

# KIC 006629588

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006629588-01	OBS	6748.01	2.264470	131.518570	179319.5	6.574	5937.6	4197.7	1.75	6782	117.05	4635.10
006629588-02	OBS	No	2.264479	132.648462	583.1	3.500	16.7	-1.0	1.75	6782	4.27	4635.08

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006629588-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
006629588-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—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 006629588-01

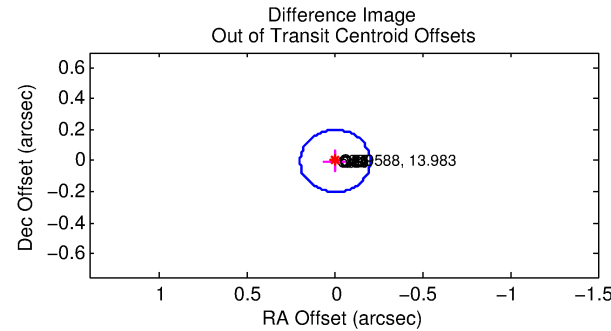
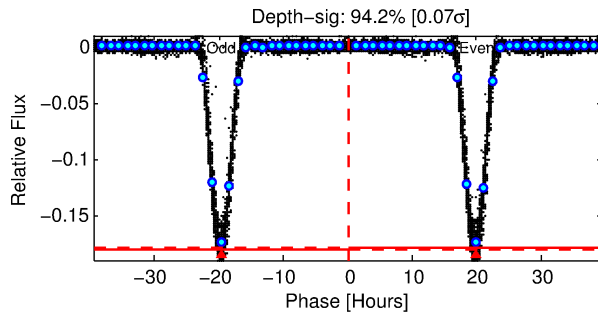
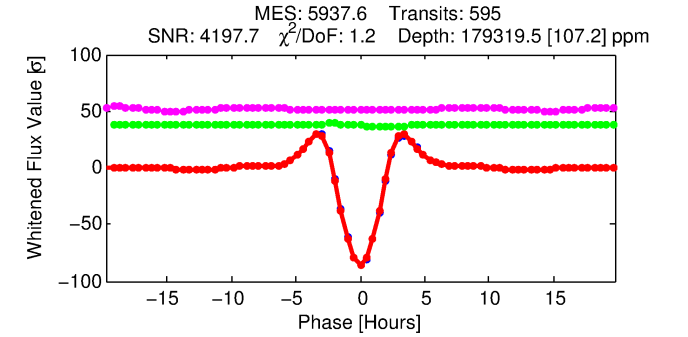
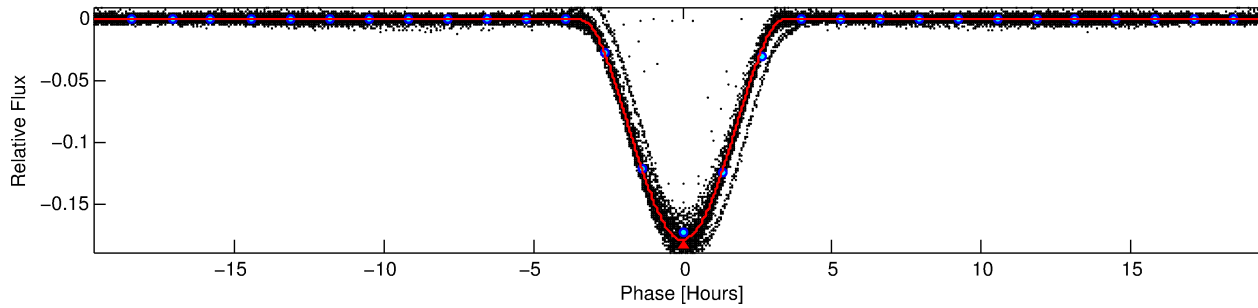
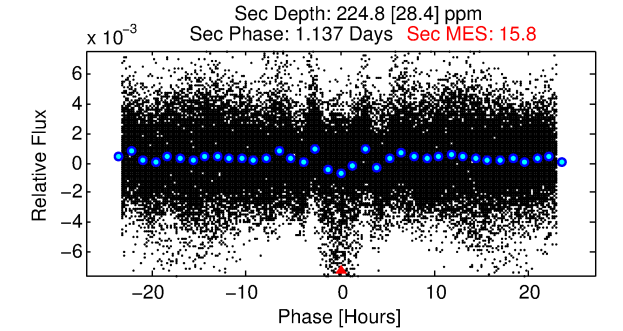
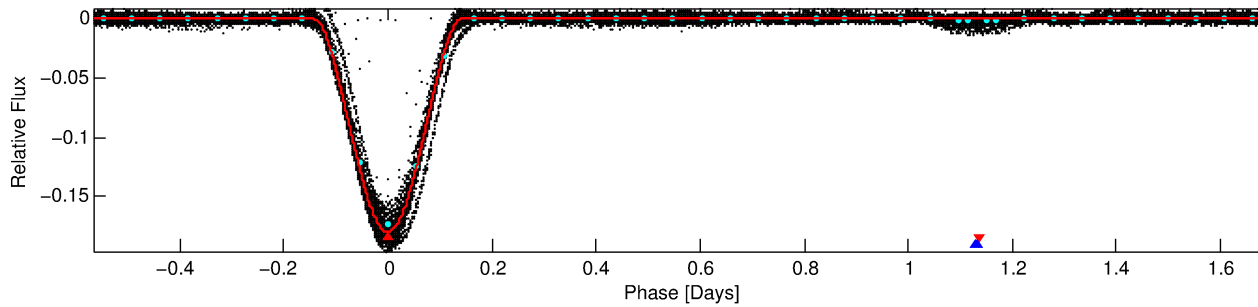
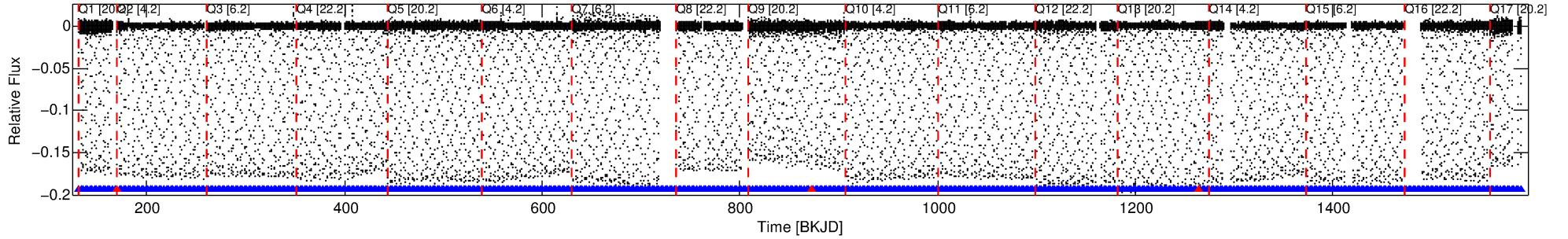
No Significant Match Found

# DV One-Page Summary

KIC: 6629588 Candidate: 1 of 2 Period: 2.264 d

KOI: K06748.01 Corr: 0.957

Kp: 13.98 R\*: 1.75 Rs Teff: 6782.0 K Logg: 4.01 Fe/H: -0.540



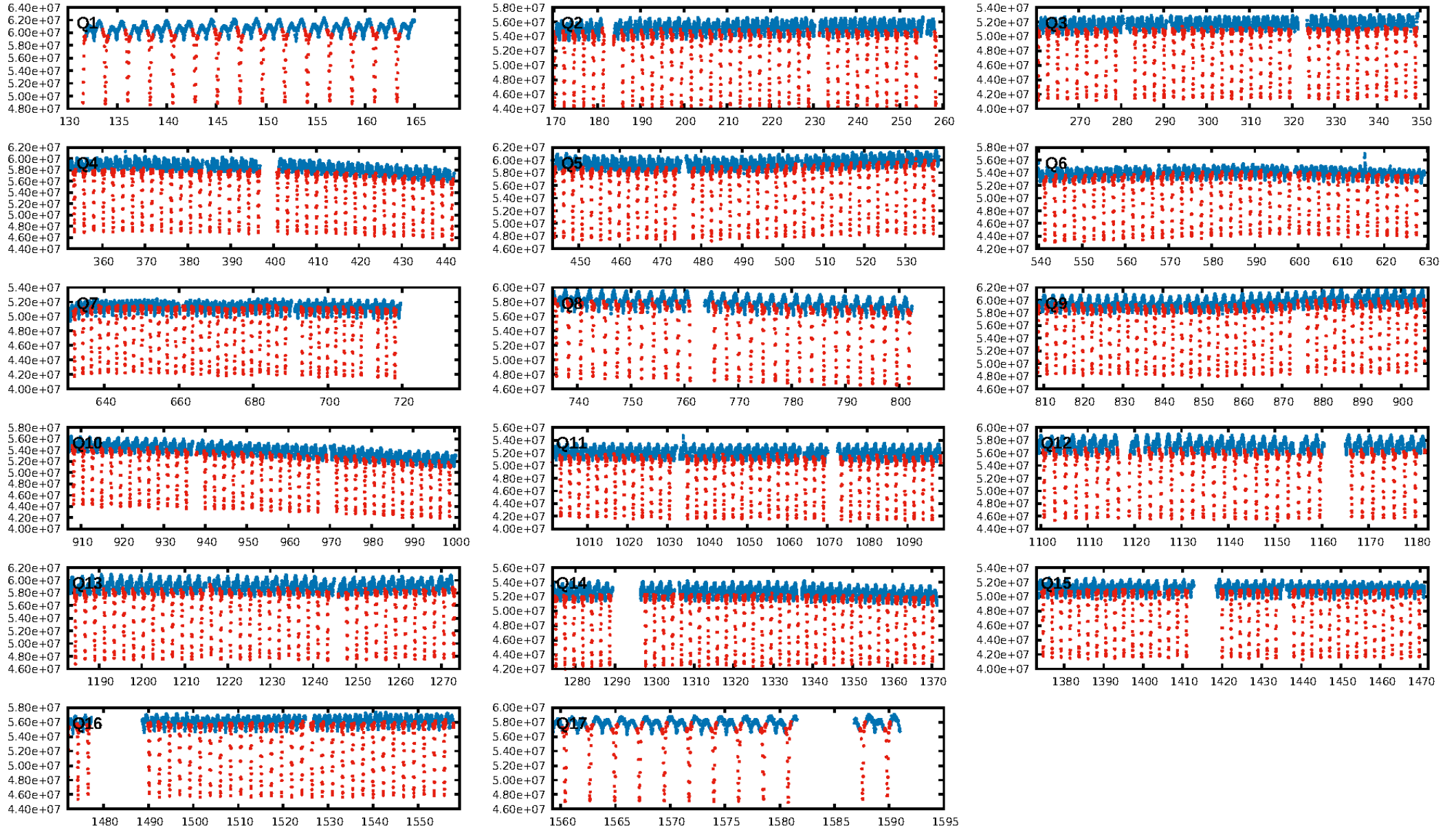
## DV Fit Results:

Period = 2.26447 [0.00000] d  
Epoch = 131.5186 [0.0000] BKJD  
Rp/R\* = 0.6122 [0.0147]  
a/R\* = 3.65 [0.02]  
b = 0.94 [0.02]  
Seff = 4635.10 [2557.81]  
Teq = 2104 [290] K  
Rp = 117.05 [39.85] Re  
a = 0.0354 [0.0117] AU  
Ag = 0.01 [0.01] [-159.59σ]  
Teffp = 1061 [54] K [-3.53σ]

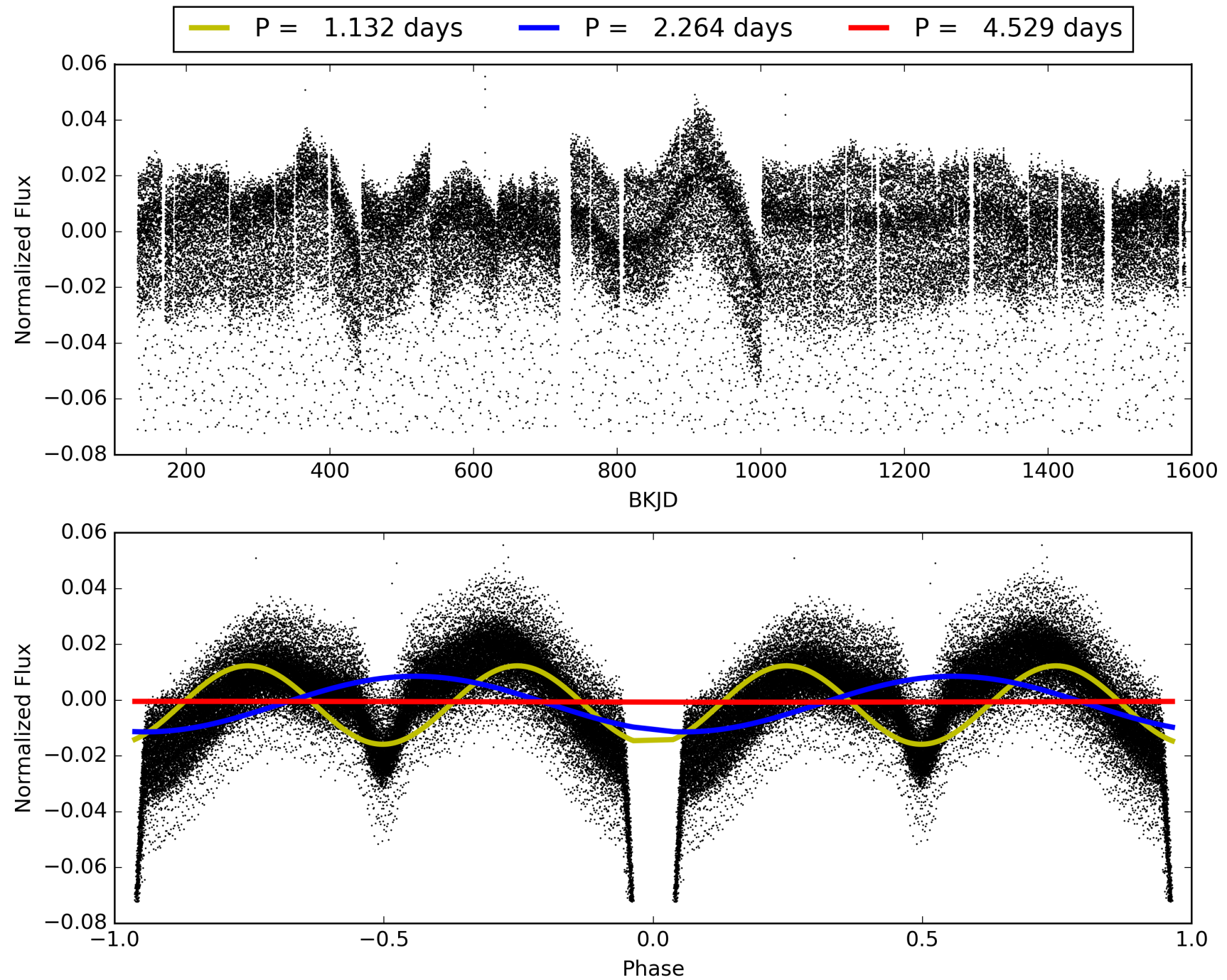
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [565/568]  
GhostDiagnostic-chr: 1.372  
Centroid-sig: 13.7%  
Centroid-so: 0.041 arcsec [87.56σ]  
OotOffset-rm: 0.003 arcsec [0.04σ]  
KicOffset-rm: 0.090 arcsec [1.32σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 006629588-01, PDC Light Curves

