

# KIC 007030996

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007030996-01	OBS	No	0.566718	131.903862	4.3	4.387	10.8	2.7	1.03	6341	0.22	8136.47

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007030996-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_UNRESOLVED_OFFSET—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.

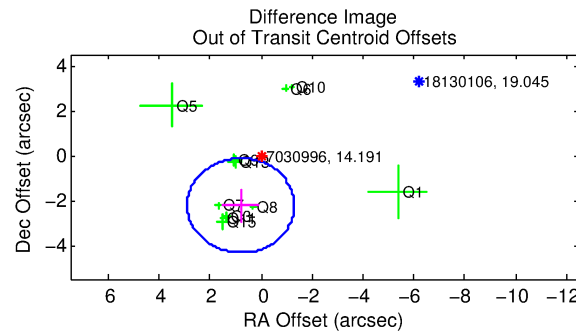
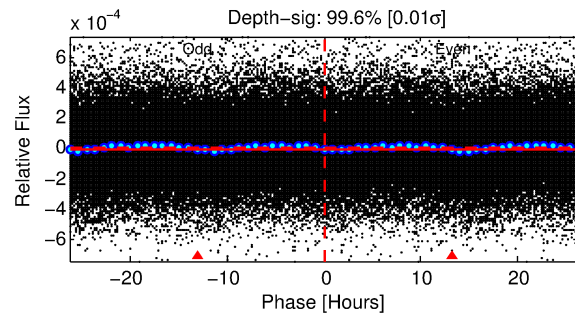
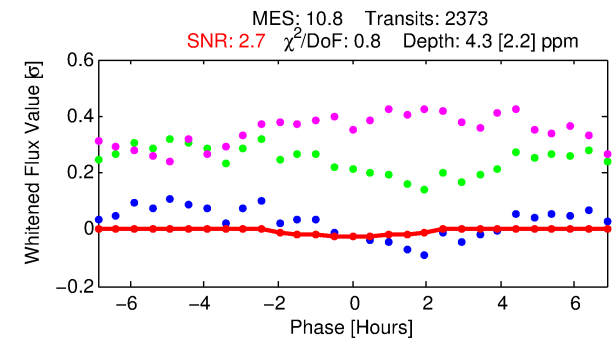
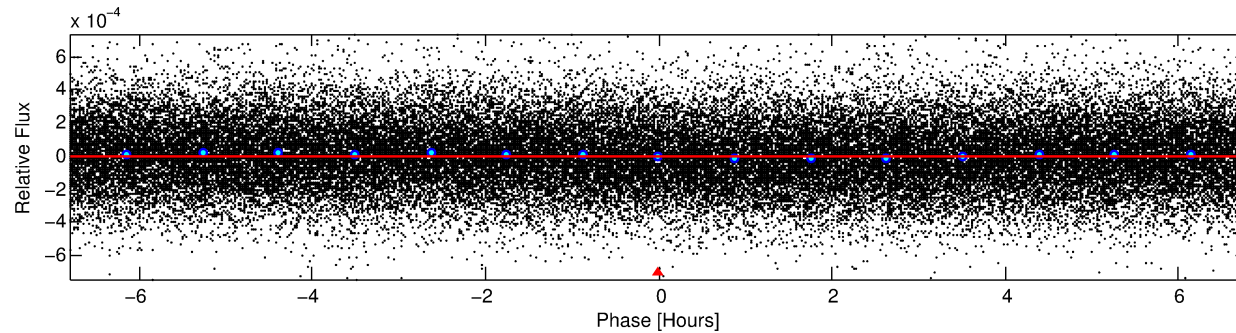
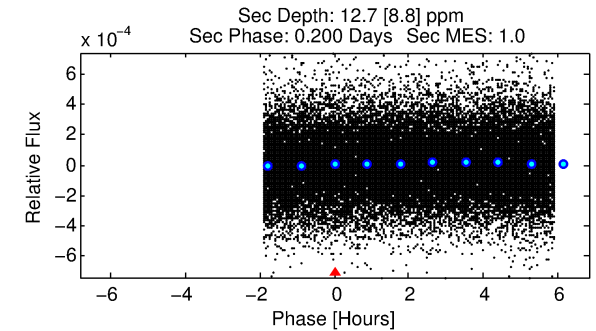
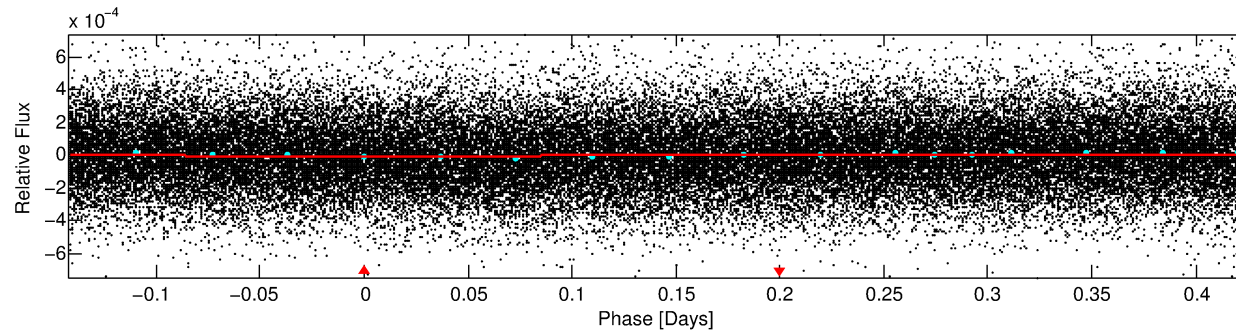
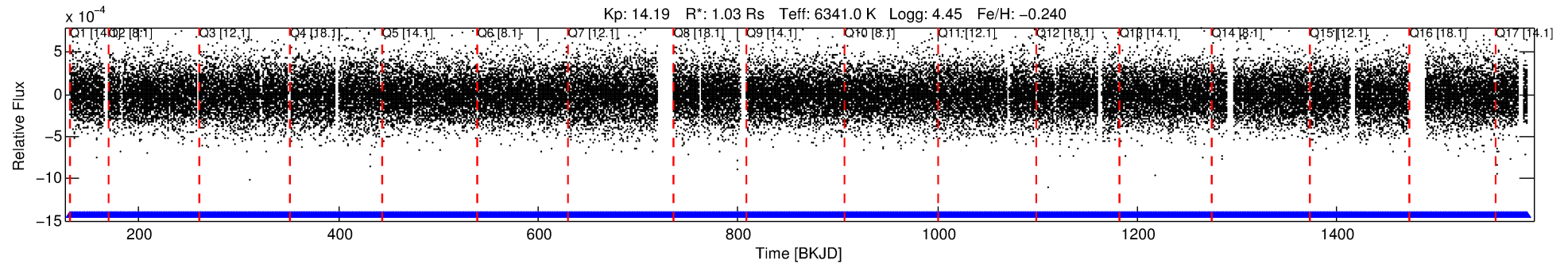
## Ephemeris Match Information For 007030996-01

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	$\sigma_P$	$\sigma_T$
007030996-01	7030996	RR-Lyr-pri	7198959	1:1	1320.1	-6	-332	7.86	14.19	155820.00	Direct-PRF	0	0.07	12.12

**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: 7030996 Candidate: 1 of 1 Period: 0.567 d



## DV Fit Results:

Period = 0.56672 [0.00004] d  
Epoch = 131.9039 [0.0187] BKJD  
Rp/R\* = 0.0019 [0.0089]  
a/R\* = 1.18 [7.95]  
b = 0.13 [184.80]  
Seff = 8136.47 [3218.24]  
Teq = 2422 [239] K  
Rp = 0.22 [1.00] Re  
a = 0.0138 [0.0035] AU  
Ag = 28.46 [264.29] [0.10σ]  
Teffp = 8649 [20061] K [0.31σ]

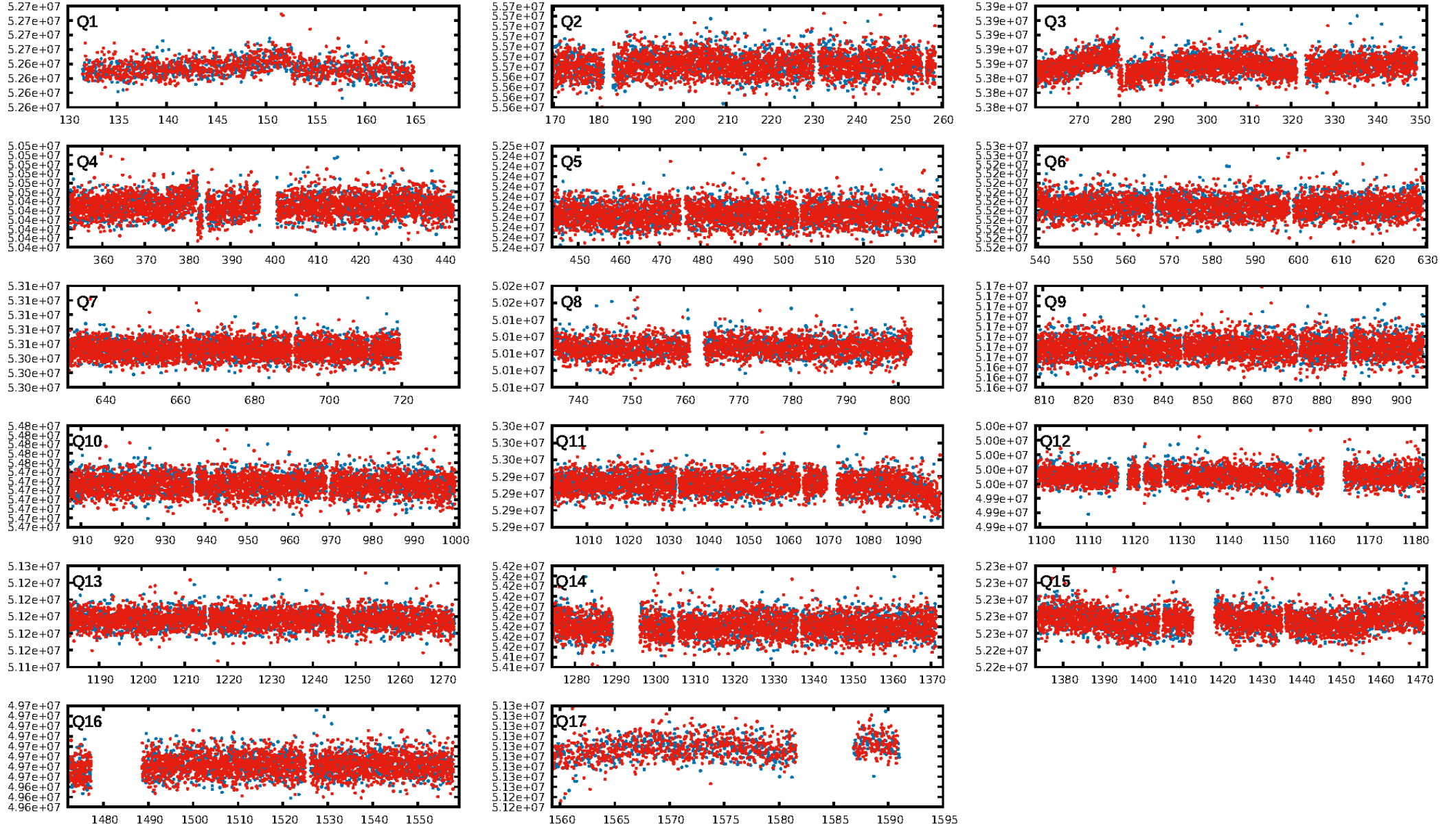
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2267/2267]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 2.369 arcsec [3.38σ]  
KicOffset-rm: 2.251 arcsec [2.96σ]  
OotOffset-st: 2/4/1/4 [11]  
KicOffset-st: 2/4/1/4 [11]  
DiffImageQuality-fgm: 0.64 [7/11]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:38:27 Z

