

# KIC 006392581

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006392581-01	OBS	No	1.484281	131.544242	39.9	6.905	7.2	6.3	0.94	5936	0.65	1493.88
006392581-02	OBS	No	204.611530	264.947332	677.0	20.651	9.4	8.0	0.94	5936	2.70	2.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006392581-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
006392581-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—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.

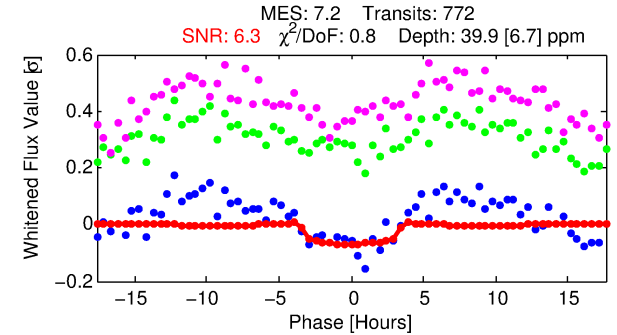
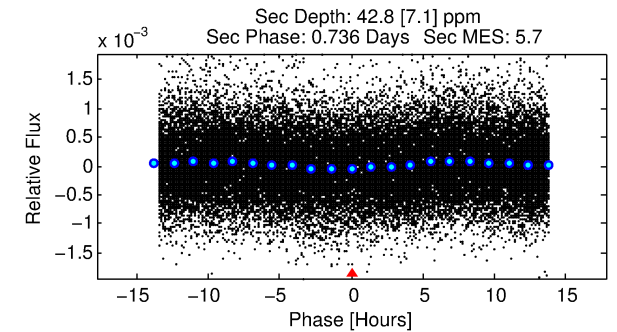
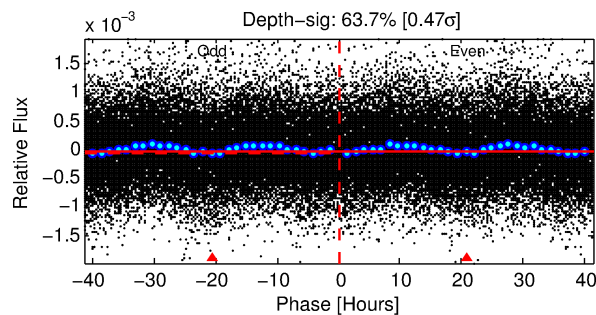
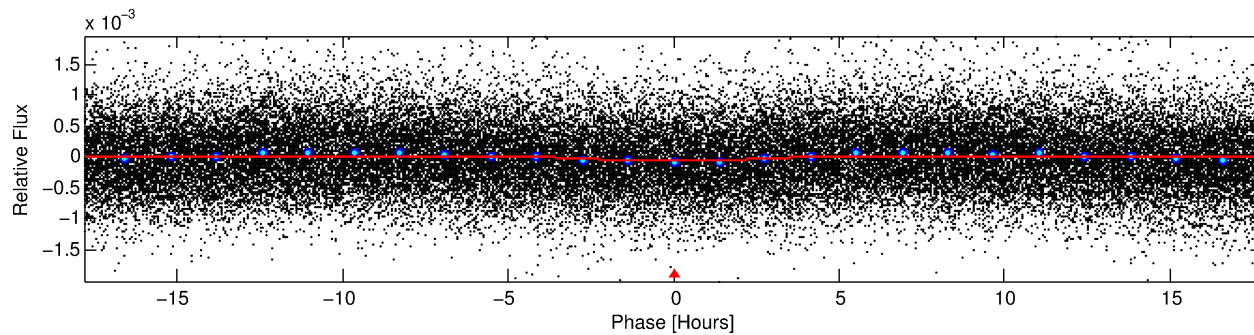
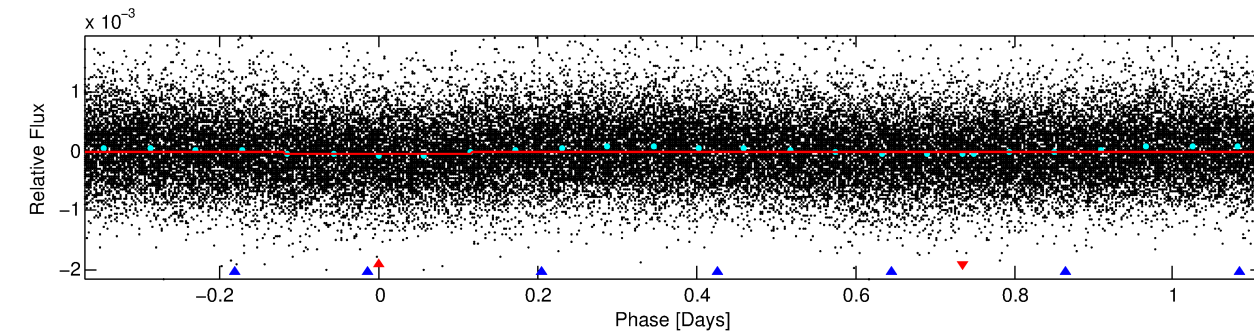
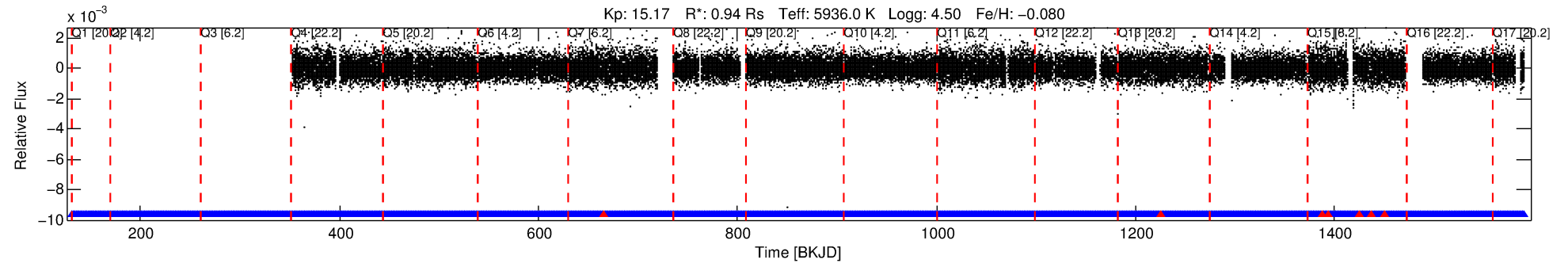
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006392581-01

No Significant Match Found

# DV One-Page Summary

KIC: 6392581 Candidate: 1 of 2 Period: 1.484 d



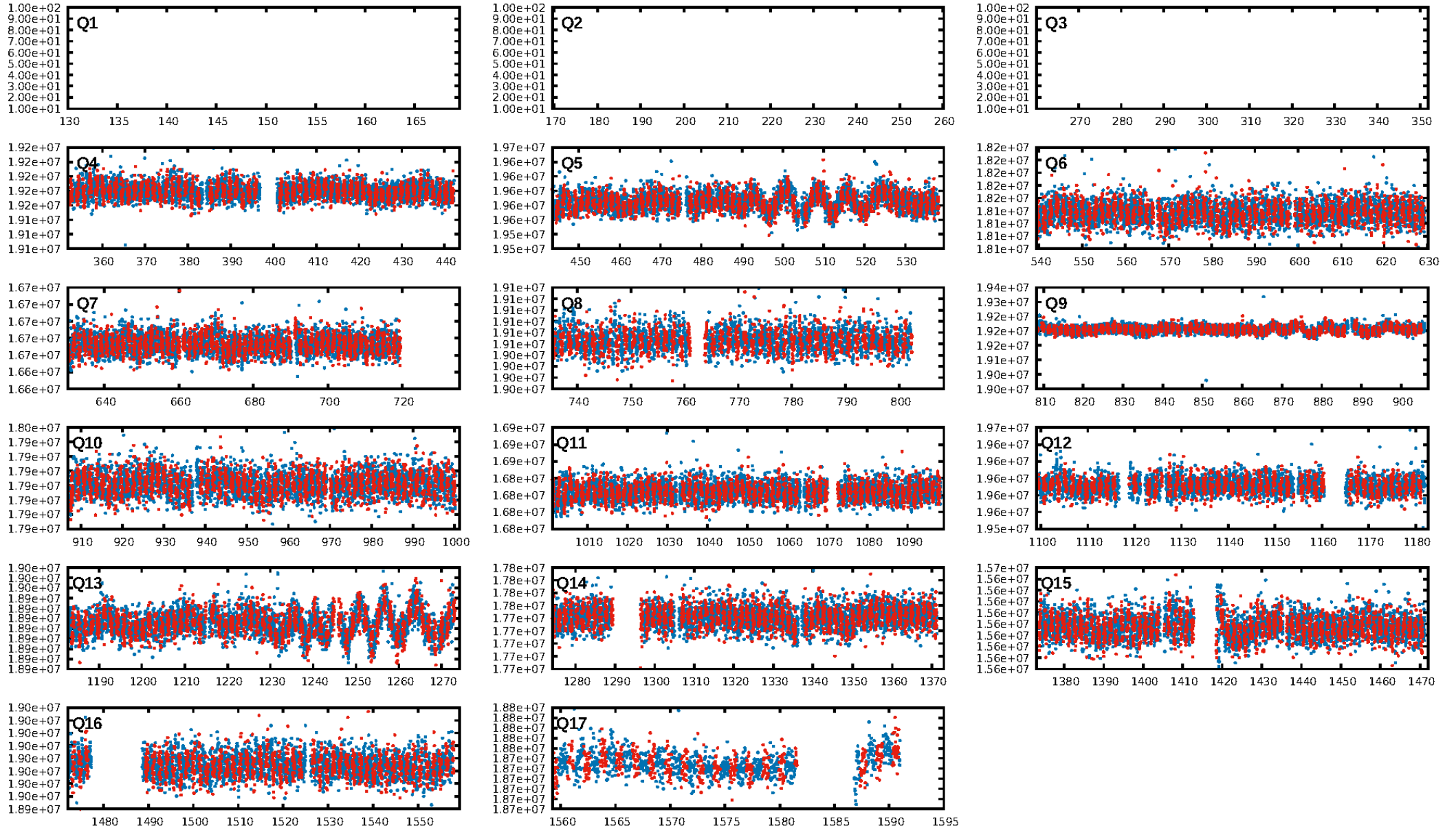
## DV Fit Results:

Period = 1.48428 [0.00003] d  
Epoch = 131.5442 [0.0109] BKJD  
Rp/R\* = 0.0064 [0.0063]  
a/R\* = 1.36 [3.00]  
b = 0.78 [2.47]  
Seff = 1493.88 [607.49]  
Teq = 1585 [161] K  
Rp = 0.65 [0.68] Re  
a = 0.0256 [0.0067] AU  
Ag = 36.50 [74.30] [0.48 $\sigma$ ]  
Teffp = 6024 [3019] K [1.47 $\sigma$ ]

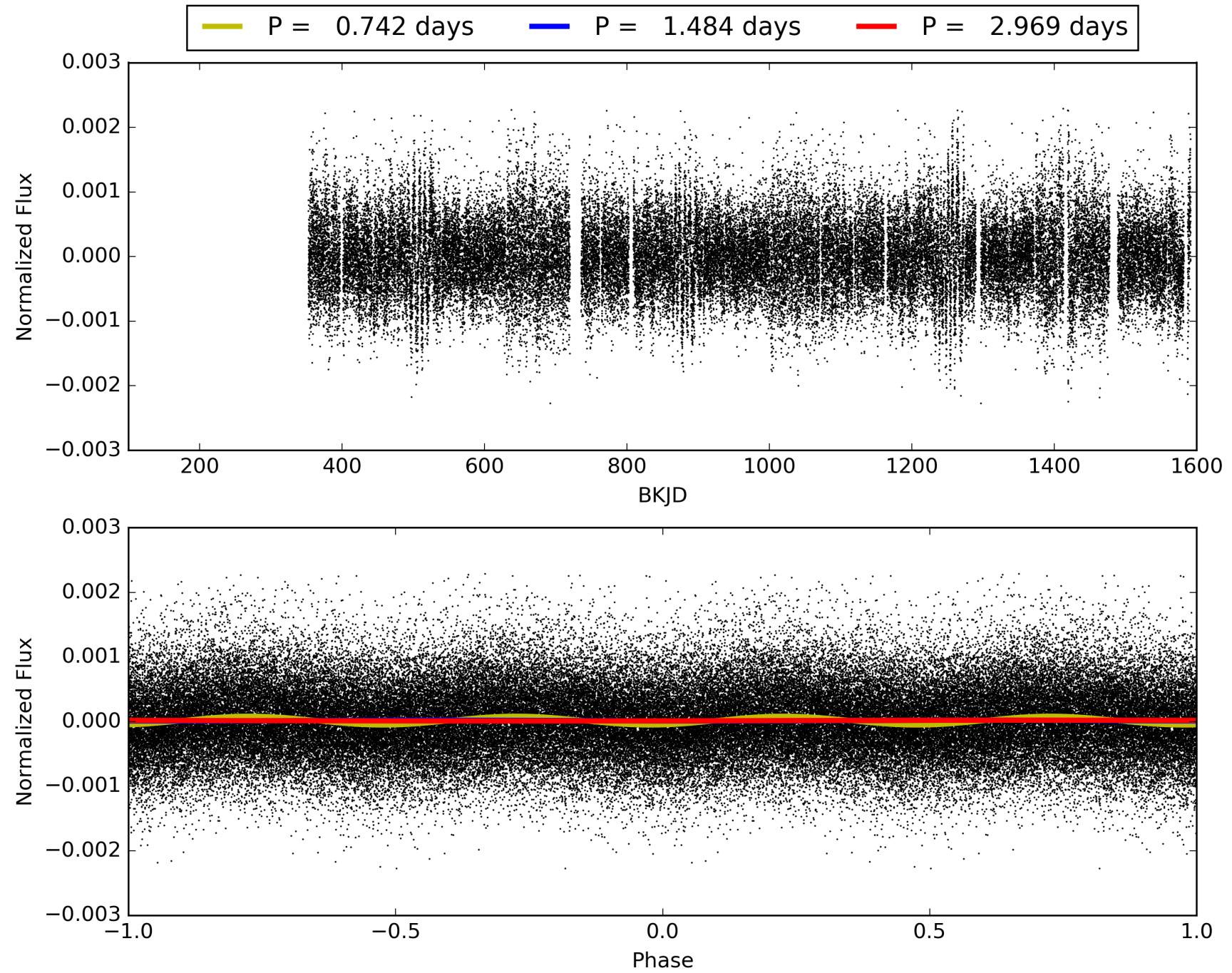
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [223.88 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 9.11e-12  
RollingBand-fgt: 0.99 [746/753]  
GhostDiagnostic-chr: 0.5088  
Centroid-sig: 1.2%  
Centroid-so: 2.630 arcsec [1.42 $\sigma$ ]  
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 [14/14]

