

# KIC 009812351

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009812351-01	OBS	No	0.754699	131.988574	80.6	3.589	13.1	12.8	7.80	7732	8.20	0.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009812351-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED

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

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

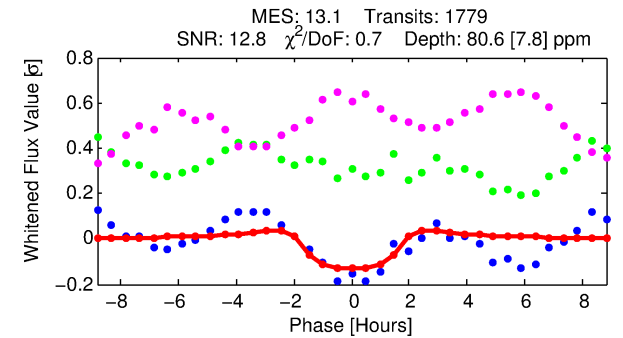
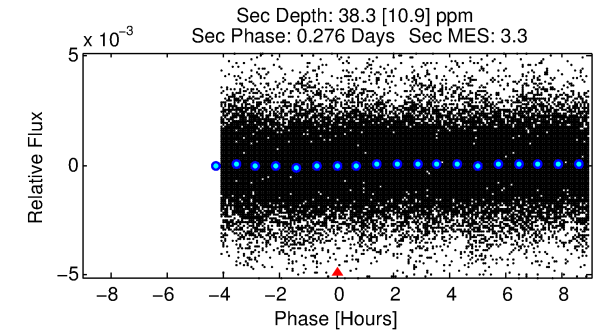
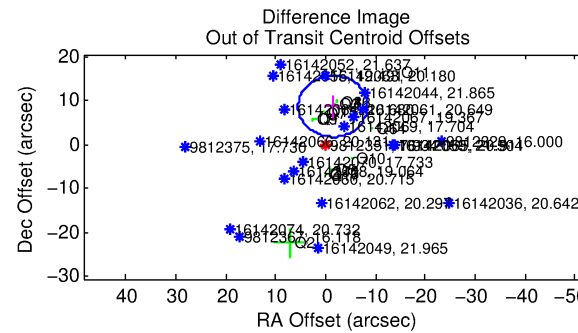
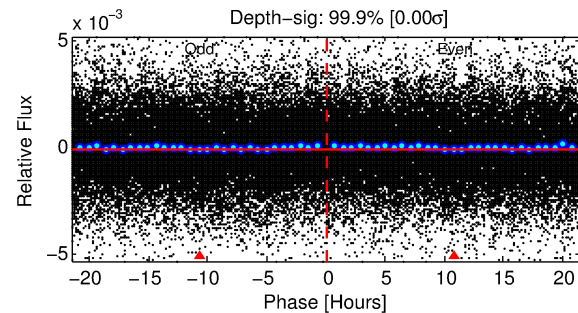
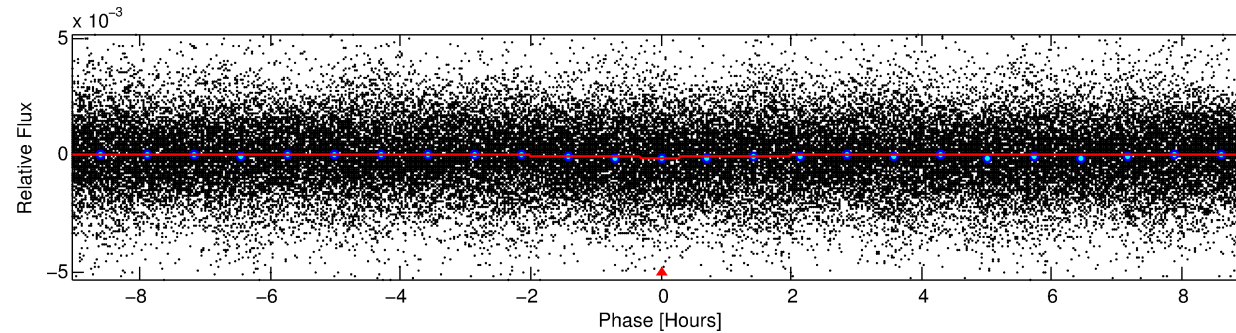
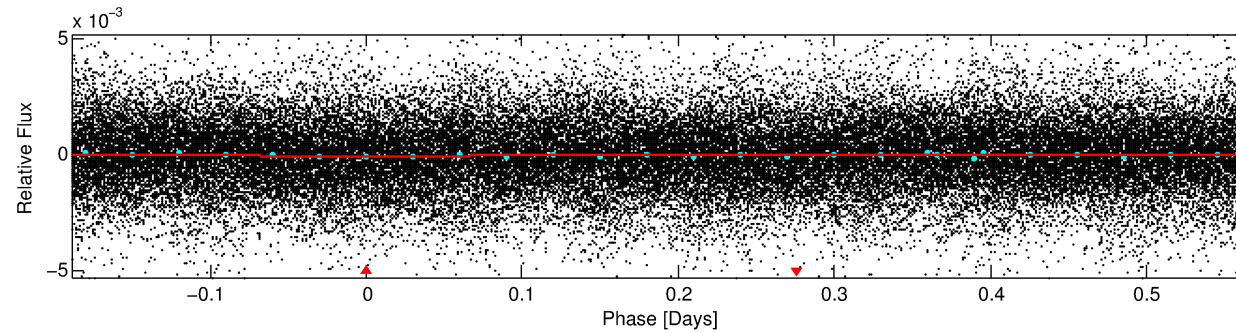
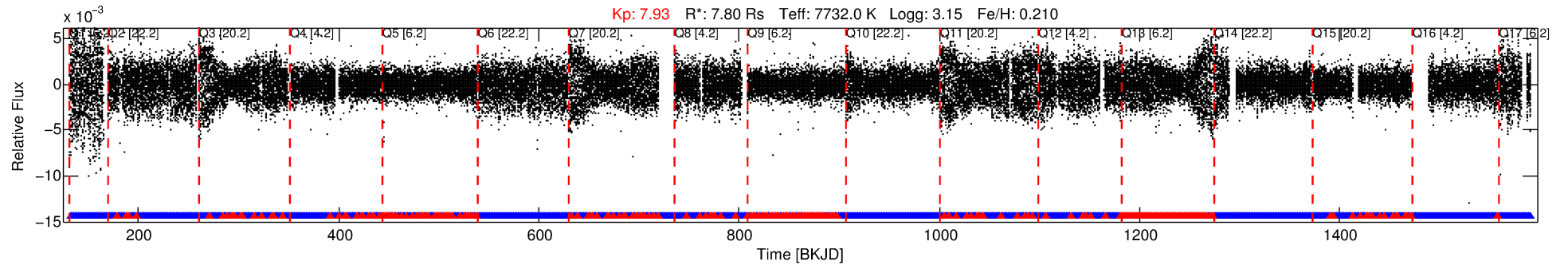
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009812351-01

No Significant Match Found

# DV One-Page Summary

KIC: 9812351 Candidate: 1 of 1 Period: 0.755 d



## DV Fit Results:

Period = 0.75470 [0.00001] d  
Epoch = 131.9886 [0.0033] BKJD  
Rp/R\* = 0.0096 [0.0065]  
a/R\* = 1.19 [1.39]  
b = 0.90 [0.85]  
Seff = N/A  
Teq = N/A  
Rp = 8.19 [6.59] Re  
a = N/A  
Ag = N/A  
Teffp = N/A

