

# KIC 005881120

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005881120-01	OBS	4156.01	4.850181	135.315690	62.7	4.433	13.1	13.9	0.97	6032	0.94	344.46

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005881120-01	OBS	PC	0.97	0	0	0	0	NO_COMMENT

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

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

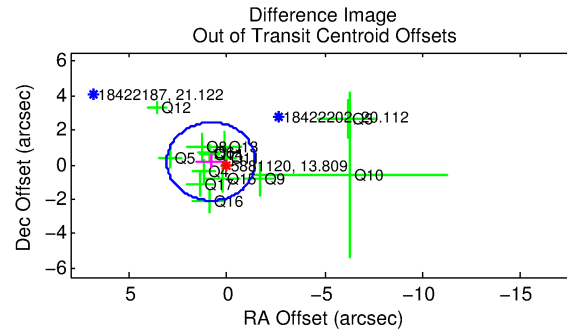
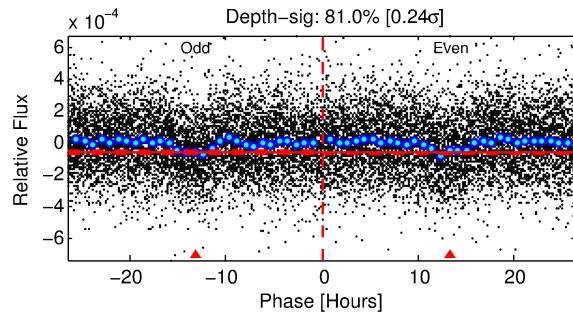
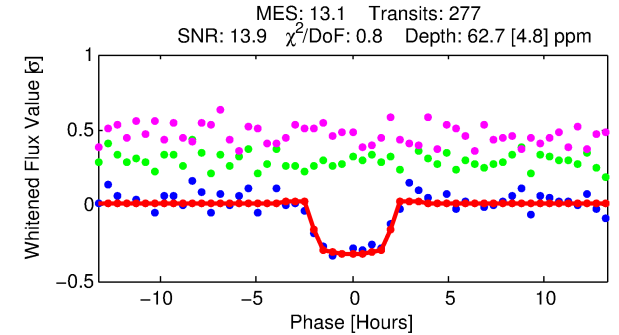
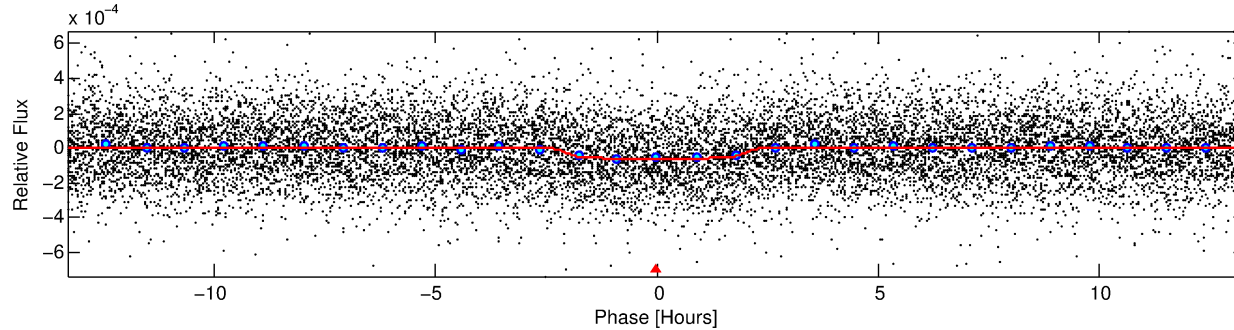
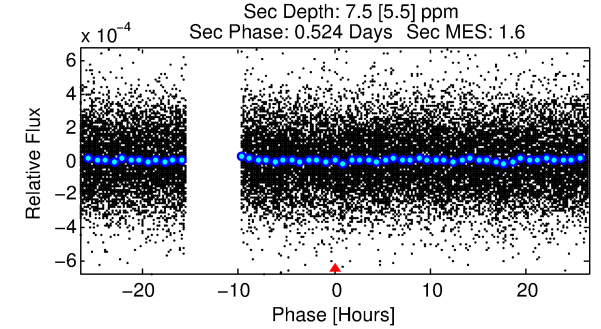
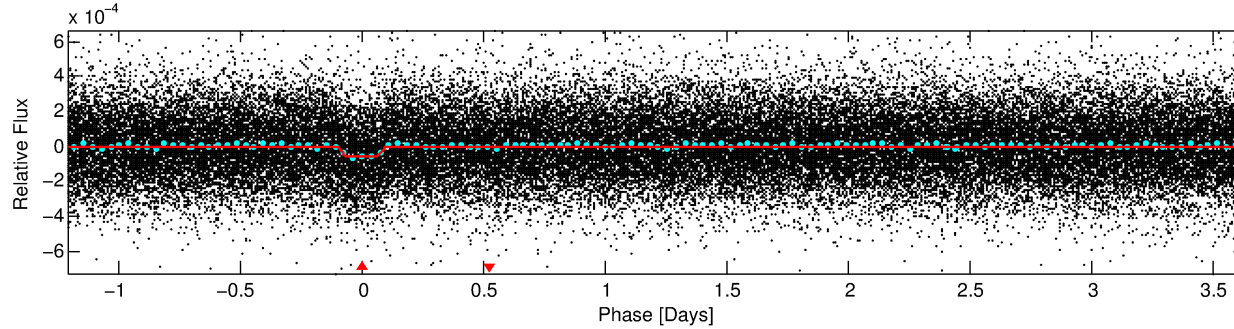
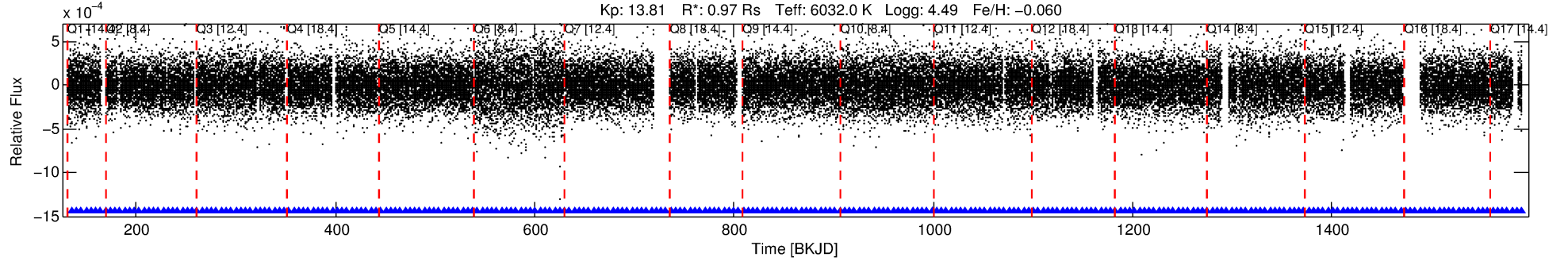
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005881120-01

No Significant Match Found

# DV One-Page Summary

KIC: 5881120 Candidate: 1 of 1 Period: 4.850 d  
KOI: K04156.01 Corr: 0.959



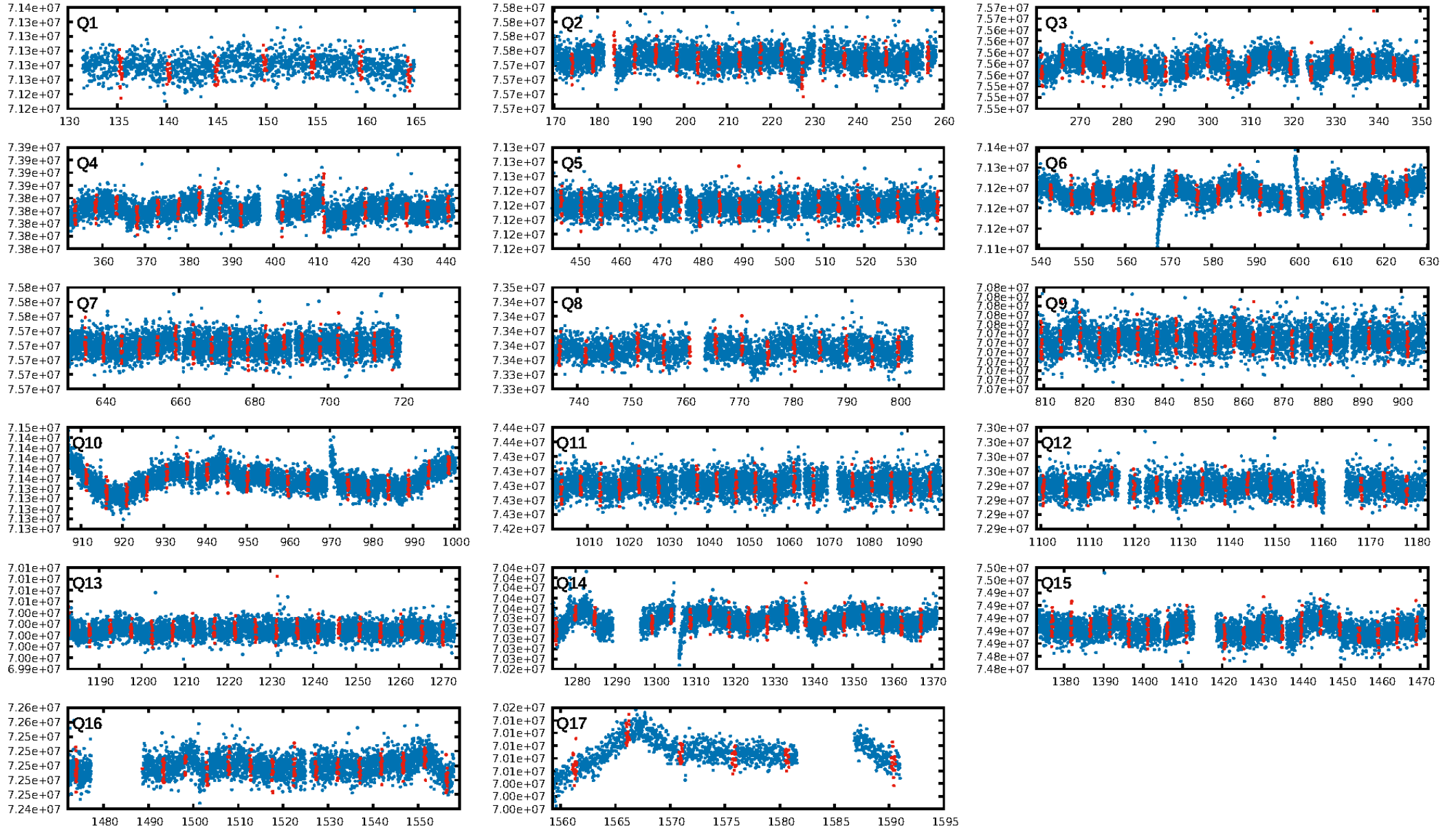
## DV Fit Results:

Period = 4.85018 [0.00003] d  
Epoch = 135.3157 [0.0048] BKJD  
Rp/R\* = 0.0089 [0.0022]  
a/R\* = 3.35 [4.01]  
b = 0.93 [0.19]  
Seff = 344.46 [144.47]  
Teq = 1099 [115] K  
Rp = 0.94 [0.38] Re  
a = 0.0571 [0.0155] AU  
Ag = 15.12 [14.66] [0.96σ]  
Teffp = 3349 [750] K [2.96σ]

