

# KIC 009592818

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009592818-01	OBS	No	0.609649	131.937915	16.9	3.987	8.2	7.2	0.63	5227	0.27	1825.19

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009592818-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH

**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.

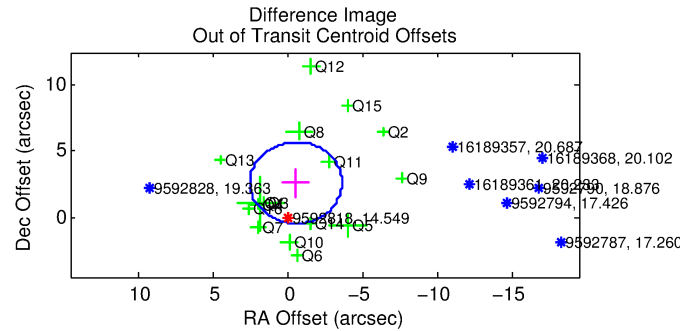
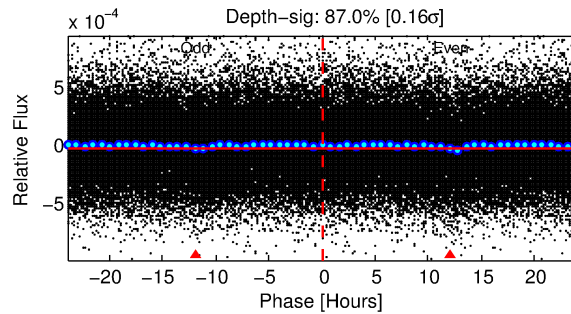
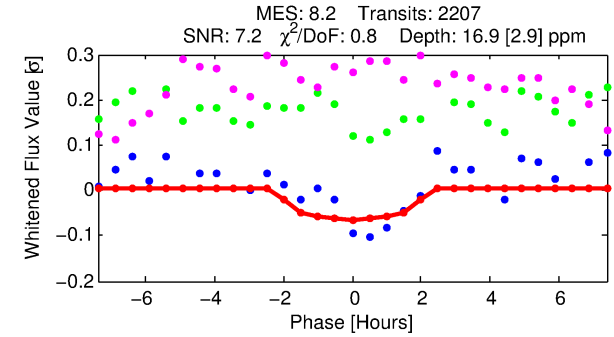
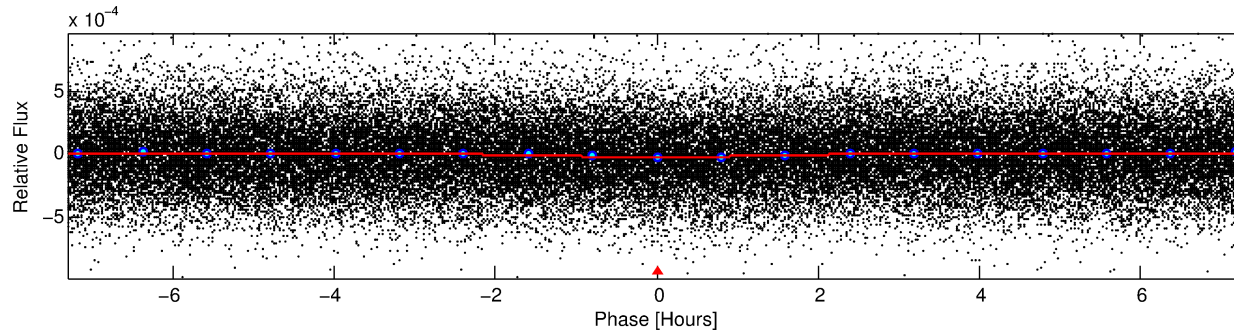
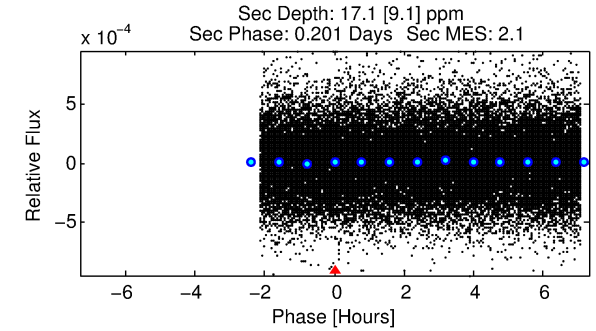
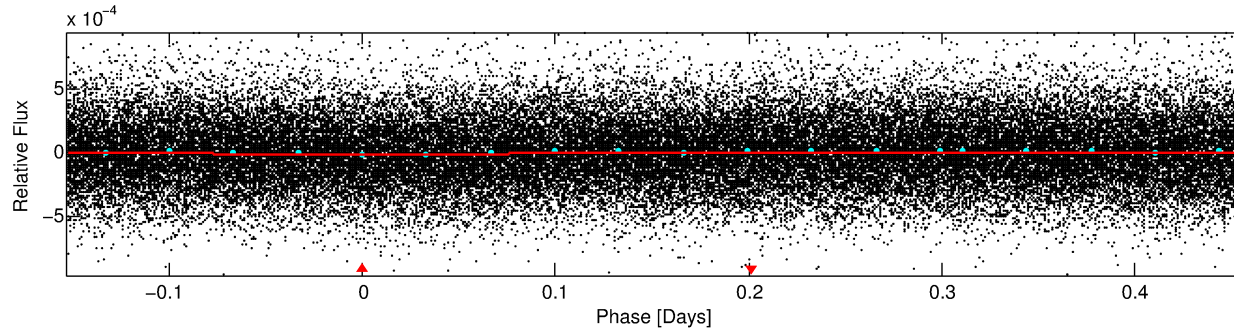
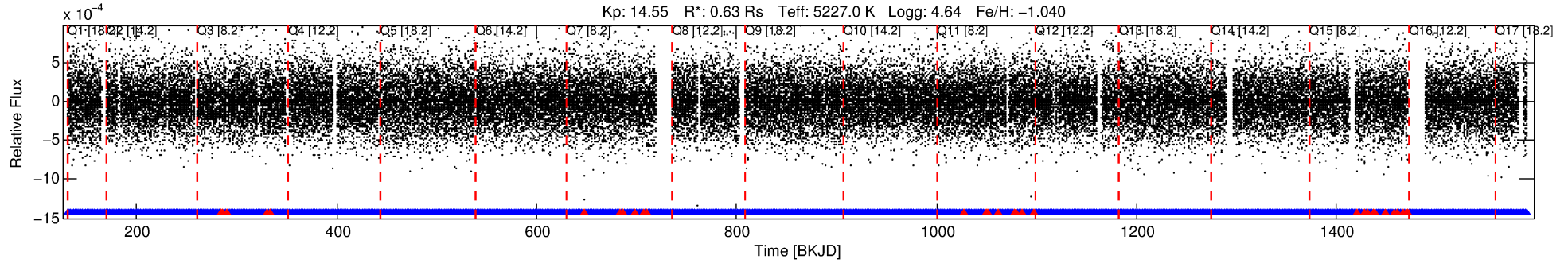
## Ephemeris Match Information For 009592818-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
009592818-01	9592818	3883.01	9592850	1:2	59.4	0	-15	16.40	14.55	27482.00	Direct-PRF	0	4.25	0.94

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 9592818 Candidate: 1 of 1 Period: 0.610 d



## DV Fit Results:

Period = 0.60965 [0.00001] d  
Epoch = 131.9379 [0.0065] BKJD  
Rp/R\* = 0.0039 [0.0043]  
a/R\* = 1.24 [2.19]  
b = 0.54 [6.63]  
Seff = 1825.19 [307.60]  
Teq = 1667 [70] K  
Rp = 0.27 [0.30] Re  
a = 0.0120 [0.0009] AU  
Ag = 19.26 [44.38] [0.41σ]  
Teffp = 5398 [3110] K [1.20σ]

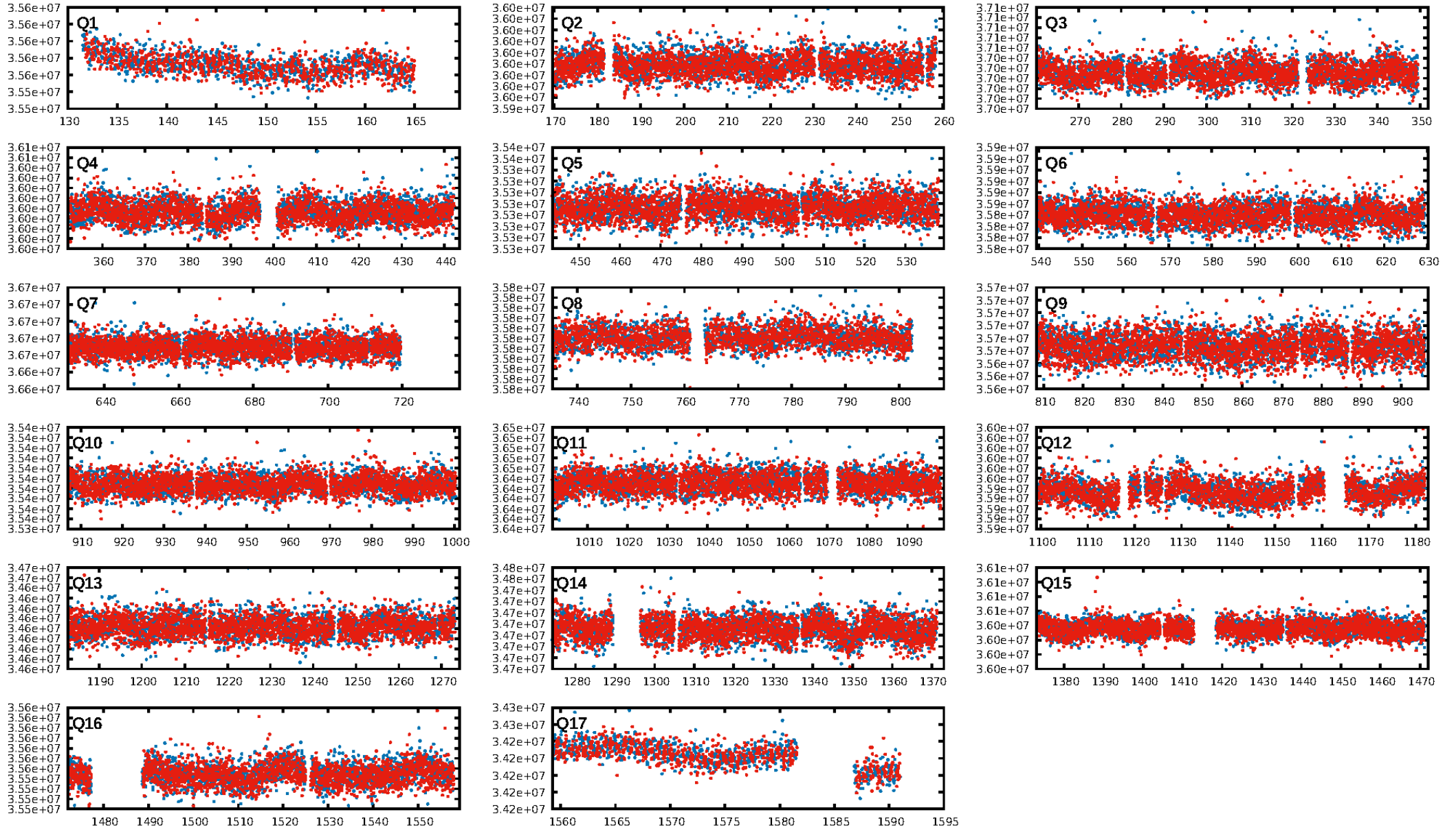
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 2.00e-10**  
RollingBand-fgt: 0.98 [2076/2109]  
**GhostDiagnostic-chr: 0.2066**  
Centroid-sig: N/A  
Centroid-so: 5.617 arcsec [2.90σ]  
OotOffset-rm: 2.684 arcsec [2.62σ]  
KicOffset-rm: 2.562 arcsec [2.37σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.31 [5/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:40:31 Z

