

# KIC 008018827

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008018827-01	OBS	No	0.795622	131.665522	0.0	4.371	1747.2	0.0	4.01	9416	0.00	206748.11
008018827-02	OBS	No	0.795784	132.070369	541.8	1.500	726.1	-1.0	4.01	9416	9.57	206692.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008018827-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
008018827-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

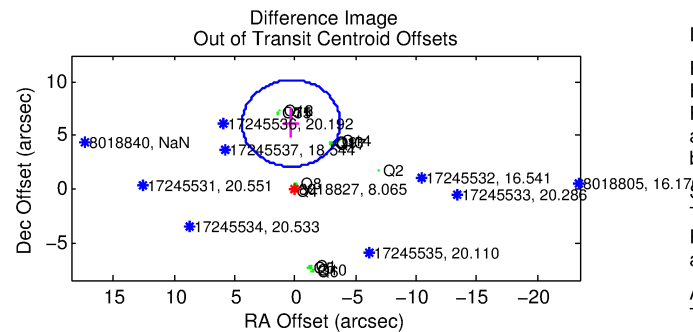
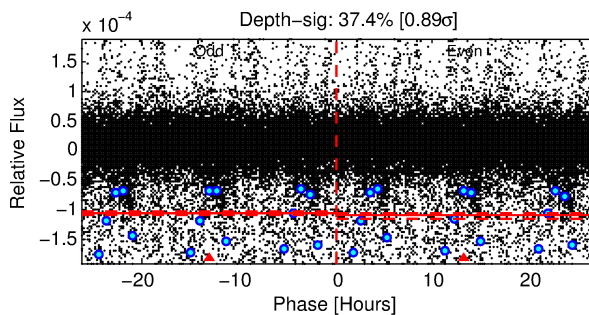
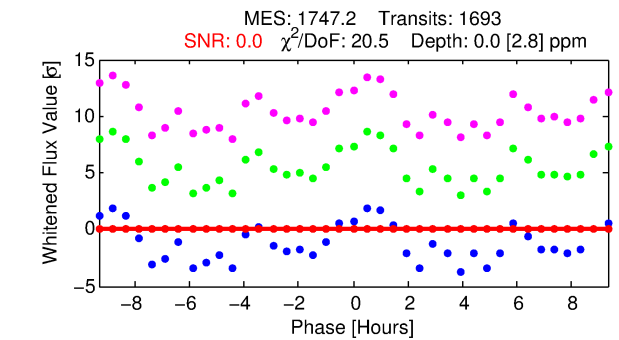
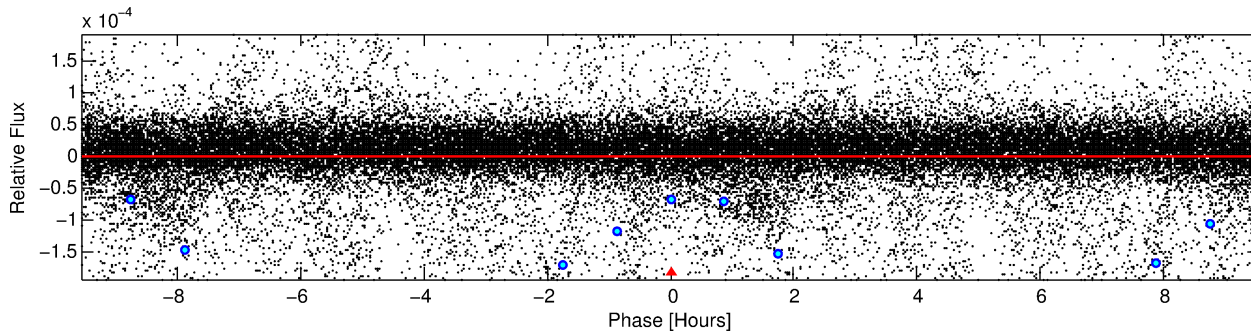
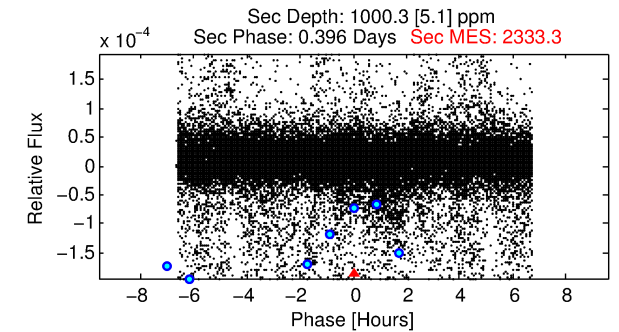
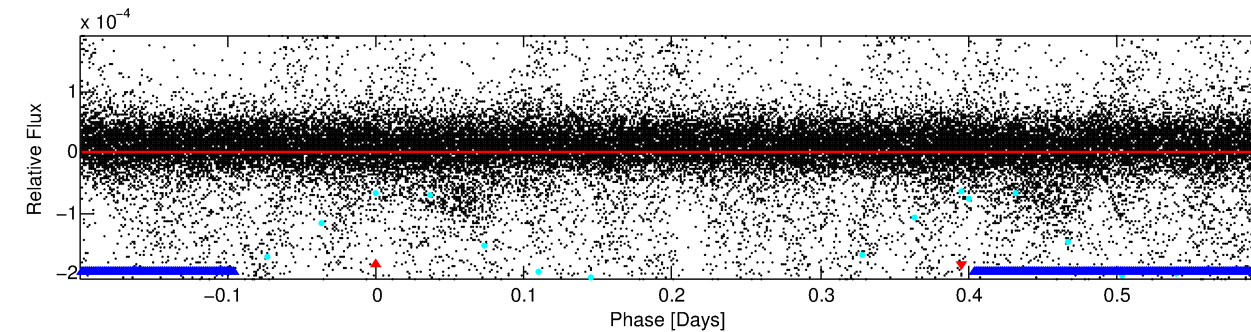
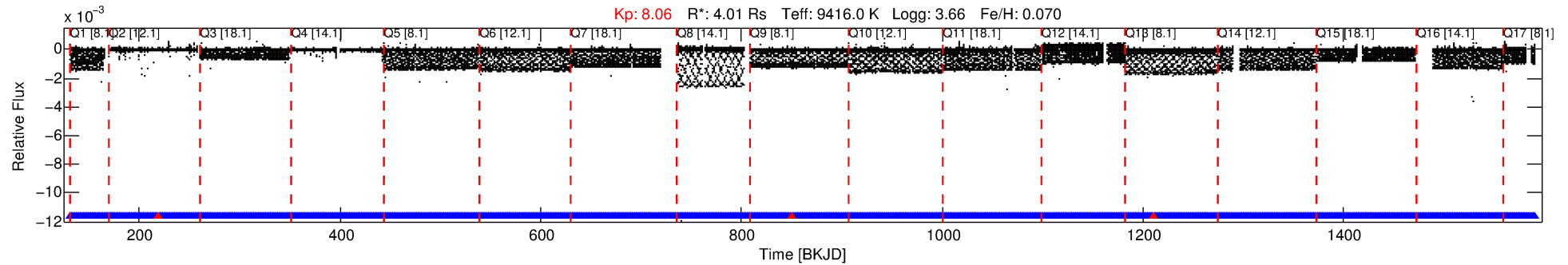
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008018827-01

No Significant Match Found

# DV One-Page Summary

KIC: 8018827 Candidate: 1 of 2 Period: 0.796 d



## DV Fit Results:

Period = 0.79562 [3.14088] d  
Epoch = 131.6655 [779.2113] BKJD  
Rp/R\* = 0.0000 [0.1695]  
a/R\* = 1.13 [369.95]  
b = 0.89 [4491.80]  
Seff = 206748.11 [1102707.82]  
Teq = 5437 [7250] K  
Rp = 0.00 [74.16] Re  
a = 0.0234 [0.0628] AU  
Ag = 18553985.99 [682815521131.93] [0.006]  
Teff = 551742 [5076682471] K [0.006]

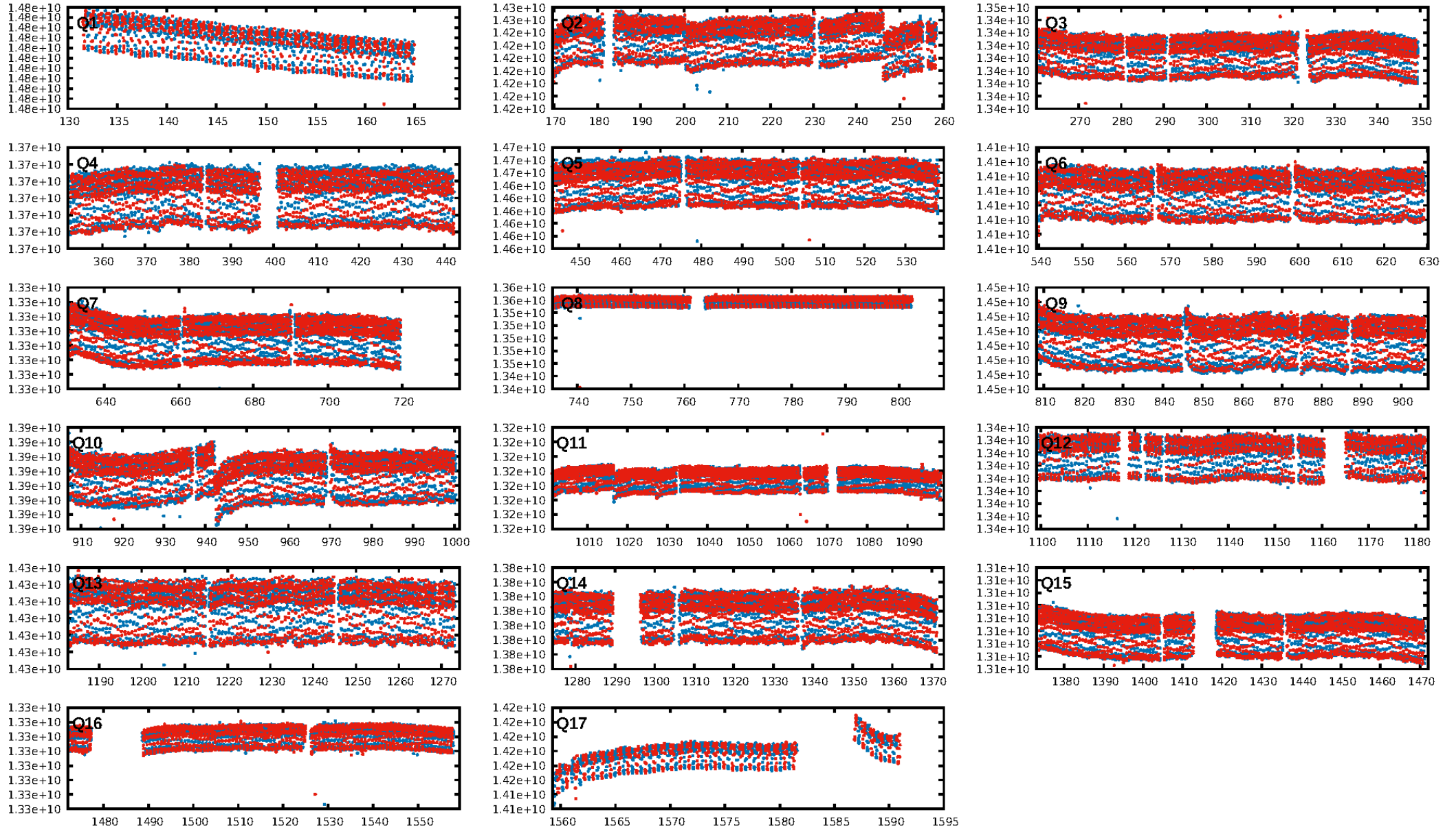
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.1% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1613/1616]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OutOffset-rm: 6.159 arcsec [4.57 $\sigma$ ]  
KicOffset-rm: 5.993 arcsec [4.80 $\sigma$ ]  
OutOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.00 [0/17]  
DiffImageOverlap-fno: 0.00 [0/17]

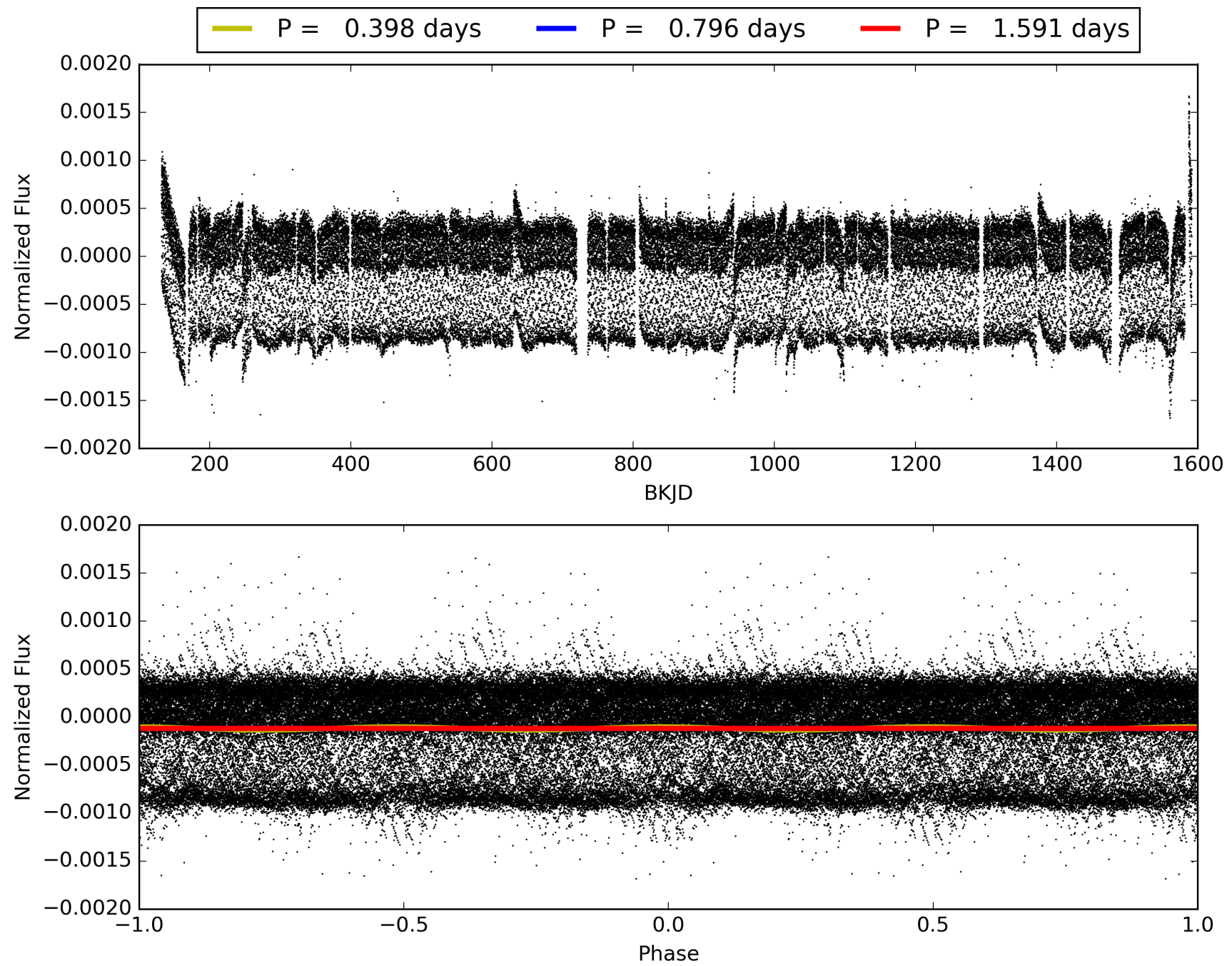
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:36:38 Z

