

# KIC 009429631

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009429631-01	OBS	7937.01	4.185872	132.418964	95.0	2.022	8.5	8.4	0.91	5455	1.06	295.62

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009429631-01	OBS	FP	0.00	0	0	1	0	CENT_UNRESOLVED_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.

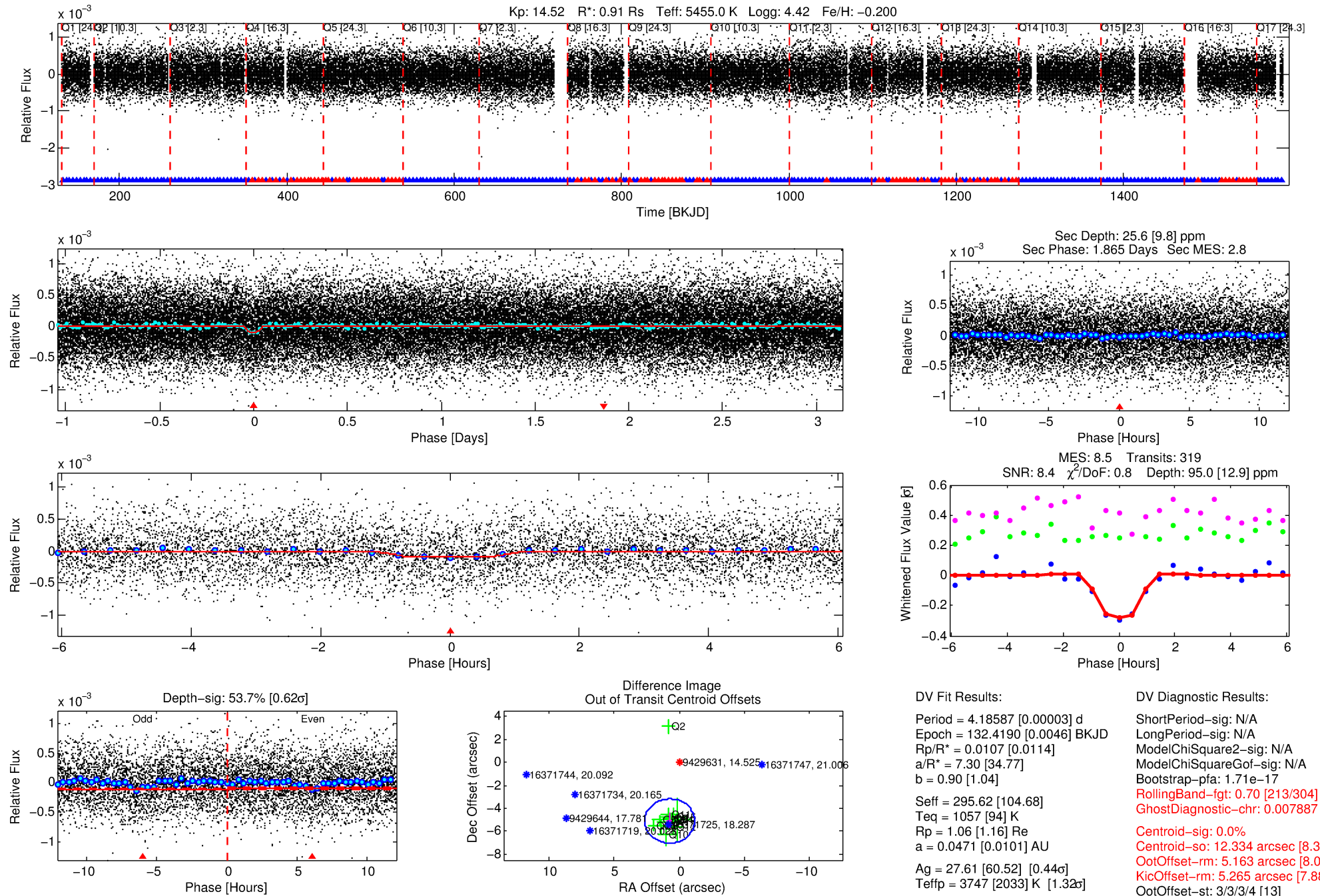
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009429631-01

No Significant Match Found

# DV One-Page Summary

KIC: 9429631 Candidate: 1 of 1 Period: 4.186 d



## DV Fit Results:

Period = 4.18587 [0.00003] d  
Epoch = 132.4190 [0.0046] BKJD  
Rp/R\* = 0.0107 [0.0114]  
a/R\* = 7.30 [34.77]  
b = 0.90 [1.04]  
Seff = 295.62 [104.68]  
Teff = 1057 [94] K  
Rp = 1.06 [1.16] Re  
a = 0.0471 [0.0101] AU  
Ag = 27.61 [60.52] [0.44σ]  
Teffp = 3747 [2033] K [1.32σ]

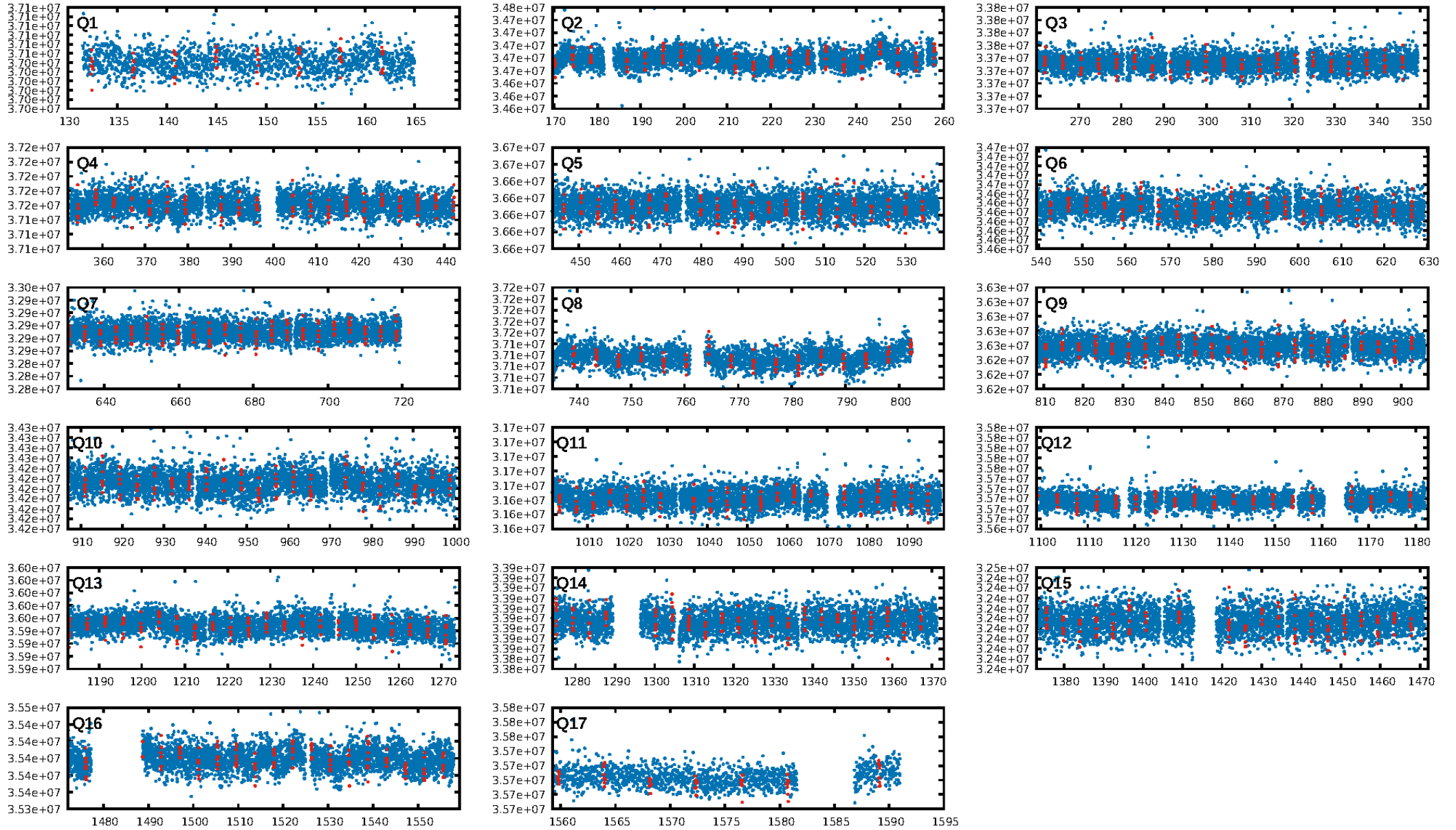
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.71e-17  
RollingBand-fgt: 0.70 [213/304]  
GhostDiagnostic-chr: 0.007887  
Centroid-sig: 0.0%  
Centroid-so: 12.334 arcsec [8.34σ]  
OotOffset-rm: 5.163 arcsec [8.06σ]  
KicOffset-rm: 5.265 arcsec [7.88σ]  
OotOffset-st: 3/3/3/4 [13]  
KicOffset-st: 3/3/3/4 [13]  
DiffImageQuality-fgm: 0.77 [10/13]  
DiffImageOverlap-fno: 1.00 [17/17]

