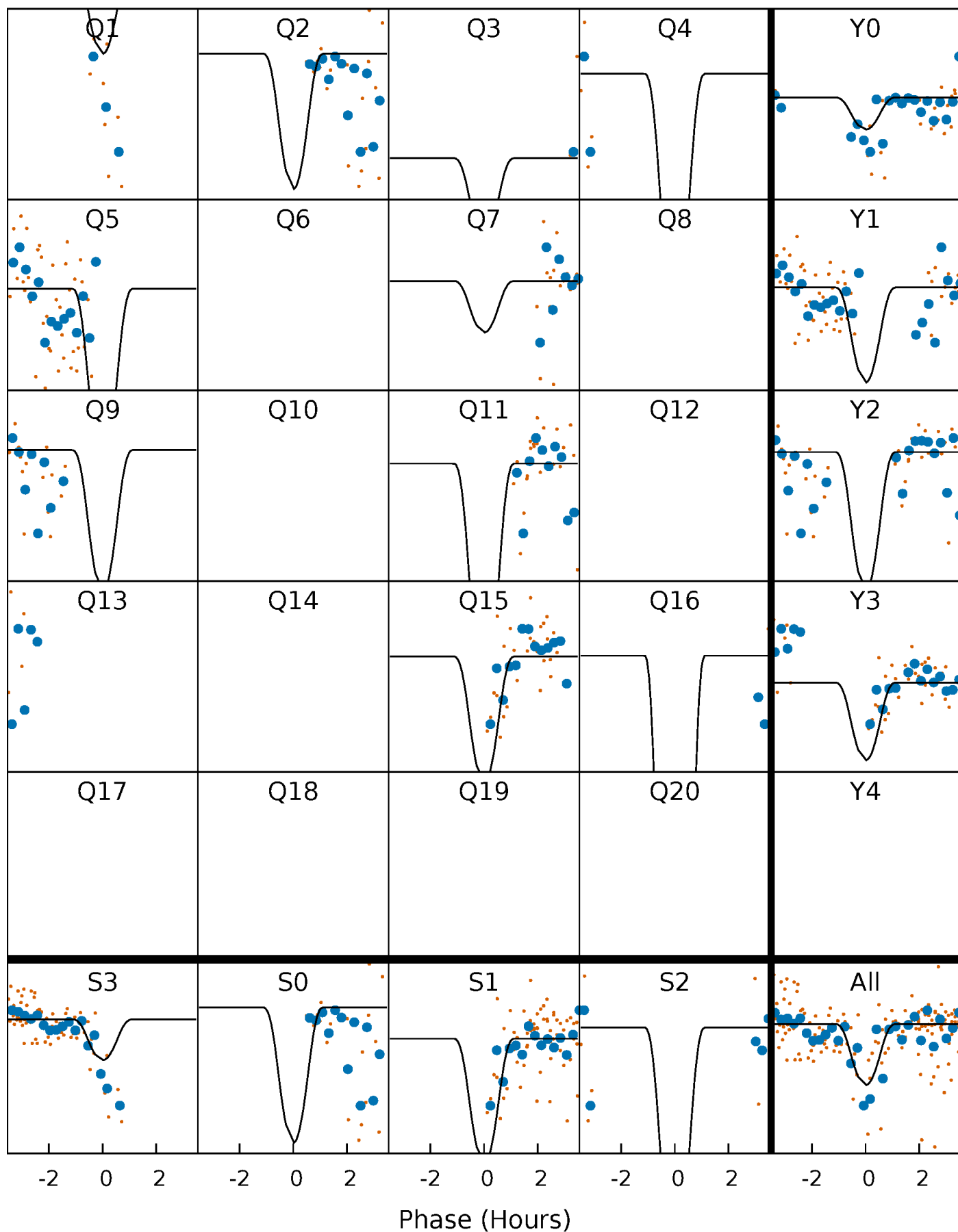
# PDC Quarter-Phased Transit Curves

TCE 005201593-05   P= 5.572889 Days    $T_0=134.576249$  (BKJD)



# DV Quarter-Phased Transit Curves

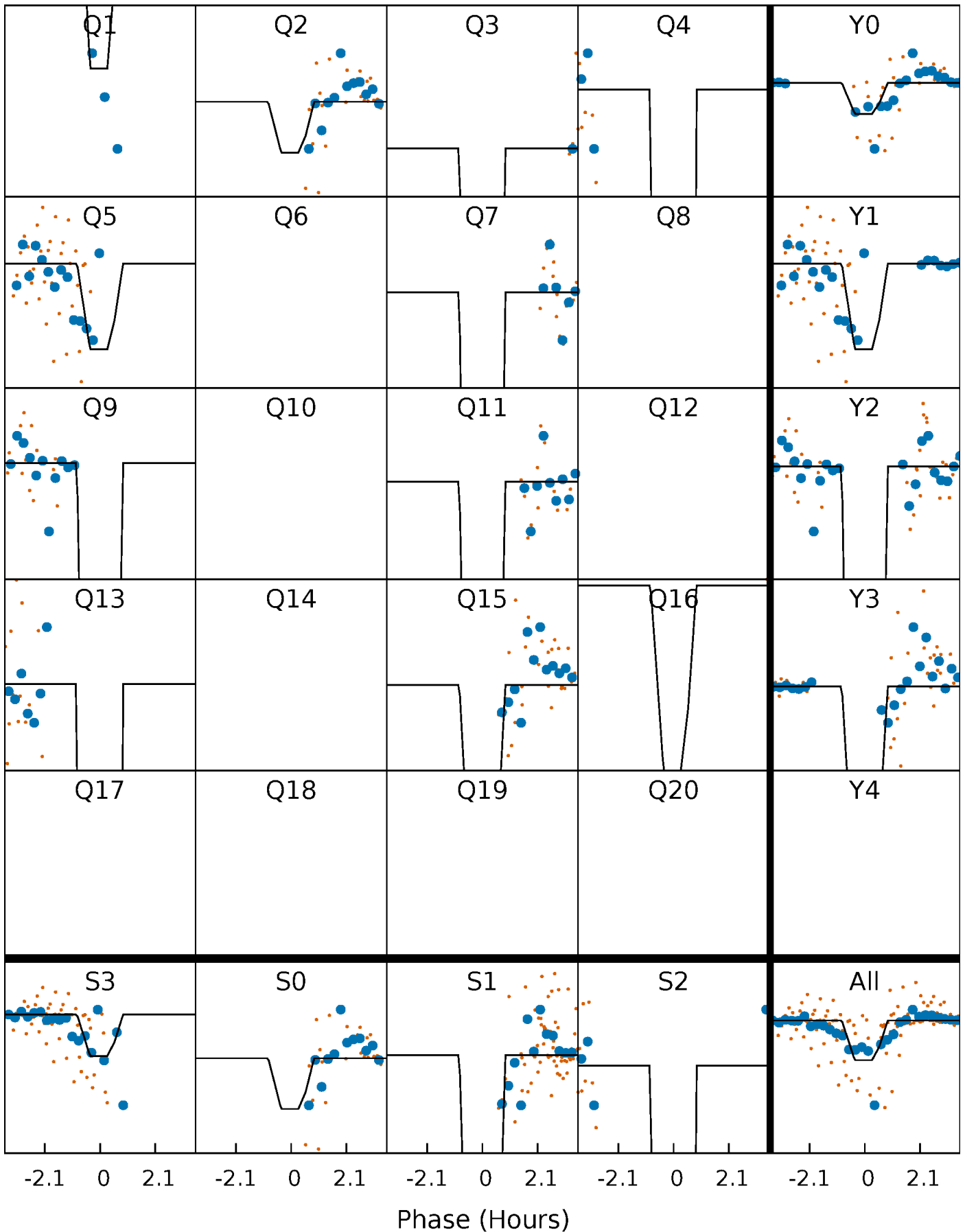
TCE 005201593-05   P= 5.572889 Days    $T_0=134.576249$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

