

# KIC 005445681

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005445681-01	OBS	3039.01	20.350505	142.755984	98.4	7.302	13.7	14.6	1.00	5952	1.09	55.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005445681-01	OBS	PC	0.92	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.

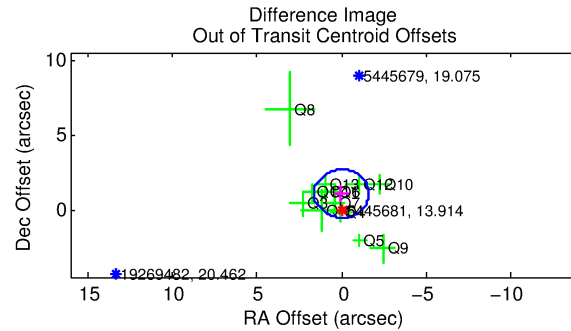
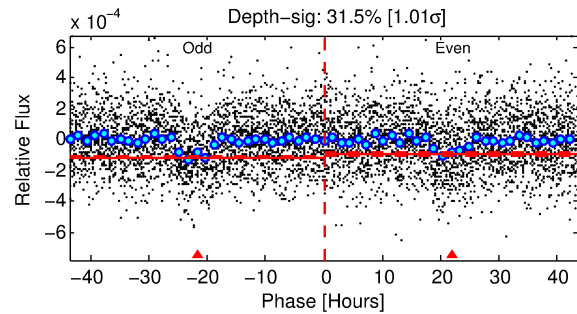
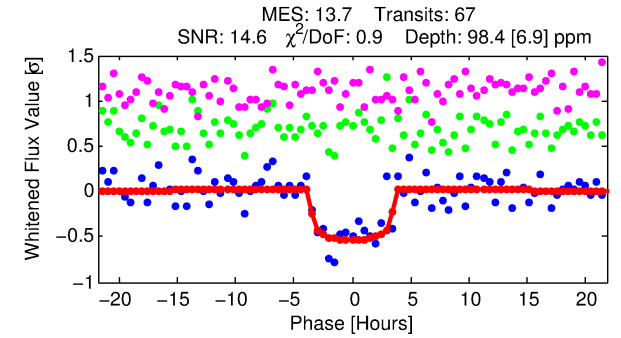
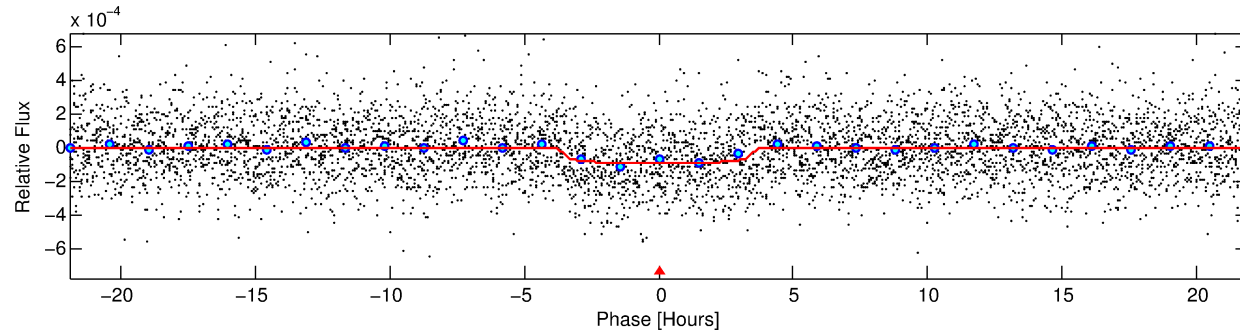
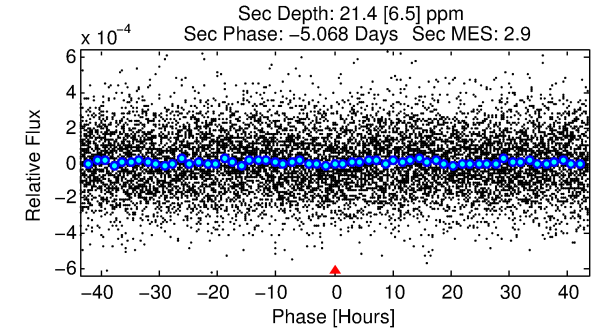
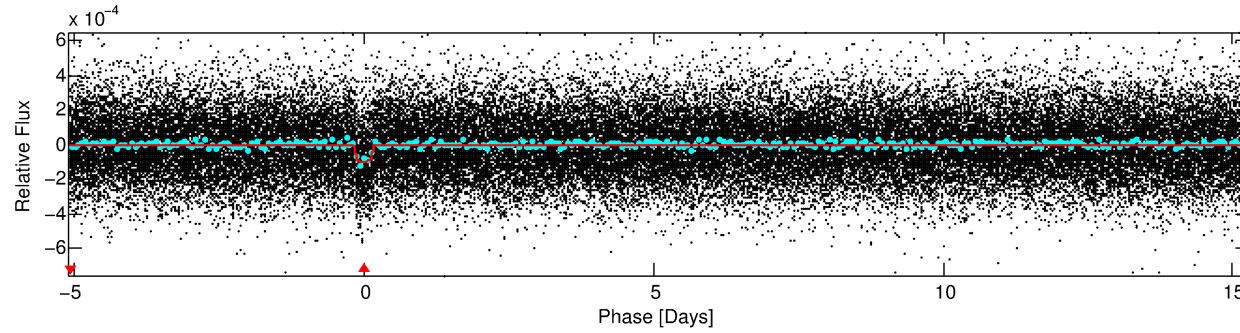
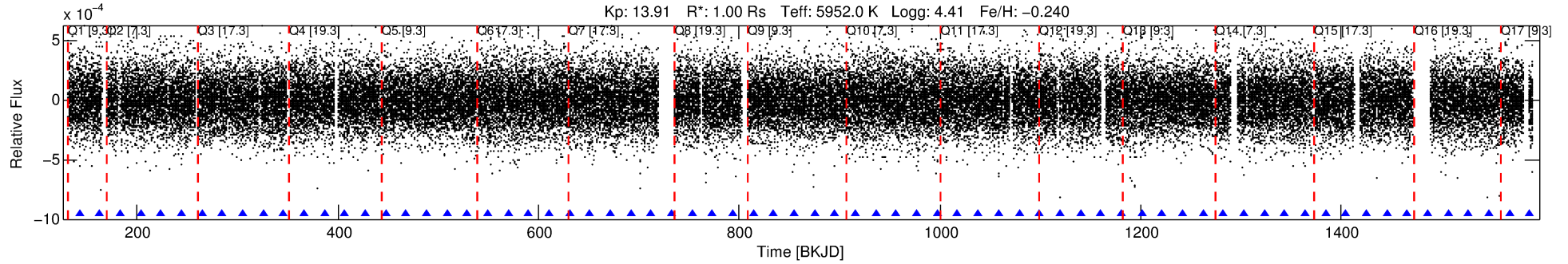
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005445681-01

No Significant Match Found

# DV One-Page Summary

KIC: 5445681 Candidate: 1 of 1 Period: 20.351 d  
KOI: K03039.01 Corr: 0.997



## DV Fit Results:

Period = 20.35051 [0.00023] d  
Epoch = 142.7560 [0.0090] BKJD  
Rp/R\* = 0.0100 [0.0044]  
a/R\* = 13.45 [28.87]  
b = 0.79 [1.04]  
Seff = 55.21 [20.12]  
Teq = 695 [63] K  
Rp = 1.10 [0.57] Re  
a = 0.1430 [0.0338] AU  
Ag = 200.68 [197.73] [1.01σ]  
Teffp = 4045 [941] K [3.55σ]

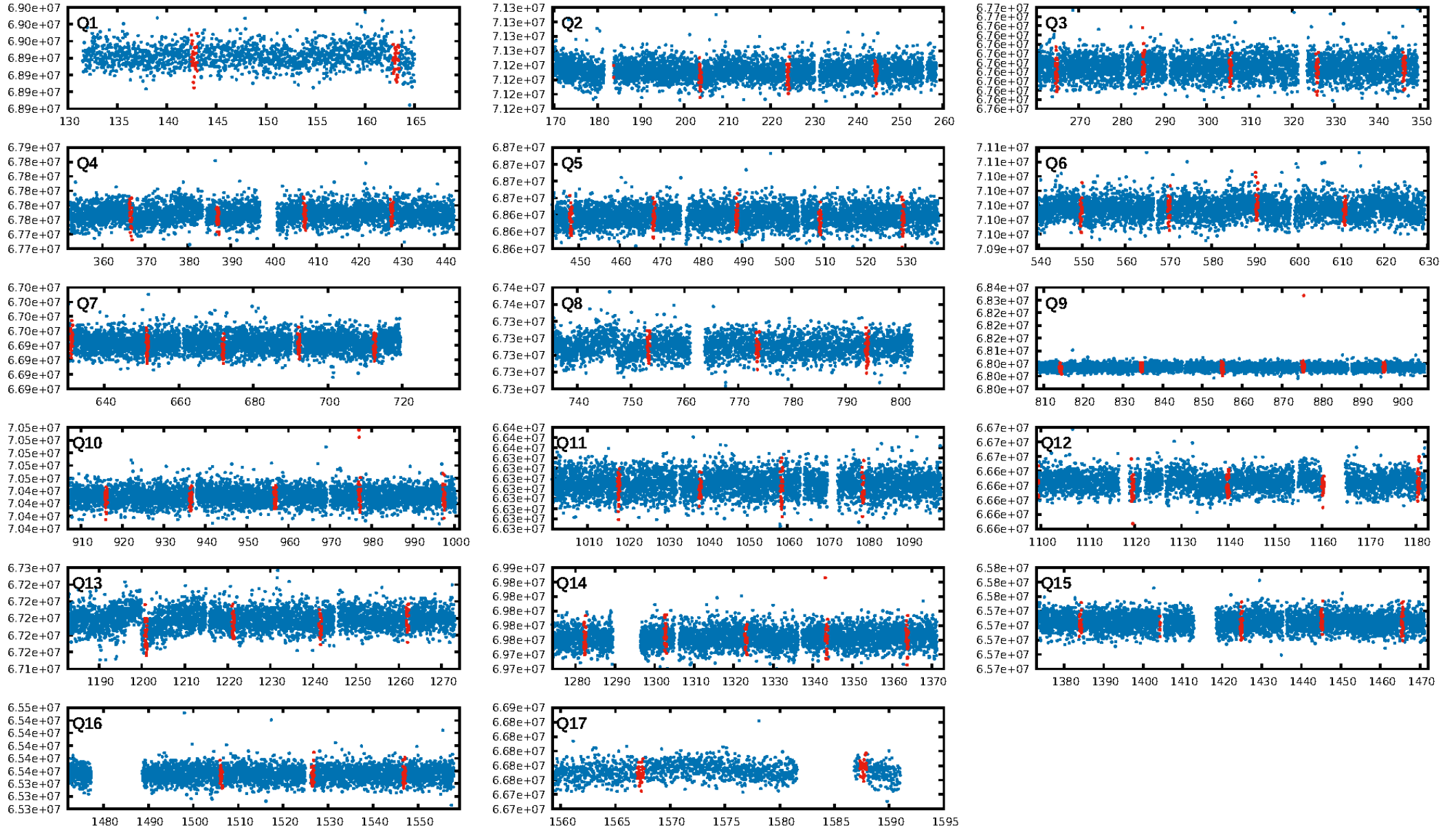
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 89.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 6.95e-43  
RollingBand-fgt: 1.00 [63/63]  
GhostDiagnostic-chr: -21.8  
Centroid-sig: 50.0%  
Centroid-so: 0.632 arcsec [0.80σ]  
OotOffset-rm: 1.066 arcsec [1.99σ]  
KicOffset-rm: 1.019 arcsec [1.81σ]  
OotOffset-st: 2/3/4/4 [13]  
KicOffset-st: 2/3/4/4 [13]  
DiffImageQuality-fgm: 0.85 [11/13]  
DiffImageOverlap-fno: 1.00 [17/17]

