

# KIC 012935144

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012935144-01	OBS	2847.01	1.099282	132.603384	214.0	1.882	16.5	15.6	0.84	4878	1.52	946.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012935144-01	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET—HALO_GHOST

**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.

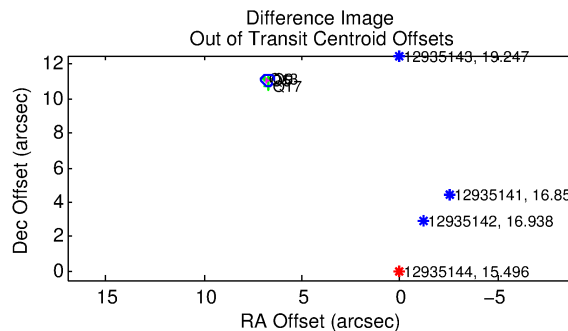
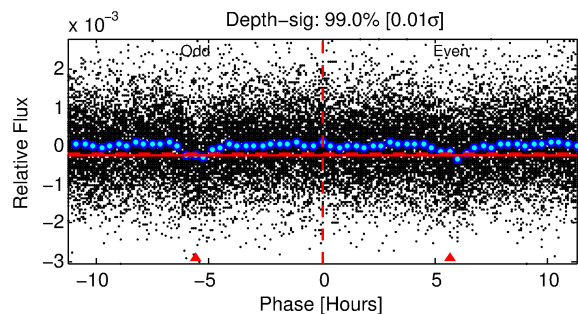
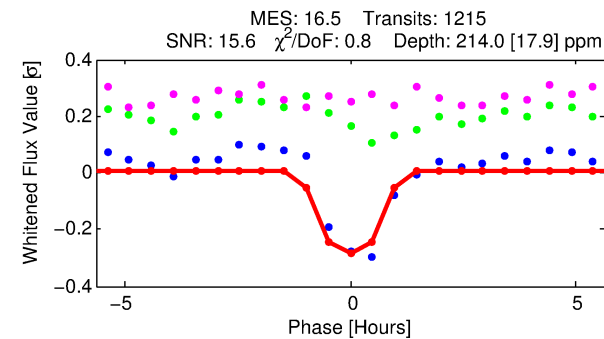
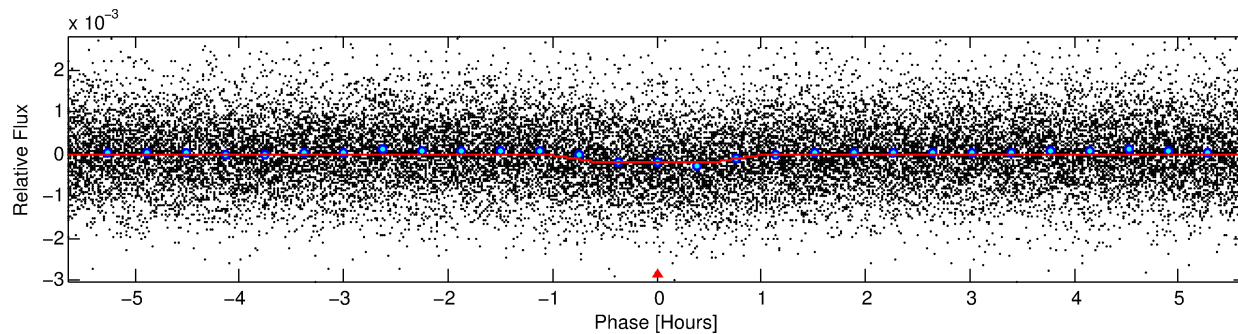
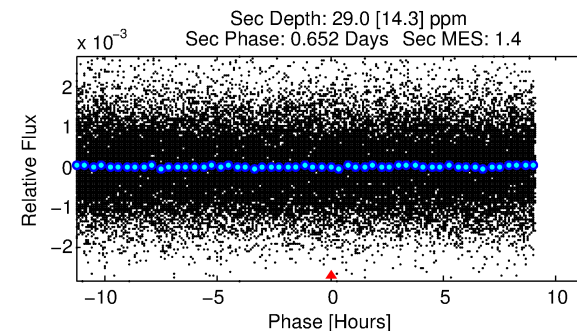
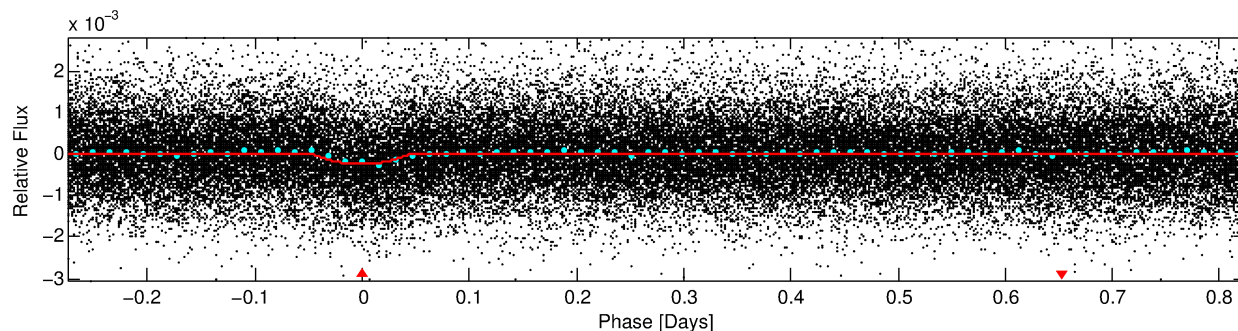
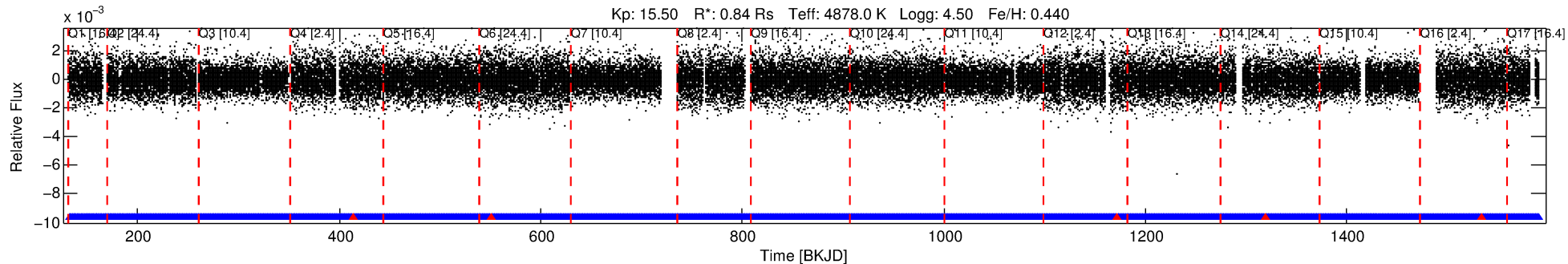
## Ephemeris Match Information For 012935144-01

No Significant Match Found

# DV One-Page Summary

KIC: 12935144 Candidate: 1 of 1 Period: 1.099 d  
KOI: K02847.01 Corr: 0.918

Kp: 15.50 R\*: 0.84 Rs Teff: 4878.0 K Logg: 4.50 Fe/H: 0.440



## DV Fit Results:

Period = 1.09928 [0.00001] d  
Epoch = 132.6034 [0.0017] BKJD  
Rp/R\* = 0.0165 [0.0111]  
a/R\* = 2.31 [4.79]  
b = 0.90 [0.56]  
Seff = 946.82 [178.10]  
Teq = 1414 [67] K  
Rp = 1.52 [1.03] Re  
a = 0.0195 [0.0017] AU  
Ag = 2.63 [3.79] [0.43σ]  
Teff = 2786 [1001] K [1.37σ]

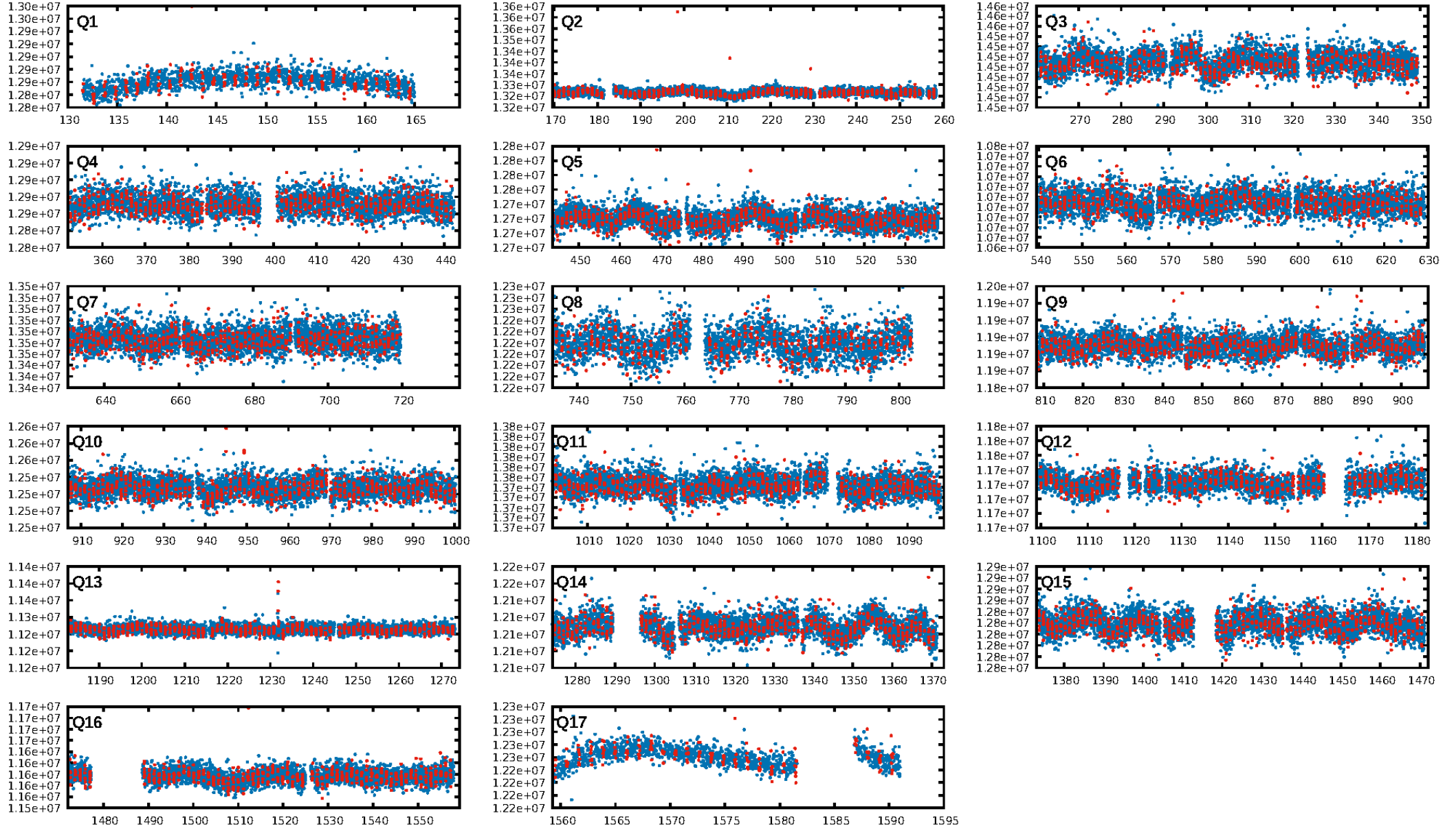
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: 6.22e-60  
RollingBand-fgt: 1.00 [1154/1159]  
GhostDiagnostic-chr: 0.07036  
Centroid-sig: 0.0%  
Centroid-so: 11.918 arcsec [14.59σ]  
OotOffset-rm: 12.980 arcsec [115.15σ]  
KicOffset-rm: 13.321 arcsec [98.23σ]  
OotOffset-st: 0/0/0/4 [4]  
KicOffset-st: 0/0/0/4 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:14:15 Z

