

# KIC 005599911

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005599911-01	OBS	No	298.403037	207.000893	1040.1	8.852	14.9	6.0	83.66	4238	278.92	1223.12
005599911-02	OBS	No	435.746600	136.856641	680.2	13.496	13.1	4.5	83.66	4238	227.87	738.29
005599911-03	OBS	No	381.995540	214.494357	1290.2	12.639	12.8	8.0	83.66	4238	285.57	879.96
005599911-04	OBS	No	389.794928	153.471548	1193.4	6.985	15.0	9.0	83.66	4238	283.08	856.56
005599911-05	OBS	No	395.434260	156.590650	927.1	5.903	12.8	7.5	83.66	4238	279.27	840.31
005599911-06	OBS	No	212.056553	180.241526	726.1	2.070	11.9	7.5	83.66	4238	261.87	1928.73

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005599911-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_POS_DV—CENT_FEW_DIFFS
005599911-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005599911-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
005599911-04	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—CENT_FEW_DIFFS
005599911-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005599911-06	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

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

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

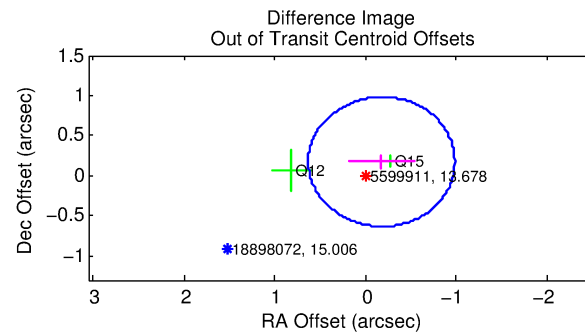
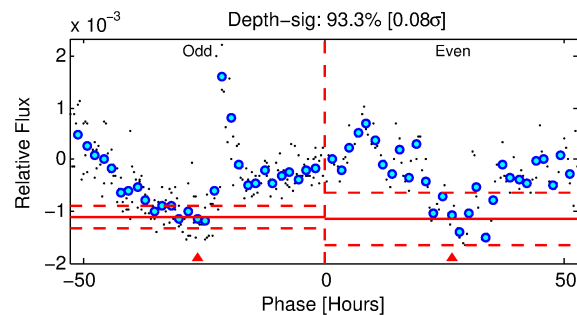
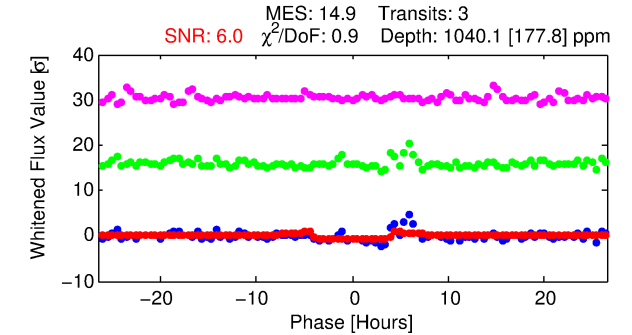
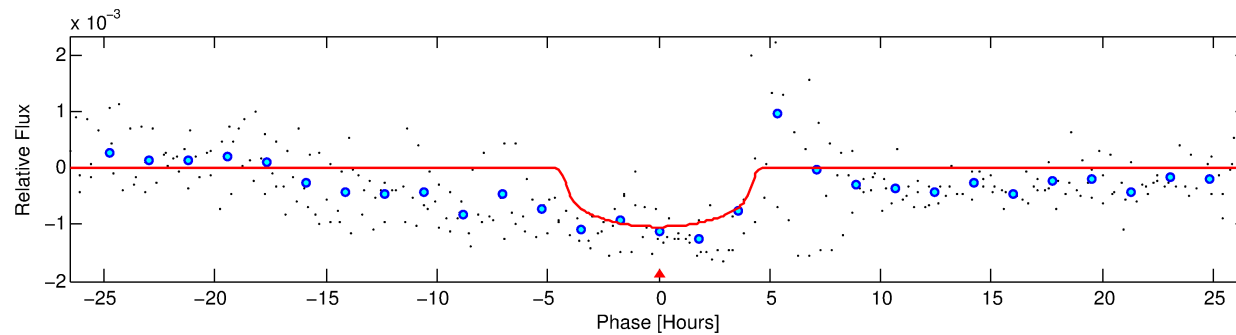
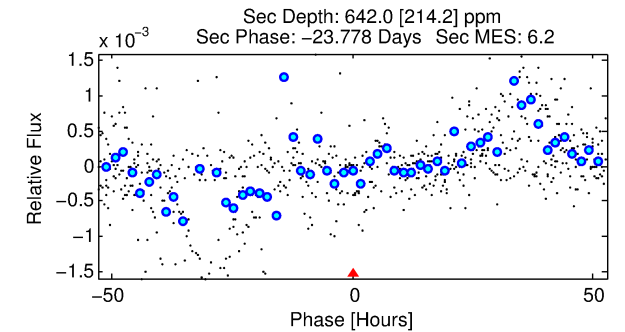
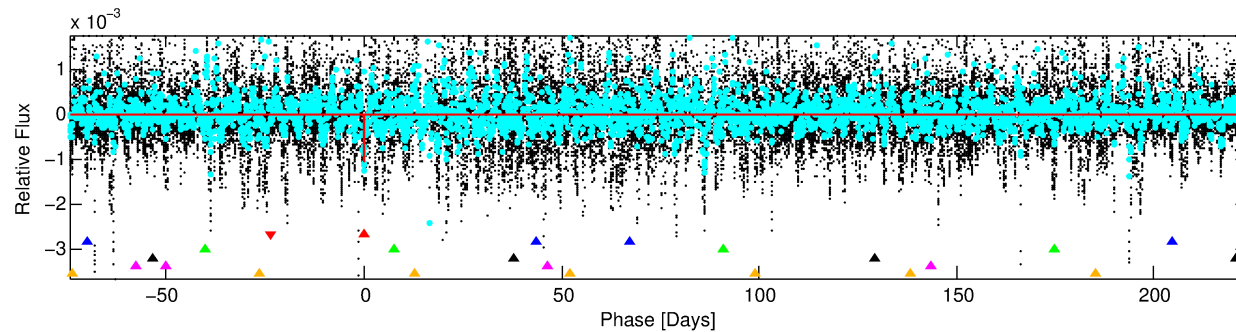
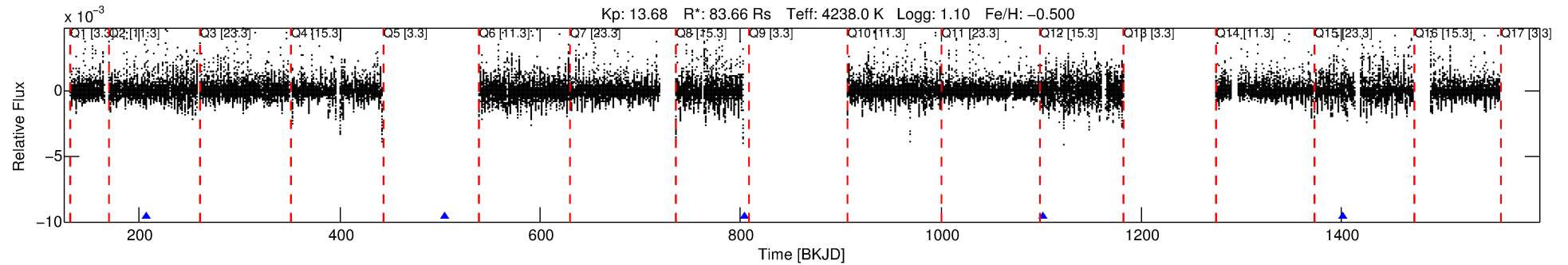
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005599911-01

No Significant Match Found

# DV One-Page Summary

KIC: 5599911 Candidate: 1 of 6 Period: 298.403 d



## DV Fit Results:

Period = 298.40304 [0.00262] d  
Epoch = 207.0009 [0.0085] BKJD  
Rp/R\* = 0.0306 [0.0142]  
a/R\* = 211.43 [285.63]  
b = 0.62 [1.35]  
Seff = 1223.12 [398.95]  
Teq = 1508 [123] K  
Rp = 278.92 [175.88] Re  
a = 1.2860 [0.3662] AU  
Ag = 7.51 [7.73] [0.84 sigma]  
Teffp = 3859 [965] K [2.42 sigma]

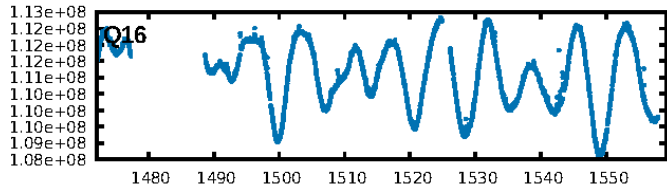
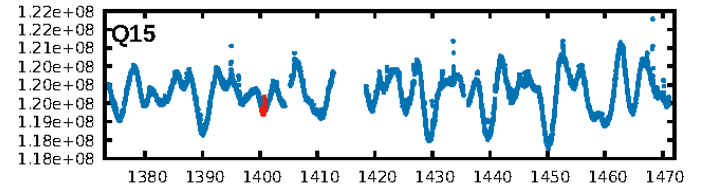
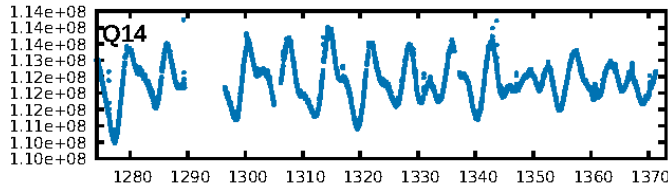
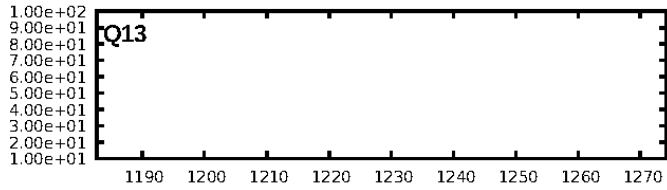
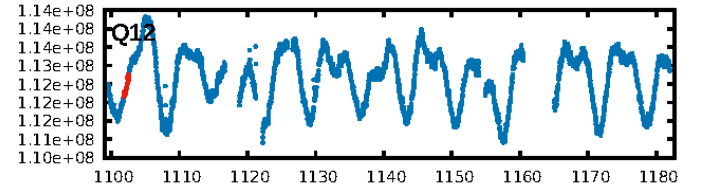
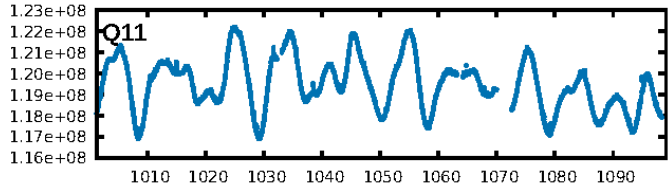
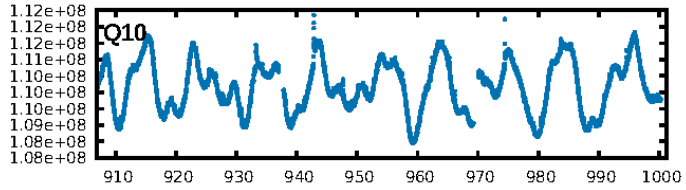
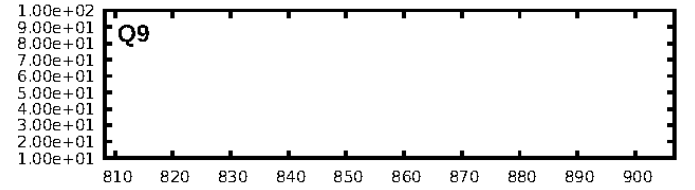
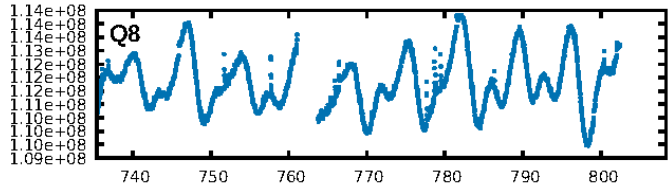
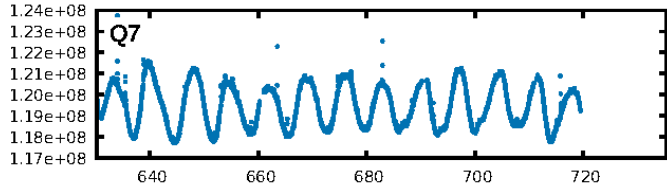
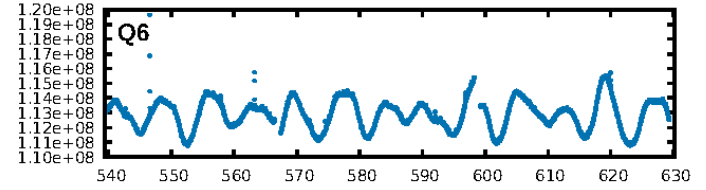
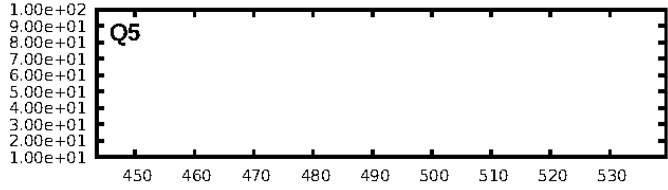
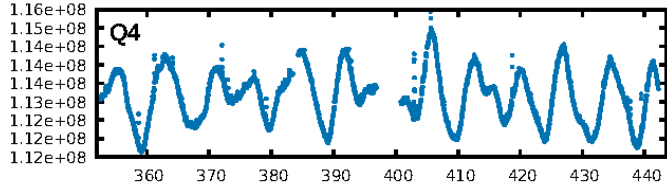
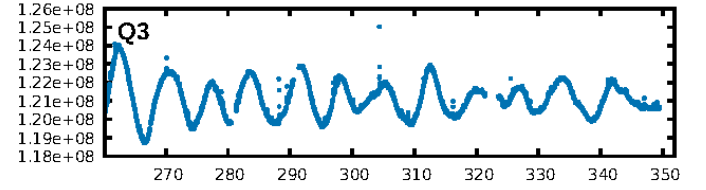
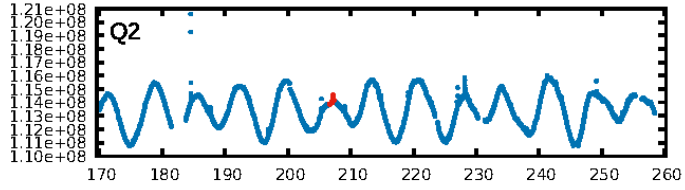
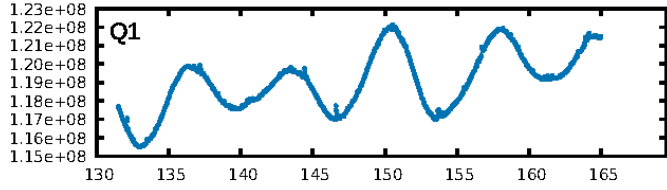
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [227.95 sigma]  
LongPeriod-sig: 100.0% [130.01 sigma]  
ModelChiSquare2-sig: 63.8%  
ModelChiSquareGof-sig: 99.7%  
Bootstrap-pfa: 5.37e-13  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 4.387  
Centroid-sig: 0.7%  
Centroid-so: 1.160 arcsec [2.16 sigma]  
OotOffset-rm: 0.250 arcsec [0.93 sigma]  
OotOffset-st: 0/1/1/0 [2]  
KicOffset-rm: 0.567 arcsec [3.58 sigma]  
KicOffset-st: 0/1/1/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

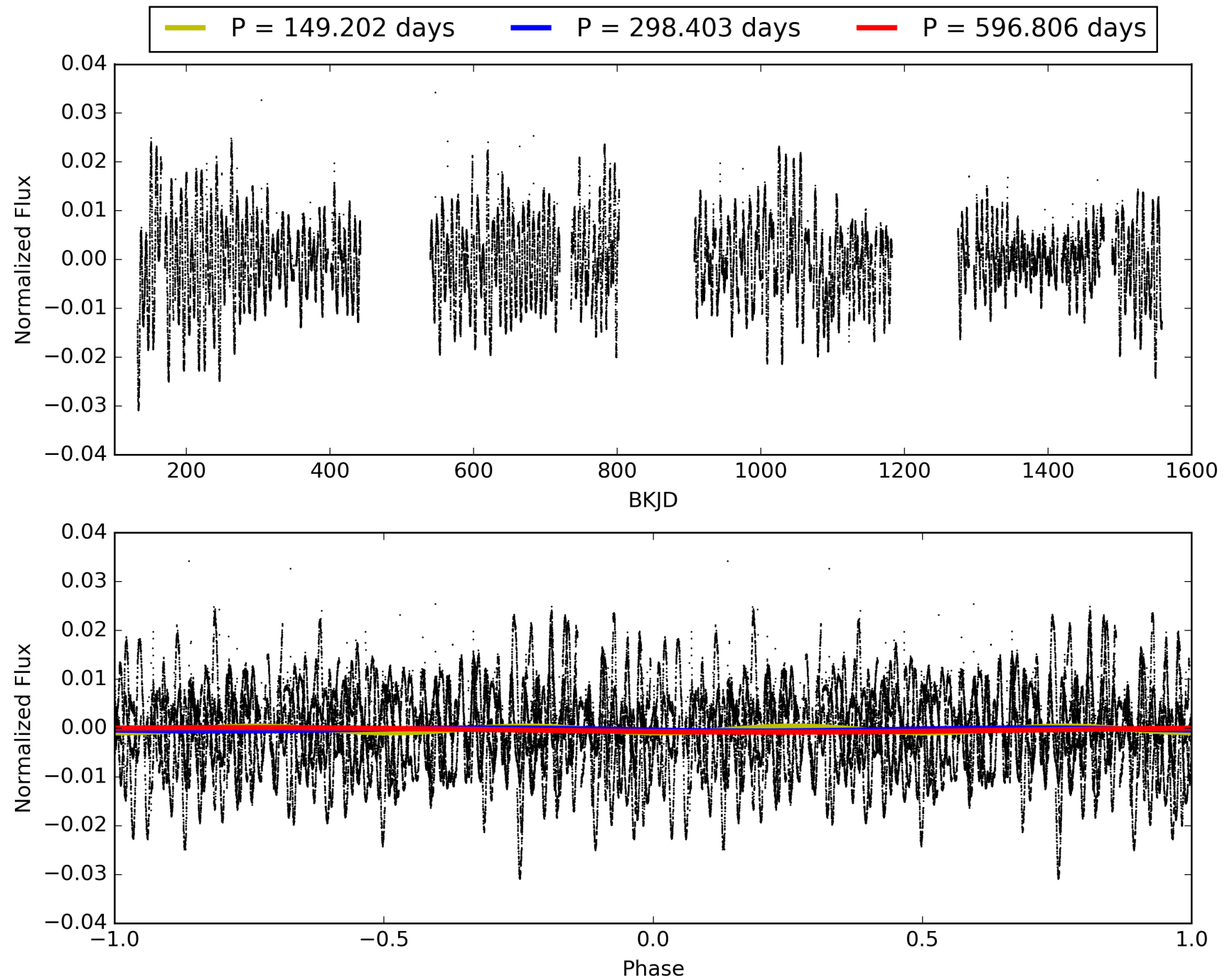
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

## TCE 005599911-01, PDC Light Curves



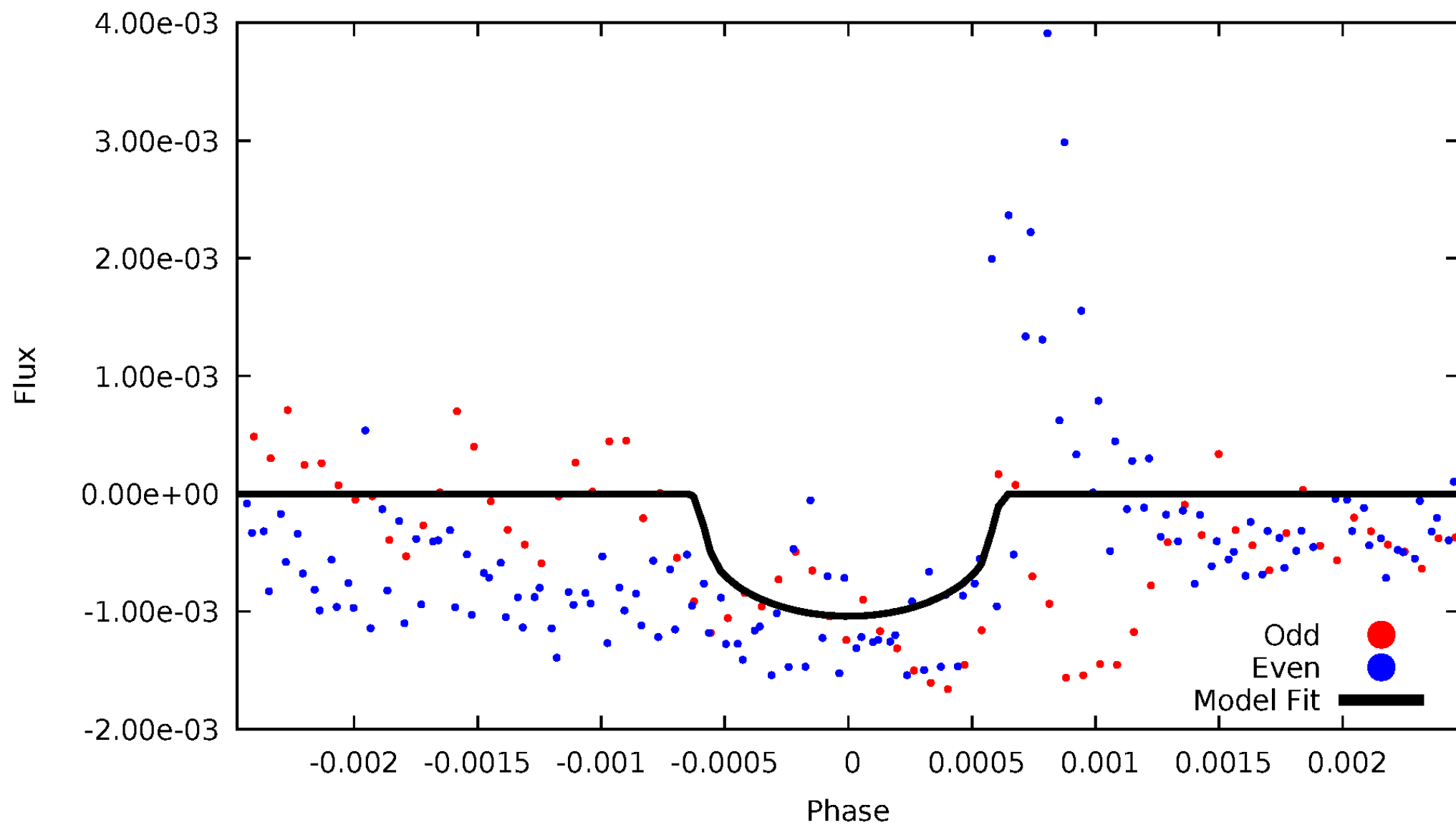
# TCE 005599911-01





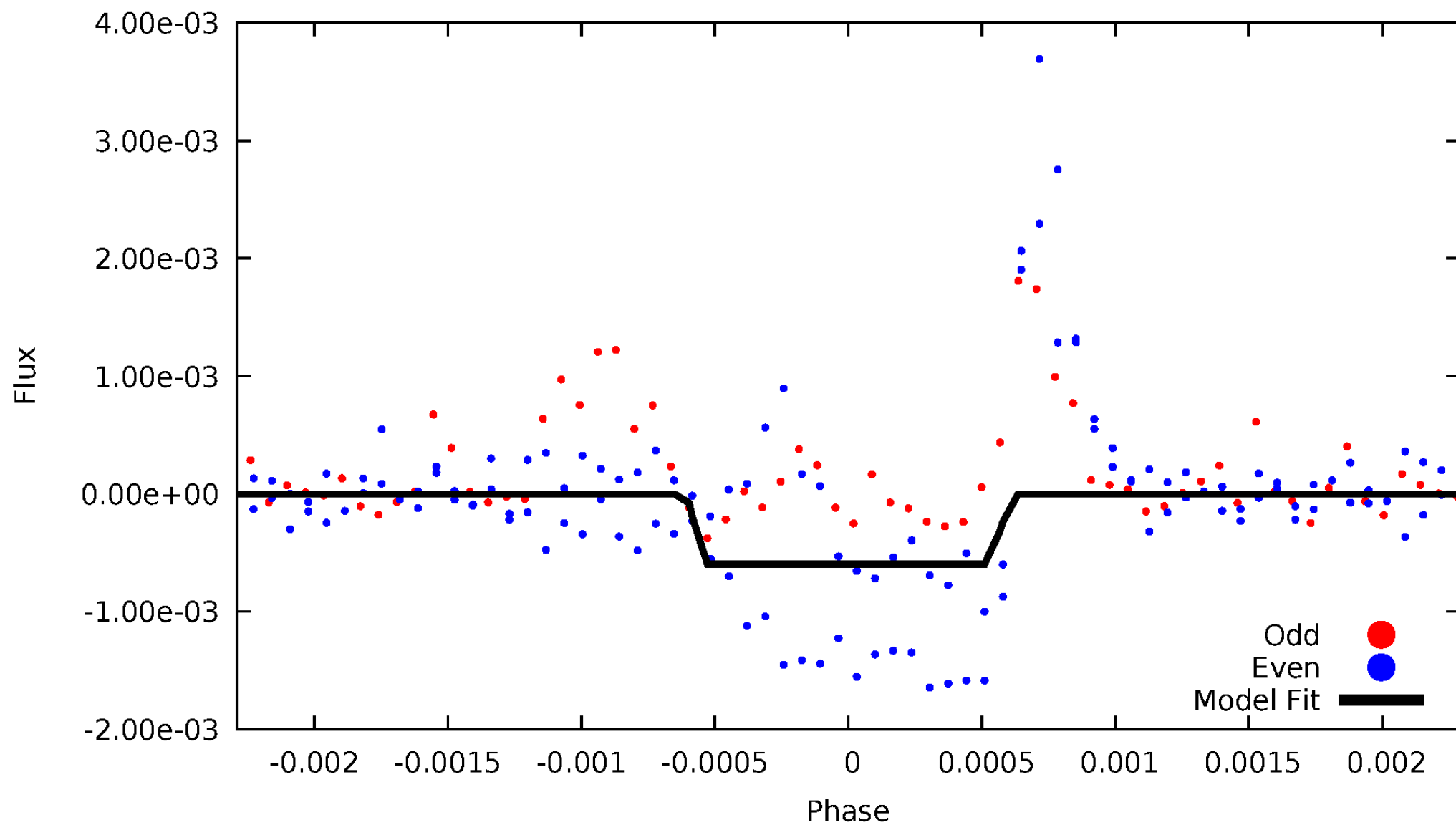
# DV Odd/Even

TCE 005599911-01



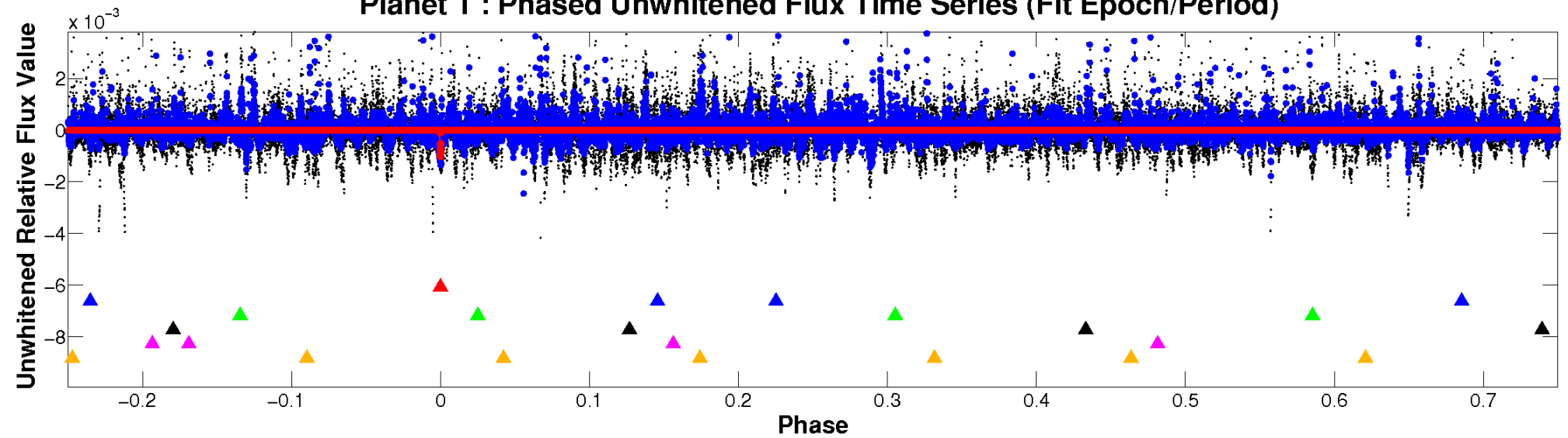
# ALT Odd/Even

TCE 005599911-01

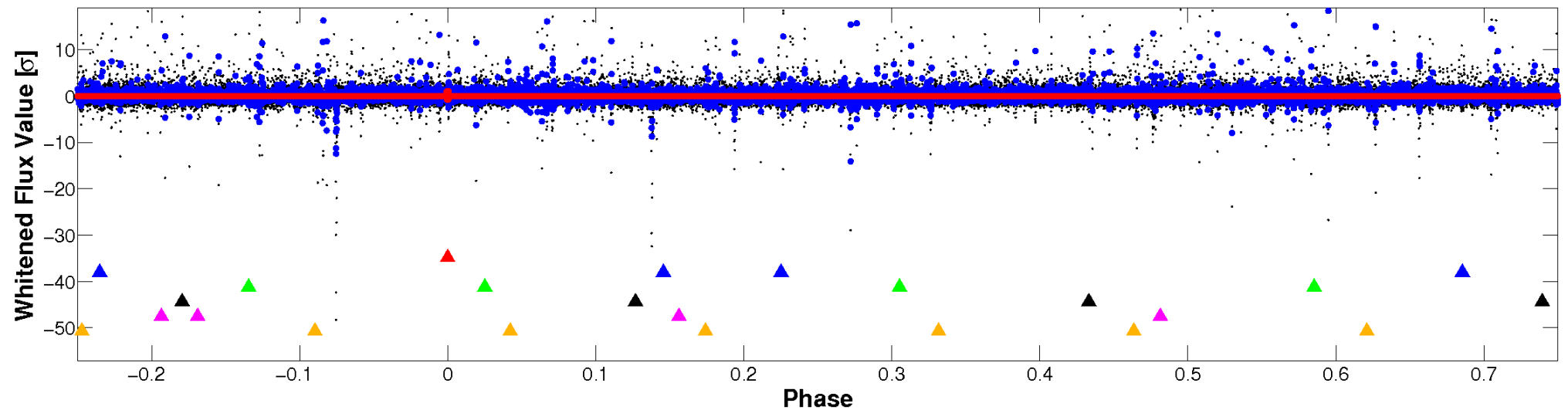


# Non-Whitened Vs. Whitened Light Curve

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

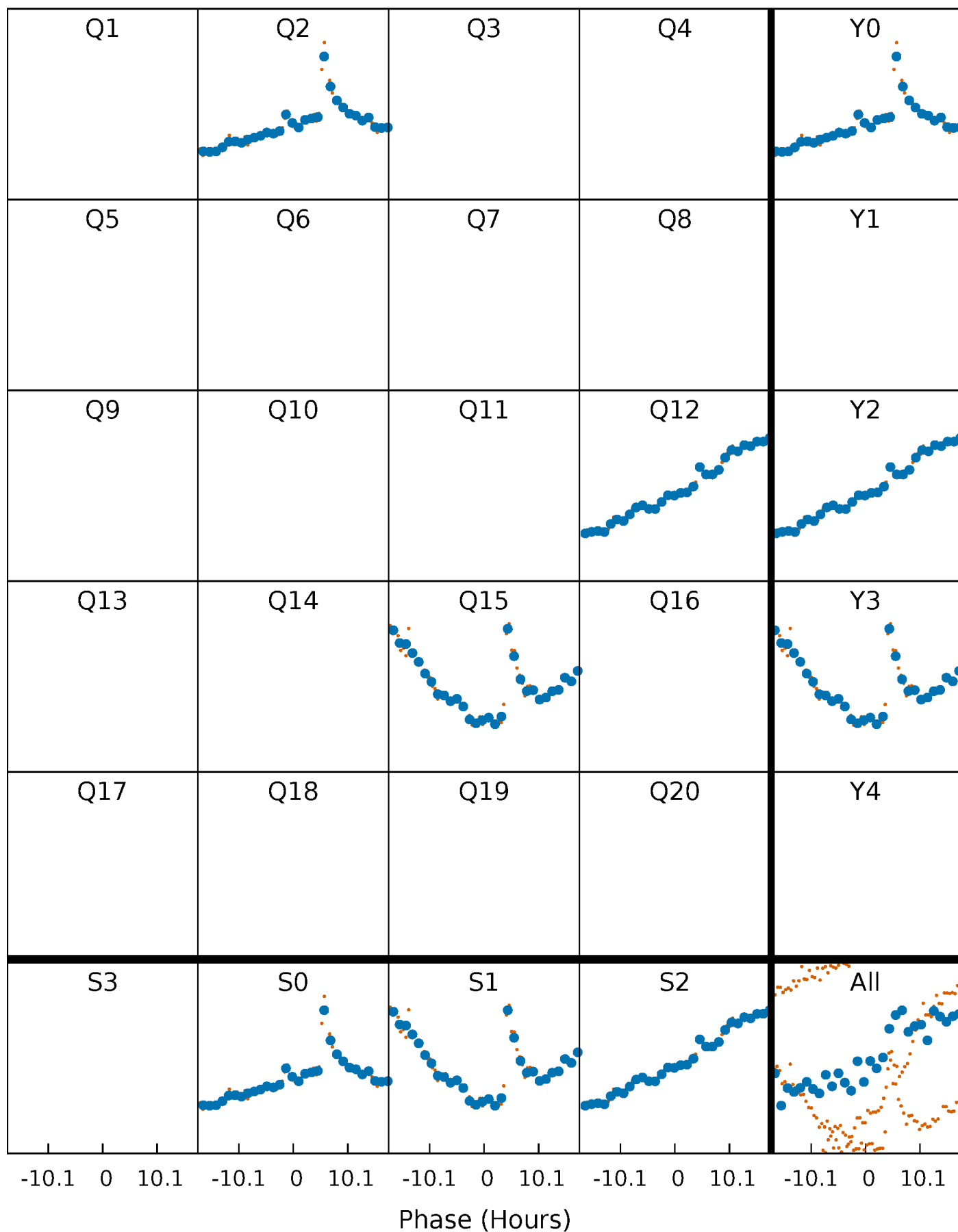


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



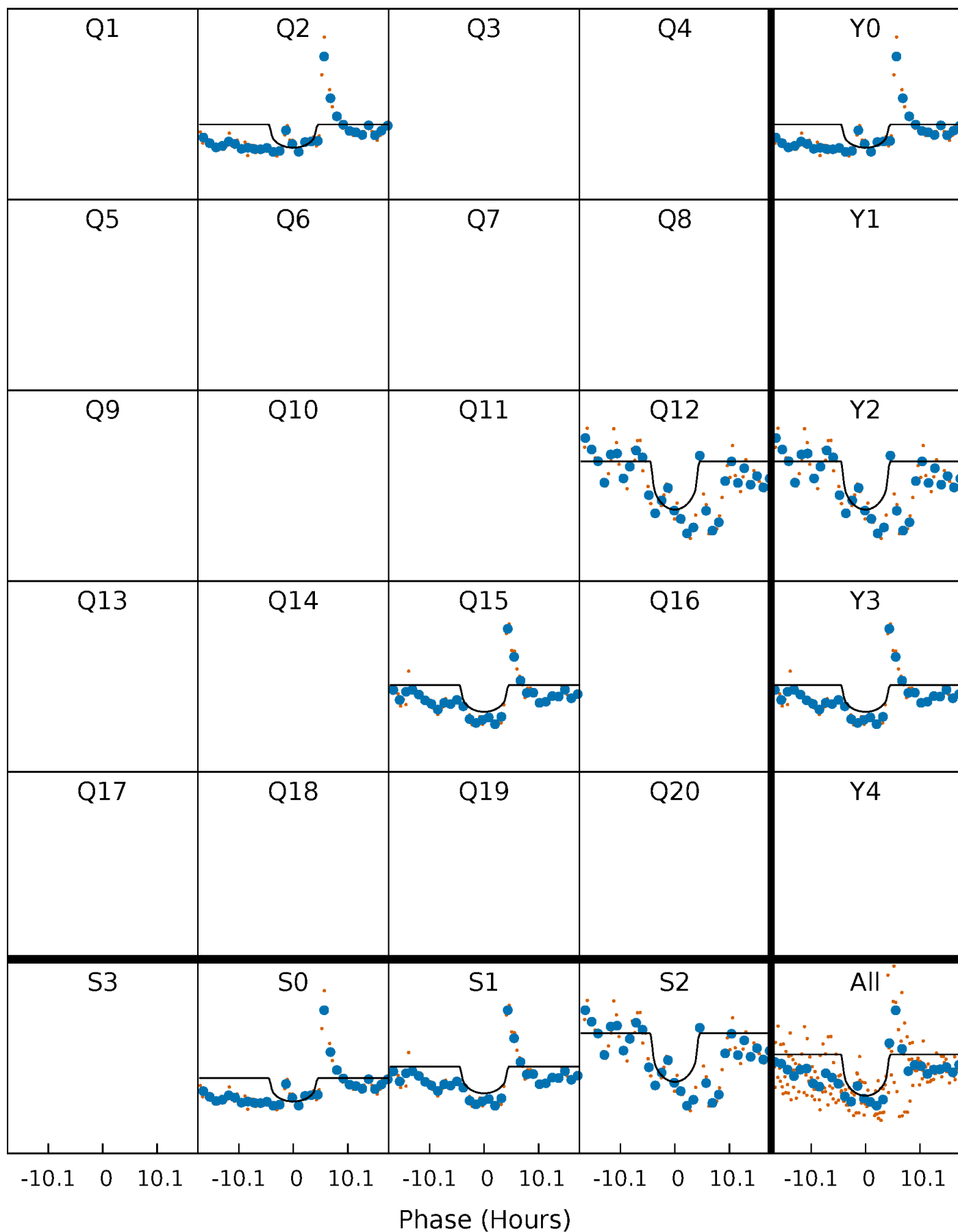
# PDC Quarter-Phased Transit Curves

TCE 005599911-01 P=298.403037 Days  $T_0=207.000893$  (BKJD)



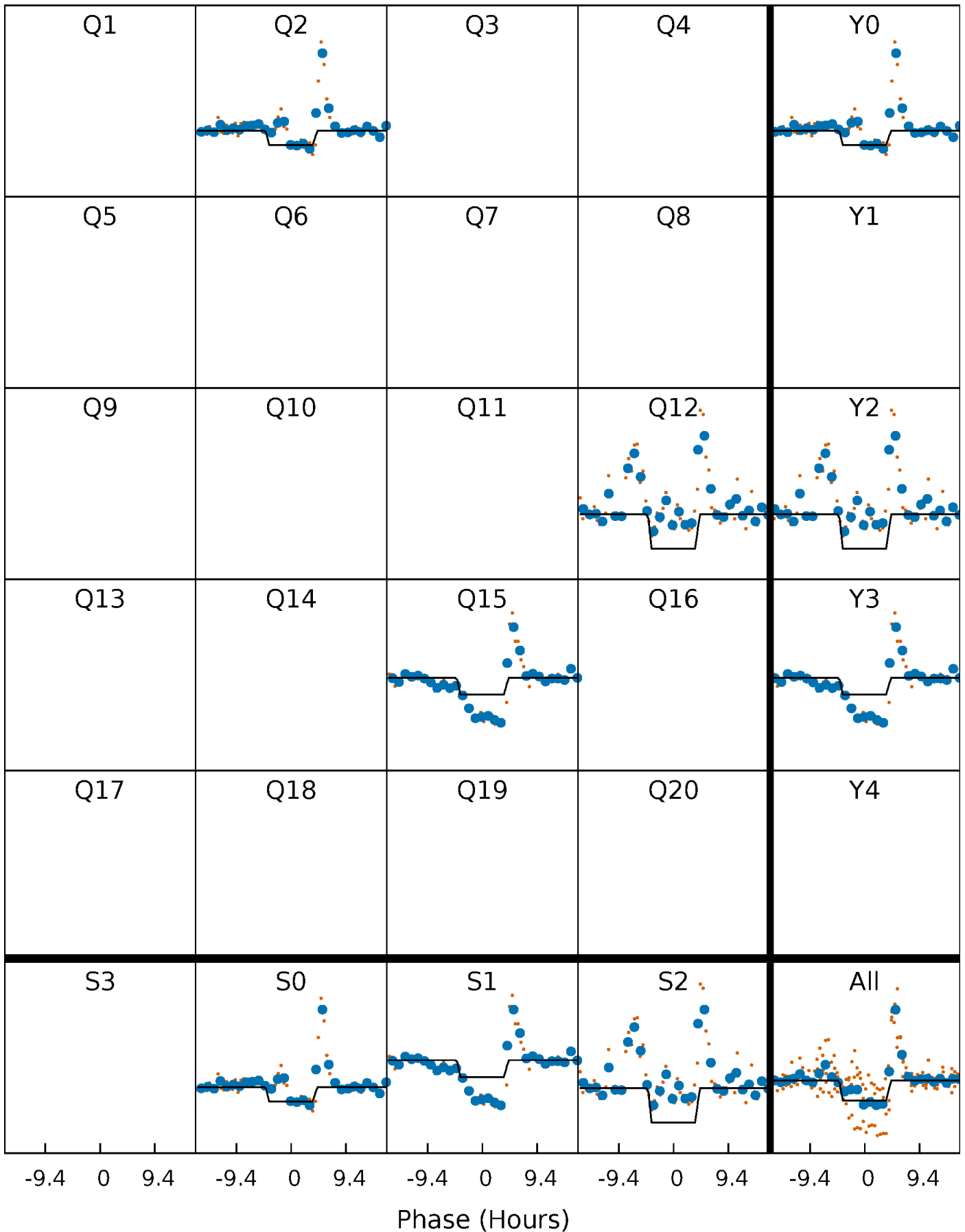
# DV Quarter-Phased Transit Curves

TCE 005599911-01 P=298.403037 Days  $T_0=207.000893$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005599911-01 P=298.391277 Days  $T_0=207.027654$  (BKJD)

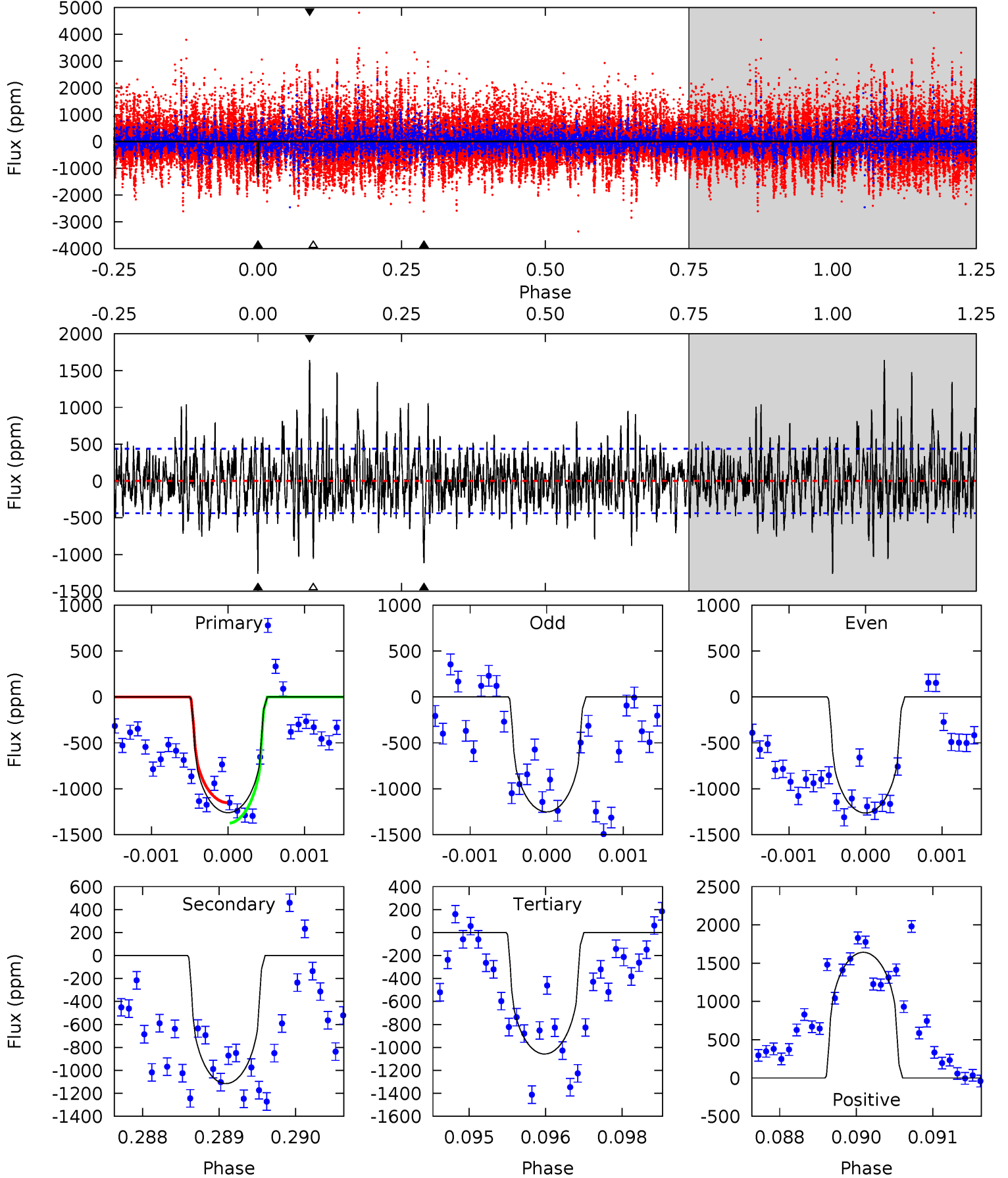




# DV Model-Shift Uniqueness Test

005599911-01, P = 298.403037 Days, E = 207.000893 Days

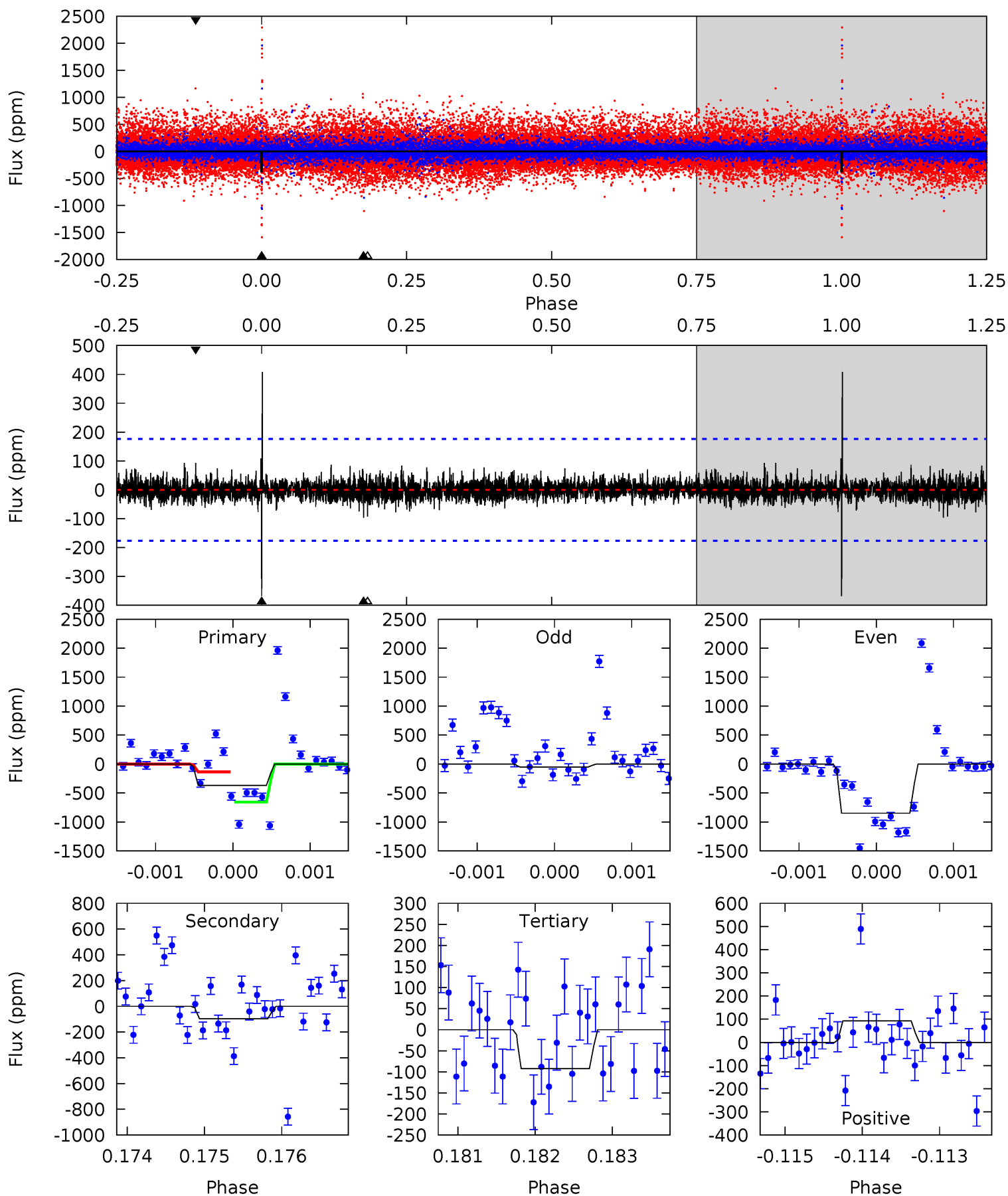
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.6	13.8	13.1	20.3	5.40	3.22	3.58	2.50	-4.71	0.71	-6.50	0.06	0.99	0.57	1.37



# Alt Model-Shift Uniqueness Test

005599911-01, P = 298.391277 Days, E = 207.027654 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
11.3	2.96	2.84	2.86	5.42	3.24	0.62	8.49	8.47	0.13	0.10	12.5	2.00	0.53	7.88



### Stellar Parameters For KIC 005599911

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4238^{+62}_{-162}$	$1.096^{+0.033}_{-0.030}$	$-0.500^{+0.150}_{-0.350}$	$83.657^{+3.955}_{-35.591}$	$3.185^{+0.236}_{-2.128}$	$0.000^{+0.000}_{-0.000}$
	+1%/-4%	+3%/-3%	+30%/-70%	+5%/-43%	+7%/-67%	+78%/-9%
Source	PHO54	AST54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005599911-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1116 \pm 81$	$274.48^{+140.92}_{-122.61}$	$2106^{+46}_{-90}$	$4362^{+1231}_{-635}$	$13^{+29}_{-8}$
Alt.	$-96 \pm 33$	$233.96^{+128.63}_{-121.49}$	$2106^{+46}_{-87}$	$2981^{+855}_{-505}$	$1.596^{+5.113}_{-0.996}$

$T_{max}$  = 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

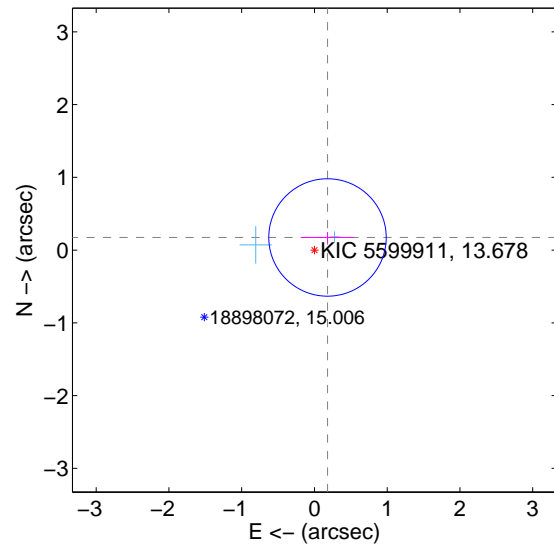
Supplemental centroid analysis for 005599911-01. Kepler magnitude: 13.68. Transit SNR 6.04

There are 2 quarters with good PRF difference image offsets

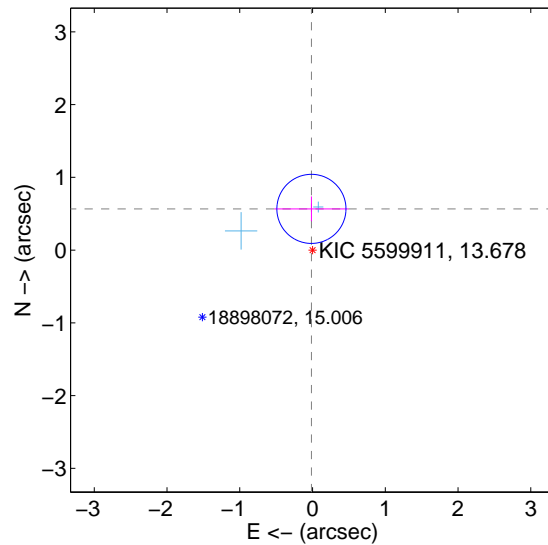
The direct PRF centroid is offset from the target star catalog position by about 0.45 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.250 \pm 0.269$	0.93	$-0.180 \pm 0.367$	$0.174 \pm 0.075$
PRF-fit source offset from KIC position	$0.567 \pm 0.158$	3.58	$0.015 \pm 0.512$	$0.567 \pm 0.171$
photometric centroid source offset	$1.16 \pm 0.54$	2.16	$-0.70 \pm 0.48$	$0.92 \pm 0.57$

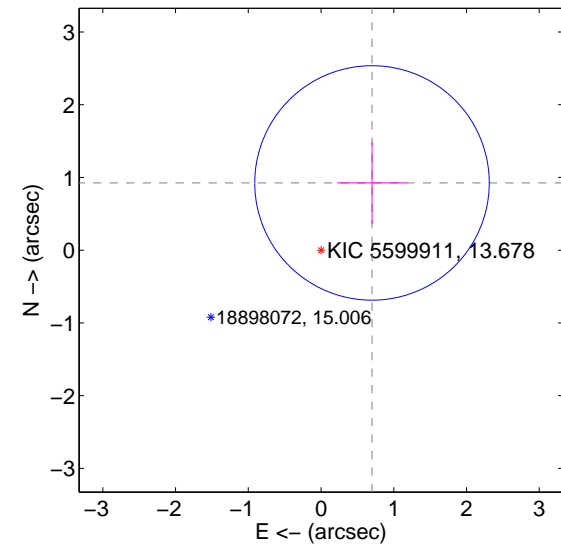
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

