

# KIC 010269598

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010269598-01	OBS	No	1.380572	132.872418	9.1	6.045	7.4	4.6	1.55	7201	0.48	7576.38
010269598-02	OBS	No	119.811347	239.273829	167.2	7.259	8.3	6.9	1.55	7201	2.29	19.72
010269598-03	OBS	No	231.861995	153.333274	180.0	4.590	8.4	8.7	1.55	7201	2.44	8.18

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010269598-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010269598-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010269598-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT

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

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

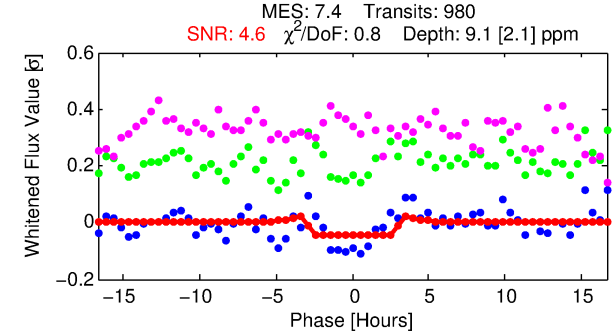
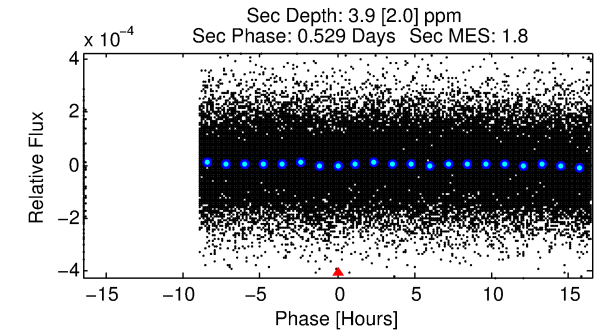
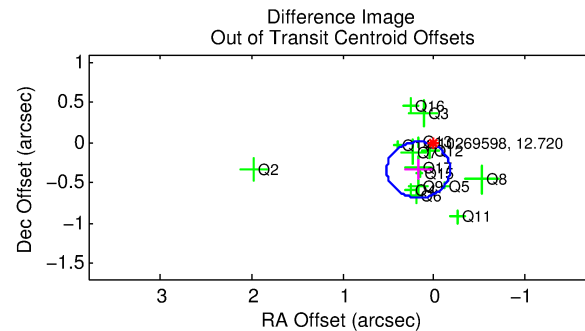
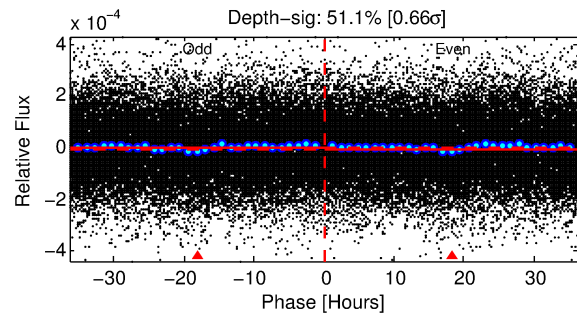
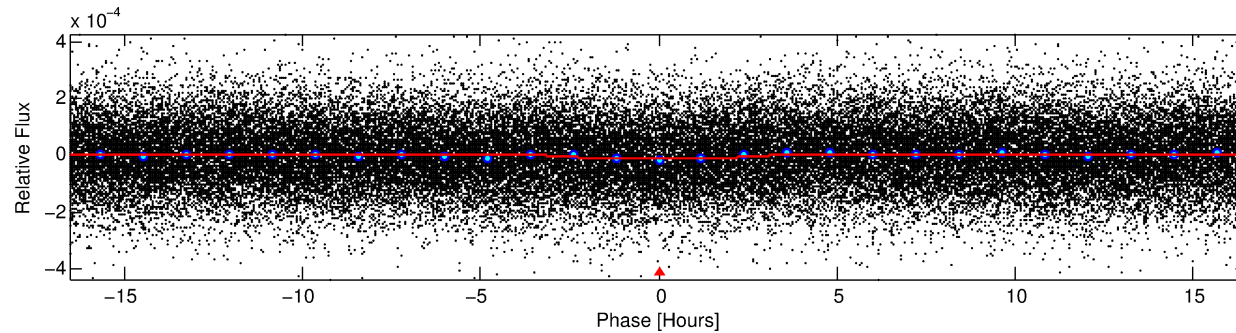
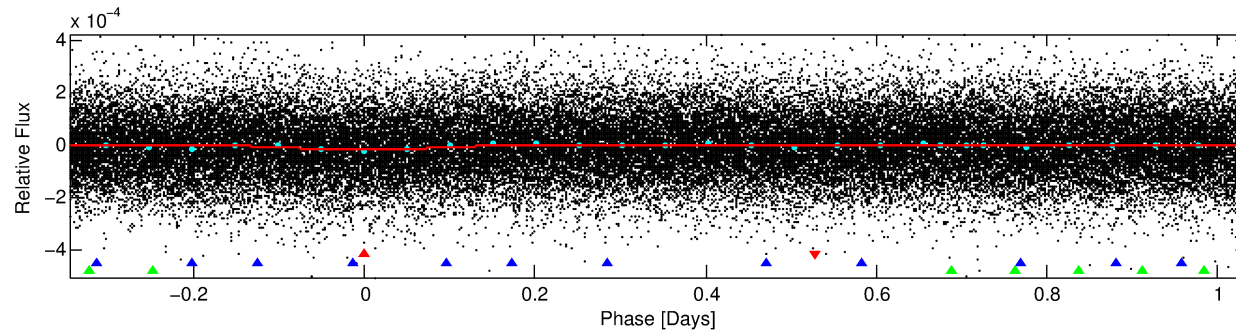
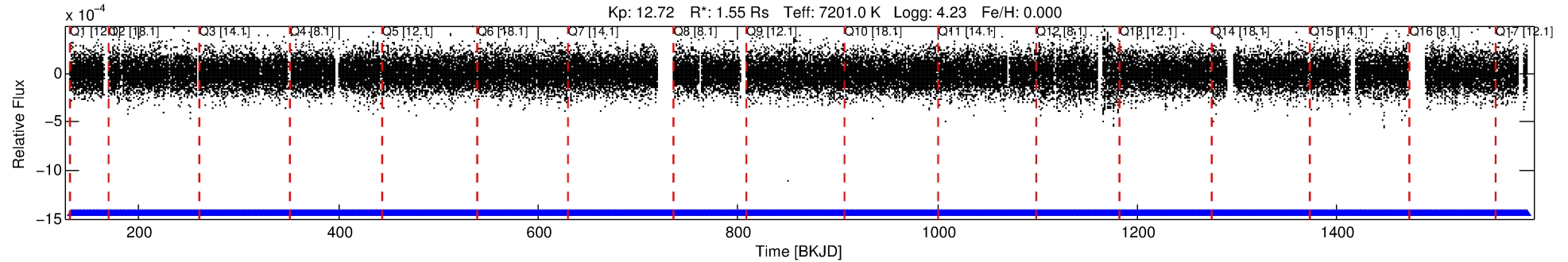
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010269598-01

No Significant Match Found

# DV One-Page Summary

KIC: 10269598 Candidate: 1 of 3 Period: 1.381 d



## DV Fit Results:

Period = 1.38057 [0.00003] d  
Epoch = 132.8724 [0.0075] BKJD  
Rp/R\* = 0.0028 [0.0011]  
a/R\* = 1.74 [2.49]  
b = 0.40 [4.43]  
Seff = 7576.37 [3227.98]  
Teq = 2379 [253] K  
Rp = 0.48 [0.25] Re  
a = 0.0277 [0.0078] AU  
Ag = 7.09 [7.07] [0.86 $\sigma$ ]  
Teffp = 6003 [1391] K [2.56 $\sigma$ ]

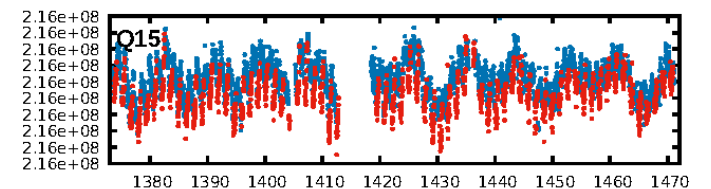
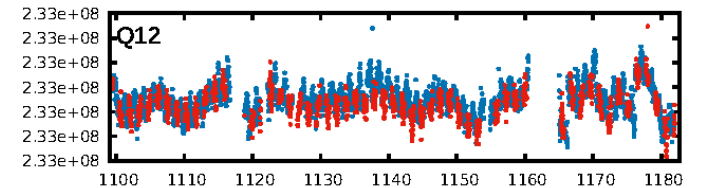
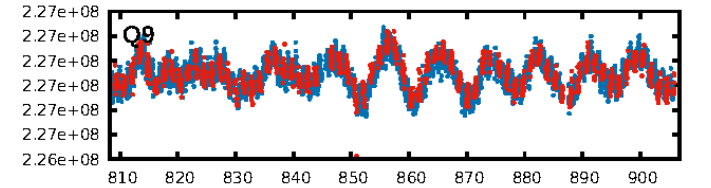
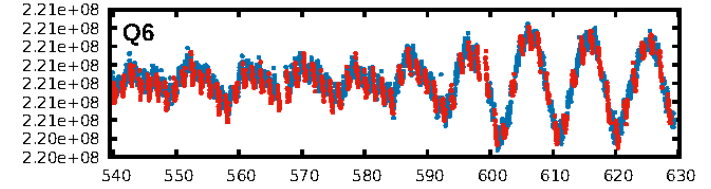
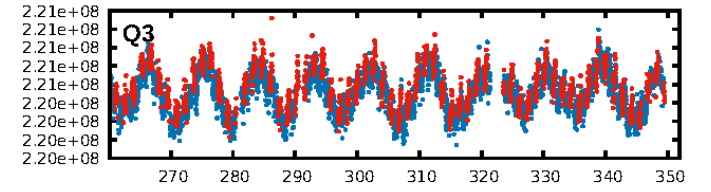
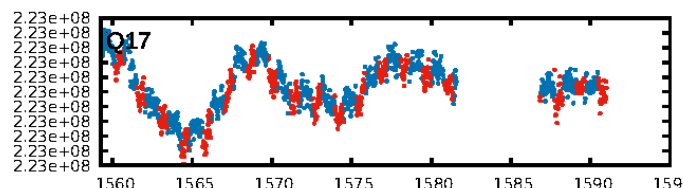
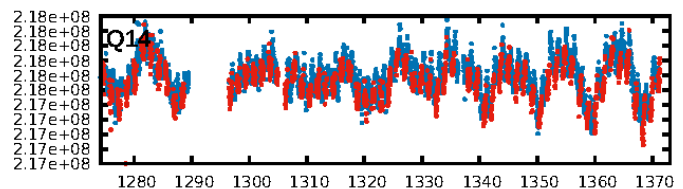
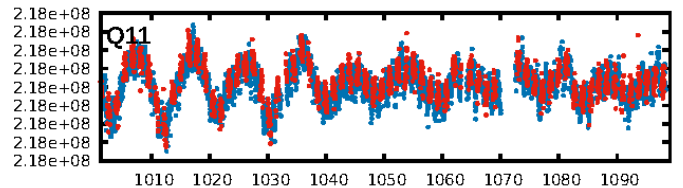
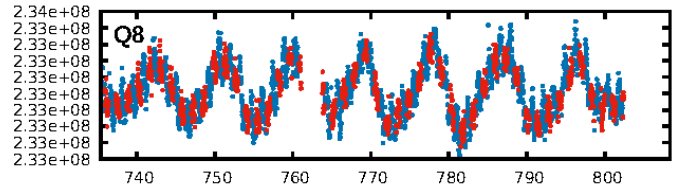
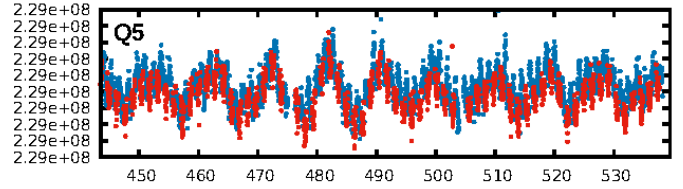
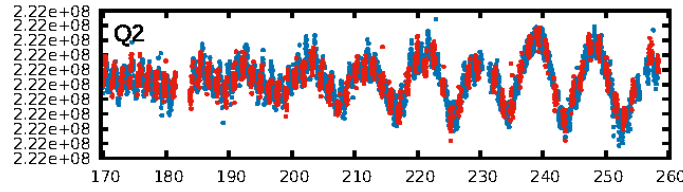
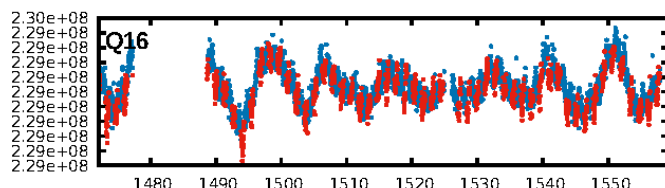
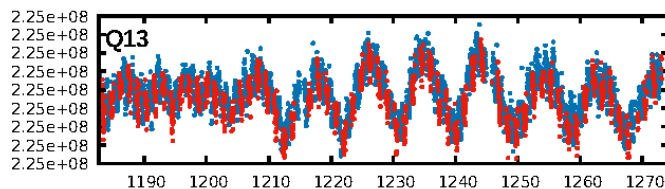
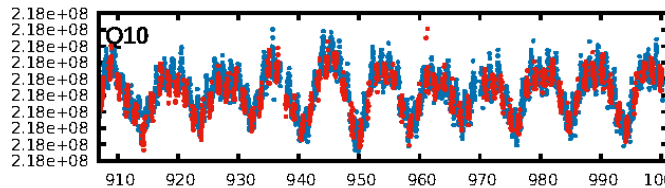
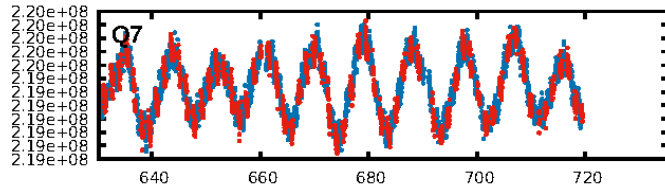
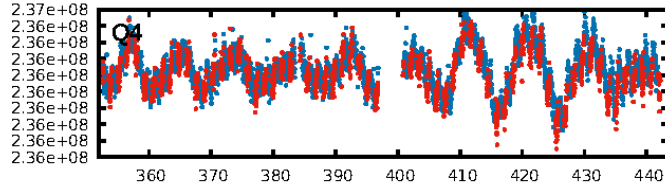
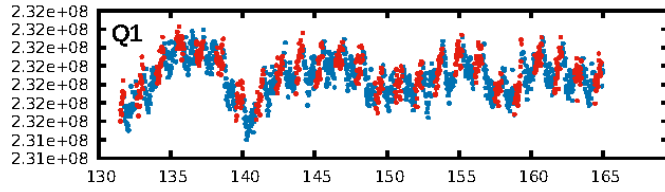
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [300.89 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 1.02e-09**  
RollingBand-fgt: 1.00 [936/936]  
GhostDiagnostic-chr: -187.4  
Centroid-sig: 0.4%  
Centroid-so: 2.849 arcsec [1.77 $\sigma$ ]  
**OotOffset-rm: 0.377 arcsec [3.25 $\sigma$ ]**  
OotOffset-st: 3/4/4/4 [15]  
KicOffset-rm: 0.300 arcsec [2.50 $\sigma$ ]  
KicOffset-st: 3/4/4/4 [15]  
DiffImageQuality-fgm: 0.73 [11/15]  
DiffImageOverlap-fno: 1.00 [17/17]

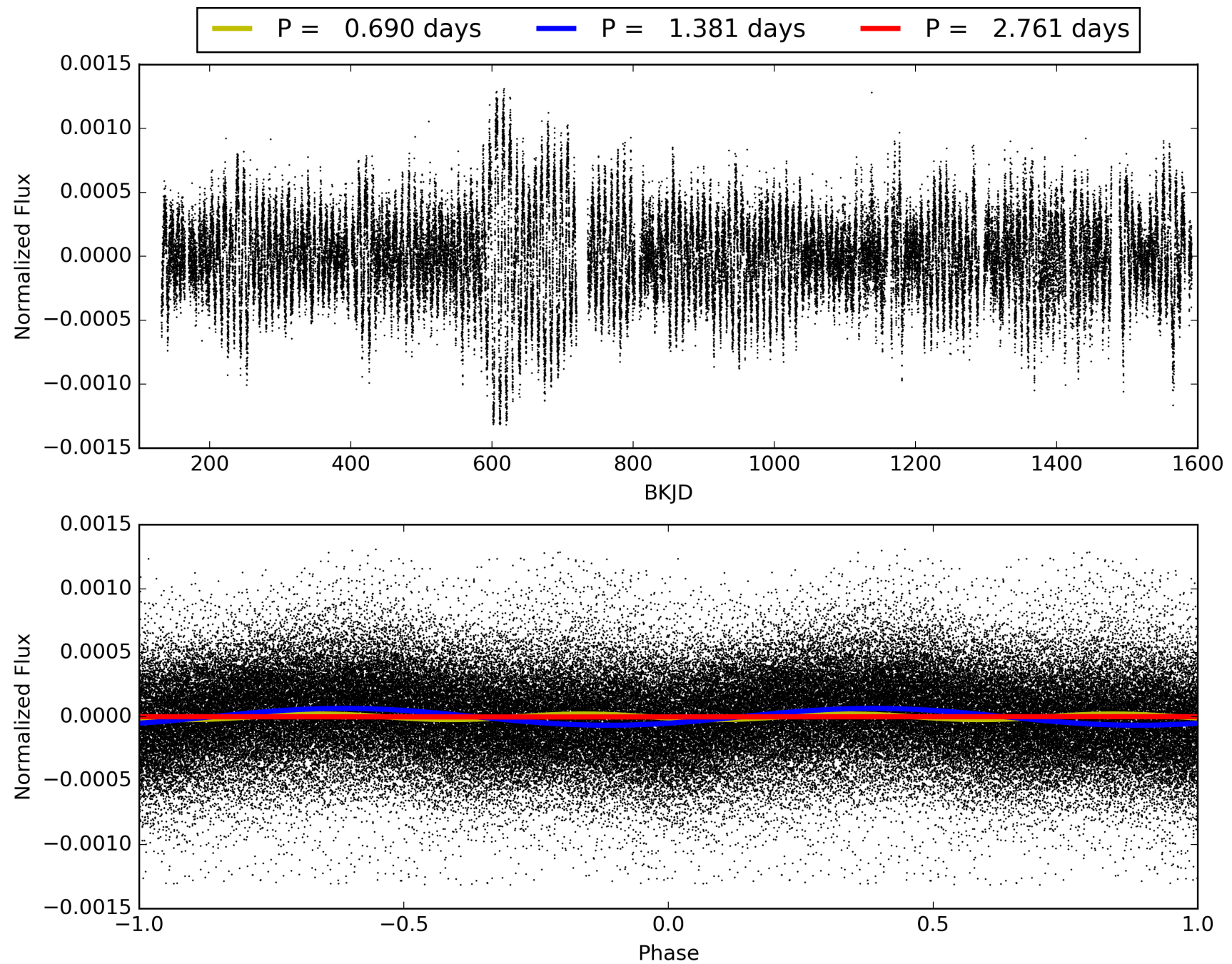
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:09:32 Z

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

# TCE 010269598-01, PDC Light Curves



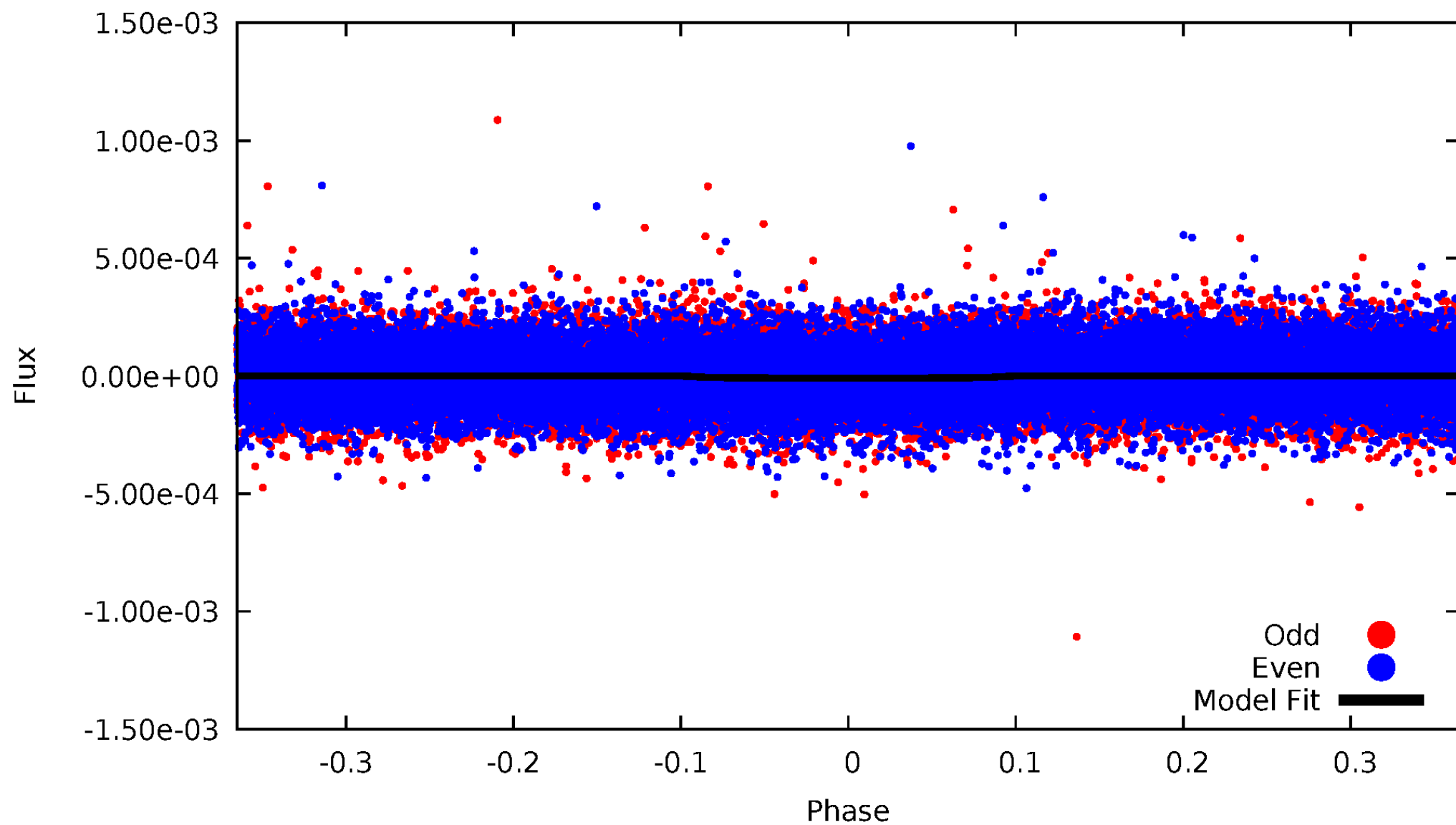
TCE 010269598-01





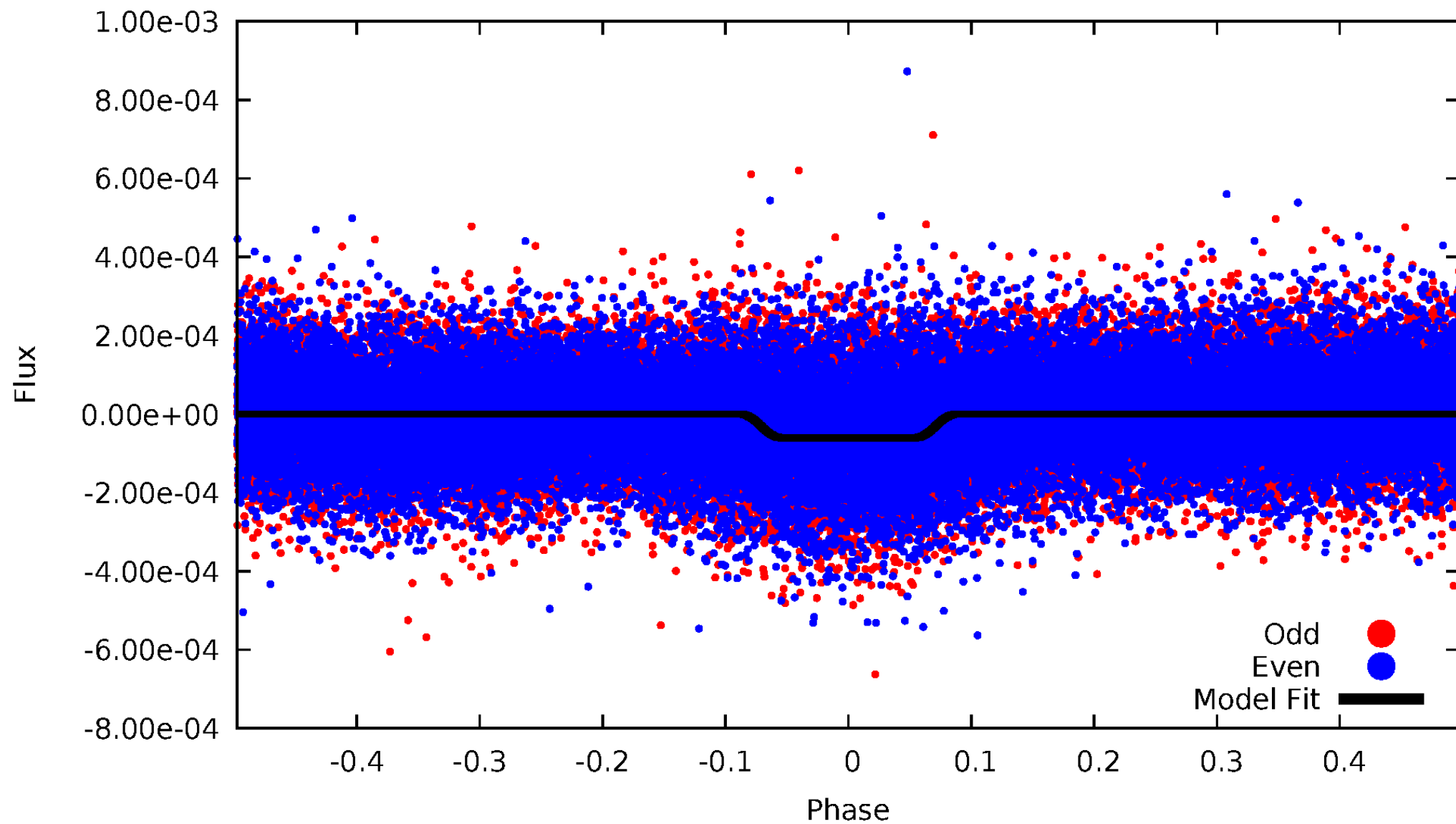
# DV Odd/Even

TCE 010269598-01



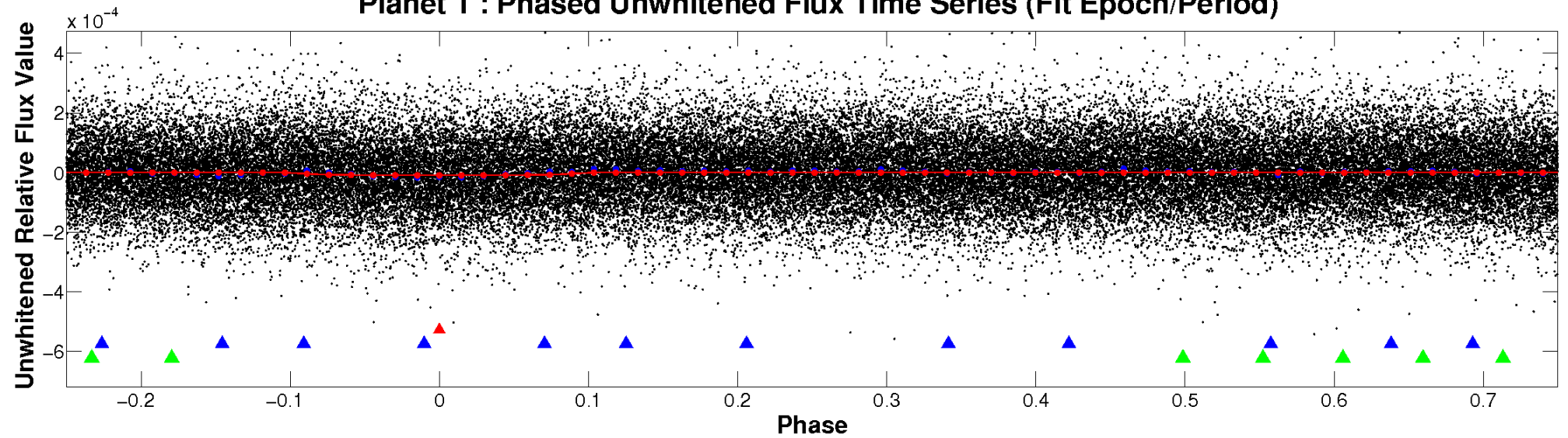
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TCE 010269598-01

