

# KIC 009529148

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009529148-01	OBS	7942.01	25.342773	132.682905	252.2	1.550	7.2	8.0	1.17	6311	2.19	58.90

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009529148-01	OBS	FP	0.29	1	0	0	0	MOD_NONUNIQ_ALT

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

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

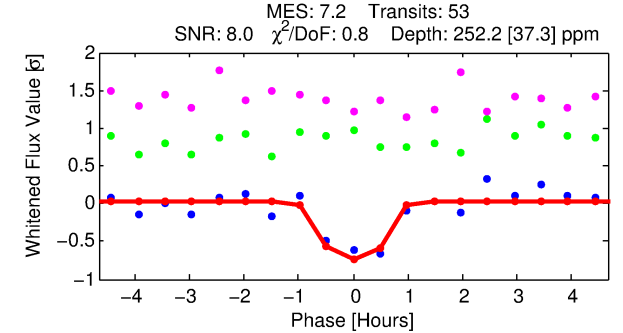
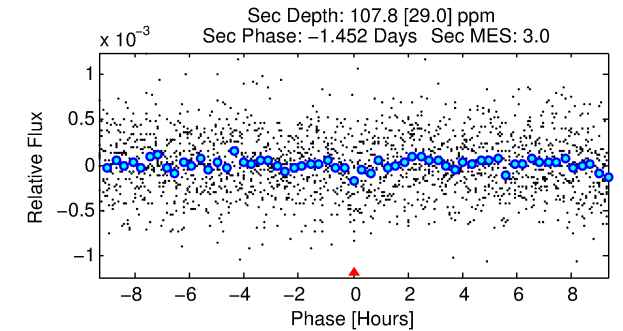
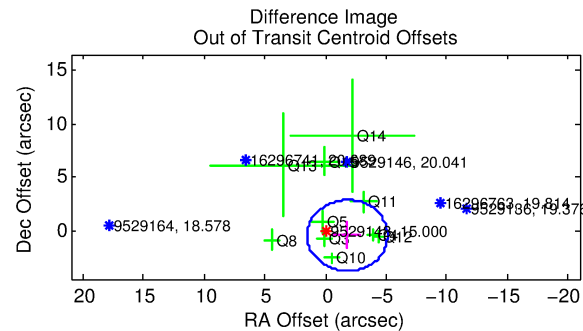
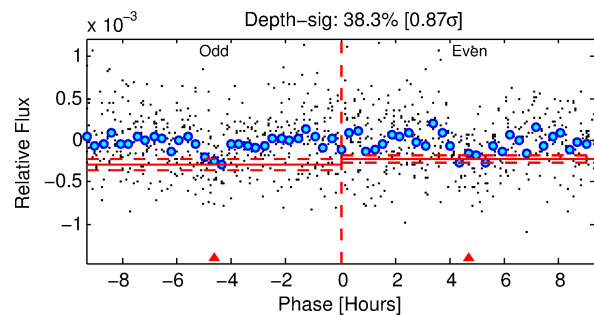
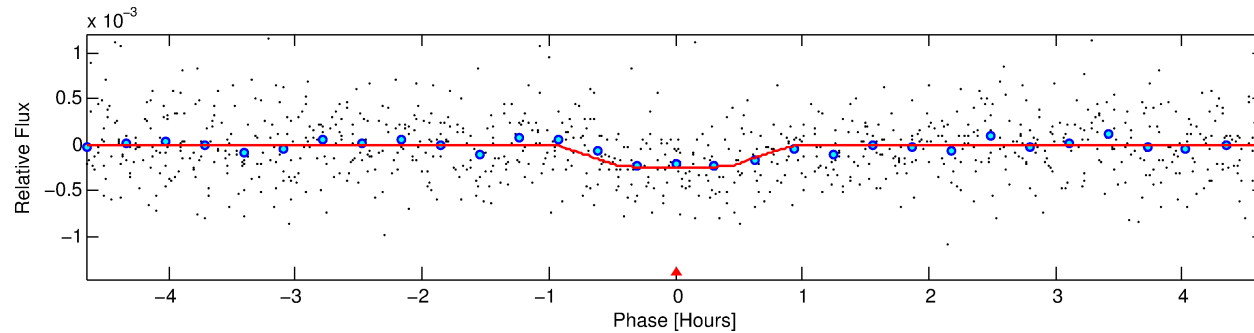
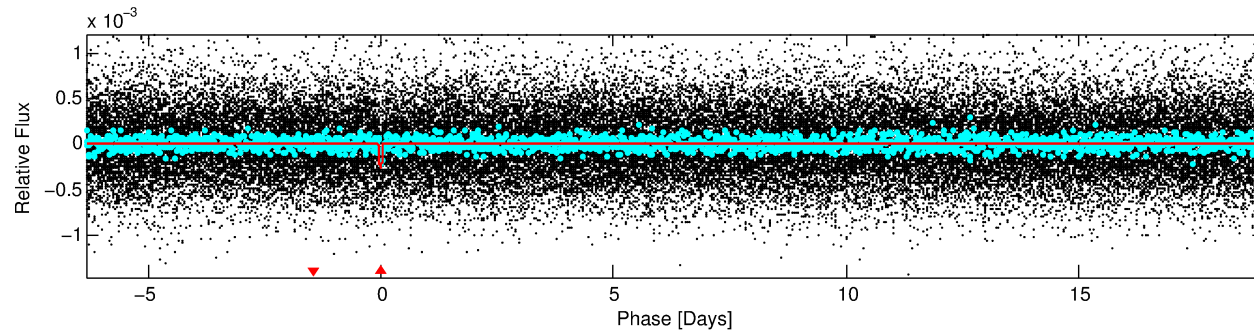
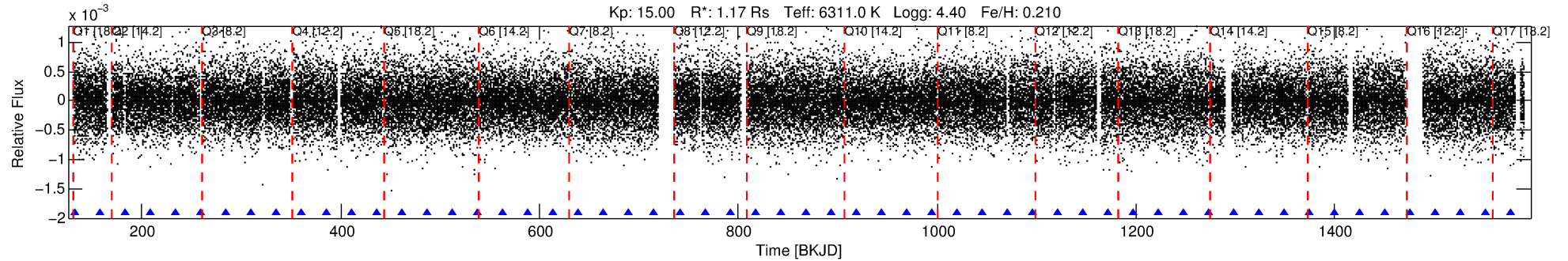
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009529148-01

No Significant Match Found

# DV One-Page Summary

KIC: 9529148 Candidate: 1 of 1 Period: 25.343 d



## DV Fit Results:

Period = 25.34277 [0.00018] d  
Epoch = 132.6829 [0.0057] BKJD  
Rp/R\* = 0.0171 [0.0145]  
a/R\* = 59.98 [266.41]  
b = 0.90 [0.99]  
Seff = 58.90 [22.86]  
Teq = 706 [69] K  
Rp = 2.19 [1.97] Re  
a = 0.1821 [0.0456] AU  
Ag = 409.87 [720.29] [0.57 $\sigma$ ]  
Teffp = 4914 [2120] K [1.98 $\sigma$ ]

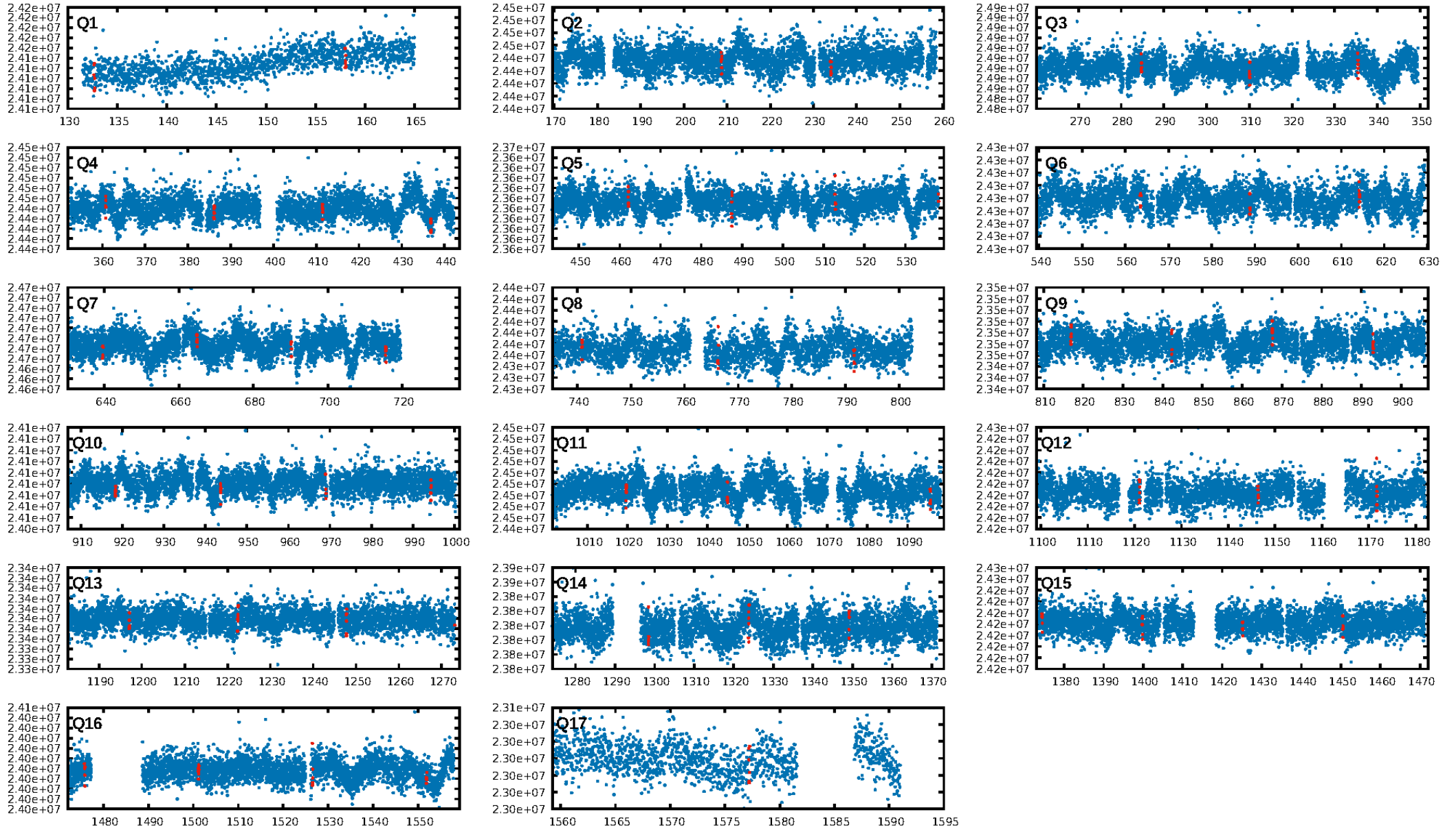
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 5.73e-13  
RollingBand-fgt: 1.00 [50/50]  
GhostDiagnostic-chr: 6.946  
Centroid-sig: 60.0%  
Centroid-so: 1.071 arcsec [0.55 $\sigma$ ]  
OotOffset-rm: 1.847 arcsec [1.66 $\sigma$ ]  
KicOffset-rm: 1.856 arcsec [1.89 $\sigma$ ]  
OotOffset-st: 2/3/3/2 [10]  
KicOffset-st: 2/3/3/2 [10]  
DiffImageQuality-fgm: 0.10 [1/10]  
DiffImageOverlap-fno: 1.00 [17/17]

