

# KIC 008812627

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008812627-01	OBS	No	0.972531	132.462301	68.5	2.571	10.0	3.7	0.78	5232	0.68	1357.19
008812627-02	OBS	No	0.973016	131.994877	0.0	1.301	12.8	0.0	0.78	5232	0.01	1356.29
008812627-03	OBS	No	226.433455	315.866659	3770.2	2.685	13.8	7.4	0.78	5232	5.15	0.95
008812627-04	OBS	No	285.761856	196.720707	1698.4	7.597	10.3	3.3	0.78	5232	3.32	0.69
008812627-05	OBS	No	197.245116	292.953741	1349.7	2.500	10.3	-1.0	0.78	5232	2.80	1.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008812627-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008812627-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
008812627-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008812627-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
008812627-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

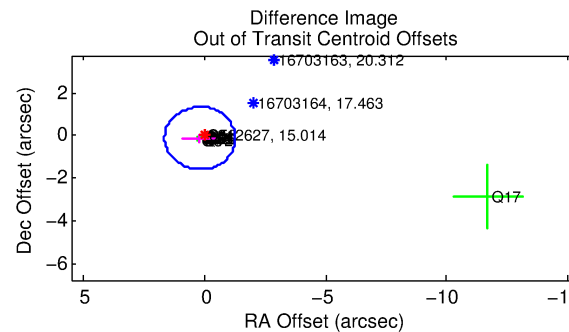
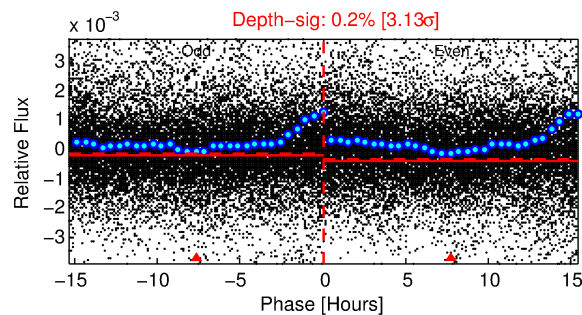
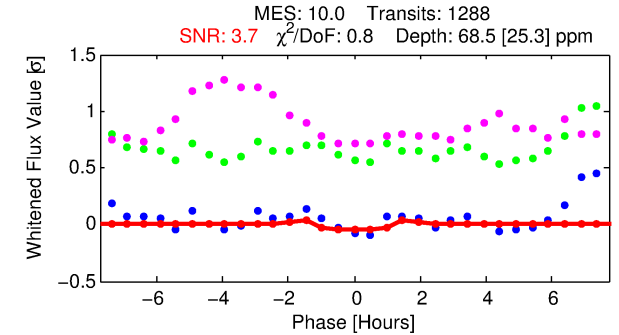
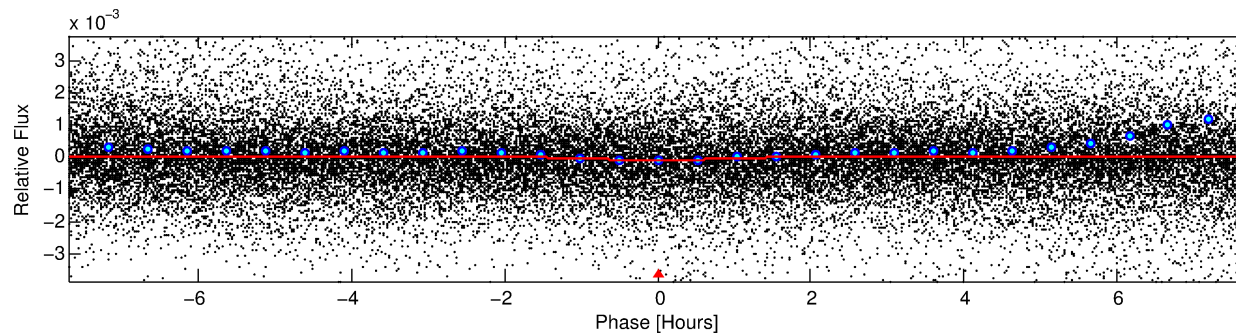
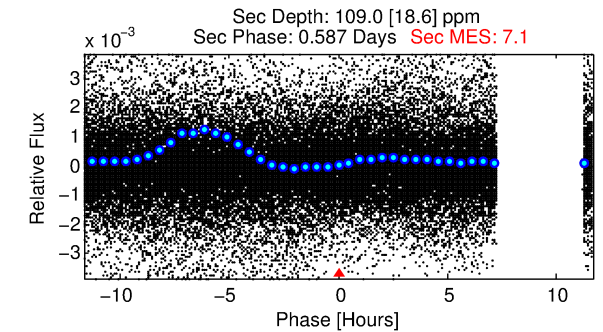
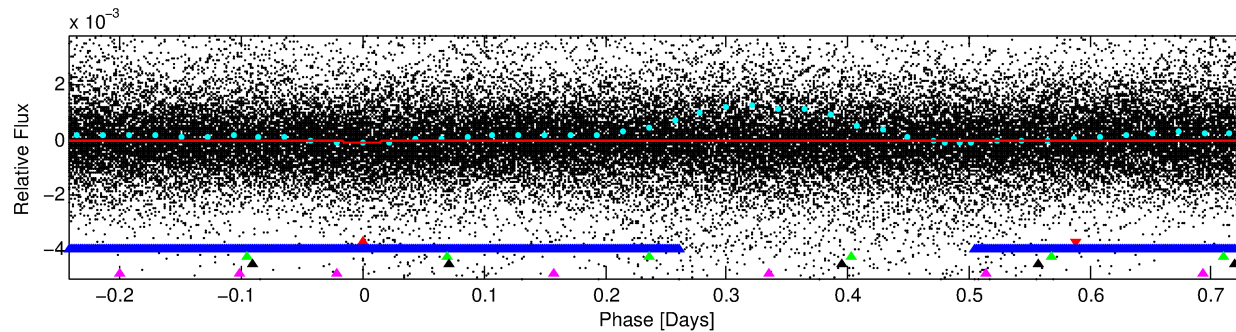
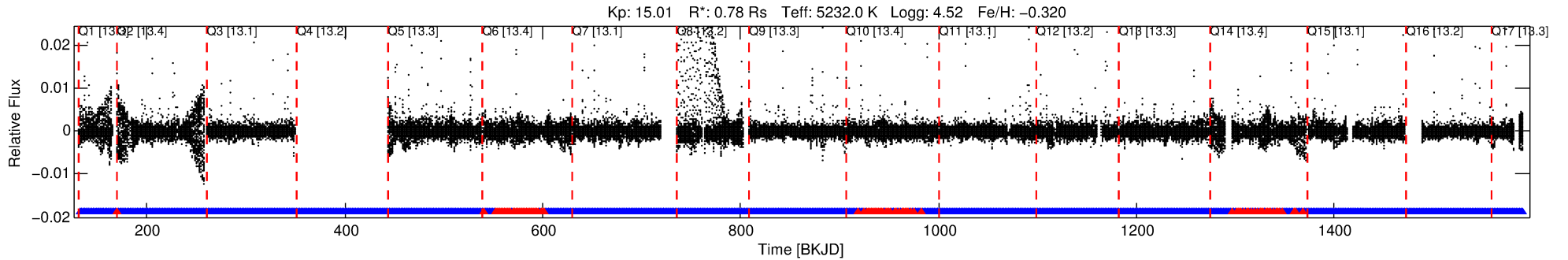
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008812627-01

No Significant Match Found

# DV One-Page Summary

KIC: 8812627 Candidate: 1 of 5 Period: 0.973 d



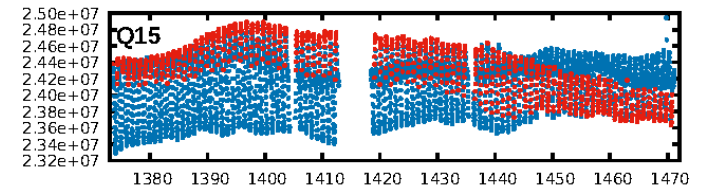
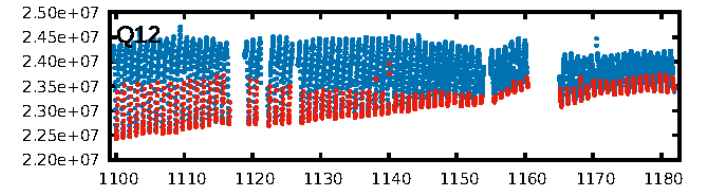
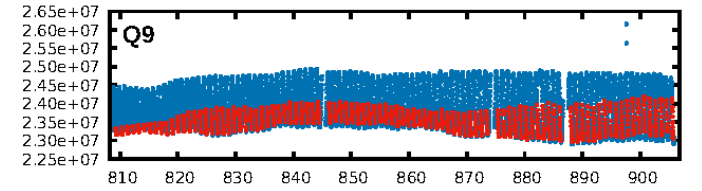
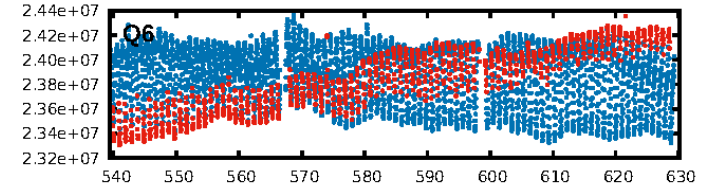
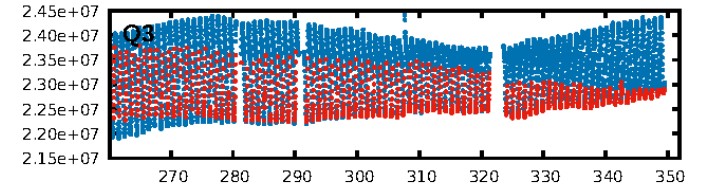
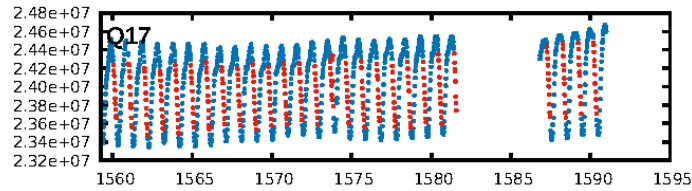
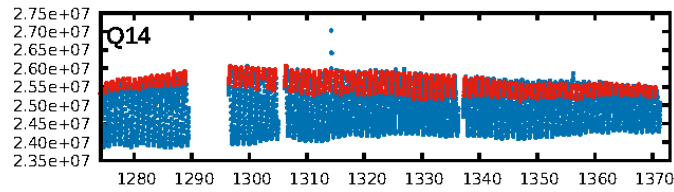
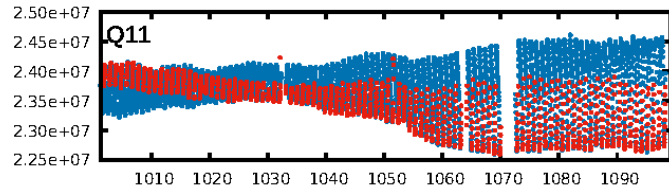
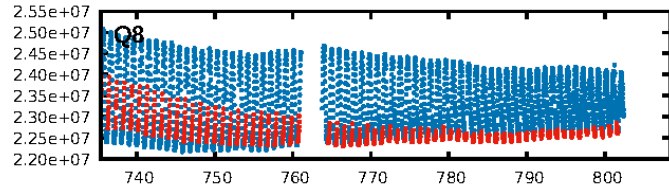
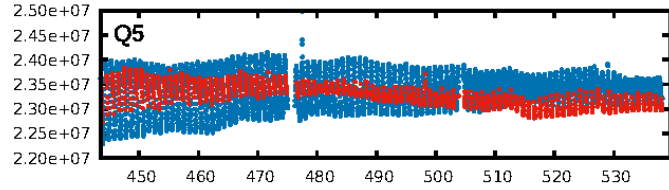
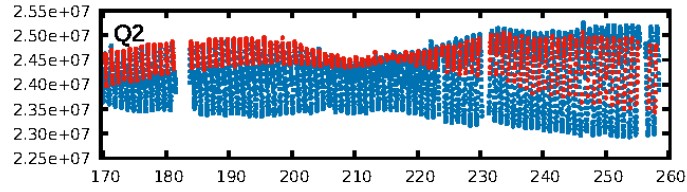
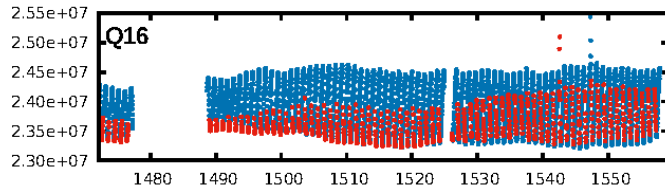
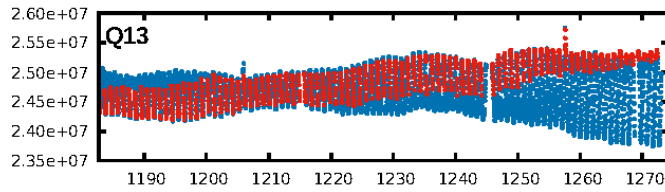
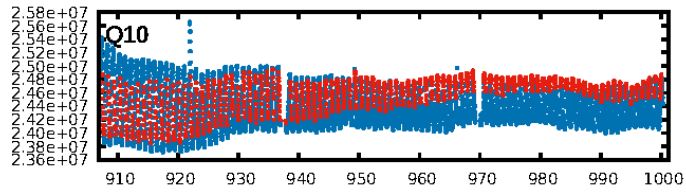
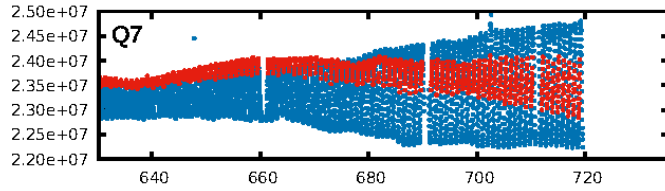
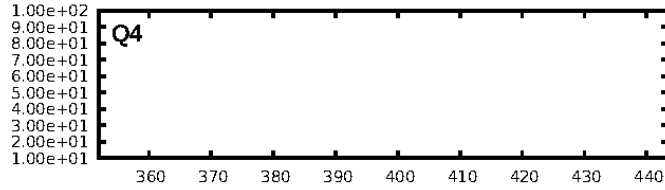
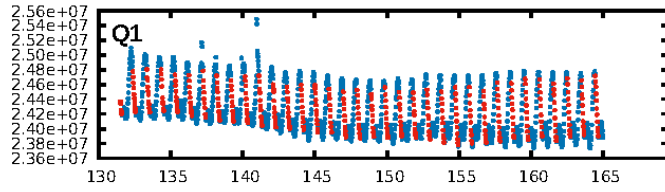
## DV Fit Results:

Period = 0.97253 [0.00003] d  
Epoch = 132.4623 [0.0044] BKJD  
Rp/R\* = 0.0081 [0.0055]  
a/R\* = 2.29 [4.81]  
b = 0.68 [2.06]  
Seff = 1357.19 [390.31]  
Teff = 1548 [111] K  
Rp = 0.68 [0.48] Re  
a = 0.0173 [0.0028] AU  
Ag = 38.39 [53.74] [0.70 $\sigma$ ]  
Teffp = 5956 [2056] K [2.14 $\sigma$ ]

## DV Diagnostic Results:

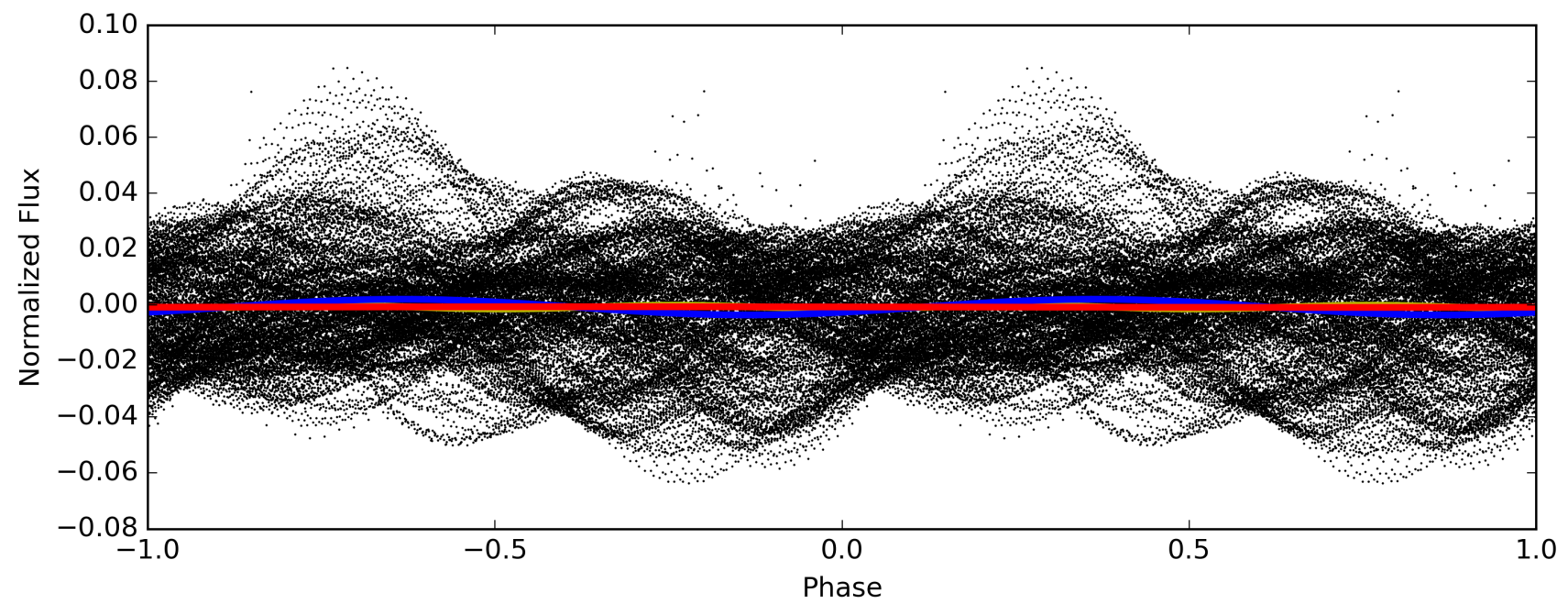
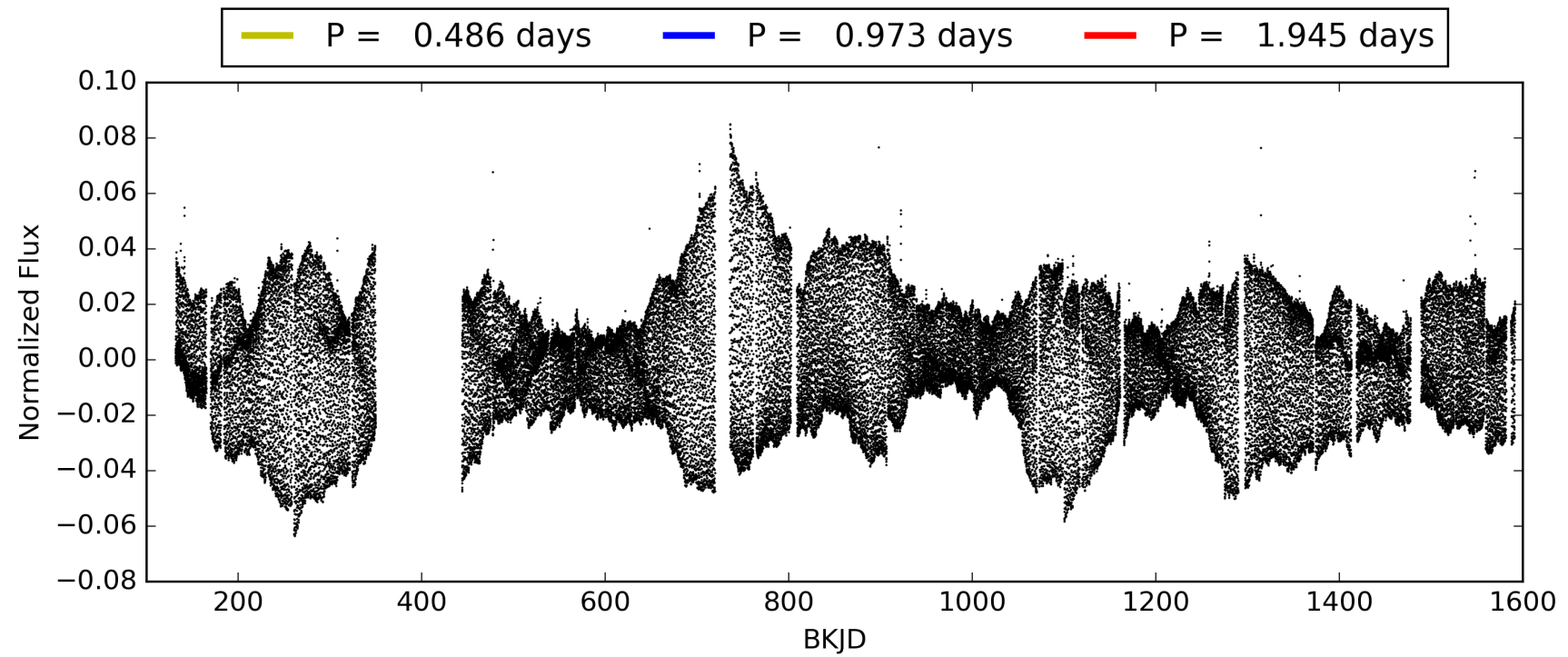
ShortPeriod-sig: N/A  
LongPeriod-sig: 0.3% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.90 [1106/1226]  
GhostDiagnostic-chr: -1.087  
Centroid-sig: 0.0%  
Centroid-so: 5.070 arcsec [3.62 $\sigma$ ]  
OotOffset-rm: 0.223 arcsec [0.46 $\sigma$ ]  
KicOffset-rm: 0.239 arcsec [1.35 $\sigma$ ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.50 [8/16]  
DiffImageOverlap-fno: 0.19 [3/16]

# TCE 008812627-01, PDC Light Curves





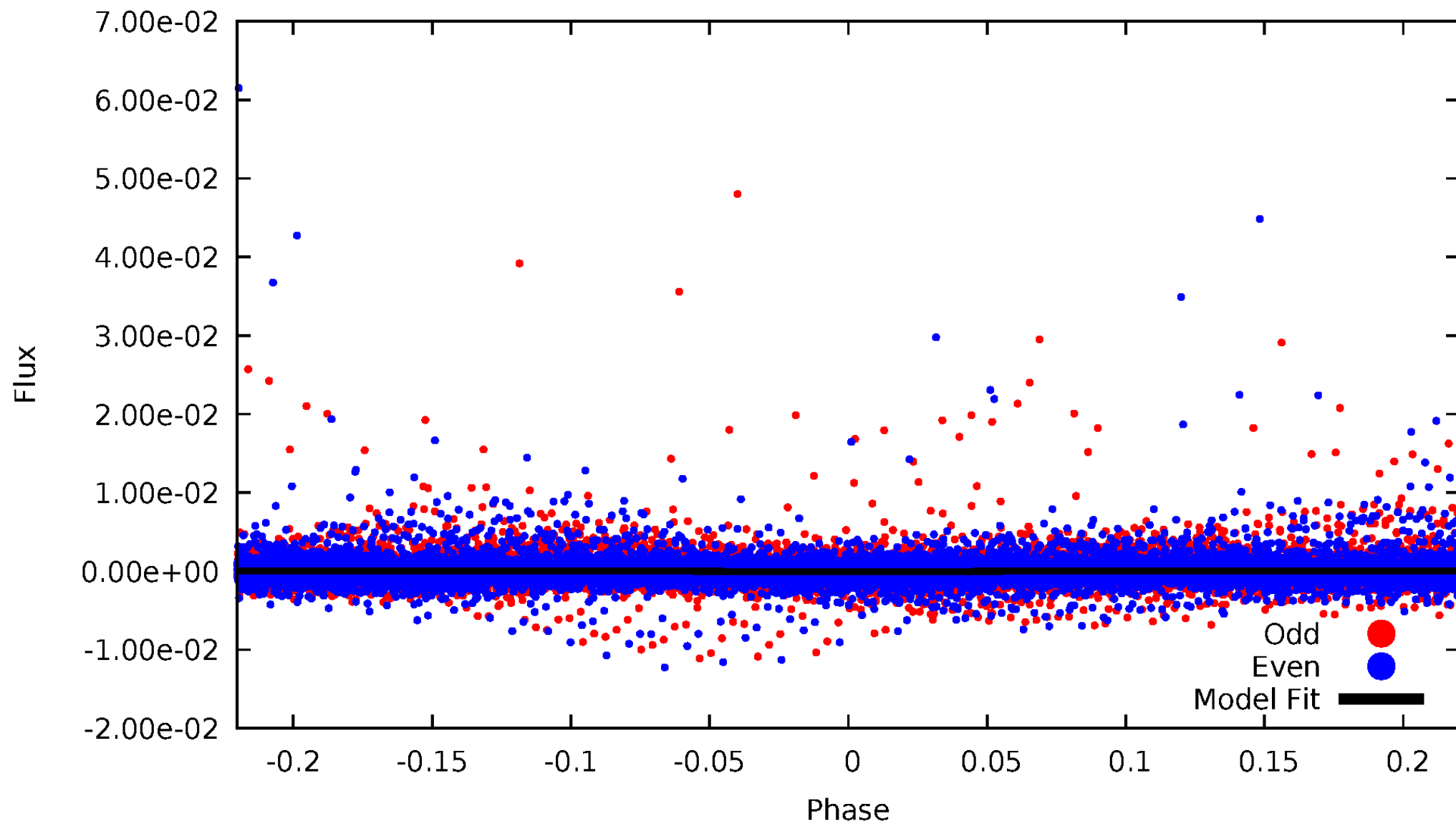
TCE 008812627-01





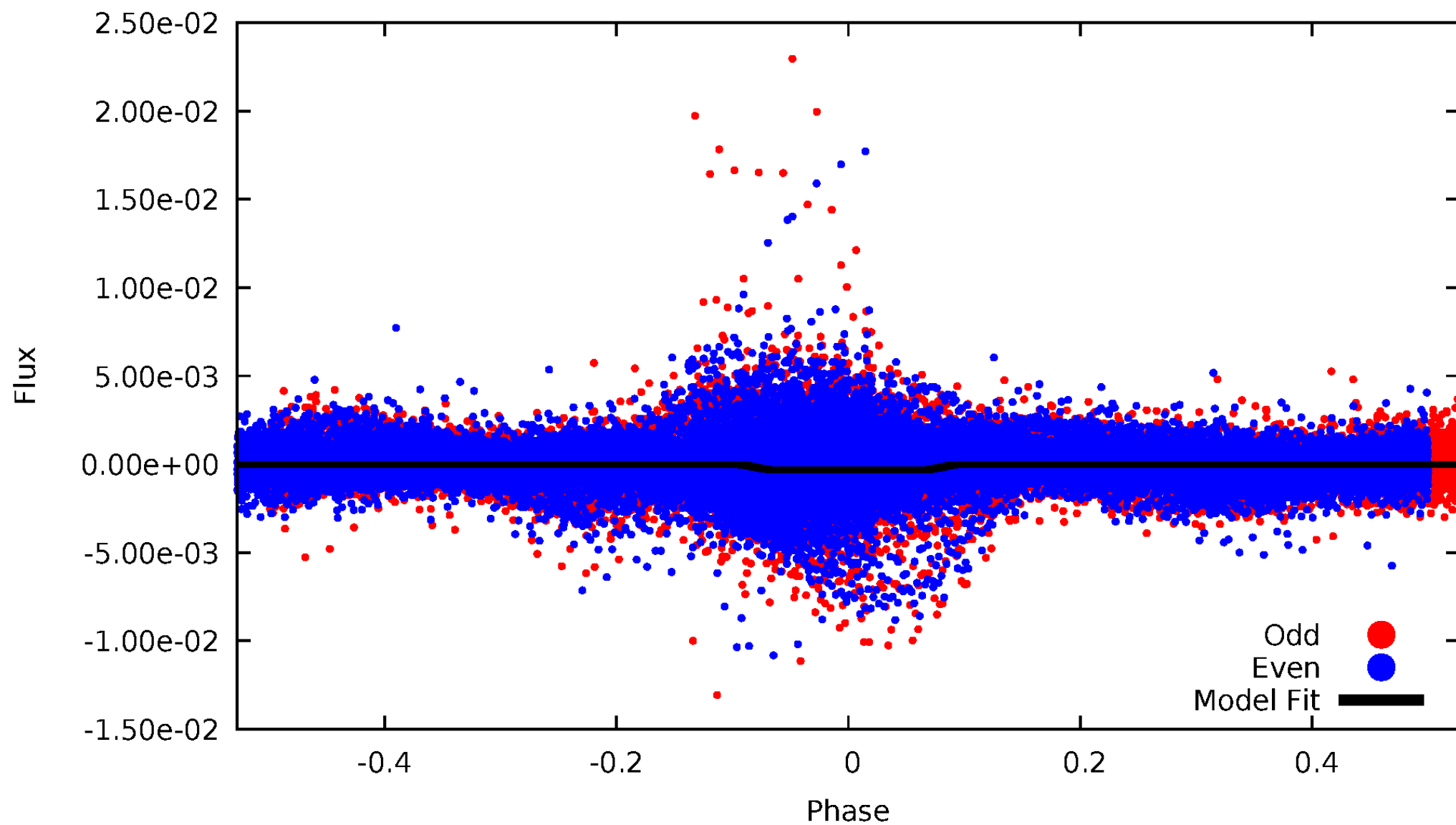
# DV Odd/Even

TCE 008812627-01

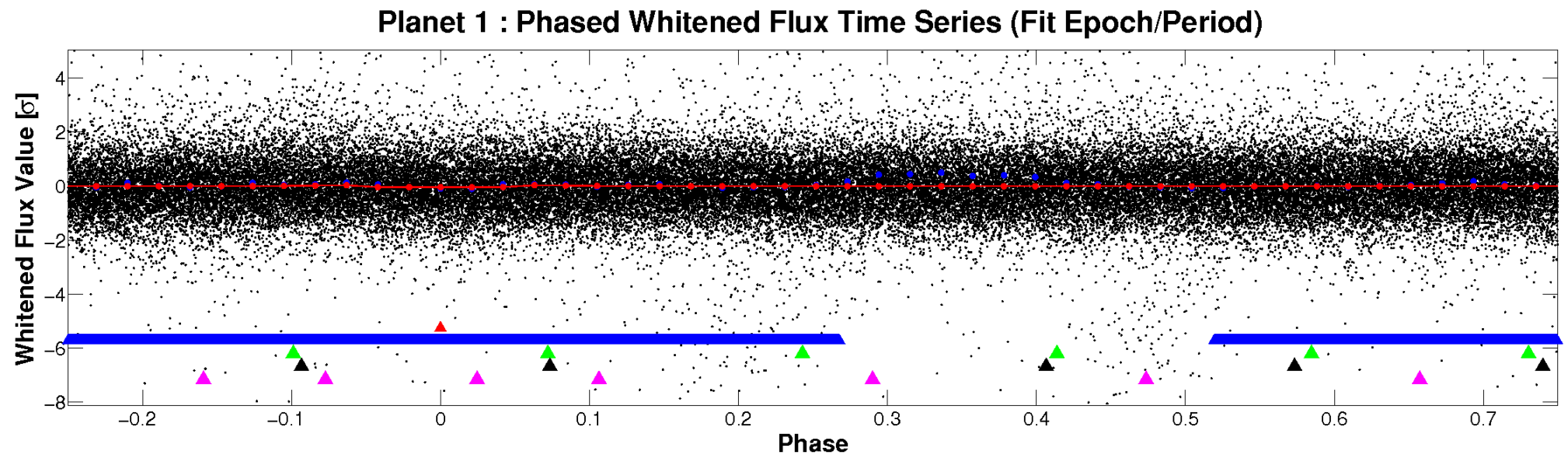
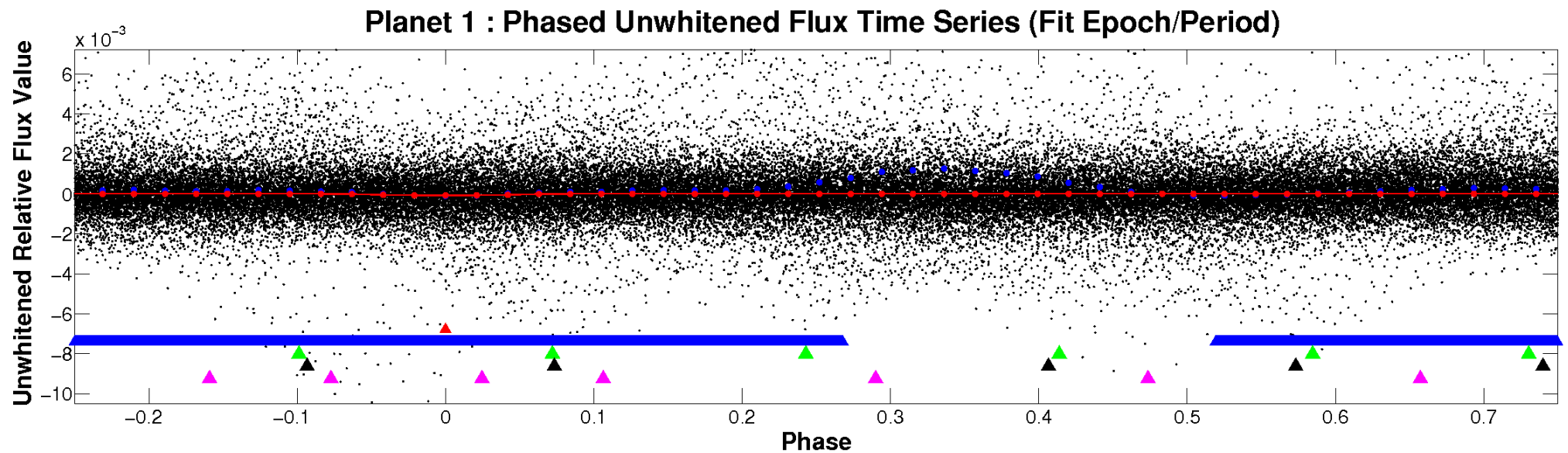


# ALT Odd/Even

TCE 008812627-01



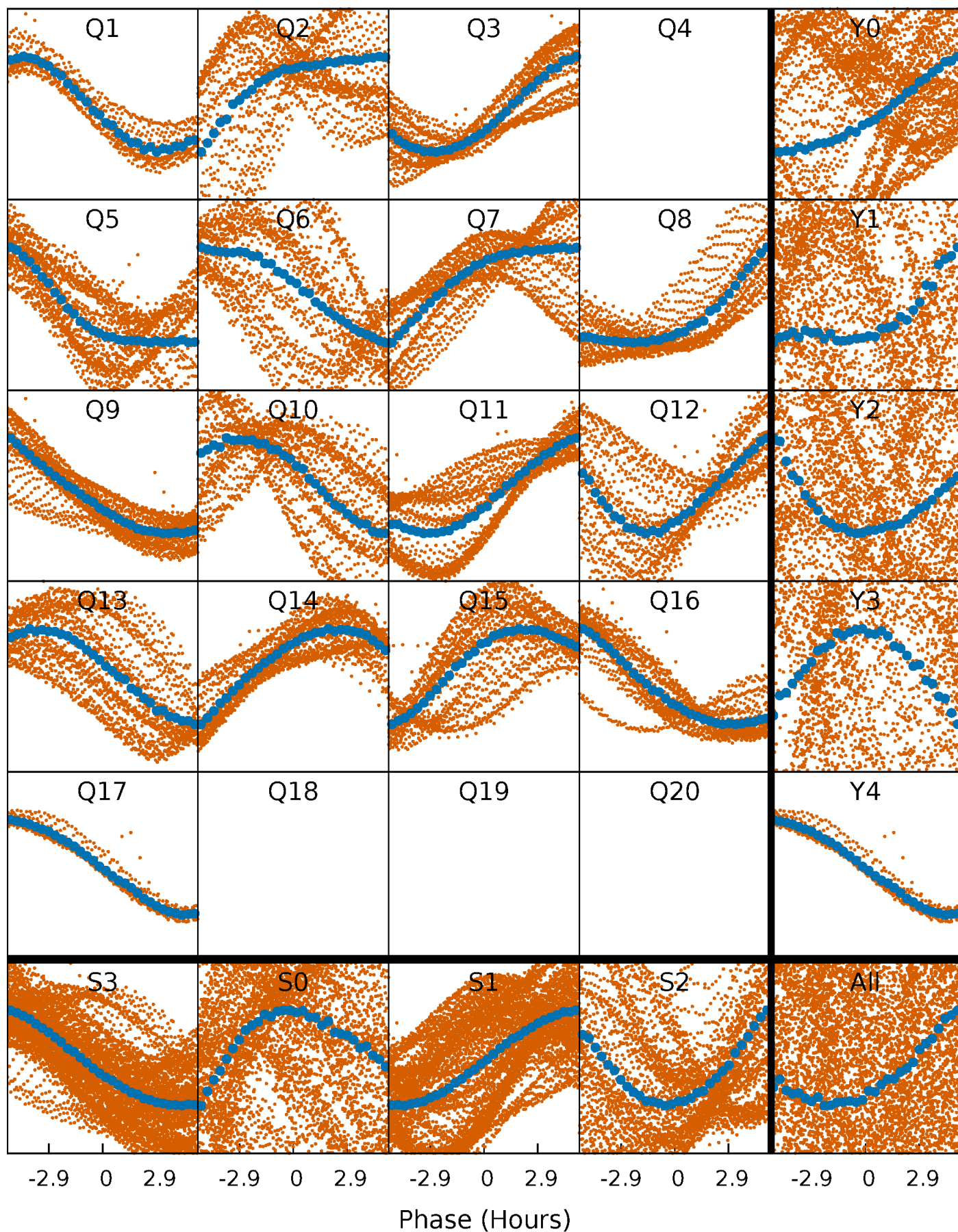
# Non-Whitened Vs. Whitened Light Curve





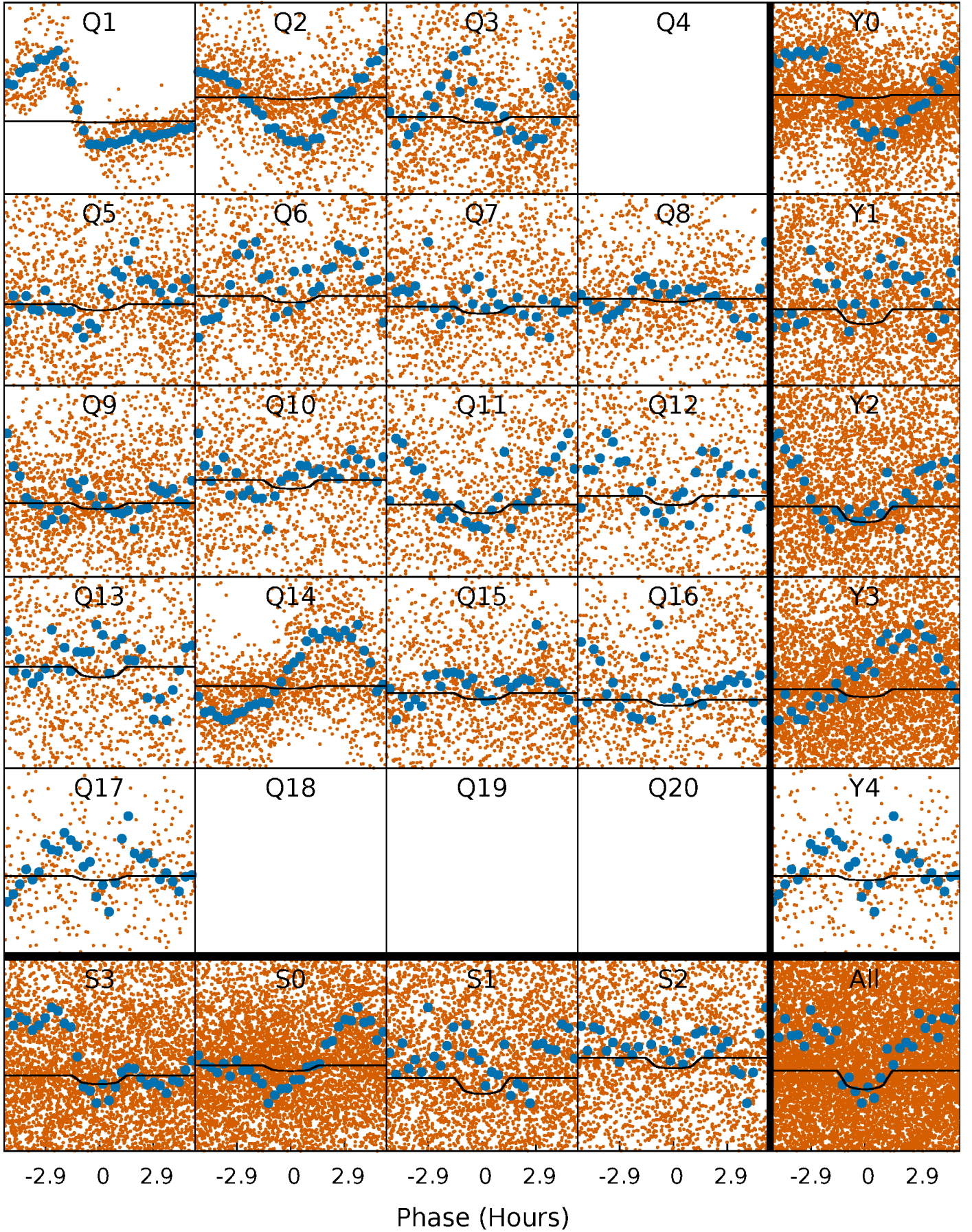
# PDC Quarter-Phased Transit Curves

TCE 008812627-01 P= 0.972531 Days  $T_0=132.462301$  (BKJD)



# DV Quarter-Phased Transit Curves

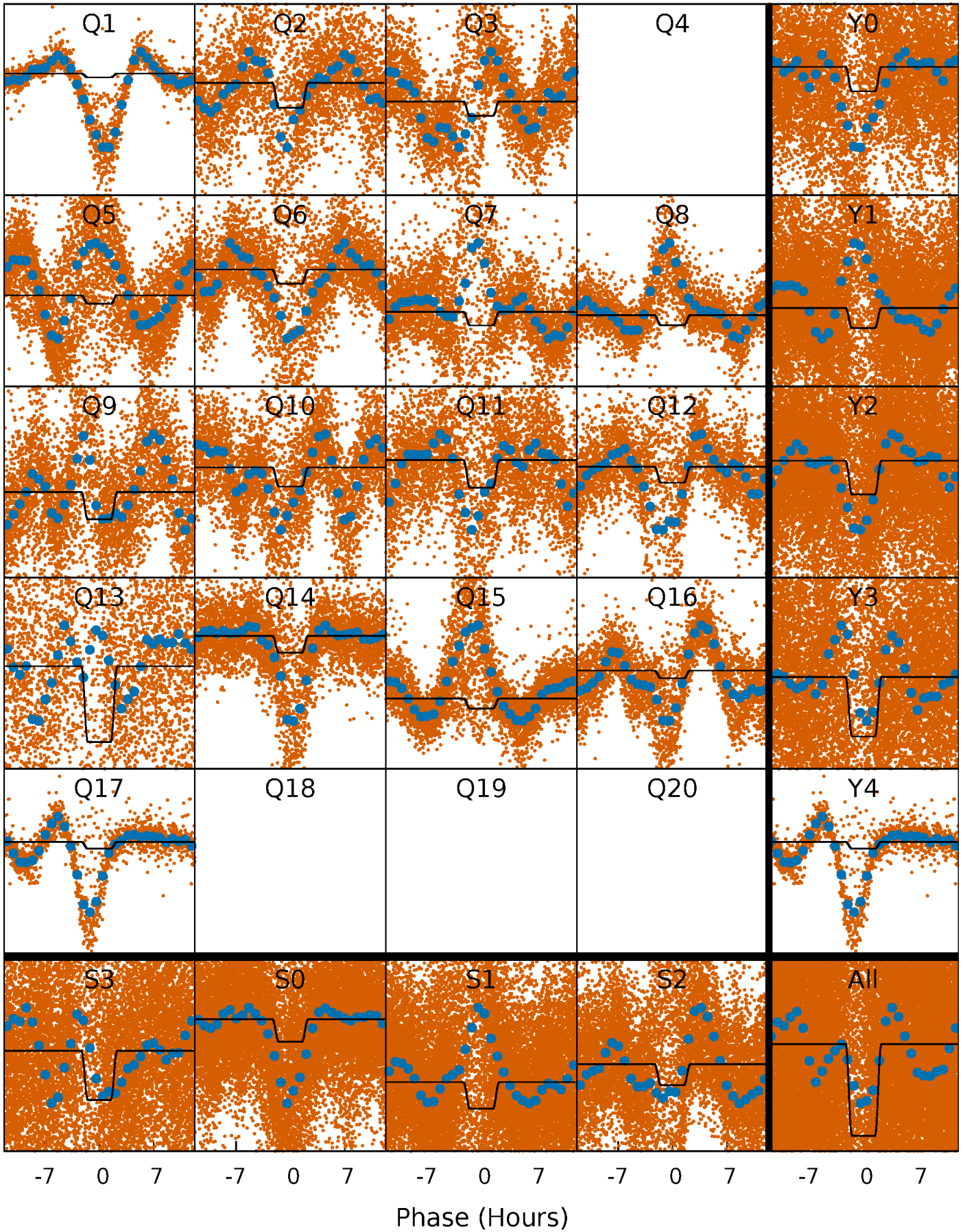
TCE 008812627-01   P= 0.972531 Days    $T_0=132.462301$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 008812627-01 P= 0.972912 Days  $T_0=132.509176$  (BKJD)

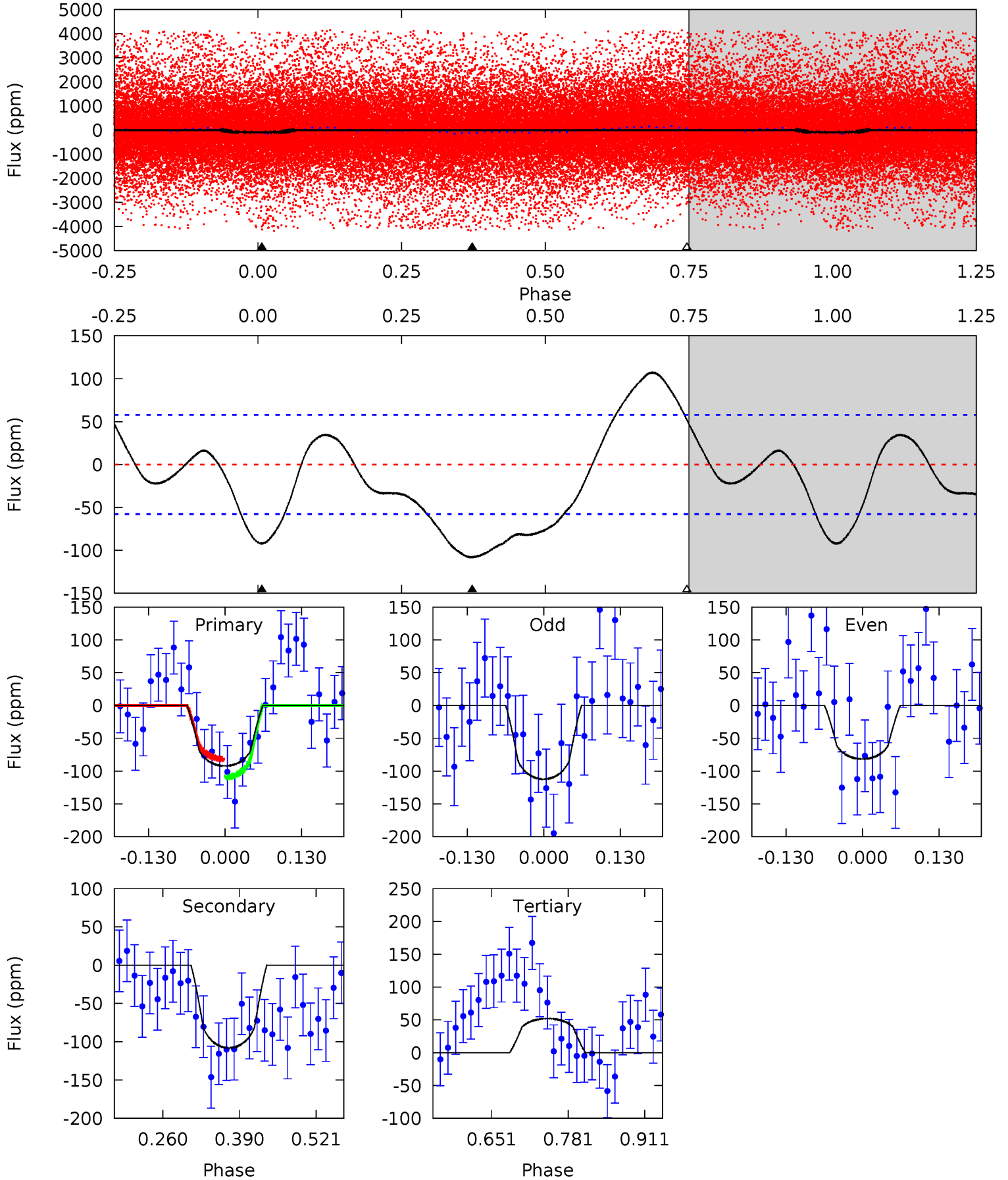




# DV Model-Shift Uniqueness Test

008812627-01, P = 0.972531 Days, E = 131.489770 Days

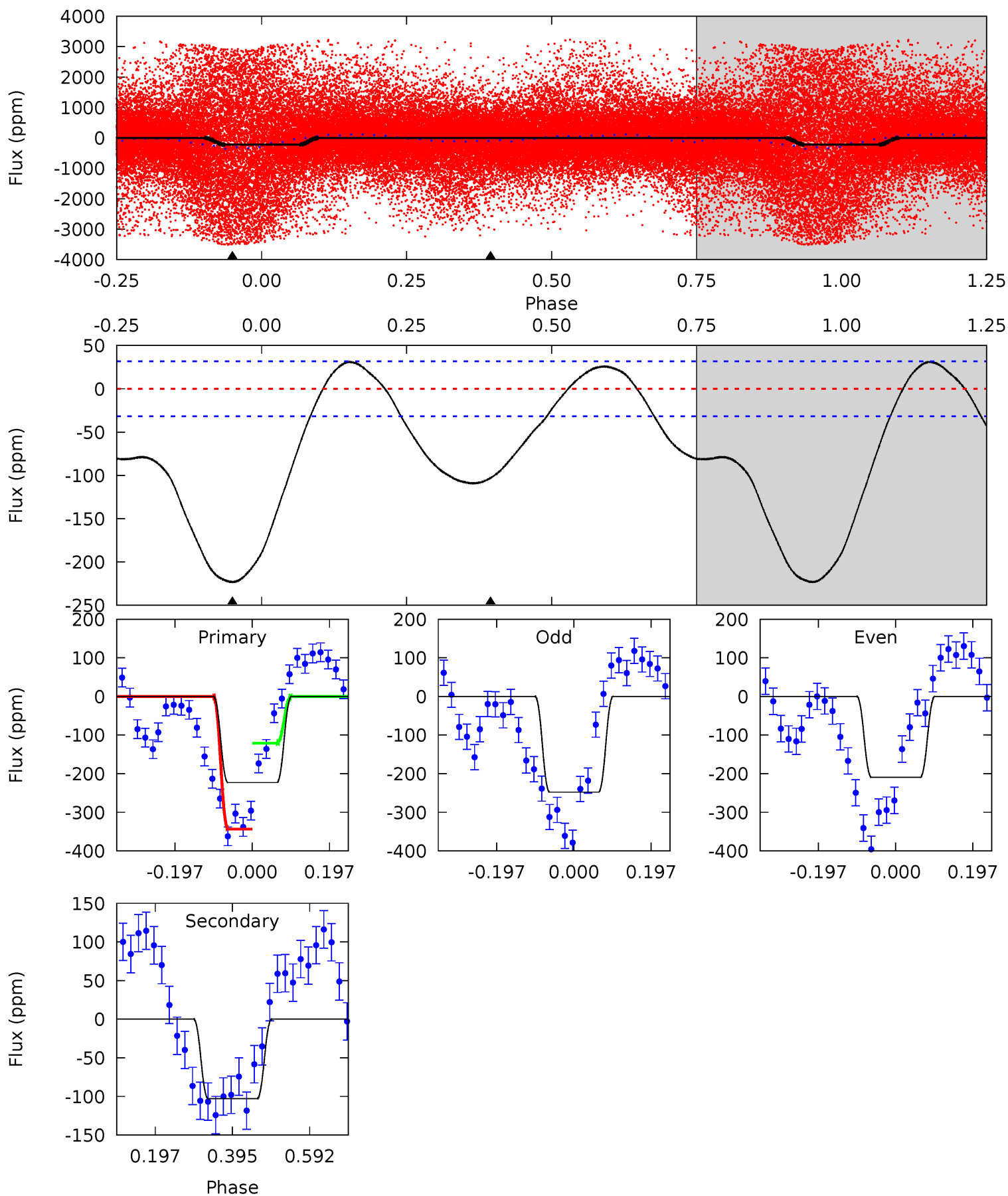
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.19	8.43	-4.05	0	4.51	1.51	3.98	11.2	7.19	12.5	8.43	1.21	0.84	0.50	0