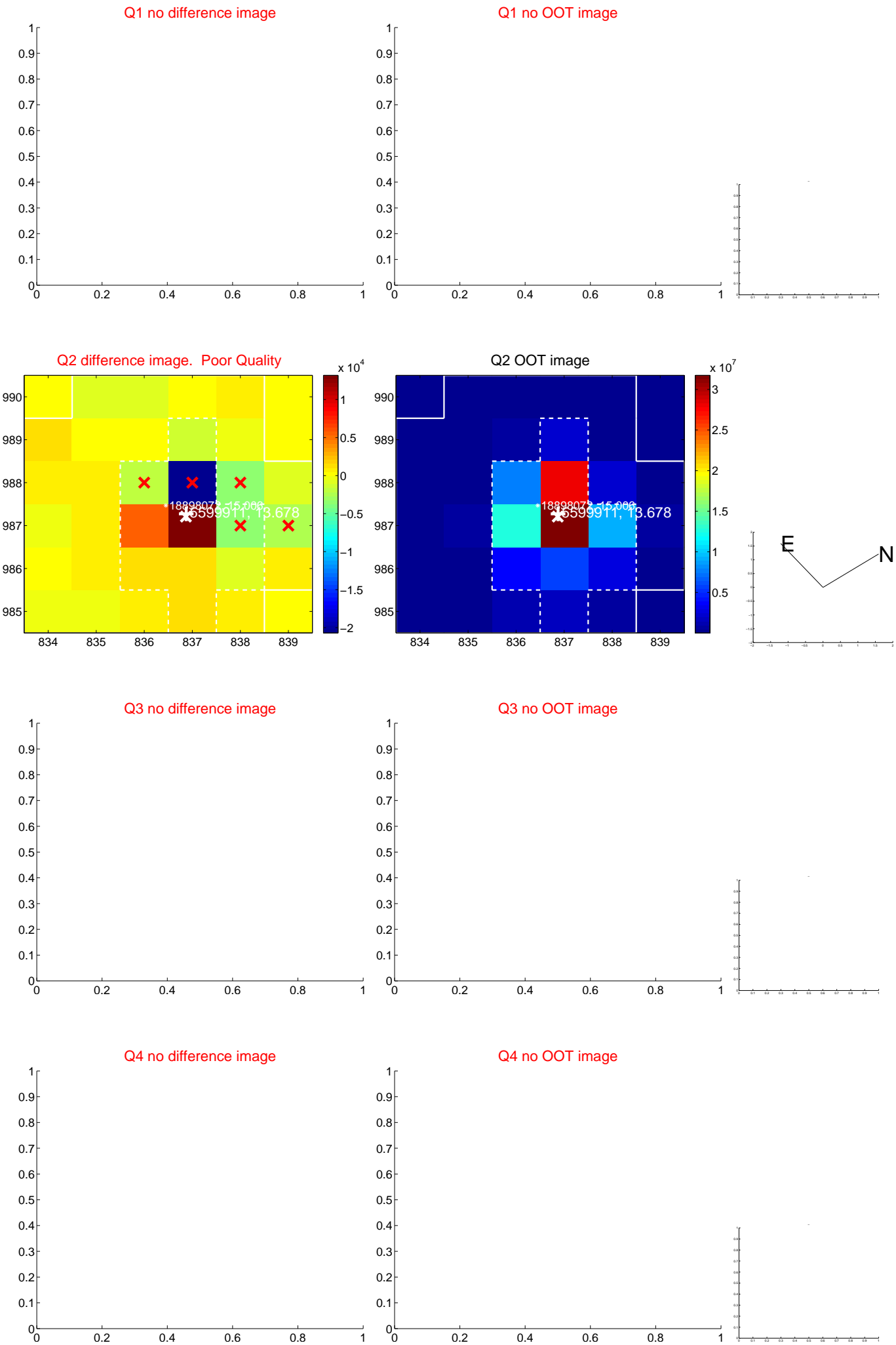


offset from photometric centroids

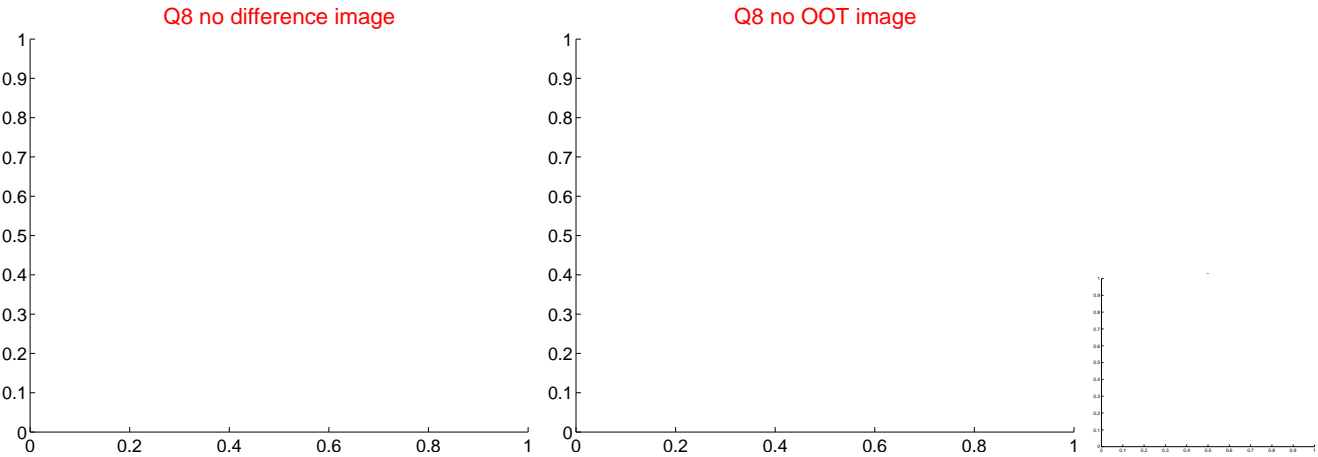
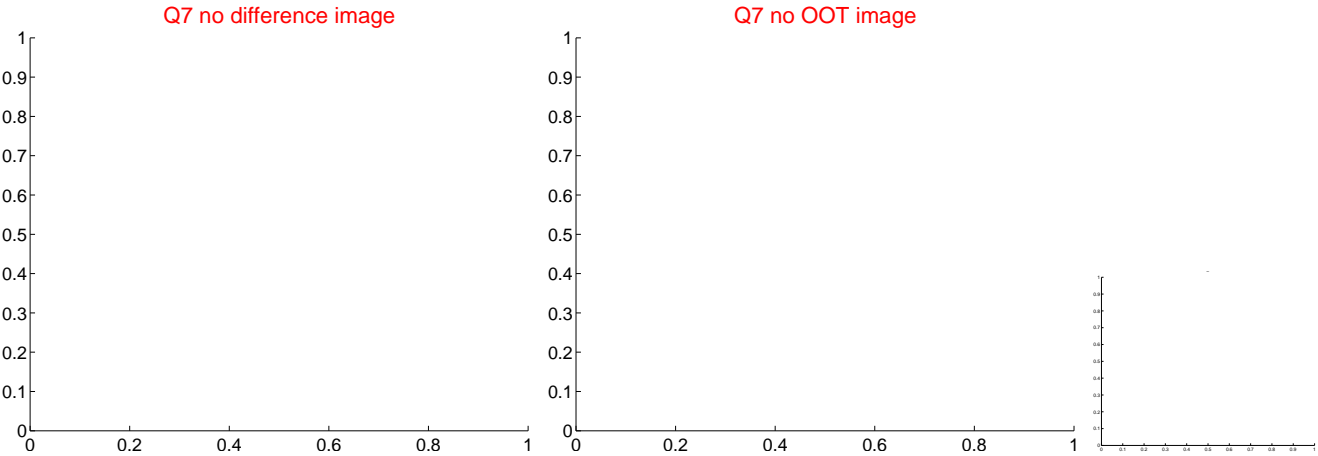
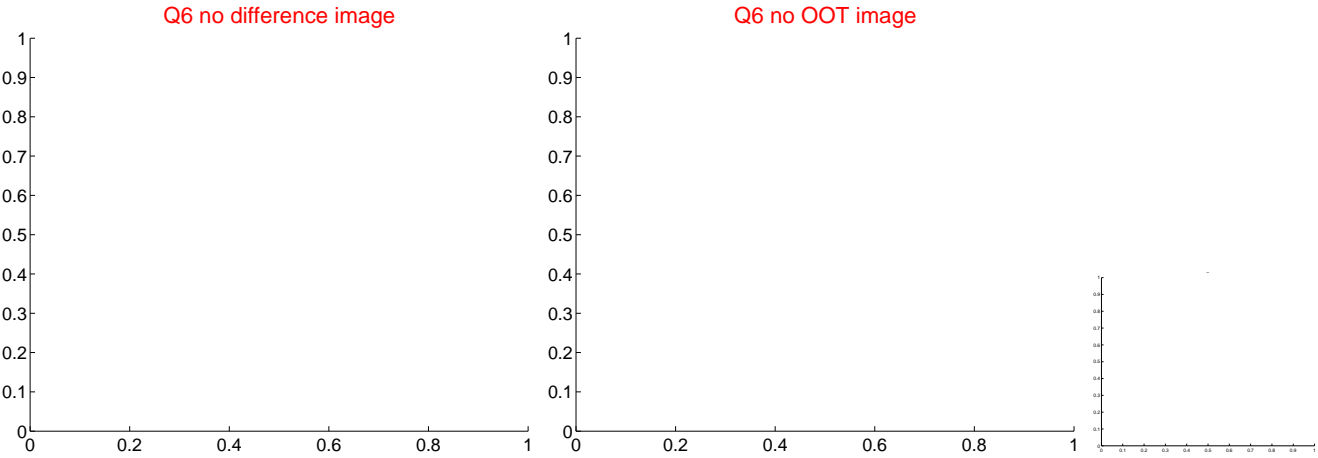
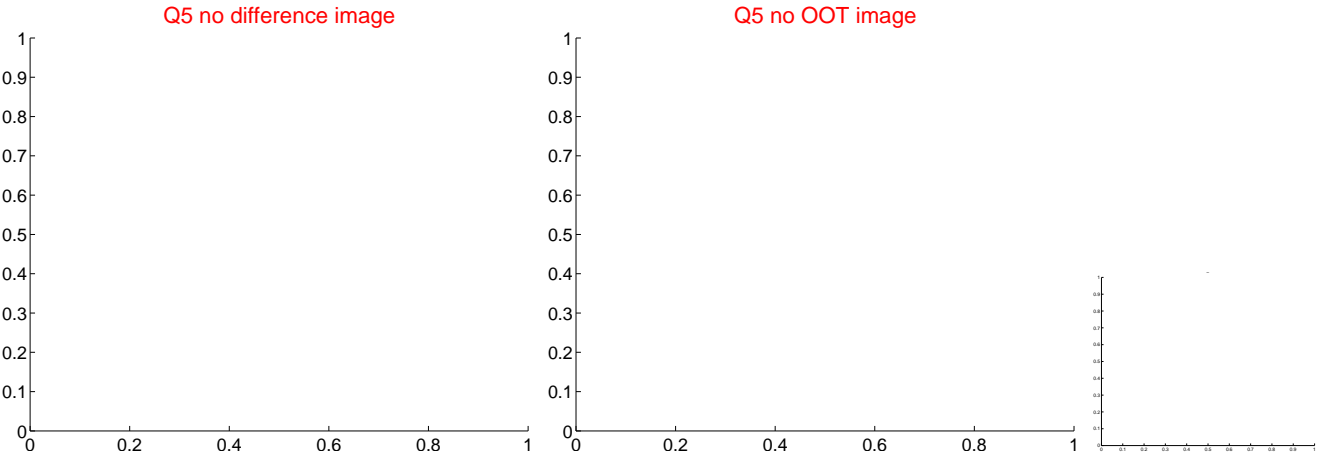


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

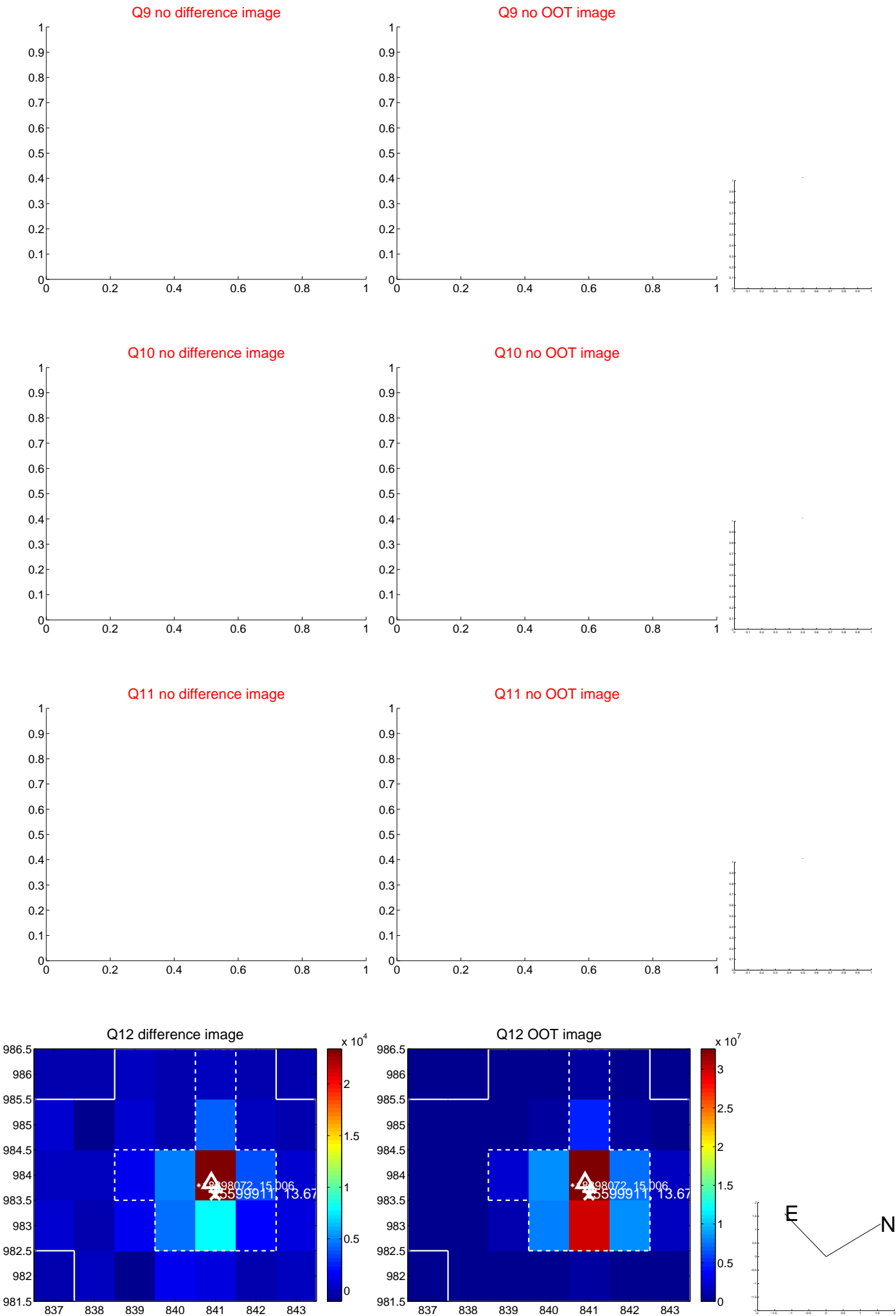


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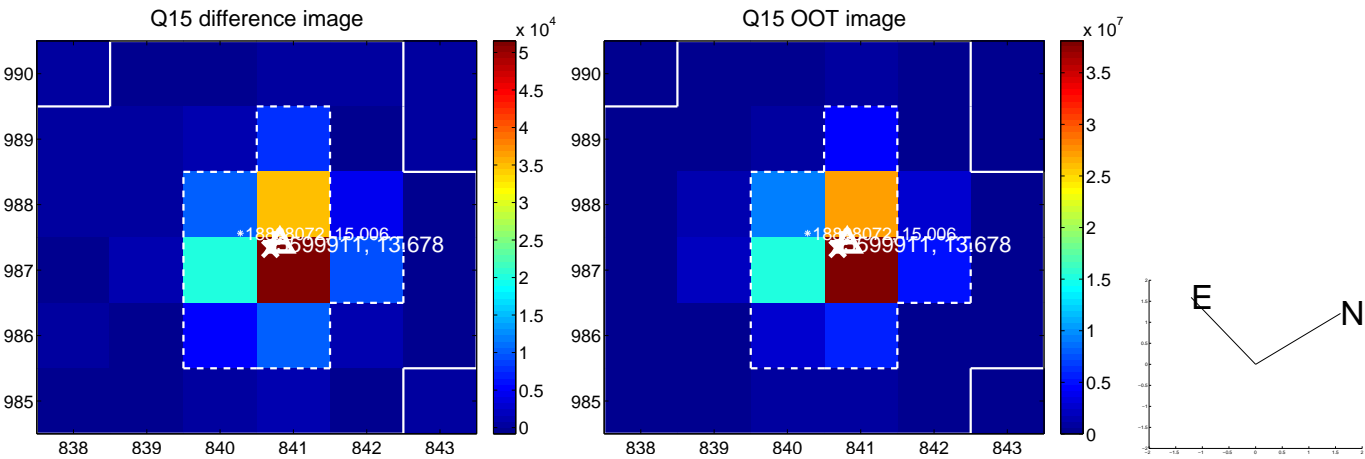




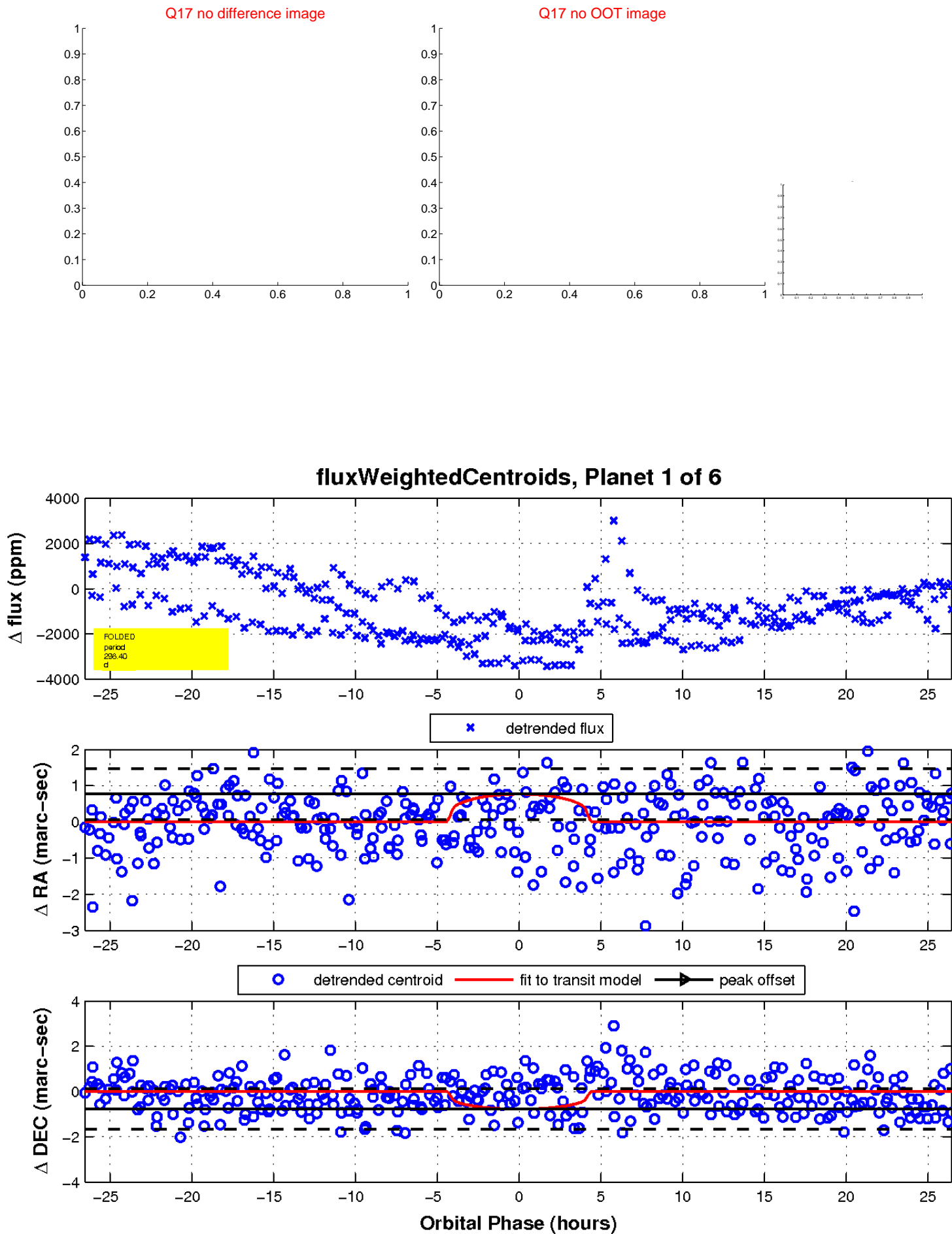
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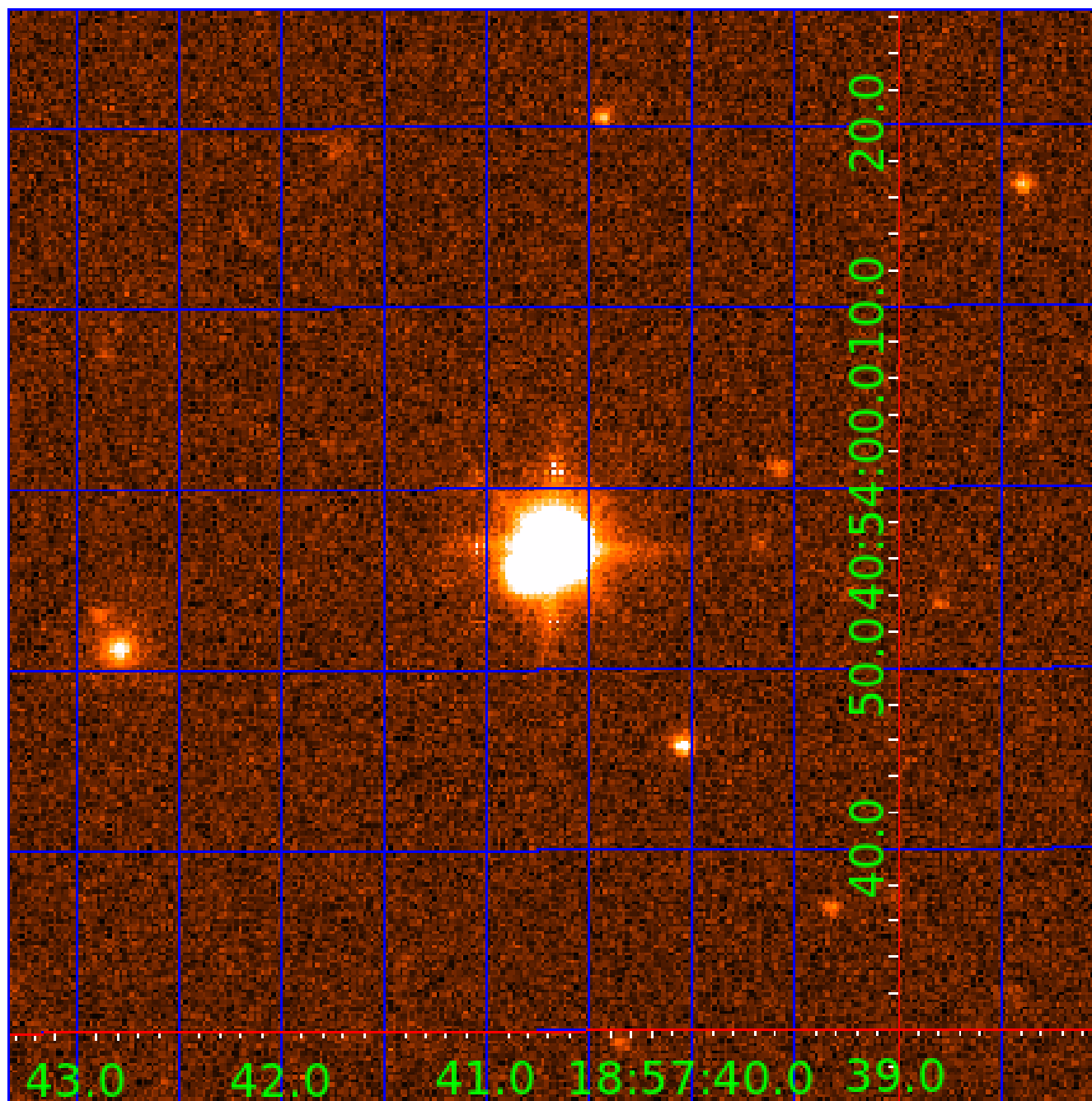


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UKIRT Image

Declination



# KIC 005599911

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005599911-04	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—CENT_FEW_DIFFS
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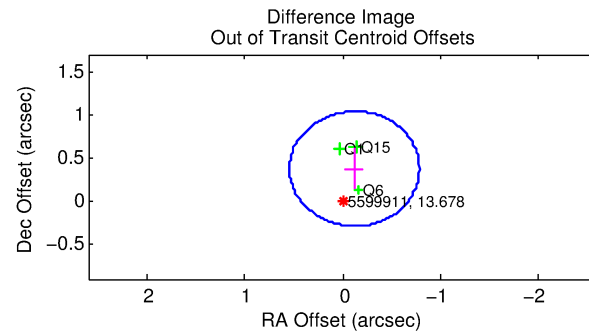
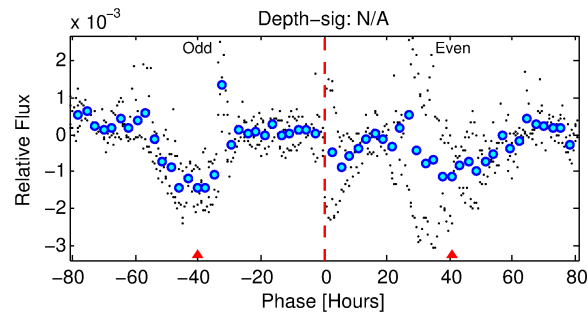
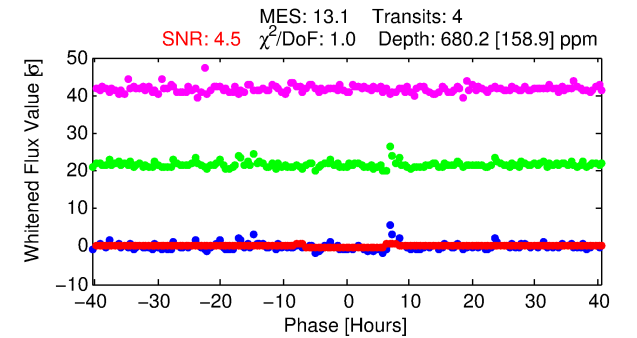
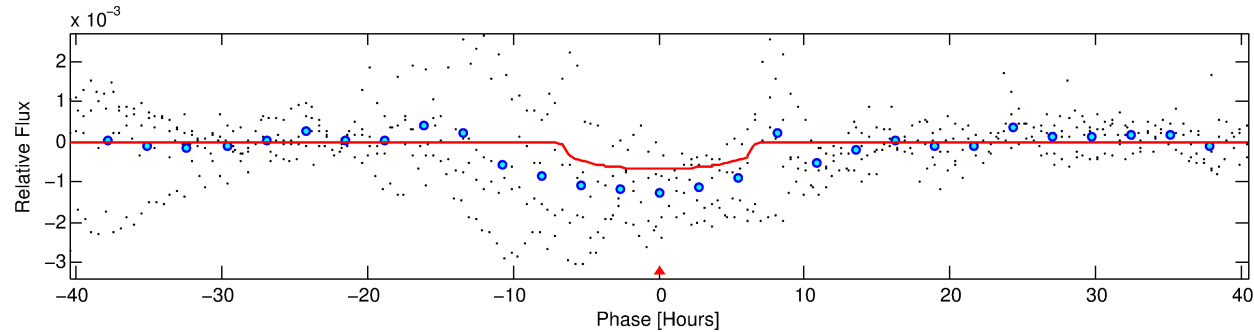
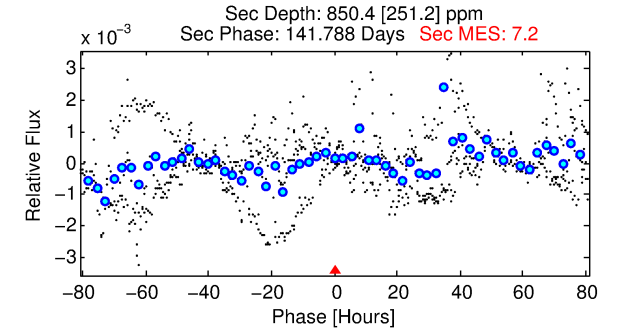
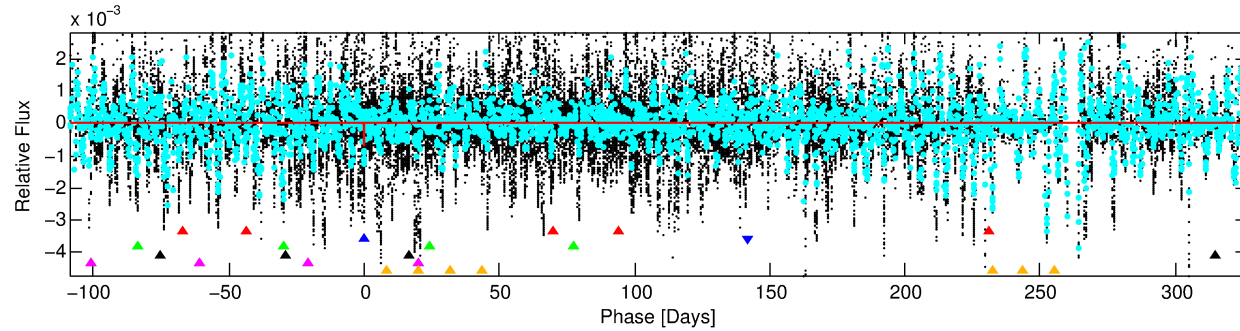
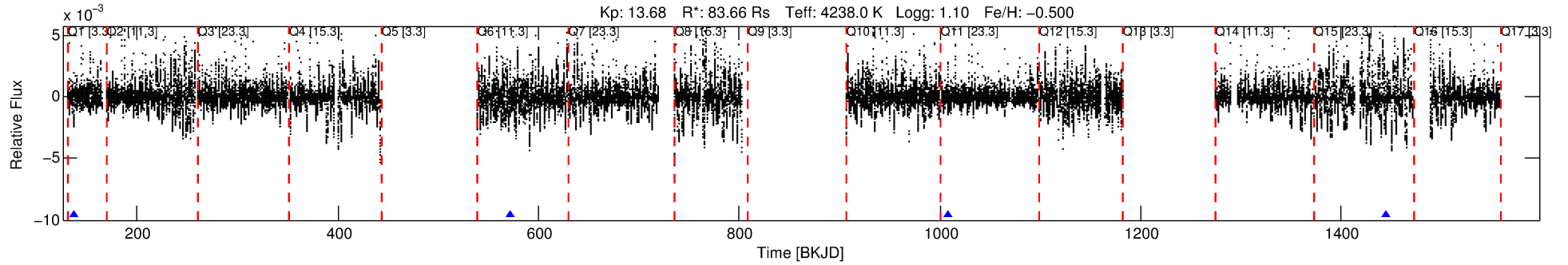
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005599911-02

No Significant Match Found

# DV One-Page Summary

KIC: 5599911 Candidate: 2 of 6 Period: 435.747 d



## DV Fit Results:

Period = 435.74660 [0.00780] d  
Epoch = 136.8566 [0.0143] BKJD  
Rp/R\* = 0.0250 [0.0090]  
a/R\* = 195.32 [191.63]  
b = 0.65 [0.89]  
Seff = 738.29 [240.81]  
Teq = 1329 [108] K  
Rp = 227.86 [127.15] Re  
a = 1.6552 [0.4713] AU  
Ag = 24.68 [20.53] [1.15 $\sigma$ ]  
Teffp = 4581 [911] K [3.55 $\sigma$ ]

## DV Diagnostic Results:

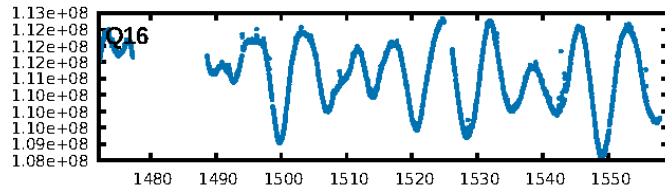
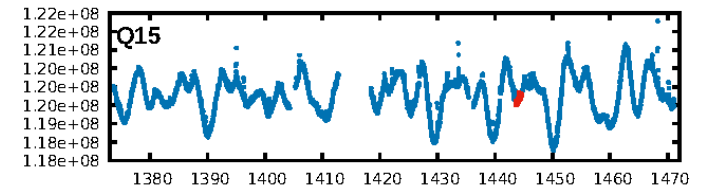
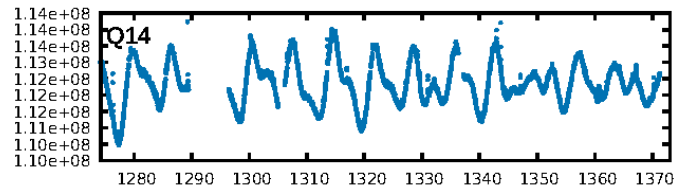
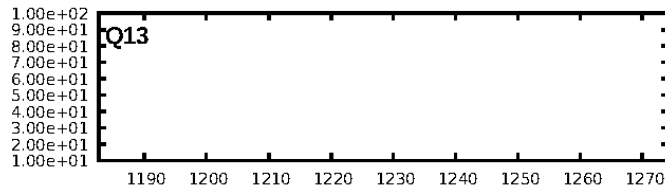
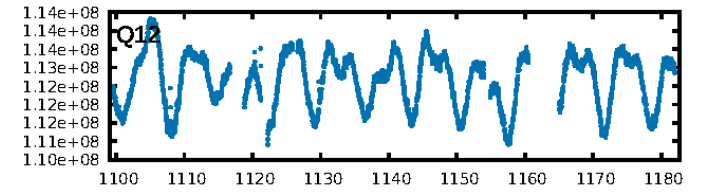
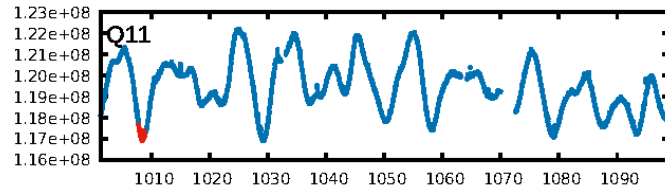
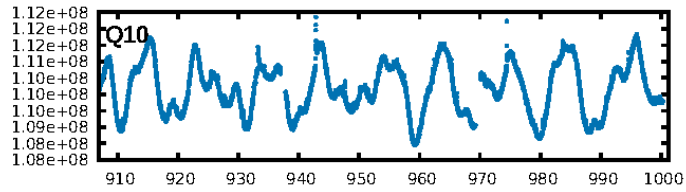
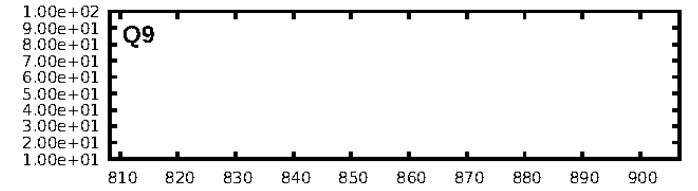
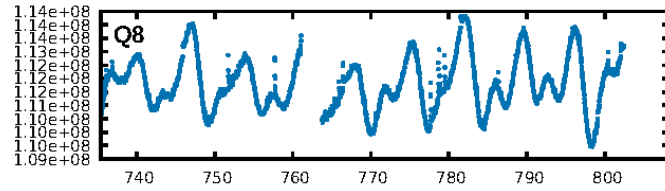
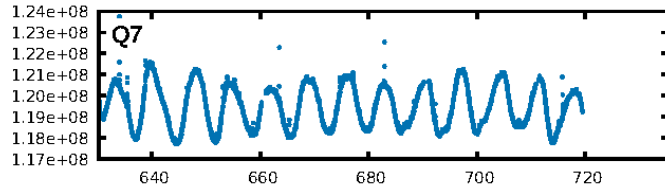
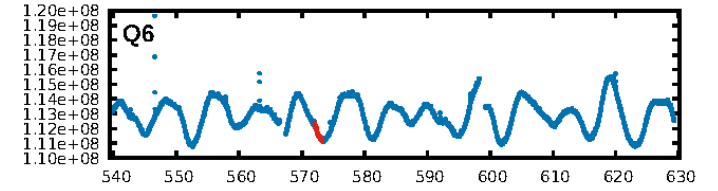
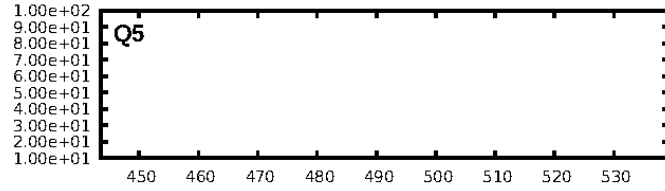
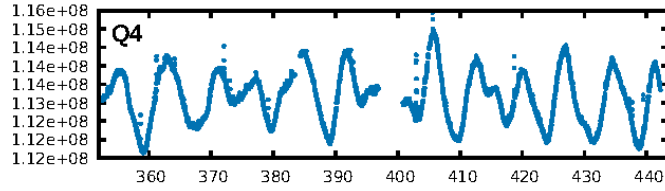
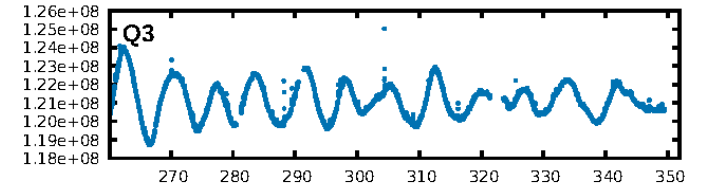
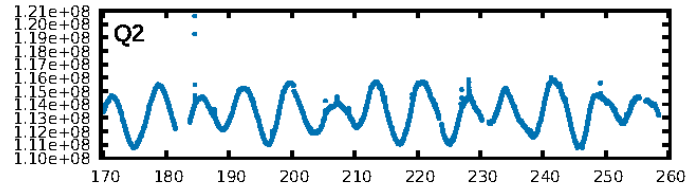
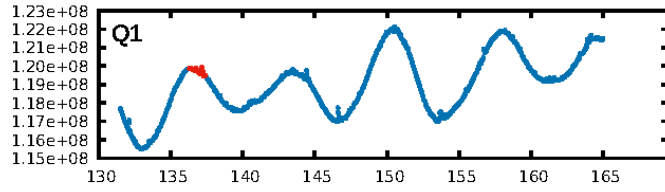
ShortPeriod-sig: 100.0% [65.68 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 65.0%  
ModelChiSquareGof-sig: 99.7%  
Bootstrap-pfa: 4.97e-11  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.577  
Centroid-sig: 10.7%  
Centroid-so: 0.971 arcsec [1.44 $\sigma$ ]  
OotOffset-rm: 0.394 arcsec [1.78 $\sigma$ ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-rm: 0.739 arcsec [2.37 $\sigma$ ]  
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: 02-Feb-2016 07:13:08 Z

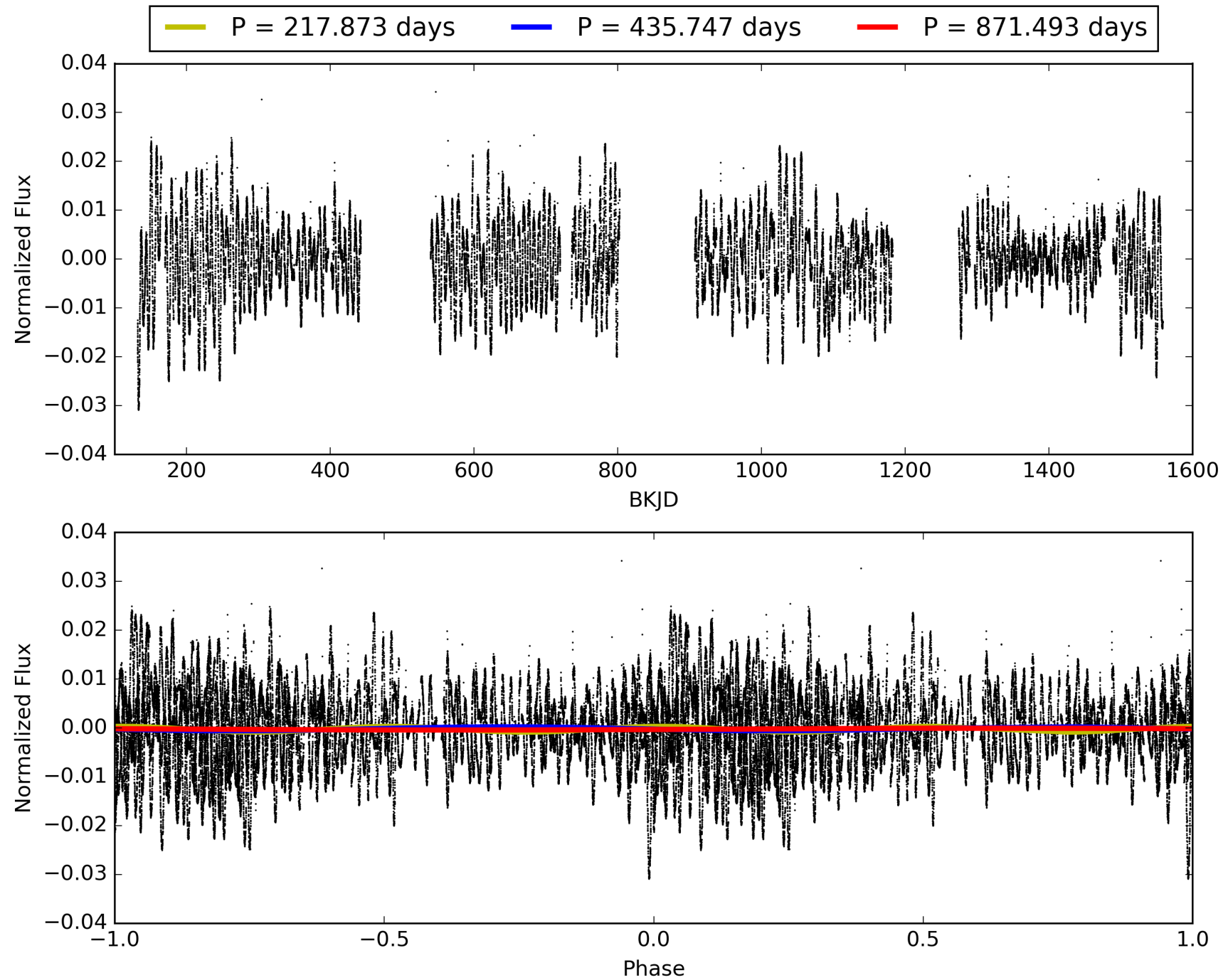
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 005599911-02, PDC Light Curves

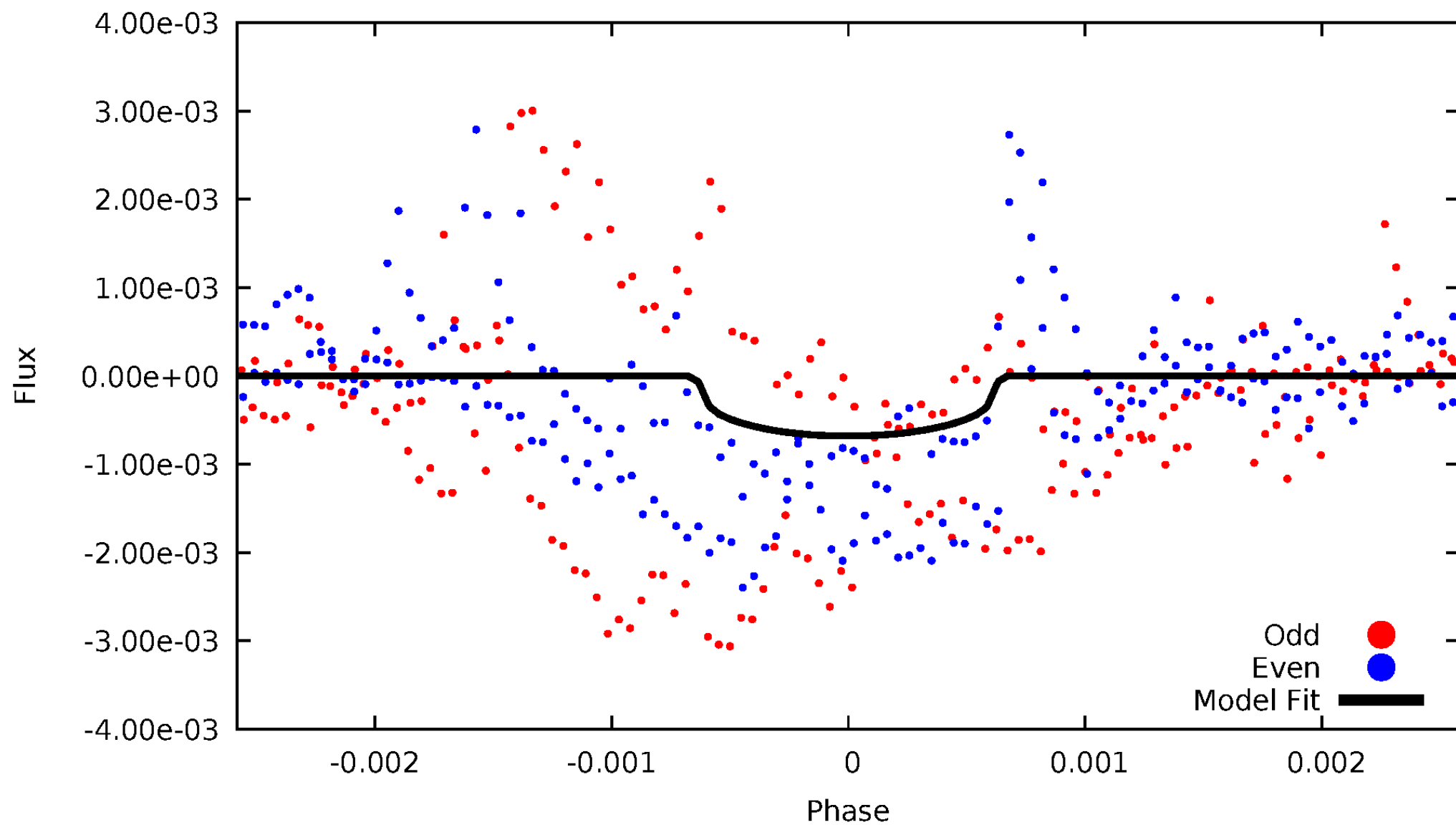


TCE 005599911-02



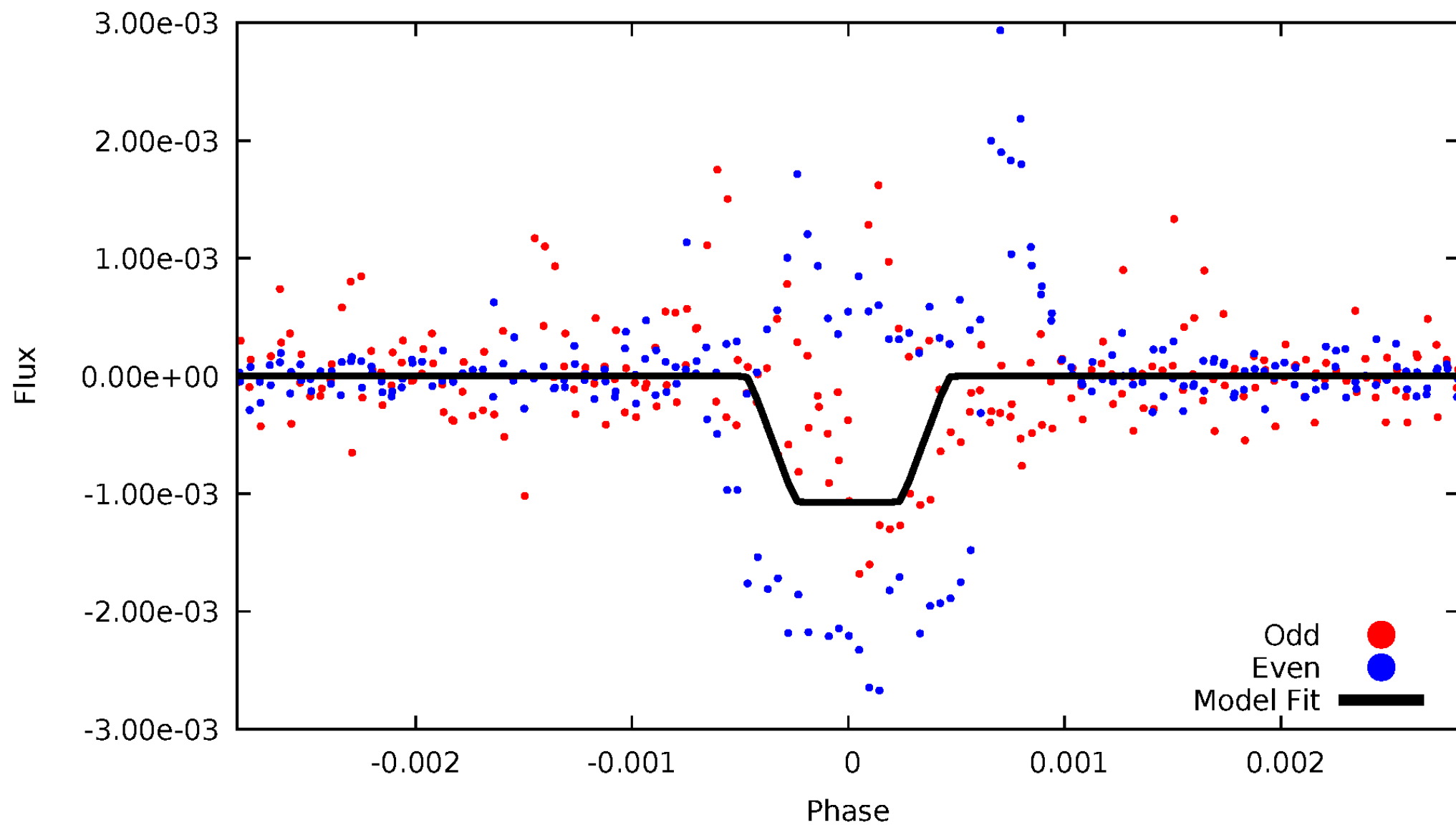
# DV Odd/Even

TCE 005599911-02



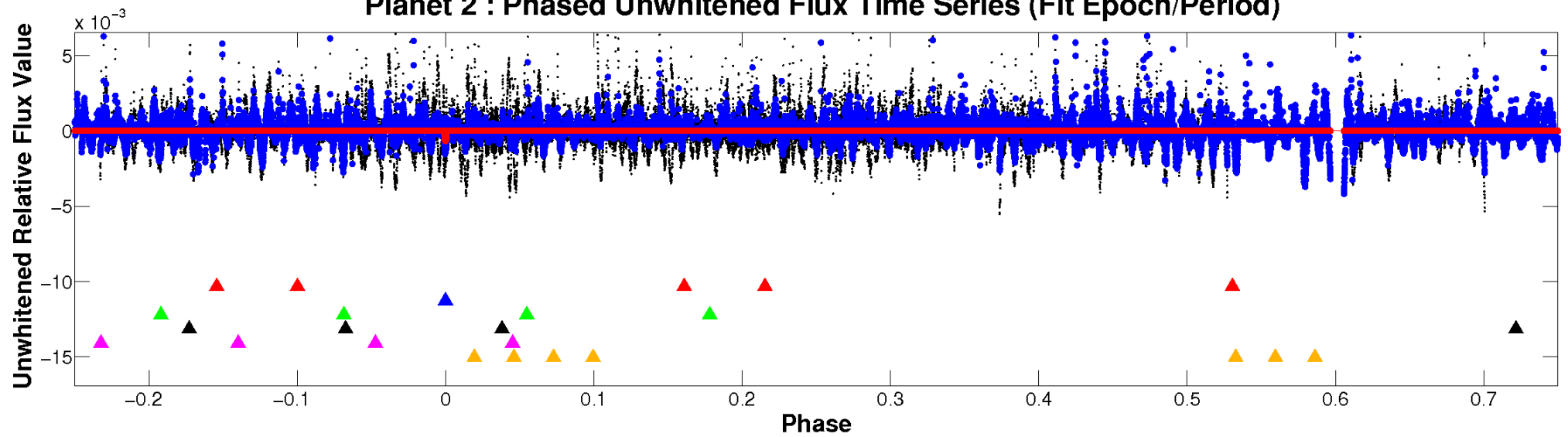
# ALT Odd/Even

TCE 005599911-02

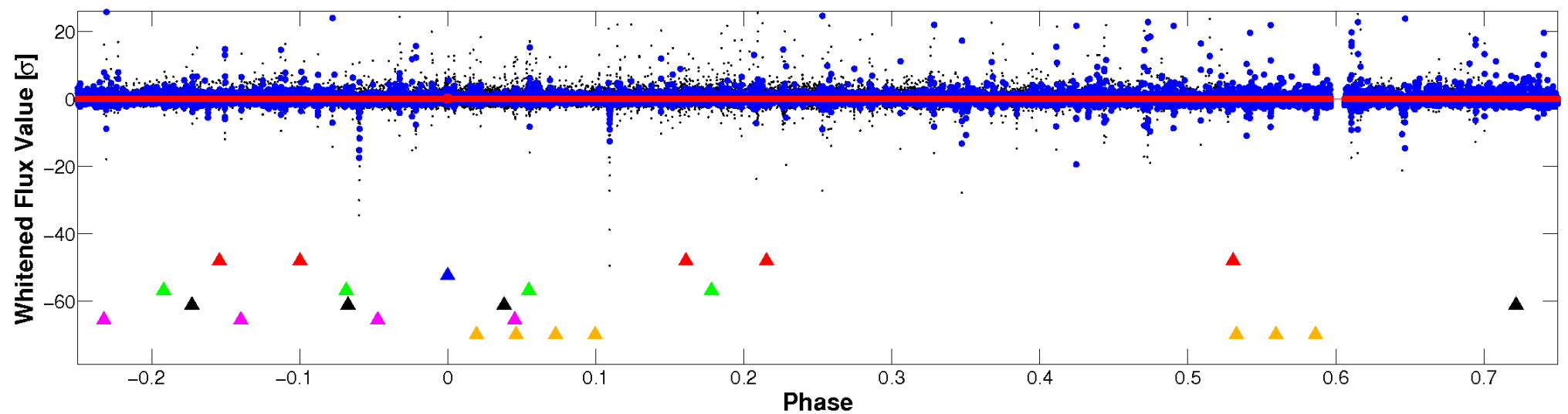


# Non-Whitened Vs. Whitened Light Curve

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

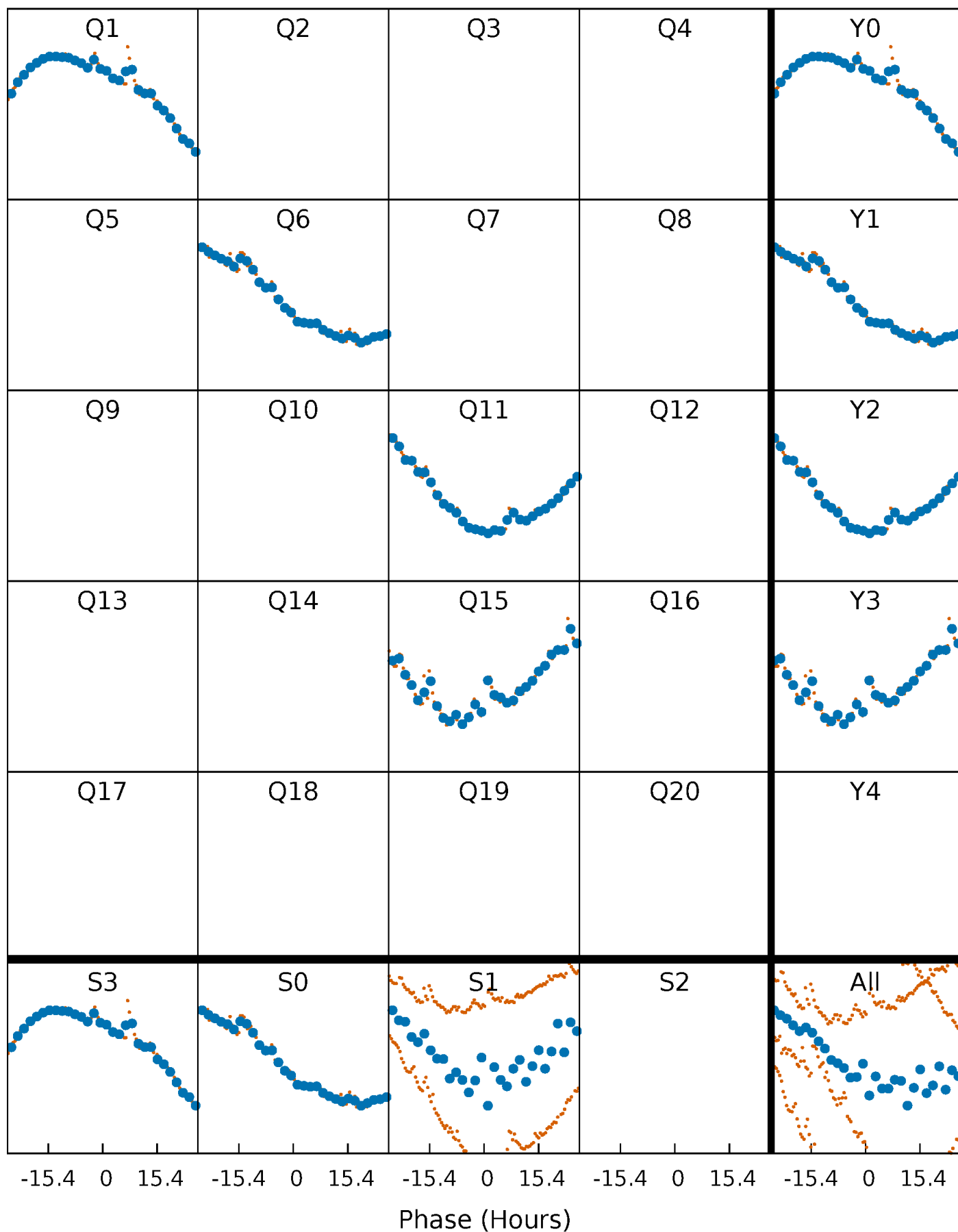


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

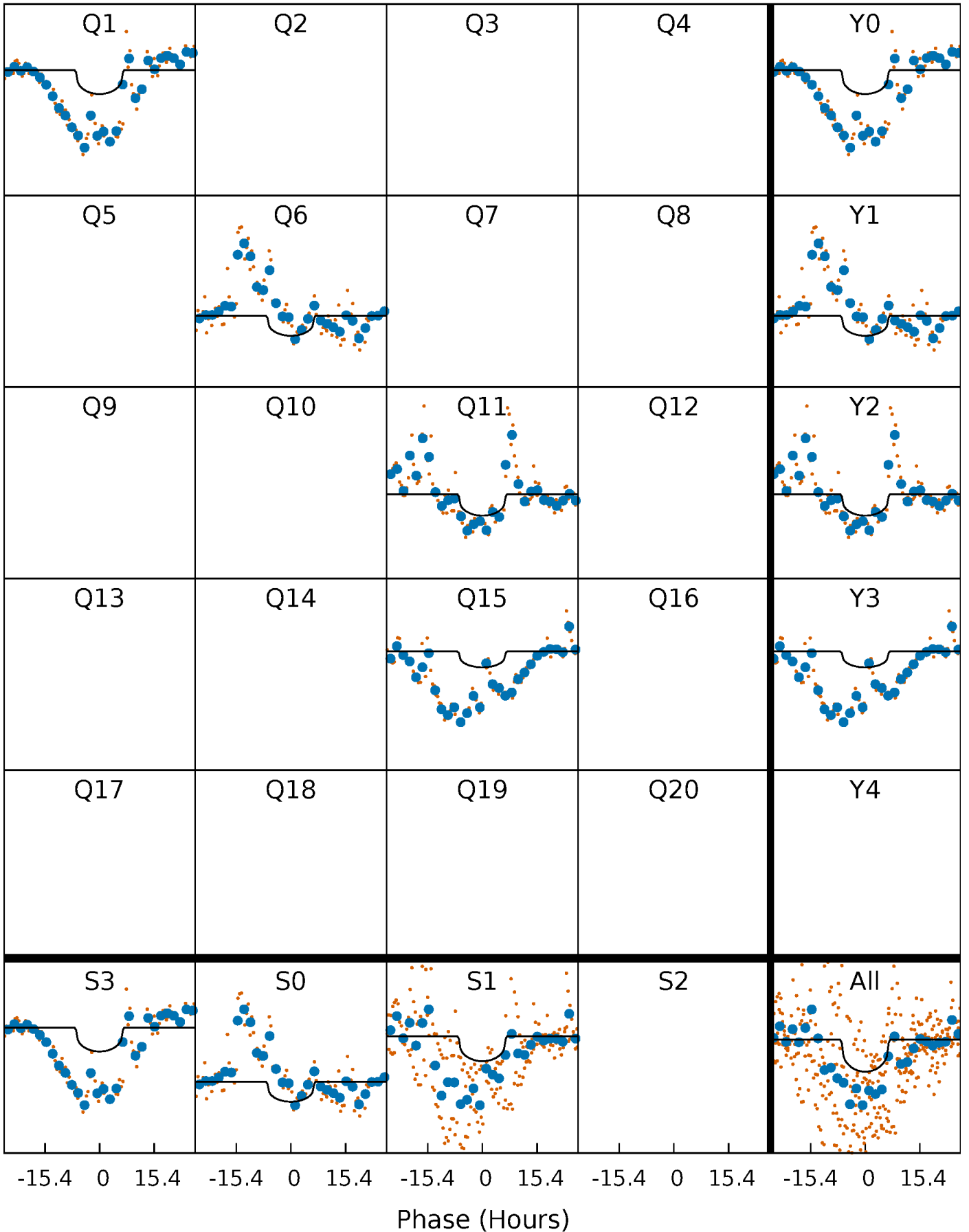
TCE 005599911-02 P=435.746600 Days  $T_0=136.856641$  (BKJD)