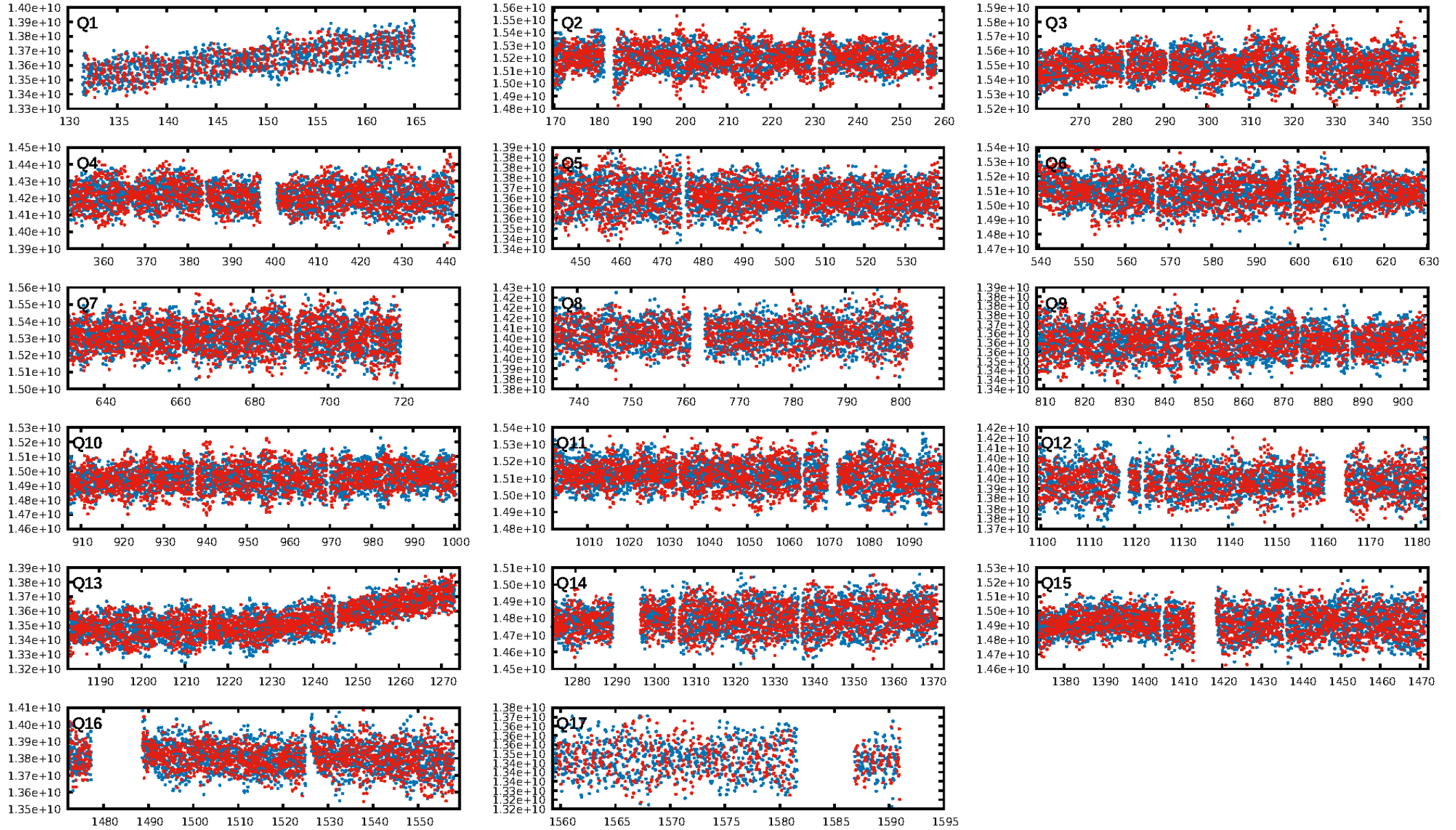
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.23e-51  
RollingBand-fgt: 0.81 [1374/1700]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 2.7%  
Centroid-so: 3.222 arcsec [3.39 $\sigma$ ]  
OotOffset-rm: 8.820 arcsec [3.82 $\sigma$ ]  
KicOffset-rm: 10.407 arcsec [4.45 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.00 [0/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:39:48 Z

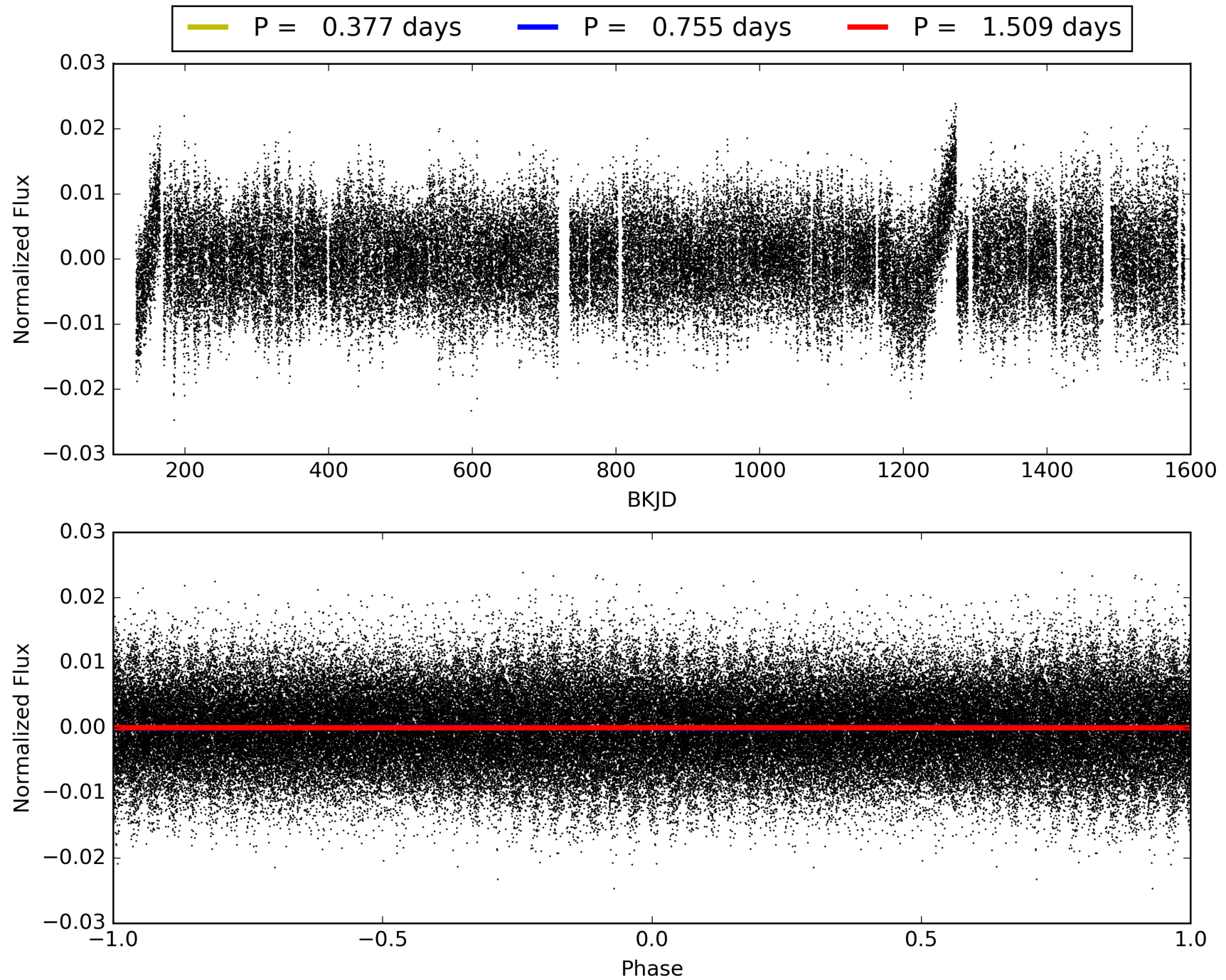
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009812351-01, PDC Light Curves



