

# KIC 005513266

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005513266-01	OBS	No	543.446051	422.601107	3403.7	7.858	13.1	8.0	0.73	4413	4.22	0.13
005513266-02	OBS	No	366.522096	339.428551	2675.6	5.572	10.2	6.9	0.73	4413	3.69	0.22
005513266-03	OBS	No	377.046597	425.043257	2930.1	3.706	10.7	8.1	0.73	4413	3.76	0.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005513266-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005513266-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005513266-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

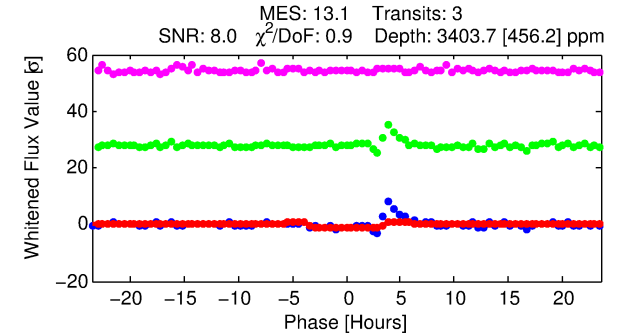
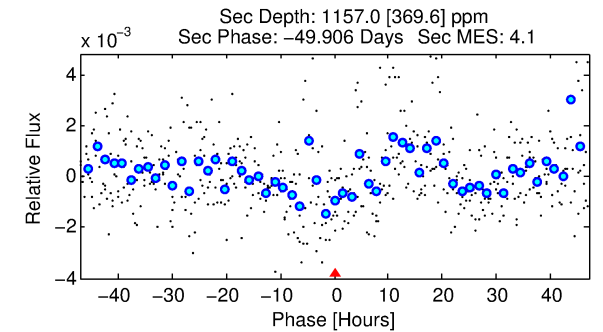
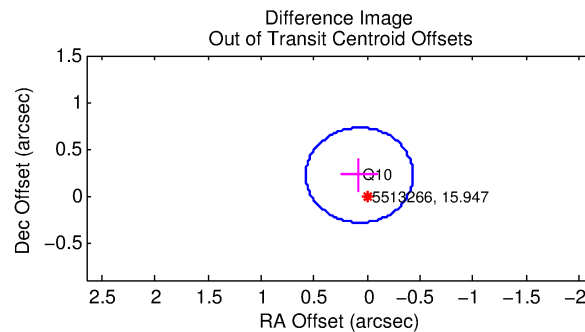
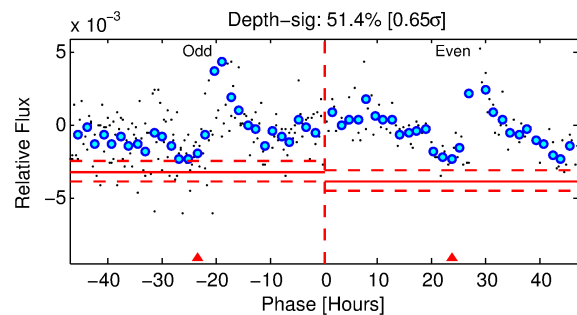
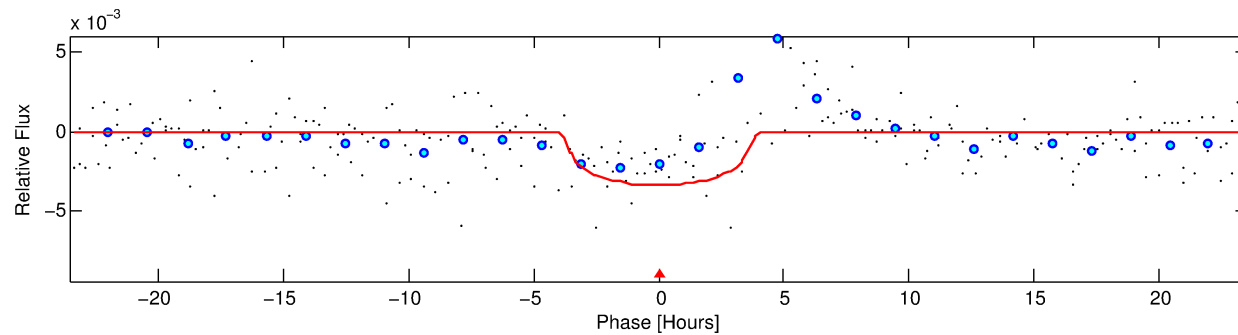
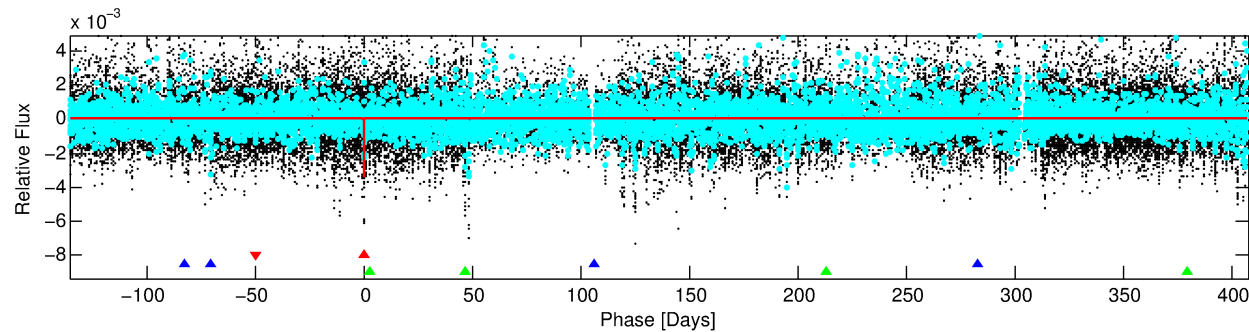
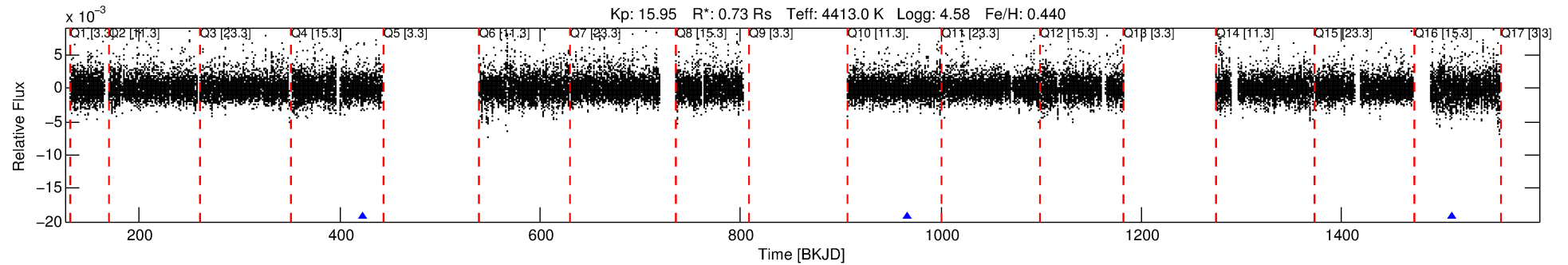
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005513266-01

No Significant Match Found

# DV One-Page Summary

KIC: 5513266 Candidate: 1 of 3 Period: 543.446 d



## DV Fit Results:

Period = 543.44605 [0.00902] d  
Epoch = 422.6011 [0.0097] BKJD  
Rp/R\* = 0.0533 [0.0285]  
a/R\* = 492.44 [717.50]  
b = 0.49 [2.31]  
Seff = 0.13 [0.03]  
Teq = 153 [10] K  
Rp = 4.22 [2.30] Re  
a = 1.1771 [0.0955] AU  
Ag = 49412.09 [55476.65] [0.89 $\sigma$ ]  
Teffp = 3527 [1008] K [3.35 $\sigma$ ]

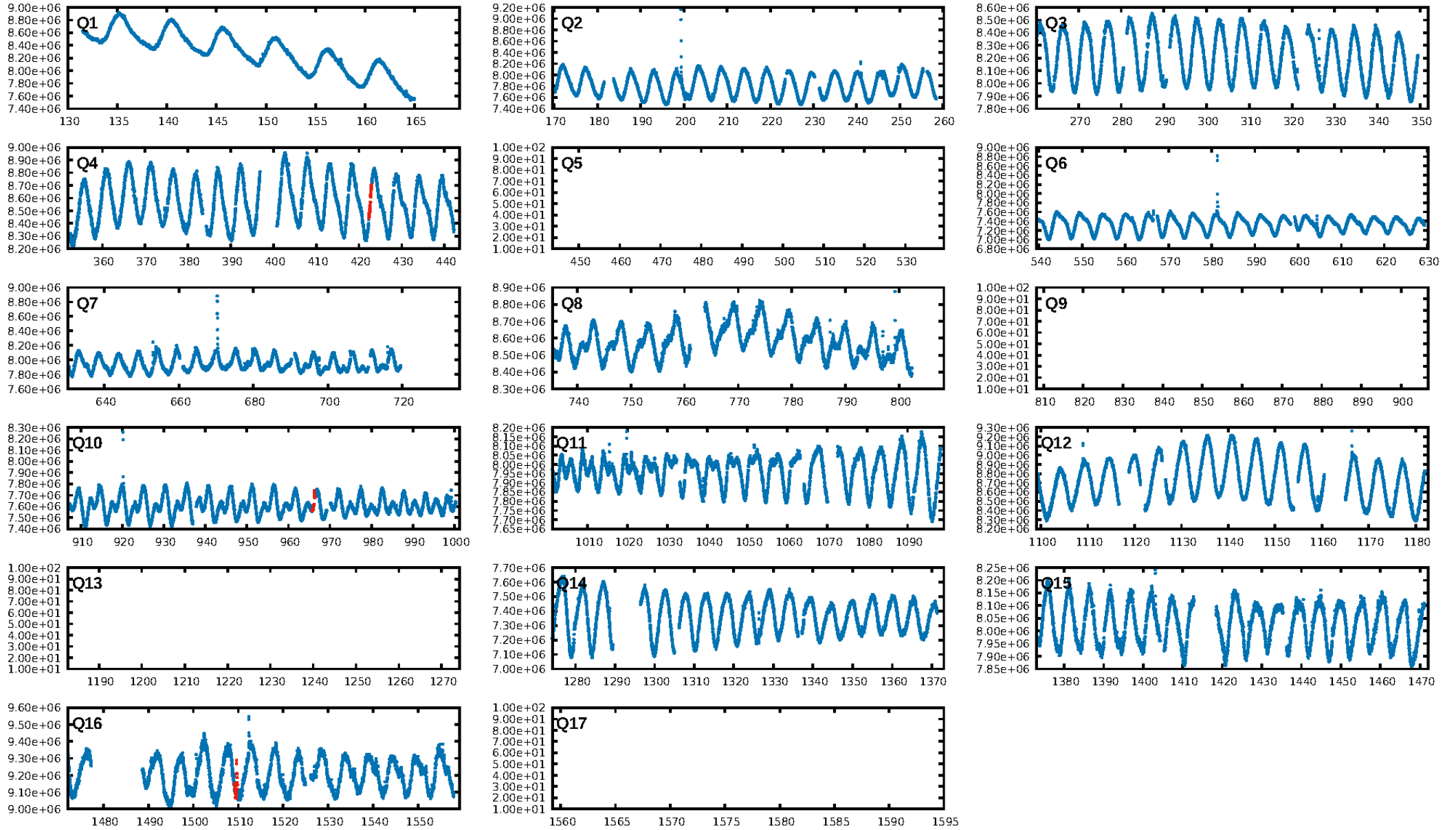
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [459.66 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 81.9%  
ModelChiSquareGof-sig: 99.7%  
Bootstrap-pfa: 7.12e-16  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -2.247  
Centroid-sig: 73.0%  
Centroid-so: 0.133 arcsec [0.13 $\sigma$ ]  
OotOffset-rm: 0.232 arcsec [1.37 $\sigma$ ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-rm: 0.647 arcsec [3.91 $\sigma$ ]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [2/2]

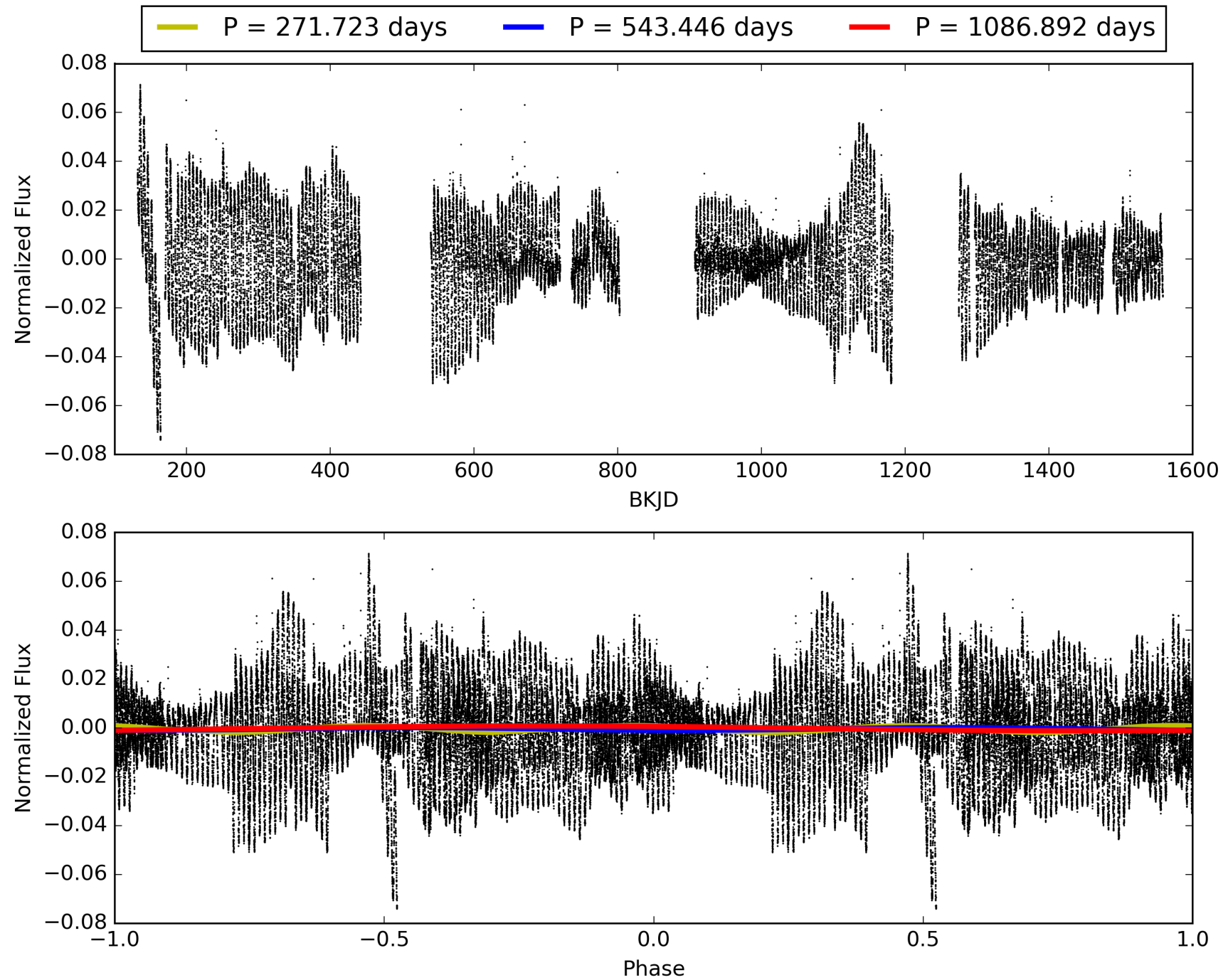
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:31:48 Z

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

# TCE 005513266-01, PDC Light Curves

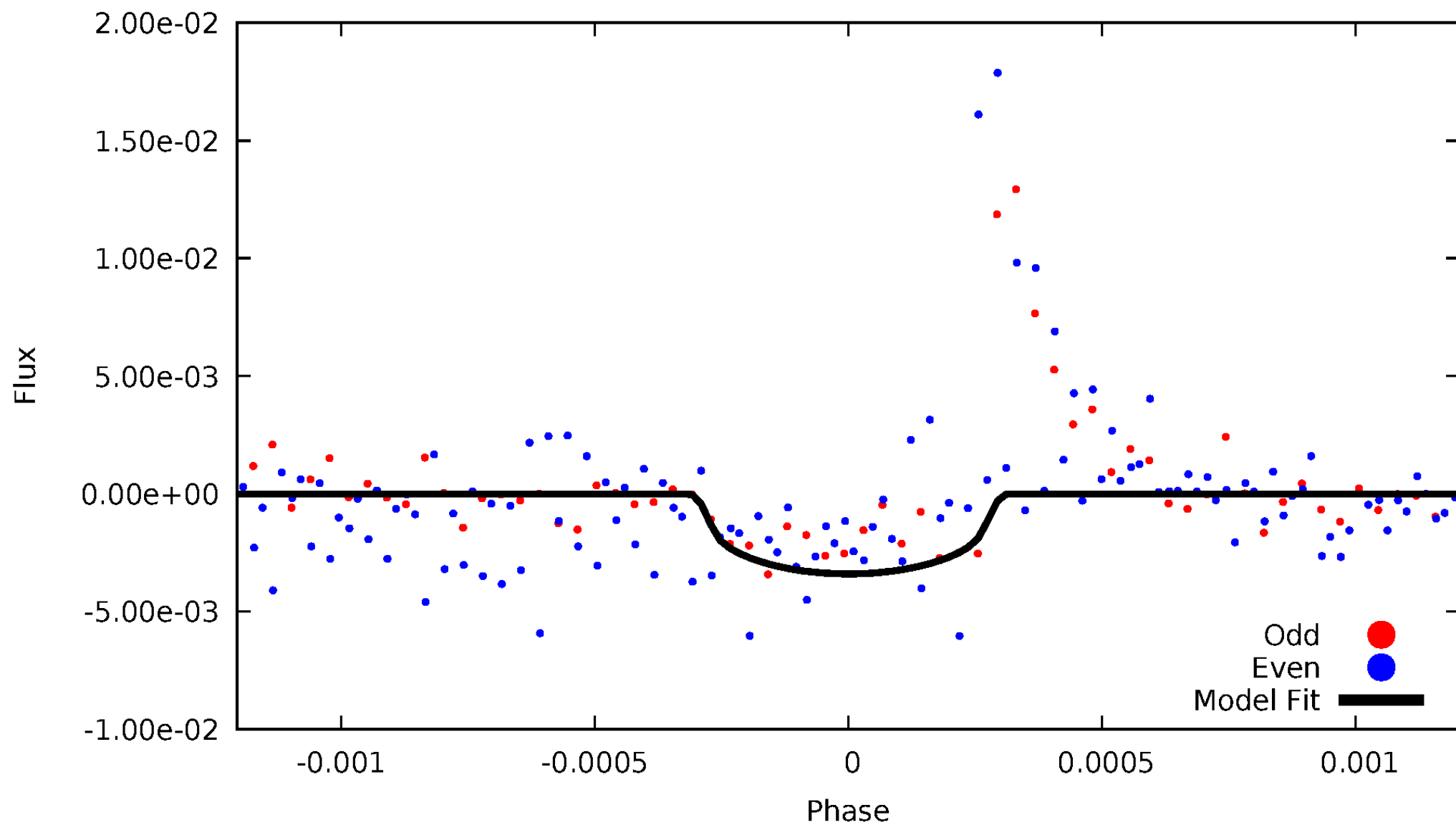


TCE 005513266-01



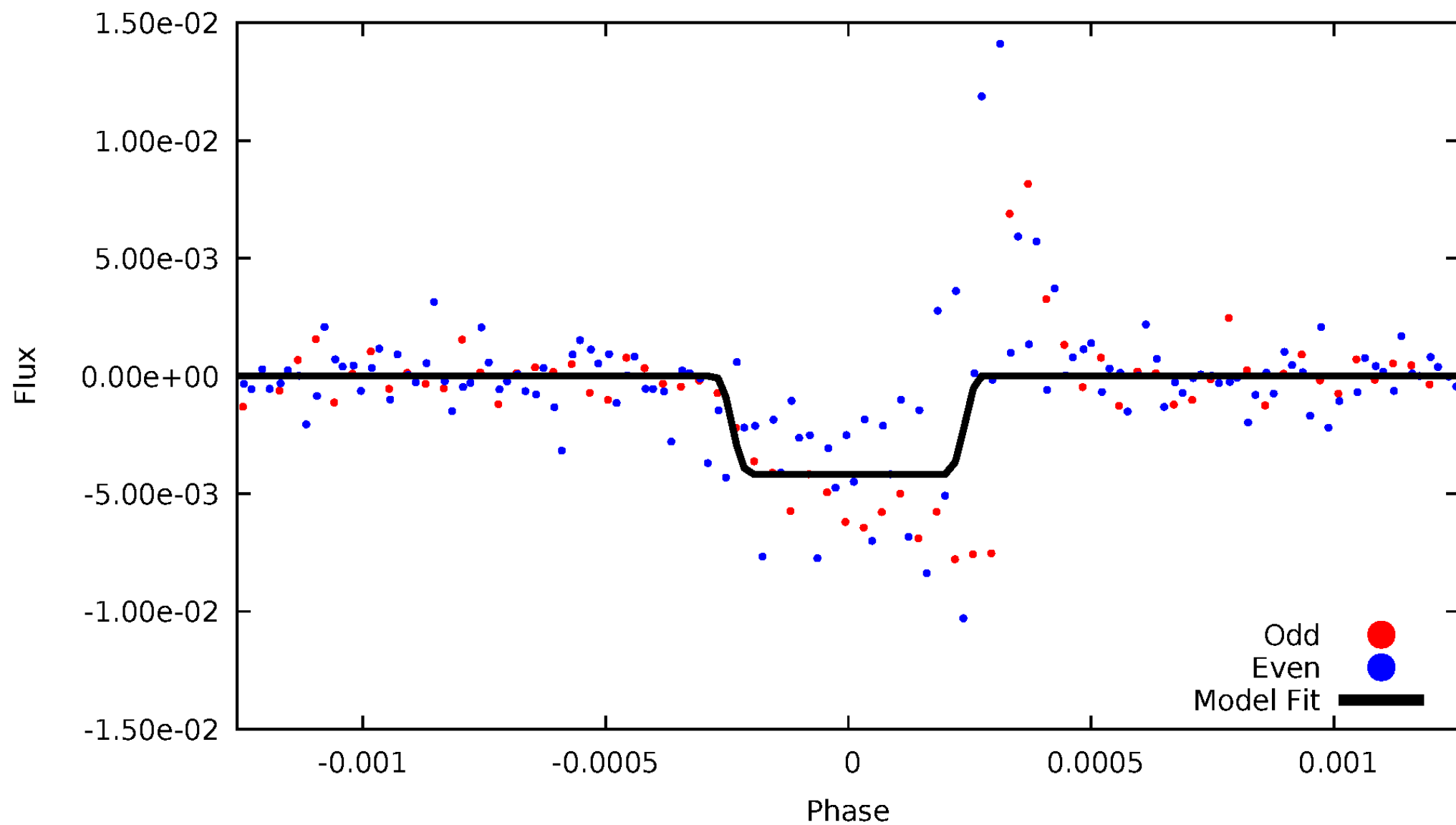
# DV Odd/Even

TCE 005513266-01

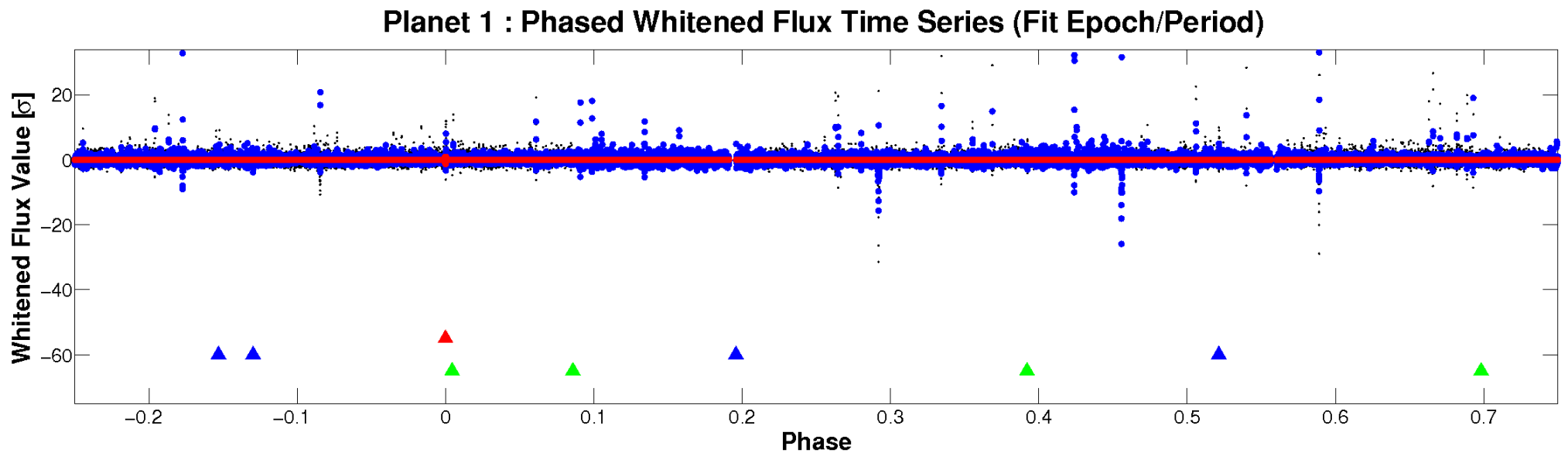
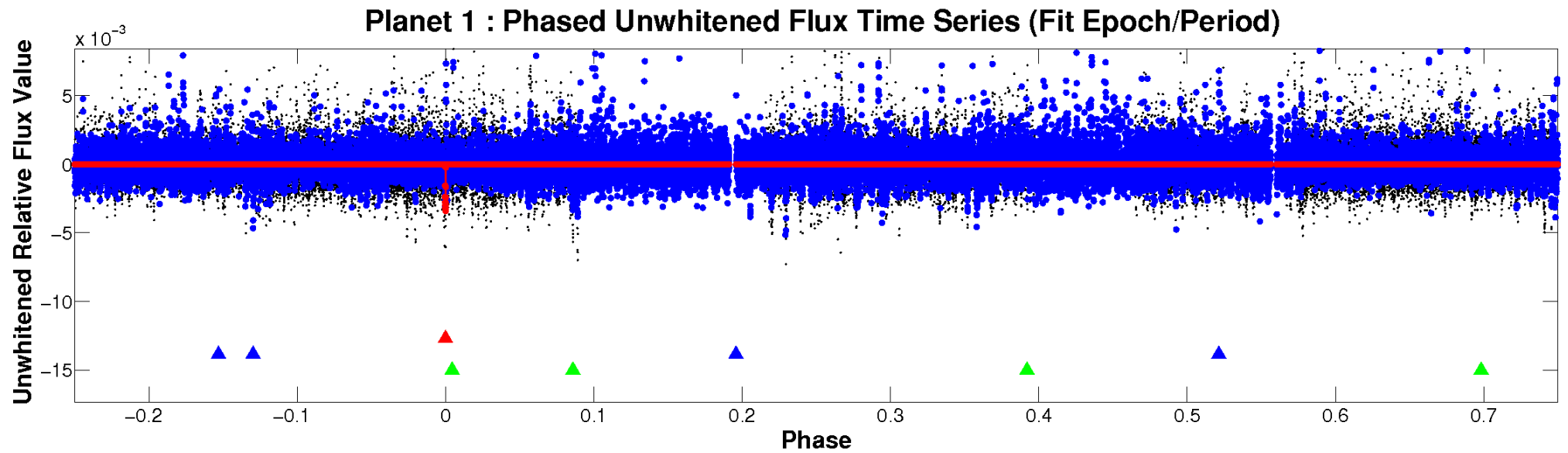