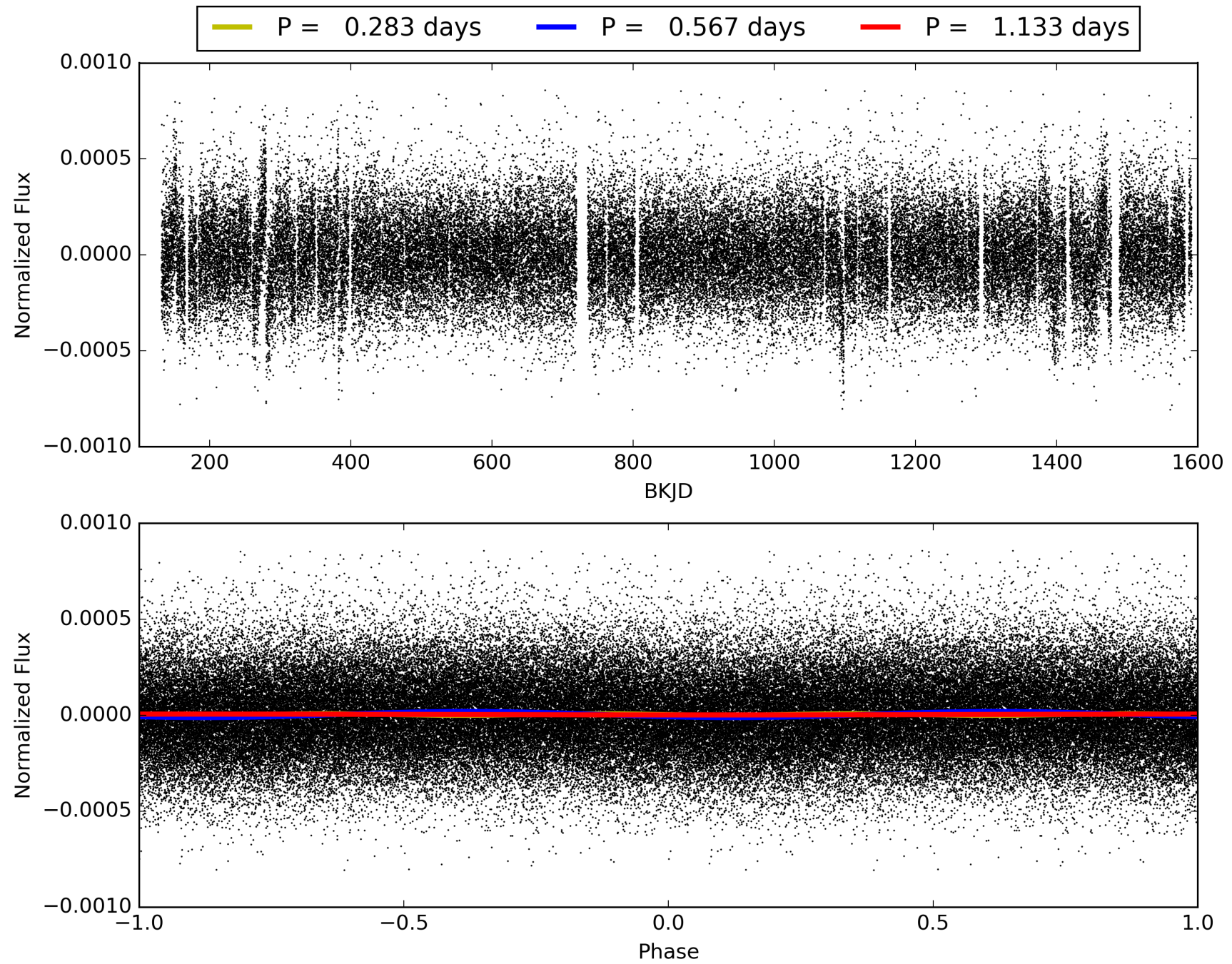
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007030996-01, PDC Light Curves