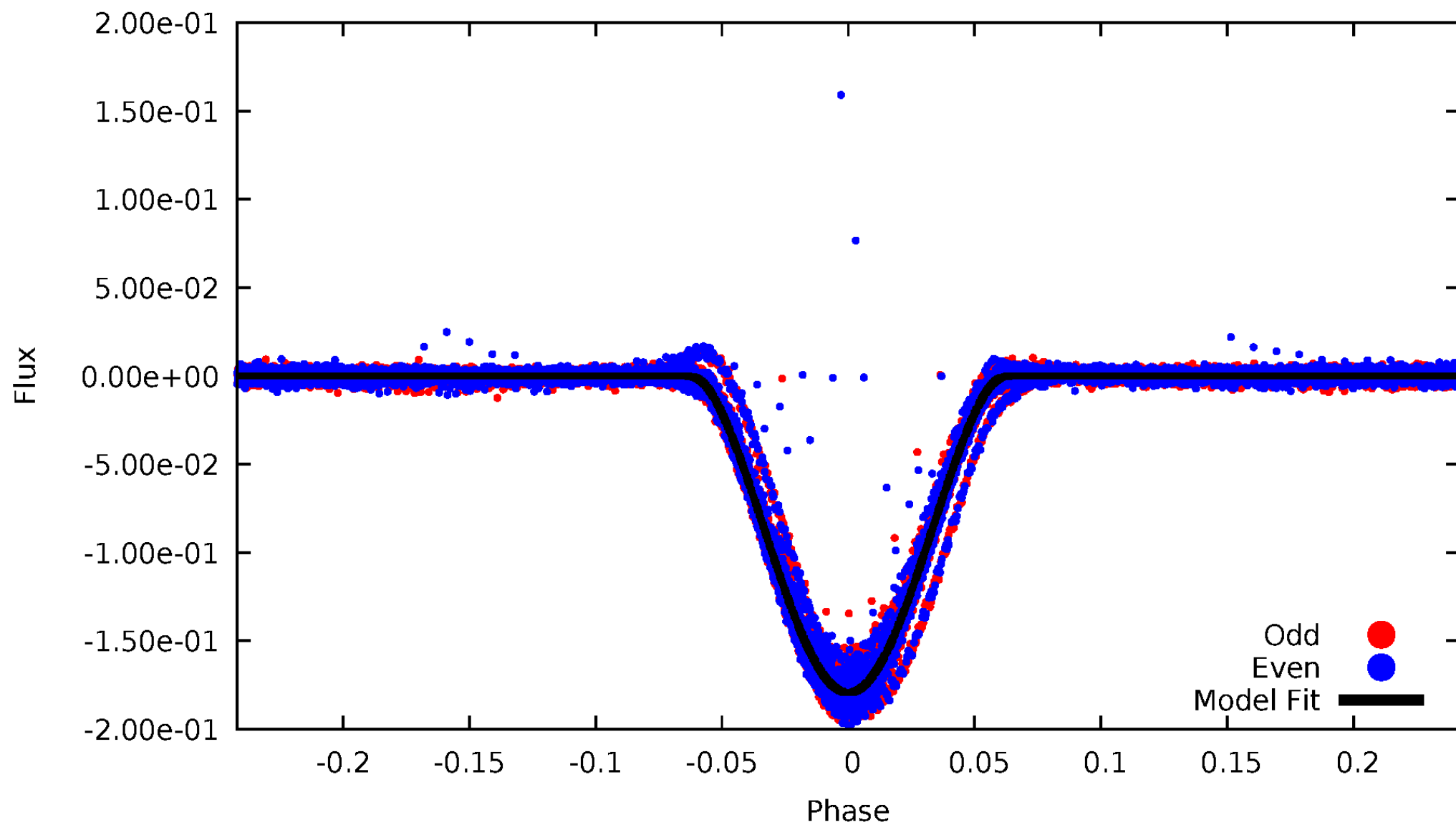


TCE 006629588-01



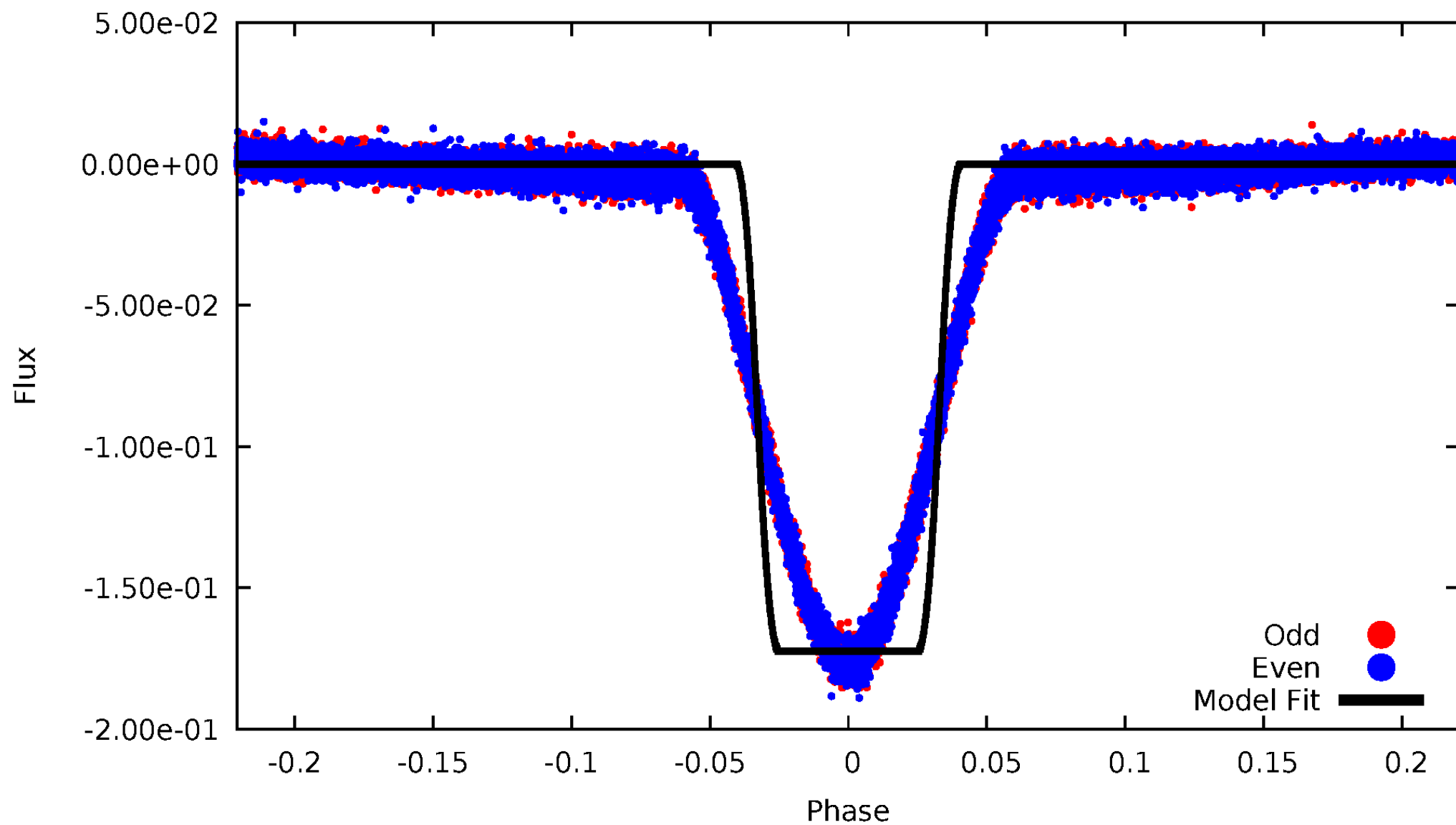
# DV Odd/Even

TCE 006629588-01



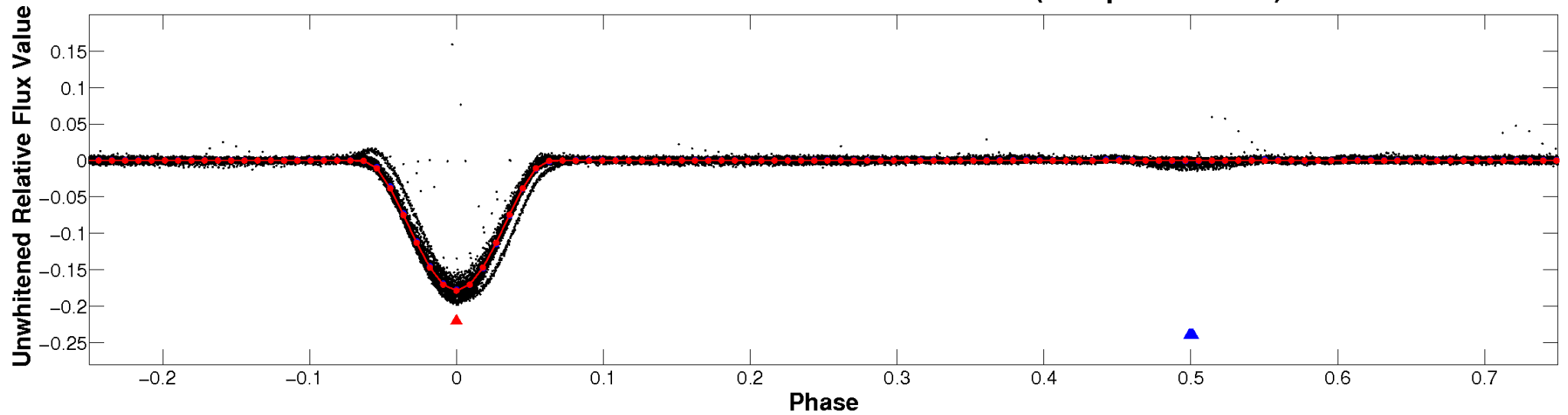
# ALT Odd/Even

TCE 006629588-01

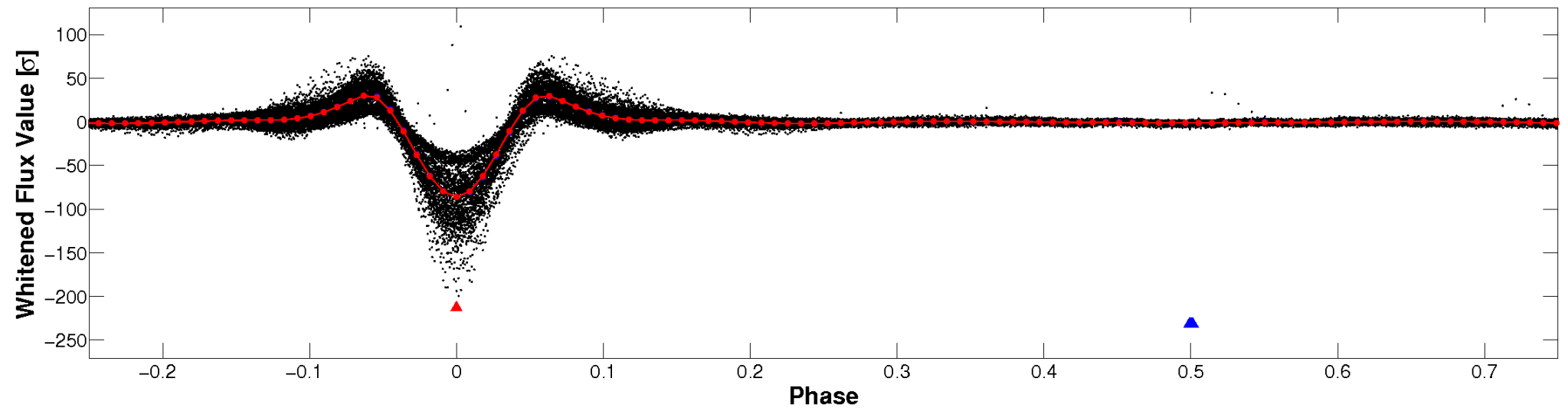


# Non-Whitened Vs. Whitened Light Curve

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



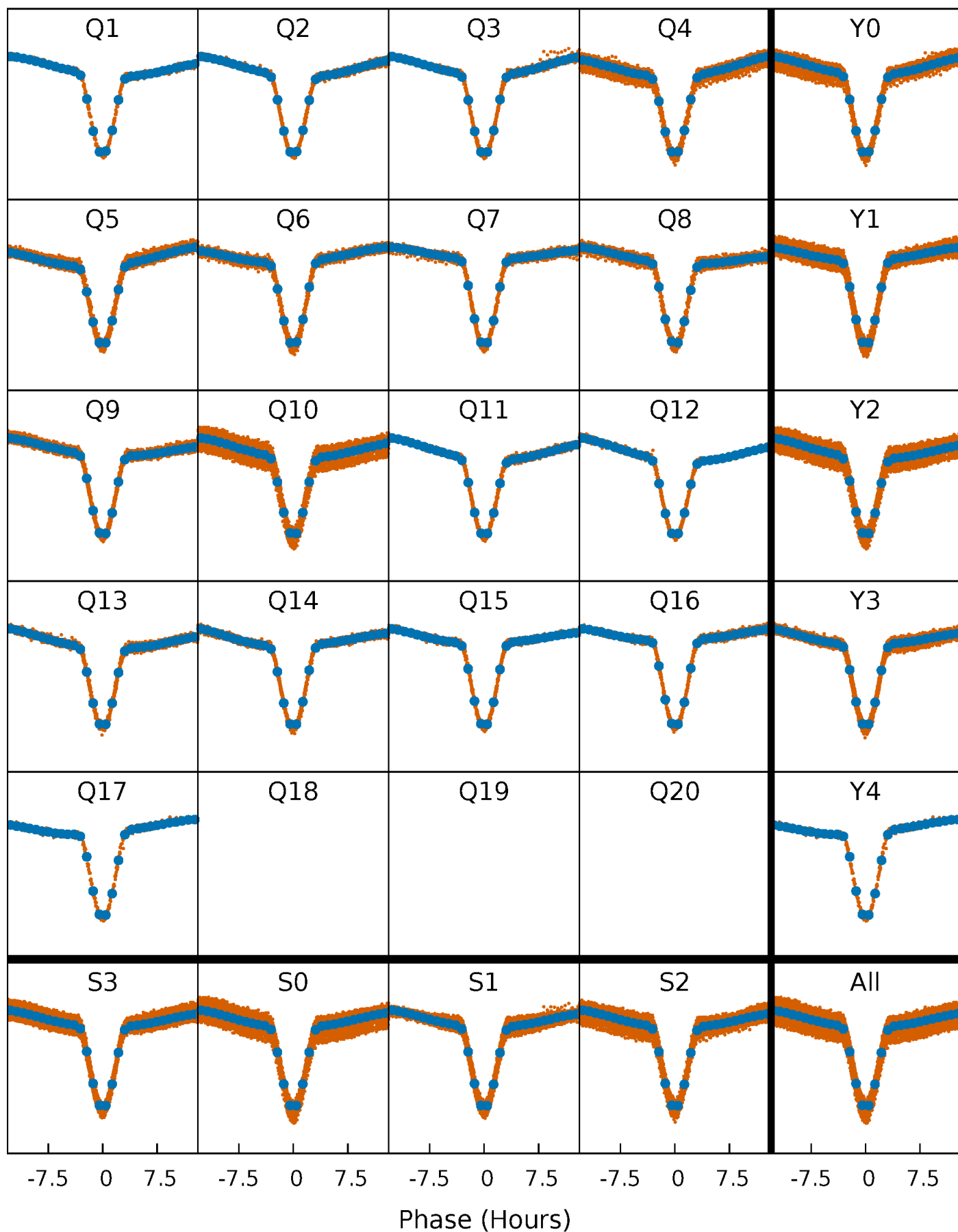
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

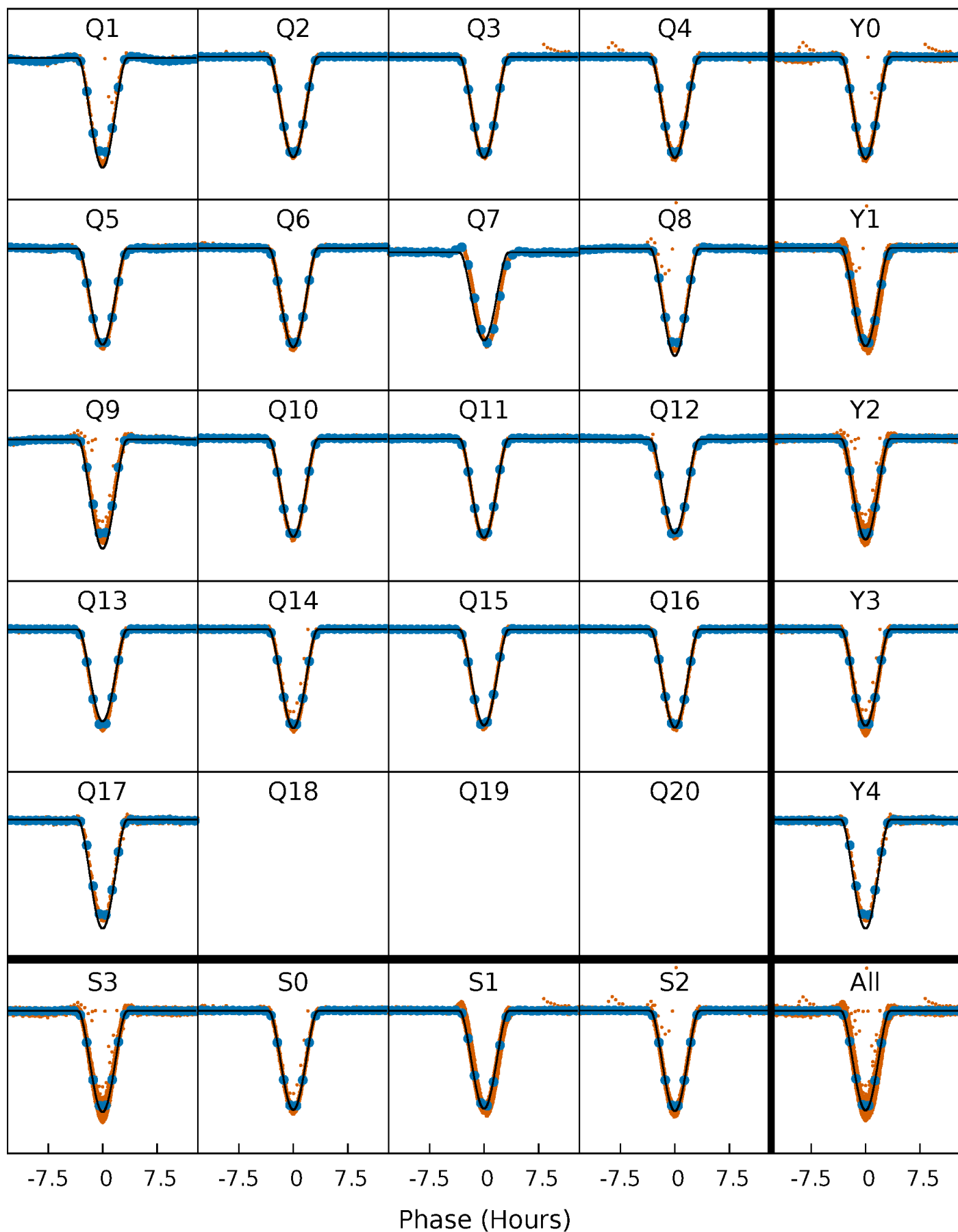
TCE 006629588-01   P= 2.264470 Days    $T_0=131.518571$  (BKJD)





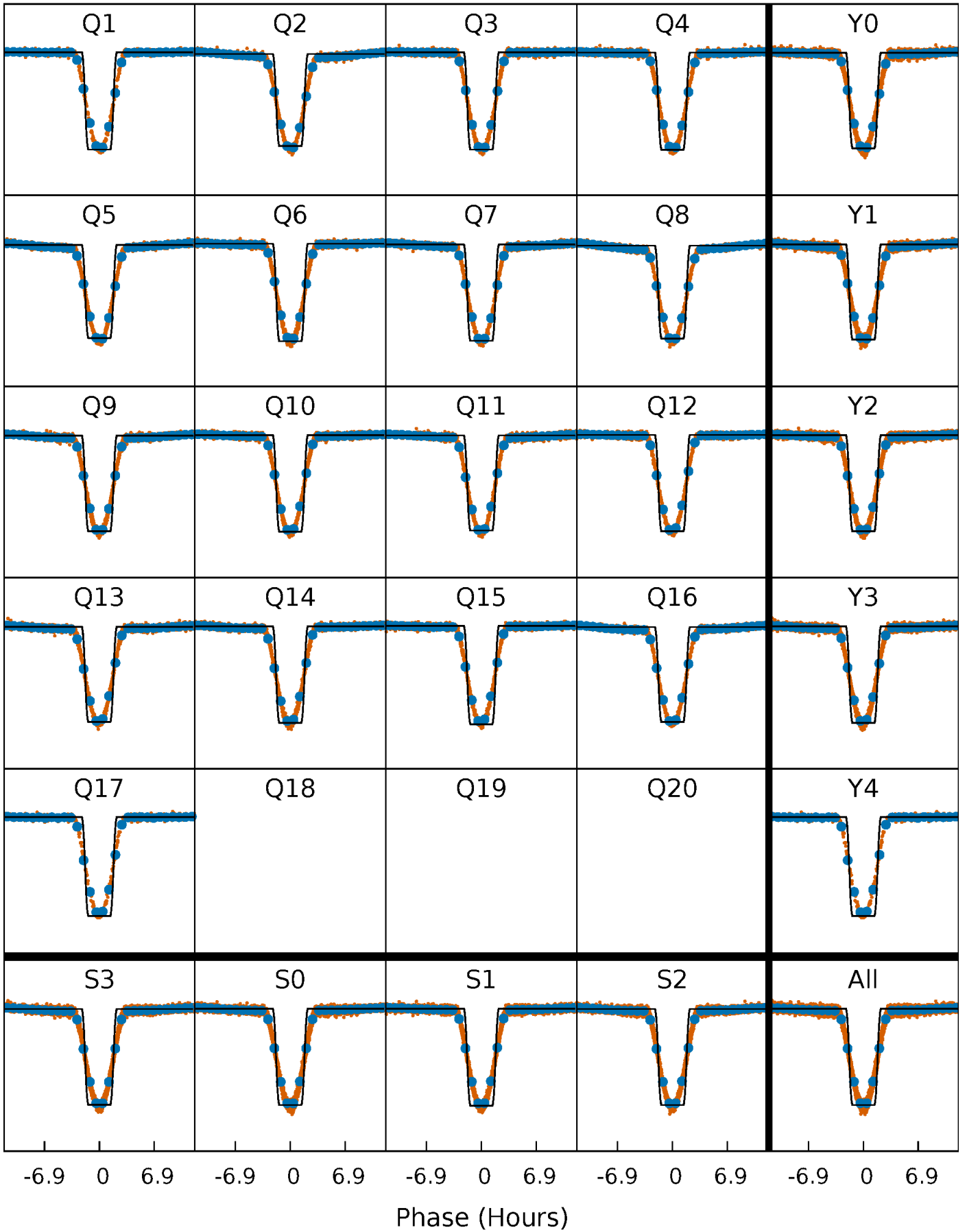
# DV Quarter-Phased Transit Curves

TCE 006629588-01 P= 2.264470 Days  $T_0=131.518571$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

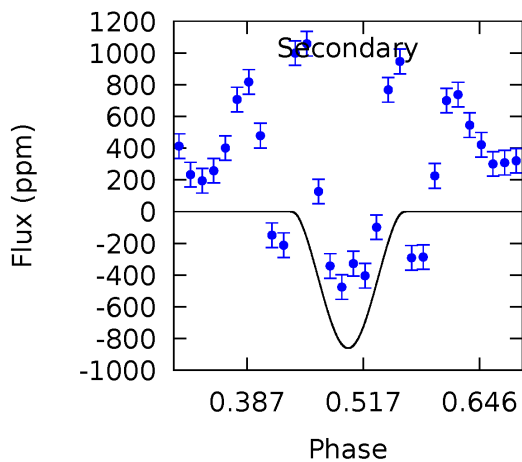
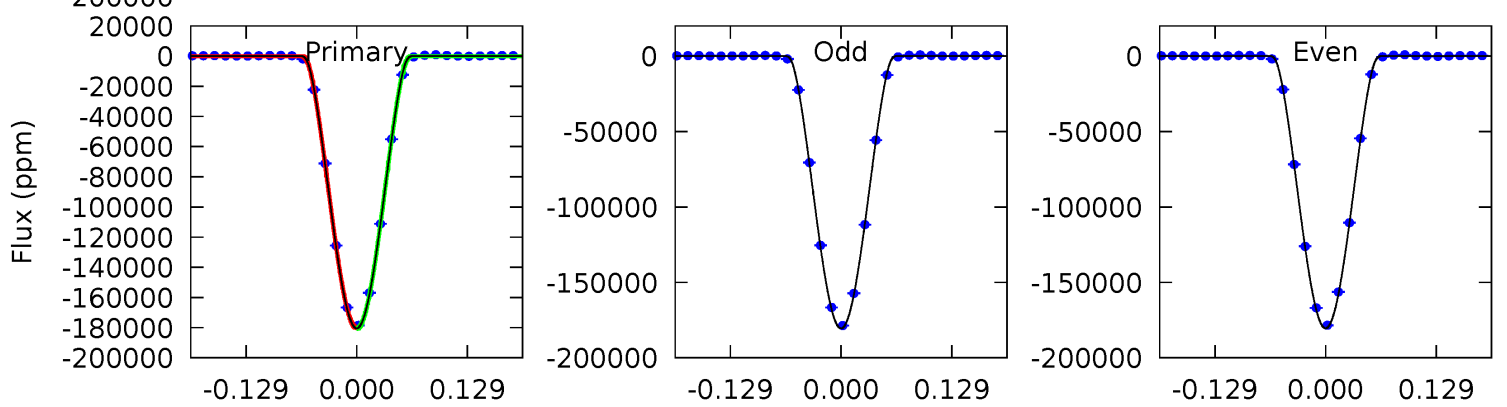
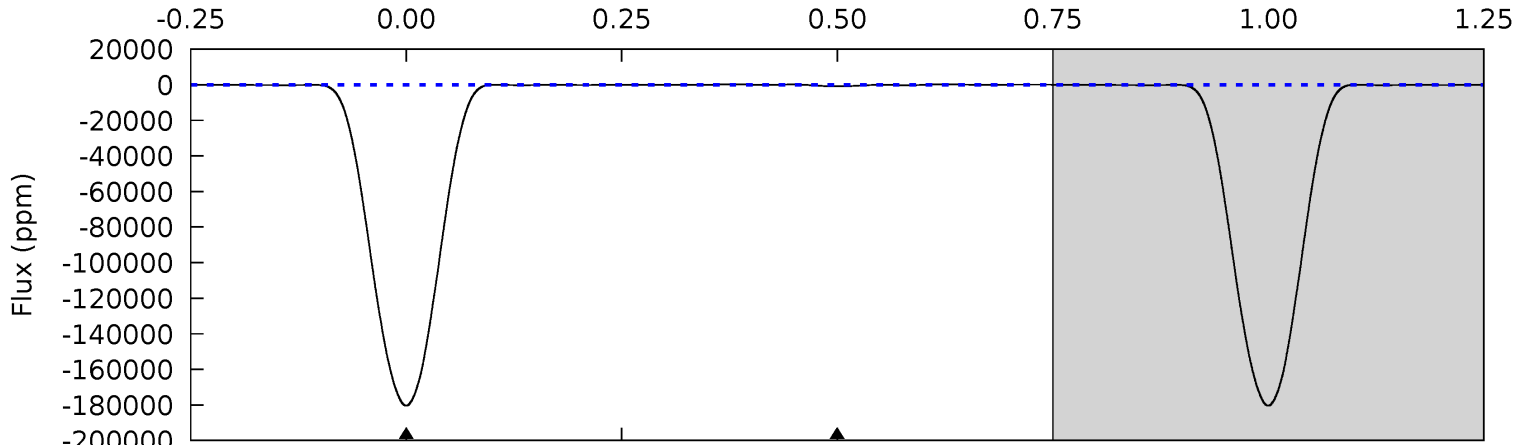
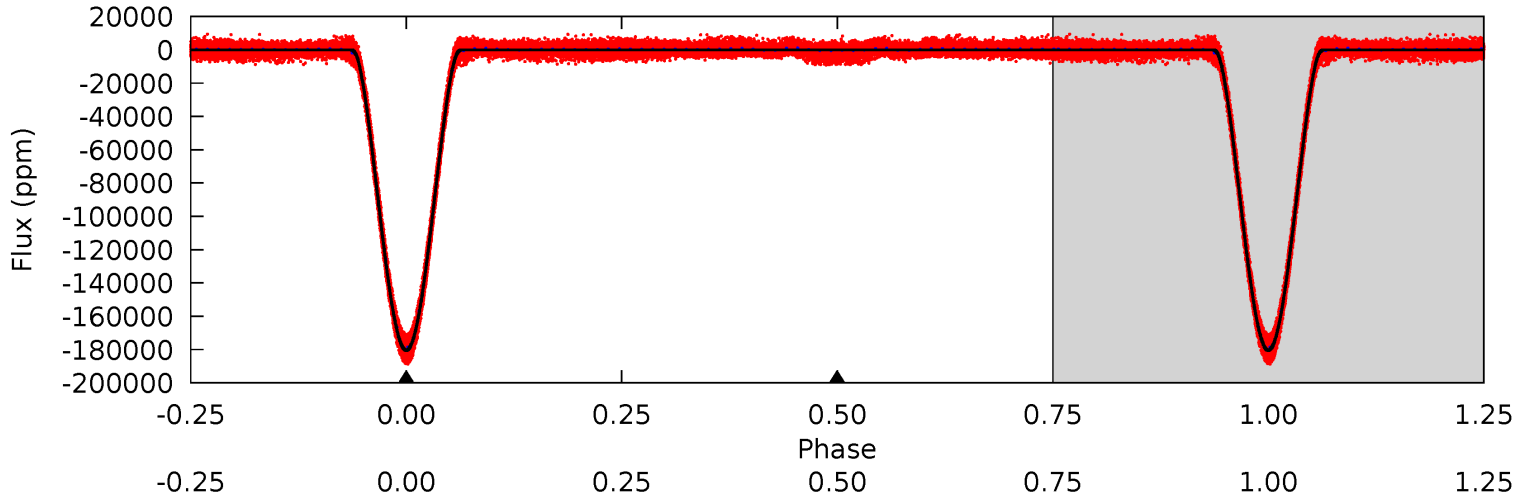
TCE 006629588-01   P= 2.264479 Days    $T_0=131.515931$  (BKJD)