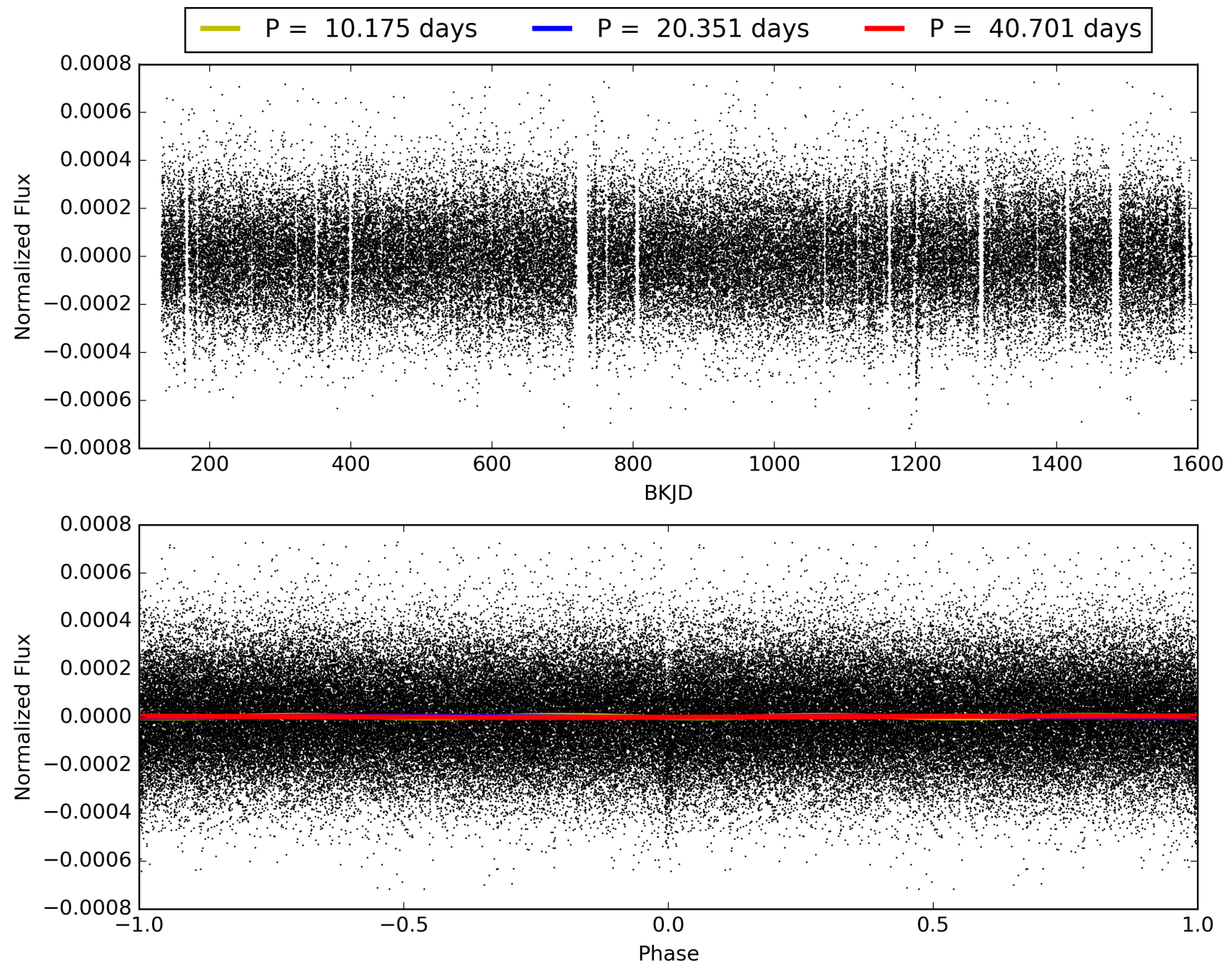
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:09:23 Z

