

# KIC 006388827

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006388827-01	OBS	No	1.283851	132.034606	90.2	7.040	8.7	5.3	1.04	6388	1.10	2841.32
006388827-02	OBS	No	1.283890	131.690667	753.6	15.407	13.1	15.7	1.04	6388	3.06	2841.20

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006388827-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
006388827-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

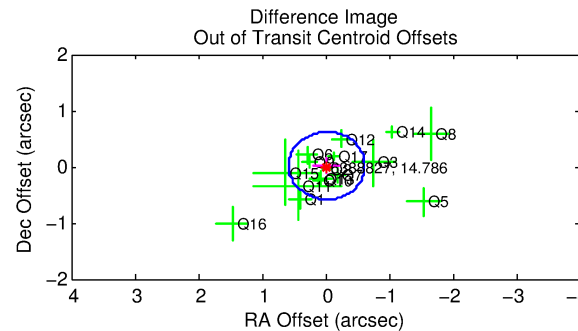
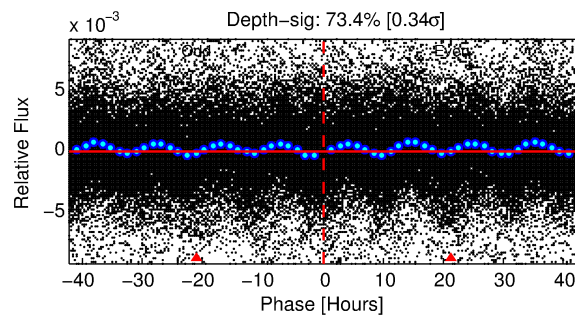
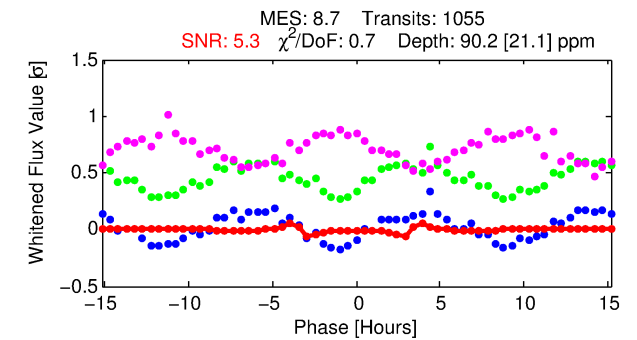
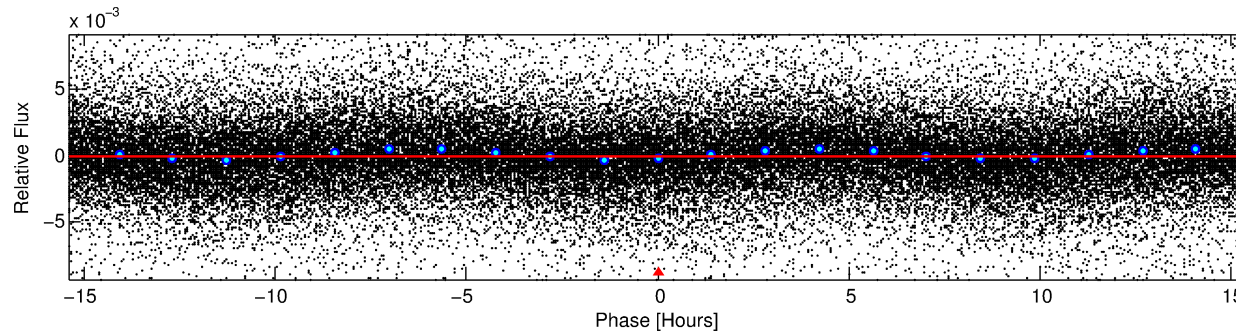
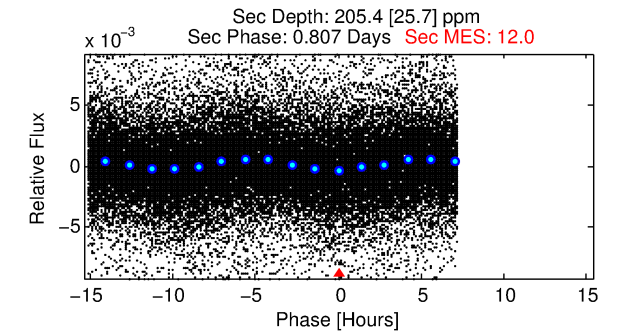
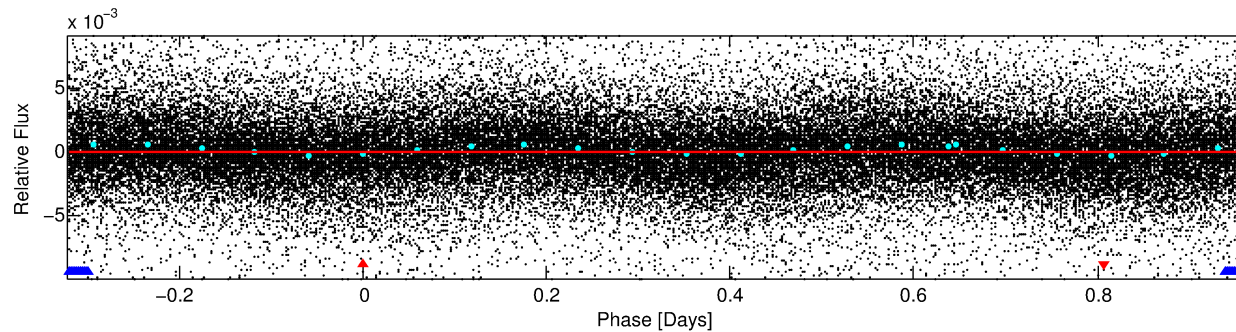
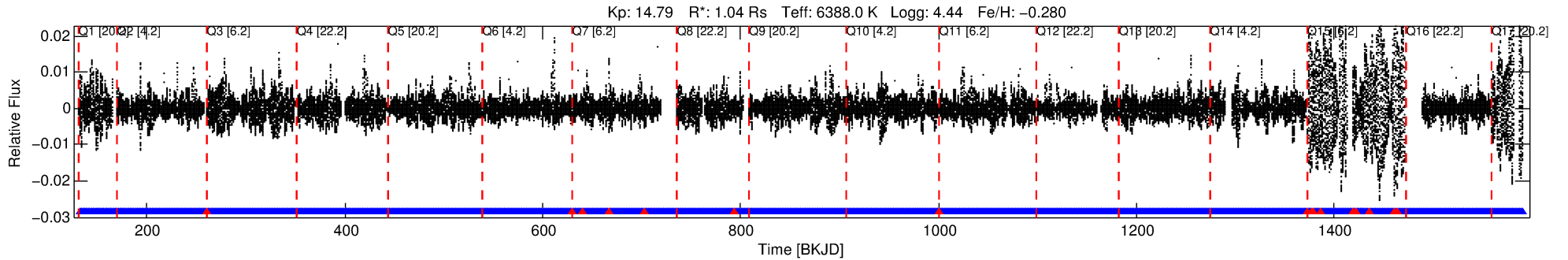
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006388827-01

No Significant Match Found

# DV One-Page Summary

KIC: 6388827 Candidate: 1 of 2 Period: 1.284 d



## DV Fit Results:

Period = 1.28385 [0.00002] d  
Epoch = 132.0346 [0.0032] BKJD  
Rp/R\* = 0.0097 [0.0029]  
a/R\* = 1.22 [0.57]  
b = 0.82 [0.59]  
Seff = 2841.32 [1102.77]  
Teq = 1862 [181] K  
Rp = 1.10 [0.47] Re  
a = 0.0238 [0.0060] AU  
Ag = 53.13 [37.77] [1.38σ]  
**Teffp = 7771 [1217] K [4.80σ]**

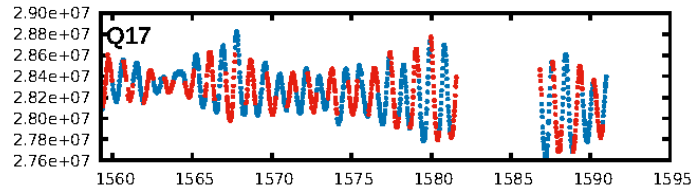
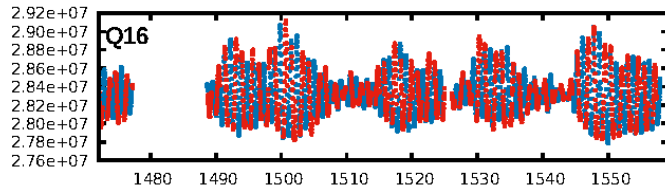
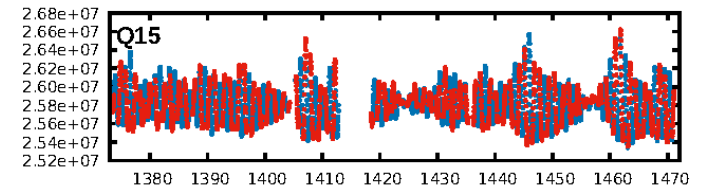
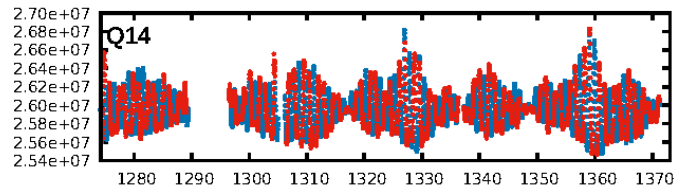
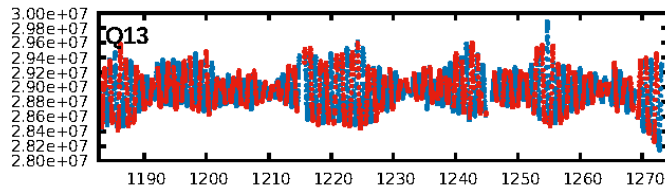
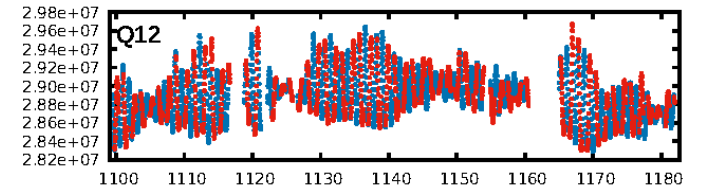
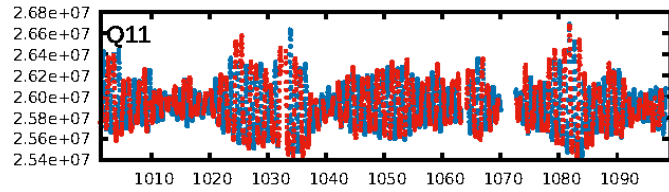
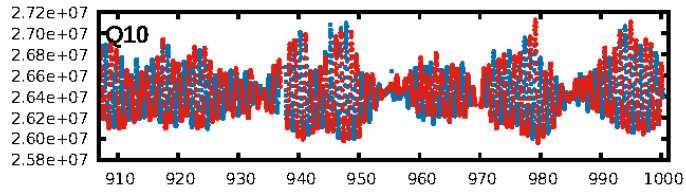
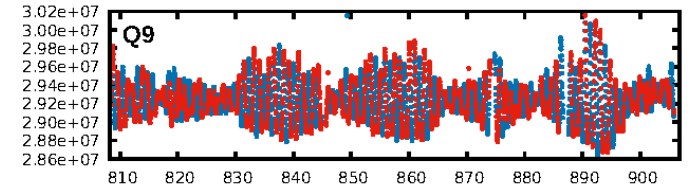
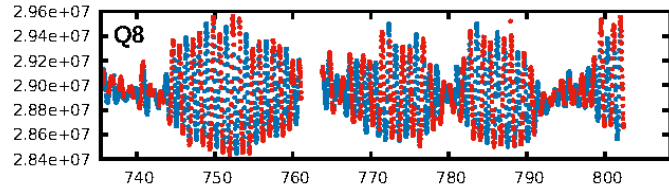
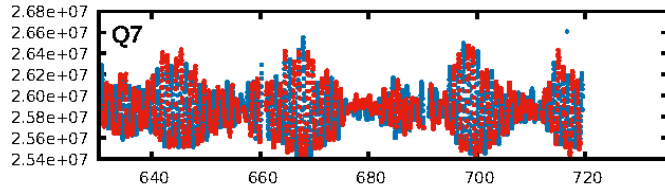
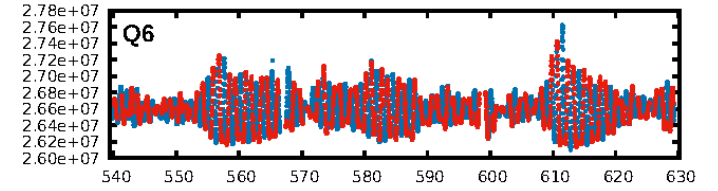
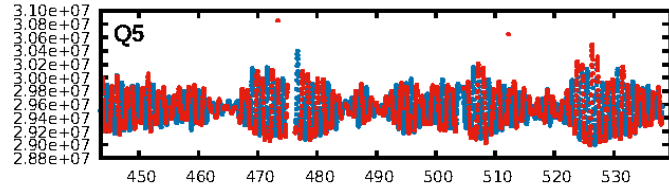
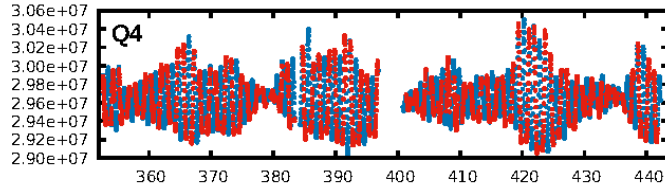
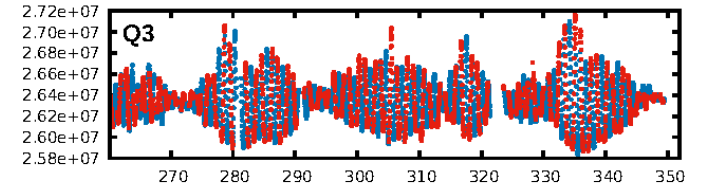
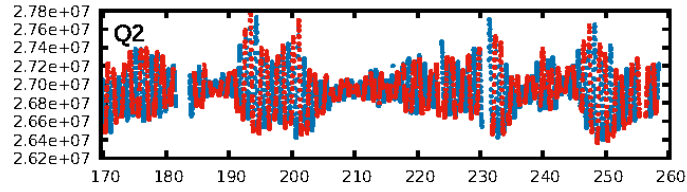
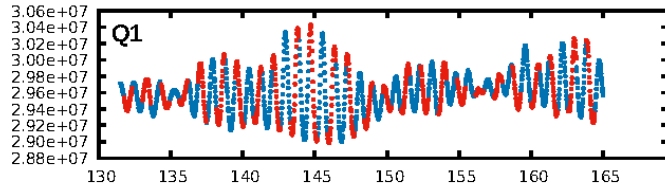
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
**LongPeriod-sig: 0.0% [0.00σ]**  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.98 [992/1008]  
GhostDiagnostic-chr: 1.782  
Centroid-sig: 69.6%  
Centroid-so: 0.020 arcsec [0.03σ]  
OotOffset-rm: 0.025 arcsec [0.12σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-rm: 0.117 arcsec [0.59σ]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.50 [8/16]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:49:04 Z

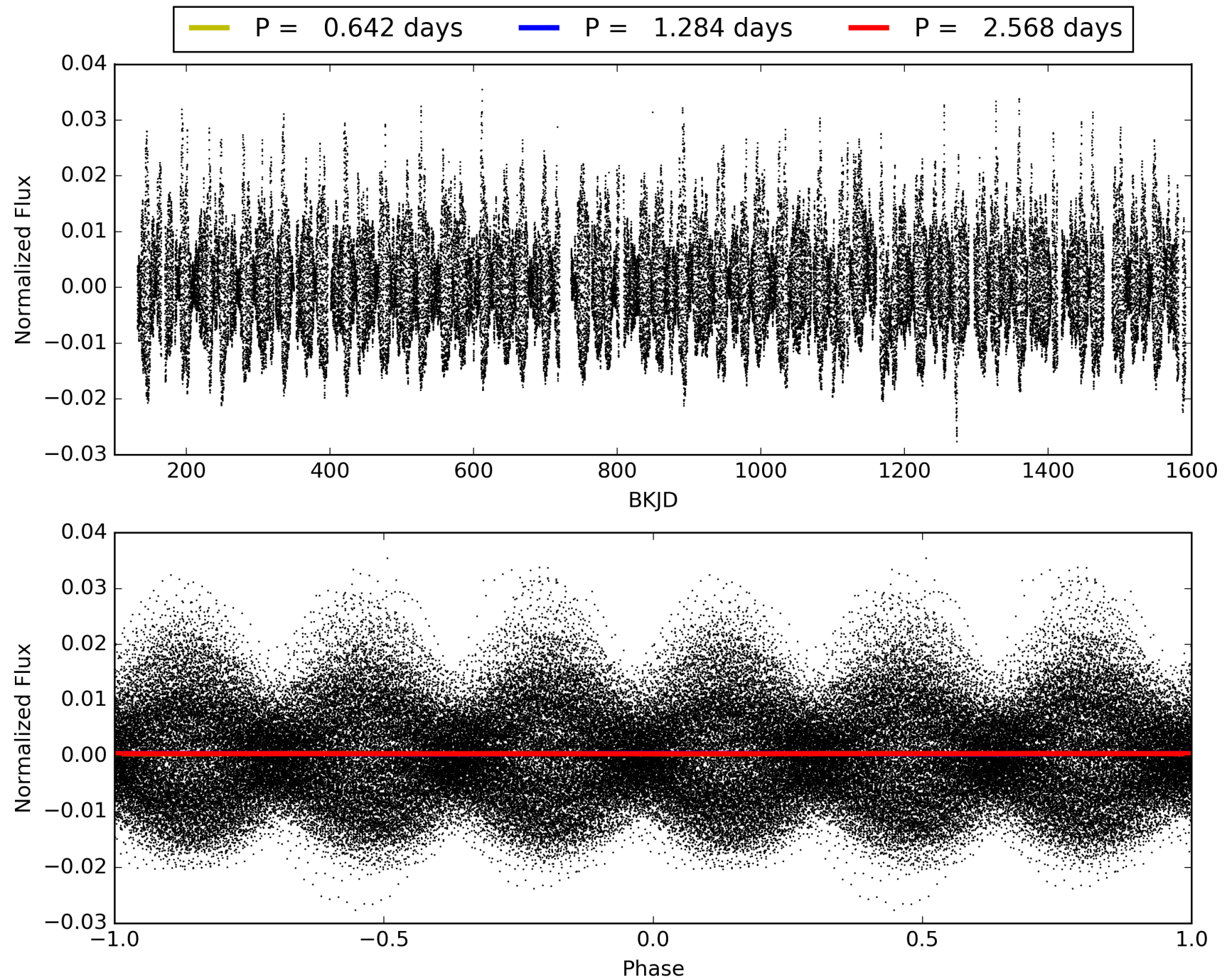
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006388827-01, PDC Light Curves