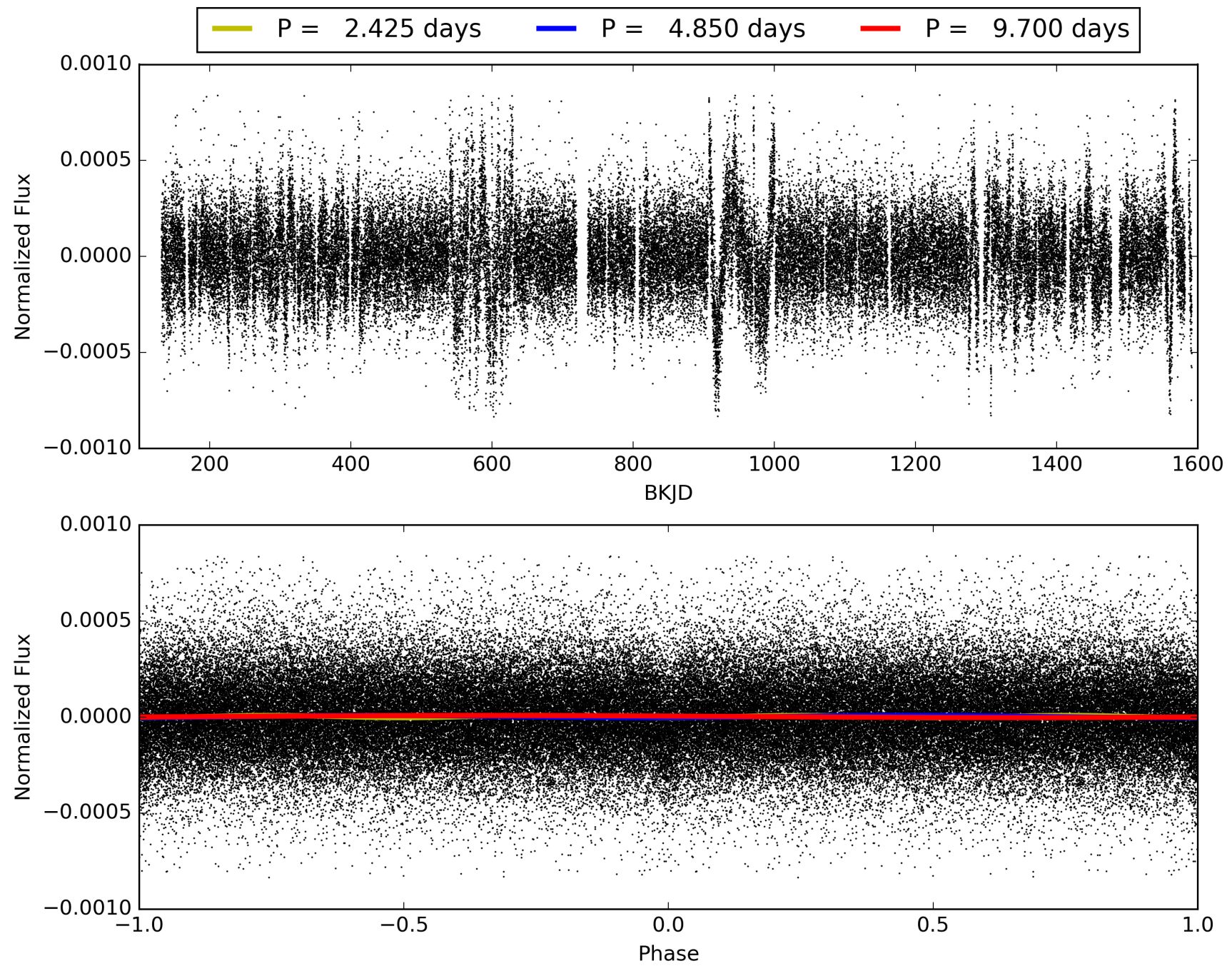
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.04e-37  
RollingBand-fgt: 1.00 [264/264]  
GhostDiagnostic-chr: 2.741  
Centroid-sig: 14.1%  
Centroid-so: 0.977 arcsec [1.31σ]  
OotOffset-rm: 0.827 arcsec [1.10σ]  
KicOffset-rm: 0.843 arcsec [1.26σ]  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 0.71 [10/14]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 005881120-01, PDC Light Curves