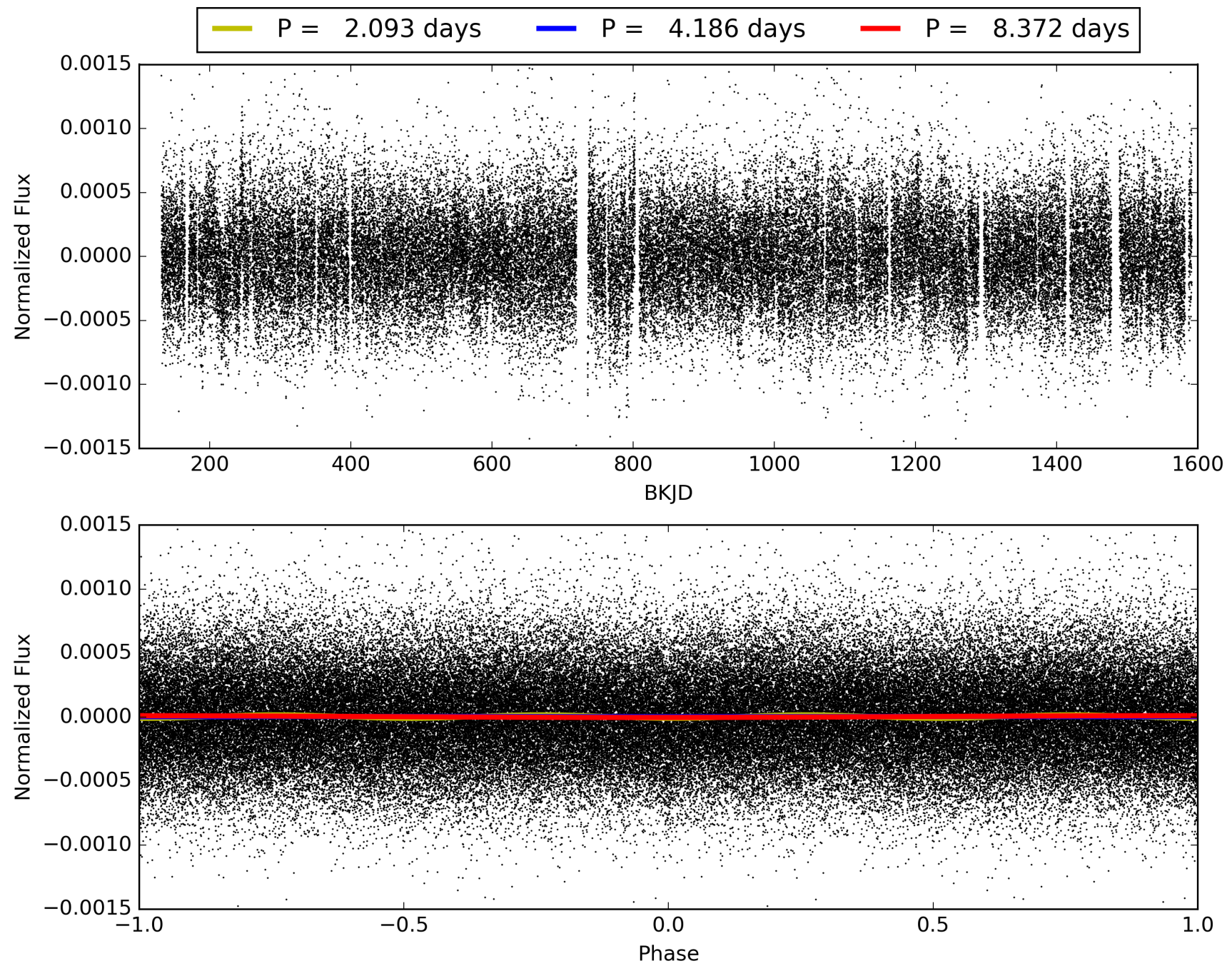
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:15:50 Z

