

# KIC 005653152

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005653152-01	OBS	5189.01	3.589578	132.993189	845.9	4.065	42.5	39.5	0.75	4608	3.01	131.03
005653152-02	OBS	No	3.589561	134.793632	305.5	3.574	15.1	15.5	0.75	4608	1.80	131.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005653152-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
005653152-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_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 005653152-01

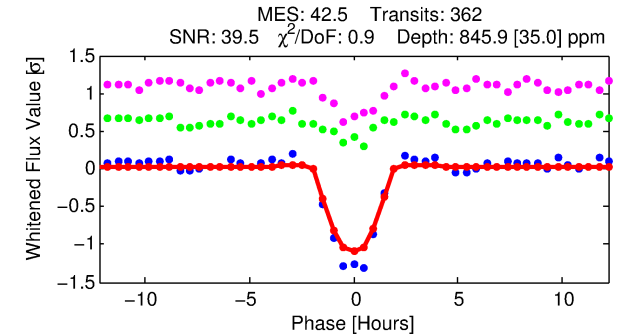
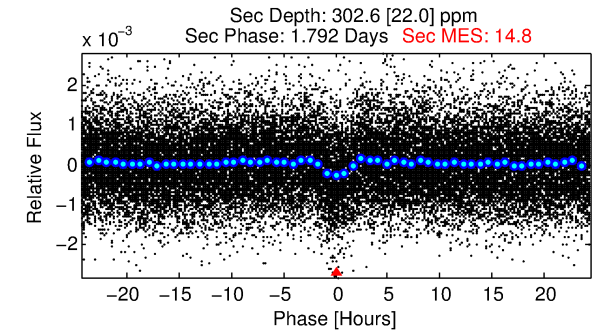
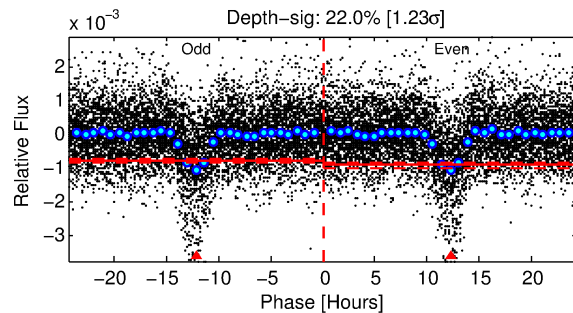
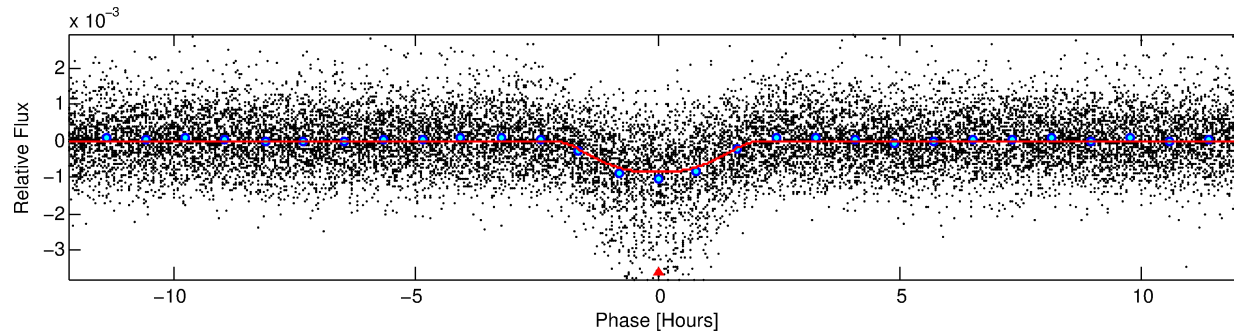
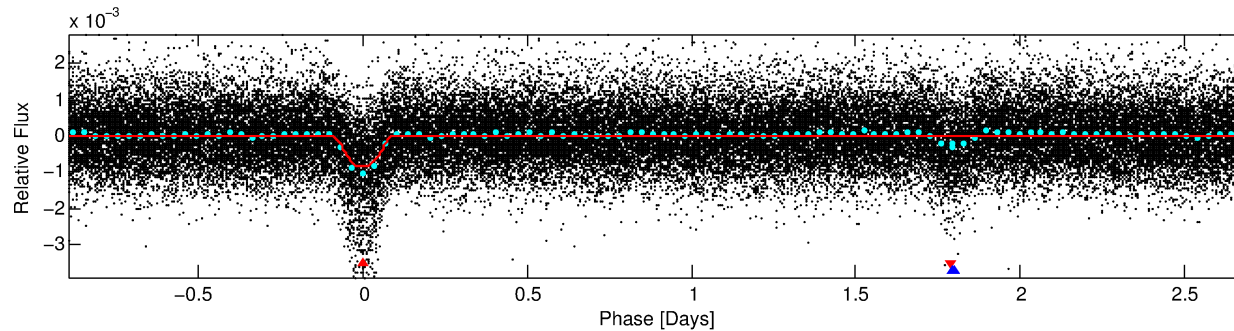
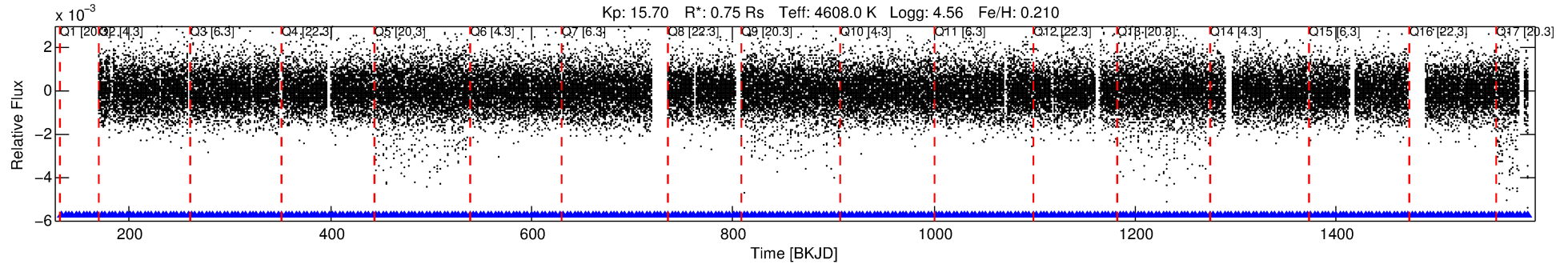
No Significant Match Found

# DV One-Page Summary

KIC: 5653152 Candidate: 1 of 2 Period: 3.590 d

KOI: K05189.01 Corr: 0.914

Kp: 15.70 R\*: 0.75 Rs Teff: 4608.0 K Logg: 4.56 Fe/H: 0.210



## DV Fit Results:

Period = 3.58958 [0.00001] d  
Epoch = 132.9932 [0.0022] BKJD  
Rp/R\* = 0.0369 [0.0014]  
a/R\* = 2.82 [0.16]  
b = 0.96 [0.01]  
Seff = 131.03 [21.09]  
Teff = 863 [35] K  
Rp = 3.01 [0.27] Re  
a = 0.0414 [0.0030] AU  
Ag = 31.60 [4.72] [6.49σ]  
Teffp = 3163 [125] K [17.70σ]

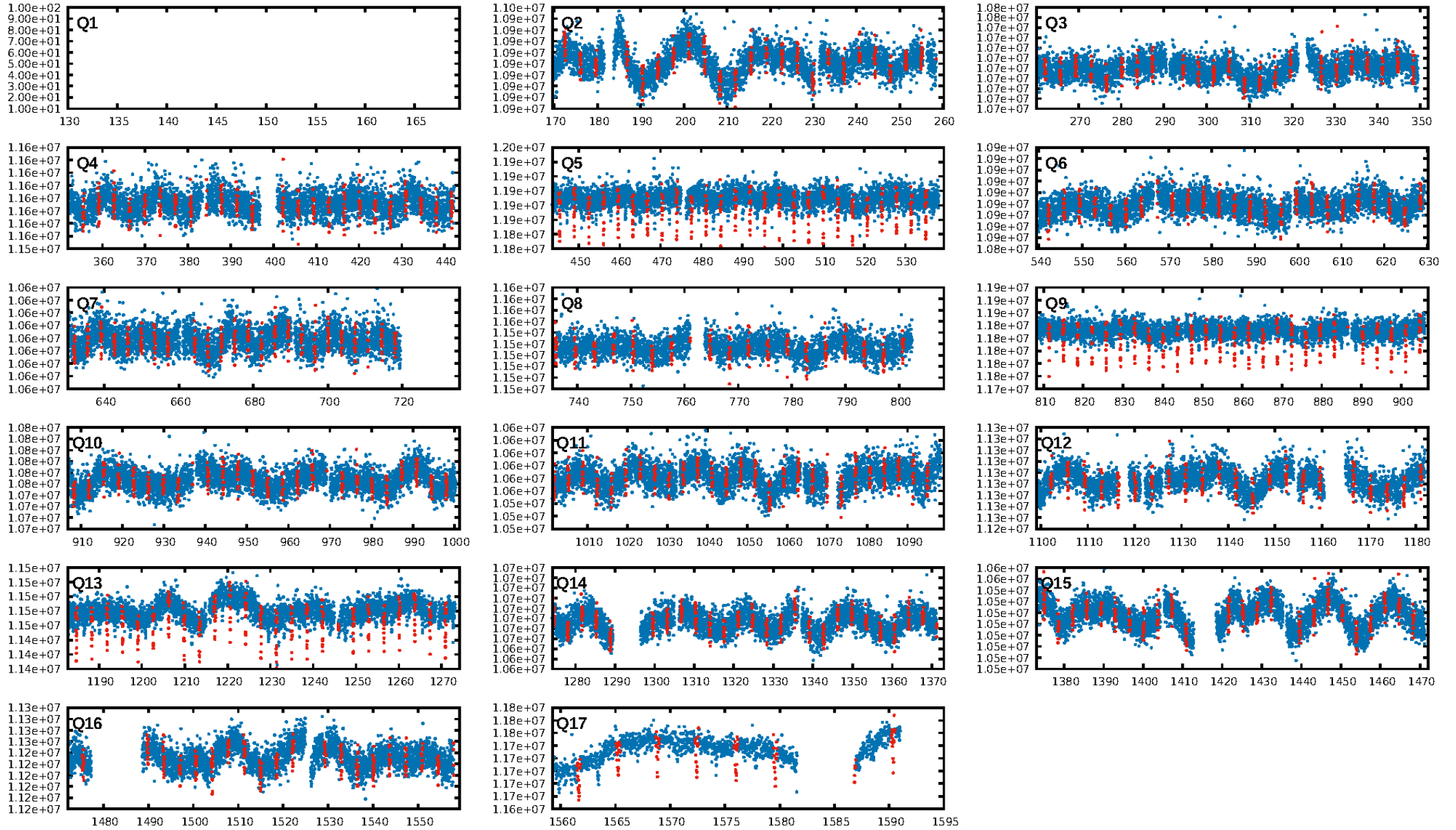
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [354/354]  
GhostDiagnostic-chr: -0.2329  
Centroid-sig: 0.0%  
Centroid-so: 76.063 arcsec [191.12σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [16/16]

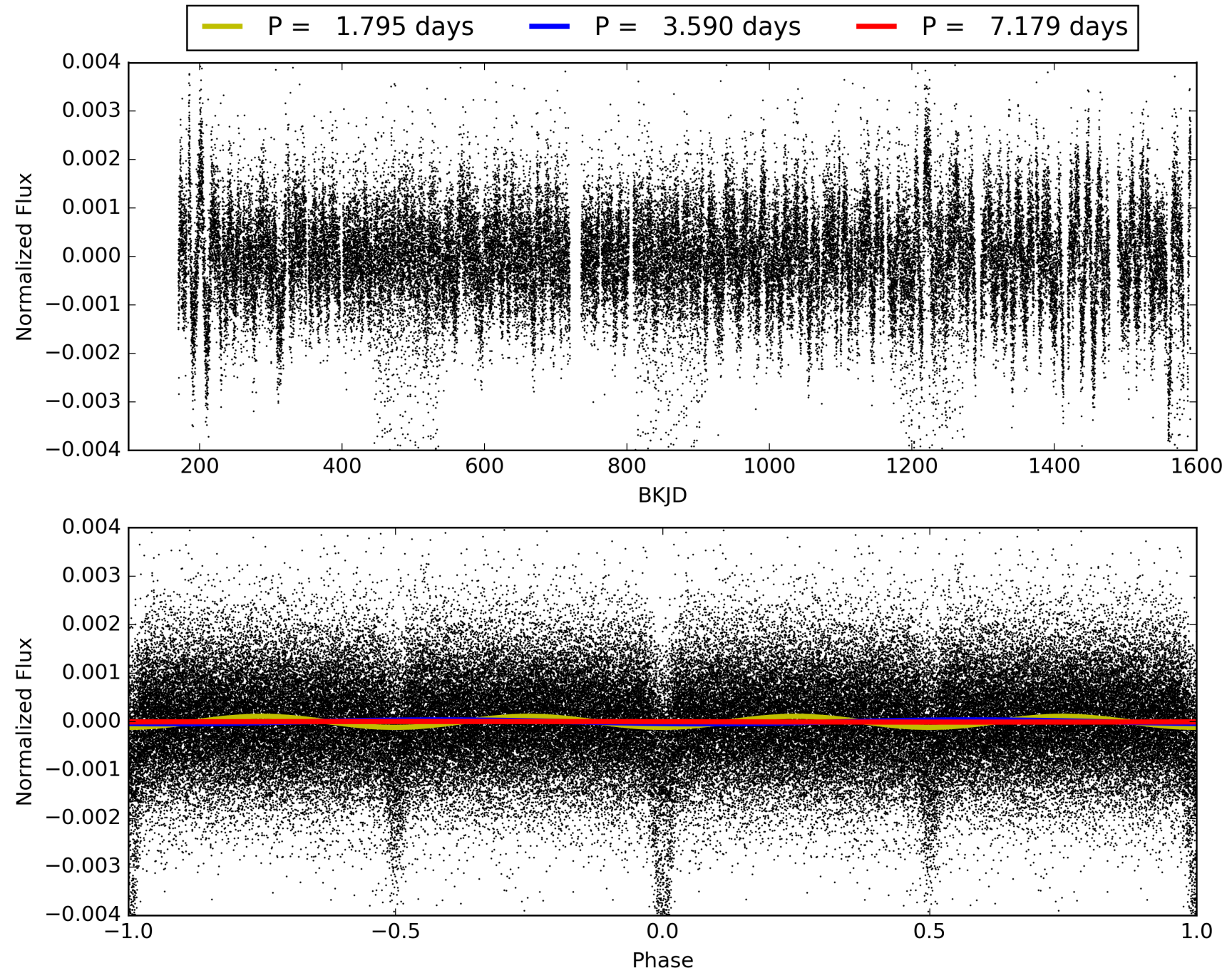
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:40:32 Z

