

# KIC 009163385

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009163385-01	OBS	No	411.690693	425.436238	799.2	9.924	7.4	8.3	0.65	4908	1.85	0.23

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009163385-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

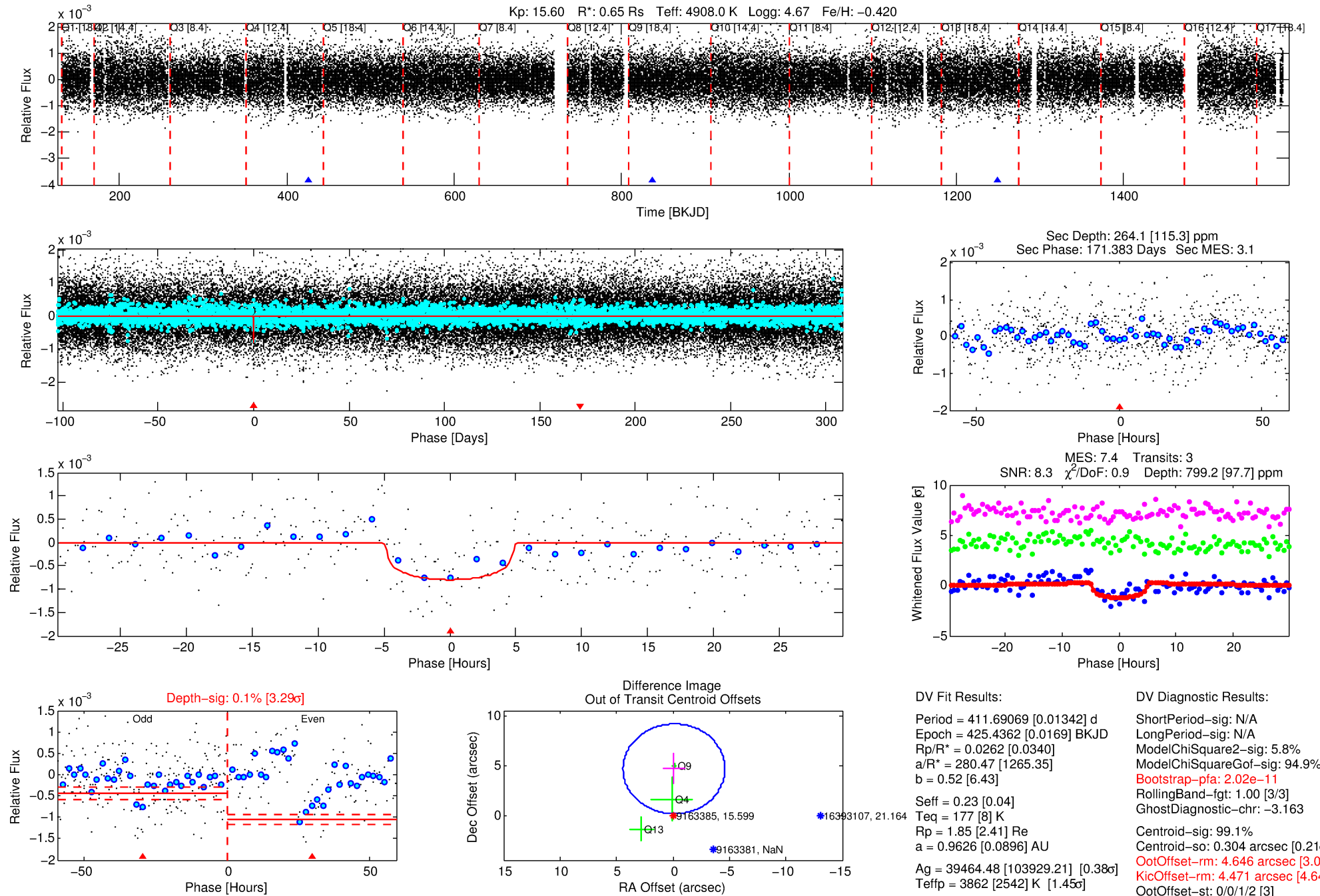
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009163385-01

No Significant Match Found

# DV One-Page Summary

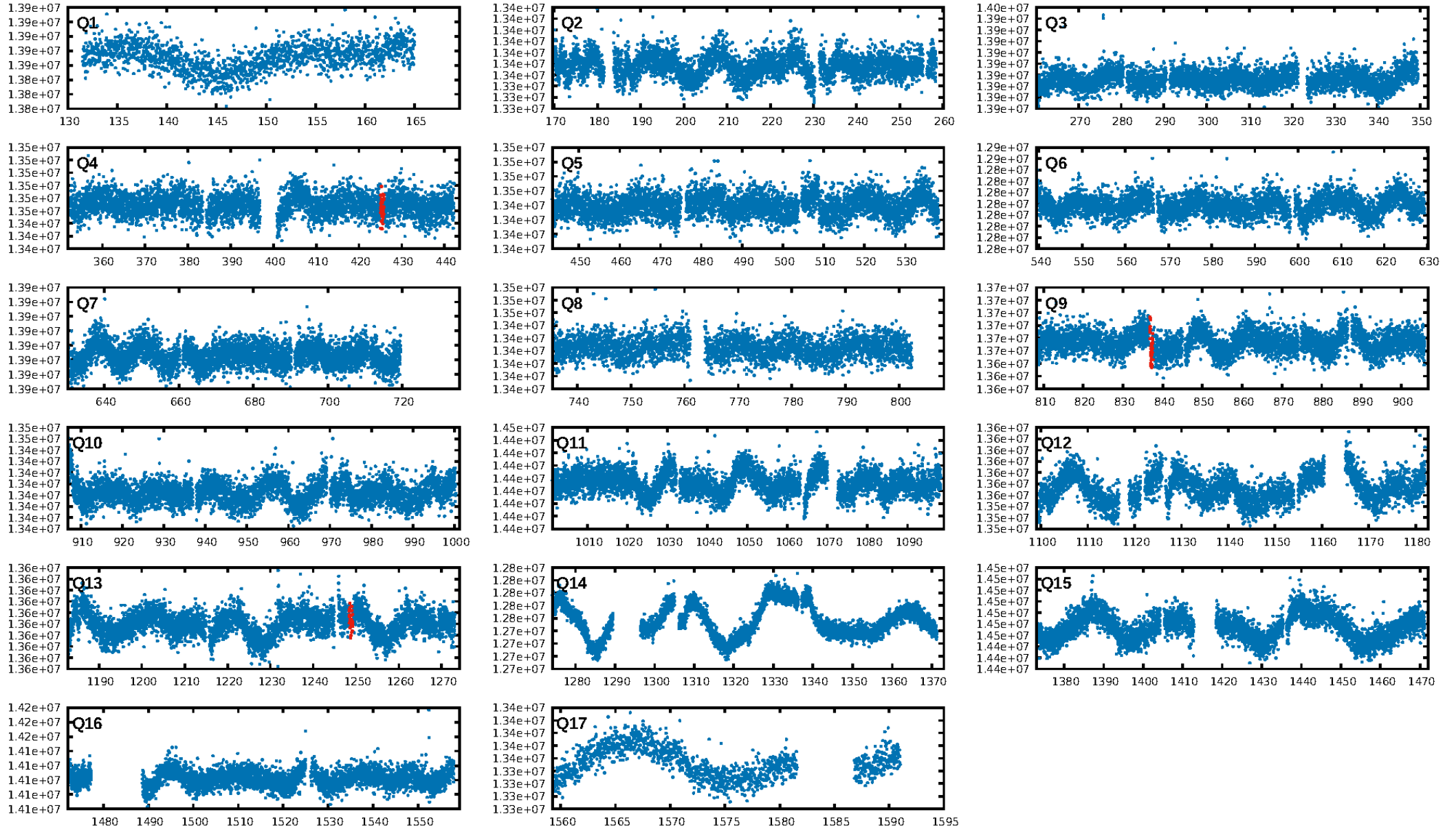
KIC: 9163385 Candidate: 1 of 1 Period: 411.691 d



