

# KIC 008816959

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008816959-01	OBS	No	2.069983	131.758235	10.5	17.768	9.9	5.5	1.90	6384	0.66	4237.29

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008816959-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV

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

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

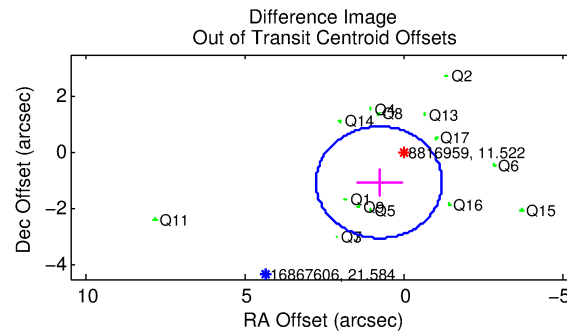
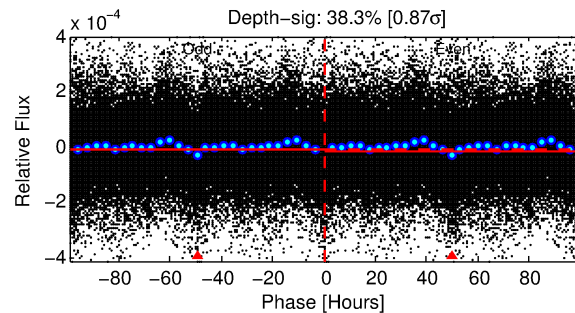
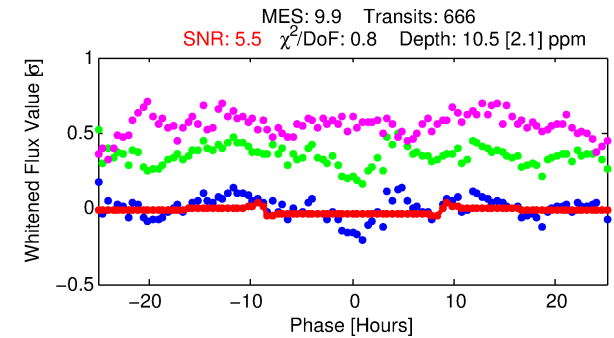
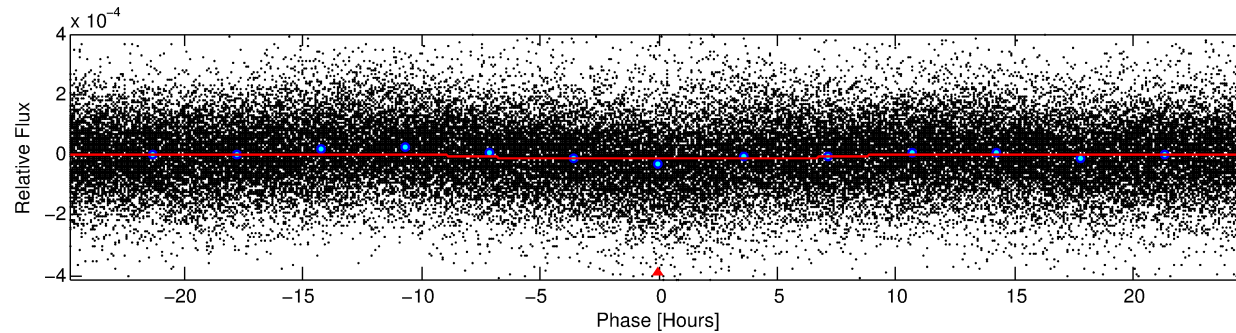
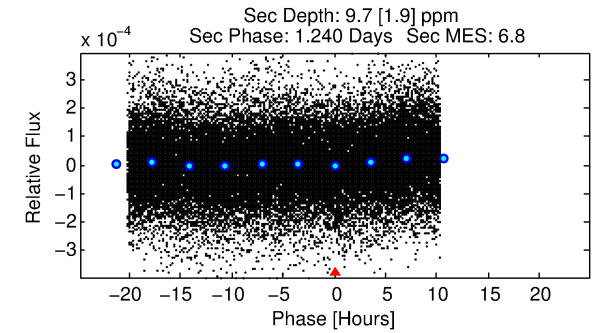
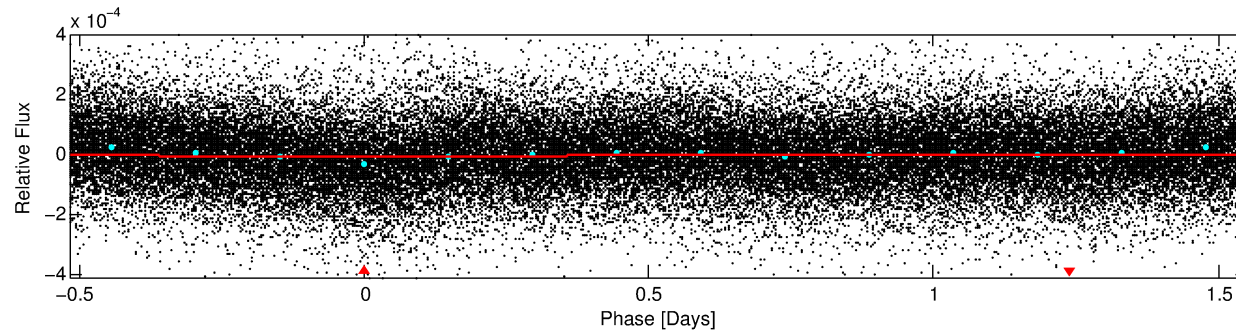
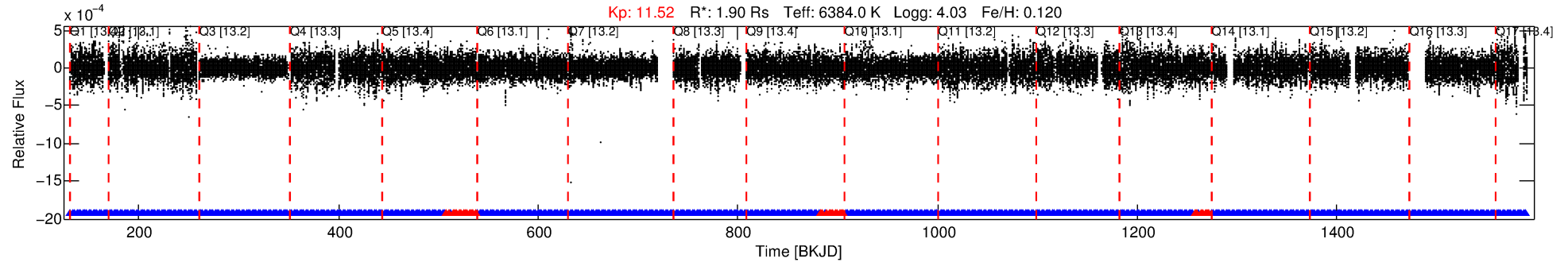
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008816959-01

No Significant Match Found

# DV One-Page Summary

KIC: 8816959 Candidate: 1 of 1 Period: 2.070 d



## DV Fit Results:

Period = 2.06998 [0.00004] d  
Epoch = 131.7582 [0.0076] BKJD  
Rp/R\* = 0.0032 [0.0020]  
a/R\* = 1.07 [0.43]  
b = 0.66 [2.85]  
Seff = 4237.29 [2120.03]  
Teq = 2057 [257] K  
Rp = 0.65 [0.47] Re  
a = 0.0357 [0.0112] AU  
Ag = 15.92 [21.53] [0.69σ]  
Teffp = 6354 [2024] K [2.11σ]

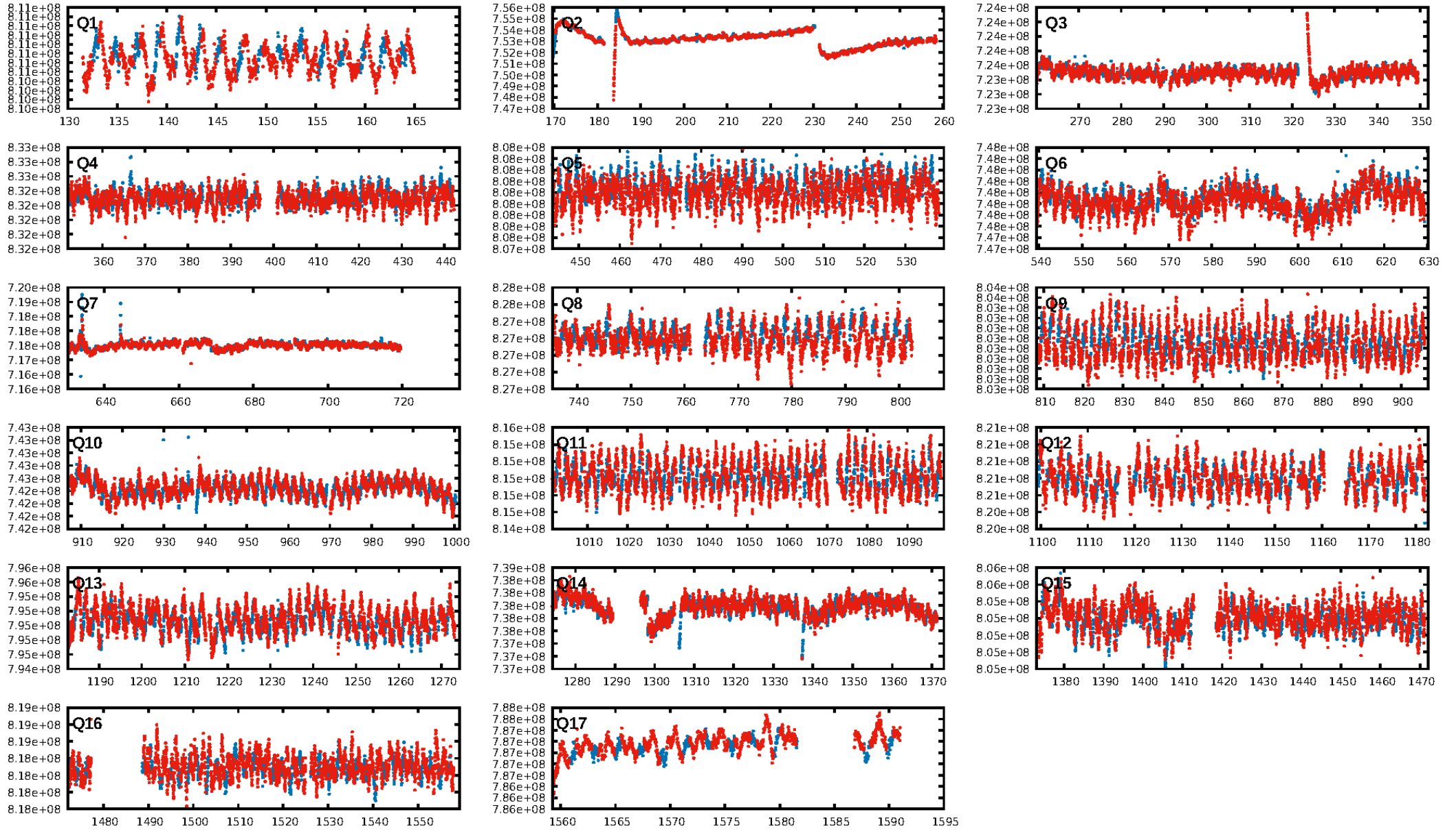
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.95 [603/635]  
GhostDiagnostic-chr: -0.6077  
Centroid-sig: 0.0%  
Centroid-so: 2.825 arcsec [3.28σ]  
OotOffset-rm: 1.319 arcsec [1.99σ]  
OotOffset-st: 3/4/3/5 [15]  
KicOffset-rm: 1.146 arcsec [1.90σ]  
KicOffset-st: 3/4/3/5 [15]  
DiffImageQuality-fgm: 0.33 [5/15]  
DiffImageOverlap-fno: 1.00 [17/17]