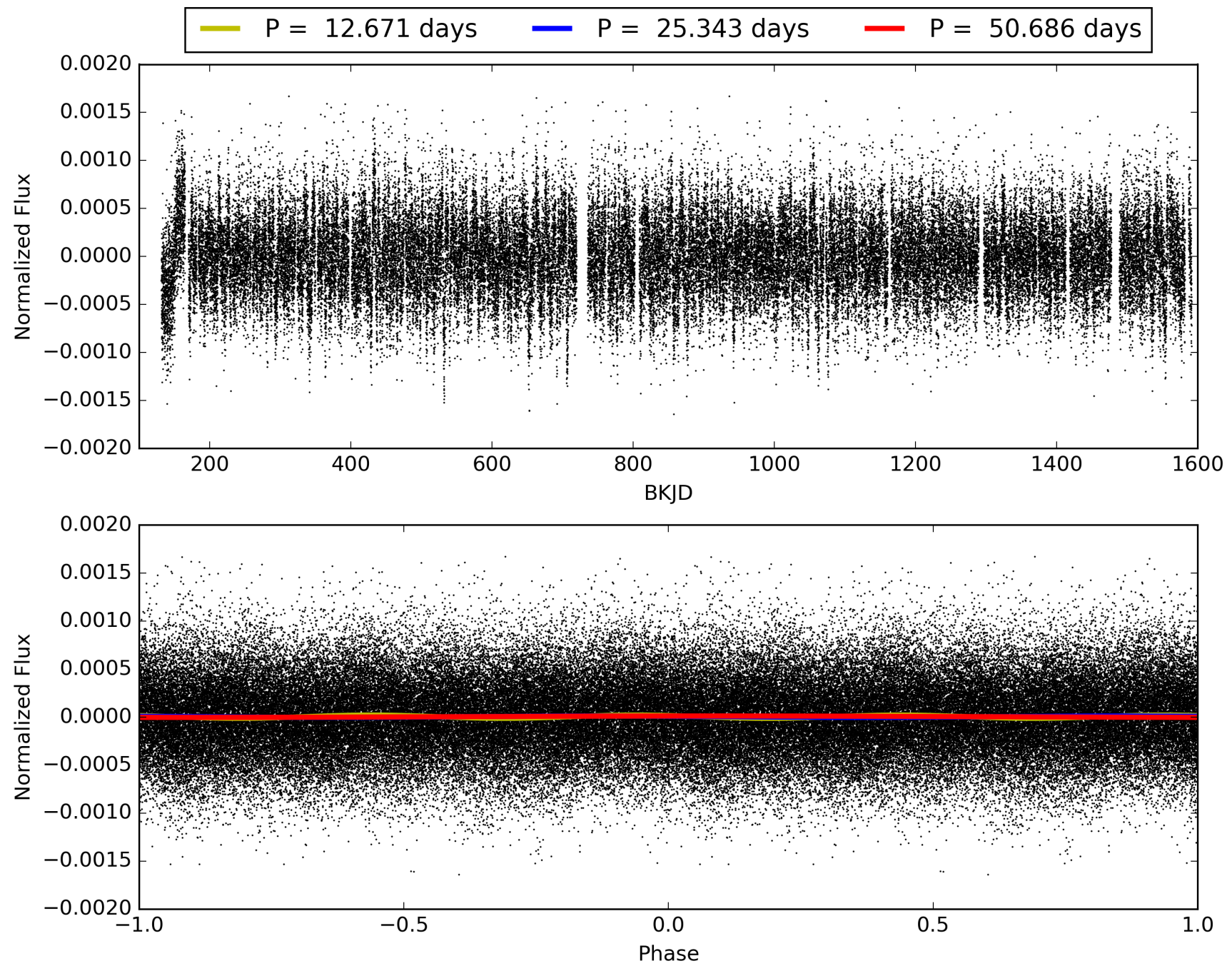
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:32:21 Z