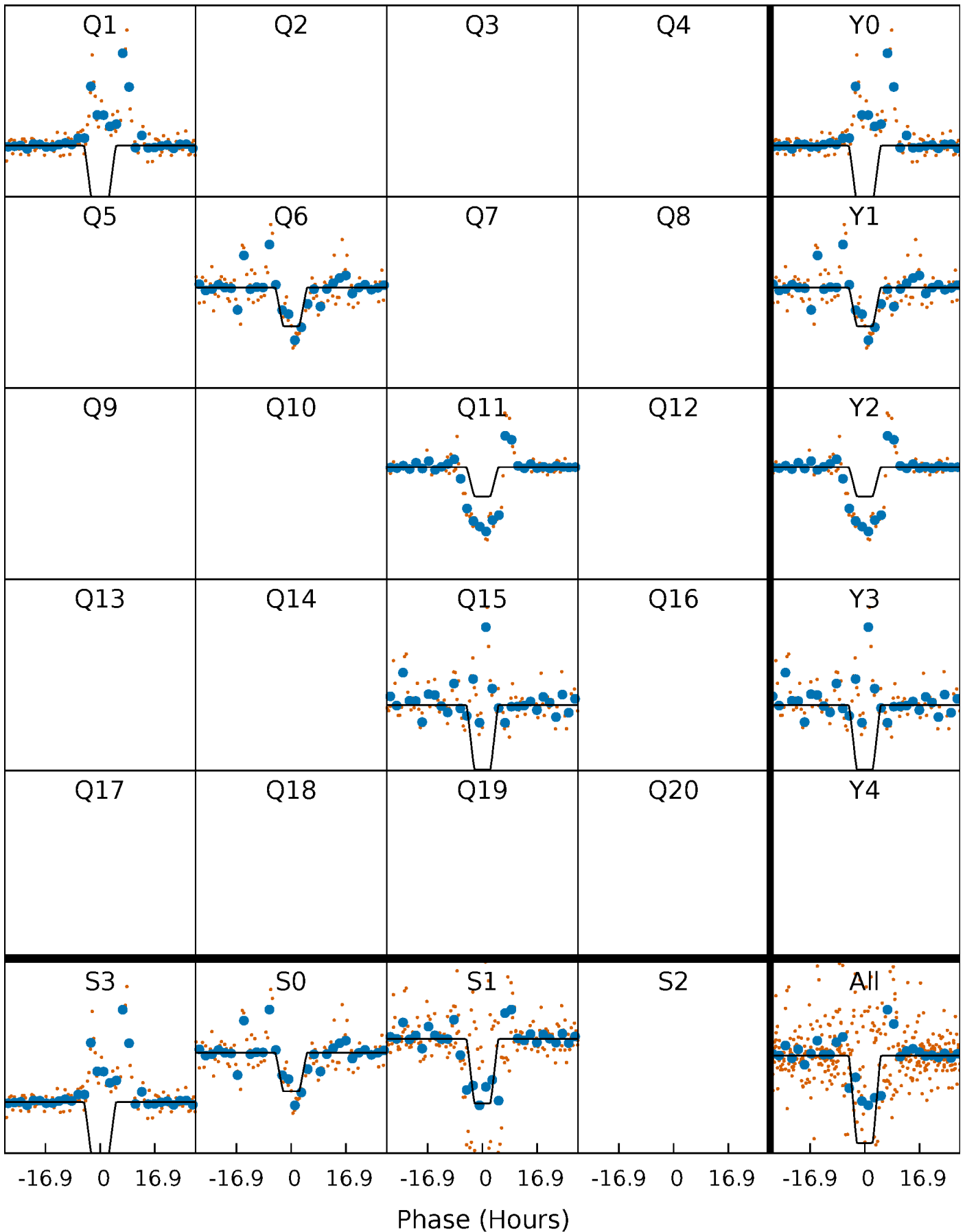
# DV Quarter-Phased Transit Curves

TCE 005599911-02     $P=435.746600$  Days     $T_0=136.856641$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

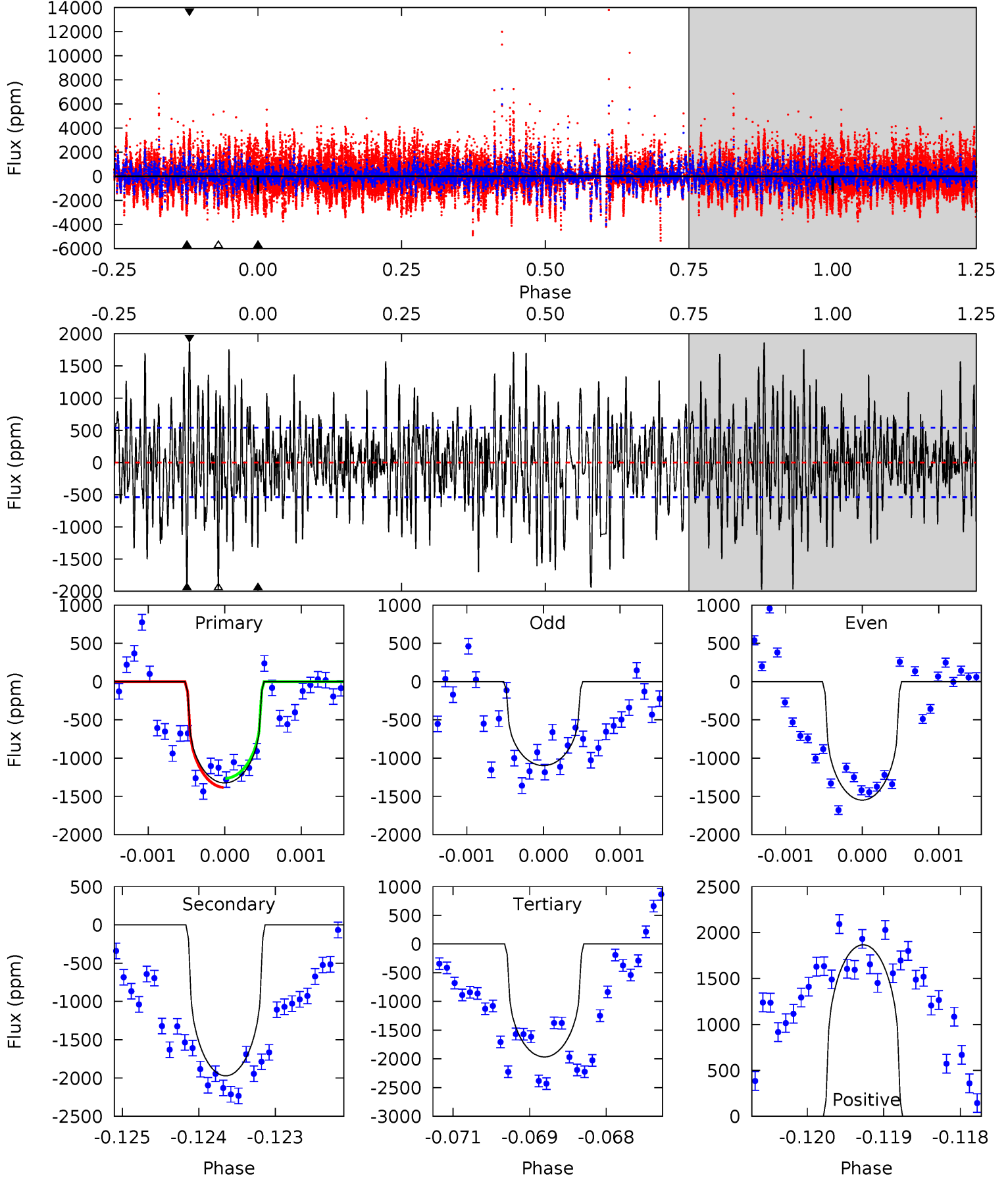
TCE 005599911-02 P=435.745667 Days  $T_0=136.866954$  (BKJD)



# DV Model-Shift Uniqueness Test

005599911-02, P = 435.746600 Days, E = 136.856641 Days

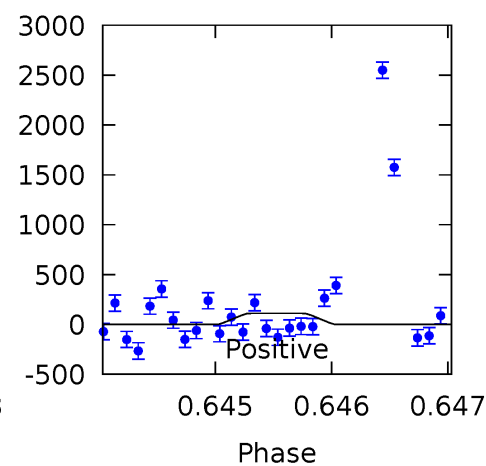
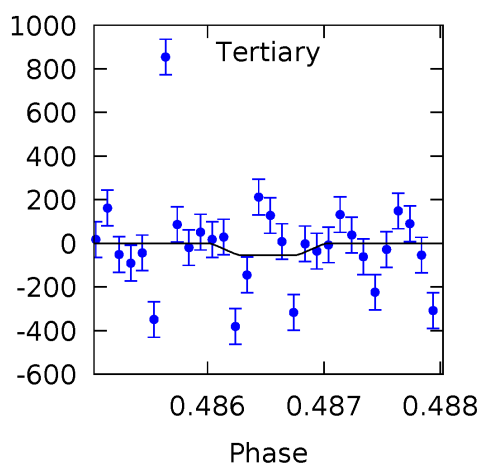
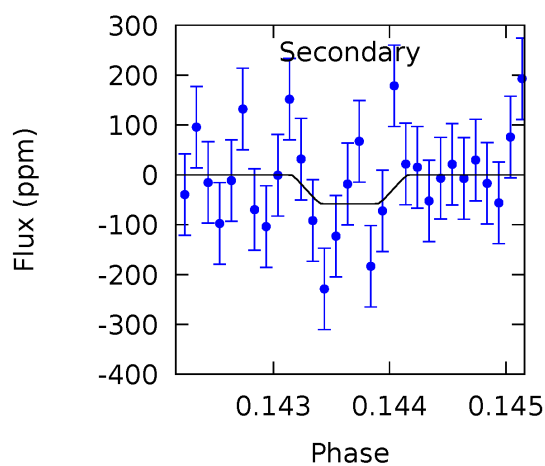
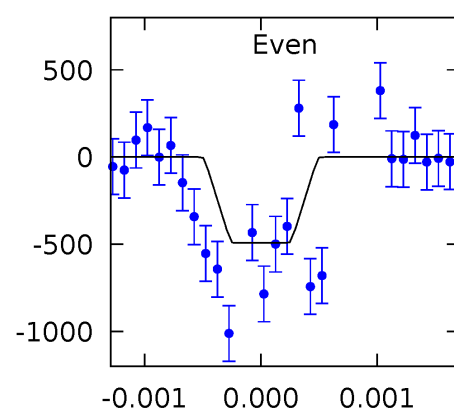
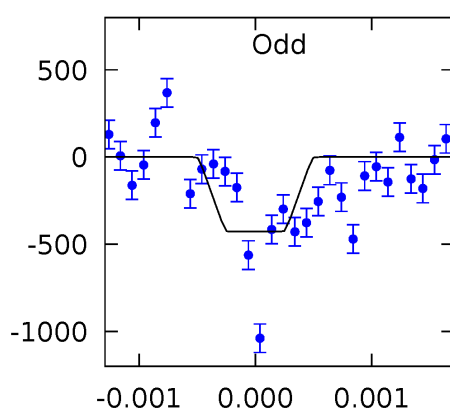
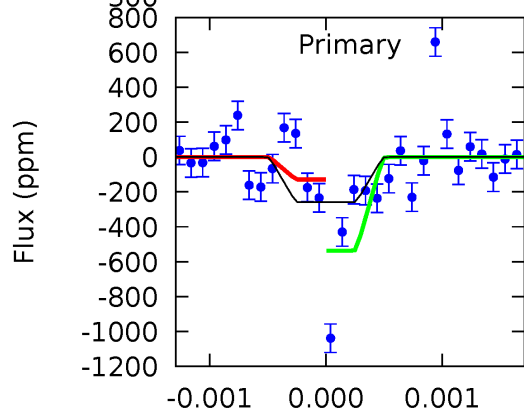
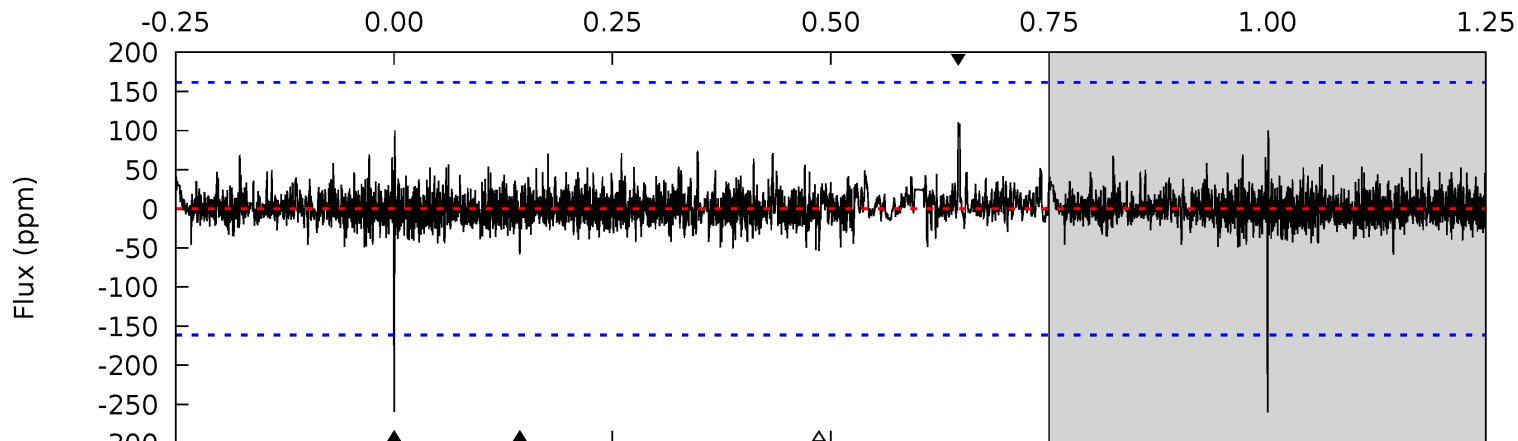
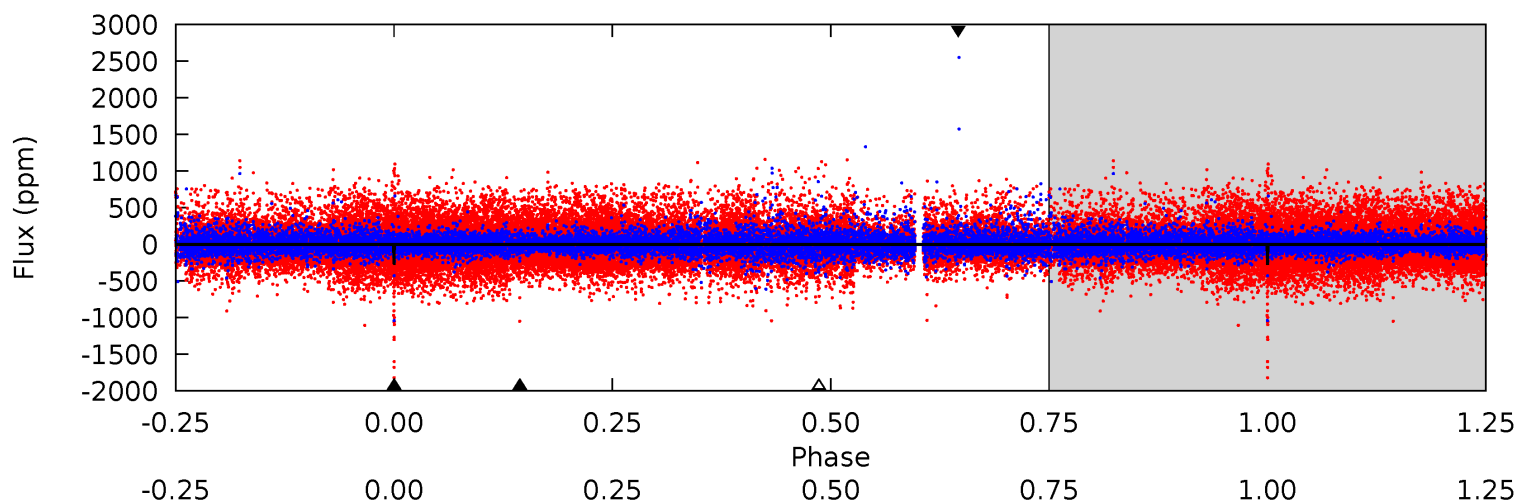
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	19.7	19.7	18.7	5.40	3.21	5.46	-6.44	-5.43	0.05	1.05	2.09	0.87	0.49	0.59



# Alt Model-Shift Uniqueness Test

005599911-02, P = 435.745667 Days, E = 136.866954 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
8.79	1.97	1.82	3.74	5.46	3.31	0.52	6.96	5.05	0.15	-1.77	1.25	1.72	0.30	0



### Stellar Parameters For KIC 005599911

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4238^{+62}_{-162}$	$1.096^{+0.033}_{-0.030}$	$-0.500^{+0.150}_{-0.350}$	$83.657^{+3.955}_{-35.591}$	$3.185^{+0.236}_{-2.128}$	$0.000^{+0.000}_{-0.000}$
	+1%/-4%	+3%/-3%	+30%/-70%	+5%/-43%	+7%/-67%	+78%/-9%
Source	PHO54	AST54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005599911-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1971 \pm 100$	$227.16^{+89.78}_{-87.77}$	$1858^{+41}_{-71}$	$5321^{+1433}_{-683}$	$58^{+94}_{-28}$
Alt.	$-58 \pm 30$	$304.60^{+83.91}_{-84.16}$	$1855^{+41}_{-76}$	$2555^{+326}_{-568}$	$0.960^{+0.968}_{-0.596}$

$T_{max}$  = 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

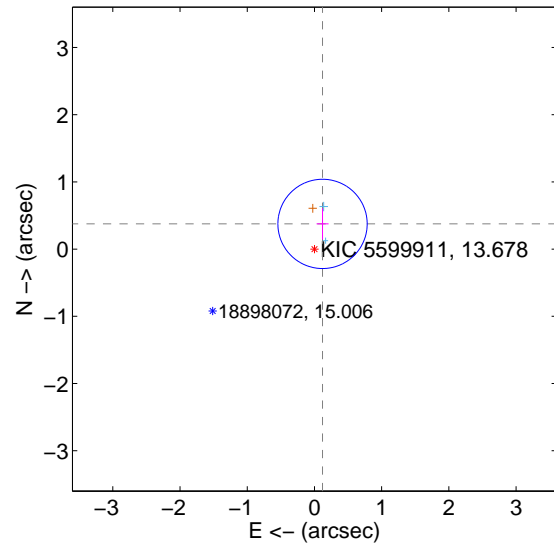
Supplemental centroid analysis for 005599911-02. Kepler magnitude: 13.68. Transit SNR 4.51

There are 2 quarters with good PRF difference image offsets

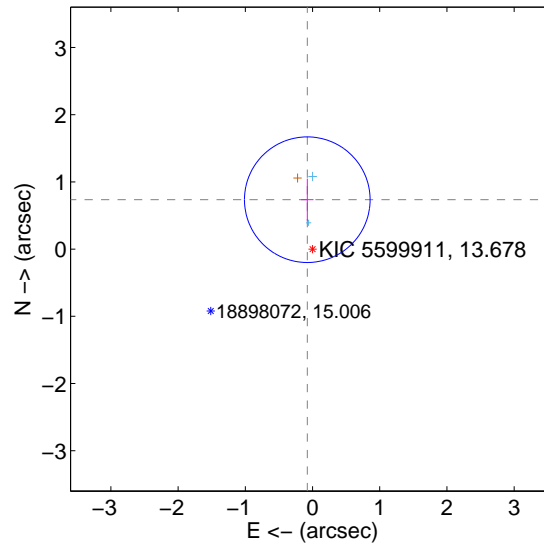
The direct PRF centroid is offset from the target star catalog position by about 0.47 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.394 \pm 0.221$	1.78	$-0.120 \pm 0.090$	$0.375 \pm 0.231$
PRF-fit source offset from KIC position	$0.739 \pm 0.312$	2.37	$0.078 \pm 0.093$	$0.735 \pm 0.313$
photometric centroid source offset	$0.97 \pm 0.68$	1.44	$-0.74 \pm 0.59$	$0.63 \pm 0.78$

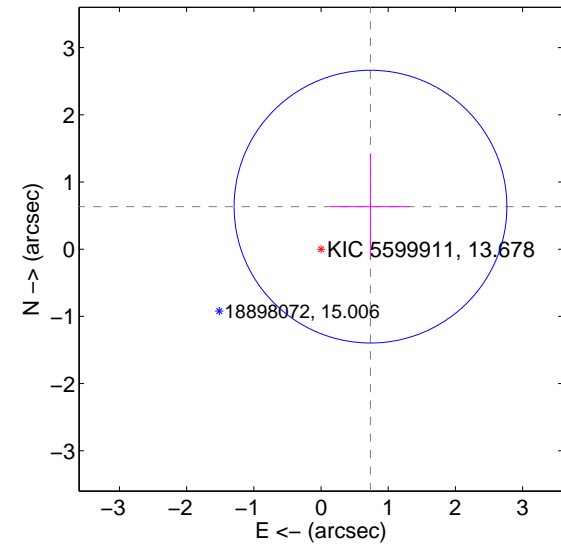
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

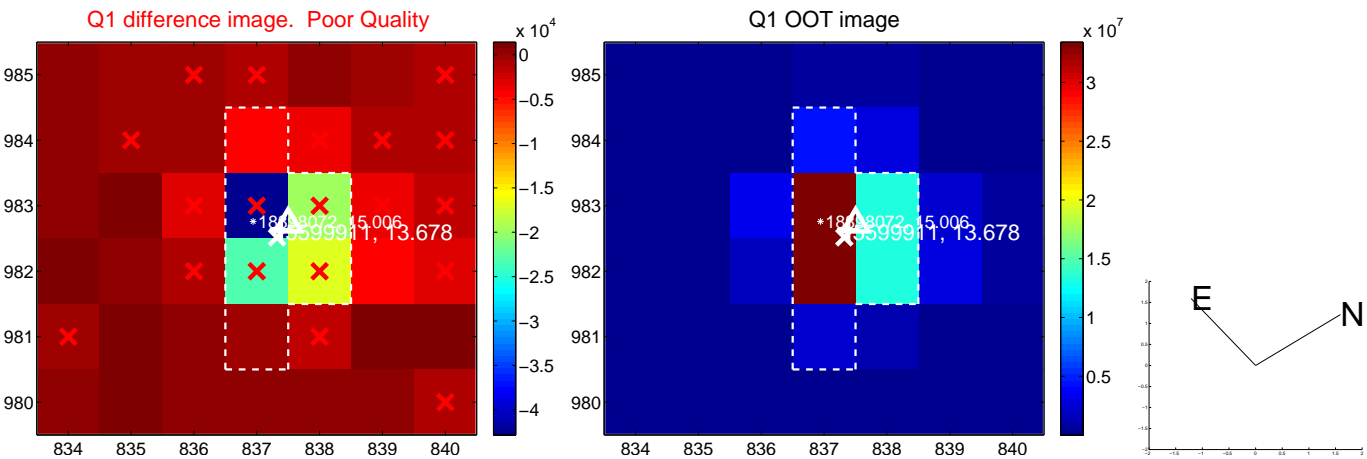


offset from photometric centroids

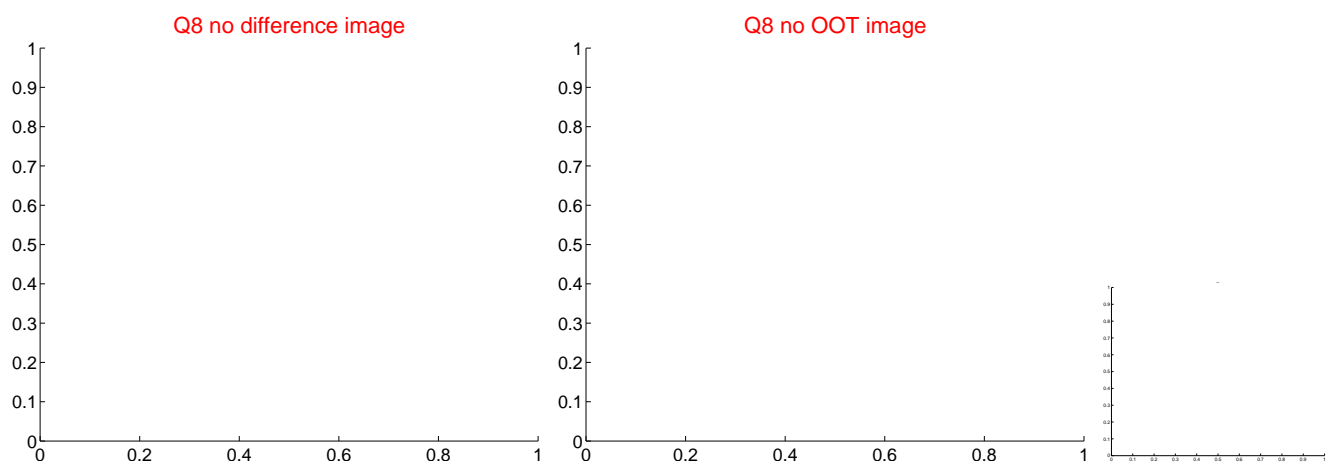
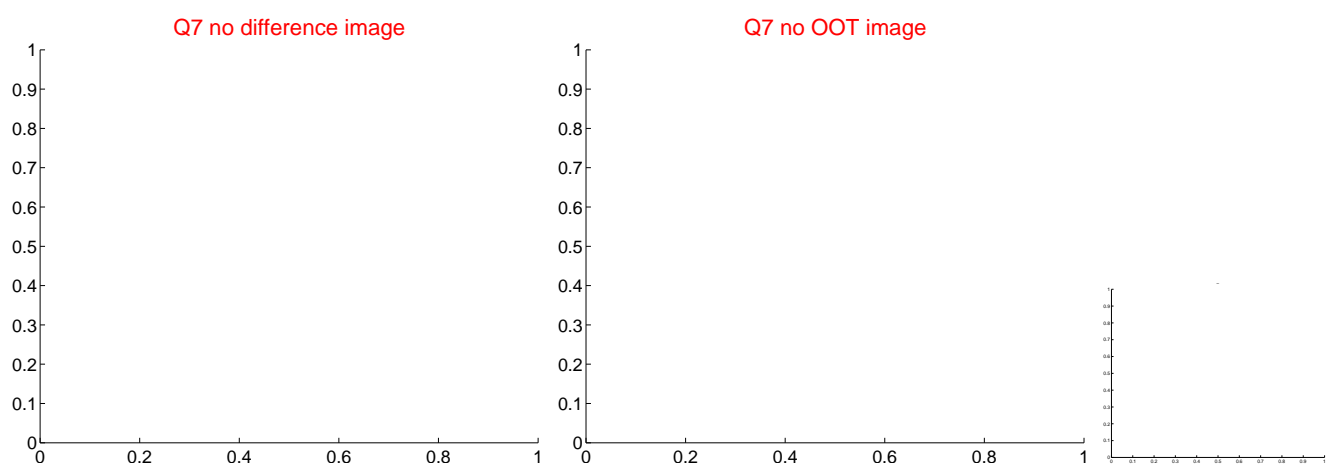
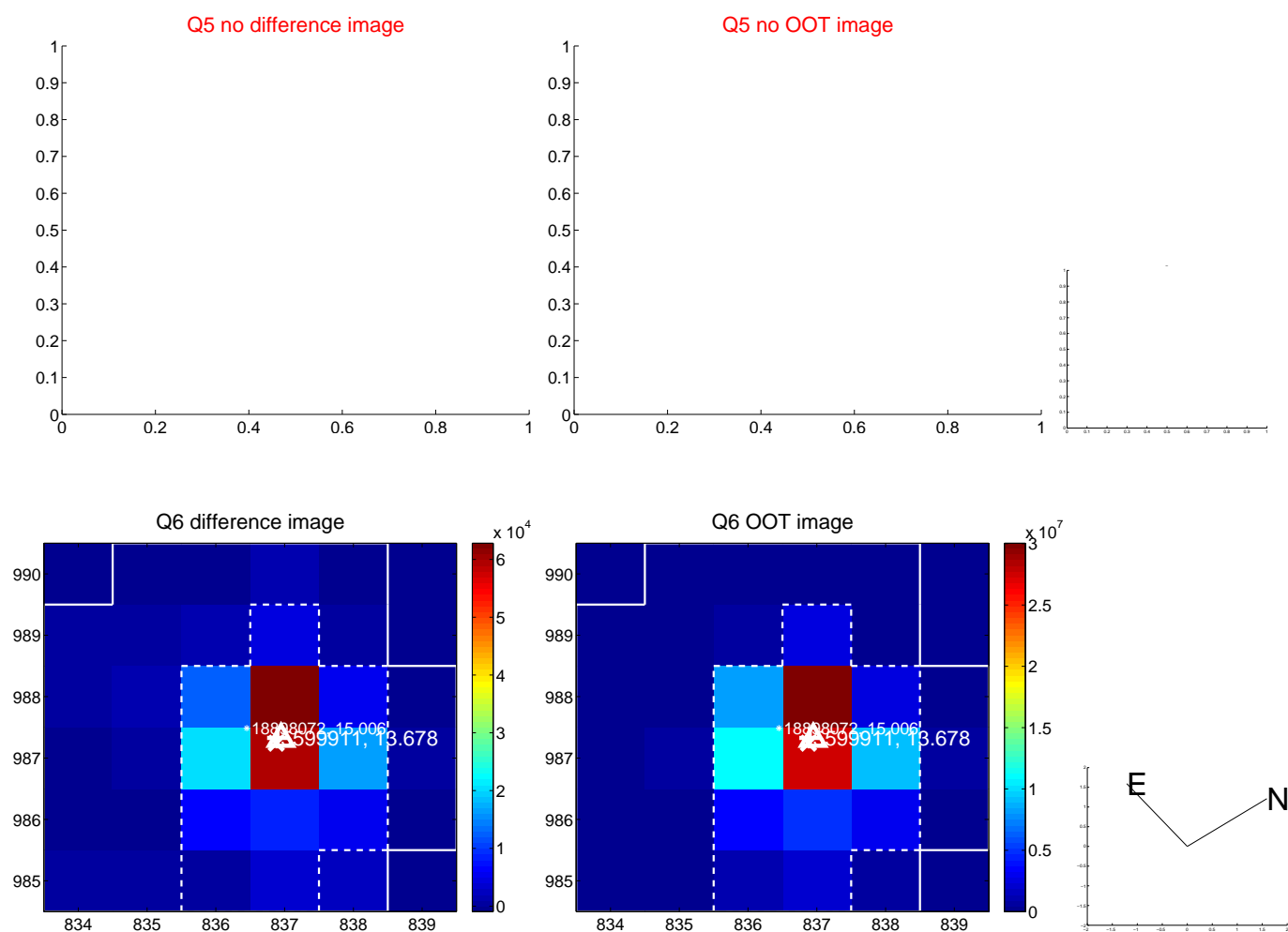


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

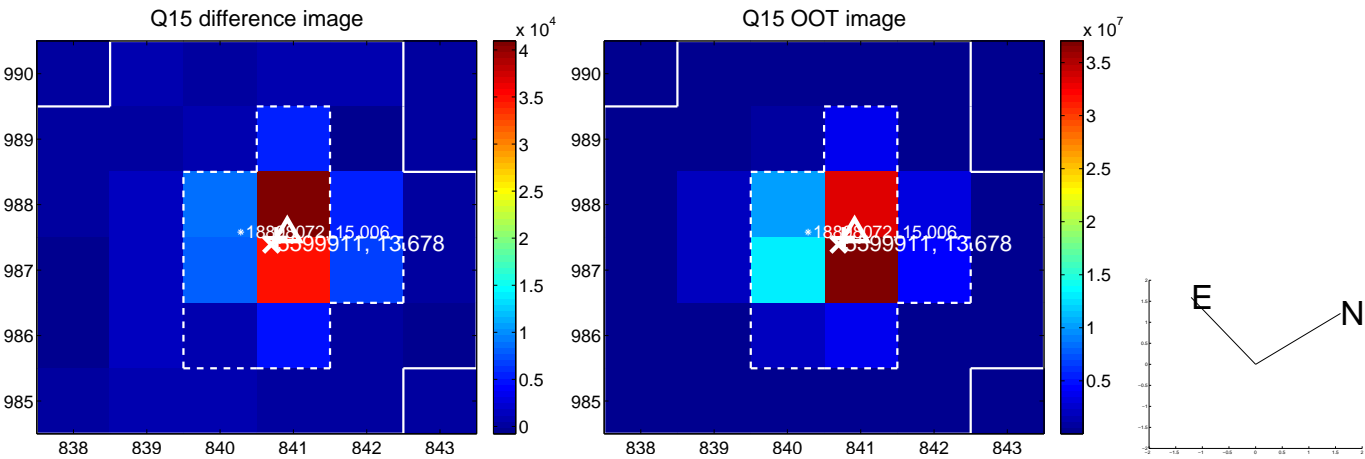




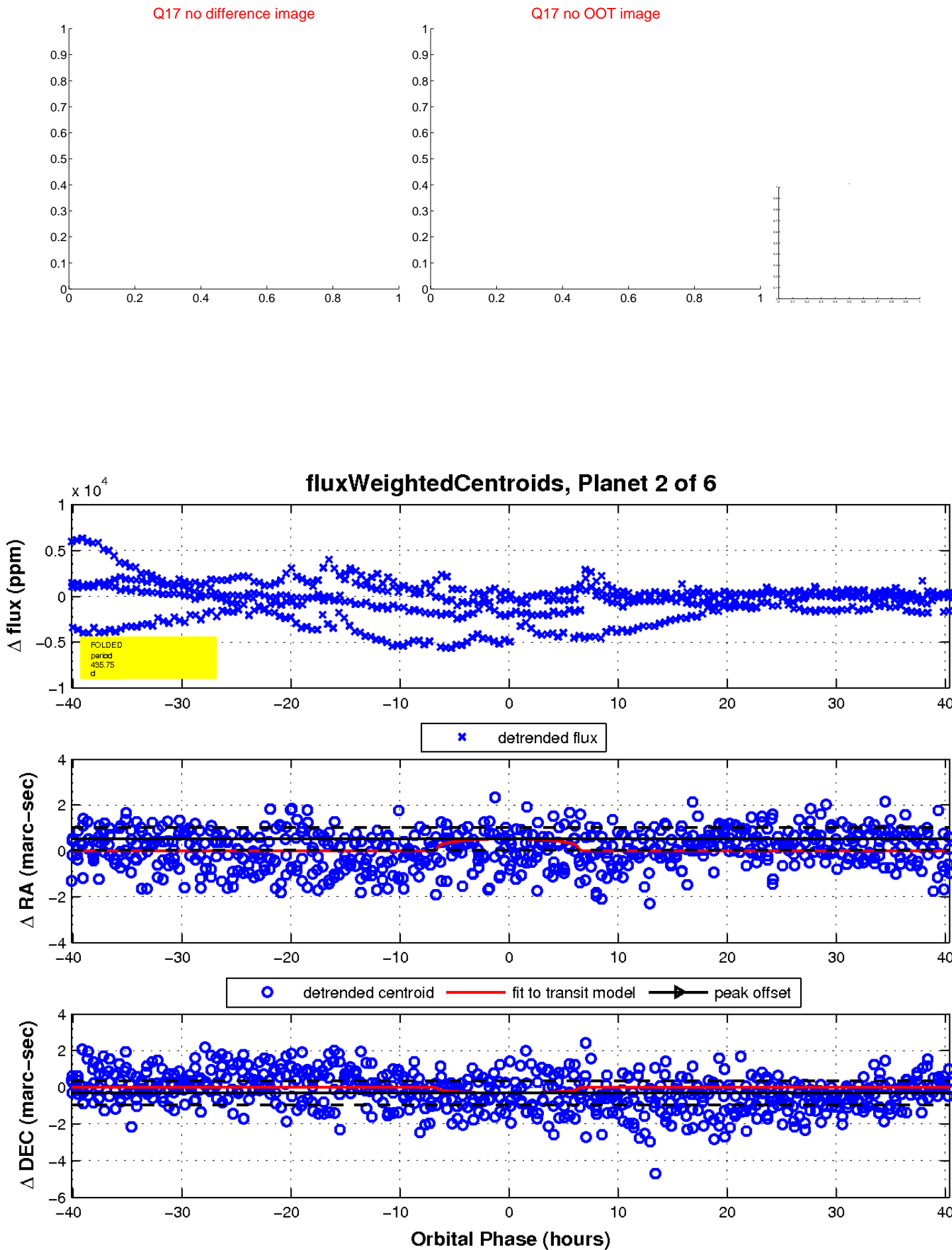
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

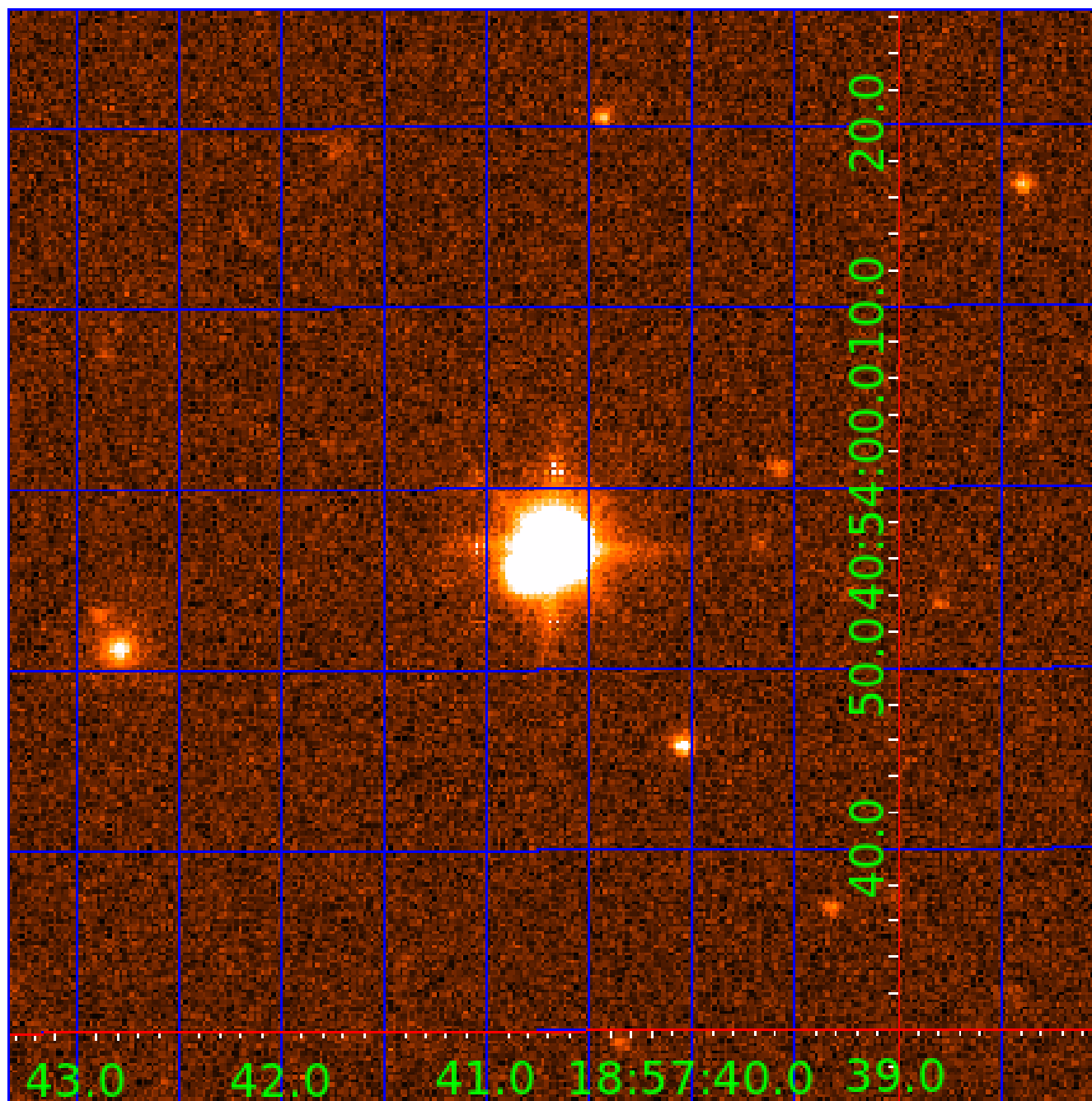


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005599911

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005599911-01	OBS	No	298.403037	207.000893	1040.1	8.852	14.9	6.0	83.66	4238	278.92	1223.12
005599911-02	OBS	No	435.746600	136.856641	680.2	13.496	13.1	4.5	83.66	4238	227.87	738.29
005599911-03	OBS	No	381.995540	214.494357	1290.2	12.639	12.8	8.0	83.66	4238	285.57	879.96
005599911-04	OBS	No	389.794928	153.471548	1193.4	6.985	15.0	9.0	83.66	4238	283.08	856.56
005599911-05	OBS	No	395.434260	156.590650	927.1	5.903	12.8	7.5	83.66	4238	279.27	840.31
005599911-06	OBS	No	212.056553	180.241526	726.1	2.070	11.9	7.5	83.66	4238	261.87	1928.73

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005599911-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_POS_DV—CENT_FEW_DIFFS
005599911-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005599911-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
005599911-04	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—CENT_FEW_DIFFS
005599911-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005599911-06	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

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

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

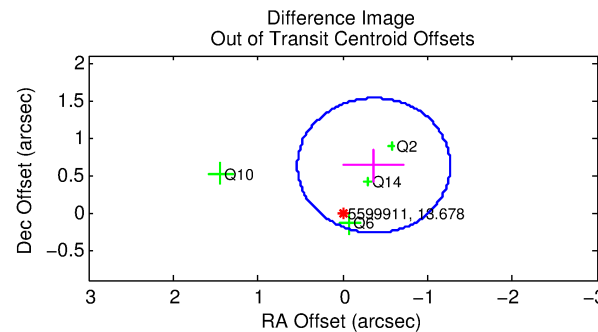
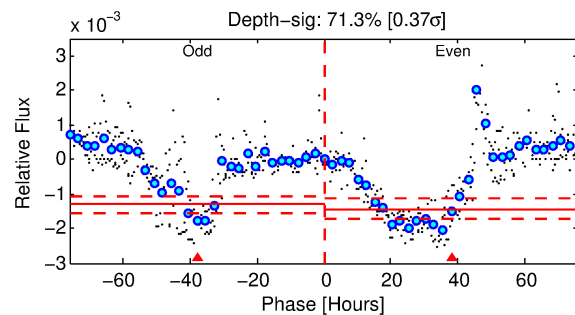
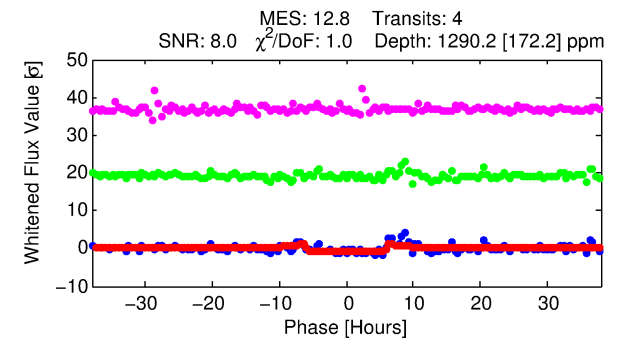
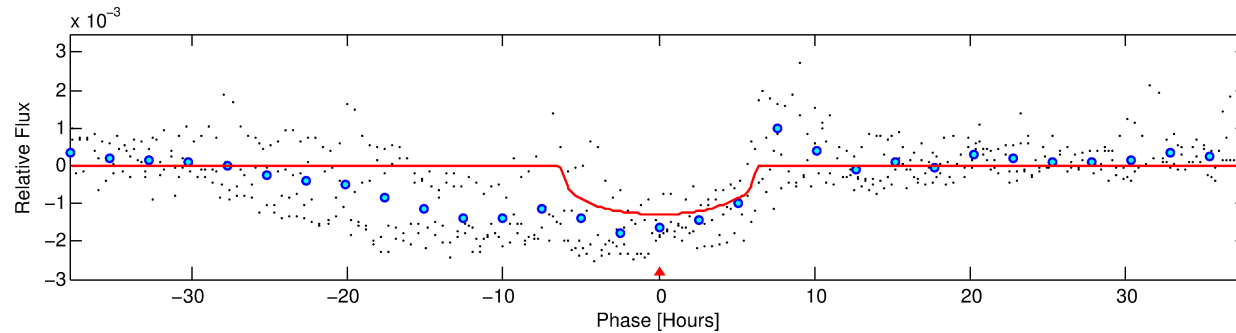
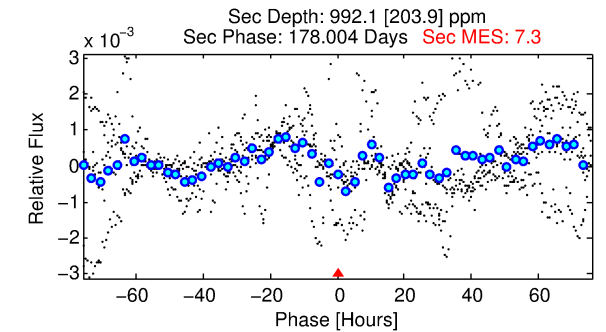
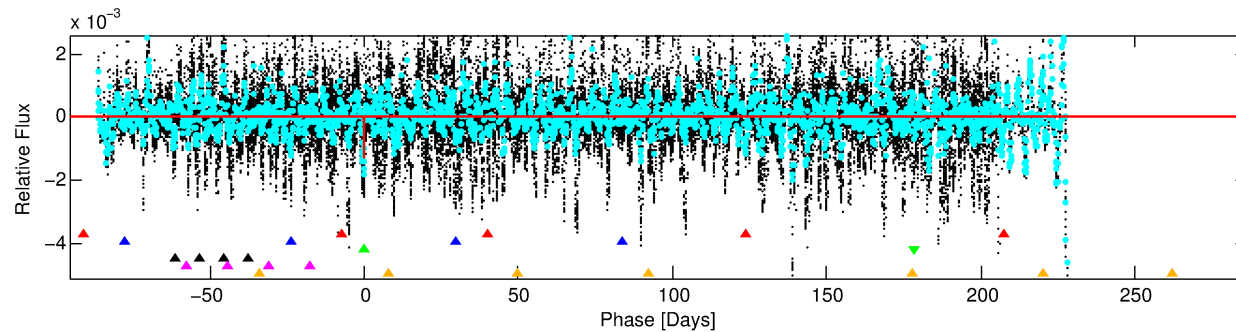
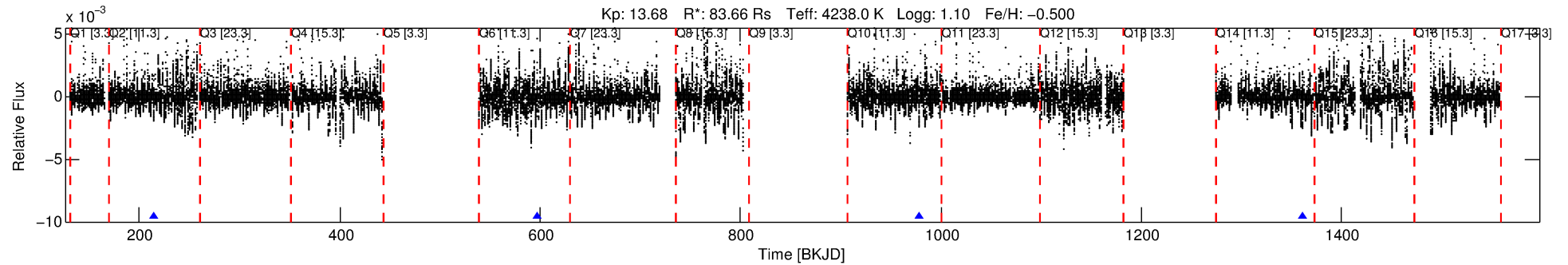
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005599911-03

No Significant Match Found

# DV One-Page Summary

KIC: 5599911 Candidate: 3 of 6 Period: 381.996 d



## DV Fit Results:

Period = 381.99554 [0.00374] d  
Epoch = 214.4944 [0.0083] BKJD  
Rp/R\* = 0.0313 [0.0114]  
a/R\* = 236.30 [238.23]  
b = 0.13 [7.90]  
Seff = 879.96 [287.02]  
Teff = 1389 [113] K  
Rp = 285.57 [160.09] Re  
a = 1.5161 [0.4317] AU  
Ag = 15.38 [12.48] [1.15 $\sigma$ ]  
Teffp = 4253 [823] K [3.45 $\sigma$ ]

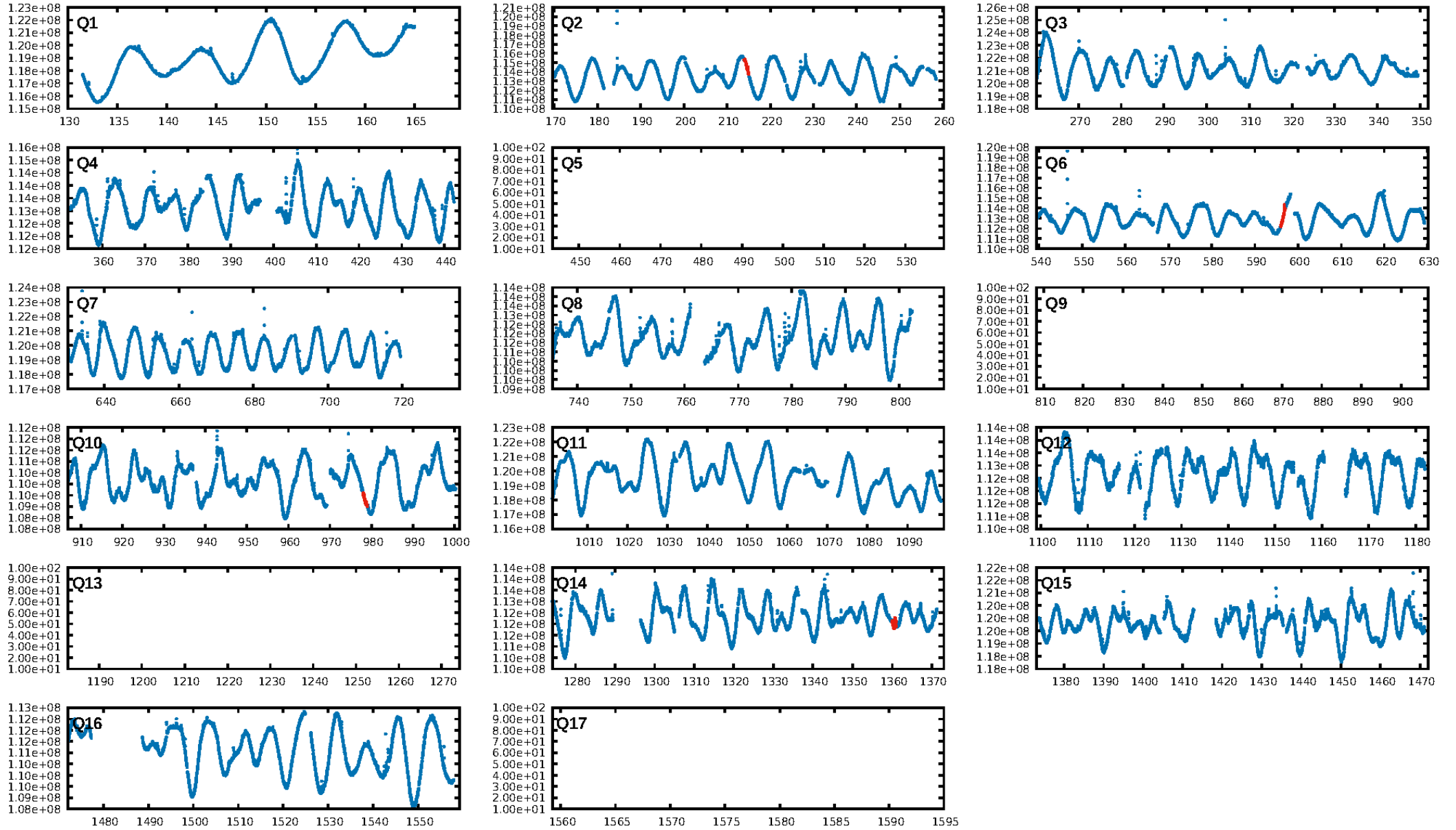
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [130.01 $\sigma$ ]  
LongPeriod-sig: 100.0% [12.96 $\sigma$ ]  
ModelChiSquare2-sig: 62.2%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 1.01e-10  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.565  
Centroid-sig: 3.1%  
Centroid-so: 0.778 arcsec [1.79 $\sigma$ ]  
OotOffset-rm: 0.727 arcsec [2.42 $\sigma$ ]  
OotOffset-st: 4/0/0/0 [4]  
KicOffset-rm: 0.896 arcsec [5.22 $\sigma$ ]  
KicOffset-st: 4/0/0/0 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 1.00 [4/4]