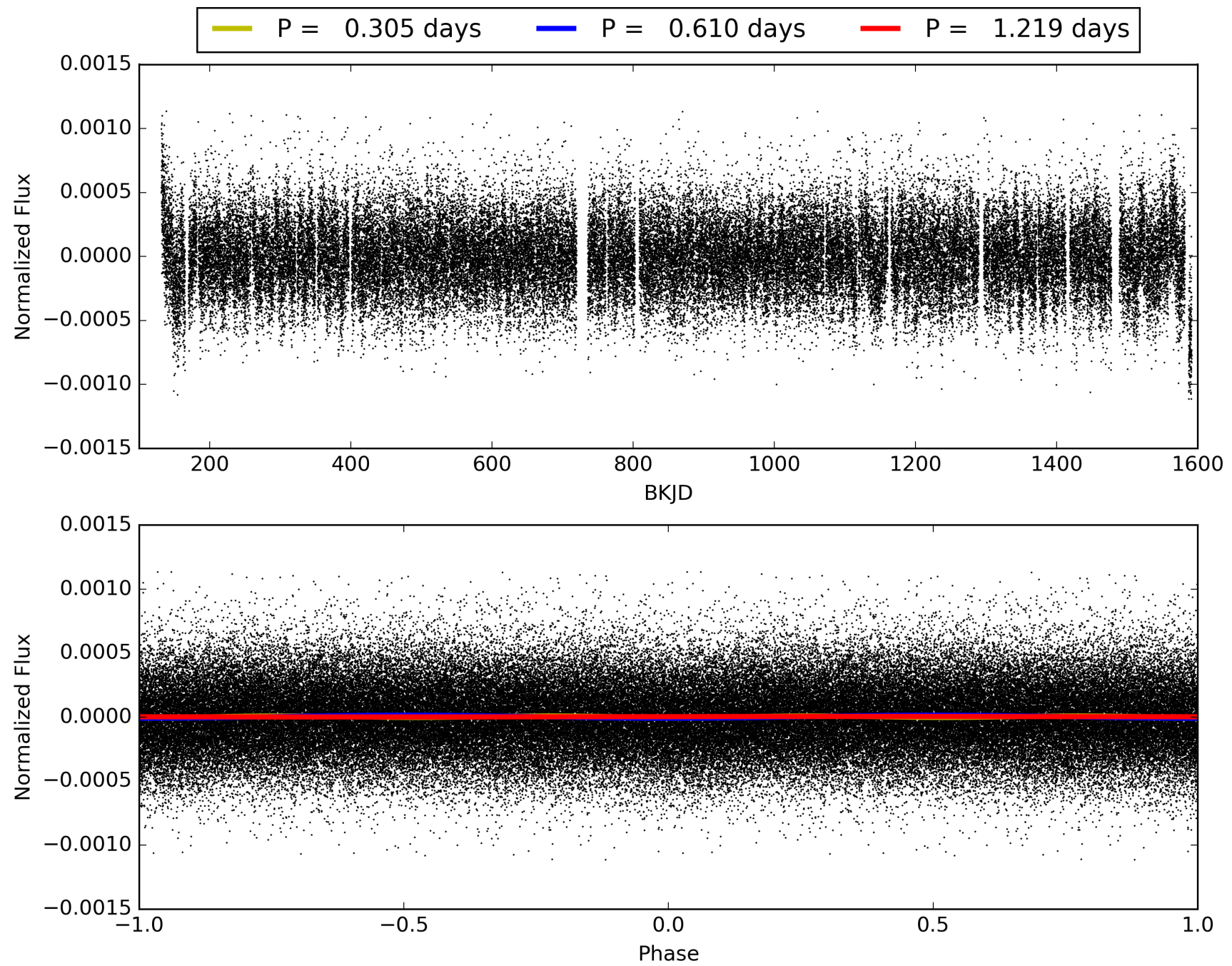
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009592818-01, PDC Light Curves