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

# TCE 009529148-01, PDC Light Curves

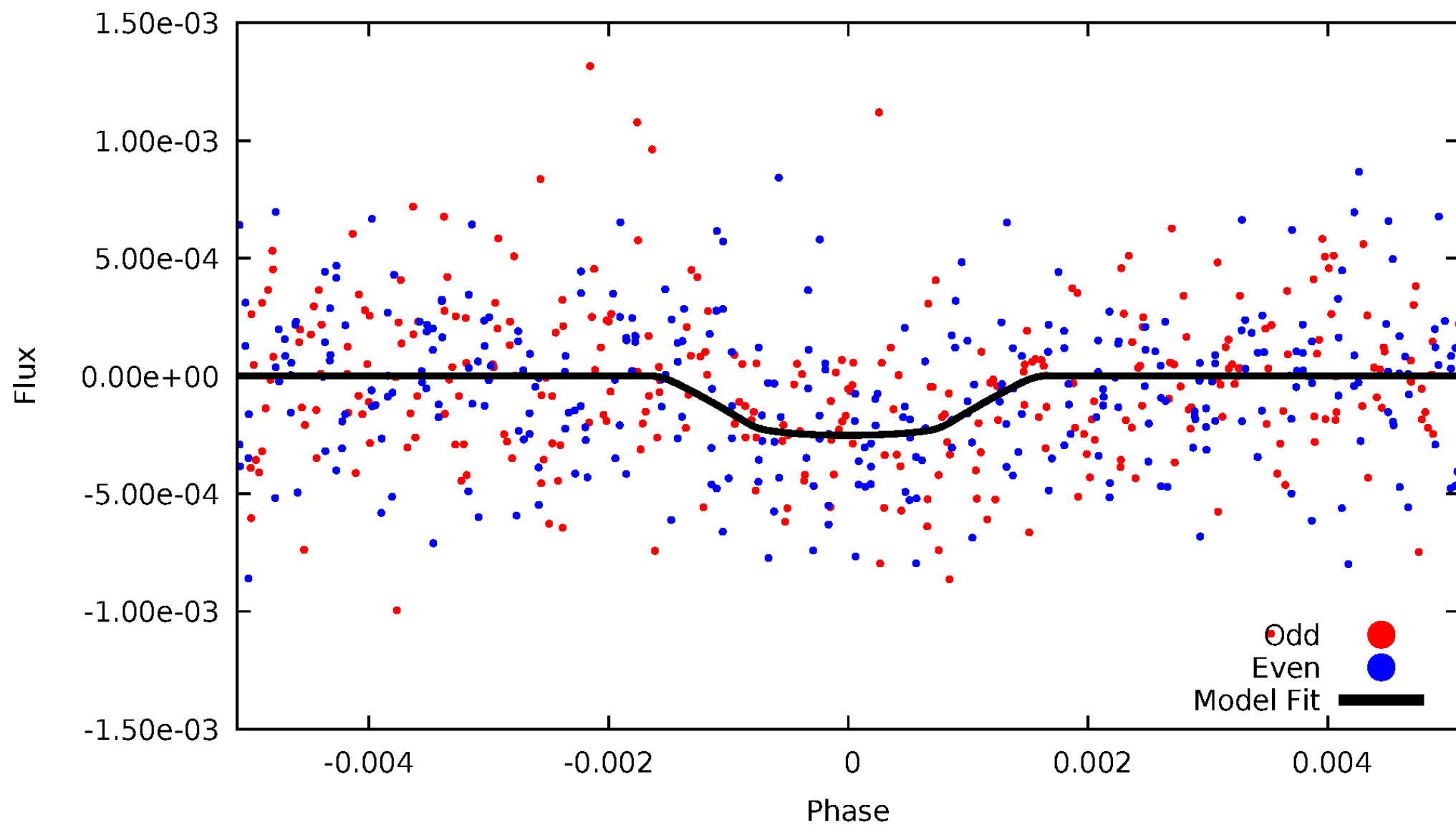


TCE 009529148-01



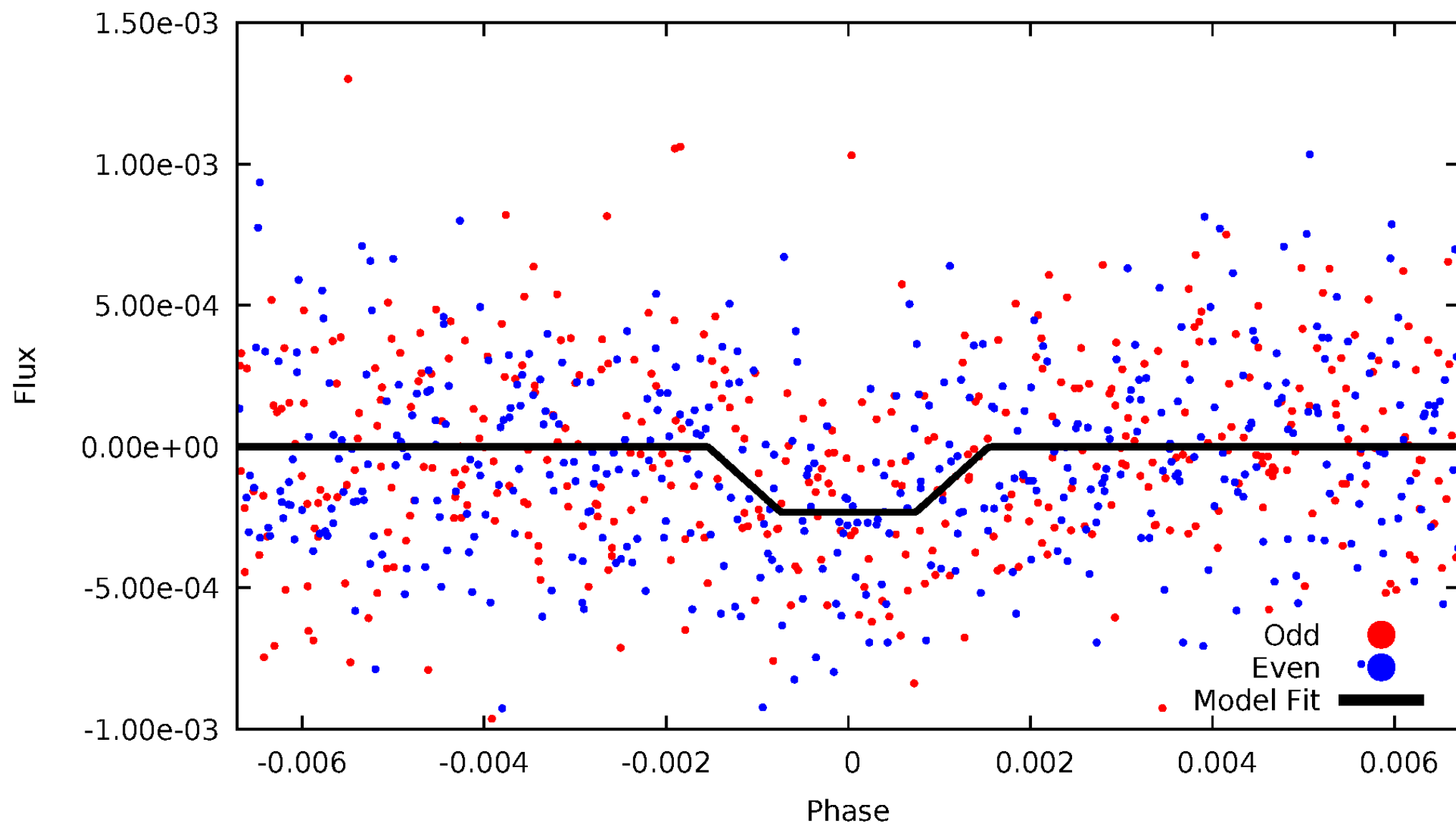
# DV Odd/Even

TCE 009529148-01



# ALT Odd/Even

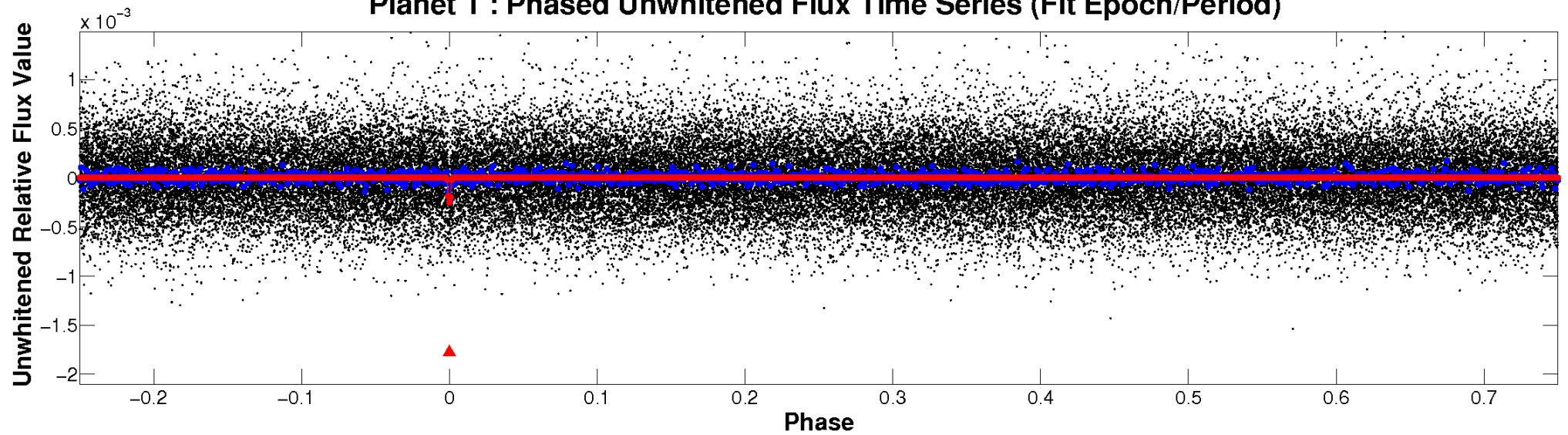
TCE 009529148-01



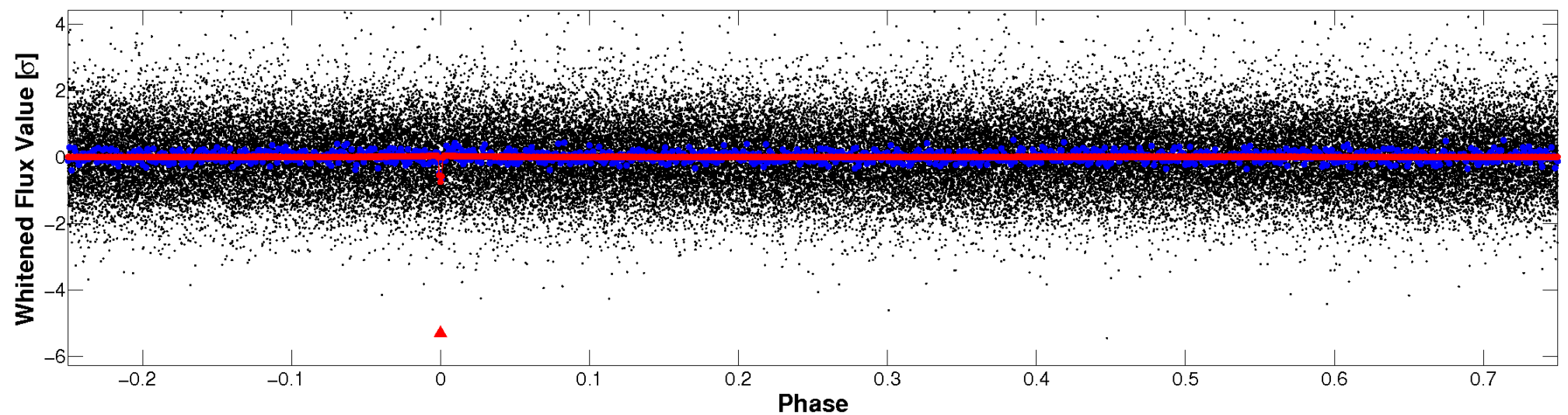


# Non-Whitened Vs. Whitened Light Curve

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

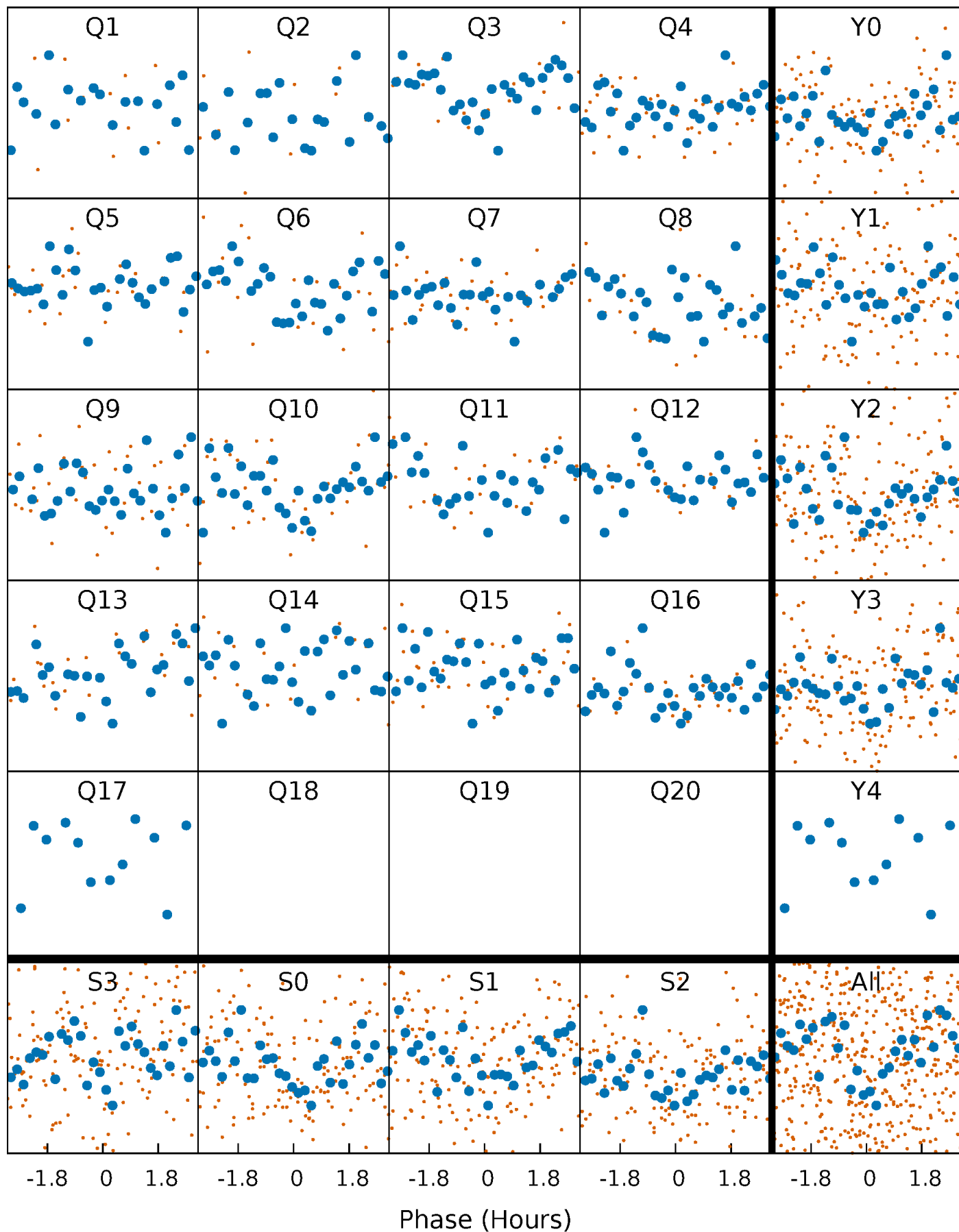


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

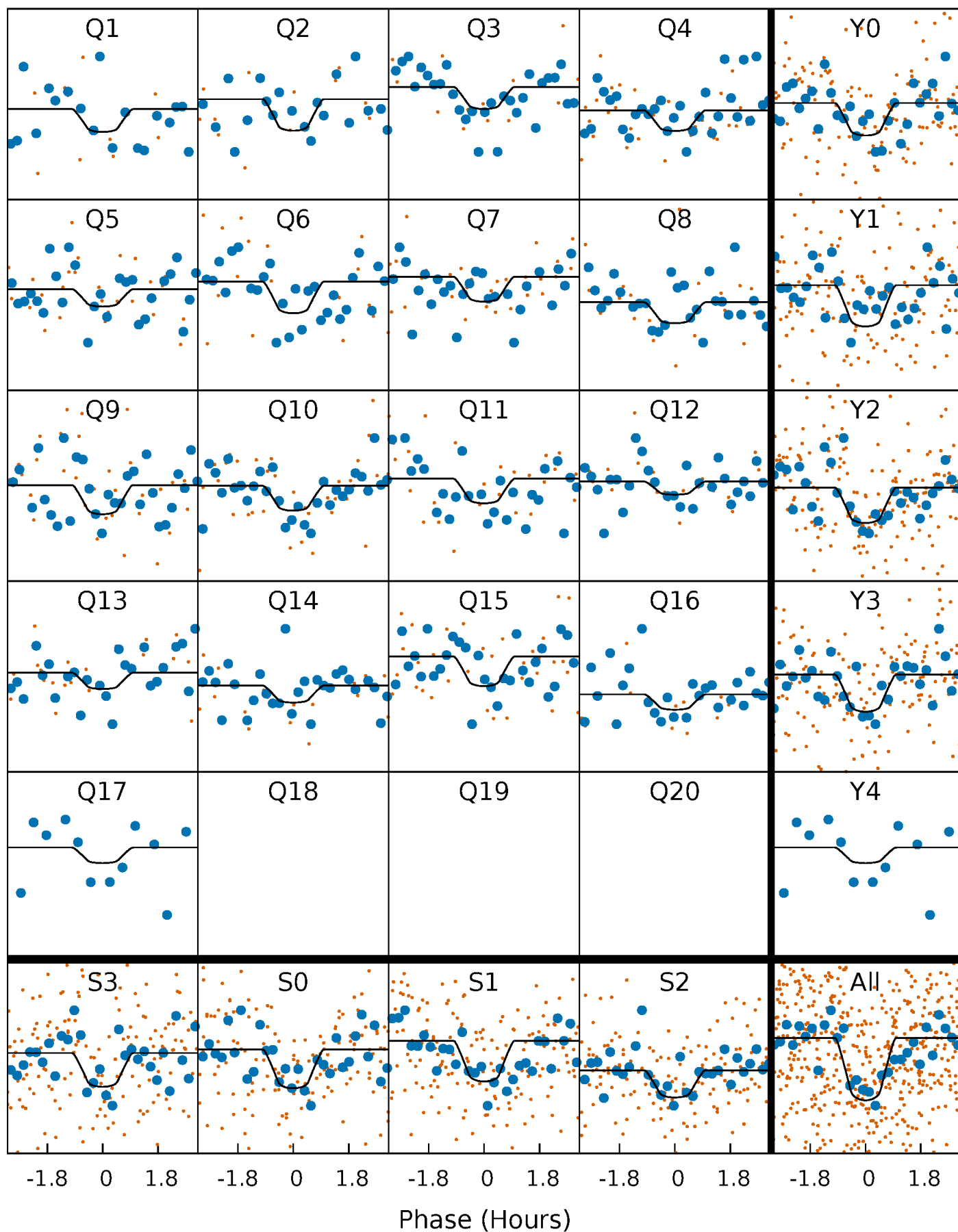
TCE 009529148-01 P= 25.342773 Days  $T_0=132.682905$  (BKJD)