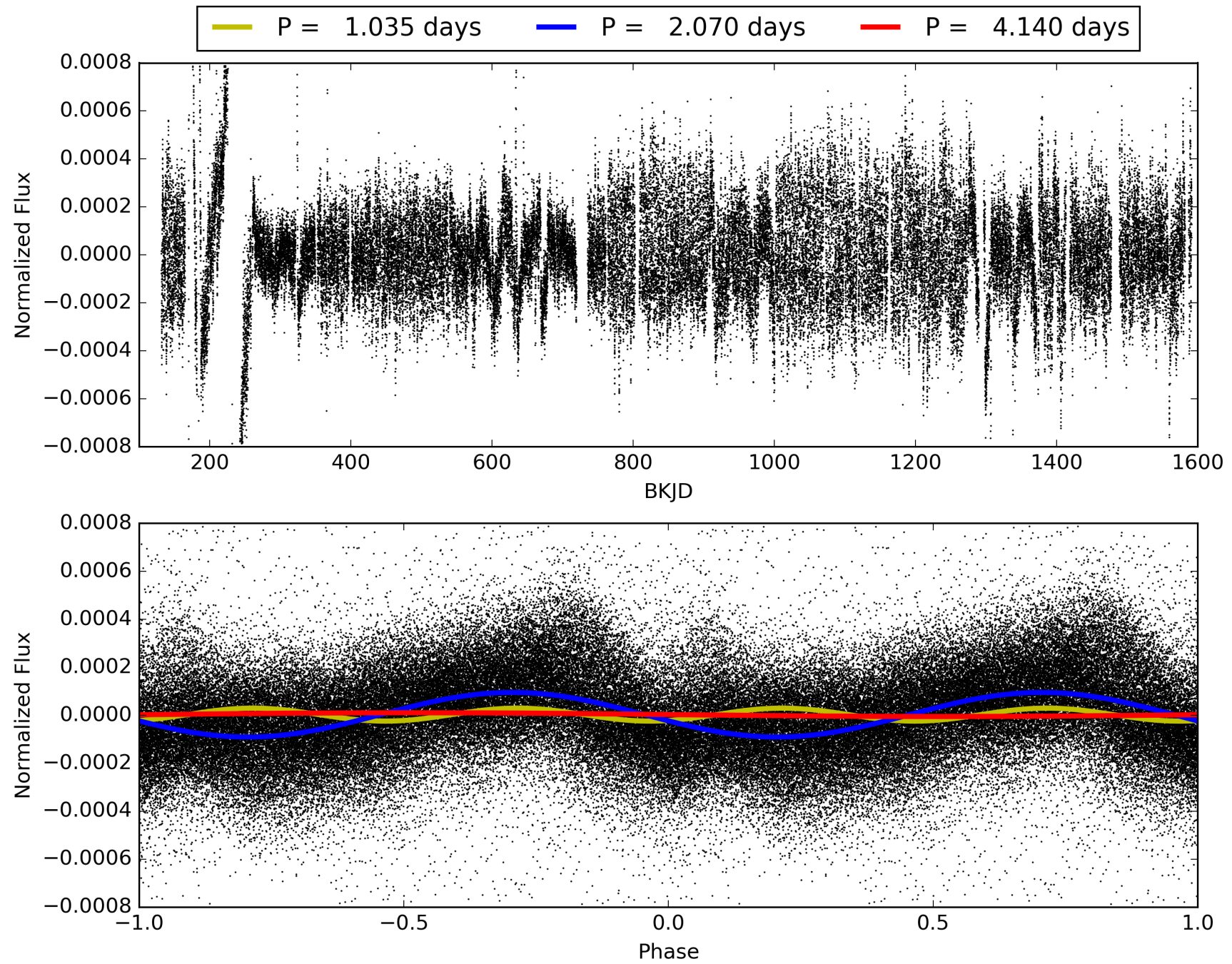
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:17:00 Z