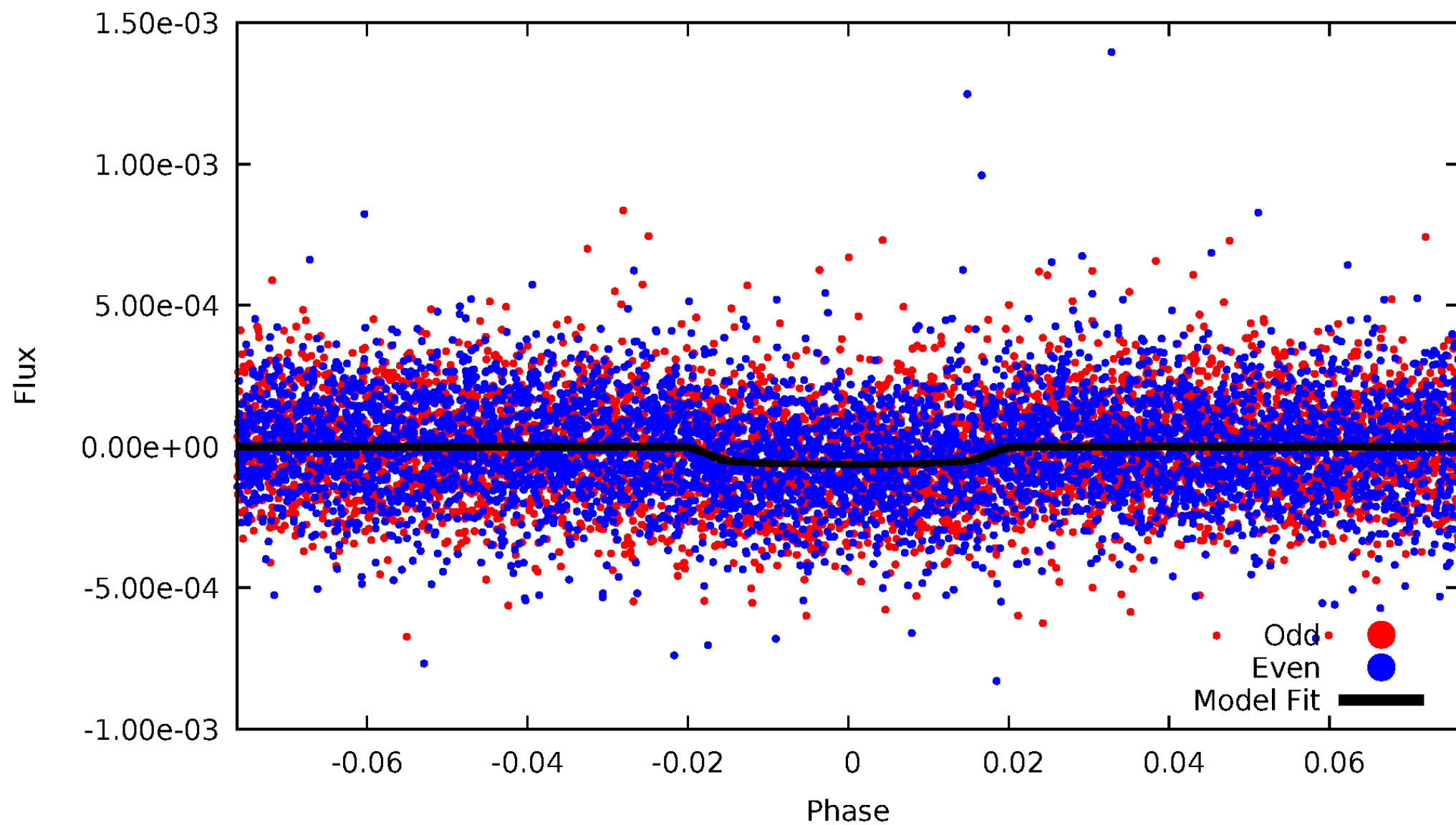
TCE 005881120-01





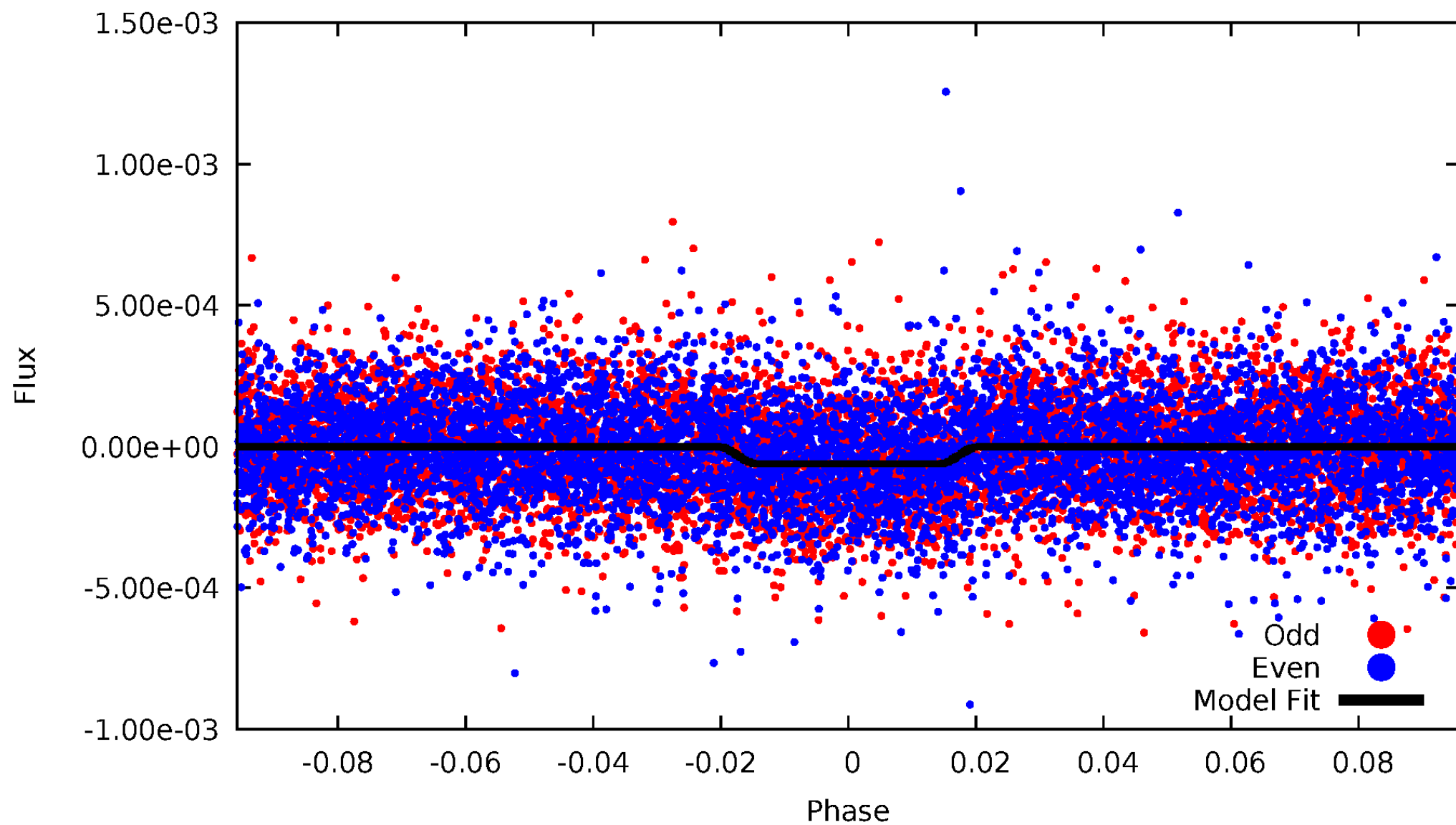
# DV Odd/Even

TCE 005881120-01



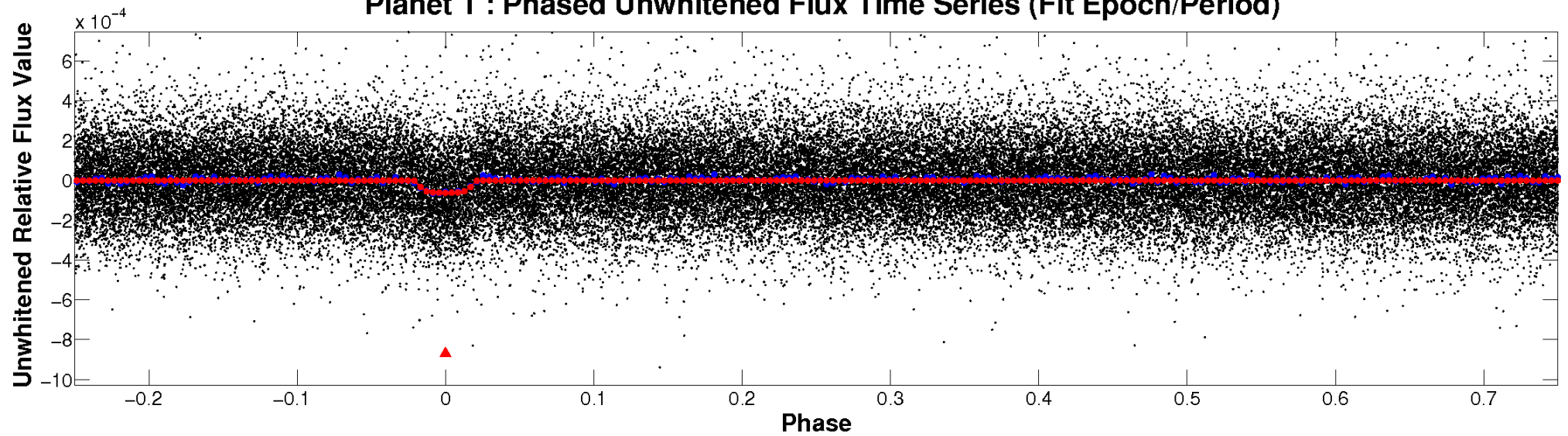
# ALT Odd/Even

TCE 005881120-01

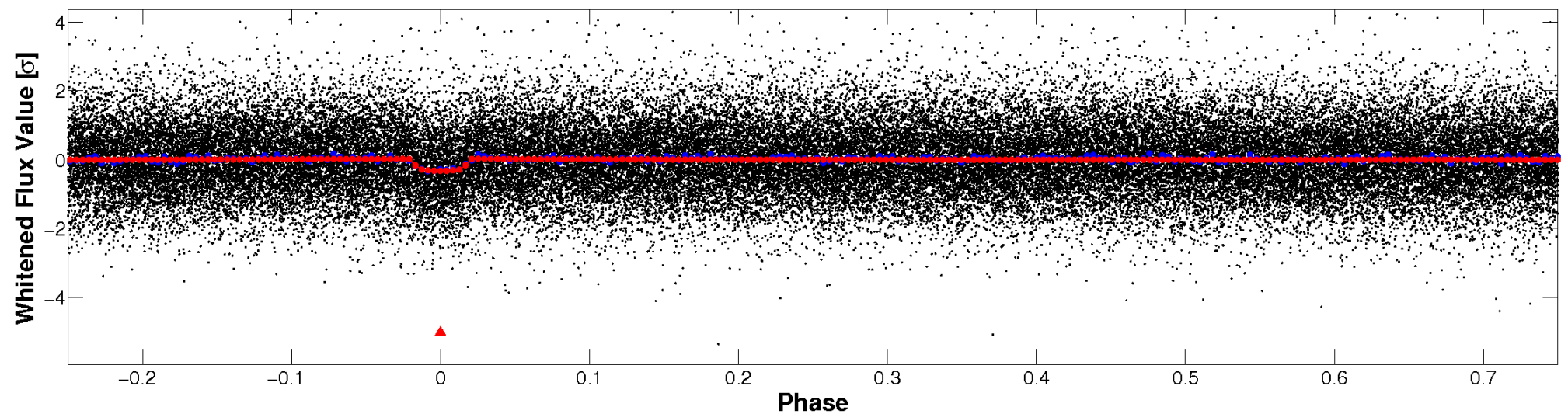


# Non-Whitened Vs. Whitened Light Curve

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

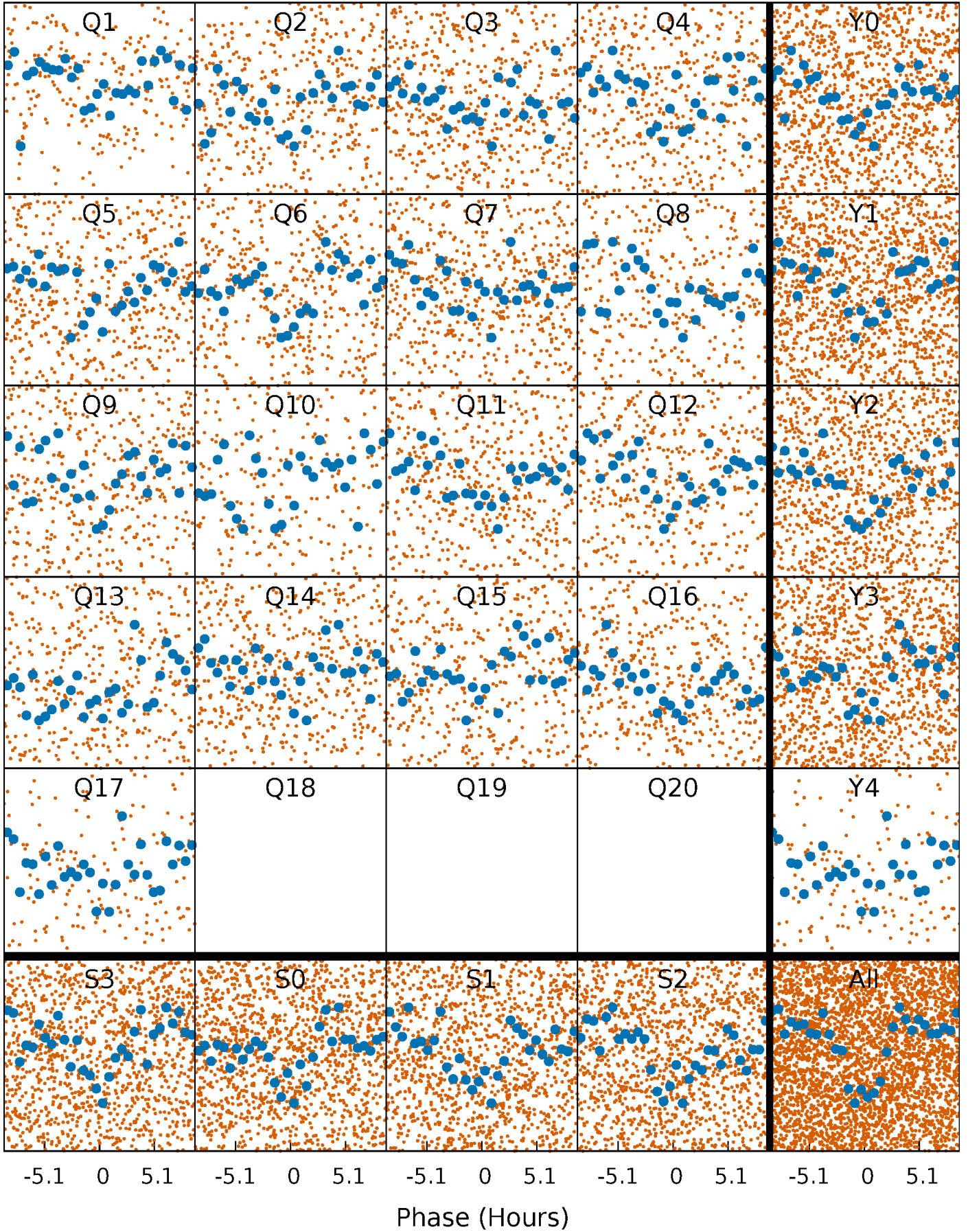


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

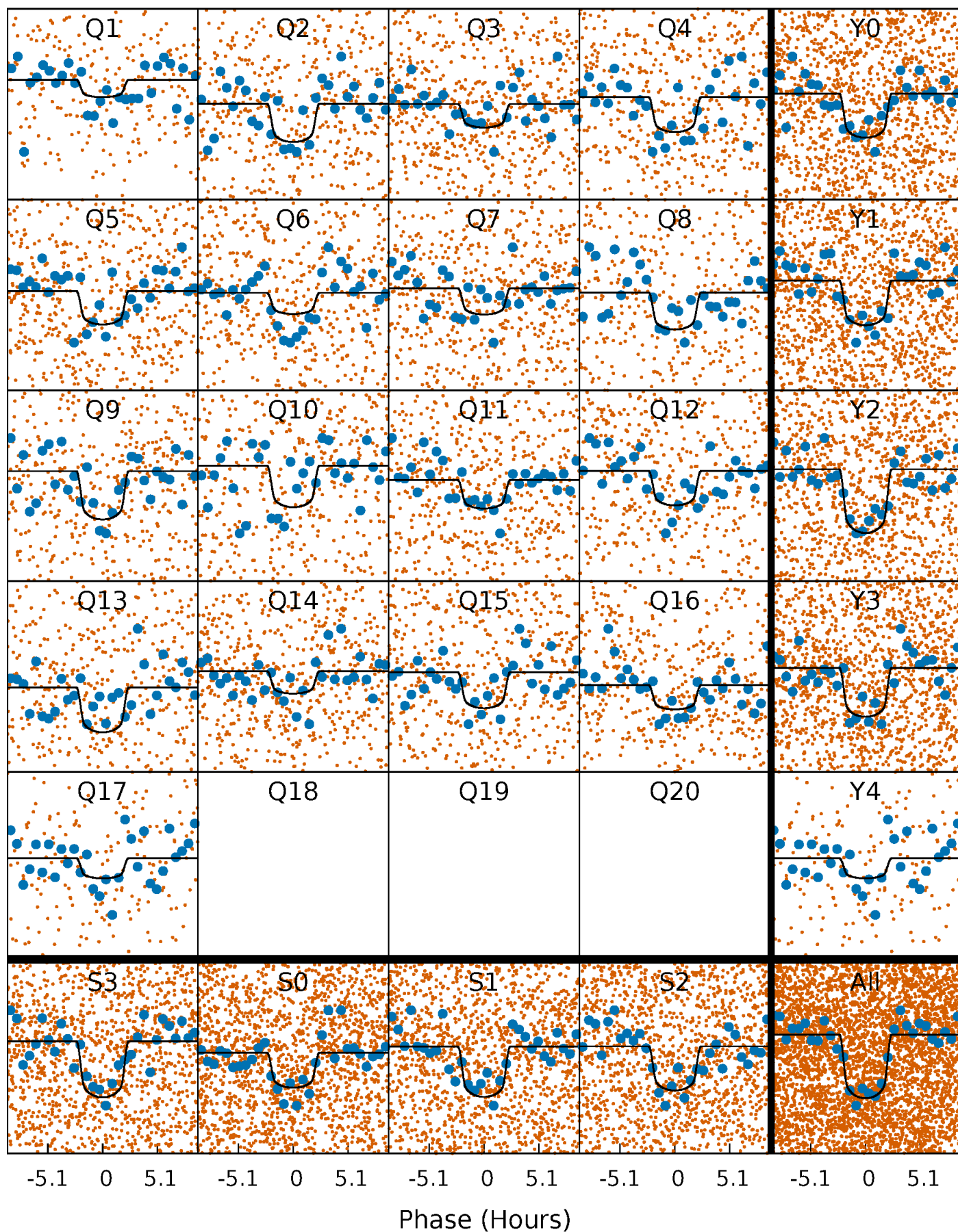
TCE 005881120-01 P= 4.850181 Days  $T_0=135.315690$  (BKJD)