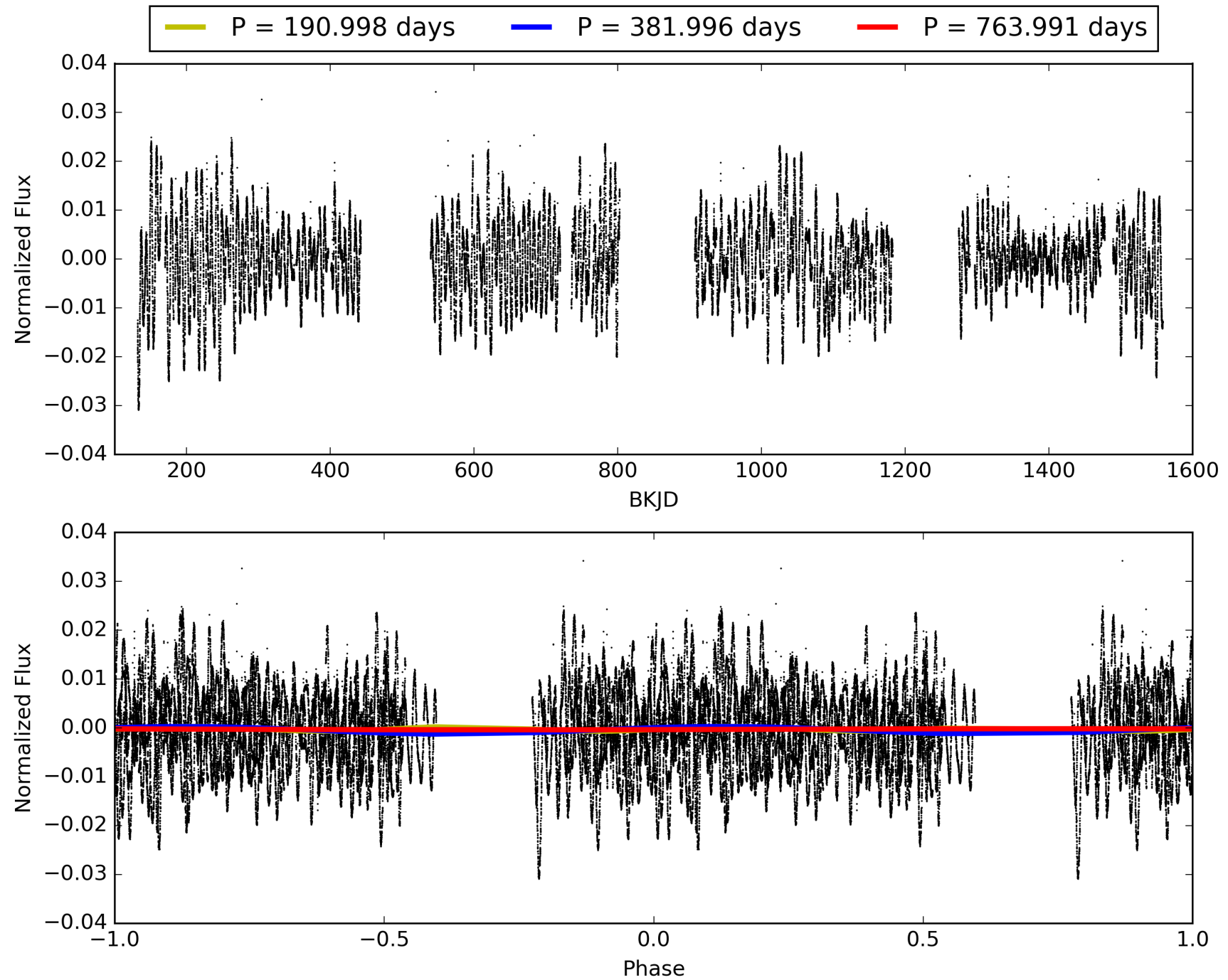
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:13:16 Z

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

# TCE 005599911-03, PDC Light Curves



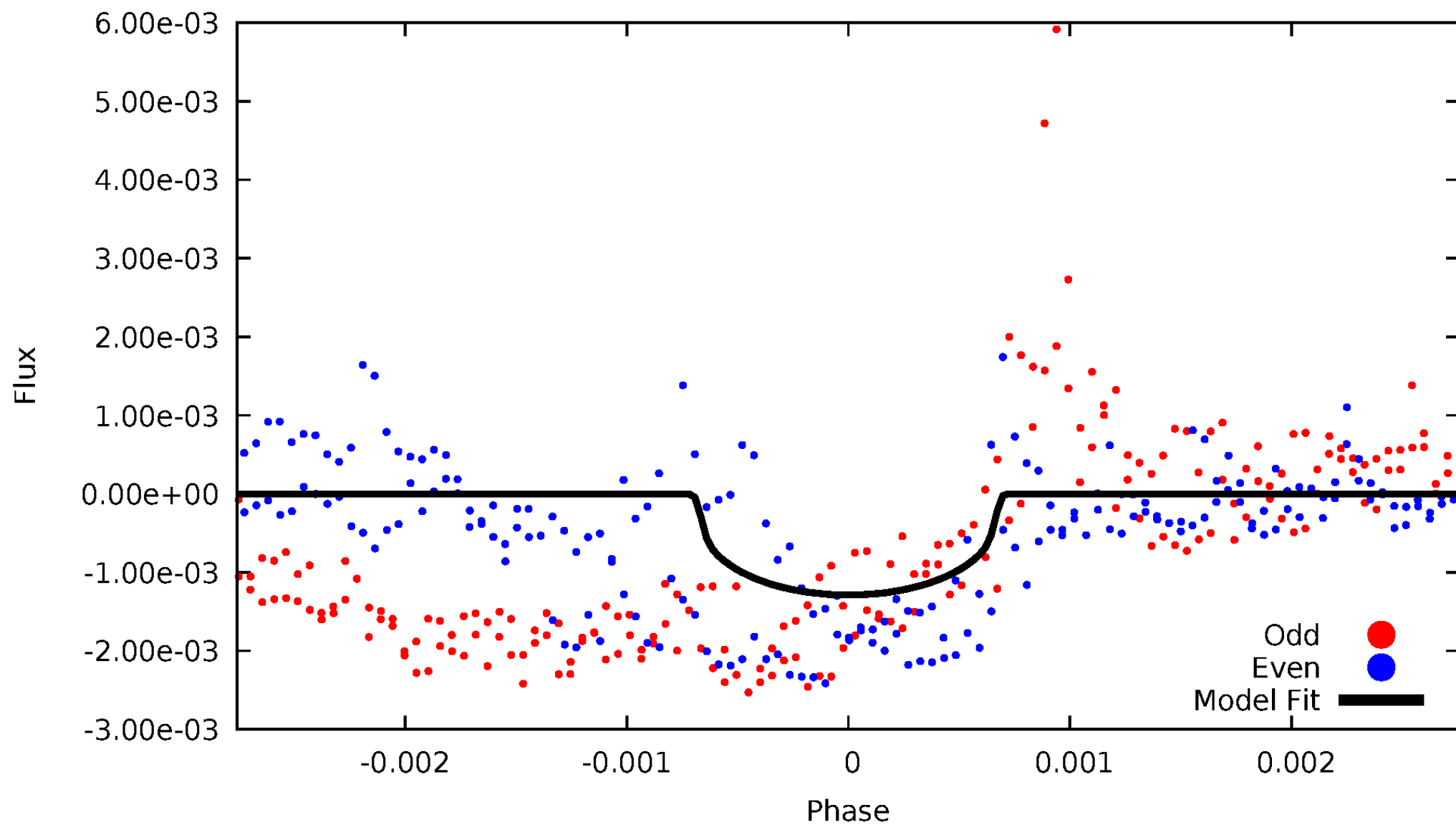
# TCE 005599911-03





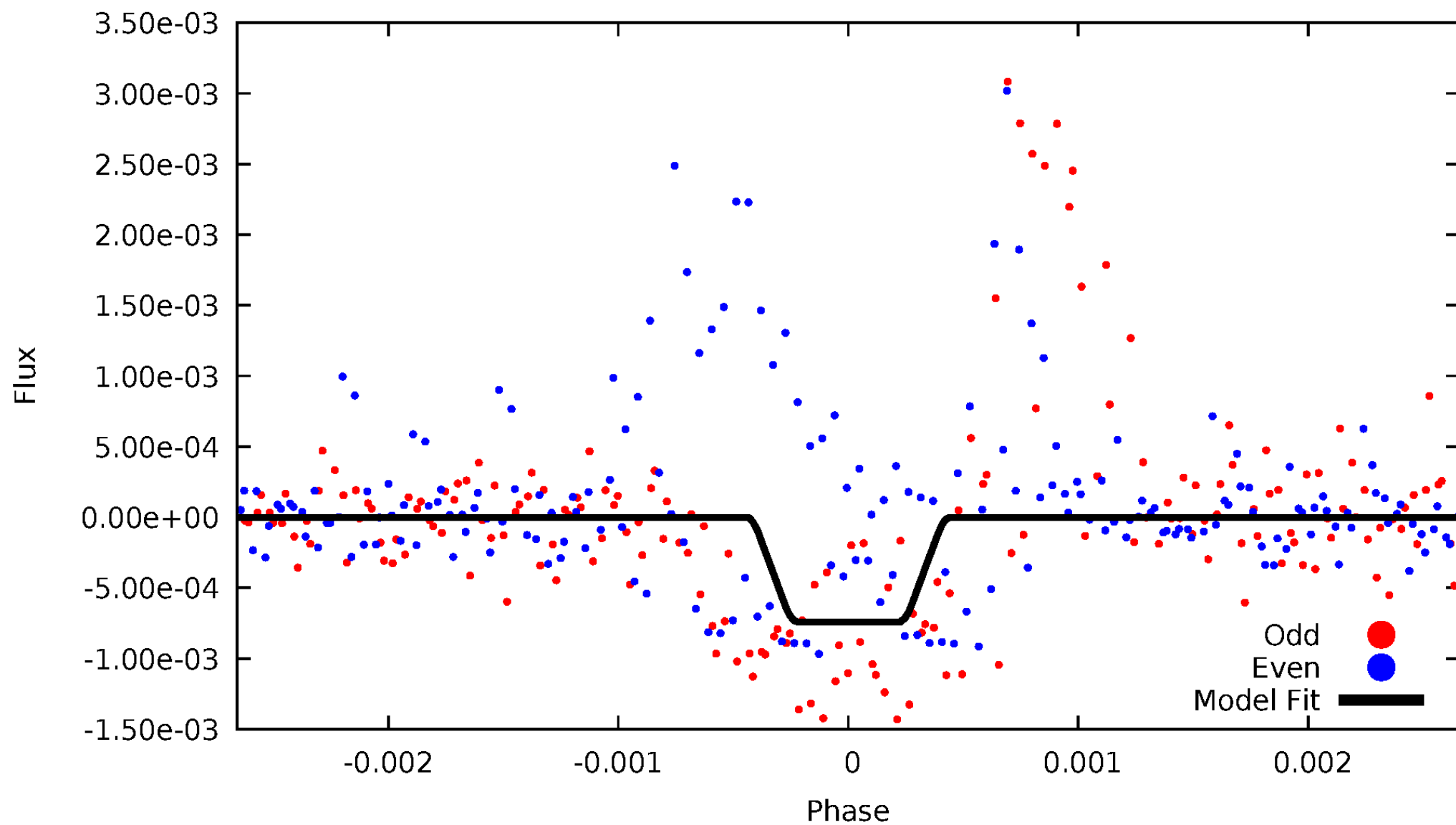
# DV Odd/Even

TCE 005599911-03



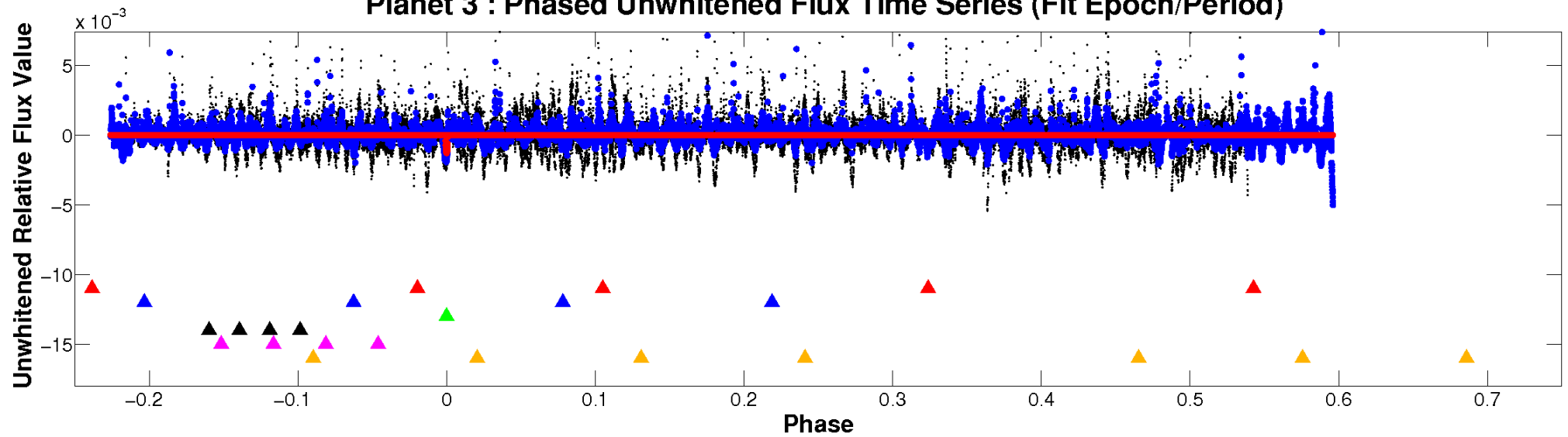
# ALT Odd/Even

TCE 005599911-03

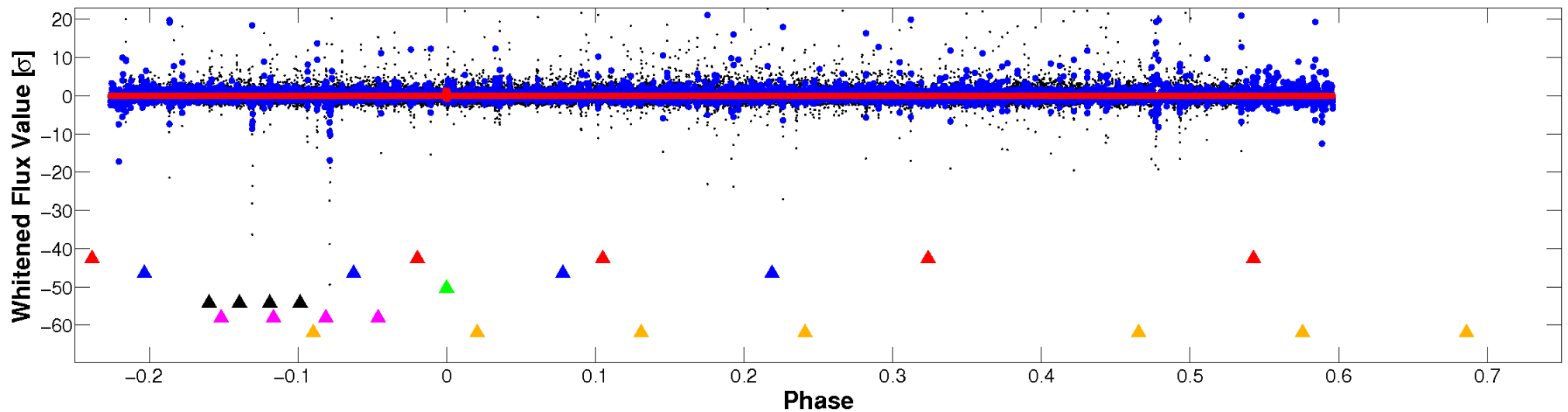


# Non-Whitened Vs. Whitened Light Curve

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

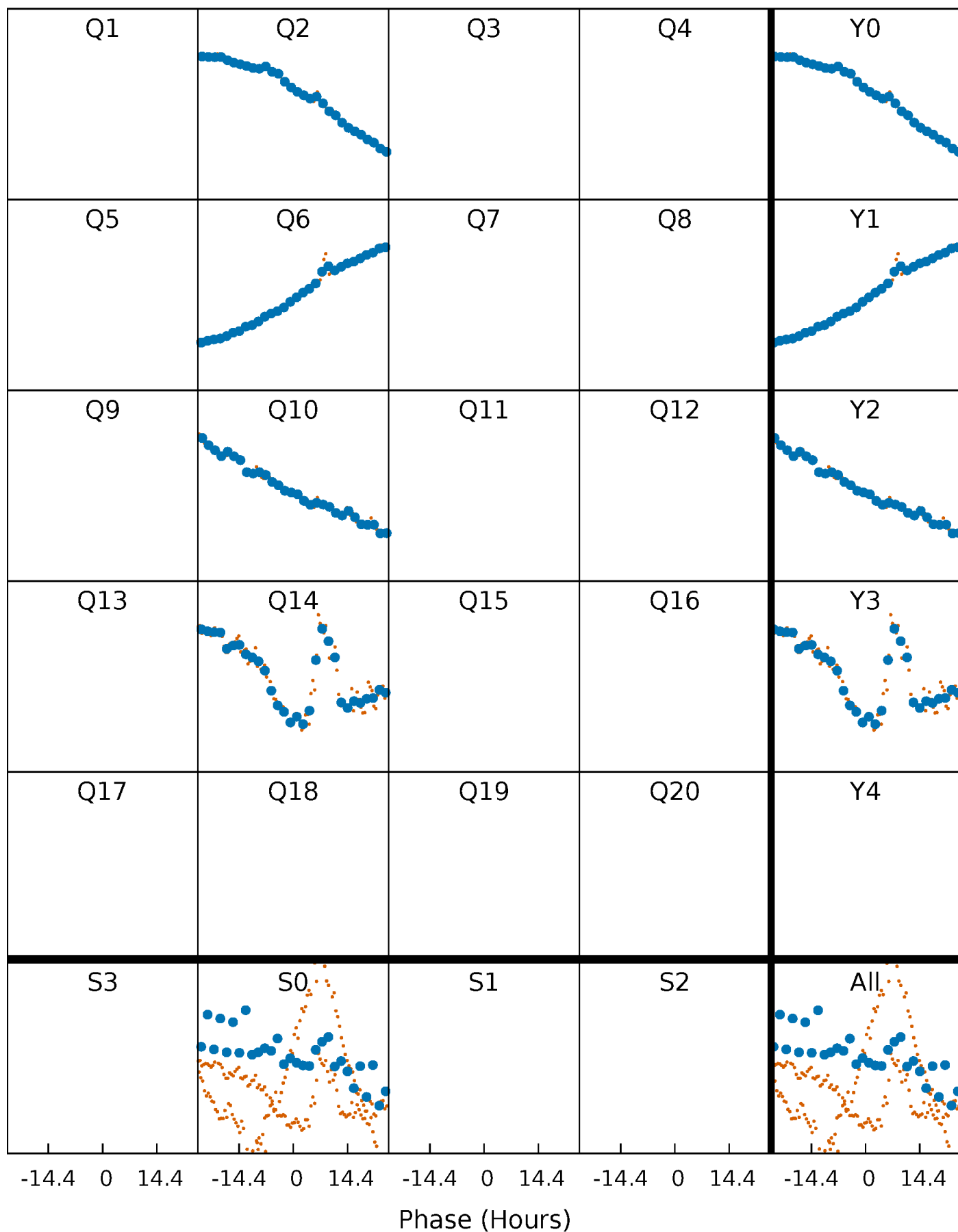


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



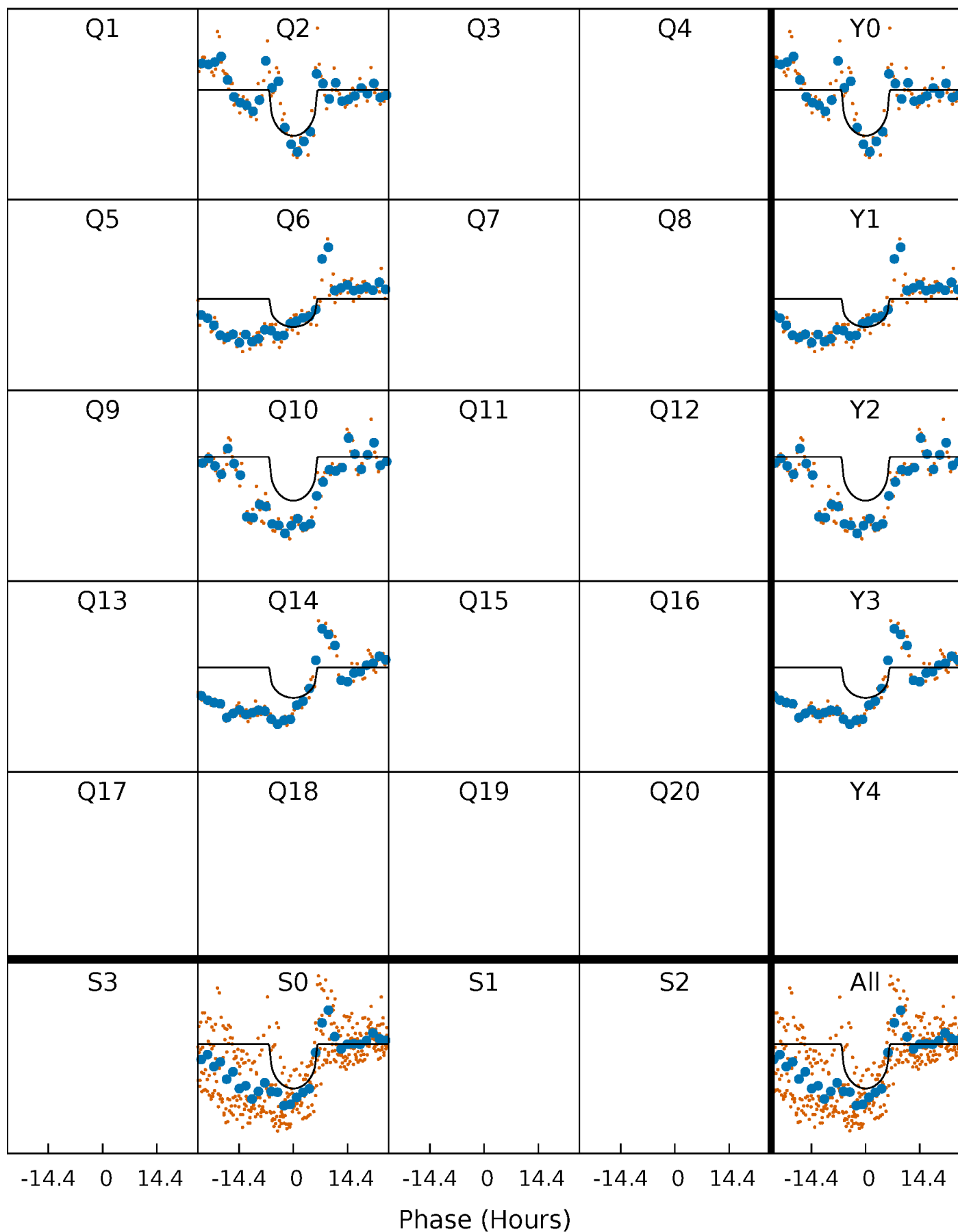
# PDC Quarter-Phased Transit Curves

TCE 005599911-03     $P=381.995540$  Days     $T_0=214.494357$  (BKJD)



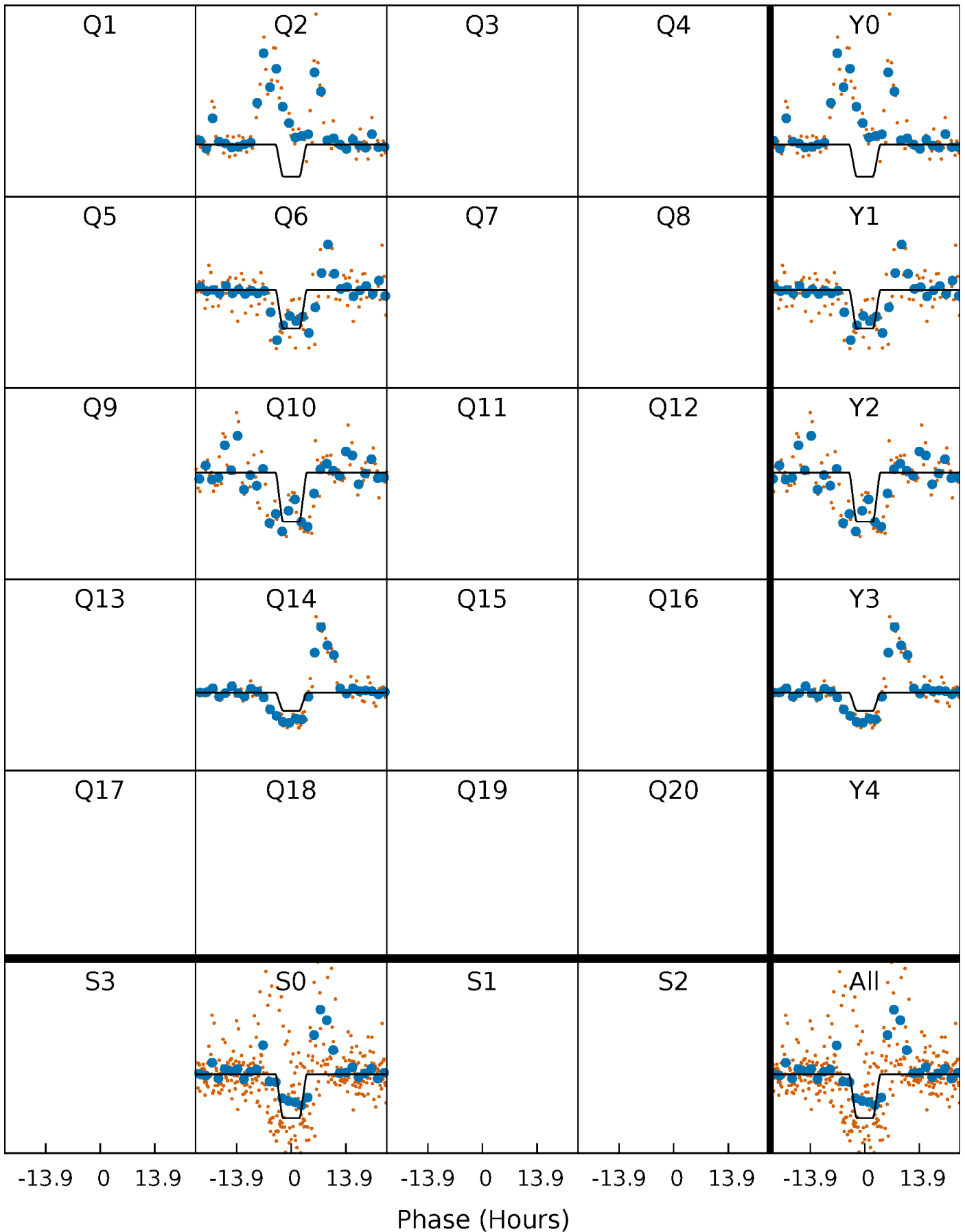
# DV Quarter-Phased Transit Curves

TCE 005599911-03     $P=381.995540$  Days     $T_0=214.494357$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

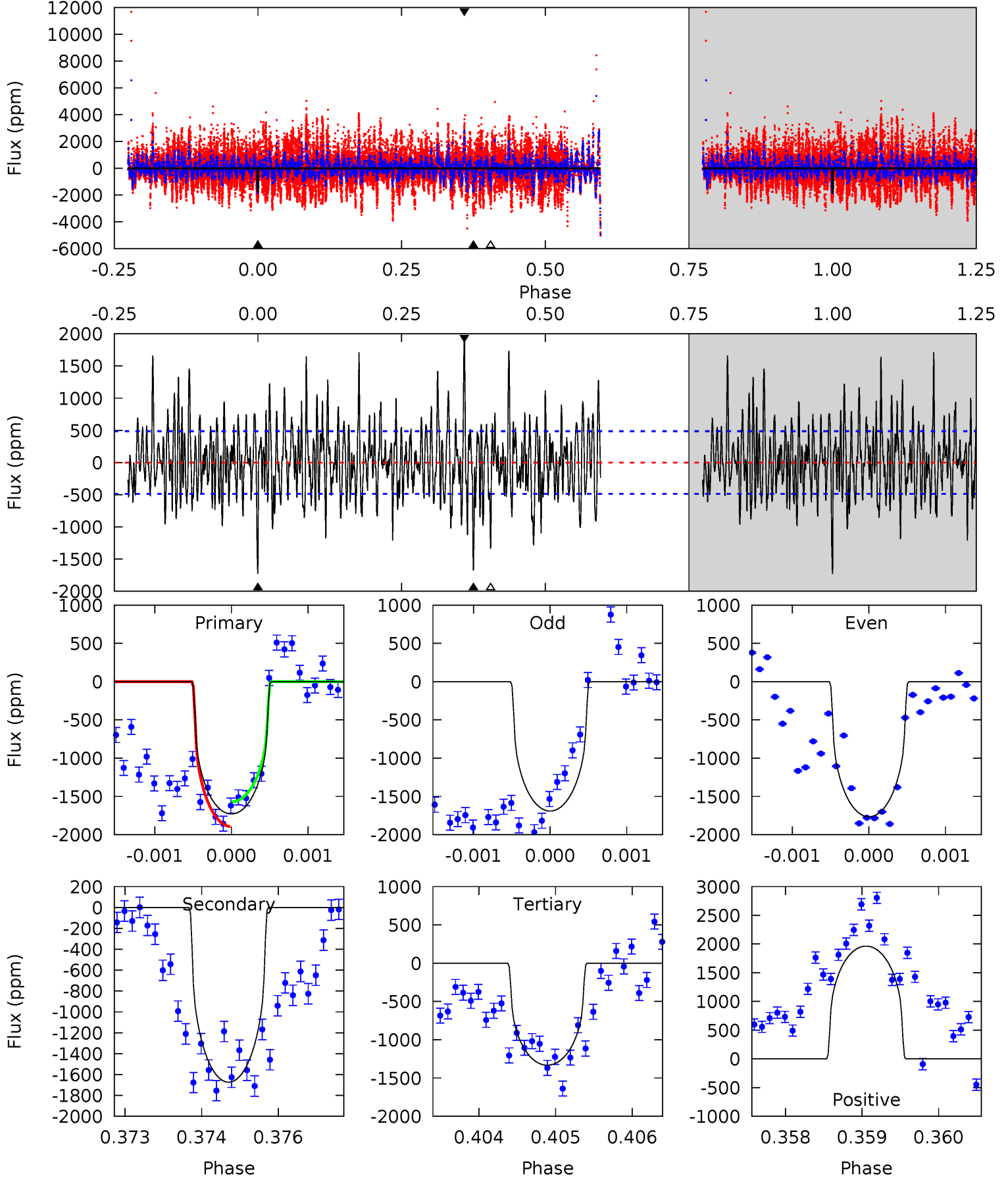
TCE 005599911-03     $P=381.998593$  Days     $T_0=214.497570$  (BKJD)



# DV Model-Shift Uniqueness Test

005599911-03, P = 381.995540 Days, E = 214.494357 Days

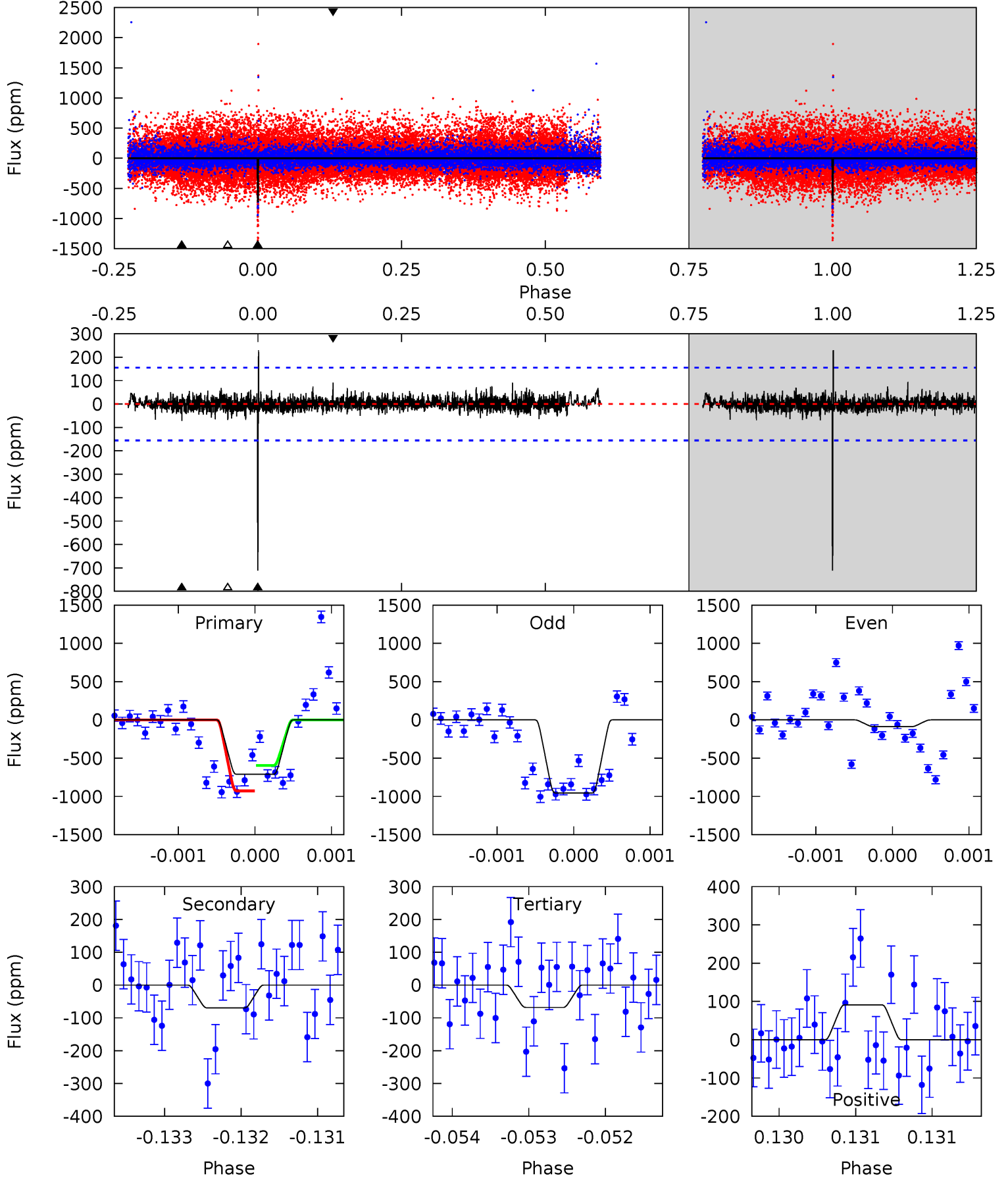
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.2	18.6	14.8	21.8	5.39	3.20	5.23	4.39	-2.60	3.78	-3.22	0.38	1.03	0.53	1.82



# Alt Model-Shift Uniqueness Test

005599911-03, P = 381.998593 Days, E = 214.497570 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
25.0	2.45	2.40	3.21	5.47	3.32	0.64	22.6	21.8	0.05	-0.76	16.7	0.77	0.24	5.72





### Stellar Parameters For KIC 005599911

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4238^{+62}_{-162}$	$1.096^{+0.033}_{-0.030}$	$-0.500^{+0.150}_{-0.350}$	$83.657^{+3.955}_{-35.591}$	$3.185^{+0.236}_{-2.128}$	$0.000^{+0.000}_{-0.000}$
	+1%/-4%	+3%/-3%	+30%/-70%	+5%/-43%	+7%/-67%	+78%/-9%
Source	PHO54	AST54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005599911-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1673 \pm 90$	$298.69^{+101.85}_{-119.96}$	$1940^{+43}_{-78}$	$4591^{+1132}_{-503}$	$24^{+43}_{-11}$
Alt.	$-70 \pm 28$	$253.66^{+105.64}_{-108.49}$	$1938^{+42}_{-79}$	$2775^{+572}_{-442}$	$1.318^{+2.904}_{-0.743}$

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

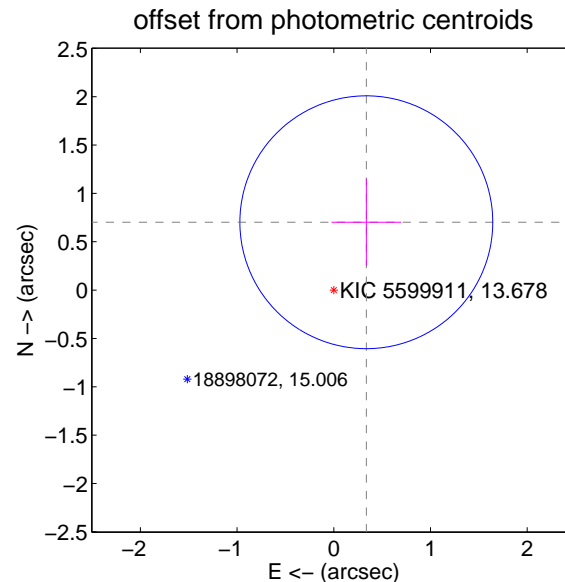
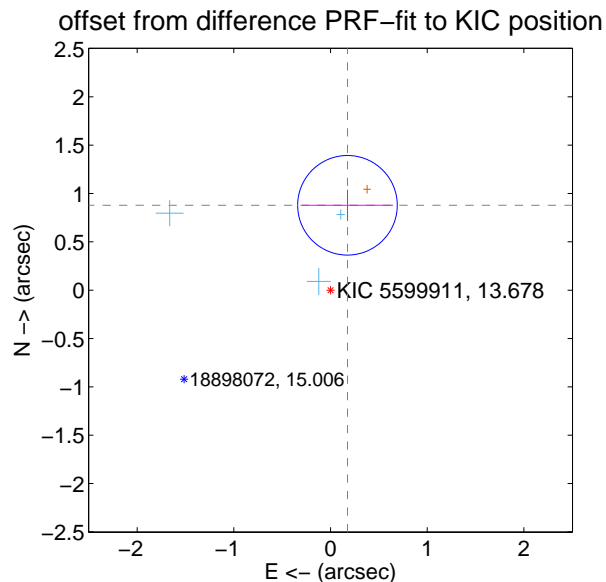
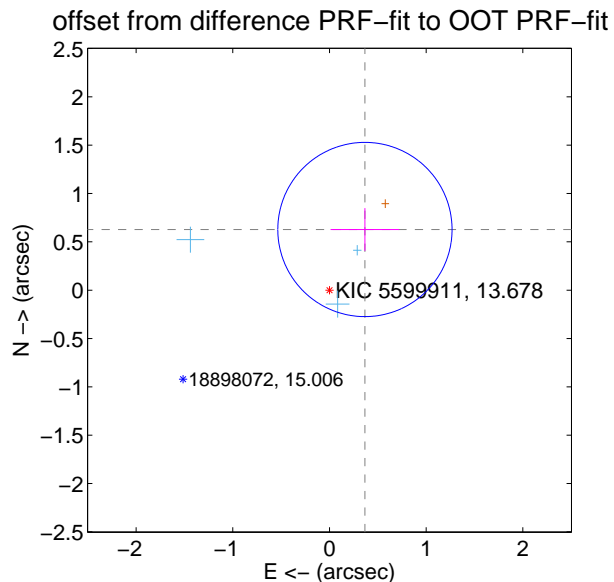
## DV Centroid Data

Supplemental centroid analysis for 005599911-03. Kepler magnitude: 13.68. Transit SNR 7.95

There are 3 quarters with good PRF difference image offsets

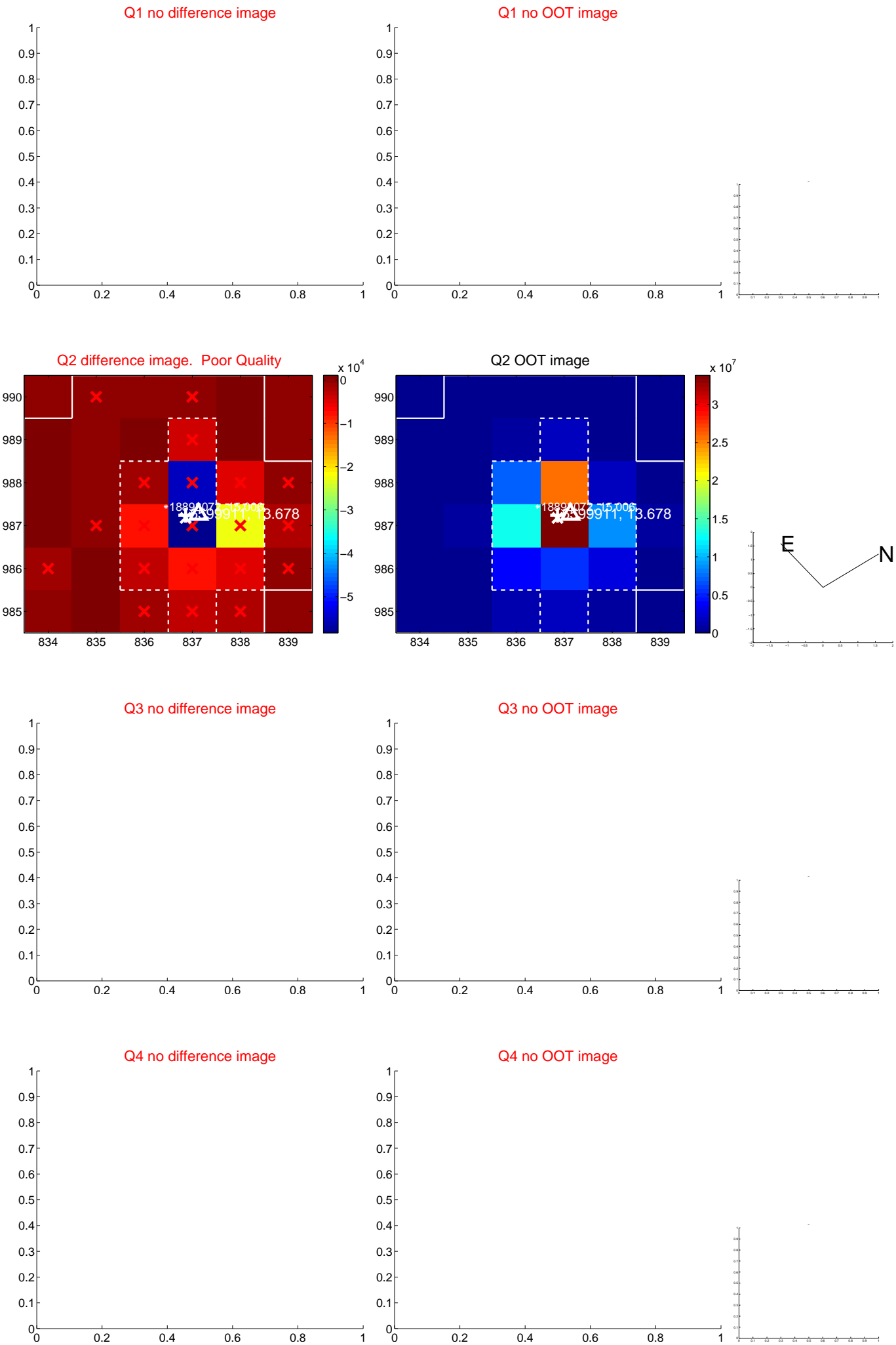
The direct PRF centroid is offset from the target star catalog position by about 0.41 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.727 \pm 0.300$	2.42	$-0.367 \pm 0.355$	$0.628 \pm 0.221$
PRF-fit source offset from KIC position	$0.896 \pm 0.172$	5.22	$-0.175 \pm 0.471$	$0.878 \pm 0.163$
photometric centroid source offset	$0.78 \pm 0.44$	1.79	$-0.34 \pm 0.36$	$0.70 \pm 0.45$

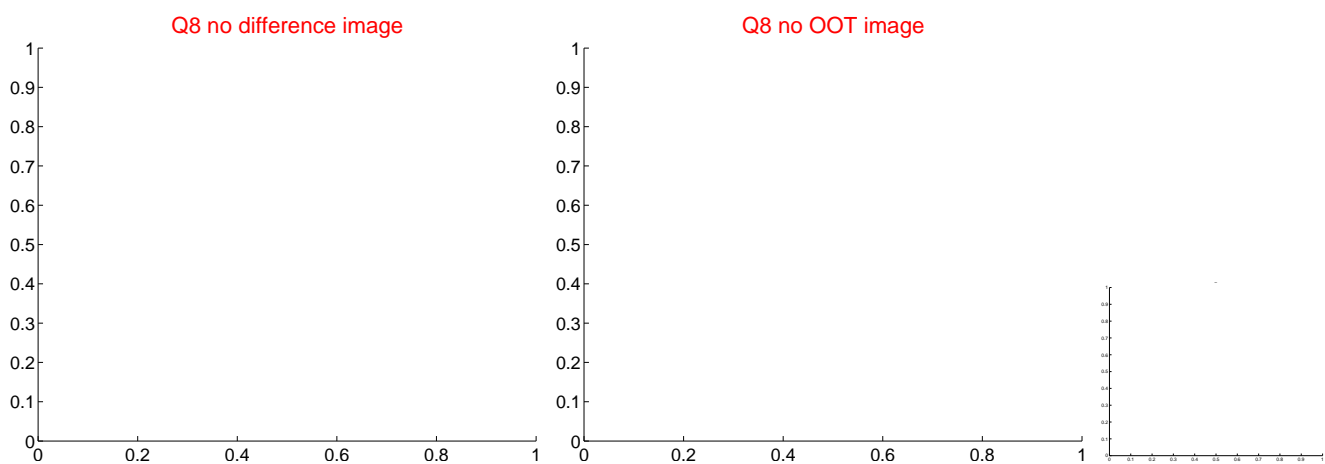
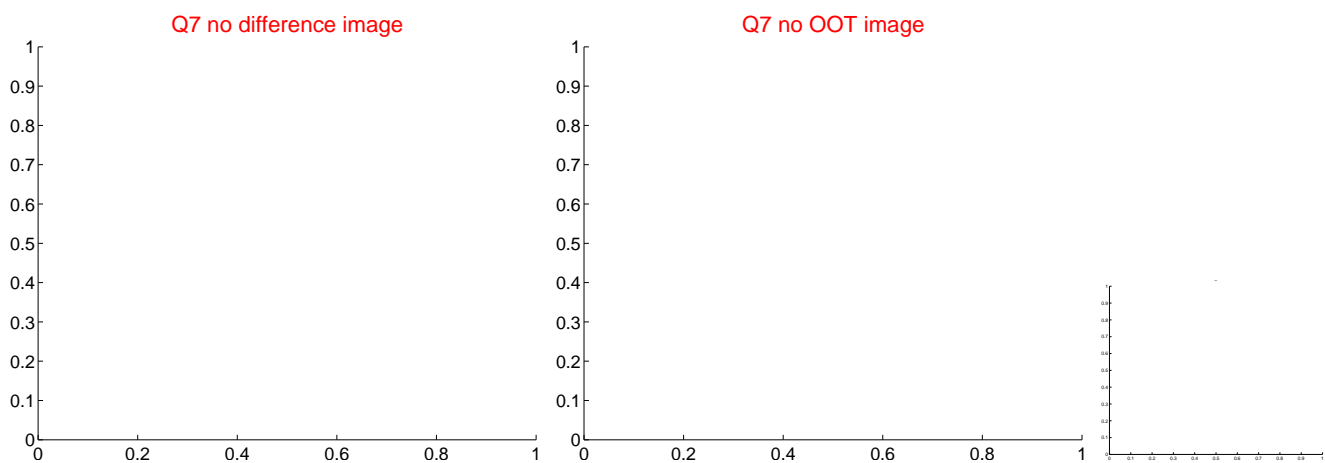
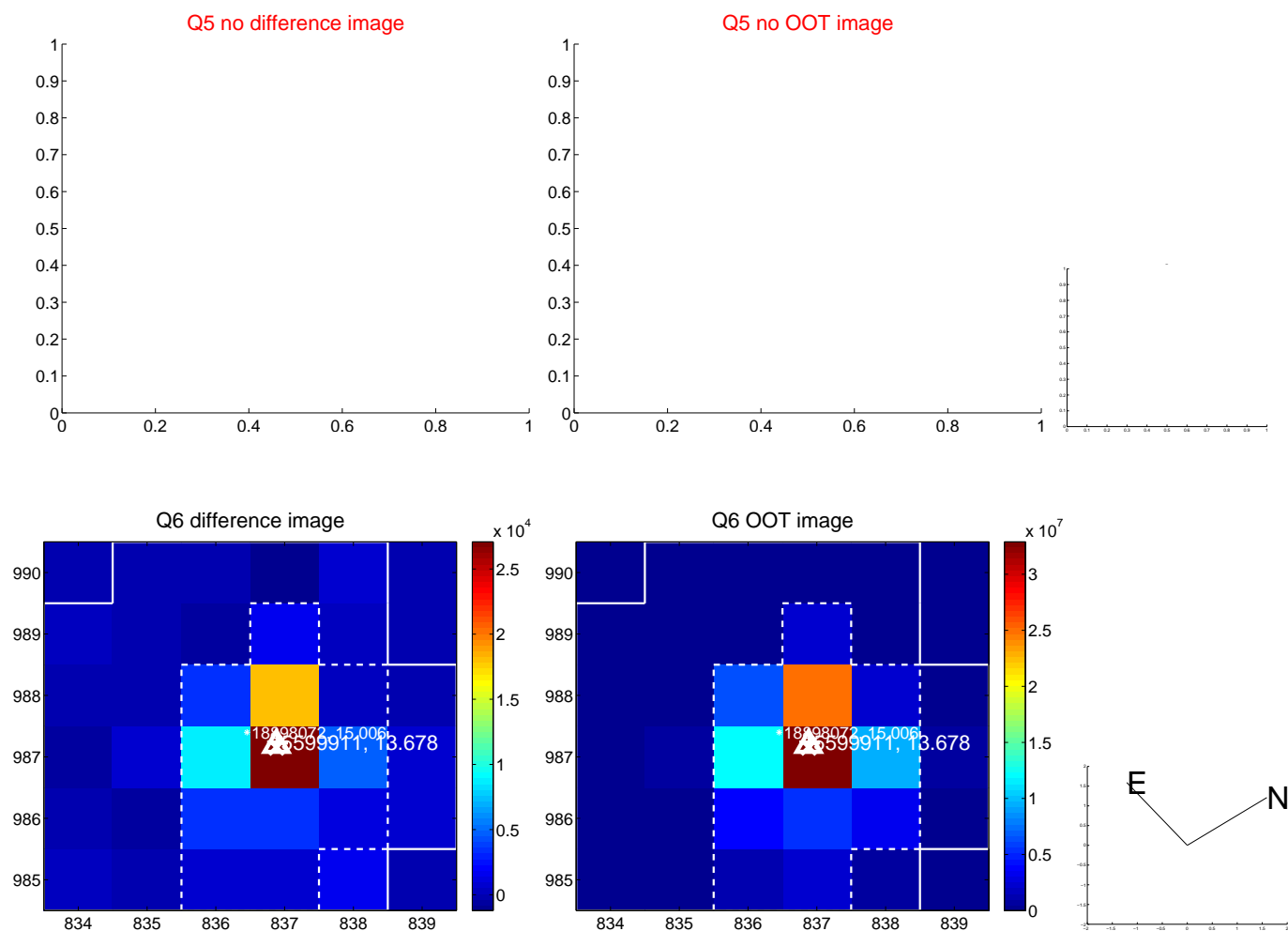


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

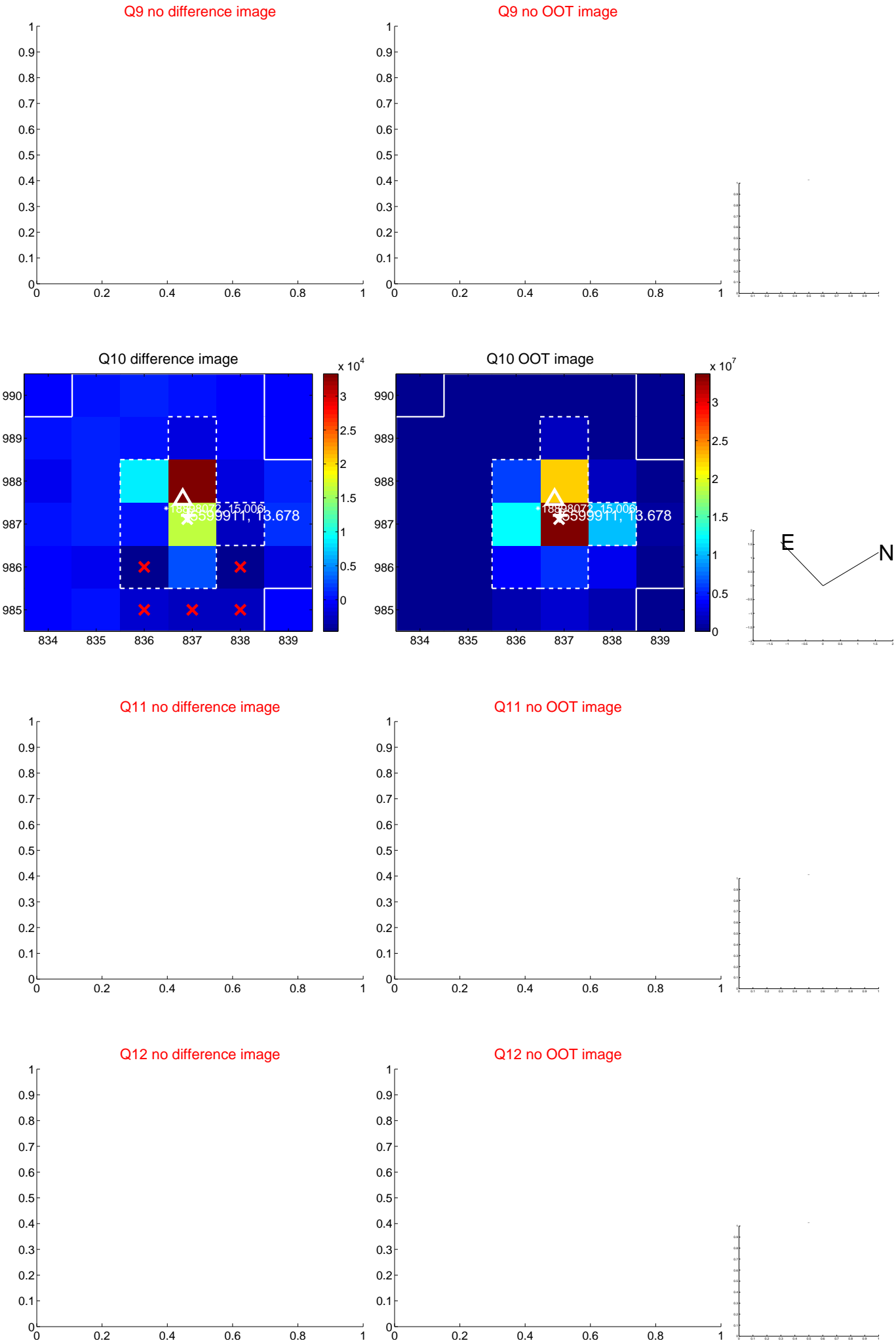
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



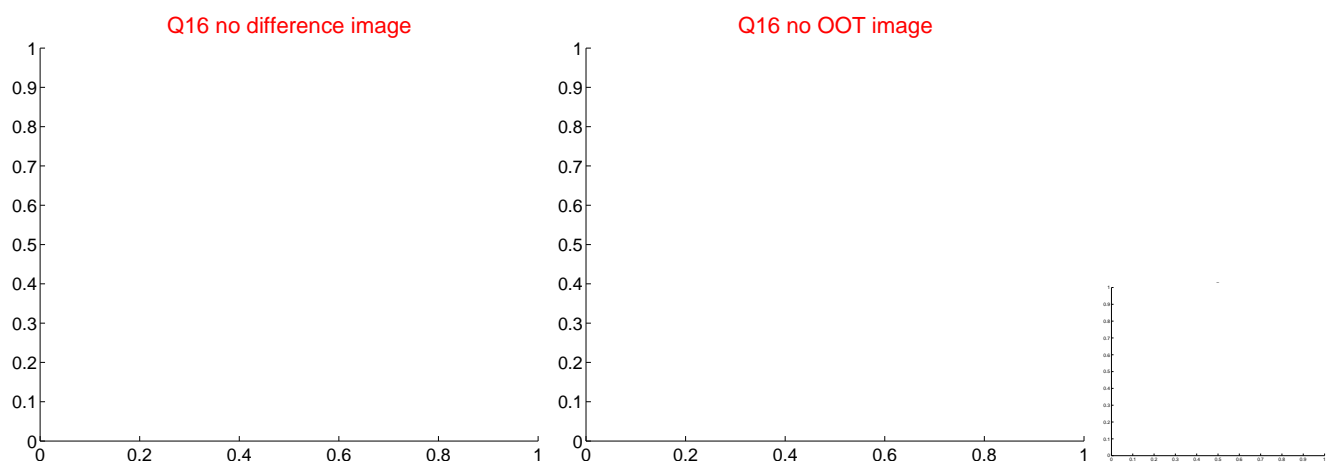
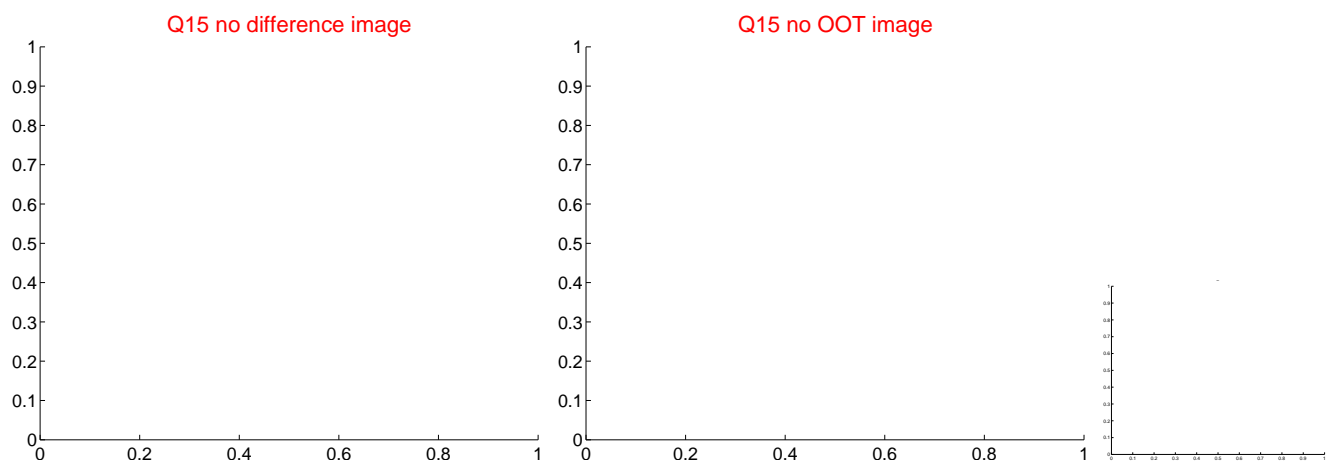
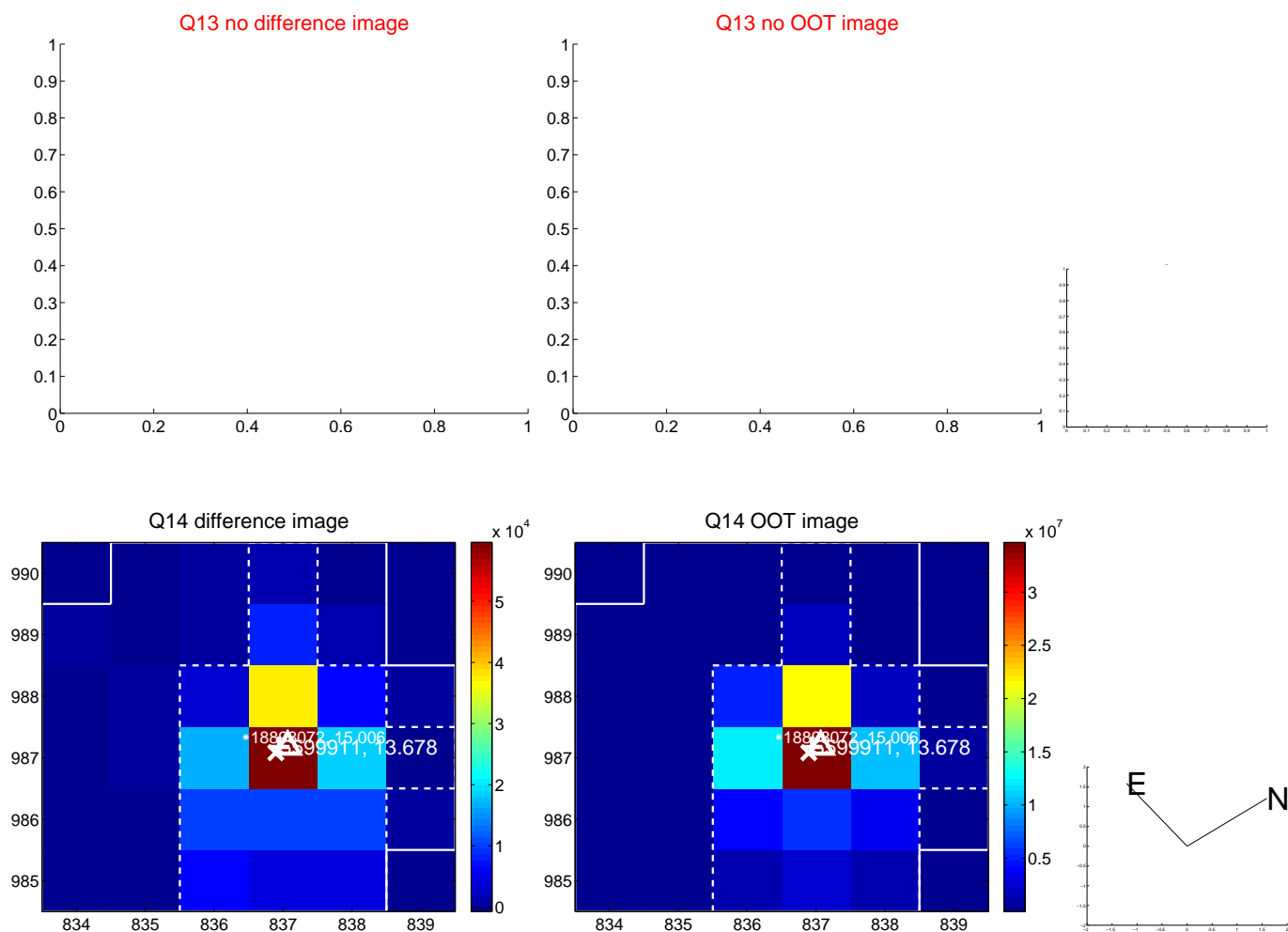
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