# Alt Model-Shift Uniqueness Test

008812627-01, P = 0.972912 Days, E = 130.563352 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.1	14.3	0	0	4.42	1.29	5.56	31.1	31.1	14.3	14.3	2.67	0.74	0.12	14.1



### Stellar Parameters For KIC 008812627

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5232^{+156}_{-156}$	$4.519^{+0.091}_{-0.156}$	$-0.320^{+0.300}_{-0.300}$	$0.777^{+0.123}_{-0.092}$	$0.727^{+0.115}_{-0.054}$	$2.186^{+0.817}_{-0.777}$
	+3%/-3%	+2%/-3%	+94%/-94%	+16%/-12%	+16%/-7%	+37%/-36%
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 008812627-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-108 \pm 13$	$0.75^{+0.45}_{-0.40}$	$2183^{+119}_{-109}$	$5655^{+3045}_{-1008}$	$32^{+111}_{-20}$
Alt.	$-103 \pm 7$	$1.56^{+0.50}_{-0.54}$	$2190^{+110}_{-111}$	$4117^{+815}_{-389}$	$7.029^{+9.669}_{-3.007}$

$T_{\text{max}}$  = 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

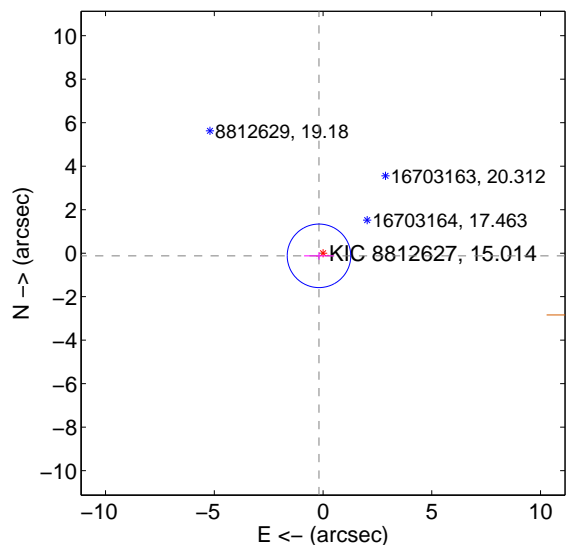
Supplemental centroid analysis for 008812627-01. Kepler magnitude: 15.01. Transit SNR 3.73

There are 8 quarters with good PRF difference image offsets

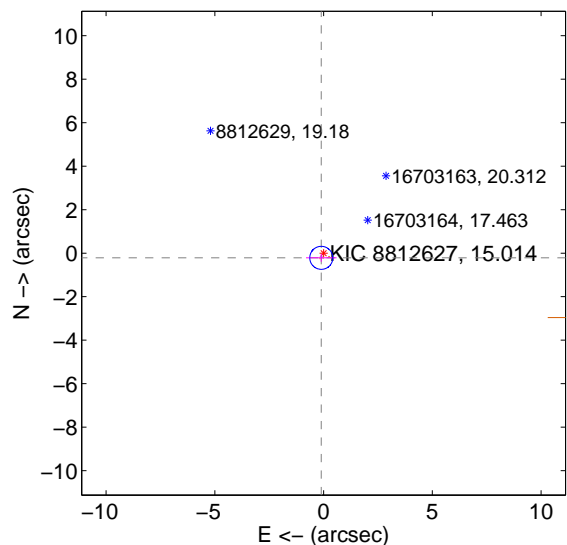
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.223 \pm 0.487$	0.46	$0.186 \pm 0.683$	$-0.122 \pm 0.173$
PRF-fit source offset from KIC position	$0.239 \pm 0.176$	1.35	$0.106 \pm 0.703$	$-0.214 \pm 0.177$
photometric centroid source offset	$5.07 \pm 1.40$	3.62	$-4.23 \pm 1.43$	$-2.79 \pm 1.33$

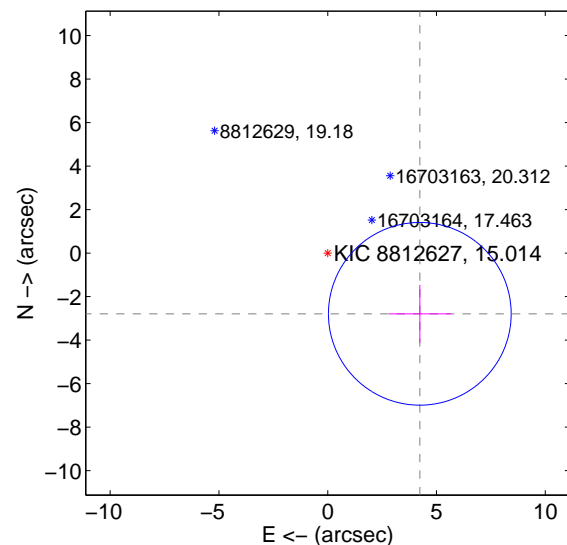
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

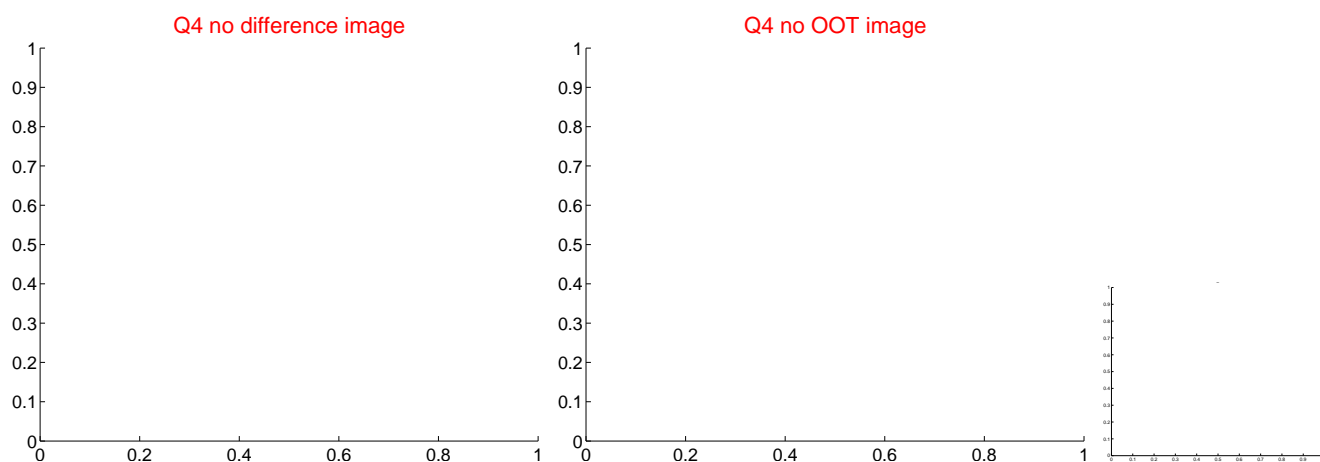
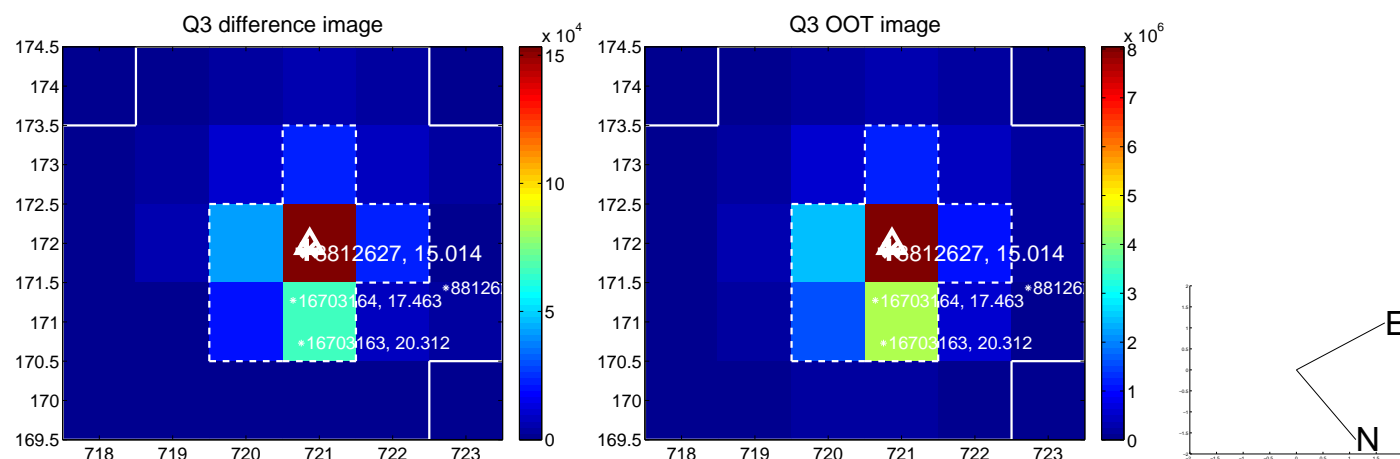
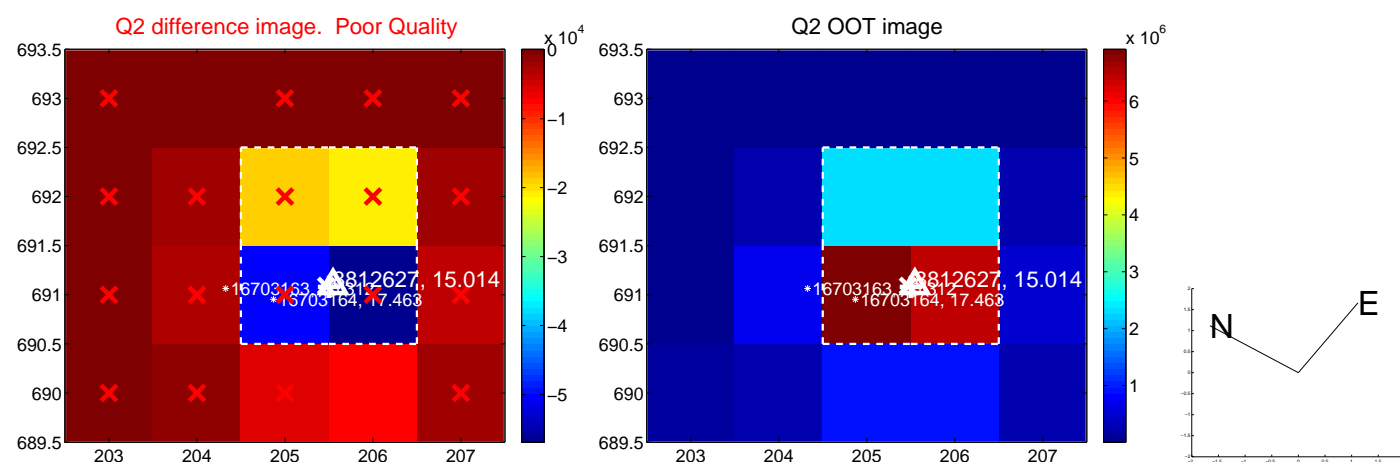
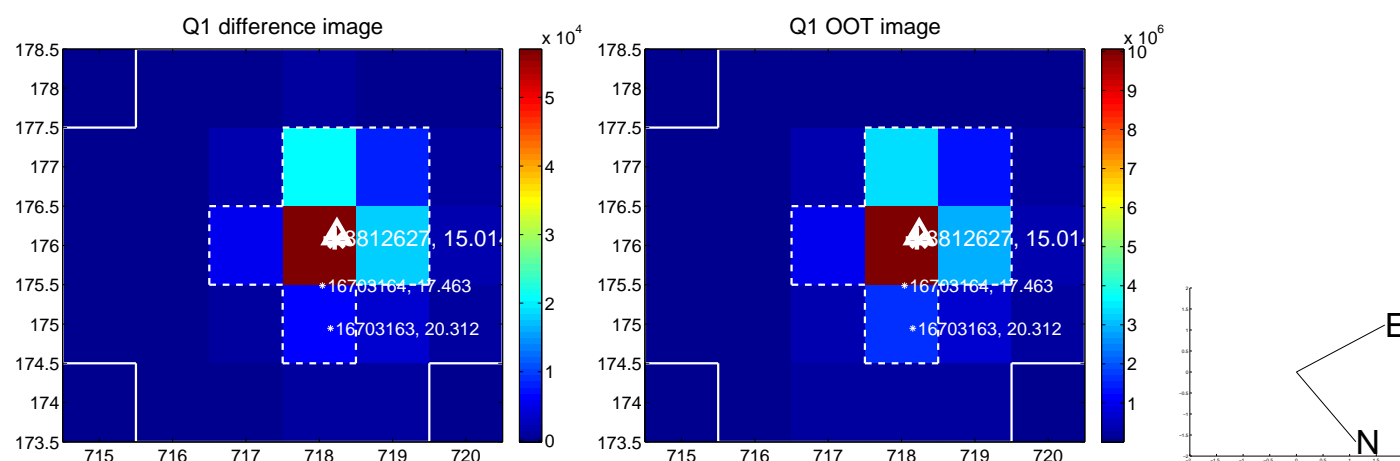


offset from photometric centroids

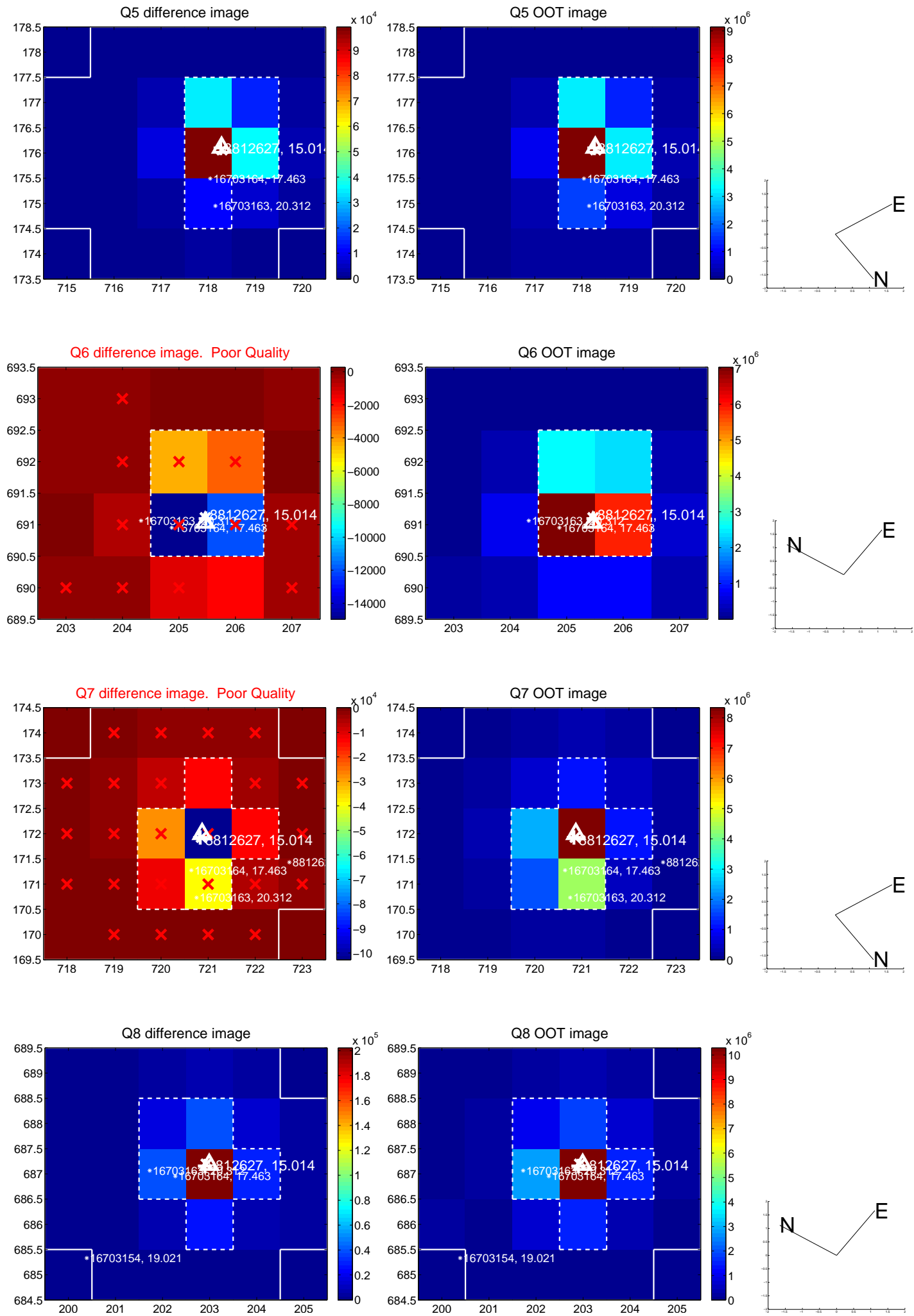


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

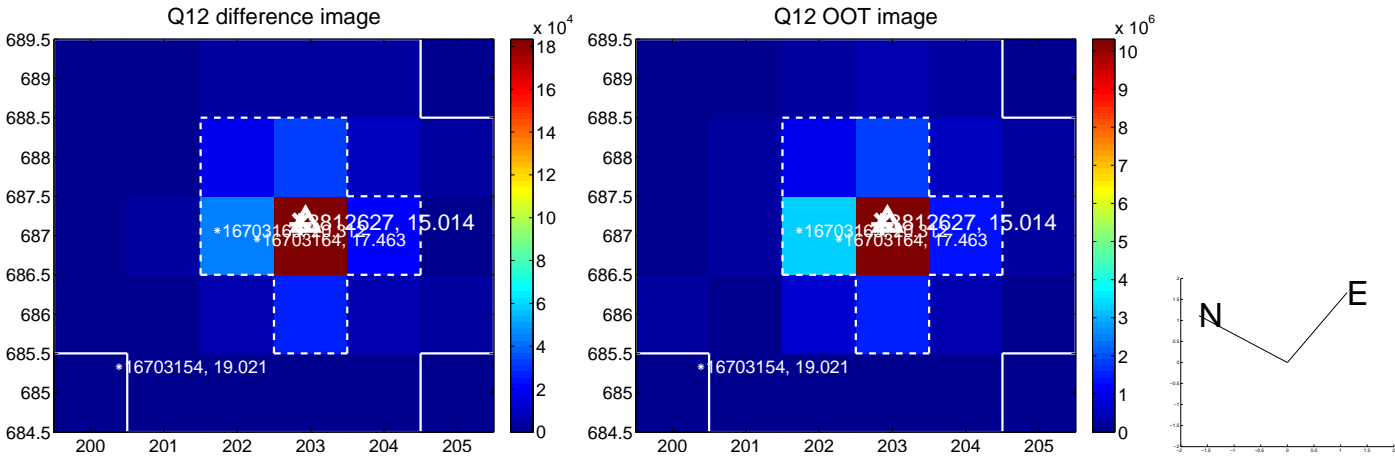
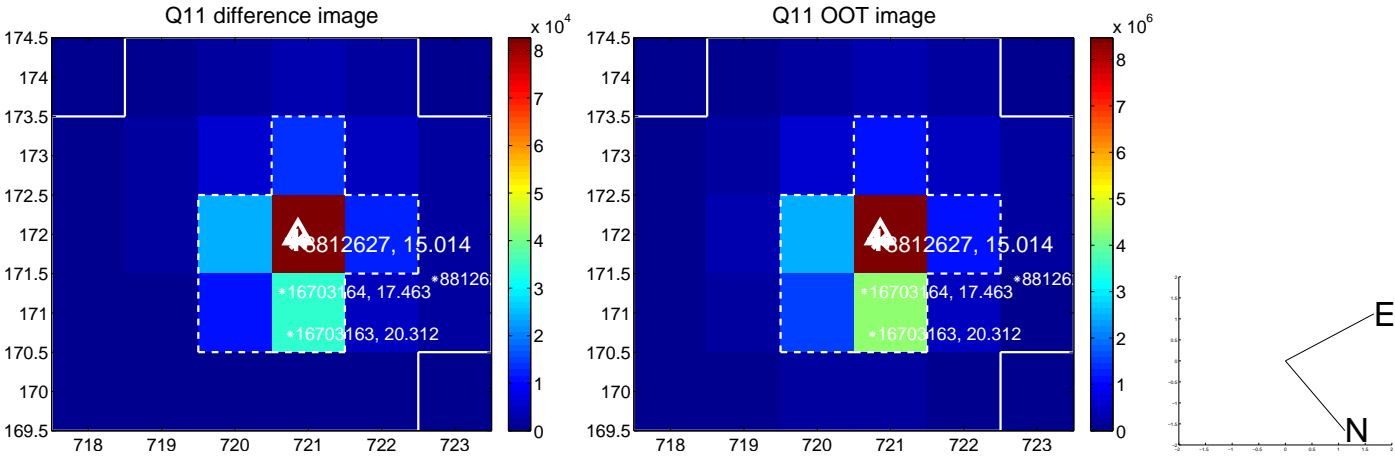
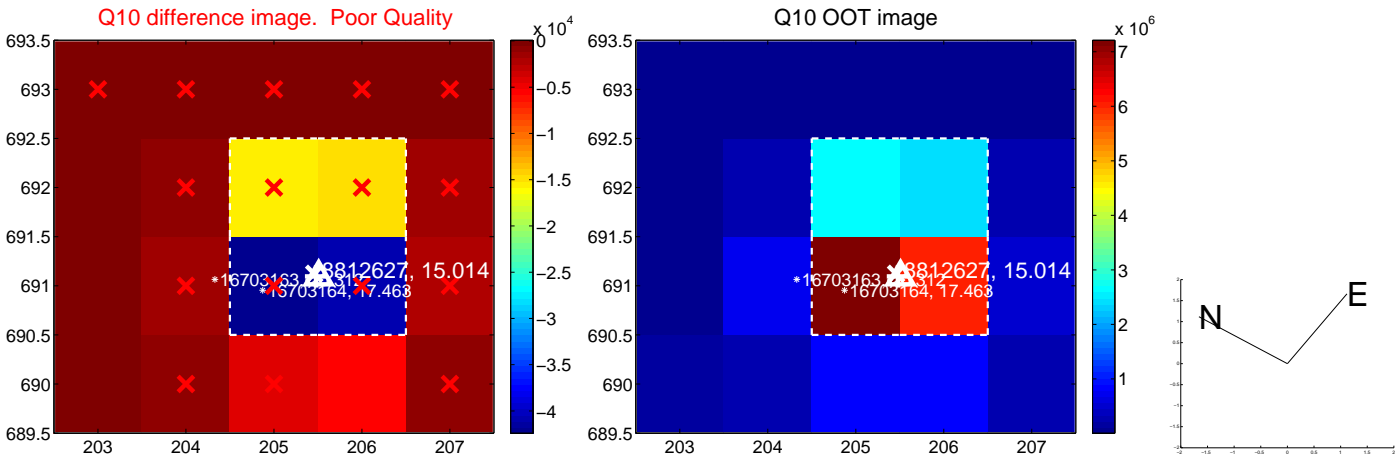
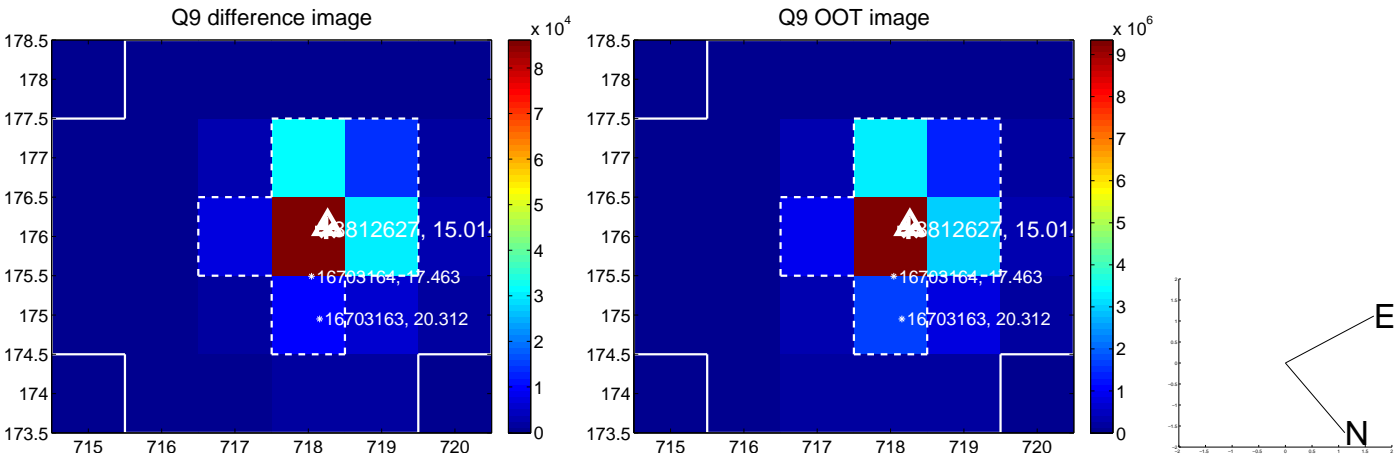


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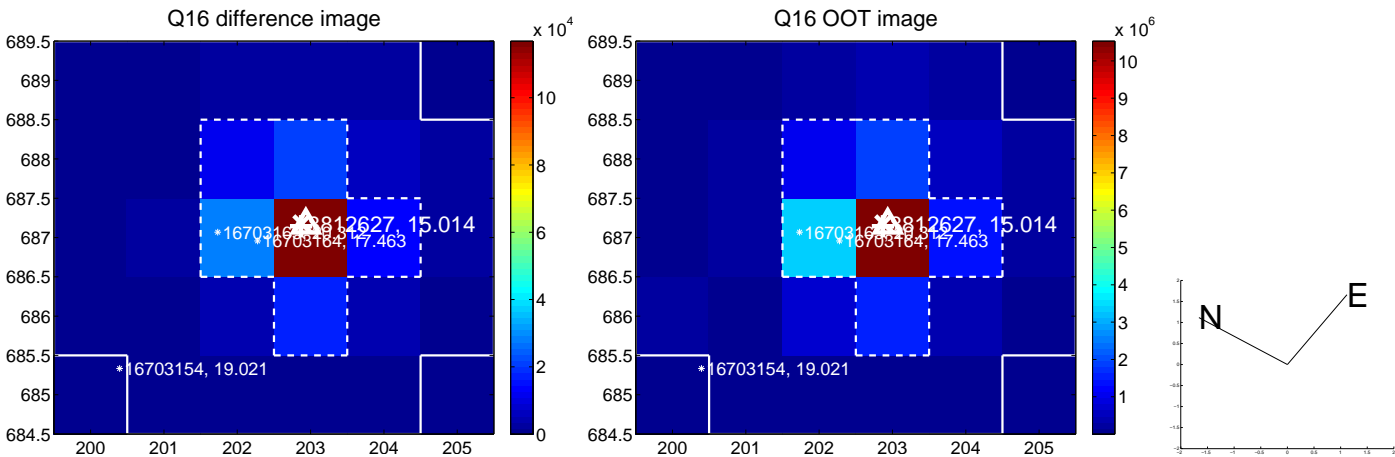
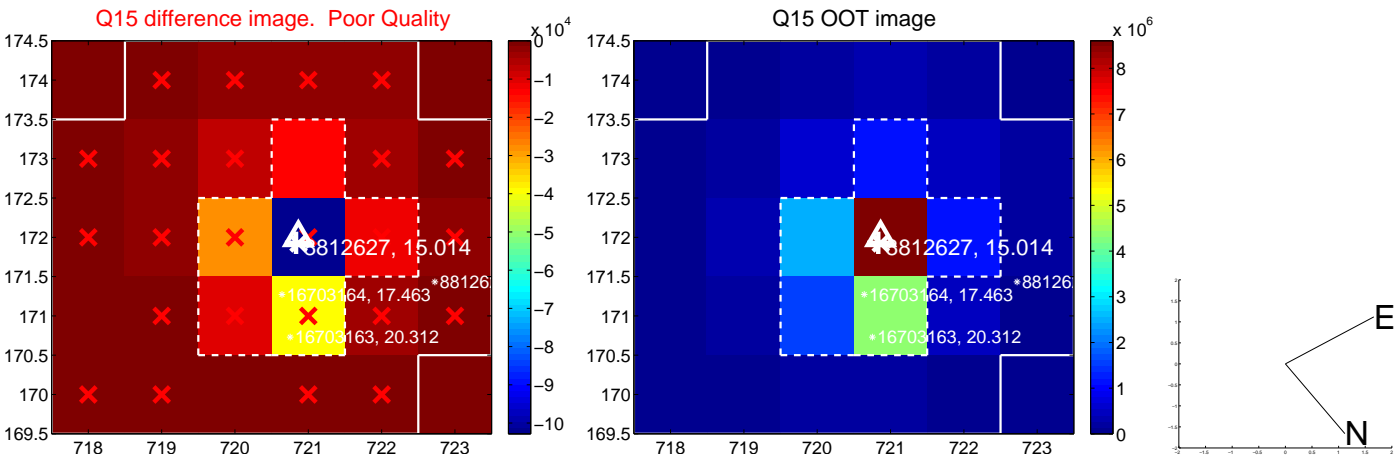
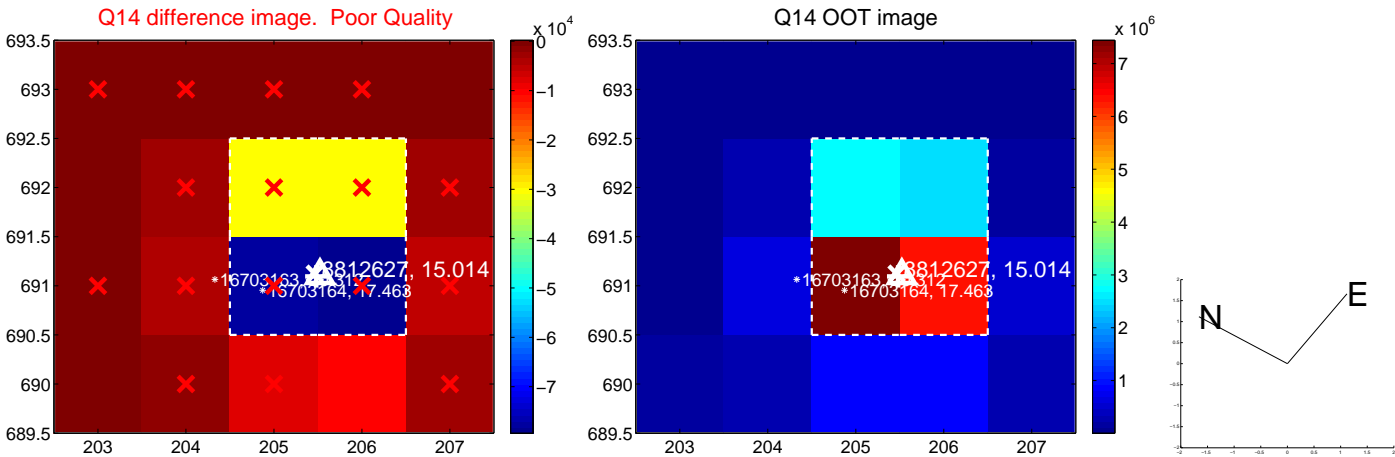
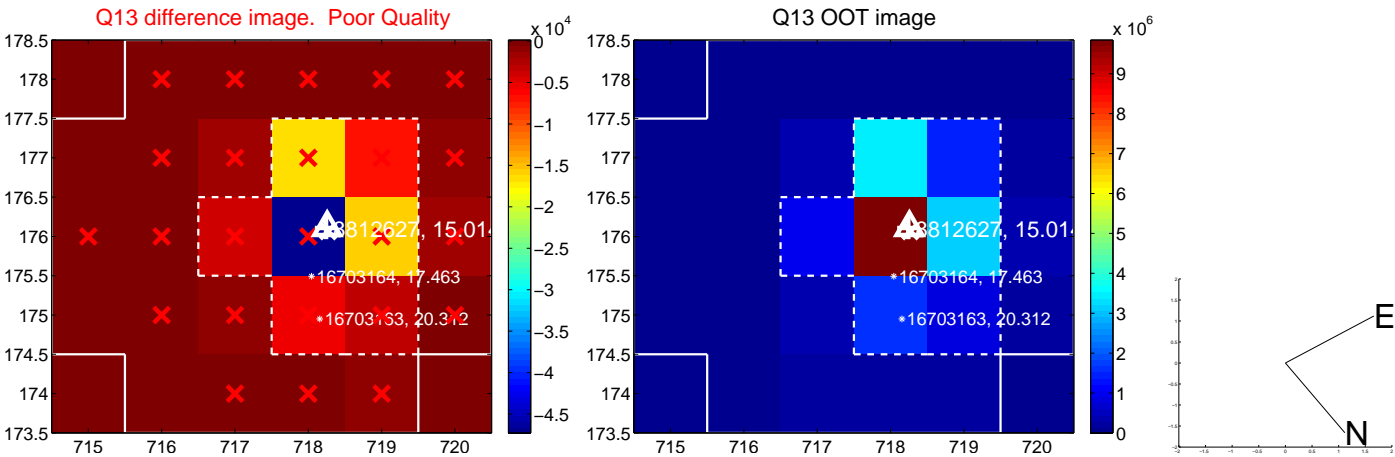




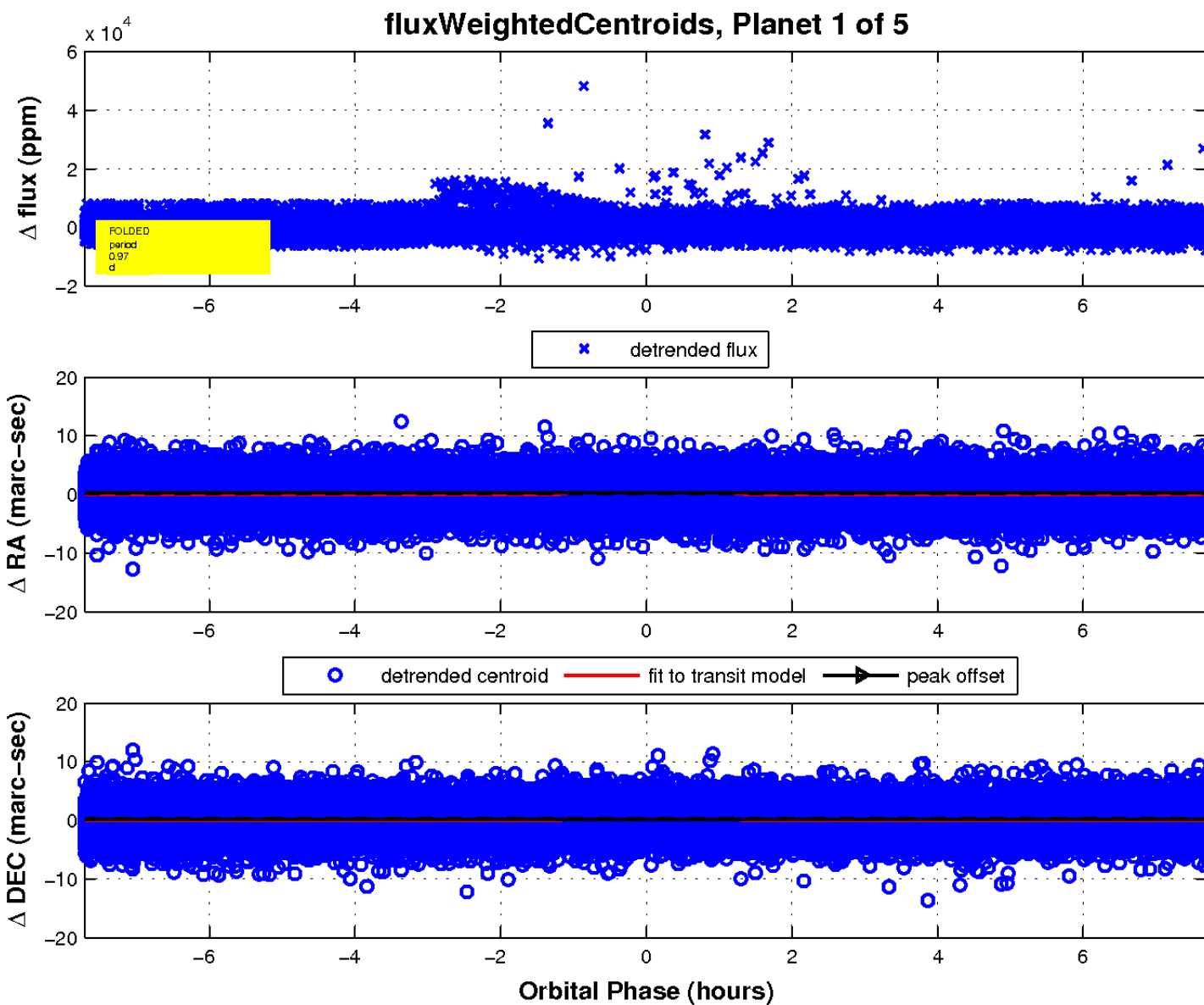
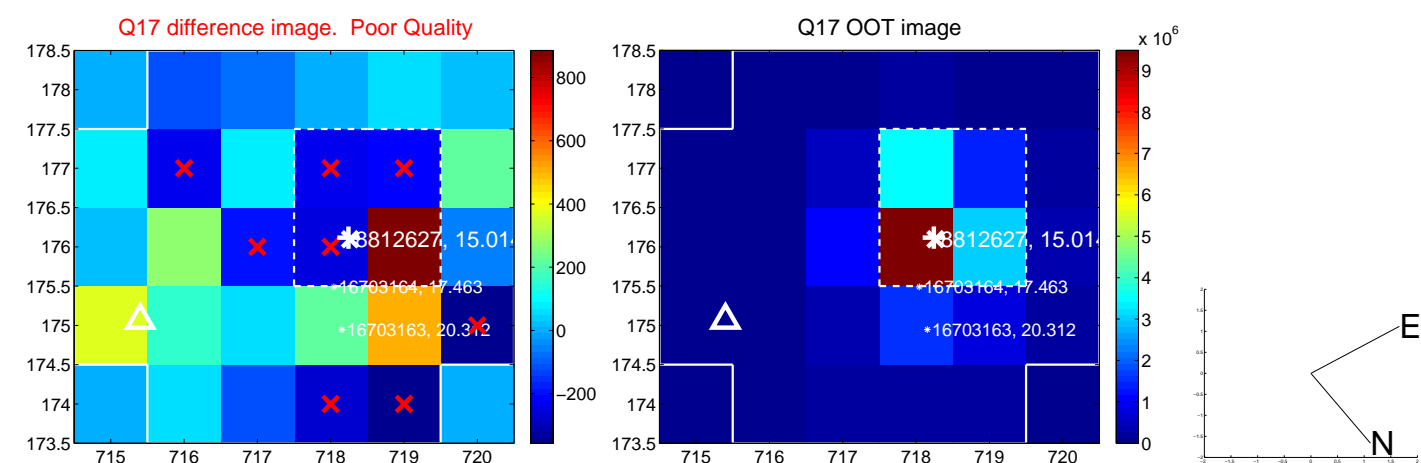
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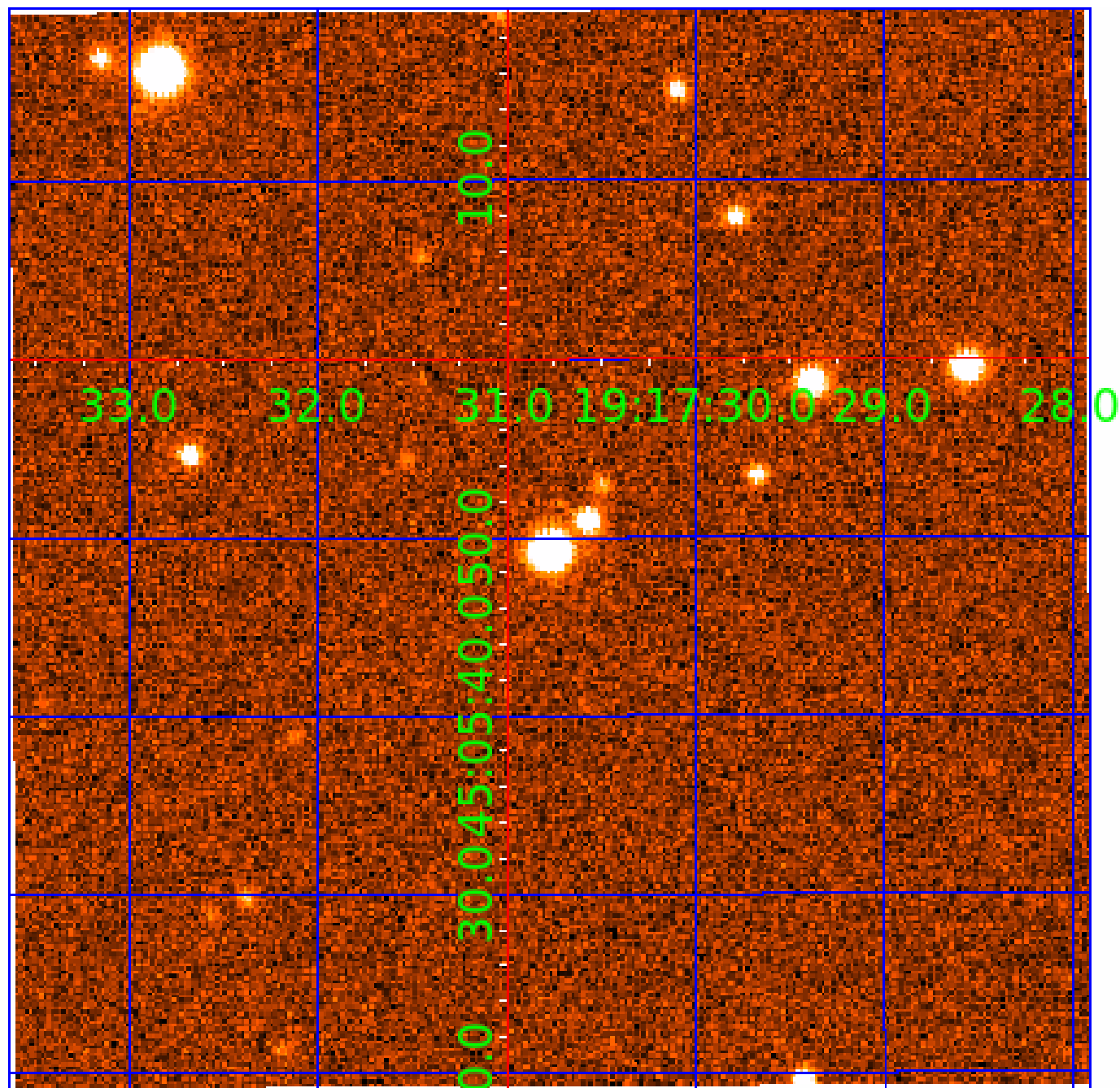


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UKIRT Image

Declination



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008812627-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008812627-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
008812627-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008812627-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
008812627-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

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

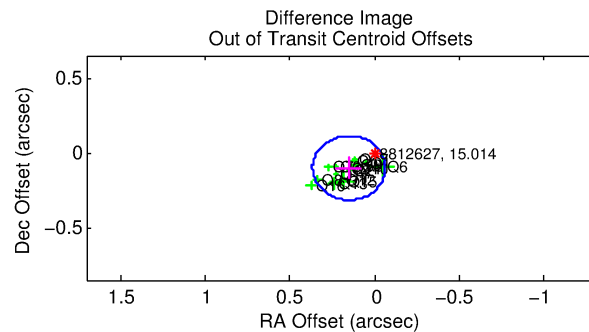
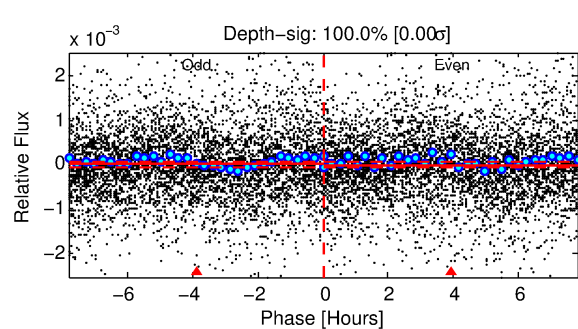
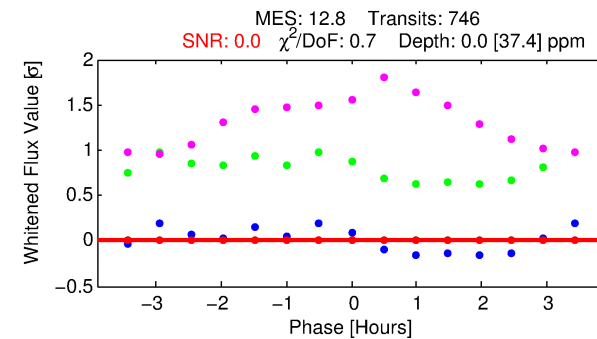
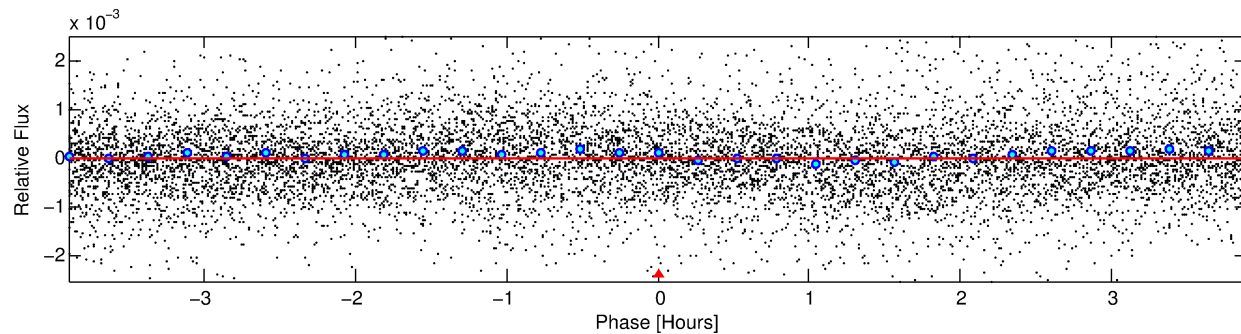
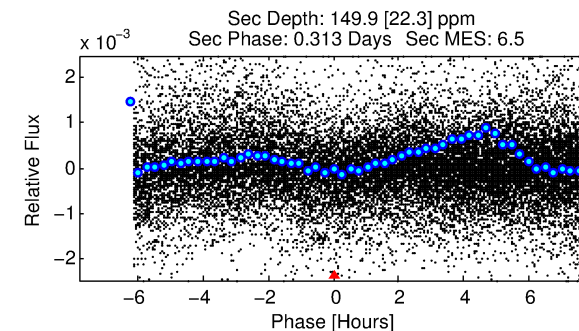
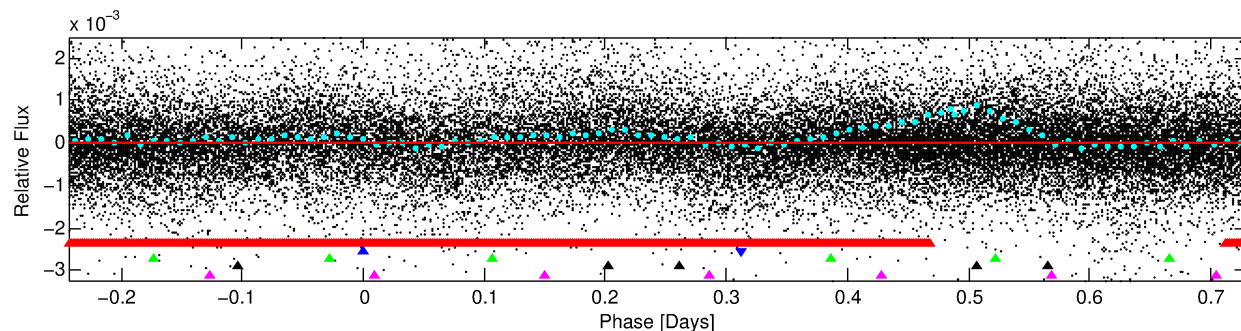
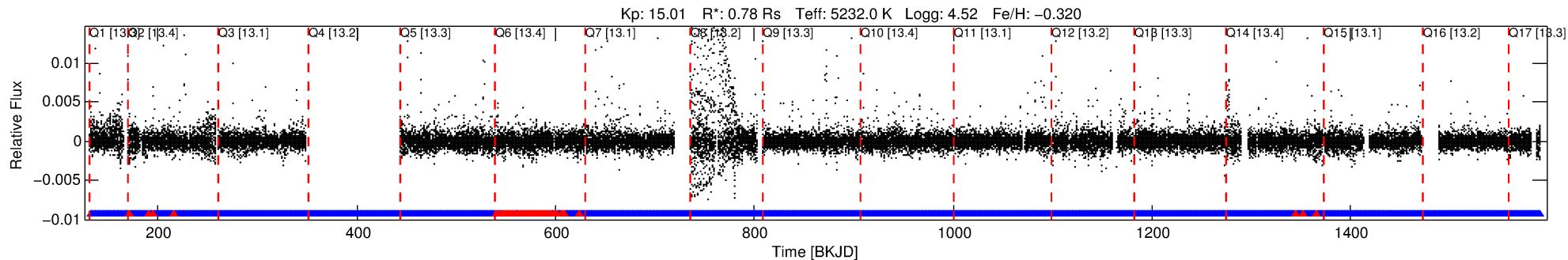
## Ephemeris Match Information For 008812627-02

No Significant Match Found



# DV One-Page Summary

KIC: 8812627 Candidate: 2 of 5 Period: 0.973 d



## DV Fit Results:

Period = 0.97302 [0.20451] d  
Epoch = 131.9949 [24.8245] BKJD  
Rp/R\* = 0.0001 [0.1477]  
a/R\* = 4.00 [652.67]  
b = 0.73 [213.19]  
Seff = 1356.29 [544.62]  
Teff = 1547 [155] K  
Rp = 0.01 [12.52] Re  
a = 0.0173 [0.0037] AU  
Ag = 215429.00 [504483903.75] [0.00σ]  
Teffp = 51544 [30178919] K [0.00σ]