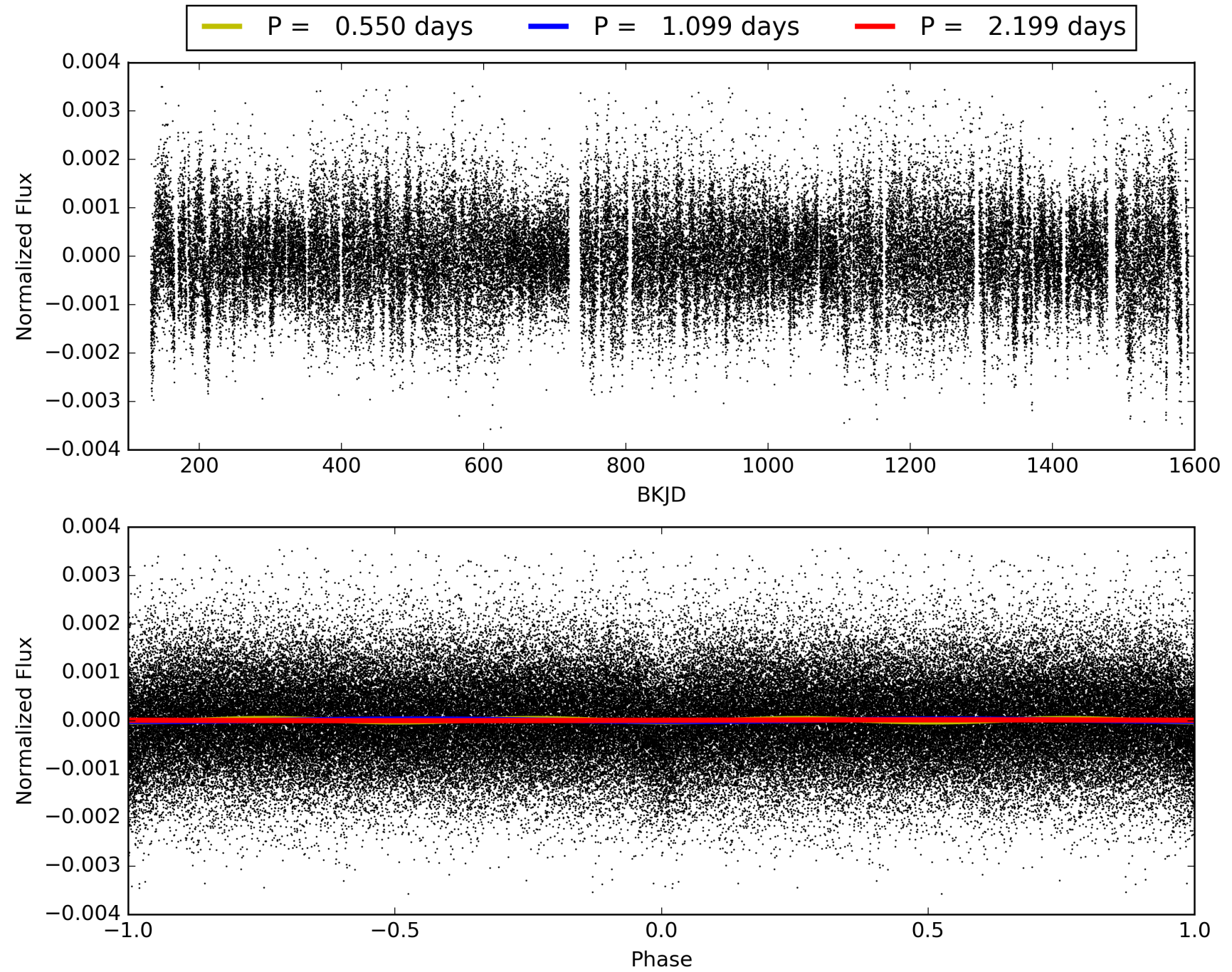
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 012935144-01, PDC Light Curves



