

# KIC 008160953

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008160953-01	OBS	1858.01	116.331190	173.687796	1776.2	7.295	34.2	35.4	0.83	5354	3.65	2.59

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008160953-01	OBS	PC	1.00	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.

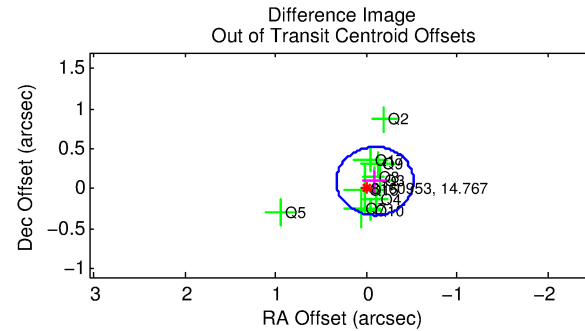
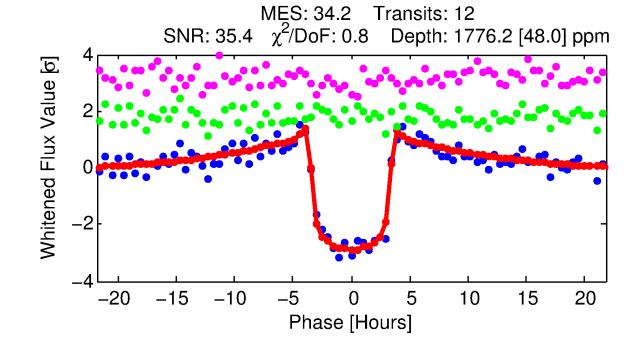
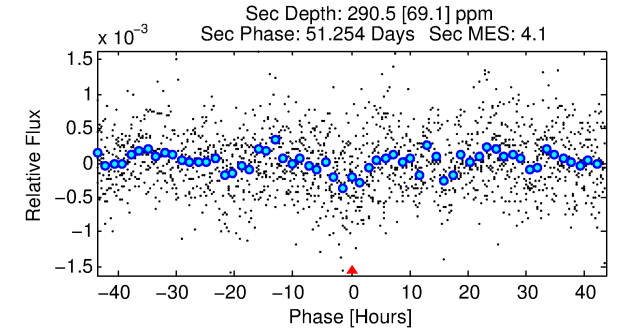
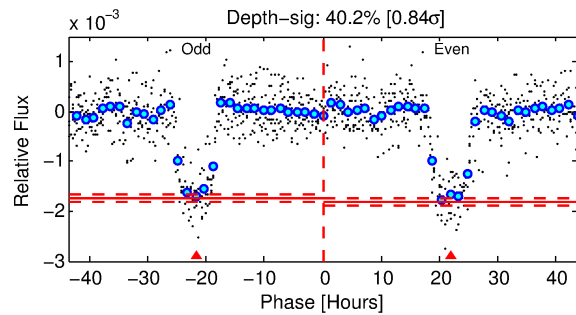
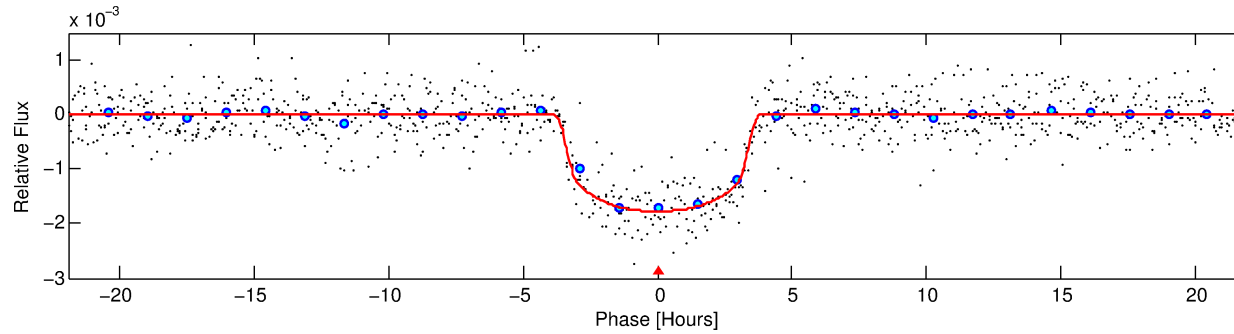
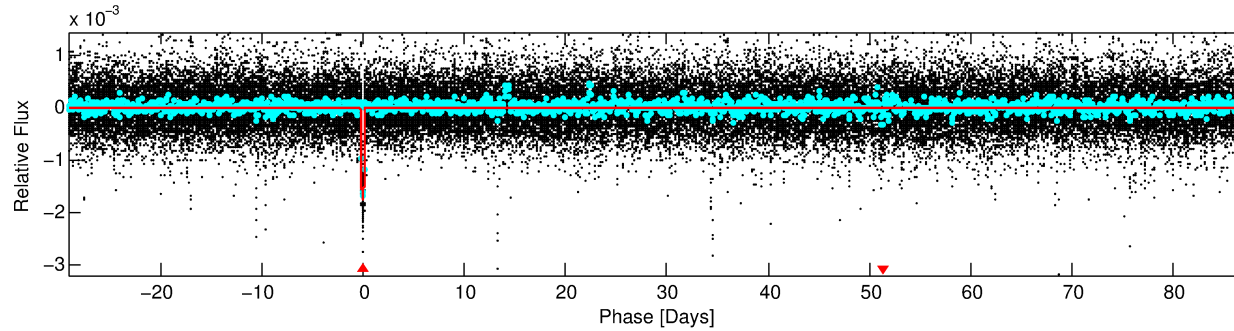
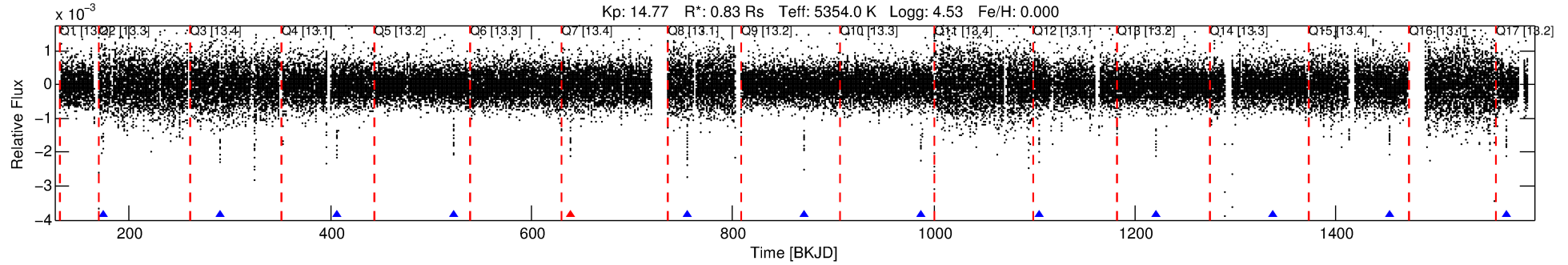
## Ephemeris Match Information For 008160953-01

No Significant Match Found

# DV One-Page Summary

KIC: 8160953 Candidate: 1 of 1 Period: 116.331 d

KOI: K01858.01 Corr: 0.970



## DV Fit Results:

Period = 116.33119 [0.00040] d  
Epoch = 173.6878 [0.0028] BKJD  
Rp/R\* = 0.0401 [0.0042]  
a/R\* = 102.76 [40.02]  
b = 0.61 [0.41]  
Seff = 2.59 [0.39]  
Teq = 324 [12] K  
Rp = 3.65 [0.51] Re  
a = 0.4449 [0.0368] AU  
Ag = 2371.43 [810.07] [2.93 $\sigma$ ]  
Teffp = 3491 [285] K [11.09 $\sigma$ ]