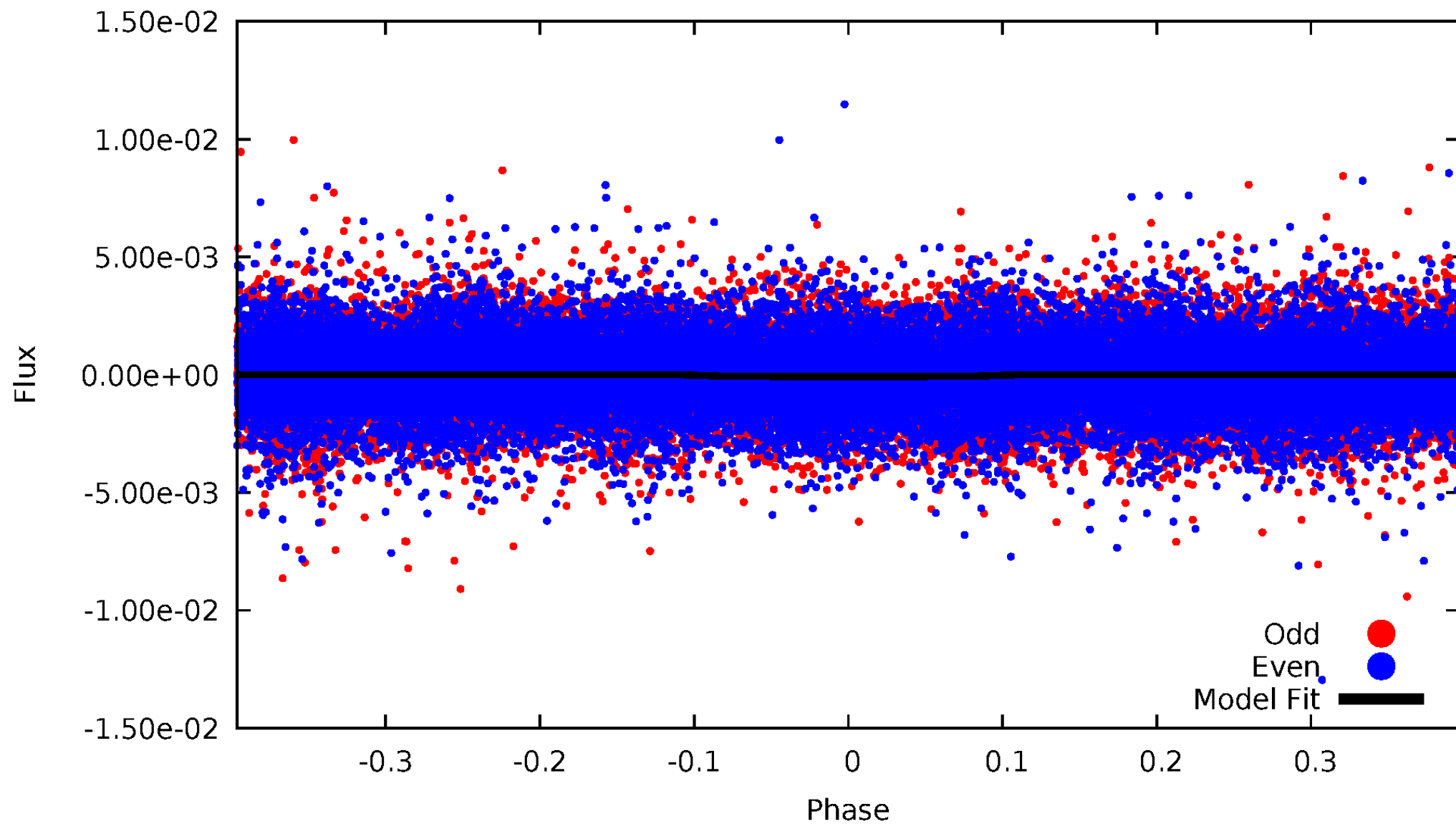


TCE 009812351-01



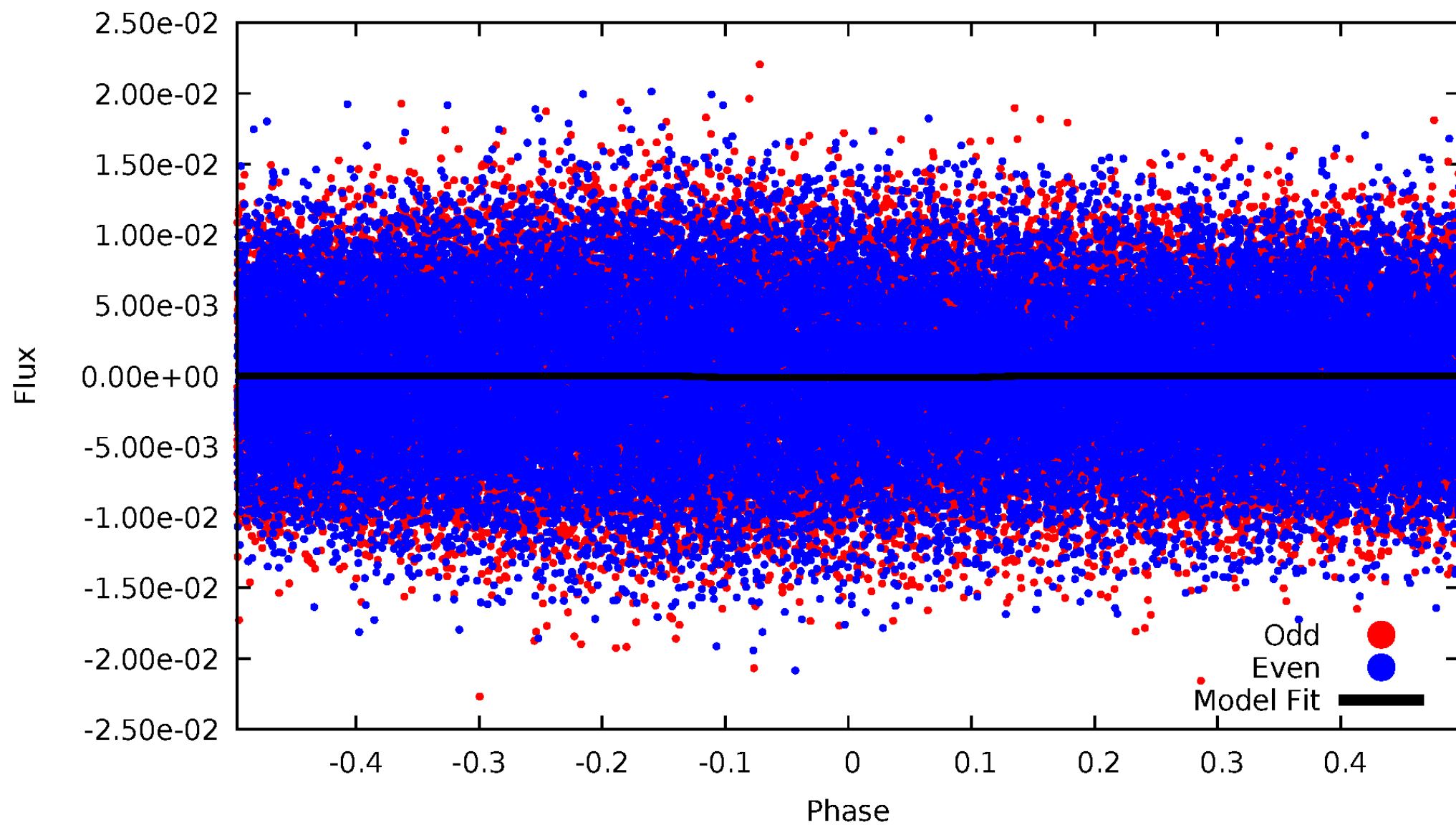
# DV Odd/Even

TCE 009812351-01

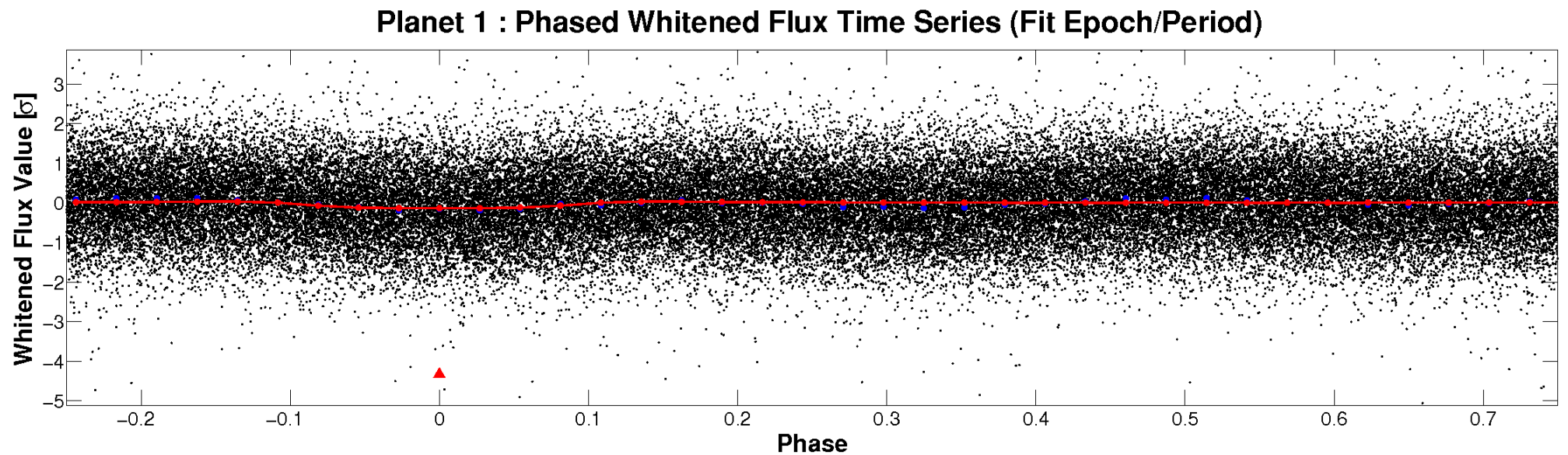
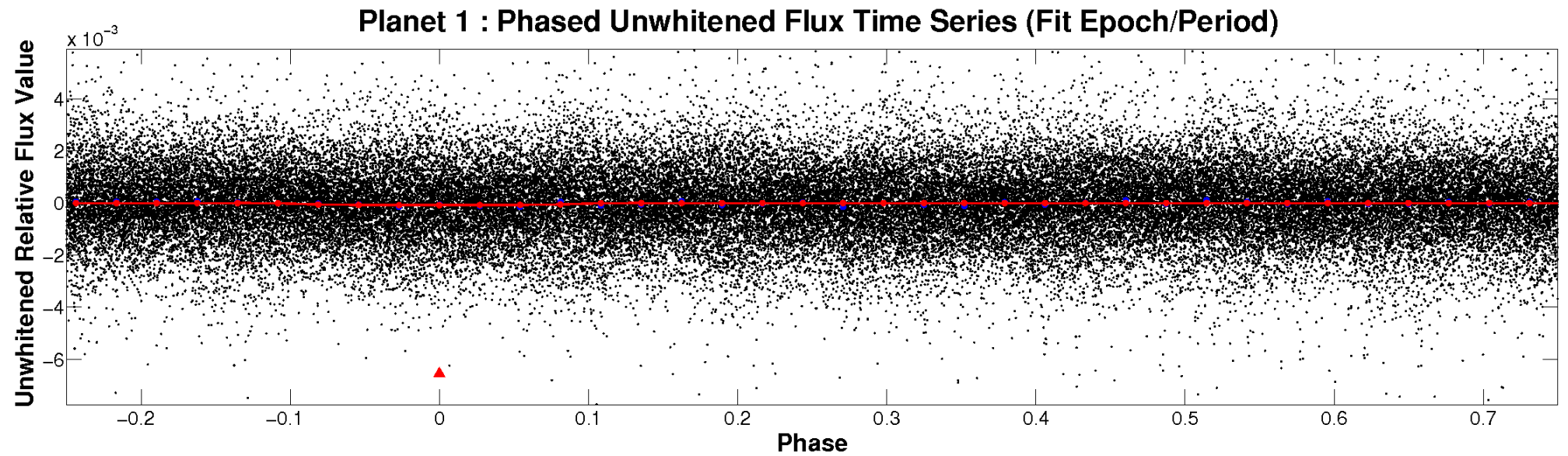