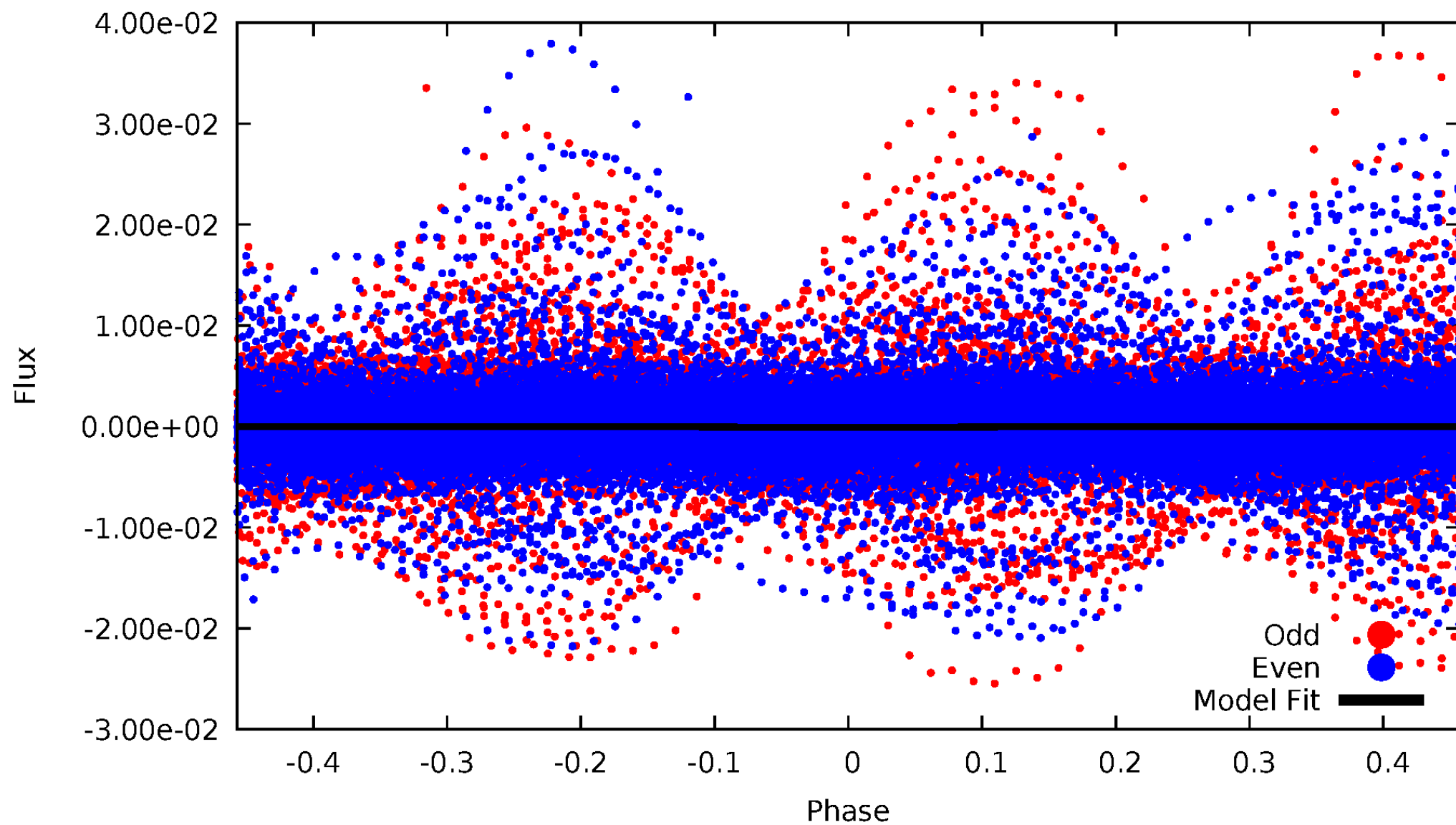


TCE 006388827-01



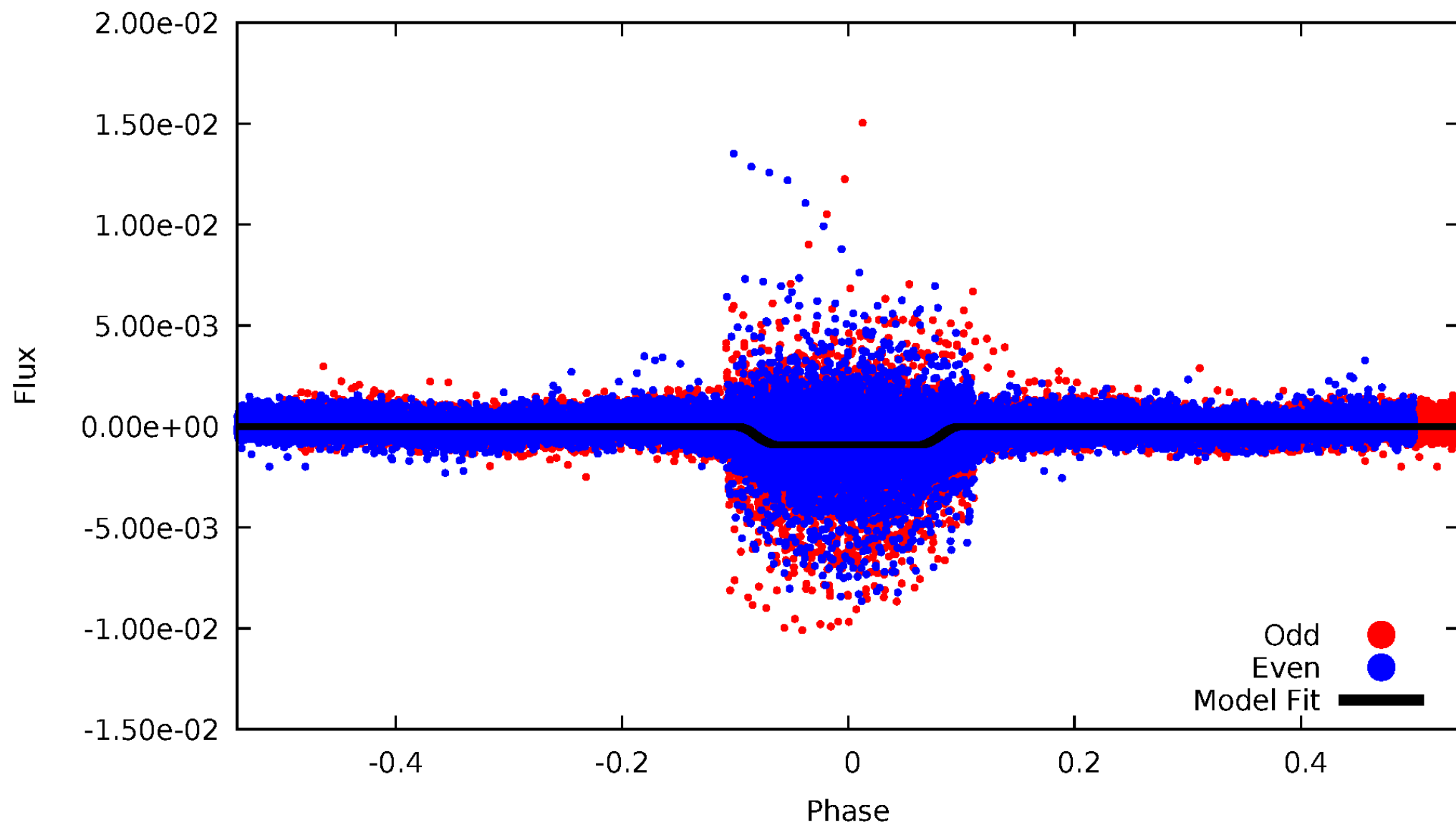
# DV Odd/Even

TCE 006388827-01



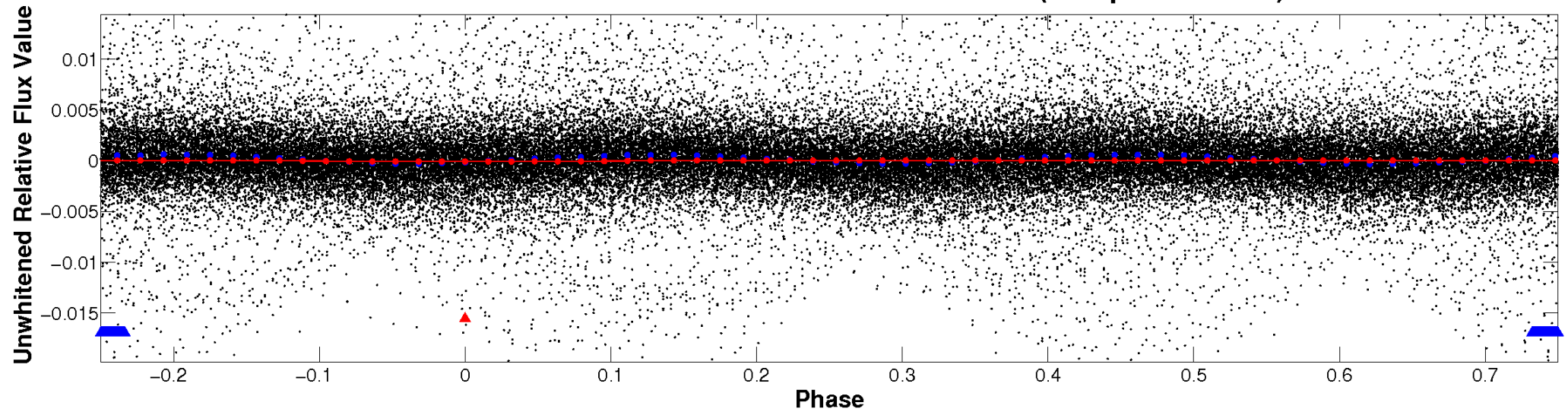
# ALT Odd/Even

TCE 006388827-01

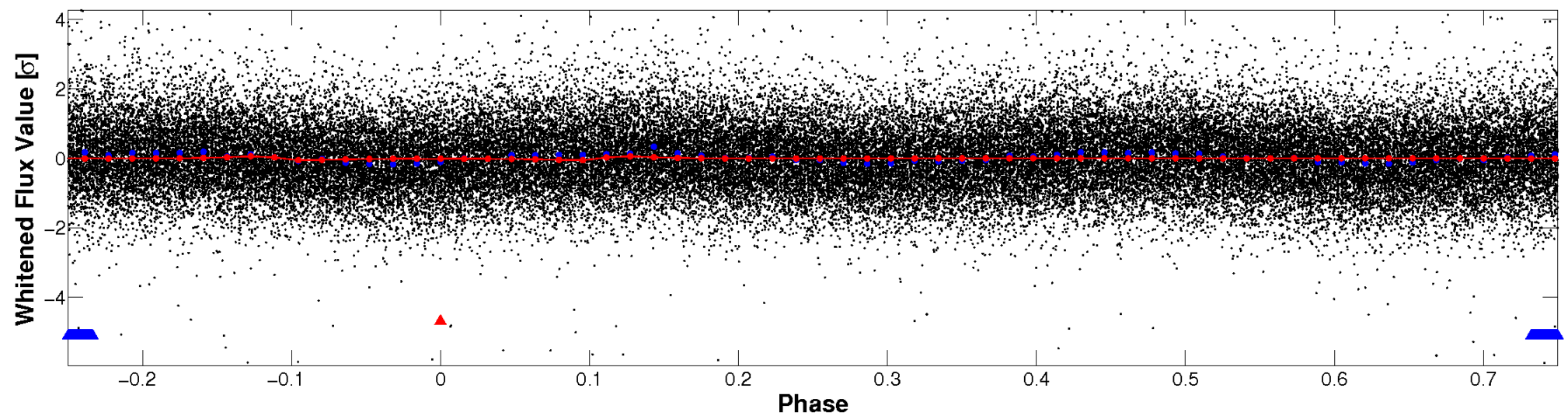


# Non-Whitened Vs. Whitened Light Curve

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



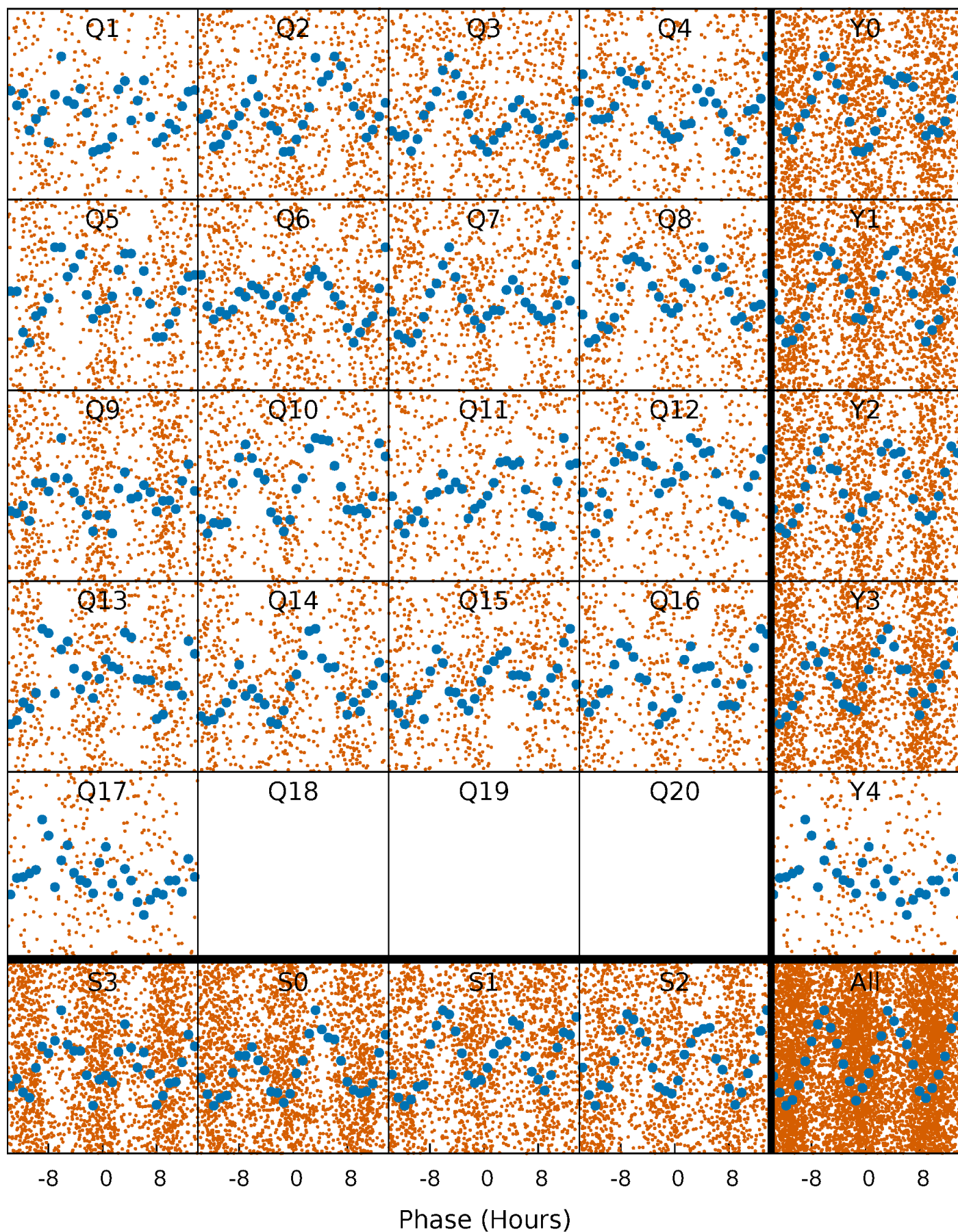
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

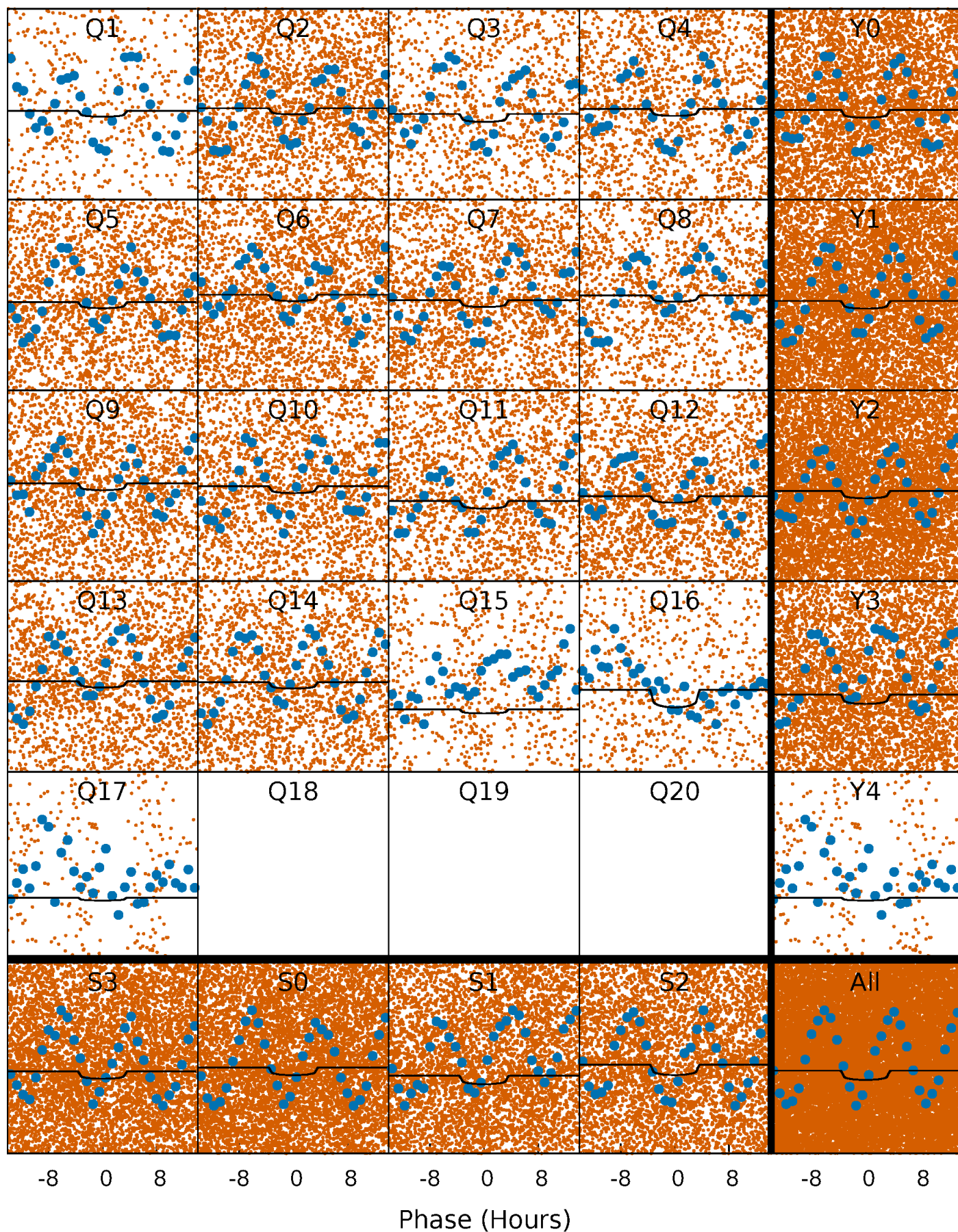
TCE 006388827-01 P= 1.283851 Days  $T_0=132.034606$  (BKJD)





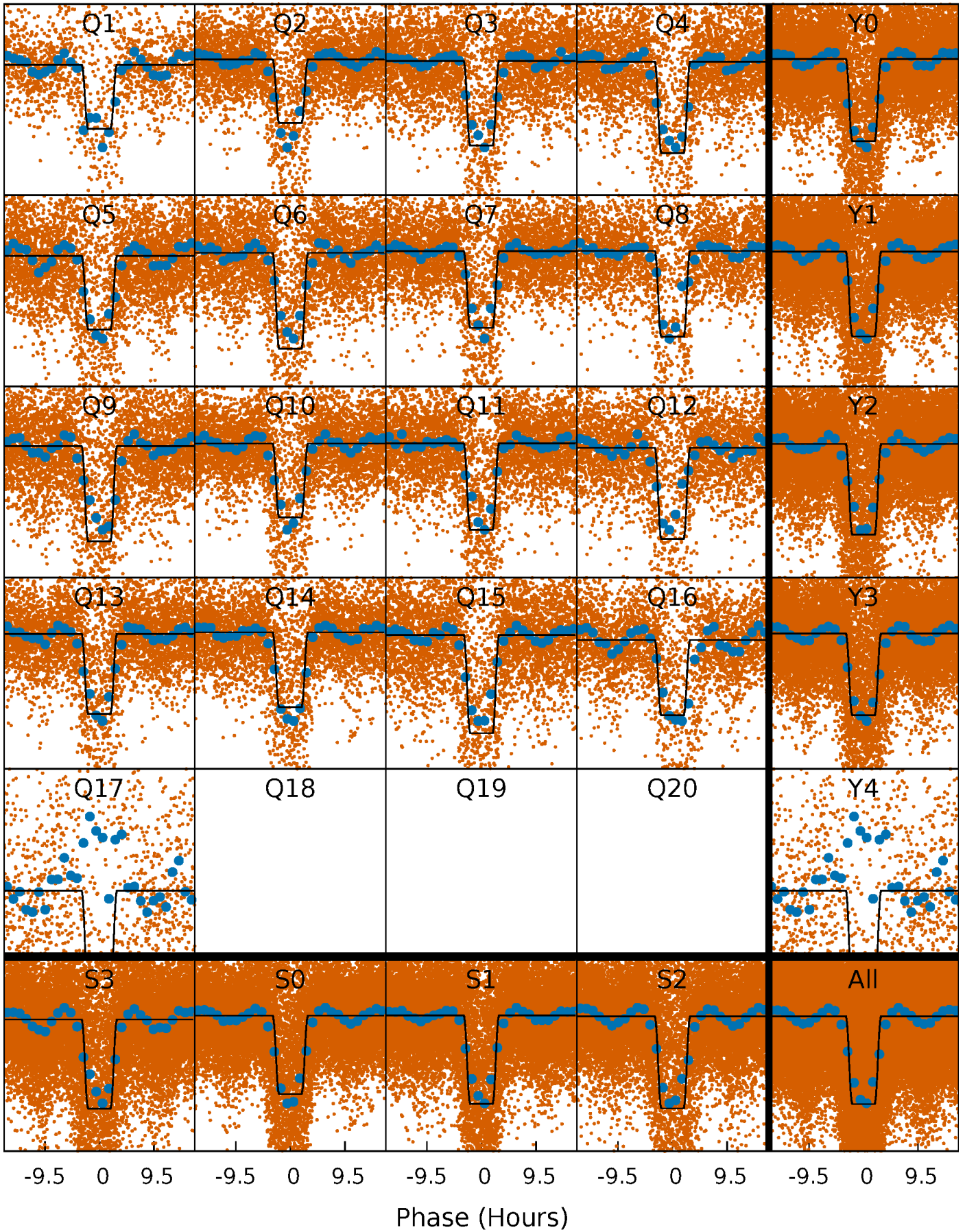
# DV Quarter-Phased Transit Curves

TCE 006388827-01 P= 1.283851 Days  $T_0=132.034606$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006388827-01   P= 1.283773 Days    $T_0=132.020900$  (BKJD)