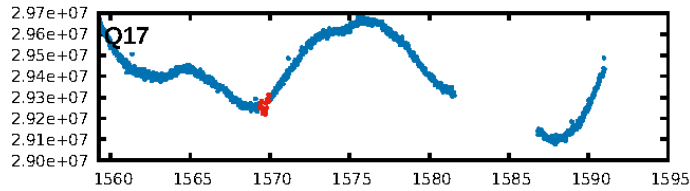
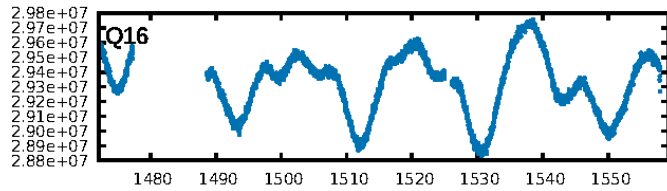
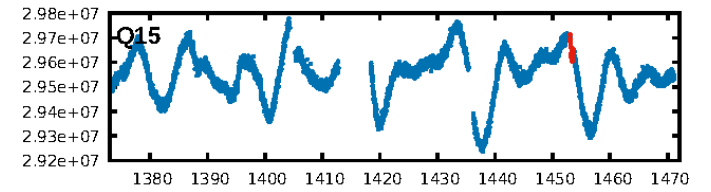
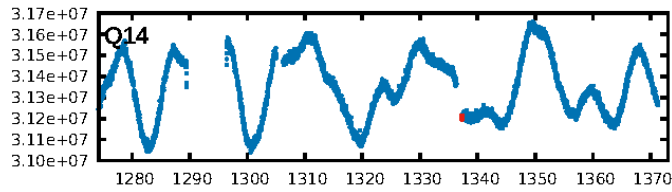
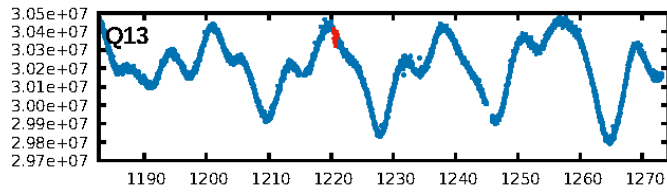
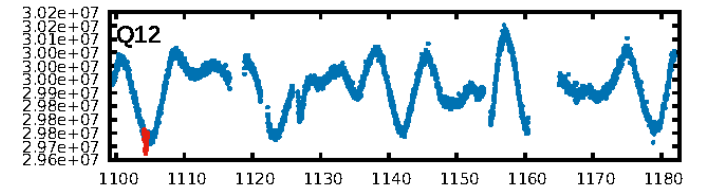
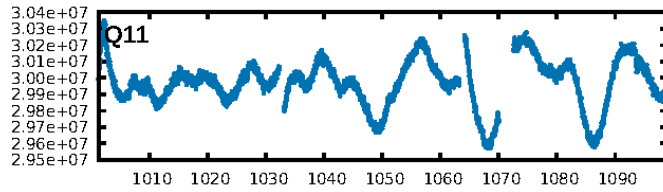
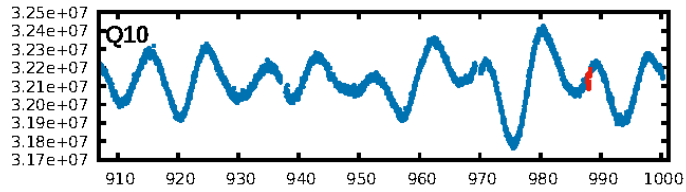
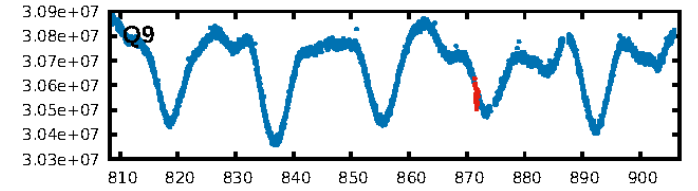
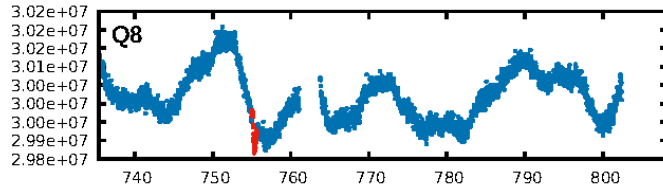
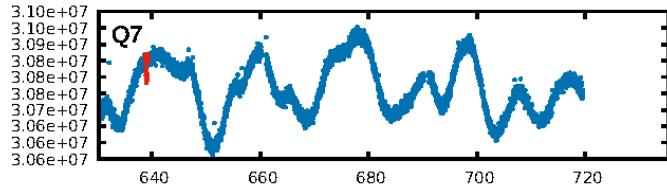
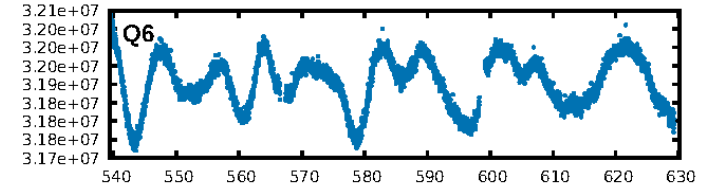
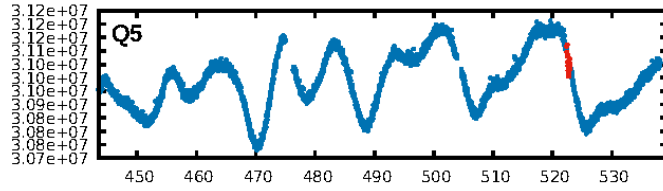
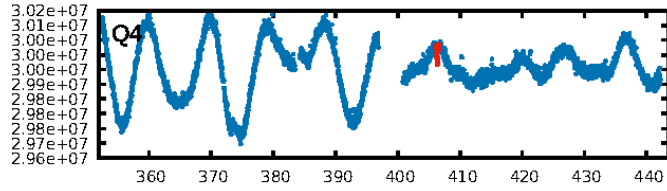
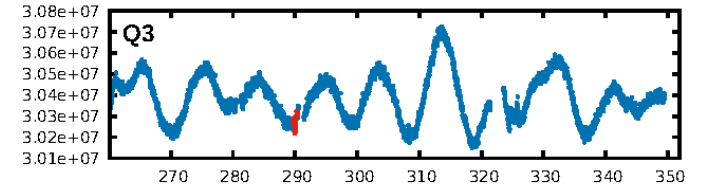
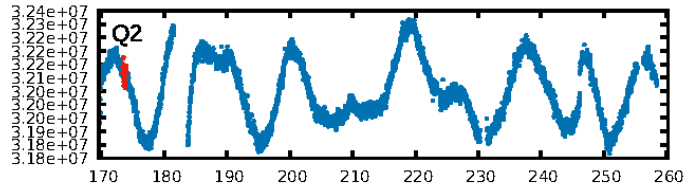
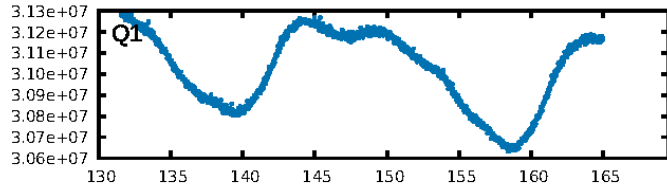
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.55e-113  
RollingBand-fgt: 0.91 [10/11]  
GhostDiagnostic-chr: 4.966  
Centroid-sig: 15.1%  
Centroid-so: 0.478 arcsec [1.83 $\sigma$ ]  
OotOffset-rm: 0.133 arcsec [0.94 $\sigma$ ]  
KicOffset-rm: 0.102 arcsec [0.84 $\sigma$ ]  
OotOffset-st: 2/3/2/3 [10]  
KicOffset-st: 2/3/2/3 [10]  
DiffImageQuality-fgm: 1.00 [10/10]  
DiffImageOverlap-fno: 1.00 [10/10]

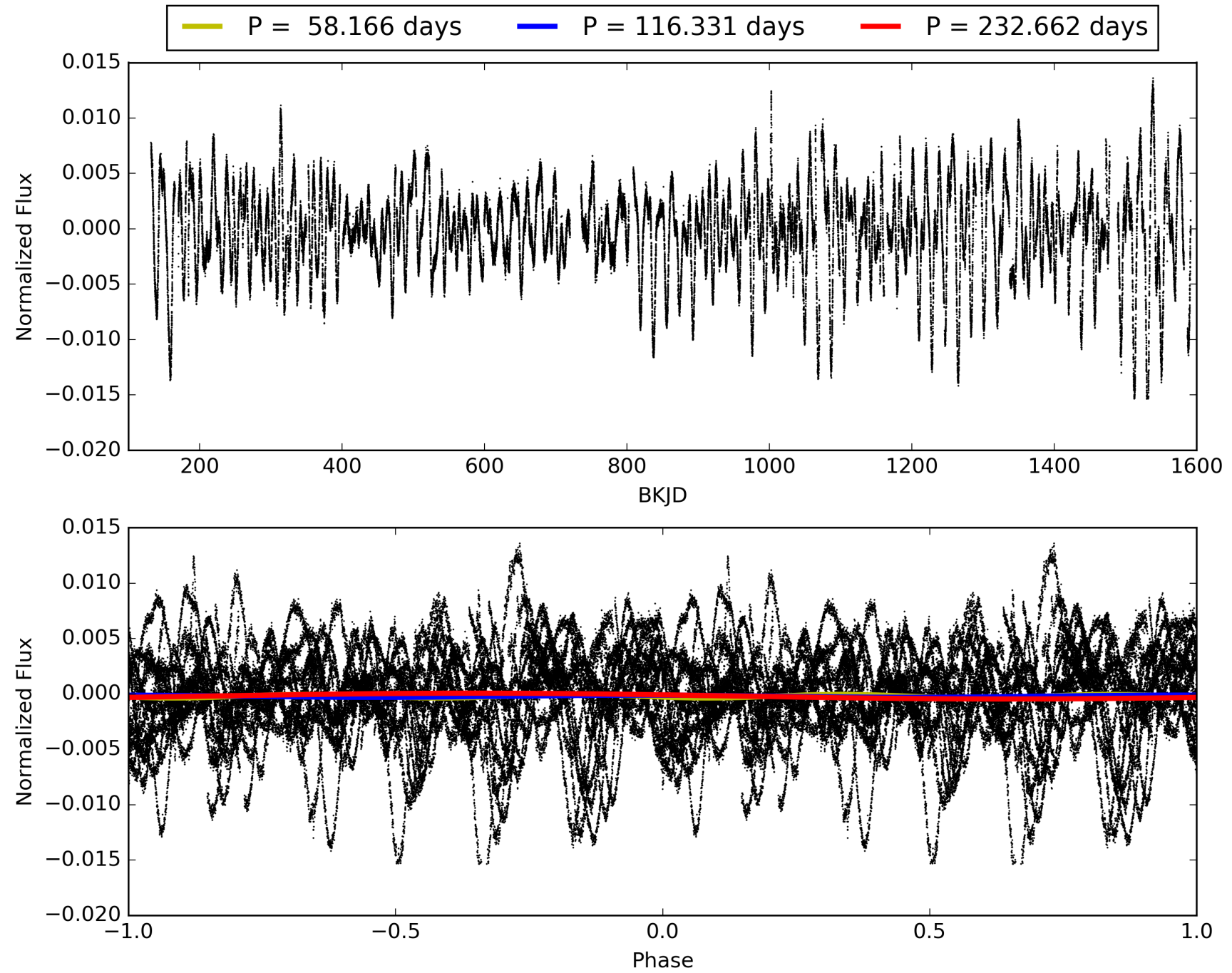
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:31:09 Z