# DV Model-Shift Uniqueness Test

006629588-01, P = 2.264470 Days, E = 129.254101 Days

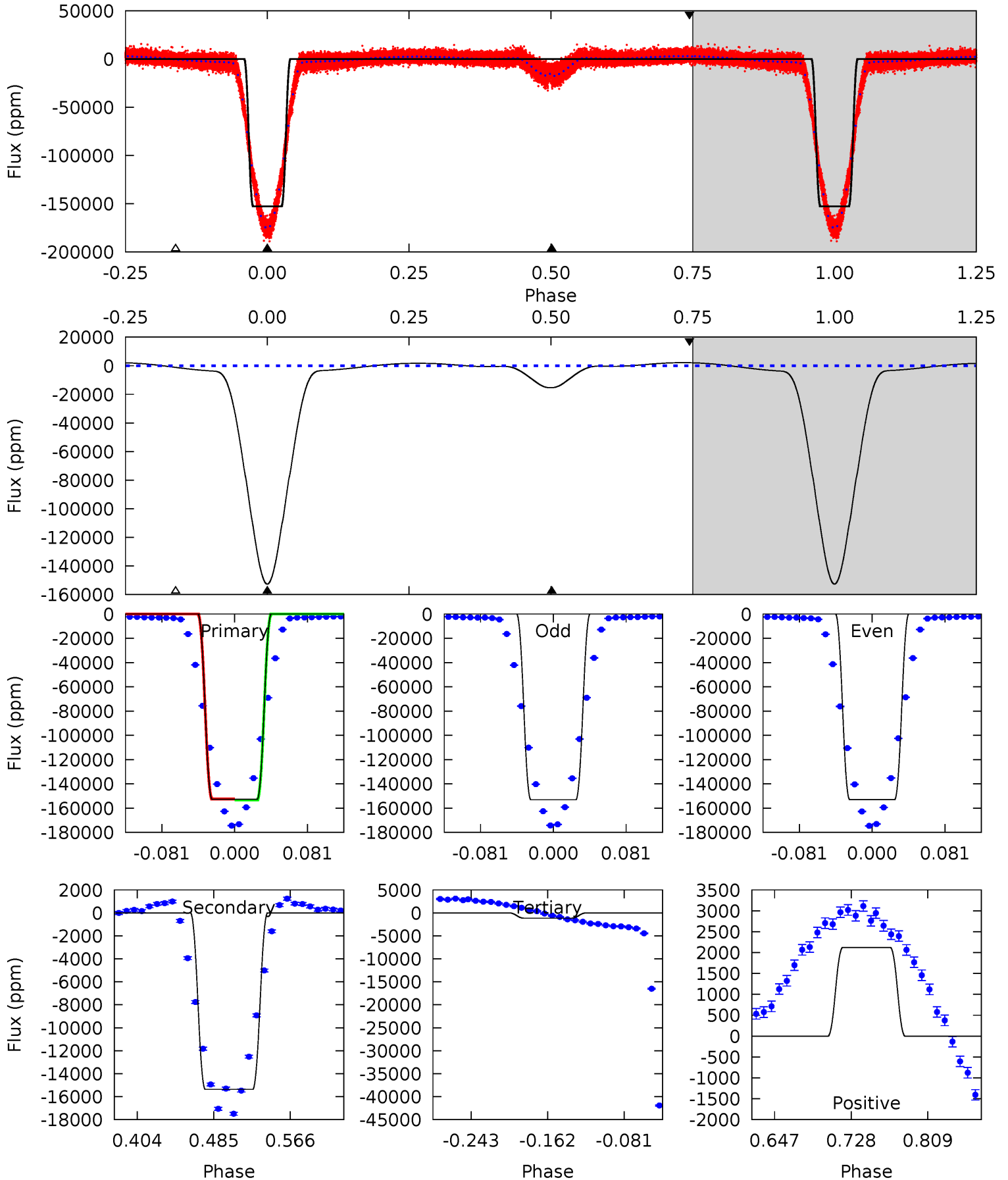
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7108	33.9	0	0	4.51	1.52	4.58	7108	7108	33.9	33.9	3.56	0.99	0.00	12.8



# Alt Model-Shift Uniqueness Test

006629588-01, P = 2.264479 Days, E = 129.251452 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
3057	307.8	23.1	42.5	4.61	1.75	35.4	3034	3015	284.7	265.3	1.98	1.00	0.01	8.49



### Stellar Parameters For KIC 006629588

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6782^{+214}_{-262}$	$4.014^{+0.312}_{-0.144}$	$-0.540^{+0.300}_{-0.300}$	$1.752^{+0.433}_{-0.595}$	$1.155^{+0.189}_{-0.170}$	$0.303^{+0.648}_{-0.140}$
	+3%/-4%	+8%/-4%	+56%/-56%	+25%/-34%	+16%/-15%	+214%/-46%
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 006629588-01 / KOI 6748.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-861 \pm 25$	$115.66^{+18.32}_{-22.35}$	$2896^{+245}_{-284}$	$-2956^{+193}_{-156}$	$0.045^{+0.023}_{-0.011}$
Alt.	$-15368 \pm 50$	$77.58^{+11.26}_{-14.11}$	$2887^{+221}_{-278}$	$3890^{+124}_{-112}$	$1.796^{+0.896}_{-0.390}$

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

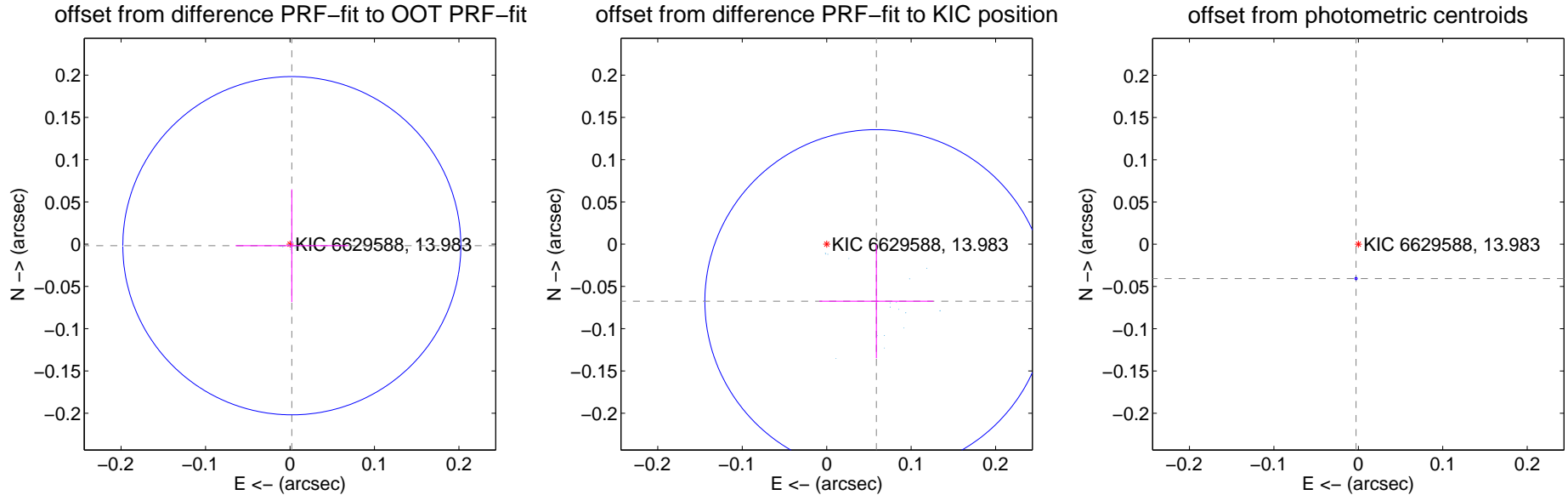
## DV Centroid Data

Supplemental centroid analysis for 006629588-01. Kepler magnitude: 13.98. Transit SNR 4197.71

There are 17 quarters with good PRF difference image offsets

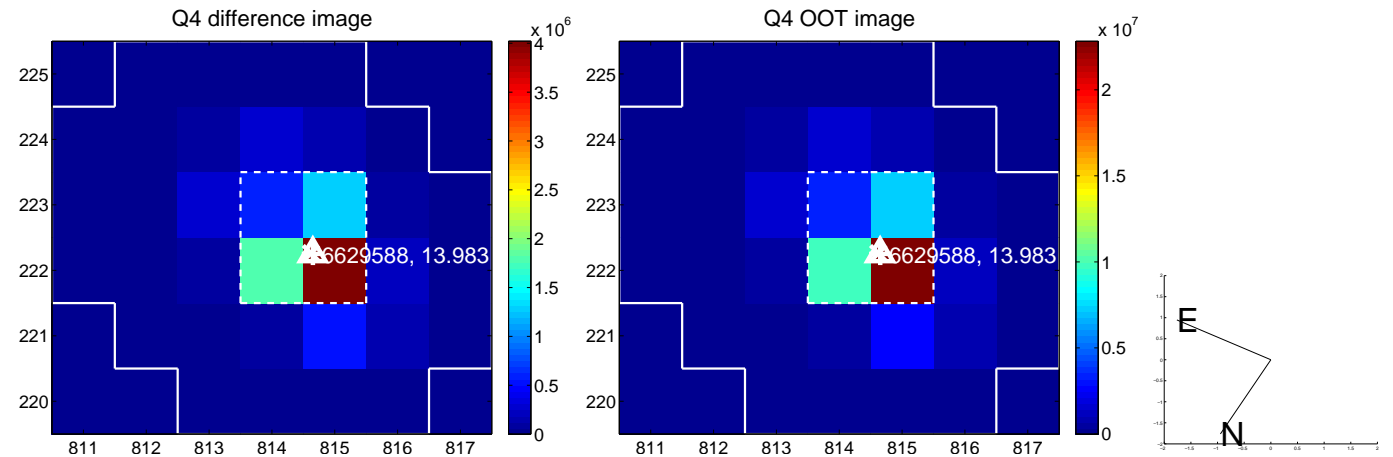
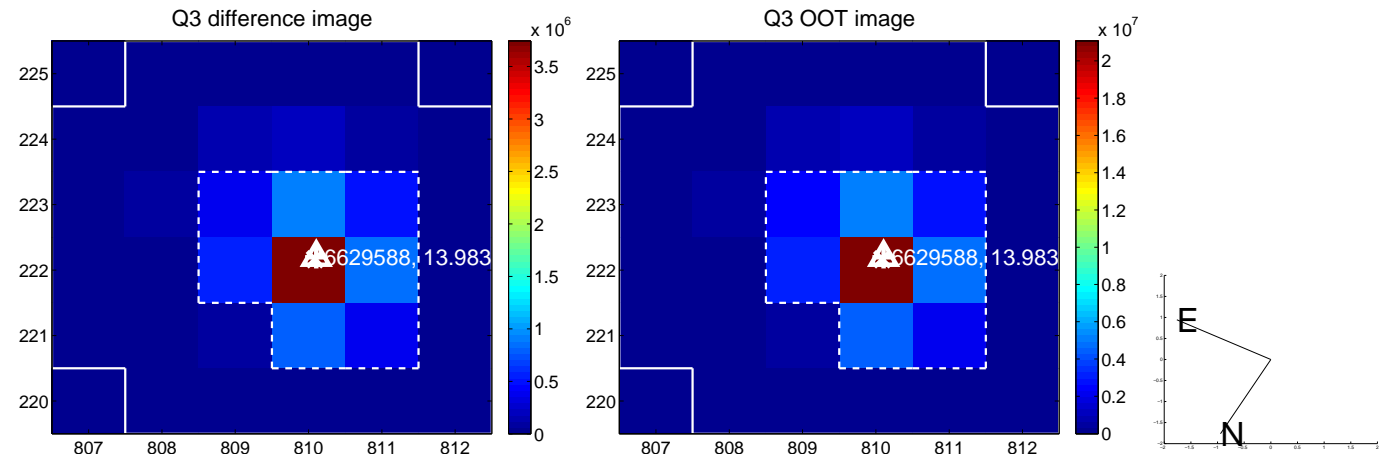
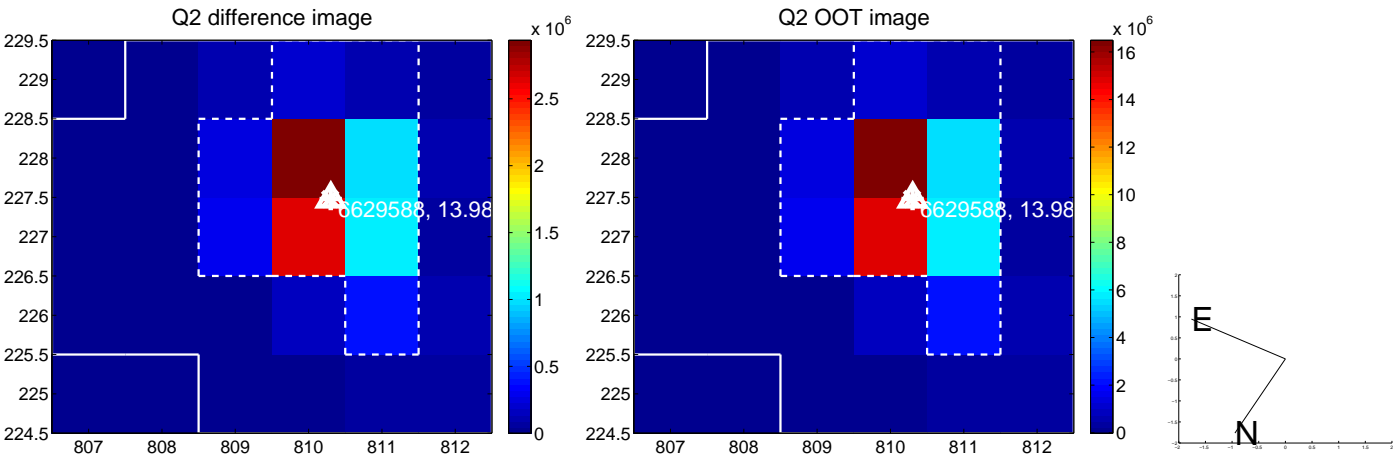
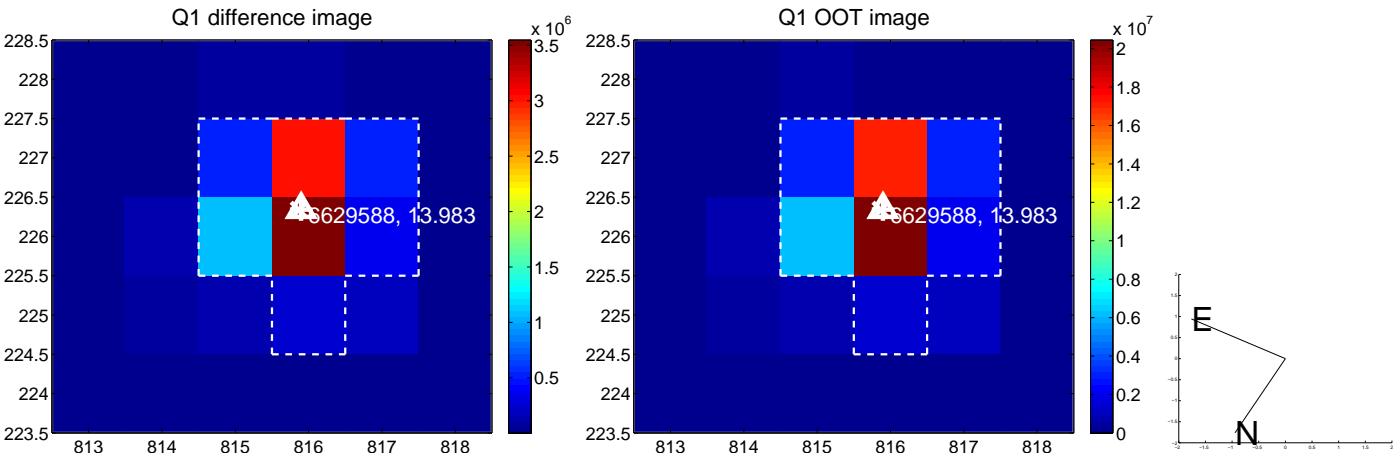
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.003 \pm 0.067$	0.04	$-0.002 \pm 0.067$	$-0.002 \pm 0.067$
PRF-fit source offset from KIC position	$0.090 \pm 0.068$	1.32	$-0.059 \pm 0.068$	$-0.068 \pm 0.067$
photometric centroid source offset	$0.04 \pm 0.00$	87.56	$0.00 \pm 0.00$	$-0.04 \pm 0.00$



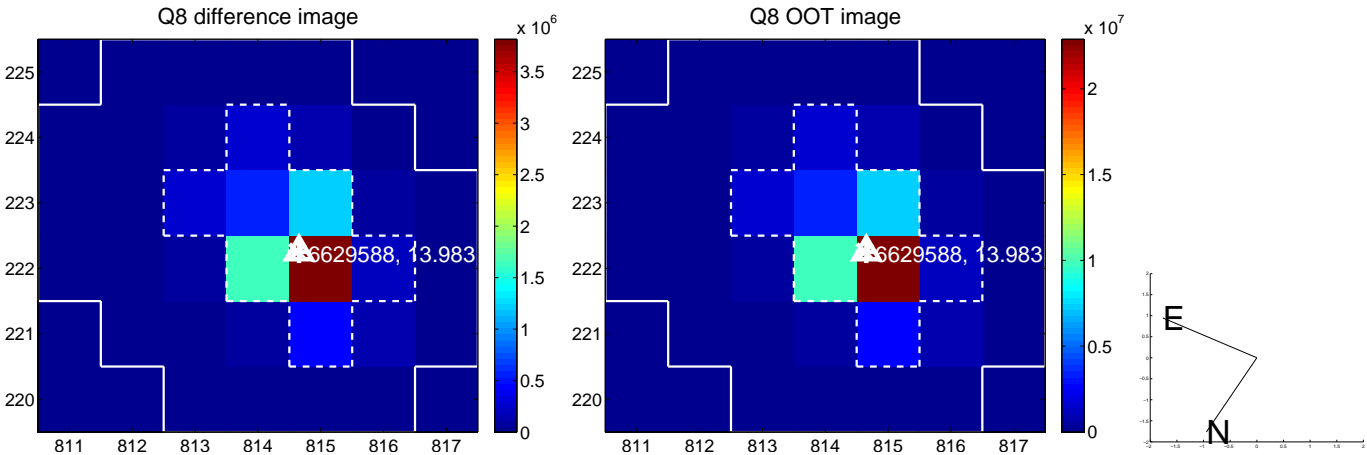
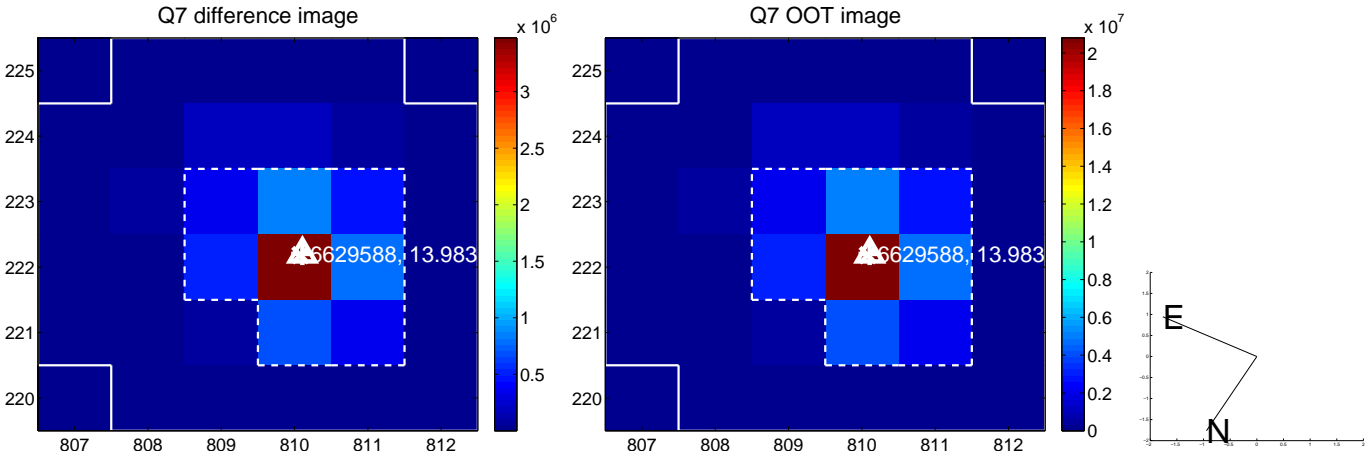
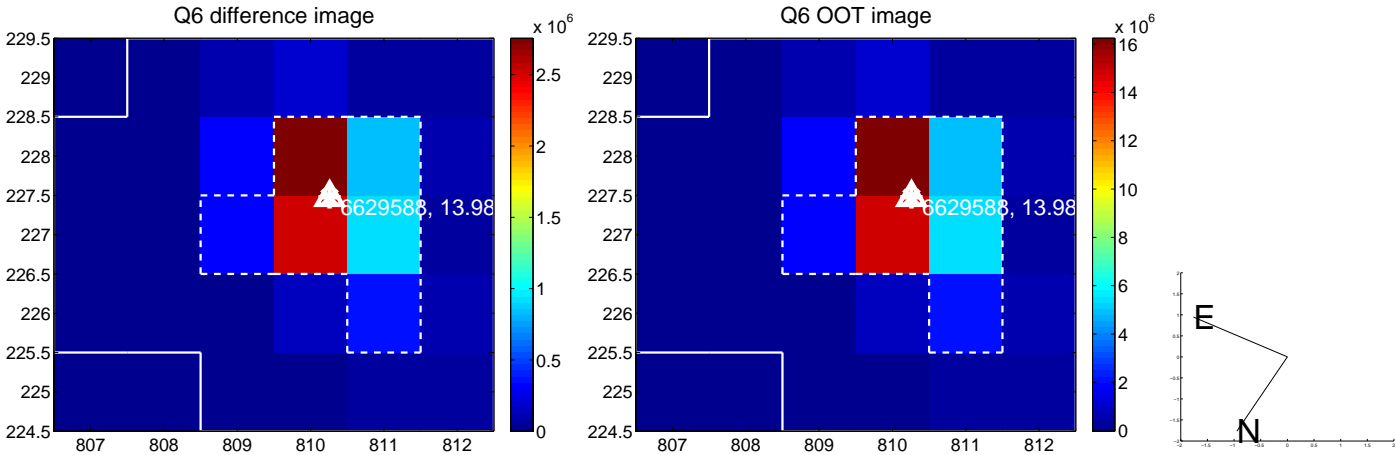
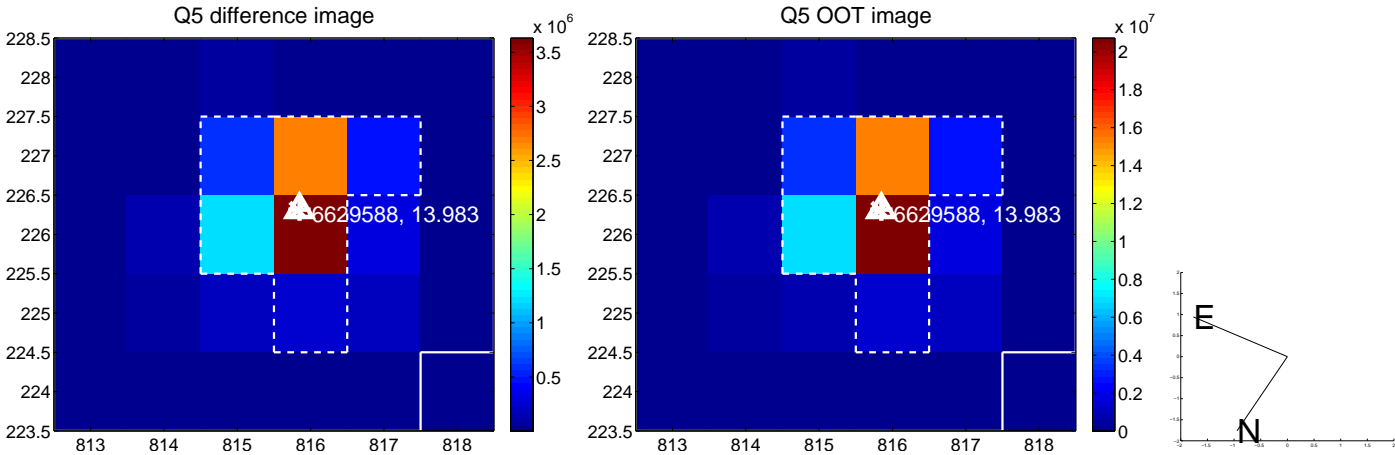
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