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

# TCE 005653152-01, PDC Light Curves



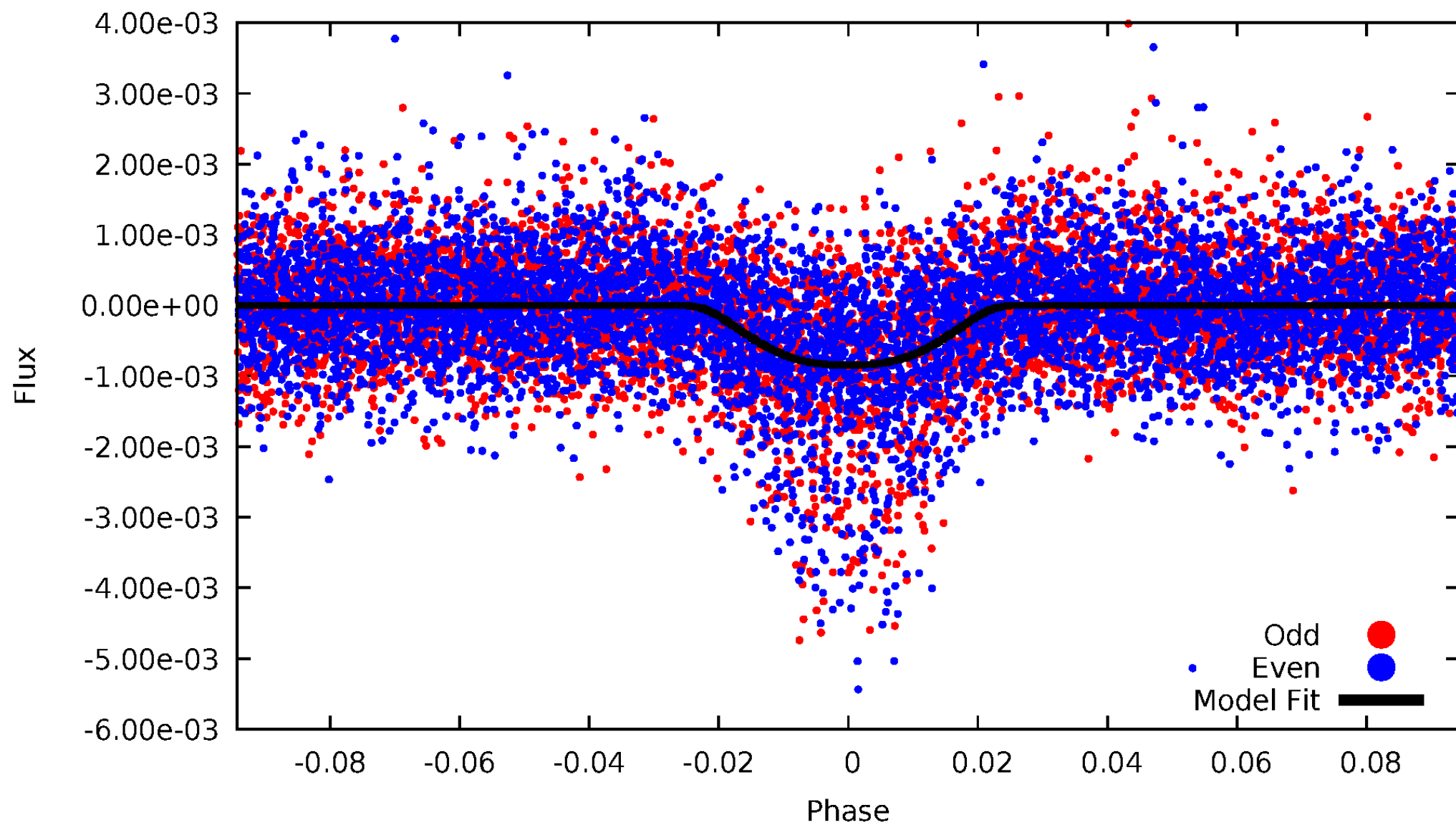
TCE 005653152-01





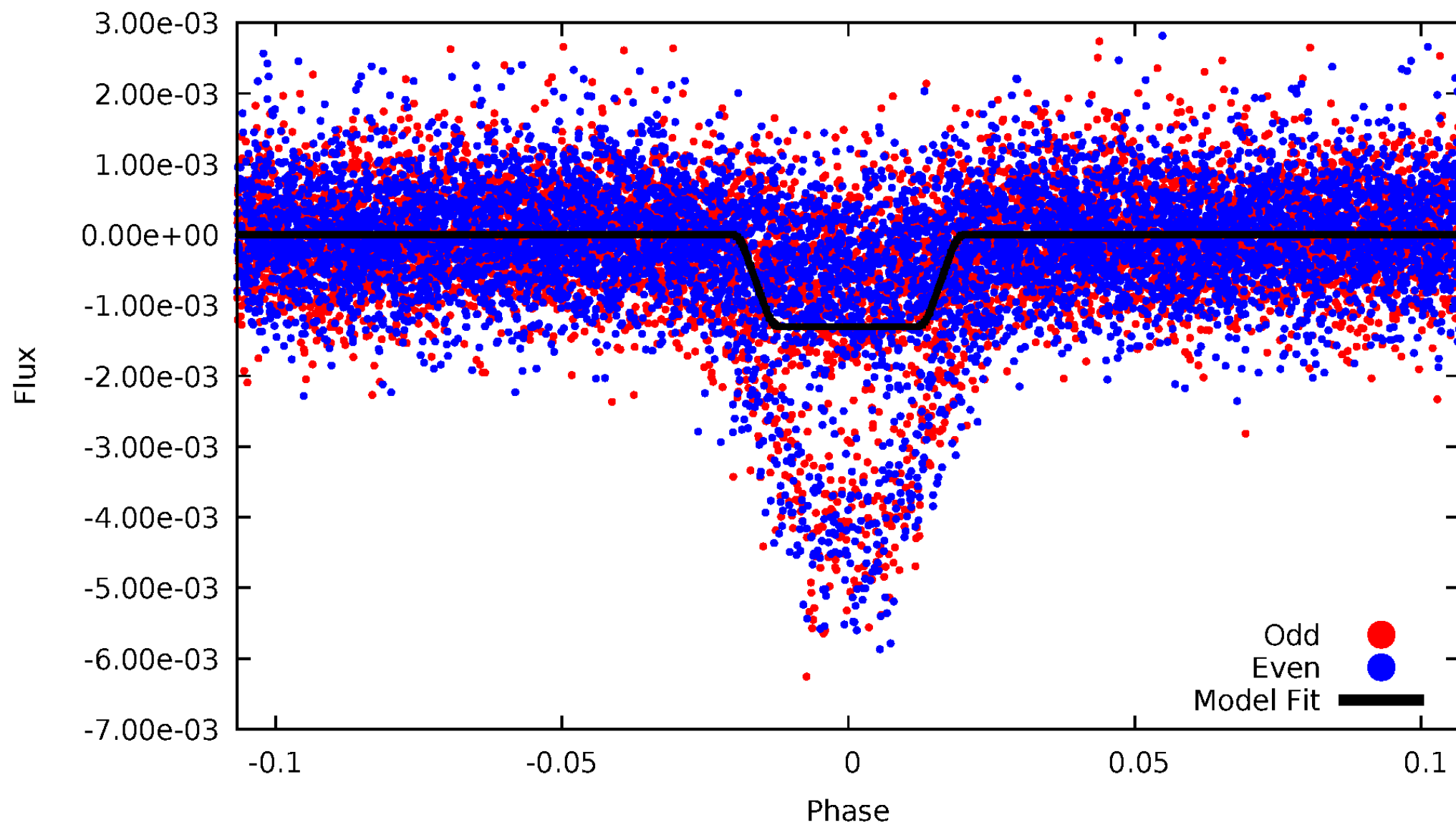
# DV Odd/Even

TCE 005653152-01

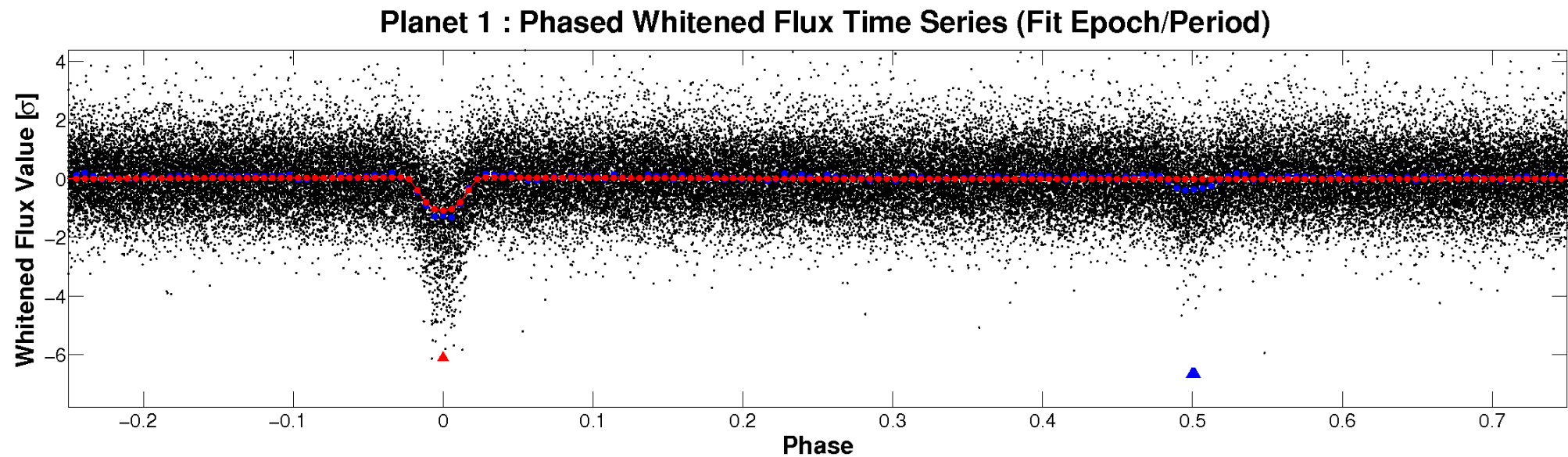
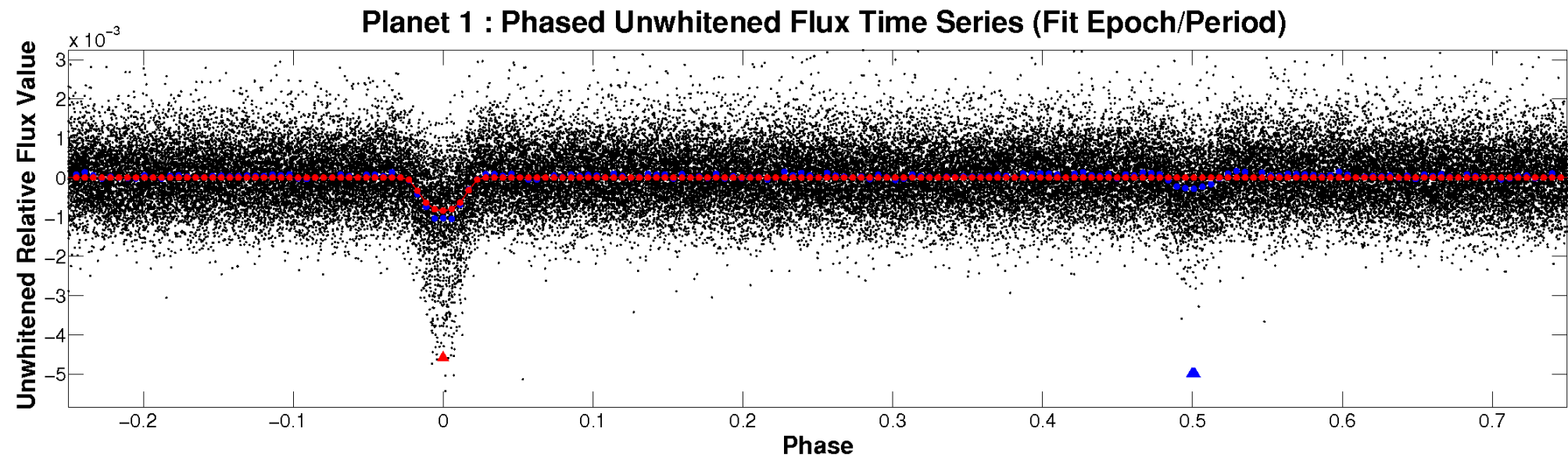


# ALT Odd/Even

TCE 005653152-01

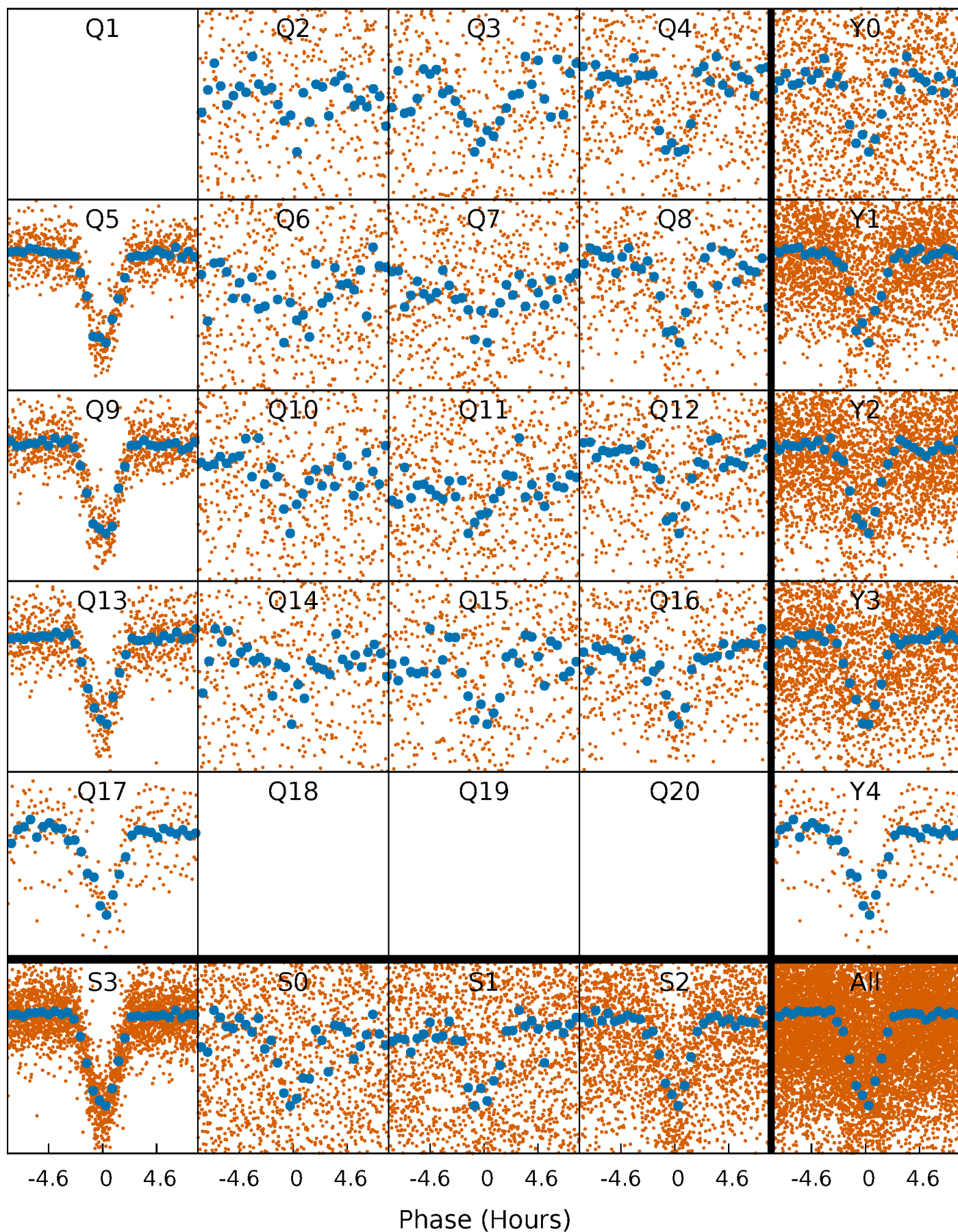


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

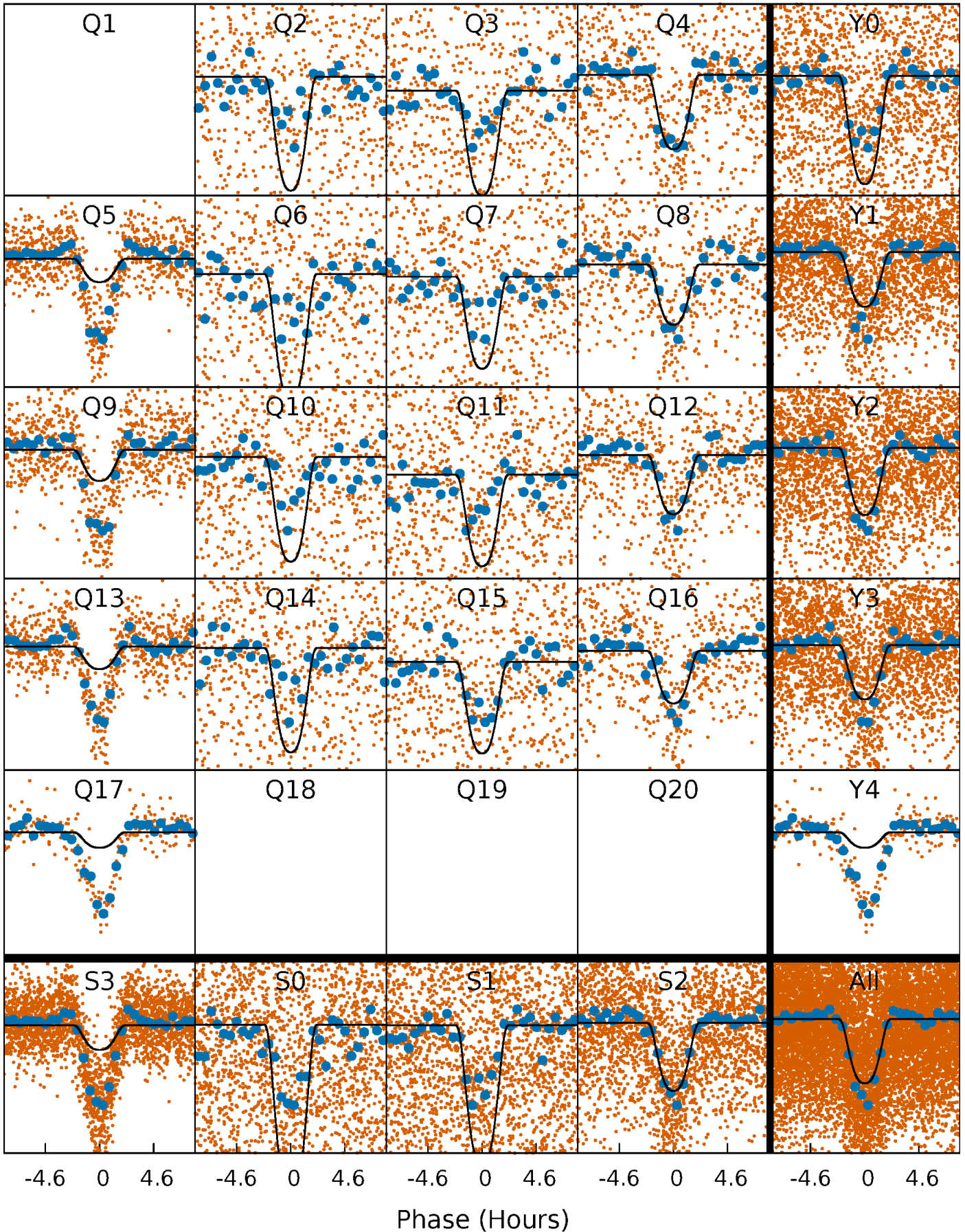
TCE 005653152-01 P= 3.589578 Days  $T_0=132.993189$  (BKJD)





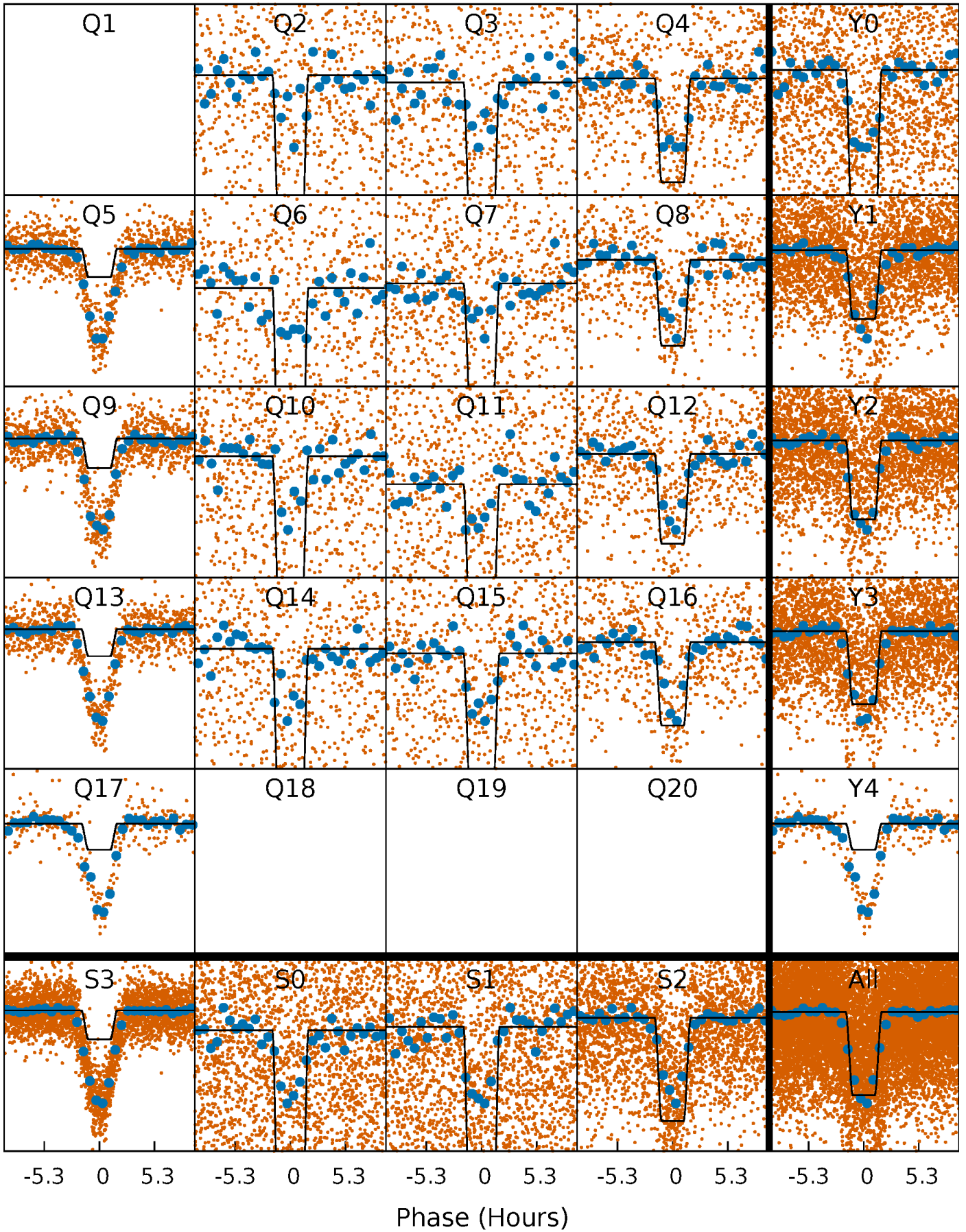
# DV Quarter-Phased Transit Curves

TCE 005653152-01 P= 3.589578 Days  $T_0=132.993189$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

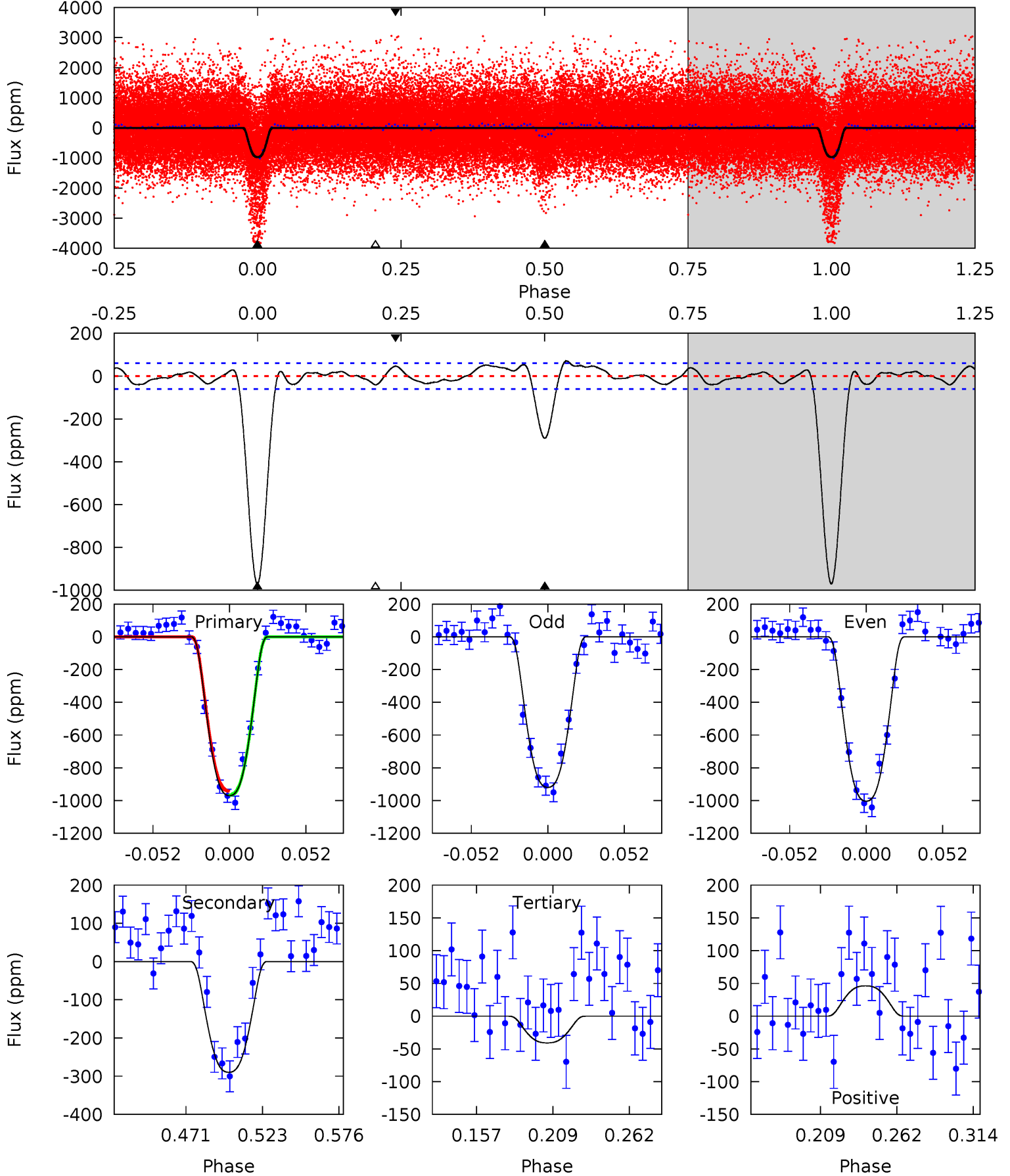
TCE 005653152-01 P= 3.589593 Days  $T_0=132.989493$  (BKJD)