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

# TCE 008160953-01, PDC Light Curves

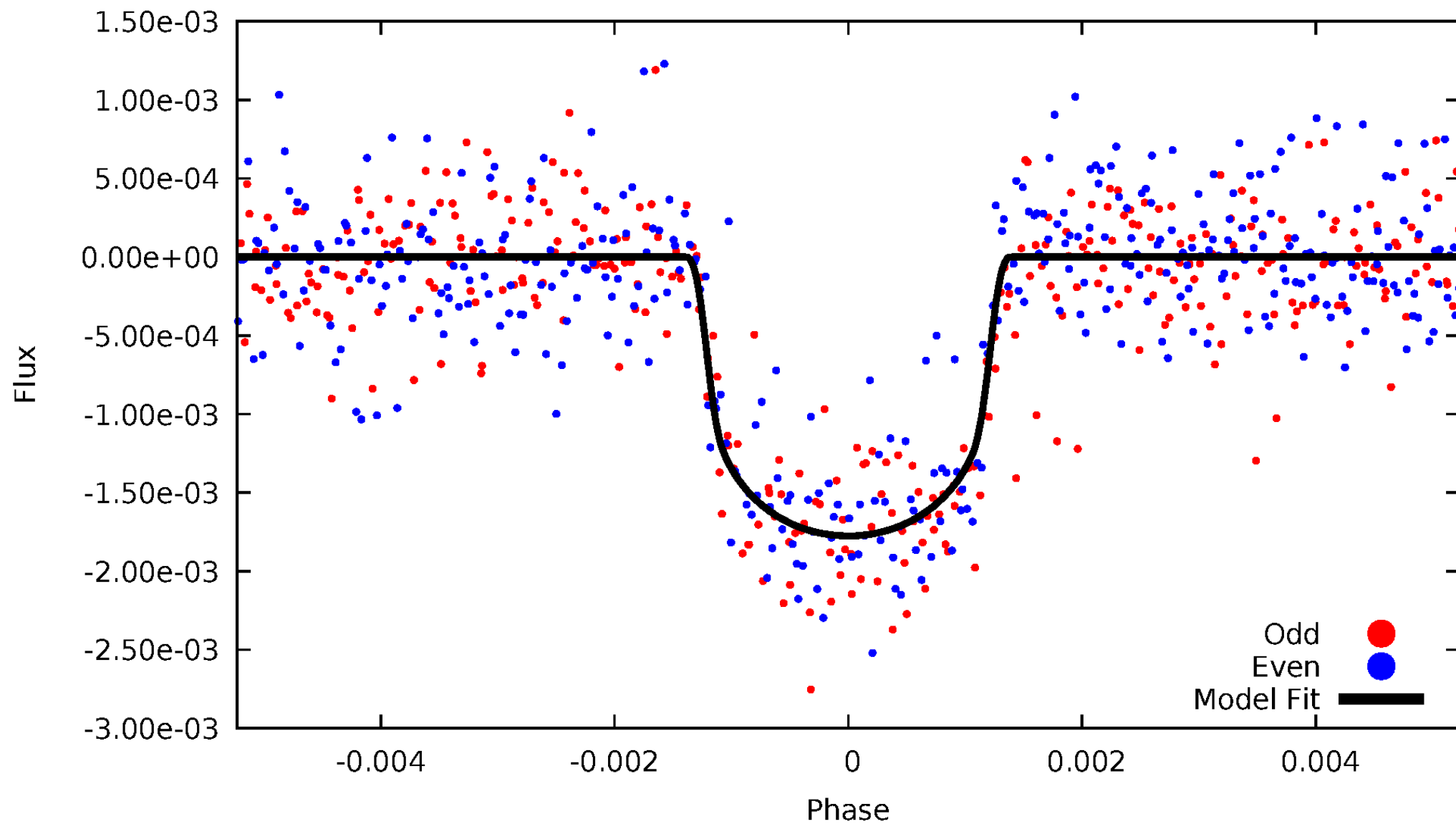


# TCE 008160953-01



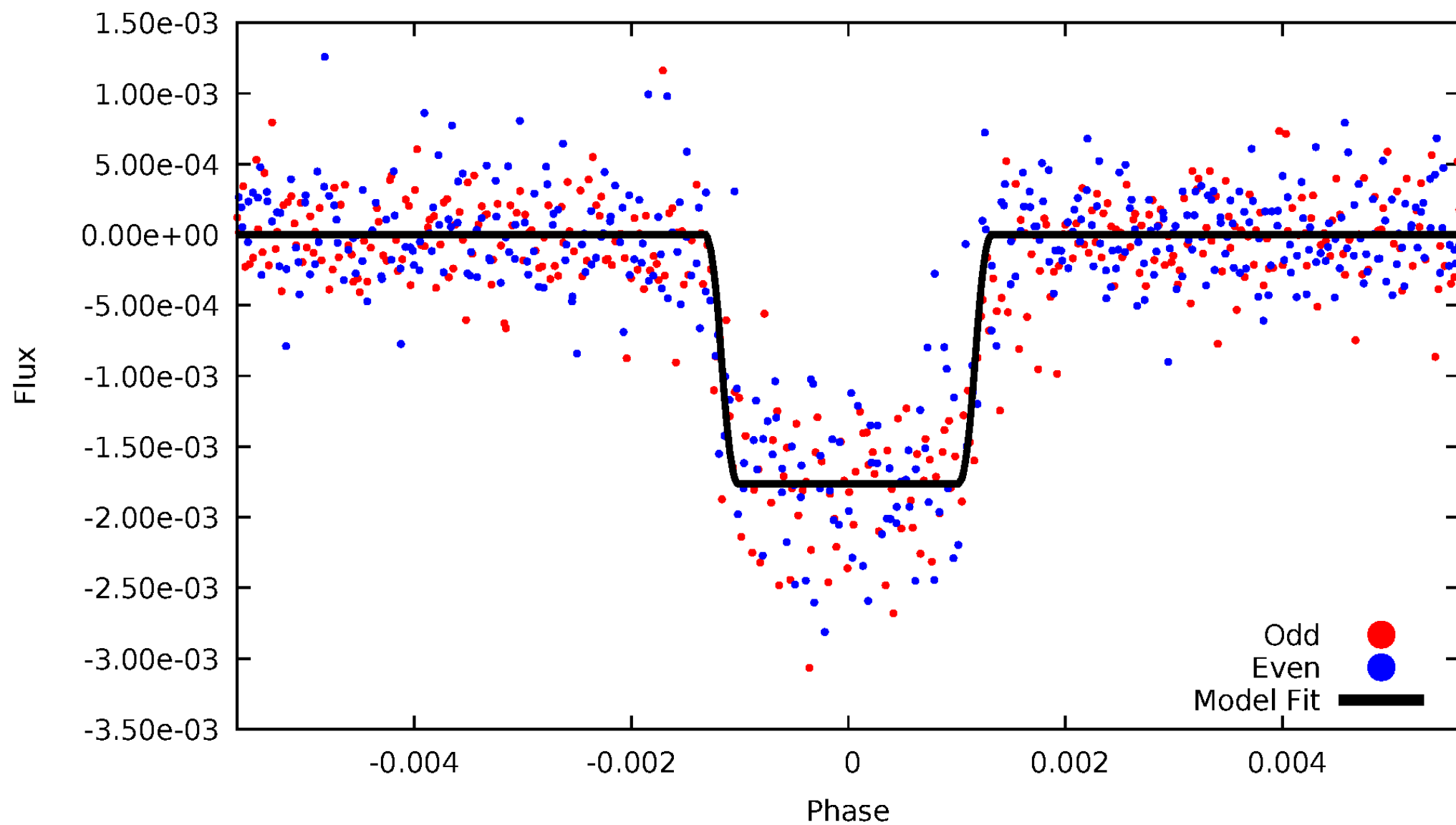
# DV Odd/Even

TCE 008160953-01

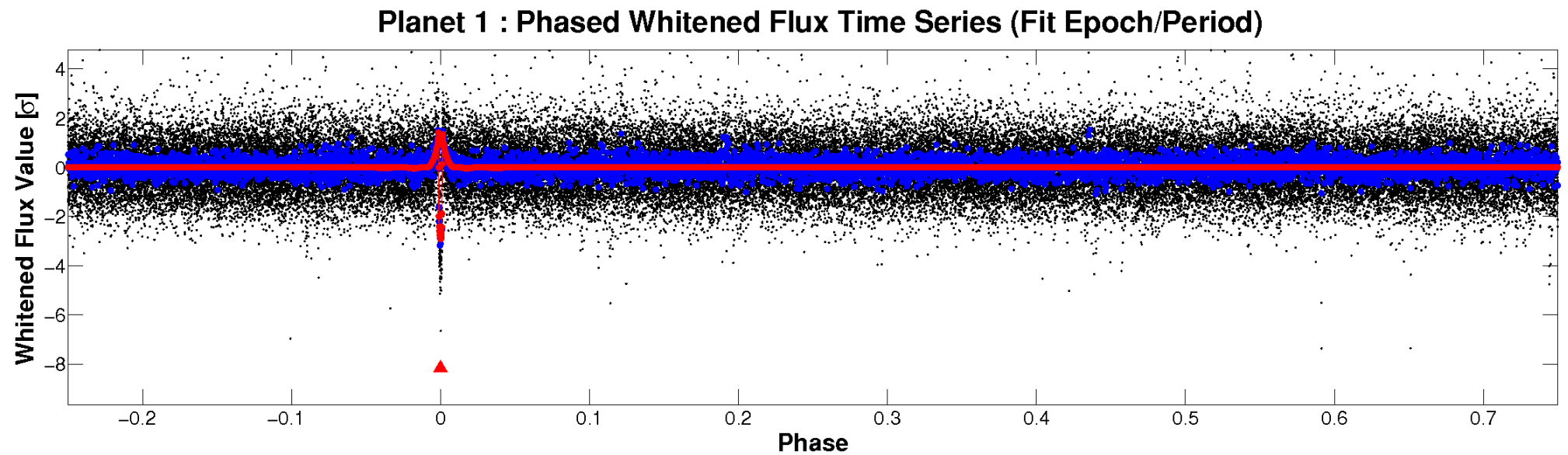
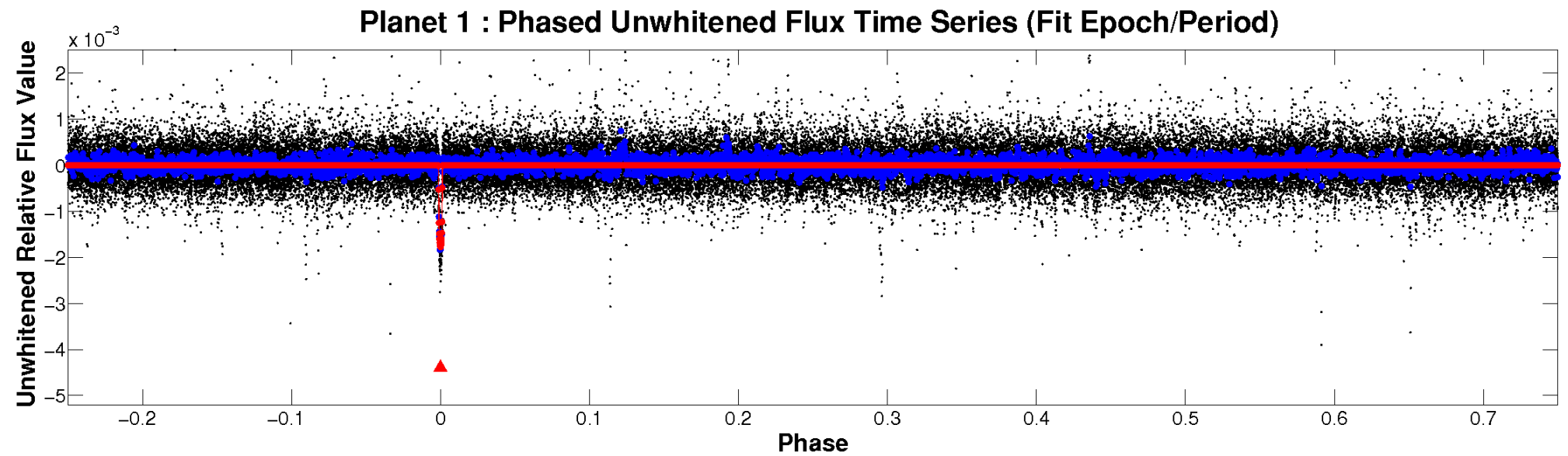


