

# KIC 008016691

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008016691-01	OBS	3286.01	18.137284	136.819176	334.5	3.700	9.9	11.0	0.60	4257	1.24	8.32

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008016691-01	OBS	PC	0.94	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 008016691-01

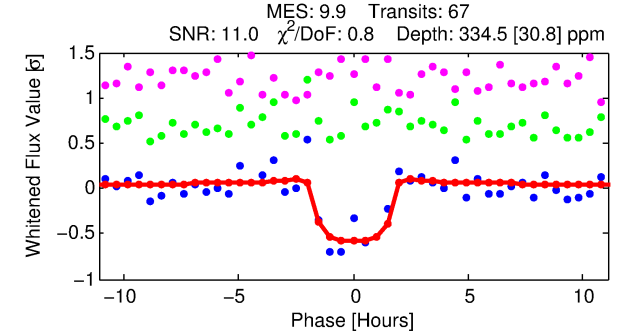
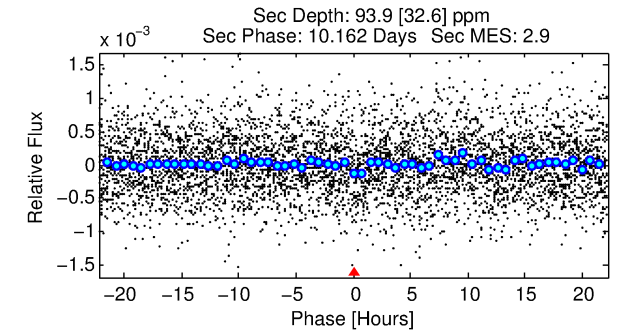
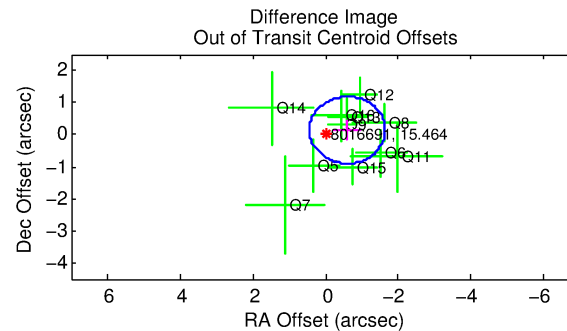
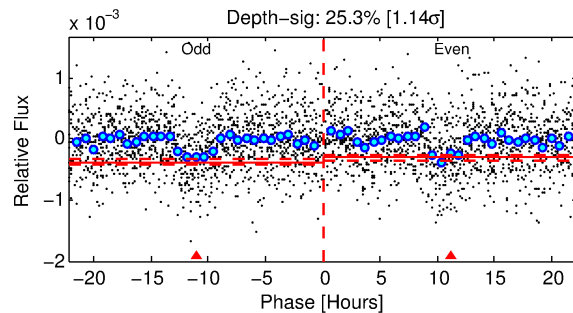
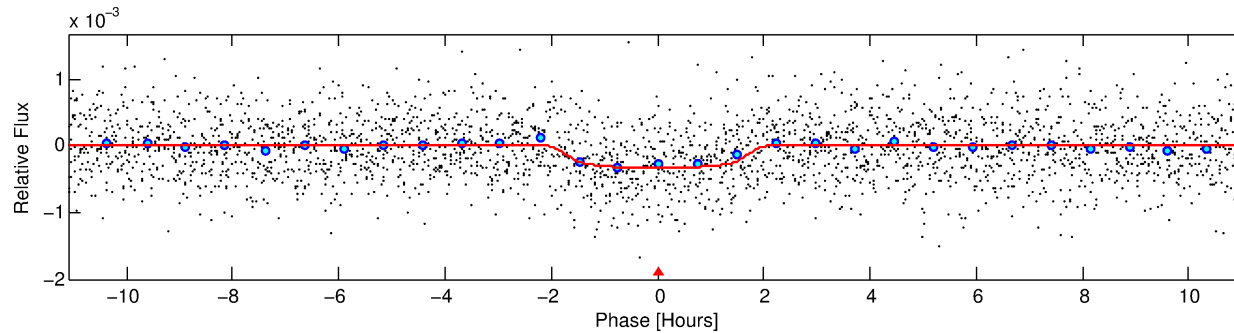
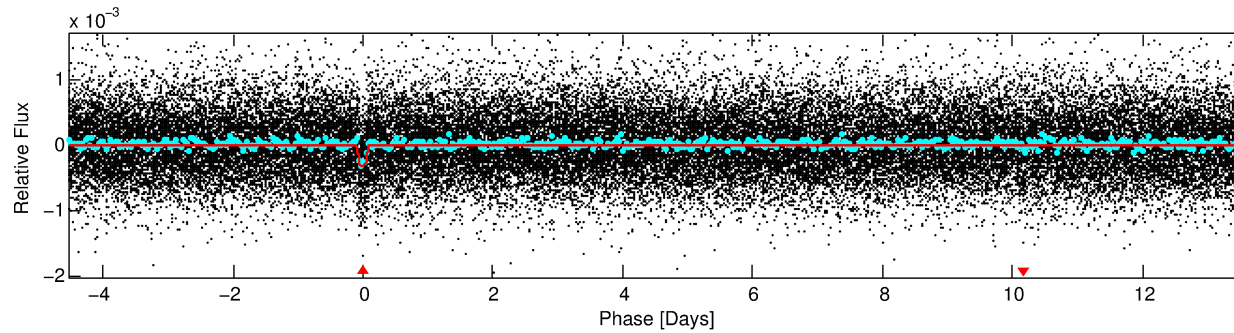
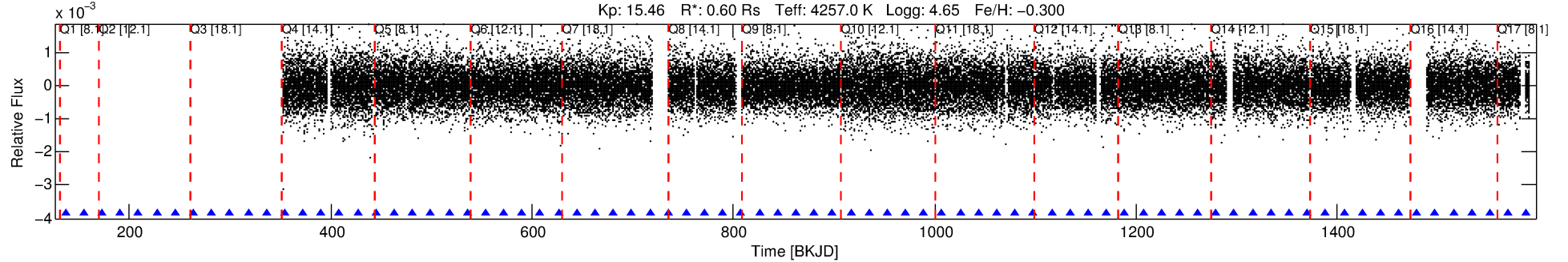
No Significant Match Found

# DV One-Page Summary

KIC: 8016691 Candidate: 1 of 1 Period: 18.137 d

KOI: K03286.01 Corr: 0.953

Kp: 15.46 R\*: 0.60 Rs Teff: 4257.0 K Logg: 4.65 Fe/H: -0.300



## DV Fit Results:

Period = 18.13728 [0.00016] d  
Epoch = 136.8192 [0.0081] BKJD  
Rp/R\* = 0.0188 [0.0135]  
a/R\* = 23.61 [63.17]  
b = 0.80 [1.23]  
Seff = 8.32 [1.59]  
Teq = 433 [21] K  
Rp = 1.23 [0.90] Re  
a = 0.1132 [0.0095] AU  
Ag = 434.28 [645.31] [0.67σ]  
Teffp = 3057 [1138] K [2.30σ]