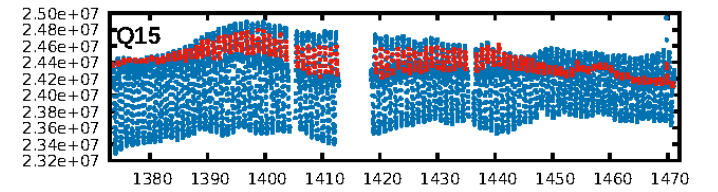
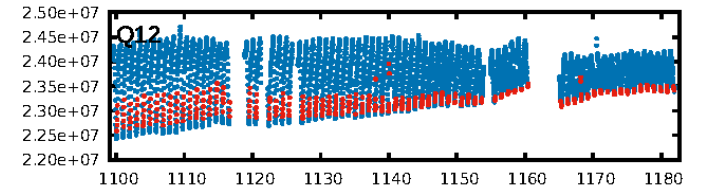
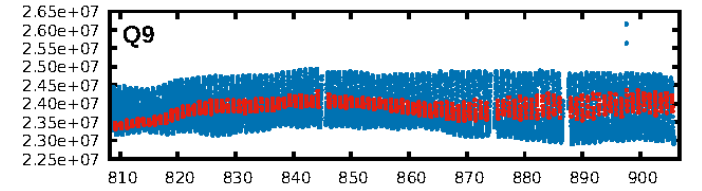
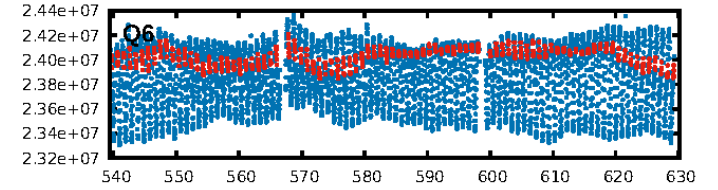
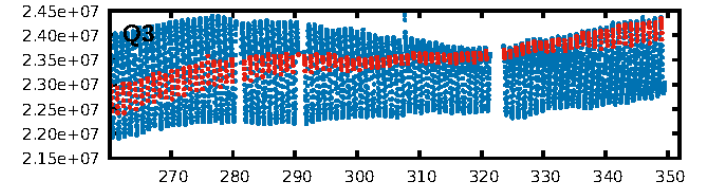
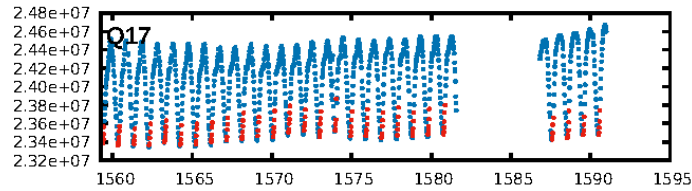
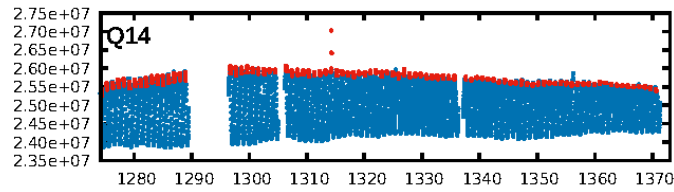
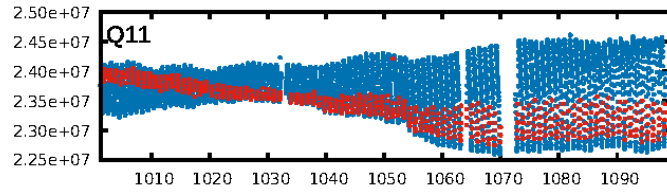
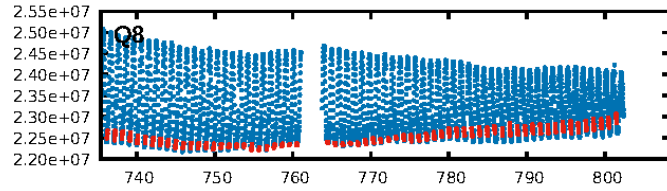
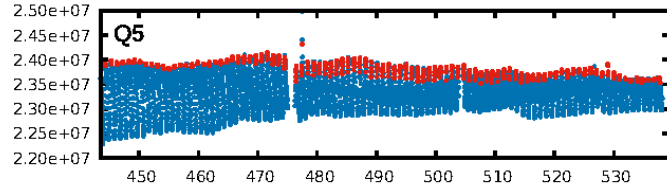
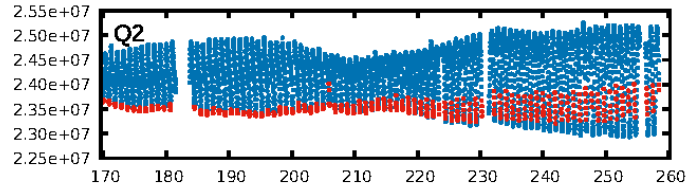
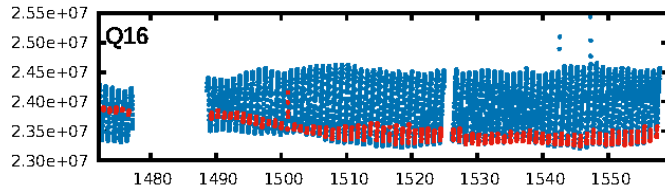
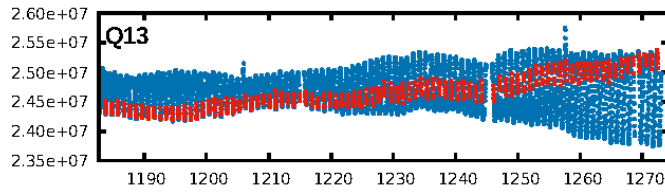
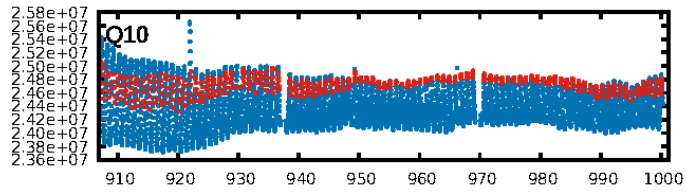
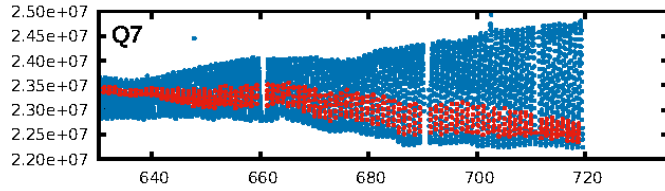
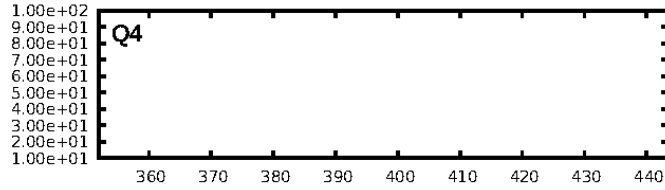
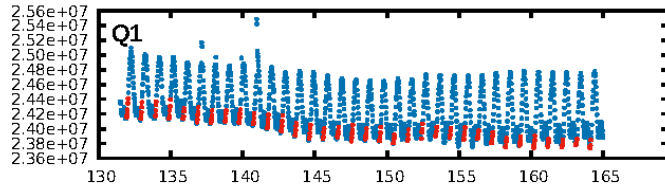
## DV Diagnostic Results:

ShortPeriod-sig: 0.3% [0.00σ]  
LongPeriod-sig: 100.0% [1671.42σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.90 [618/685]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OptOffset-rm: 0.184 arcsec [2.58σ]  
KicOffset-rm: 0.253 arcsec [3.65σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.69 [11/16]  
DiffImageOverlap-fno: 0.25 [4/16]

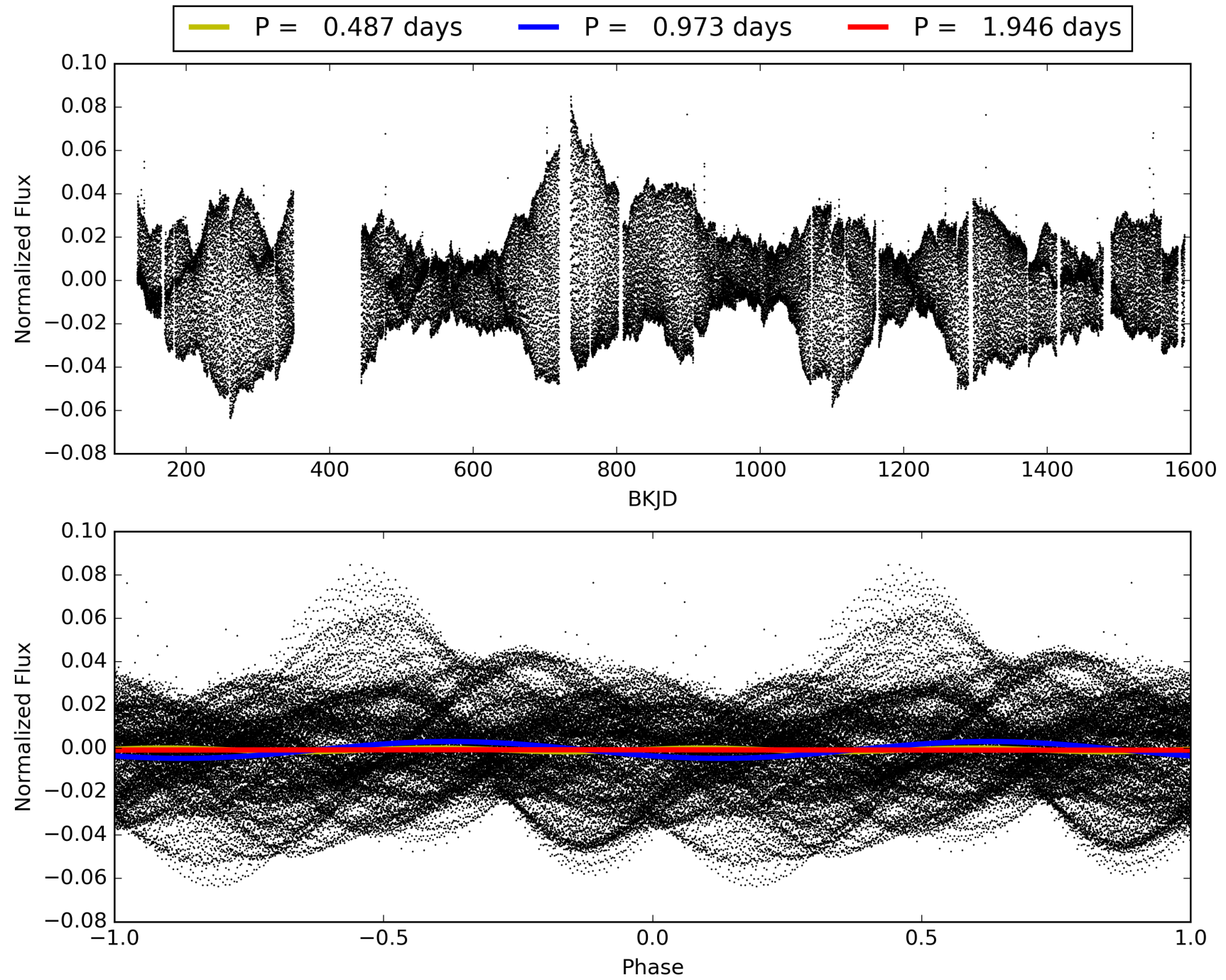
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:46:08 Z

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

# TCE 008812627-02, PDC Light Curves

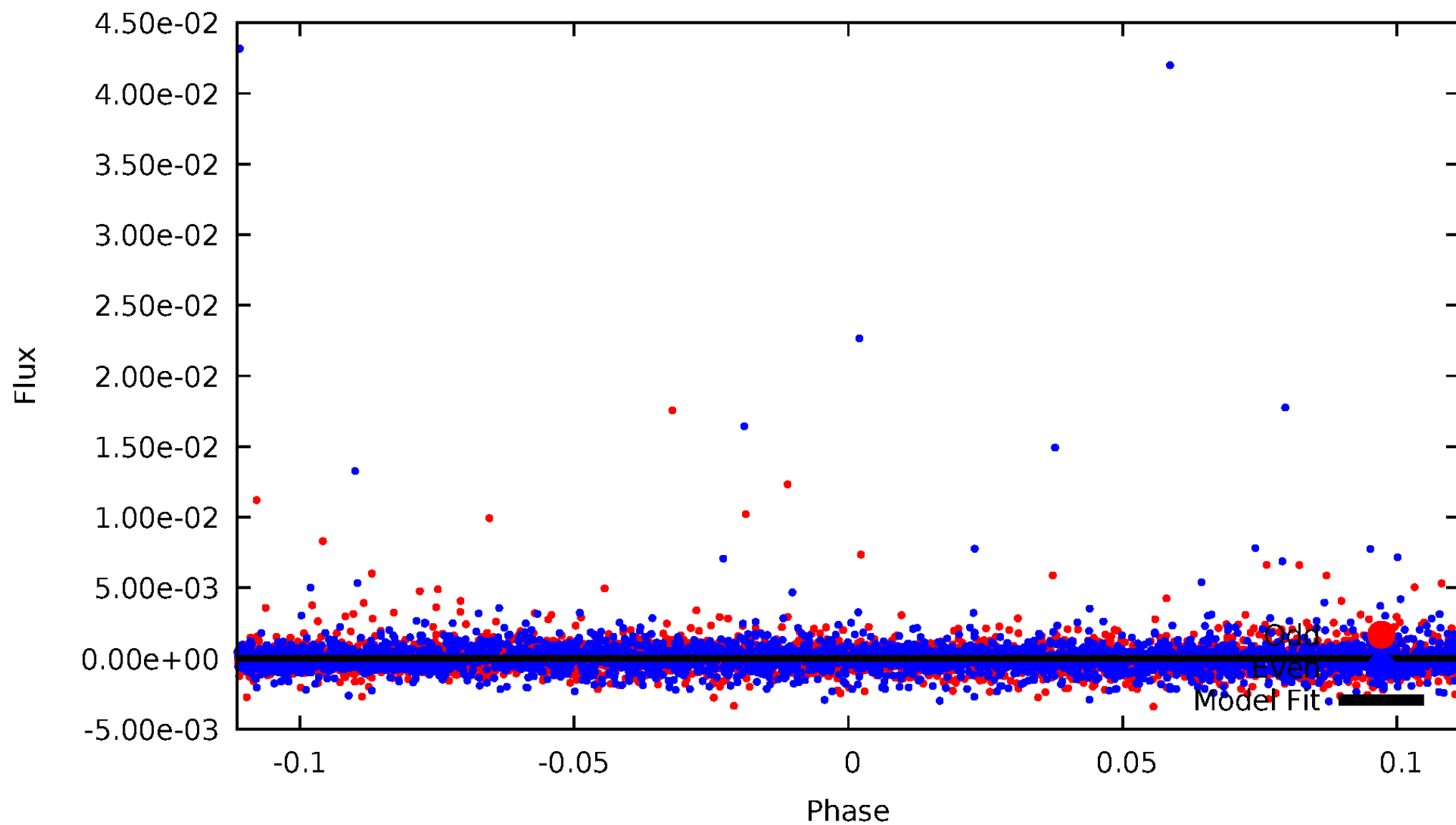


TCE 008812627-02



# DV Odd/Even

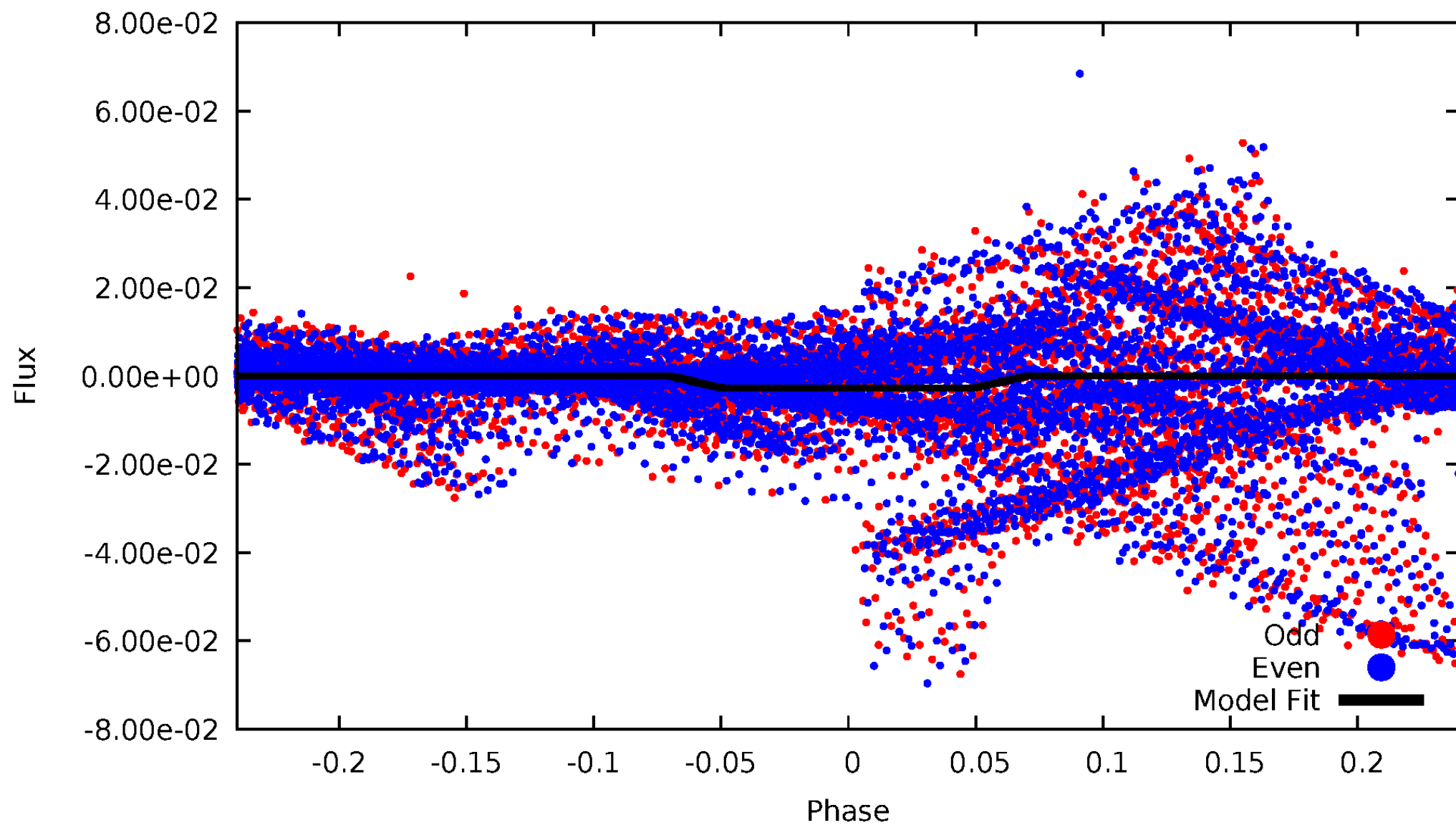
TCE 008812627-02





# ALT Odd/Even

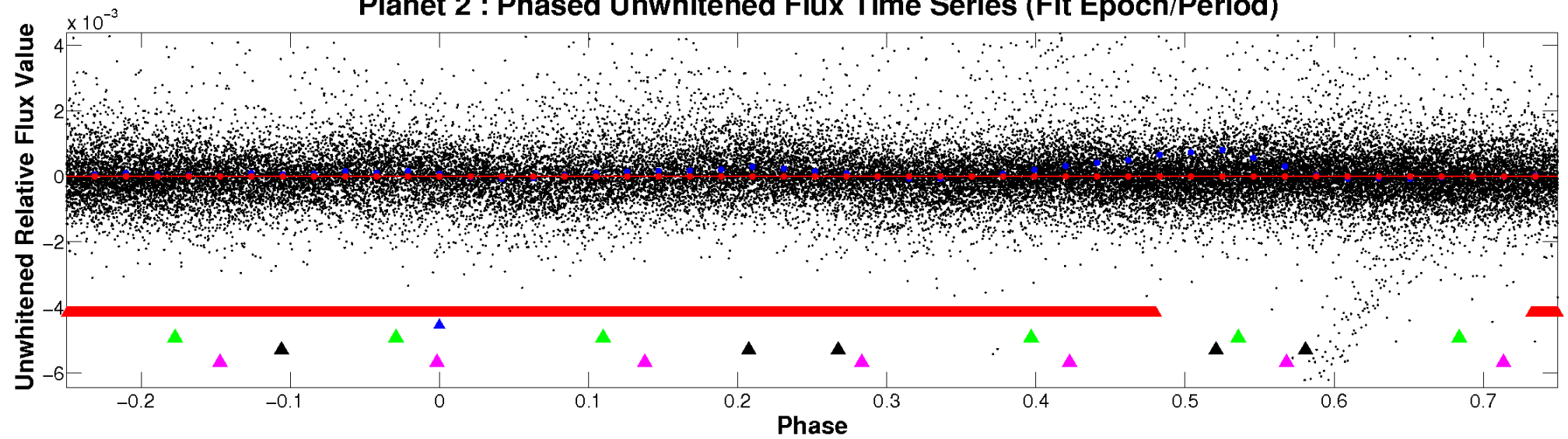
TCE 008812627-02



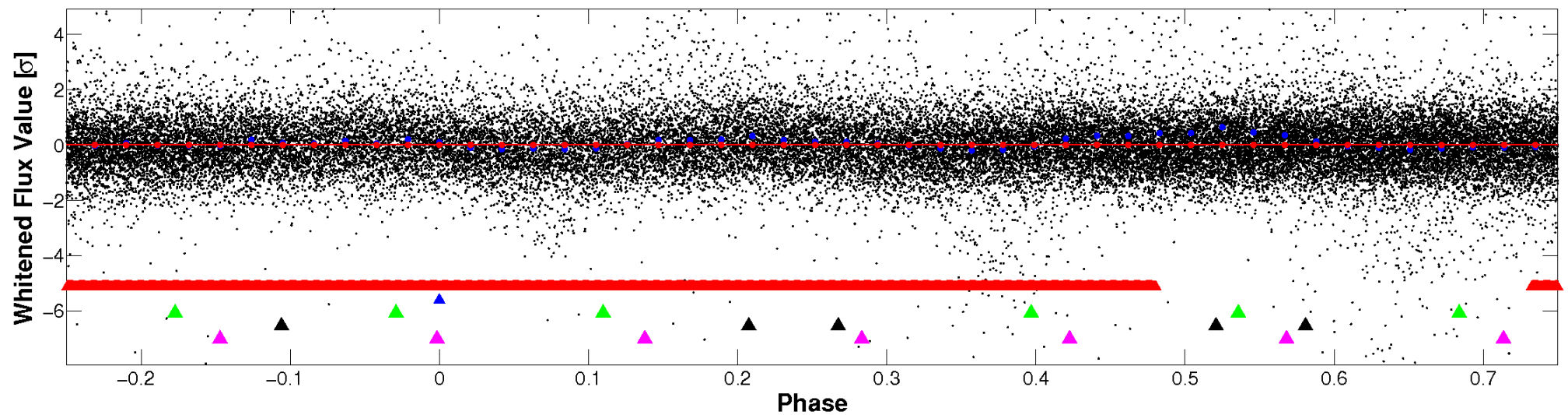


# Non-Whitened Vs. Whitened Light Curve

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

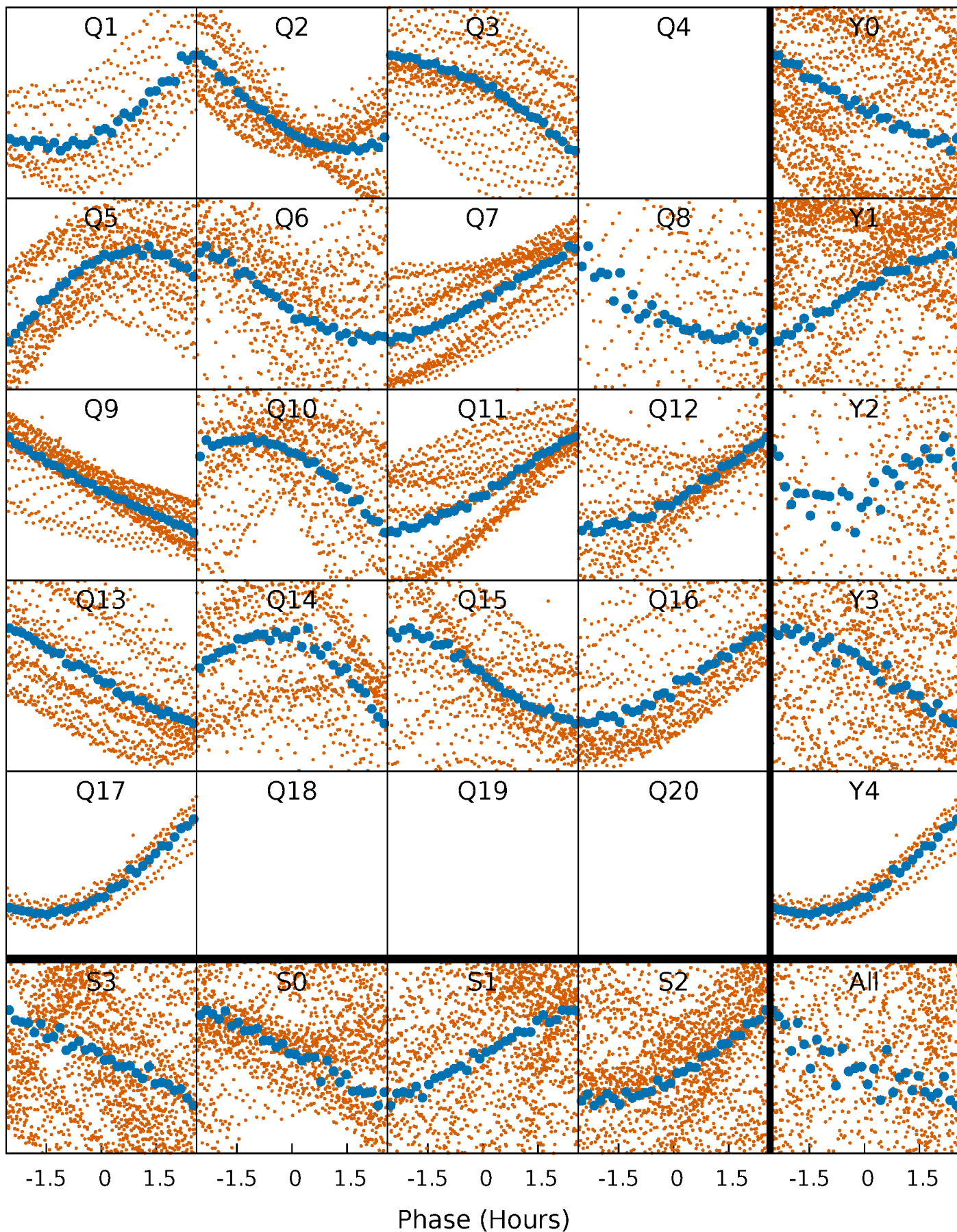


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



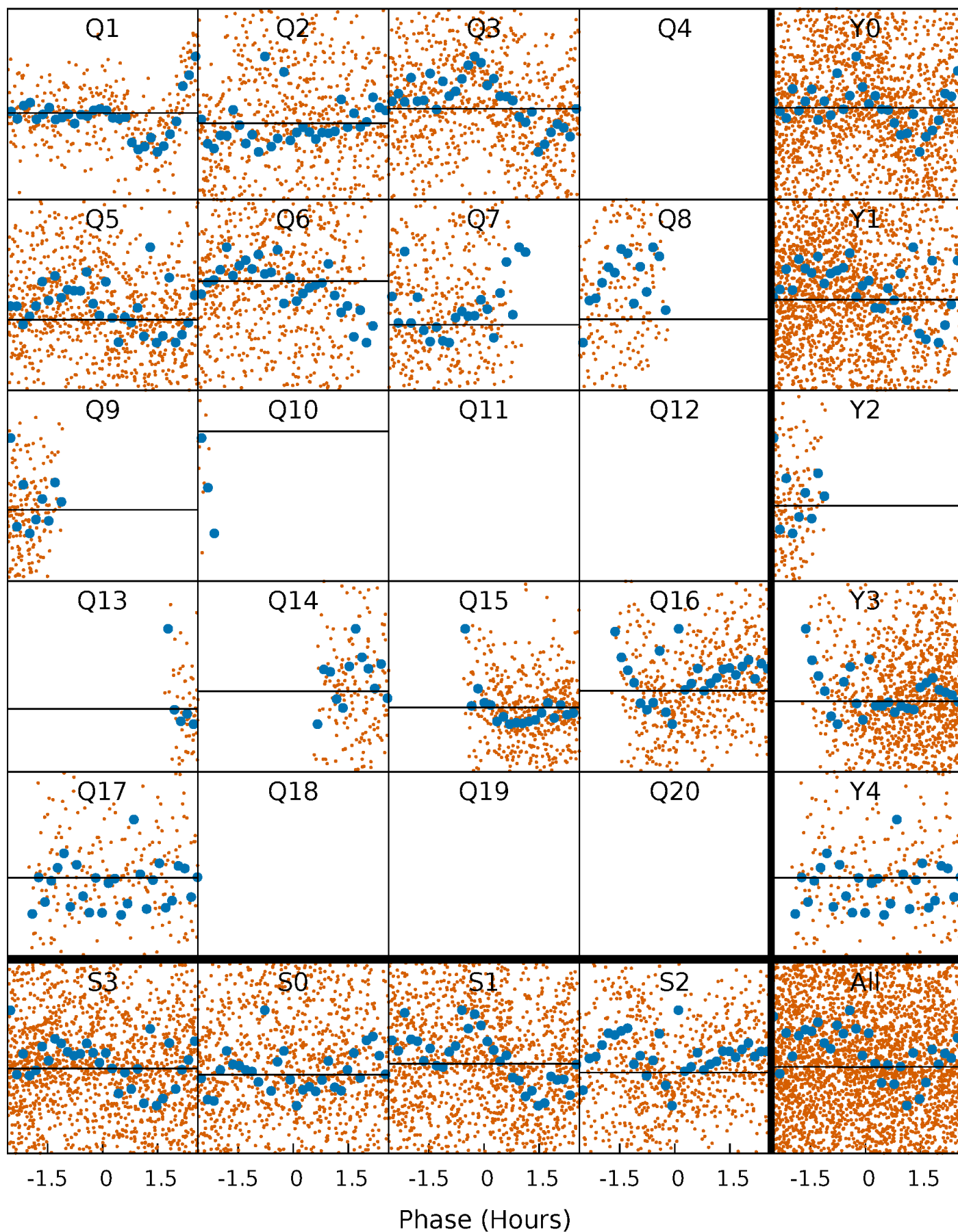
# PDC Quarter-Phased Transit Curves

TCE 008812627-02   P= 0.973016 Days    $T_0=131.994878$  (BKJD)



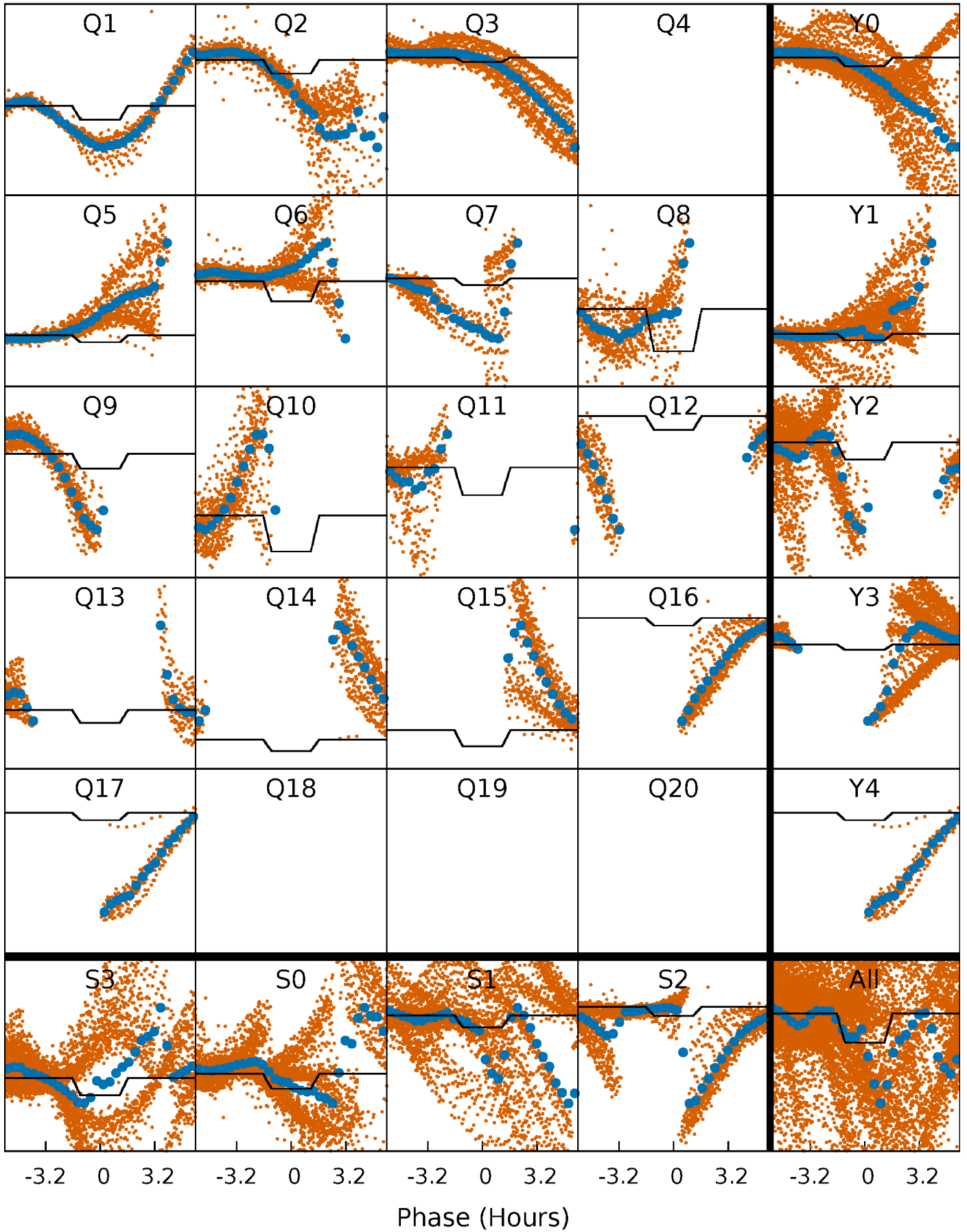
# DV Quarter-Phased Transit Curves

TCE 008812627-02   P= 0.973016 Days    $T_0=131.994878$  (BKJD)



## Alt. Detrend Quarter-Phased Transit Curves

TCE 008812627-02   P= 0.972968 Days    $T_0=131.980563$  (BKJD)

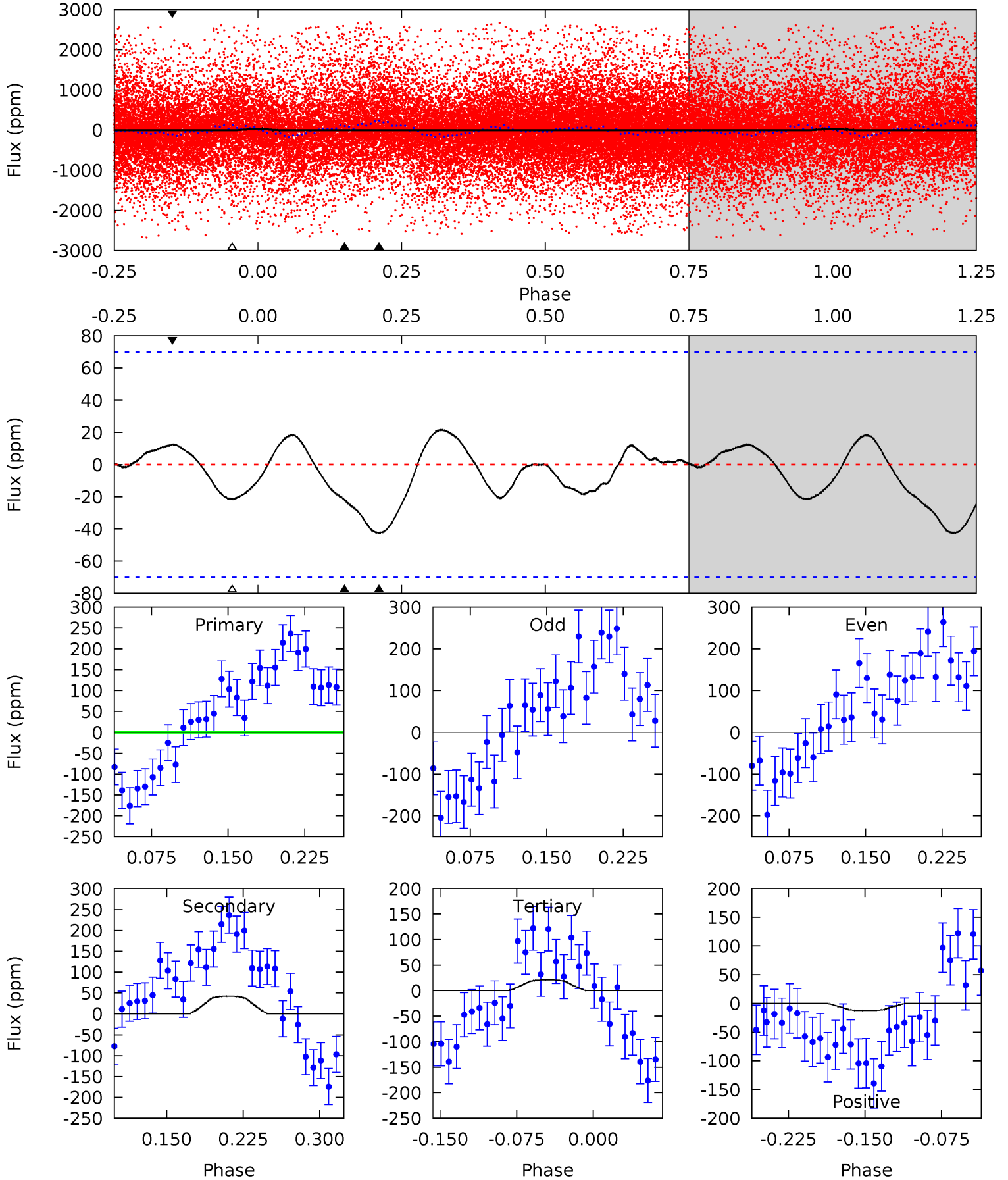




# DV Model-Shift Uniqueness Test

008812627-02, P = 0.973016 Days, E = 131.021862 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
1.45	2.82	1.42	0.83	4.62	1.78	0.76	0.03	0.62	1.40	1.99	1.12	2.24	0.34	1.35

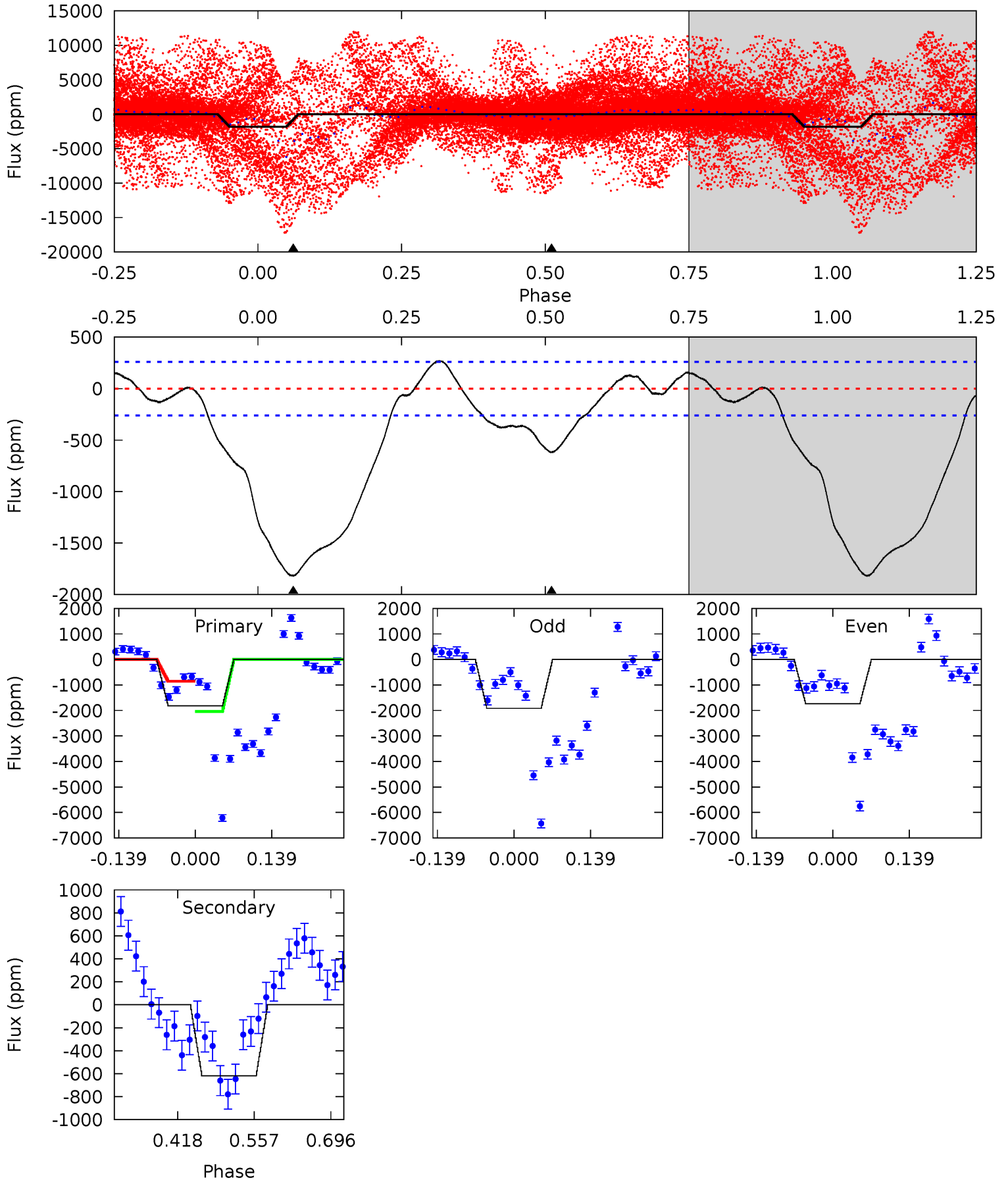




# Alt Model-Shift Uniqueness Test

008812627-02, P = 0.972968 Days, E = 131.007595 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.4	10.7	0	0	4.49	1.48	2.59	31.4	31.4	10.7	10.7	1.62	1.57	0.13	9.38



### Stellar Parameters For KIC 008812627

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5232^{+156}_{-156}$	$4.519^{+0.091}_{-0.156}$	$-0.320^{+0.300}_{-0.300}$	$0.777^{+0.123}_{-0.092}$	$0.727^{+0.115}_{-0.054}$	$2.186^{+0.817}_{-0.777}$
	+3%/-3%	+2%/-3%	+94%/-94%	+16%/-12%	+16%/-7%	+37%/-36%
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 008812627-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-43 \pm 15$	$8.39^{+9.92}_{-5.73}$	$2193^{+208}_{-167}$	$-2438^{+5238}_{-206}$	$0.095^{+0.813}_{-0.076}$
Alt.	$-618 \pm 58$	$10.64^{+9.95}_{-7.20}$	$2193^{+207}_{-167}$	$2811^{+1516}_{-4996}$	$0.920^{+7.674}_{-0.686}$

$T_{max}$  = 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

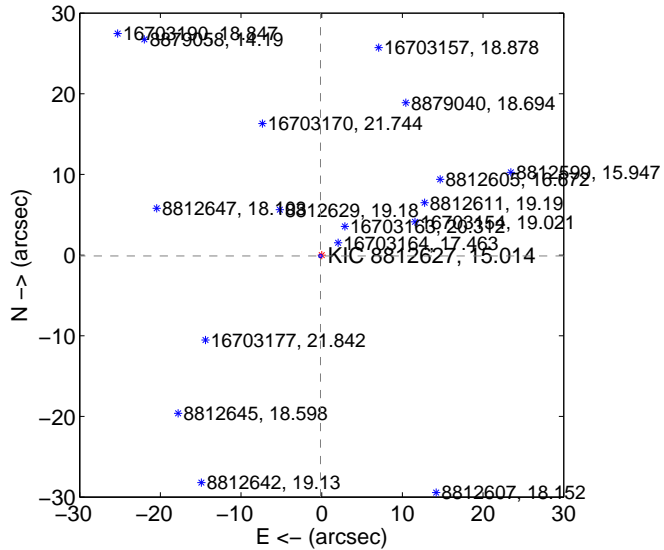
Supplemental centroid analysis for 008812627-02. Kepler magnitude: 15.01. Transit SNR 0.00

There are 11 quarters with good PRF difference image offsets

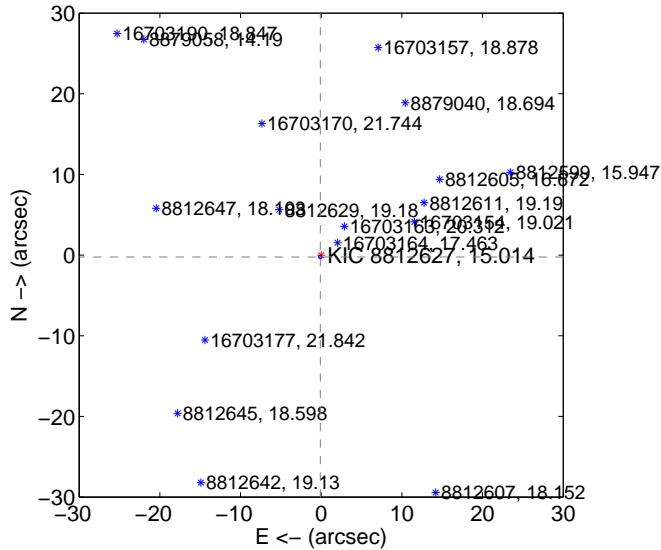
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.184 \pm 0.071$	2.58	$0.153 \pm 0.071$	$-0.102 \pm 0.068$
PRF-fit source offset from KIC position	<b><math>0.253 \pm 0.069</math></b>	<b>3.65</b>	$0.109 \pm 0.069$	$-0.228 \pm 0.068$
photometric centroid source offset	—	—	—	—

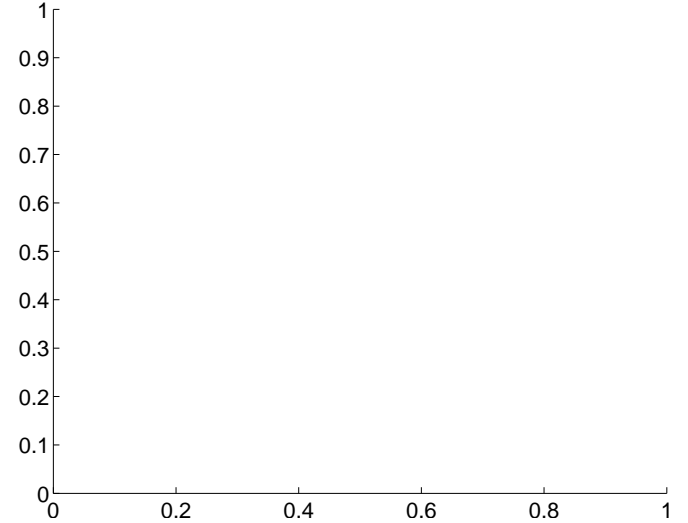
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

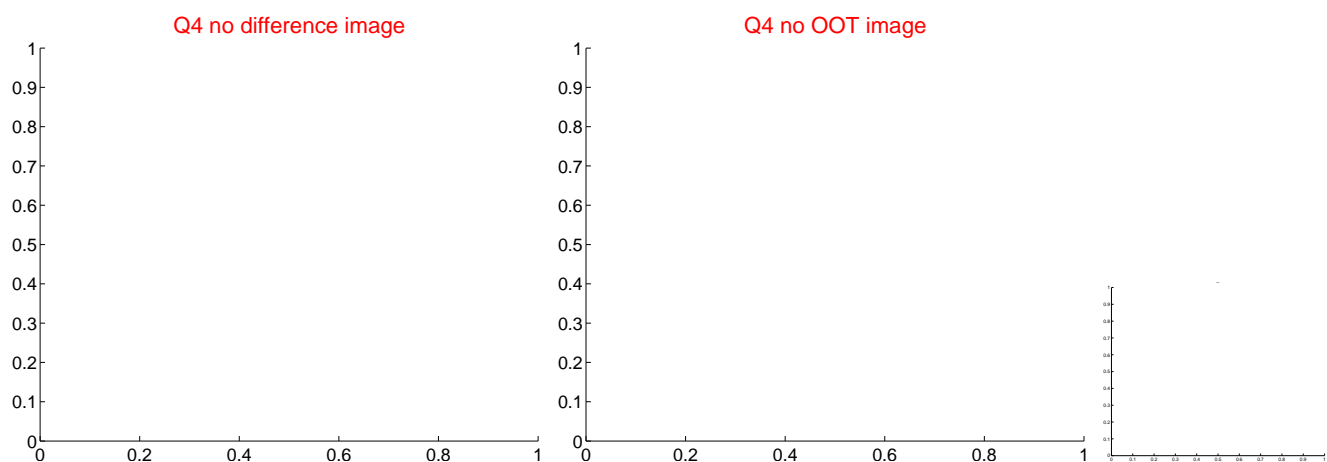
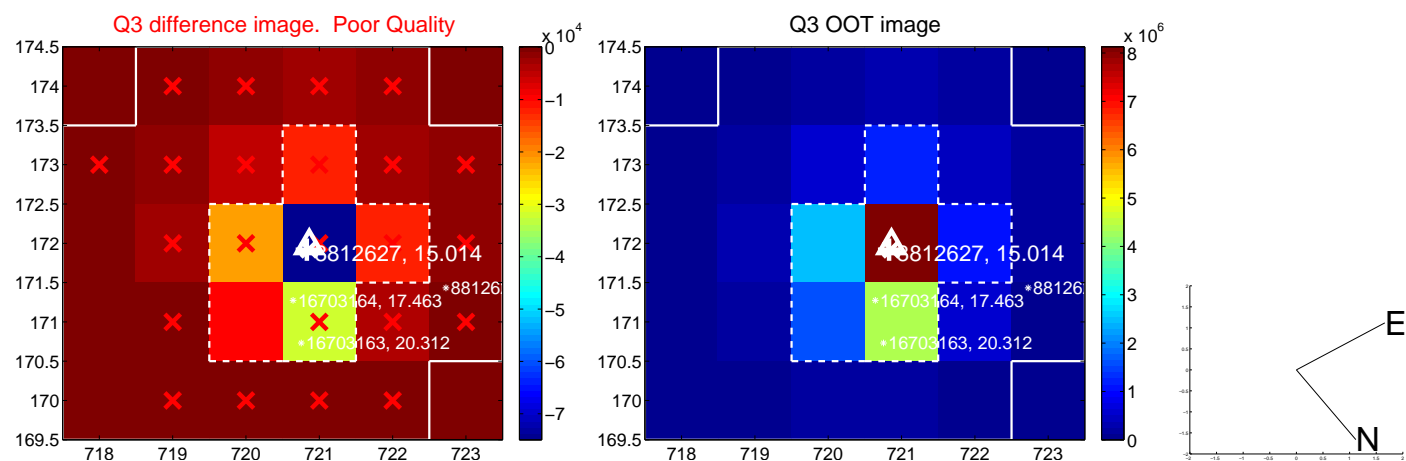
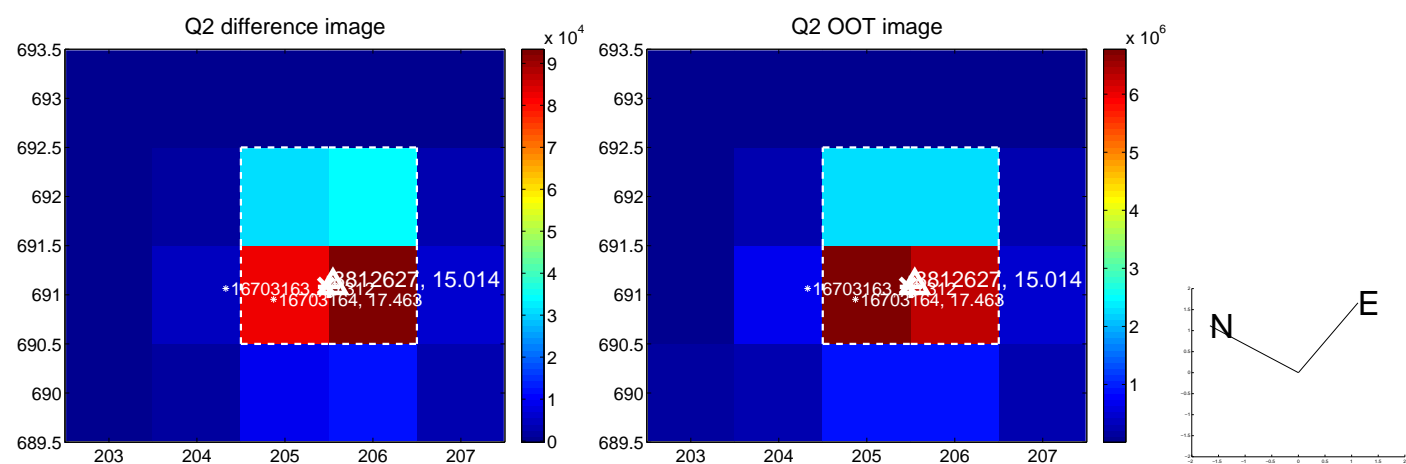
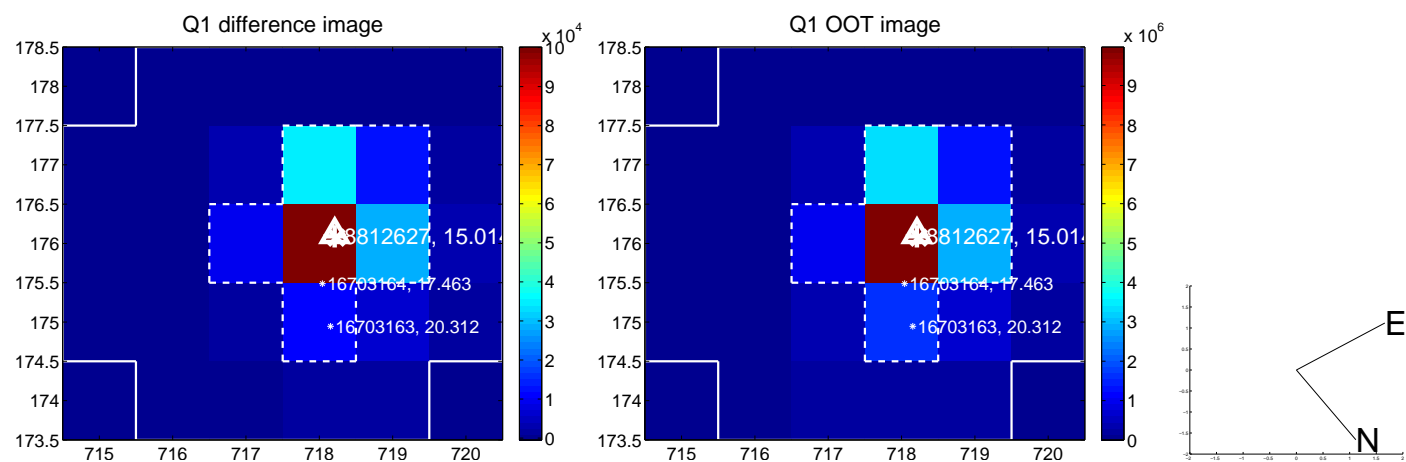