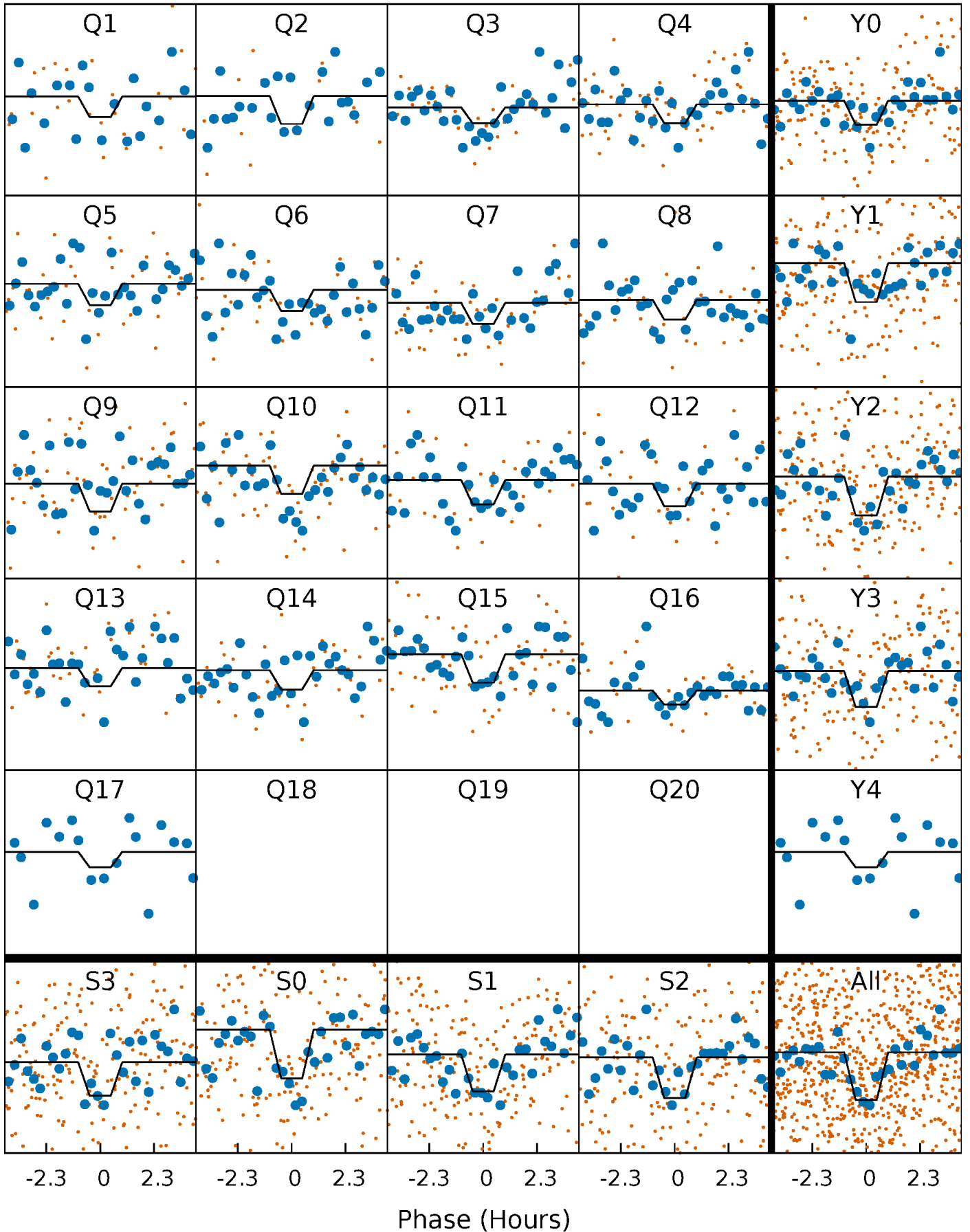
# DV Quarter-Phased Transit Curves

TCE 009529148-01 P= 25.342773 Days  $T_0=132.682905$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

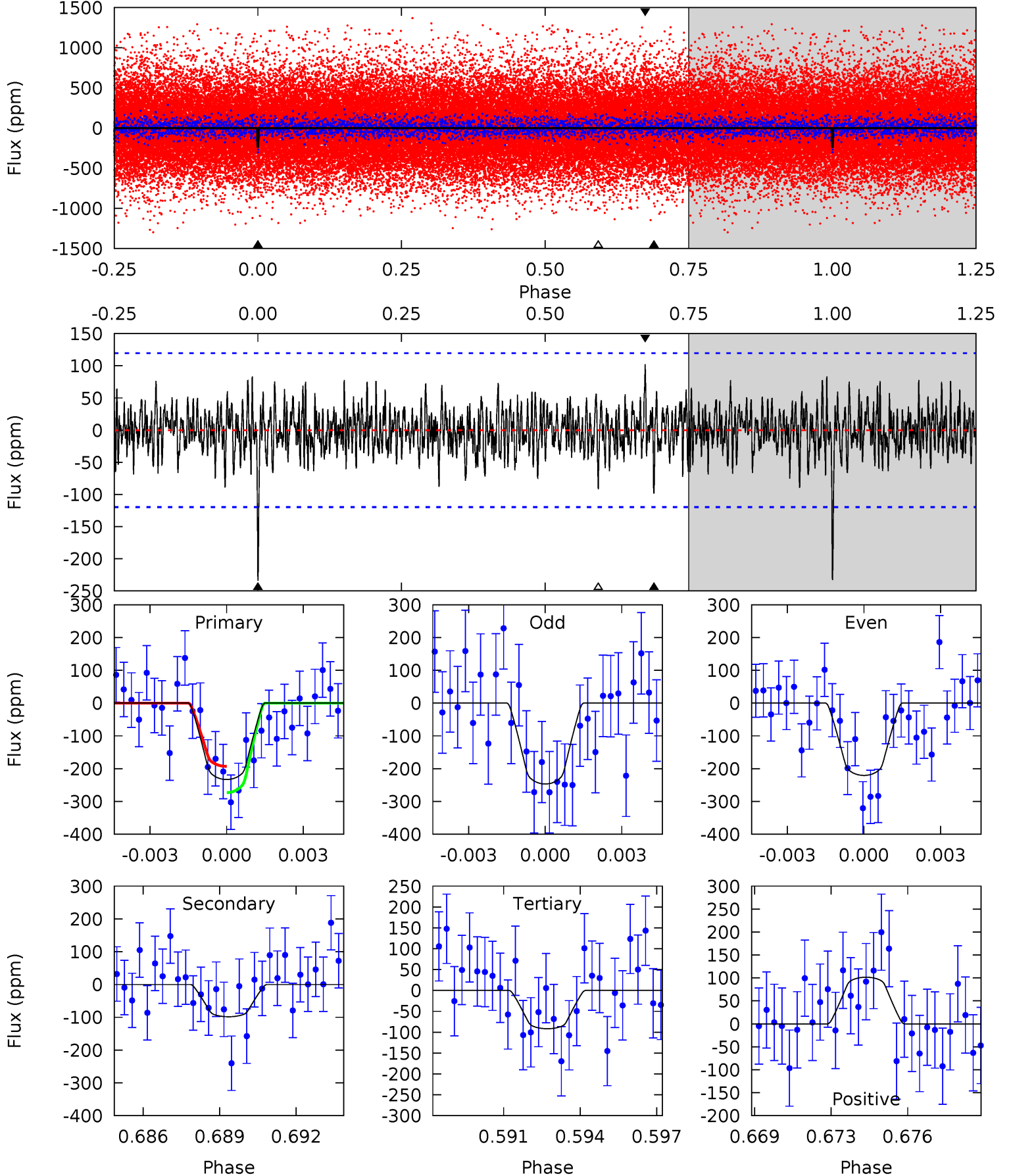
TCE 009529148-01 P= 25.342655 Days  $T_0=132.691484$  (BKJD)



# DV Model-Shift Uniqueness Test

009529148-01,  $P = 25.342773$  Days,  $E = 107.340132$  Days

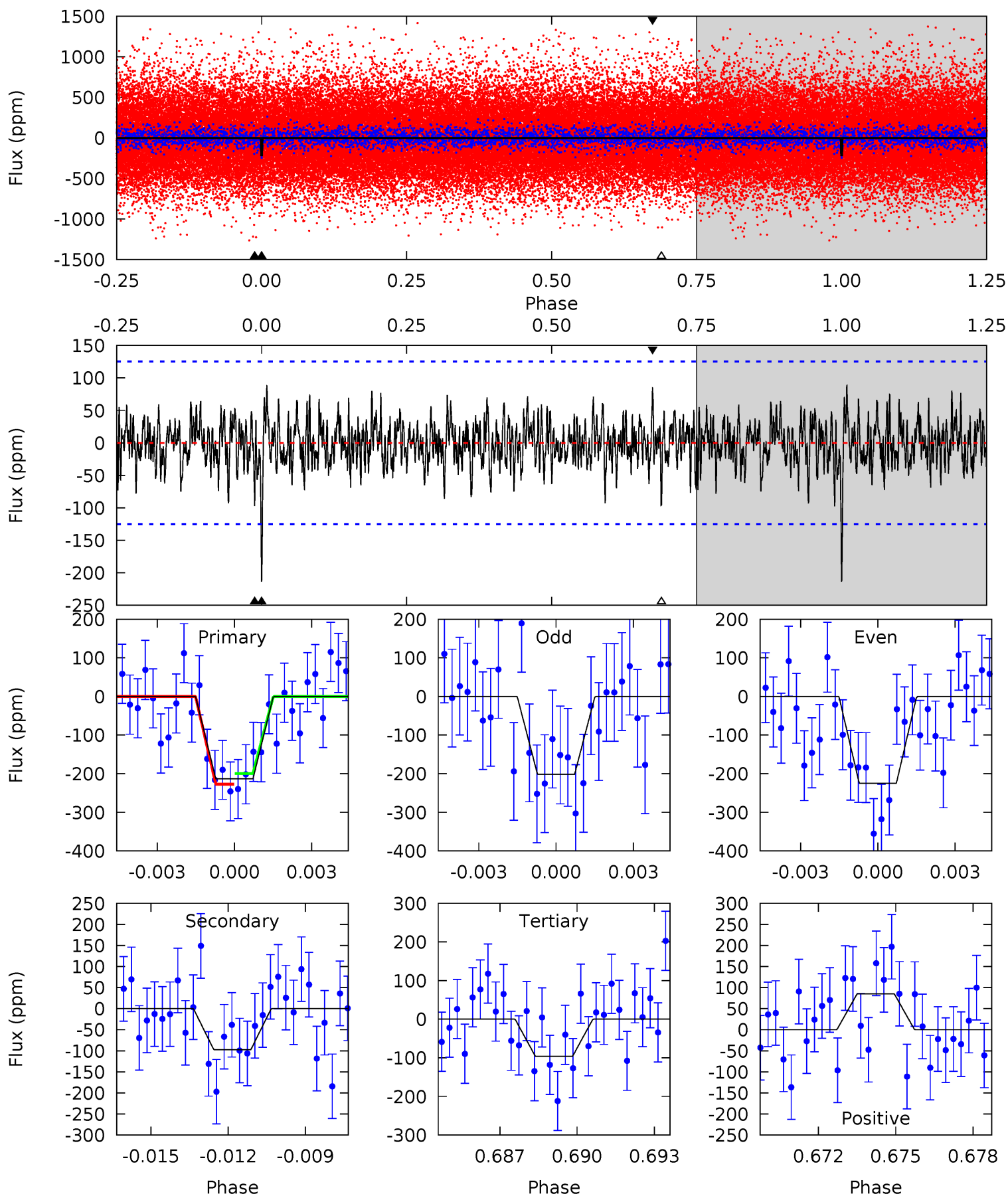
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	4.30	4.01	4.44	5.24	2.94	1.25	6.19	5.76	0.29	-0.14	0.57	1.04	0.30	1.75