# ALT Odd/Even

TCE 009812351-01



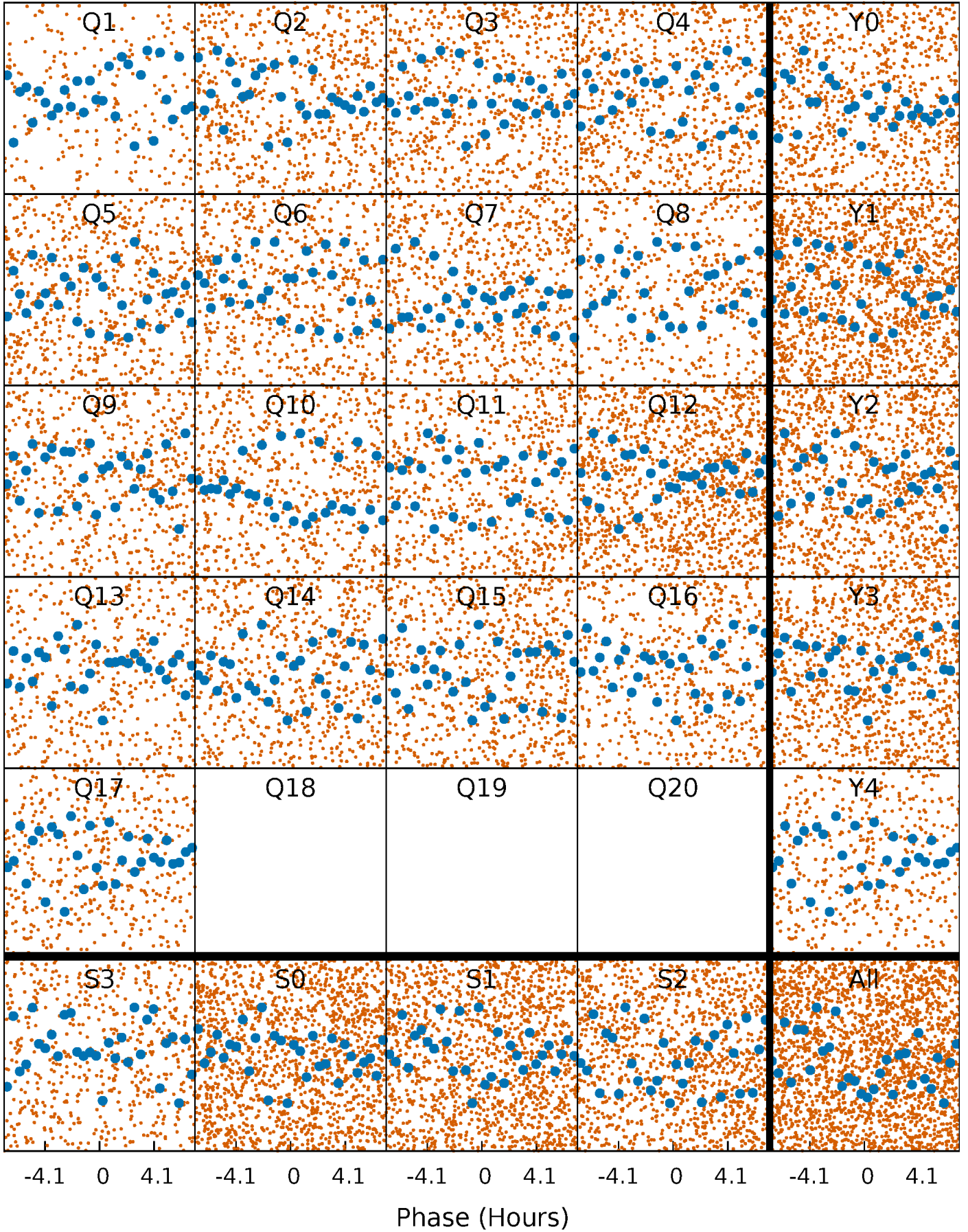
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

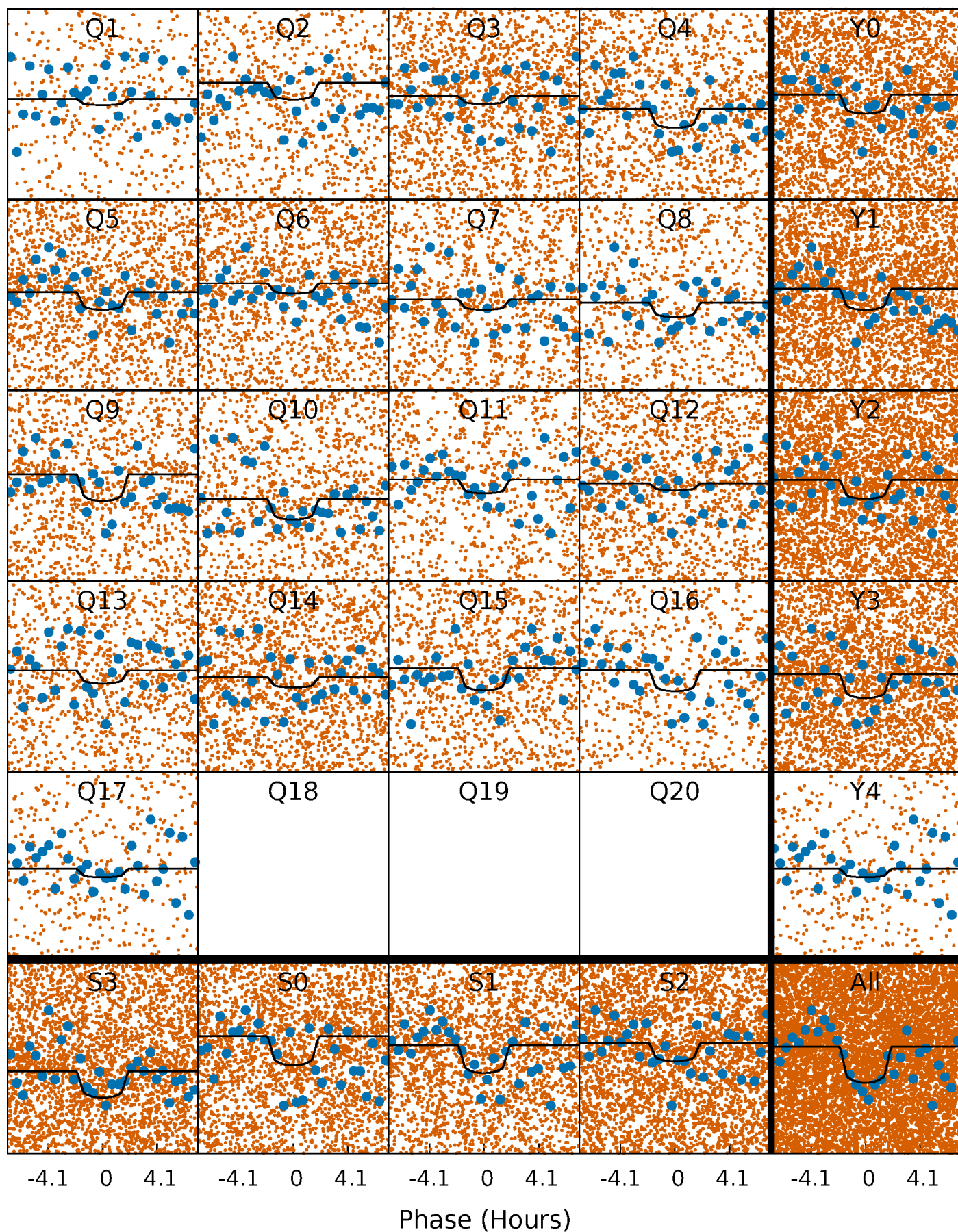
TCE 009812351-01   P= 0.754699 Days    $T_0=131.988574$  (BKJD)