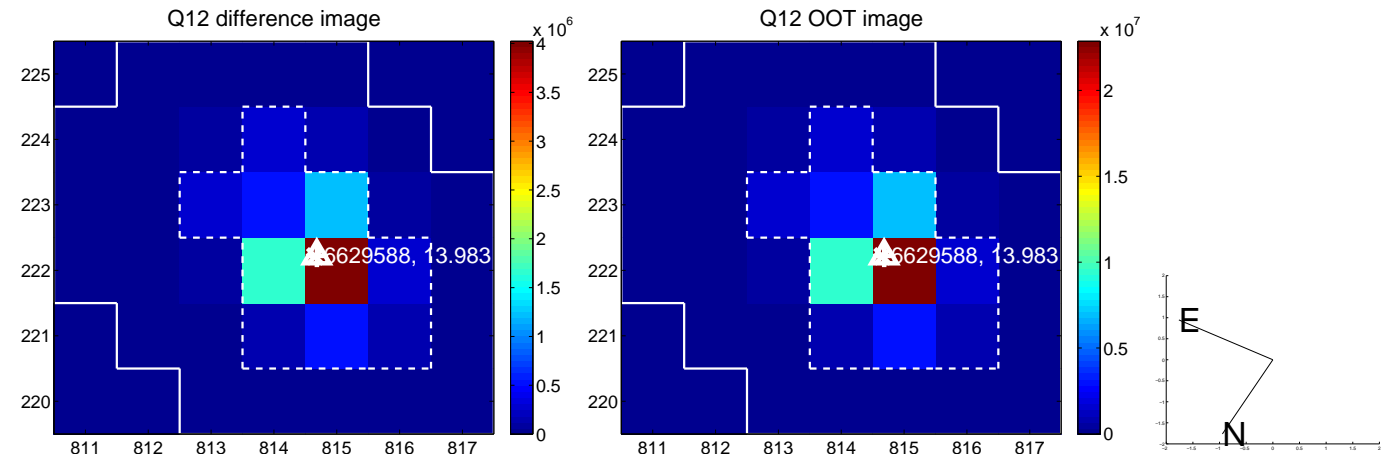
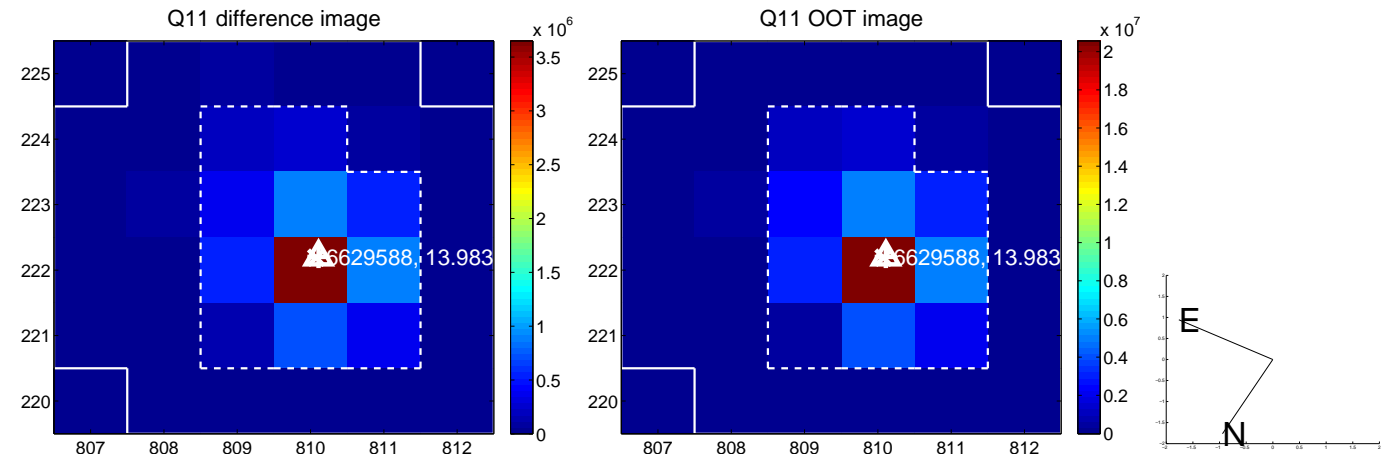
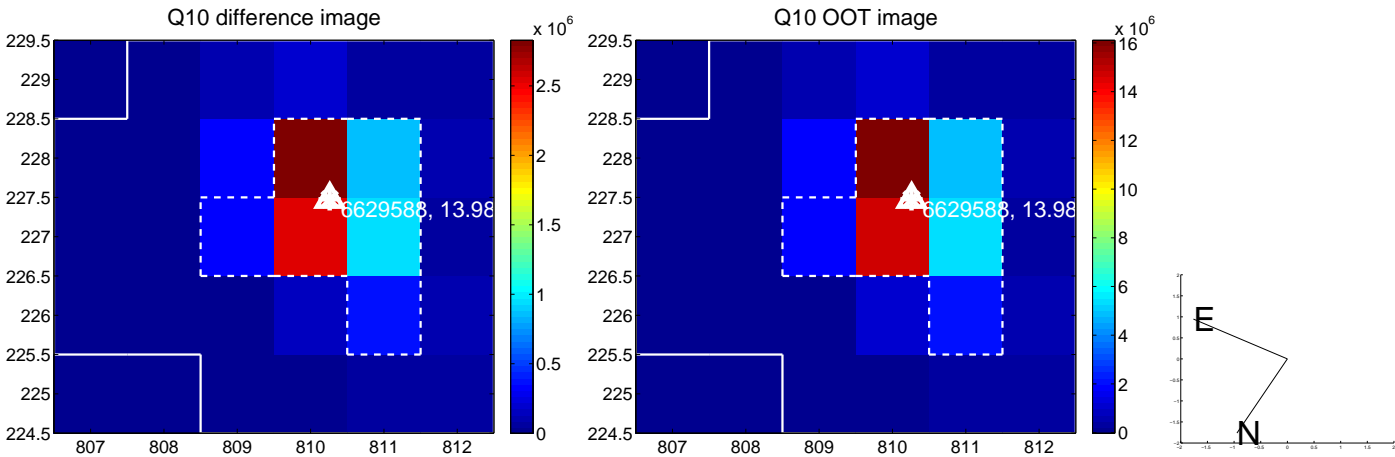
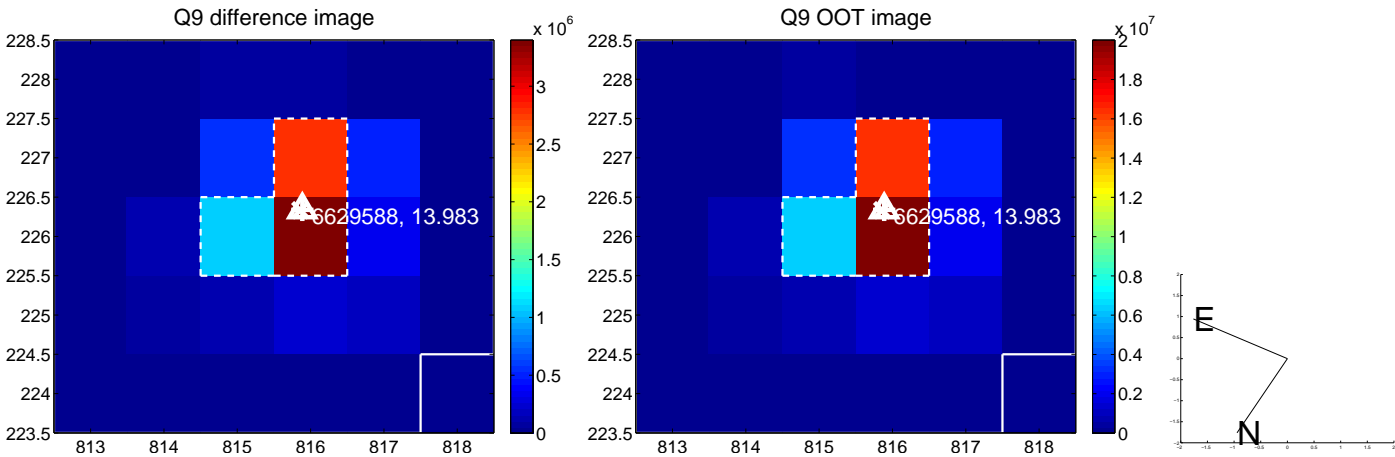




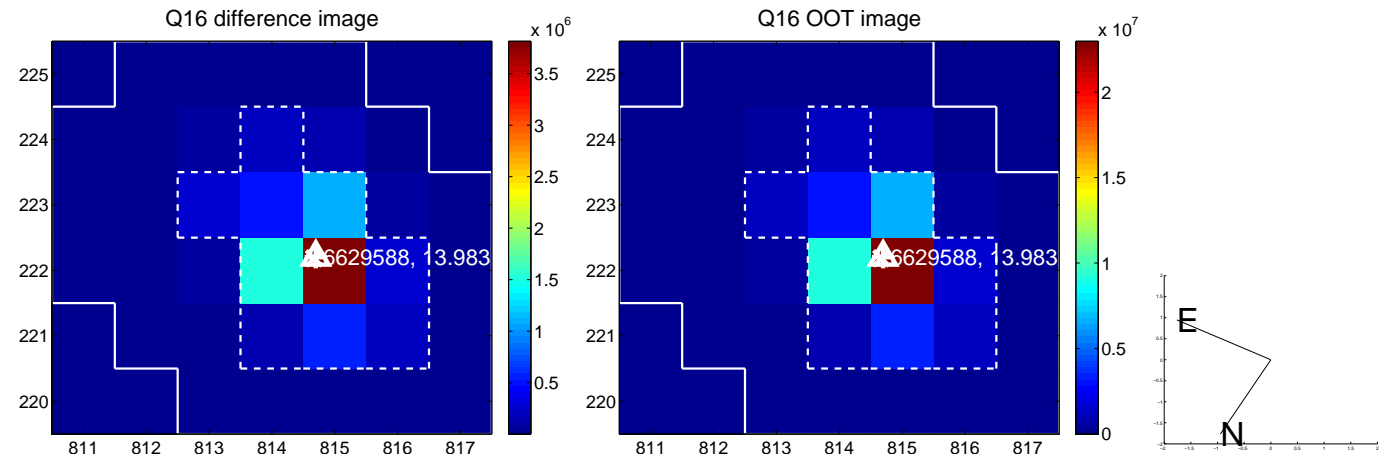
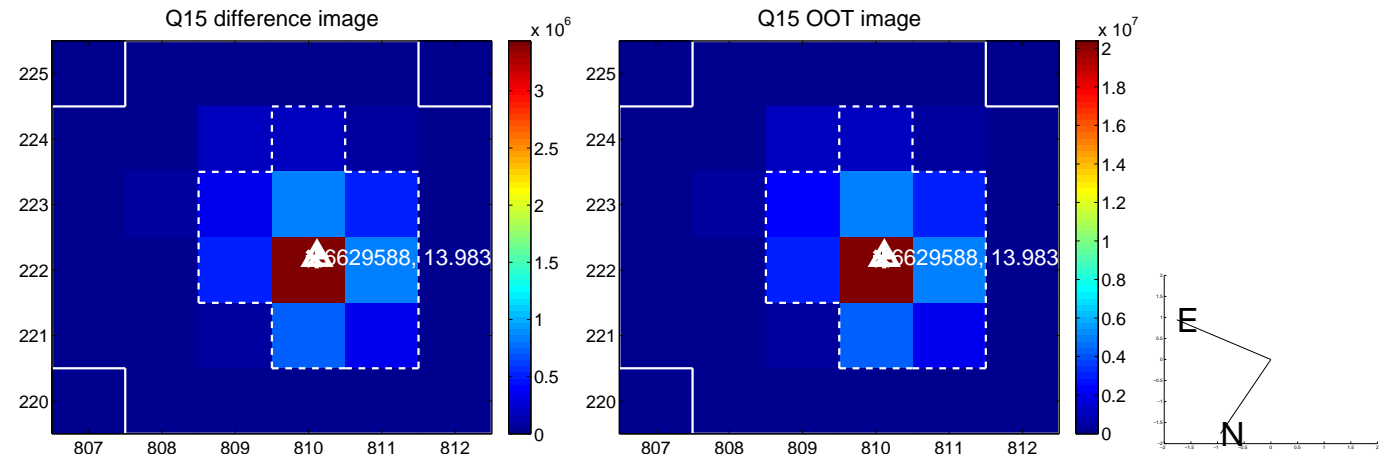
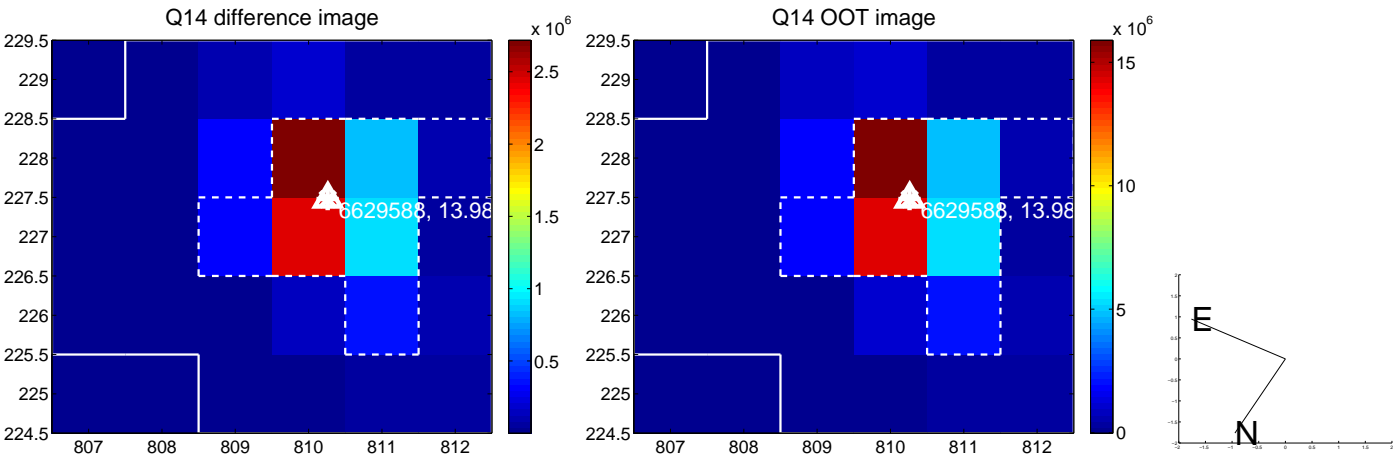
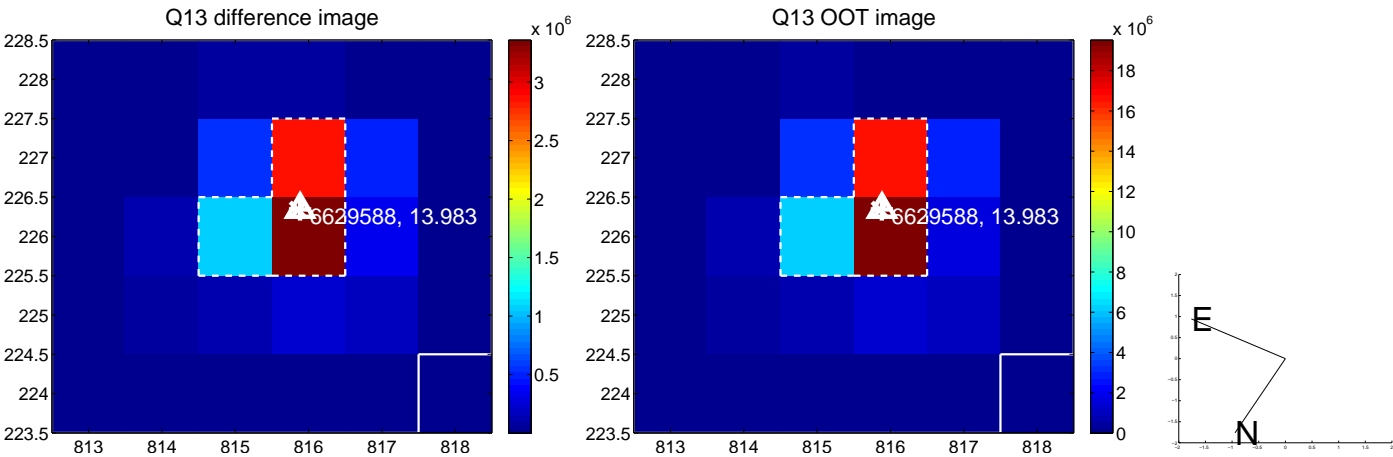
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



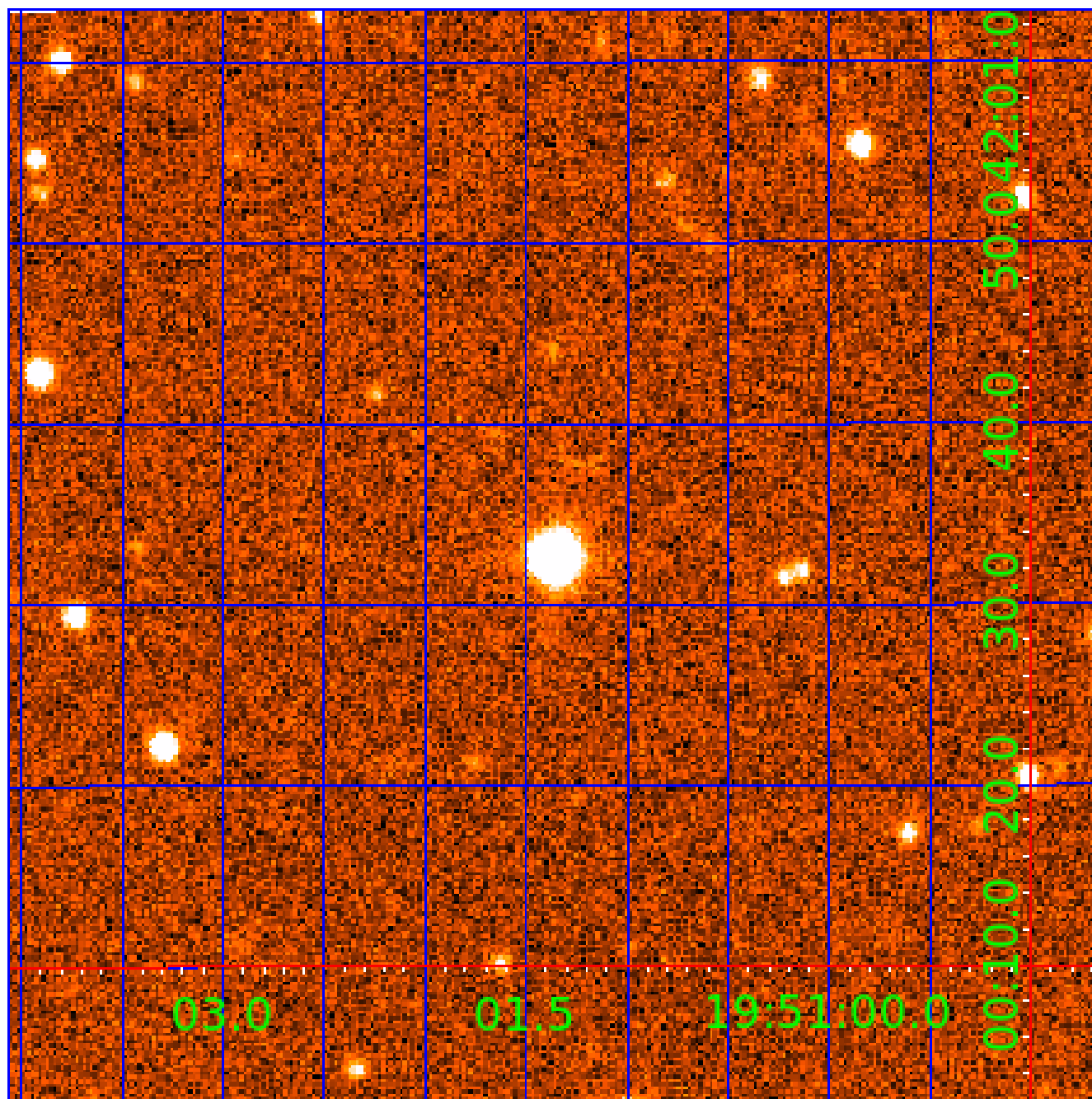
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





# UKIRT Image

Declination



# KIC 006629588

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006629588-01	OBS	6748.01	2.264470	131.518570	179319.5	6.574	5937.6	4197.7	1.75	6782	117.05	4635.10
006629588-02	OBS	No	2.264479	132.648462	583.1	3.500	16.7	-1.0	1.75	6782	4.27	4635.08

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006629588-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
006629588-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—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 006629588-02