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

# TCE 005445681-01, PDC Light Curves



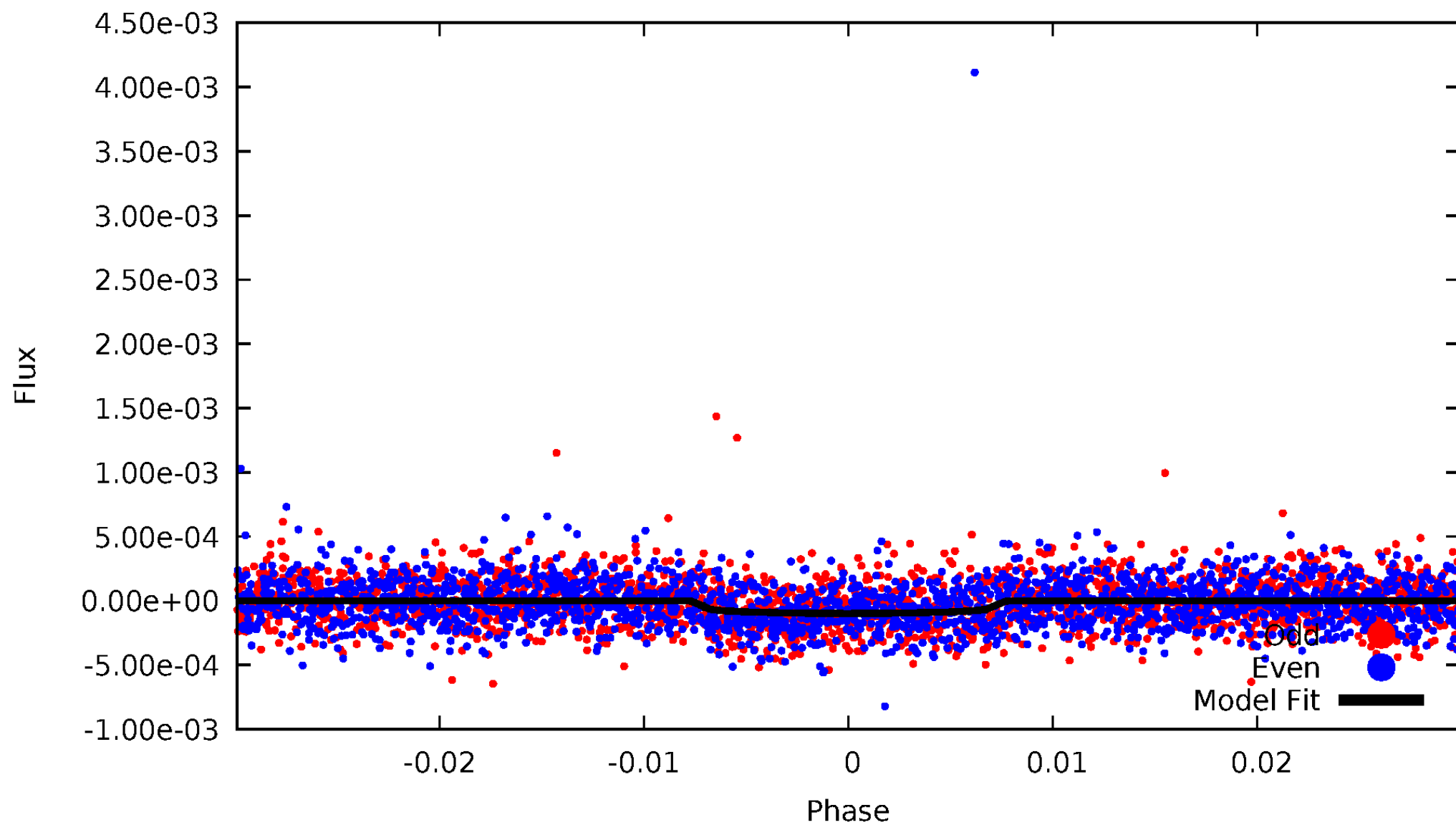
TCE 005445681-01





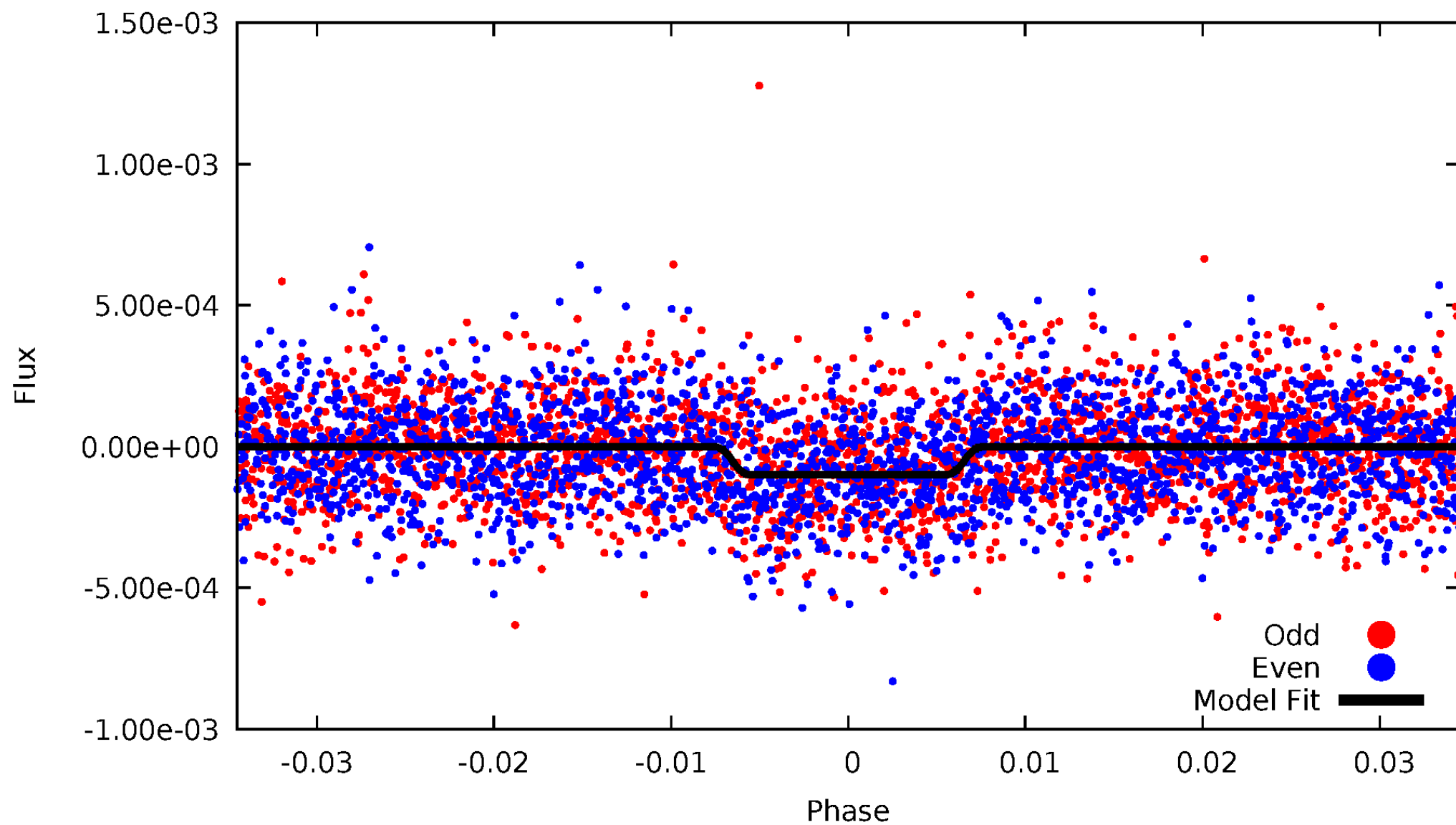
# DV Odd/Even

TCE 005445681-01

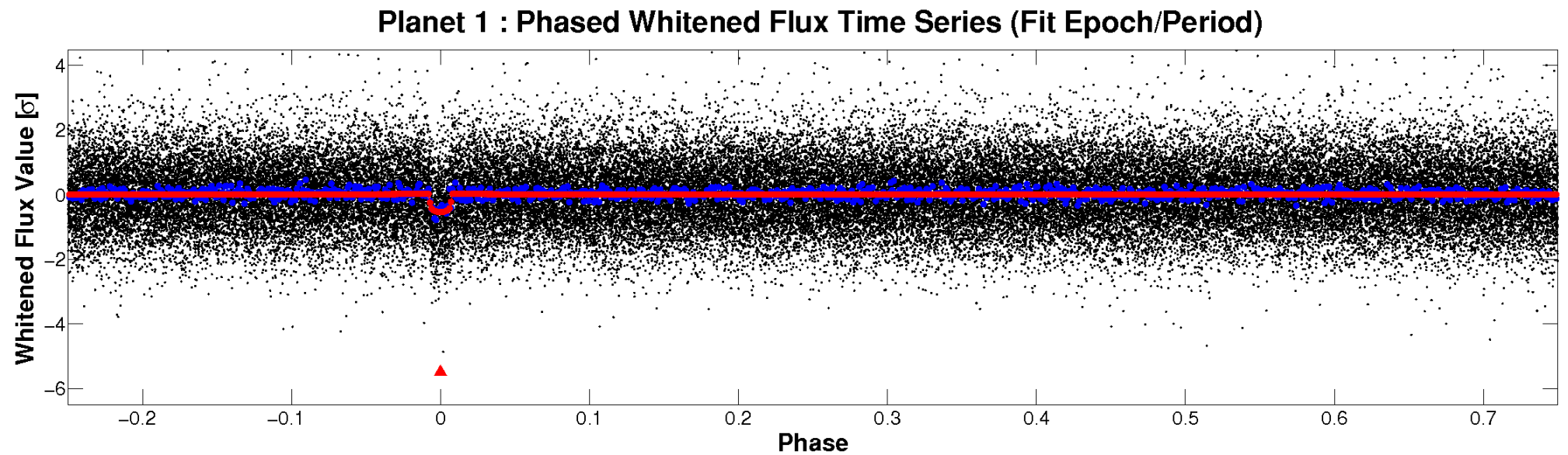
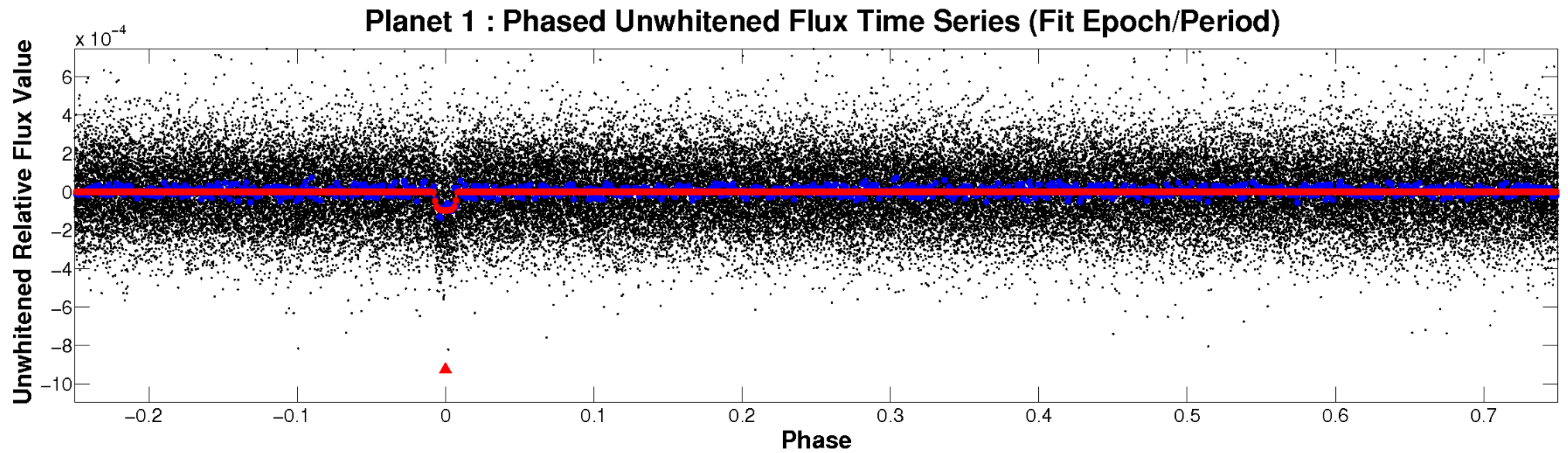


# ALT Odd/Even

TCE 005445681-01

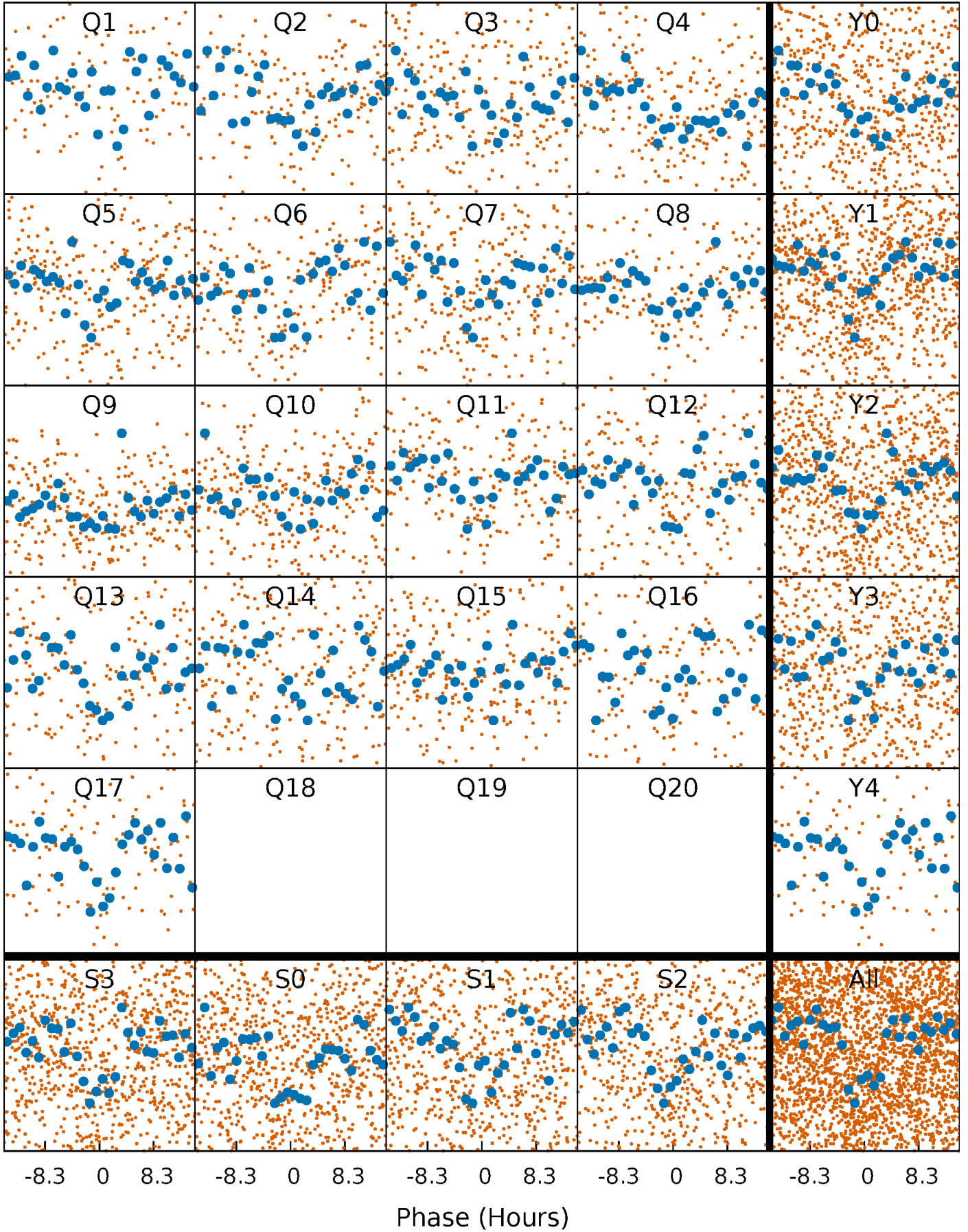


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

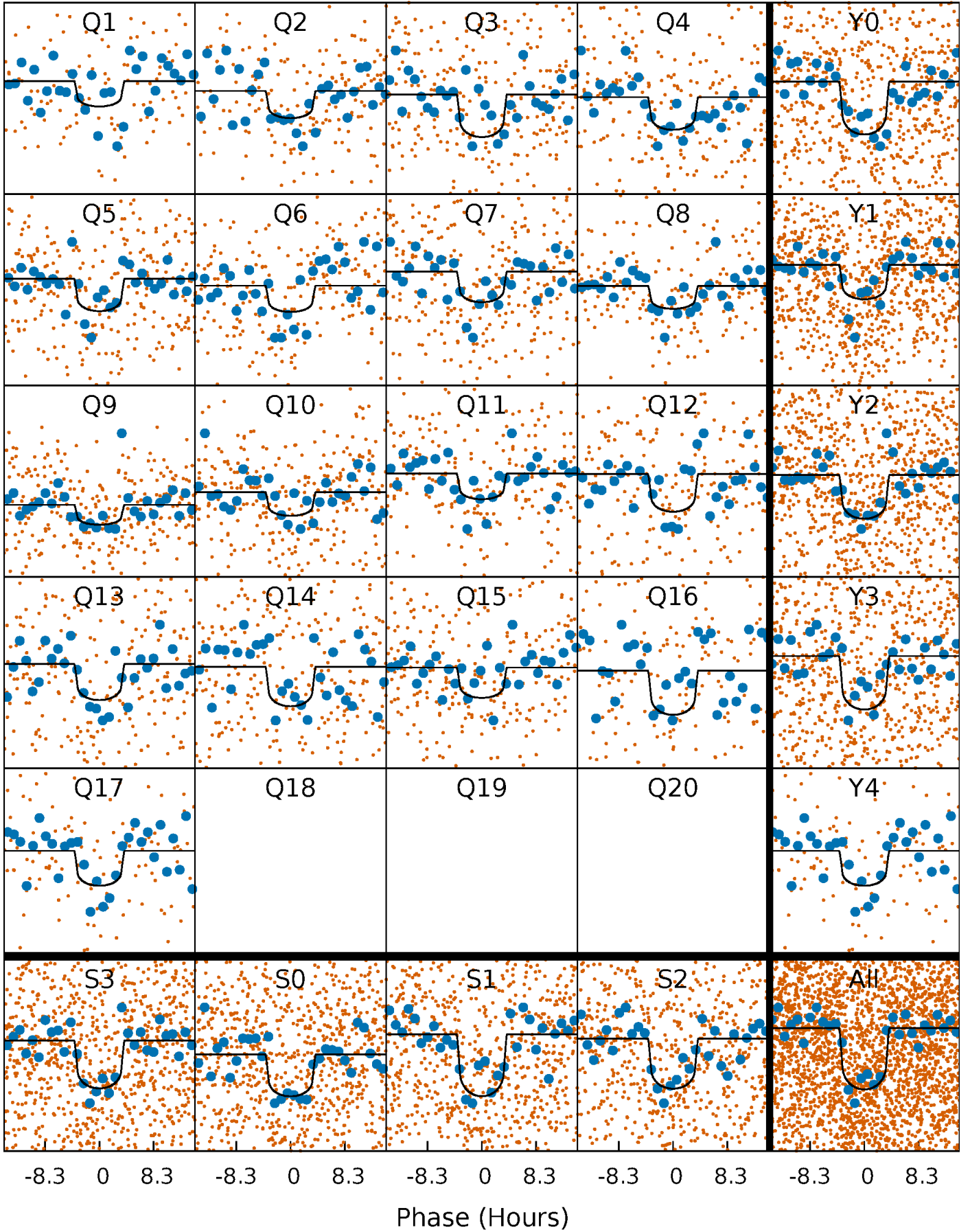
TCE 005445681-01   P= 20.350505 Days    $T_0=142.755985$  (BKJD)