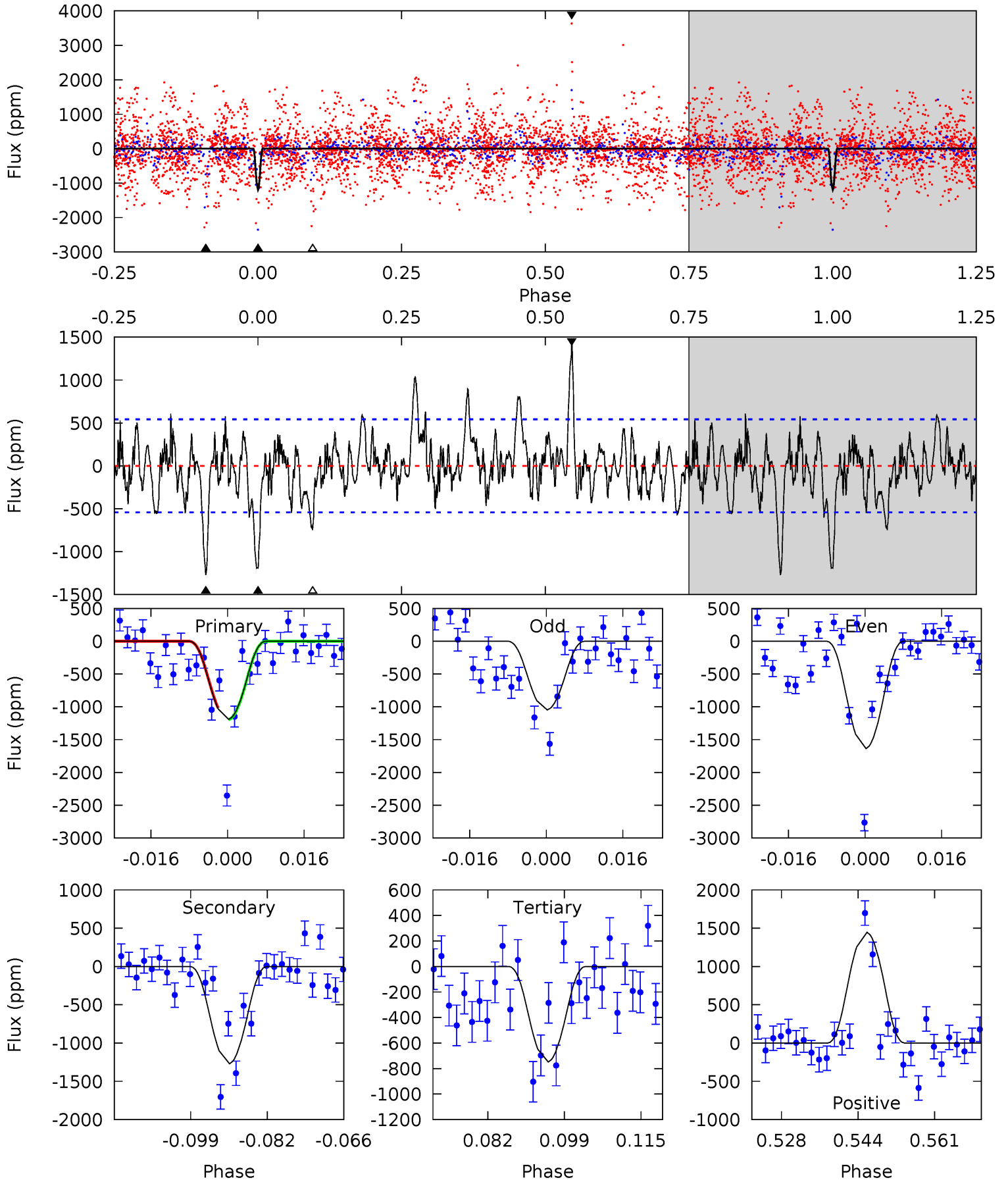
TCE 005201593-05     $P = 5.572802$  Days     $T_0 = 134.574631$  (BKJD)



# DV Model-Shift Uniqueness Test

005201593-05, P = 5.572889 Days, E = 129.003360 Days

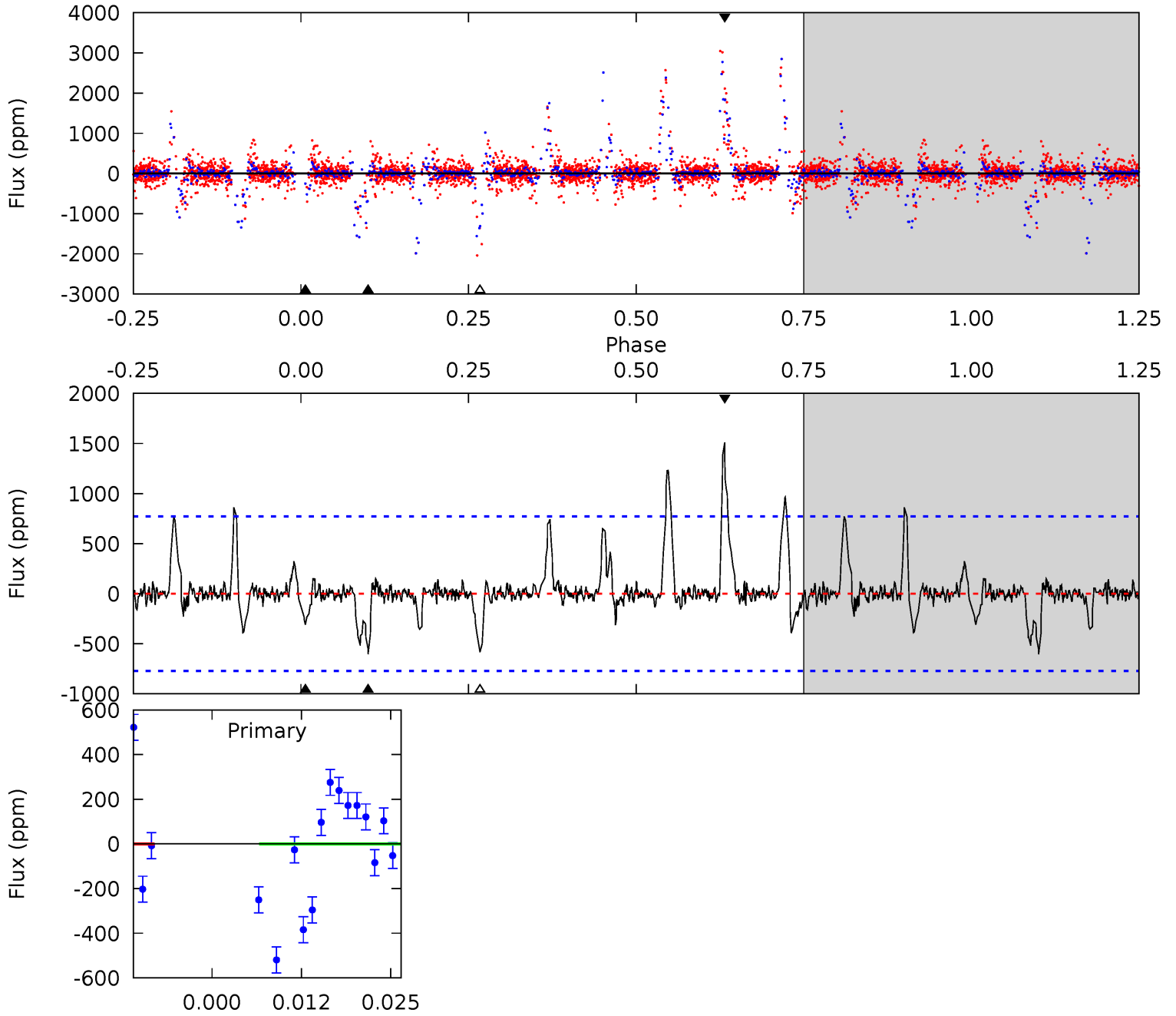
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	11.6	6.81	13.2	4.93	2.40	2.24	4.03	-2.33	4.75	-1.61	2.75	1.20	0.53	0.81