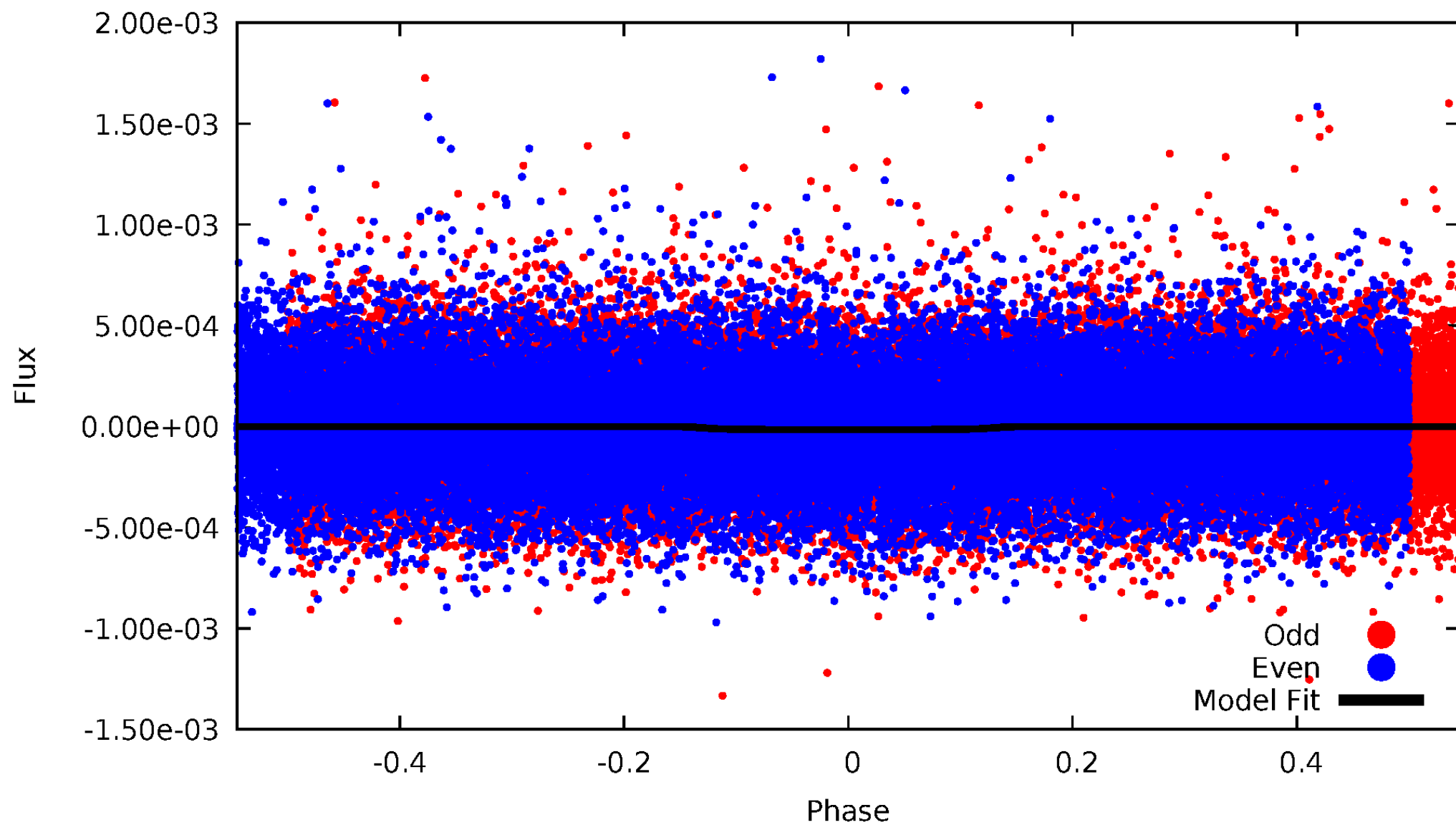


TCE 009592818-01



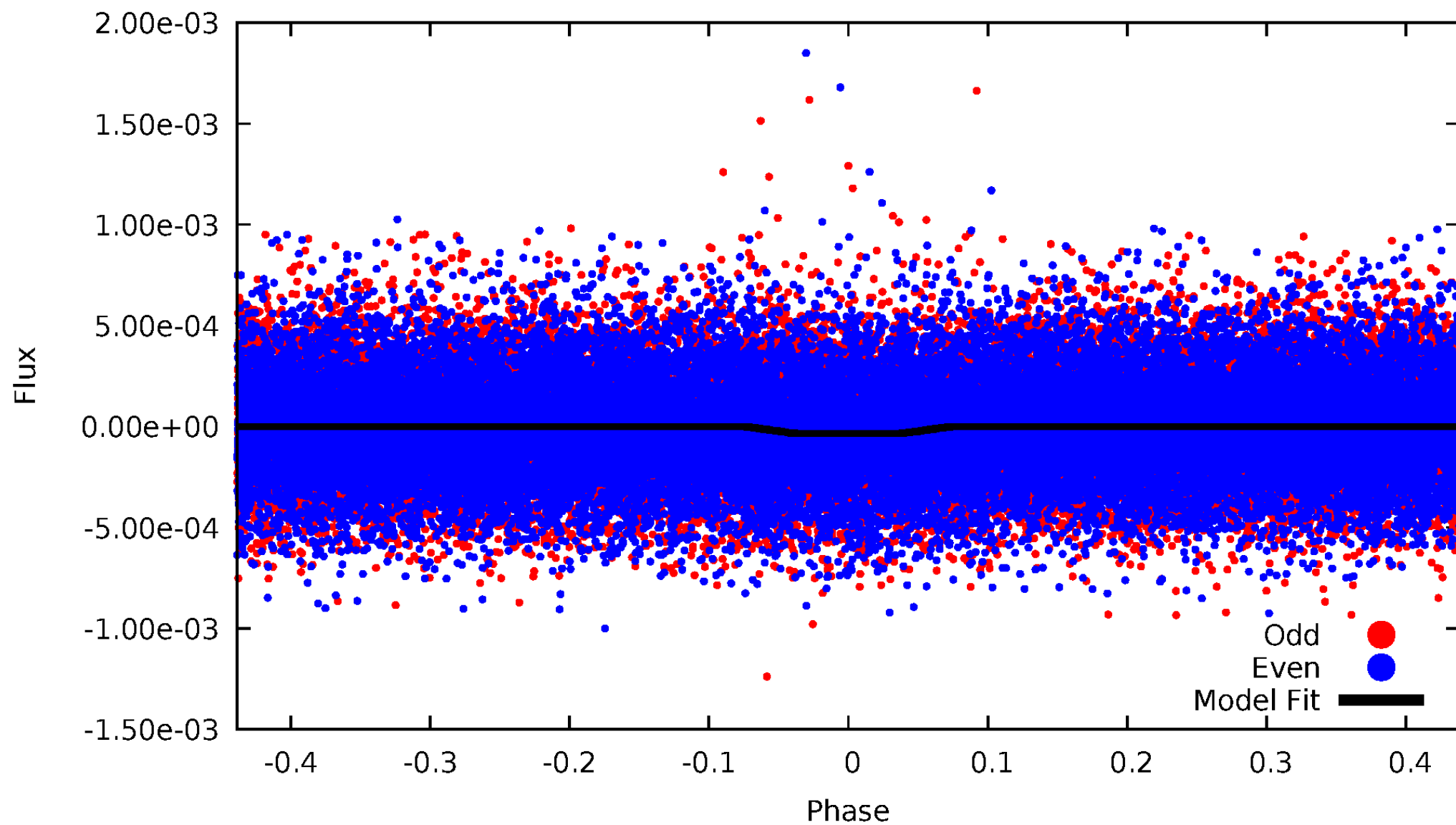
# DV Odd/Even

TCE 009592818-01



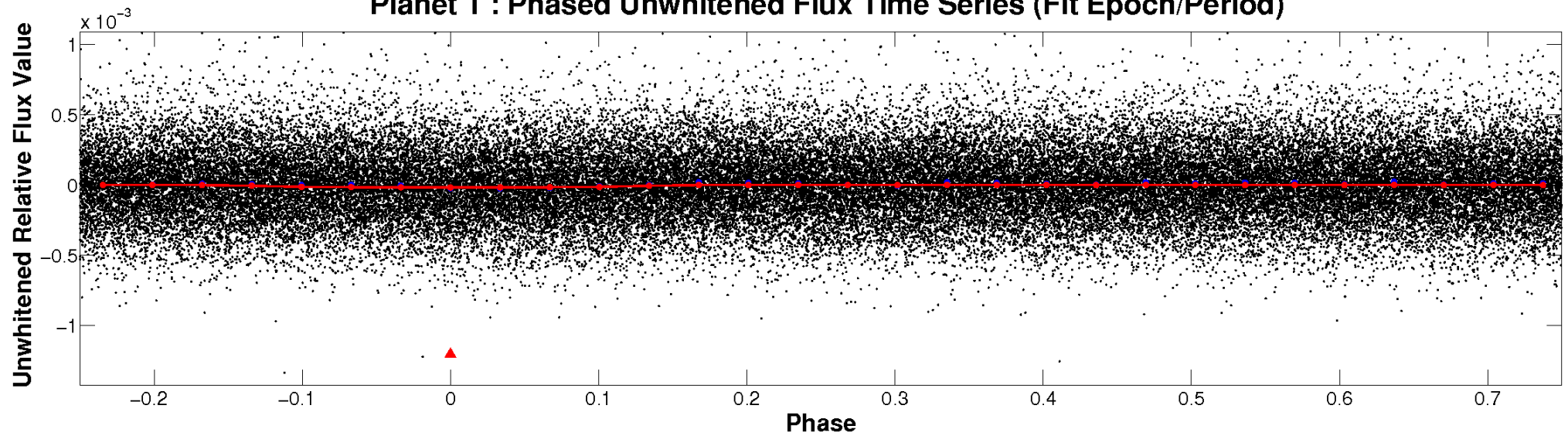
# ALT Odd/Even

TCE 009592818-01

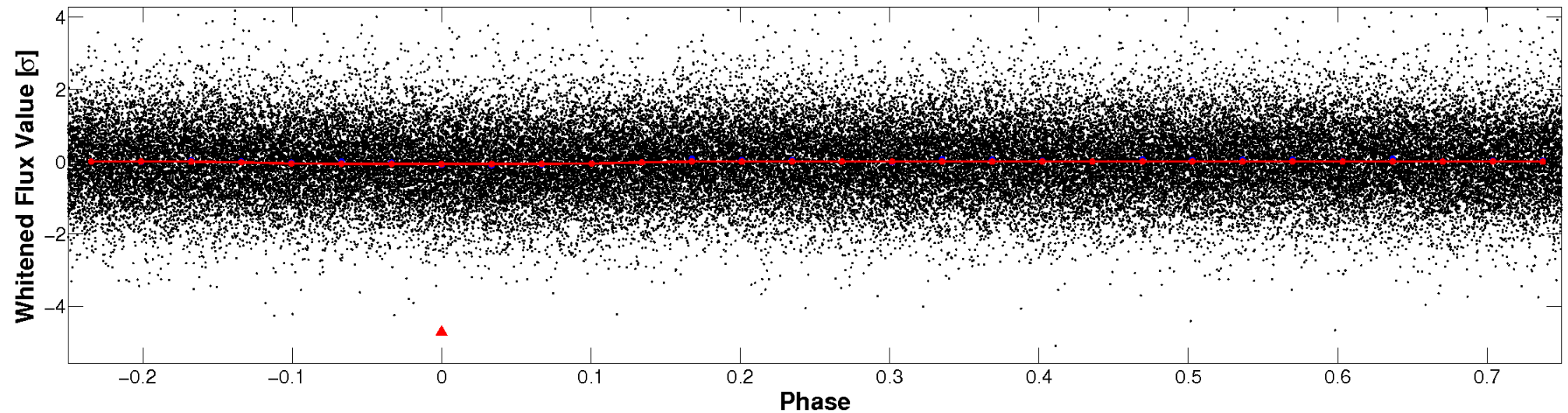


# Non-Whitened Vs. Whitened Light Curve

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



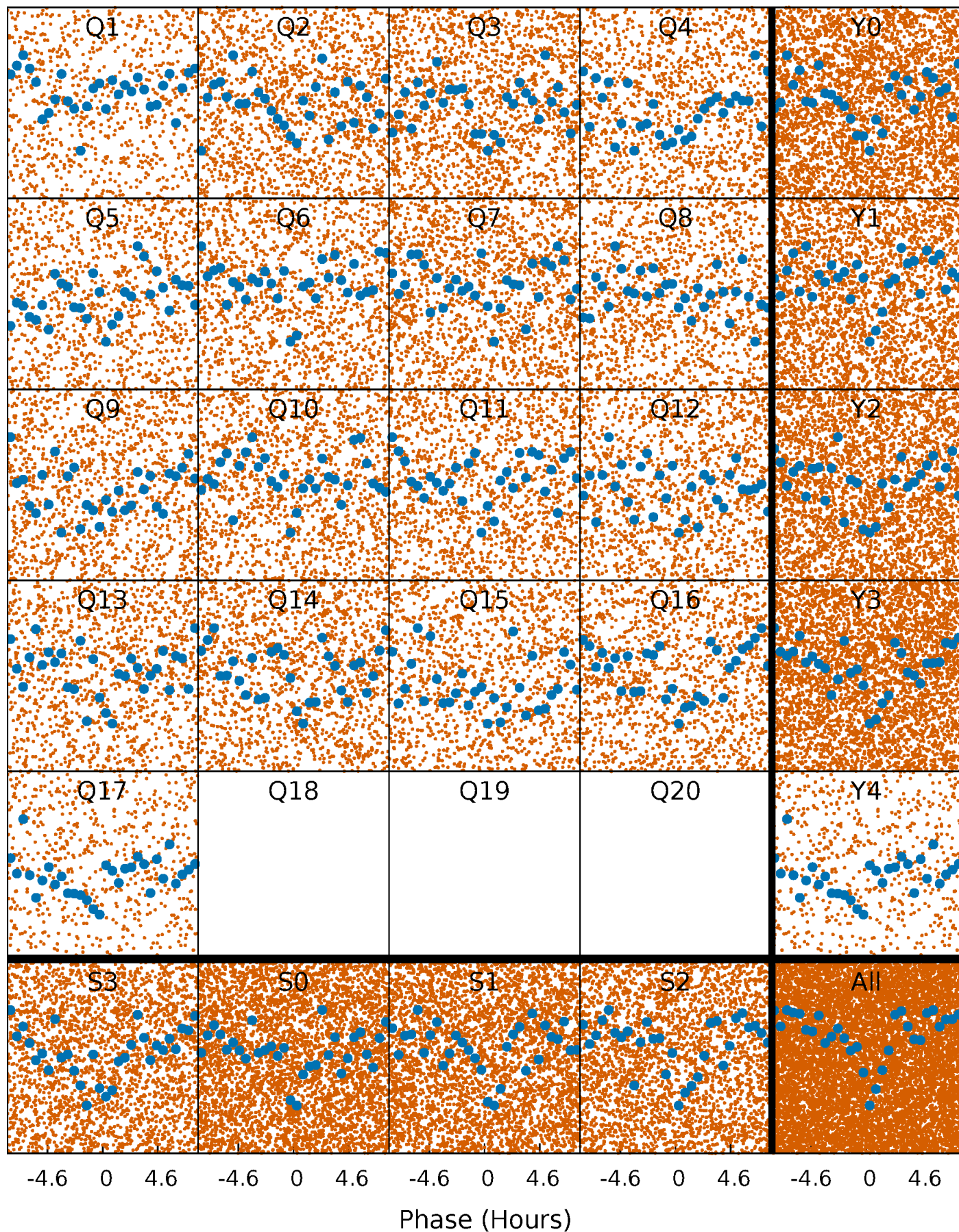
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