# ALT Odd/Even

TCE 008160953-01

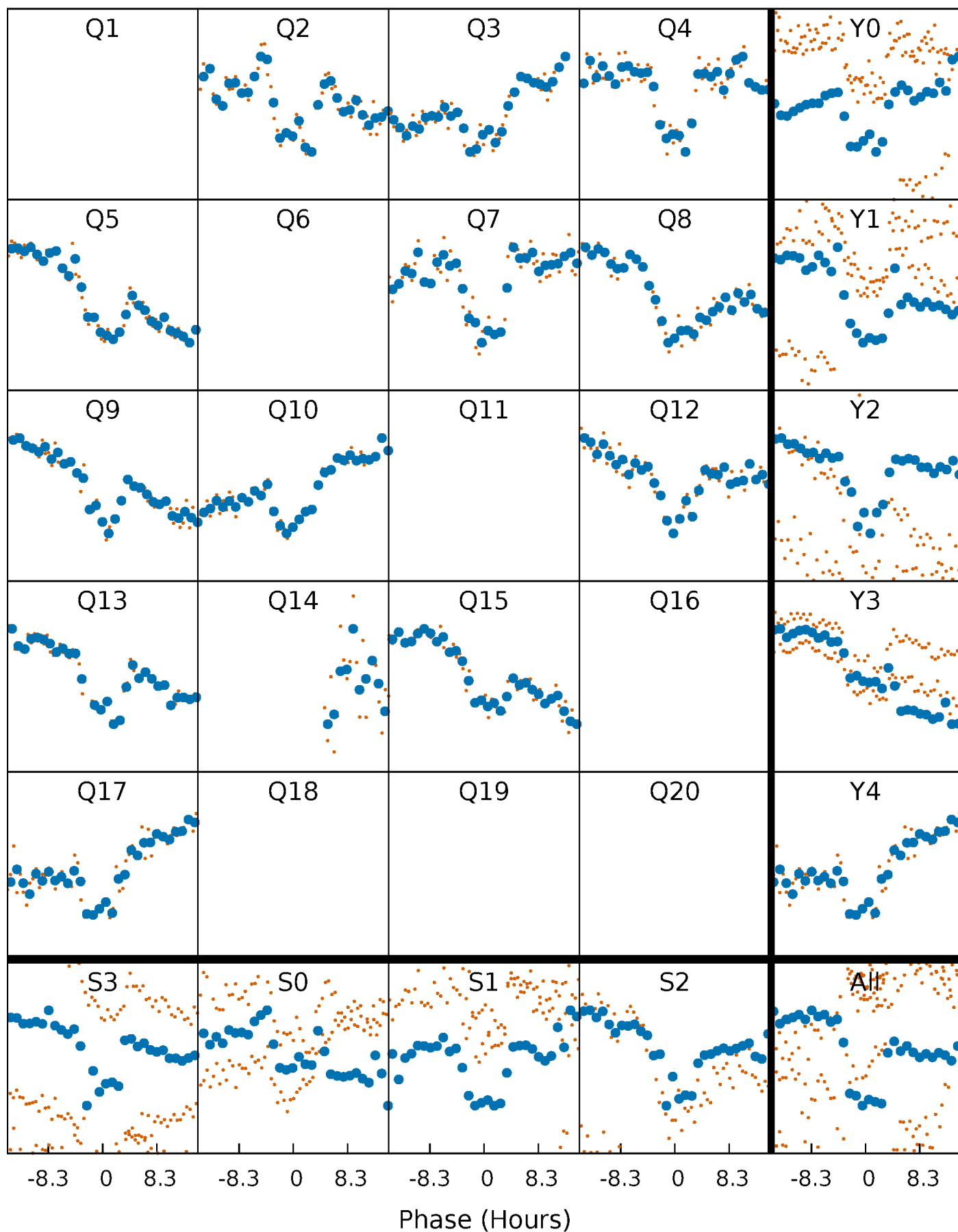


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

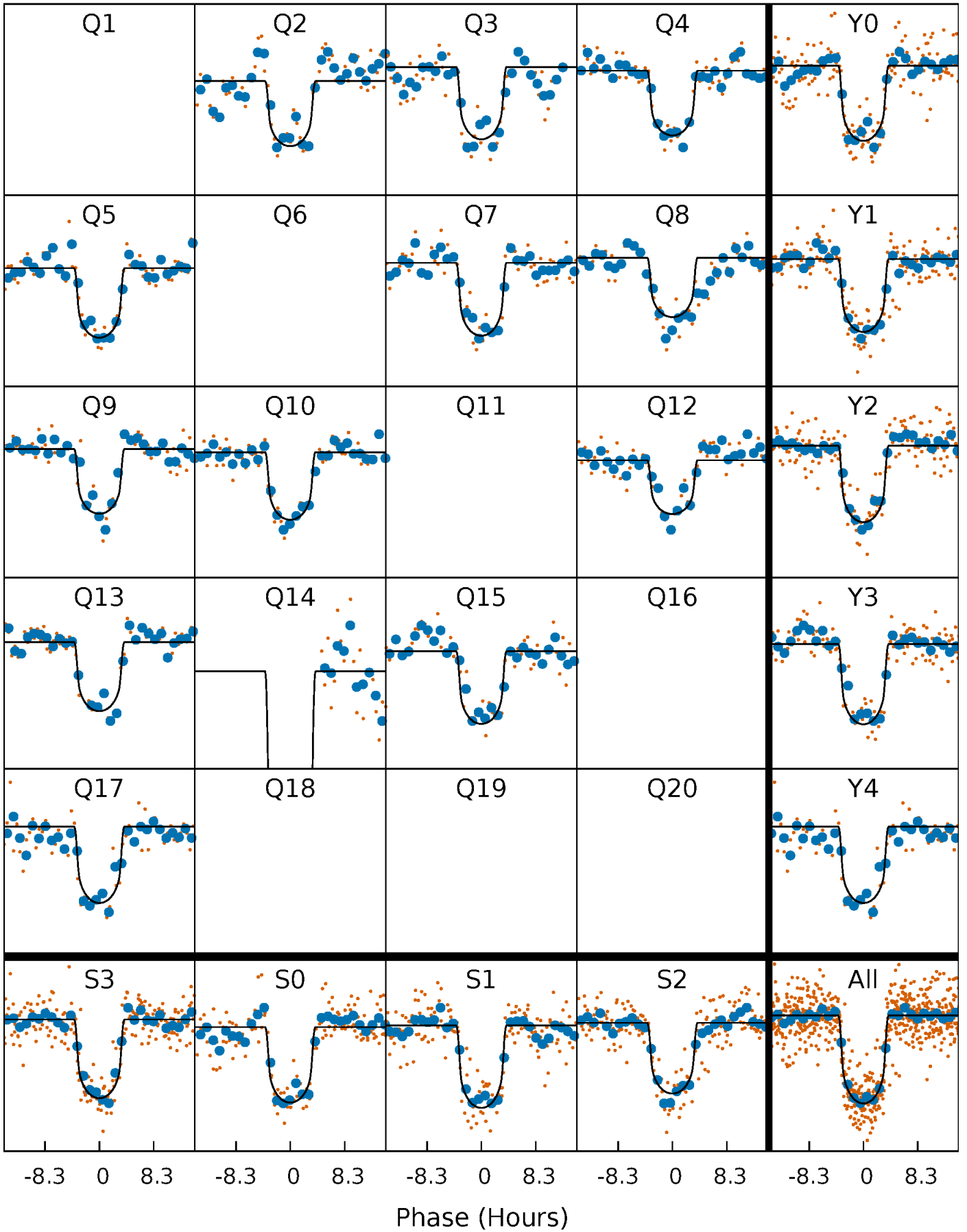
TCE 008160953-01 P=116.331190 Days  $T_0=173.687796$  (BKJD)





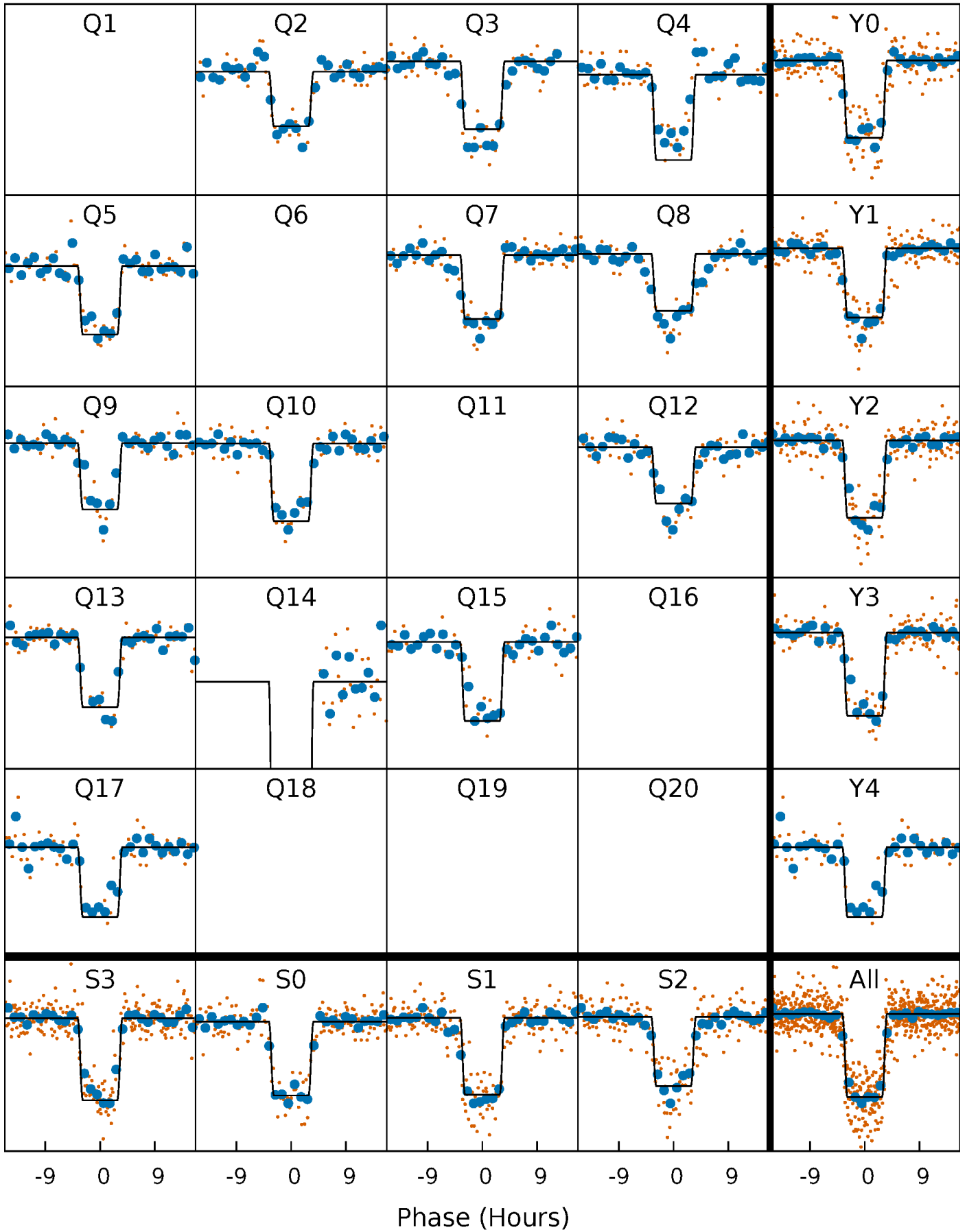
# DV Quarter-Phased Transit Curves

TCE 008160953-01 P=116.331190 Days  $T_0=173.687796$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