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

# TCE 009429631-01, PDC Light Curves



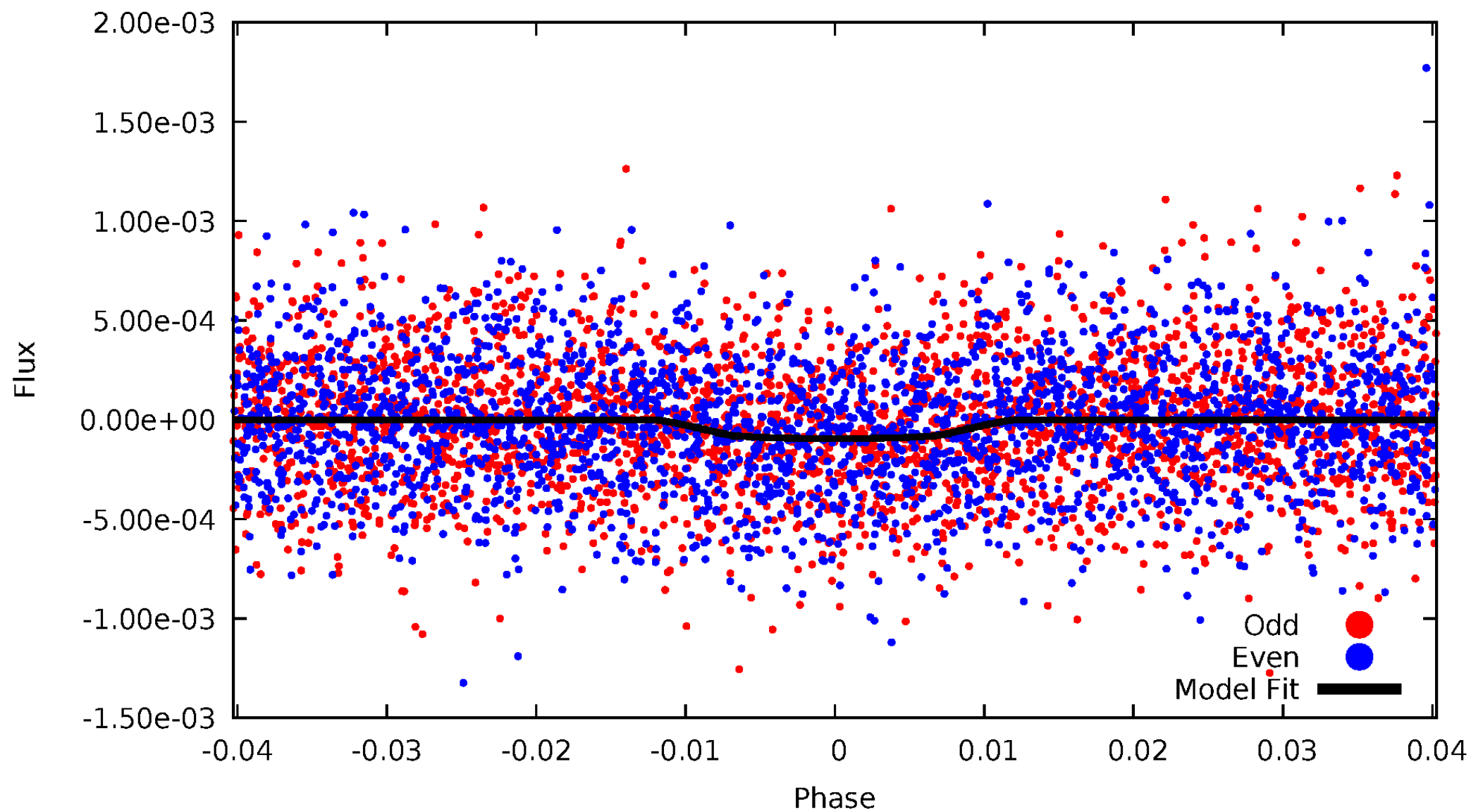
TCE 009429631-01





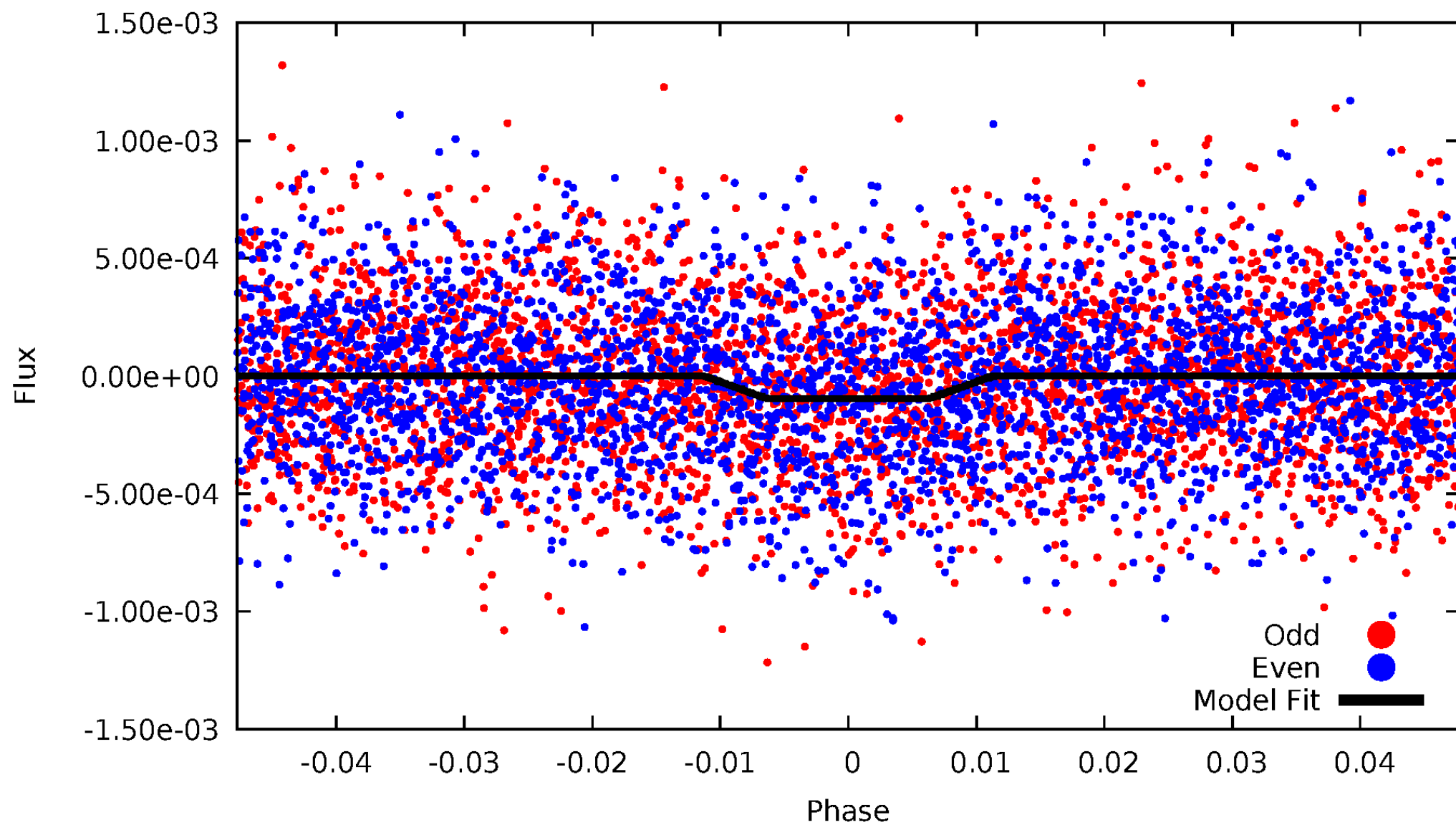
# DV Odd/Even

TCE 009429631-01



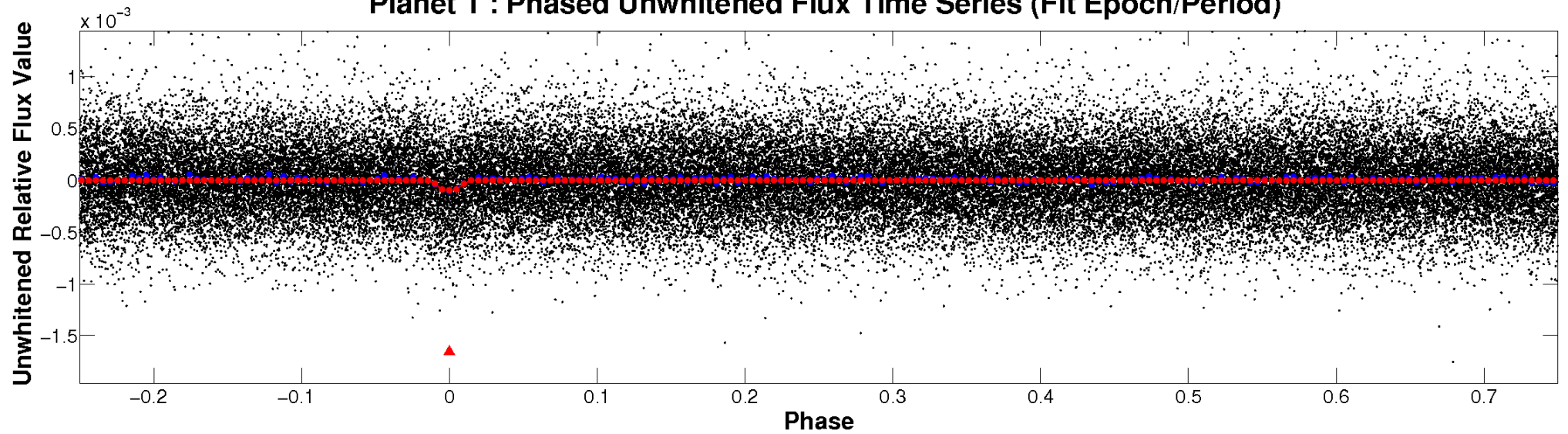
# ALT Odd/Even

TCE 009429631-01

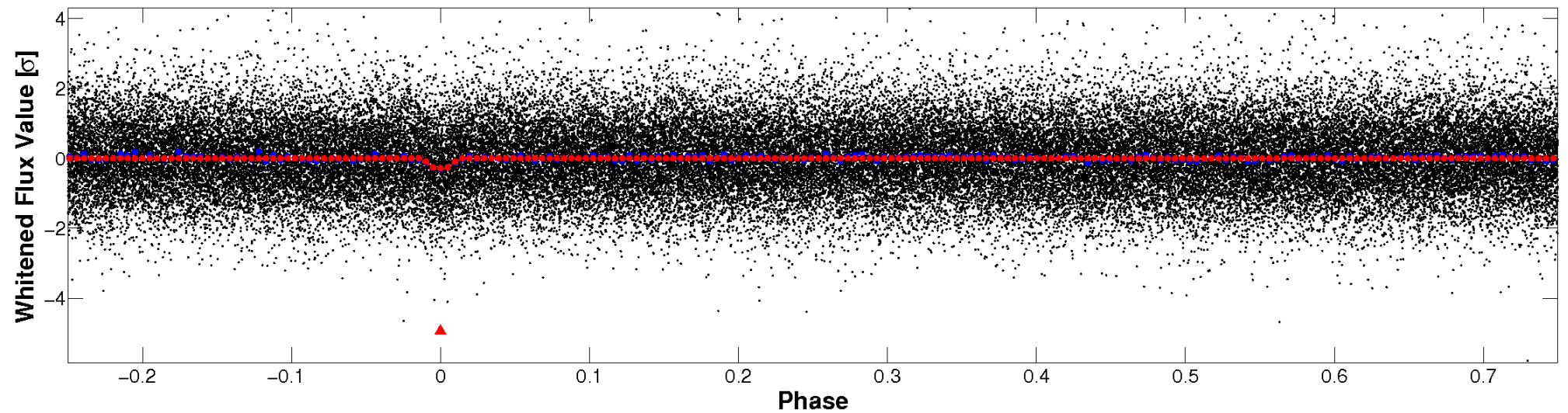


# Non-Whitened Vs. Whitened Light Curve

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

