

# KIC 006119605

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006119605-01	OBS	No	475.110030	548.785826	1087.1	6.615	21.2	5.6	0.61	5250	3.92	0.24
006119605-03	OBS	No	470.931543	419.897772	1341.2	2.604	15.5	9.7	0.61	5250	2.27	0.24
006119605-04	OBS	No	464.978254	577.004763	1428.9	9.148	16.8	8.8	0.61	5250	2.33	0.24
006119605-05	OBS	No	302.375481	403.718681	819.8	6.639	14.4	6.6	0.61	5250	1.80	0.43
006119605-06	OBS	8118.01	259.997985	329.865660	1023.1	12.029	11.0	8.7	0.61	5250	2.04	0.53
006119605-07	OBS	No	285.994917	227.477208	829.0	5.000	12.7	-1.0	0.61	5250	1.74	0.46

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006119605-01	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
006119605-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS
006119605-04	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
006119605-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006119605-06	OBS	FP	0.13	1	0	0	0	MOD_NONUNIQ_DV—CENT_FEW_DIFFS
006119605-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

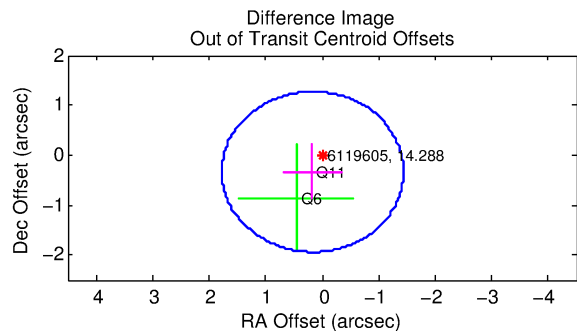
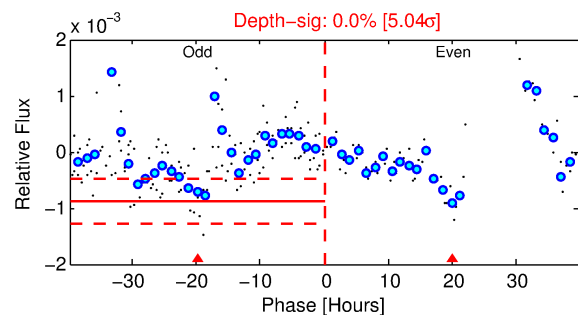
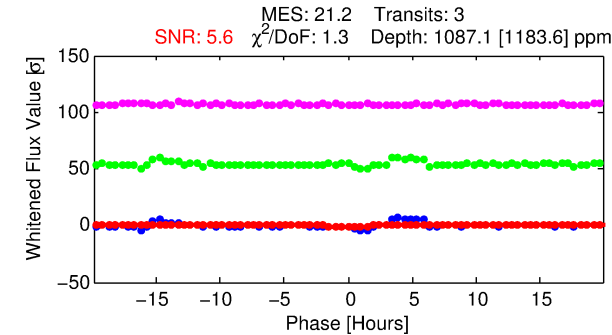
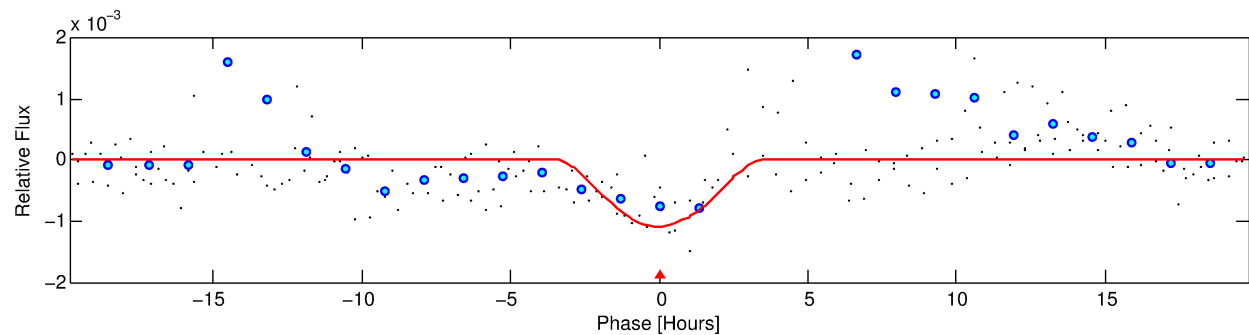
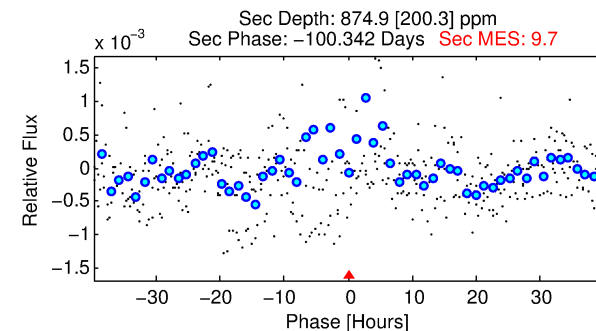
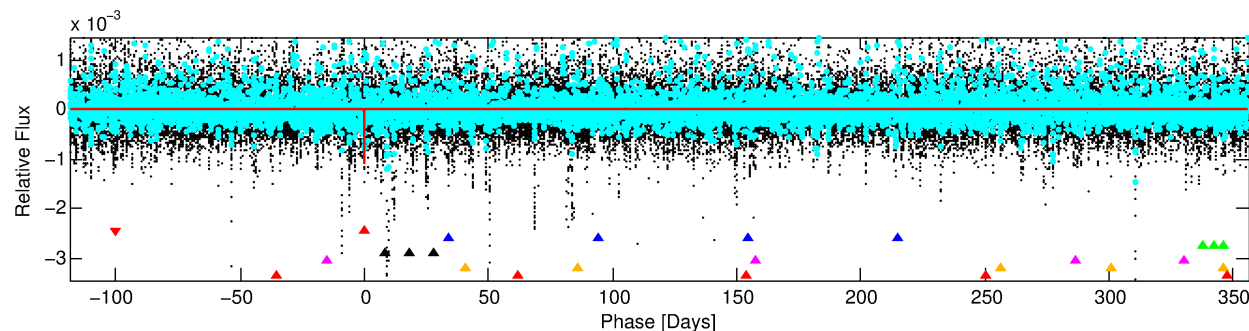
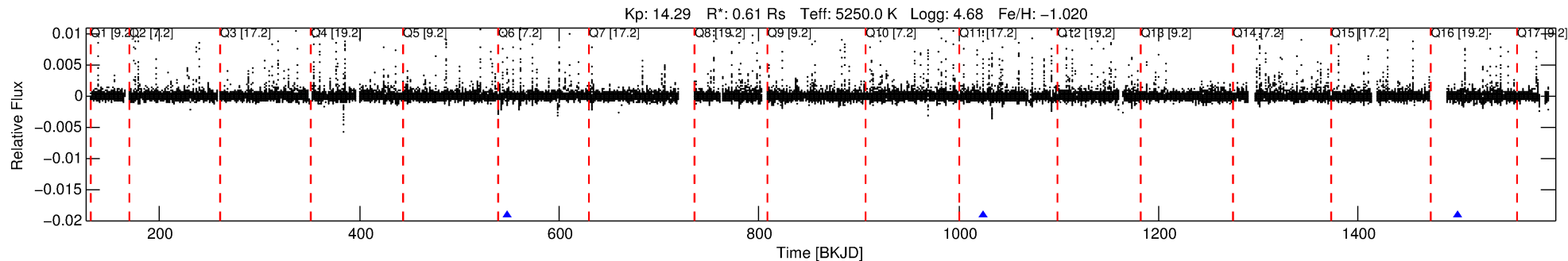
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006119605-01

No Significant Match Found

# DV One-Page Summary

KIC: 6119605 Candidate: 1 of 7 Period: 475.110 d



## DV Fit Results:

Period = 475.11003 [0.02030] d  
Epoch = 548.7858 [0.0217] BKJD  
Rp/R\* = 0.0590 [0.3056]  
a/R\* = 191.31 [228.89]  
b = 1.00 [0.39]  
Seff = 0.24 [0.04]  
Teq = 178 [7] K  
Rp = 3.92 [20.28] Re  
a = 1.0331 [0.0784] AU  
Ag = 33507.62 [347097.90] [0.10σ]  
Teffp = 3717 [9625] K [0.37σ]

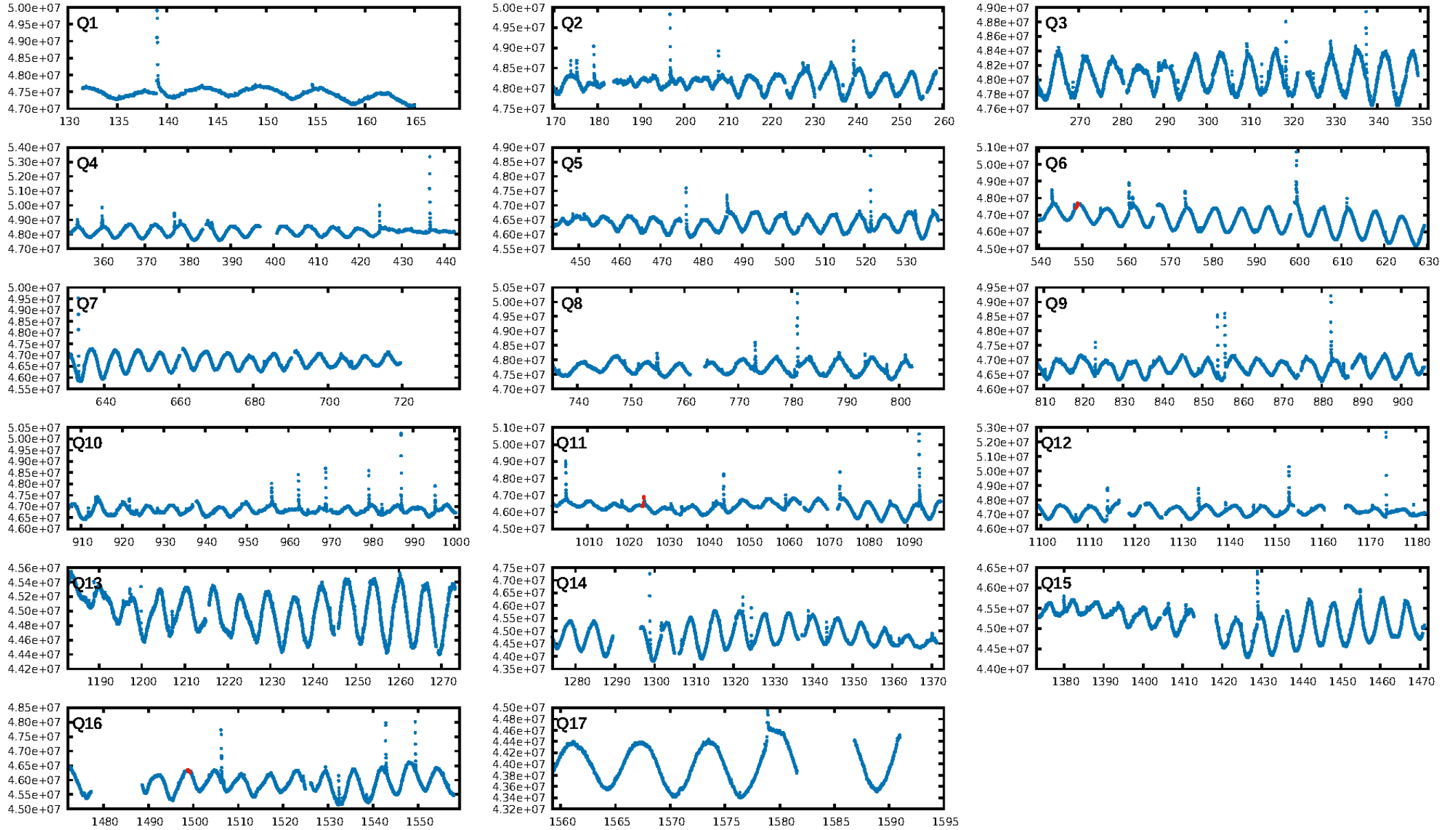
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.11σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 13.4%  
ModelChiSquareGof-sig: 93.1%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.9157  
Centroid-sig: 0.3%  
Centroid-so: 1.354 arcsec [2.11σ]  
OotOffset-rm: 0.375 arcsec [0.70σ]  
KicOffset-rm: 0.429 arcsec [0.80σ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

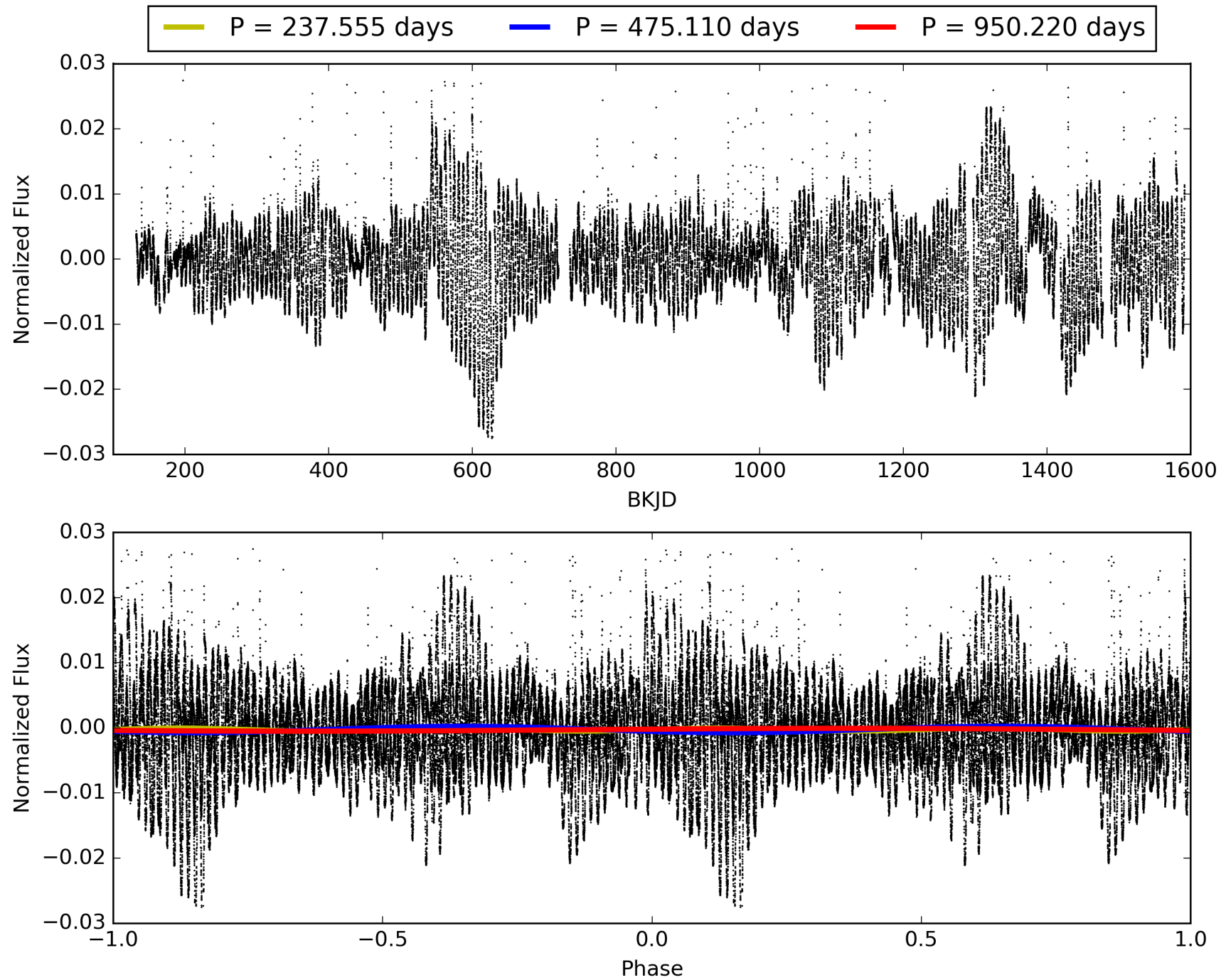
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:54:48 Z

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

# TCE 006119605-01, PDC Light Curves



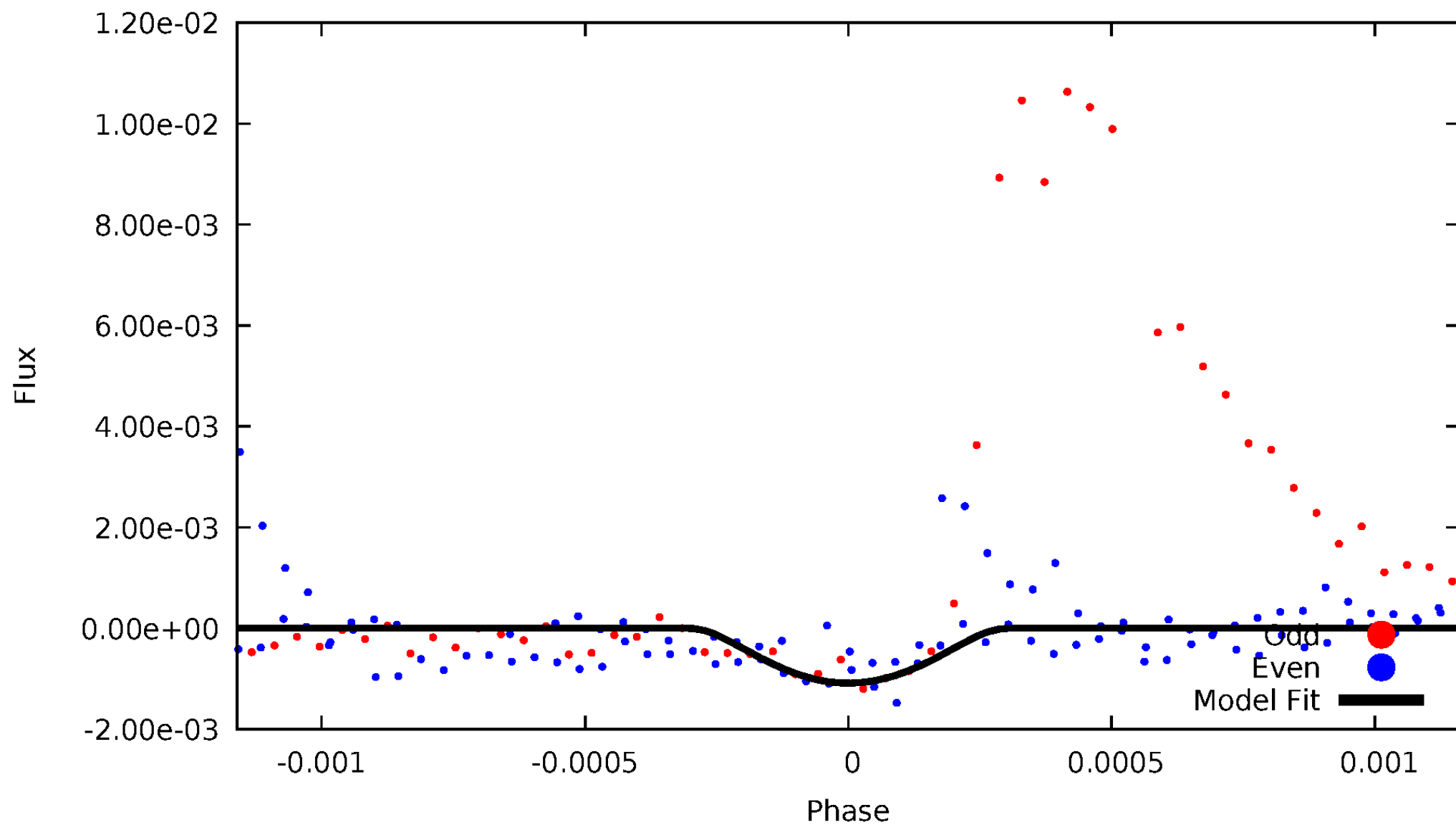
TCE 006119605-01





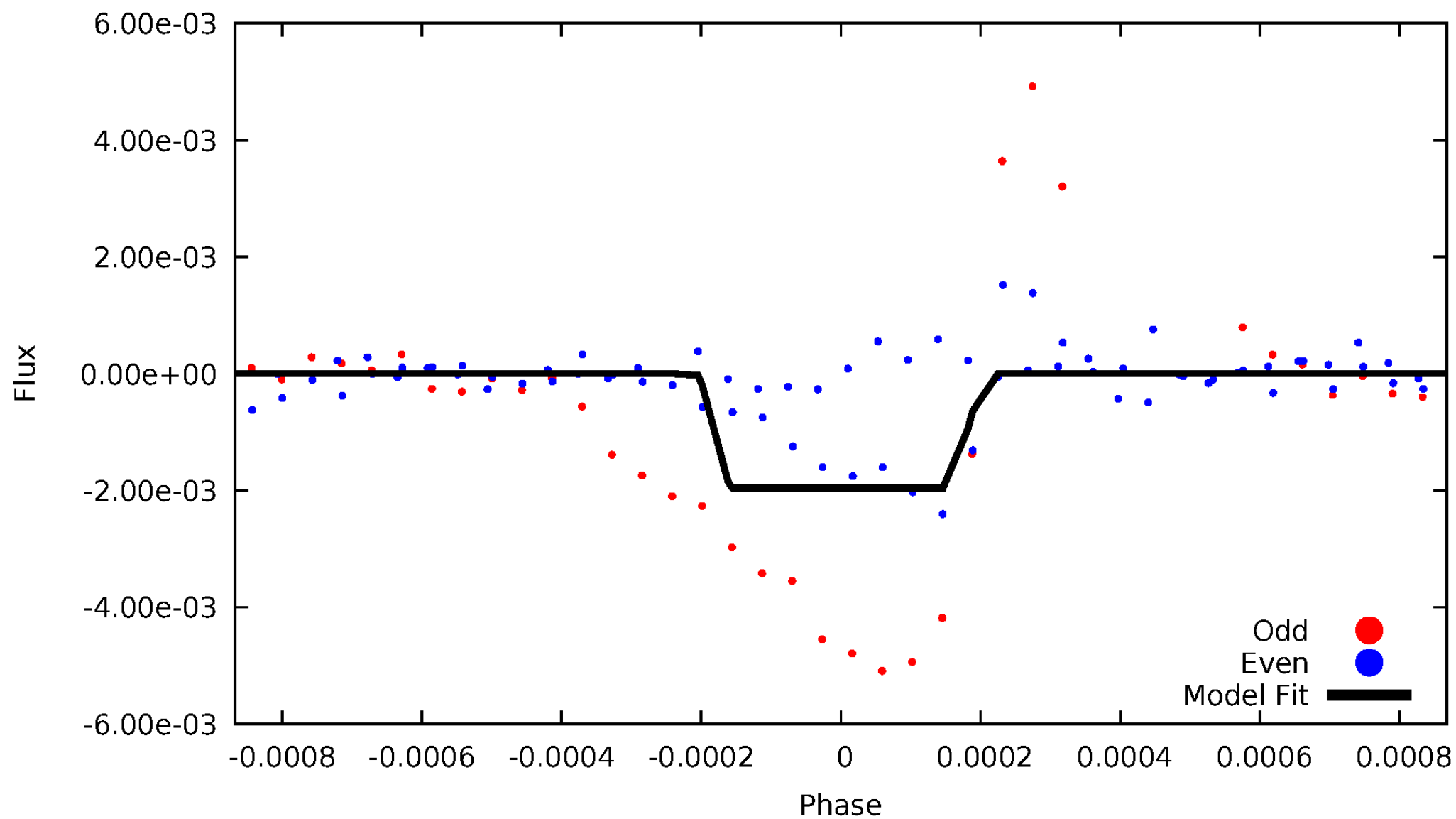
# DV Odd/Even

TCE 006119605-01



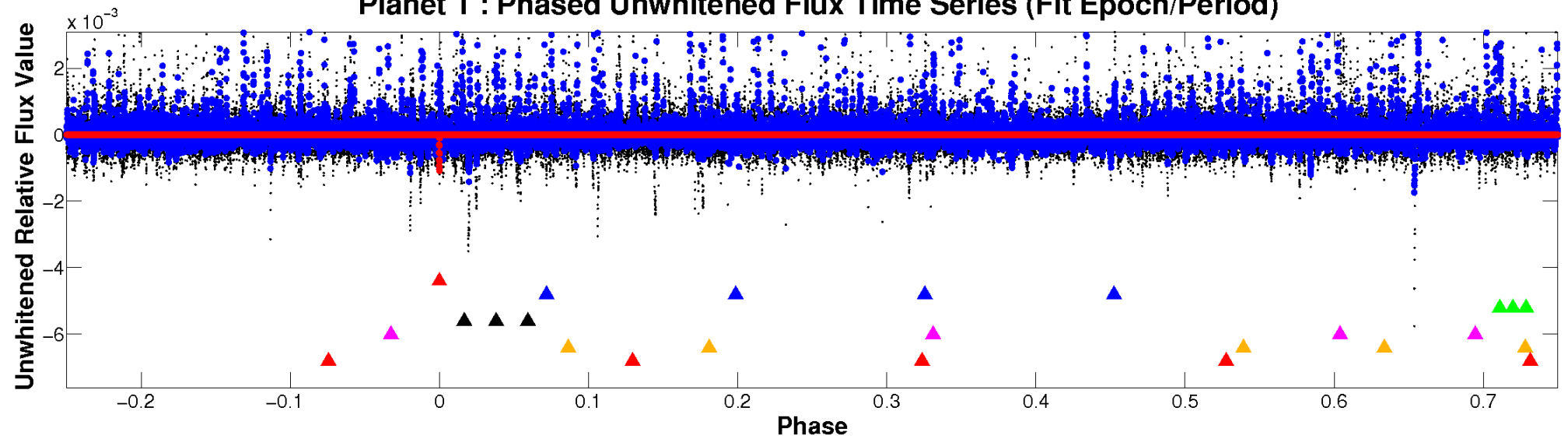
# ALT Odd/Even

TCE 006119605-01

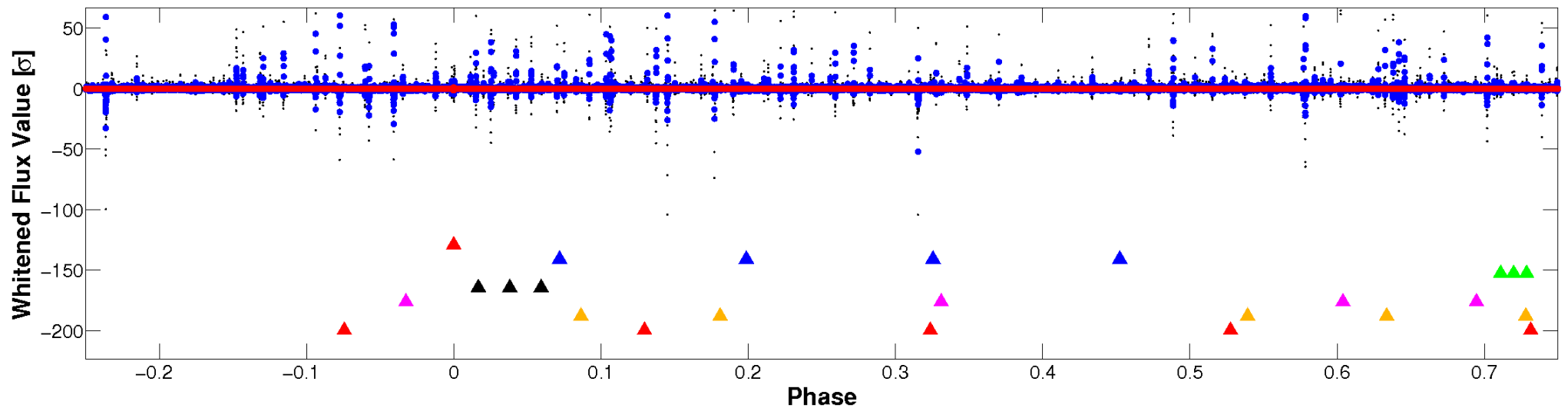


# Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

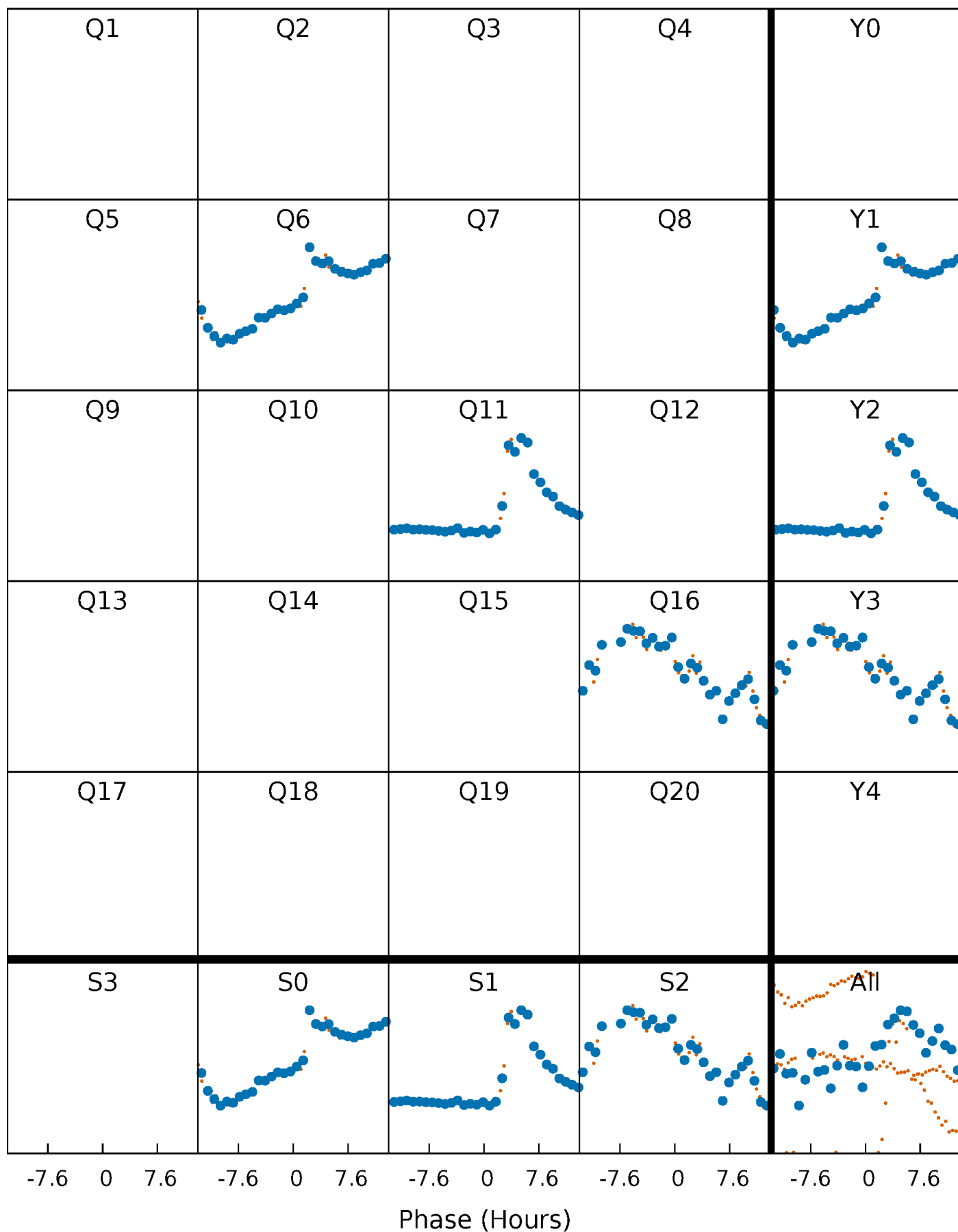


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



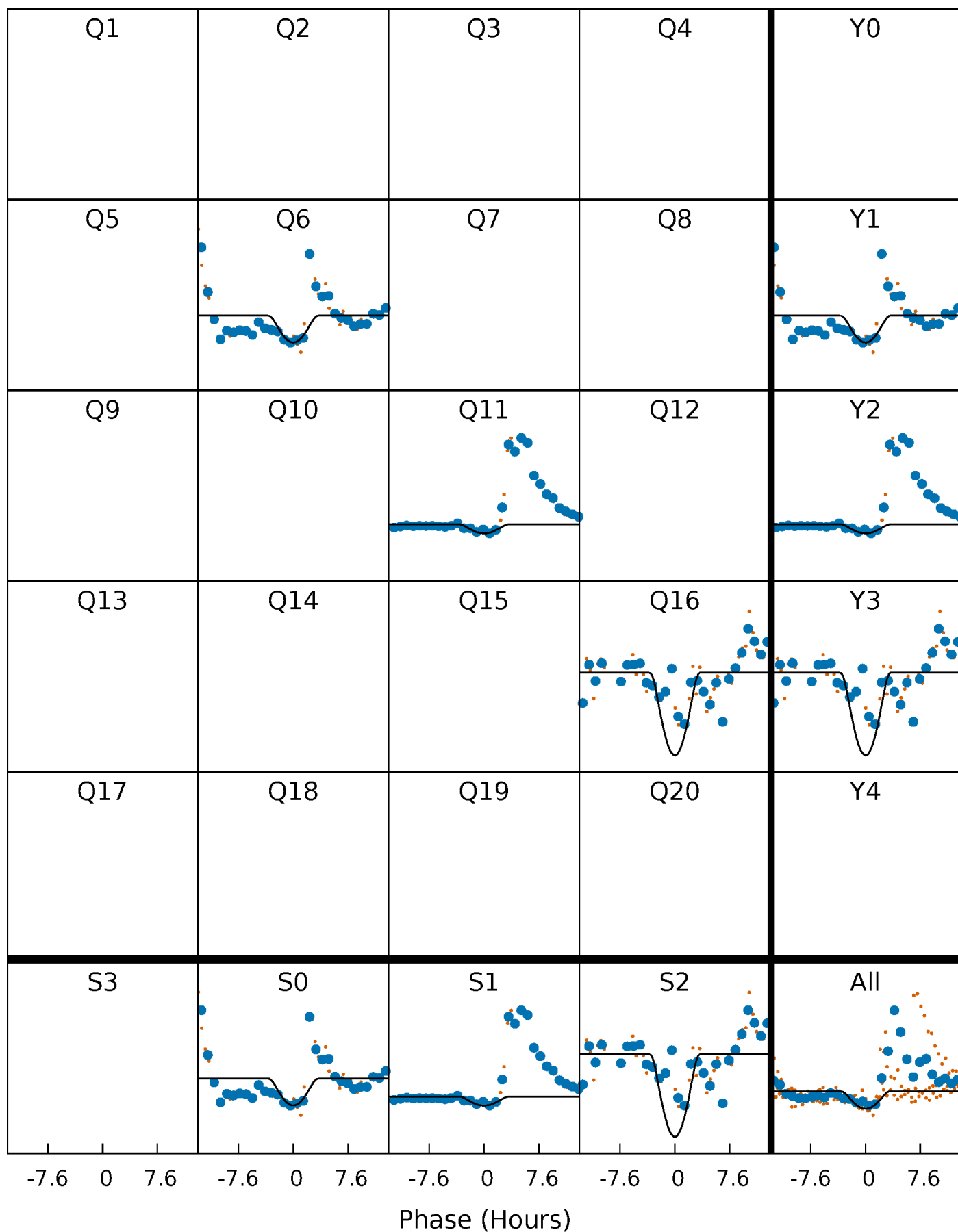
# PDC Quarter-Phased Transit Curves

TCE 006119605-01 P=475.110030 Days  $T_0=548.785826$  (BKJD)



# DV Quarter-Phased Transit Curves

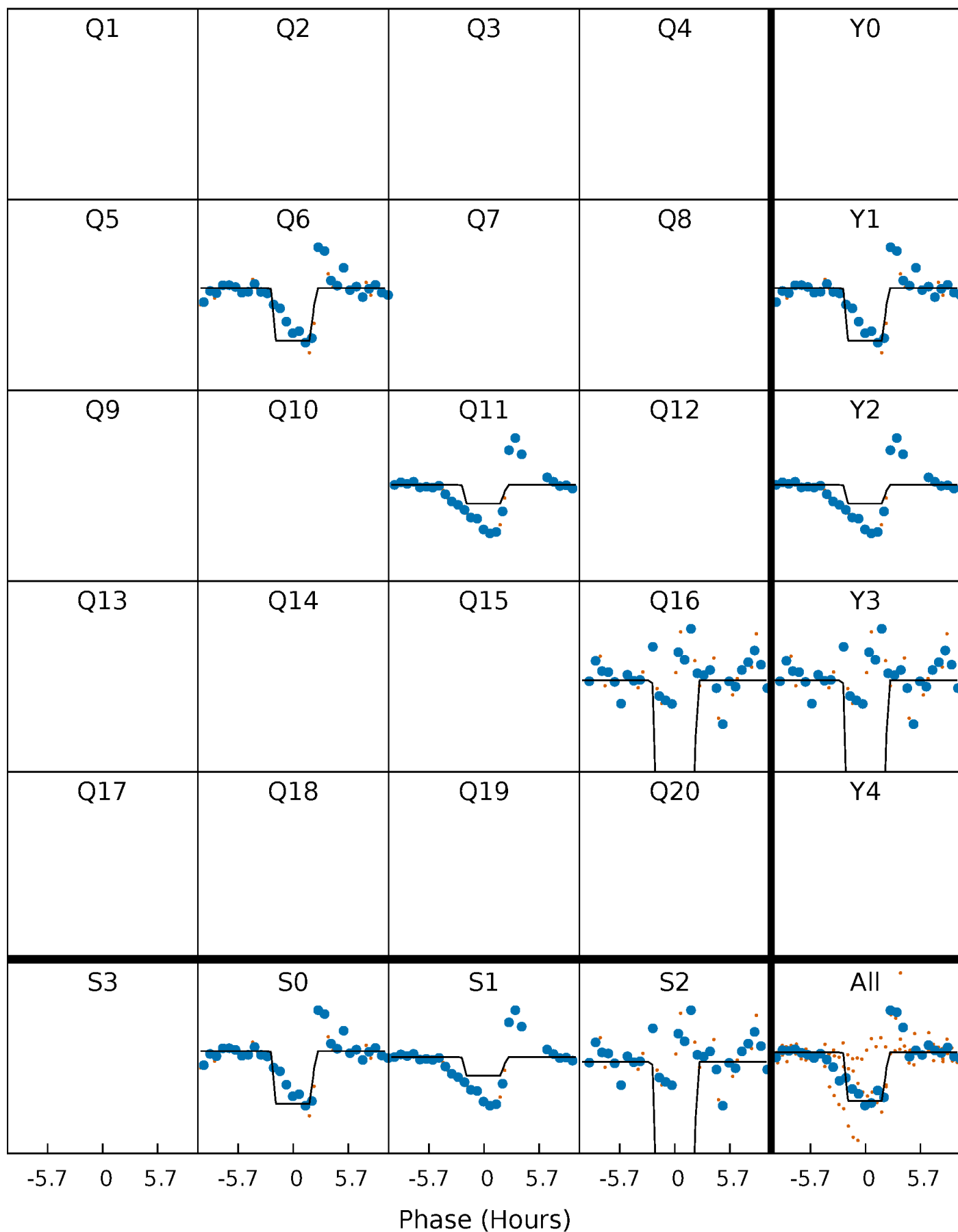
TCE 006119605-01 P=475.110030 Days  $T_0=548.785826$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

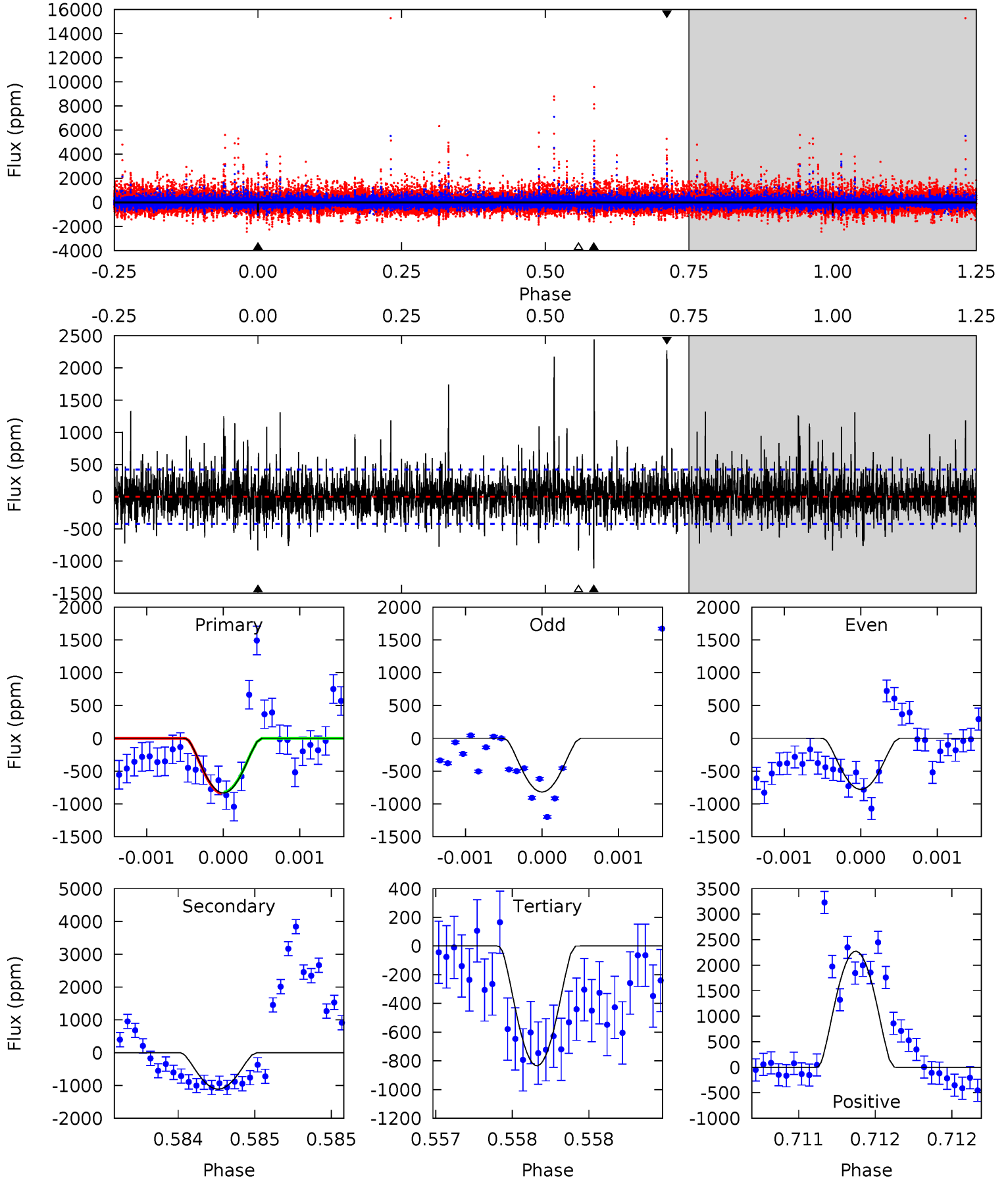
TCE 006119605-01 P=475.162004 Days  $T_0=548.760132$  (BKJD)



# DV Model-Shift Uniqueness Test

006119605-01,  $P = 475.110030$  Days,  $E = 73.675796$  Days

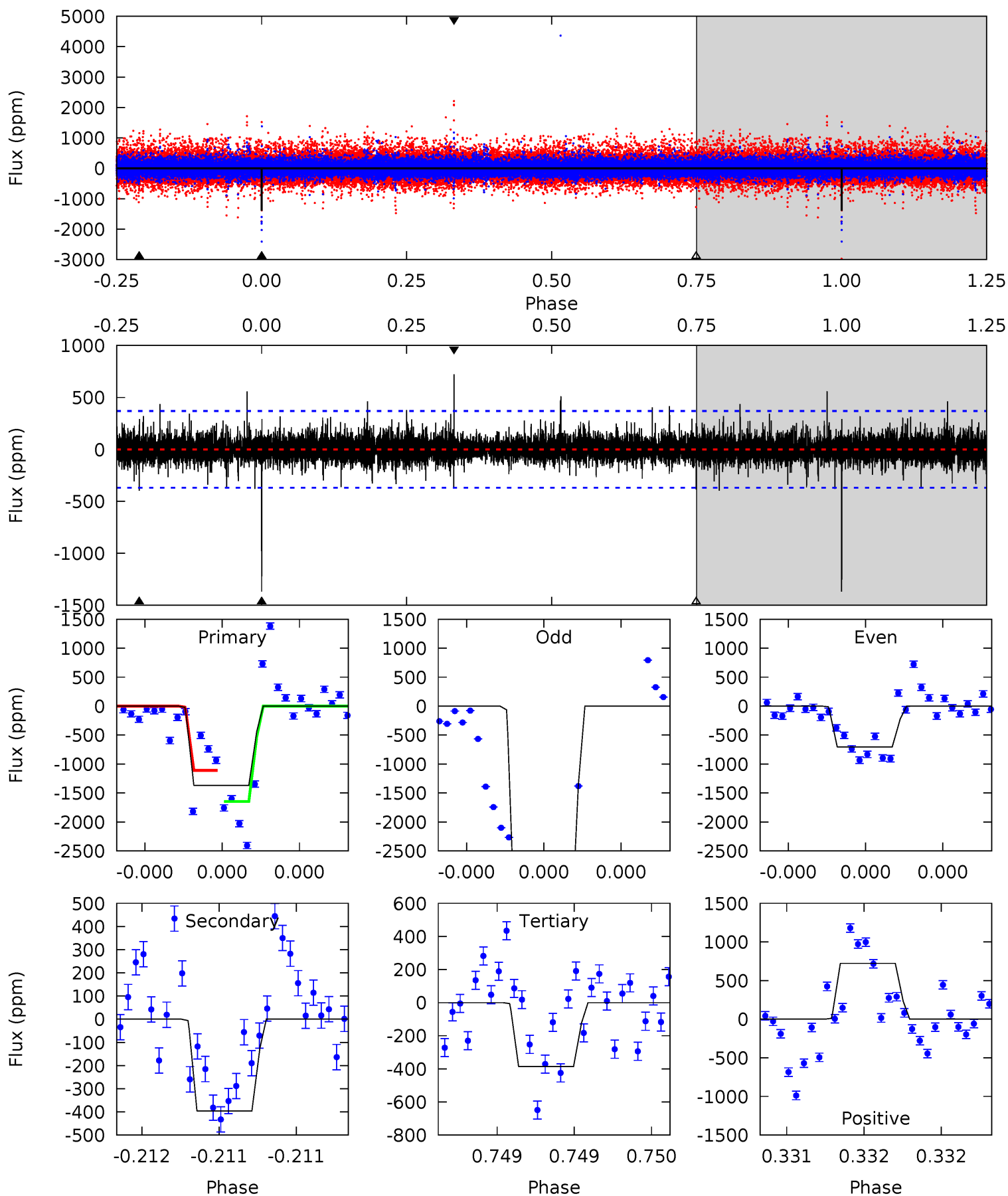
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	14.6	10.9	29.8	5.54	3.43	3.05	-0.01	-18.9	3.61	-15.3	0.08	0.91	0.69	0.14



# Alt Model-Shift Uniqueness Test

006119605-01, P = 475.162004 Days, E = 73.598128 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
20.8	6.01	5.86	11.0	5.60	3.52	1.10	14.9	9.82	0.15	-4.96	25.7	1.22	0.35	4.09



### Stellar Parameters For KIC 006119605

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5250^{+157}_{-141}$	$4.684^{+0.032}_{-0.056}$	$-1.020^{+0.300}_{-0.300}$	$0.608^{+0.057}_{-0.031}$	$0.650^{+0.046}_{-0.032}$	$4.081^{+0.524}_{-0.764}$
	+3%/-3%	+1%/-1%	+29%/-29%	+9%/-5%	+7%/-5%	+13%/-19%
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 006119605-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1110 \pm 76$	$14.56^{+16.13}_{-10.45}$	$250^{+9}_{-8}$	$2784^{+1357}_{-472}$	$3135^{+36396}_{-2456}$
Alt.	$-396 \pm 66$	$14.11^{+16.51}_{-9.93}$	$250^{+9}_{-8}$	$2461^{+964}_{-395}$	$1116^{+12263}_{-878}$

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

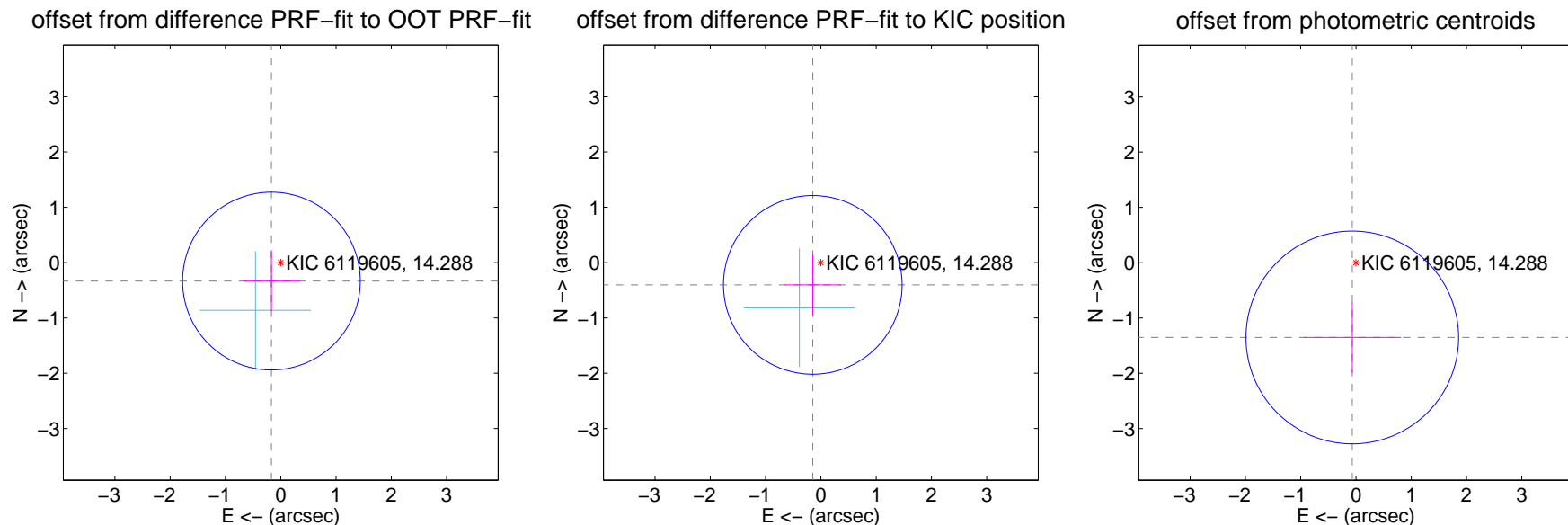
## DV Centroid Data

Supplemental centroid analysis for 006119605-01. Kepler magnitude: 14.29. Transit SNR 5.63

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.375 \pm 0.536$	0.70	$0.169 \pm 0.509$	$-0.335 \pm 0.542$
PRF-fit source offset from KIC position	$0.429 \pm 0.538$	0.80	$0.146 \pm 0.509$	$-0.403 \pm 0.542$
photometric centroid source offset	$1.35 \pm 0.64$	2.11	$0.07 \pm 0.88$	$-1.35 \pm 0.64$



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.