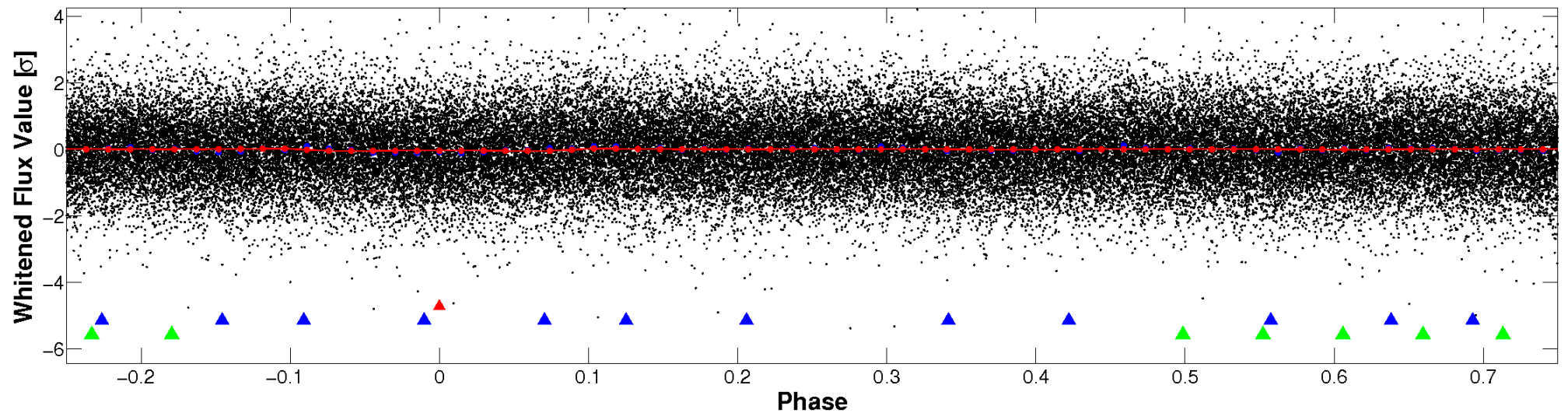


# Non-Whitened Vs. Whitened Light Curve

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

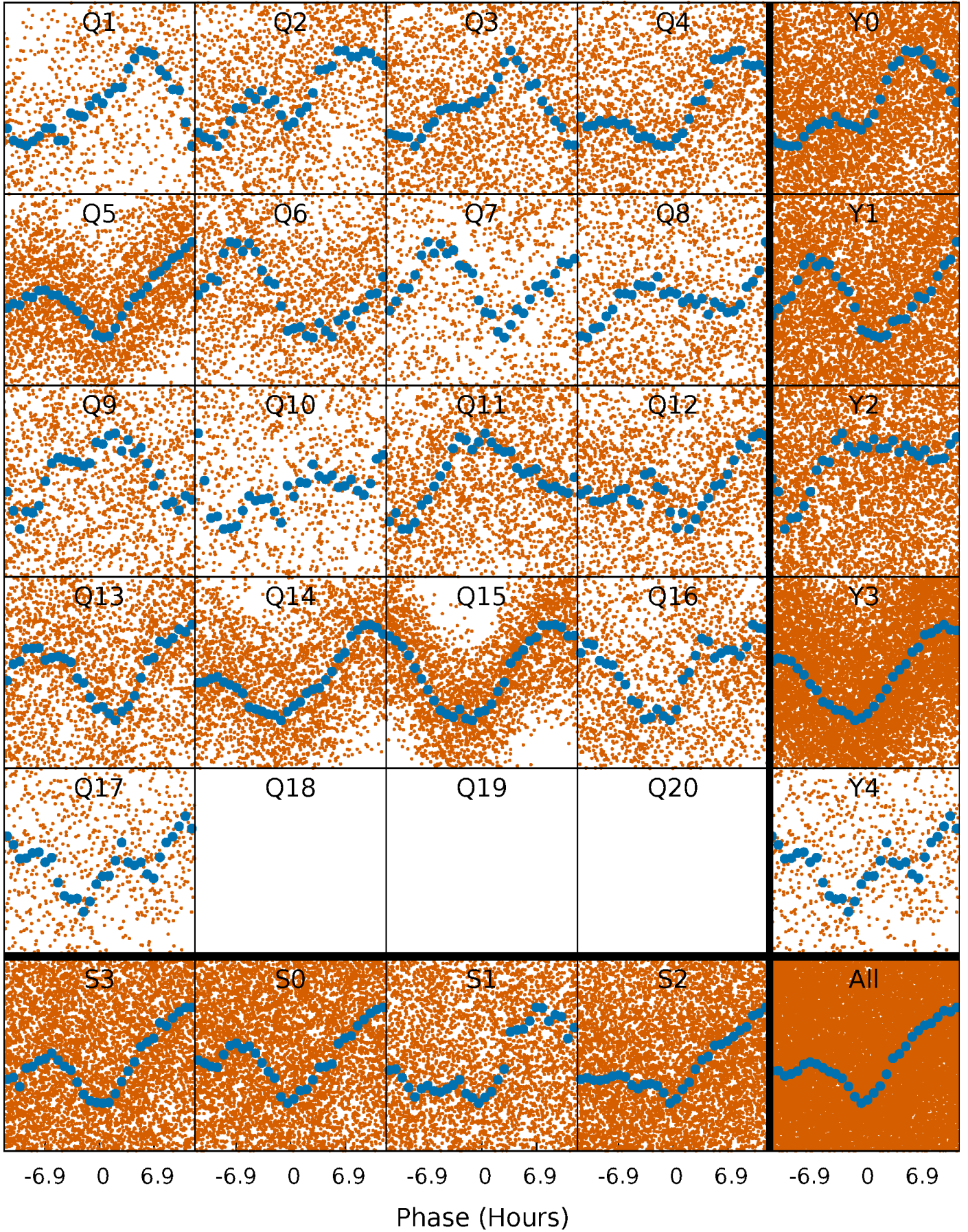


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

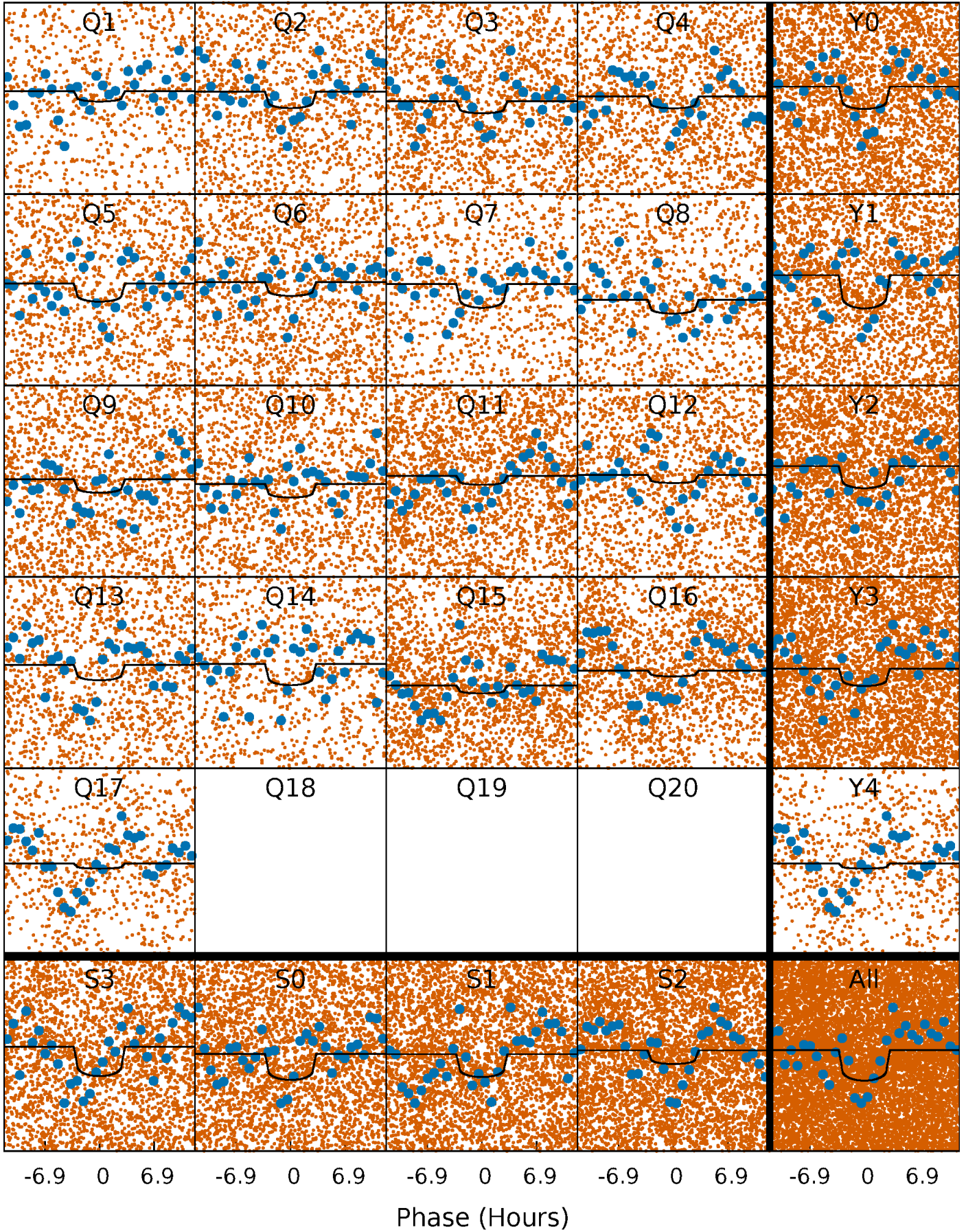
TCE 010269598-01   P= 1.380572 Days    $T_0=132.872418$  (BKJD)





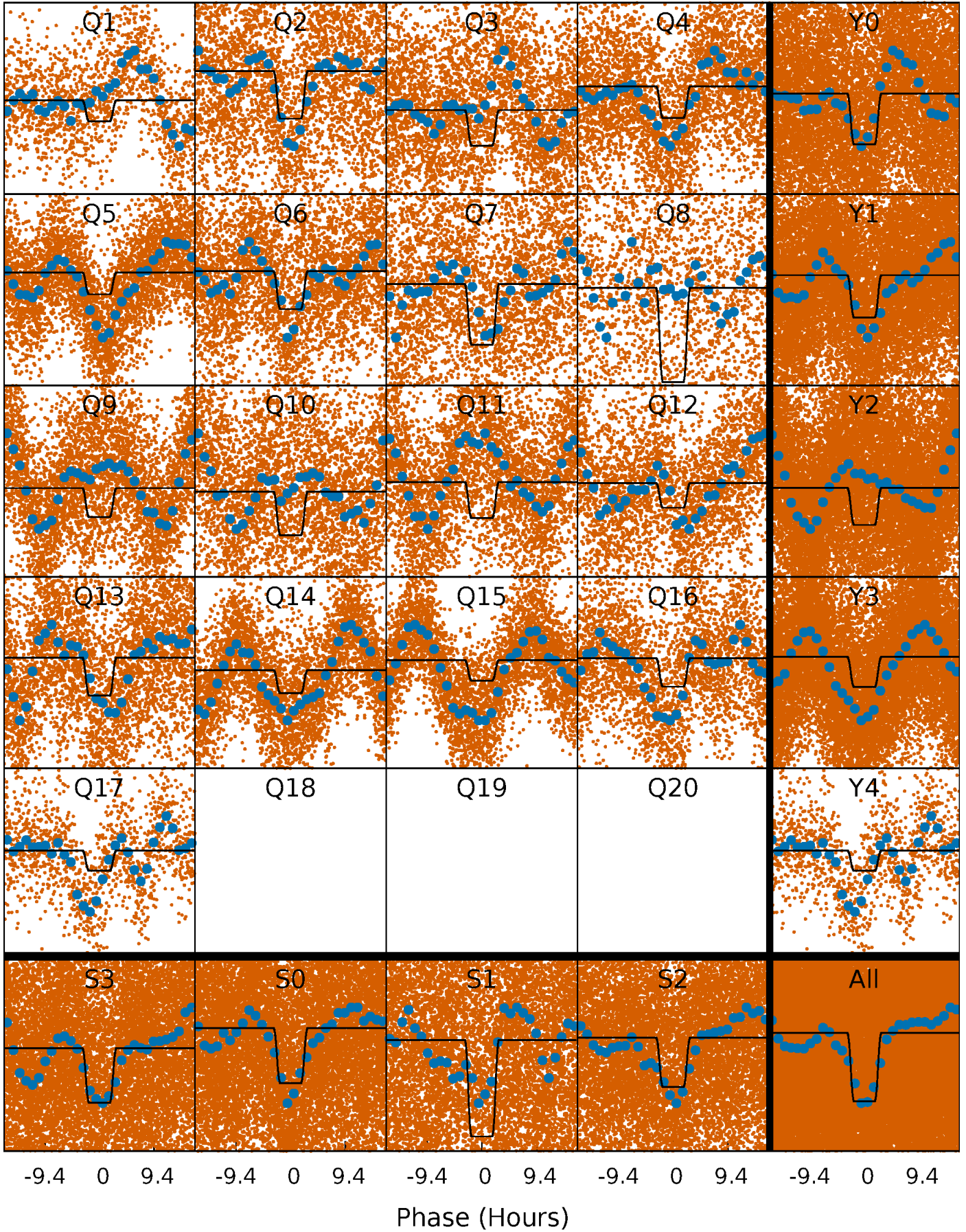
# DV Quarter-Phased Transit Curves

TCE 010269598-01 P= 1.380572 Days  $T_0=132.872418$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 010269598-01     $P = 1.380535$  Days     $T_0 = 132.885572$  (BKJD)

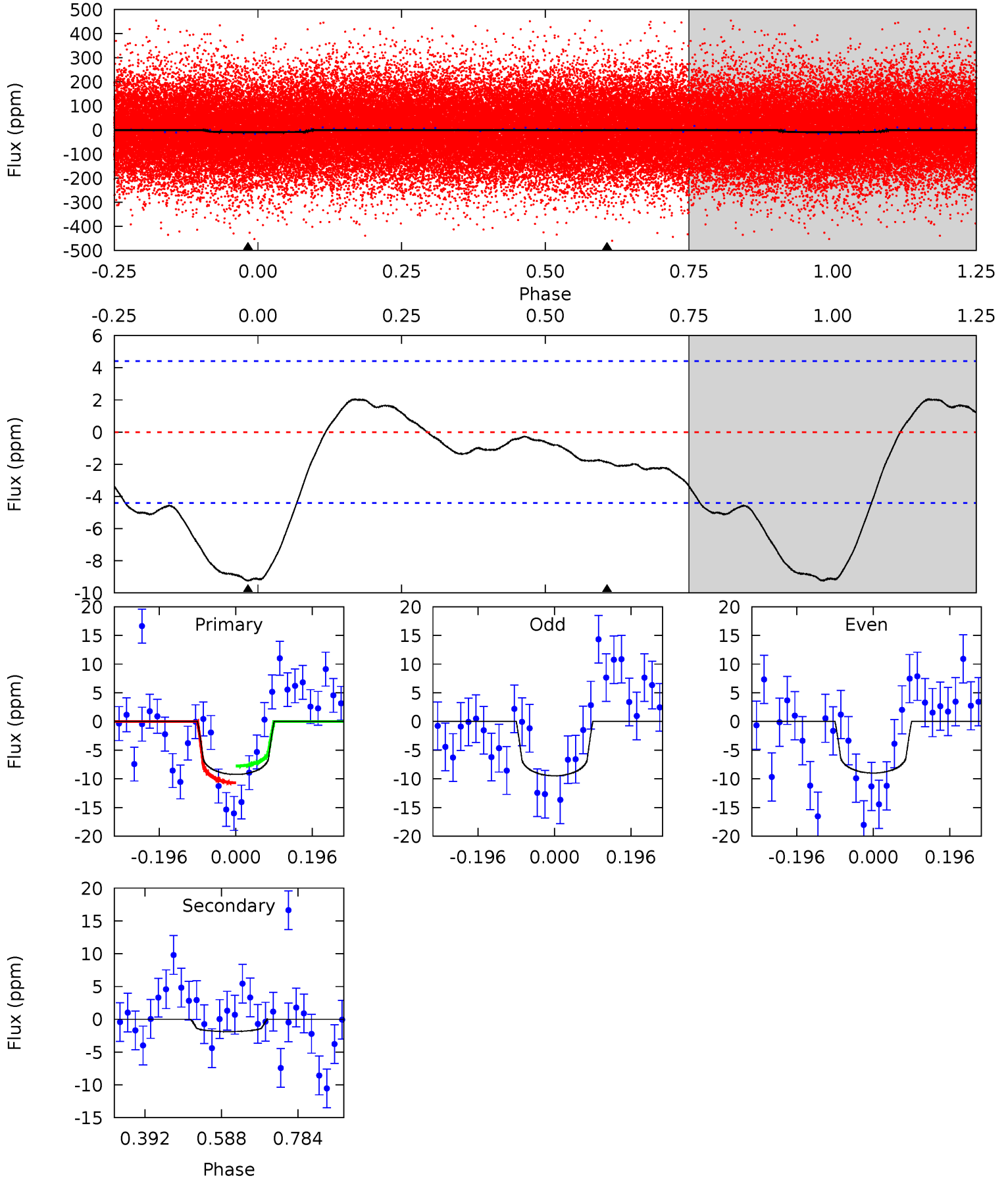




# DV Model-Shift Uniqueness Test

010269598-01, P = 1.380572 Days, E = 131.491846 Days

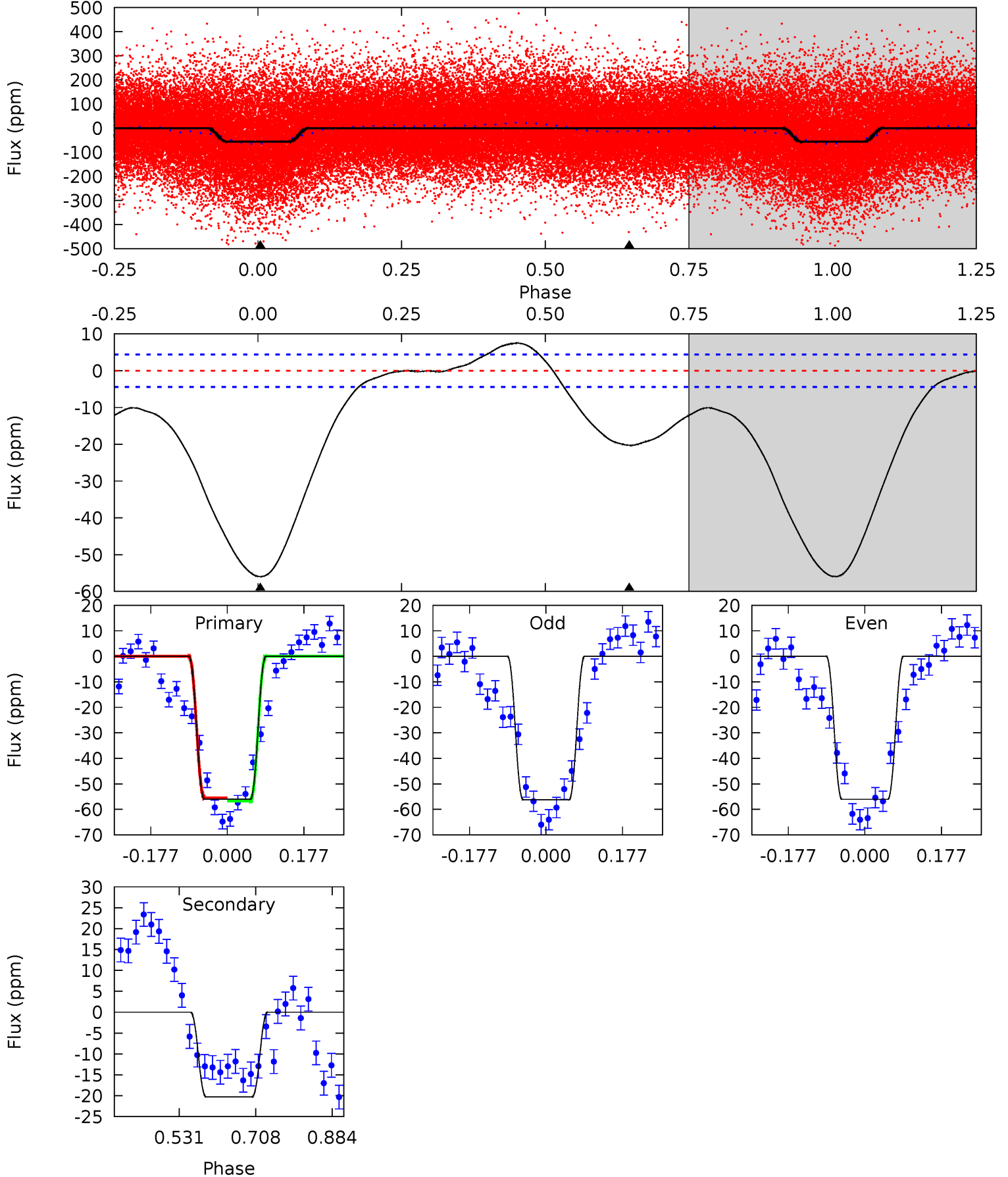
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.26	1.88	0	0	4.42	1.29	1.20	9.26	9.26	1.88	1.88	0.24	0.73	0.18	1.50



# Alt Model-Shift Uniqueness Test

010269598-01, P = 1.380535 Days, E = 131.505037 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
56.3	20.4	0	0	4.44	1.35	3.59	56.3	56.3	20.4	20.4	0.11	0.99	0.12	0.62





### Stellar Parameters For KIC 010269598

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7201^{+200}_{-275}$	$4.227^{+0.075}_{-0.210}$	$0.000^{+0.200}_{-0.400}$	$1.551^{+0.542}_{-0.232}$	$1.478^{+0.226}_{-0.204}$	$0.558^{+0.234}_{-0.314}$
	+3%/-4%	+2%/-5%	+inf%/-inf%	+35%/-15%	+15%/-14%	+42%/-56%
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 010269598-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2 \pm 1$	$0.51^{+0.21}_{-0.19}$	$3389^{+269}_{-201}$	$4855^{+1424}_{-1049}$	$2.983^{+5.179}_{-2.015}$
Alt.	$-20 \pm 1$	$1.37^{+0.29}_{-0.22}$	$3387^{+249}_{-197}$	$5336^{+440}_{-322}$	$4.471^{+1.804}_{-1.344}$

$T_{max}$  = 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

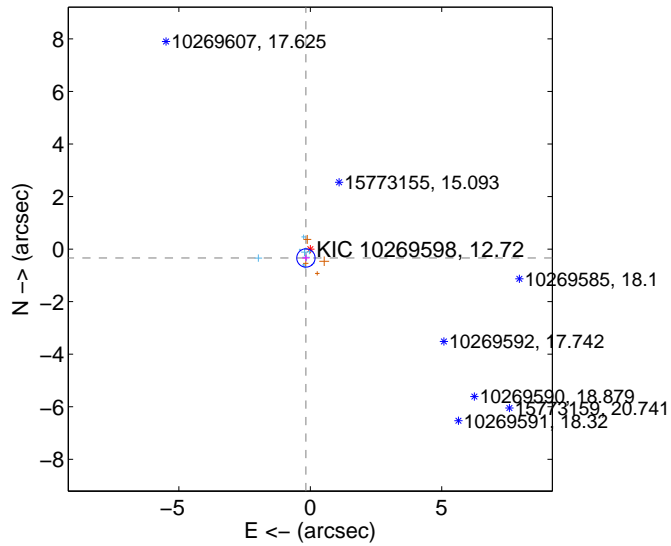
Supplemental centroid analysis for 010269598-01. Kepler magnitude: 12.72. Transit SNR 4.58

There are 11 quarters with good PRF difference image offsets

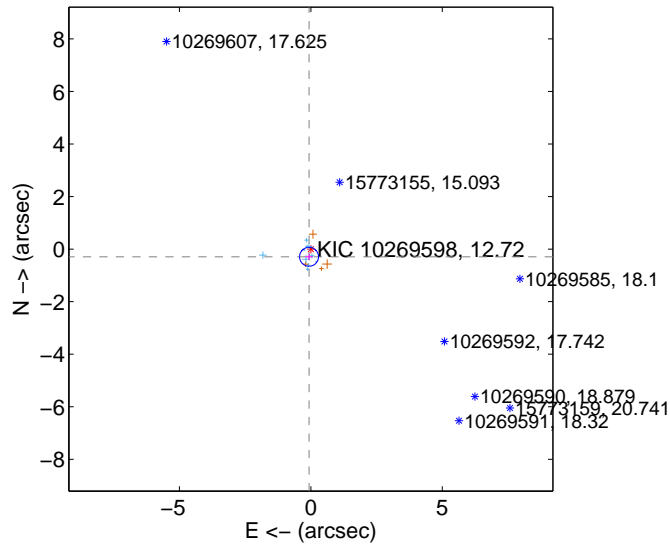
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>0.377 \pm 0.116</math></b>	<b>3.25</b>	$0.167 \pm 0.138$	$-0.338 \pm 0.119$
PRF-fit source offset from KIC position	$0.300 \pm 0.120$	2.50	$0.069 \pm 0.141$	$-0.292 \pm 0.123$
photometric centroid source offset	$2.85 \pm 1.61$	1.77	$0.50 \pm 1.38$	$-2.81 \pm 1.61$

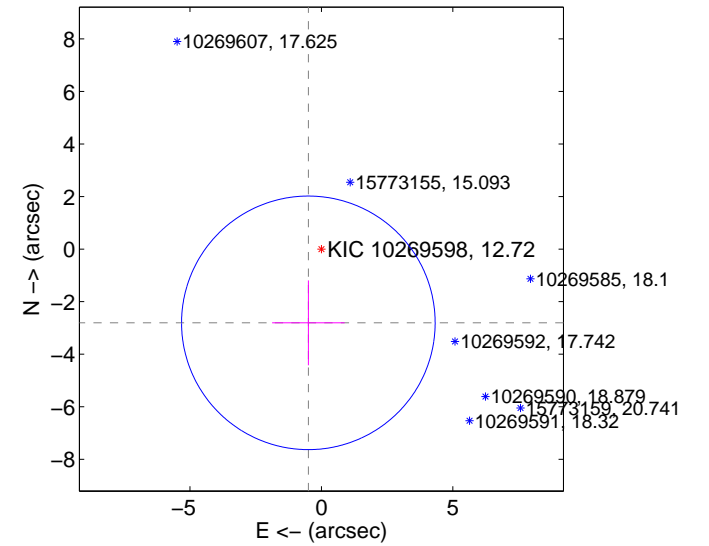
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