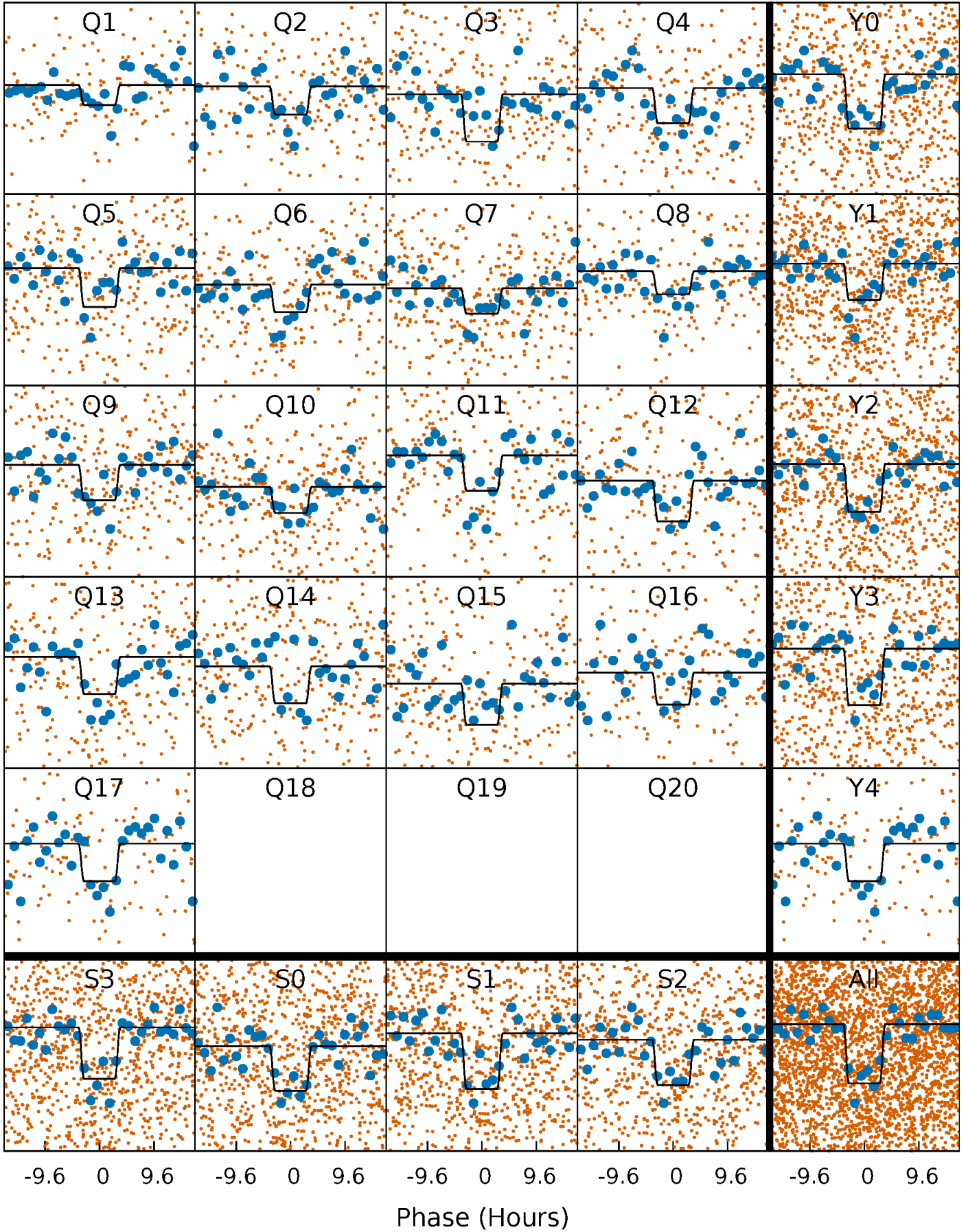
# DV Quarter-Phased Transit Curves

TCE 005445681-01 P= 20.350505 Days  $T_0=142.755985$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

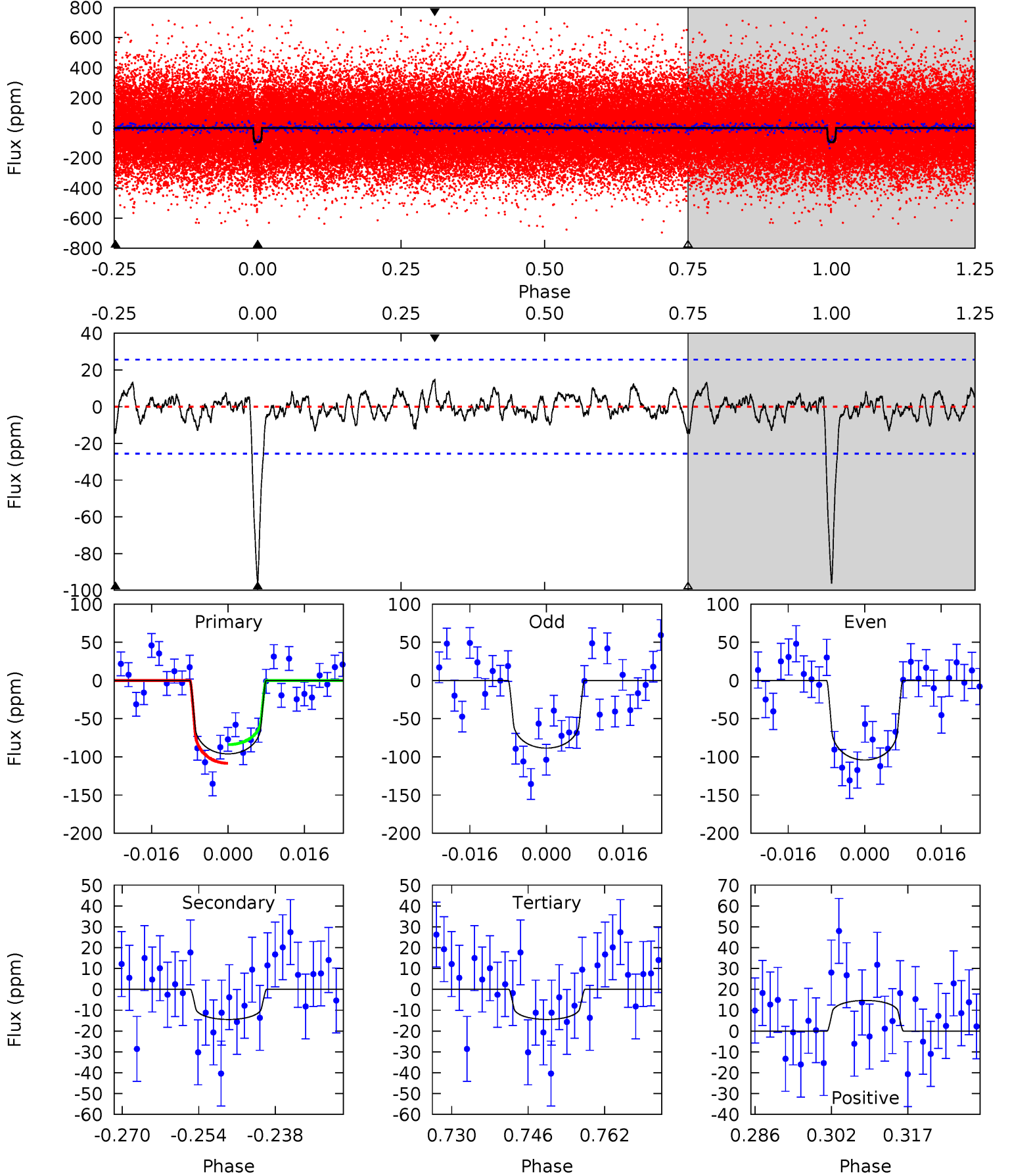
TCE 005445681-01 P= 20.349617 Days  $T_0=142.784055$  (BKJD)



# DV Model-Shift Uniqueness Test

005445681-01, P = 20.350505 Days, E = 122.405480 Days

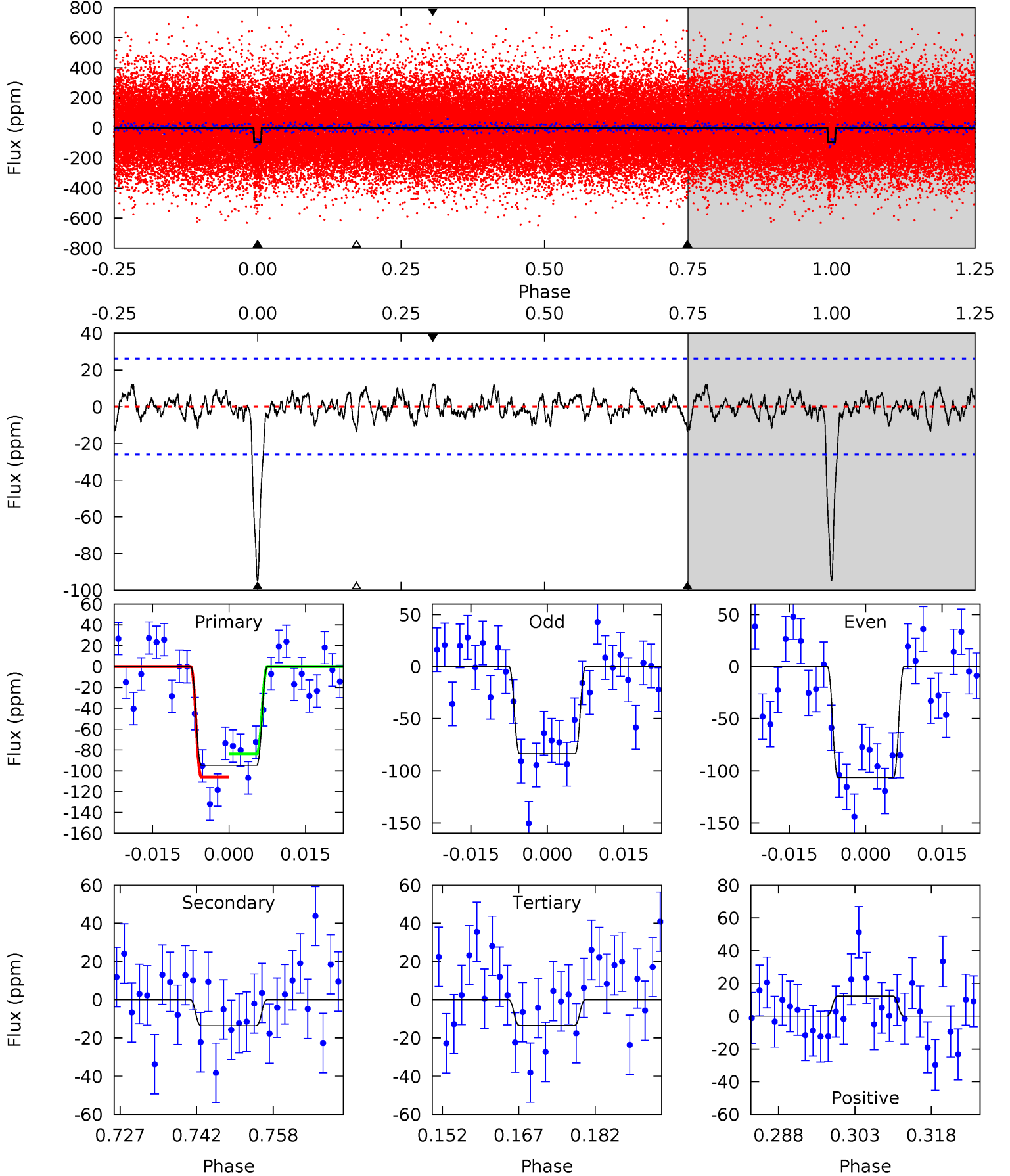
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.5	2.79	2.79	2.83	4.94	2.41	0.97	15.7	15.7	0.00	-0.04	1.50	1.01	0.13	2.36