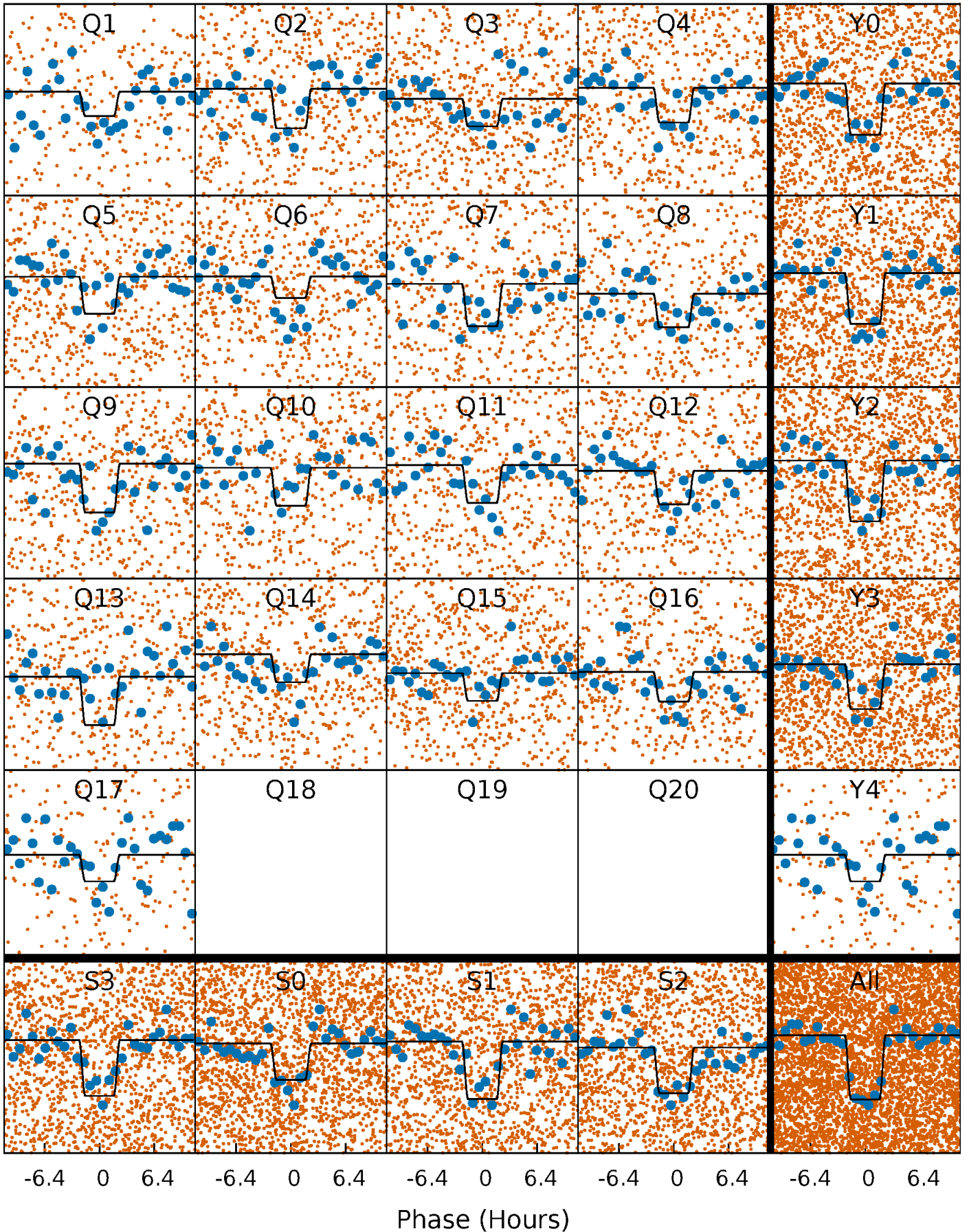
# DV Quarter-Phased Transit Curves

TCE 005881120-01 P= 4.850181 Days  $T_0=135.315690$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

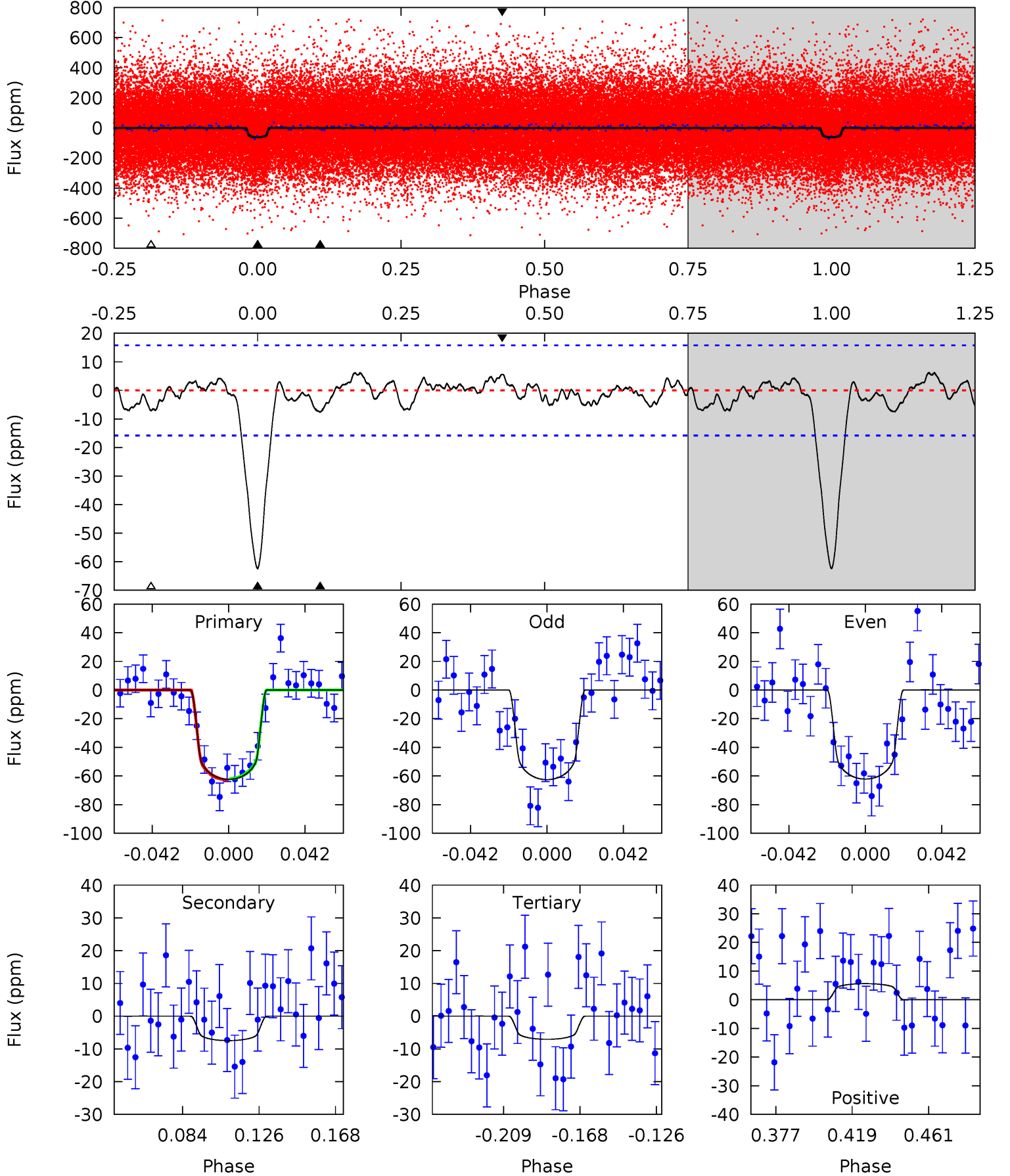
TCE 005881120-01 P= 4.850169 Days  $T_0=135.313917$  (BKJD)



# DV Model-Shift Uniqueness Test

005881120-01, P = 4.850181 Days, E = 130.465509 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
18.8	2.25	2.13	1.69	4.74	2.03	0.93	16.6	17.1	0.12	0.56	0.06	1.06	0.09	0.12

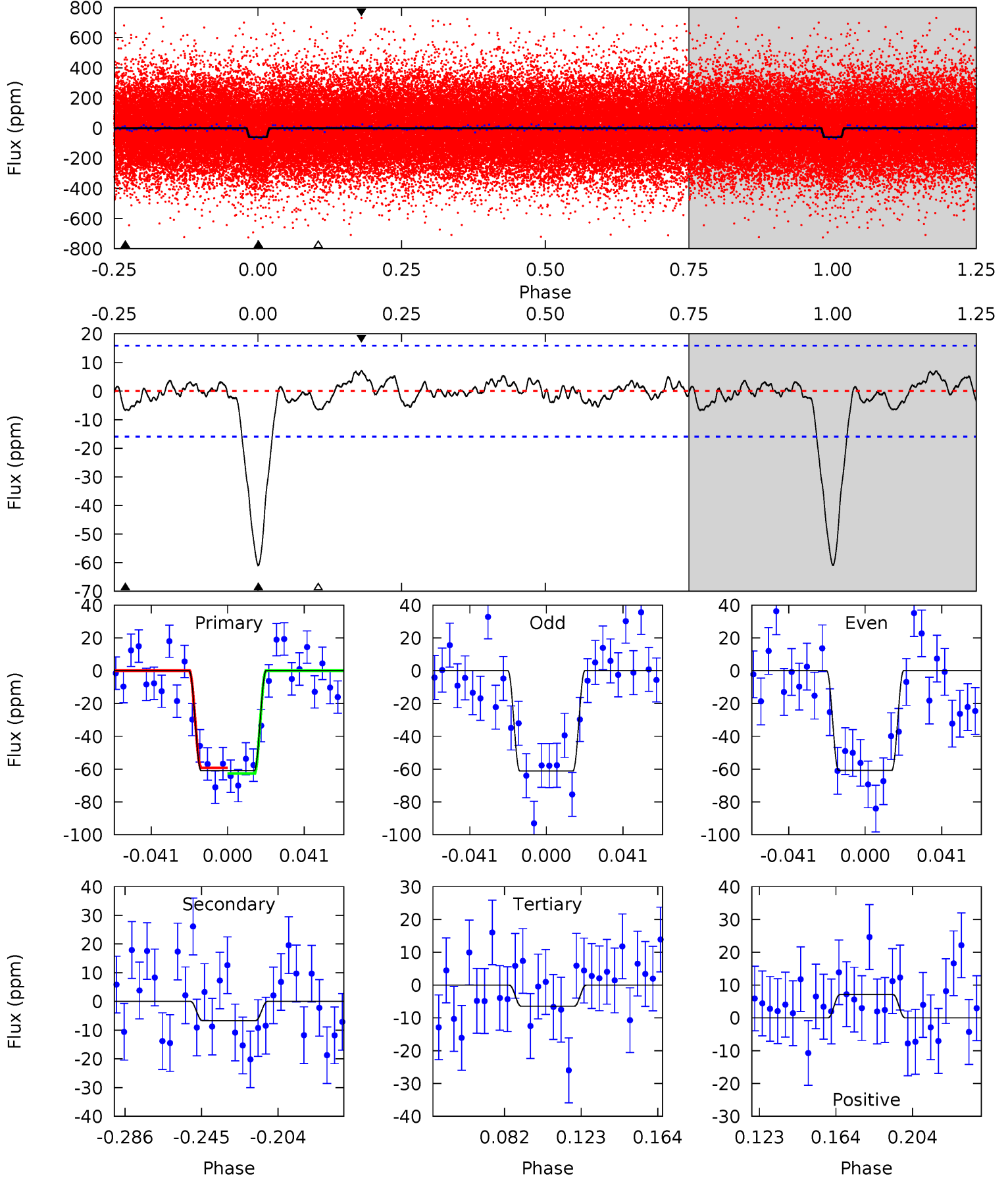




# Alt Model-Shift Uniqueness Test

005881120-01, P = 4.850169 Days, E = 130.463748 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
18.2	1.99	1.93	2.12	4.75	2.04	0.82	16.3	16.1	0.06	-0.12	0.05	1.04	0.10	0.52