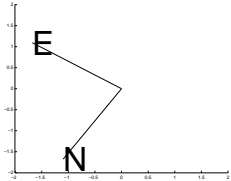
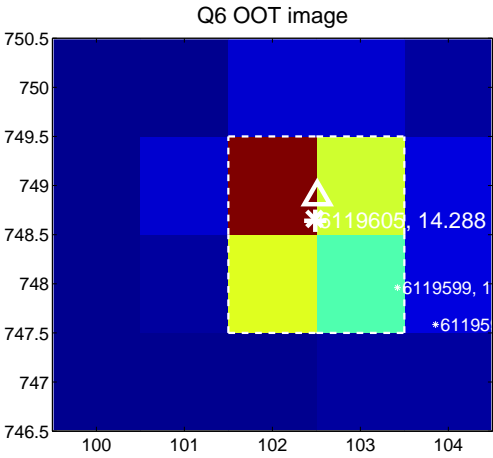
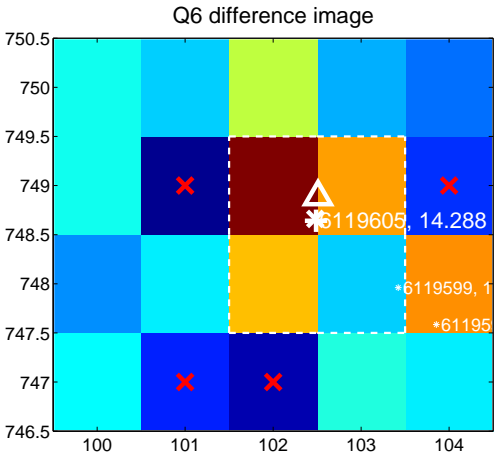


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

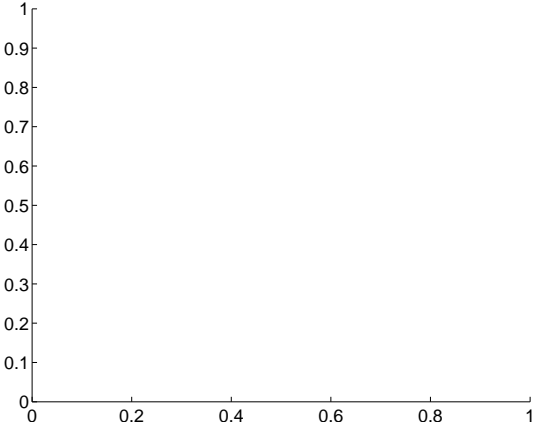
Q5 no difference image



Q5 no OOT image



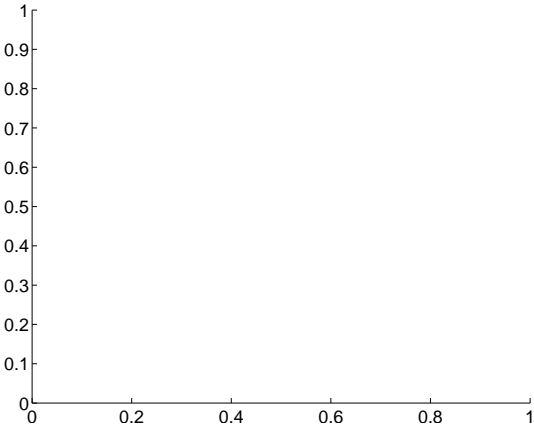
Q7 no difference image



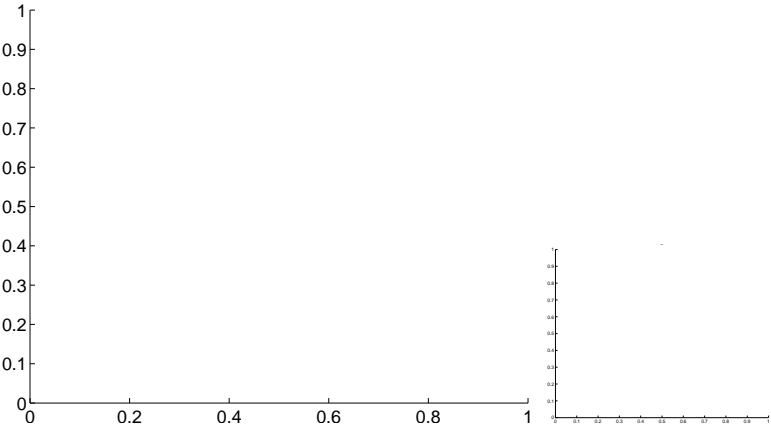
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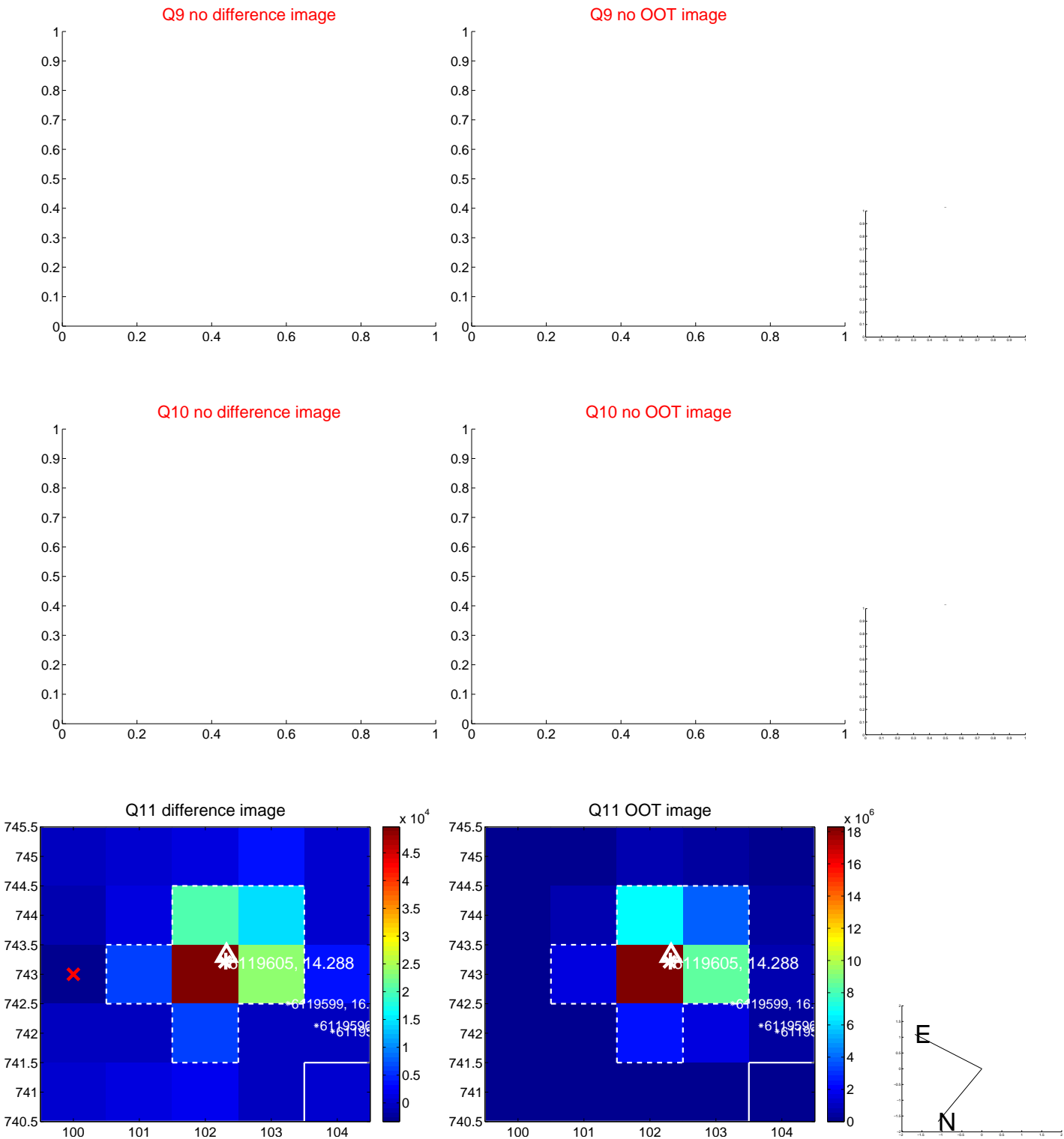
Q8 no difference image



Q8 no OOT image



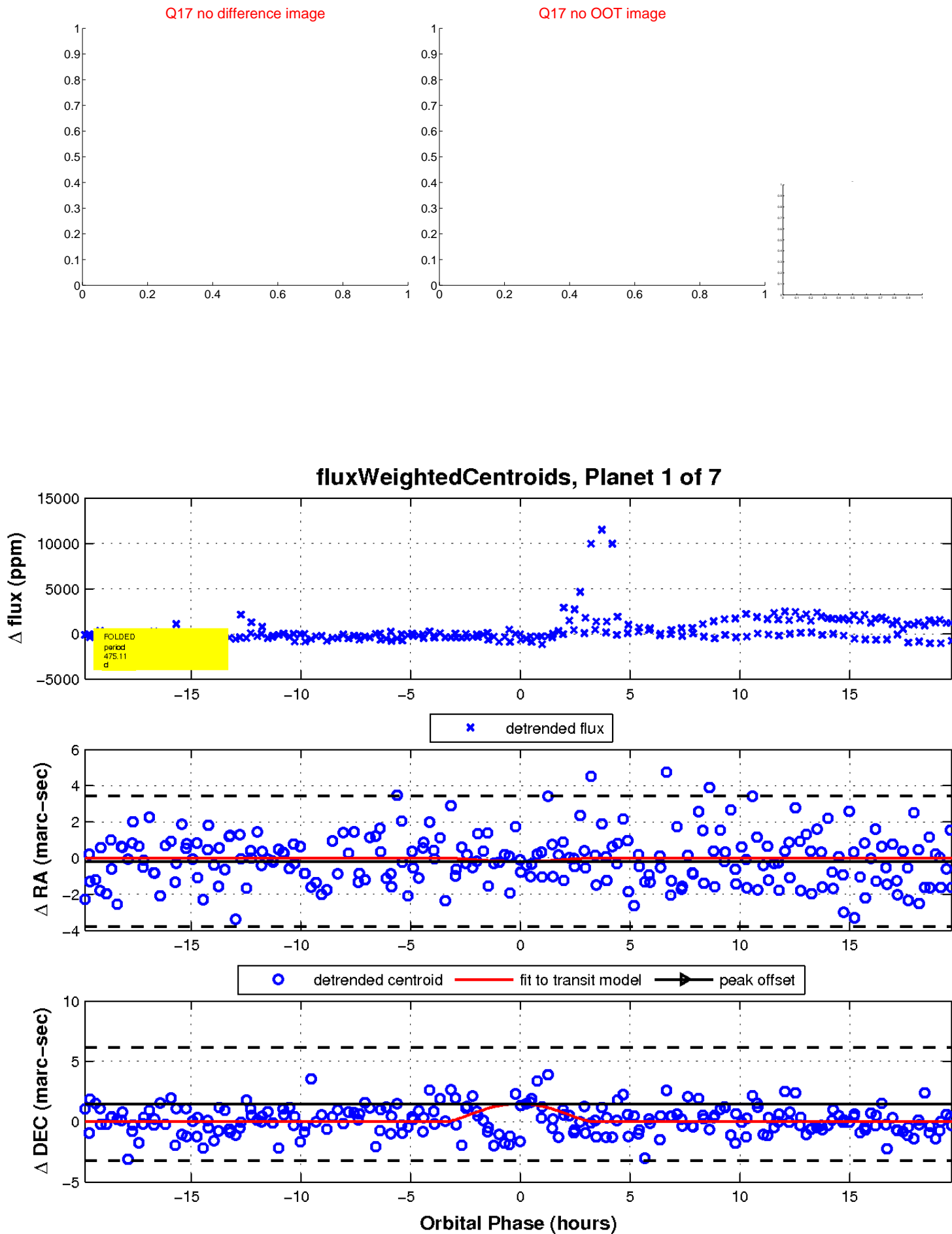
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



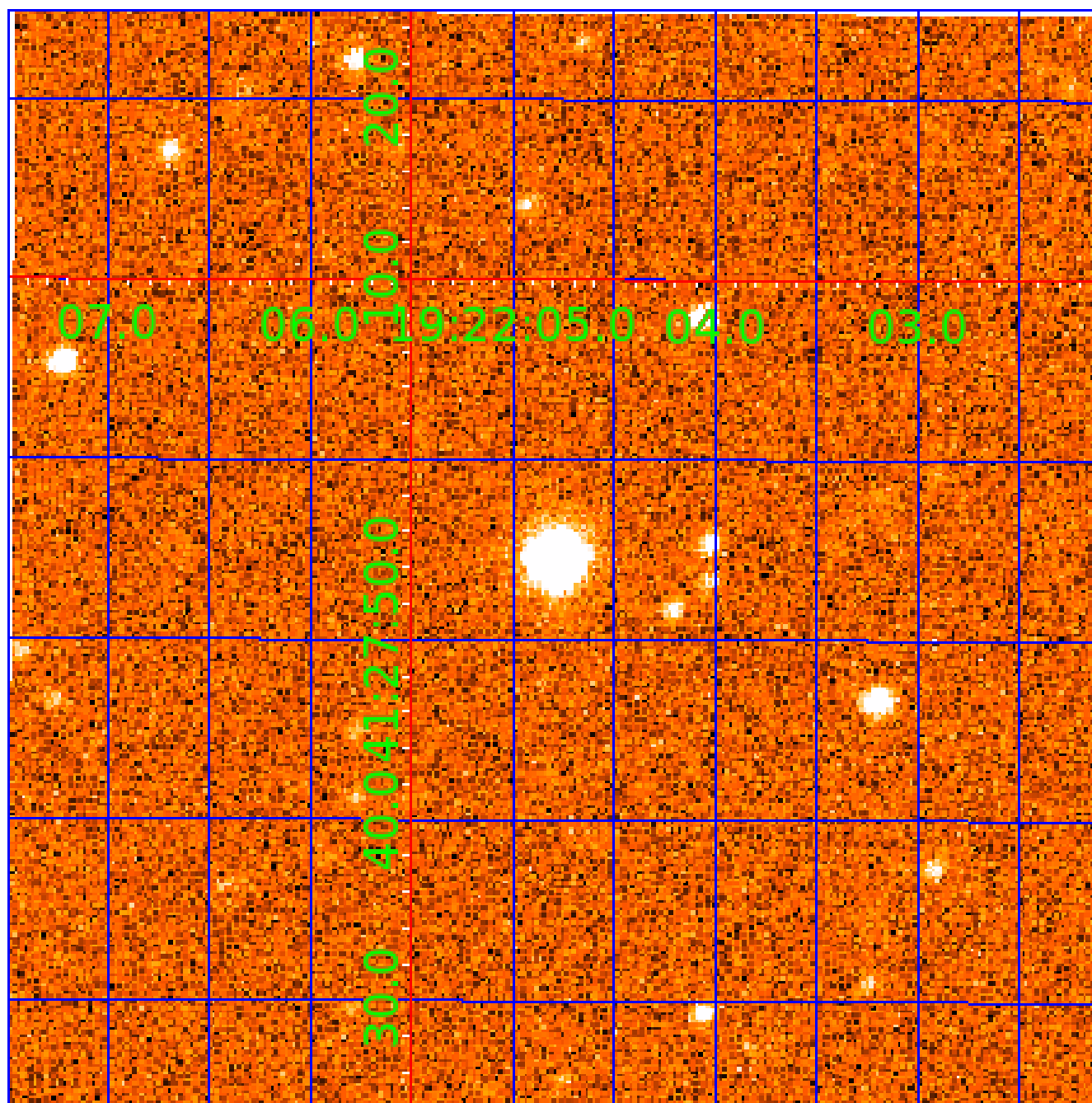
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 006119605

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006119605-01	OBS	No	475.110030	548.785826	1087.1	6.615	21.2	5.6	0.61	5250	3.92	0.24
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006119605-04	OBS	No	464.978254	577.004763	1428.9	9.148	16.8	8.8	0.61	5250	2.33	0.24
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006119605-06	OBS	8118.01	259.997985	329.865660	1023.1	12.029	11.0	8.7	0.61	5250	2.04	0.53
006119605-07	OBS	No	285.994917	227.477208	829.0	5.000	12.7	-1.0	0.61	5250	1.74	0.46

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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006119605-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS
006119605-04	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
006119605-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006119605-06	OBS	FP	0.13	1	0	0	0	MOD_NONUNIQ_DV—CENT_FEW_DIFFS
006119605-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

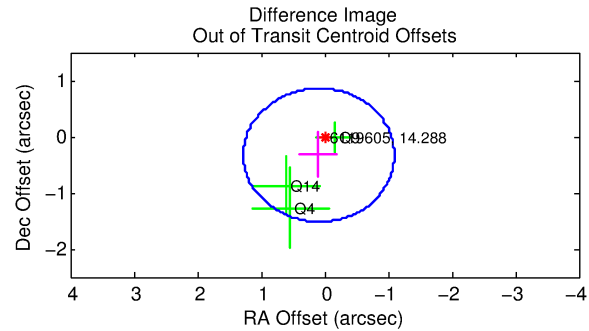
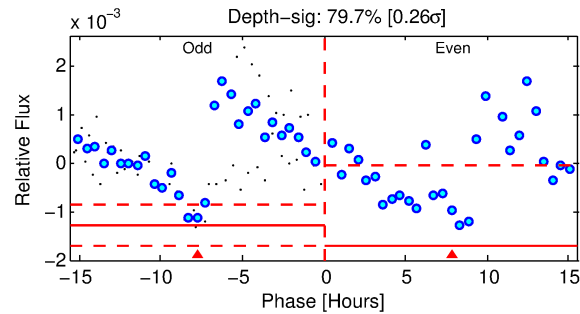
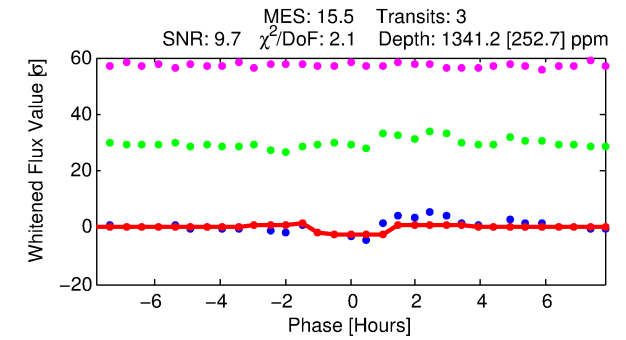
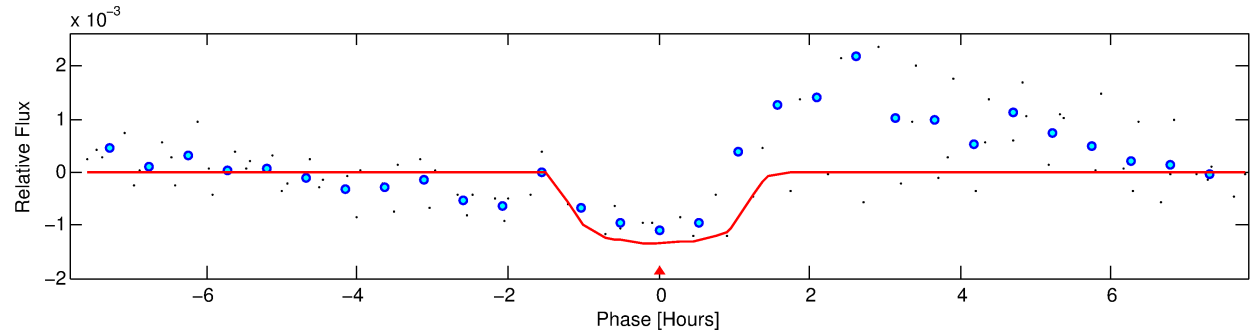
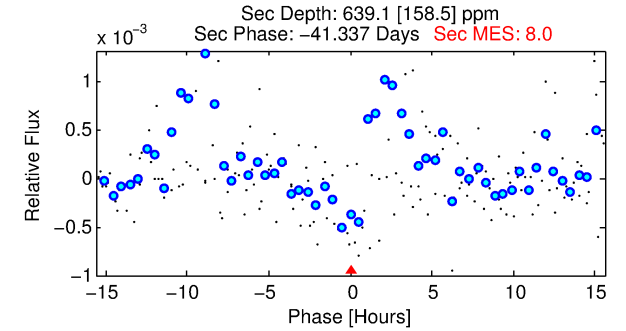
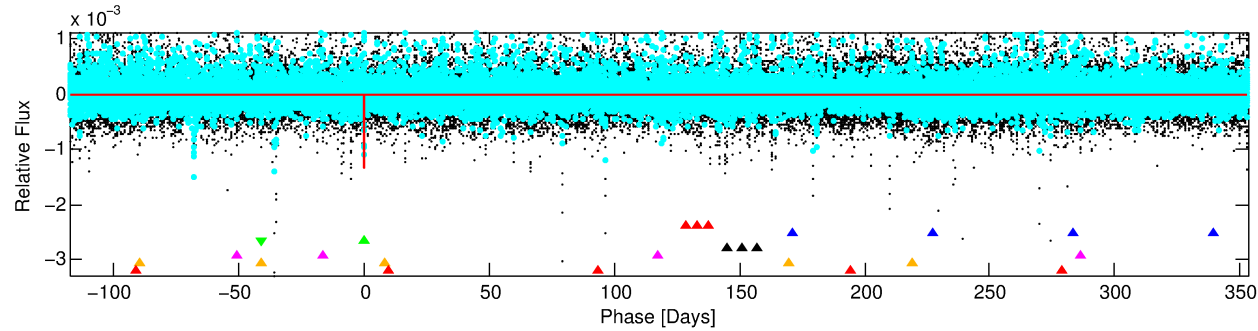
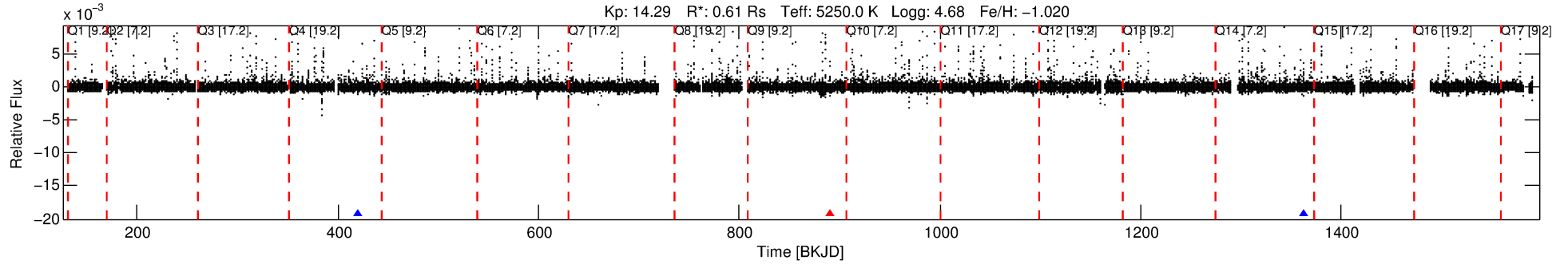
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006119605-03

No Significant Match Found

# DV One-Page Summary

KIC: 6119605 Candidate: 3 of 7 Period: 470.932 d



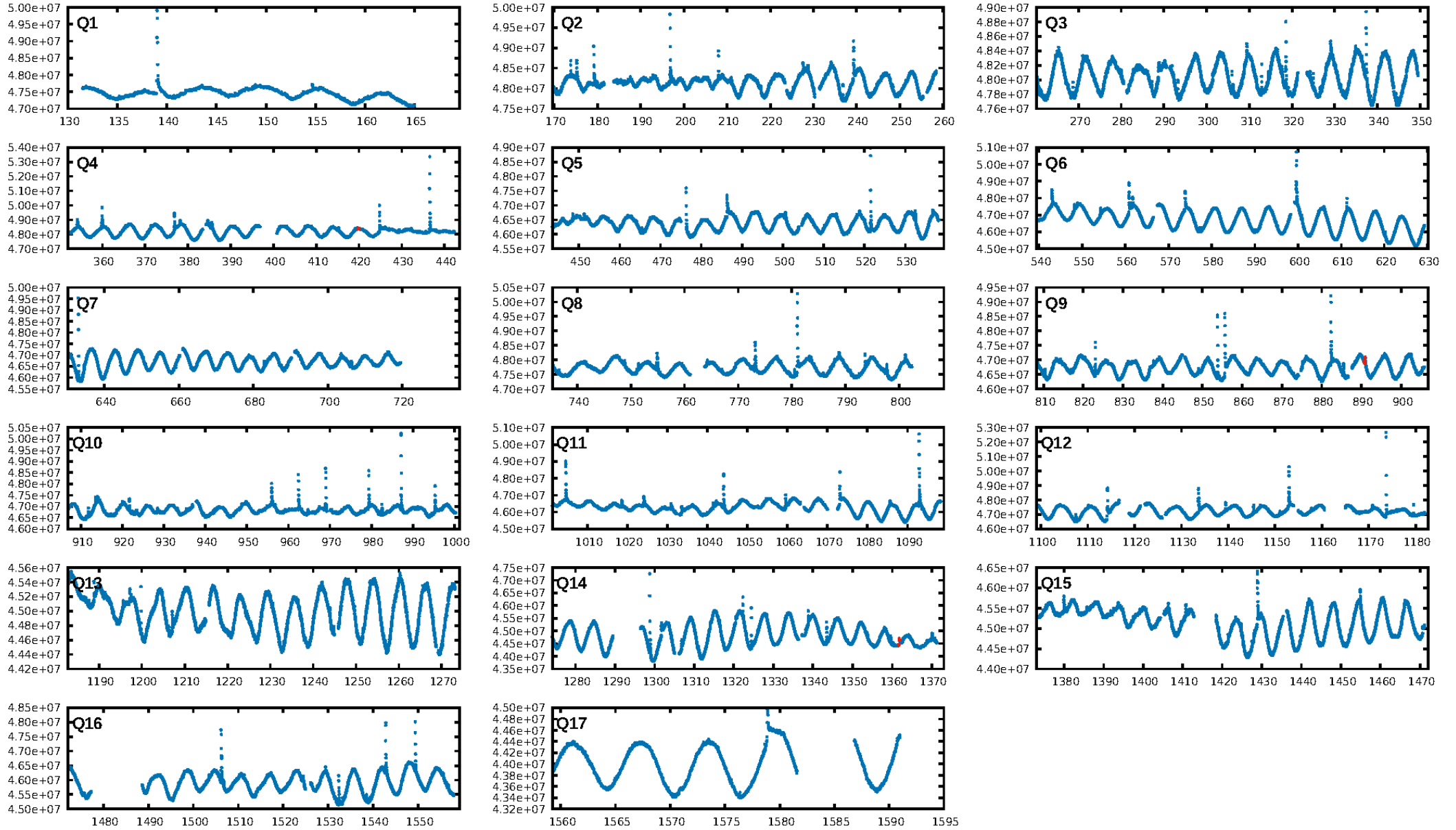
## DV Fit Results:

Period = 470.93154 [0.00621] d  
Epoch = 419.8978 [0.0074] BKJD  
Rp/R\* = 0.0342 [0.0793]  
a/R\* = 1276.68 [13100.75]  
b = 0.46 [17.44]  
Seff = 0.24 [0.04]  
Teq = 178 [7] K  
Rp = 2.27 [5.27] Re  
a = 1.0271 [0.0779] AU  
Ag = 72136.86 [335453.98] [0.22 $\sigma$ ]  
Teffp = 4515 [5250] K [0.83 $\sigma$ ]

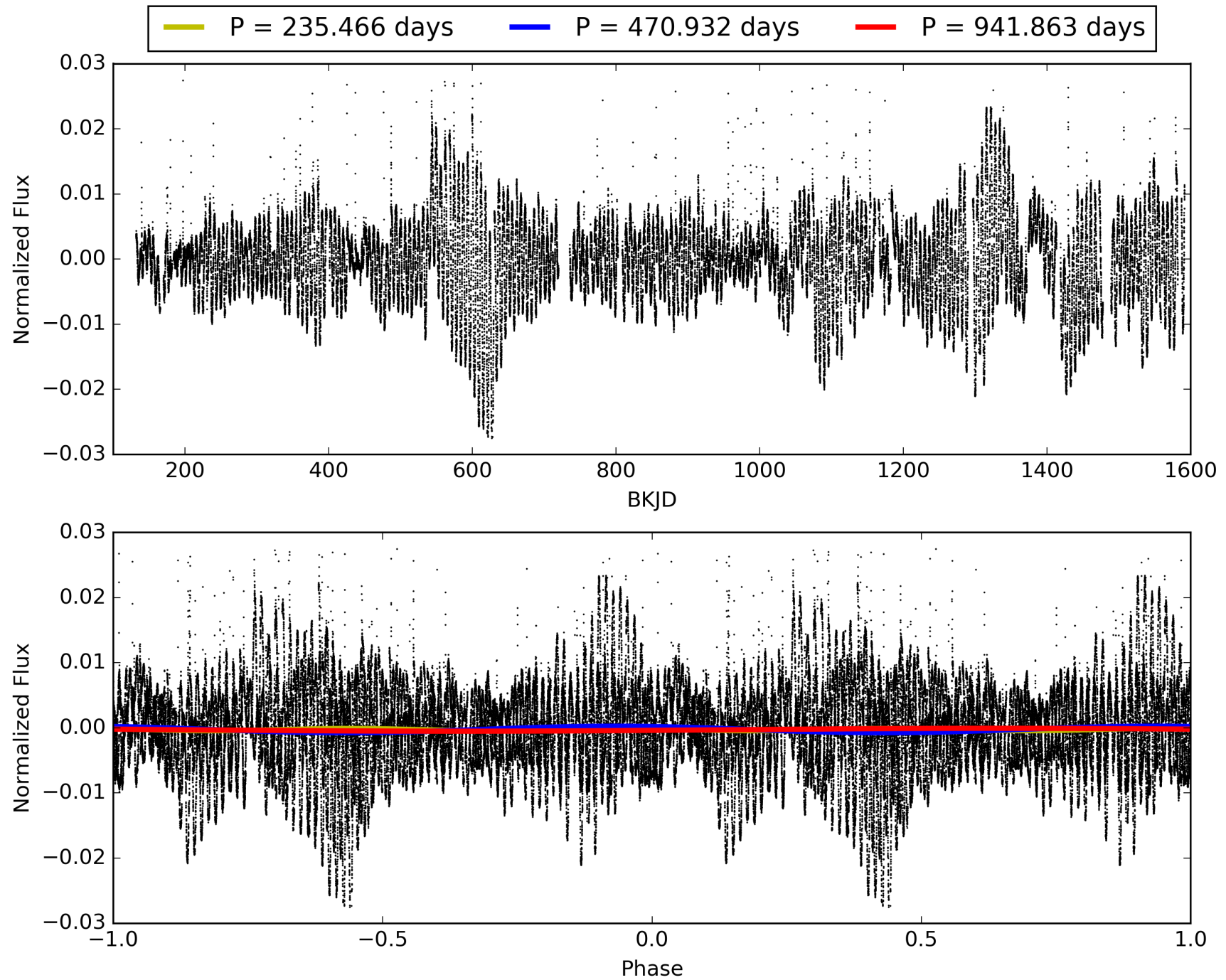
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.02 $\sigma$ ]  
LongPeriod-sig: 100.0% [14.11 $\sigma$ ]  
ModelChiSquare2-sig: 0.1%  
ModelChiSquareGof-sig: 8.1%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.67 [2/3]  
GhostDiagnostic-chr: -0.3793  
Centroid-sig: 31.2%  
Centroid-so: 0.480 arcsec [0.74 $\sigma$ ]  
OotOffset-rm: 0.343 arcsec [0.87 $\sigma$ ]  
OotOffset-st: 1/0/1/1 [3]  
KicOffset-rm: 0.259 arcsec [0.62 $\sigma$ ]  
KicOffset-st: 1/0/1/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 006119605-03, PDC Light Curves



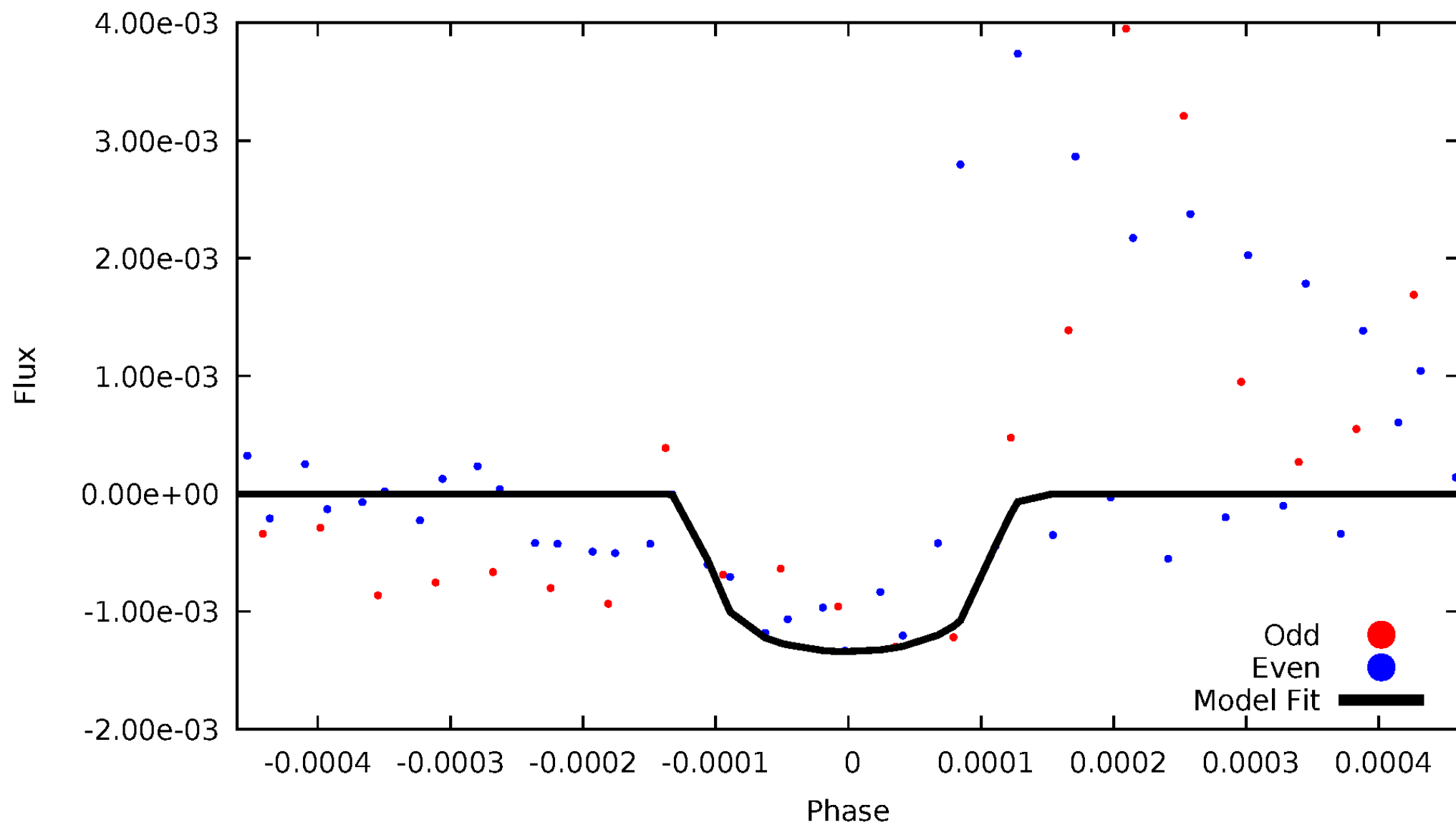
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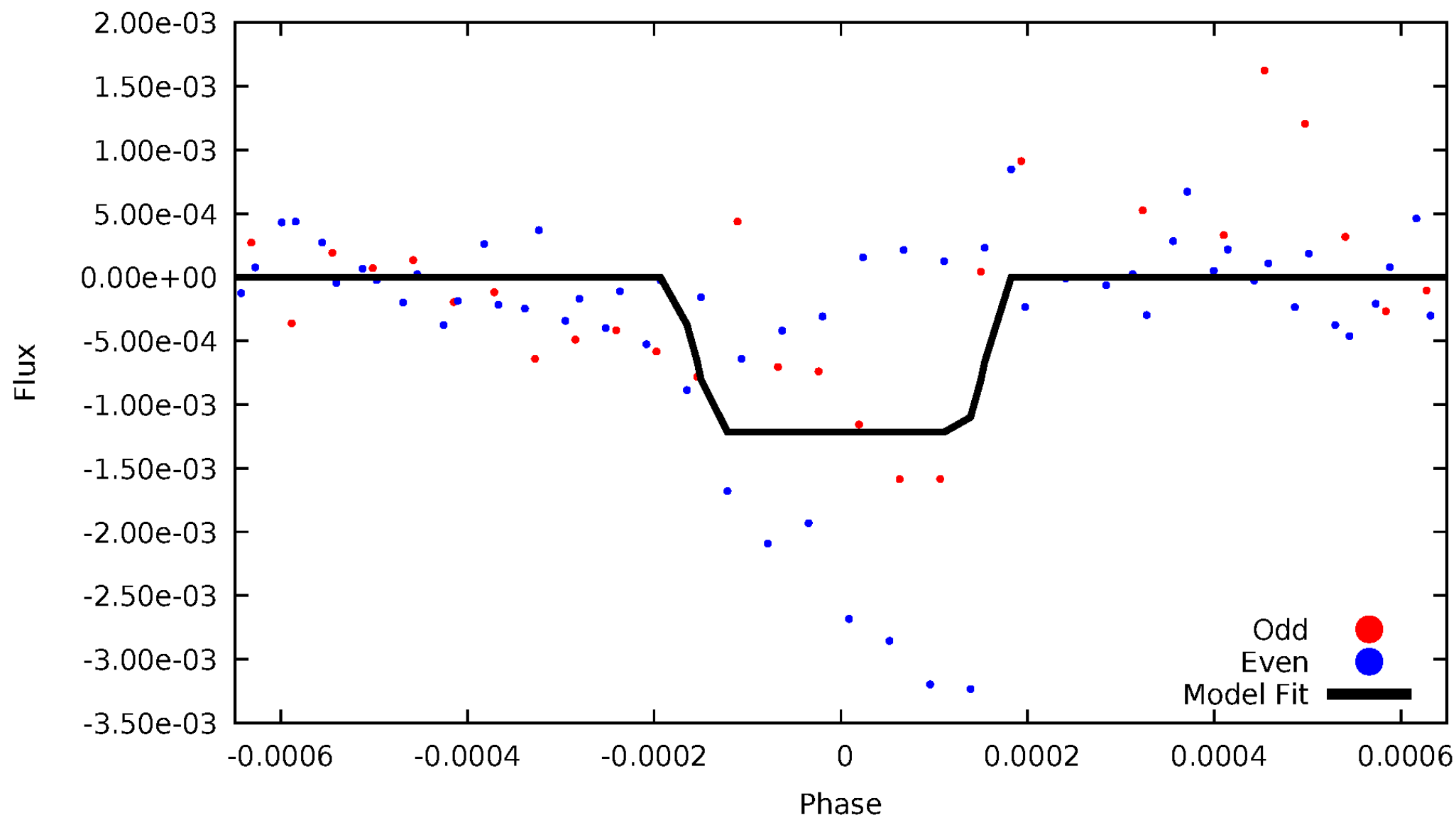
# DV Odd/Even

TCE 006119605-03



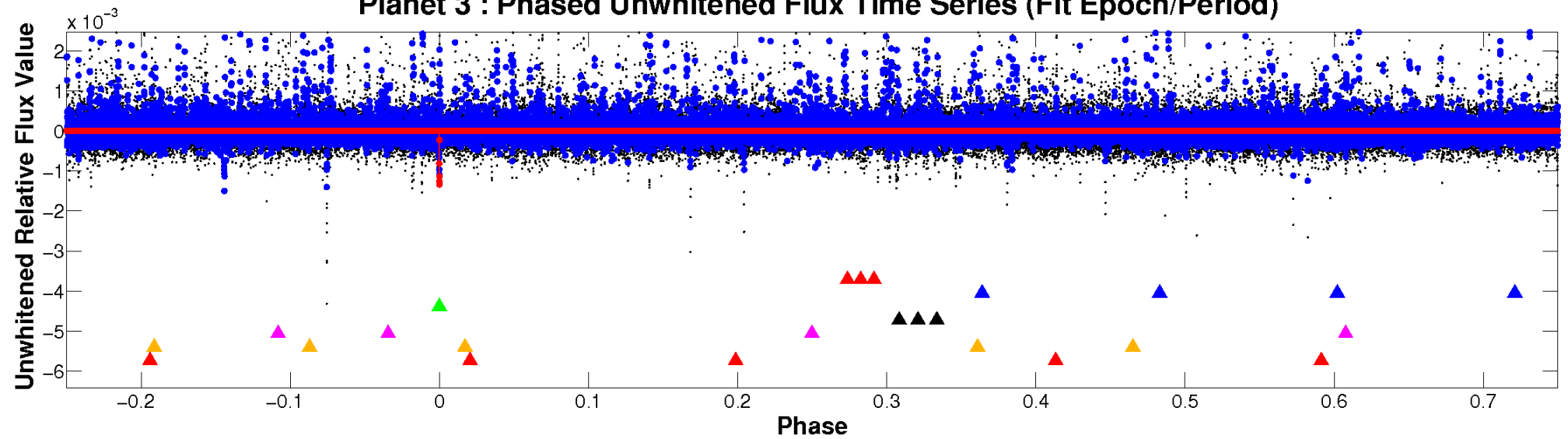
# ALT Odd/Even

TCE 006119605-03

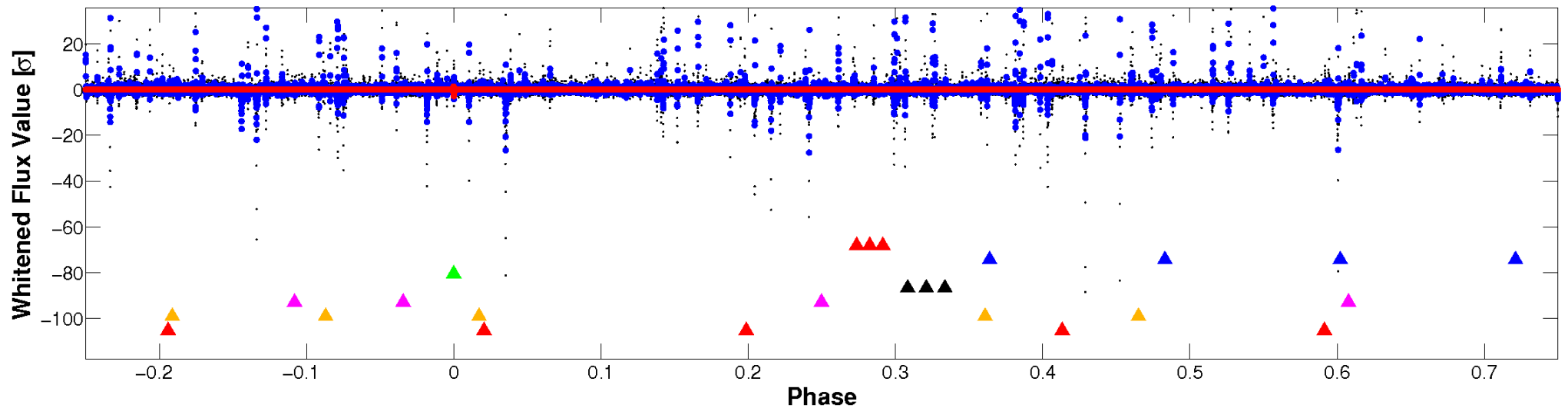


# Non-Whitened Vs. Whitened Light Curve

## Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



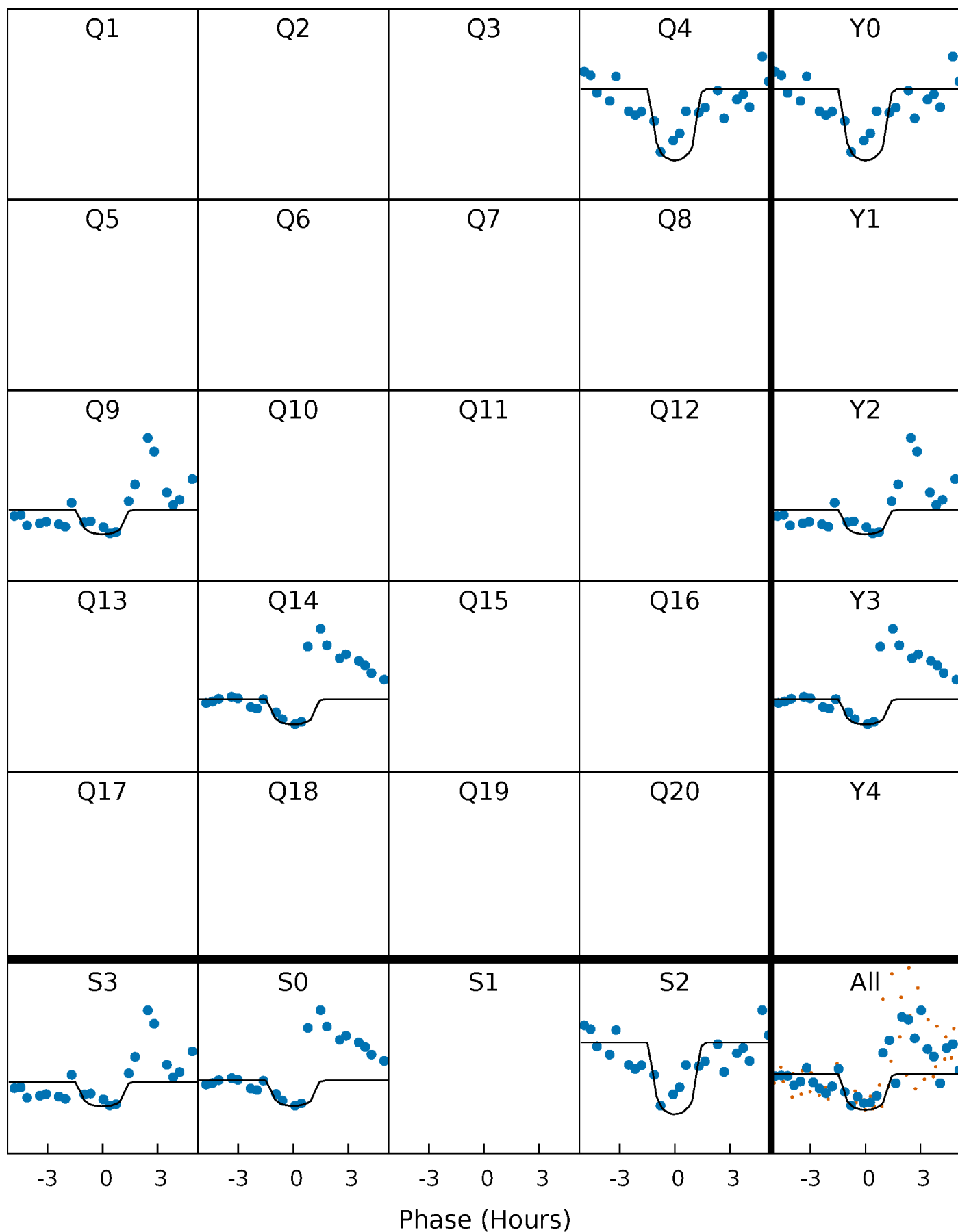
# PDC Quarter-Phased Transit Curves

TCE 006119605-03 P=470.931543 Days  $T_0=419.897772$  (BKJD)



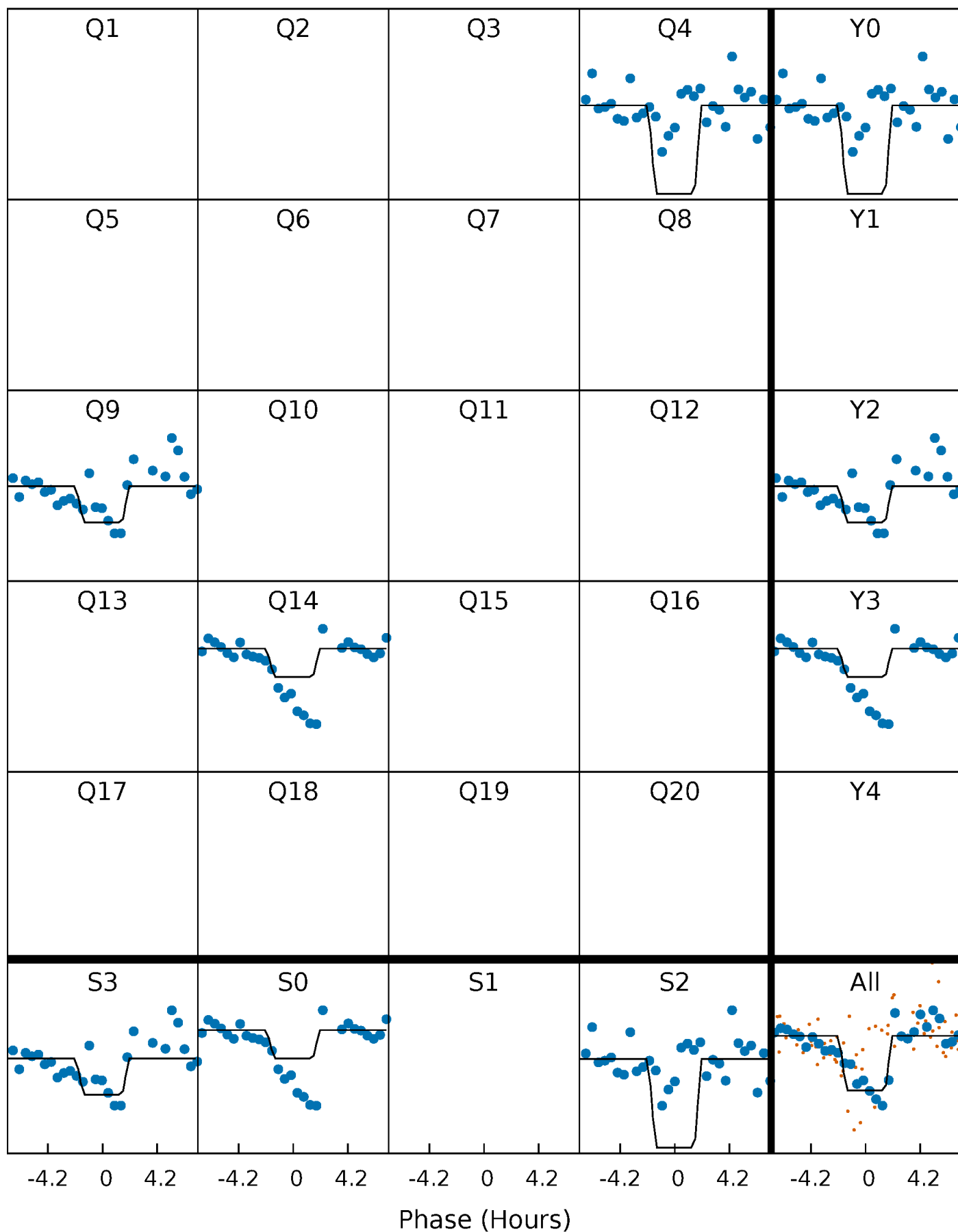
# DV Quarter-Phased Transit Curves

TCE 006119605-03     $P=470.931543$  Days     $T_0=419.897772$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