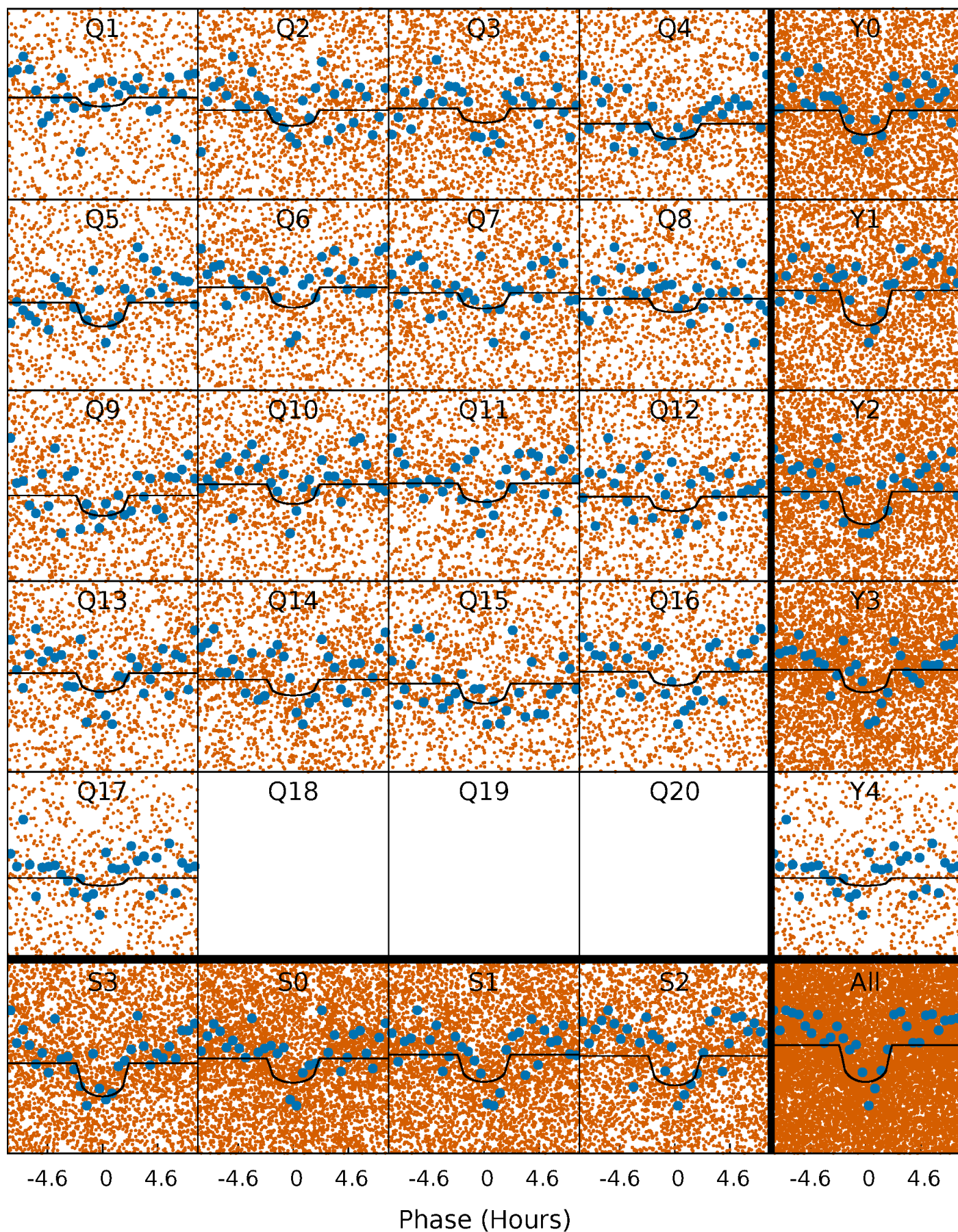
TCE 009592818-01 P= 0.609649 Days  $T_0=131.937915$  (BKJD)





# DV Quarter-Phased Transit Curves

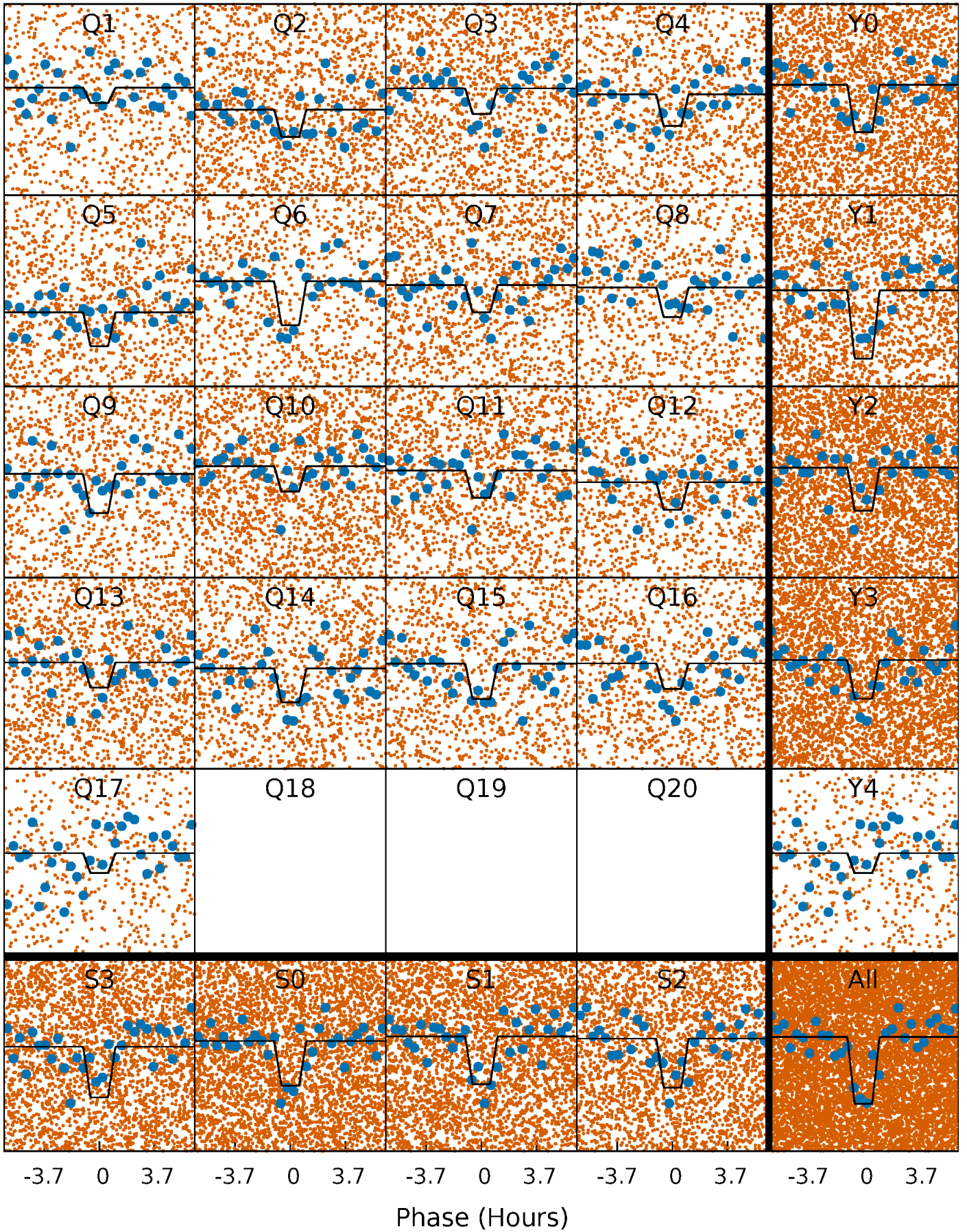
TCE 009592818-01   P= 0.609649 Days    $T_0=131.937915$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

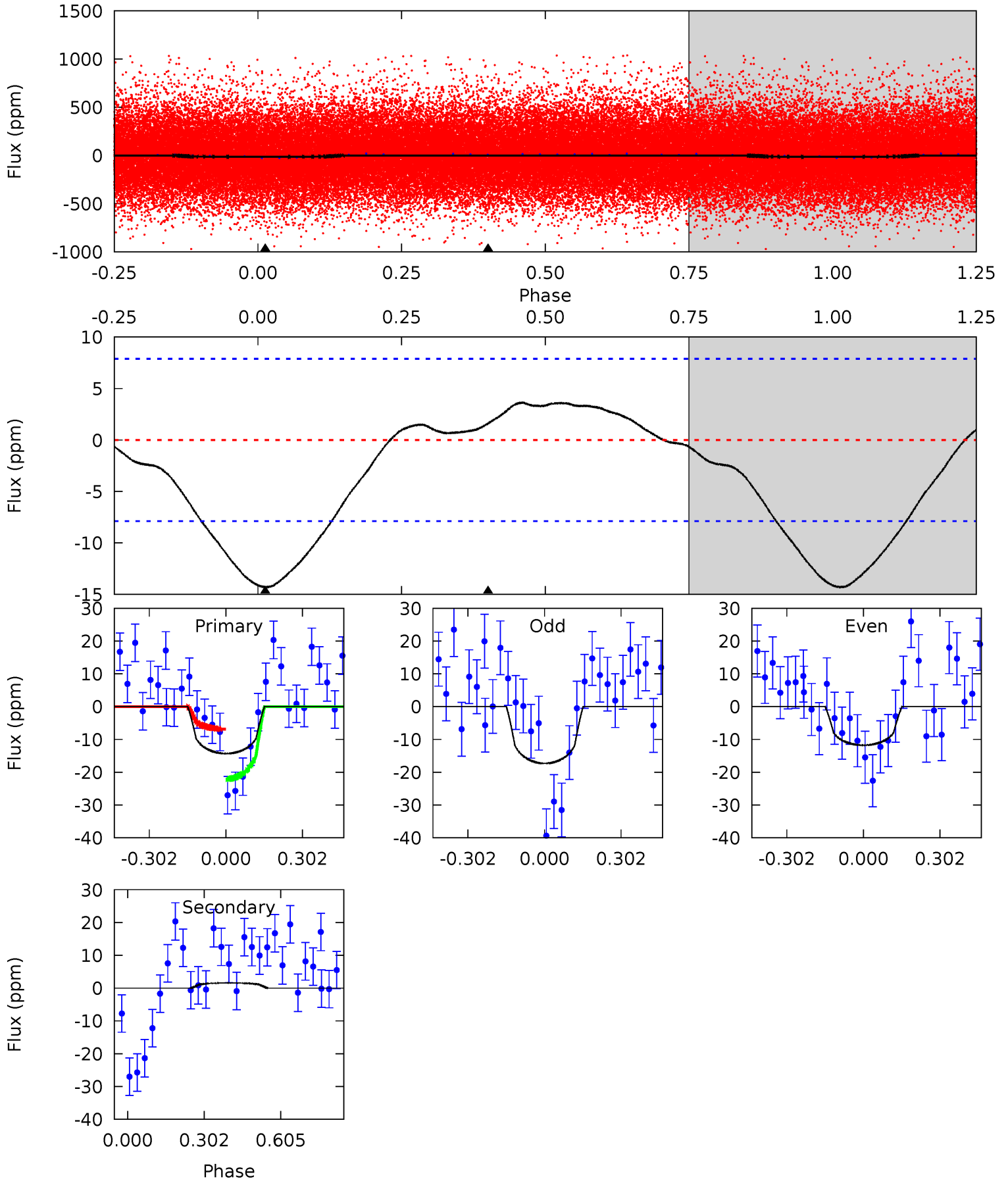
TCE 009592818-01 P= 0.609663 Days  $T_0=131.940728$  (BKJD)