There are no photometric centroids

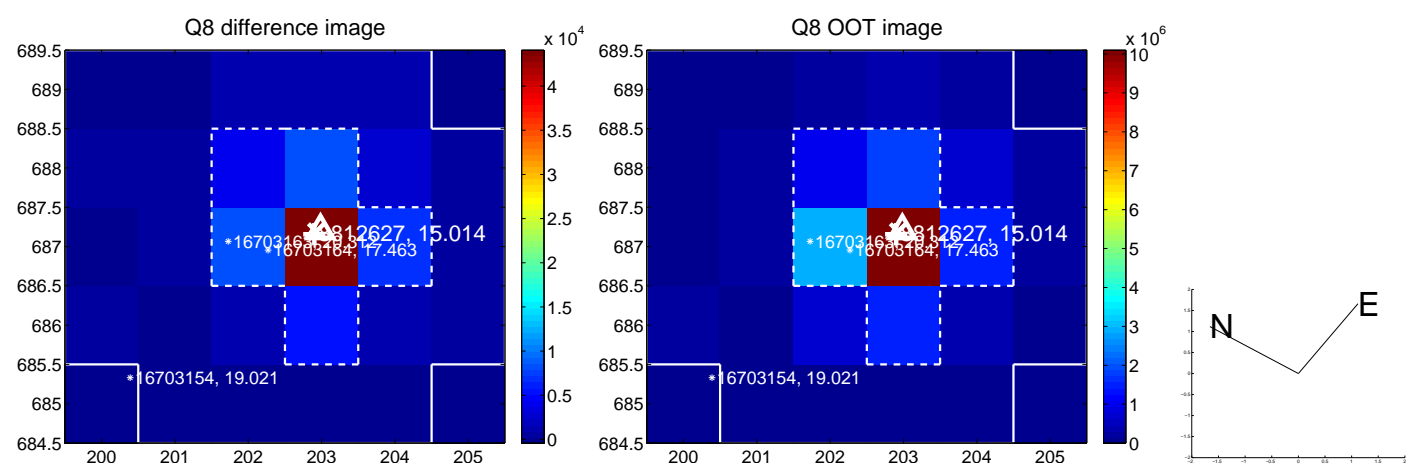
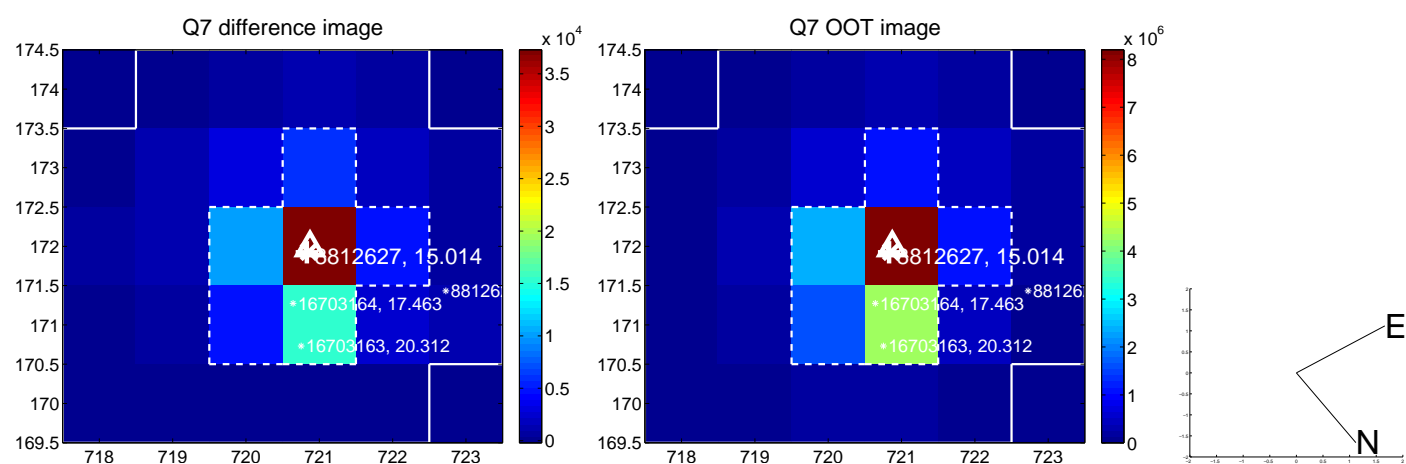
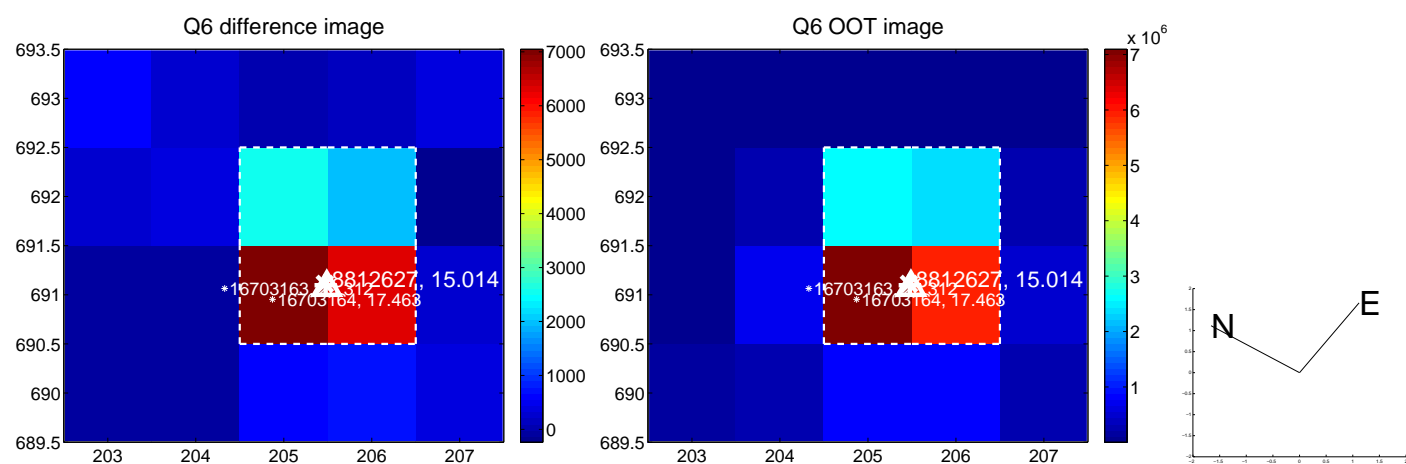
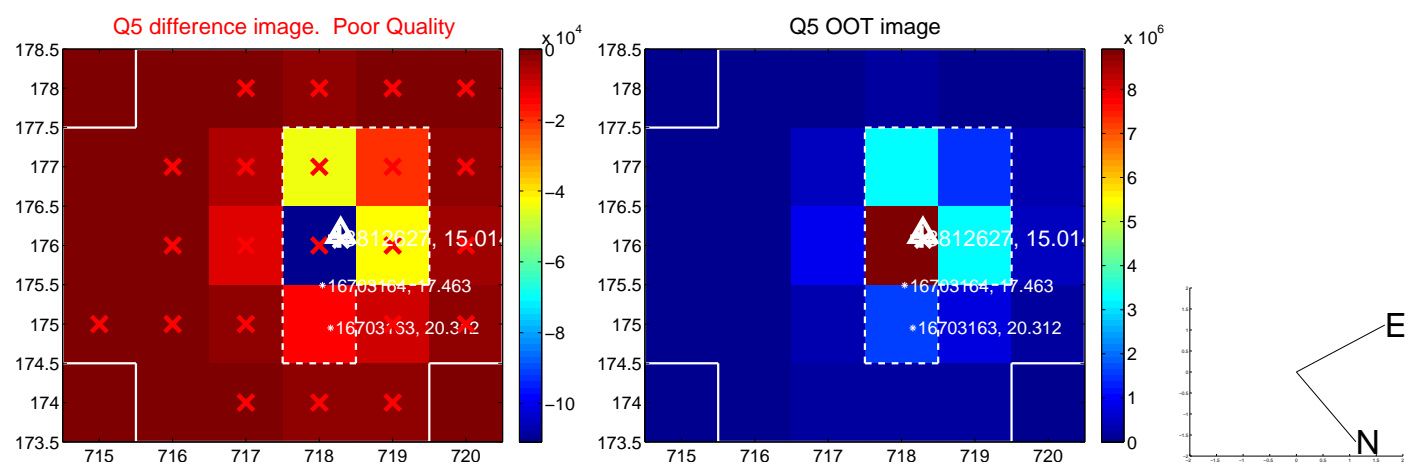


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

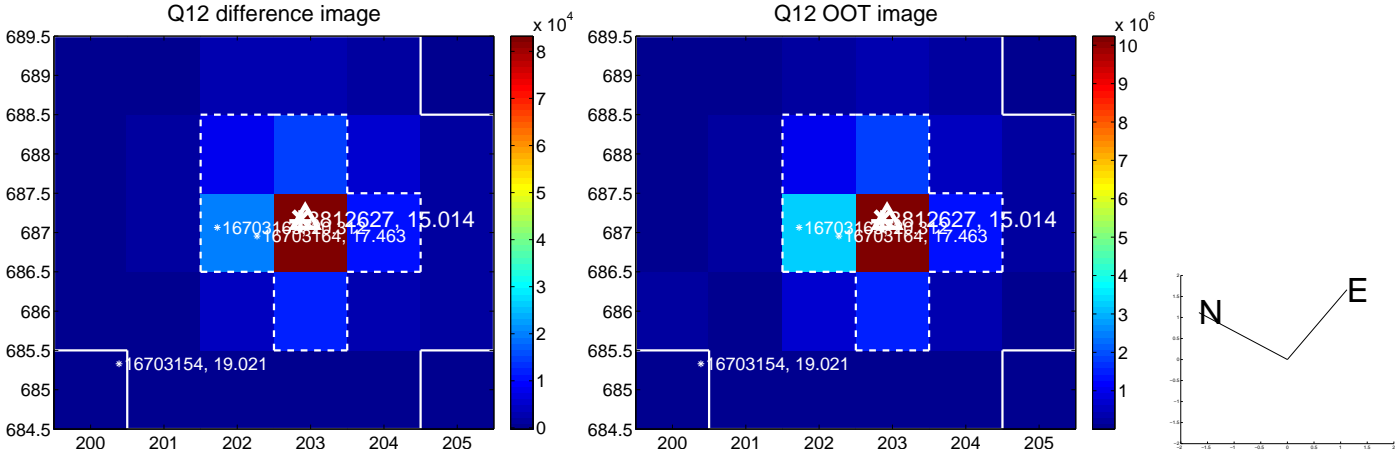
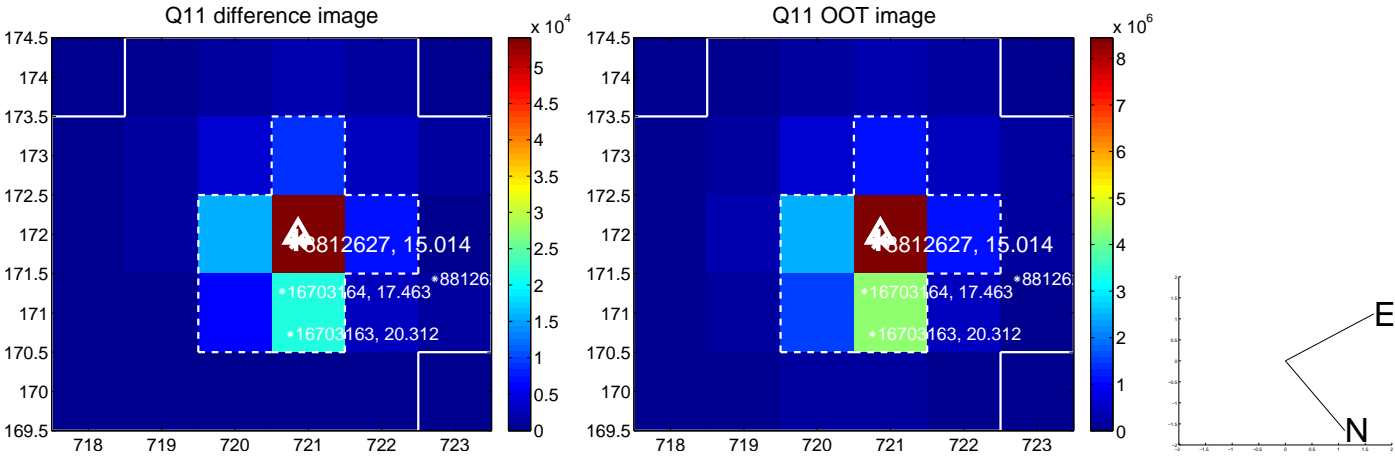
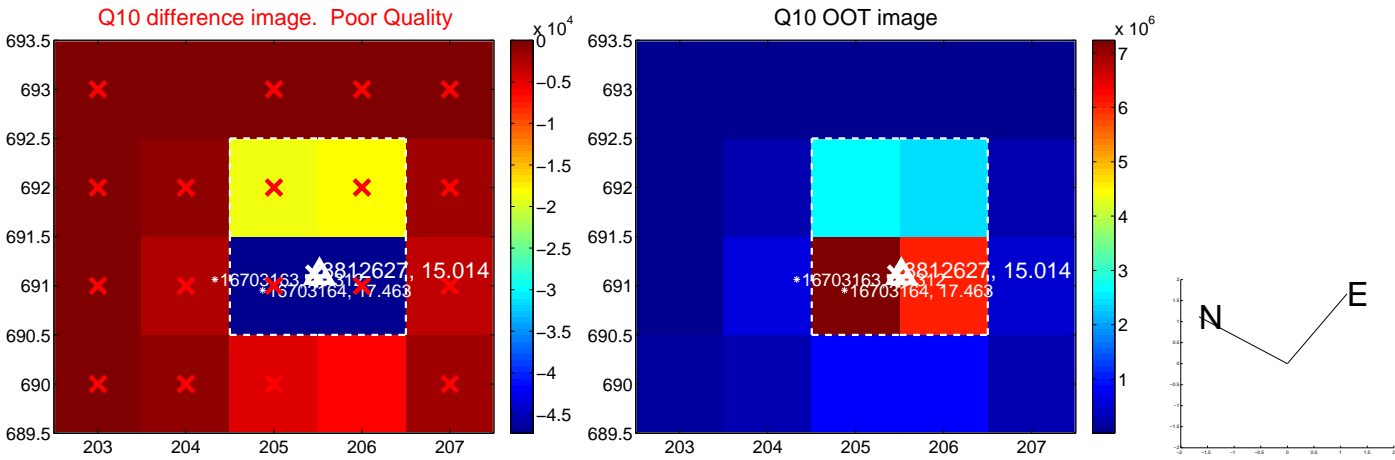
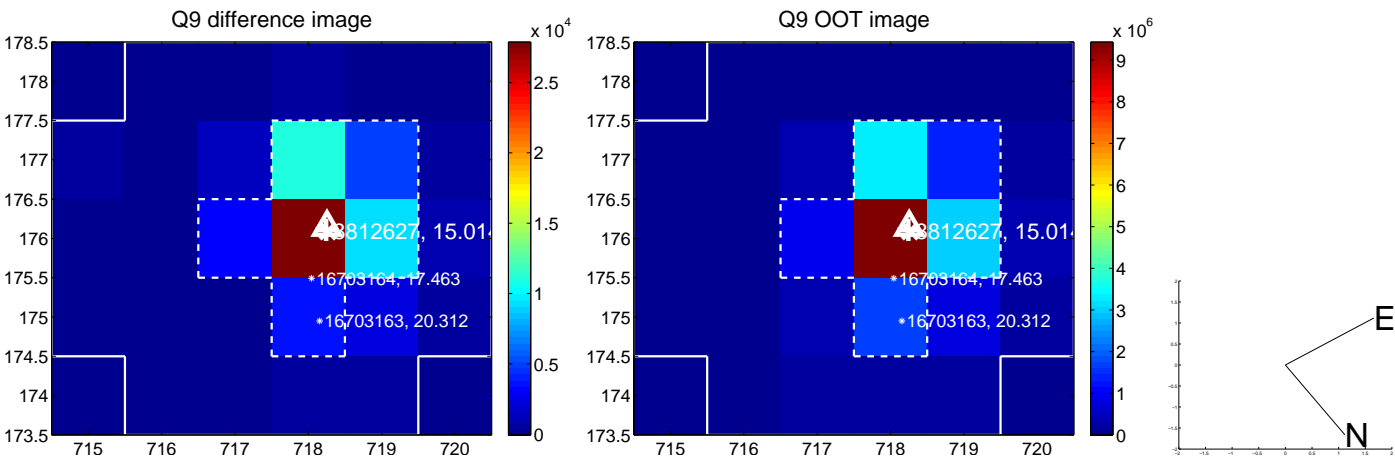


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

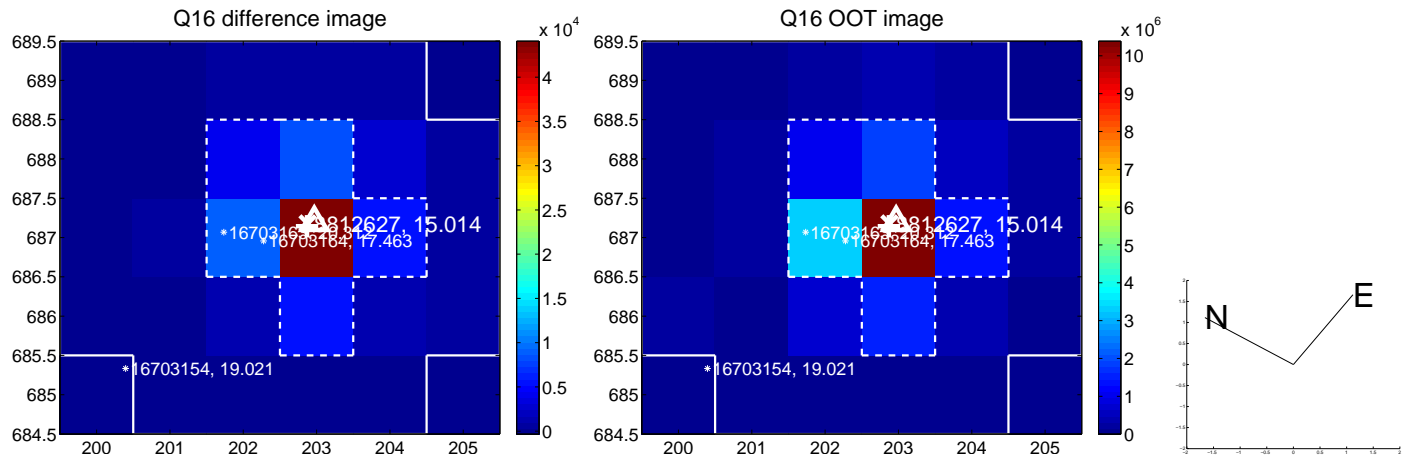
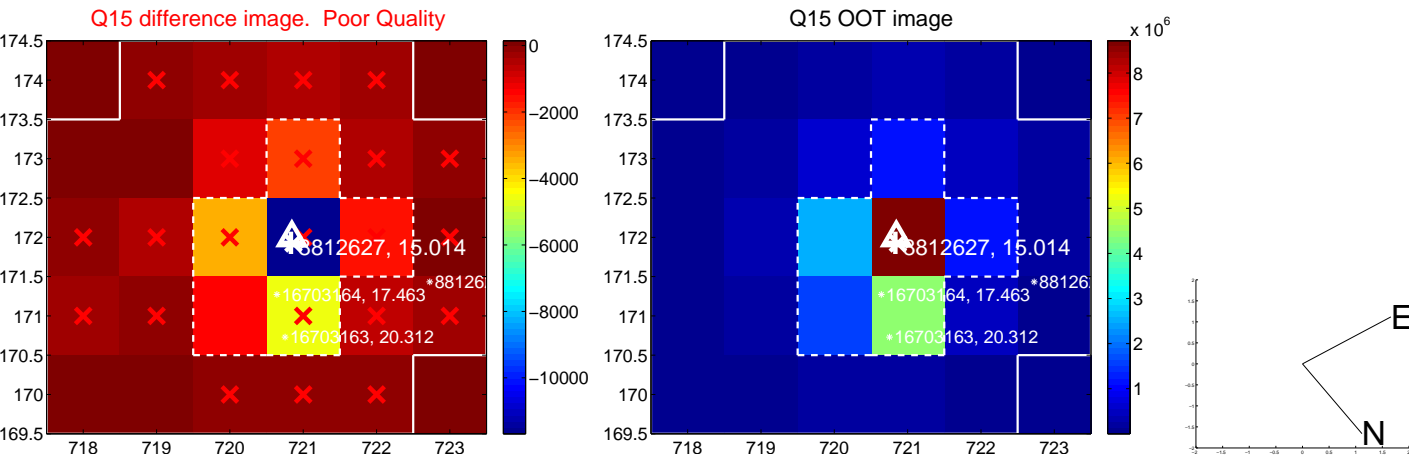
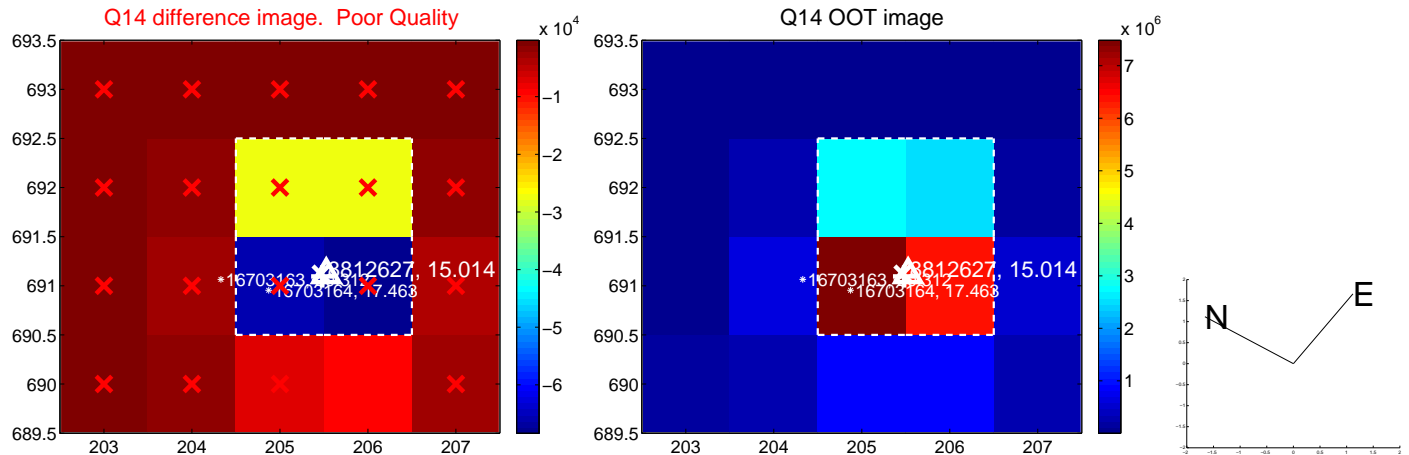
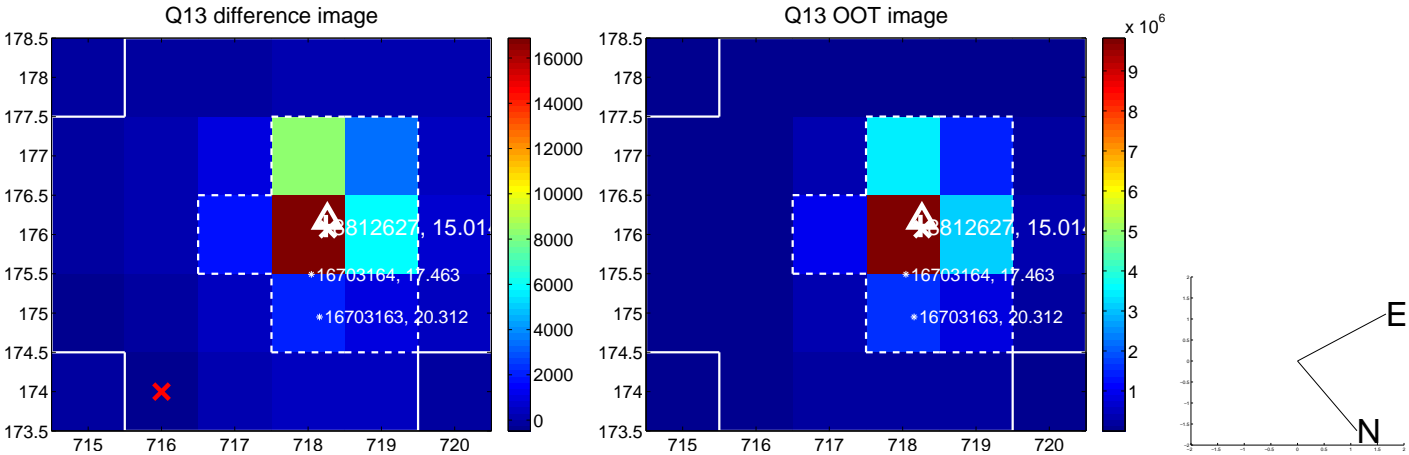




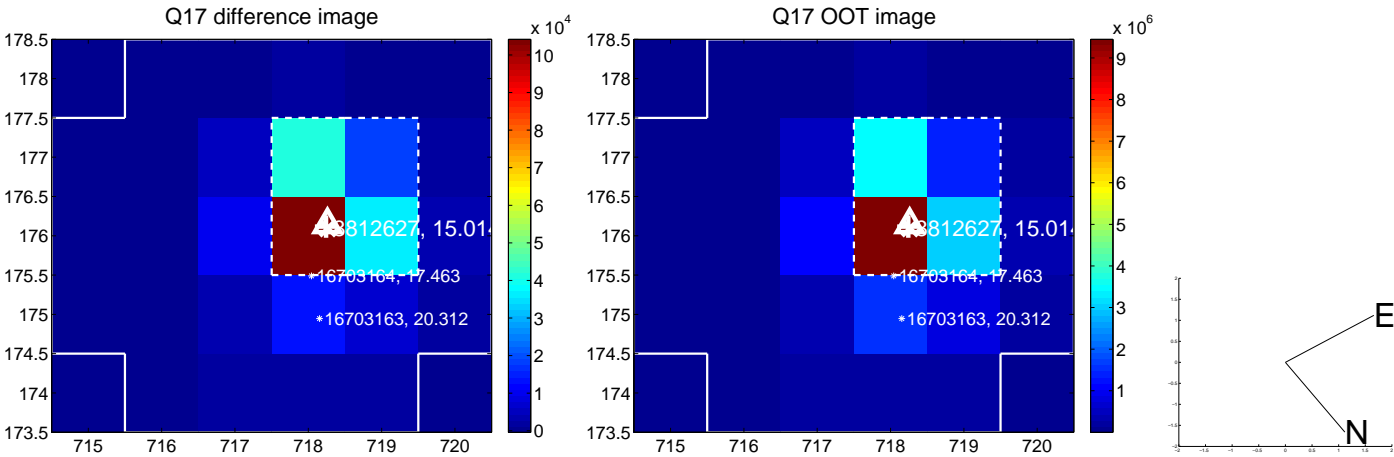
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



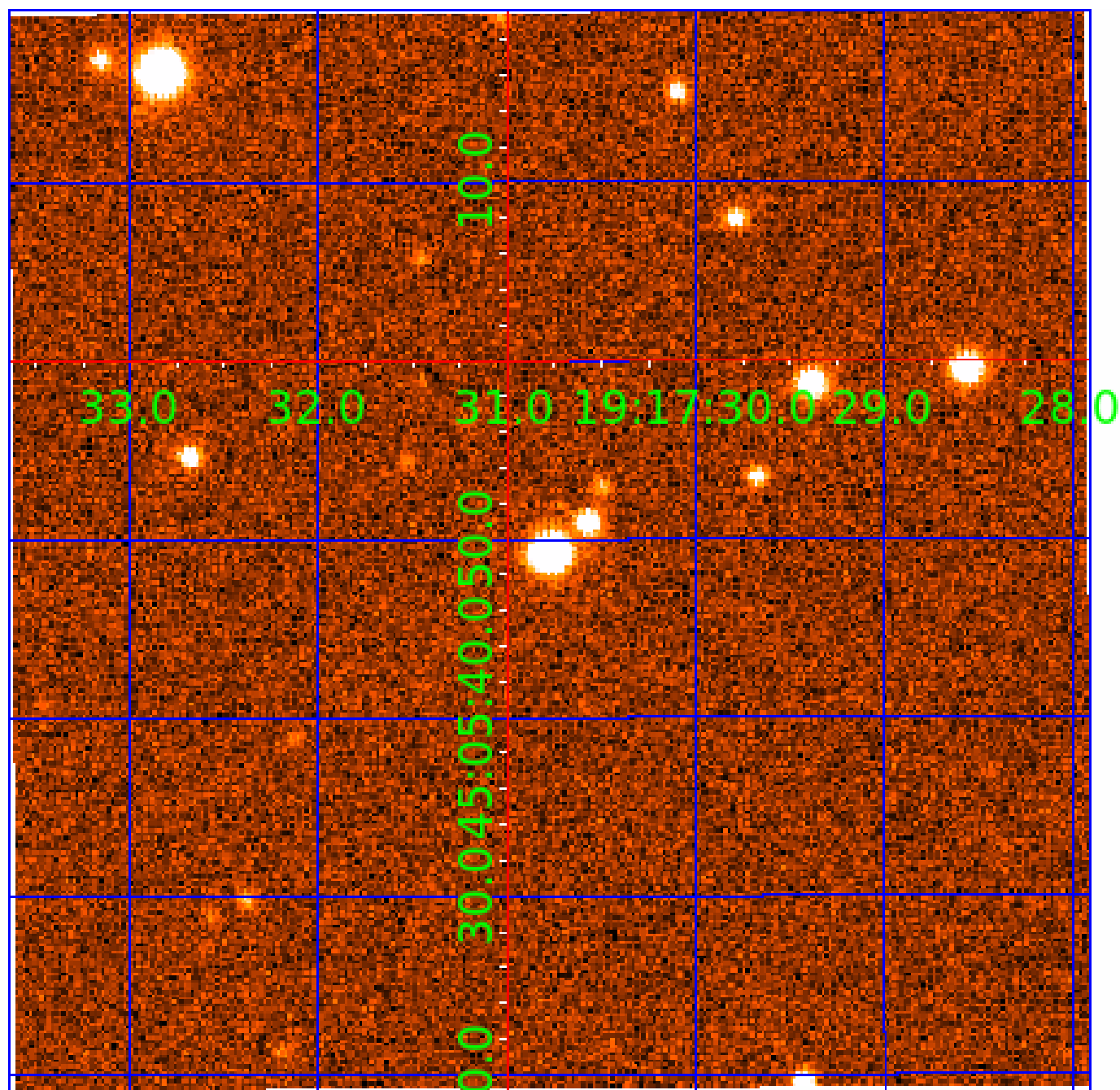
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



# KIC 008812627

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008812627-01	OBS	No	0.972531	132.462301	68.5	2.571	10.0	3.7	0.78	5232	0.68	1357.19
008812627-02	OBS	No	0.973016	131.994877	0.0	1.301	12.8	0.0	0.78	5232	0.01	1356.29
008812627-03	OBS	No	226.433455	315.866659	3770.2	2.685	13.8	7.4	0.78	5232	5.15	0.95
008812627-04	OBS	No	285.761856	196.720707	1698.4	7.597	10.3	3.3	0.78	5232	3.32	0.69
008812627-05	OBS	No	197.245116	292.953741	1349.7	2.500	10.3	-1.0	0.78	5232	2.80	1.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008812627-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008812627-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
008812627-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008812627-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
008812627-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

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

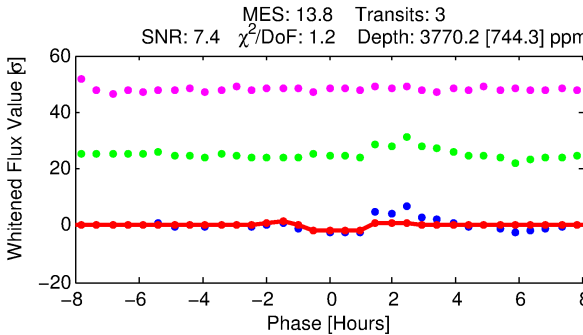
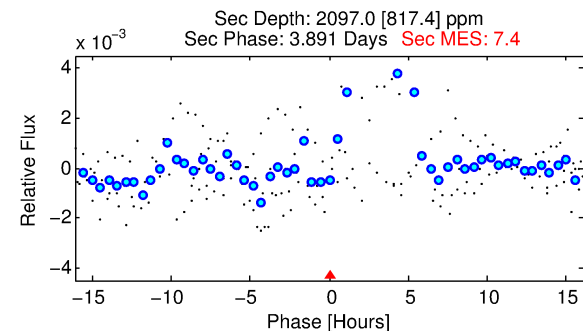
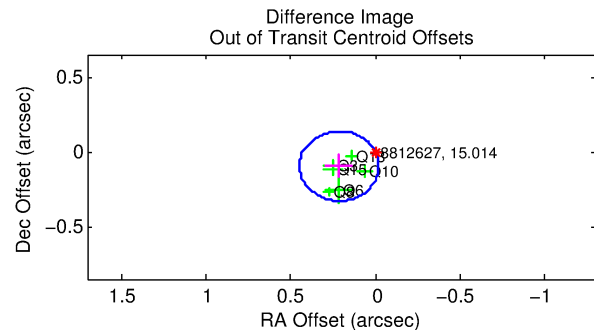
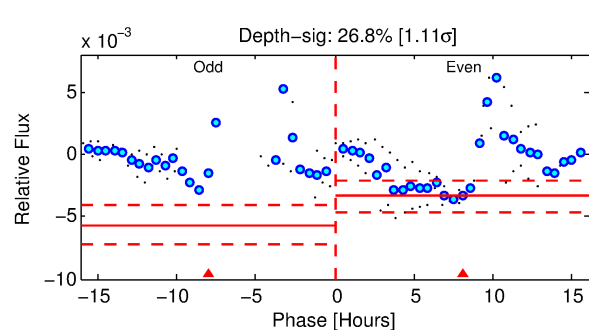
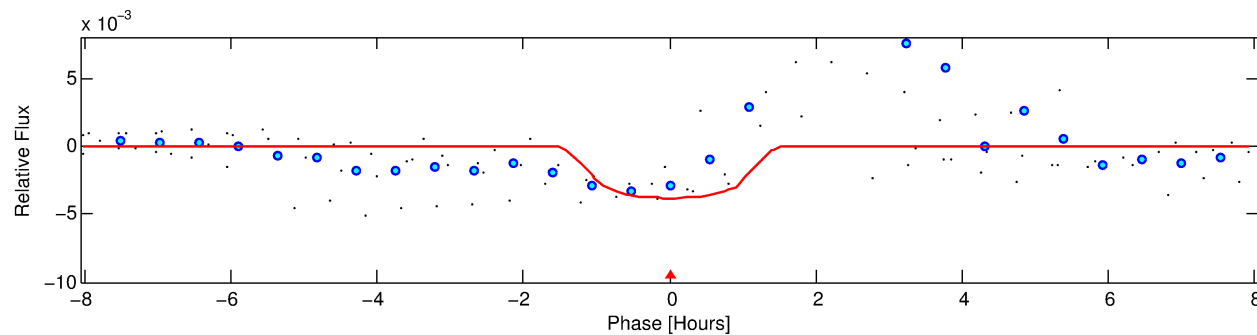
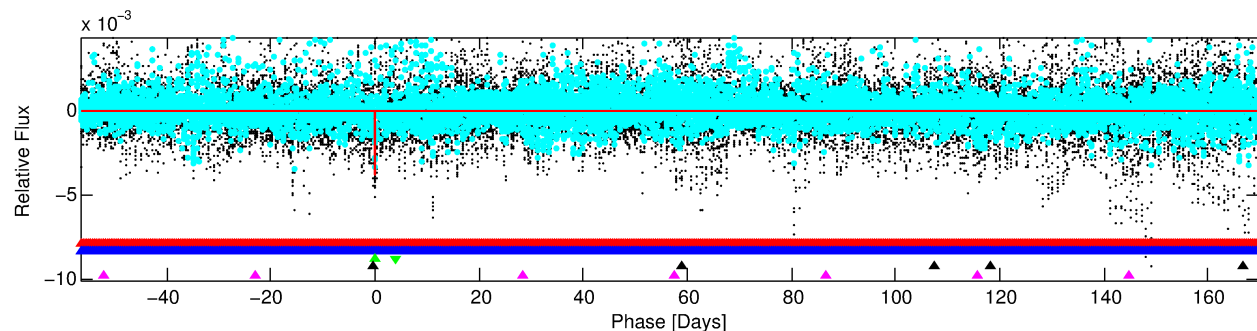
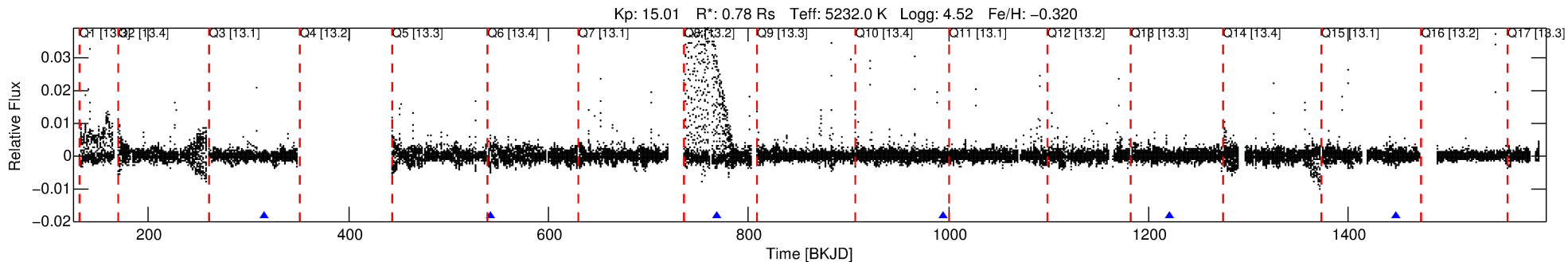
## Ephemeris Match Information For 008812627-03

No Significant Match Found



# DV One-Page Summary

KIC: 8812627 Candidate: 3 of 5 Period: 226.433 d



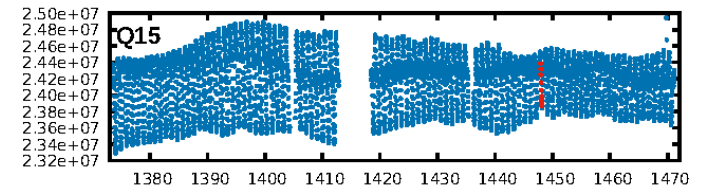
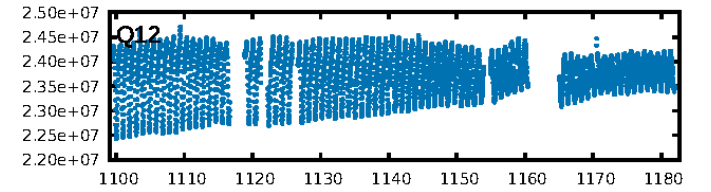
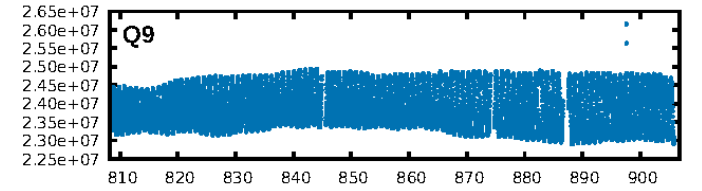
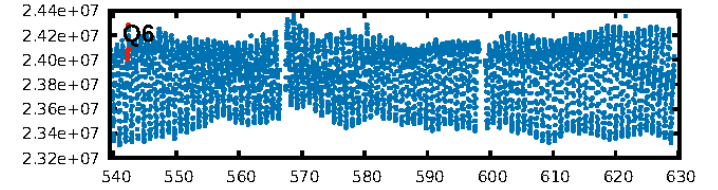
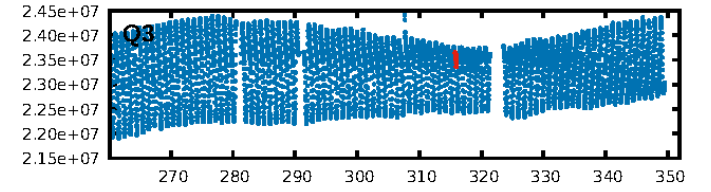
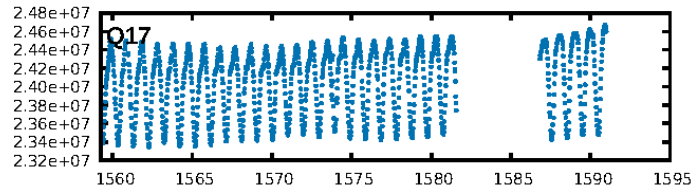
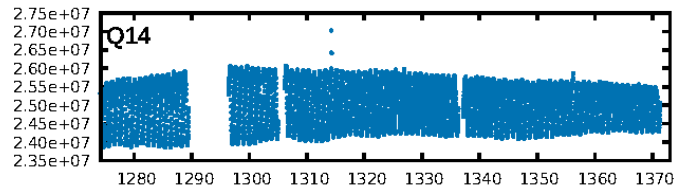
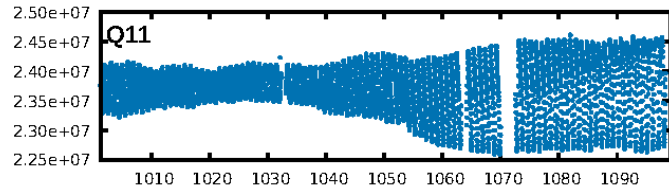
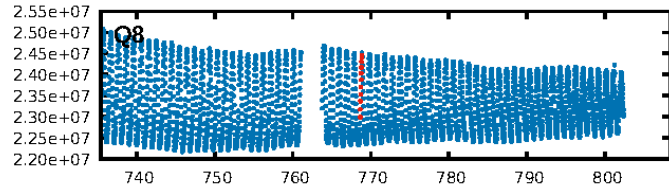
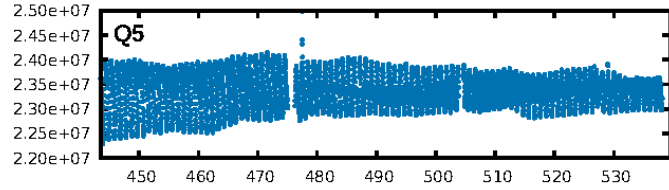
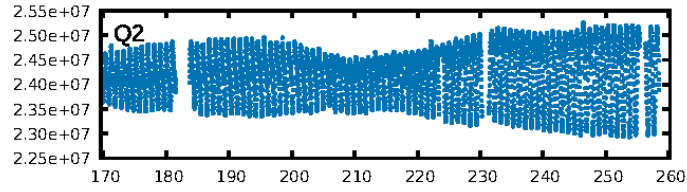
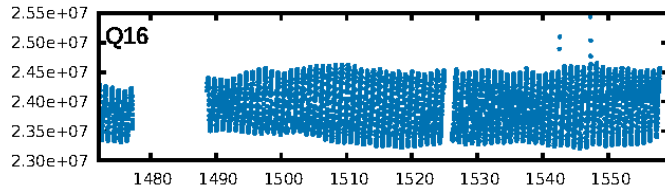
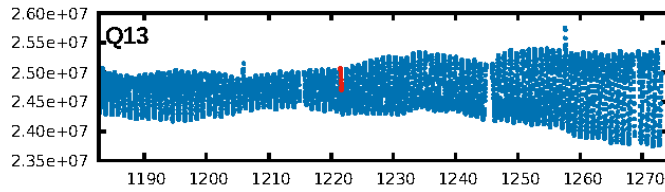
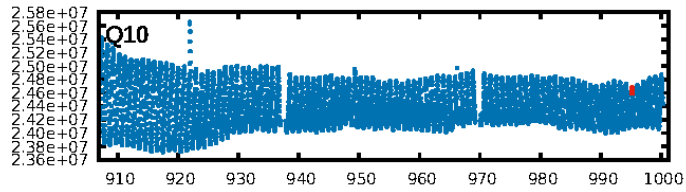
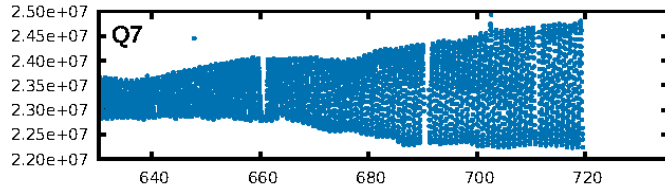
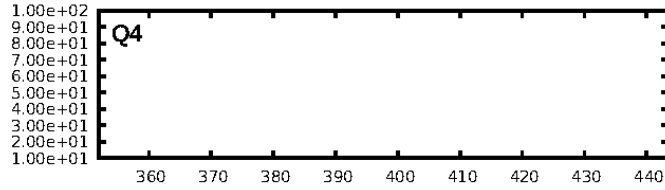
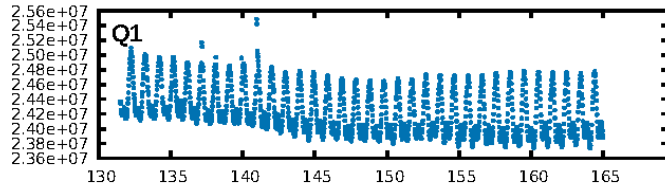
## DV Fit Results:

Period = 226.43345 [0.00193] d  
Epoch = 315.8667 [0.0081] BKJD  
Rp/R\* = 0.0607 [0.0439]  
a/R\* = 499.25 [1309.81]  
b = 0.72 [1.77]  
Seff = 0.95 [0.27]  
Teq = 252 [18] K  
Rp = 5.15 [3.81] Re  
a = 0.6540 [0.1044] AU  
Ag = 18632.04 [28344.99] [0.66 $\sigma$ ]  
Teffp = 4544 [1708] K [2.51 $\sigma$ ]

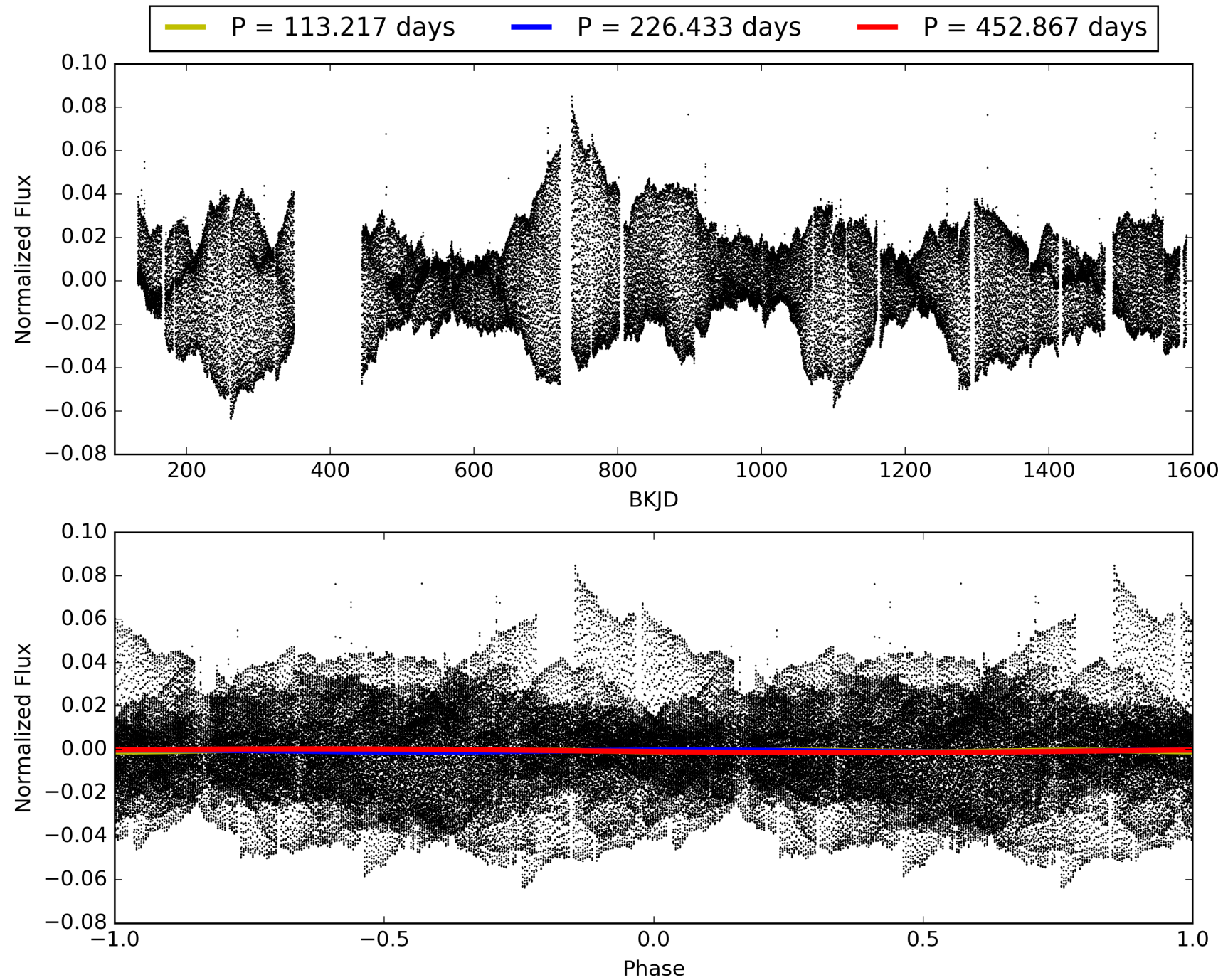
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [190.93 $\sigma$ ]  
LongPeriod-sig: 100.0% [176.71 $\sigma$ ]  
ModelChiSquare2-sig: 13.4%  
ModelChiSquareGof-sig: 39.3%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.316  
Centroid-sig: 48.6%  
Centroid-so: 0.277 arcsec [0.68 $\sigma$ ]  
OotOffset-rm: 0.235 arcsec [3.03 $\sigma$ ]  
KicOffset-rm: 0.279 arcsec [4.00 $\sigma$ ]  
OotOffset-st: 2/2/1/1 [6]  
KicOffset-st: 2/2/1/1 [6]  
DiffImageQuality-fgm: 0.17 [1/6]  
DiffImageOverlap-fno: 0.00 [0/6]