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

# TCE 008816959-01, PDC Light Curves

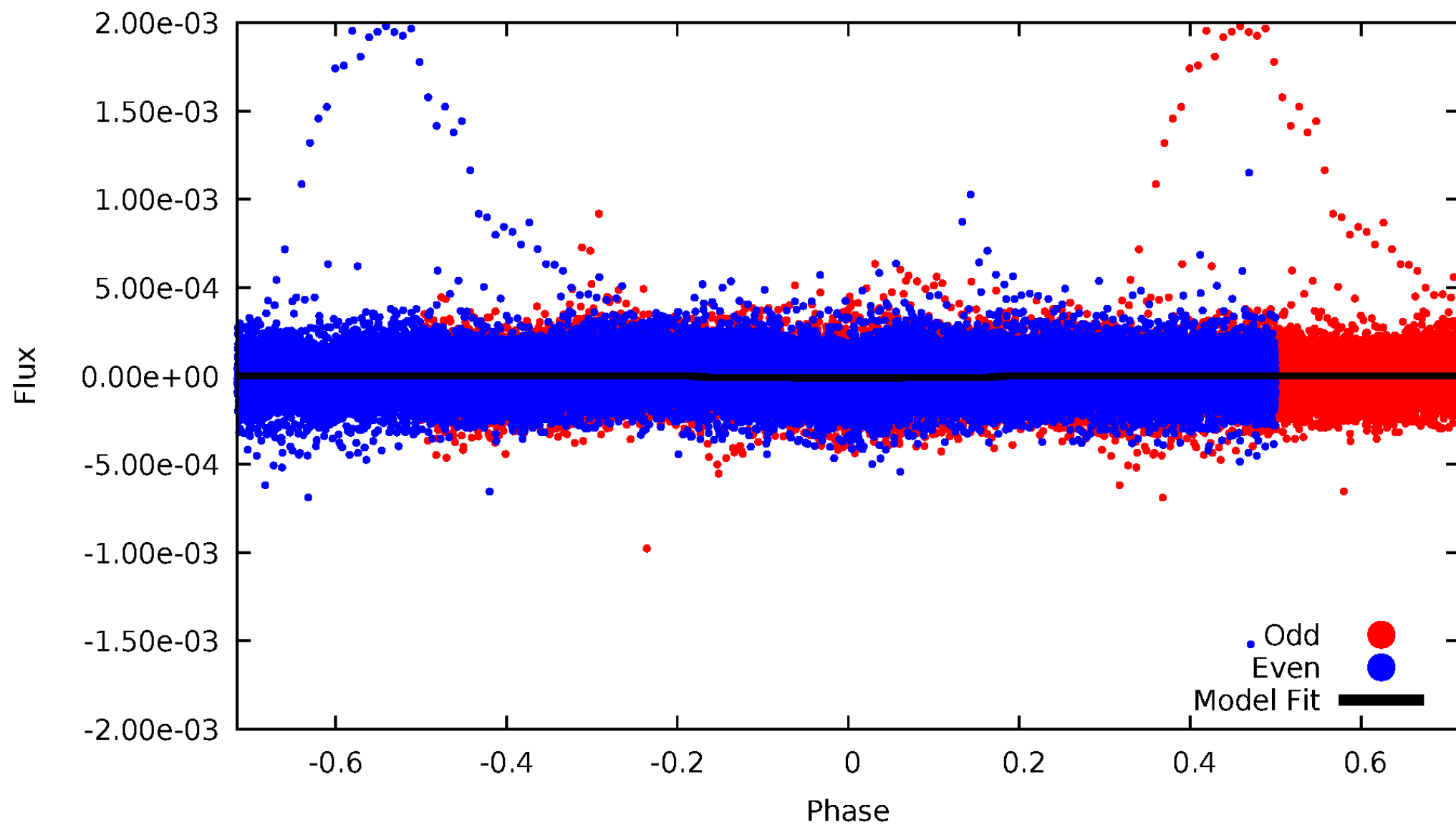


TCE 008816959-01



# DV Odd/Even

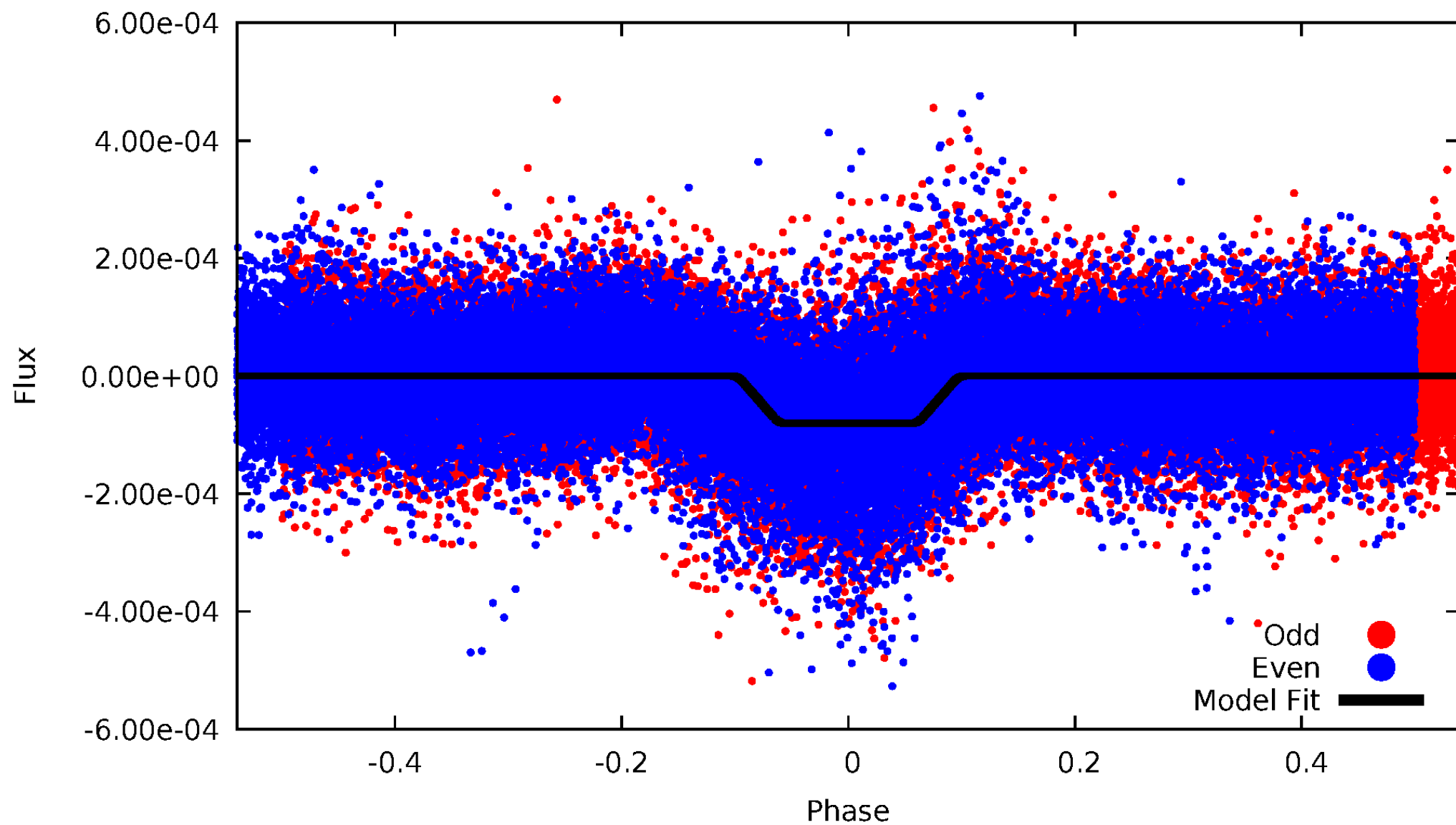
TCE 008816959-01



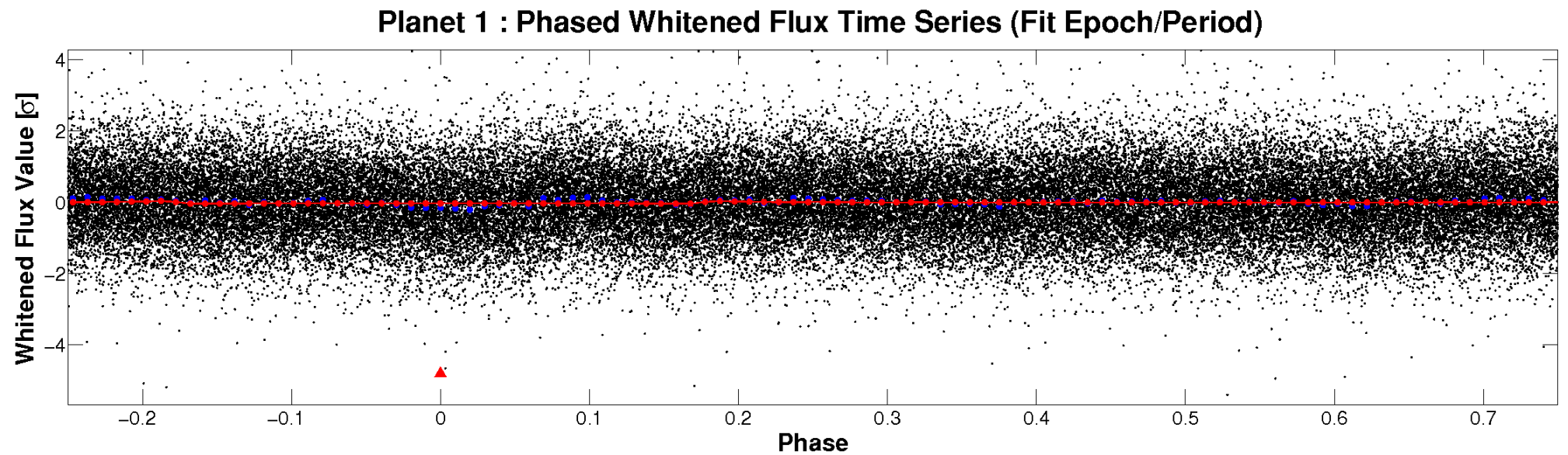
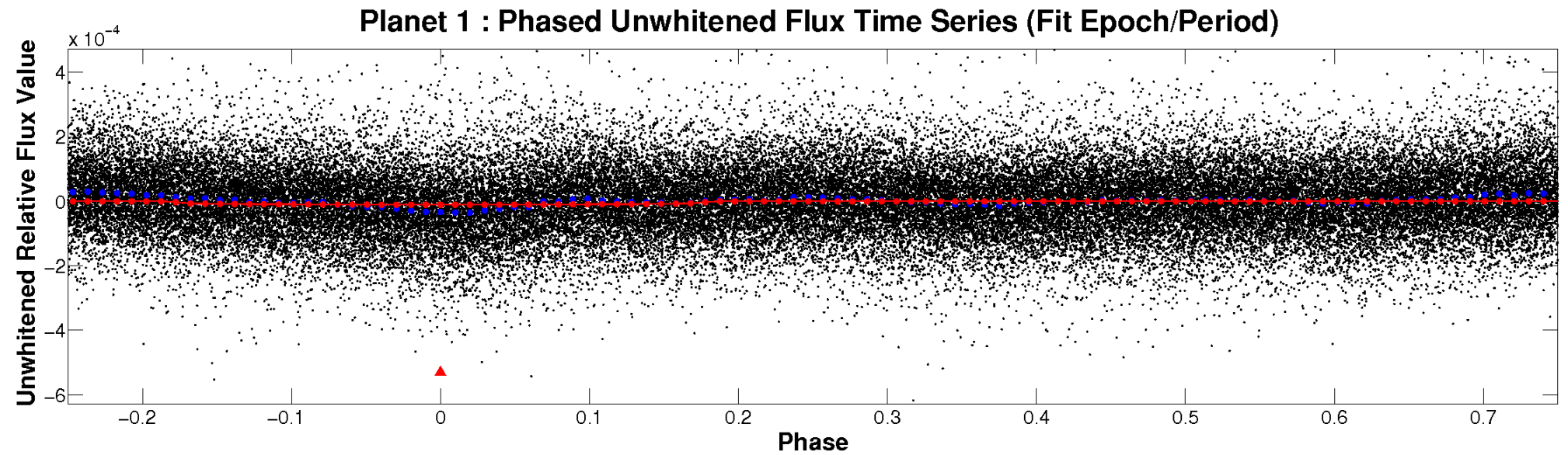