# TCE 006392581-01, PDC Light Curves

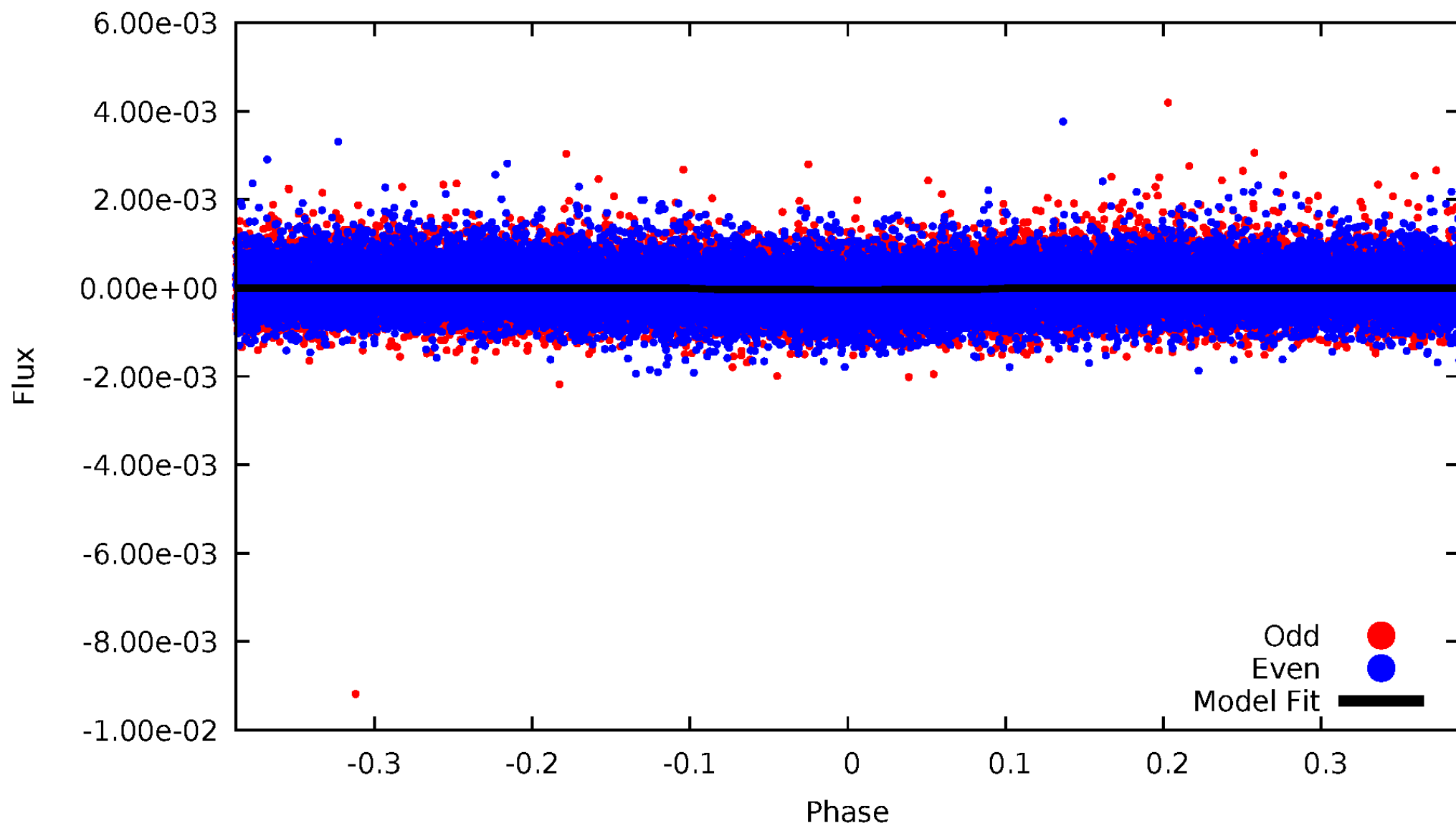


# TCE 006392581-01



# DV Odd/Even

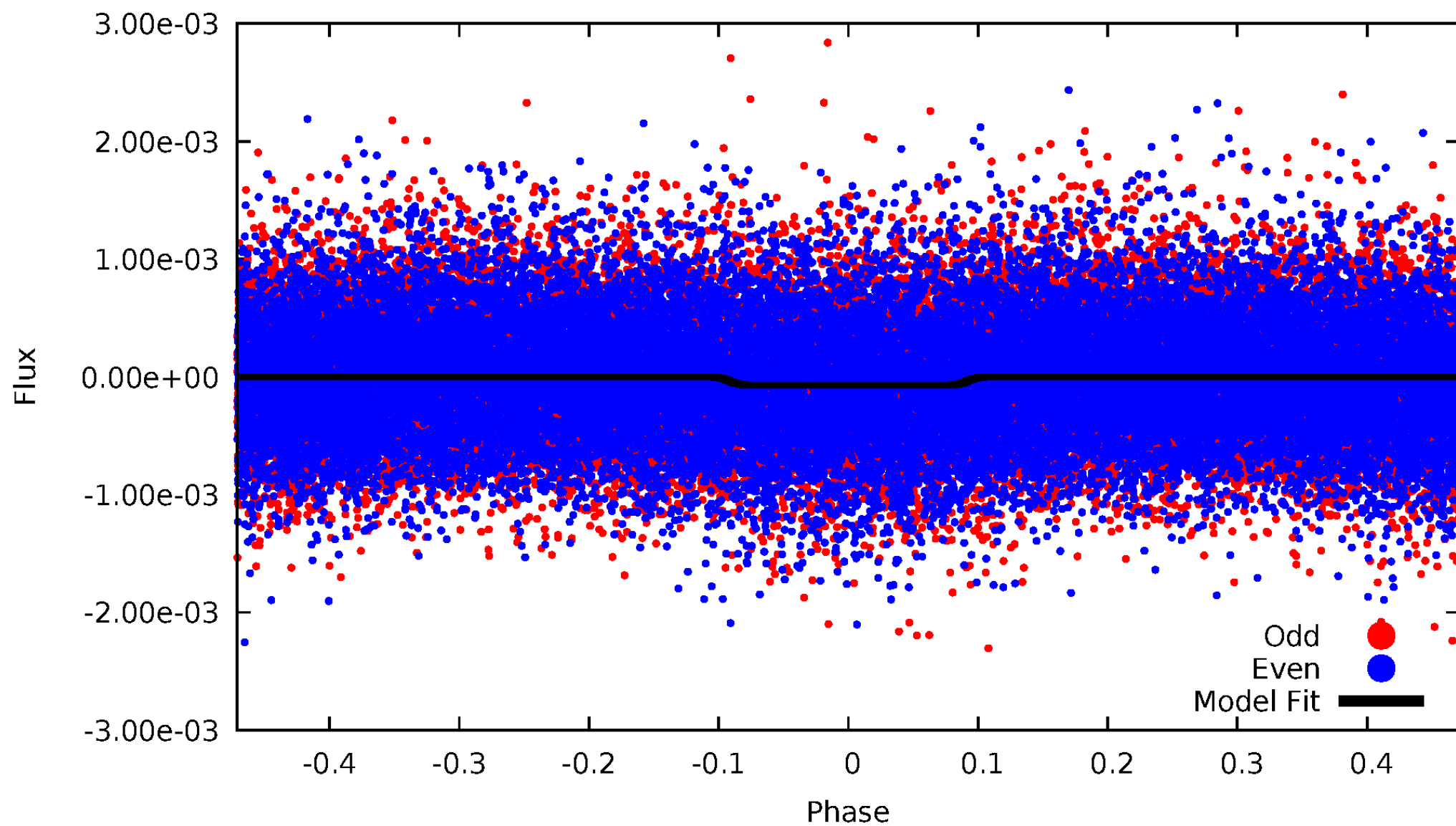
TCE 006392581-01



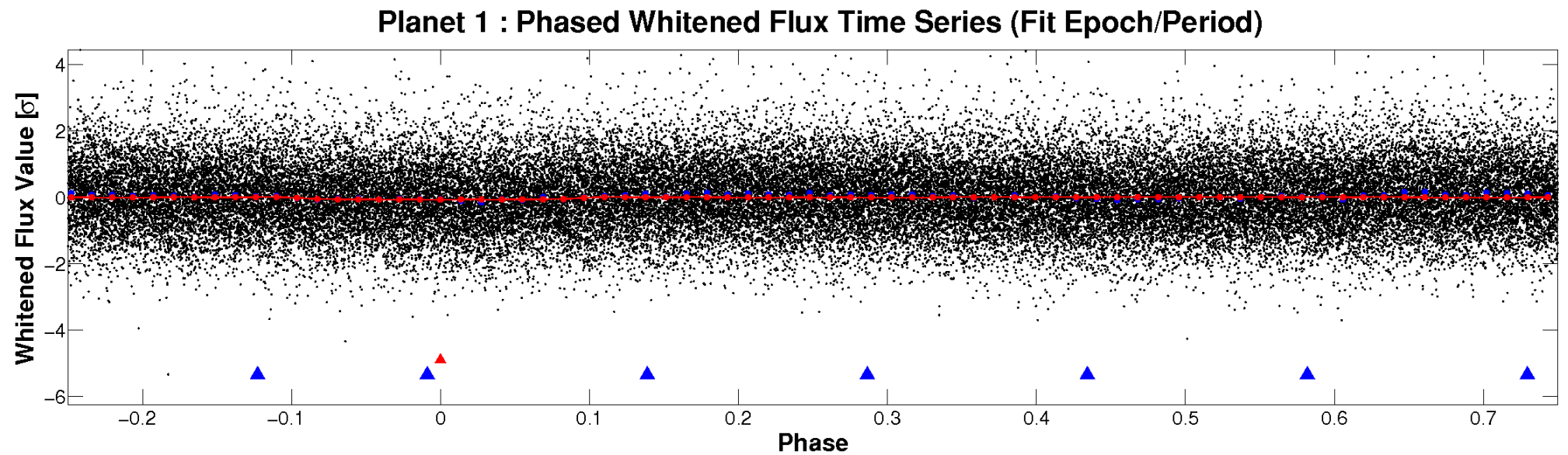
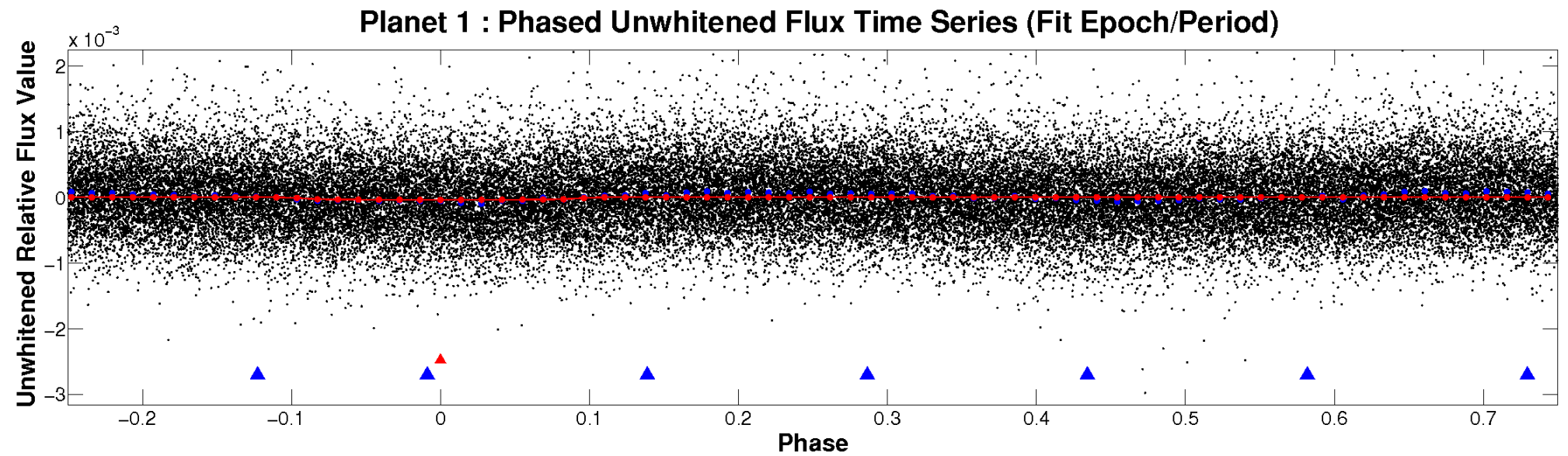


# ALT Odd/Even

TCE 006392581-01

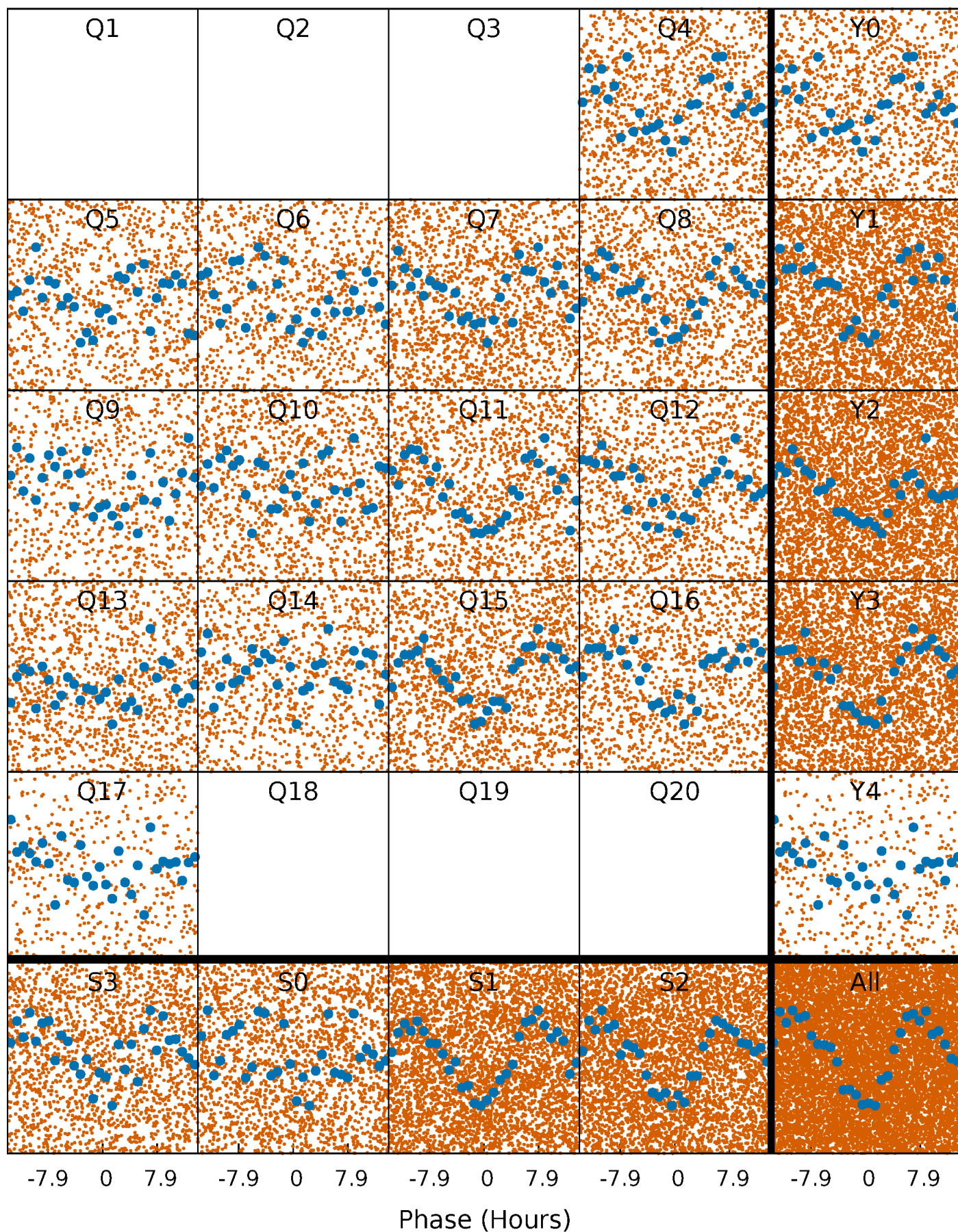


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

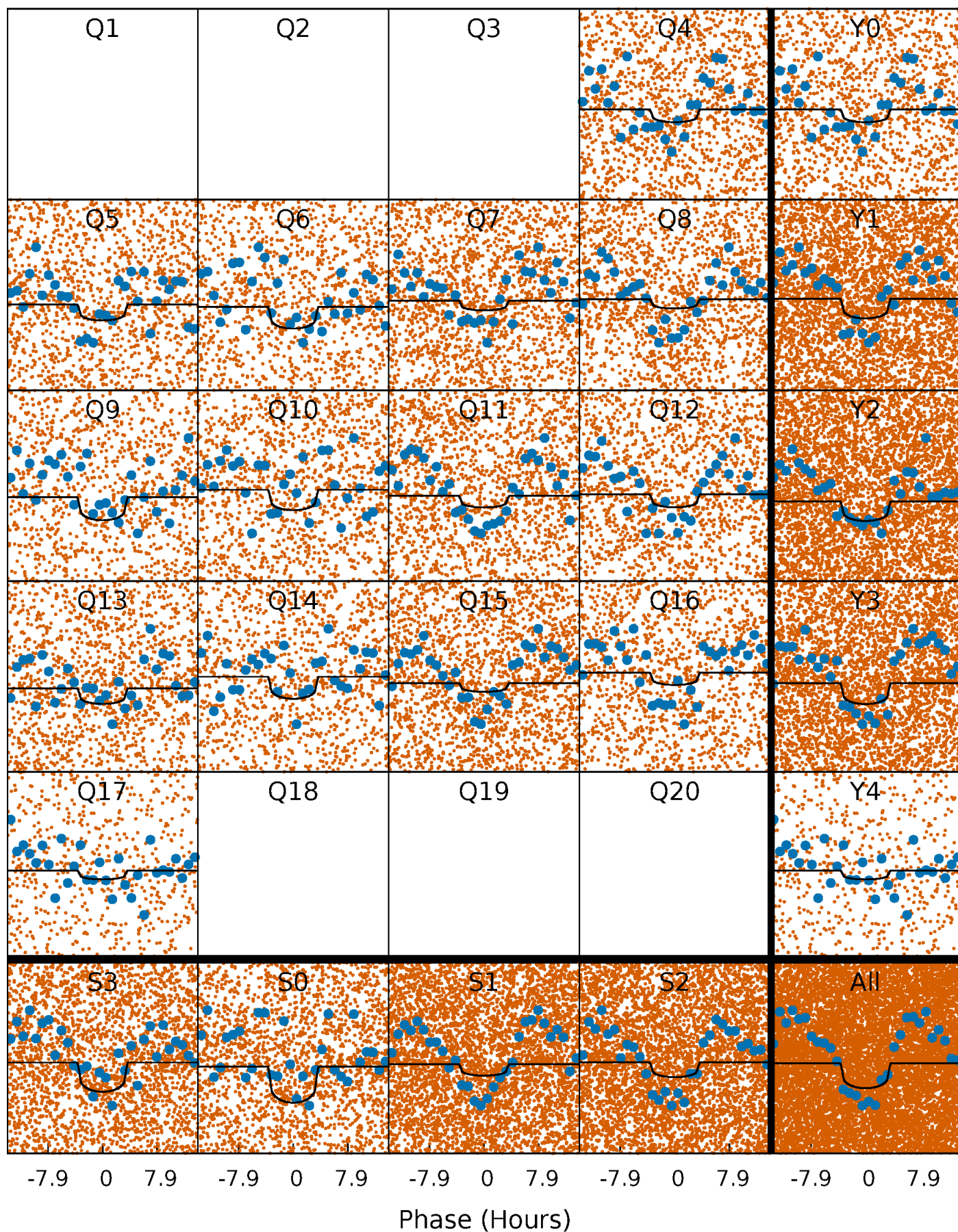
TCE 006392581-01 P= 1.484281 Days  $T_0=131.544242$  (BKJD)





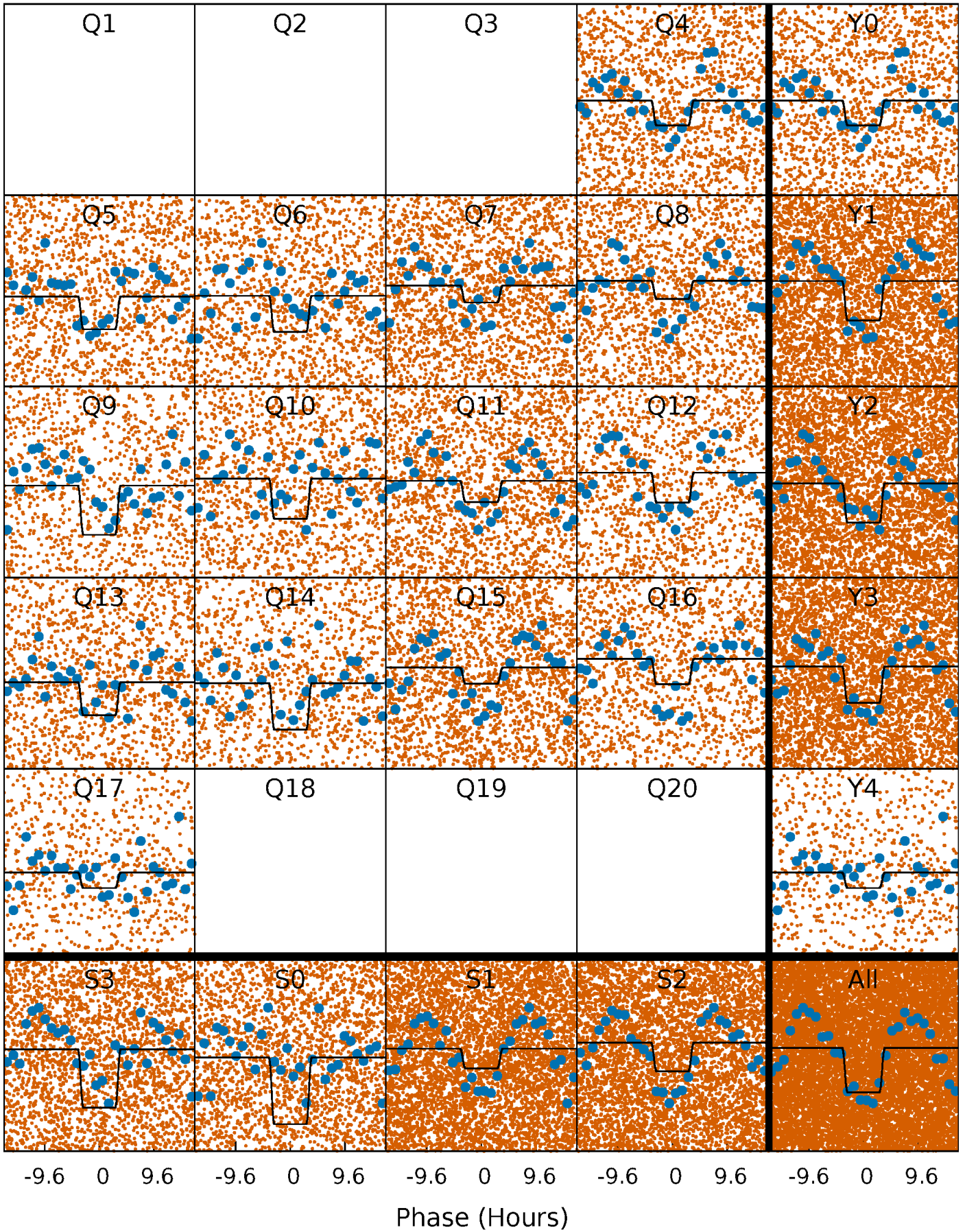
# DV Quarter-Phased Transit Curves

TCE 006392581-01 P= 1.484281 Days  $T_0=131.544242$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006392581-01 P= 1.484293 Days  $T_0=131.521115$  (BKJD)