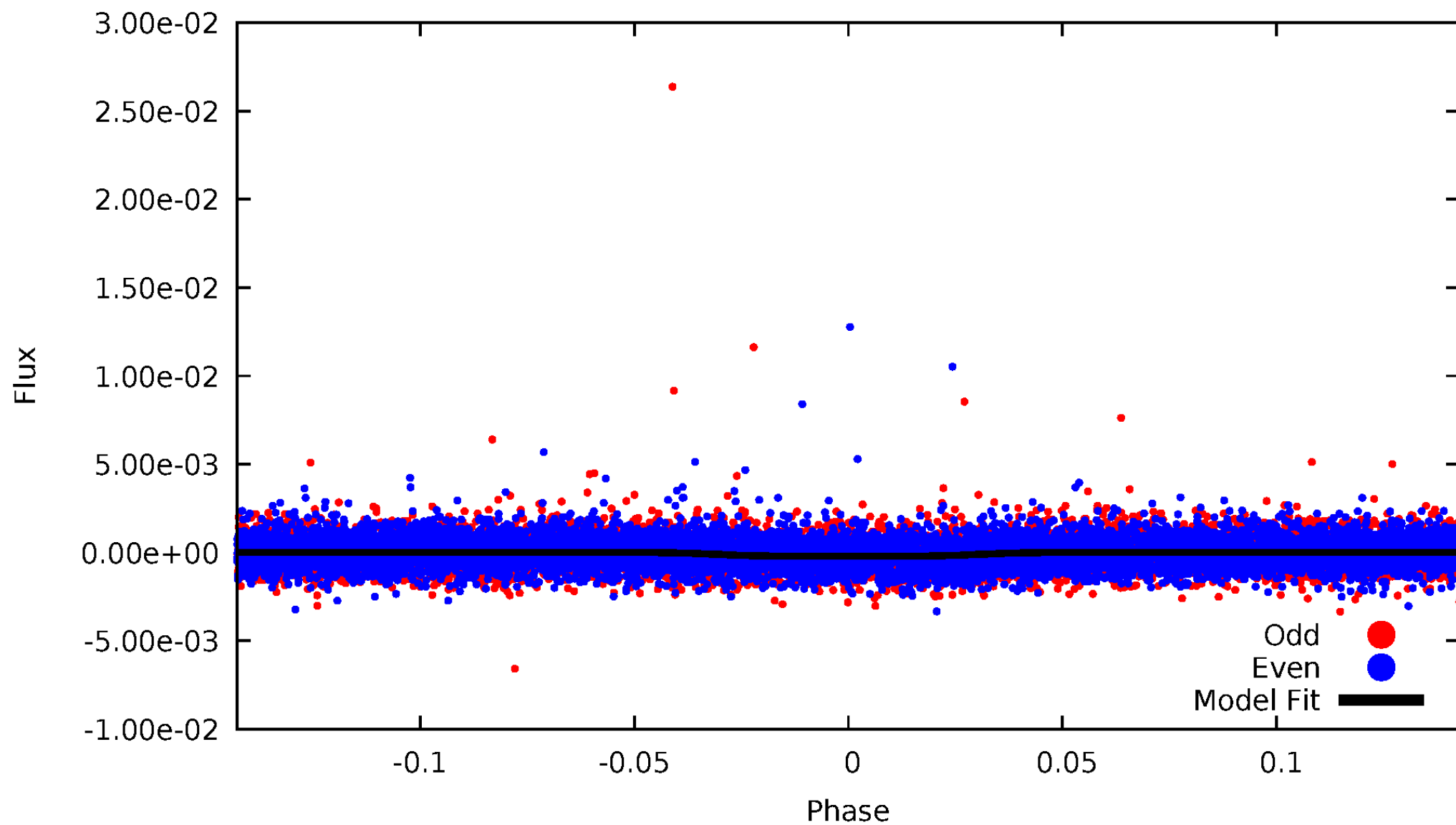


# TCE 012935144-01



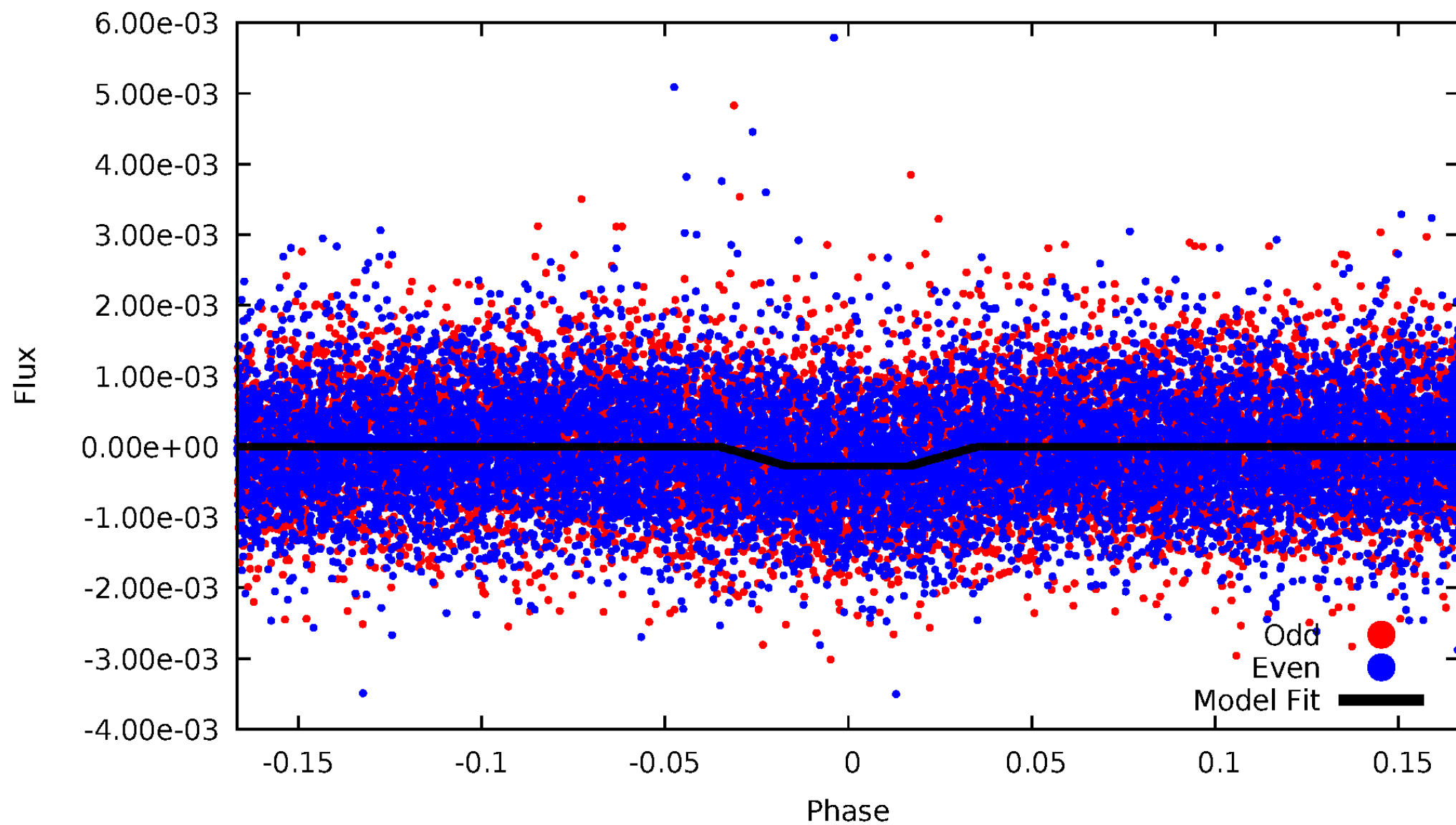
# DV Odd/Even

TCE 012935144-01



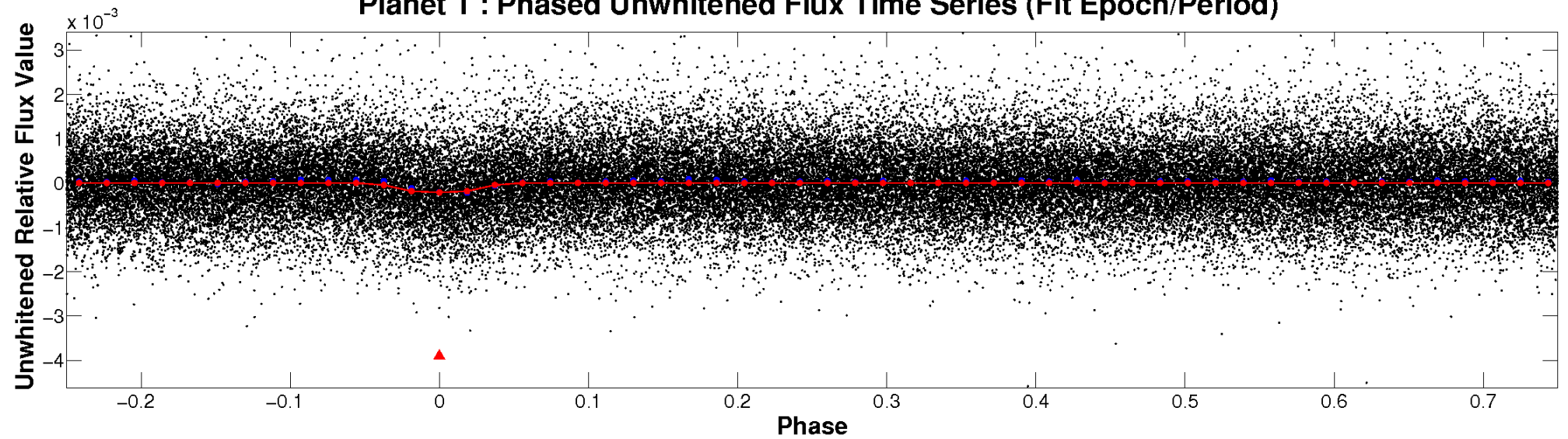
# ALT Odd/Even

TCE 012935144-01

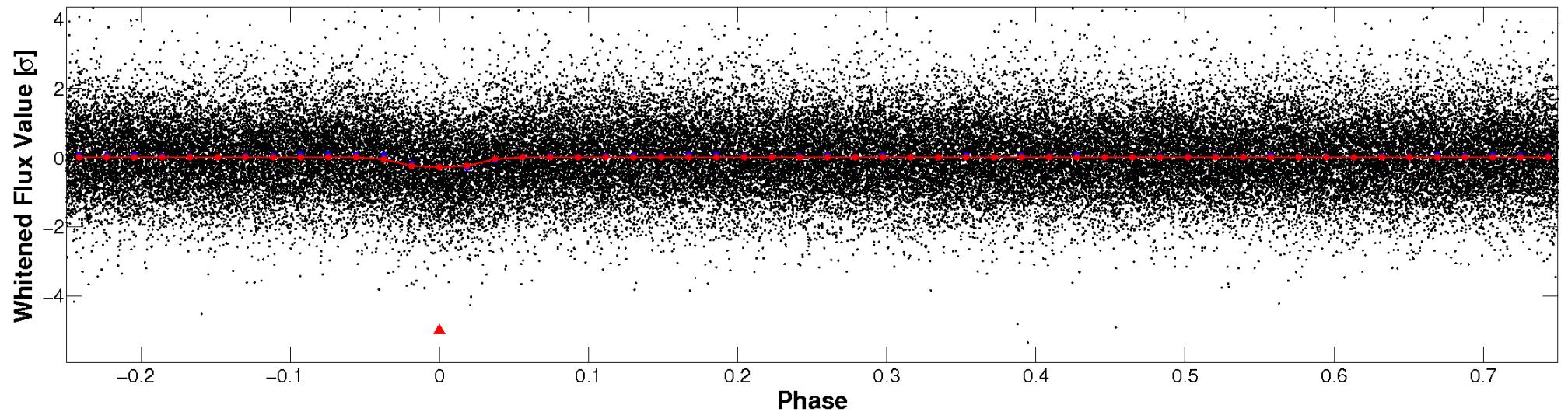


# Non-Whitened Vs. Whitened Light Curve

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



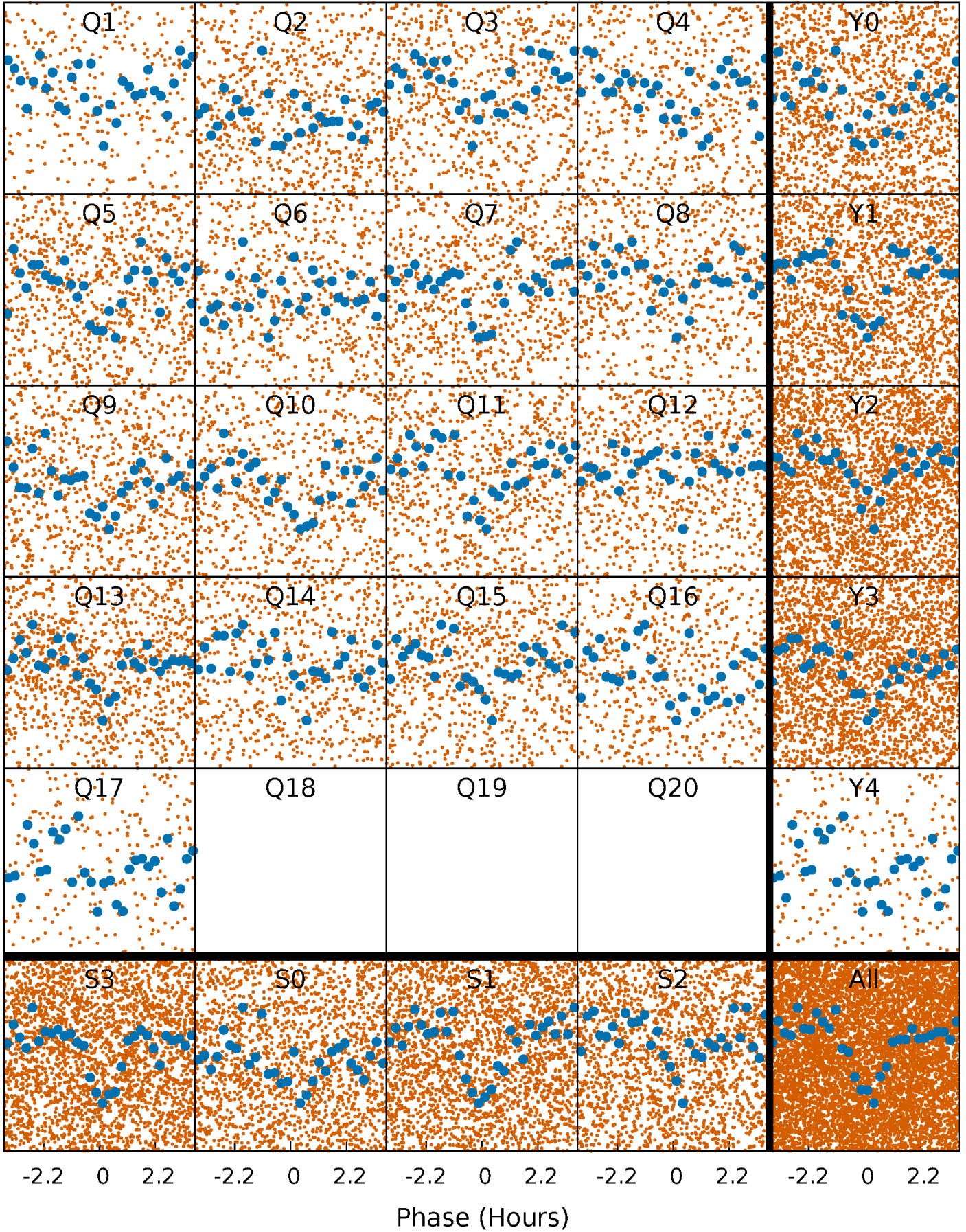
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

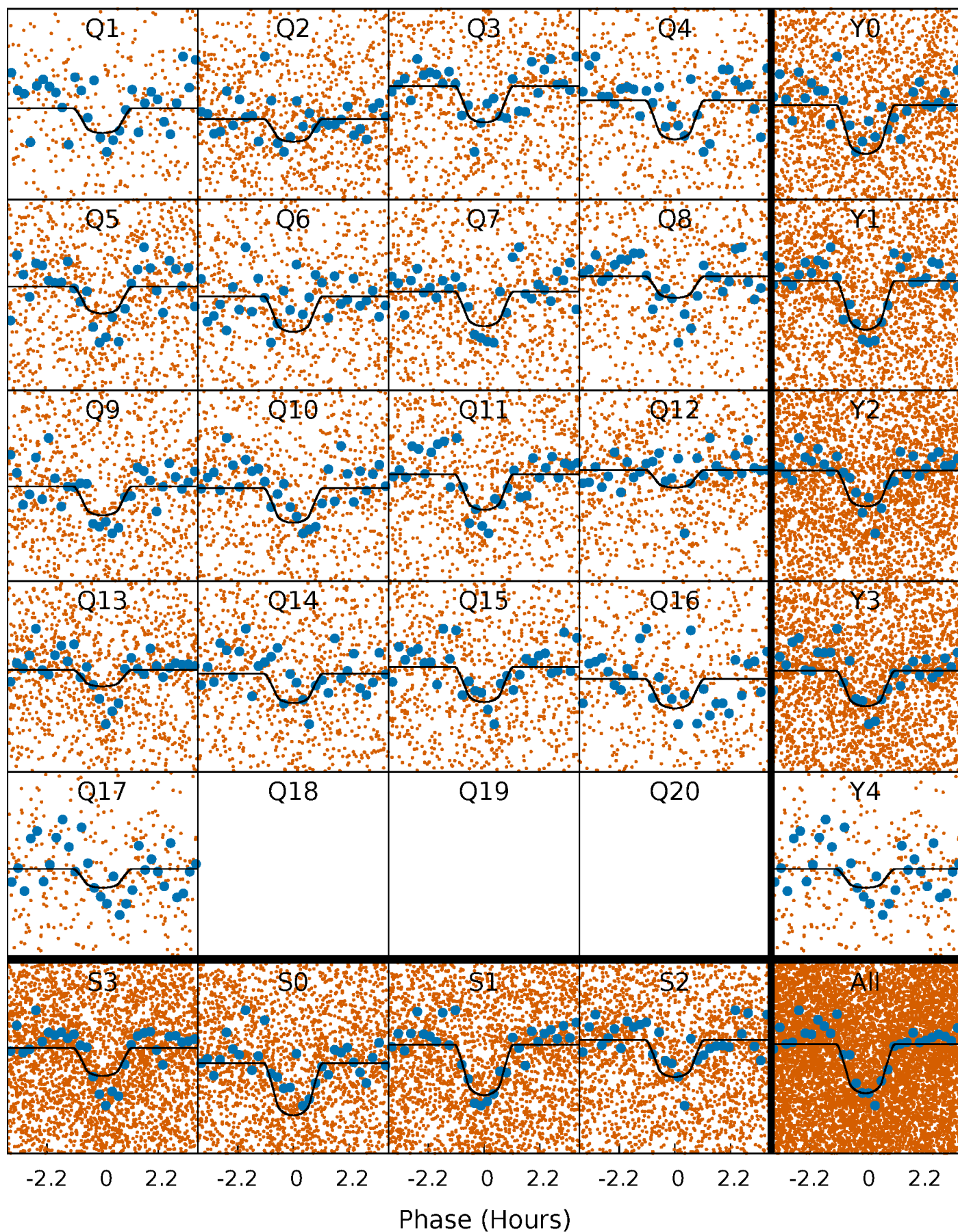
TCE 012935144-01 P= 1.099282 Days  $T_0=132.603384$  (BKJD)