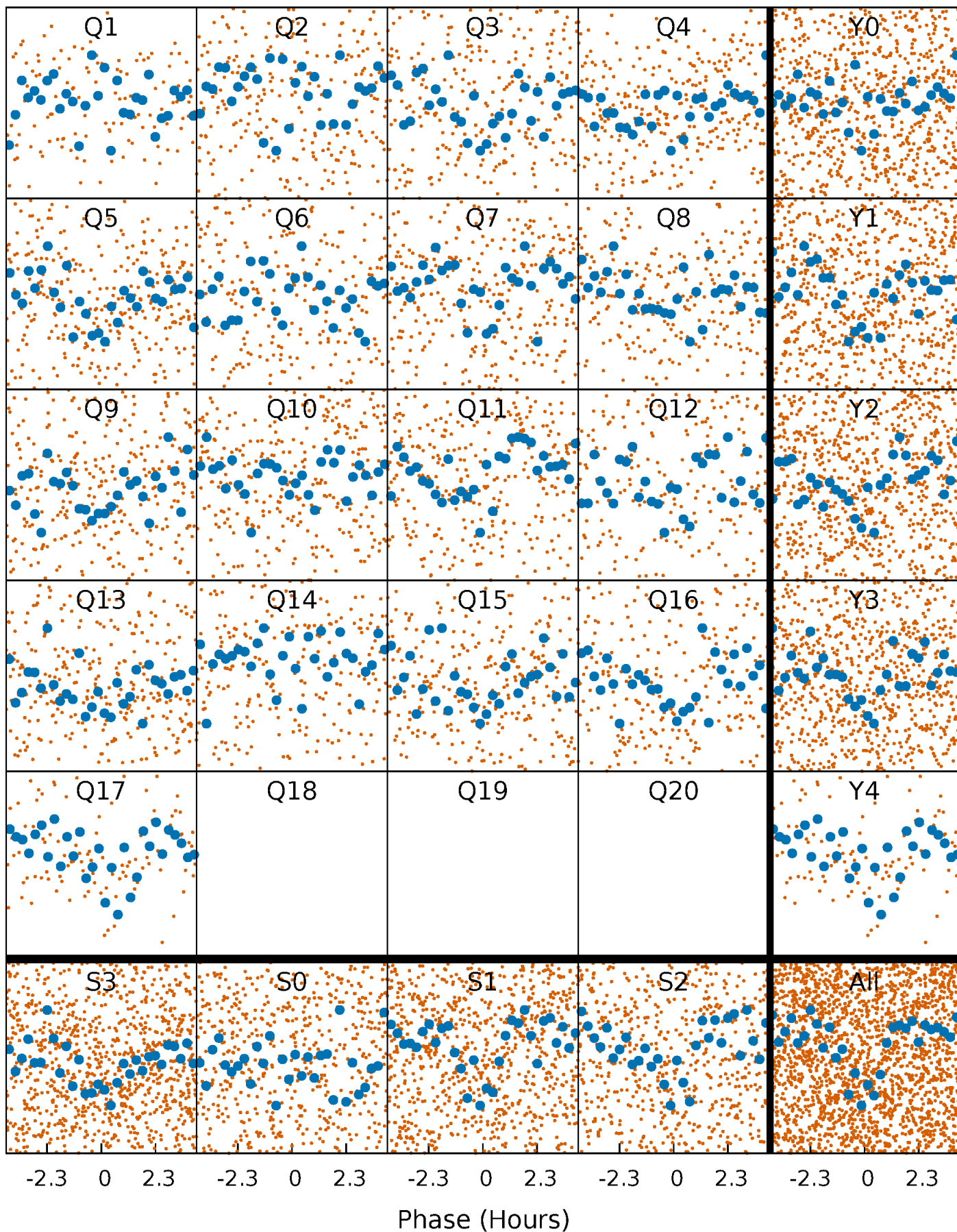


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

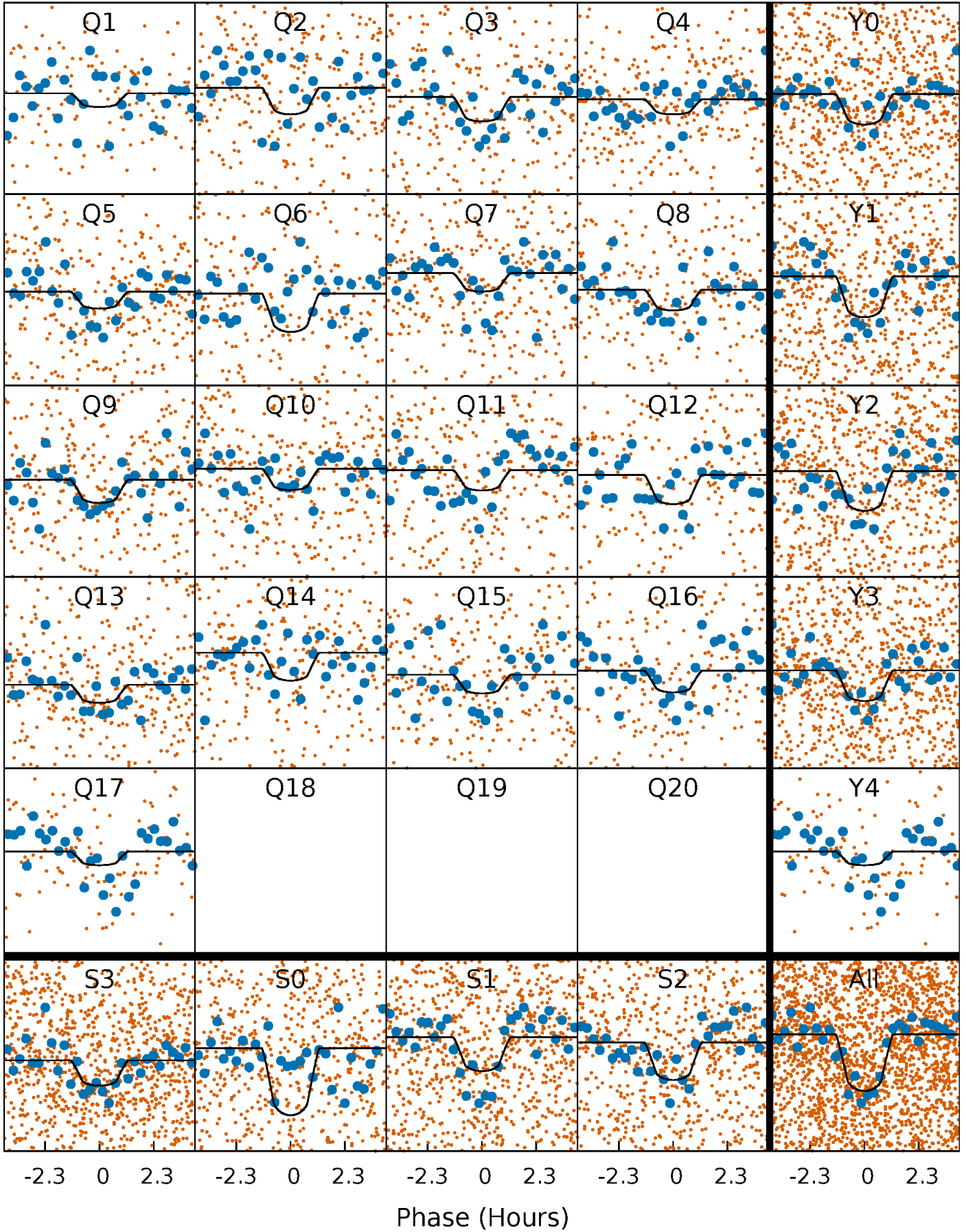
TCE 009429631-01 P= 4.185872 Days  $T_0=132.418964$  (BKJD)





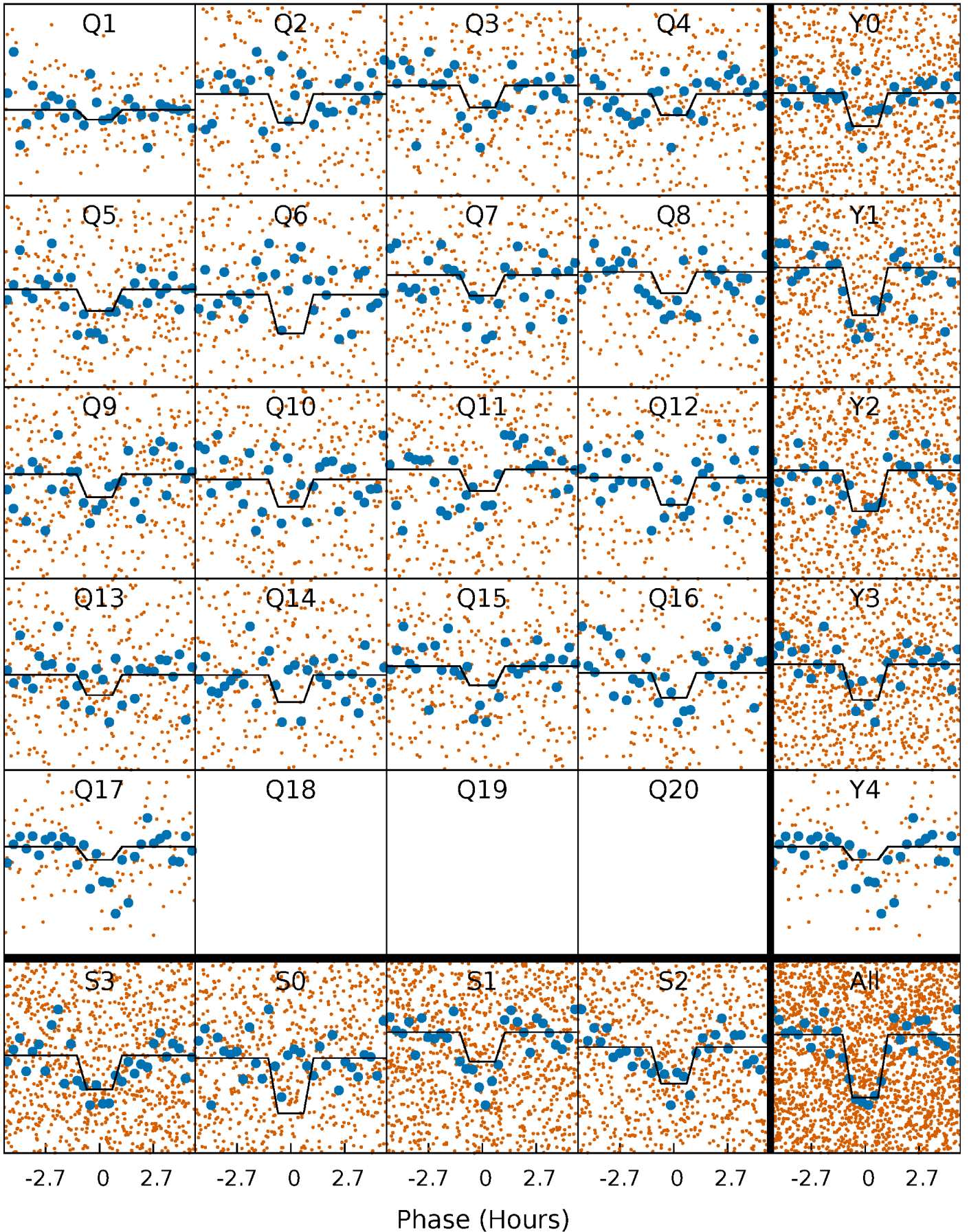
# DV Quarter-Phased Transit Curves

TCE 009429631-01 P= 4.185872 Days  $T_0=132.418964$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

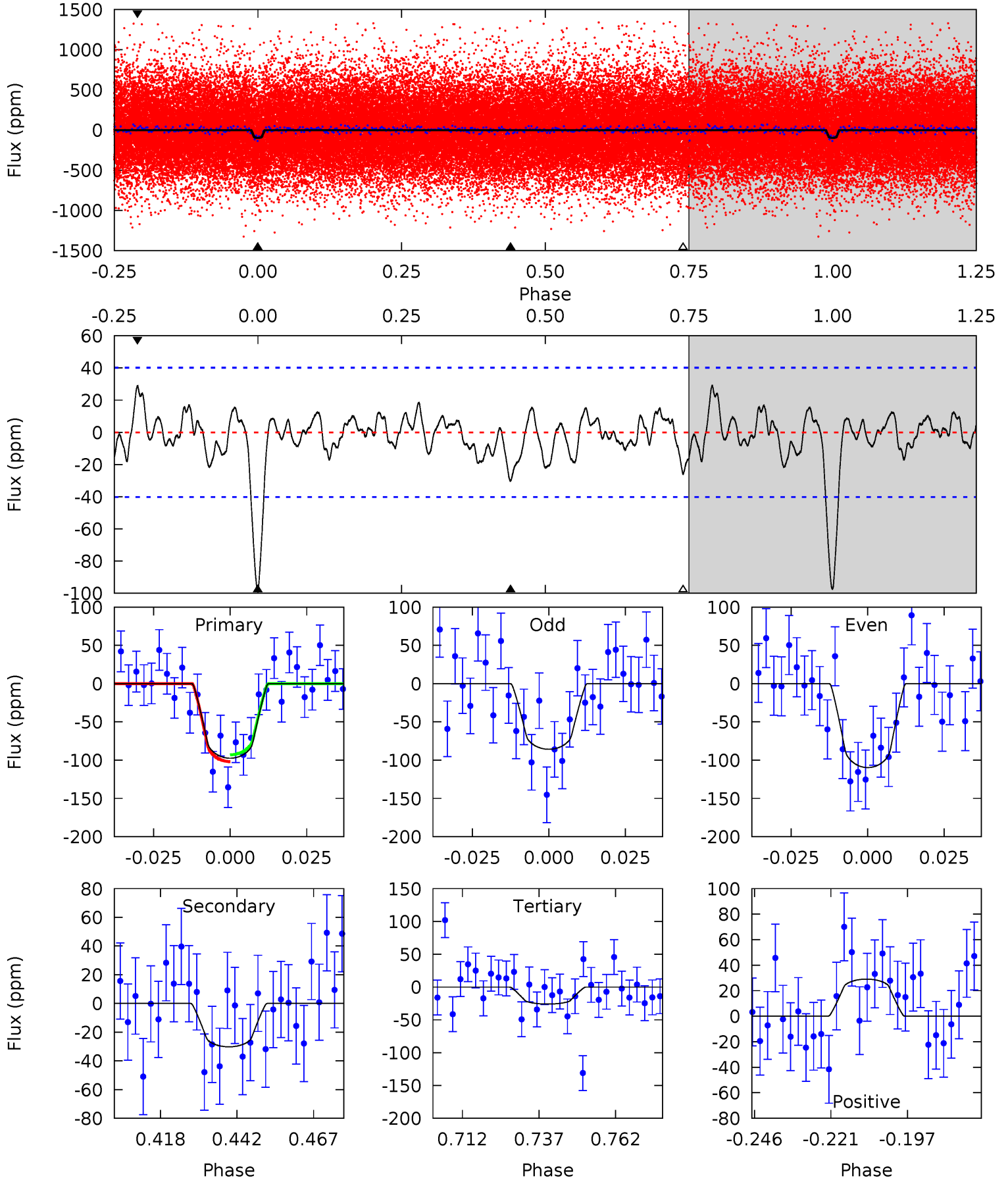
TCE 009429631-01 P= 4.185848 Days  $T_0=132.421636$  (BKJD)