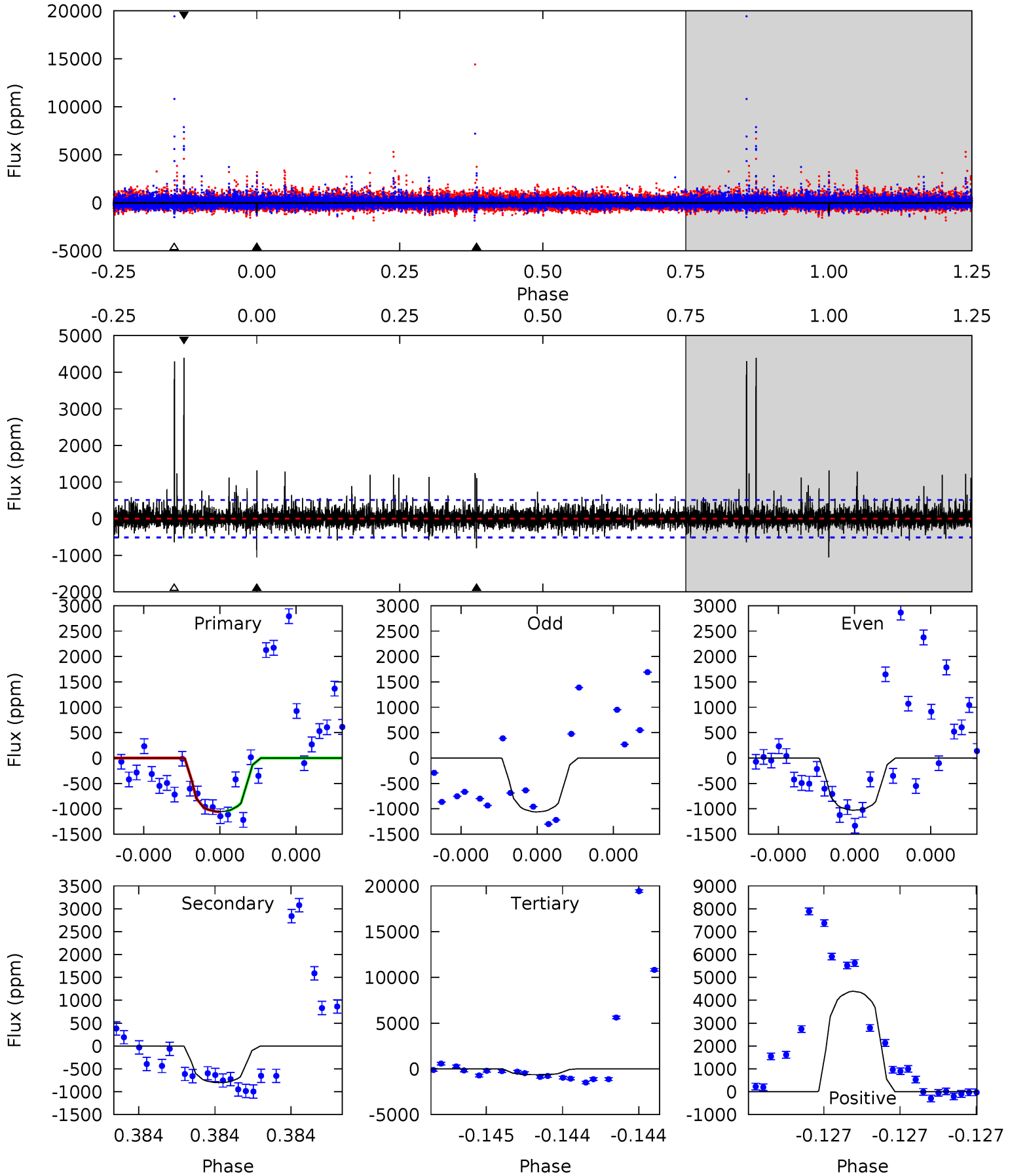
TCE 006119605-03 P=470.898201 Days  $T_0=419.918391$  (BKJD)



# DV Model-Shift Uniqueness Test

006119605-03, P = 470.931543 Days, E = 419.897772 Days

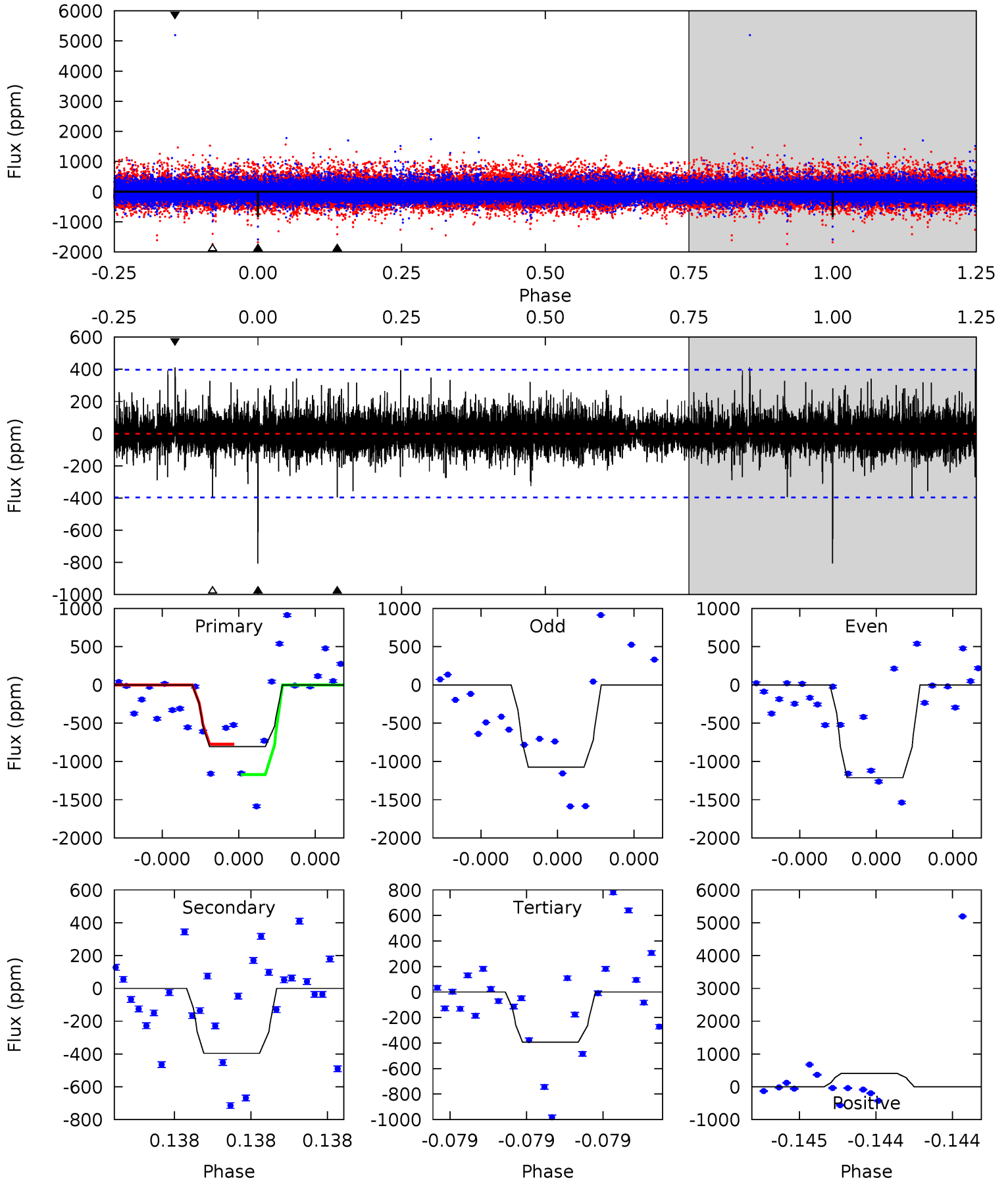
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	8.89	7.06	48.6	5.67	3.63	1.90	4.64	-36.9	1.83	-39.7	0.05	0.85	0.81	0.08



# Alt Model-Shift Uniqueness Test

006119605-03, P = 470.898201 Days, E = 419.918391 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
11.5	5.64	5.60	5.85	5.65	3.60	0.98	5.89	5.64	0.04	-0.21	0.86	1.38	0.34	2.91





### Stellar Parameters For KIC 006119605

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5250^{+157}_{-141}$	$4.684^{+0.032}_{-0.056}$	$-1.020^{+0.300}_{-0.300}$	$0.608^{+0.057}_{-0.031}$	$0.650^{+0.046}_{-0.032}$	$4.081^{+0.524}_{-0.764}$
	+3%/-3%	+1%/-1%	+29%/-29%	+9%/-5%	+7%/-5%	+13%/-19%
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 006119605-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-803 \pm 90$	$4.41^{+4.14}_{-2.95}$	$251^{+9}_{-8}$	$3788^{+2148}_{-703}$	$23558^{+199303}_{-17343}$
Alt.	$-396 \pm 70$	$4.73^{+4.13}_{-3.17}$	$250^{+9}_{-8}$	$3308^{+1527}_{-532}$	$10145^{+82022}_{-7314}$

$T_{max}$  = 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

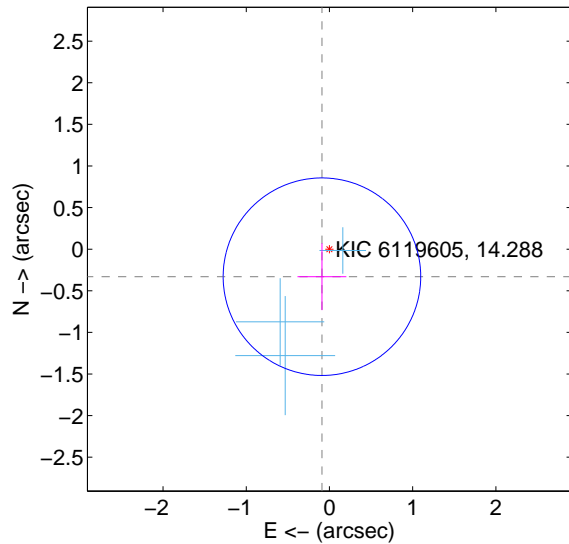
Supplemental centroid analysis for 006119605-03. Kepler magnitude: 14.29. Transit SNR 9.65

There are 3 quarters with good PRF difference image offsets

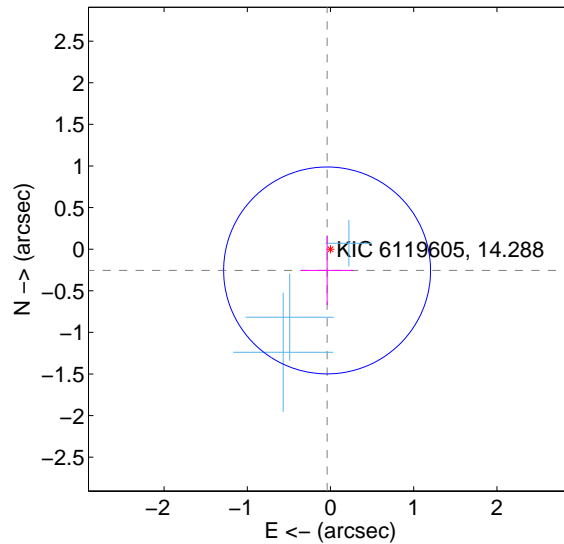
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.343 \pm 0.396$	0.87	$0.090 \pm 0.294$	$-0.331 \pm 0.402$
PRF-fit source offset from KIC position	$0.259 \pm 0.414$	0.62	$0.041 \pm 0.318$	$-0.256 \pm 0.417$
photometric centroid source offset	$0.48 \pm 0.65$	0.74	$0.27 \pm 0.72$	$-0.40 \pm 0.61$

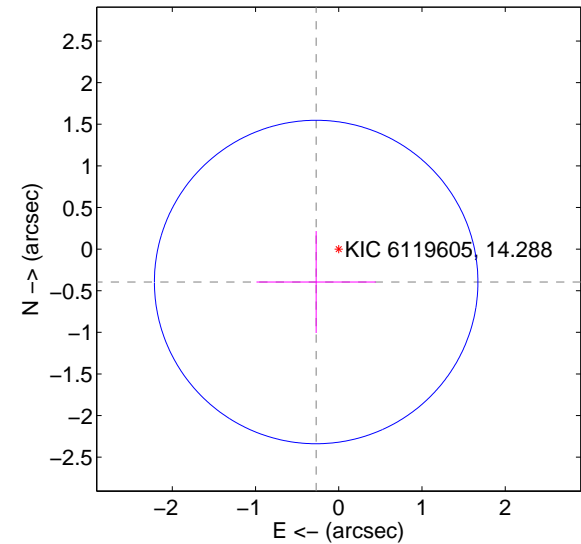
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

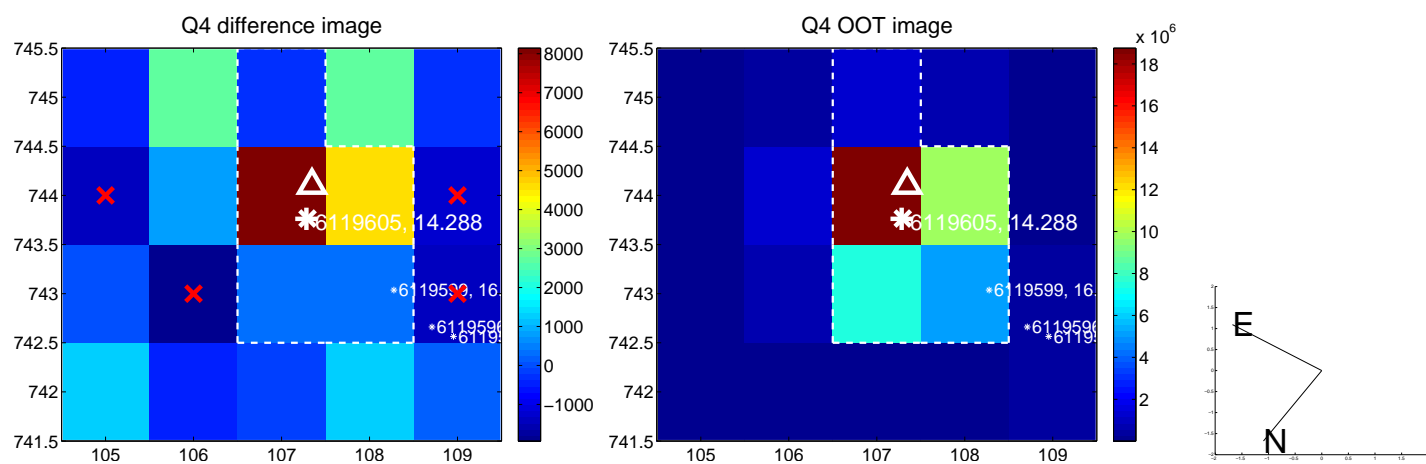
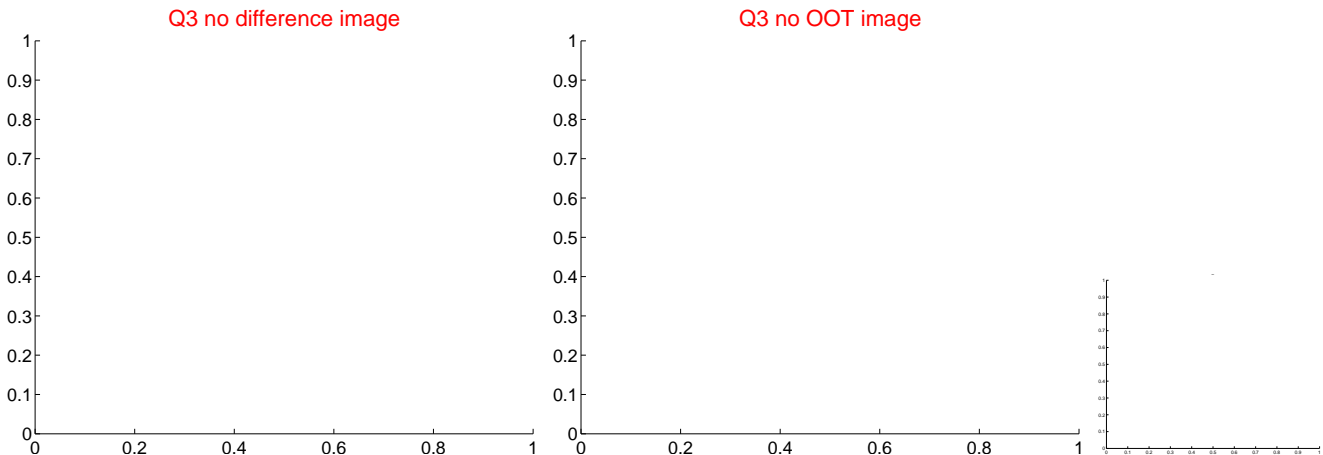


offset from photometric centroids



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.

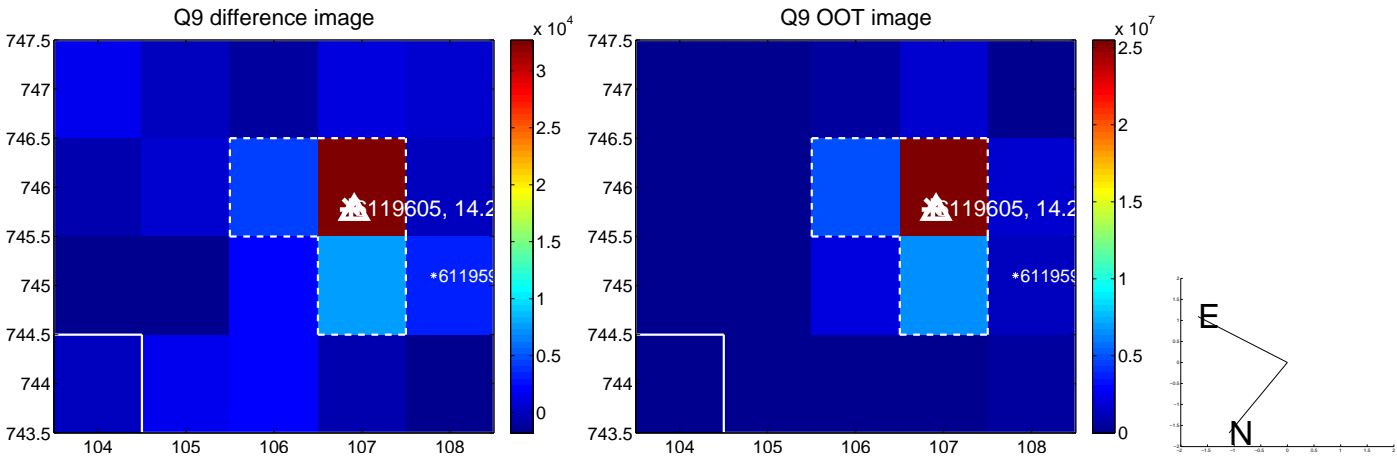
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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

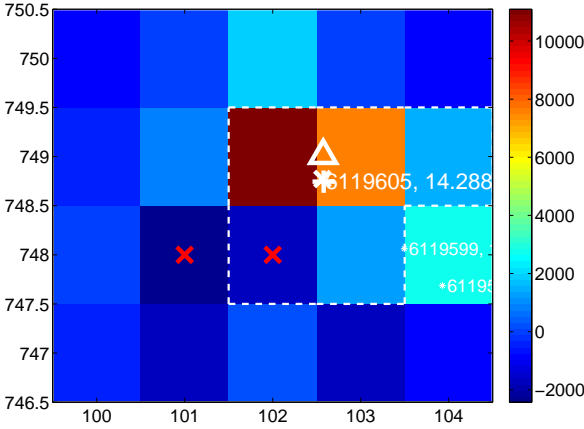
Q13 no difference image



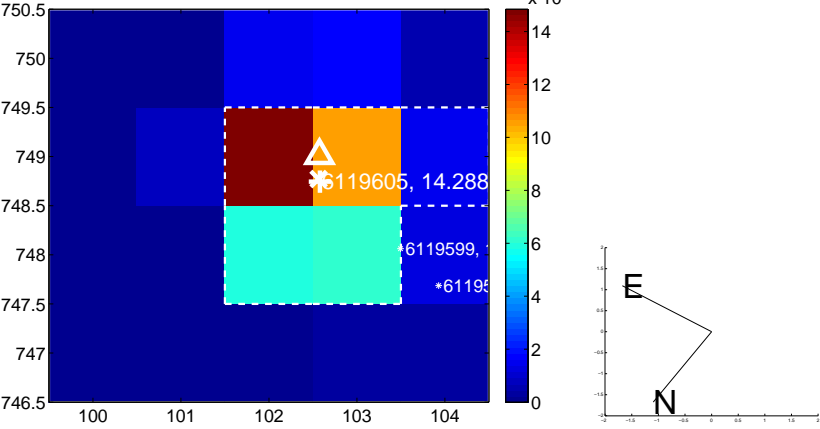
Q13 no OOT image



Q14 difference image



Q14 OOT image



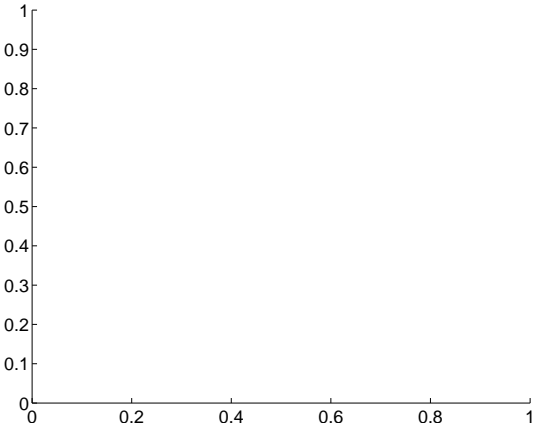
Q15 no difference image



Q15 no OOT image



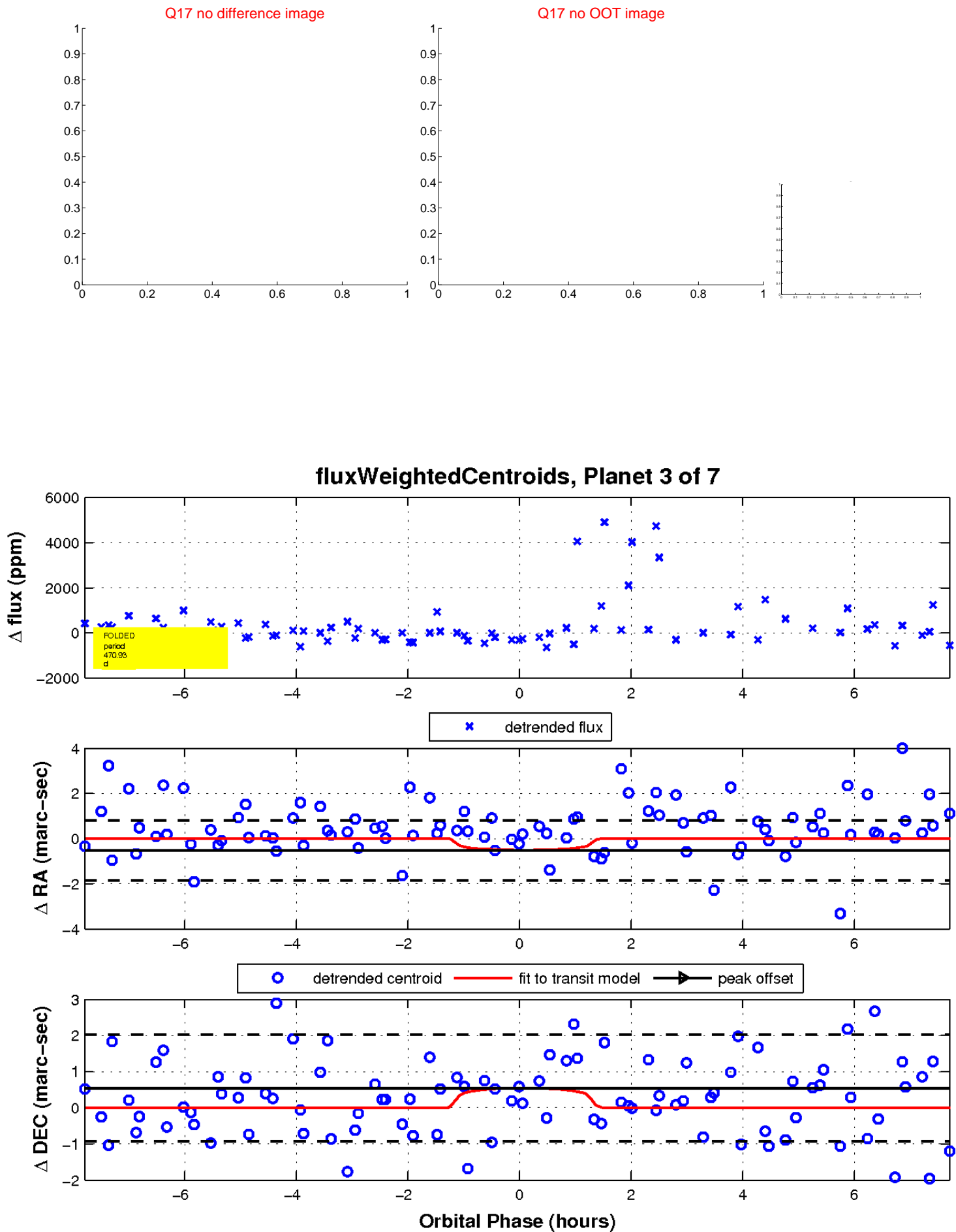
Q16 no difference image



Q16 no OOT image

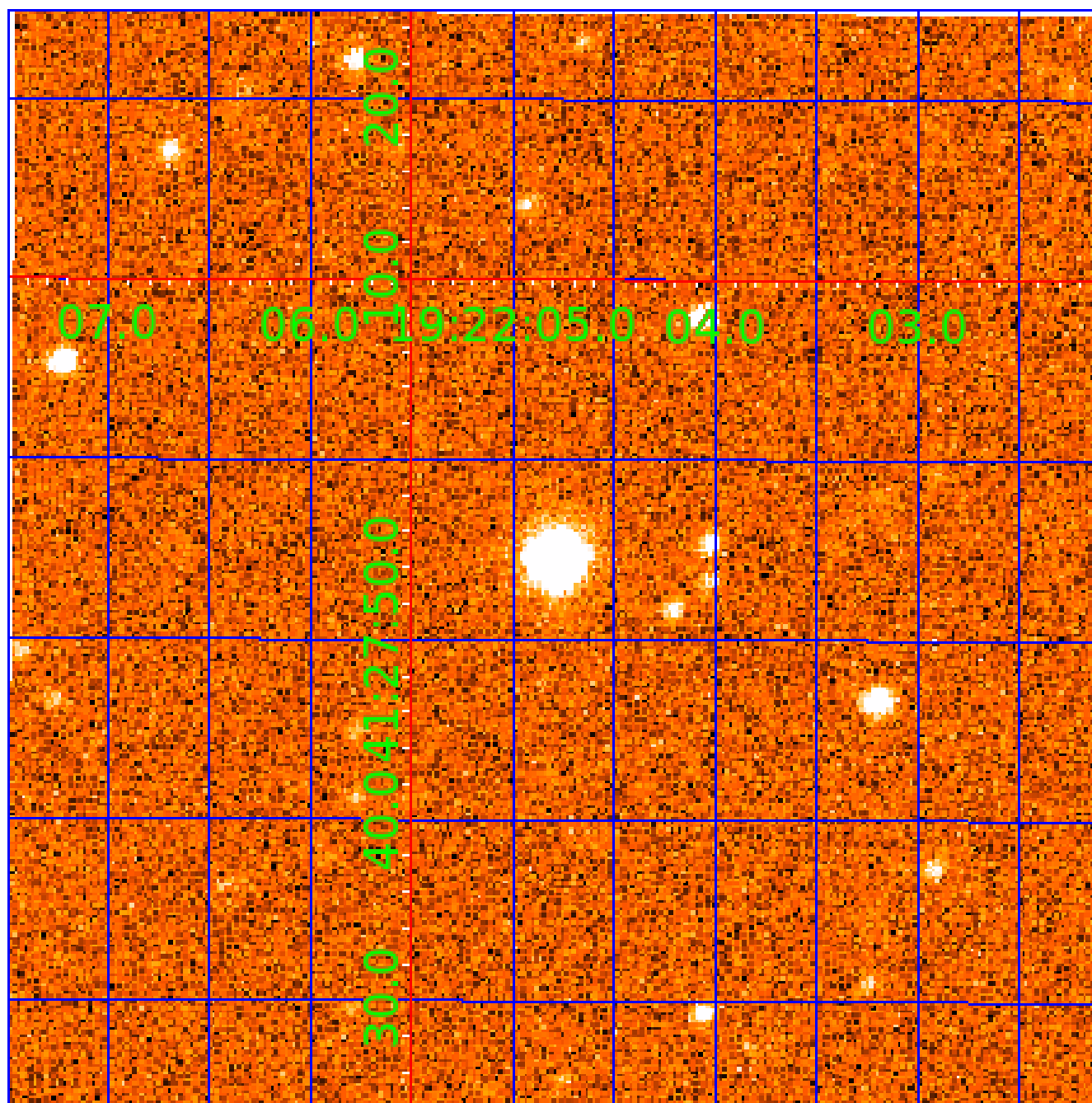


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 006119605

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006119605-01	OBS	No	475.110030	548.785826	1087.1	6.615	21.2	5.6	0.61	5250	3.92	0.24
006119605-03	OBS	No	470.931543	419.897772	1341.2	2.604	15.5	9.7	0.61	5250	2.27	0.24
006119605-04	OBS	No	464.978254	577.004763	1428.9	9.148	16.8	8.8	0.61	5250	2.33	0.24
006119605-05	OBS	No	302.375481	403.718681	819.8	6.639	14.4	6.6	0.61	5250	1.80	0.43
006119605-06	OBS	8118.01	259.997985	329.865660	1023.1	12.029	11.0	8.7	0.61	5250	2.04	0.53
006119605-07	OBS	No	285.994917	227.477208	829.0	5.000	12.7	-1.0	0.61	5250	1.74	0.46

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006119605-01	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
006119605-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS
006119605-04	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
006119605-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006119605-06	OBS	FP	0.13	1	0	0	0	MOD_NONUNIQ_DV—CENT_FEW_DIFFS
006119605-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

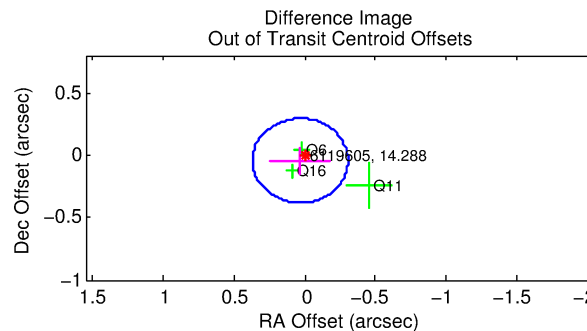
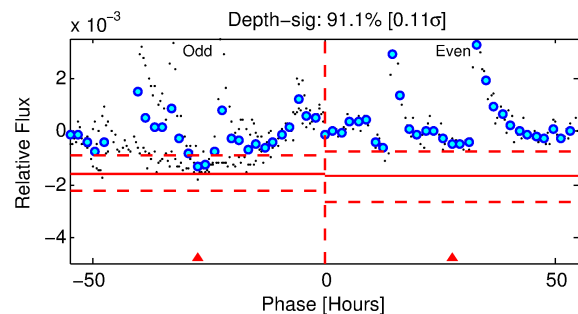
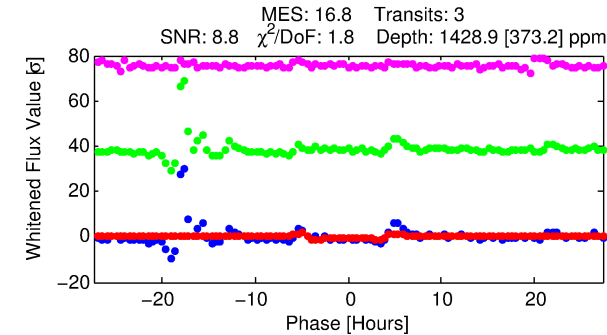
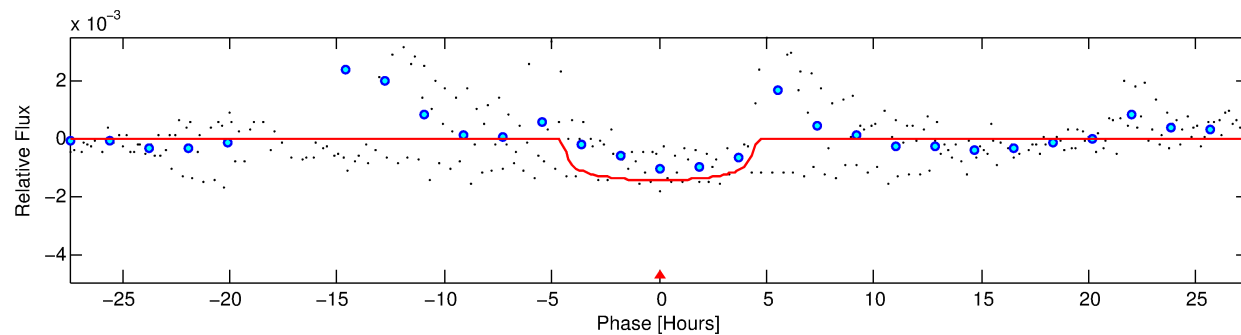
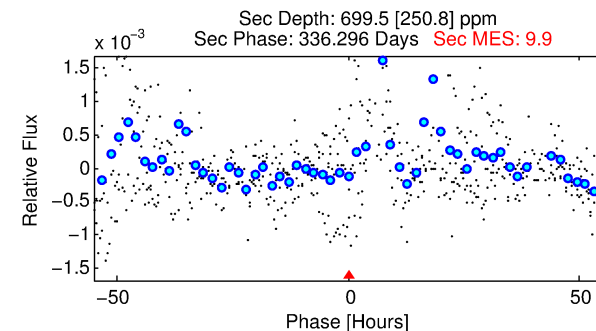
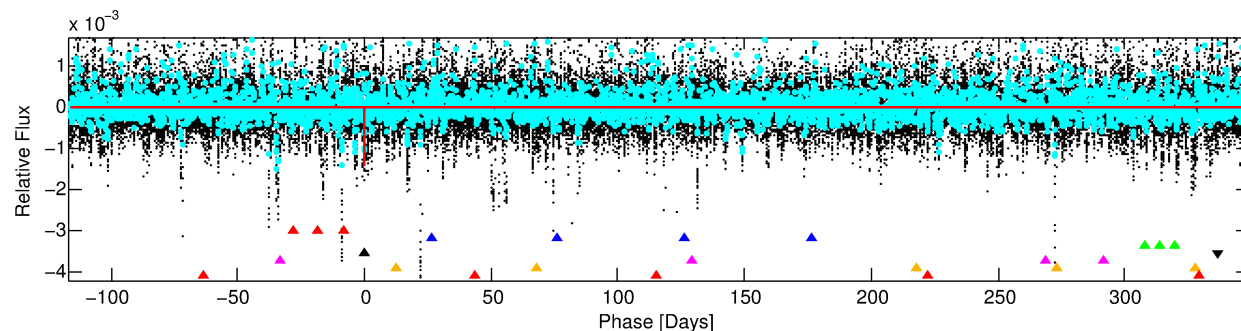
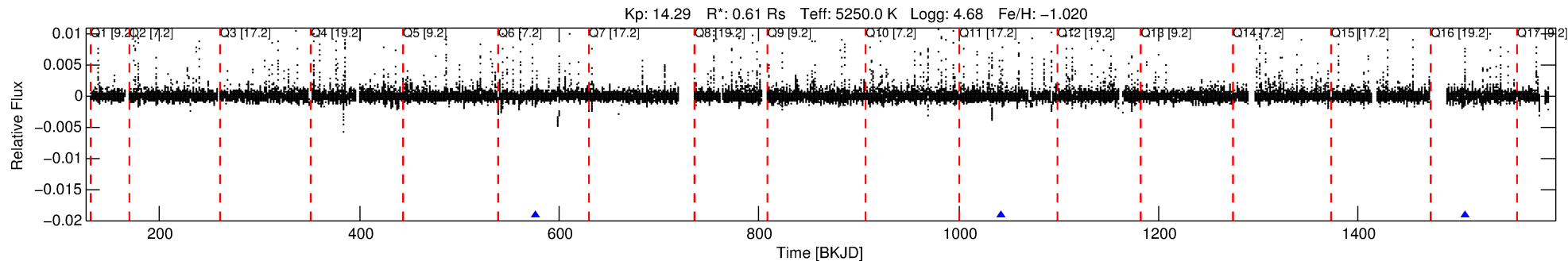
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006119605-04

No Significant Match Found

# DV One-Page Summary

KIC: 6119605 Candidate: 4 of 7 Period: 464.978 d



## DV Fit Results:

Period = 464.97825 [0.00930] d  
Epoch = 577.0048 [0.0113] BKJD  
Rp/R\* = 0.0351 [0.0215]  
a/R\* = 364.81 [922.59]  
b = 0.43 [4.75]  
Seff = 0.24 [0.04]  
Teq = 179 [7] K  
Rp = 2.33 [1.44] Re  
a = 1.0184 [0.0772] AU  
Ag = 73615.18 [94277.27] [0.78σ]  
Teffp = 4558 [1461] K [3.00σ]

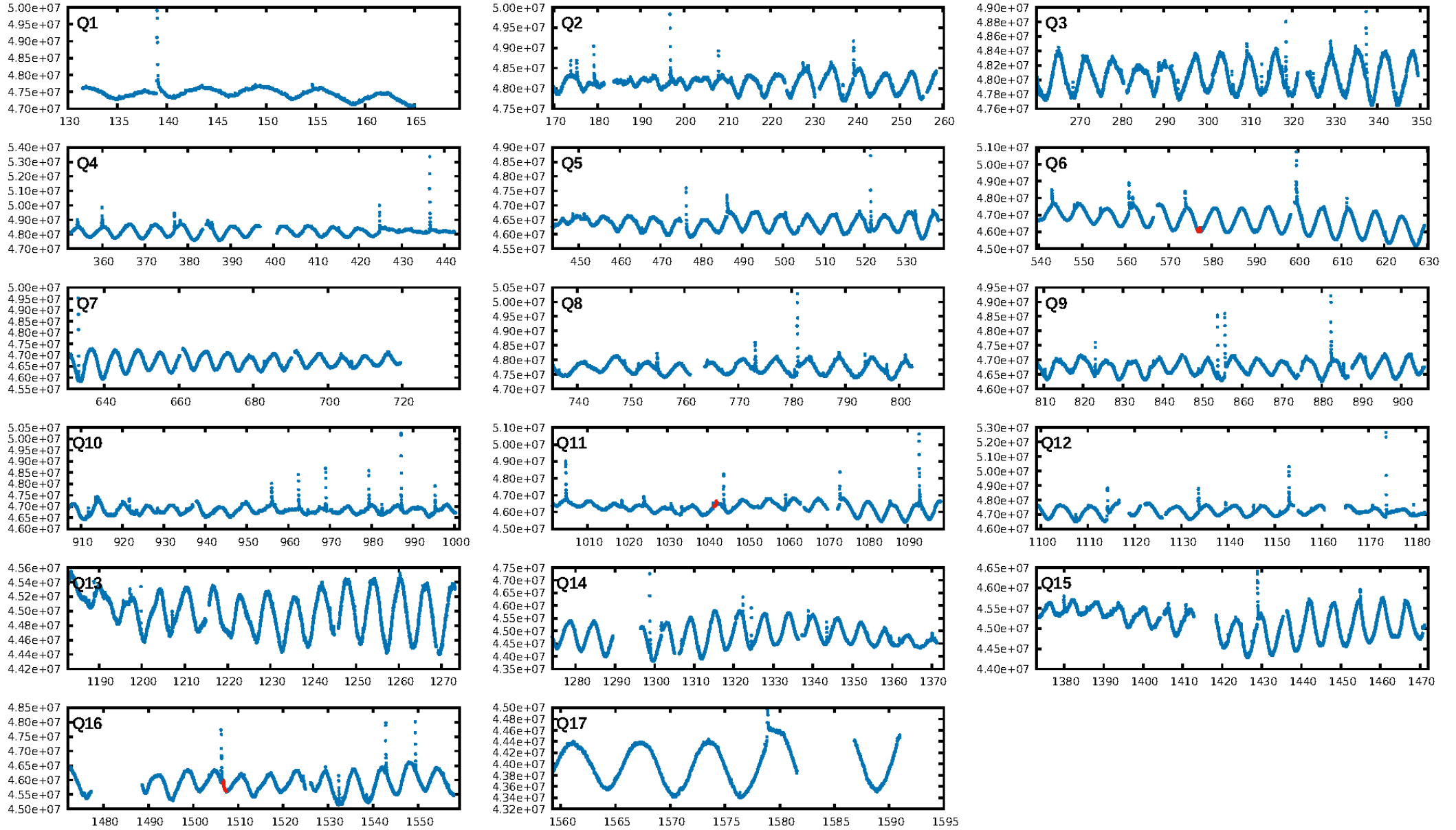
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [110.13σ]  
LongPeriod-sig: 100.0% [15.02σ]  
ModelChiSquare2-sig: 14.5%  
ModelChiSquareGof-sig: 42.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.954  
Centroid-sig: 7.1%  
Centroid-so: 0.668 arcsec [1.44σ]  
OotOffset-rm: 0.055 arcsec [0.49σ]  
KicOffset-st: 1/1/1/0 [3]  
KicOffset-st: 1/1/1/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

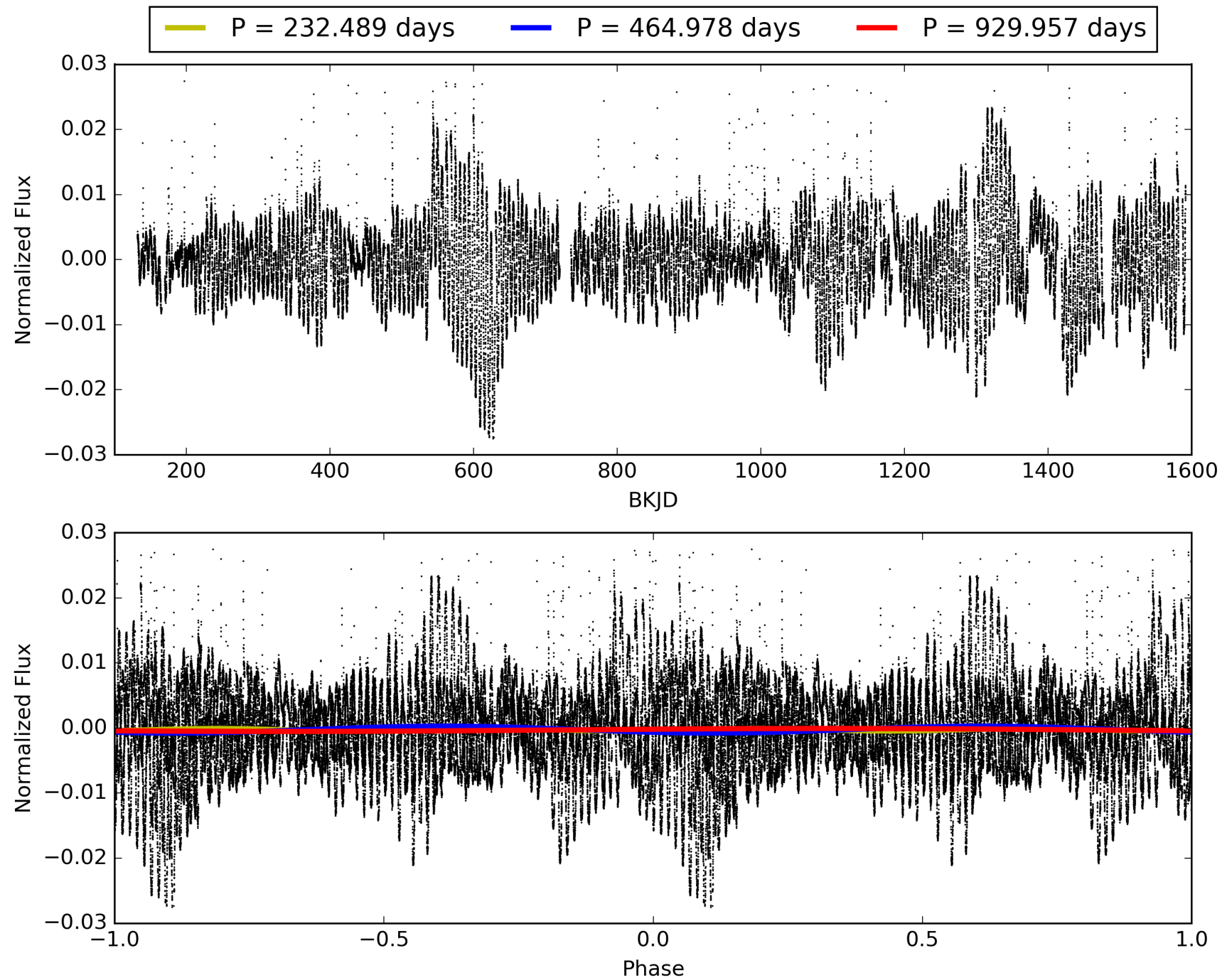
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:55:35 Z