# ALT Odd/Even

TCE 005513266-01

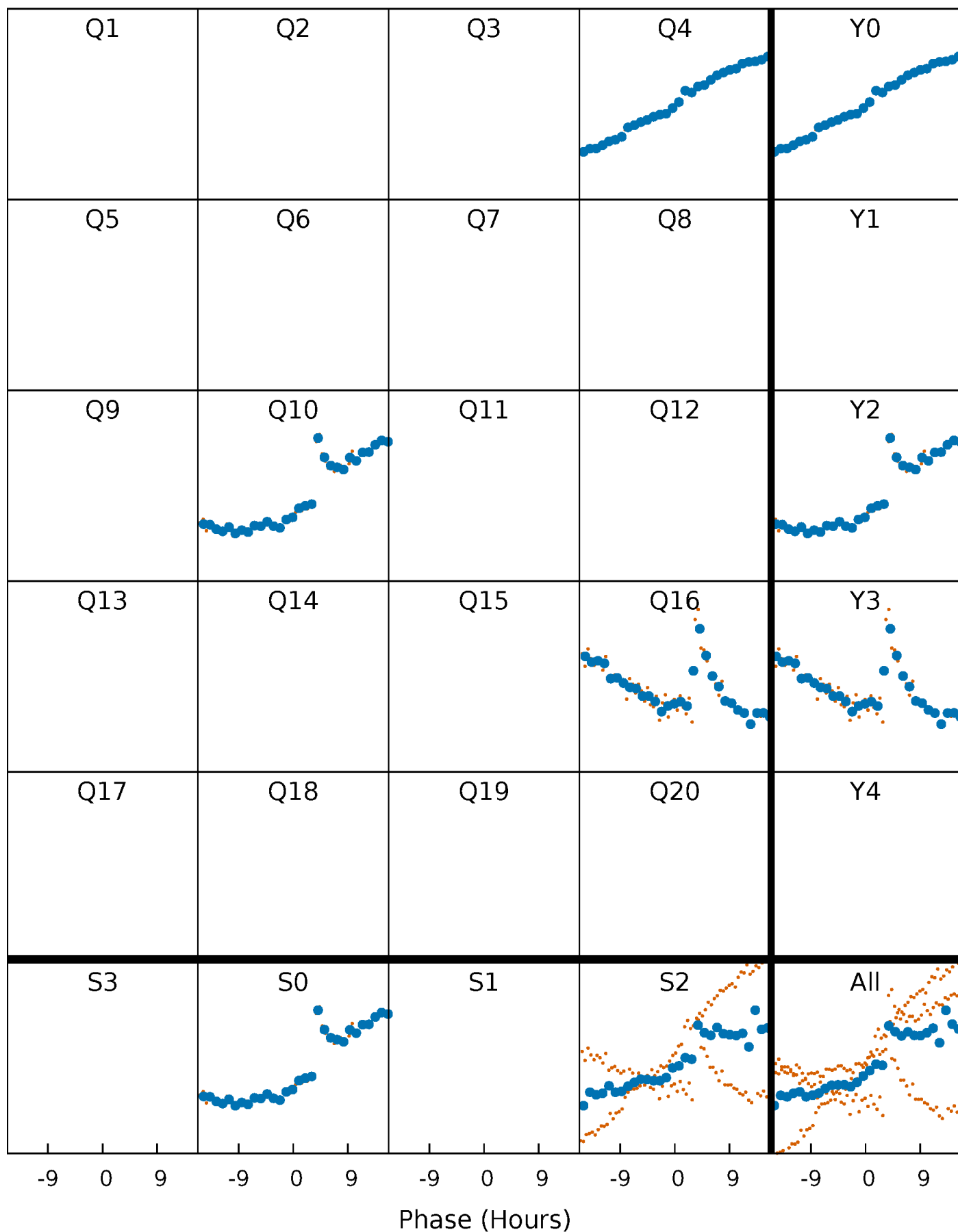


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

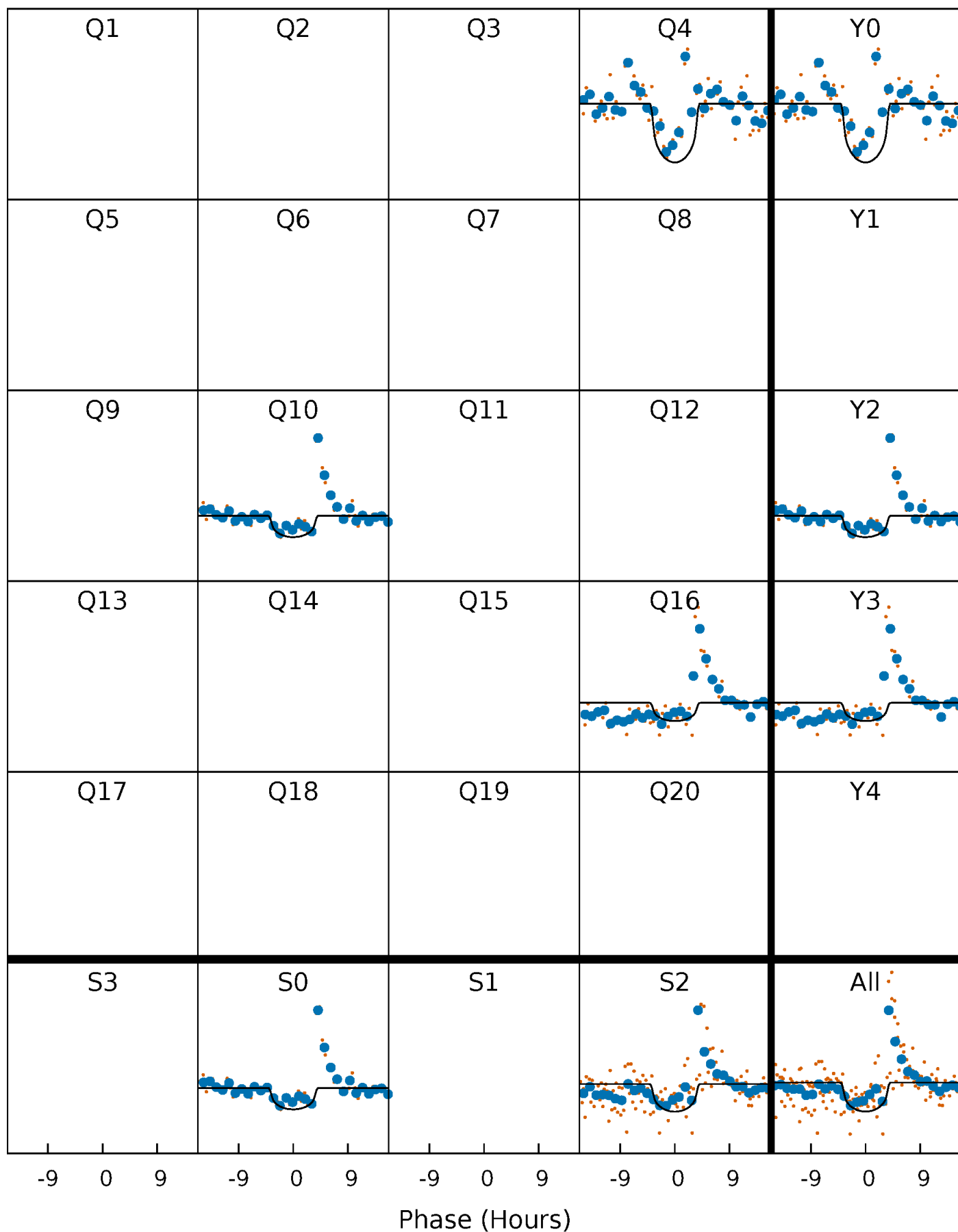
TCE 005513266-01 P=543.446051 Days  $T_0=422.601107$  (BKJD)





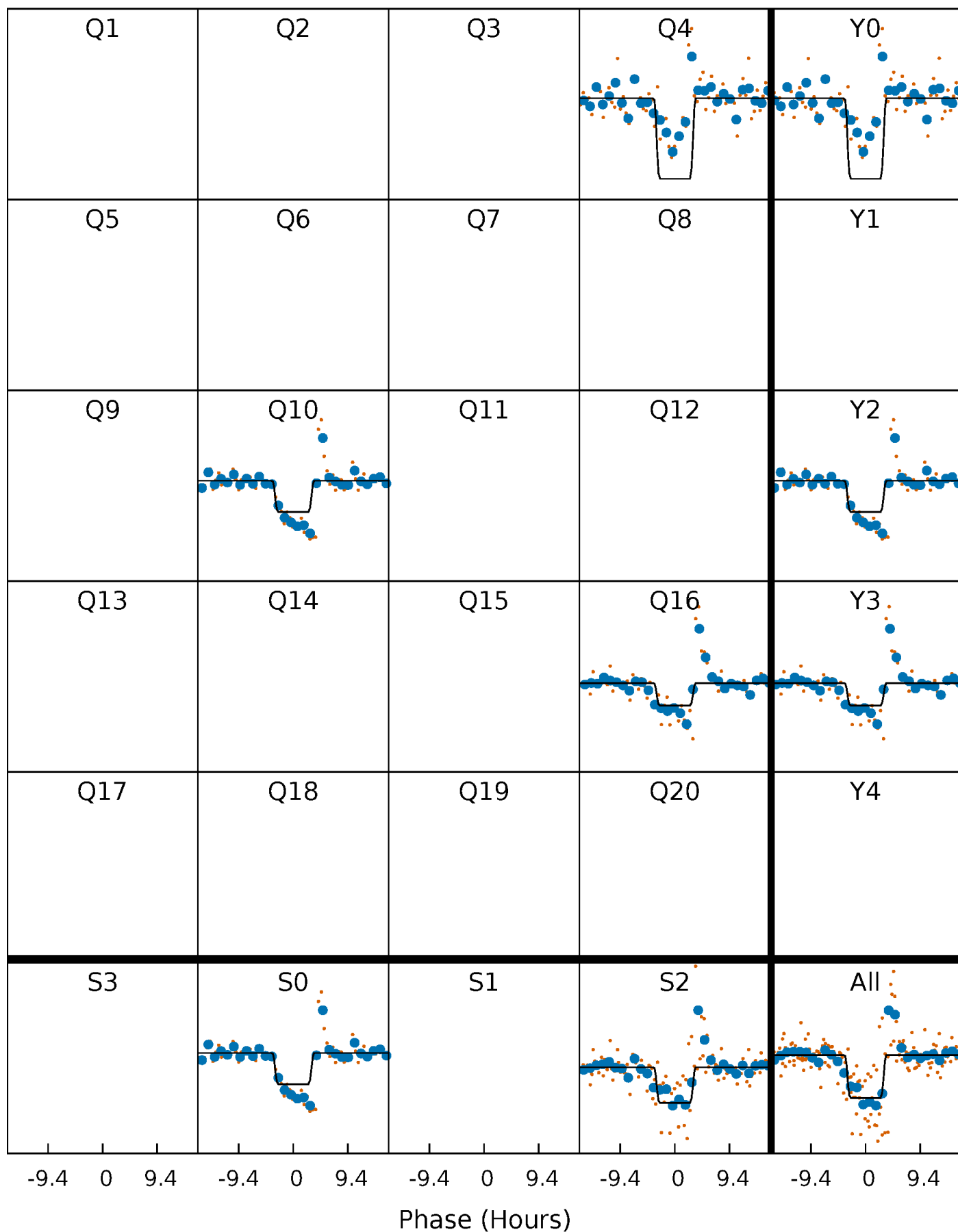
# DV Quarter-Phased Transit Curves

TCE 005513266-01 P=543.446051 Days  $T_0=422.601107$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

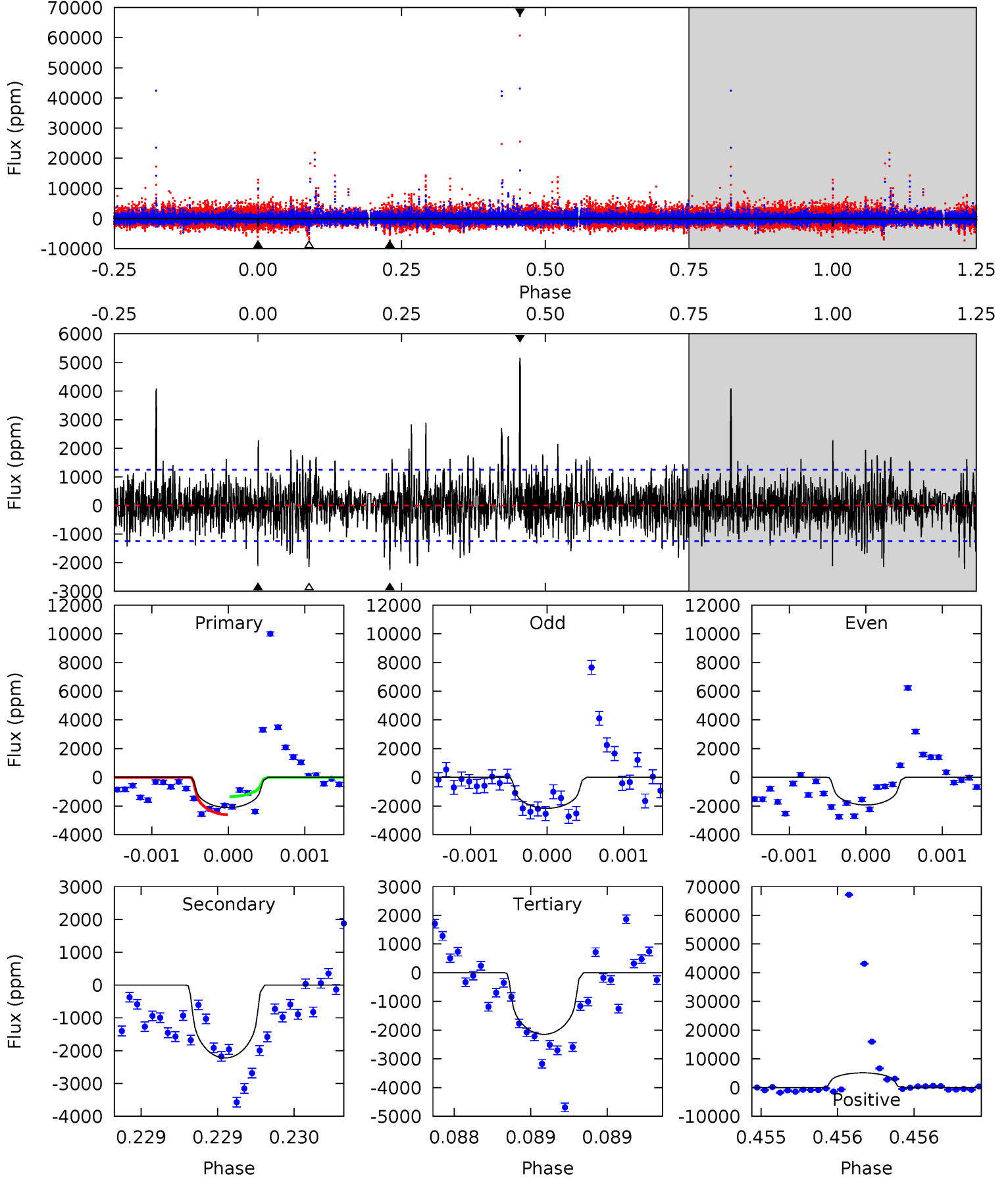
TCE 005513266-01 P=543.457773 Days  $T_0=422.568042$  (BKJD)



# DV Model-Shift Uniqueness Test

005513266-01, P = 543.446051 Days, E = 422.601107 Days

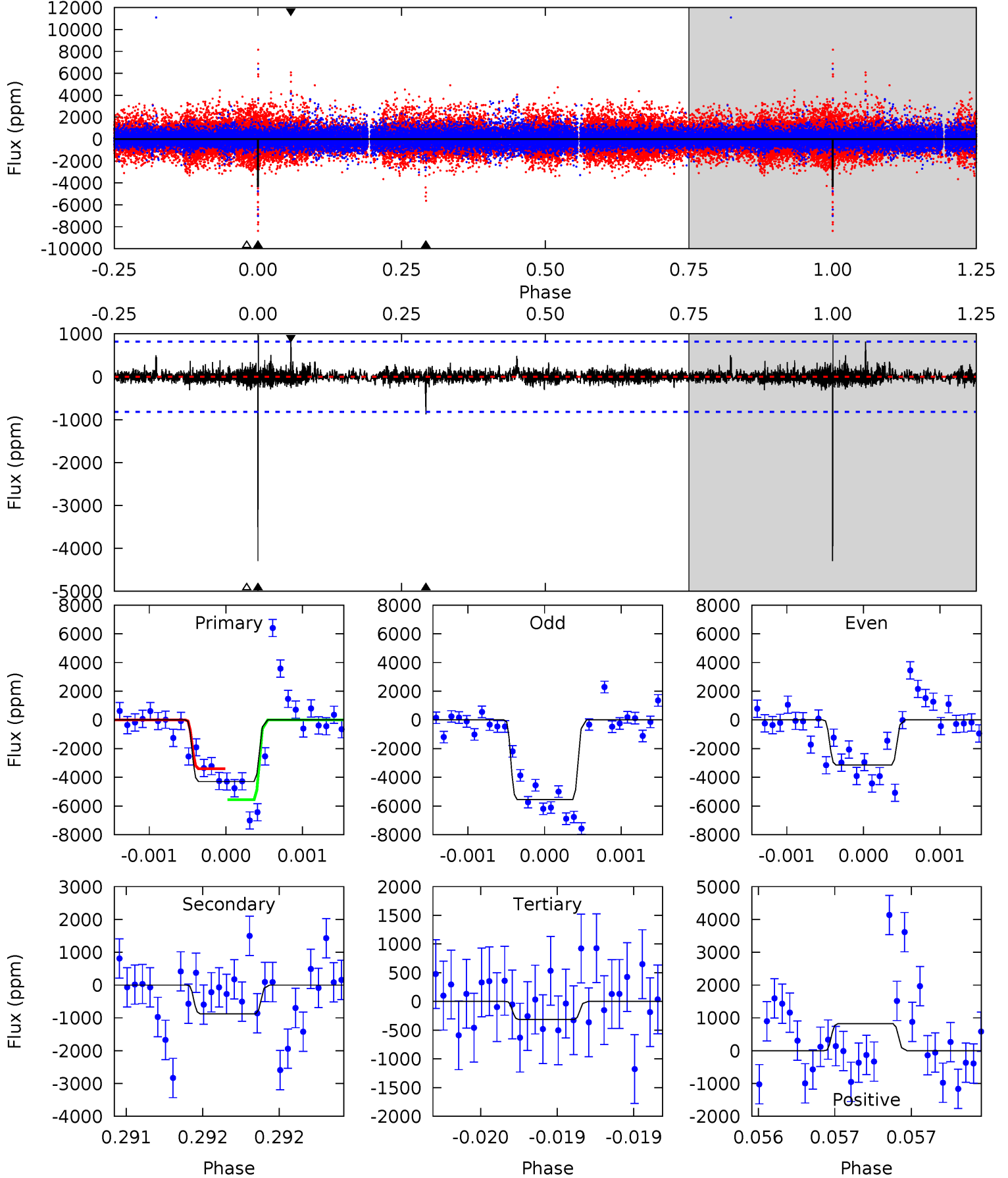
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.36	9.85	9.51	22.8	5.53	3.41	2.60	-0.15	-13.4	0.34	-12.9	0.43	0.95	0.70	2.70



# Alt Model-Shift Uniqueness Test

005513266-01, P = 543.457773 Days, E = 422.568042 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
29.2	5.94	2.14	5.57	5.56	3.46	0.54	27.0	23.6	3.80	0.37	7.92	0.75	0.18	7.18



### Stellar Parameters For KIC 005513266

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4413^{+242}_{-266}$	$4.582^{+0.056}_{-0.028}$	$0.440^{+0.050}_{-0.300}$	$0.727^{+0.044}_{-0.075}$	$0.737^{+0.055}_{-0.067}$	$2.699^{+0.741}_{-0.308}$
	+5%/-6%	+1%/-1%	+11%/-68%	+6%/-10%	+7%/-9%	+27%/-11%
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 005513266-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-2222 \pm 226$	$4.02^{+2.42}_{-2.03}$	$213^{+12}_{-14}$	$4260^{+1515}_{-653}$	$104166^{+327564}_{-62221}$
Alt.	$-875 \pm 147$	$5.33^{+2.18}_{-2.42}$	$211^{+13}_{-13}$	$3315^{+705}_{-352}$	$23731^{+53034}_{-12173}$

$T_{\text{max}}$  = 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

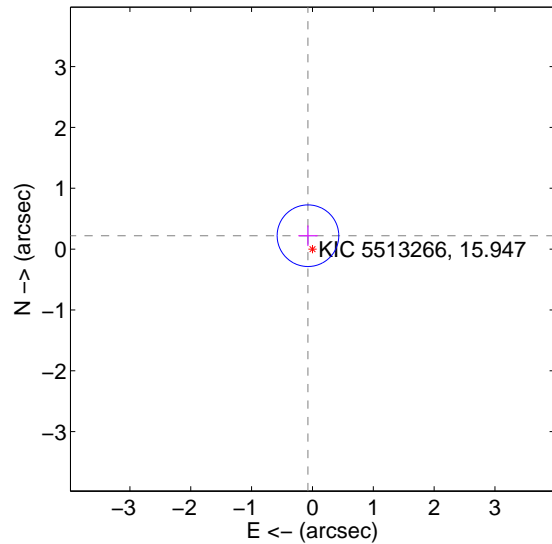
Supplemental centroid analysis for 005513266-01. Kepler magnitude: 15.95. Transit SNR 8.04