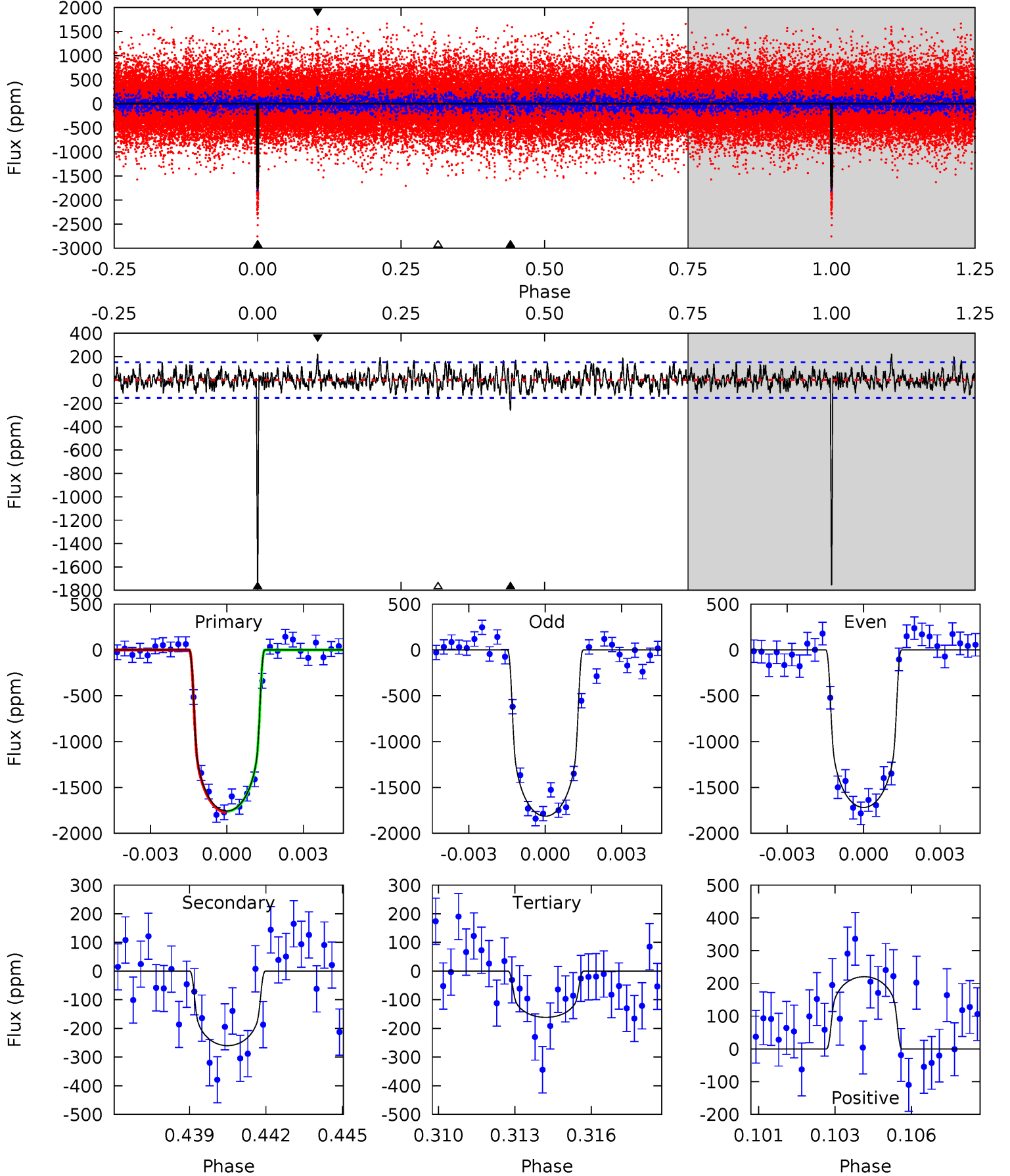
TCE 008160953-01 P=116.329858 Days  $T_0=173.698748$  (BKJD)



# DV Model-Shift Uniqueness Test

008160953-01, P = 116.331190 Days, E = 57.356606 Days

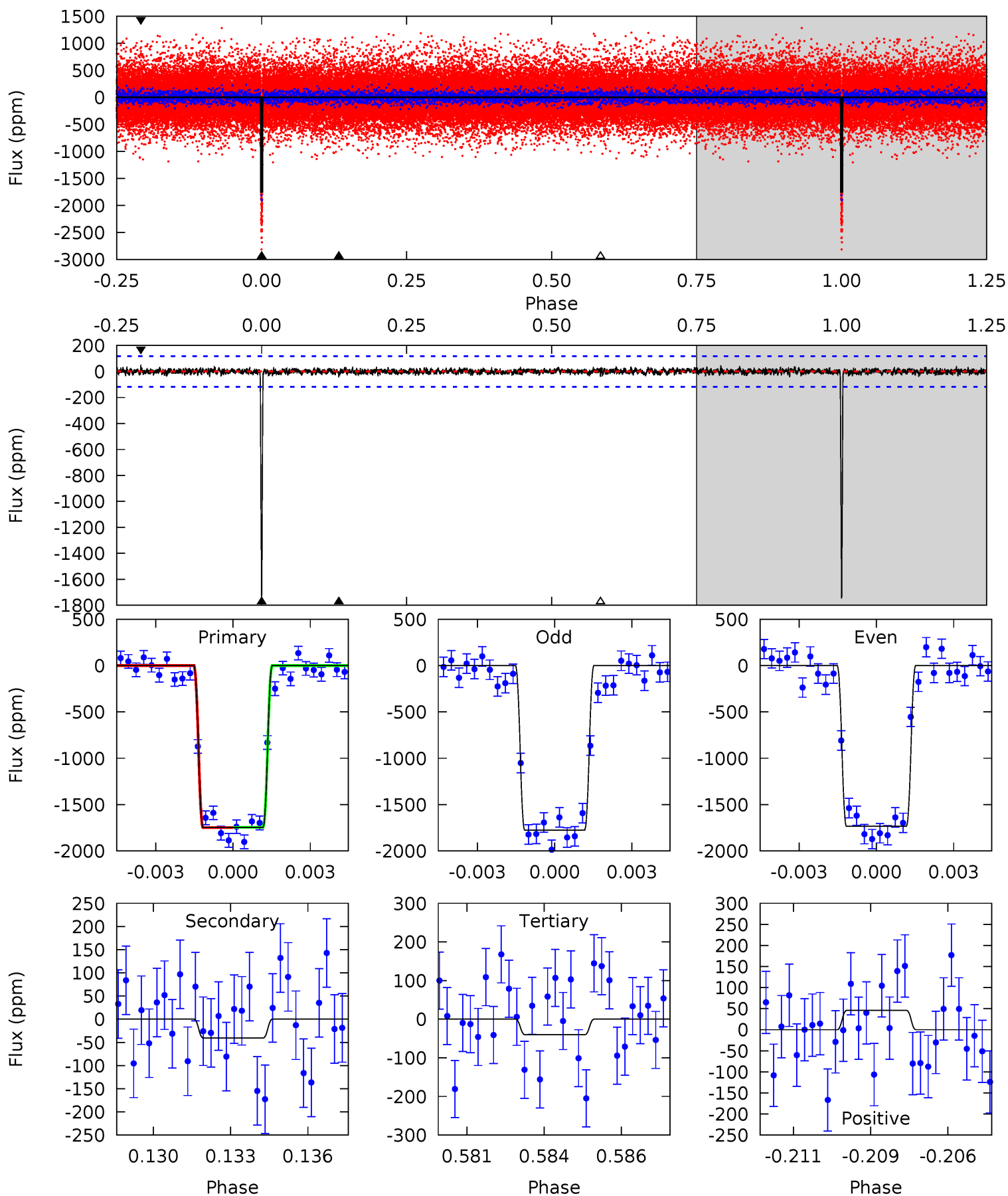
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
60.8	9.01	5.59	7.63	5.27	2.99	1.99	55.2	53.2	3.42	1.38	1.66	1.00	0.11	0.20



# Alt Model-Shift Uniqueness Test

008160953-01, P = 116.329858 Days, E = 57.368890 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
78.4	1.83	1.81	2.05	5.28	3.01	0.51	76.5	76.3	0.02	-0.23	0.90	1.02	0.03	0.06



### Stellar Parameters For KIC 008160953

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5354^{+106}_{-106}$	$4.533^{+0.039}_{-0.072}$	$0.000^{+0.150}_{-0.150}$	$0.835^{+0.077}_{-0.045}$	$0.868^{+0.048}_{-0.053}$	$2.101^{+0.310}_{-0.475}$
	+2%/-2%	+1%/-2%	+inf%/-inf%	+9%/-5%	+6%/-6%	+15%/-23%
Source	SPE57	SPE57	SPE57	DSEP		

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

### Secondary Eclipse Parameters for KIC 008160953-01 / KOI 1858.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-260 \pm 29$	$3.68^{+0.45}_{-0.39}$	$454^{+13}_{-13}$	$3761^{+160}_{-151}$	$2074^{+545}_{-456}$
Alt.	$-41 \pm 22$	$3.83^{+0.46}_{-0.43}$	$454^{+14}_{-12}$	$2816^{+206}_{-256}$	$295^{+200}_{-157}$