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

# TCE 006119605-04, PDC Light Curves

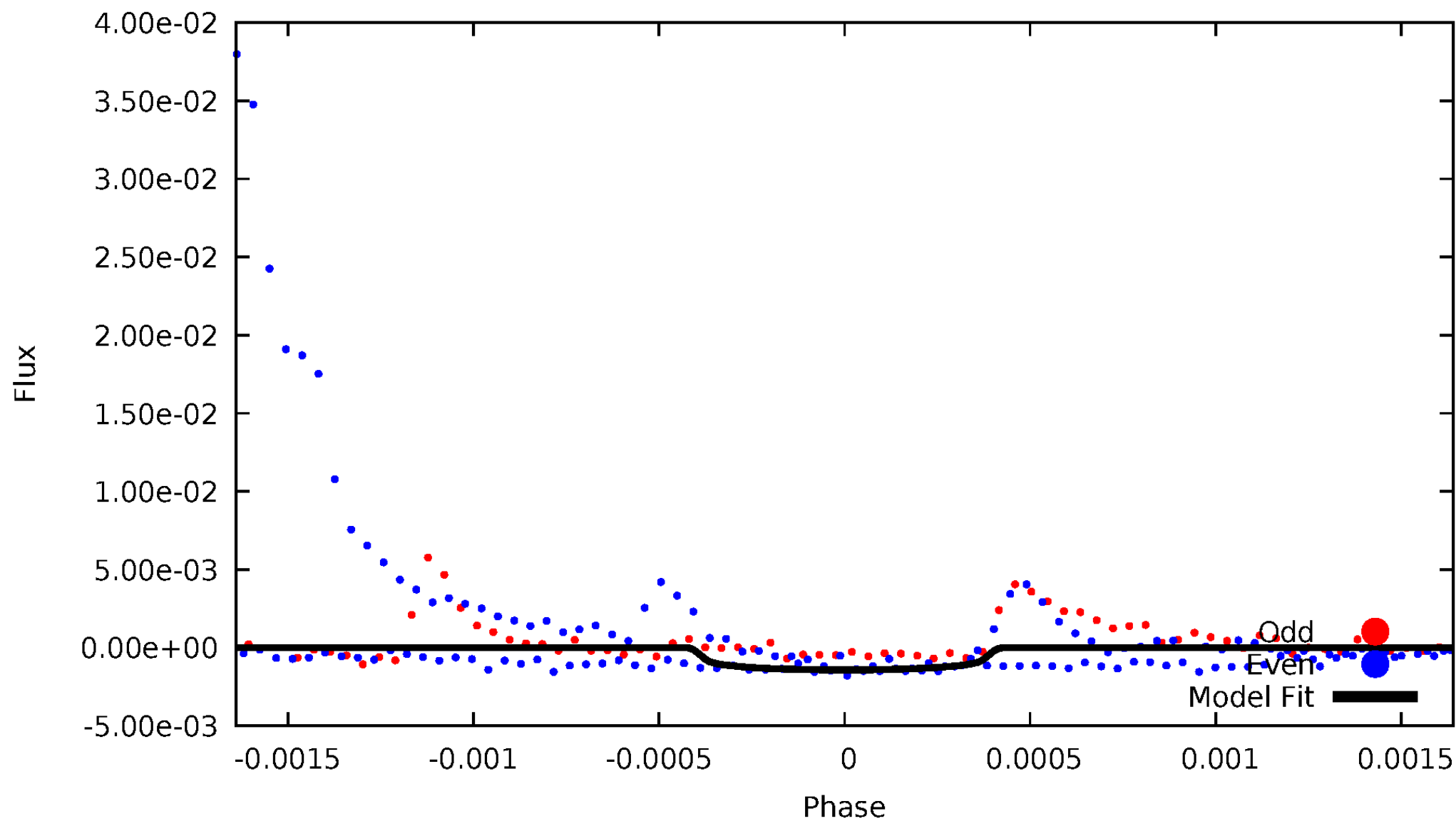


TCE 006119605-04



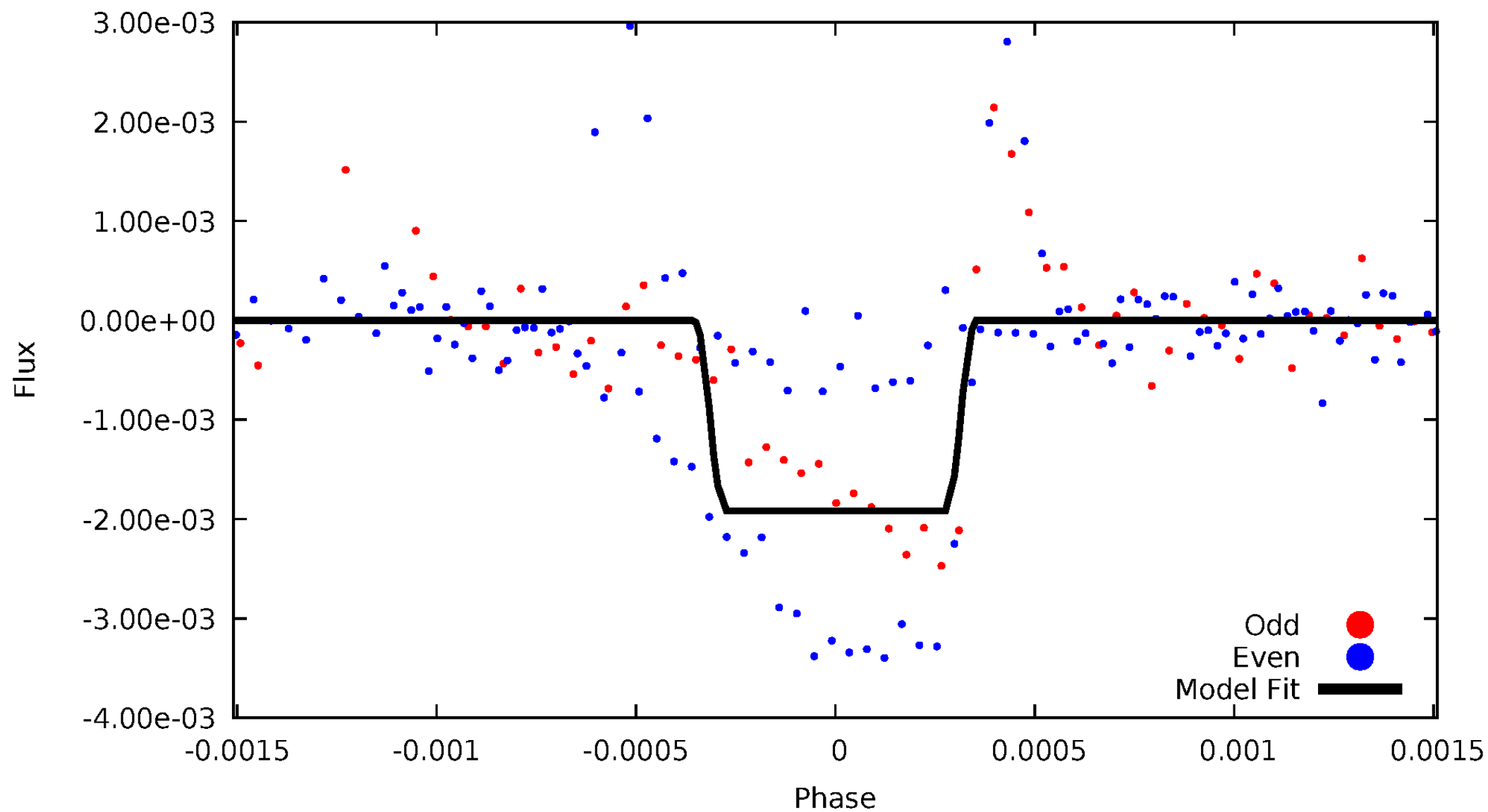
# DV Odd/Even

TCE 006119605-04



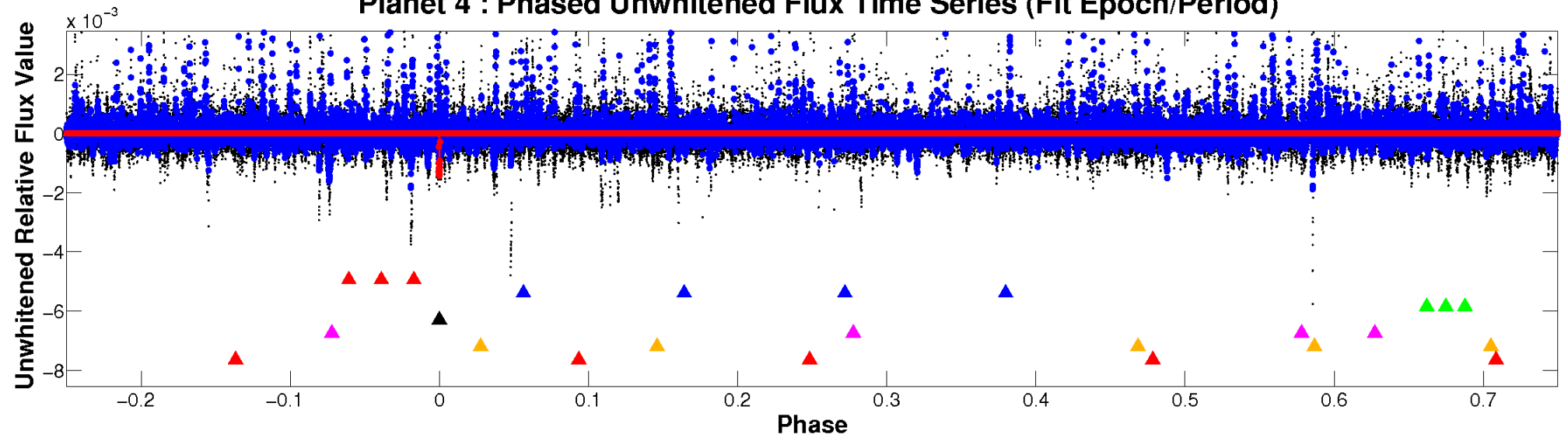
# ALT Odd/Even

TCE 006119605-04

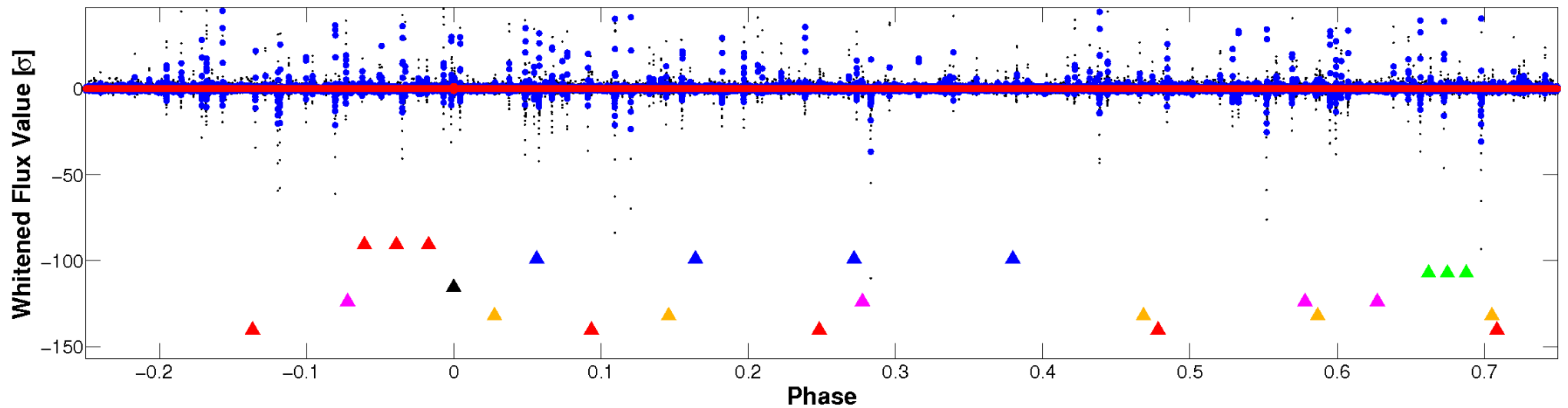


# Non-Whitened Vs. Whitened Light Curve

## Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

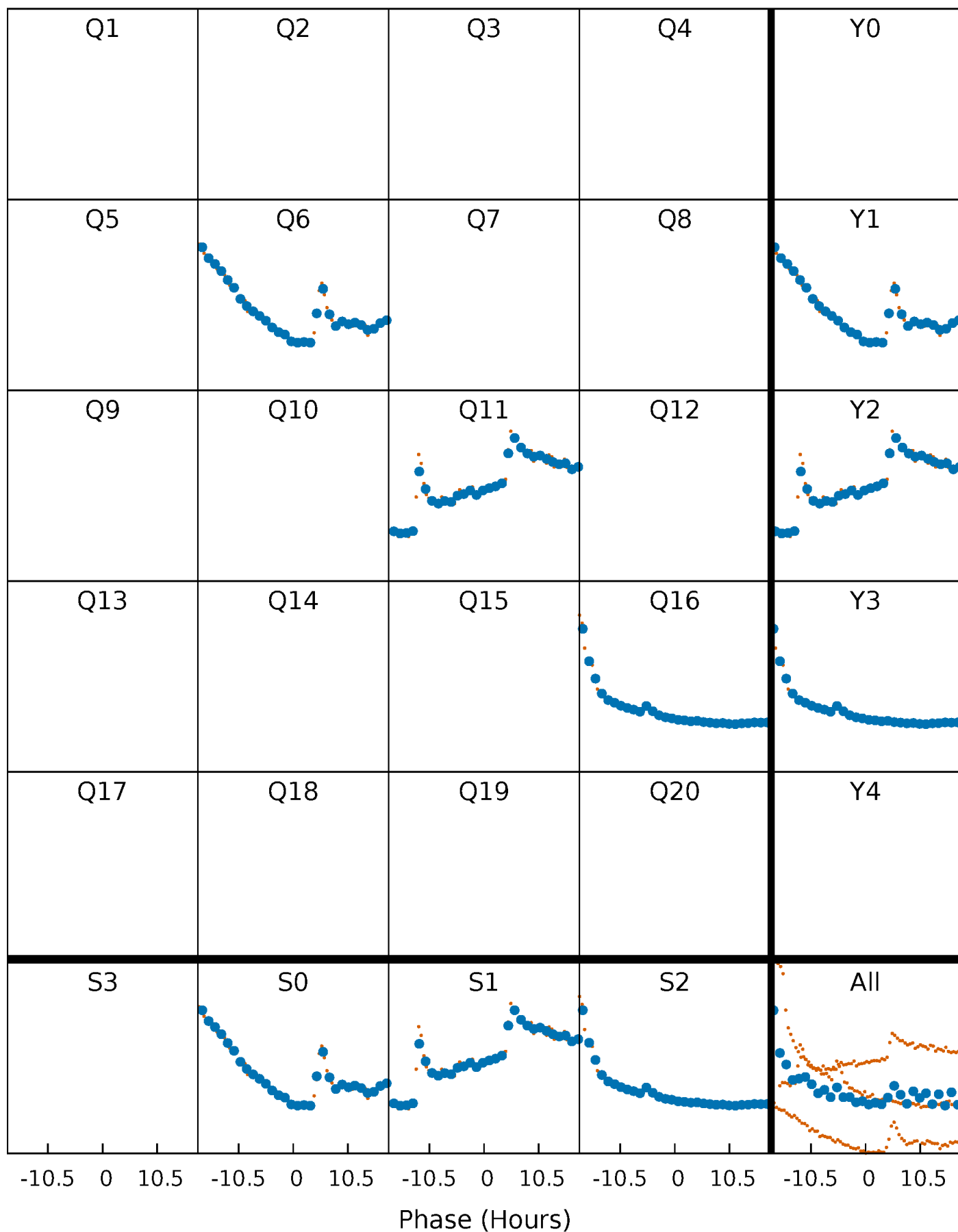


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

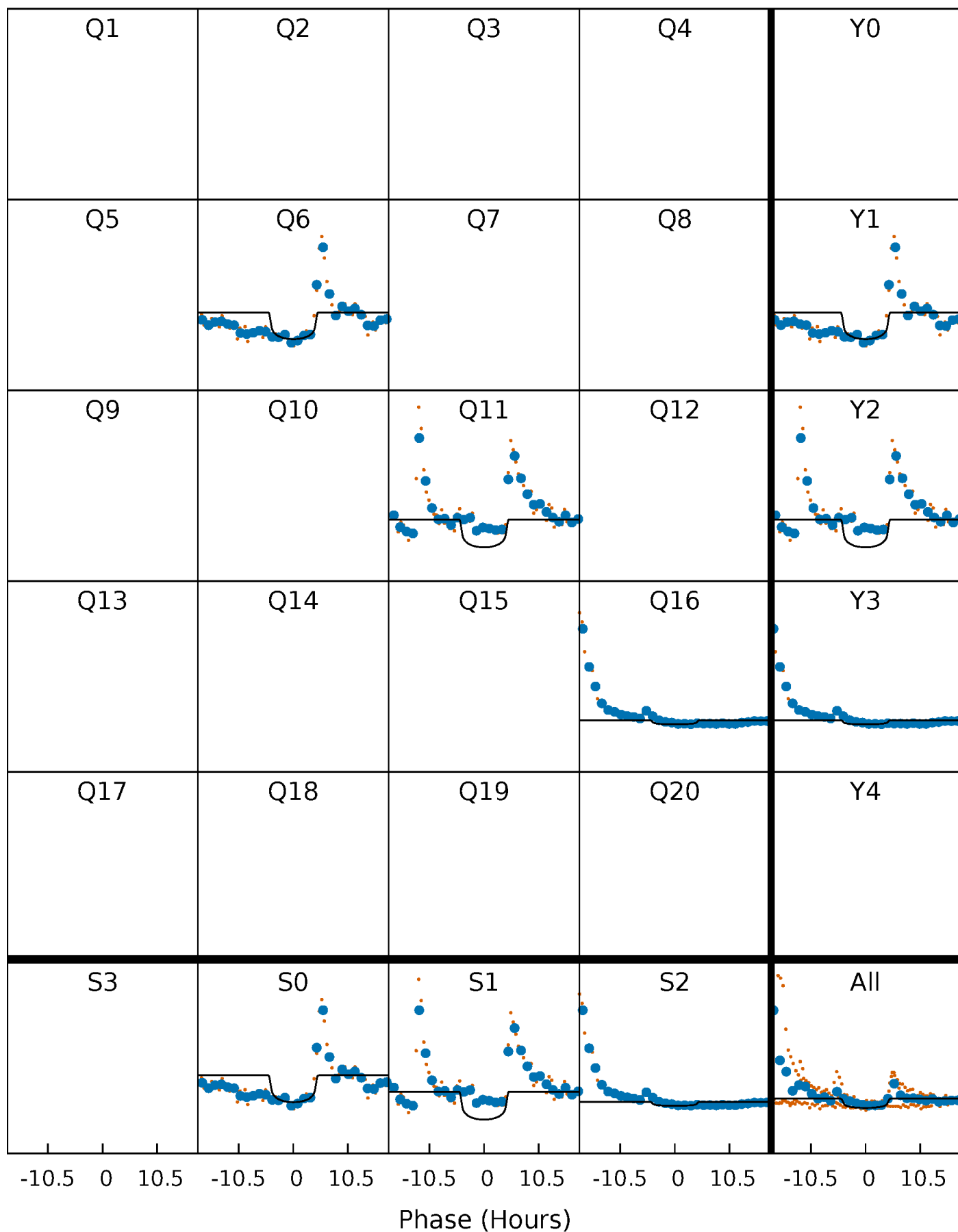
TCE 006119605-04 P=464.978254 Days  $T_0=577.004763$  (BKJD)





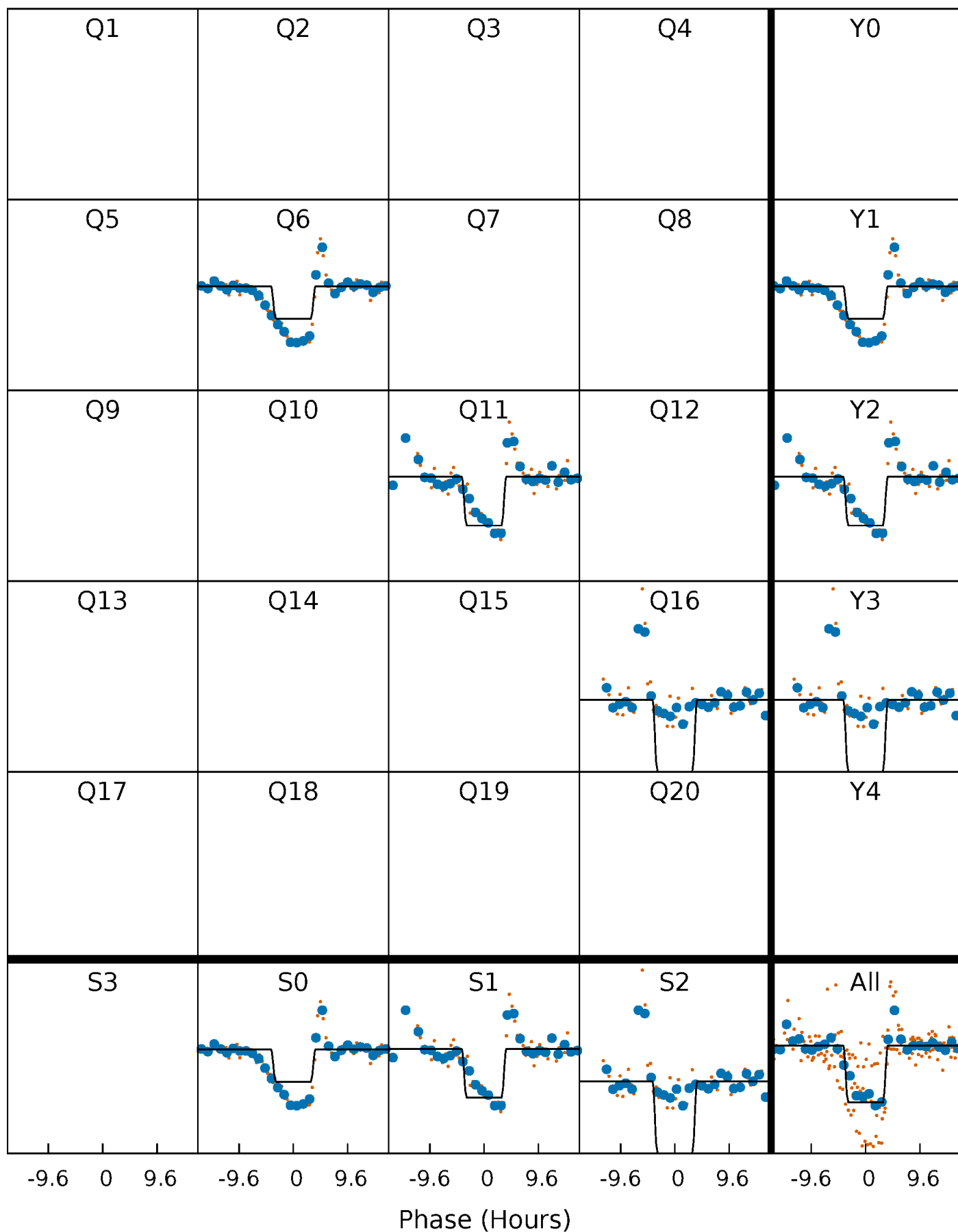
# DV Quarter-Phased Transit Curves

TCE 006119605-04 P=464.978254 Days  $T_0=577.004763$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

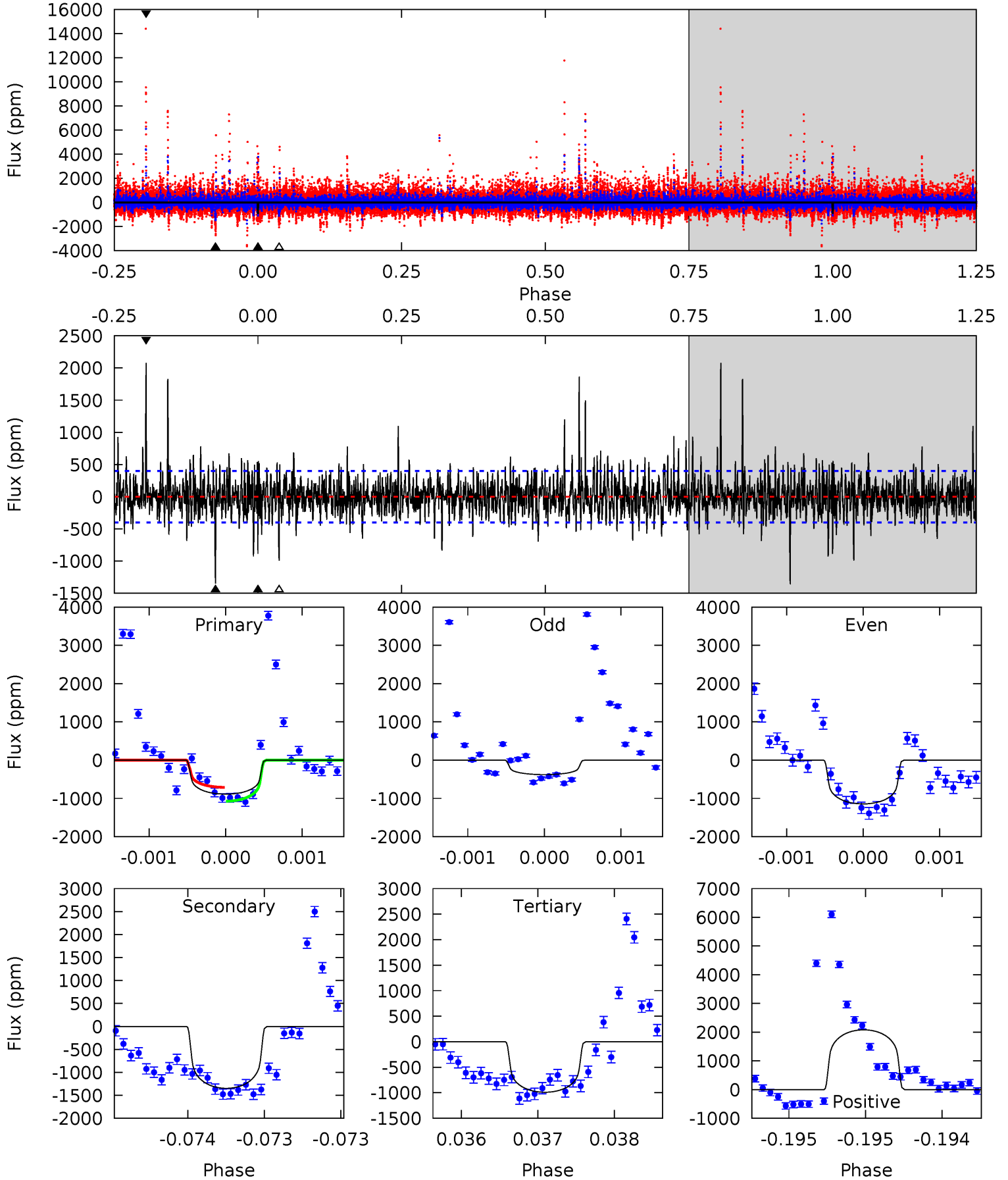
TCE 006119605-04 P=464.979280 Days  $T_0=577.032407$  (BKJD)



# DV Model-Shift Uniqueness Test

006119605-04, P = 464.978254 Days, E = 112.026509 Days

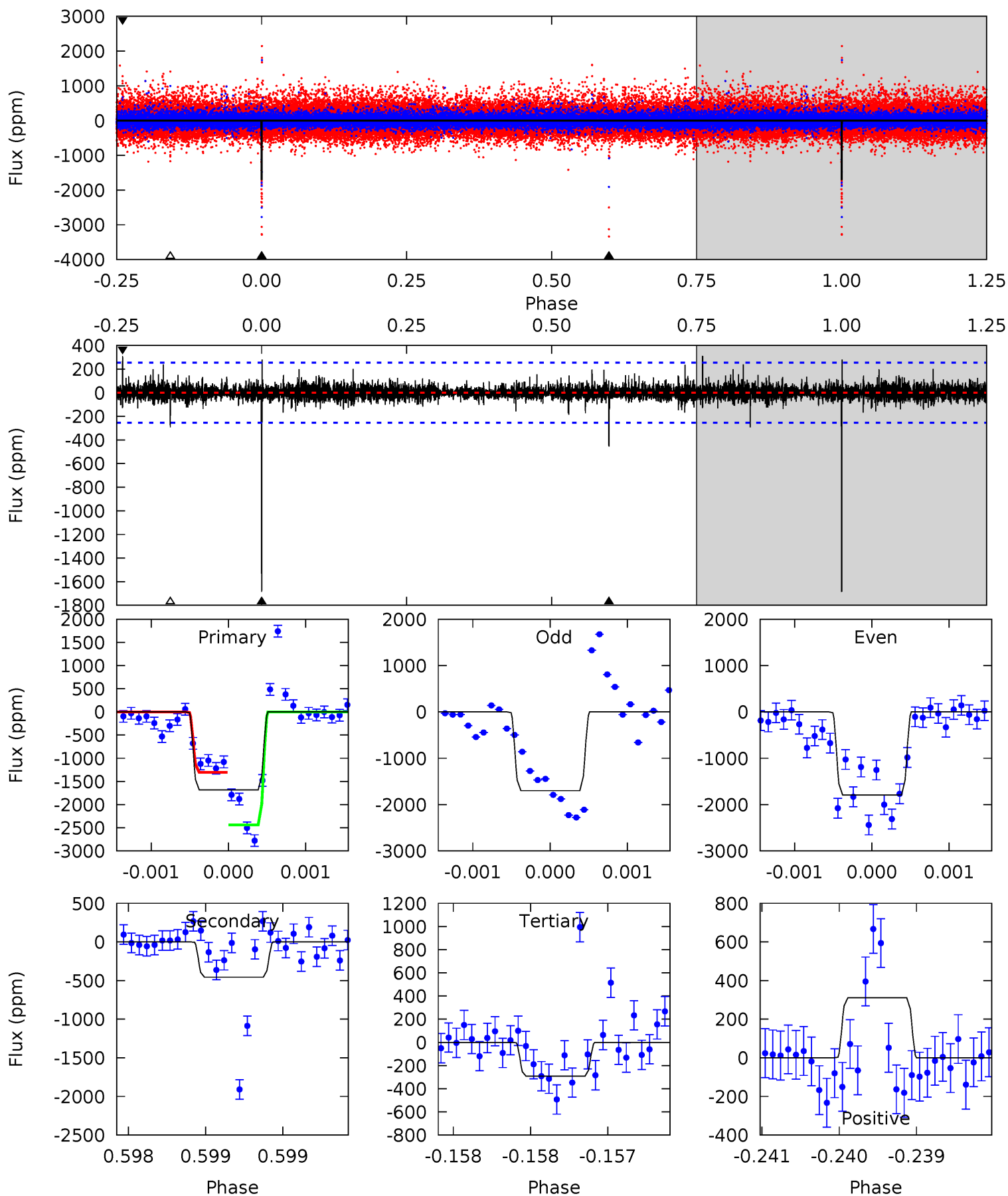
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	18.5	13.6	28.6	5.48	3.34	3.34	-1.40	-16.4	4.91	-10.1	2.13	1.03	0.61	2.49



# Alt Model-Shift Uniqueness Test

006119605-04, P = 464.979280 Days, E = 112.053127 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
36.6	9.88	6.35	6.74	5.52	3.39	0.83	30.2	29.9	3.53	3.14	0.94	0.99	0.16	12.2



### Stellar Parameters For KIC 006119605

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5250^{+157}_{-141}$	$4.684^{+0.032}_{-0.056}$	$-1.020^{+0.300}_{-0.300}$	$0.608^{+0.057}_{-0.031}$	$0.650^{+0.046}_{-0.032}$	$4.081^{+0.524}_{-0.764}$
	+3%/-3%	+1%/-1%	+29%/-29%	+9%/-5%	+7%/-5%	+13%/-19%
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 006119605-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1347 \pm 73$	$2.48^{+1.47}_{-1.24}$	$251^{+9}_{-8}$	$5227^{+2225}_{-902}$	$121936^{+372039}_{-71853}$
Alt.	$-455 \pm 46$	$2.99^{+1.37}_{-1.35}$	$252^{+8}_{-8}$	$3948^{+1010}_{-498}$	$29498^{+65214}_{-15911}$

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

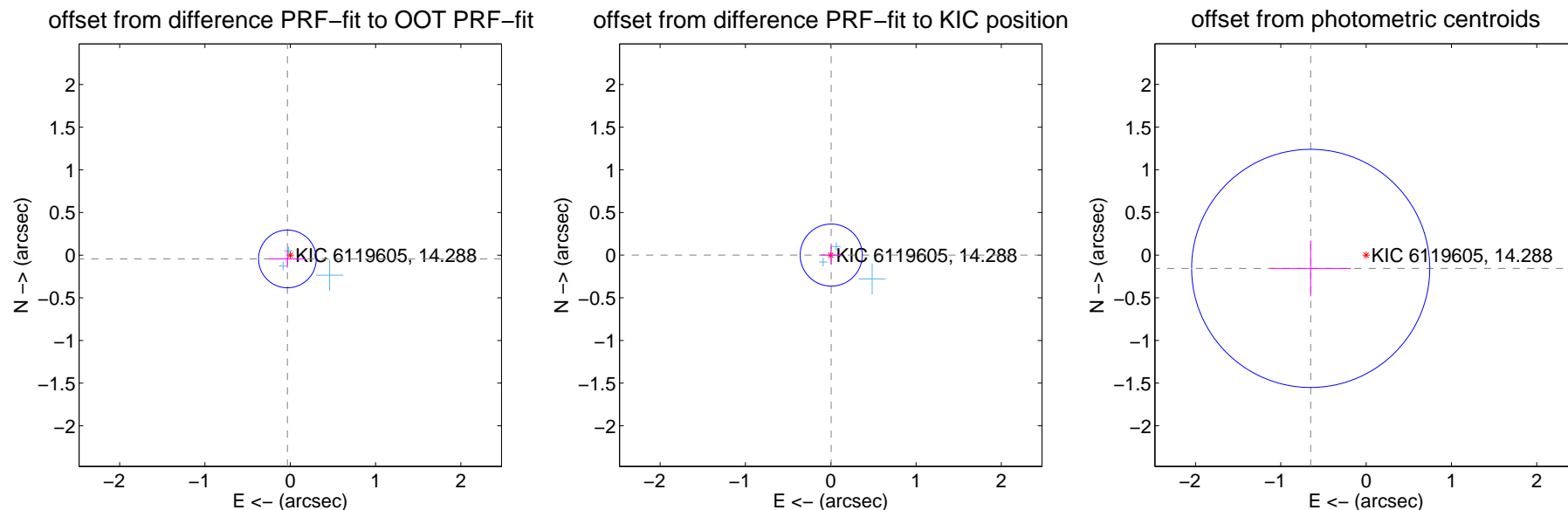
## DV Centroid Data

Supplemental centroid analysis for 006119605-04. Kepler magnitude: 14.29. Transit SNR 8.78

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.055 \pm 0.113$	0.49	$0.033 \pm 0.217$	$-0.044 \pm 0.101$
PRF-fit source offset from KIC position	$0.006 \pm 0.121$	0.05	$-0.006 \pm 0.122$	$0.001 \pm 0.108$
photometric centroid source offset	$0.67 \pm 0.47$	1.44	$0.65 \pm 0.47$	$-0.16 \pm 0.33$

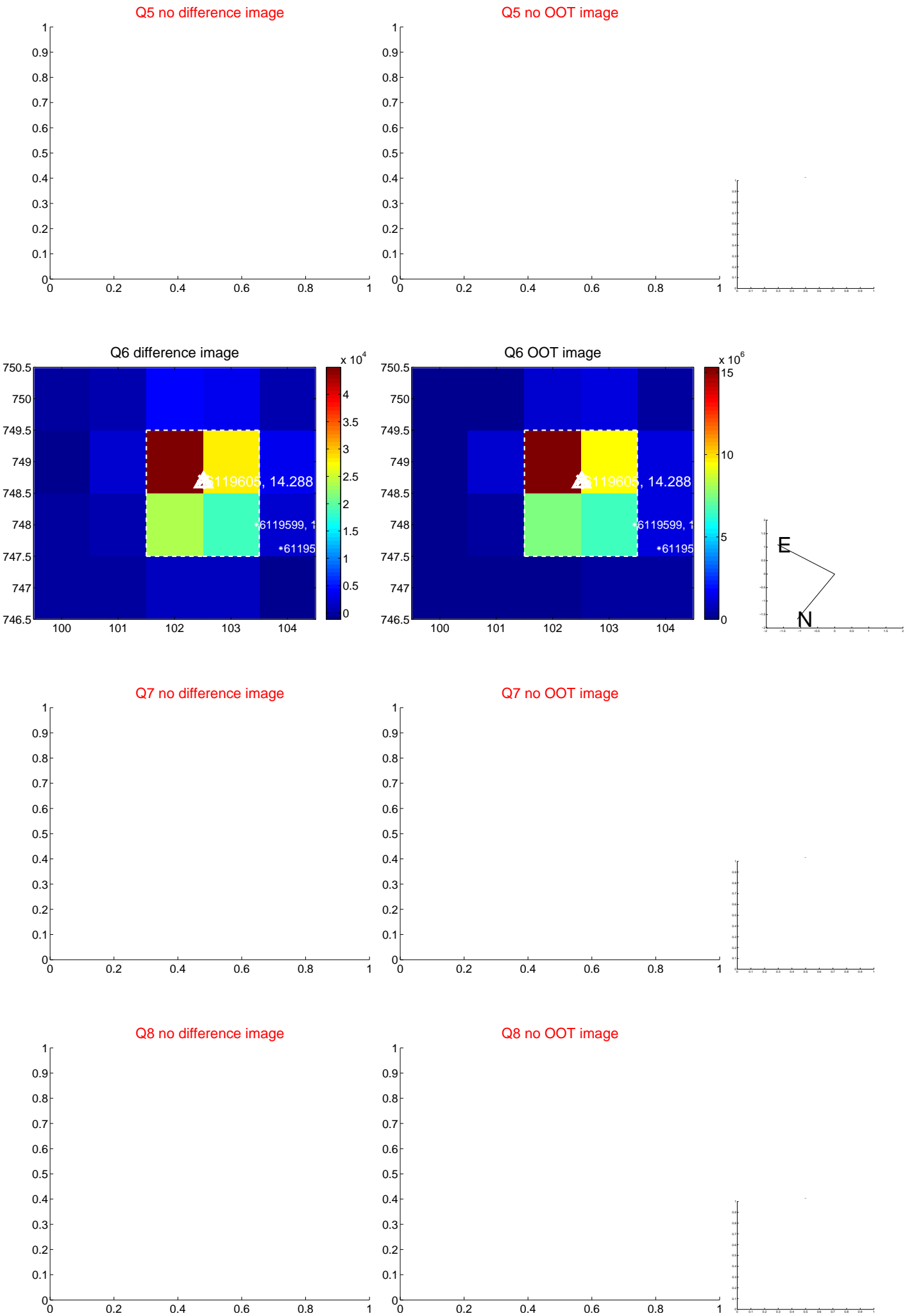


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

Q9 no difference image



Q9 no OOT image



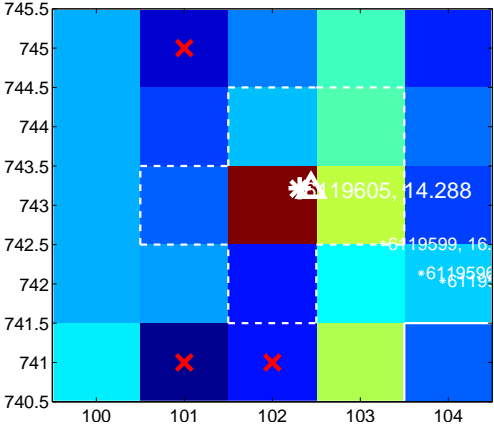
Q10 no difference image



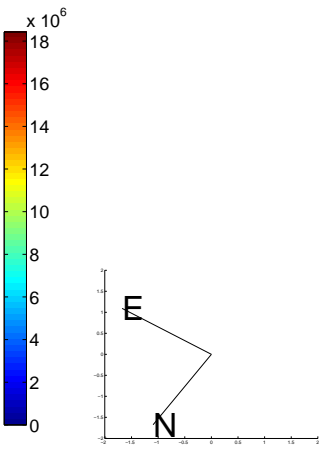
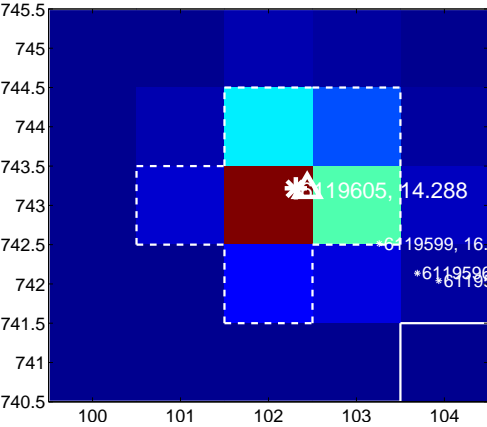
Q10 no OOT image



Q11 difference image



Q11 OOT image



Q12 no difference image



Q12 no OOT image

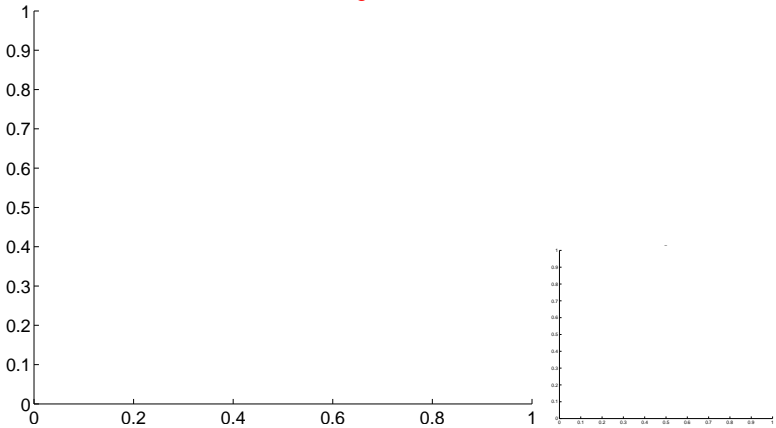


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q13 no difference image



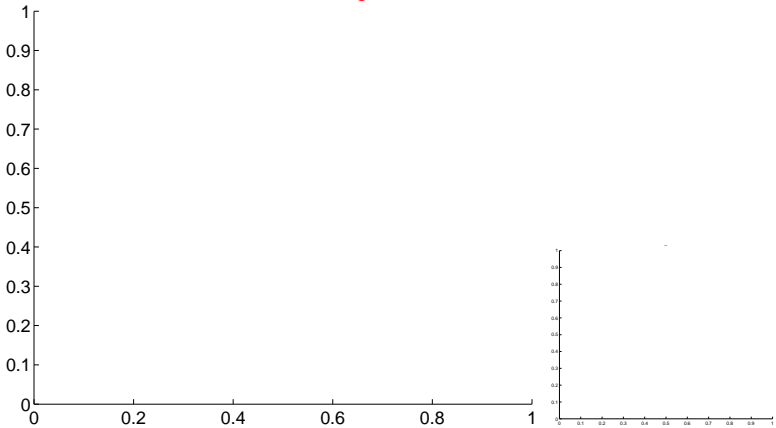
Q13 no OOT image



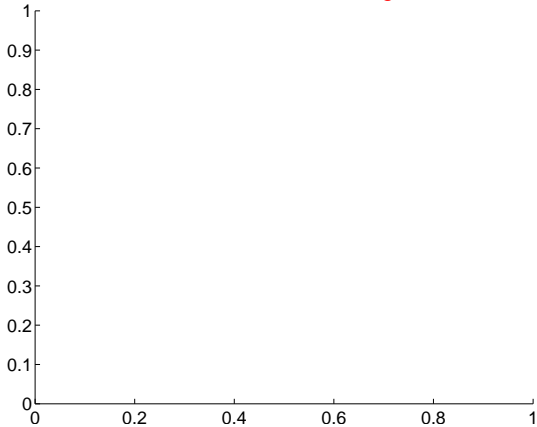
Q14 no difference image



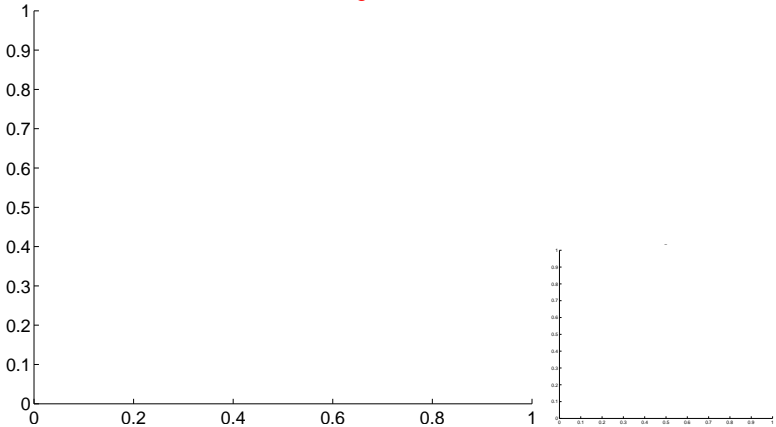
Q14 no OOT image



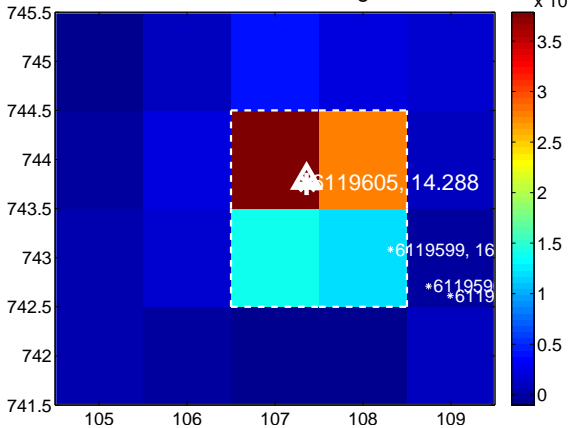
Q15 no difference image



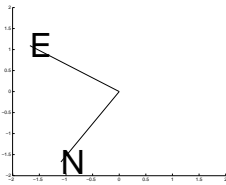
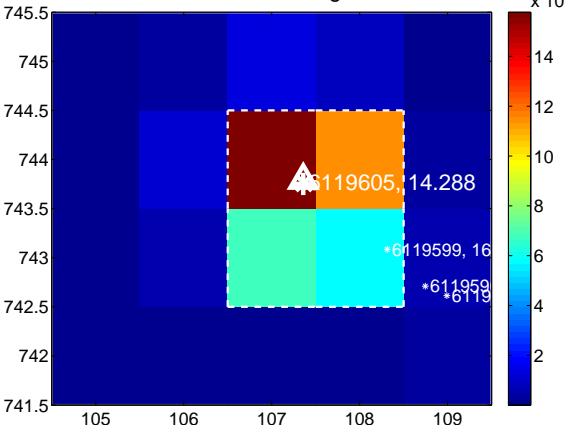
Q15 no OOT image



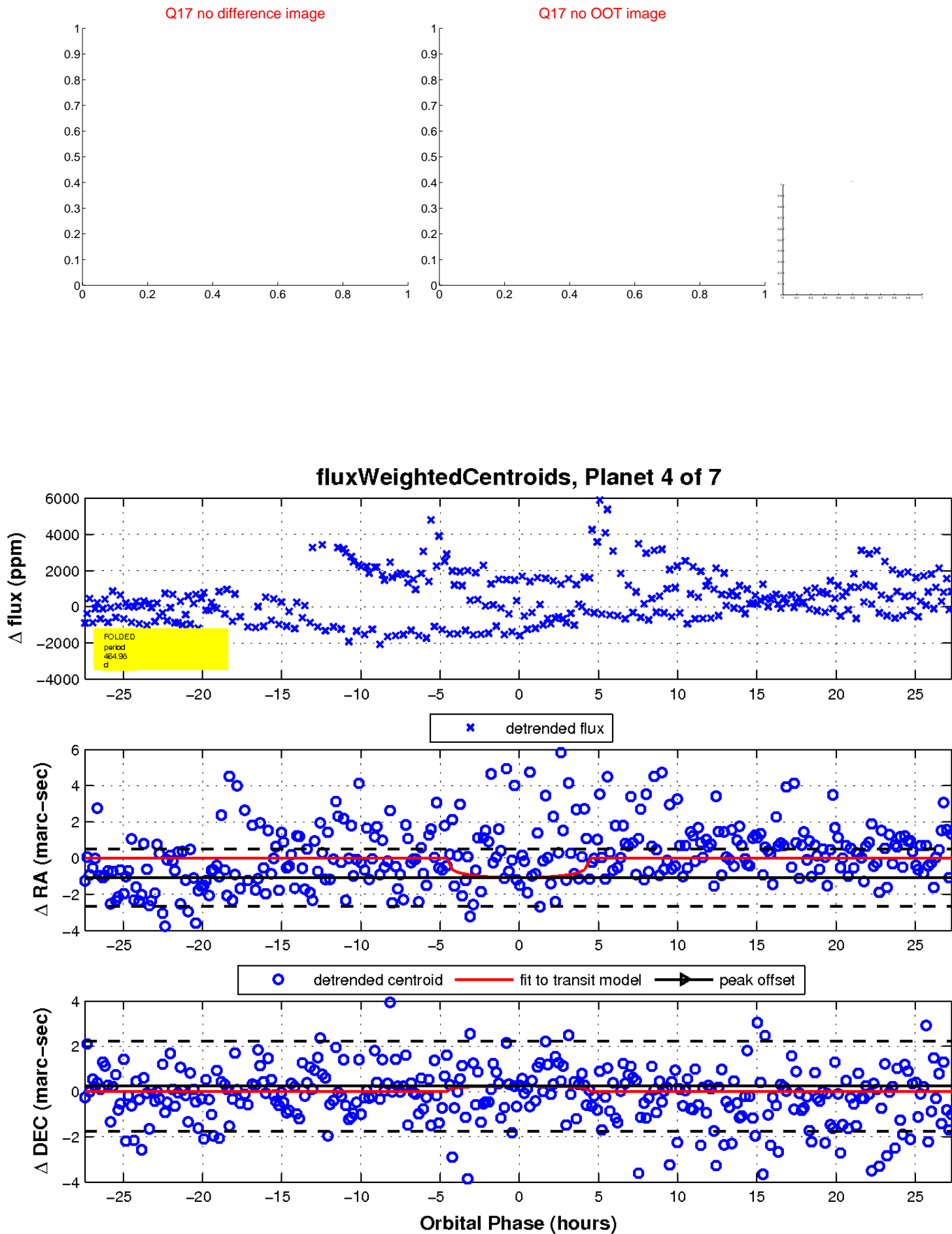
Q16 difference image



Q16 OOT image

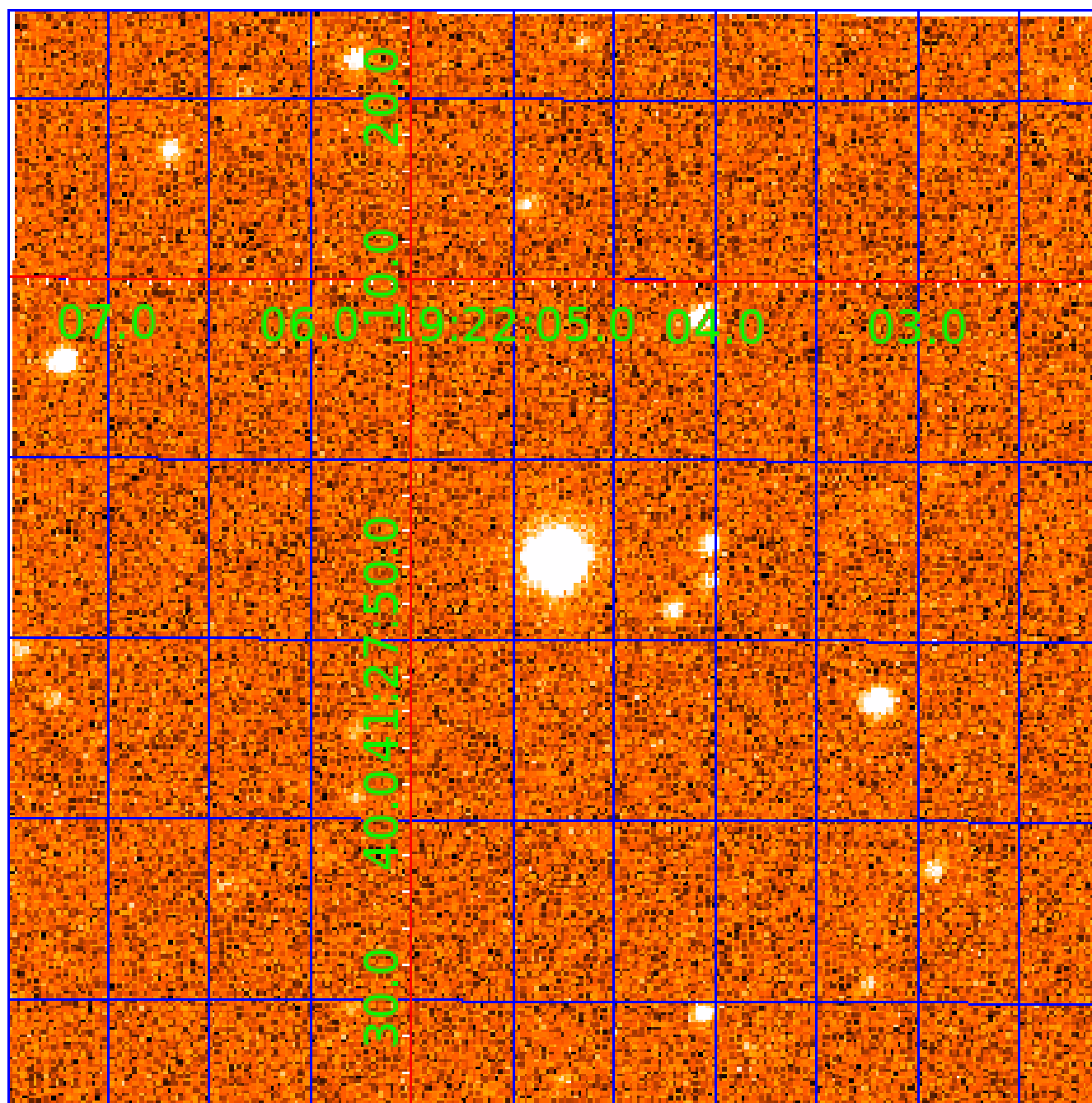


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 006119605

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006119605-01	OBS	No	475.110030	548.785826	1087.1	6.615	21.2	5.6	0.61	5250	3.92	0.24
006119605-03	OBS	No	470.931543	419.897772	1341.2	2.604	15.5	9.7	0.61	5250	2.27	0.24
006119605-04	OBS	No	464.978254	577.004763	1428.9	9.148	16.8	8.8	0.61	5250	2.33	0.24
006119605-05	OBS	No	302.375481	403.718681	819.8	6.639	14.4	6.6	0.61	5250	1.80	0.43
006119605-06	OBS	8118.01	259.997985	329.865660	1023.1	12.029	11.0	8.7	0.61	5250	2.04	0.53
006119605-07	OBS	No	285.994917	227.477208	829.0	5.000	12.7	-1.0	0.61	5250	1.74	0.46

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006119605-01	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
006119605-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS
006119605-04	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
006119605-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006119605-06	OBS	FP	0.13	1	0	0	0	MOD_NONUNIQ_DV—CENT_FEW_DIFFS
006119605-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

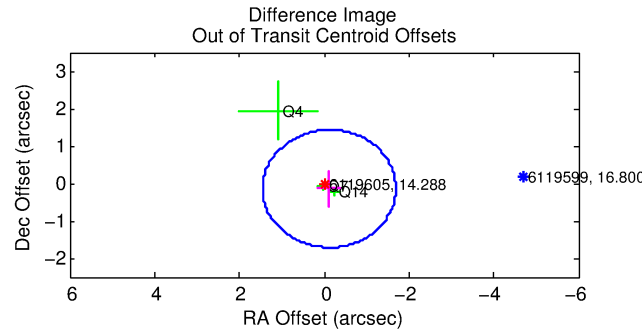
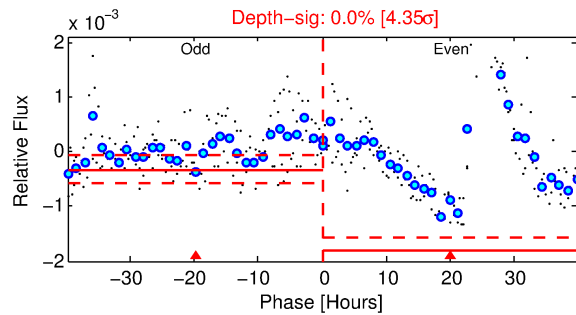
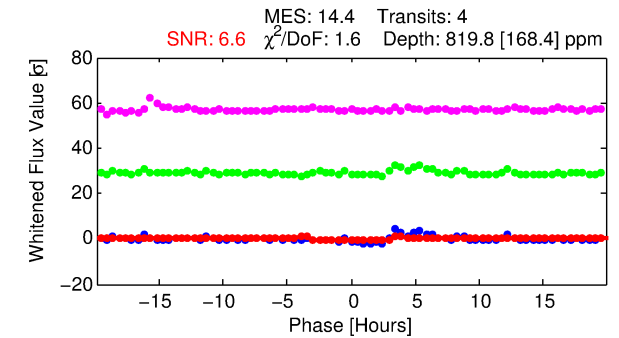
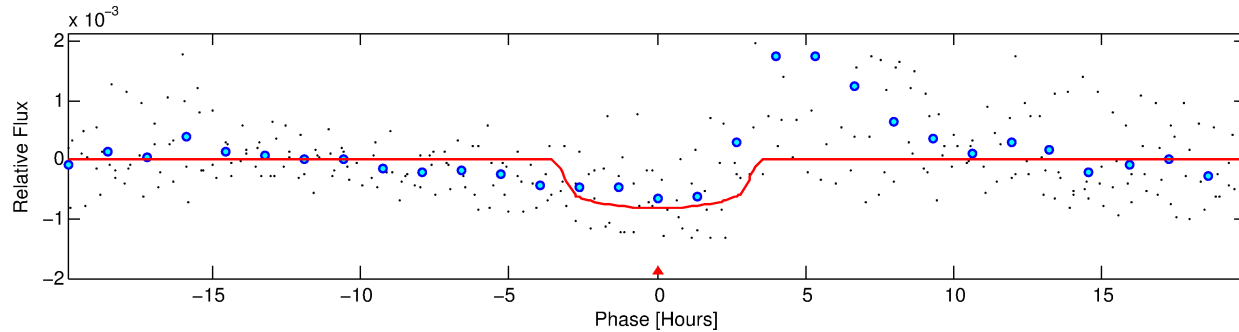
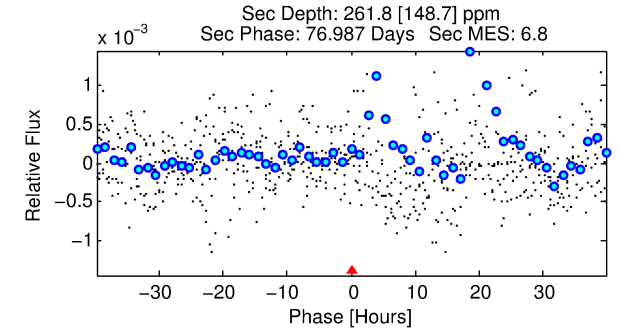
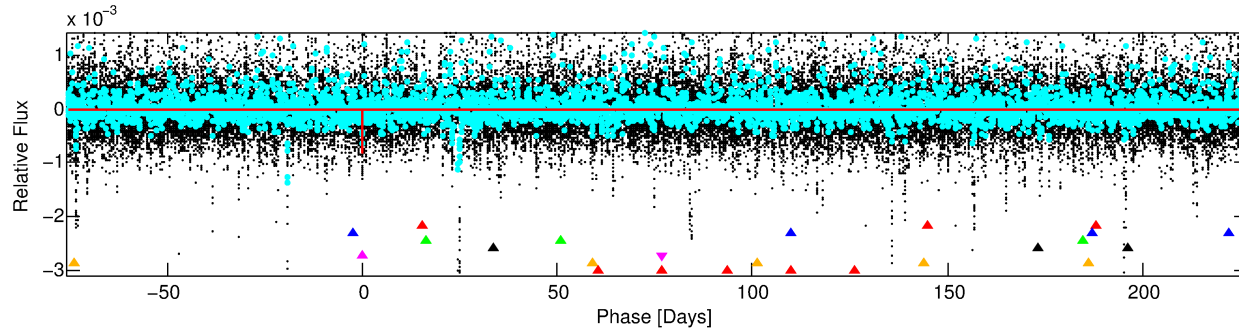
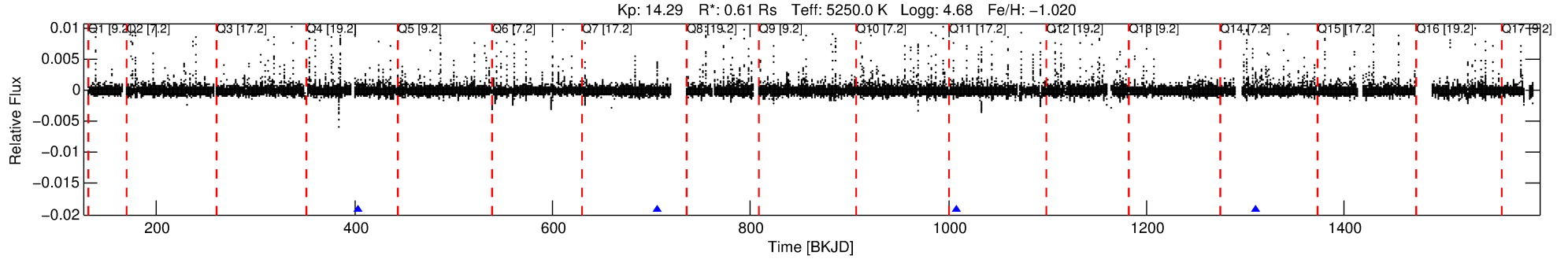
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006119605-05