# Alt Model-Shift Uniqueness Test

005201593-05, P = 5.572802 Days, E = 129.001829 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.99	3.90	3.77	9.76	4.98	2.50	1.00	-1.78	-7.77	0.12	-5.87	32.2	1.86	0.16	0



### Stellar Parameters For KIC 005201593

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5970^{+77}_{-83}$	$4.399^{+0.030}_{-0.090}$	$0.460^{+0.050}_{-0.150}$	$1.143^{+0.135}_{-0.052}$	$1.195^{+0.043}_{-0.057}$	$1.128^{+0.130}_{-0.296}$
	+1%/-1%	+1%/-2%	+11%/-33%	+12%/-5%	+4%/-5%	+11%/-26%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005201593-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1271 \pm 110$	$22.03^{+23.21}_{-14.79}$	$1551^{+42}_{-35}$	$3238^{+1598}_{-642}$	$6.077^{+50.349}_{-4.659}$
Alt.	$-0 \pm 155$	$23.55^{+24.13}_{-16.14}$	$1548^{+45}_{-31}$	$-2219^{+4821}_{-403}$	$-0.003^{+1.417}_{-0.896}$

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

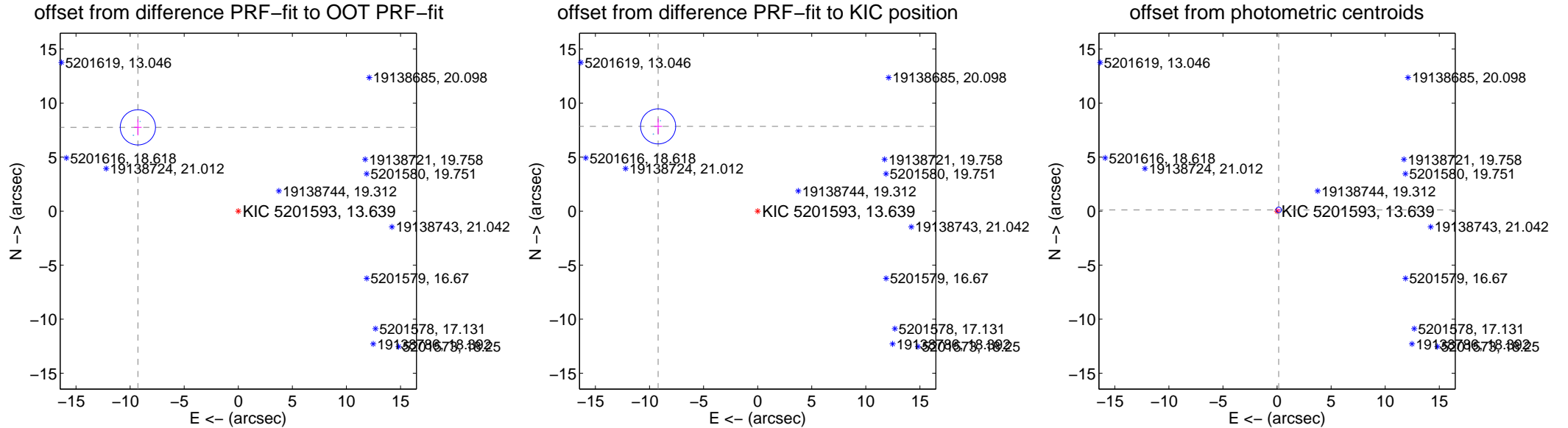
## DV Centroid Data

Supplemental centroid analysis for 005201593-05. Kepler magnitude: 13.64. Transit SNR 5.79