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

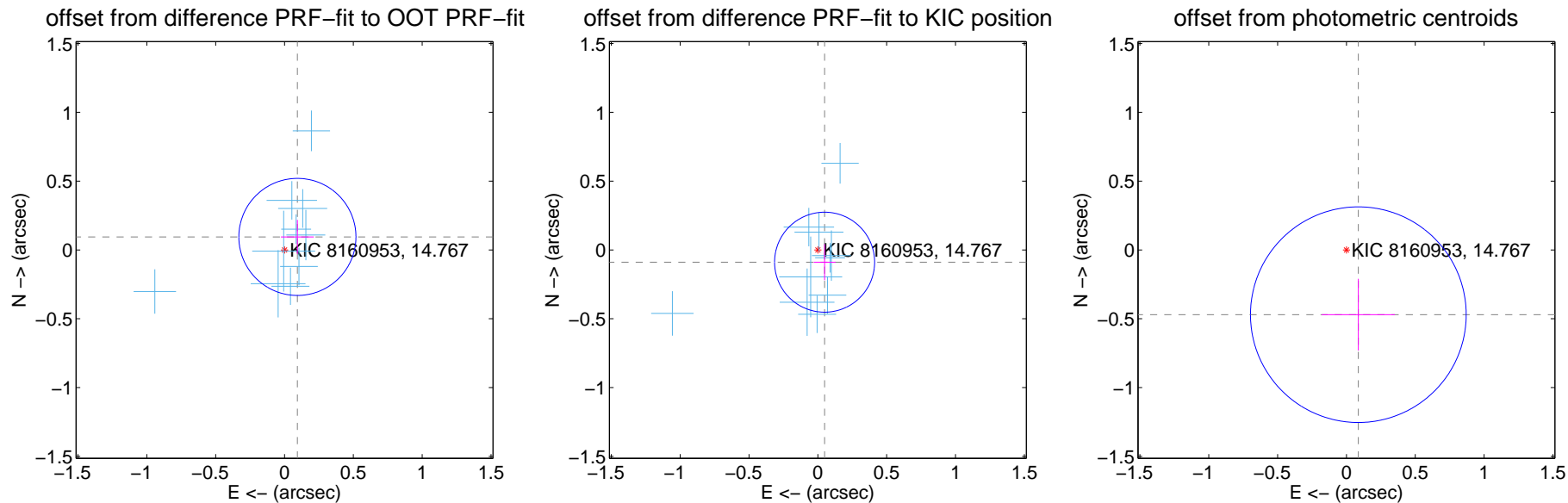
## DV Centroid Data

Supplemental centroid analysis for 008160953-01. Kepler magnitude: 14.77. Transit SNR 35.36

There are 10 quarters with good PRF difference image offsets

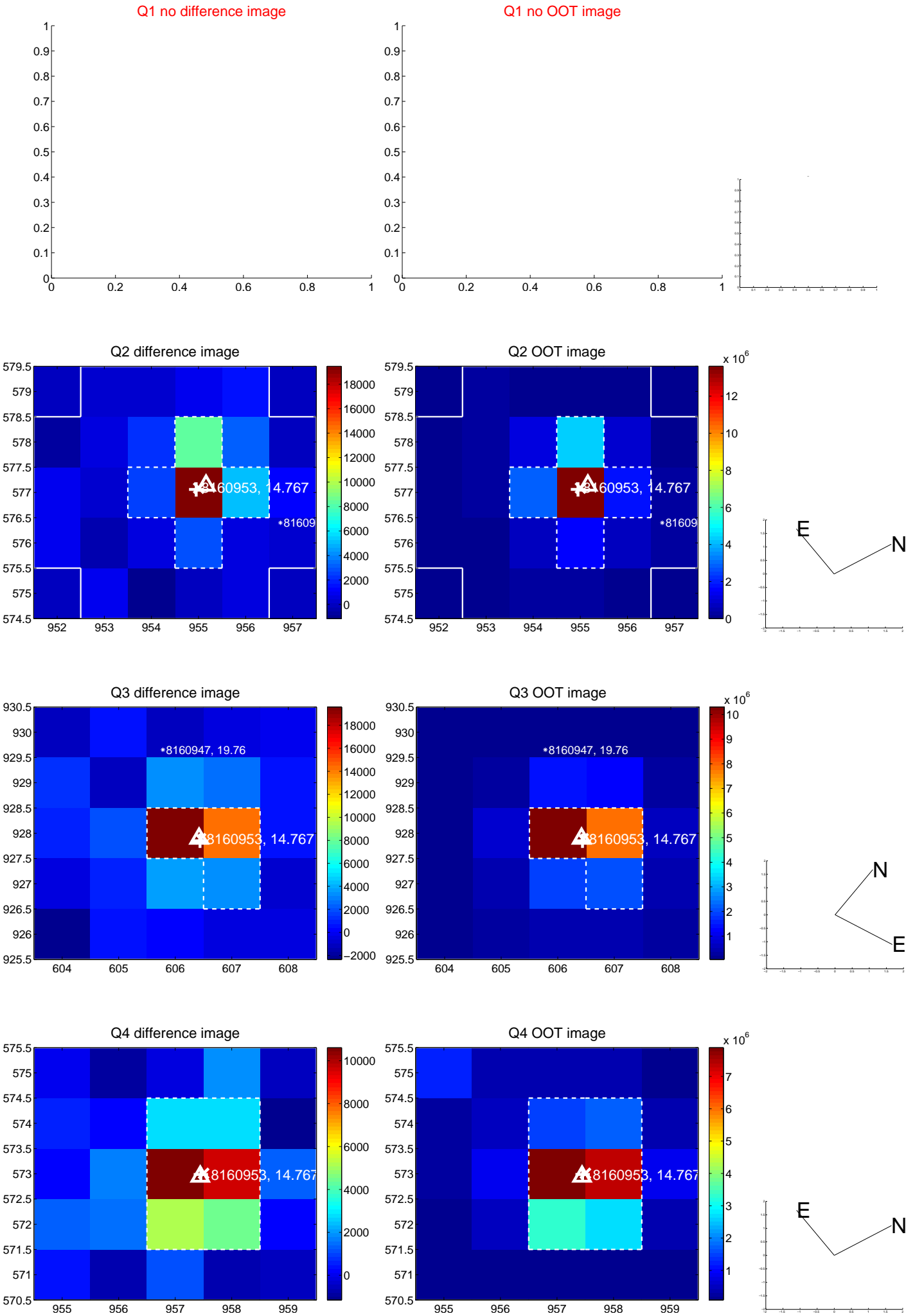
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.133 \pm 0.142$	0.94	$-0.094 \pm 0.120$	$0.094 \pm 0.124$
PRF-fit source offset from KIC position	$0.102 \pm 0.121$	0.84	$-0.049 \pm 0.080$	$-0.089 \pm 0.131$
photometric centroid source offset	$0.48 \pm 0.26$	1.83	$-0.09 \pm 0.26$	$-0.47 \pm 0.26$

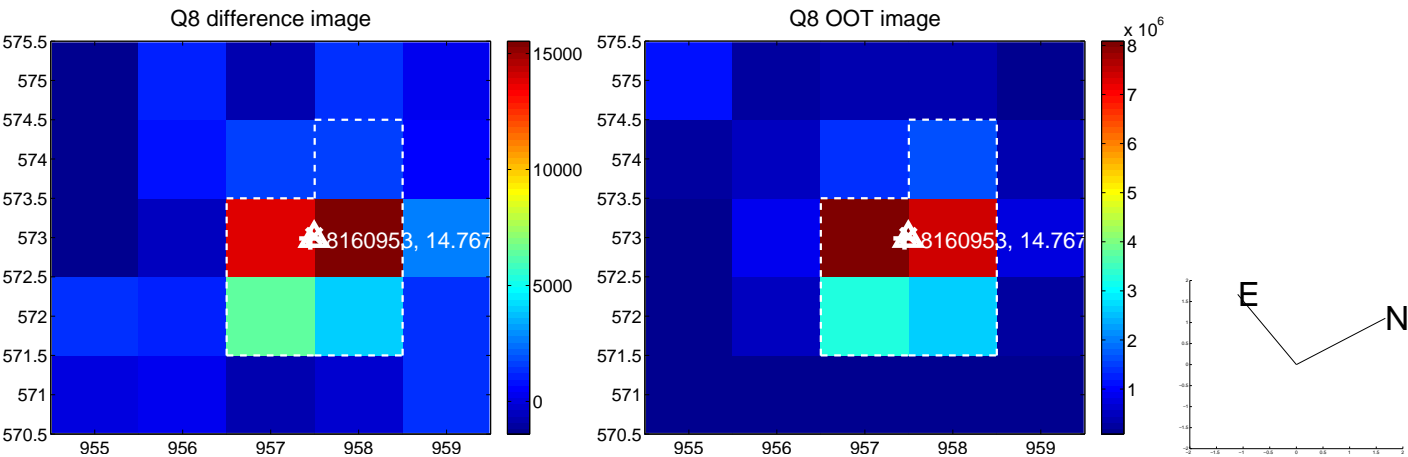
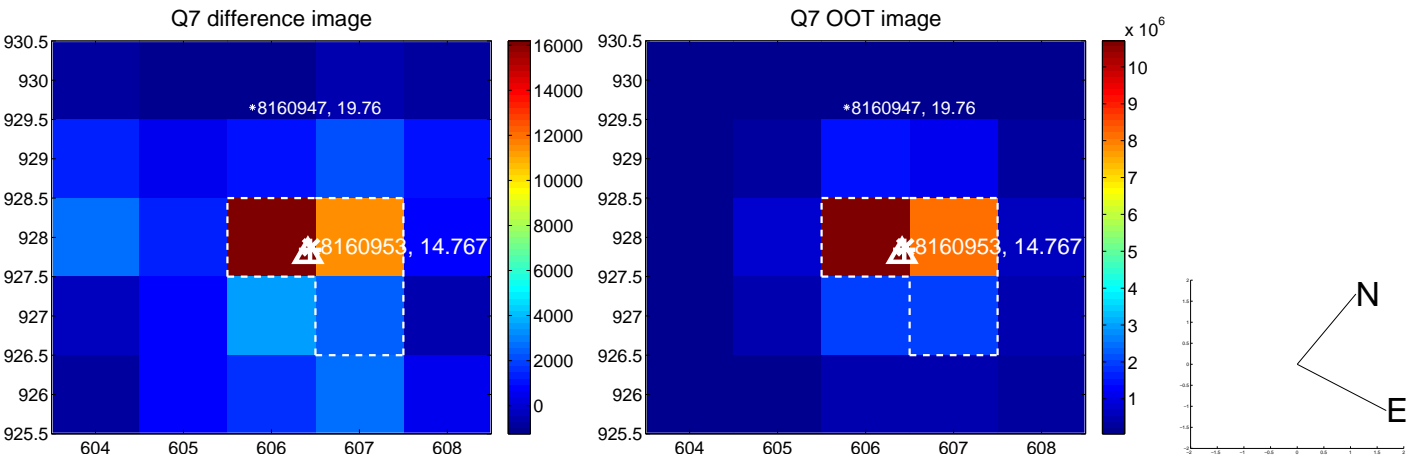
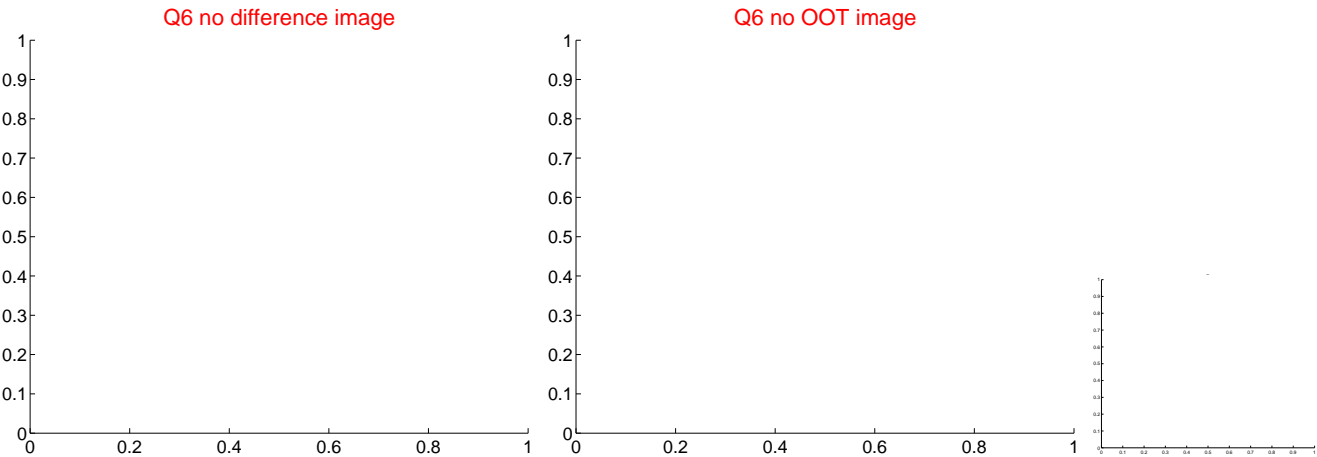
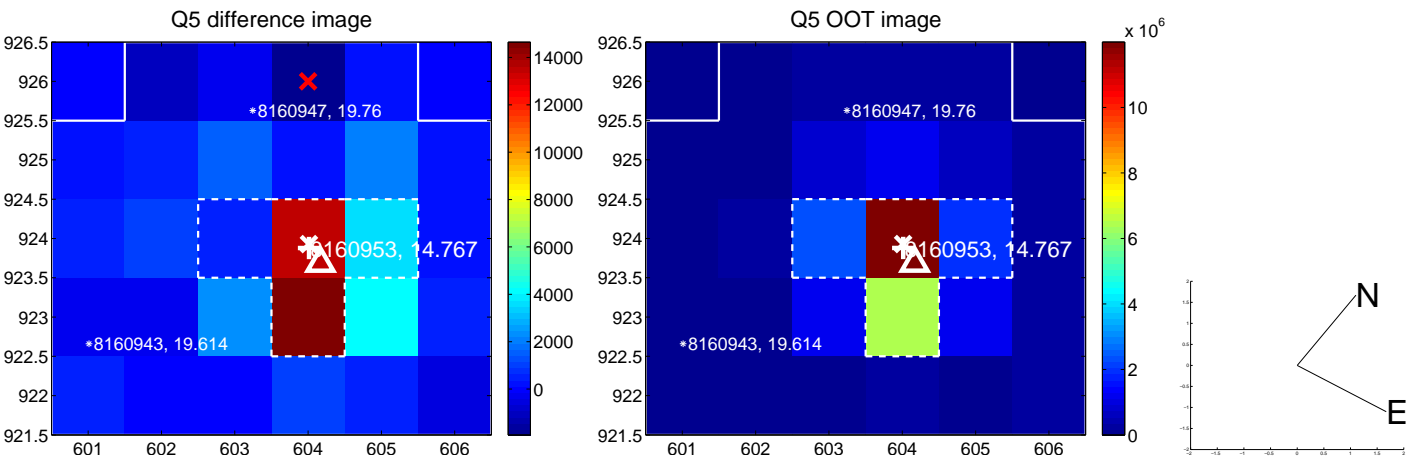