# DV Model-Shift Uniqueness Test

009592818-01, P = 0.609649 Days, E = 131.328266 Days

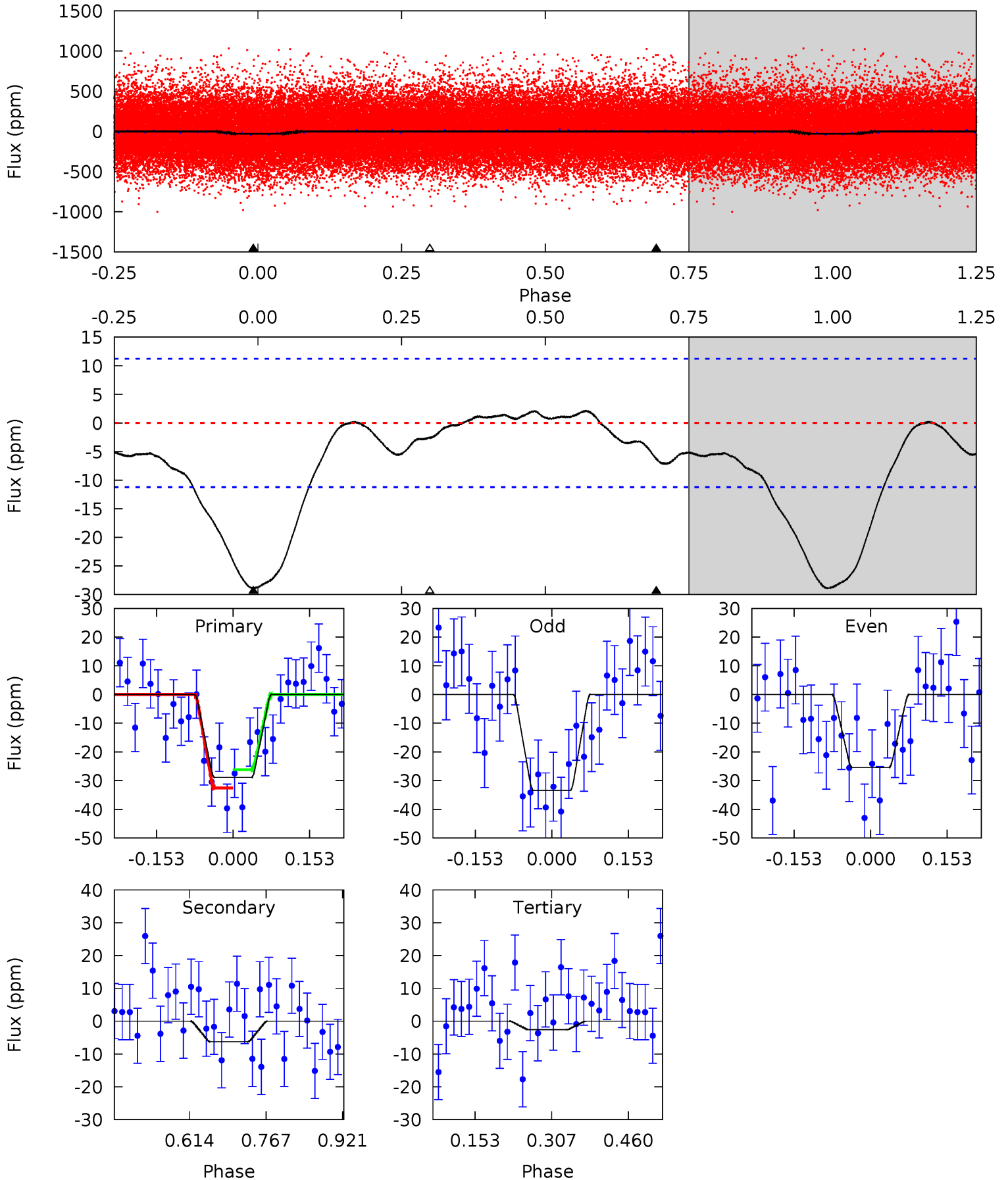
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.86	-0.87	0	0	4.33	1.03	0.39	7.86	7.86	-0.87	-0.87	1.55	0.78	0.20	4.21



# Alt Model-Shift Uniqueness Test

009592818-01, P = 0.609663 Days, E = 131.331065 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
11.5	2.50	1.04	0	4.47	1.43	0.85	10.5	11.5	1.46	2.50	1.58	0.92	0.07	1.26





### Stellar Parameters For KIC 009592818

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5227^{+156}_{-156}$	$4.636^{+0.070}_{-0.040}$	$-1.040^{+0.300}_{-0.300}$	$0.627^{+0.048}_{-0.048}$	$0.619^{+0.053}_{-0.023}$	$3.539^{+0.930}_{-0.509}$
	+3%/-3%	+2%/-1%	+29%/-29%	+8%/-8%	+9%/-4%	+26%/-14%
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 009592818-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$2\pm 2$	$0.31^{+0.27}_{-0.19}$	$2319^{+86}_{-93}$	$-3228^{+775}_{-1239}$	$-0.829^{+0.981}_{-6.569}$
Alt.	$-6\pm 3$	$0.44^{+0.27}_{-0.27}$	$2314^{+80}_{-80}$	$3527^{+1444}_{-659}$	$2.384^{+12.781}_{-1.584}$

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

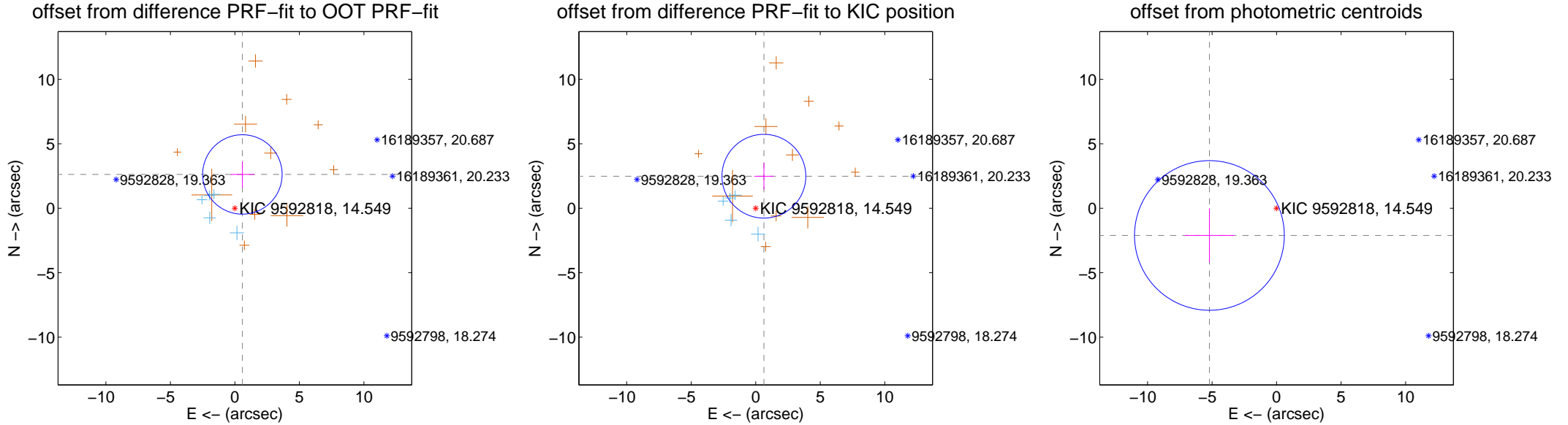
## DV Centroid Data

Supplemental centroid analysis for 009592818-01. Kepler magnitude: 14.55. Transit SNR 7.18