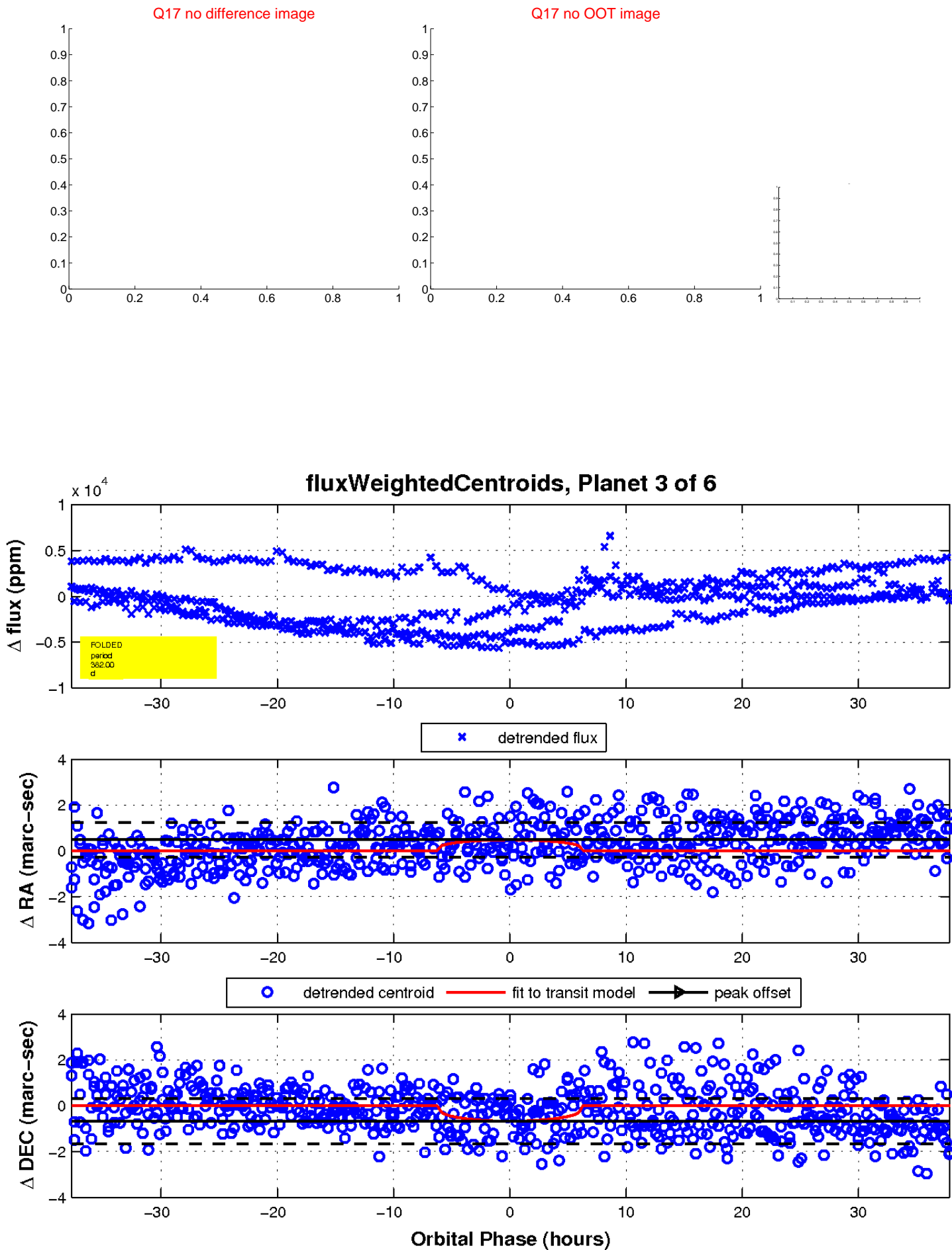
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

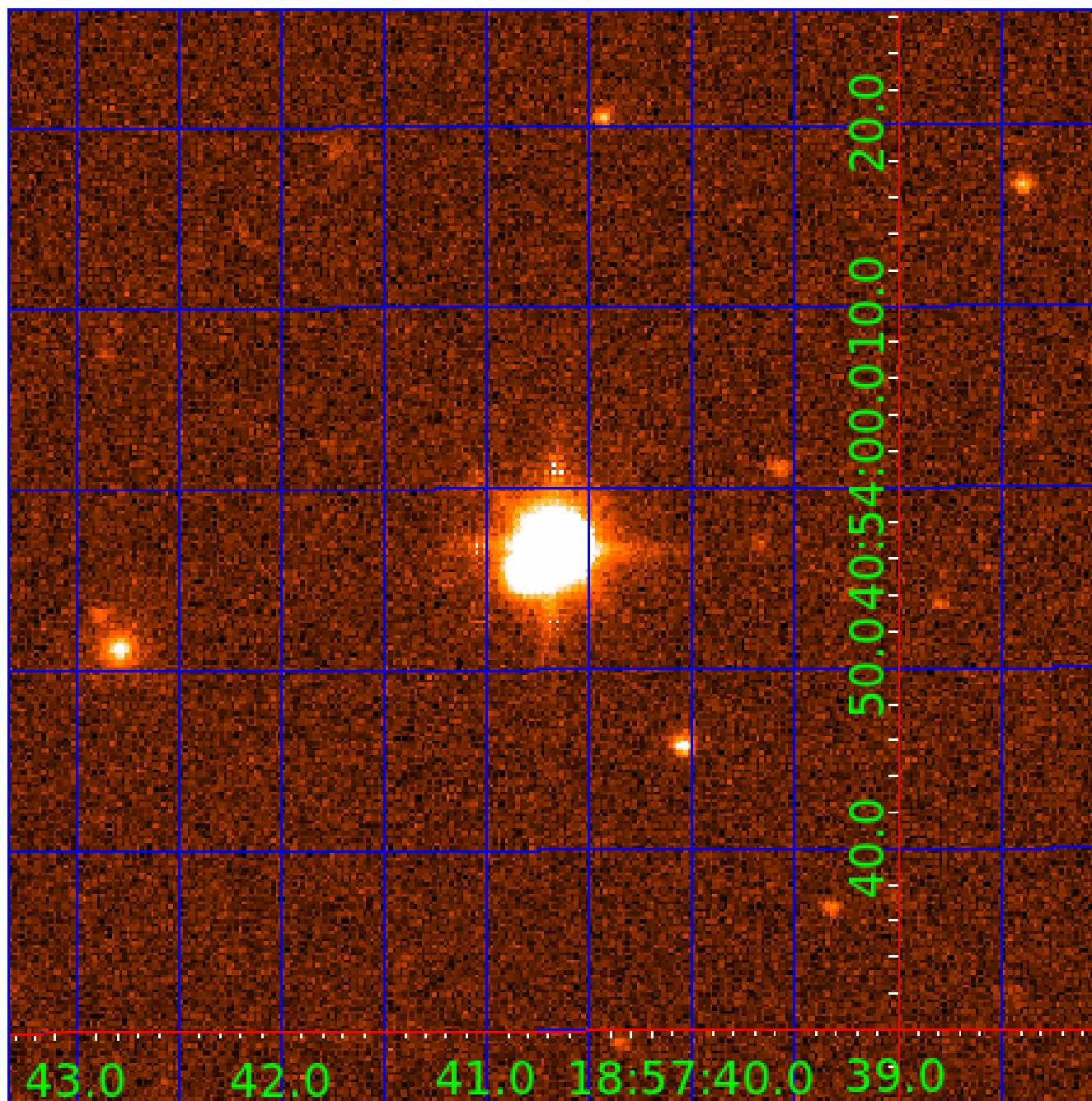


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 005599911

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005599911-01	OBS	No	298.403037	207.000893	1040.1	8.852	14.9	6.0	83.66	4238	278.92	1223.12
005599911-02	OBS	No	435.746600	136.856641	680.2	13.496	13.1	4.5	83.66	4238	227.87	738.29
005599911-03	OBS	No	381.995540	214.494357	1290.2	12.639	12.8	8.0	83.66	4238	285.57	879.96
005599911-04	OBS	No	389.794928	153.471548	1193.4	6.985	15.0	9.0	83.66	4238	283.08	856.56
005599911-05	OBS	No	395.434260	156.590650	927.1	5.903	12.8	7.5	83.66	4238	279.27	840.31
005599911-06	OBS	No	212.056553	180.241526	726.1	2.070	11.9	7.5	83.66	4238	261.87	1928.73

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005599911-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_POS_DV—CENT_FEW_DIFFS
005599911-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005599911-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
005599911-04	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—CENT_FEW_DIFFS
005599911-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005599911-06	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

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

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

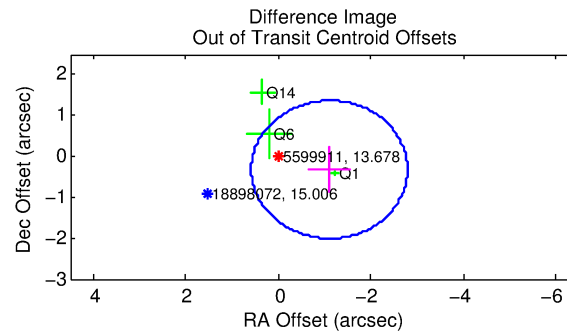
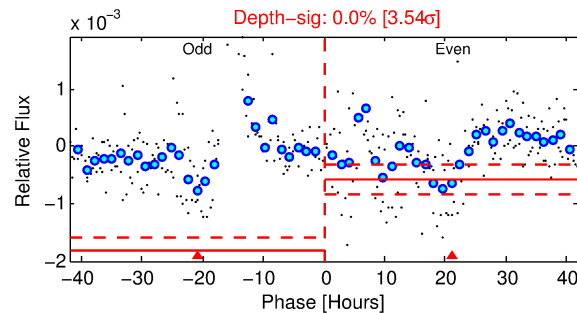
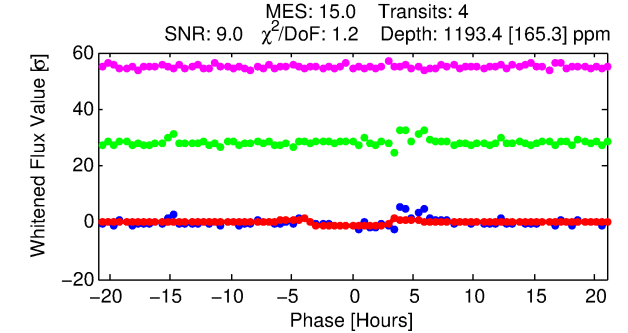
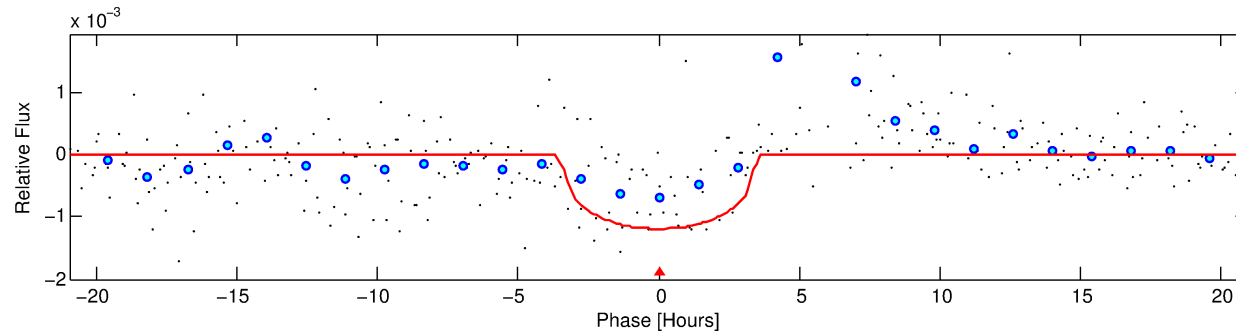
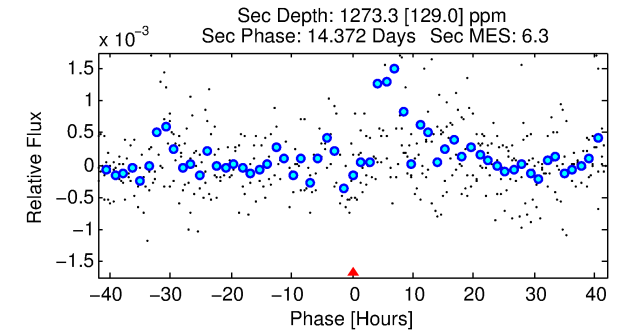
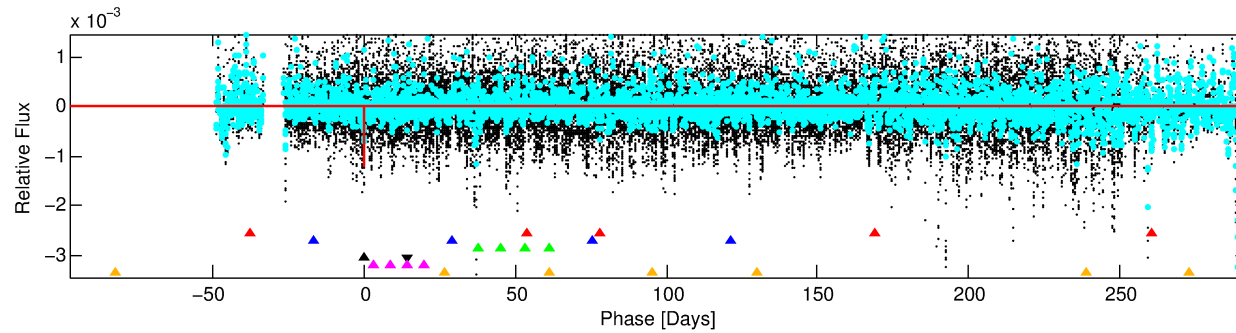
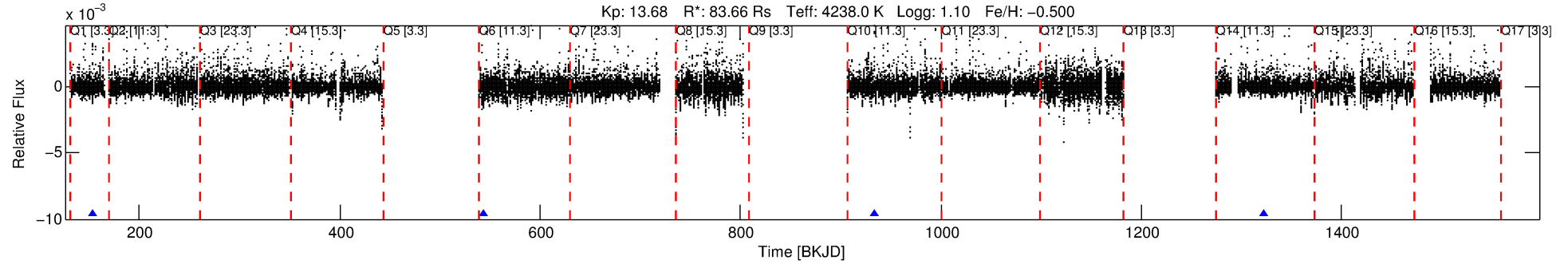
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005599911-04

No Significant Match Found

# DV One-Page Summary

KIC: 5599911 Candidate: 4 of 6 Period: 389.795 d



## DV Fit Results:

Period = 389.79493 [0.00330] d  
Epoch = 153.4715 [0.0061] BKJD  
Rp/R\* = 0.0310 [0.0202]  
a/R\* = 403.44 [746.82]  
b = 0.41 [3.83]  
Seff = 856.56 [279.39]  
Teq = 1379 [112] K  
**Rp = 283.08 [220.62] Re**  
a = 1.5367 [0.4376] AU  
Ag = 20.64 [27.68] [0.71 $\sigma$ ]  
Teffp = 4546 [1499] K [2.11 $\sigma$ ]

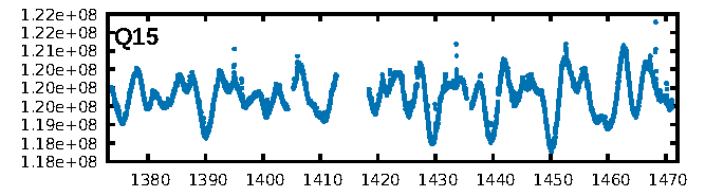
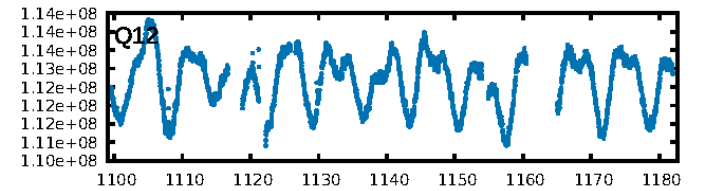
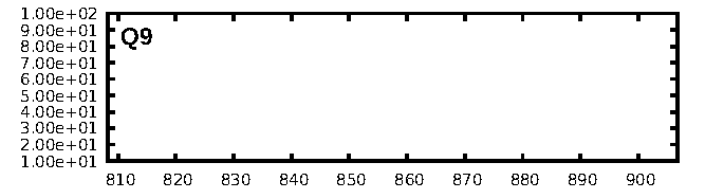
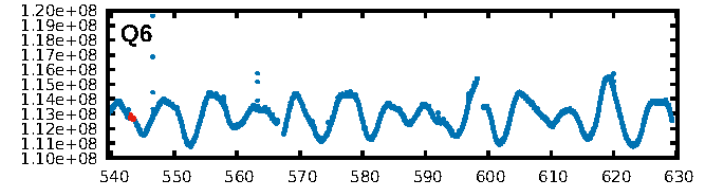
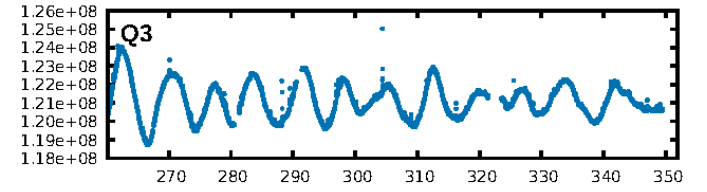
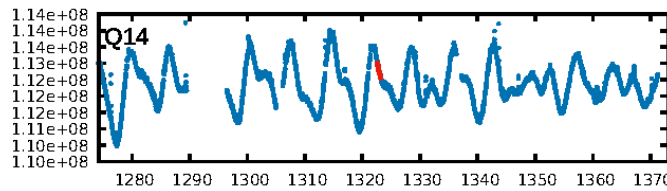
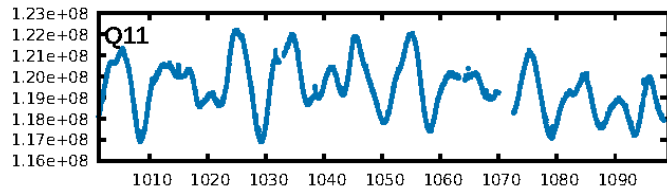
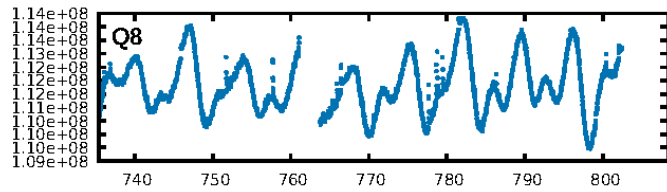
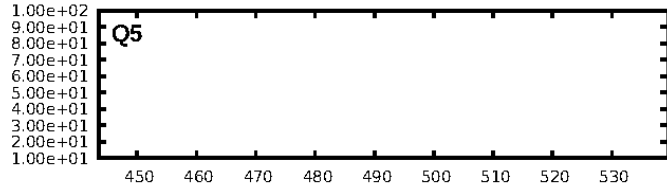
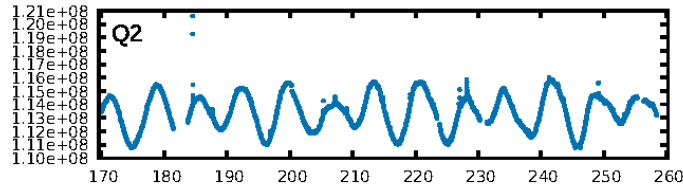
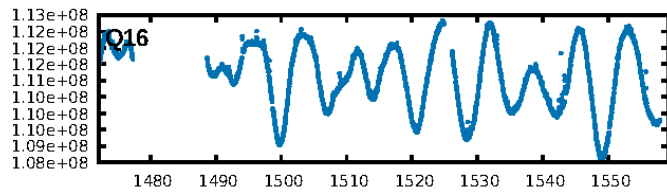
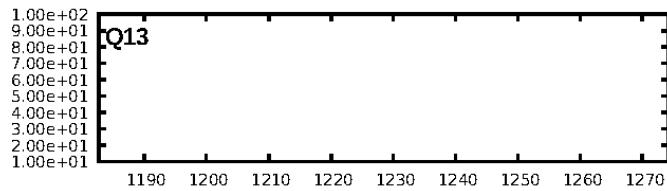
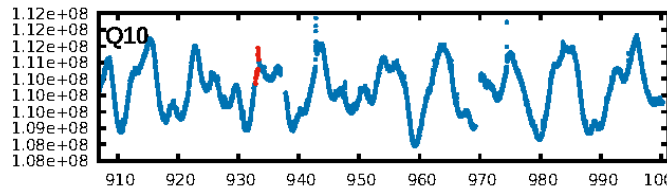
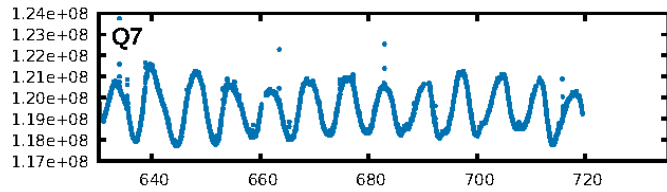
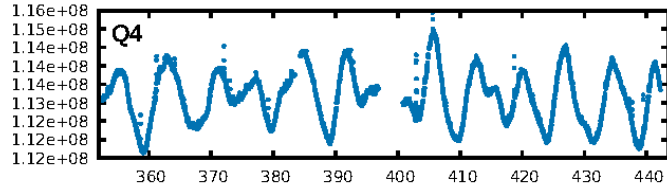
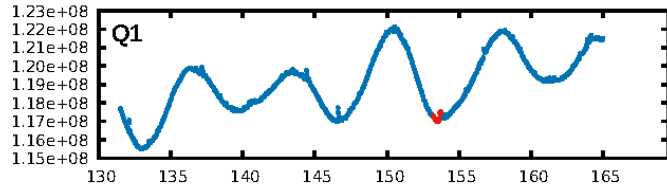
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.96 $\sigma$ ]  
LongPeriod-sig: 100.0% [14.80 $\sigma$ ]  
ModelChiSquare2-sig: 0.4%  
ModelChiSquareGof-sig: 93.6%  
Bootstrap-pfa: 2.77e-13  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -1.266  
Centroid-sig: 55.2%  
Centroid-so: 0.422 arcsec [0.97 $\sigma$ ]  
OotOffset-rm: 1.148 arcsec [2.04 $\sigma$ ]  
OotOffset-st: 2/0/0/1 [3]  
KicOffset-rm: 1.018 arcsec [2.75 $\sigma$ ]  
KicOffset-st: 2/0/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [4/4]

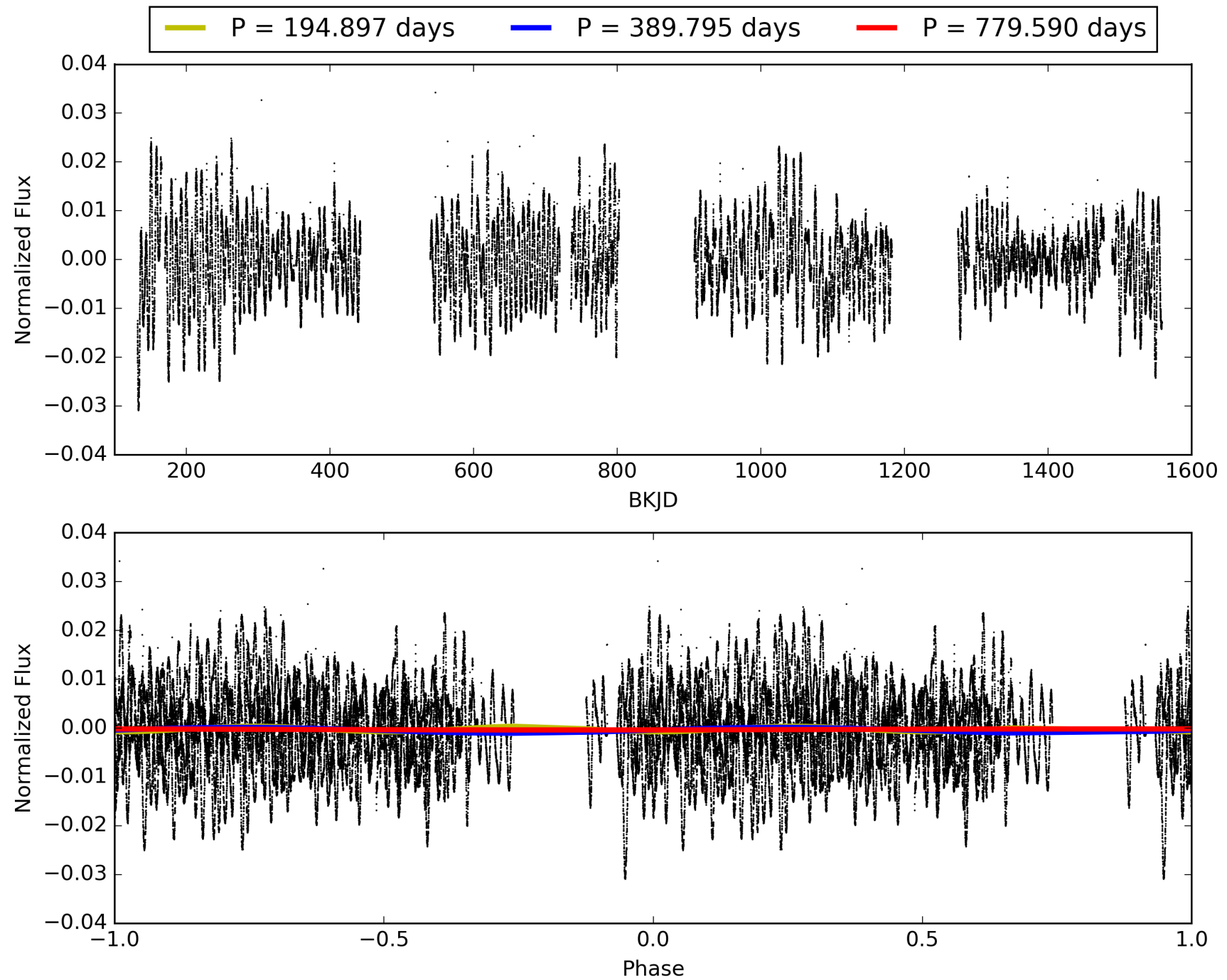
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:13:25 Z

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

# TCE 005599911-04, PDC Light Curves

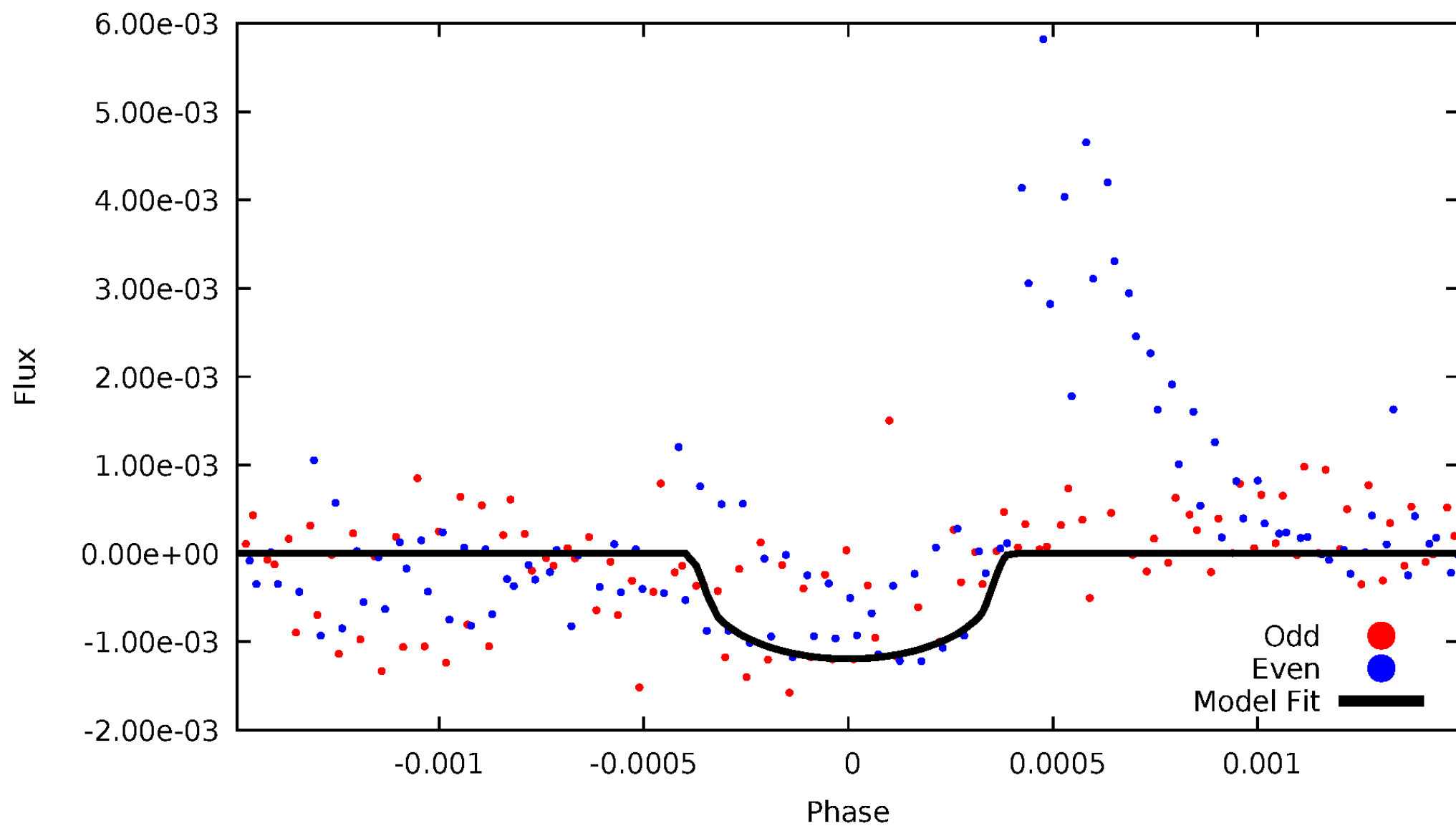


TCE 005599911-04



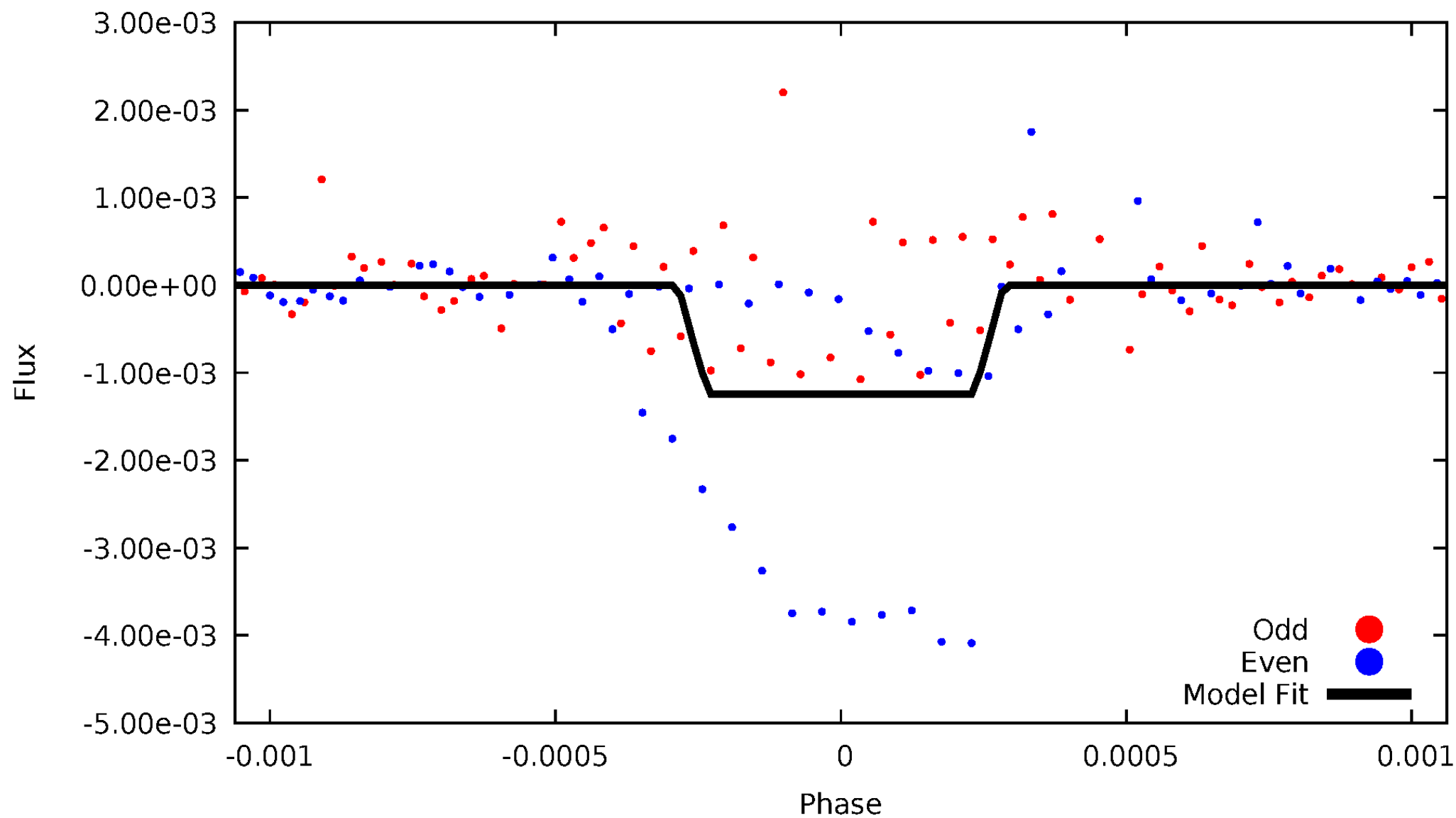
# DV Odd/Even

TCE 005599911-04



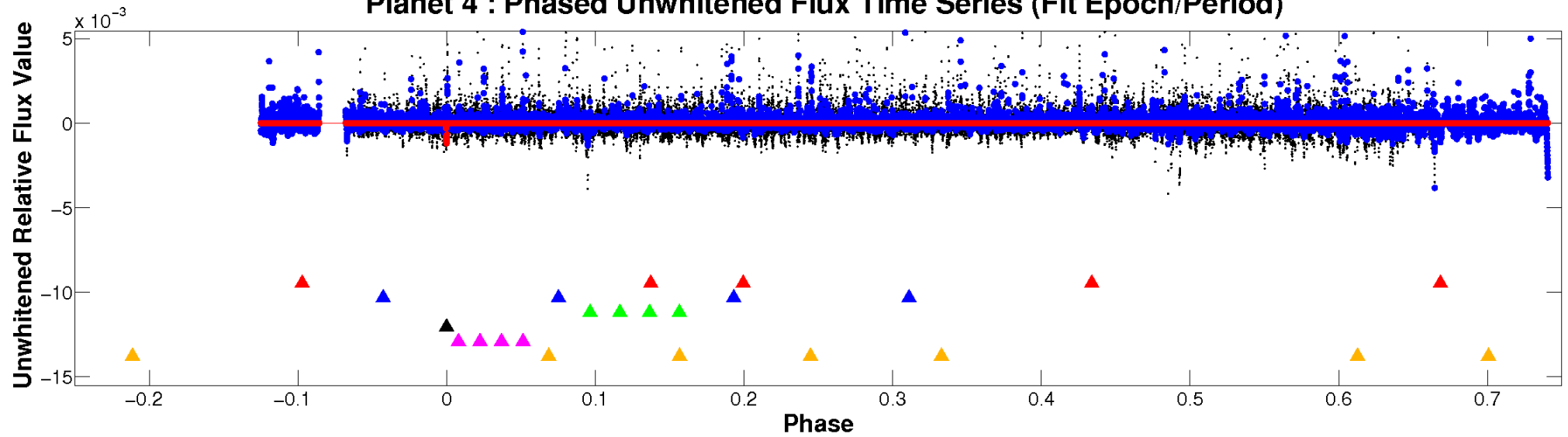
# ALT Odd/Even

TCE 005599911-04

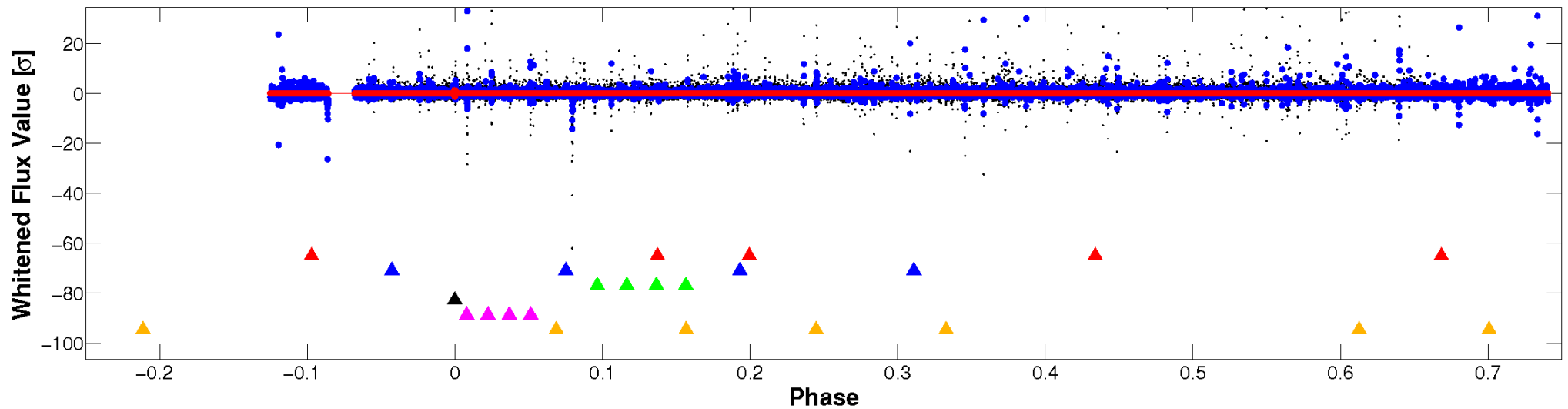


# Non-Whitened Vs. Whitened Light Curve

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

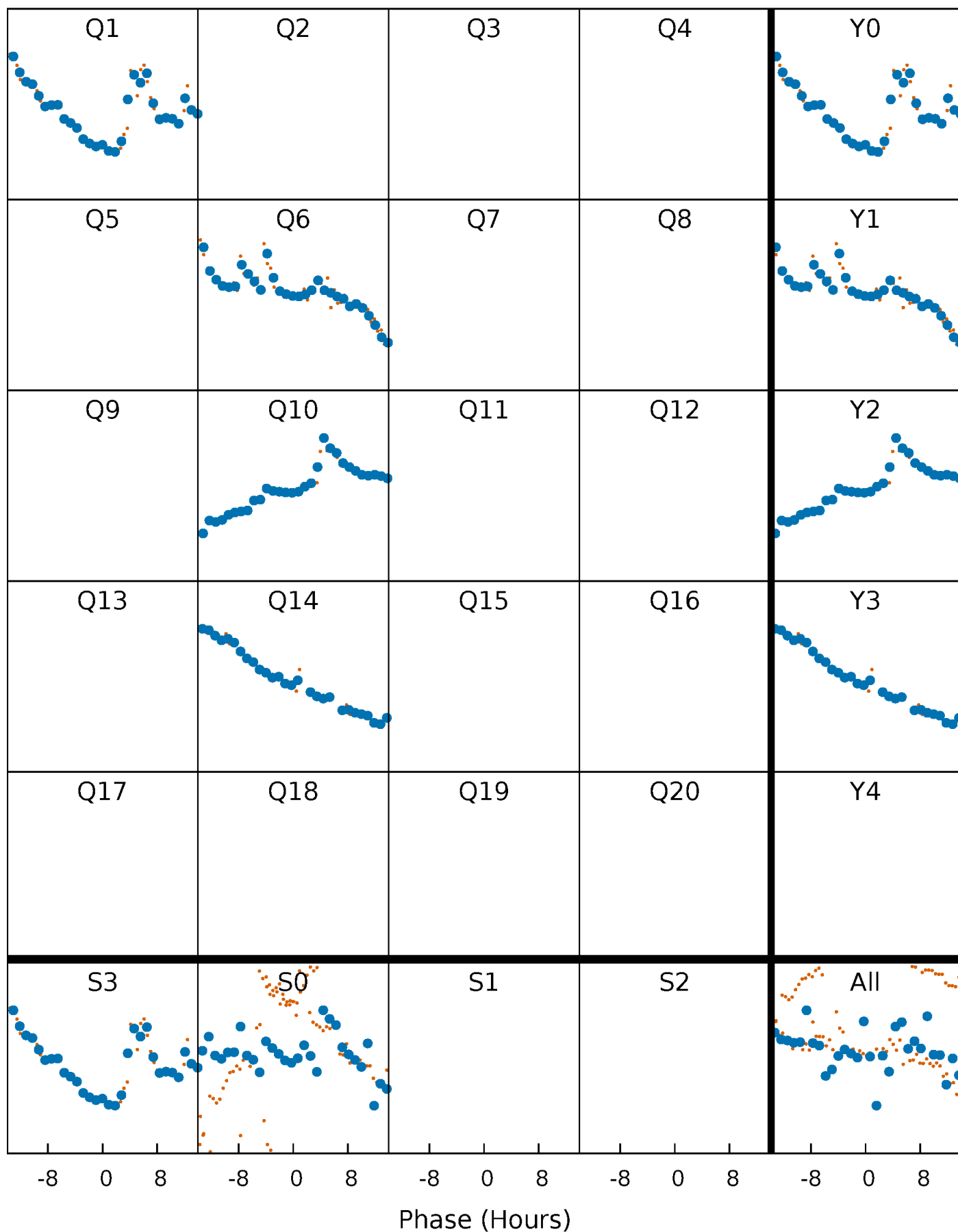


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

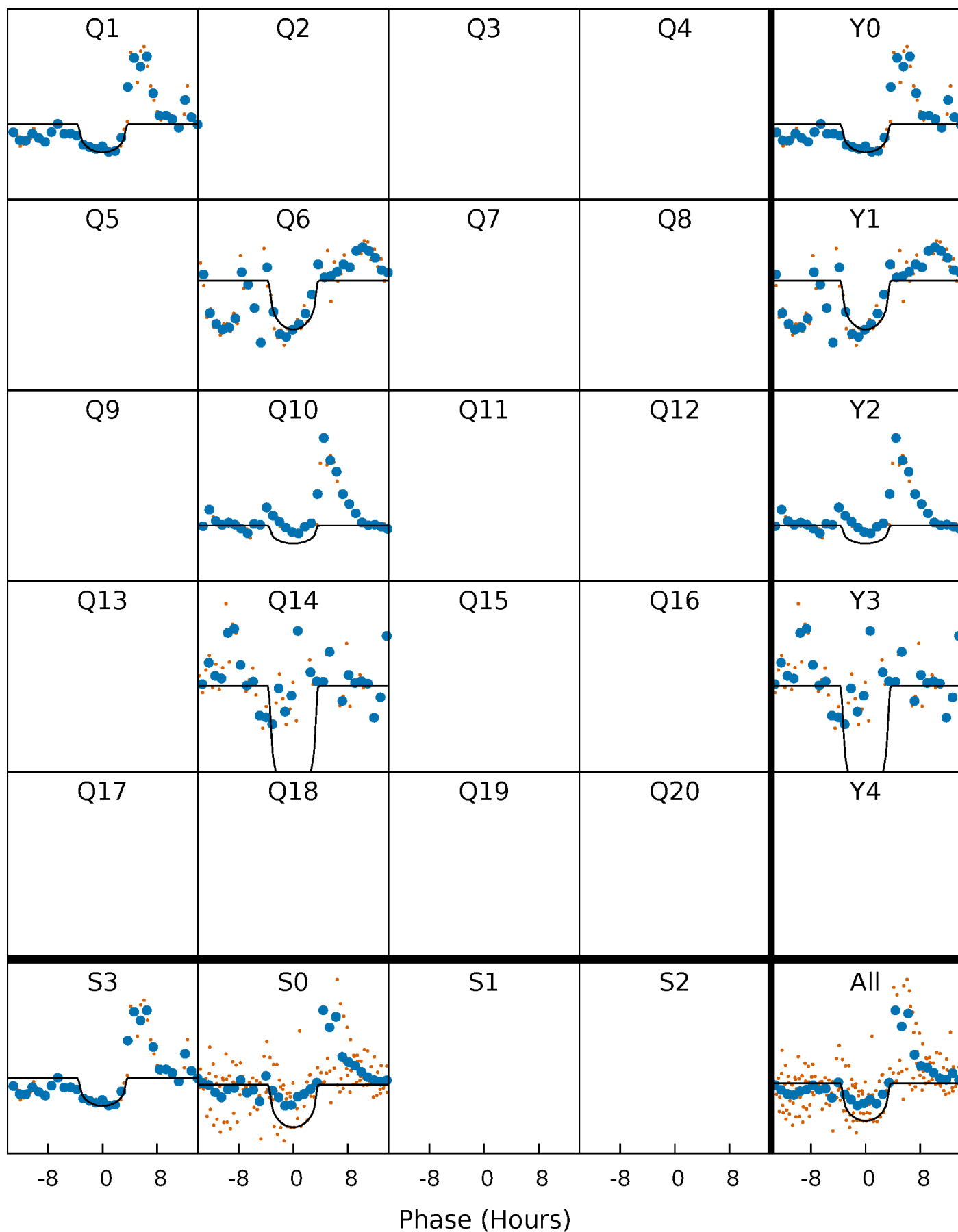
TCE 005599911-04     $P=389.794928$  Days     $T_0=153.471548$  (BKJD)





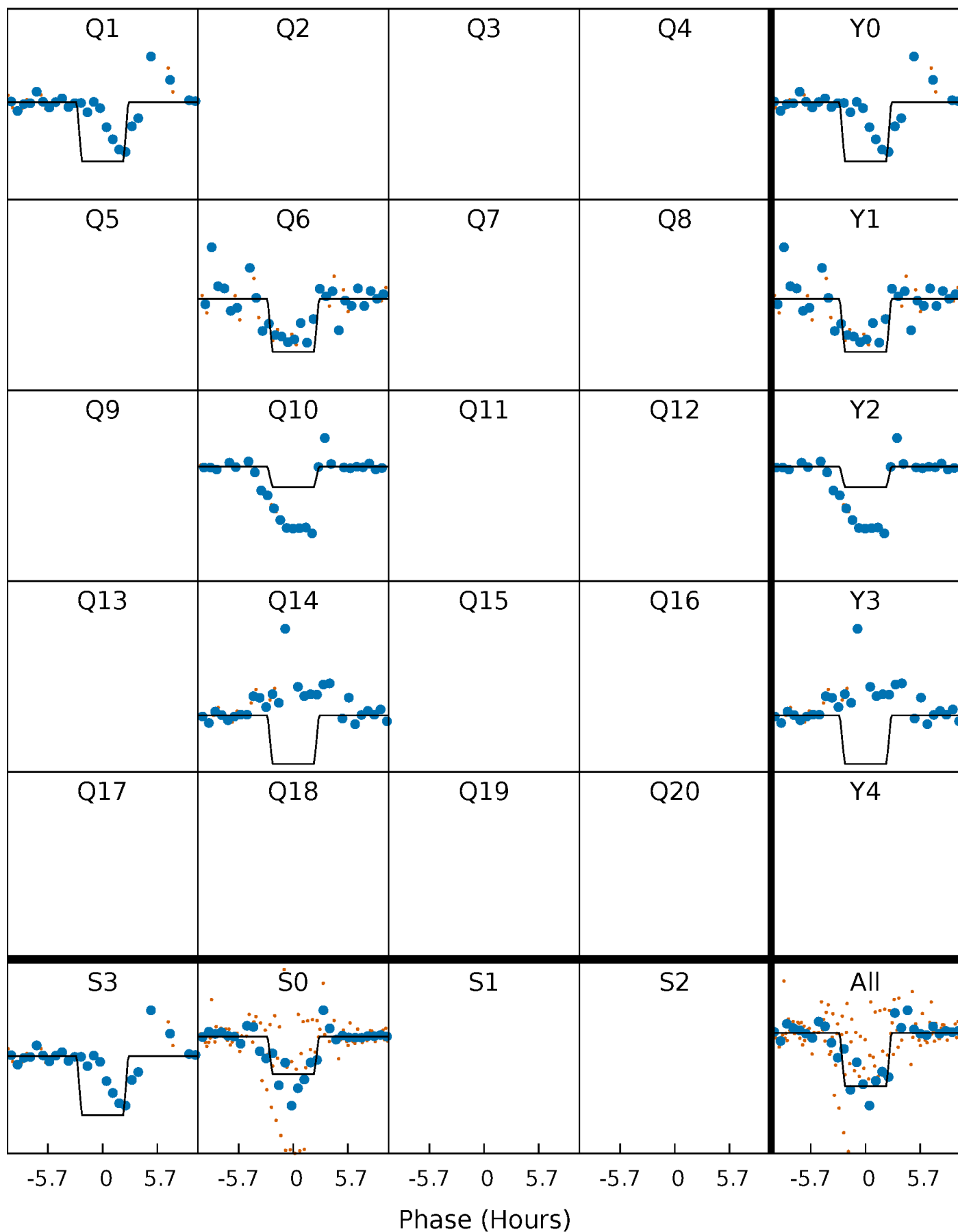
# DV Quarter-Phased Transit Curves

TCE 005599911-04     $P=389.794928$  Days     $T_0=153.471548$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

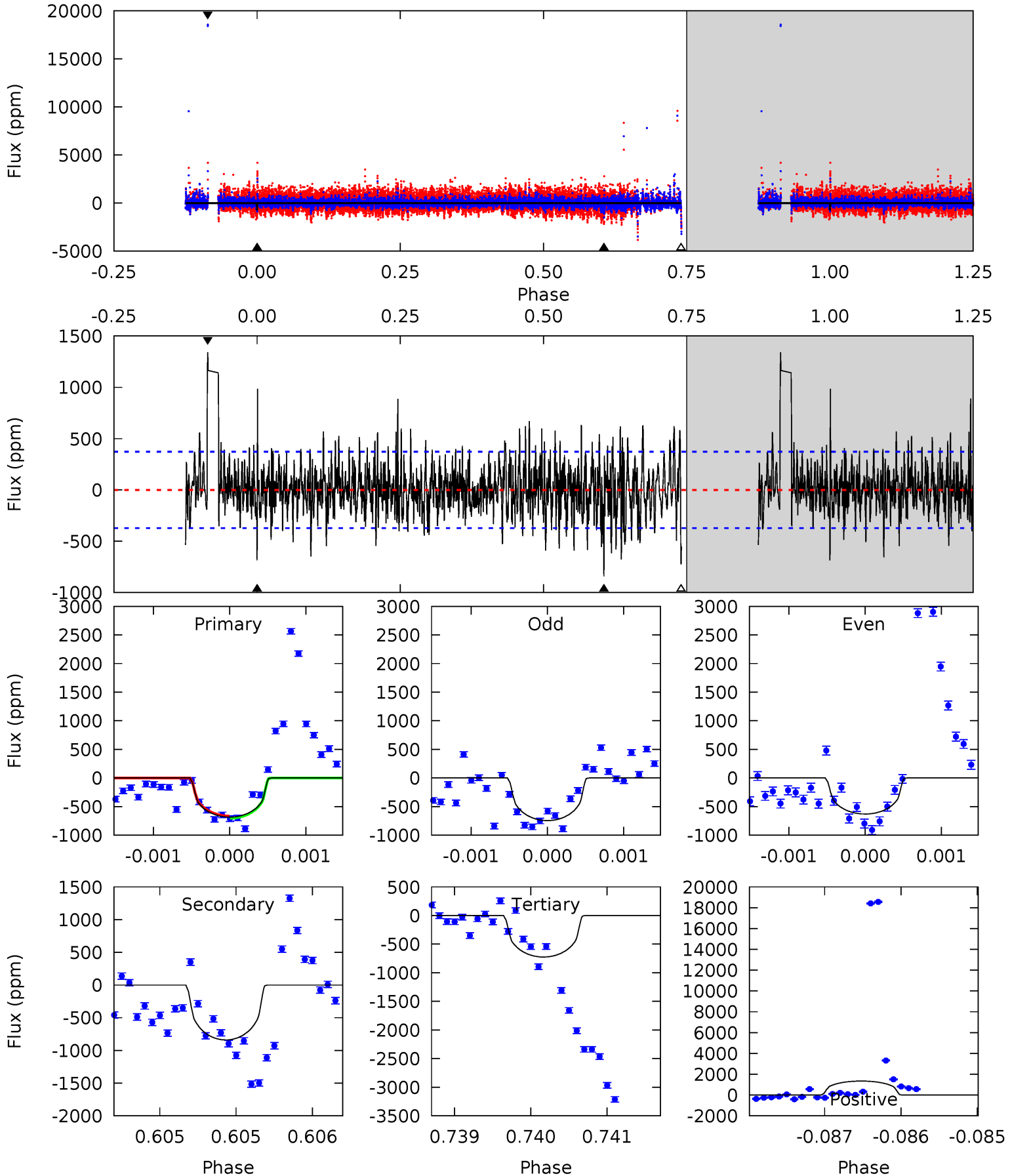
TCE 005599911-04 P=389.817835 Days  $T_0=153.481358$  (BKJD)