# DV Model-Shift Uniqueness Test

005653152-01, P = 3.589578 Days, E = 132.993189 Days

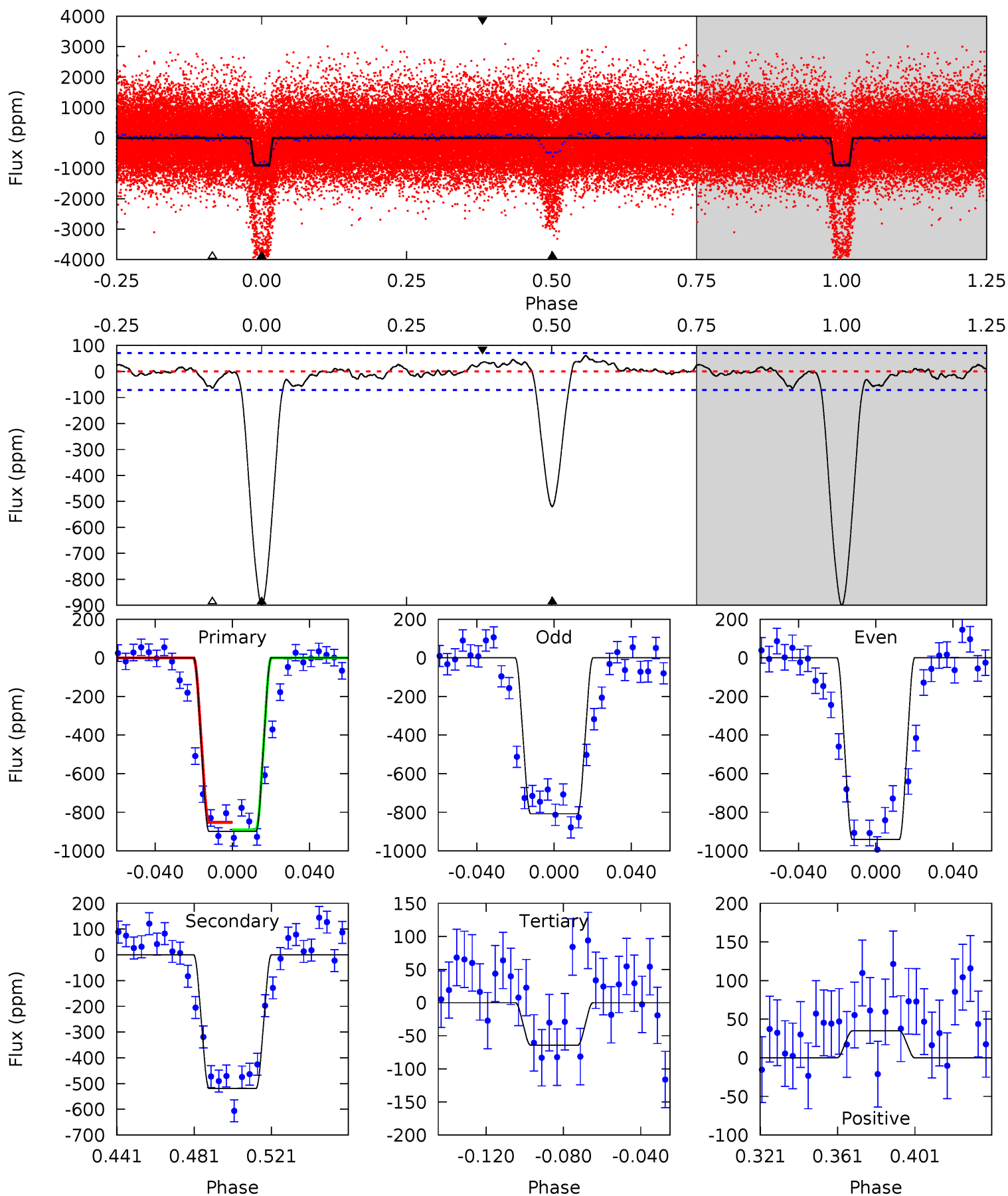
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
76.1	22.7	3.20	3.63	4.70	1.94	2.00	72.9	72.4	19.5	19.1	3.31	1.44	0.07	0



# Alt Model-Shift Uniqueness Test

005653152-01, P = 3.589593 Days, E = 132.989493 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
60.2	34.7	4.30	2.33	4.75	2.05	1.55	55.9	57.9	30.4	32.4	4.44	1.89	0.06	0





### Stellar Parameters For KIC 005653152

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4608^{+138}_{-138}$	$4.559^{+0.060}_{-0.024}$	$0.210^{+0.200}_{-0.300}$	$0.746^{+0.031}_{-0.062}$	$0.734^{+0.053}_{-0.053}$	$2.493^{+0.631}_{-0.230}$
	+3%/-3%	+1%/-1%	+95%/-143%	+4%/-8%	+7%/-7%	+25%/-9%
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 005653152-01 / KOI 5189.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-290 \pm 13$	$2.99^{+0.15}_{-0.18}$	$1197^{+39}_{-40}$	$3499^{+91}_{-98}$	$31^{+4}_{-3}$
Alt.	$-519 \pm 15$	$2.91^{+0.16}_{-0.17}$	$1196^{+43}_{-40}$	$3889^{+117}_{-111}$	$59^{+7}_{-6}$

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

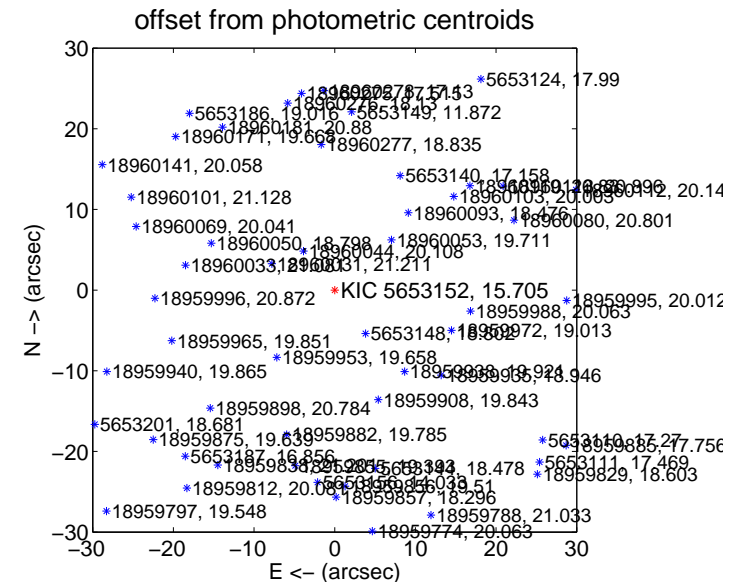
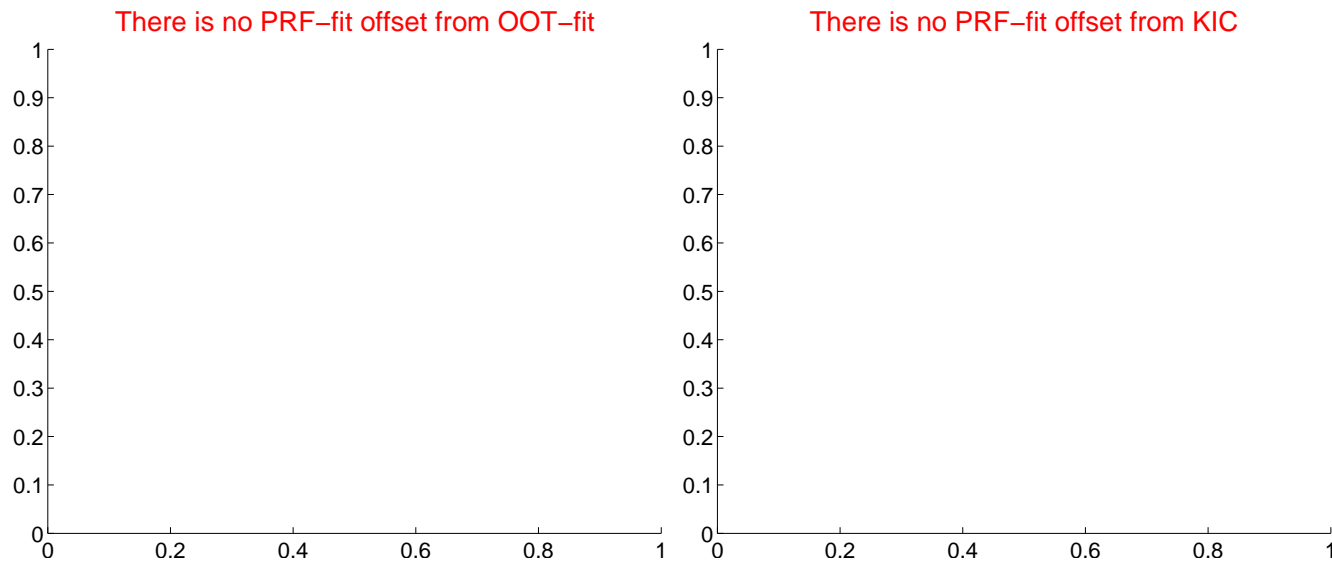
## DV Centroid Data

Supplemental centroid analysis for 005653152-01. Kepler magnitude: 15.71. Transit SNR 39.52

There are 0 quarters with good PRF difference image offsets

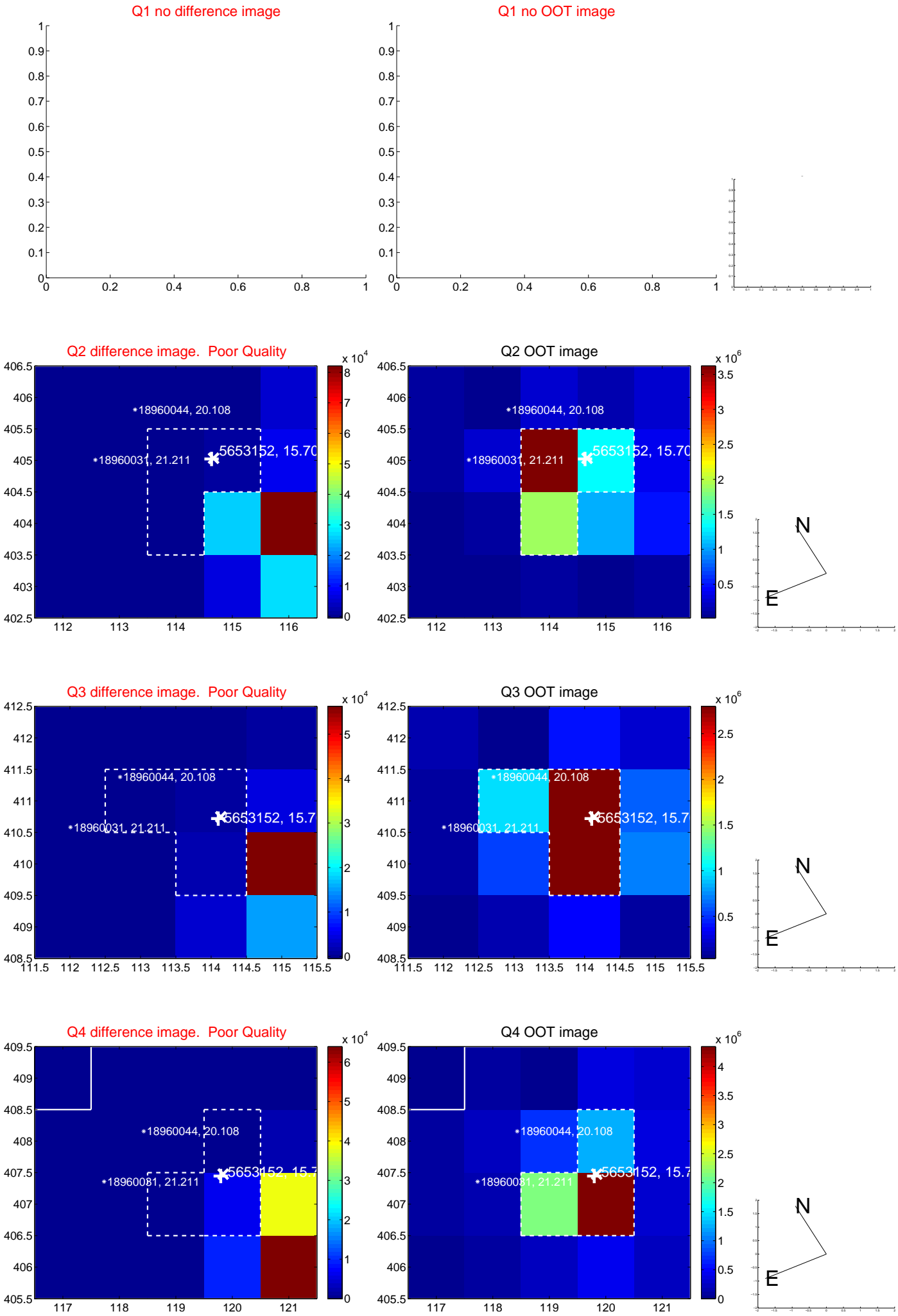
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	<b>76.07 <math>\pm</math> 0.40</b>	<b>191.11</b>	-31.37 $\pm$ 0.45	-69.30 $\pm$ 0.39

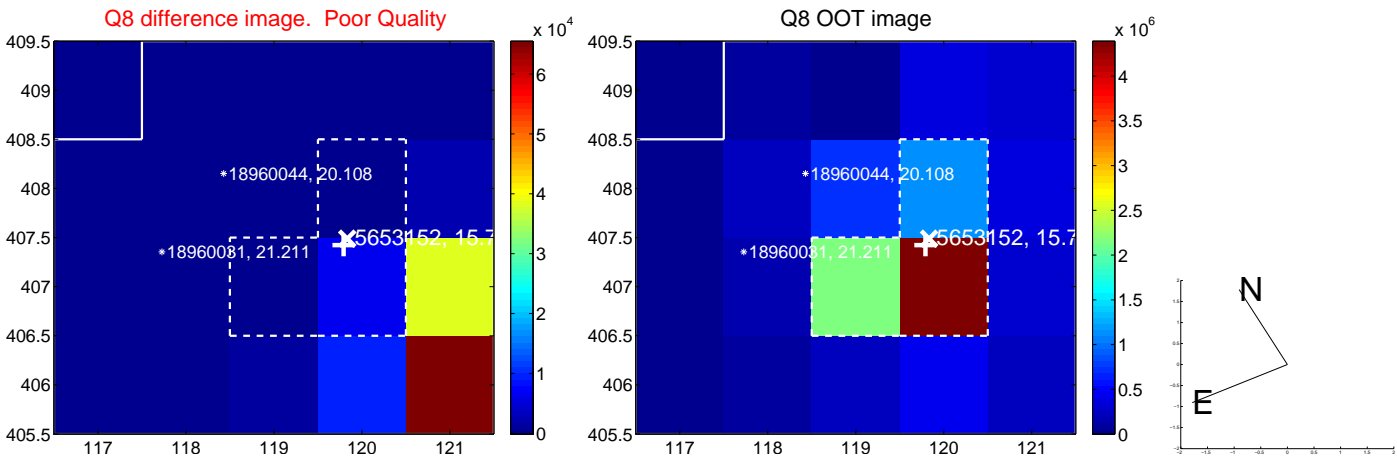
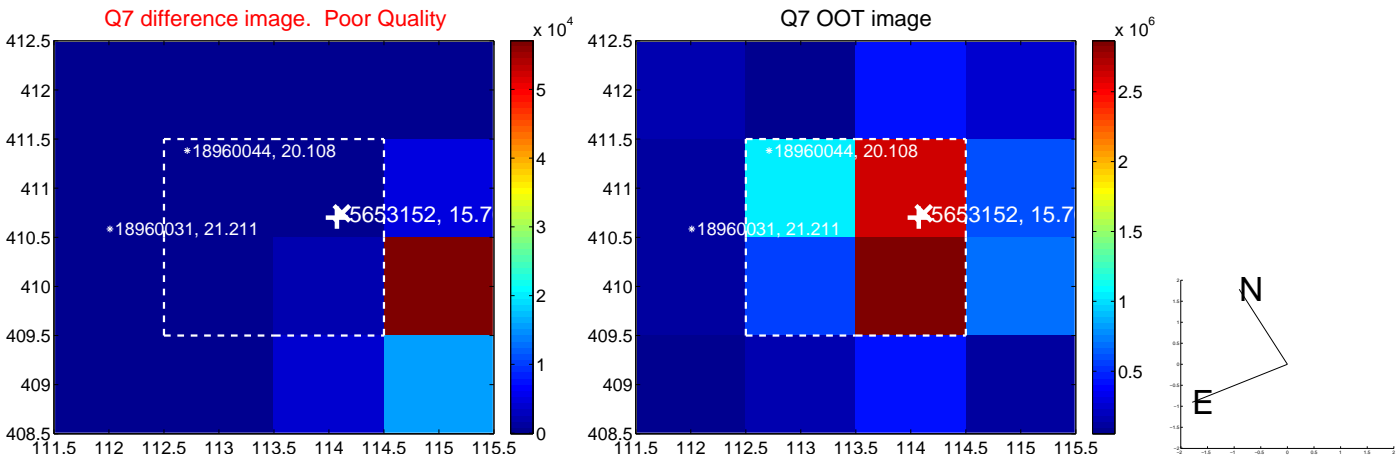
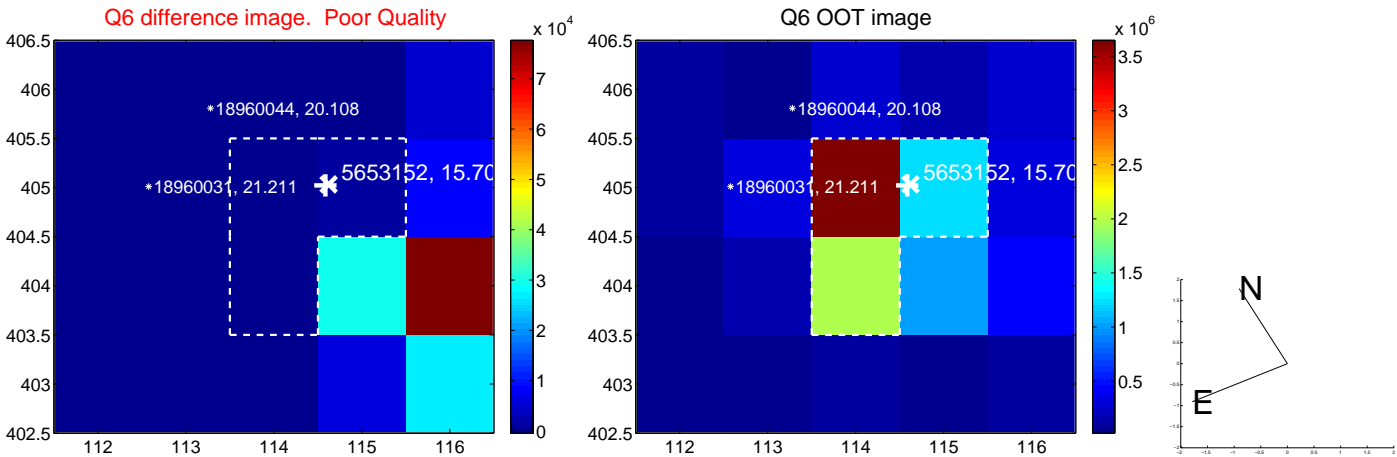
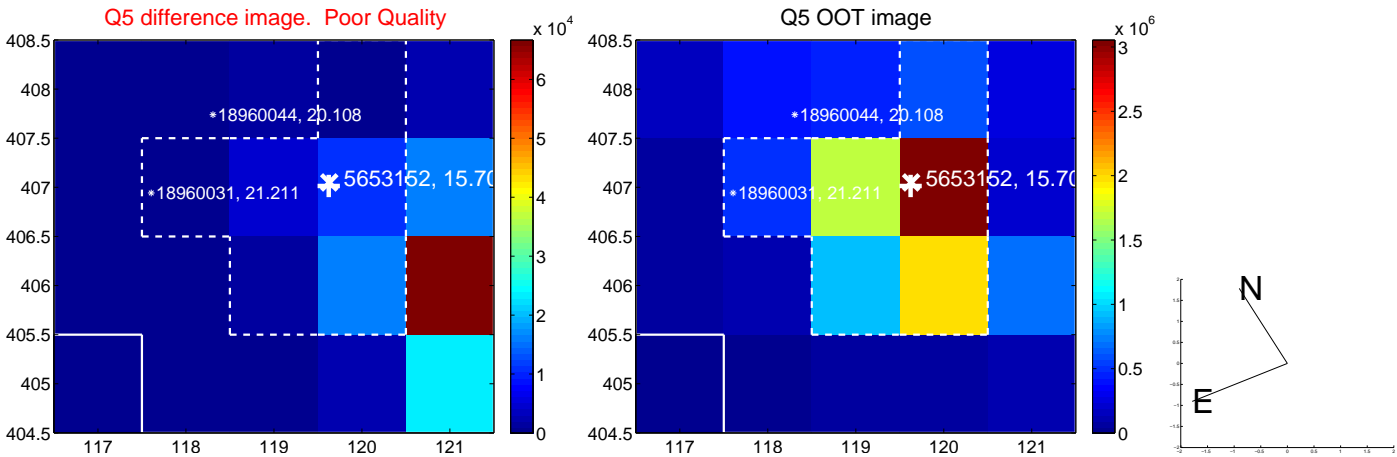