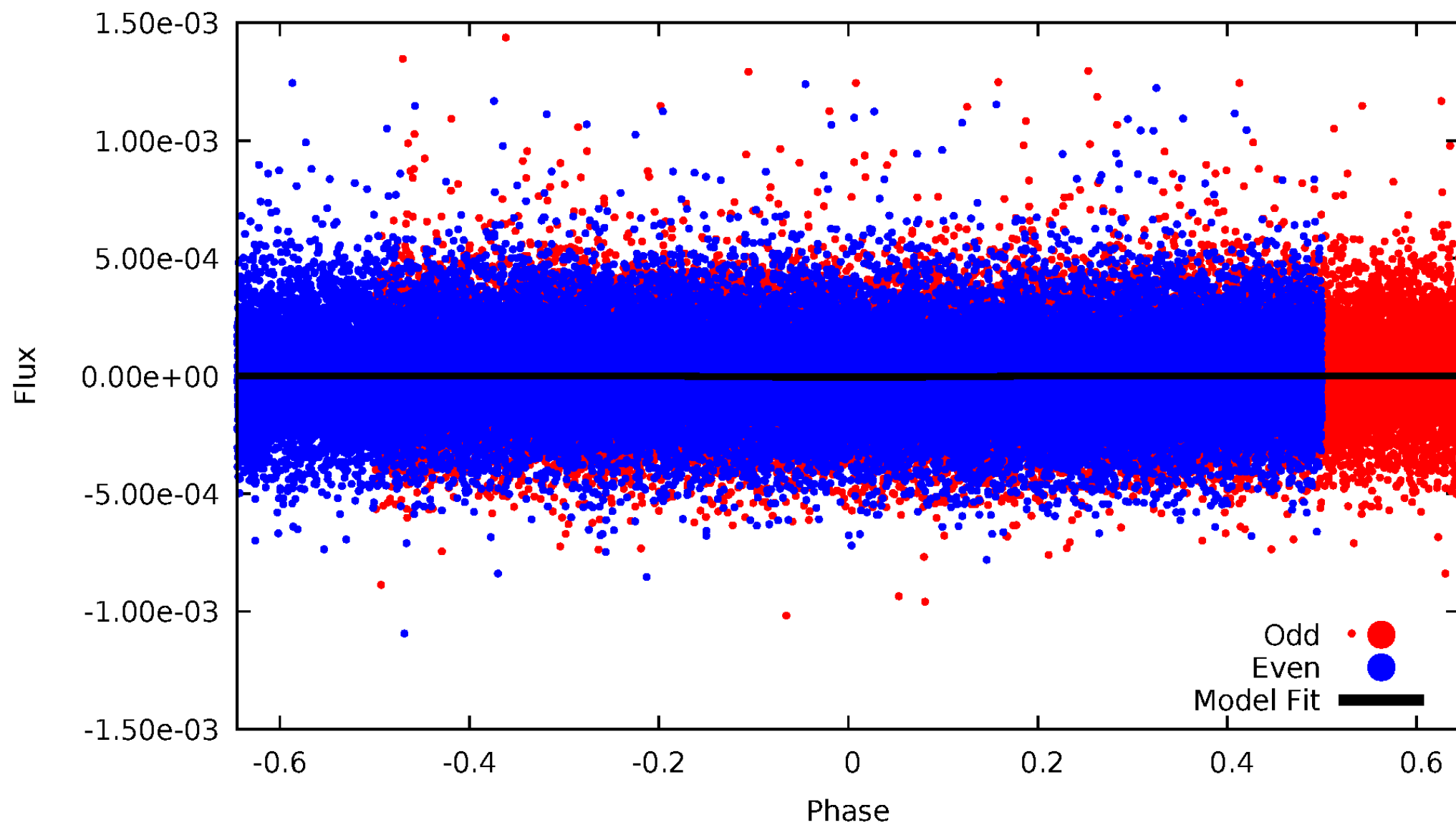


TCE 007030996-01



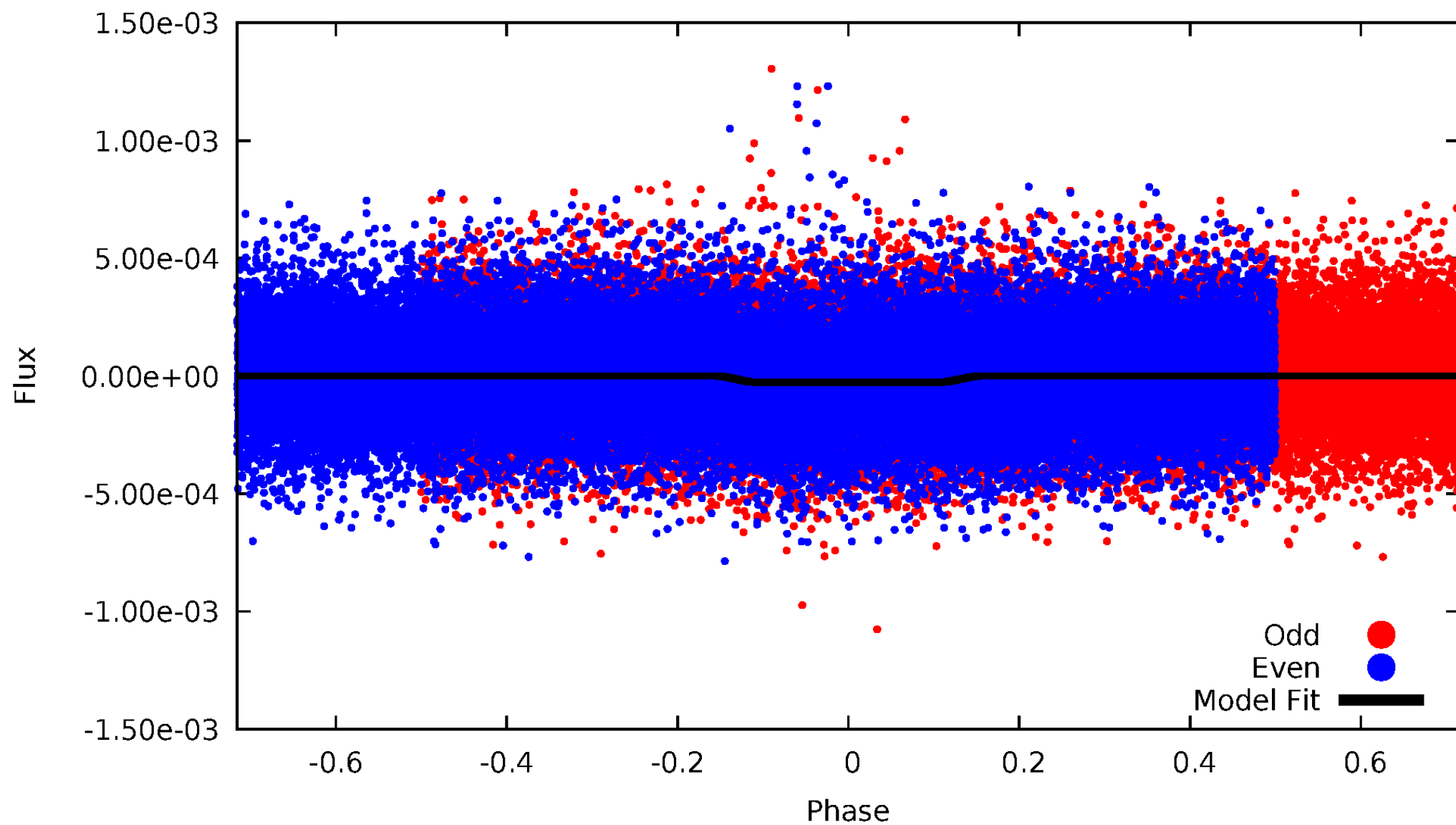
# DV Odd/Even

TCE 007030996-01

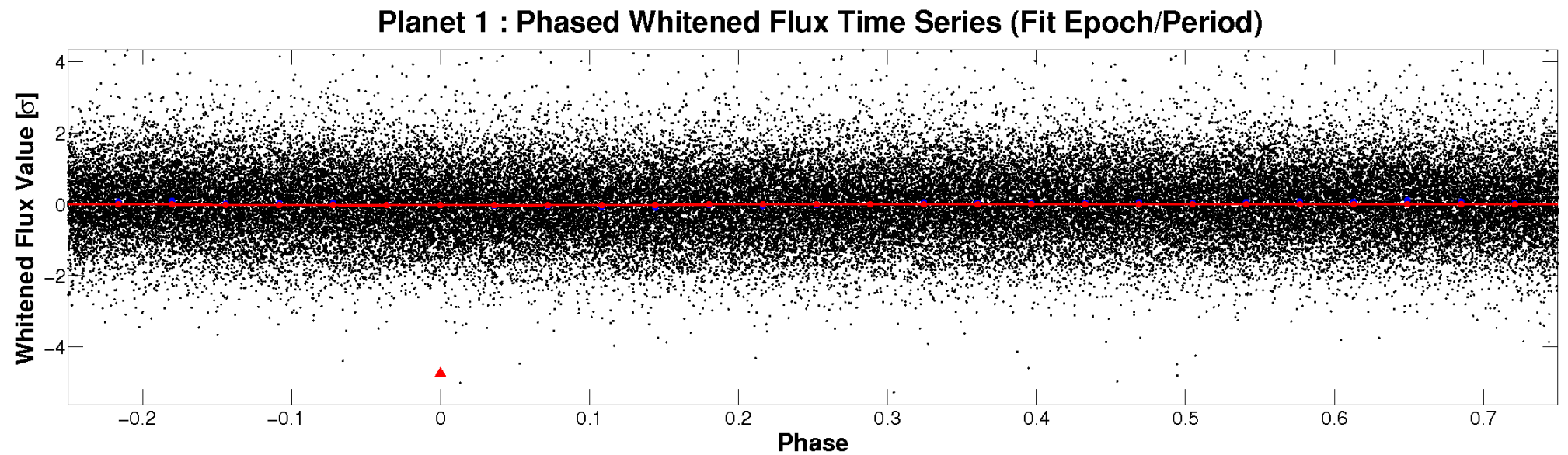
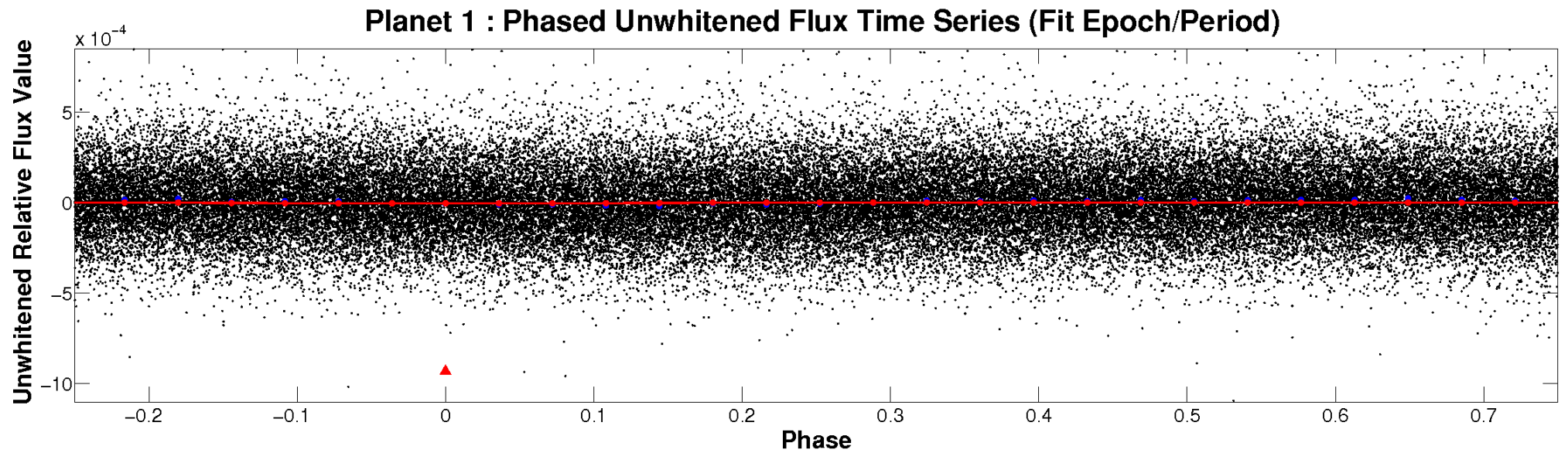


# ALT Odd/Even

TCE 007030996-01



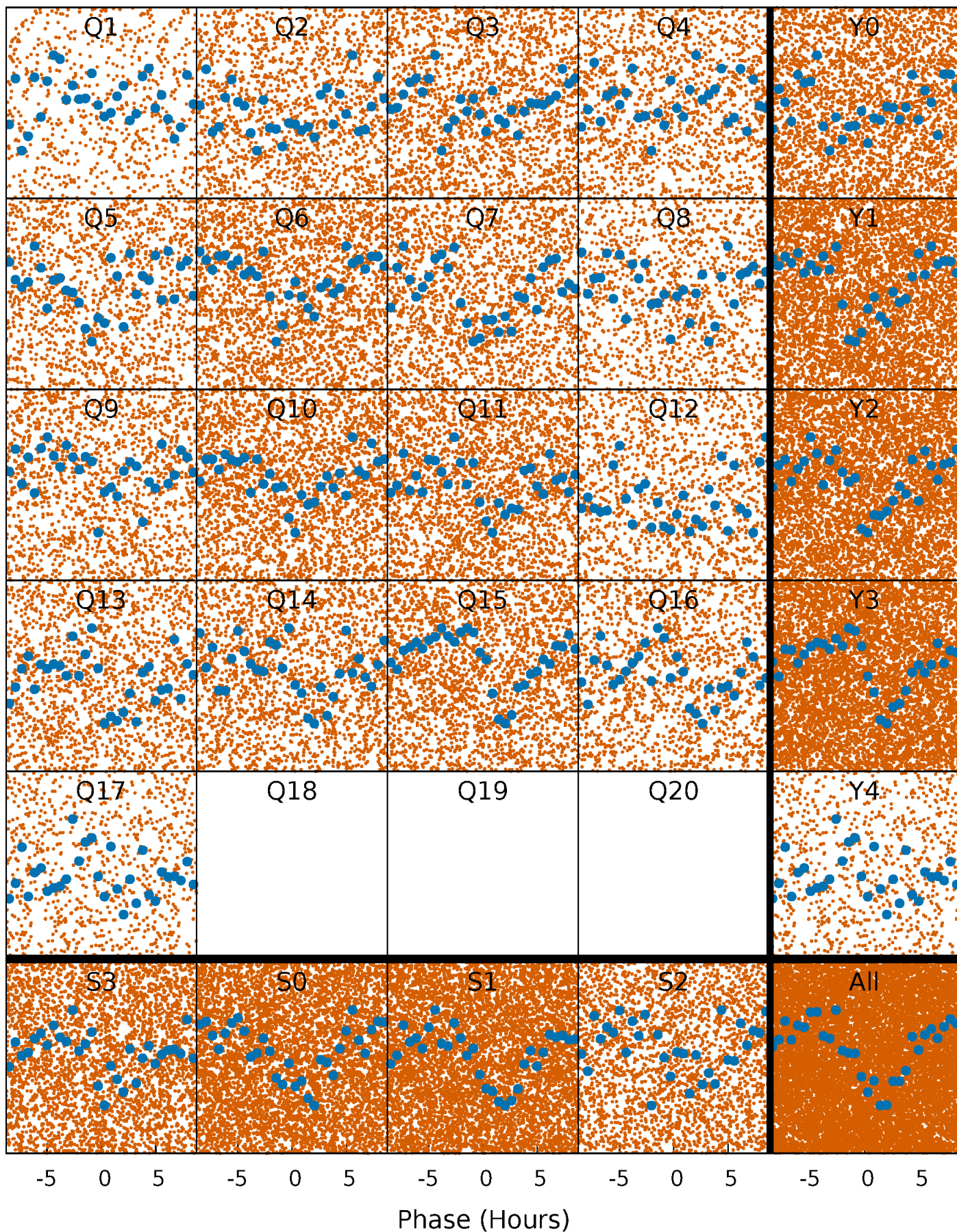
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