### Stellar Parameters For KIC 005881120

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6032^{+168}_{-210}$	$4.485^{+0.054}_{-0.216}$	$-0.060^{+0.250}_{-0.300}$	$0.973^{+0.315}_{-0.105}$	$1.055^{+0.139}_{-0.139}$	$1.612^{+0.447}_{-0.834}$
	+3%/-3%	+1%/-5%	+417%/-500%	+32%/-11%	+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 005881120-01 / KOI 4156.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-7 \pm 3$	$1.00^{+0.30}_{-0.28}$	$1568^{+115}_{-81}$	$3696^{+475}_{-422}$	$13^{+13}_{-7}$
Alt.	$-7 \pm 3$	$0.86^{+0.29}_{-0.25}$	$1562^{+123}_{-74}$	$3782^{+566}_{-494}$	$15^{+18}_{-9}$

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

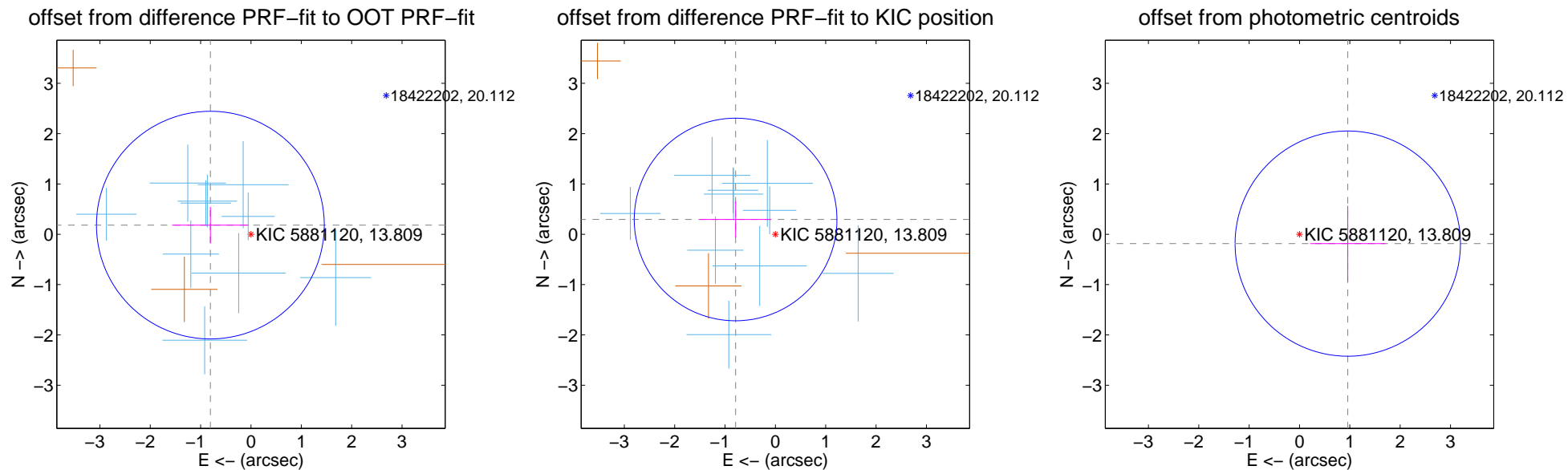
## DV Centroid Data

Supplemental centroid analysis for 005881120-01. Kepler magnitude: 13.81. Transit SNR 13.86

There are 10 quarters with good PRF difference image offsets

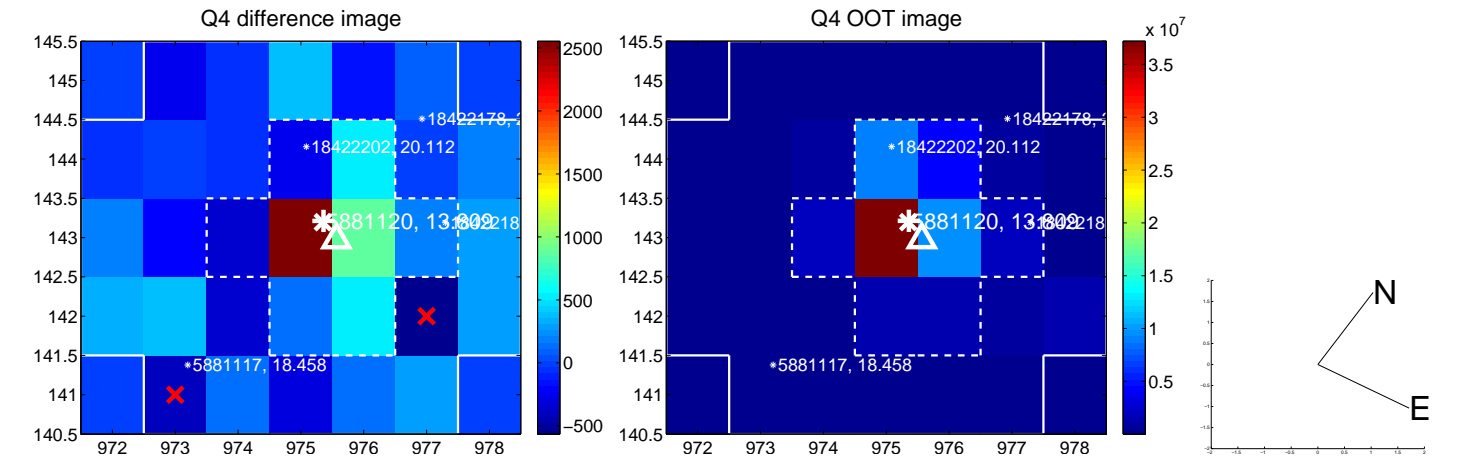
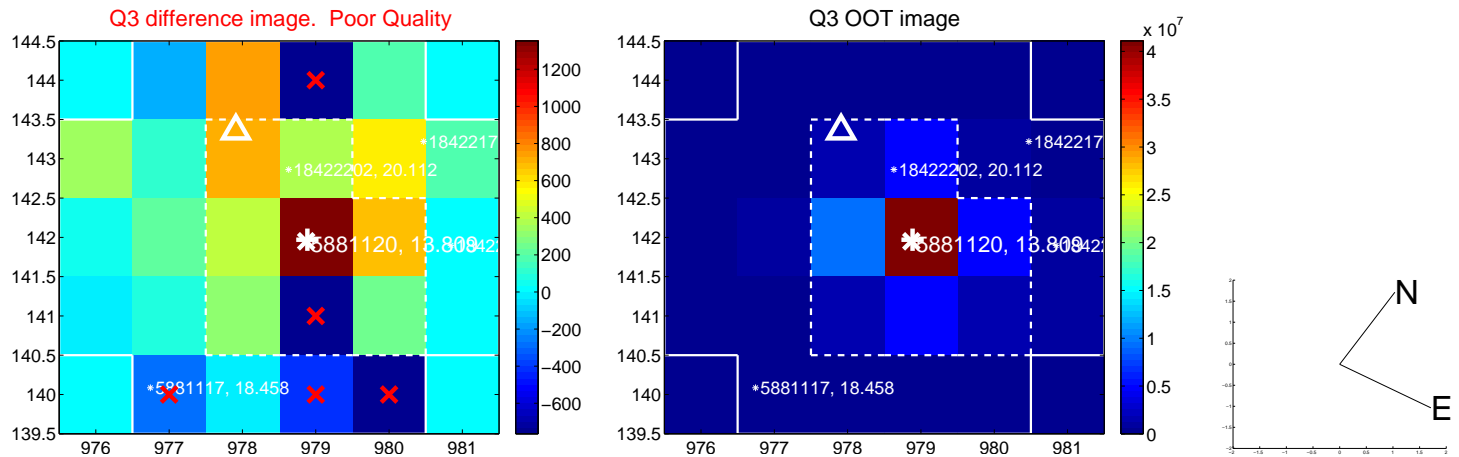
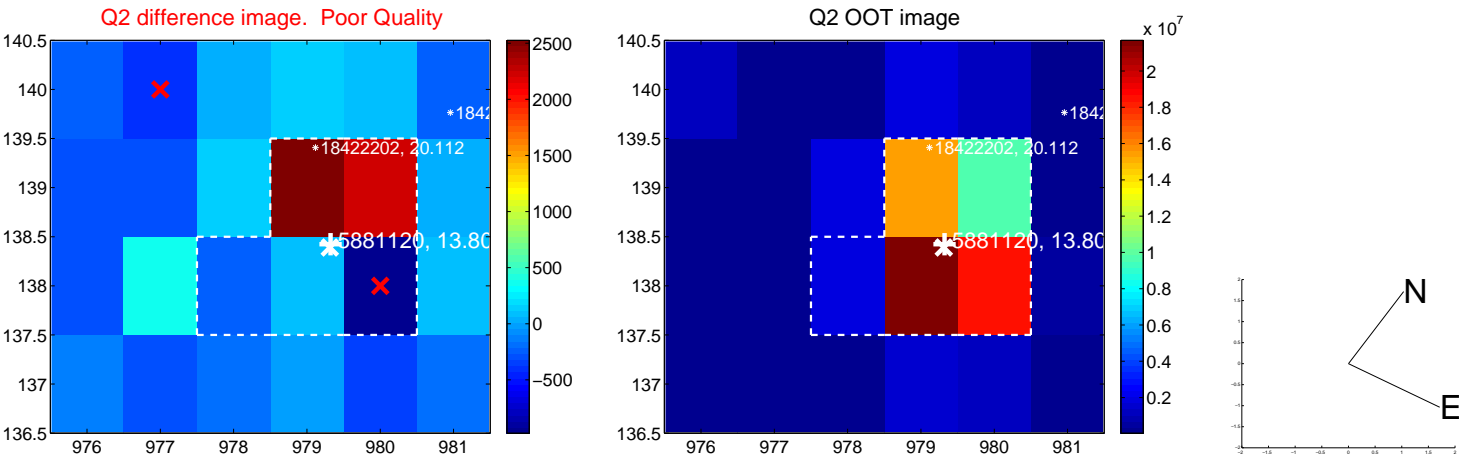
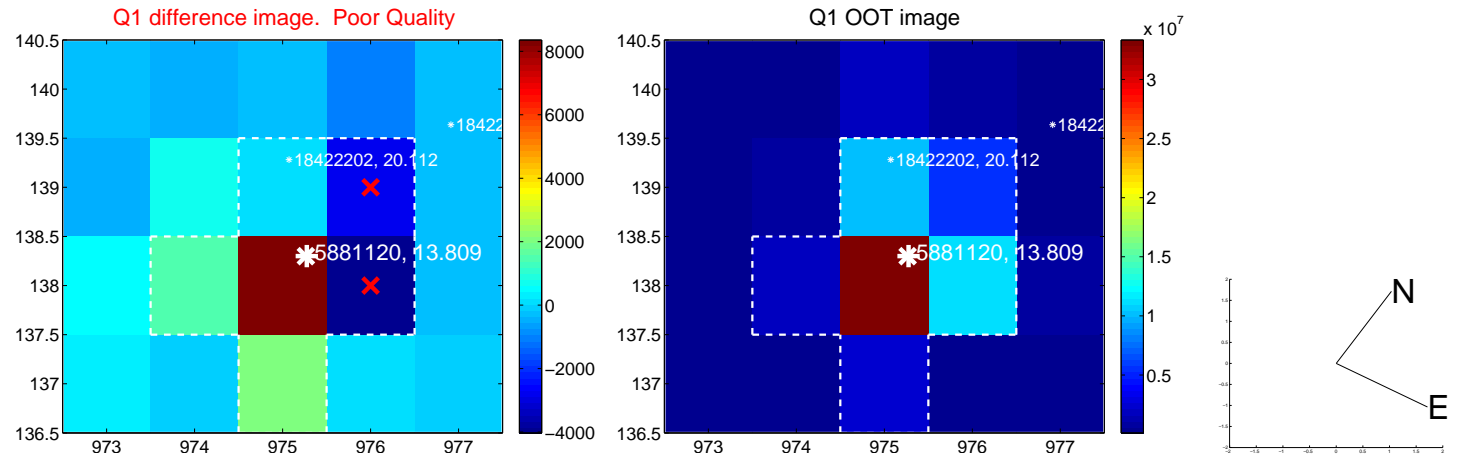
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.827 \pm 0.754$	1.10	$0.806 \pm 0.760$	$0.182 \pm 0.362$
PRF-fit source offset from KIC position	$0.843 \pm 0.671$	1.26	$0.790 \pm 0.708$	$0.294 \pm 0.361$
photometric centroid source offset	$0.98 \pm 0.75$	1.31	$-0.96 \pm 0.75$	$-0.19 \pm 0.75$