# Alt Model-Shift Uniqueness Test

005445681-01, P = 20.349617 Days, E = 122.434438 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
18.0	2.58	2.54	2.32	4.95	2.43	0.87	15.4	15.7	0.04	0.26	2.16	1.05	0.11	2.12



### Stellar Parameters For KIC 005445681

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5952^{+161}_{-178}$	$4.410^{+0.101}_{-0.188}$	$-0.240^{+0.300}_{-0.300}$	$1.002^{+0.282}_{-0.152}$	$0.942^{+0.130}_{-0.107}$	$1.319^{+0.623}_{-0.683}$
	+3%/-3%	+2%/-4%	+125%/-125%	+28%/-15%	+14%/-11%	+47%/-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 005445681-01 / KOI 3039.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-14 \pm 5$	$1.15^{+0.52}_{-0.53}$	$980^{+74}_{-53}$	$3943^{+1018}_{-528}$	$122^{+304}_{-72}$
Alt.	$-14 \pm 5$	$1.16^{+0.55}_{-0.48}$	$981^{+71}_{-52}$	$3885^{+908}_{-535}$	$113^{+223}_{-70}$

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



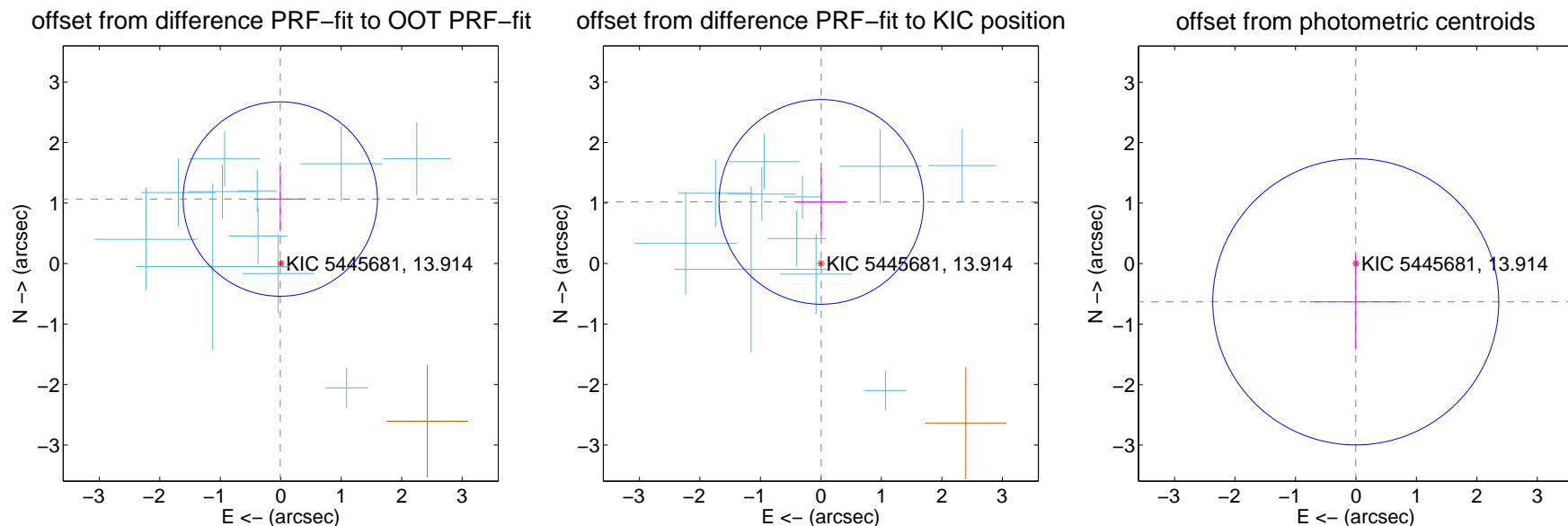
## DV Centroid Data

Supplemental centroid analysis for 005445681-01. Kepler magnitude: 13.91. Transit SNR 14.60

There are 11 quarters with good PRF difference image offsets

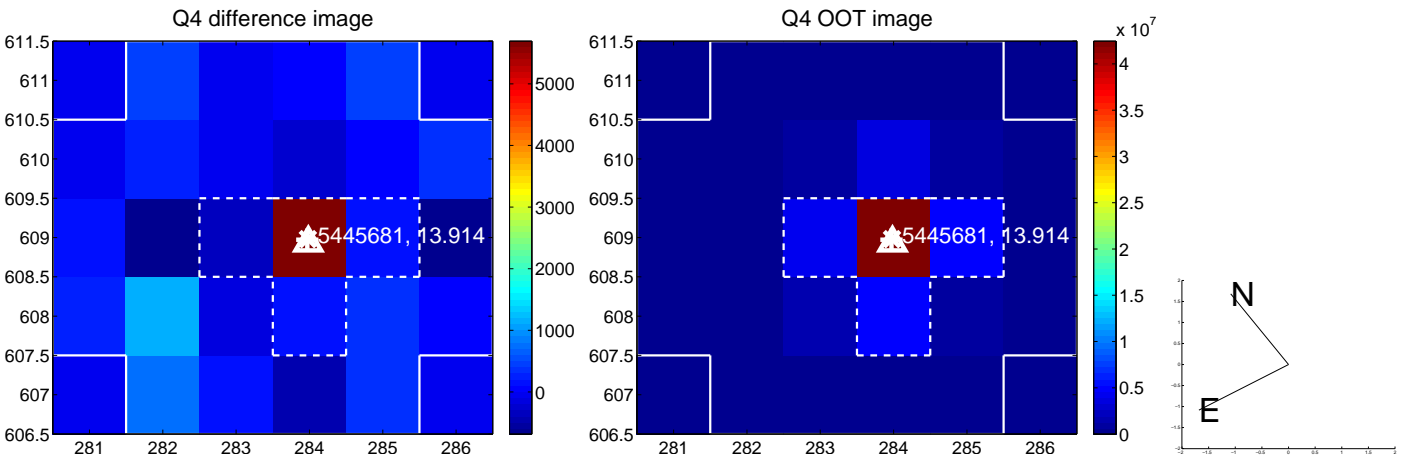
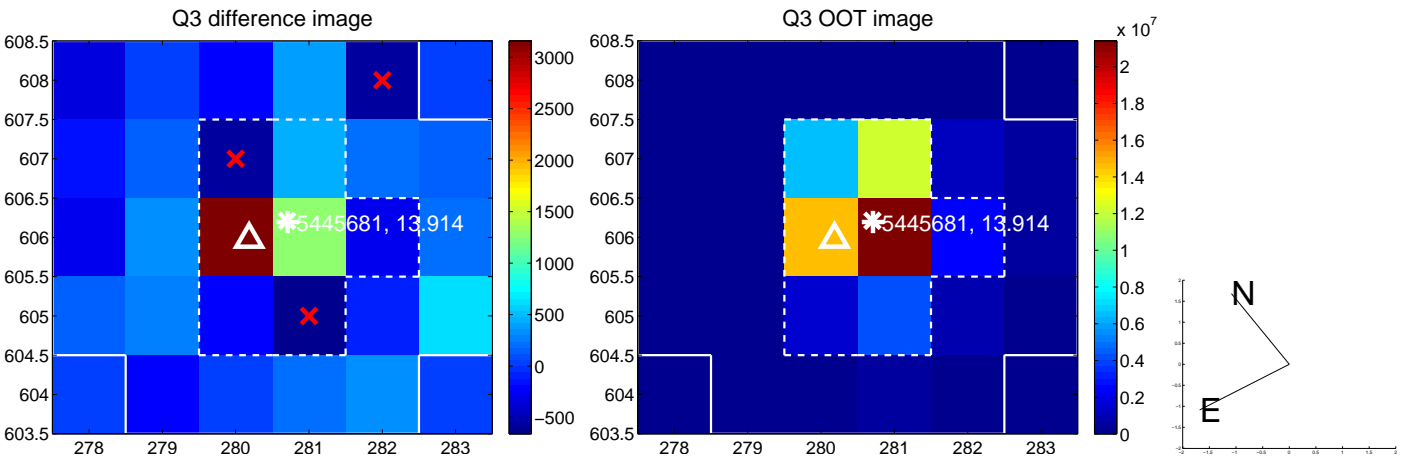
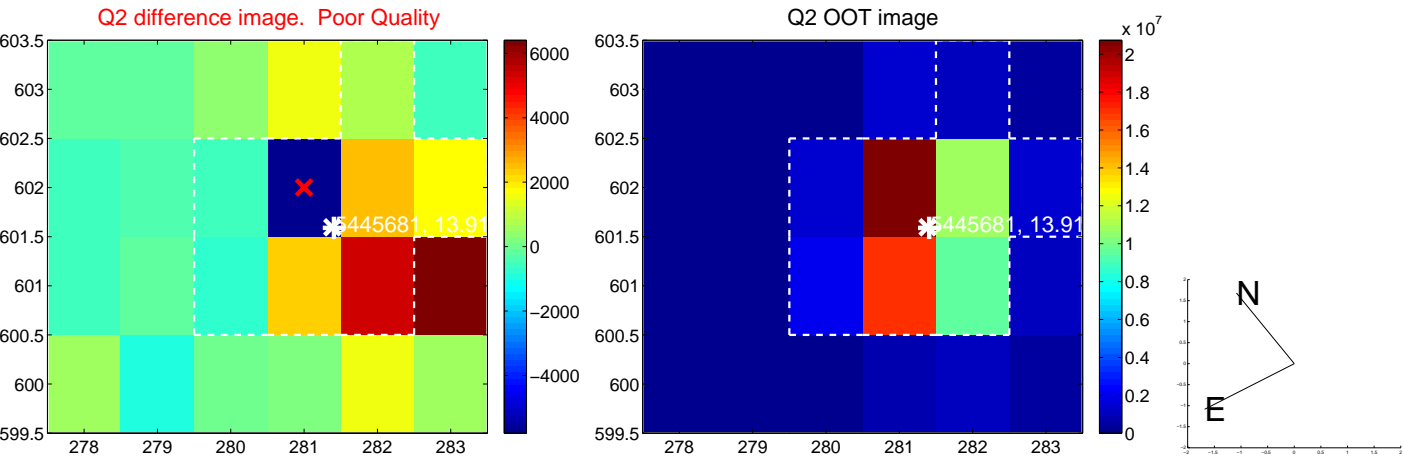
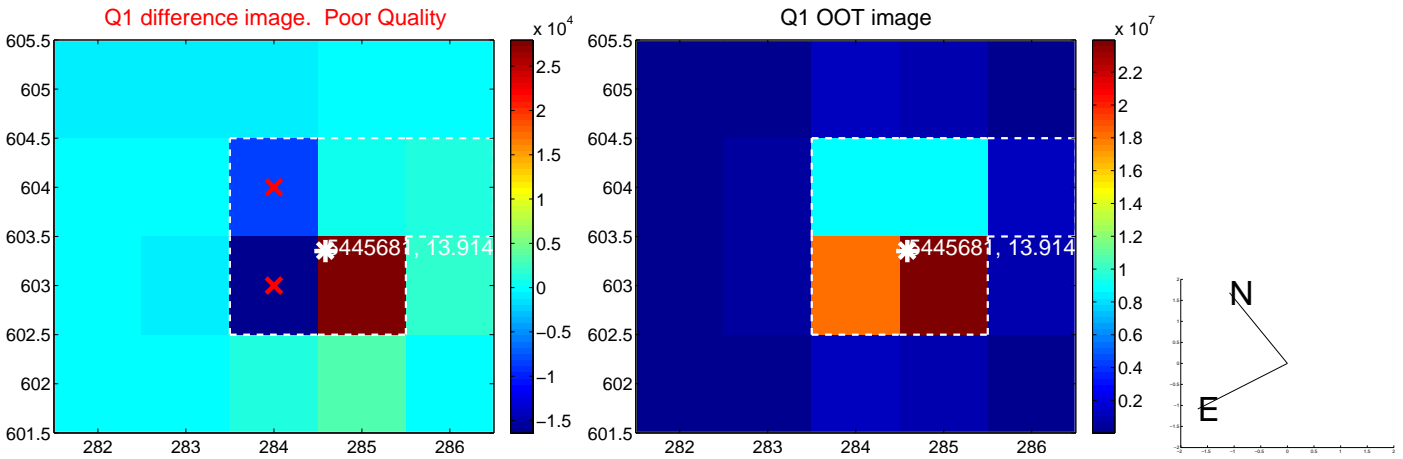
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.066 \pm 0.535$	1.99	$0.008 \pm 0.421$	$1.066 \pm 0.534$
PRF-fit source offset from KIC position	$1.019 \pm 0.564$	1.81	$-0.007 \pm 0.424$	$1.019 \pm 0.565$
photometric centroid source offset	$0.63 \pm 0.79$	0.80	$0.00 \pm 0.76$	$-0.63 \pm 0.79$