# DV Model-Shift Uniqueness Test

005599911-04, P = 389.794928 Days, E = 153.471548 Days

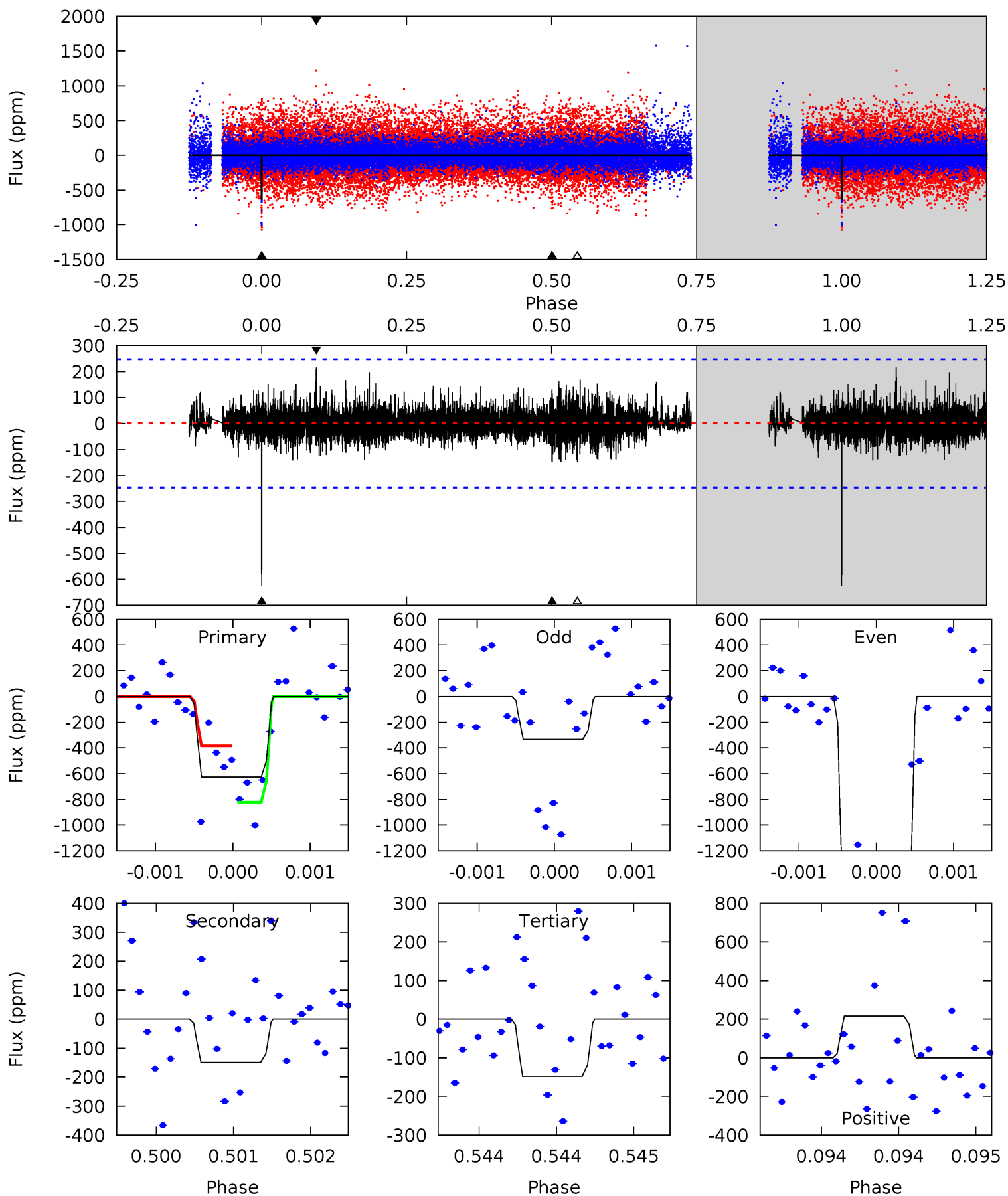
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	12.4	10.7	19.8	5.50	3.37	2.94	-0.61	-9.67	1.69	-7.37	0.73	0.96	0.61	0.26



# Alt Model-Shift Uniqueness Test

005599911-04, P = 389.817835 Days, E = 153.481358 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
14.1	3.34	3.33	4.85	5.55	3.45	0.87	10.7	9.23	0.01	-1.51	25.1	1.60	0.26	5.11



### Stellar Parameters For KIC 005599911

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4238^{+62}_{-162}$	$1.096^{+0.033}_{-0.030}$	$-0.500^{+0.150}_{-0.350}$	$83.657^{+3.955}_{-35.591}$	$3.185^{+0.236}_{-2.128}$	$0.000^{+0.000}_{-0.000}$
	+1%/-4%	+3%/-3%	+30%/-70%	+5%/-43%	+7%/-67%	+78%/-9%
Source	PHO54	AST54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005599911-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-840 \pm 68$	$296.43^{+185.86}_{-162.84}$	$1922^{+44}_{-74}$	$3987^{+1564}_{-606}$	$12^{+51}_{-8}$
Alt.	$-149 \pm 44$	$326.32^{+187.12}_{-172.43}$	$1920^{+49}_{-74}$	$2881^{+797}_{-430}$	$1.747^{+5.898}_{-1.050}$

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

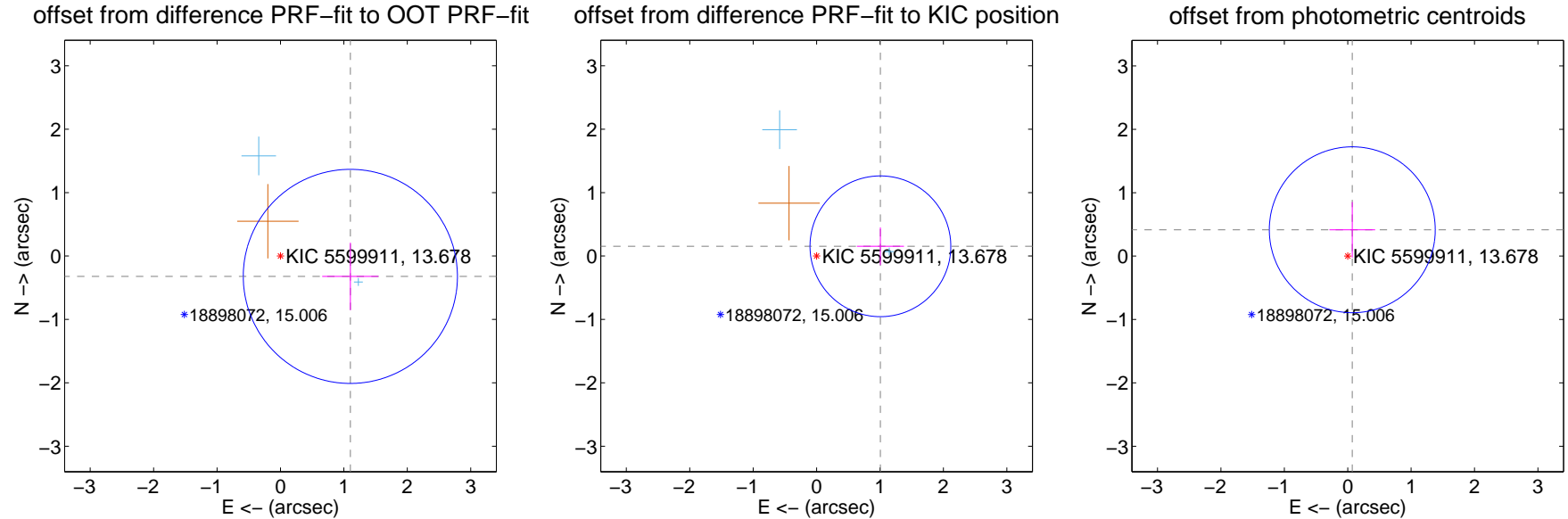
## DV Centroid Data

Supplemental centroid analysis for 005599911-04. Kepler magnitude: 13.68. Transit SNR 8.96

There are 2 quarters with good PRF difference image offsets

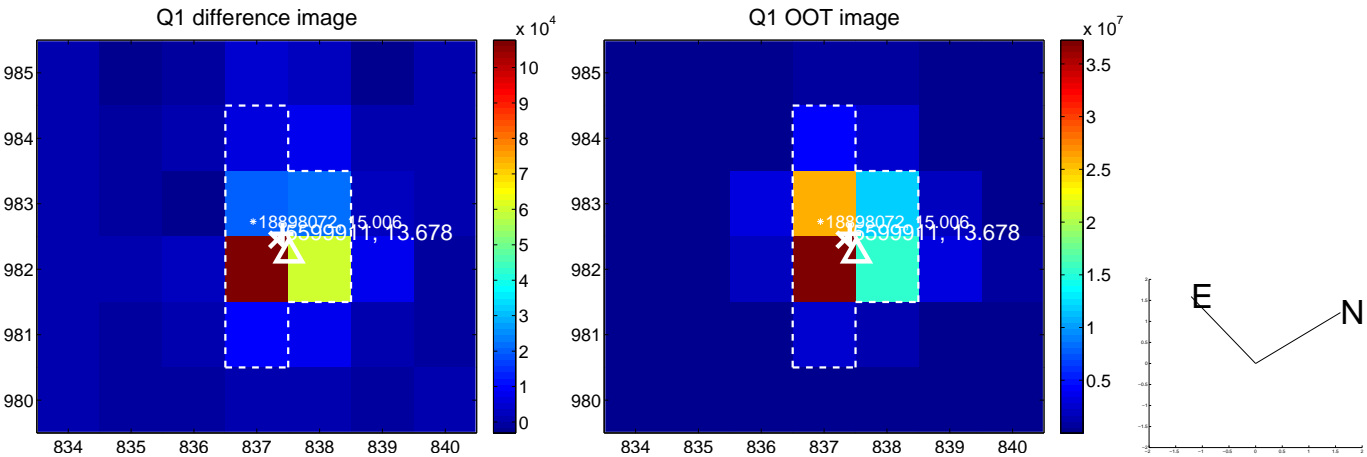
The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.148 \pm 0.563$	2.04	$-1.102 \pm 0.444$	$-0.321 \pm 0.532$
PRF-fit source offset from KIC position	$1.018 \pm 0.370$	2.75	$-1.007 \pm 0.372$	$0.153 \pm 0.297$
photometric centroid source offset	$0.42 \pm 0.44$	0.97	$-0.07 \pm 0.36$	$0.42 \pm 0.44$

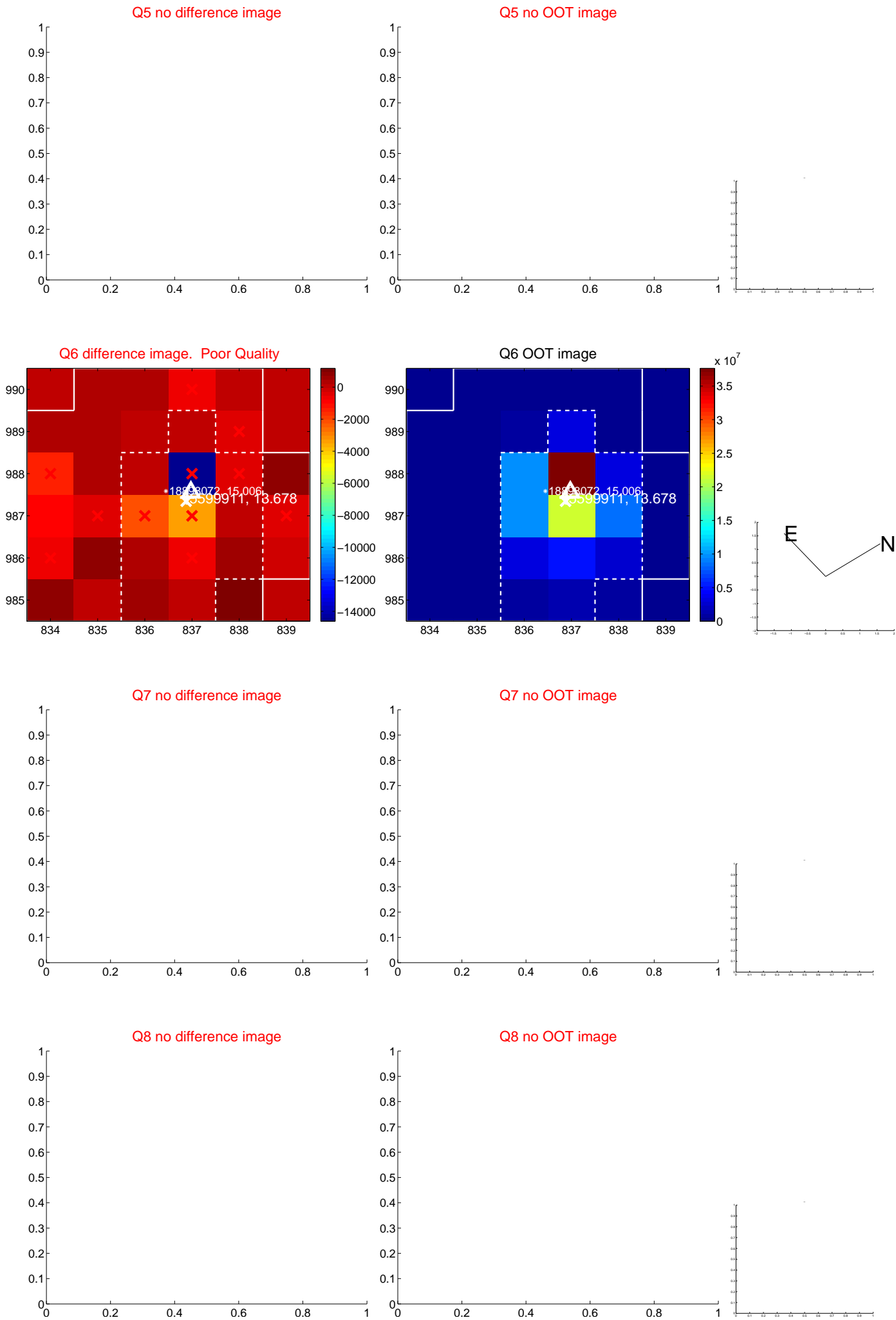


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

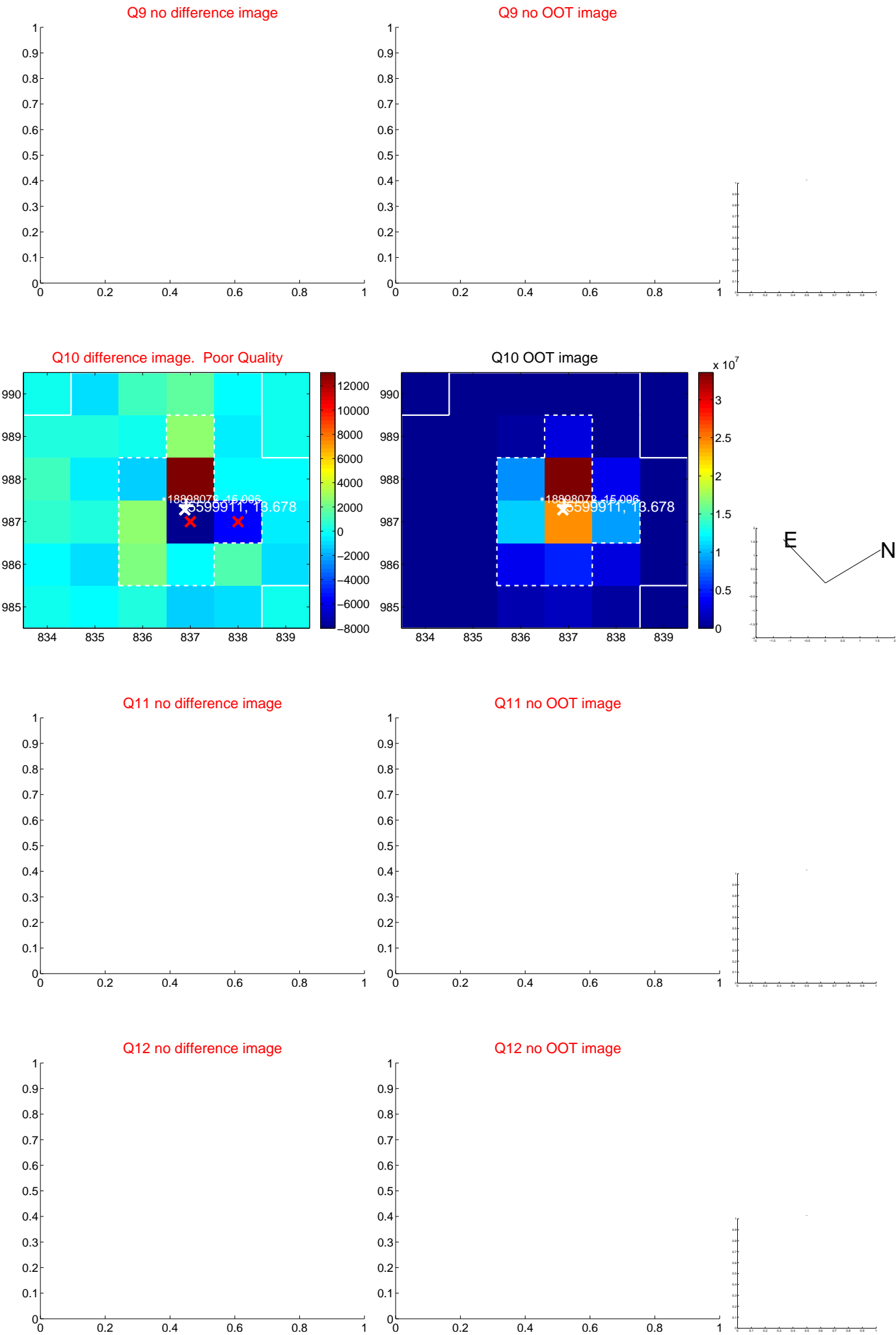


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

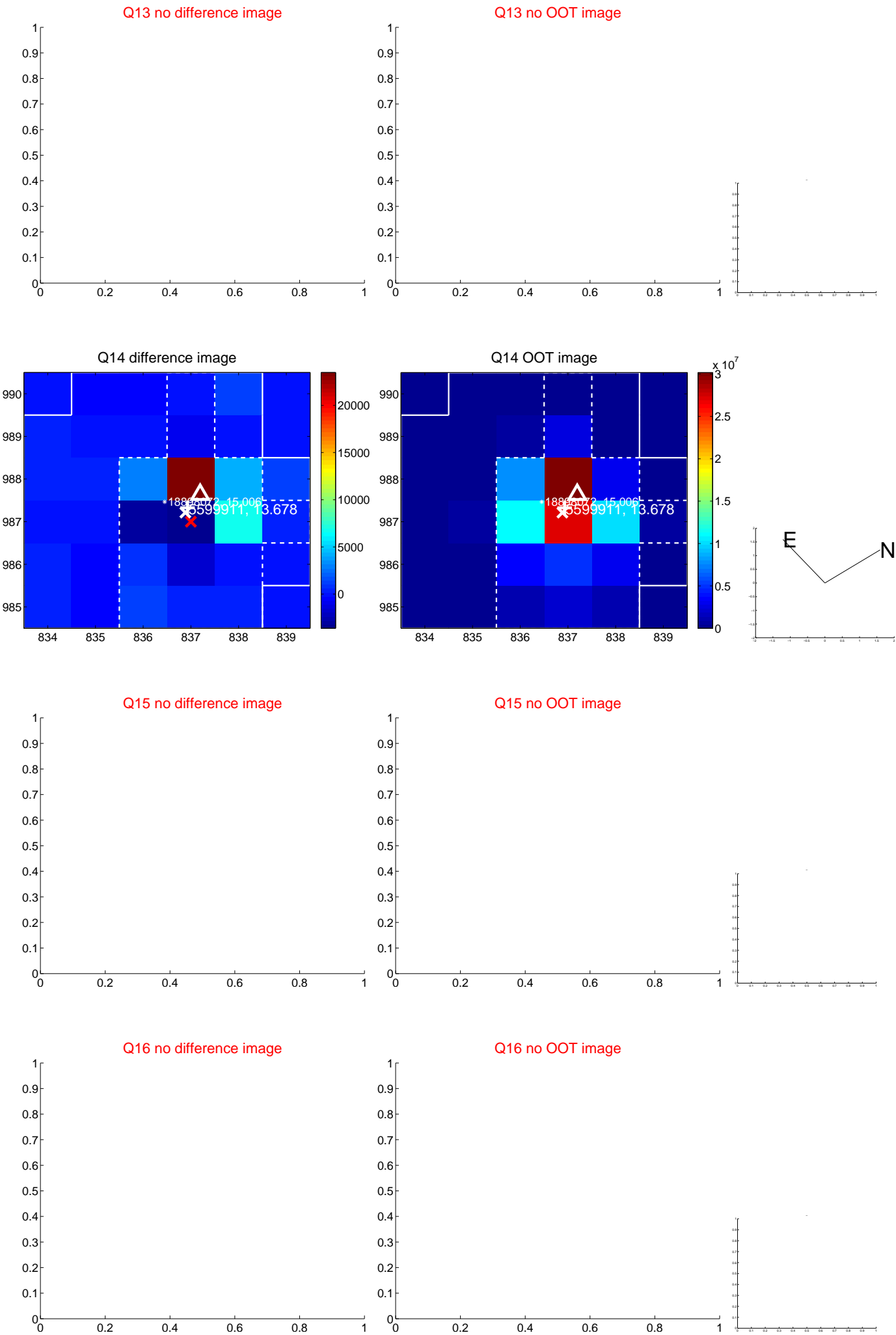




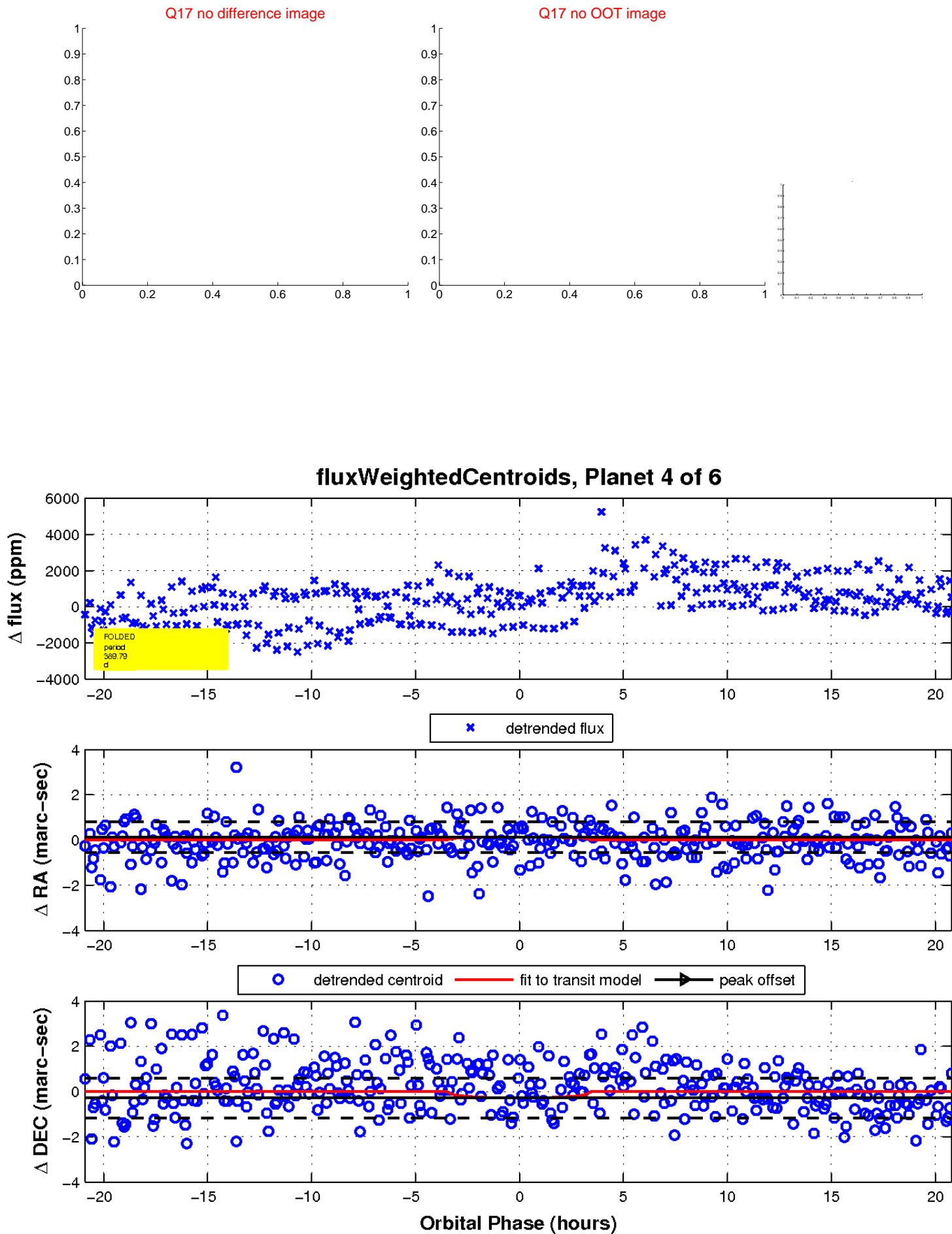
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

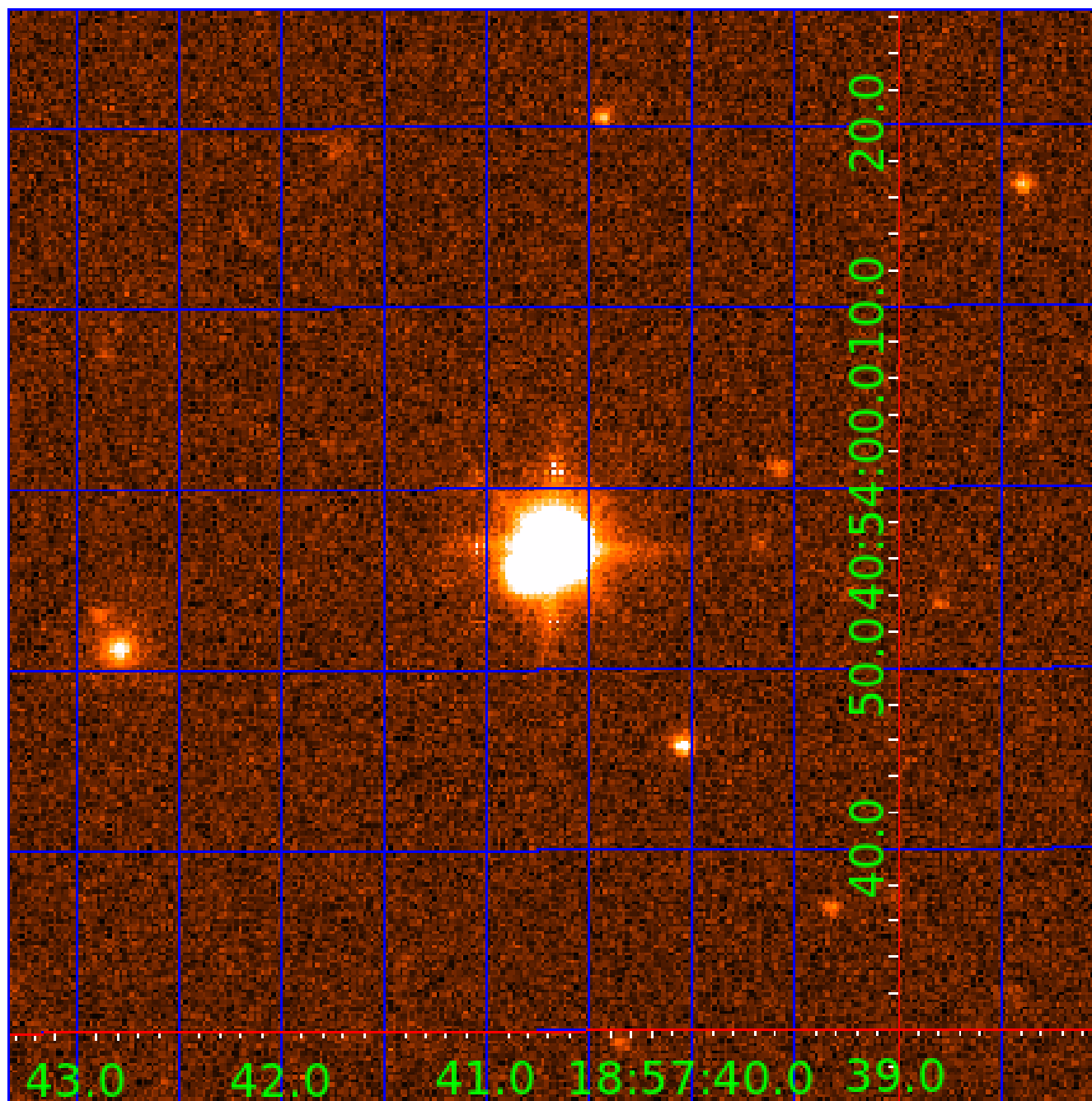


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005599911

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005599911-01	OBS	No	298.403037	207.000893	1040.1	8.852	14.9	6.0	83.66	4238	278.92	1223.12
005599911-02	OBS	No	435.746600	136.856641	680.2	13.496	13.1	4.5	83.66	4238	227.87	738.29
005599911-03	OBS	No	381.995540	214.494357	1290.2	12.639	12.8	8.0	83.66	4238	285.57	879.96
005599911-04	OBS	No	389.794928	153.471548	1193.4	6.985	15.0	9.0	83.66	4238	283.08	856.56
005599911-05	OBS	No	395.434260	156.590650	927.1	5.903	12.8	7.5	83.66	4238	279.27	840.31
005599911-06	OBS	No	212.056553	180.241526	726.1	2.070	11.9	7.5	83.66	4238	261.87	1928.73

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005599911-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_POS_DV—CENT_FEW_DIFFS
005599911-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005599911-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
005599911-04	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—CENT_FEW_DIFFS
005599911-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005599911-06	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

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

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

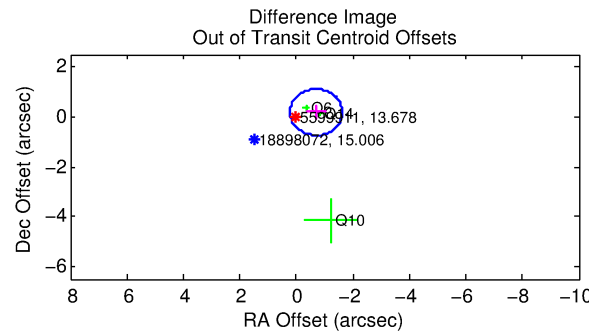
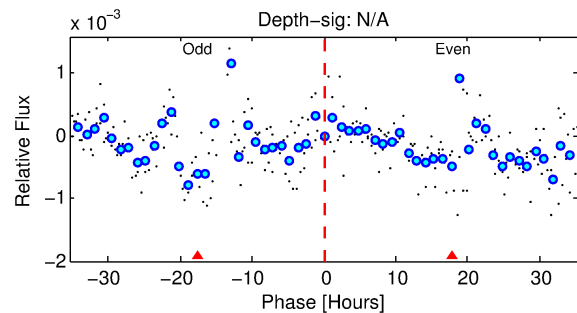
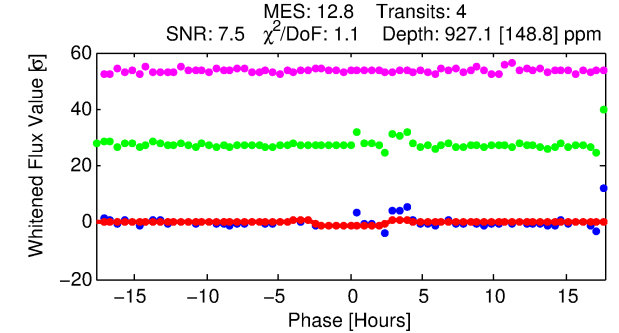
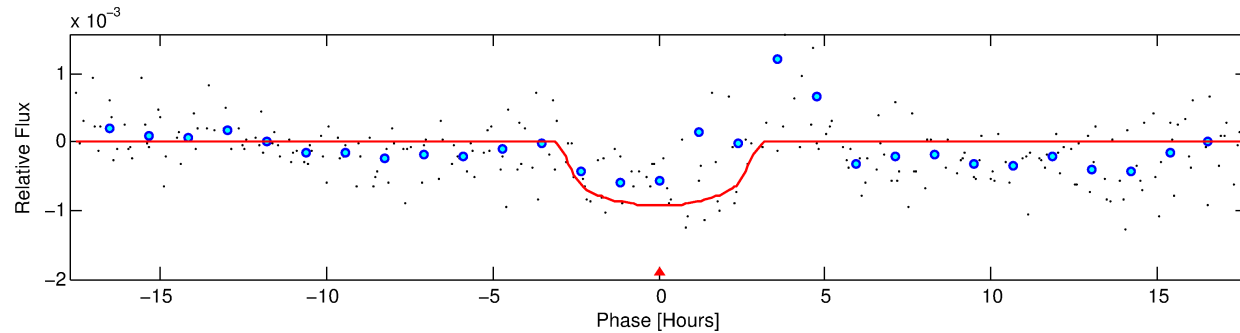
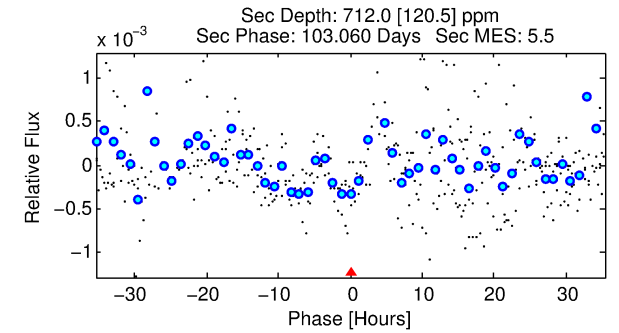
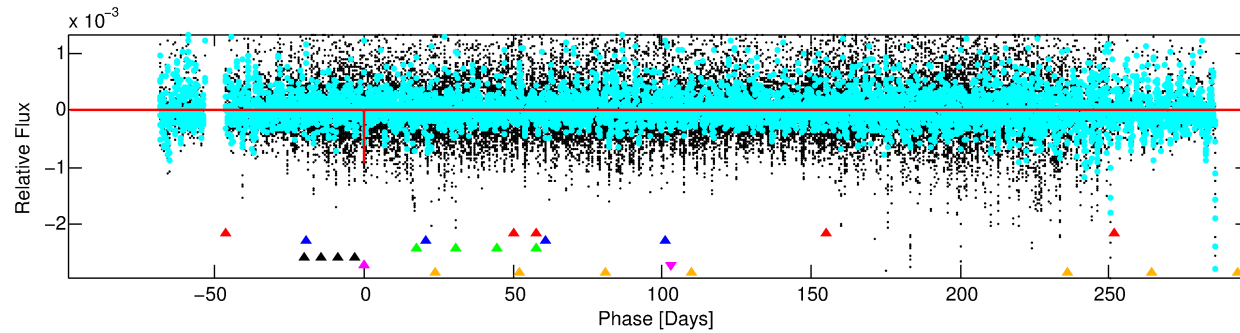
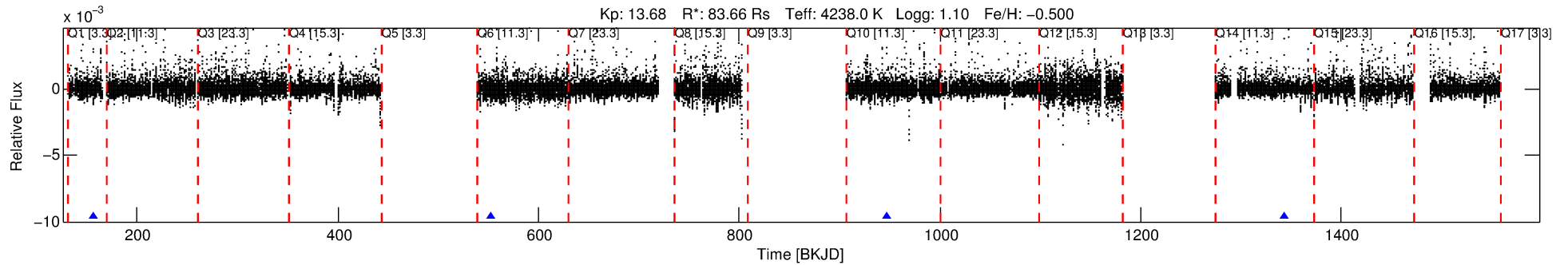
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005599911-05

No Significant Match Found

# DV One-Page Summary

KIC: 5599911 Candidate: 5 of 6 Period: 395.434 d



## DV Fit Results:

Period = 395.43426 [0.00371] d  
Epoch = 156.5906 [0.0077] BKJD  
Rp/R\* = 0.0306 [0.0188]  
a/R\* = 360.16 [678.93]  
b = 0.75 [1.11]  
Seff = 840.31 [274.09]  
Teq = 1373 [112] K  
Rp = 279.27 [208.43] Re  
a = 1.5515 [0.4418] AU  
Ag = 12.09 [15.37] [0.72σ]  
Teffp = 3958 [1234] K [2.09σ]

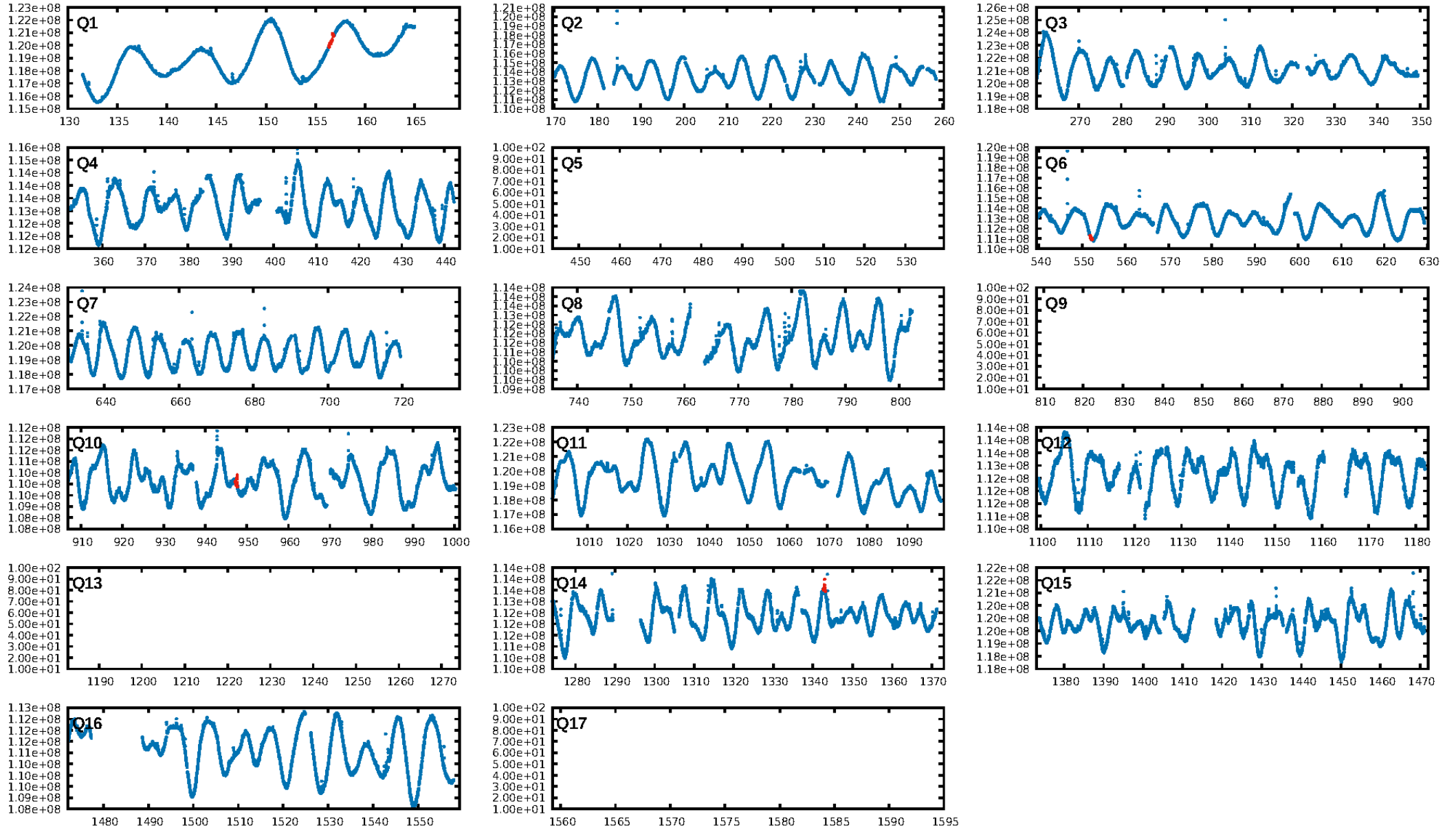
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.80σ]  
LongPeriod-sig: 100.0% [65.68σ]  
ModelChiSquare2-sig: 7.8%  
ModelChiSquareGof-sig: 87.3%  
Bootstrap-pfa: 9.32e-11  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.7847  
Centroid-sig: 0.3%  
Centroid-so: 1.293 arcsec [2.26σ]  
OotOffset-rm: 0.712 arcsec [2.30σ]  
KicOffset-rm: 0.729 arcsec [0.85σ]  
OotOffset-st: 3/0/0/0 [3]  
KicOffset-st: 3/0/0/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [4/4]

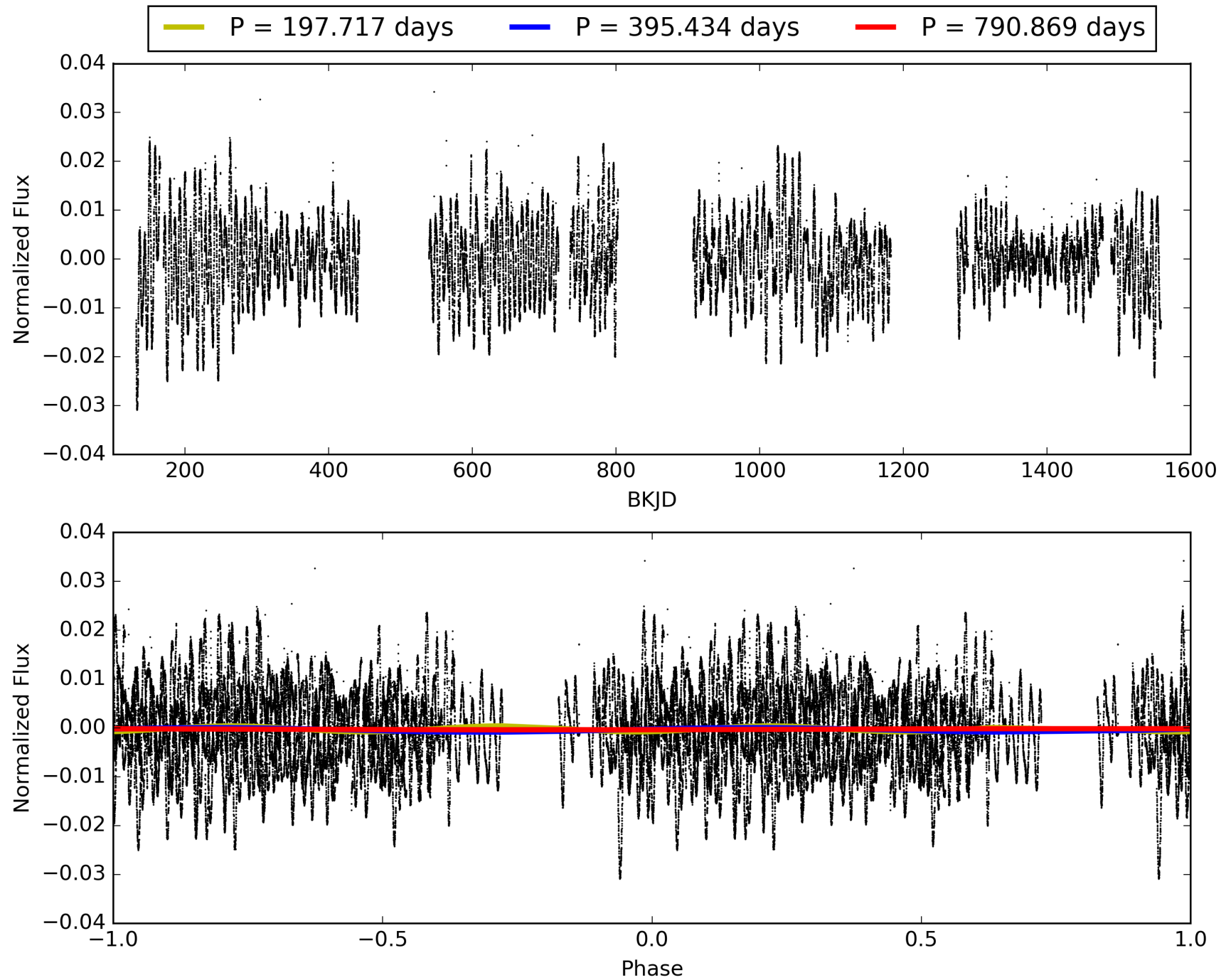
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:13:35 Z

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

# TCE 005599911-05, PDC Light Curves



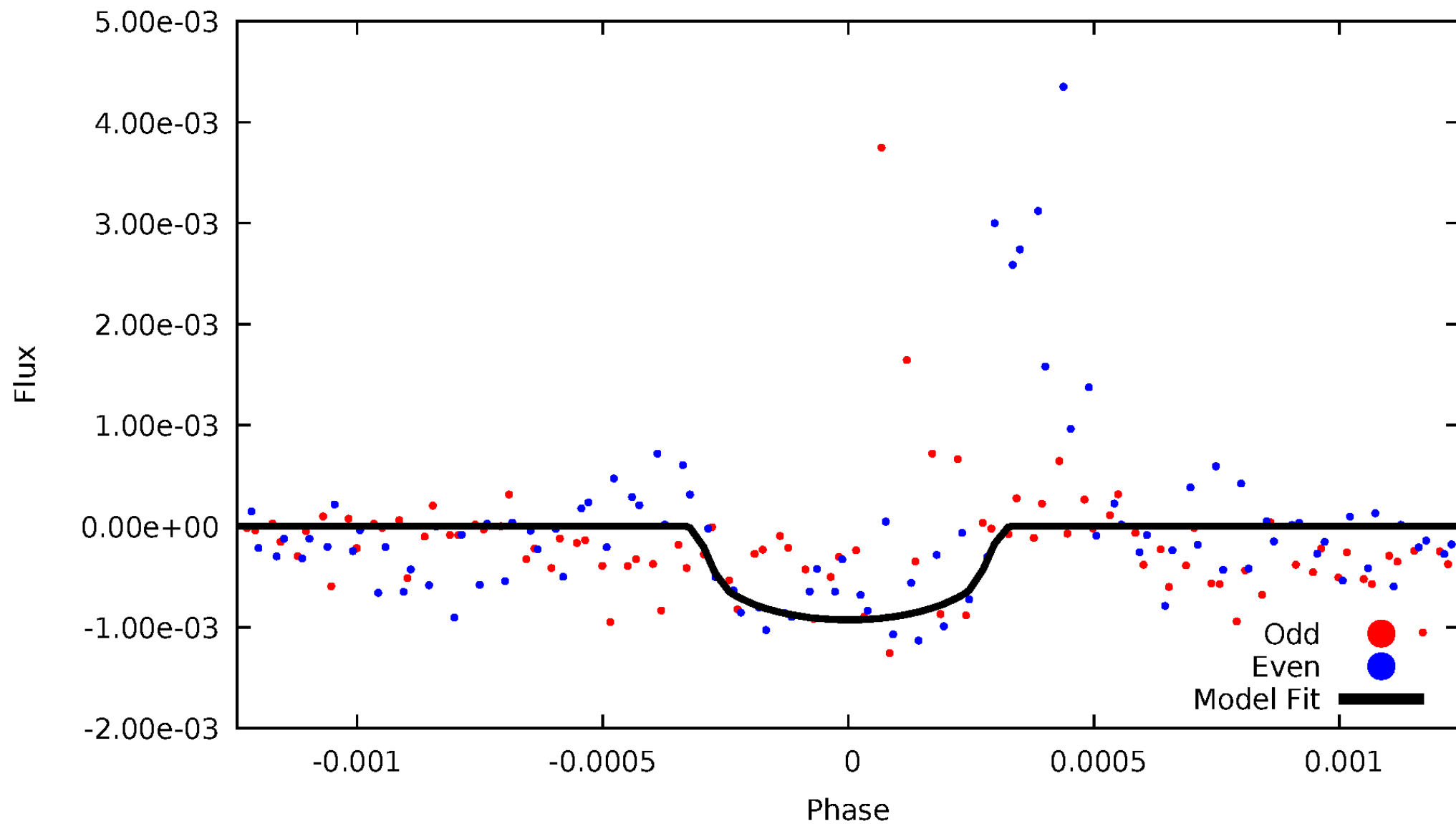
TCE 005599911-05





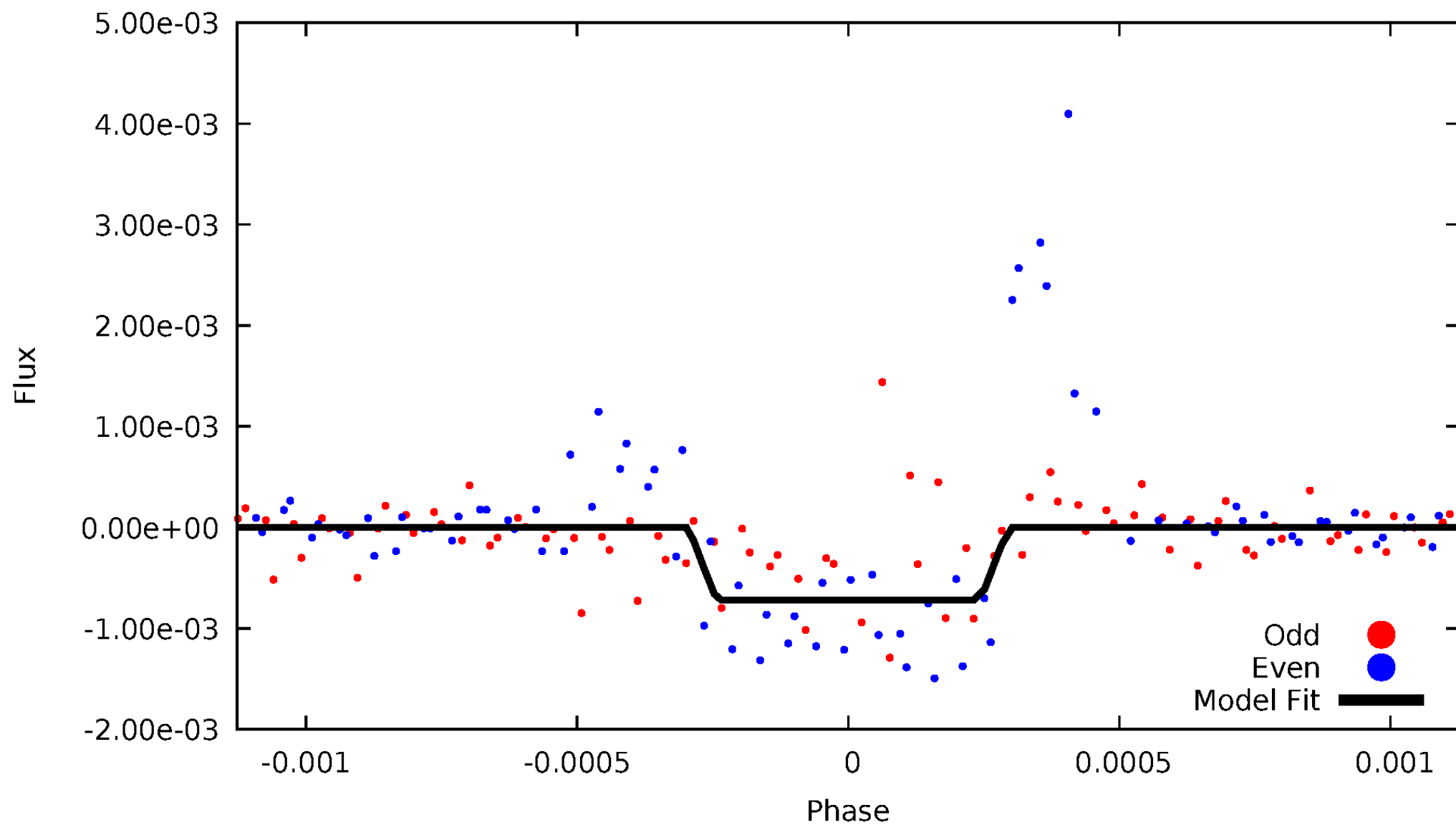
# DV Odd/Even

TCE 005599911-05



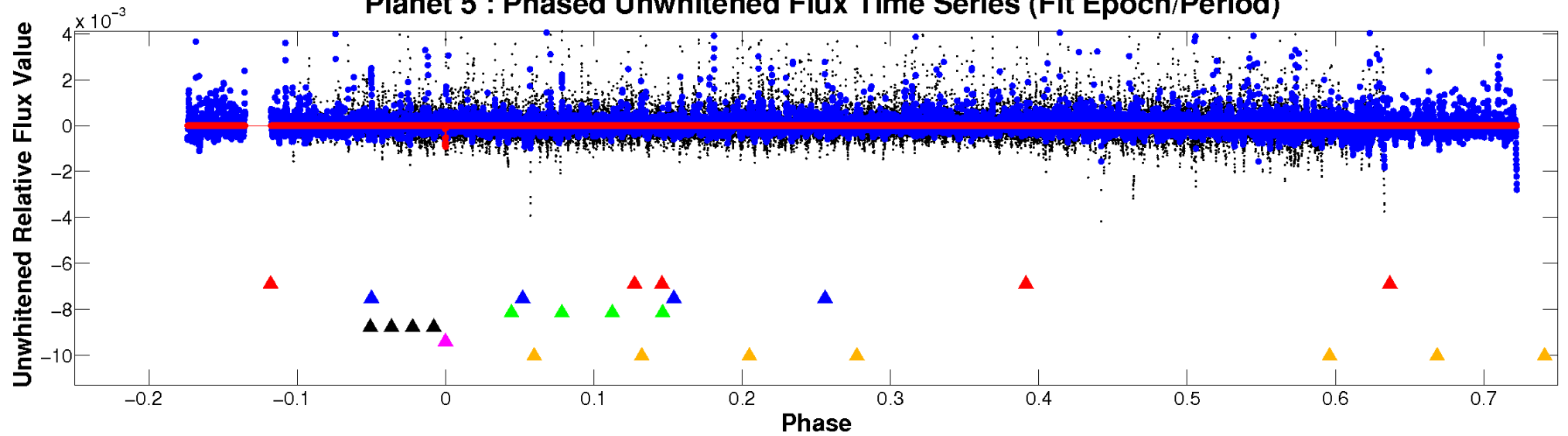
# ALT Odd/Even

TCE 005599911-05

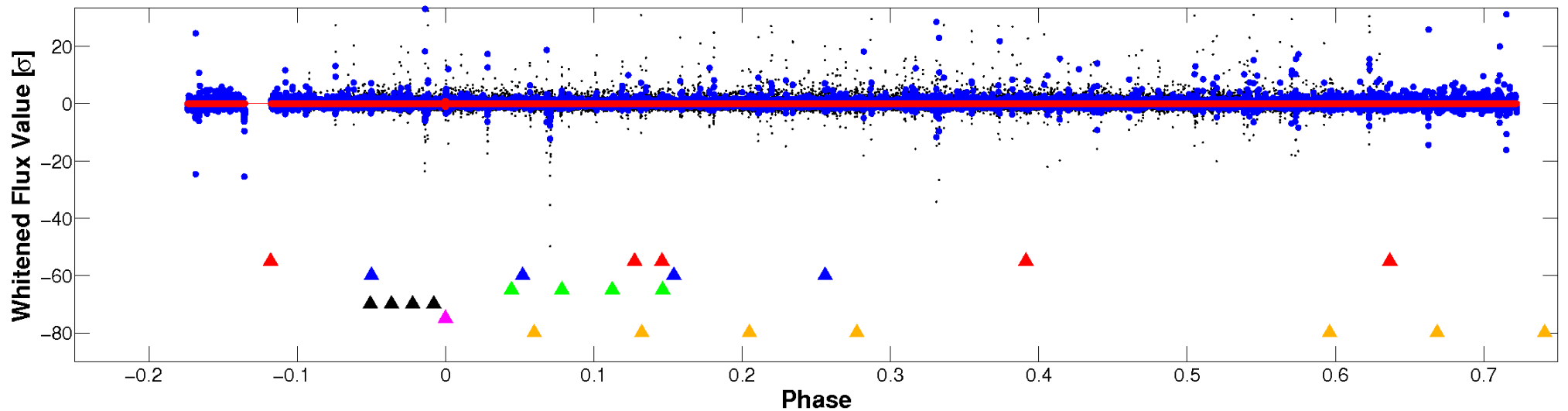


# Non-Whitened Vs. Whitened Light Curve

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

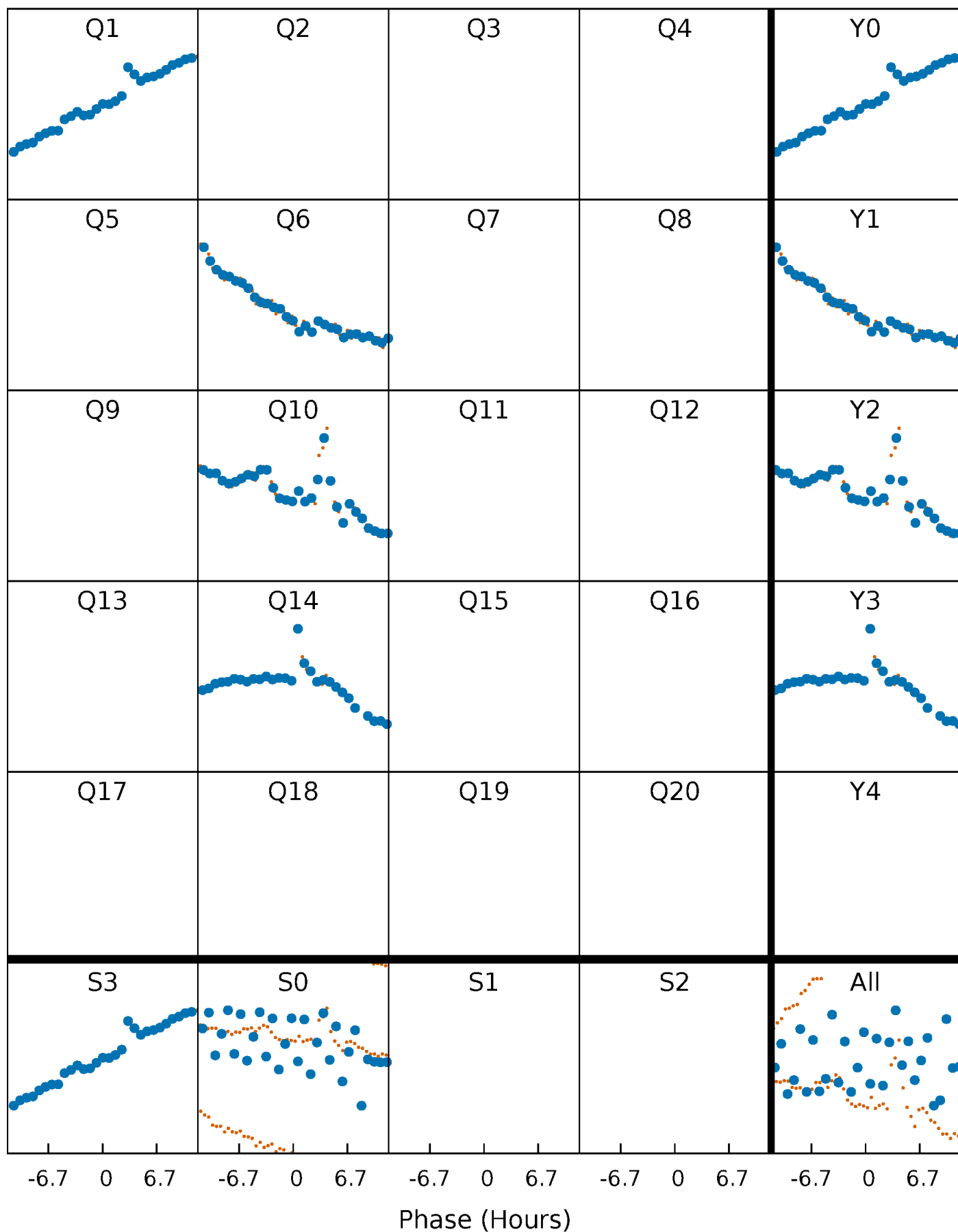


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



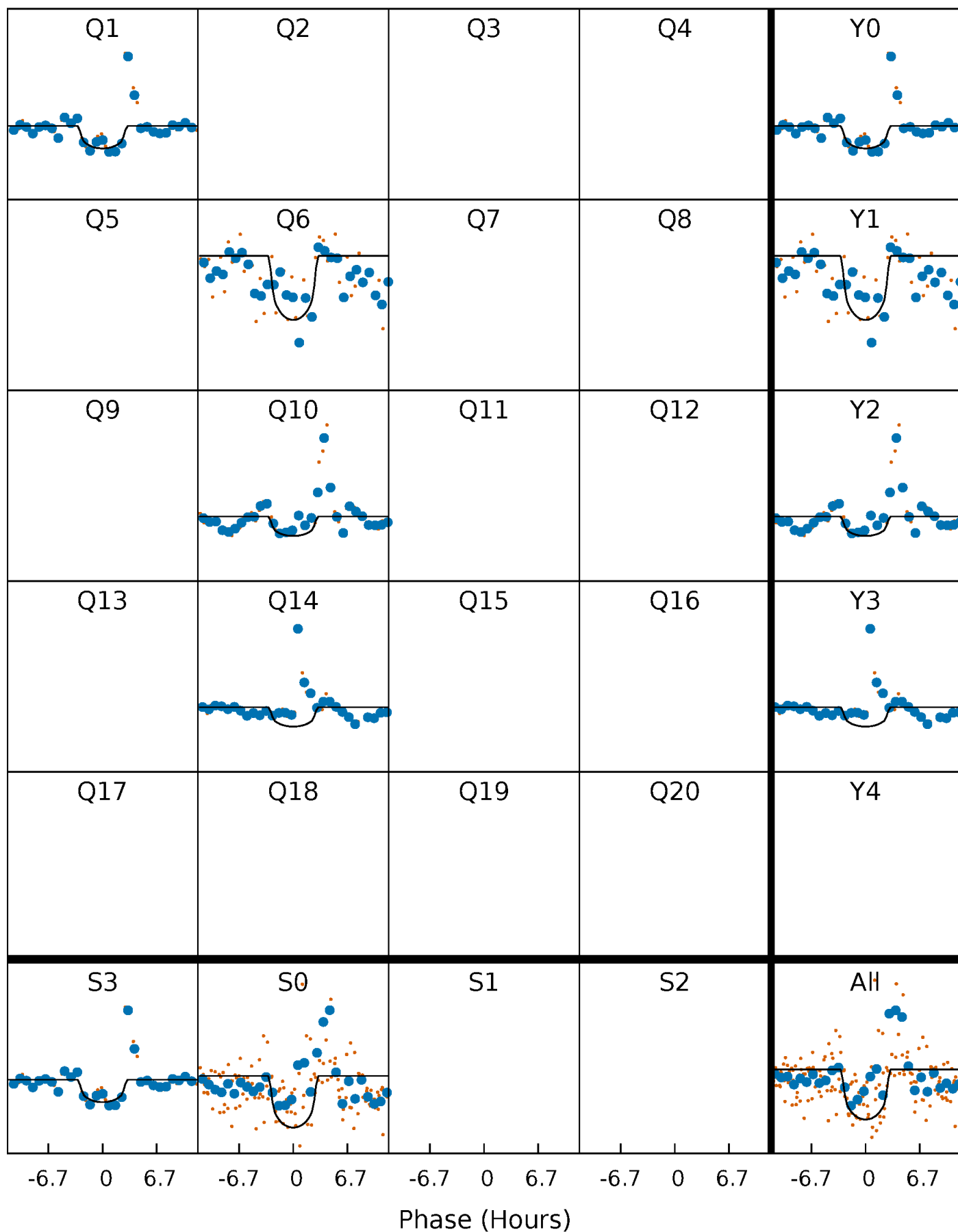
# PDC Quarter-Phased Transit Curves

TCE 005599911-05     $P=395.434260$  Days     $T_0=156.590650$  (BKJD)