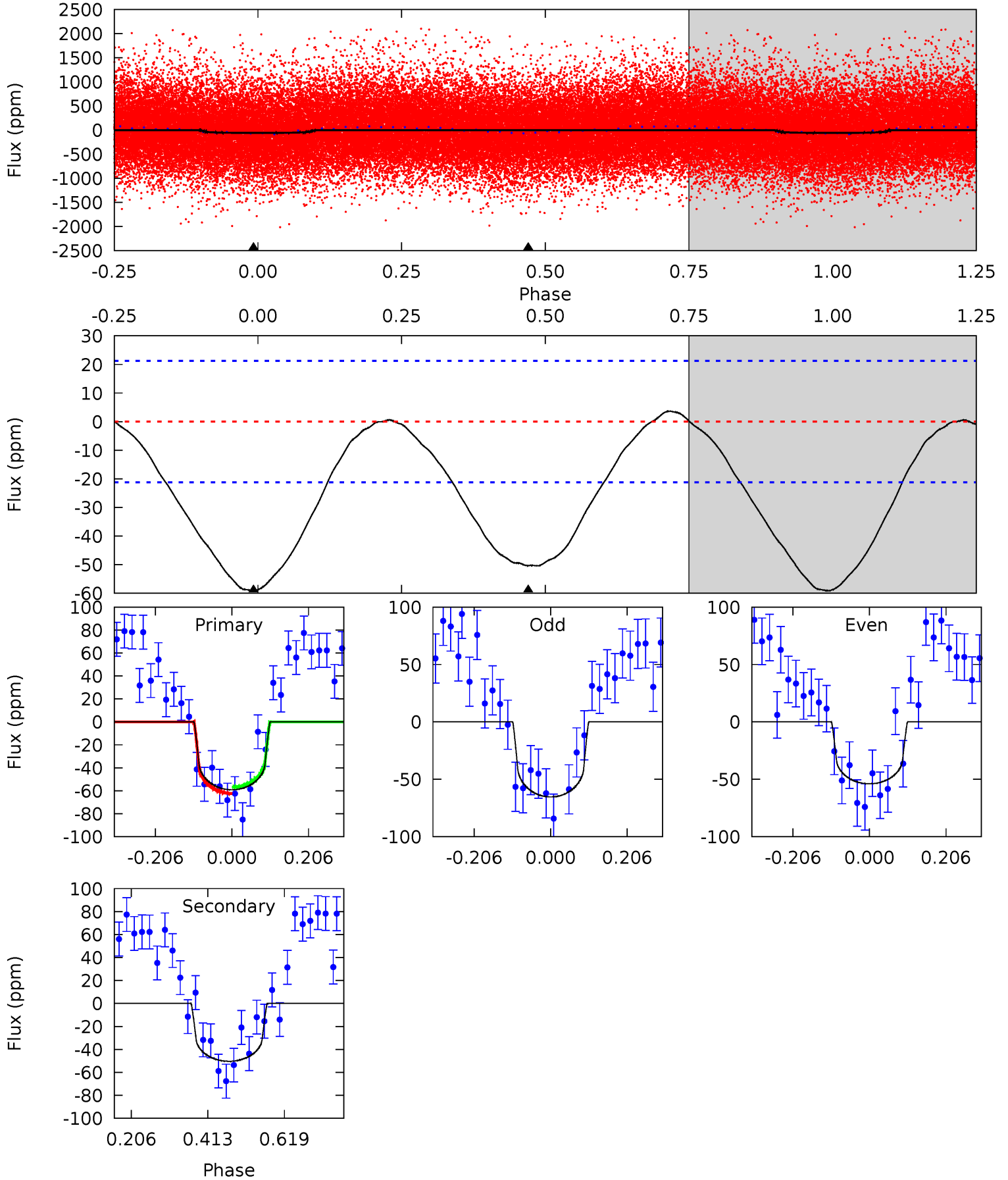




# DV Model-Shift Uniqueness Test

006392581-01, P = 1.484281 Days, E = 131.544242 Days

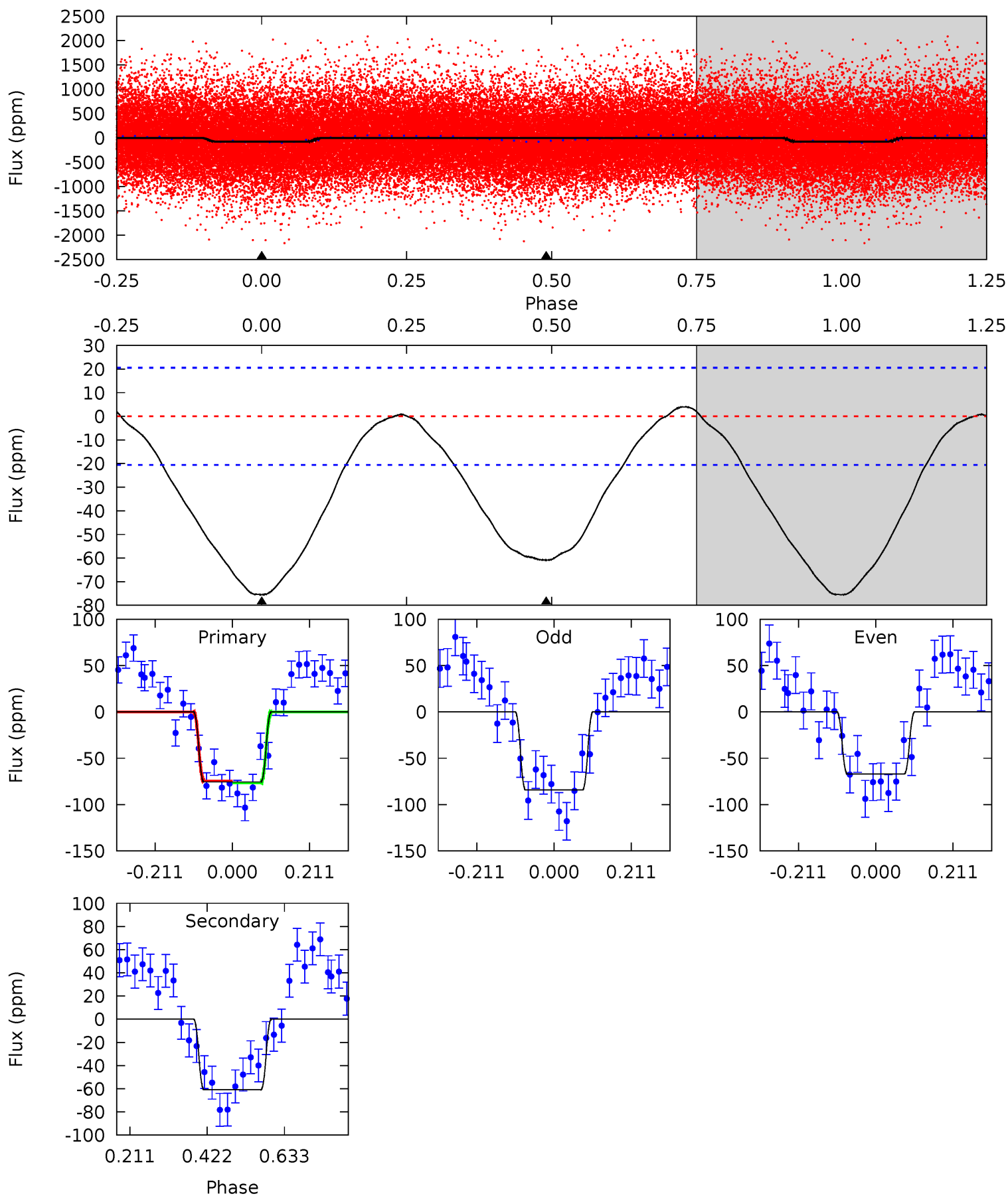
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	10.5	0	0	4.41	1.26	0.46	12.3	12.3	10.5	10.5	1.19	0.96	0.06	0.57



# Alt Model-Shift Uniqueness Test

006392581-01, P = 1.484293 Days, E = 131.521115 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
16.2	13.0	0	0	4.41	1.25	0.62	16.2	16.2	13.0	13.0	1.86	1.21	0.05	0.21





### Stellar Parameters For KIC 006392581

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5936^{+187}_{-207}$	$4.500^{+0.052}_{-0.208}$	$-0.080^{+0.250}_{-0.300}$	$0.938^{+0.295}_{-0.098}$	$1.016^{+0.132}_{-0.132}$	$1.731^{+0.483}_{-0.901}$
	+3%/-3%	+1%/-5%	+312%/-375%	+31%/-10%	+13%/-13%	+28%/-52%
Source	KIC0	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 006392581-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-50 \pm 5$	$0.80^{+0.64}_{-0.51}$	$2266^{+157}_{-108}$	$5758^{+5076}_{-1274}$	$28^{+179}_{-20}$
Alt.	$-61 \pm 5$	$1.01^{+0.66}_{-0.55}$	$2262^{+172}_{-116}$	$5419^{+2815}_{-1022}$	$21^{+78}_{-13}$

$T_{\text{max}}$  = 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

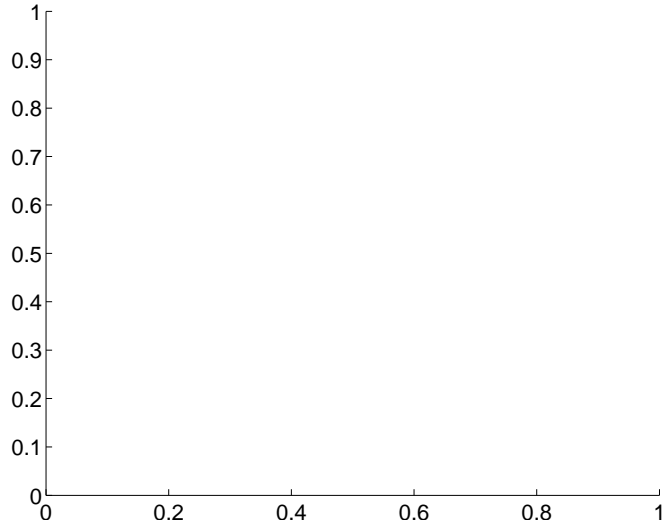
Supplemental centroid analysis for 006392581-01. Kepler magnitude: 15.17. Transit SNR 6.29

There are 0 quarters with good PRF difference image offsets

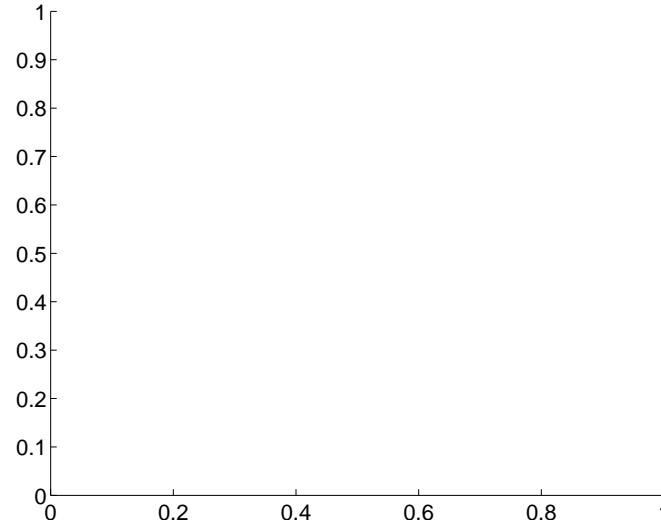
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	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	$2.63 \pm 1.85$	1.42	$0.11 \pm 2.94$	$-2.63 \pm 1.85$

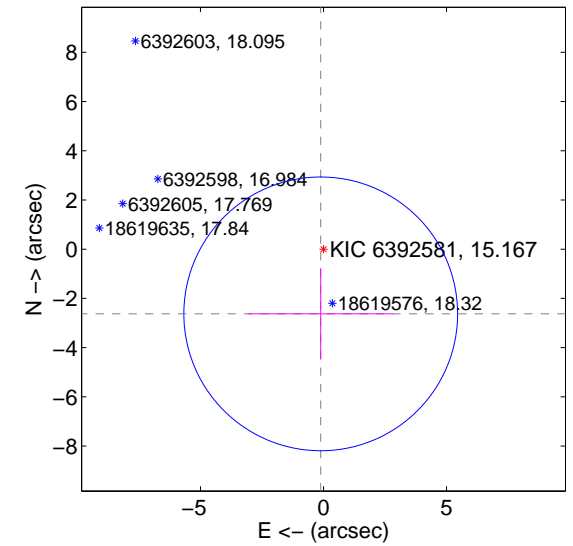
There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC

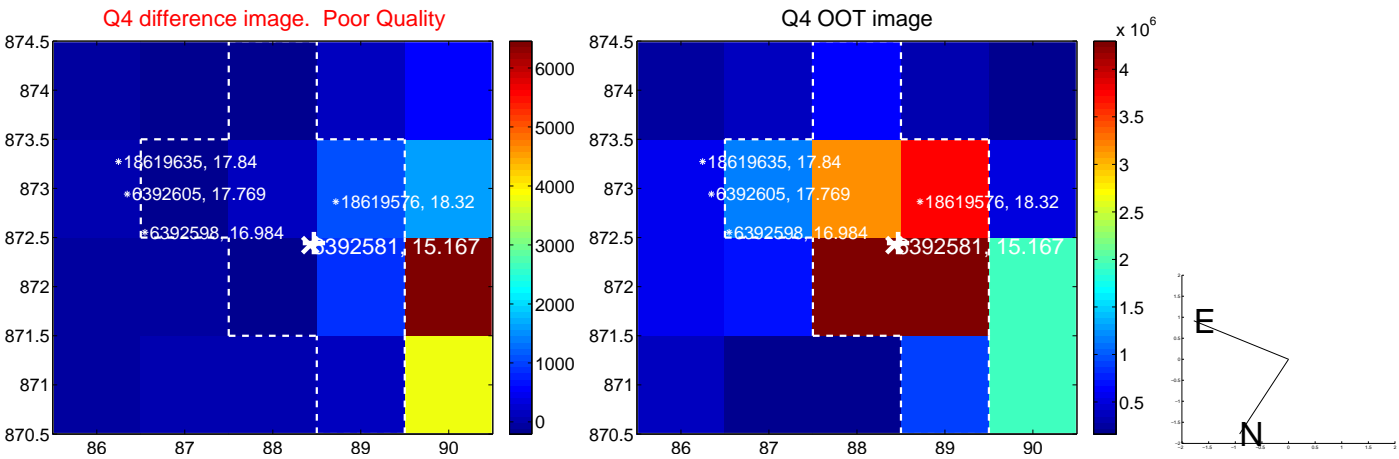
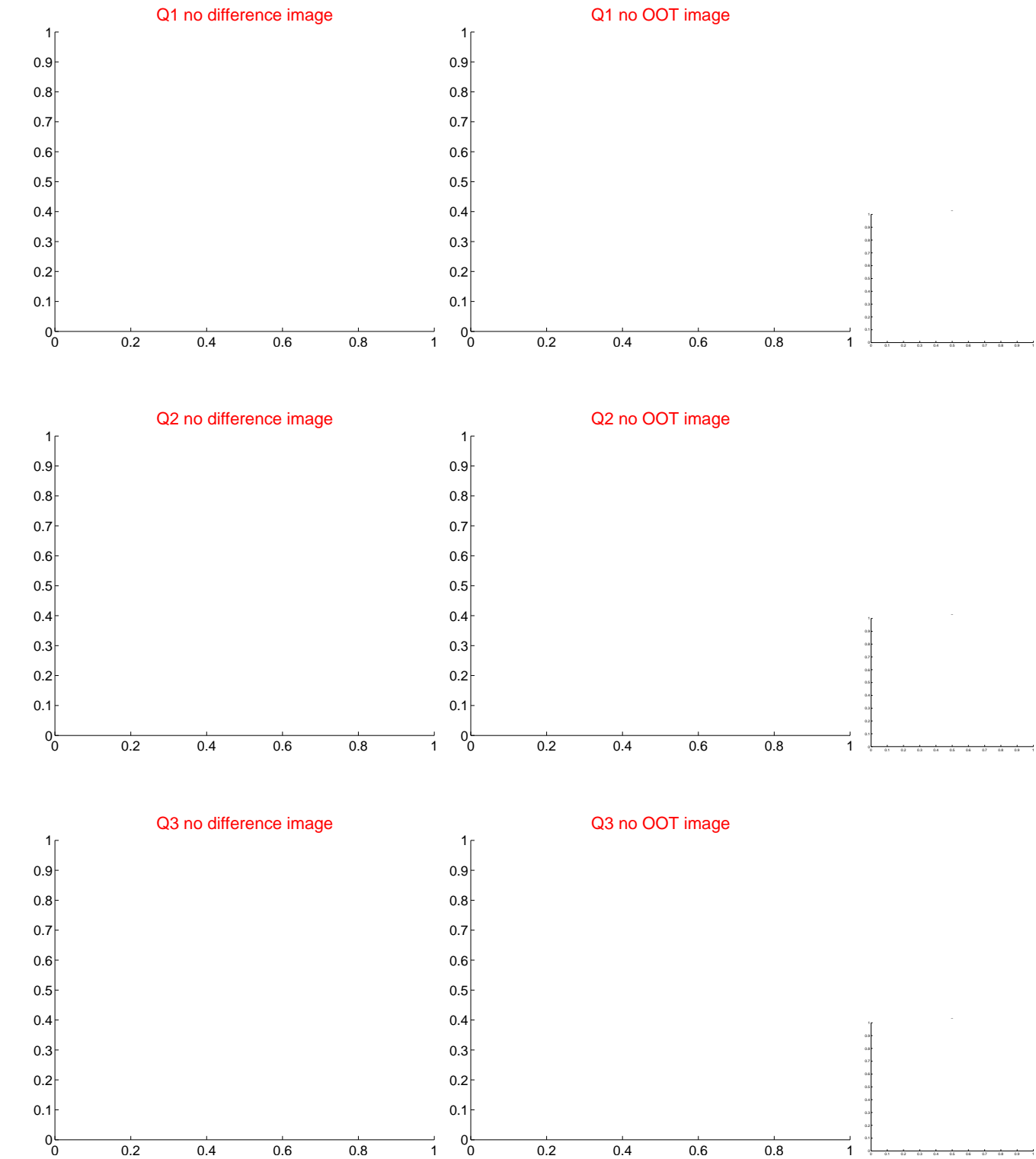