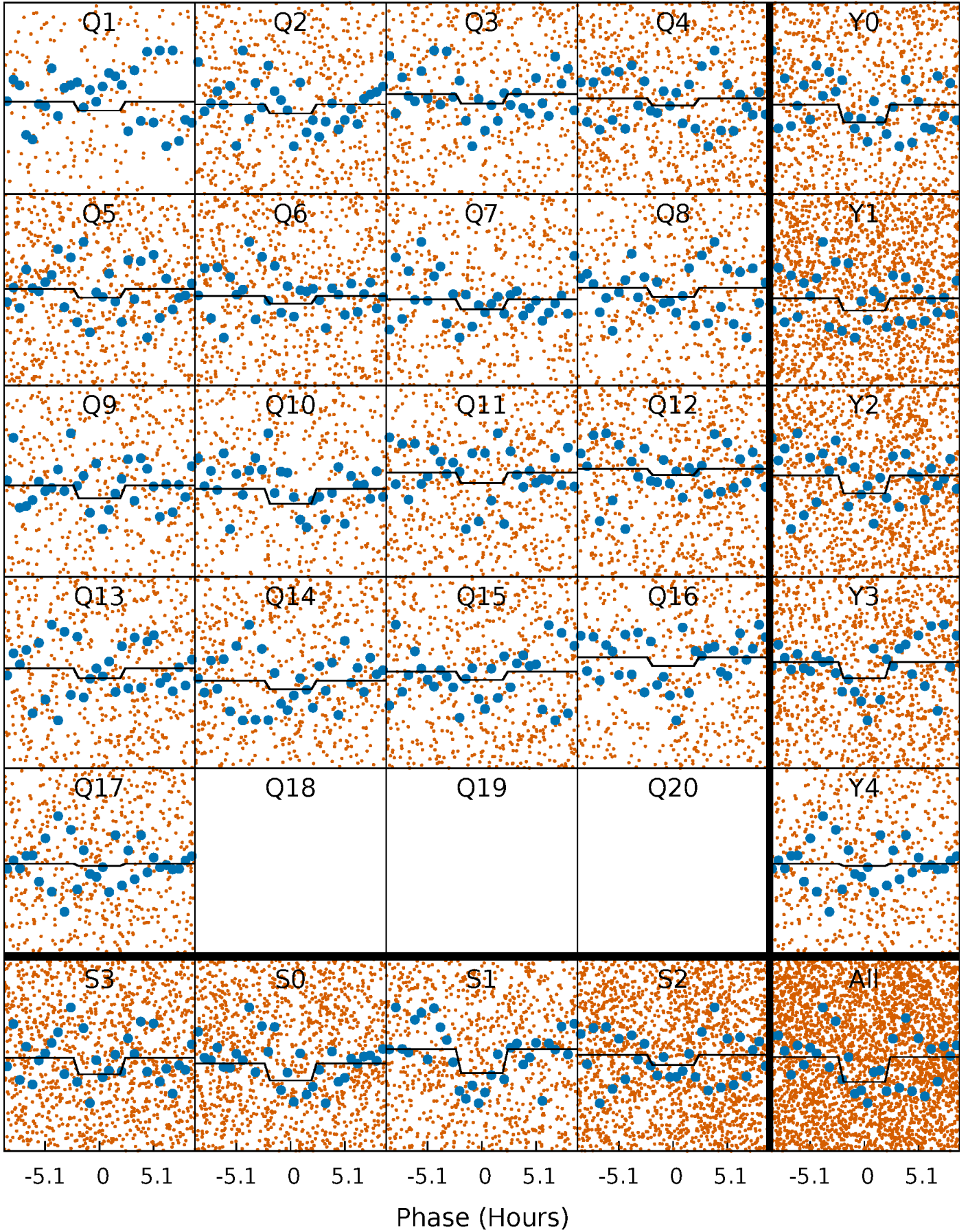
# DV Quarter-Phased Transit Curves

TCE 009812351-01   P= 0.754699 Days    $T_0=131.988574$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

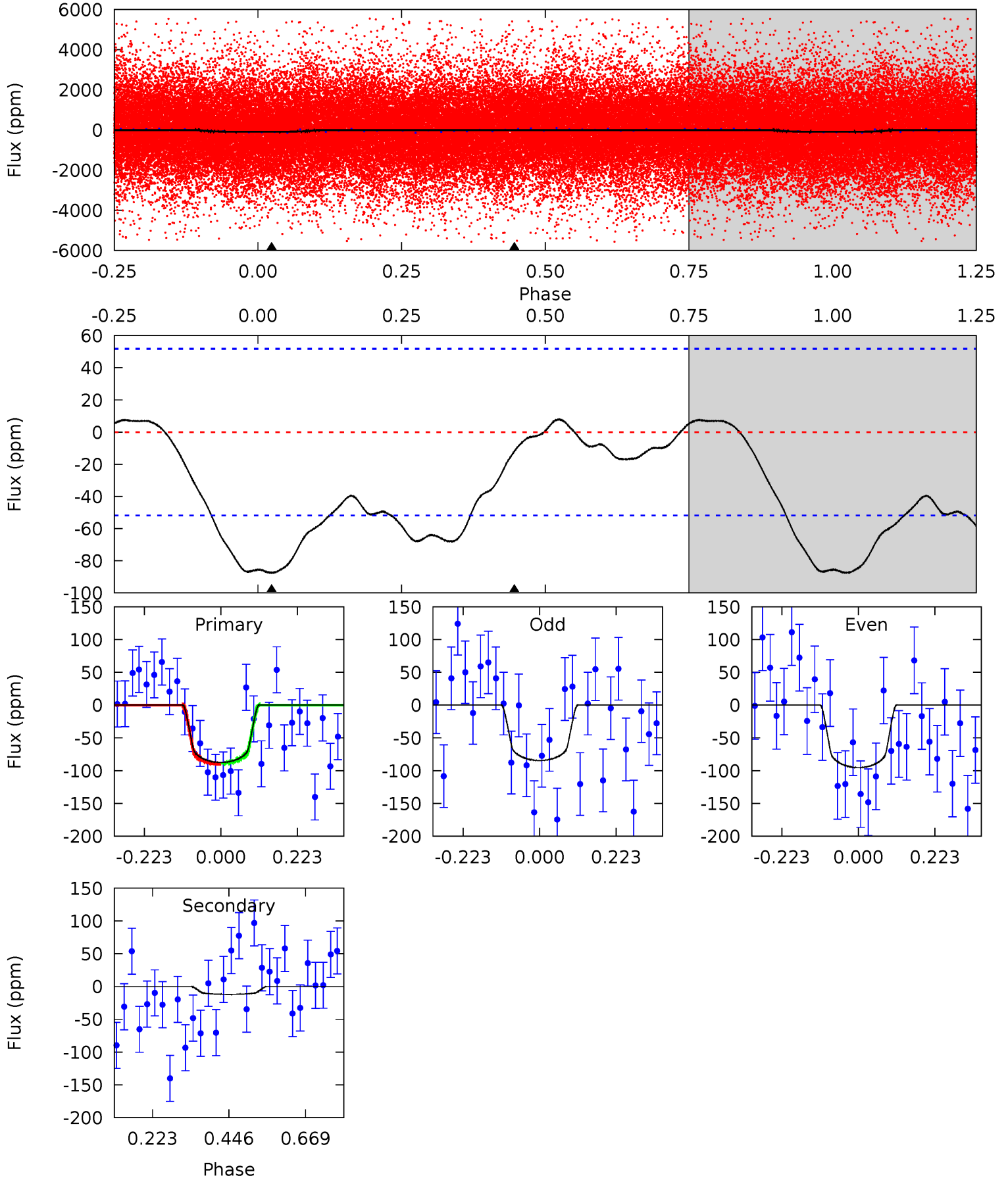
TCE 009812351-01 P= 0.754709 Days  $T_0=131.992023$  (BKJD)



# DV Model-Shift Uniqueness Test

009812351-01, P = 0.754699 Days, E = 131.233875 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
7.41	1.02	0	0	4.39	1.22	0.65	7.41	7.41	1.02	1.02	0.46	1.00	0.08	0.07