# ALT Odd/Even

TCE 008816959-01

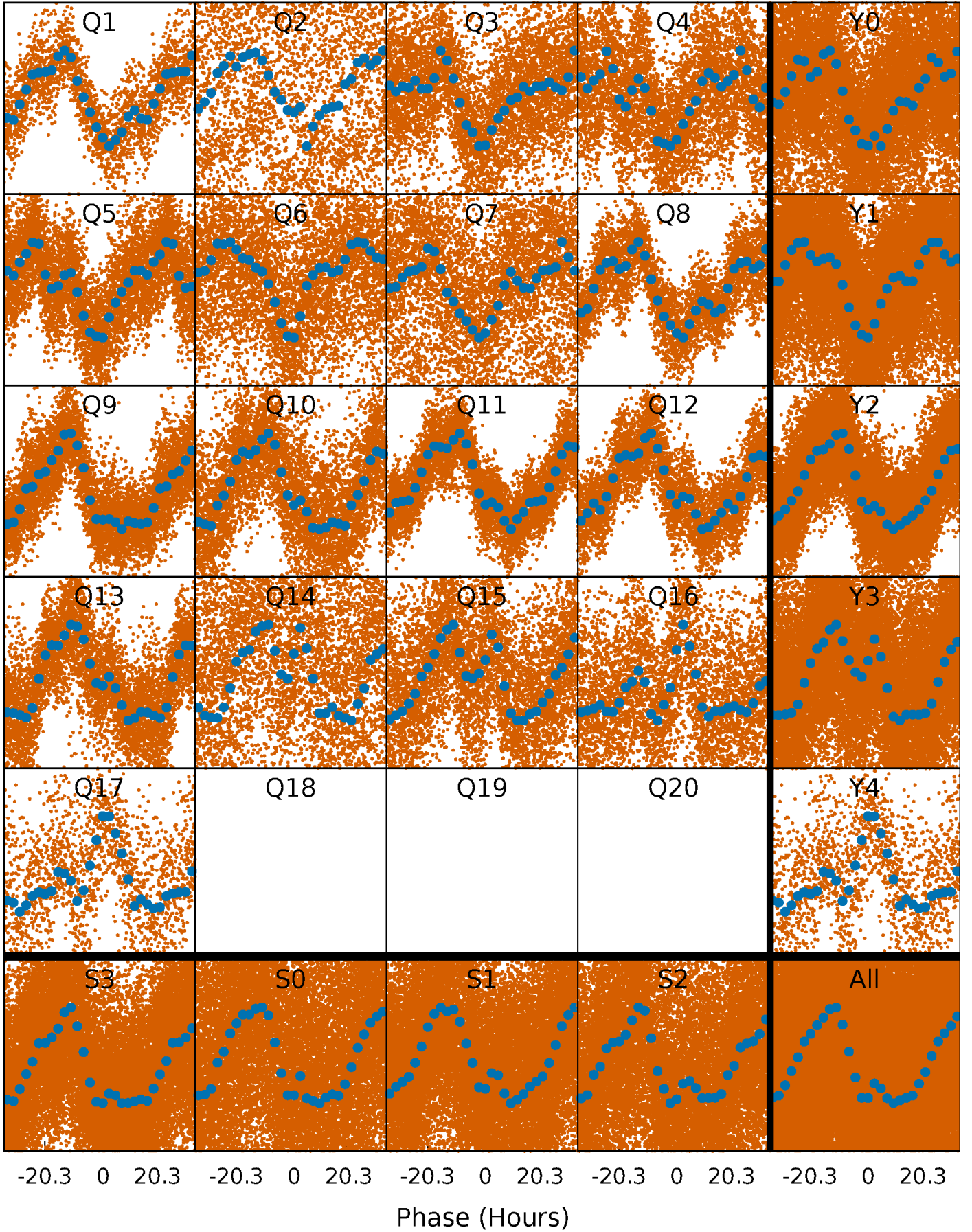


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

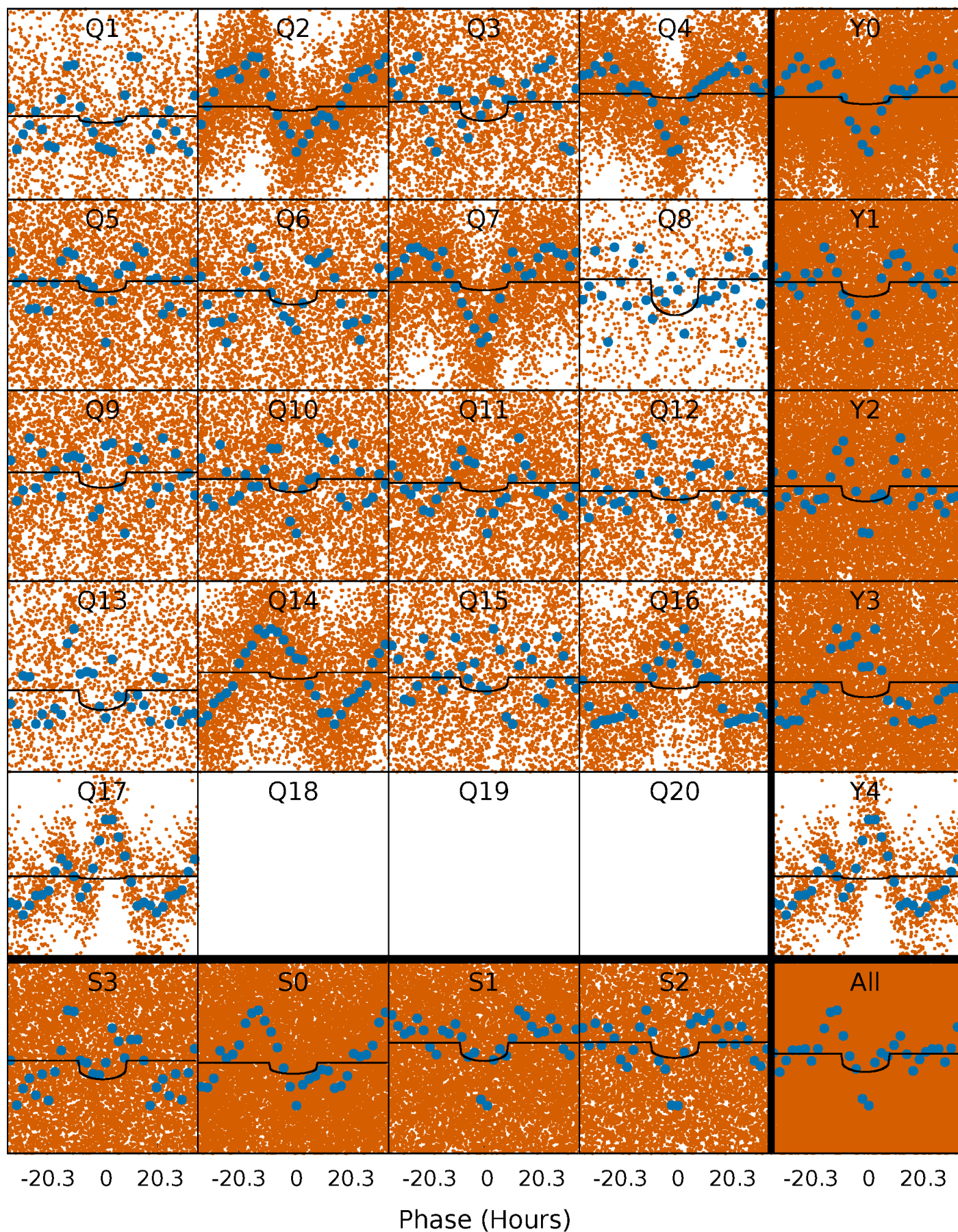
TCE 008816959-01   P= 2.069983 Days    $T_0=131.758235$  (BKJD)





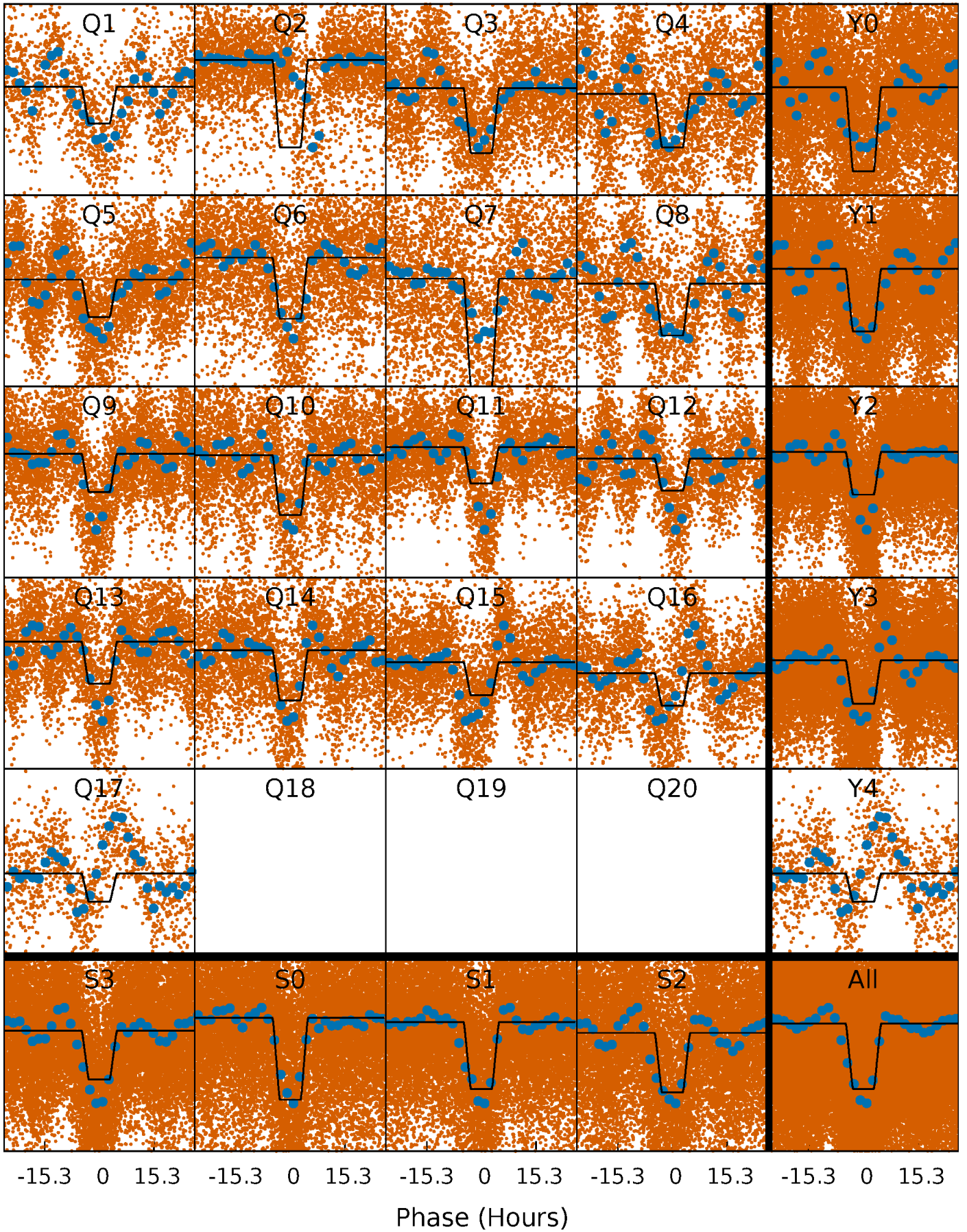
# DV Quarter-Phased Transit Curves

TCE 008816959-01 P= 2.069983 Days  $T_0=131.758235$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008816959-01 P= 2.069838 Days  $T_0=131.768309$  (BKJD)