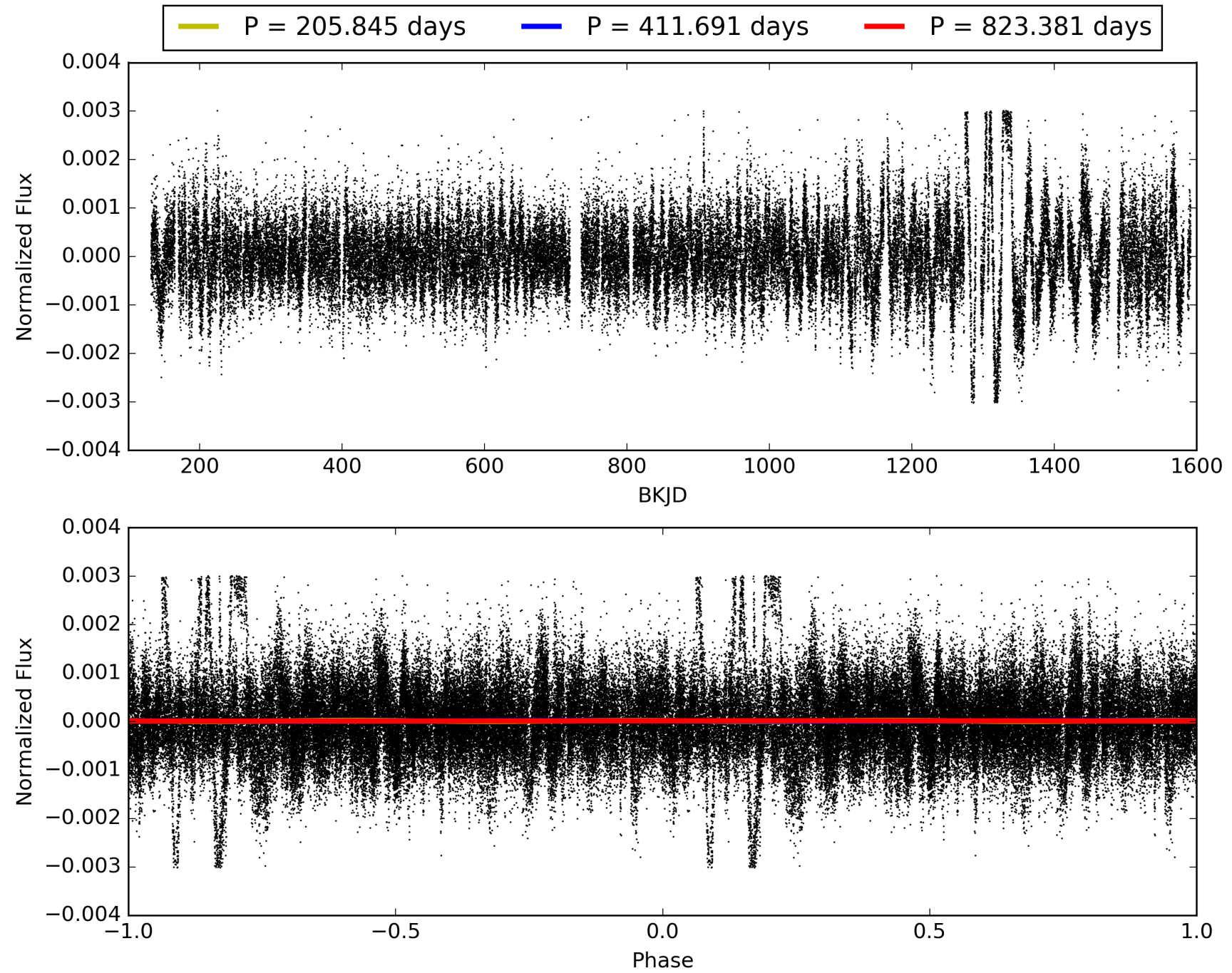
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:13:26 Z