# Alt Model-Shift Uniqueness Test

009529148-01,  $P = 25.342655$  Days,  $E = 107.348829$  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
8.95	4.07	4.04	3.57	5.25	2.96	1.22	4.91	5.38	0.04	0.50	0.49	1.08	0.29	0.58



### Stellar Parameters For KIC 009529148

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6311^{+151}_{-227}$	$4.398^{+0.052}_{-0.195}$	$0.210^{+0.200}_{-0.350}$	$1.172^{+0.353}_{-0.141}$	$1.253^{+0.134}_{-0.184}$	$1.095^{+0.296}_{-0.533}$
	+2%/-4%	+1%/-4%	+95%/-167%	+30%/-12%	+11%/-15%	+27%/-49%
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 009529148-01 / KOI 7942.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-98 \pm 23$	$2.61^{+1.79}_{-1.60}$	$1006^{+75}_{-50}$	$4648^{+2532}_{-830}$	$249^{+1466}_{-159}$
Alt.	$-97 \pm 24$	$2.40^{+1.76}_{-1.40}$	$1003^{+65}_{-51}$	$4778^{+2426}_{-950}$	$293^{+1422}_{-199}$

$T_{max}$  = 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

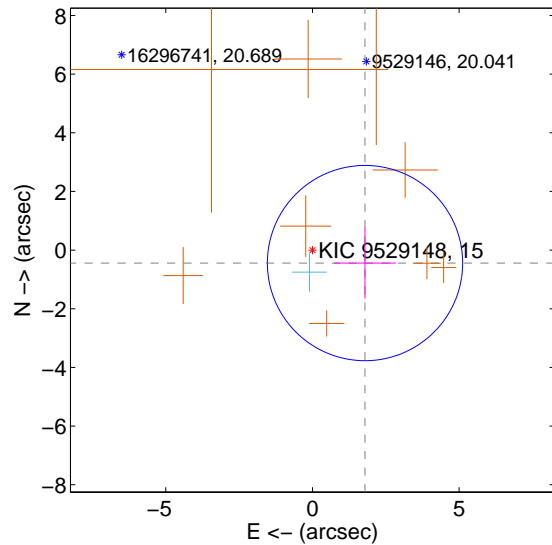
Supplemental centroid analysis for 009529148-01. Kepler magnitude: 15.00. Transit SNR 7.98

There are 1 quarters with good PRF difference image offsets

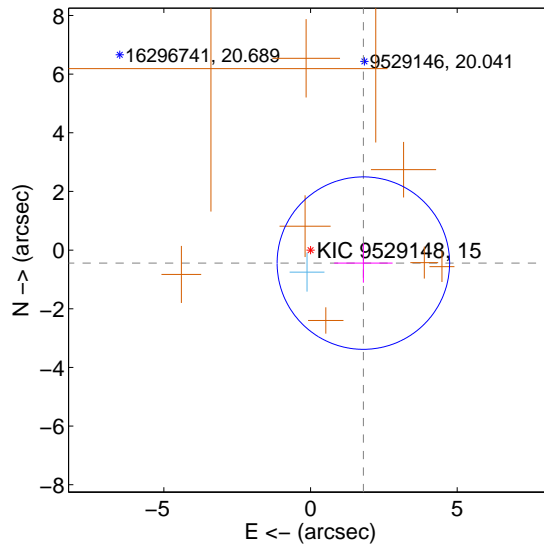
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.847 \pm 1.110$	1.66	$-1.793 \pm 1.052$	$-0.442 \pm 1.215$
PRF-fit source offset from KIC position	$1.856 \pm 0.980$	1.89	$-1.802 \pm 0.996$	$-0.444 \pm 0.669$
photometric centroid source offset	$1.07 \pm 1.94$	0.55	$-0.13 \pm 2.05$	$-1.06 \pm 1.93$

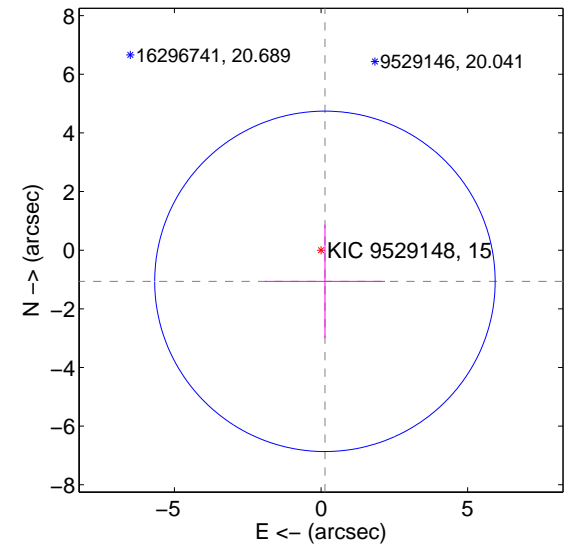
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



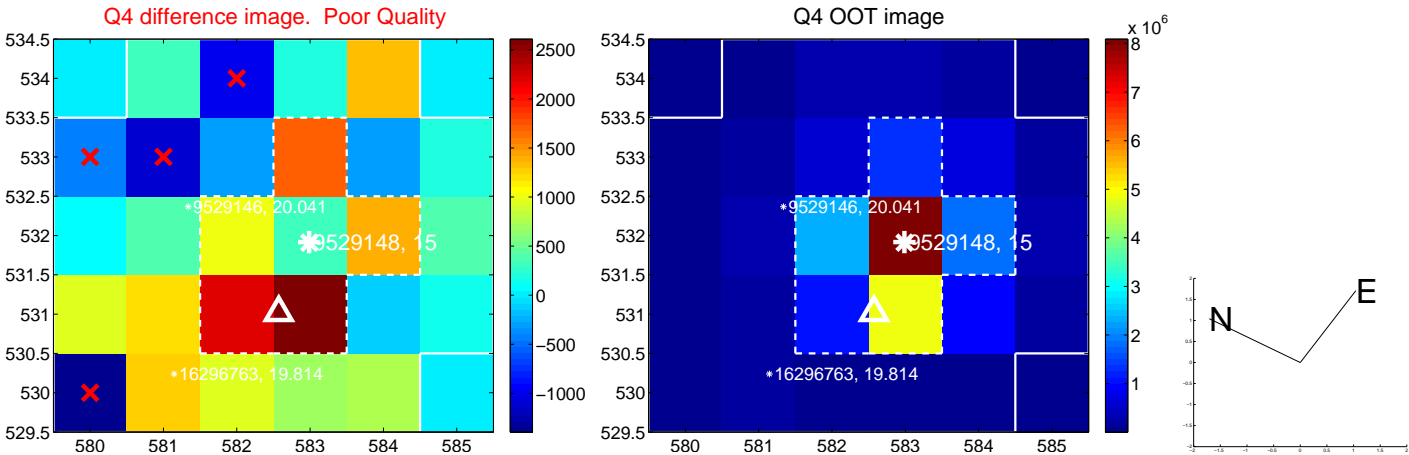
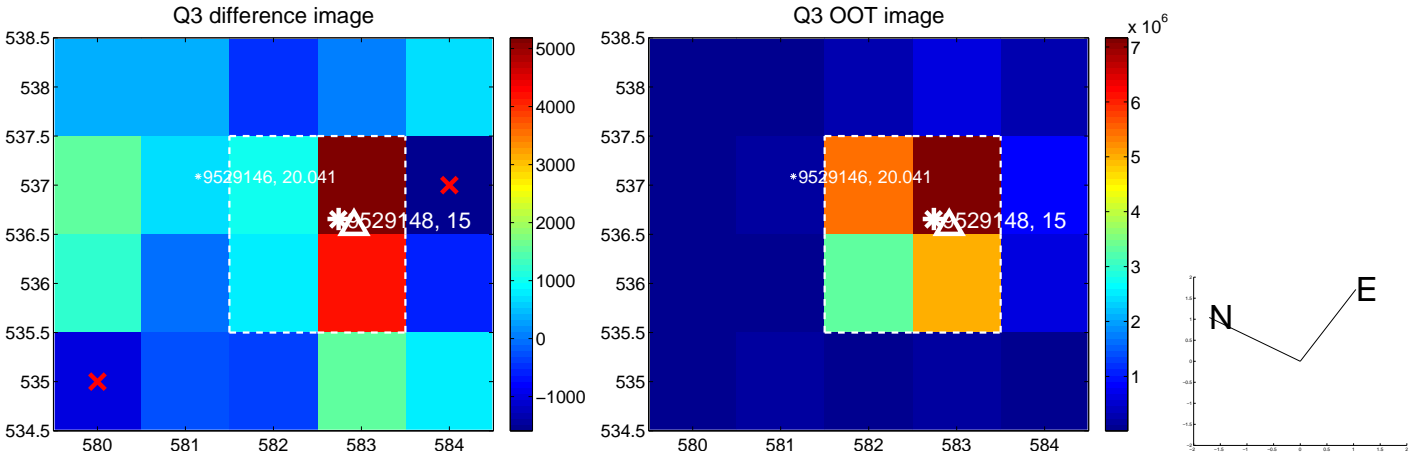
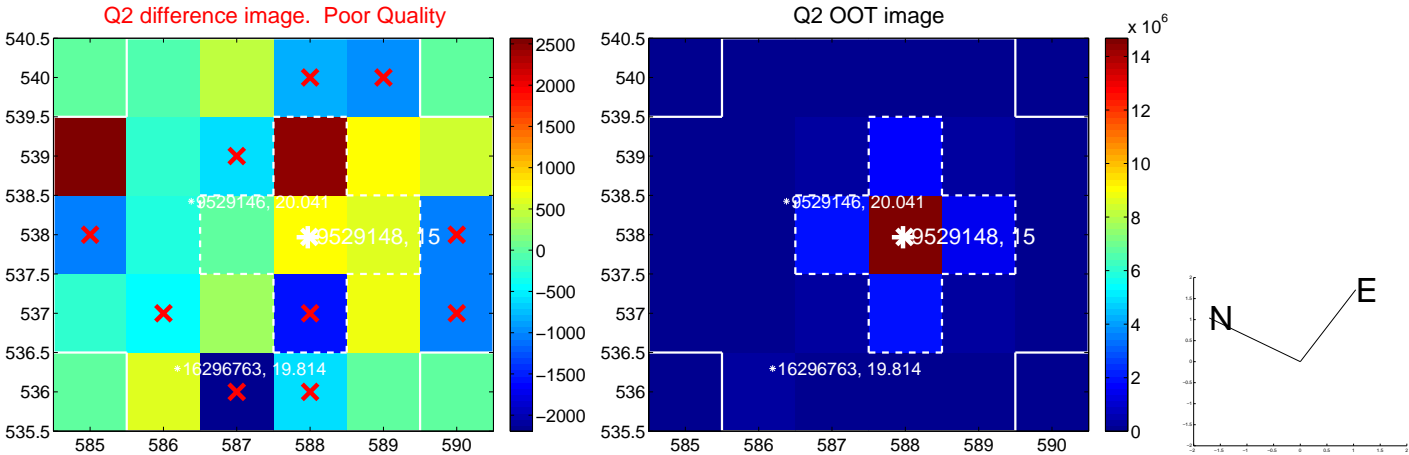
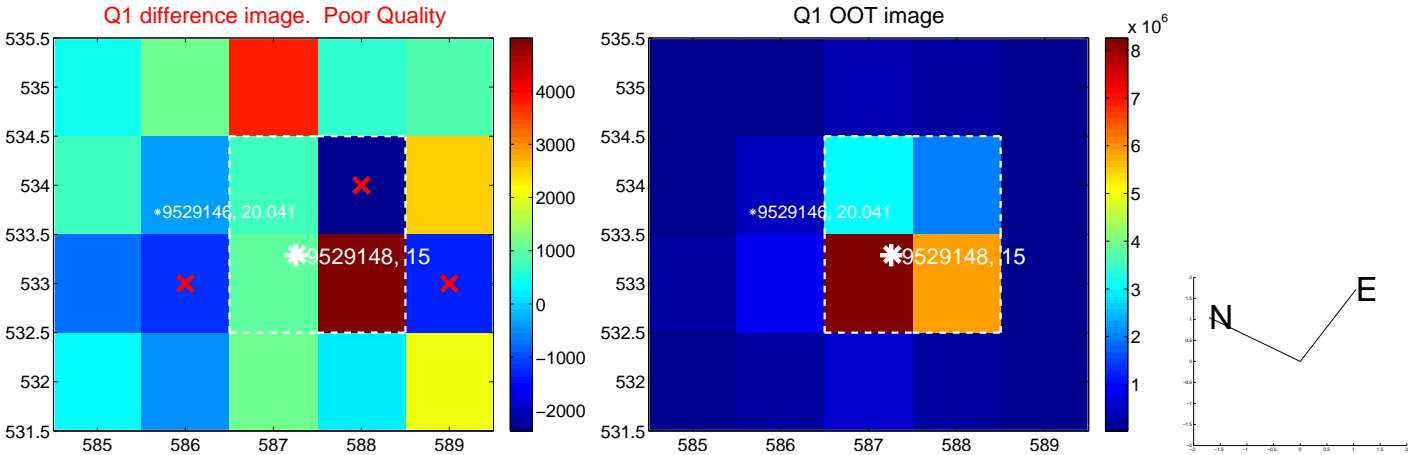
offset from photometric centroids