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

# TCE 008018827-01, PDC Light Curves

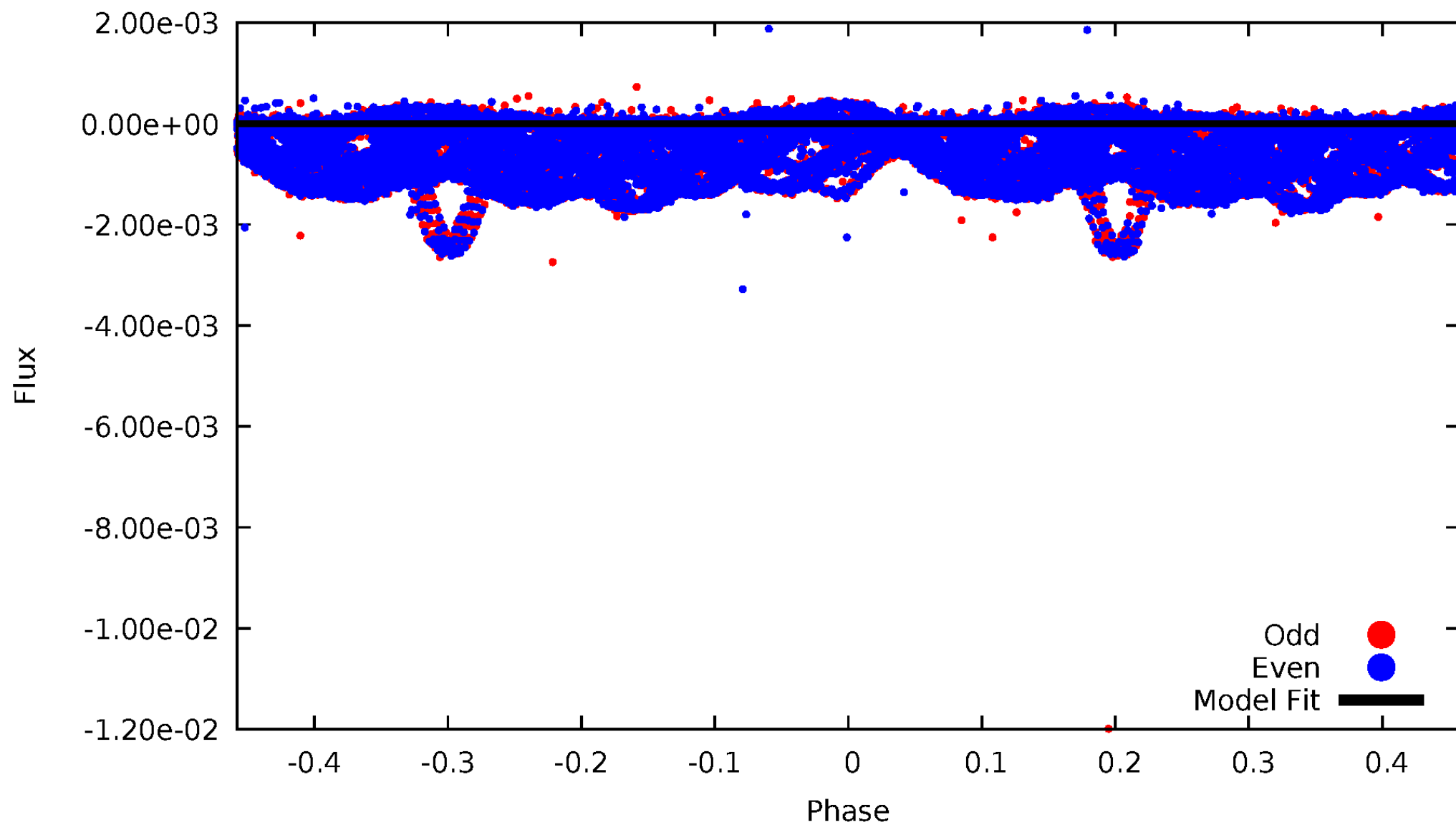


TCE 008018827-01



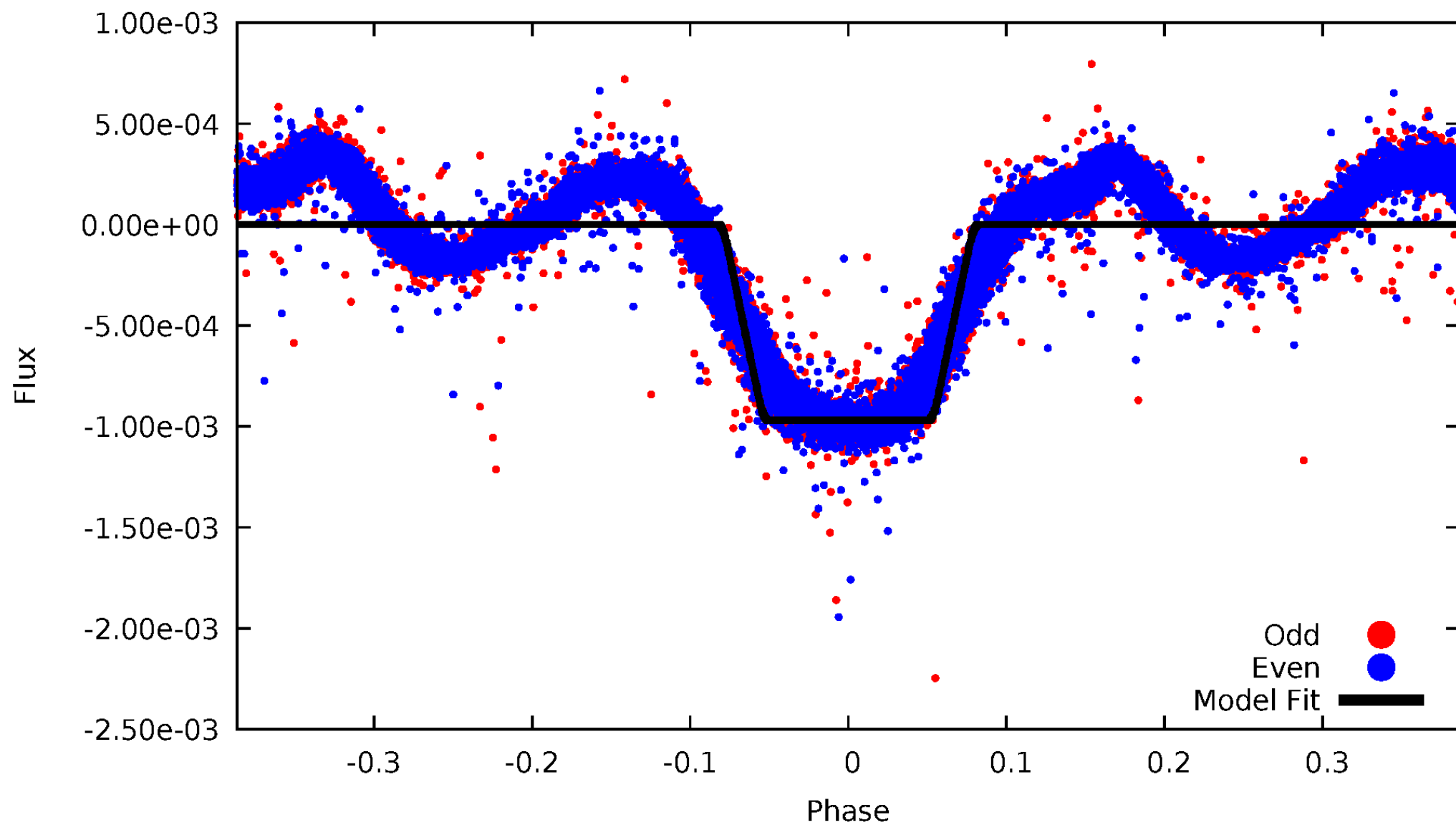
DV Odd/Even

TCE 008018827-01



# ALT Odd/Even

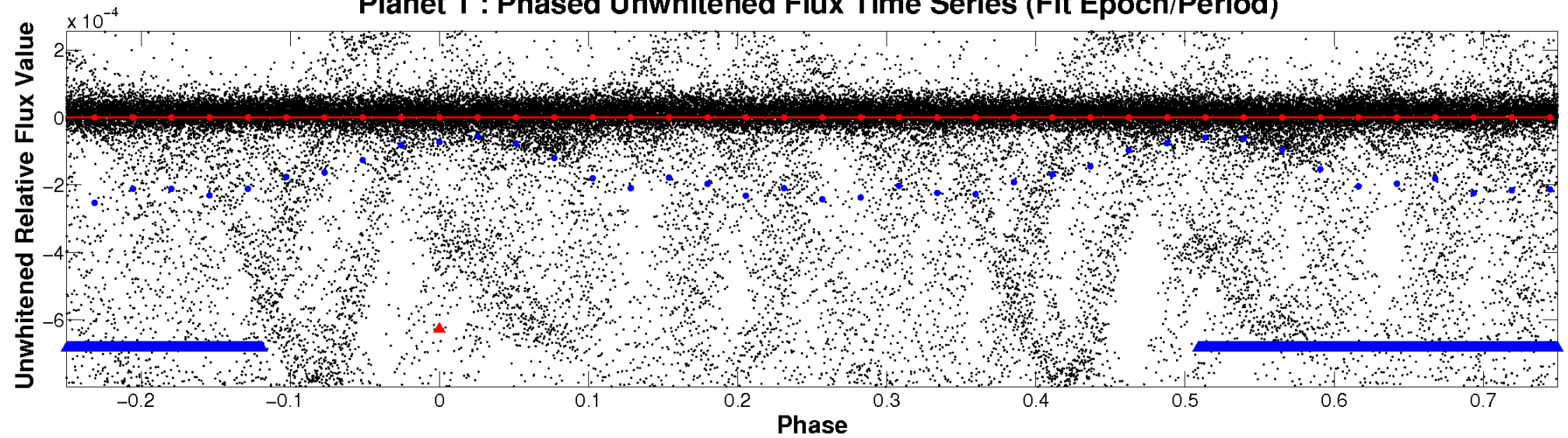
TCE 008018827-01



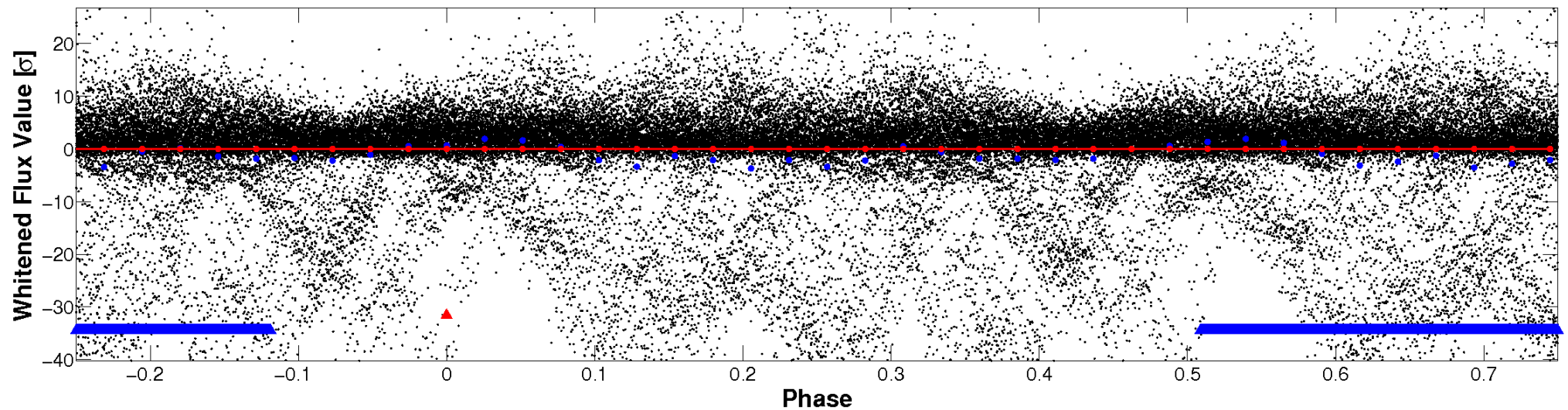


# Non-Whitened Vs. Whitened Light Curve

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

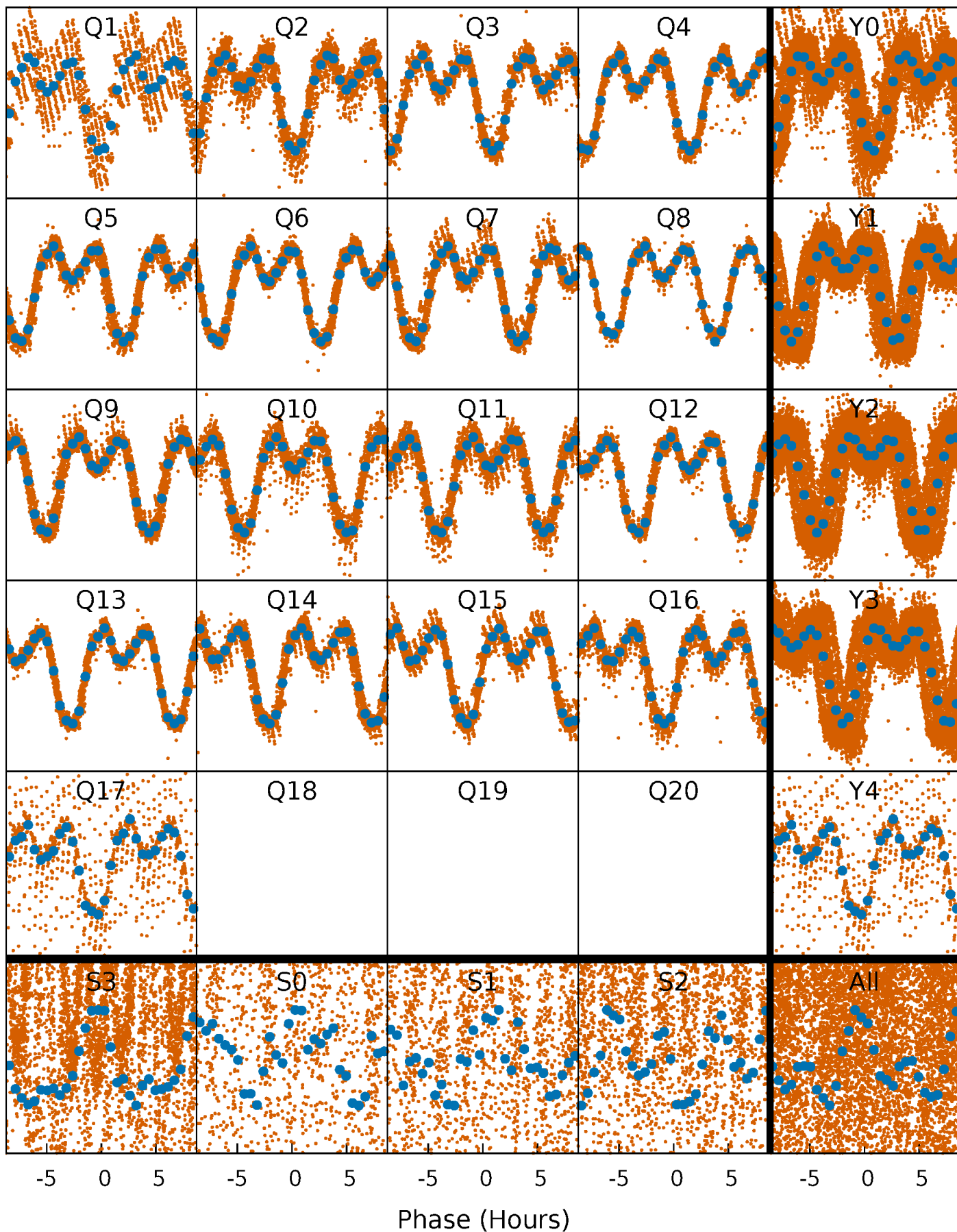


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

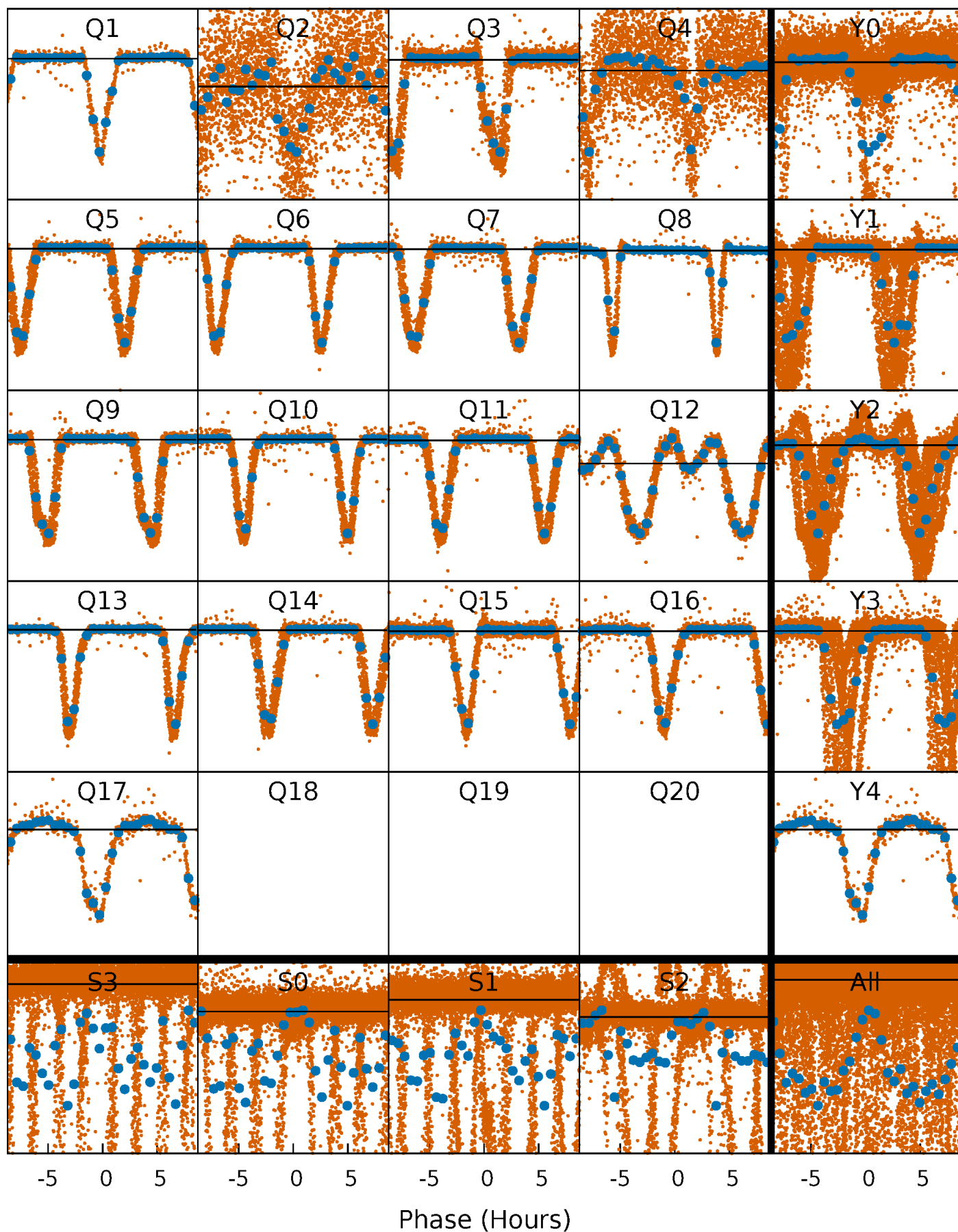
TCE 008018827-01   P= 0.795622 Days    $T_0=131.665522$  (BKJD)





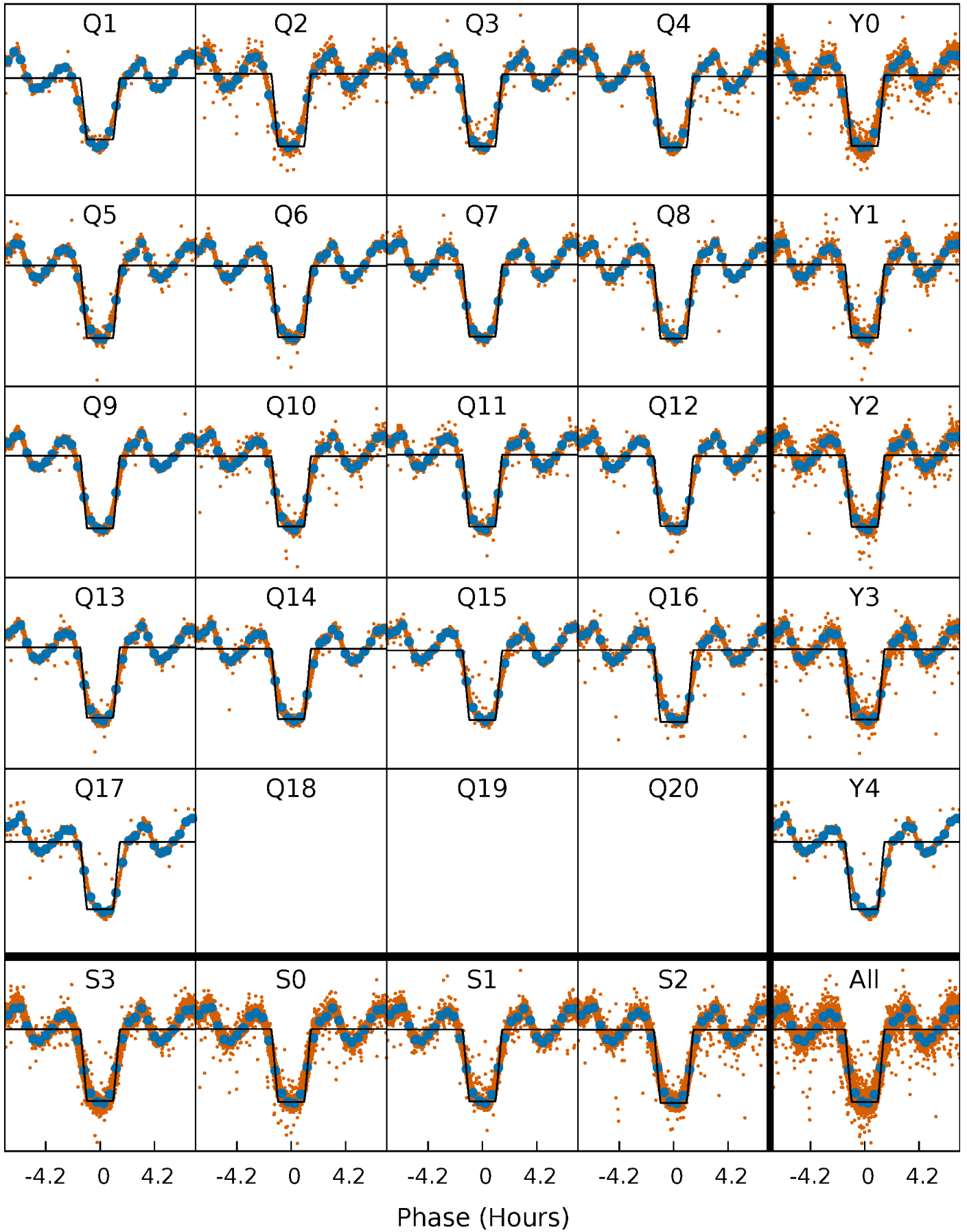
# DV Quarter-Phased Transit Curves

TCE 008018827-01 P= 0.795622 Days  $T_0=131.665522$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