# TCE 008812627-03, PDC Light Curves

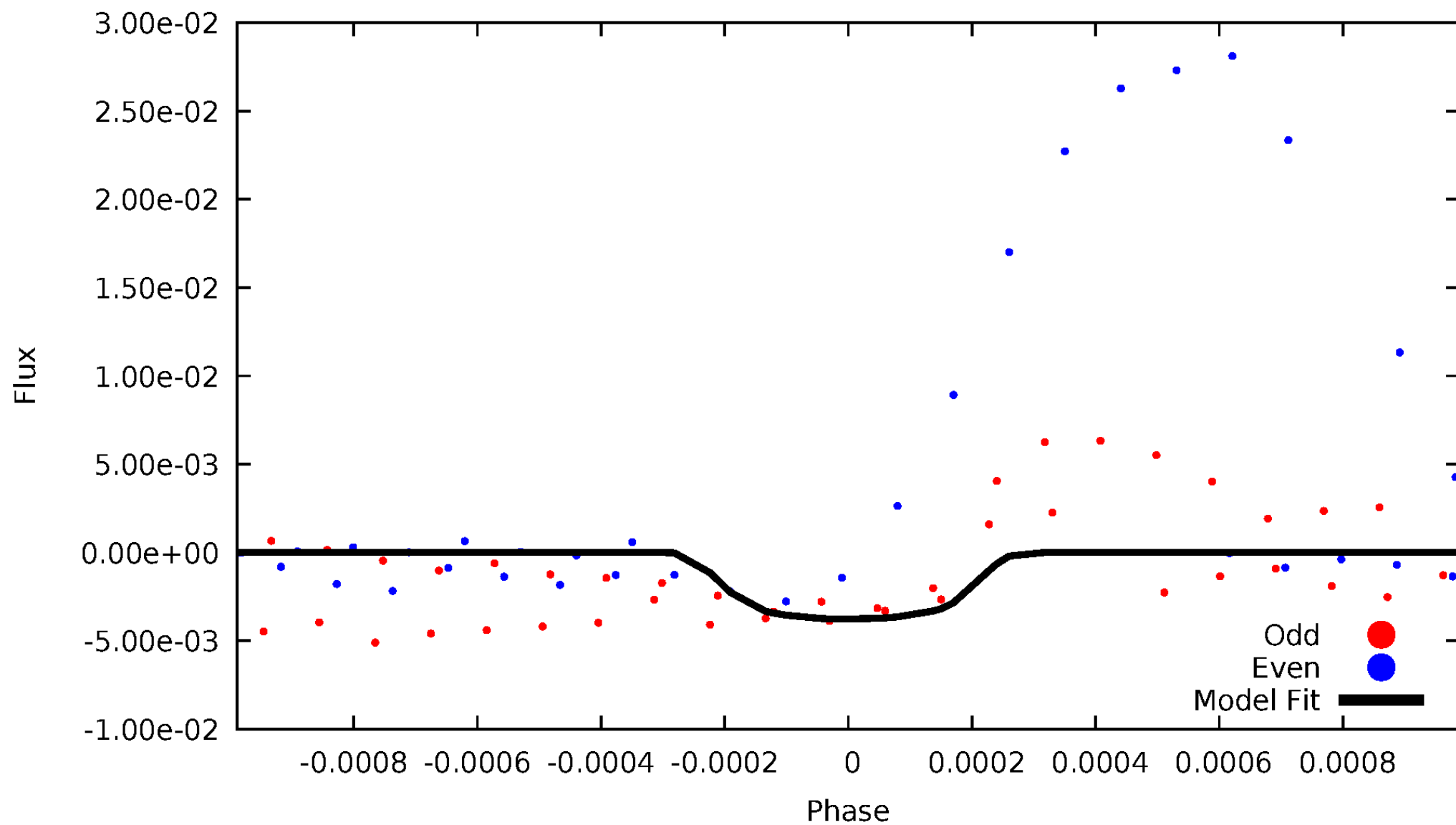


TCE 008812627-03



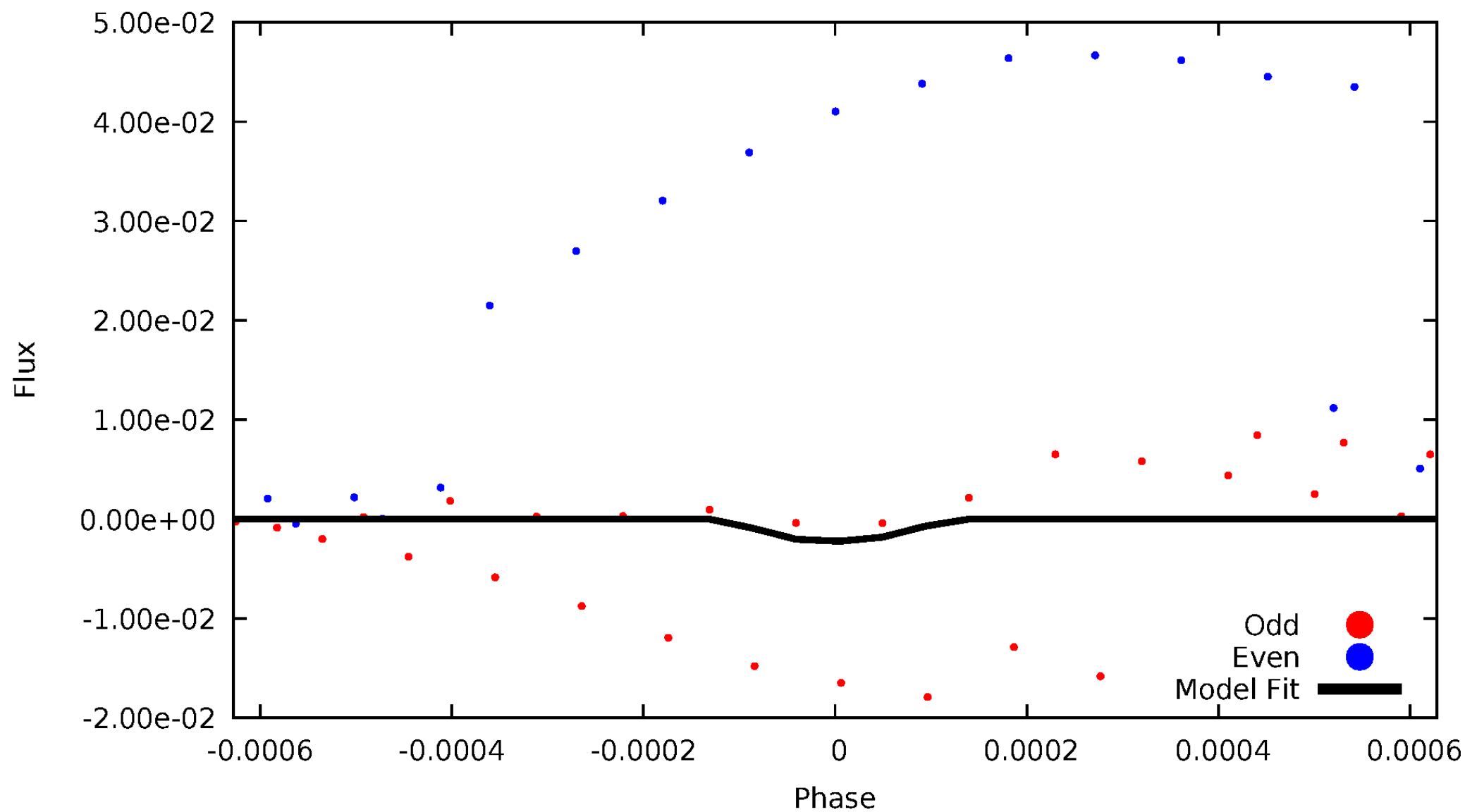
# DV Odd/Even

TCE 008812627-03



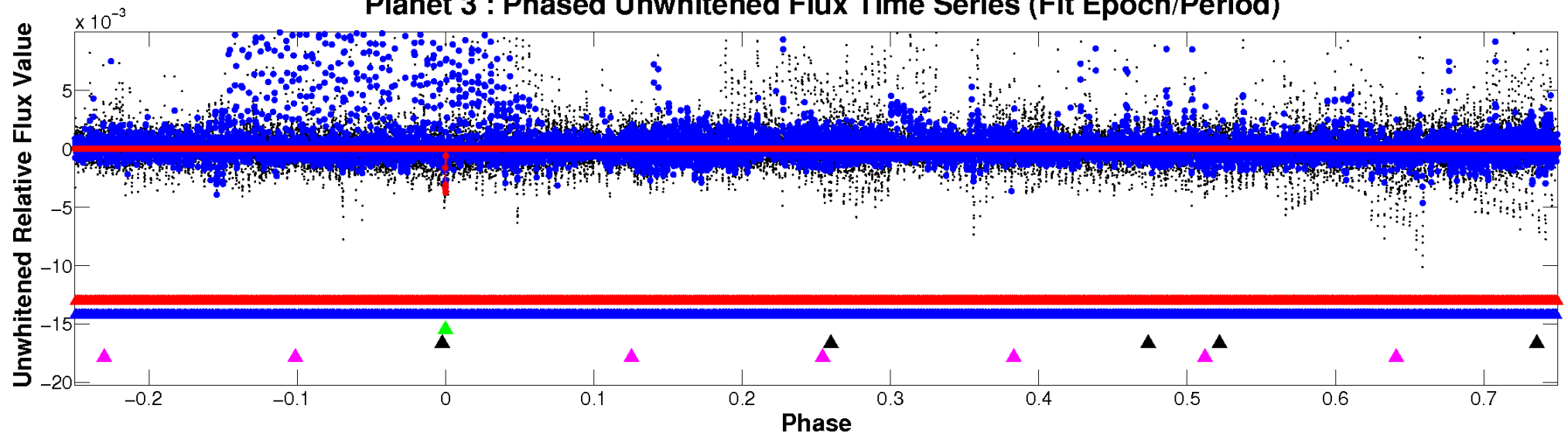
# ALT Odd/Even

TCE 008812627-03

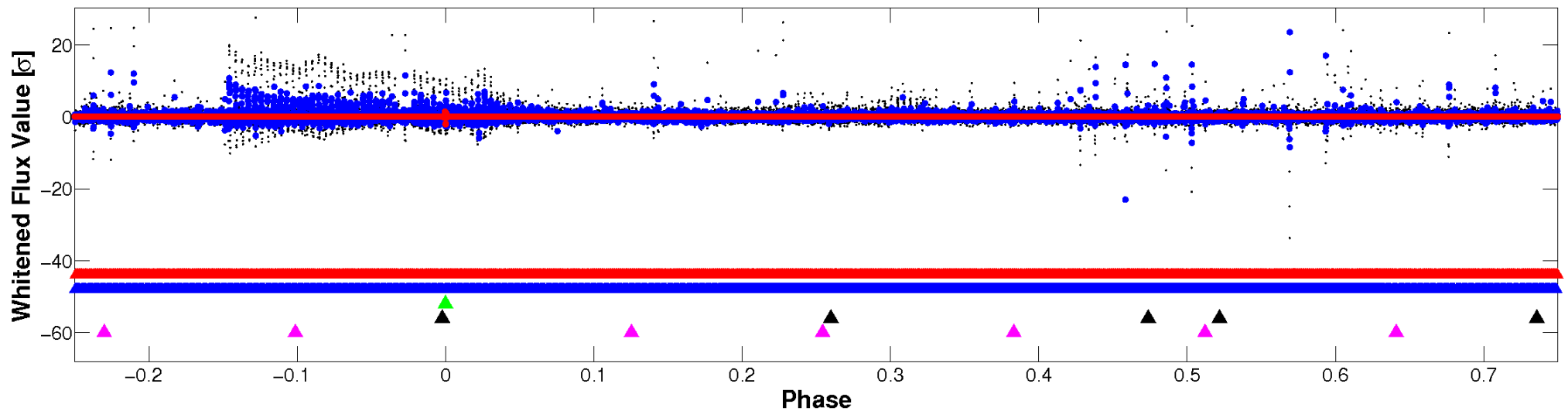


# Non-Whitened Vs. Whitened Light Curve

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



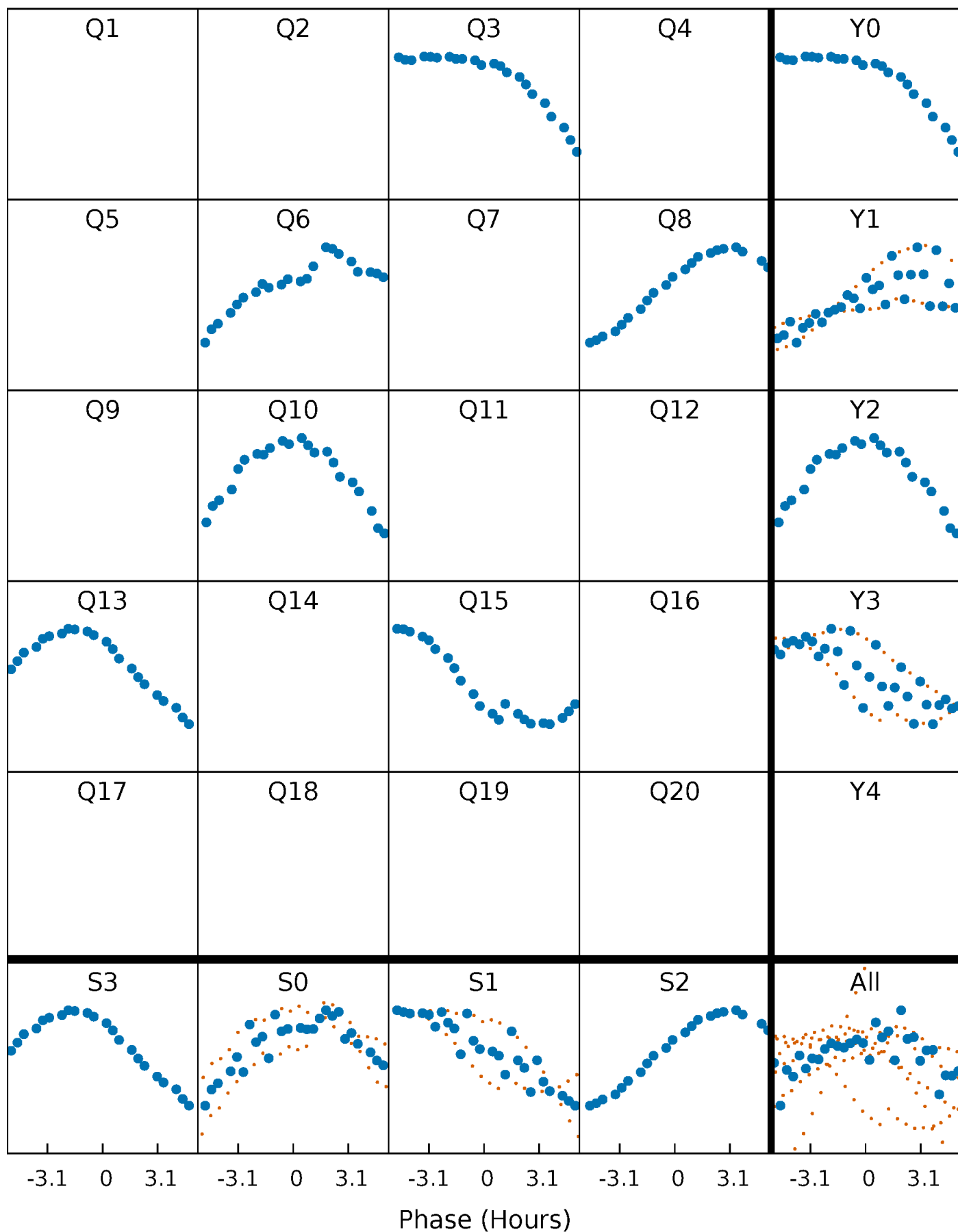
## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





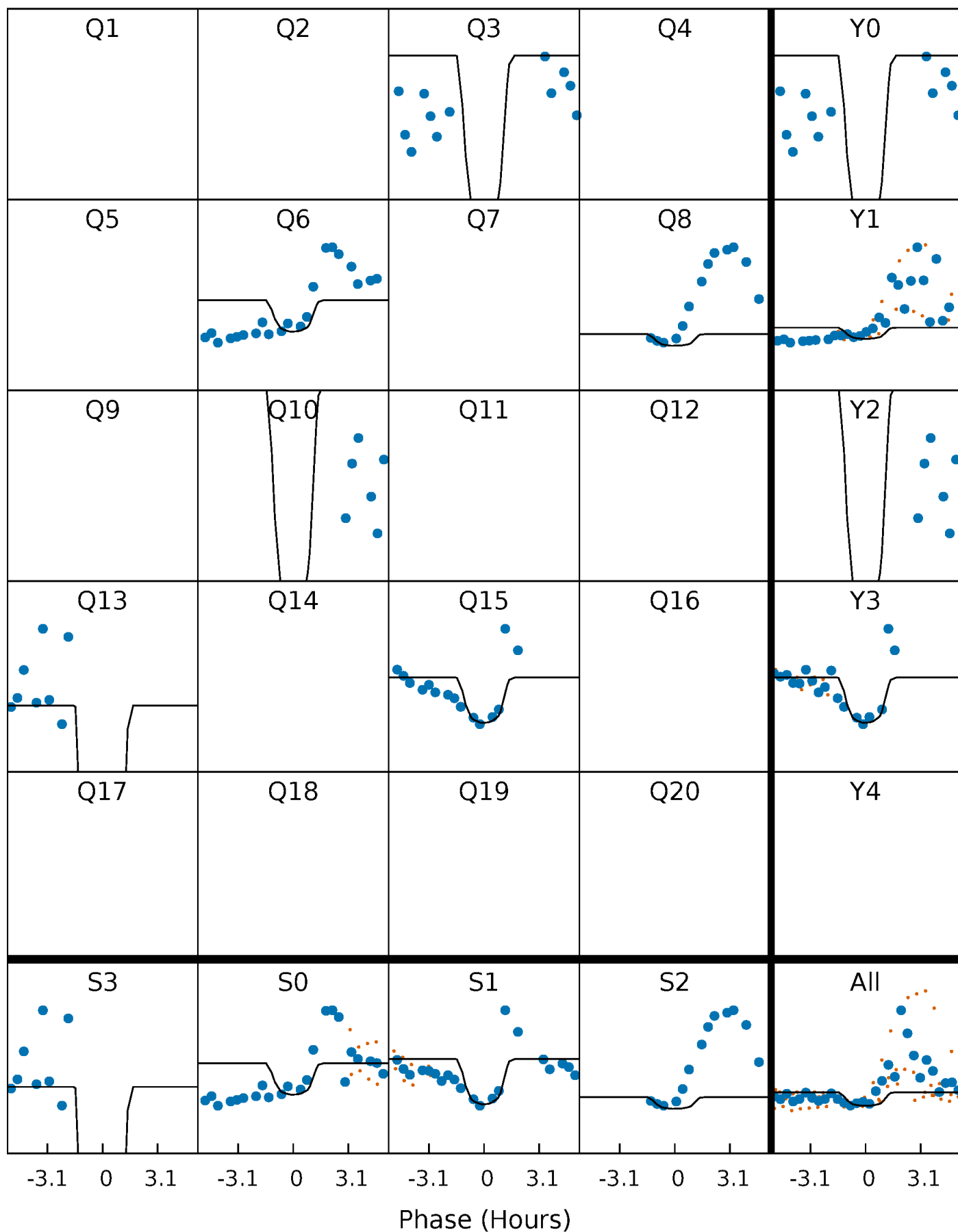
# PDC Quarter-Phased Transit Curves

TCE 008812627-03   P=226.433455 Days    $T_0=315.866659$  (BKJD)



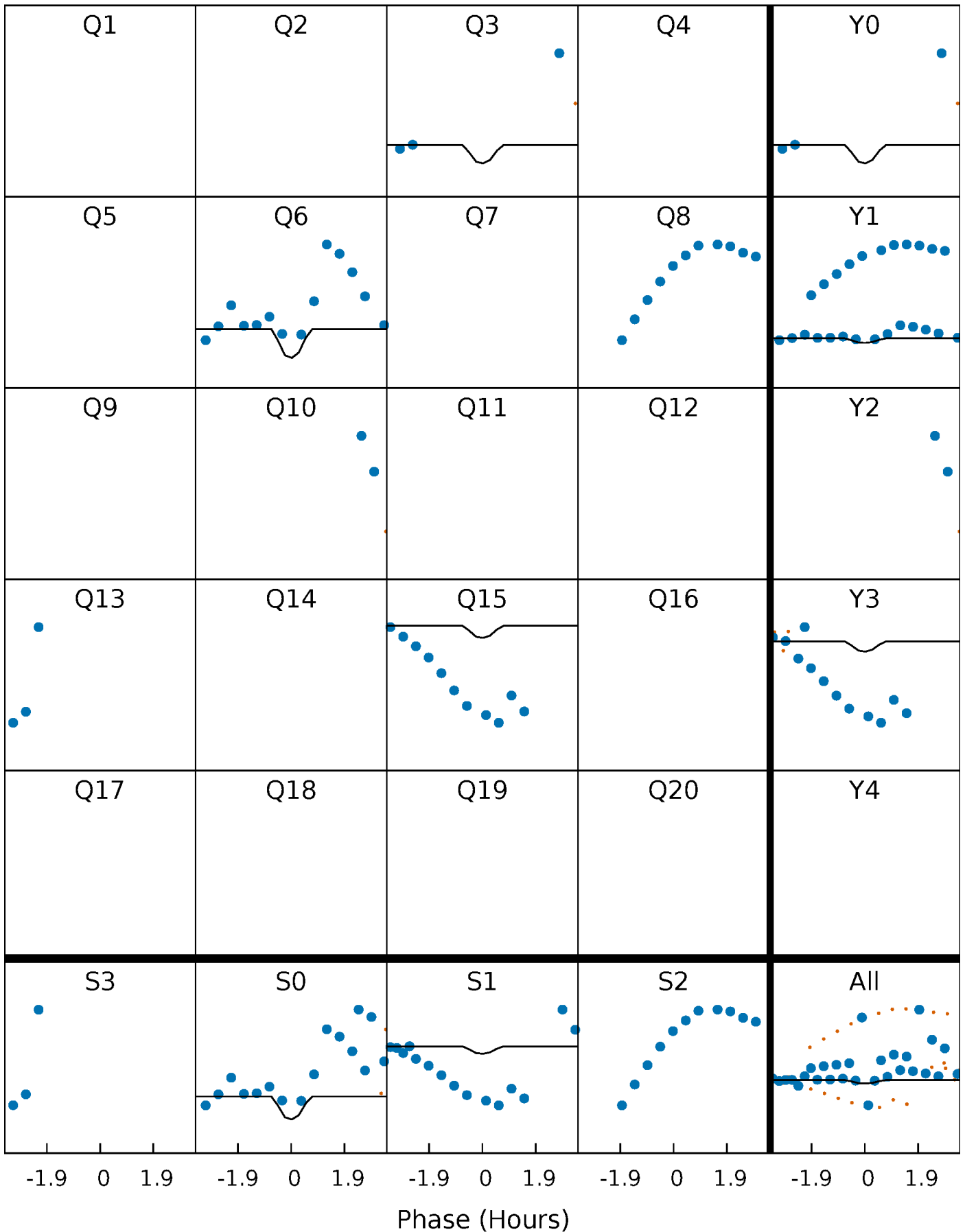
# DV Quarter-Phased Transit Curves

TCE 008812627-03 P=226.433455 Days  $T_0=315.866659$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

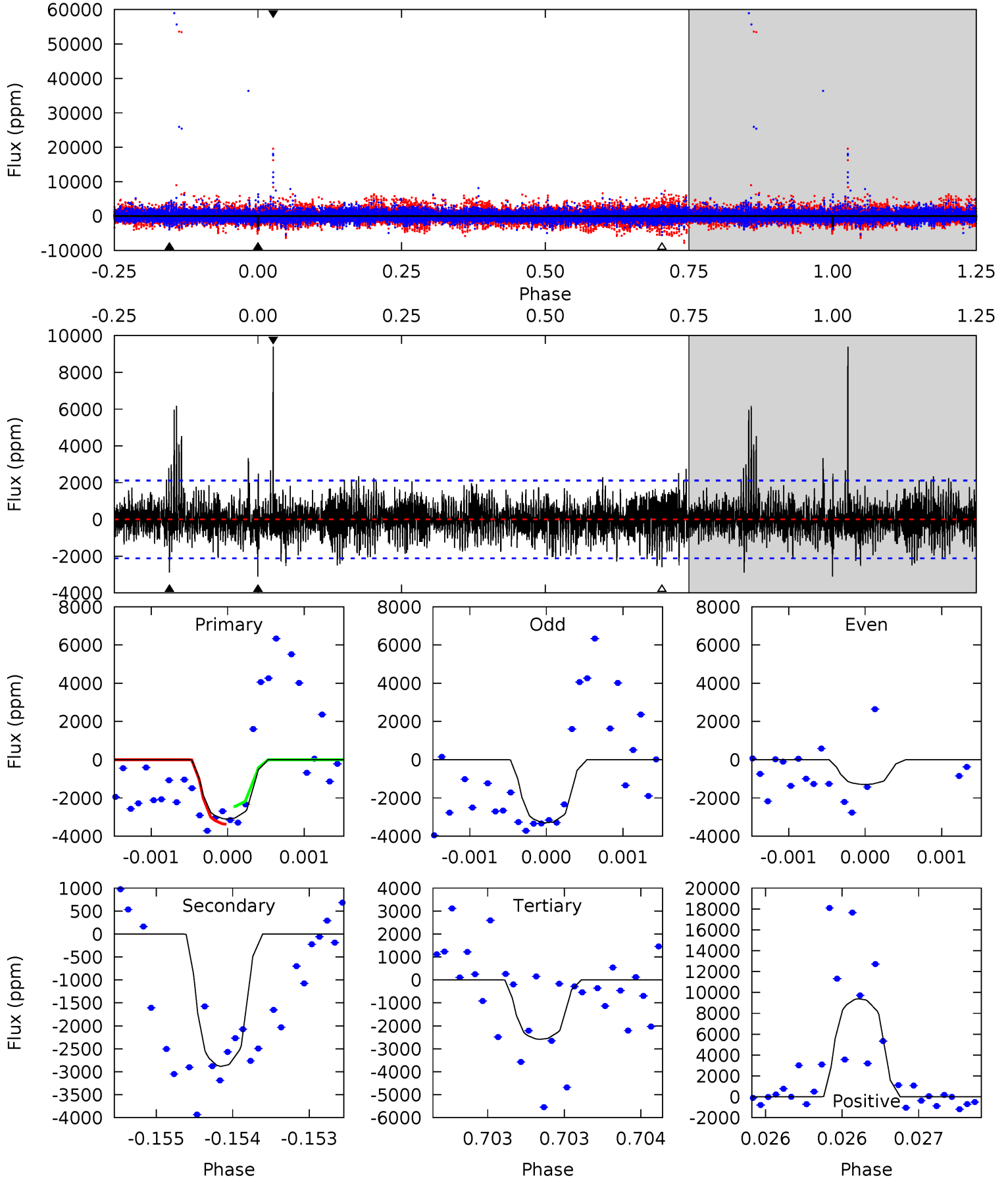
TCE 008812627-03 P=226.431507 Days  $T_0=315.888478$  (BKJD)



# DV Model-Shift Uniqueness Test

008812627-03, P = 226.433455 Days, E = 89.433204 Days

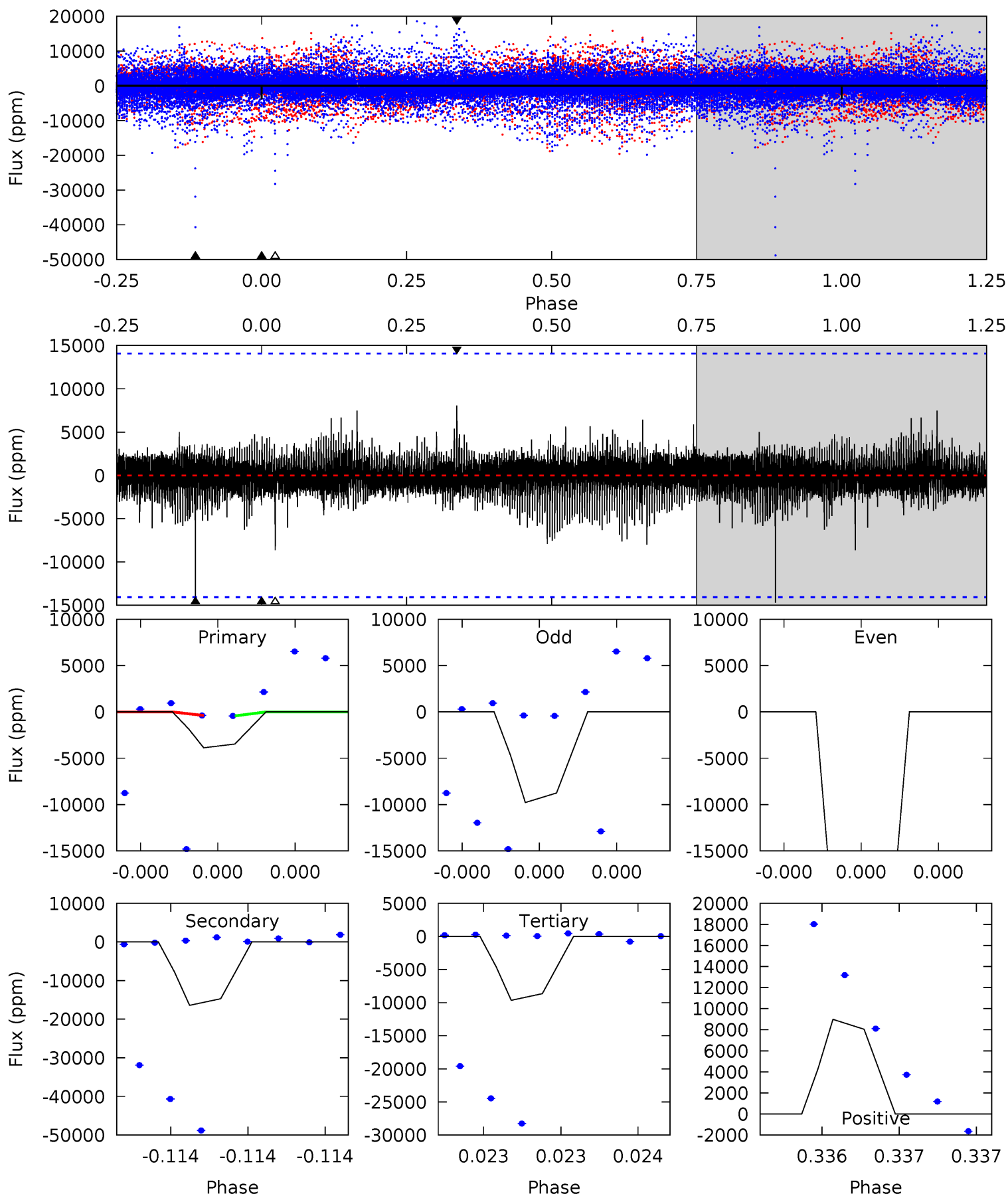
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.10	7.54	6.76	24.6	5.54	3.43	1.91	1.34	-16.4	0.78	-17.0	1.10	0.56	0.75	1.16



# Alt Model-Shift Uniqueness Test

008812627-03, P = 226.431507 Days, E = 89.456971 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
1.41	5.97	3.51	3.27	5.71	3.69	0.55	-2.10	-1.86	2.46	2.70	5.13	-23.6	0.35	0.01





### Stellar Parameters For KIC 008812627

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5232^{+156}_{-156}$	$4.519^{+0.091}_{-0.156}$	$-0.320^{+0.300}_{-0.300}$	$0.777^{+0.123}_{-0.092}$	$0.727^{+0.115}_{-0.054}$	$2.186^{+0.817}_{-0.777}$
	+3%/-3%	+2%/-3%	+94%/-94%	+16%/-12%	+16%/-7%	+37%/-36%
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 008812627-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2884 \pm 383$	$5.82^{+3.55}_{-3.51}$	$355^{+19}_{-18}$	$4764^{+2723}_{-807}$	$20409^{+106682}_{-12944}$
Alt.	$-14702 \pm 2464$	$4.75^{+3.41}_{-2.93}$	$355^{+19}_{-17}$	$8007^{+9441}_{-2158}$	$163272^{+901044}_{-111899}$

$T_{max}$  = 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

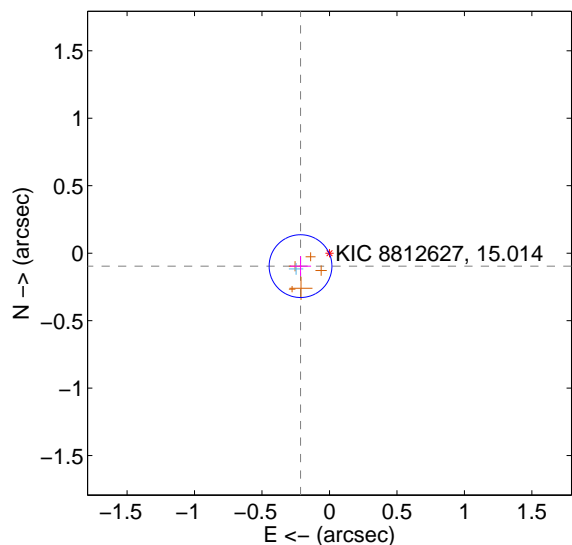
Supplemental centroid analysis for 008812627-03. Kepler magnitude: 15.01. Transit SNR 7.38

There are 1 quarters with good PRF difference image offsets

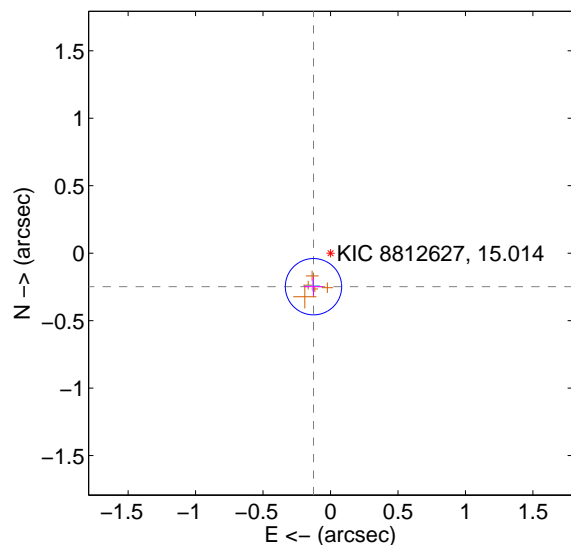
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.235 \pm 0.078$	3.03	$0.215 \pm 0.078$	$-0.096 \pm 0.073$
PRF-fit source offset from KIC position	$0.279 \pm 0.070$	4.00	$0.126 \pm 0.070$	$-0.248 \pm 0.070$
photometric centroid source offset	$0.28 \pm 0.41$	0.68	$0.27 \pm 0.41$	$0.04 \pm 0.36$

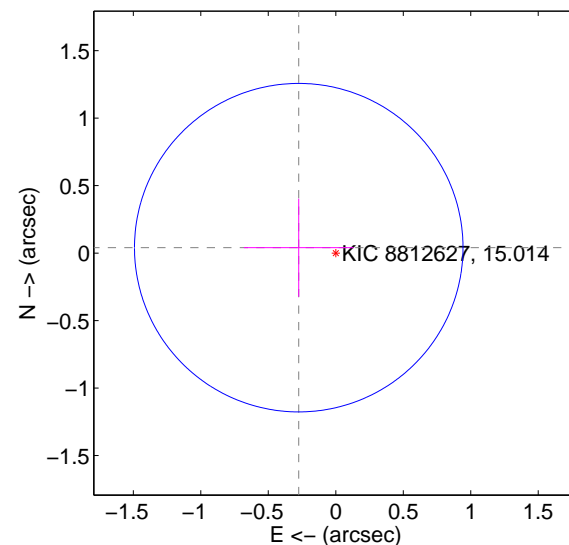
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

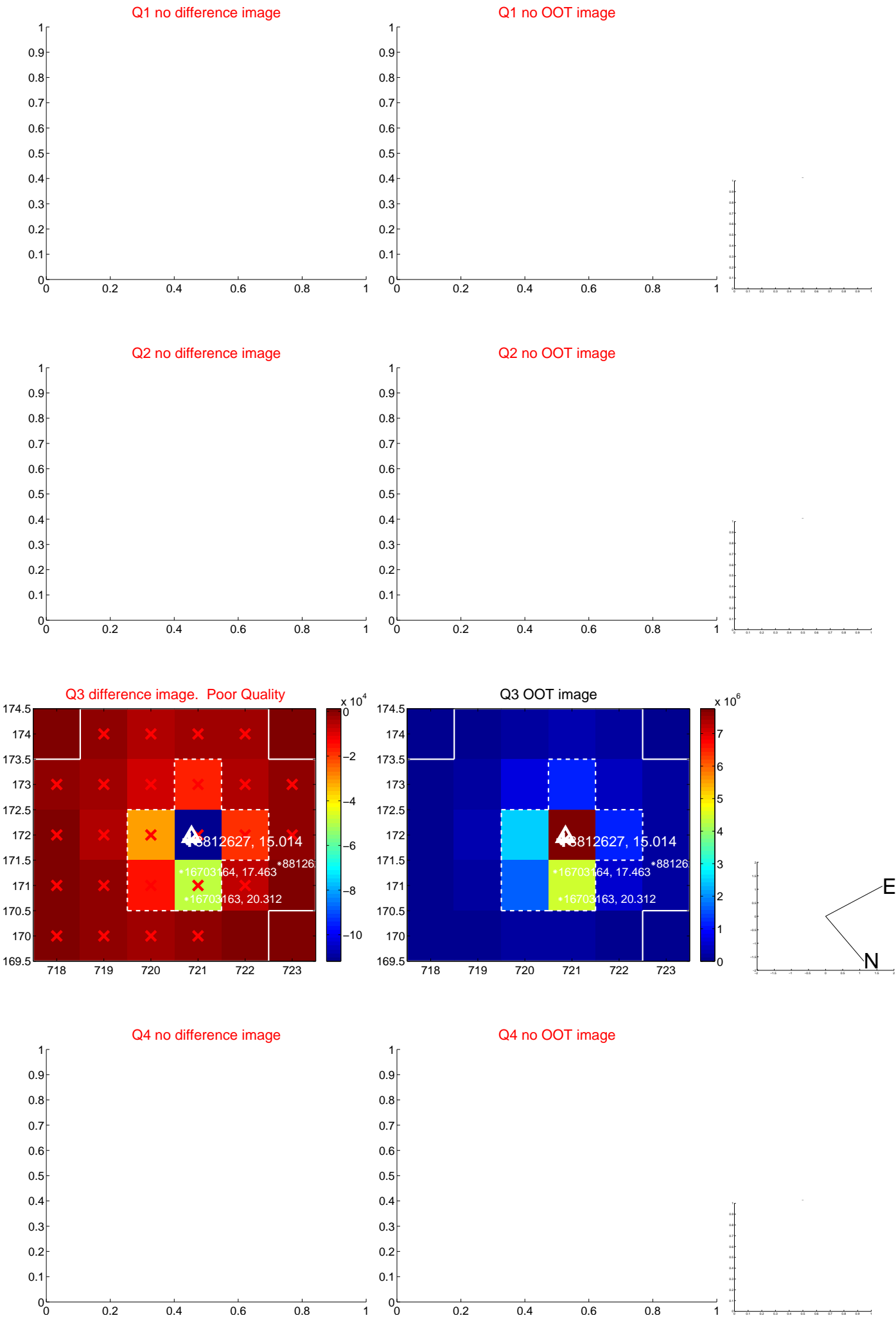


offset from photometric centroids

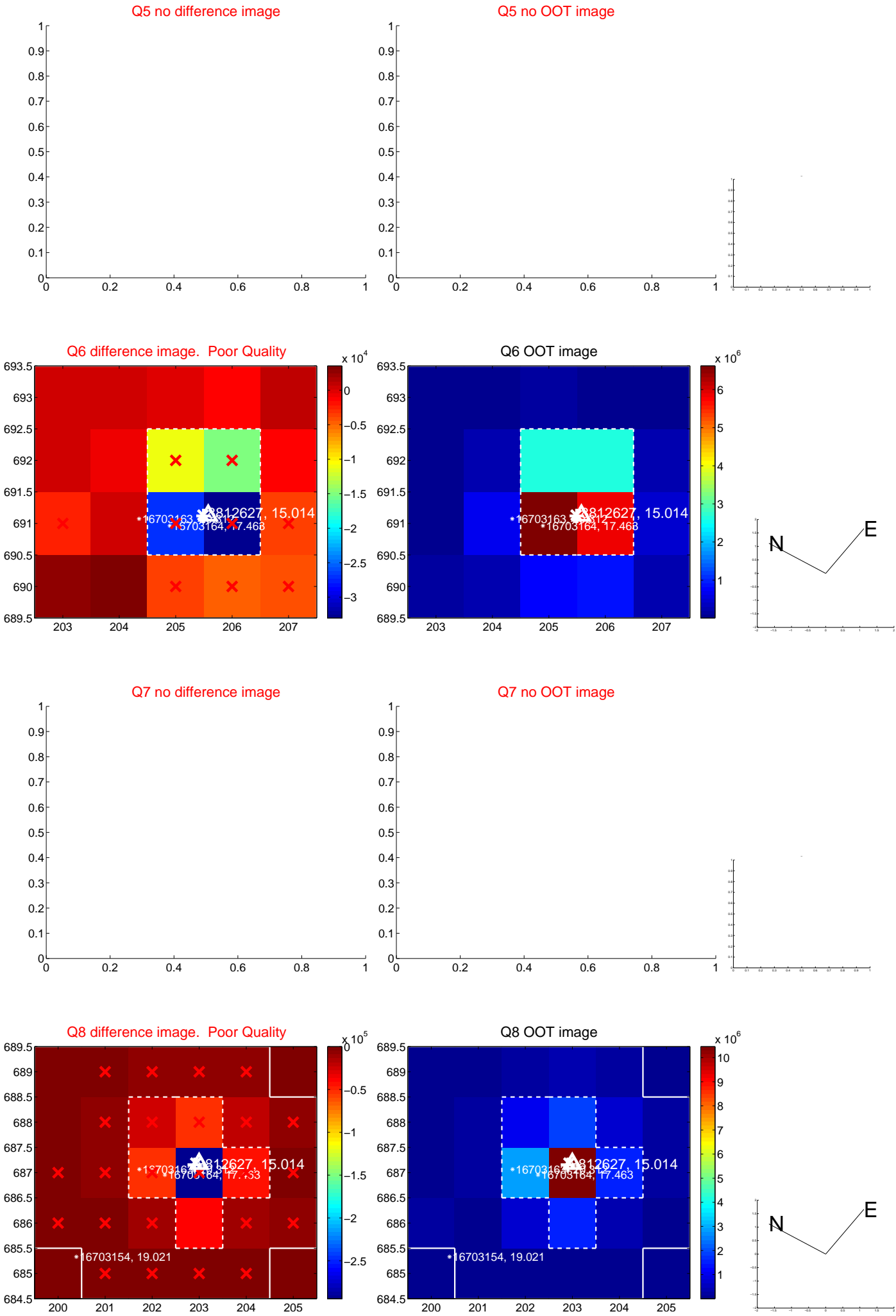


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

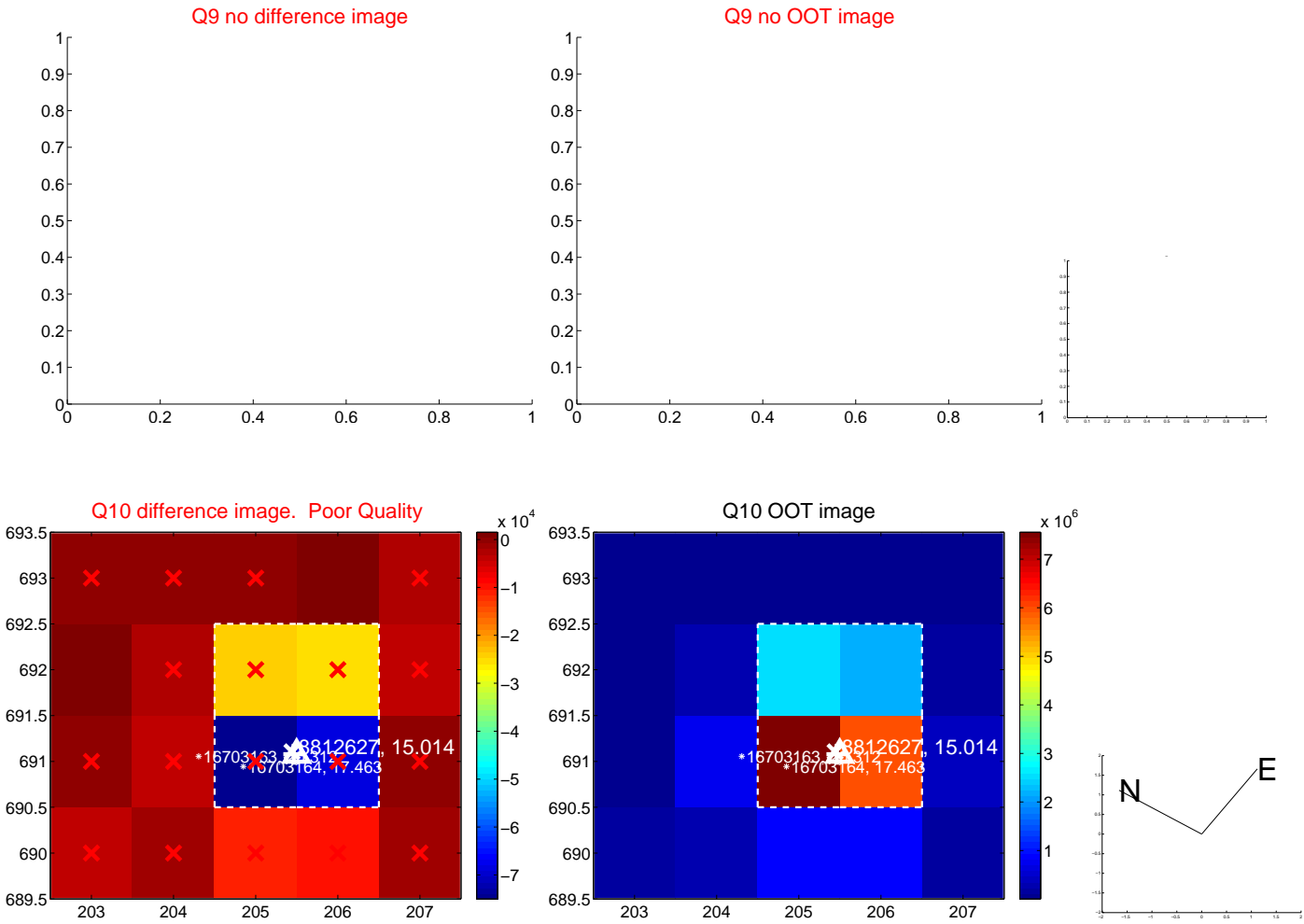
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



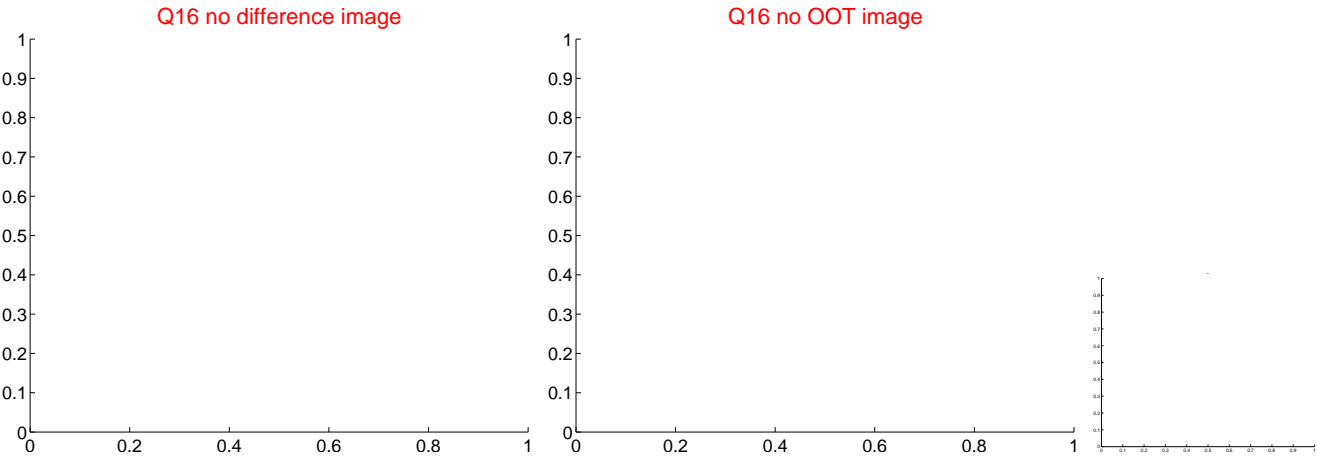
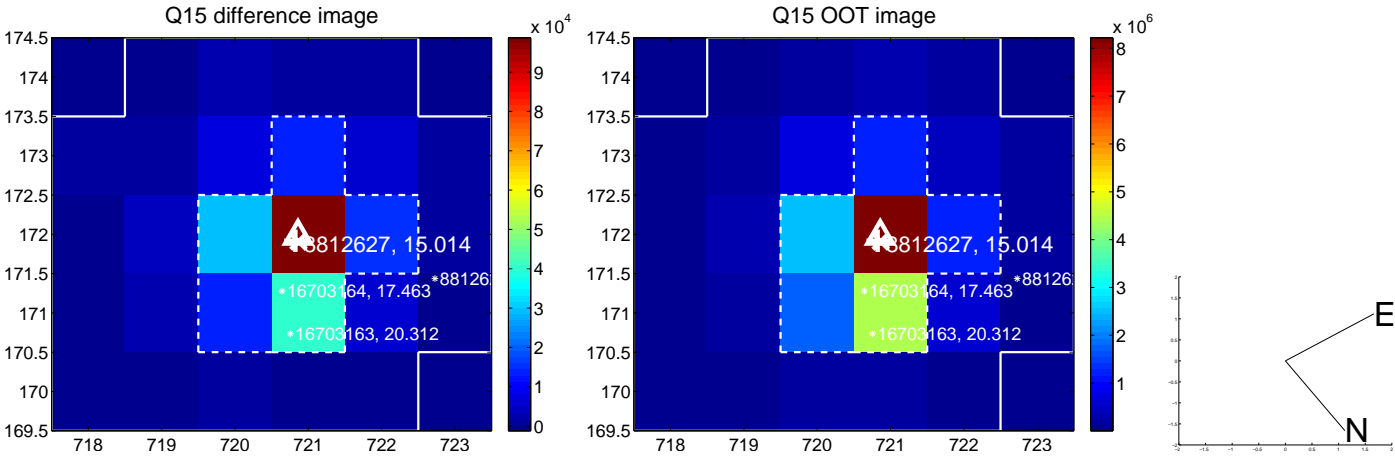
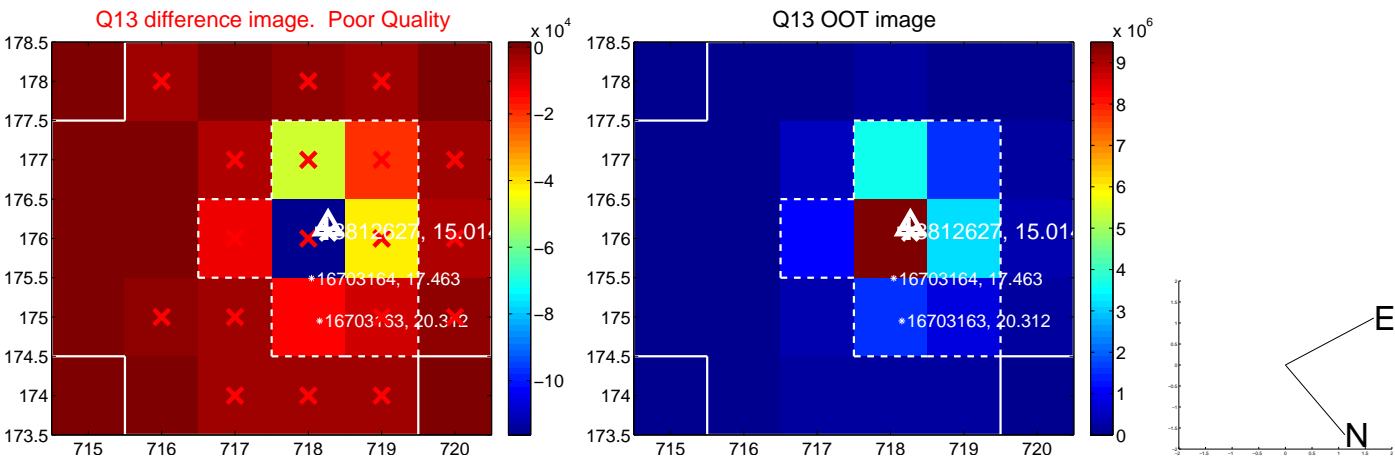
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