There are 1 quarters with good PRF difference image offsets

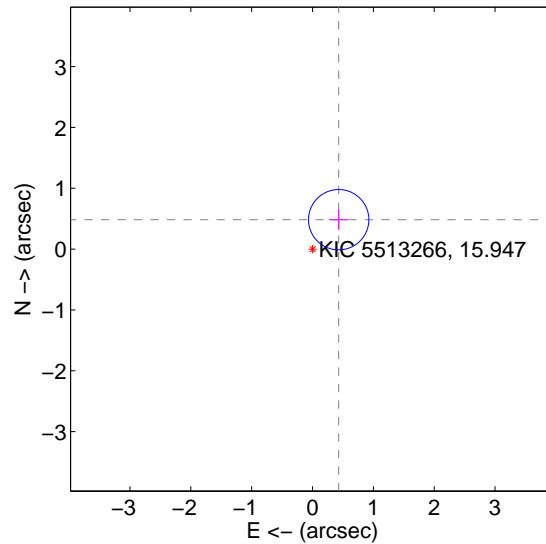
The direct PRF centroid is offset from the target star catalog position by about 0.57 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.232 \pm 0.169$	1.37	$0.074 \pm 0.159$	$0.220 \pm 0.170$
PRF-fit source offset from KIC position	$0.647 \pm 0.165$	3.91	$-0.430 \pm 0.159$	$0.483 \pm 0.170$
photometric centroid source offset	$0.13 \pm 1.06$	0.13	$0.05 \pm 0.99$	$0.12 \pm 1.07$

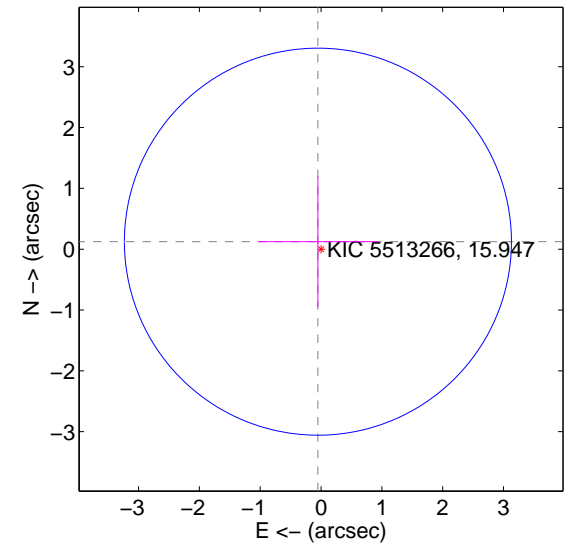
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

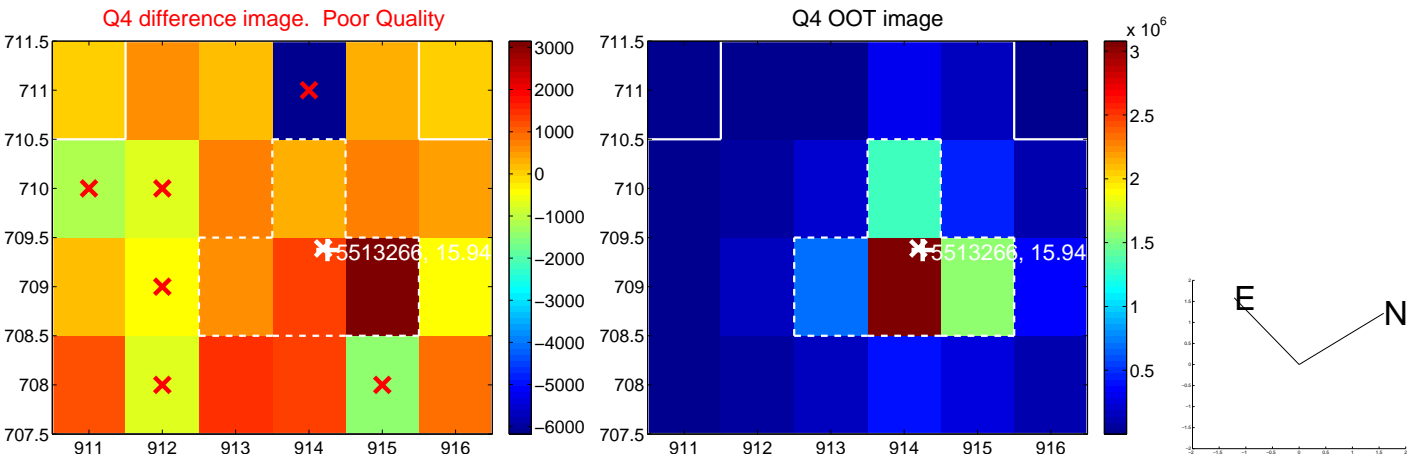


offset from photometric centroids



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

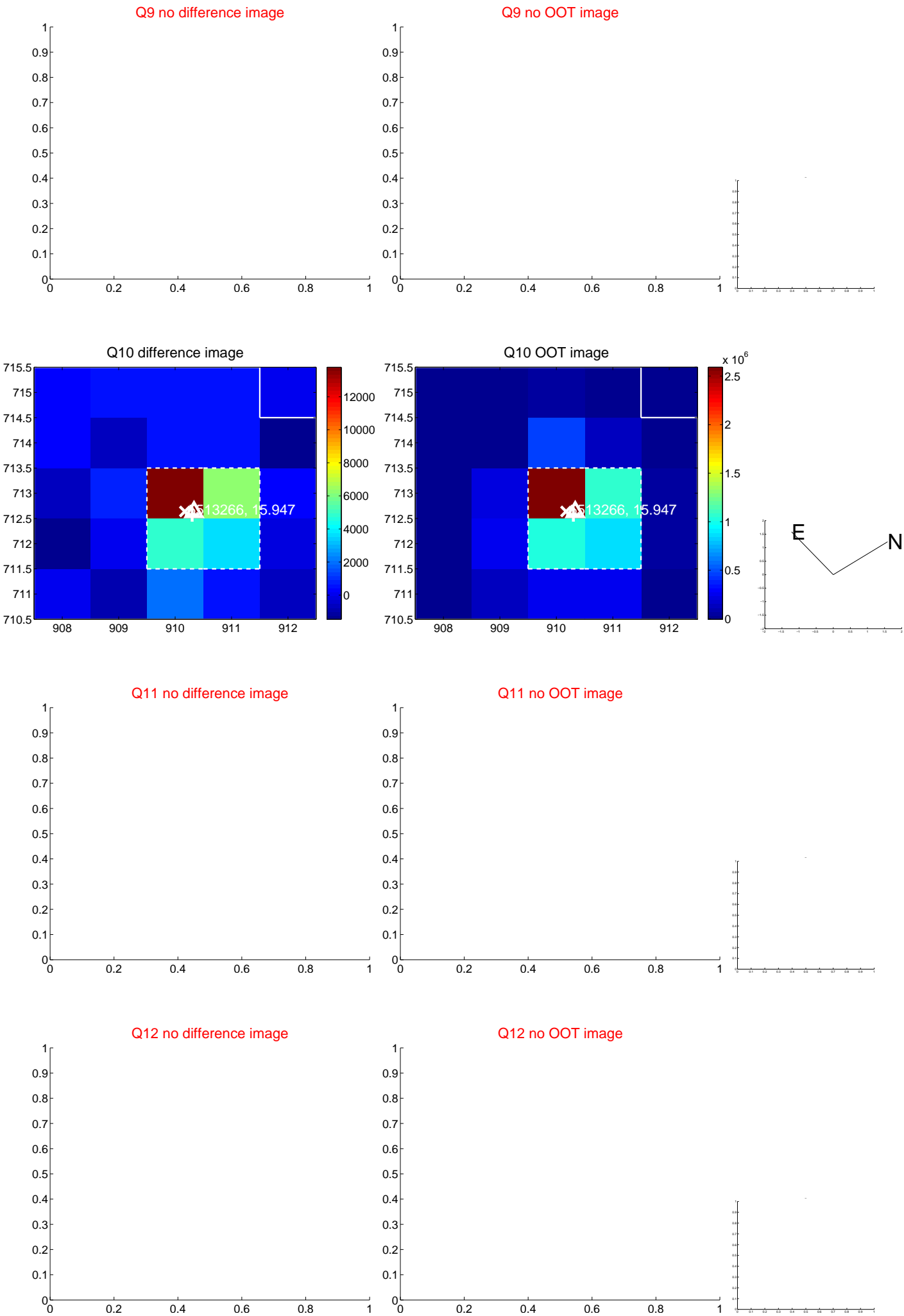


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





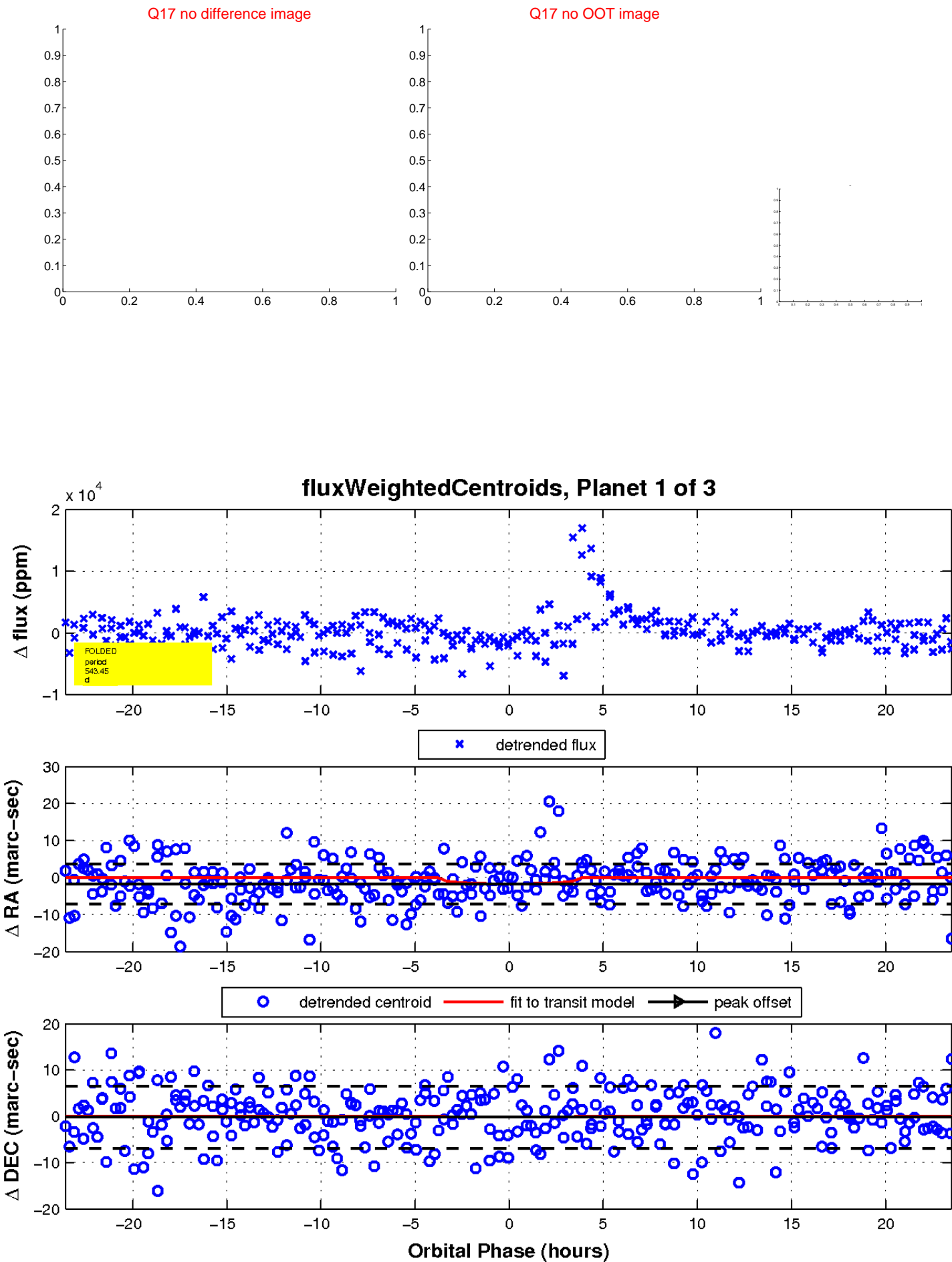
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

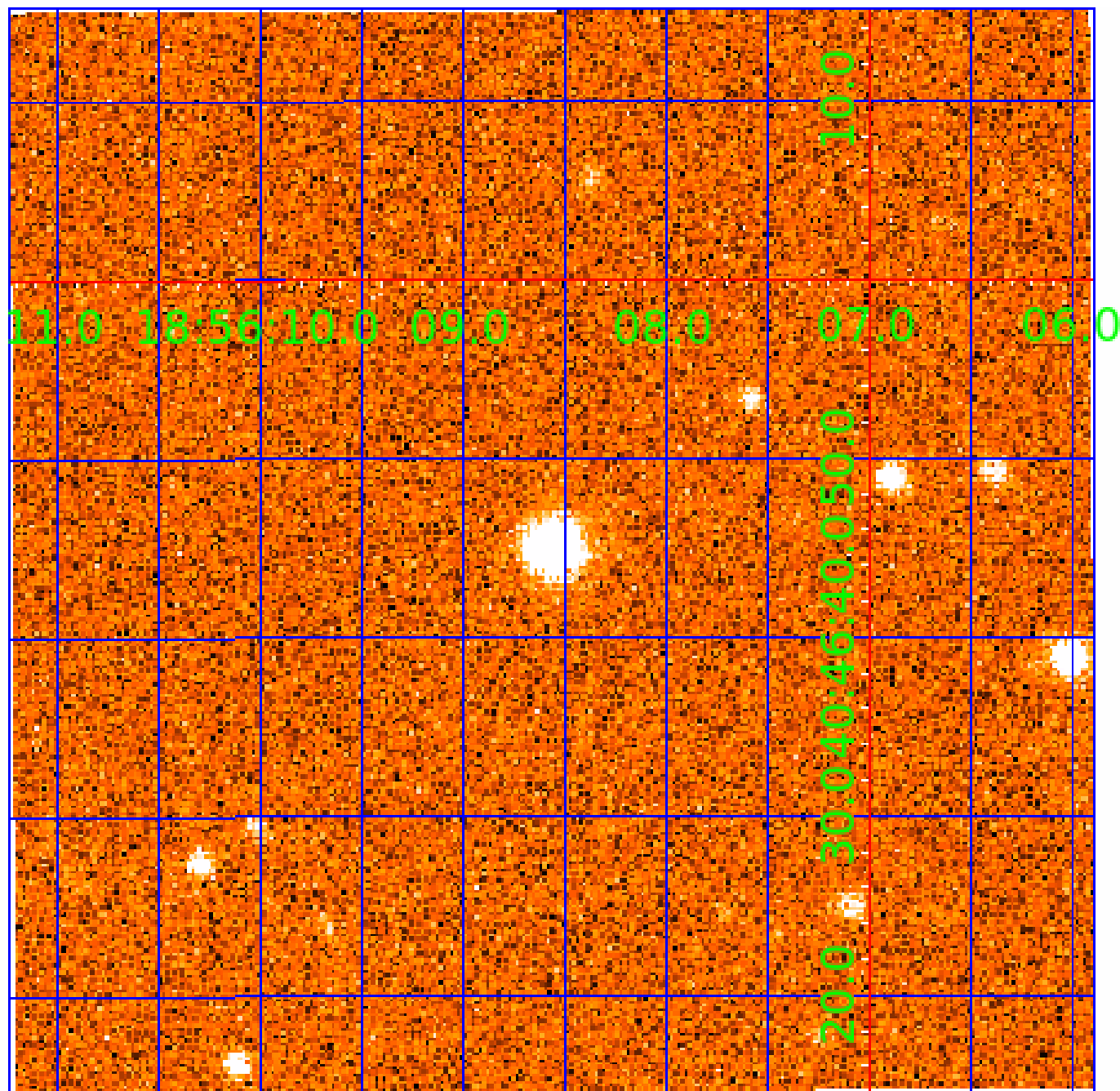


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005513266

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005513266-01	OBS	No	543.446051	422.601107	3403.7	7.858	13.1	8.0	0.73	4413	4.22	0.13
005513266-02	OBS	No	366.522096	339.428551	2675.6	5.572	10.2	6.9	0.73	4413	3.69	0.22
005513266-03	OBS	No	377.046597	425.043257	2930.1	3.706	10.7	8.1	0.73	4413	3.76	0.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005513266-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005513266-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005513266-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

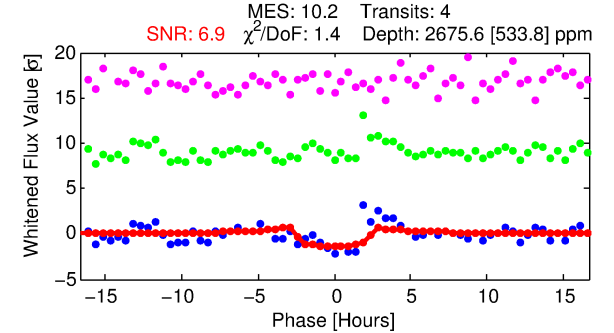
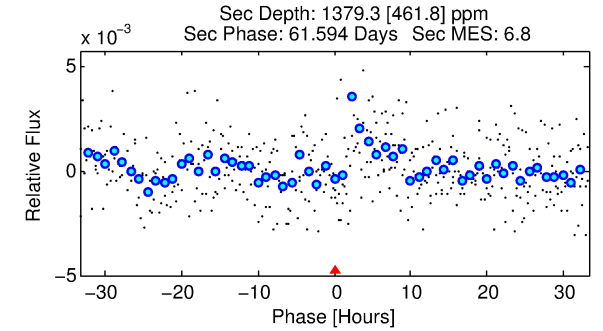
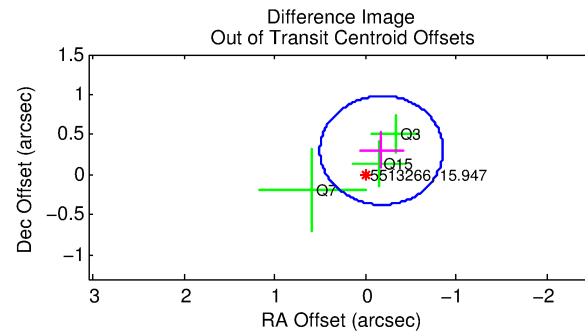
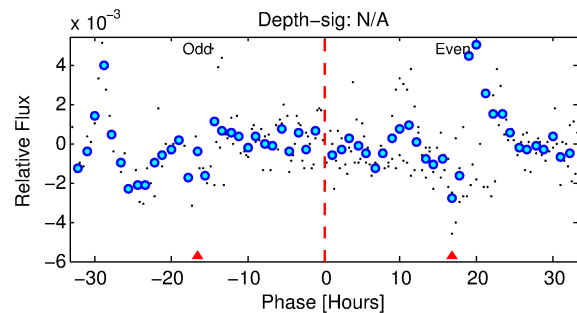
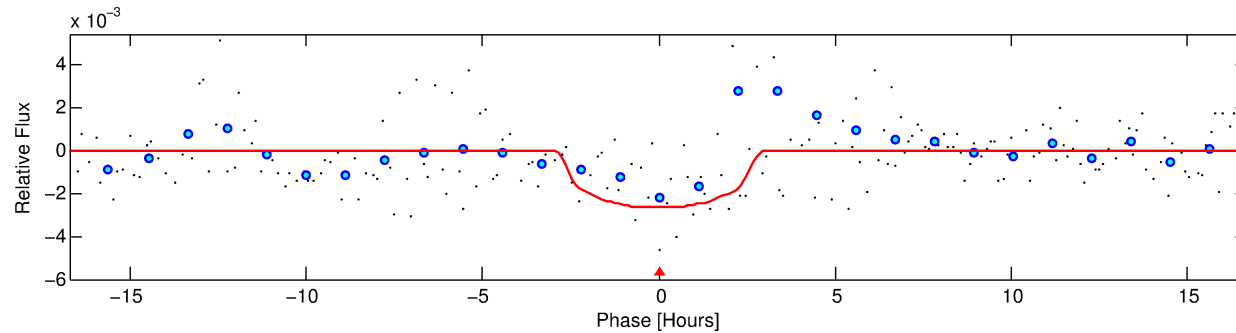
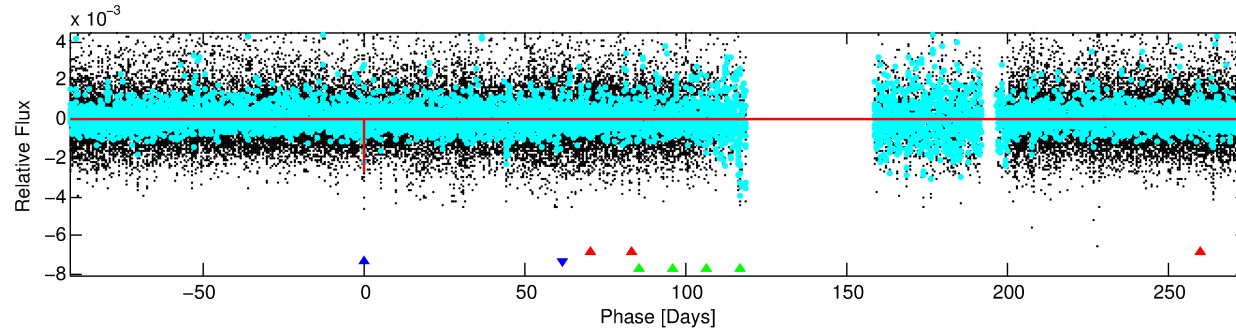
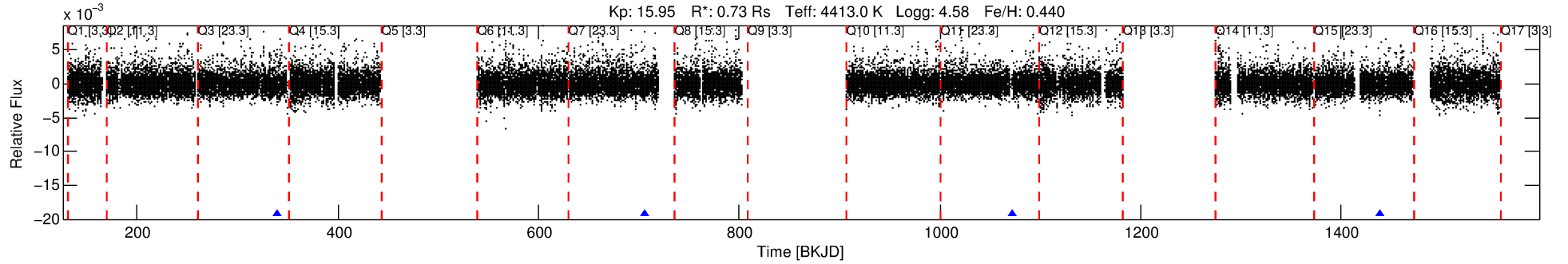
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005513266-02

No Significant Match Found

# DV One-Page Summary

KIC: 5513266 Candidate: 2 of 3 Period: 366.522 d



## DV Fit Results:

Period = 366.52210 [0.00593] d  
Epoch = 339.4286 [0.0122] BKJD  
Rp/R\* = 0.0465 [0.0630]  
a/R\* = 482.63 [1811.01]  
b = 0.42 [7.63]  
Seff = 0.22 [0.06]  
Teq = 174 [12] K  
Rp = 3.69 [5.01] Re  
a = 0.9053 [0.0734] AU  
Ag = 45693.67 [124837.94] [0.37 $\sigma$ ]  
Teffp = 3944 [2702] K [1.40 $\sigma$ ]