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

# TCE 009163385-01, PDC Light Curves

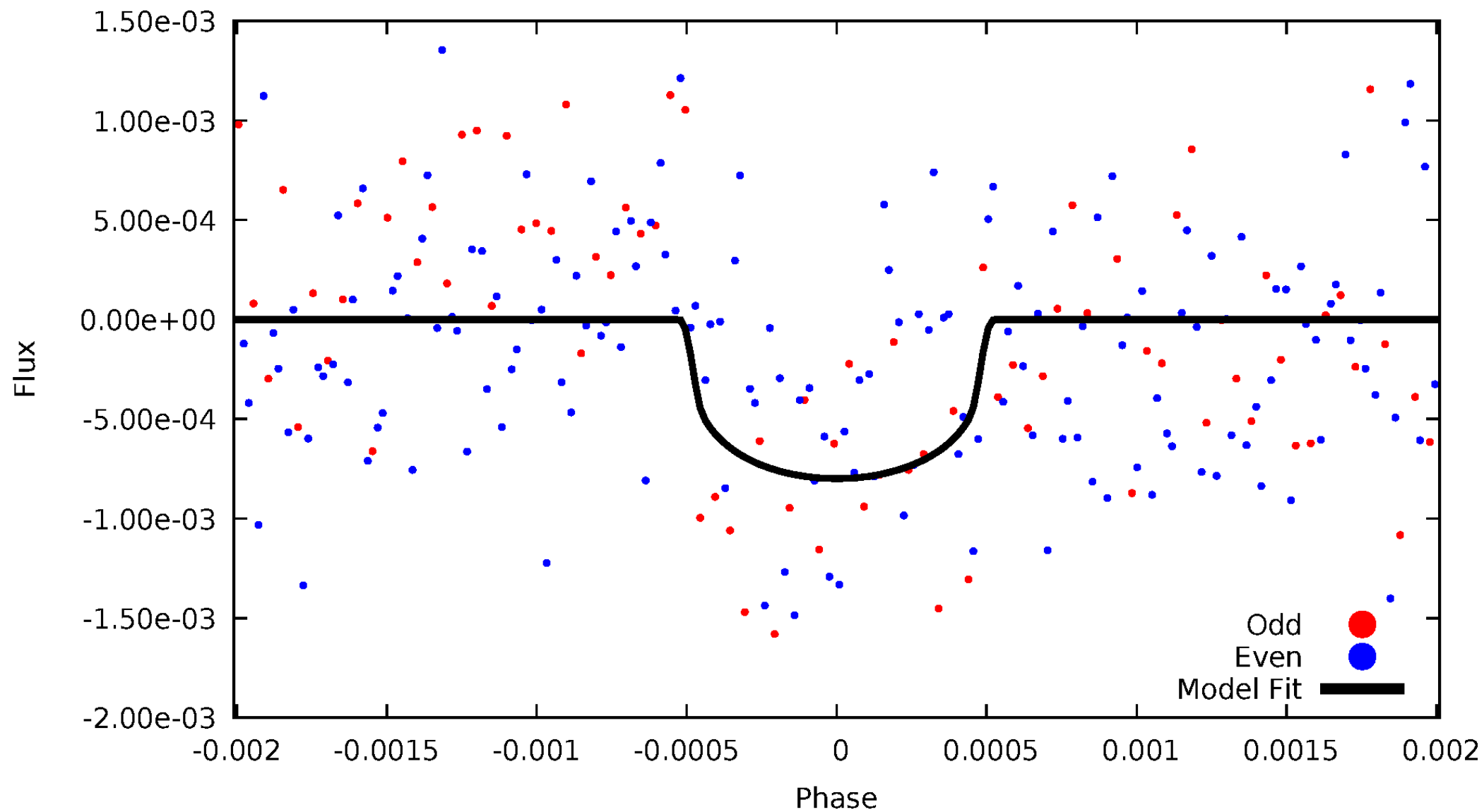


TCE 009163385-01



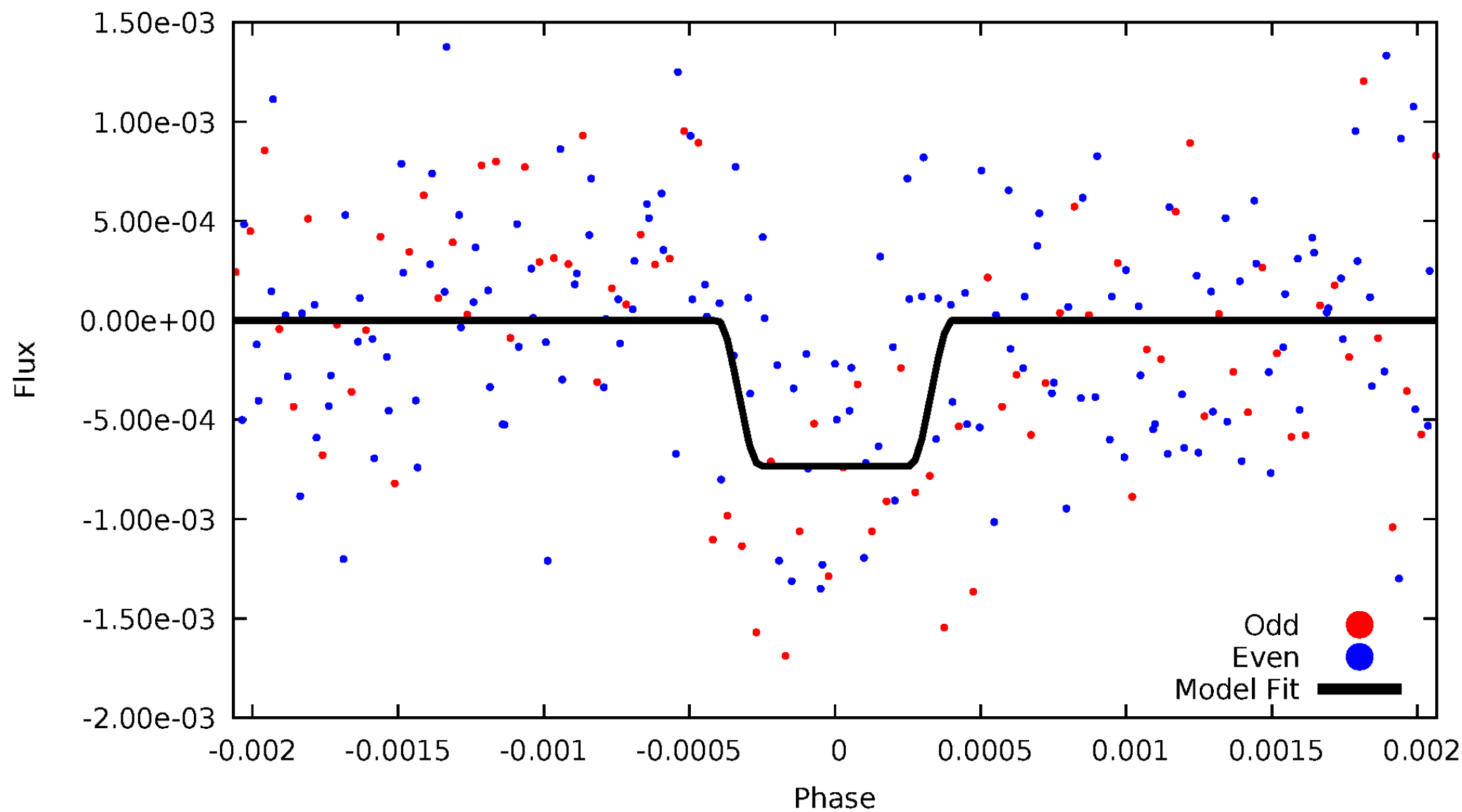
# DV Odd/Even

TCE 009163385-01

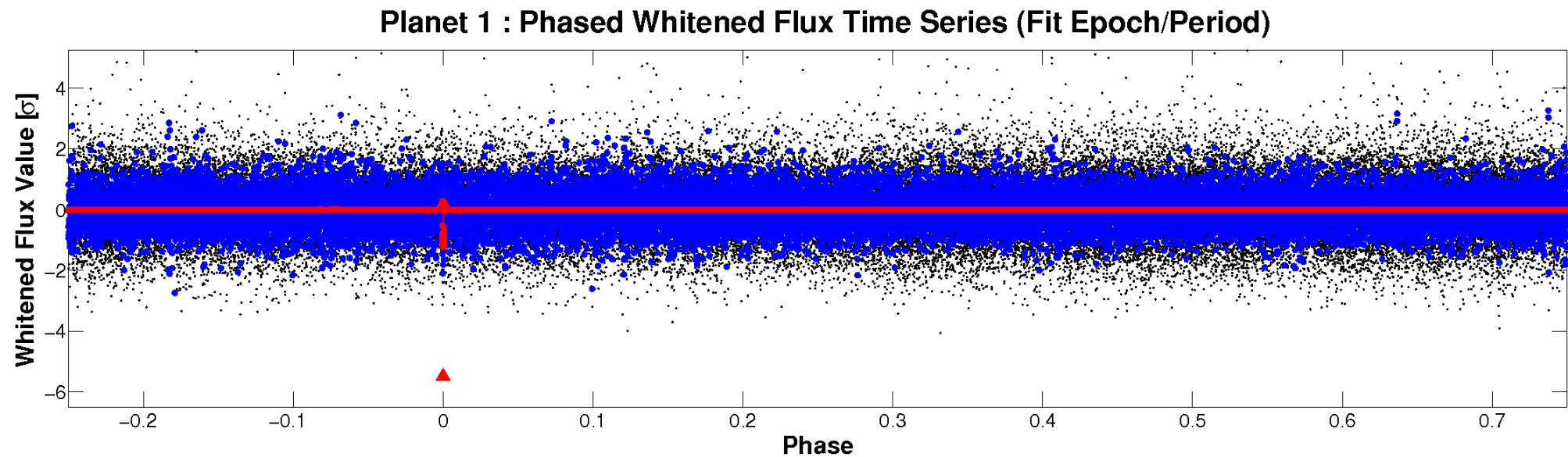
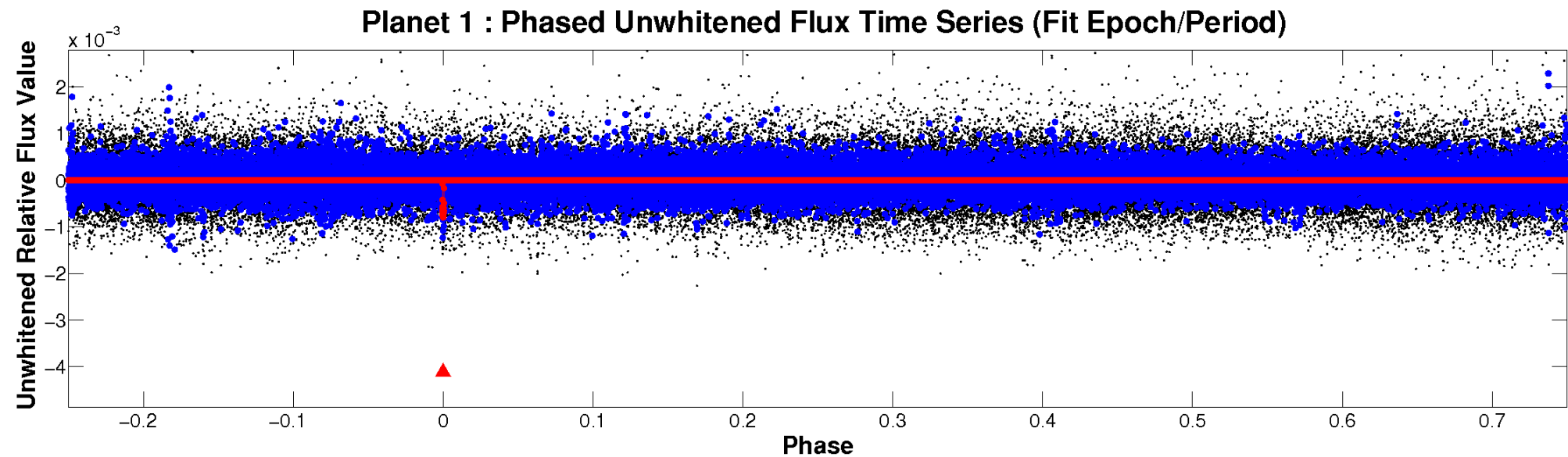


# ALT Odd/Even

TCE 009163385-01



# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

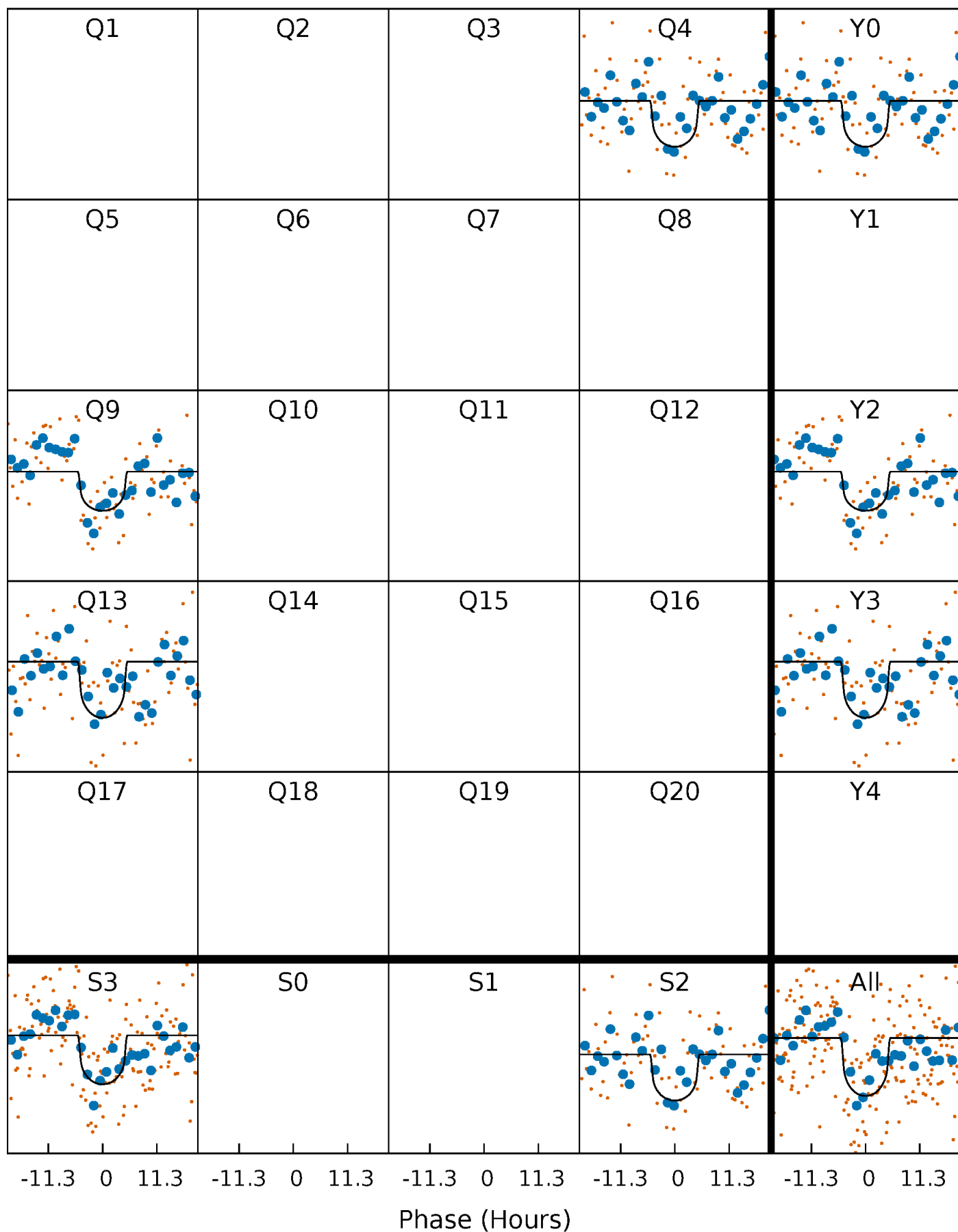
TCE 009163385-01 P=411.690693 Days  $T_0=425.436238$  (BKJD)