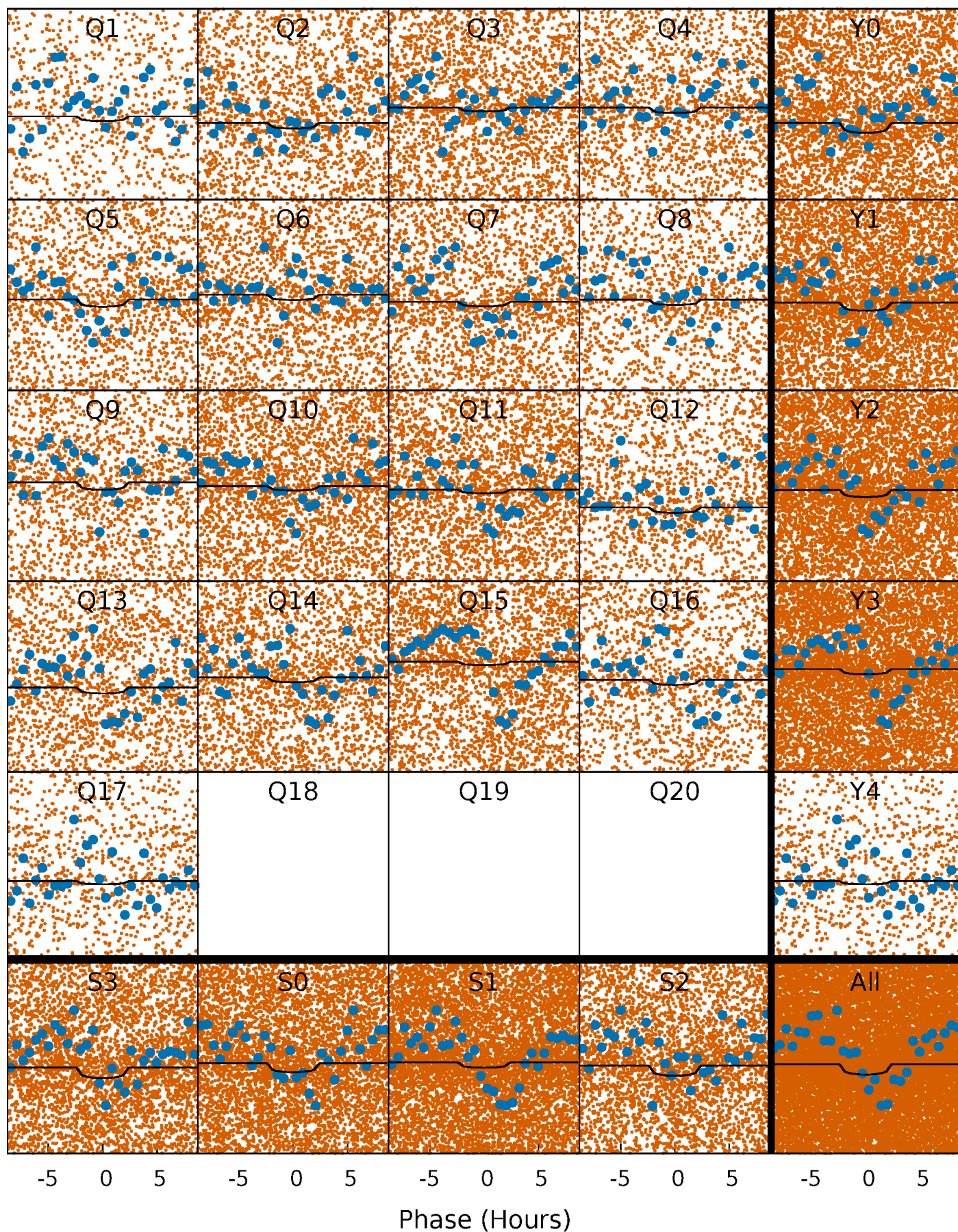
TCE 007030996-01 P= 0.566718 Days  $T_0=131.903862$  (BKJD)





# DV Quarter-Phased Transit Curves

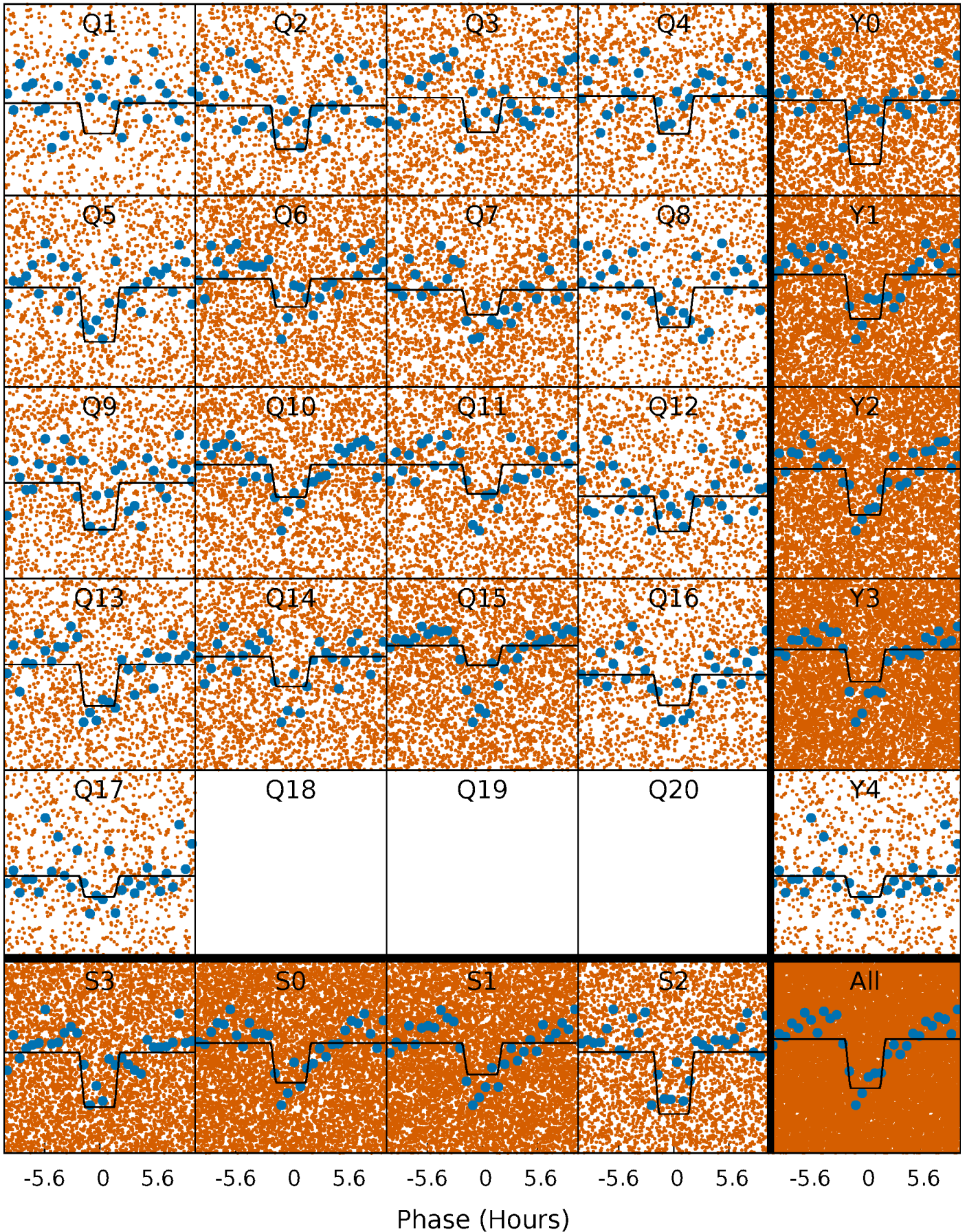
TCE 007030996-01 P= 0.566718 Days  $T_0=131.903862$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

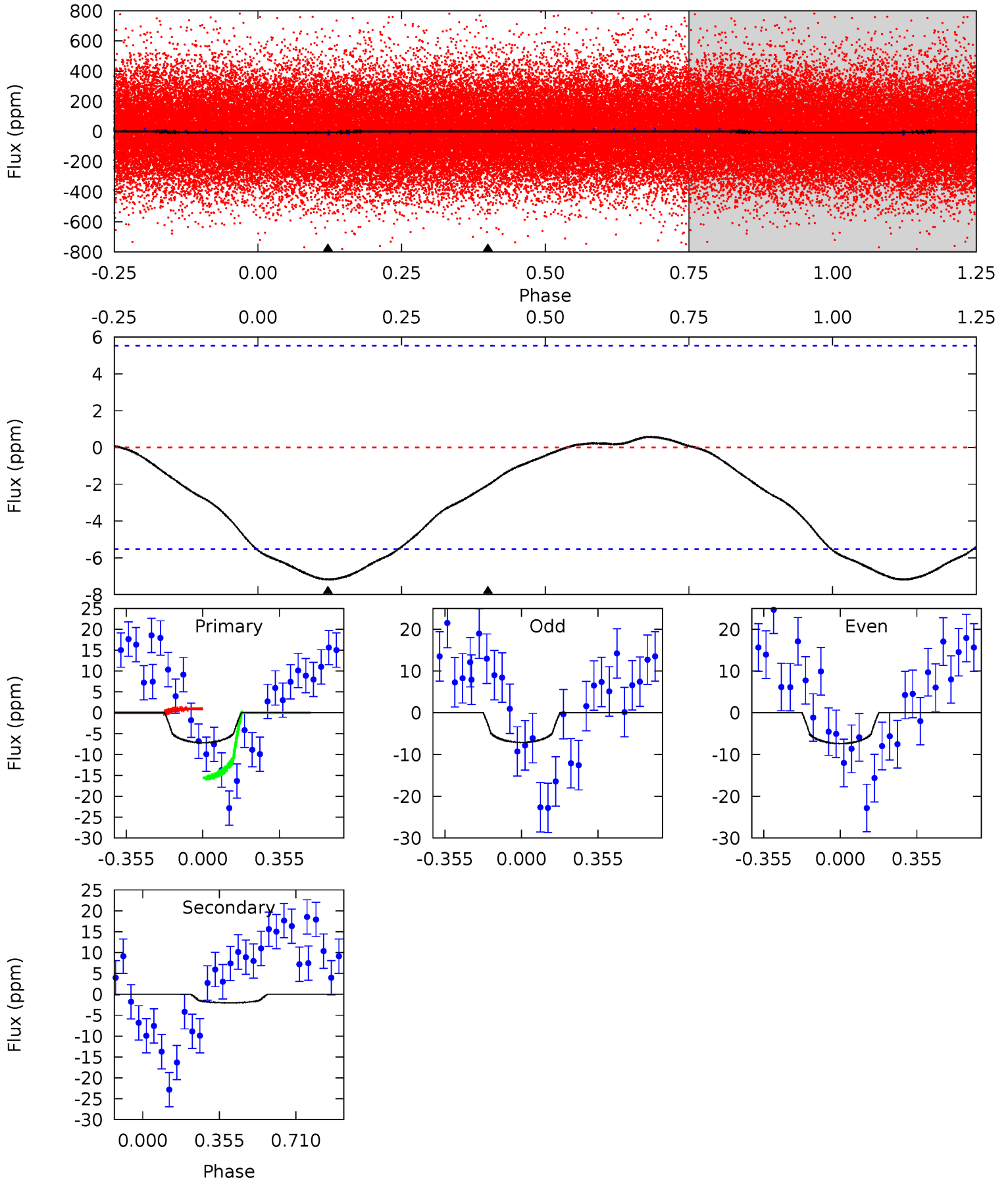
TCE 007030996-01 P= 0.566801 Days  $T_0=131.821218$  (BKJD)