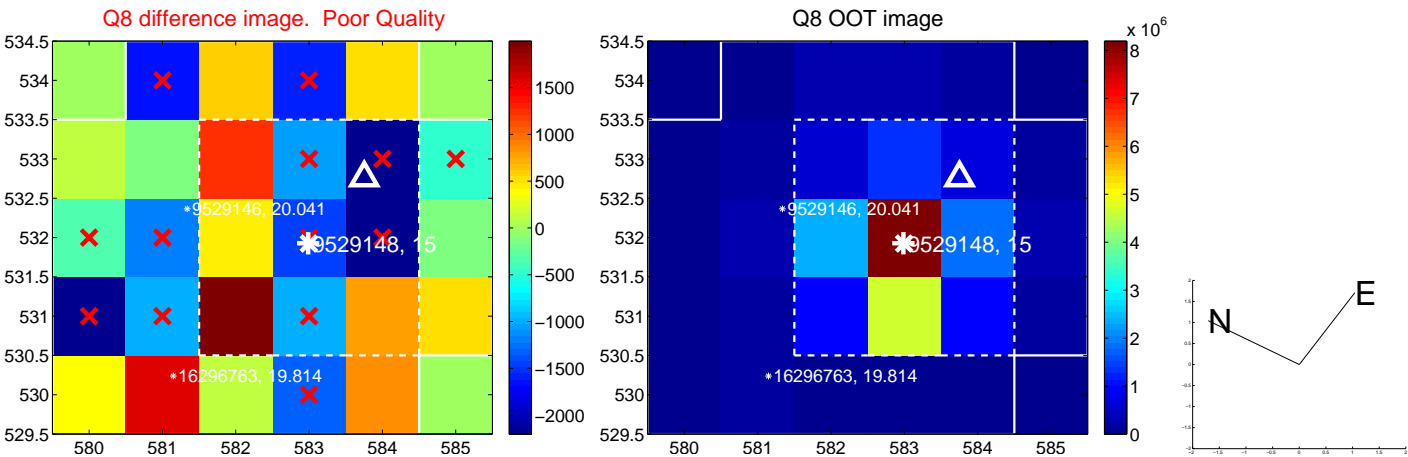
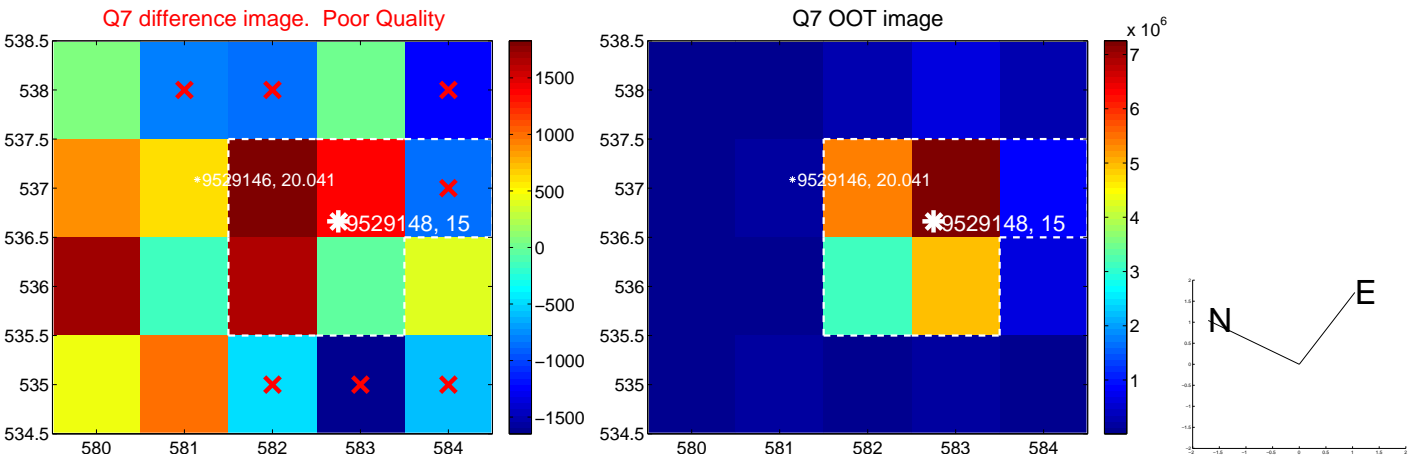
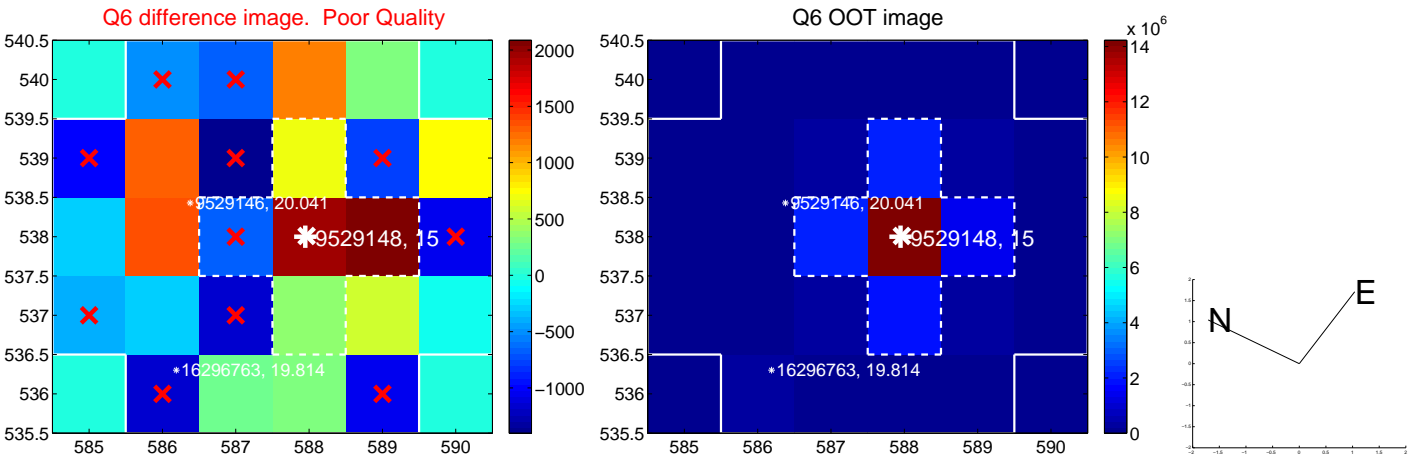
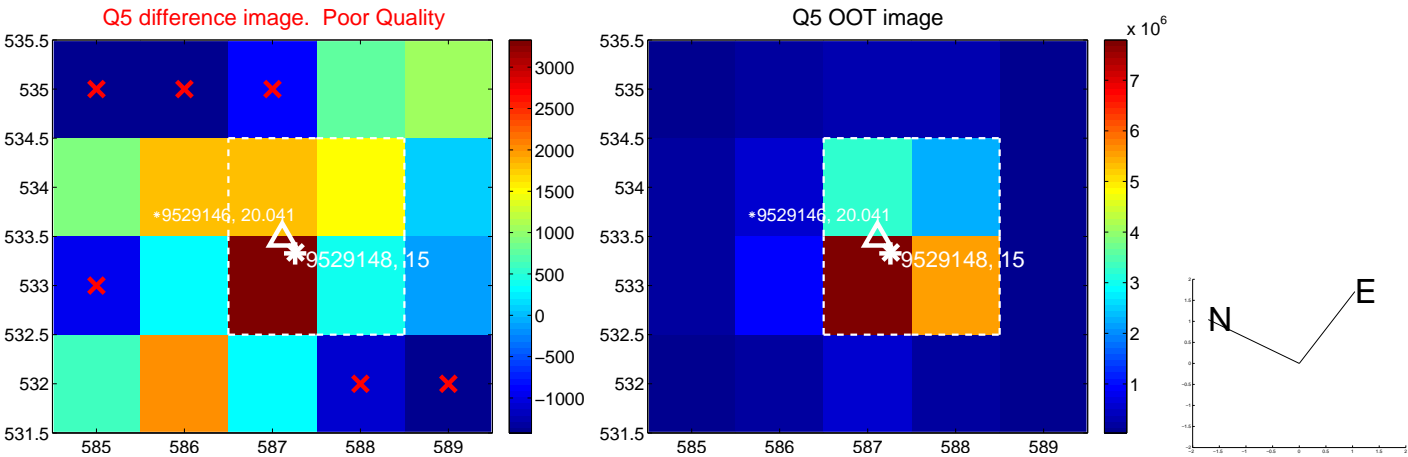
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