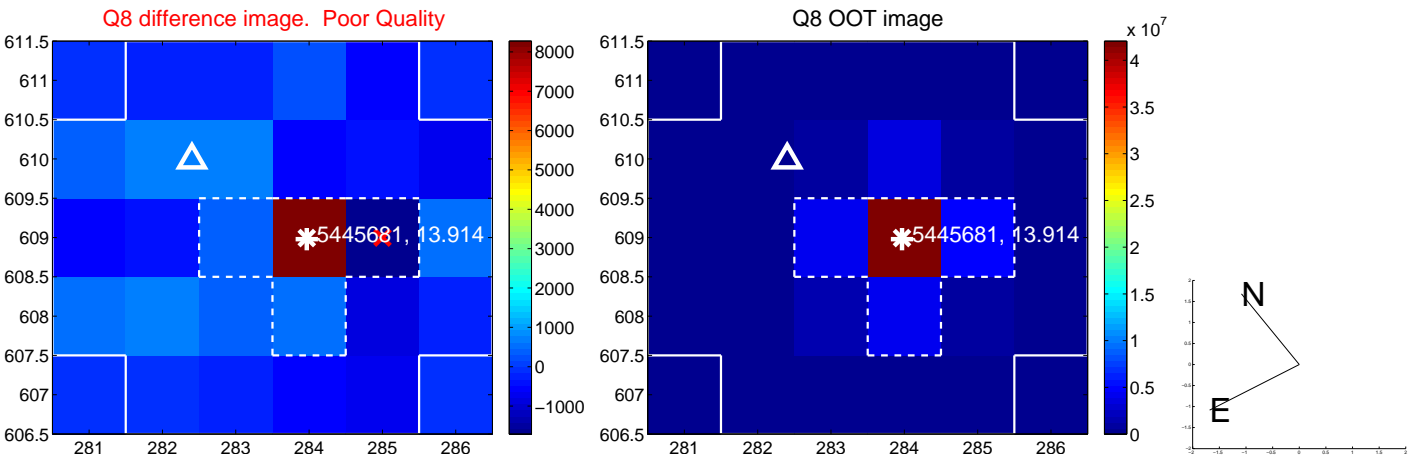
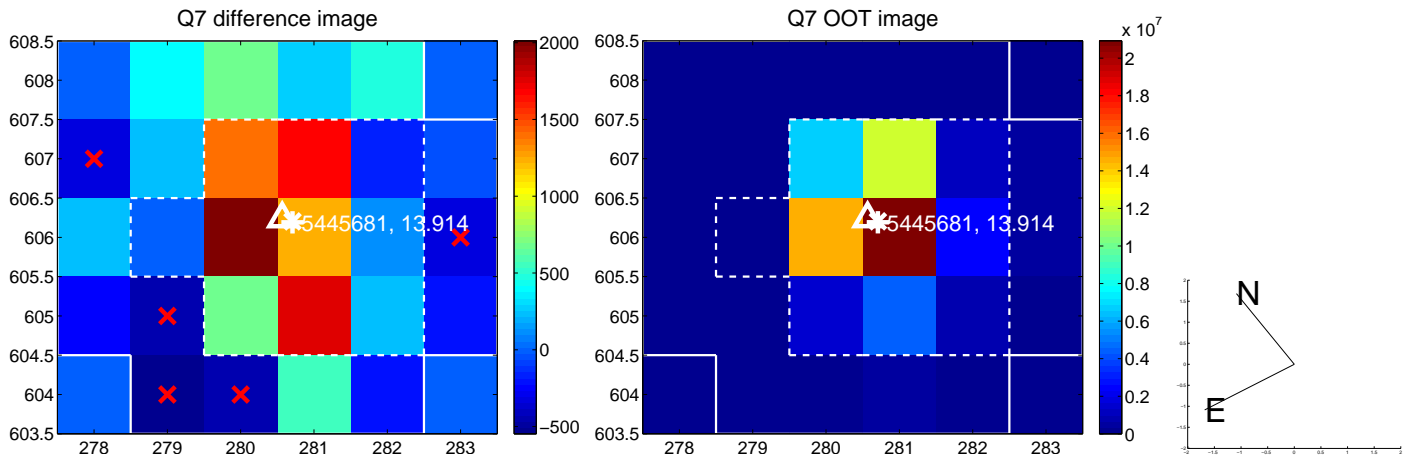
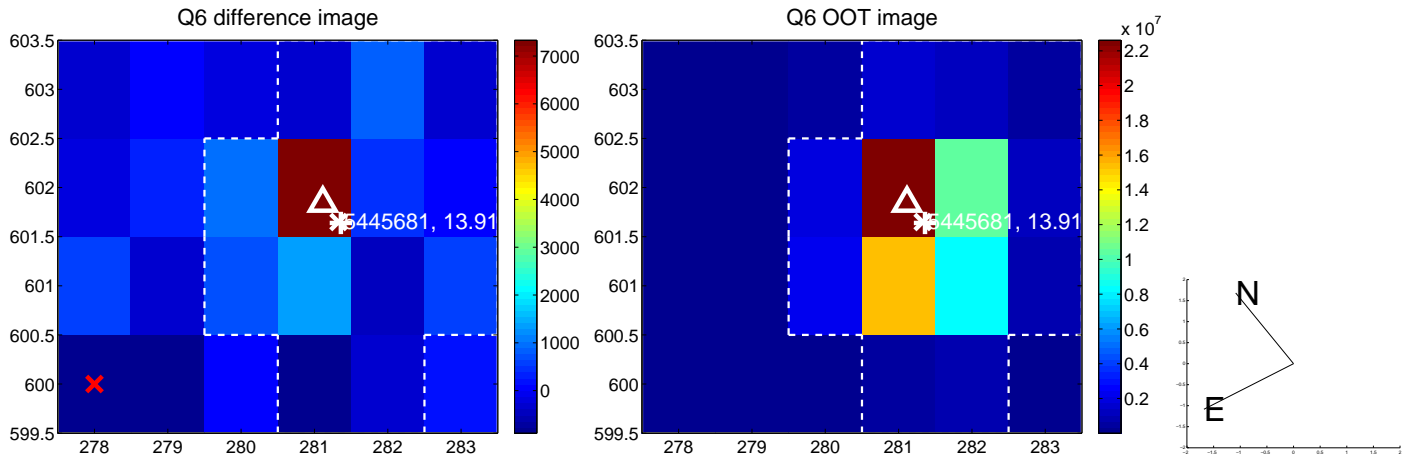
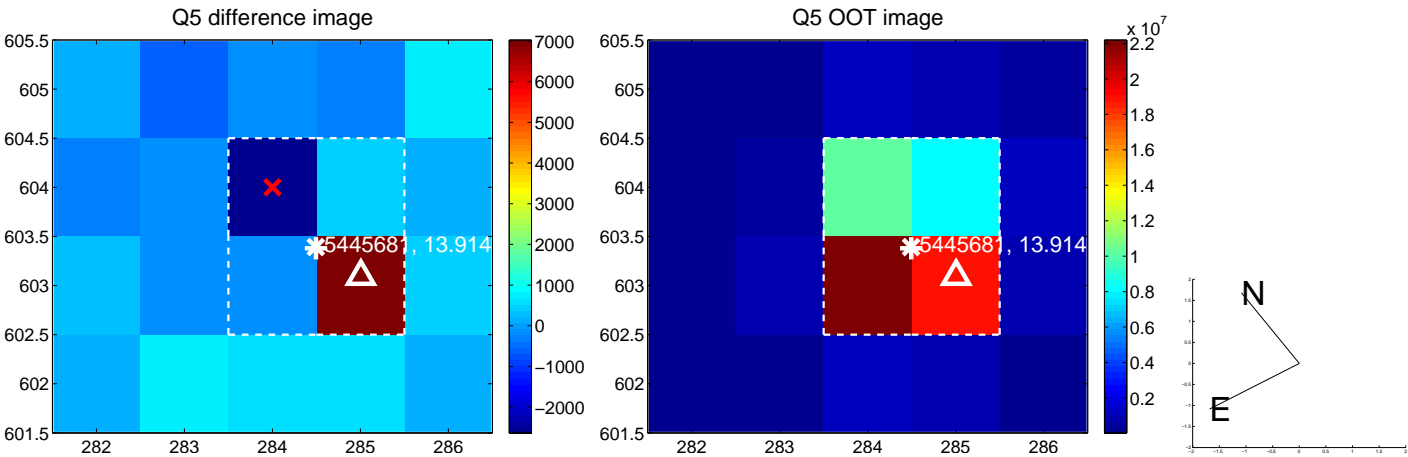