offset from photometric centroids

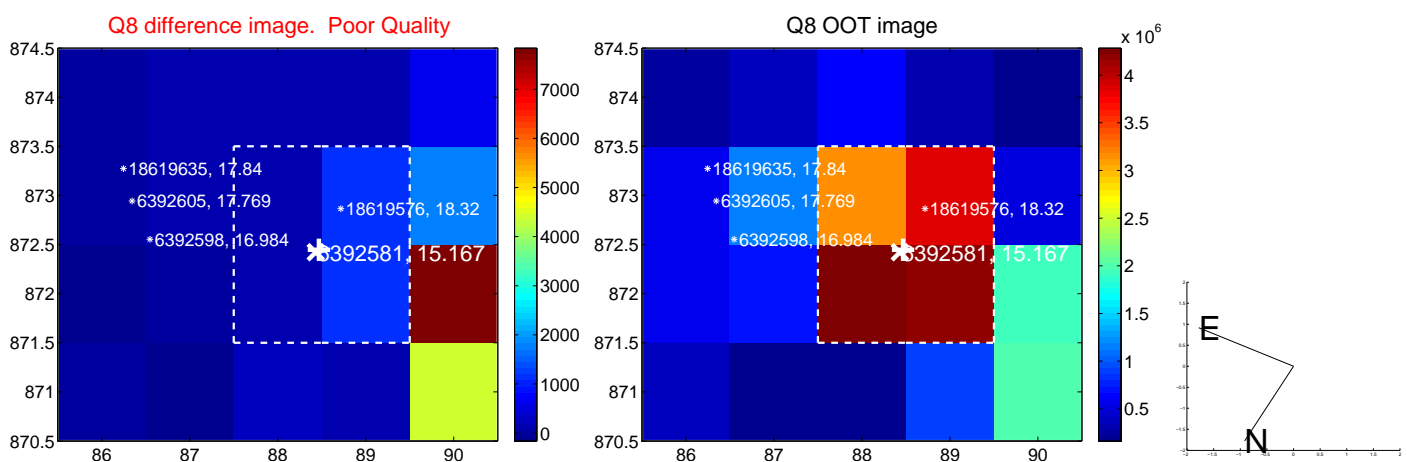
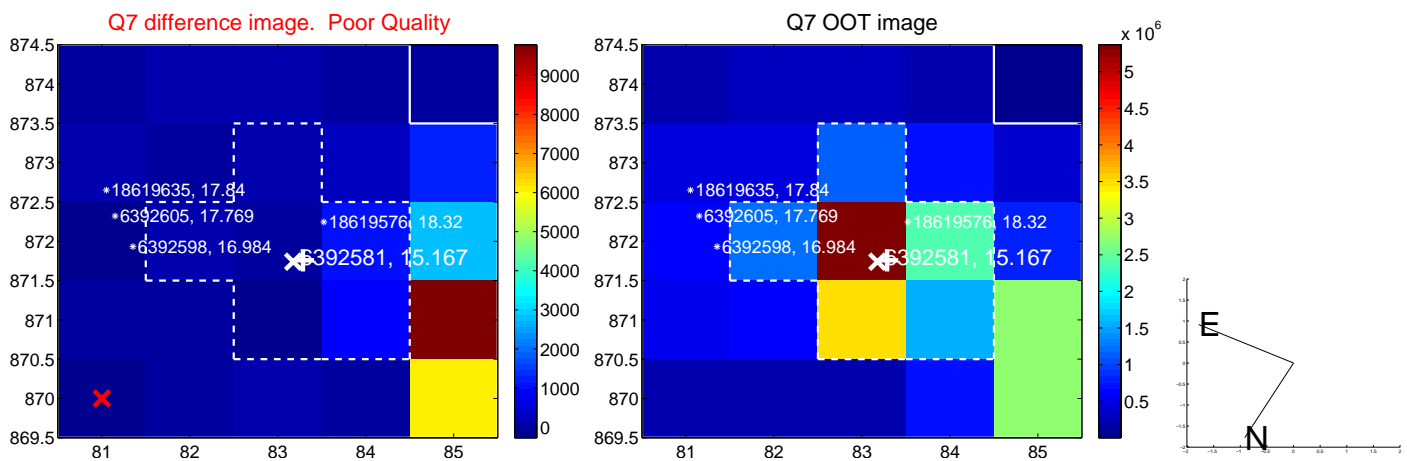
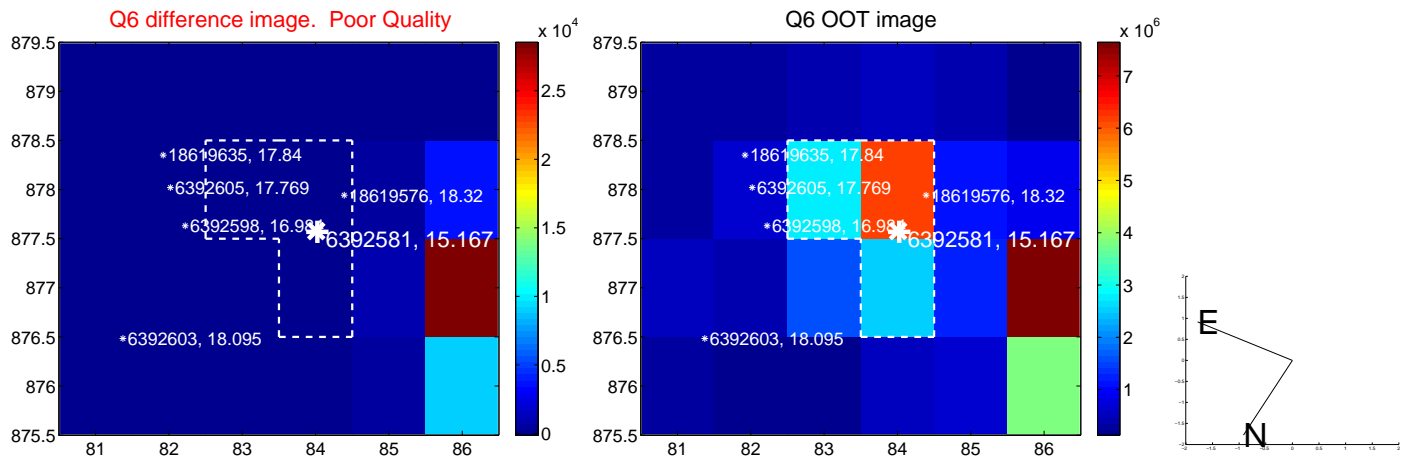
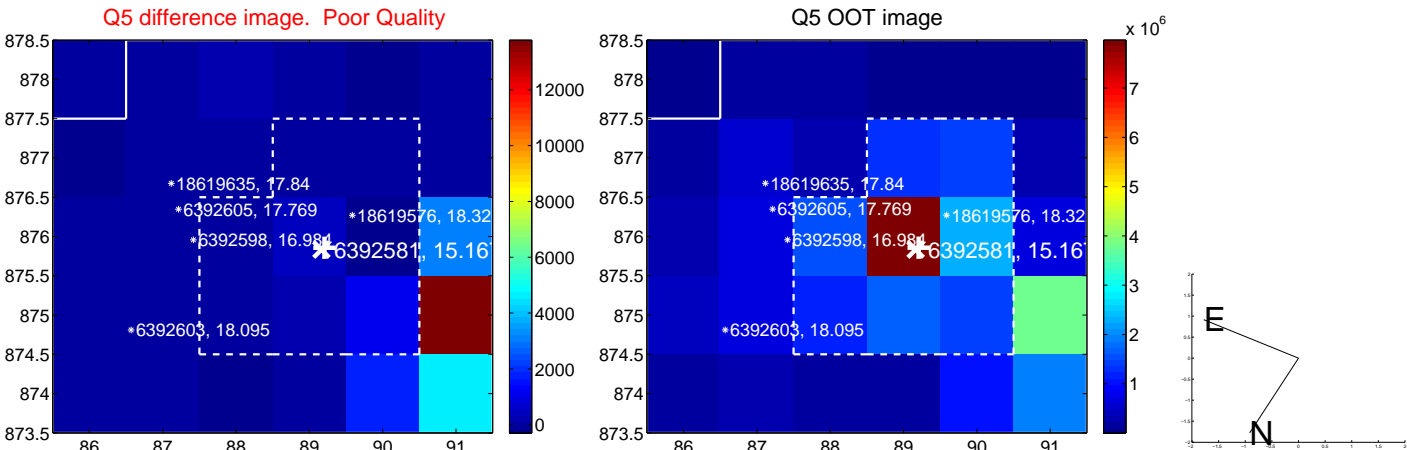


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

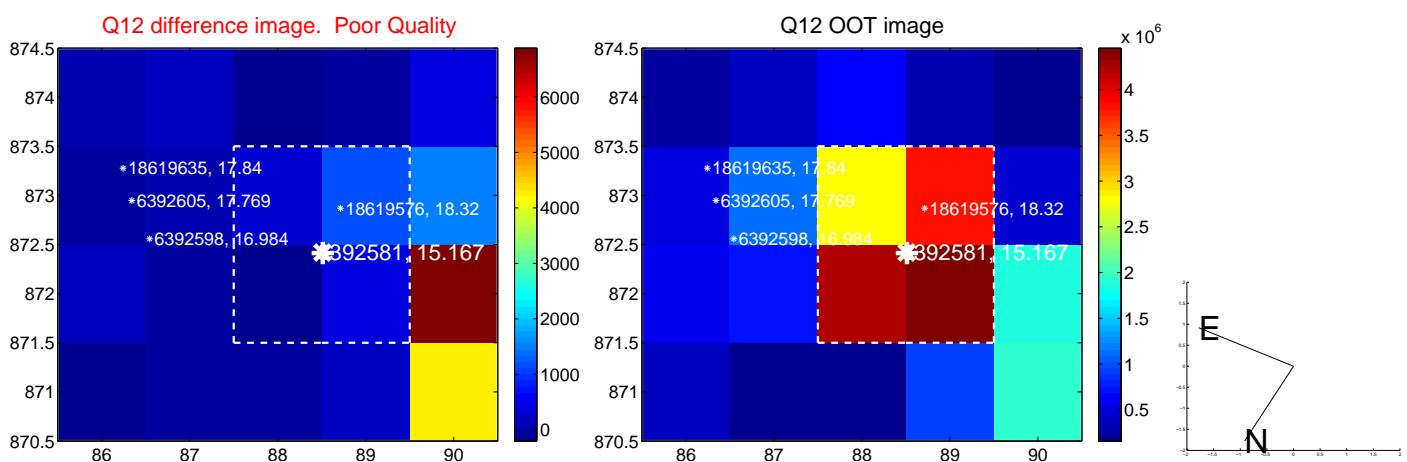
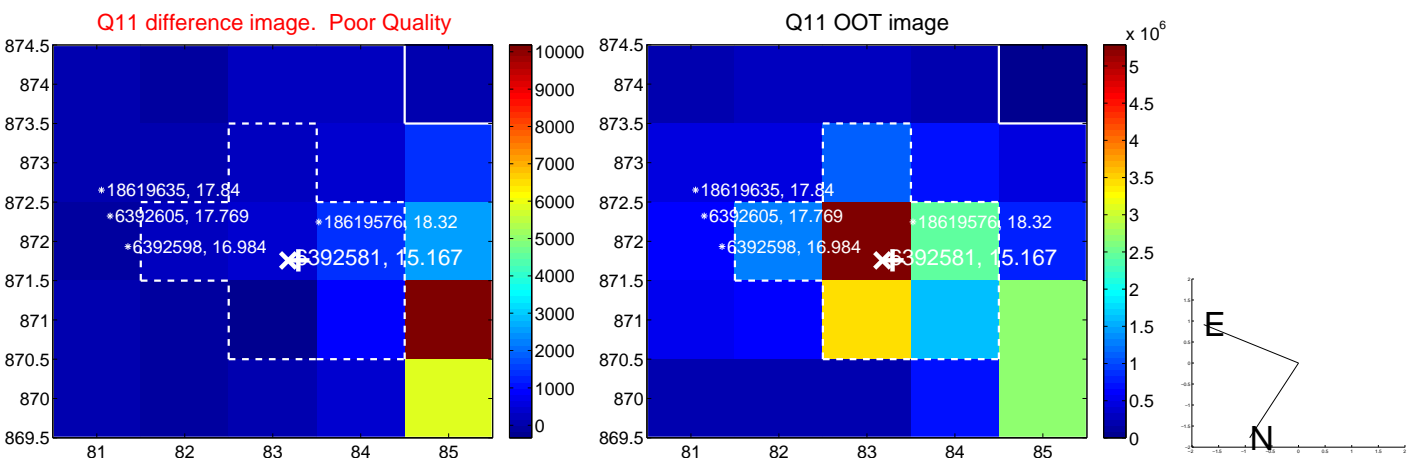
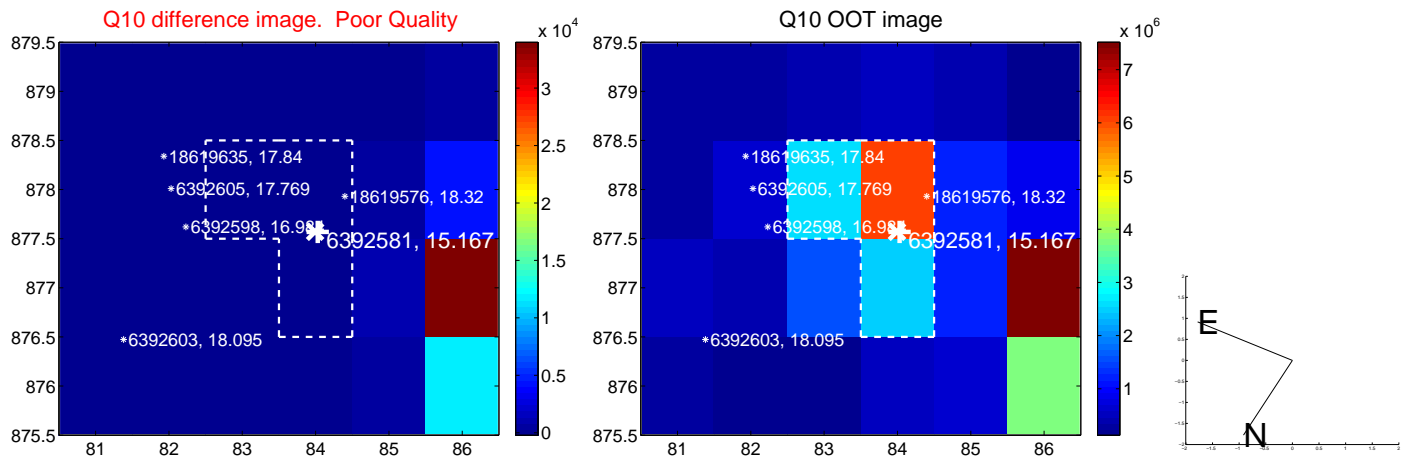
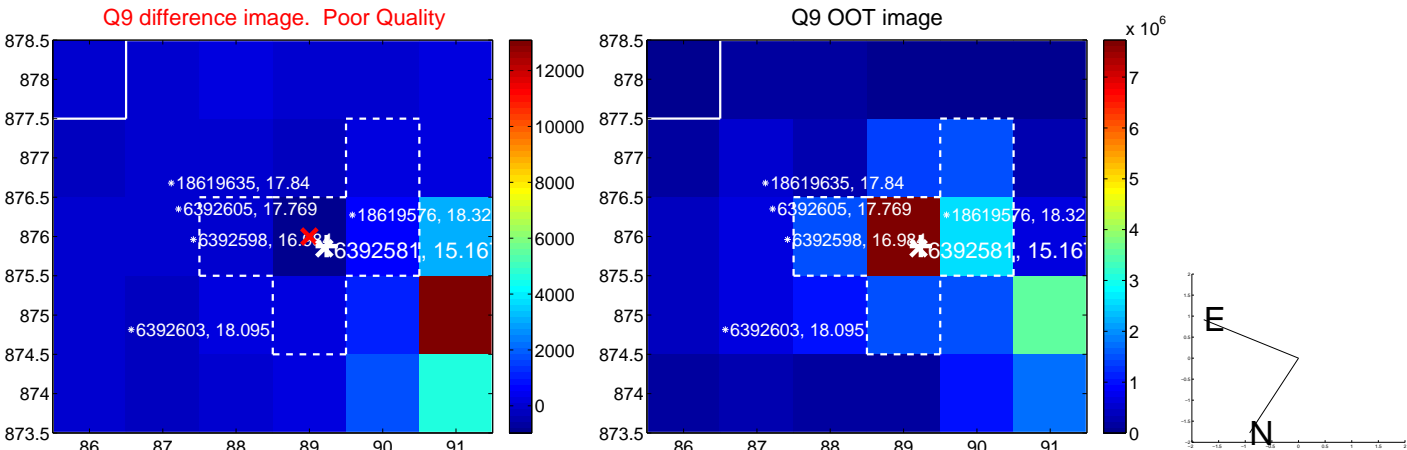


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

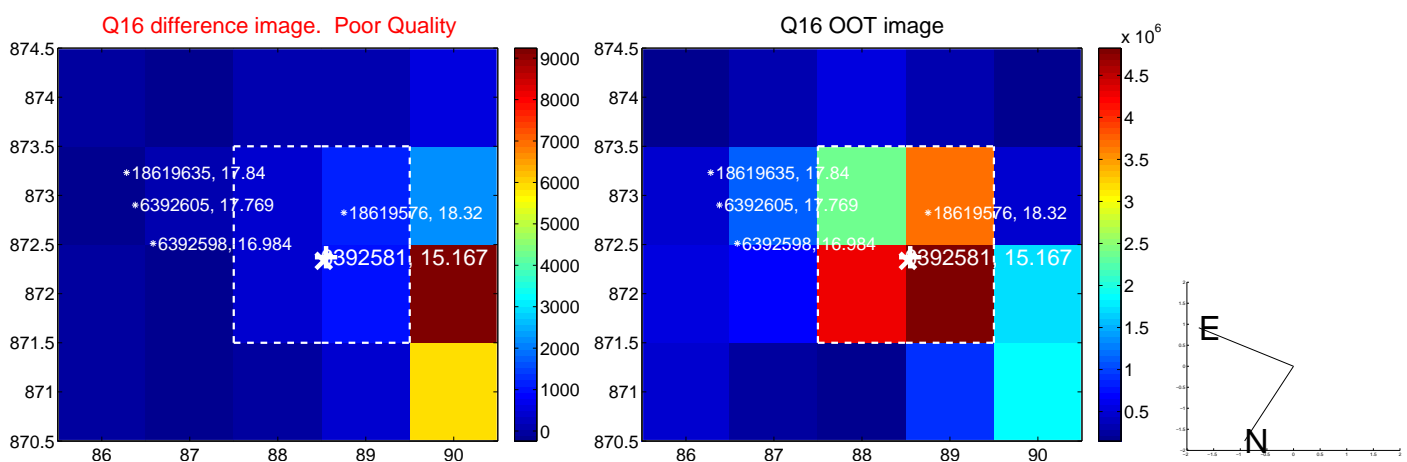
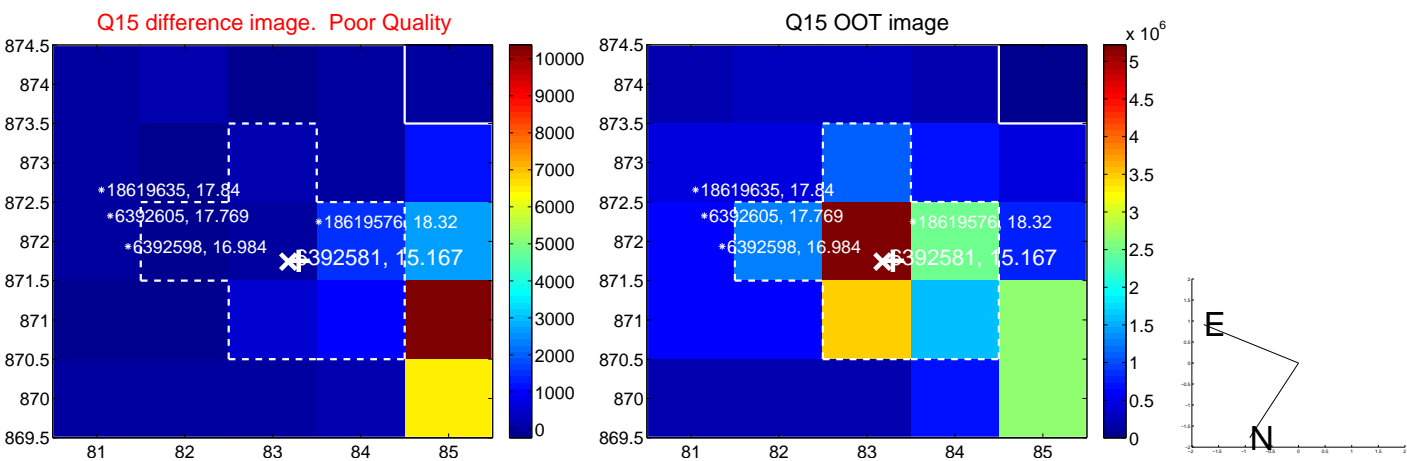
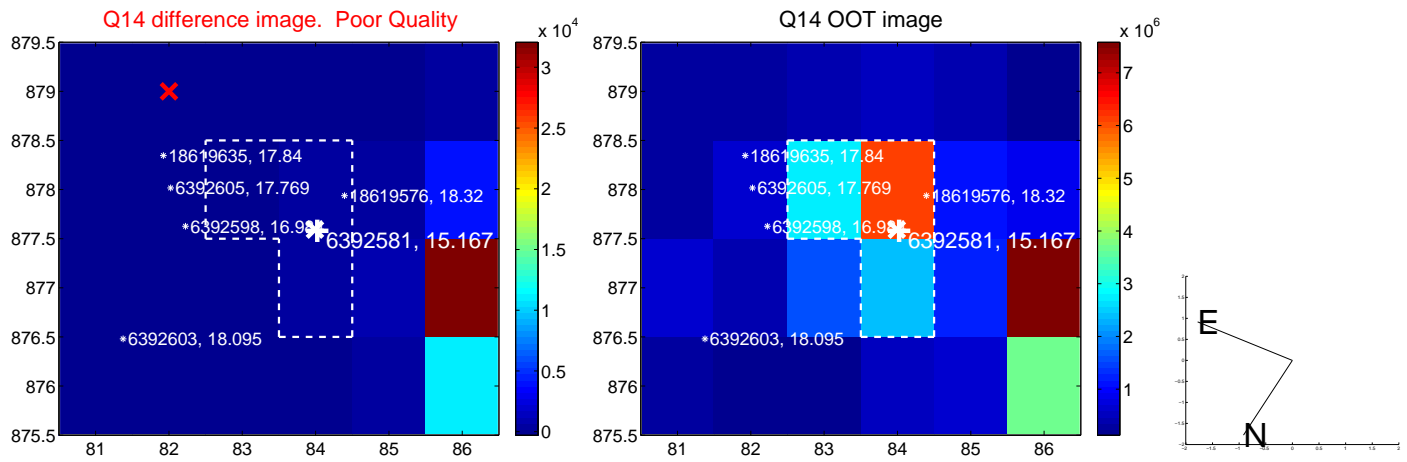
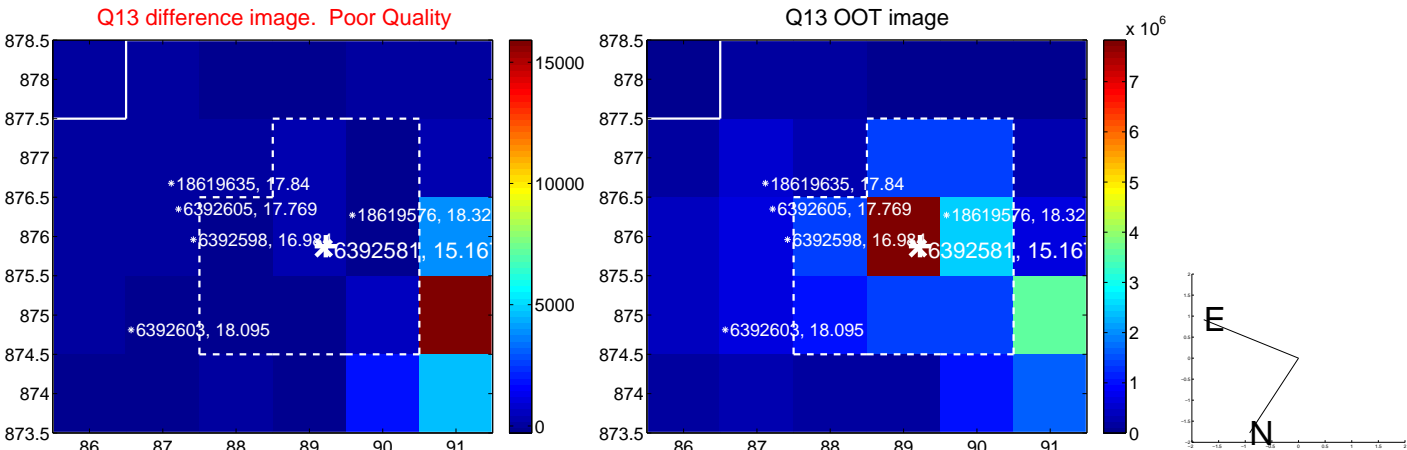