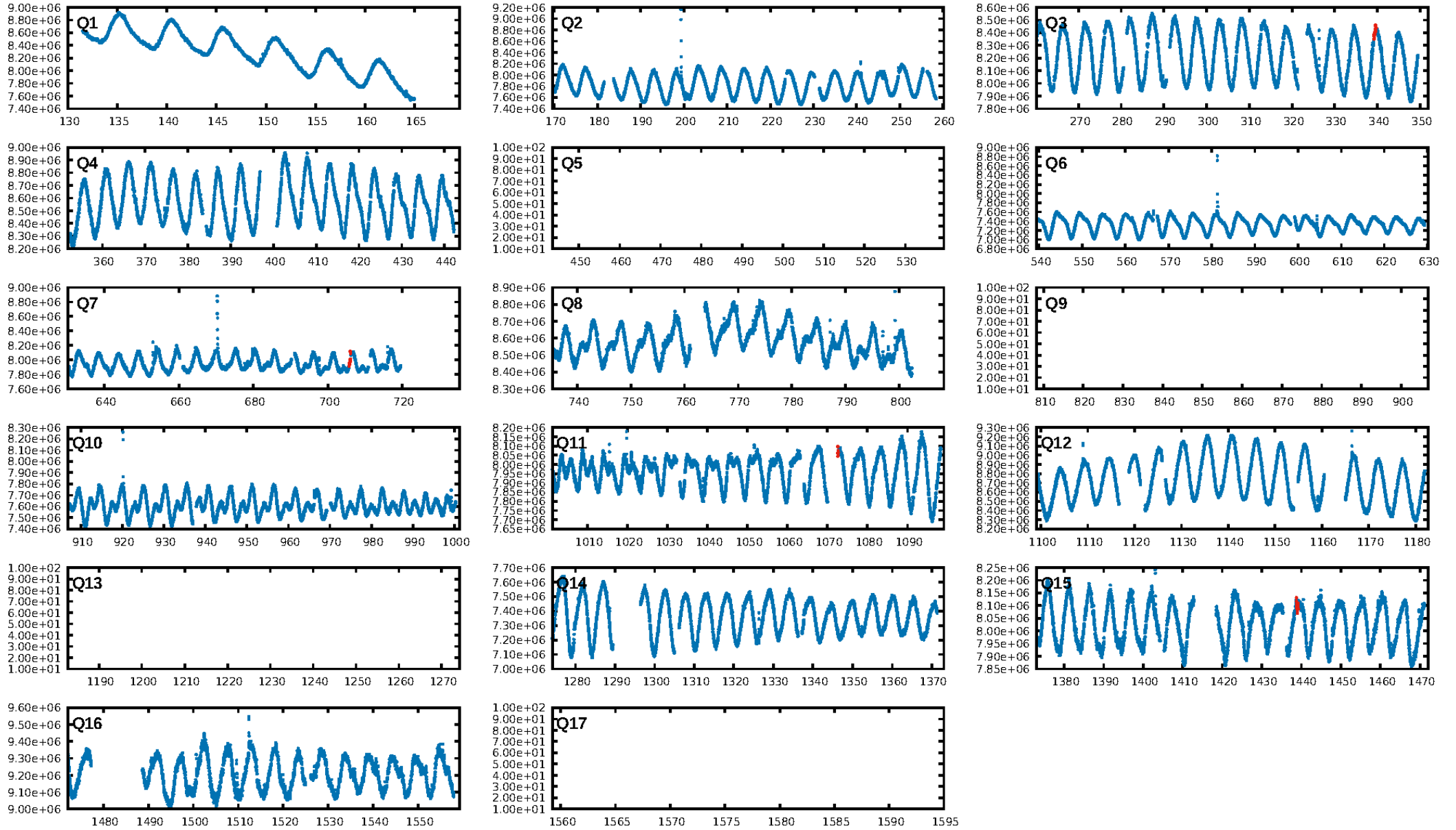
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [37.75 $\sigma$ ]  
ModelChiSquare2-sig: 40.2%  
ModelChiSquareGof-sig: 92.2%  
**Bootstrap-pfa: 5.97e-12**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 2.21  
Centroid-sig: 54.4%  
Centroid-so: 0.471 arcsec [0.46 $\sigma$ ]  
OotOffset-rm: 0.352 arcsec [1.56 $\sigma$ ]  
OotOffset-st: 0/3/0/0 [3]  
KicOffset-rm: 0.725 arcsec [2.54 $\sigma$ ]  
KicOffset-st: 0/3/0/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

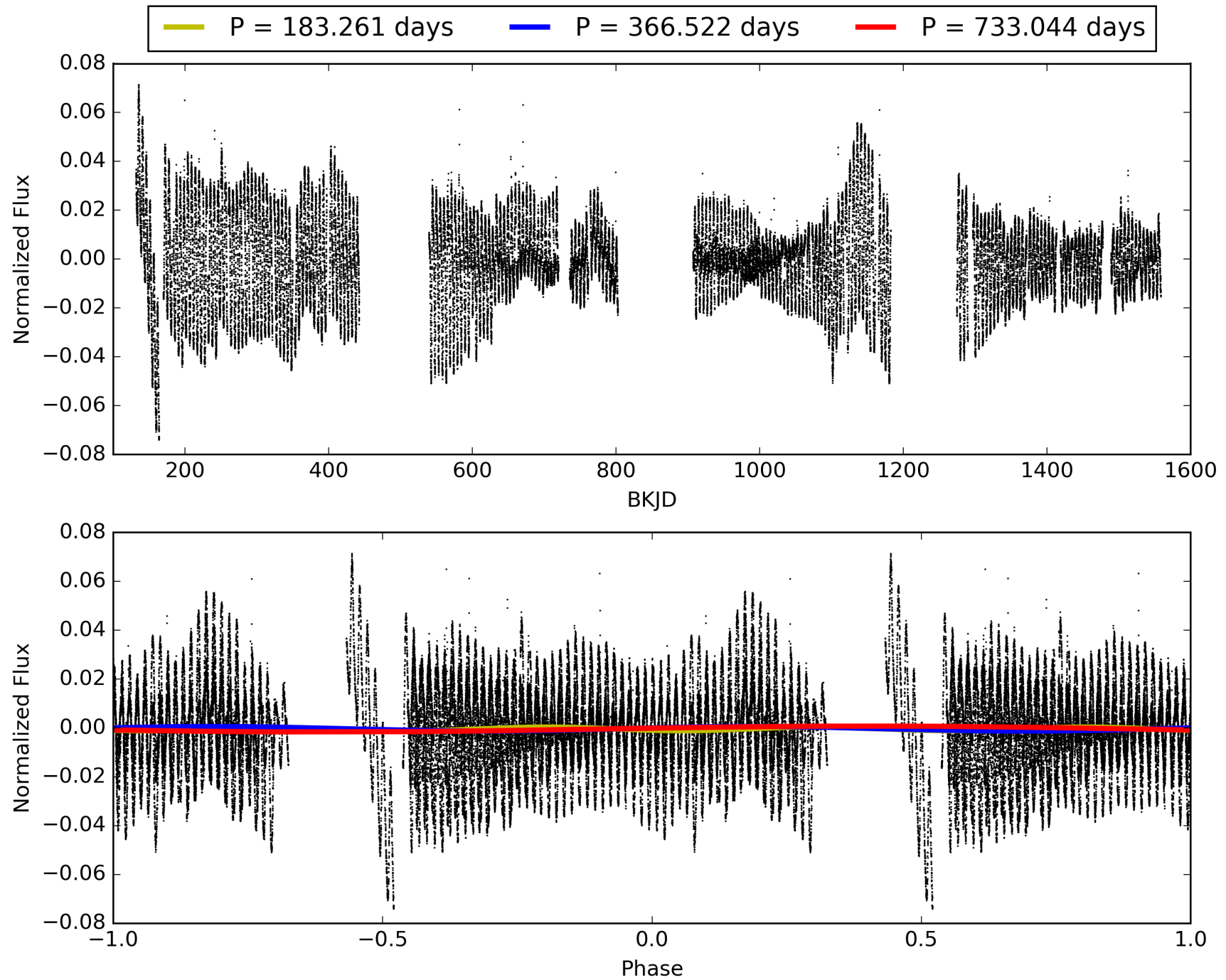
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:31:59 Z

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

# TCE 005513266-02, PDC Light Curves



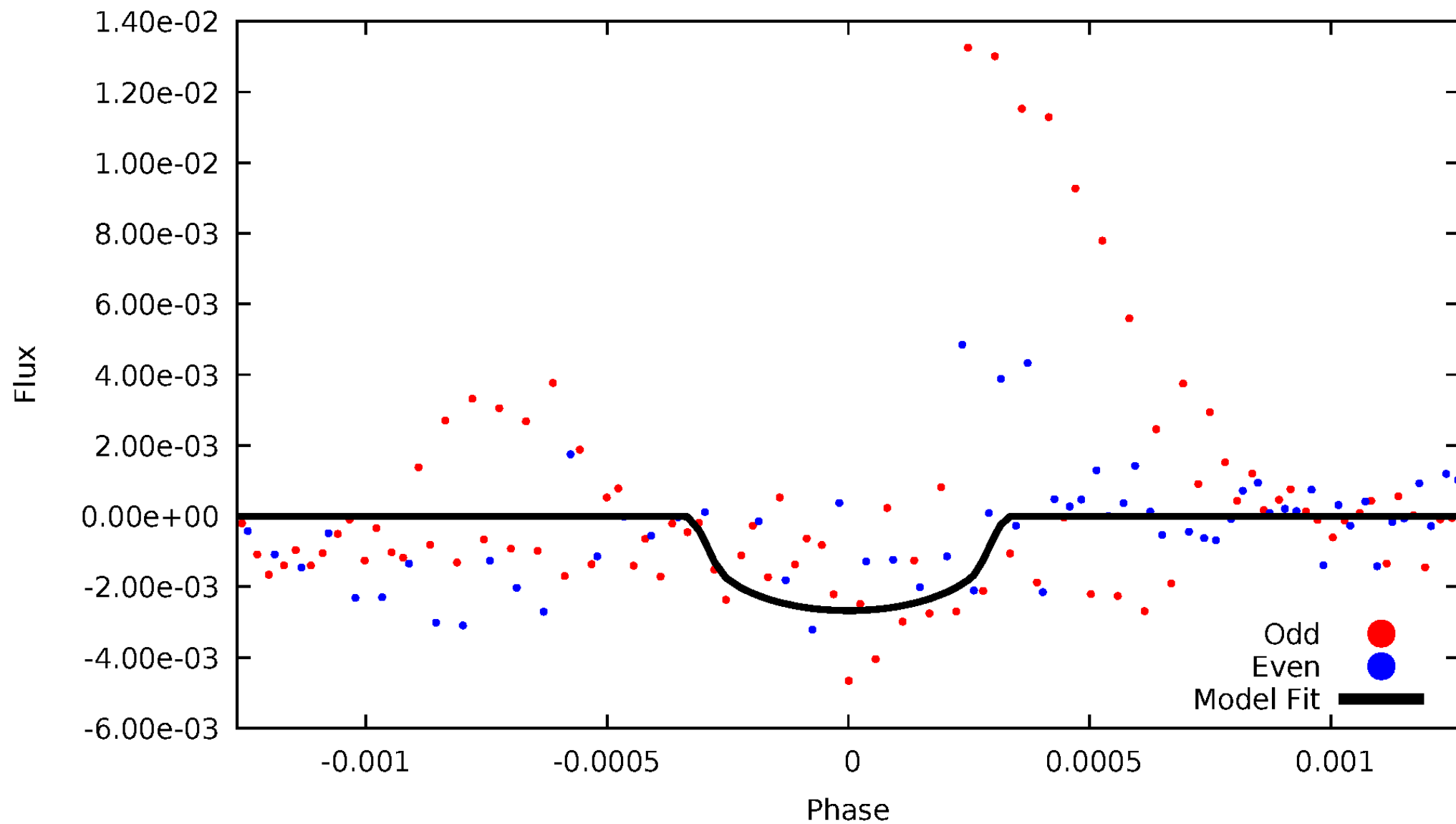
TCE 005513266-02





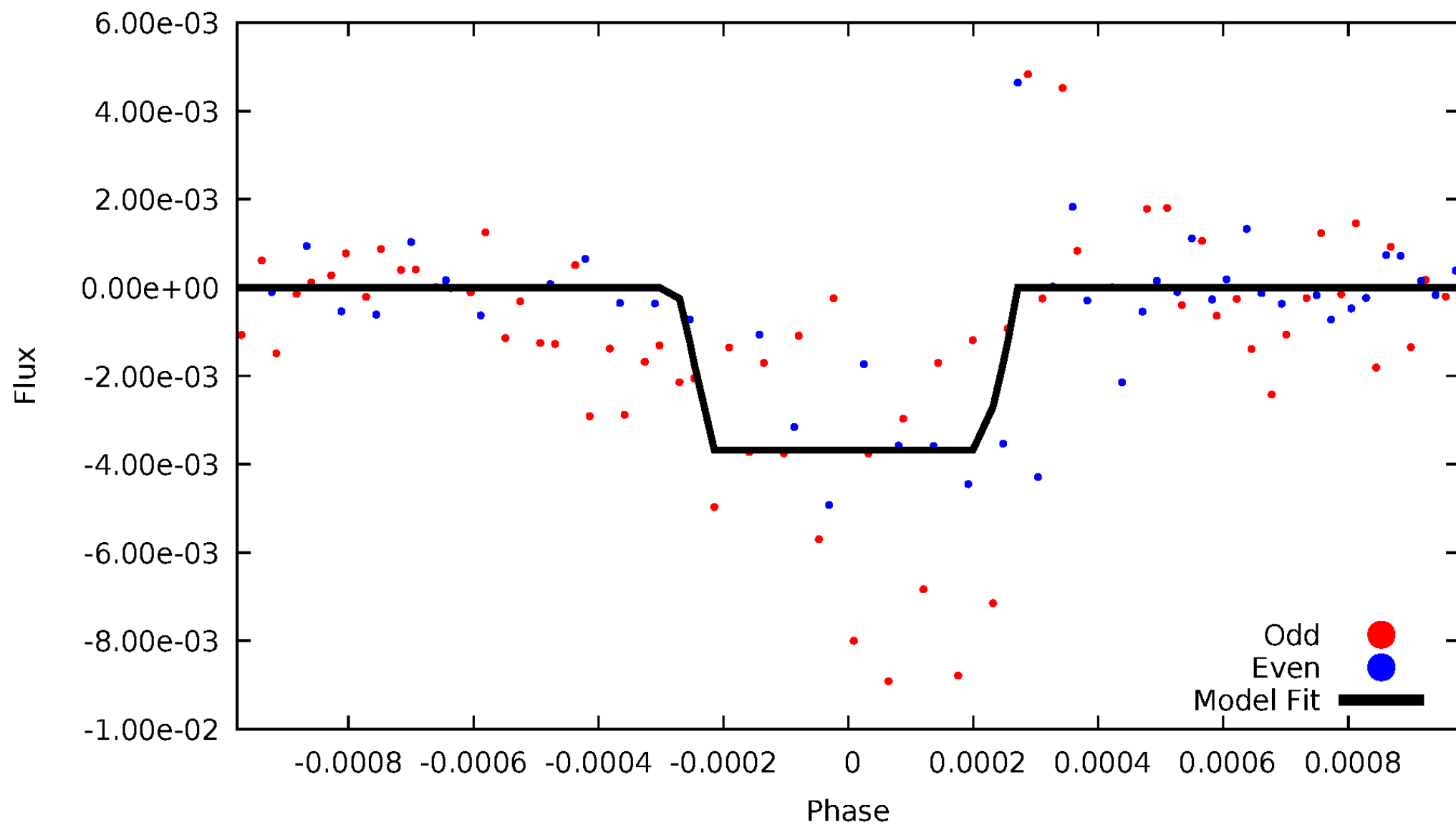
# DV Odd/Even

TCE 005513266-02



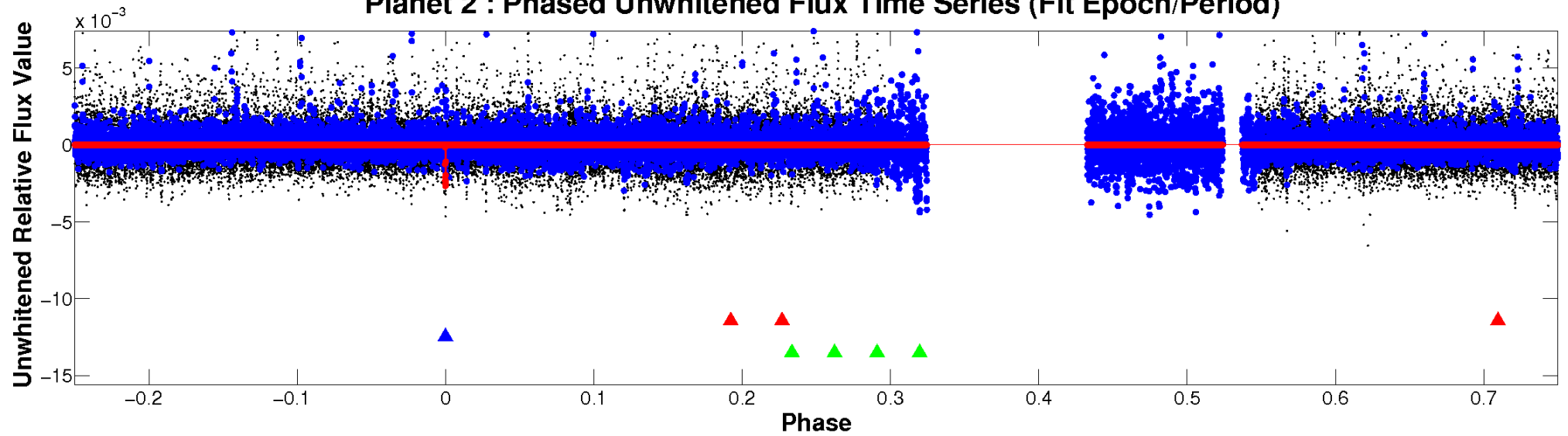
# ALT Odd/Even

TCE 005513266-02

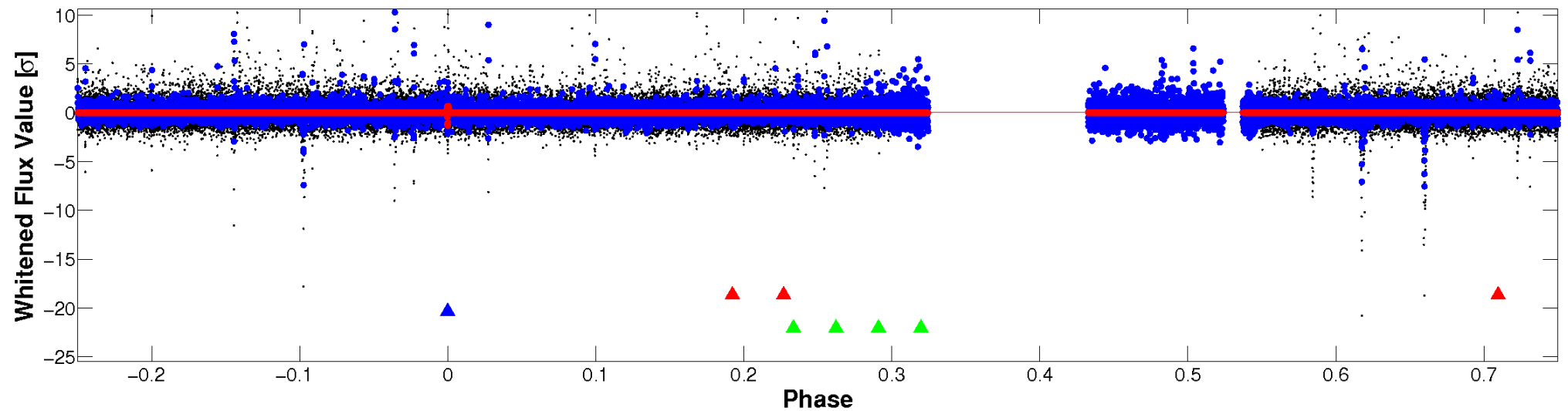


# Non-Whitened Vs. Whitened Light Curve

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

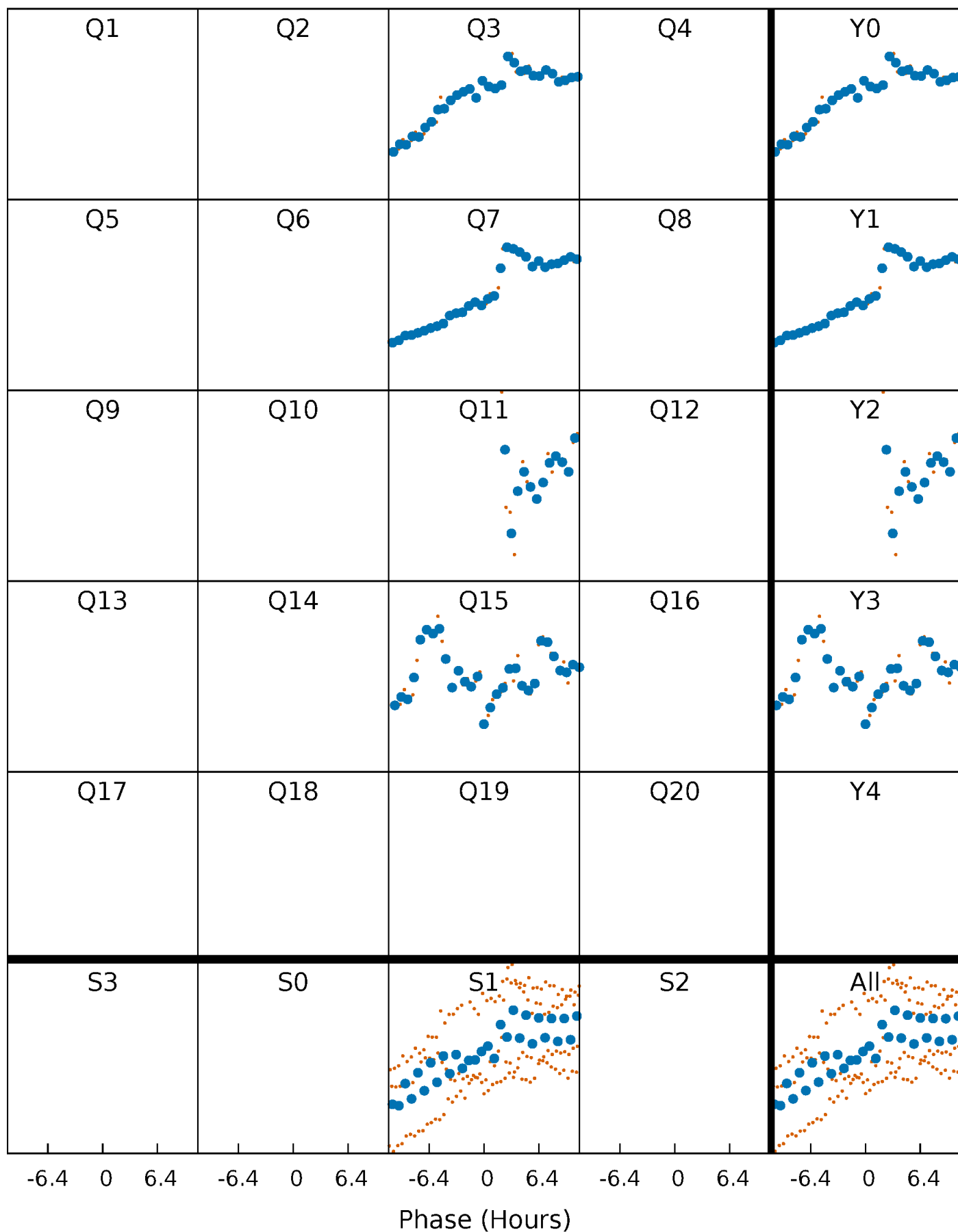


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



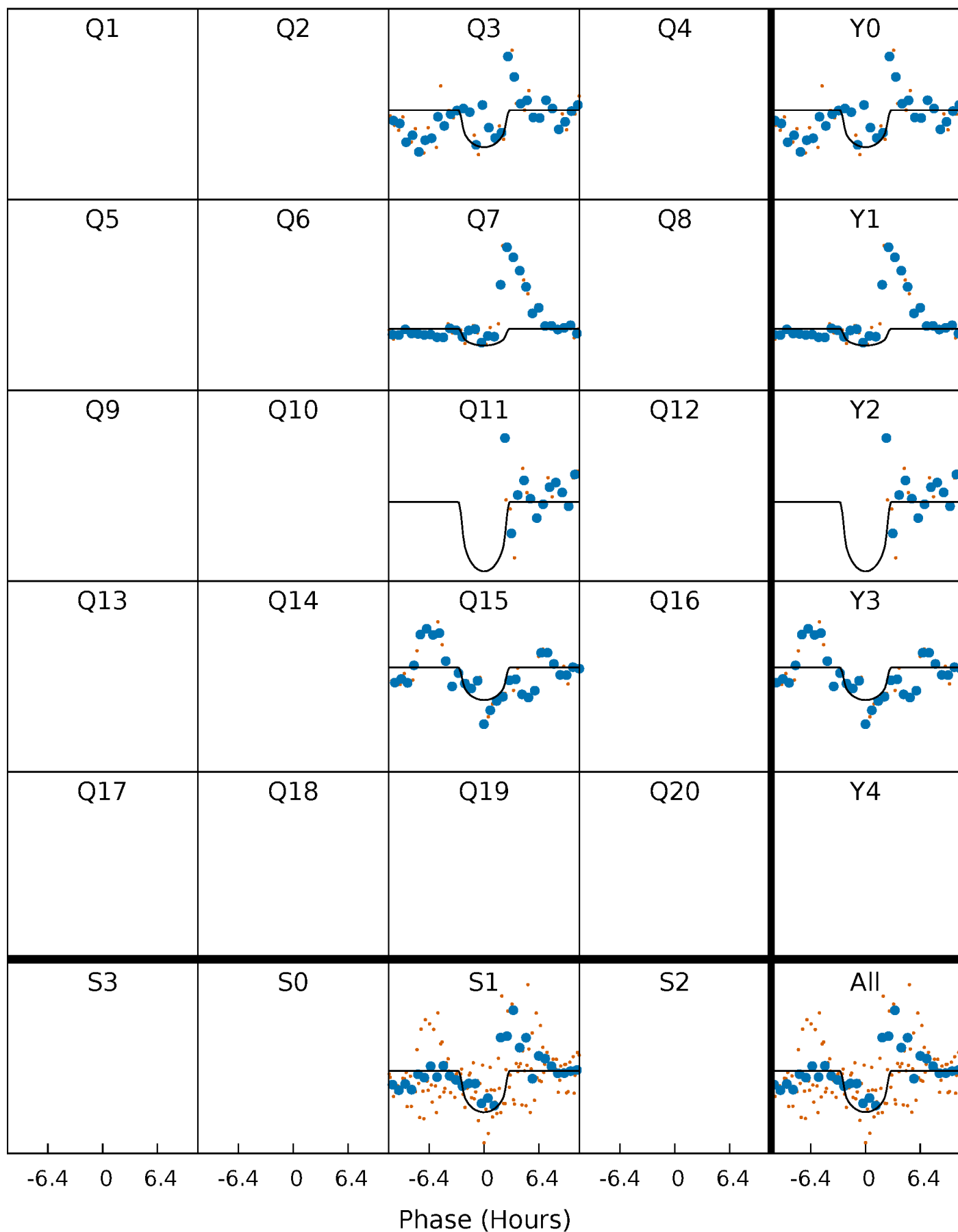
# PDC Quarter-Phased Transit Curves

TCE 005513266-02     $P=366.522096$  Days     $T_0=339.428551$  (BKJD)