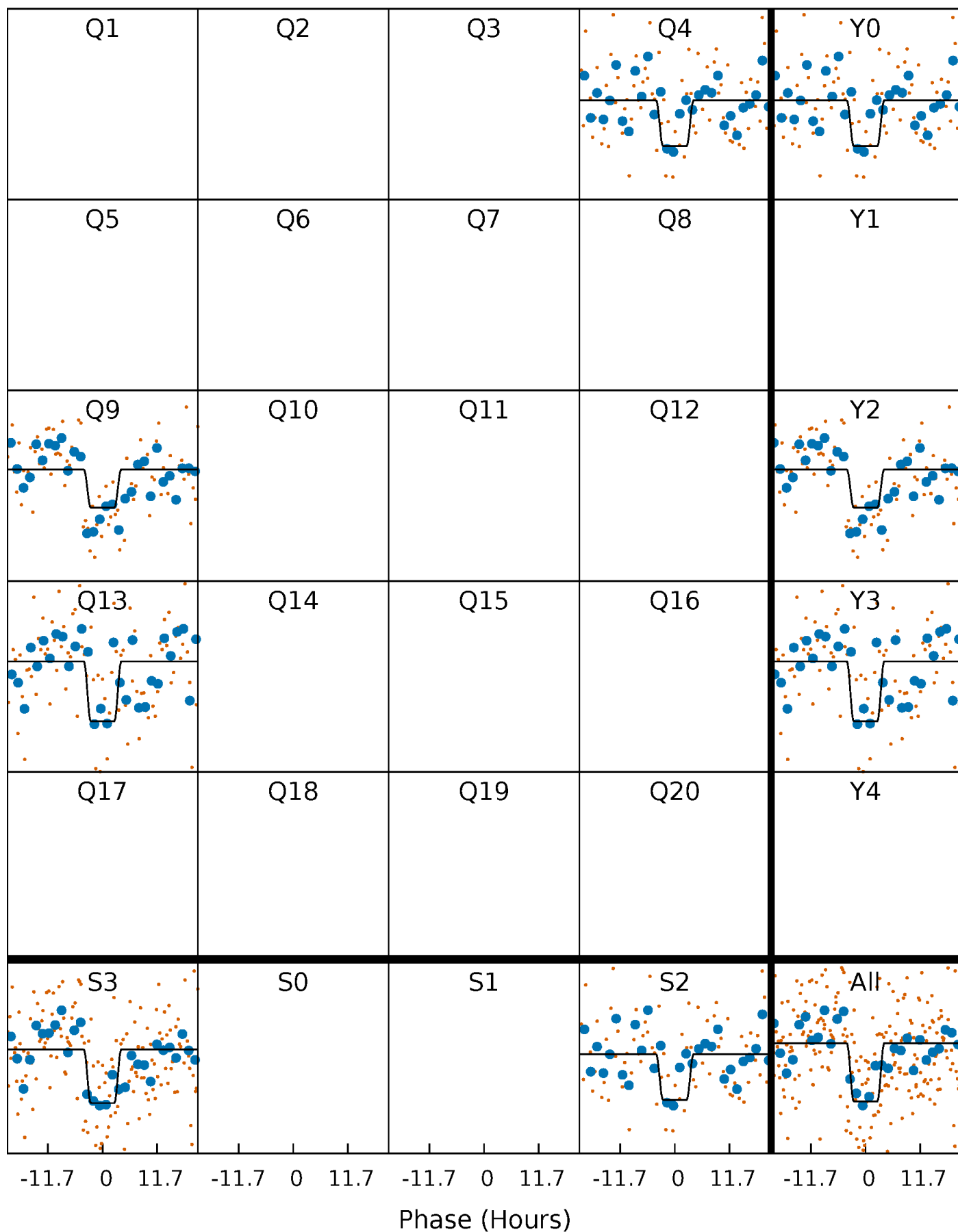
# DV Quarter-Phased Transit Curves

TCE 009163385-01     $P=411.690693$  Days     $T_0=425.436238$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

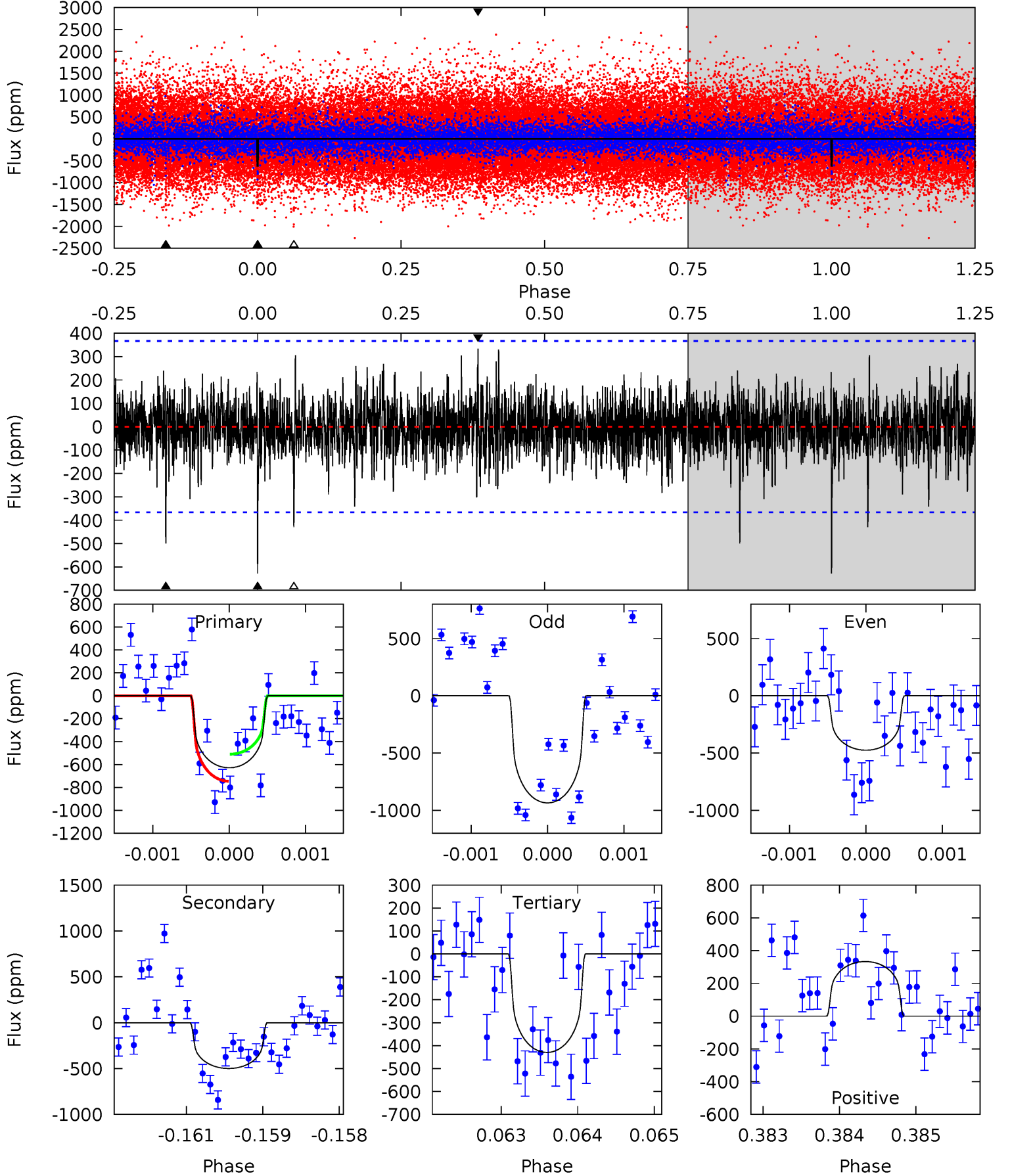
TCE 009163385-01 P=411.668122 Days  $T_0=425.444050$  (BKJD)



# DV Model-Shift Uniqueness Test

009163385-01,  $P = 411.690693$  Days,  $E = 13.745545$  Days

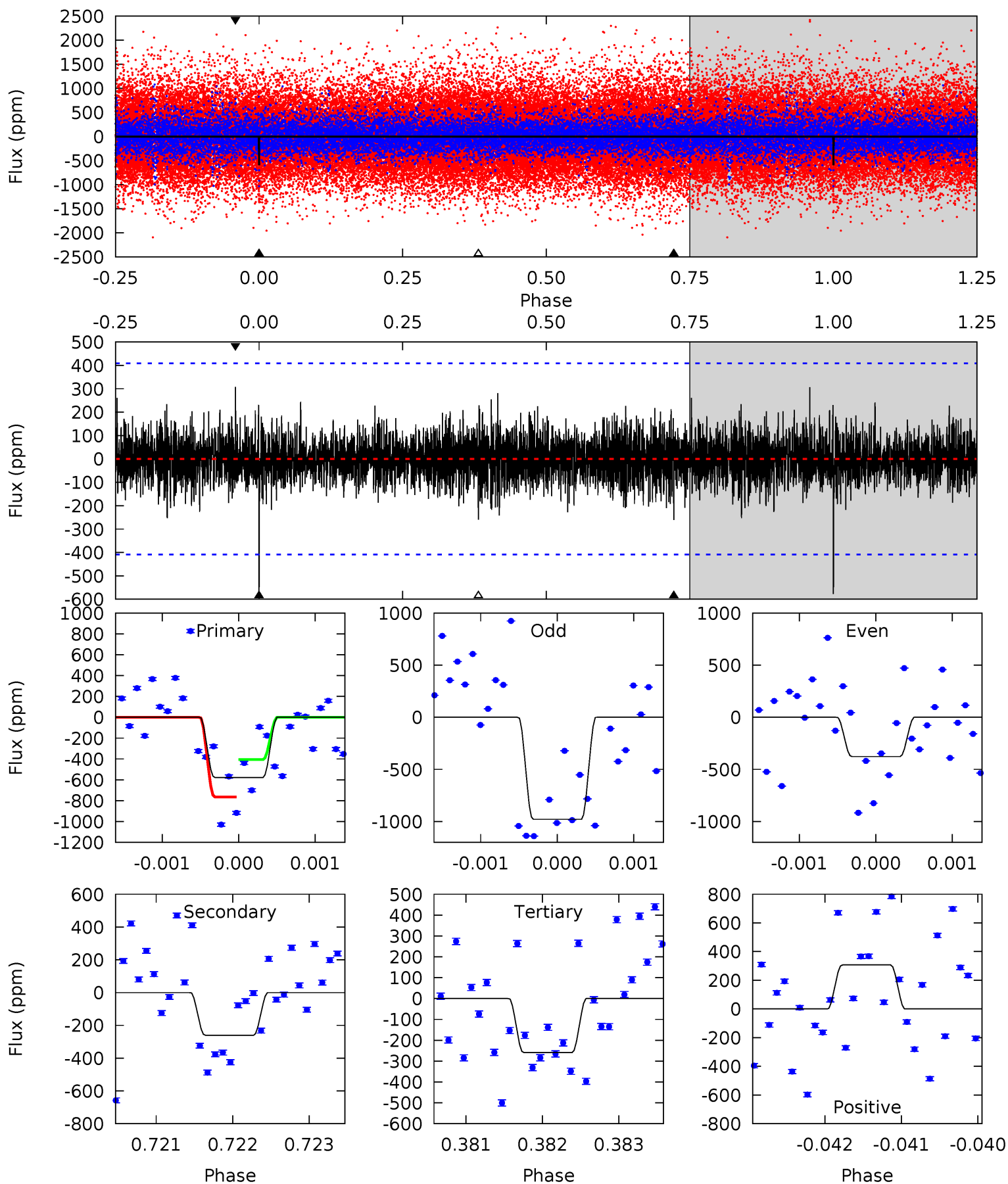
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.33	7.42	6.38	4.95	5.44	3.28	1.28	2.95	4.38	1.03	2.46	3.22	1.20	0.35	1.75