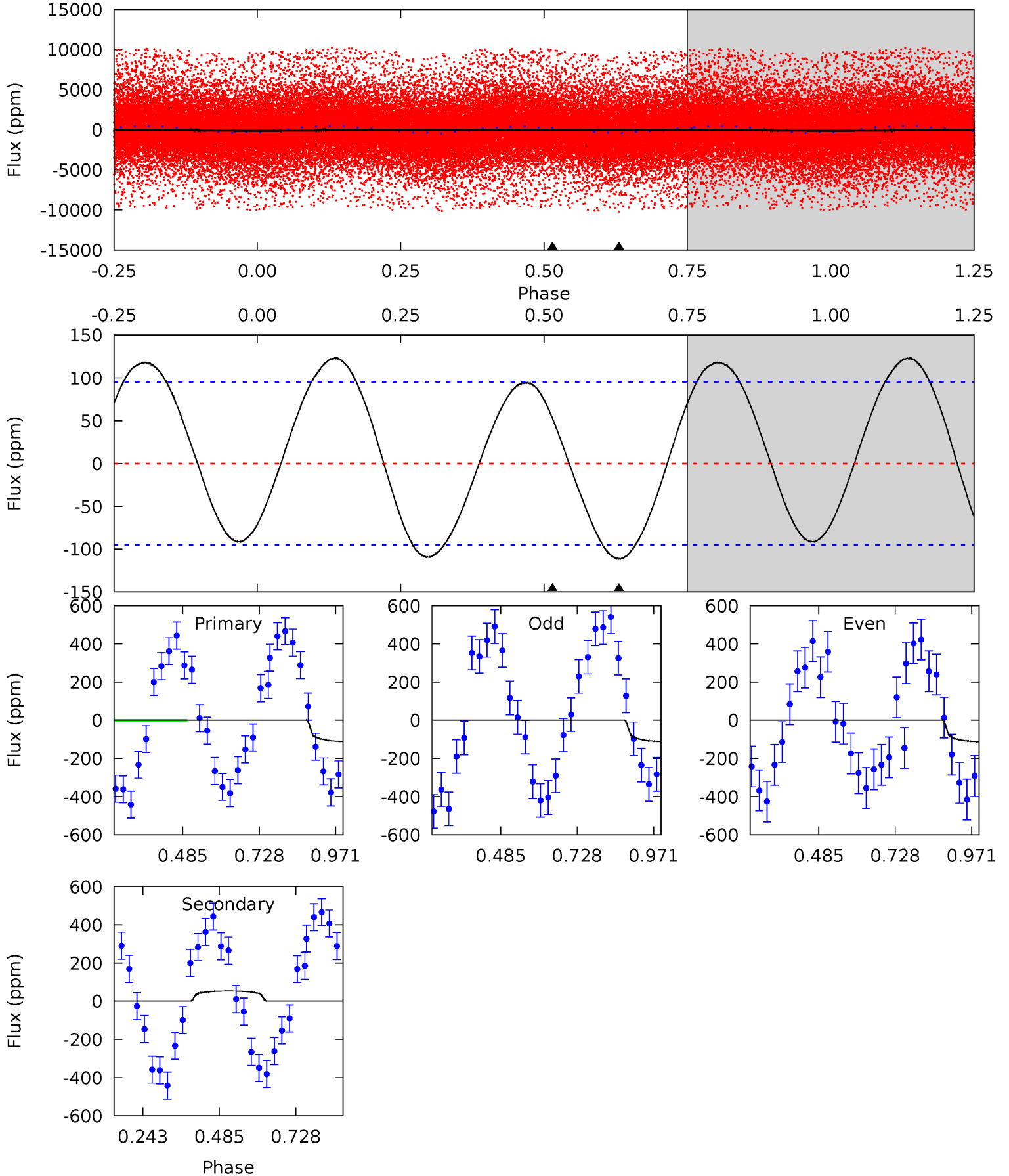




# DV Model-Shift Uniqueness Test

006388827-01, P = 1.283851 Days, E = 130.750755 Days

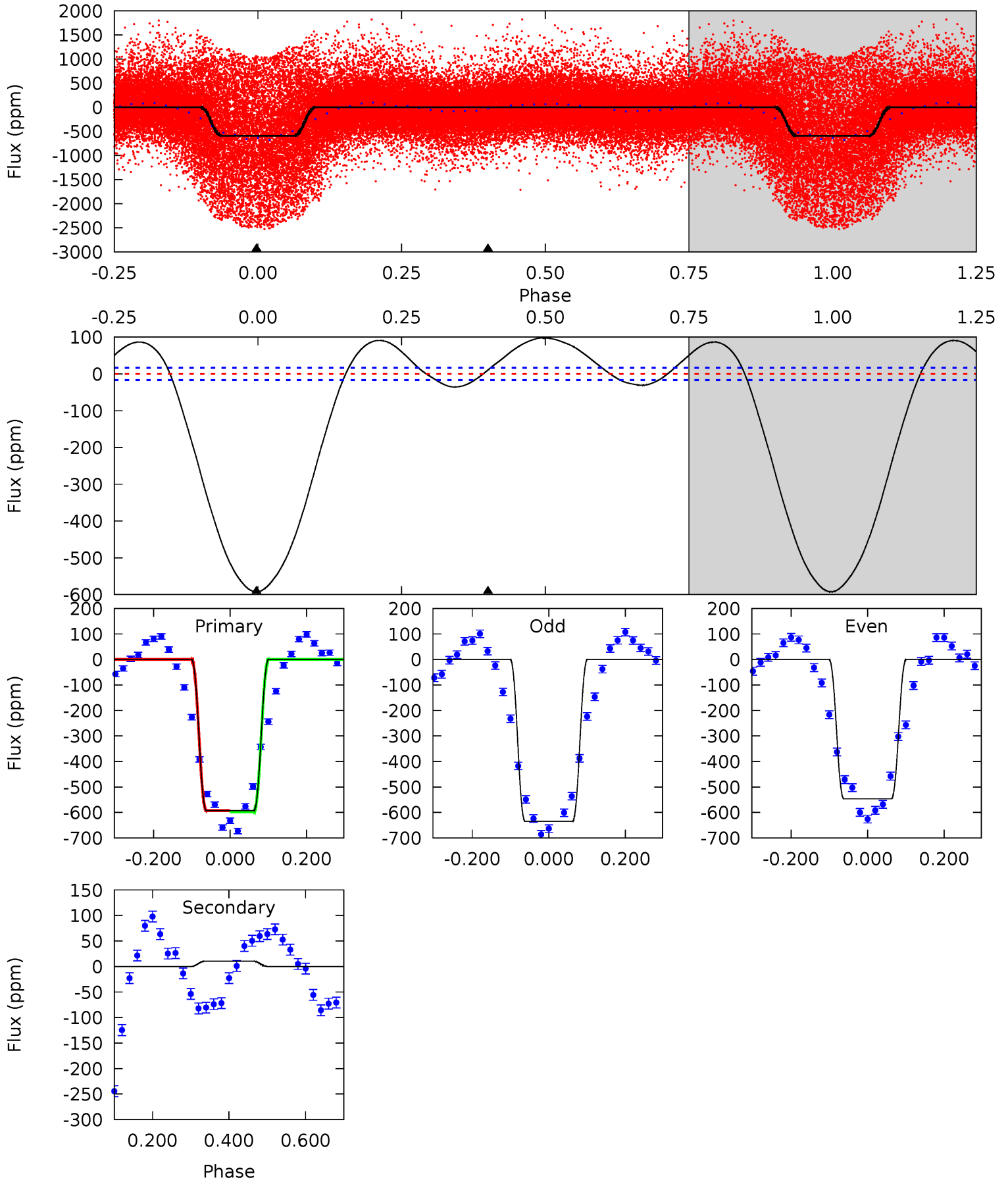
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.11	-2.44	0	0	4.38	1.17	3.36	5.11	5.11	-2.44	-2.44	0.04	0.29	0.52	5.19



# Alt Model-Shift Uniqueness Test

006388827-01, P = 1.283773 Days, E = 130.737127 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
160.3	-2.81	0	0	4.42	1.28	11.1	160.3	160.3	-2.81	-2.81	11.9	1.27	0.14	0





### Stellar Parameters For KIC 006388827

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6388^{+154}_{-220}$	$4.442^{+0.065}_{-0.195}$	$-0.280^{+0.250}_{-0.300}$	$1.037^{+0.319}_{-0.106}$	$1.084^{+0.143}_{-0.143}$	$1.368^{+0.378}_{-0.712}$
	+2%/-3%	+1%/-4%	+89%/-107%	+31%/-10%	+13%/-13%	+28%/-52%
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 006388827-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$53 \pm 22$	$1.16^{+0.36}_{-0.37}$	$2632^{+175}_{-124}$	$-5481^{+764}_{-1246}$	$-11.979^{+6.560}_{-15.724}$
Alt.	$10 \pm 4$	$3.51^{+0.61}_{-0.45}$	$2638^{+173}_{-120}$	$-3149^{+114}_{-133}$	$-0.247^{+0.094}_{-0.136}$

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

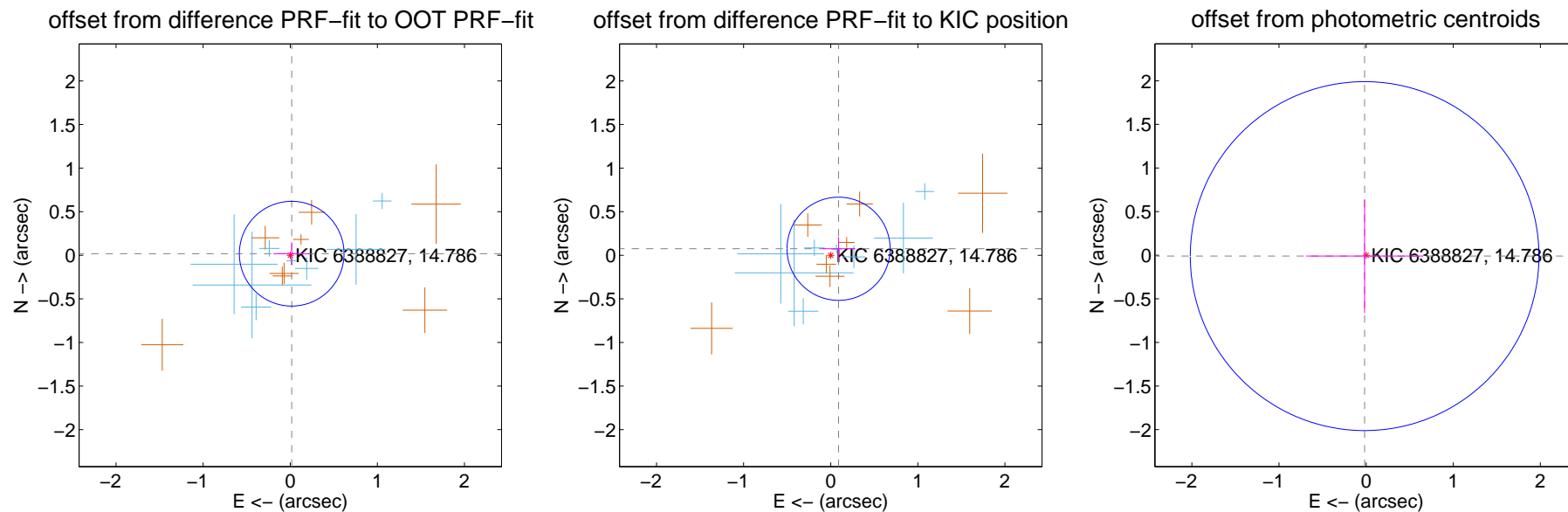
## DV Centroid Data

Supplemental centroid analysis for 006388827-01. Kepler magnitude: 14.79. Transit SNR 5.29

There are 8 quarters with good PRF difference image offsets

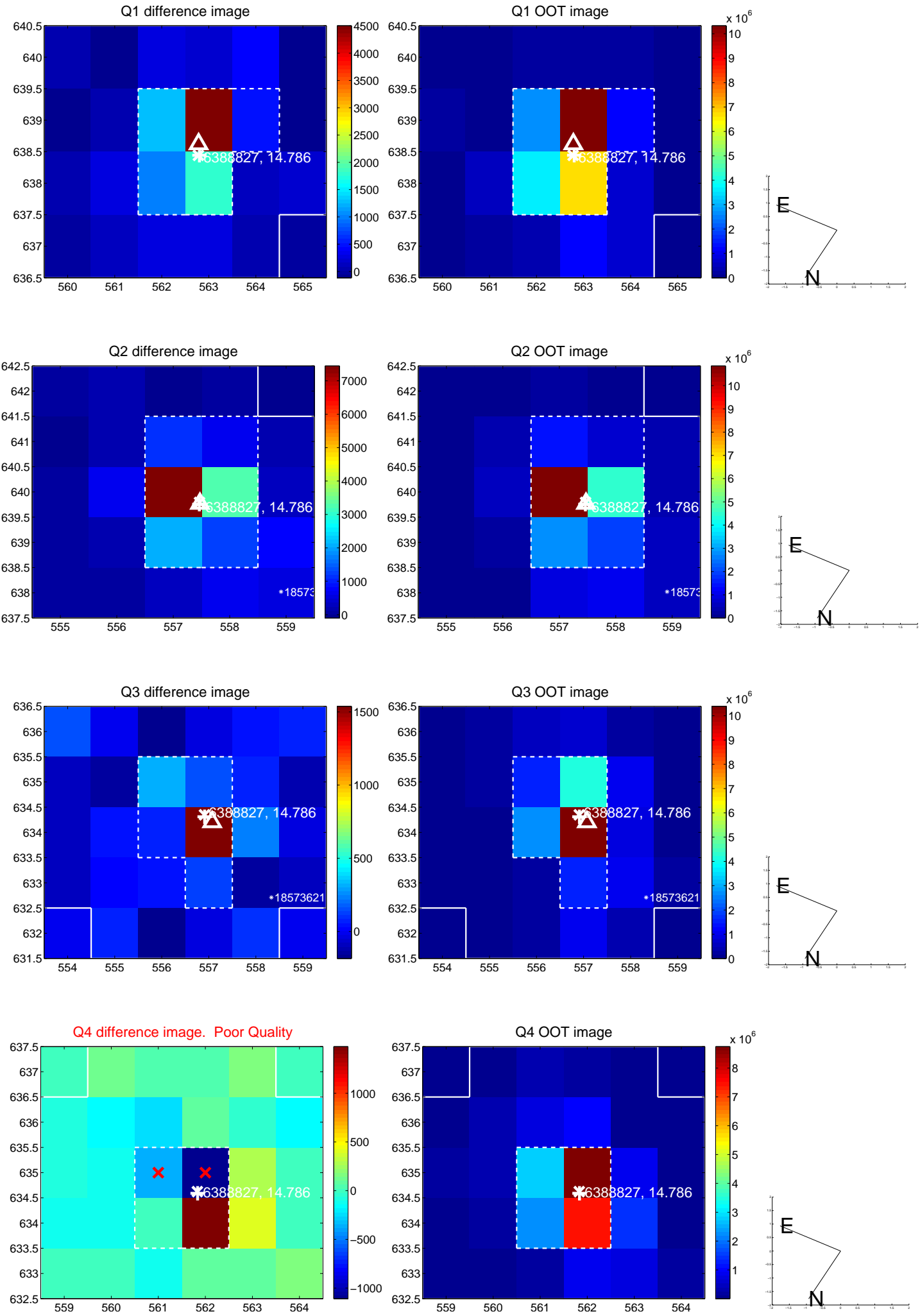
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.025 \pm 0.200$	0.12	$-0.016 \pm 0.210$	$0.018 \pm 0.130$
PRF-fit source offset from KIC position	$0.117 \pm 0.197$	0.59	$-0.090 \pm 0.192$	$0.075 \pm 0.134$
photometric centroid source offset	$0.02 \pm 0.67$	0.03	$0.02 \pm 0.67$	$-0.01 \pm 0.65$

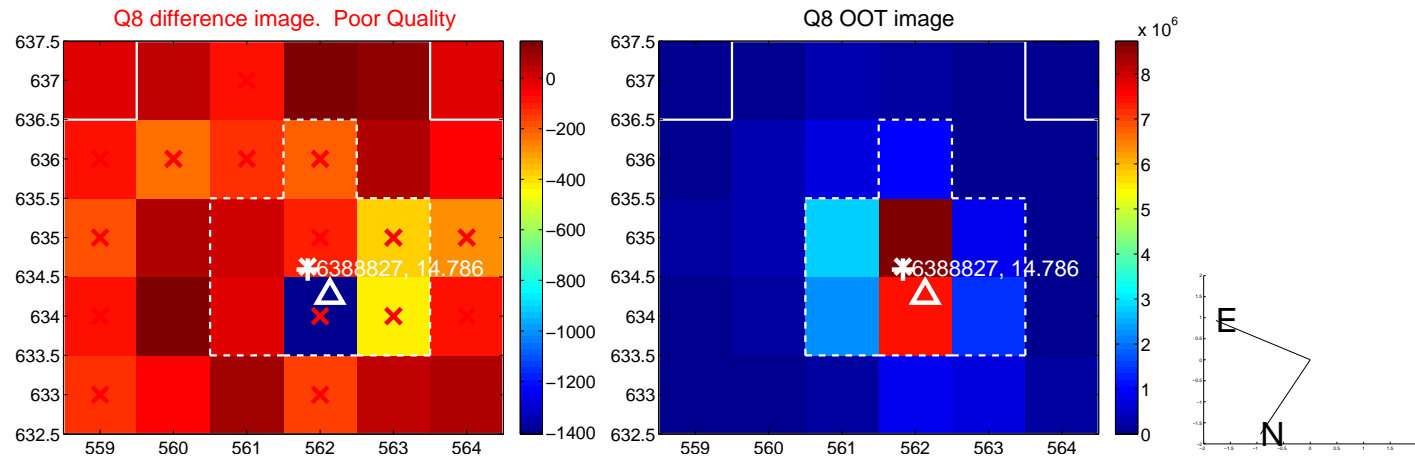
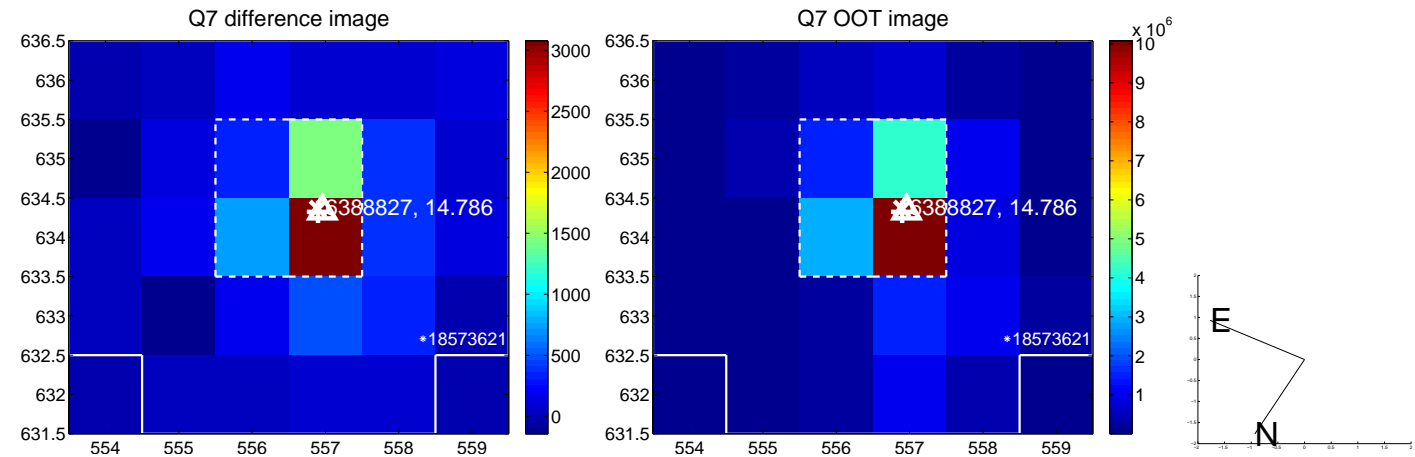
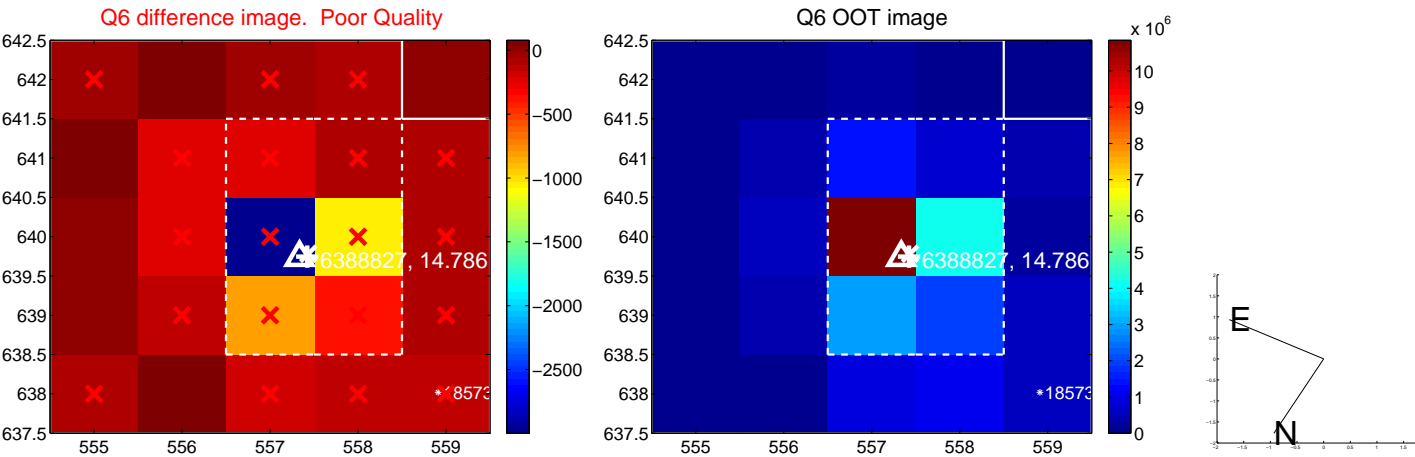
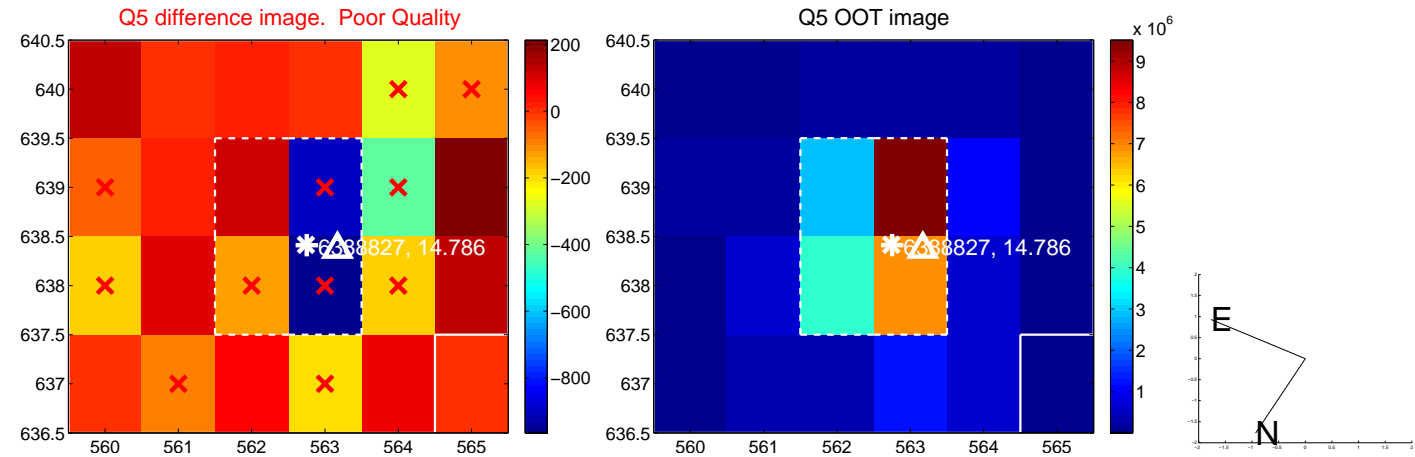