There are 2 quarters with good PRF difference image offsets

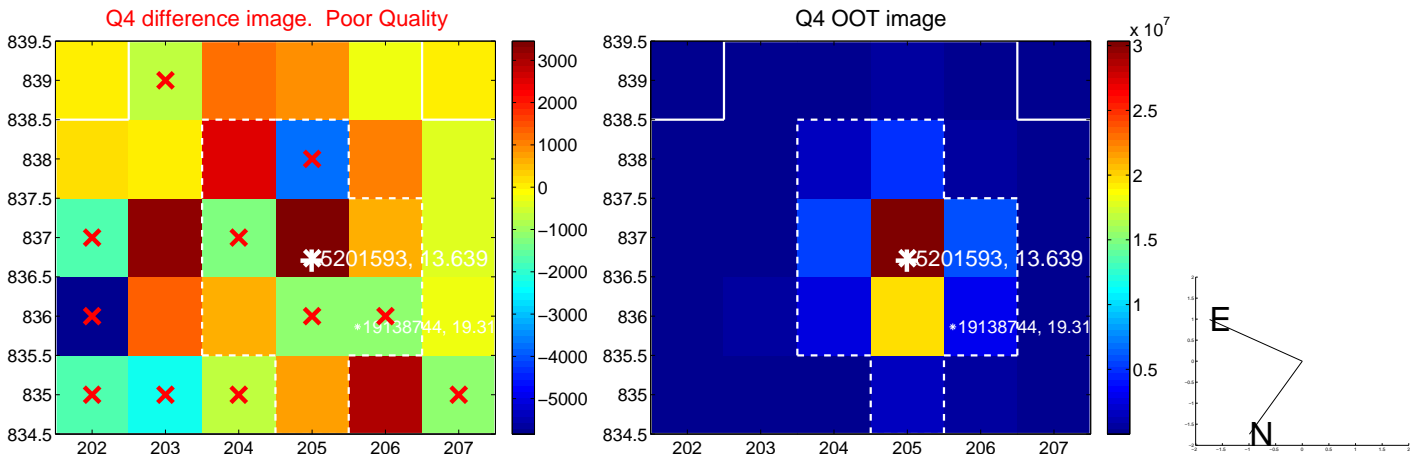
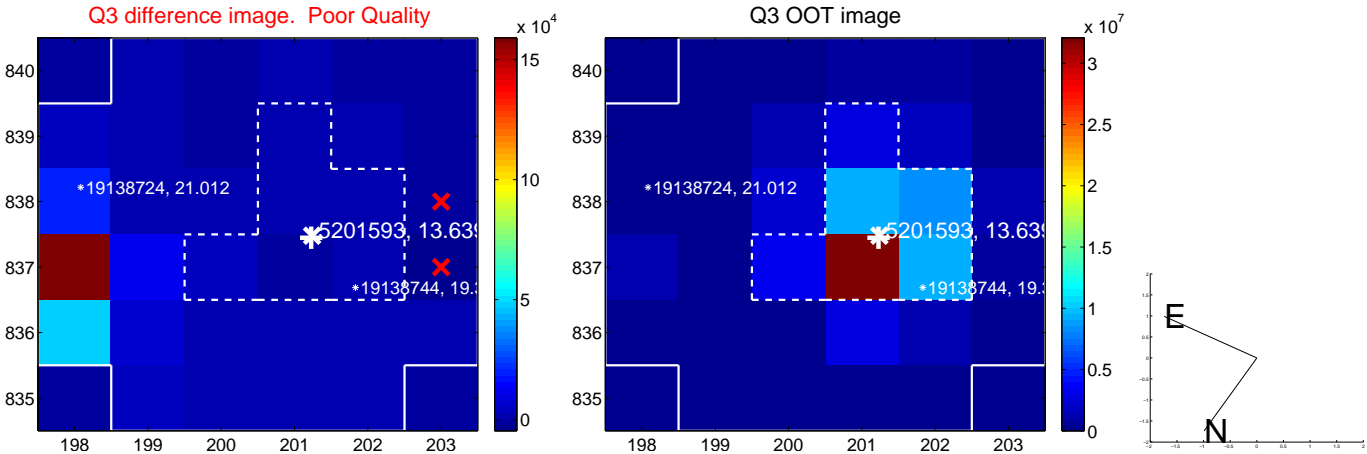
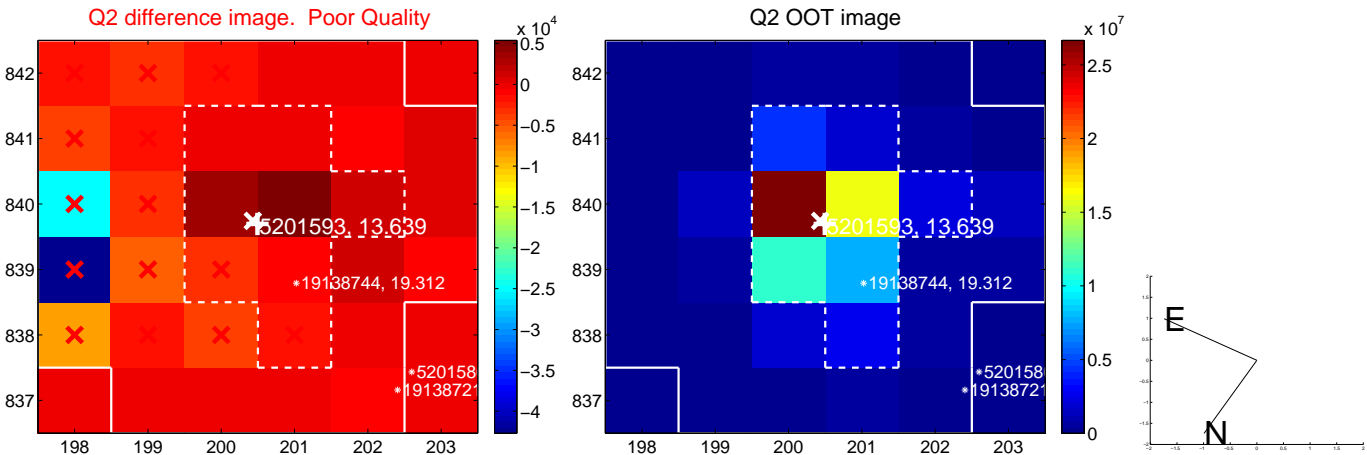
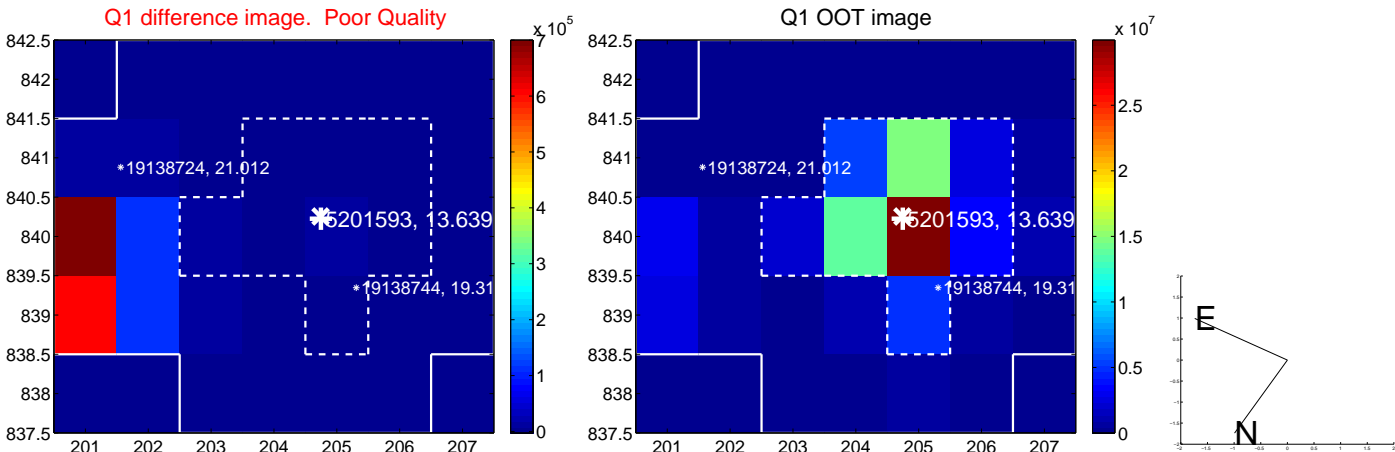
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$12.097 \pm 0.543$	22.27	$9.283 \pm 0.344$	$7.756 \pm 0.740$
PRF-fit source offset from KIC position	$12.093 \pm 0.541$	22.34	$9.204 \pm 0.367$	$7.845 \pm 0.714$
photometric centroid source offset	$0.19 \pm 0.09$	2.20	$-0.15 \pm 0.09$	$0.11 \pm 0.09$