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

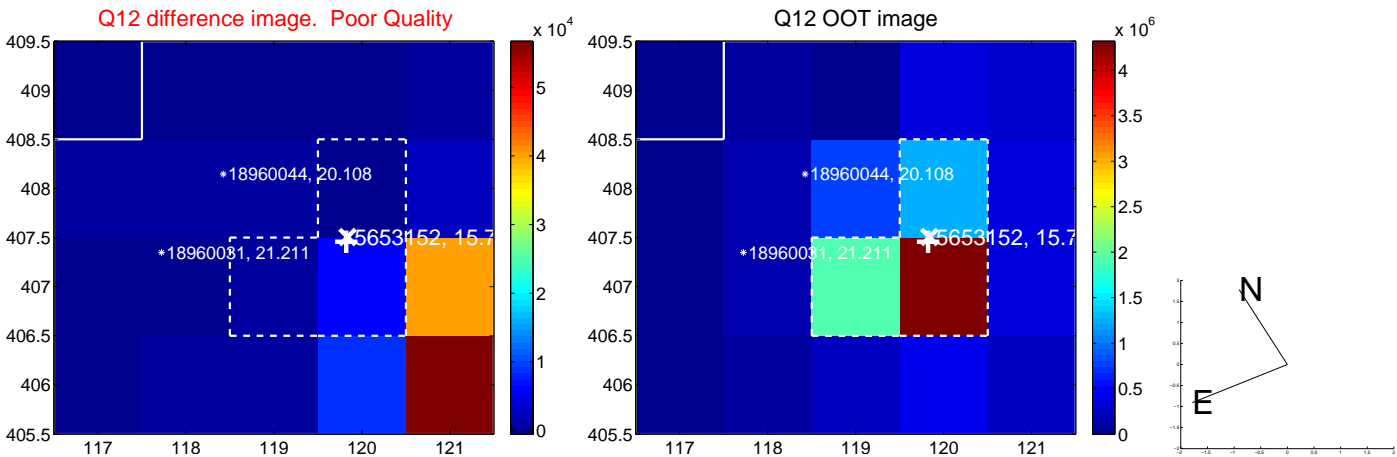
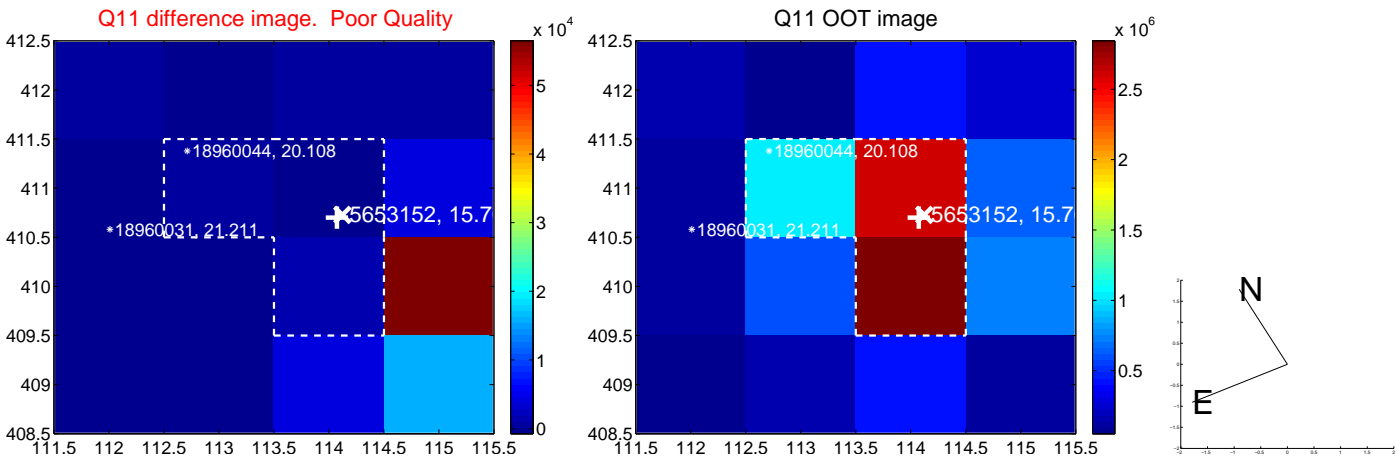
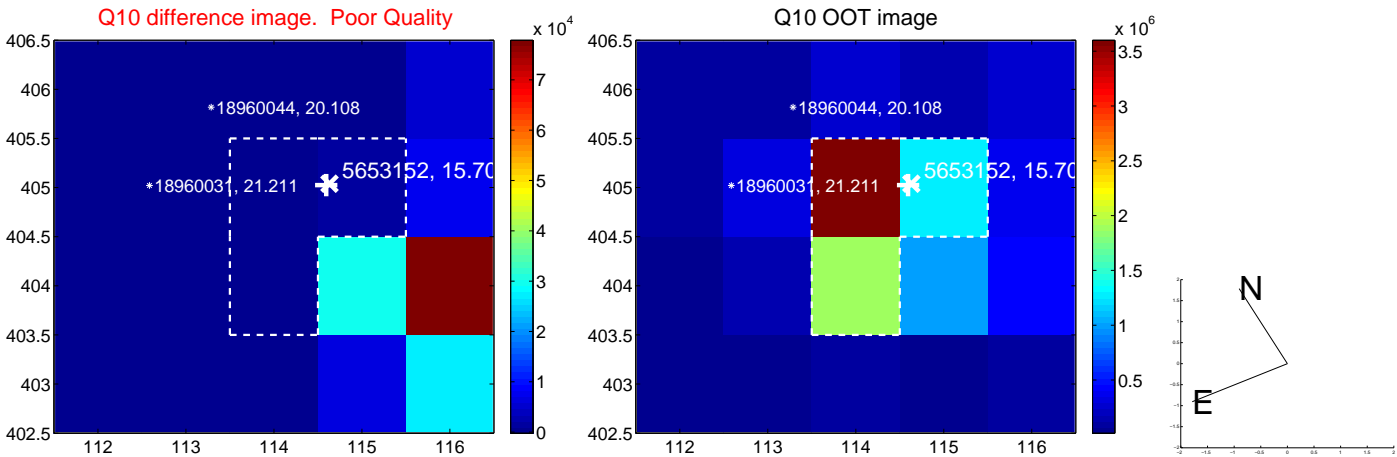
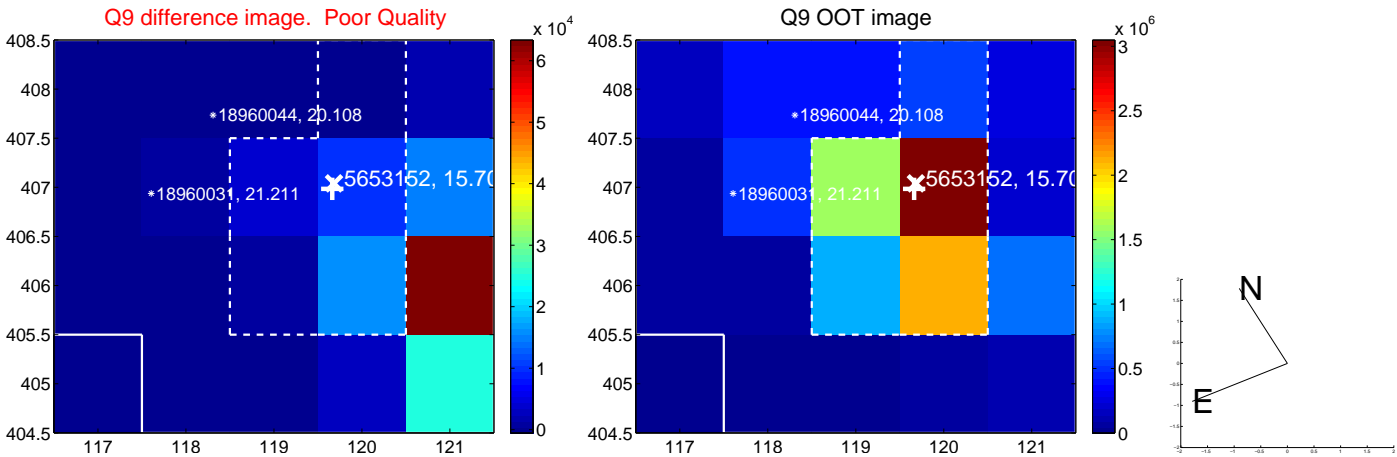


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

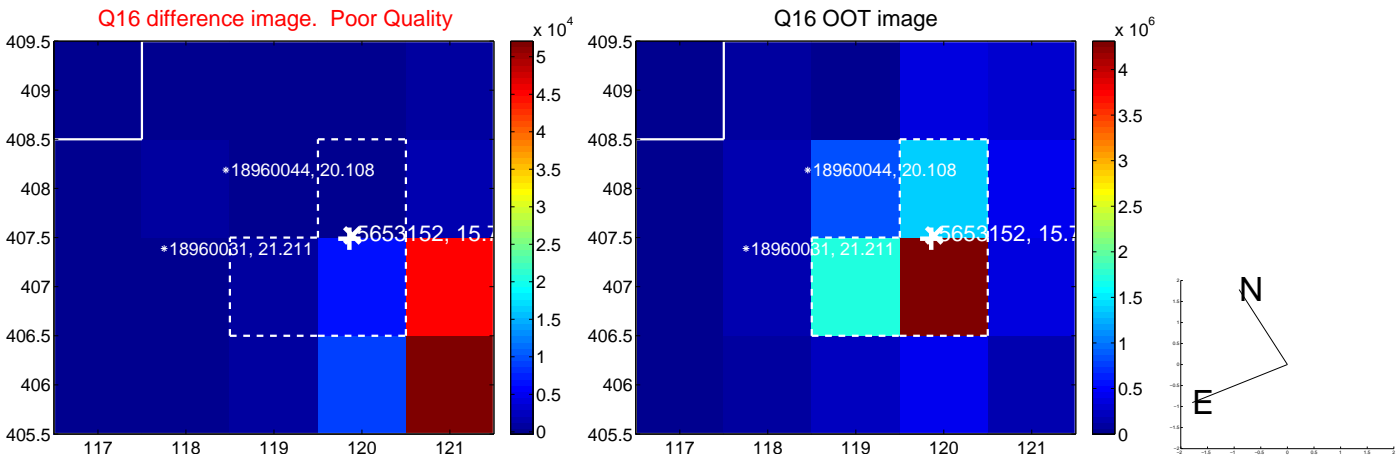
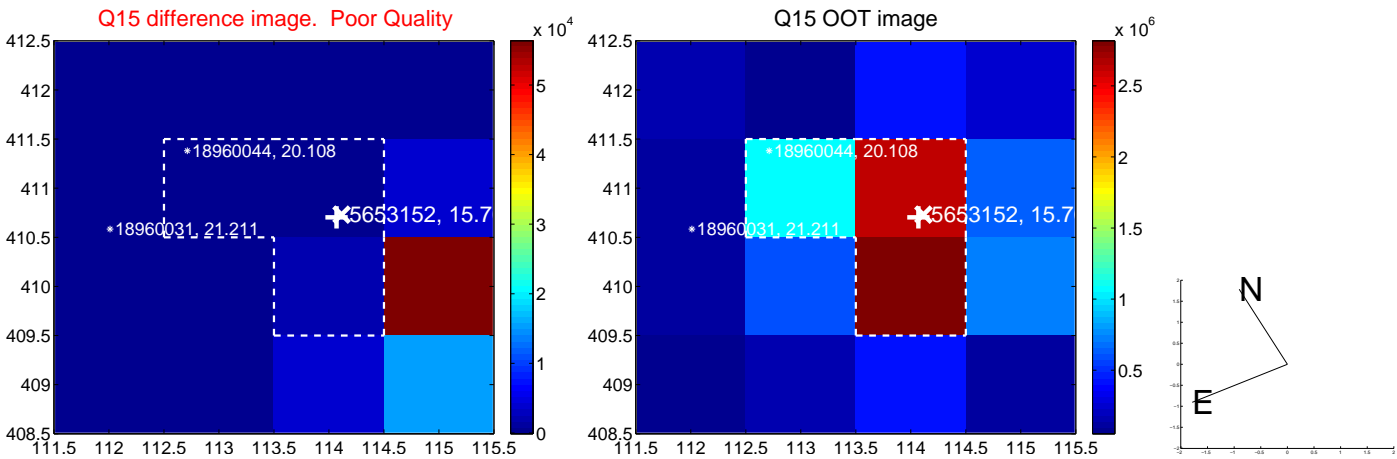
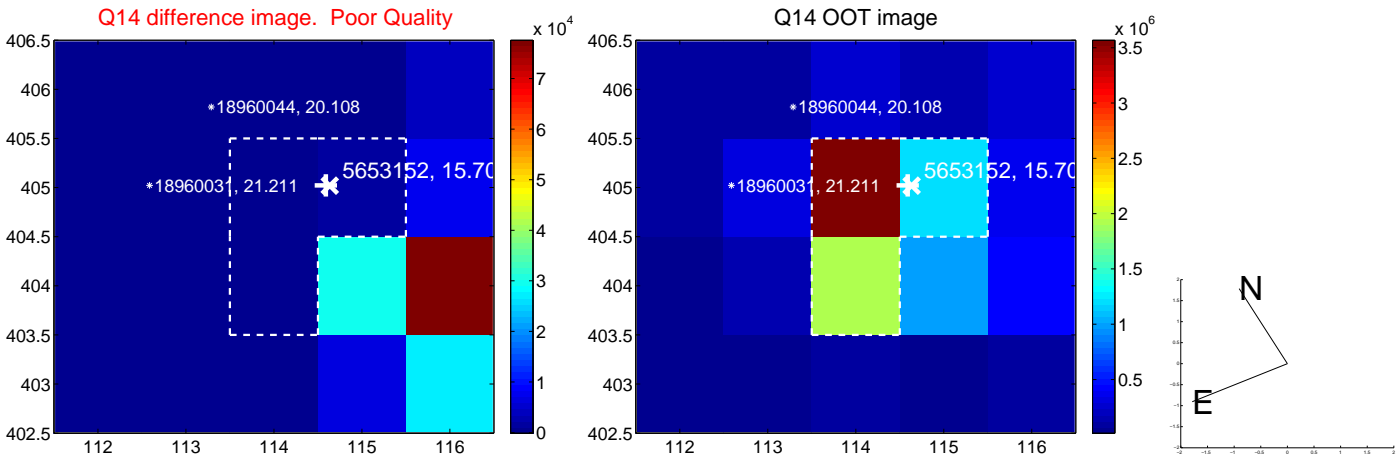
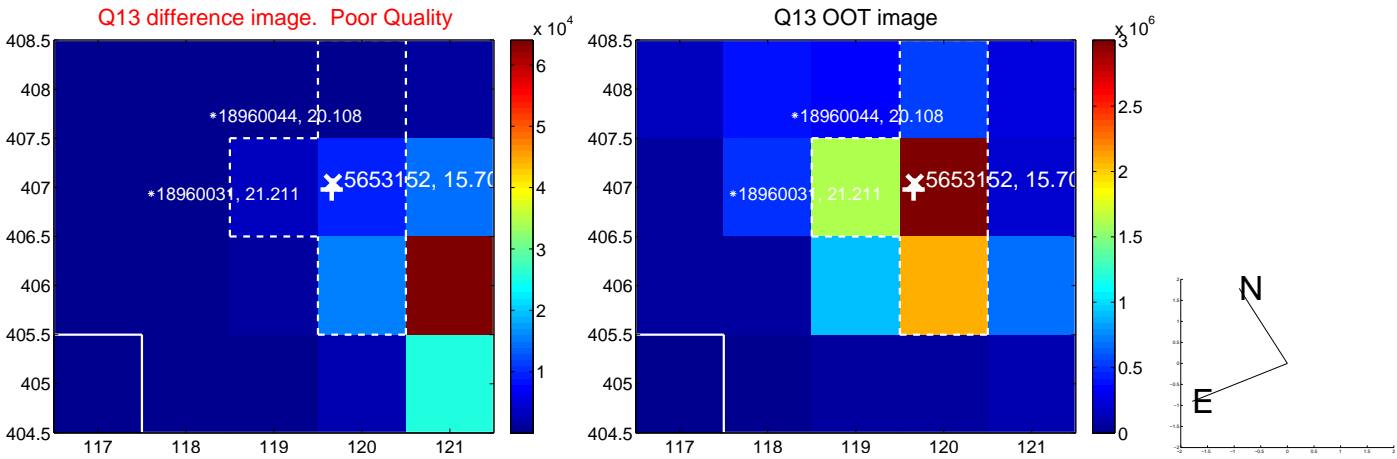




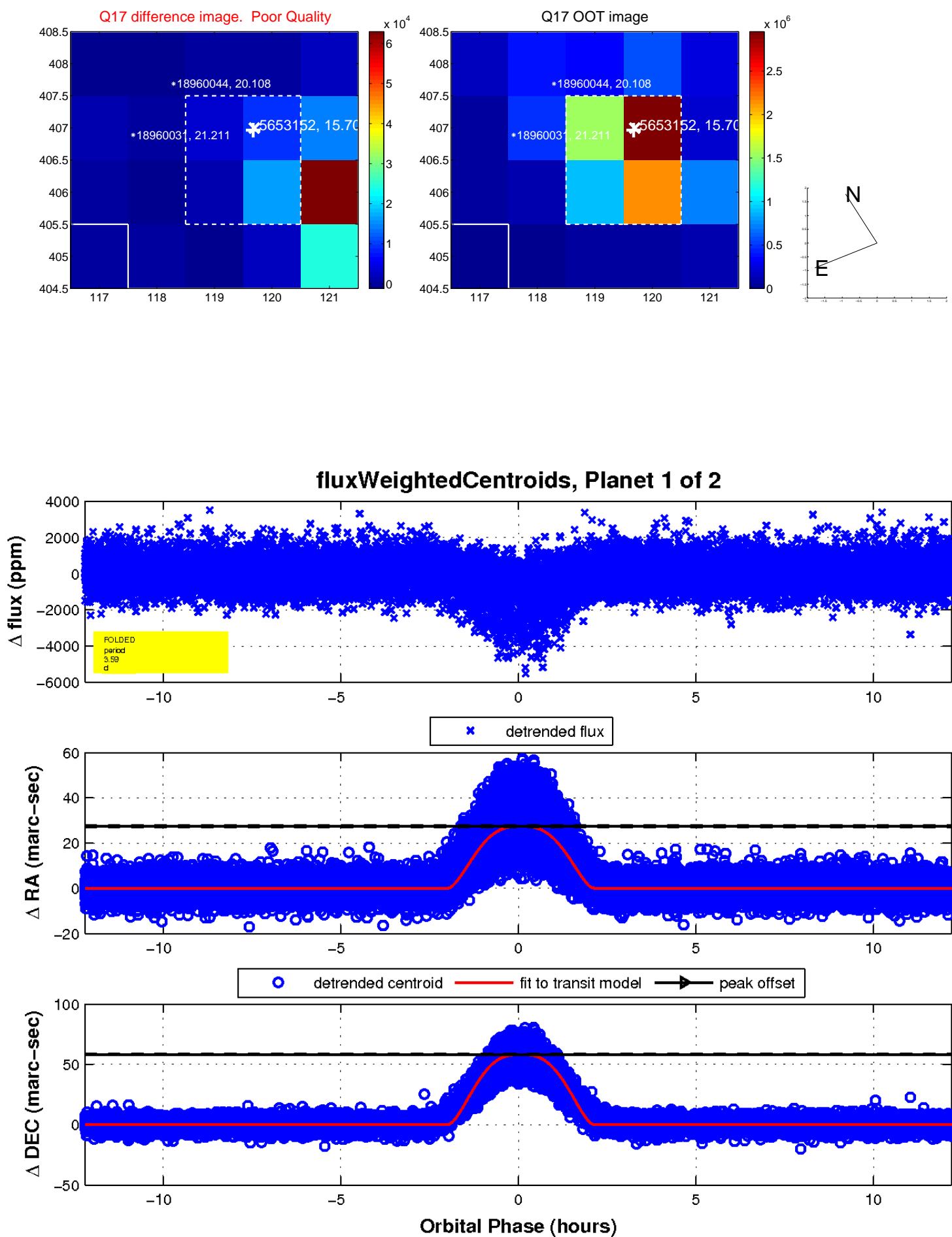
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

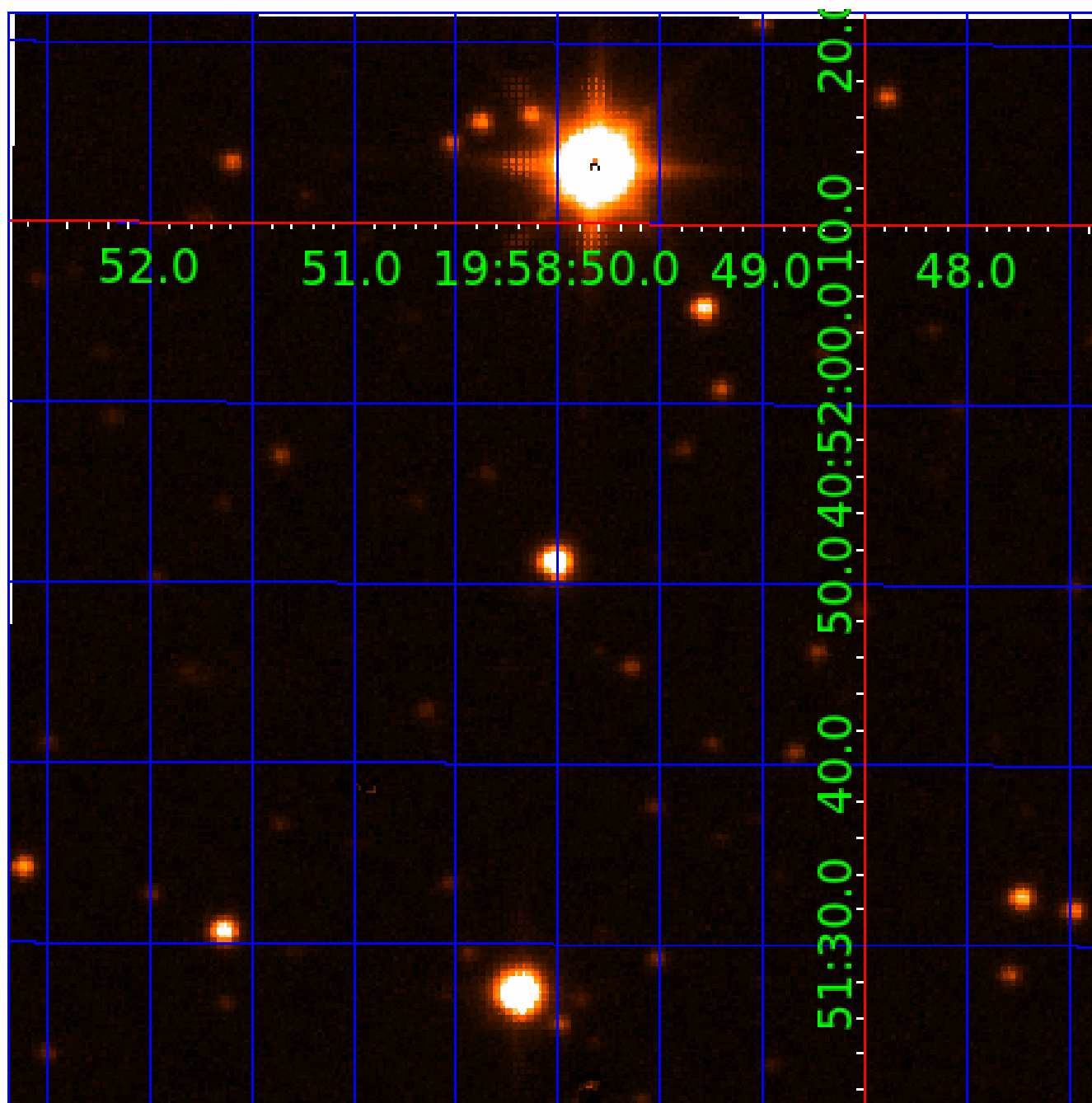


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 005653152

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005653152-01	OBS	5189.01	3.589578	132.993189	845.9	4.065	42.5	39.5	0.75	4608	3.01	131.03
005653152-02	OBS	No	3.589561	134.793632	305.5	3.574	15.1	15.5	0.75	4608	1.80	131.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005653152-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
005653152-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_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.