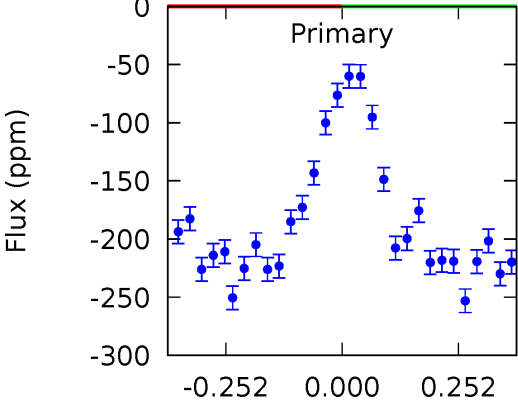
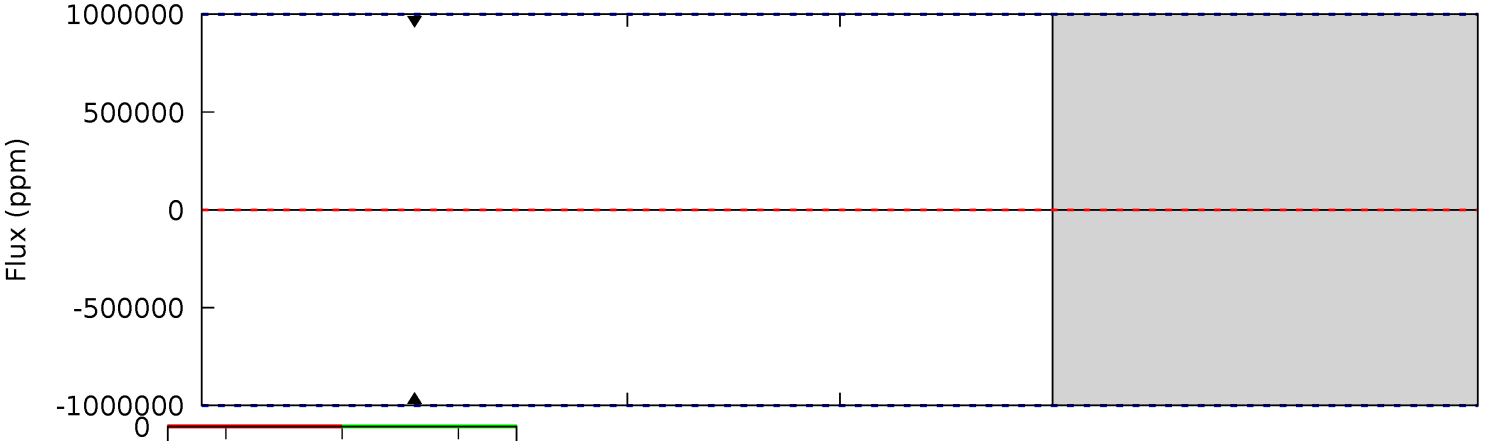
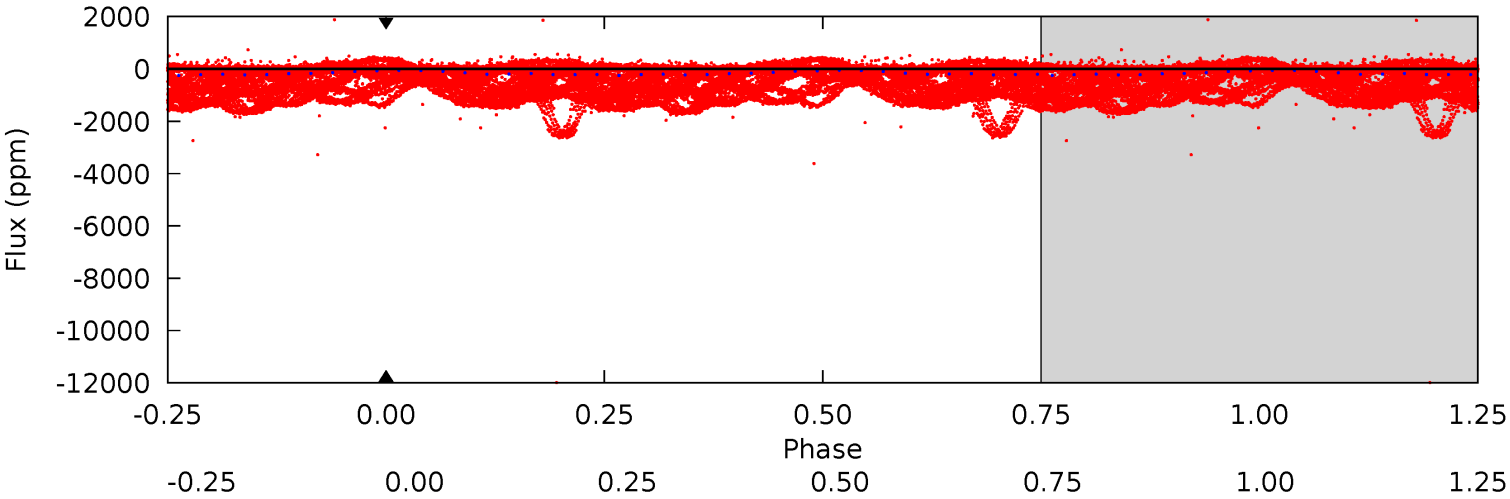
TCE 008018827-01   P= 0.795826 Days    $T_0=131.661765$  (BKJD)



# DV Model-Shift Uniqueness Test

008018827-01, P = 0.795622 Days, E = 130.869900 Days

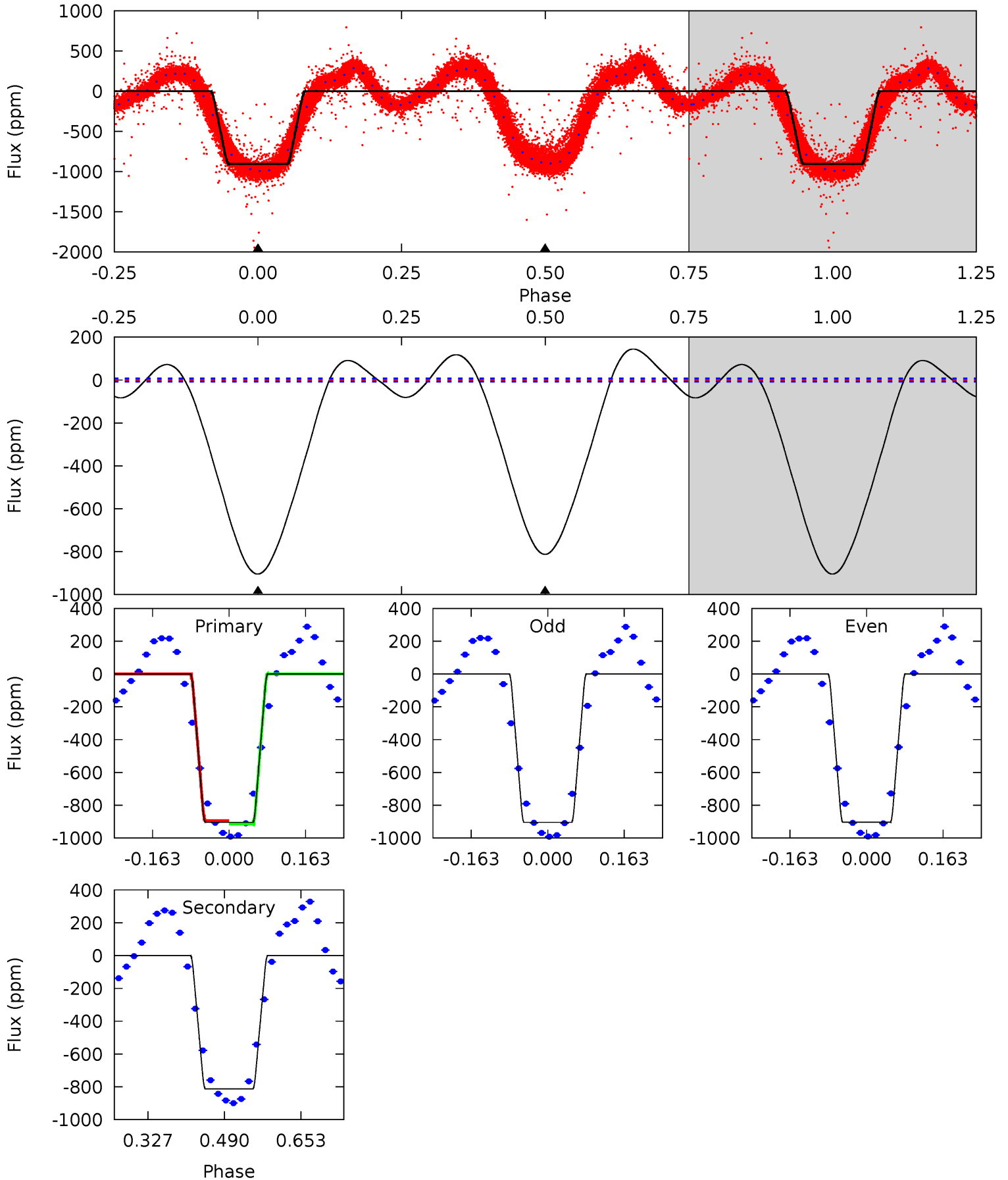
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008018827-01, P = 0.795826 Days, E = 130.865939 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
561.5	504.3	0	0	4.46	1.39	38.8	561.5	561.5	504.3	504.3	0.10	1.00	0.14	7.42



### Stellar Parameters For KIC 008018827

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$9416^{+301}_{-451}$	$3.663^{+0.488}_{-0.122}$	$0.070^{+0.150}_{-0.700}$	$4.009^{+0.760}_{-2.280}$	$2.699^{+0.336}_{-1.009}$	$0.059^{+0.343}_{-0.023}$
	+3%/-5%	+13%/-3%	+214%/-1000%	+19%/-57%	+12%/-37%	+582%/-39%
Source	KIC0	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 008018827-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$44.47^{+53.25}_{-32.72}$	$4986^{+2374}_{-1160}$	$-4545^{+50434}_{-30079}$	$0.145^{+173.593}_{-108.523}$
Alt.	$-812 \pm 2$	$49.28^{+58.83}_{-34.87}$	$4837^{+2314}_{-1066}$	$3374^{+4072}_{-8145}$	$0.468^{+5.532}_{-0.408}$

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



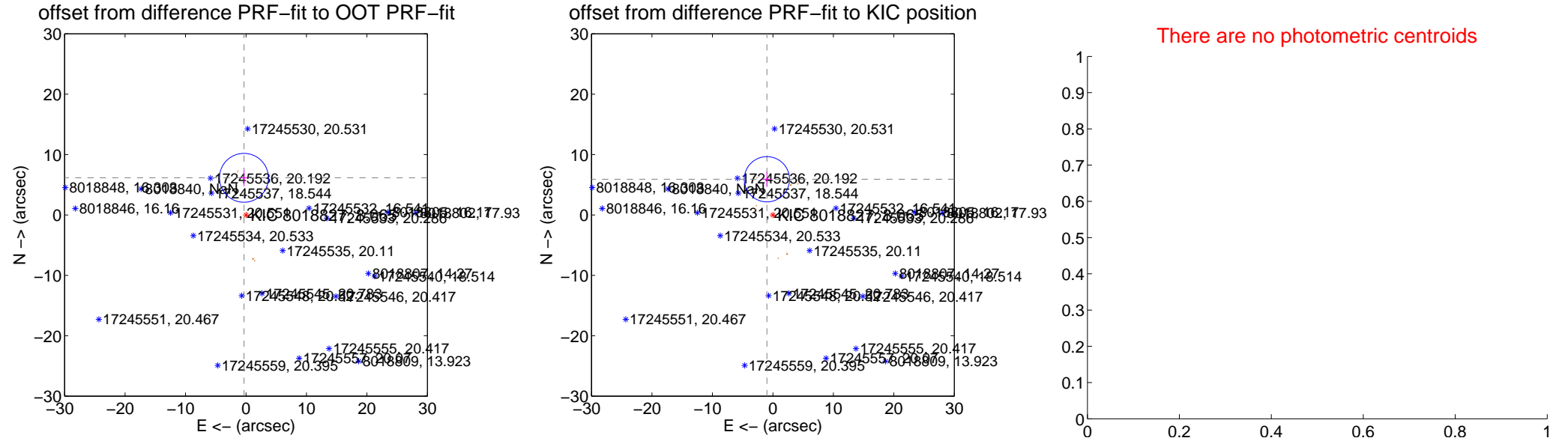
# DV Centroid Data

Supplemental centroid analysis for 008018827-01. **Kepler magnitude: 8.06.** Transit SNR 0.00

**There are 0 quarters with good PRF difference image offsets**

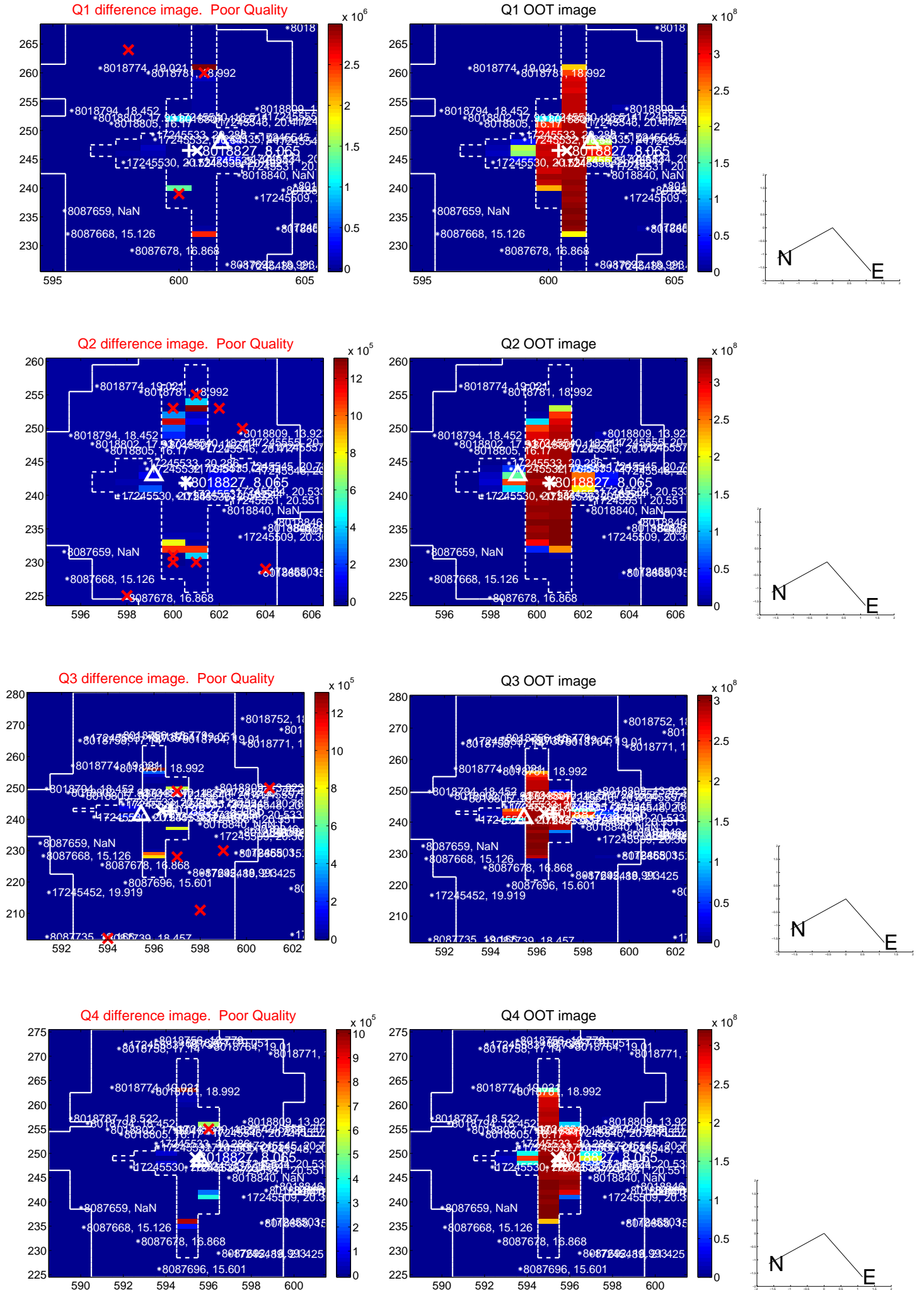
The direct PRF centroid is offset from the target star catalog position by about 1.43 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>6.159 <math>\pm</math> 1.348</b>	<b>4.57</b>	0.340 $\pm$ 0.571	6.150 $\pm$ 1.343
PRF-fit source offset from KIC position	<b>5.993 <math>\pm</math> 1.248</b>	<b>4.80</b>	0.992 $\pm$ 0.733	5.910 $\pm$ 1.243
photometric centroid source offset	—	—	—	—