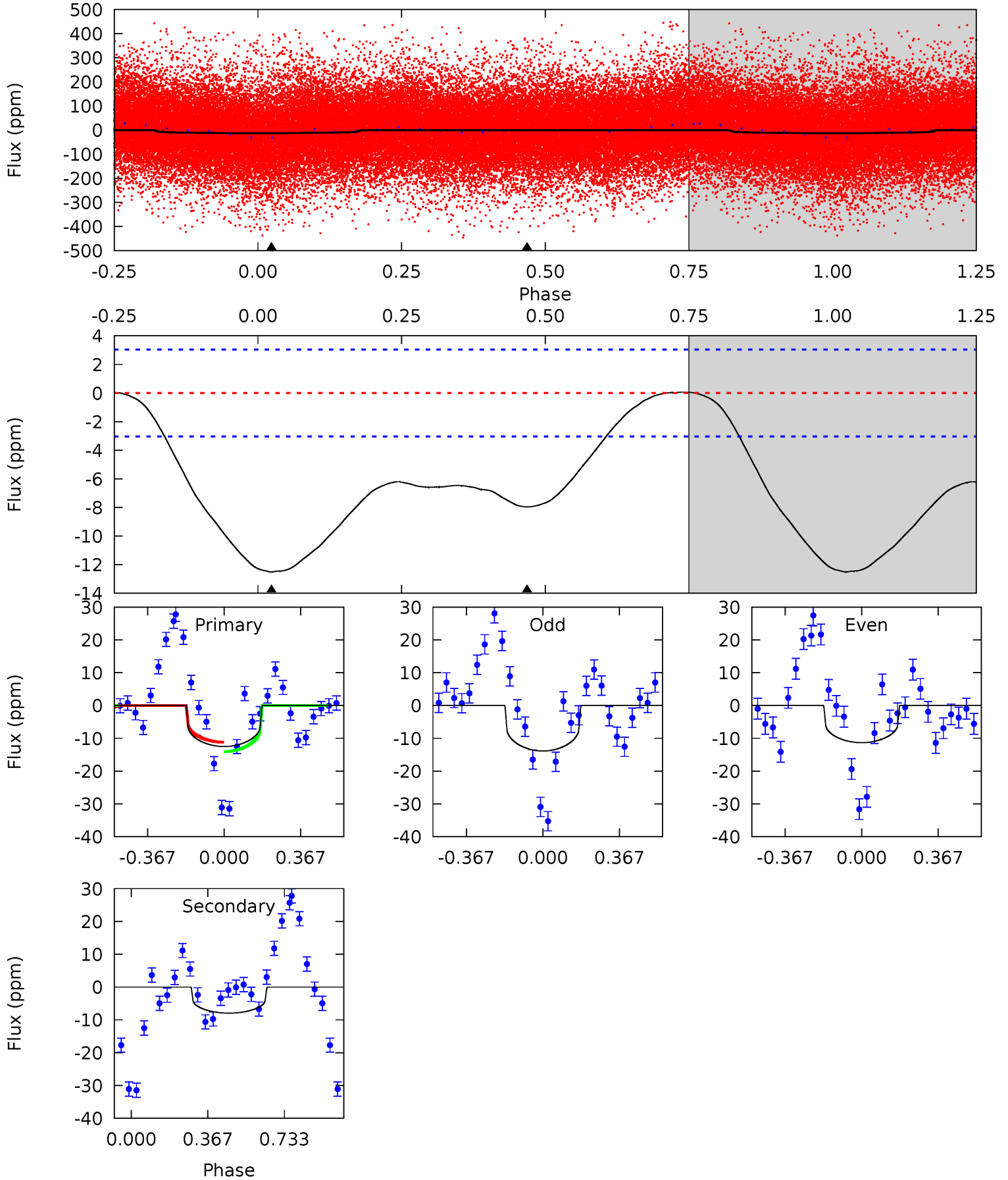




# DV Model-Shift Uniqueness Test

008816959-01, P = 2.069983 Days, E = 129.688252 Days

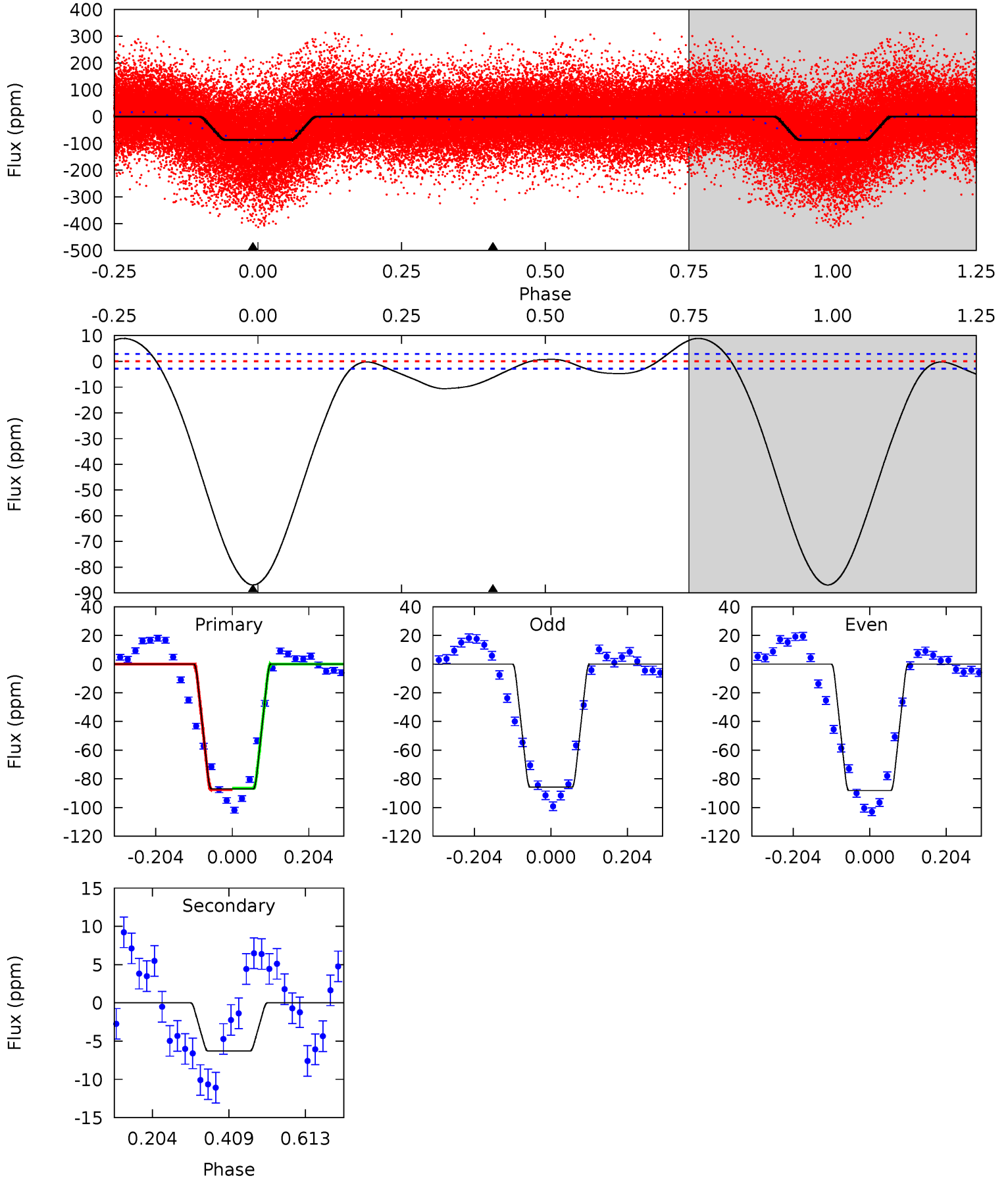
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.6	11.2	0	0	4.28	0.90	0.25	17.6	17.6	11.2	11.2	1.80	0.90	0.01	1.96



# Alt Model-Shift Uniqueness Test

008816959-01, P = 2.069838 Days, E = 129.698471 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
133.6	9.66	0	0	4.41	1.27	7.98	133.6	133.6	9.66	9.66	1.82	1.05	0.09	0.70





### Stellar Parameters For KIC 008816959

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6384^{+177}_{-243}$	$4.029^{+0.270}_{-0.157}$	$0.120^{+0.250}_{-0.300}$	$1.904^{+0.550}_{-0.672}$	$1.412^{+0.190}_{-0.285}$	$0.288^{+0.579}_{-0.128}$
	+3%/-4%	+7%/-4%	+208%/-250%	+29%/-35%	+13%/-20%	+201%/-45%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 008816959-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-8 \pm 1$	$0.64^{+0.45}_{-0.35}$	$2842^{+223}_{-252}$	$5886^{+3590}_{-1181}$	$13^{+52}_{-9}$
Alt.	$-6 \pm 1$	$1.79^{+0.54}_{-0.51}$	$2855^{+219}_{-266}$	$3621^{+390}_{-340}$	$1.356^{+1.233}_{-0.547}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

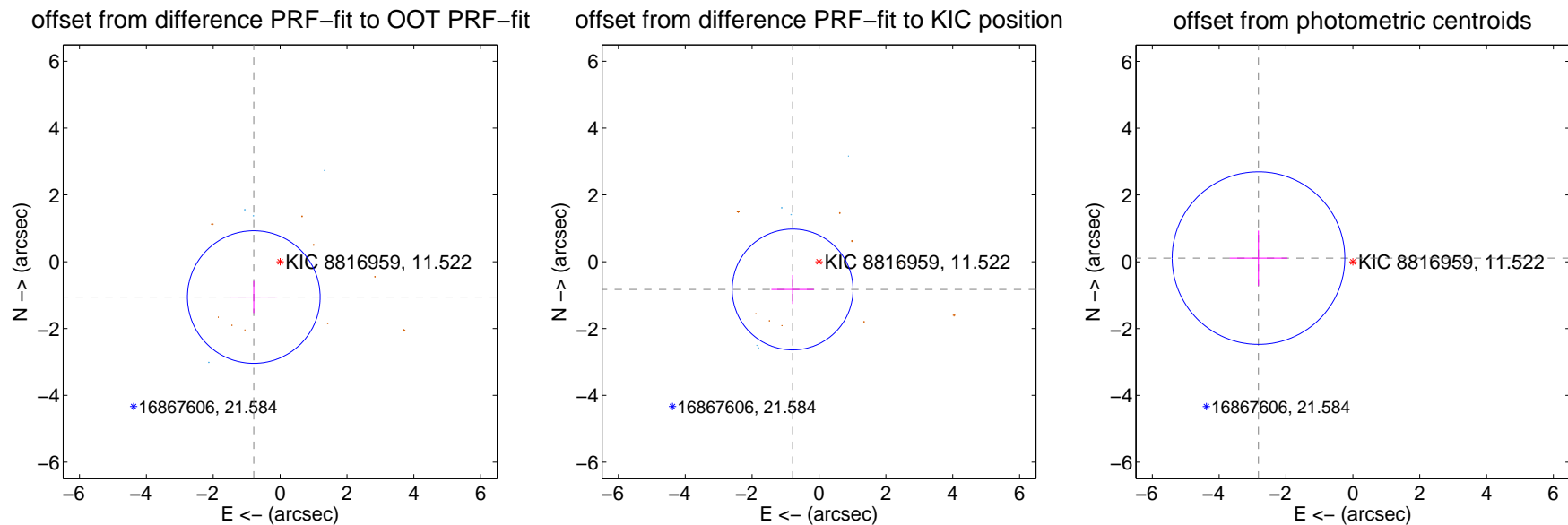
## DV Centroid Data

Supplemental centroid analysis for 008816959-01. **Kepler magnitude: 11.52.** Transit SNR 5.49