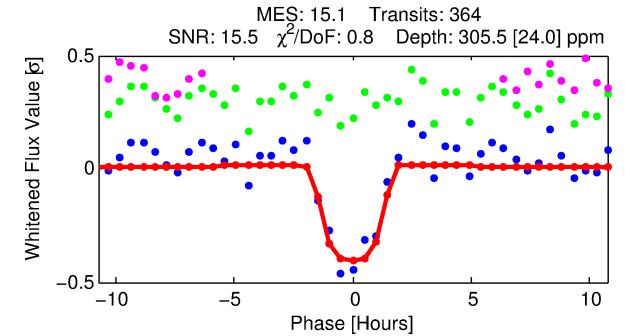
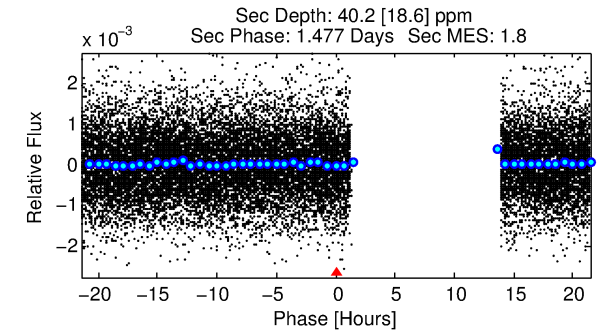
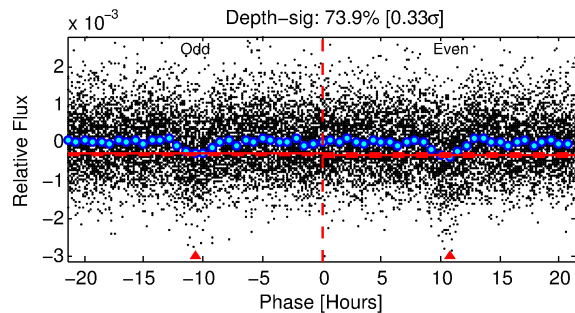
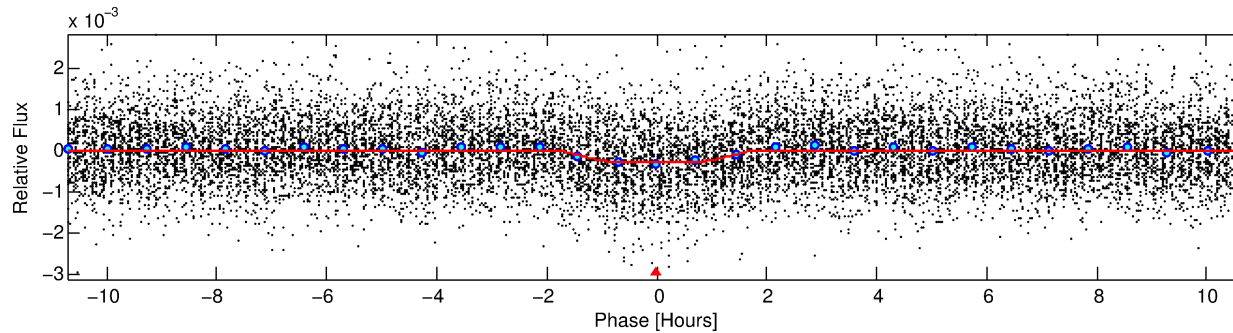
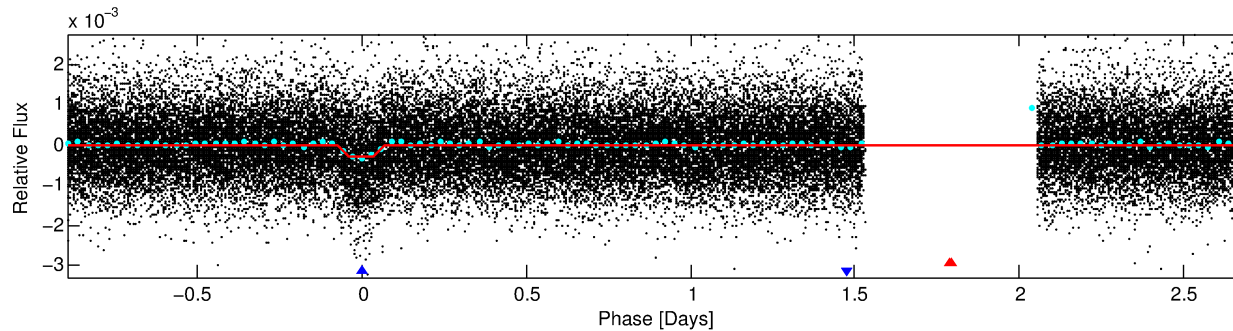
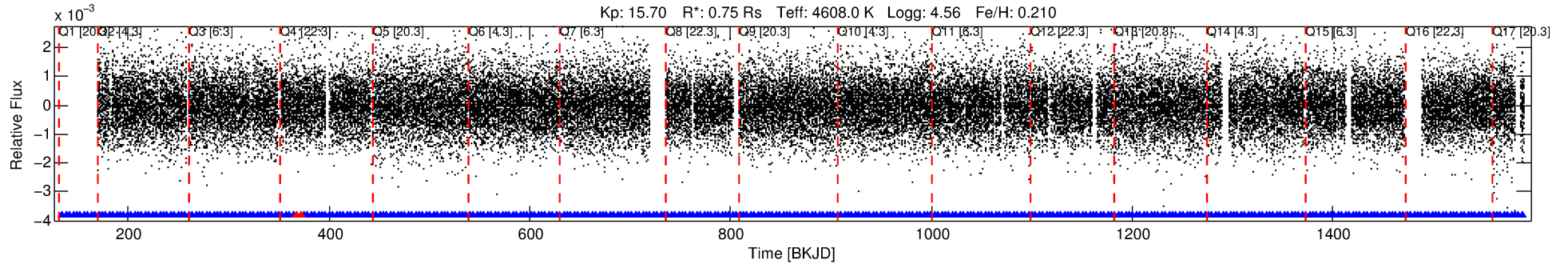
## Ephemeris Match Information For 005653152-02

No Significant Match Found

# DV One-Page Summary

KIC: 5653152 Candidate: 2 of 2 Period: 3.590 d  
KOI: K05189 Corr: No Ephemeris Match

Kp: 15.70 R\*: 0.75 Rs Teff: 4608.0 K Logg: 4.56 Fe/H: 0.210



## DV Fit Results:

Period = 3.58956 [0.00002] d  
Epoch = 134.7936 [0.0044] BKJD  
Rp/R\* = 0.0221 [0.0019]  
a/R\* = 2.85 [0.71]  
b = 0.96 [0.02]  
Seff = 131.03 [21.09]  
Teq = 863 [35] K  
Rp = 1.80 [0.21] Re  
a = 0.0414 [0.0030] AU  
Ag = 11.74 [5.91] [1.82σ]  
Teffp = 2469 [312] K [5.11σ]

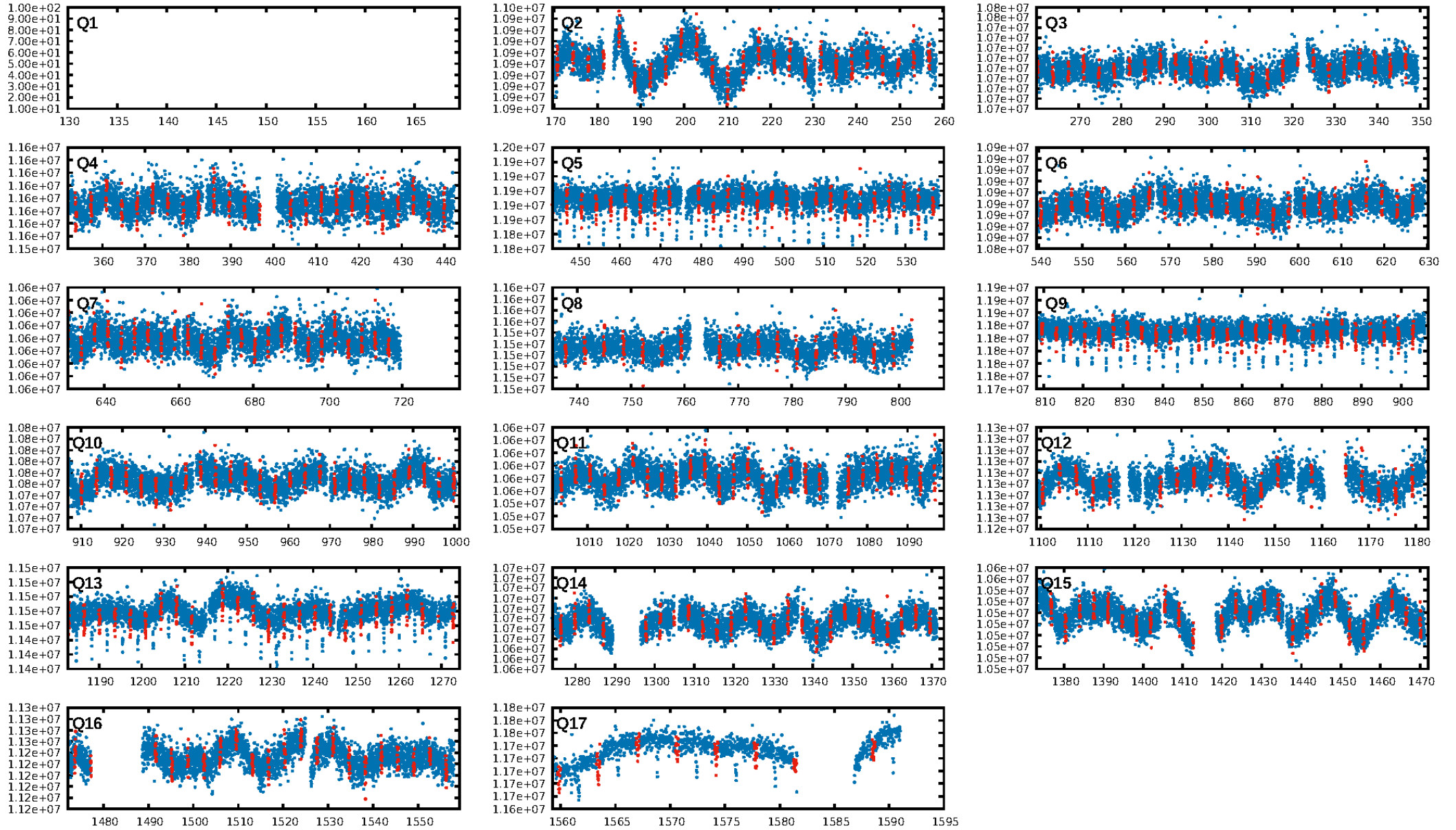
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.87e-51  
RollingBand-fgt: 0.99 [354/356]  
GhostDiagnostic-chr: -0.09738  
Centroid-sig: 0.0%  
Centroid-so: 94.401 arcsec [88.24σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0 [0]  
KicOffset-st: 0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [16/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:40:40 Z

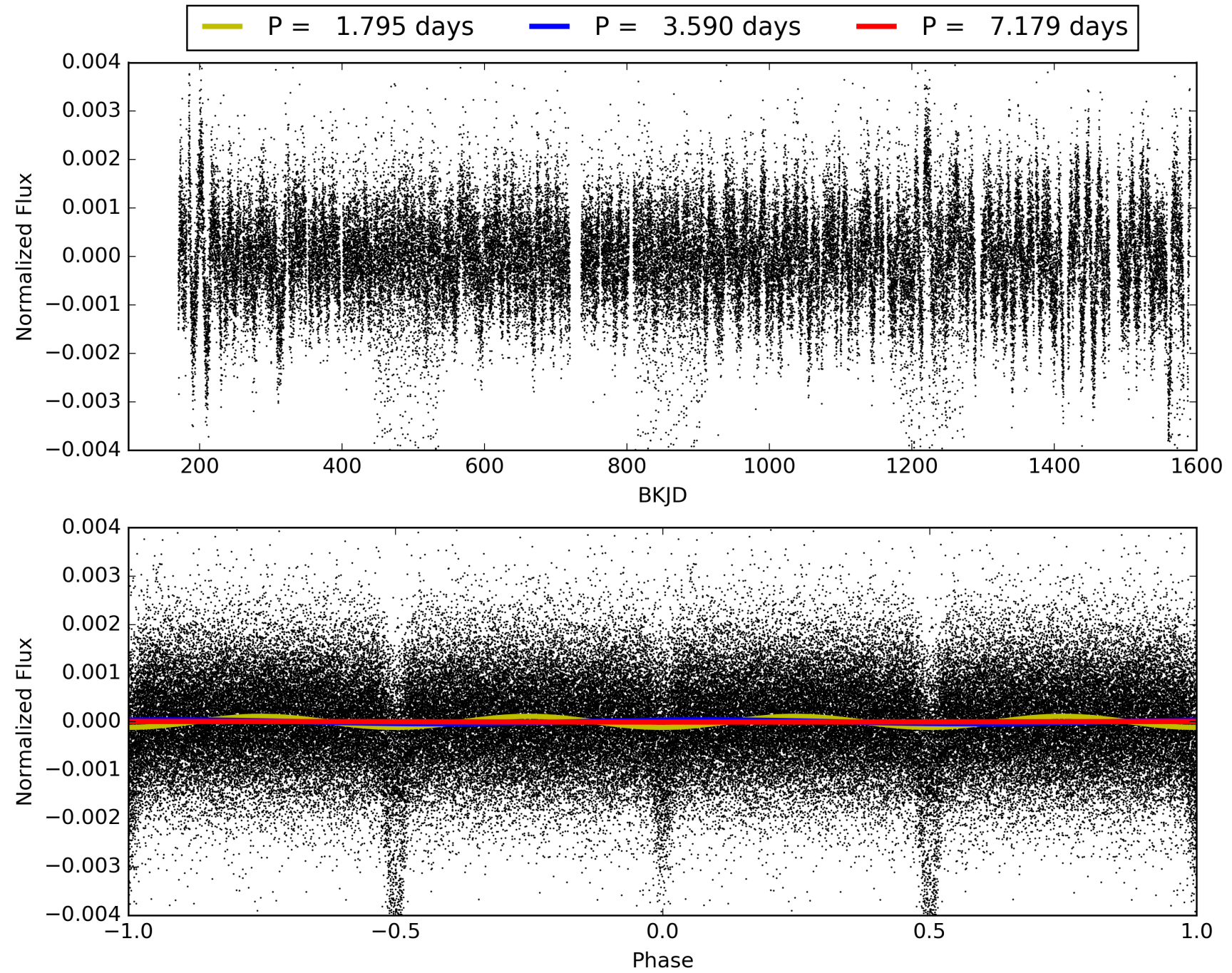
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005653152-02, PDC Light Curves