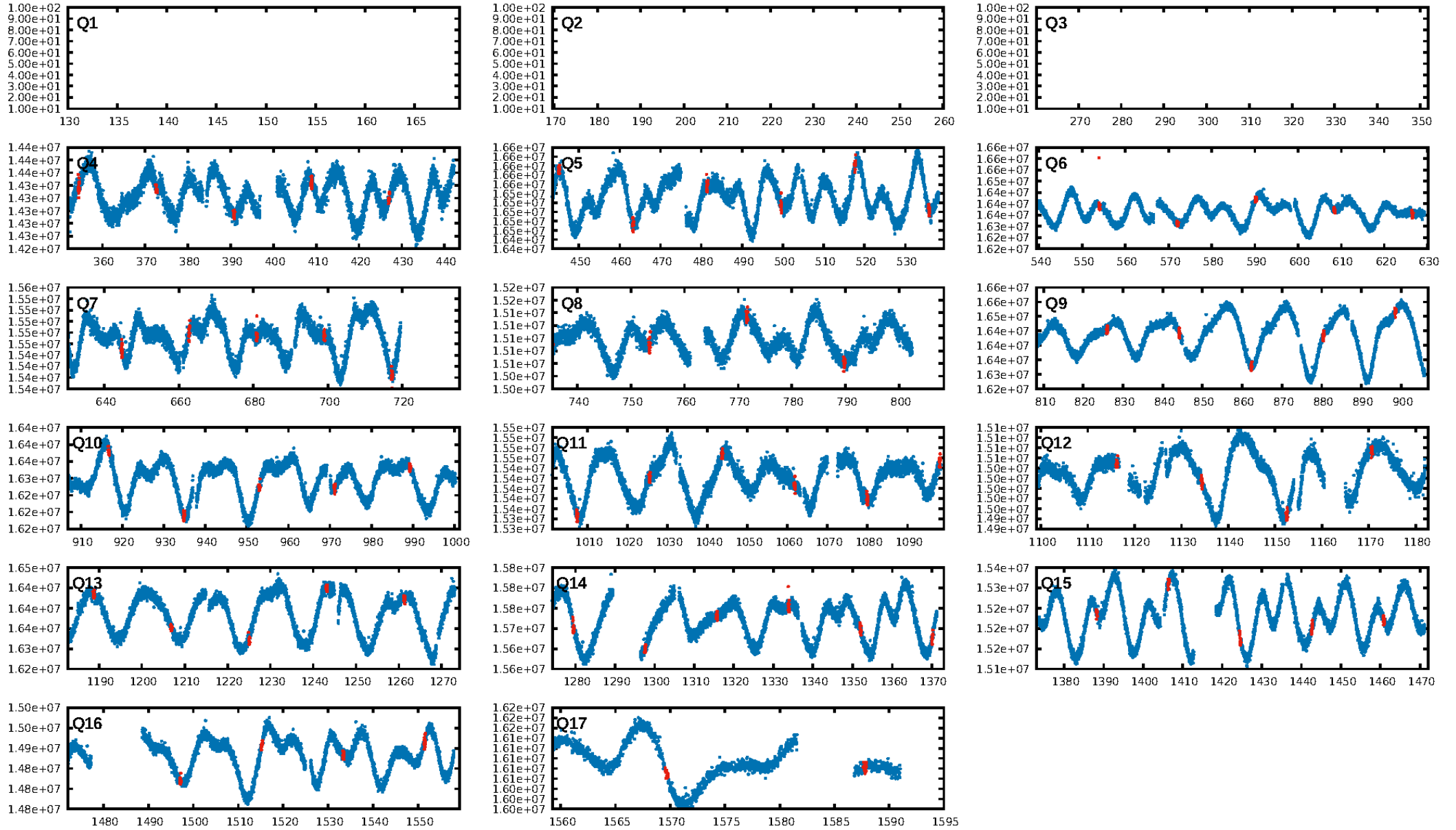
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 59.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.23e-22  
RollingBand-fgt: 1.00 [65/65]  
GhostDiagnostic-chr: 1.481  
Centroid-sig: 28.2%  
Centroid-so: 0.815 arcsec [0.88σ]  
OotOffset-rm: 0.613 arcsec [1.76σ]  
KicOffset-rm: 0.676 arcsec [1.90σ]  
OotOffset-st: 2/3/3/3 [11]  
KicOffset-st: 2/3/3/3 [11]  
DiffImageQuality-fgm: 0.82 [9/11]  
DiffImageOverlap-fno: 1.00 [14/14]

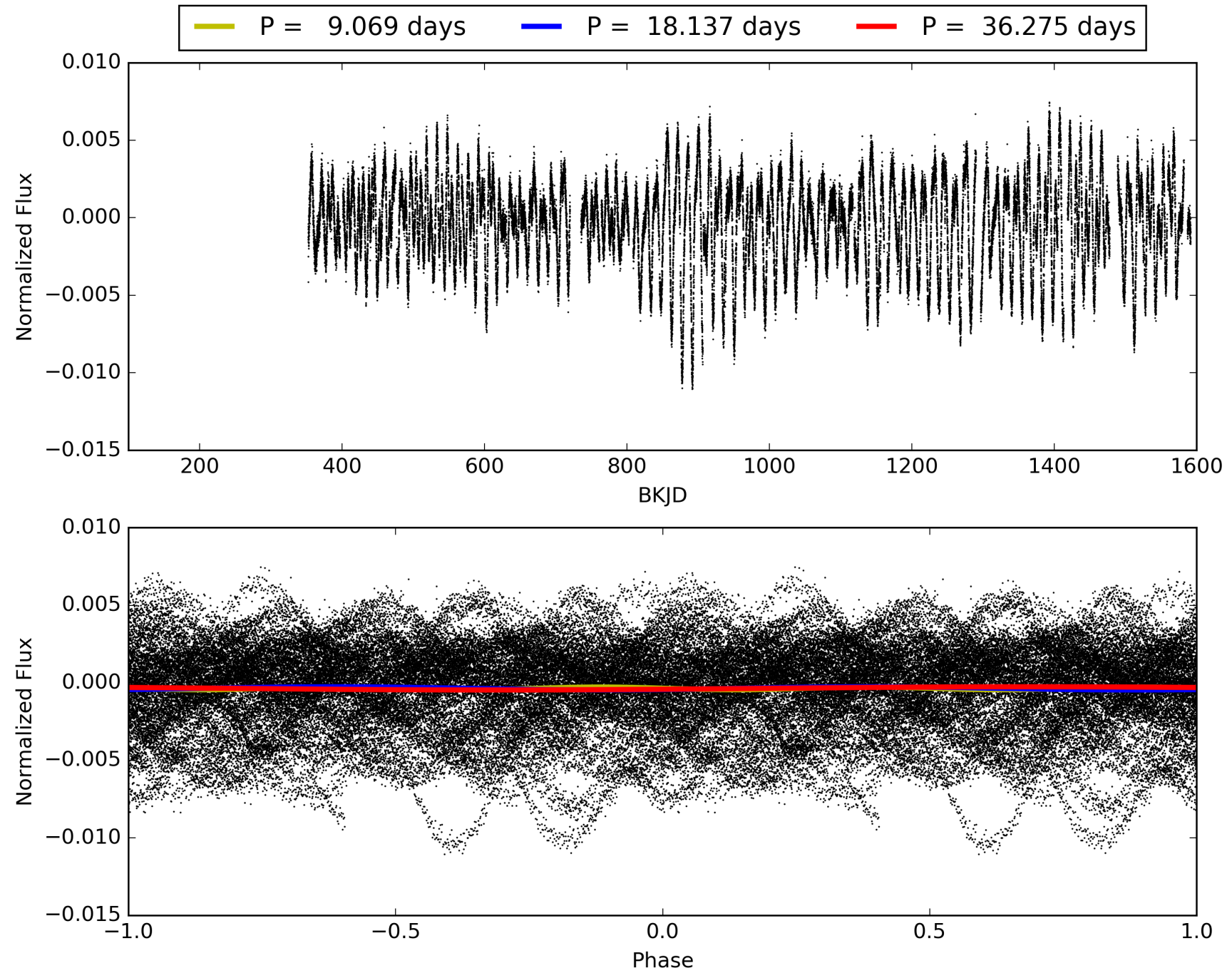
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:03:36 Z