# DV Model-Shift Uniqueness Test

009429631-01, P = 4.185872 Days, E = 128.233092 Days

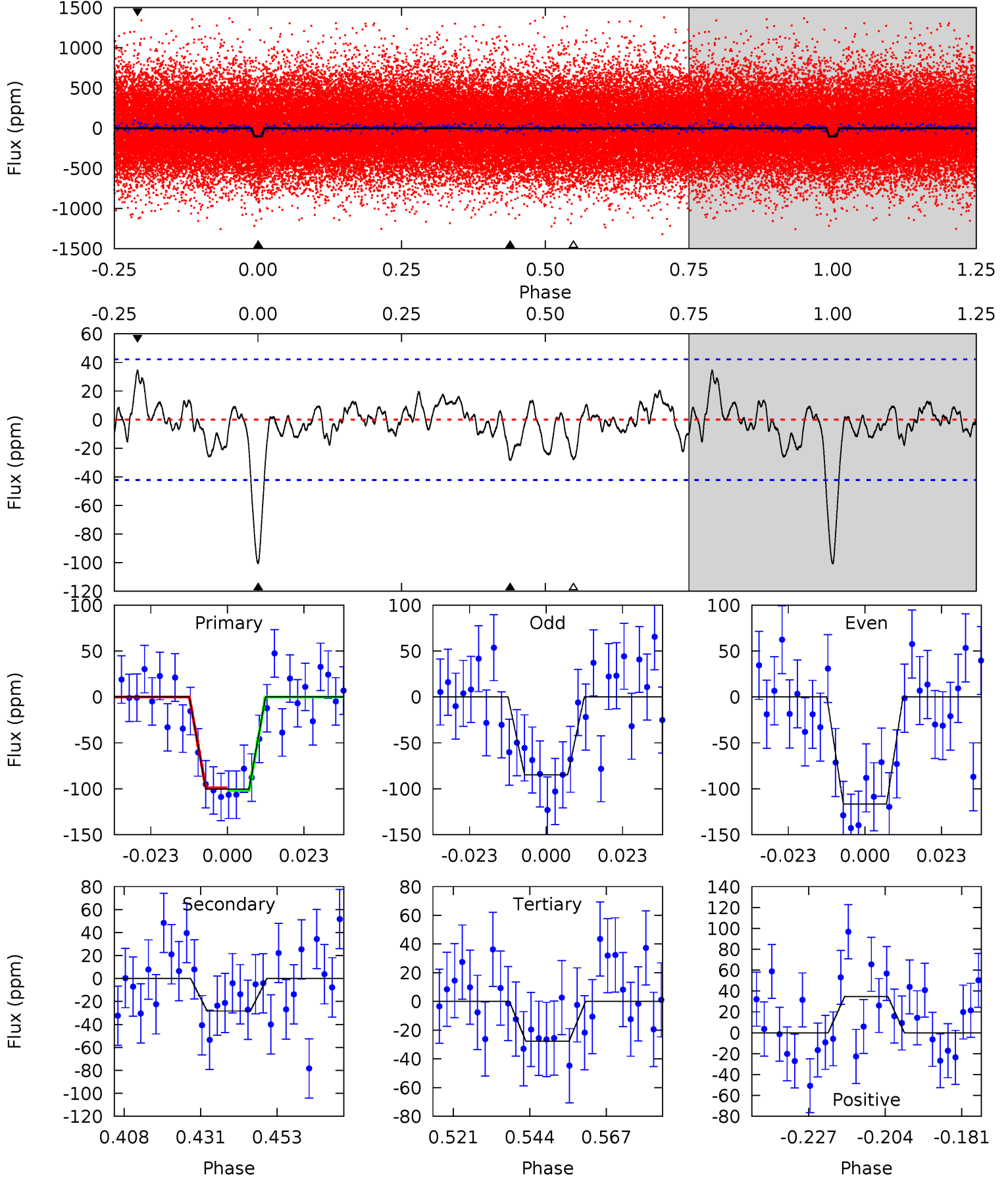
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	3.65	3.13	3.51	4.85	2.25	1.19	8.64	8.26	0.51	0.13	1.45	0.94	0.23	0.54



# Alt Model-Shift Uniqueness Test

009429631-01, P = 4.185848 Days, E = 128.235788 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
11.6	3.27	3.20	4.00	4.87	2.28	1.20	8.39	7.58	0.07	-0.73	1.85	1.09	0.26	0.17





### Stellar Parameters For KIC 009429631

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5455^{+162}_{-162}$	$4.421^{+0.144}_{-0.192}$	$-0.200^{+0.300}_{-0.300}$	$0.909^{+0.213}_{-0.142}$	$0.795^{+0.116}_{-0.062}$	$1.492^{+0.966}_{-0.718}$
	+3%/-3%	+3%/-4%	+150%/-150%	+23%/-16%	+15%/-8%	+65%/-48%
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 009429631-01 / KOI 7937.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-30 \pm 8$	$1.33^{+1.03}_{-0.82}$	$1479^{+104}_{-80}$	$3820^{+1746}_{-676}$	$21^{+112}_{-15}$
Alt.	$-28 \pm 9$	$1.29^{+1.11}_{-0.85}$	$1490^{+109}_{-88}$	$3858^{+2207}_{-725}$	$21^{+166}_{-15}$

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

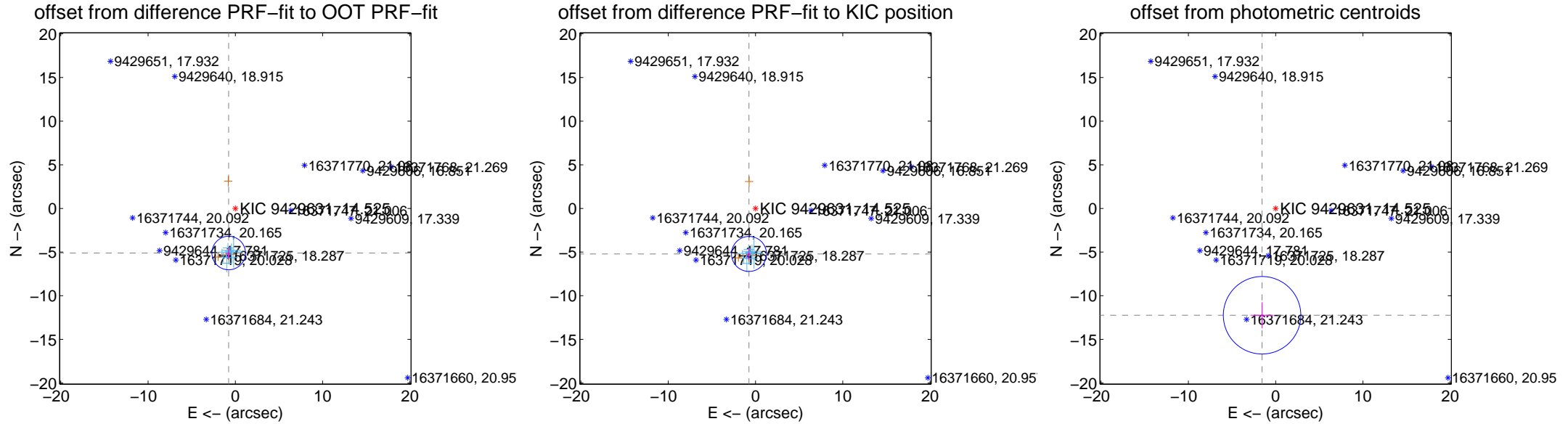
## DV Centroid Data

Supplemental centroid analysis for 009429631-01. Kepler magnitude: 14.53. Transit SNR 8.37