There are 5 quarters with good PRF difference image offsets

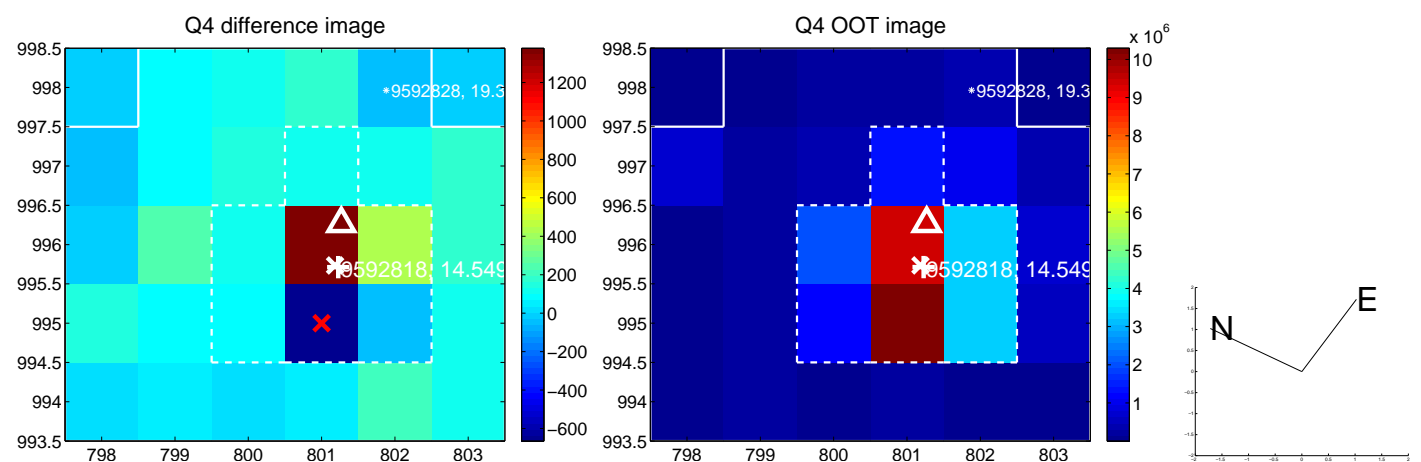
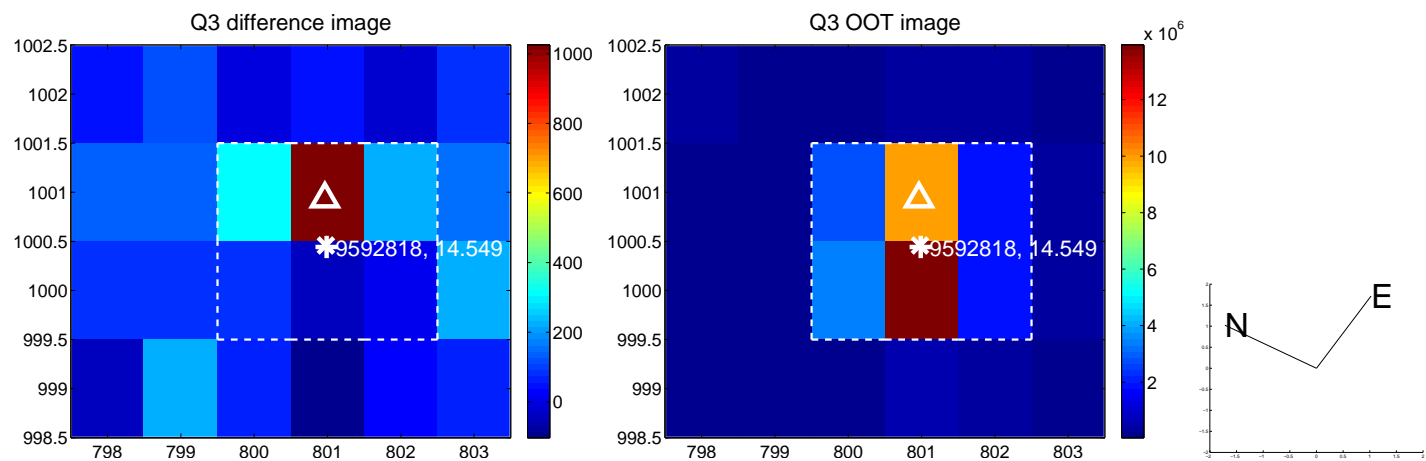
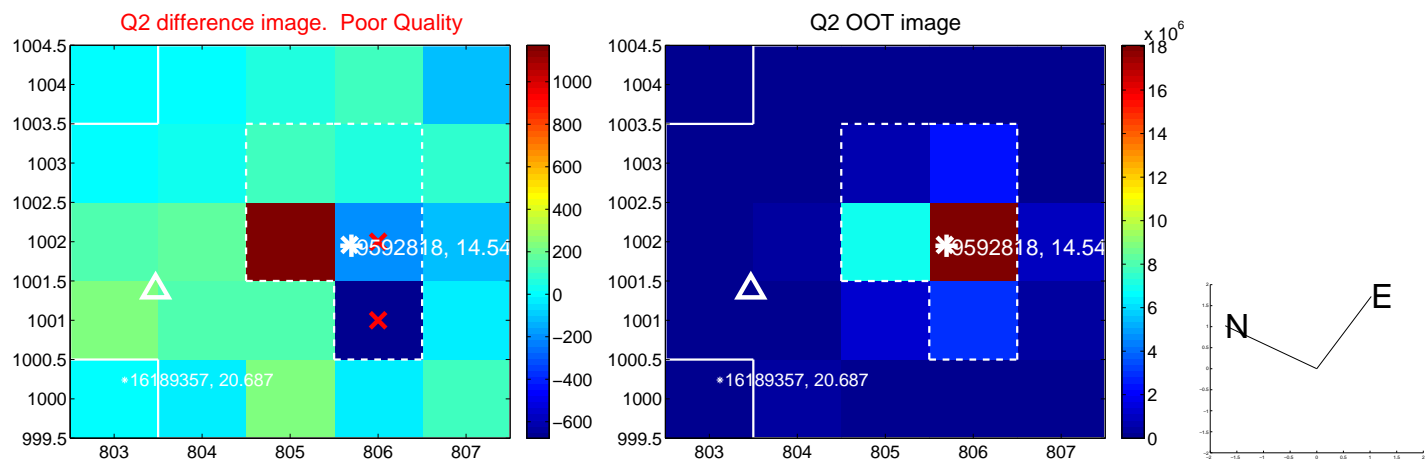
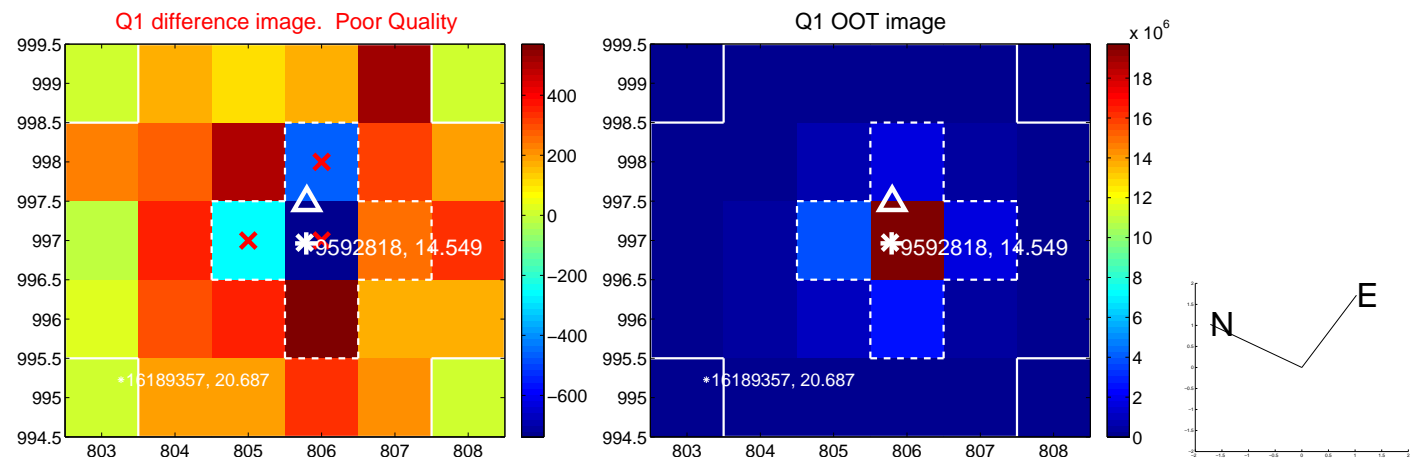
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.684 \pm 1.026$	2.62	$-0.579 \pm 0.919$	$2.621 \pm 1.031$
PRF-fit source offset from KIC position	$2.562 \pm 1.083$	2.37	$-0.630 \pm 0.750$	$2.484 \pm 1.032$
photometric centroid source offset	$5.62 \pm 1.93$	2.90	$5.21 \pm 1.91$	$-2.11 \pm 2.10$

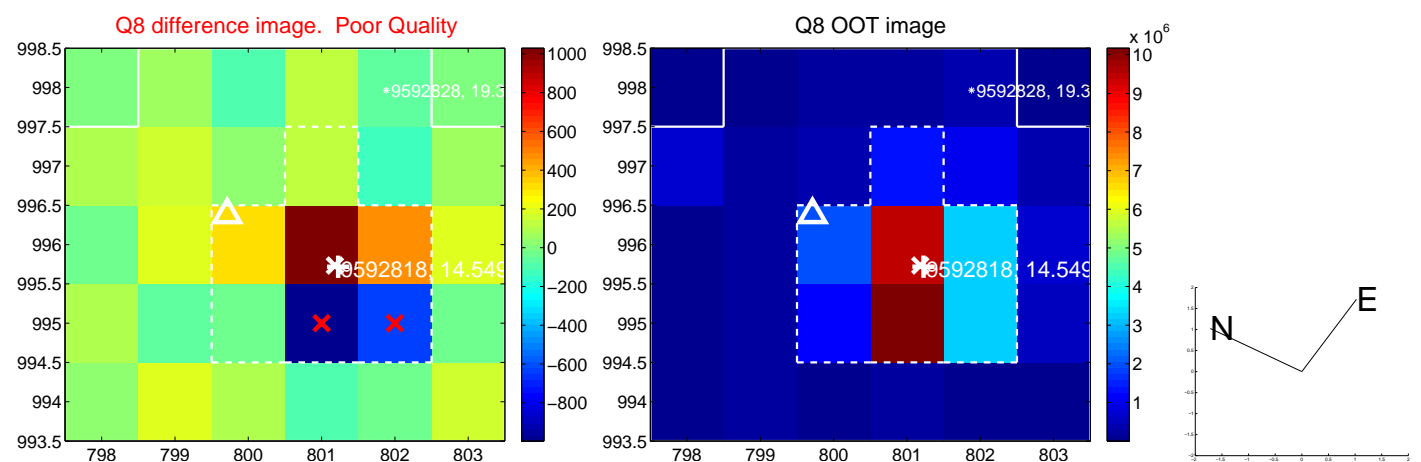
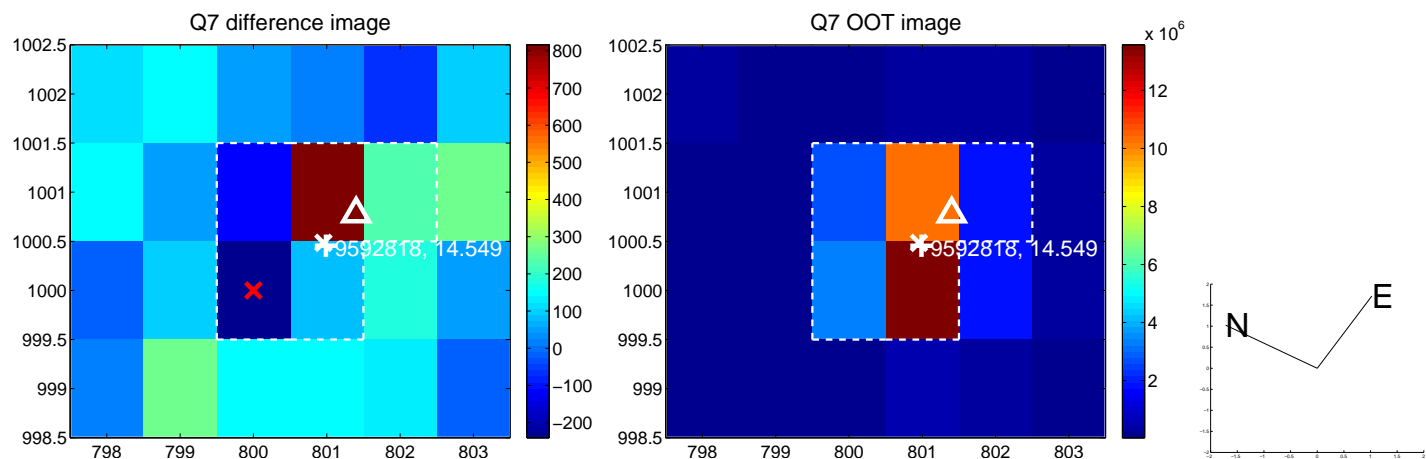
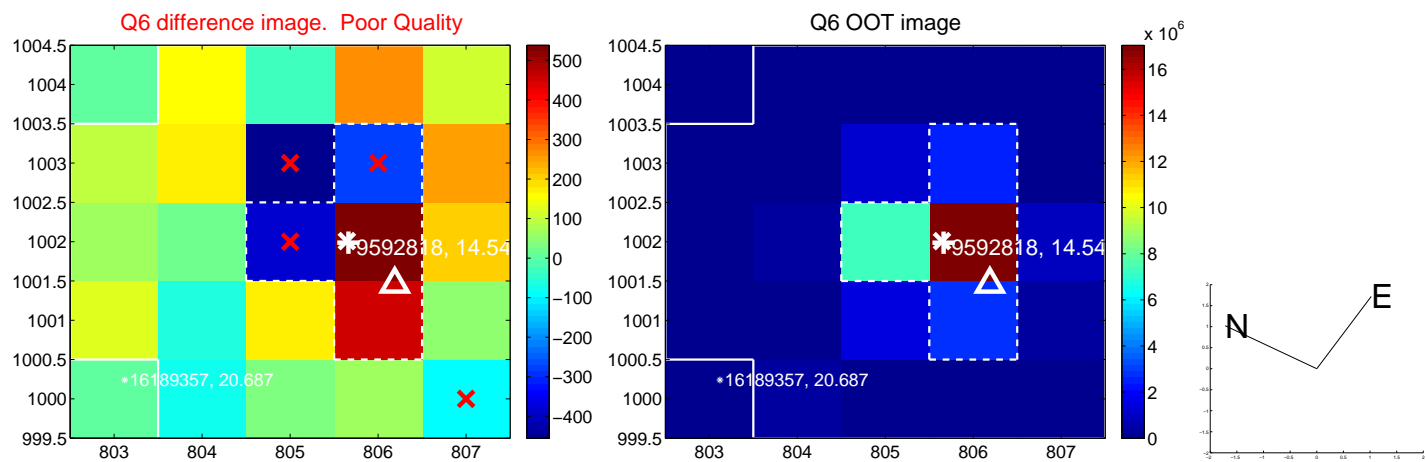
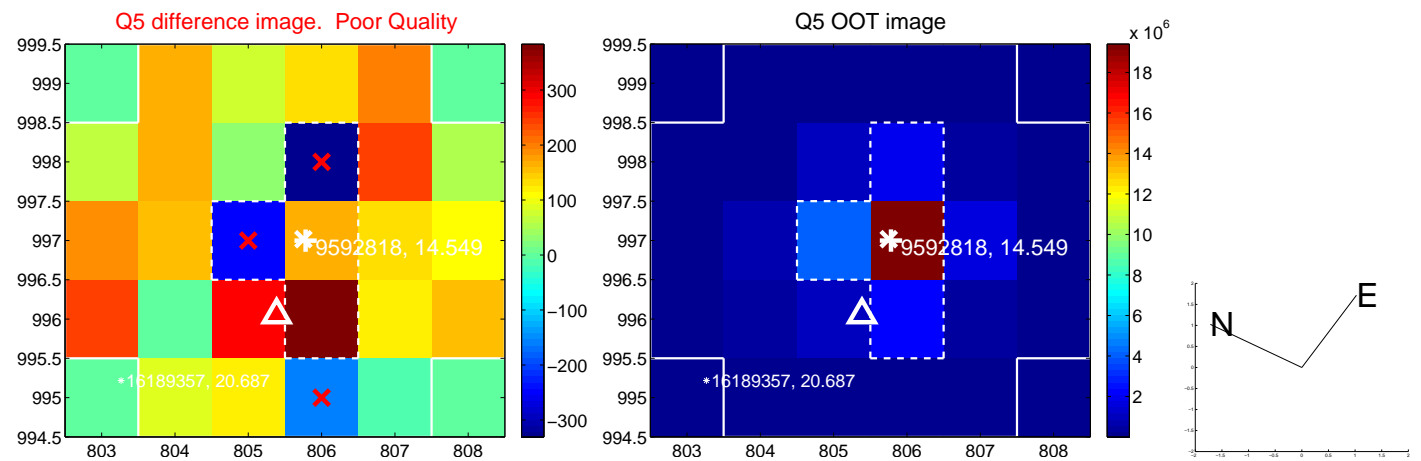