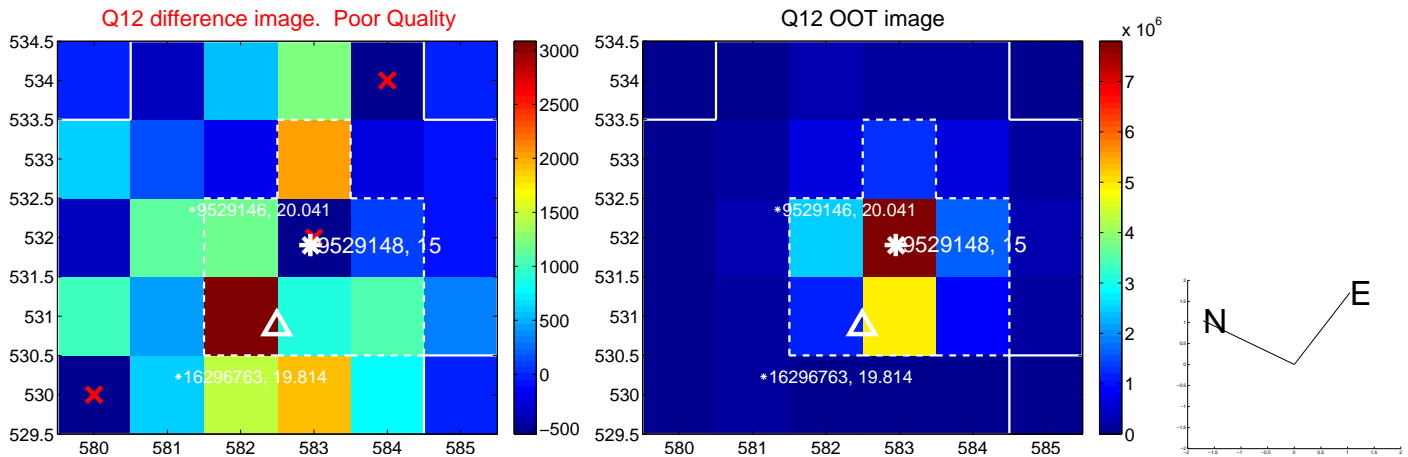
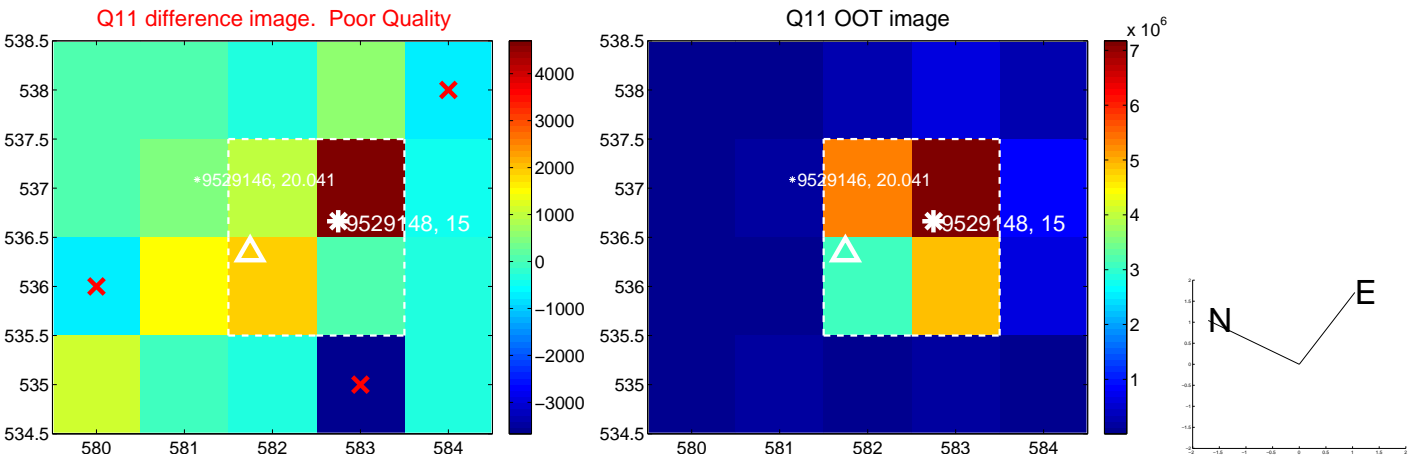
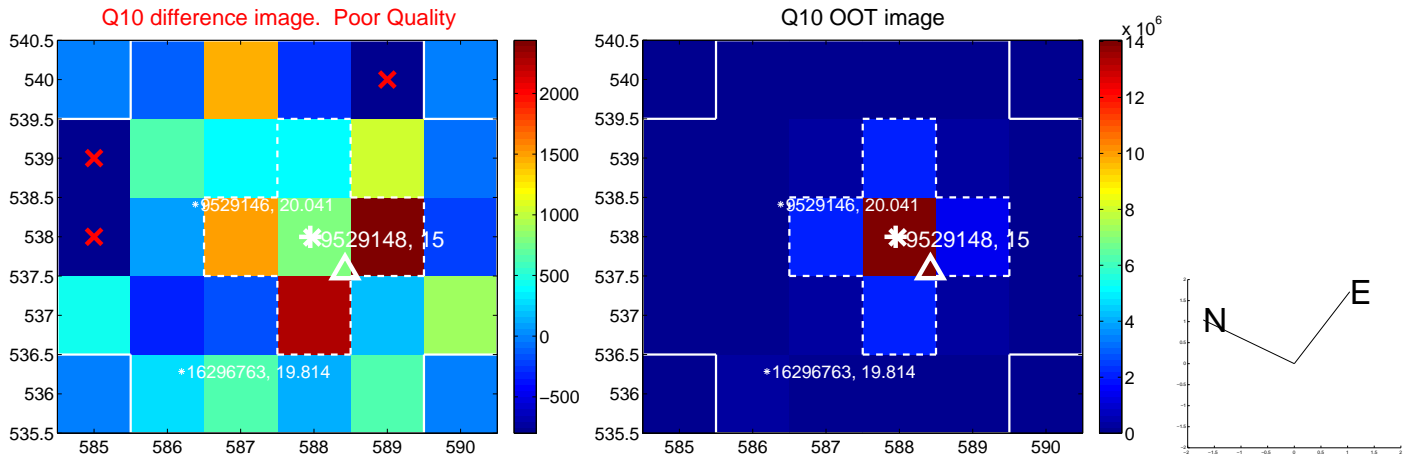
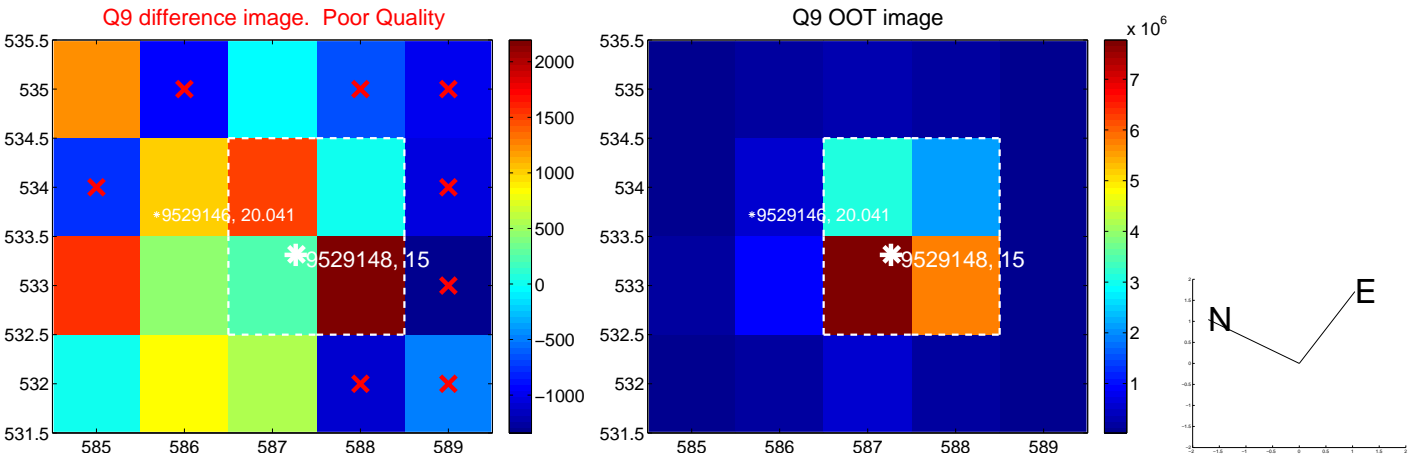
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