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

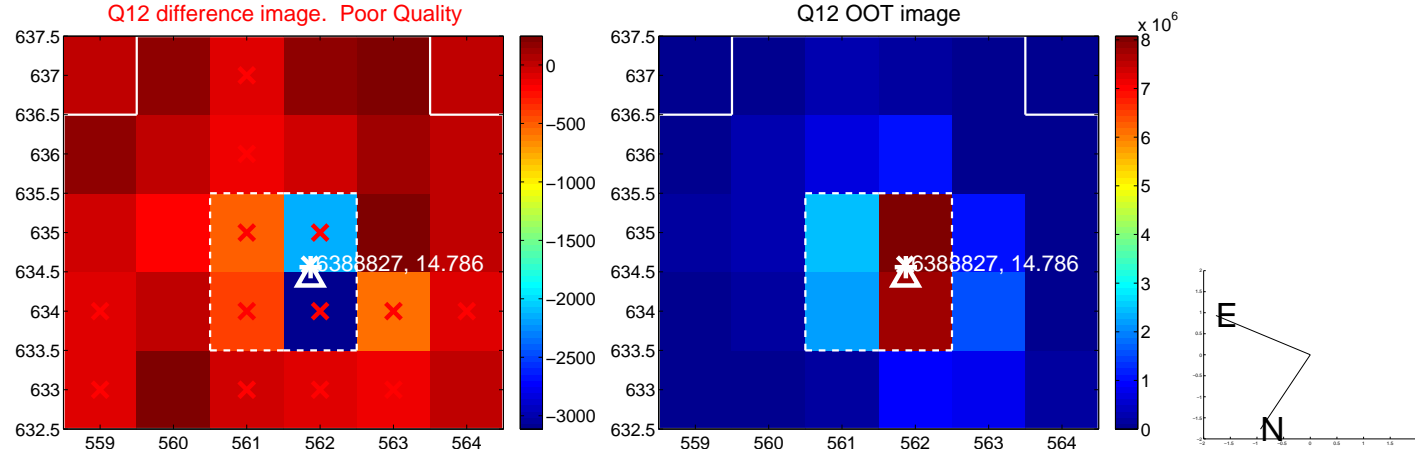
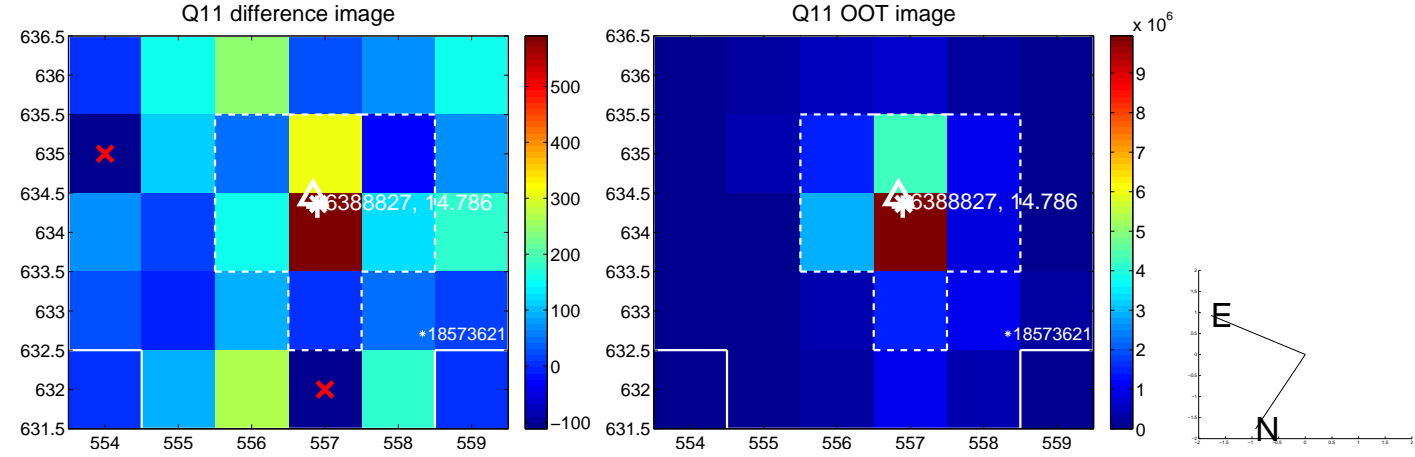
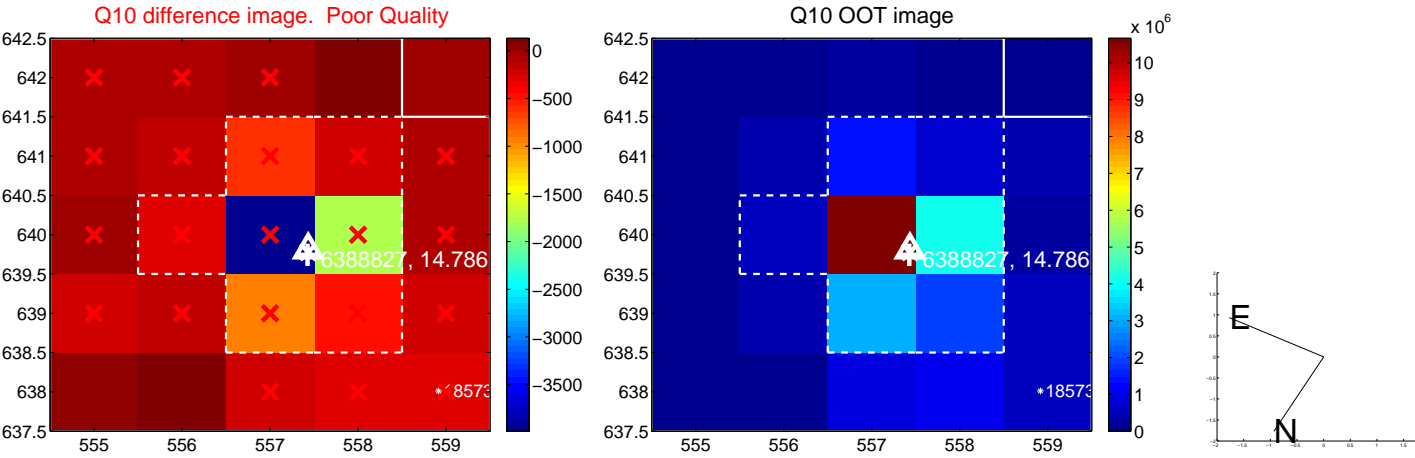
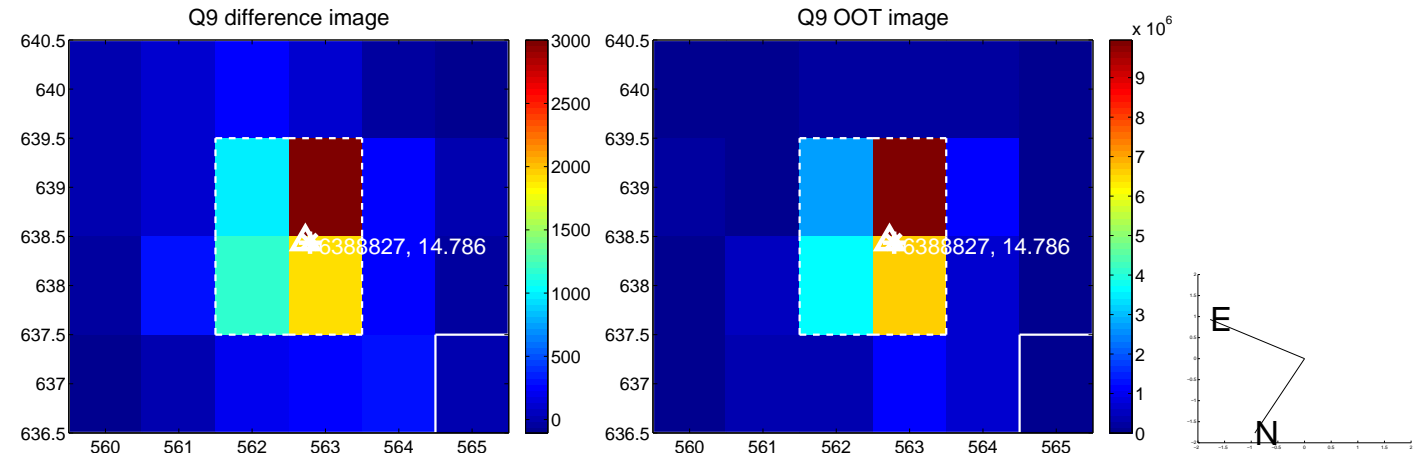


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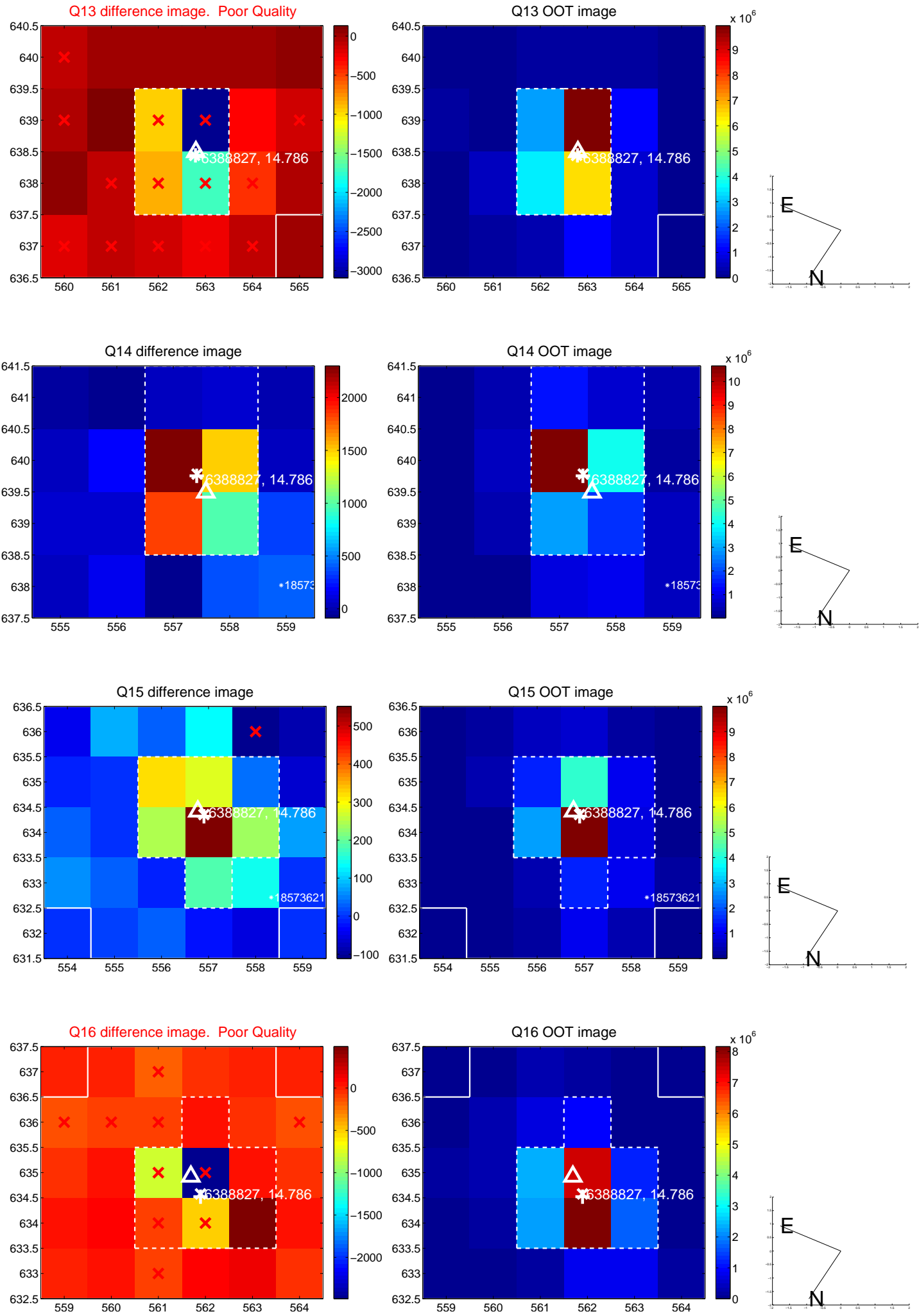




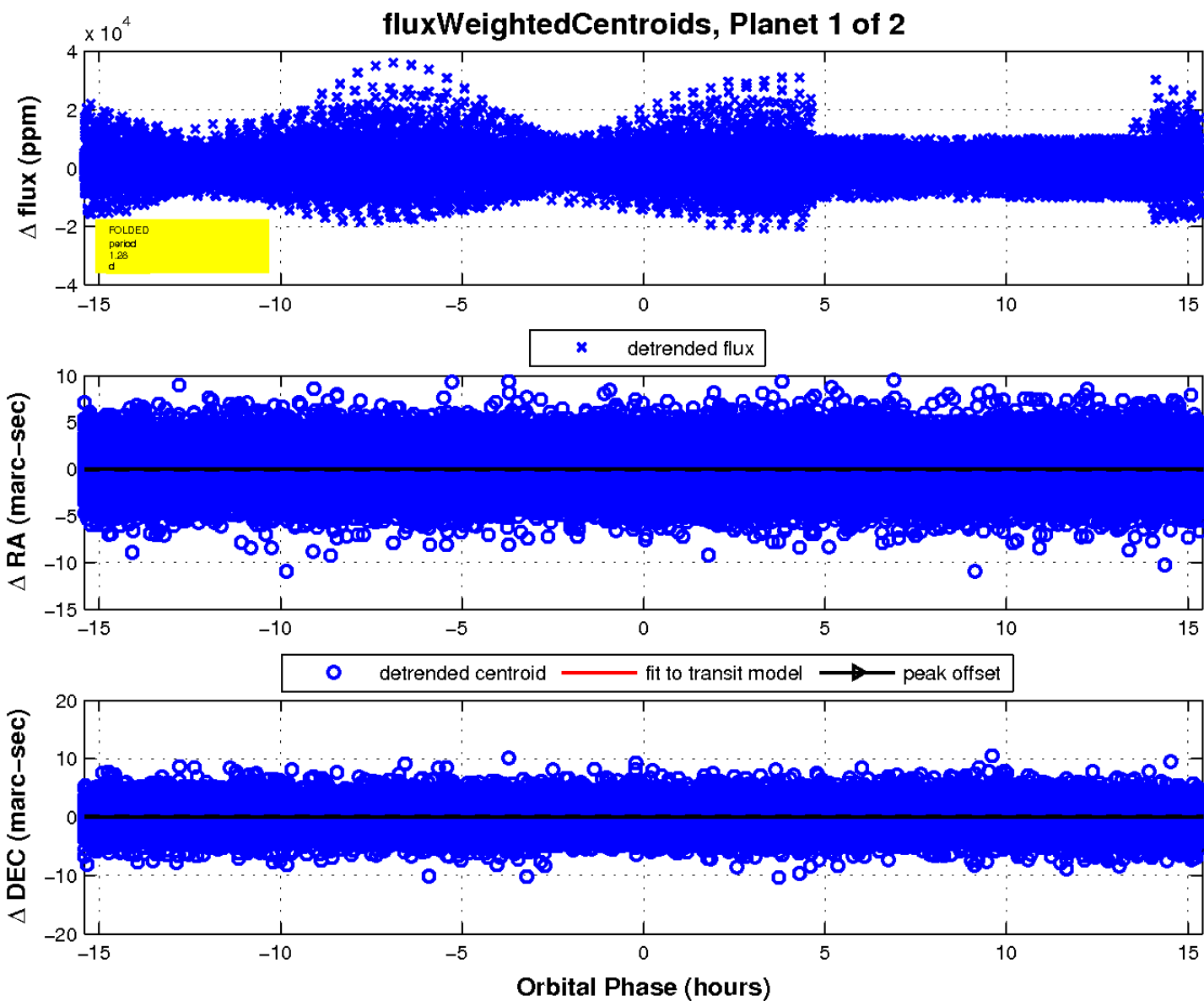
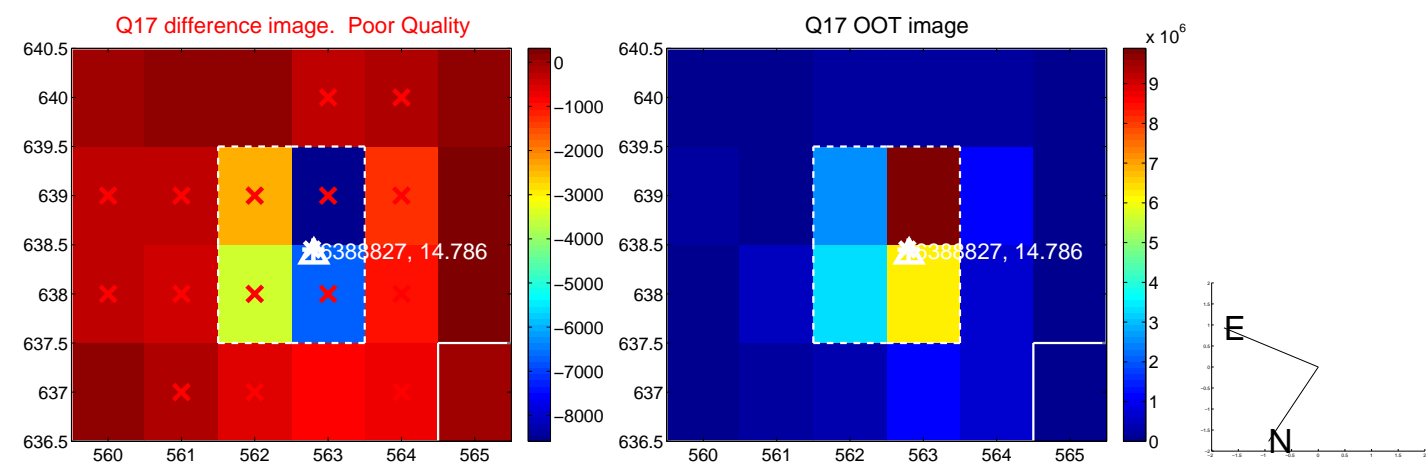
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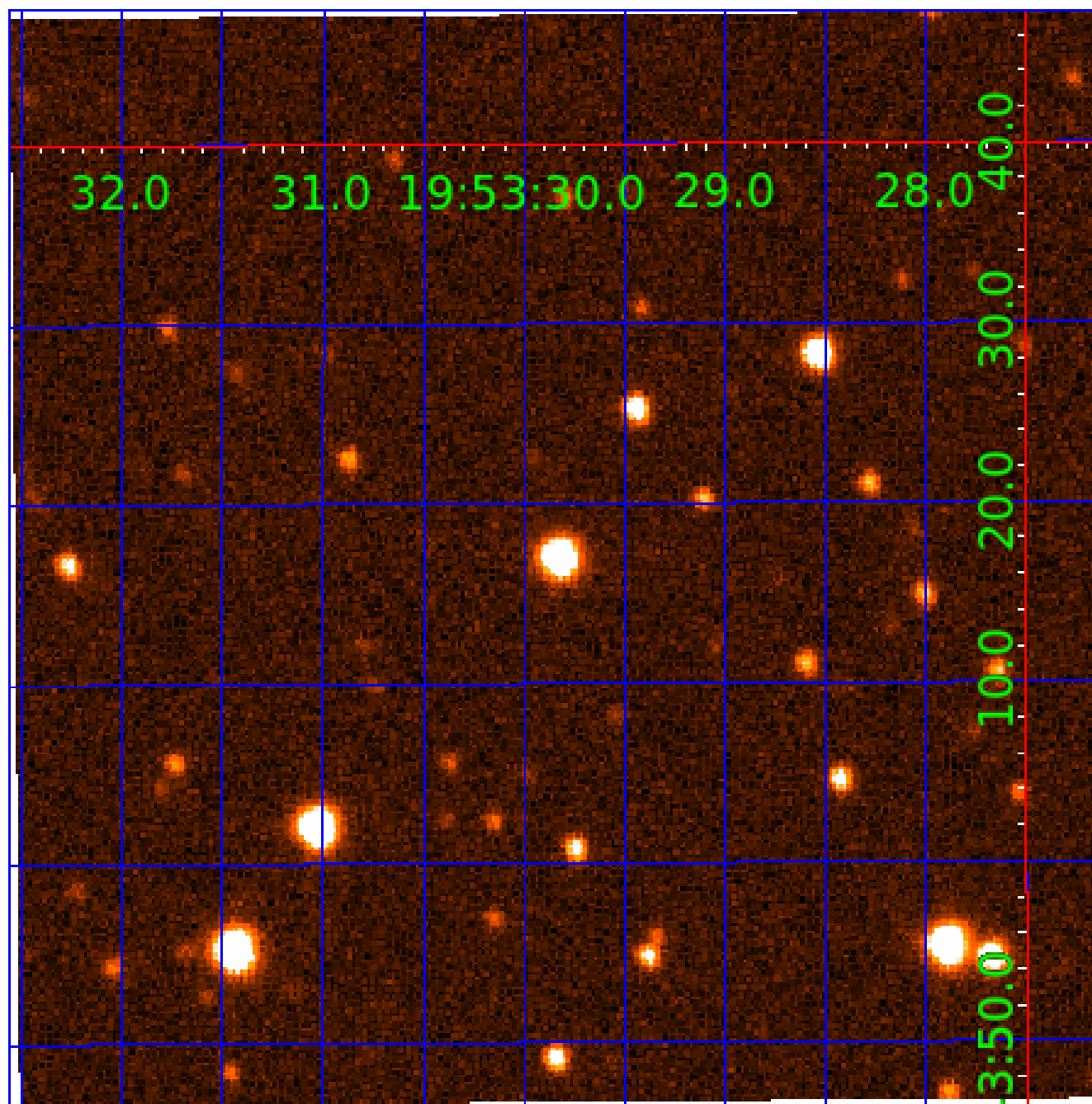