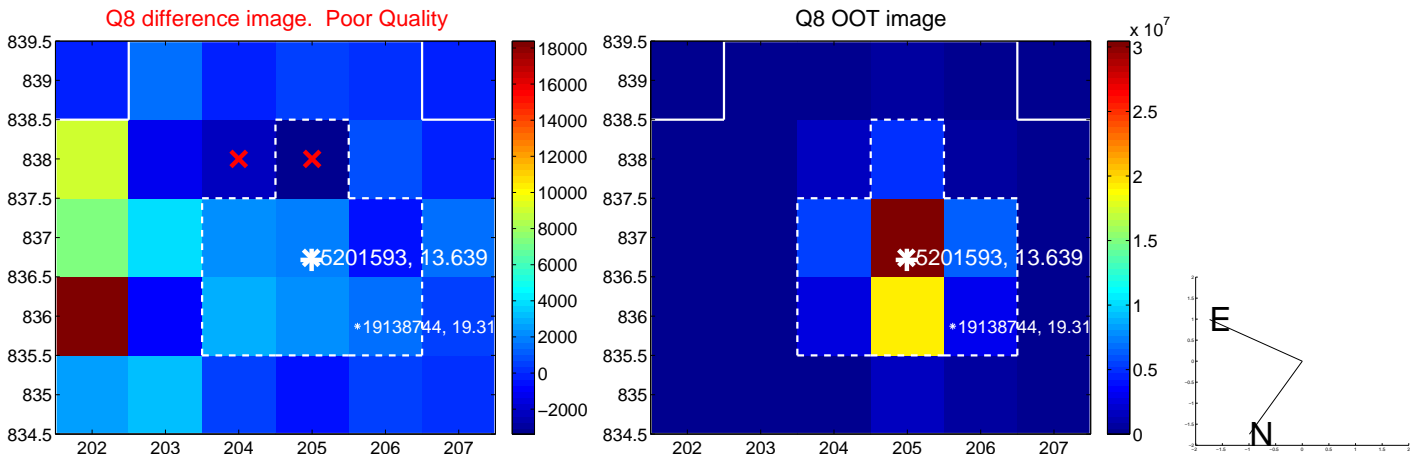
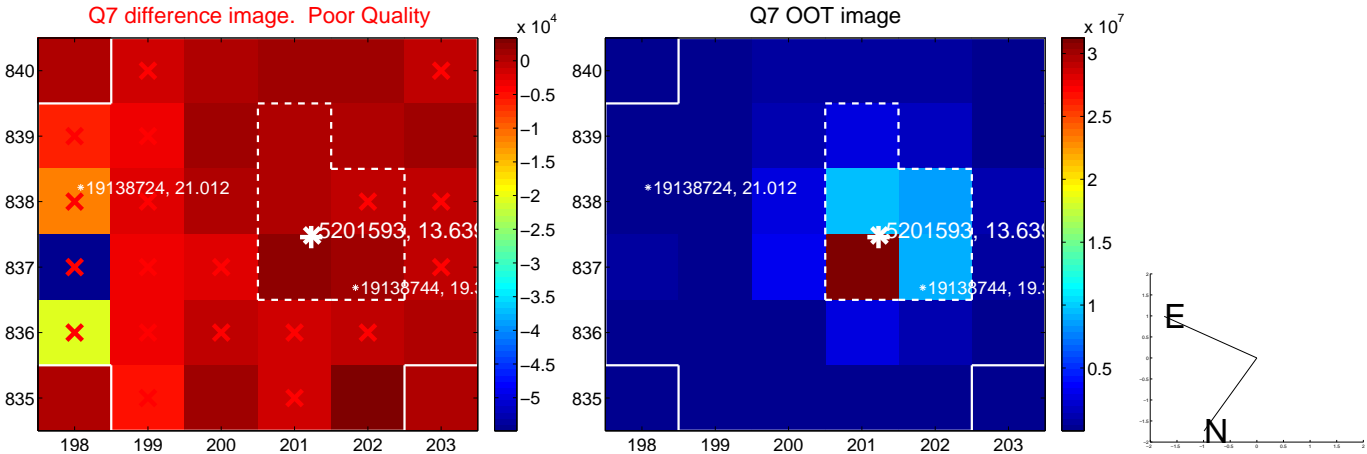
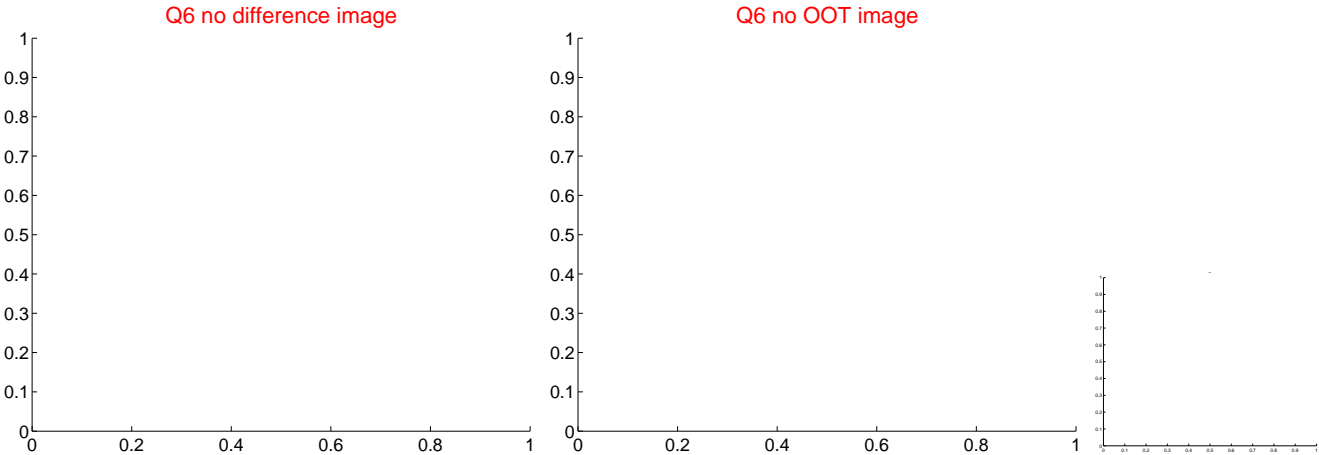
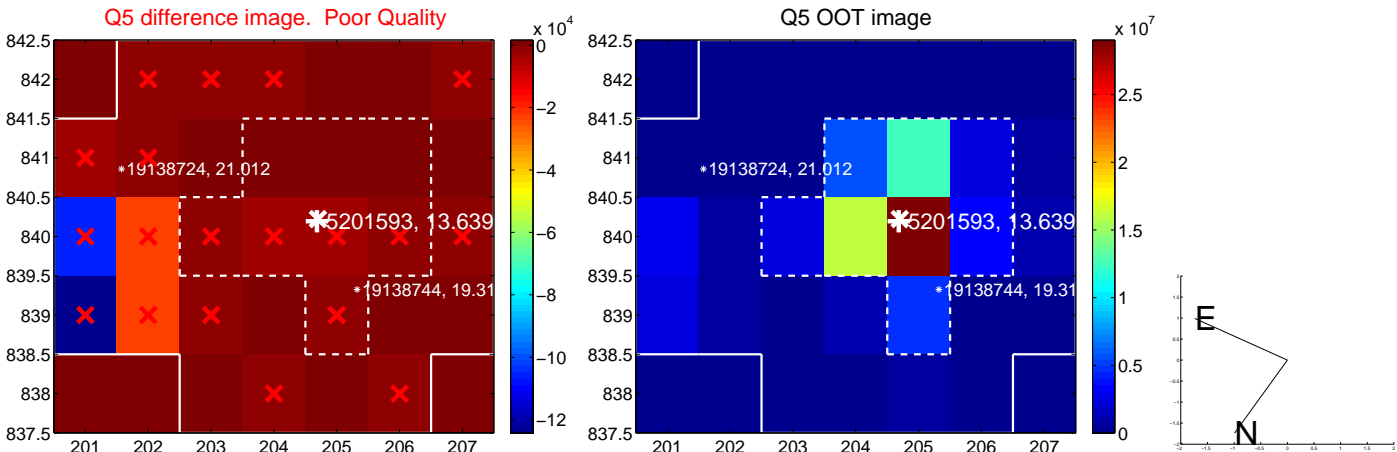