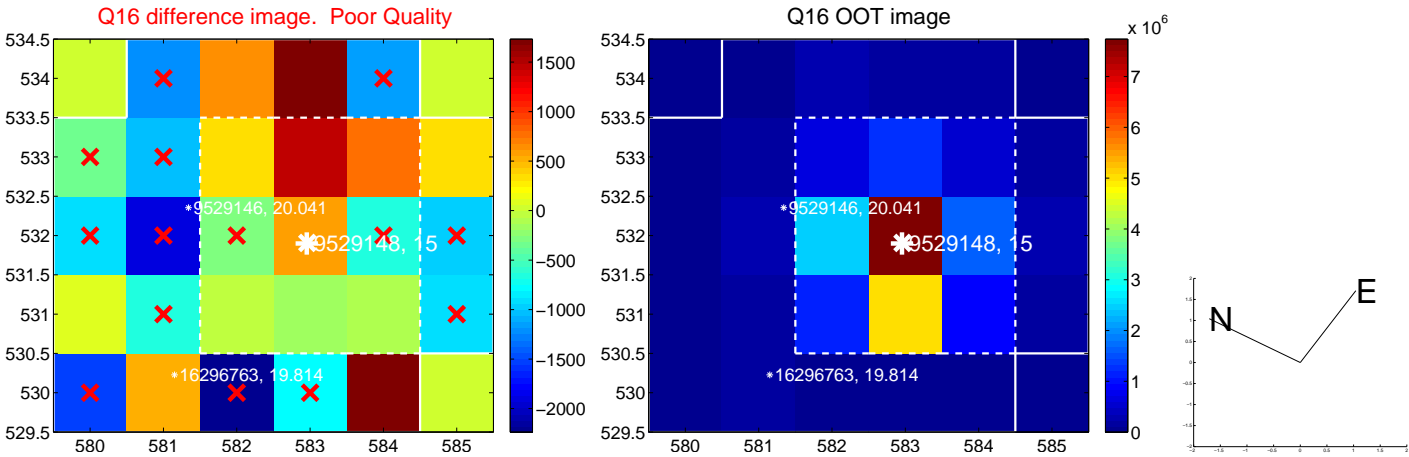
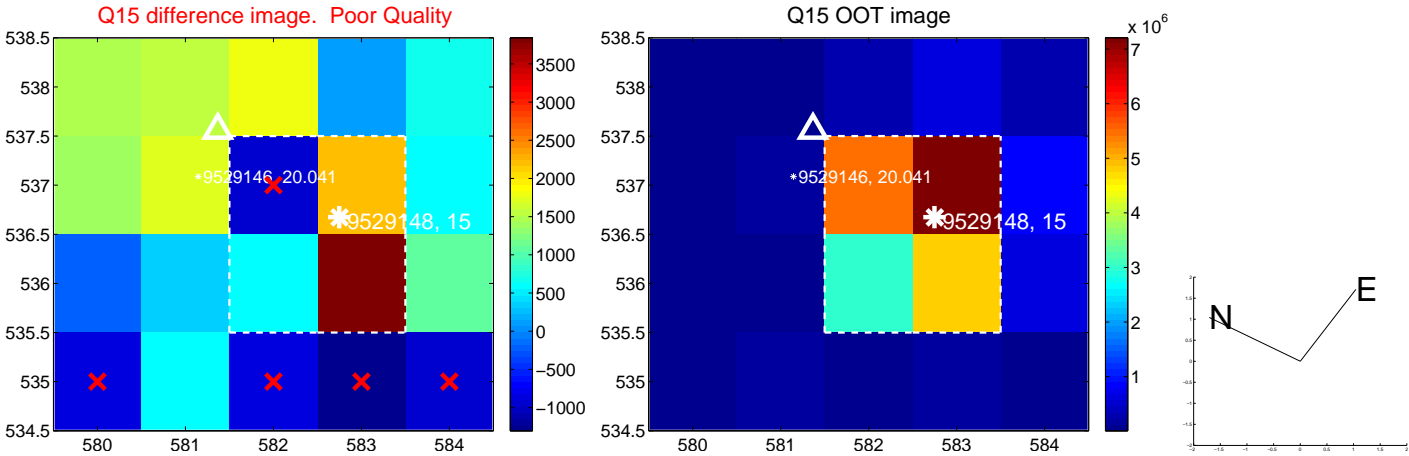
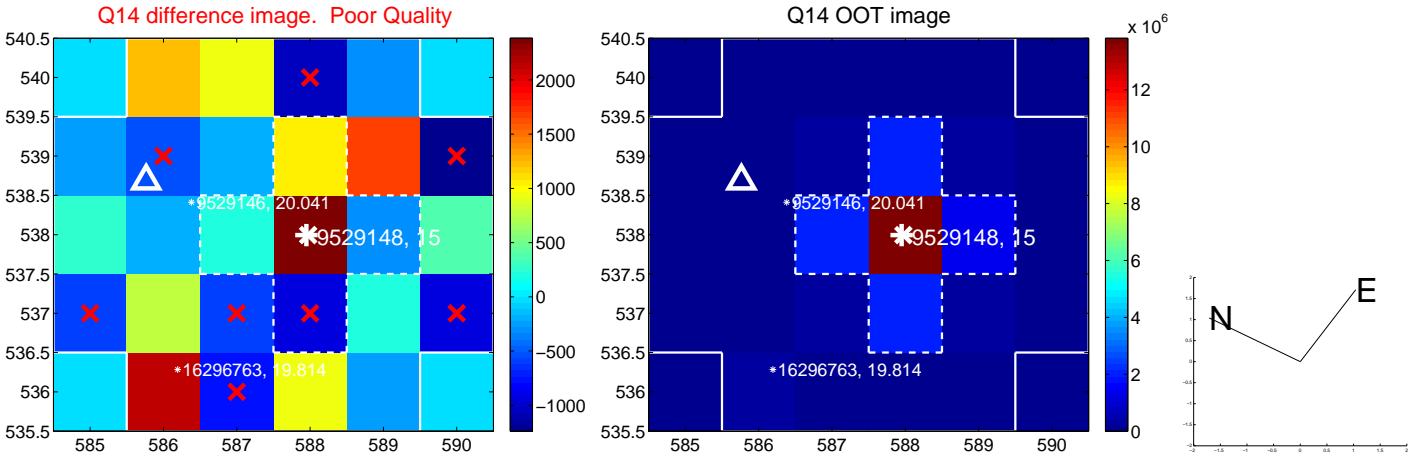
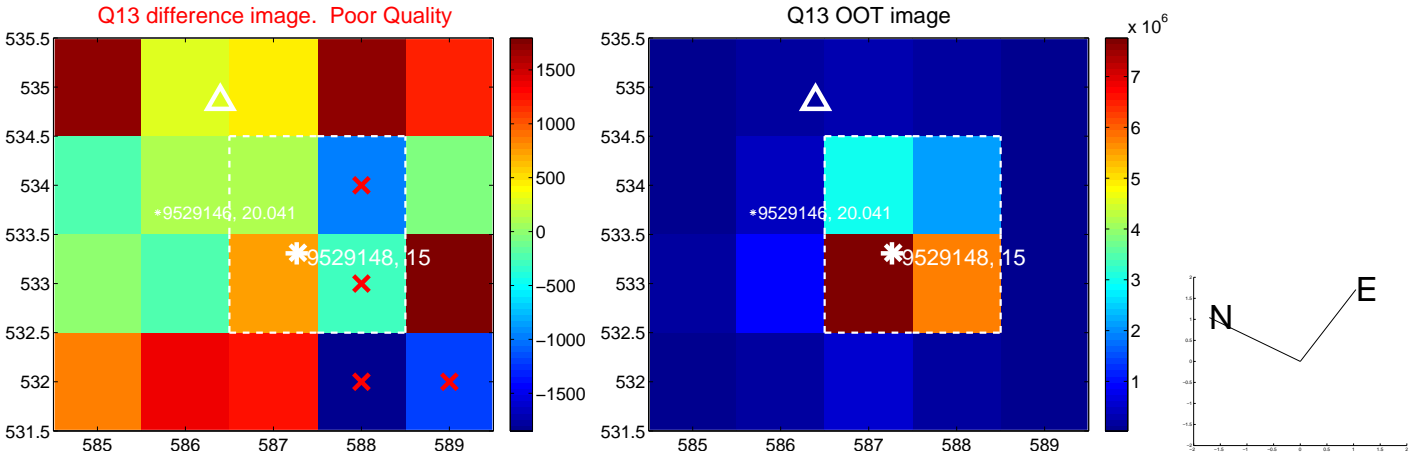
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



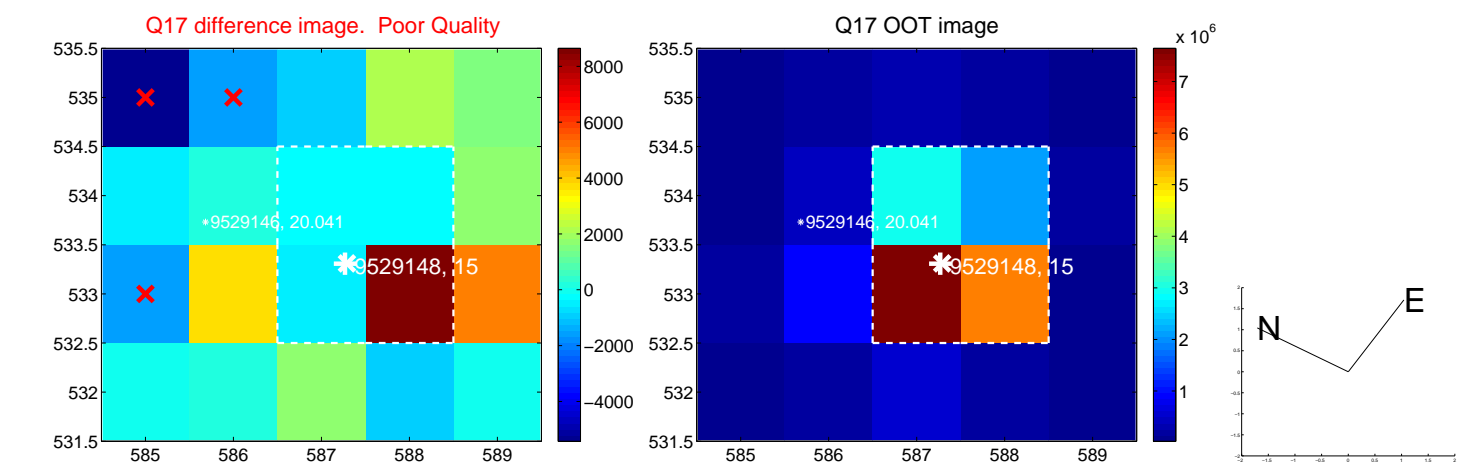
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



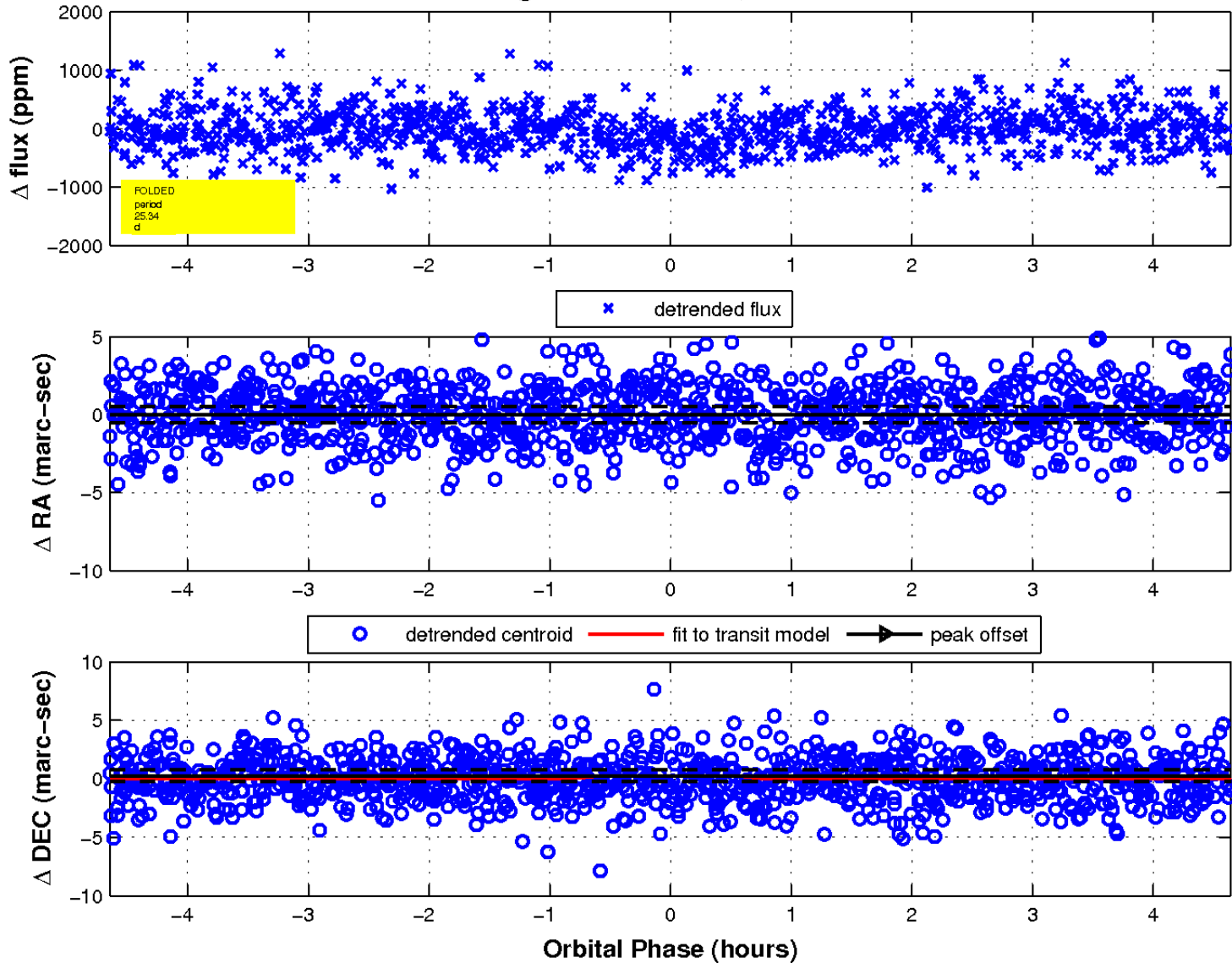
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