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 006388827

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006388827-01	OBS	No	1.283851	132.034606	90.2	7.040	8.7	5.3	1.04	6388	1.10	2841.32
006388827-02	OBS	No	1.283890	131.690667	753.6	15.407	13.1	15.7	1.04	6388	3.06	2841.20

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006388827-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
006388827-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

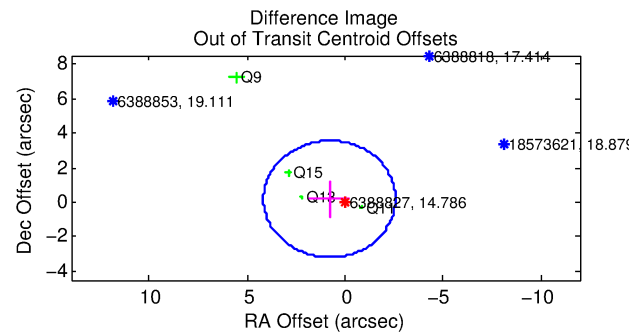
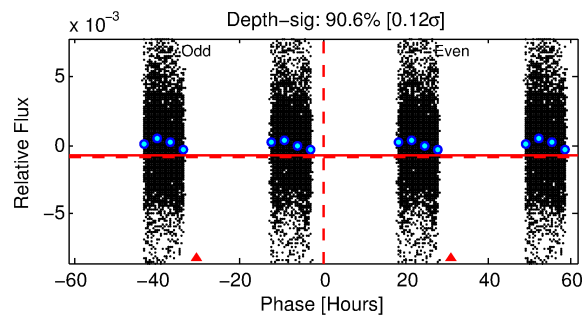
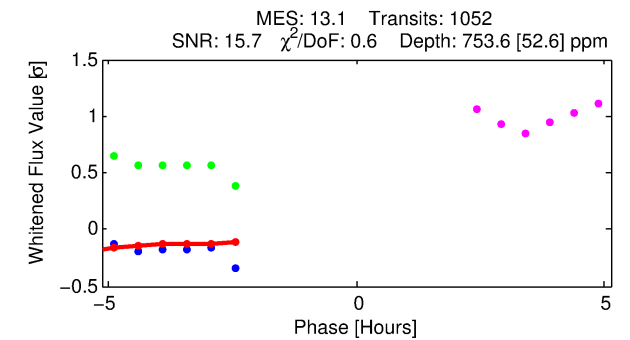
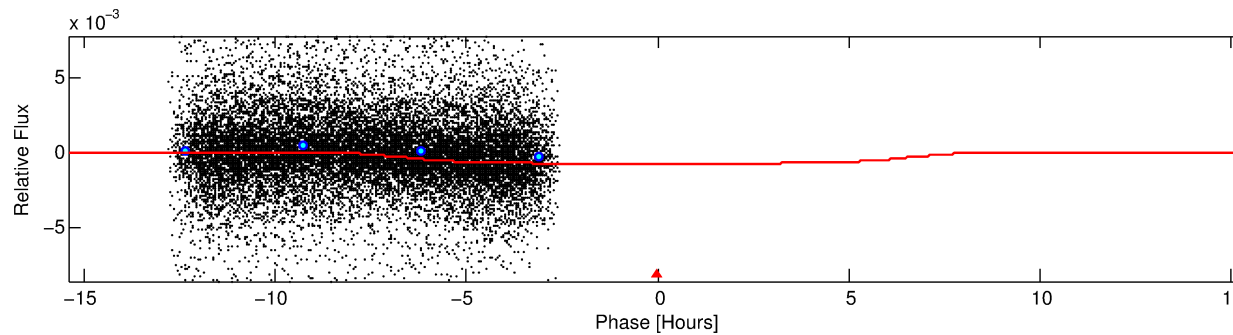
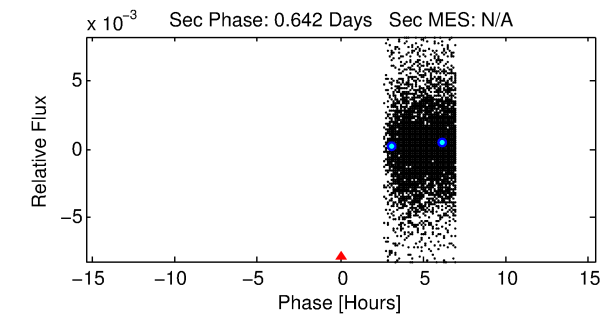
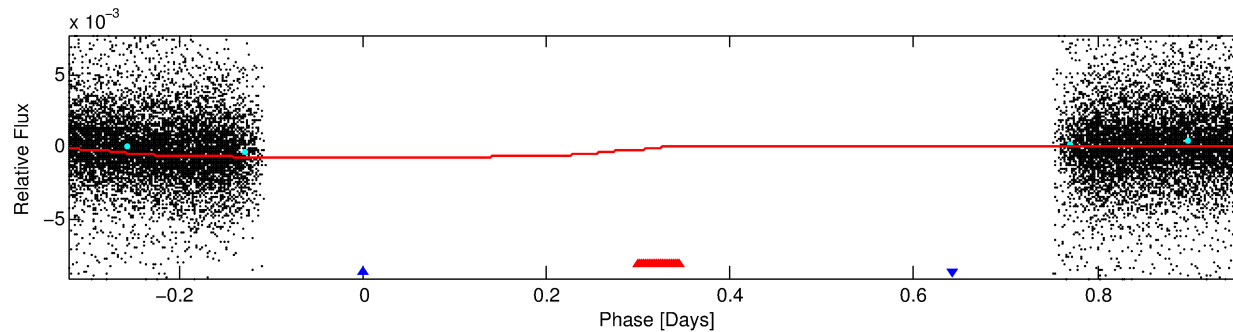
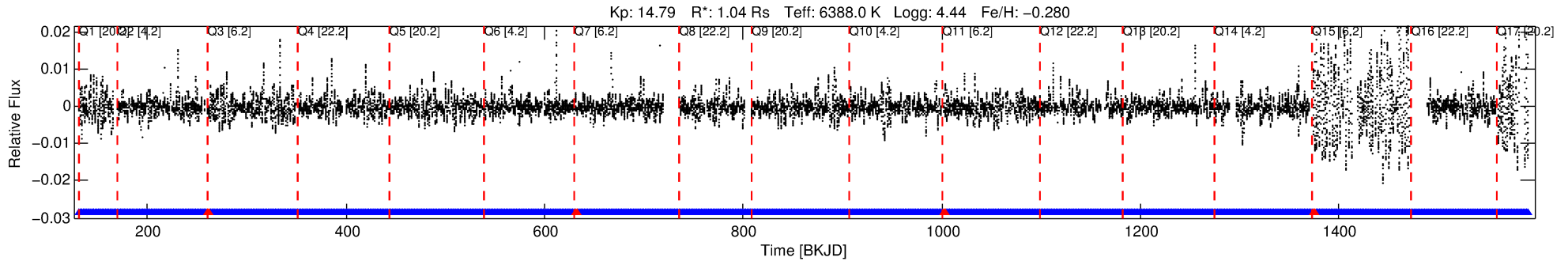
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006388827-02

No Significant Match Found

# DV One-Page Summary

KIC: 6388827 Candidate: 2 of 2 Period: 1.284 d



## DV Fit Results:

Period = 1.28389 [0.00001] d  
Epoch = 131.6907 [0.0026] BKJD  
Rp/R\* = 0.0271 [0.0009]  
a/R\* = 1.01 [0.00]  
b = 0.72 [0.04]  
Seff = 2841.21 [1102.73]  
Teq = 1862 [181] K  
Rp = 3.06 [0.95] Re  
a = 0.0238 [0.0060] AU

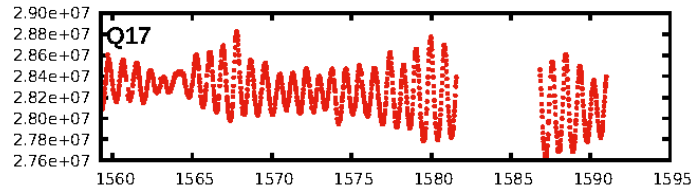
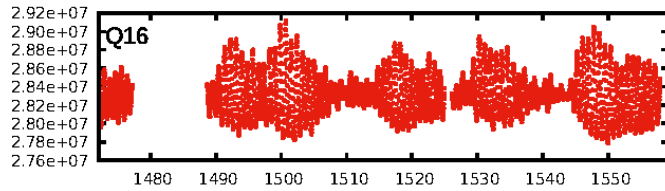
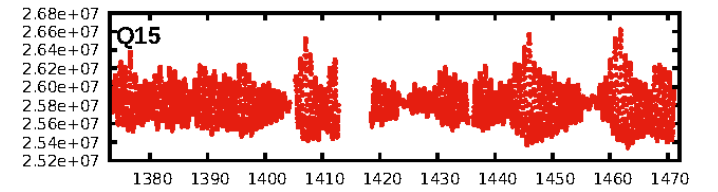
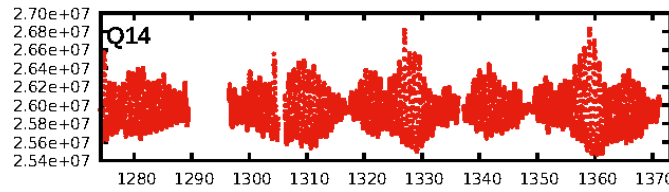
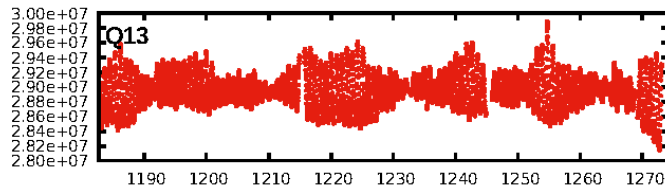
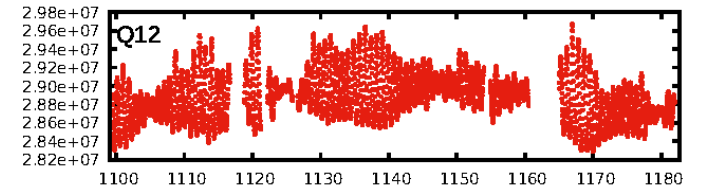
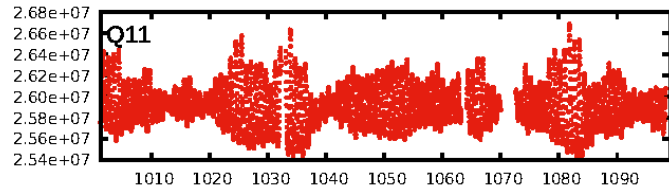
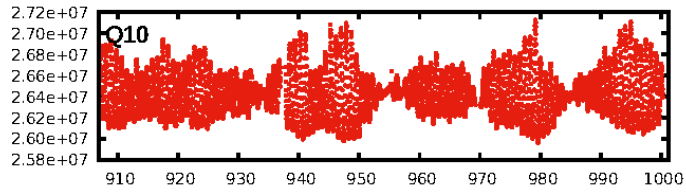
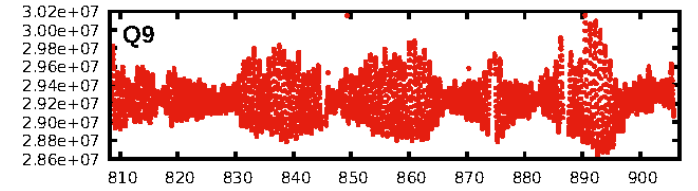
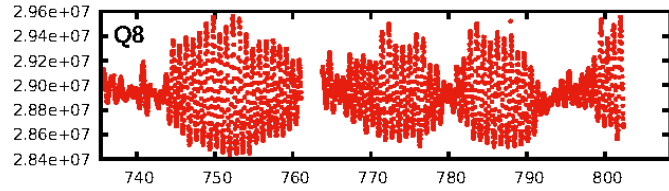
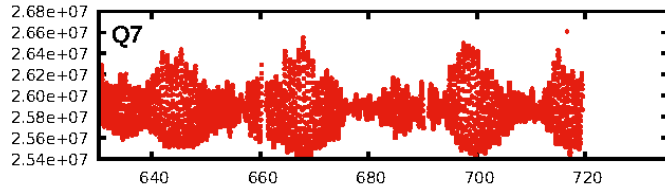
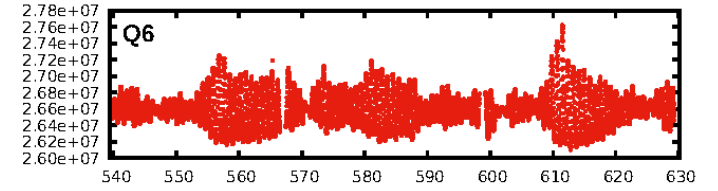
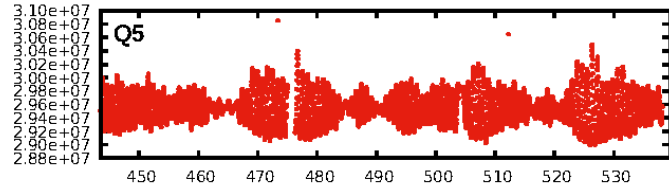
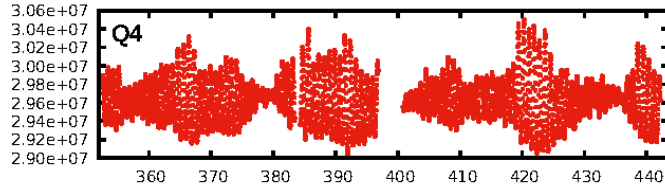
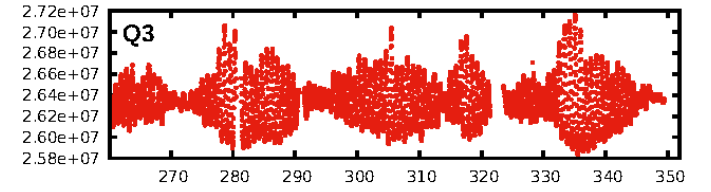
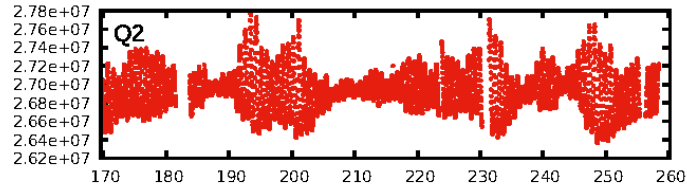
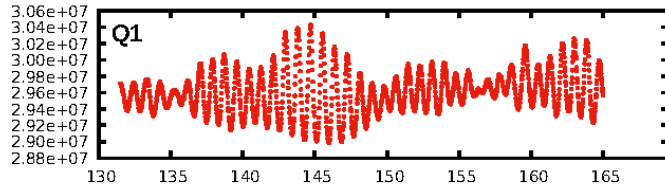
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [997/1005]  
GhostDiagnostic-chr: -0.856  
Centroid-sig: 0.6%  
Centroid-so: 0.361 arcsec [6.32σ]  
OotOffset-rm: 0.819 arcsec [0.73σ]  
KicOffset-rm: 0.800 arcsec [0.52σ]  
OotOffset-st: 0/2/0/2 [4]  
KicOffset-st: 0/2/0/2 [4]  
DiffImageQuality-fgm: 0.25 [1/4]  
DiffImageOverlap-fno: 0.00 [0/17]

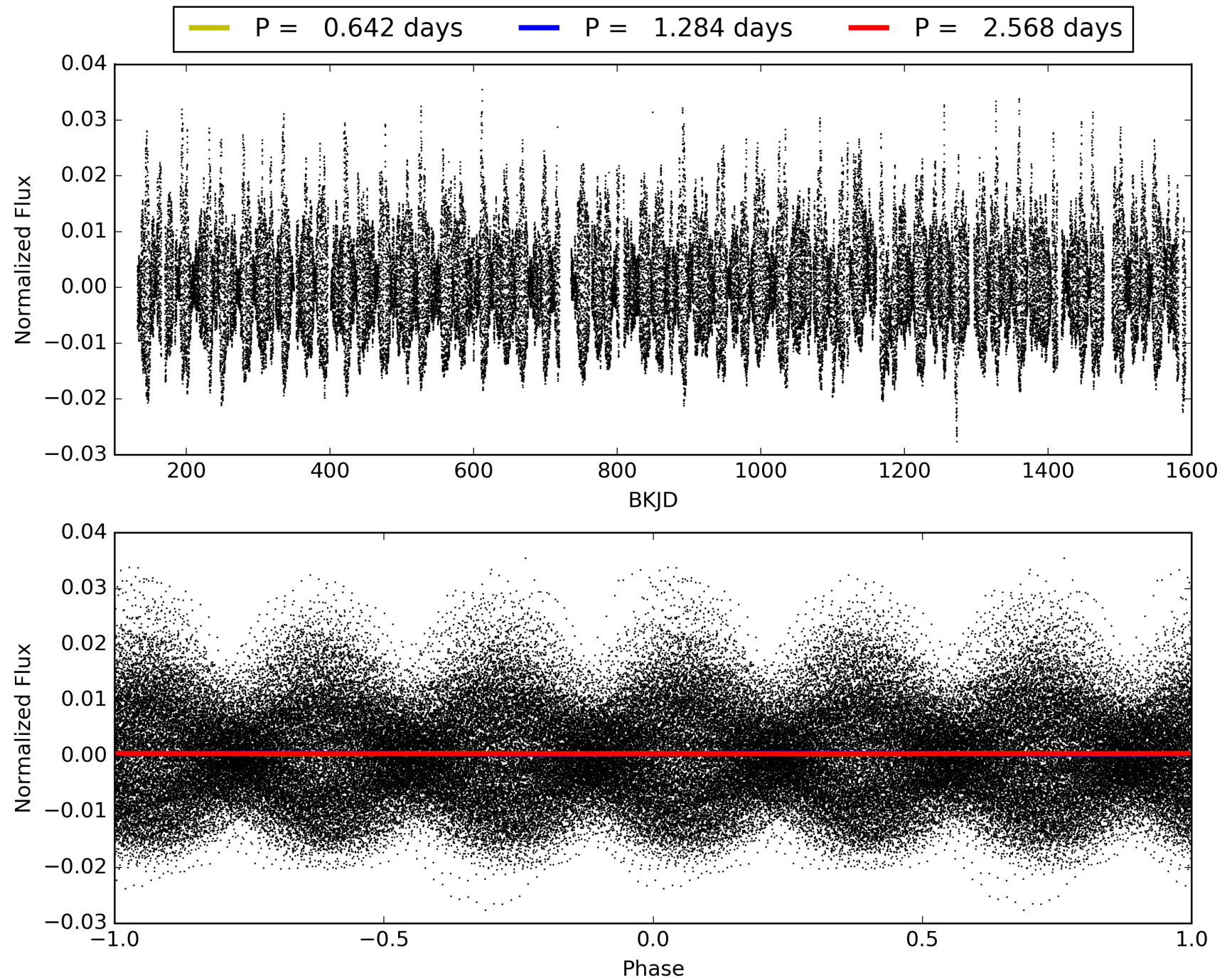
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:49:21 Z