# Alt Model-Shift Uniqueness Test

009163385-01,  $P = 411.668122$  Days,  $E = 13.775928$  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
7.76	3.50	3.49	4.12	5.49	3.35	0.95	4.27	3.63	0.01	-0.62	3.79	1.50	0.35	2.40



### Stellar Parameters For KIC 009163385

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4908^{+145}_{-145}$	$4.665^{+0.030}_{-0.065}$	$-0.420^{+0.300}_{-0.300}$	$0.645^{+0.076}_{-0.047}$	$0.708^{+0.066}_{-0.066}$	$3.719^{+0.549}_{-0.840}$
	+3%/-3%	+1%/-1%	+71%/-71%	+12%/-7%	+9%/-9%	+15%/-23%
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 009163385-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-499 \pm 67$	$2.51^{+2.22}_{-1.74}$	$250^{+9}_{-9}$	$4092^{+2856}_{-759}$	$40171^{+360061}_{-29036}$
Alt.	$-261 \pm 74$	$2.64^{+2.03}_{-1.60}$	$250^{+9}_{-9}$	$3613^{+1557}_{-578}$	$18714^{+107705}_{-12740}$

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

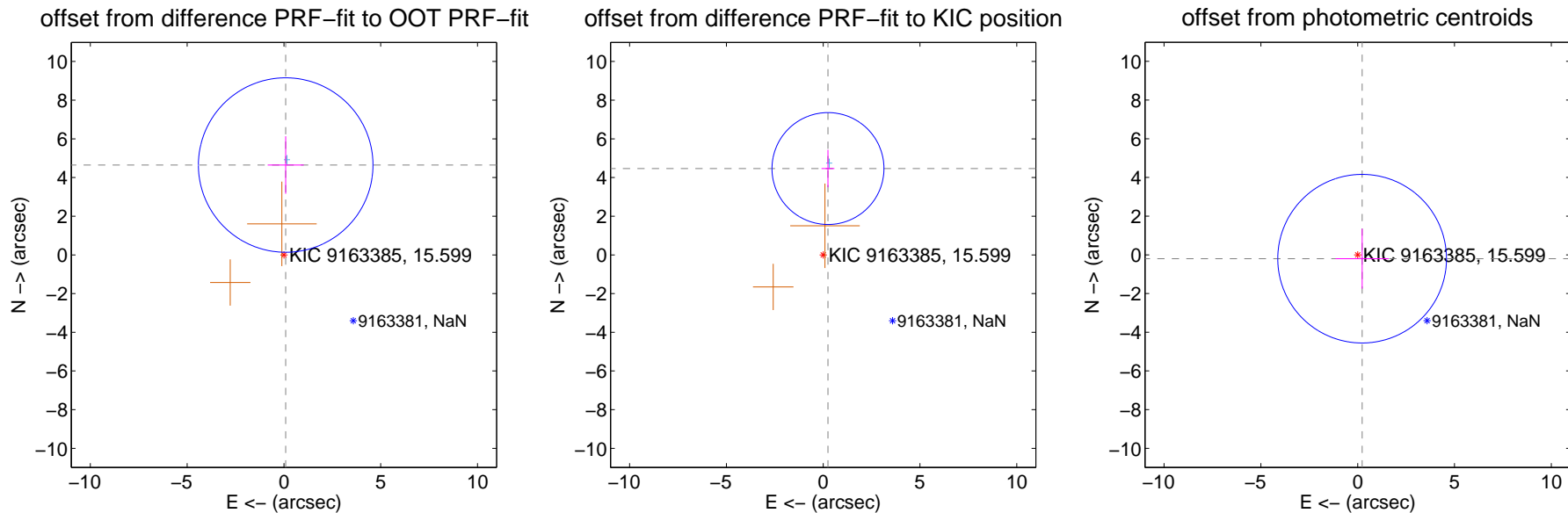
## DV Centroid Data

Supplemental centroid analysis for 009163385-01. Kepler magnitude: 15.60. Transit SNR 8.31

There are 1 quarters with good PRF difference image offsets

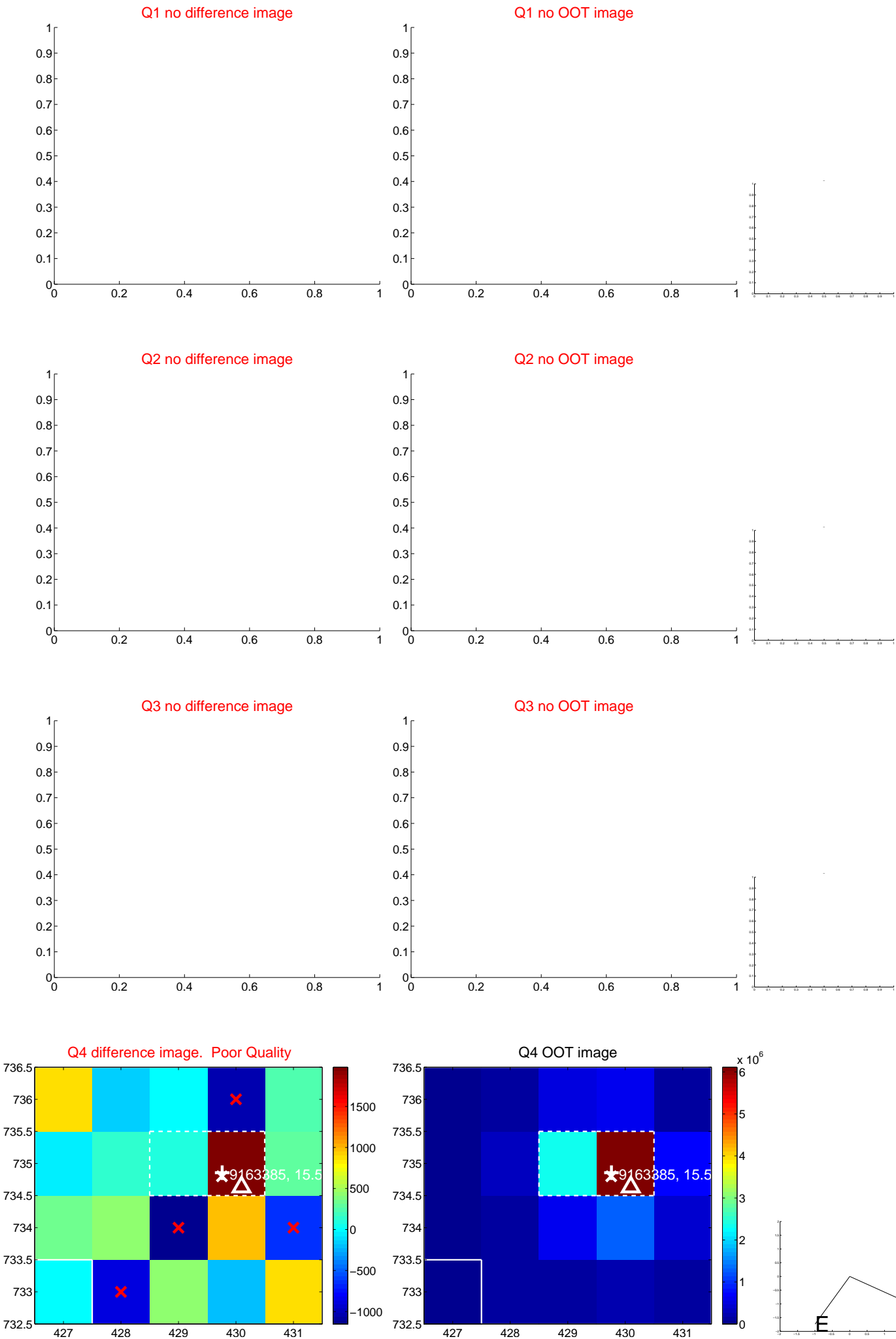
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.646 \pm 1.503$	3.09	$-0.091 \pm 0.933$	$4.645 \pm 1.486$
PRF-fit source offset from KIC position	$4.471 \pm 0.964$	4.64	$-0.248 \pm 0.333$	$4.464 \pm 0.965$
photometric centroid source offset	$0.30 \pm 1.45$	0.21	$-0.23 \pm 1.37$	$-0.20 \pm 1.55$