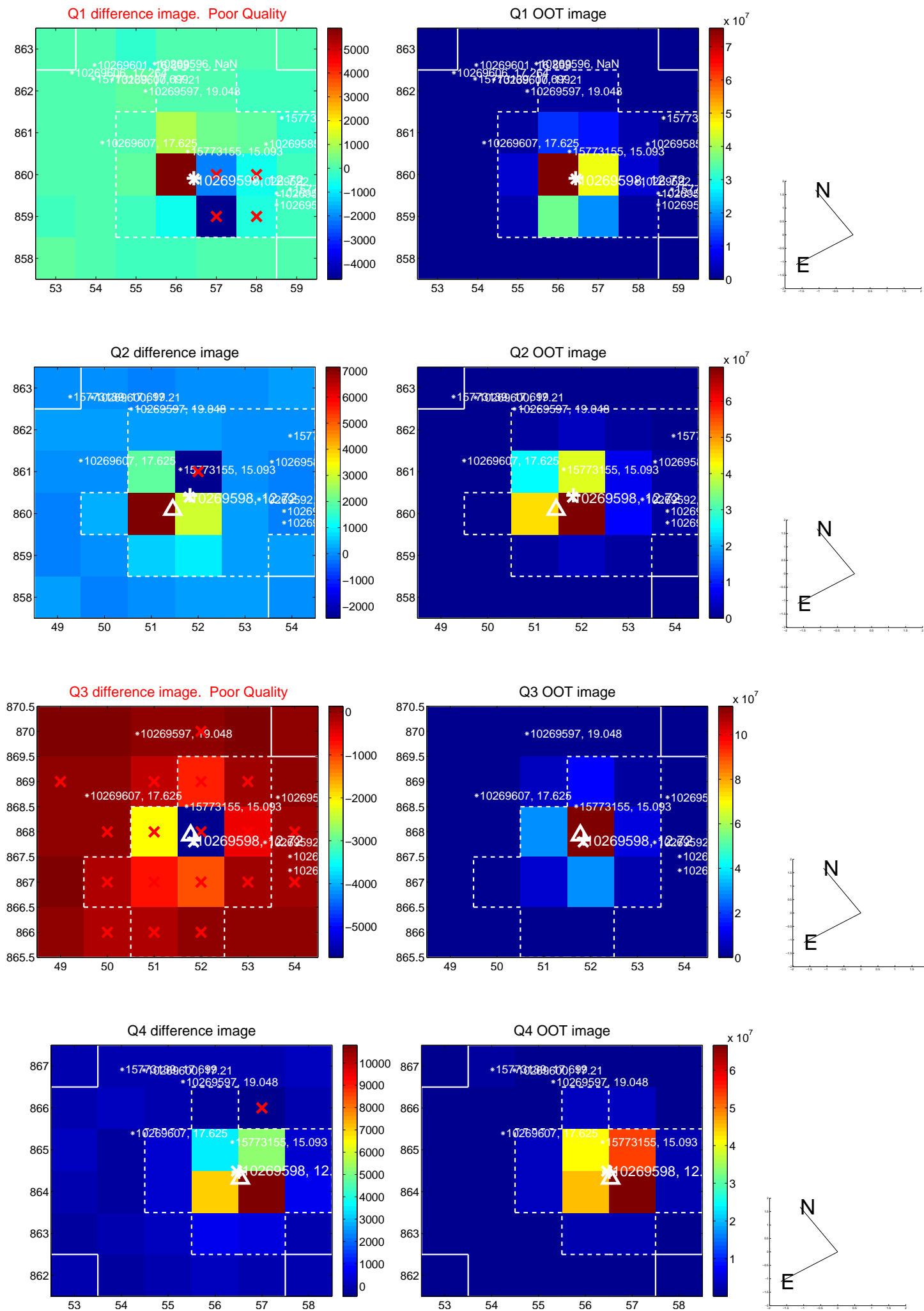


offset from photometric centroids

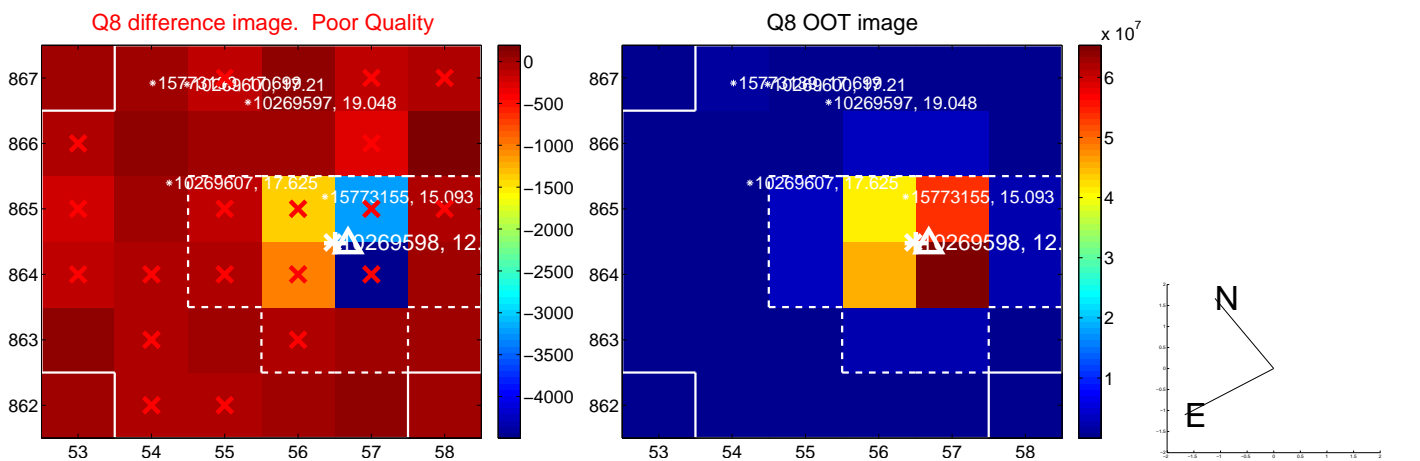
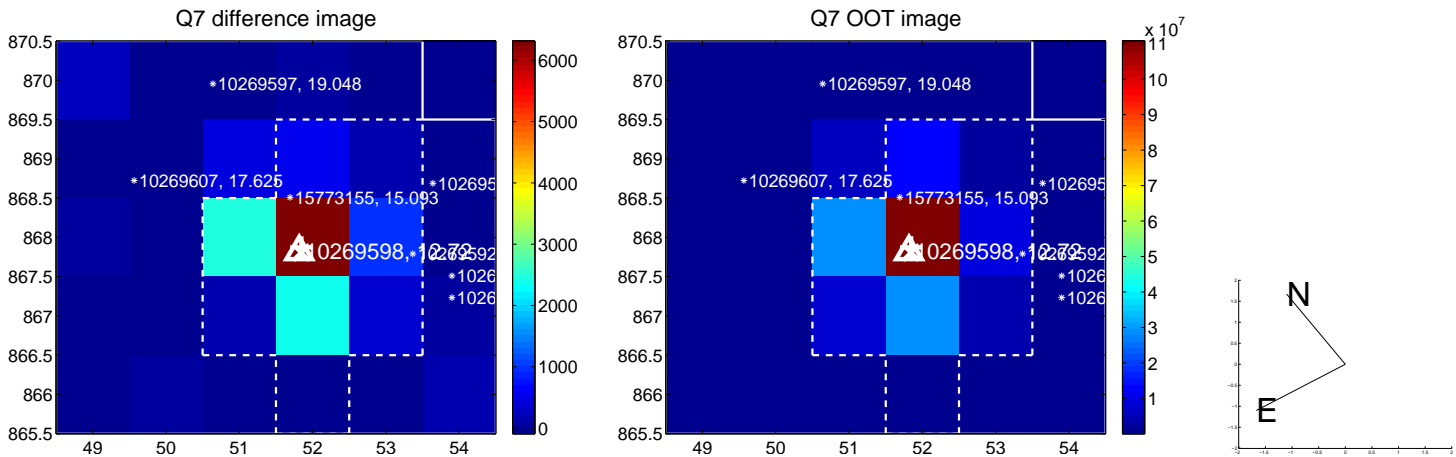
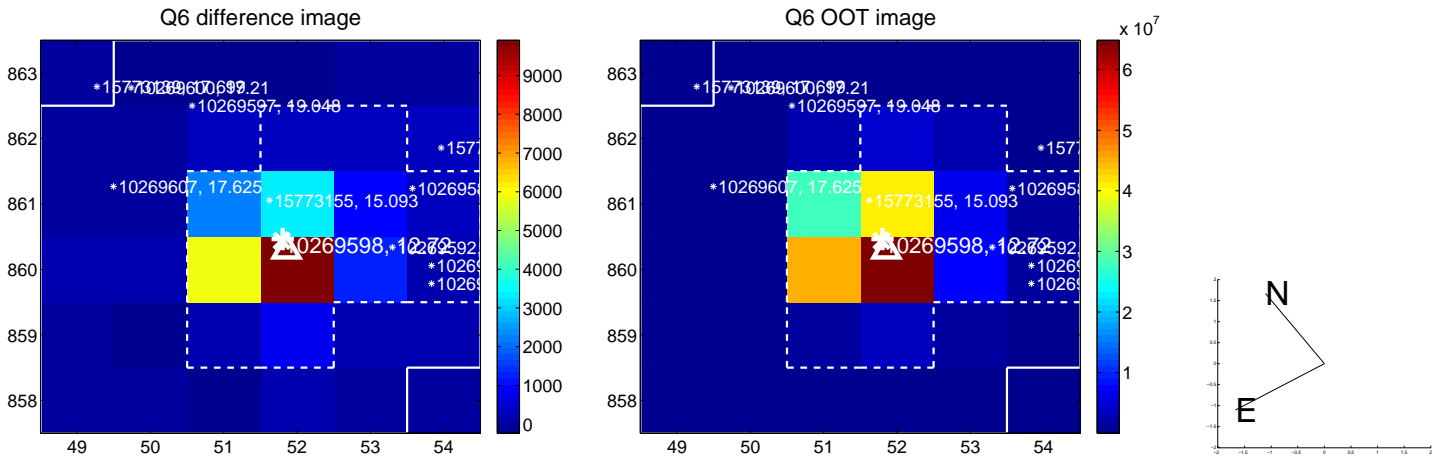
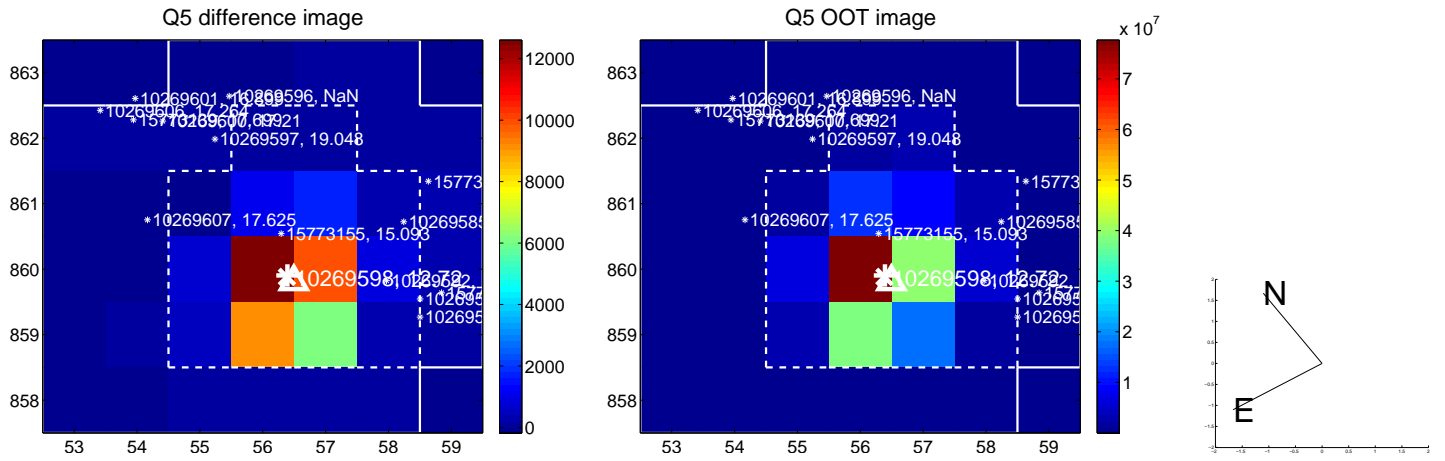


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

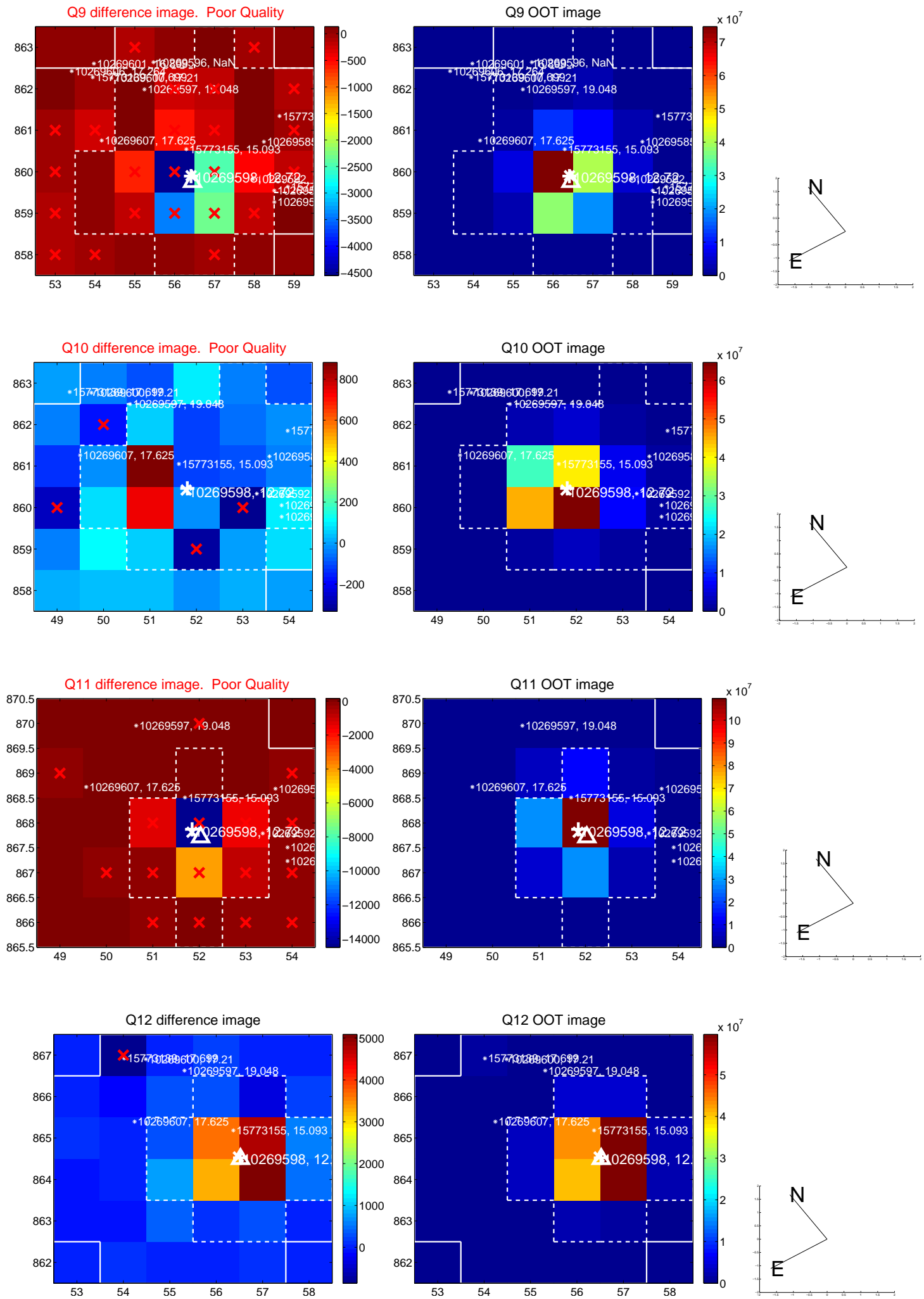


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value.

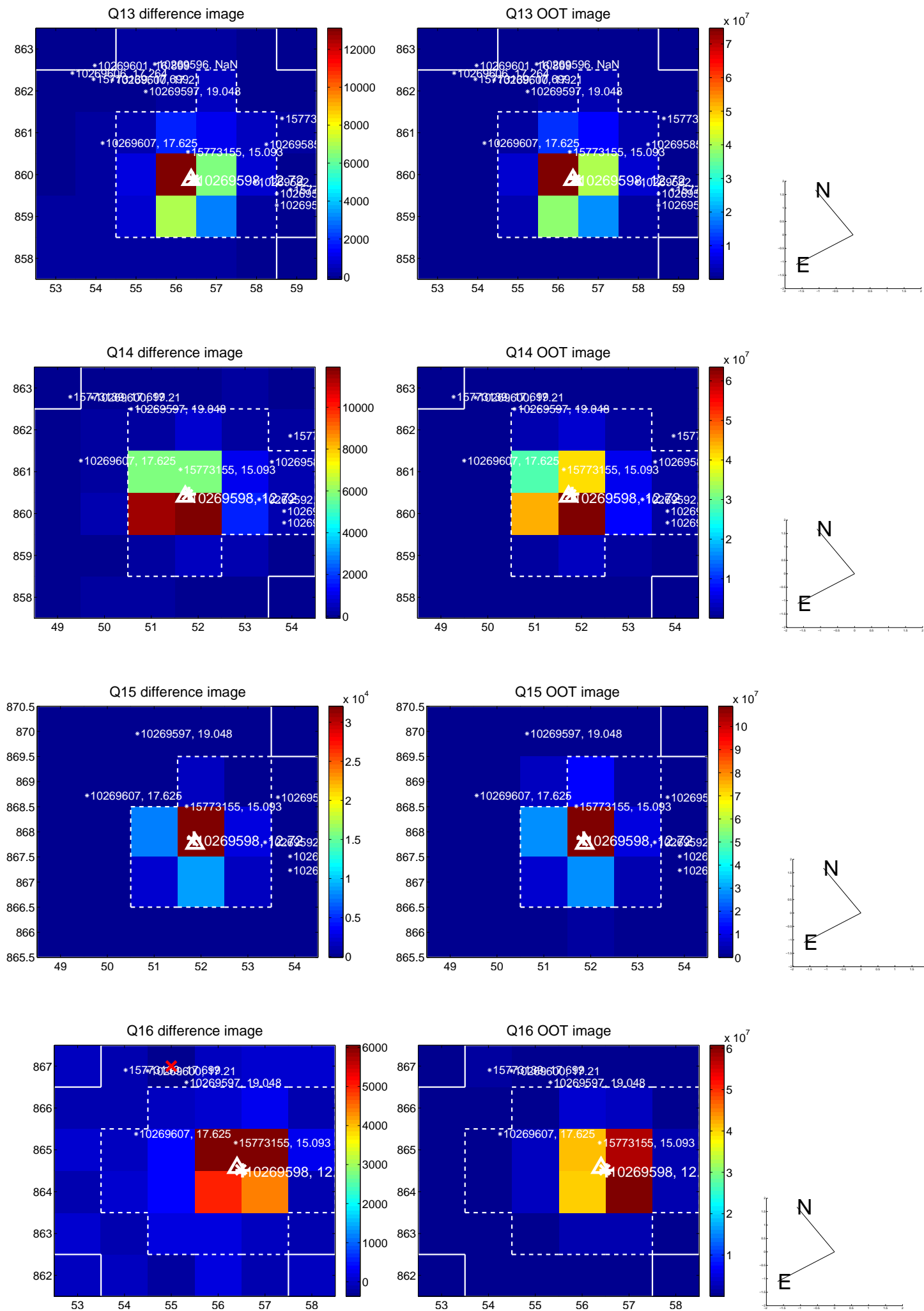




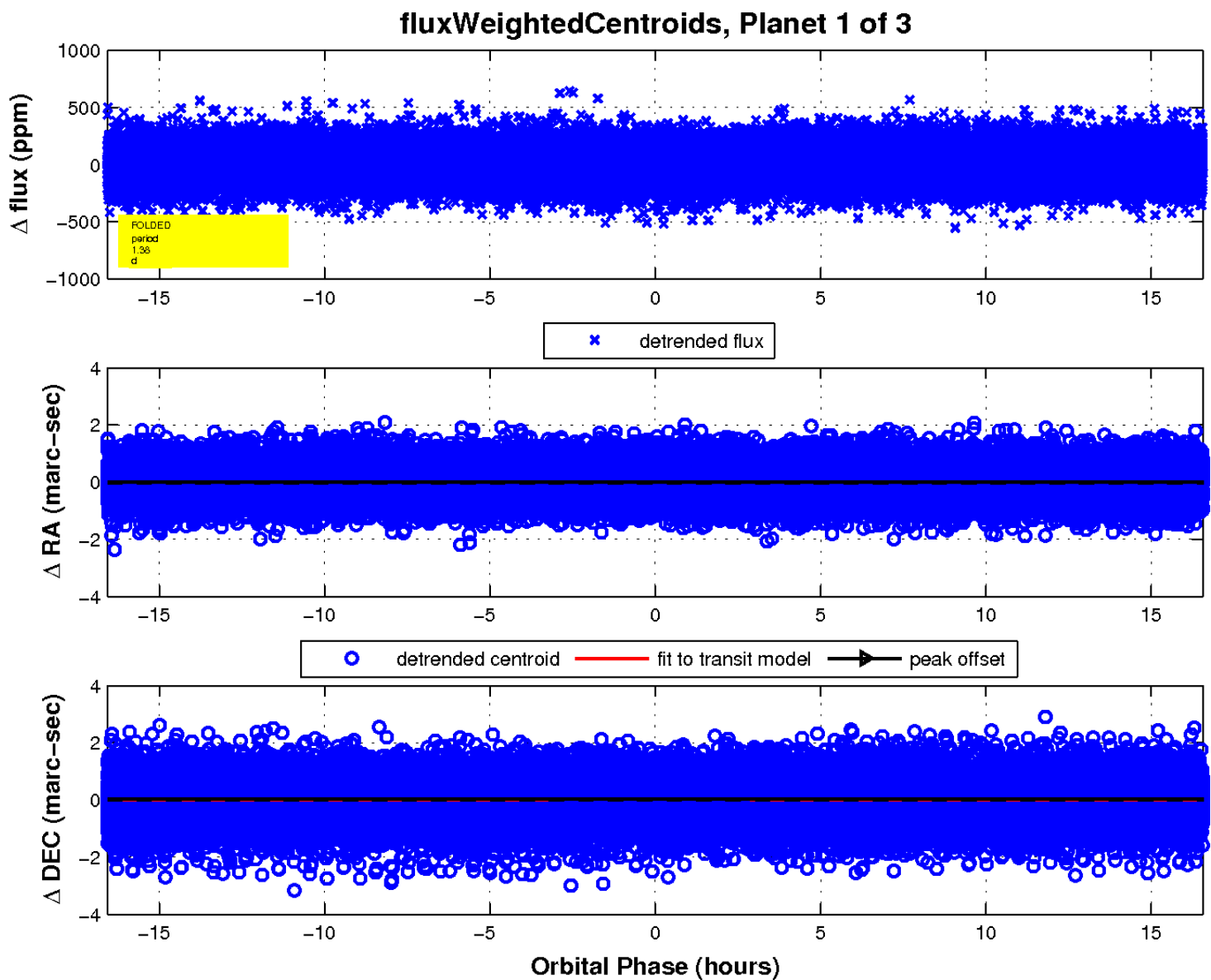
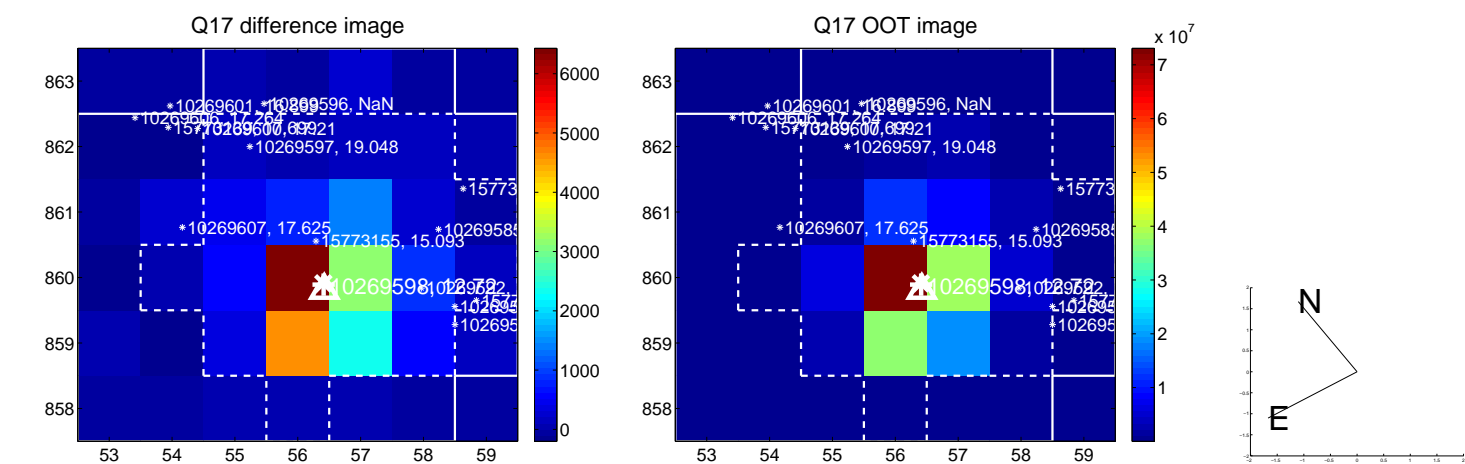
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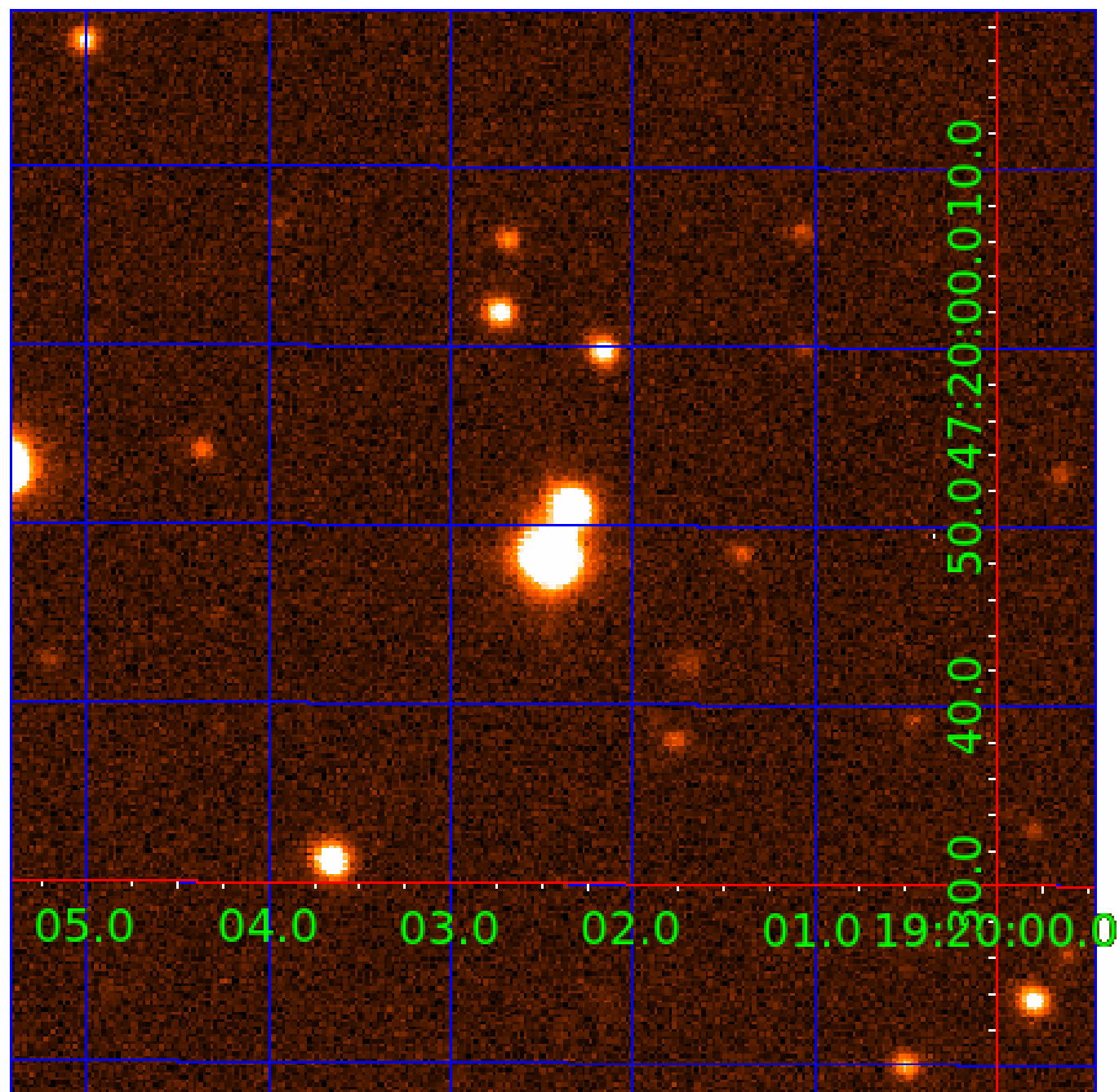