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

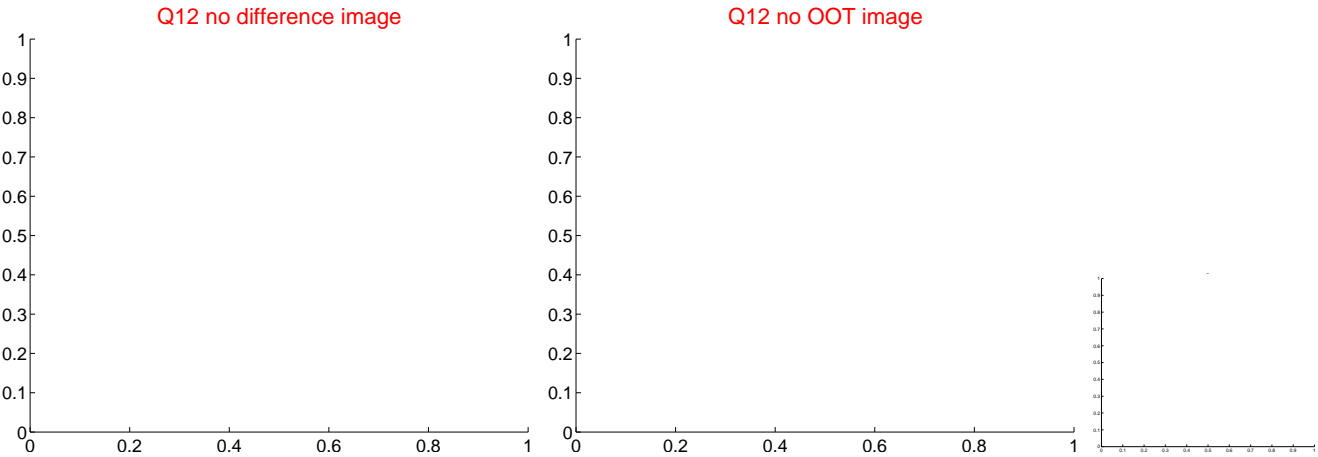
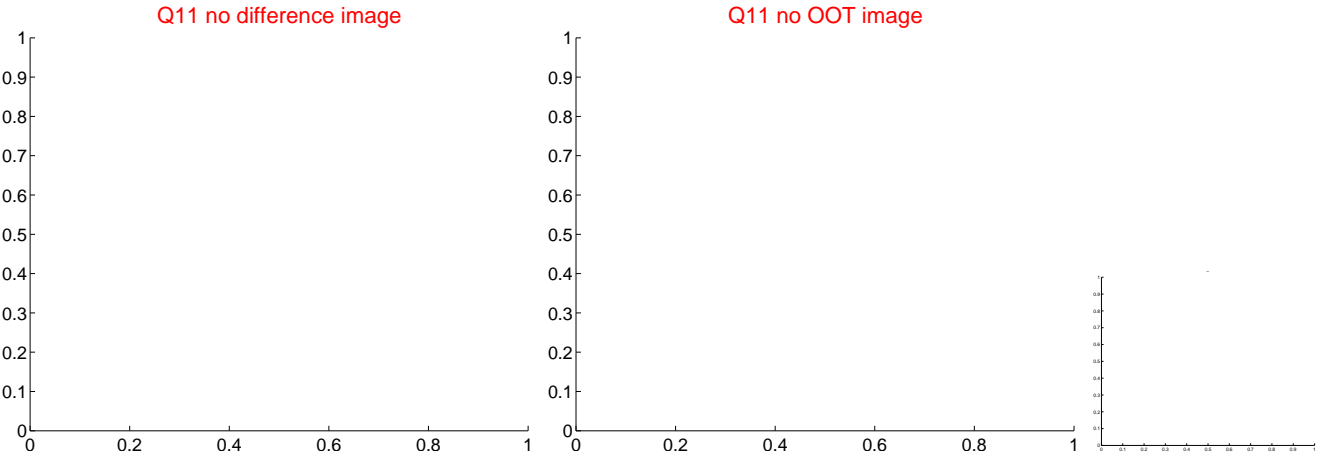
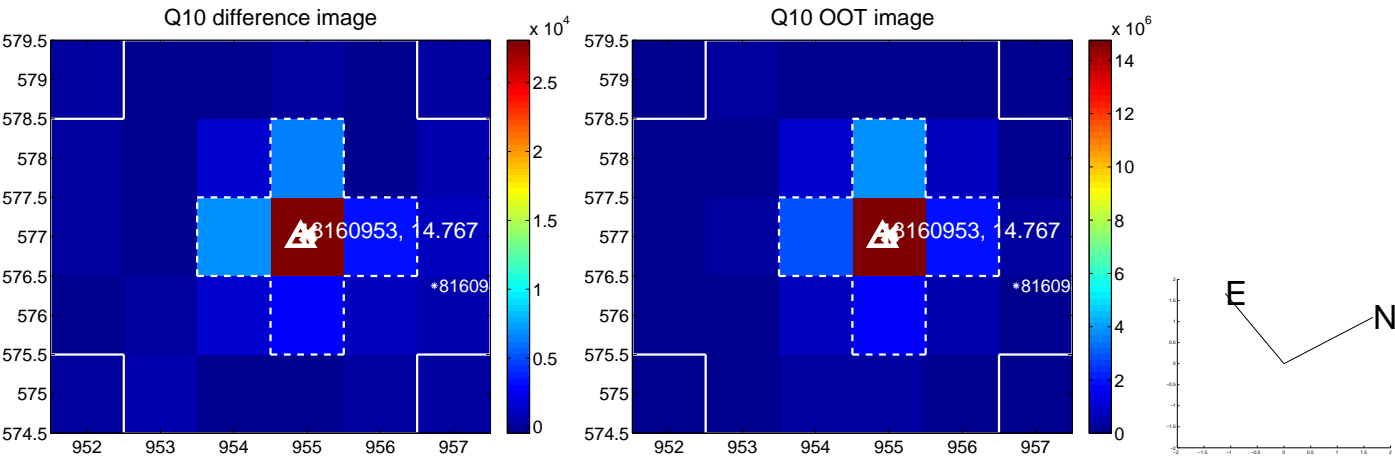
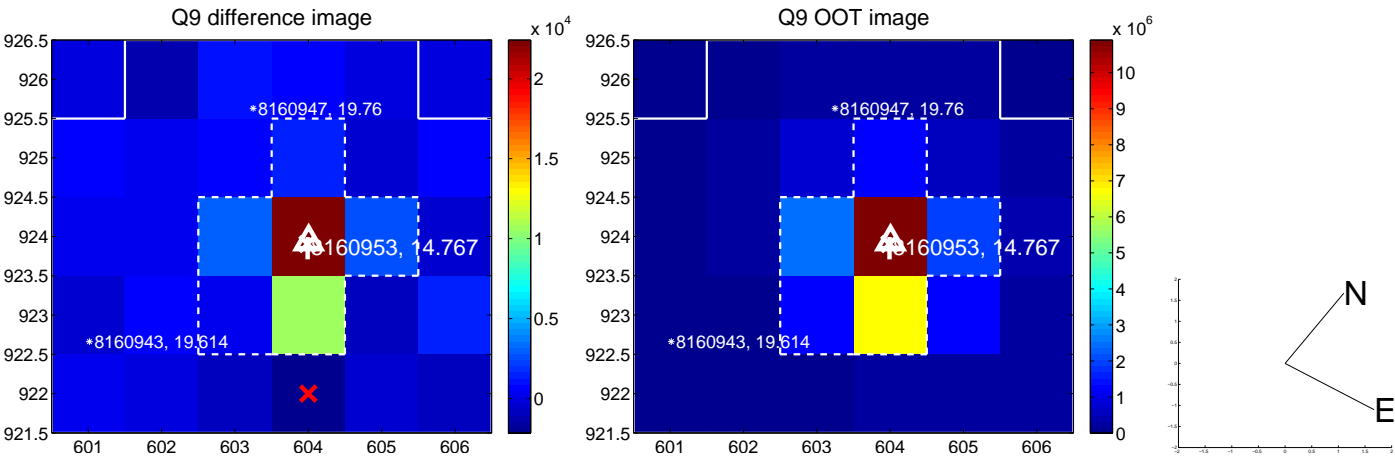