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

# TCE 006388827-02, PDC Light Curves



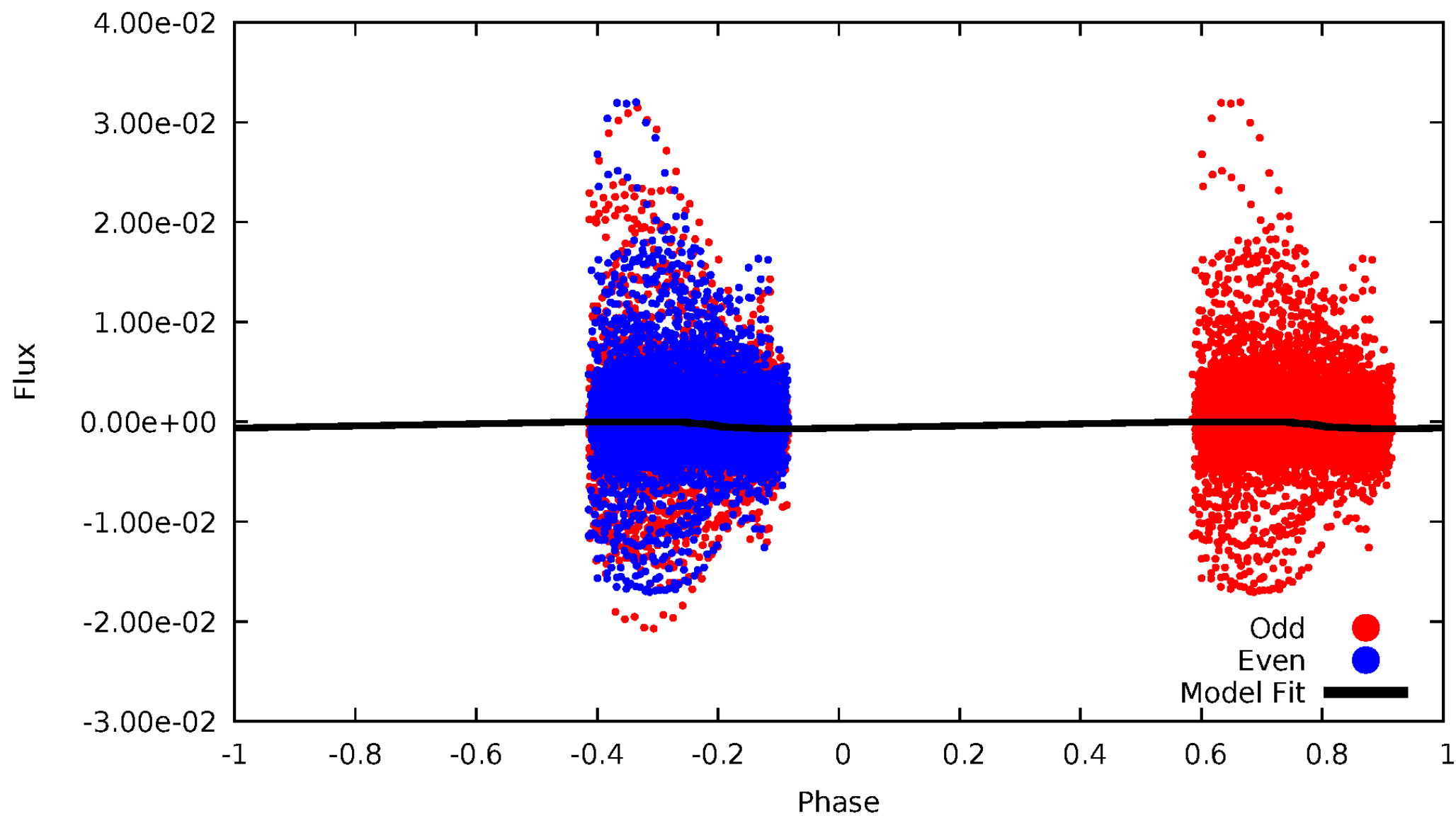
TCE 006388827-02





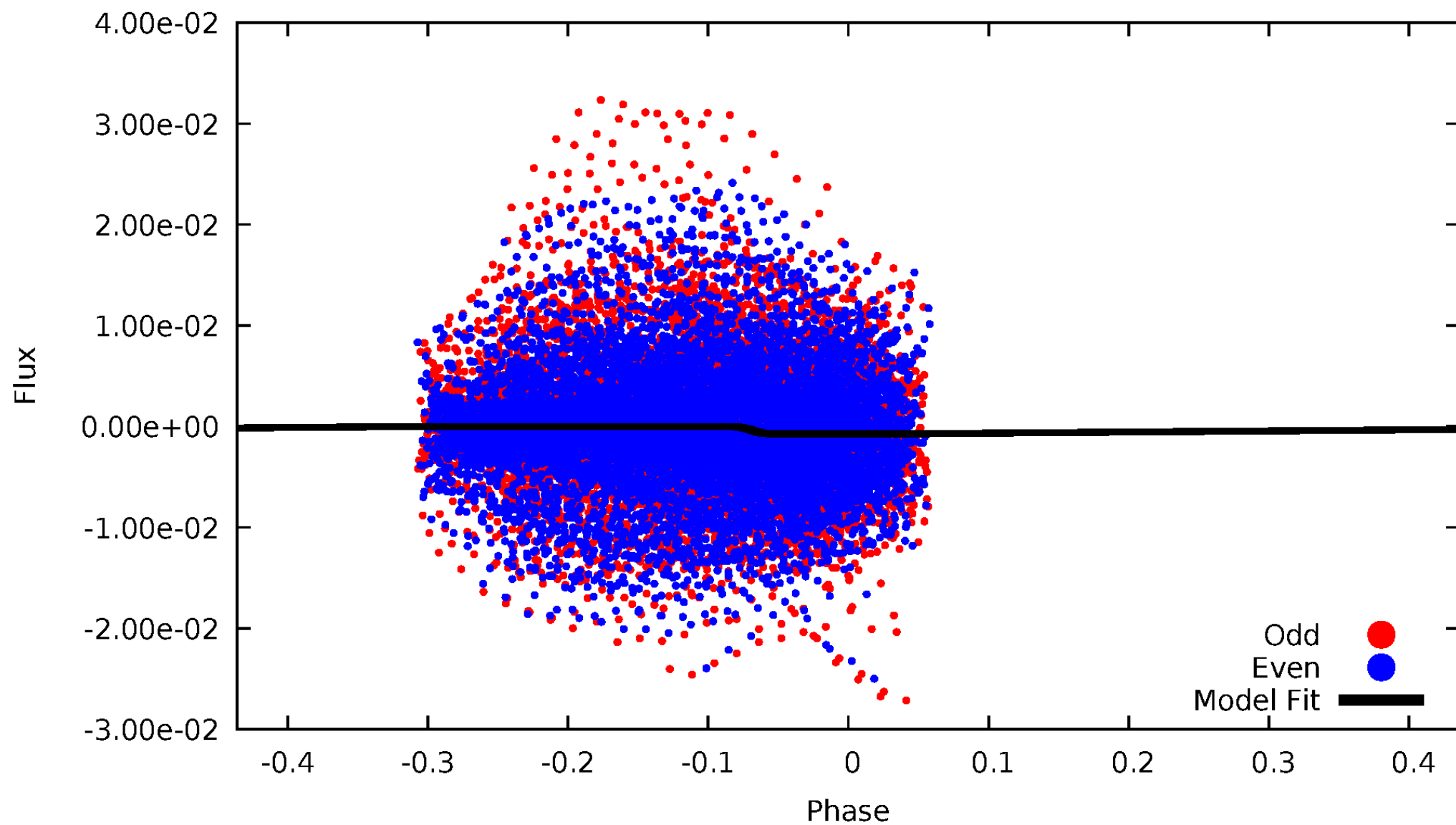
# DV Odd/Even

TCE 006388827-02



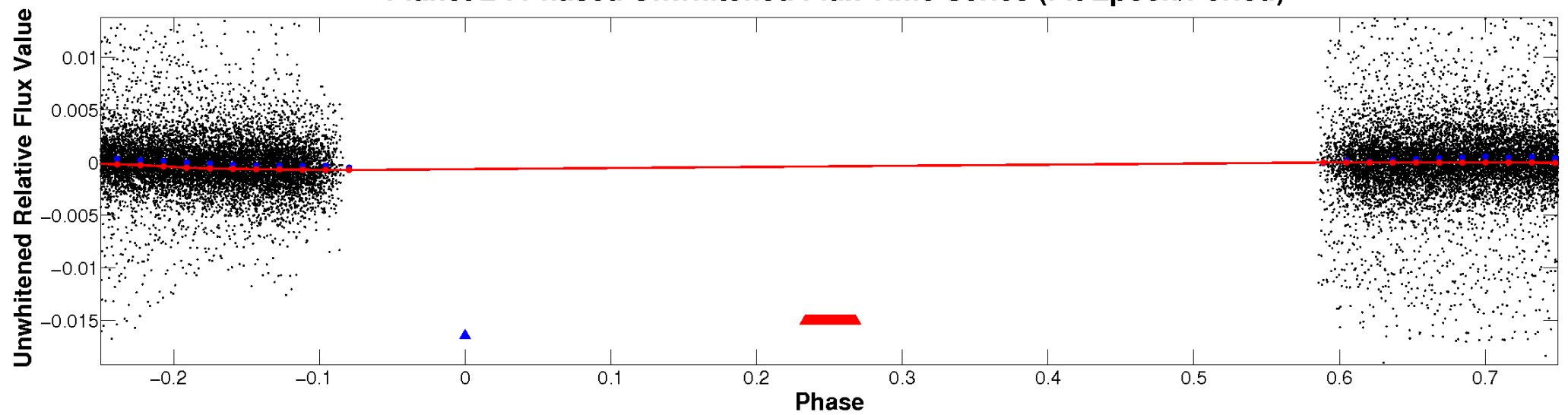
# ALT Odd/Even

TCE 006388827-02

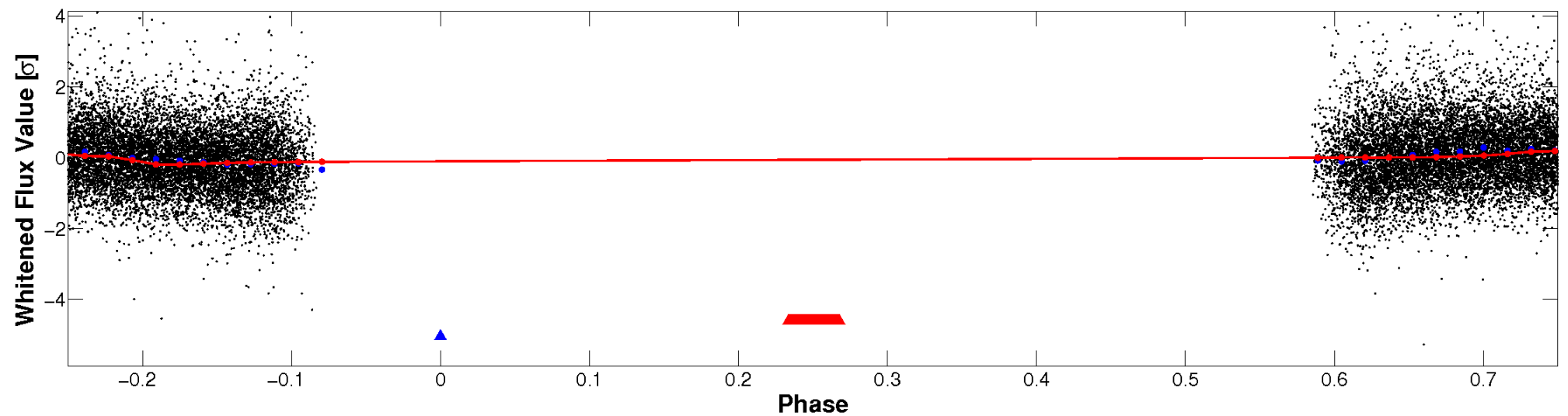


# Non-Whitened Vs. Whitened Light Curve

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

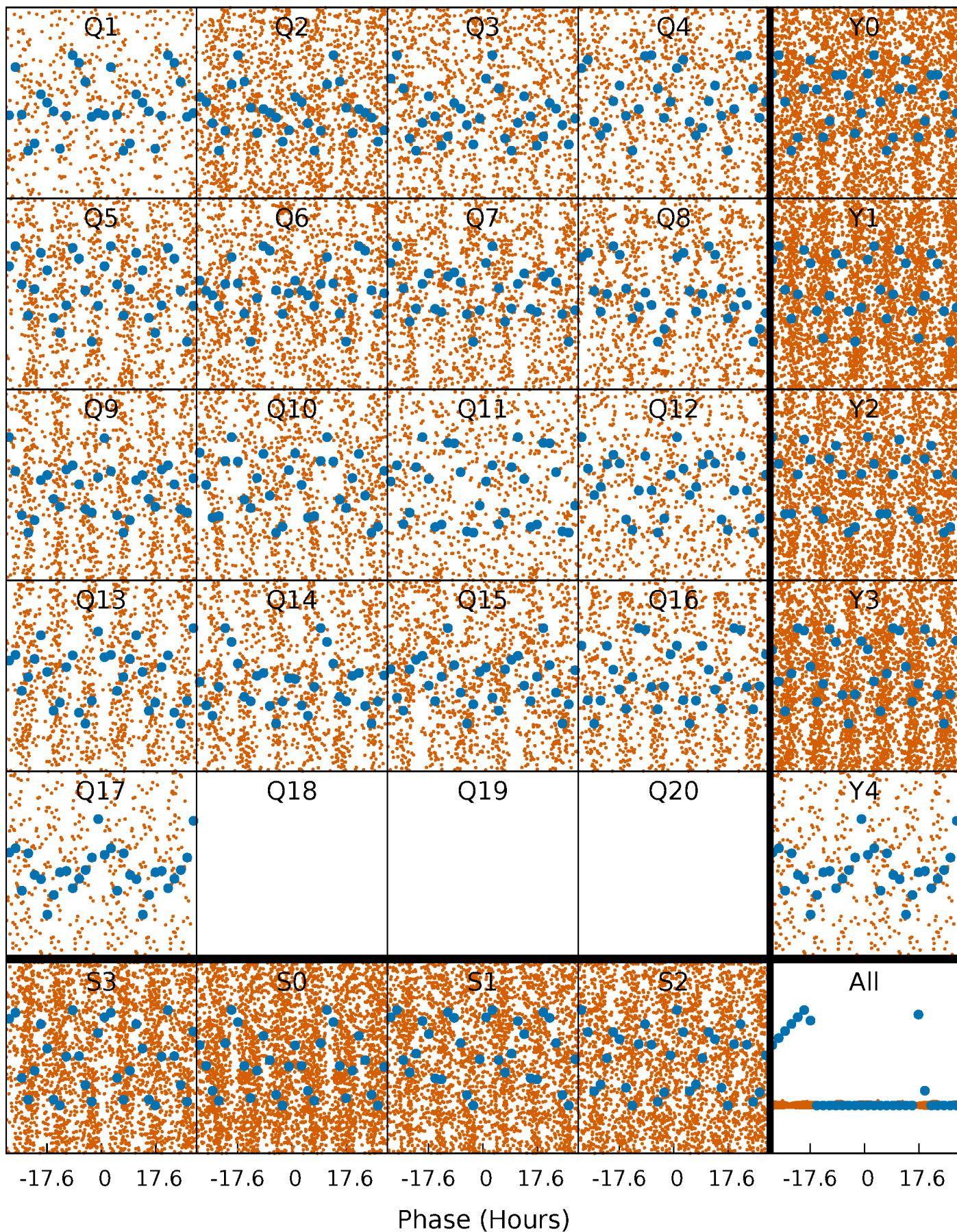


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



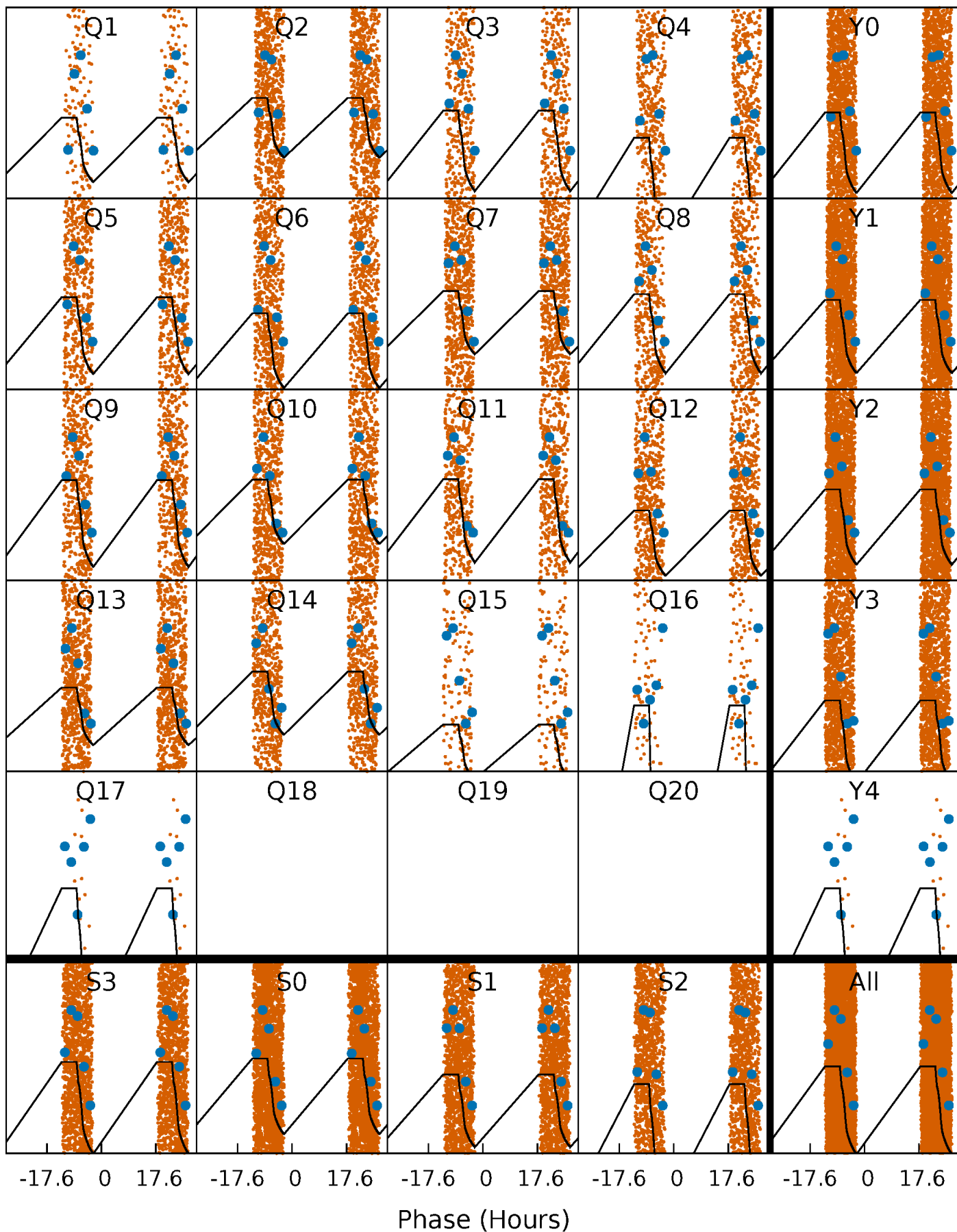
# PDC Quarter-Phased Transit Curves

TCE 006388827-02   P= 1.283890 Days    $T_0=131.690667$  (BKJD)



# DV Quarter-Phased Transit Curves

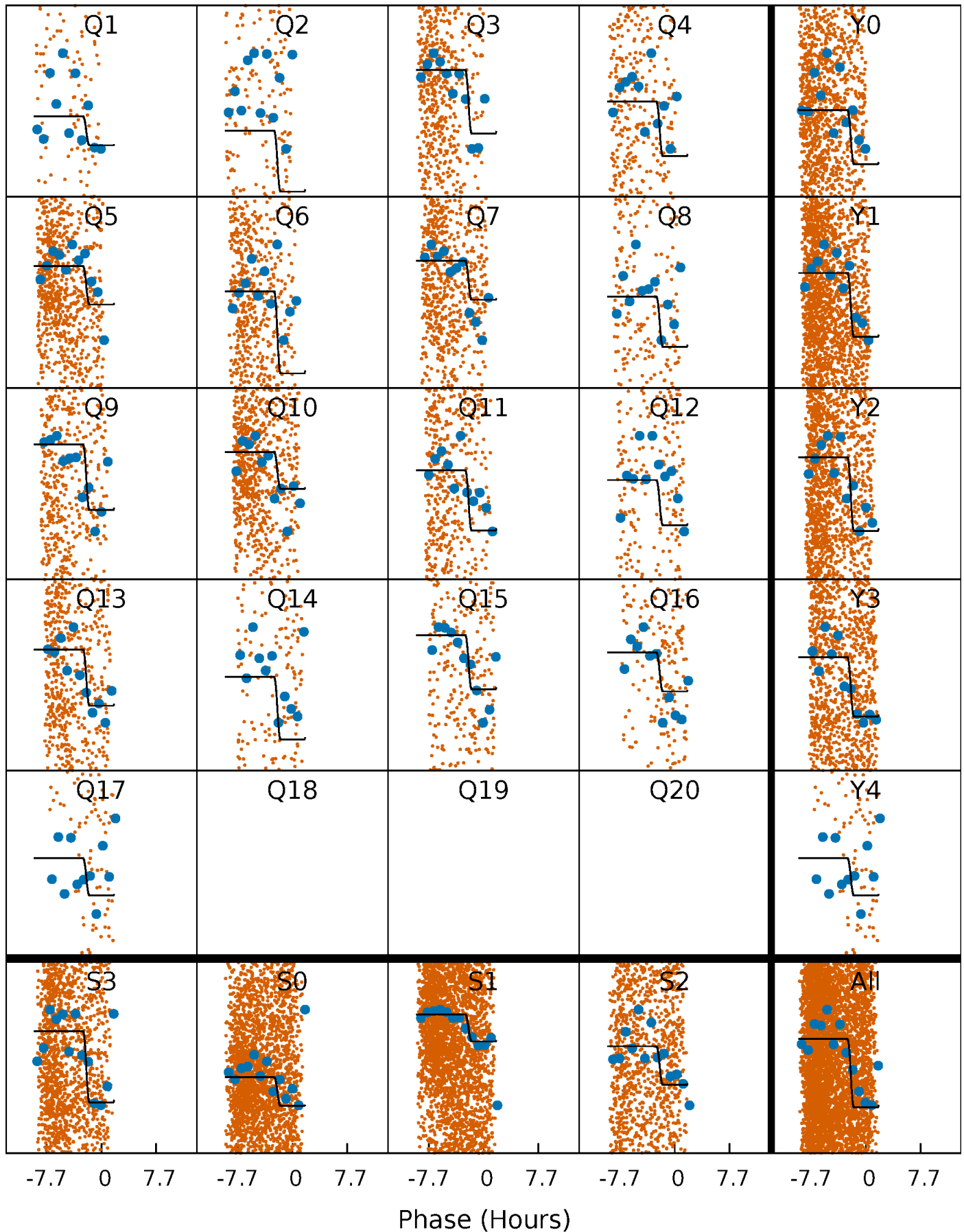
TCE 006388827-02   P= 1.283890 Days    $T_0=131.690667$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 006388827-02     $P = 1.283773$  Days     $T_0 = 131.597350$  (BKJD)