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 010269598

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010269598-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010269598-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010269598-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT

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

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

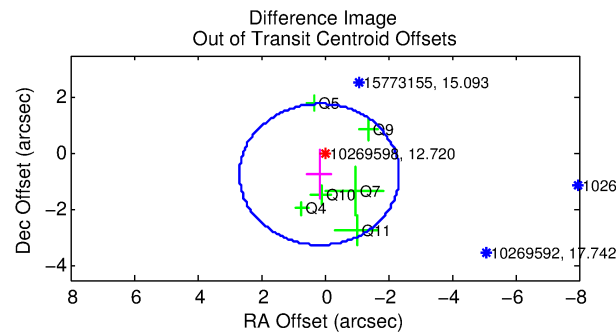
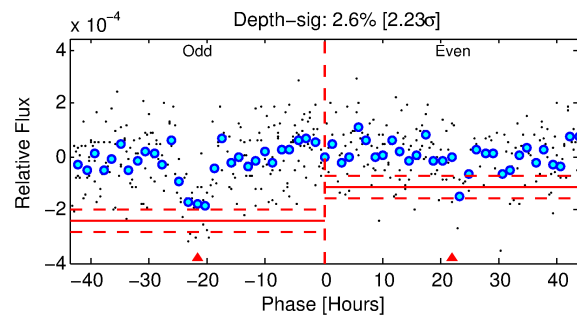
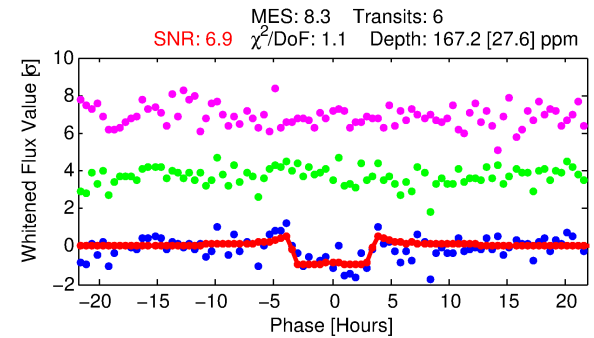
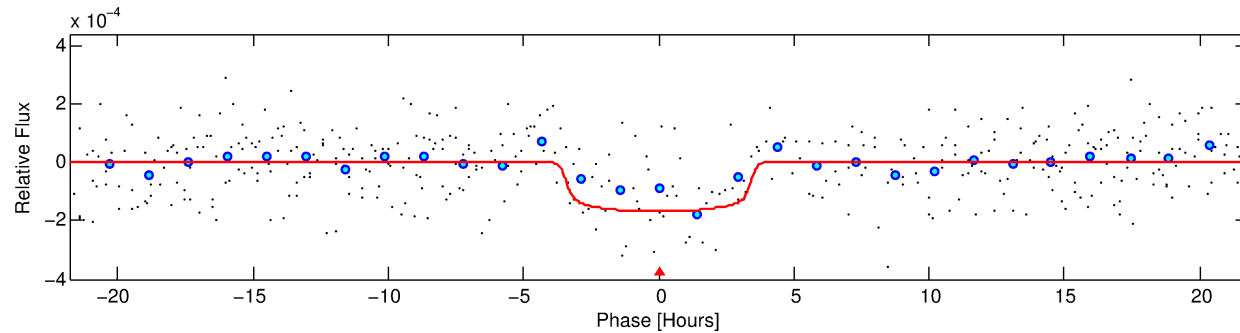
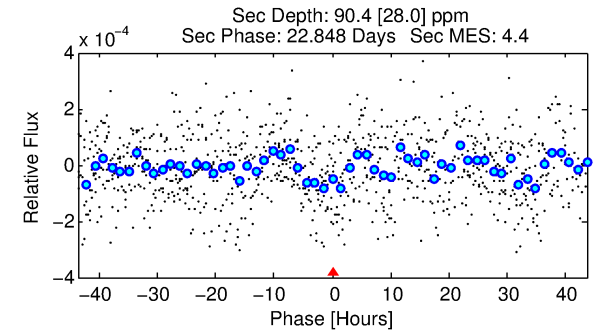
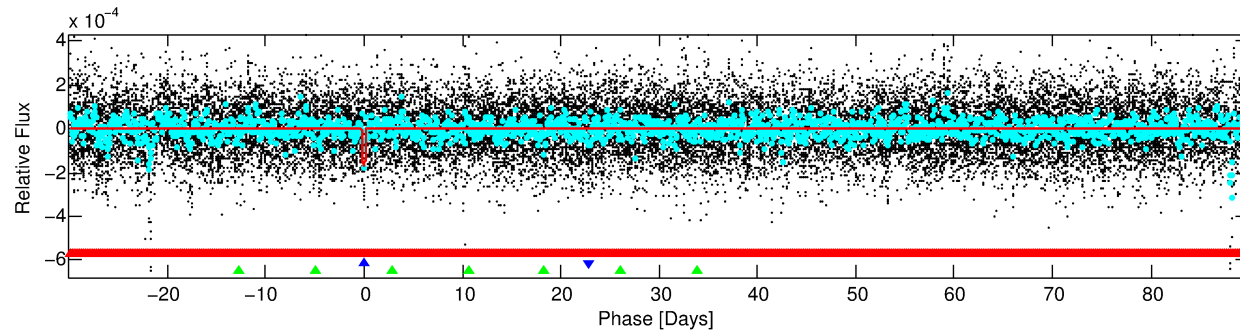
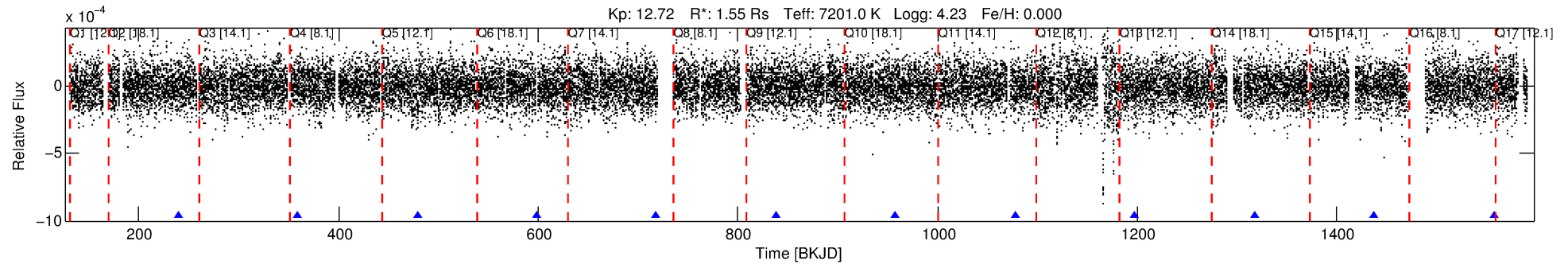
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010269598-02

No Significant Match Found

# DV One-Page Summary

KIC: 10269598 Candidate: 2 of 3 Period: 119.811 d



## DV Fit Results:

Period = 119.81135 [0.00242] d  
Epoch = 239.2738 [0.0178] BKJD  
Rp/R\* = 0.0135 [0.0038]  
a/R\* = 64.80 [107.86]  
b = 0.87 [0.45]  
Teff = 19.72 [8.40]  
Teq = 537 [57] K  
Rp = 2.28 [1.03] Re  
a = 0.5421 [0.1536] AU  
Ag = 2800.79 [2123.76] [1.32σ]  
Teffp = 6044 [1002] K [5.48σ]

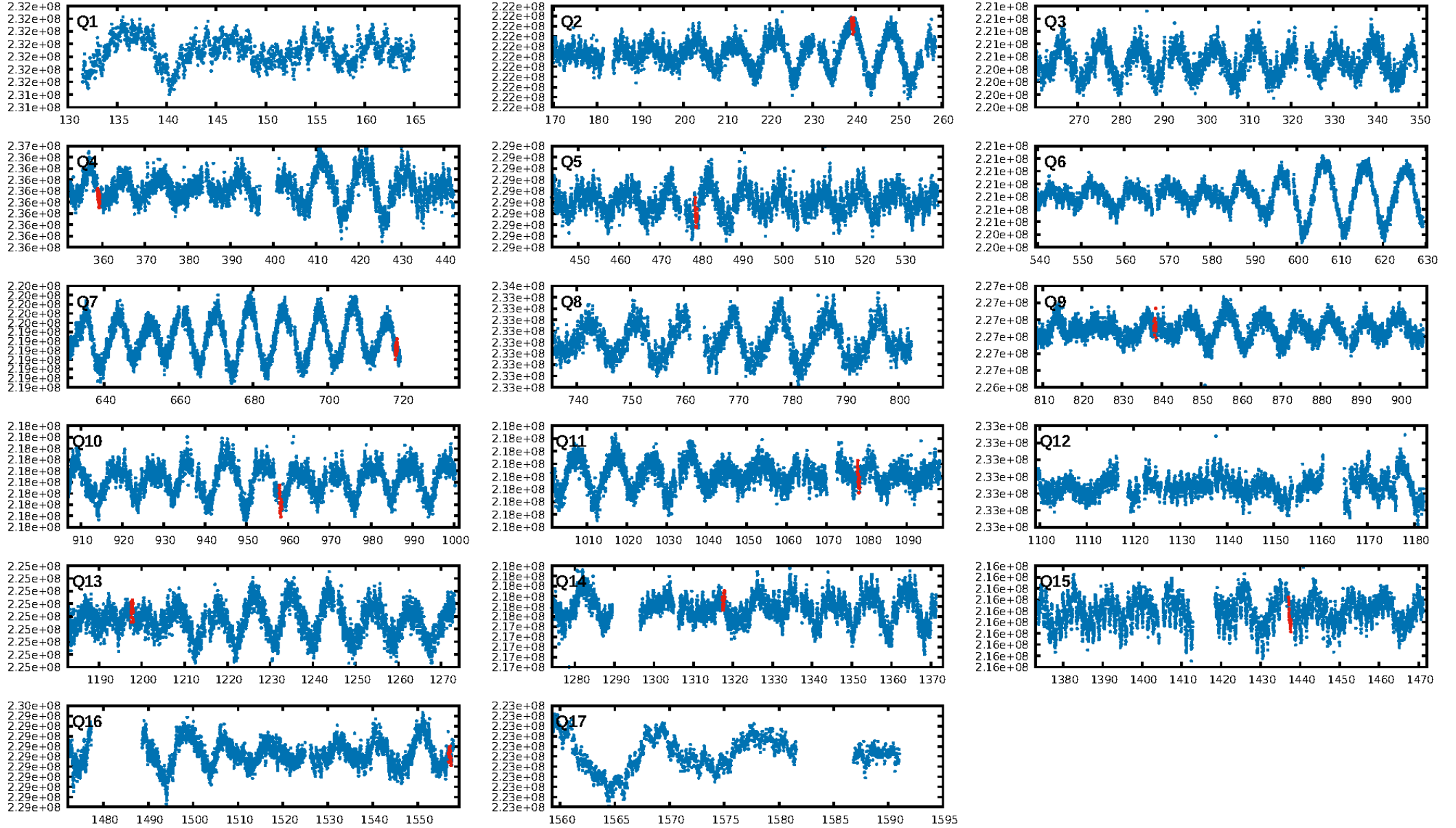
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [300.89σ]  
LongPeriod-sig: 100.0% [313.11σ]  
ModelChiSquare2-sig: 2.8%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 3.39e-11**  
RollingBand-fgt: 1.00 [6/6]  
**GhostDiagnostic-chr: 0.6404**  
**Centroid-sig: 0.1%**  
Centroid-so: 1.493 arcsec [1.92σ]  
OotOffset-rm: 0.759 arcsec [0.91σ]  
KicOffset-rm: 0.795 arcsec [0.89σ]  
OotOffset-st: 1/2/1/2 [6]  
KicOffset-st: 1/2/1/2 [6]  
DiffImageQuality-fgm: 0.67 [4/6]  
DiffImageOverlap-fno: 0.00 [0/9]

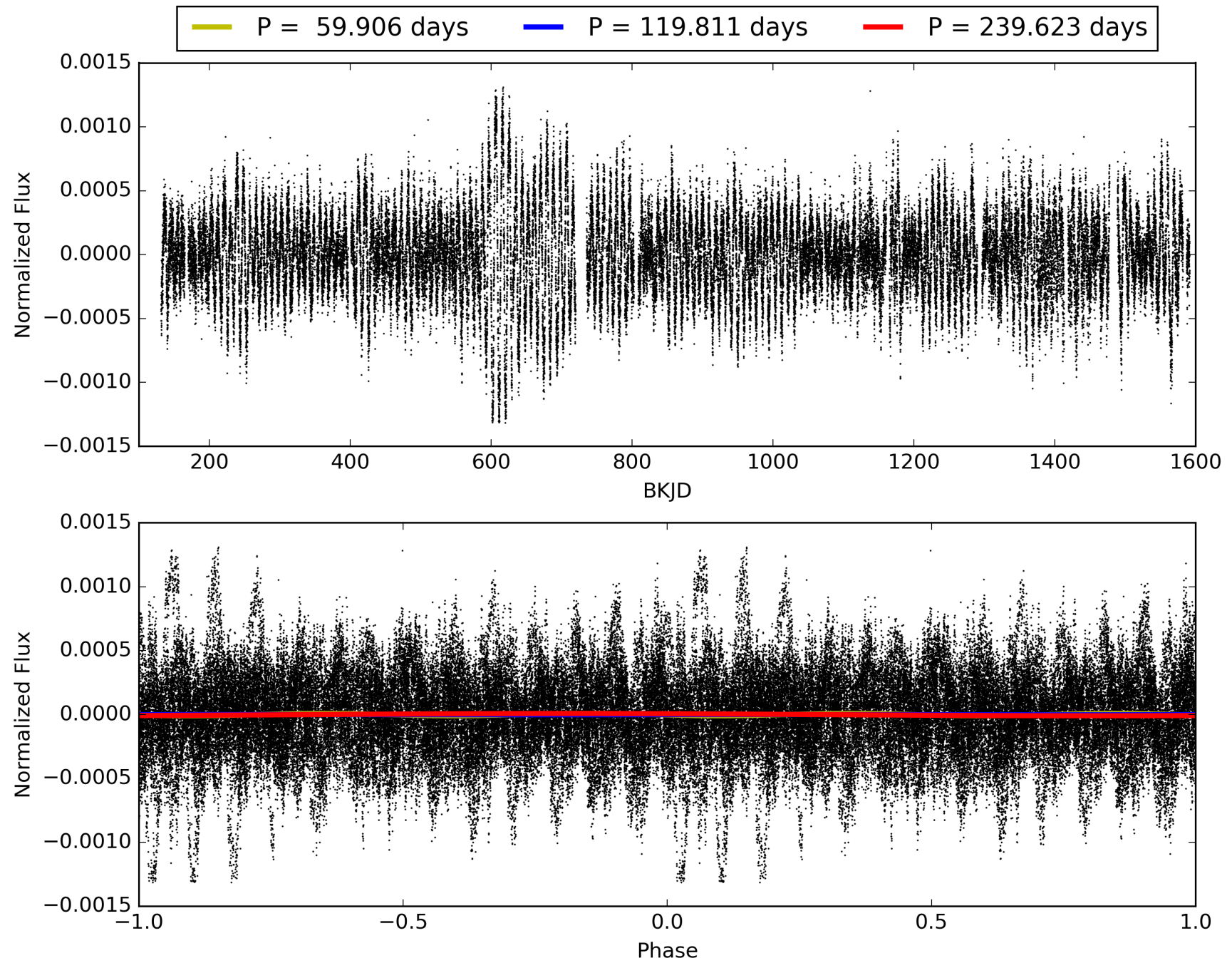
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:09:47 Z