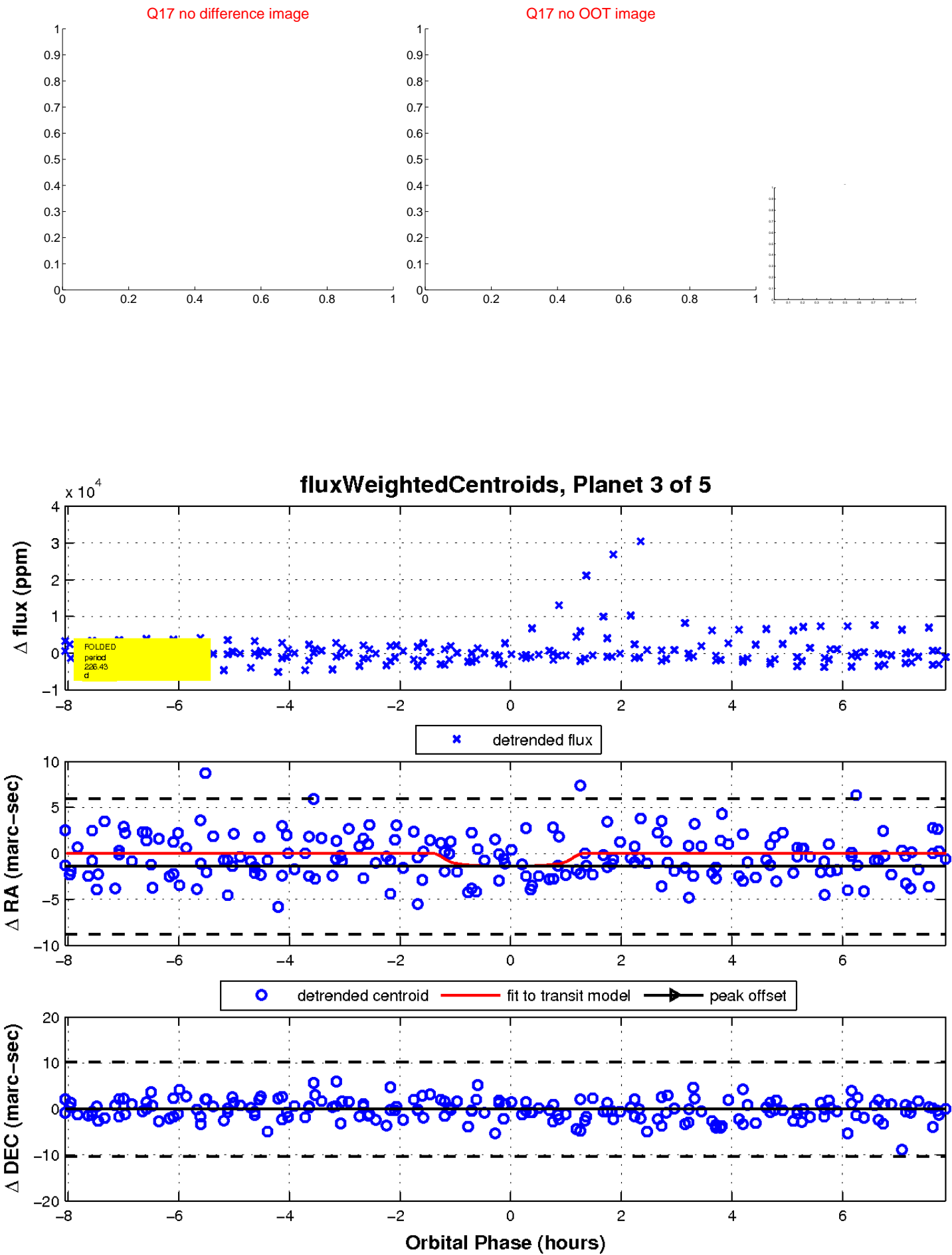


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



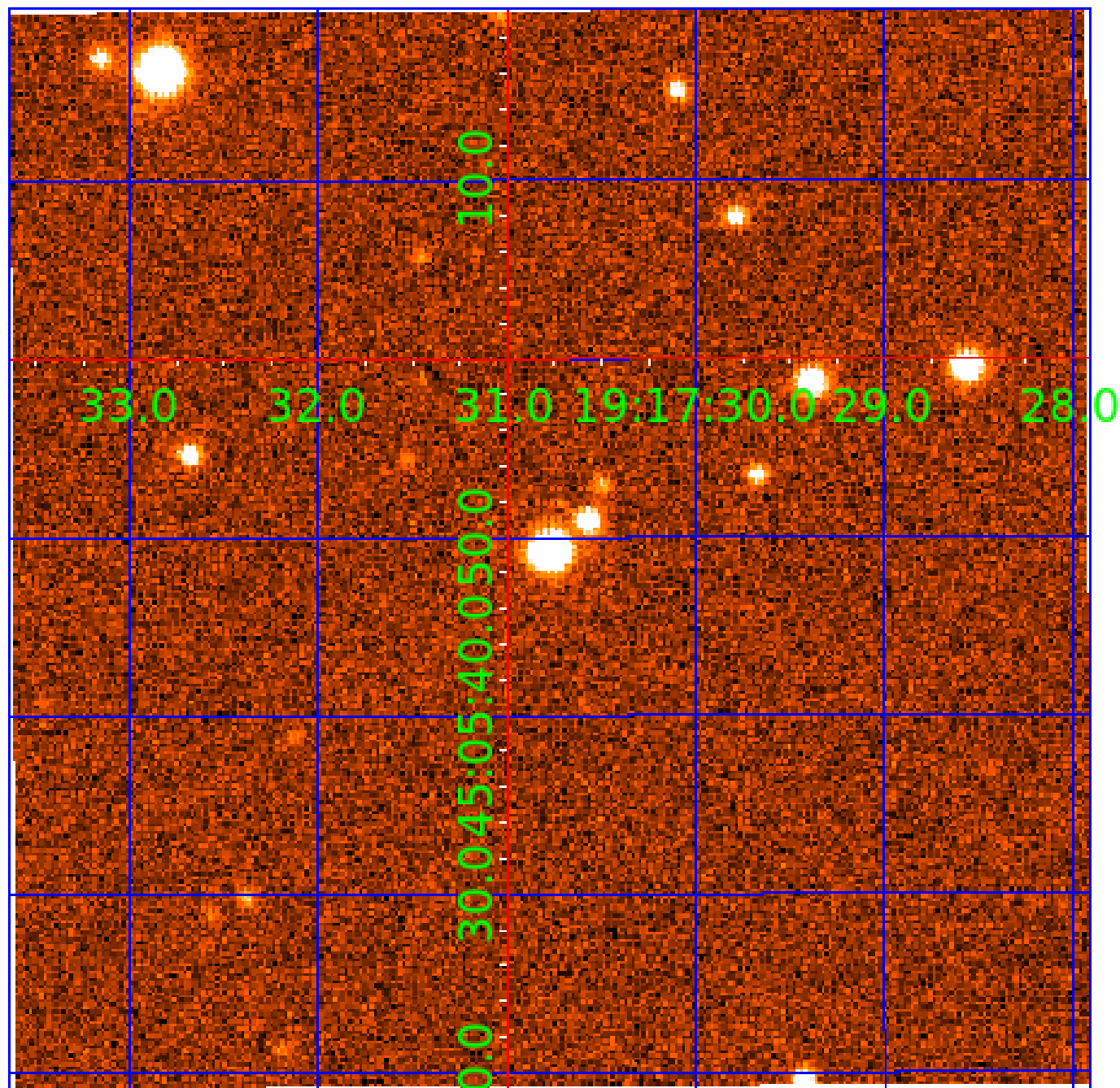


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008812627

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008812627-01	OBS	No	0.972531	132.462301	68.5	2.571	10.0	3.7	0.78	5232	0.68	1357.19
008812627-02	OBS	No	0.973016	131.994877	0.0	1.301	12.8	0.0	0.78	5232	0.01	1356.29
008812627-03	OBS	No	226.433455	315.866659	3770.2	2.685	13.8	7.4	0.78	5232	5.15	0.95
008812627-04	OBS	No	285.761856	196.720707	1698.4	7.597	10.3	3.3	0.78	5232	3.32	0.69
008812627-05	OBS	No	197.245116	292.953741	1349.7	2.500	10.3	-1.0	0.78	5232	2.80	1.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008812627-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008812627-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
008812627-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008812627-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
008812627-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

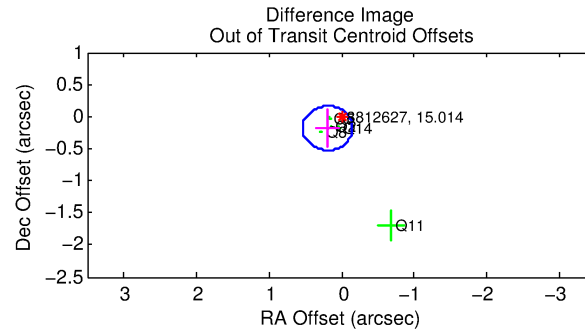
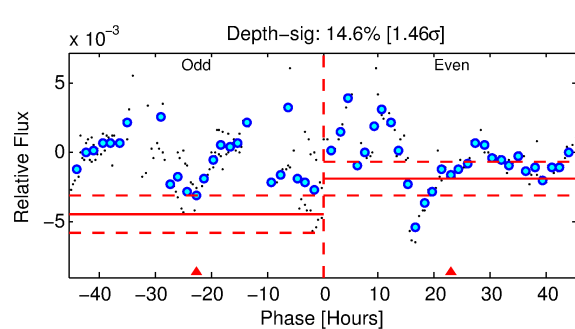
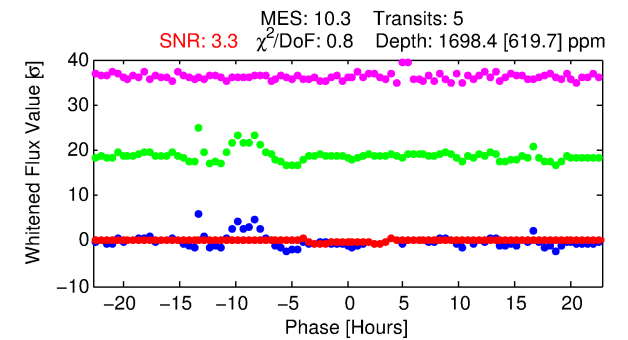
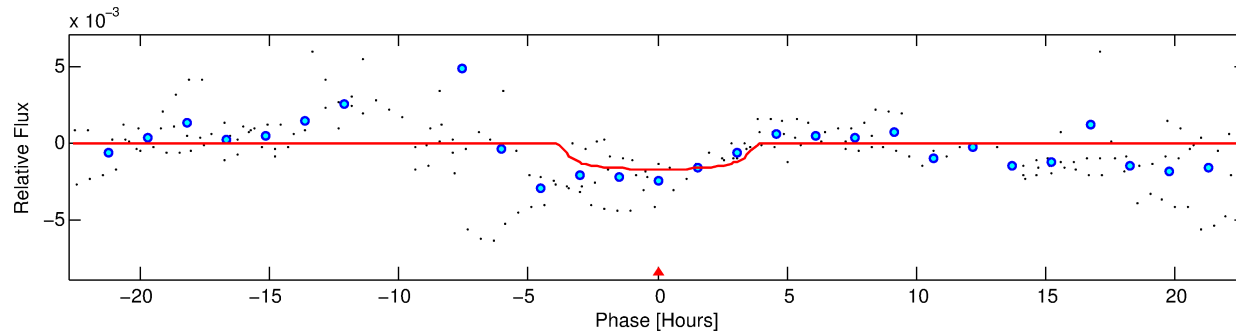
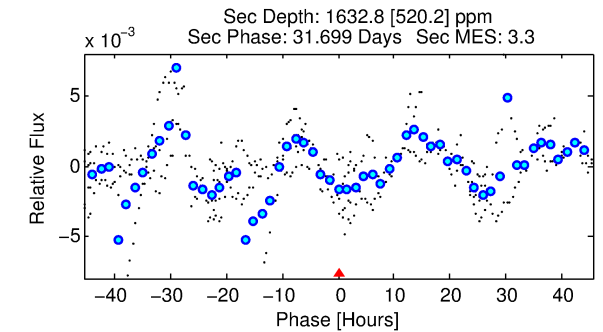
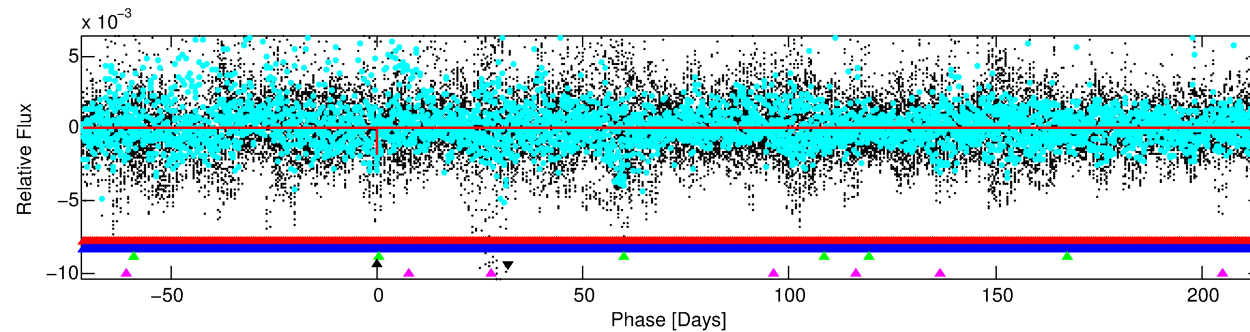
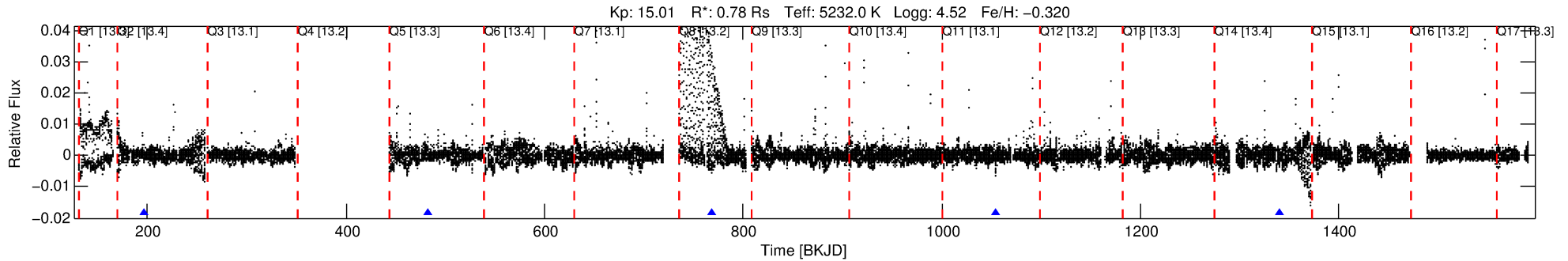
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008812627-04

No Significant Match Found

# DV One-Page Summary

KIC: 8812627 Candidate: 4 of 5 Period: 285.762 d



## DV Fit Results:

Period = 285.76186 [0.00838] d  
Epoch = 196.7207 [0.0261] BKJD  
Rp/R\* = 0.0392 [0.0271]  
a/R\* = 242.53 [601.31]  
b = 0.61 [2.58]  
Seff = 0.69 [0.20]  
Teq = 233 [17] K  
Rp = 3.32 [2.36] Re  
a = 0.7638 [0.1219] AU  
Ag = 47491.32 [68576.82] [0.69σ]  
Teffp = 5313 [1893] K [2.68σ]

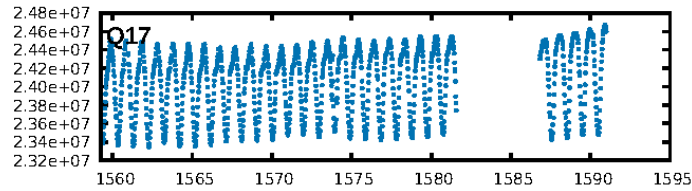
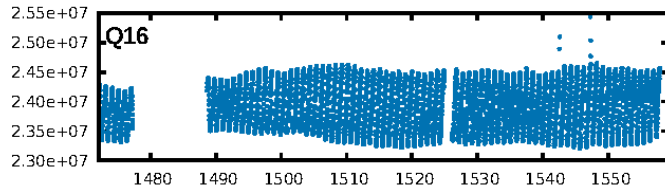
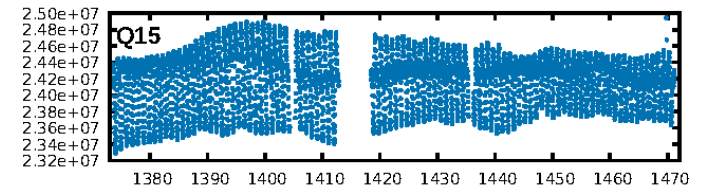
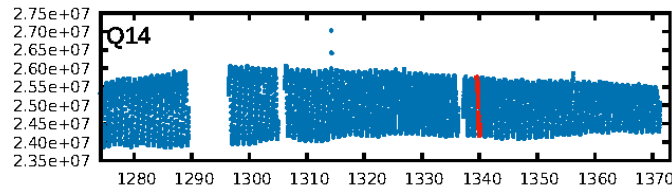
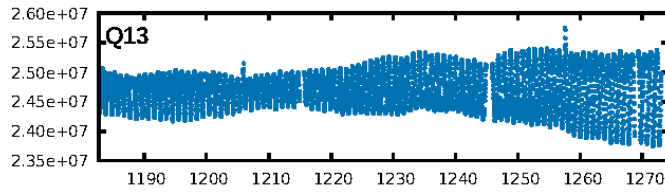
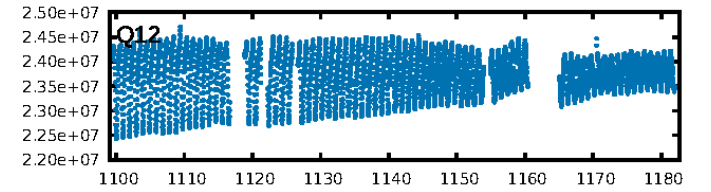
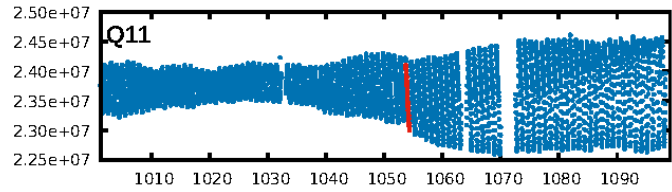
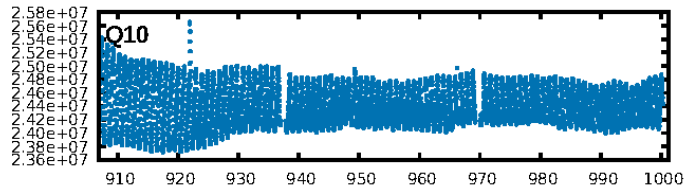
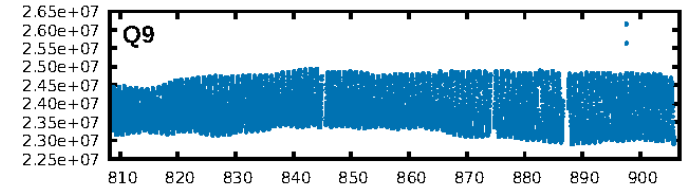
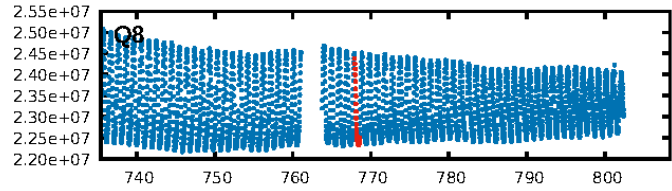
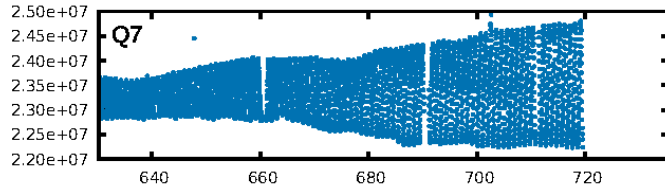
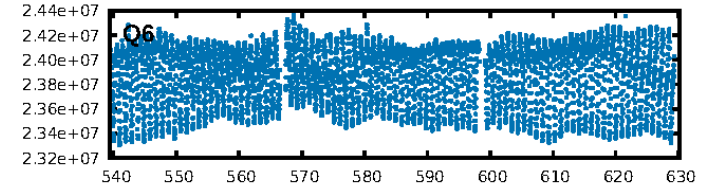
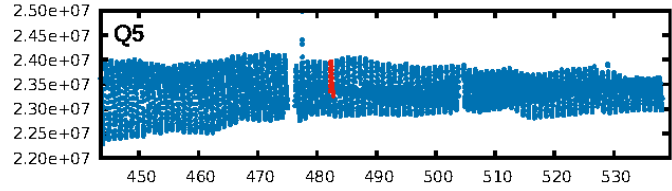
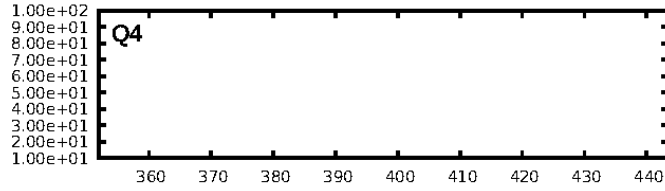
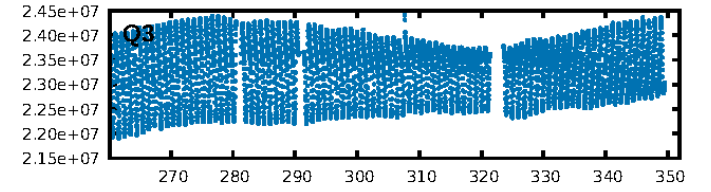
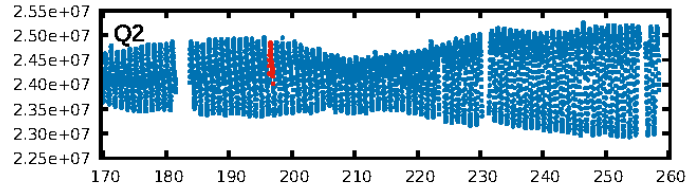
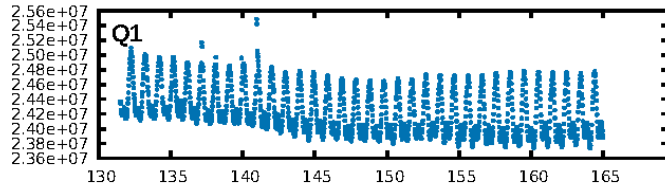
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [176.71σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 66.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 0.3577  
Centroid-sig: 3.77%  
Centroid-so: 0.775 arcsec [1.33σ]  
OotOffset-rm: 0.263 arcsec [2.31σ]  
KicOffset-rm: 0.297 arcsec [1.86σ]  
OotOffset-st: 2/1/1/1 [5]  
KicOffset-st: 2/1/1/1 [5]  
DiffImageQuality-fgm: 0.60 [3/5]  
DiffImageOverlap-fno: 0.00 [0/5]

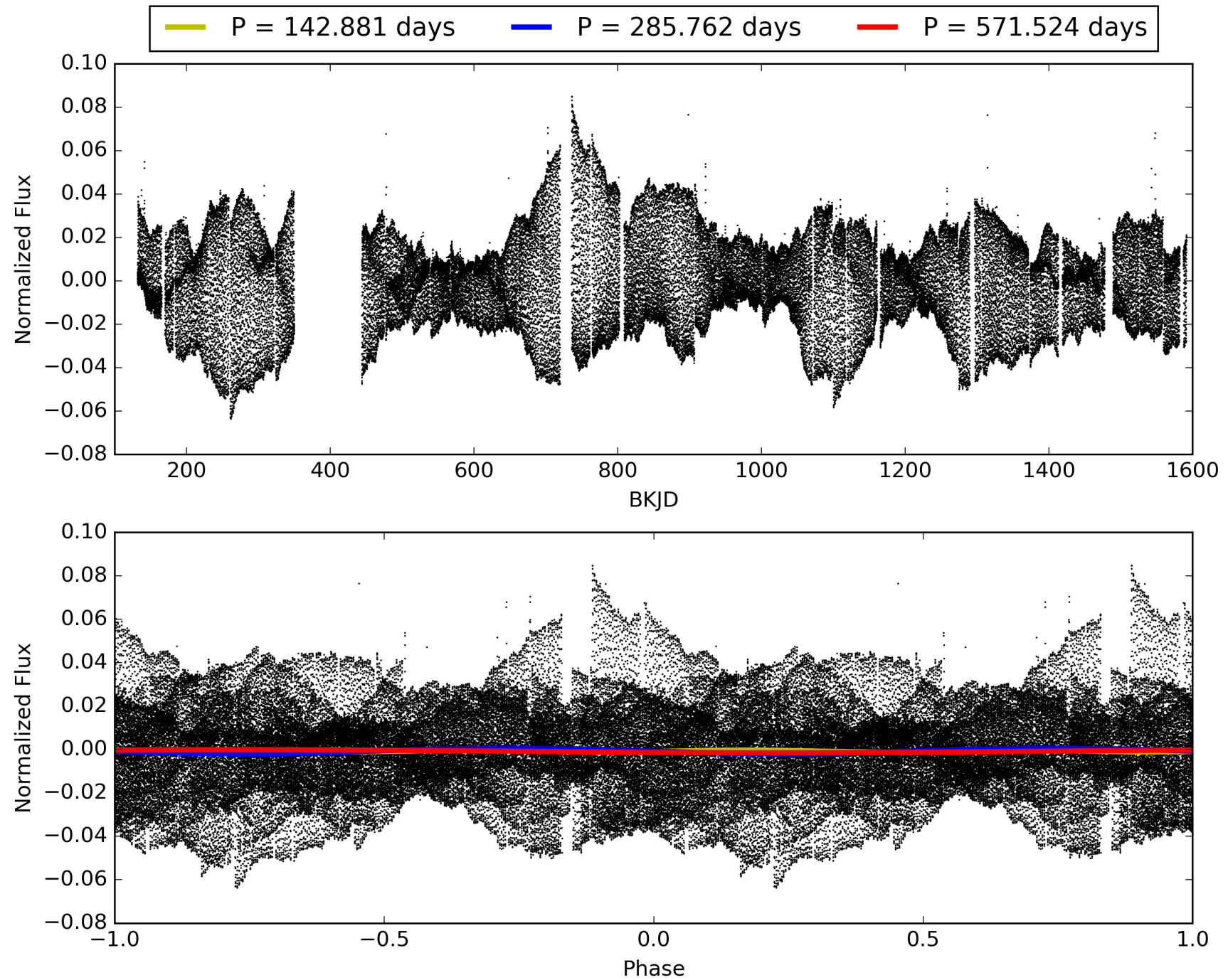
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:46:25 Z

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

# TCE 008812627-04, PDC Light Curves



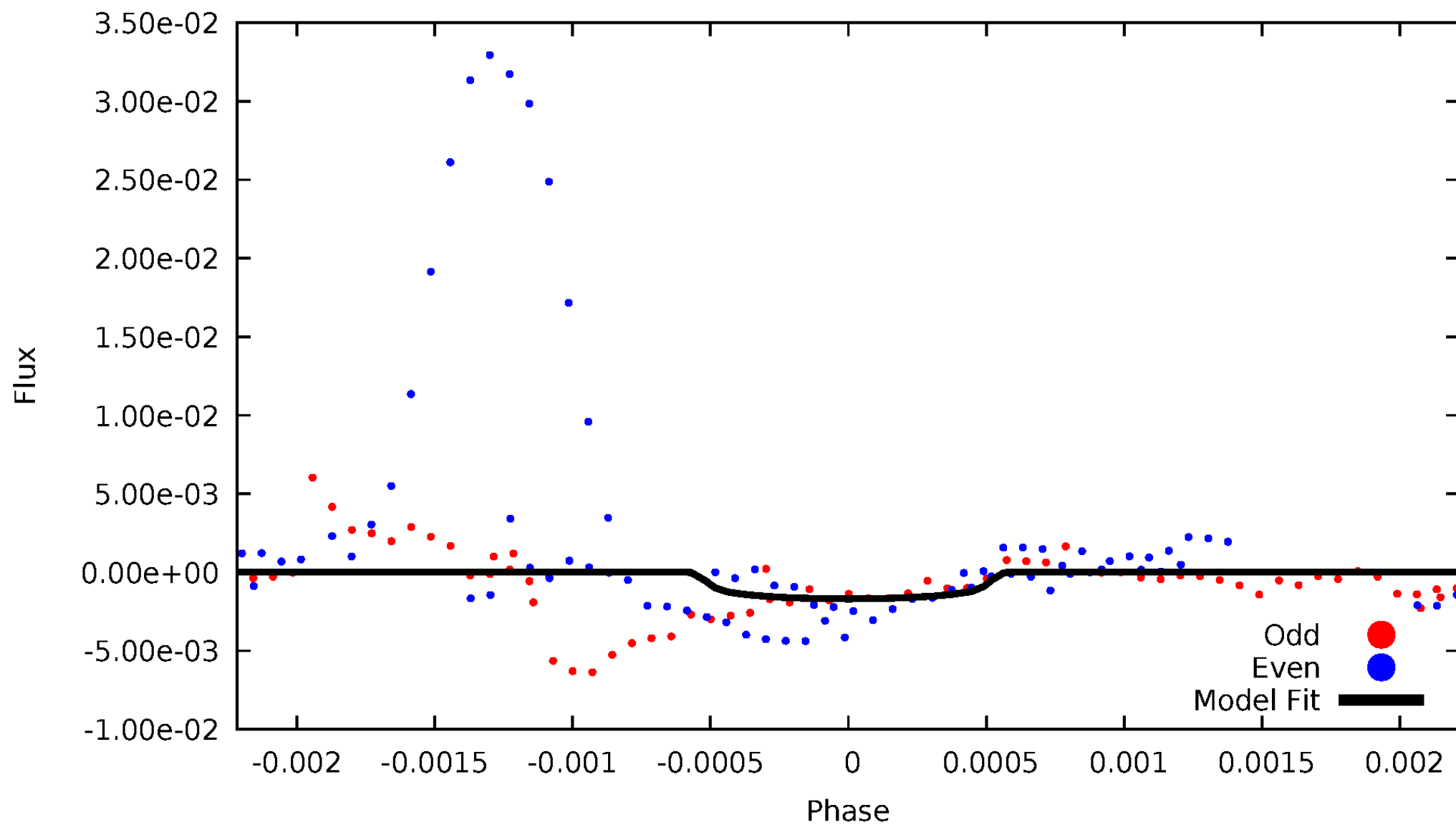
TCE 008812627-04





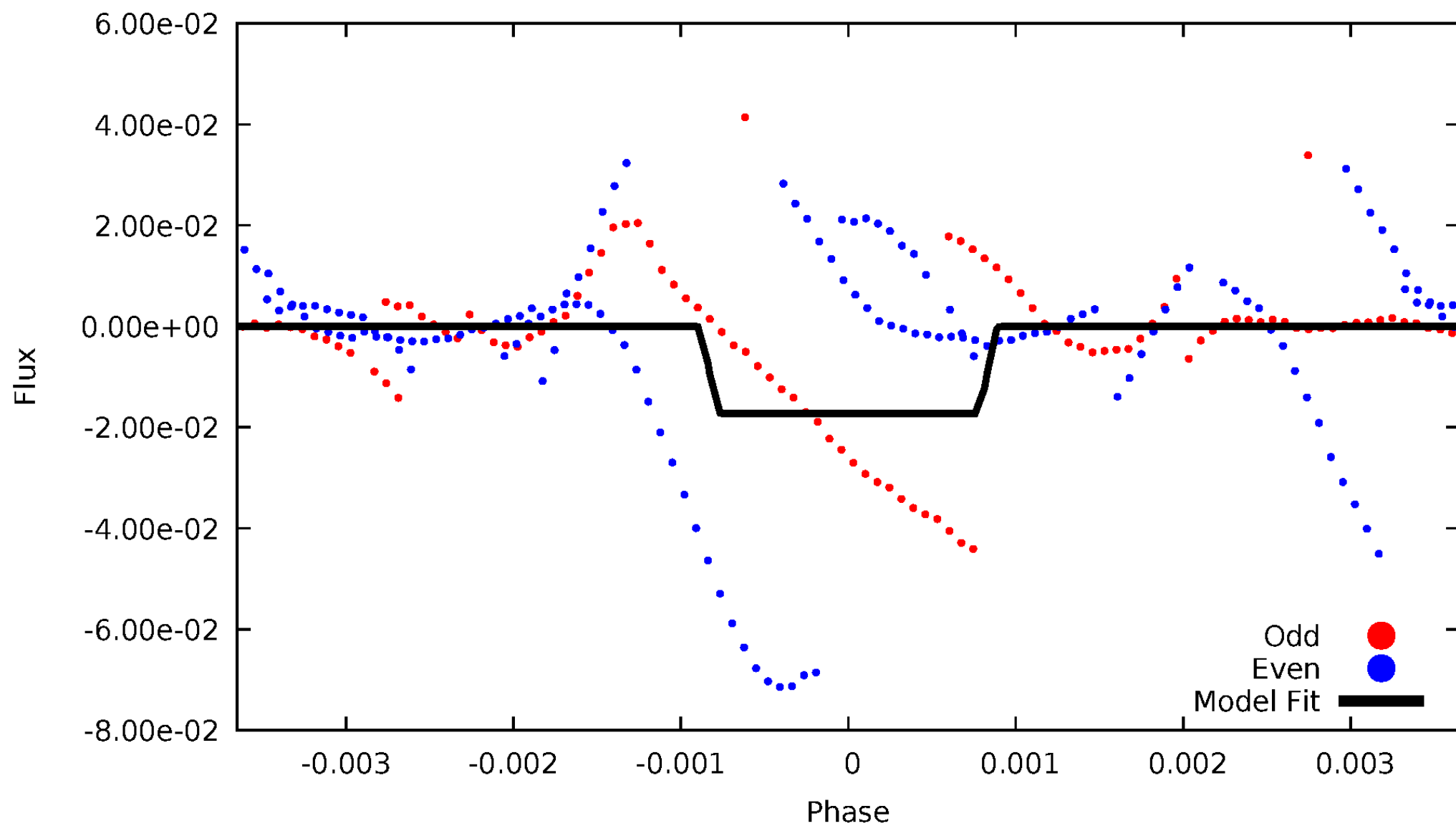
# DV Odd/Even

TCE 008812627-04



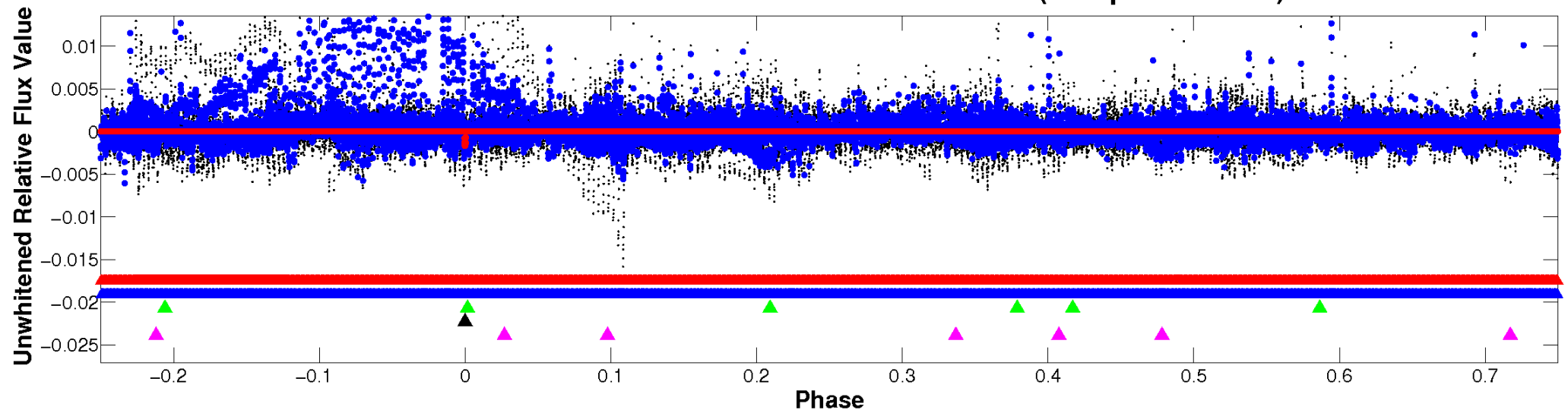
# ALT Odd/Even

TCE 008812627-04

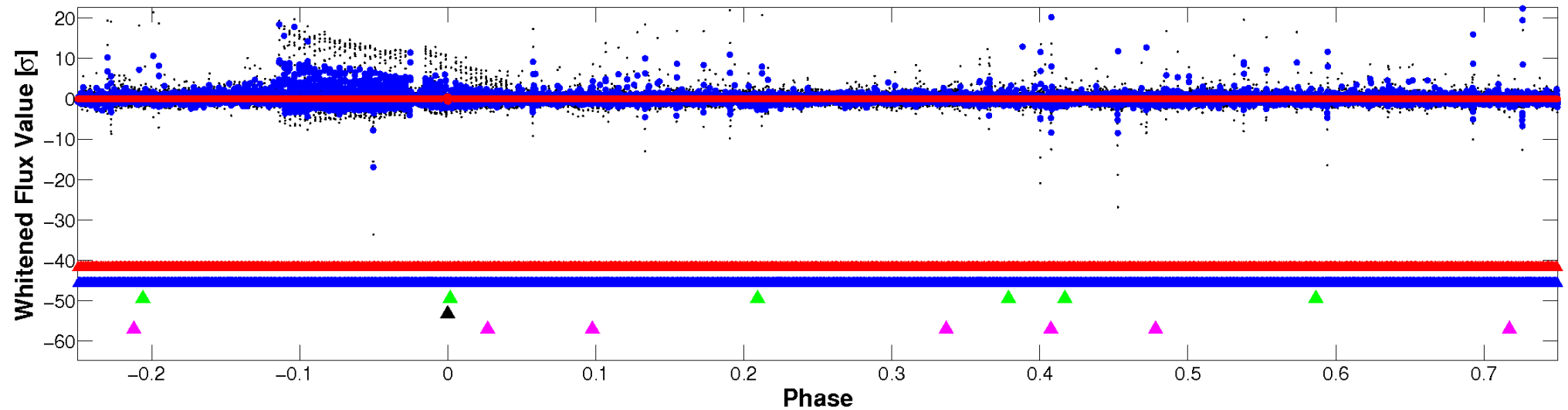


# Non-Whitened Vs. Whitened Light Curve

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

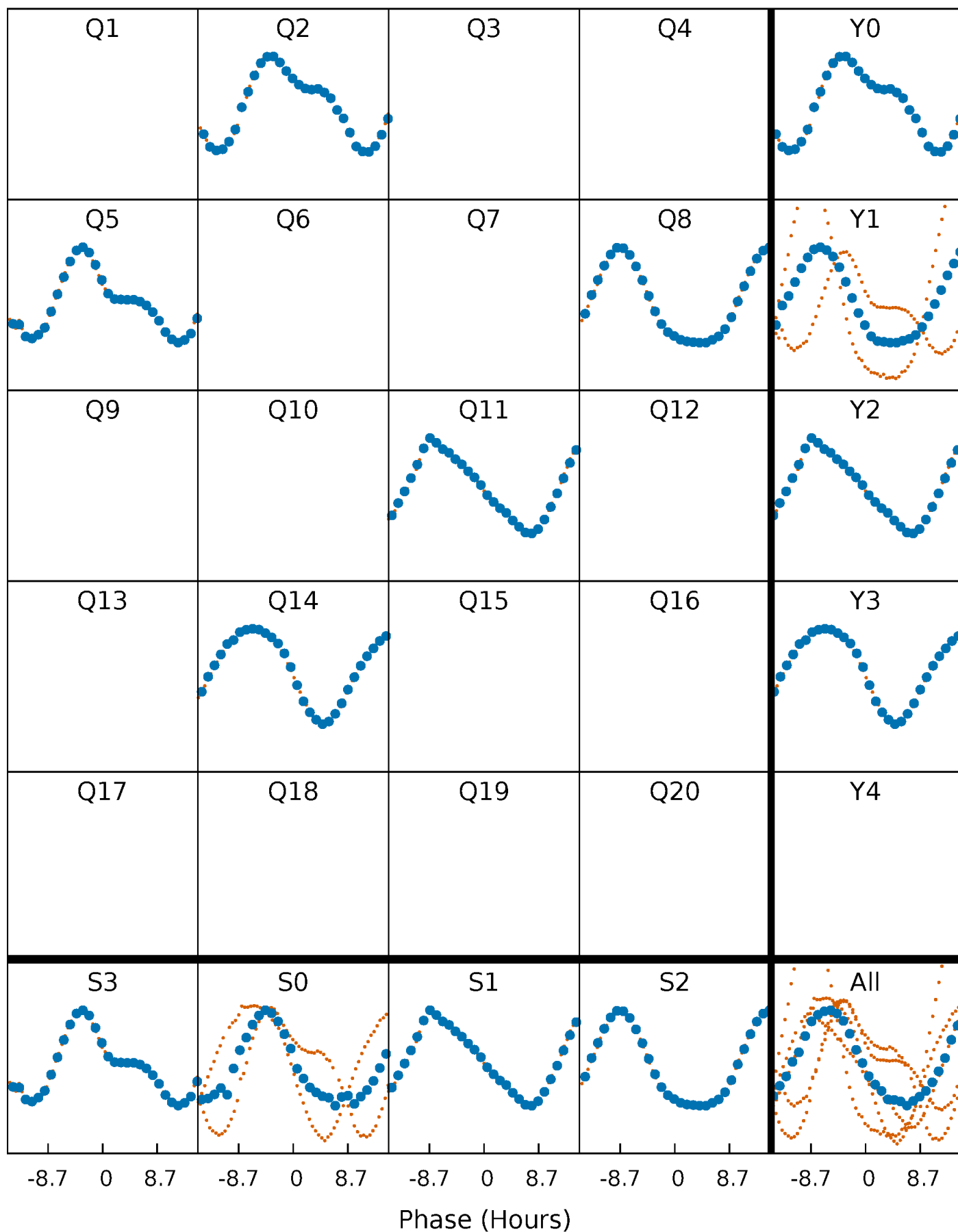


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



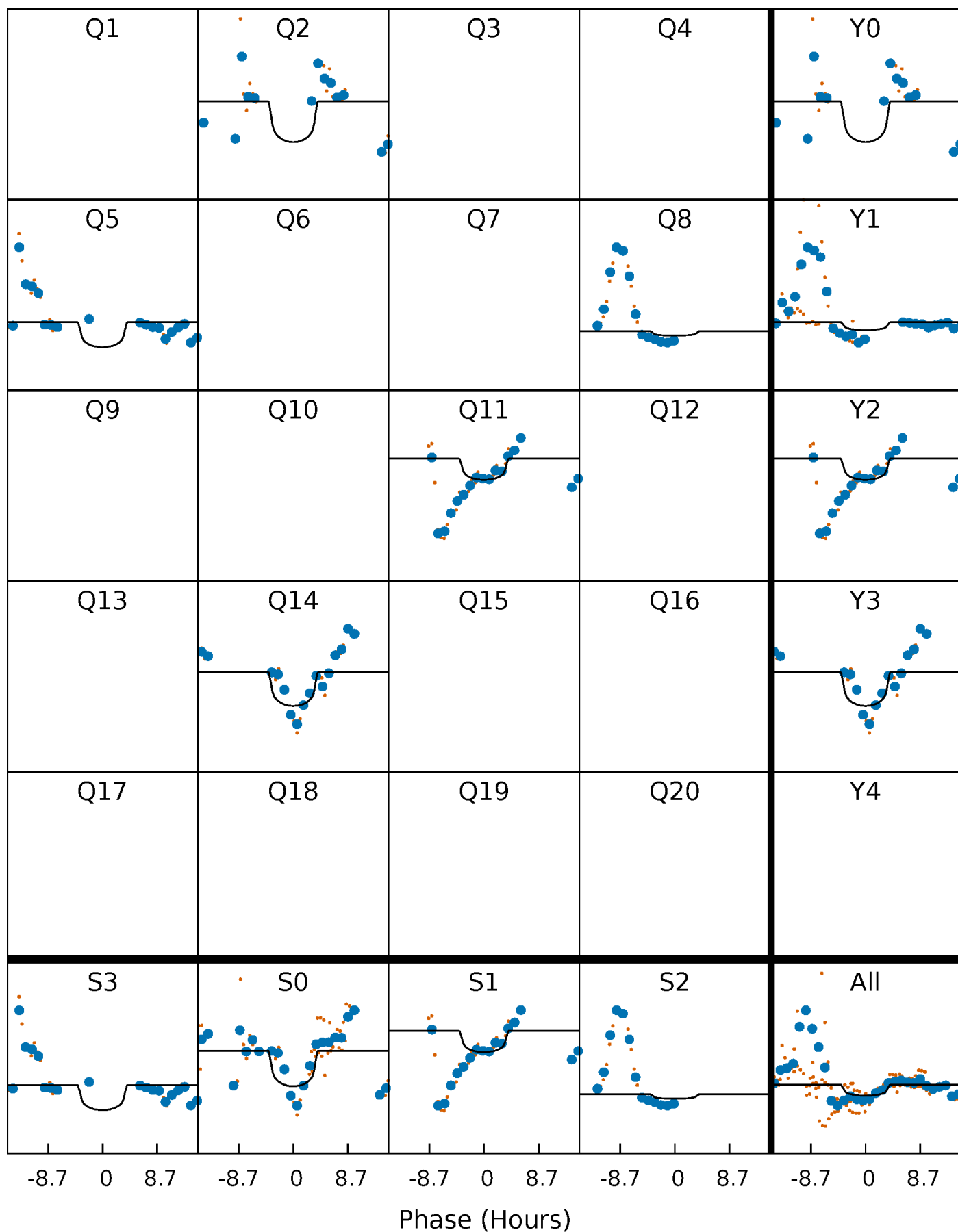
# PDC Quarter-Phased Transit Curves

TCE 008812627-04 P=285.761856 Days  $T_0=196.720707$  (BKJD)



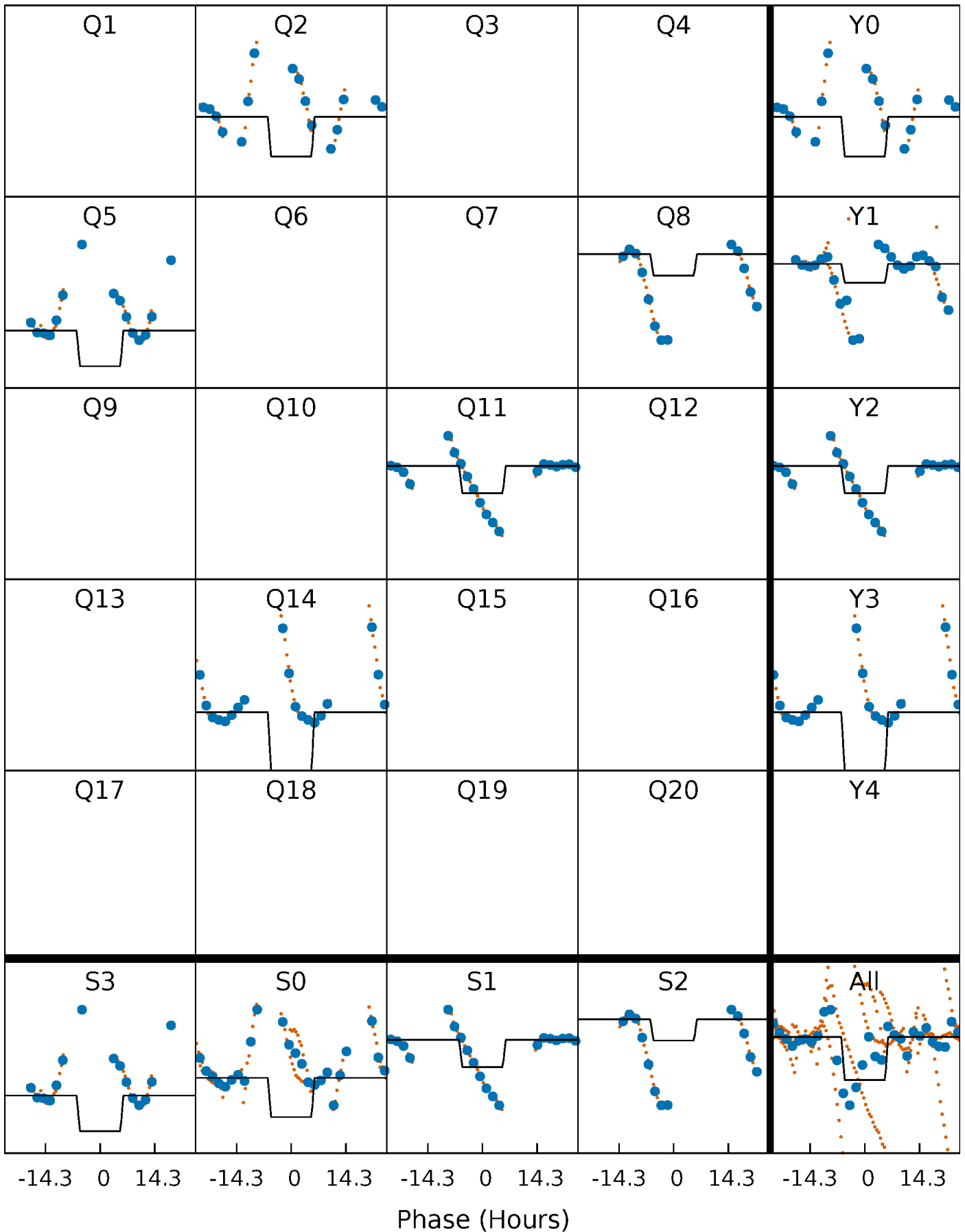
# DV Quarter-Phased Transit Curves

TCE 008812627-04     $P=285.761856$  Days     $T_0=196.720707$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

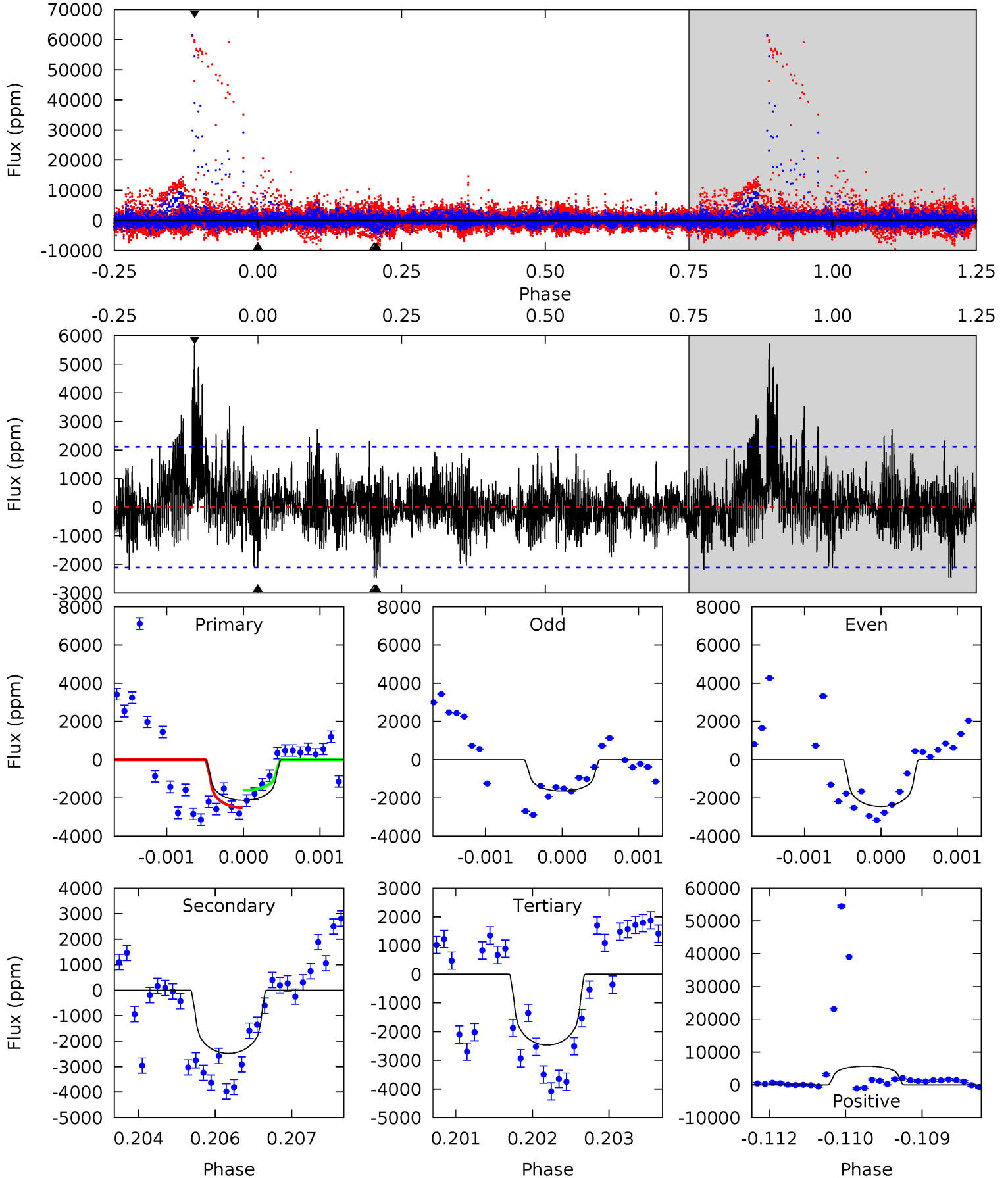
TCE 008812627-04 P=285.722469 Days  $T_0=196.851061$  (BKJD)