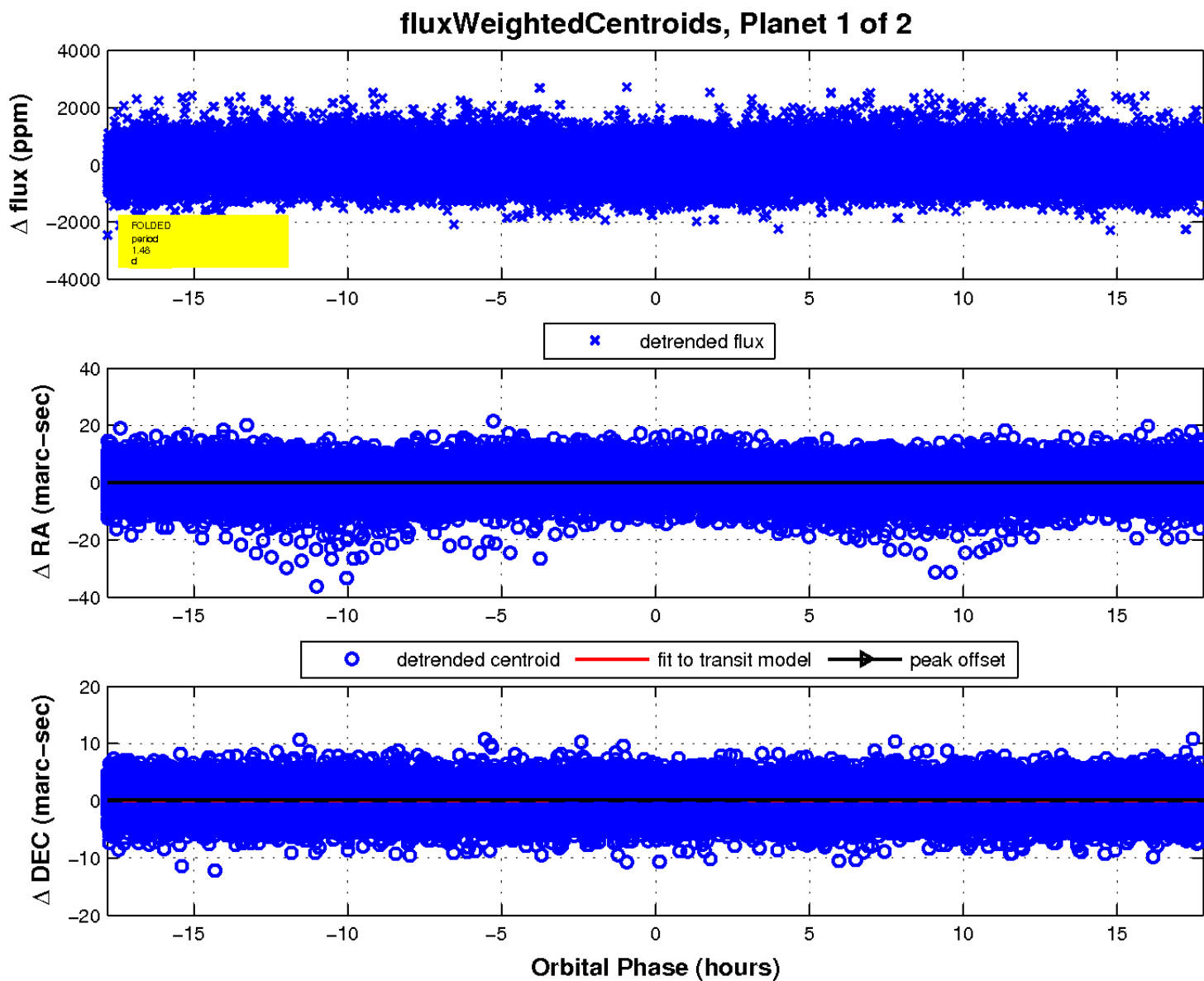
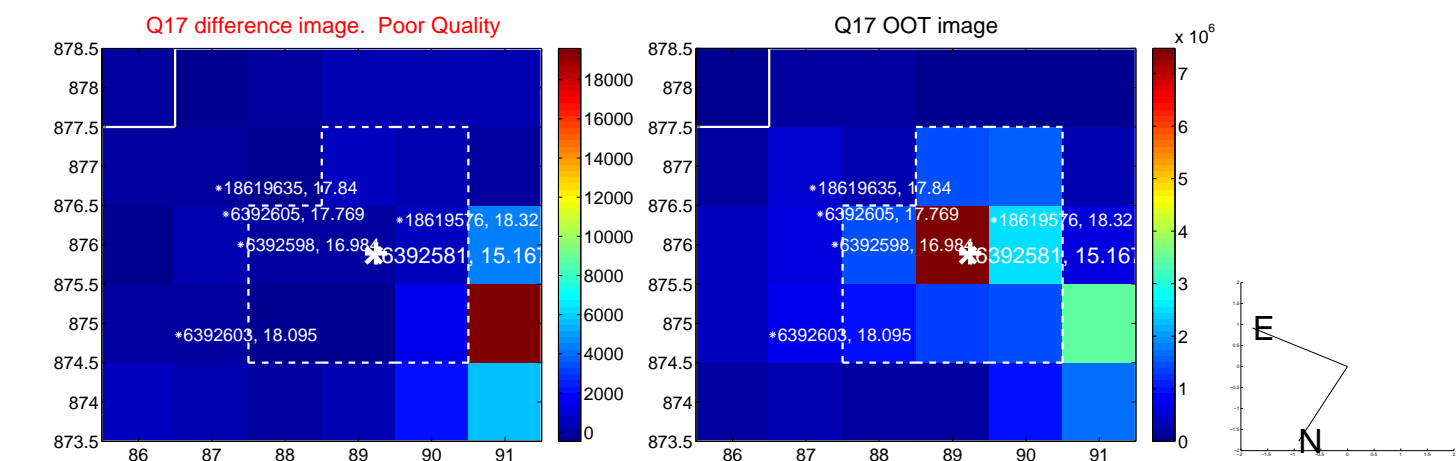
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

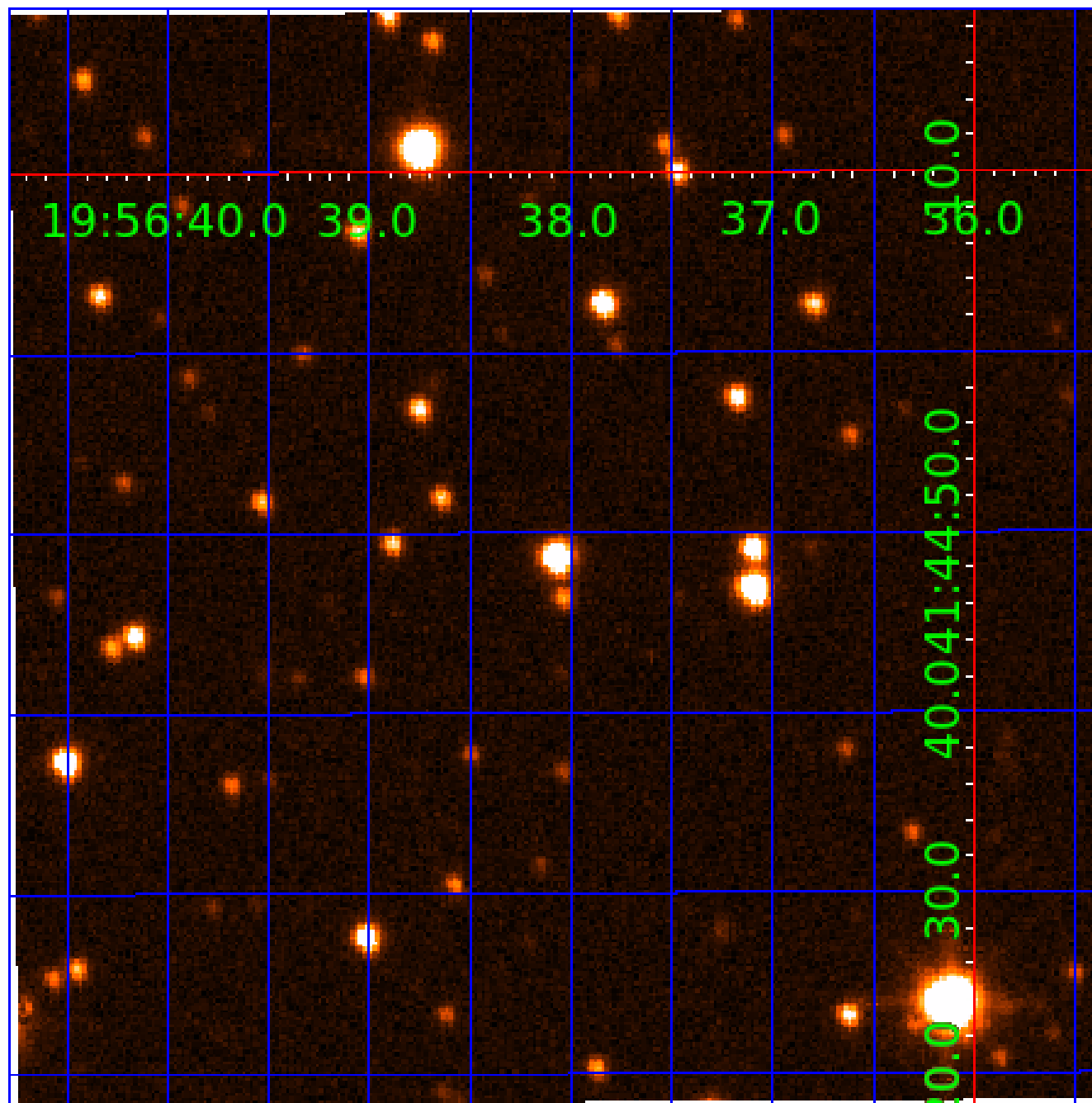


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 006392581

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006392581-01	OBS	No	1.484281	131.544242	39.9	6.905	7.2	6.3	0.94	5936	0.65	1493.88
006392581-02	OBS	No	204.611530	264.947332	677.0	20.651	9.4	8.0	0.94	5936	2.70	2.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006392581-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
006392581-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—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.

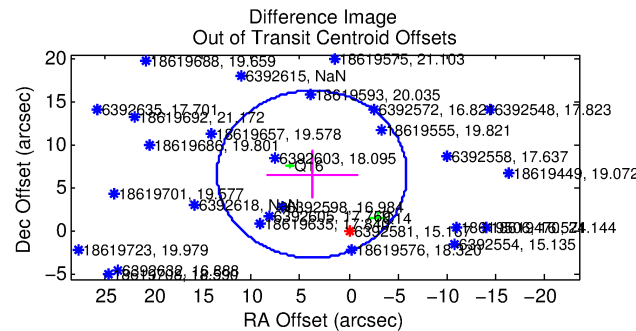
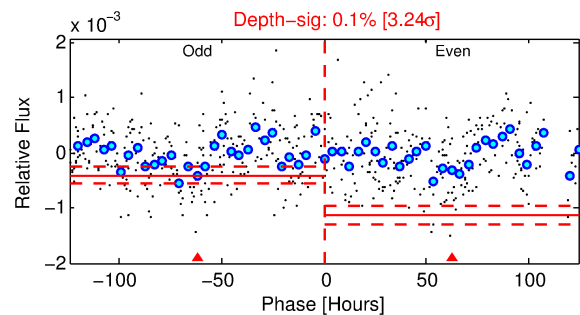
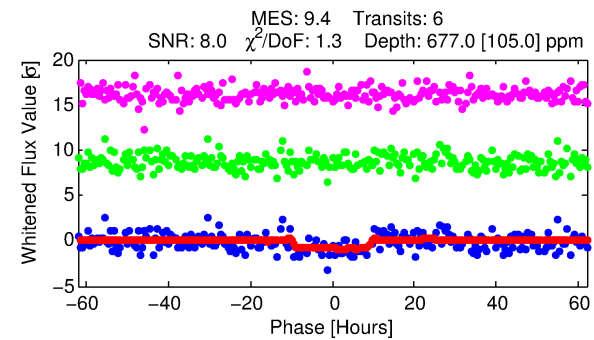
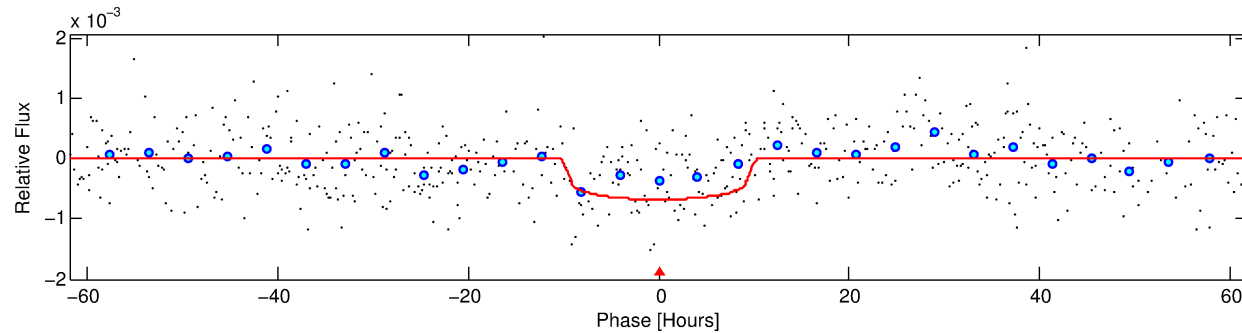
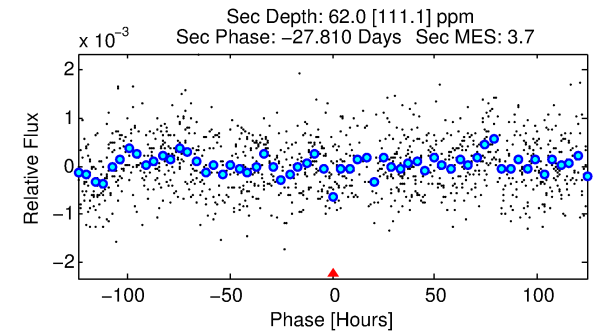
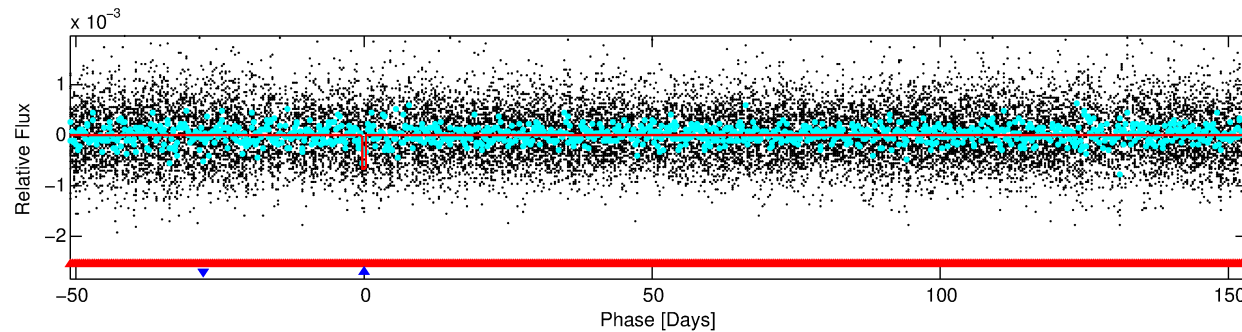
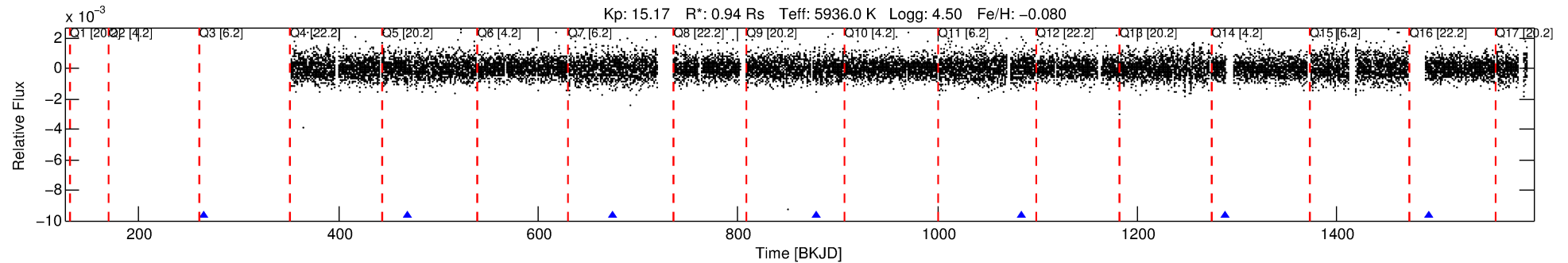
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006392581-02

No Significant Match Found

# DV One-Page Summary

KIC: 6392581 Candidate: 2 of 2 Period: 204.612 d



## DV Fit Results:

Period = 204.61153 [0.02352] d  
Epoch = 264.9473 [0.0712] BKJD  
Rp/R\* = 0.0263 [0.0049]  
a/R\* = 49.22 [39.00]  
b = 0.79 [0.37]  
Seff = 2.10 [0.85]  
Teq = 307 [31] K  
Rp = 2.70 [0.99] Re  
a = 0.6830 [0.1800] AU  
Ag = 2186.59 [4090.84] [0.53σ]  
Teffp = 3245 [1490] K [1.97σ]

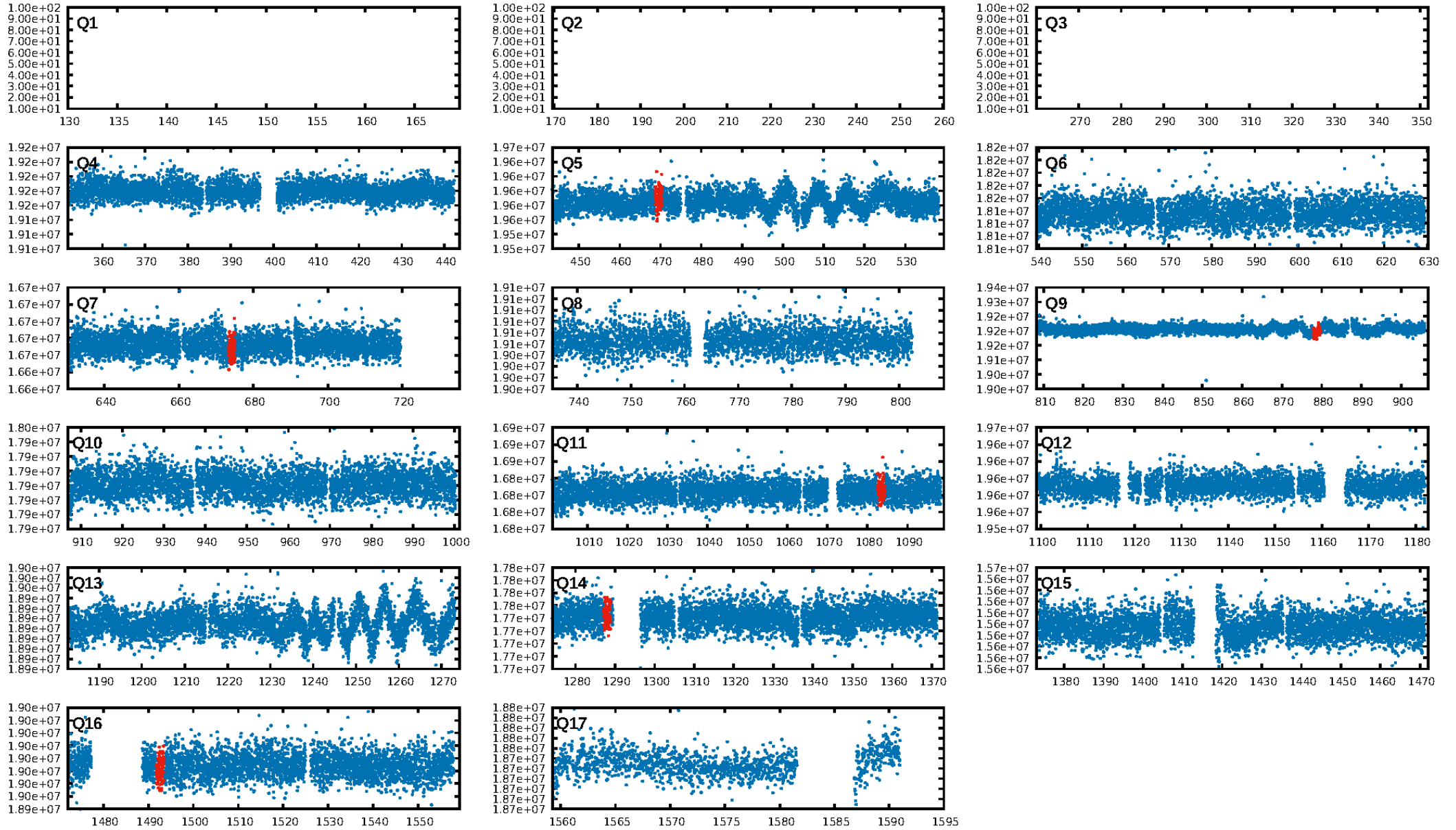
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [223.88σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.19e-14  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: 0.9805  
Centroid-sig: 5.2%  
Centroid-so: 2.428 arcsec [1.35σ]  
OotOffset-rm: 7.632 arcsec [2.36σ]  
KicOffset-rm: 7.482 arcsec [2.31σ]  
OotOffset-st: 1/0/1/0 [2]  
KicOffset-st: 1/0/1/0 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 0.00 [0/5]