There are 10 quarters with good PRF difference image offsets

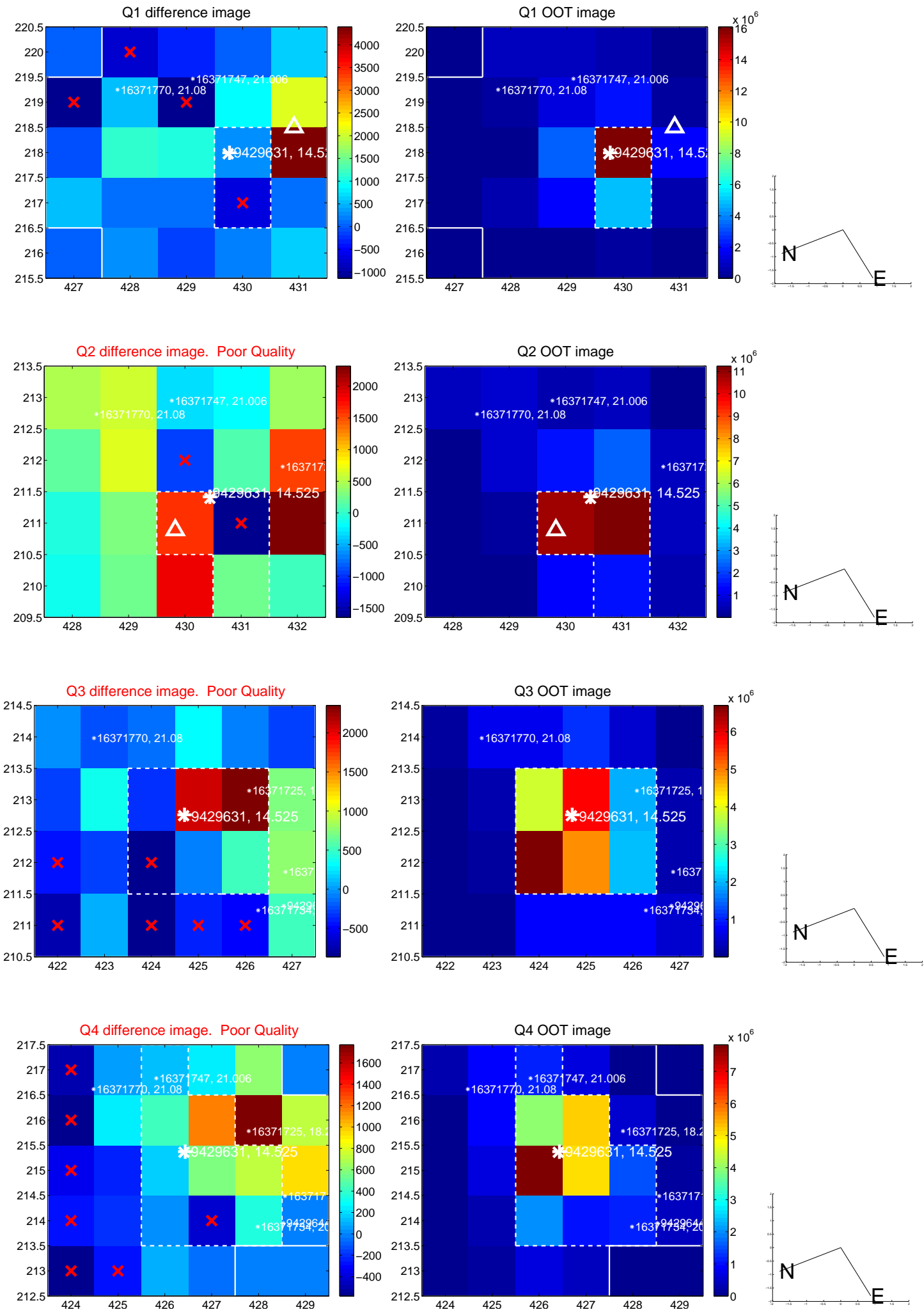
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>5.163 <math>\pm</math> 0.640</b>	<b>8.06</b>	0.763 $\pm$ 0.146	-5.106 $\pm$ 0.645
PRF-fit source offset from KIC position	<b>5.265 <math>\pm</math> 0.668</b>	<b>7.88</b>	0.745 $\pm$ 0.150	-5.212 $\pm$ 0.673
photometric centroid source offset	<b>12.33 <math>\pm</math> 1.48</b>	<b>8.34</b>	1.55 $\pm$ 1.32	-12.24 $\pm$ 1.48

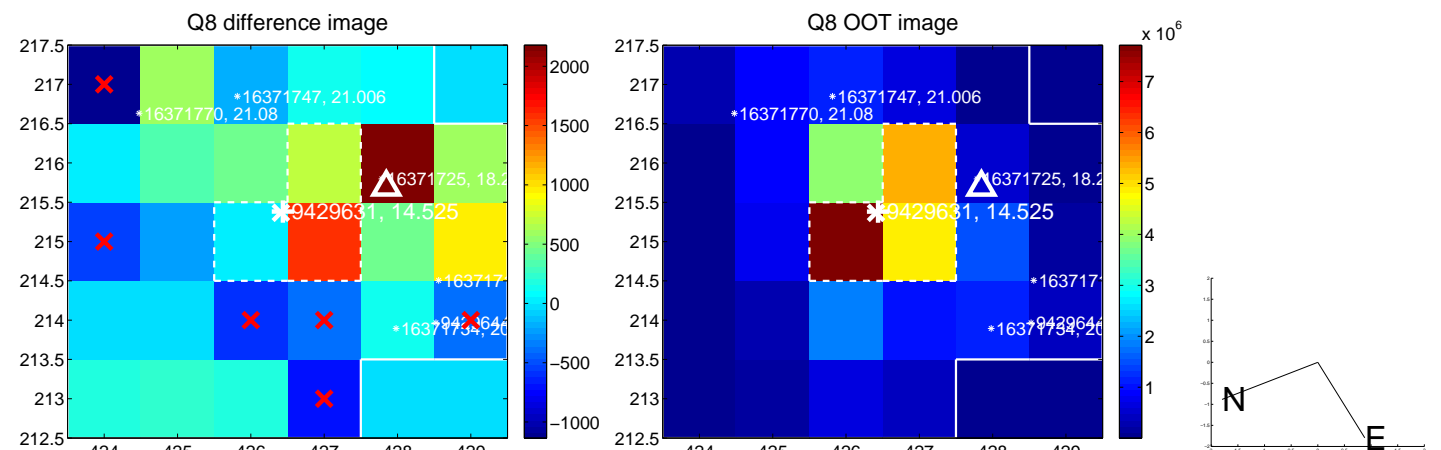
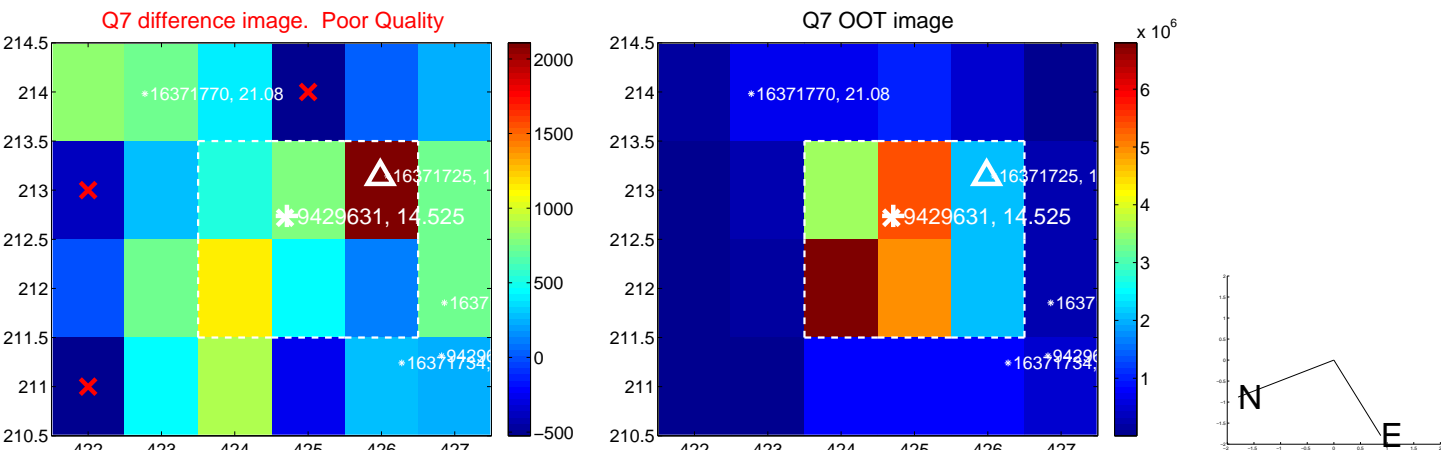
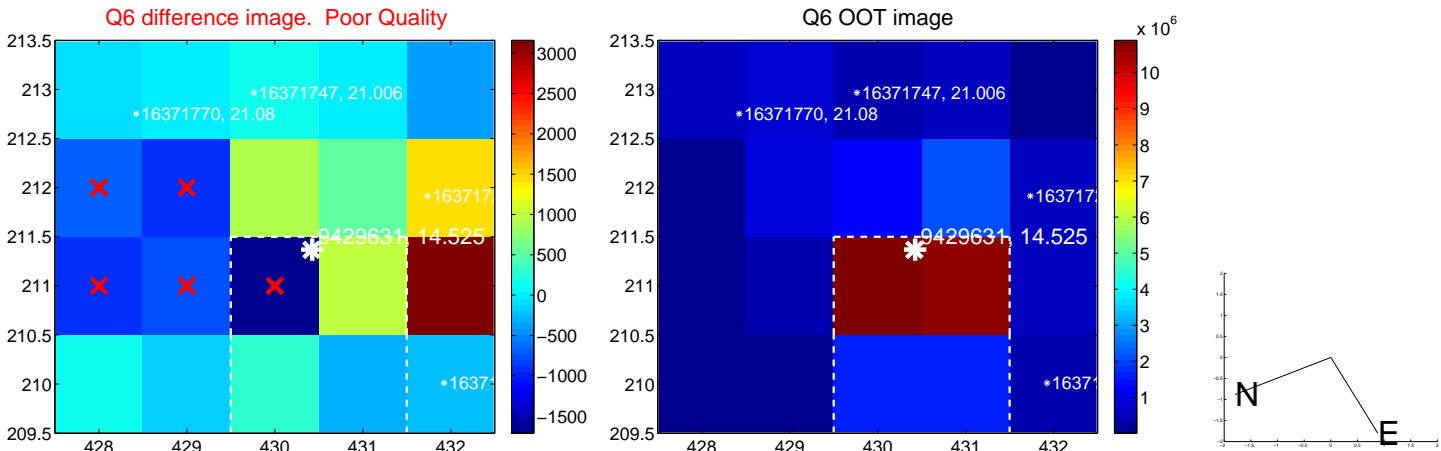
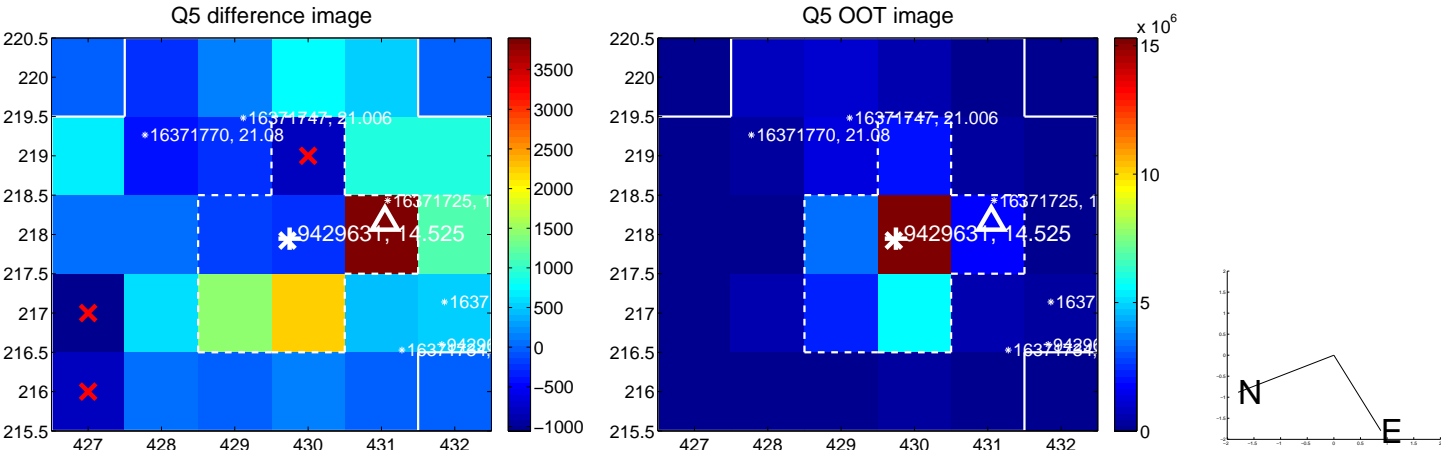