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

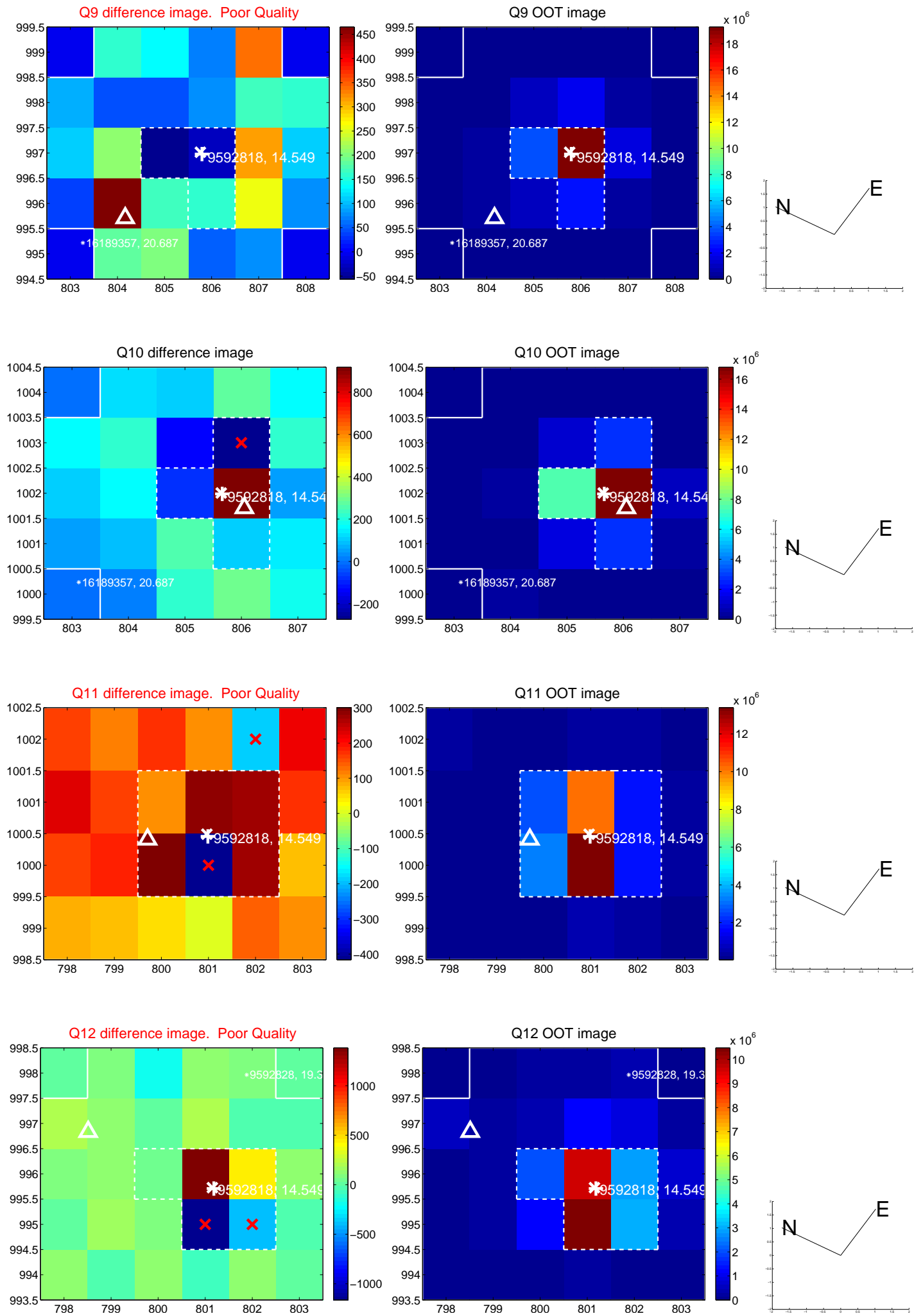


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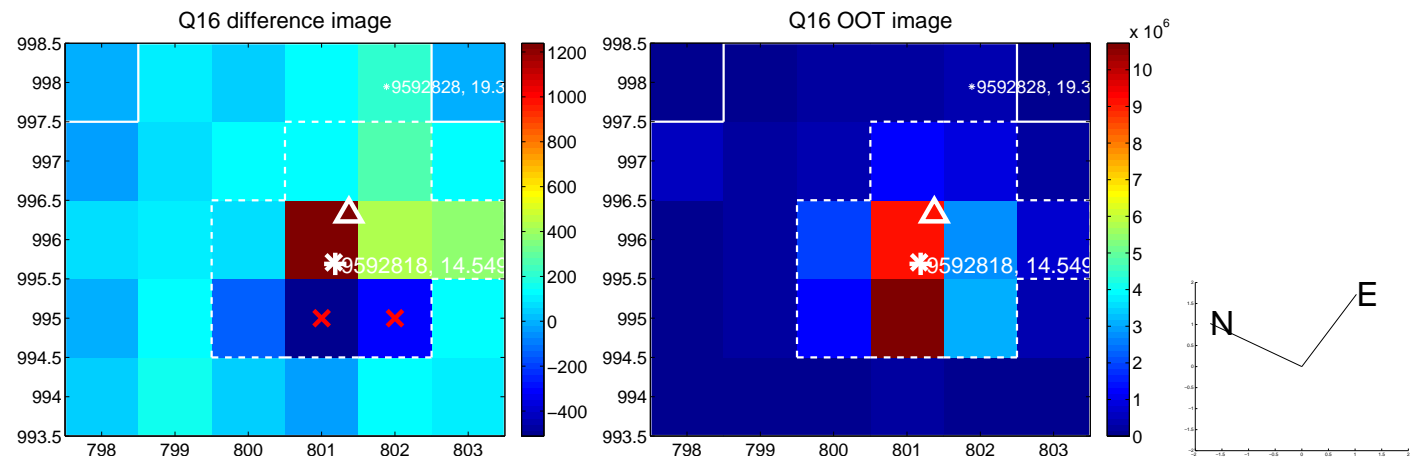
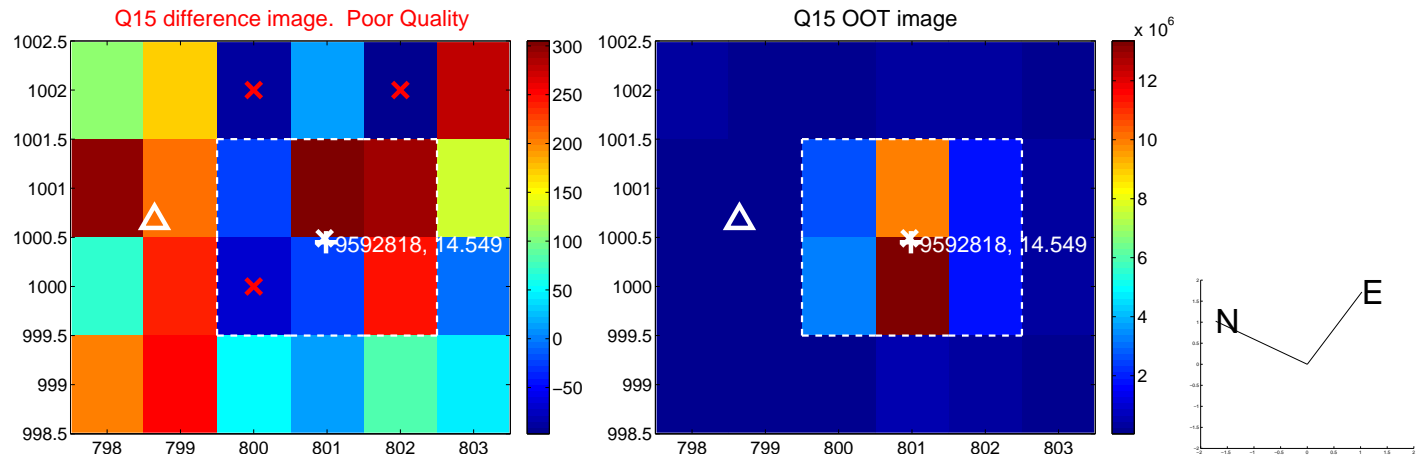