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

# TCE 010269598-02, PDC Light Curves



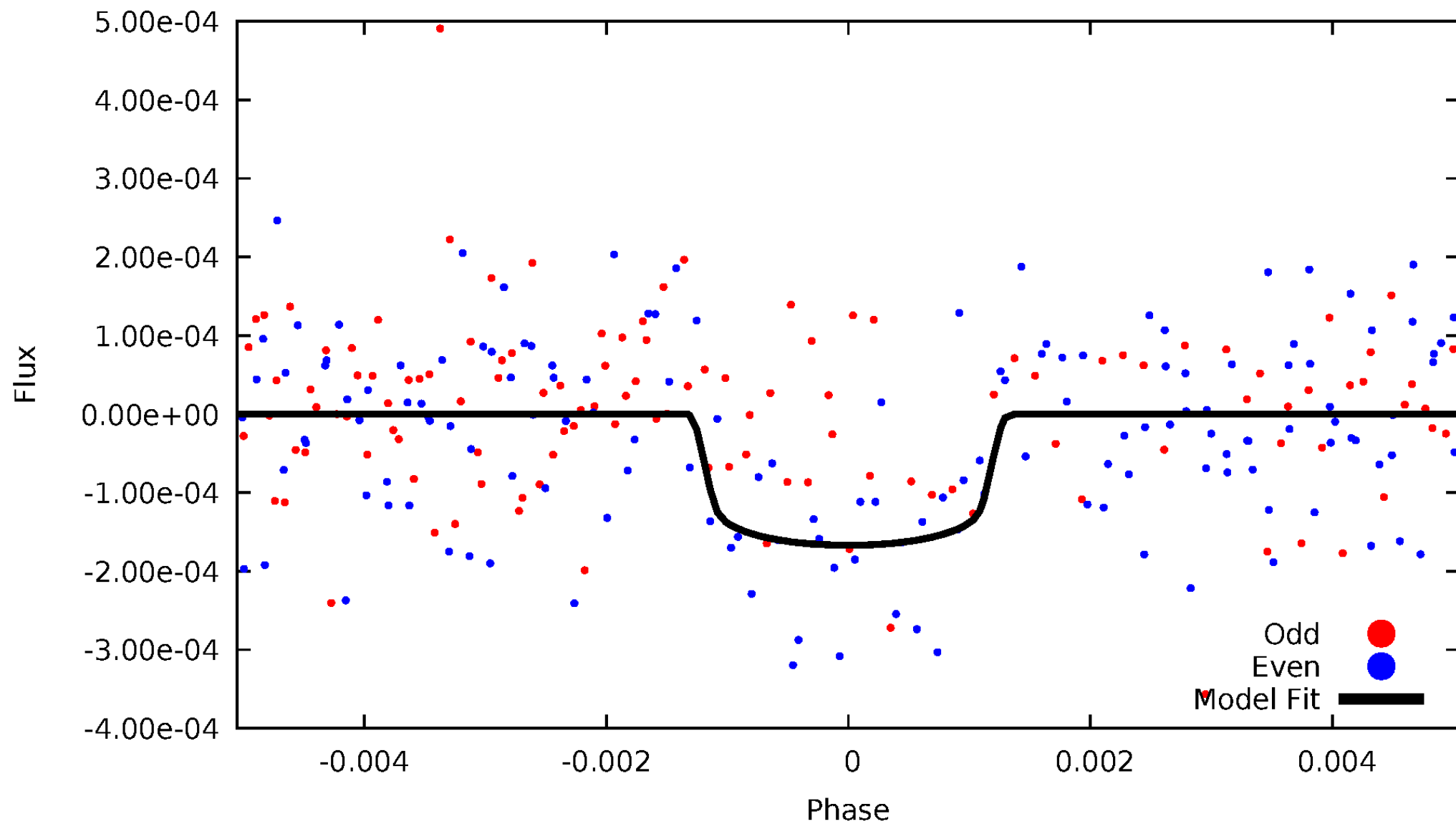
# TCE 010269598-02





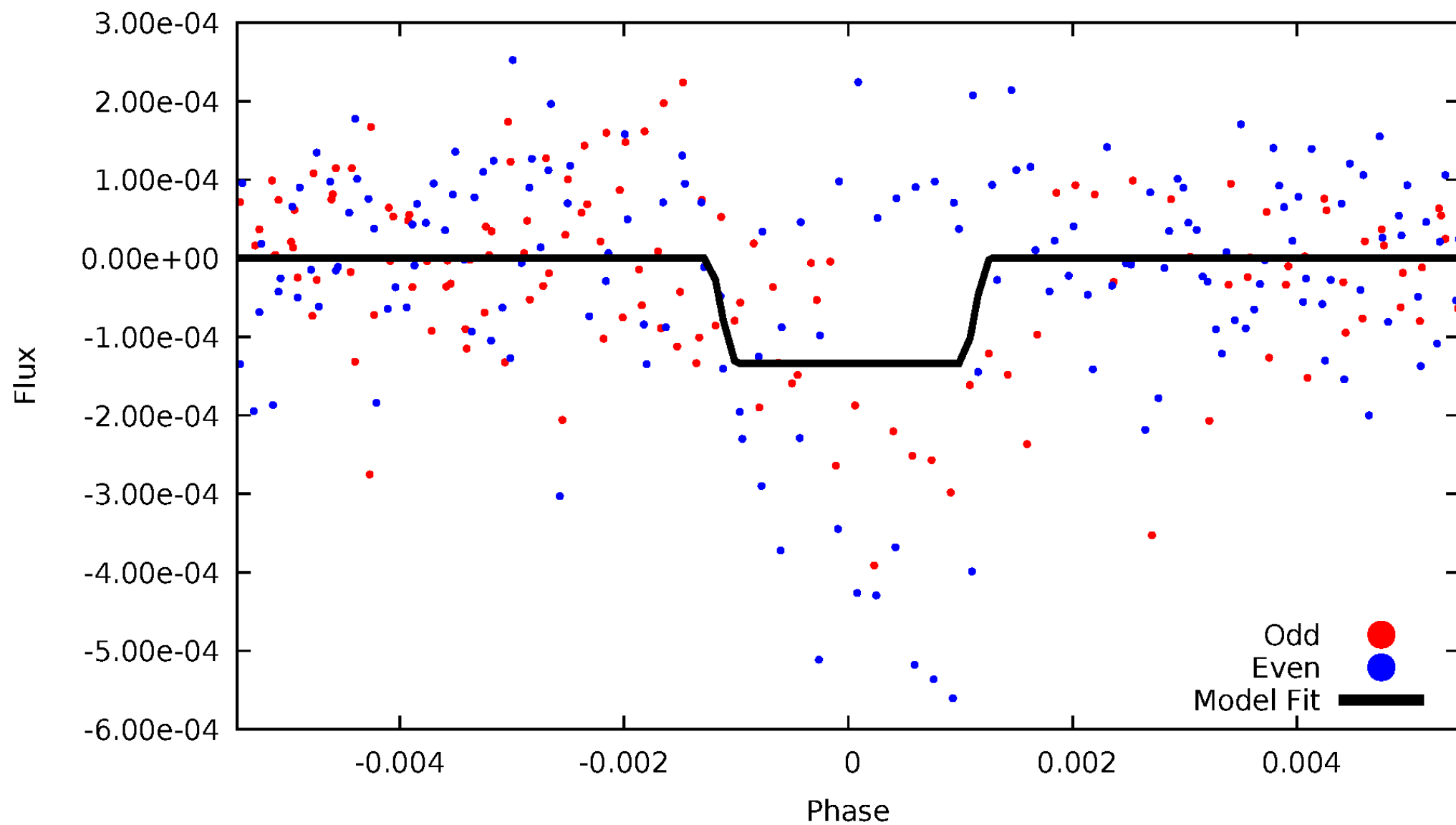
# DV Odd/Even

TCE 010269598-02



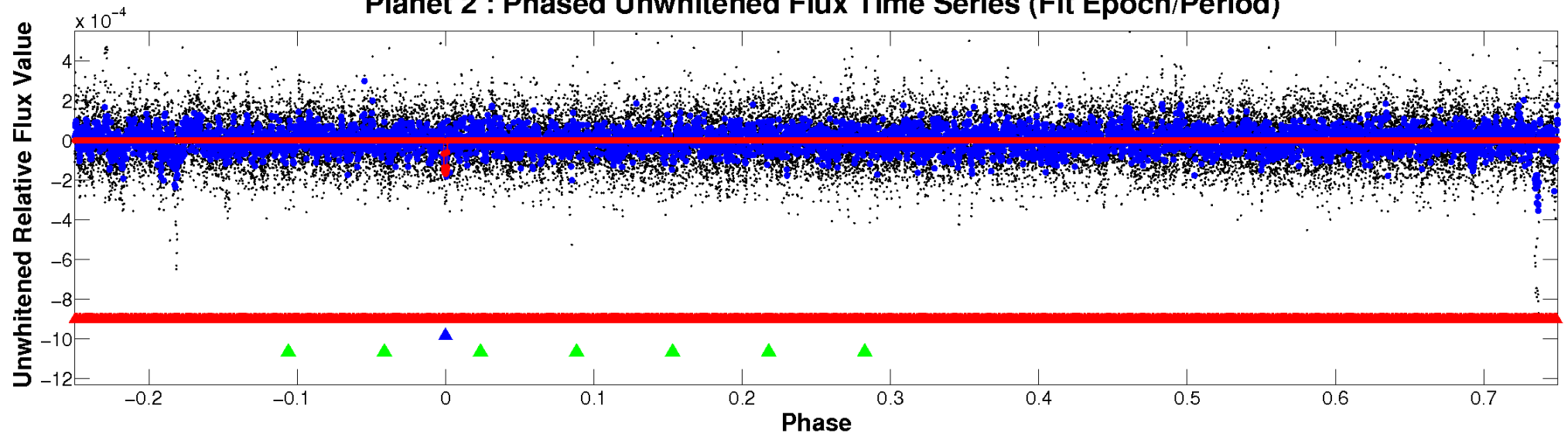
# ALT Odd/Even

TCE 010269598-02

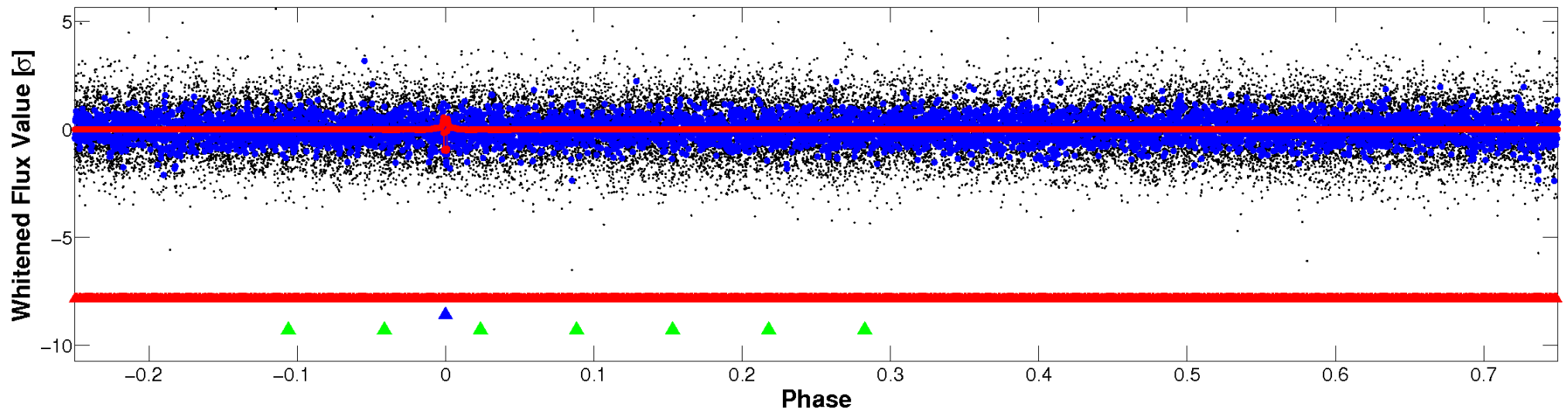


# Non-Whitened Vs. Whitened Light Curve

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

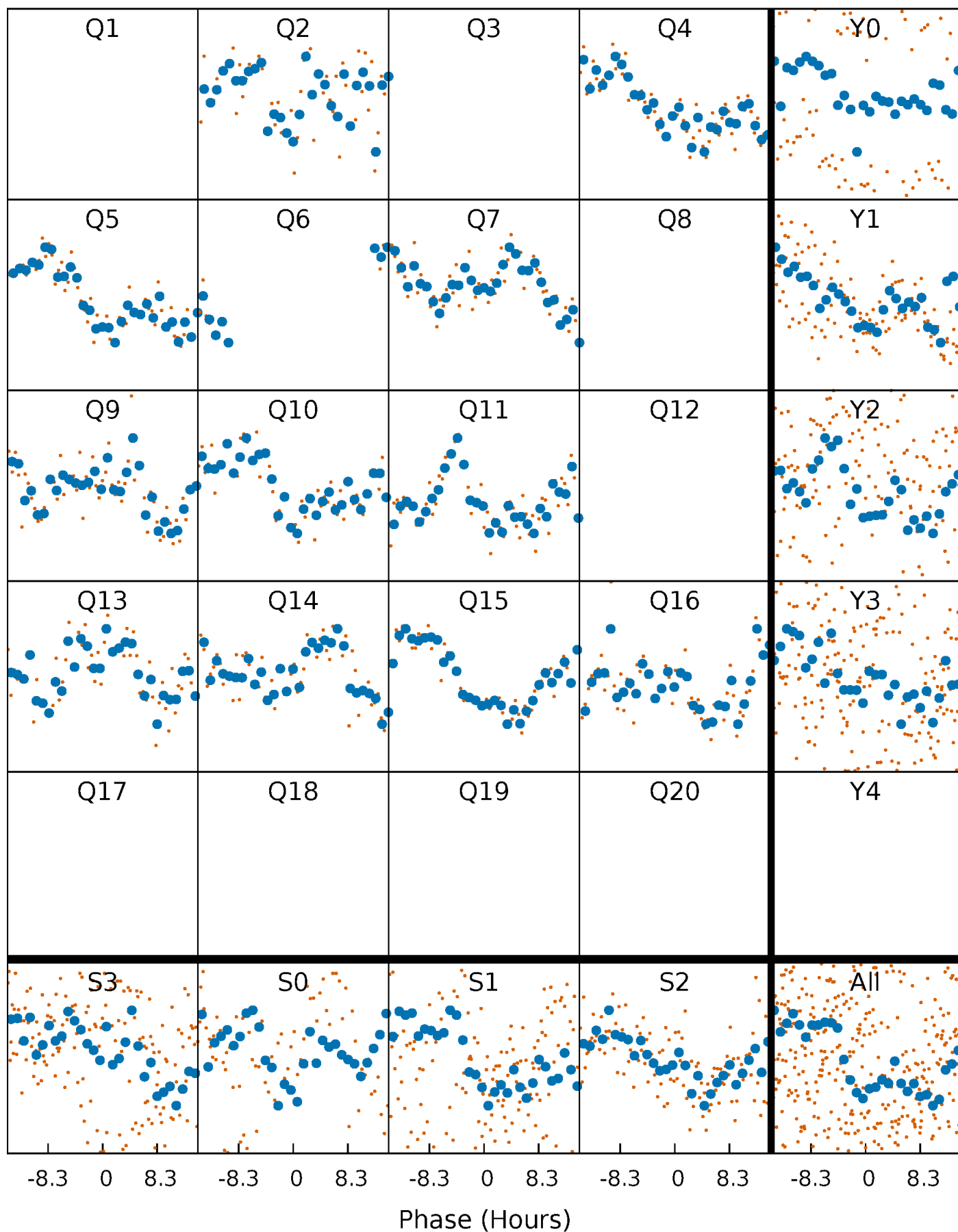


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

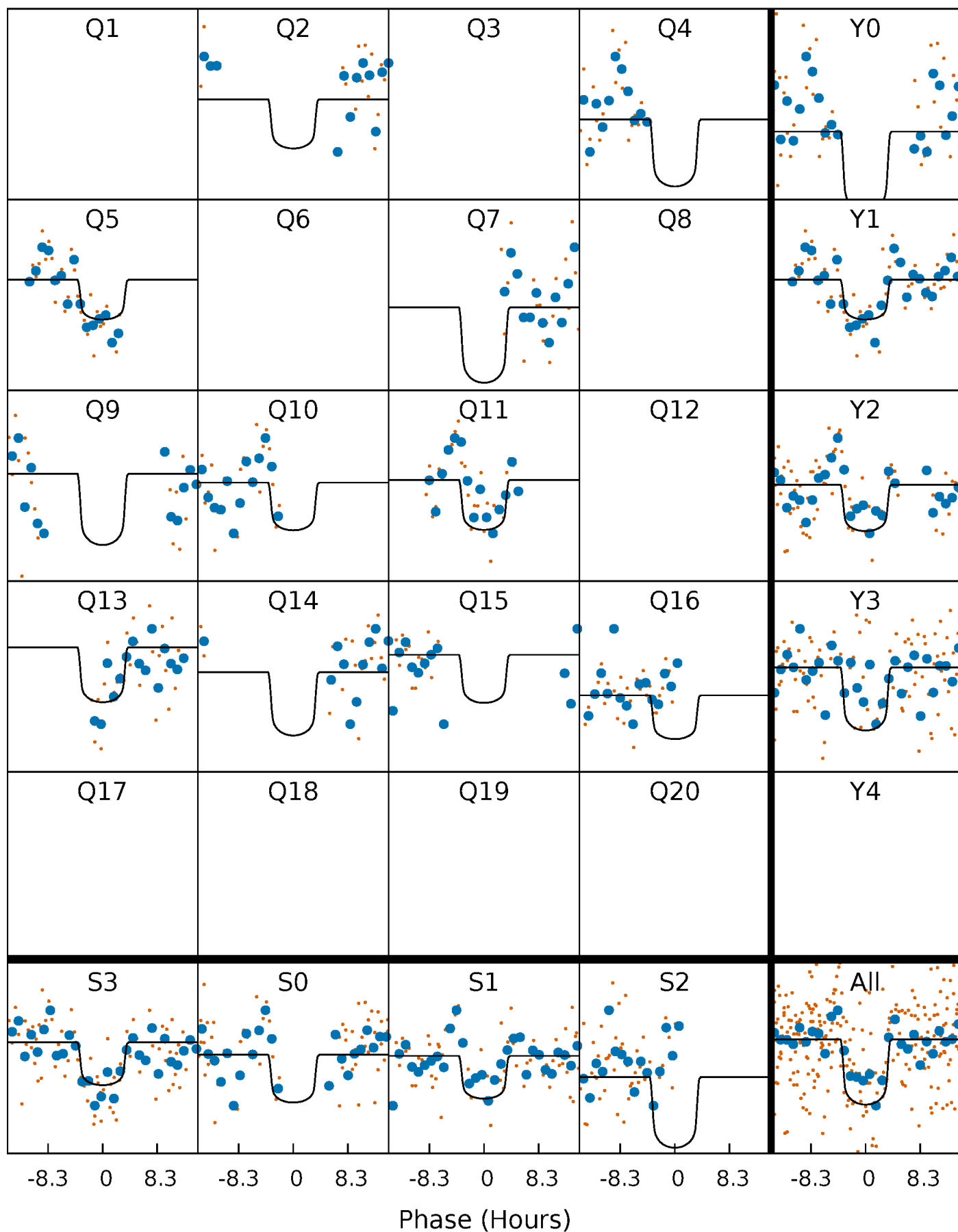
TCE 010269598-02 P=119.811347 Days  $T_0=239.273829$  (BKJD)





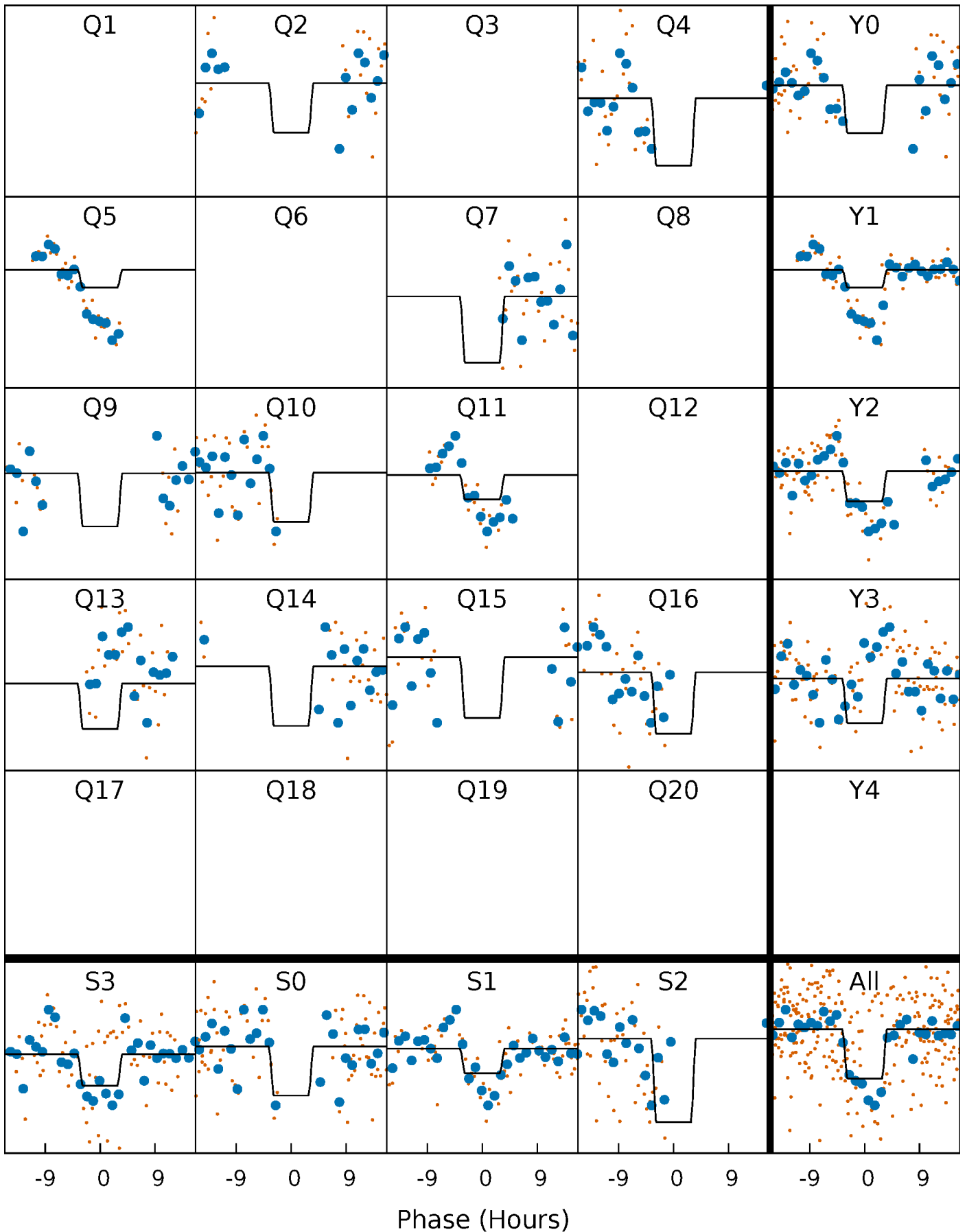
# DV Quarter-Phased Transit Curves

TCE 010269598-02 P=119.811347 Days  $T_0=239.273829$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

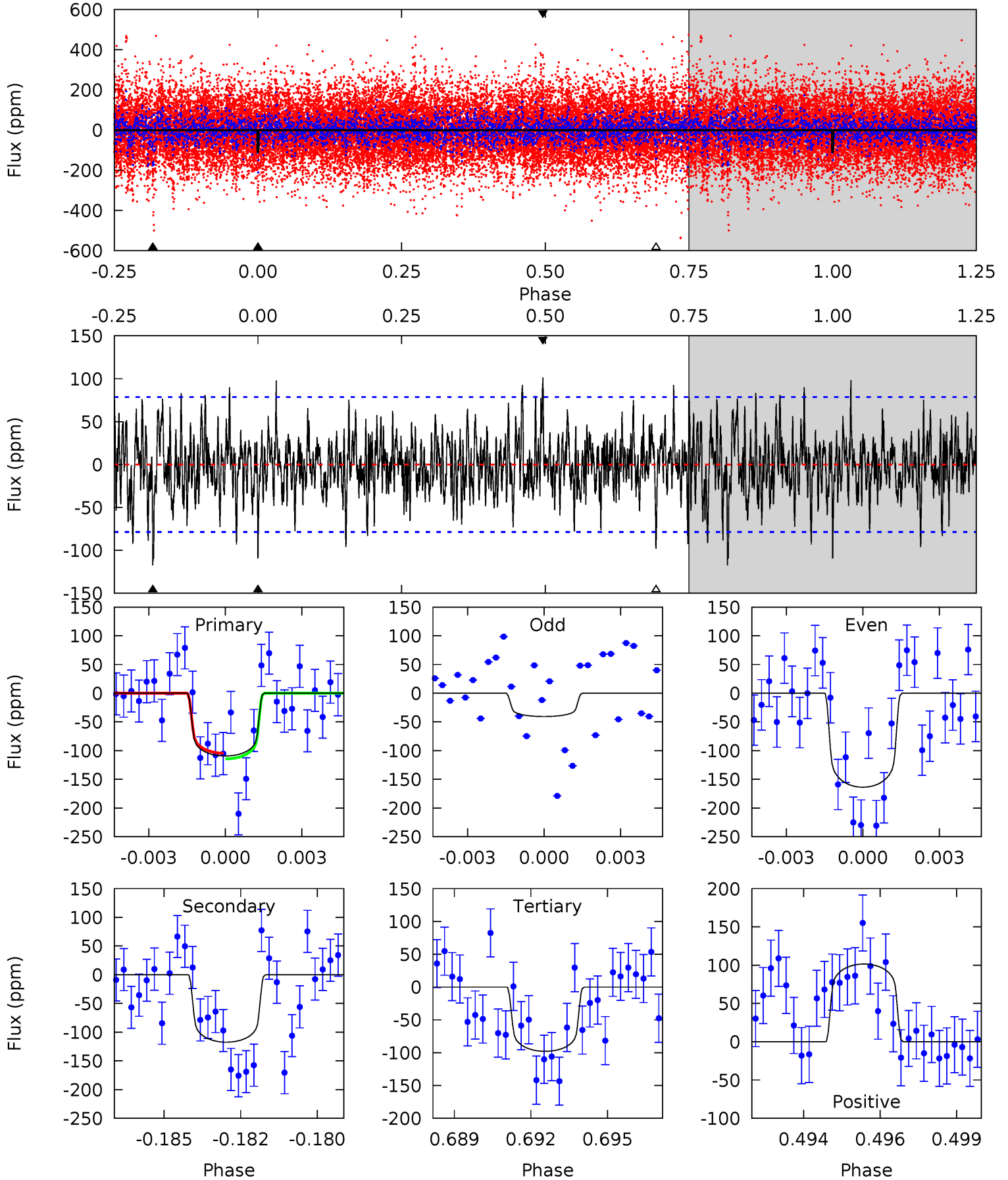
TCE 010269598-02     $P=119.818872$  Days     $T_0=239.235421$  (BKJD)



# DV Model-Shift Uniqueness Test

010269598-02, P = 119.811347 Days, E = 119.462482 Days

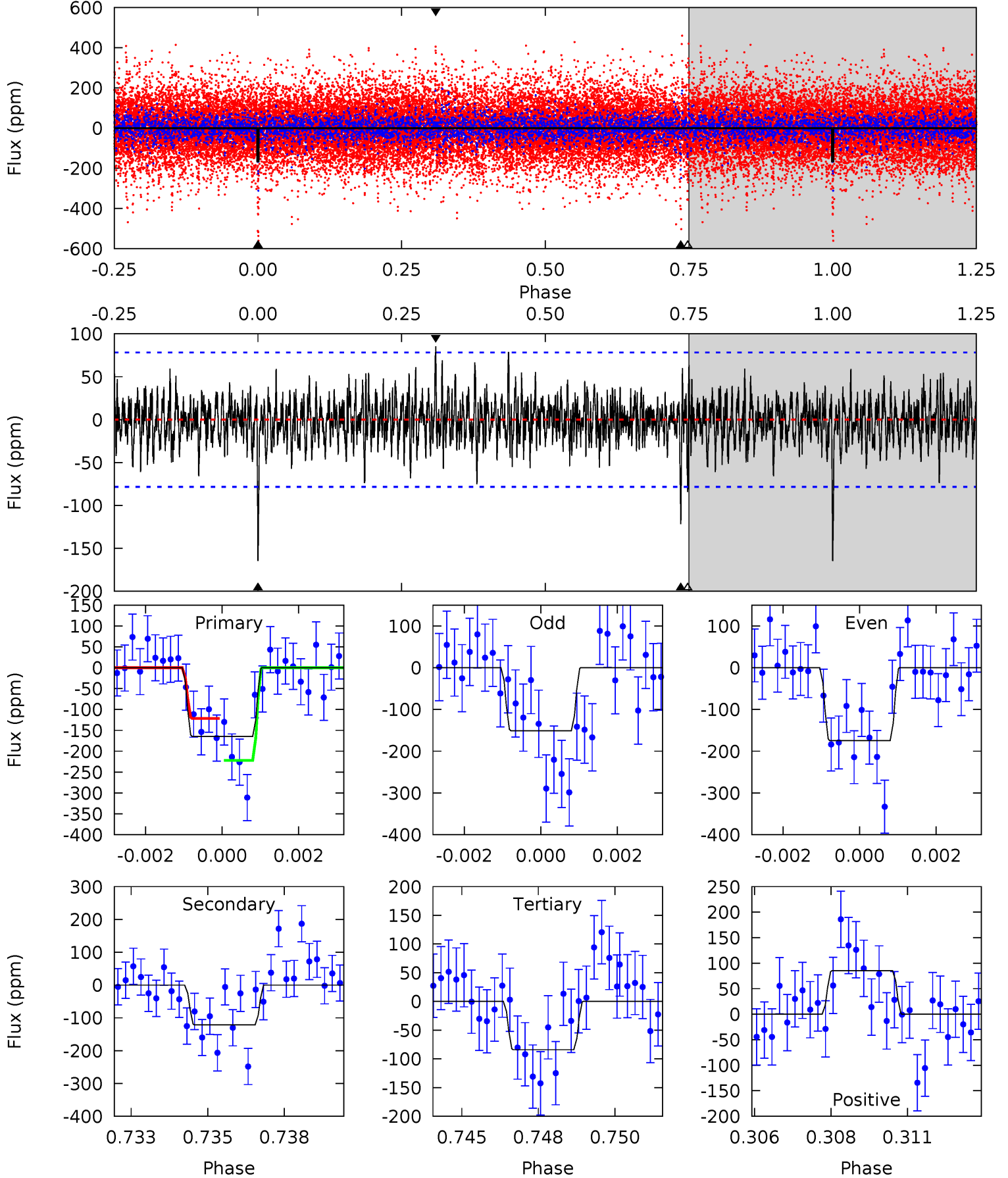
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.34	7.87	6.57	6.80	5.27	3.00	1.94	0.77	0.53	1.31	1.07	4.10	0.79	0.46	0.33



# Alt Model-Shift Uniqueness Test

010269598-02, P = 119.818872 Days, E = 119.416549 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
11.1	8.21	5.68	5.76	5.29	3.03	1.42	5.44	5.36	2.53	2.45	0.78	1.24	0.34	3.33





### Stellar Parameters For KIC 010269598

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7201^{+200}_{-275}$	$4.227^{+0.075}_{-0.210}$	$0.000^{+0.200}_{-0.400}$	$1.551^{+0.542}_{-0.232}$	$1.478^{+0.226}_{-0.204}$	$0.558^{+0.234}_{-0.314}$
	+3%/-4%	+2%/-5%	+inf%/-inf%	+35%/-15%	+15%/-14%	+42%/-56%
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 010269598-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-117 \pm 15$	$2.35^{+0.77}_{-0.65}$	$764^{+58}_{-42}$	$6414^{+1203}_{-823}$	$3399^{+3013}_{-1528}$
Alt.	$-122 \pm 15$	$1.98^{+0.75}_{-0.67}$	$765^{+56}_{-43}$	$7070^{+2018}_{-1095}$	$4854^{+6274}_{-2354}$

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

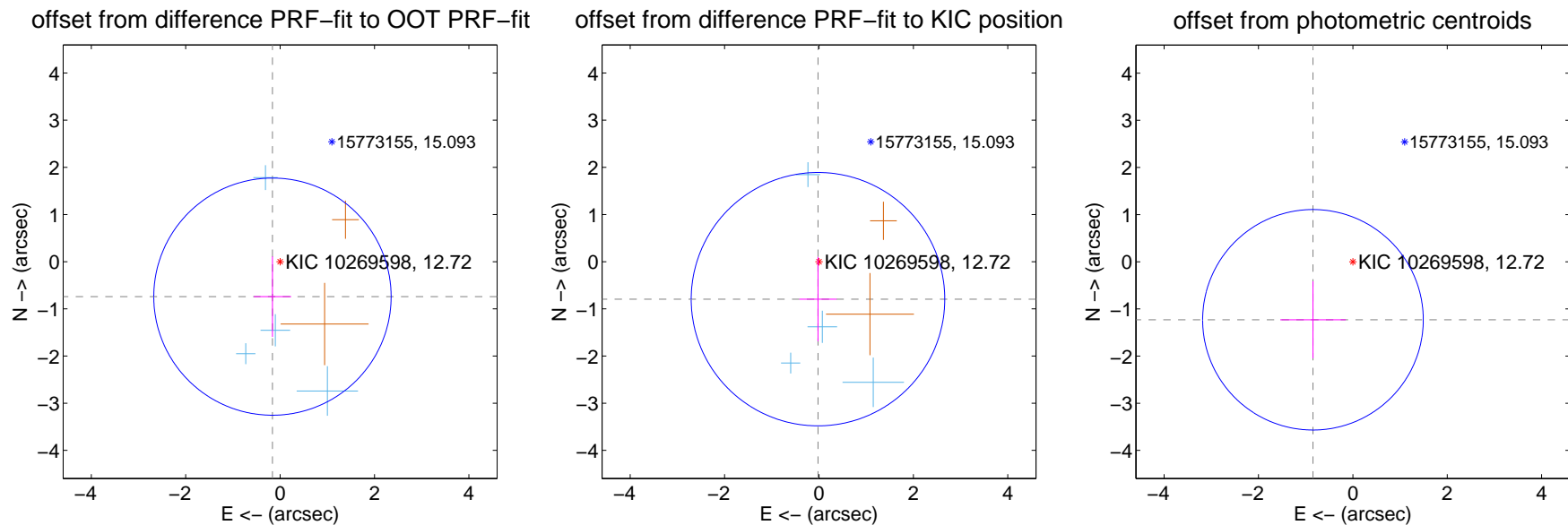
## DV Centroid Data

Supplemental centroid analysis for 010269598-02. Kepler magnitude: 12.72. Transit SNR 6.88

There are 4 quarters with good PRF difference image offsets

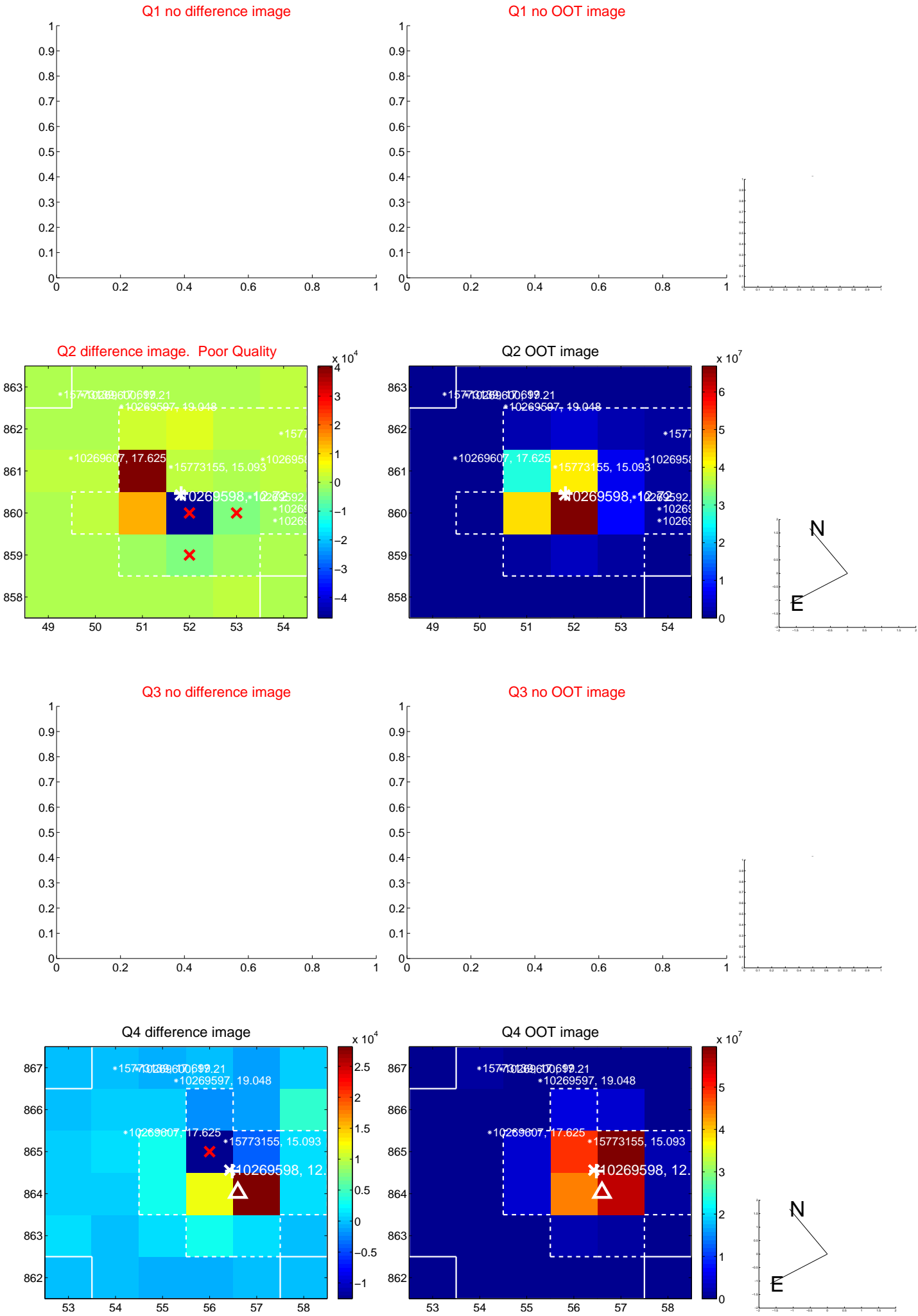
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.759 \pm 0.838$	0.91	$0.162 \pm 0.395$	$-0.741 \pm 0.853$
PRF-fit source offset from KIC position	$0.795 \pm 0.895$	0.89	$0.021 \pm 0.395$	$-0.794 \pm 0.895$
photometric centroid source offset	$1.49 \pm 0.78$	1.92	$0.85 \pm 0.69$	$-1.23 \pm 0.82$