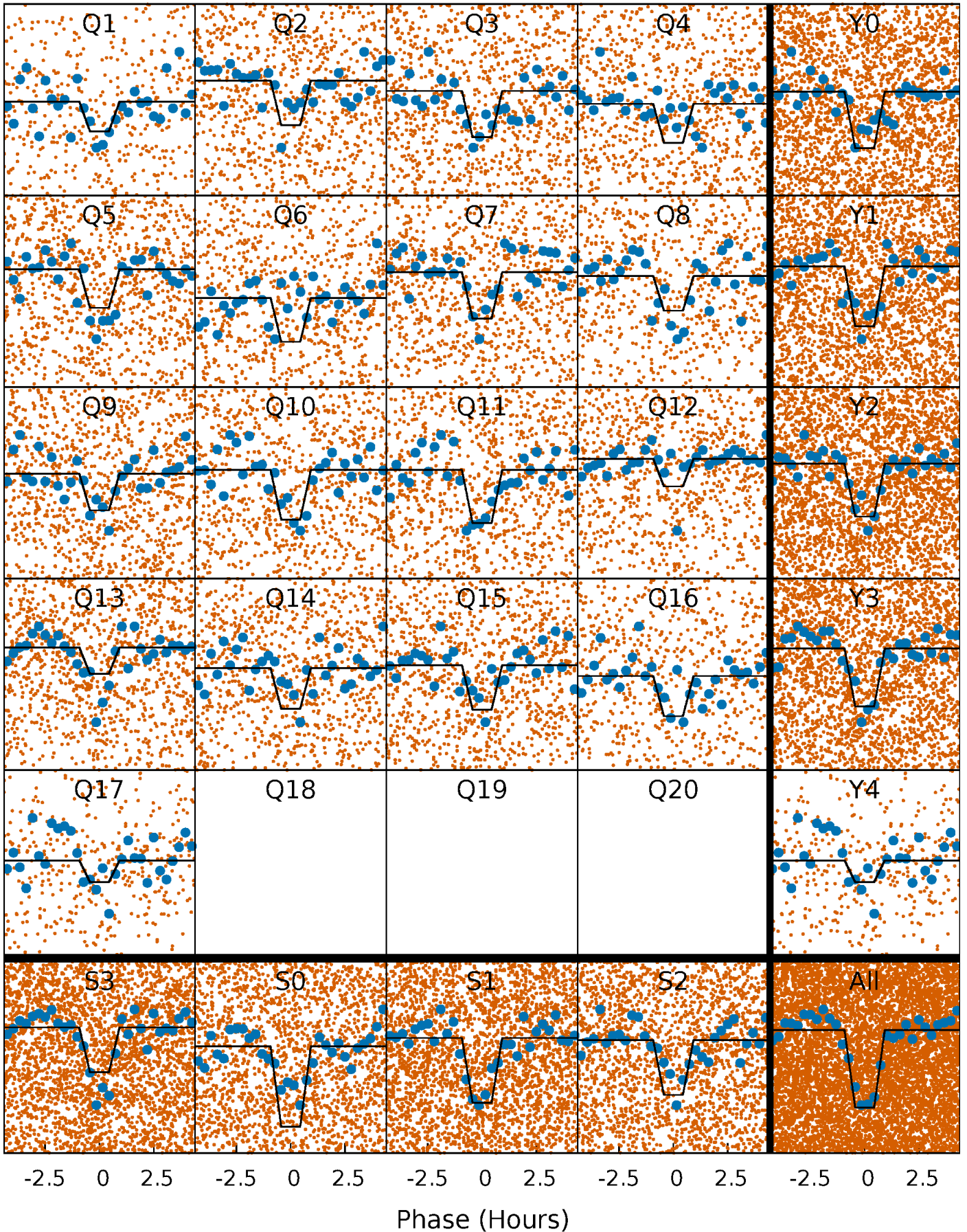
# DV Quarter-Phased Transit Curves

TCE 012935144-01 P= 1.099282 Days  $T_0=132.603384$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 012935144-01 P= 1.099292 Days  $T_0=132.602106$  (BKJD)

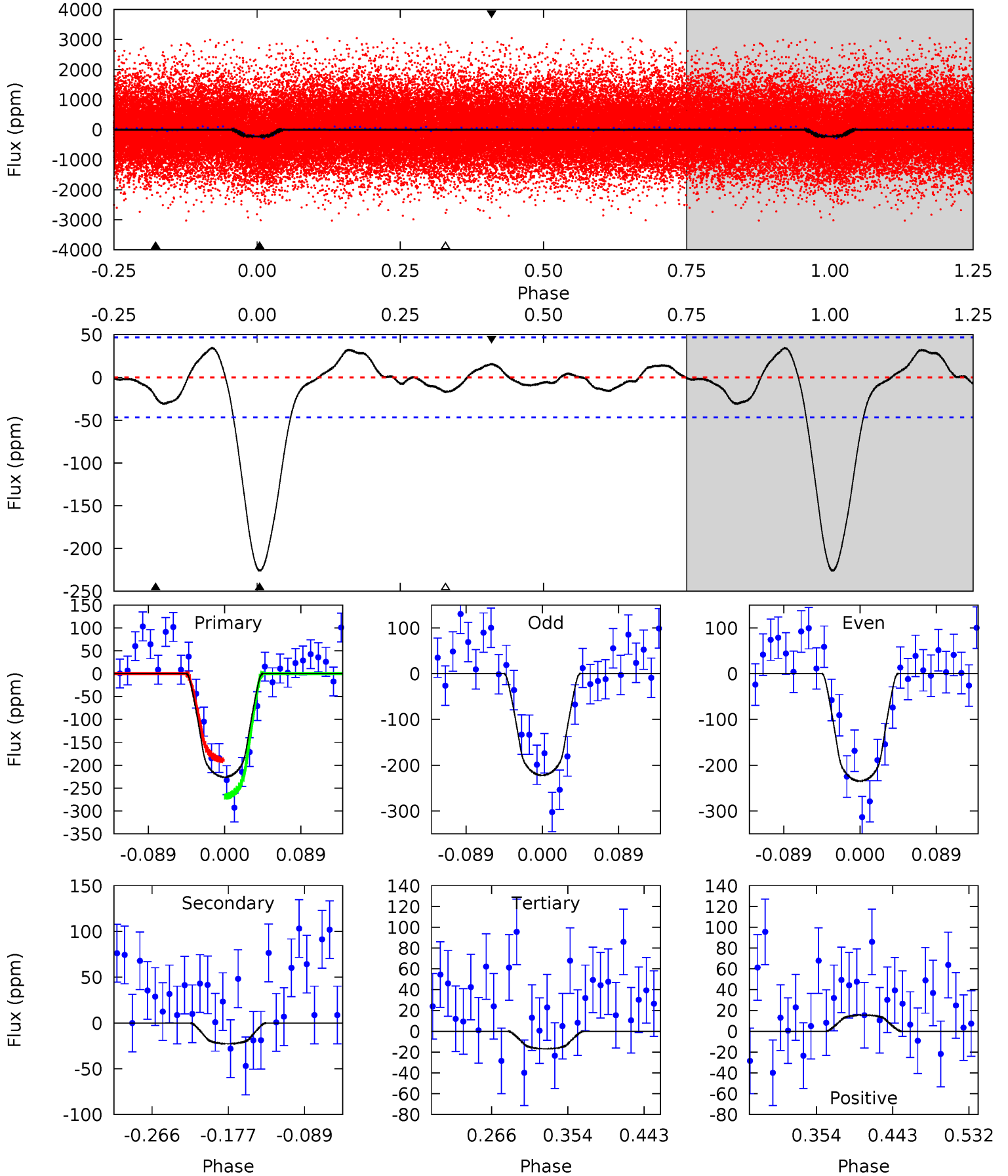




# DV Model-Shift Uniqueness Test

012935144-01, P = 1.099282 Days, E = 131.504102 Days

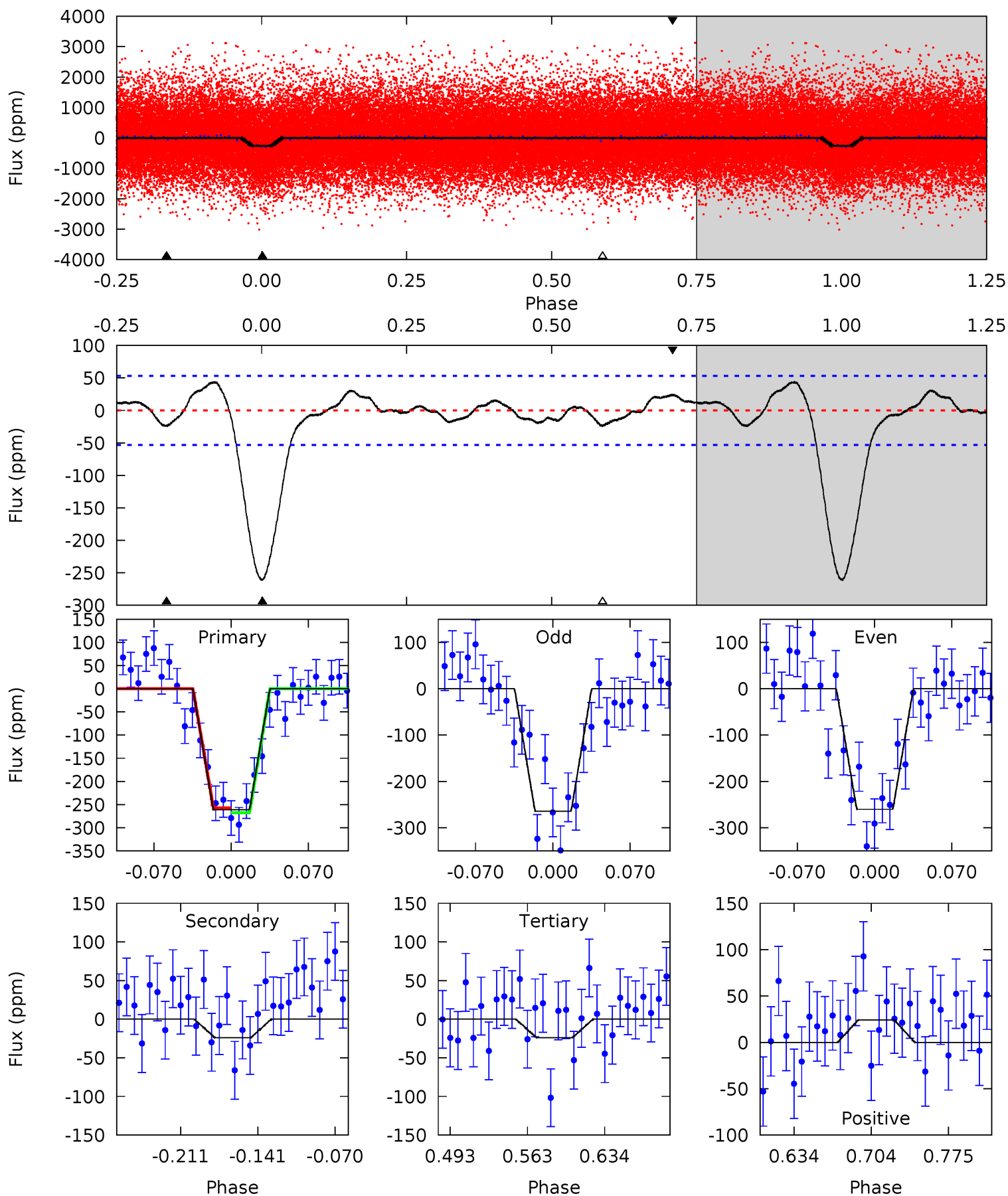
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.2	2.24	1.66	1.53	4.59	1.70	1.18	20.6	20.7	0.58	0.70	0.63	0.86	0.13	3.90