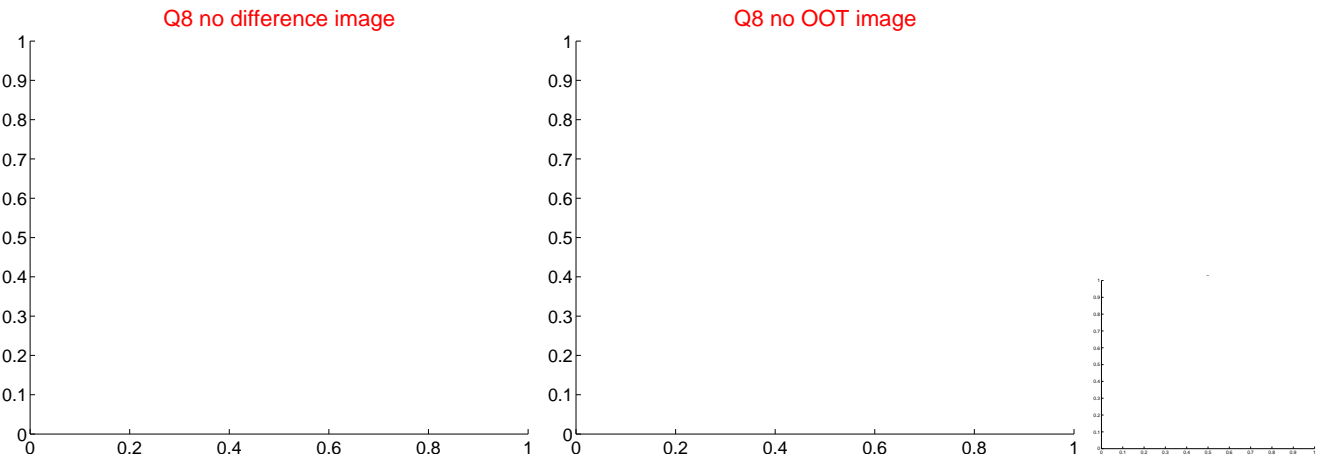
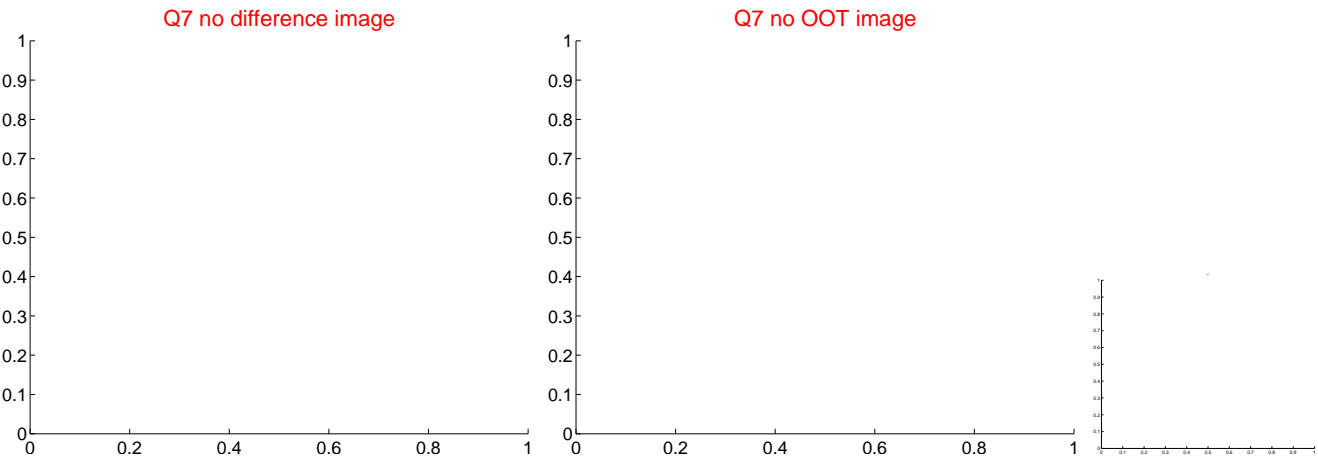
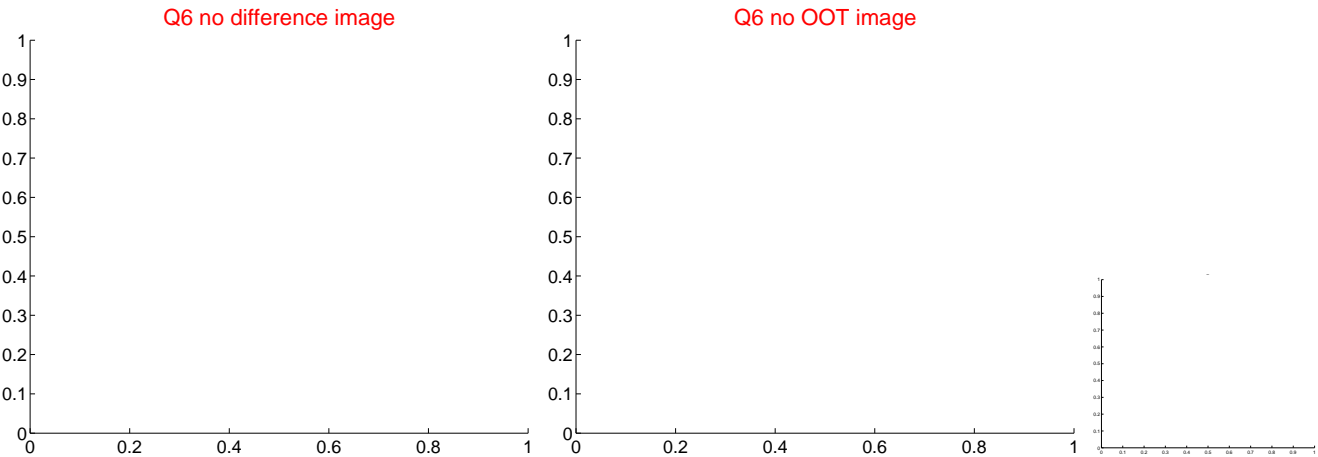
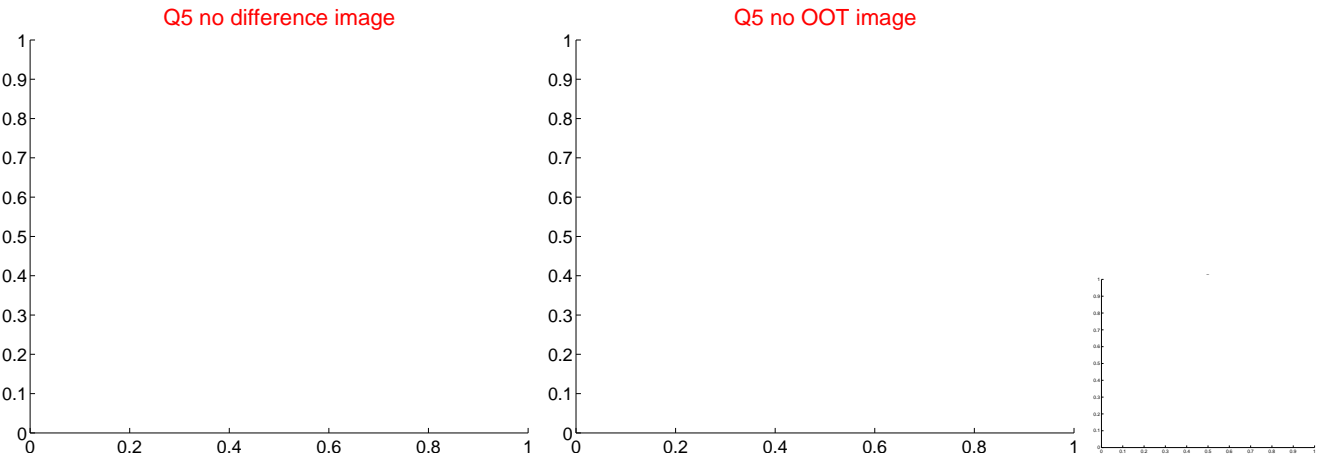
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