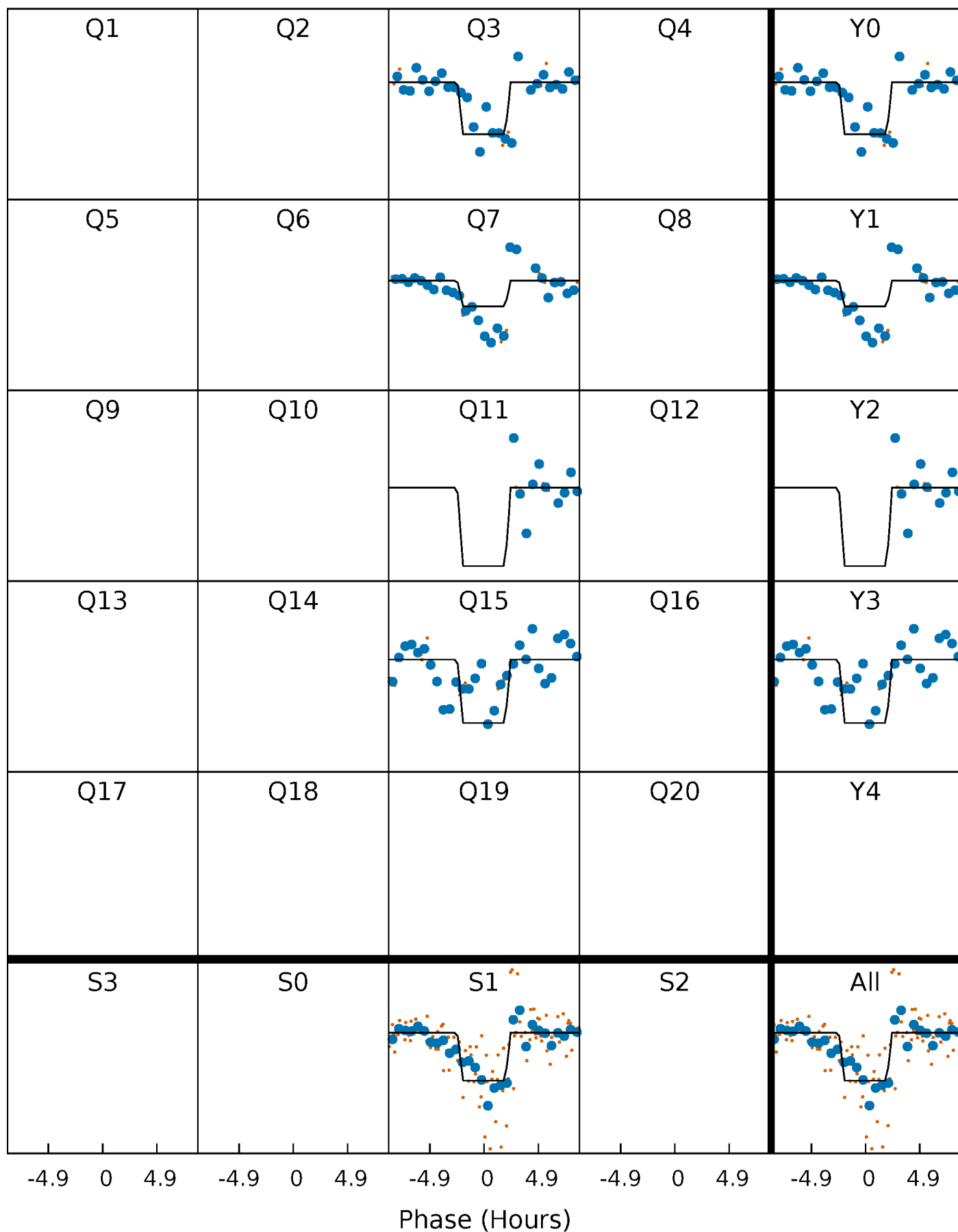
# DV Quarter-Phased Transit Curves

TCE 005513266-02     $P=366.522096$  Days     $T_0=339.428551$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

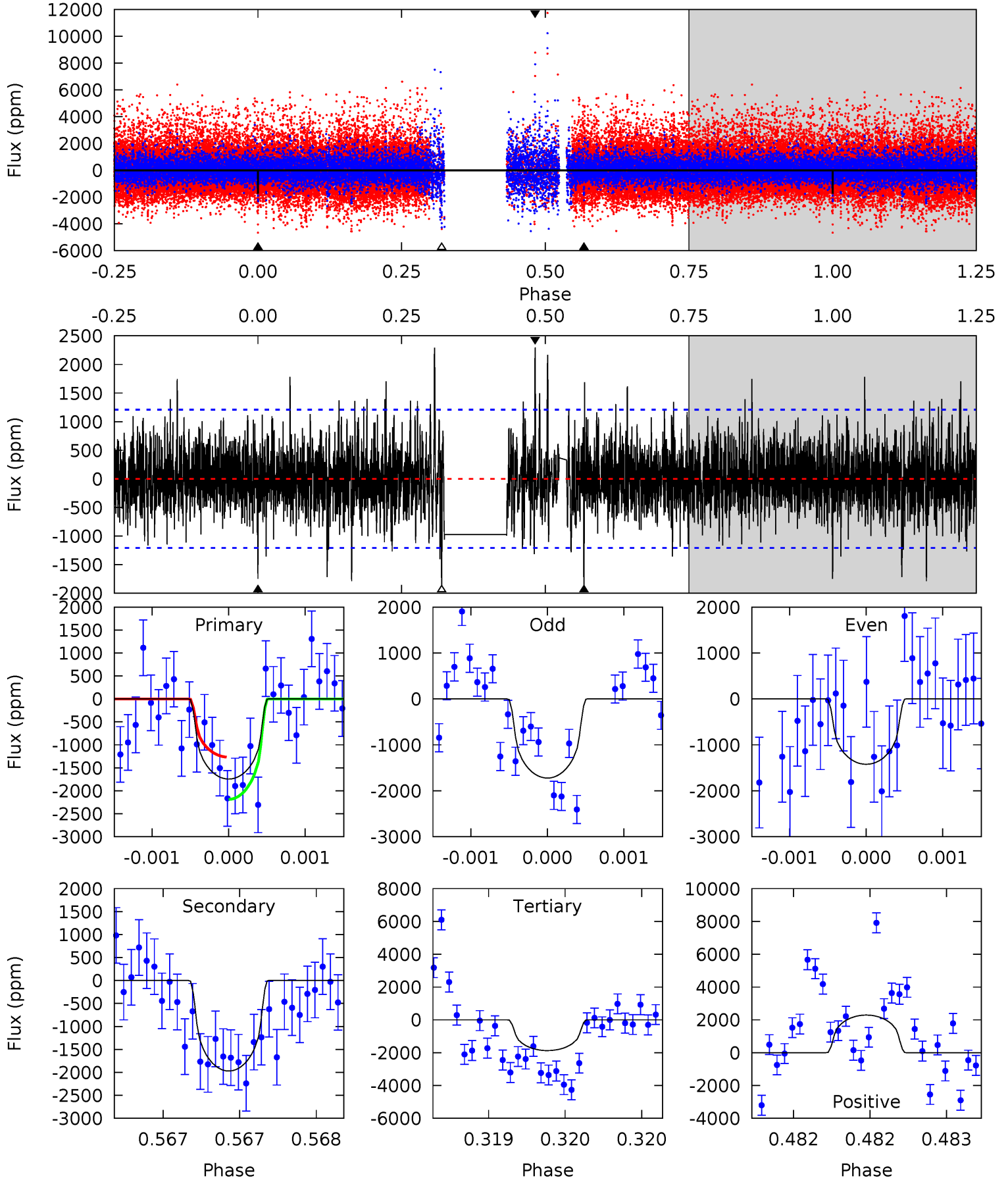
TCE 005513266-02     $P=366.523577$  Days     $T_0=339.412657$  (BKJD)



# DV Model-Shift Uniqueness Test

005513266-02, P = 366.522096 Days, E = 339.428551 Days

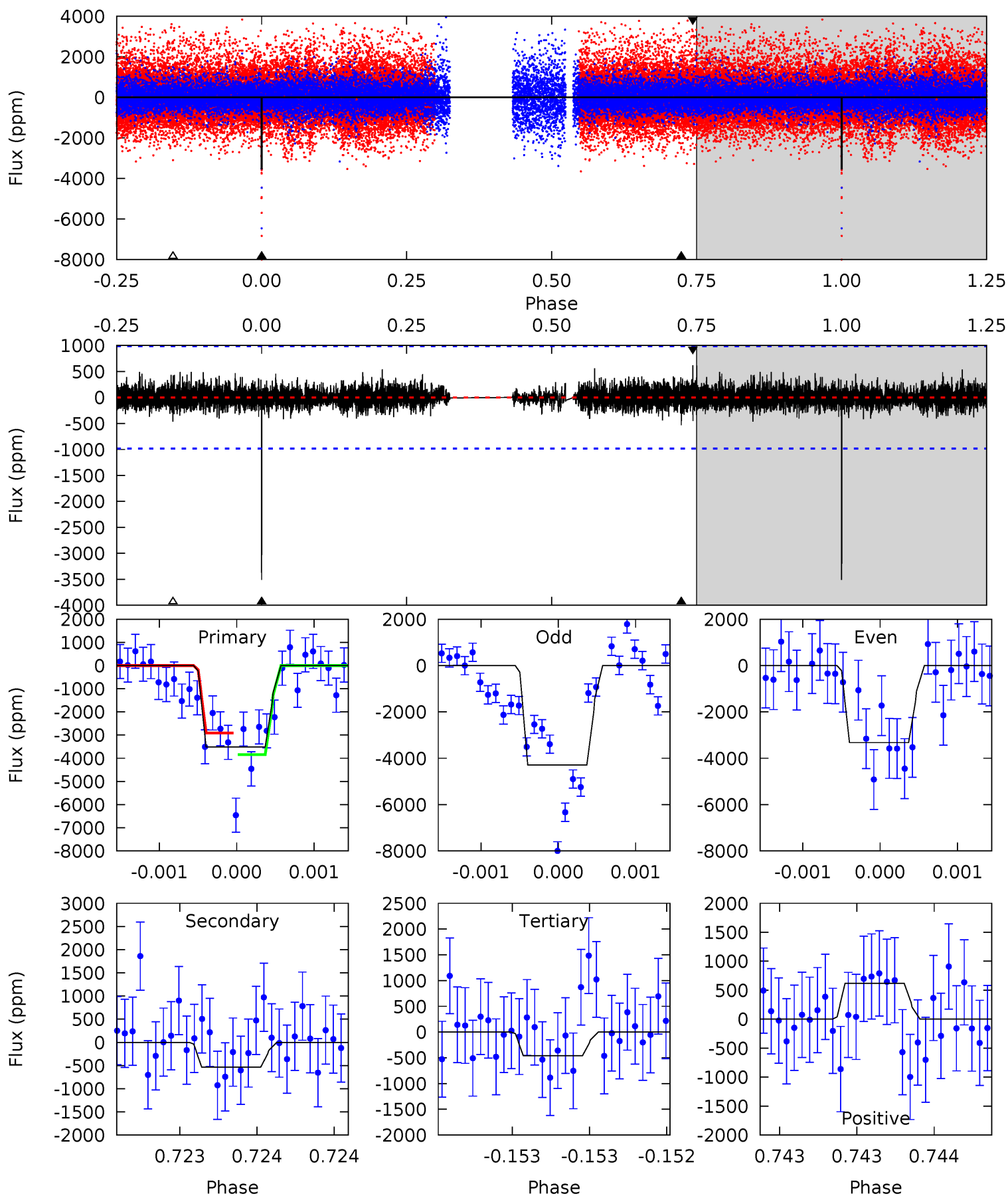
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.98	9.01	8.57	10.5	5.52	3.40	1.97	-0.59	-2.50	0.44	-1.47	0.64	-1.15	0.54	2.10



# Alt Model-Shift Uniqueness Test

005513266-02, P = 366.523577 Days, E = 339.412657 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
19.8	3.01	2.60	3.50	5.56	3.46	0.68	17.2	16.3	0.41	-0.49	2.74	1.17	0.15	2.67





### Stellar Parameters For KIC 005513266

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4413^{+242}_{-266}$	$4.582^{+0.056}_{-0.028}$	$0.440^{+0.050}_{-0.300}$	$0.727^{+0.044}_{-0.075}$	$0.737^{+0.055}_{-0.067}$	$2.699^{+0.741}_{-0.308}$
	+5%/-6%	+1%/-1%	+11%/-68%	+6%/-10%	+7%/-9%	+27%/-11%
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 005513266-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1971 \pm 219$	$5.01^{+4.42}_{-3.28}$	$242^{+15}_{-15}$	$3881^{+2122}_{-719}$	$35803^{+278268}_{-25845}$
Alt.	$-534 \pm 177$	$5.95^{+4.60}_{-3.58}$	$243^{+14}_{-15}$	$2985^{+1014}_{-473}$	$6675^{+38559}_{-4714}$

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

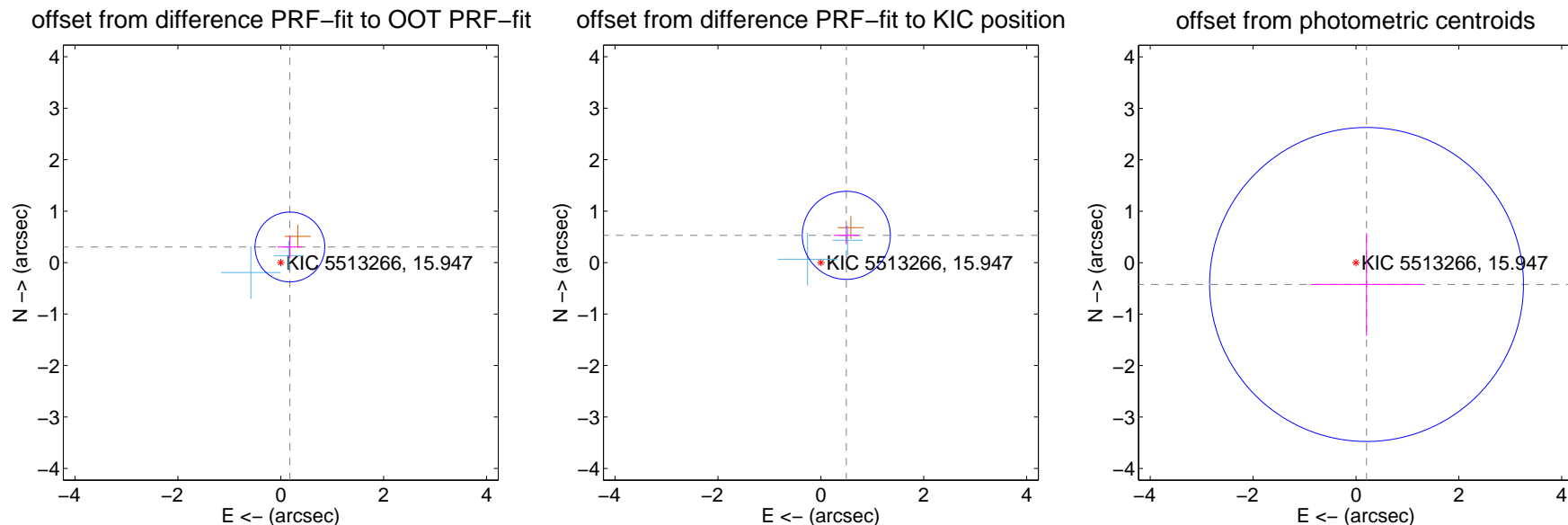
## DV Centroid Data

Supplemental centroid analysis for 005513266-02. Kepler magnitude: 15.95. Transit SNR 6.88

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.47 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.352 \pm 0.226$	1.56	$-0.178 \pm 0.242$	$0.304 \pm 0.221$
PRF-fit source offset from KIC position	$0.725 \pm 0.285$	2.54	$-0.495 \pm 0.246$	$0.530 \pm 0.174$
photometric centroid source offset	$0.47 \pm 1.02$	0.46	$-0.21 \pm 1.09$	$-0.42 \pm 1.00$



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.

Q1 no difference image



Q1 no OOT image



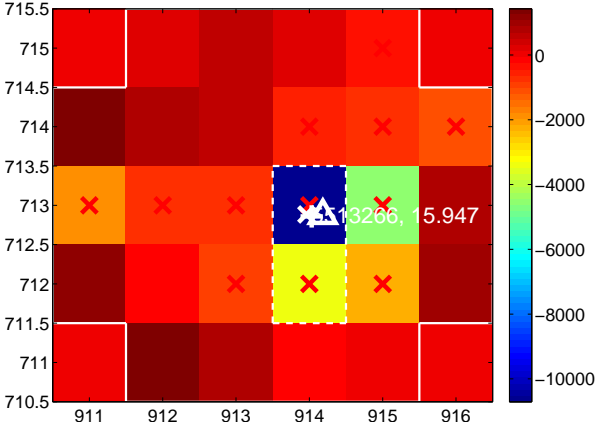
Q2 no difference image



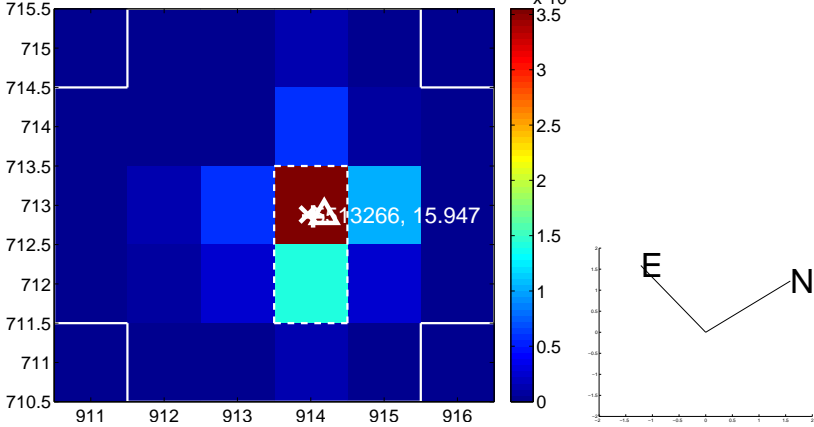
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



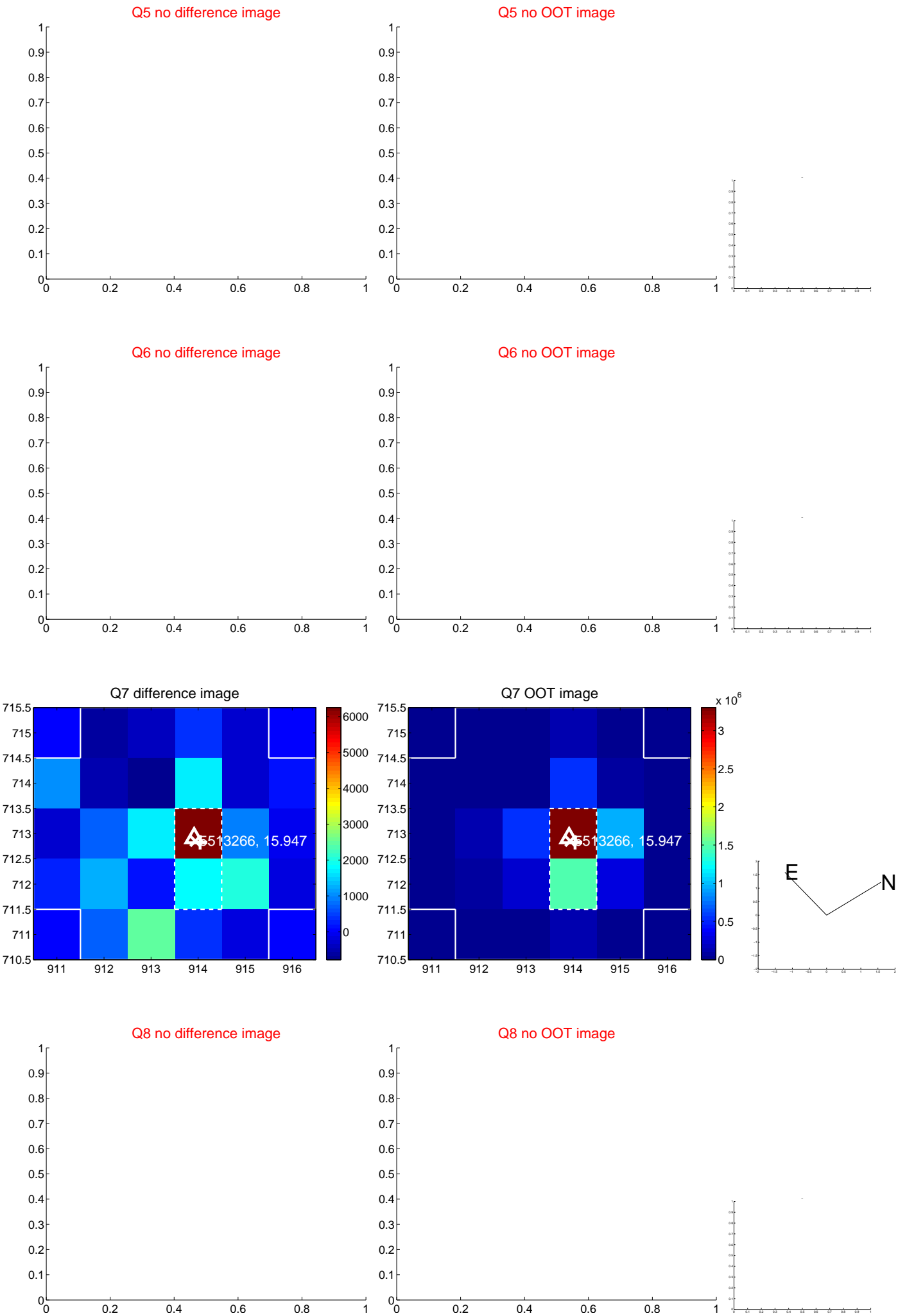
Q4 no difference image



Q4 no OOT image



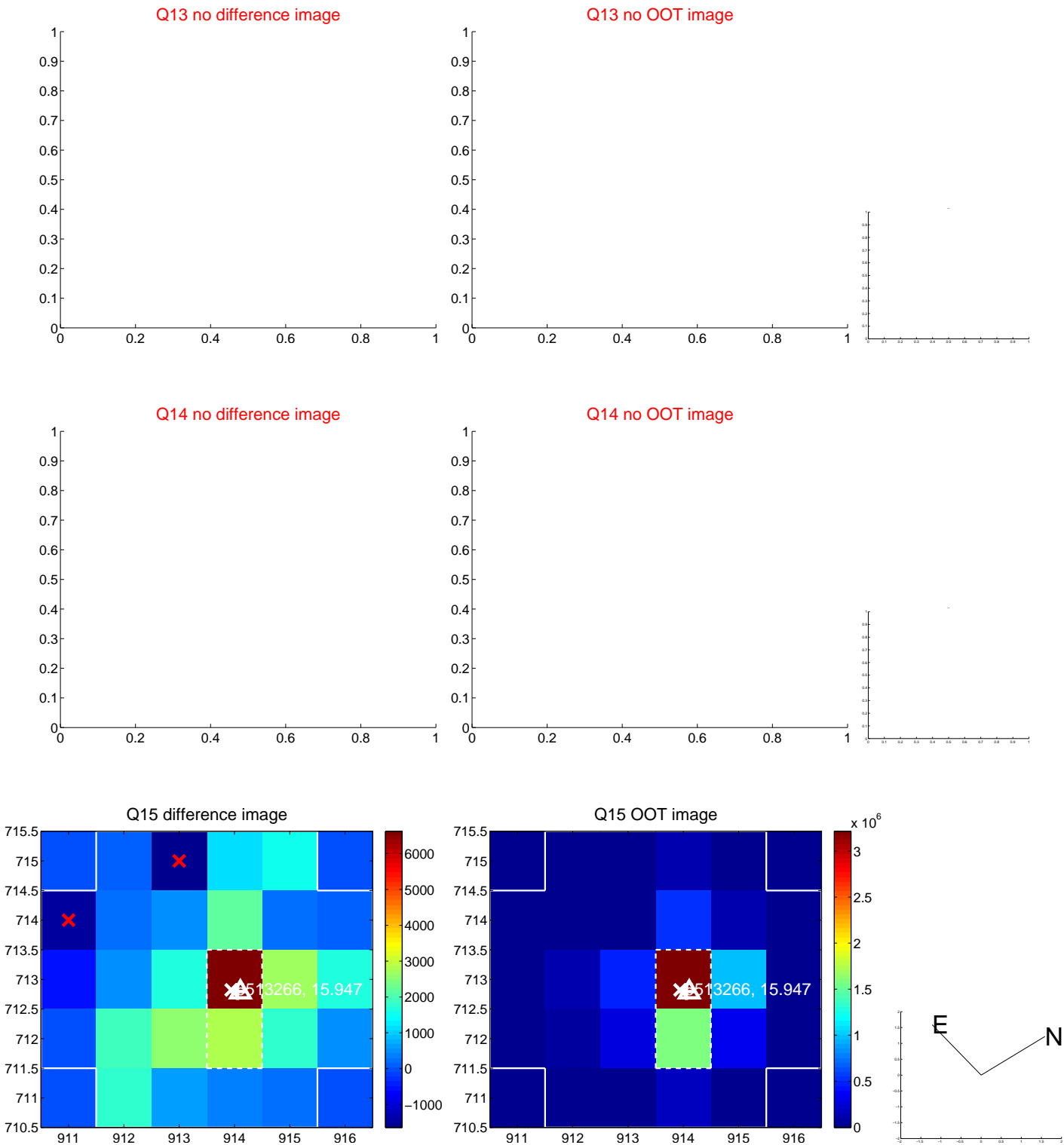
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