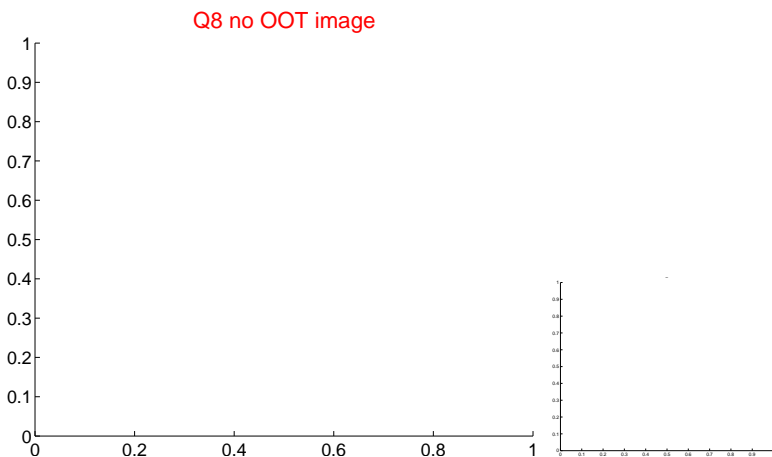
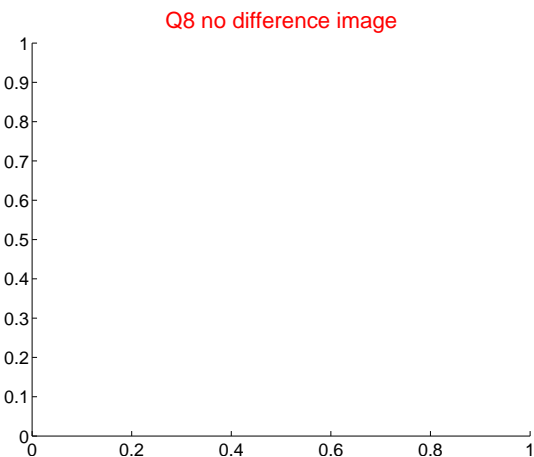
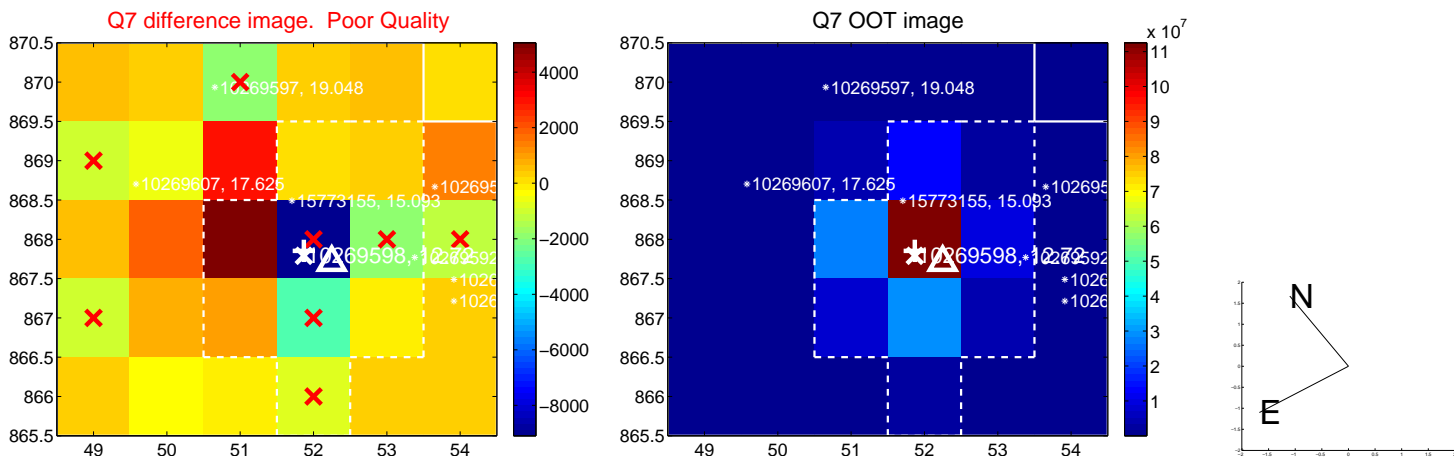
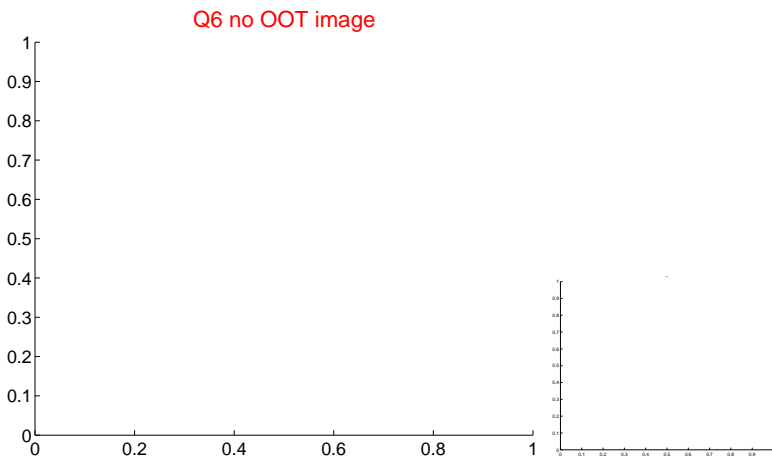
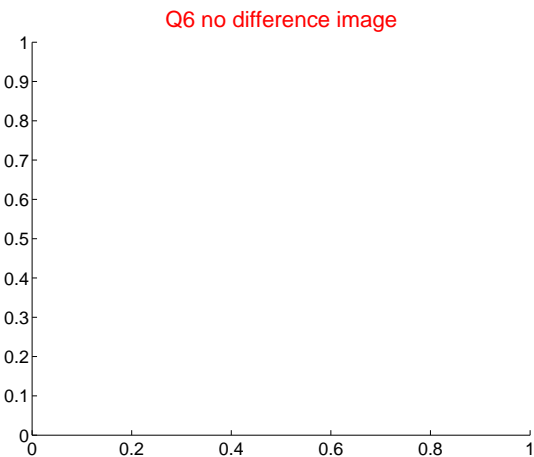
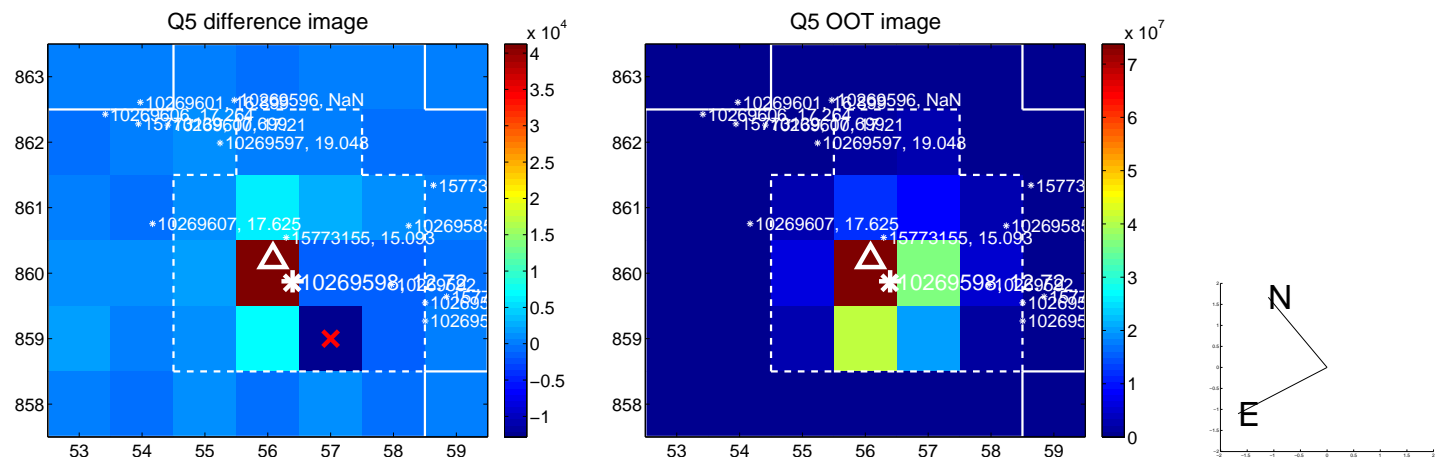


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

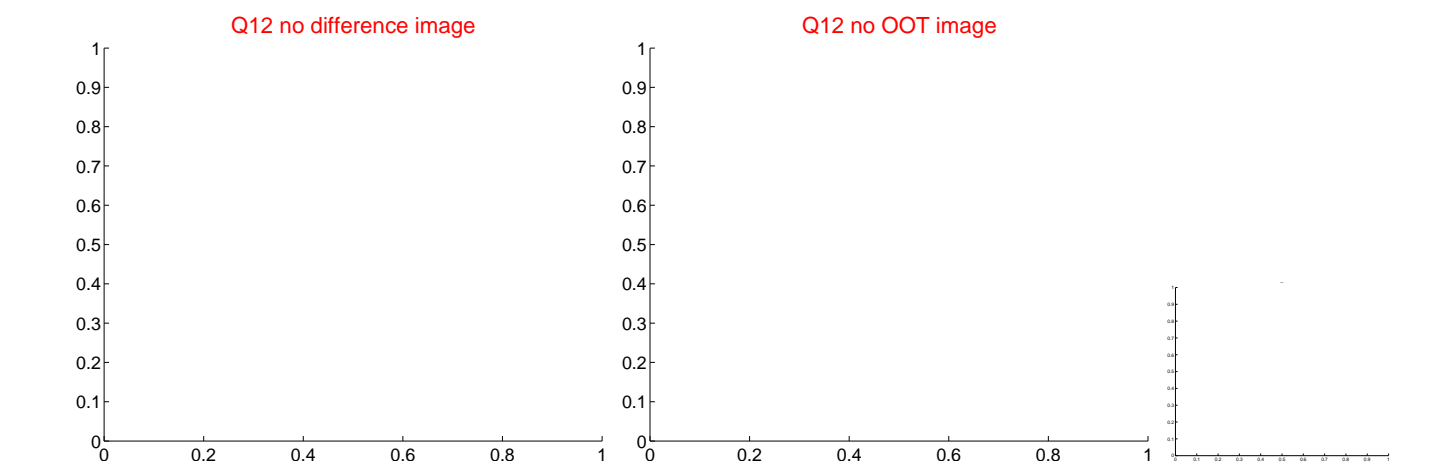
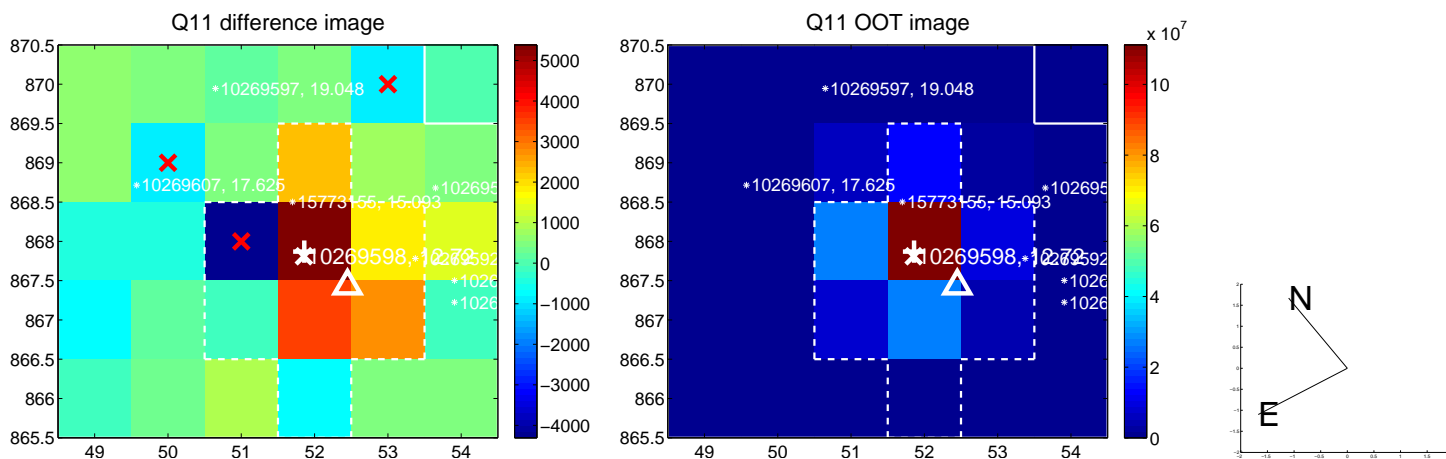
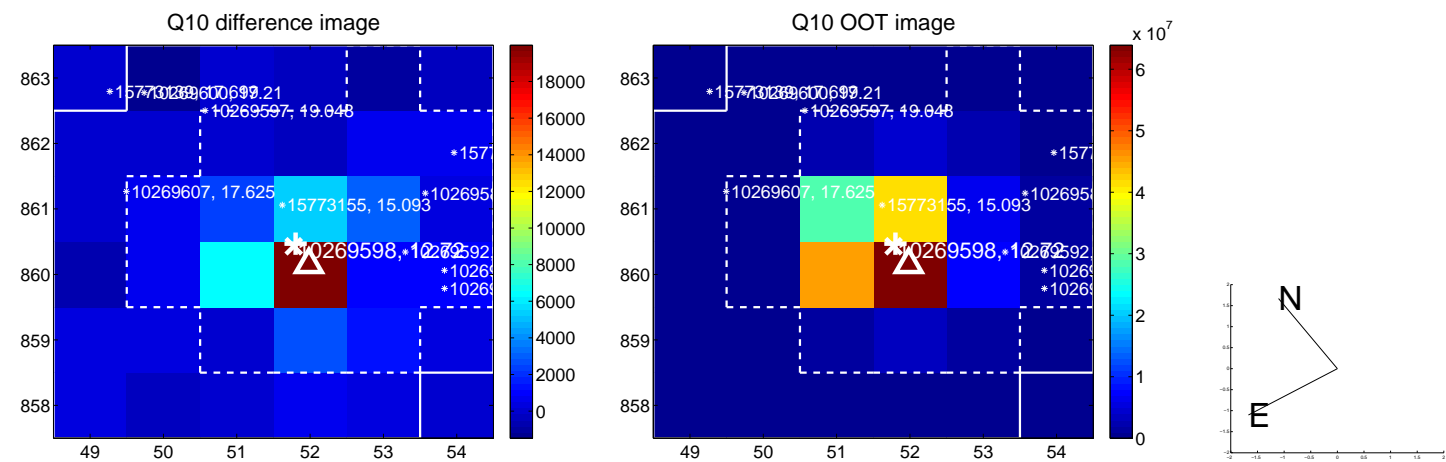
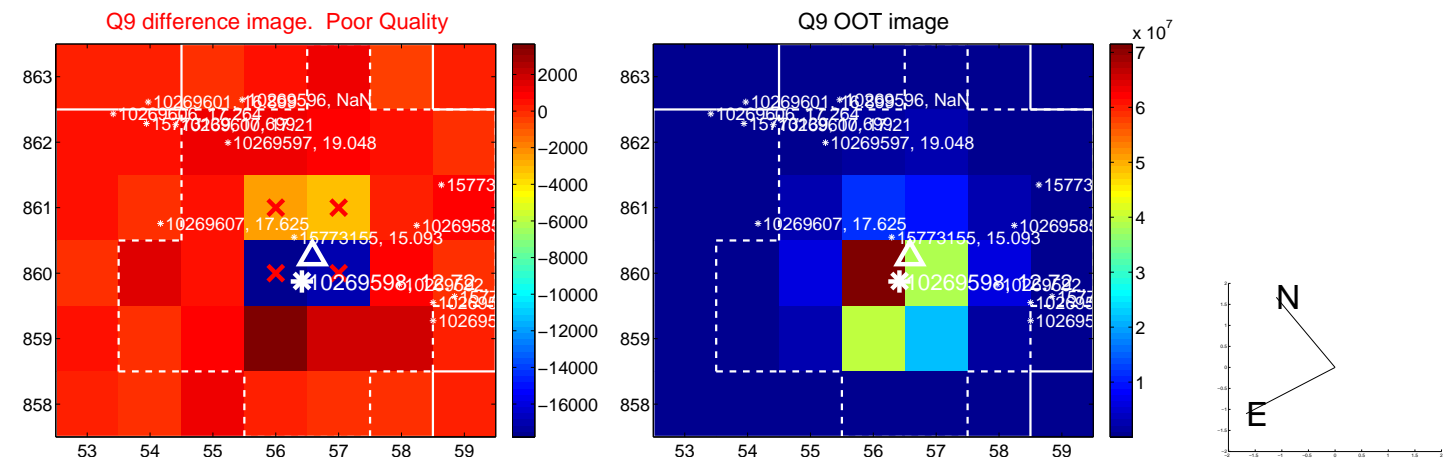
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

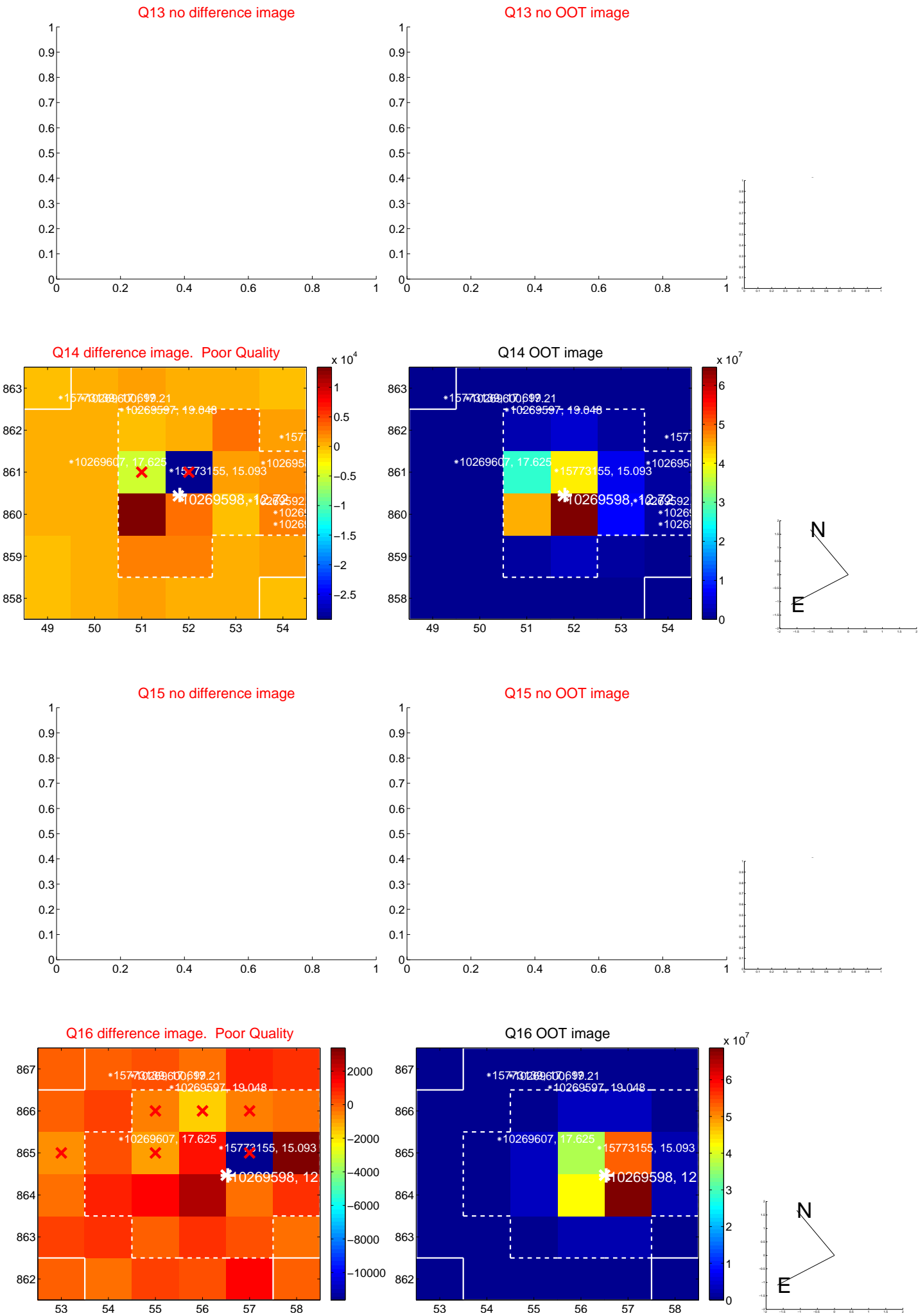


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

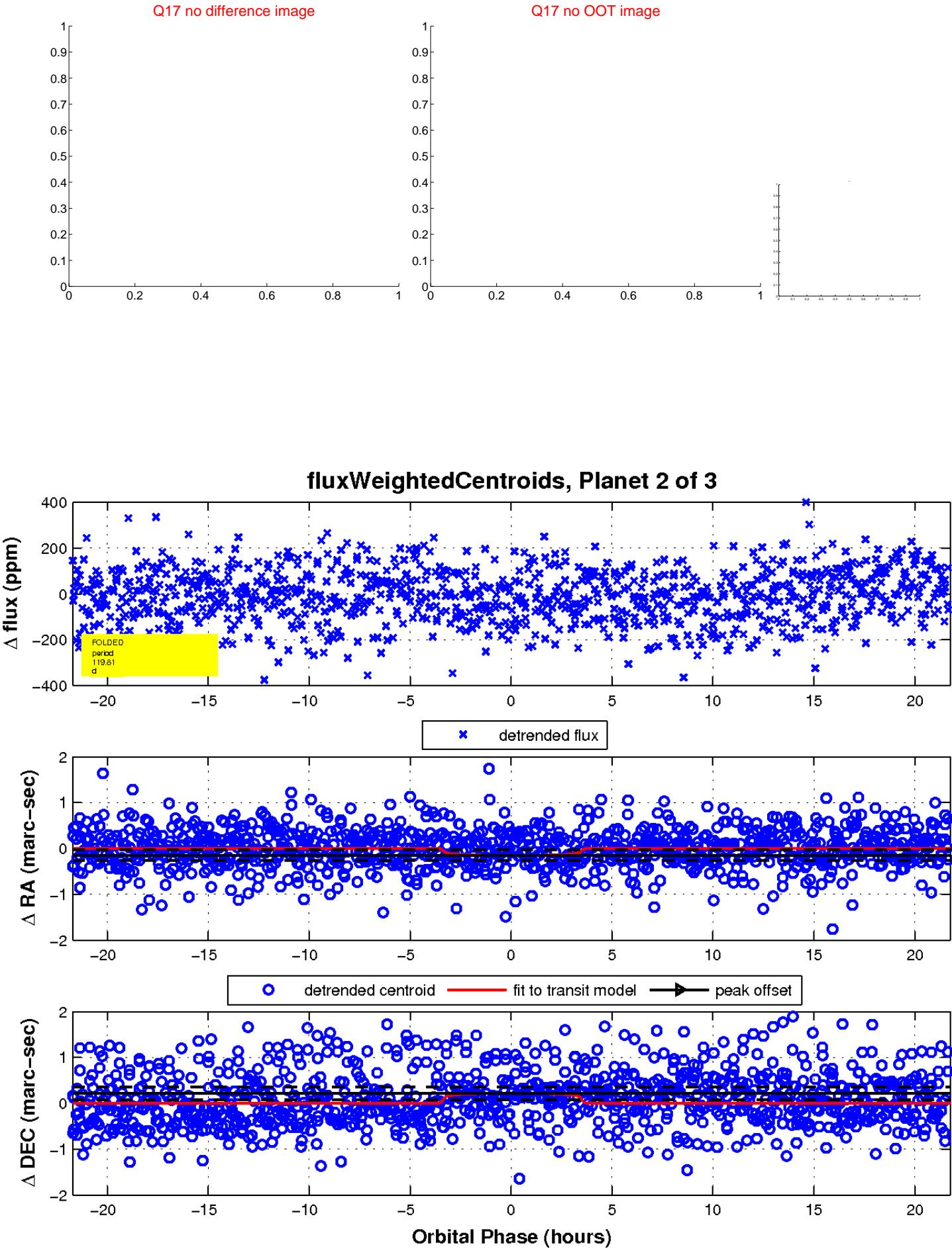




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

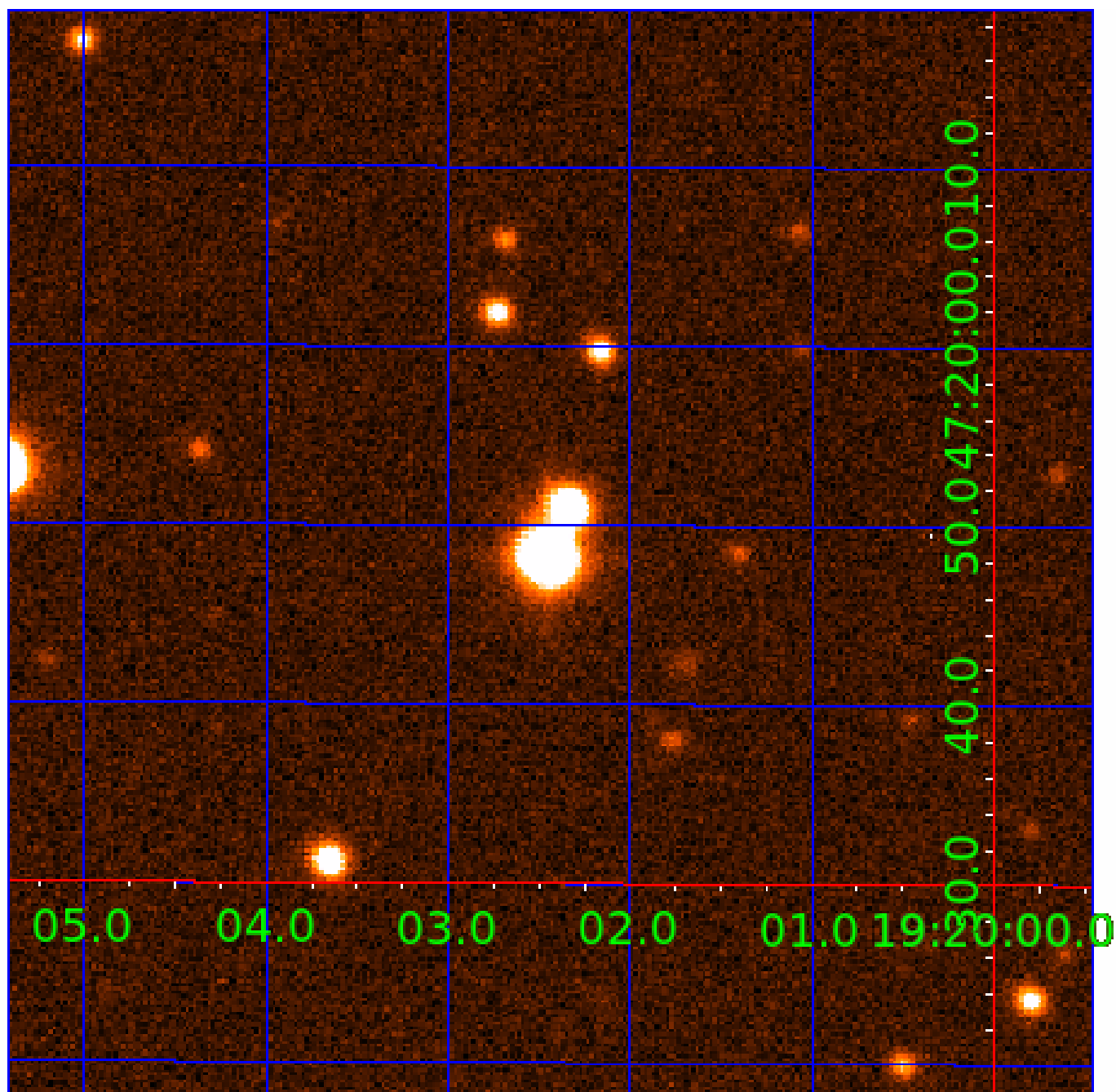


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 010269598

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010269598-01	OBS	No	1.380572	132.872418	9.1	6.045	7.4	4.6	1.55	7201	0.48	7576.38
010269598-02	OBS	No	119.811347	239.273829	167.2	7.259	8.3	6.9	1.55	7201	2.29	19.72
010269598-03	OBS	No	231.861995	153.333274	180.0	4.590	8.4	8.7	1.55	7201	2.44	8.18