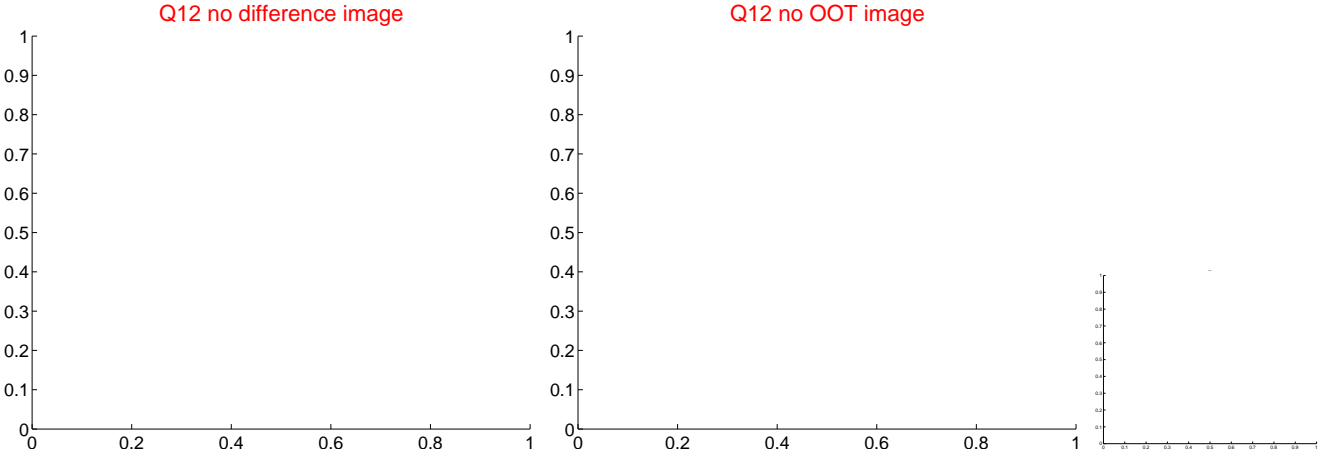
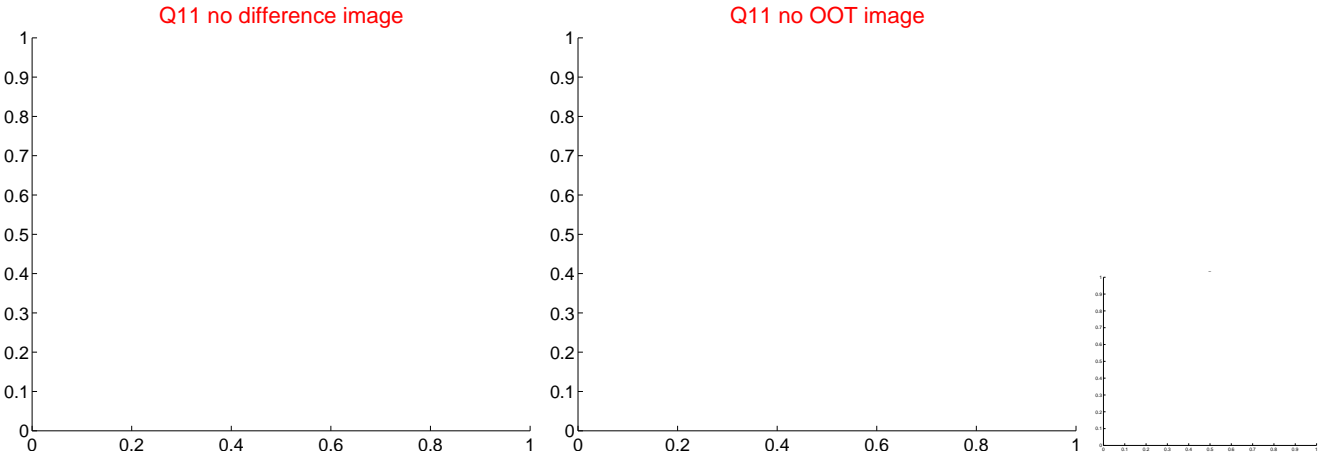
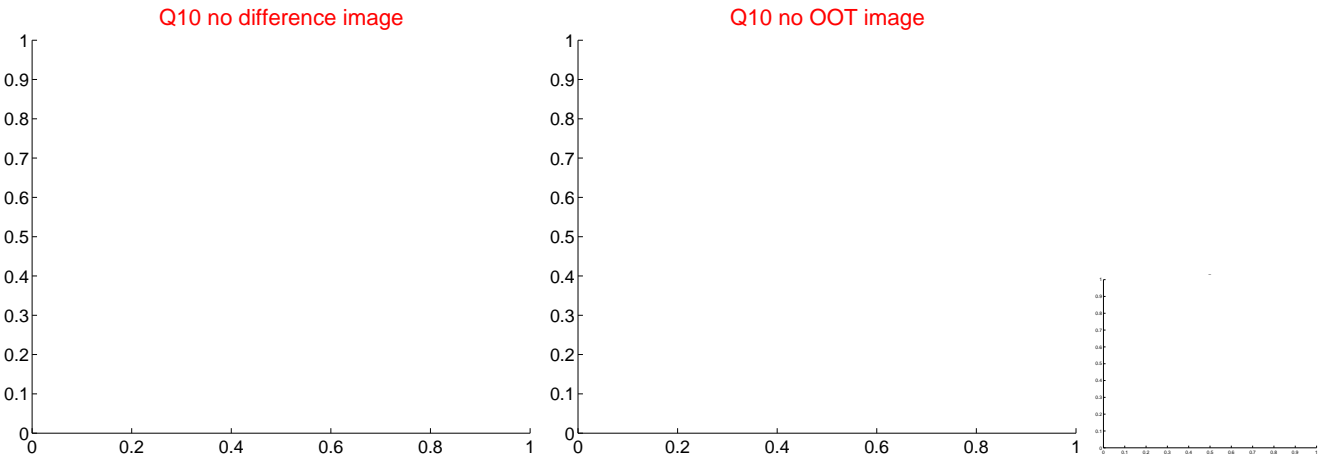
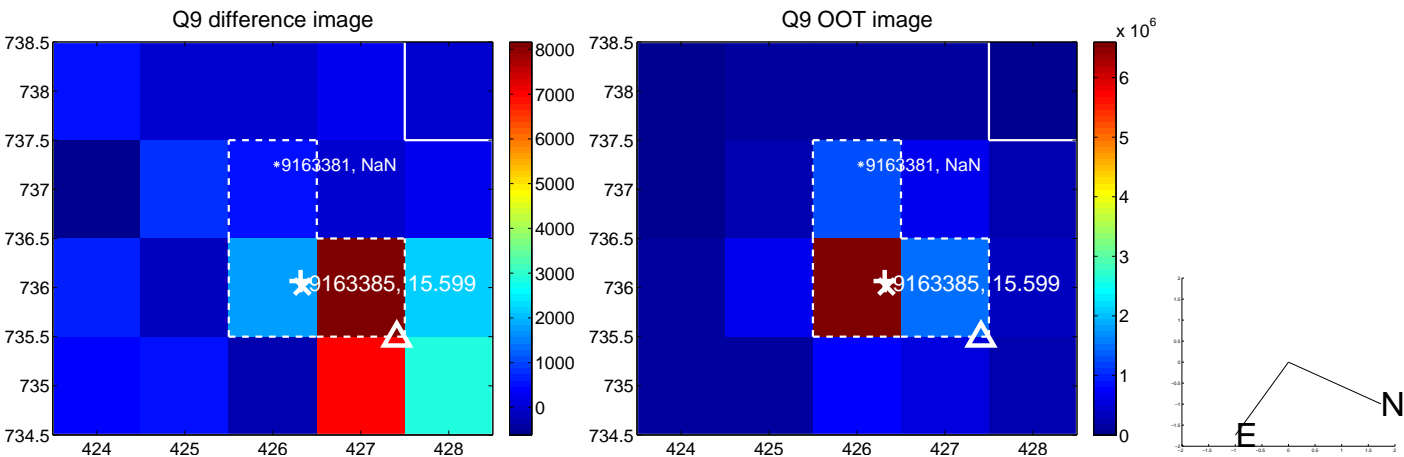