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

# TCE 008016691-01, PDC Light Curves

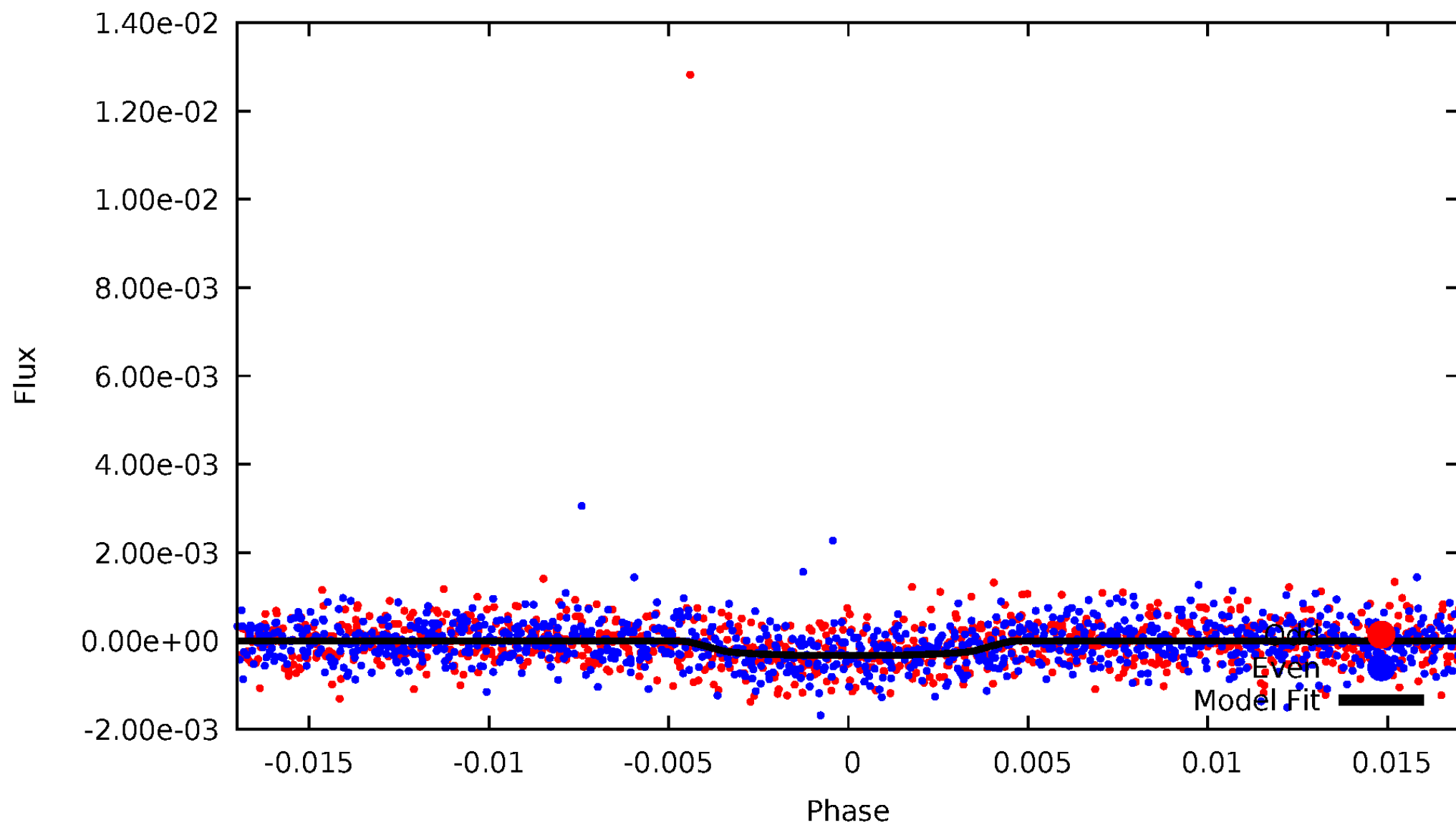


TCE 008016691-01



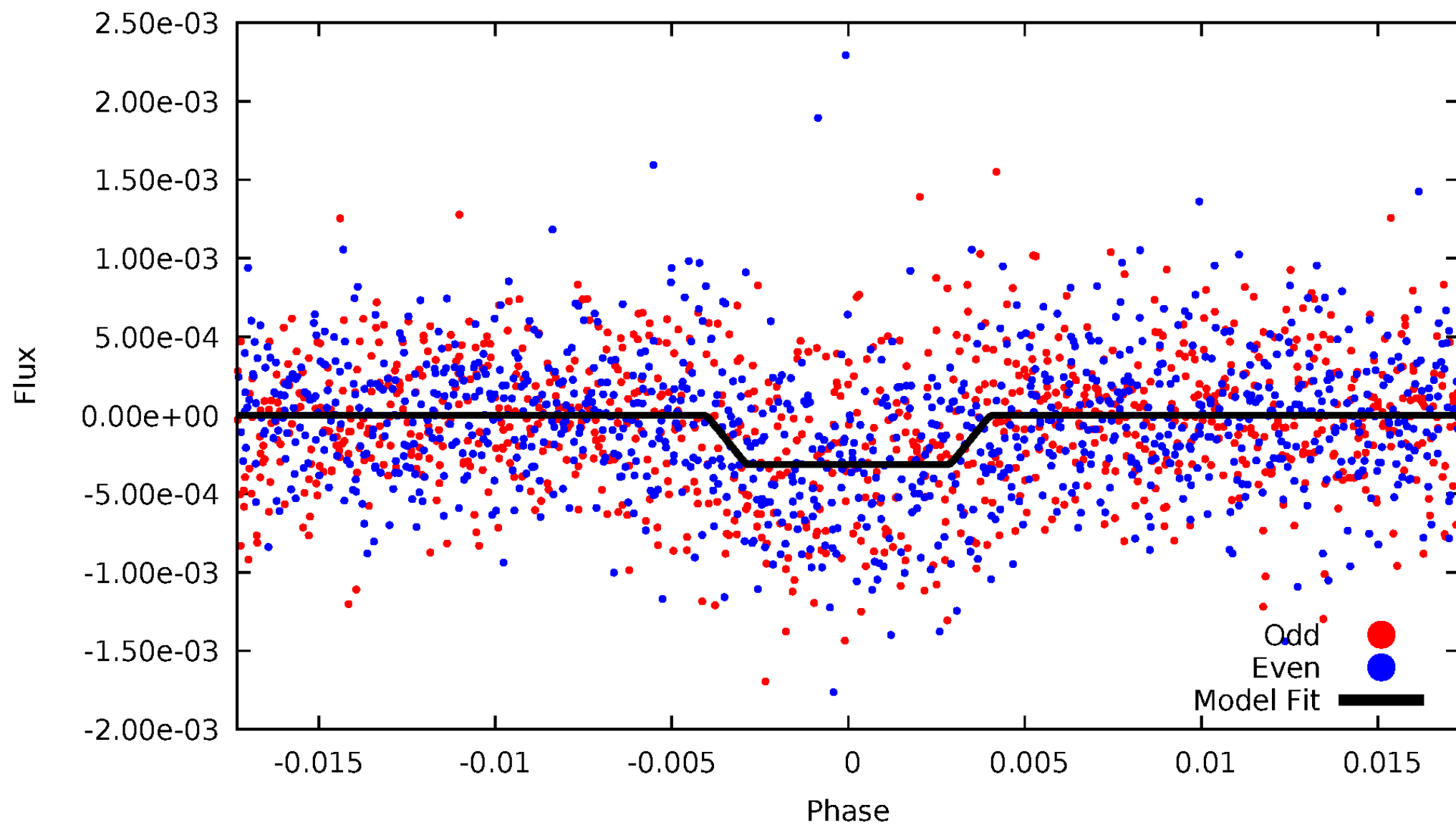
# DV Odd/Even

TCE 008016691-01



# ALT Odd/Even

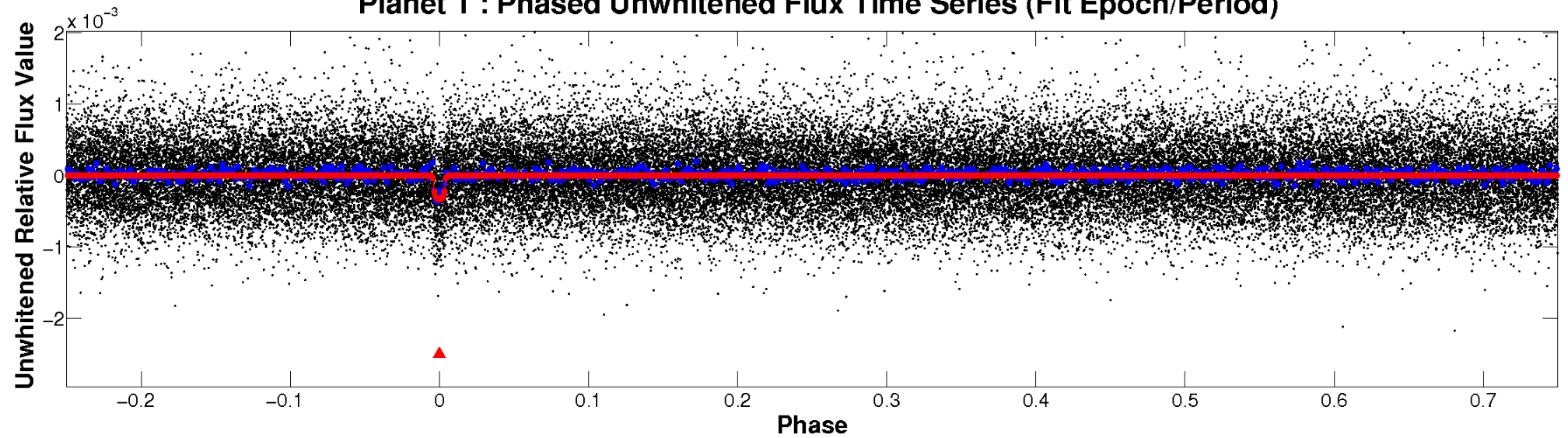
TCE 008016691-01



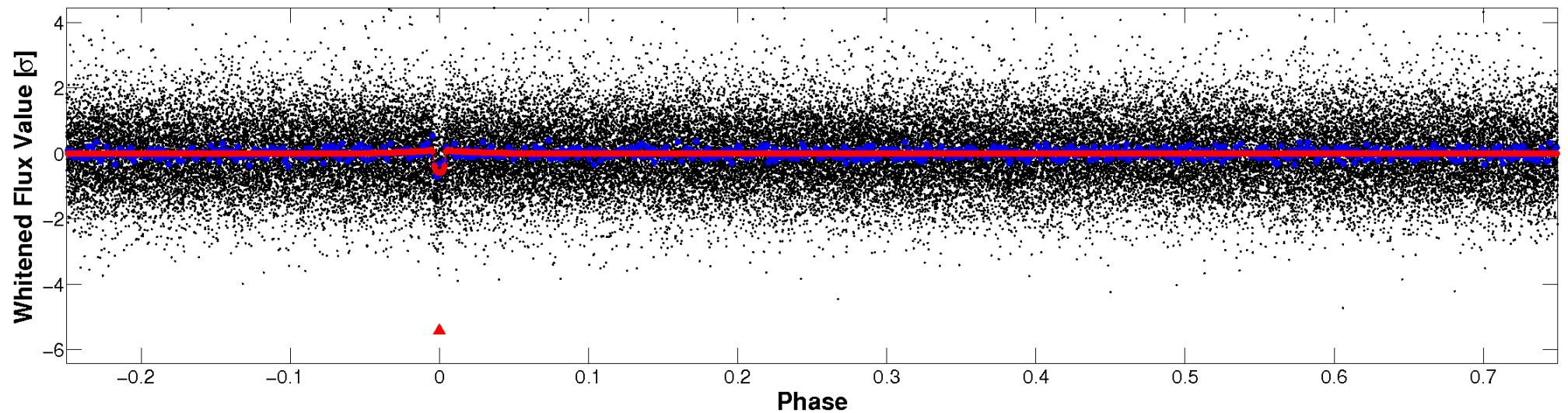


# Non-Whitened Vs. Whitened Light Curve

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