# Alt Model-Shift Uniqueness Test

012935144-01, P = 1.099292 Days, E = 131.502814 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
22.8	2.09	2.08	2.11	4.64	1.81	1.27	20.7	20.7	0.01	-0.02	0.18	0.93	0.14	0.47





### Stellar Parameters For KIC 012935144

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4878^{+159}_{-145}$	$4.500^{+0.077}_{-0.049}$	$0.440^{+0.050}_{-0.300}$	$0.843^{+0.056}_{-0.084}$	$0.820^{+0.052}_{-0.047}$	$1.928^{+0.615}_{-0.325}$
	+3%/-3%	+2%/-1%	+11%/-68%	+7%/-10%	+6%/-6%	+32%/-17%
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 012935144-01 / KOI 2847.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-23 \pm 10$	$1.55^{+0.91}_{-0.82}$	$1968^{+81}_{-74}$	$3059^{+924}_{-579}$	$1.978^{+7.526}_{-1.366}$
Alt.	$-24 \pm 11$	$1.60^{+0.89}_{-0.97}$	$1966^{+79}_{-75}$	$3039^{+1186}_{-613}$	$1.924^{+9.736}_{-1.343}$

$T_{\text{max}}$  = 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

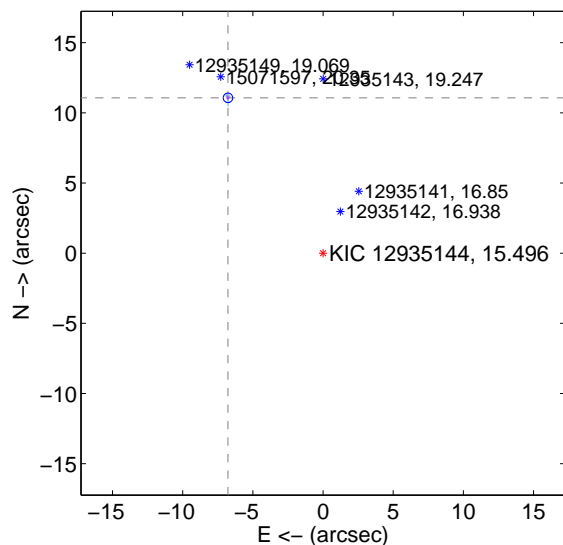
Supplemental centroid analysis for 012935144-01. Kepler magnitude: 15.50. Transit SNR 15.62

There are 4 quarters with good PRF difference image offsets

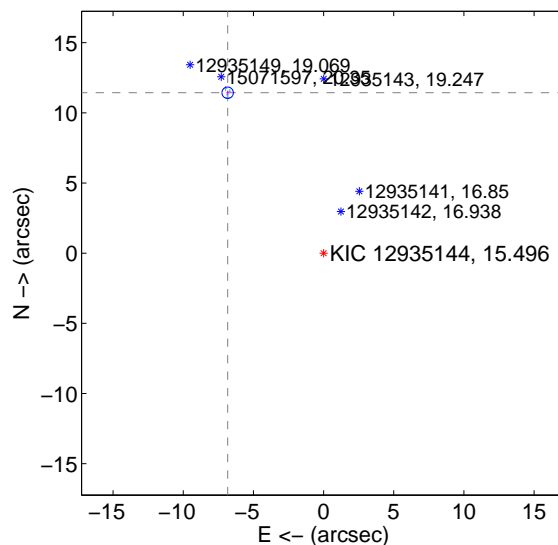
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>12.980 <math>\pm</math> 0.113</b>	<b>115.15</b>	6.774 $\pm$ 0.091	11.072 $\pm$ 0.120
PRF-fit source offset from KIC position	<b>13.321 <math>\pm</math> 0.136</b>	<b>98.23</b>	6.837 $\pm$ 0.097	11.433 $\pm$ 0.147
photometric centroid source offset	<b>11.92 <math>\pm</math> 0.82</b>	<b>14.59</b>	8.96 $\pm$ 0.83	7.86 $\pm$ 0.79

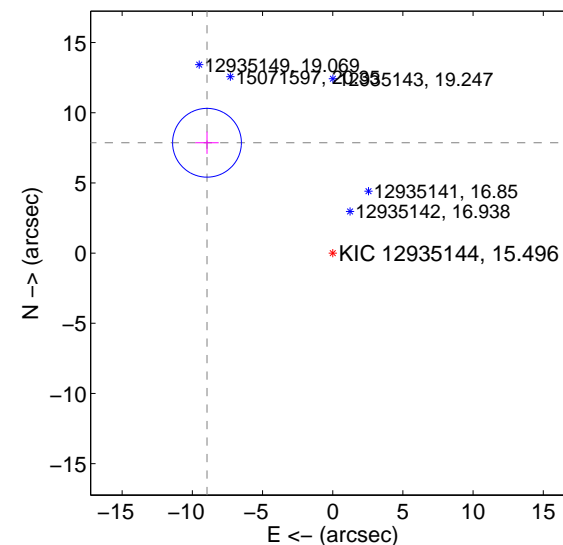
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

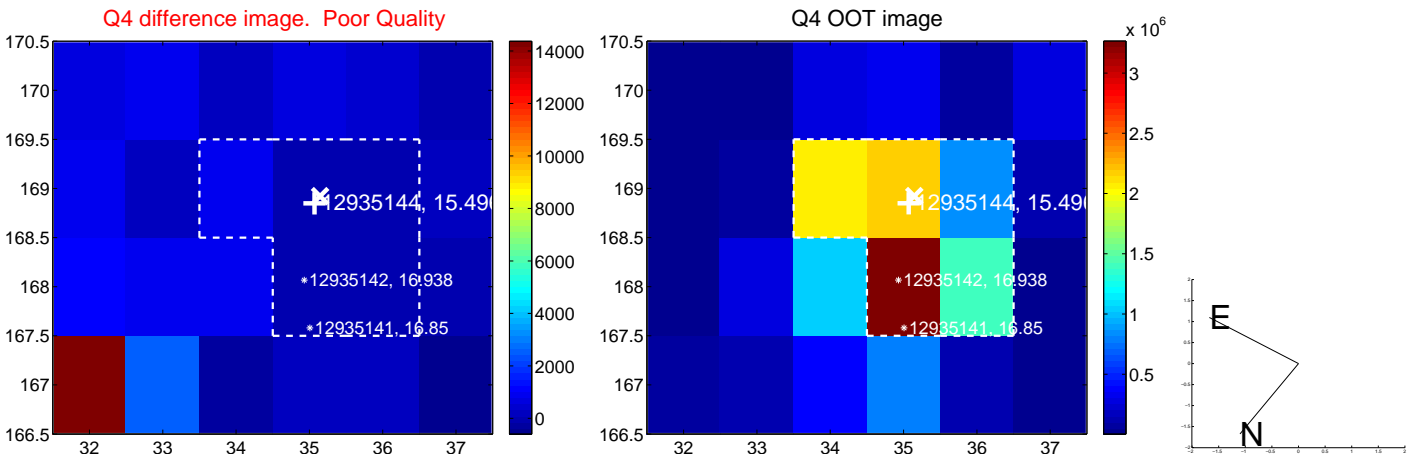
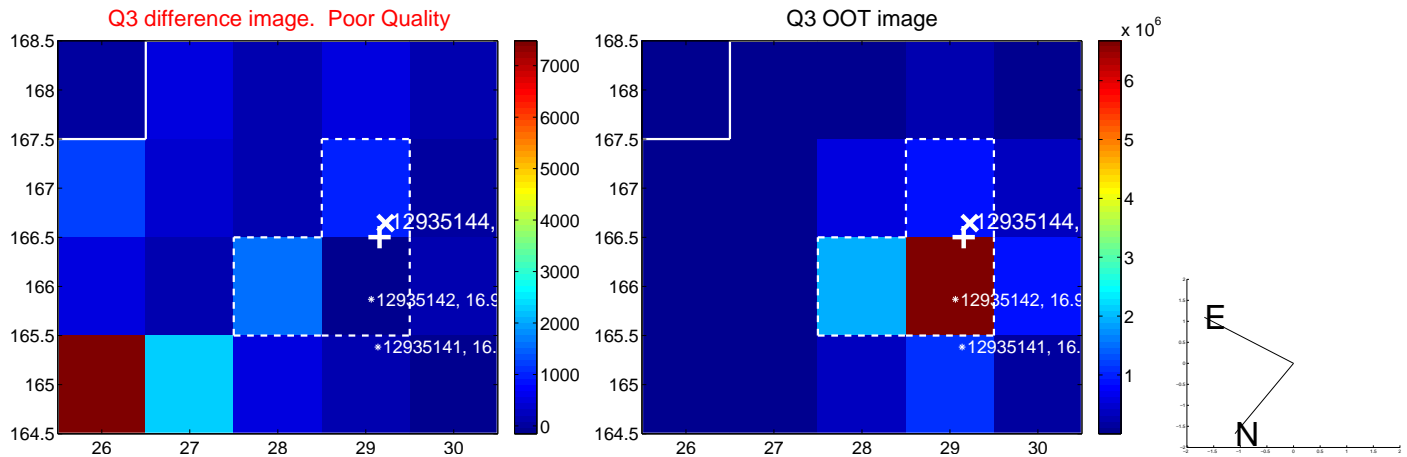
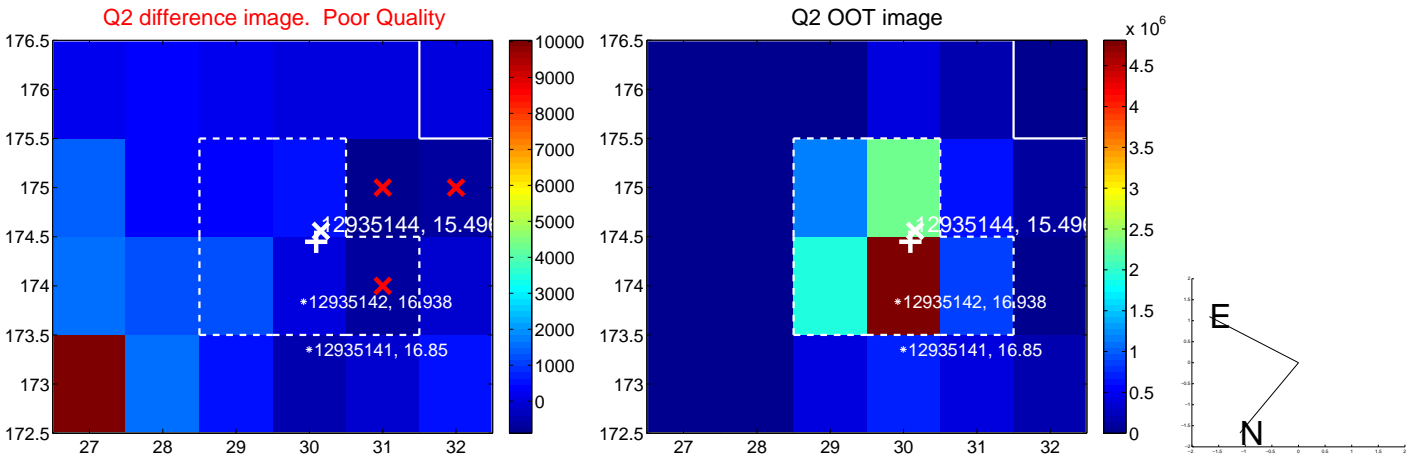
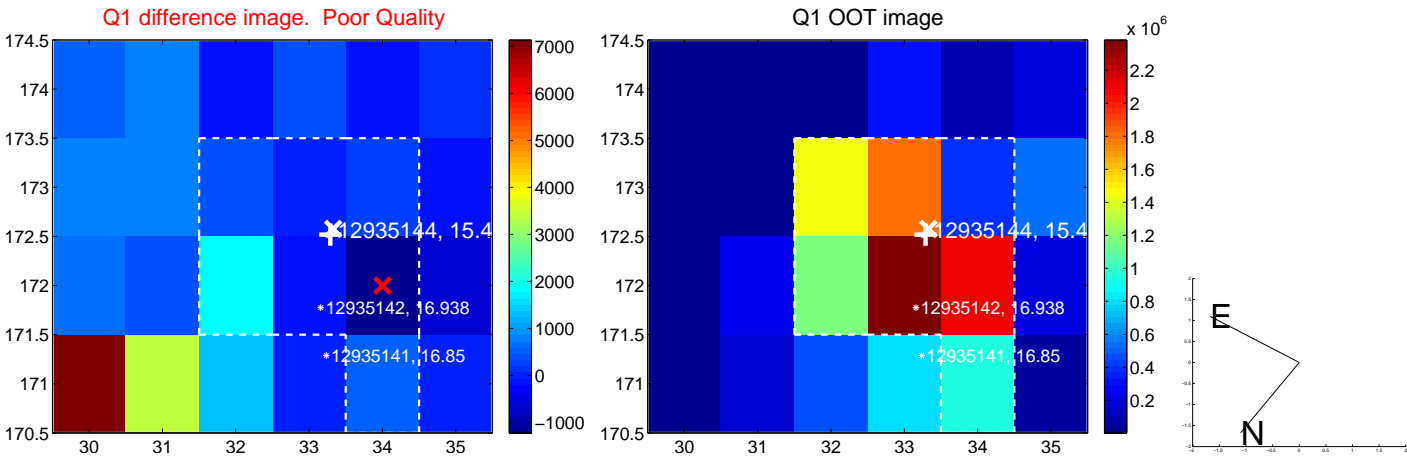