No Significant Match Found

# DV One-Page Summary

KIC: 6119605 Candidate: 5 of 7 Period: 302.375 d



## DV Fit Results:

Period = 302.37548 [0.00473] d  
Epoch = 403.7187 [0.0098] BKJD  
Rp/R\* = 0.0271 [0.1301]  
a/R\* = 299.30 [6422.10]  
b = 0.56 [26.42]  
Seff = 0.43 [0.07]  
Teq = 207 [8] K  
Rp = 1.80 [8.64] Re  
a = 0.7644 [0.0580] AU  
Ag = 26042.50 [250649.41] [0.10σ]  
Teffp = 4057 [9762] K [0.39σ]

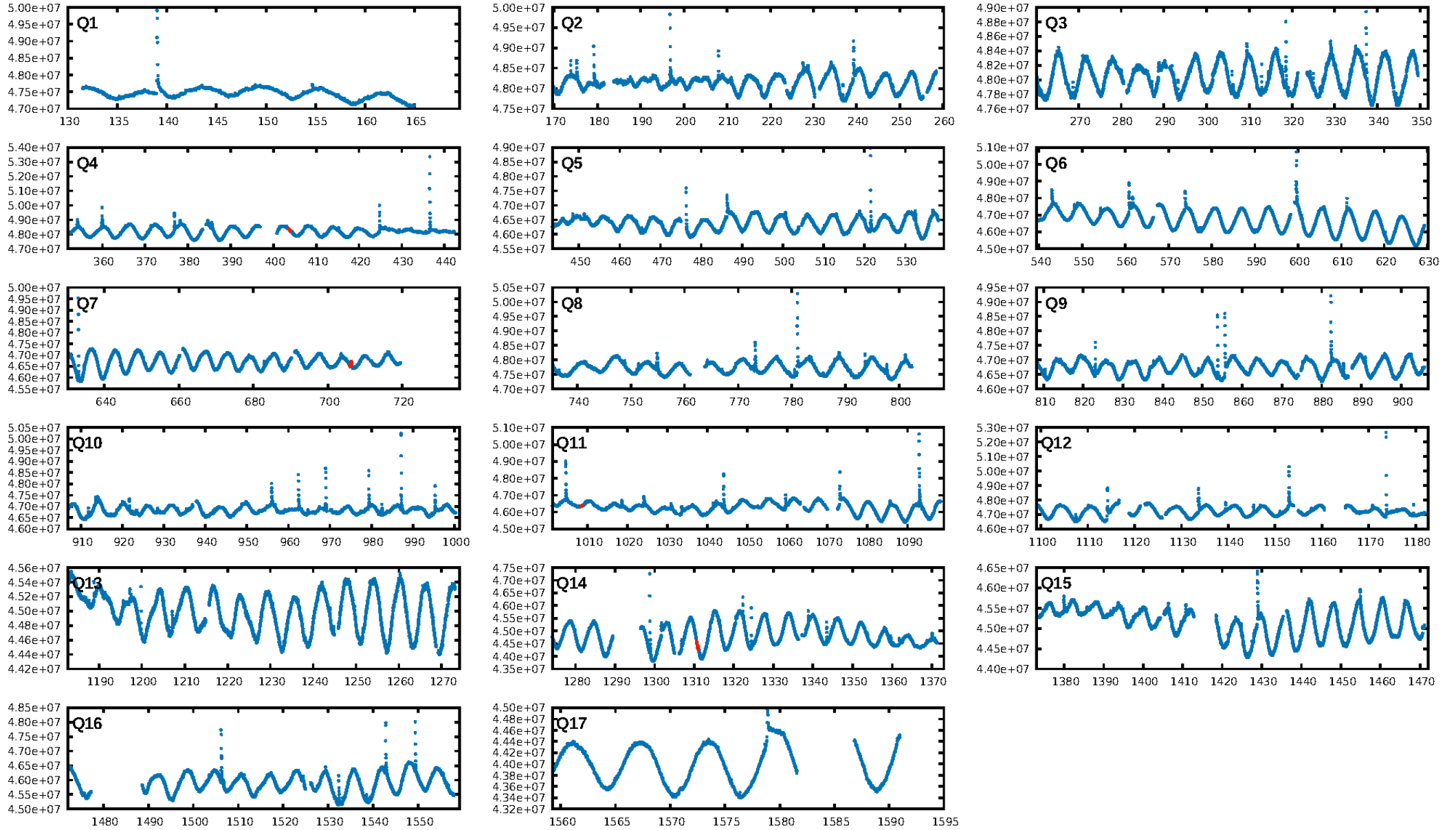
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [47.30σ]  
LongPeriod-sig: 100.0% [302.36σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 17.7%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 25.49  
Centroid-sig: 0.1%  
Centroid-so: 1.601 arcsec [2.29σ]  
OotOffset-rm: 0.184 arcsec [0.35σ]  
KicOffset-rm: 0.228 arcsec [0.34σ]  
OotOffset-st: 1/1/1/0 [3]  
KicOffset-st: 1/1/1/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

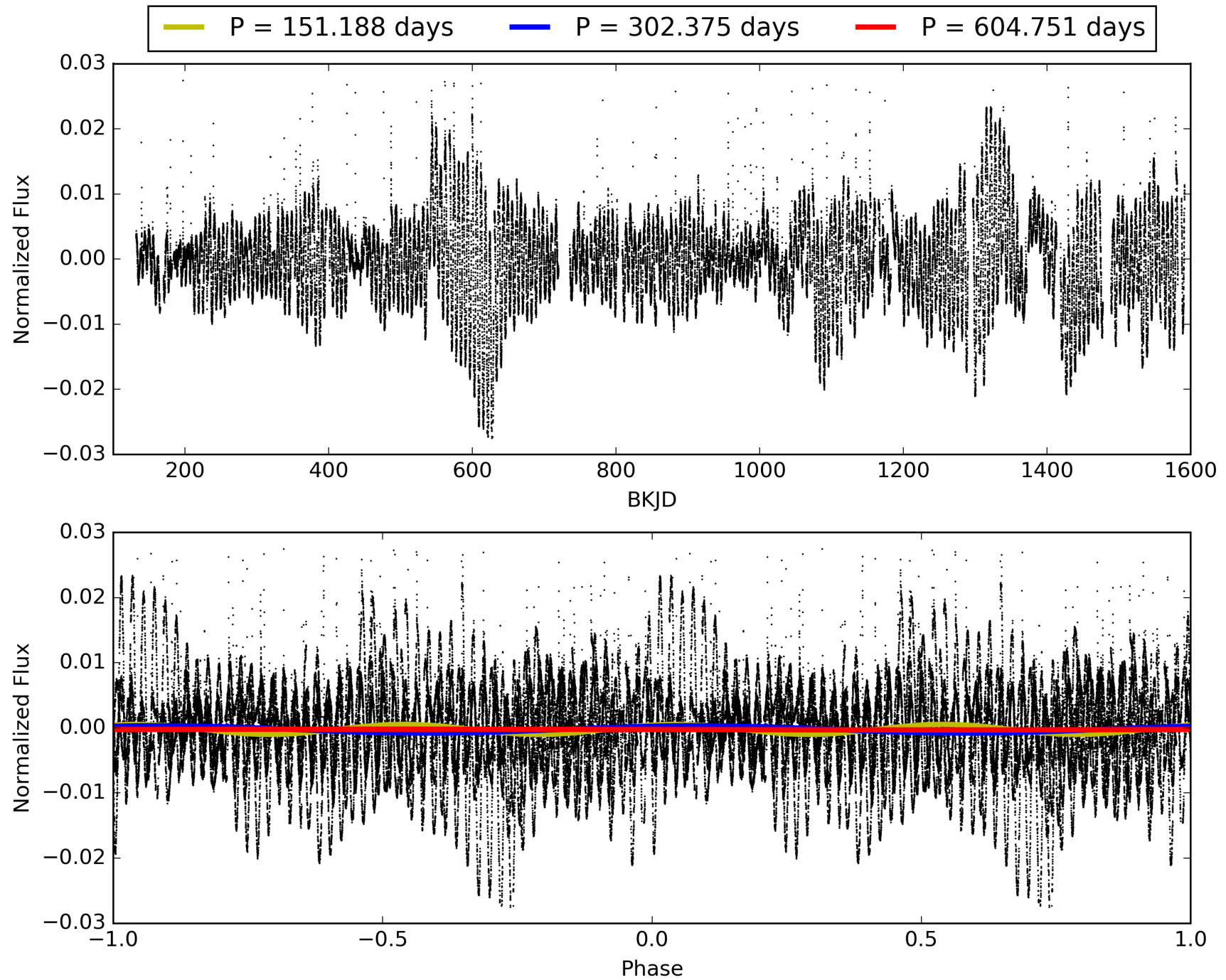
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:55:45 Z

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

# TCE 006119605-05, PDC Light Curves



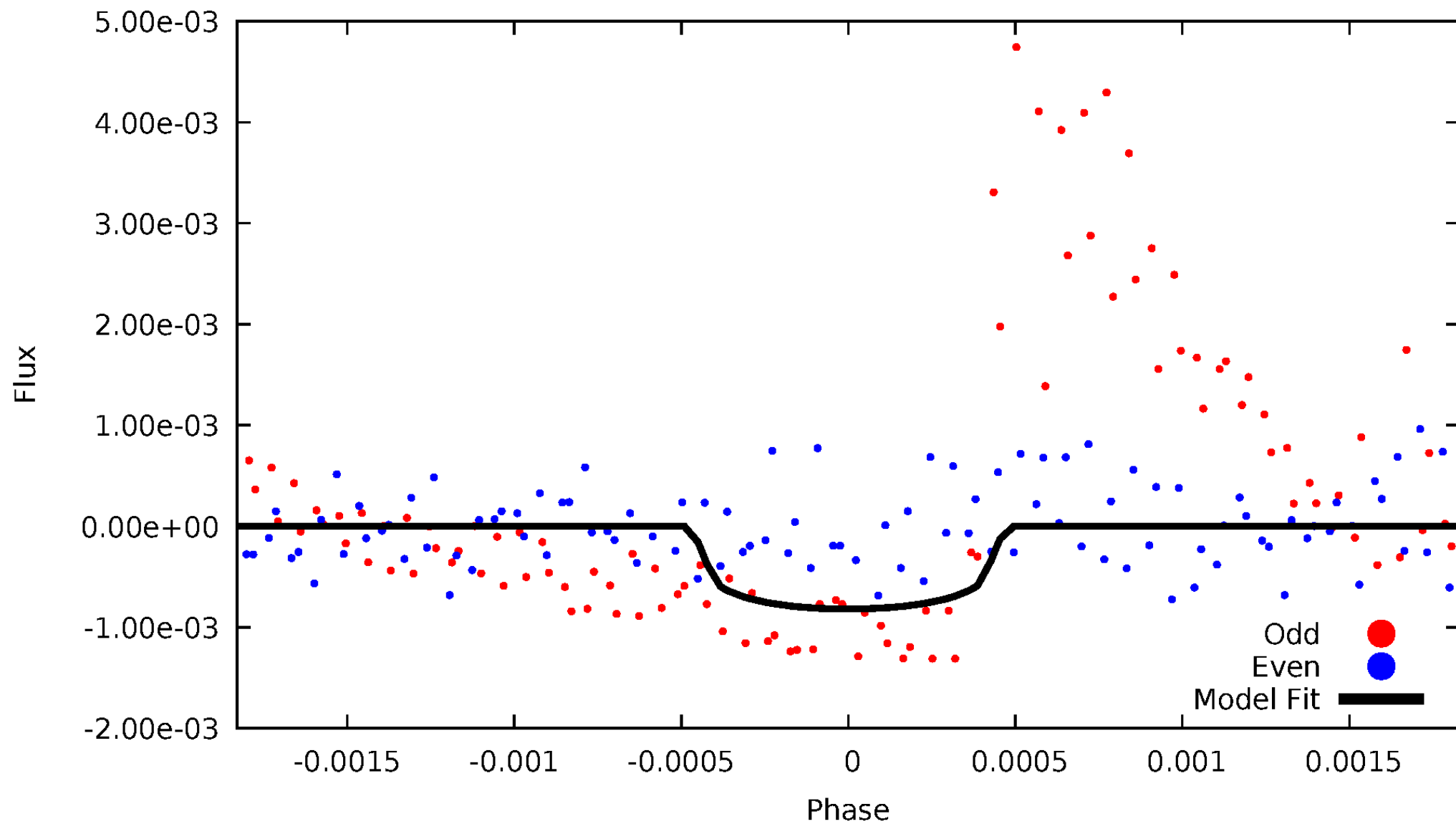
TCE 006119605-05





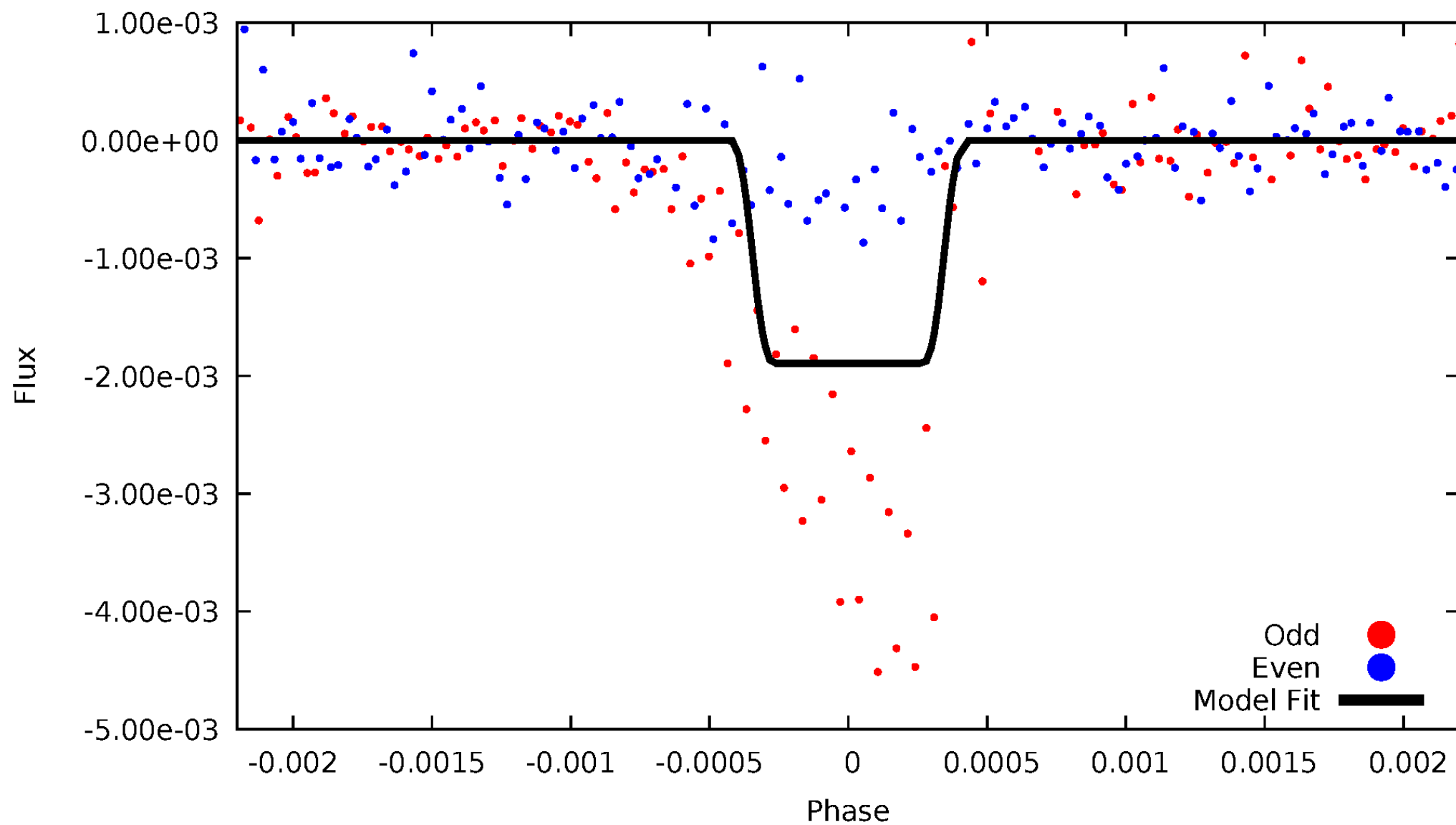
# DV Odd/Even

TCE 006119605-05



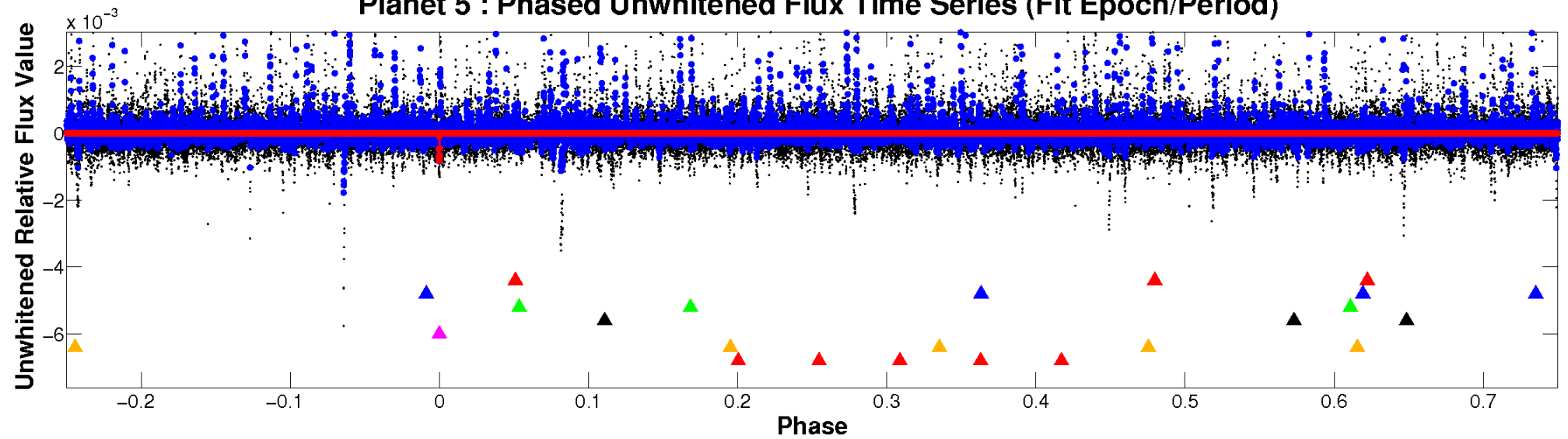
# ALT Odd/Even

TCE 006119605-05

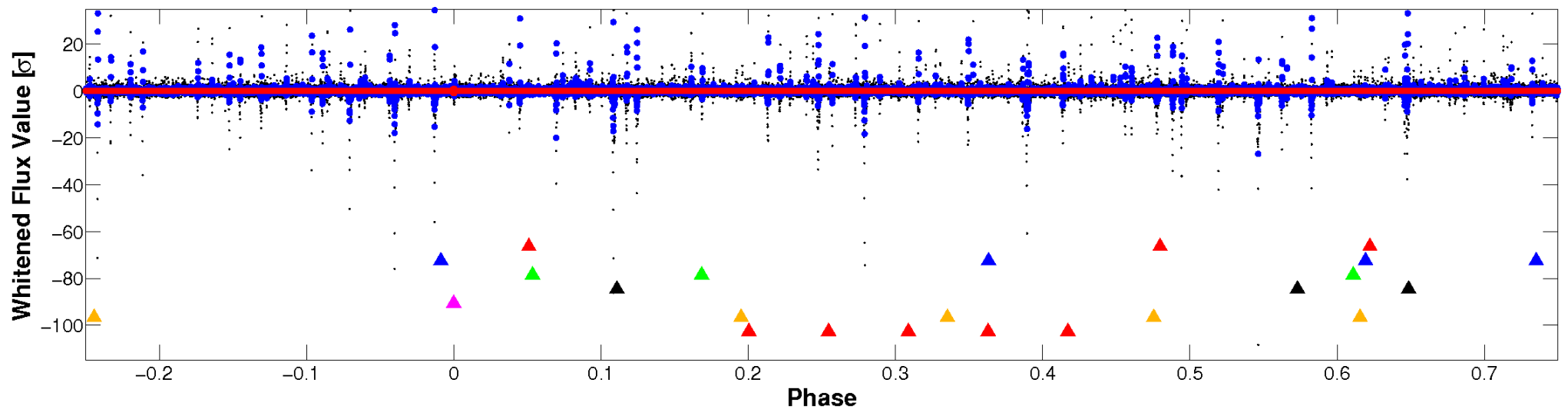


# Non-Whitened Vs. Whitened Light Curve

## Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

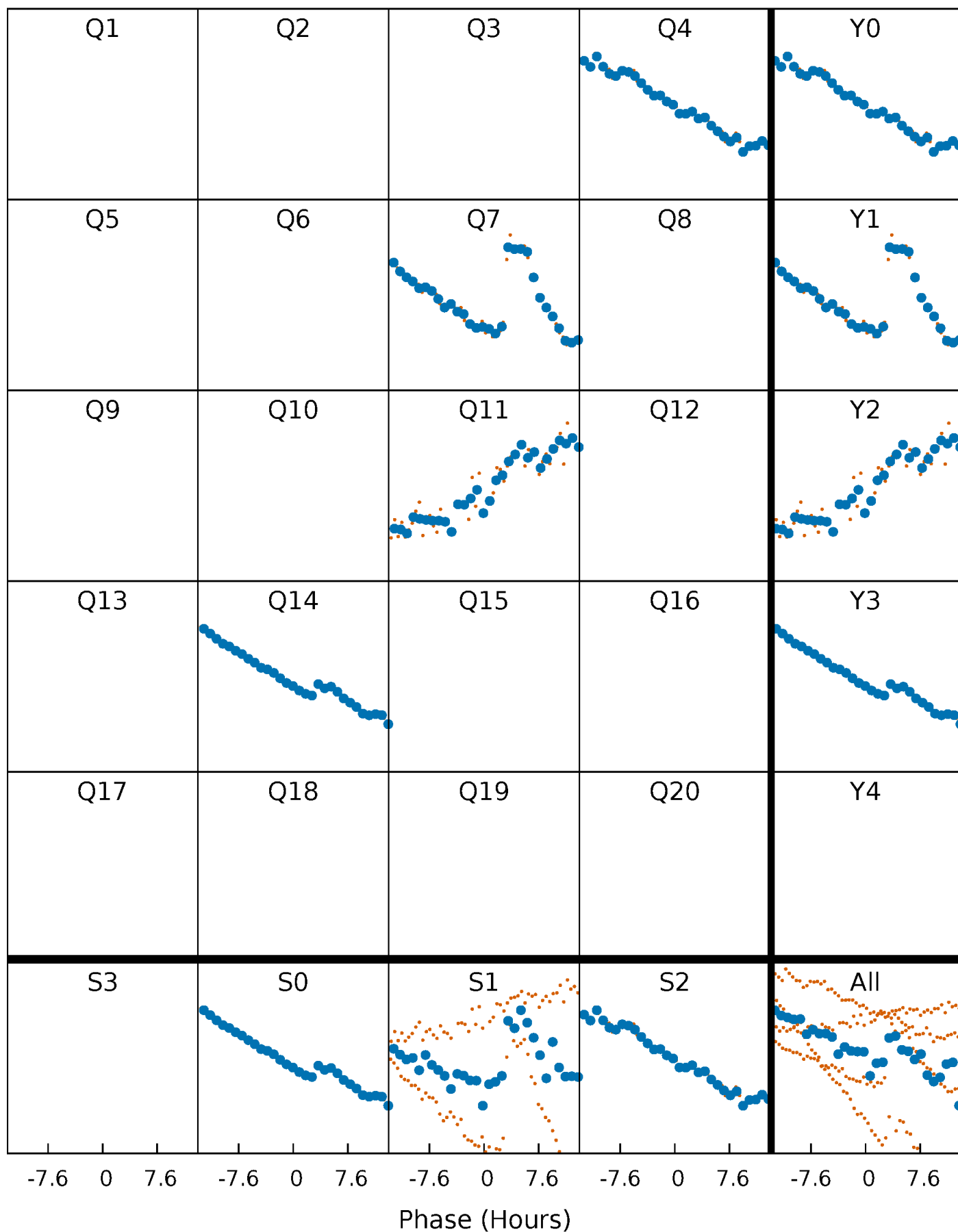


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



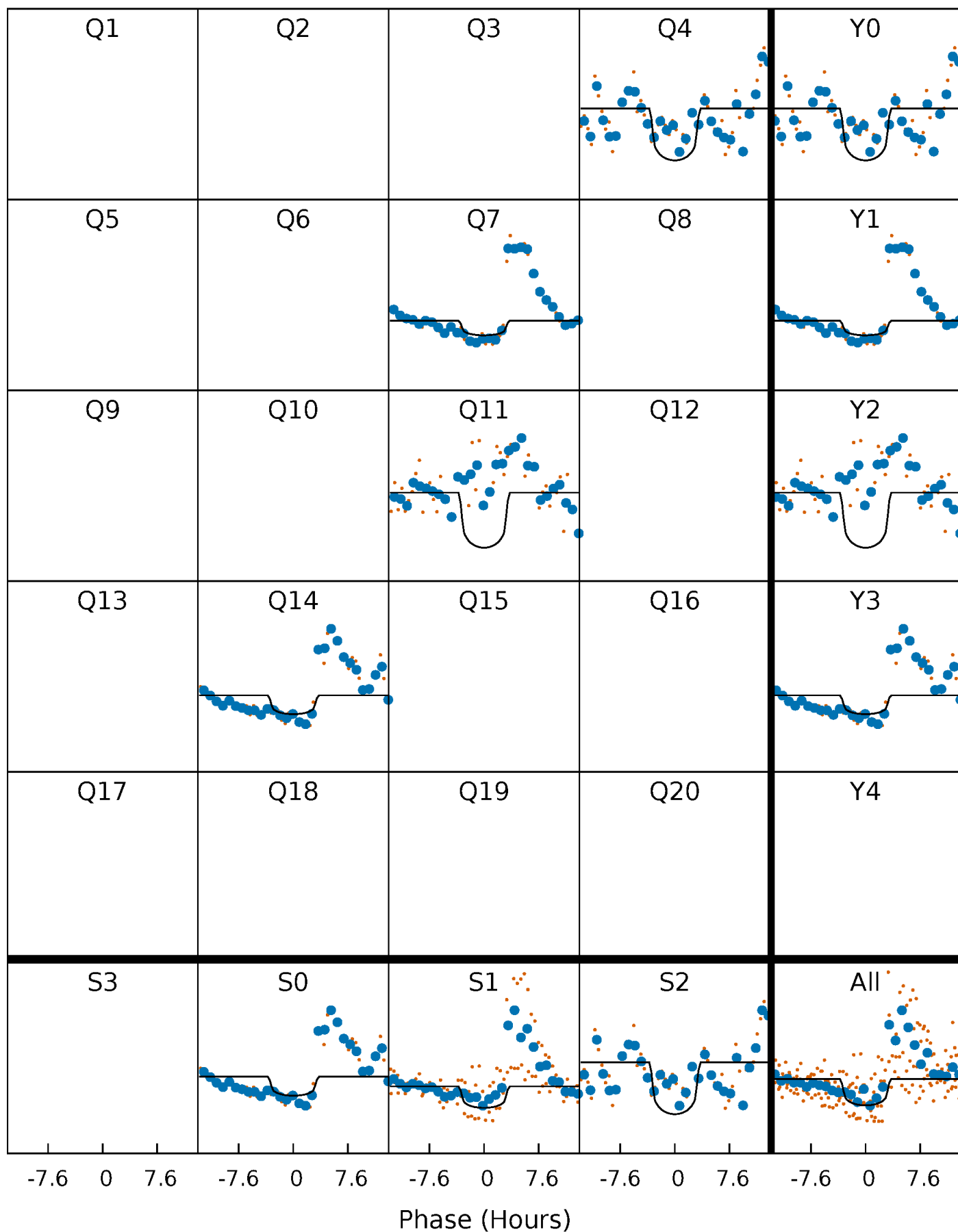
# PDC Quarter-Phased Transit Curves

TCE 006119605-05     $P=302.375481$  Days     $T_0=403.718682$  (BKJD)



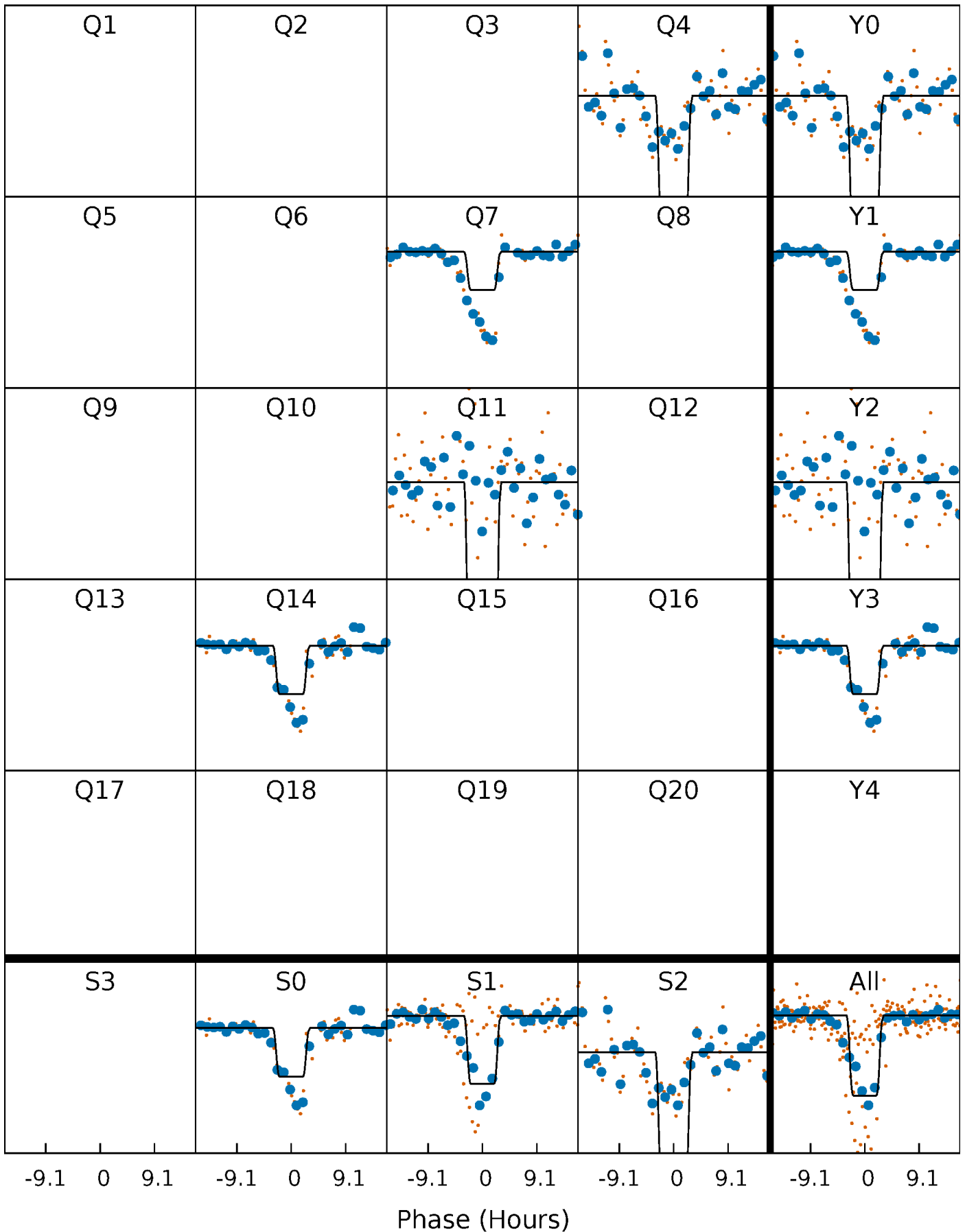
# DV Quarter-Phased Transit Curves

TCE 006119605-05     $P=302.375481$  Days     $T_0=403.718682$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

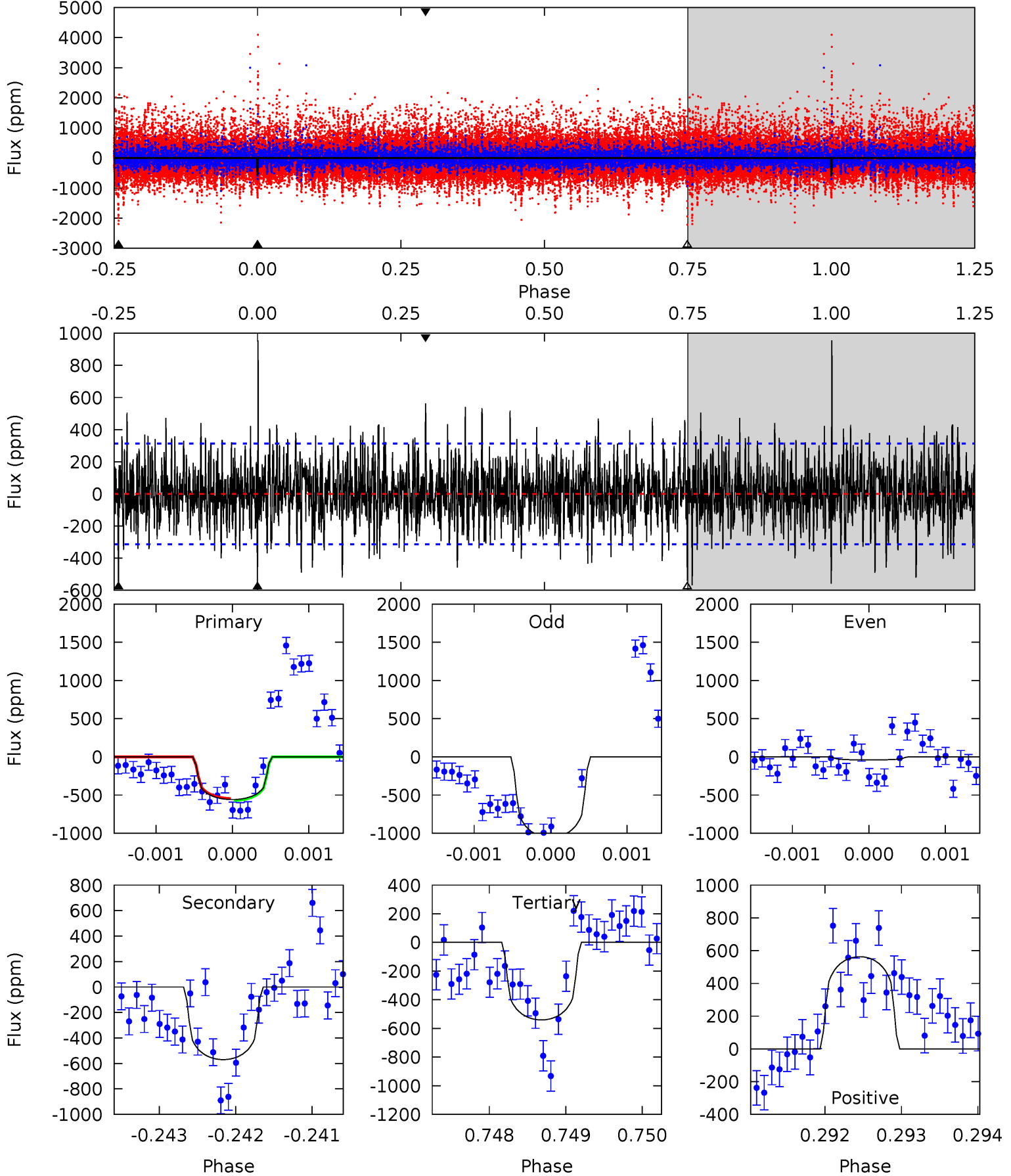
TCE 006119605-05 P=302.382632 Days  $T_0=403.729392$  (BKJD)



# DV Model-Shift Uniqueness Test

006119605-05,  $P = 302.375481$  Days,  $E = 101.343201$  Days

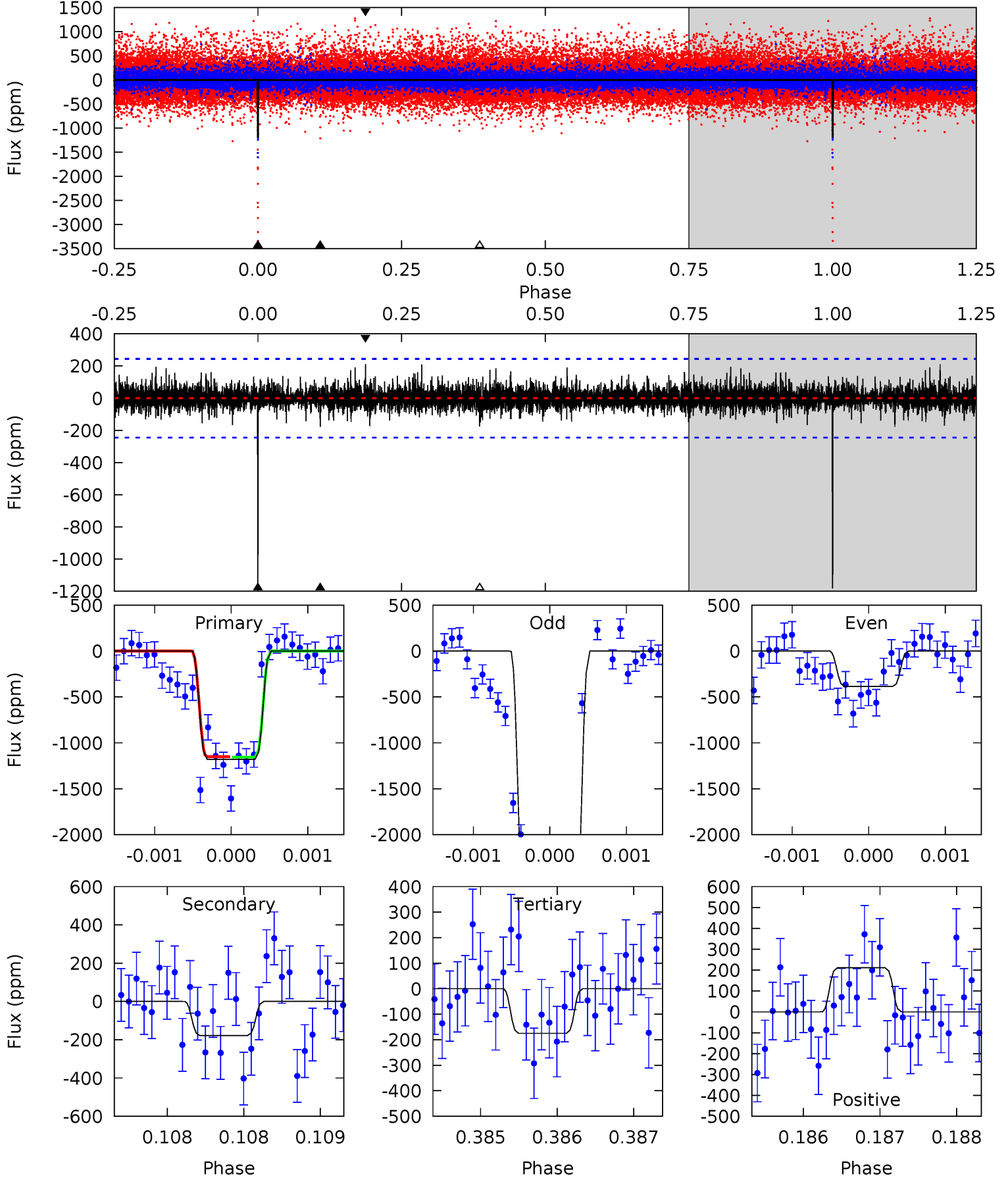
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.72	9.92	9.41	9.80	5.46	3.31	2.58	0.31	-0.08	0.51	0.12	5.05	0.76	0.63	0.23



# Alt Model-Shift Uniqueness Test

006119605-05, P = 302.382632 Days, E = 101.346760 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
26.4	3.98	3.92	4.73	5.48	3.34	0.96	22.5	21.7	0.06	-0.75	32.7	1.16	0.15	0.05





### Stellar Parameters For KIC 006119605

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5250^{+157}_{-141}$	$4.684^{+0.032}_{-0.056}$	$-1.020^{+0.300}_{-0.300}$	$0.608^{+0.057}_{-0.031}$	$0.650^{+0.046}_{-0.032}$	$4.081^{+0.524}_{-0.764}$
	+3%/-3%	+1%/-1%	+29%/-29%	+9%/-5%	+7%/-5%	+13%/-19%
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 006119605-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-570 \pm 57$	$6.41^{+6.83}_{-4.57}$	$290^{+10}_{-9}$	$3207^{+1743}_{-596}$	$4561^{+50613}_{-3533}$
Alt.	$-178 \pm 45$	$7.54^{+7.15}_{-5.34}$	$291^{+10}_{-10}$	$2600^{+1138}_{-396}$	$974^{+10711}_{-732}$

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

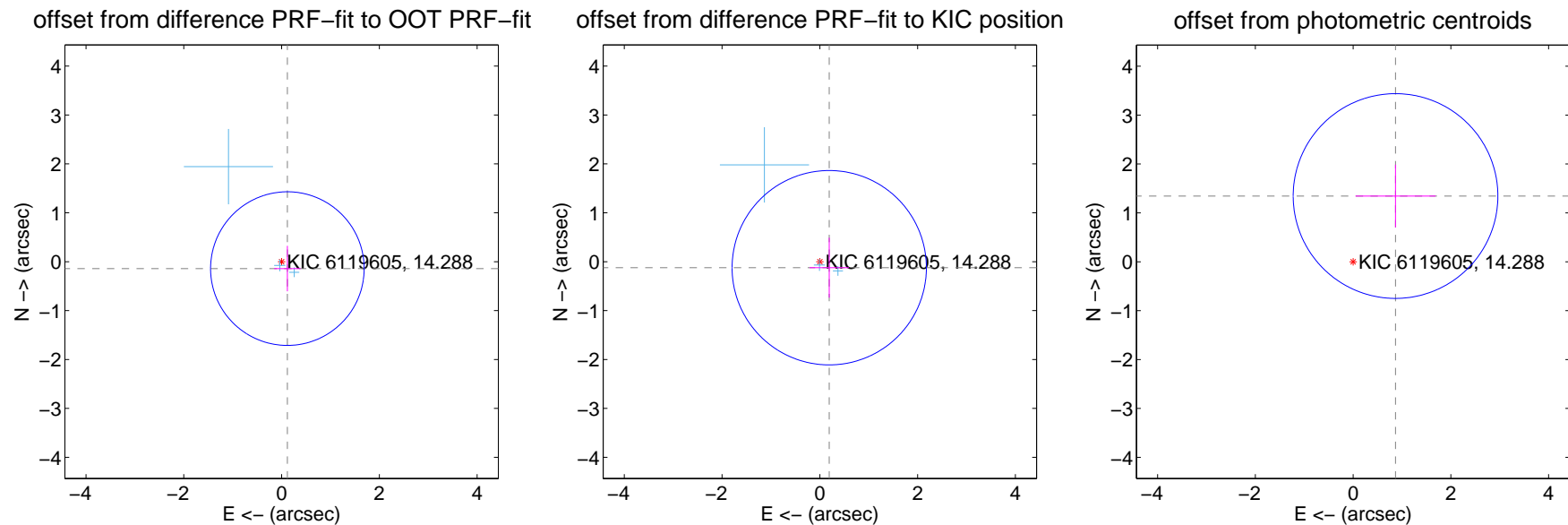
## DV Centroid Data

Supplemental centroid analysis for 006119605-05. Kepler magnitude: 14.29. Transit SNR 6.61

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.184 \pm 0.524$	0.35	$-0.118 \pm 0.270$	$-0.141 \pm 0.465$
PRF-fit source offset from KIC position	$0.228 \pm 0.662$	0.34	$-0.192 \pm 0.404$	$-0.123 \pm 0.613$
photometric centroid source offset	$1.60 \pm 0.70$	2.29	$-0.87 \pm 0.82$	$1.34 \pm 0.64$



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.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



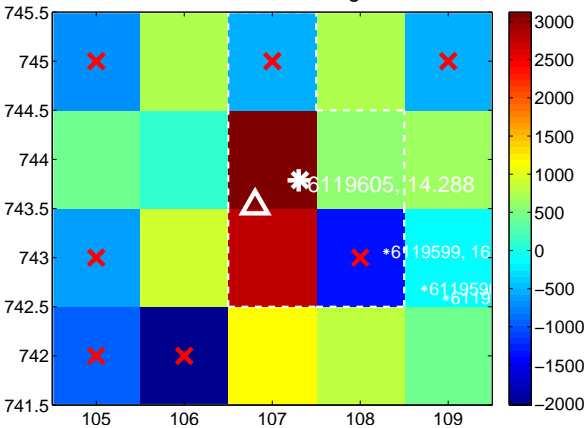
Q3 no difference image



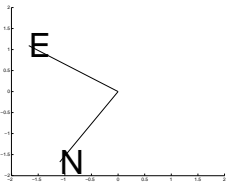
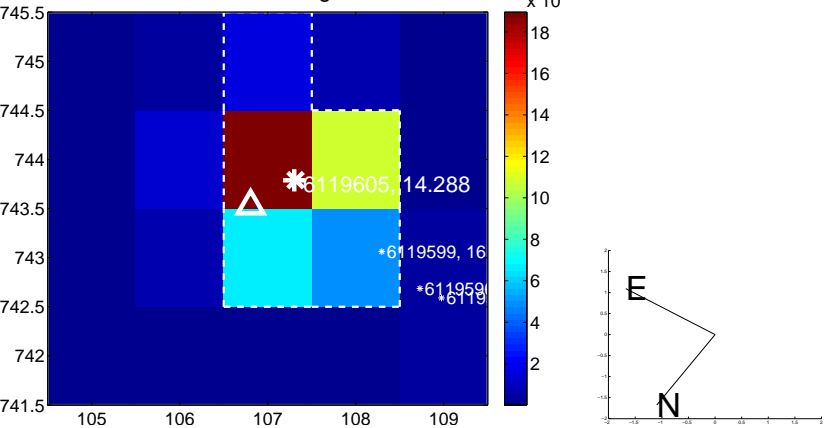
Q3 no OOT image



Q4 difference image



Q4 OOT image



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

Q5 no difference image



Q5 no OOT image



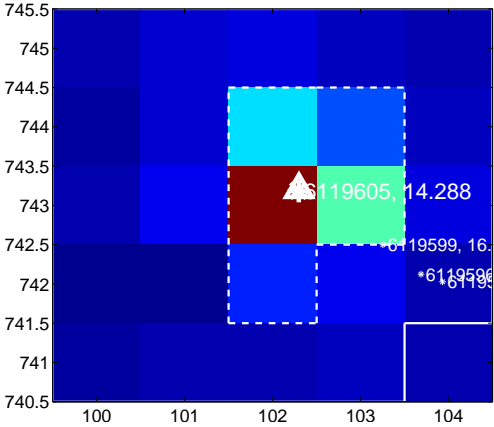
Q6 no difference image



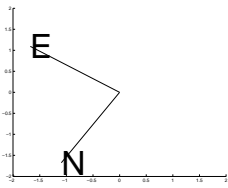
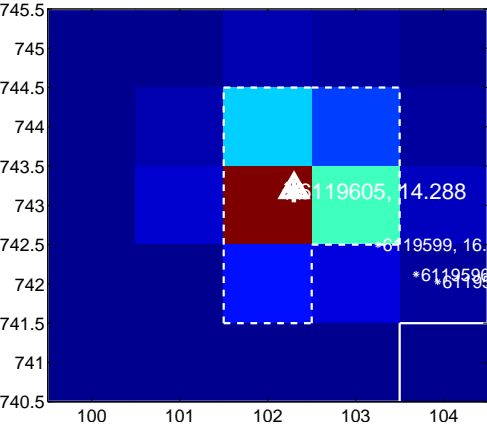
Q6 no OOT image



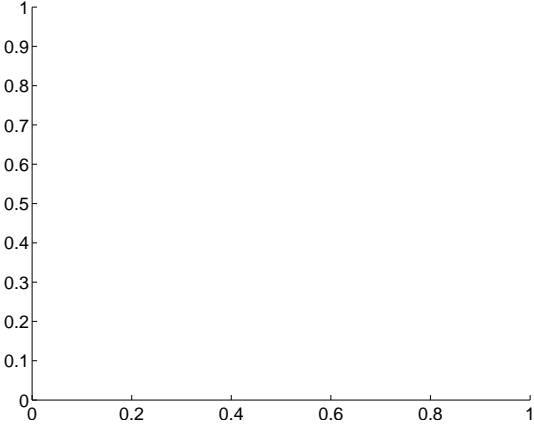
Q7 difference image



Q7 OOT image



Q8 no difference image



Q8 no OOT image



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

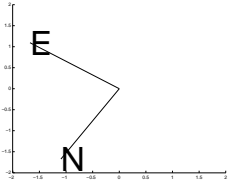
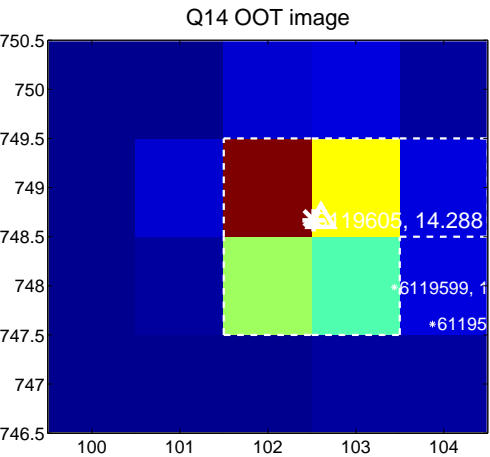
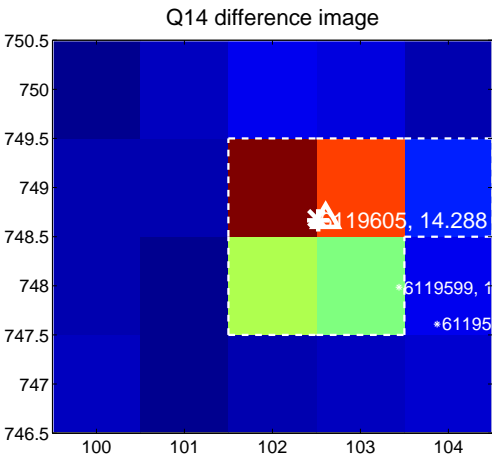