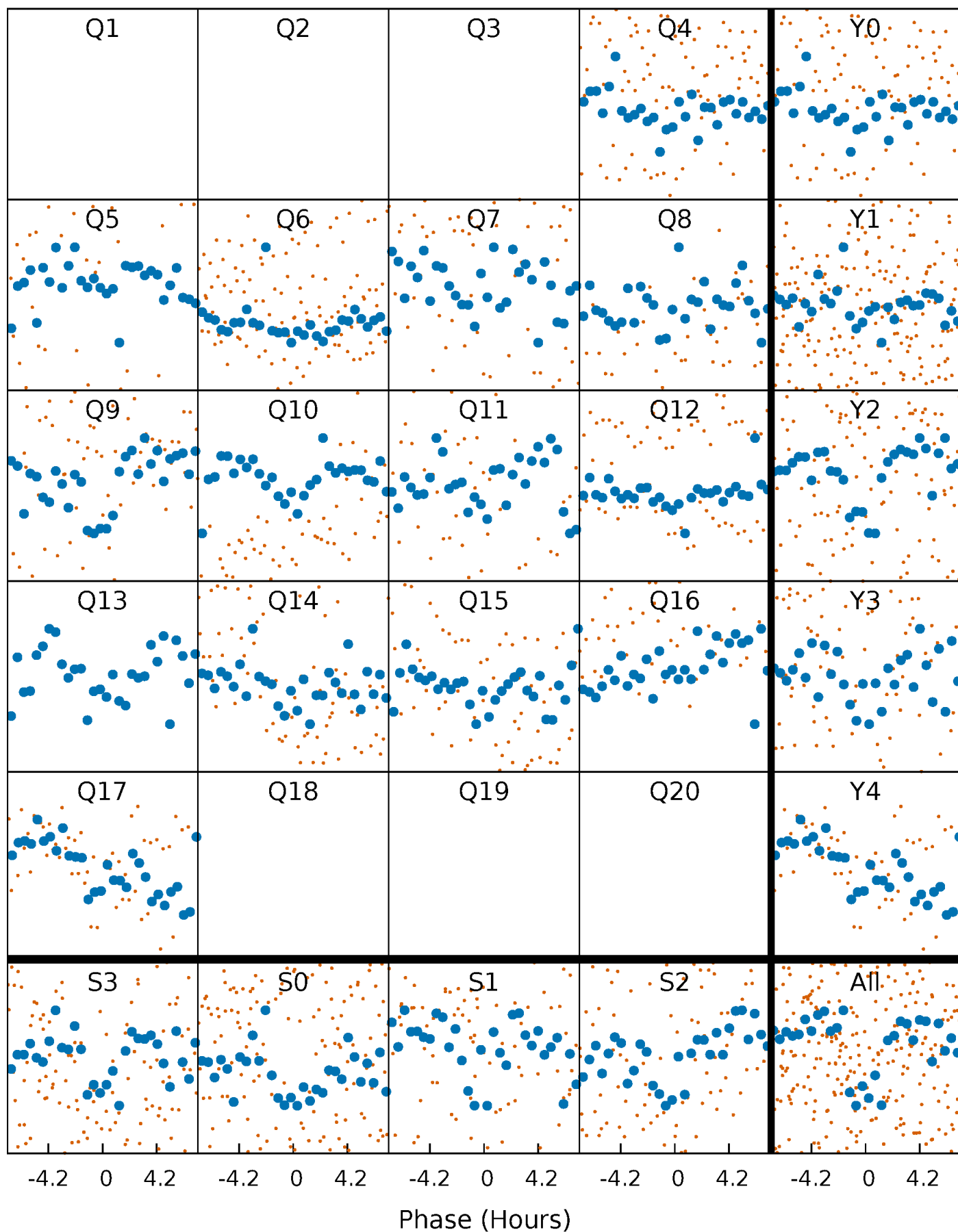


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

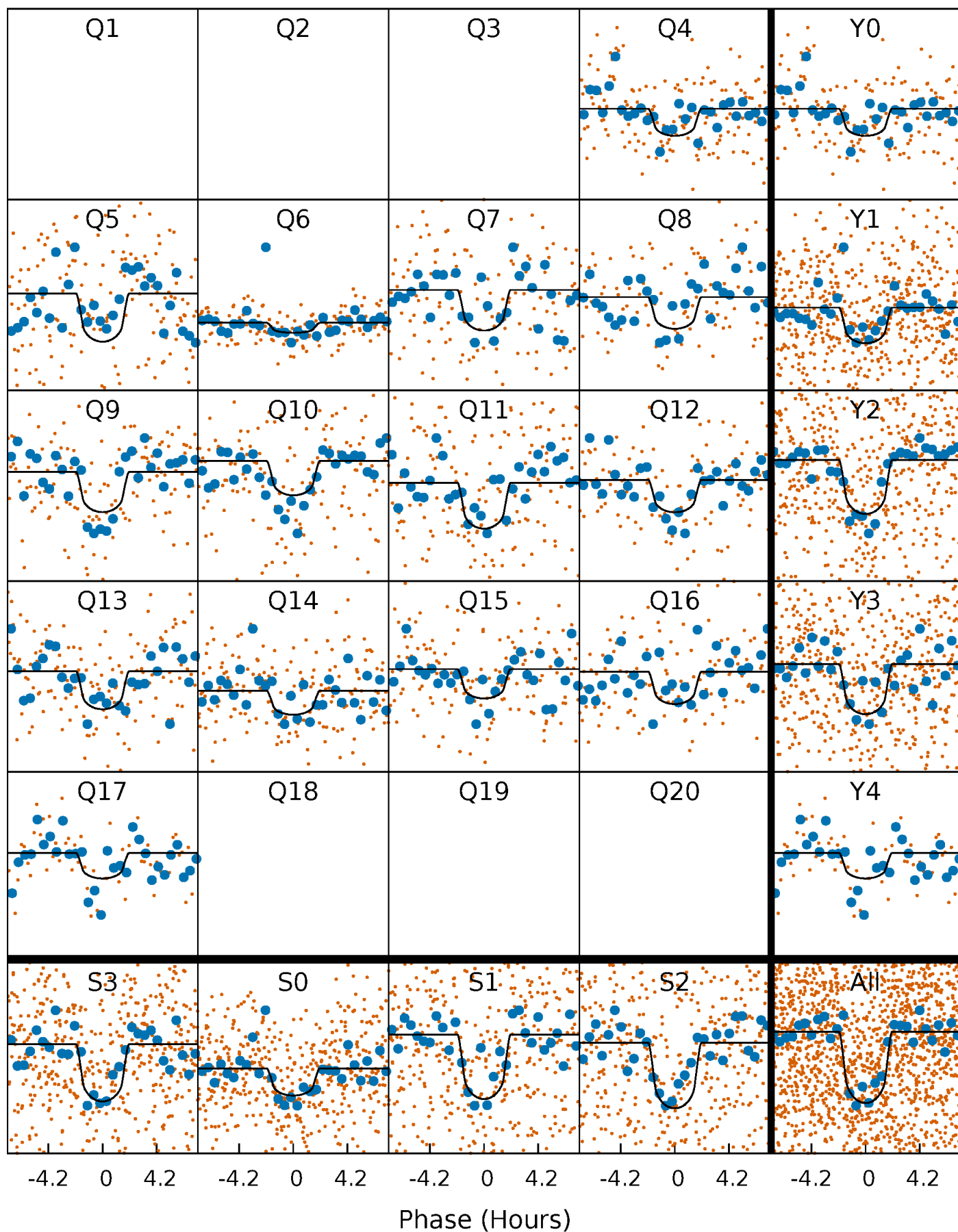
TCE 008016691-01 P= 18.137284 Days  $T_0=136.819176$  (BKJD)





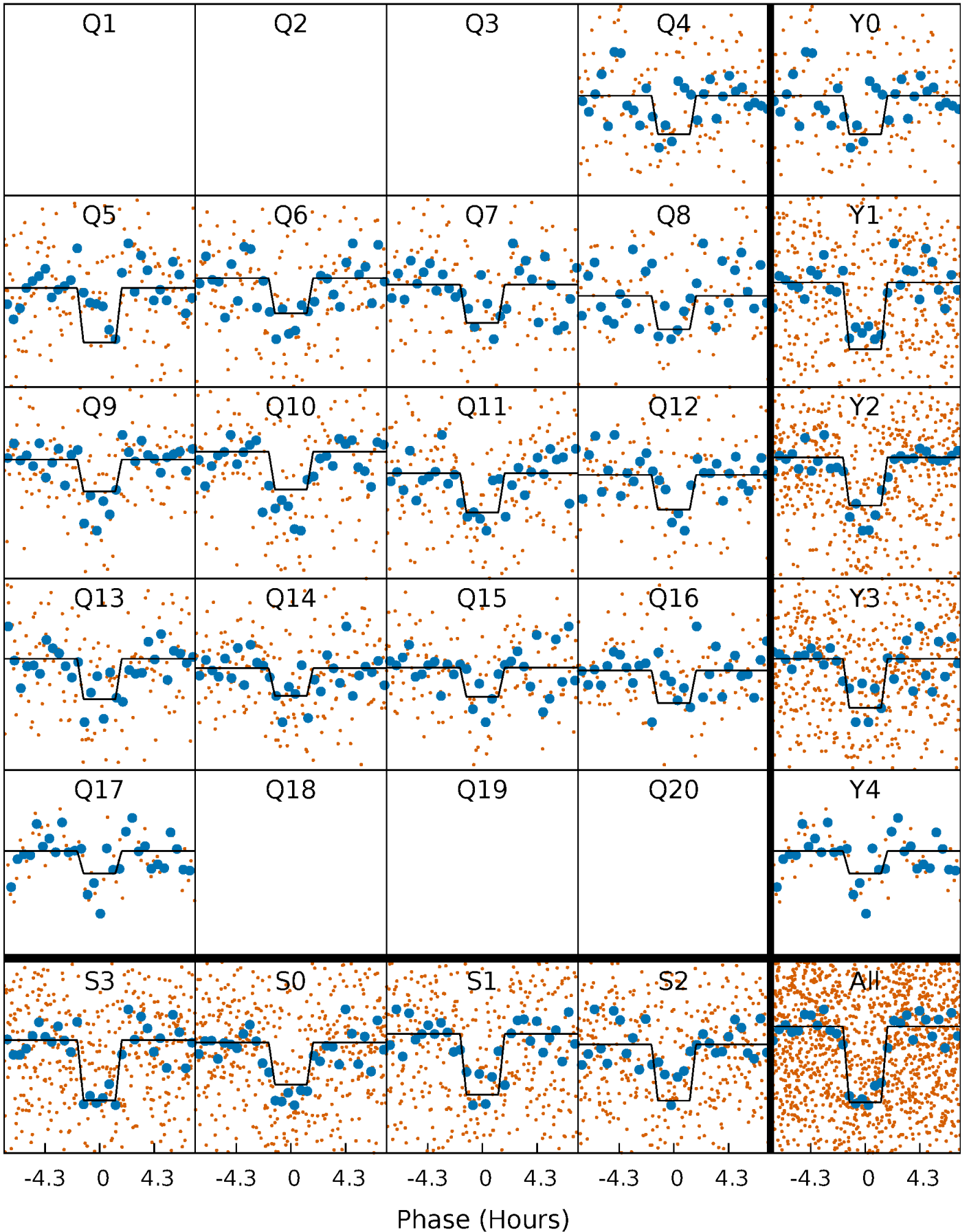
# DV Quarter-Phased Transit Curves

TCE 008016691-01 P= 18.137284 Days  $T_0=136.819176$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