offset from photometric centroids

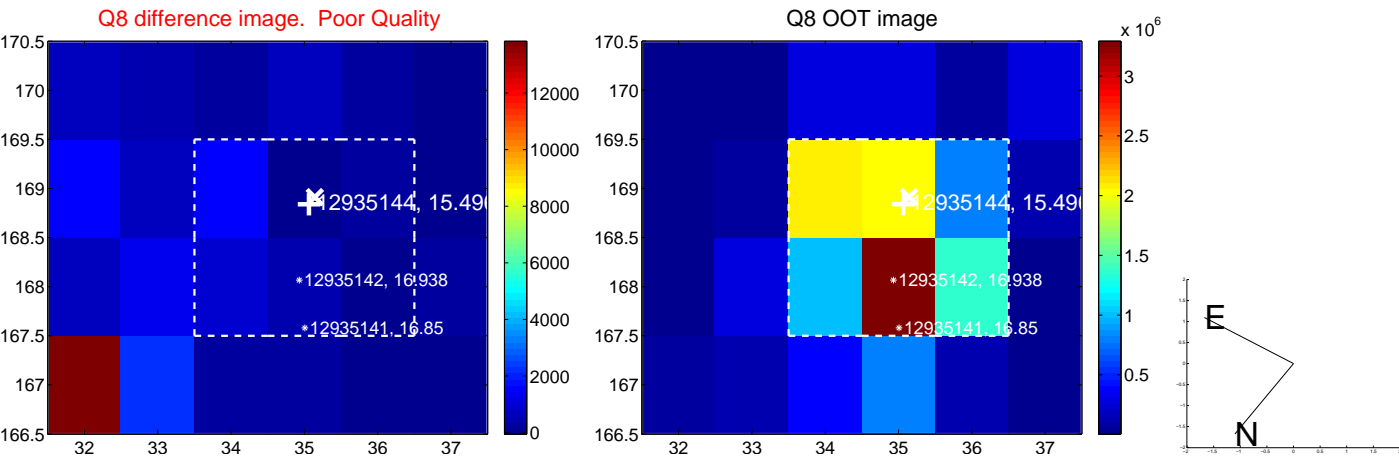
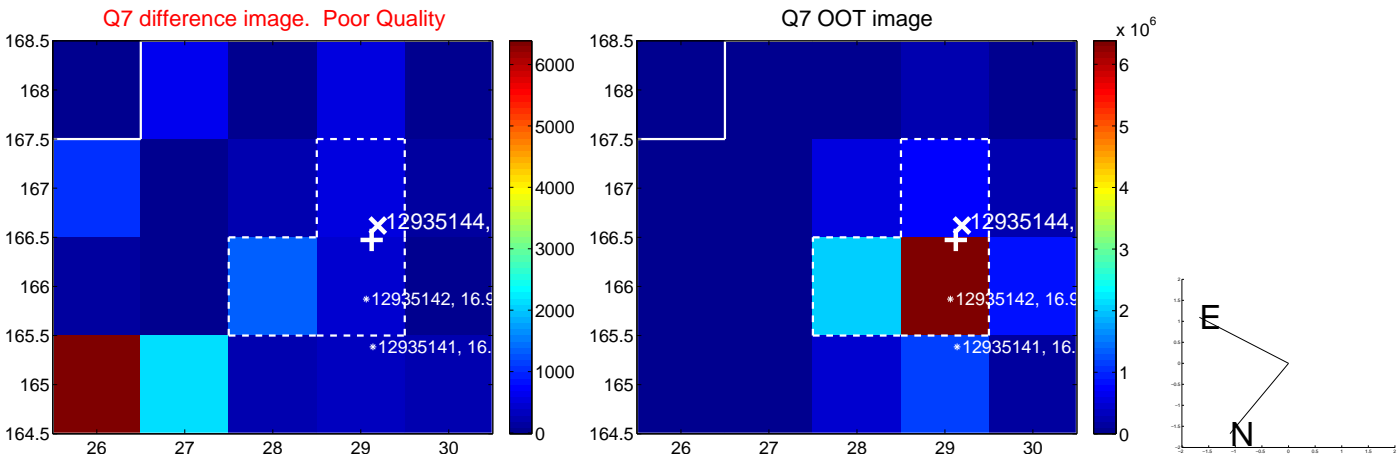
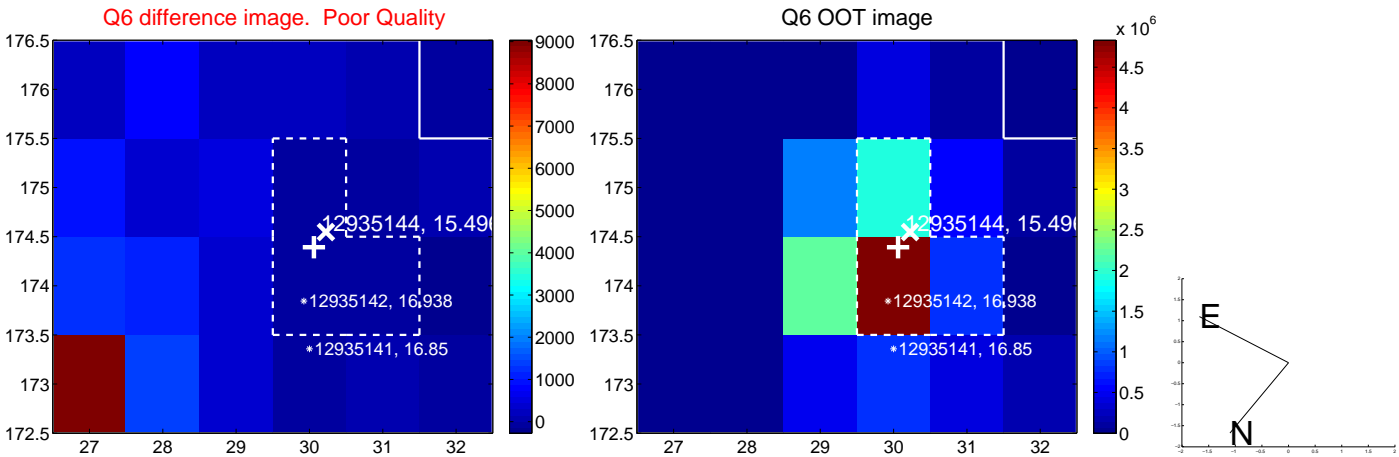
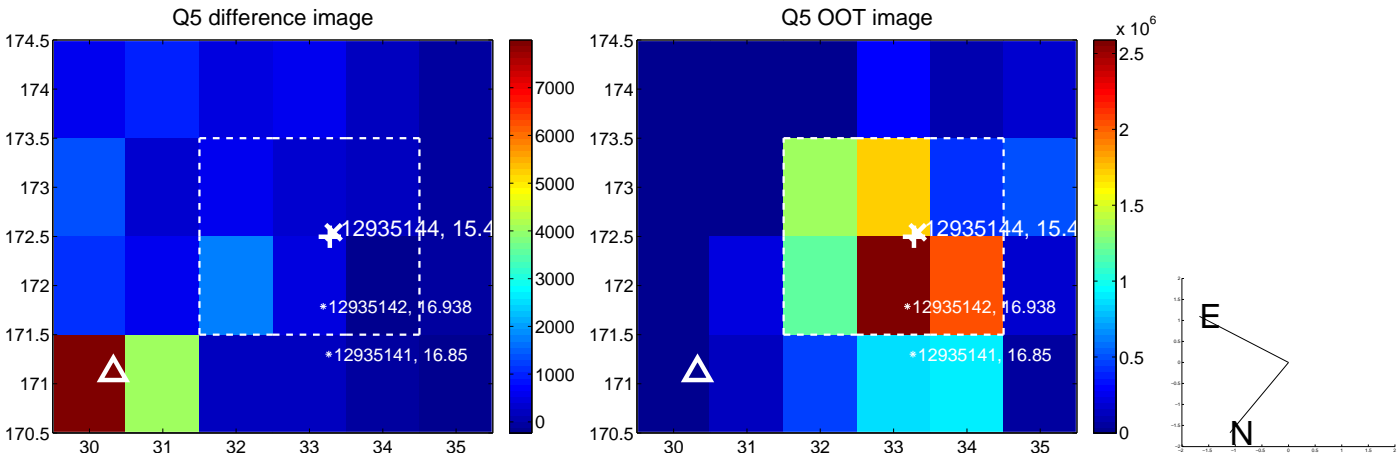