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

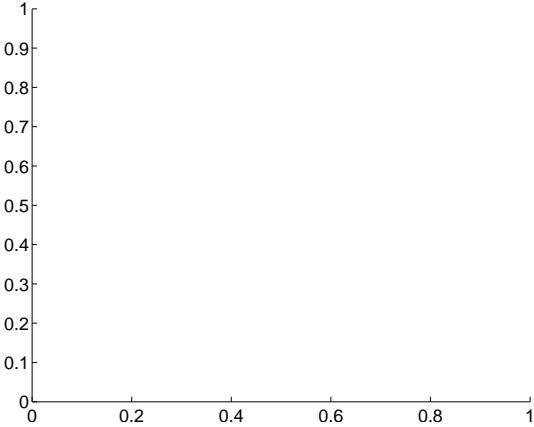
Q13 no difference image



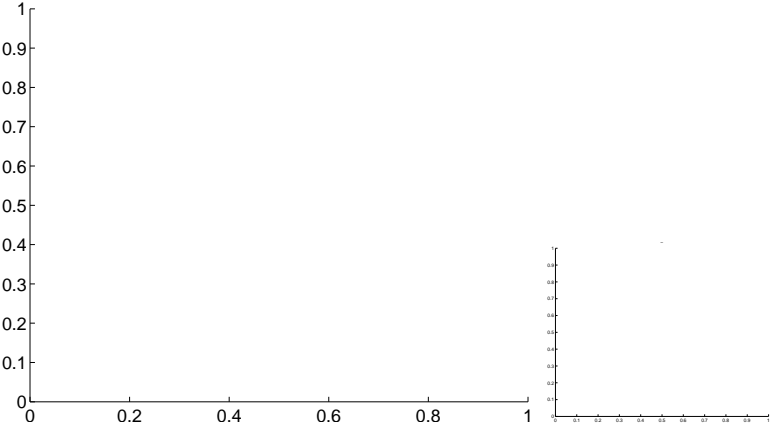
Q13 no OOT image



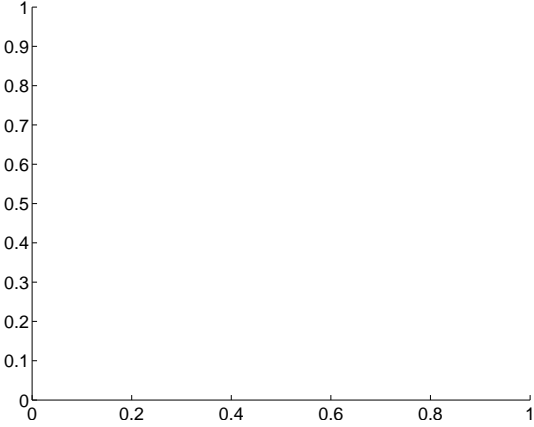
Q15 no difference image



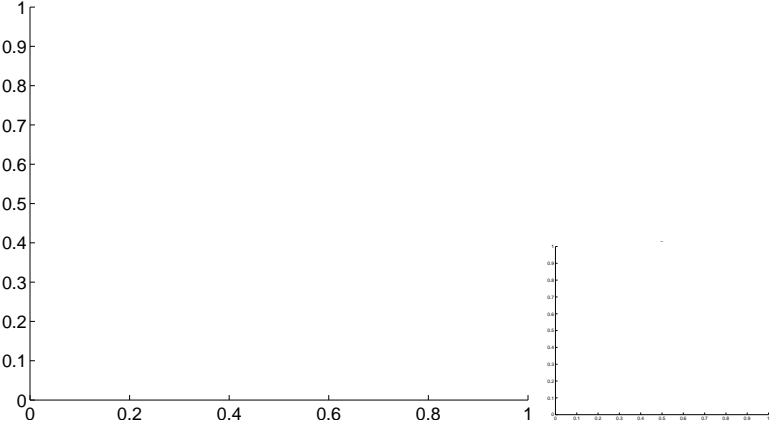
Q15 no OOT image



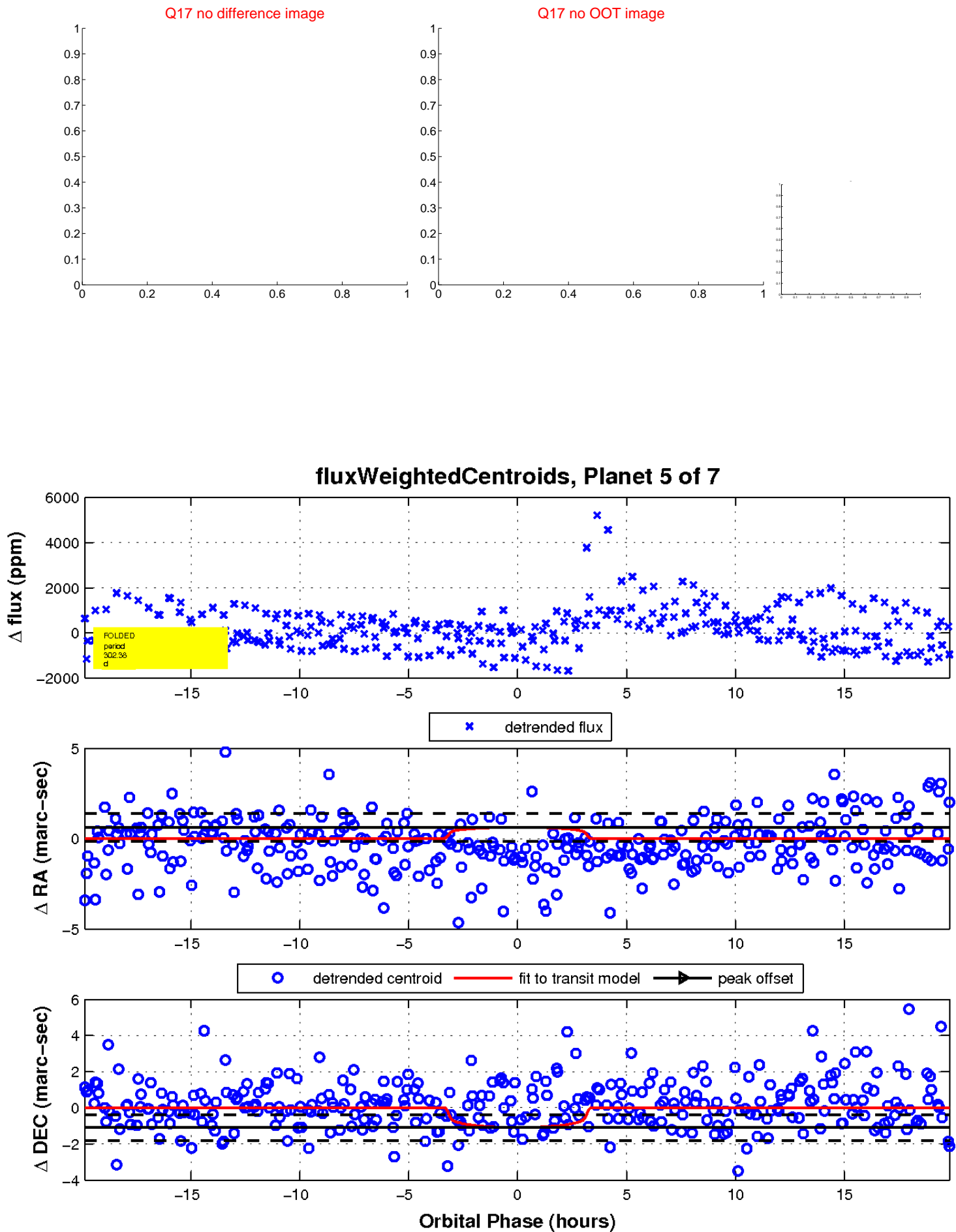
Q16 no difference image



Q16 no OOT image

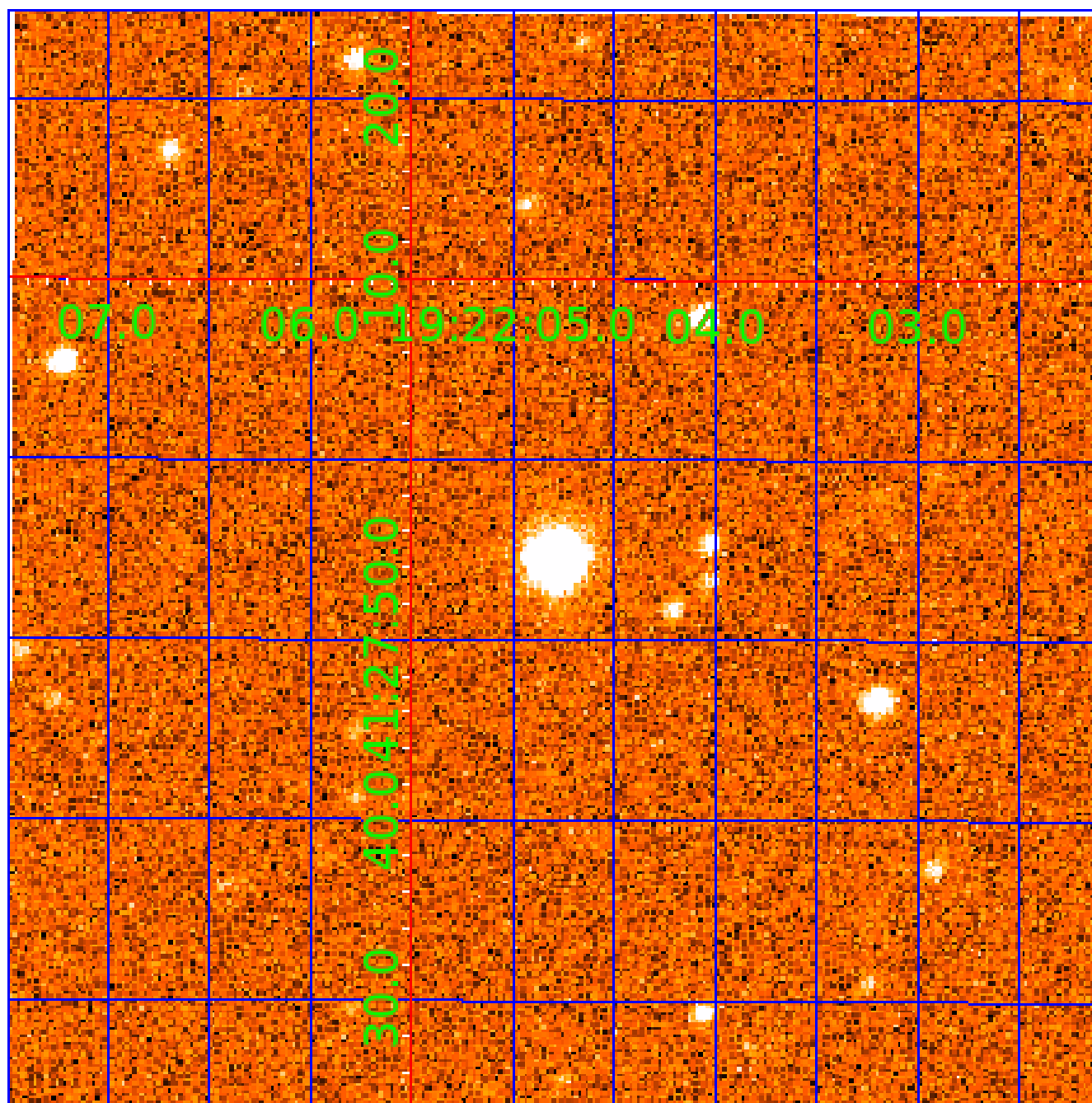


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 006119605

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006119605-01	OBS	No	475.110030	548.785826	1087.1	6.615	21.2	5.6	0.61	5250	3.92	0.24
006119605-03	OBS	No	470.931543	419.897772	1341.2	2.604	15.5	9.7	0.61	5250	2.27	0.24
006119605-04	OBS	No	464.978254	577.004763	1428.9	9.148	16.8	8.8	0.61	5250	2.33	0.24
006119605-05	OBS	No	302.375481	403.718681	819.8	6.639	14.4	6.6	0.61	5250	1.80	0.43
006119605-06	OBS	8118.01	259.997985	329.865660	1023.1	12.029	11.0	8.7	0.61	5250	2.04	0.53
006119605-07	OBS	No	285.994917	227.477208	829.0	5.000	12.7	-1.0	0.61	5250	1.74	0.46

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006119605-01	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
006119605-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS
006119605-04	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
006119605-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006119605-06	OBS	FP	0.13	1	0	0	0	MOD_NONUNIQ_DV—CENT_FEW_DIFFS
006119605-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

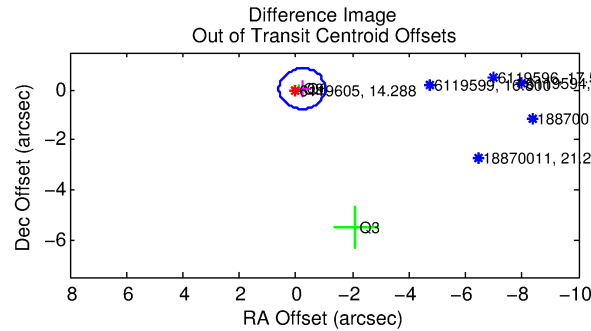
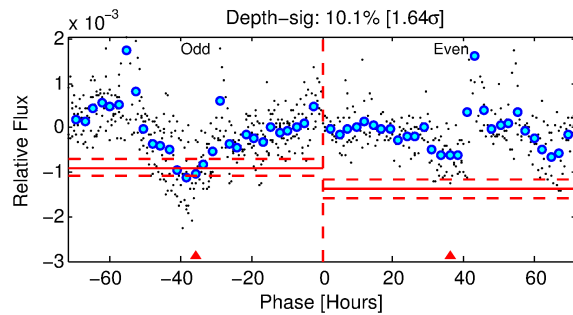
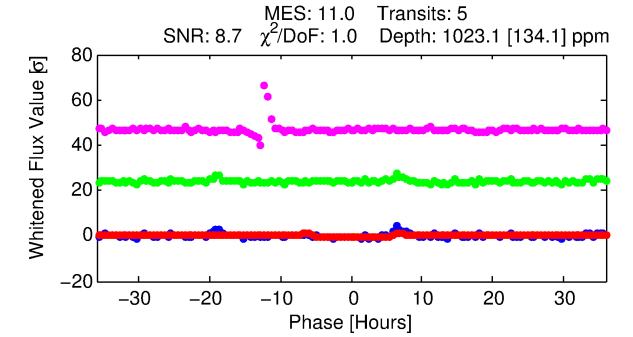
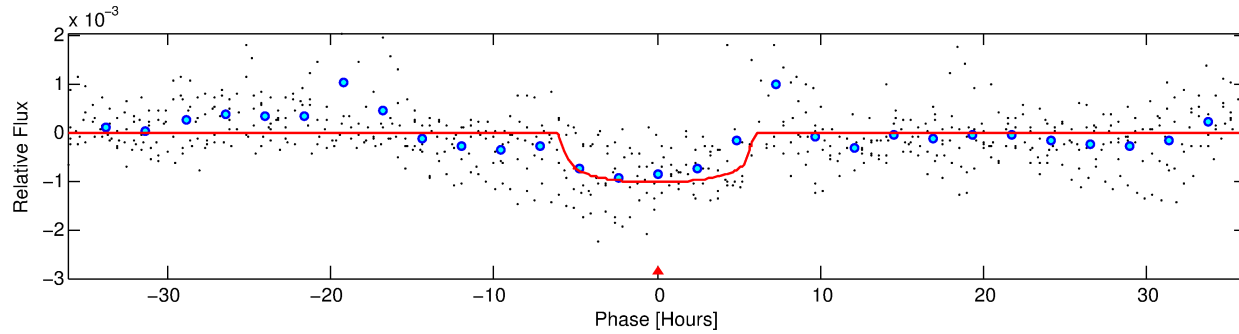
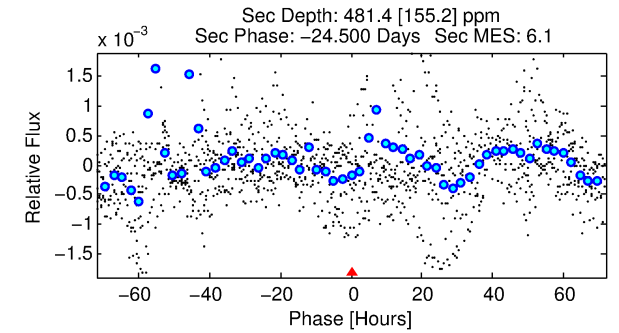
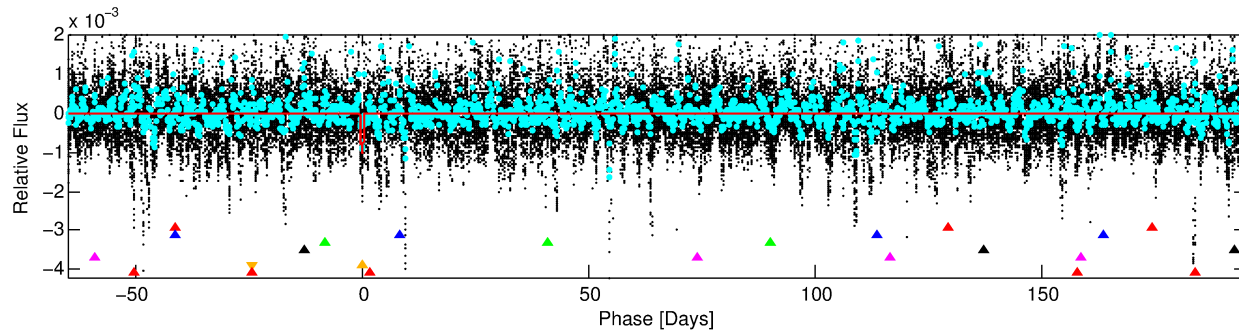
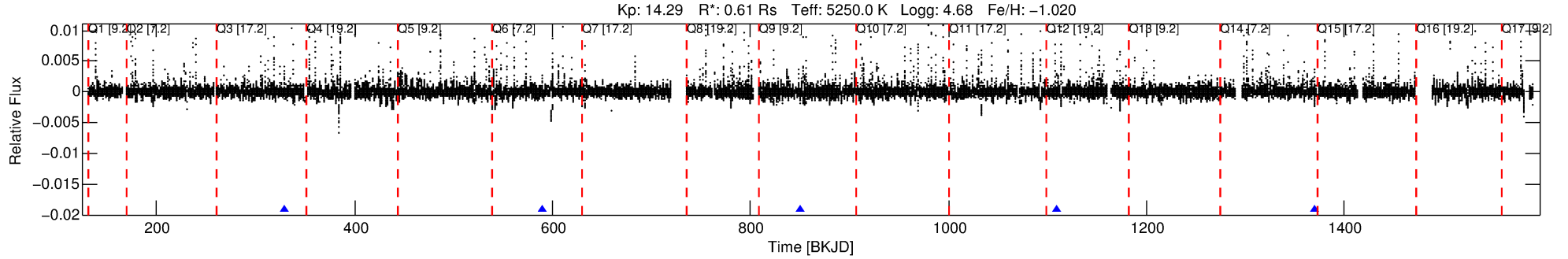
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006119605-06

No Significant Match Found

# DV One-Page Summary

KIC: 6119605 Candidate: 6 of 7 Period: 259.998 d



## DV Fit Results:

Period = 259.99798 [0.00315] d  
Epoch = 329.8657 [0.0081] BKJD  
Rp/R\* = 0.0308 [0.0058]  
a/R\* = 133.41 [97.23]  
b = 0.64 [0.67]  
Seff = 0.53 [0.08]  
Teq = 217 [9] K  
Rp = 2.04 [0.43] Re  
a = 0.6912 [0.0524] AU  
Ag = 30373.55 [15443.55] [1.97σ]  
Teffp = 4434 [567] K [7.44σ]

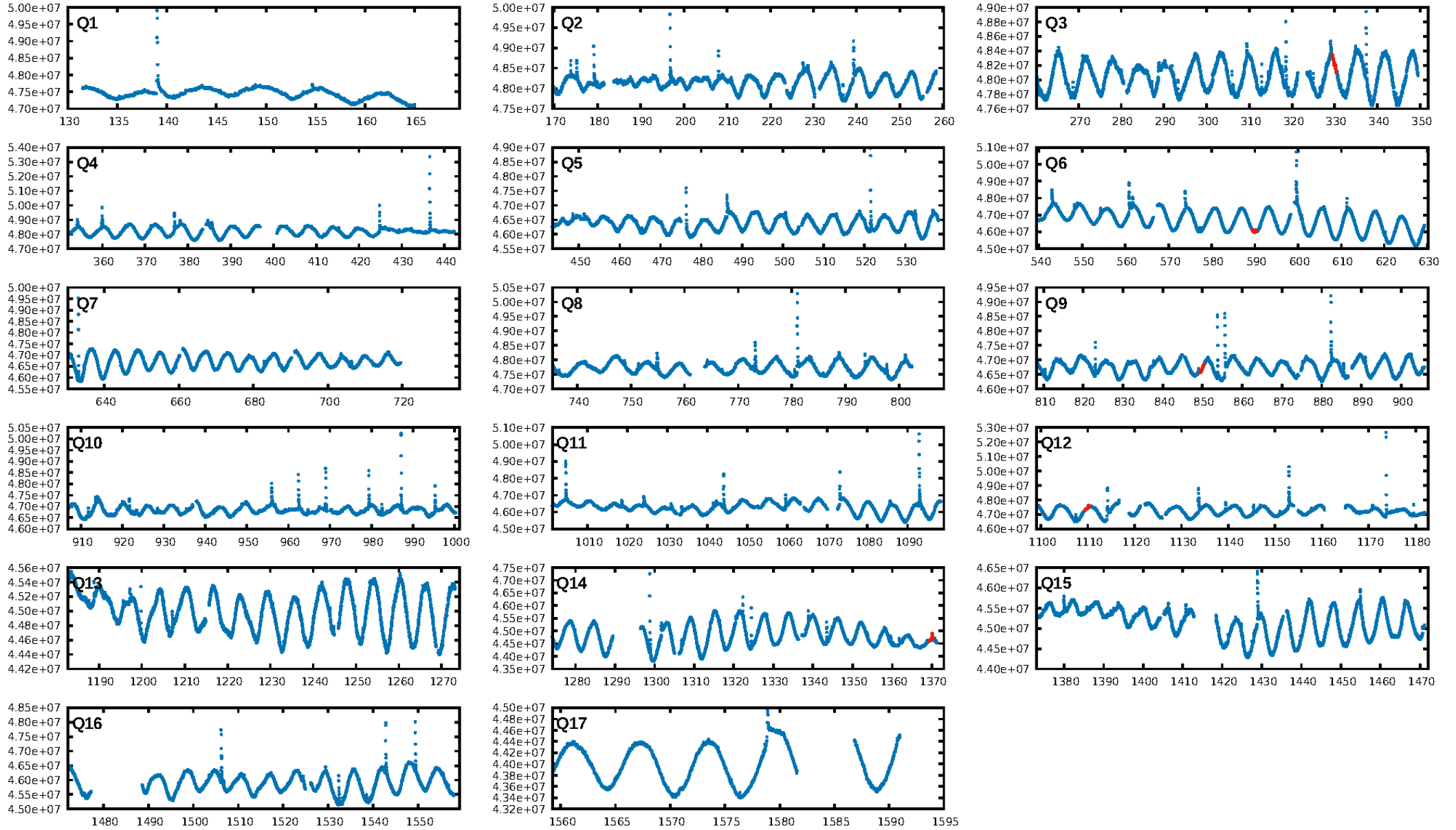
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [47.89σ]  
ModelChiSquare2-sig: 20.0%  
ModelChiSquareGof-sig: 99.8%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
**GhostDiagnostic-chr: 0.7519**  
Centroid-sig: 33.3%  
Centroid-so: 0.386 arcsec [0.78σ]  
OotOffset-rm: 0.222 arcsec [0.82σ]  
KicOffset-rm: 0.306 arcsec [1.13σ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

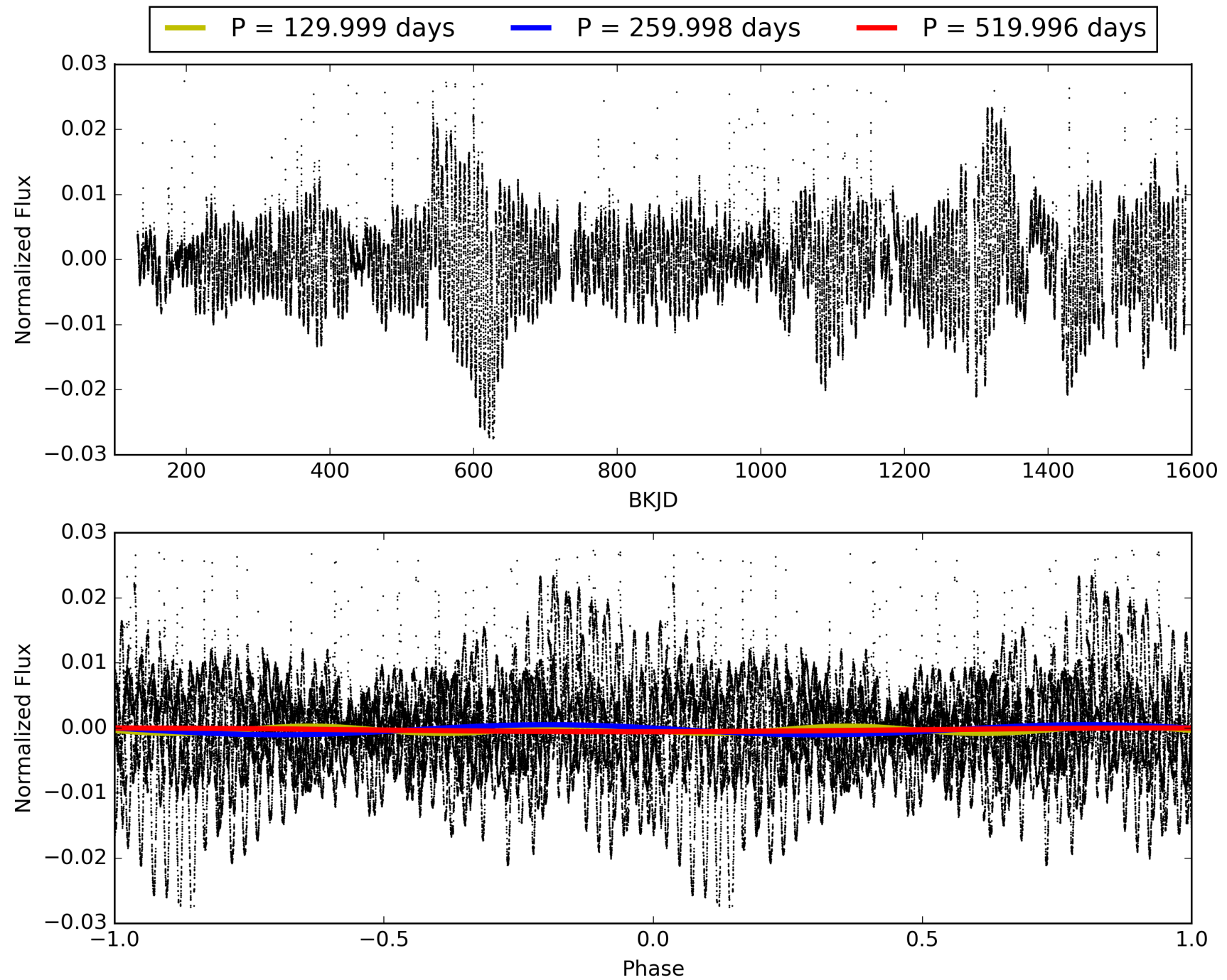
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:55:53 Z

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

# TCE 006119605-06, PDC Light Curves

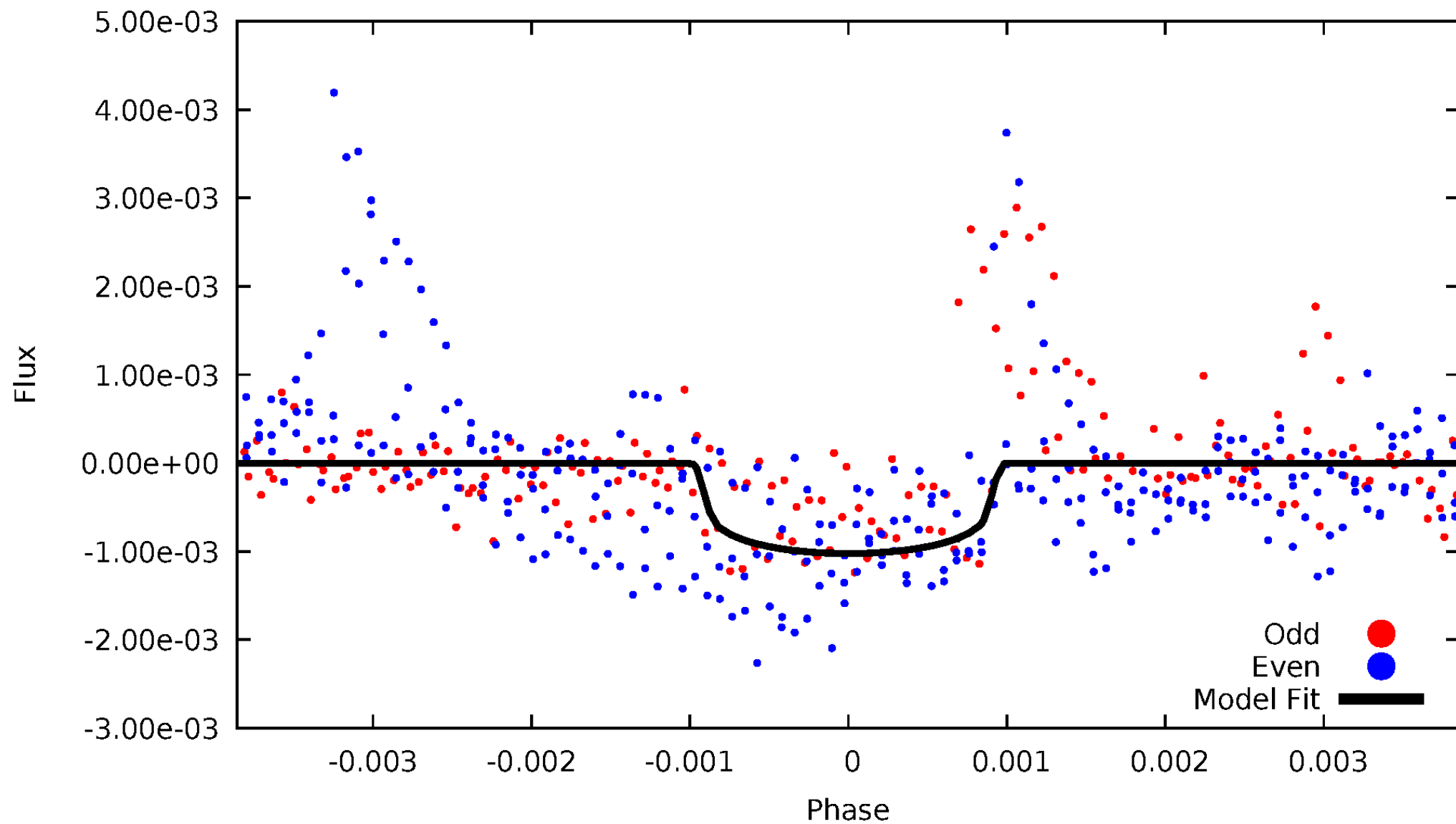


# TCE 006119605-06



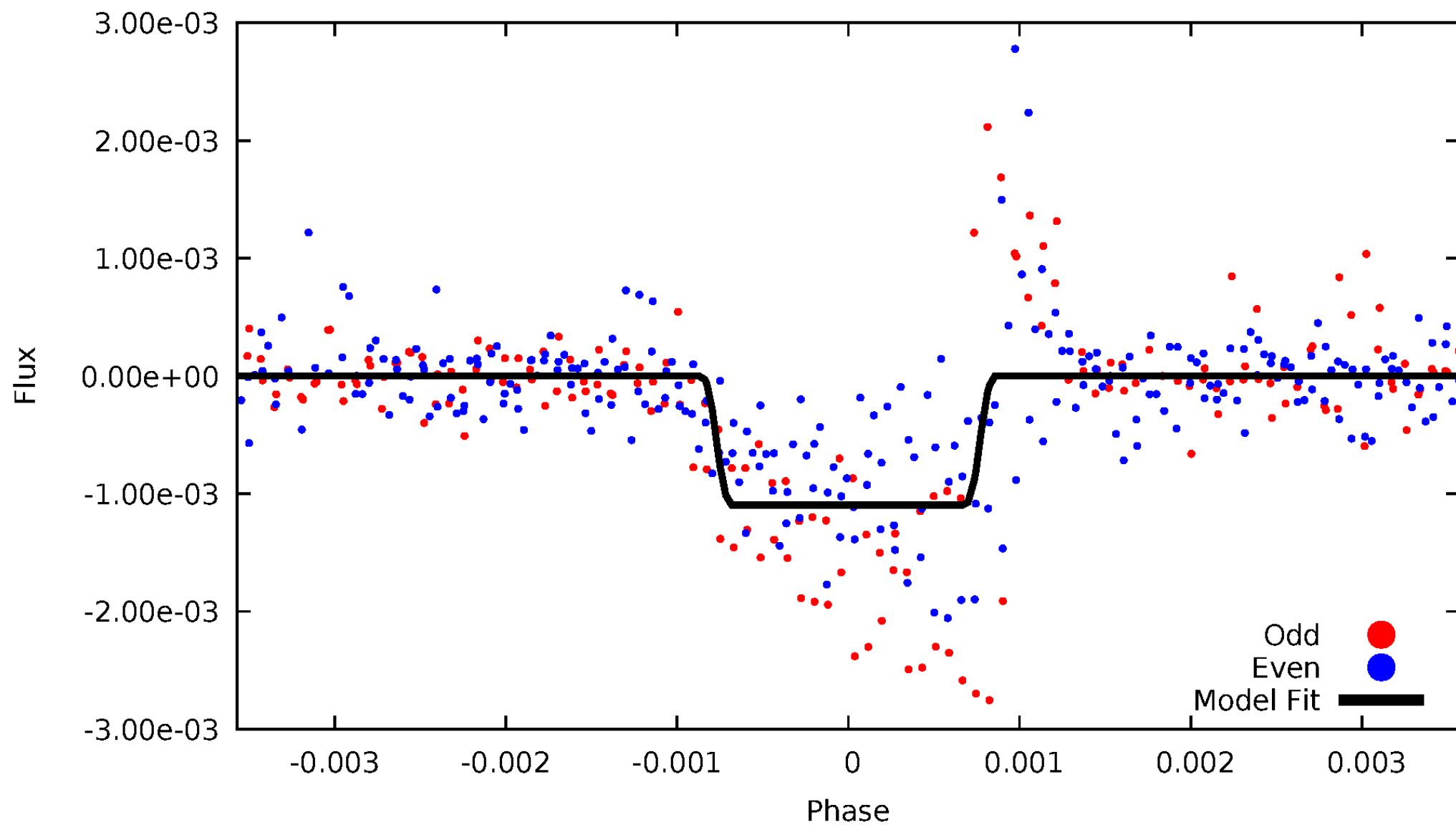
# DV Odd/Even

TCE 006119605-06



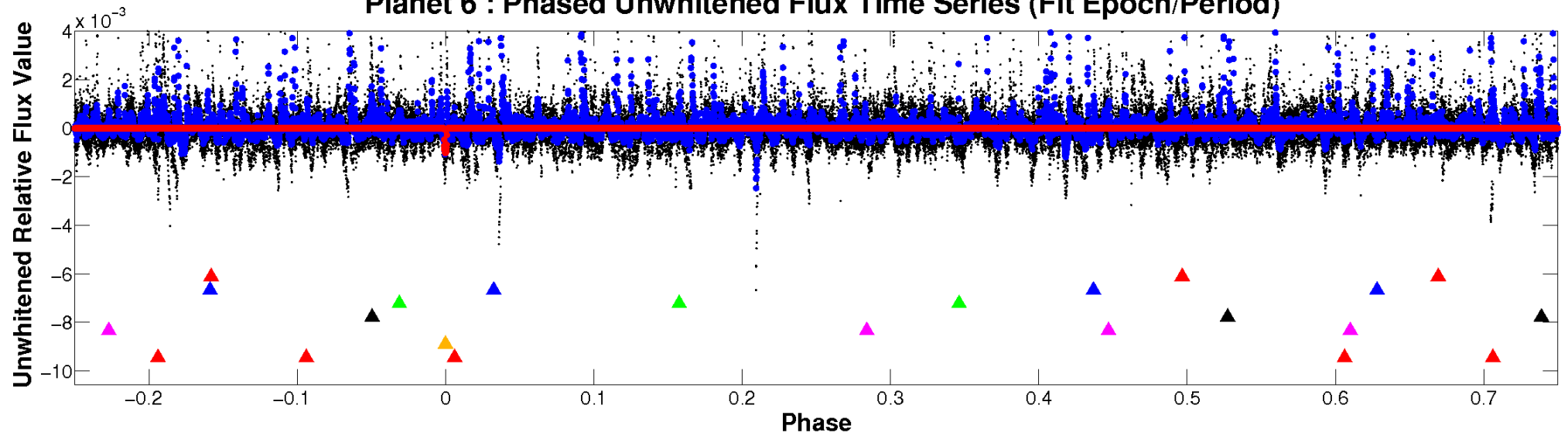
# ALT Odd/Even

TCE 006119605-06

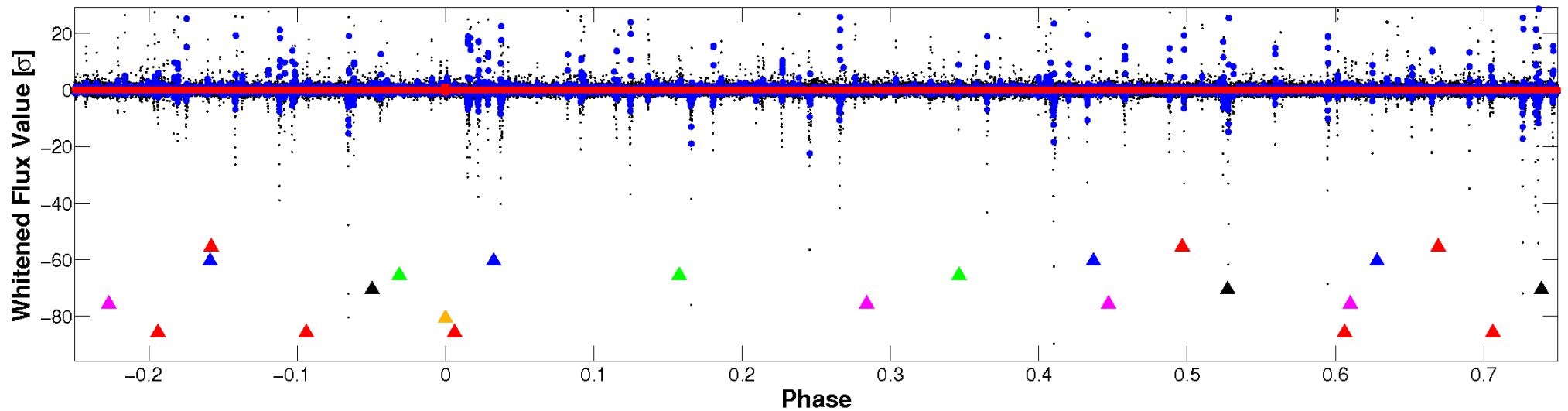


# Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

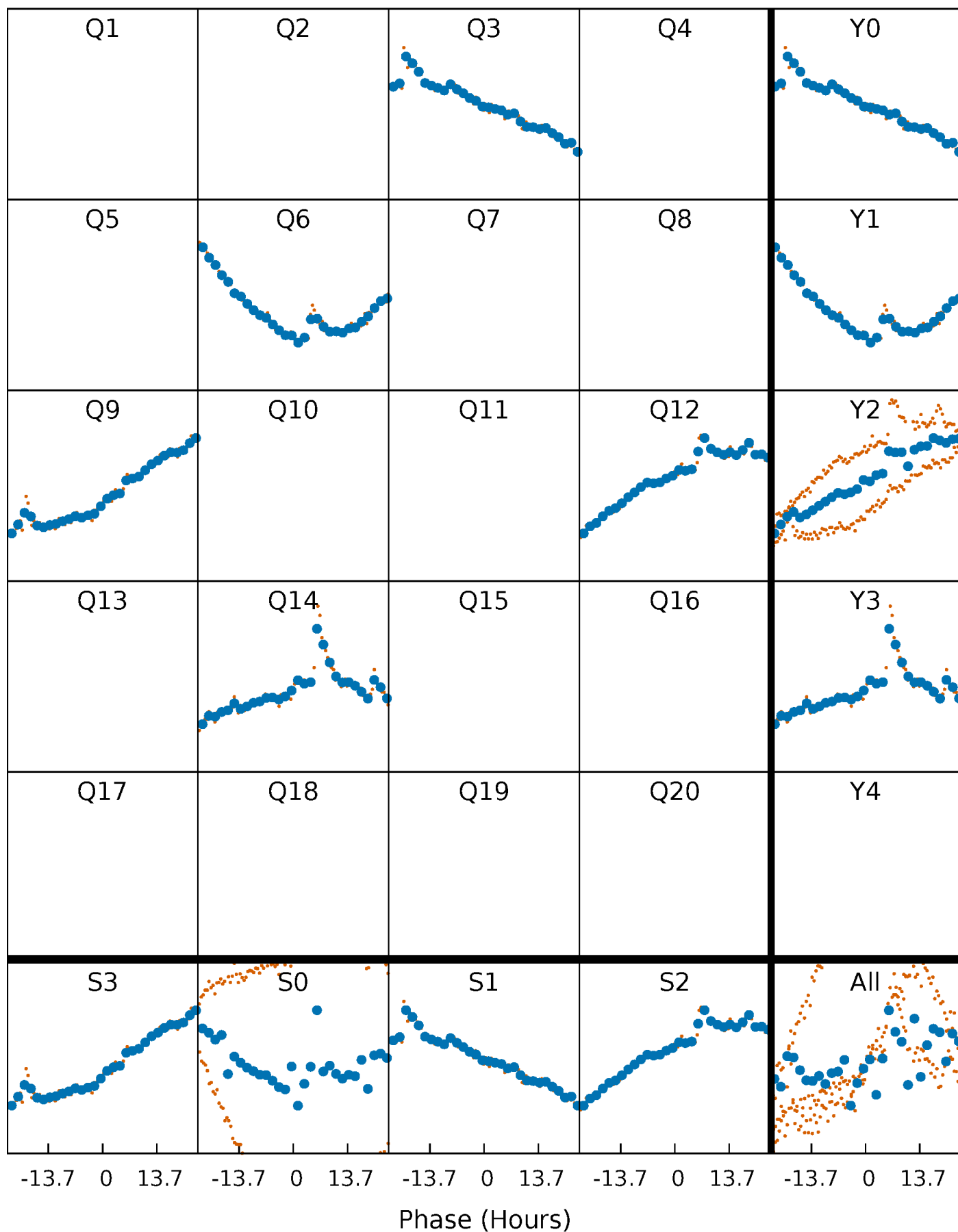


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

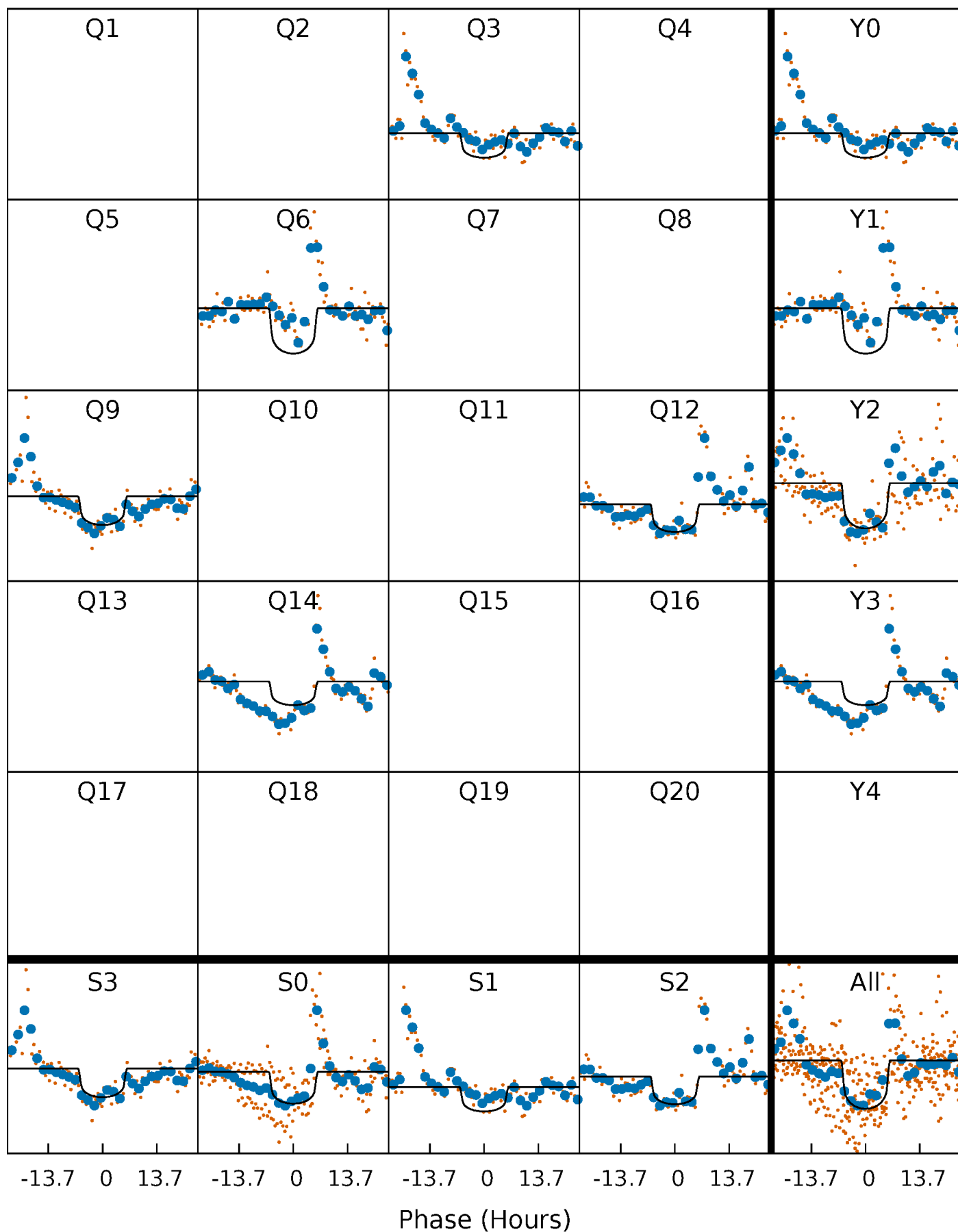
TCE 006119605-06     $P=259.997985$  Days     $T_0=329.865660$  (BKJD)





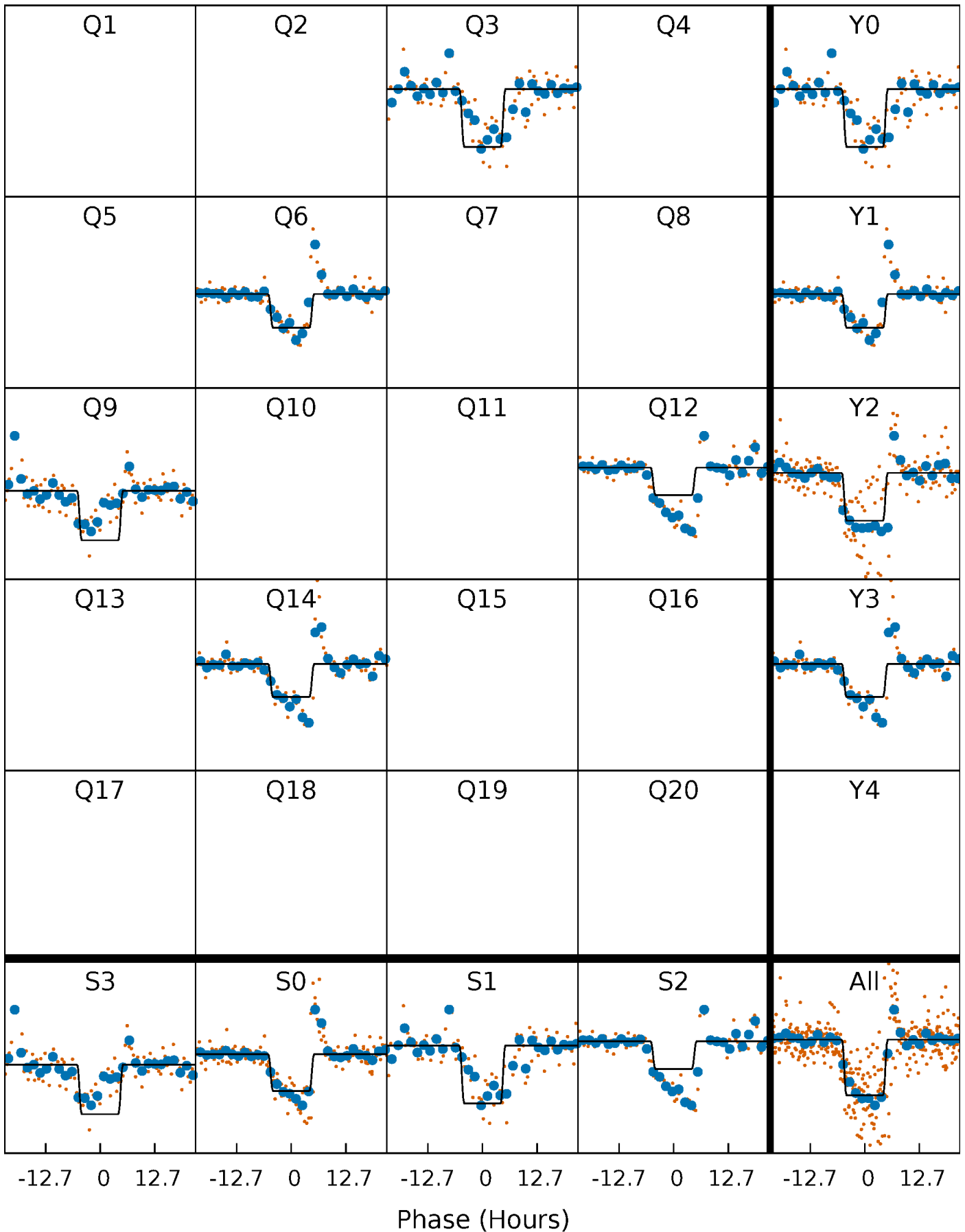
# DV Quarter-Phased Transit Curves

TCE 006119605-06     $P=259.997985$  Days     $T_0=329.865660$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