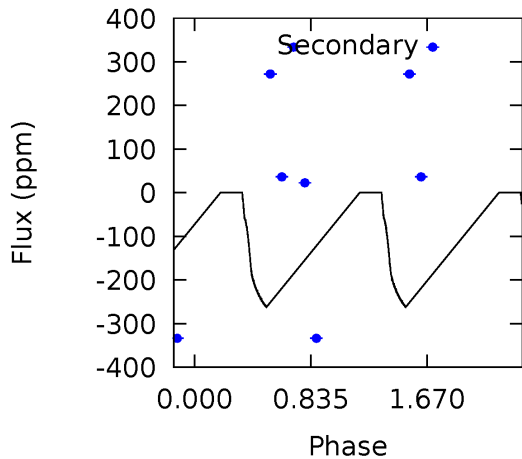
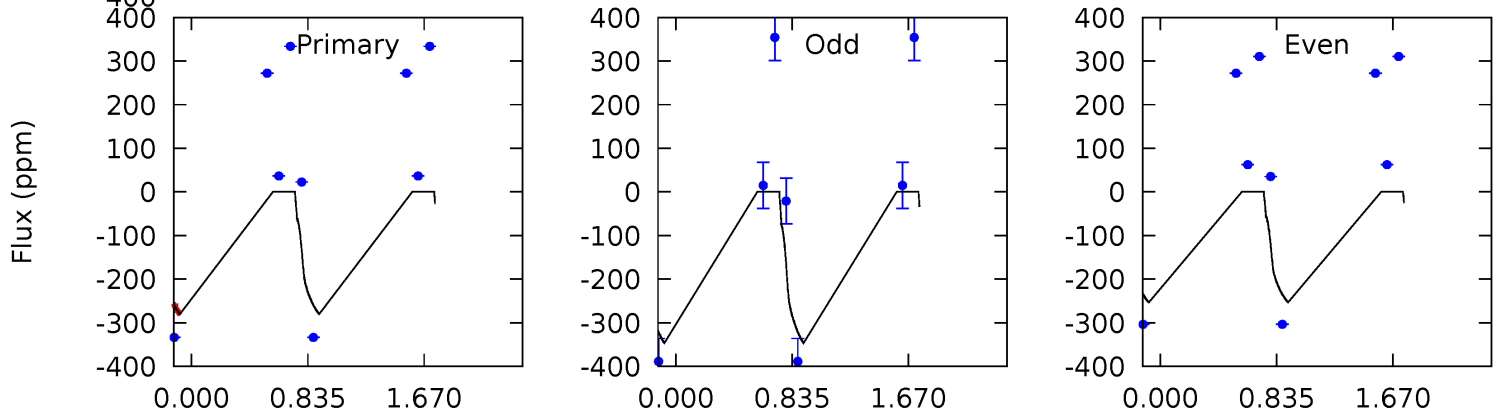
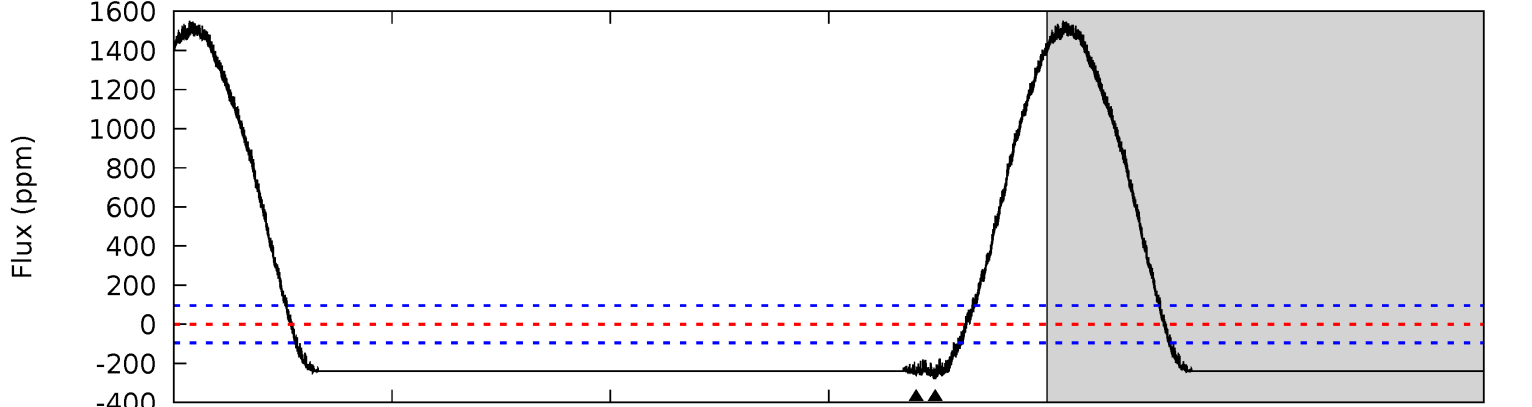
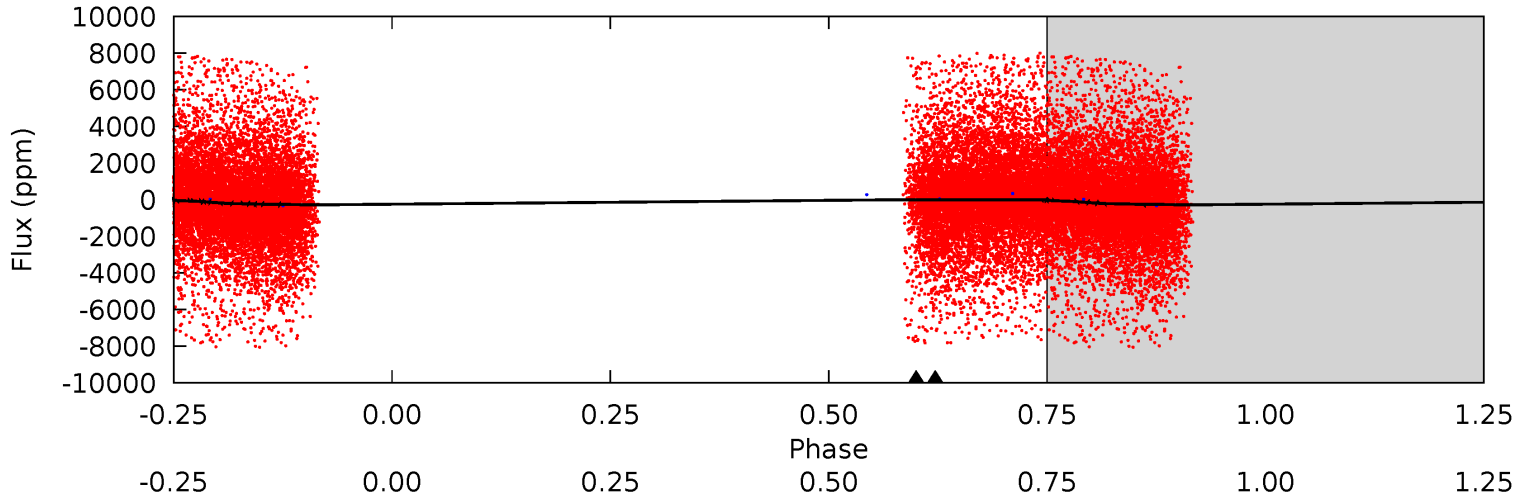




# DV Model-Shift Uniqueness Test

006388827-02, P = 1.283890 Days, E = 130.406777 Days

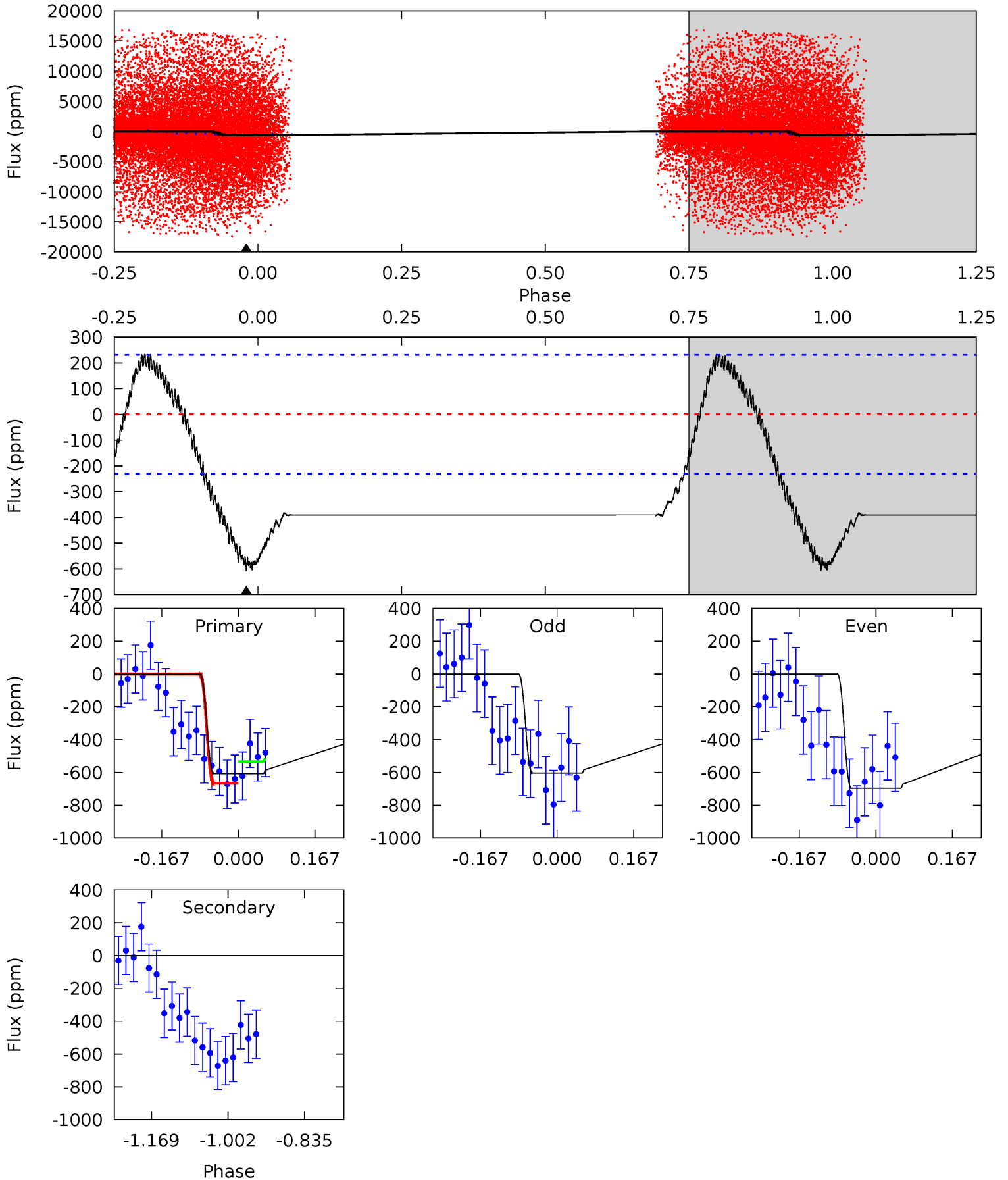
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	11.3	0	0	4.10	0.21	6.84	12.1	12.1	11.3	11.3	2.03	0	0.85	0



# Alt Model-Shift Uniqueness Test

006388827-02, P = 1.283773 Days, E = 130.313577 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
11.7	0	0	0	4.46	1.38	3.76	11.7	11.7	0	0	0.91	0.70	0.28	0.87



### Stellar Parameters For KIC 006388827

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6388^{+154}_{-220}$	$4.442^{+0.065}_{-0.195}$	$-0.280^{+0.250}_{-0.300}$	$1.037^{+0.319}_{-0.106}$	$1.084^{+0.143}_{-0.143}$	$1.368^{+0.378}_{-0.712}$
	+2%/-3%	+1%/-4%	+89%/-107%	+31%/-10%	+13%/-13%	+28%/-52%
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 006388827-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-262 \pm 23$	$3.11^{+0.52}_{-0.29}$	$2633^{+179}_{-133}$	$4973^{+164}_{-180}$	$8.190^{+1.755}_{-1.964}$
Alt.	$0 \pm 52$	$3.13^{+0.51}_{-0.27}$	$2628^{+188}_{-112}$	$-2852^{+6419}_{-926}$	$0.034^{+1.567}_{-1.566}$

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

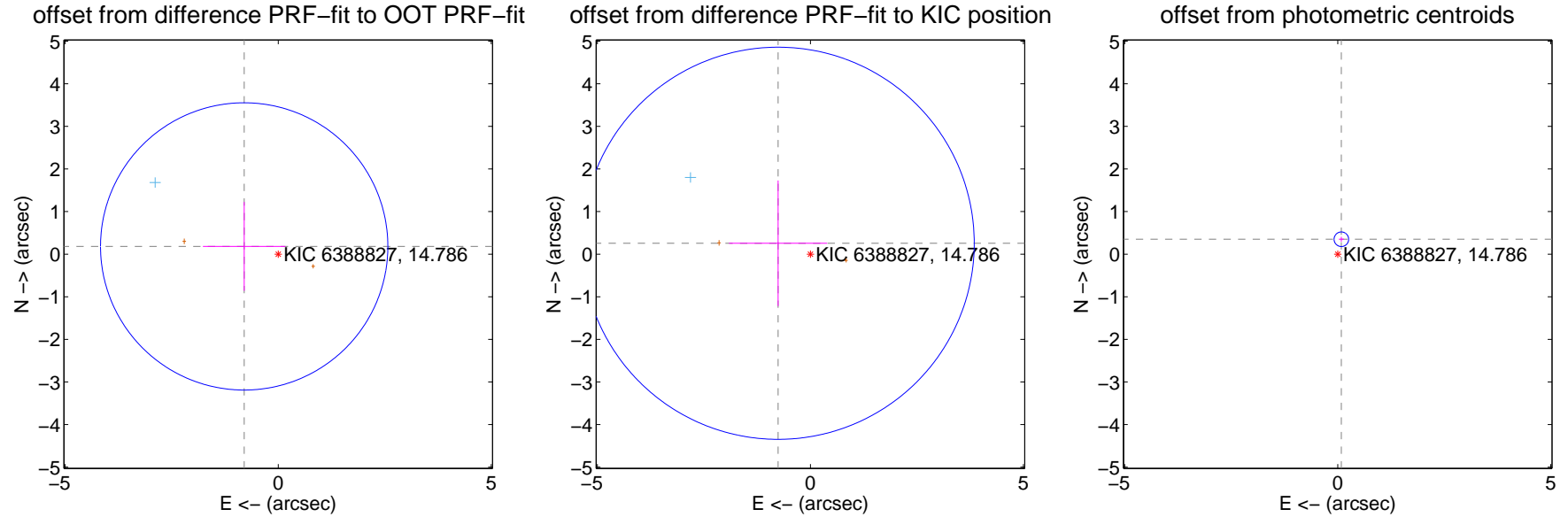
## DV Centroid Data

Supplemental centroid analysis for 006388827-02. Kepler magnitude: 14.79. Transit SNR 15.68

There are 1 quarters with good PRF difference image offsets

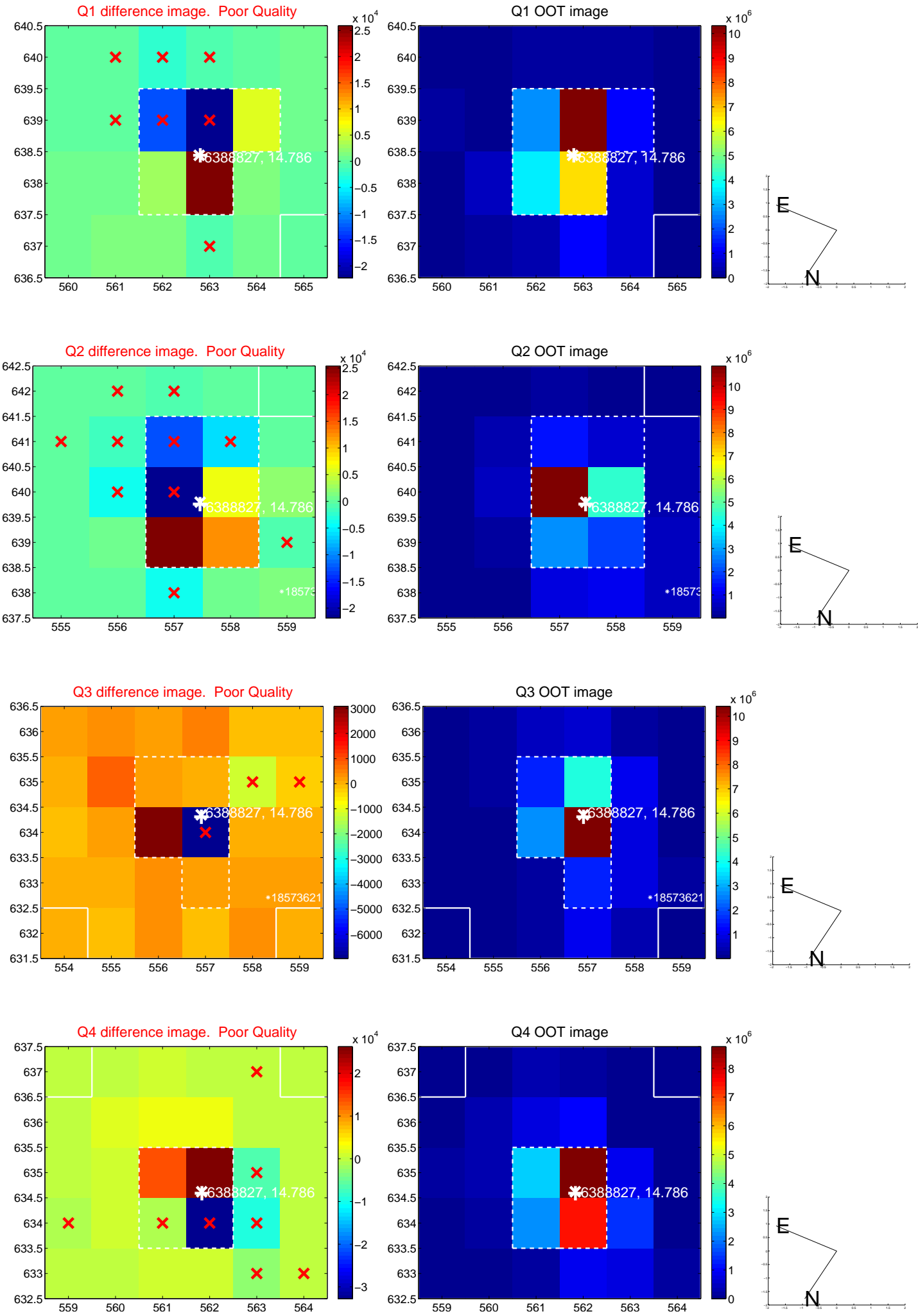
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.819 \pm 1.124$	0.73	$0.799 \pm 0.968$	$0.182 \pm 1.042$
PRF-fit source offset from KIC position	$0.800 \pm 1.534$	0.52	$0.758 \pm 1.153$	$0.256 \pm 1.472$
photometric centroid source offset	$0.36 \pm 0.06$	6.32	$-0.09 \pm 0.06$	$0.35 \pm 0.06$