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

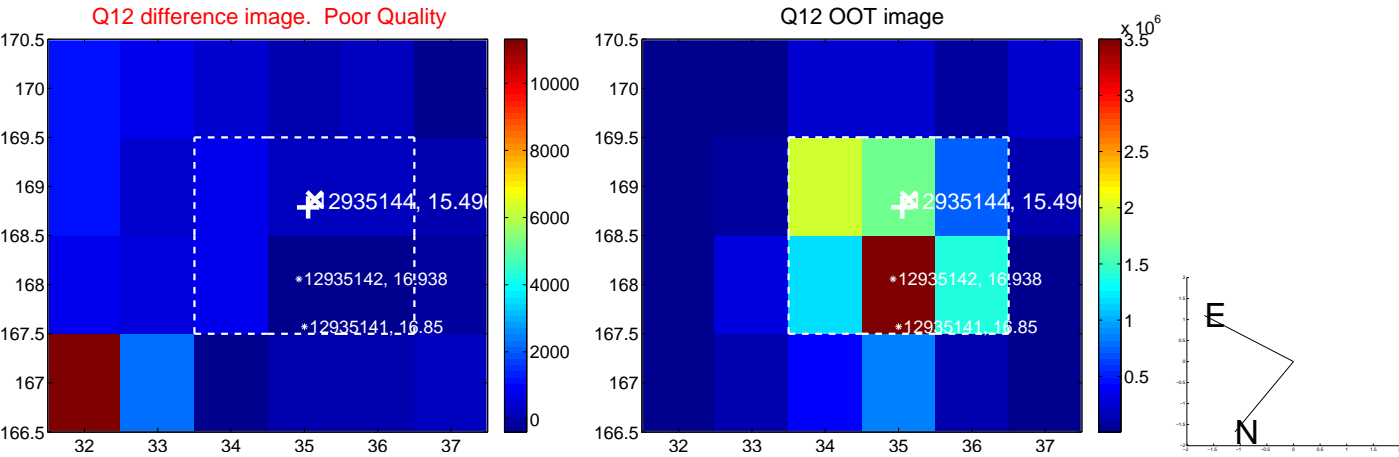
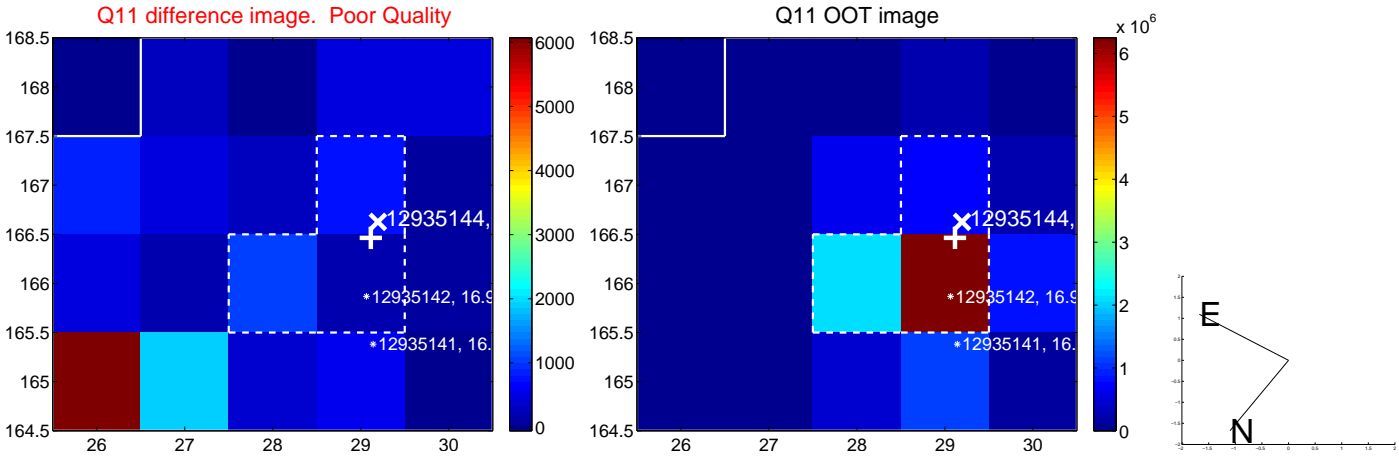
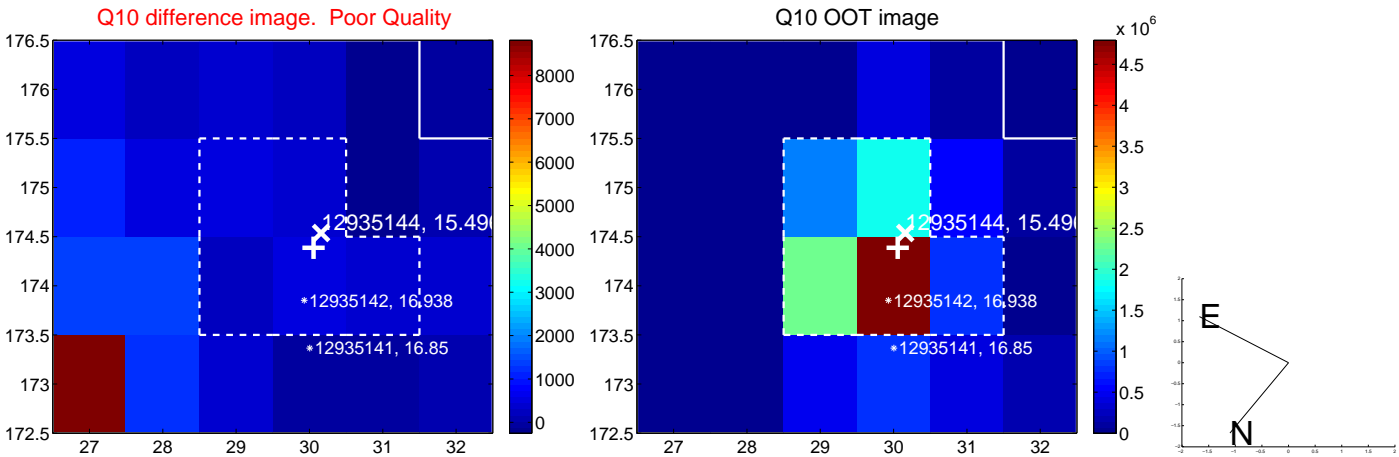
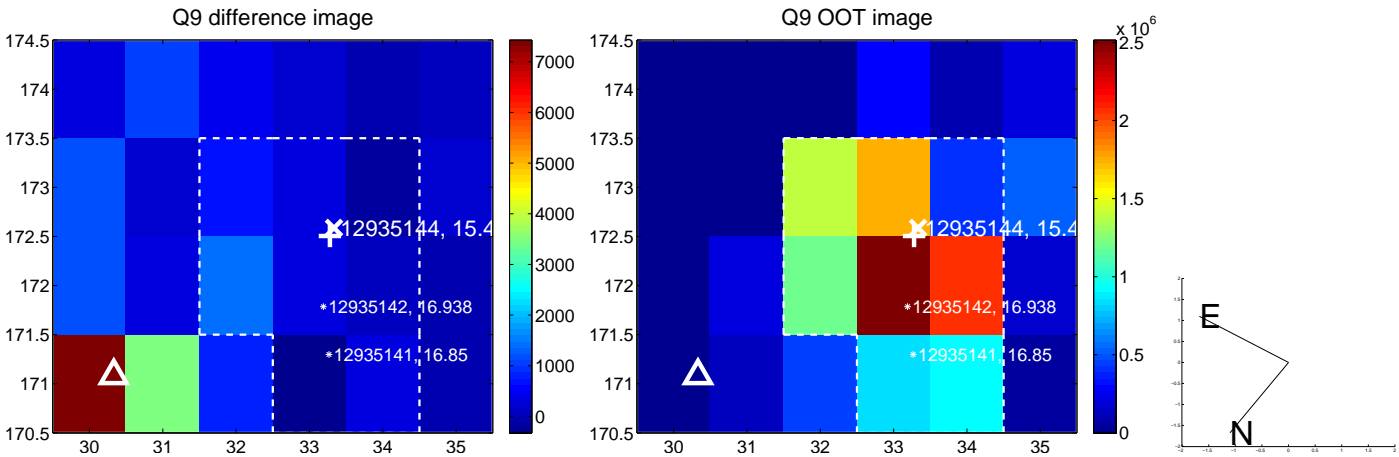