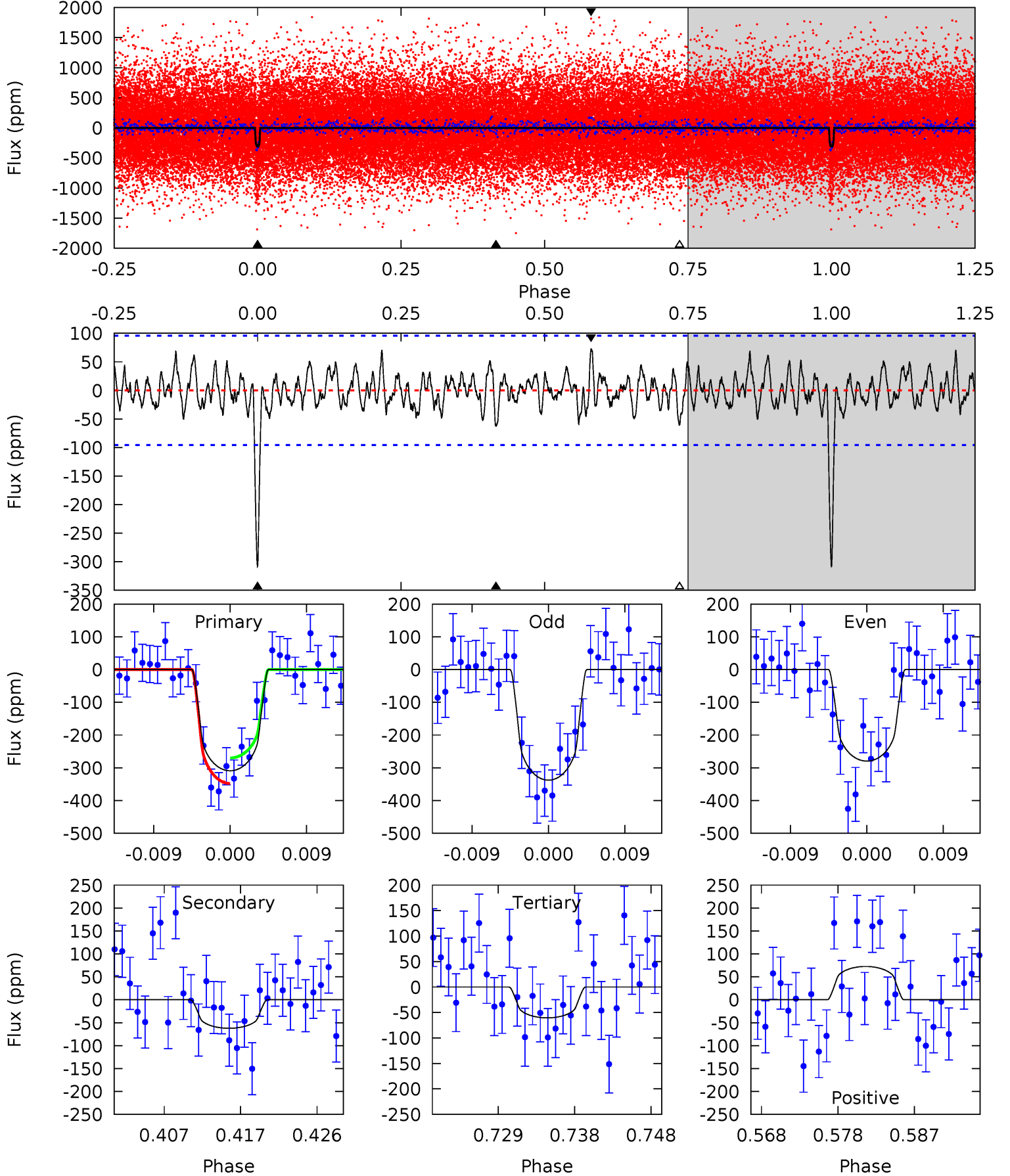
TCE 008016691-01 P= 18.137368 Days  $T_0=136.810229$  (BKJD)



# DV Model-Shift Uniqueness Test

008016691-01,  $P = 18.137284$  Days,  $E = 136.819176$  Days

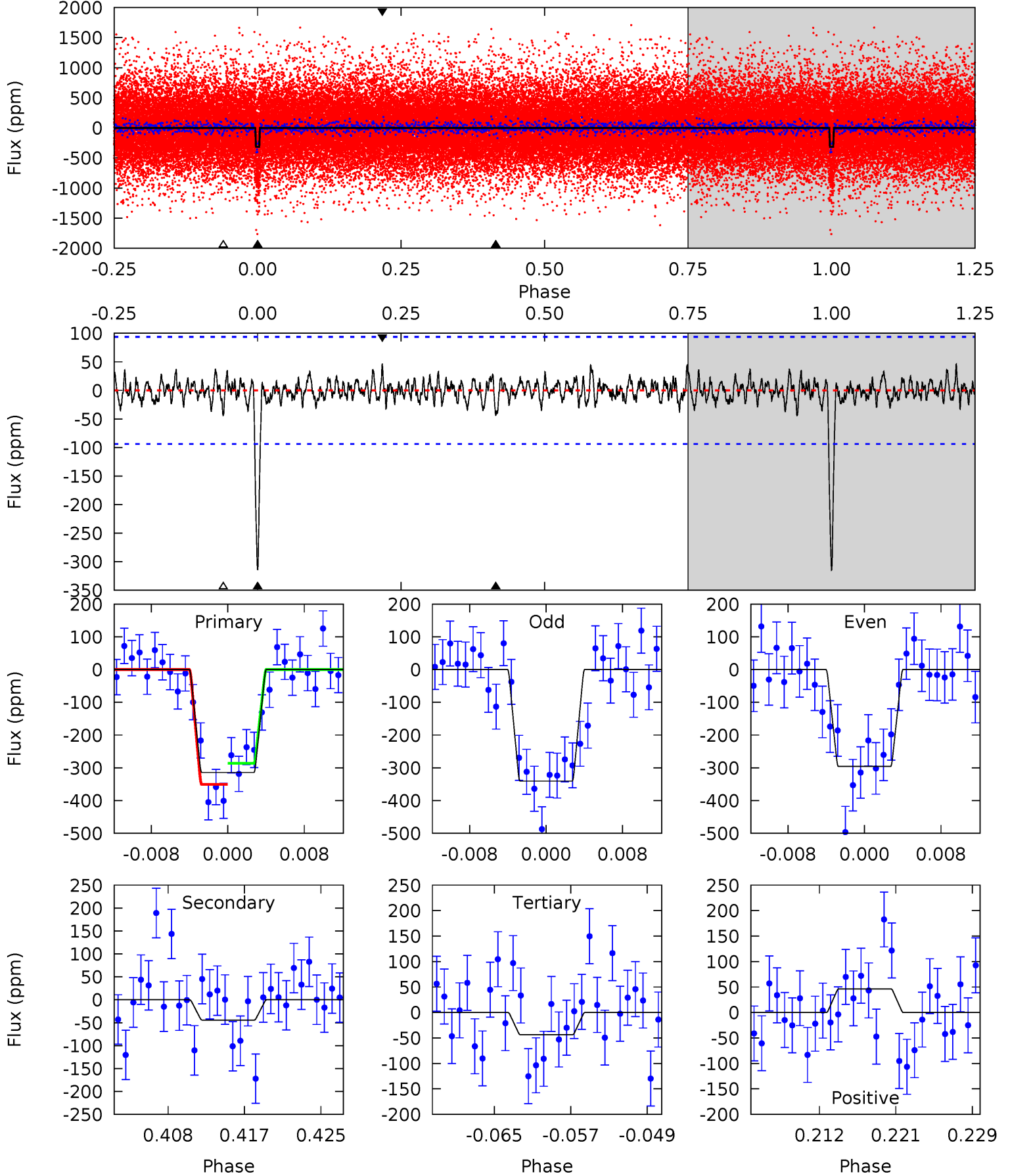
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	3.27	3.18	3.82	5.04	2.59	1.24	13.1	12.4	0.09	-0.55	1.53	1.06	0.19	2.05



# Alt Model-Shift Uniqueness Test

008016691-01,  $P = 18.137368$  Days,  $E = 136.810229$  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
17.0	2.39	2.36	2.50	5.06	2.65	0.77	14.6	14.5	0.03	-0.11	1.20	0.91	0.13	1.74



### Stellar Parameters For KIC 008016691

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4257^{+148}_{-163}$	$4.648^{+0.059}_{-0.023}$	$-0.300^{+0.300}_{-0.300}$	$0.602^{+0.048}_{-0.064}$	$0.589^{+0.064}_{-0.052}$	$3.794^{+1.030}_{-0.461}$
	+3%/-4%	+1%/-0%	+100%/-100%	+8%/-11%	+11%/-9%	+27%/-12%
Source	KIC0	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 008016691-01 / KOI 3286.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-62 \pm 19$	$1.32^{+0.84}_{-0.78}$	$599^{+24}_{-22}$	$3111^{+1003}_{-404}$	$242^{+1239}_{-152}$
Alt.	$-44 \pm 19$	$1.19^{+0.87}_{-0.69}$	$600^{+23}_{-23}$	$3011^{+1000}_{-424}$	$199^{+1012}_{-135}$