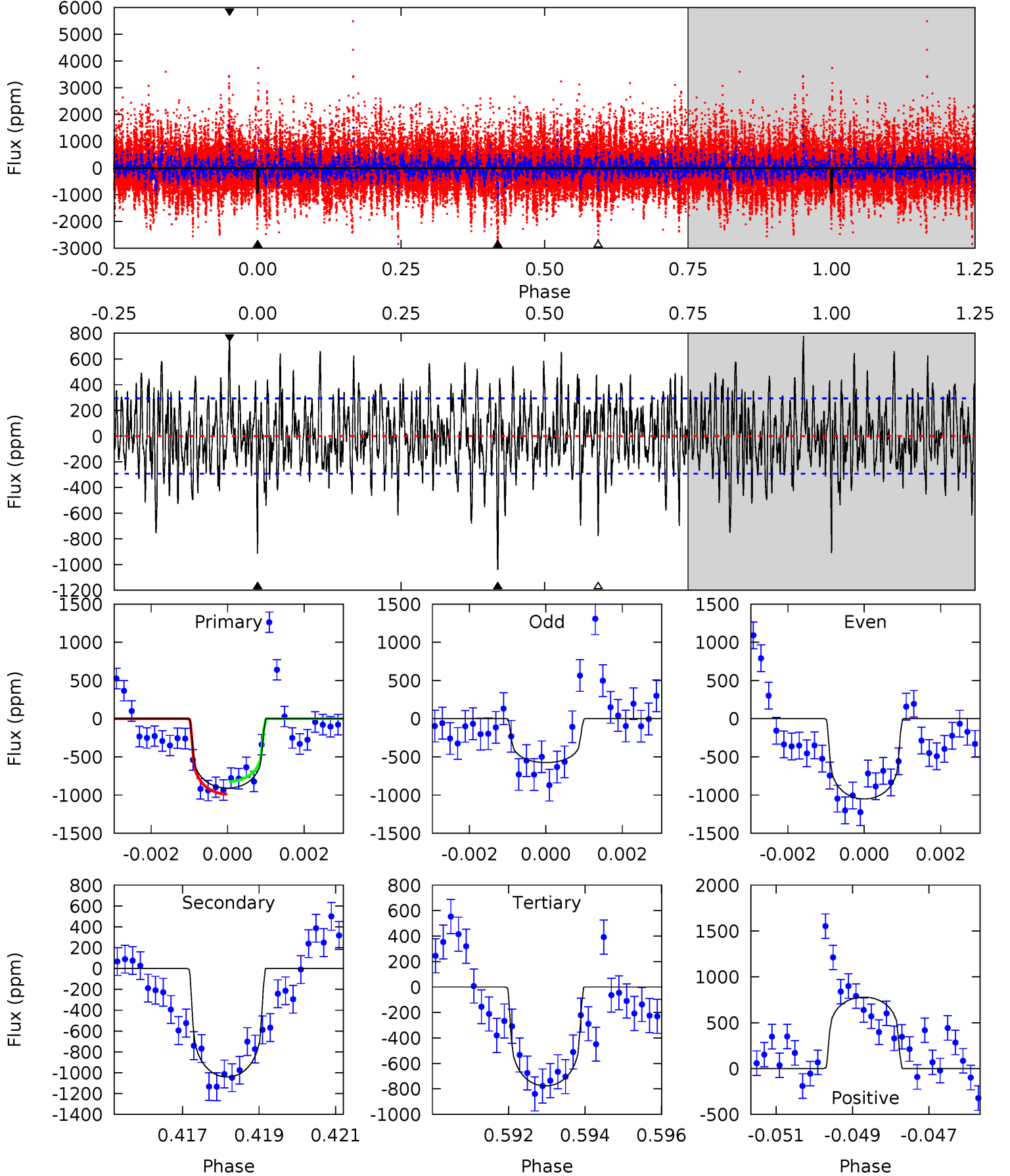
TCE 006119605-06 P=260.003429 Days  $T_0=329.849961$  (BKJD)



# DV Model-Shift Uniqueness Test

006119605-06,  $P = 259.997985$  Days,  $E = 69.867675$  Days

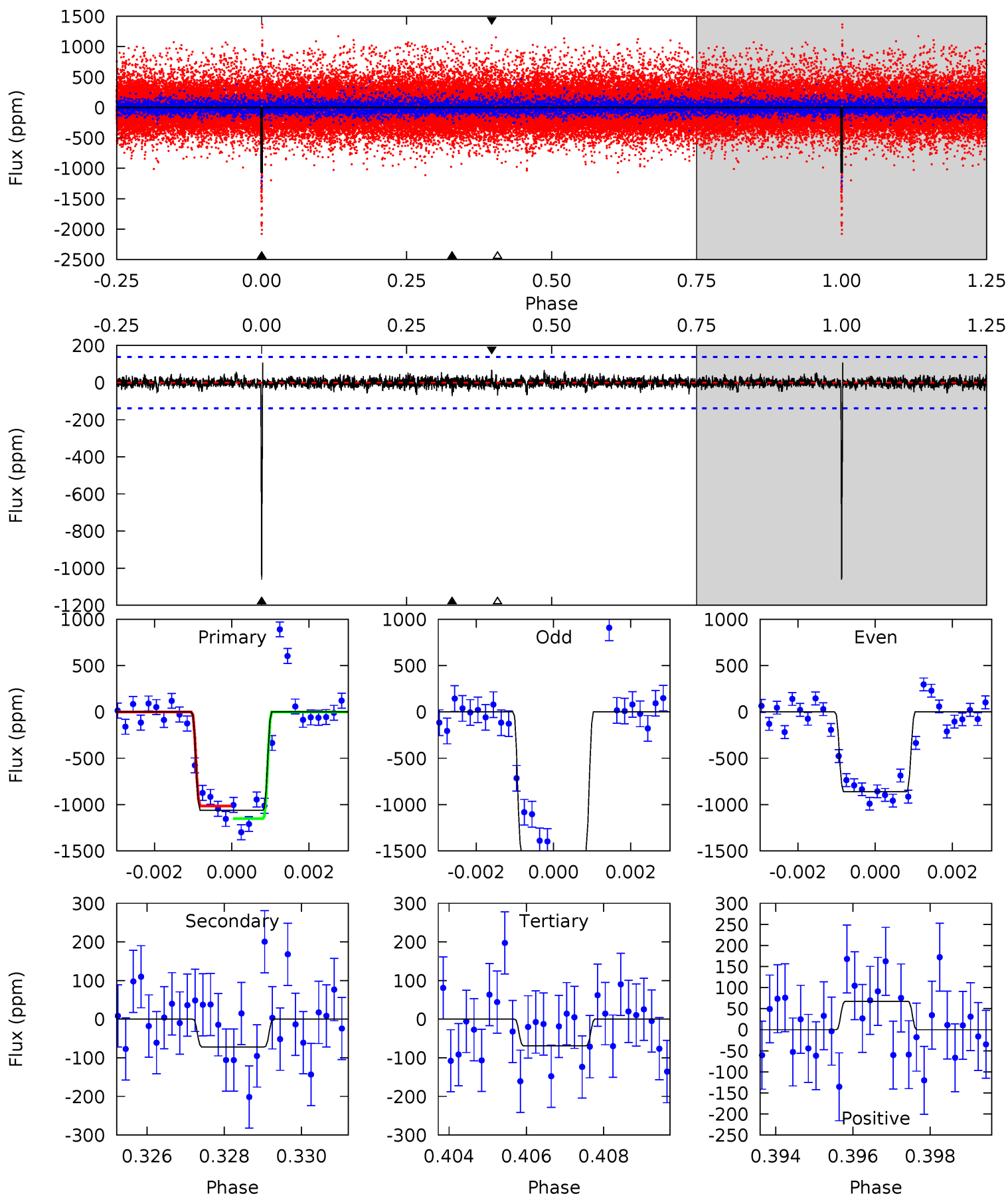
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.5	18.9	14.1	14.2	5.33	3.09	4.09	2.41	2.37	4.81	4.77	2.87	0.82	0.43	1.50



# Alt Model-Shift Uniqueness Test

006119605-06, P = 260.003429 Days, E = 69.846532 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
41.2	2.78	2.67	2.62	5.36	3.15	0.60	38.5	38.5	0.12	0.16	13.4	1.17	0.09	2.58



### Stellar Parameters For KIC 006119605

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5250^{+157}_{-141}$	$4.684^{+0.032}_{-0.056}$	$-1.020^{+0.300}_{-0.300}$	$0.608^{+0.057}_{-0.031}$	$0.650^{+0.046}_{-0.032}$	$4.081^{+0.524}_{-0.764}$
	+3%/-3%	+1%/-1%	+29%/-29%	+9%/-5%	+7%/-5%	+13%/-19%
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 006119605-06 / KOI 8118.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1041 \pm 55$	$2.06^{+0.44}_{-0.41}$	$305^{+11}_{-10}$	$5377^{+606}_{-443}$	$64375^{+35832}_{-20613}$
Alt.	$-72 \pm 26$	$2.26^{+0.37}_{-0.42}$	$305^{+11}_{-9}$	$3187^{+271}_{-255}$	$3550^{+2390}_{-1465}$

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

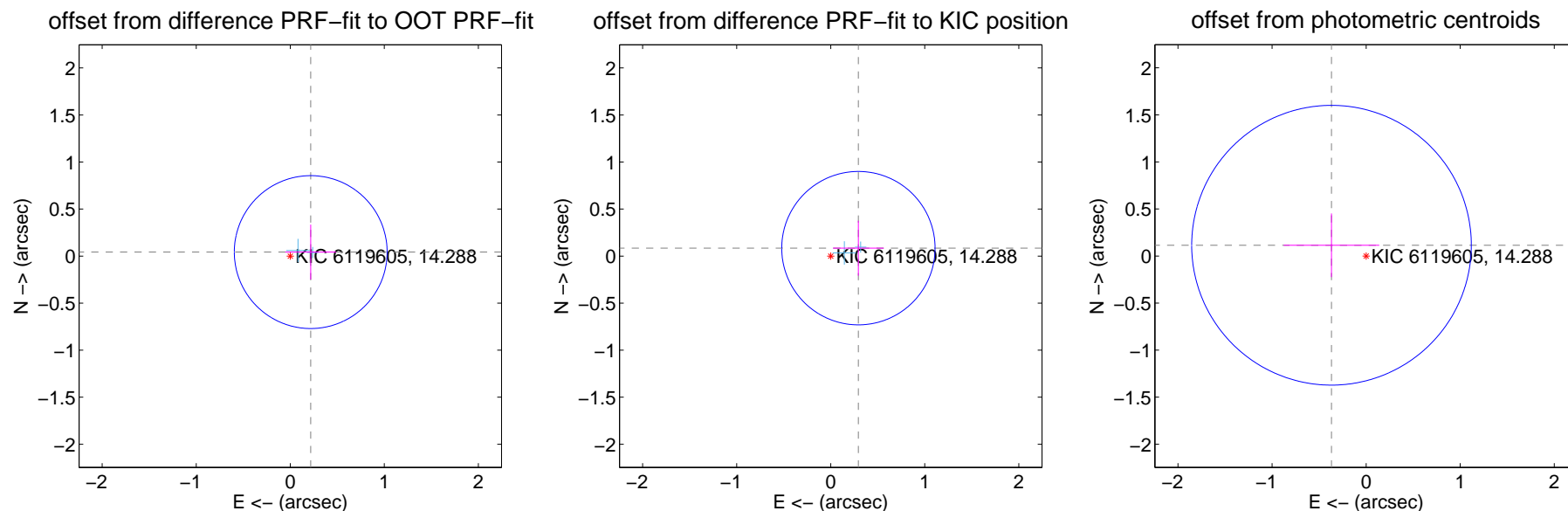
## DV Centroid Data

Supplemental centroid analysis for 006119605-06. Kepler magnitude: 14.29. Transit SNR 8.65

There are 2 quarters with good PRF difference image offsets

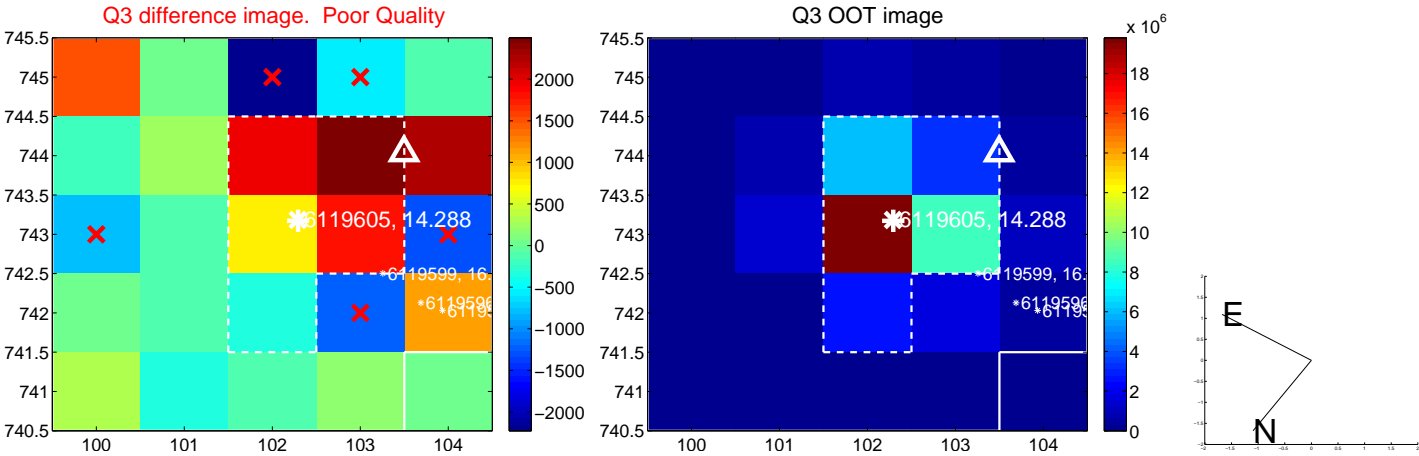
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.222 \pm 0.271$	0.82	$-0.218 \pm 0.270$	$0.043 \pm 0.292$
PRF-fit source offset from KIC position	$0.306 \pm 0.272$	1.13	$-0.294 \pm 0.270$	$0.084 \pm 0.292$
photometric centroid source offset	$0.39 \pm 0.50$	0.78	$0.37 \pm 0.51$	$0.11 \pm 0.34$

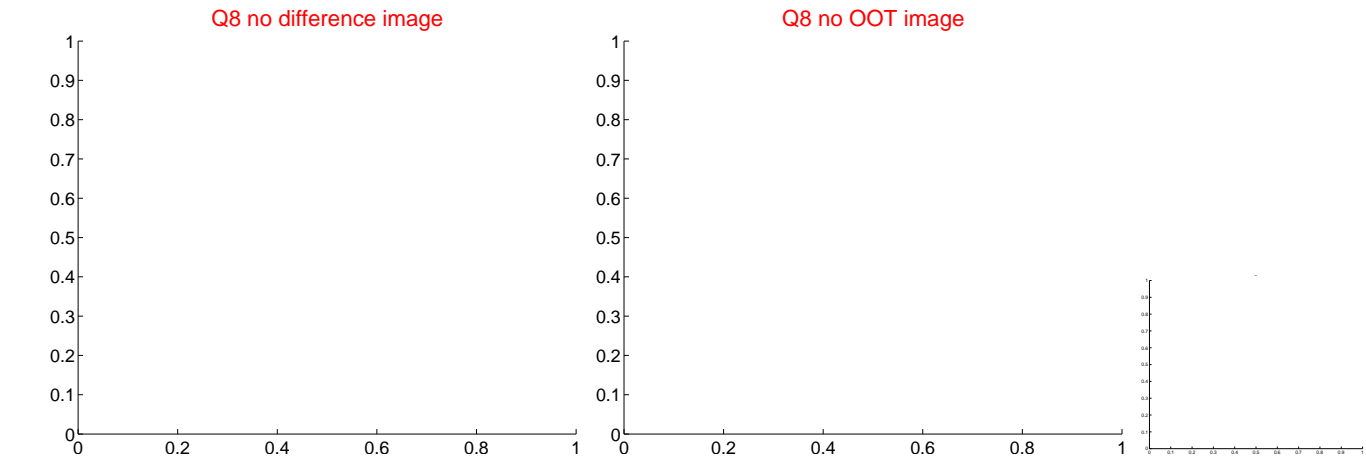
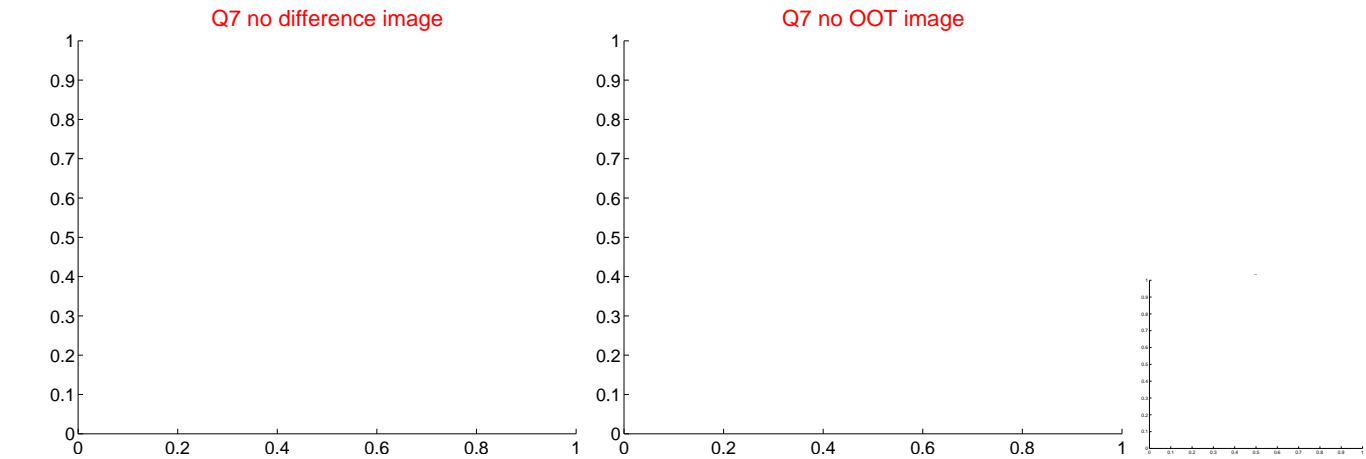
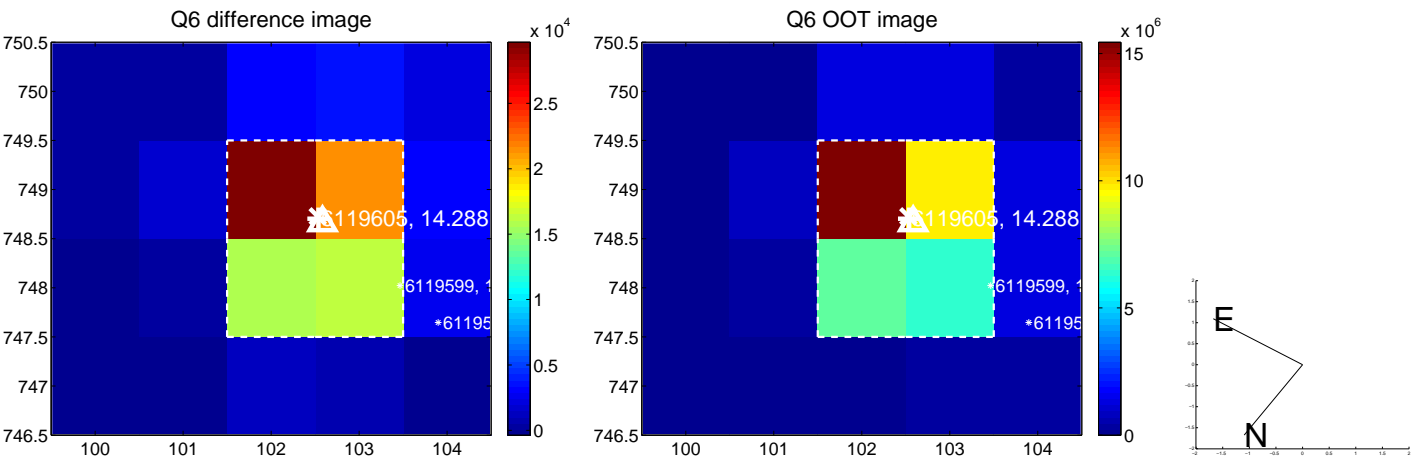
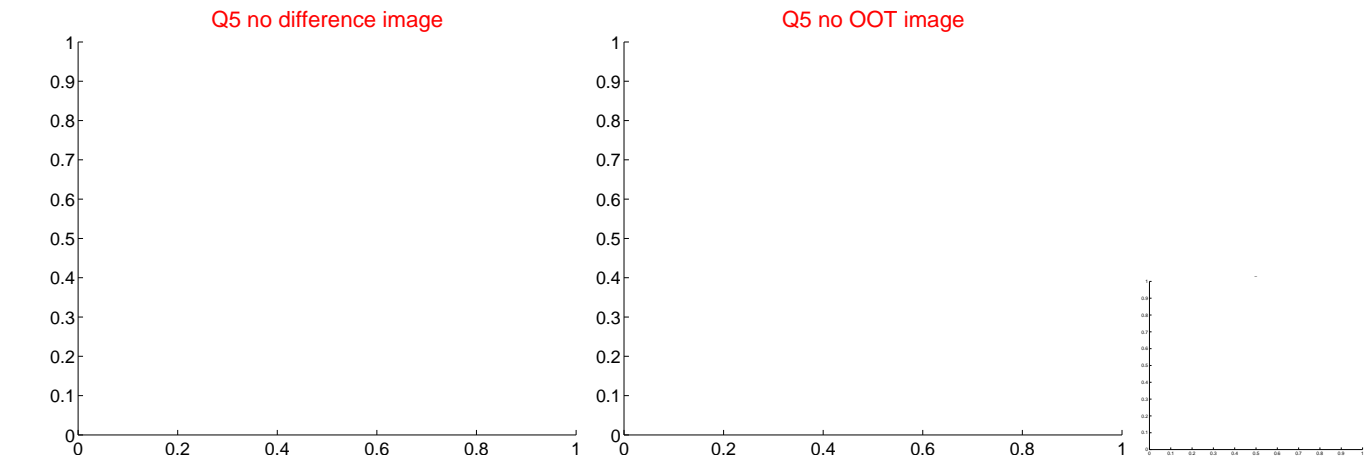


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

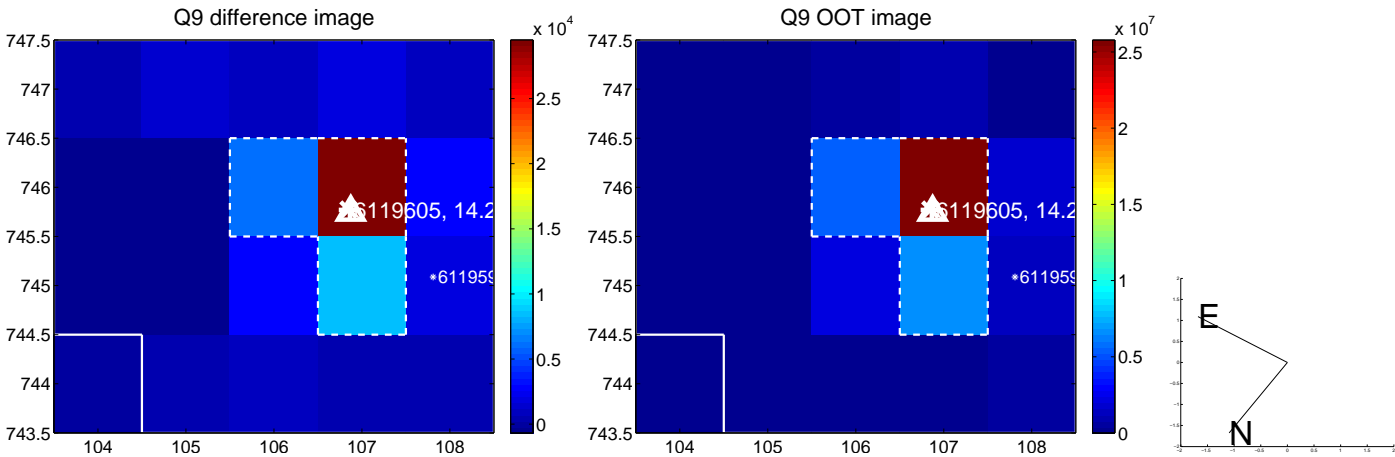


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





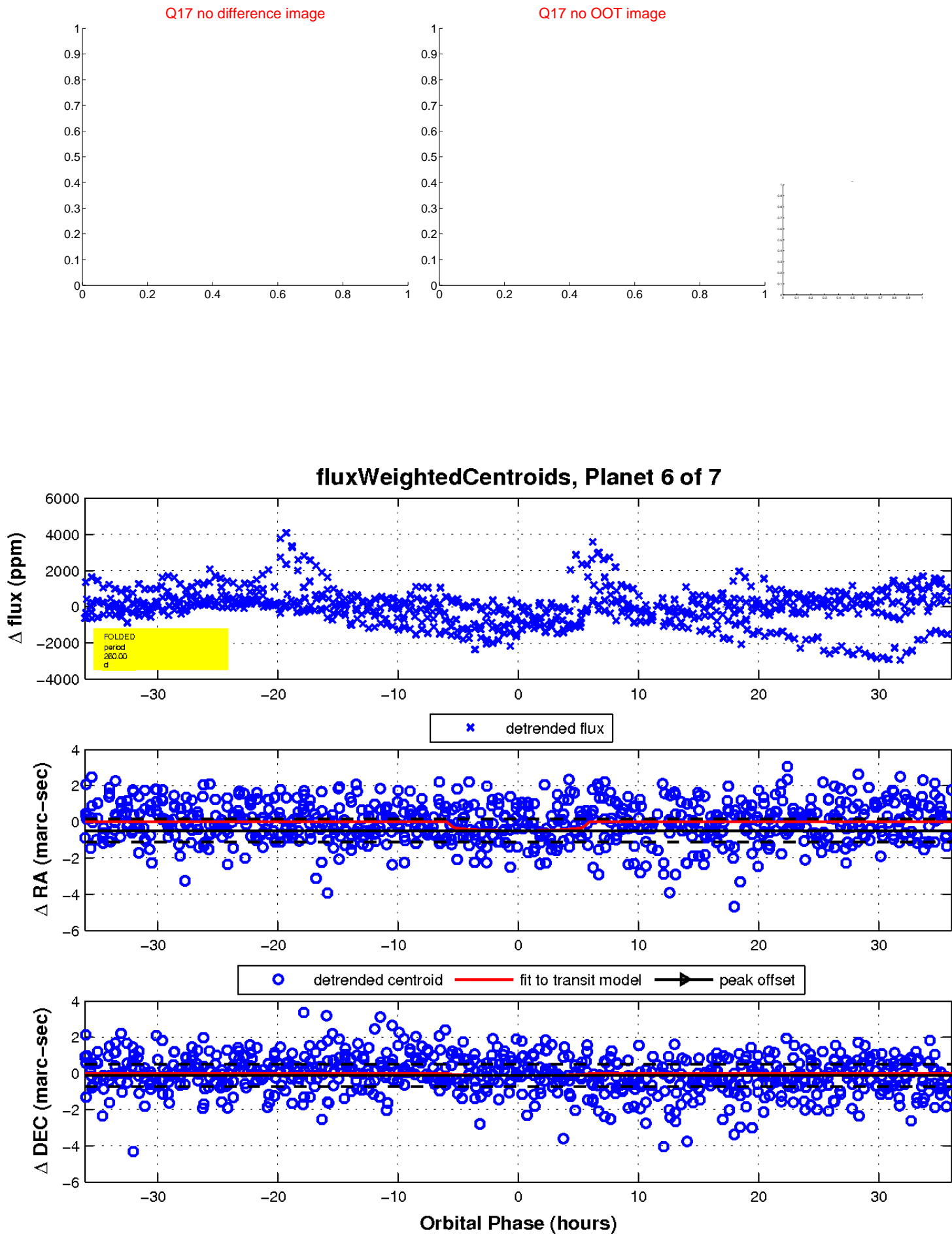
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

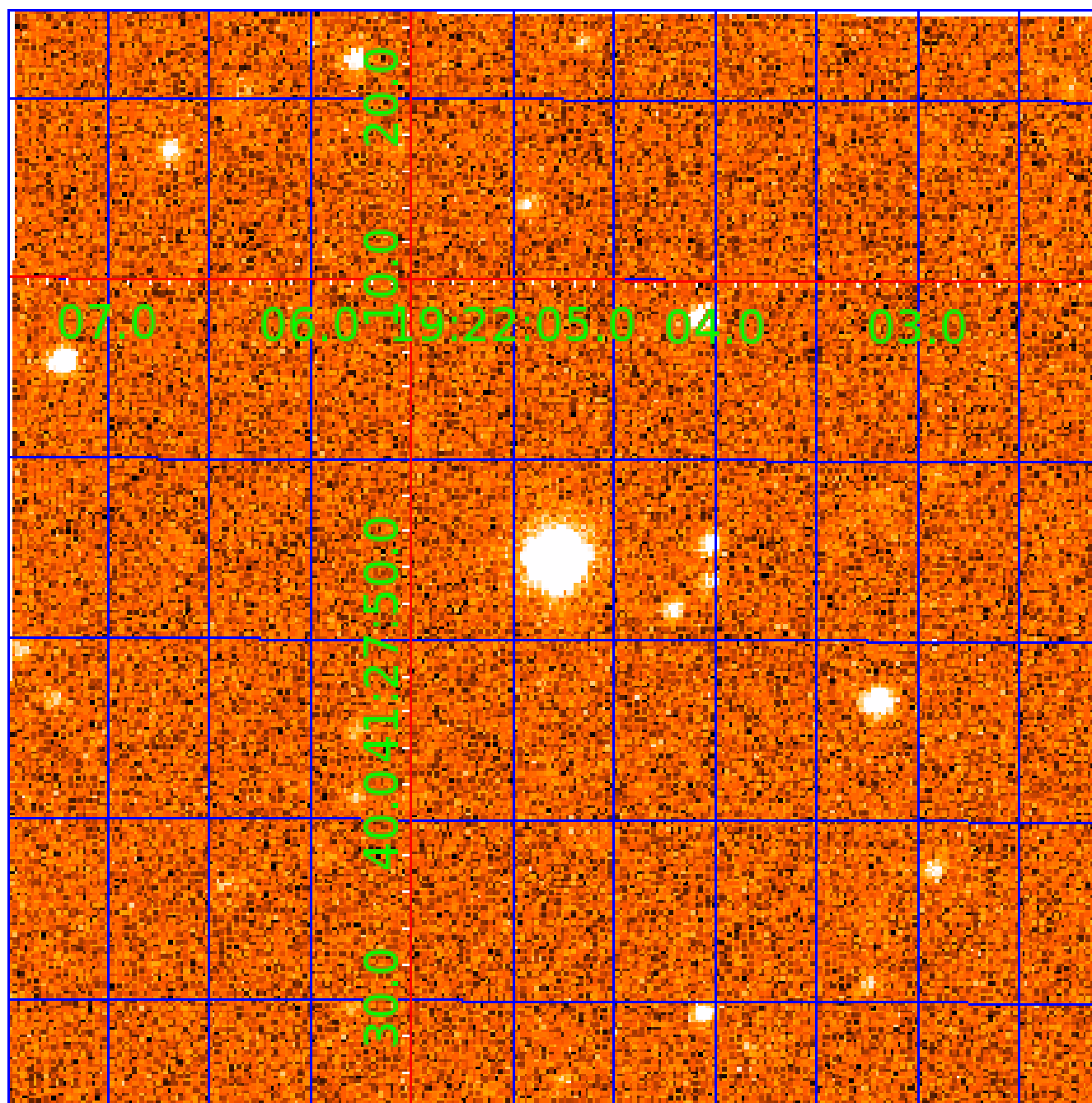


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 006119605

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006119605-01	OBS	No	475.110030	548.785826	1087.1	6.615	21.2	5.6	0.61	5250	3.92	0.24
006119605-03	OBS	No	470.931543	419.897772	1341.2	2.604	15.5	9.7	0.61	5250	2.27	0.24
006119605-04	OBS	No	464.978254	577.004763	1428.9	9.148	16.8	8.8	0.61	5250	2.33	0.24
006119605-05	OBS	No	302.375481	403.718681	819.8	6.639	14.4	6.6	0.61	5250	1.80	0.43
006119605-06	OBS	8118.01	259.997985	329.865660	1023.1	12.029	11.0	8.7	0.61	5250	2.04	0.53
006119605-07	OBS	No	285.994917	227.477208	829.0	5.000	12.7	-1.0	0.61	5250	1.74	0.46

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006119605-01	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
006119605-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS
006119605-04	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
006119605-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006119605-06	OBS	FP	0.13	1	0	0	0	MOD_NONUNIQ_DV—CENT_FEW_DIFFS
006119605-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

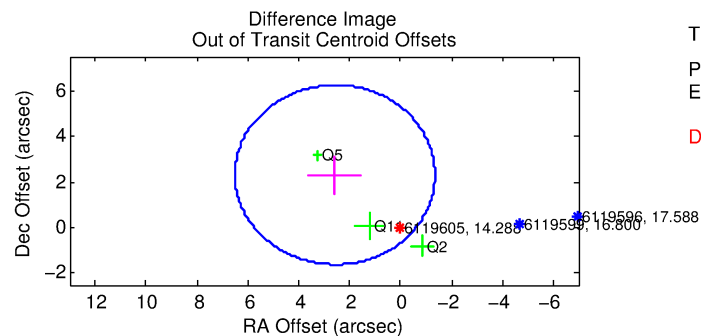
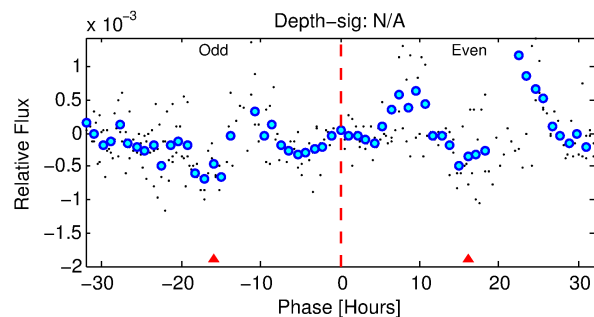
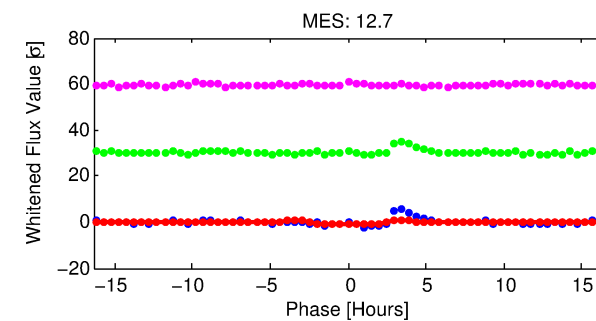
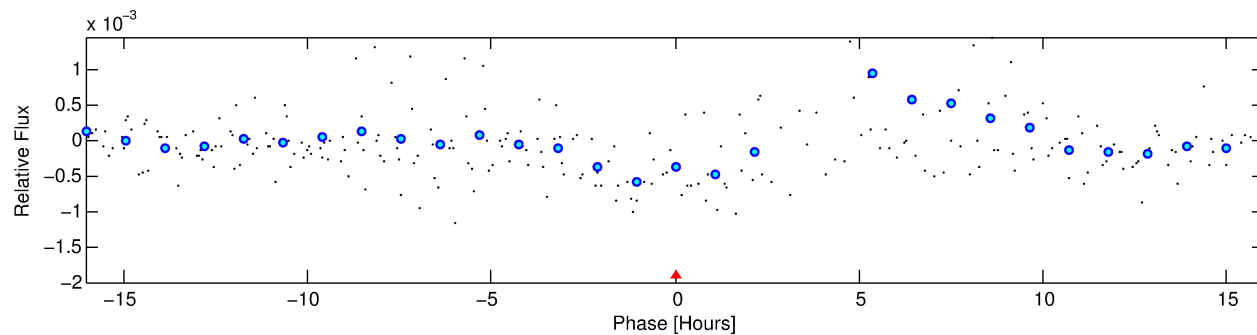
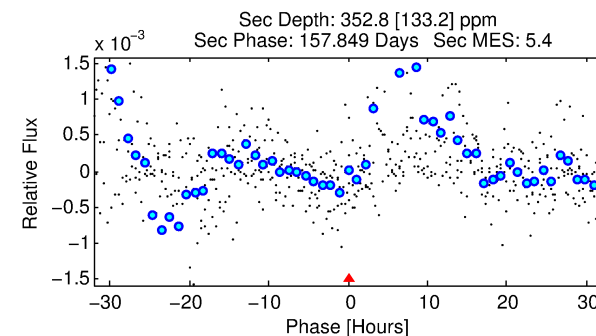
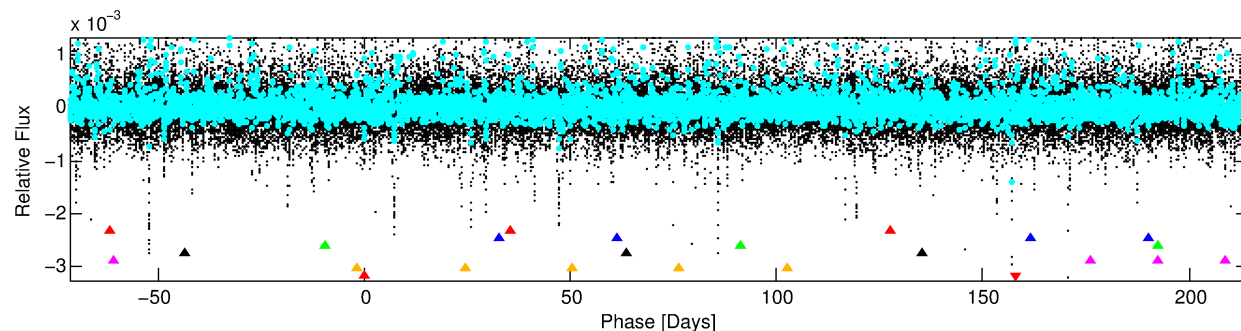
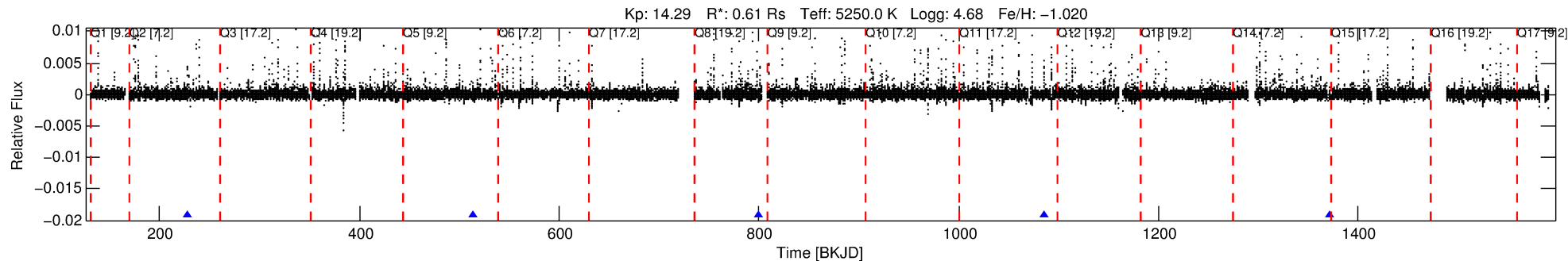
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006119605-07

No Significant Match Found

# DV One-Page Summary

KIC: 6119605 Candidate: 7 of 7 Period: 285.995 d



## TPS TCE Results:

Period = 285.99492 d  
Epoch = 227.4772 BKJD

DV fit results are unavailable

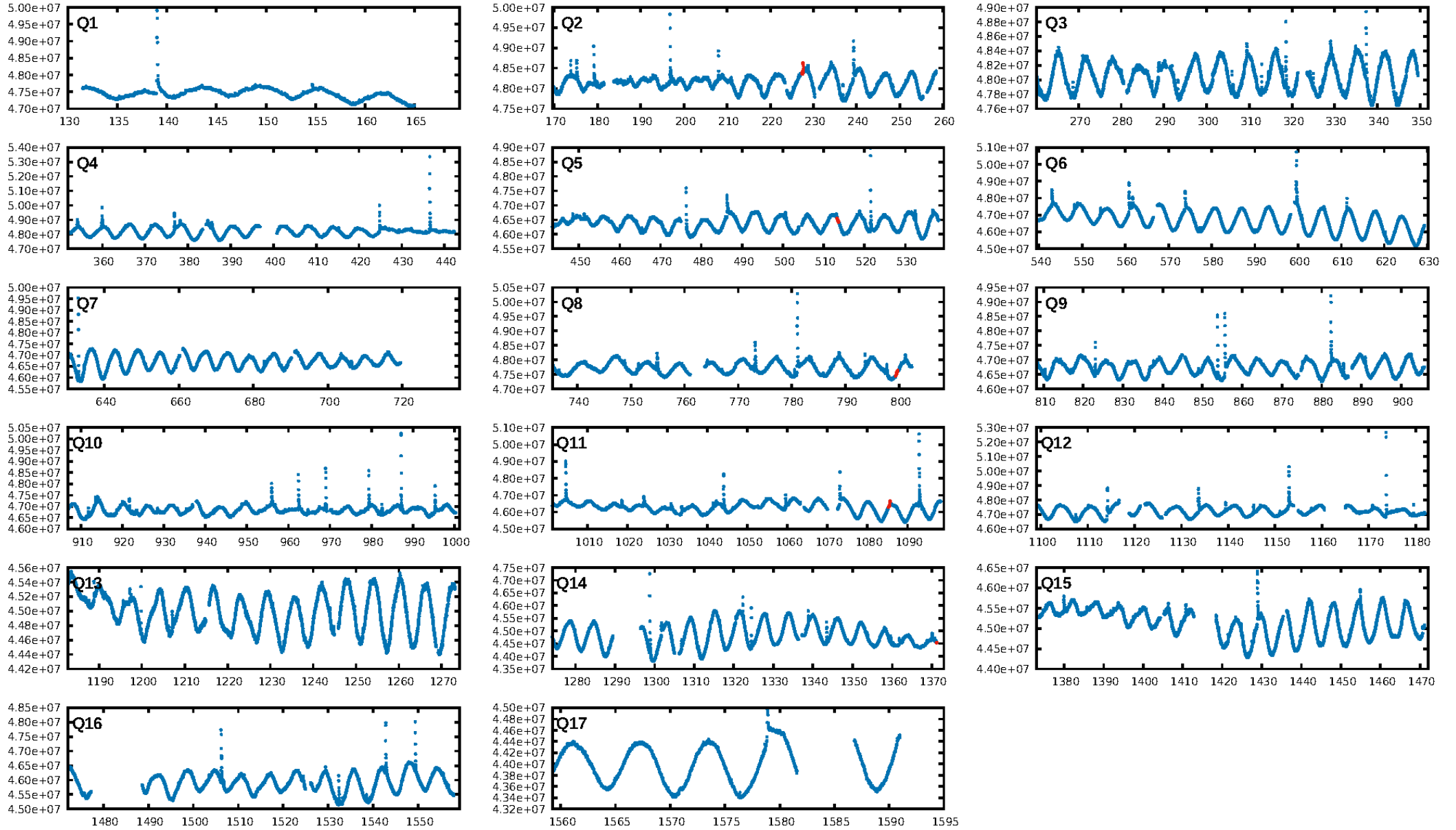
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [47.89σ]  
LongPeriod-sig: 100.0% [47.30σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 1.742  
Centroid-sig: 4.1%  
Centroid-so: 1.023 arcsec [1.66σ]  
OotOffset-rm: 3.467 arcsec [2.65σ]  
KicOffset-rm: 3.447 arcsec [2.91σ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [4/4]

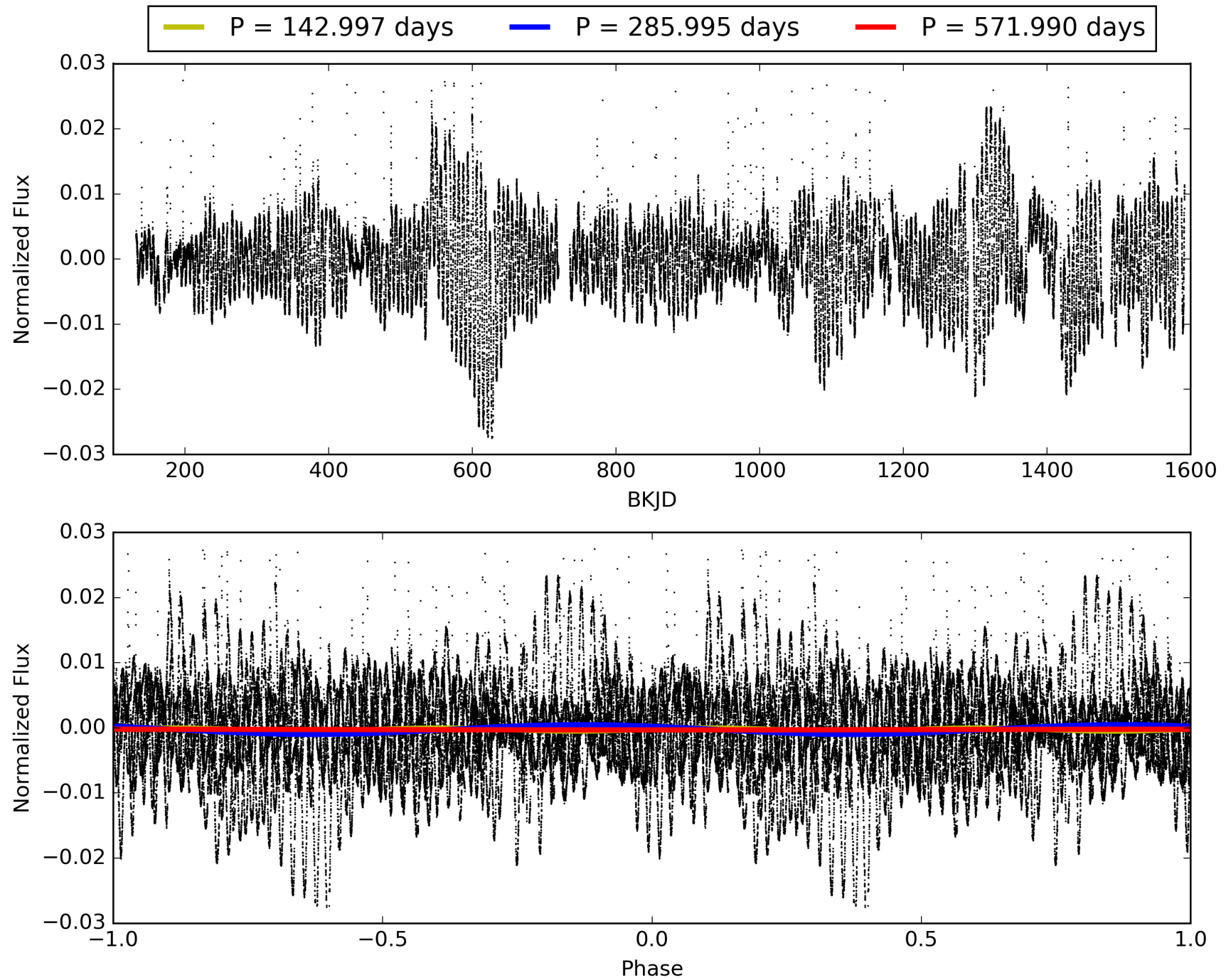
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:56:03 Z