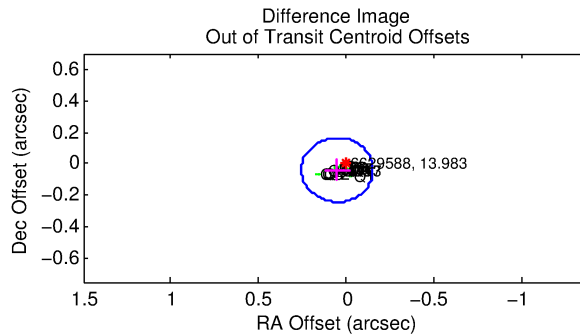
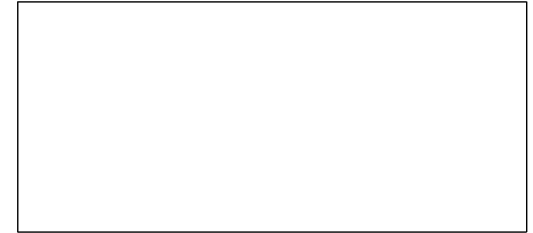
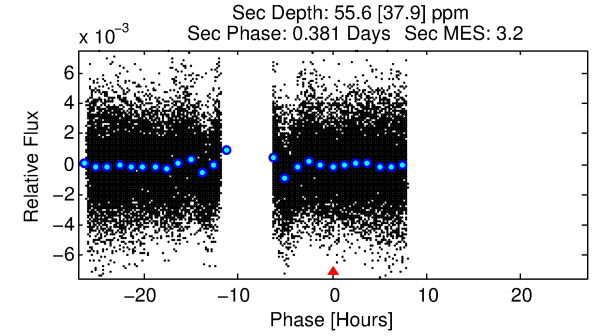
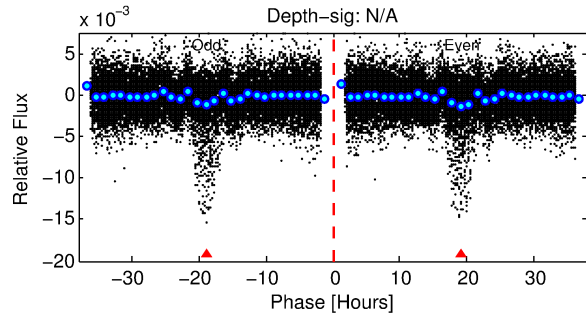
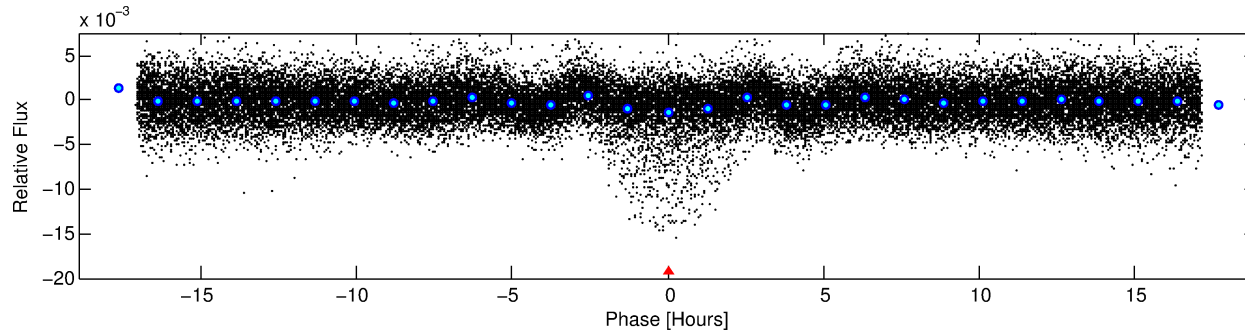
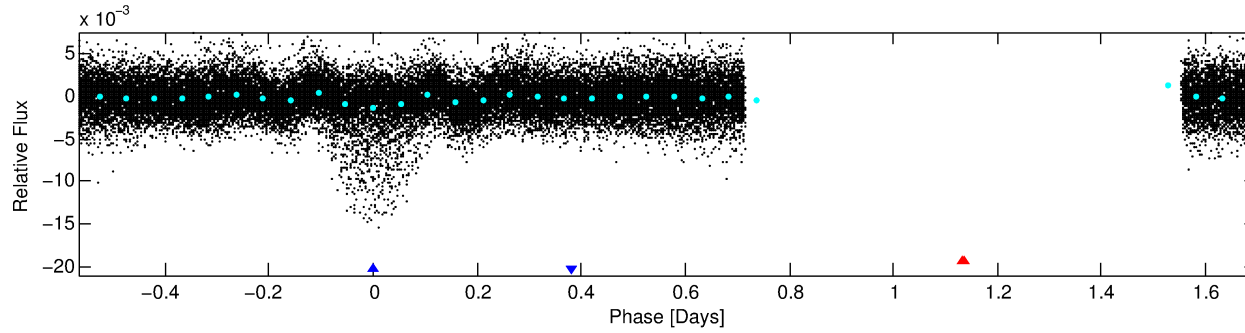
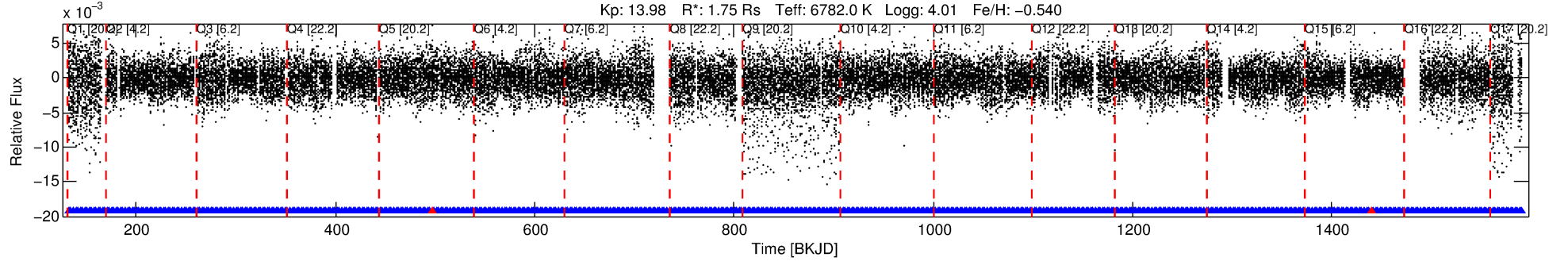
No Significant Match Found

# DV One-Page Summary

KIC: 6629588 Candidate: 2 of 2 Period: 2.264 d

KOI: K06748 Corr: No Ephemeris Match

Kp: 13.98 R\*: 1.75 Rs Teff: 6782.0 K Logg: 4.01 Fe/H: -0.540



TPS TCE Results:

Period = 2.26448 d  
Epoch = 132.6485 BKJD

DV fit results are unavailable

DV Diagnostic Results:

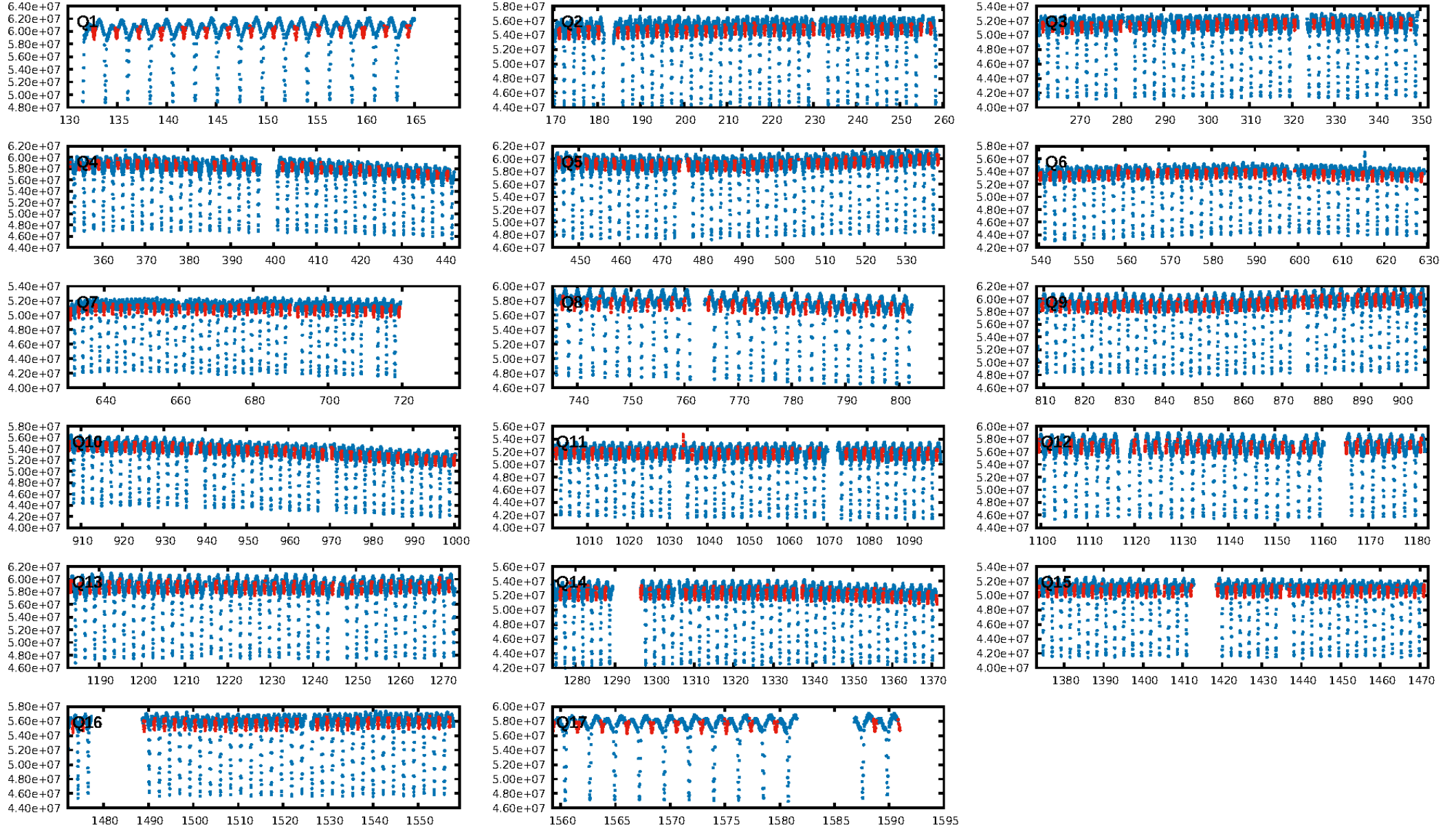
ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [571/573]  
GhostDiagnostic-chr: 0.5509  
Centroid-sig: 1.2%  
Centroid-so: 0.042 arcsec [16.61σ]  
OotOffset-rm: 0.065 arcsec [0.97σ]  
KicOffset-rm: 0.107 arcsec [1.56σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:49:57 Z

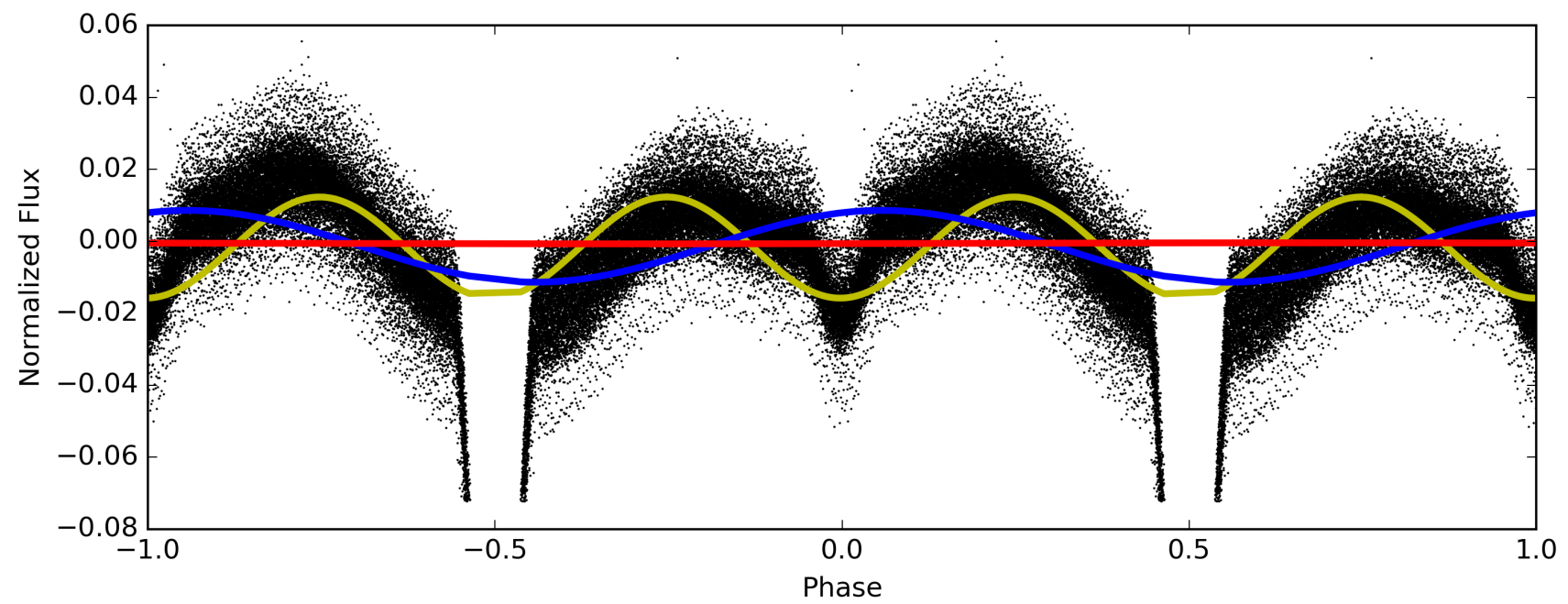
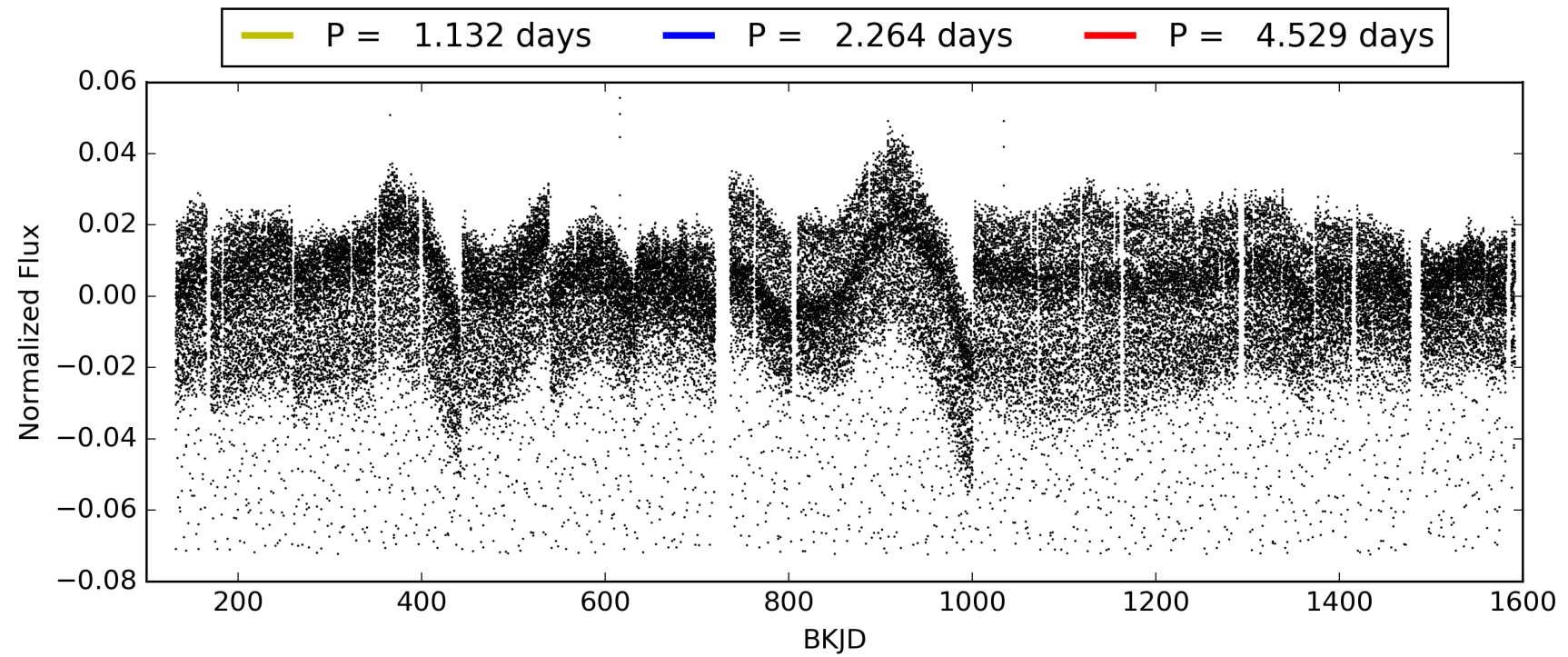
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 006629588-02, PDC Light Curves