There are 5 quarters with good PRF difference image offsets

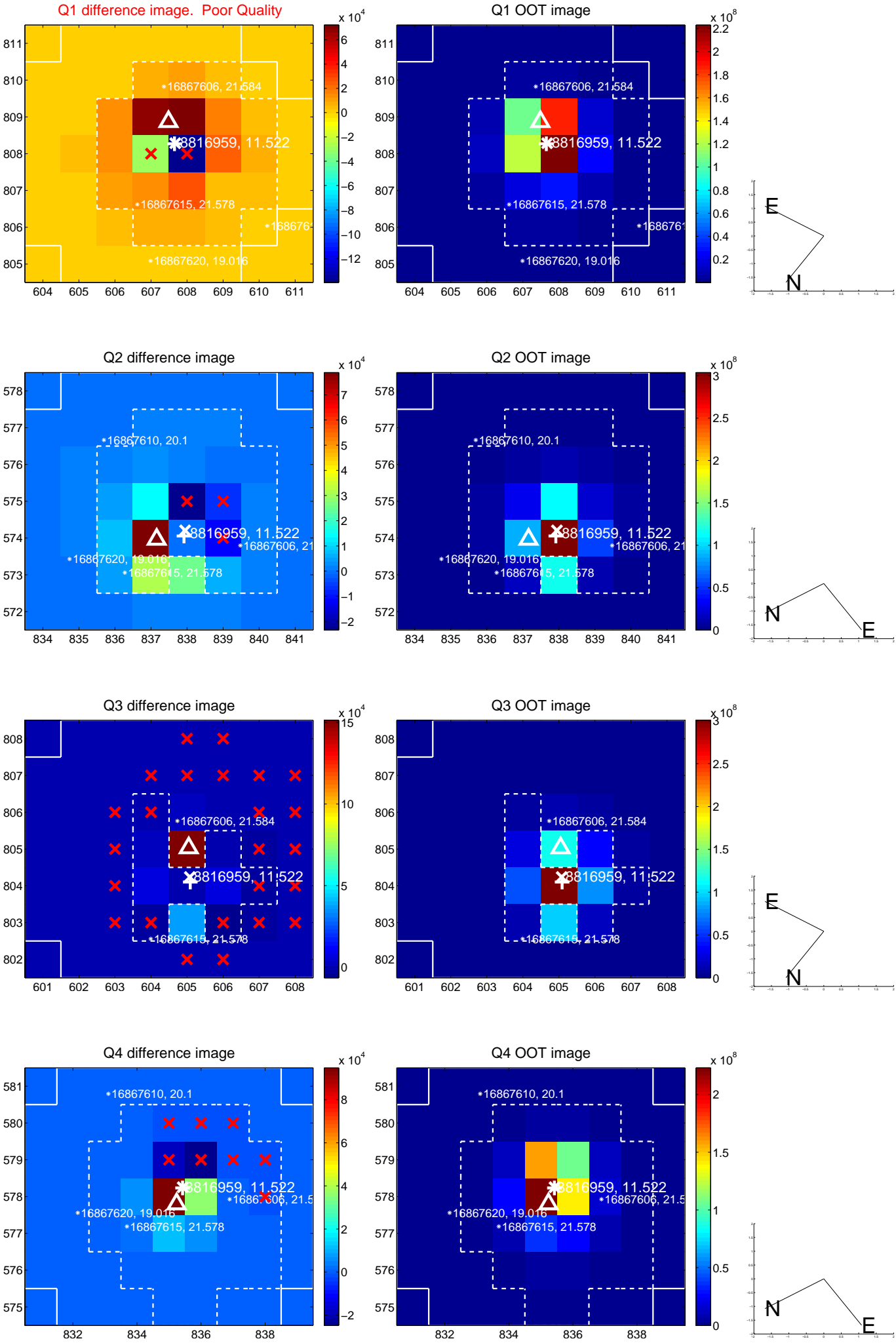
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.319 \pm 0.661$	1.99	$0.787 \pm 0.702$	$-1.058 \pm 0.480$
PRF-fit source offset from KIC position	$1.146 \pm 0.602$	1.90	$0.789 \pm 0.635$	$-0.832 \pm 0.431$
photometric centroid source offset	<b><math>2.83 \pm 0.86</math></b>	<b>3.28</b>	$2.82 \pm 0.86$	$0.11 \pm 0.82$