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

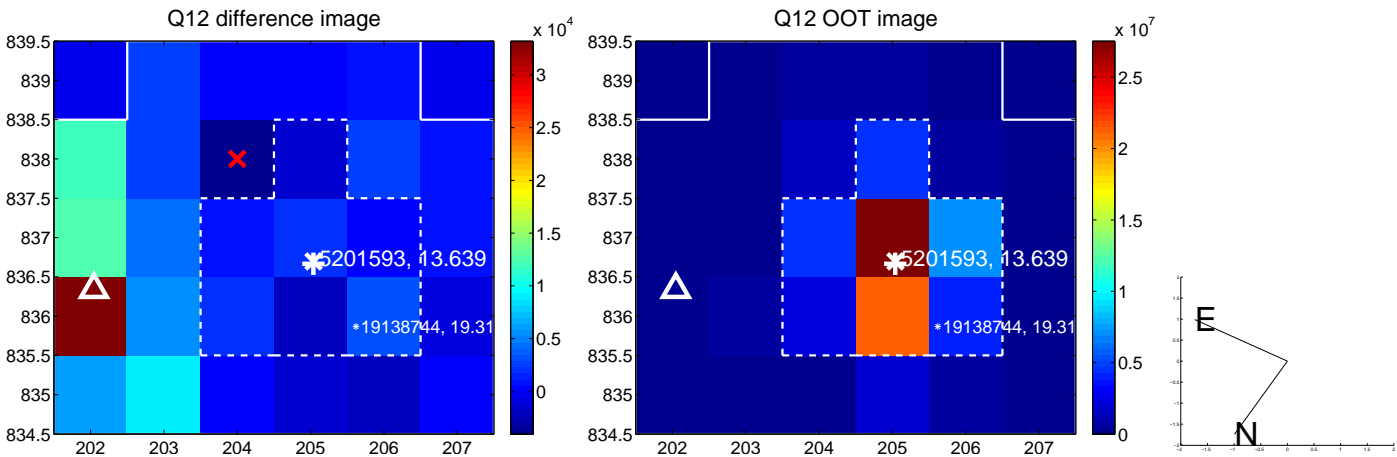
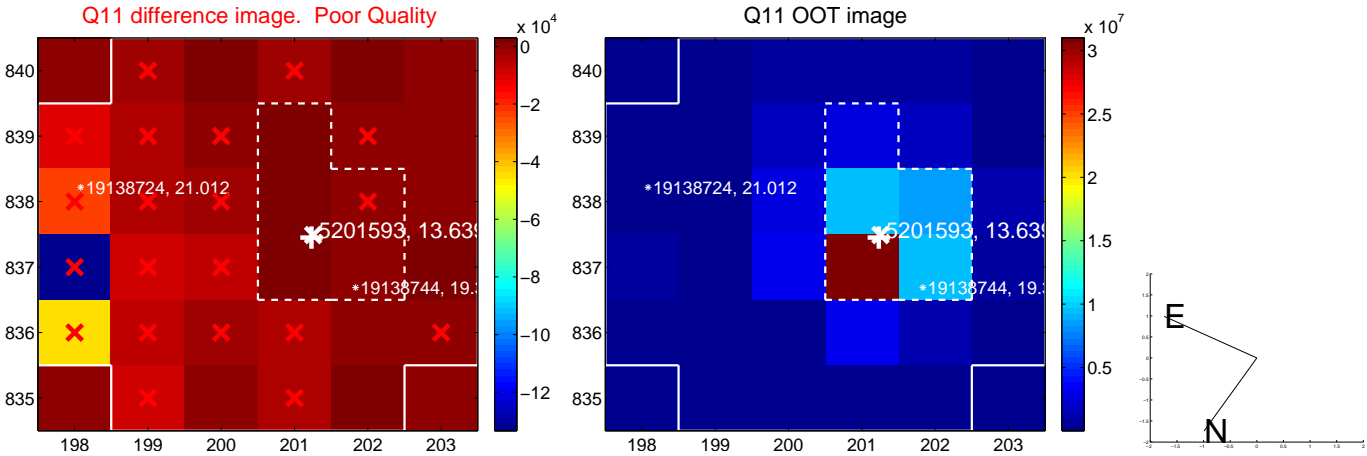
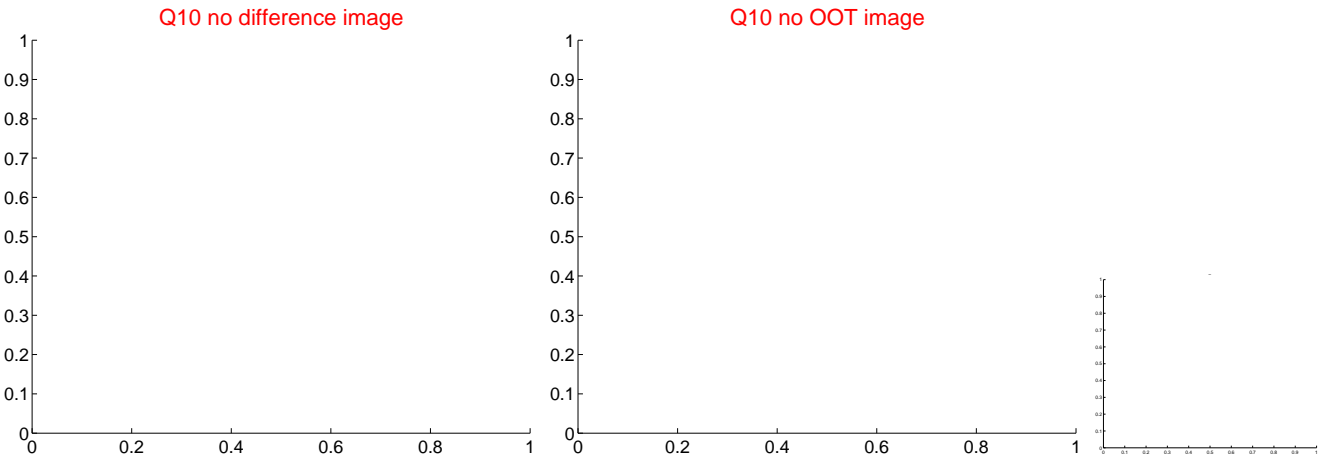
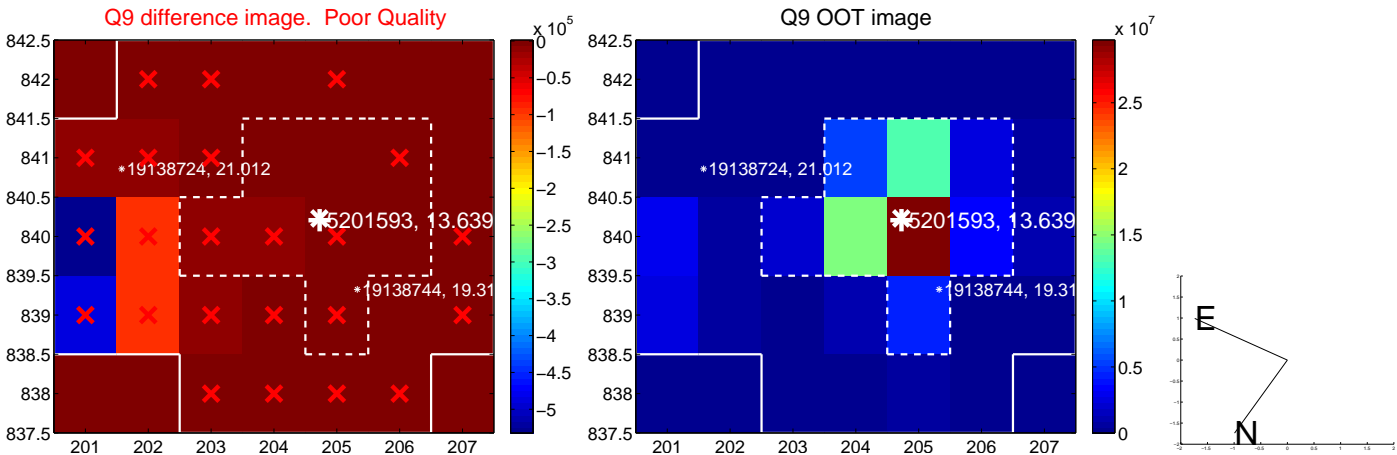
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