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

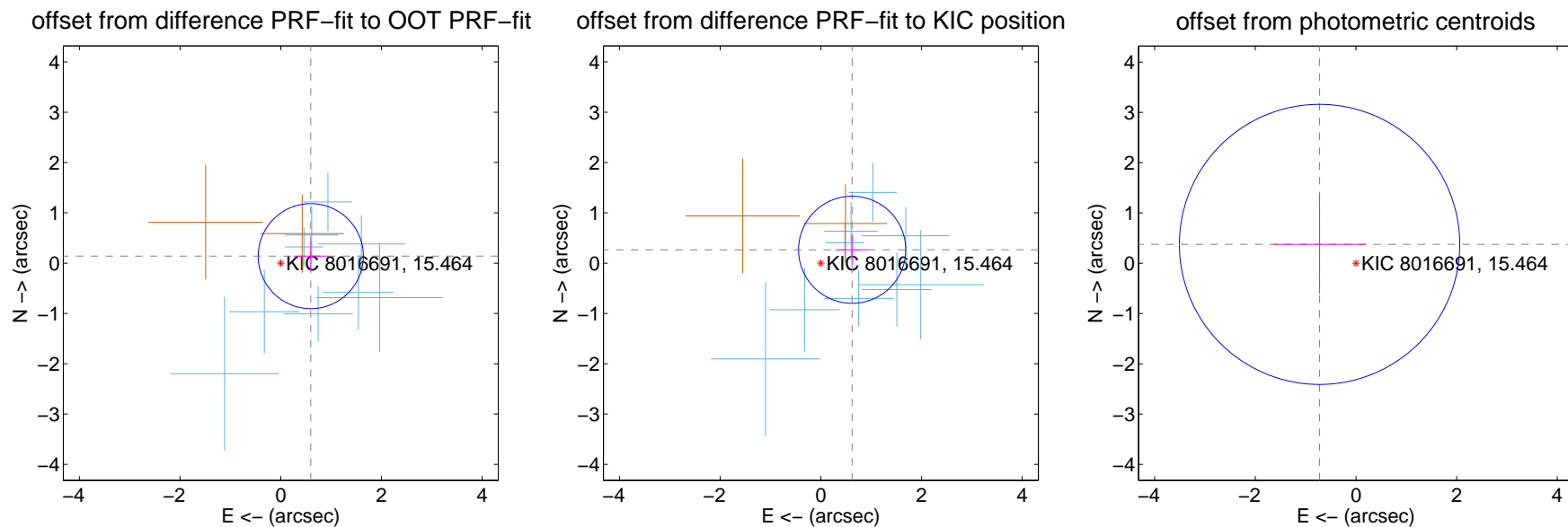
## DV Centroid Data

Supplemental centroid analysis for 008016691-01. Kepler magnitude: 15.46. Transit SNR 10.98

There are 9 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

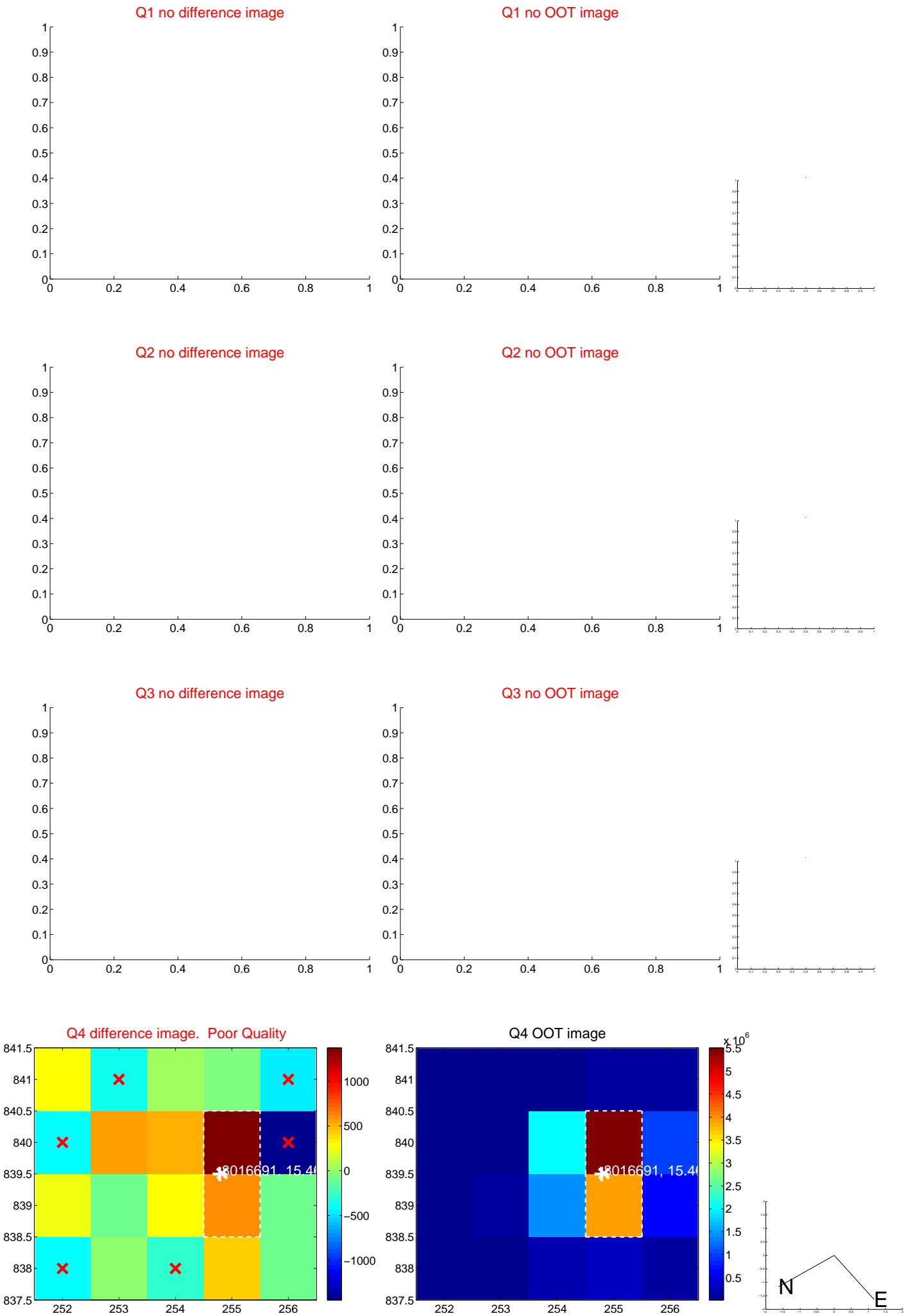
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.613 \pm 0.348$	1.76	$-0.597 \pm 0.343$	$0.139 \pm 0.291$
PRF-fit source offset from KIC position	$0.676 \pm 0.355$	1.90	$-0.621 \pm 0.328$	$0.266 \pm 0.308$
photometric centroid source offset	$0.81 \pm 0.93$	0.88	$0.72 \pm 0.91$	$0.37 \pm 0.98$



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.