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

# TCE 006119605-07, PDC Light Curves



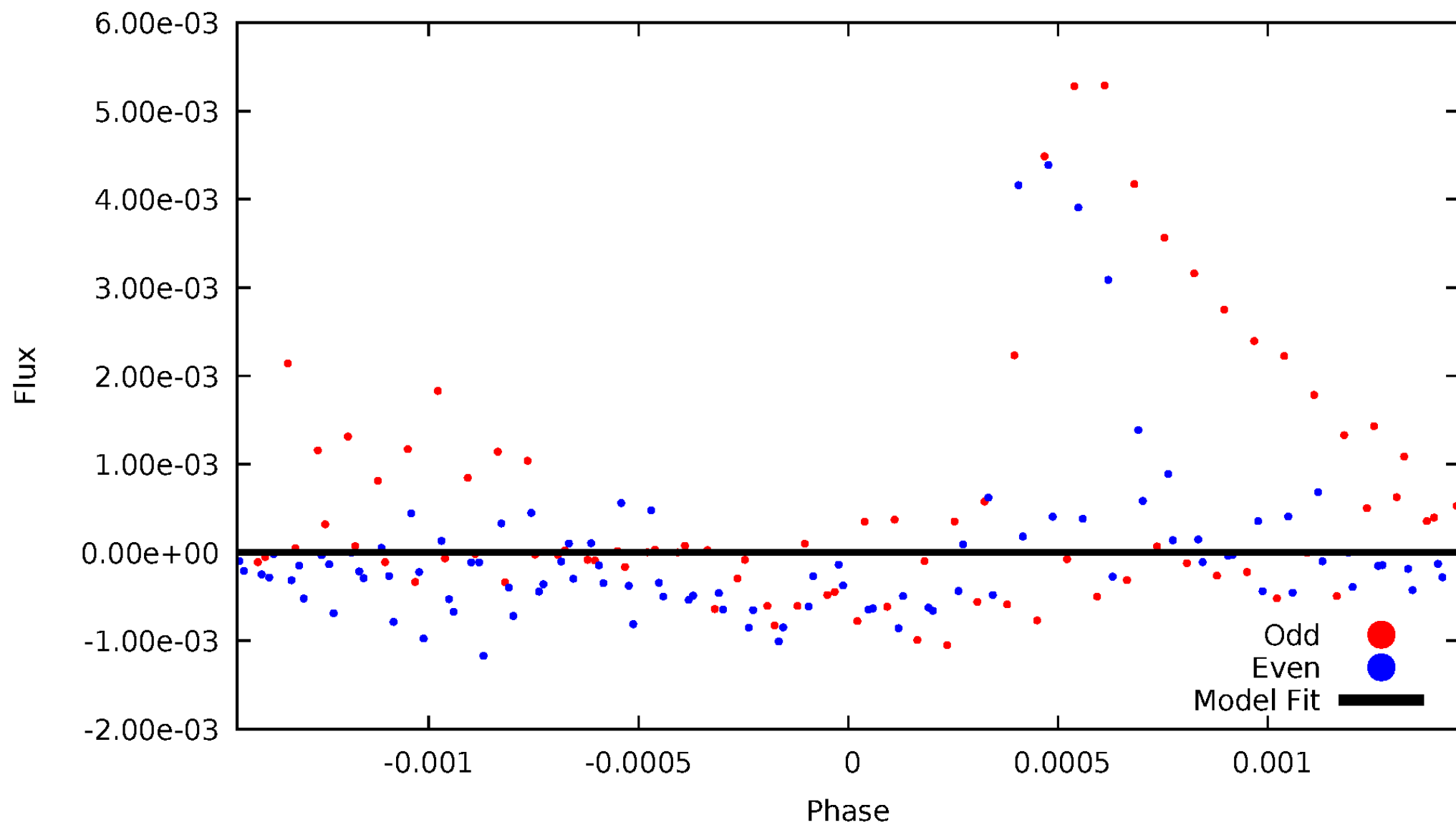
TCE 006119605-07





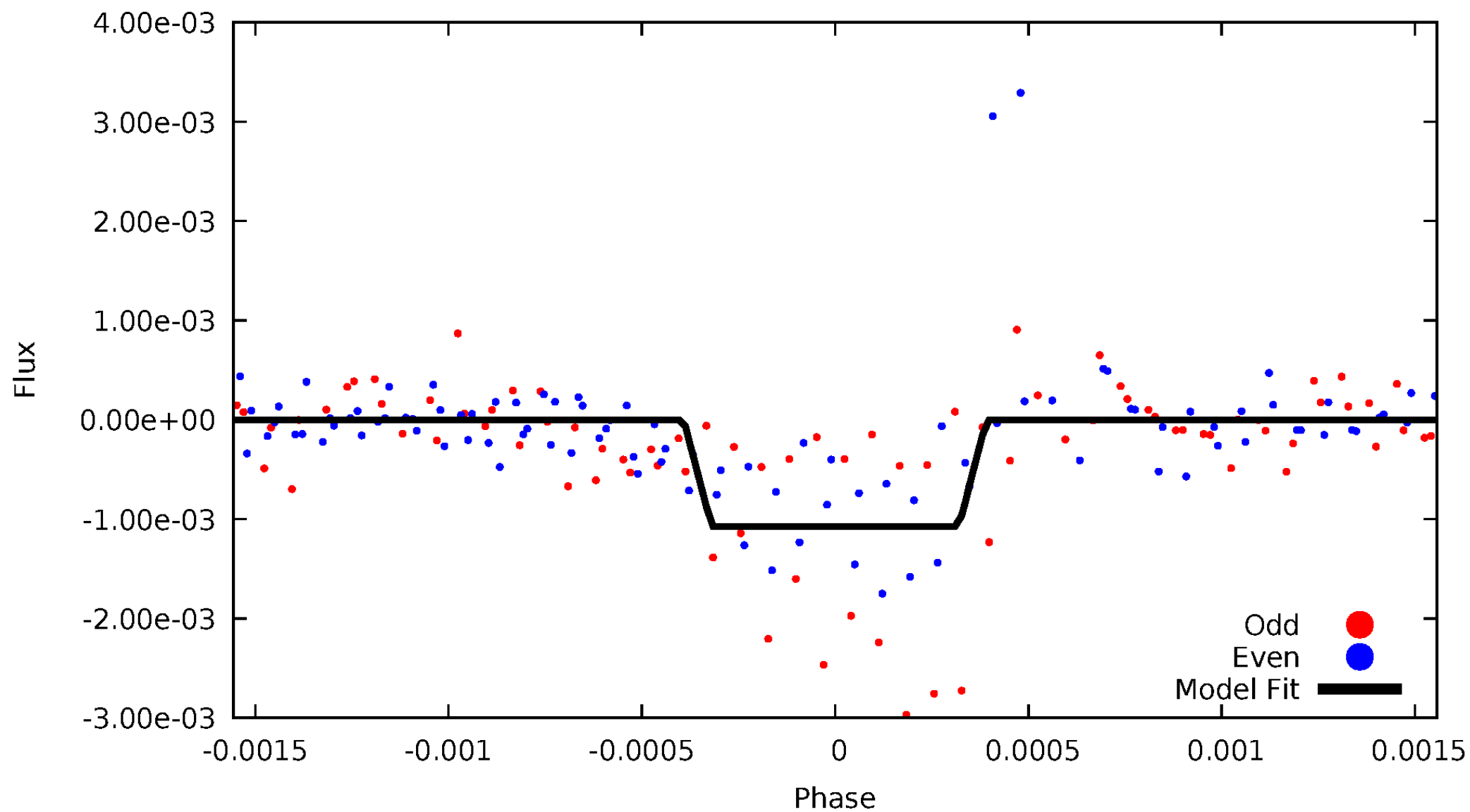
# DV Odd/Even

TCE 006119605-07

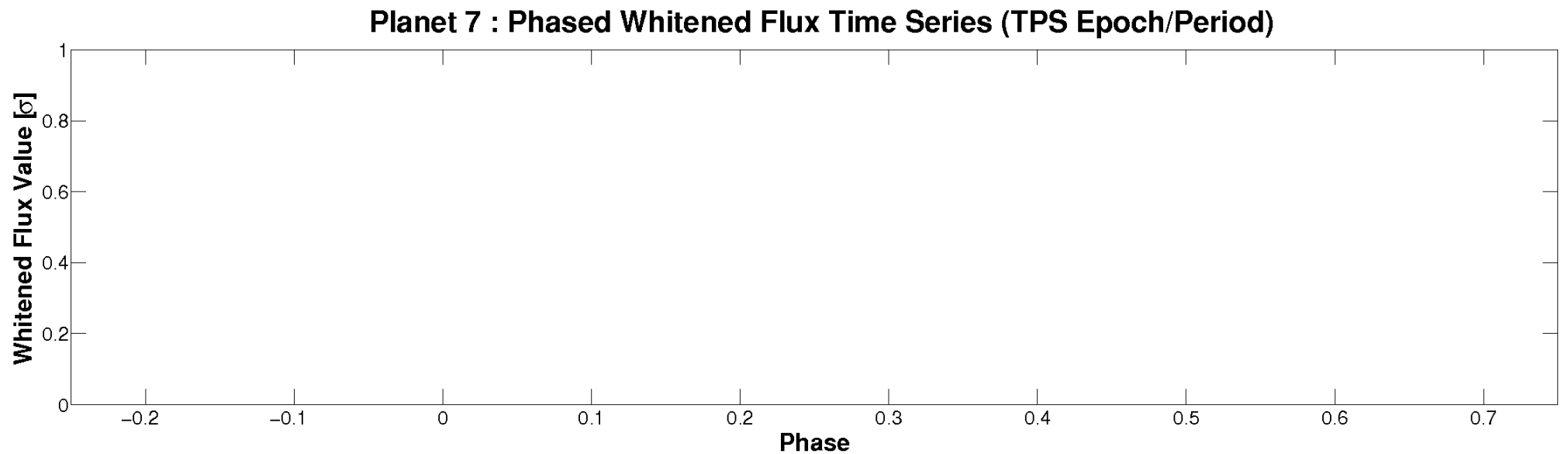
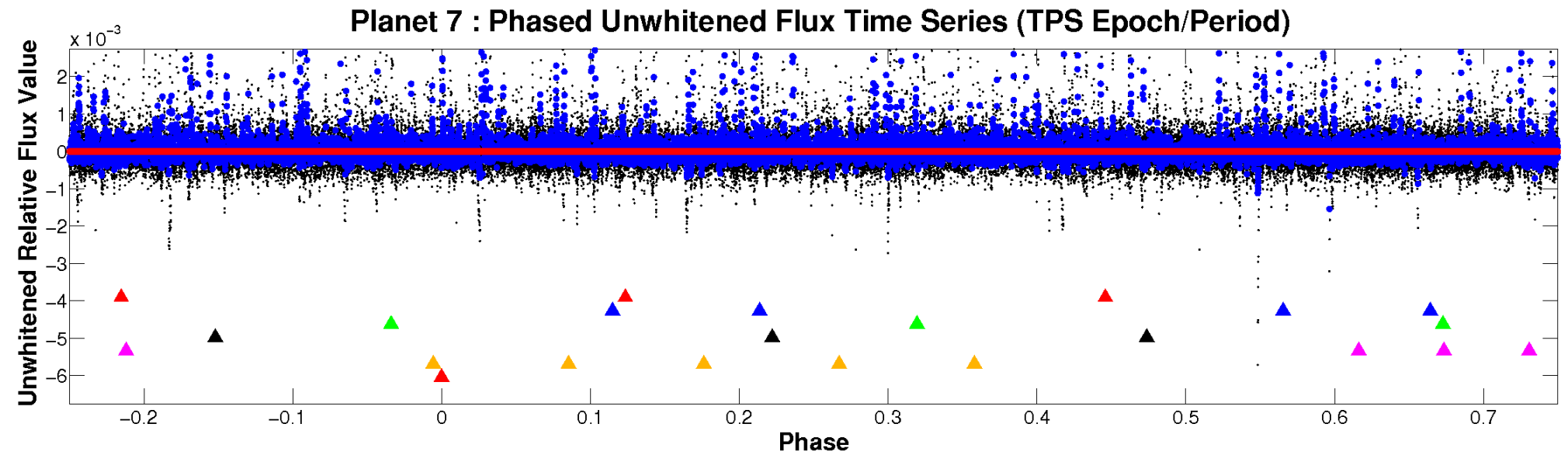


# ALT Odd/Even

TCE 006119605-07

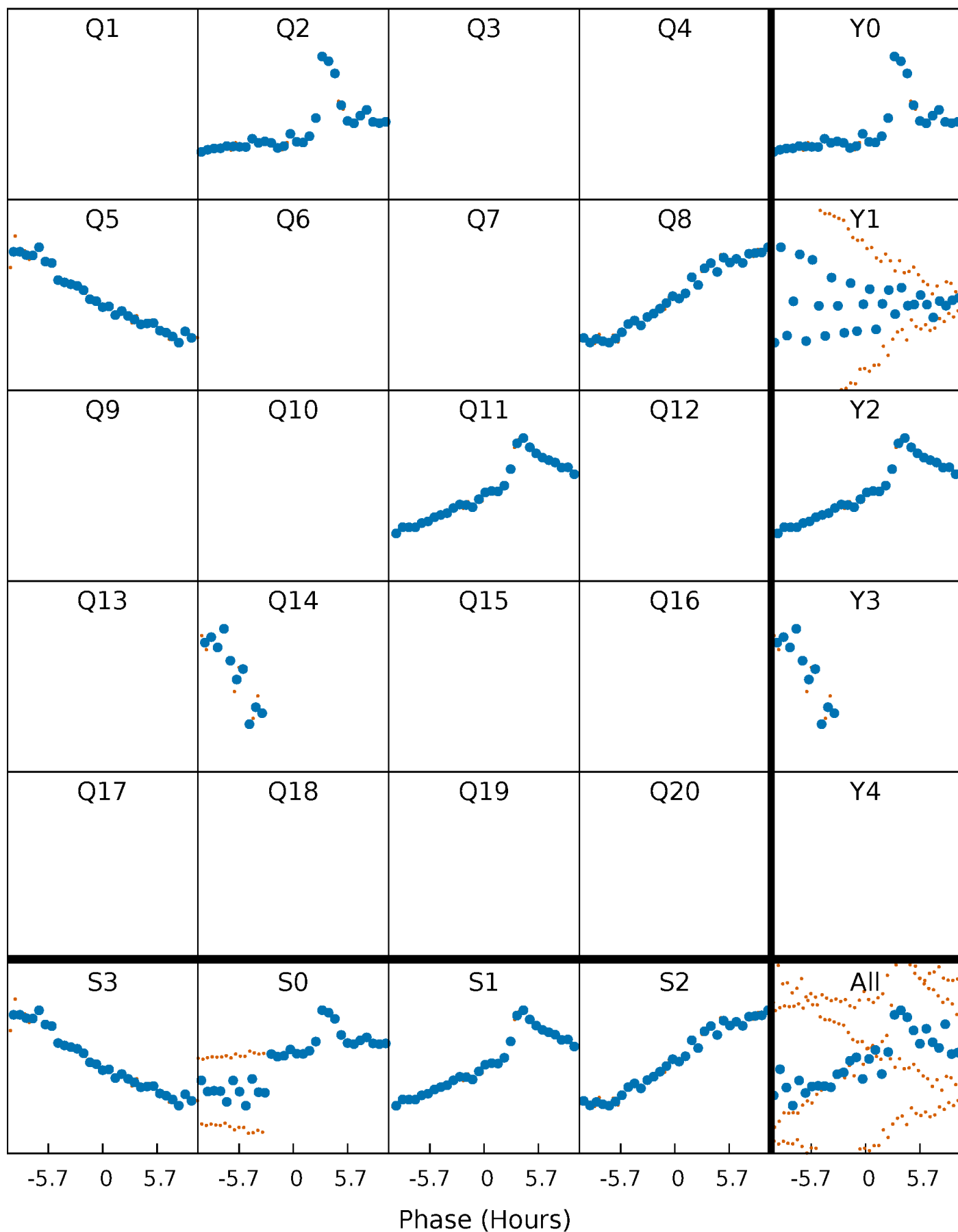


# Non-Whitened Vs. Whitened Light Curve



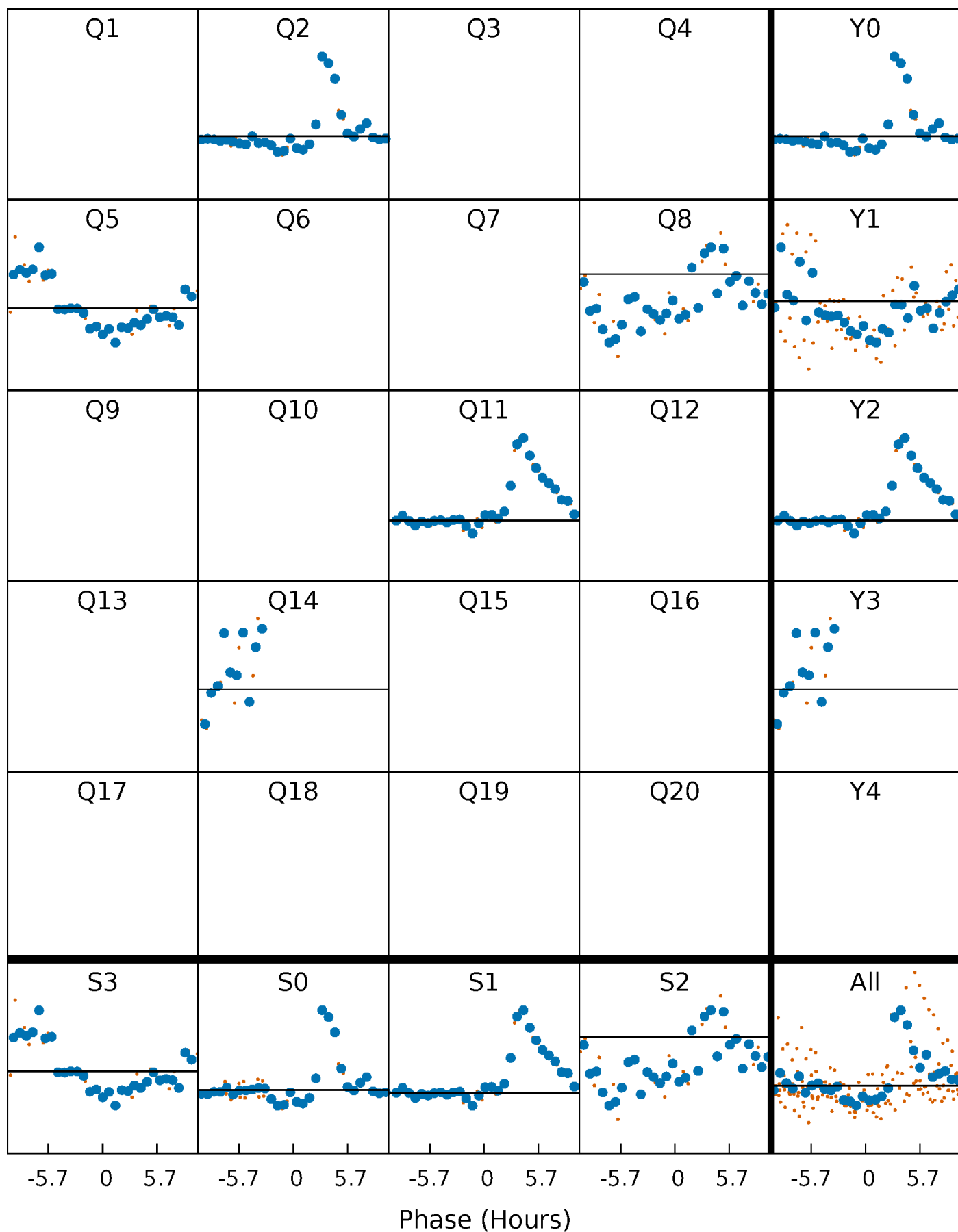
# PDC Quarter-Phased Transit Curves

TCE 006119605-07     $P=285.994917$  Days     $T_0=227.477208$  (BKJD)



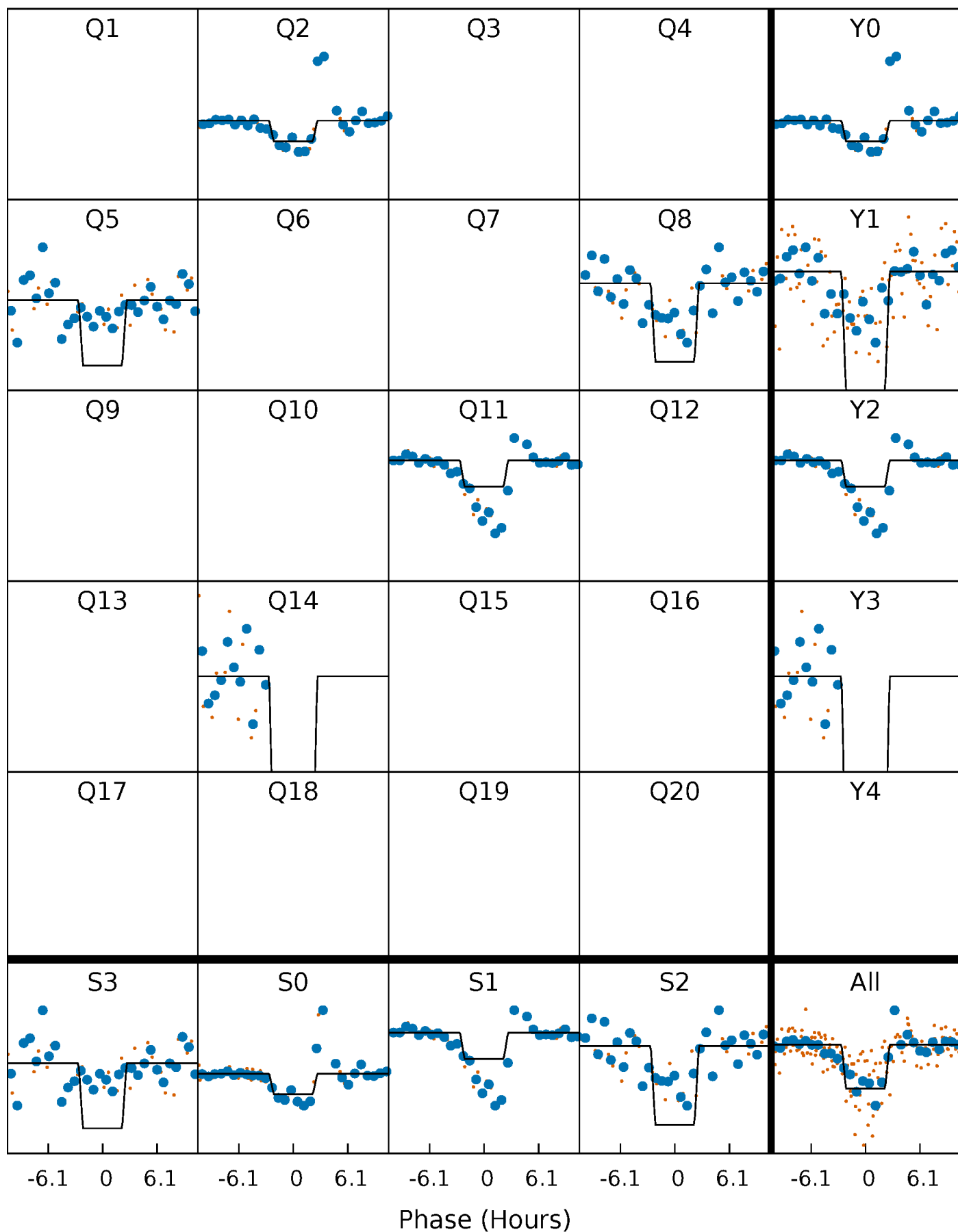
# DV Quarter-Phased Transit Curves

TCE 006119605-07     $P=285.994917$  Days     $T_0=227.477208$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

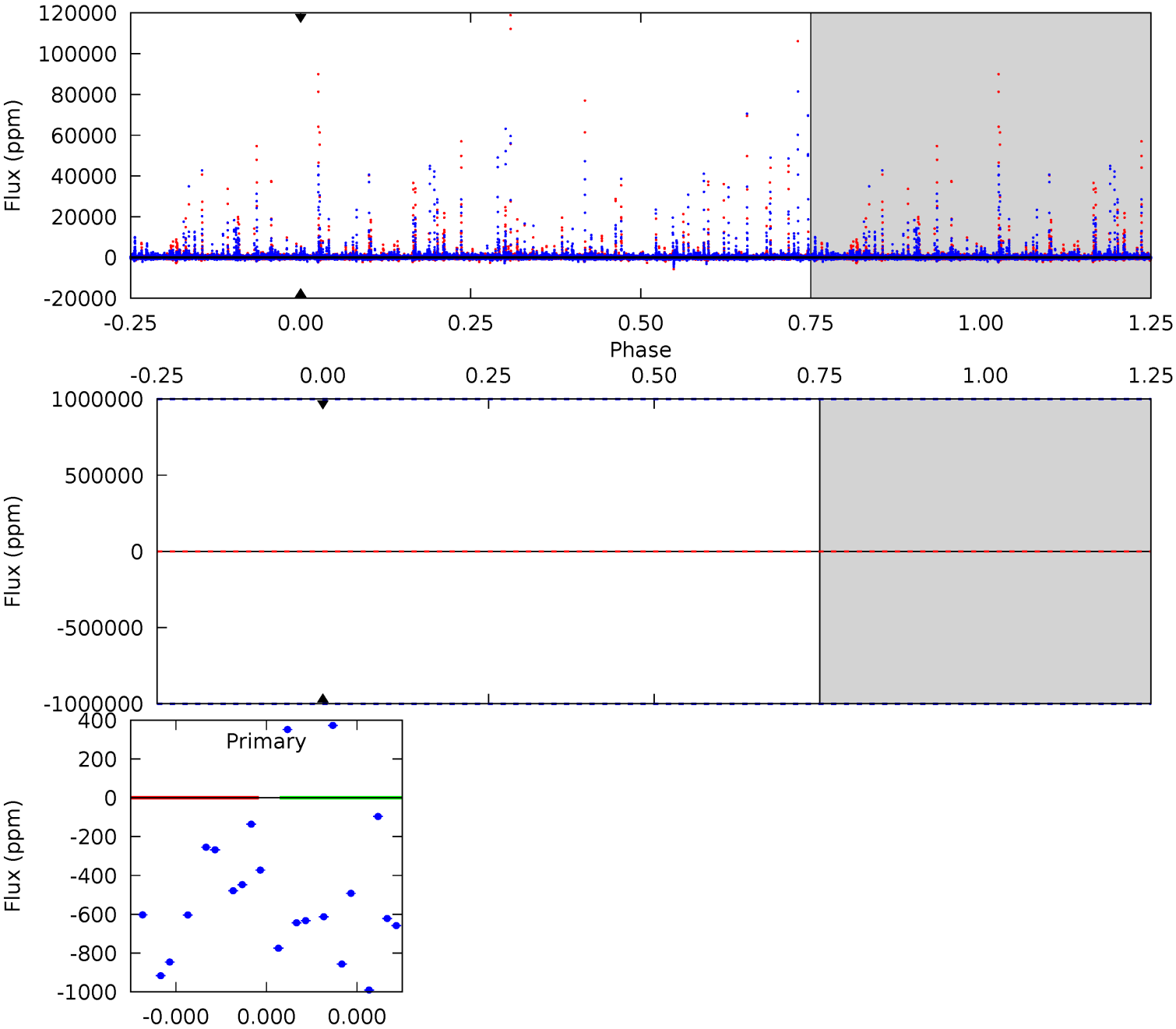
TCE 006119605-07 P=285.994917 Days  $T_0=227.476494$  (BKJD)



# DV Model-Shift Uniqueness Test

006119605-07, P = 285.994917 Days, E = 227.477208 Days

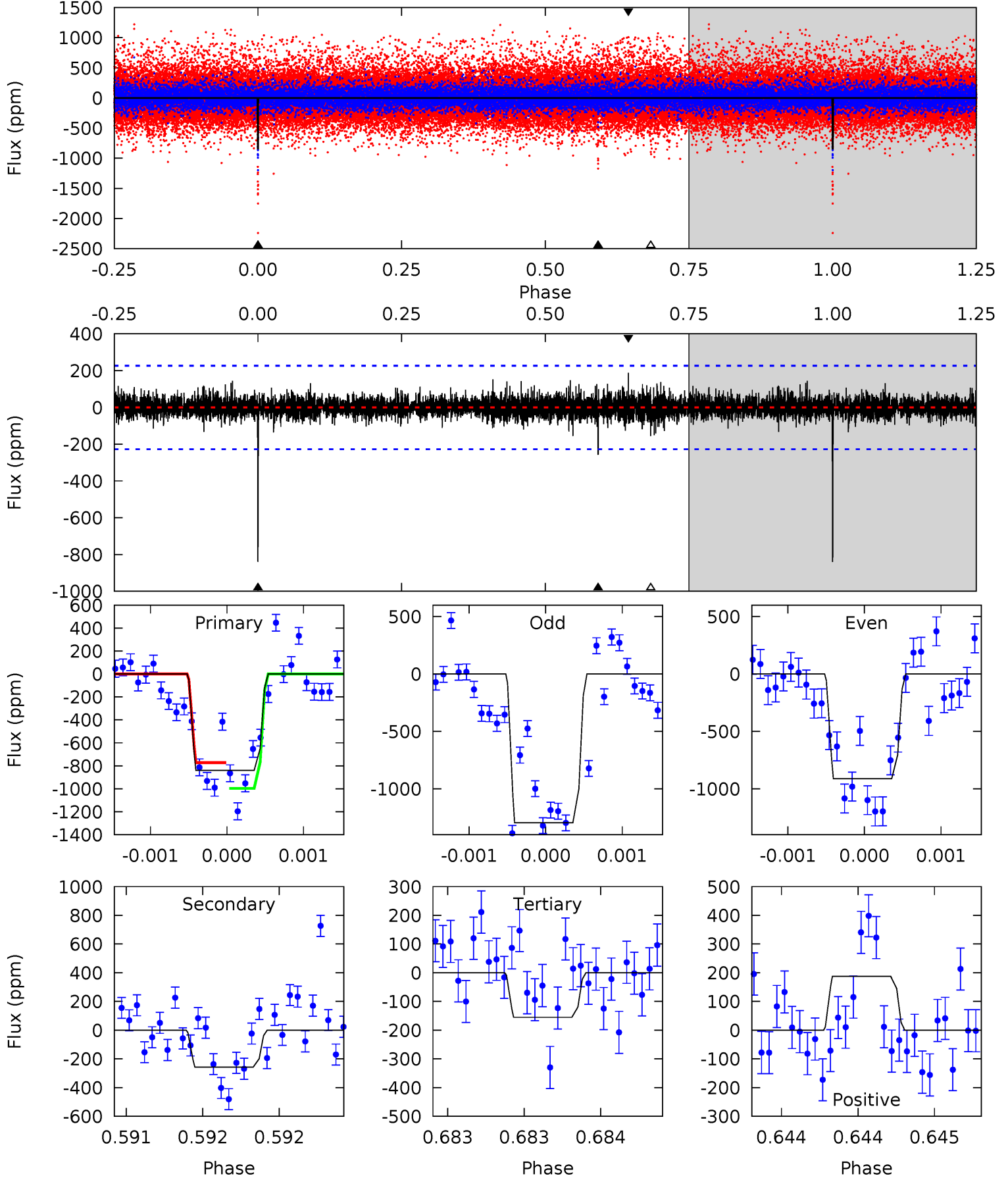
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

006119605-07, P = 285.994917 Days, E = 227.476494 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
20.3	6.24	3.75	4.55	5.50	3.36	0.86	16.6	15.8	2.49	1.69	4.63	1.17	0.18	2.75





### Stellar Parameters For KIC 006119605

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5250^{+157}_{-141}$	$4.684^{+0.032}_{-0.056}$	$-1.020^{+0.300}_{-0.300}$	$0.608^{+0.057}_{-0.031}$	$0.650^{+0.046}_{-0.032}$	$4.081^{+0.524}_{-0.764}$
	+3%/-3%	+1%/-1%	+29%/-29%	+9%/-5%	+7%/-5%	+13%/-19%
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 006119605-07 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$5.07^{+5.64}_{-3.39}$	$295^{+11}_{-9}$	$4113^{+13641}_{-18844}$	$17610^{+2627802}_{-1627272}$
Alt.	$-258 \pm 41$	$5.15^{+5.60}_{-3.48}$	$295^{+10}_{-9}$	$3050^{+1319}_{-546}$	$2989^{+23729}_{-2317}$

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

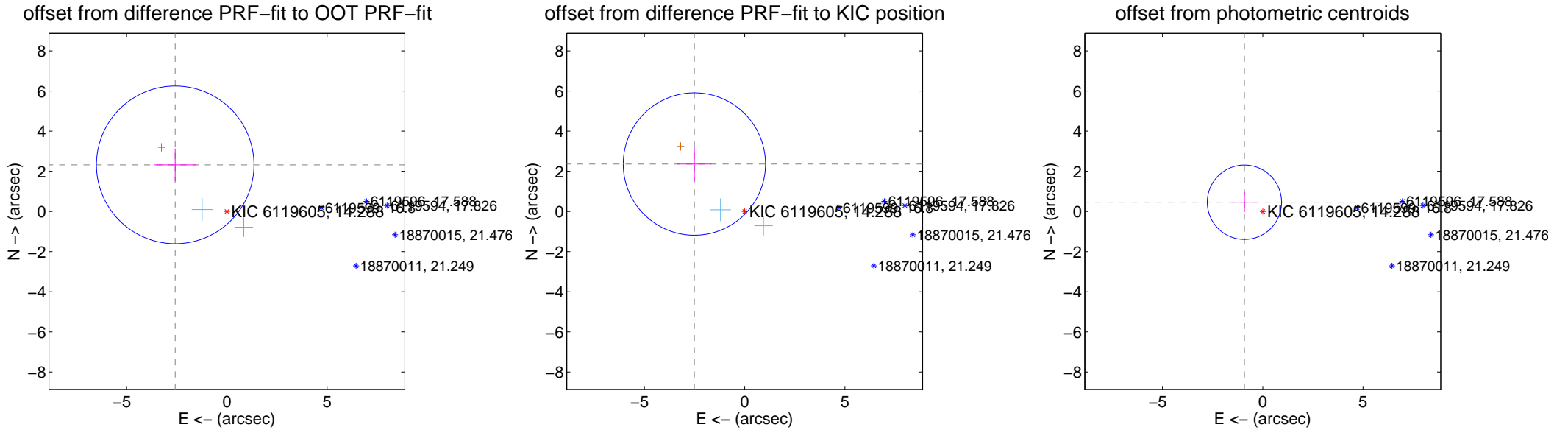
## DV Centroid Data

Supplemental centroid analysis for 006119605-07. Kepler magnitude: 14.29. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.467 \pm 1.310$	2.65	$2.576 \pm 1.040$	$2.322 \pm 0.815$
PRF-fit source offset from KIC position	$3.447 \pm 1.183$	2.91	$2.509 \pm 0.846$	$2.363 \pm 0.856$
photometric centroid source offset	$1.02 \pm 0.62$	1.66	$0.91 \pm 0.64$	$0.46 \pm 0.50$



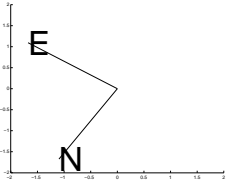
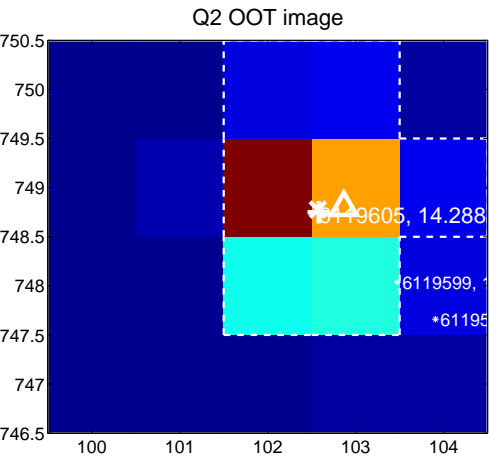
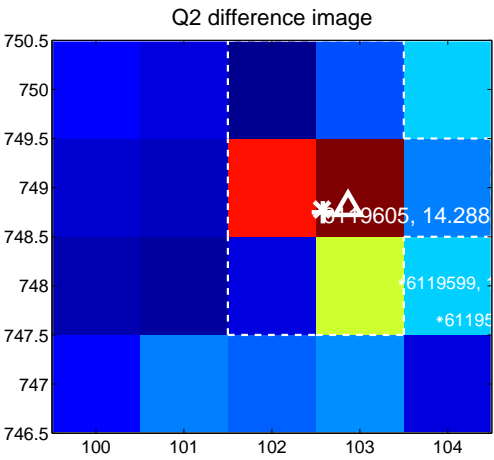
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

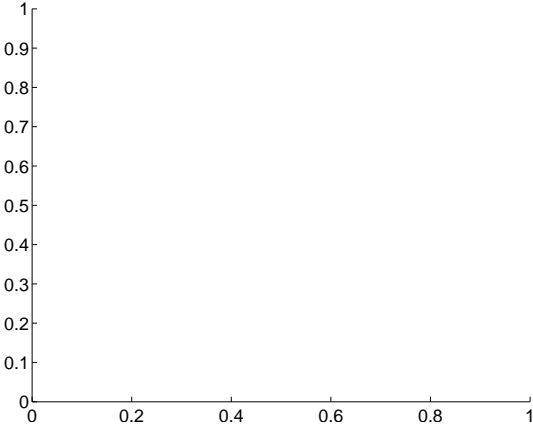
Q1 no difference image



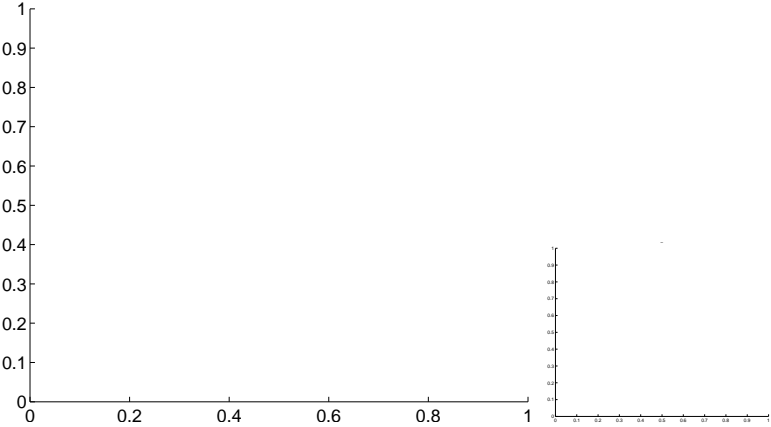
Q1 no OOT image



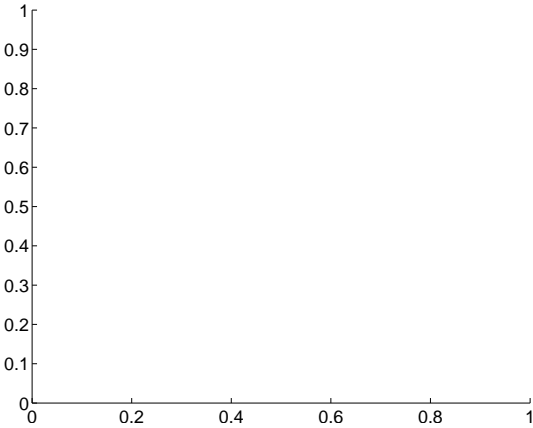
Q3 no difference image



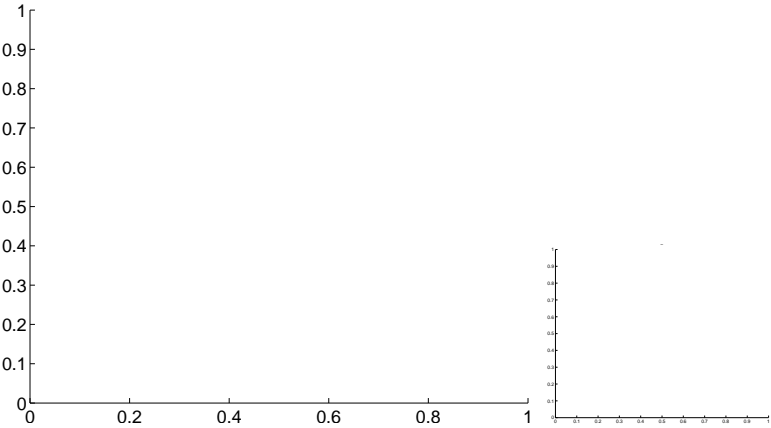
Q3 no OOT image



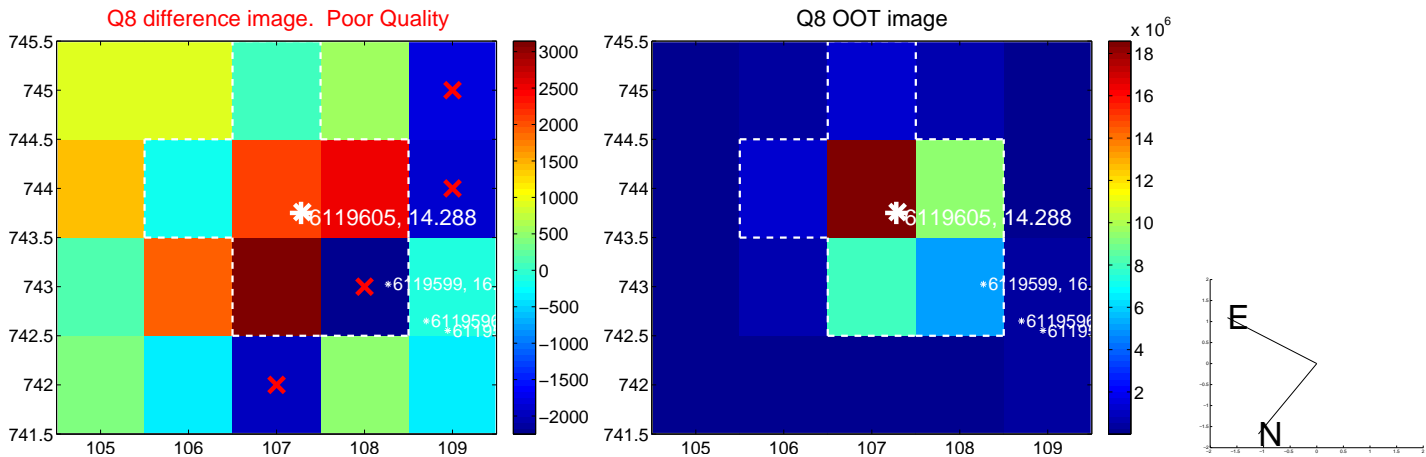
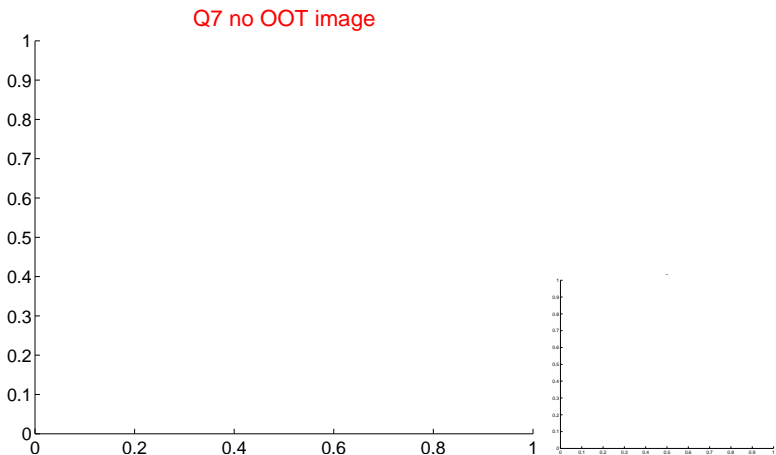
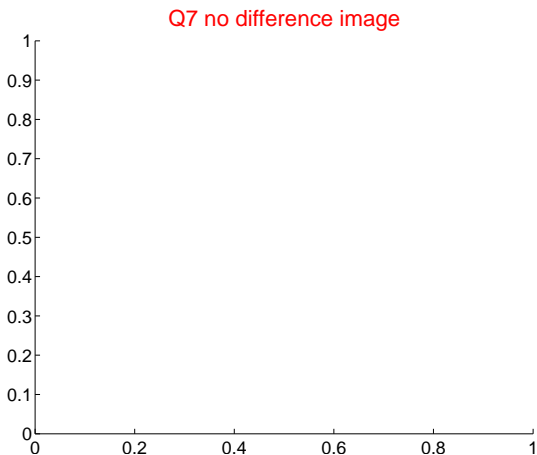
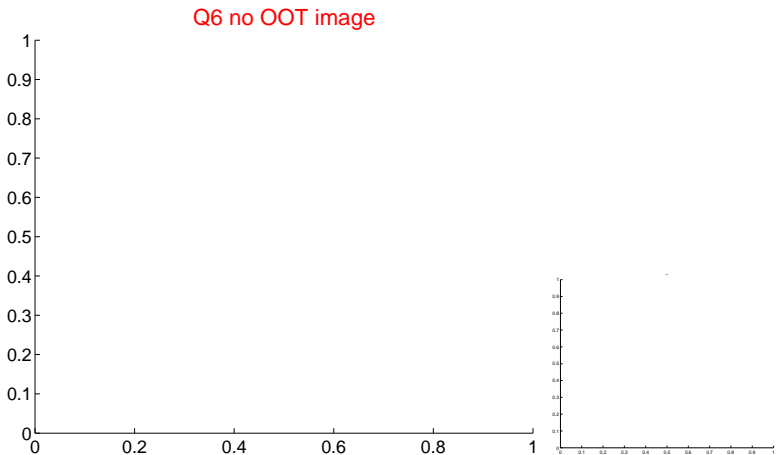
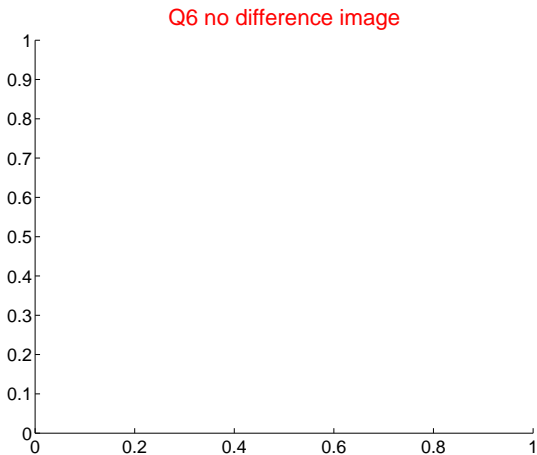
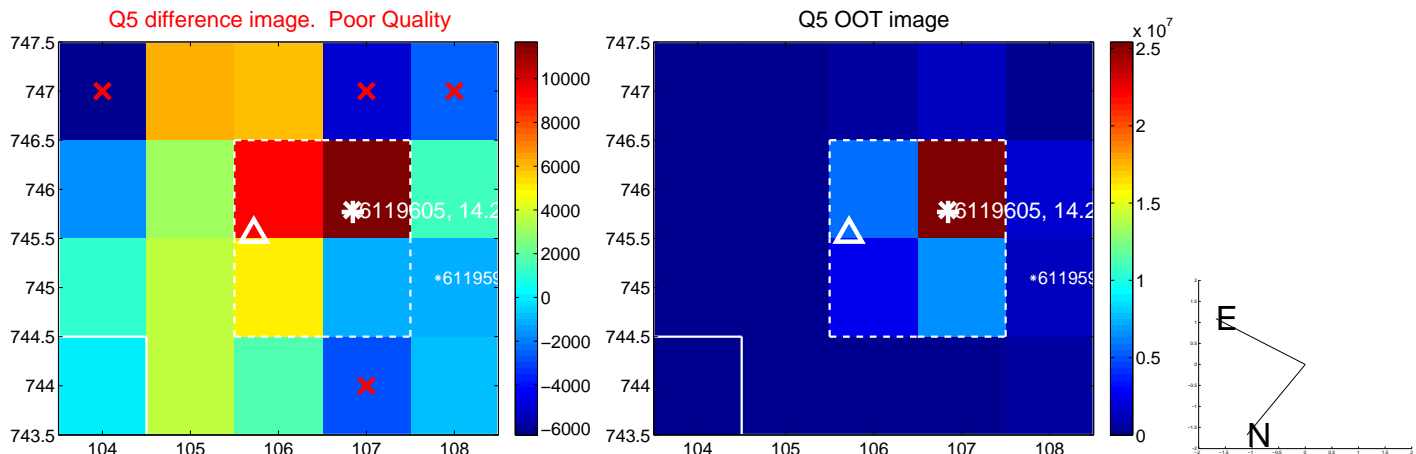
Q4 no difference image



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.

Q9 no difference image



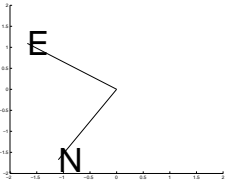
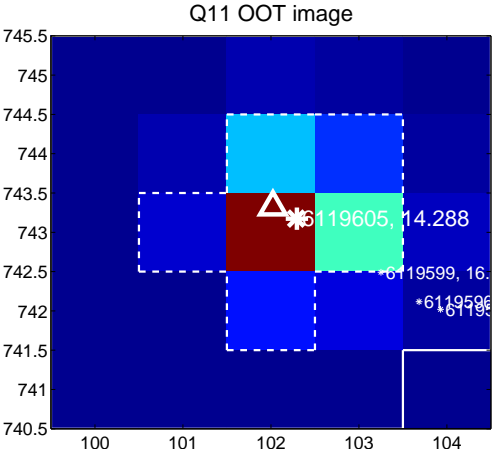
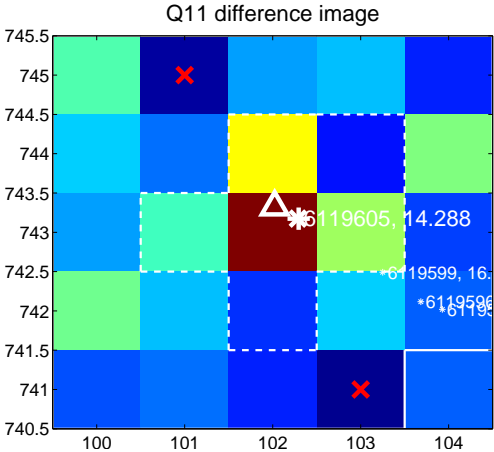
Q9 no OOT image



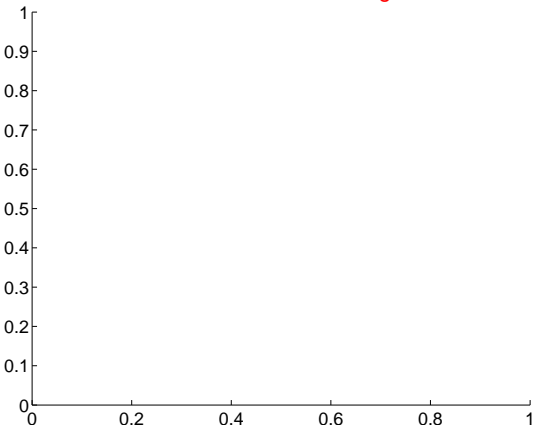
Q10 no difference image



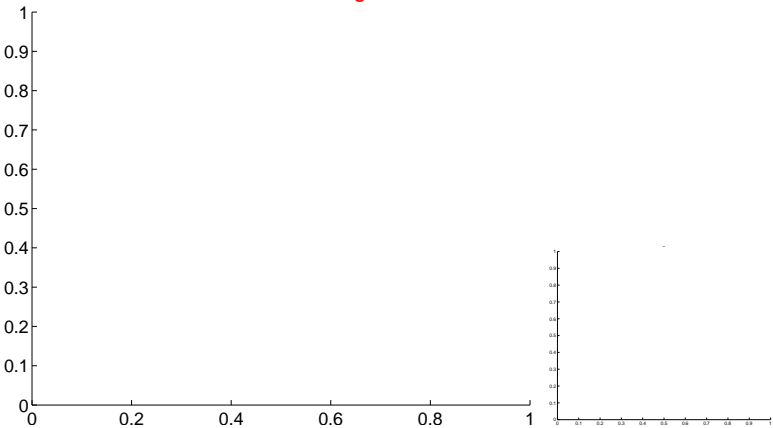
Q10 no OOT image



Q12 no difference image



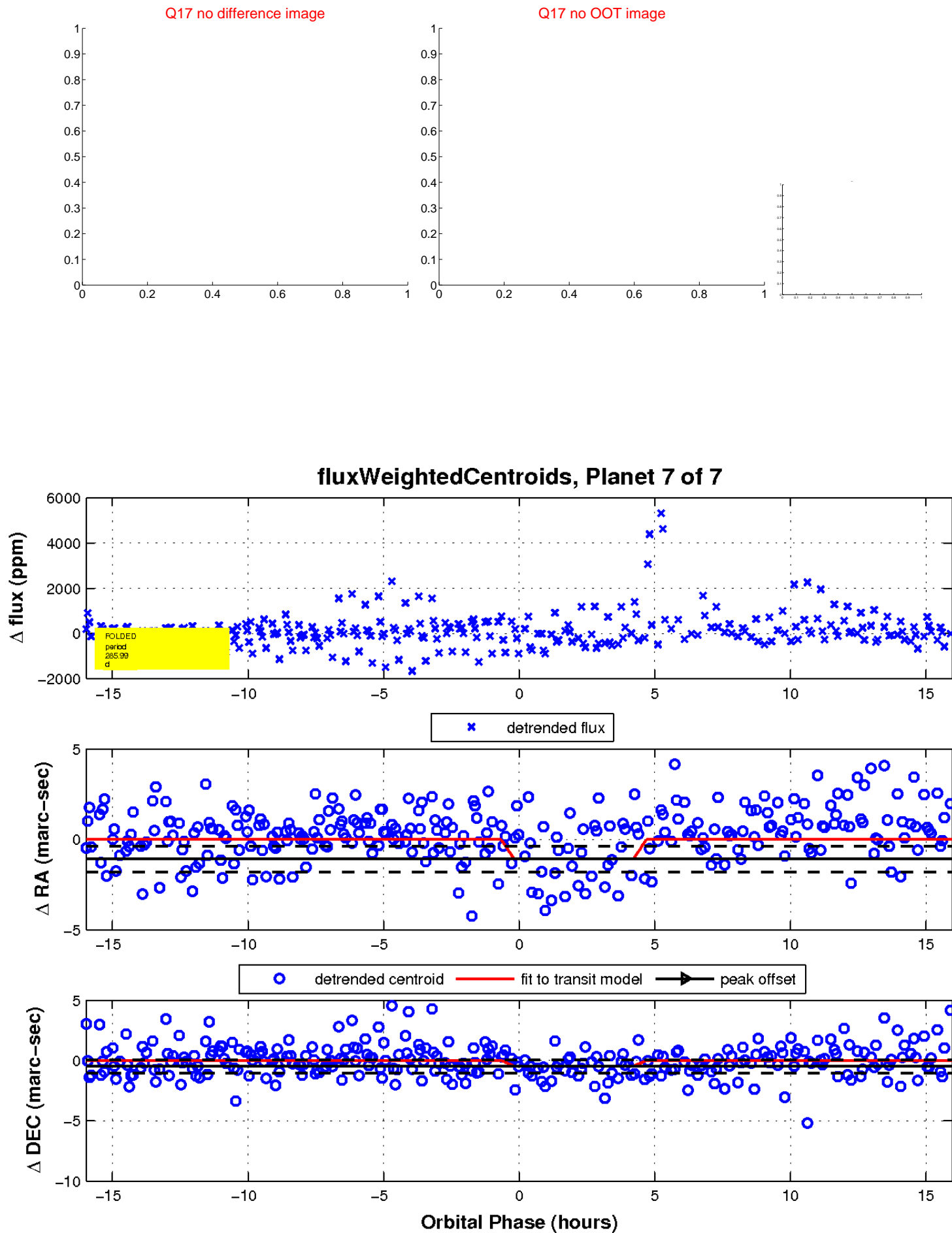
Q12 no OOT image



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.



UKIRT Image

Declination