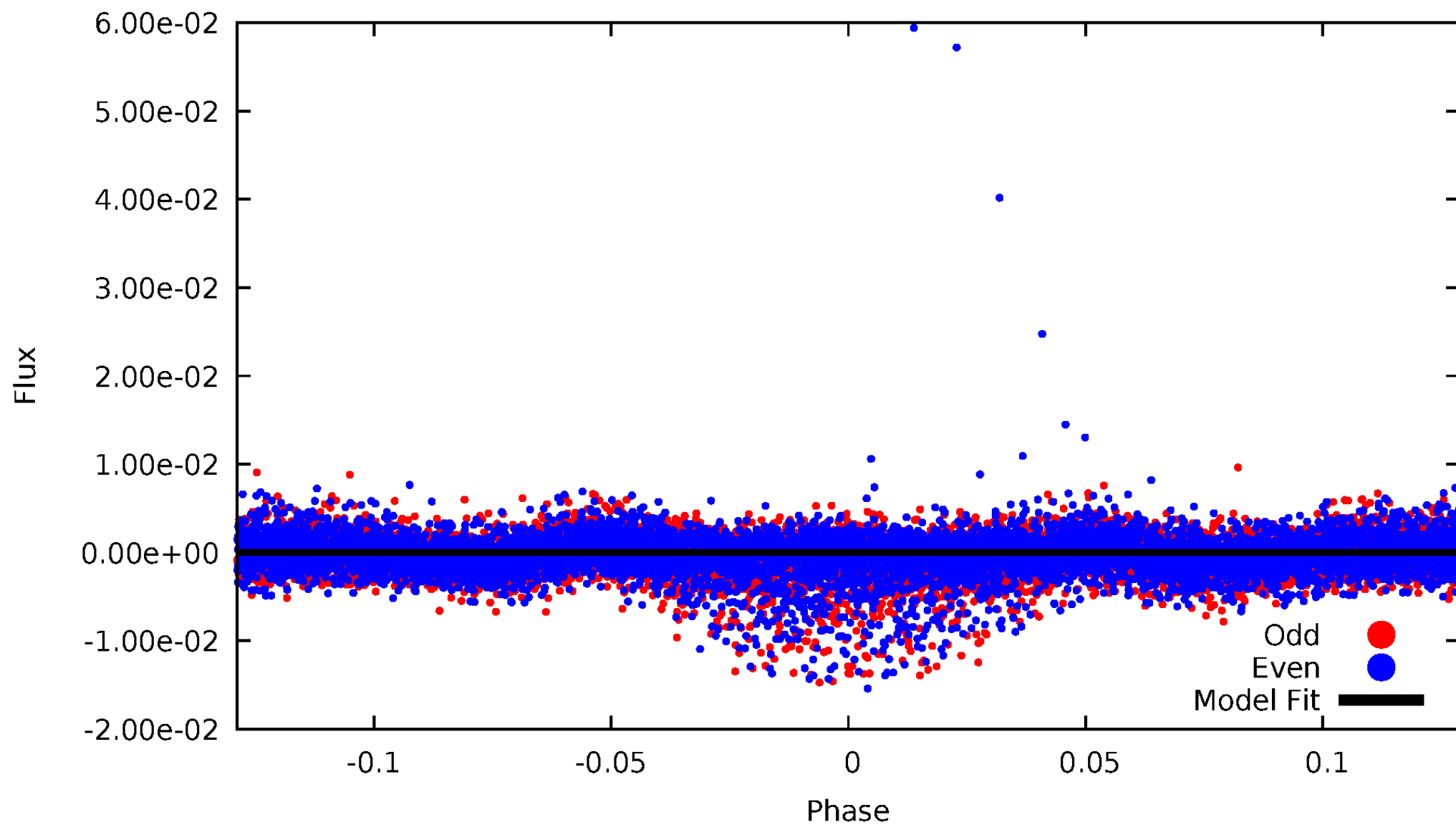


TCE 006629588-02



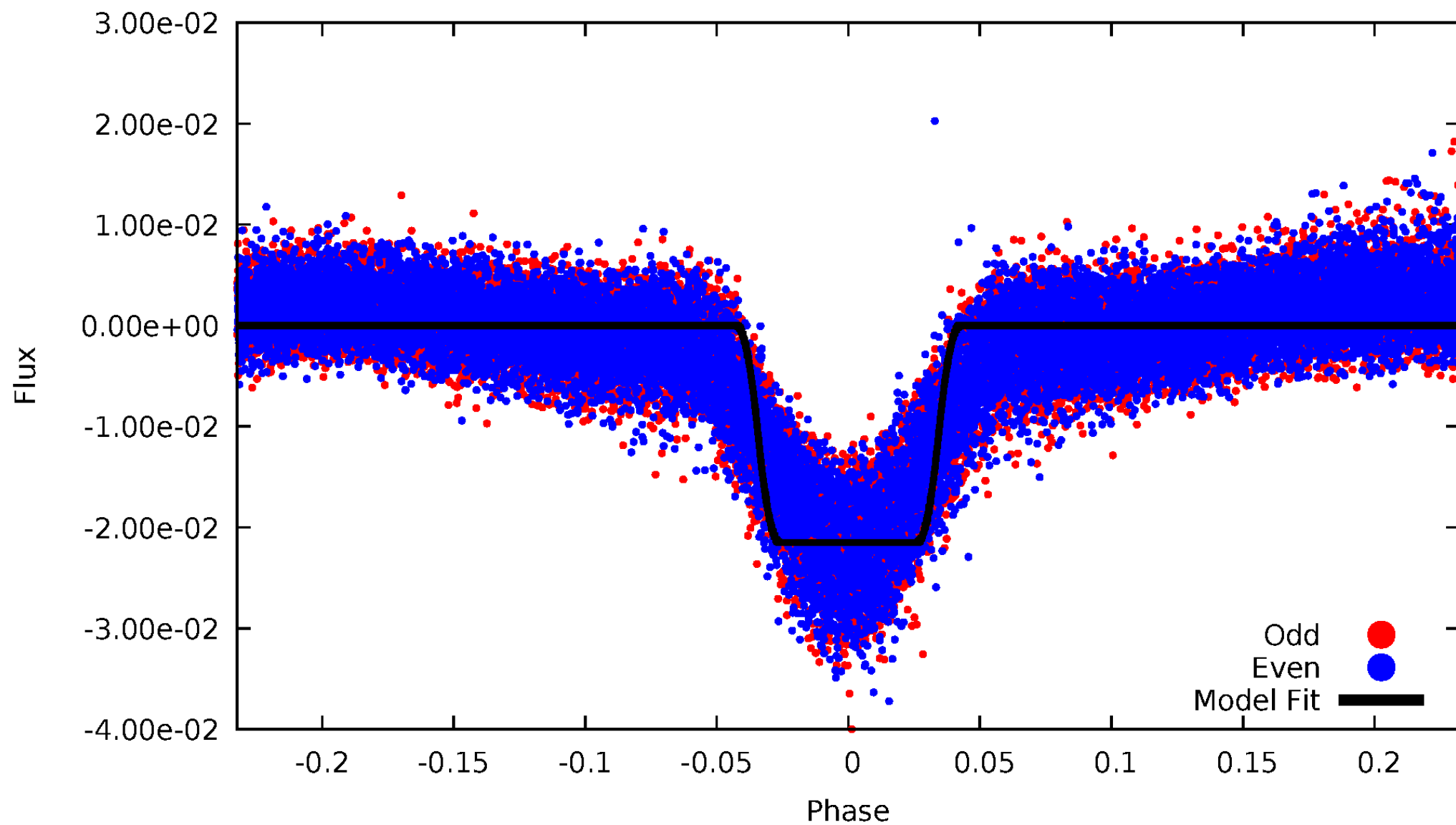
# DV Odd/Even

TCE 006629588-02



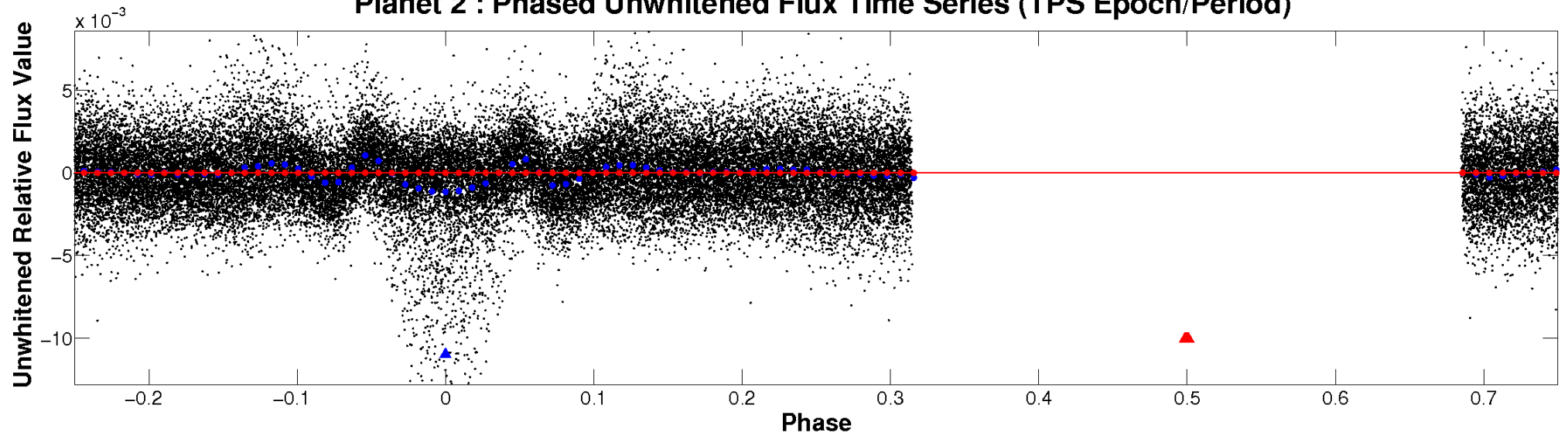
# ALT Odd/Even

TCE 006629588-02

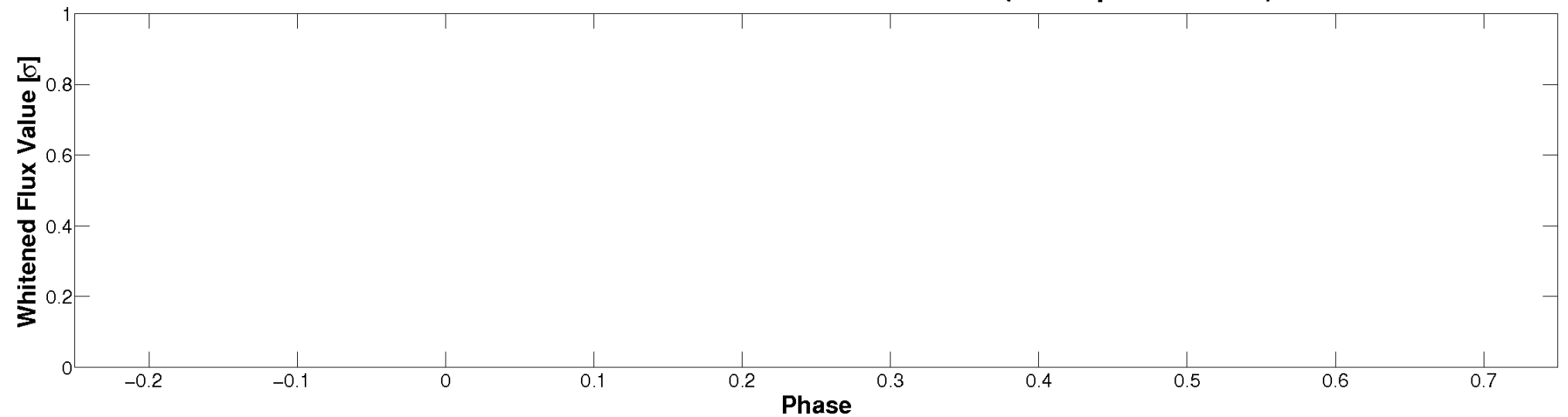


# Non-Whitened Vs. Whitened Light Curve

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



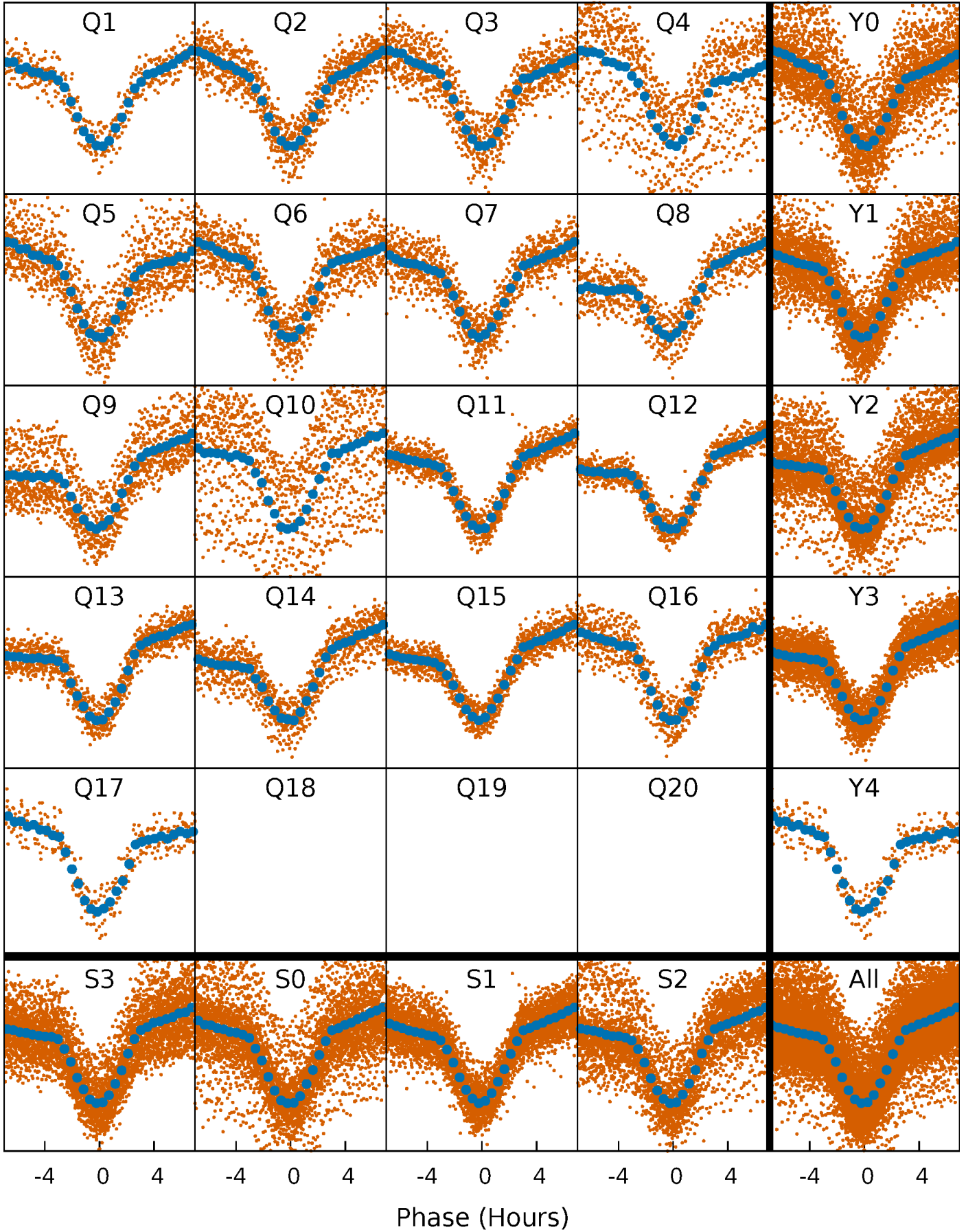
**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**





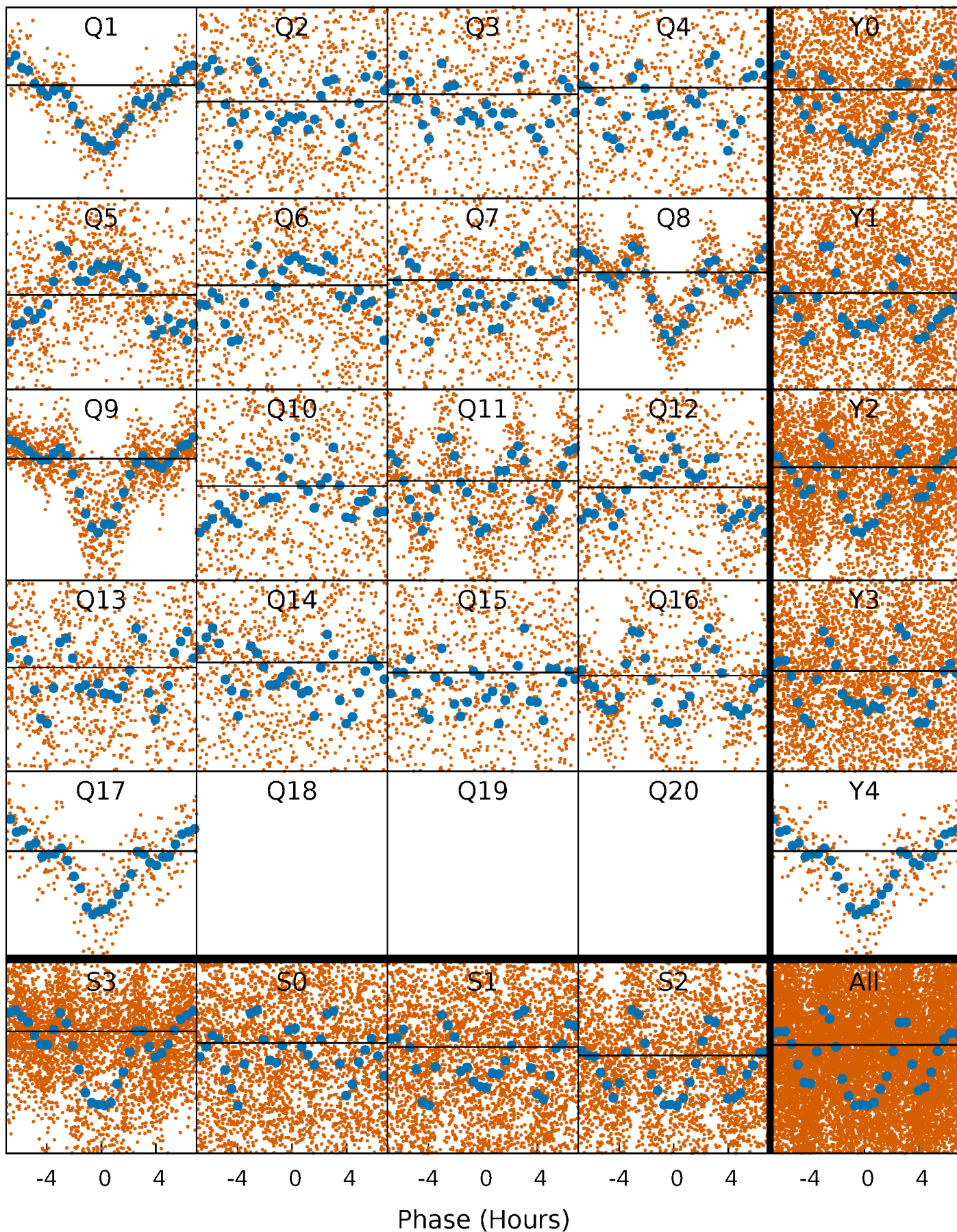
# PDC Quarter-Phased Transit Curves

TCE 006629588-02   P= 2.264479 Days    $T_0=132.648462$  (BKJD)



# DV Quarter-Phased Transit Curves

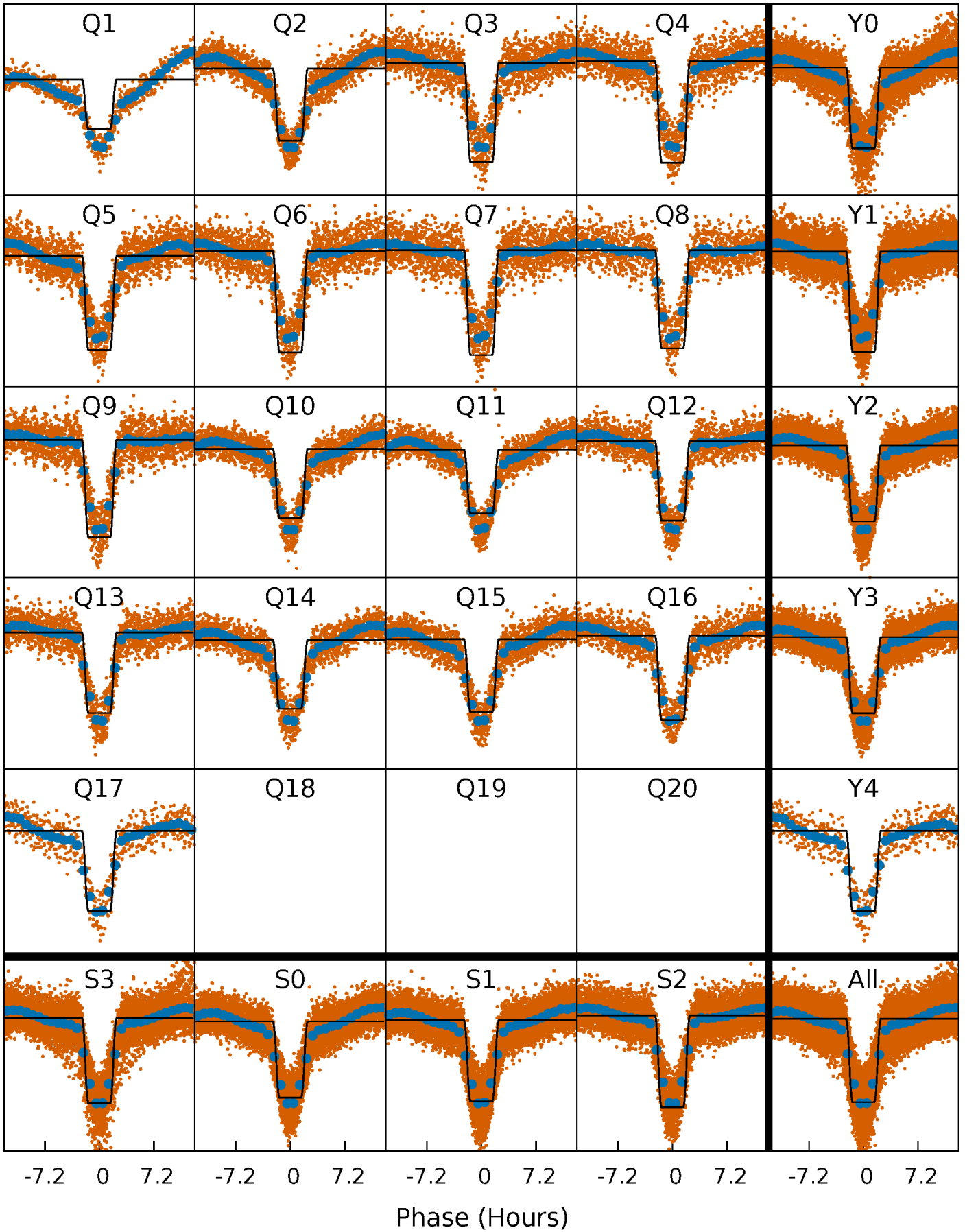
TCE 006629588-02   P= 2.264479 Days    $T_0=132.648462$  (BKJD)





## Alt. Detrend Quarter-Phased Transit Curves

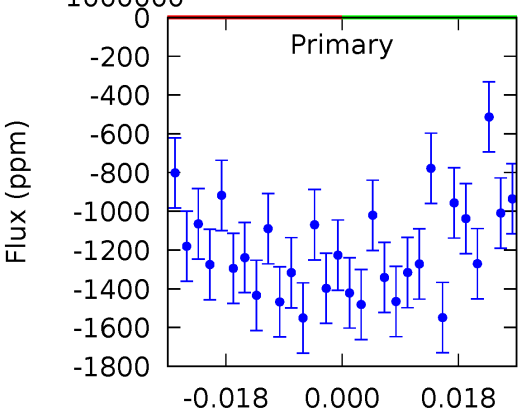
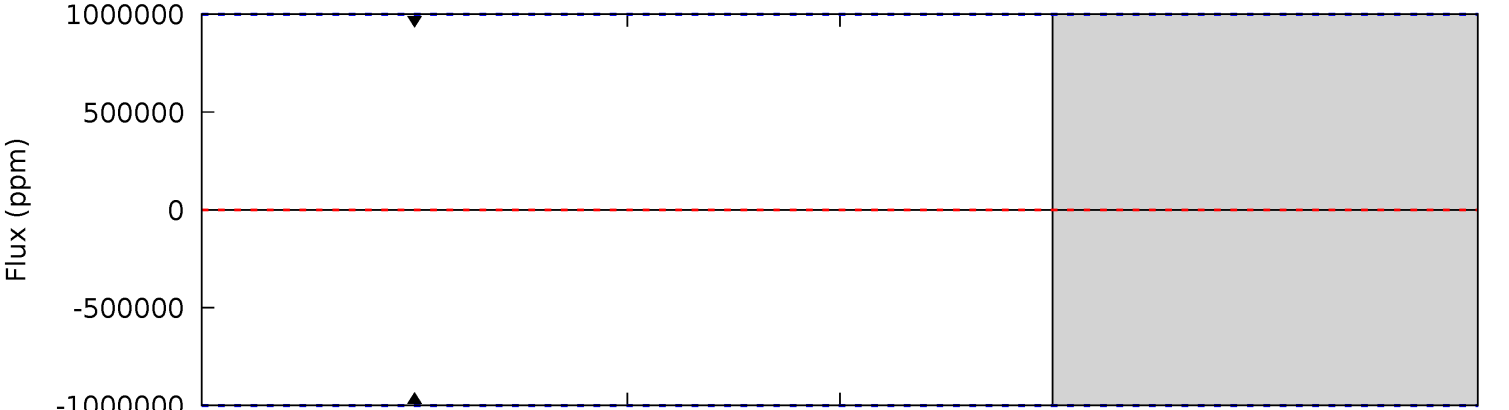
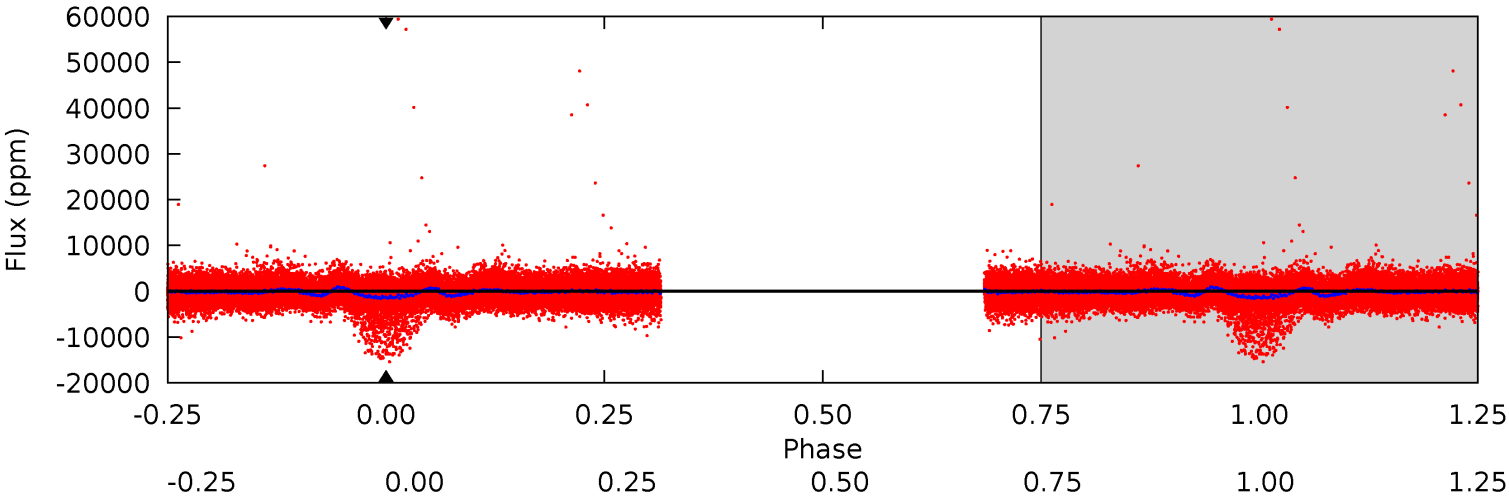
TCE 006629588-02   P= 2.264479 Days    $T_0=132.646267$  (BKJD)