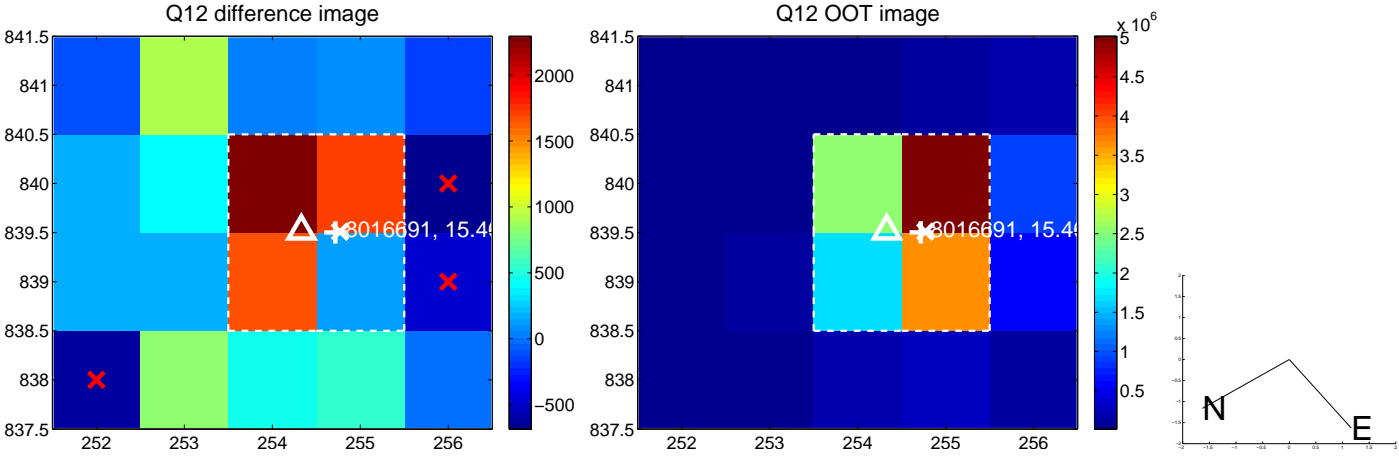
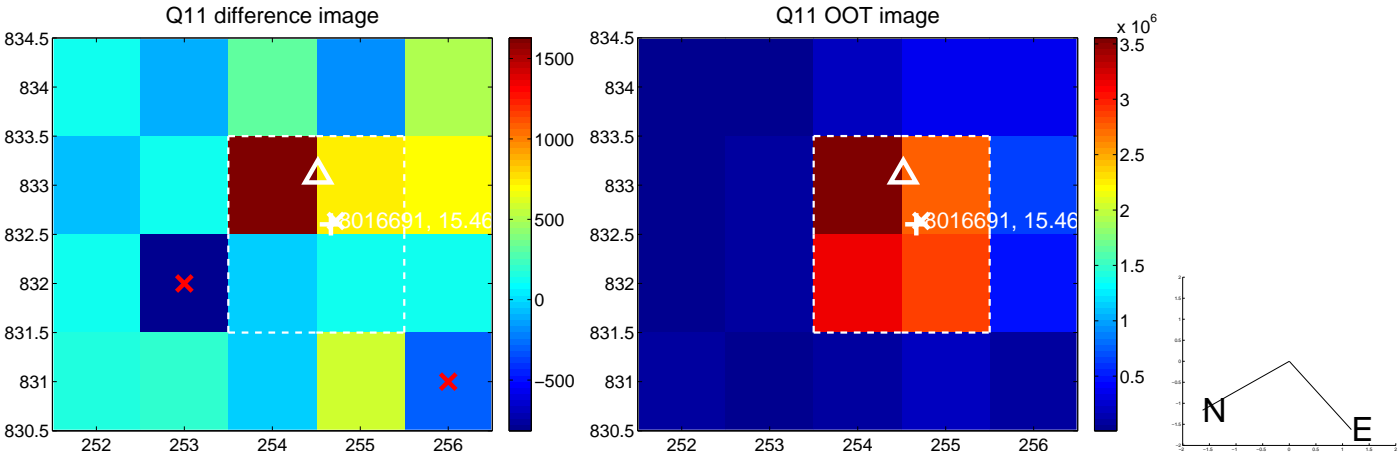
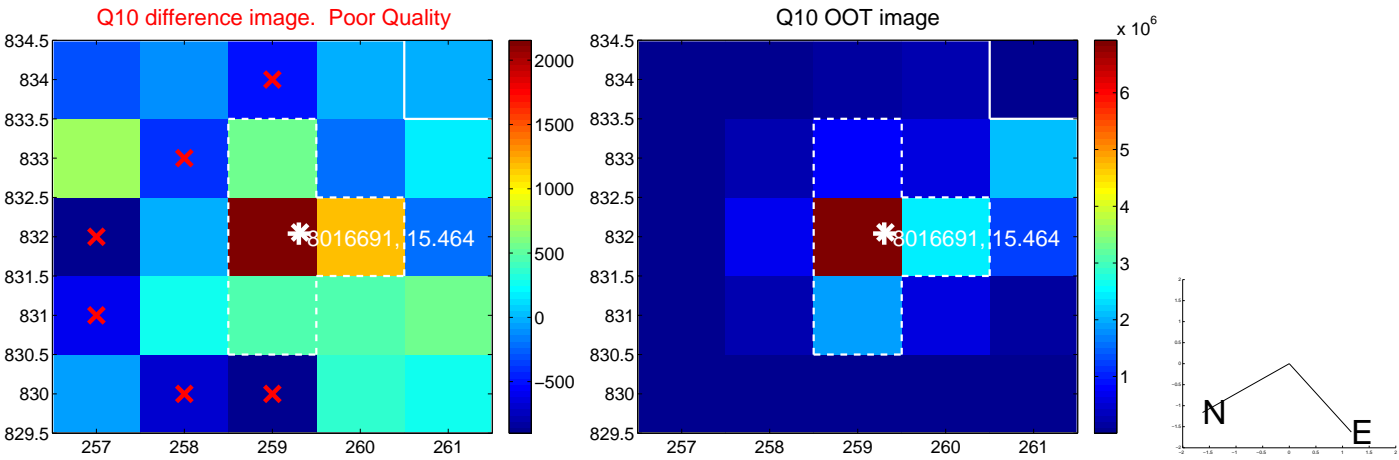
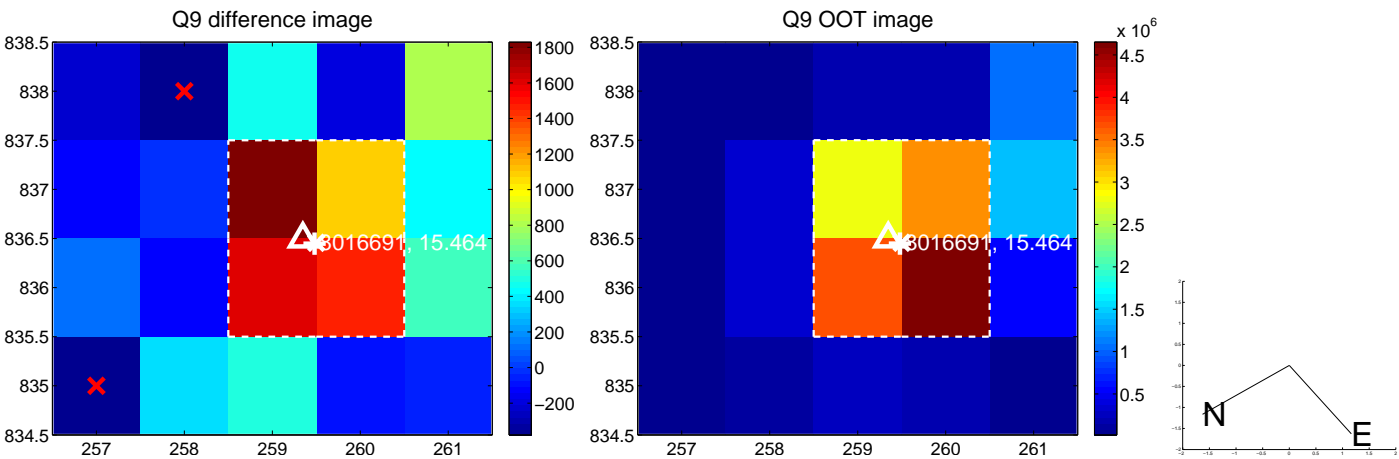


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

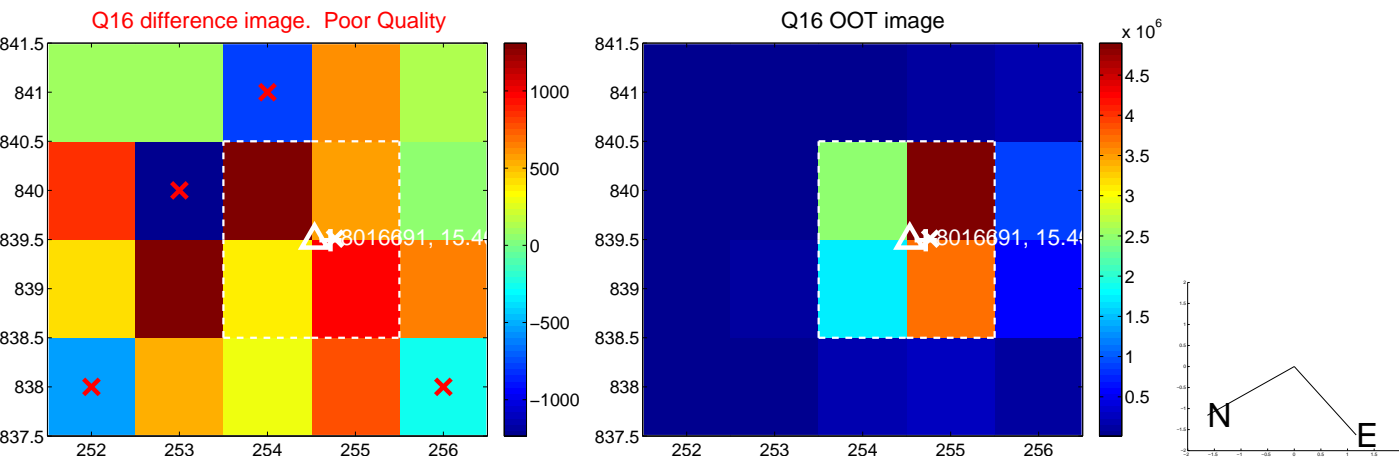
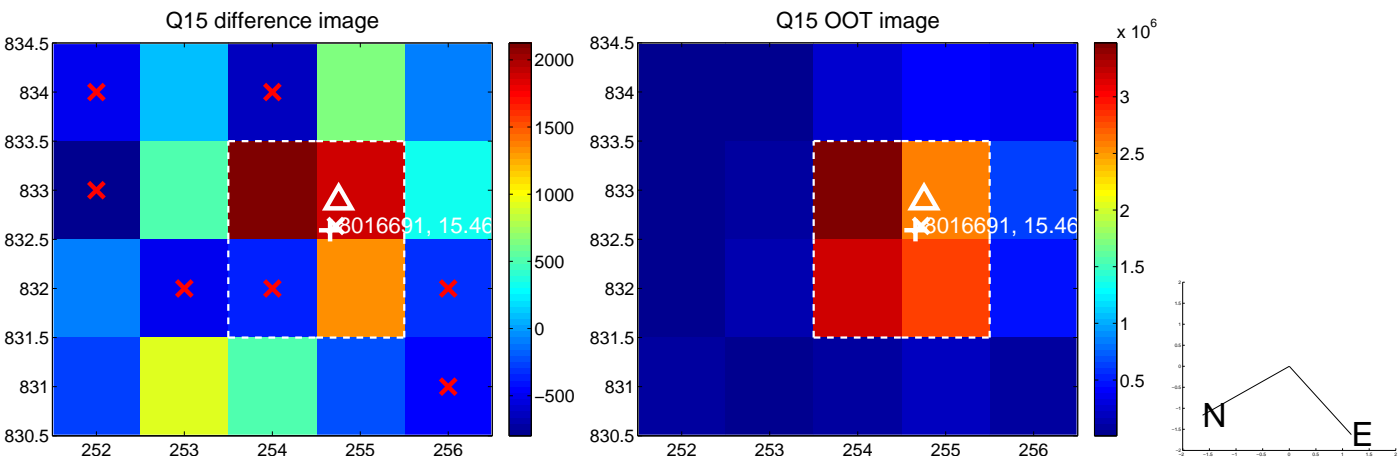
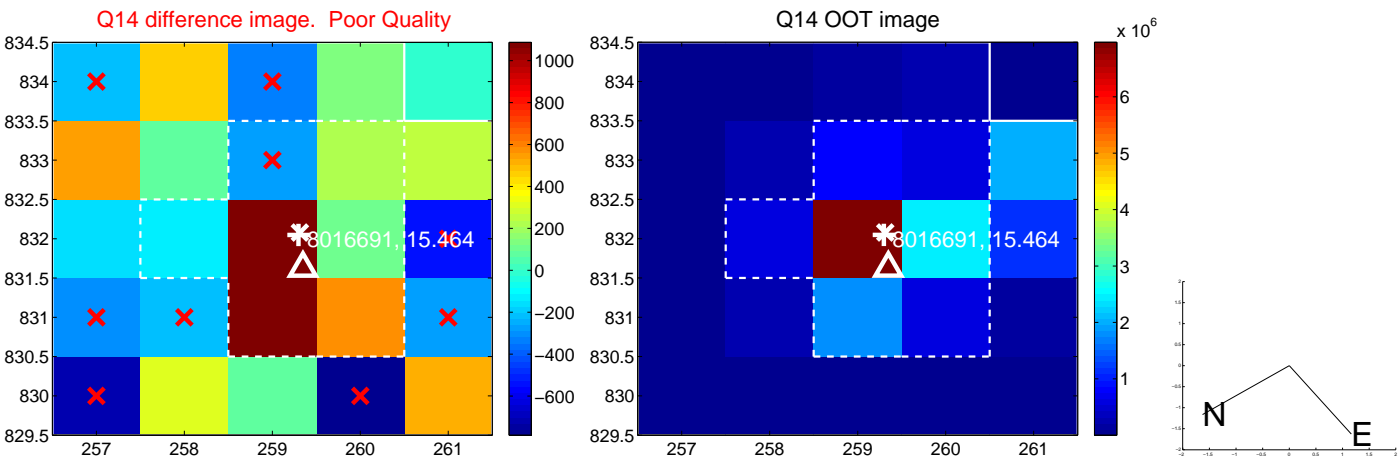
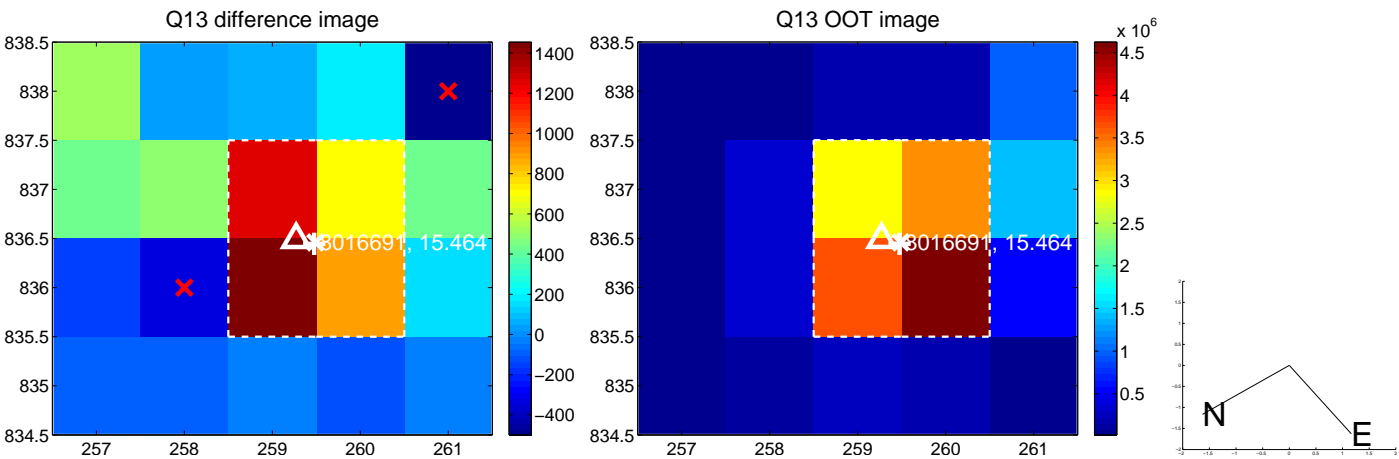