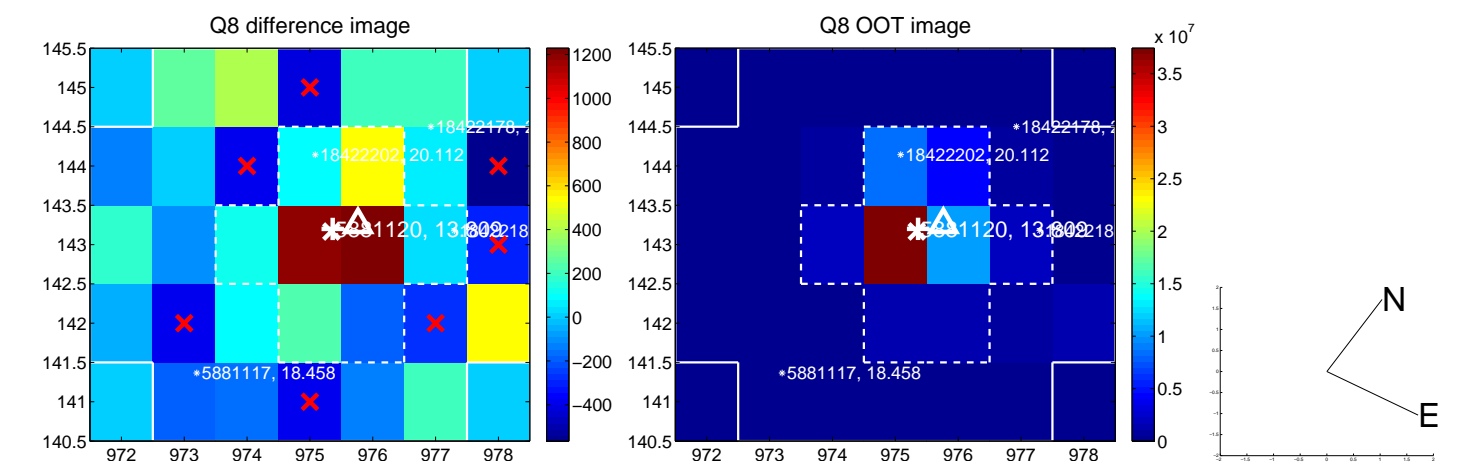
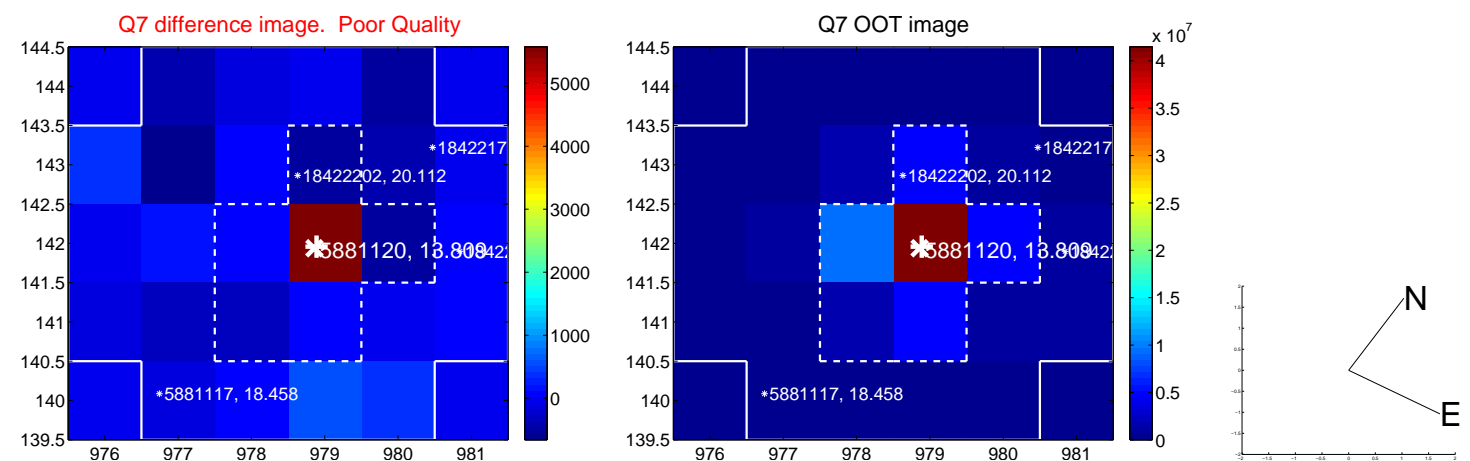
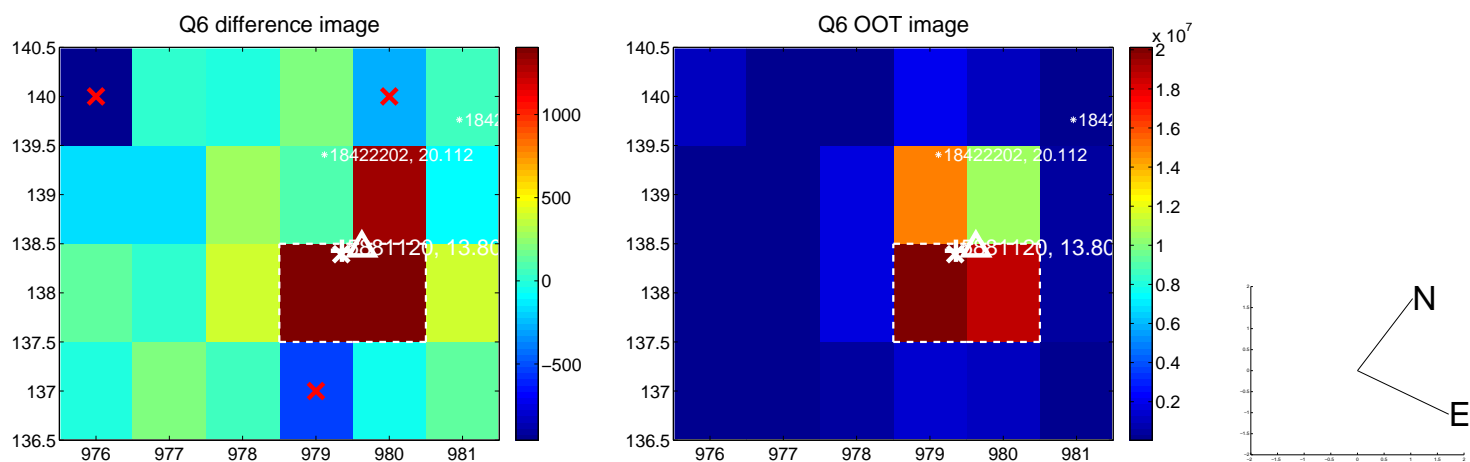
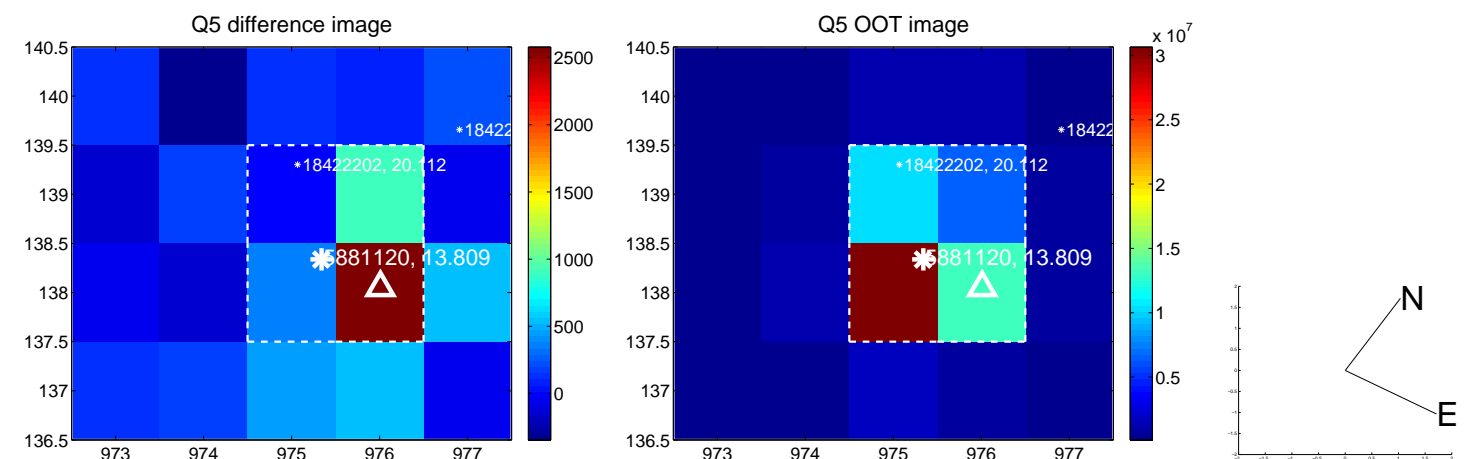