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010269598-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010269598-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010269598-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT

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

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

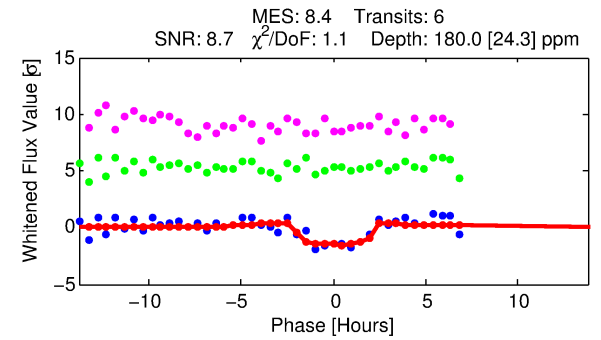
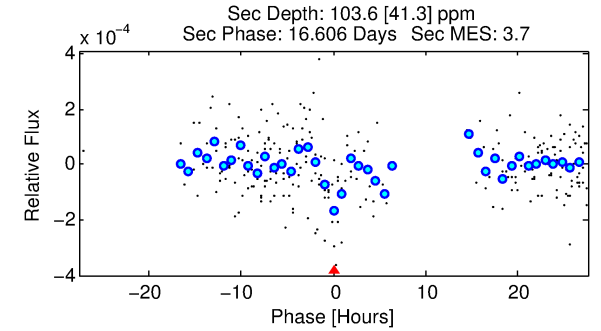
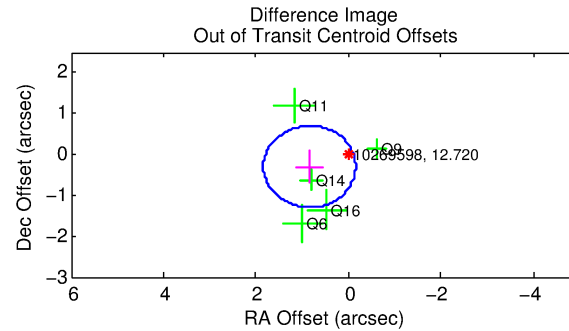
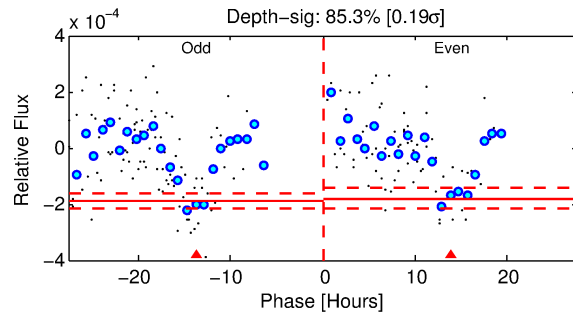
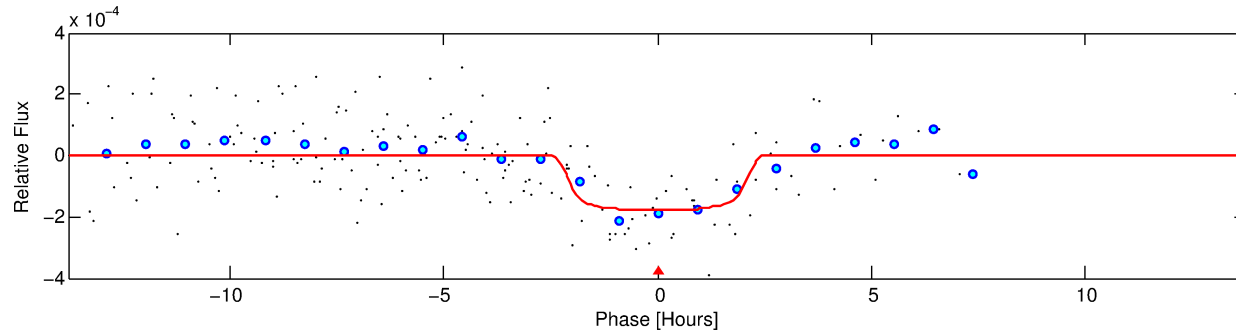
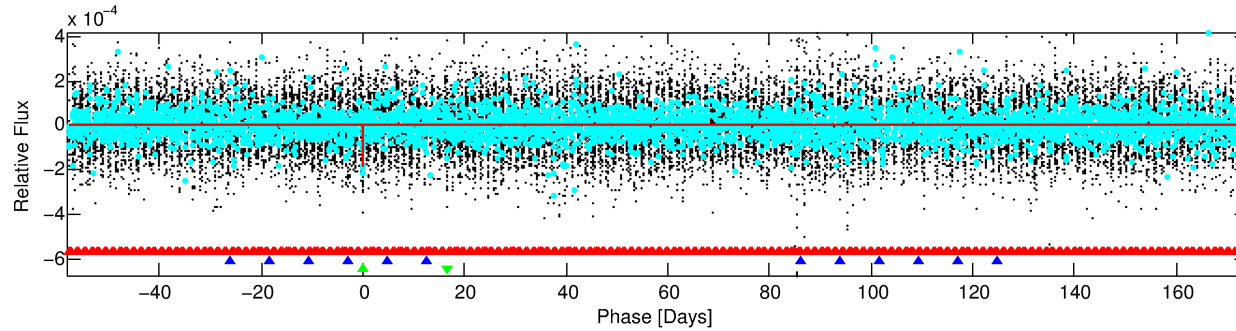
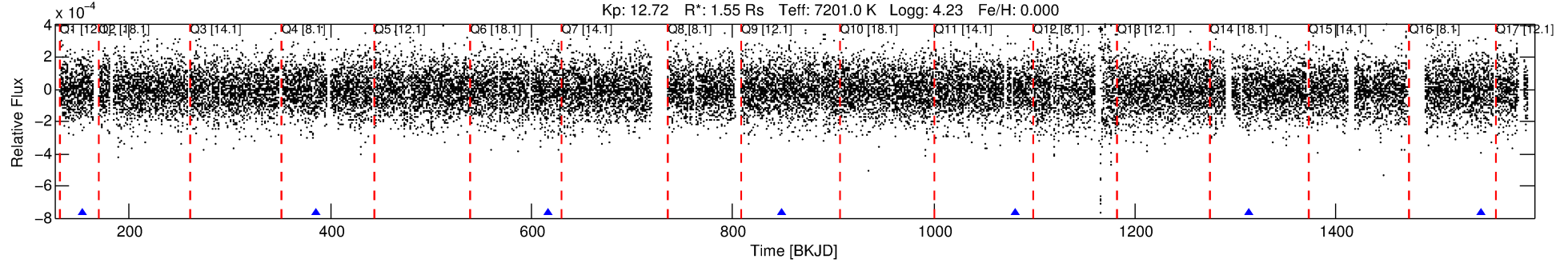
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010269598-03

No Significant Match Found

# DV One-Page Summary

KIC: 10269598 Candidate: 3 of 3 Period: 231.862 d



## DV Fit Results:

Period = 231.86200 [0.00338] d  
Epoch = 153.3333 [0.0152] BKJD  
Rp/R\* = 0.0144 [0.0044]  
a/R\* = 170.68 [316.39]  
b = 0.91 [0.34]  
Seff = 8.18 [3.48]  
Teq = 431 [46] K  
Rp = 2.44 [1.13] Re  
a = 0.8419 [0.2385] AU  
Ag = 6799.36 [5660.26] [1.20 $\sigma$ ]  
Teffp = 6054 [1131] K [4.97 $\sigma$ ]

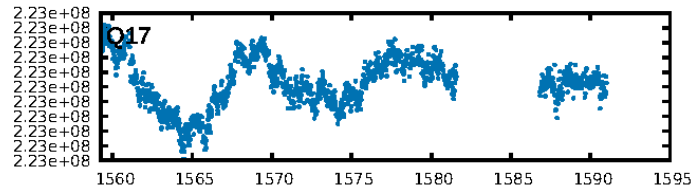
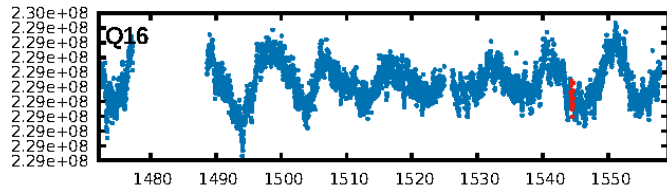
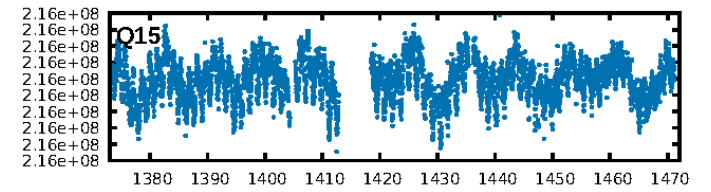
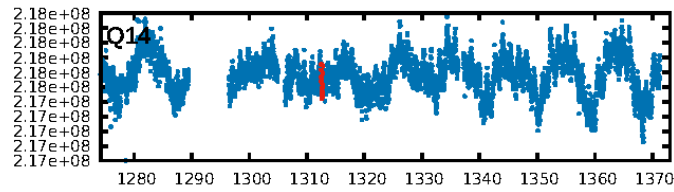
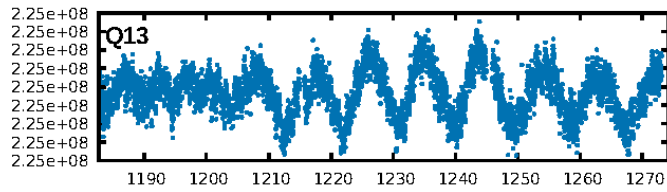
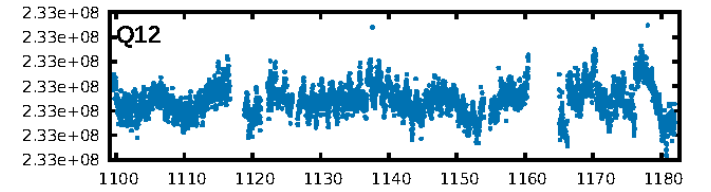
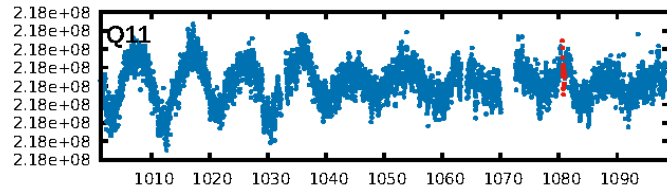
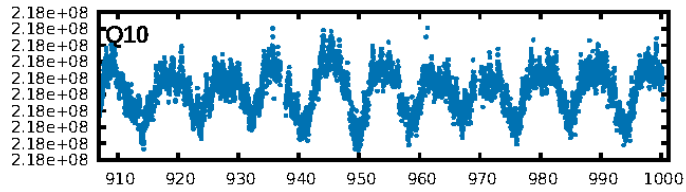
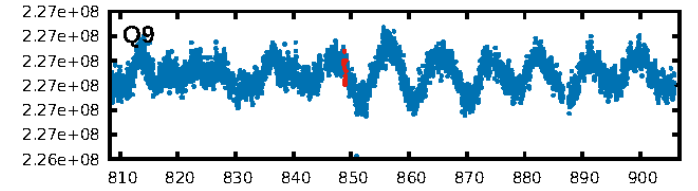
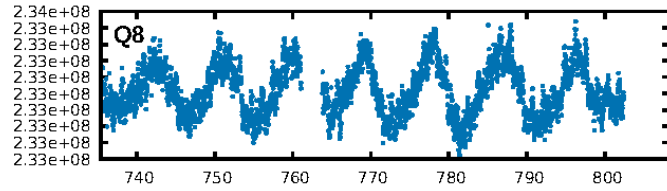
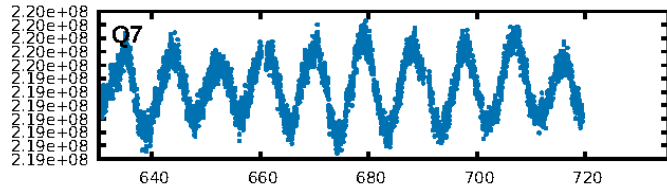
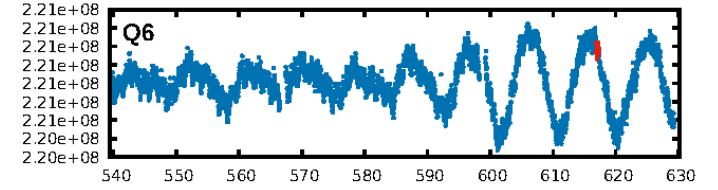
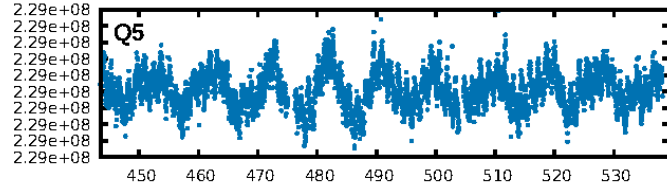
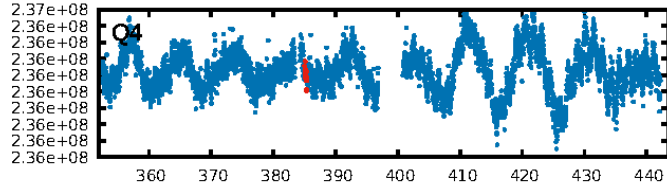
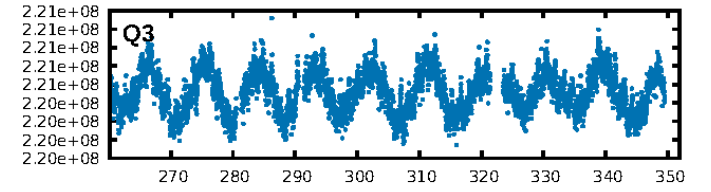
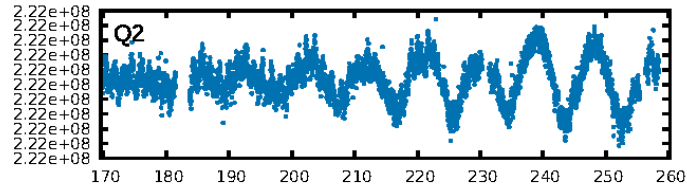
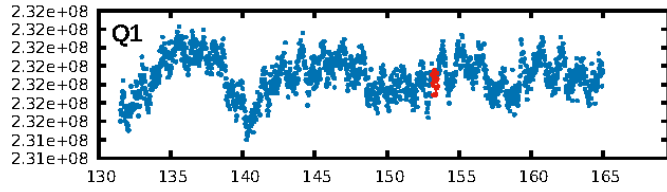
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [313.11 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 98.7%  
ModelChiSquareGof-sig: 99.9%  
**Bootstrap-pfa: 1.46e-11**  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: 0.2772  
Centroid-sig: 78.7%  
Centroid-so: 0.485 arcsec [0.51 $\sigma$ ]  
OotOffset-rm: 0.897 arcsec [2.70 $\sigma$ ]  
KicOffset-rm: 0.775 arcsec [2.52 $\sigma$ ]  
OotOffset-st: 2/1/1/1 [5]  
KicOffset-st: 2/1/1/1 [5]  
DiffImageQuality-fgm: 1.00 [5/5]  
DiffImageOverlap-fno: 0.50 [3/6]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:09:58 Z

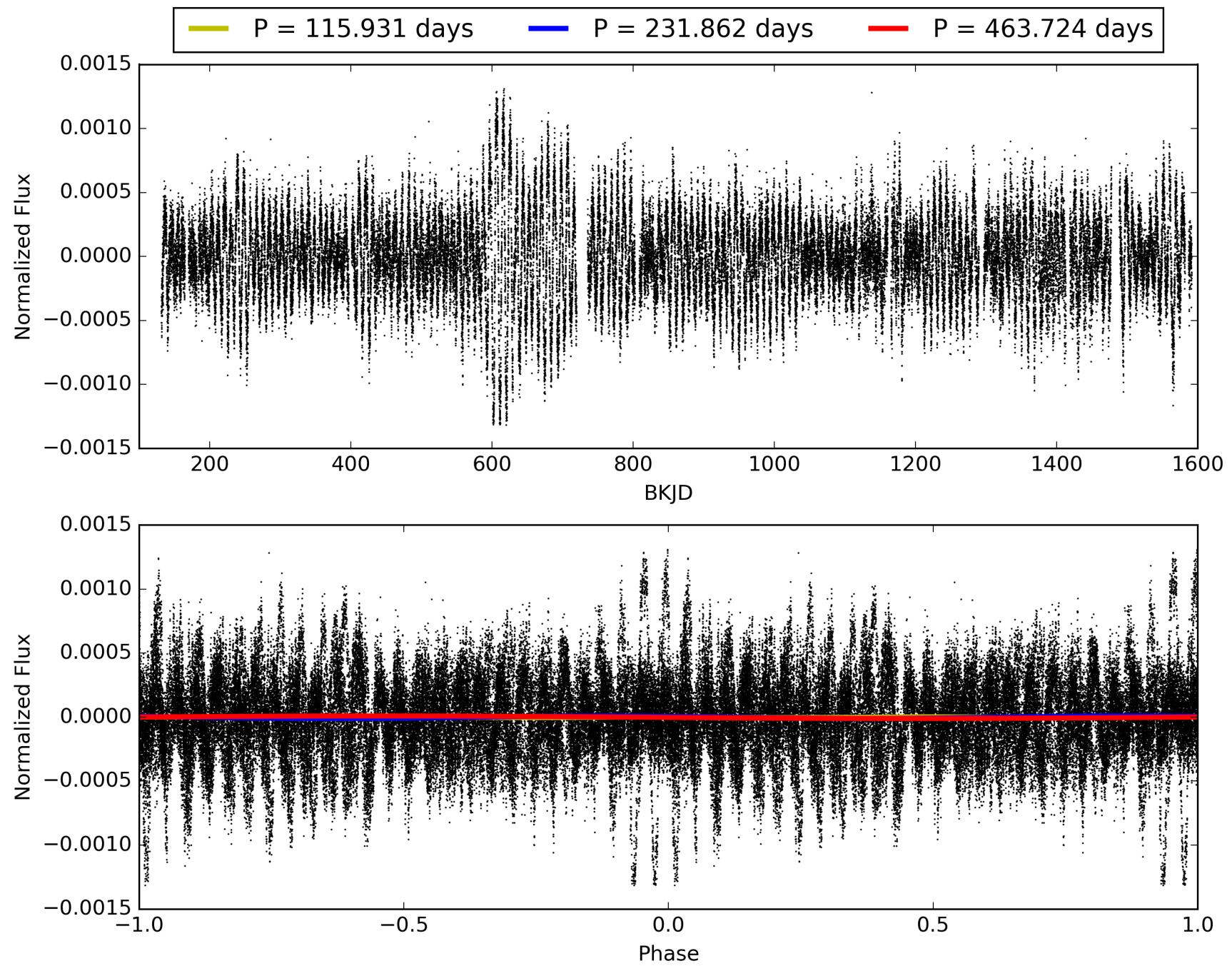
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010269598-03, PDC Light Curves