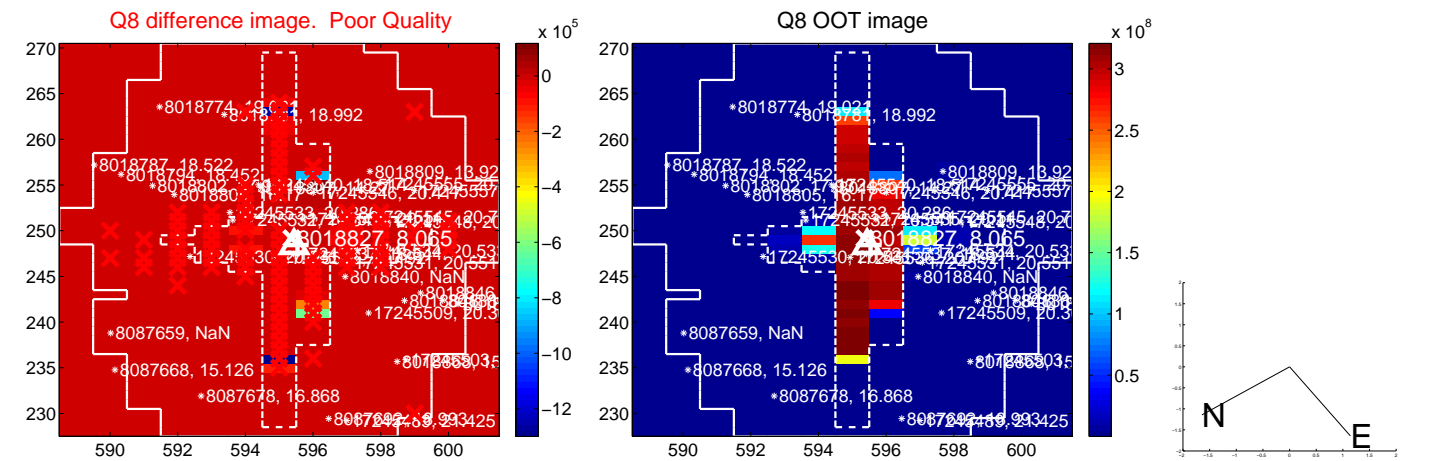
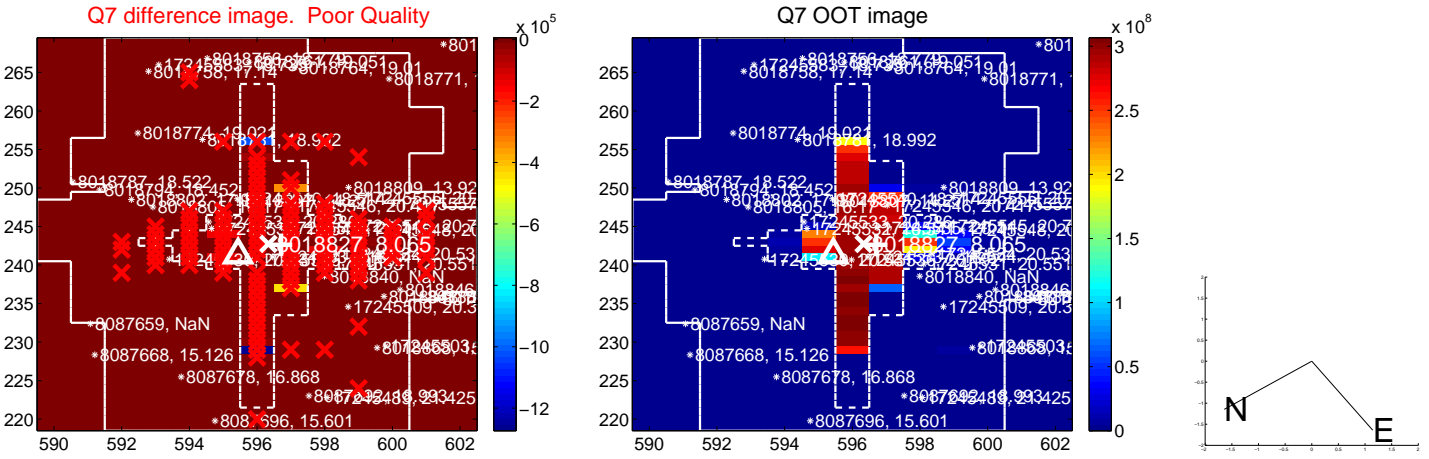
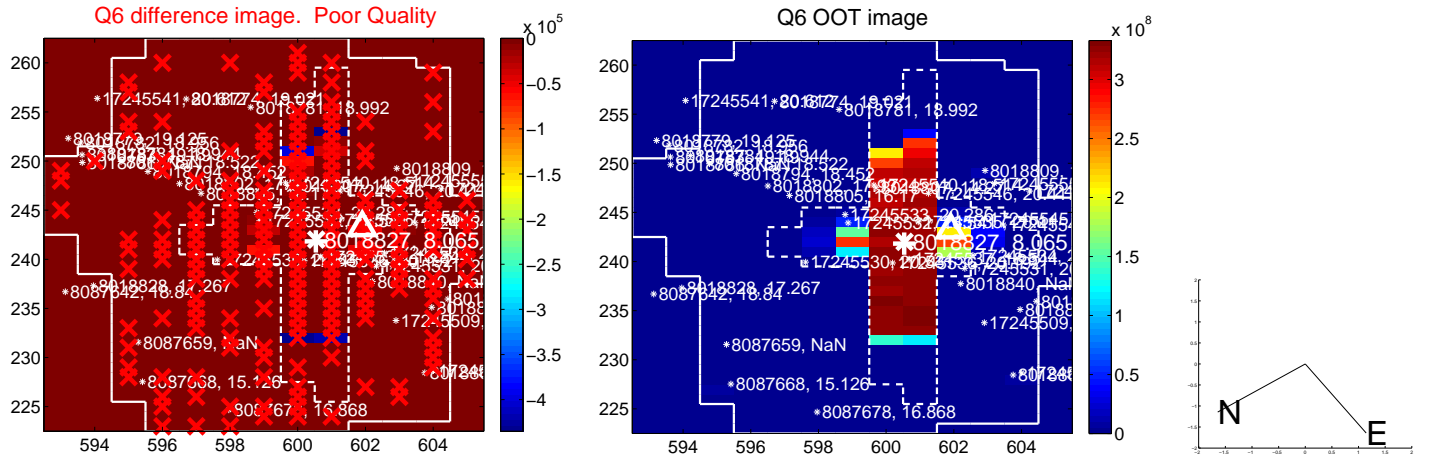
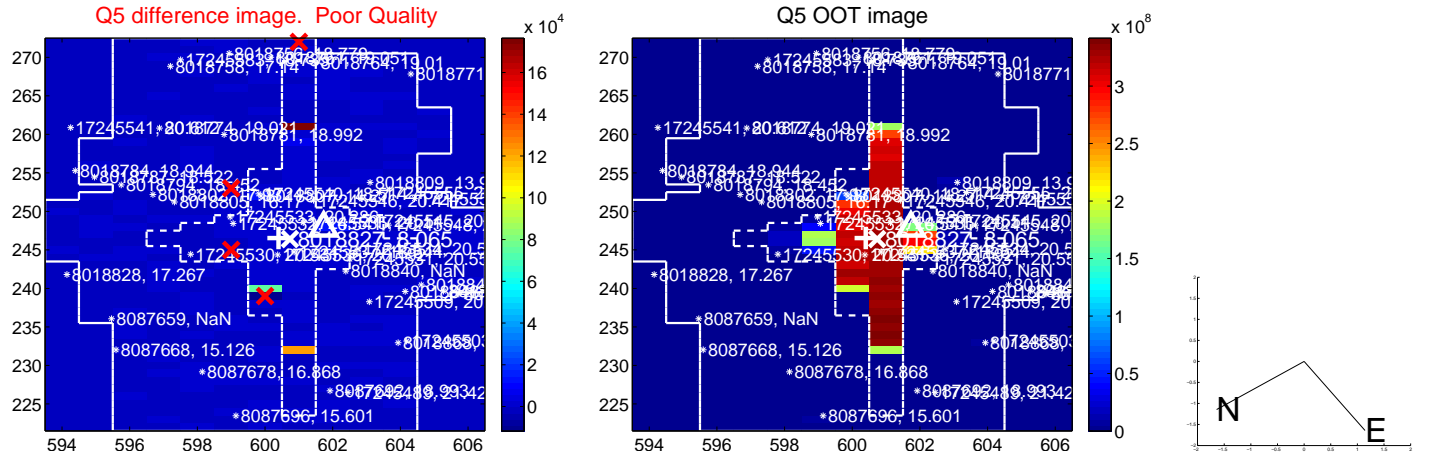


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

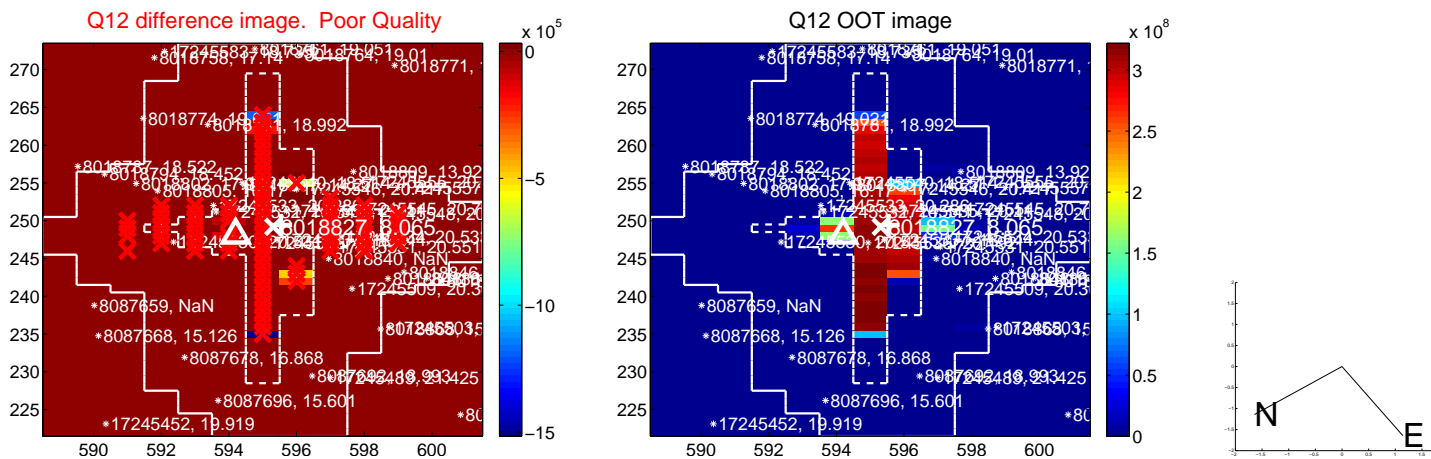
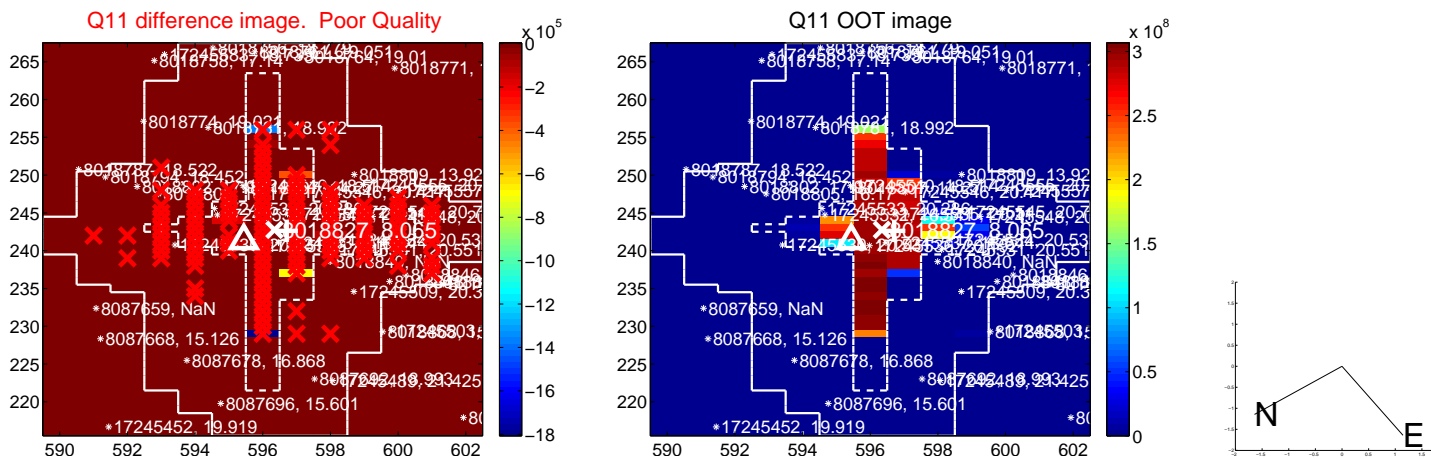
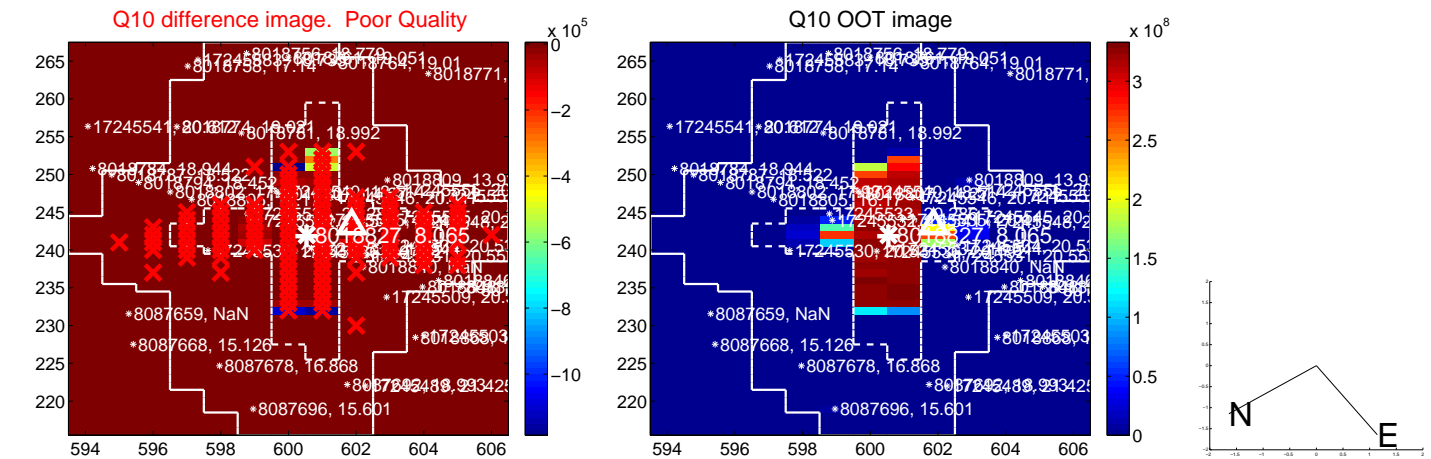
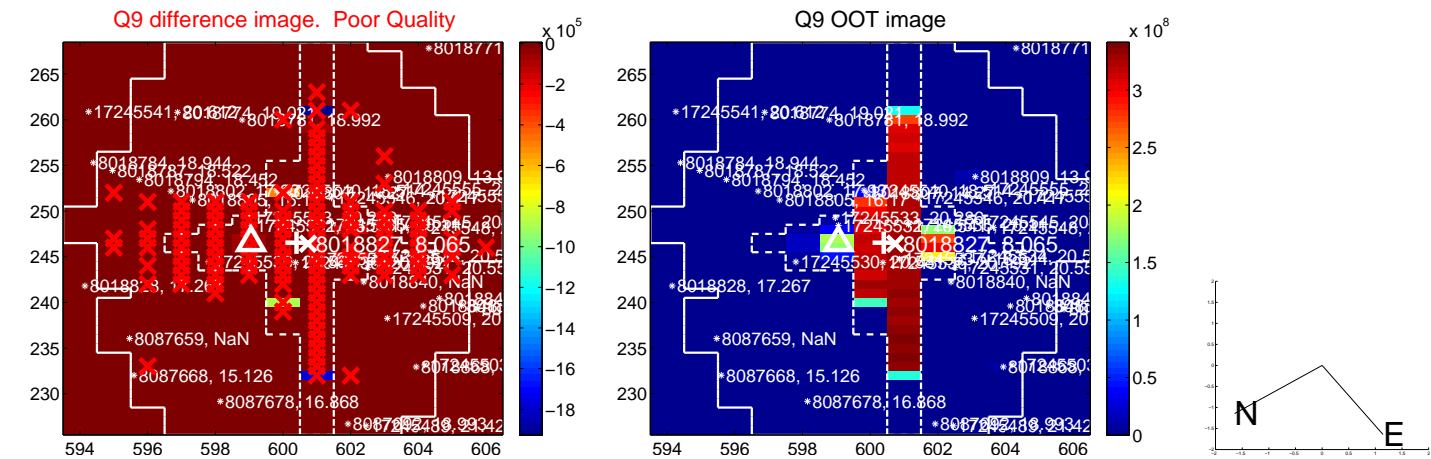
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