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

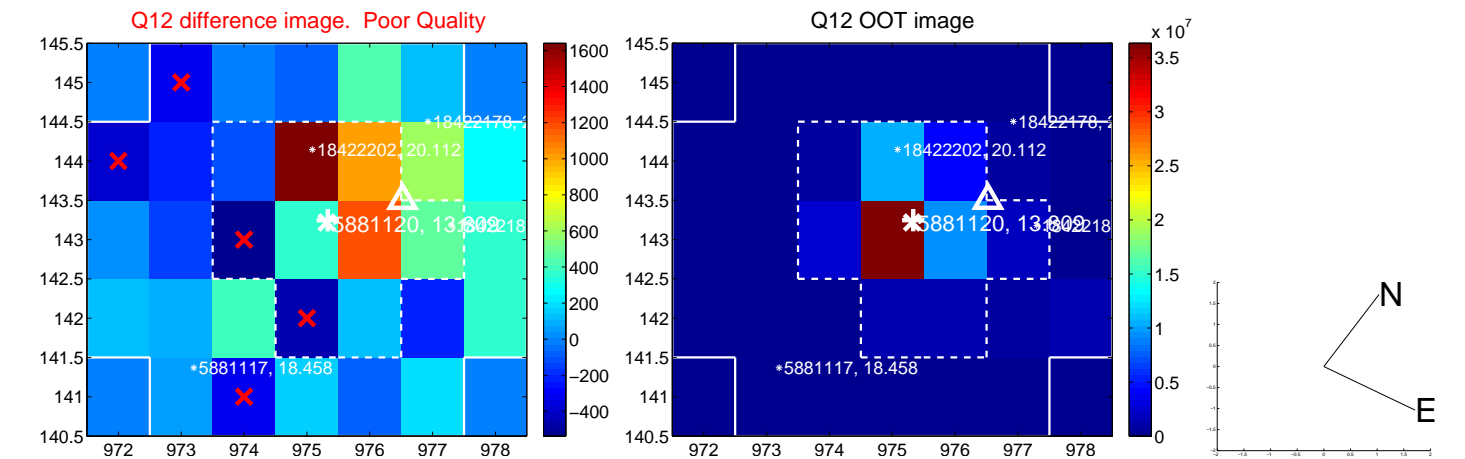
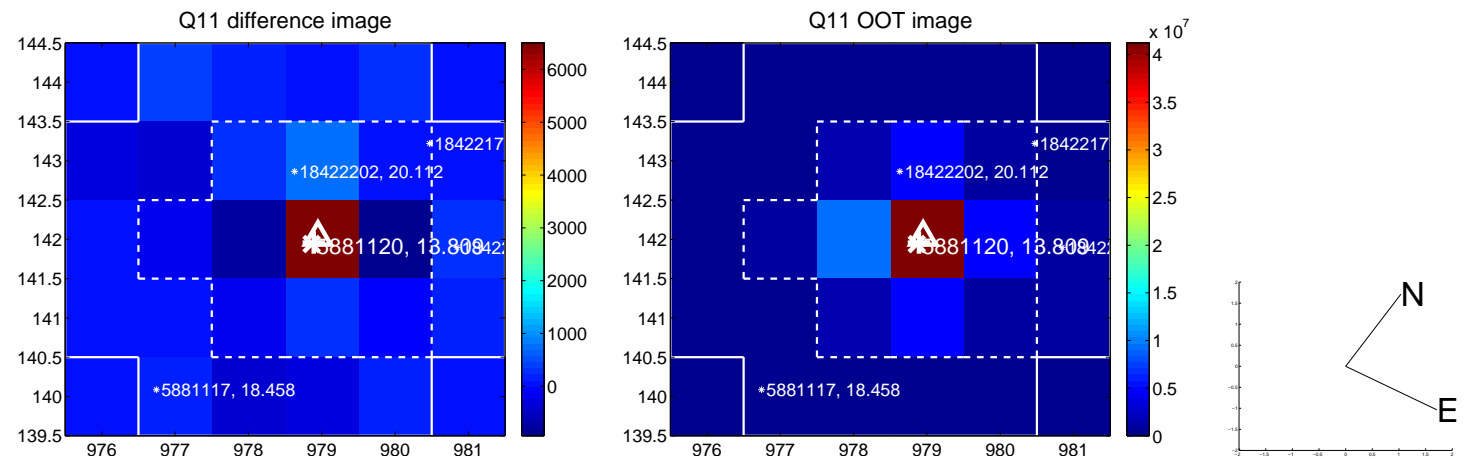
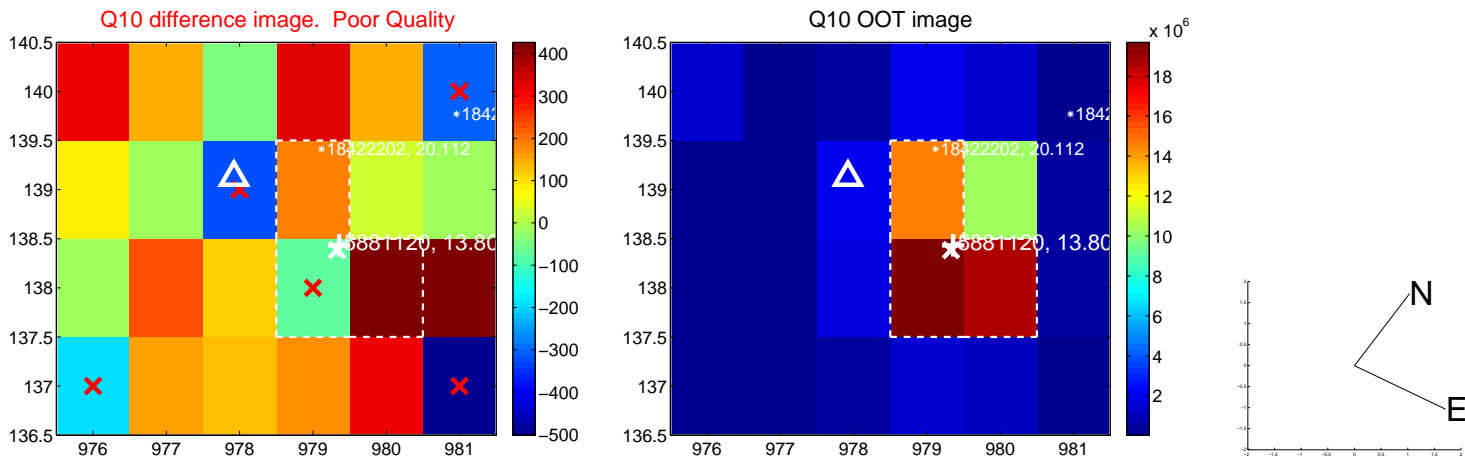
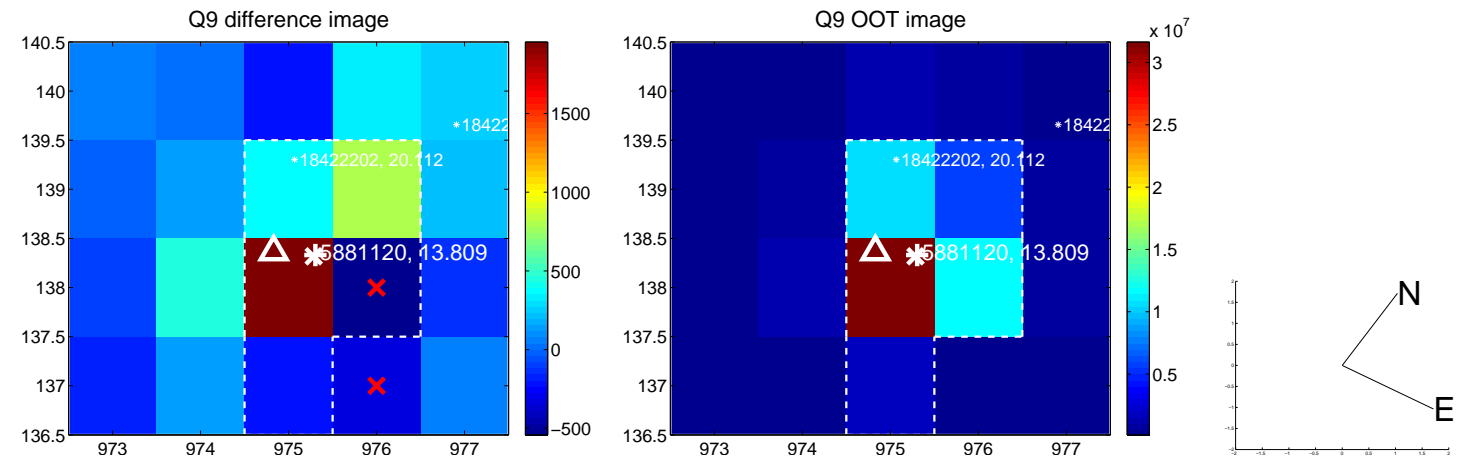