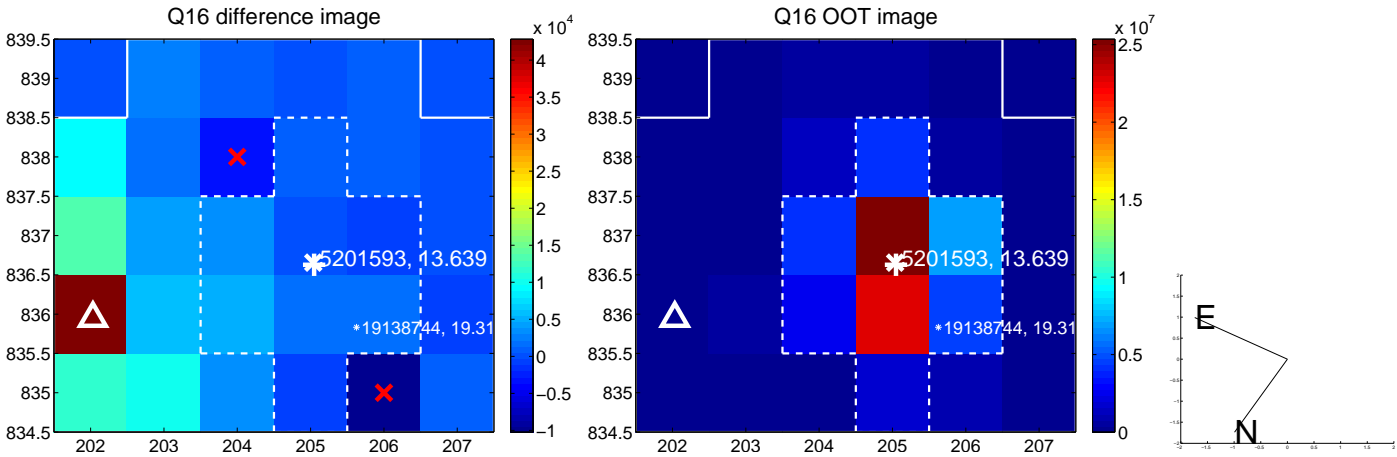
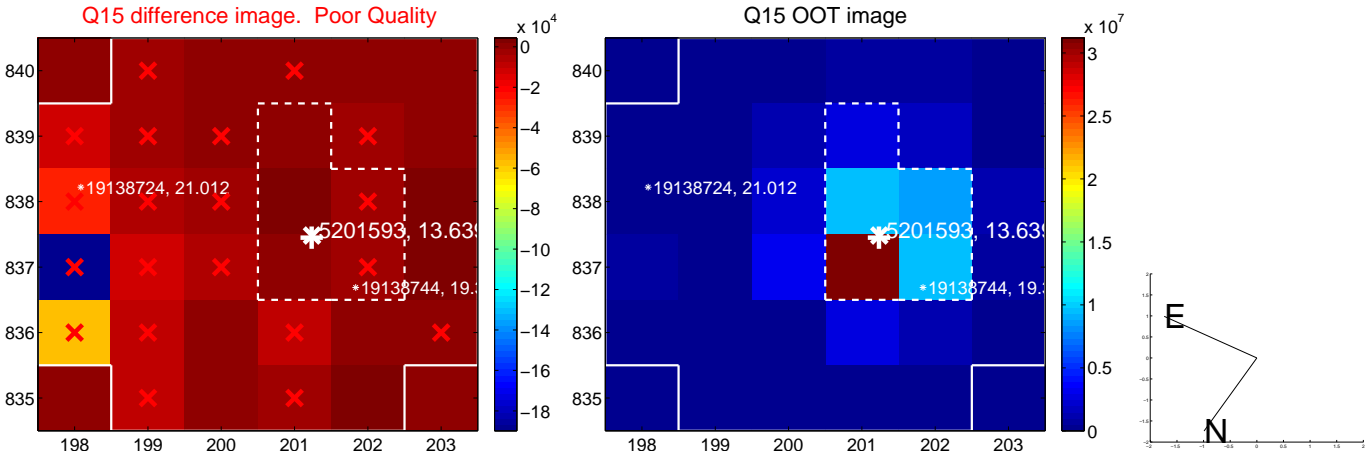
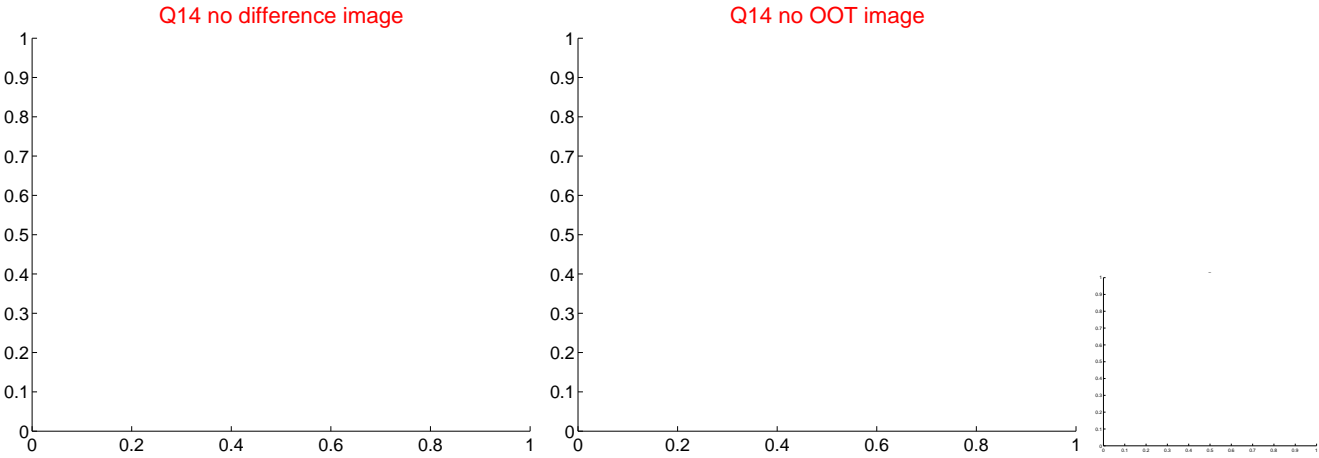
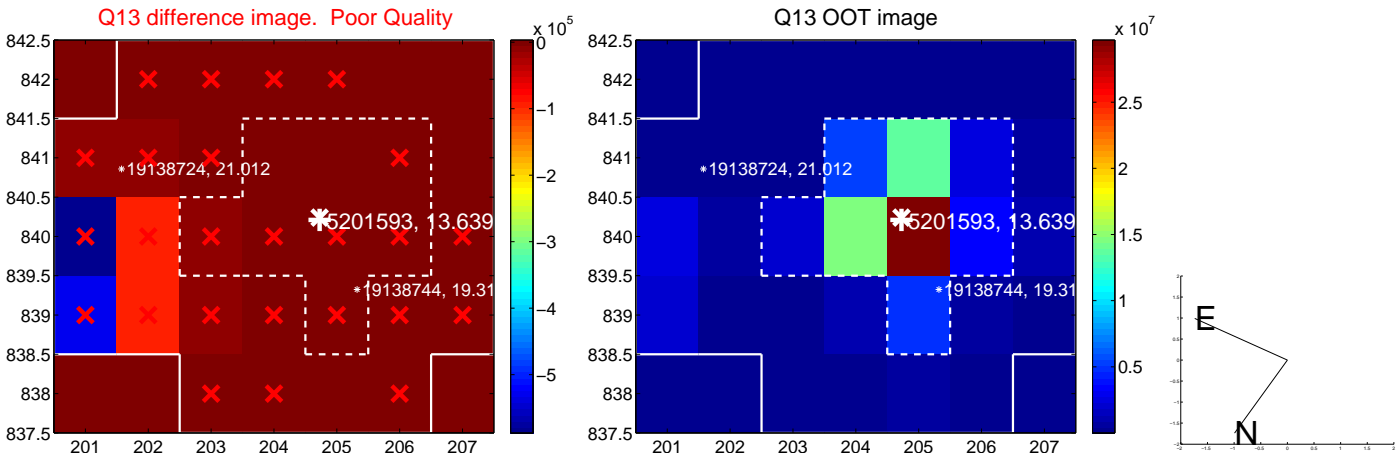