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

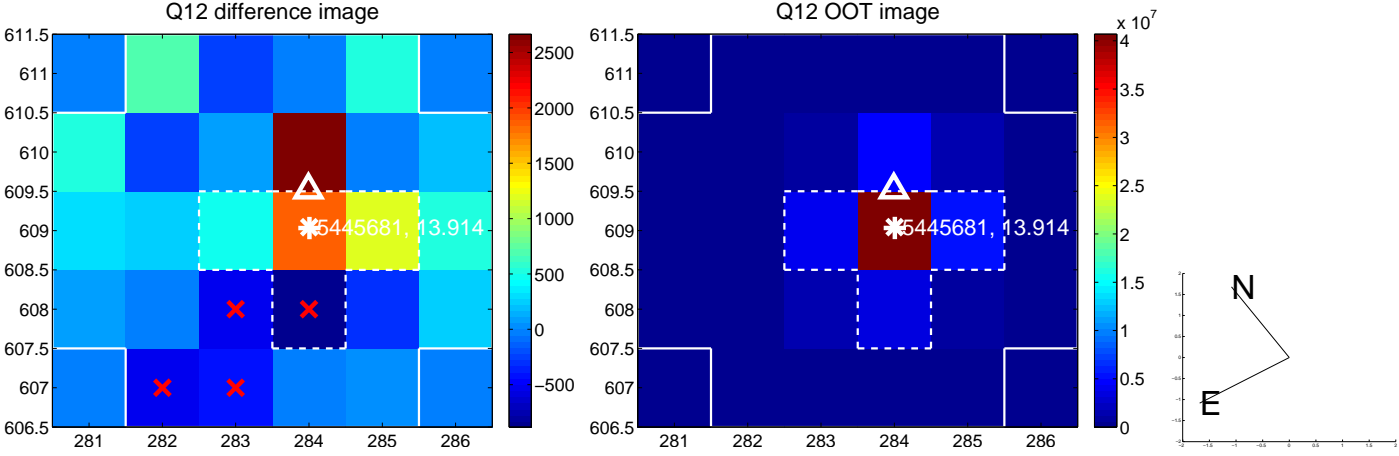
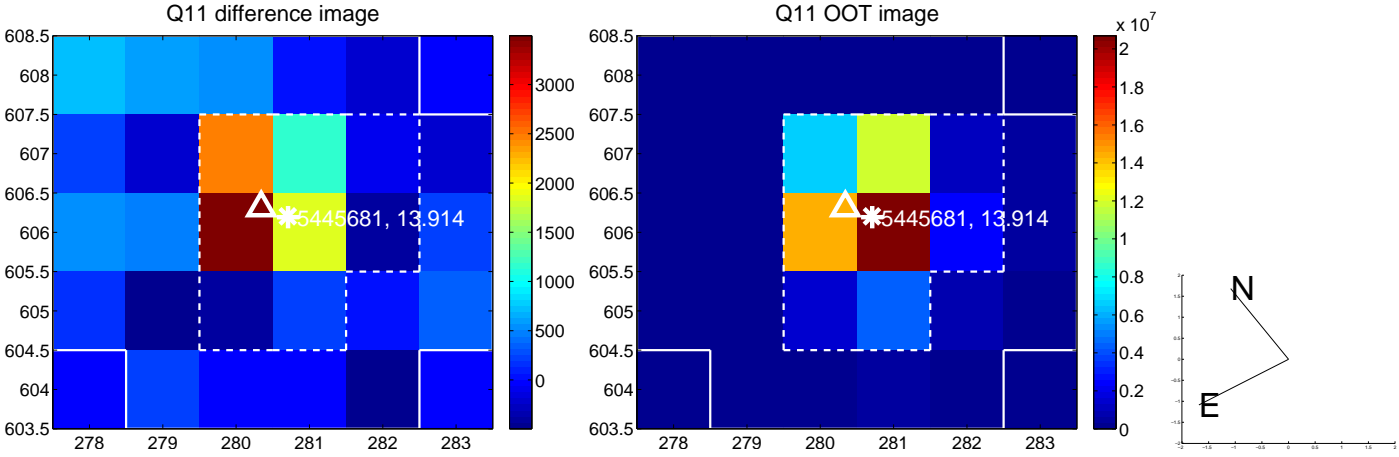
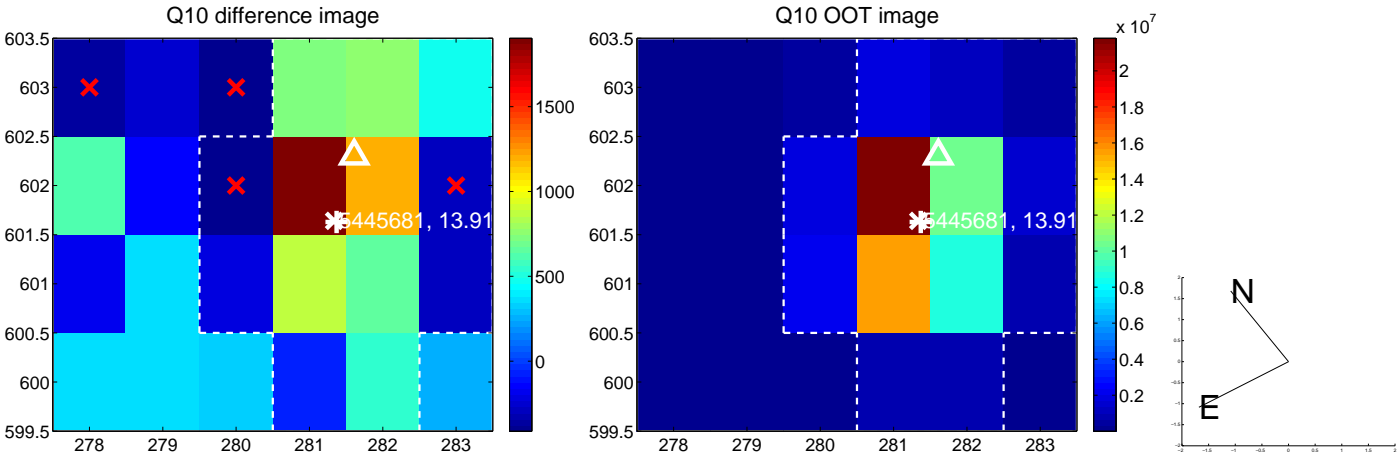
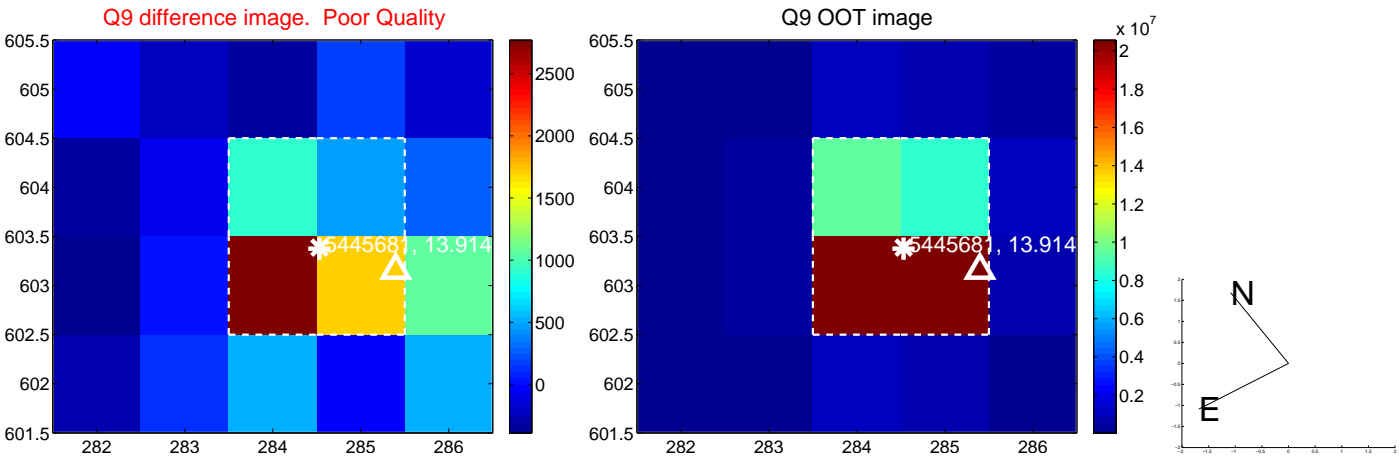
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