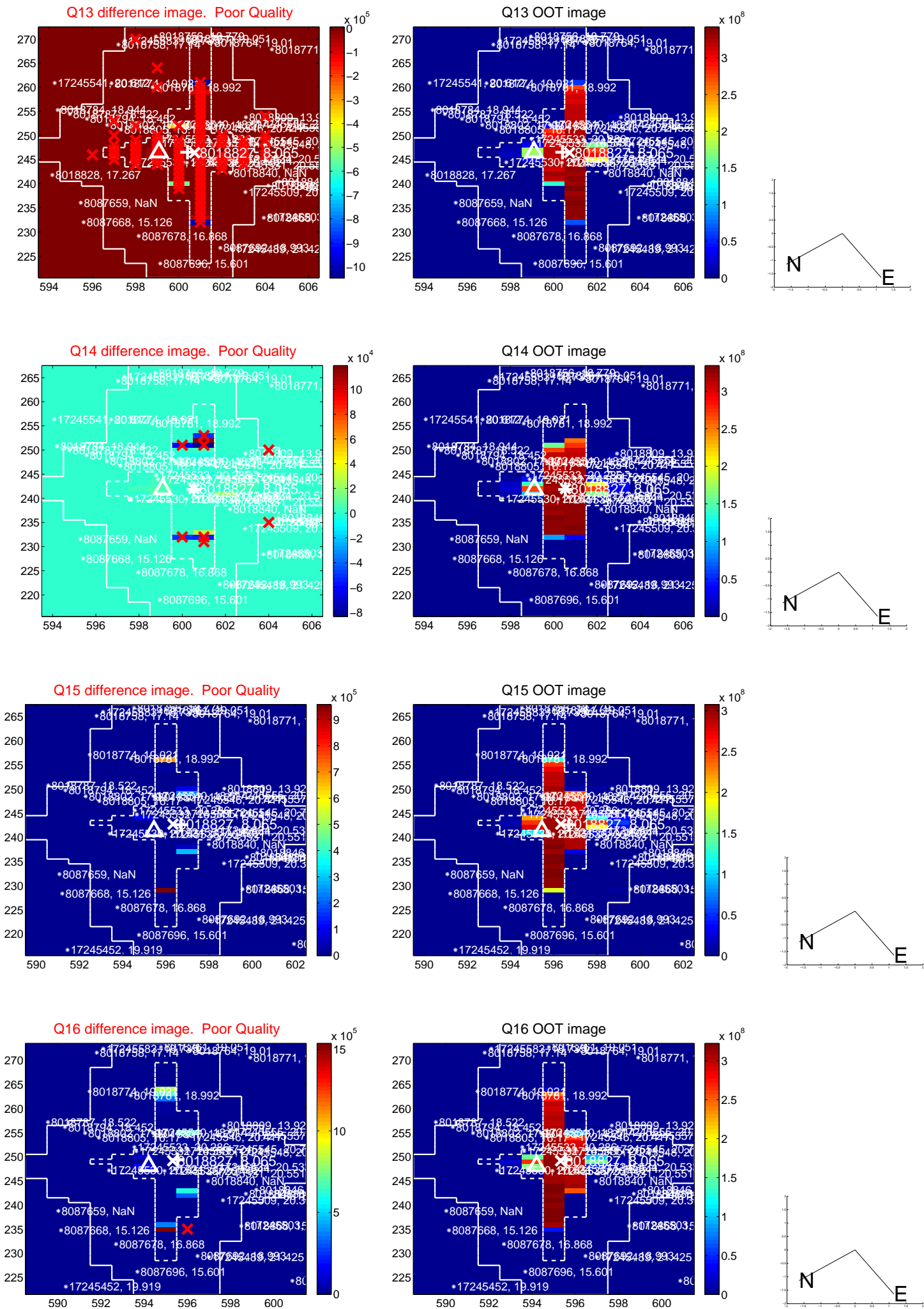


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



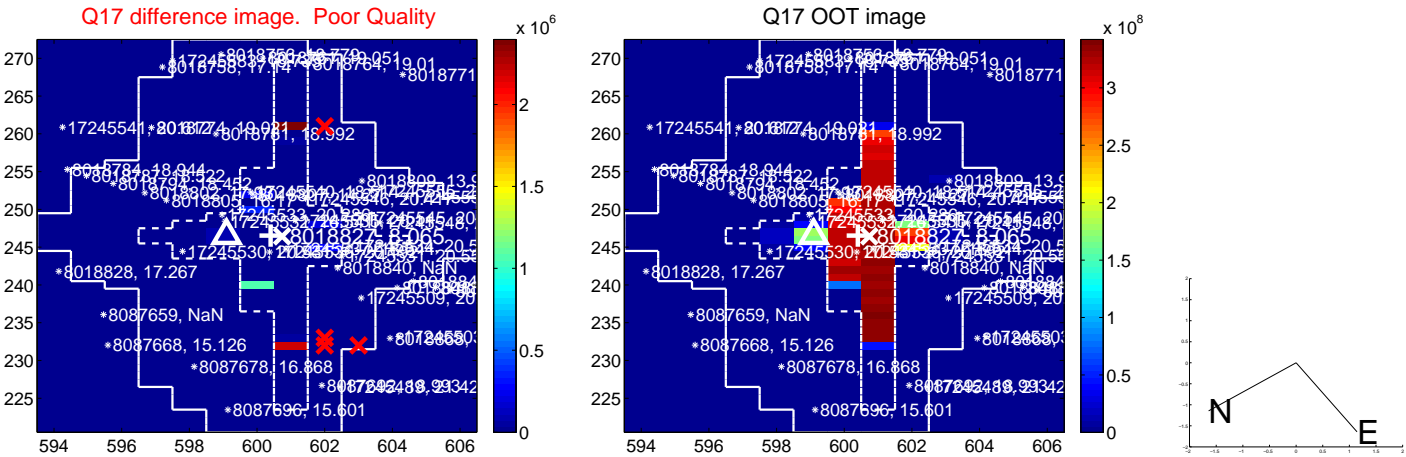


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



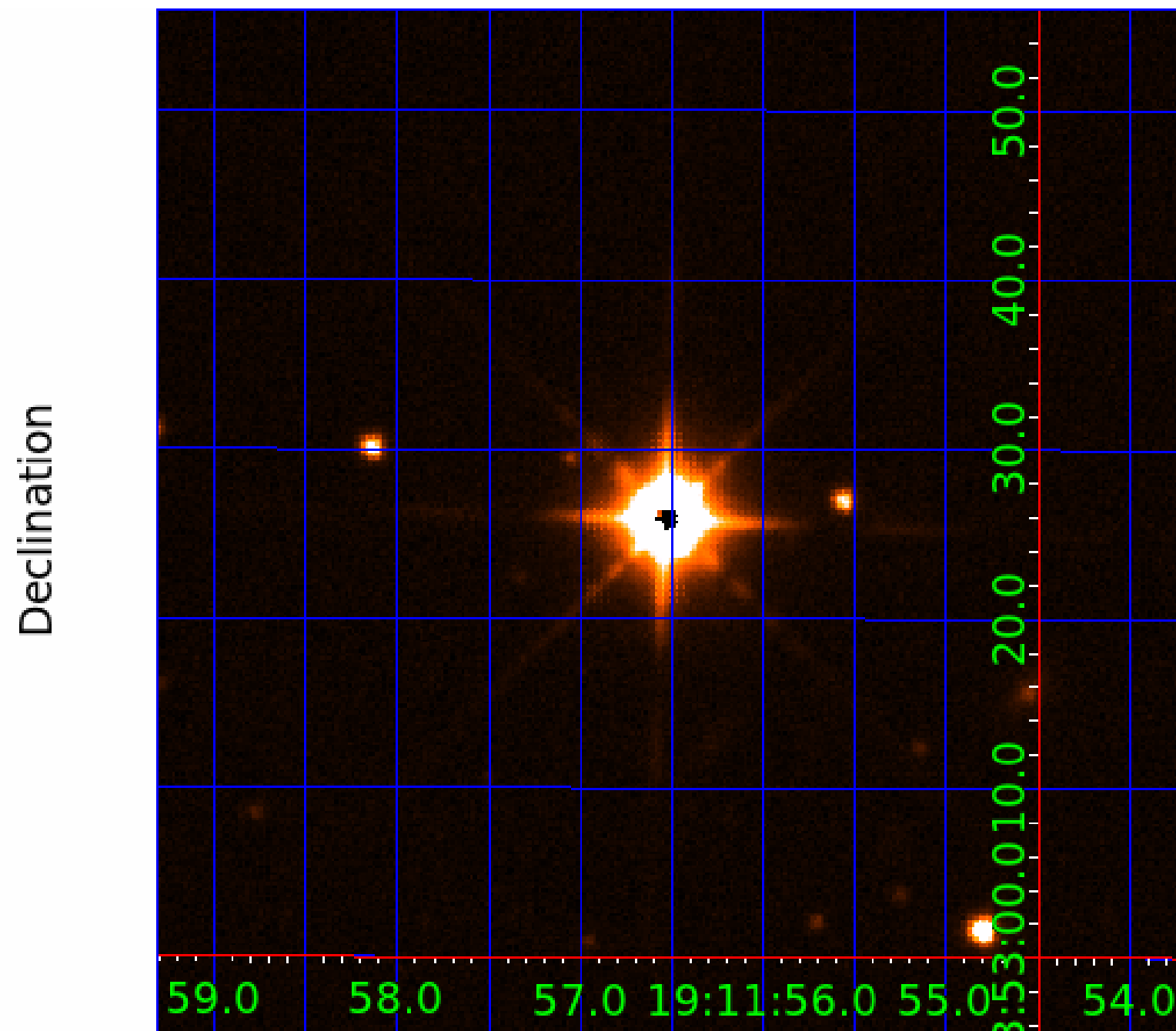


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image



# KIC 008018827

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008018827-01	OBS	No	0.795622	131.665522	0.0	4.371	1747.2	0.0	4.01	9416	0.00	206748.11
008018827-02	OBS	No	0.795784	132.070369	541.8	1.500	726.1	-1.0	4.01	9416	9.57	206692.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008018827-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
008018827-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

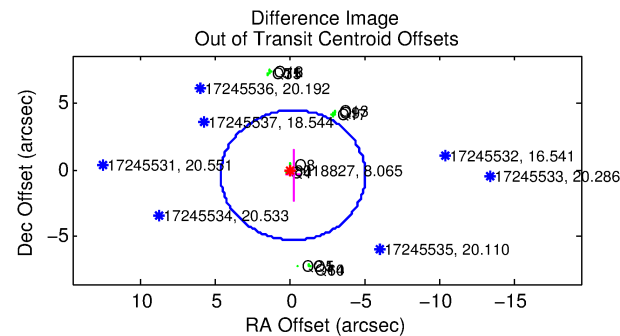
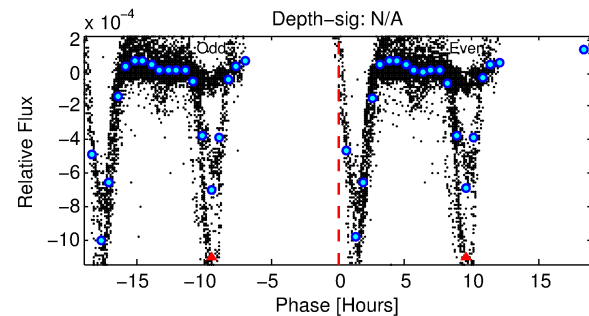
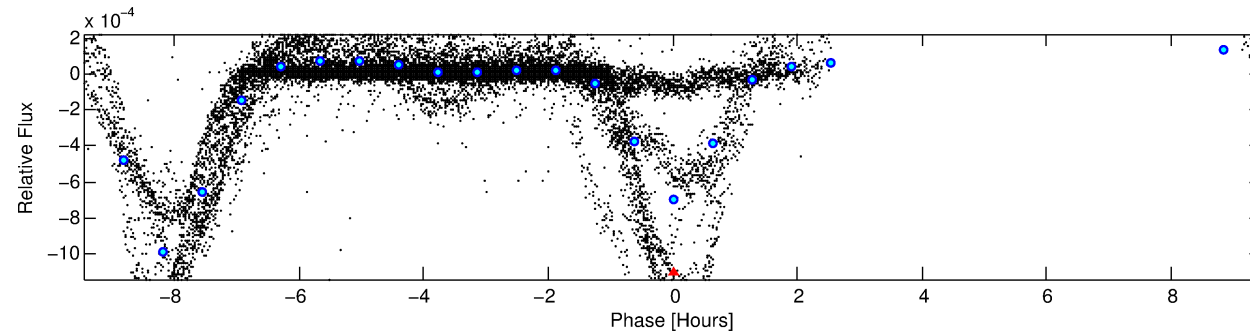
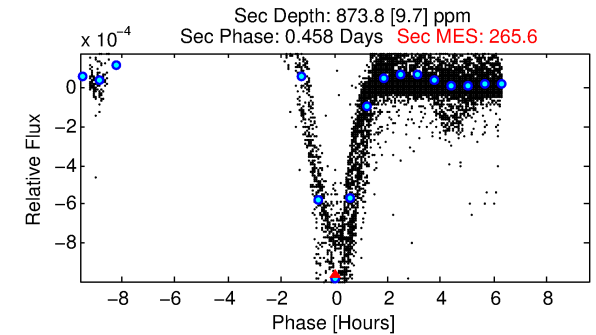
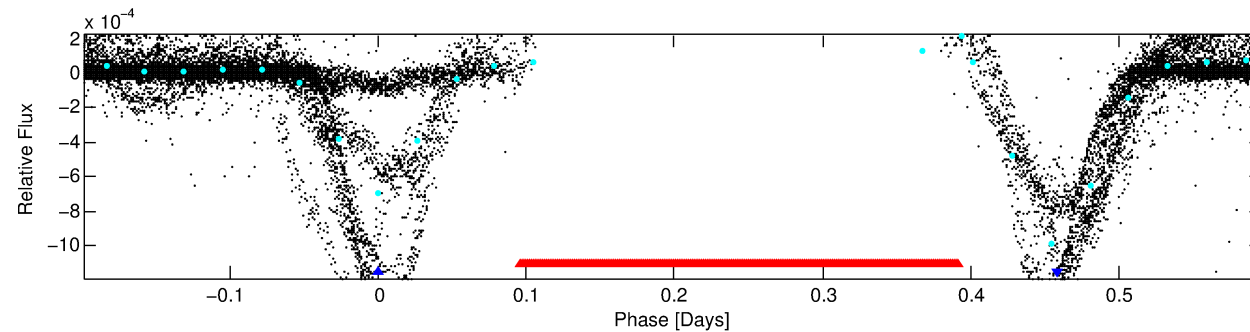
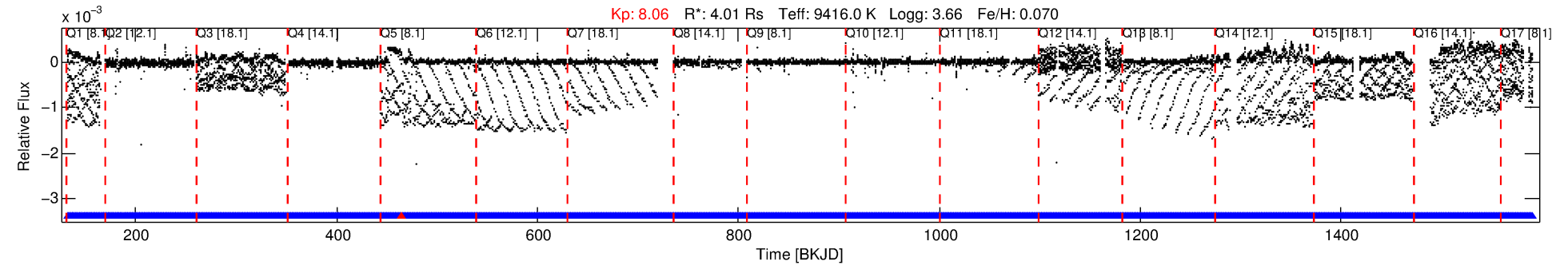
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008018827-02

No Significant Match Found

# DV One-Page Summary

KIC: 8018827 Candidate: 2 of 2 Period: 0.796 d



## TPS TCE Results:

Period = 0.79578 d  
Epoch = 132.0704 BKJD

DV fit results are unavailable

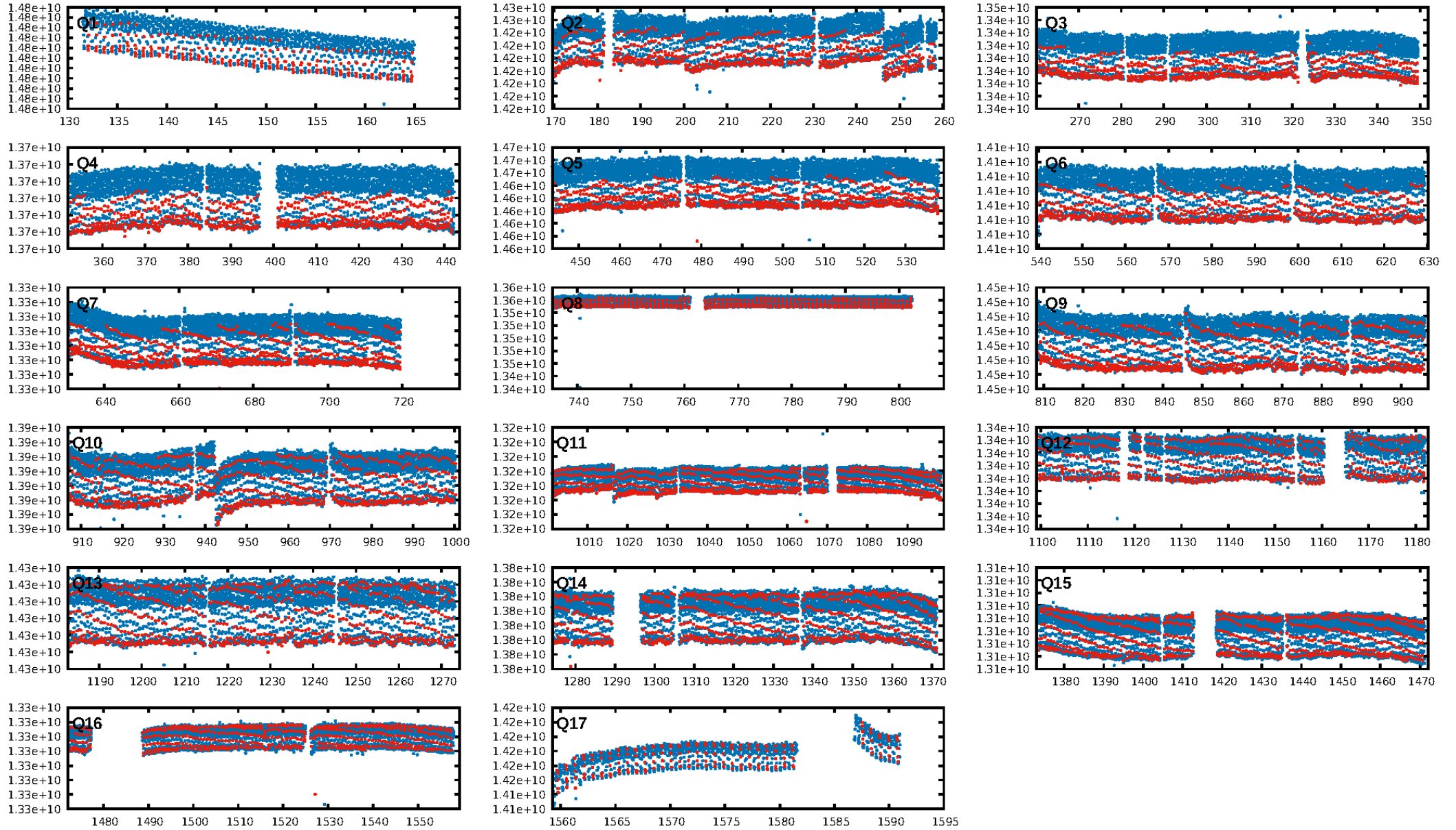
## DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [957/958]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 0.0%  
Centroid-so: 0.860 arcsec [51.33 $\sigma$ ]  
OotOffset-rm: 0.476 arcsec [0.30 $\sigma$ ]  
KicOffset-rm: 0.992 arcsec [1.14 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.00 [0/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:36:49 Z