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

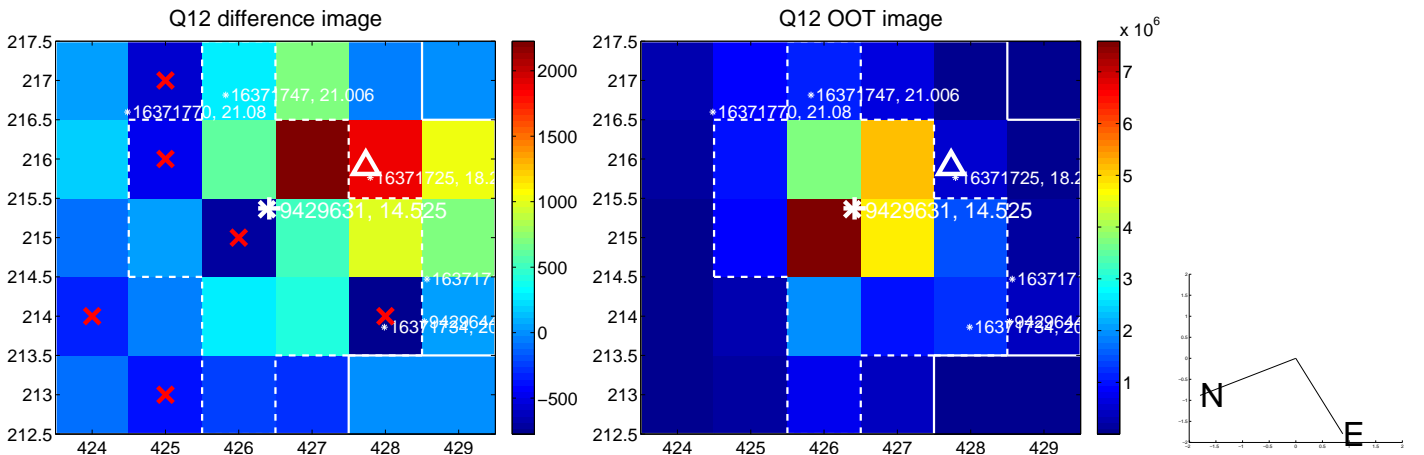
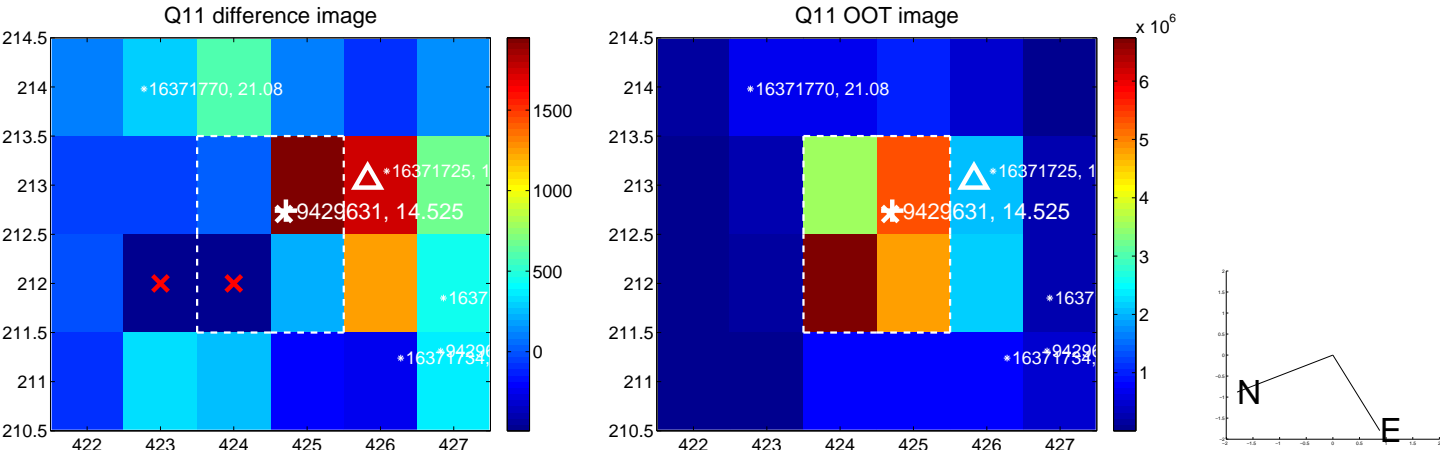
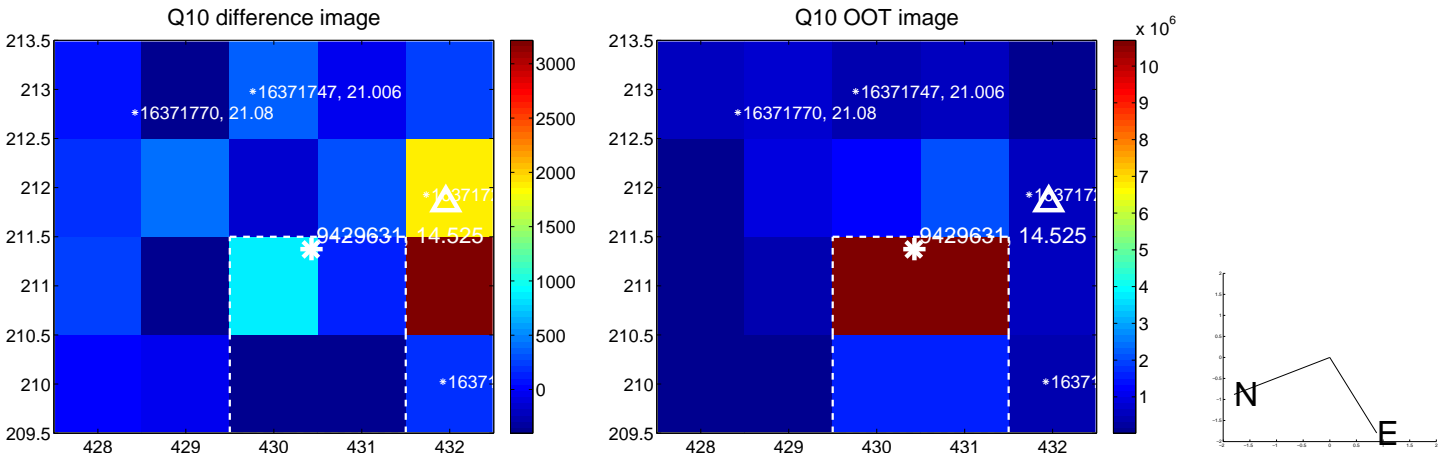
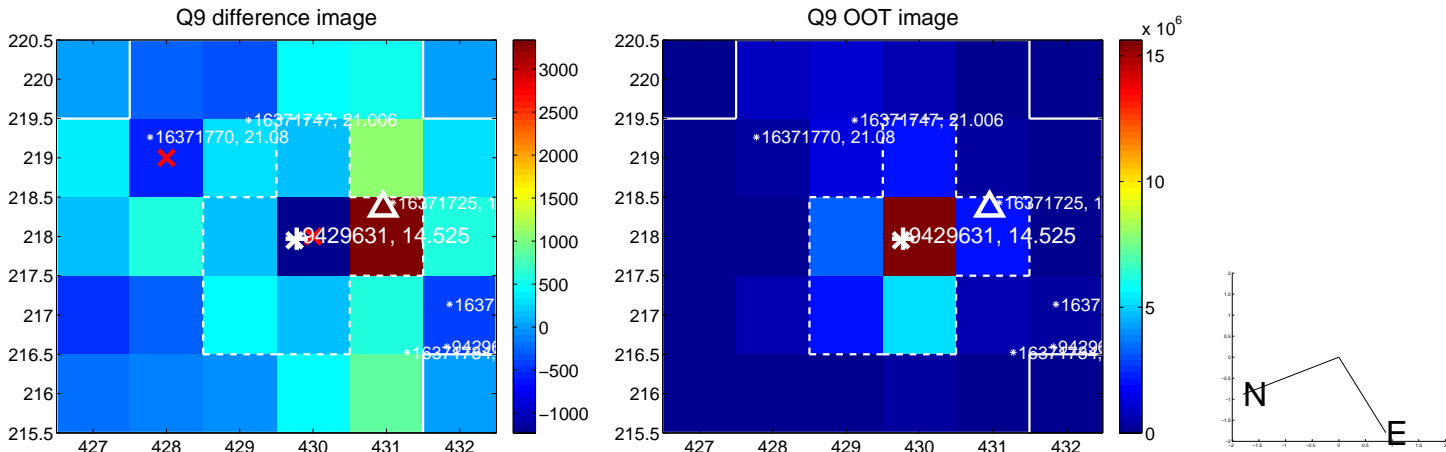