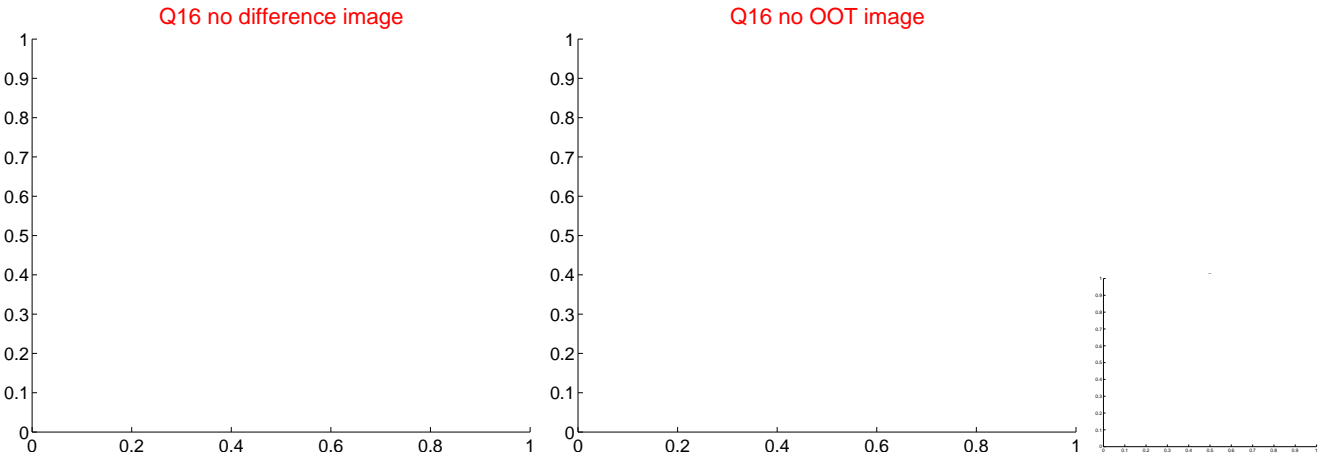
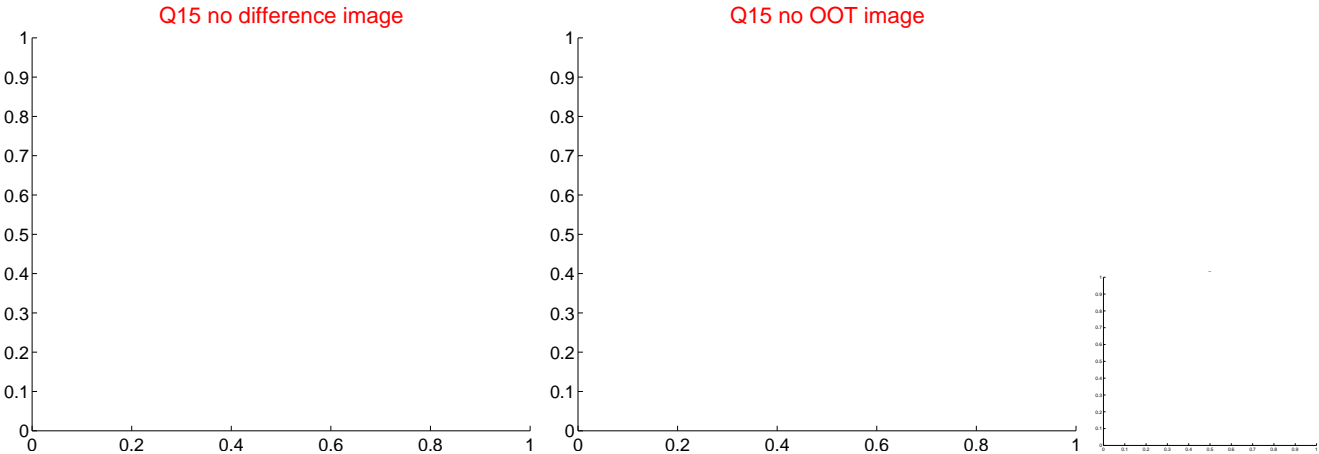
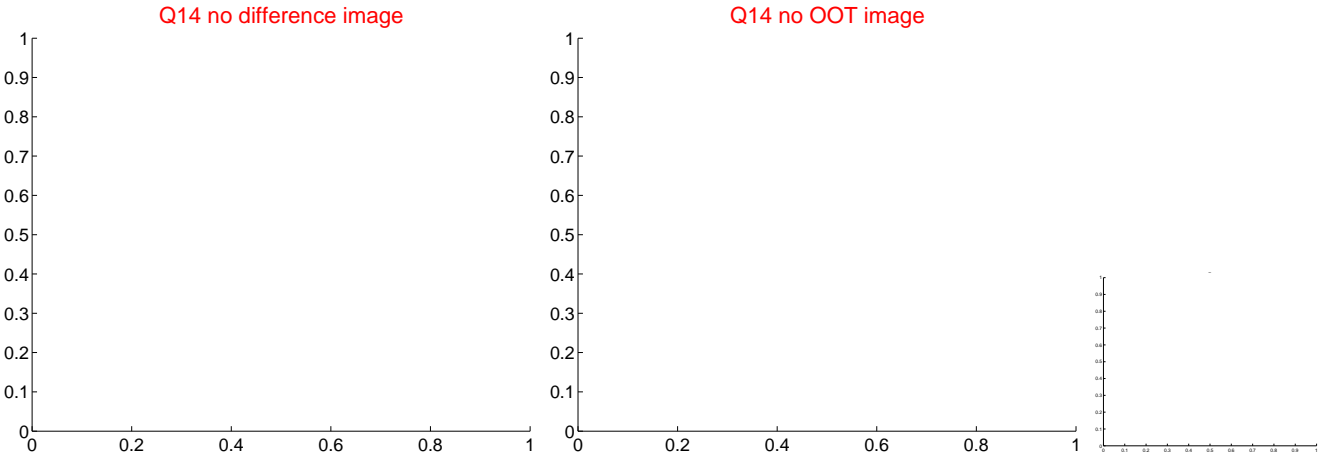
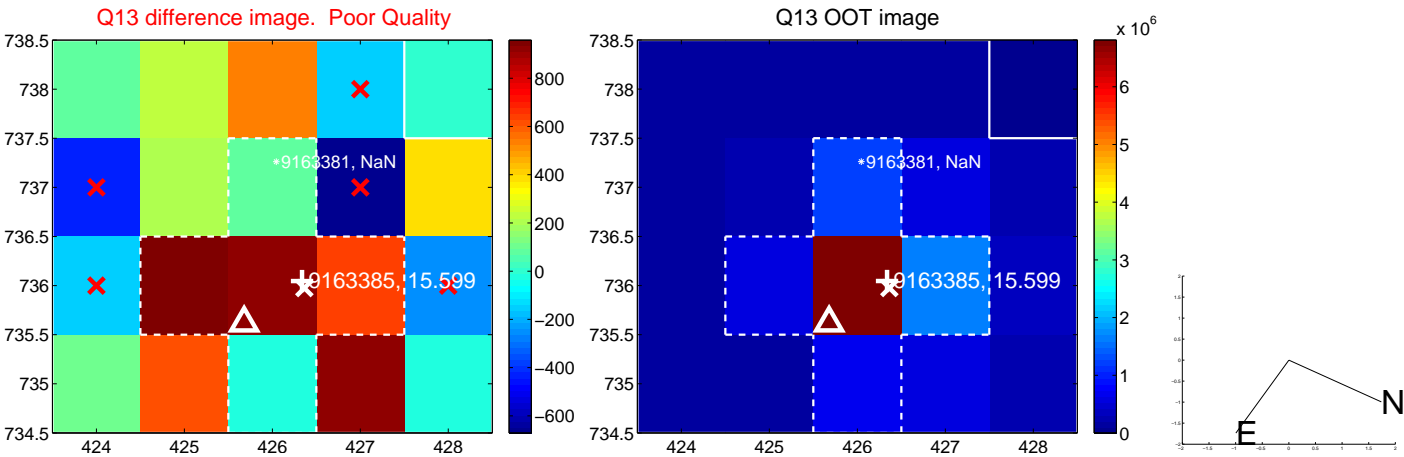
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



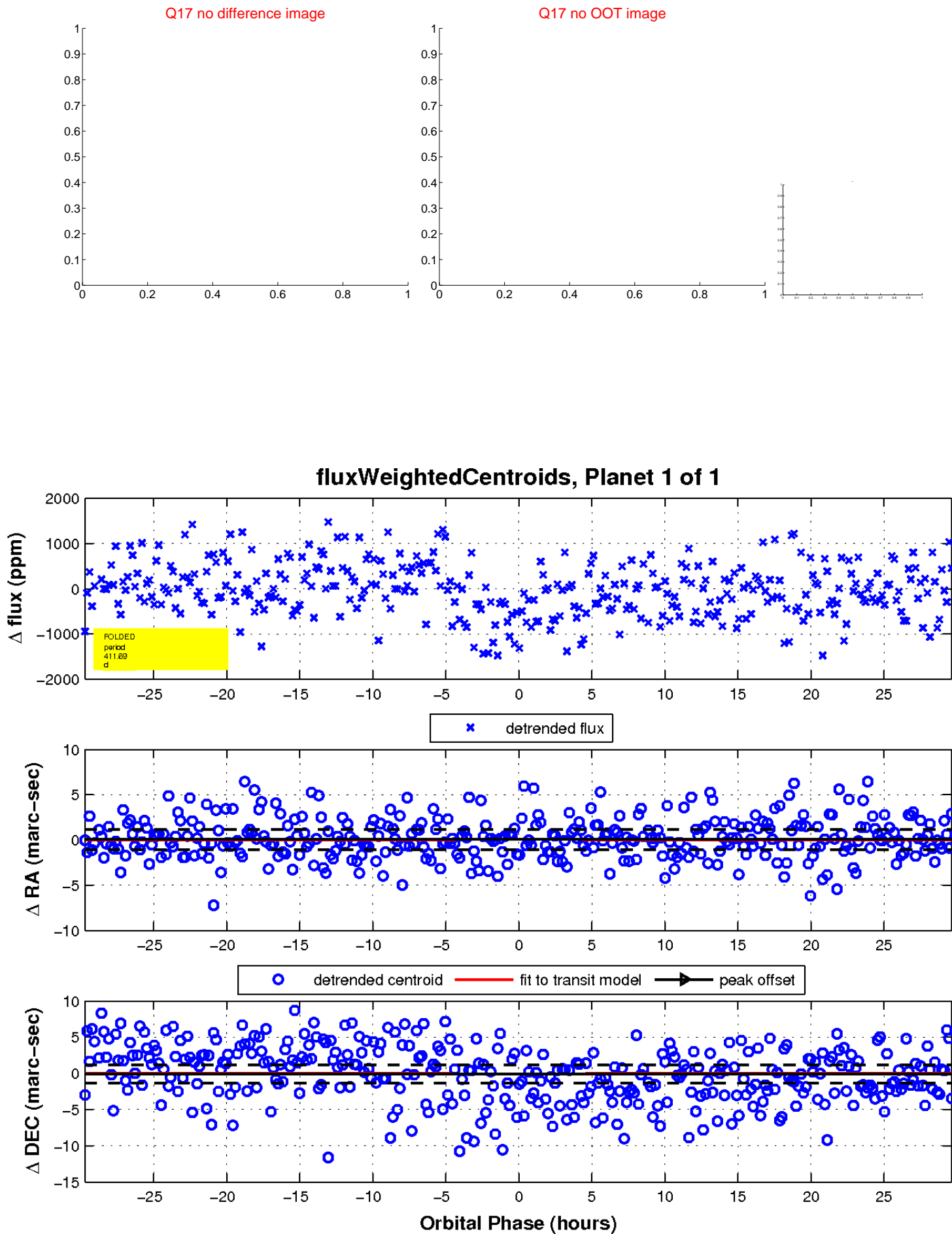
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



UKIRT Image

Declination