# DV Model-Shift Uniqueness Test

008812627-04, P = 285.761856 Days, E = 196.720707 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
5.47	6.38	6.36	14.7	5.42	3.24	2.02	-0.89	-9.22	0.02	-8.31	0.75	1.13	0.70	1.22

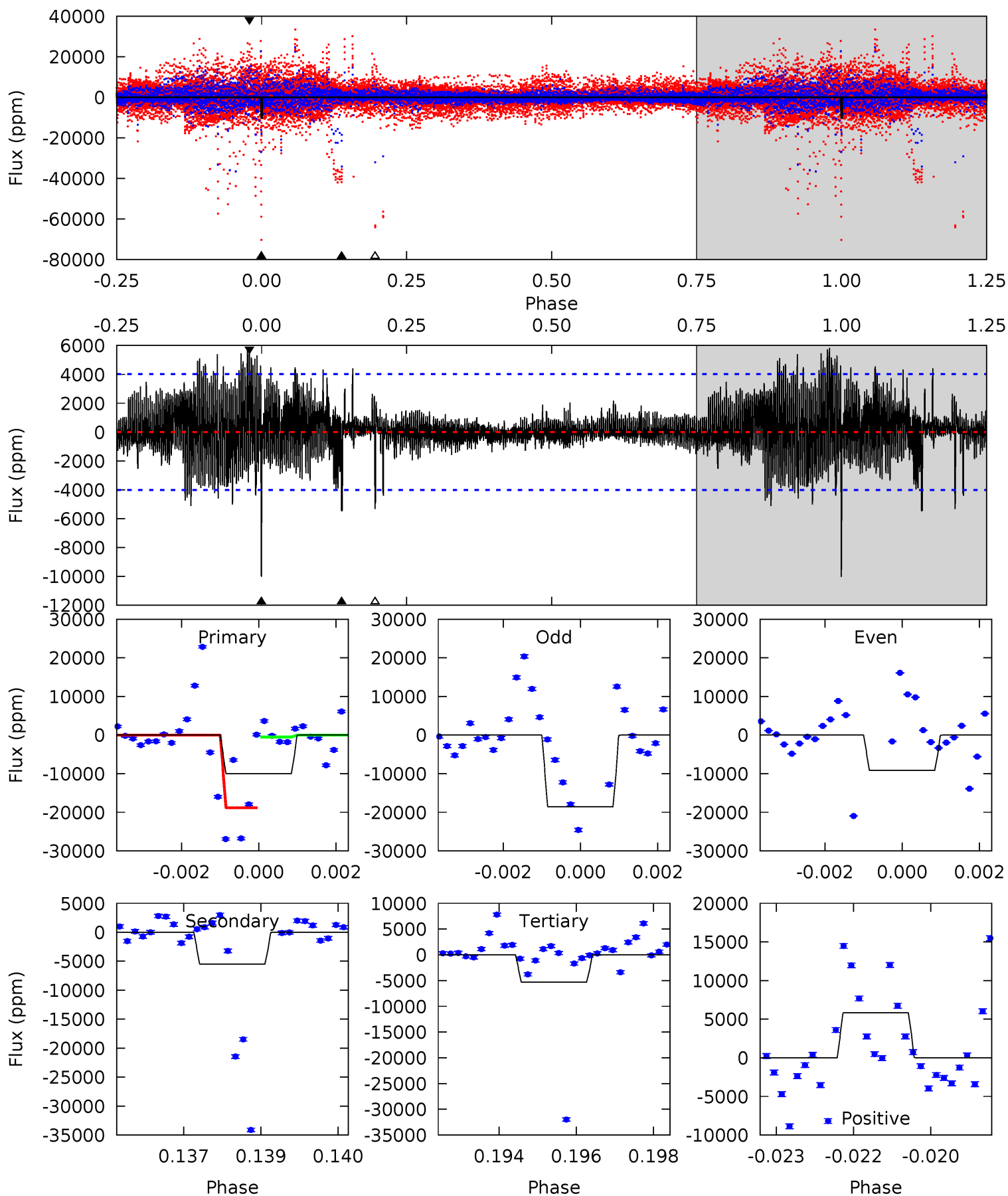




# Alt Model-Shift Uniqueness Test

008812627-04, P = 285.722469 Days, E = 196.851061 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
13.3	7.30	7.08	7.74	5.35	3.12	1.69	6.25	5.59	0.22	-0.45	5.98	-1.55	0.37	12.3



### Stellar Parameters For KIC 008812627

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5232^{+156}_{-156}$	$4.519^{+0.091}_{-0.156}$	$-0.320^{+0.300}_{-0.300}$	$0.777^{+0.123}_{-0.092}$	$0.727^{+0.115}_{-0.054}$	$2.186^{+0.817}_{-0.777}$
	+3%/-3%	+2%/-3%	+94%/-94%	+16%/-12%	+16%/-7%	+37%/-36%
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 008812627-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-2482 \pm 389$	$3.78^{+2.34}_{-2.13}$	$328^{+18}_{-16}$	$5563^{+3141}_{-1023}$	$54944^{+241529}_{-33268}$
Alt.	$-5485 \pm 752$	$11.49^{+2.53}_{-2.44}$	$330^{+18}_{-17}$	$4155^{+396}_{-295}$	$13576^{+8424}_{-4987}$

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

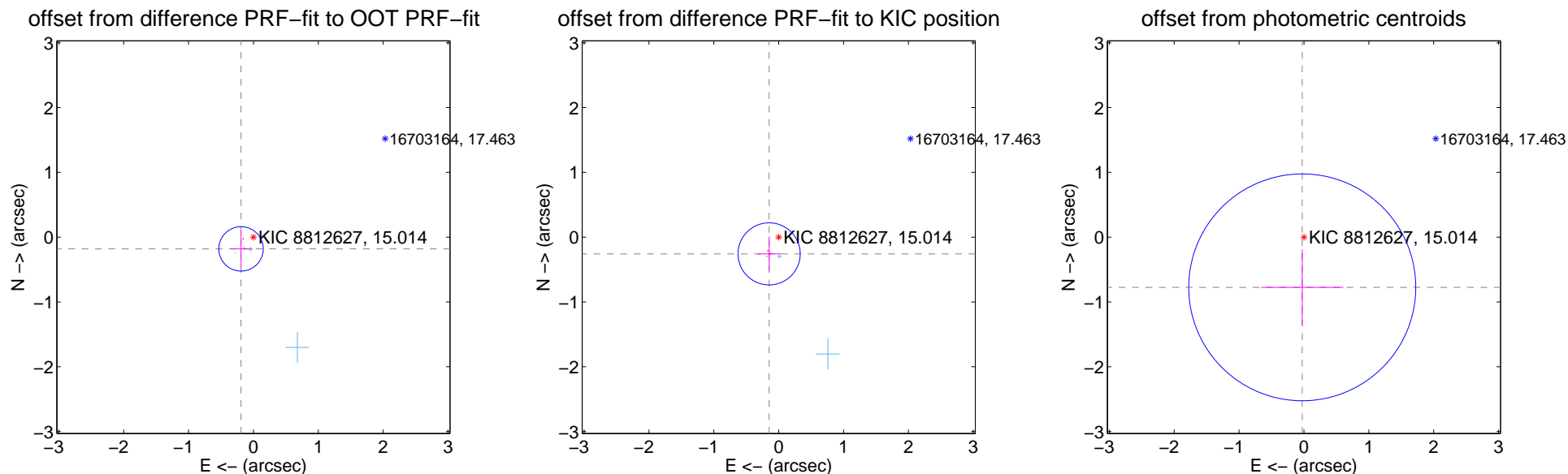
## DV Centroid Data

Supplemental centroid analysis for 008812627-04. Kepler magnitude: 15.01. Transit SNR 3.29

There are 3 quarters with good PRF difference image offsets

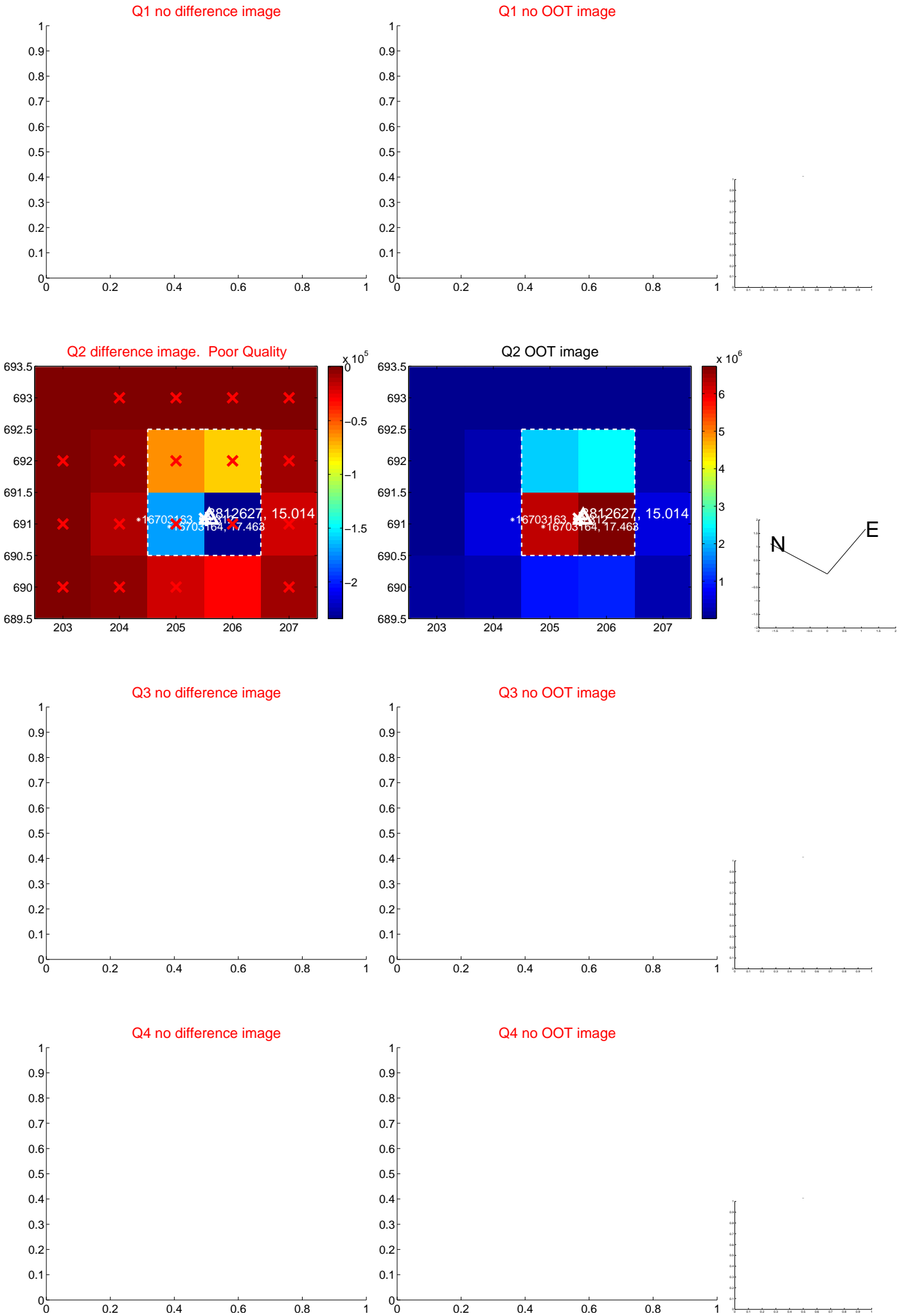
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.263 \pm 0.114$	2.31	$0.191 \pm 0.163$	$-0.181 \pm 0.283$
PRF-fit source offset from KIC position	$0.297 \pm 0.160$	1.86	$0.148 \pm 0.177$	$-0.258 \pm 0.266$
photometric centroid source offset	$0.78 \pm 0.58$	1.33	$0.03 \pm 0.63$	$-0.77 \pm 0.58$

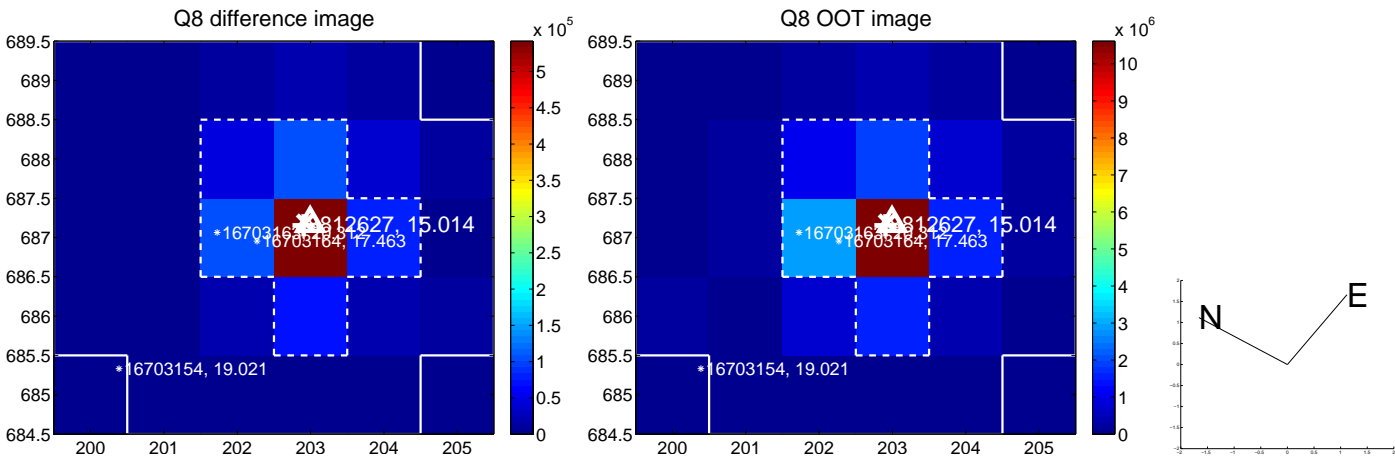
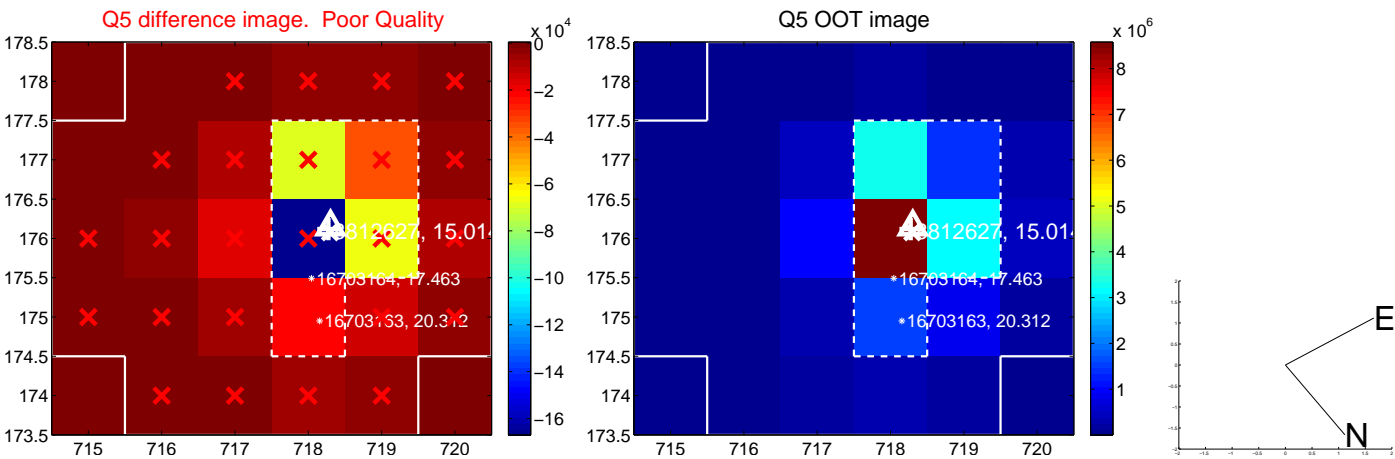


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

Q9 no difference image



Q9 no OOT image



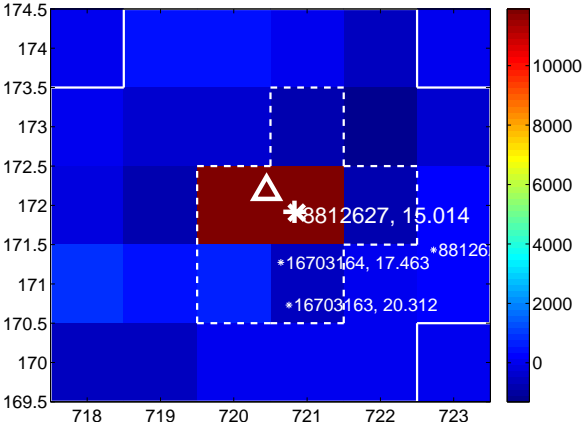
Q10 no difference image



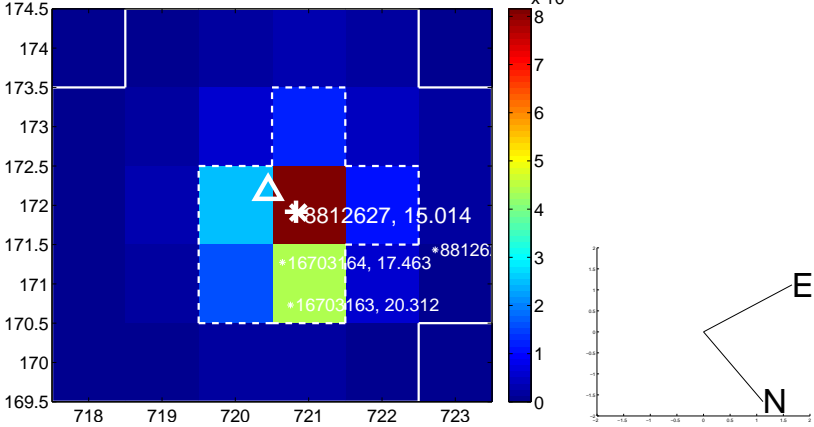
Q10 no OOT image



Q11 difference image



Q11 OOT image



Q12 no difference image

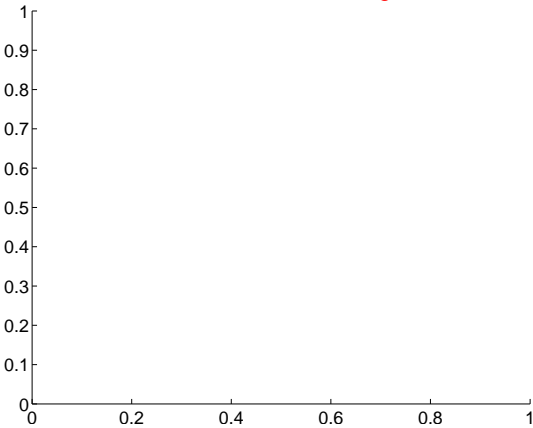


Q12 no OOT image



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

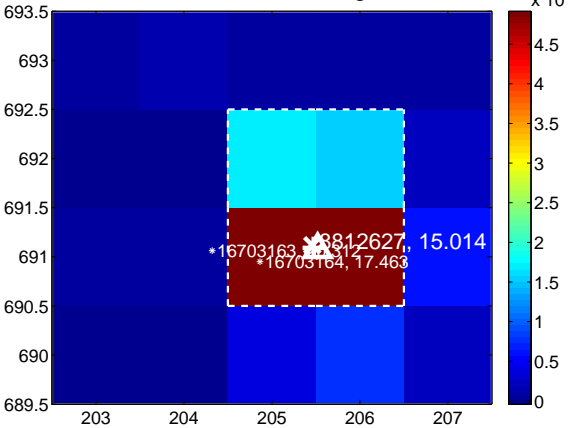
Q13 no difference image



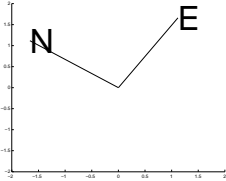
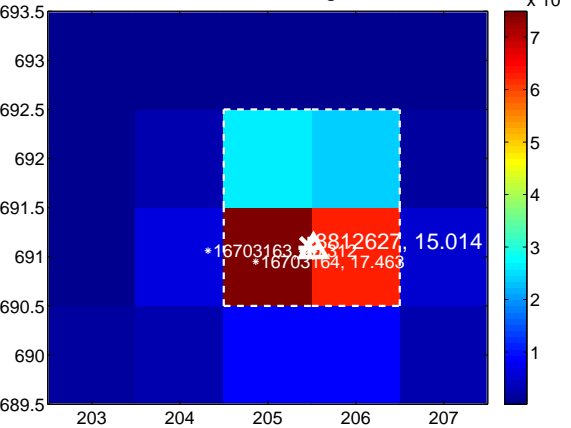
Q13 no OOT image



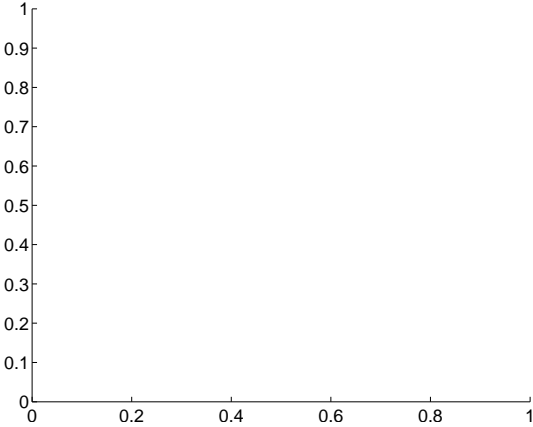
Q14 difference image



Q14 OOT image



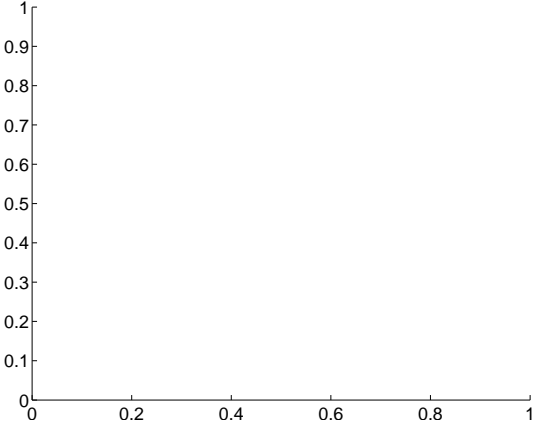
Q15 no difference image



Q15 no OOT image



Q16 no difference image

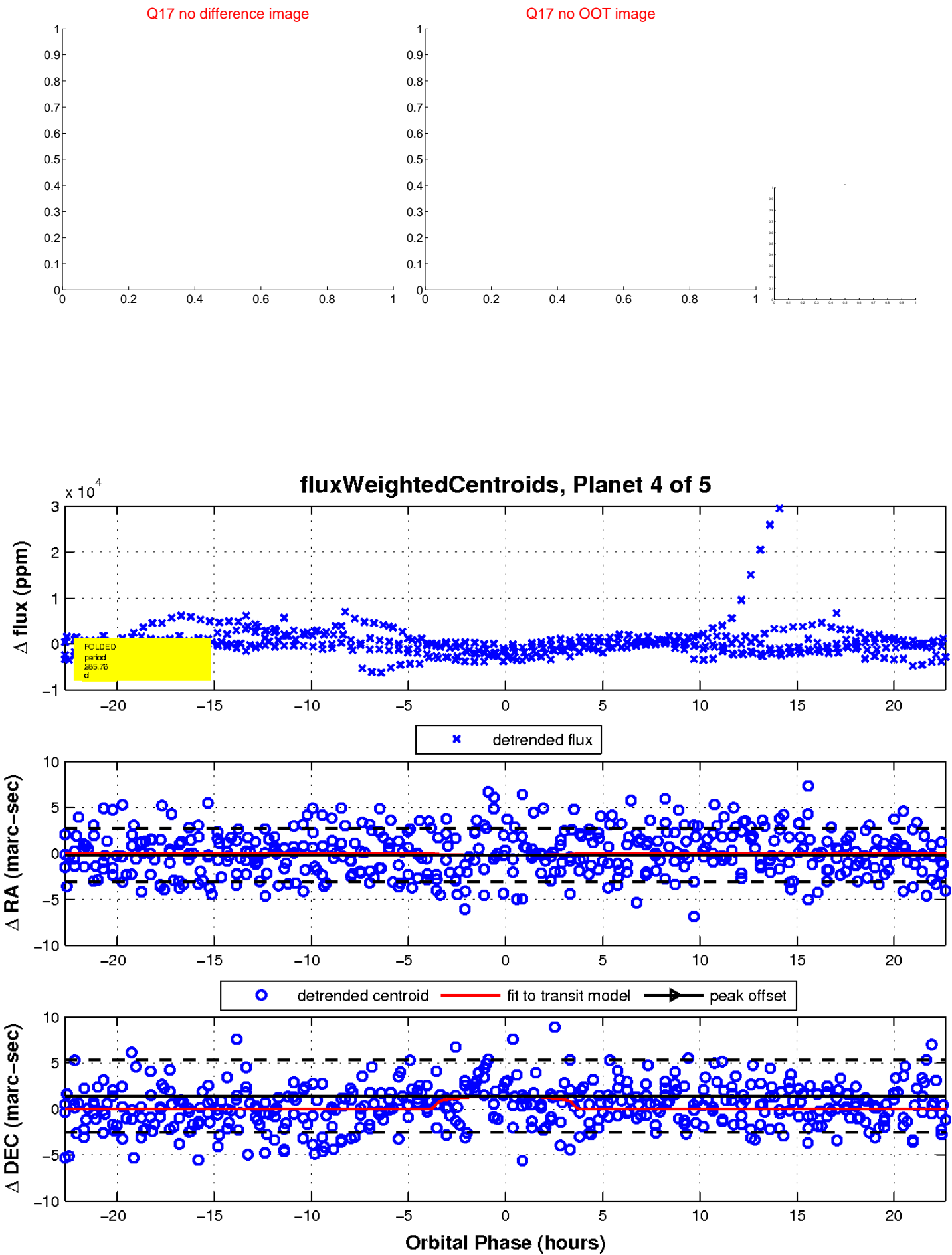


Q16 no OOT image



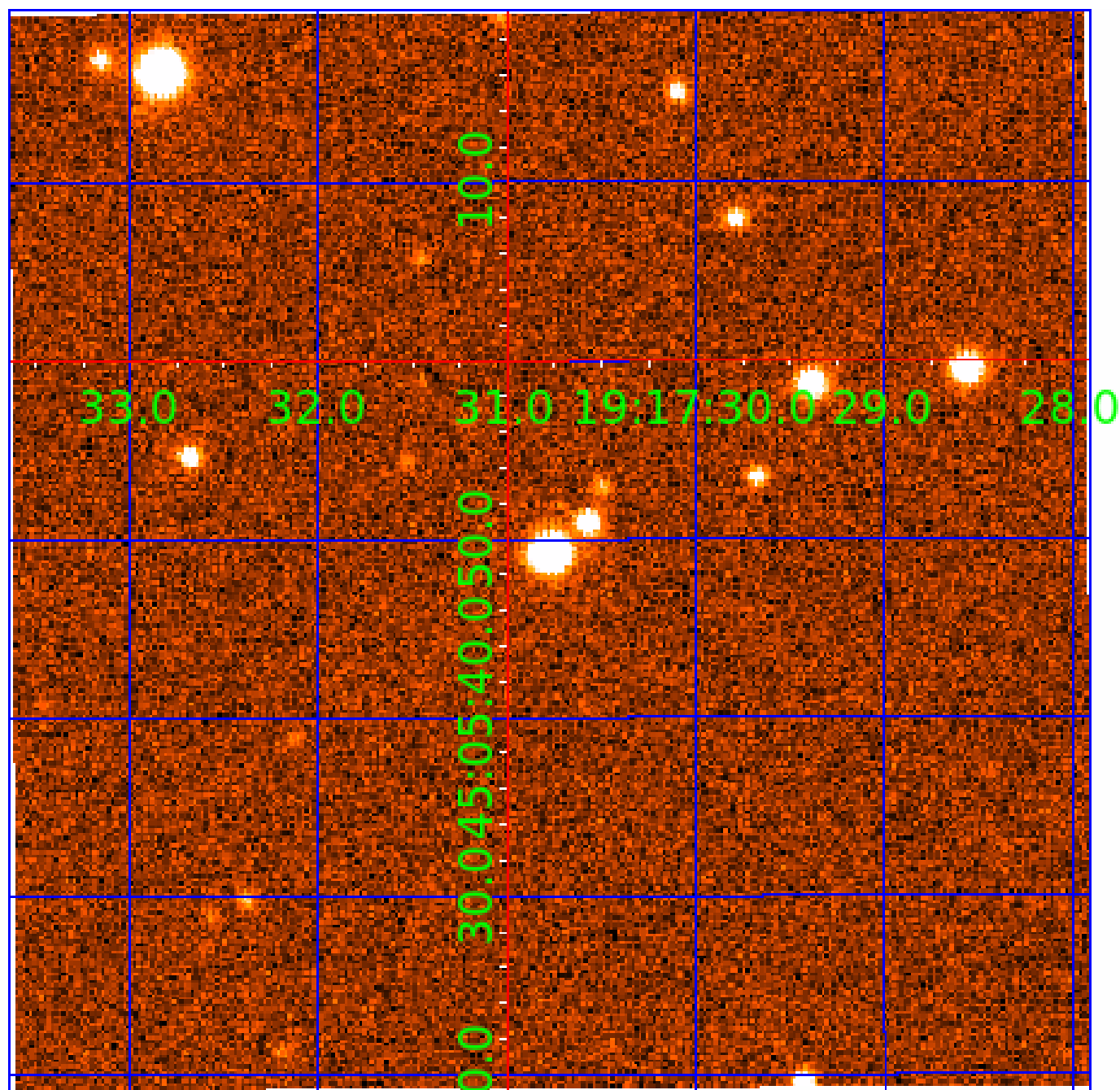


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008812627

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008812627-01	OBS	No	0.972531	132.462301	68.5	2.571	10.0	3.7	0.78	5232	0.68	1357.19
008812627-02	OBS	No	0.973016	131.994877	0.0	1.301	12.8	0.0	0.78	5232	0.01	1356.29
008812627-03	OBS	No	226.433455	315.866659	3770.2	2.685	13.8	7.4	0.78	5232	5.15	0.95
008812627-04	OBS	No	285.761856	196.720707	1698.4	7.597	10.3	3.3	0.78	5232	3.32	0.69
008812627-05	OBS	No	197.245116	292.953741	1349.7	2.500	10.3	-1.0	0.78	5232	2.80	1.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008812627-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008812627-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
008812627-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008812627-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
008812627-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

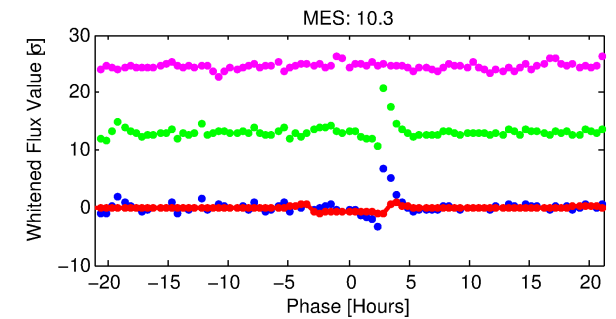
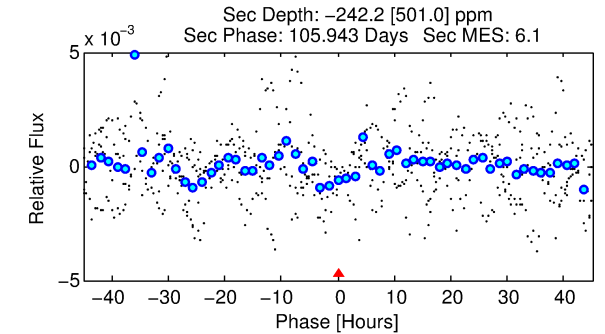
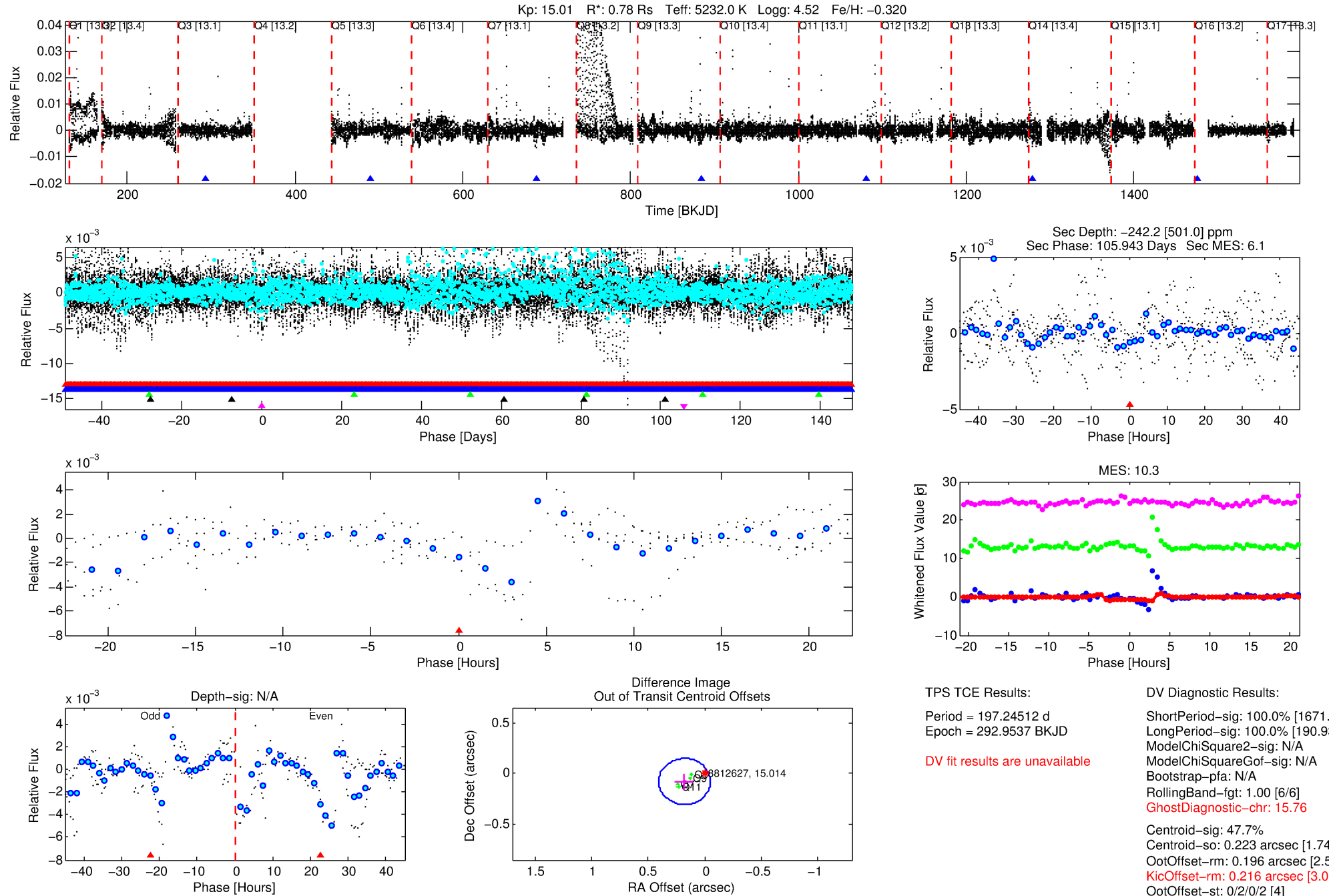
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008812627-05

No Significant Match Found

# DV One-Page Summary

KIC: 8812627 Candidate: 5 of 5 Period: 197.245 d



## TPS TCE Results:

Period = 197.24512 d  
Epoch = 292.9537 BKJD

DV fit results are unavailable

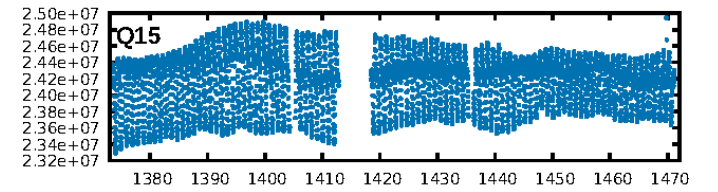
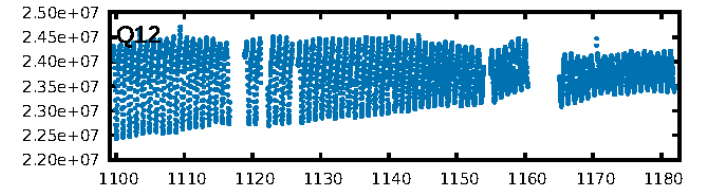
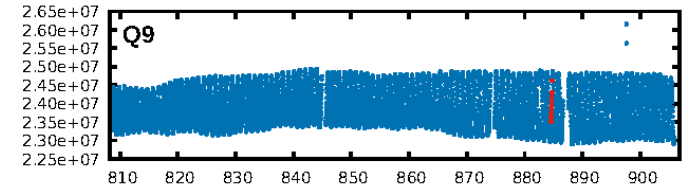
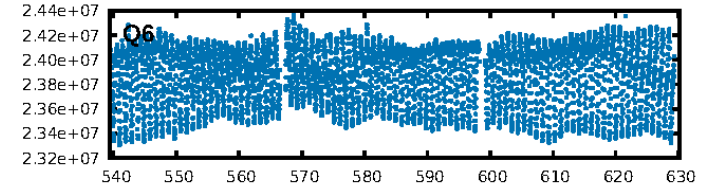
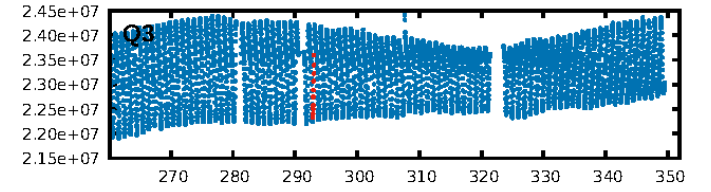
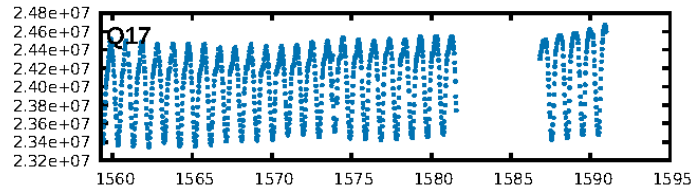
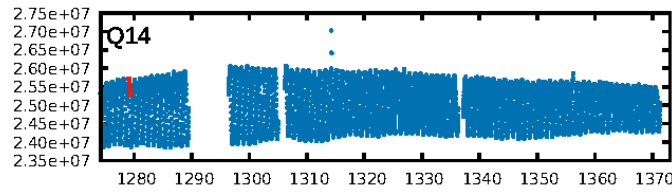
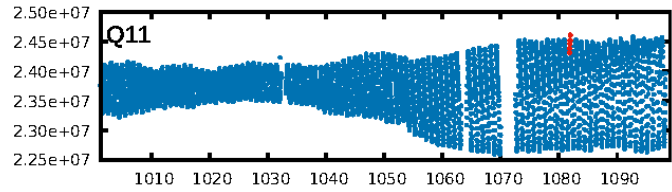
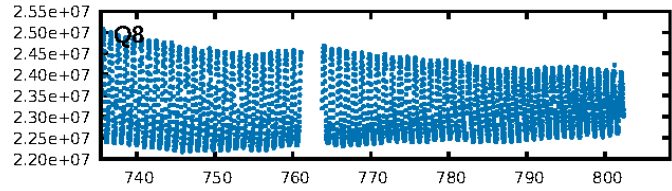
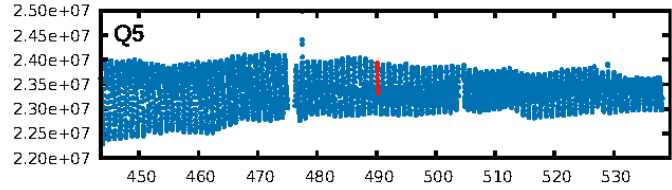
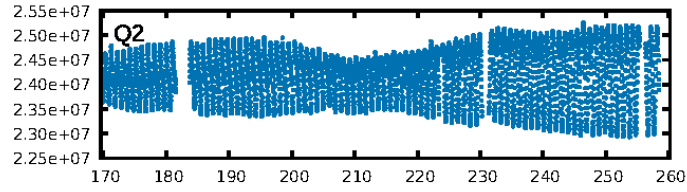
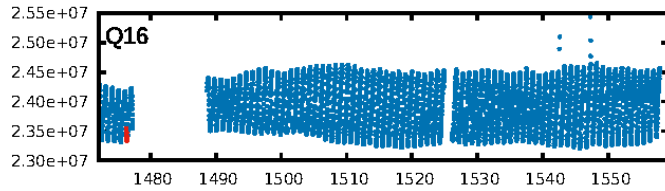
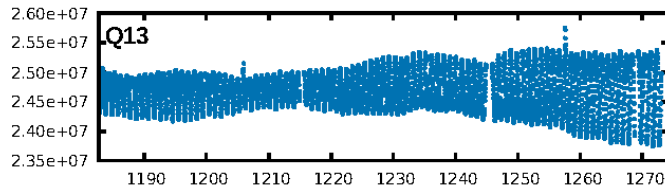
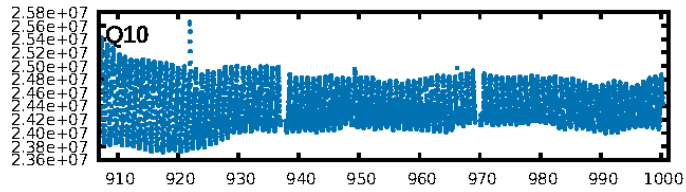
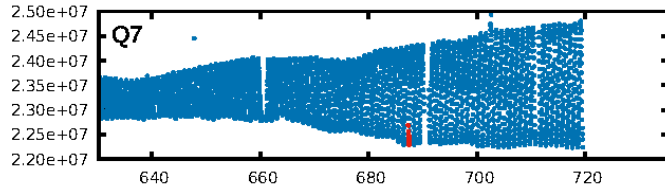
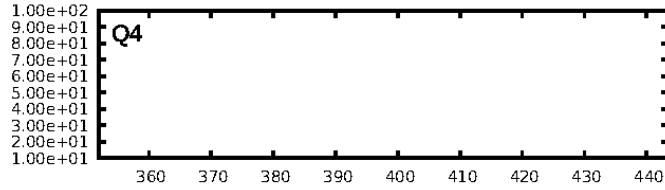
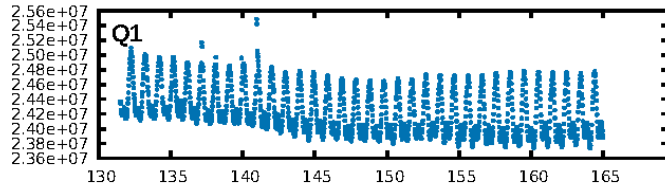
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1671.42σ]  
LongPeriod-sig: 100.0% [190.93σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: 15.76  
Centroid-sig: 47.7%  
Centroid-so: 0.223 arcsec [1.74σ]  
OotOffset-rm: 0.196 arcsec [2.59σ]  
OotOffset-st: 0/2/0/2 [4]  
KicOffset-rm: 0.216 arcsec [3.06σ]  
KicOffset-st: 0/2/0/2 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 0.00 [0/4]

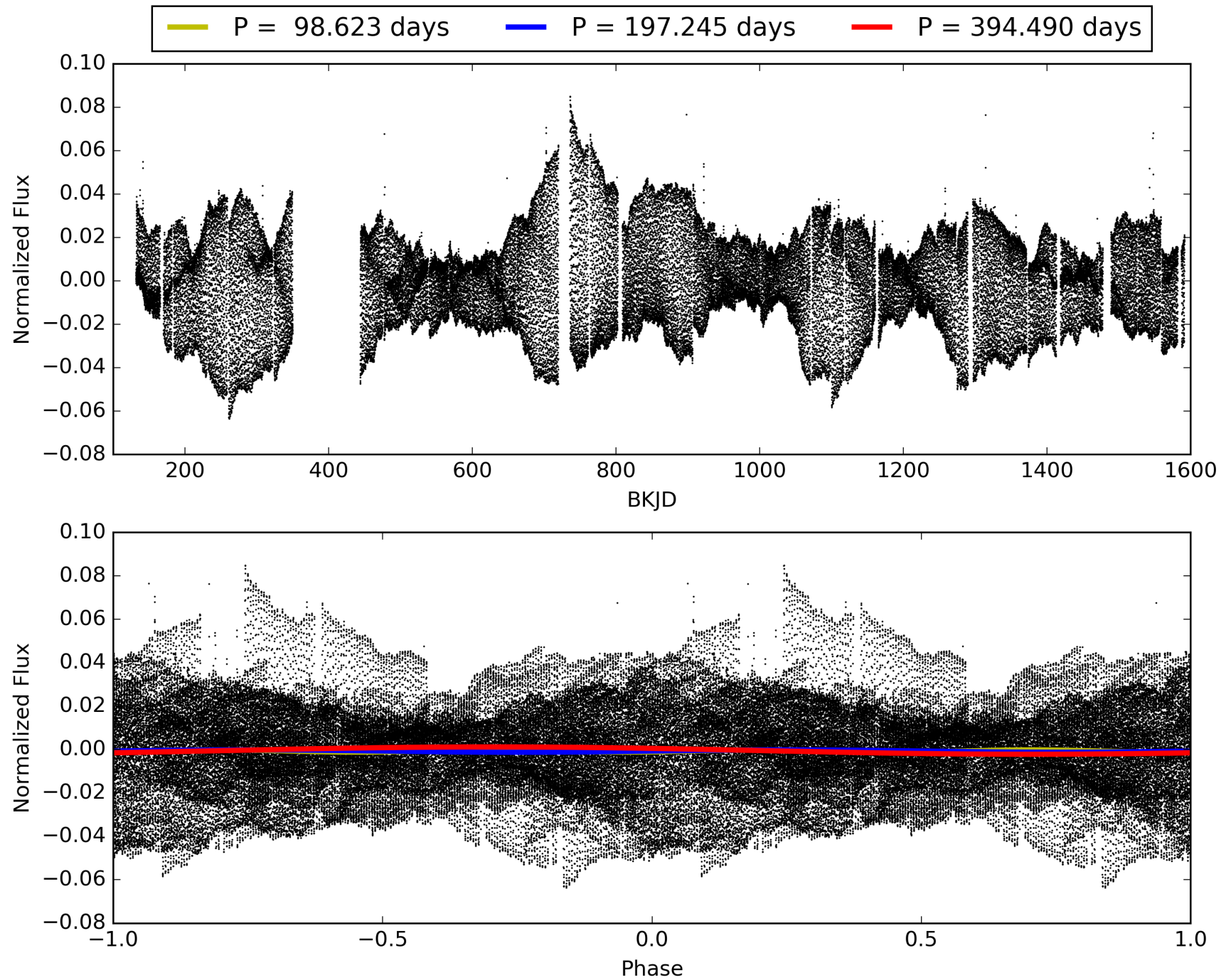
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:46:31 Z