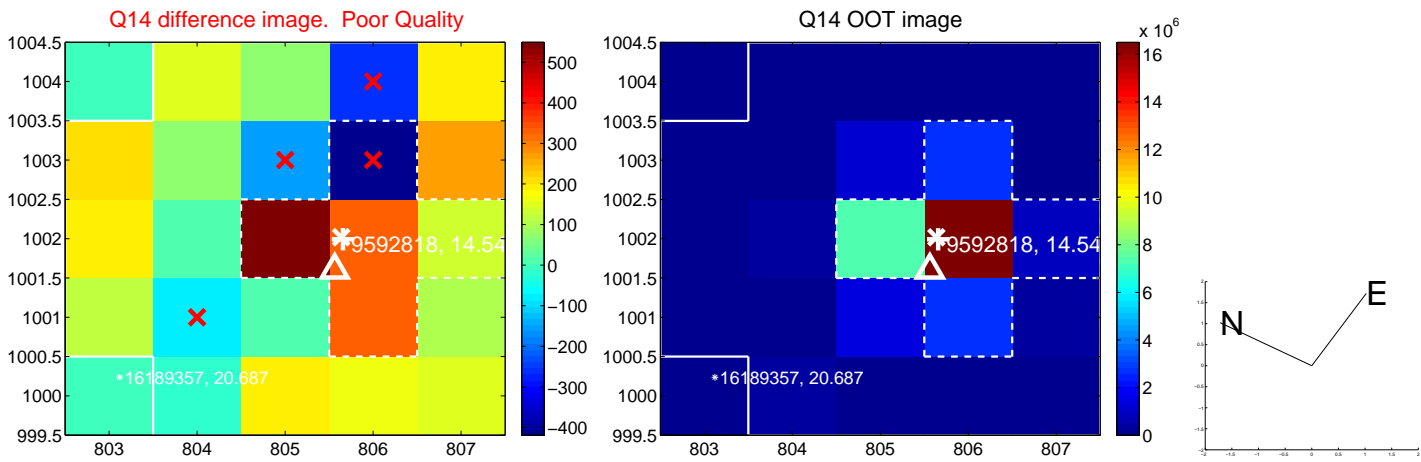
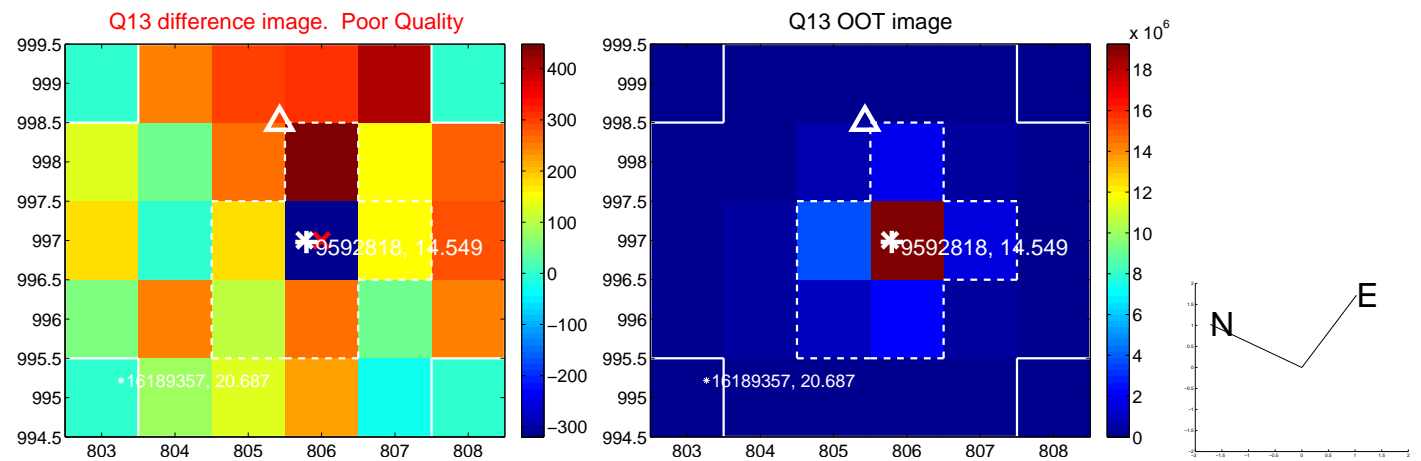




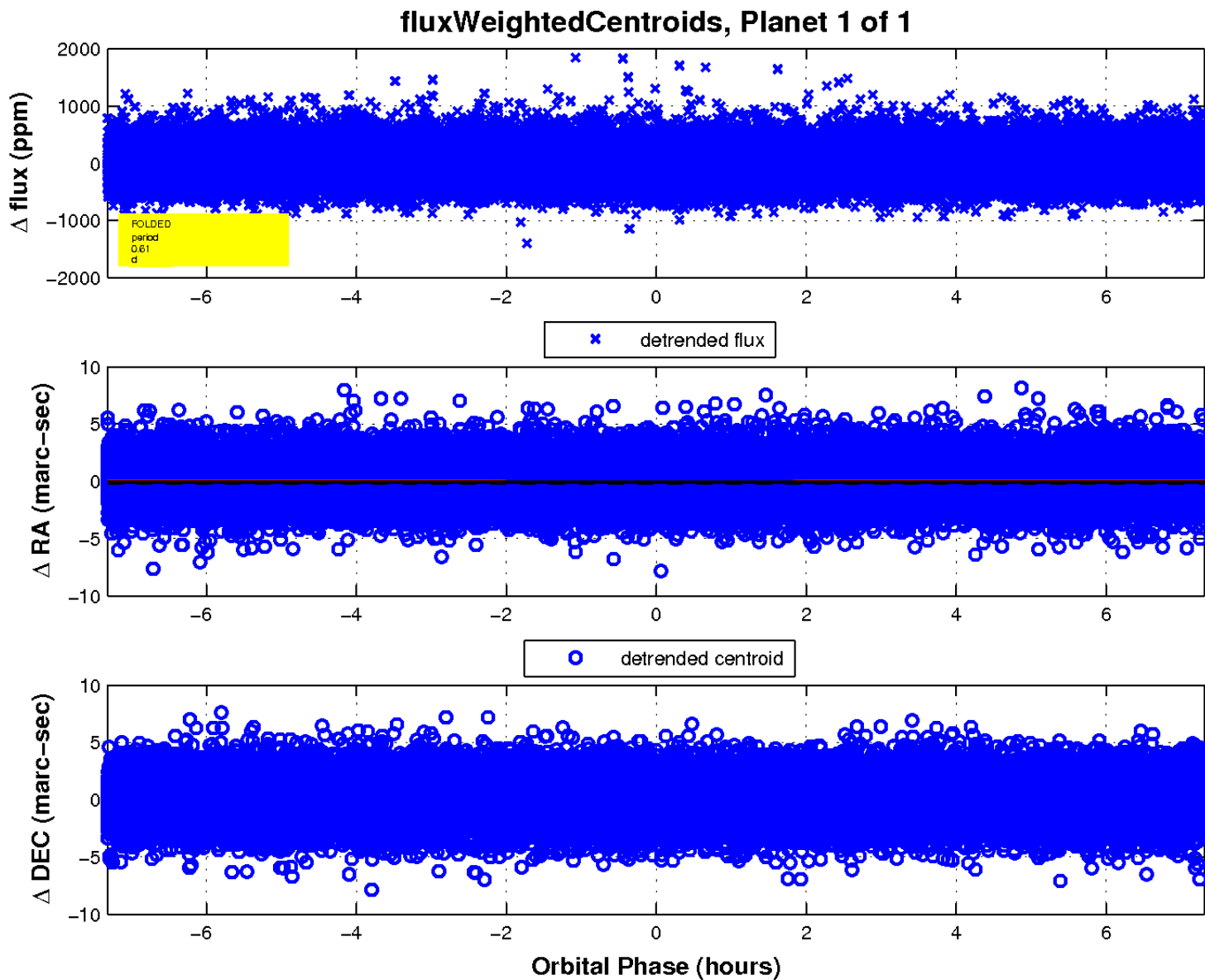
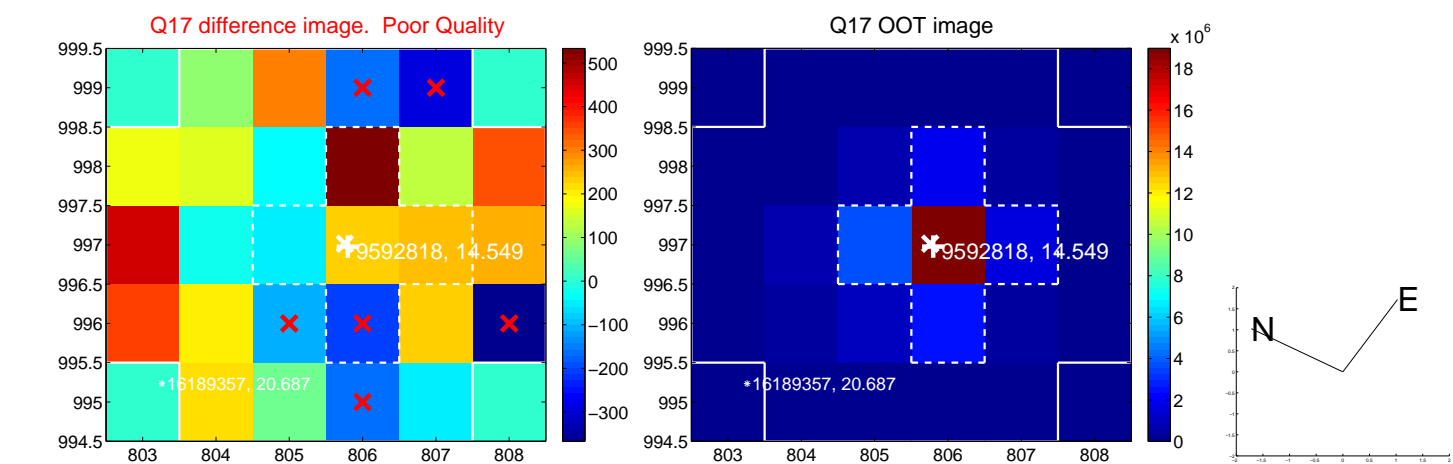
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UKIRT Image

Declination