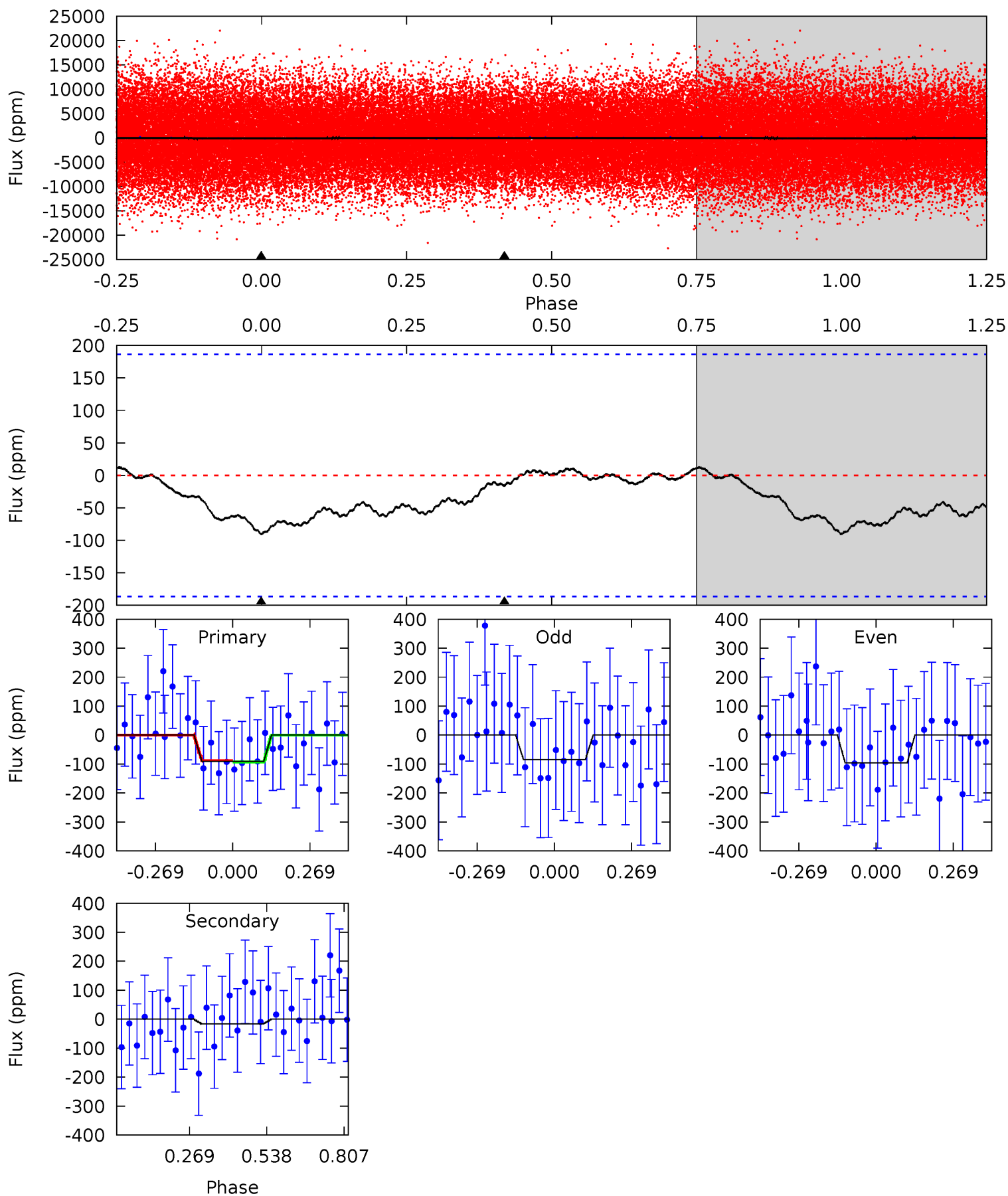




# Alt Model-Shift Uniqueness Test

009812351-01, P = 0.754709 Days, E = 131.237314 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
2.11	0.38	0	0	4.35	1.11	0.13	2.11	2.11	0.38	0.38	0.14	1.14	0.12	0.06





### Stellar Parameters For KIC 009812351

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7732^{+560}_{-841}$	$3.148^{+0.408}_{-0.072}$	$0.210^{+0.200}_{-0.100}$	$7.800^{+0.854}_{-3.415}$	$3.115^{+0.201}_{-0.802}$	$0.009^{+0.031}_{-0.003}$
	+7%/-11%	+13%/-2%	+95%/-48%	+11%/-44%	+6%/-26%	+339%/-31%
Source	SPE4	SPE4	SPE4	DSEP		

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

### Secondary Eclipse Parameters for KIC 009812351-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-12 \pm 12$	$7.73^{+5.03}_{-4.38}$	$8212^{+891}_{-1163}$	$-6131^{+9765}_{-955}$	$0.048^{+0.274}_{-0.047}$
Alt.	$-16 \pm 43$	$7.32^{+5.14}_{-4.17}$	$8196^{+983}_{-1180}$	$-5996^{+12166}_{-1898}$	$0.060^{+0.537}_{-0.239}$

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

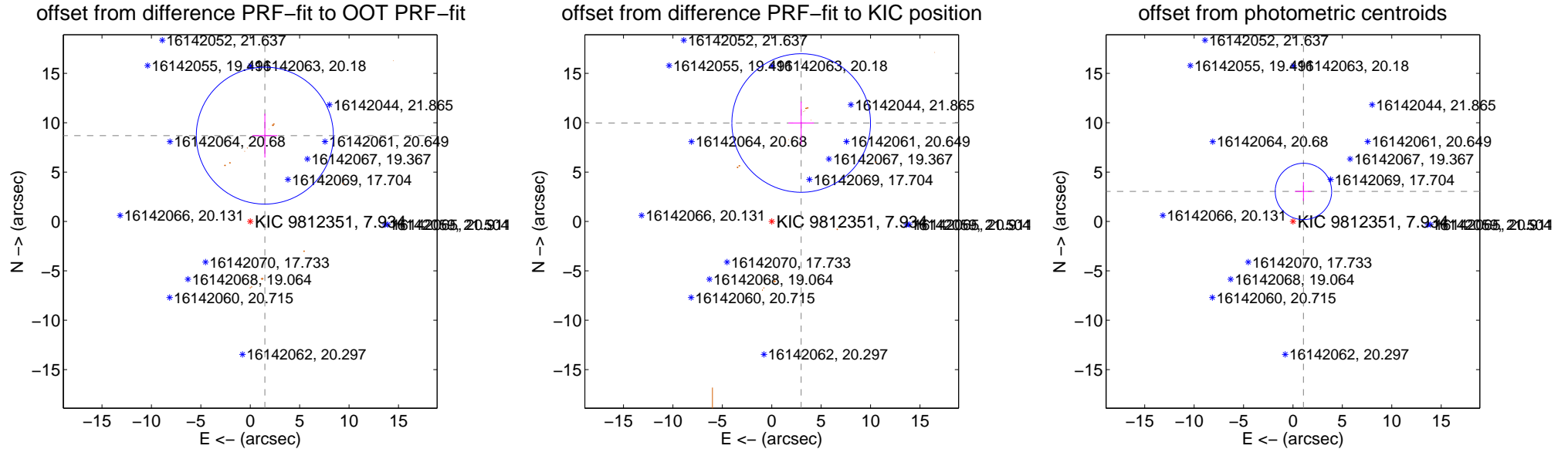
## DV Centroid Data

Supplemental centroid analysis for 009812351-01. **Kepler magnitude: 7.93.** Transit SNR 12.79

**There are 0 quarters with good PRF difference image offsets**

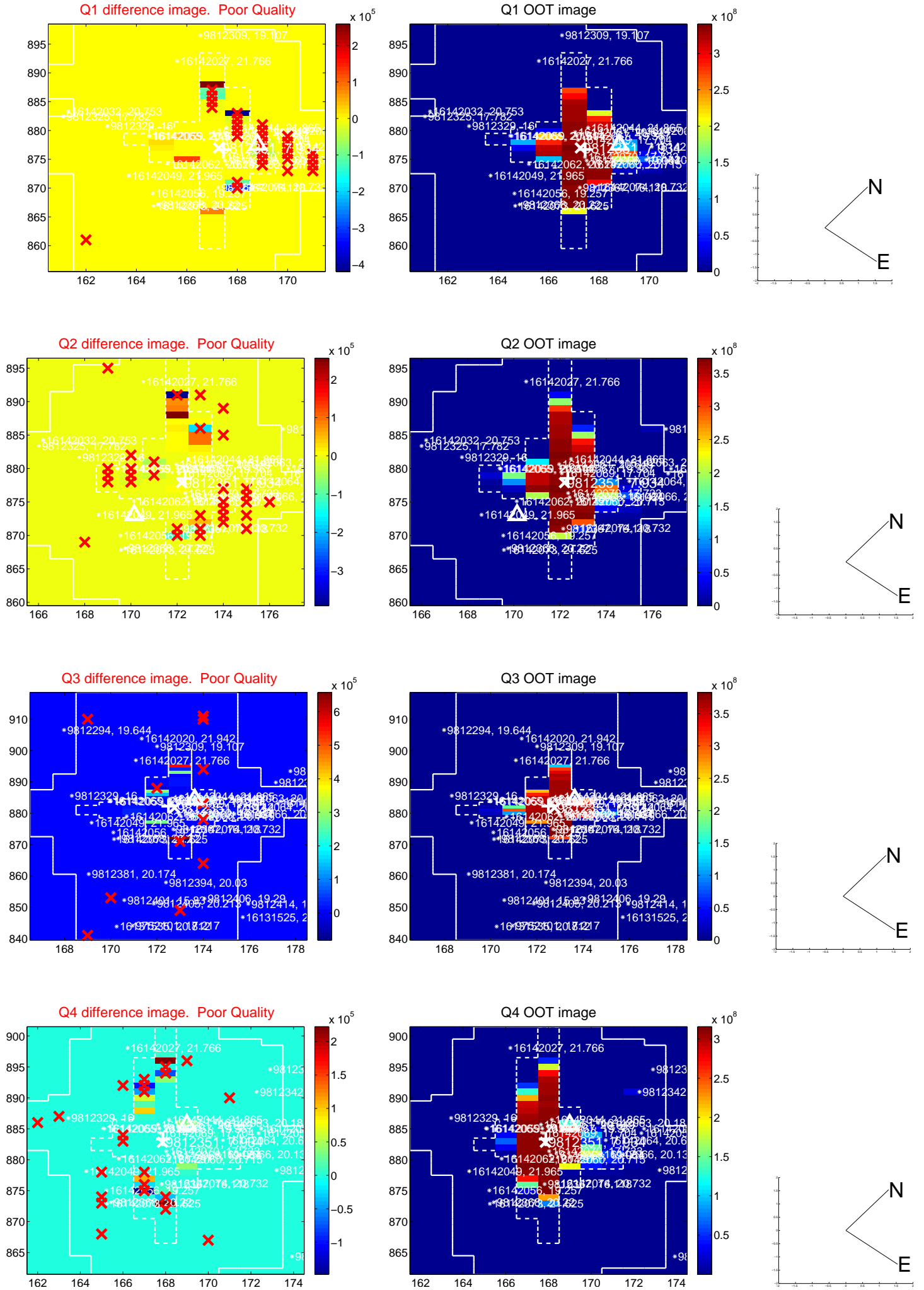
The direct PRF centroid is offset from the target star catalog position by about 0.97 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>8.820 \pm 2.311</math></b>	<b>3.82</b>	$-1.477 \pm 1.266$	$8.695 \pm 2.221$
PRF-fit source offset from KIC position	<b><math>10.407 \pm 2.338</math></b>	<b>4.45</b>	$-2.979 \pm 1.293$	$9.972 \pm 2.175$
photometric centroid source offset	<b><math>3.22 \pm 0.95</math></b>	<b>3.39</b>	$-1.06 \pm 0.85$	$3.04 \pm 0.96$