# DV Model-Shift Uniqueness Test

006629588-02, P = 2.264479 Days, E = 130.383983 Days

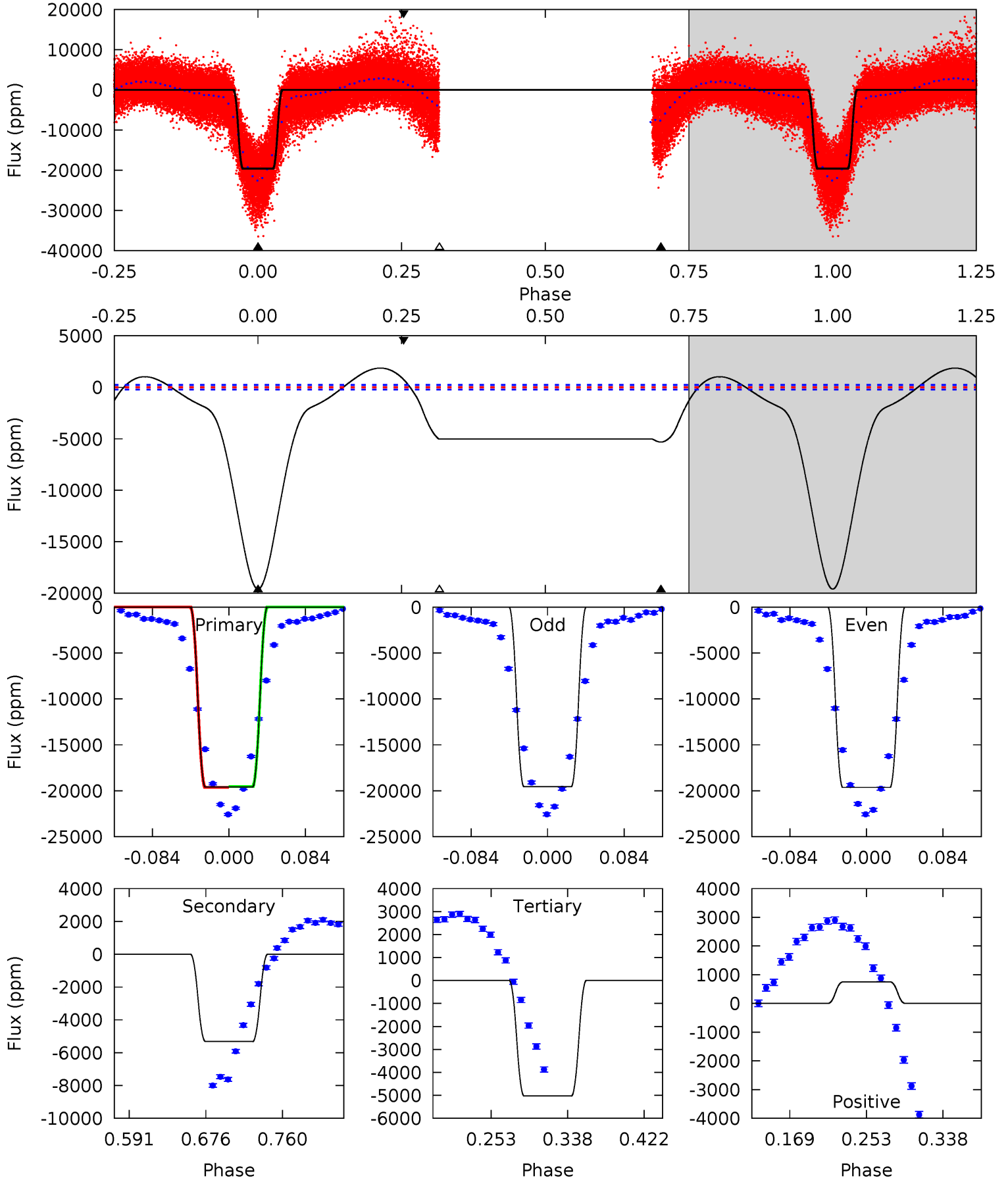
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

006629588-02, P = 2.264479 Days, E = 130.381788 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
393.1	106.7	100.9	15.1	4.60	1.73	32.1	292.2	378.1	5.84	91.7	0.82	1.00	0.09	0.88



### Stellar Parameters For KIC 006629588

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6782^{+214}_{-262}$	$4.014^{+0.312}_{-0.144}$	$-0.540^{+0.300}_{-0.300}$	$1.752^{+0.433}_{-0.595}$	$1.155^{+0.189}_{-0.170}$	$0.303^{+0.648}_{-0.140}$
	+3%/-4%	+8%/-4%	+56%/-56%	+25%/-34%	+16%/-15%	+214%/-46%
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 006629588-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$14.34^{+14.33}_{-10.06}$	$2889^{+231}_{-234}$	$3330^{+28923}_{-28379}$	$0.754^{+695.010}_{-489.281}$
Alt.	$-5319 \pm 50$	$28.99^{+19.86}_{-17.02}$	$2878^{+238}_{-255}$	$4605^{+2272}_{-823}$	$4.311^{+22.675}_{-2.734}$

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

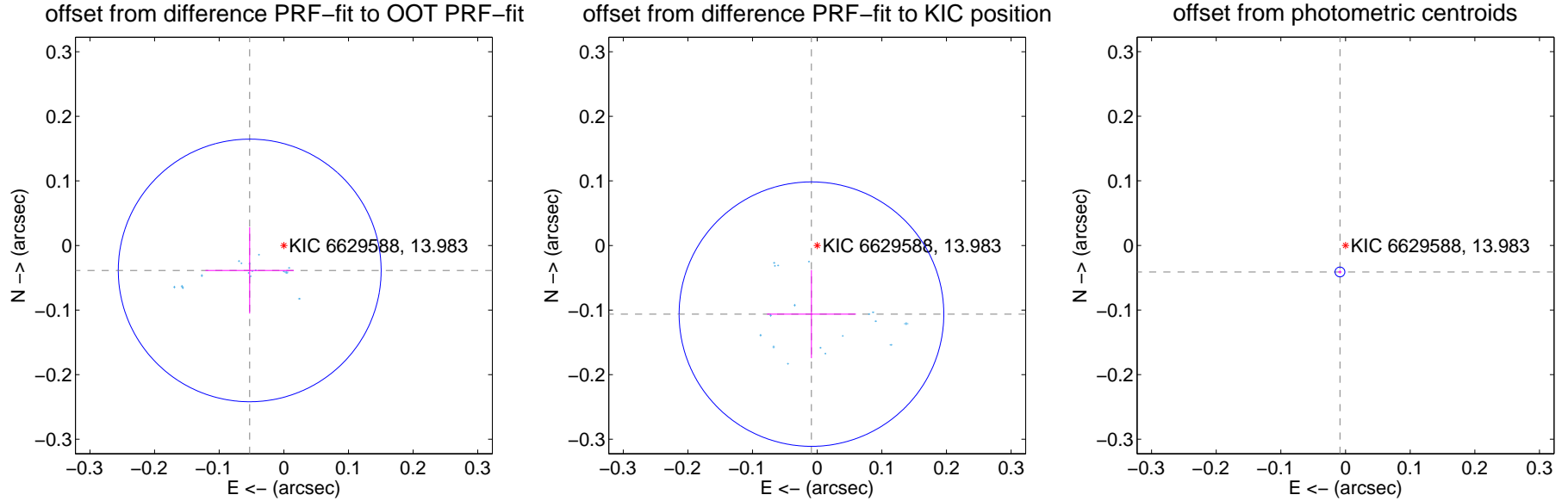
## DV Centroid Data

Supplemental centroid analysis for 006629588-02. Kepler magnitude: 13.98. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

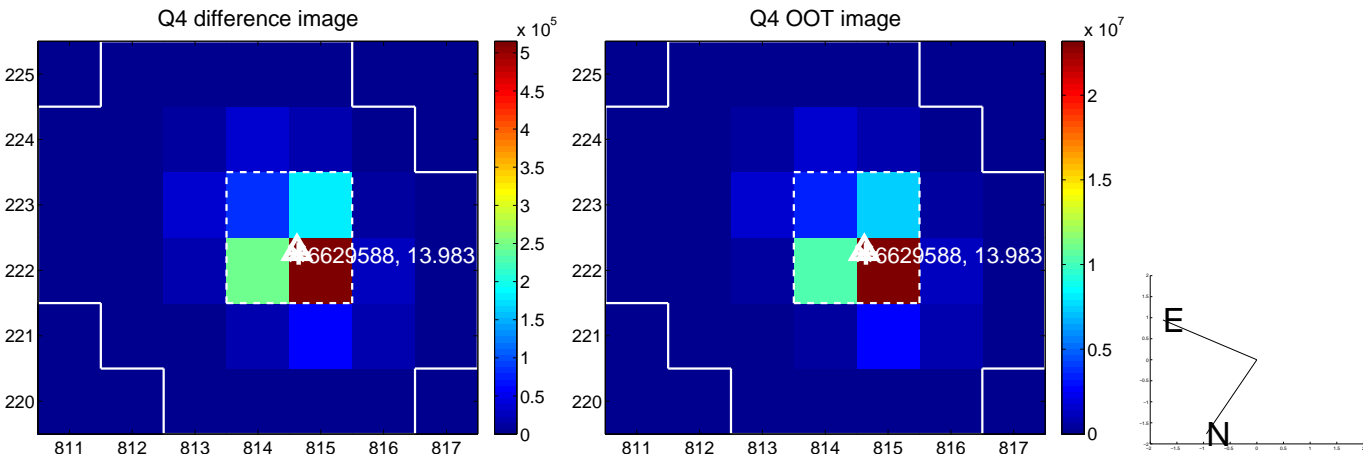
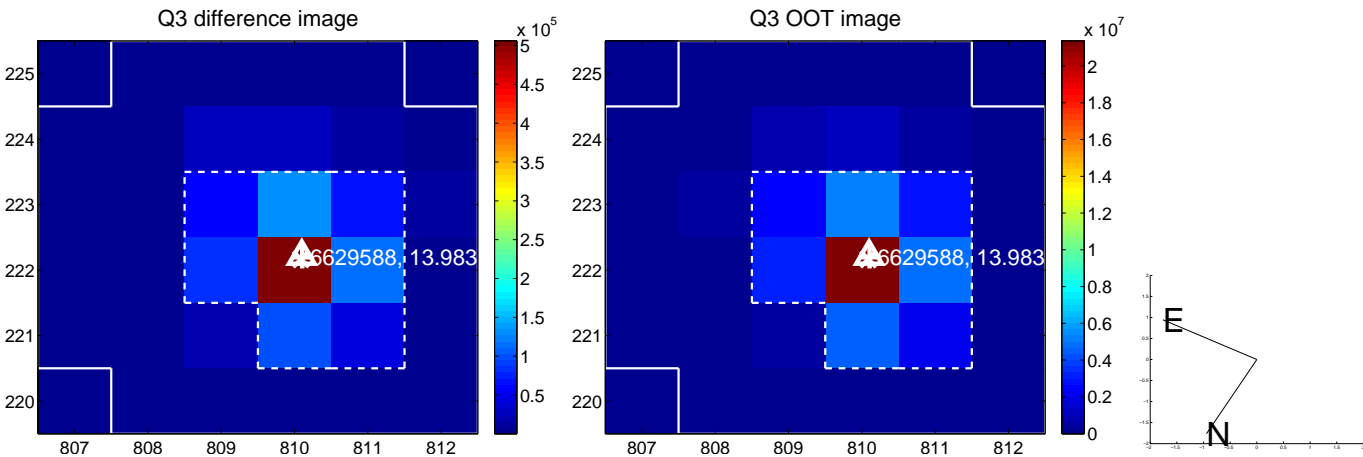
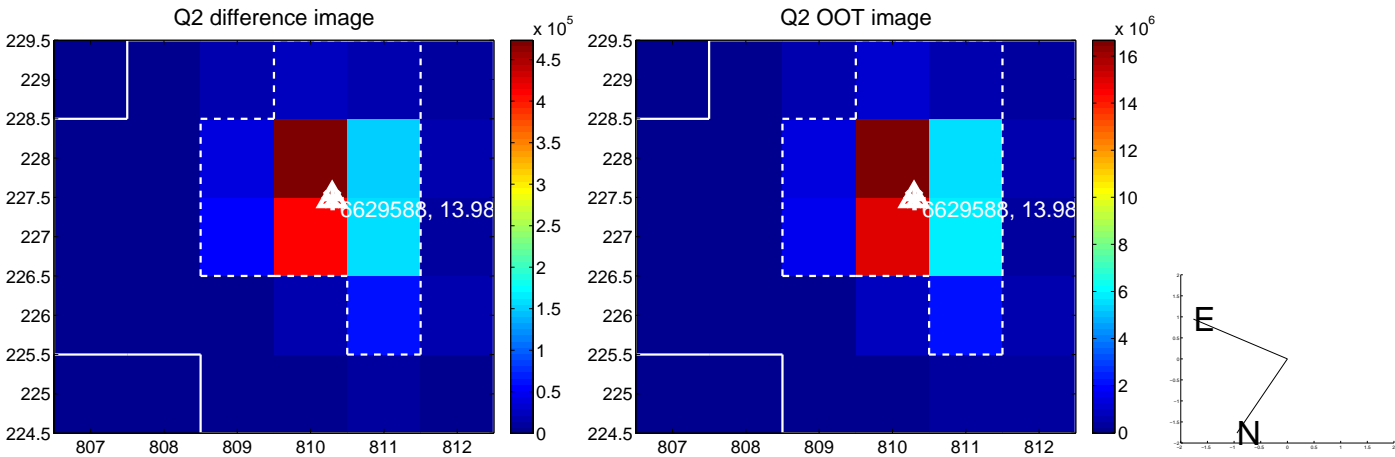
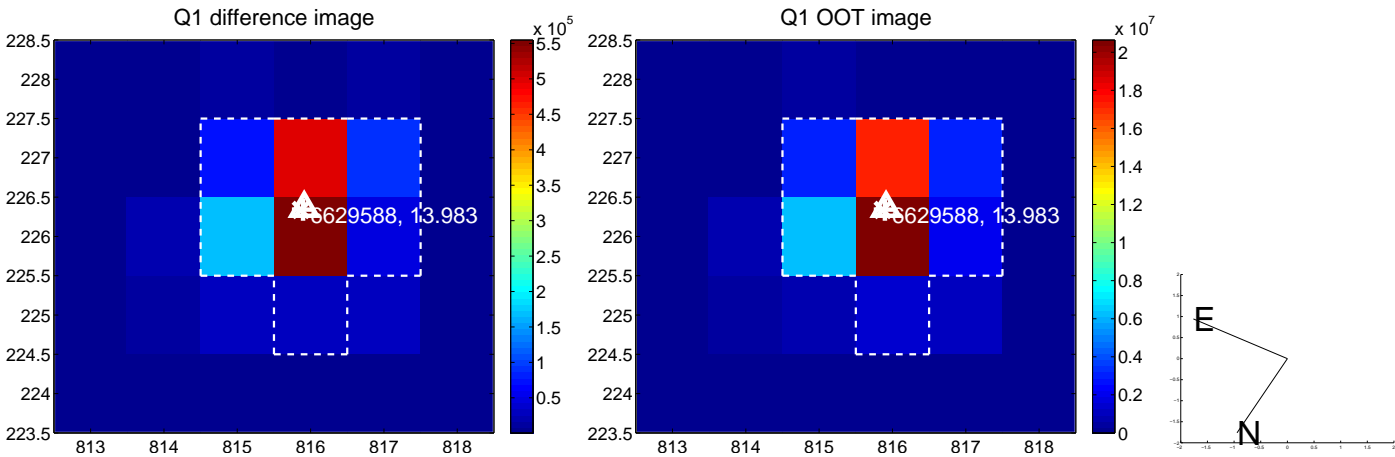
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.065 \pm 0.068$	0.97	$0.053 \pm 0.068$	$-0.039 \pm 0.067$
PRF-fit source offset from KIC position	$0.107 \pm 0.068$	1.56	$0.009 \pm 0.069$	$-0.106 \pm 0.068$
photometric centroid source offset	$0.04 \pm 0.00$	16.61	$0.01 \pm 0.00$	$-0.04 \pm 0.00$

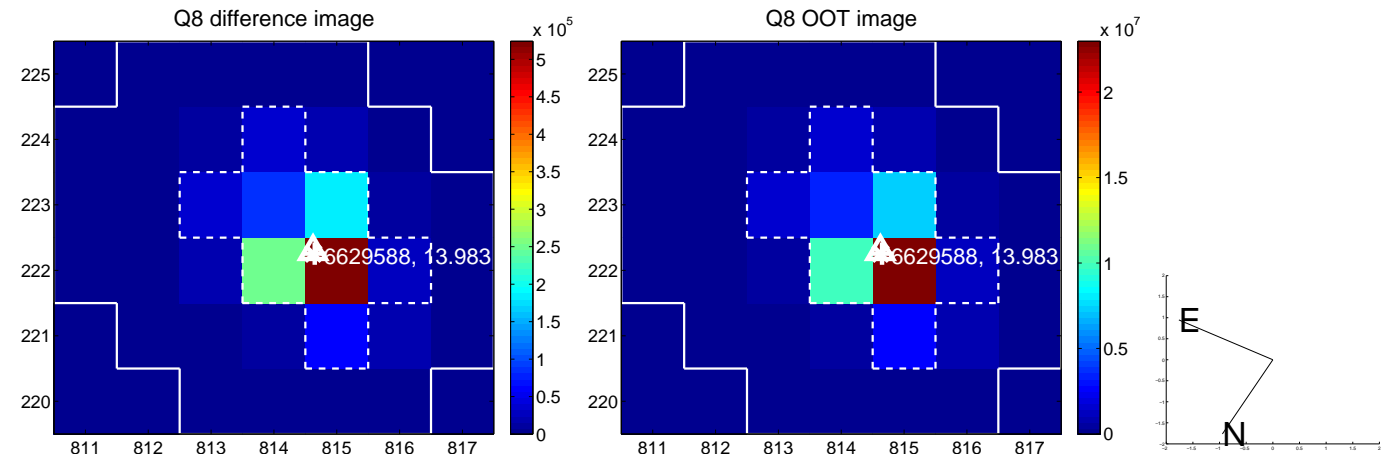
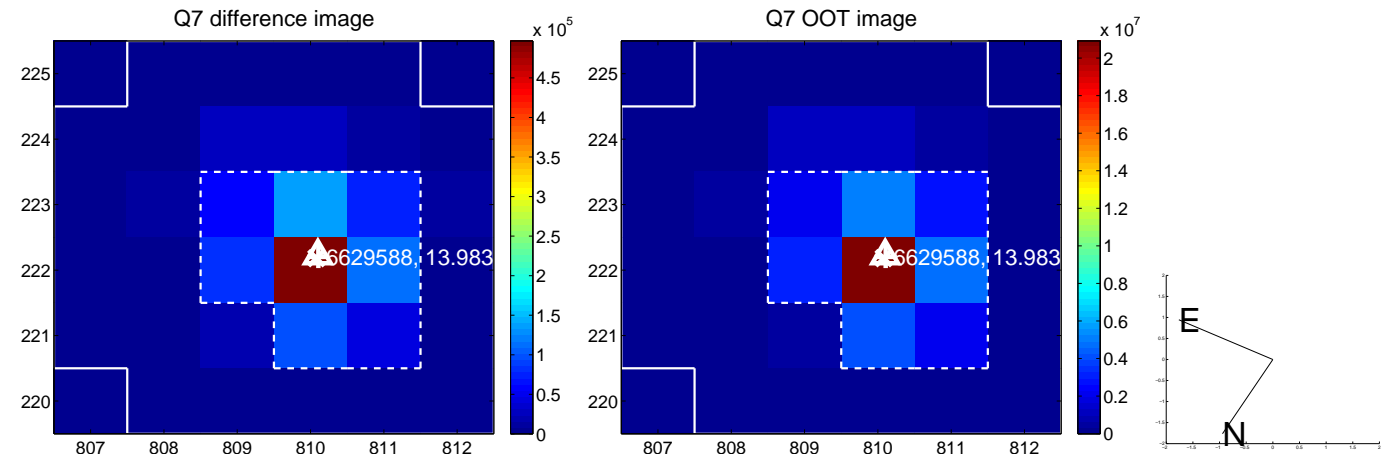
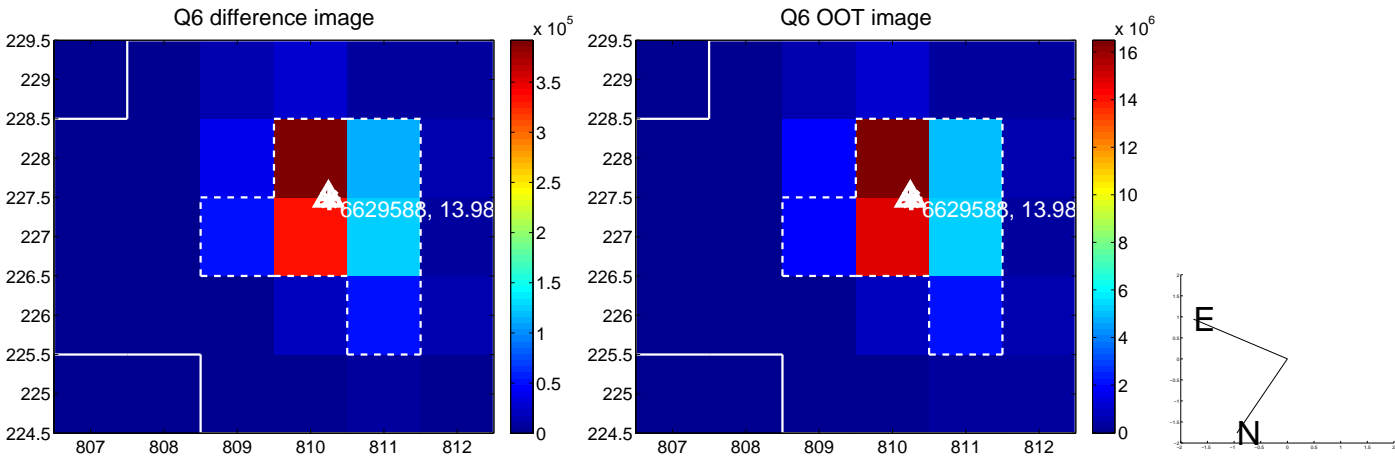
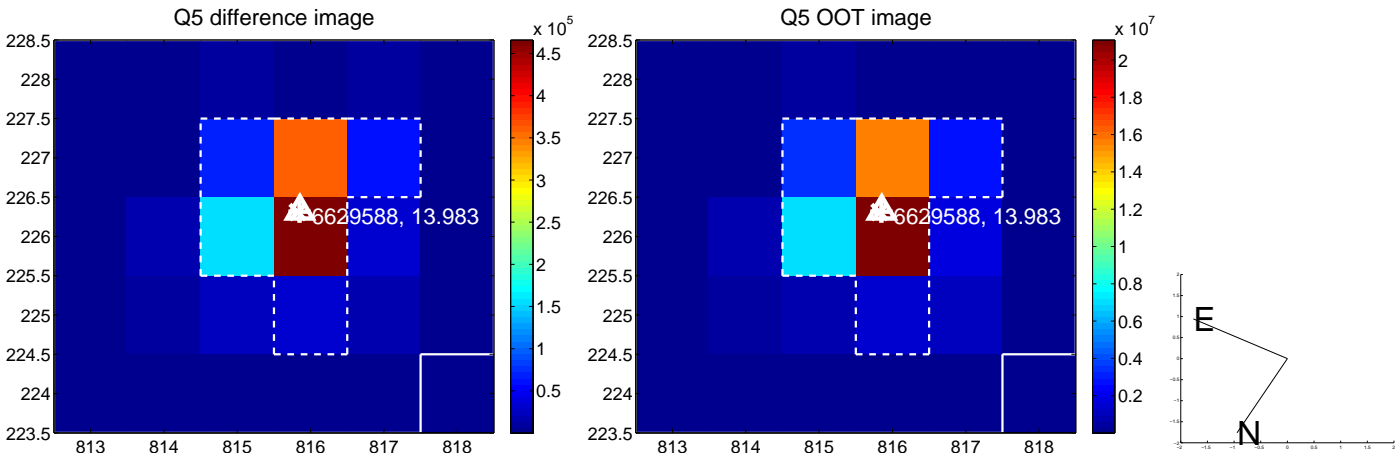