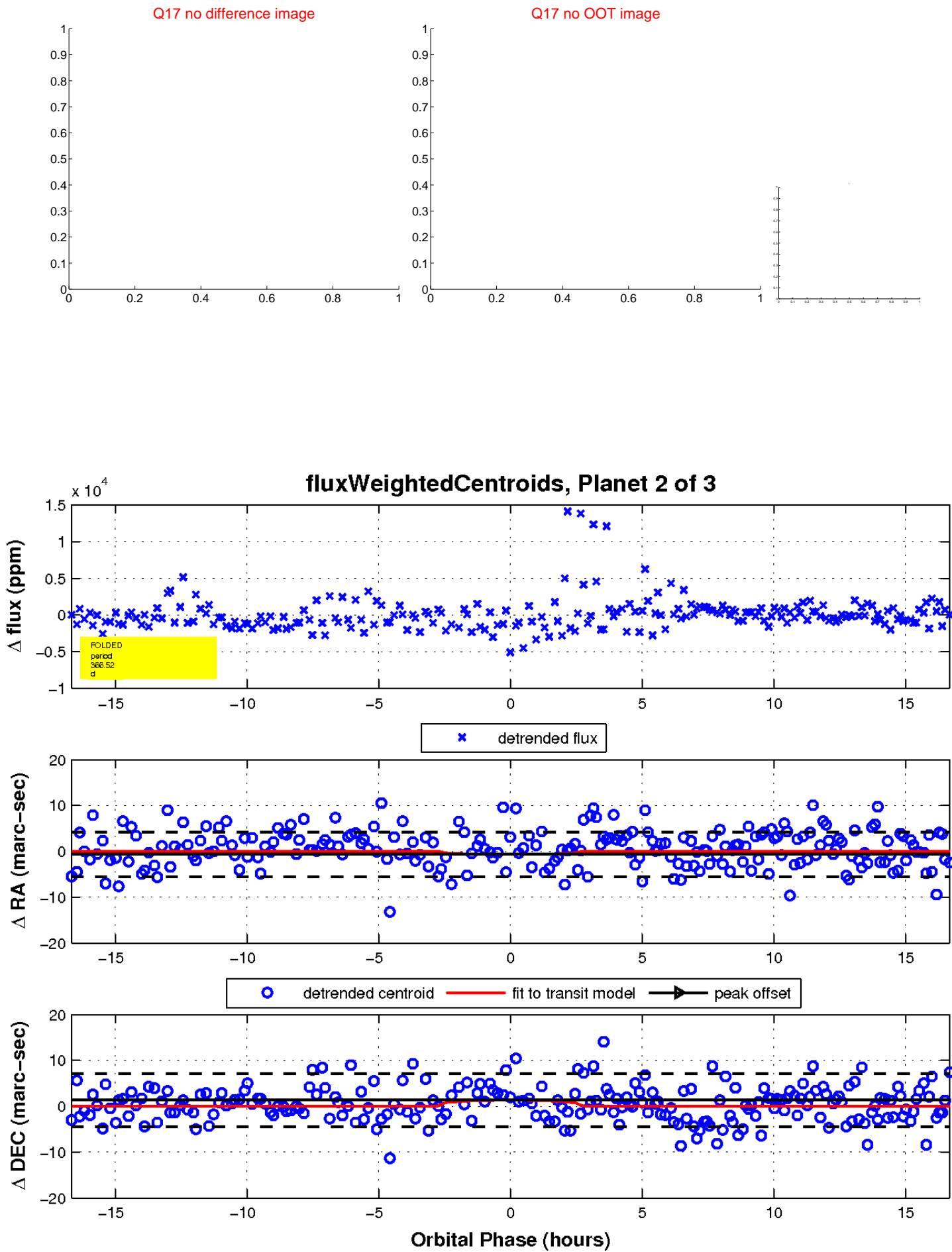
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

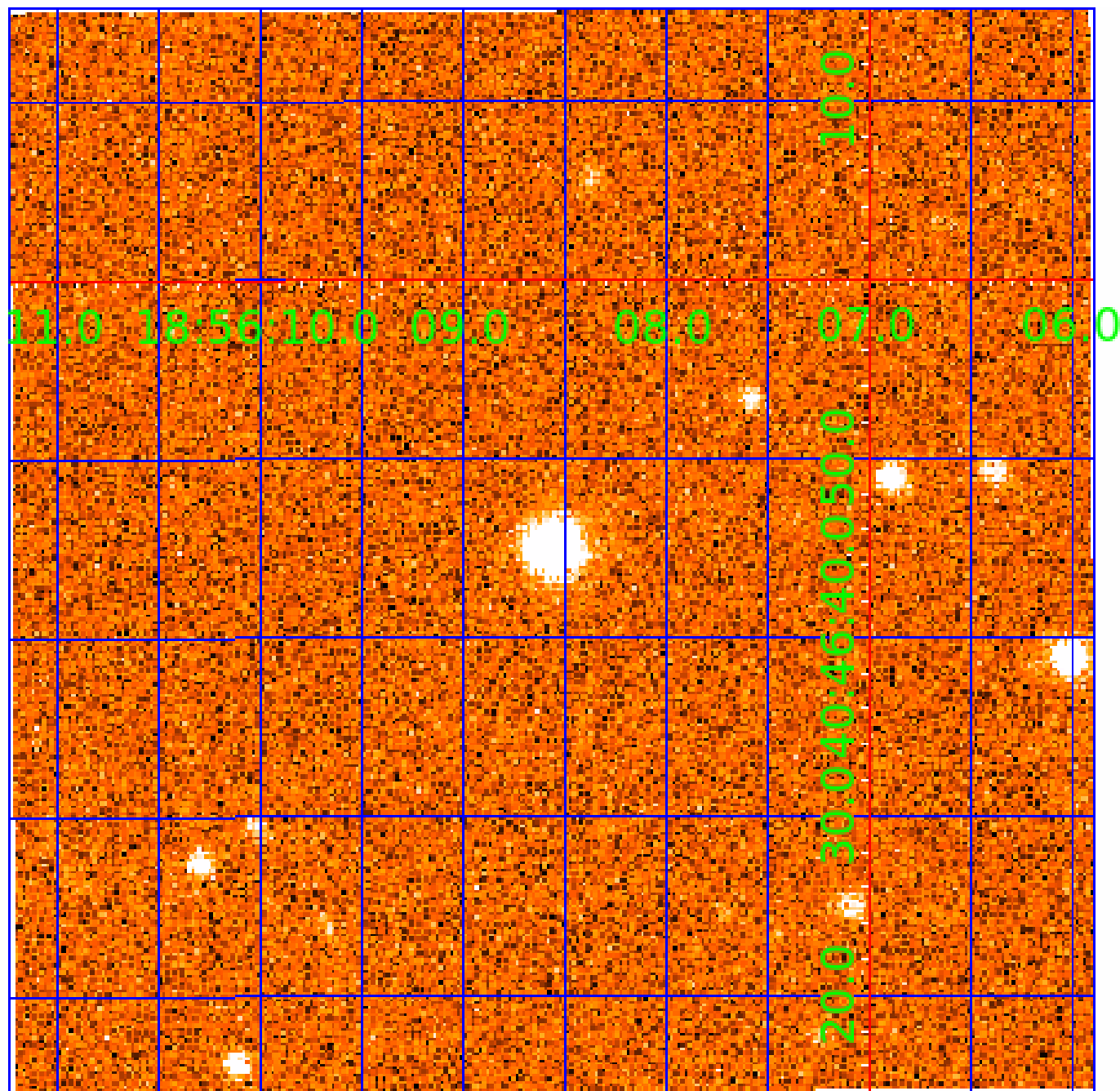


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 005513266

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005513266-01	OBS	No	543.446051	422.601107	3403.7	7.858	13.1	8.0	0.73	4413	4.22	0.13
005513266-02	OBS	No	366.522096	339.428551	2675.6	5.572	10.2	6.9	0.73	4413	3.69	0.22
005513266-03	OBS	No	377.046597	425.043257	2930.1	3.706	10.7	8.1	0.73	4413	3.76	0.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005513266-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005513266-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005513266-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

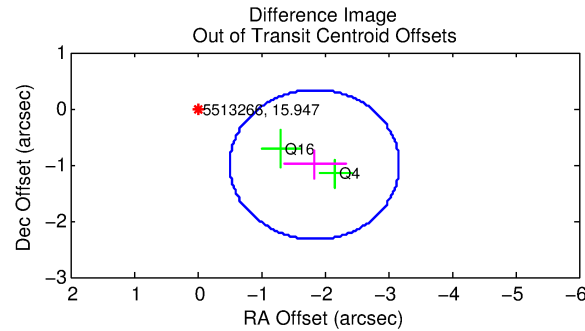
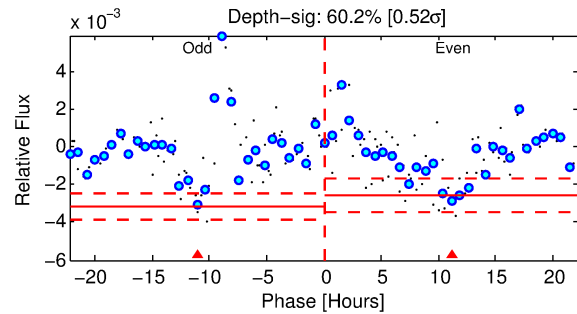
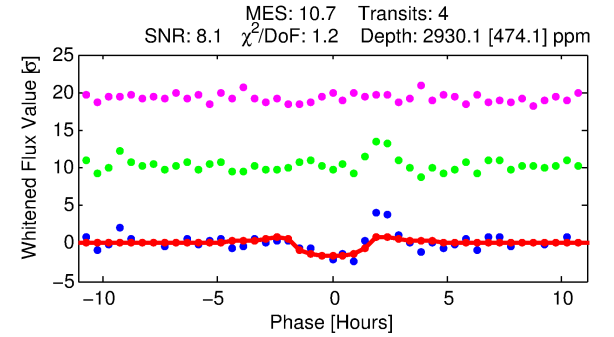
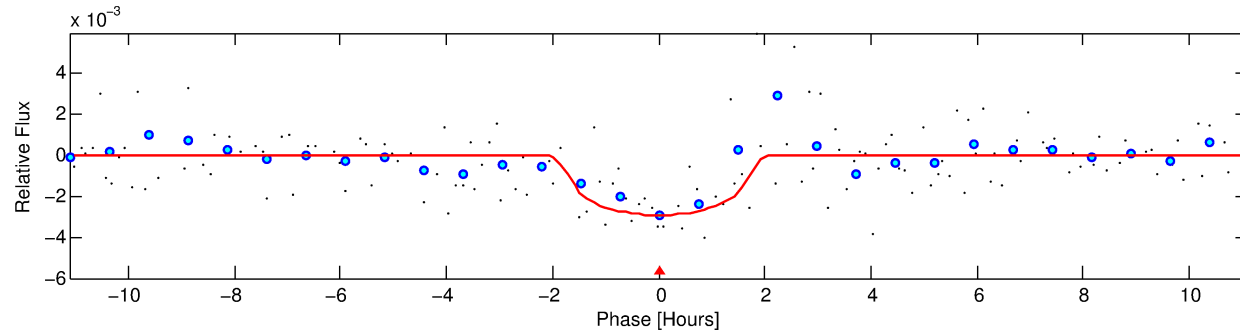
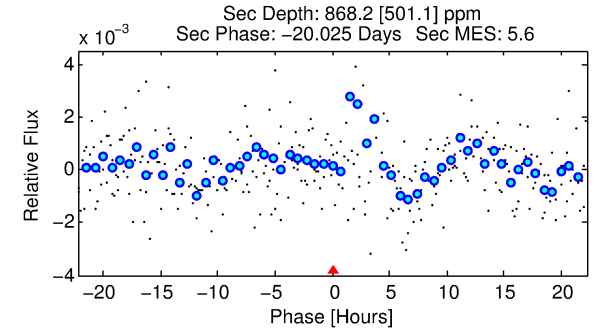
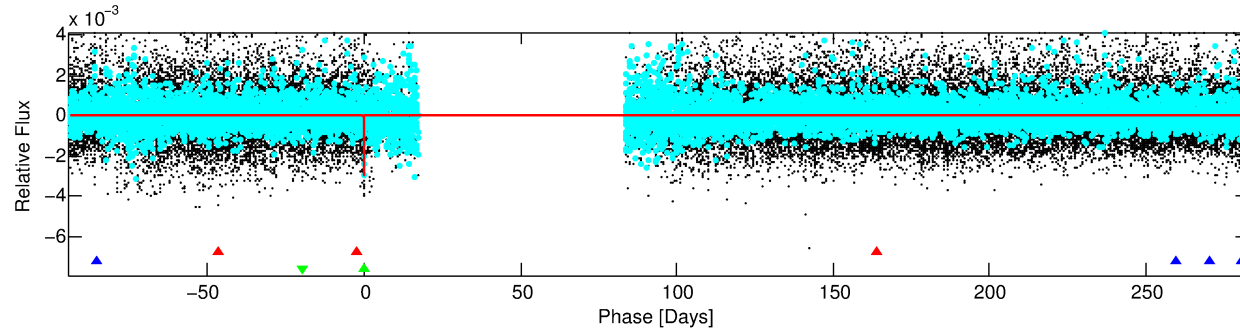
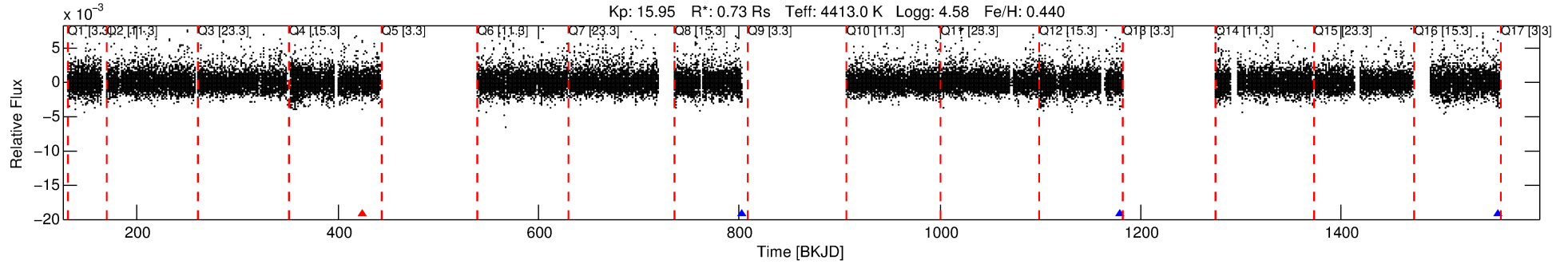
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005513266-03

No Significant Match Found

# DV One-Page Summary

KIC: 5513266 Candidate: 3 of 3 Period: 377.047 d



## DV Fit Results:

Period = 377.04660 [0.00409] d  
Epoch = 425.0433 [0.0068] BKJD  
Rp/R\* = 0.0474 [0.0786]  
a/R\* = 801.11 [3577.31]  
b = 0.19 [23.85]  
Seff = 0.21 [0.06]  
Teq = 173 [11] K  
Rp = 3.76 [6.25] Re  
a = 0.9225 [0.0748] AU  
Ag = 28803.80 [97108.15] [0.30 $\sigma$ ]  
Teffp = 3481 [2940] K [1.13 $\sigma$ ]

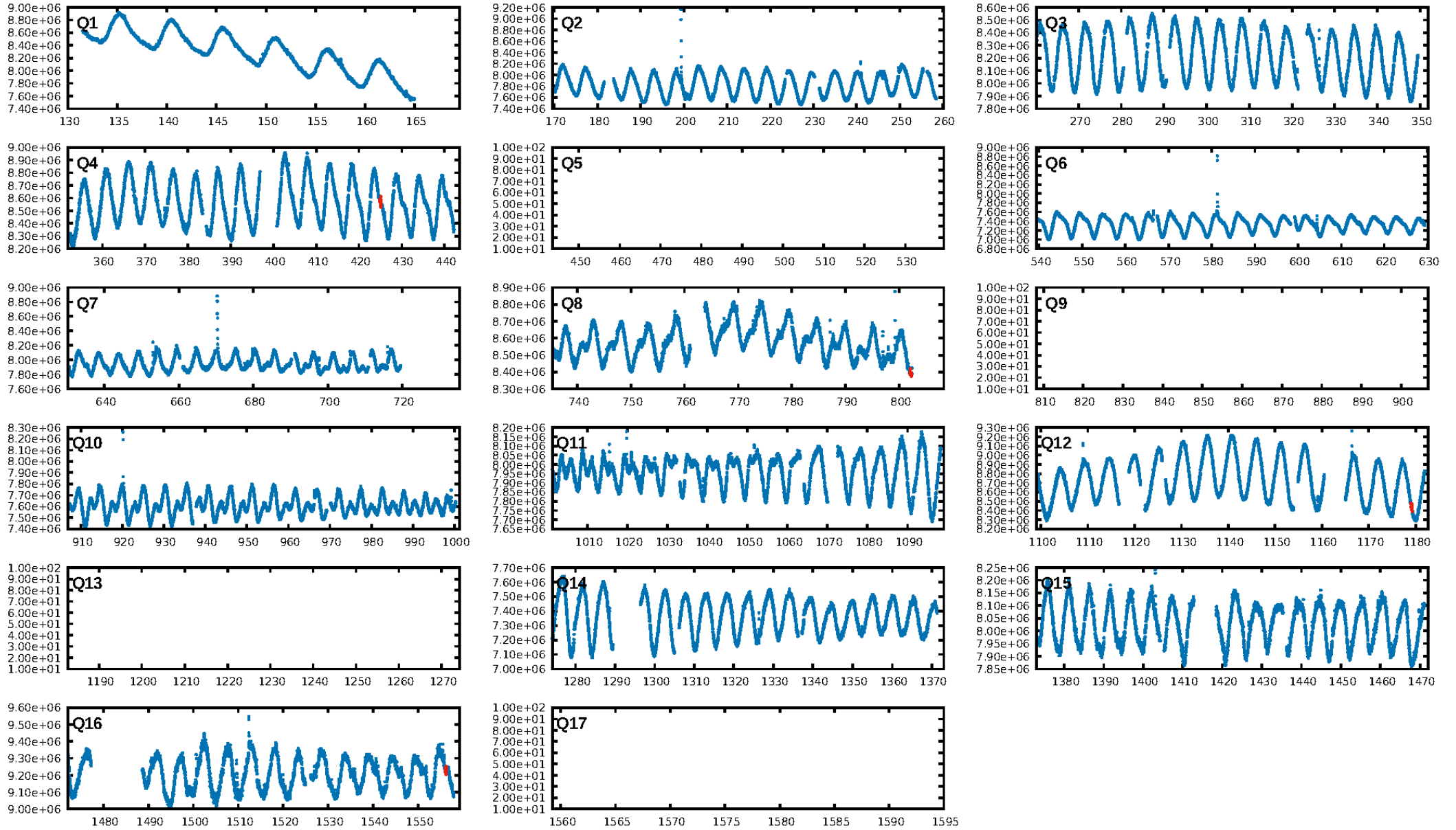
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [37.75 $\sigma$ ]  
LongPeriod-sig: 100.0% [459.66 $\sigma$ ]  
ModelChiSquare2-sig: 11.2%  
ModelChiSquareGof-sig: 99.5%  
Bootstrap-pfa: 8.24e-14  
RollingBand-fgt: 0.75 [3/4]  
GhostDiagnostic-chr: 0.02876  
Centroid-sig: 53.6%  
Centroid-so: 1.115 arcsec [0.86 $\sigma$ ]  
OotOffset-rm: 2.094 arcsec [4.72 $\sigma$ ]  
KicOffset-rm: 2.274 arcsec [5.75 $\sigma$ ]  
OotOffset-st: 0/0/2/0 [2]  
KicOffset-st: 0/0/2/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

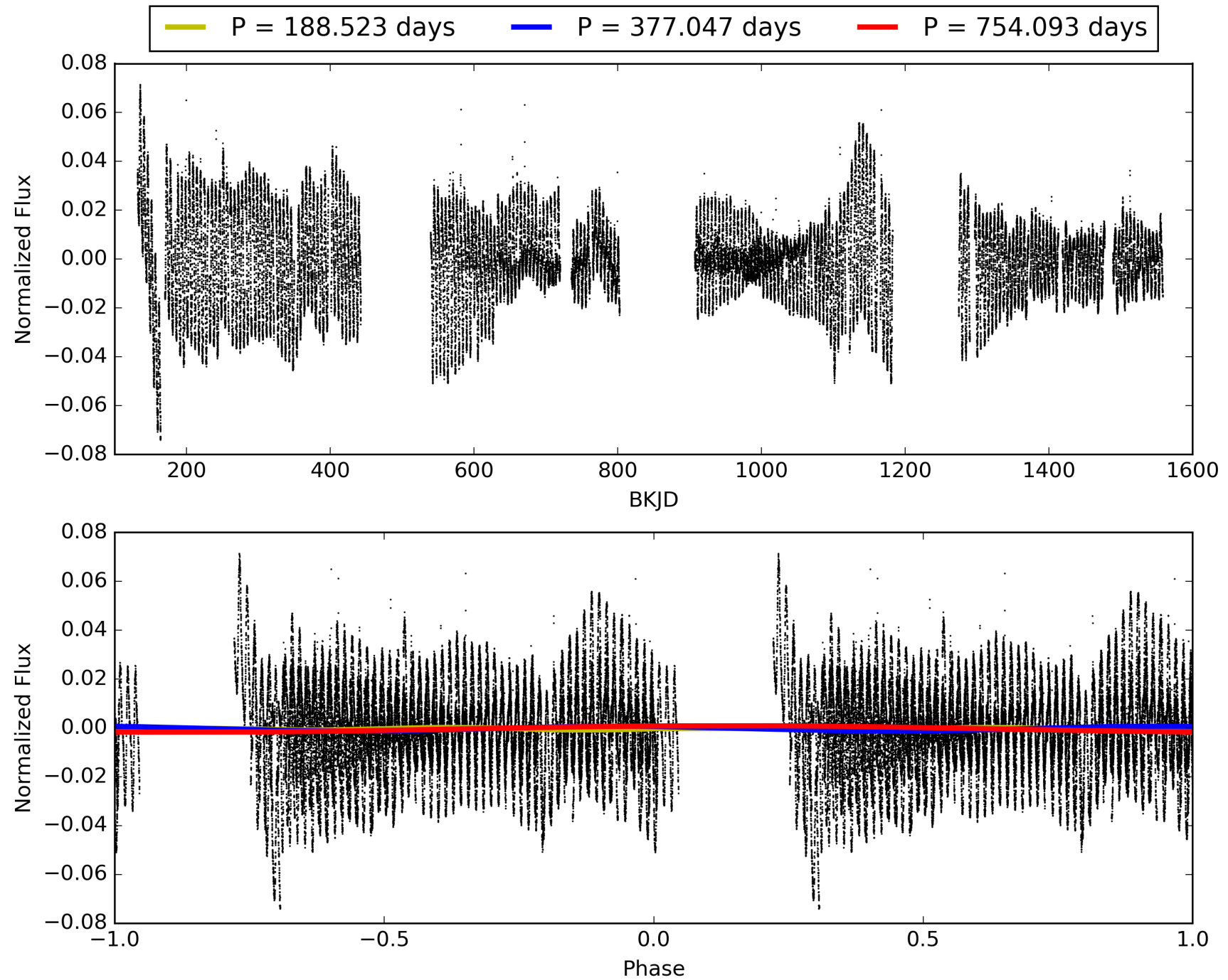
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:32:12 Z