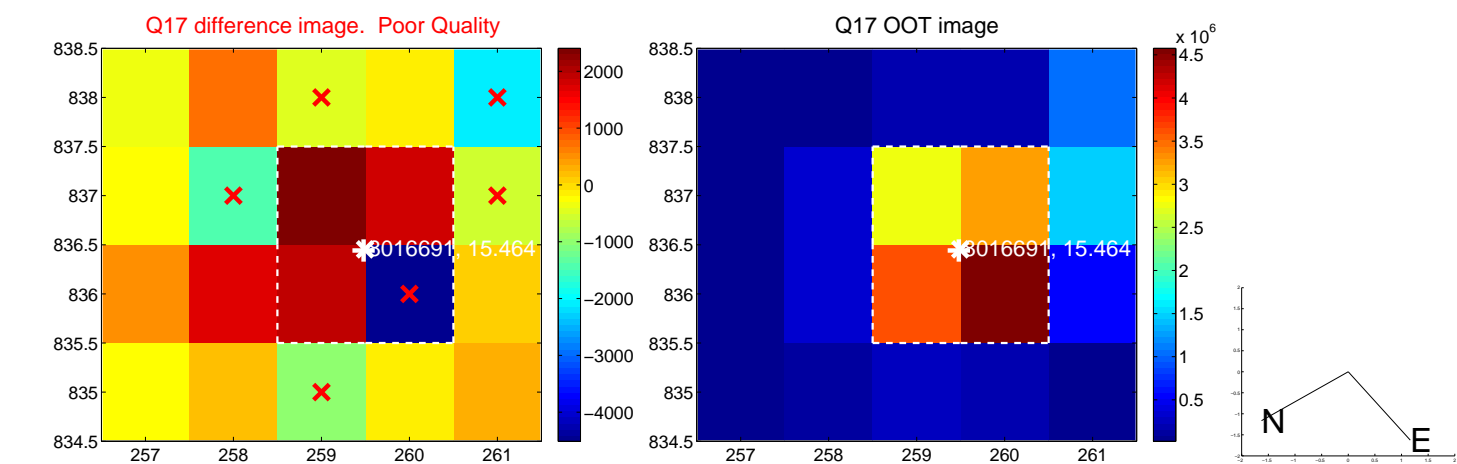
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



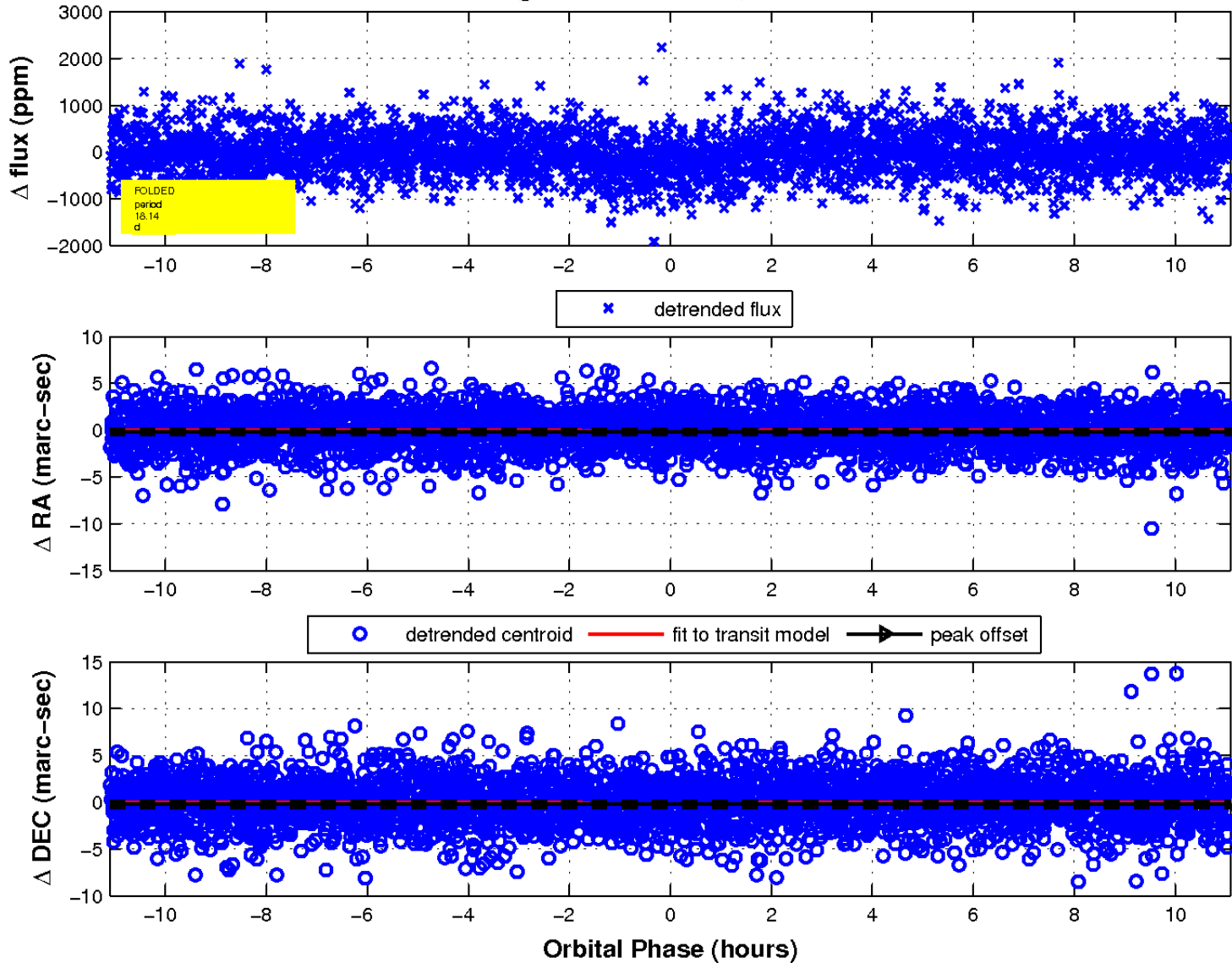
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