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

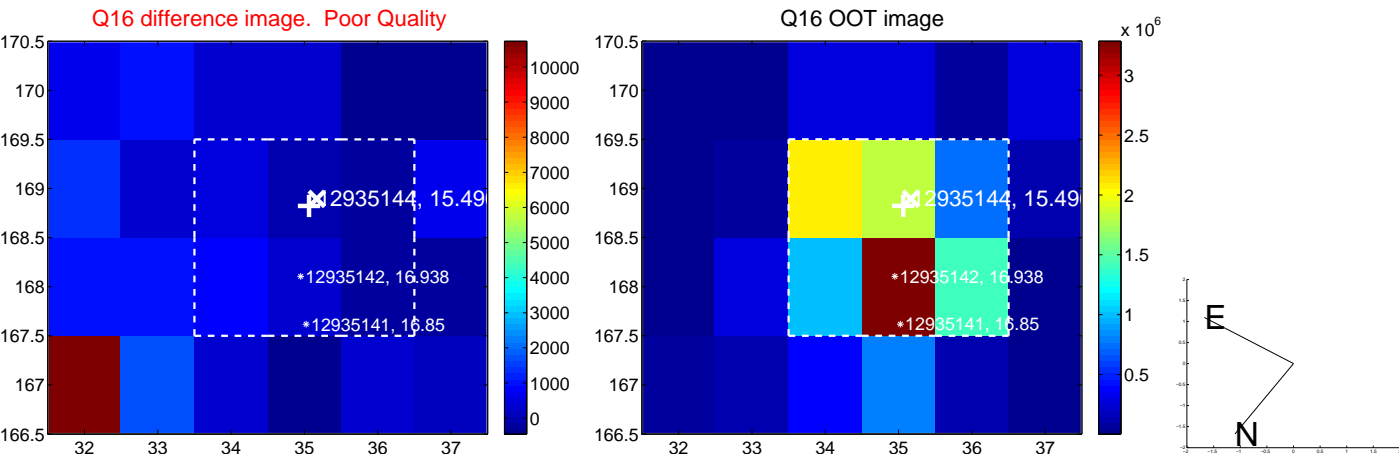
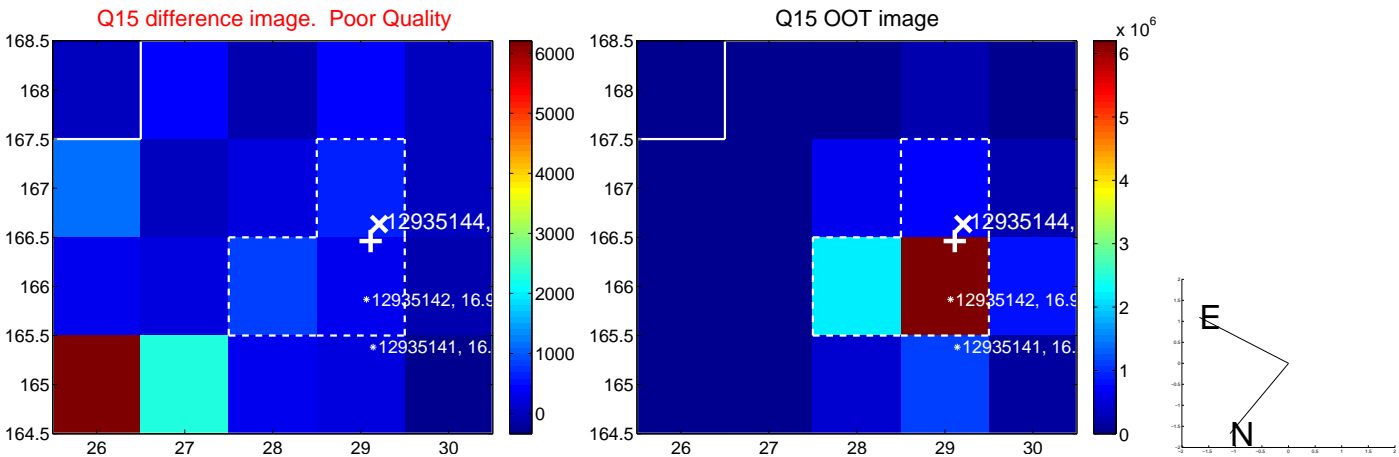
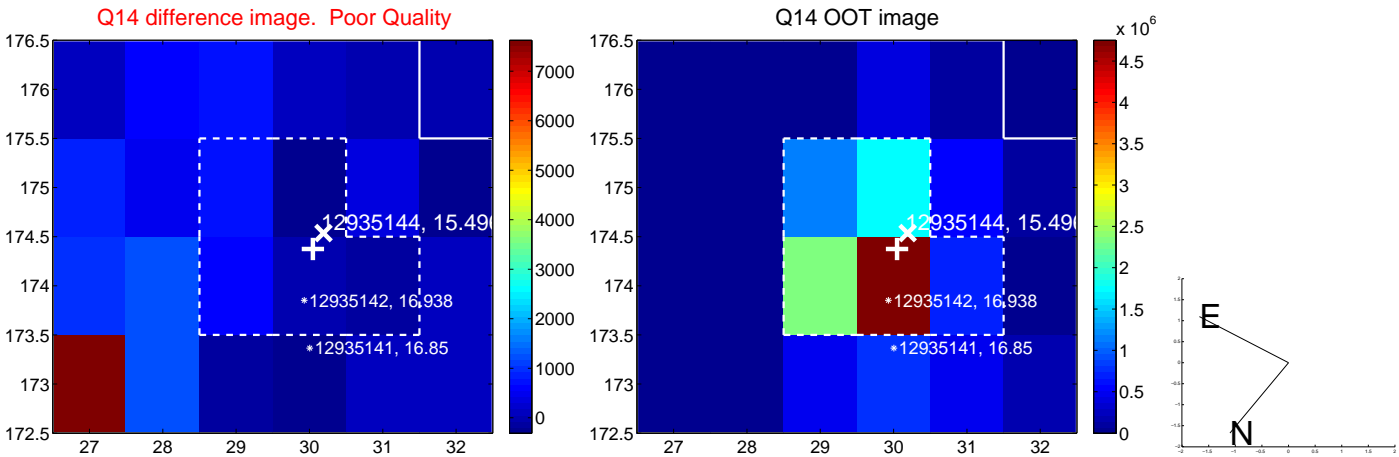
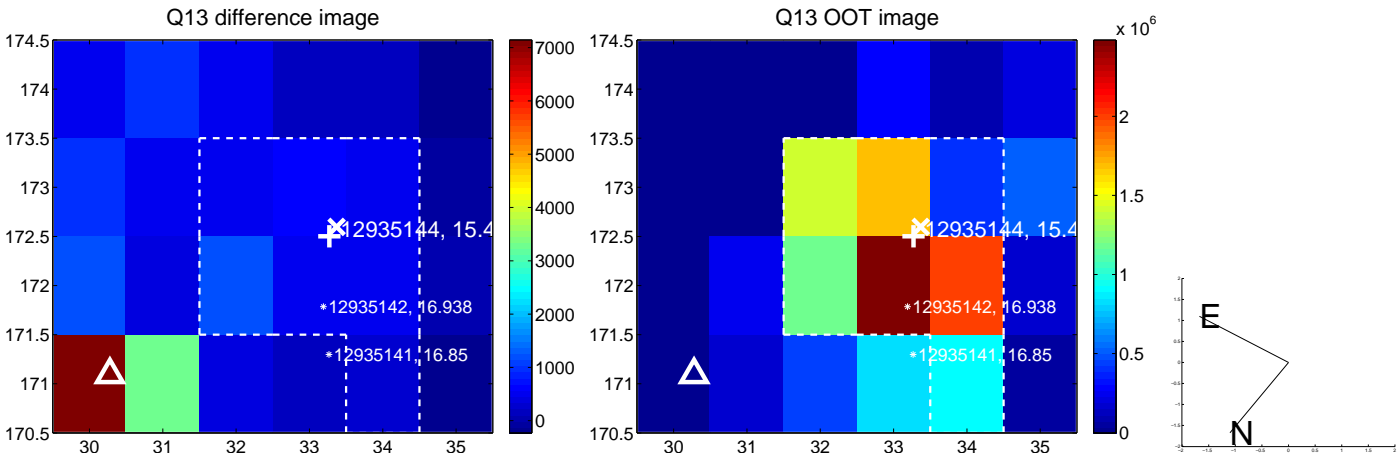




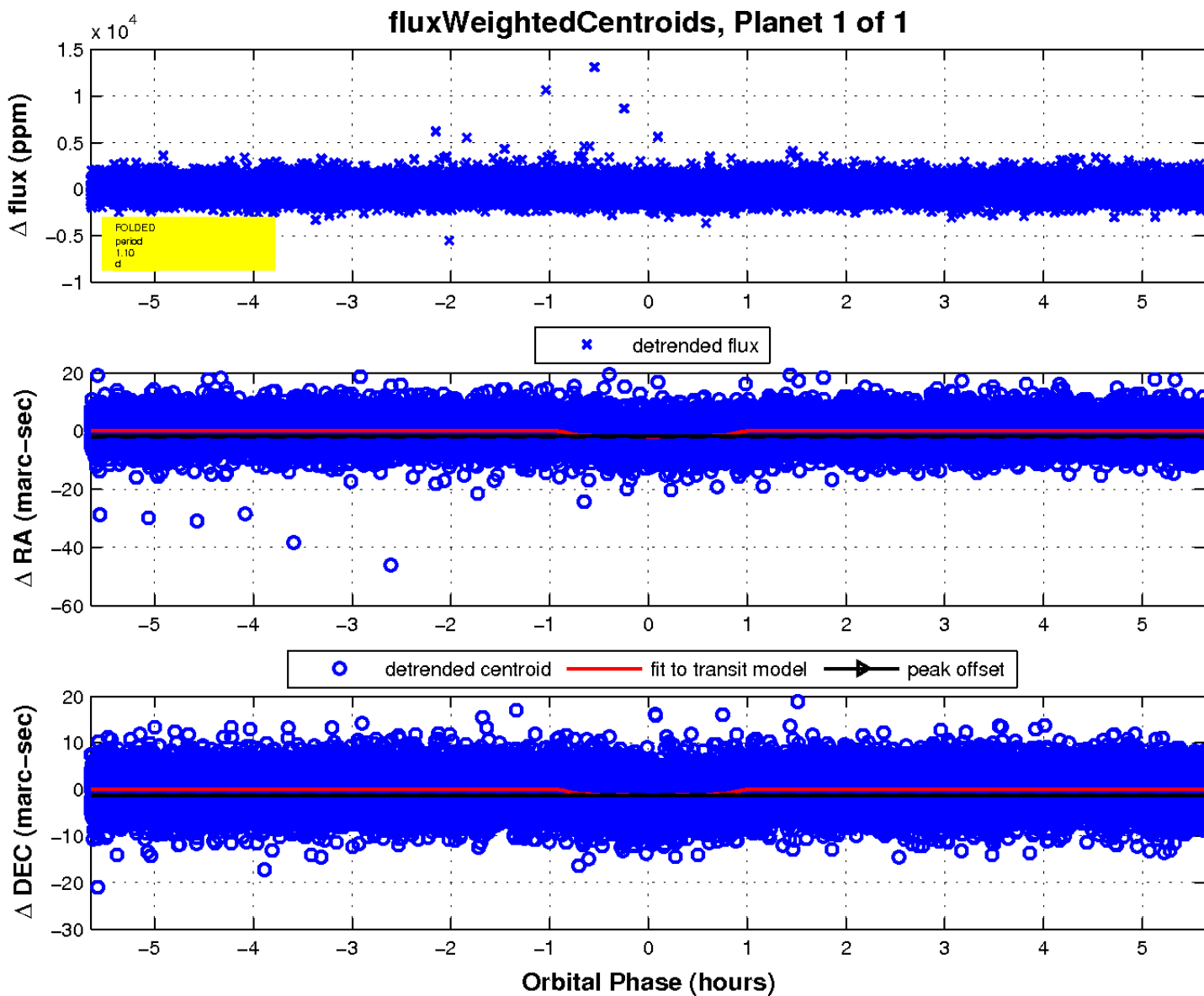
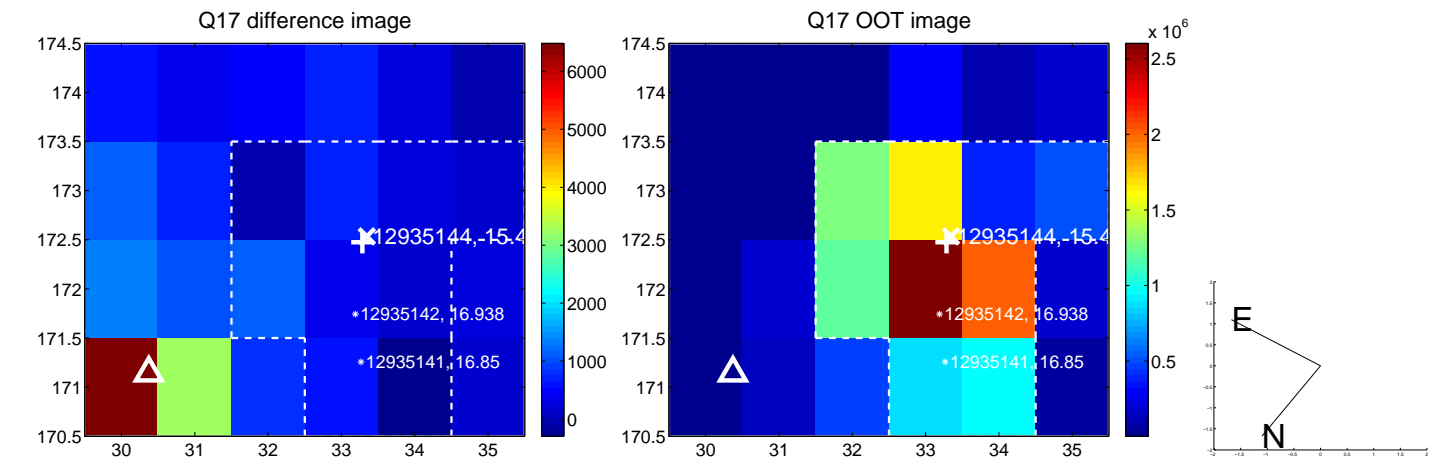
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



# UKIRT Image

Declination