# DV Model-Shift Uniqueness Test

007030996-01, P = 0.566718 Days, E = 131.337144 Days

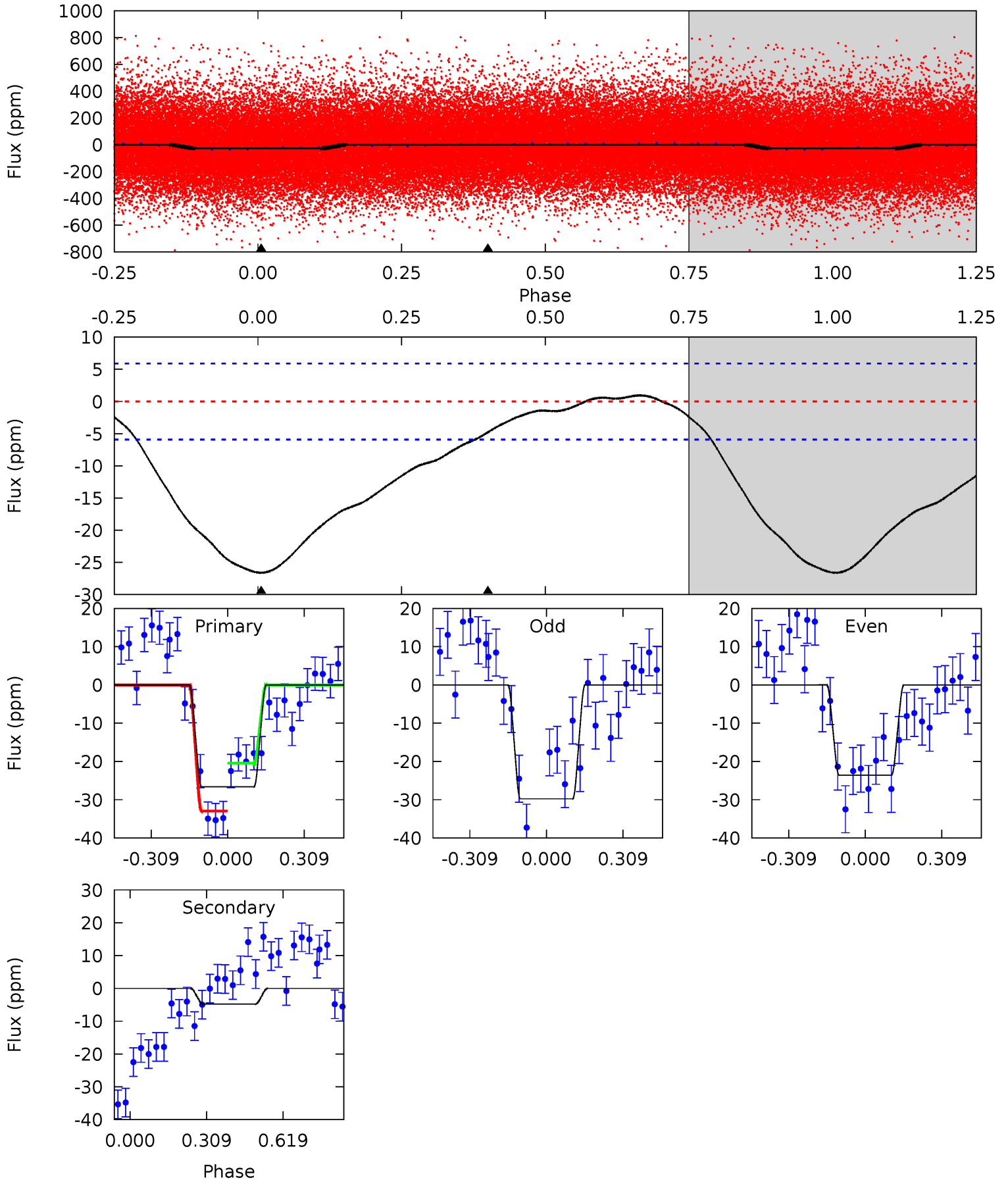
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.57	1.59	0	0	4.29	0.92	0.26	5.57	5.57	1.59	1.59	0.11	0.86	0.07	5.79



# Alt Model-Shift Uniqueness Test

007030996-01, P = 0.566801 Days, E = 131.254417 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
19.5	3.51	0	0	4.32	1.02	0.78	19.5	19.5	3.51	3.51	2.26	0.95	0.03	4.56





### Stellar Parameters For KIC 007030996

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6341^{+157}_{-189}$	$4.446^{+0.052}_{-0.208}$	$-0.240^{+0.250}_{-0.350}$	$1.033^{+0.311}_{-0.111}$	$1.083^{+0.143}_{-0.143}$	$1.383^{+0.389}_{-0.725}$
	+2%/-3%	+1%/-5%	+104%/-146%	+30%/-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 007030996-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2\pm 1$	$0.77^{+0.89}_{-0.53}$	$3455^{+252}_{-162}$	$-2201^{+7243}_{-1130}$	$0.287^{+2.728}_{-0.248}$
Alt.	$-5\pm 1$	$0.97^{+0.91}_{-0.63}$	$3464^{+242}_{-159}$	$3197^{+2371}_{-6298}$	$0.511^{+3.510}_{-0.385}$

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

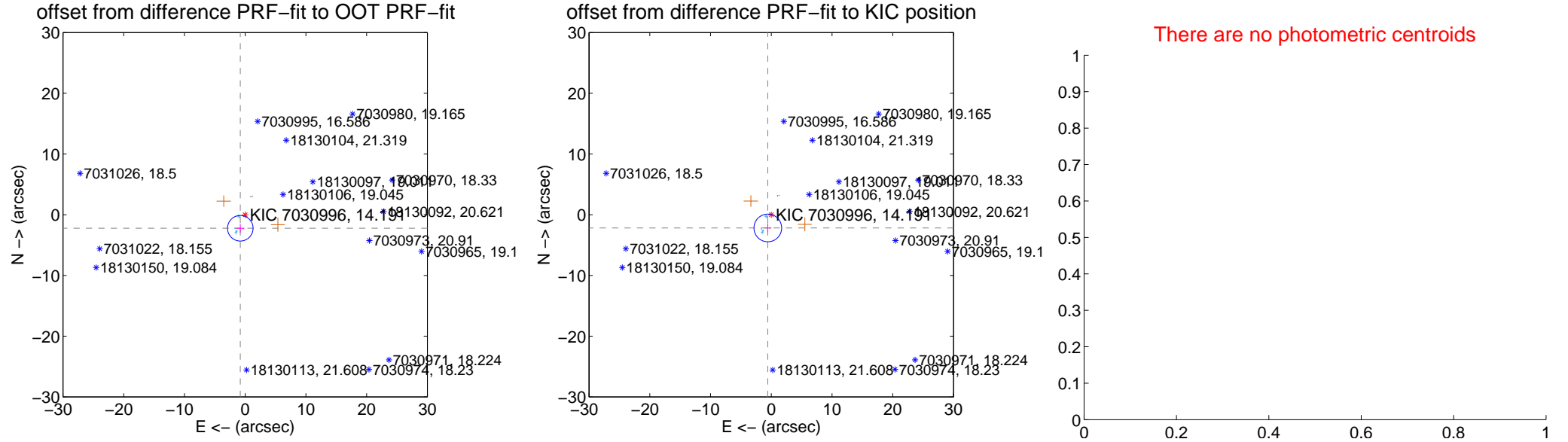
## DV Centroid Data

Supplemental centroid analysis for 007030996-01. Kepler magnitude: 14.19. Transit SNR 2.73