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

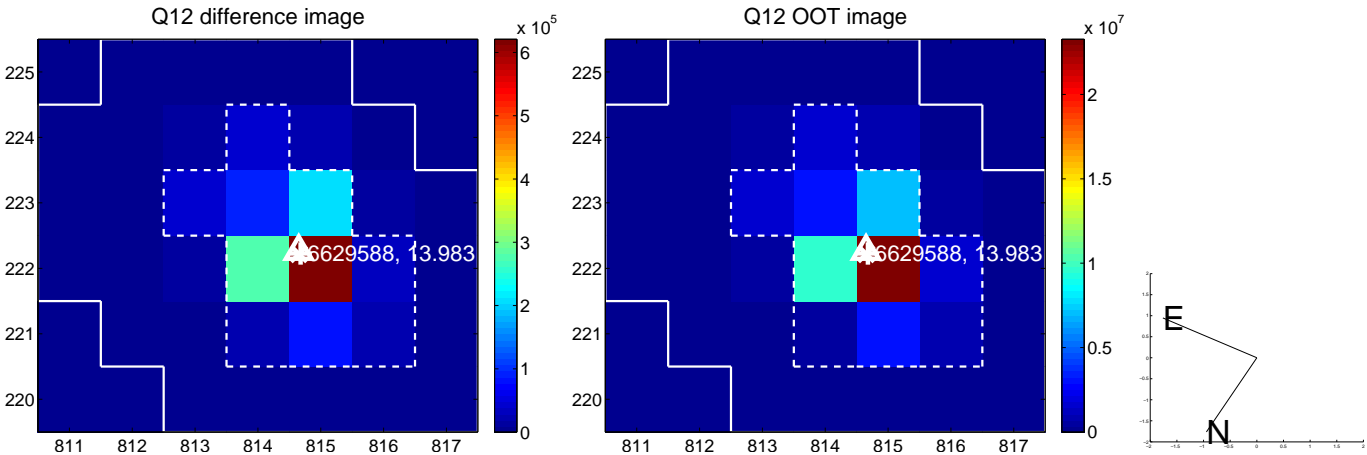
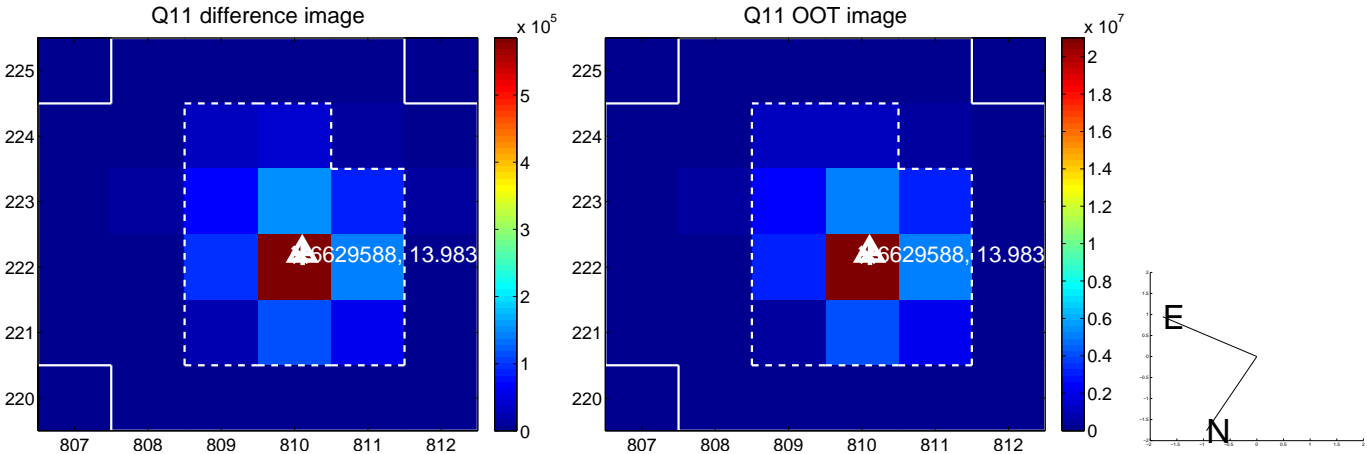
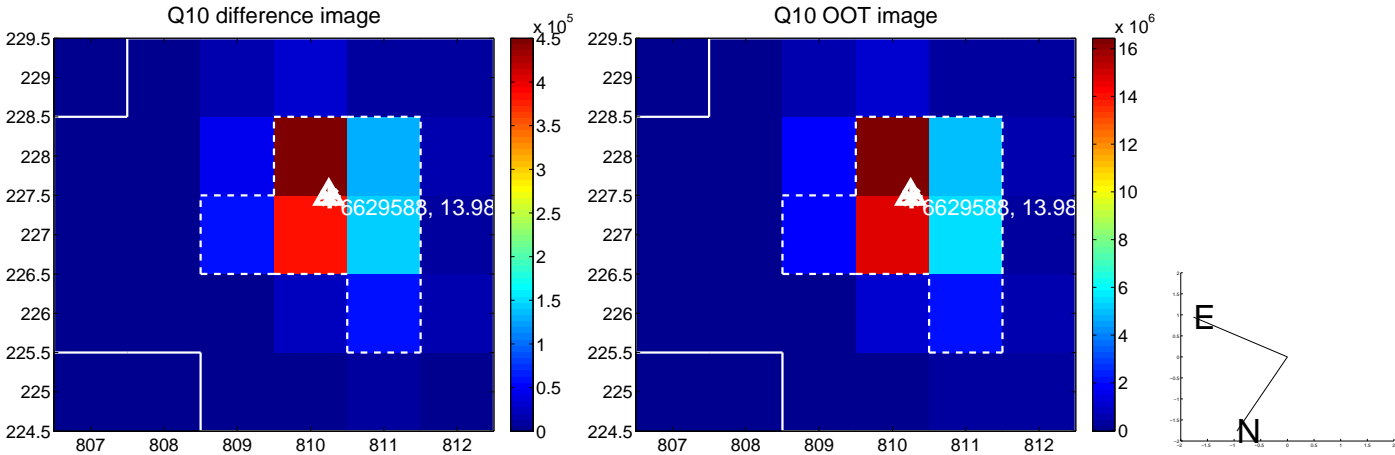
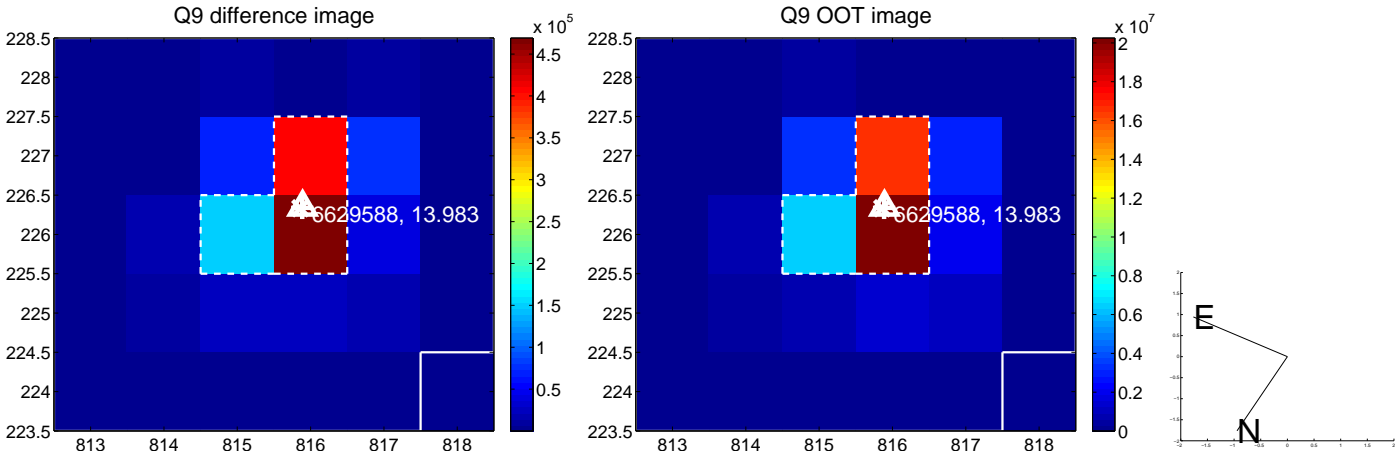


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

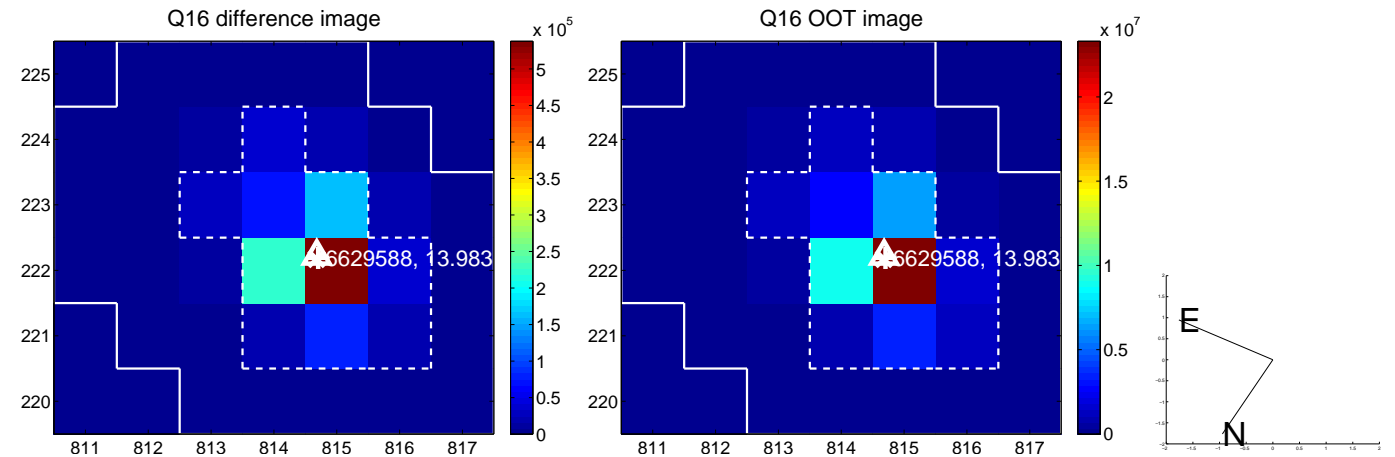
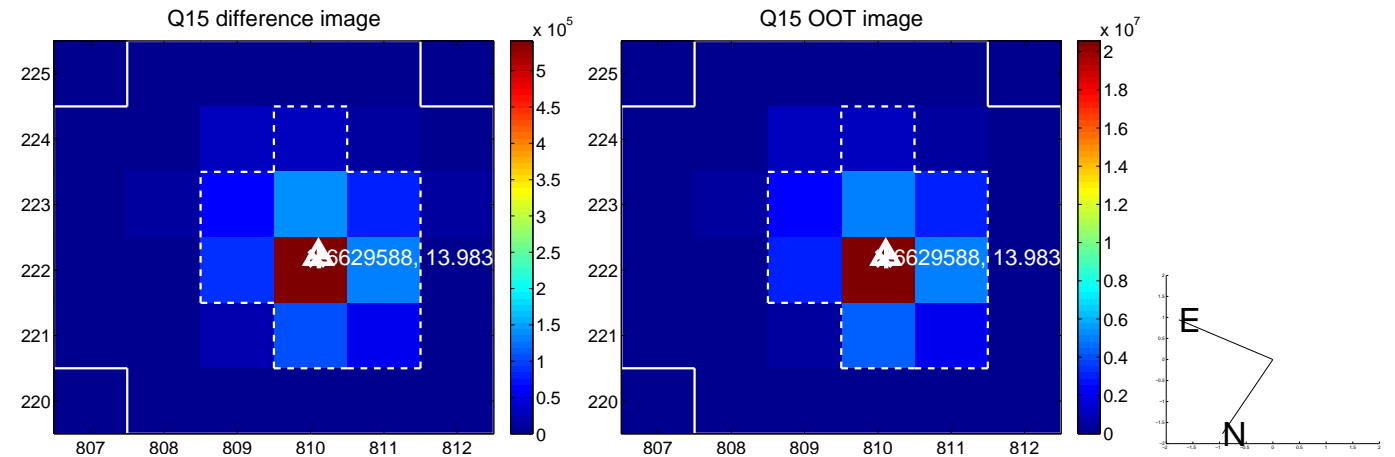
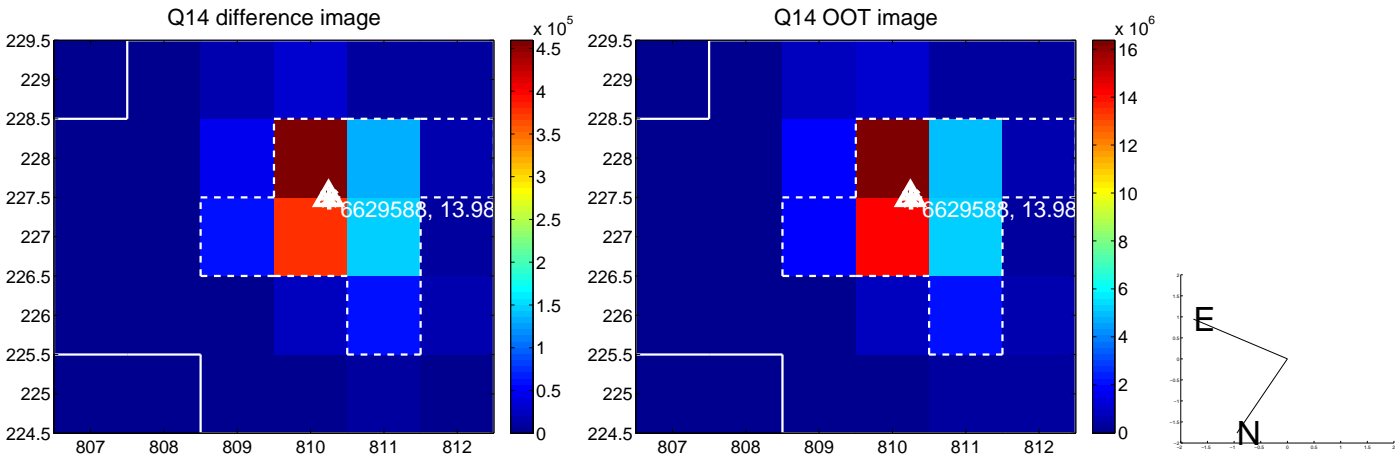
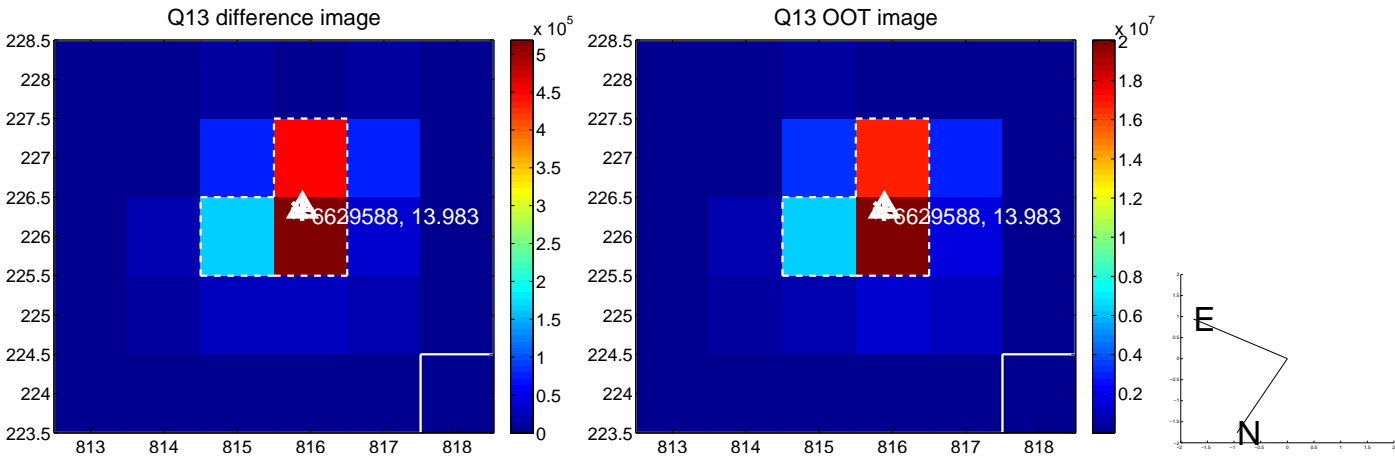




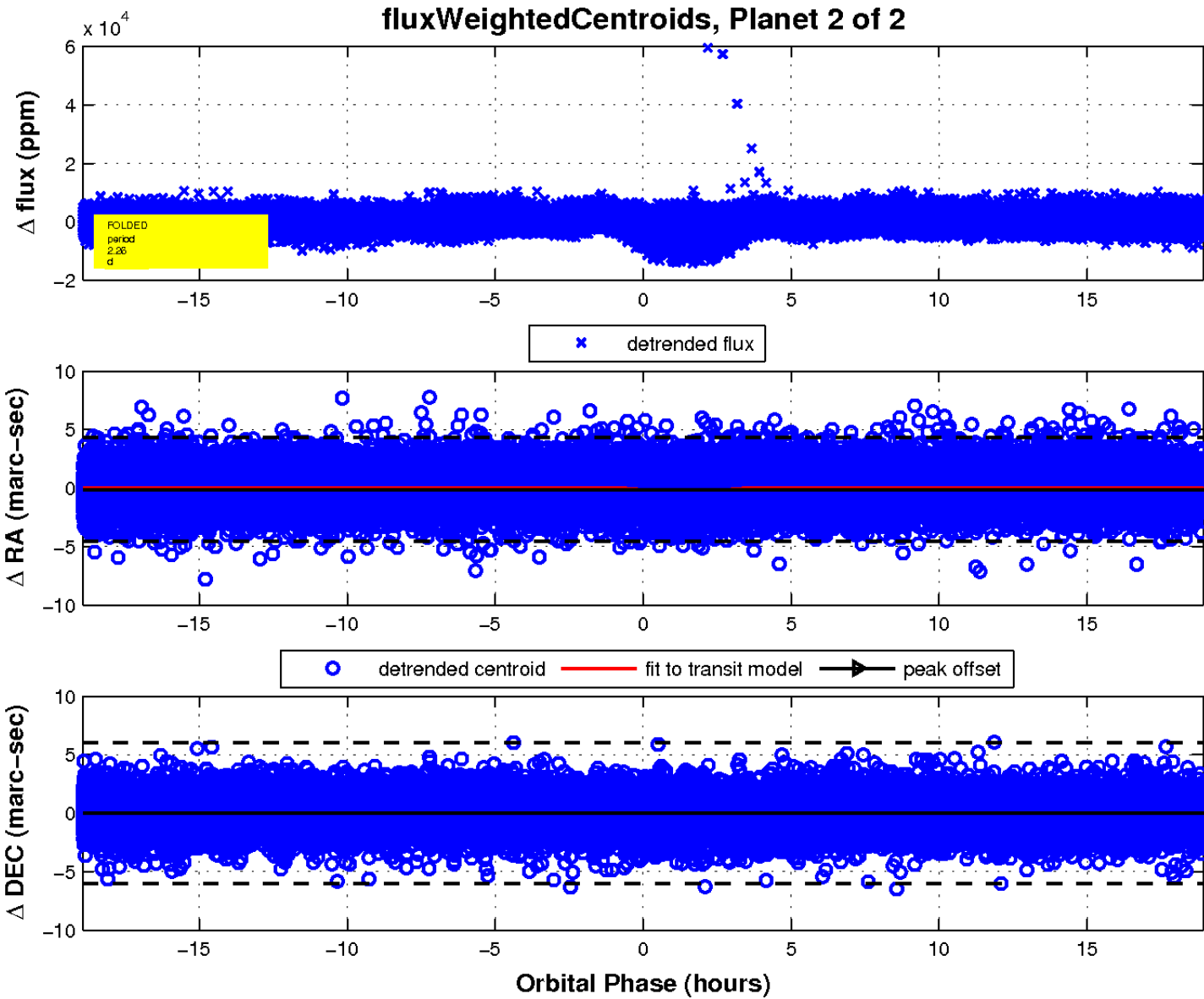
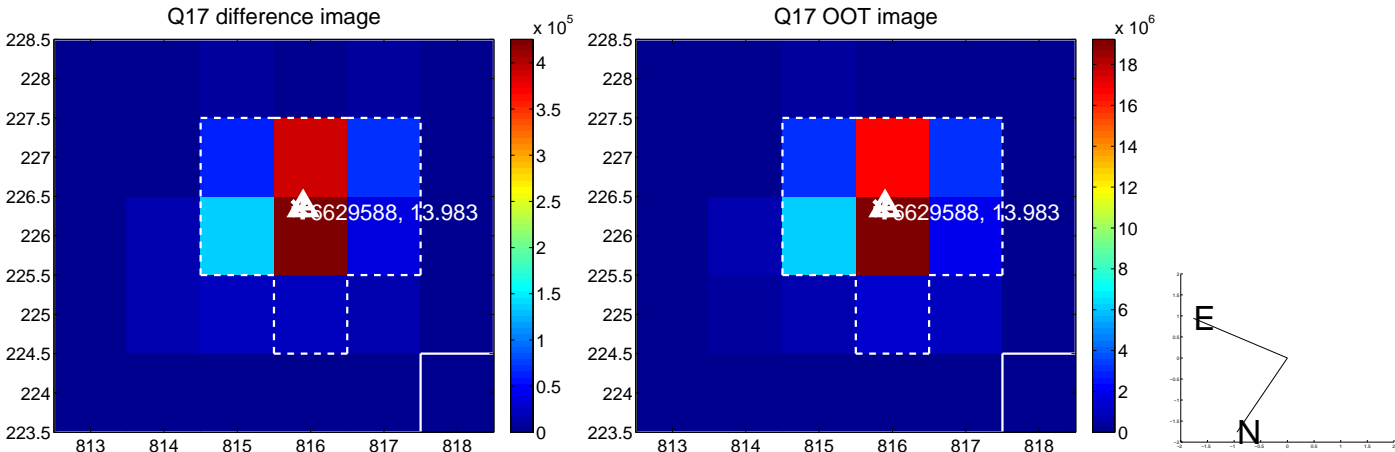
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