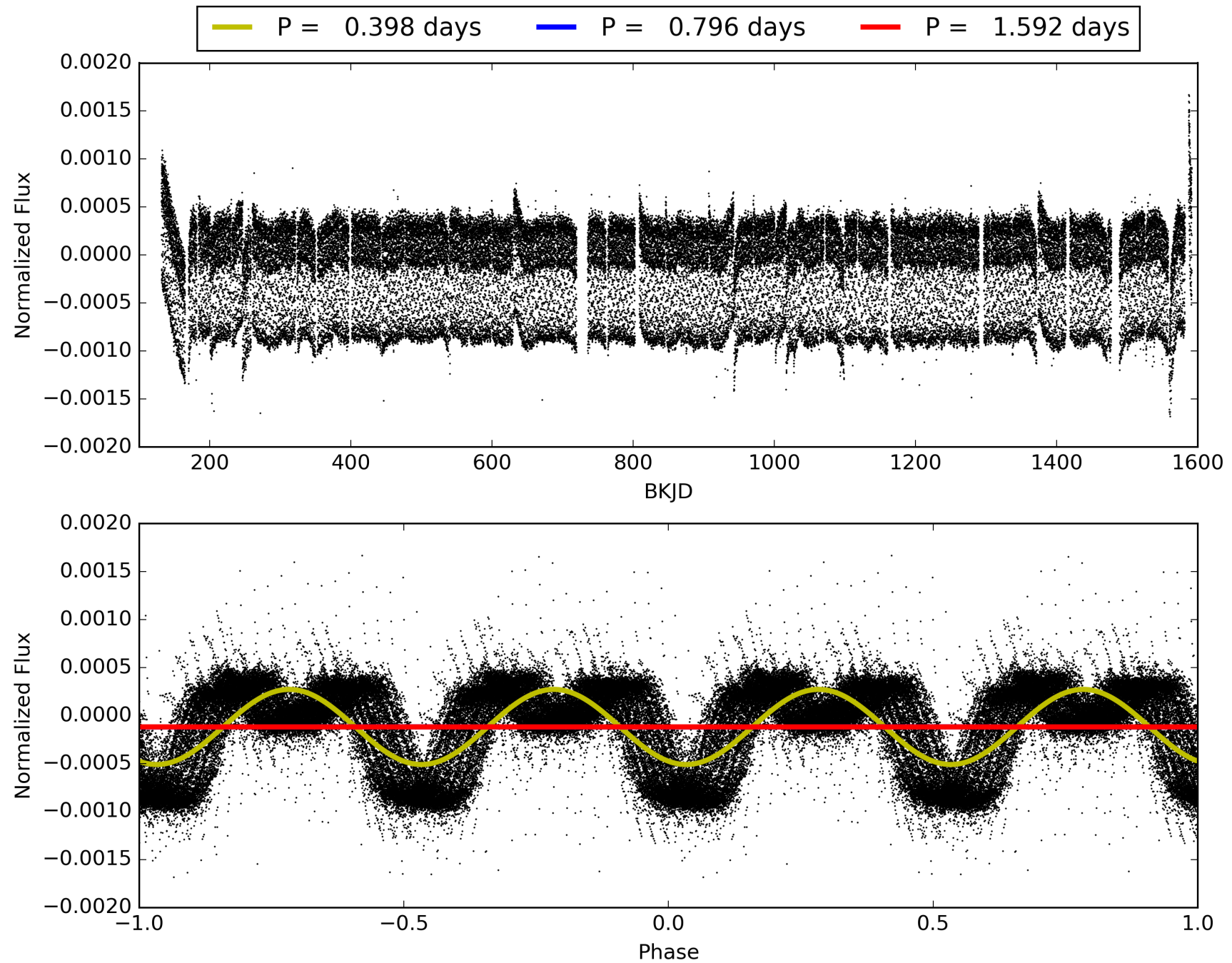
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008018827-02, PDC Light Curves



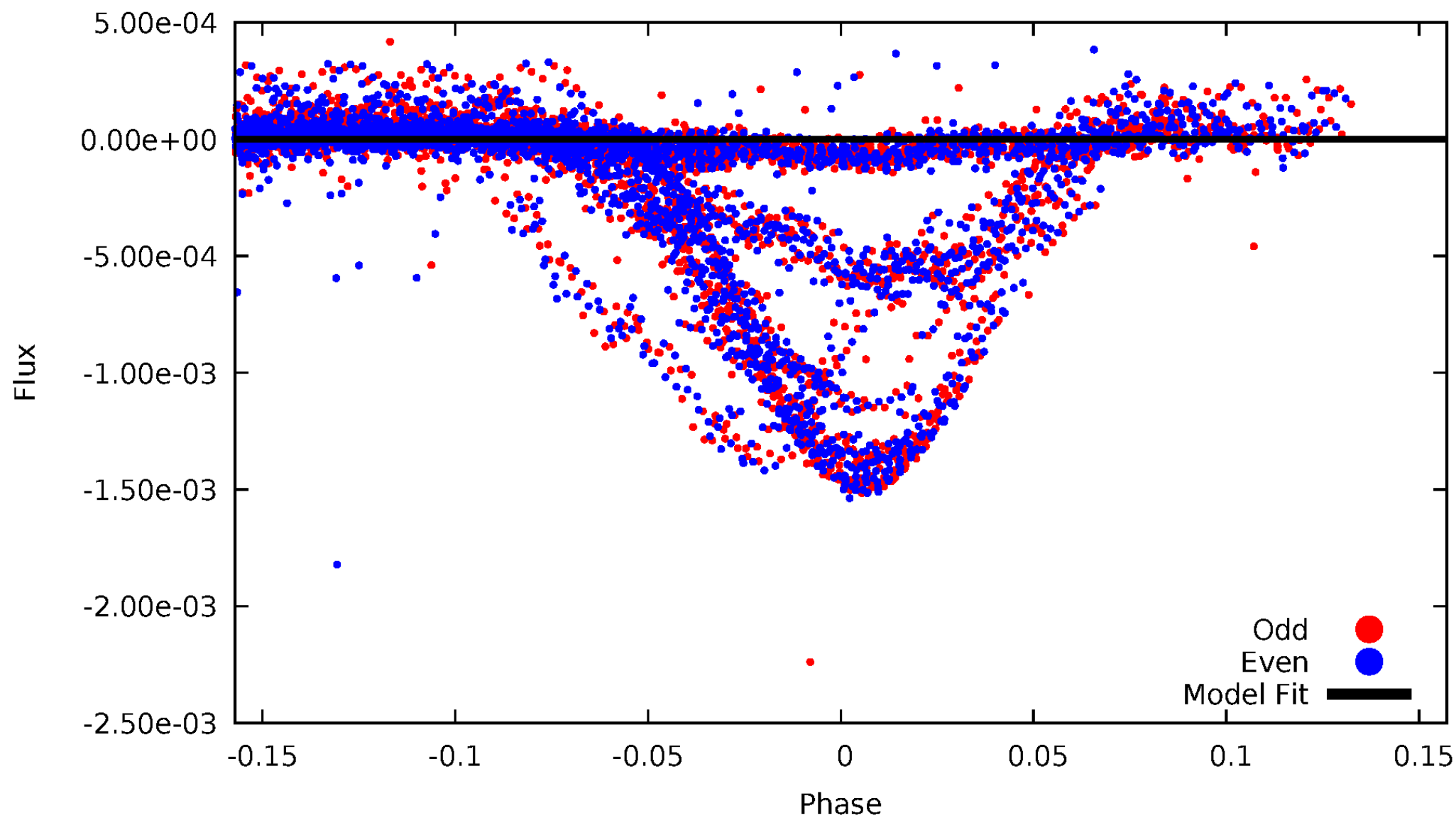


TCE 008018827-02



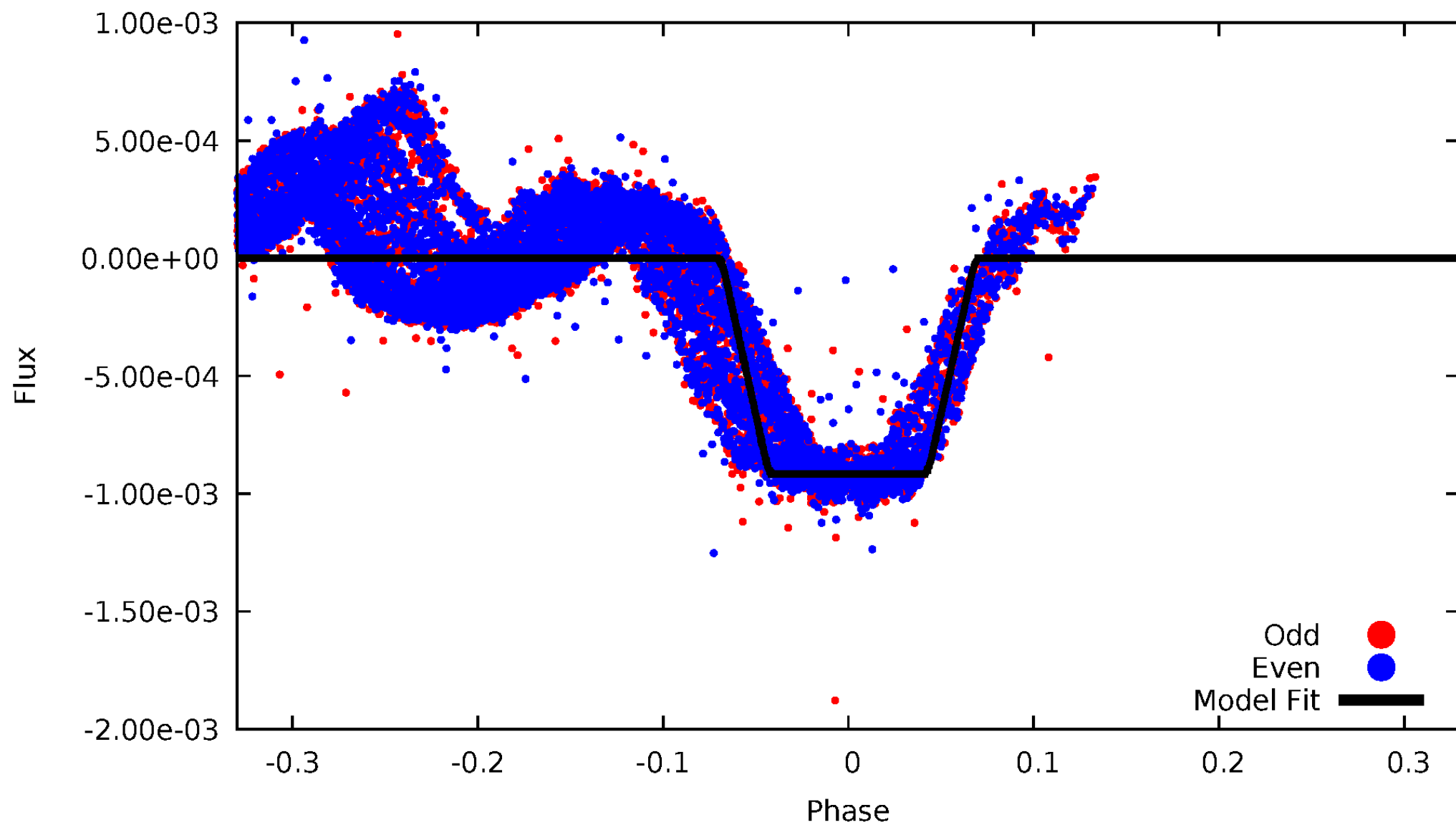
# DV Odd/Even

TCE 008018827-02



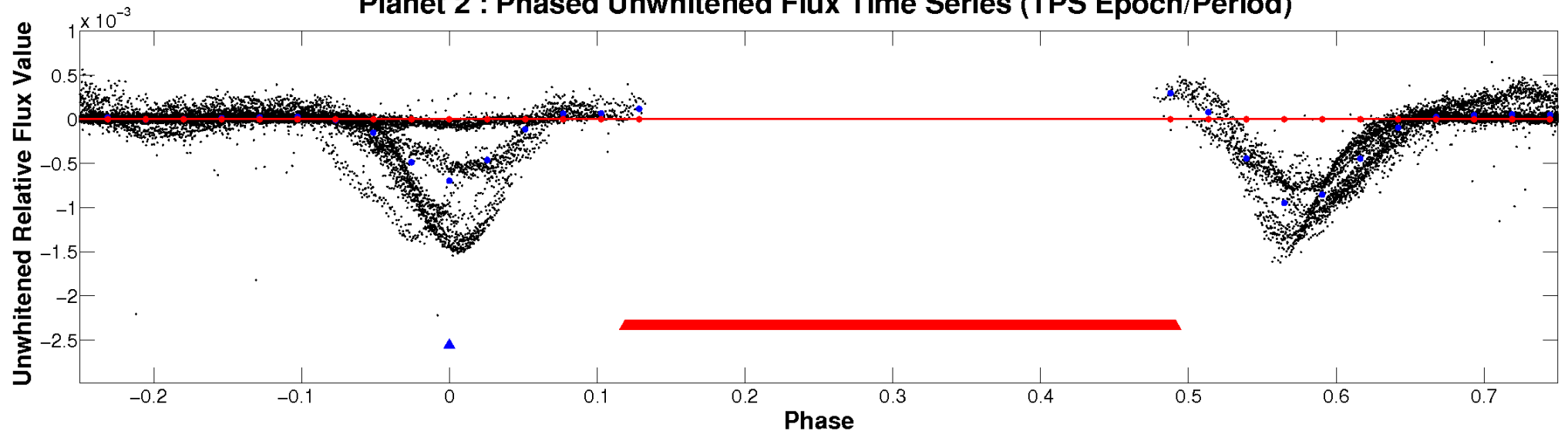
# ALT Odd/Even

TCE 008018827-02

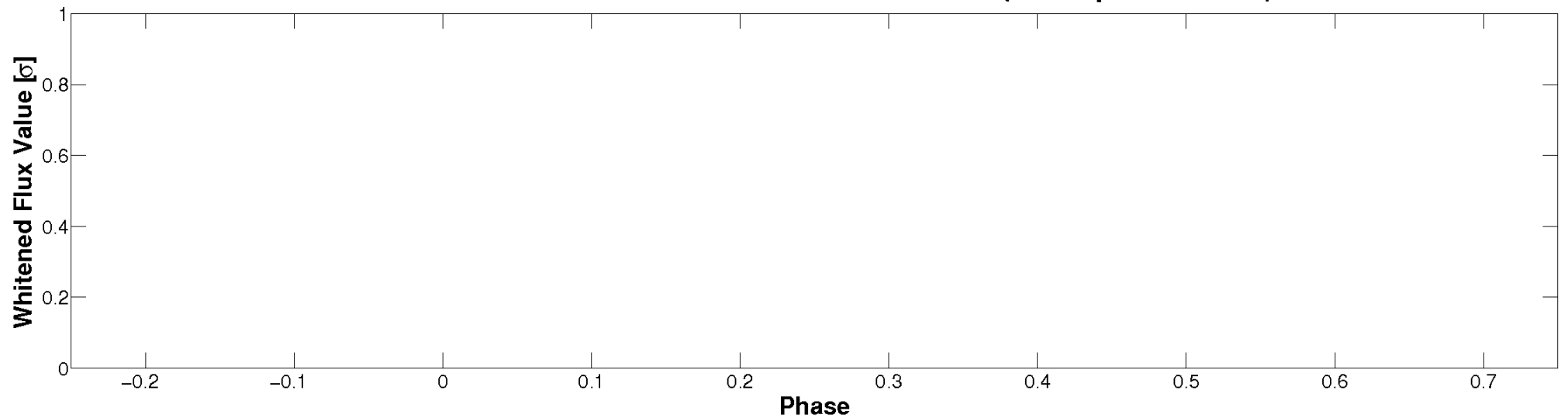


# Non-Whitened Vs. Whitened Light Curve

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

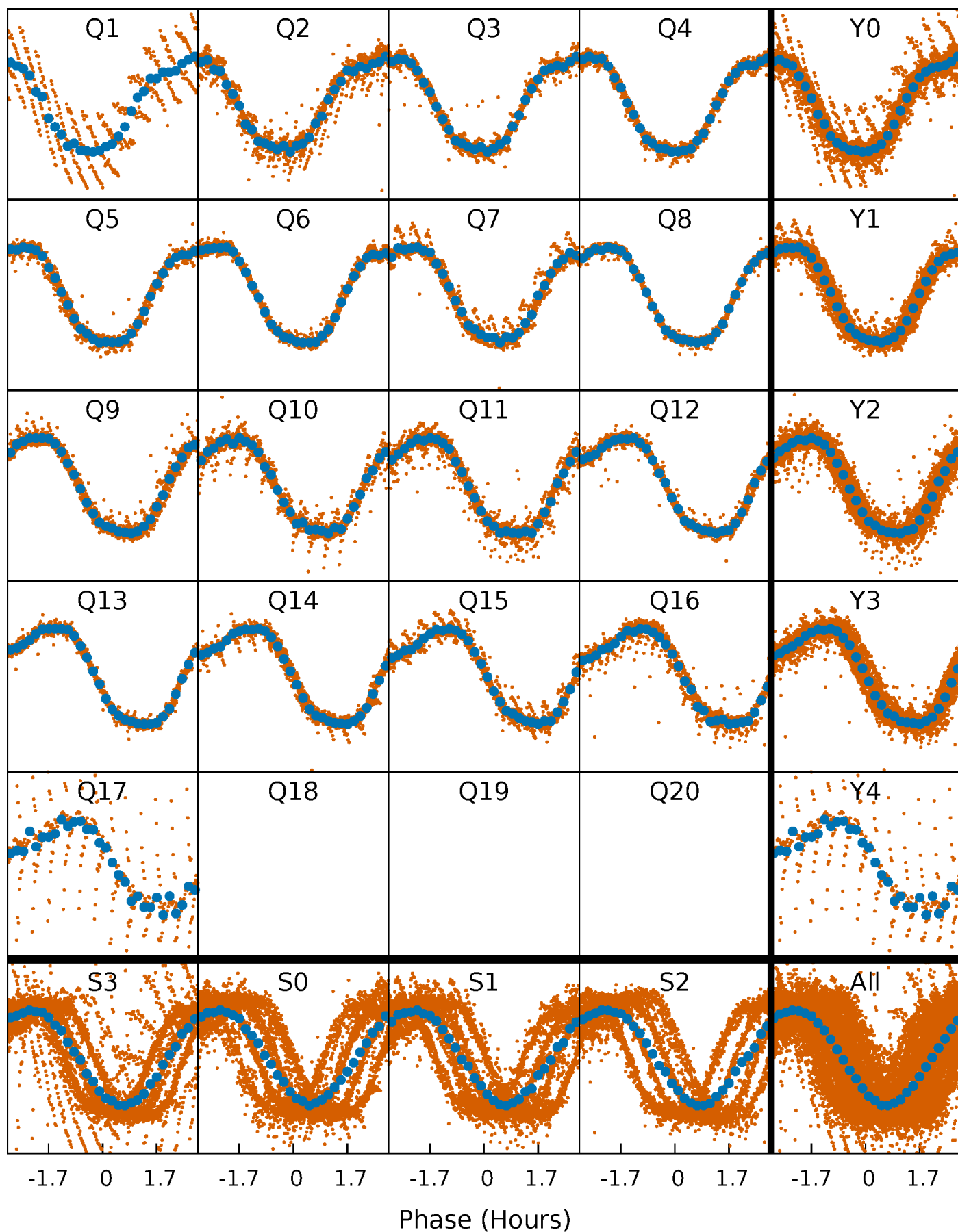


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

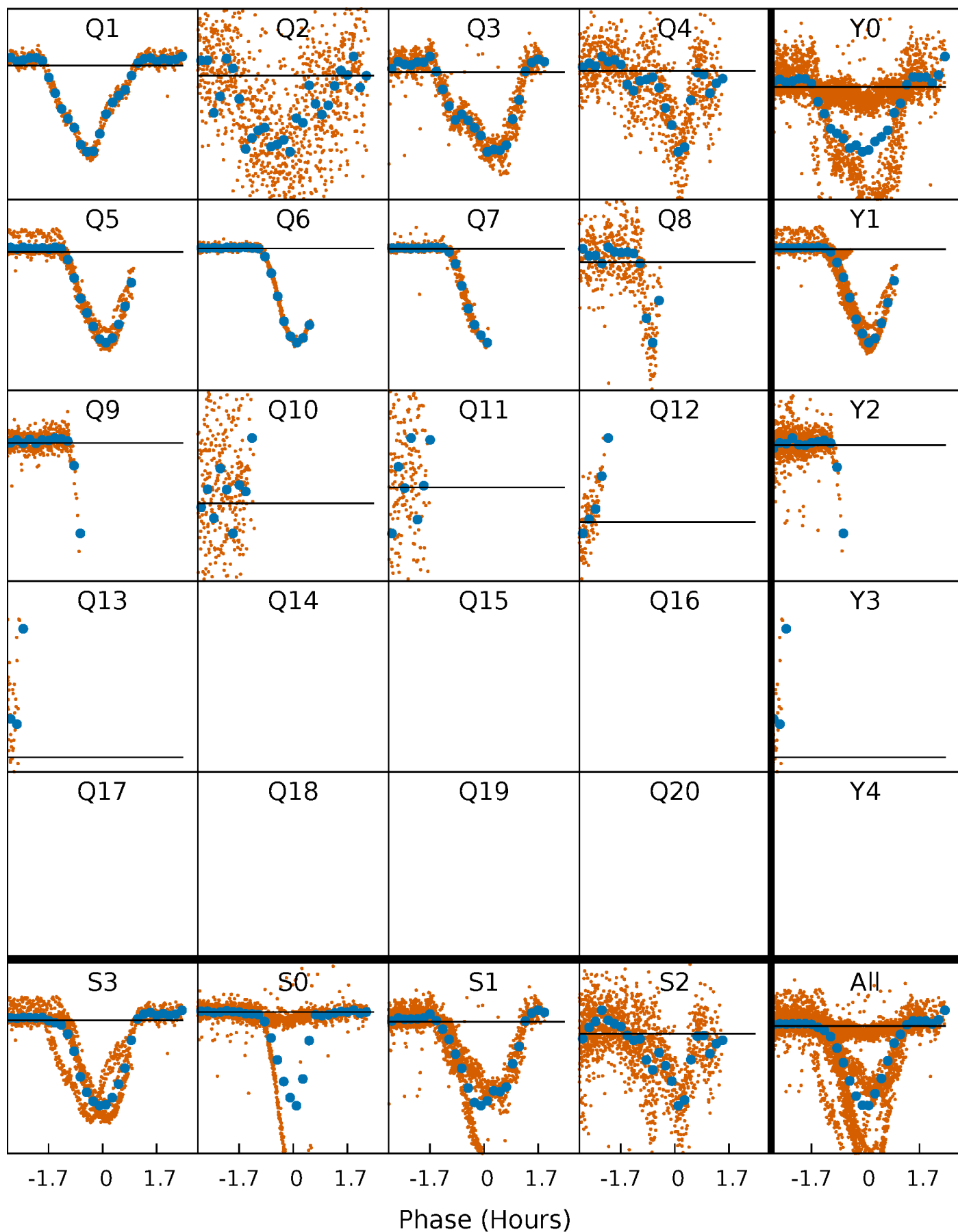
TCE 008018827-02     $P = 0.795784$  Days     $T_0 = 132.070369$  (BKJD)