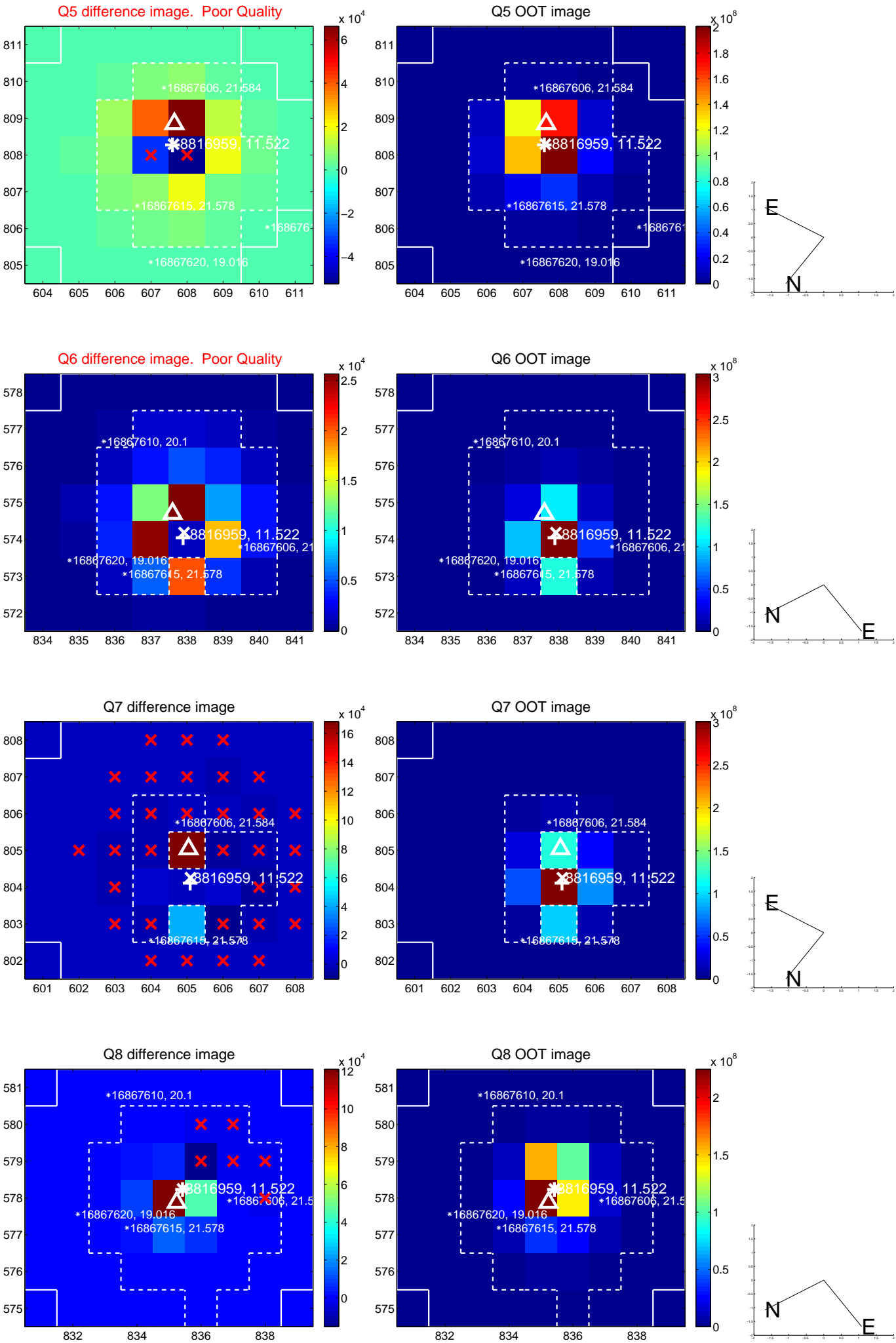


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

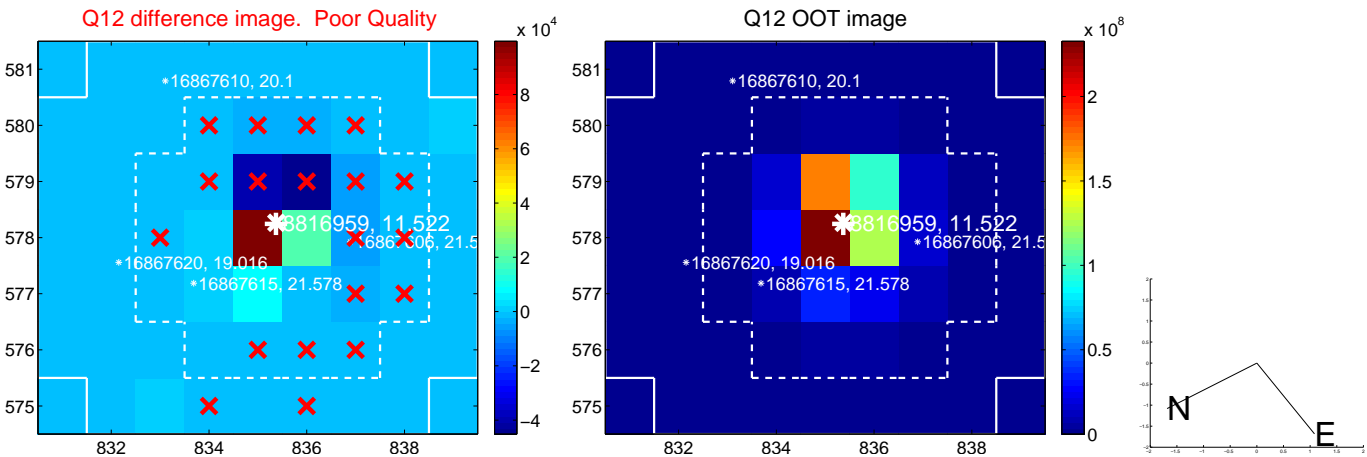
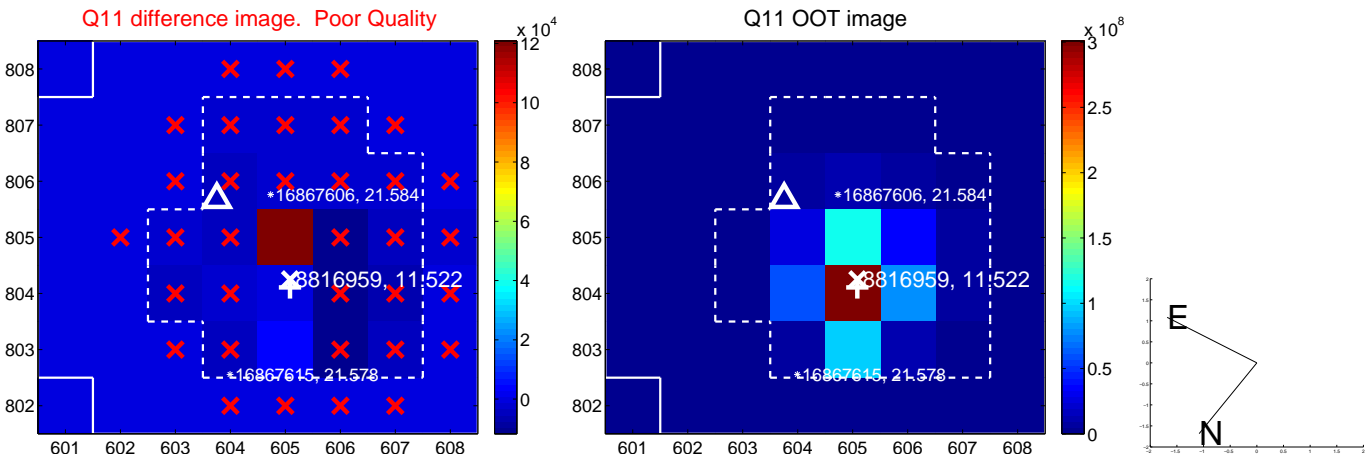
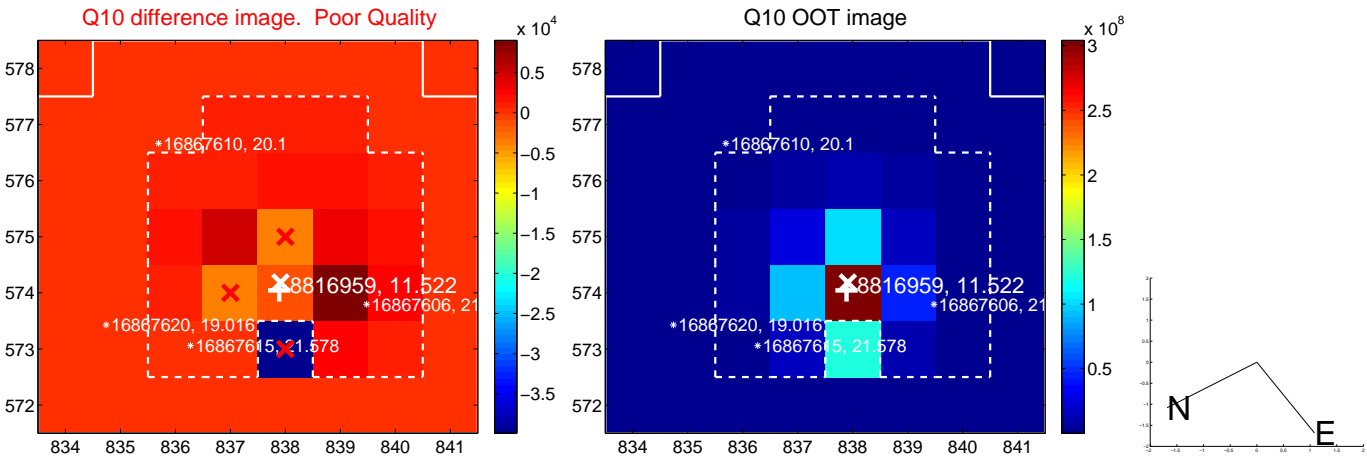
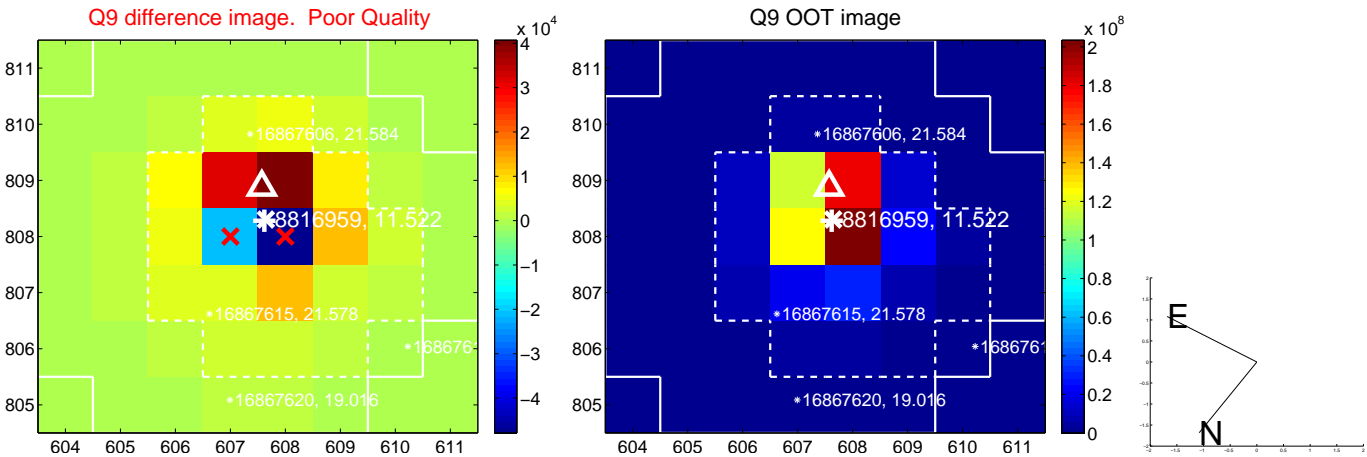