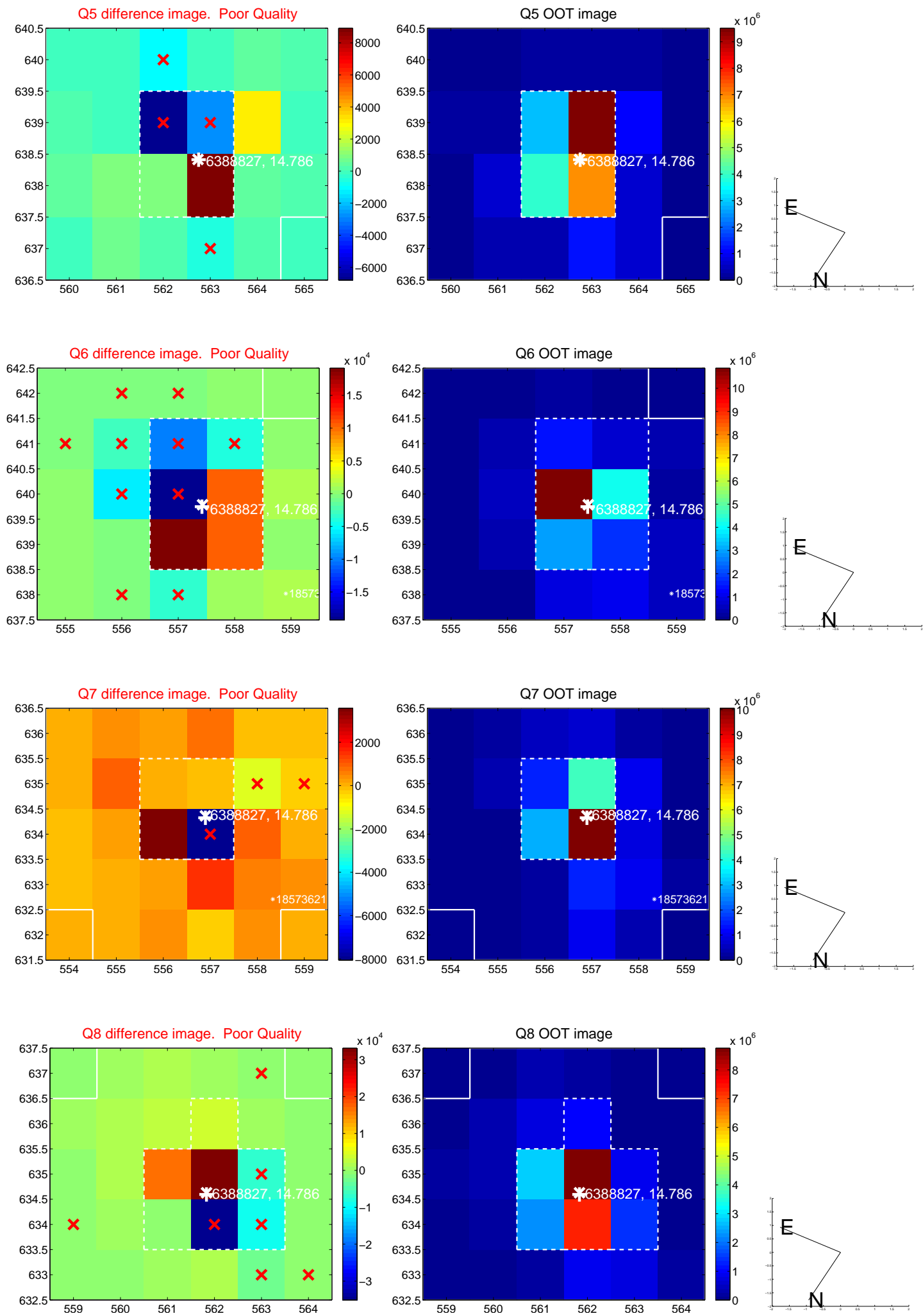


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

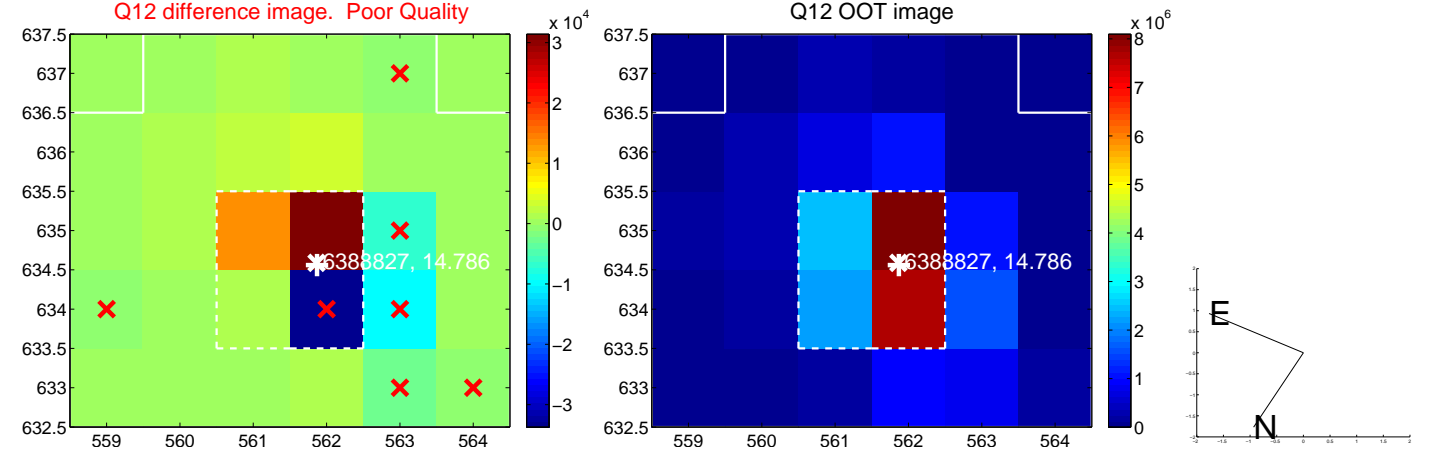
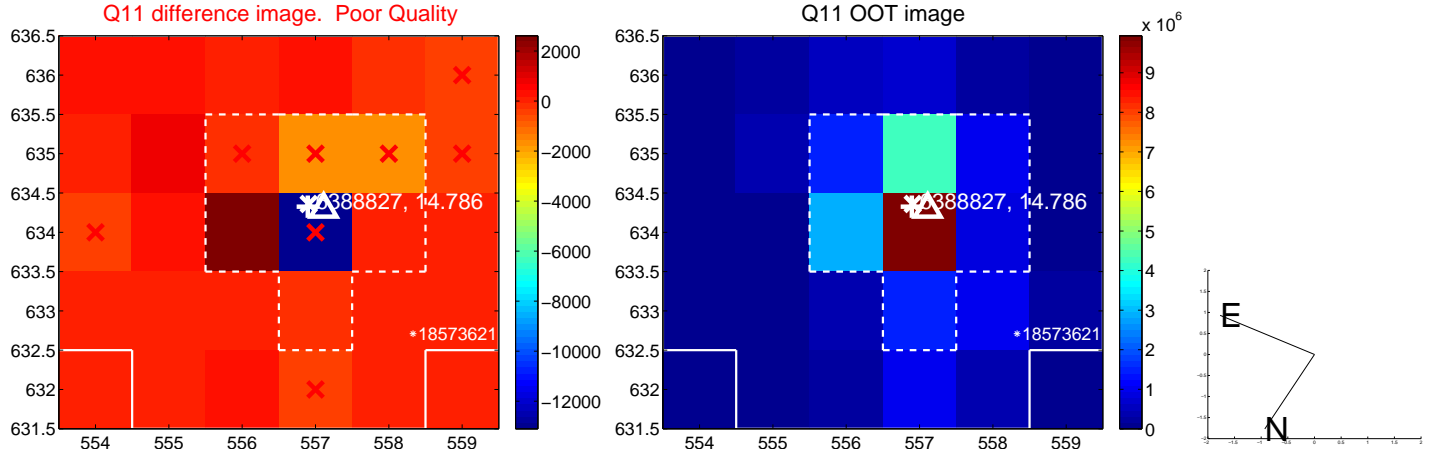
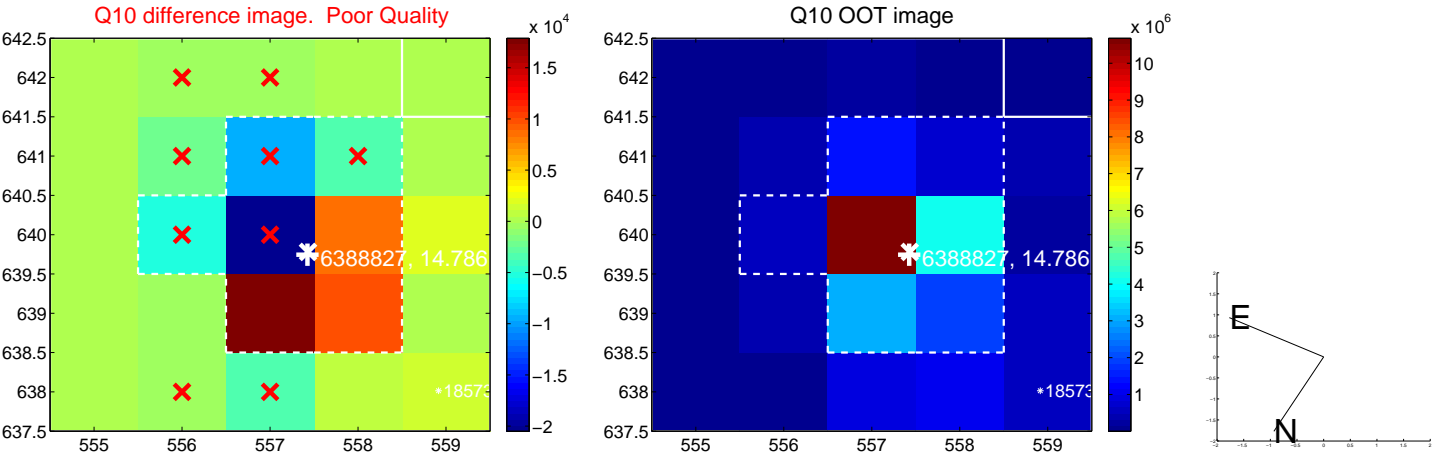
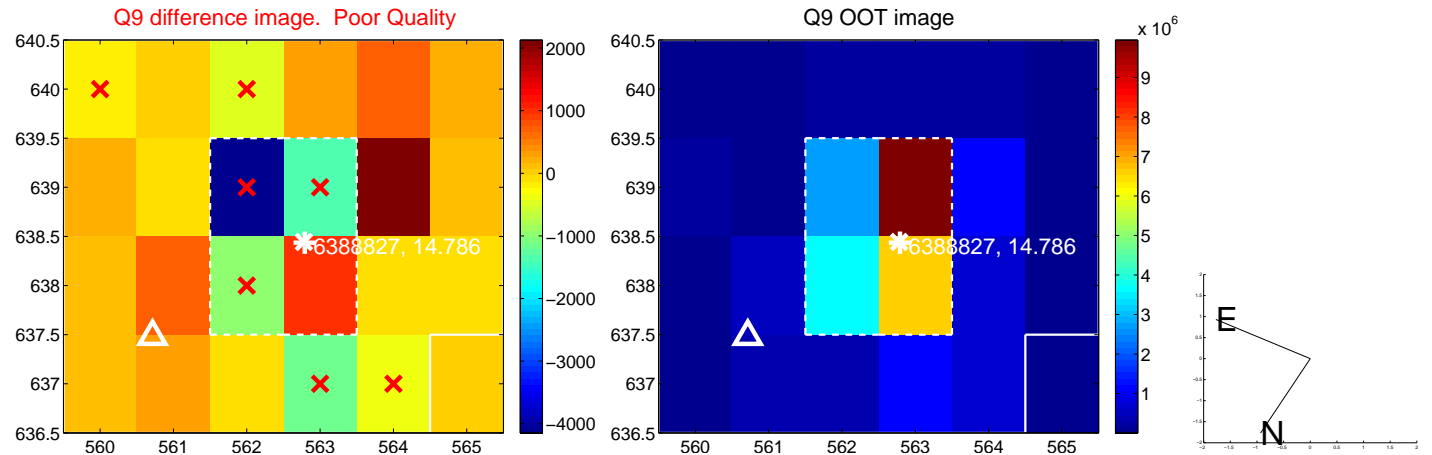


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

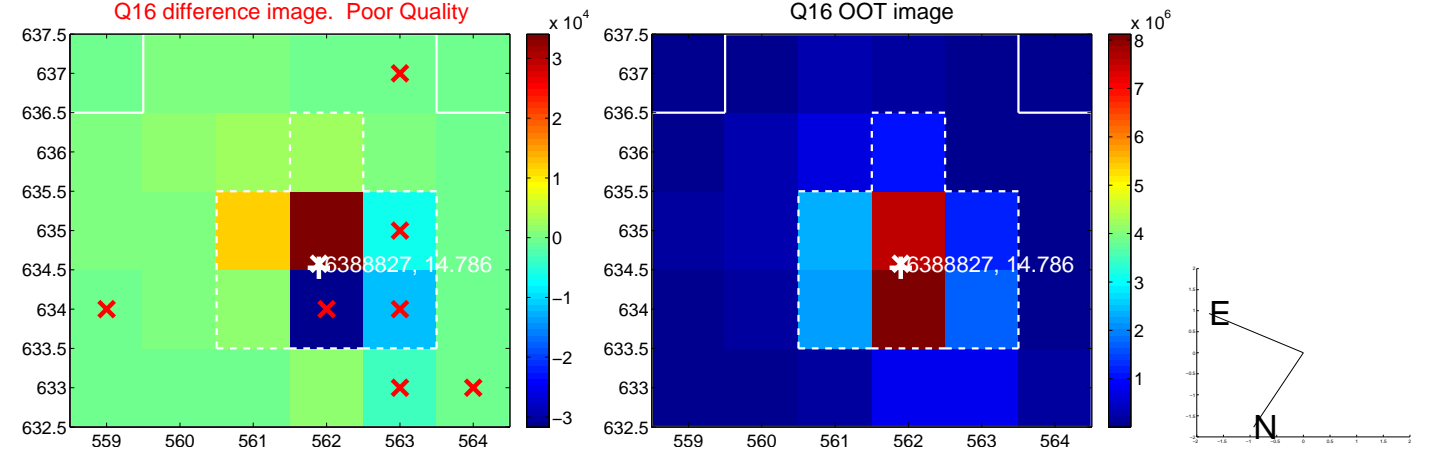
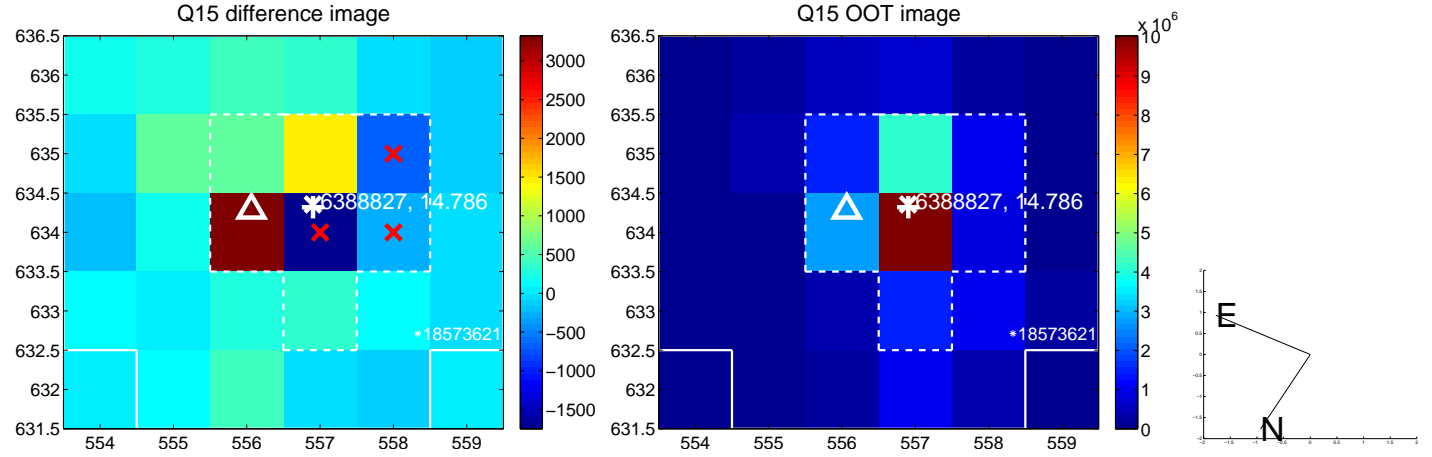
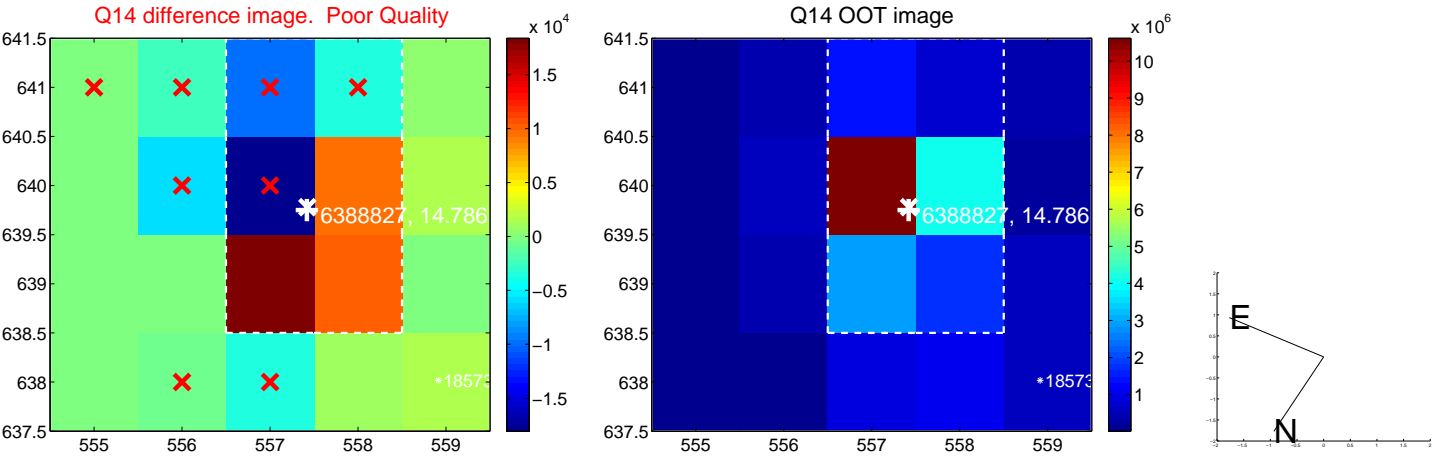
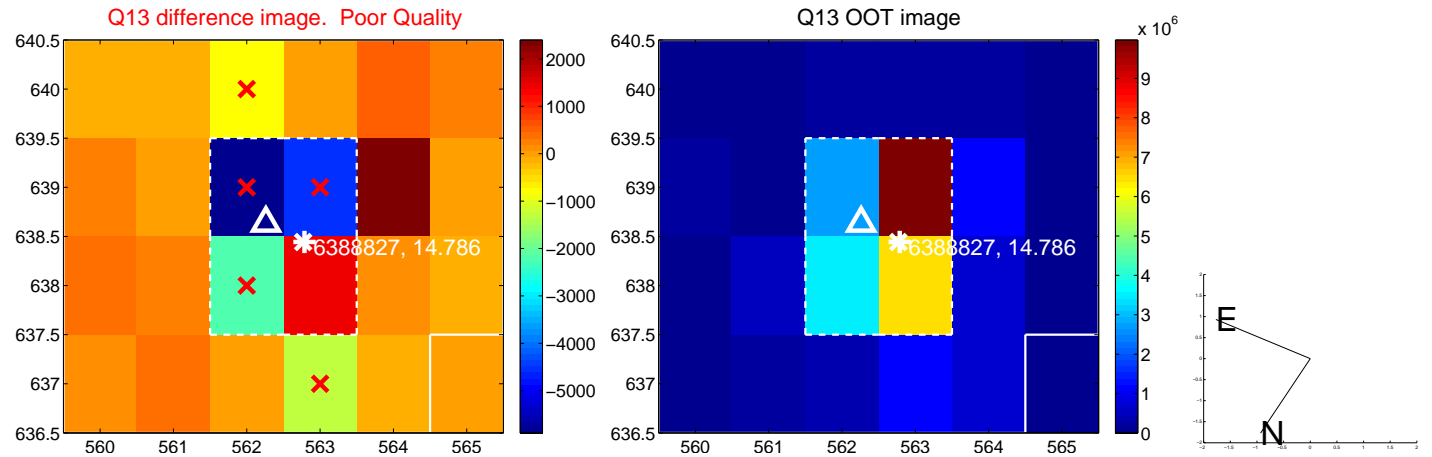




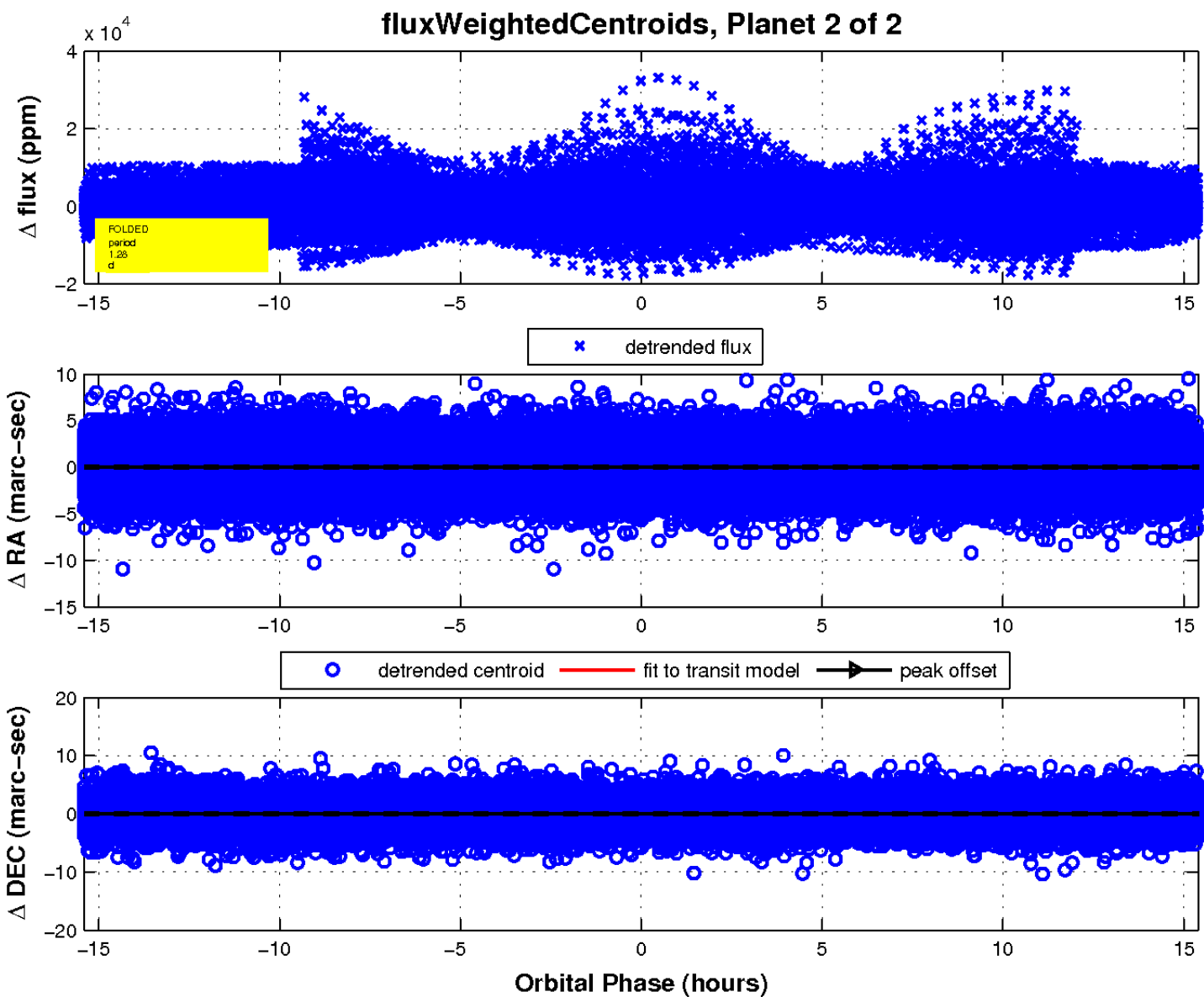
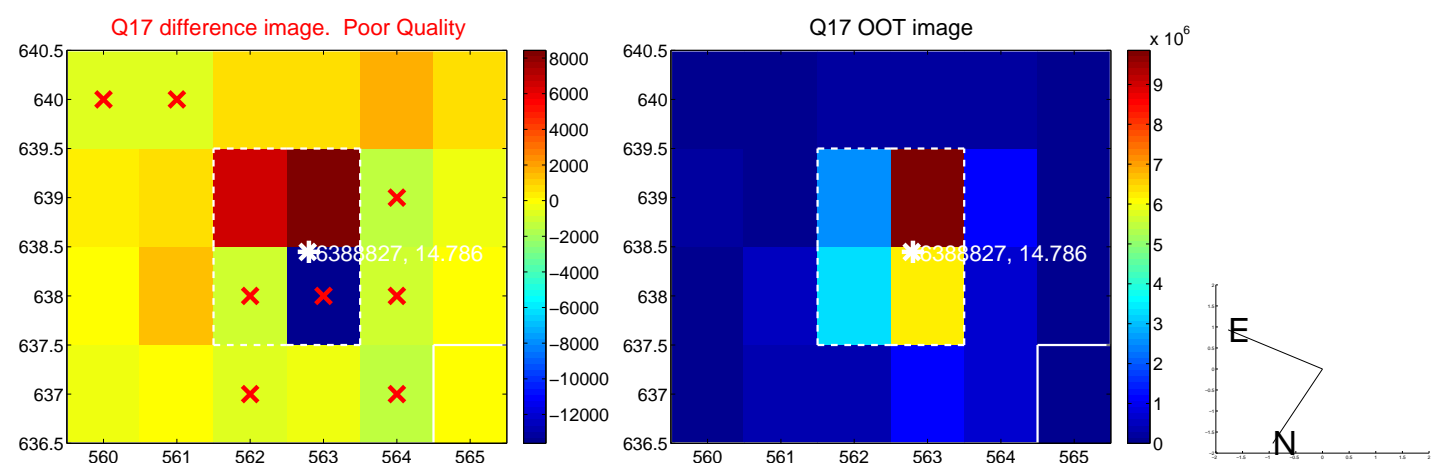
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