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

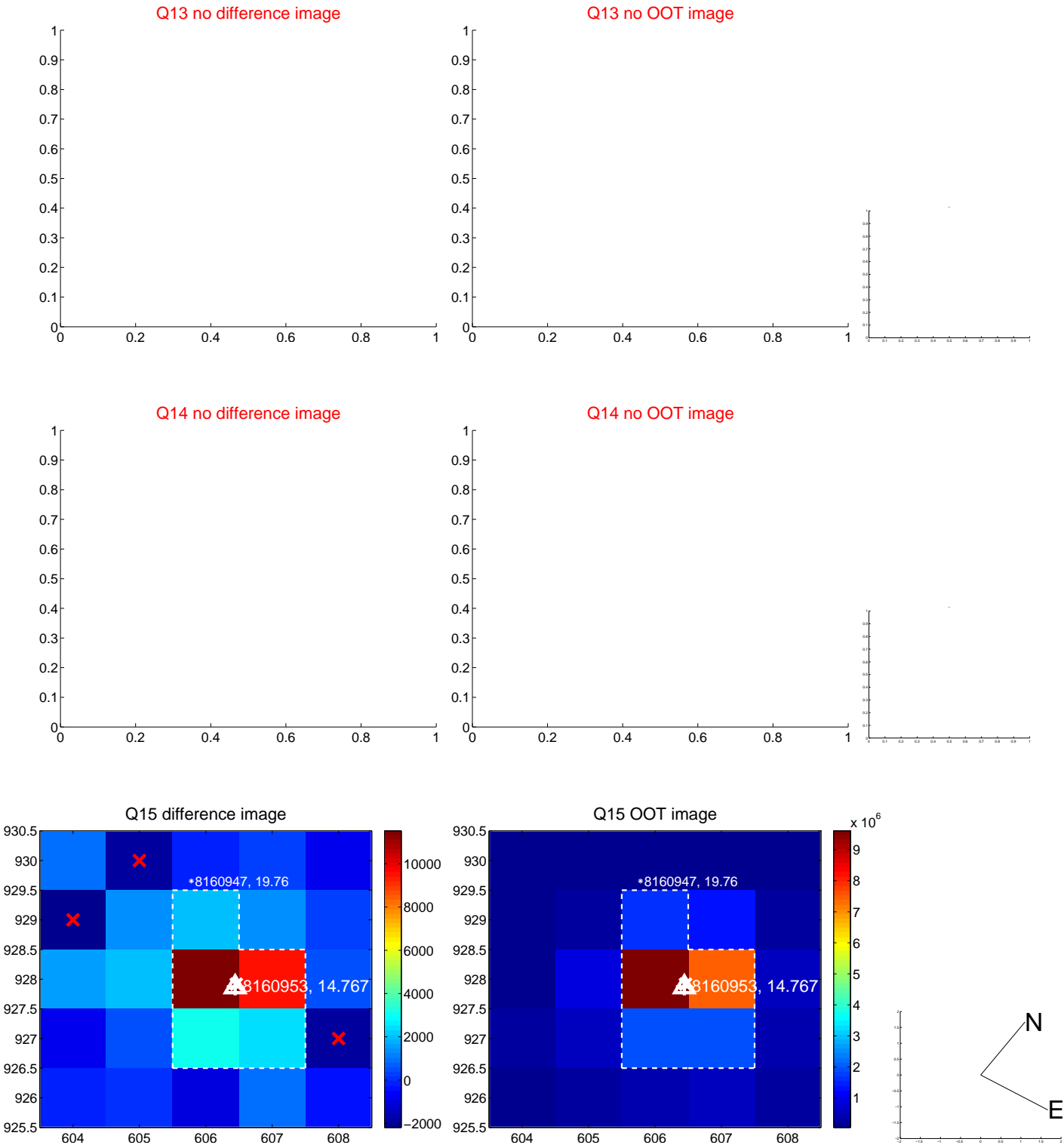




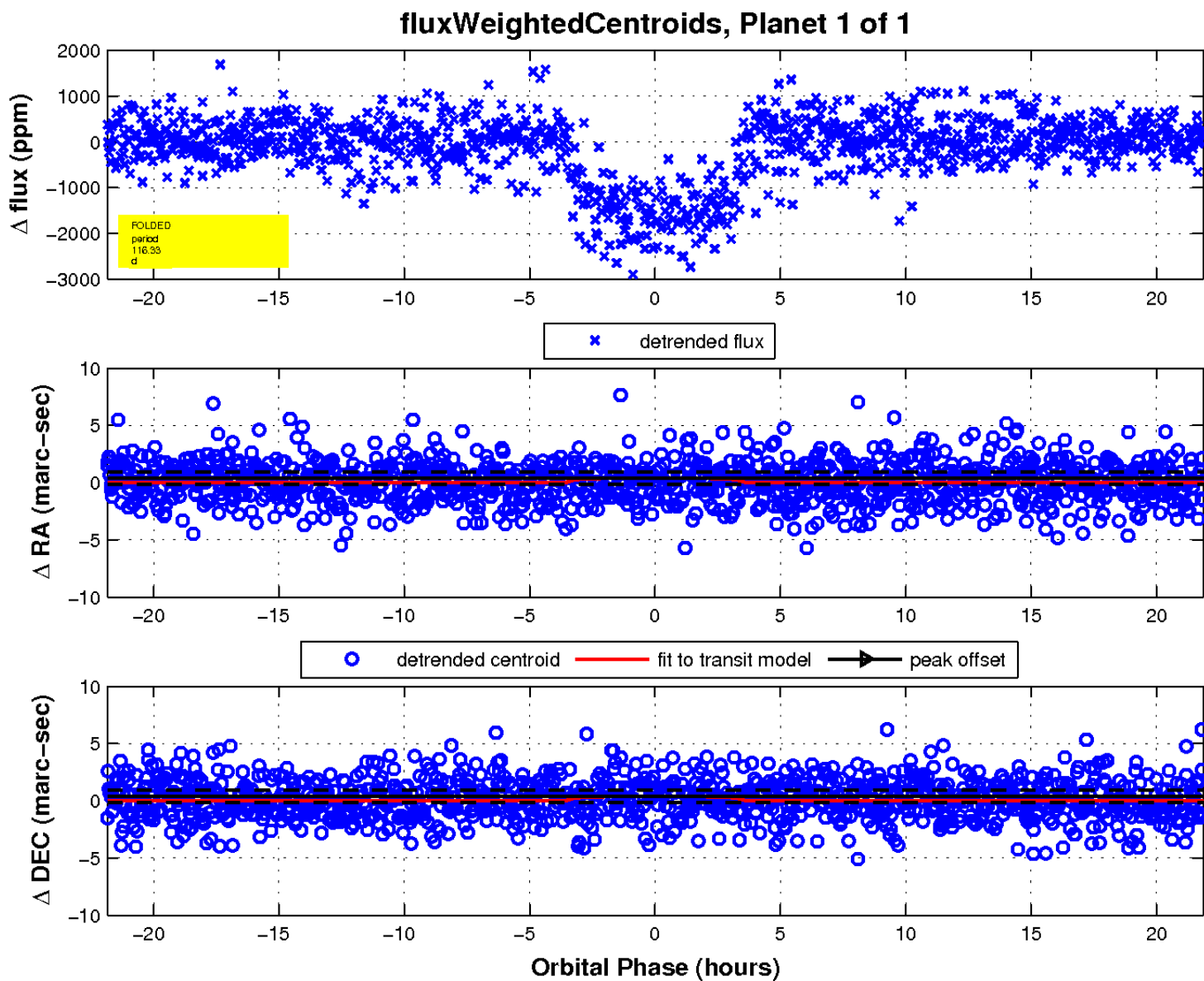
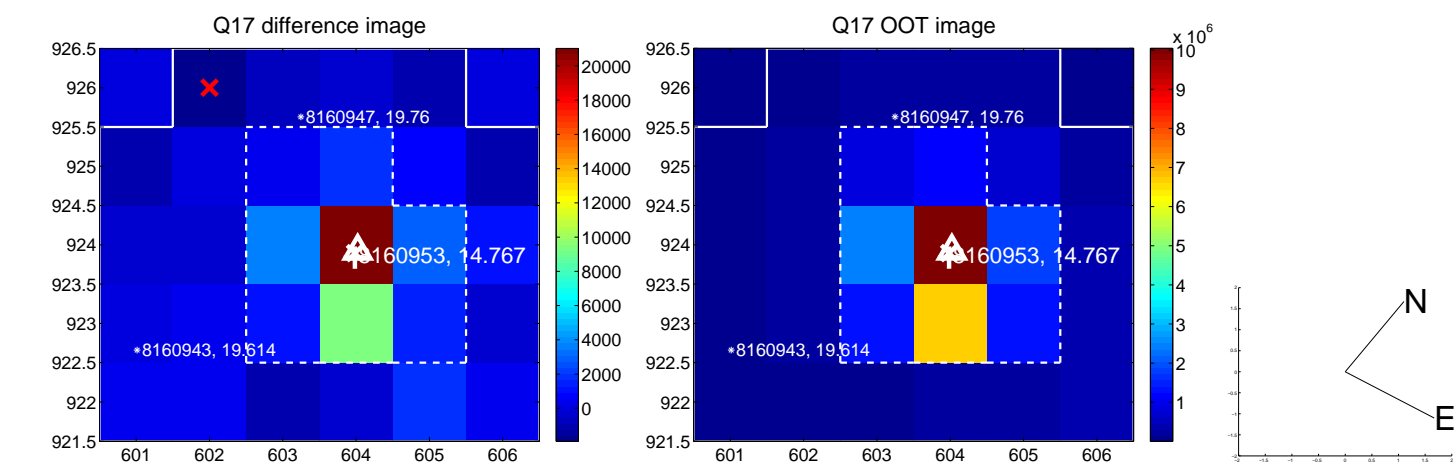
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