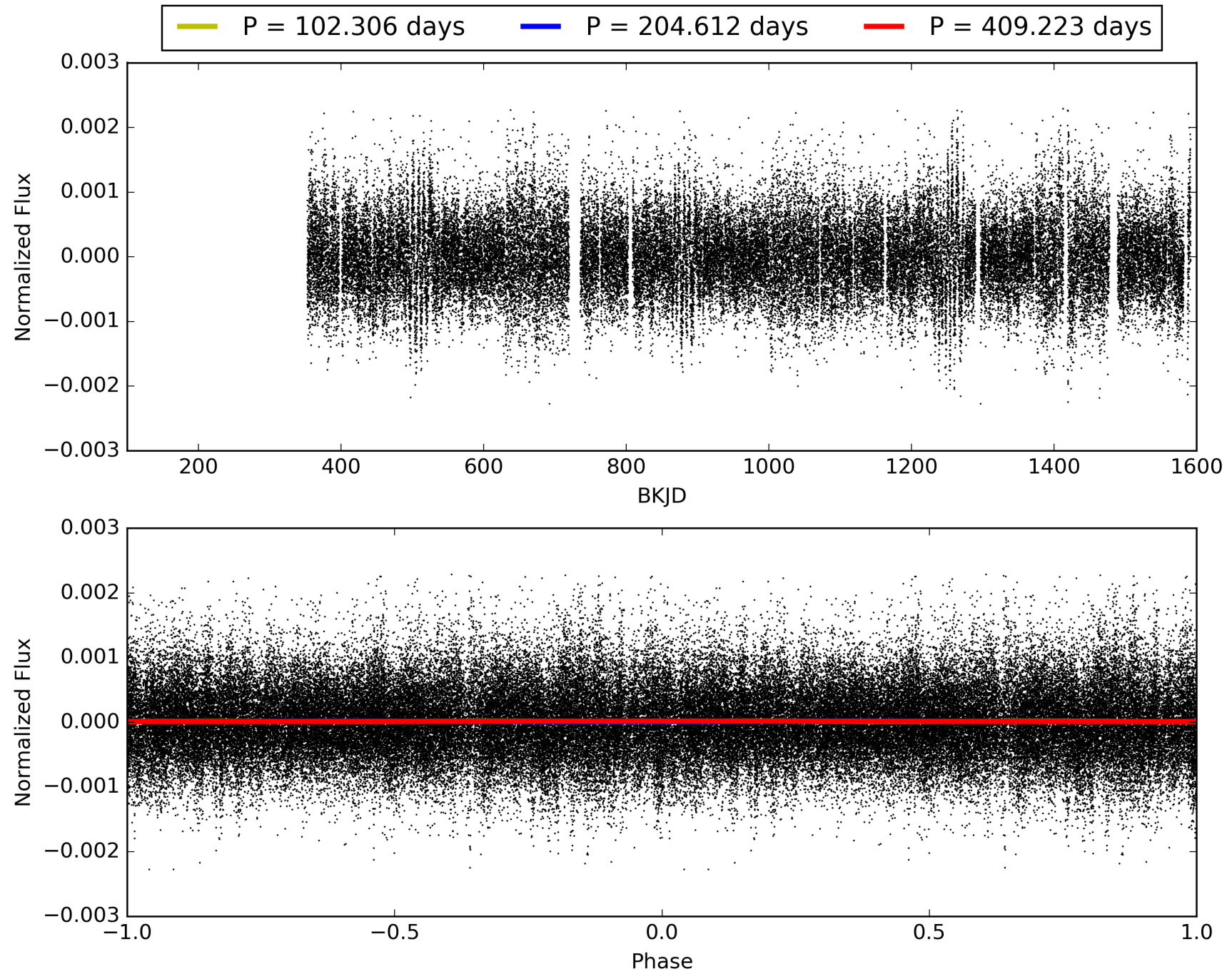
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:24:22 Z