There are 7 quarters with good PRF difference image offsets

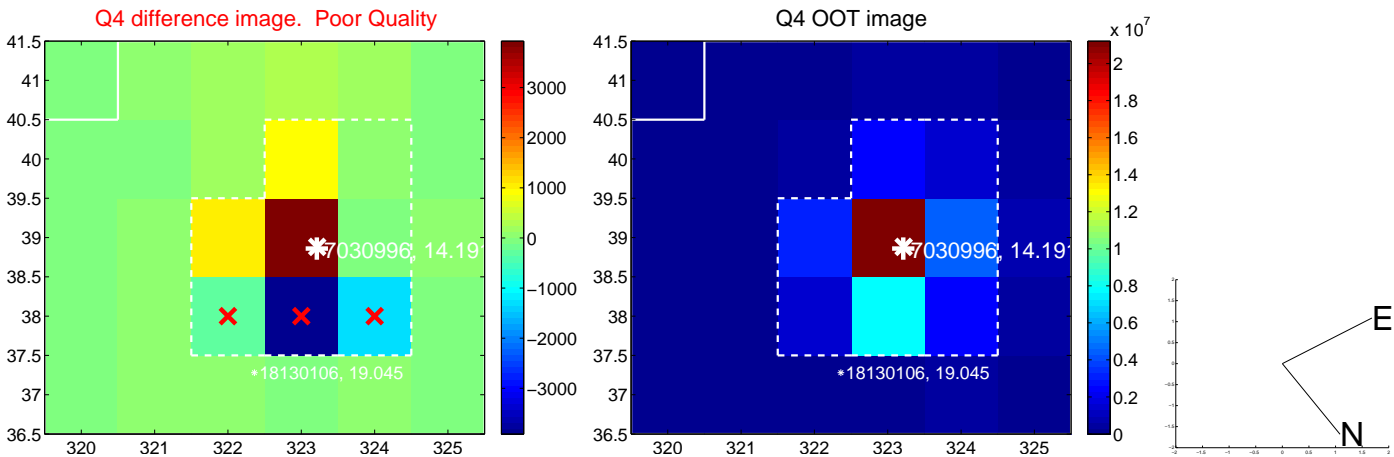
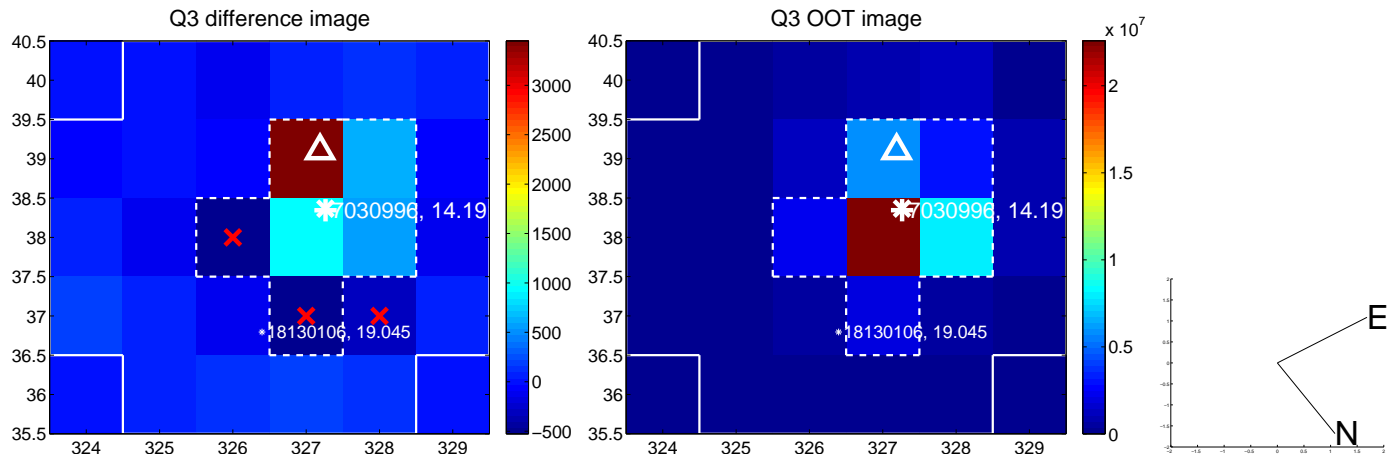
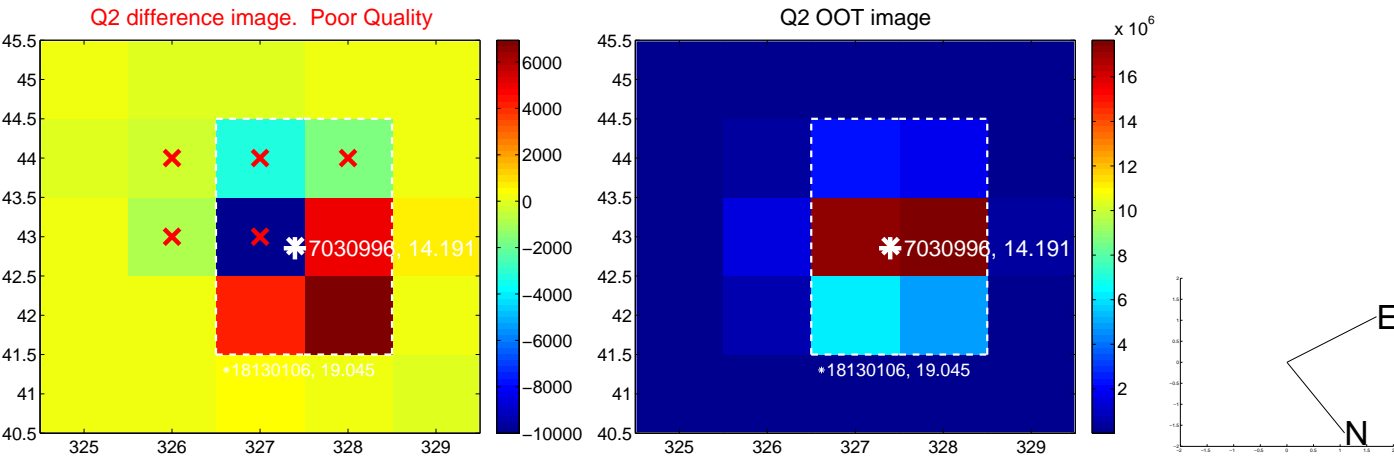
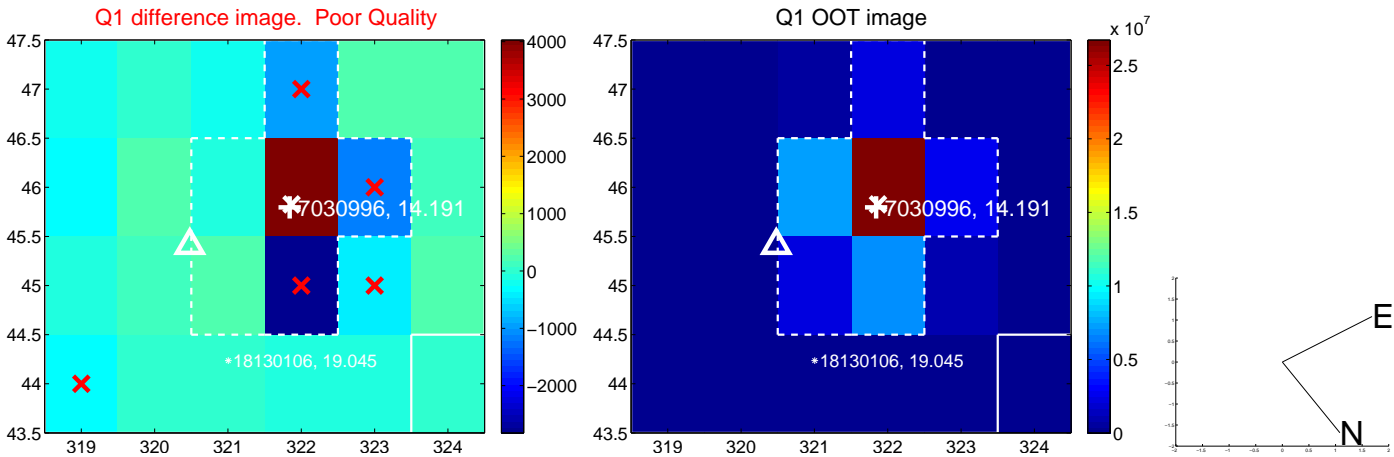
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>2.369 <math>\pm</math> 0.701</b>	<b>3.38</b>	0.803 $\pm$ 0.683	-2.229 $\pm$ 0.708
PRF-fit source offset from KIC position	2.251 $\pm$ 0.760	2.96	0.573 $\pm$ 0.591	-2.177 $\pm$ 0.760
photometric centroid source offset	—	—	—	—

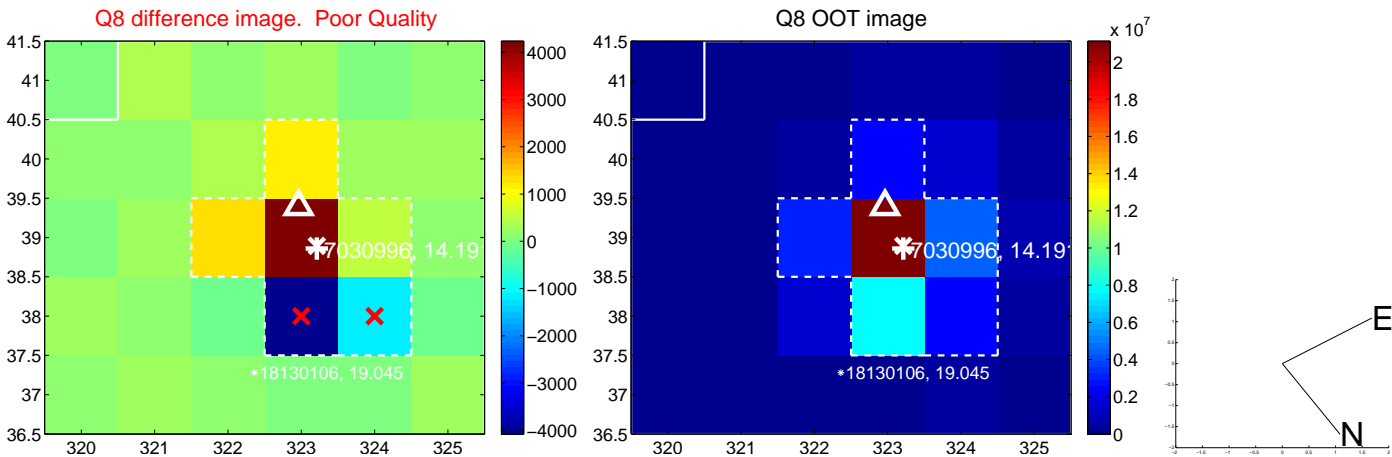
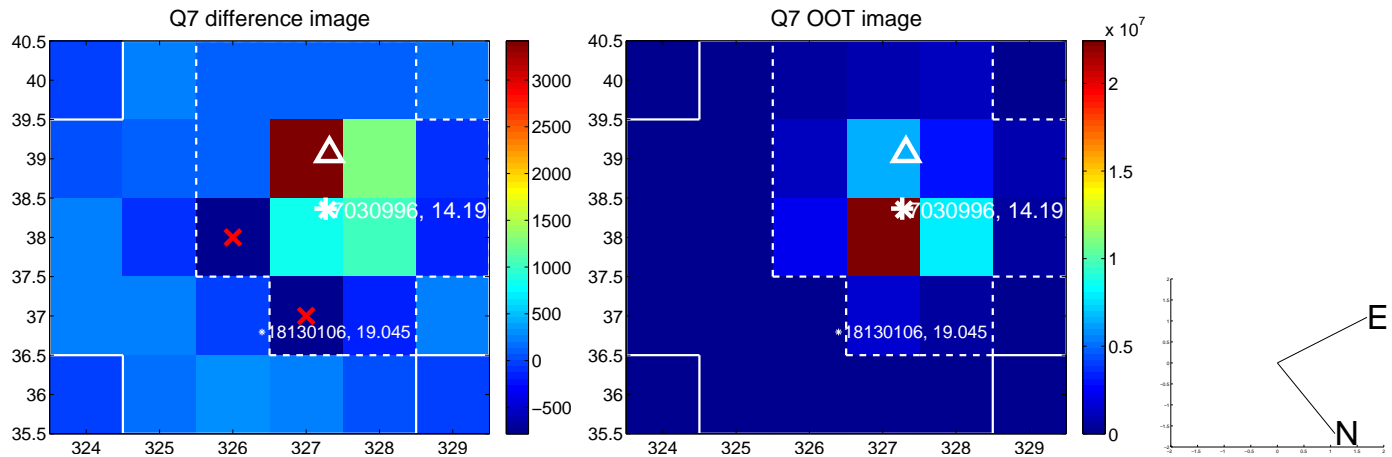
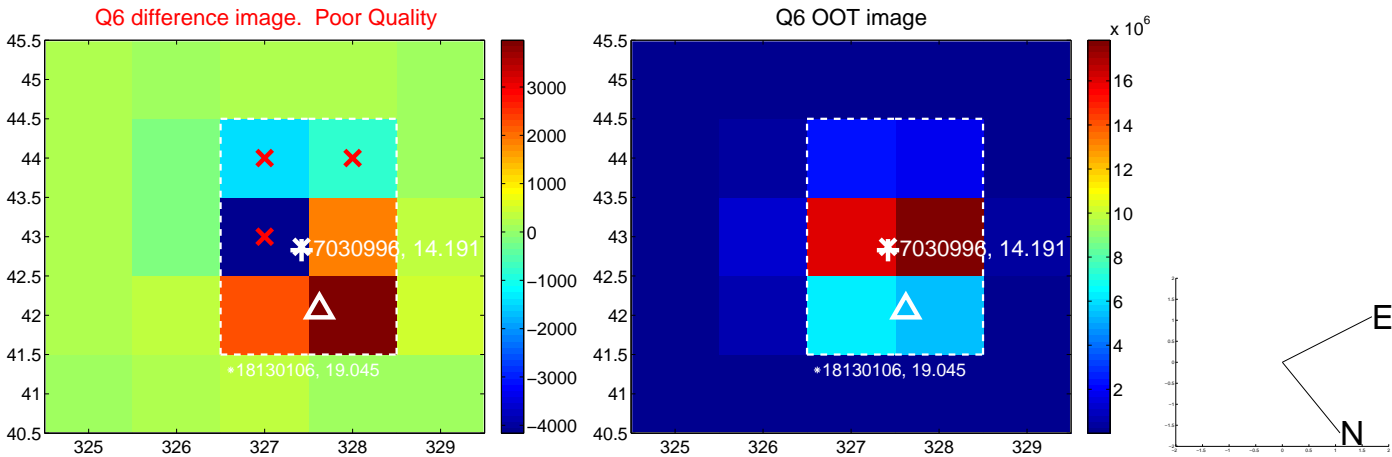
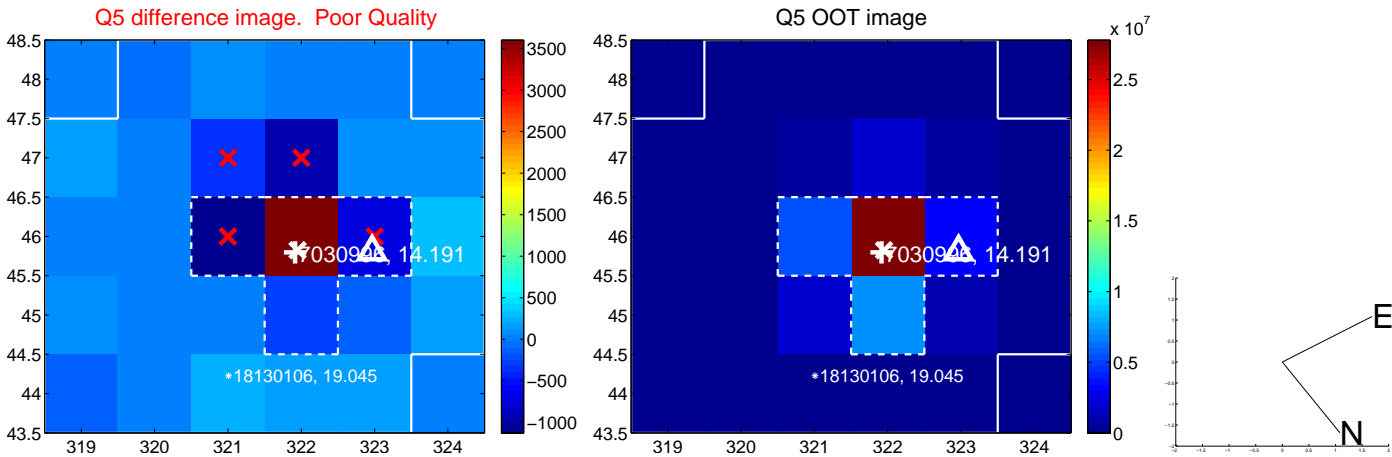