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

# TCE 005513266-03, PDC Light Curves

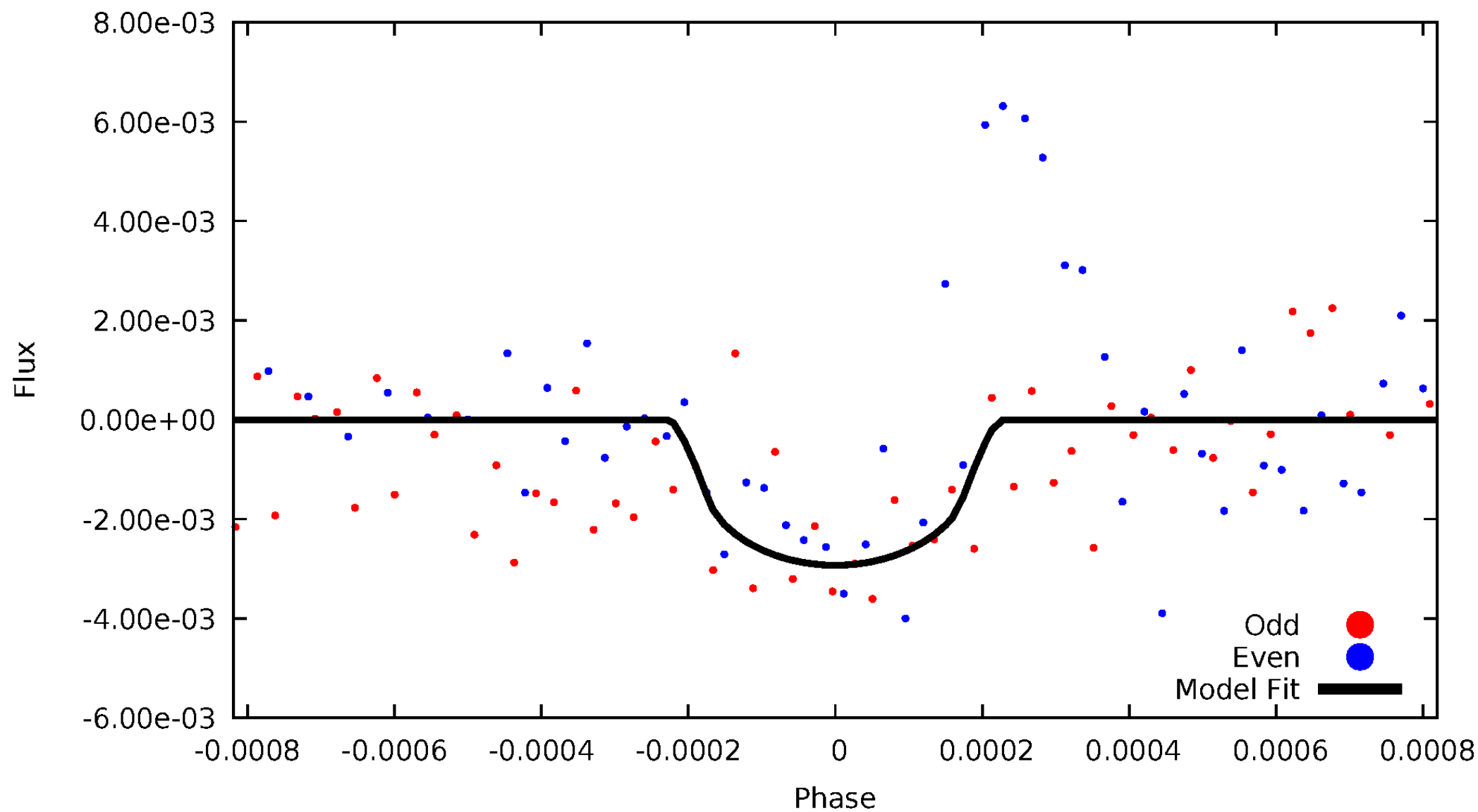


TCE 005513266-03



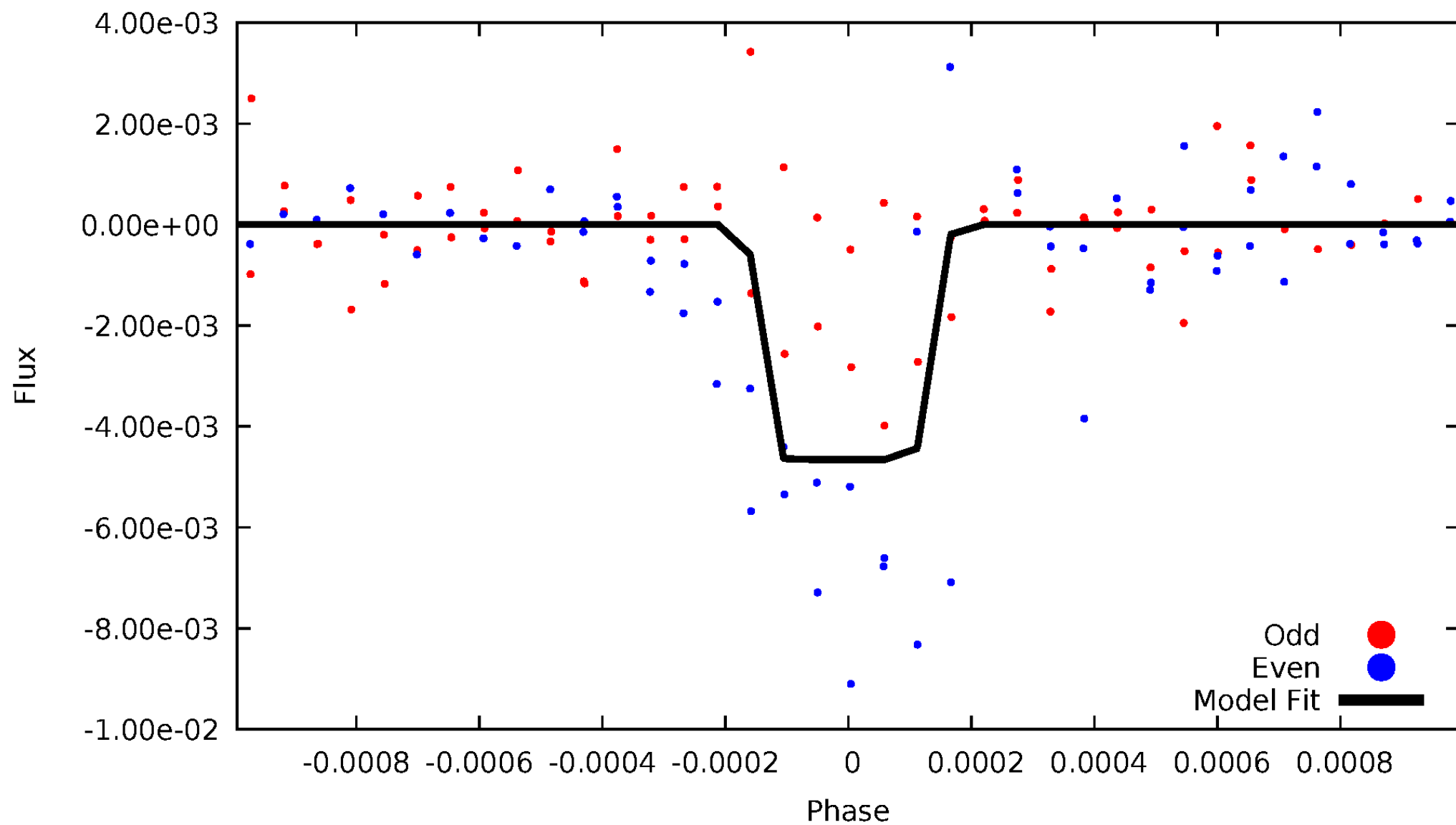
# DV Odd/Even

TCE 005513266-03

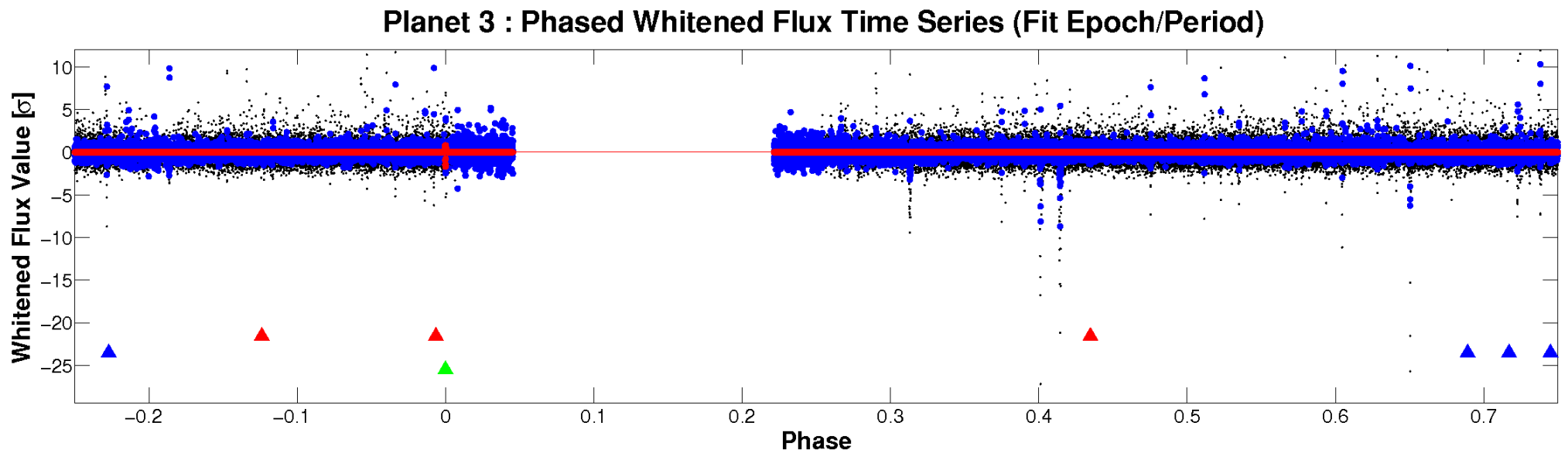
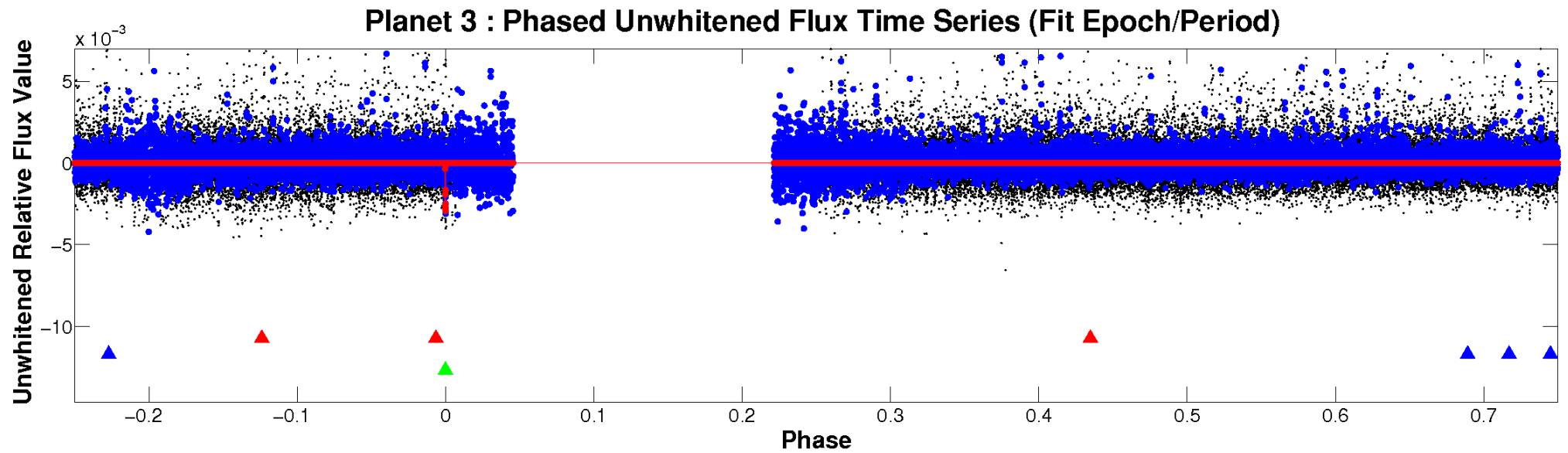


# ALT Odd/Even

TCE 005513266-03

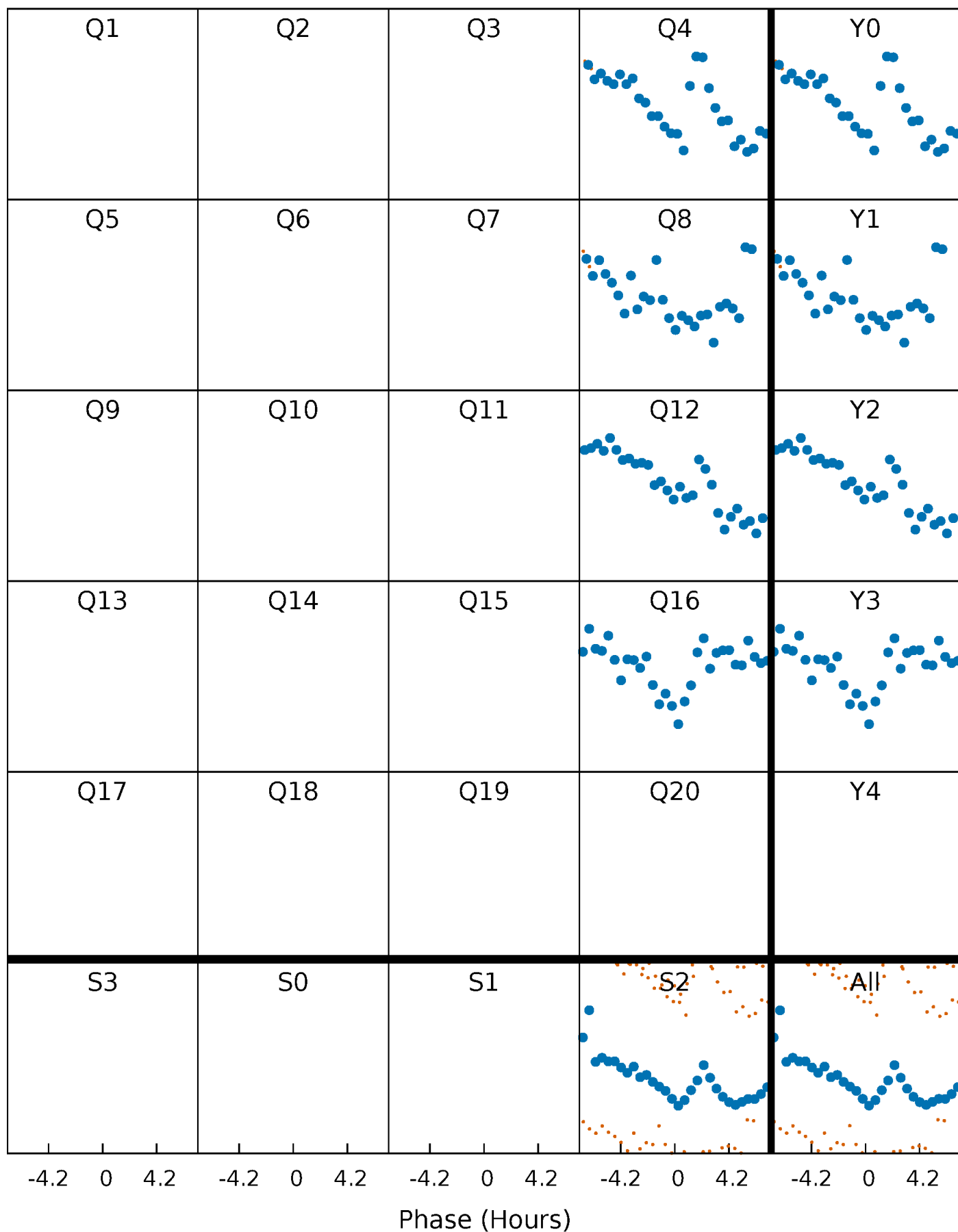


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

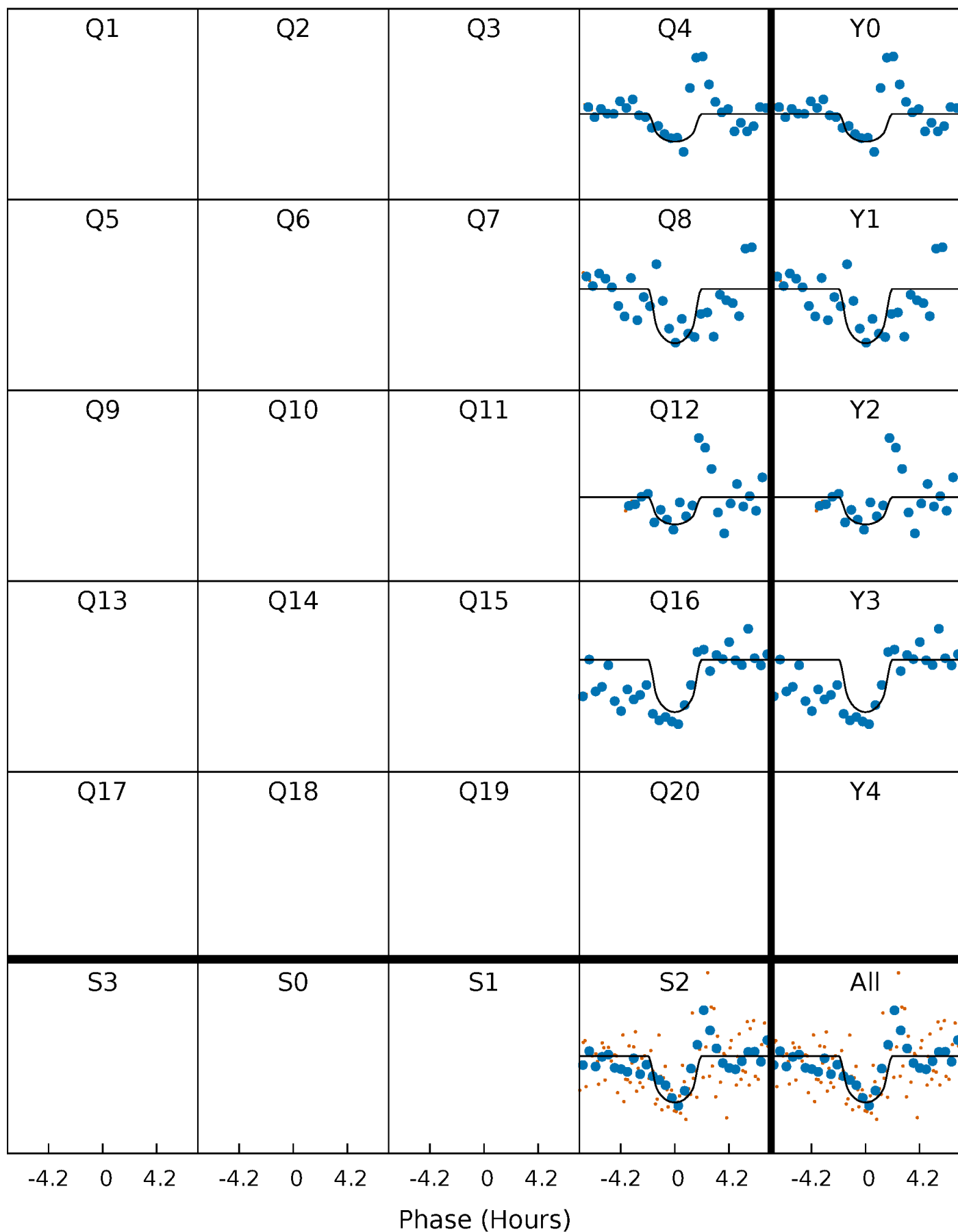
TCE 005513266-03     $P=377.046597$  Days     $T_0=425.043257$  (BKJD)





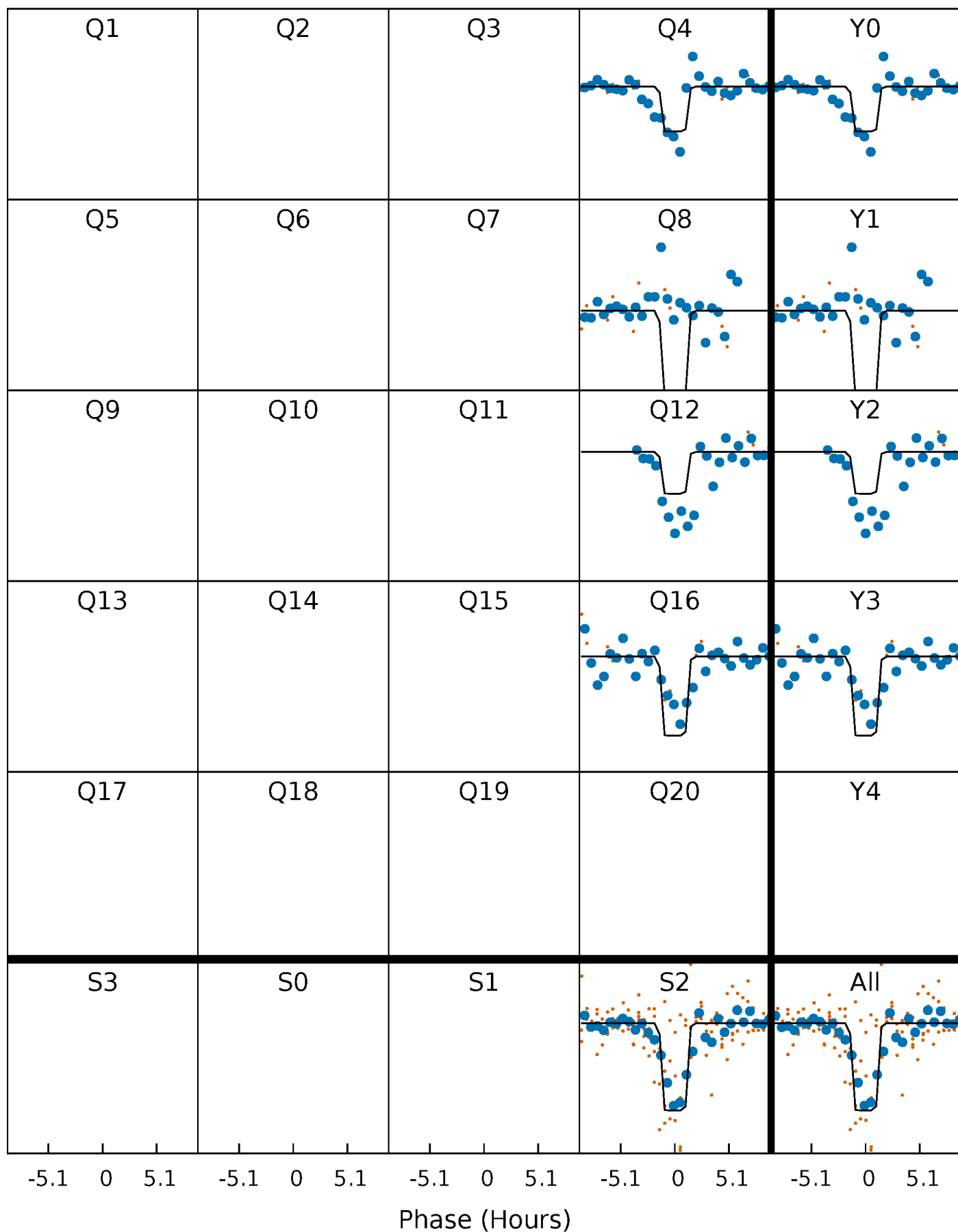
# DV Quarter-Phased Transit Curves

TCE 005513266-03     $P=377.046597$  Days     $T_0=425.043257$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