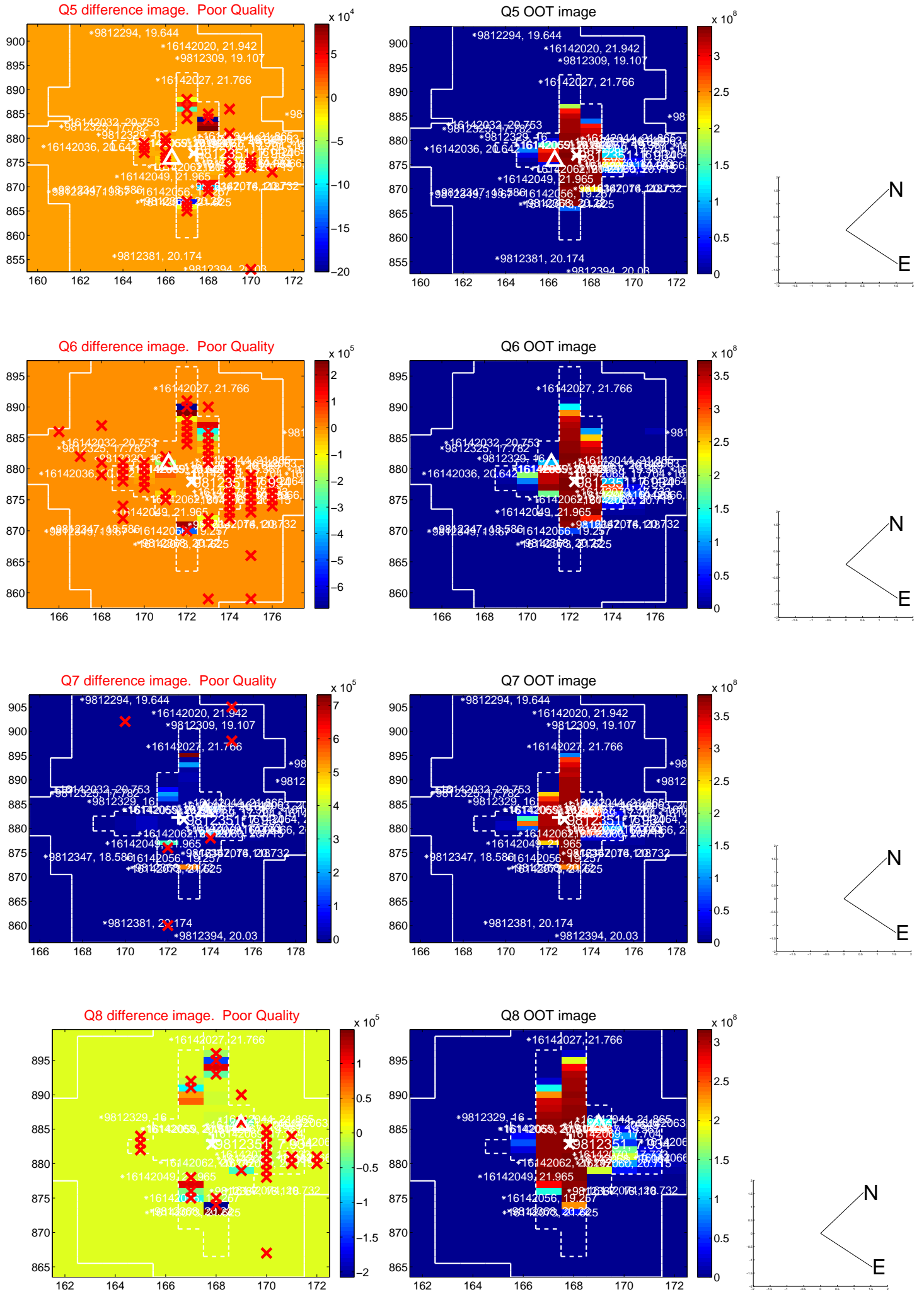


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

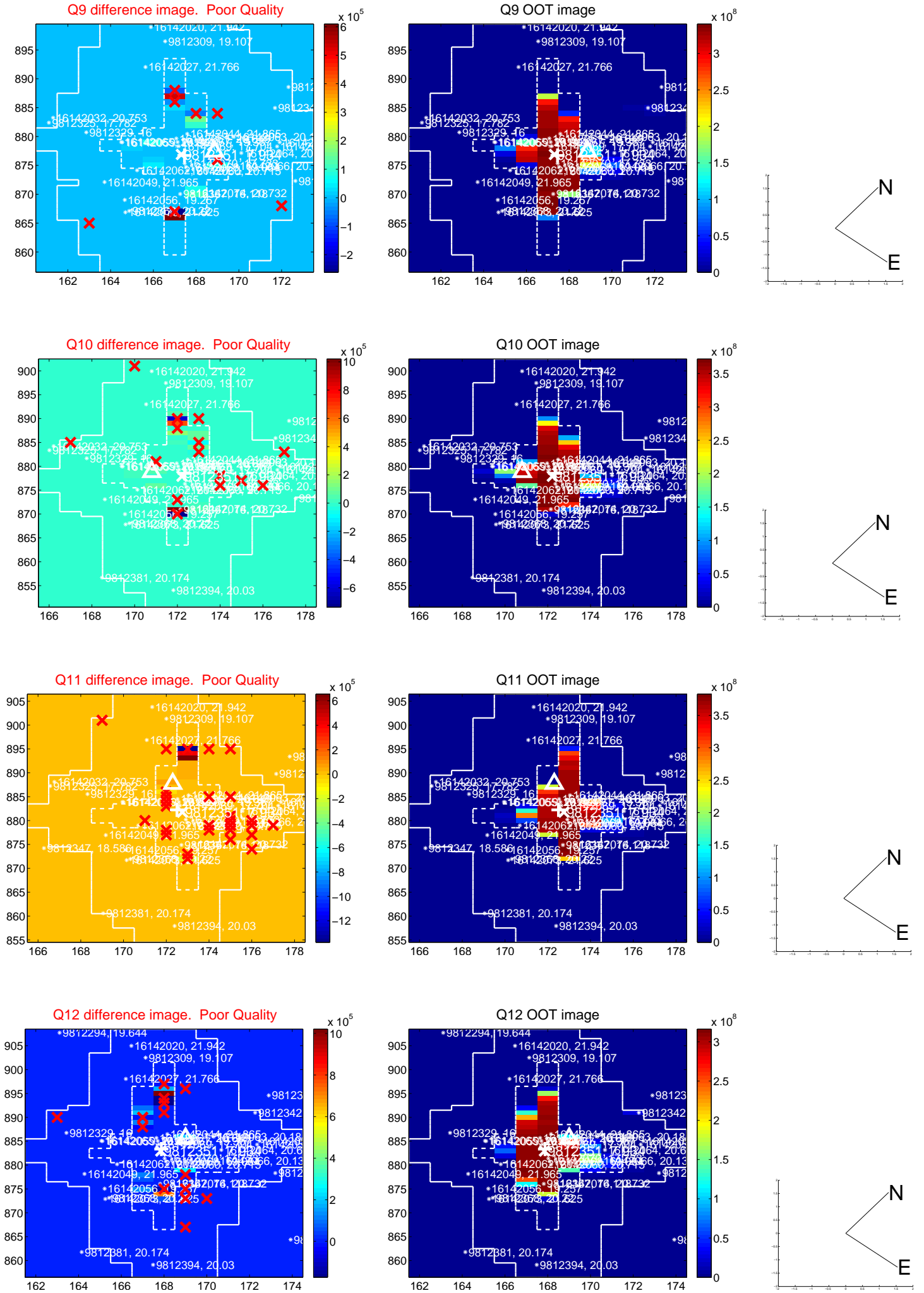


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