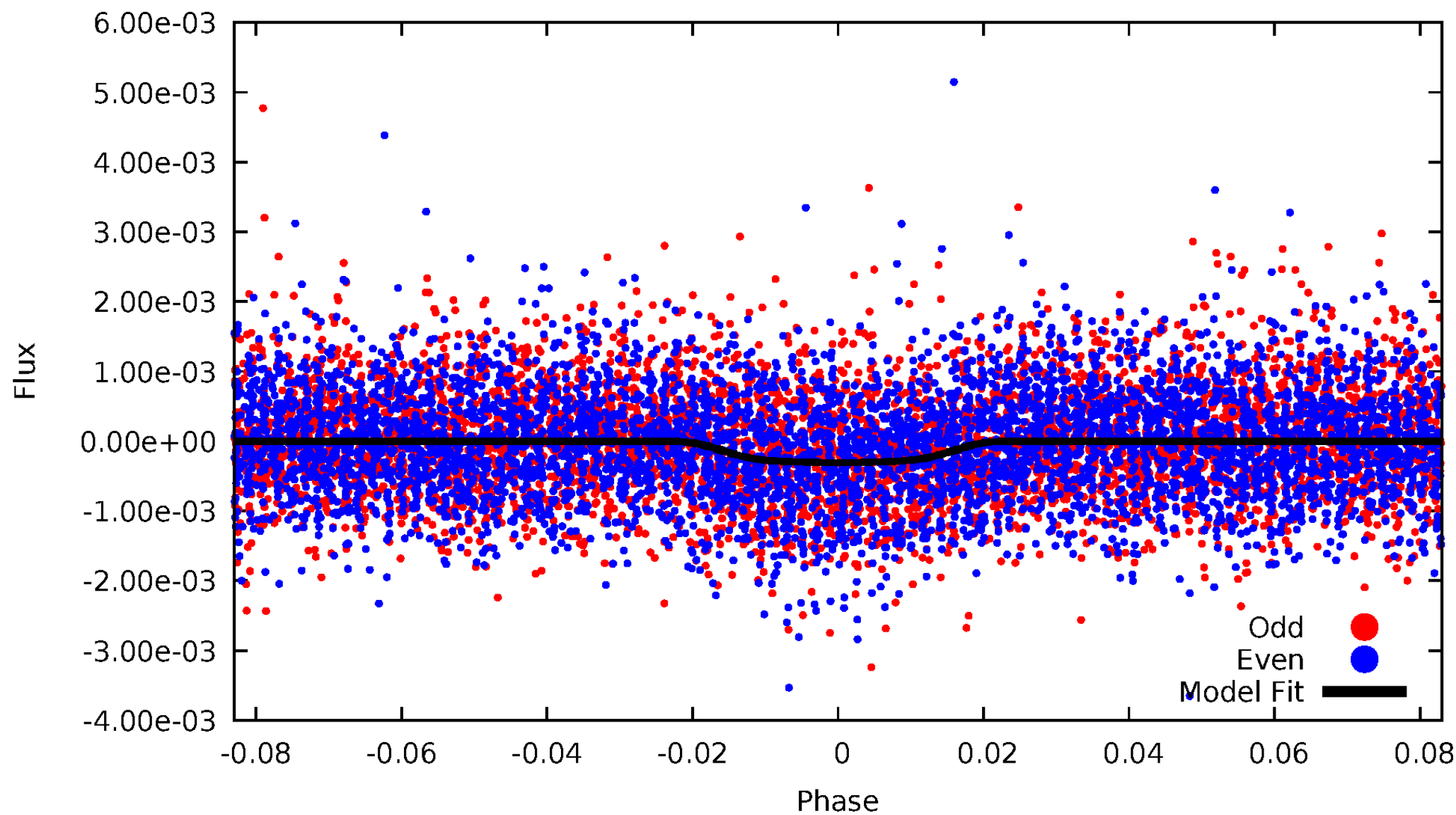
# TCE 005653152-02





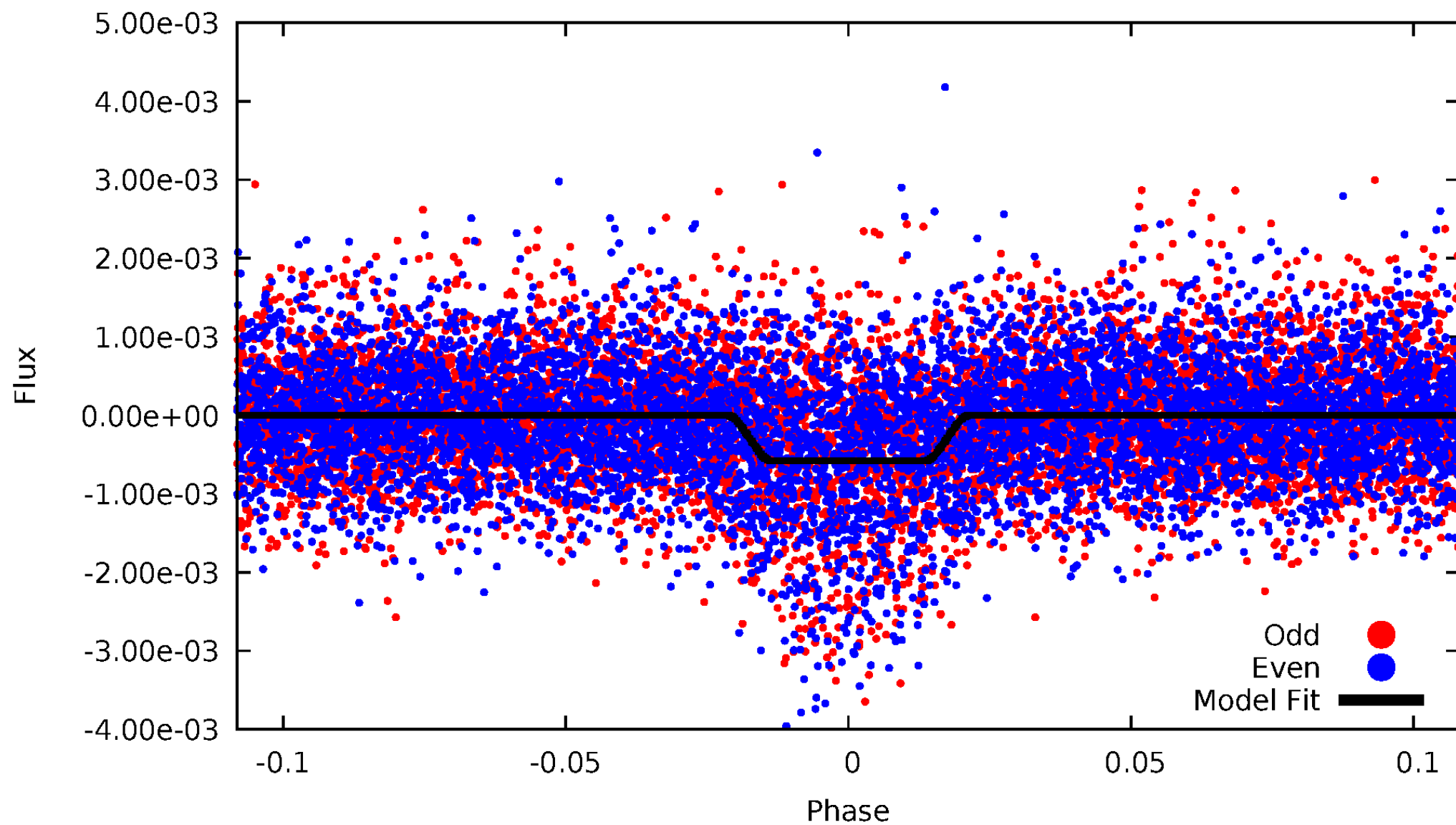
# DV Odd/Even

TCE 005653152-02



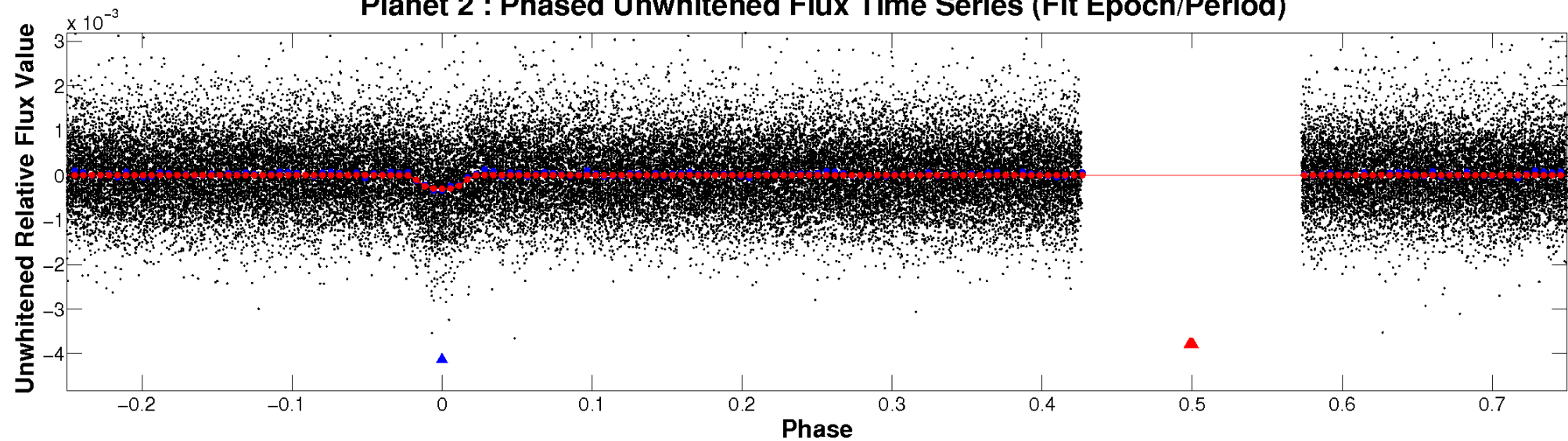
# ALT Odd/Even

TCE 005653152-02

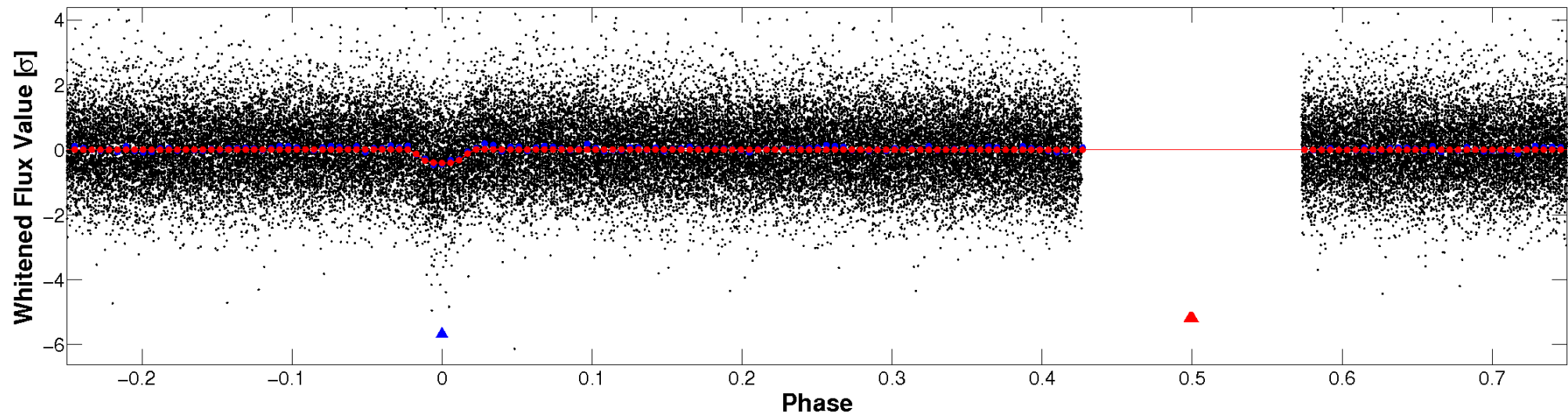


# Non-Whitened Vs. Whitened Light Curve

## Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

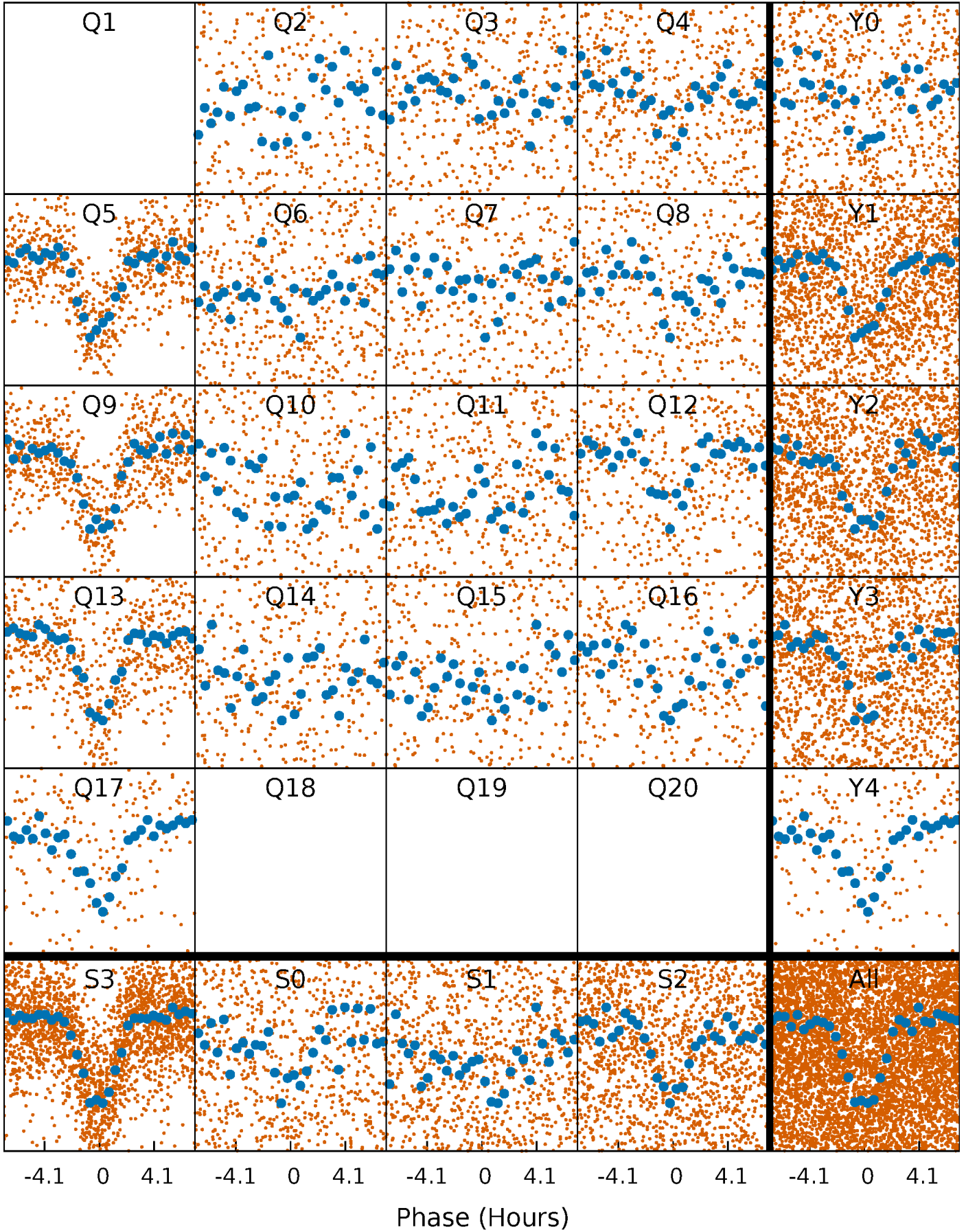


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

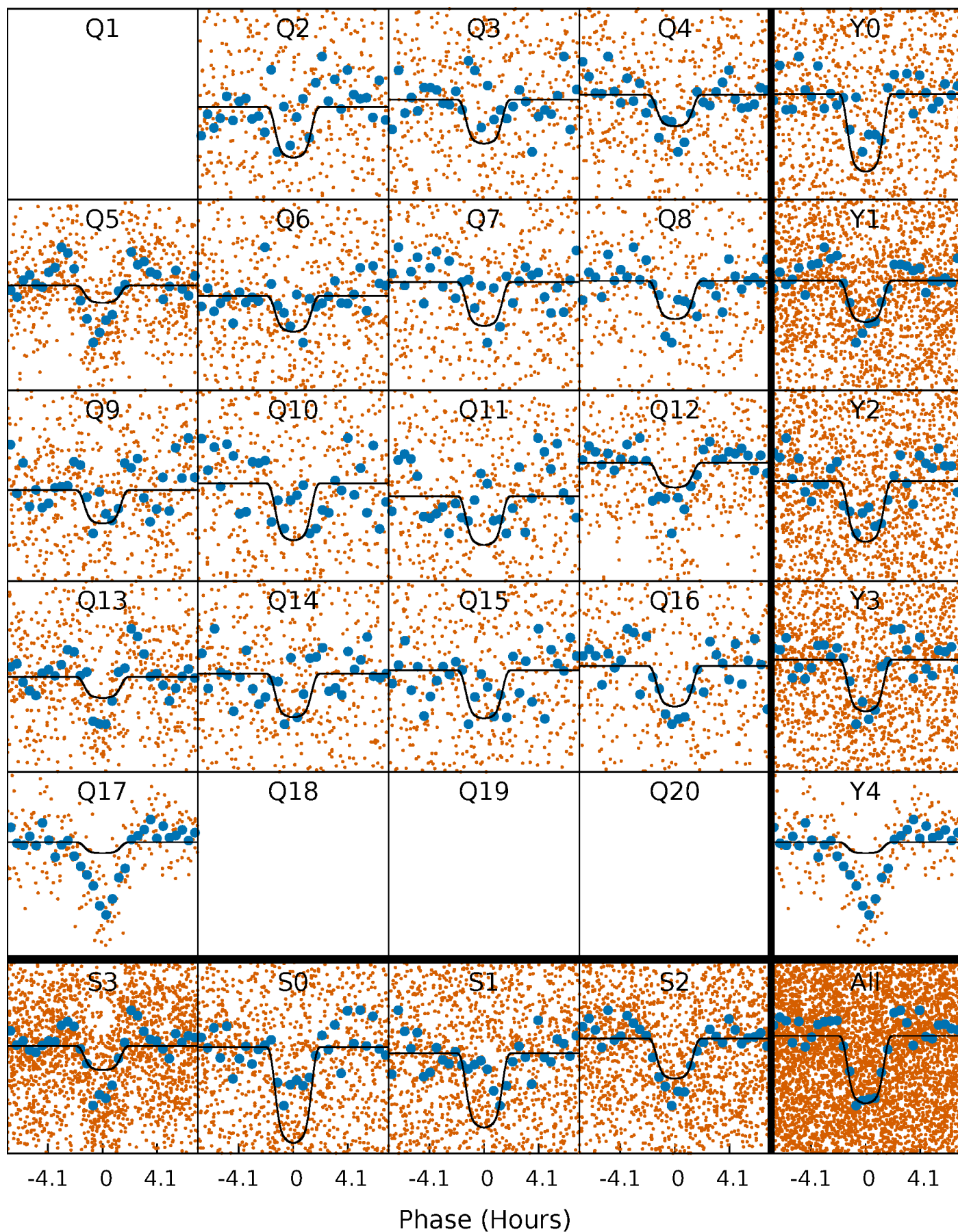
TCE 005653152-02   P= 3.589561 Days    $T_0=134.793632$  (BKJD)





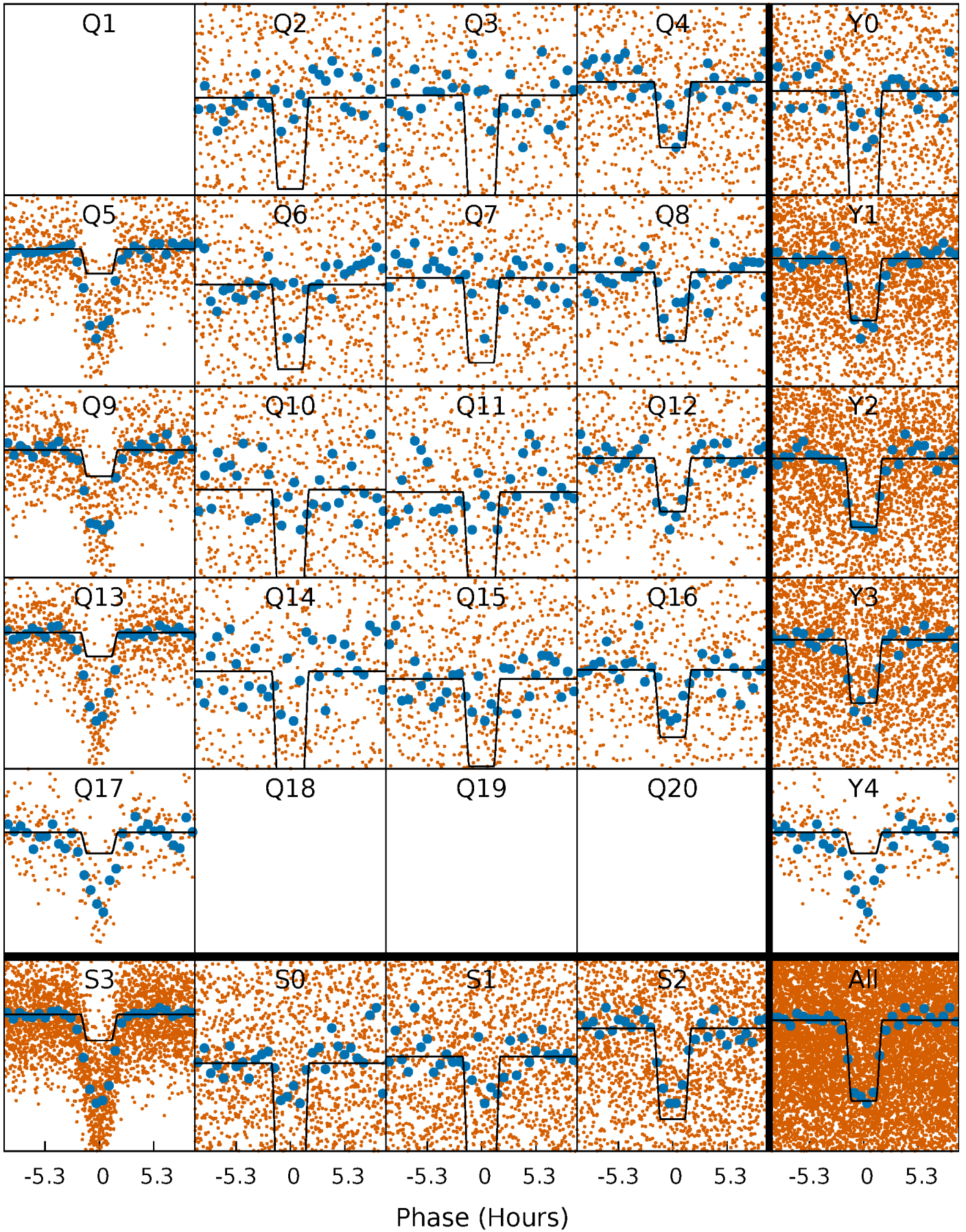
# DV Quarter-Phased Transit Curves

TCE 005653152-02   P= 3.589561 Days    $T_0=134.793632$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005653152-02 P= 3.589595 Days  $T_0=134.785707$  (BKJD)