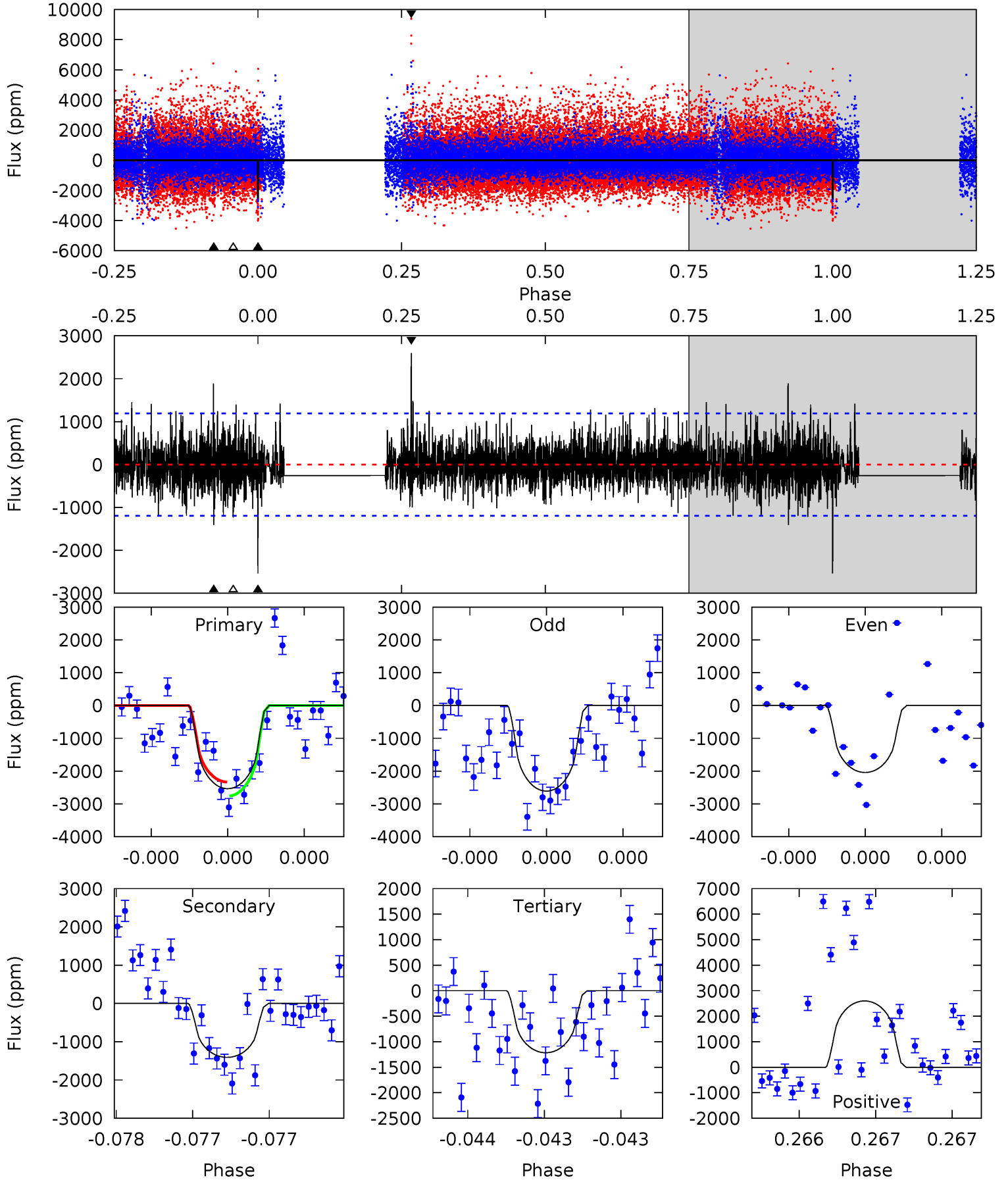
TCE 005513266-03 P=377.040690 Days  $T_0=425.057819$  (BKJD)



# DV Model-Shift Uniqueness Test

005513266-03,  $P = 377.046597$  Days,  $E = 47.996660$  Days

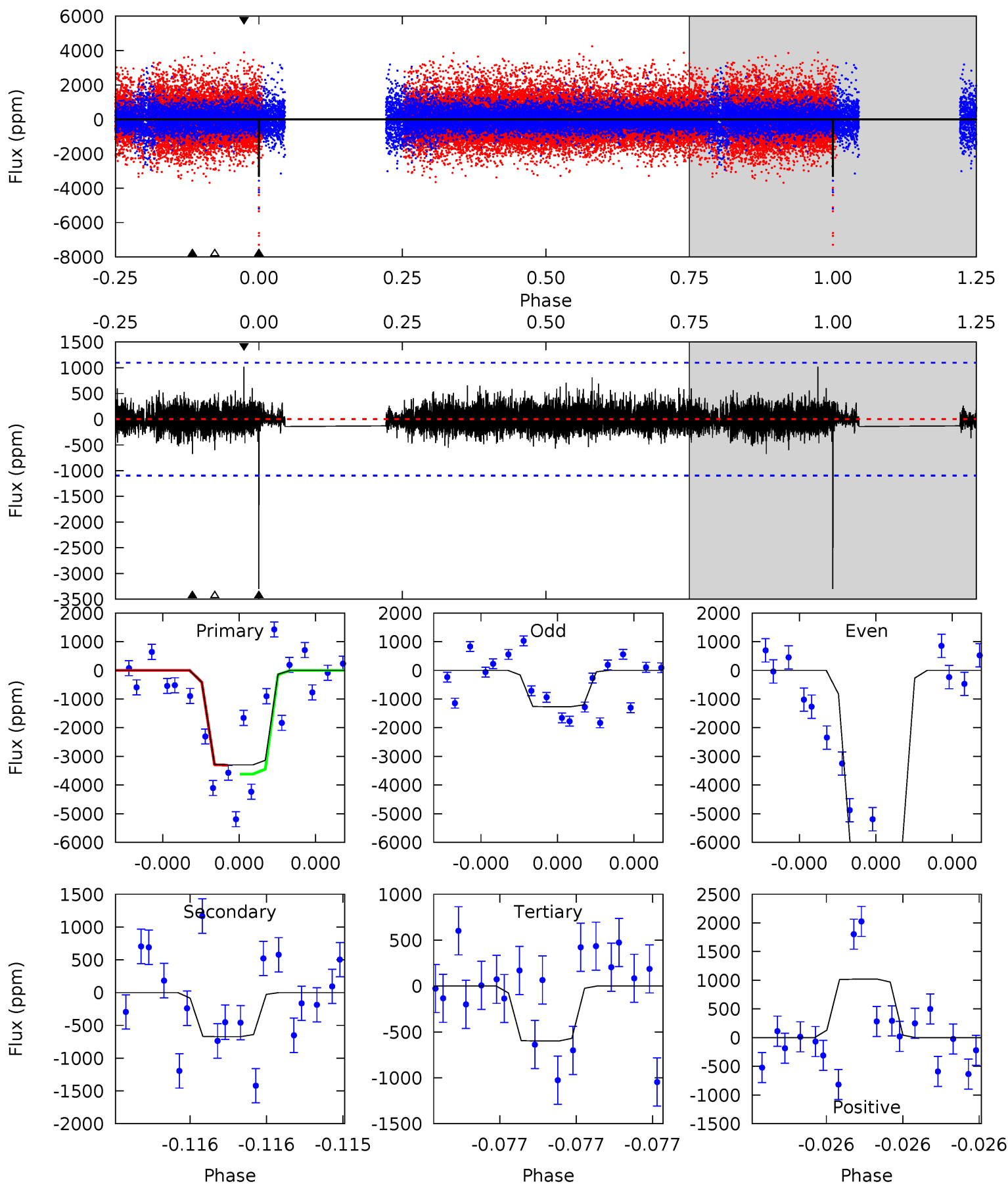
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	6.61	5.70	12.2	5.59	3.51	1.72	6.20	-0.30	0.90	-5.59	1.27	1.14	0.51	1.01



# Alt Model-Shift Uniqueness Test

005513266-03, P = 377.040690 Days, E = 48.017129 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
17.0	3.46	3.08	5.24	5.65	3.59	0.78	13.9	11.7	0.38	-1.78	14.1	0.99	0.24	0.73



### Stellar Parameters For KIC 005513266

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4413^{+242}_{-266}$	$4.582^{+0.056}_{-0.028}$	$0.440^{+0.050}_{-0.300}$	$0.727^{+0.044}_{-0.075}$	$0.737^{+0.055}_{-0.067}$	$2.699^{+0.741}_{-0.308}$
	+5%/-6%	+1%/-1%	+11%/-68%	+6%/-10%	+7%/-9%	+27%/-11%
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 005513266-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1408 \pm 213$	$5.91^{+5.13}_{-3.93}$	$240^{+15}_{-15}$	$3483^{+1662}_{-621}$	$18325^{+140431}_{-13079}$
Alt.	$-672 \pm 194$	$7.00^{+5.34}_{-4.41}$	$240^{+15}_{-15}$	$2943^{+1183}_{-439}$	$6309^{+41220}_{-4512}$

$T_{max}$  = 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

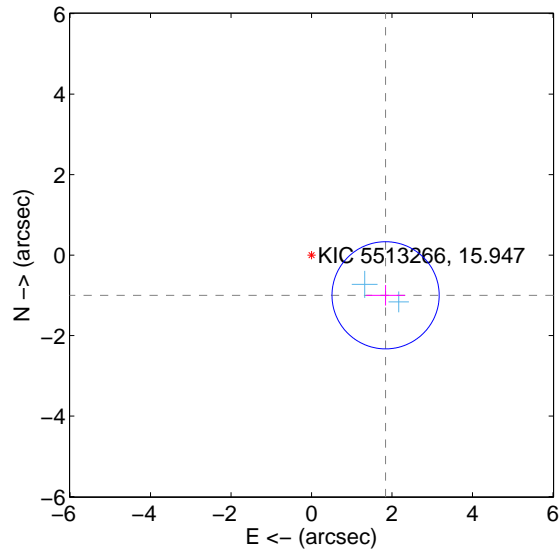
Supplemental centroid analysis for 005513266-03. Kepler magnitude: 15.95. Transit SNR 8.14

There are 2 quarters with good PRF difference image offsets

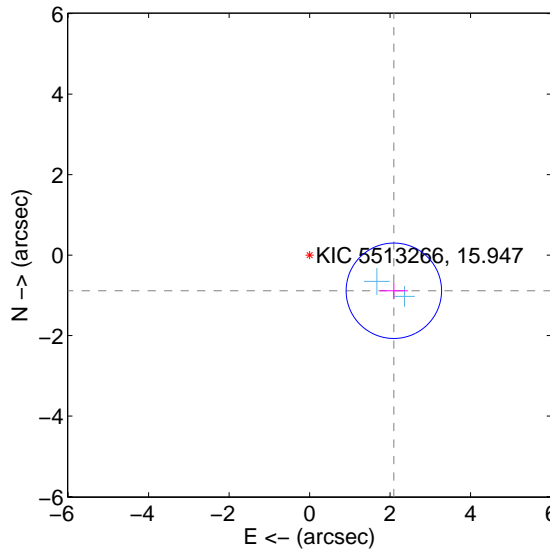
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.094 \pm 0.444$	4.72	$-1.841 \pm 0.486$	$-0.999 \pm 0.255$
PRF-fit source offset from KIC position	$2.274 \pm 0.395$	5.75	$-2.094 \pm 0.351$	$-0.886 \pm 0.198$
photometric centroid source offset	$1.12 \pm 1.30$	0.86	$-1.05 \pm 1.30$	$-0.38 \pm 1.27$

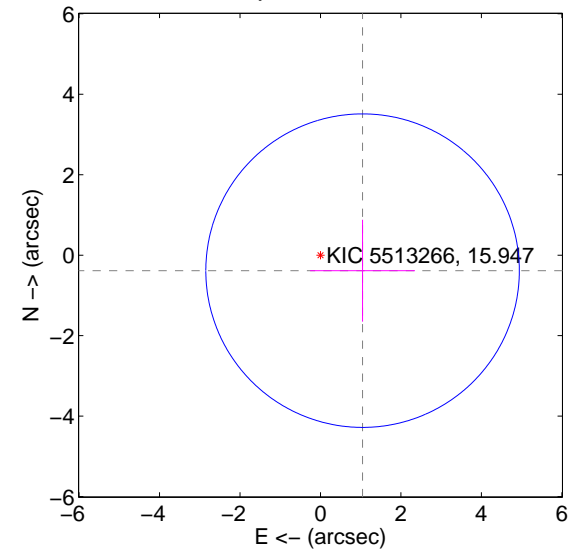
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

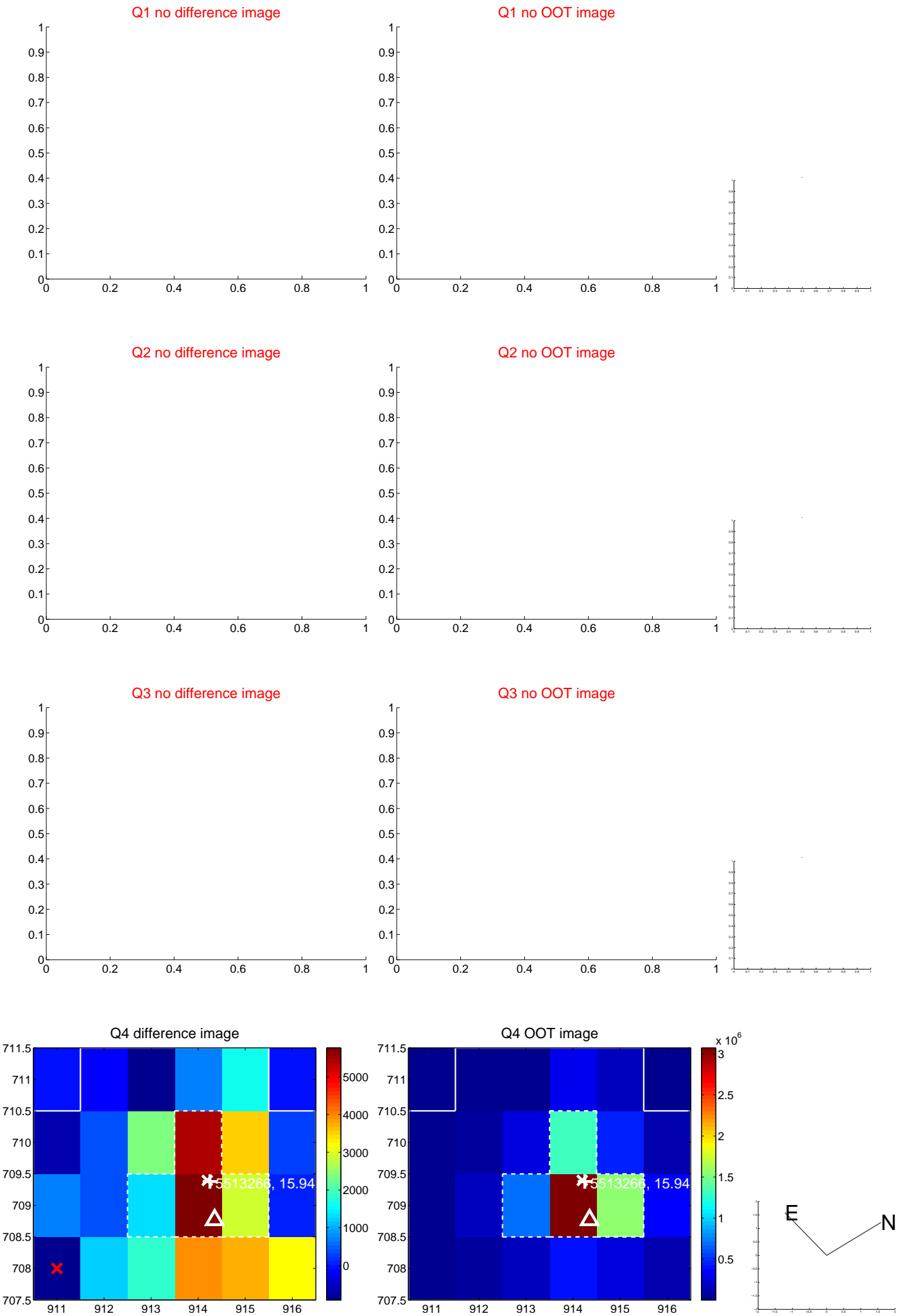


offset from photometric centroids



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 ×: 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.

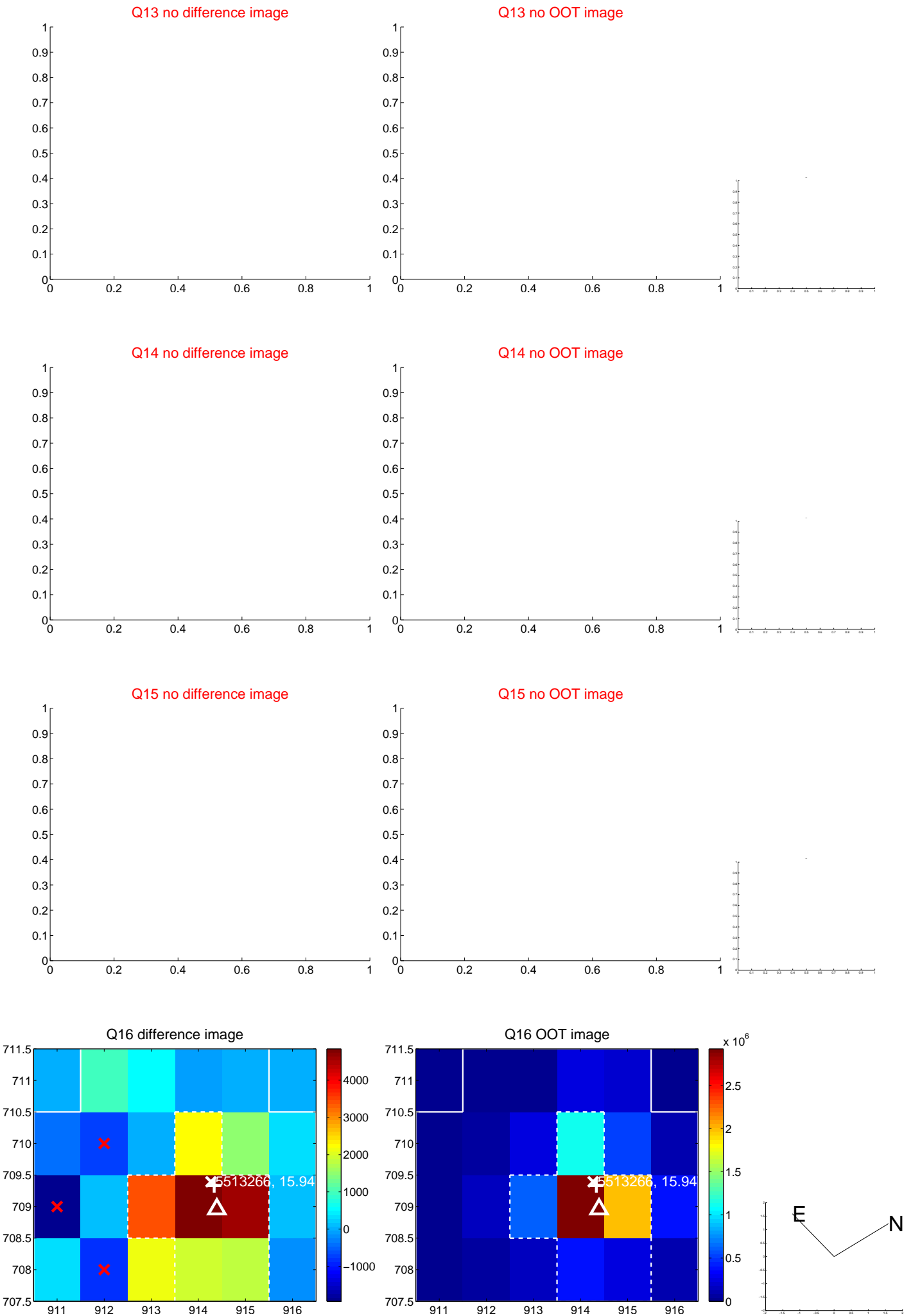




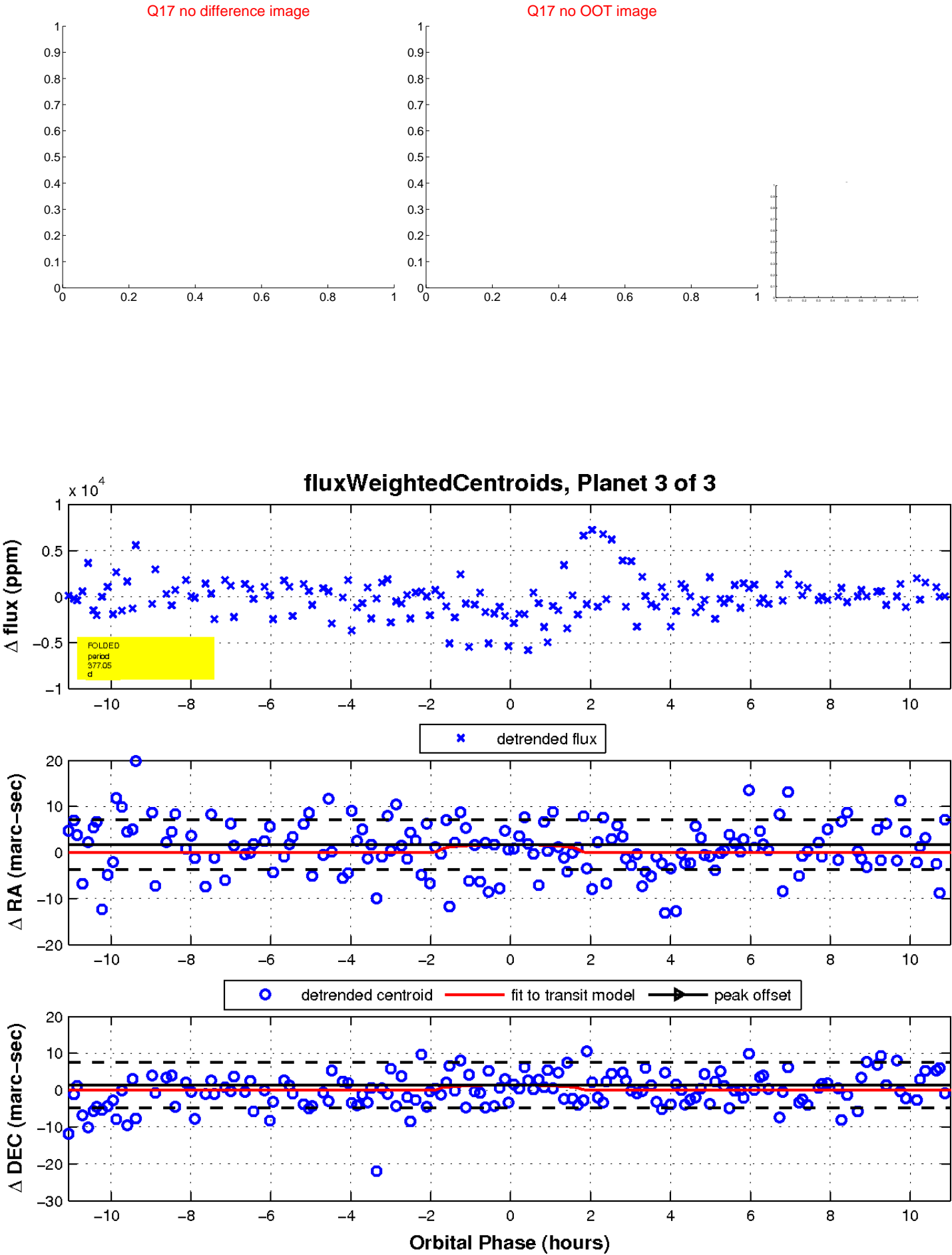
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