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

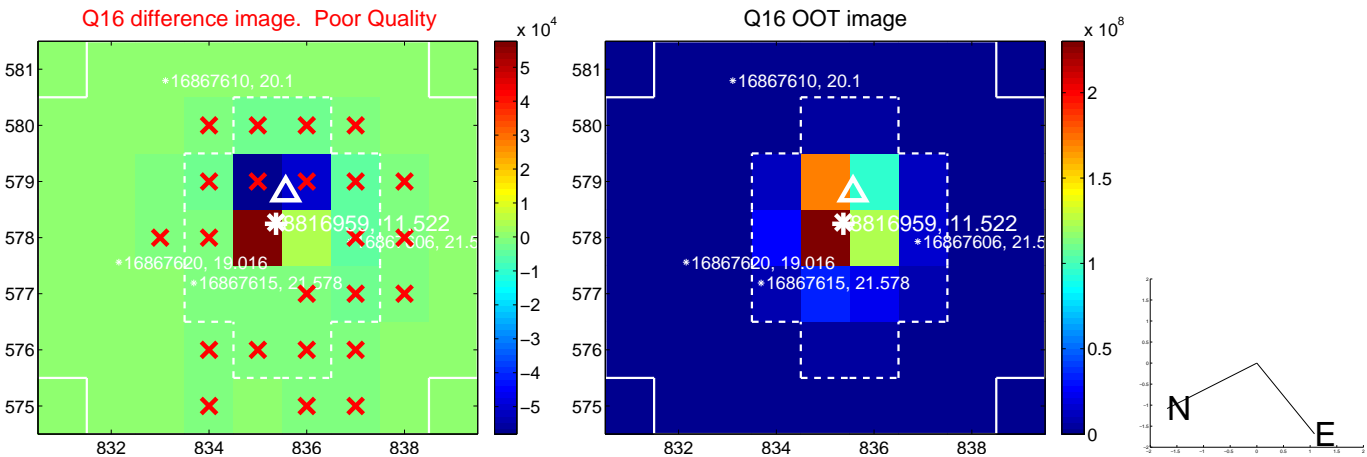
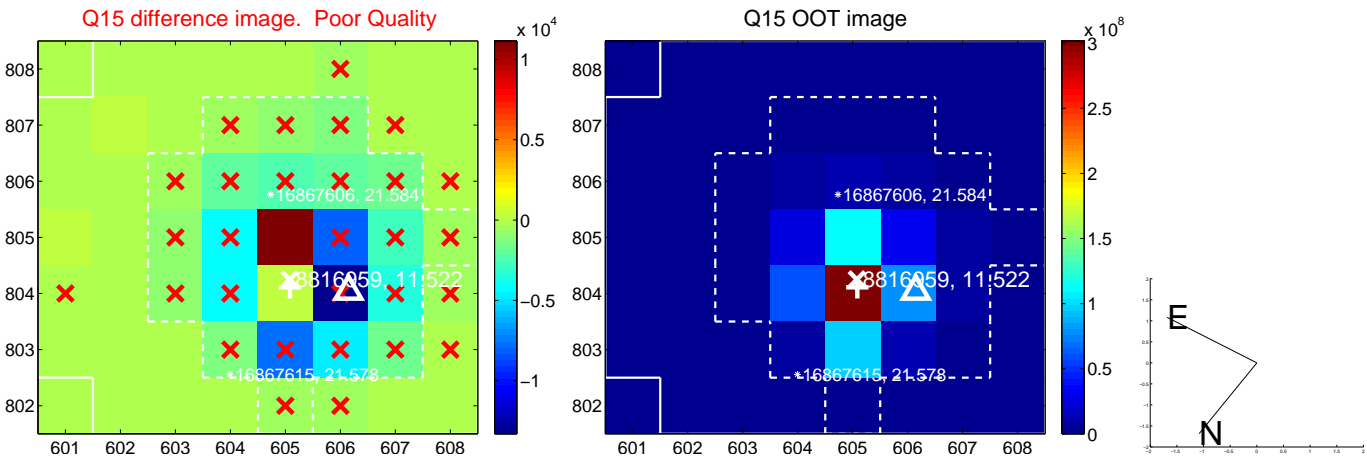
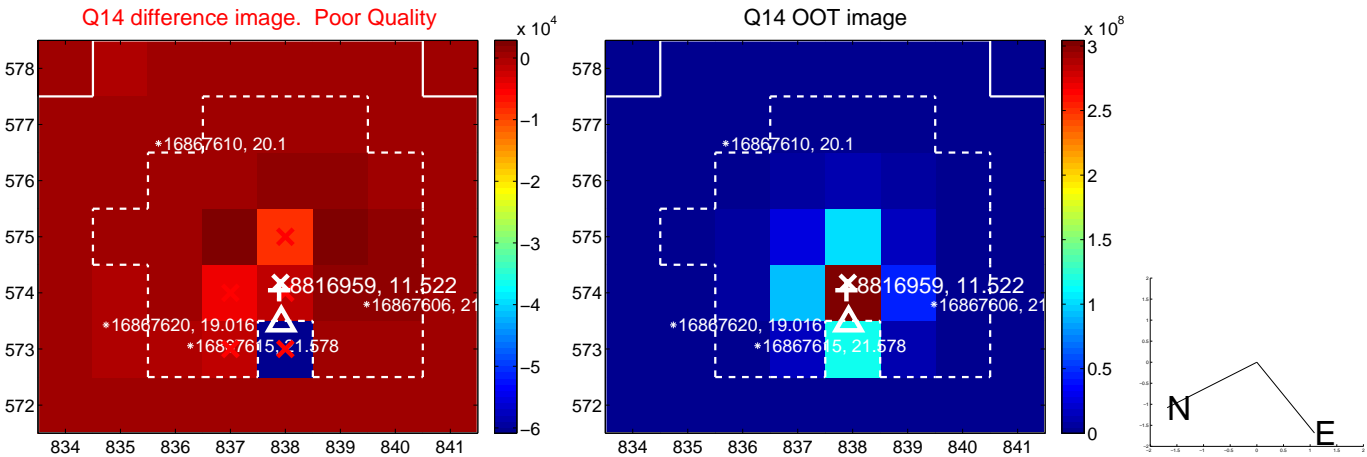
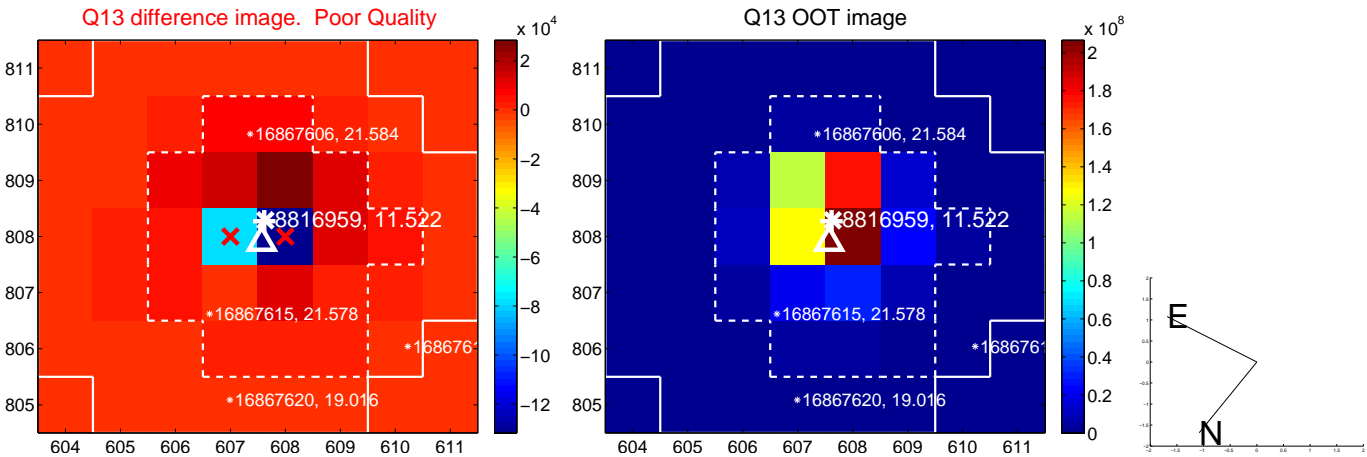




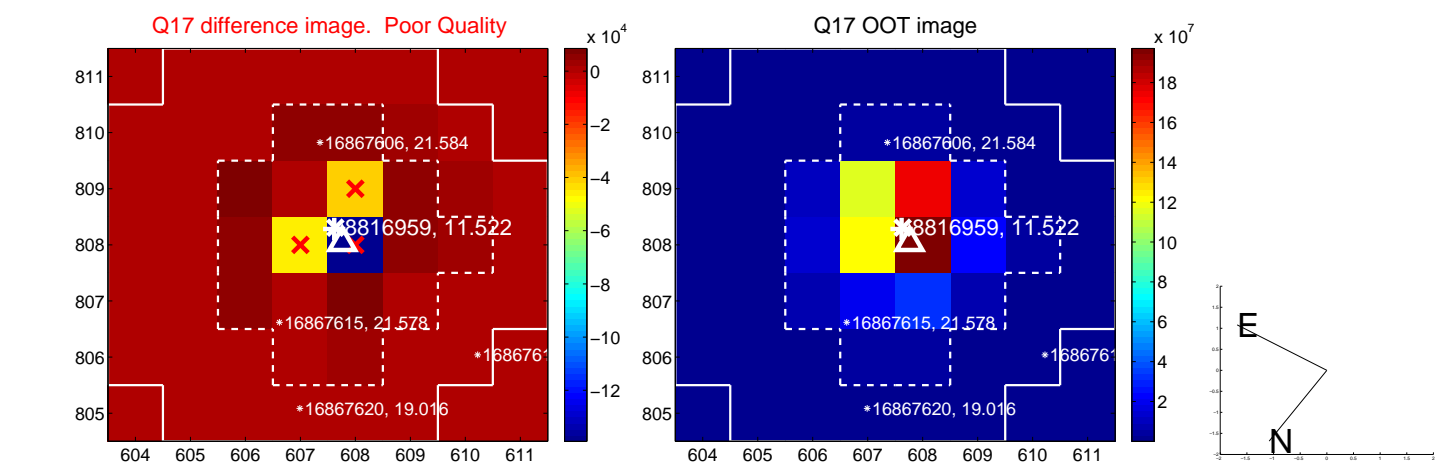
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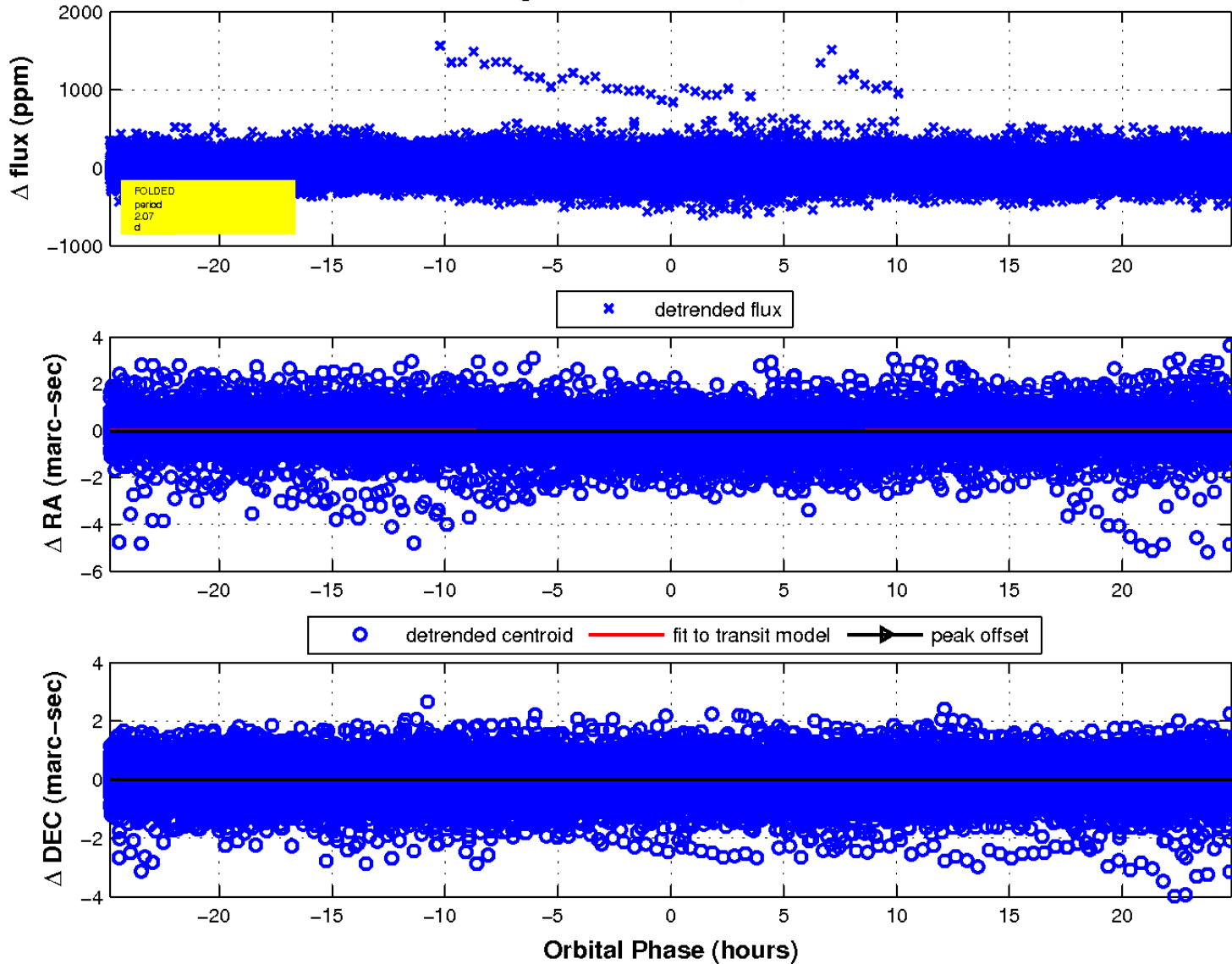
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