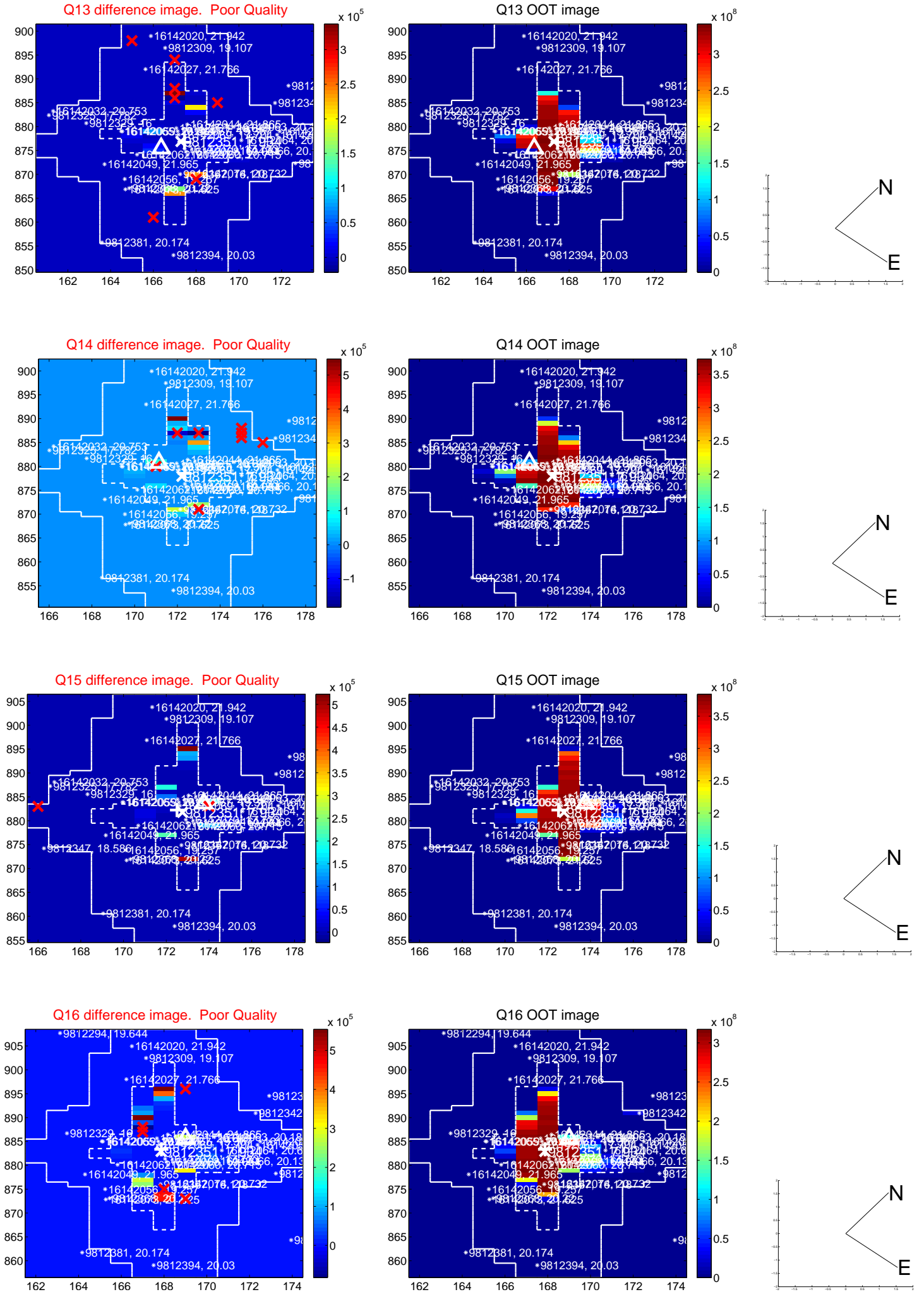




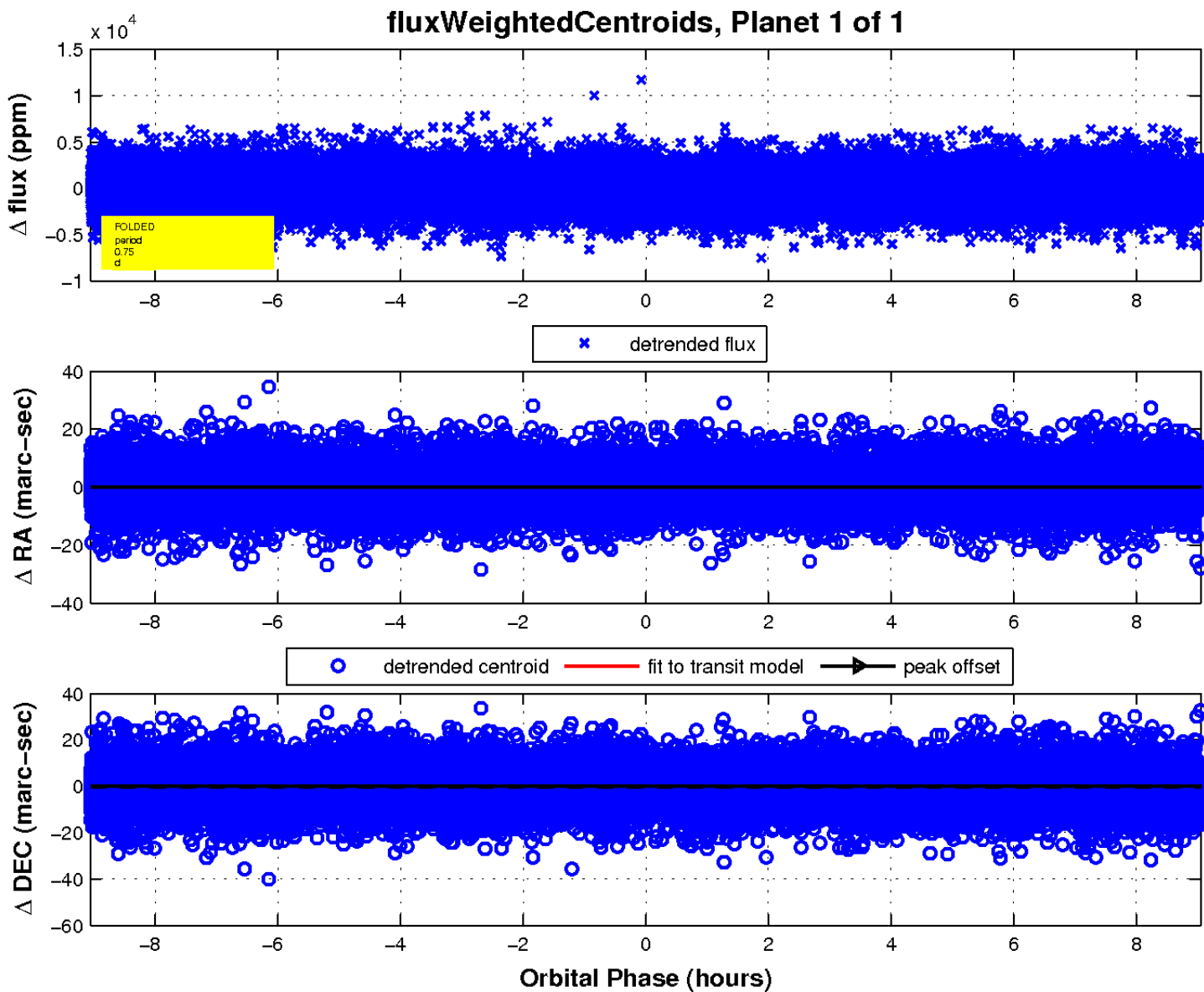
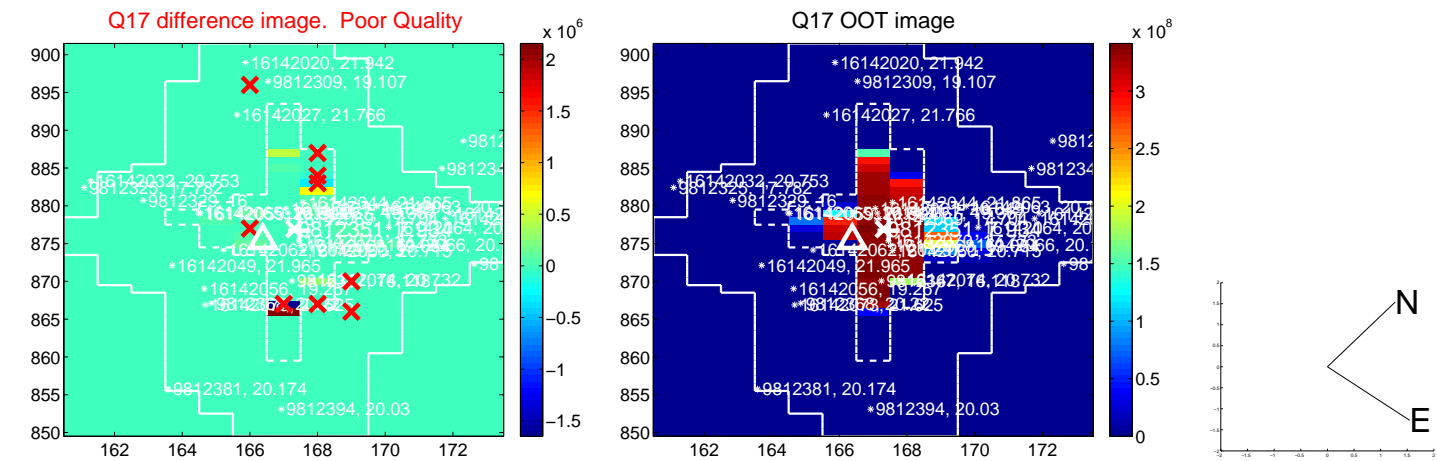
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UKIRT Image