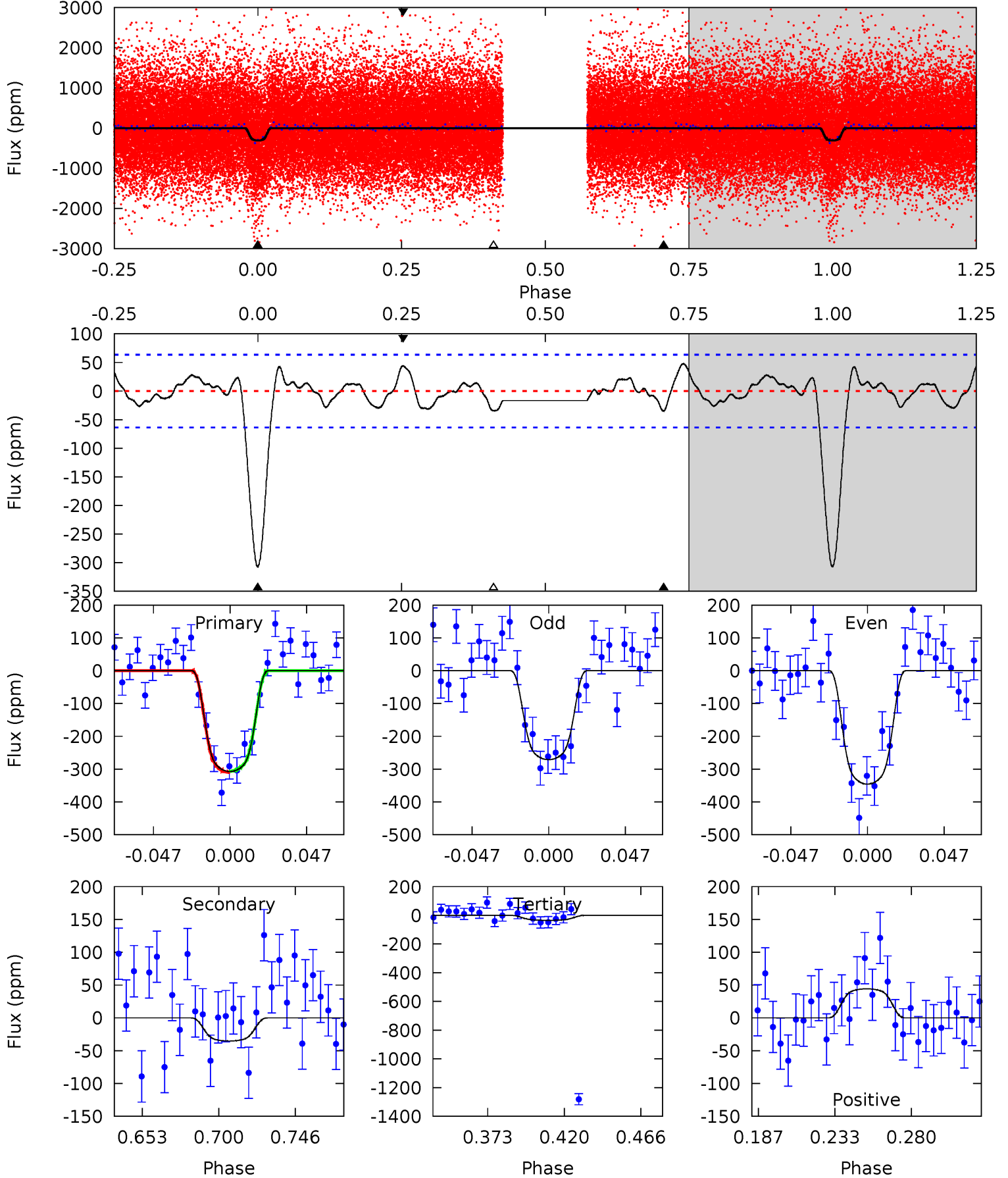




# DV Model-Shift Uniqueness Test

005653152-02, P = 3.589561 Days, E = 134.793632 Days

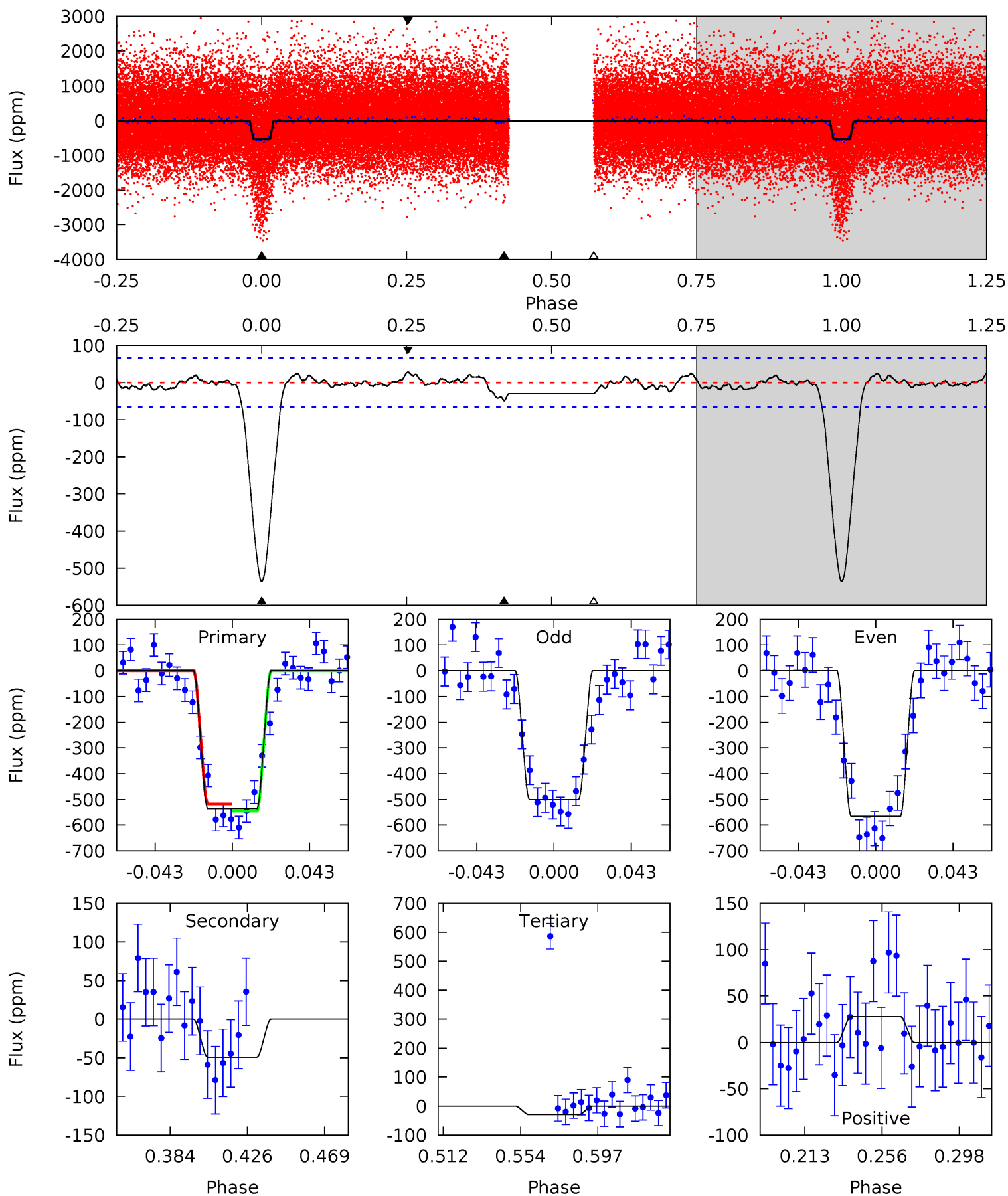
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.8	2.62	2.57	3.29	4.72	1.99	1.26	20.3	19.6	0.05	-0.67	2.78	1.20	0.13	0.14



# Alt Model-Shift Uniqueness Test

005653152-02, P = 3.589595 Days, E = 134.785707 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
38.5	3.53	2.14	2.01	4.74	2.03	0.83	36.4	36.5	1.40	1.53	2.39	1.71	0.05	1.02



### Stellar Parameters For KIC 005653152

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4608^{+138}_{-138}$	$4.559^{+0.060}_{-0.024}$	$0.210^{+0.200}_{-0.300}$	$0.746^{+0.031}_{-0.062}$	$0.734^{+0.053}_{-0.053}$	$2.493^{+0.631}_{-0.230}$
	+3%/-3%	+1%/-1%	+95%/-143%	+4%/-8%	+7%/-7%	+25%/-9%
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 005653152-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-35 \pm 13$	$1.77^{+0.17}_{-0.17}$	$1196^{+42}_{-42}$	$2959^{+199}_{-205}$	$11^{+5}_{-4}$
Alt.	$-49 \pm 14$	$1.95^{+0.16}_{-0.17}$	$1200^{+39}_{-41}$	$3035^{+158}_{-152}$	$12^{+4}_{-4}$

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

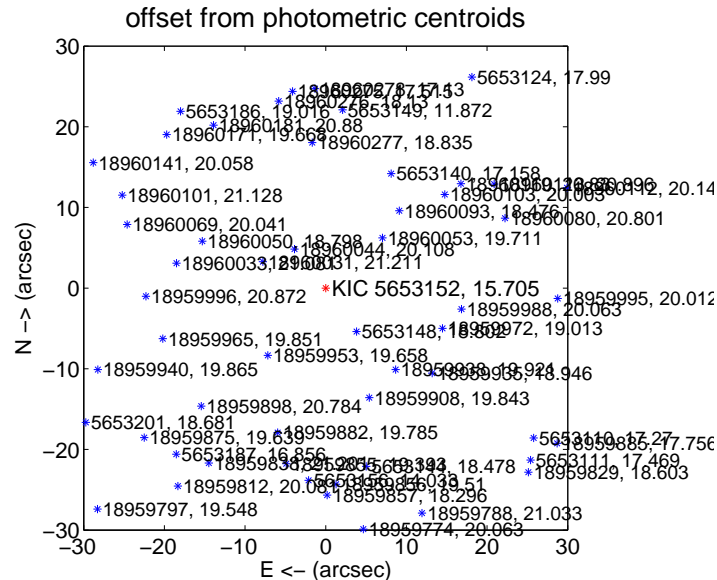
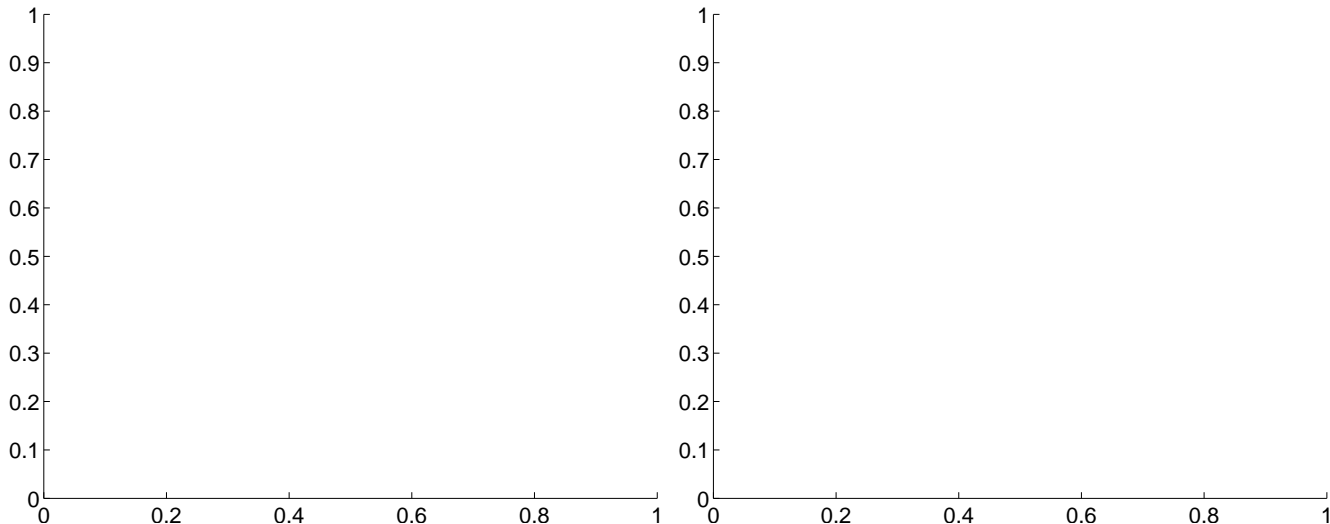
## DV Centroid Data

Supplemental centroid analysis for 005653152-02. Kepler magnitude: 15.71. Transit SNR 15.49

There are 0 quarters with good PRF difference image offsets

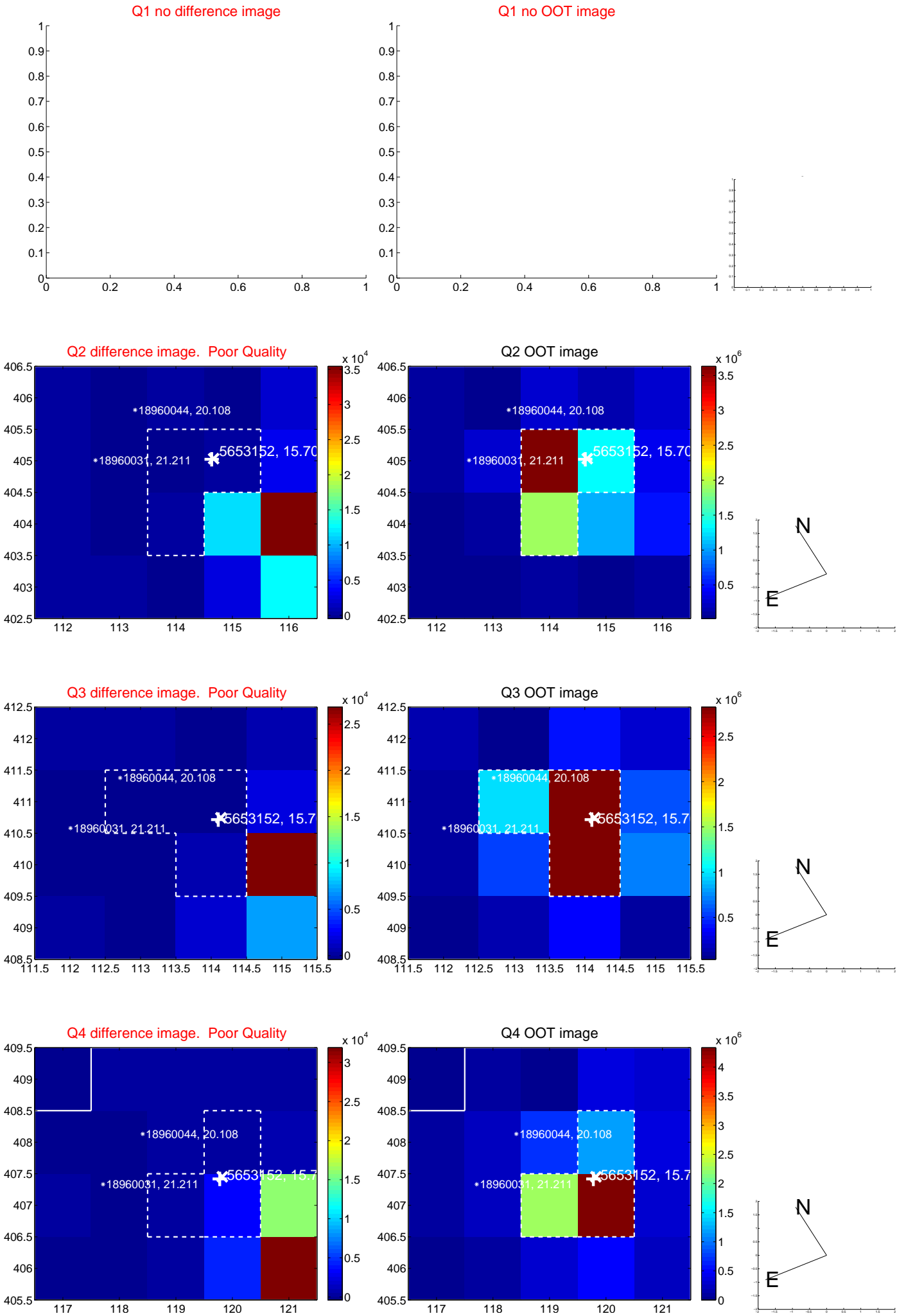
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$94.41 \pm 1.07$	$88.24$	$-43.48 \pm 1.19$	$-83.80 \pm 1.03$

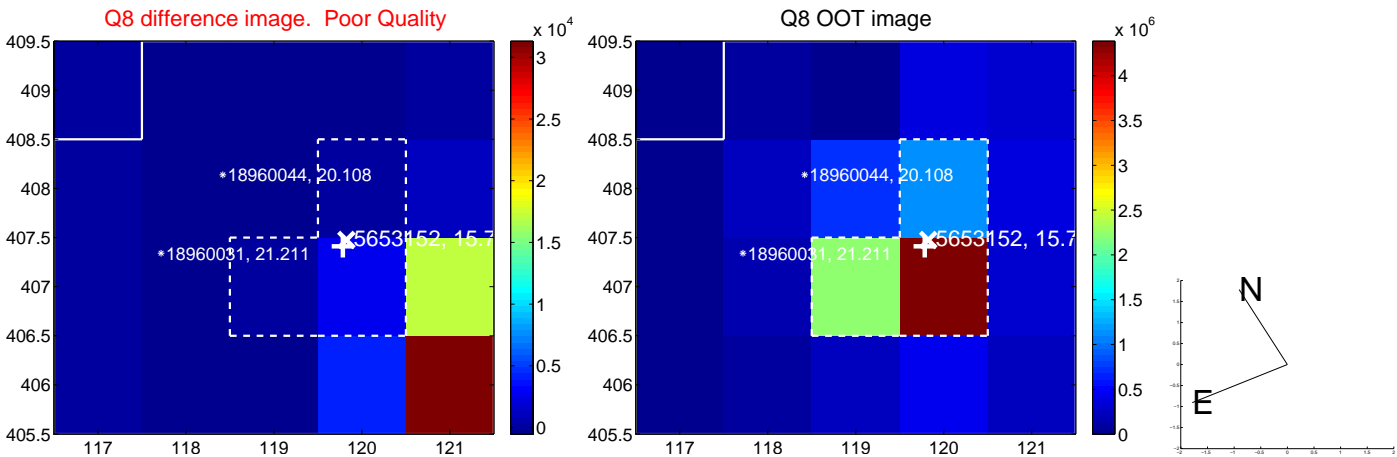
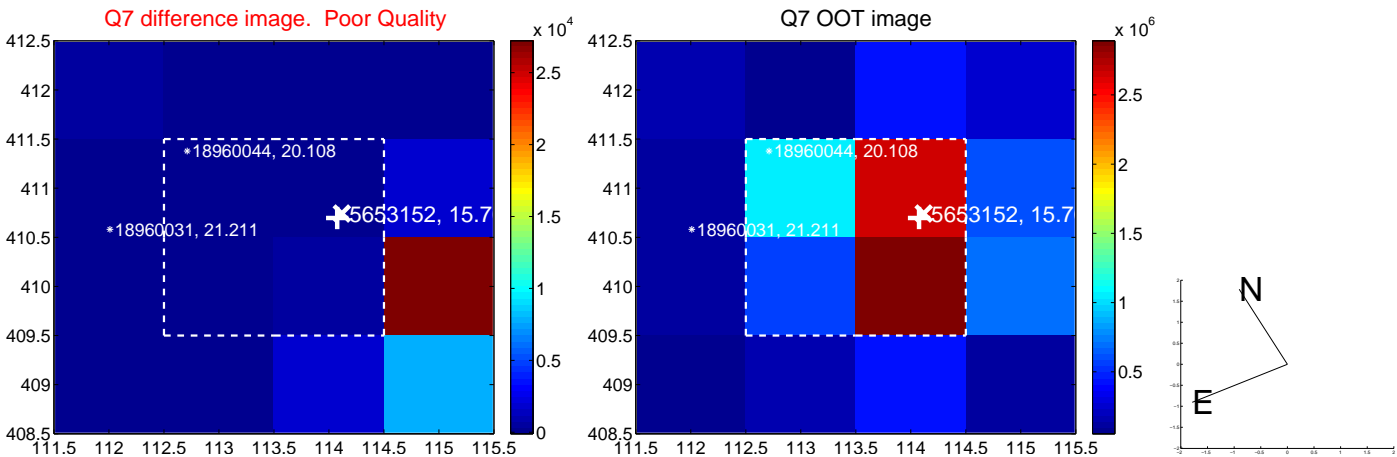
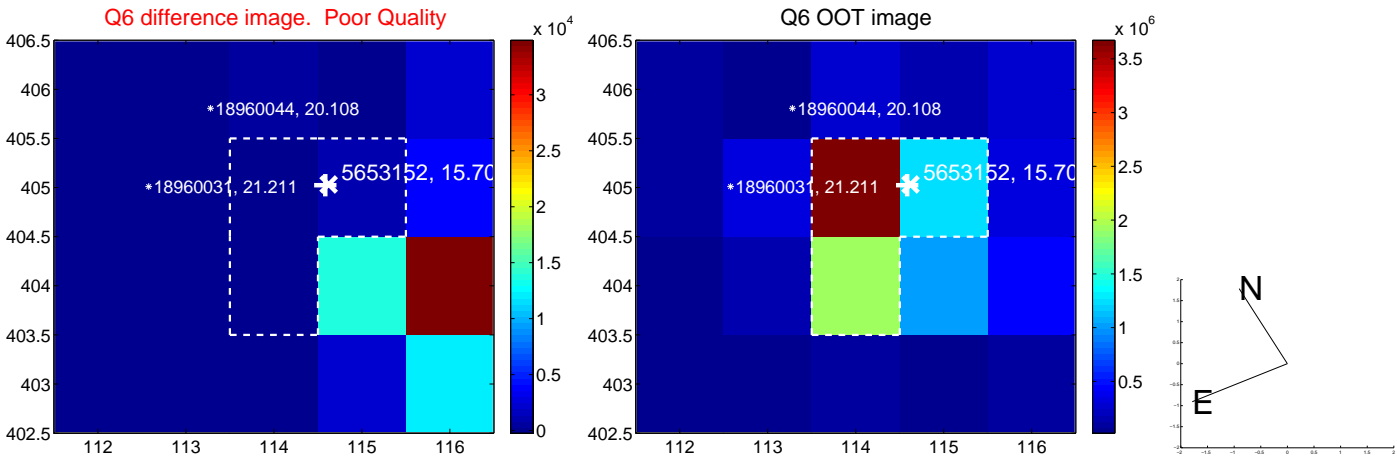
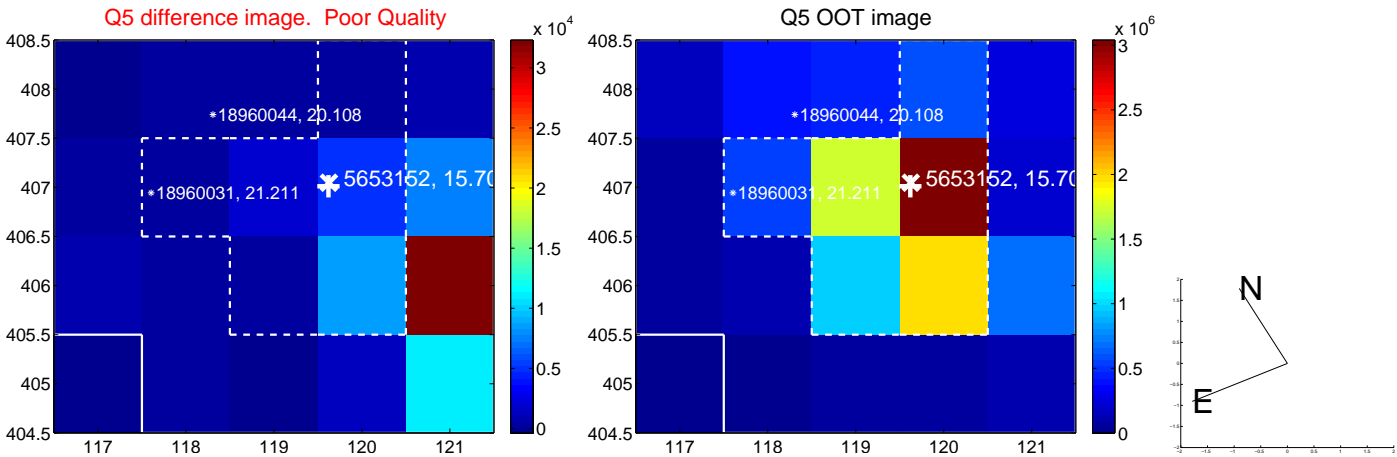