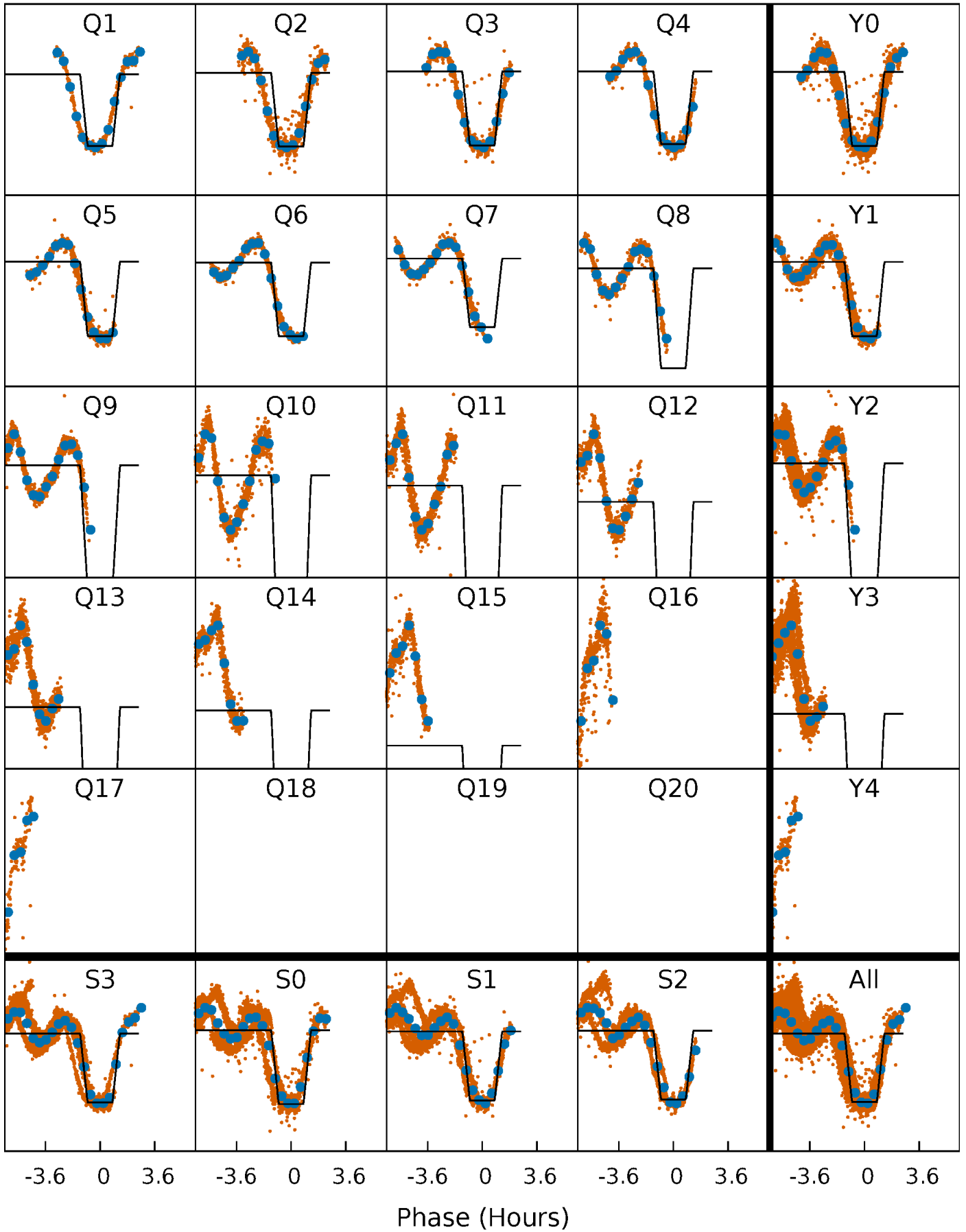
# DV Quarter-Phased Transit Curves

TCE 008018827-02   P= 0.795784 Days    $T_0=132.070369$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

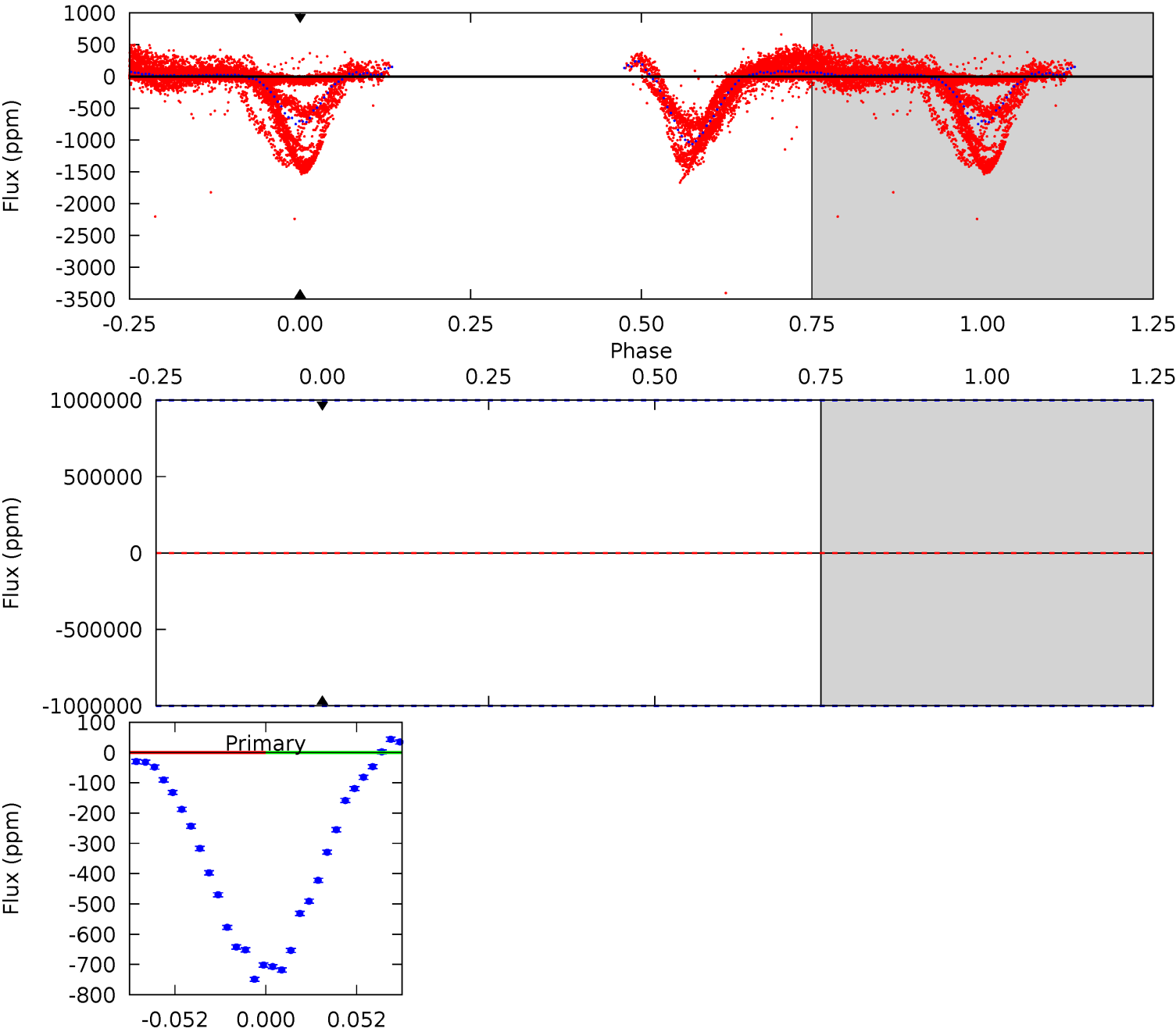
TCE 008018827-02   P= 0.795784 Days    $T_0=132.069597$  (BKJD)



DV Model-Shift Uniqueness Test

008018827-02, P = 0.795784 Days, E = 131.274585 Days

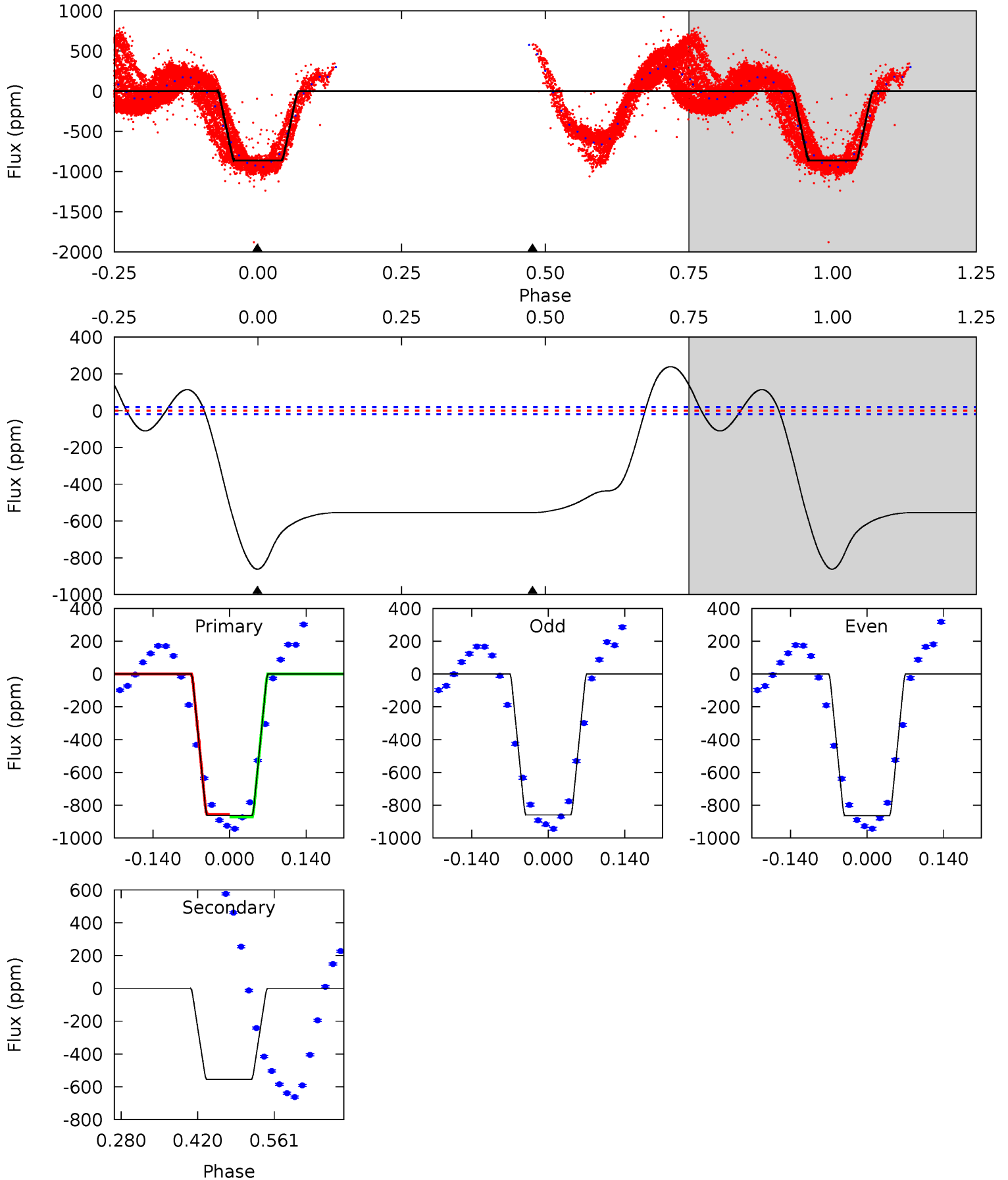
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008018827-02, P = 0.795784 Days, E = 131.273813 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
198.1	127.5	0	0	4.49	1.48	38.1	198.1	198.1	127.5	127.5	0.53	0.97	0.22	2.25



### Stellar Parameters For KIC 008018827

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$9416^{+301}_{-451}$	$3.663^{+0.488}_{-0.122}$	$0.070^{+0.150}_{-0.700}$	$4.009^{+0.760}_{-2.280}$	$2.699^{+0.336}_{-1.009}$	$0.059^{+0.343}_{-0.023}$
	+3%/-5%	+13%/-3%	+214%/-1000%	+19%/-57%	+12%/-37%	+582%/-39%
Source	KIC0	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 008018827-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$30.48^{+33.14}_{-22.83}$	$7411^{+577}_{-943}$	$5360^{+69972}_{-70953}$	$0.622^{+72.115}_{-58.549}$
Alt.	$-554 \pm 4$	$30.94^{+31.78}_{-21.63}$	$7343^{+553}_{-983}$	$-4518^{+12855}_{-1089}$	$0.173^{+1.647}_{-0.130}$

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

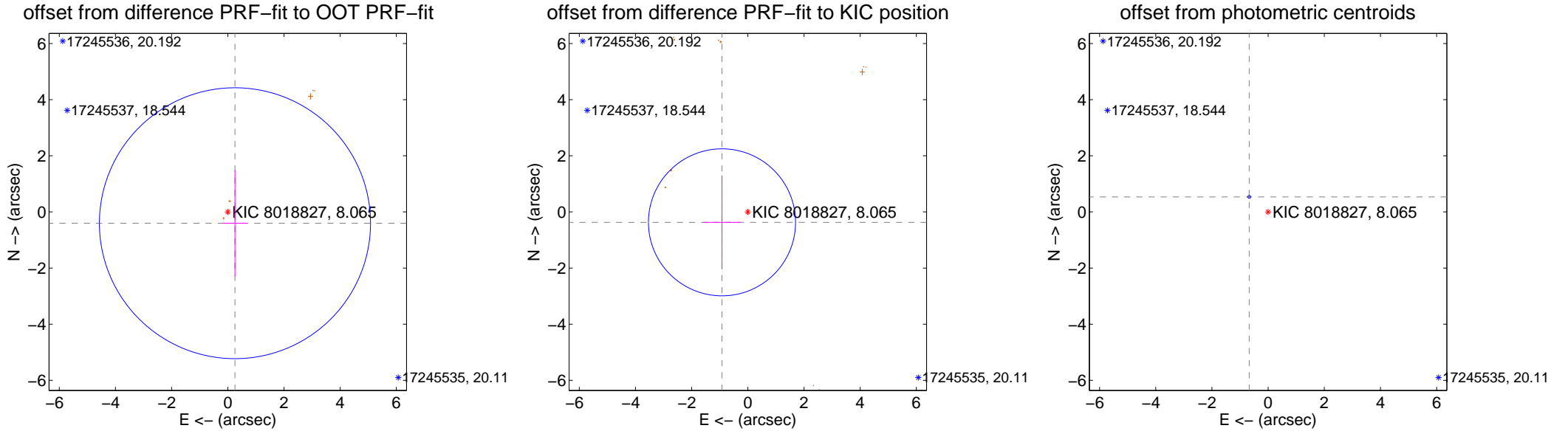
## DV Centroid Data

Supplemental centroid analysis for 008018827-02. **Kepler magnitude: 8.06.** Transit SNR -1.00

**There are 0 quarters with good PRF difference image offsets**

The direct PRF centroid is offset from the target star catalog position by about 1.43 arcsec