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

# TCE 008812627-05, PDC Light Curves



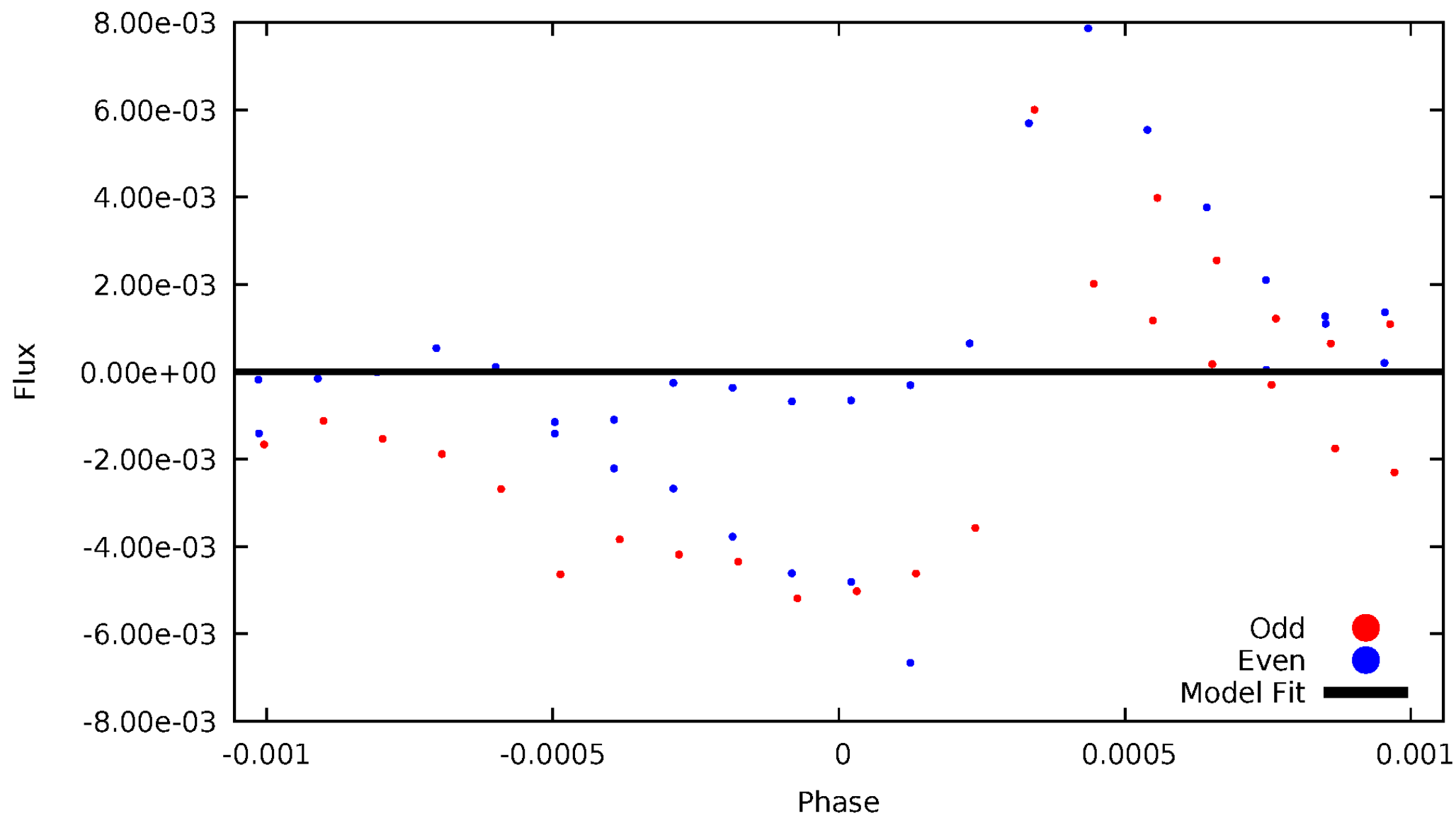
TCE 008812627-05





# DV Odd/Even

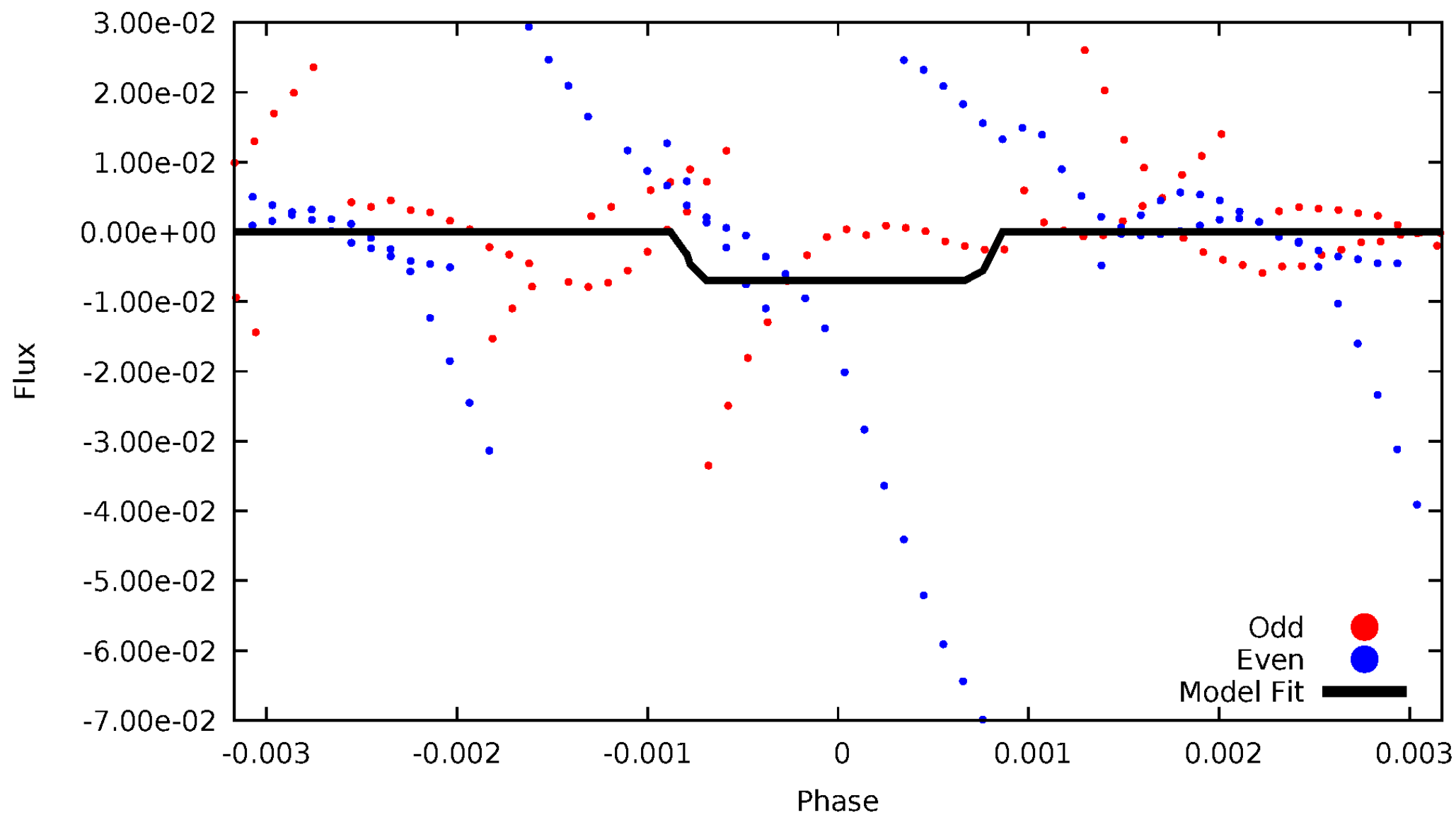
TCE 008812627-05



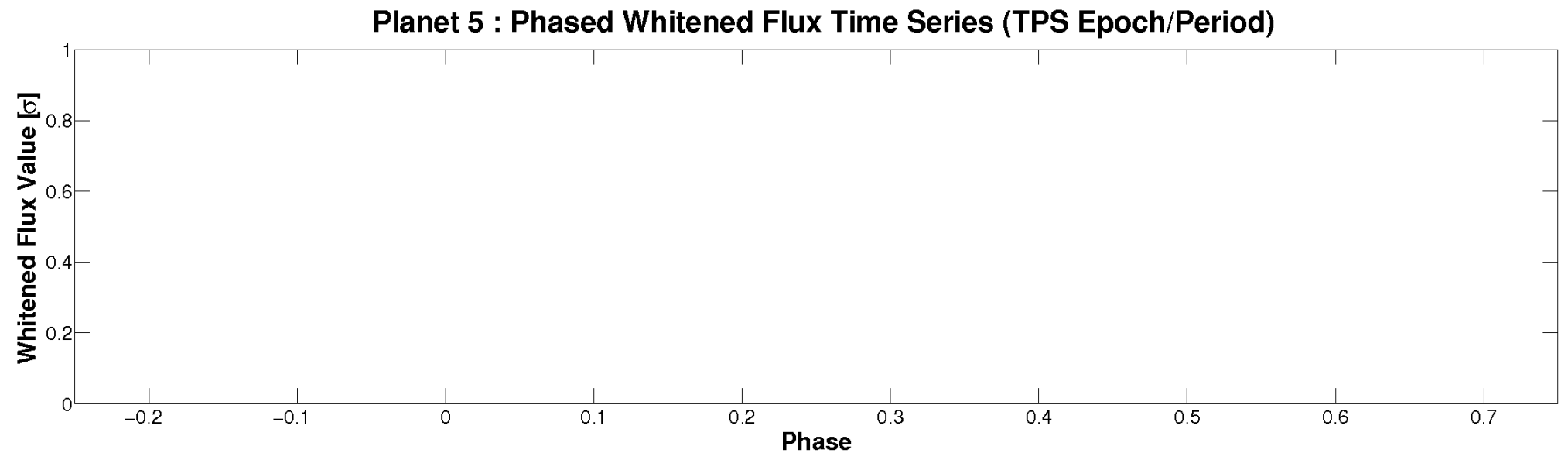
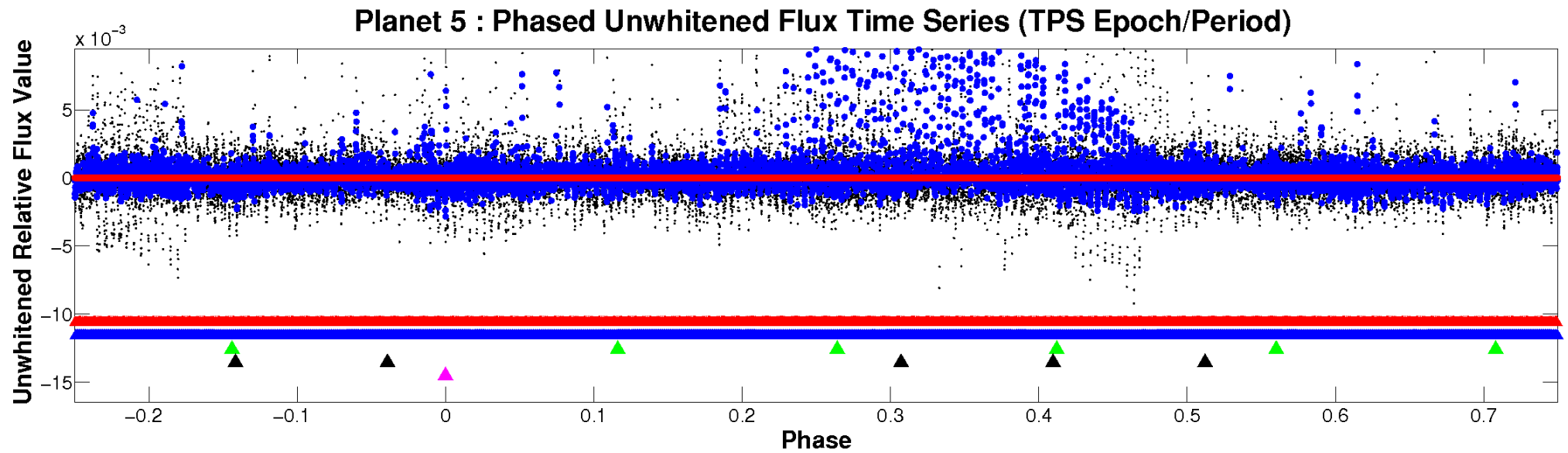


# ALT Odd/Even

TCE 008812627-05

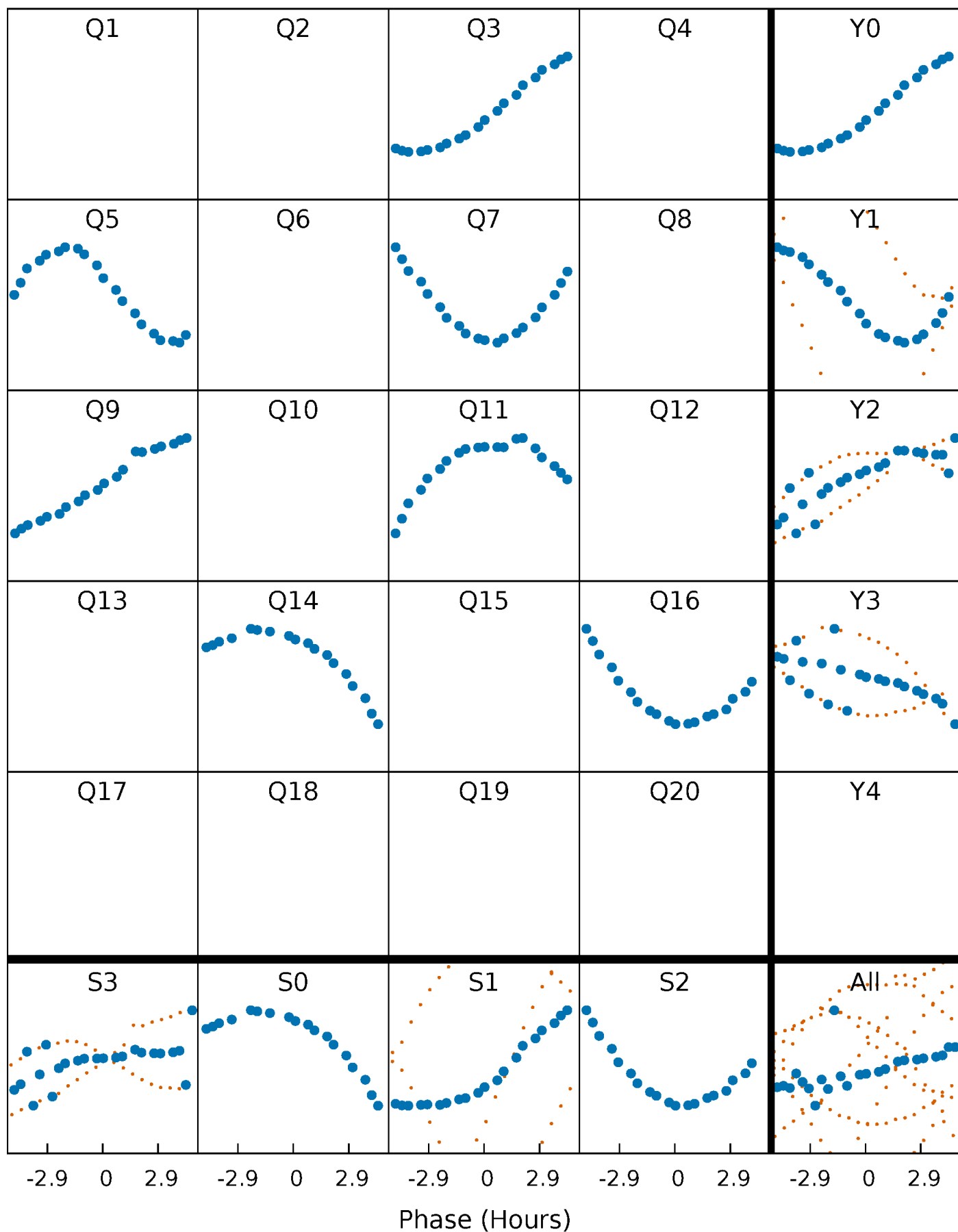


# Non-Whitened Vs. Whitened Light Curve



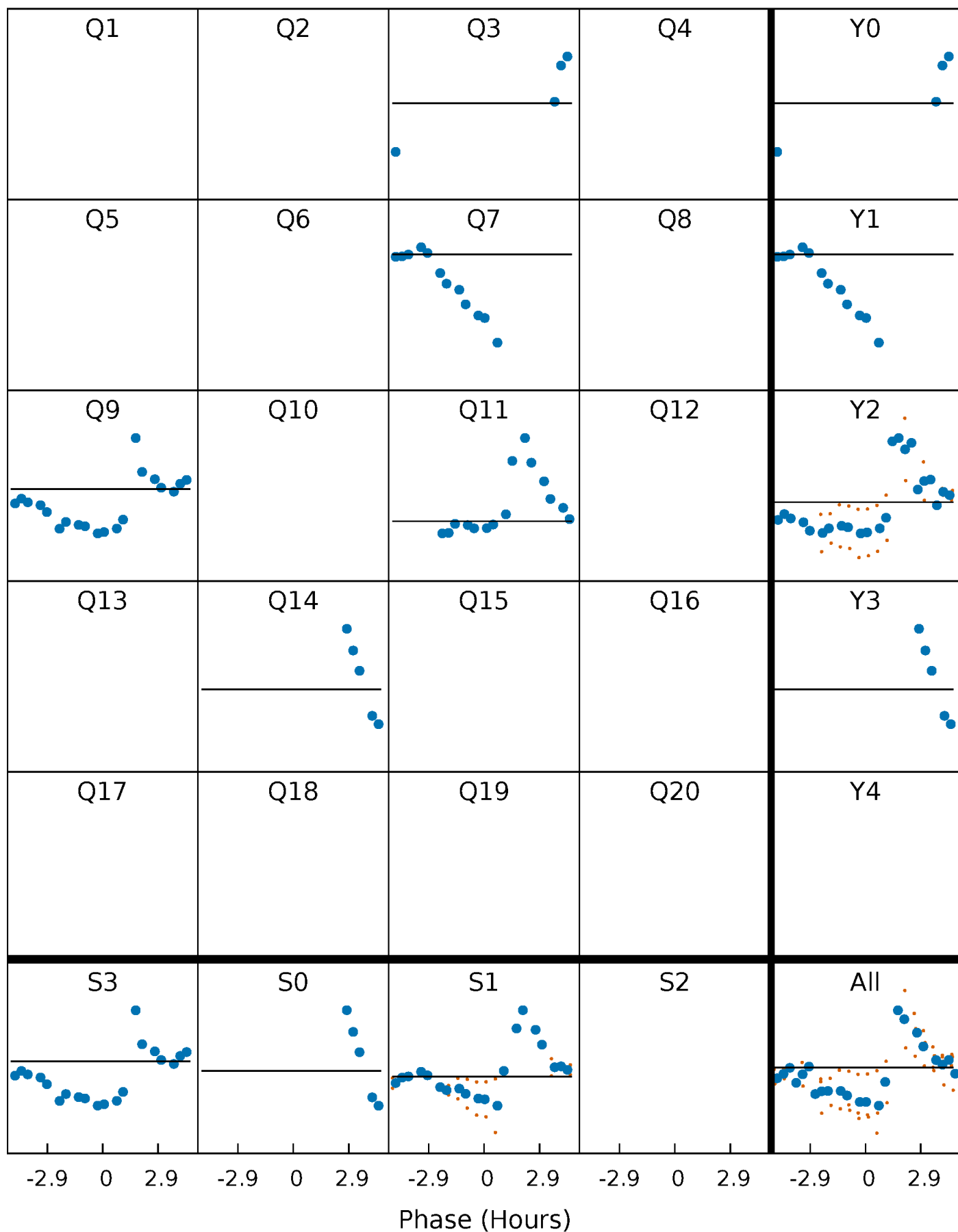
# PDC Quarter-Phased Transit Curves

TCE 008812627-05     $P=197.245116$  Days     $T_0=292.953741$  (BKJD)



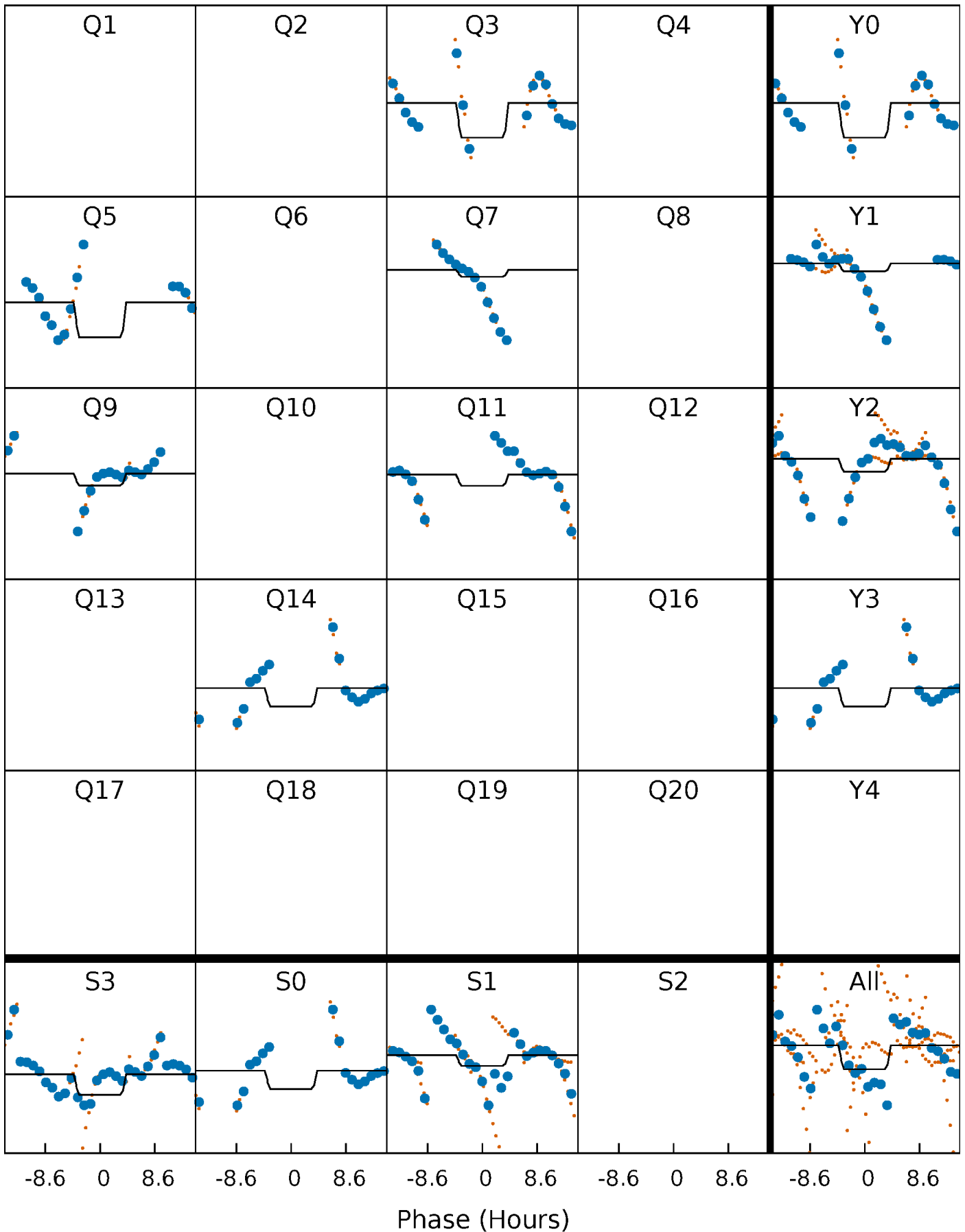
# DV Quarter-Phased Transit Curves

TCE 008812627-05     $P=197.245116$  Days     $T_0=292.953741$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

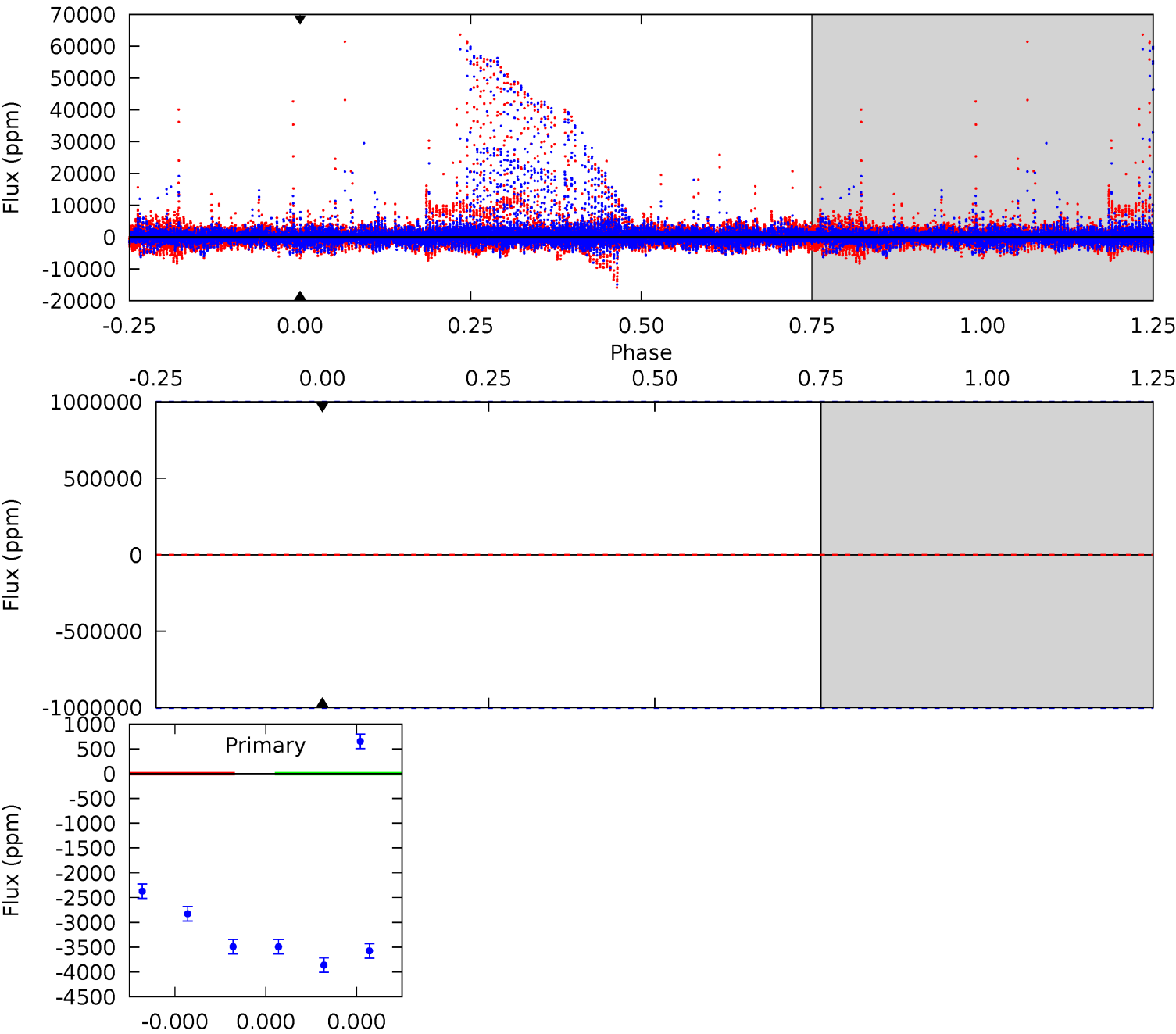
TCE 008812627-05     $P=197.245116$  Days     $T_0=292.828517$  (BKJD)



# DV Model-Shift Uniqueness Test

008812627-05, P = 197.245116 Days, E = 95.708625 Days

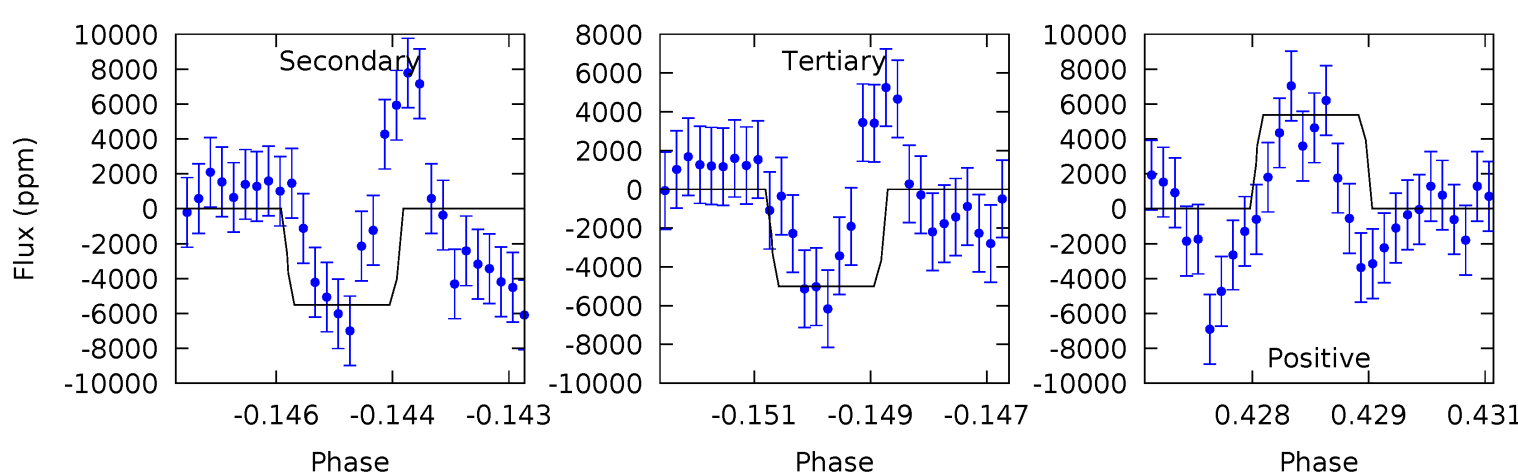
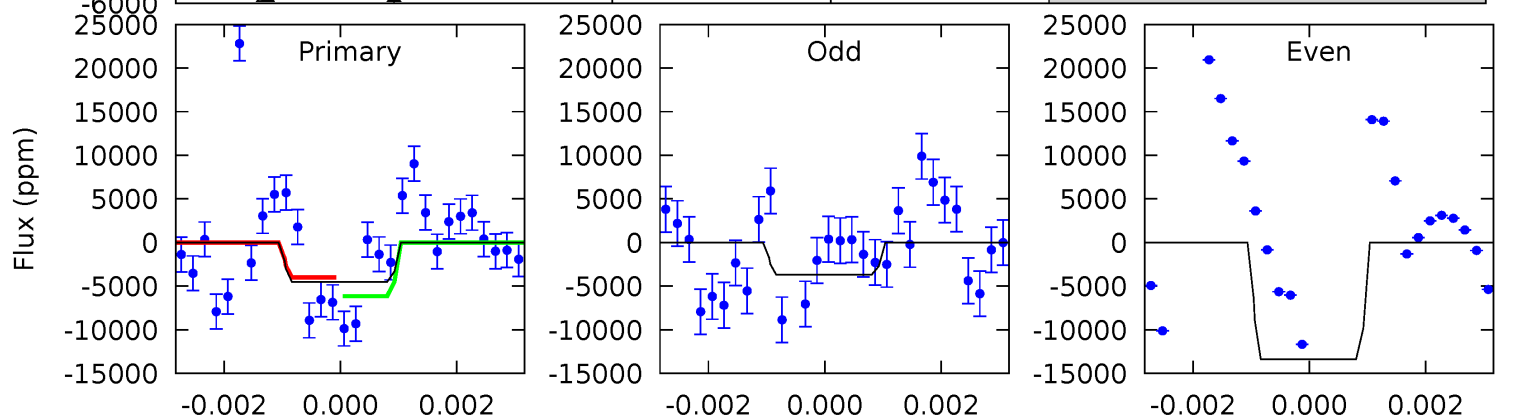
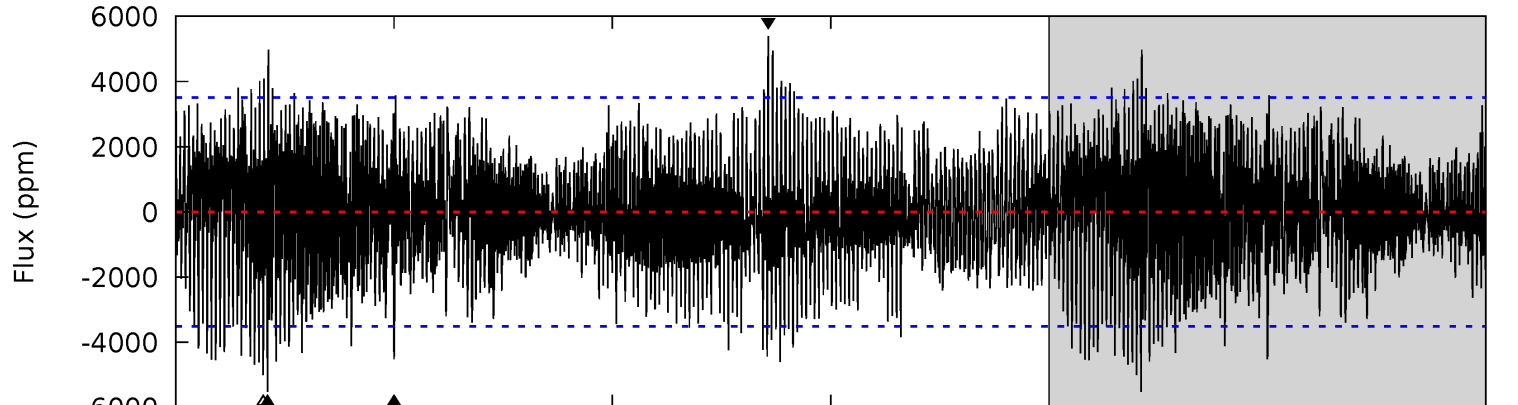
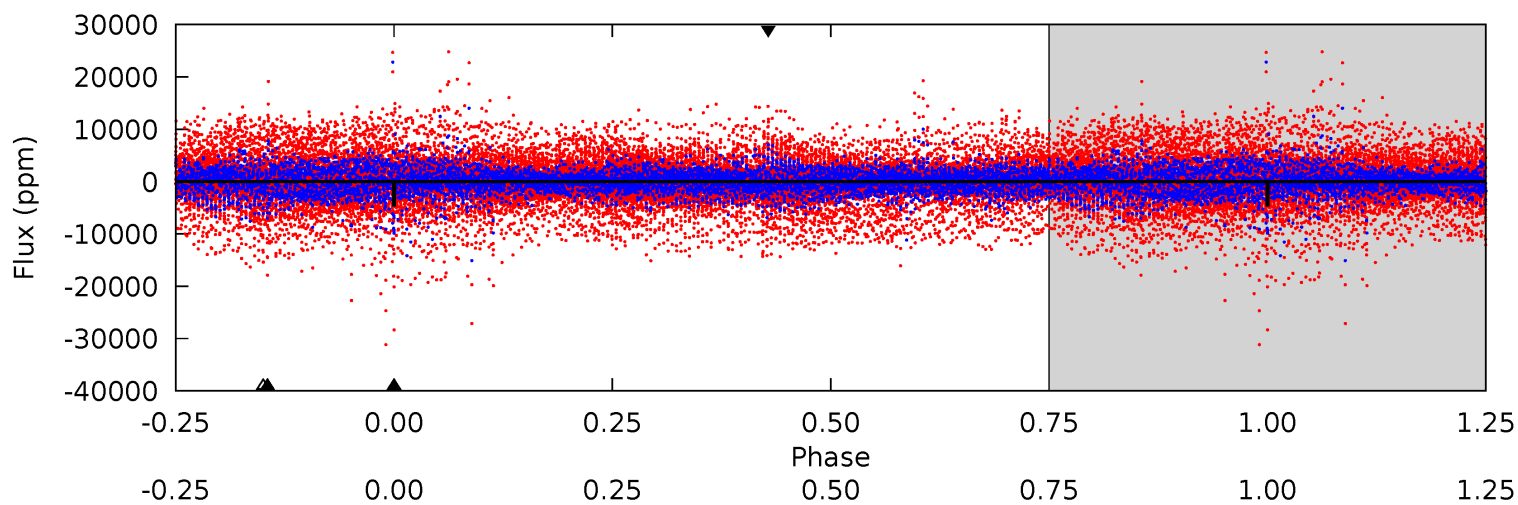
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008812627-05, P = 197.245116 Days, E = 95.583401 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
6.90	8.43	7.63	8.22	5.36	3.15	2.29	-0.73	-1.32	0.79	0.20	6.20	0.35	0.49	1.52





### Stellar Parameters For KIC 008812627

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5232^{+156}_{-156}$	$4.519^{+0.091}_{-0.156}$	$-0.320^{+0.300}_{-0.300}$	$0.777^{+0.123}_{-0.092}$	$0.727^{+0.115}_{-0.054}$	$2.186^{+0.817}_{-0.777}$
	+3%/-3%	+2%/-3%	+94%/-94%	+16%/-12%	+16%/-7%	+37%/-36%
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 008812627-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$7.04^{+6.33}_{-4.78}$	$371^{+19}_{-17}$	$3944^{+9905}_{-20463}$	$5789^{+579587}_{-770024}$
Alt.	$-5518 \pm 655$	$10.20^{+7.49}_{-6.68}$	$372^{+20}_{-18}$	$4377^{+2715}_{-797}$	$10271^{+78656}_{-6809}$

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

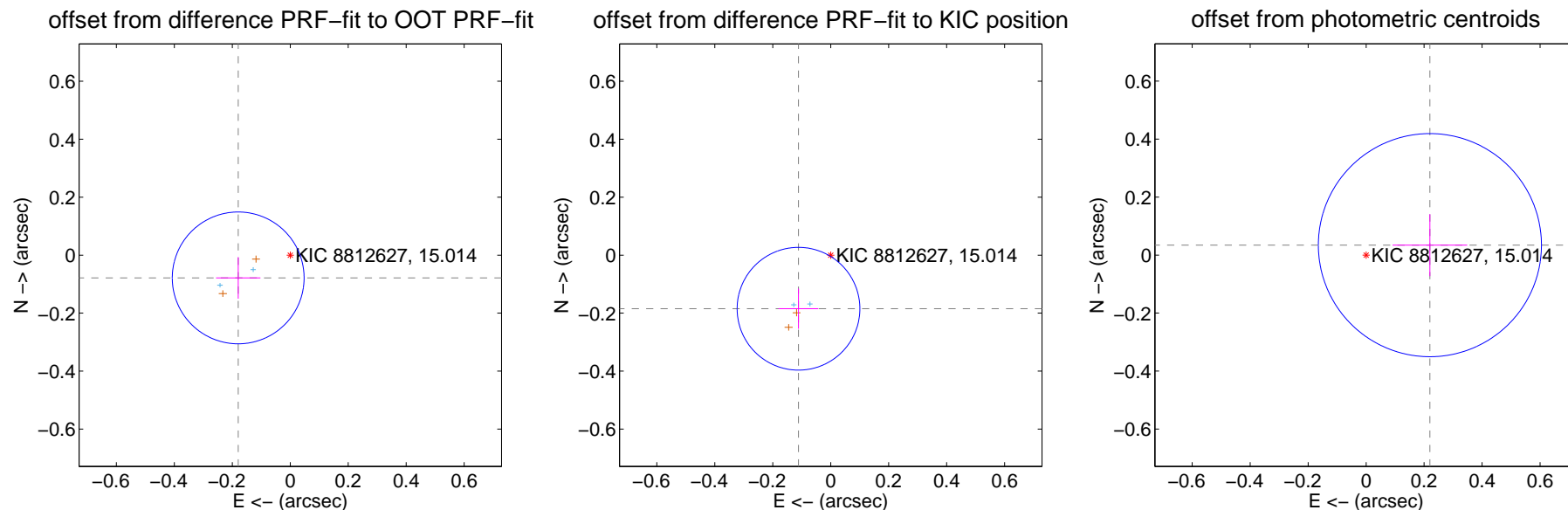
## DV Centroid Data

Supplemental centroid analysis for 008812627-05. Kepler magnitude: 15.01. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.196 \pm 0.076$	2.59	$0.180 \pm 0.077$	$-0.078 \pm 0.072$
PRF-fit source offset from KIC position	<b><math>0.216 \pm 0.071</math></b>	<b>3.06</b>	$0.111 \pm 0.069$	$-0.185 \pm 0.069$
photometric centroid source offset	$0.22 \pm 0.13$	1.74	$-0.22 \pm 0.13$	$0.03 \pm 0.11$

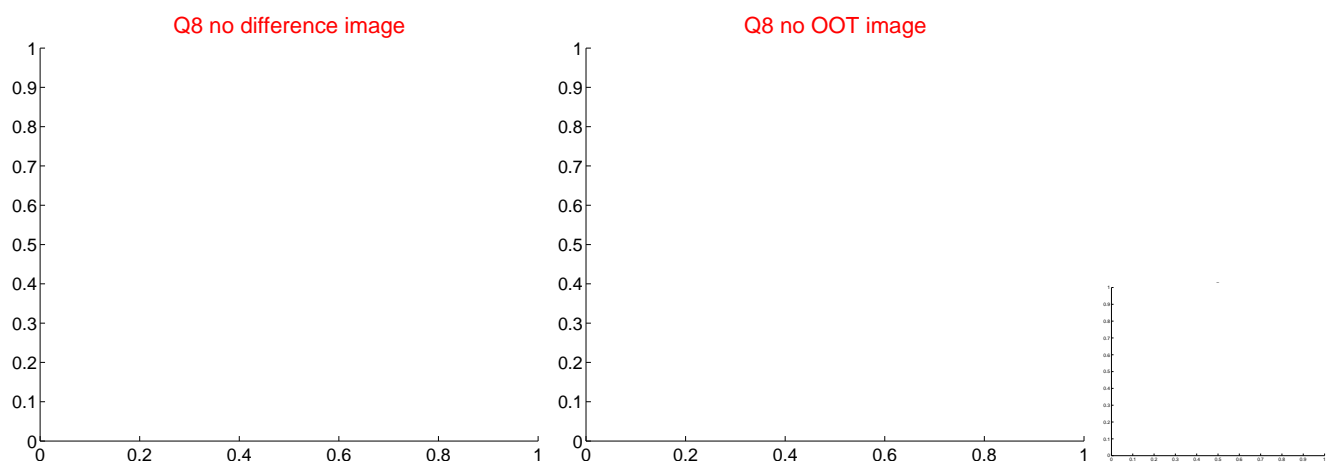
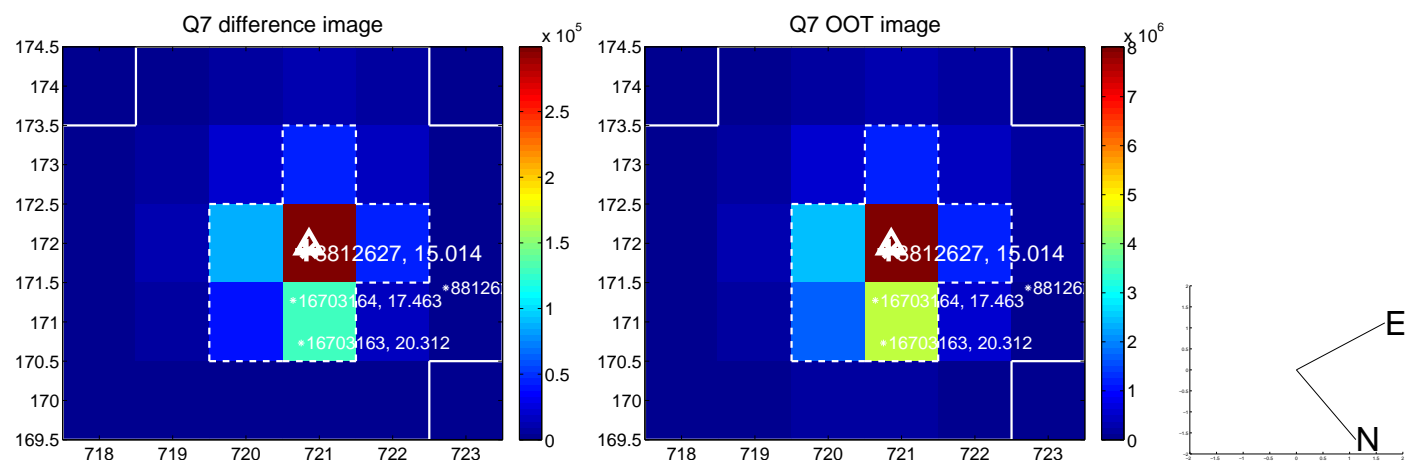
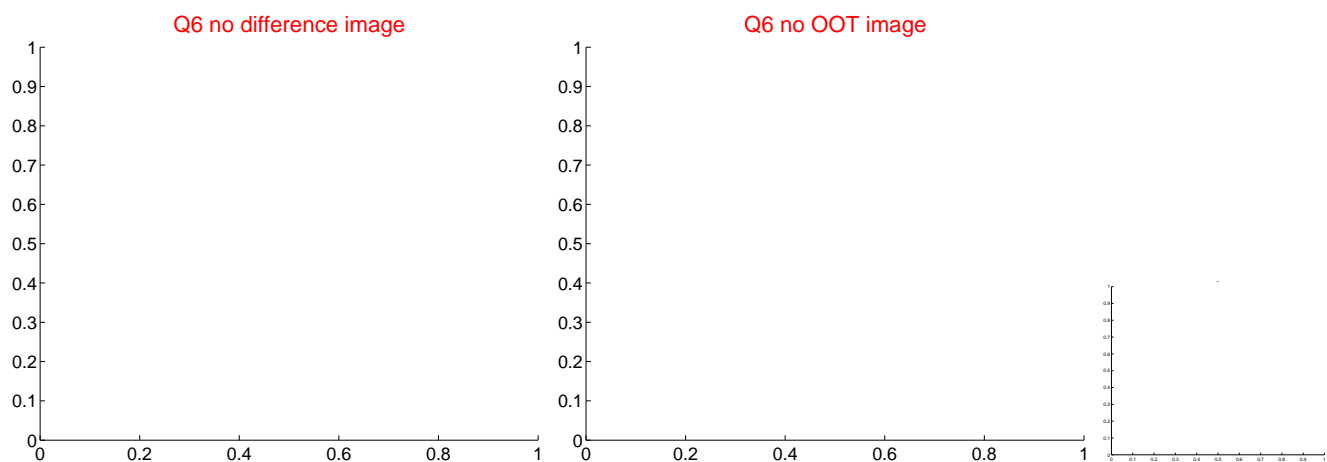
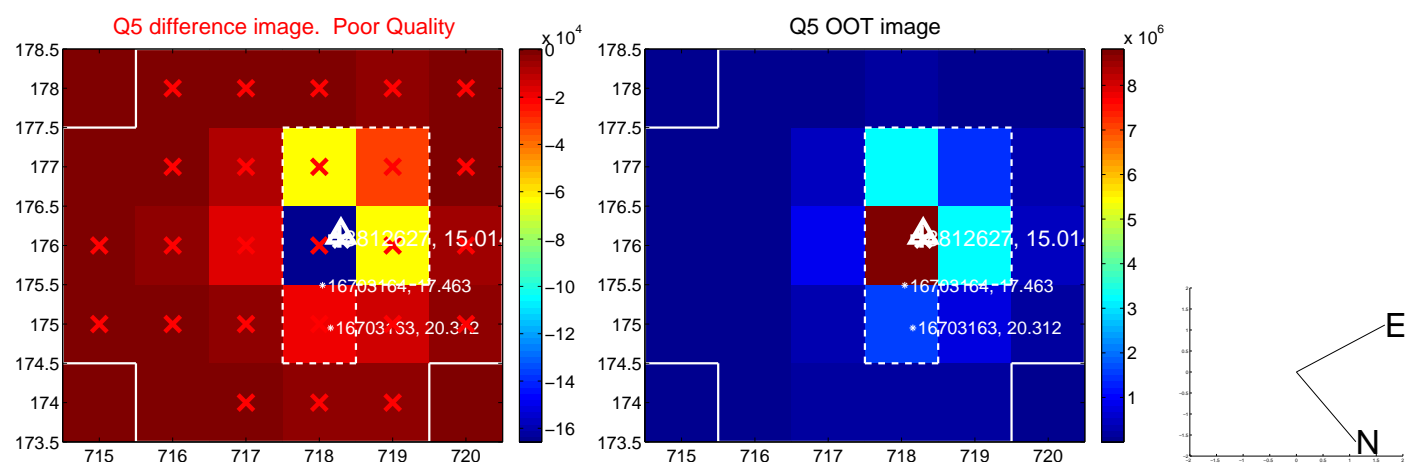


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

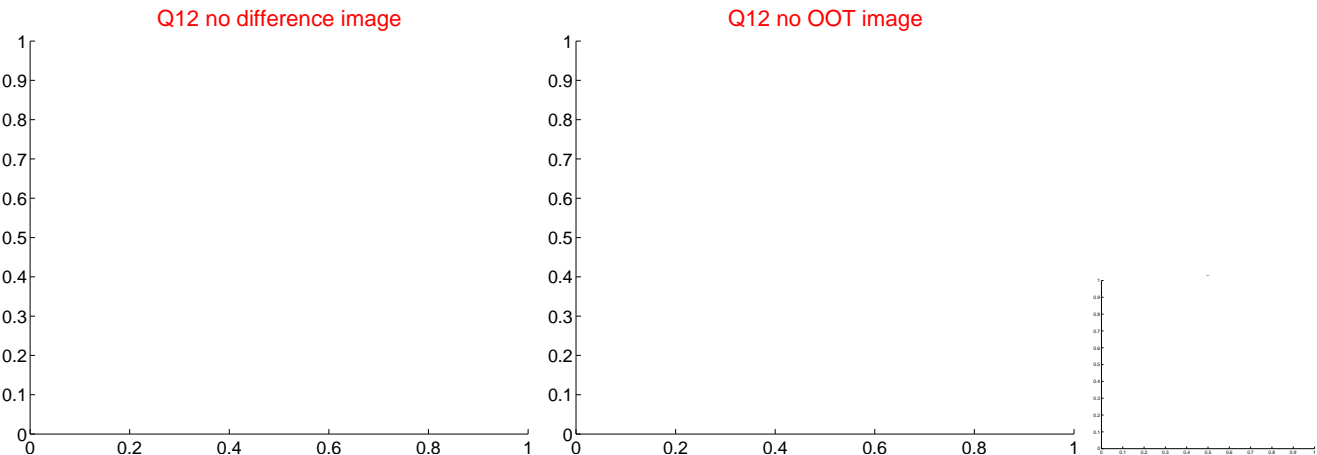
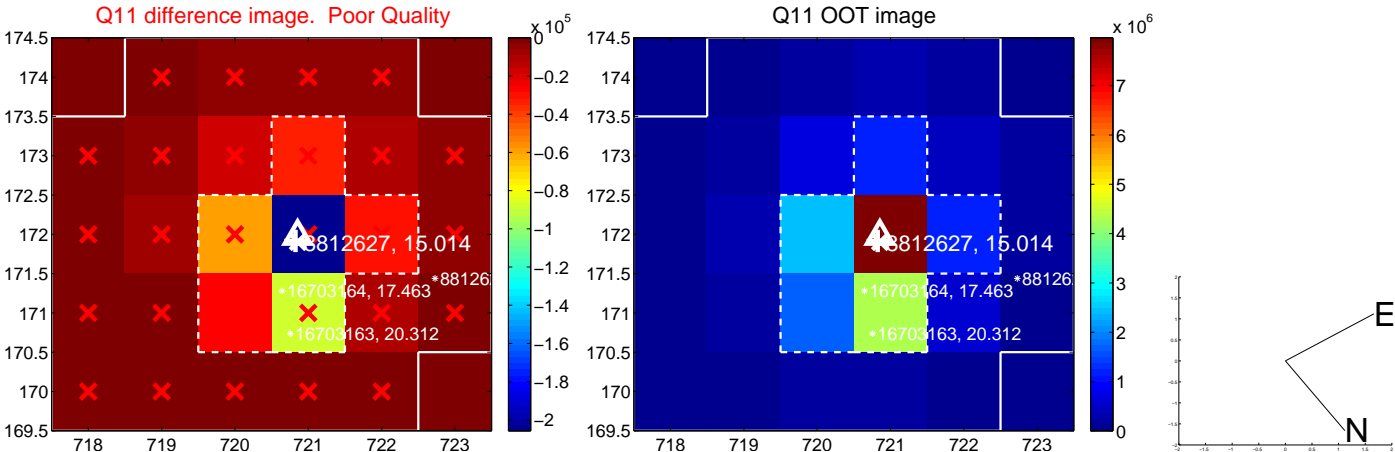
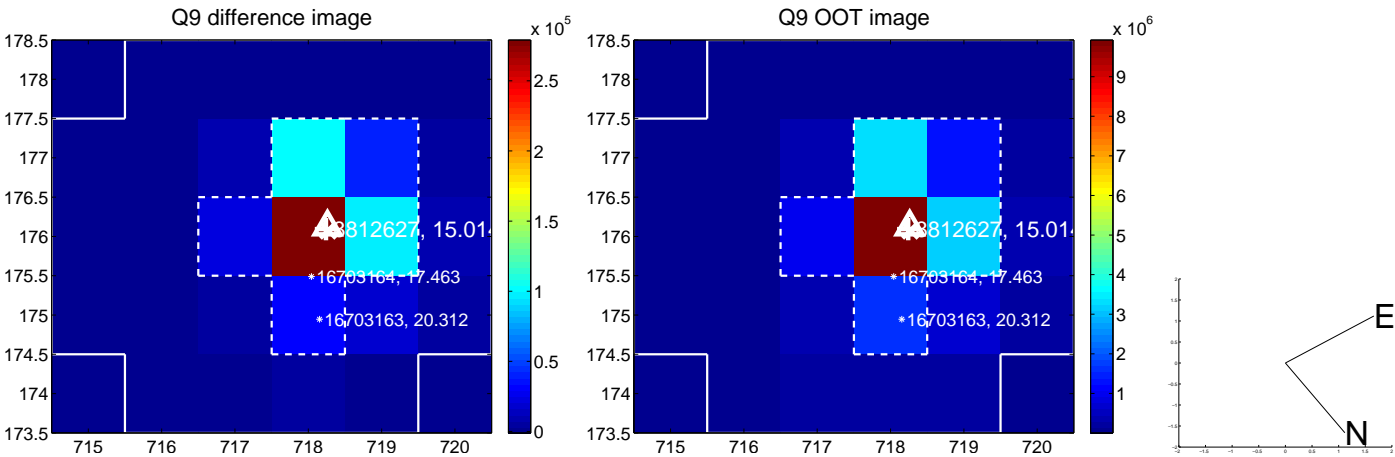
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



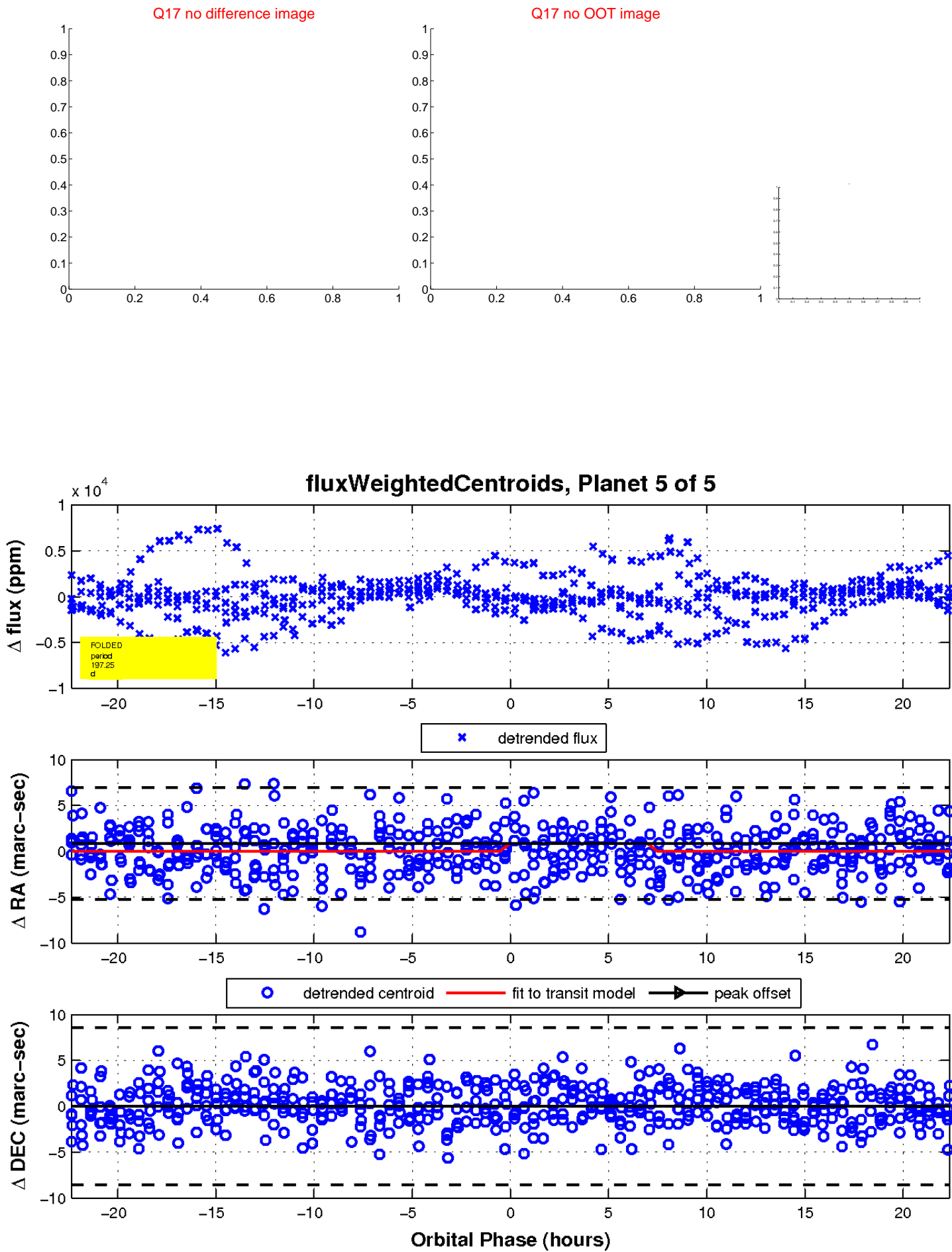
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