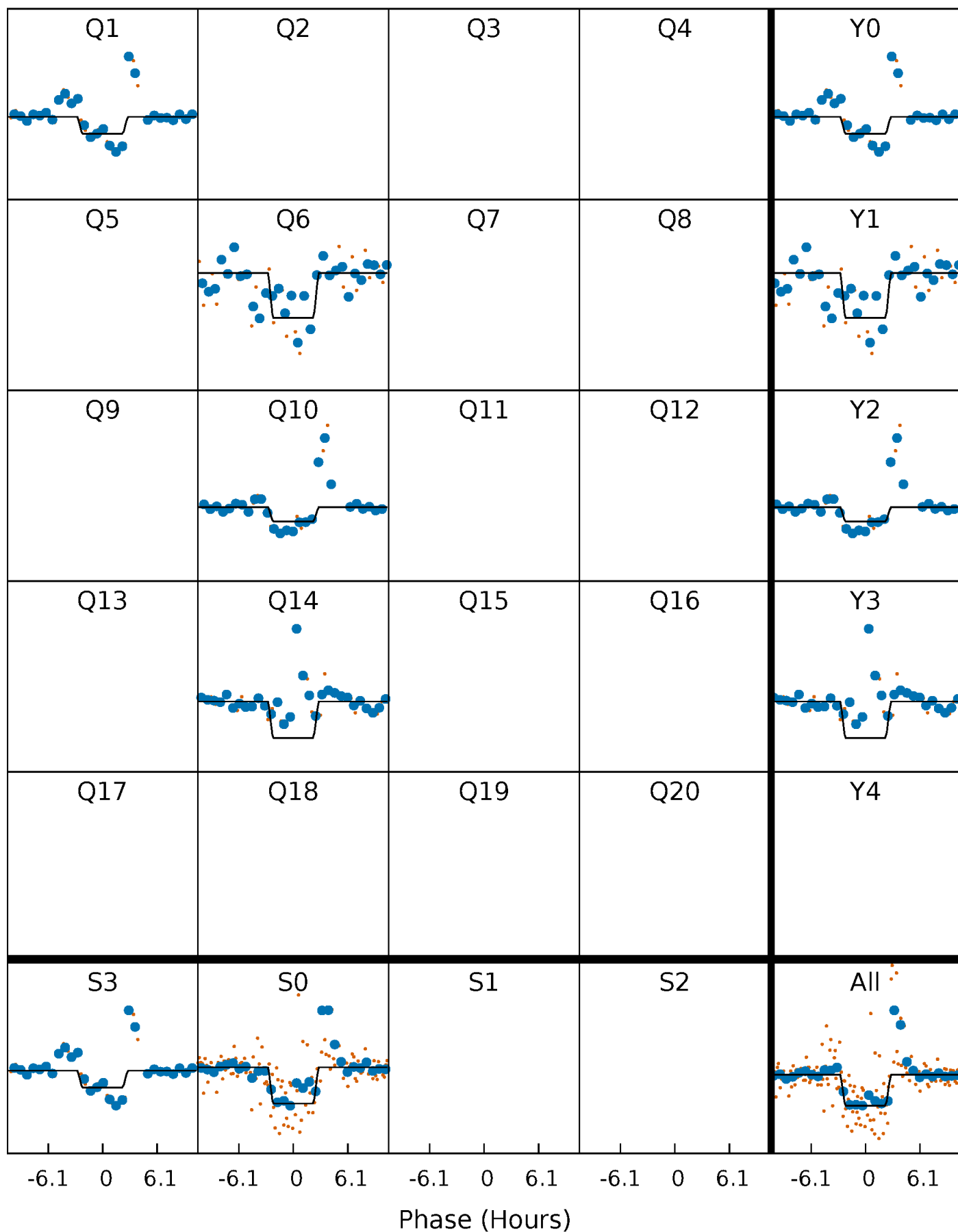
# DV Quarter-Phased Transit Curves

TCE 005599911-05     $P=395.434260$  Days     $T_0=156.590650$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

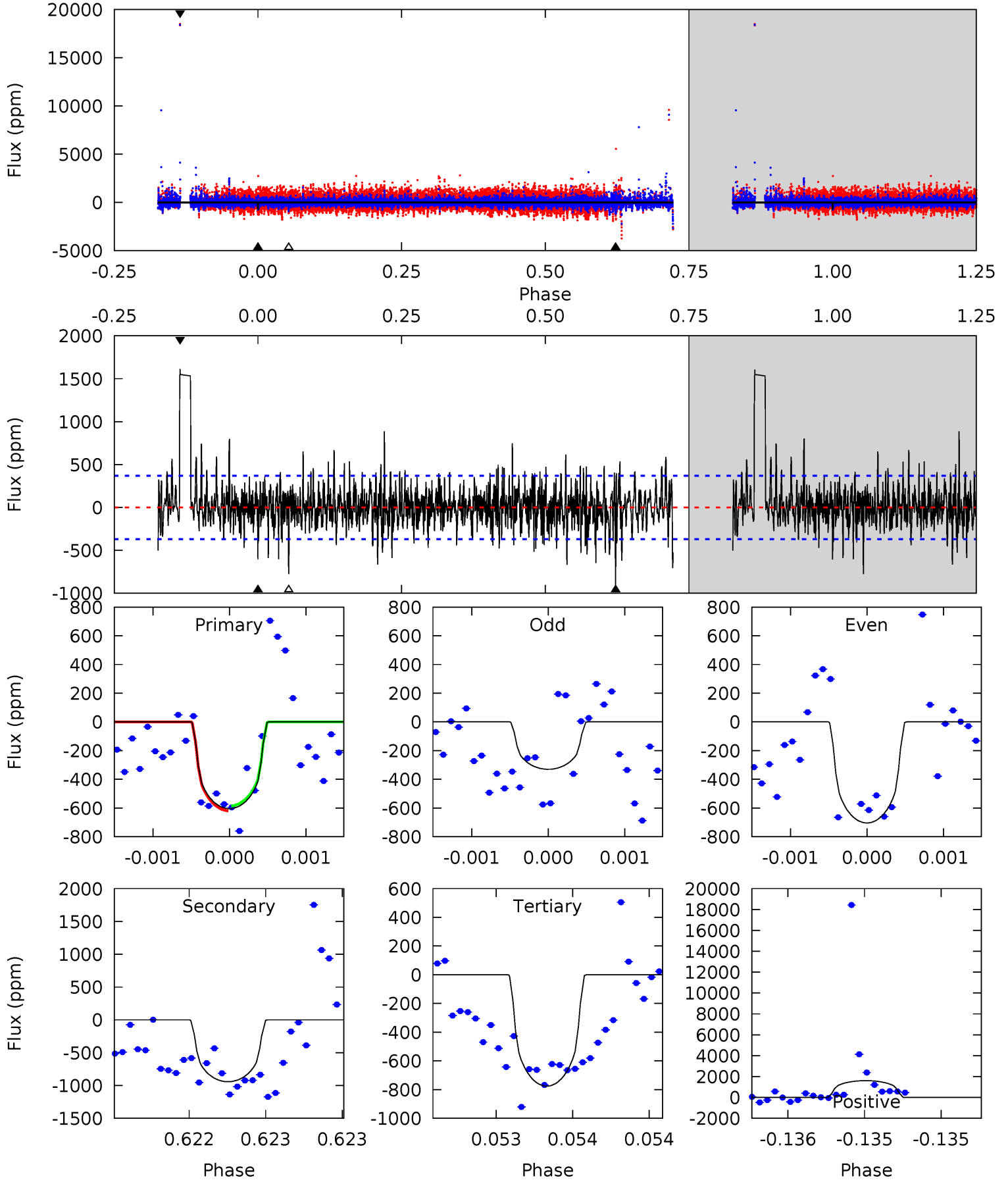
TCE 005599911-05     $P=395.443875$  Days     $T_0=156.584188$  (BKJD)



# DV Model-Shift Uniqueness Test

005599911-05, P = 395.434260 Days, E = 156.590650 Days

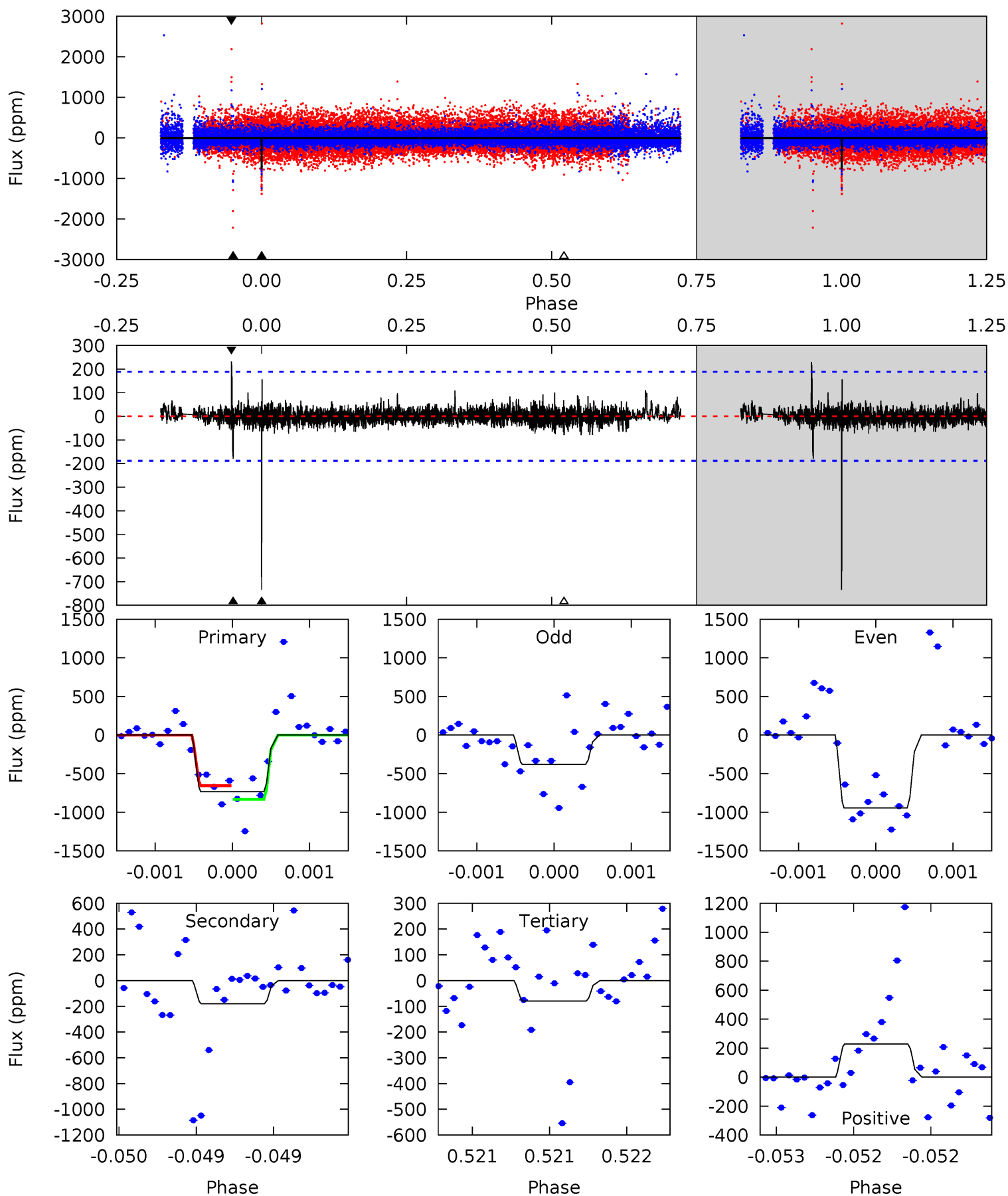
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.04	14.1	11.6	24.0	5.52	3.40	2.80	-2.57	-15.0	2.50	-9.92	2.45	0.62	0.63	0.24



# Alt Model-Shift Uniqueness Test

005599911-05, P = 395.443875 Days, E = 156.584188 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
21.6	5.29	2.34	6.74	5.55	3.45	0.65	19.2	14.8	2.94	-1.45	8.24	0.78	0.24	2.57





### Stellar Parameters For KIC 005599911

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4238^{+62}_{-162}$	$1.096^{+0.033}_{-0.030}$	$-0.500^{+0.150}_{-0.350}$	$83.657^{+3.955}_{-35.591}$	$3.185^{+0.236}_{-2.128}$	$0.000^{+0.000}_{-0.000}$
	+1%/-4%	+3%/-3%	+30%/-70%	+5%/-43%	+7%/-67%	+78%/-9%
Source	PHO54	AST54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005599911-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-942 \pm 67$	$291.77^{+169.63}_{-160.03}$	$1919^{+42}_{-79}$	$4132^{+1623}_{-618}$	$15^{+59}_{-9}$
Alt.	$-180 \pm 34$	$266.90^{+167.54}_{-151.76}$	$1917^{+43}_{-74}$	$3217^{+1054}_{-505}$	$3.352^{+13.646}_{-2.112}$

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

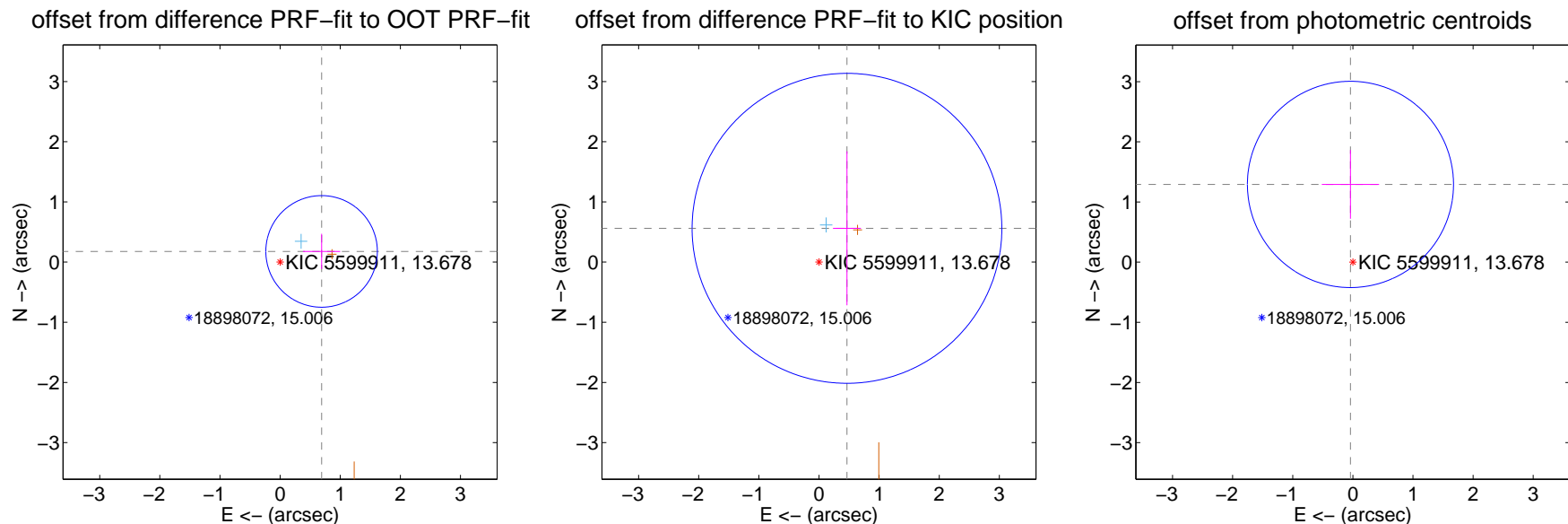
## DV Centroid Data

Supplemental centroid analysis for 005599911-05. Kepler magnitude: 13.68. Transit SNR 7.49

There are 1 quarters with good PRF difference image offsets

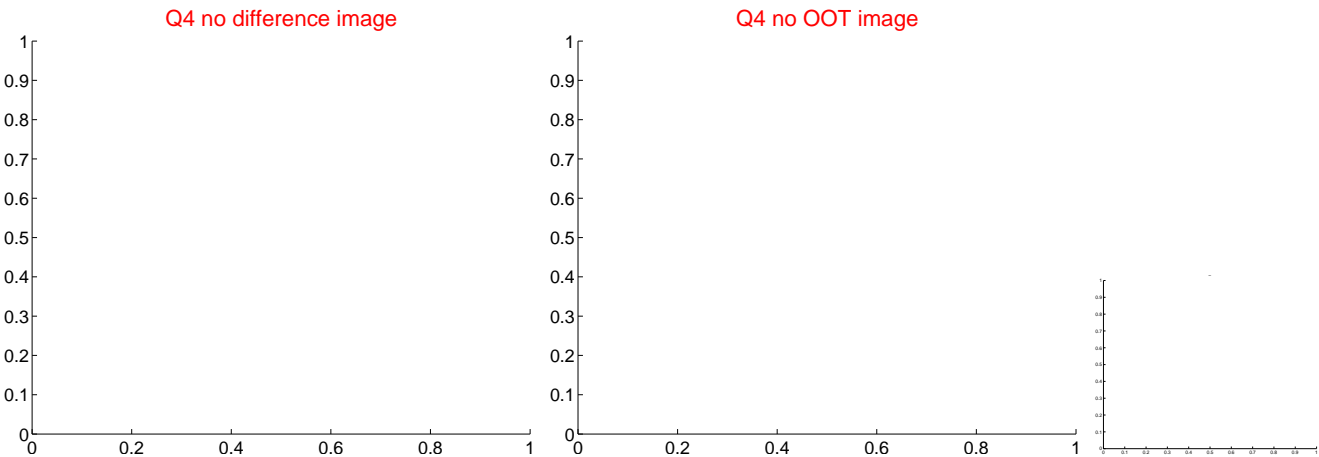
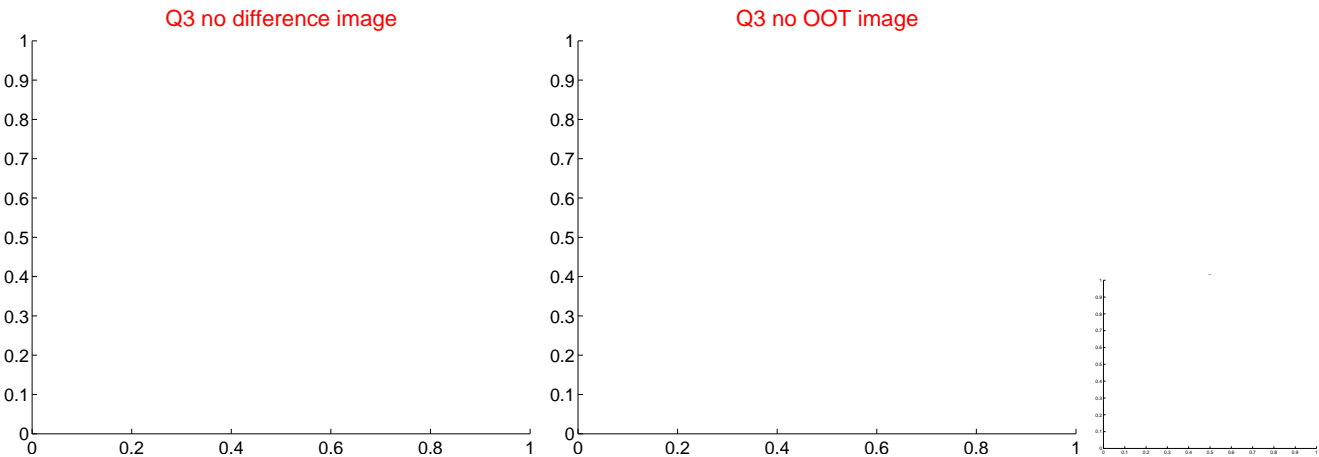
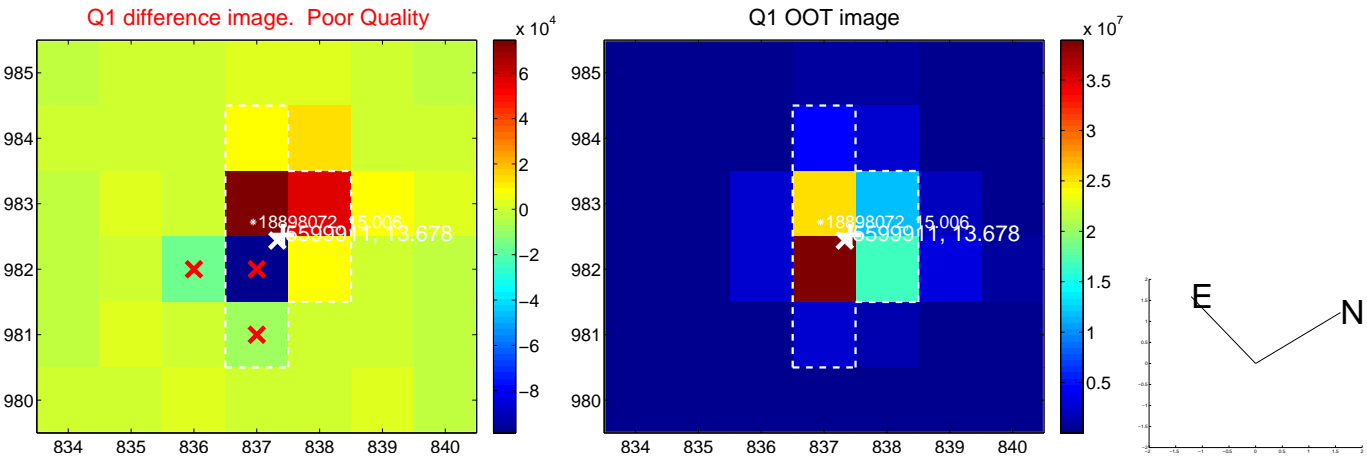
The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.712 \pm 0.309$	2.30	$-0.690 \pm 0.310$	$0.177 \pm 0.293$
PRF-fit source offset from KIC position	$0.729 \pm 0.858$	0.85	$-0.465 \pm 0.232$	$0.561 \pm 1.280$
photometric centroid source offset	$1.29 \pm 0.57$	2.26	$0.04 \pm 0.48$	$1.29 \pm 0.57$

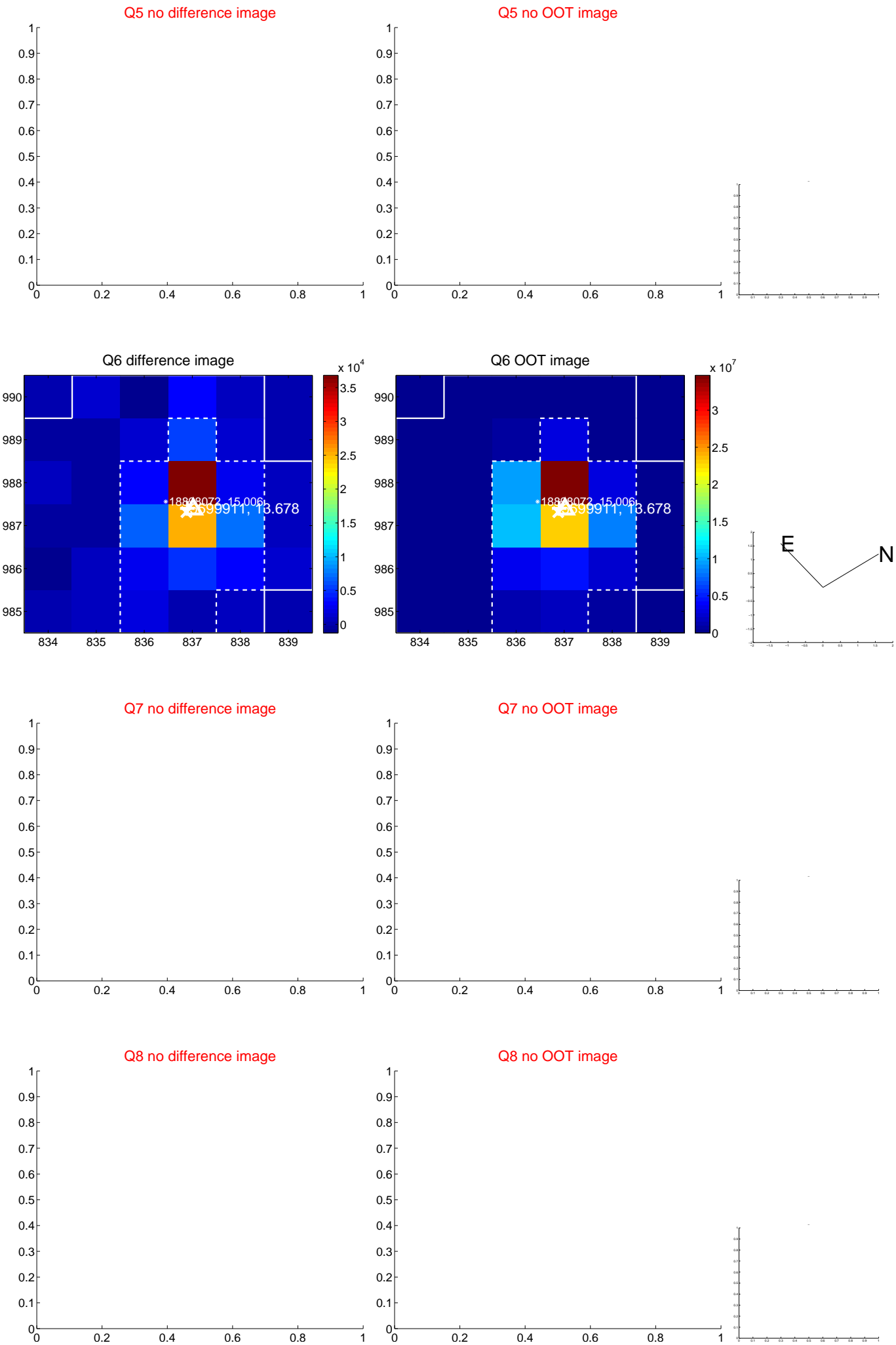


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

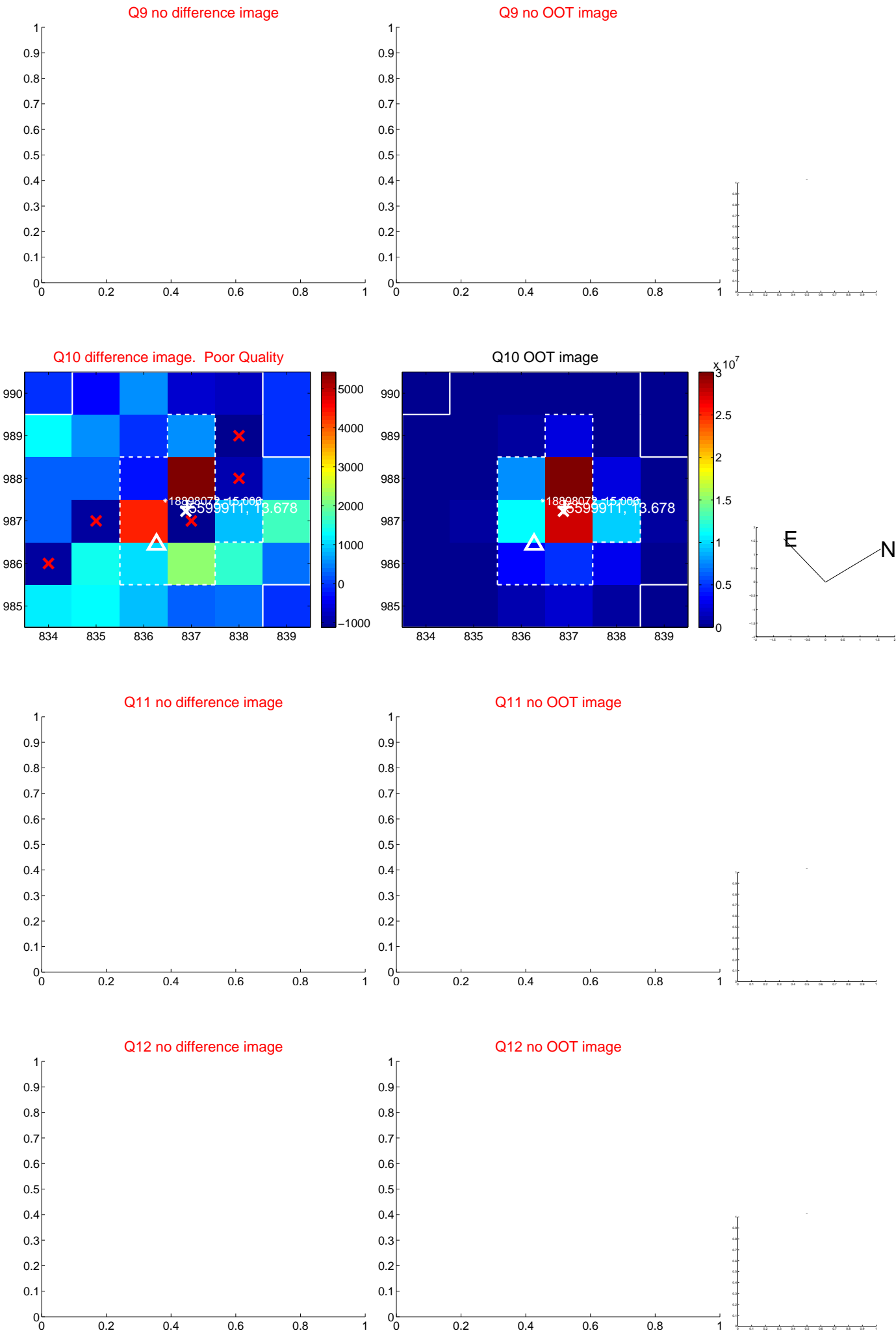
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



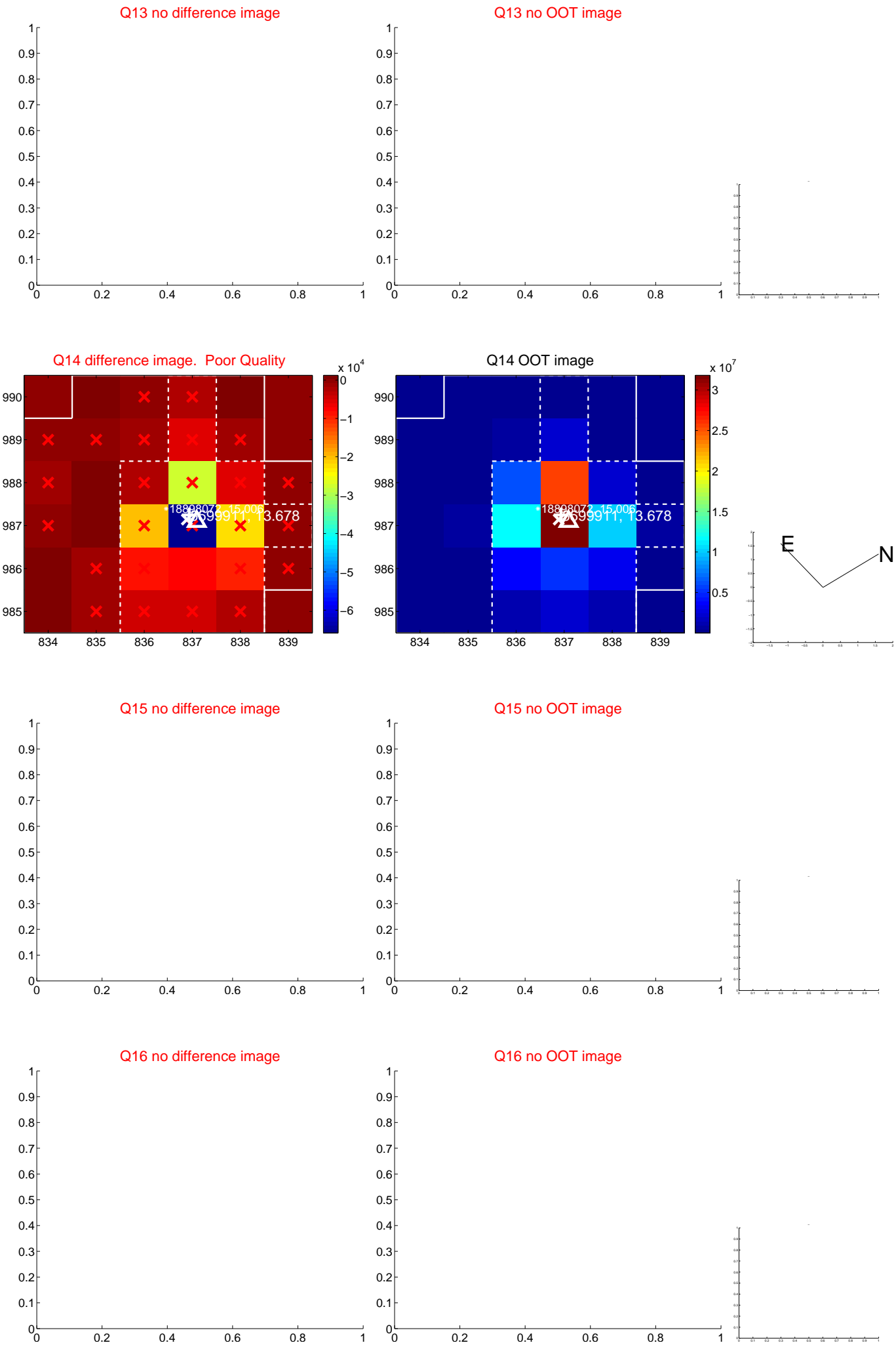
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



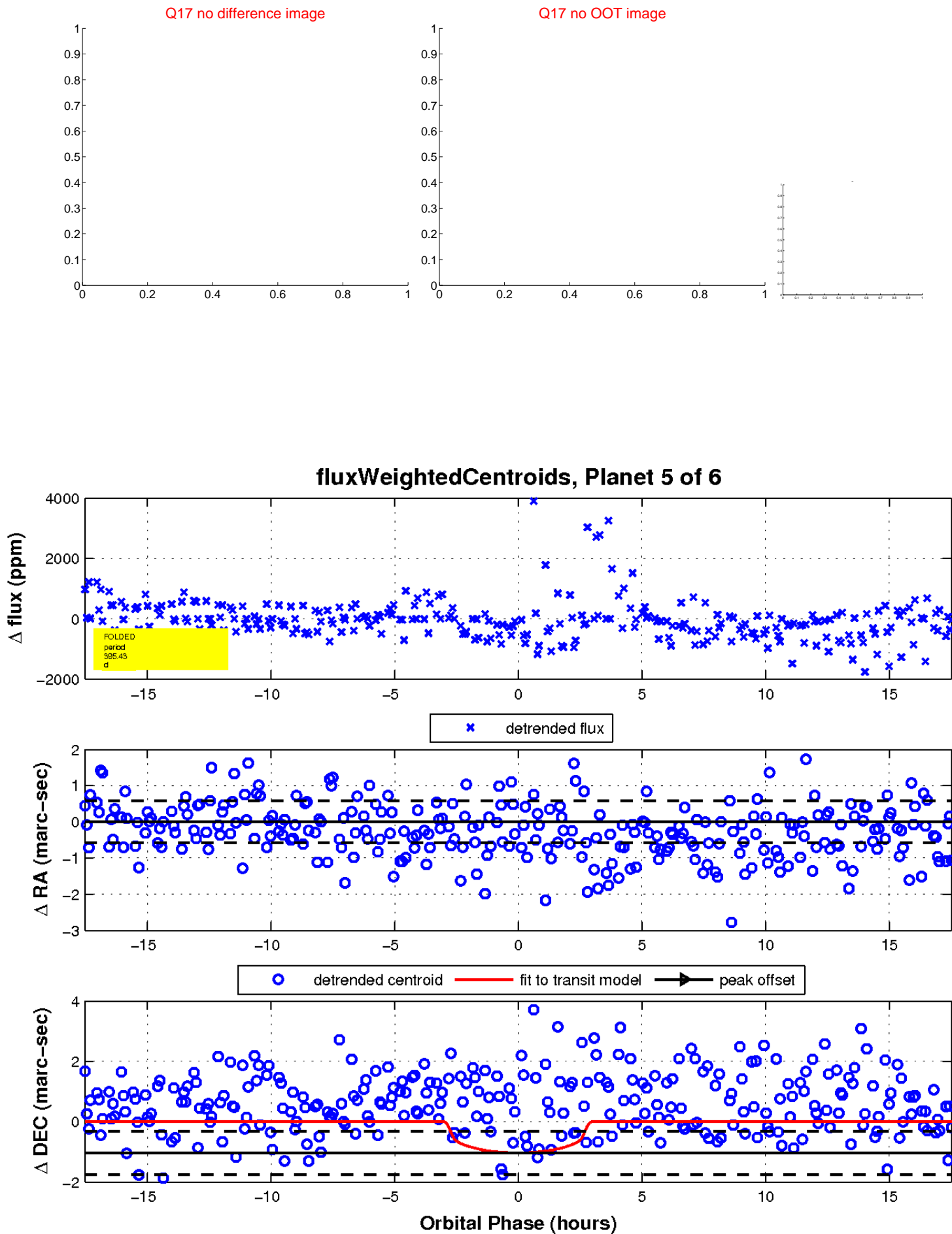
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

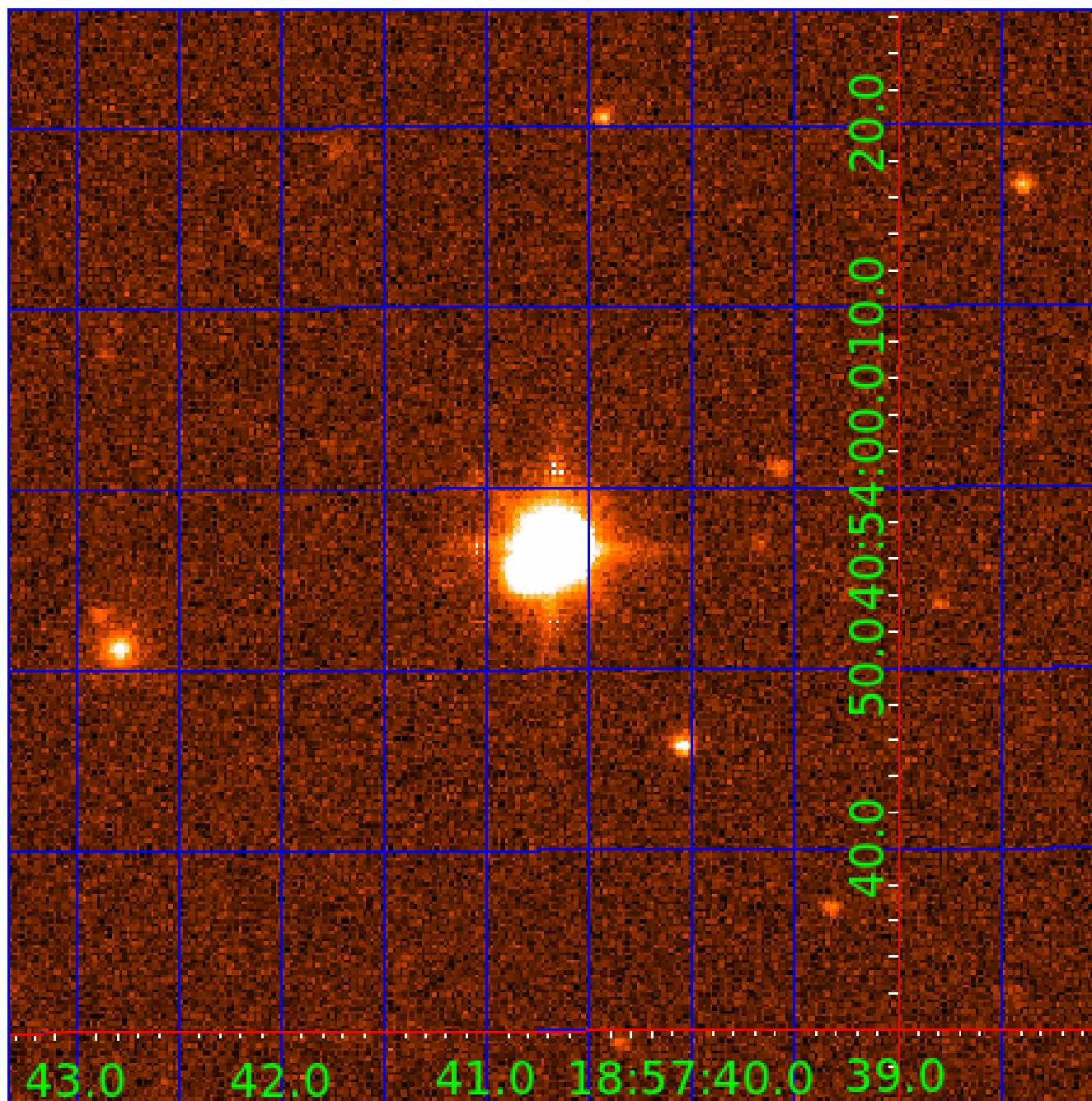


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 005599911

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005599911-01	OBS	No	298.403037	207.000893	1040.1	8.852	14.9	6.0	83.66	4238	278.92	1223.12
005599911-02	OBS	No	435.746600	136.856641	680.2	13.496	13.1	4.5	83.66	4238	227.87	738.29
005599911-03	OBS	No	381.995540	214.494357	1290.2	12.639	12.8	8.0	83.66	4238	285.57	879.96
005599911-04	OBS	No	389.794928	153.471548	1193.4	6.985	15.0	9.0	83.66	4238	283.08	856.56
005599911-05	OBS	No	395.434260	156.590650	927.1	5.903	12.8	7.5	83.66	4238	279.27	840.31
005599911-06	OBS	No	212.056553	180.241526	726.1	2.070	11.9	7.5	83.66	4238	261.87	1928.73

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005599911-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_POS_DV—CENT_FEW_DIFFS
005599911-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005599911-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
005599911-04	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—CENT_FEW_DIFFS
005599911-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005599911-06	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

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

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

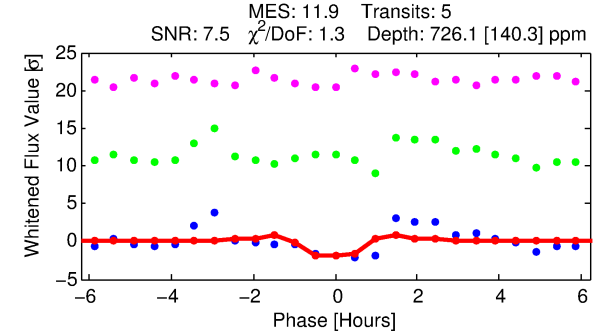
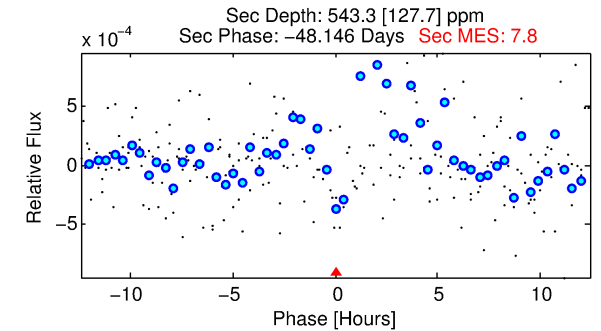
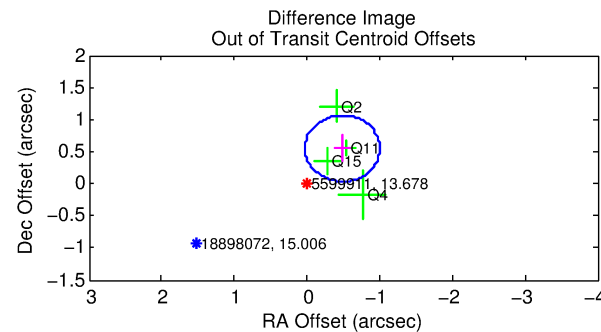
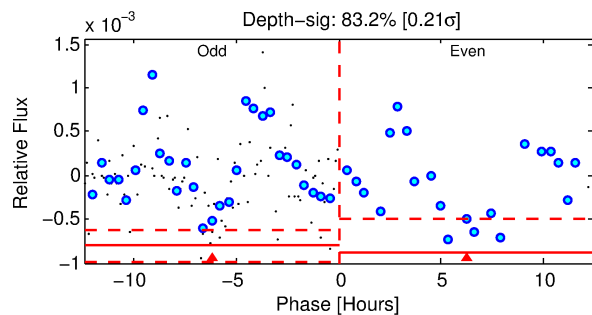
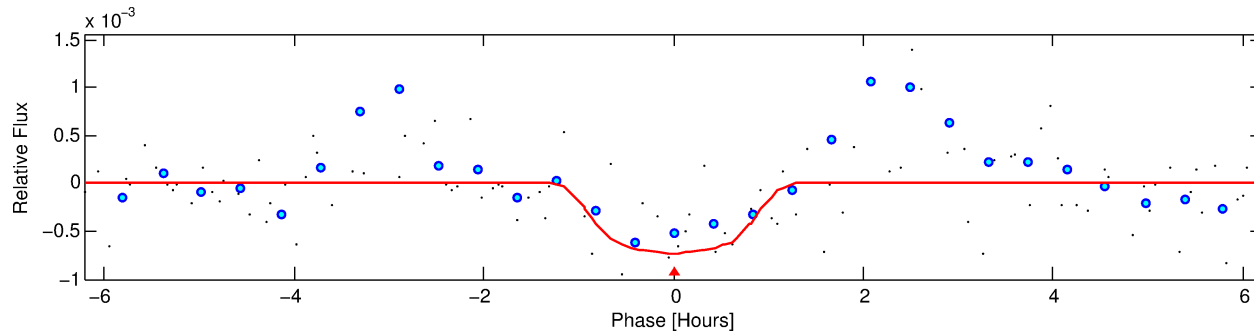
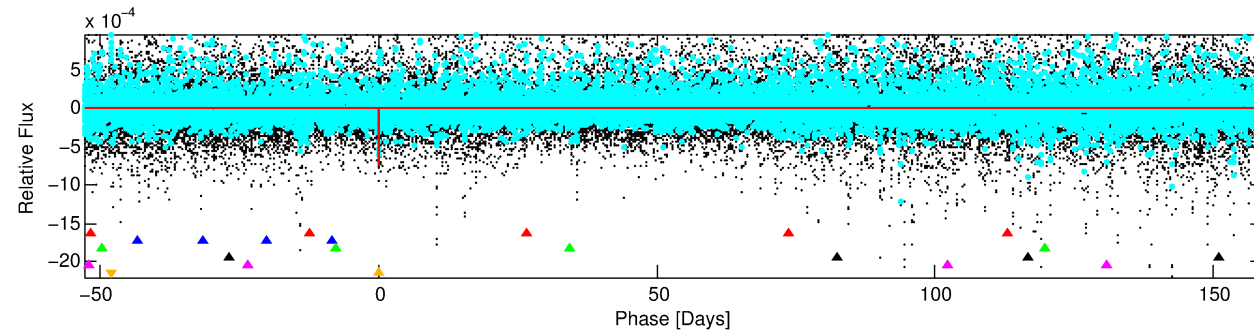
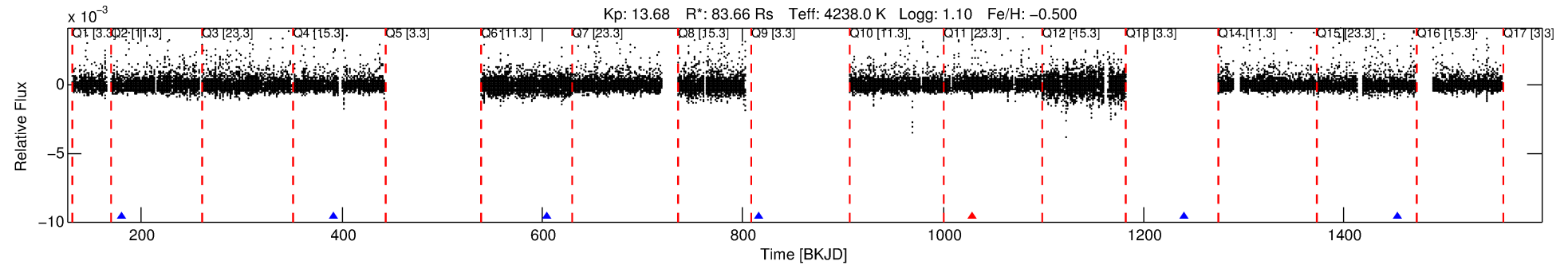
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005599911-06

No Significant Match Found

# DV One-Page Summary

KIC: 5599911 Candidate: 6 of 6 Period: 212.057 d



## DV Fit Results:

Period = 212.05655 [0.00157] d  
Epoch = 180.2415 [0.0077] BKJD  
Rp/R\* = 0.0287 [0.0574]  
a/R\* = 473.17 [2989.36]  
b = 0.83 [2.44]  
Seff = 1928.73 [629.10]  
Teq = 1690 [138] K  
Rp = 261.87 [535.53] Re  
a = 1.0241 [0.2916] AU  
Ag = 4.57 [18.37] [0.19σ]  
Teffp = 3820 [3830] K [0.56σ]