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

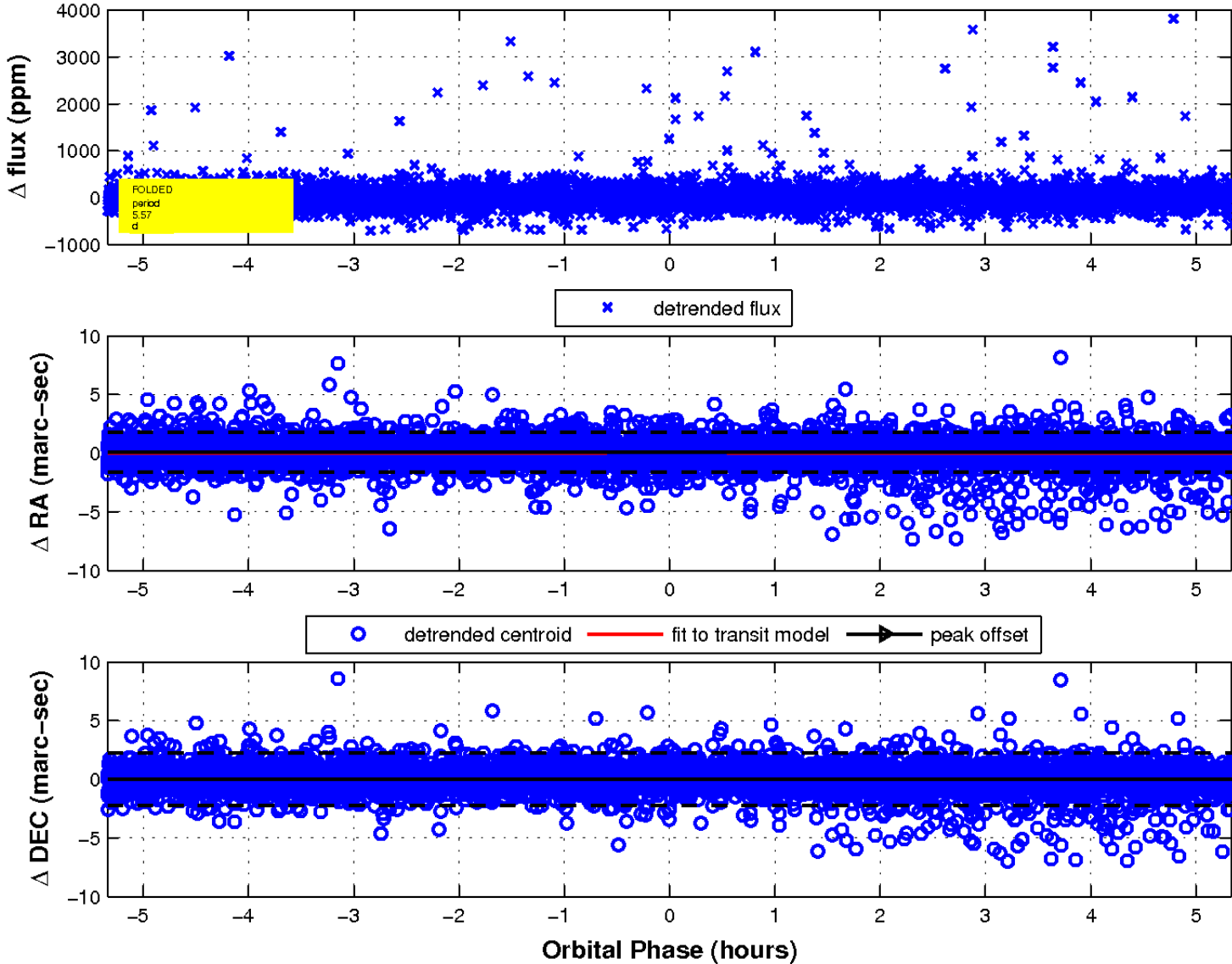
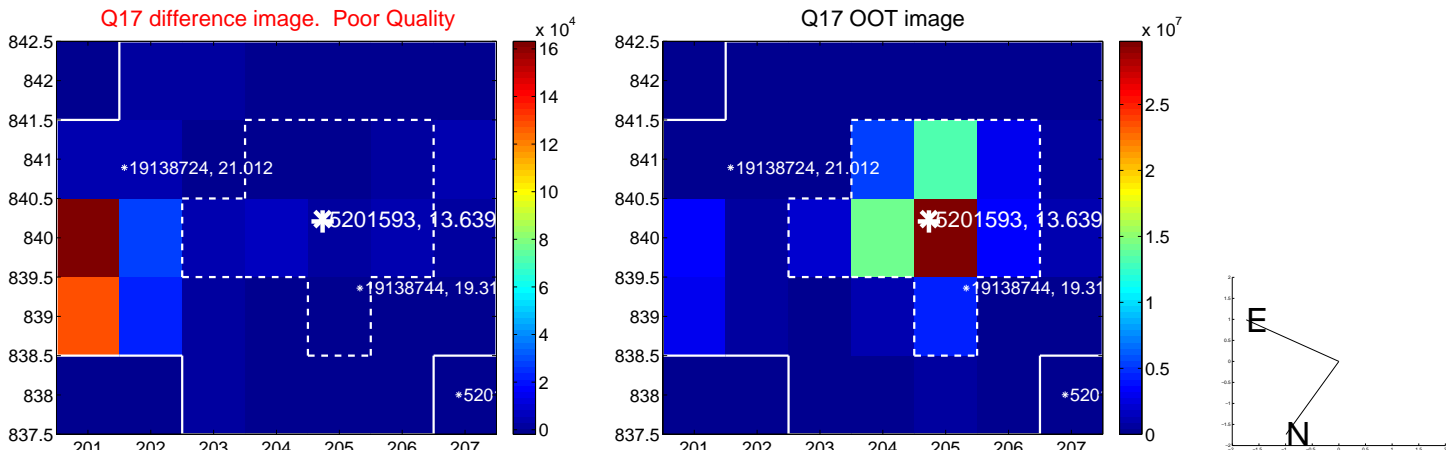




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