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

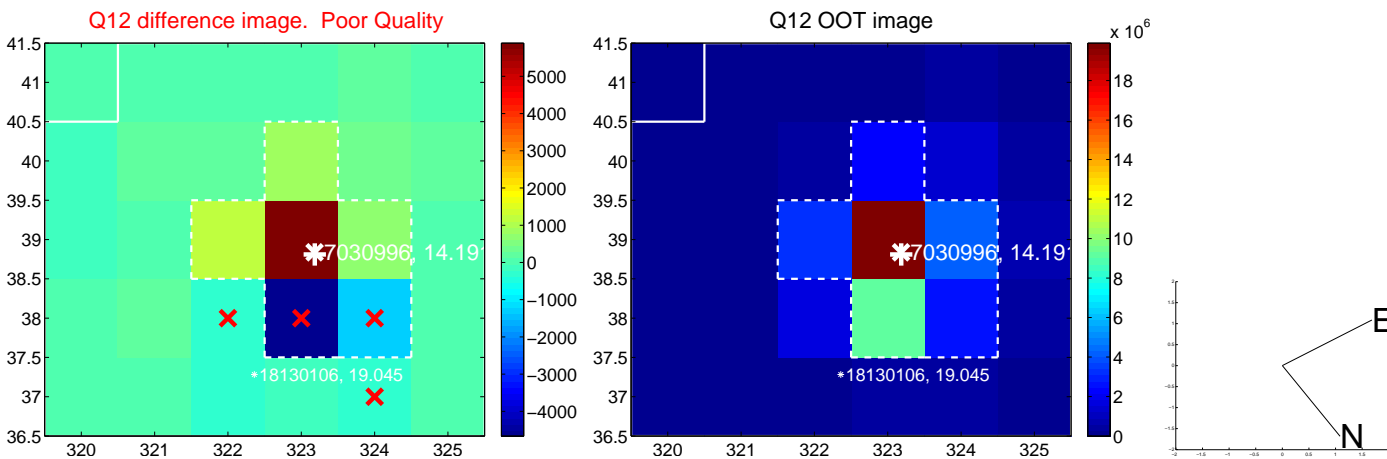
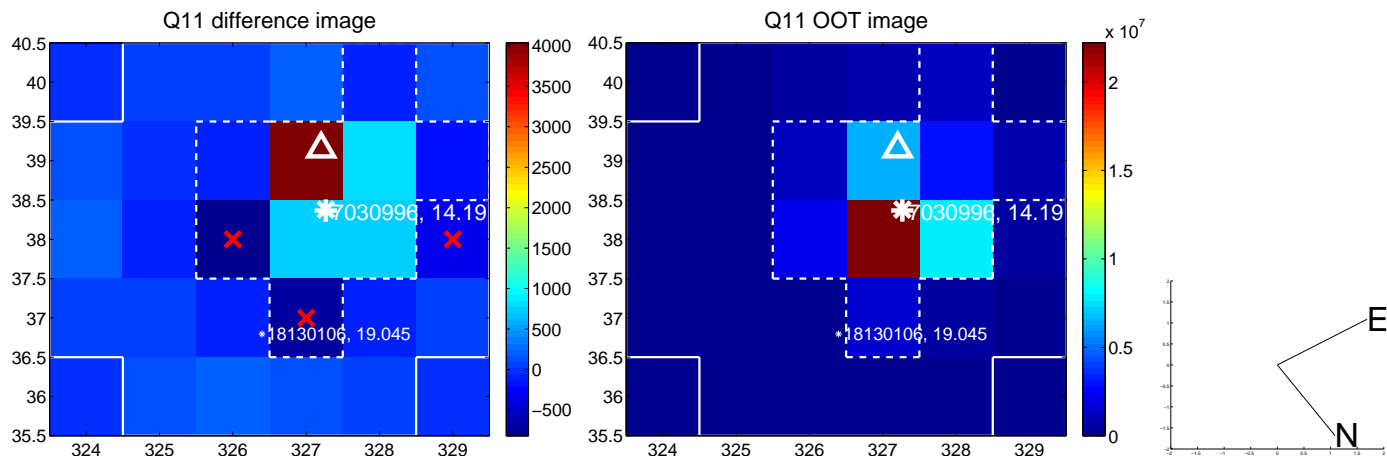
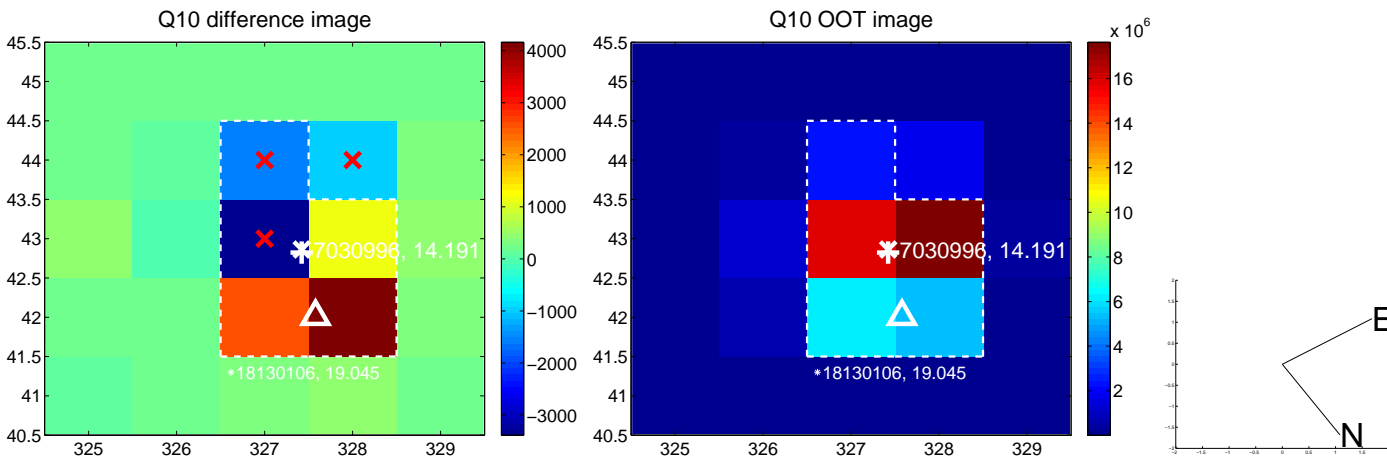
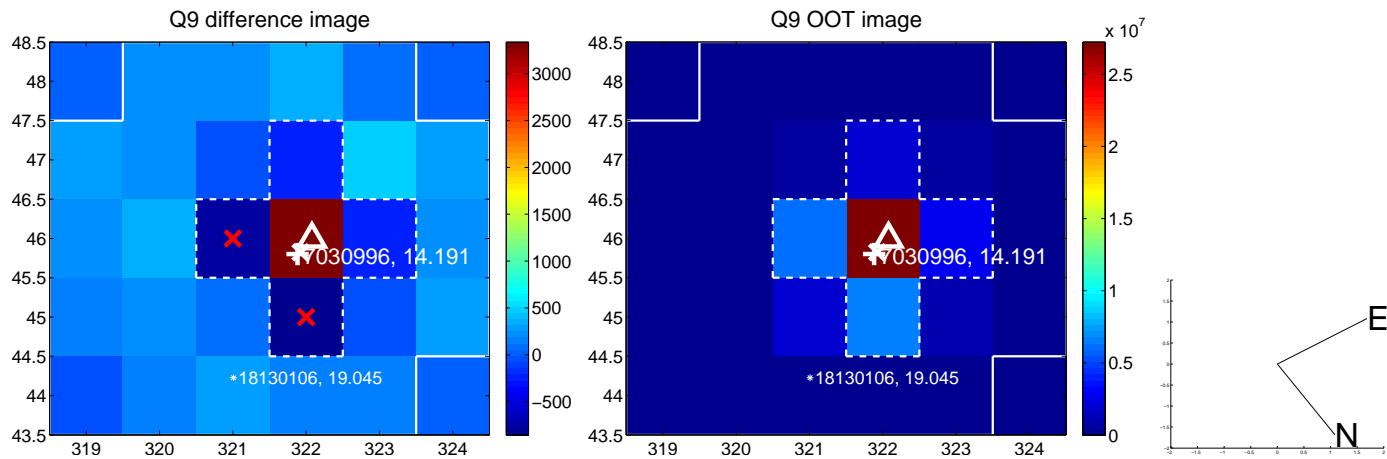