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

# TCE 006392581-02, PDC Light Curves

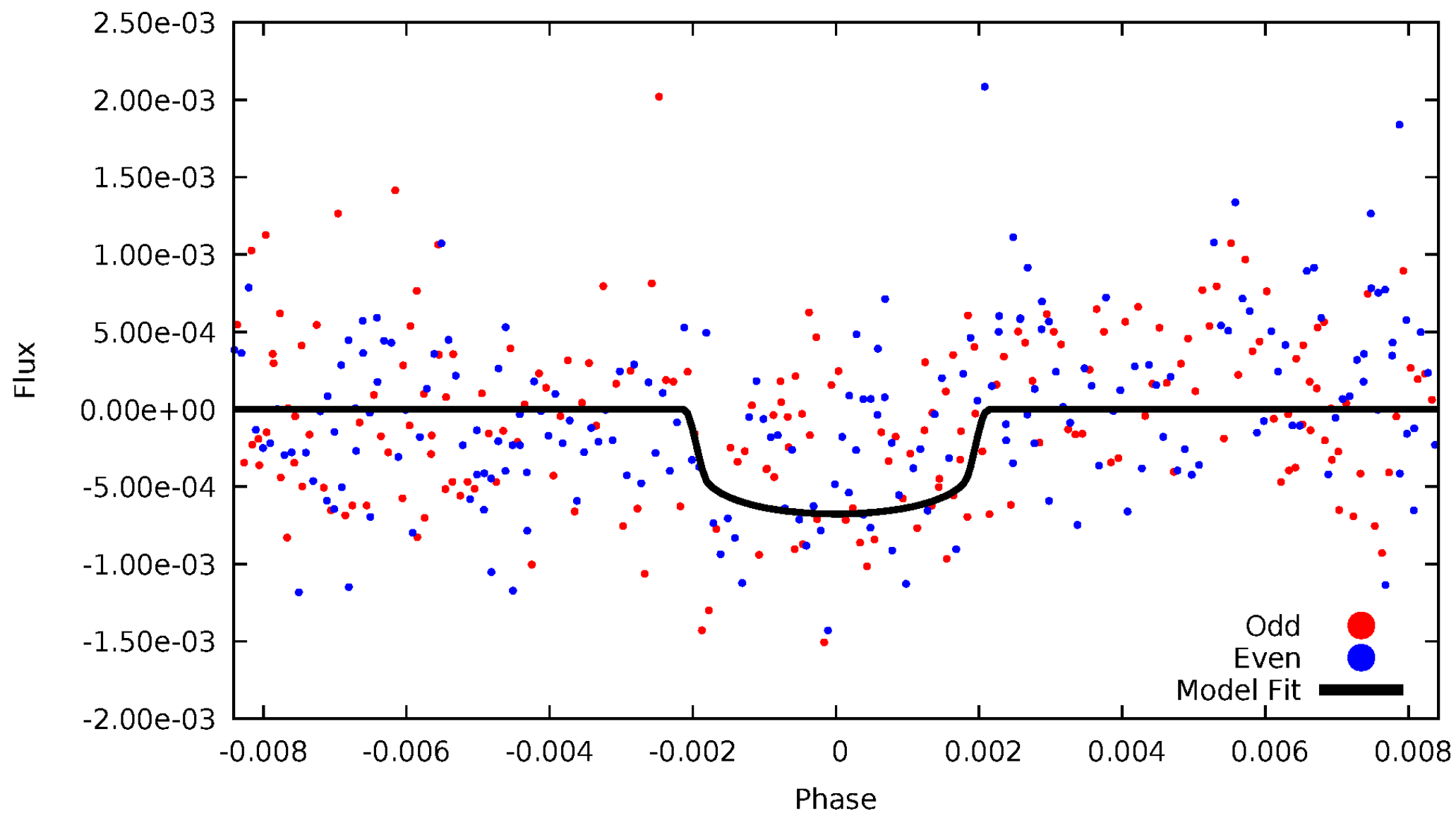


TCE 006392581-02



# DV Odd/Even

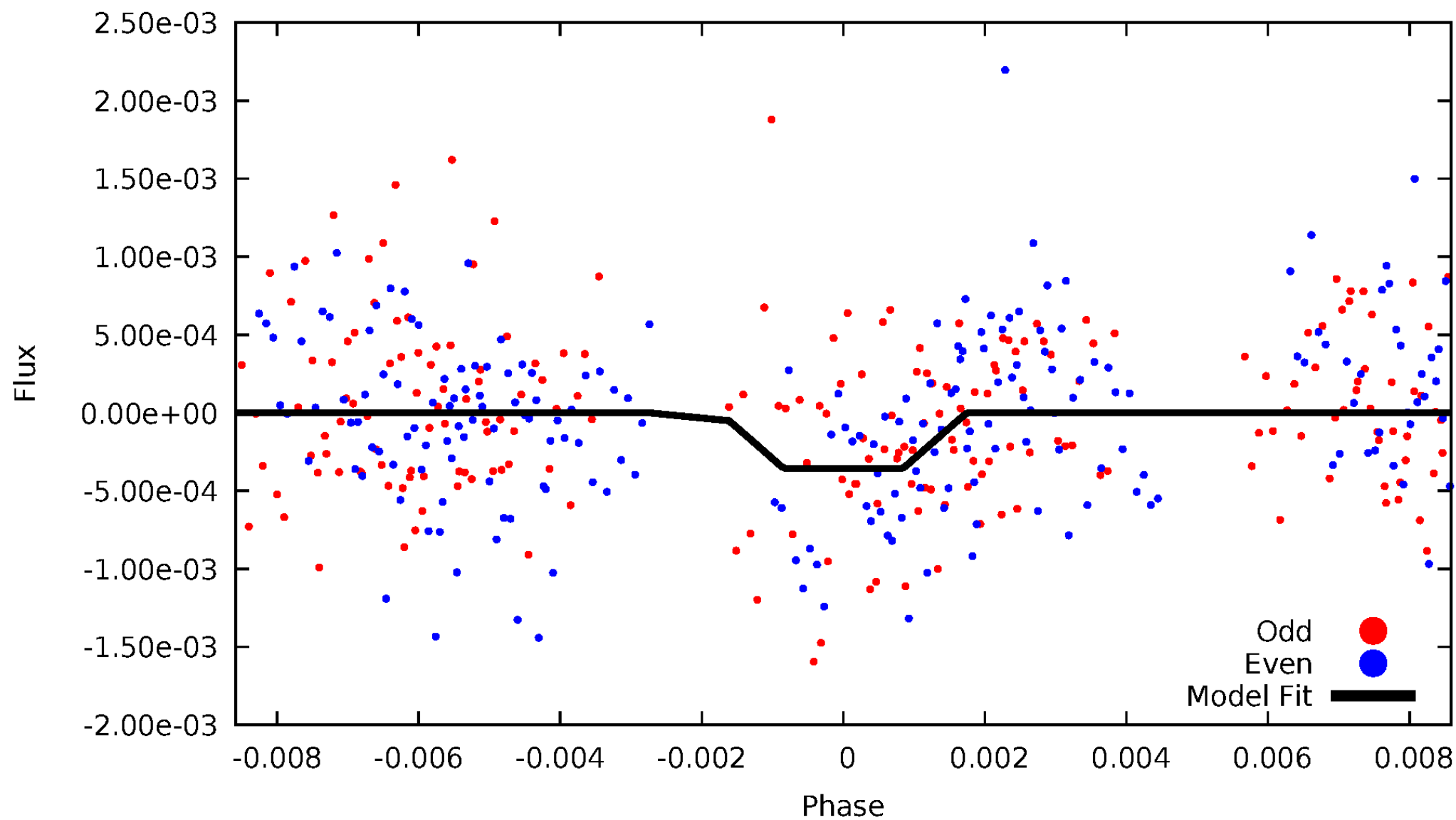
TCE 006392581-02





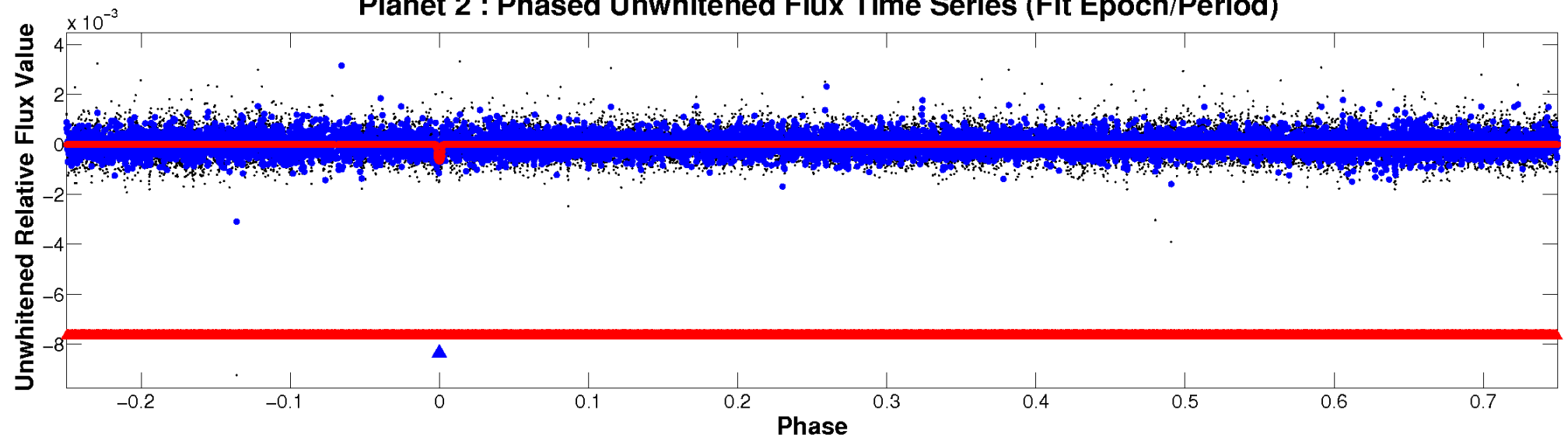
# ALT Odd/Even

TCE 006392581-02

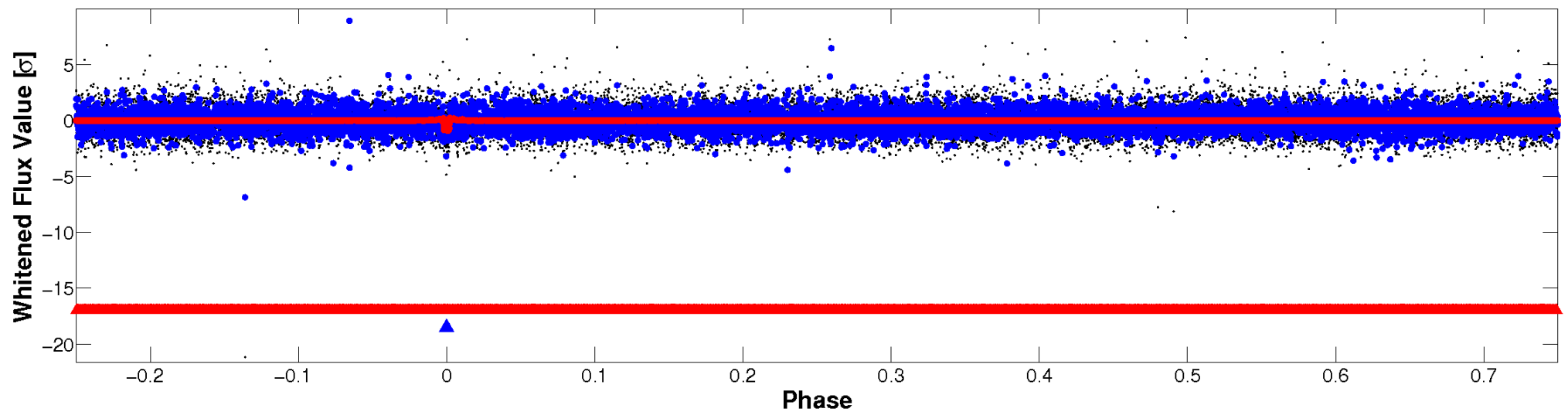


# Non-Whitened Vs. Whitened Light Curve

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

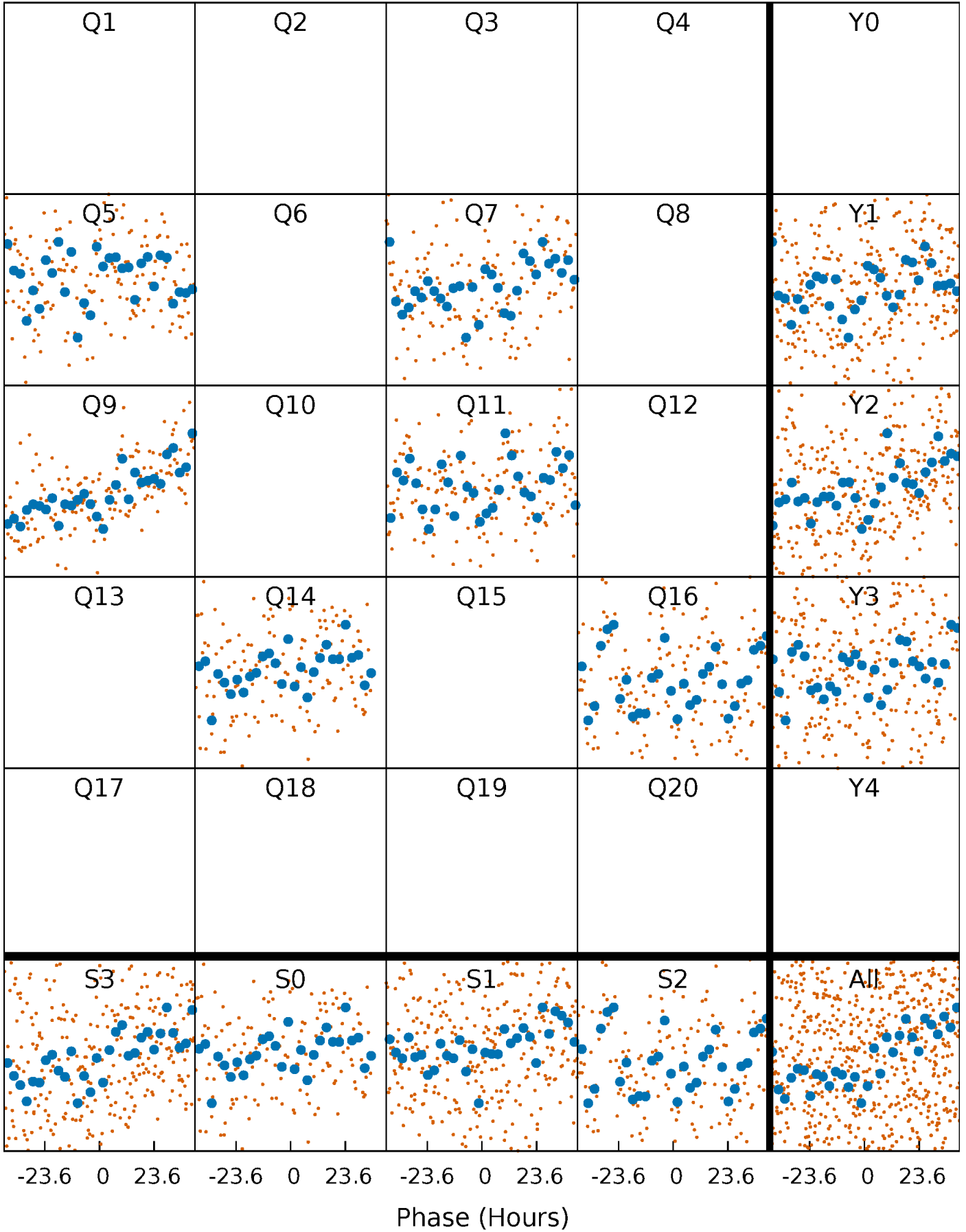


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



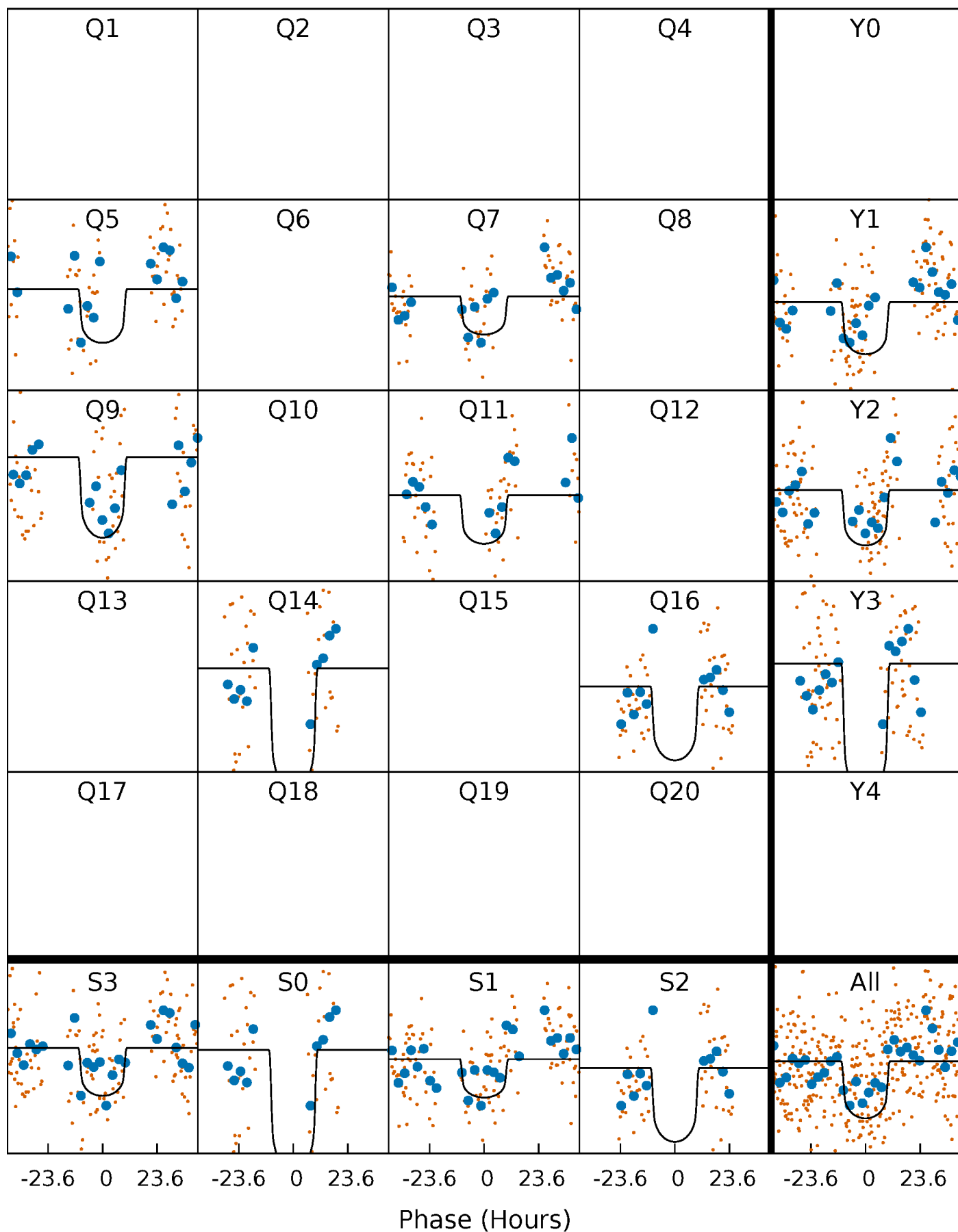
# PDC Quarter-Phased Transit Curves

TCE 006392581-02     $P=204.611530$  Days     $T_0=264.947332$  (BKJD)



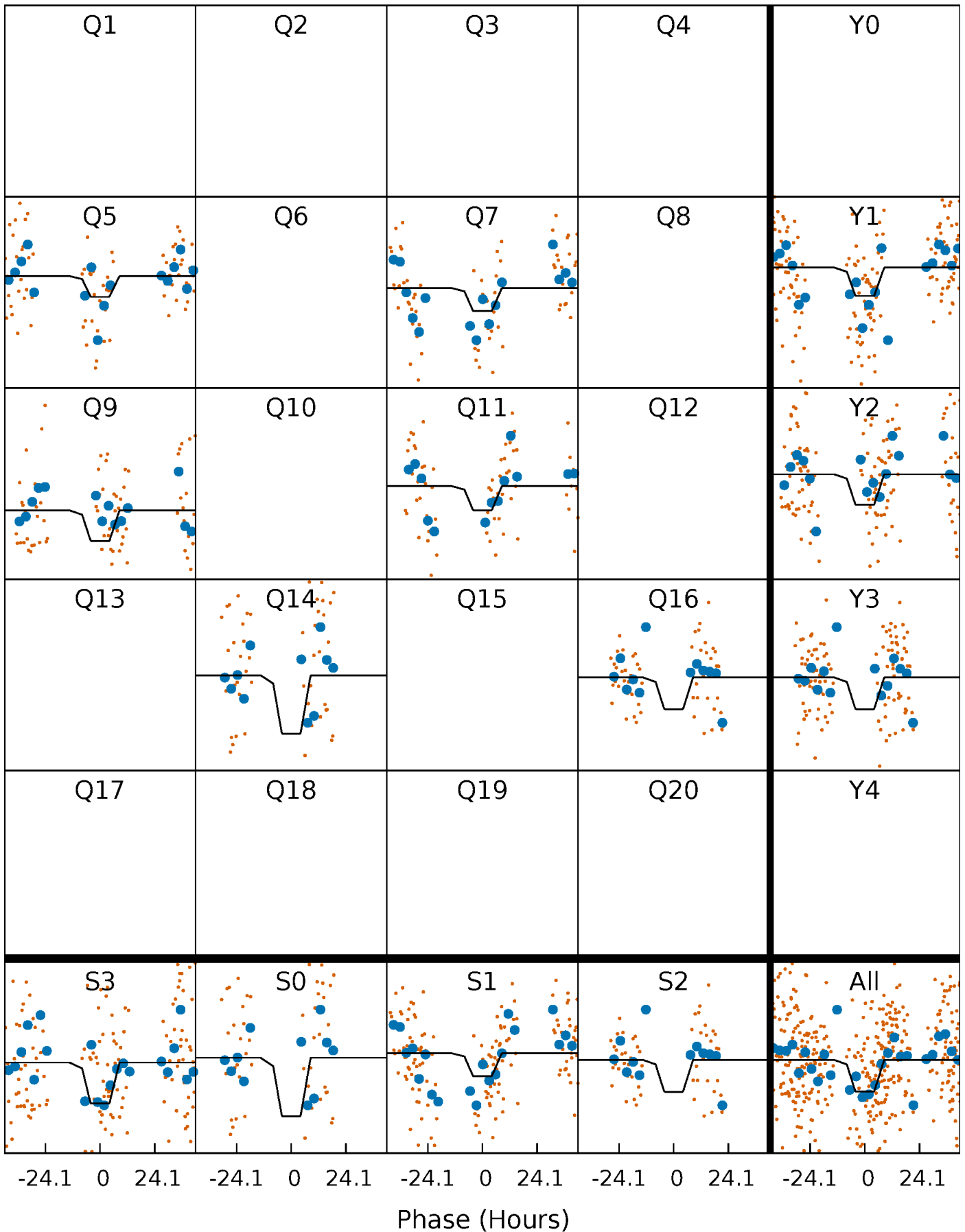
# DV Quarter-Phased Transit Curves

TCE 006392581-02     $P=204.611530$  Days     $T_0=264.947332$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

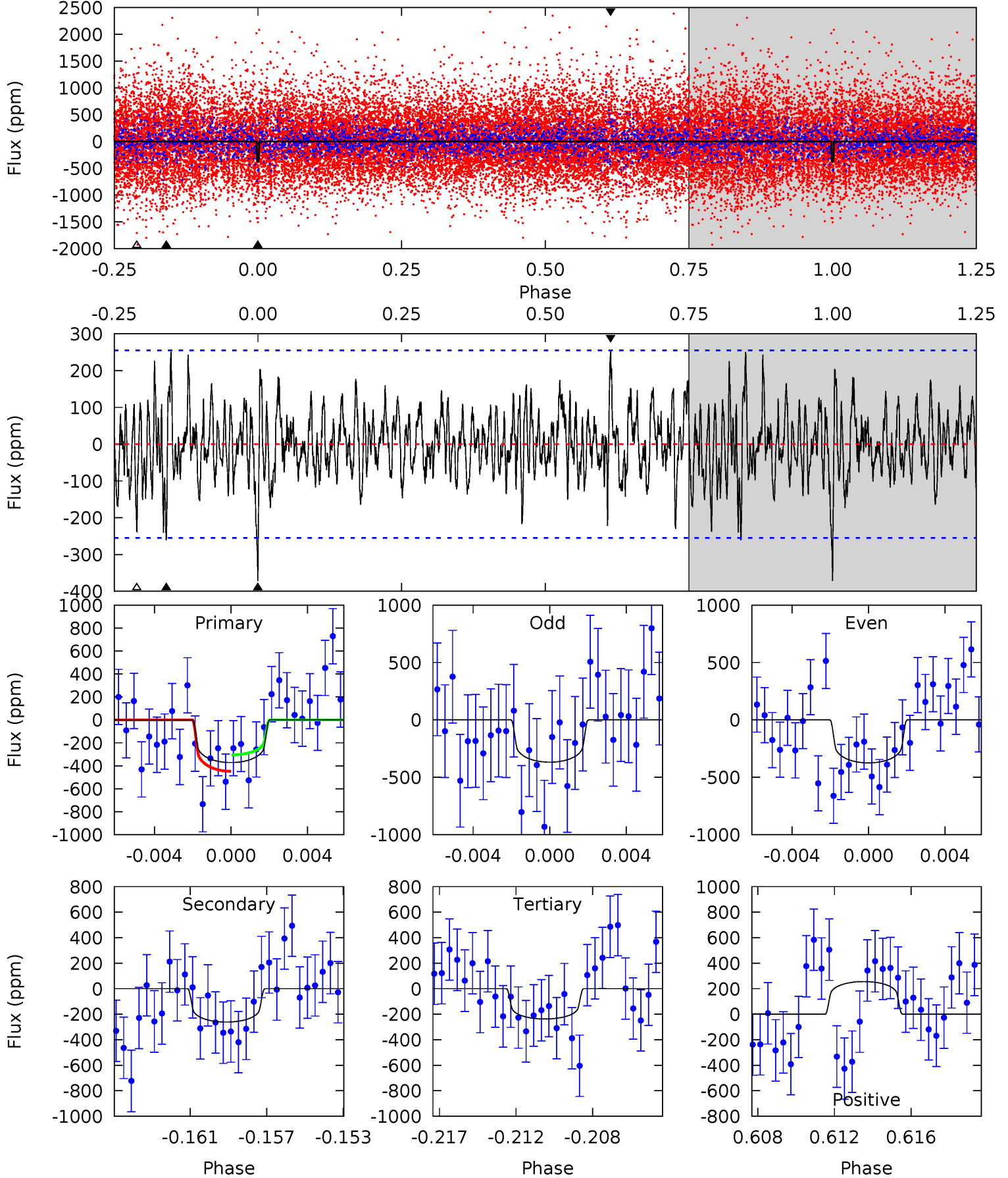
TCE 006392581-02     $P=204.696593$  Days     $T_0=264.564351$  (BKJD)



# DV Model-Shift Uniqueness Test

006392581-02, P = 204.611530 Days, E = 264.947332 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
7.56	5.32	4.83	5.21	5.19	2.86	1.55	2.73	2.36	0.49	0.11	0.06	1.06	0.41	1.44

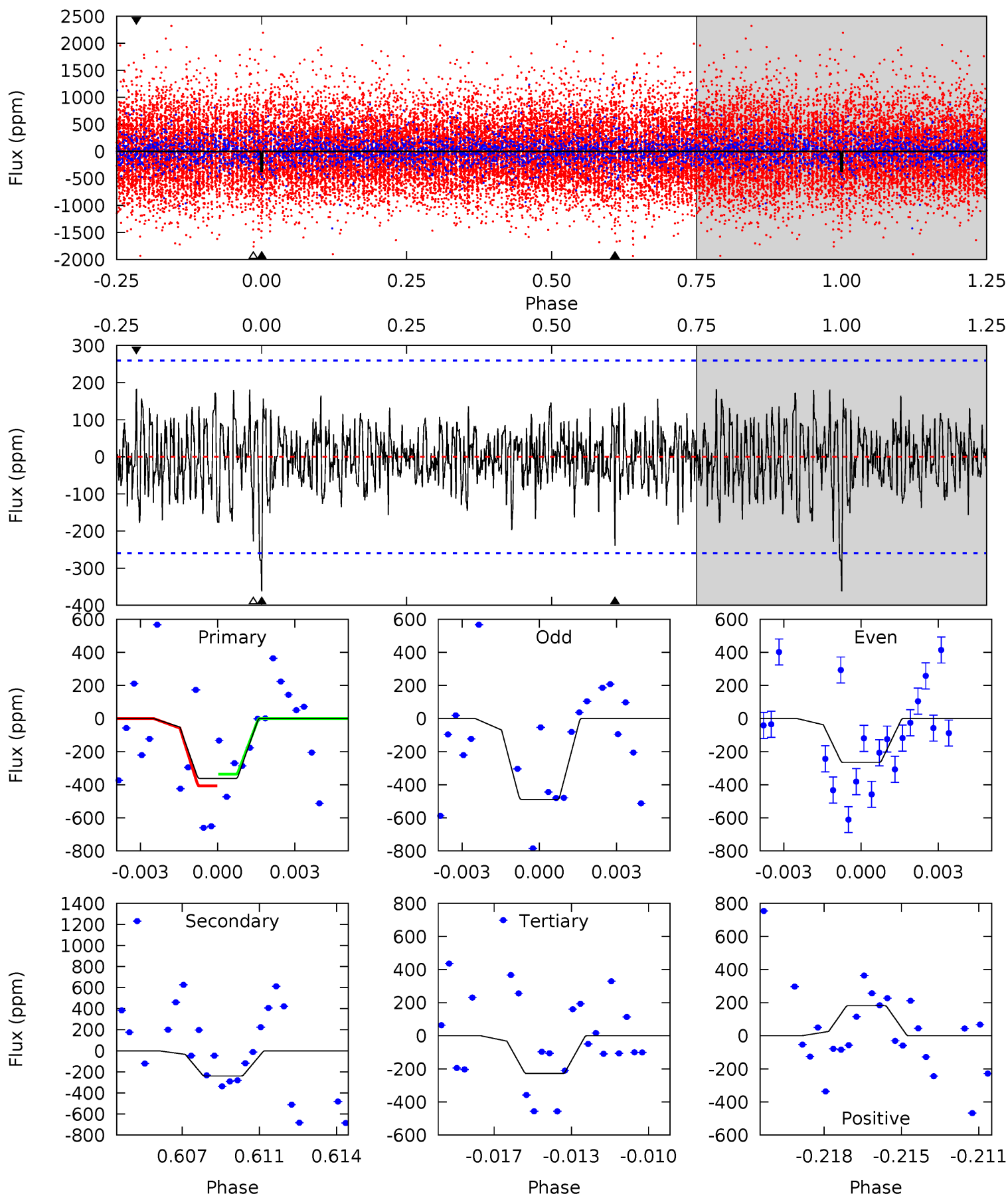




# Alt Model-Shift Uniqueness Test

006392581-02, P = 204.696593 Days, E = 264.564351 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
7.31	4.83	4.60	3.67	5.23	2.94	1.28	2.71	3.64	0.23	1.17	2.22	-0.51	0.33	0.63



### Stellar Parameters For KIC 006392581

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5936^{+187}_{-207}$	$4.500^{+0.052}_{-0.208}$	$-0.080^{+0.250}_{-0.300}$	$0.938^{+0.295}_{-0.098}$	$1.016^{+0.132}_{-0.132}$	$1.731^{+0.483}_{-0.901}$
	+3%/-3%	+1%/-5%	+312%/-375%	+31%/-10%	+13%/-13%	+28%/-52%
Source	KIC0	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 006392581-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-261 \pm 49$	$2.80^{+0.69}_{-0.54}$	$439^{+35}_{-24}$	$4751^{+472}_{-353}$	$8203^{+4446}_{-3096}$
Alt.	$-239 \pm 50$	$2.04^{+0.62}_{-0.56}$	$439^{+31}_{-23}$	$5386^{+808}_{-592}$	$14305^{+13199}_{-6138}$

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

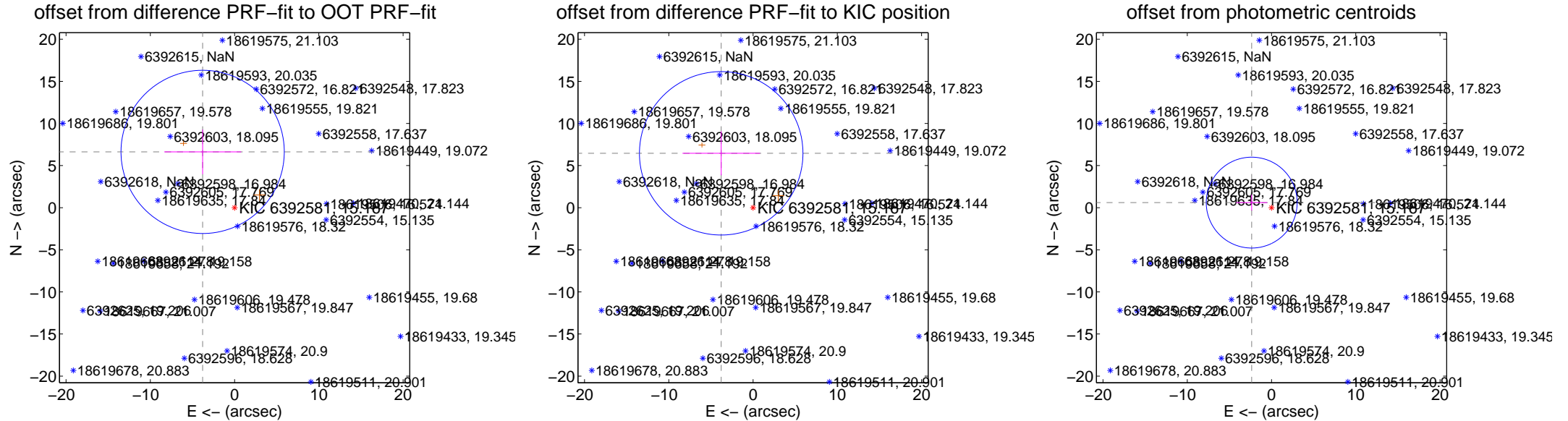
# DV Centroid Data

Supplemental centroid analysis for 006392581-02. Kepler magnitude: 15.17. Transit SNR 8.02

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$7.632 \pm 3.230$	2.36	$3.791 \pm 4.570$	$6.624 \pm 2.647$
PRF-fit source offset from KIC position	$7.482 \pm 3.234$	2.31	$3.781 \pm 4.599$	$6.456 \pm 2.607$
photometric centroid source offset	$2.43 \pm 1.80$	1.35	$2.35 \pm 1.84$	$0.60 \pm 0.94$