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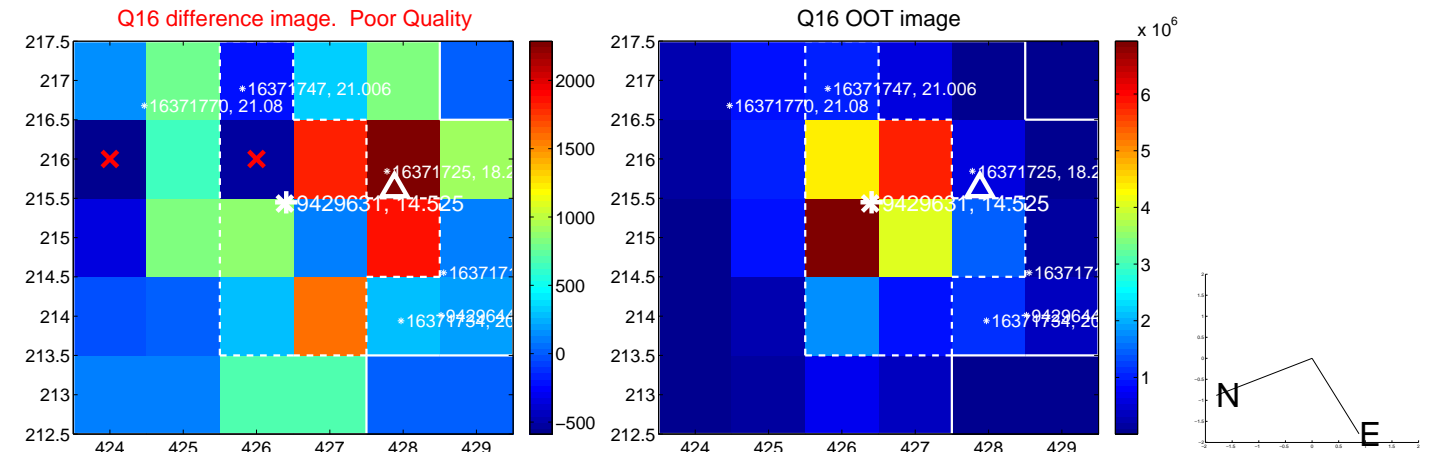
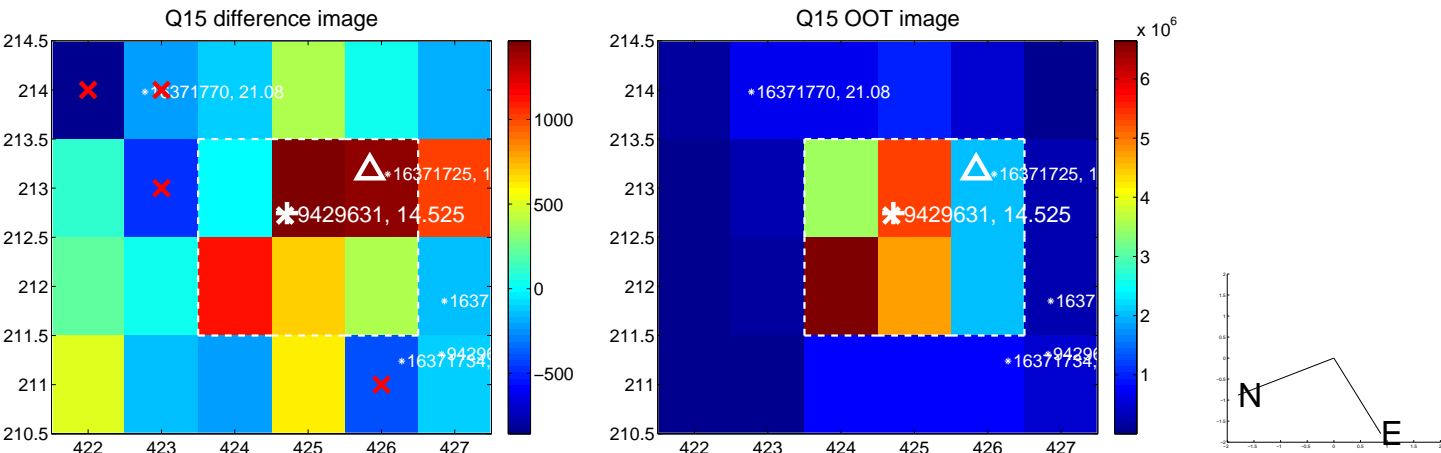
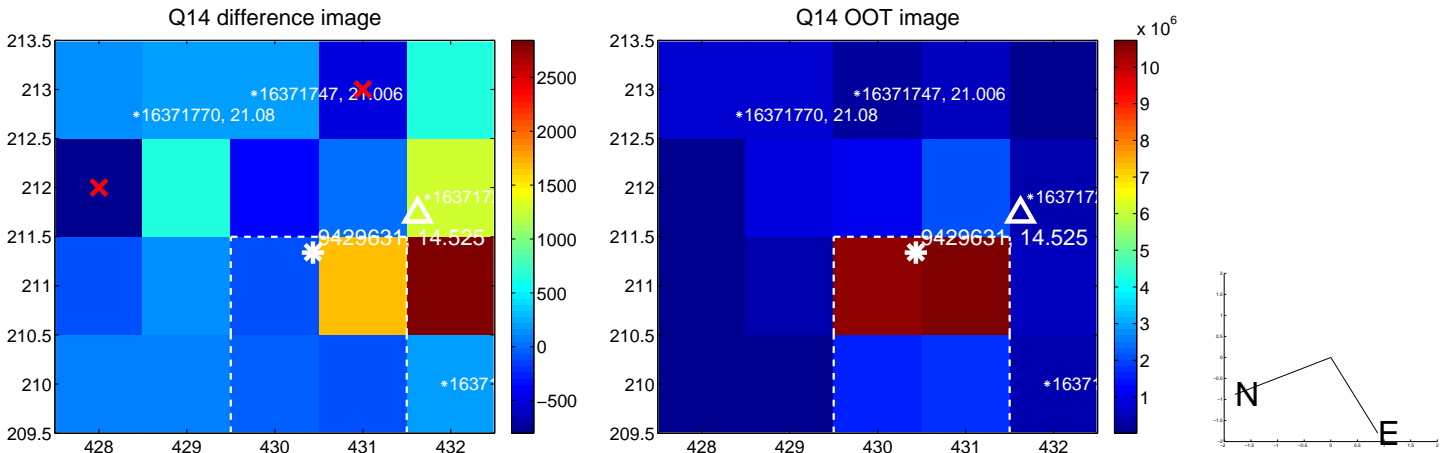
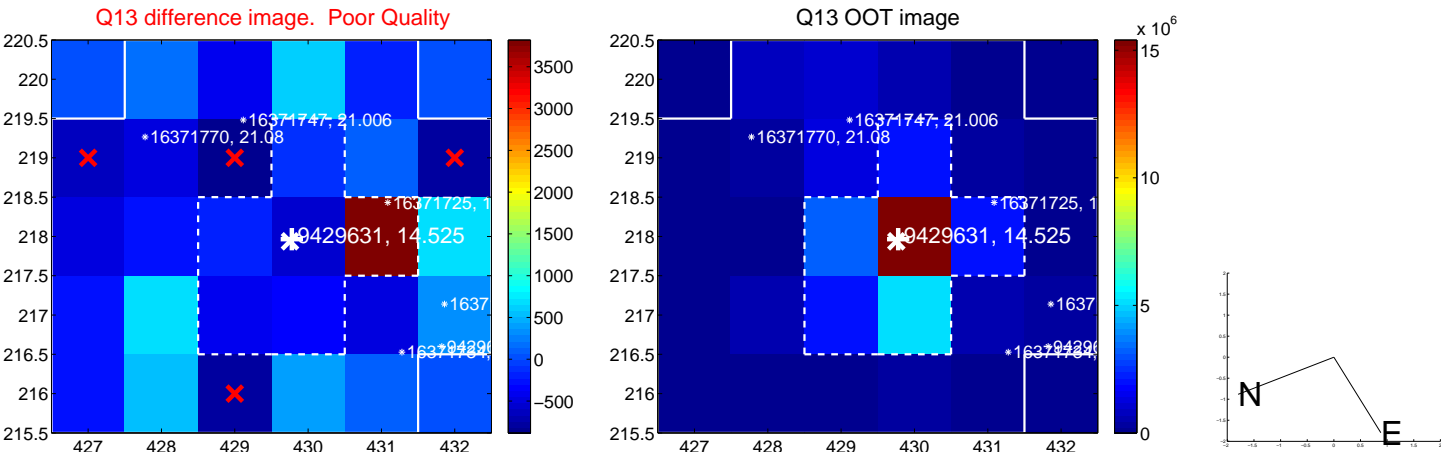




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UKIRT Image

Declination