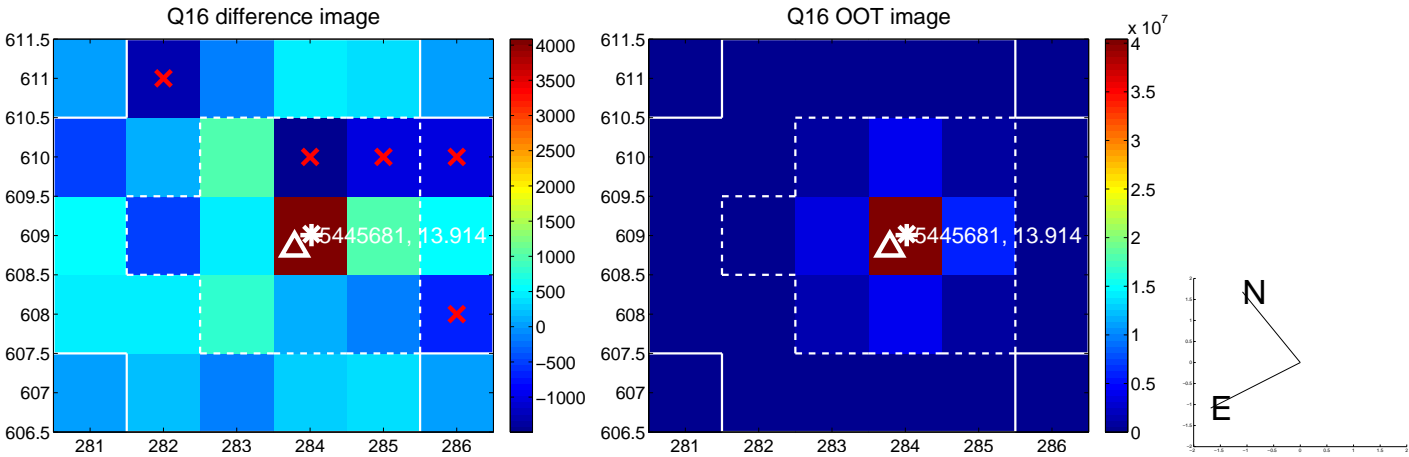
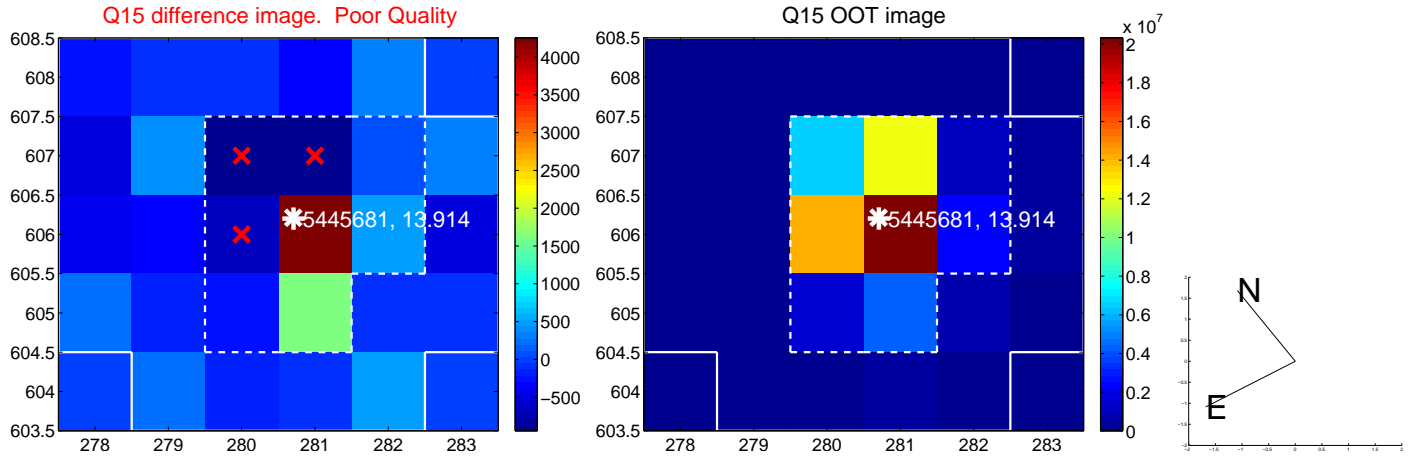
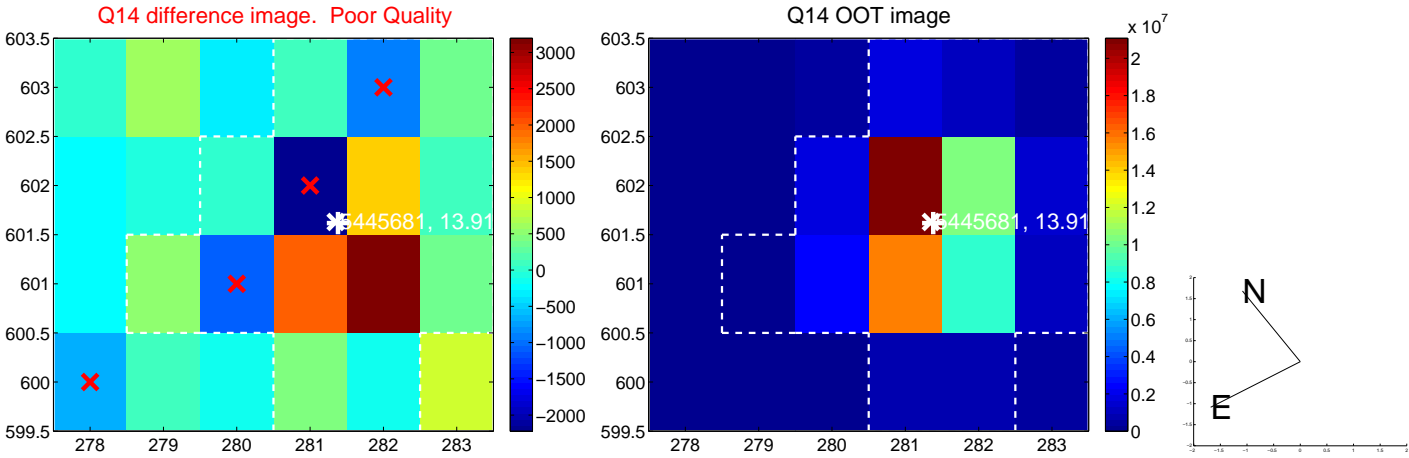
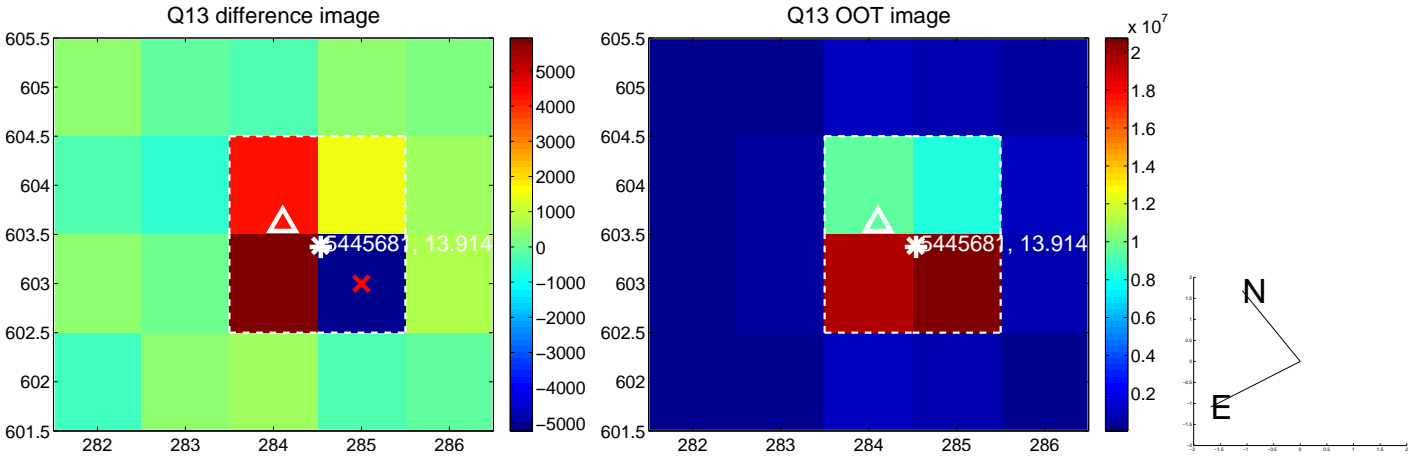
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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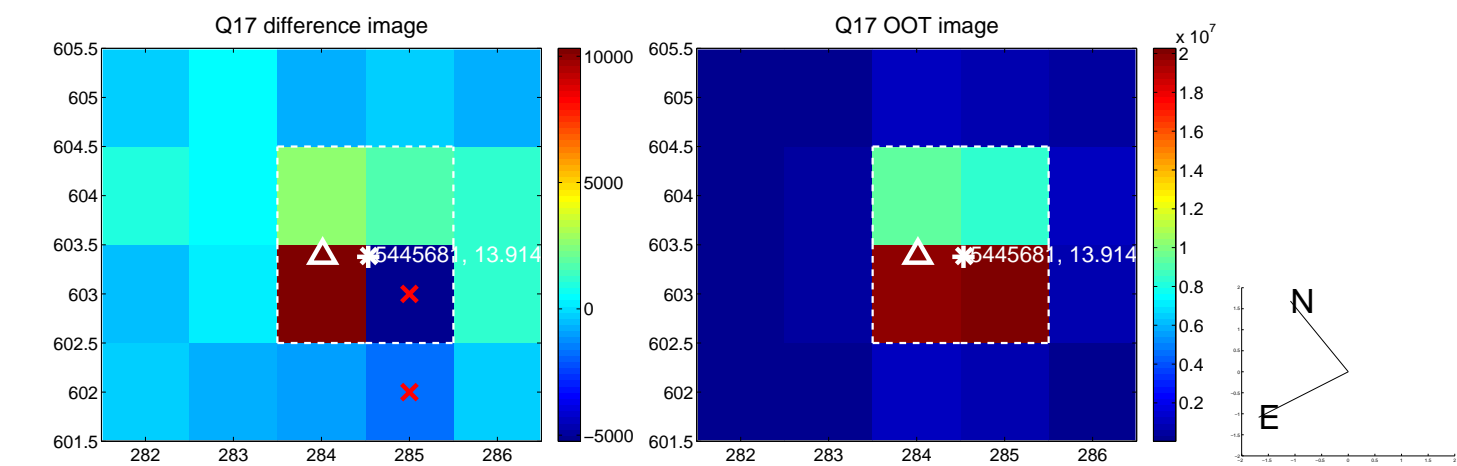


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

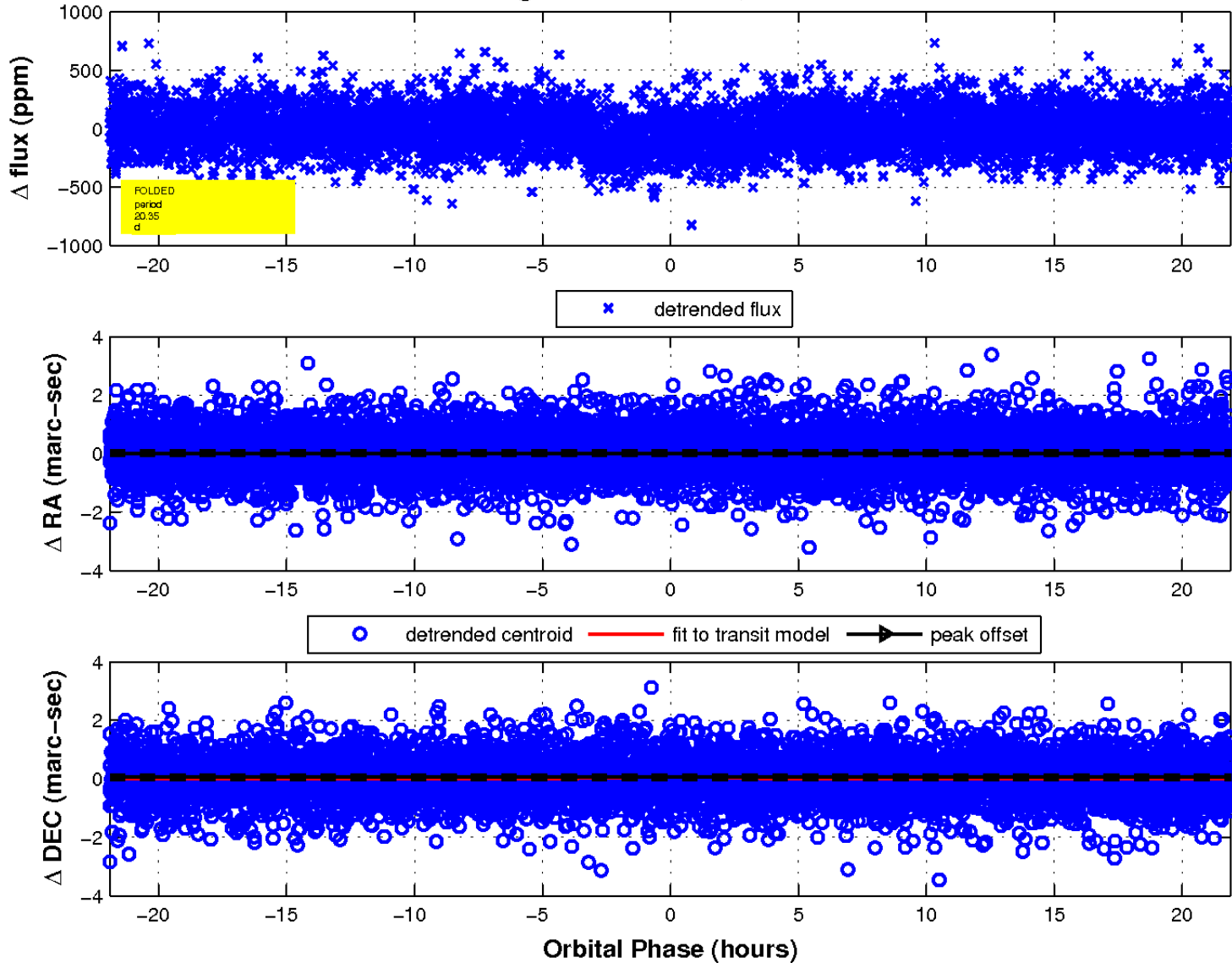




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