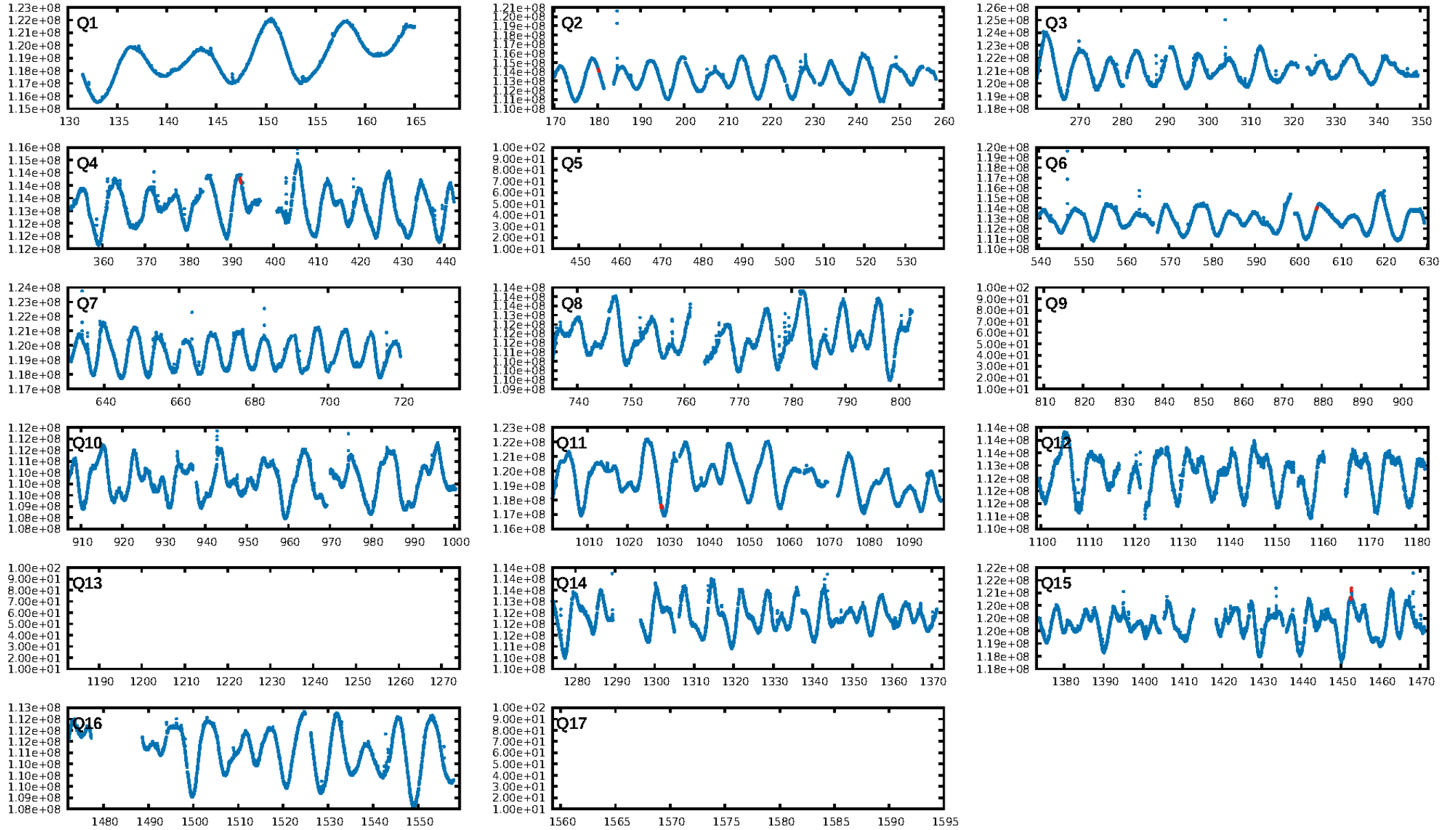
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [227.95σ]  
ModelChiSquare2-sig: 7.5%  
ModelChiSquareGof-sig: 81.1%  
Bootstrap-pfa: 1.82e-10  
RollingBand-fgt: 0.80 [4/5]  
GhostDiagnostic-chr: 40.57  
Centroid-sig: 33.1%  
Centroid-so: 0.847 arcsec [1.08σ]  
OotOffset-rm: 0.732 arcsec [4.26σ]  
KicOffset-rm: 0.933 arcsec [3.68σ]  
OotOffset-st: 1/2/1/0 [4]  
KicOffset-st: 1/2/1/0 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [5/5]

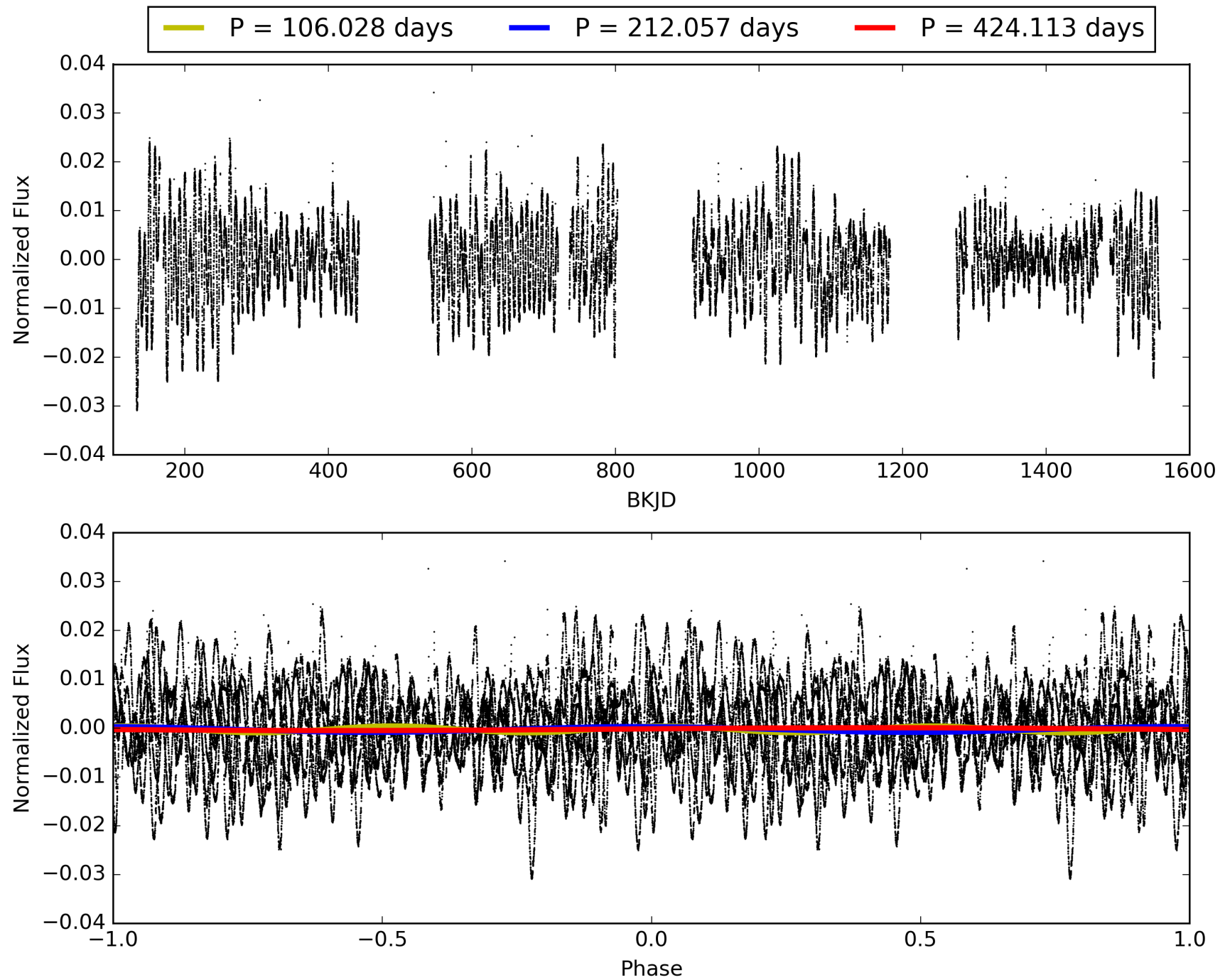
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:13:48 Z

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

# TCE 005599911-06, PDC Light Curves

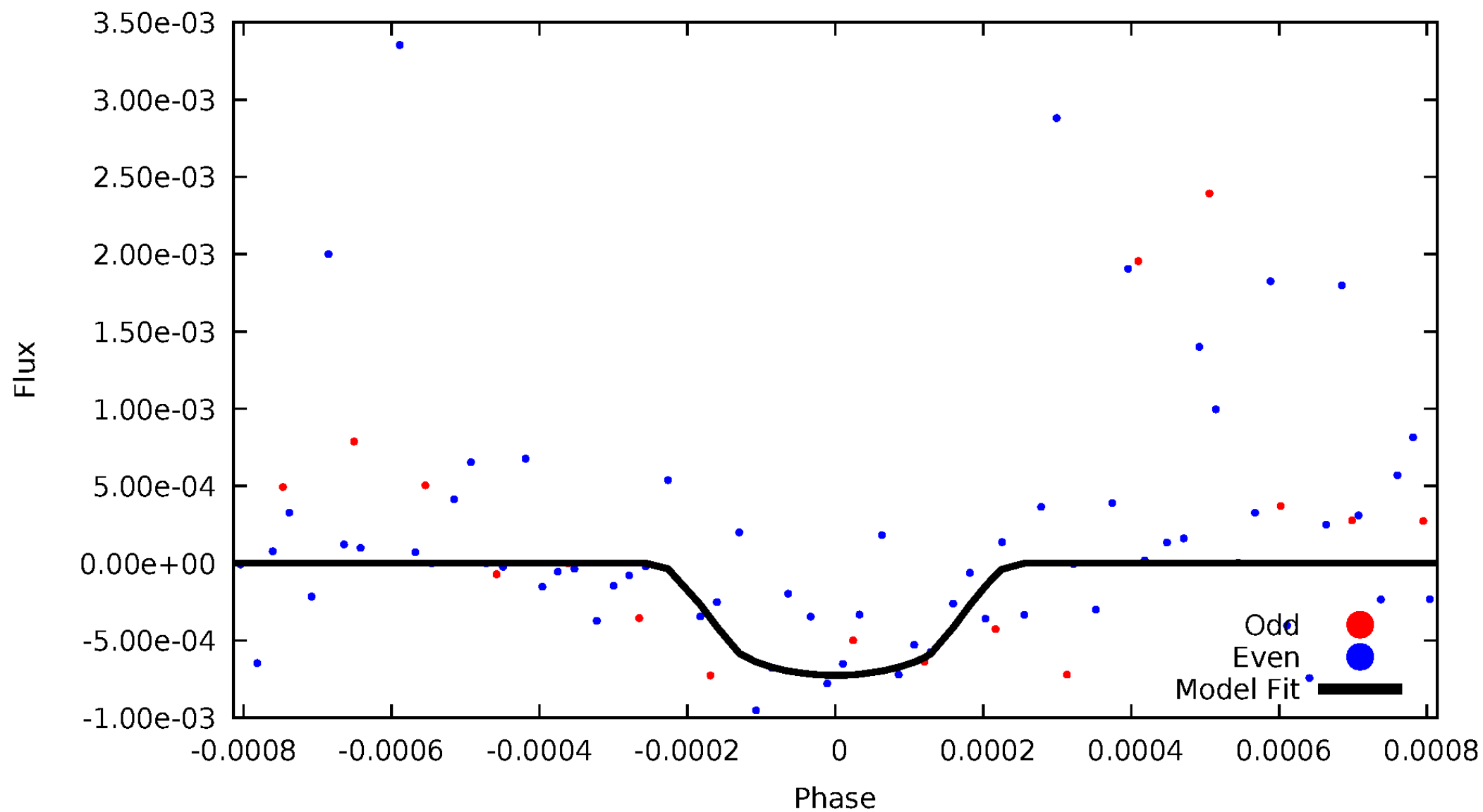


# TCE 005599911-06



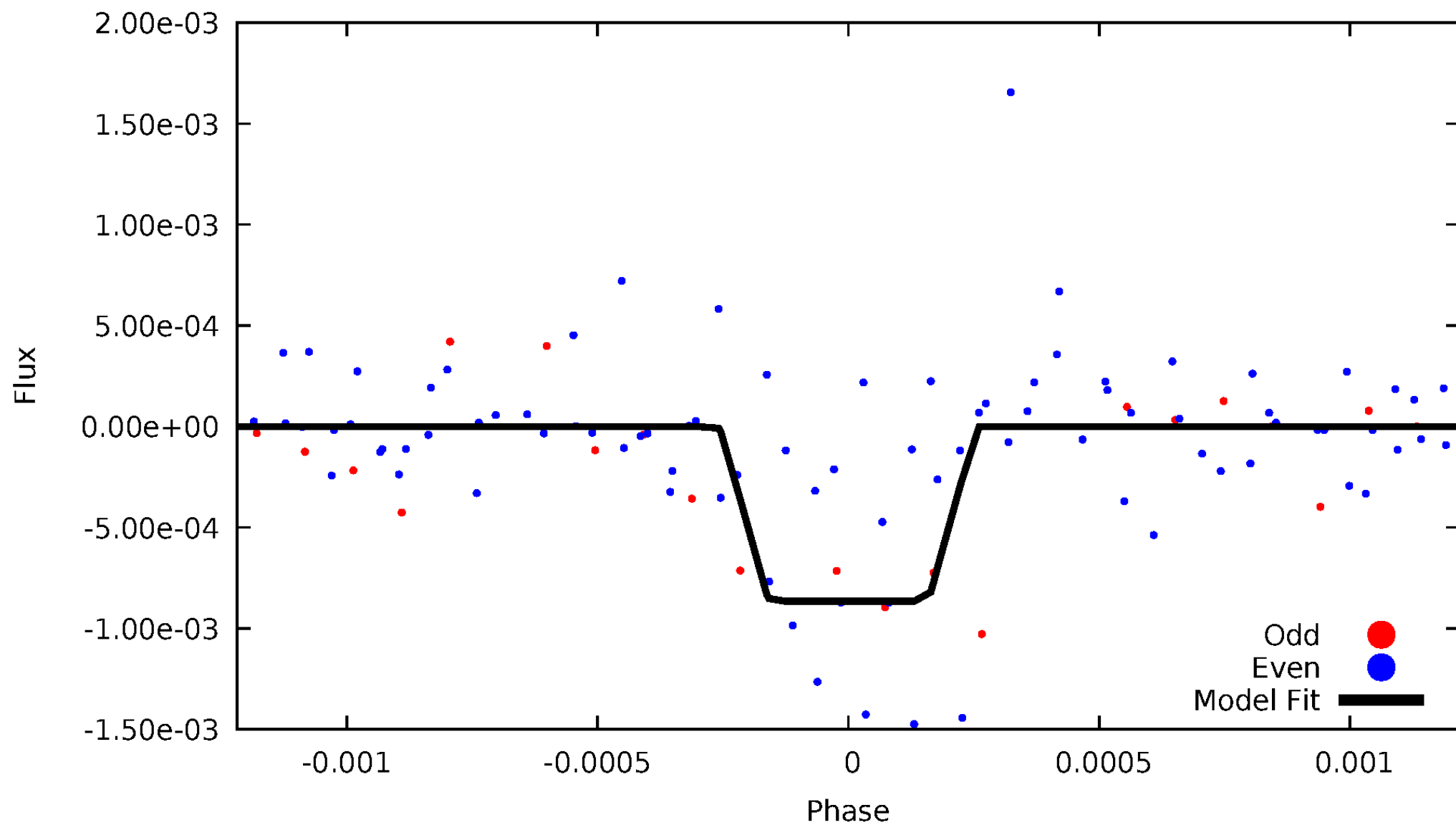
# DV Odd/Even

TCE 005599911-06



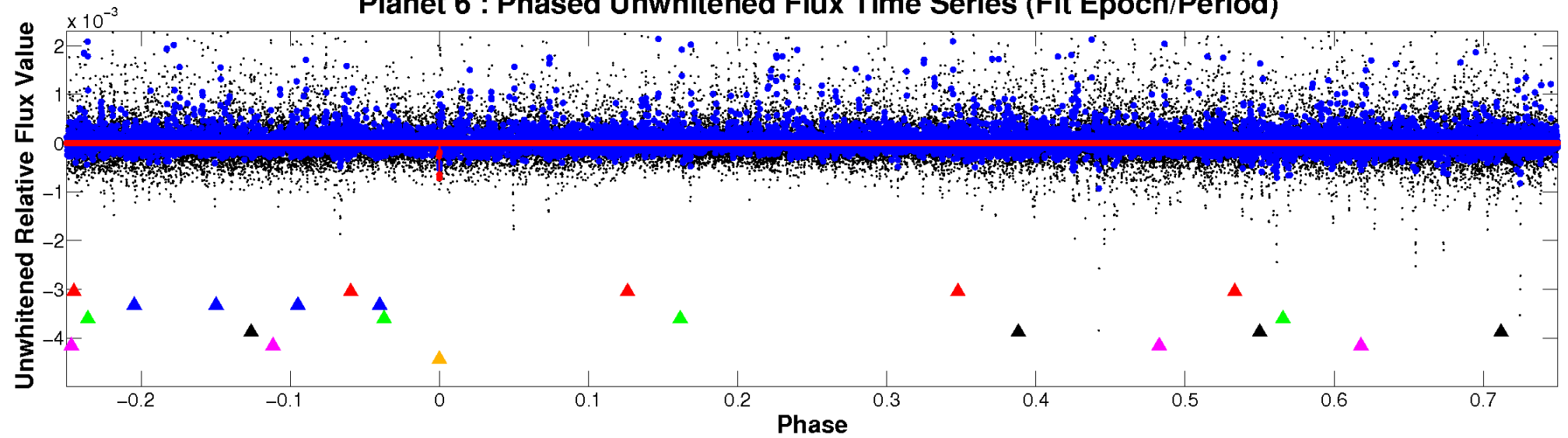
# ALT Odd/Even

TCE 005599911-06

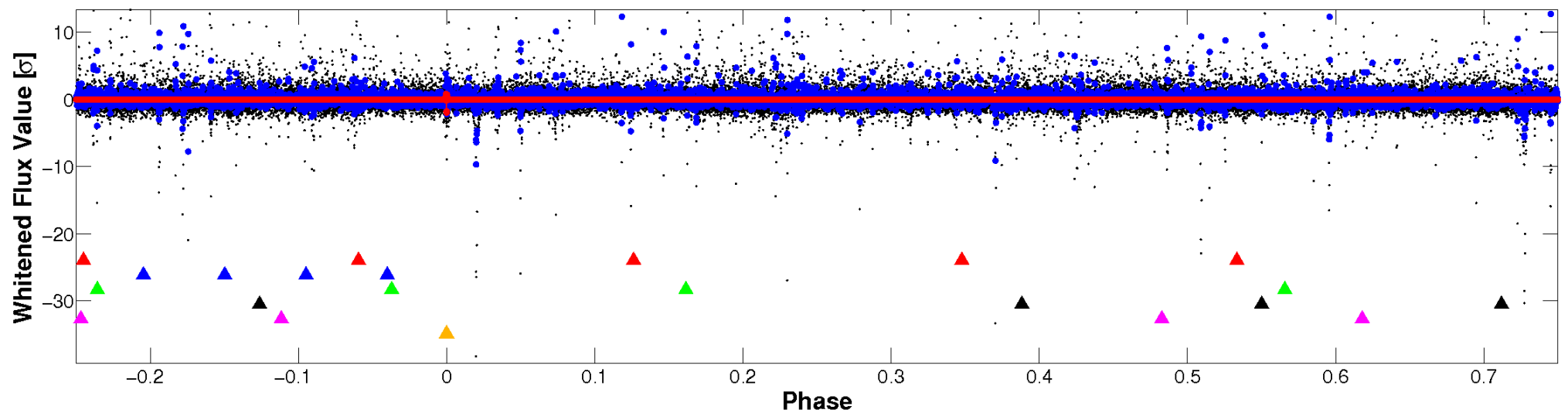


# Non-Whitened Vs. Whitened Light Curve

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

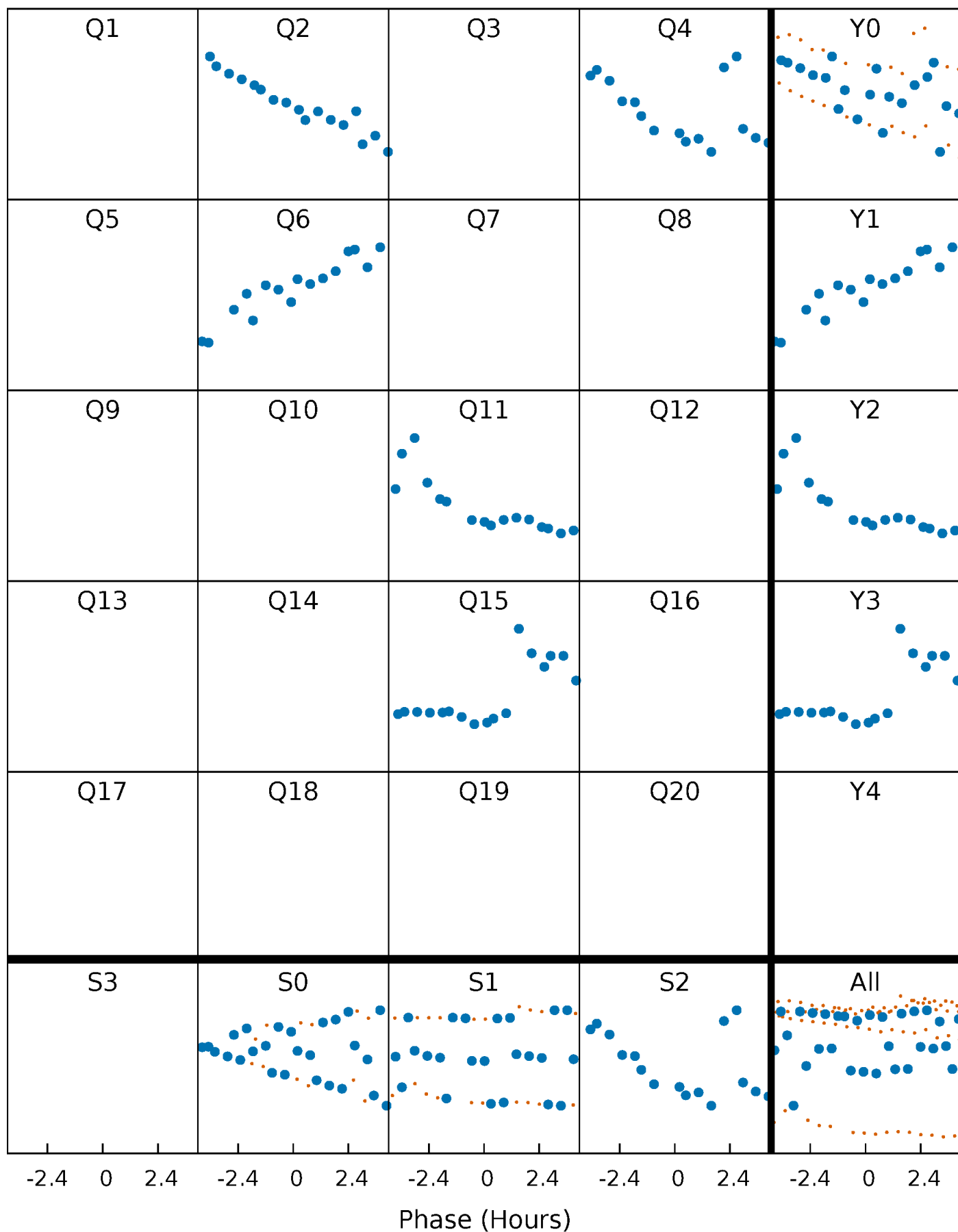


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

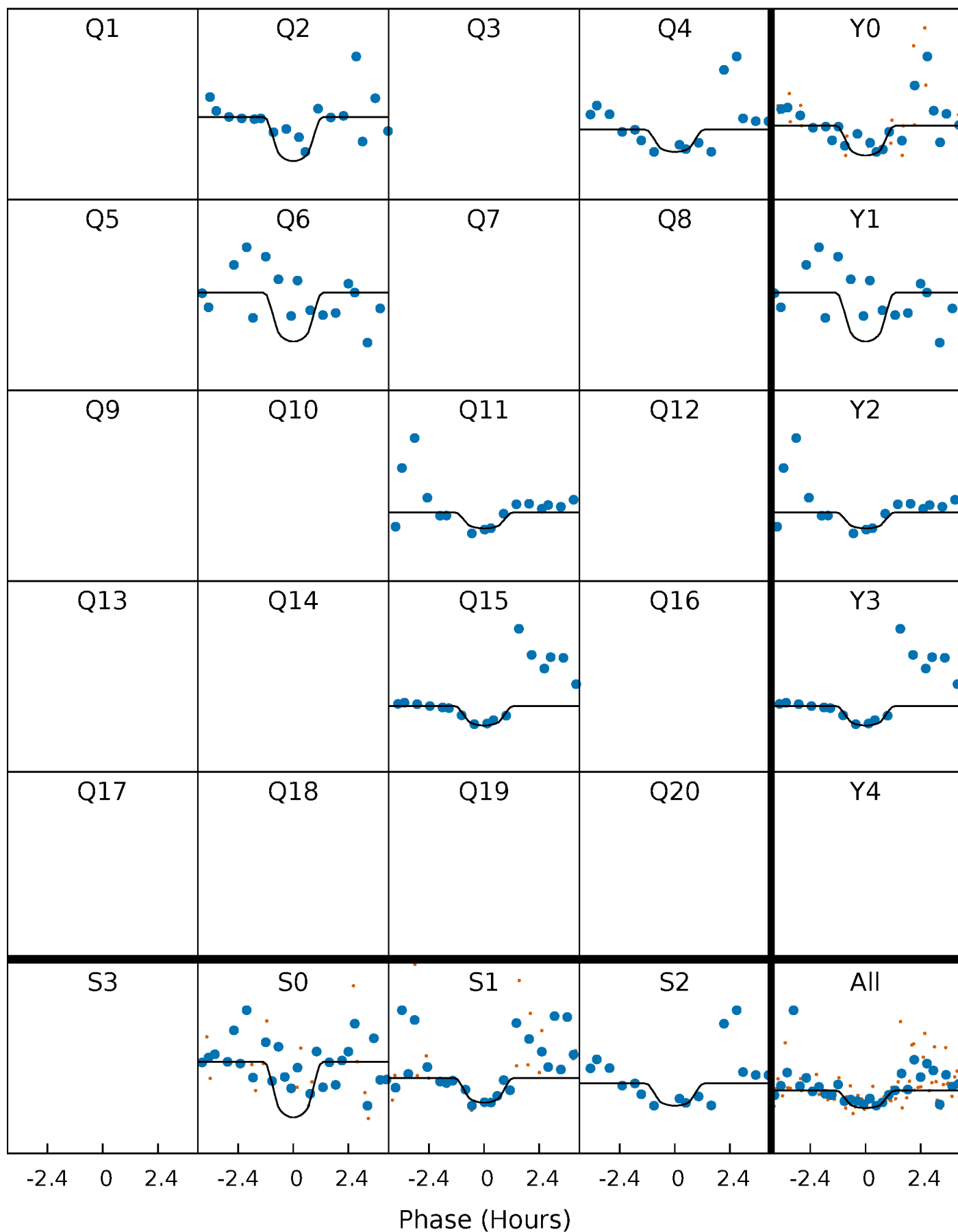
TCE 005599911-06 P=212.056553 Days  $T_0=180.241526$  (BKJD)





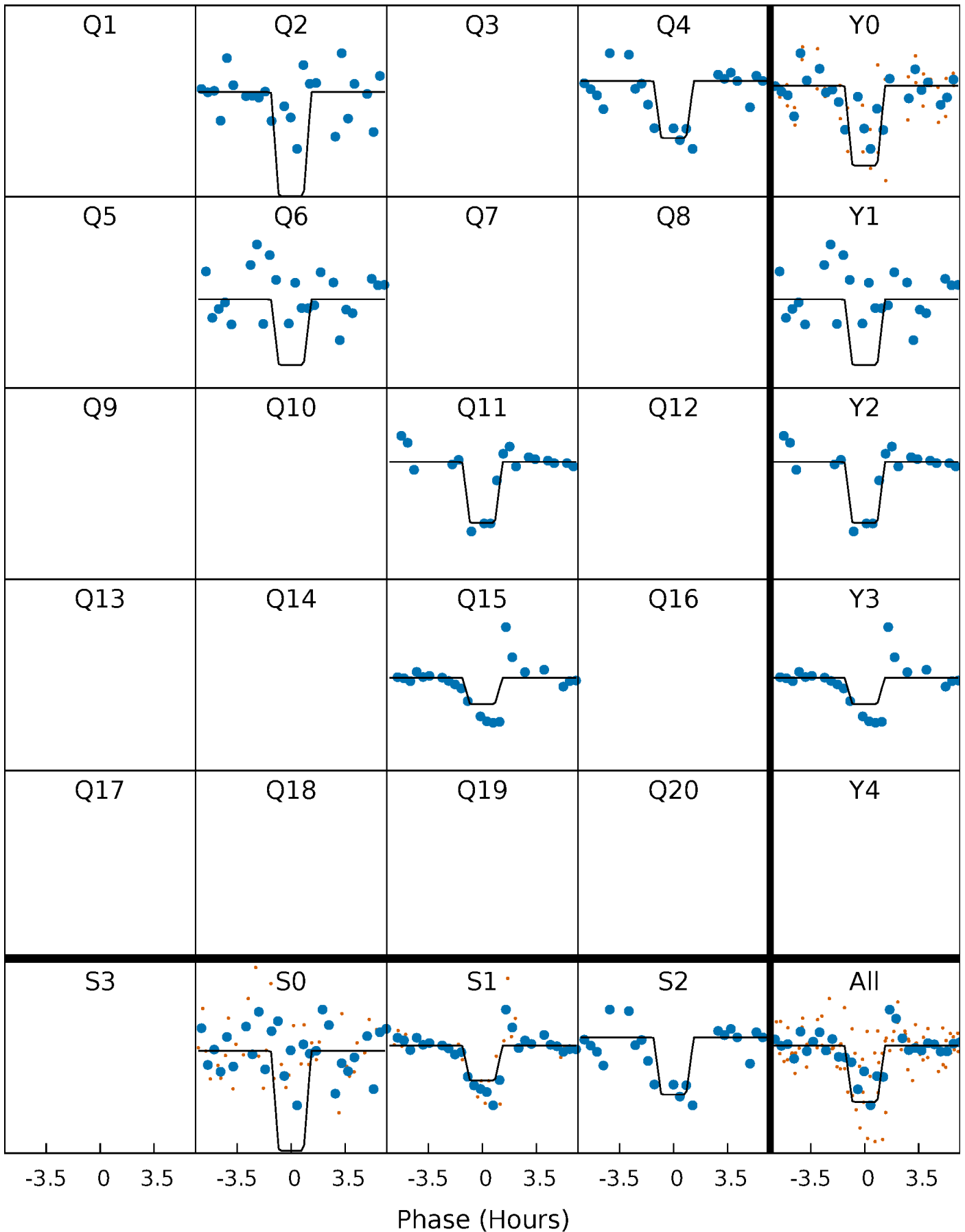
# DV Quarter-Phased Transit Curves

TCE 005599911-06 P=212.056553 Days  $T_0=180.241526$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

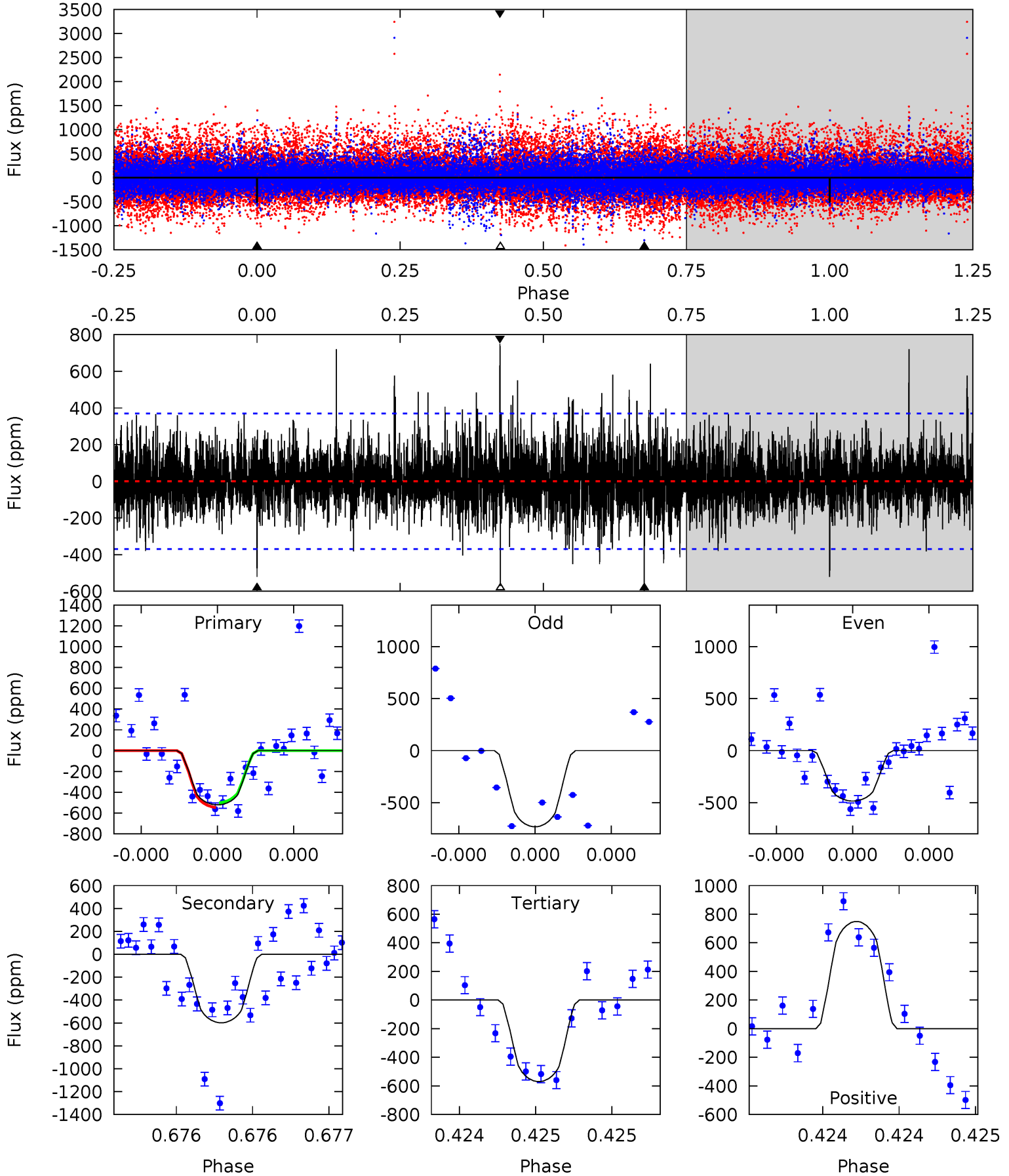
TCE 005599911-06 P=212.053527 Days  $T_0=180.254500$  (BKJD)



# DV Model-Shift Uniqueness Test

005599911-06, P = 212.056553 Days, E = 180.241526 Days

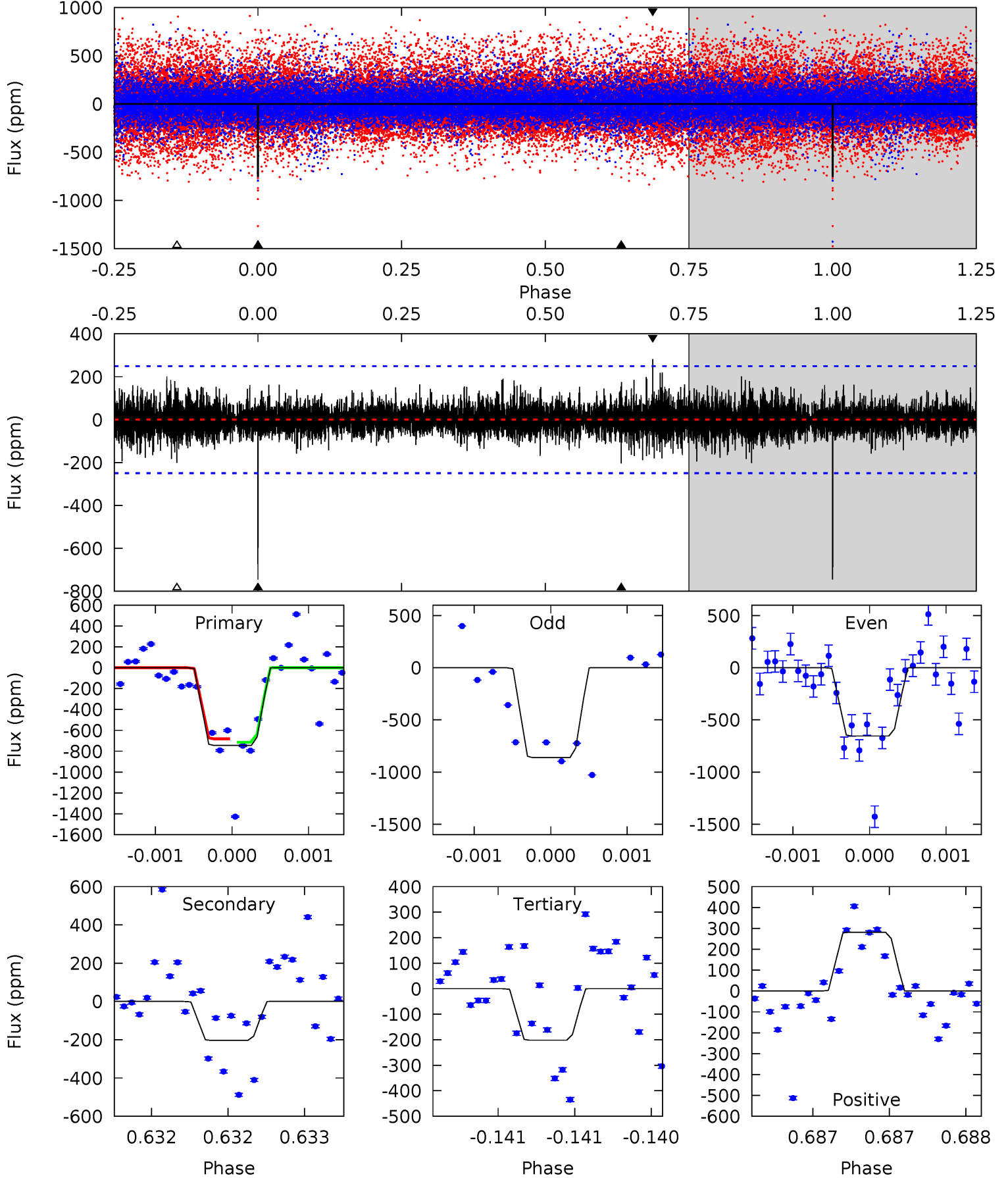
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.87	9.04	8.60	11.3	5.58	3.49	1.85	-0.73	-3.44	0.44	-2.27	1.14	0.78	0.56	0.33



# Alt Model-Shift Uniqueness Test

005599911-06, P = 212.053527 Days, E = 180.254500 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
16.6	4.53	4.50	6.29	5.57	3.47	1.09	12.1	10.3	0.03	-1.76	1.76	0.78	0.27	0.35



### Stellar Parameters For KIC 005599911

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4238^{+62}_{-162}$	$1.096^{+0.033}_{-0.030}$	$-0.500^{+0.150}_{-0.350}$	$83.657^{+3.955}_{-35.591}$	$3.185^{+0.236}_{-2.128}$	$0.000^{+0.000}_{-0.000}$
	+1%/-4%	+3%/-3%	+30%/-70%	+5%/-43%	+7%/-67%	+78%/-9%
Source	PHO54	AST54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005599911-06 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-599 \pm 66$	$498.61^{+454.81}_{-346.72}$	$2358^{+53}_{-92}$	$3094^{+1773}_{-895}$	$1.398^{+12.968}_{-1.030}$
Alt.	$-203 \pm 45$	$474.52^{+425.35}_{-336.82}$	$2357^{+52}_{-91}$	$2502^{+1573}_{-4927}$	$0.519^{+5.734}_{-0.384}$

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

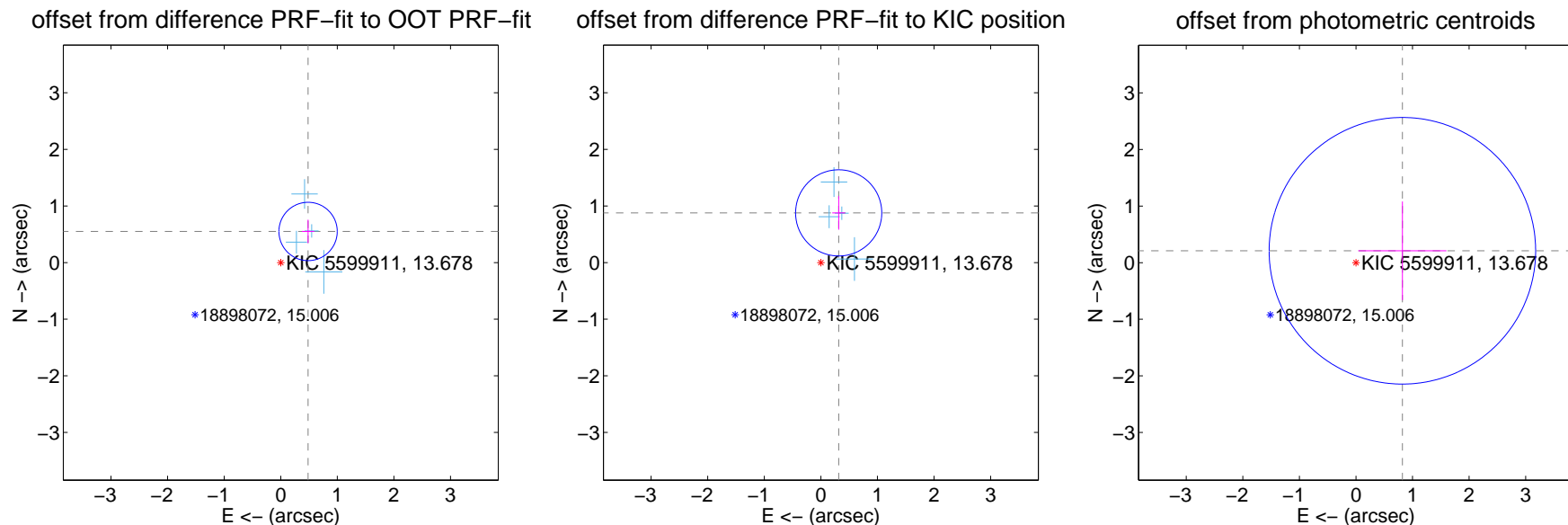
## DV Centroid Data

Supplemental centroid analysis for 005599911-06. Kepler magnitude: 13.68. Transit SNR 7.47

There are 4 quarters with good PRF difference image offsets

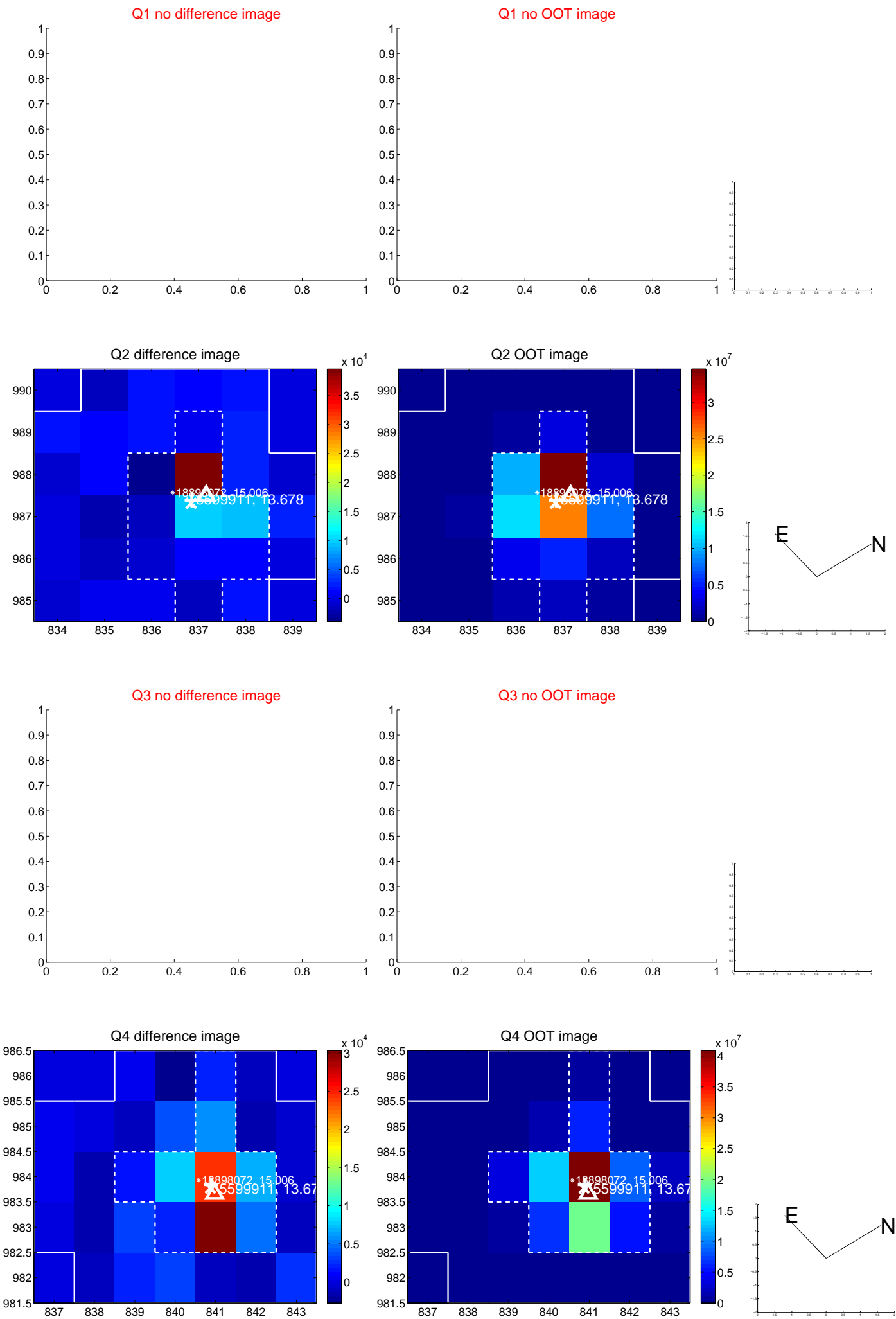
The direct PRF centroid is offset from the target star catalog position by about 0.47 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>0.732 <math>\pm</math> 0.172</b>	<b>4.26</b>	-0.483 $\pm$ 0.110	0.550 $\pm$ 0.207
PRF-fit source offset from KIC position	<b>0.933 <math>\pm</math> 0.254</b>	<b>3.68</b>	-0.315 $\pm$ 0.113	0.878 $\pm$ 0.297
photometric centroid source offset	0.85 $\pm$ 0.79	1.08	-0.82 $\pm$ 0.78	0.21 $\pm$ 0.87

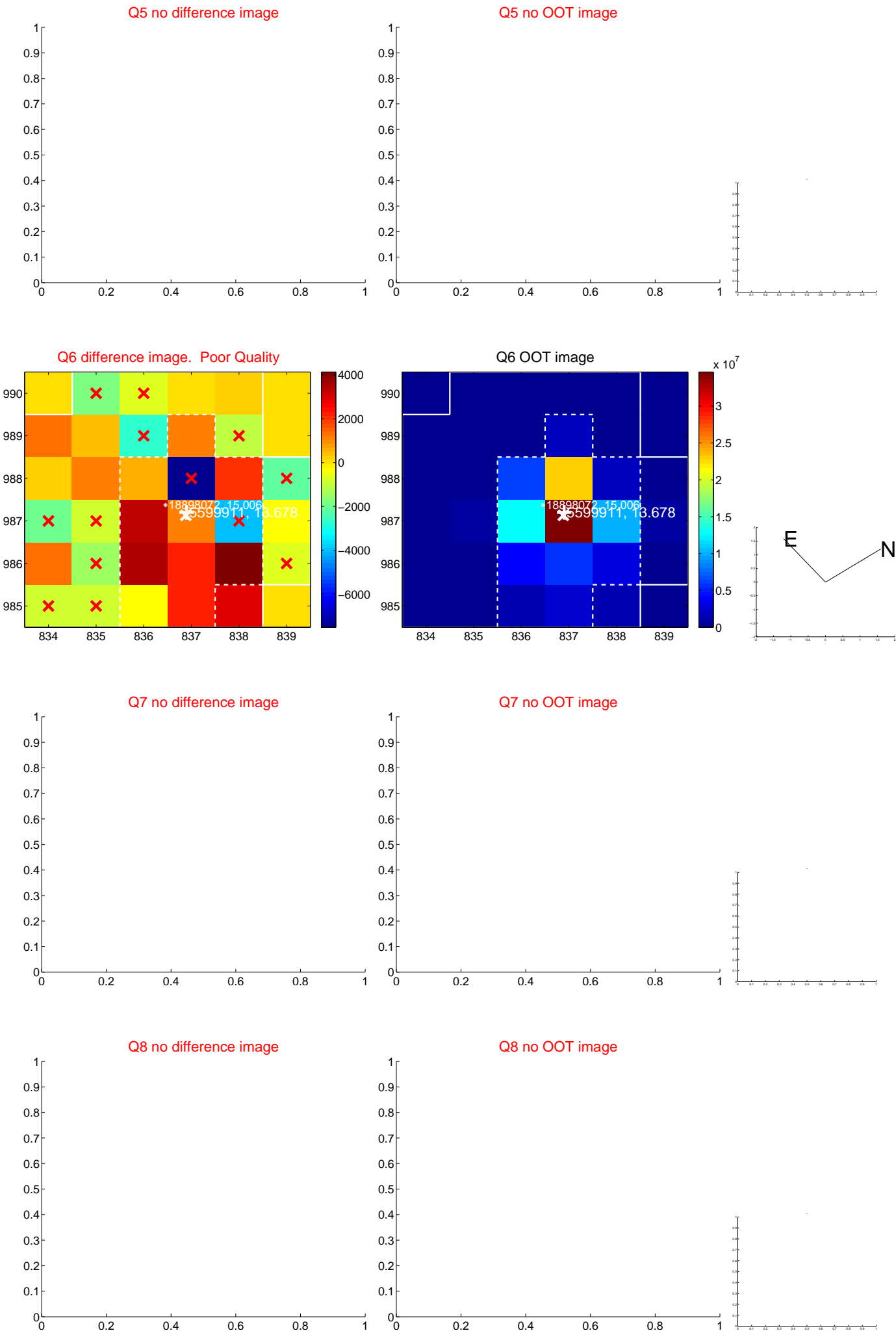


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

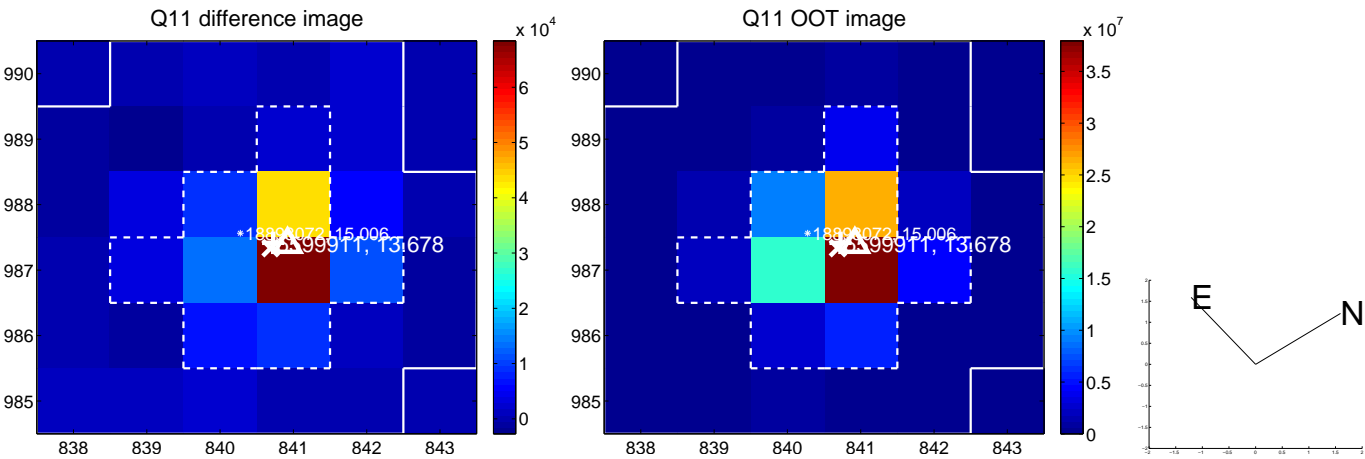


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

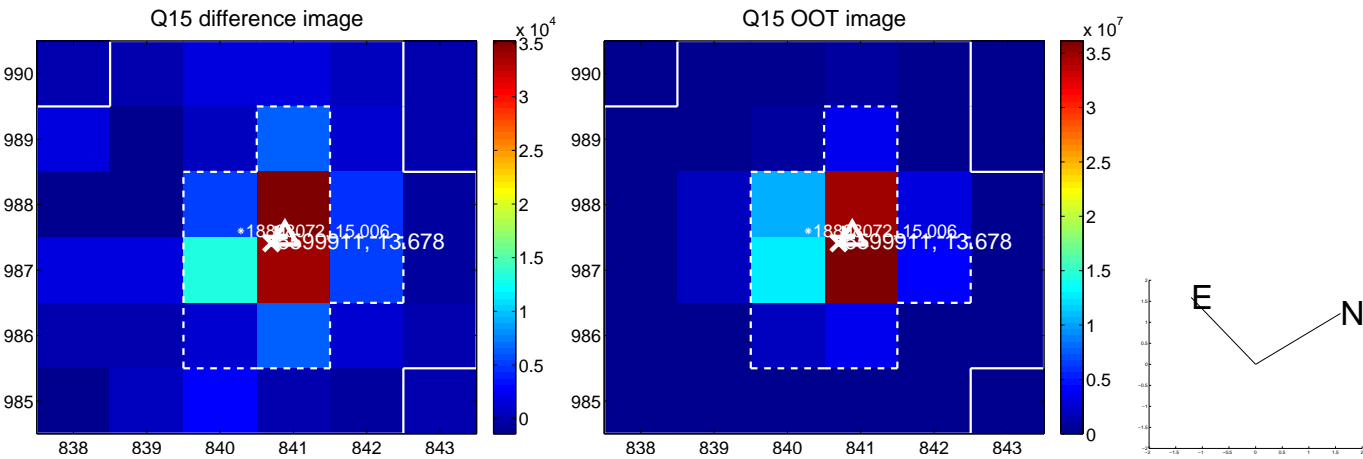




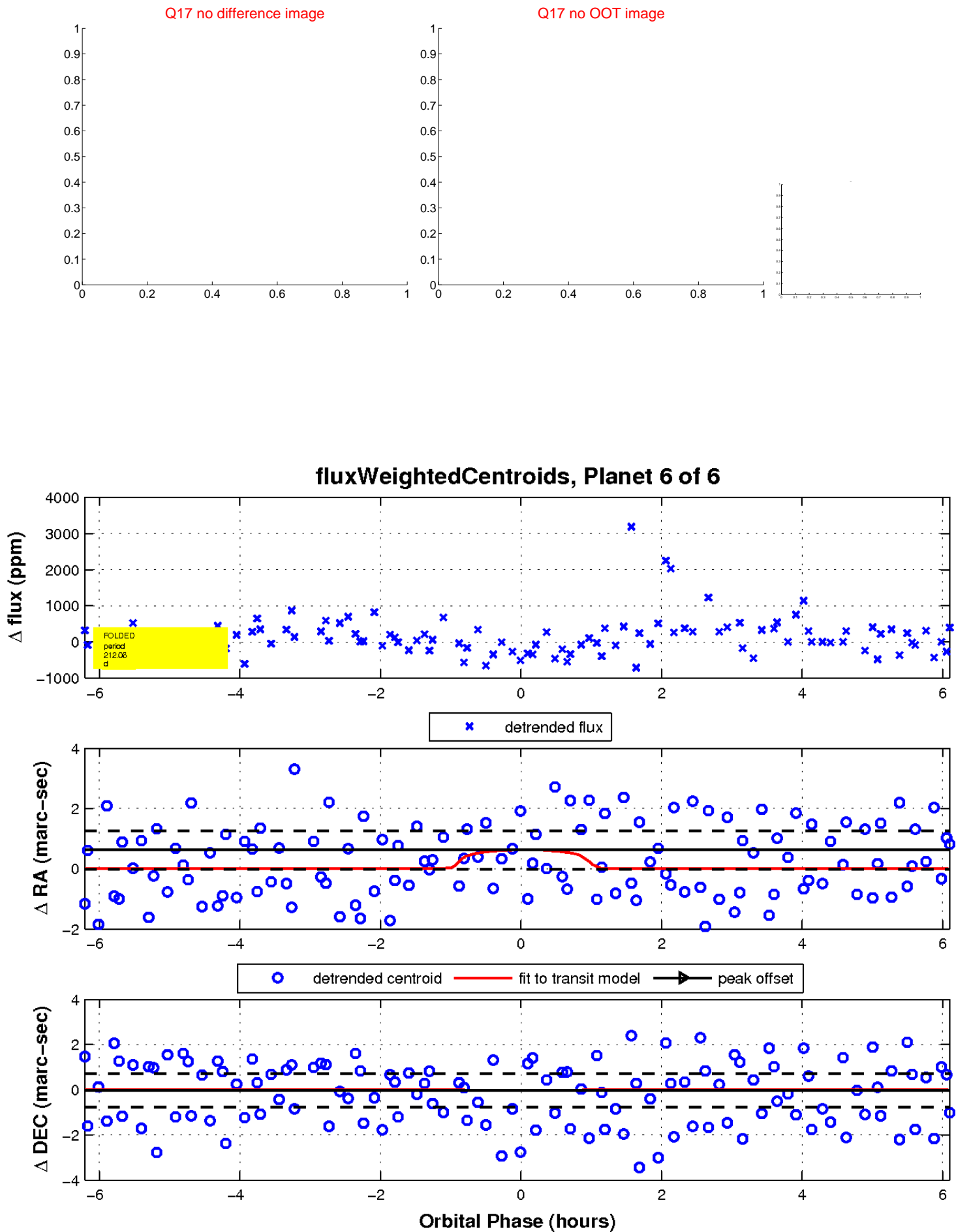
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