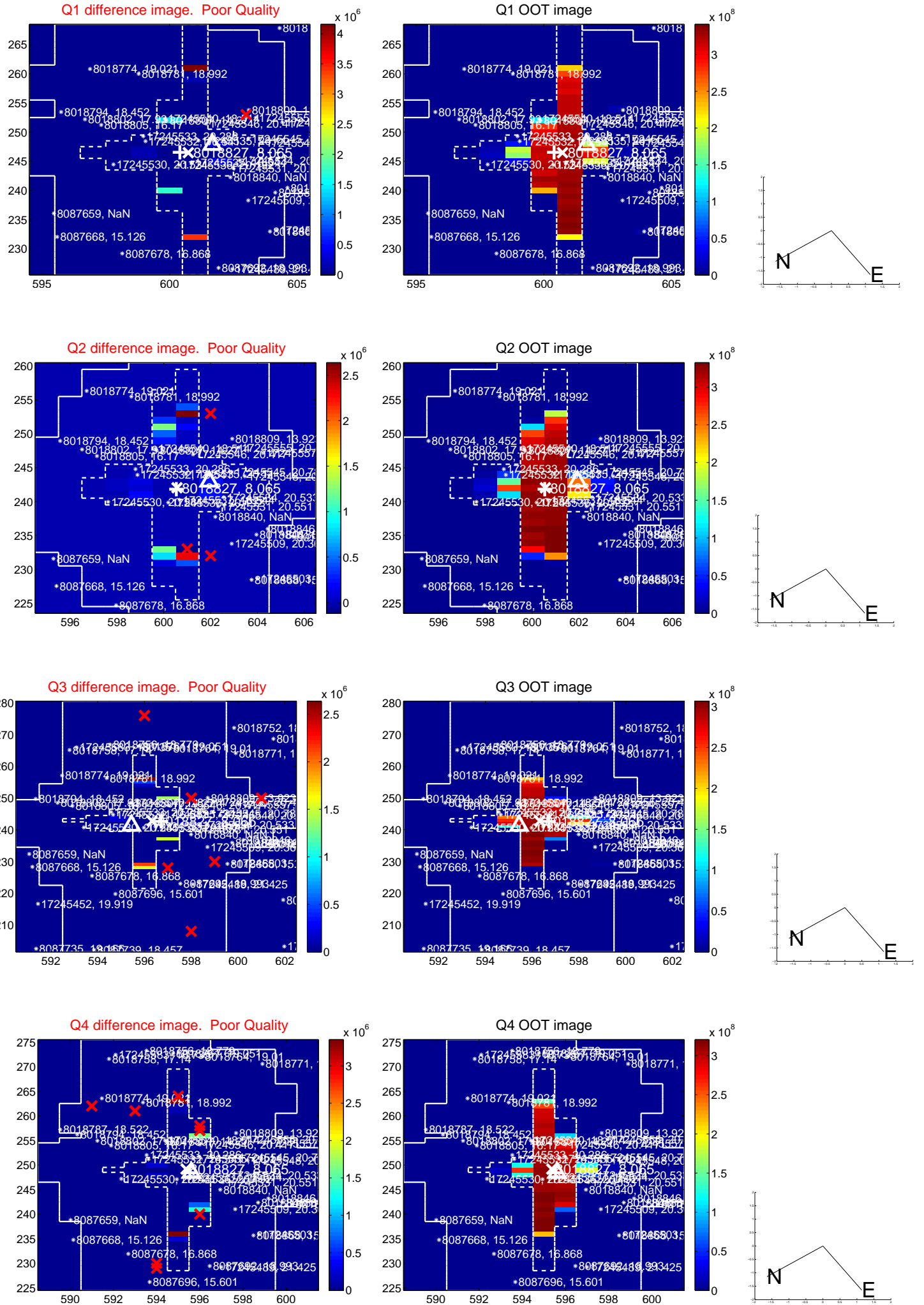
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.476 \pm 1.609$	0.30	$-0.255 \pm 0.433$	$-0.402 \pm 1.884$
PRF-fit source offset from KIC position	$0.992 \pm 0.873$	1.14	$0.920 \pm 0.658$	$-0.370 \pm 1.670$
photometric centroid source offset	<b><math>0.86 \pm 0.02</math></b>	<b>51.33</b>	$0.67 \pm 0.02$	$0.54 \pm 0.01$



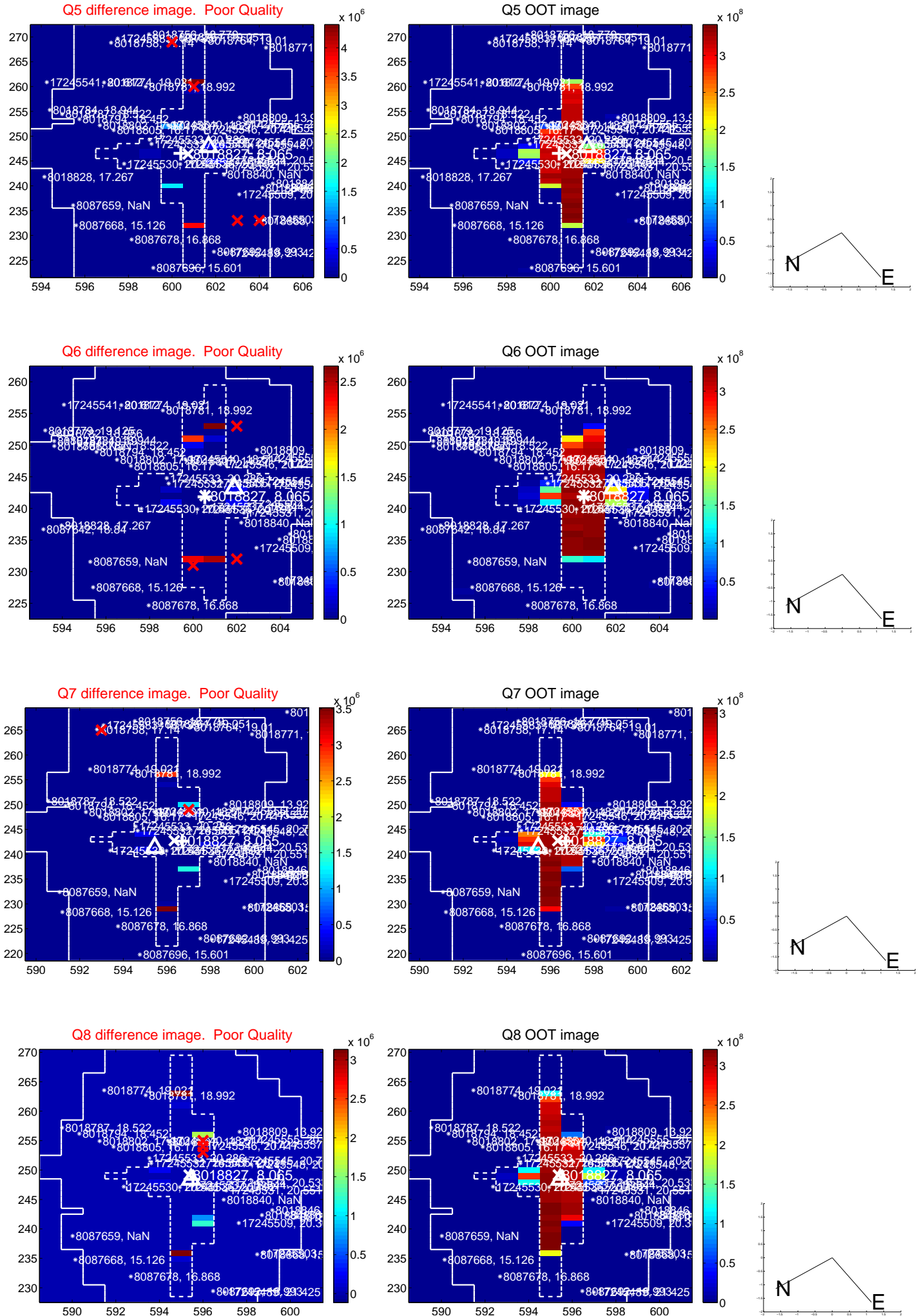
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



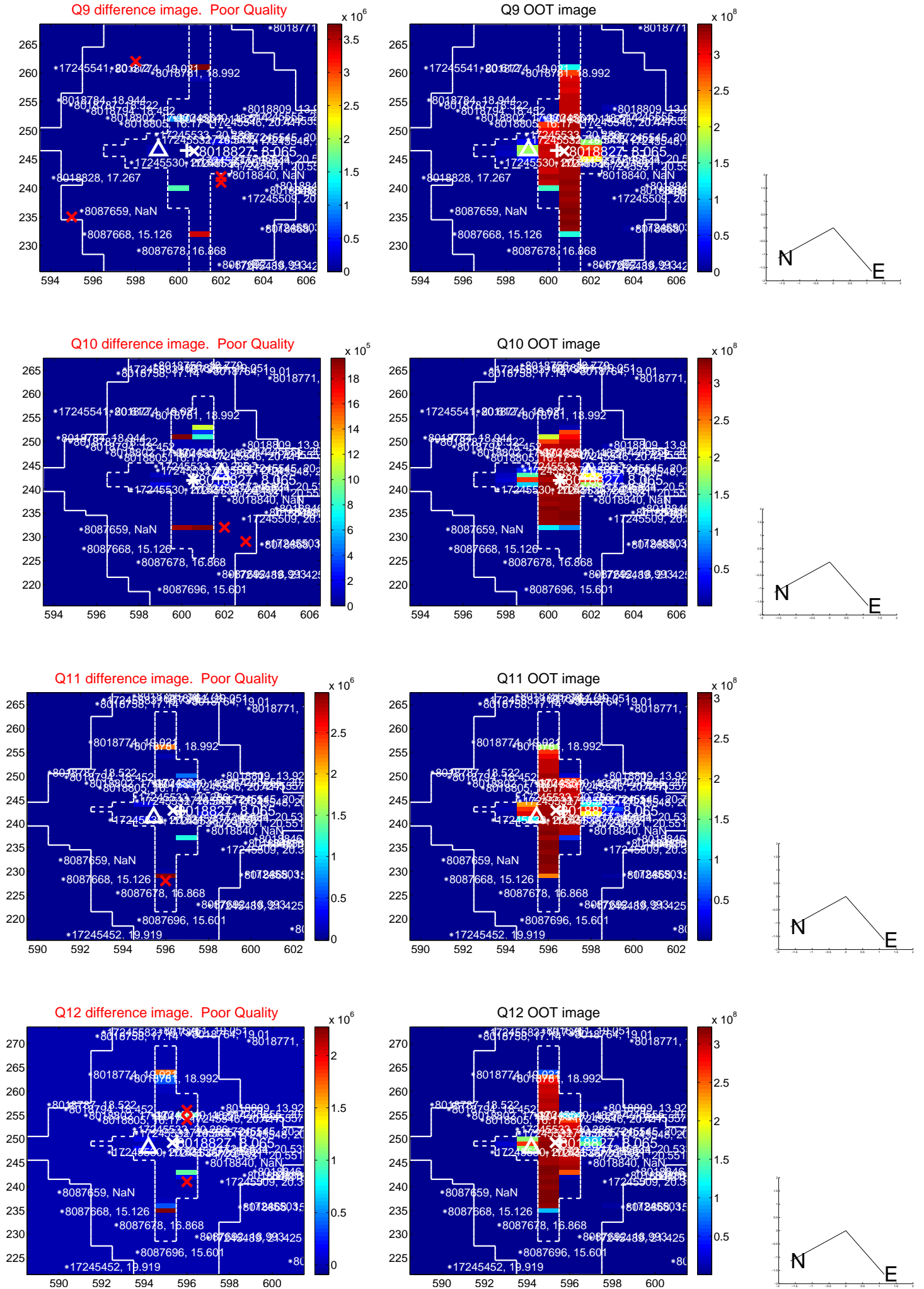
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



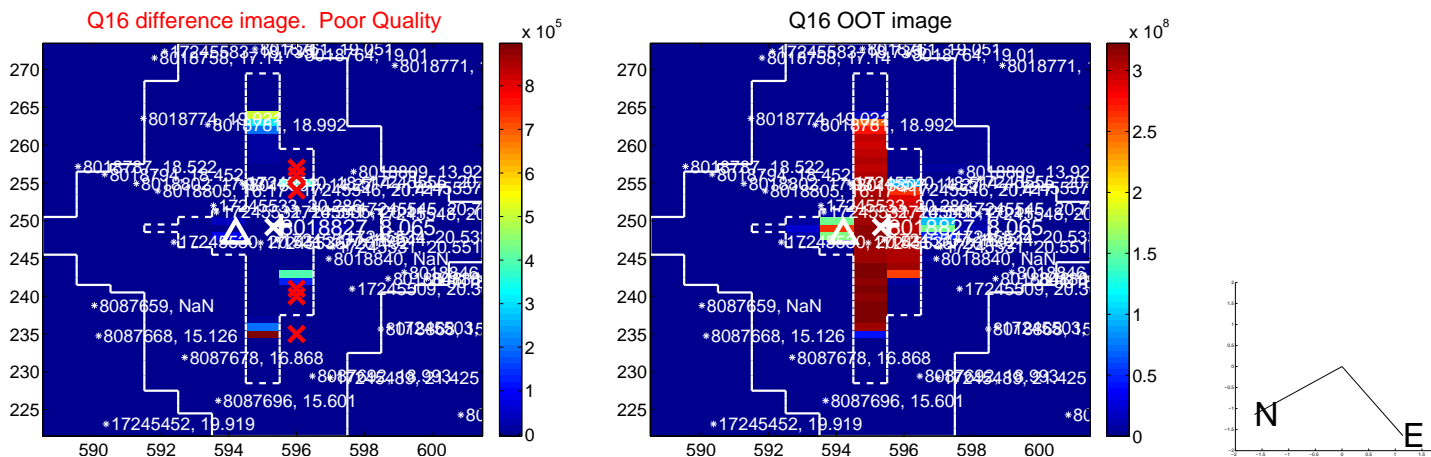
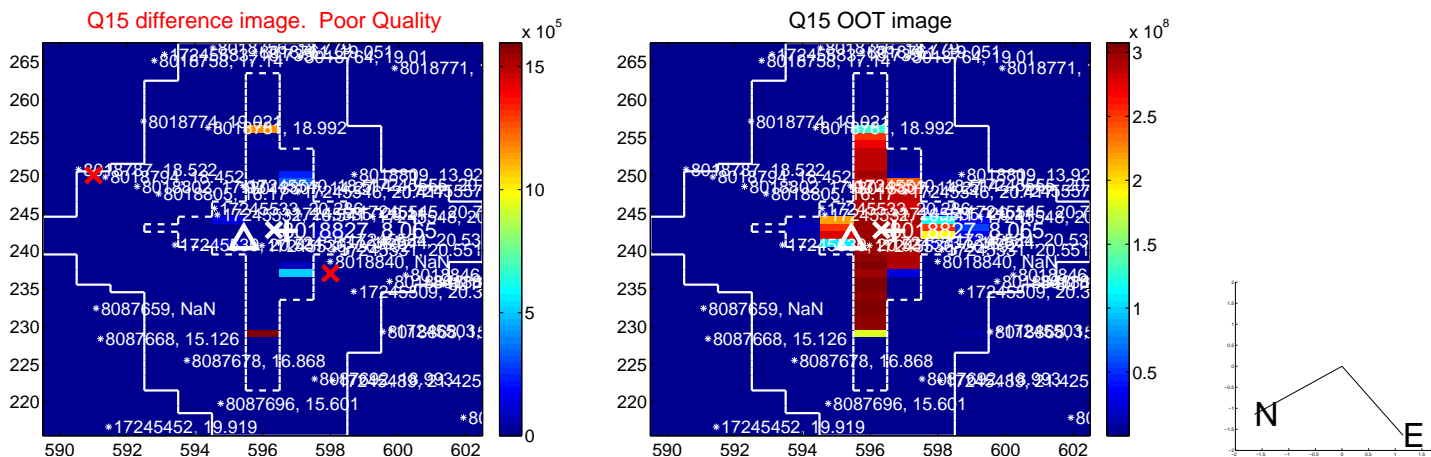
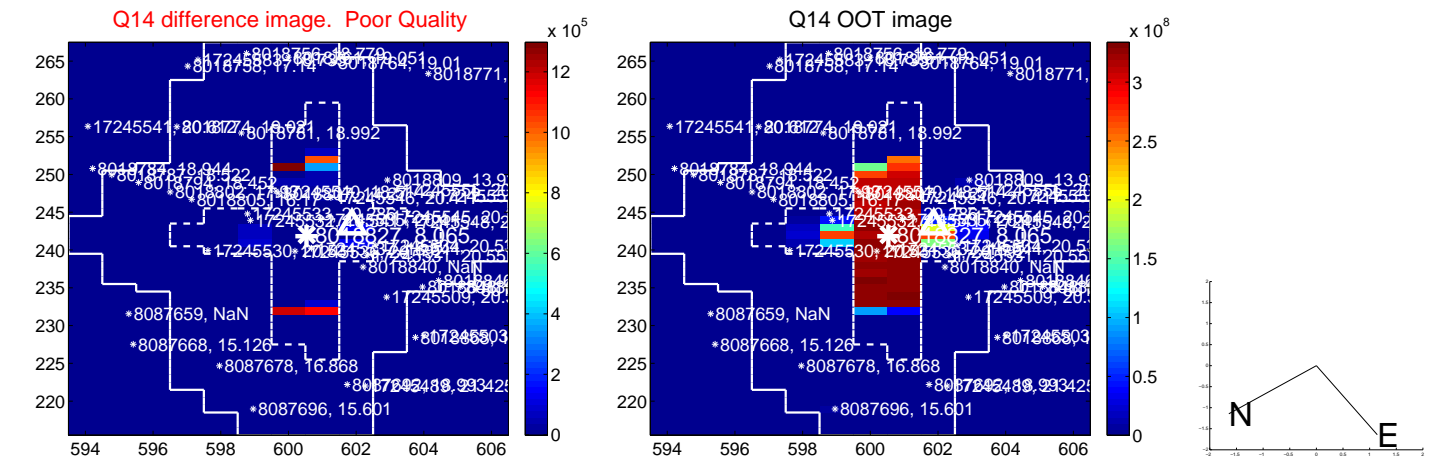
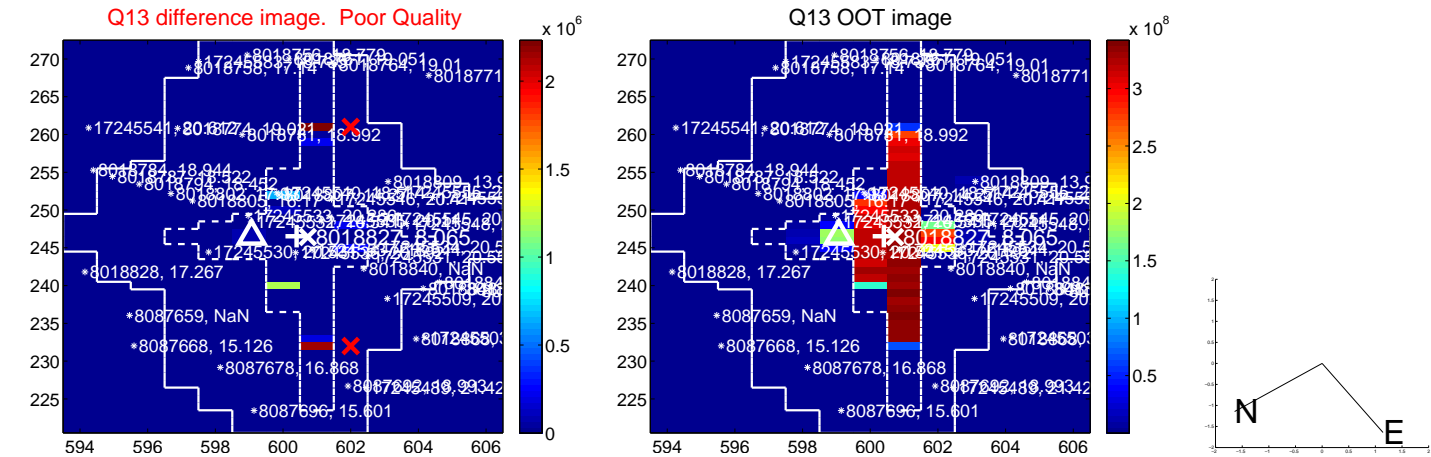
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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







UKIRT Image

Declination