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

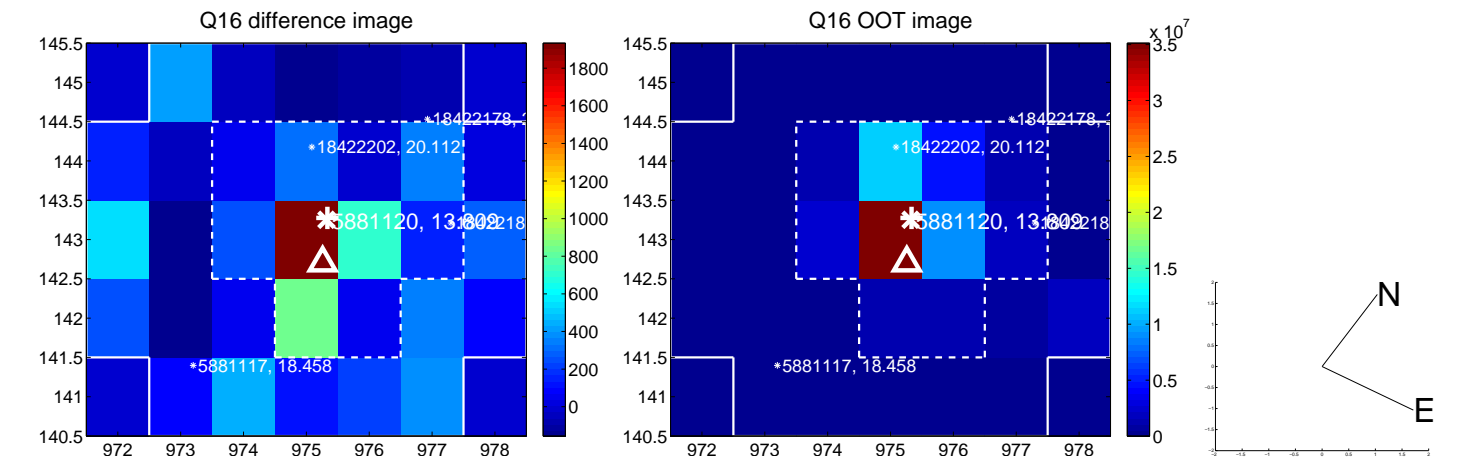
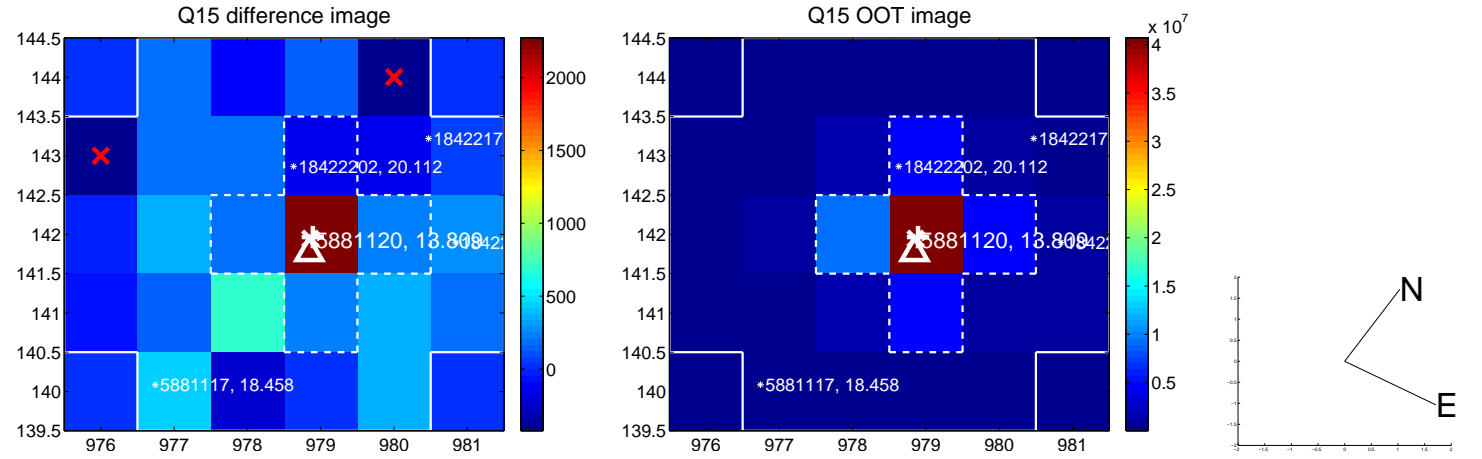
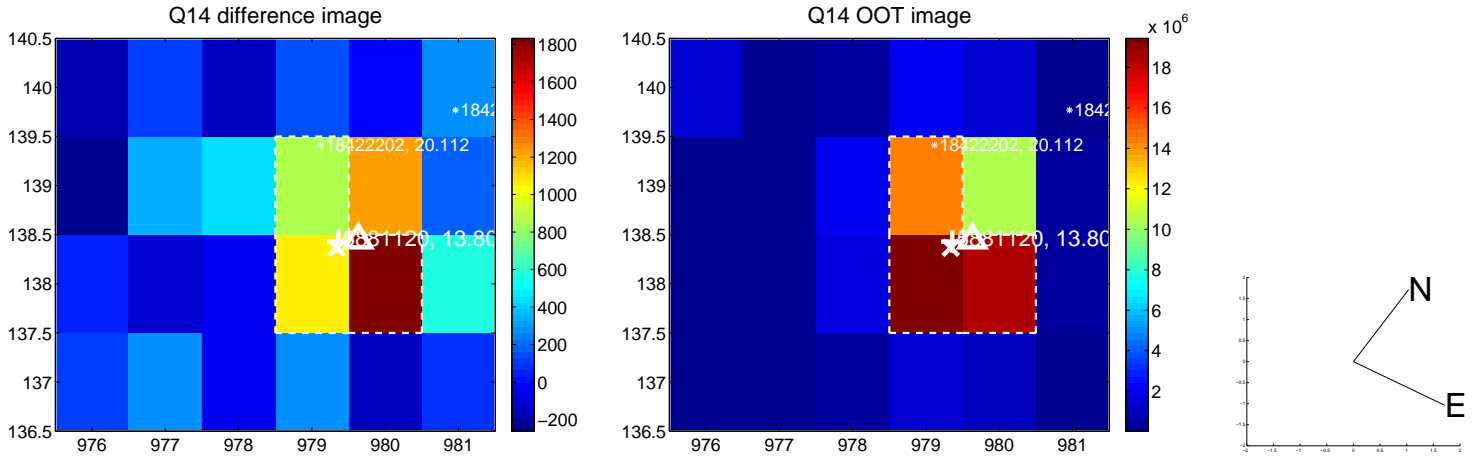
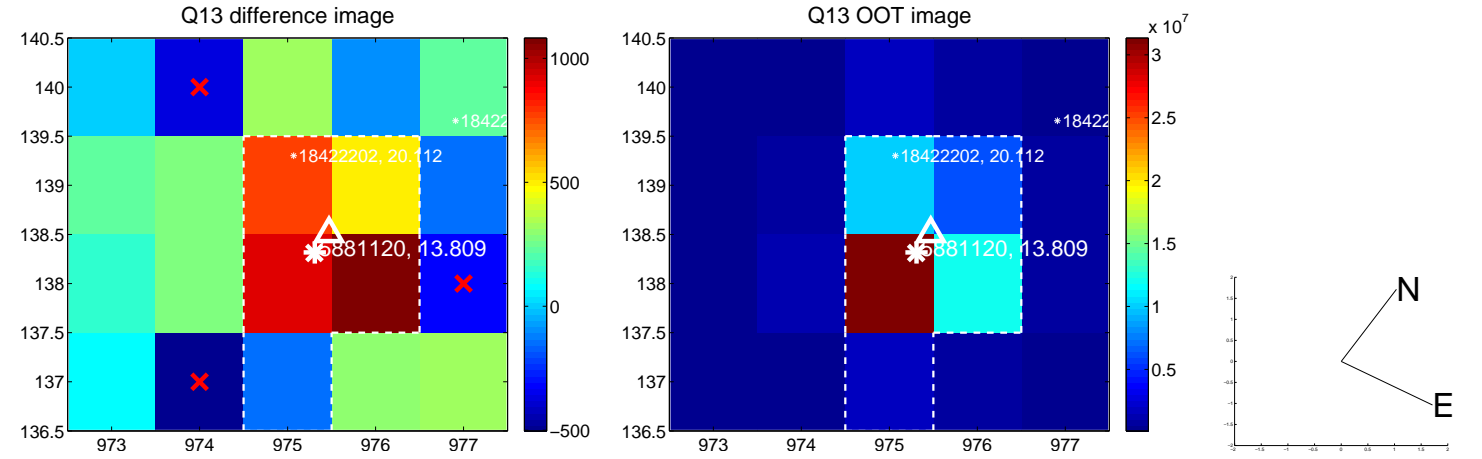




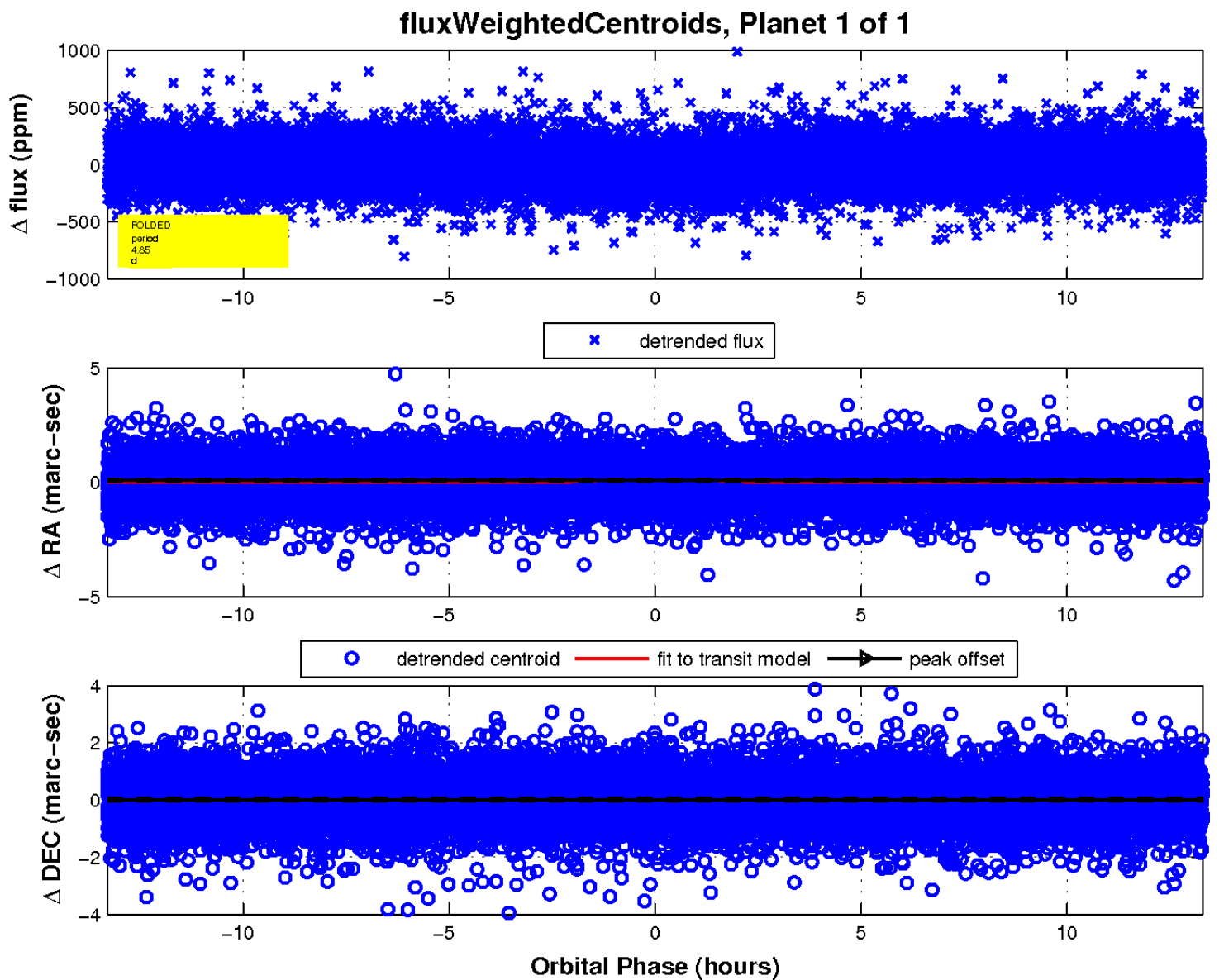
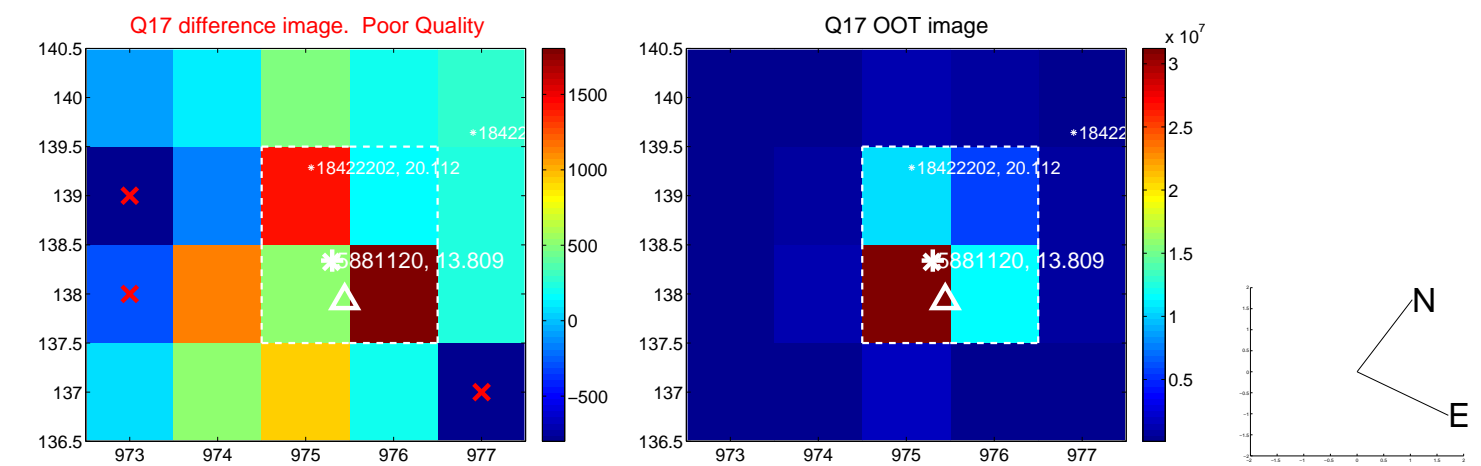
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