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

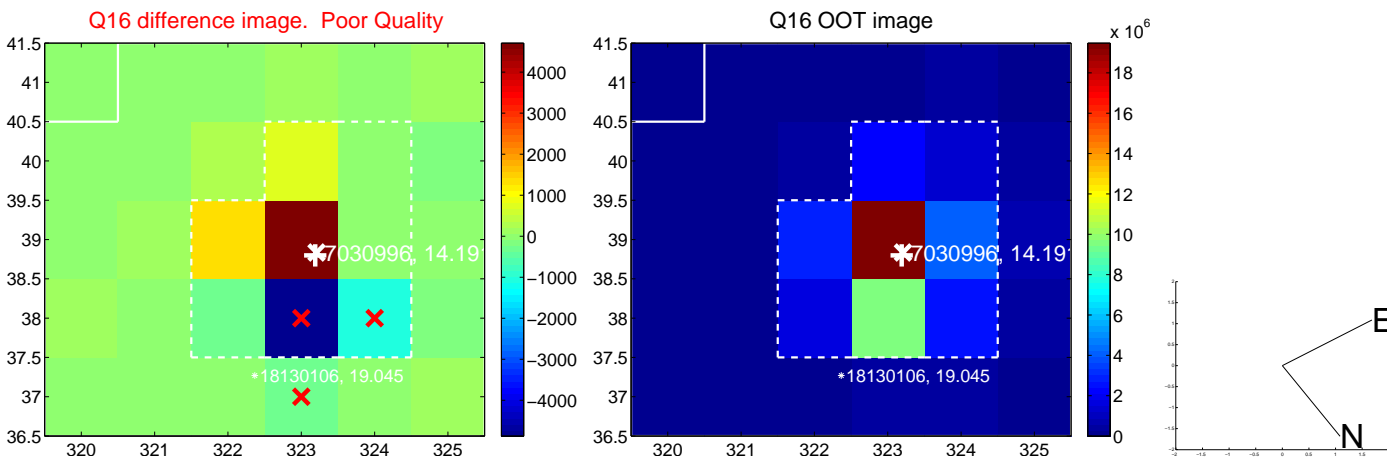
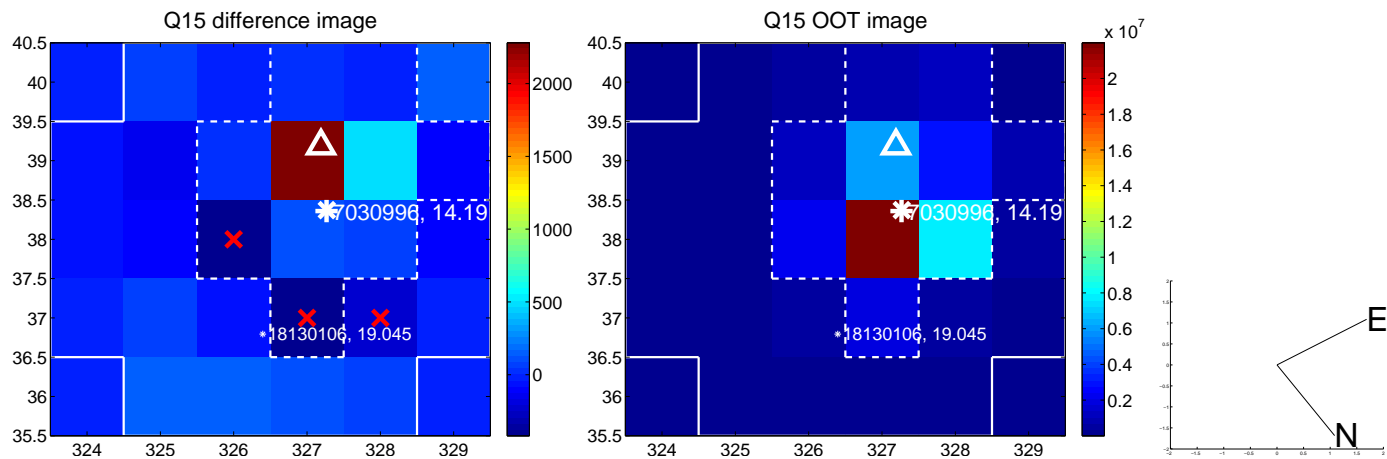
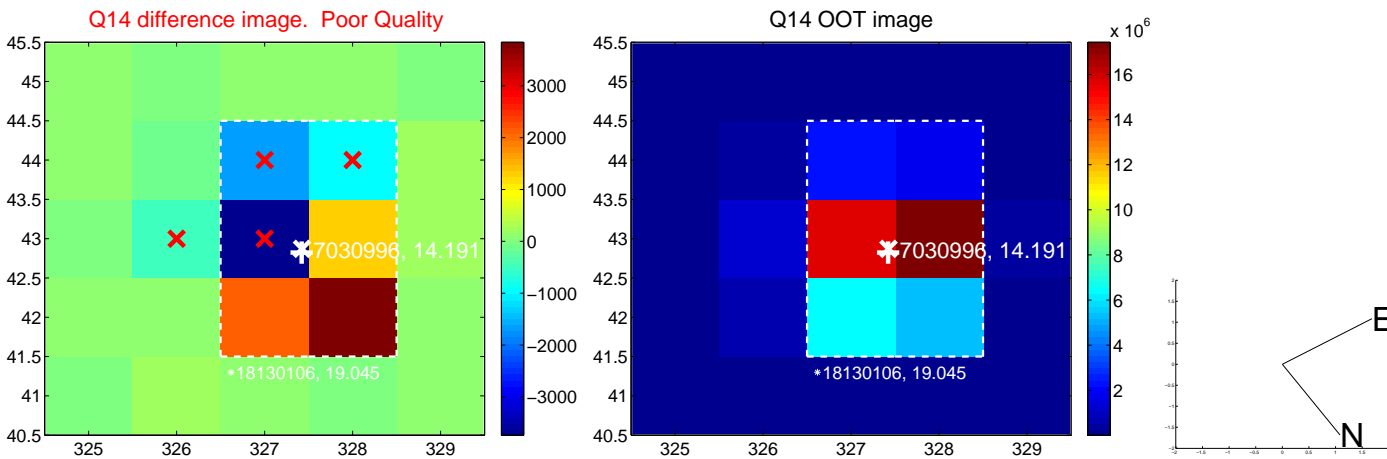
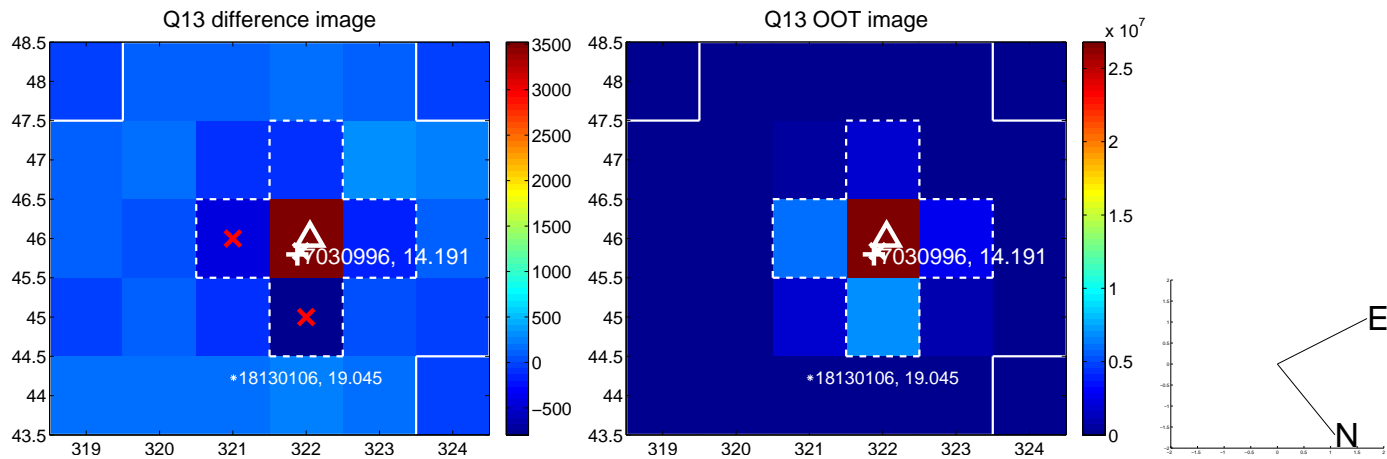




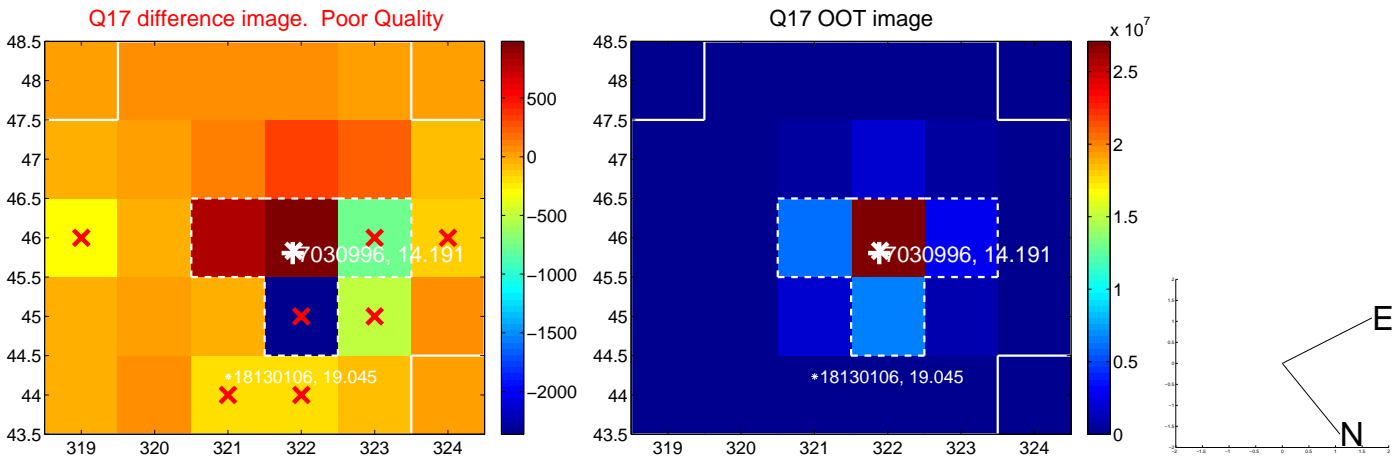
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



folded centroid time series figure for this object.

# UKIRT Image

Declination