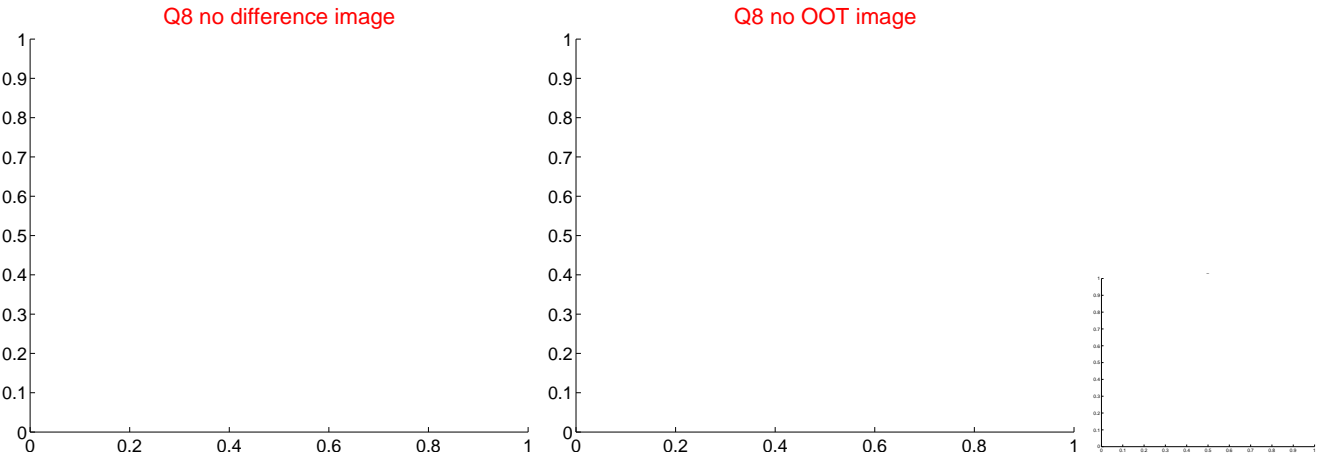
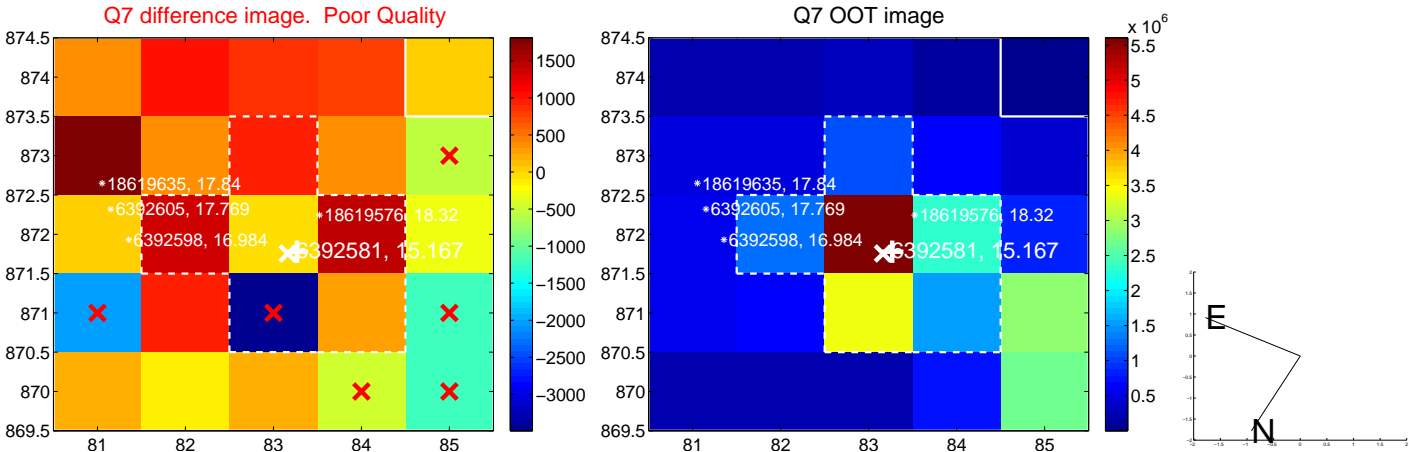
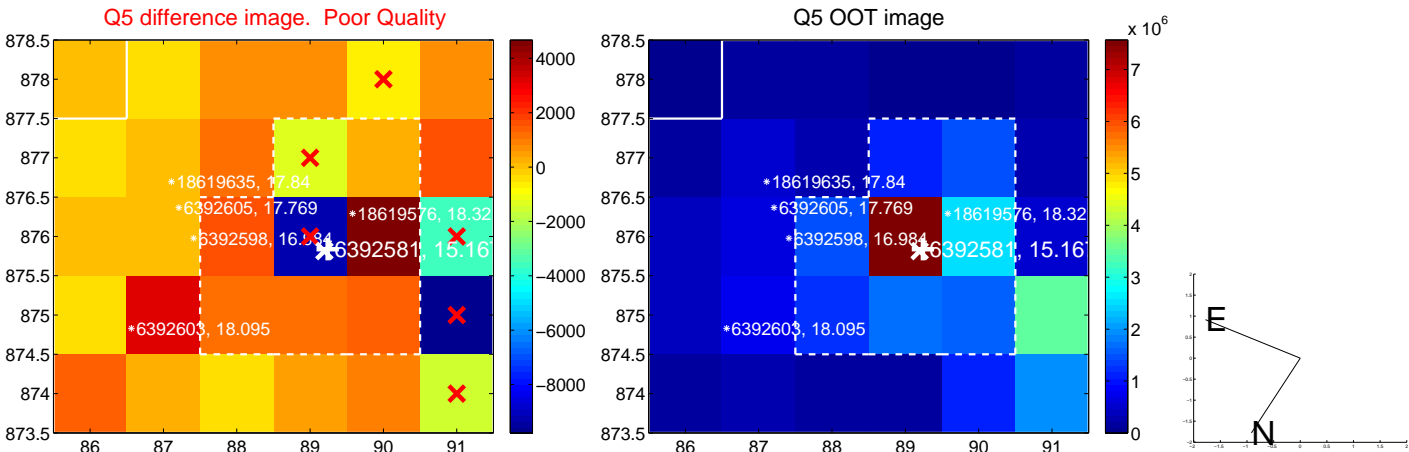


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

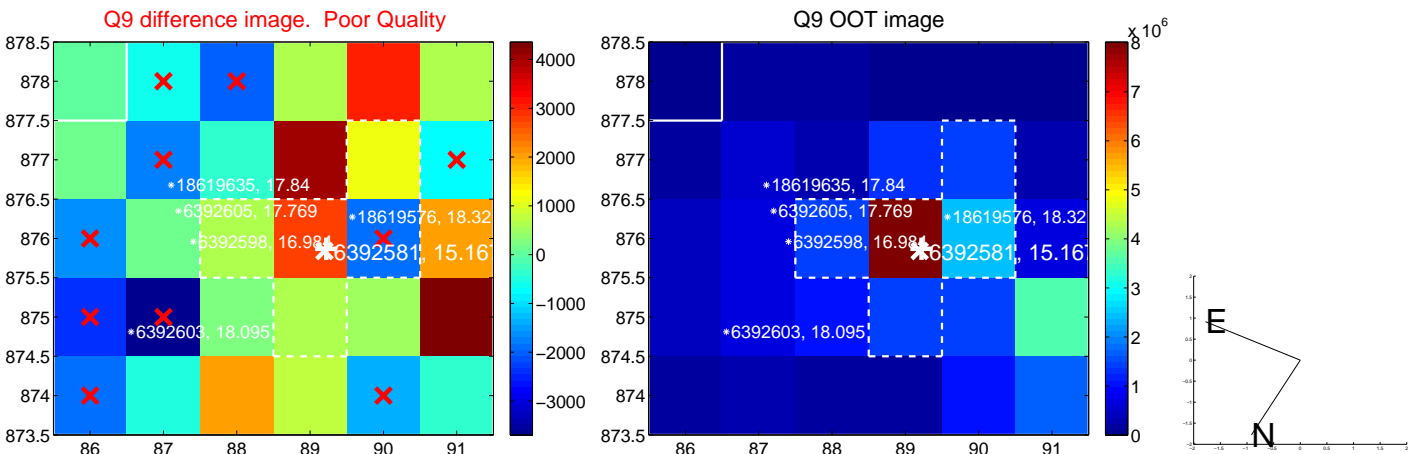


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

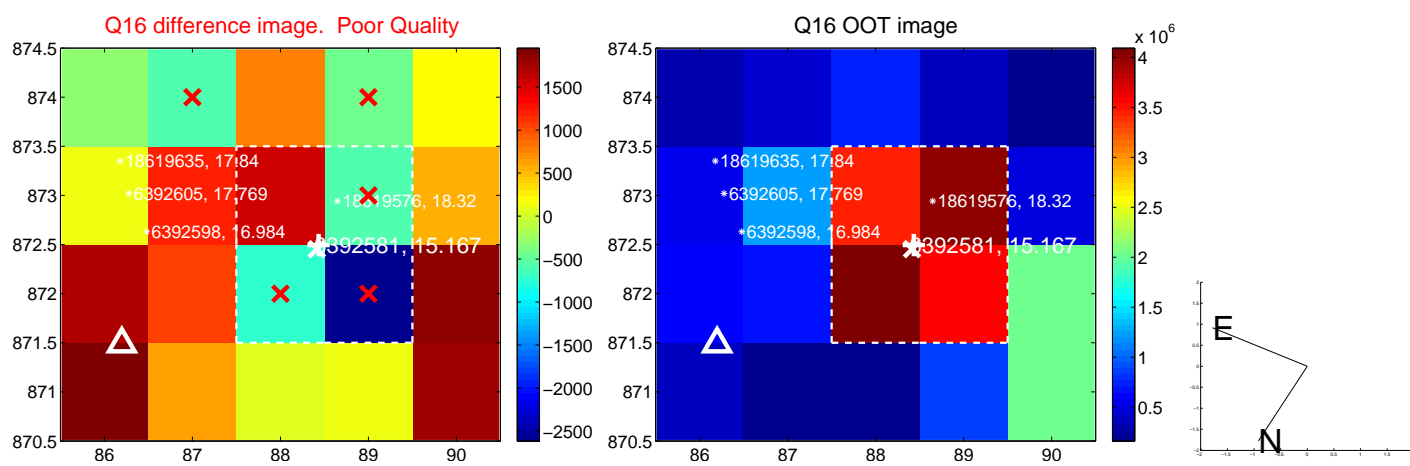
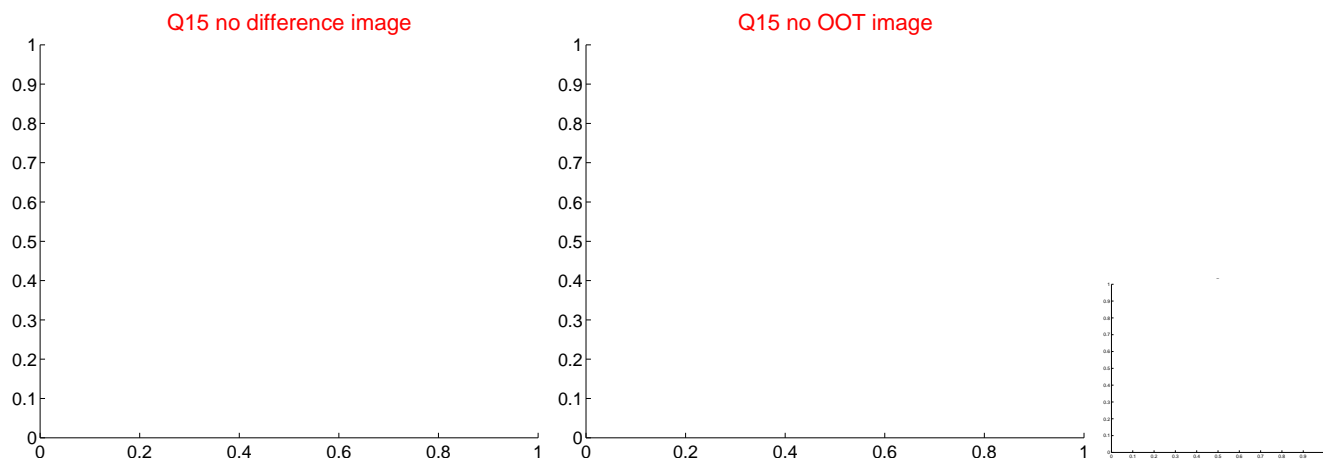
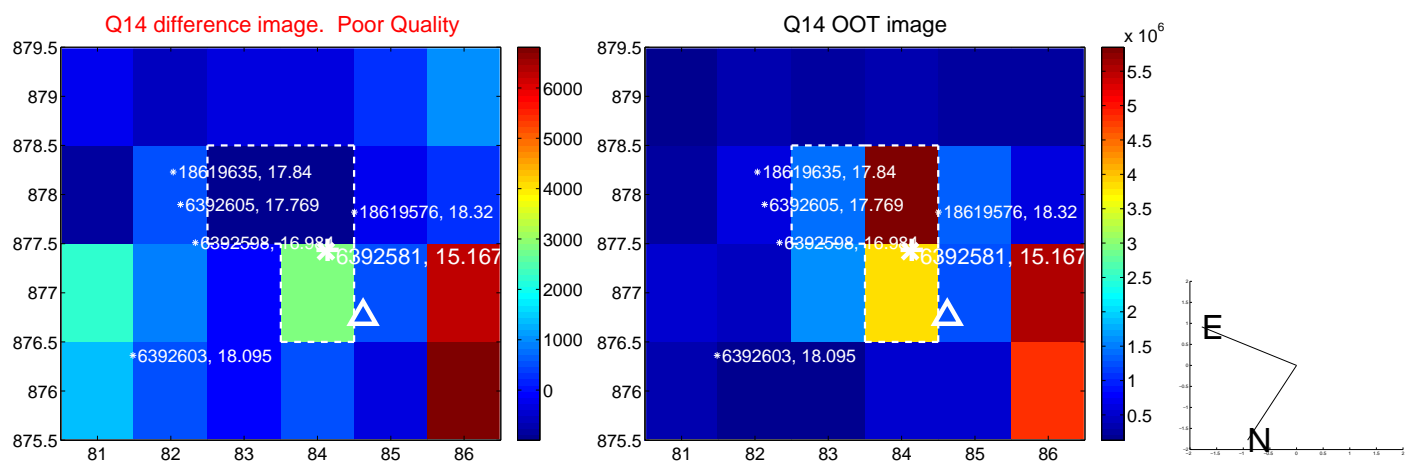
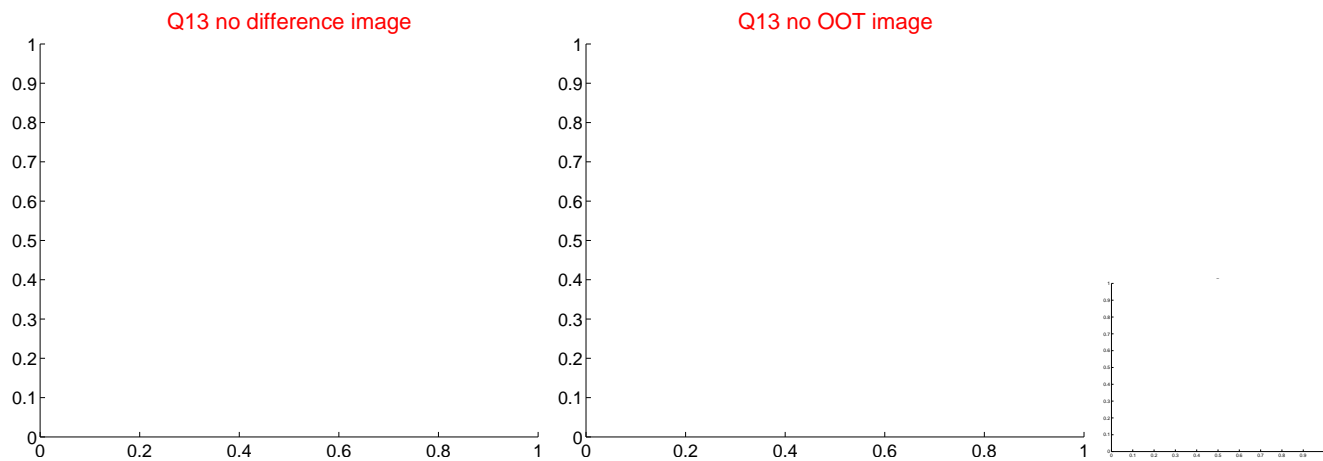




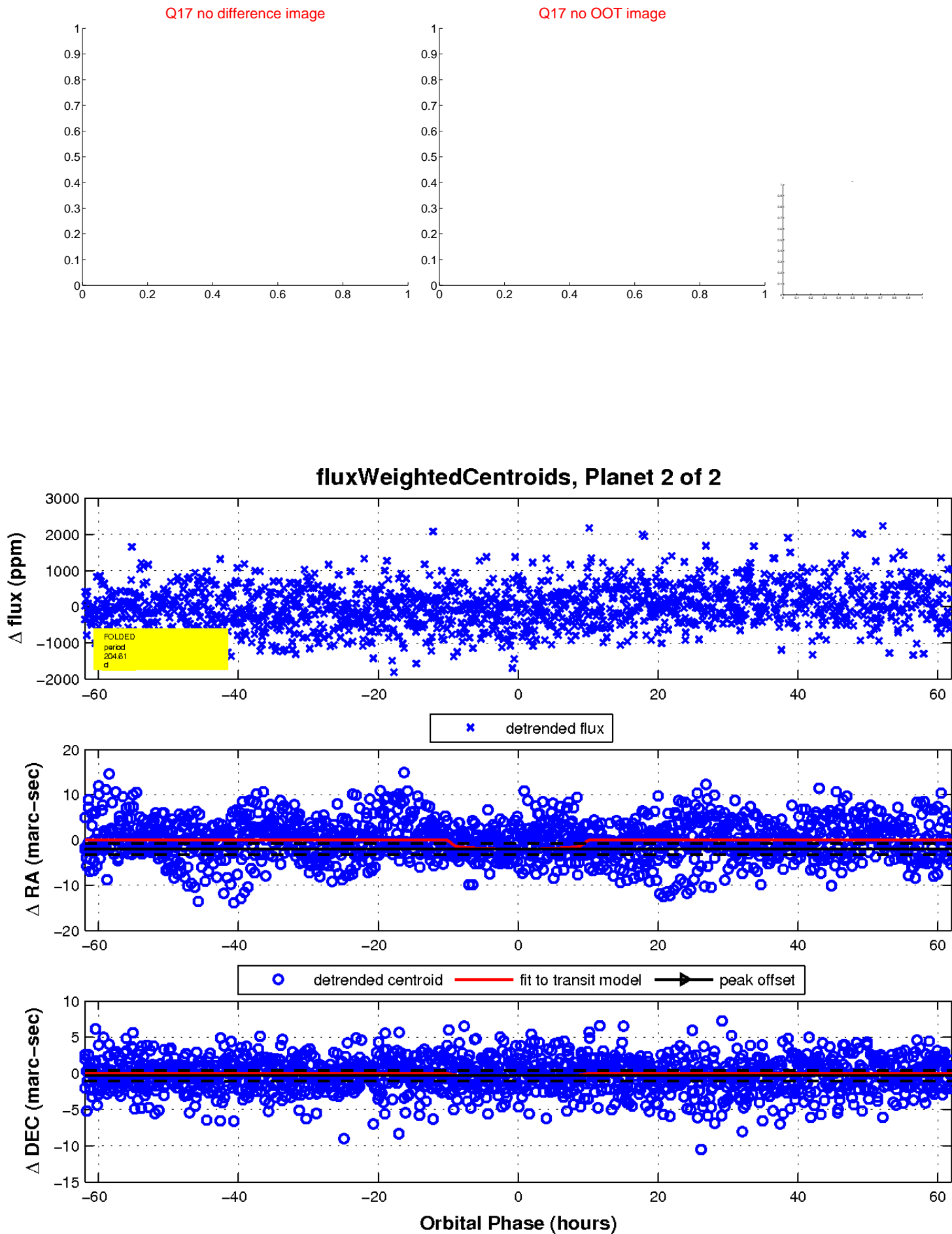
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UKIRT Image

Declination