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

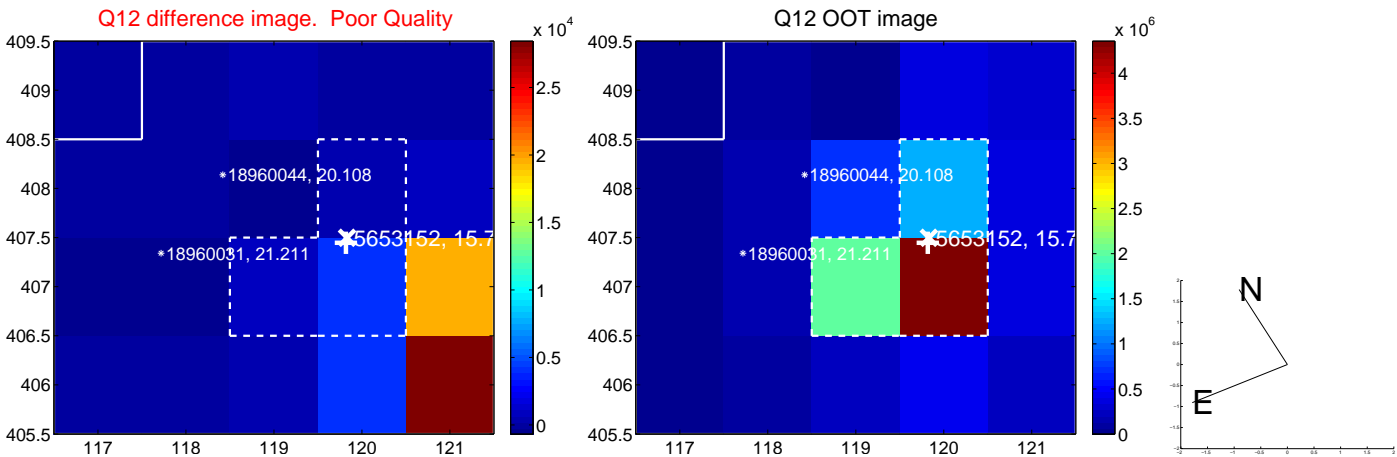
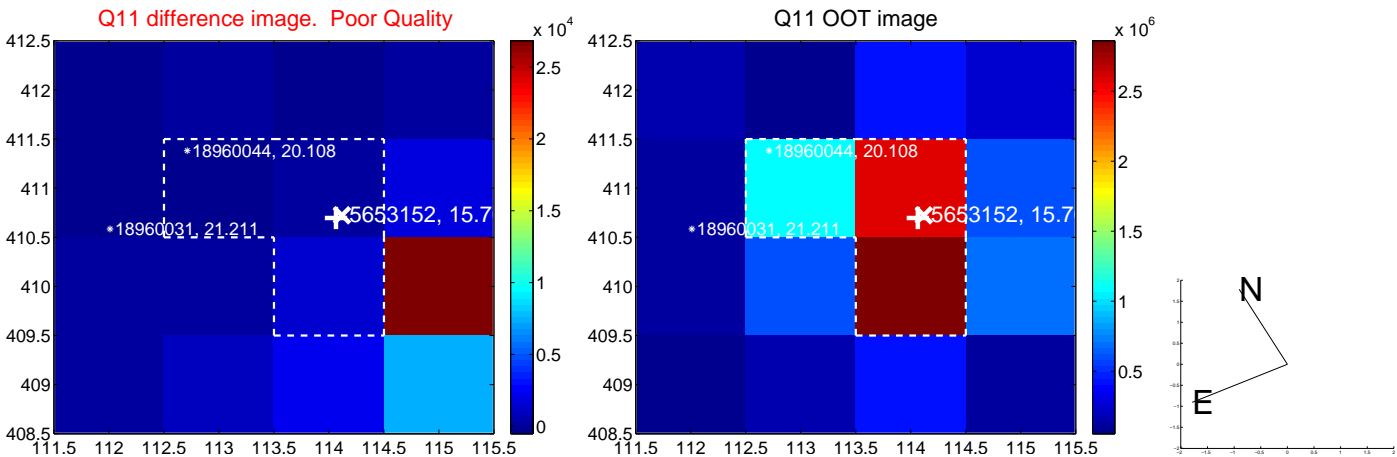
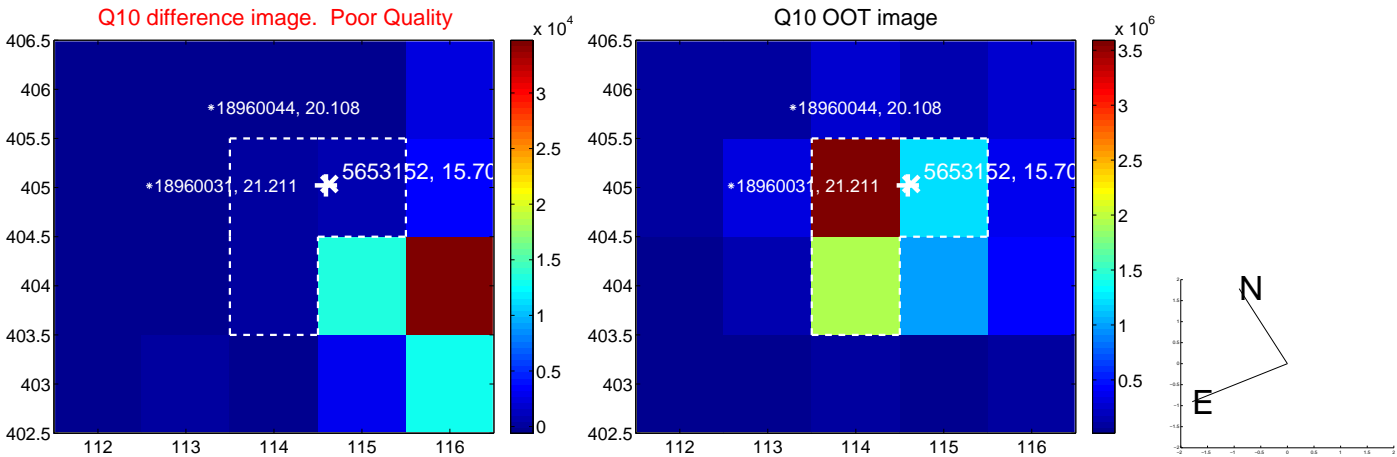
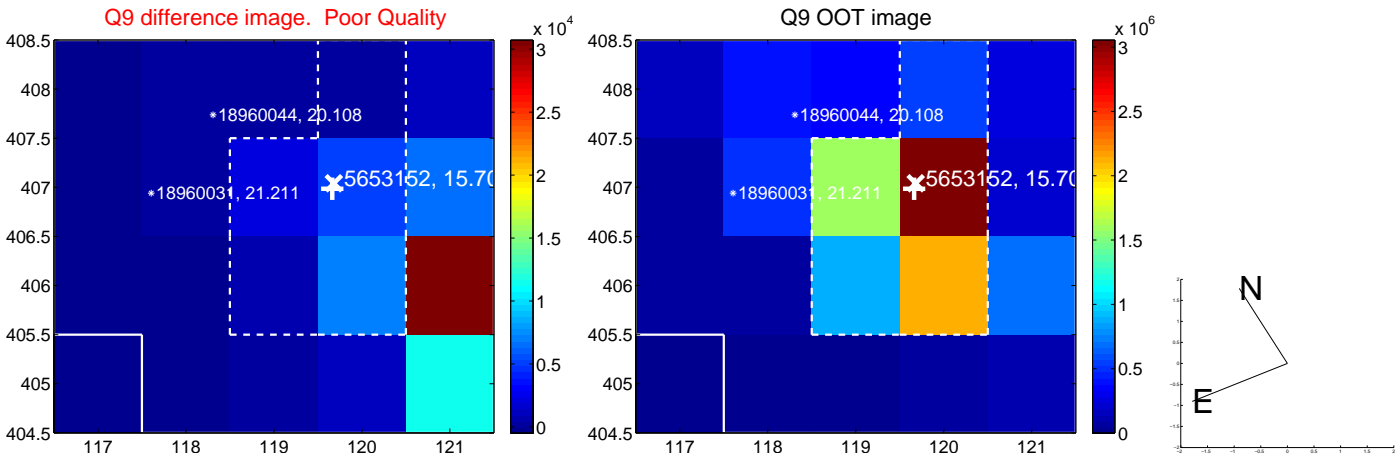


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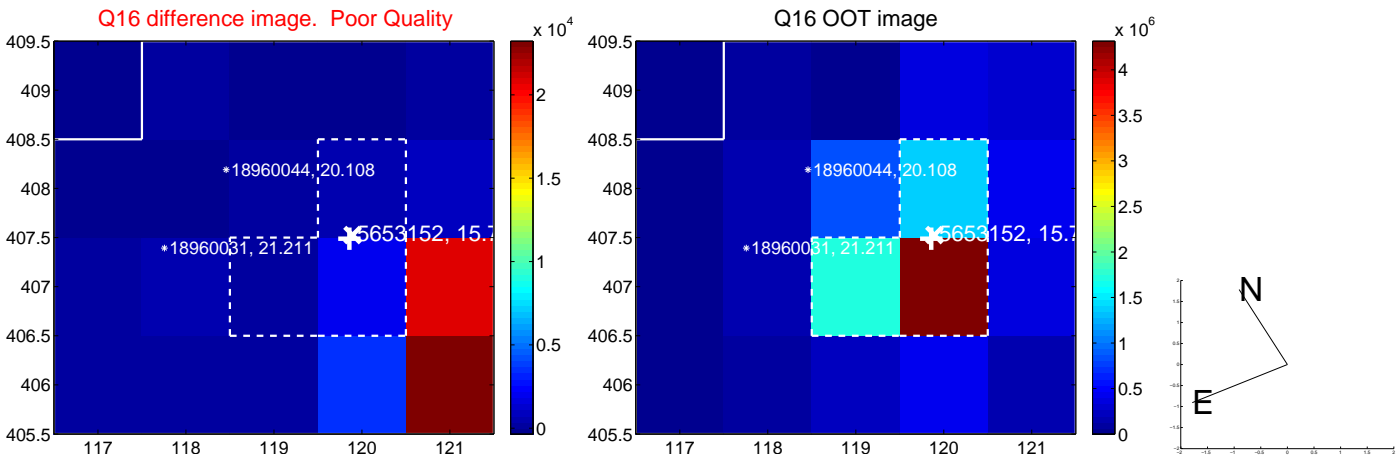
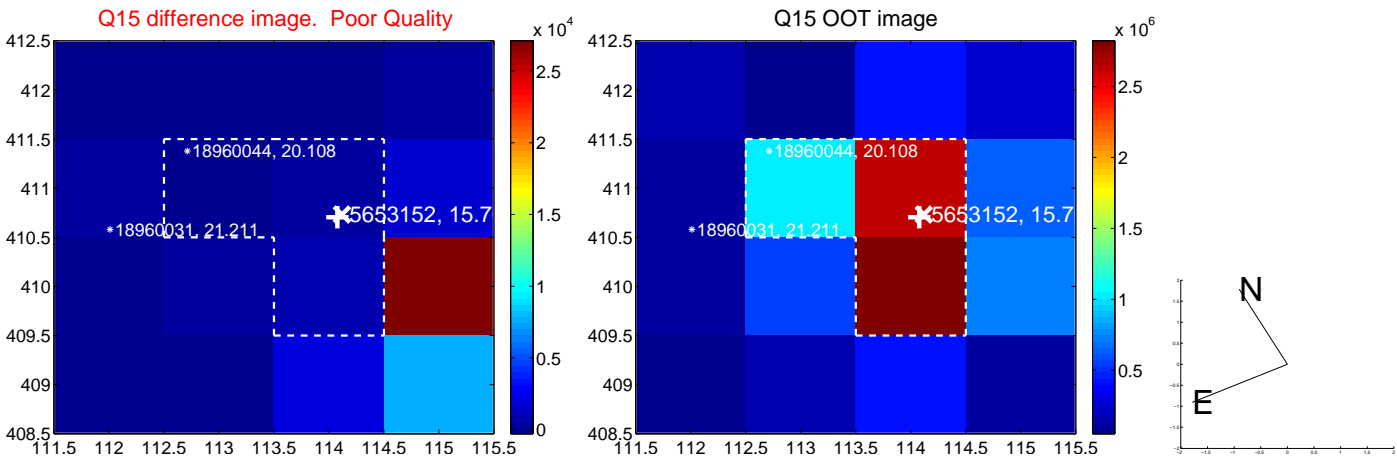
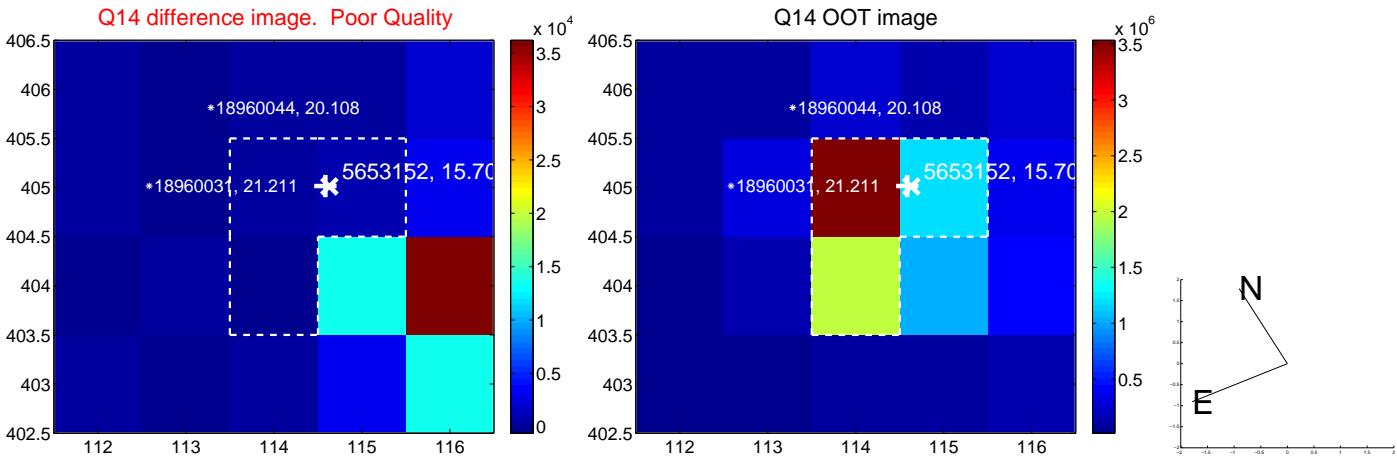
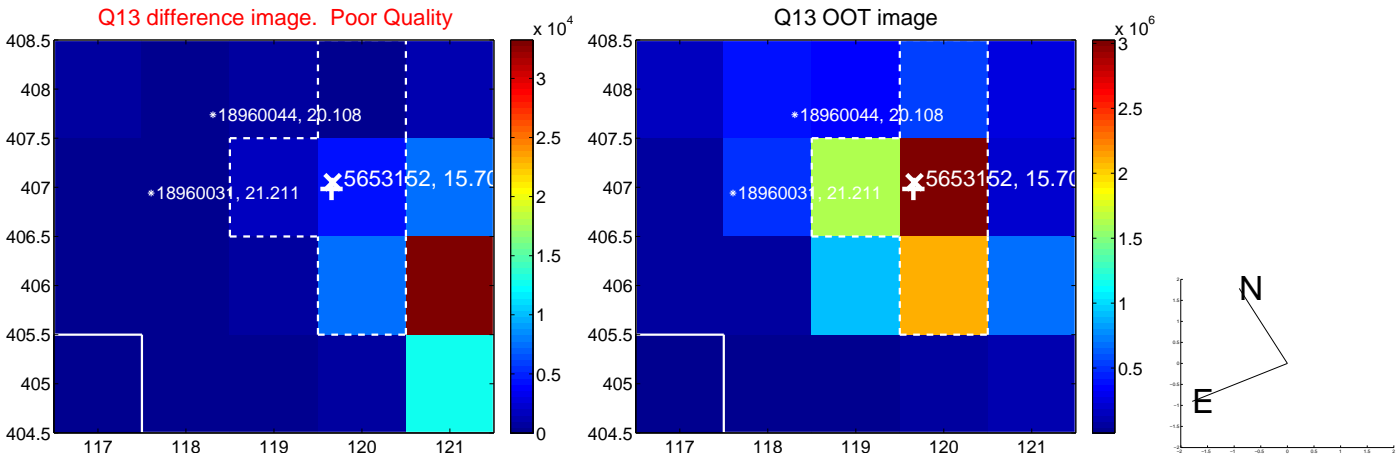




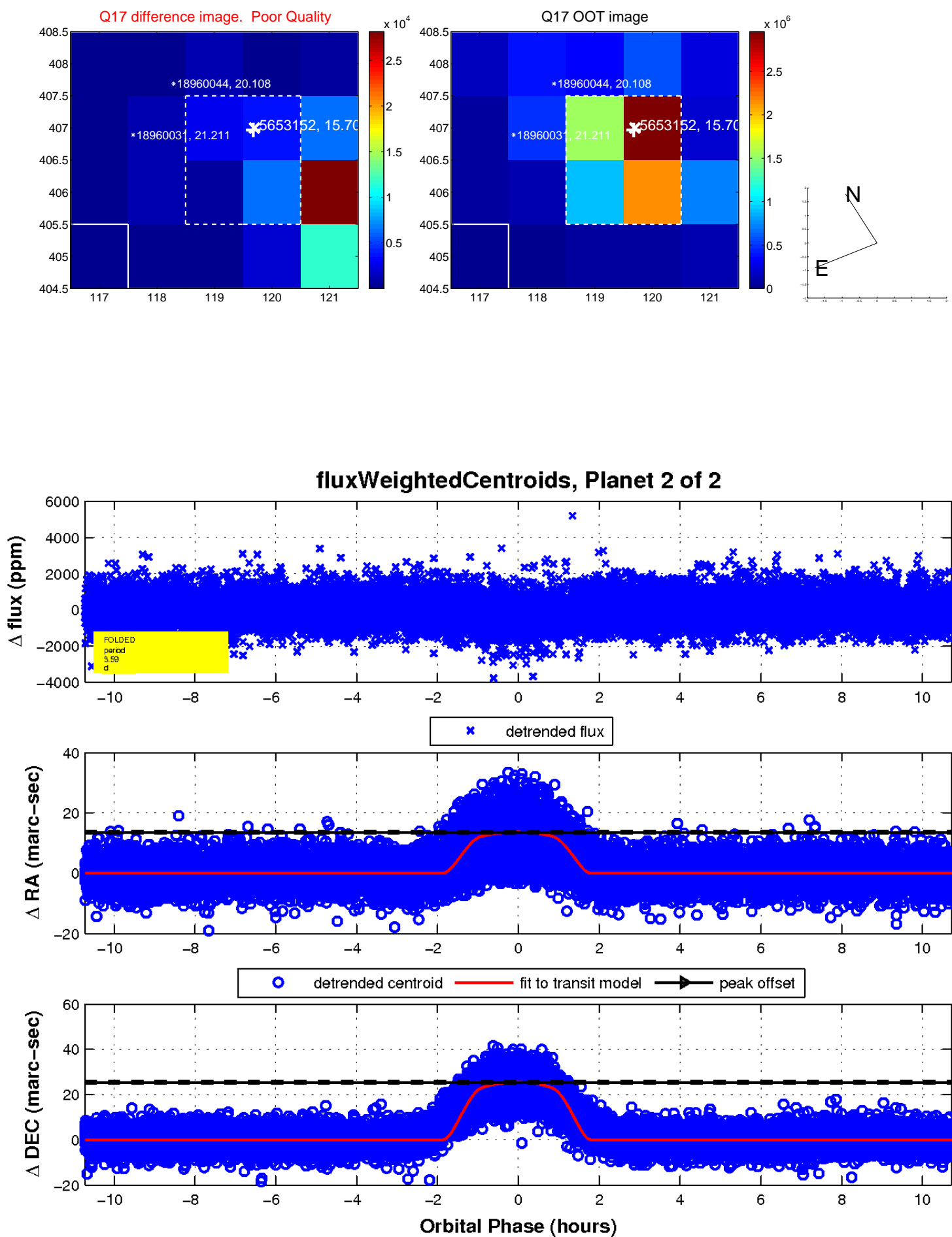
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