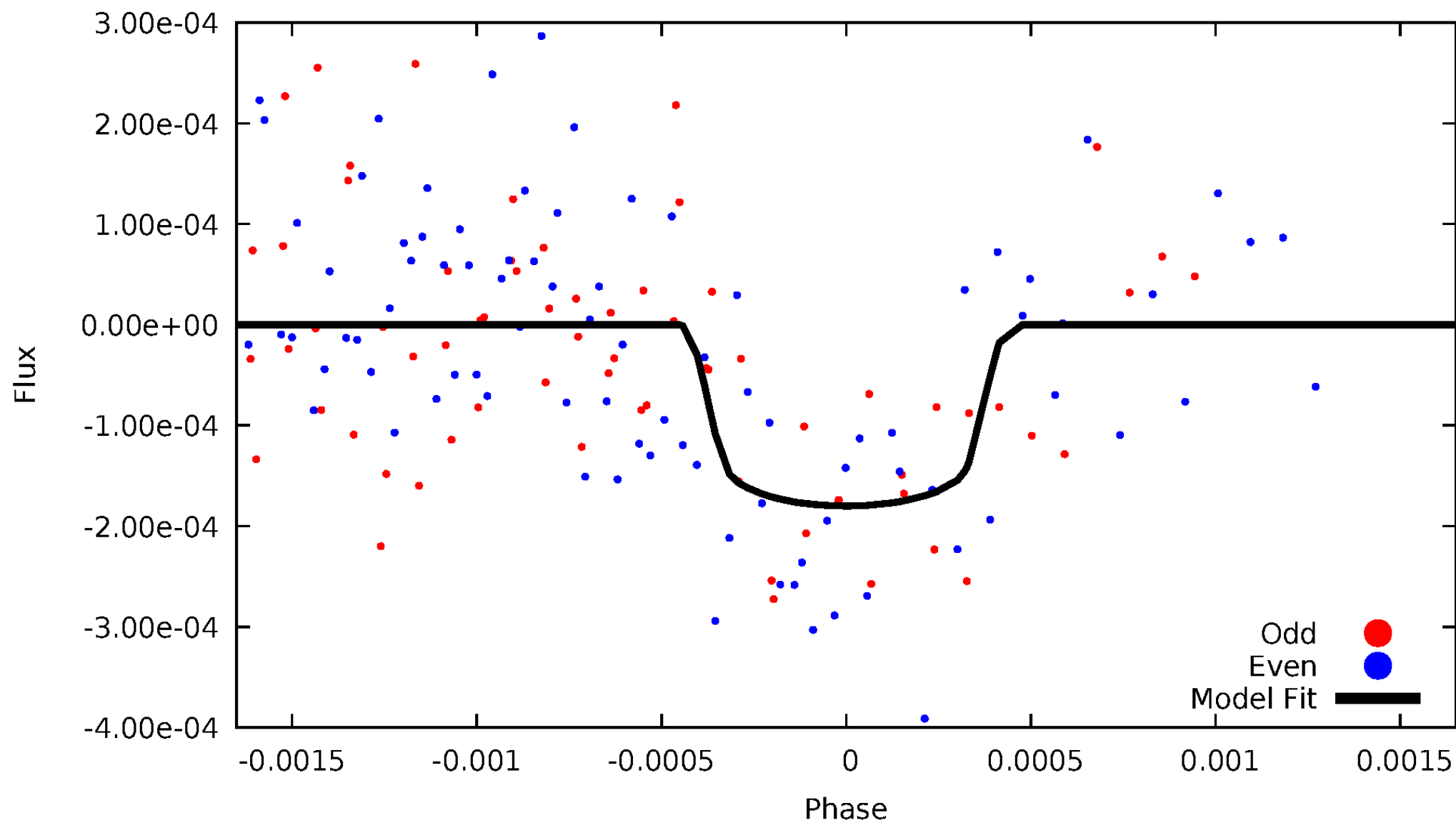


# TCE 010269598-03



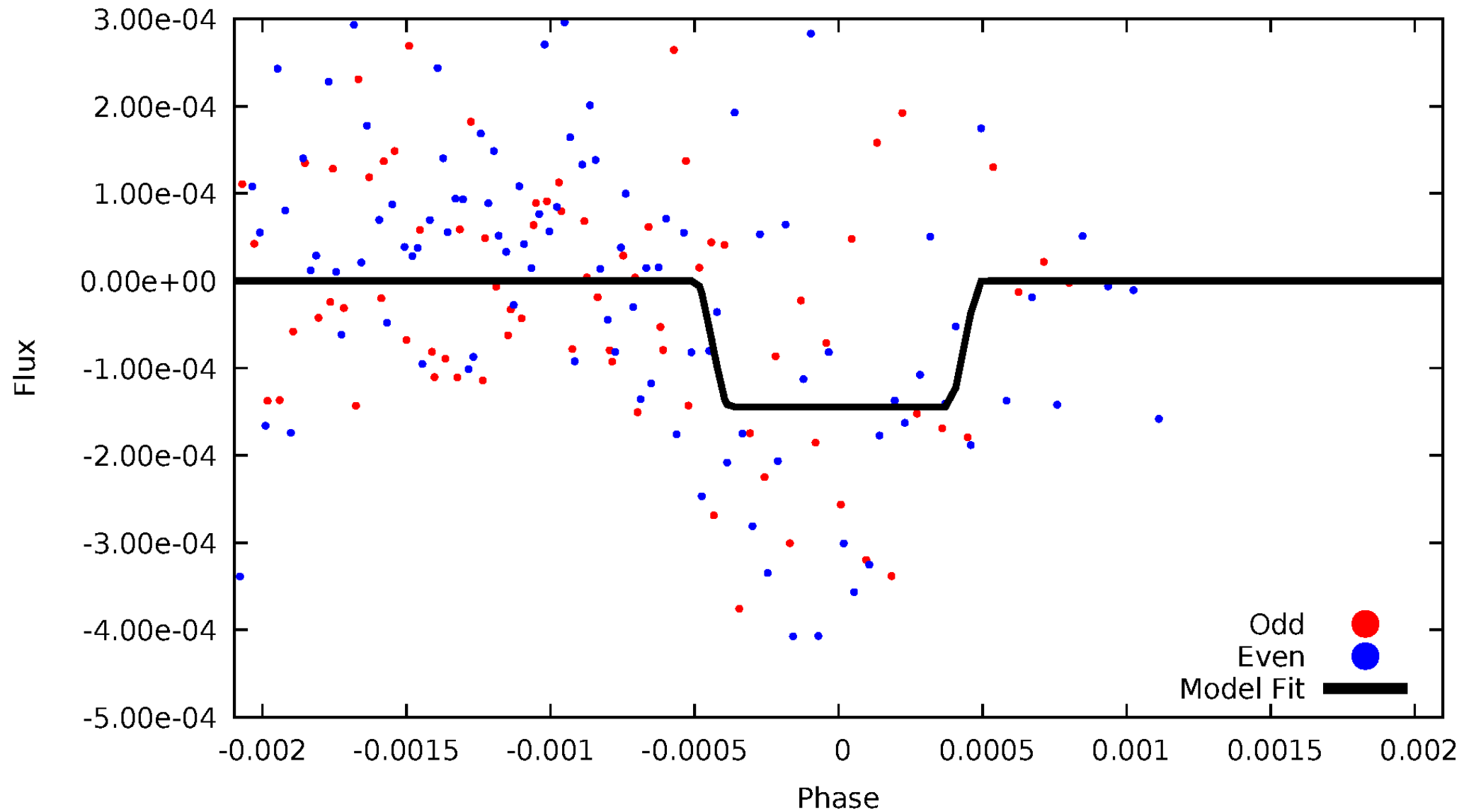
# DV Odd/Even

TCE 010269598-03



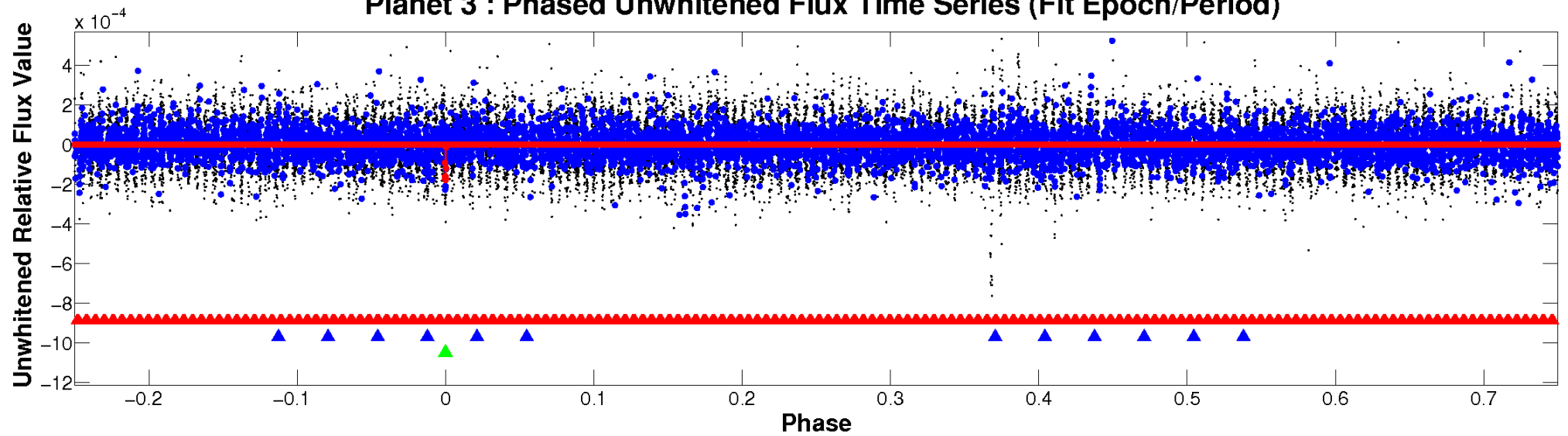
# ALT Odd/Even

TCE 010269598-03

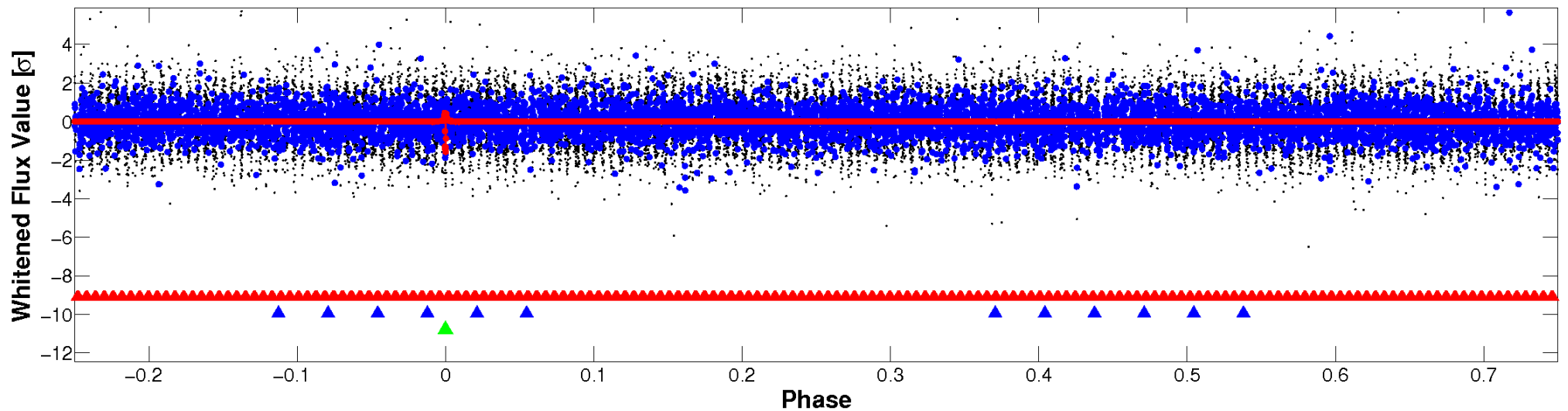


# Non-Whitened Vs. Whitened Light Curve

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

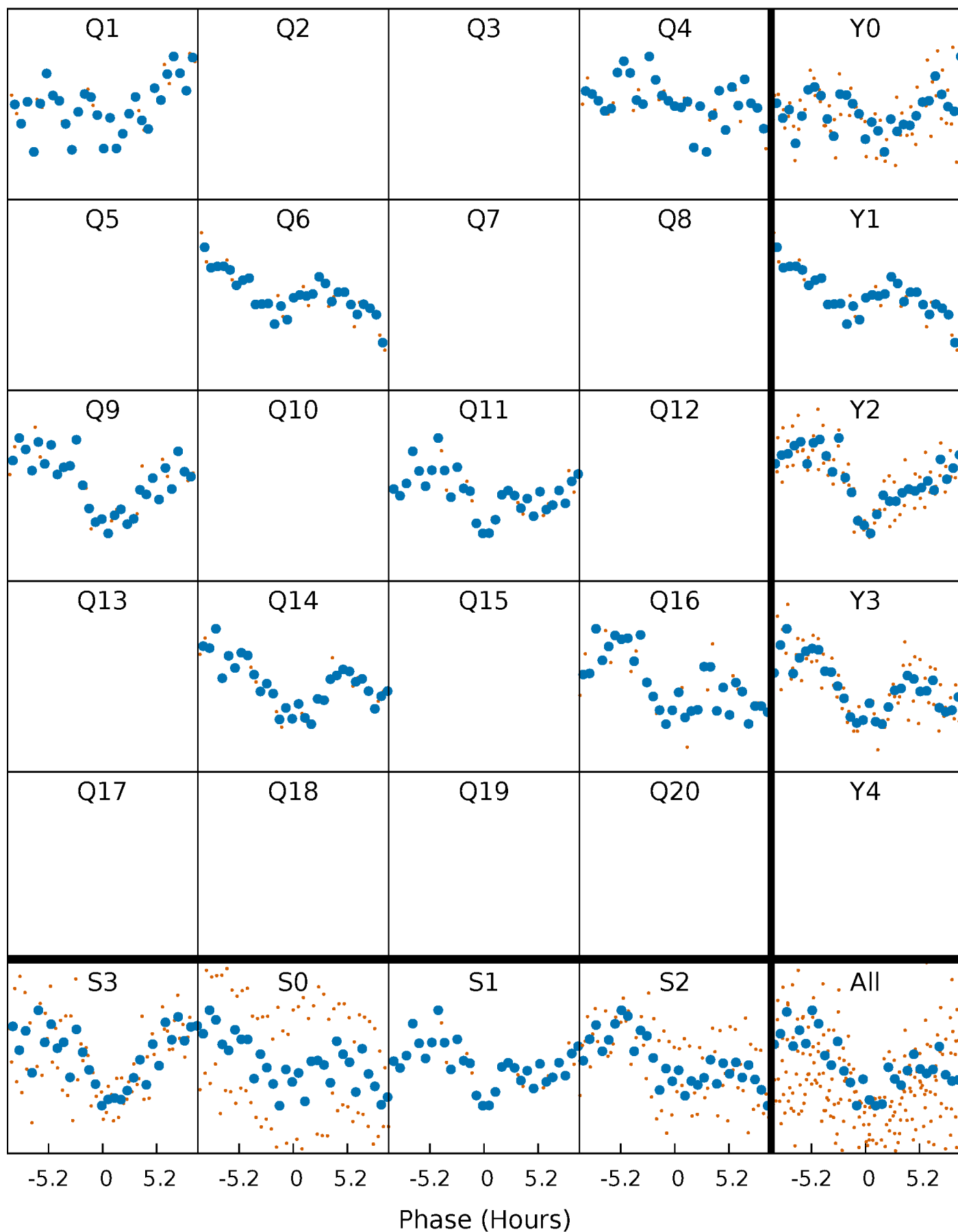


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



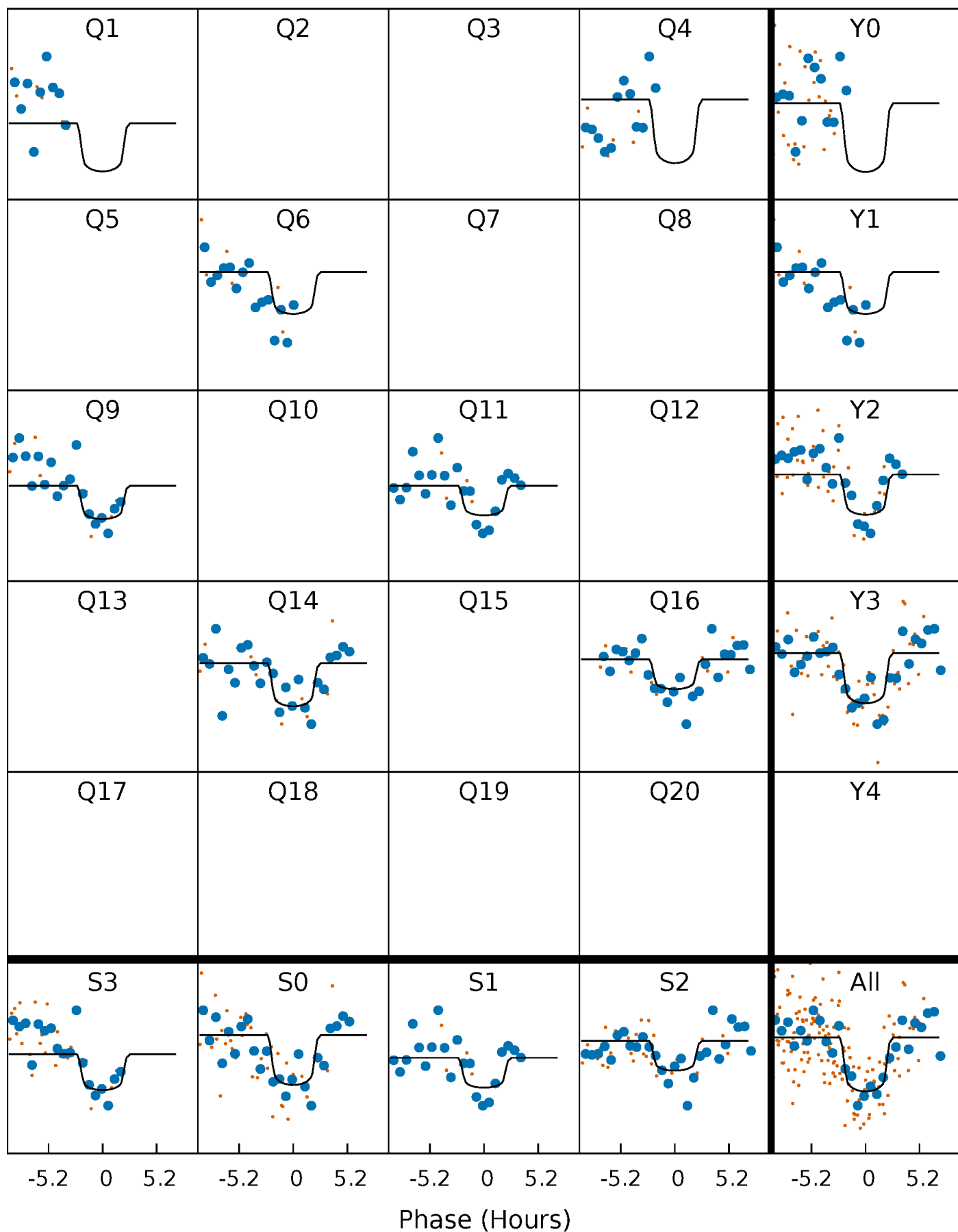
# PDC Quarter-Phased Transit Curves

TCE 010269598-03     $P=231.861995$  Days     $T_0=153.333274$  (BKJD)



# DV Quarter-Phased Transit Curves

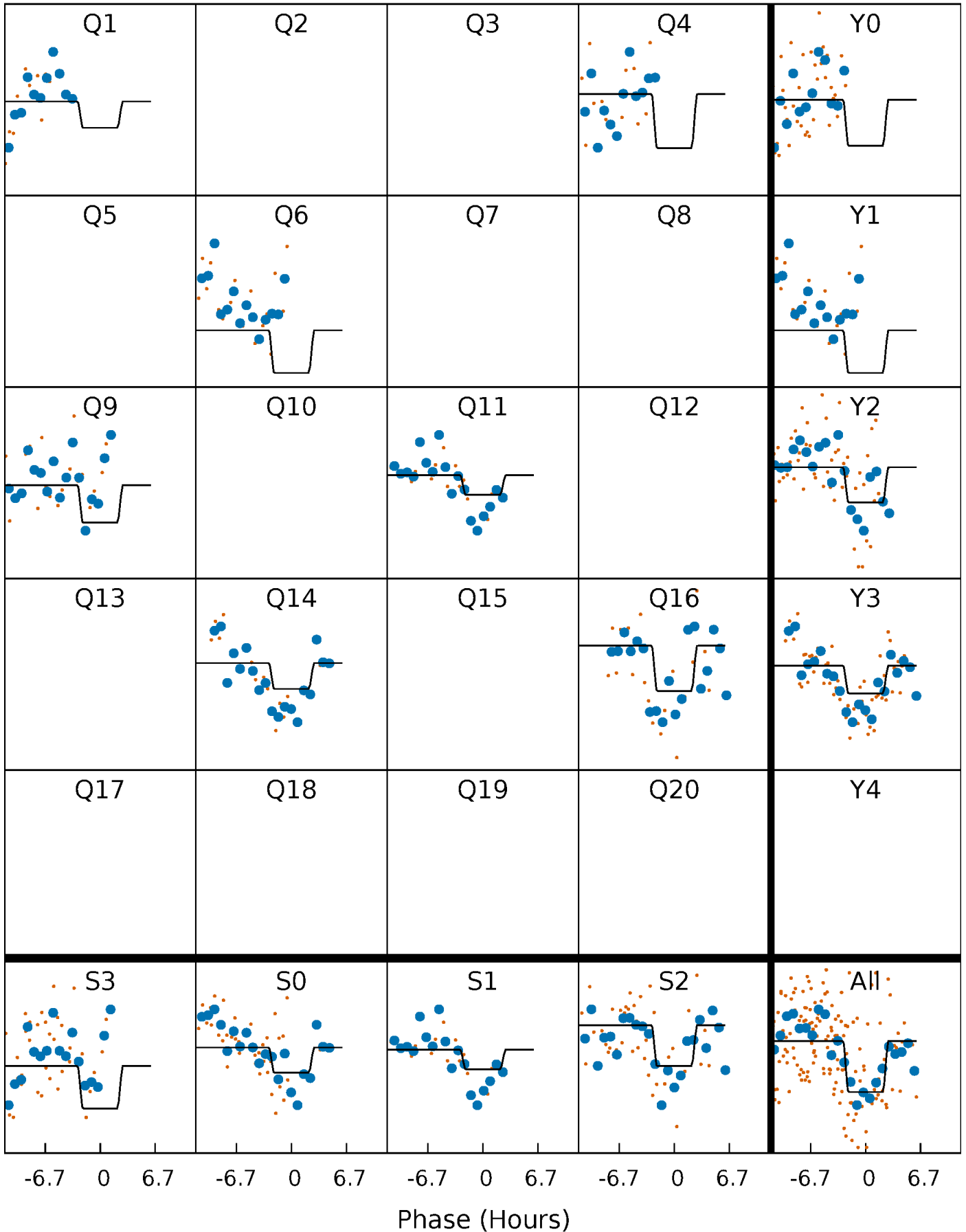
TCE 010269598-03 P=231.861995 Days  $T_0=153.333274$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

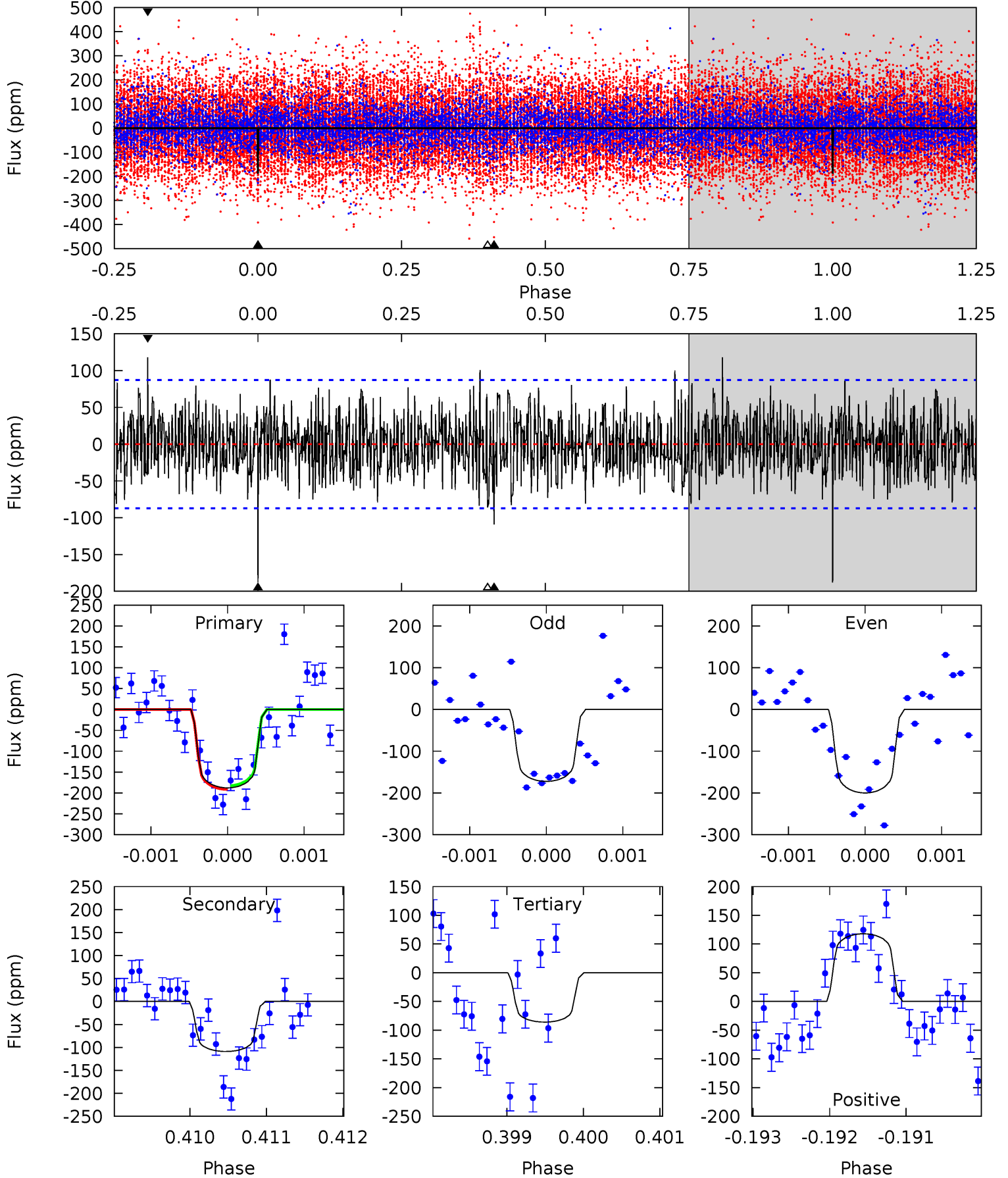
TCE 010269598-03     $P=231.865715$  Days     $T_0=153.347703$  (BKJD)



# DV Model-Shift Uniqueness Test

010269598-03, P = 231.861995 Days, E = 153.333274 Days

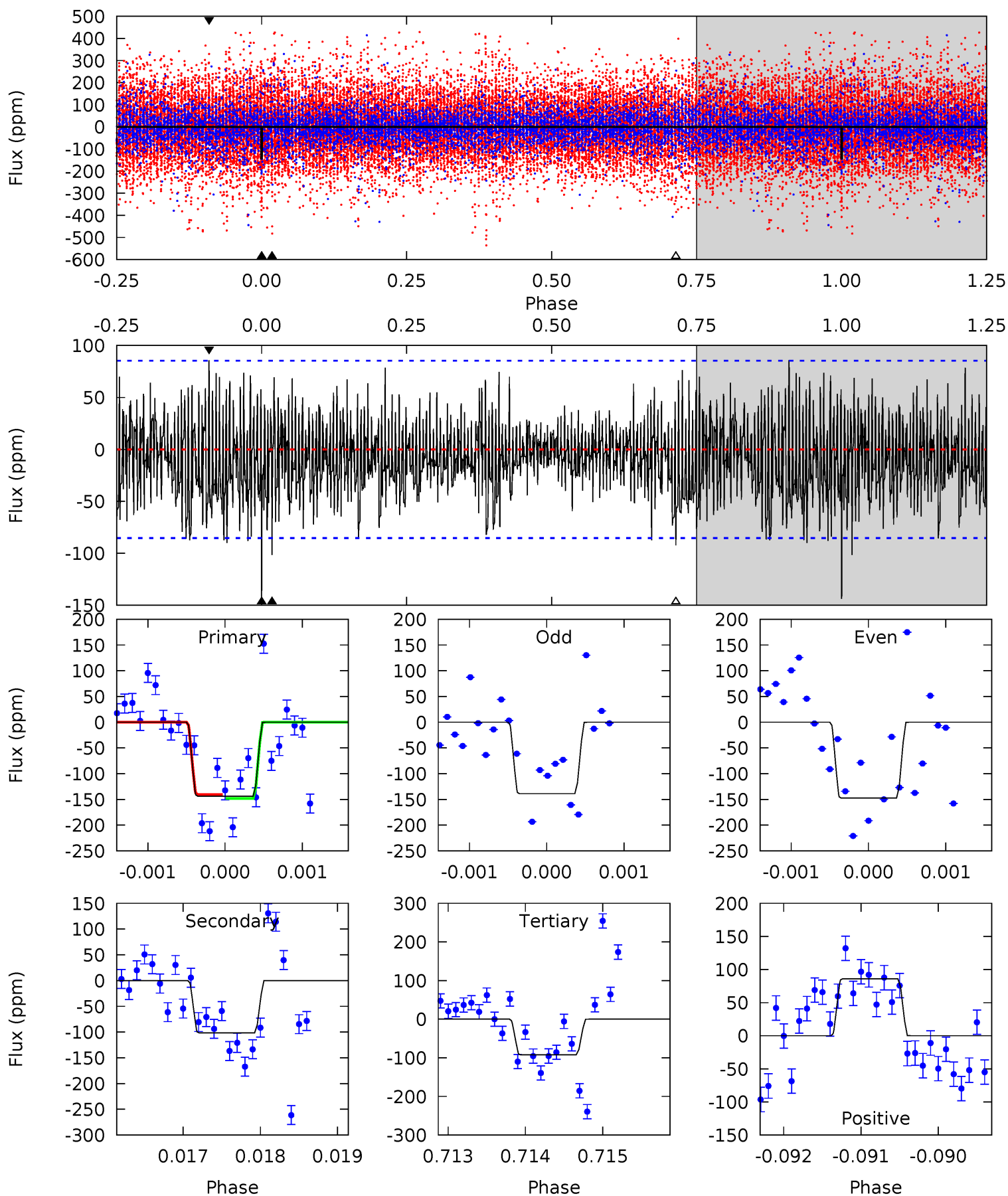
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	6.83	5.39	7.39	5.46	3.31	1.85	6.39	4.39	1.44	-0.56	0.86	0.85	0.39	0.27



# Alt Model-Shift Uniqueness Test

010269598-03, P = 231.865715 Days, E = 153.347703 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
9.18	6.48	5.89	5.49	5.45	3.29	1.78	3.29	3.69	0.59	1.00	0.27	0.65	0.37	0.24



### Stellar Parameters For KIC 010269598

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7201^{+200}_{-275}$	$4.227^{+0.075}_{-0.210}$	$0.000^{+0.200}_{-0.400}$	$1.551^{+0.542}_{-0.232}$	$1.478^{+0.226}_{-0.204}$	$0.558^{+0.234}_{-0.314}$
	+3%/-4%	+2%/-5%	+inf%/-inf%	+35%/-15%	+15%/-14%	+42%/-56%
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 010269598-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-109 \pm 16$	$2.56^{+0.96}_{-0.85}$	$613^{+49}_{-33}$	$6072^{+1356}_{-813}$	$6381^{+8147}_{-2983}$
Alt.	$-101 \pm 16$	$2.09^{+0.87}_{-0.77}$	$613^{+46}_{-35}$	$6542^{+2106}_{-1000}$	$8917^{+13736}_{-4713}$

$T_{max}$  = 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

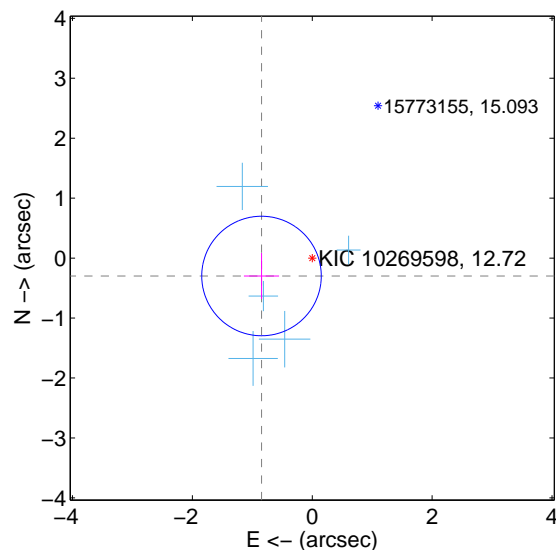
Supplemental centroid analysis for 010269598-03. Kepler magnitude: 12.72. Transit SNR 8.71

There are 5 quarters with good PRF difference image offsets

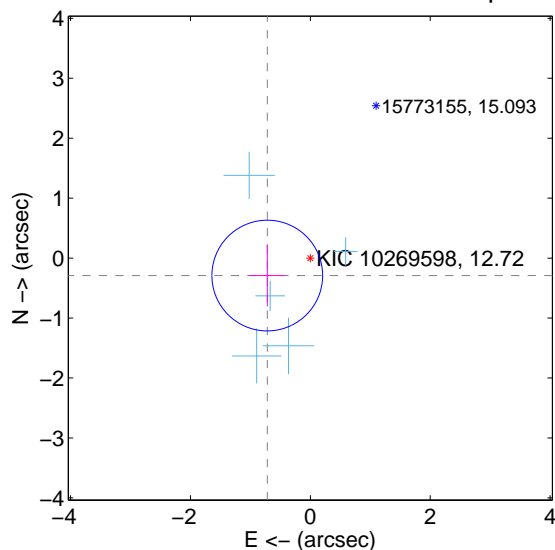
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.897 \pm 0.332$	2.70	$0.846 \pm 0.293$	$-0.298 \pm 0.383$
PRF-fit source offset from KIC position	$0.775 \pm 0.308$	2.52	$0.718 \pm 0.293$	$-0.291 \pm 0.515$
photometric centroid source offset	$0.49 \pm 0.96$	0.51	$-0.48 \pm 0.96$	$-0.06 \pm 1.04$

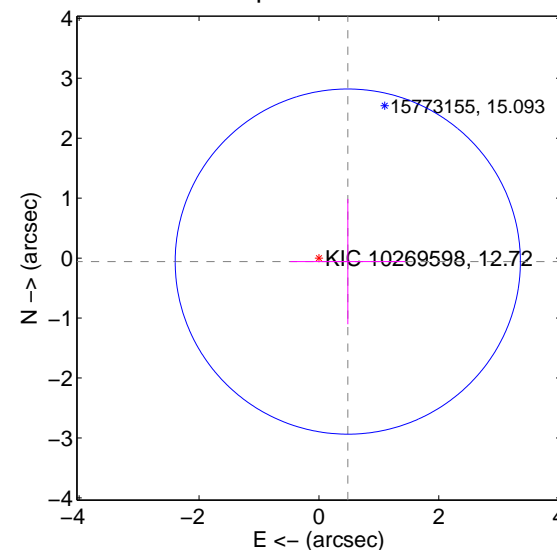
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

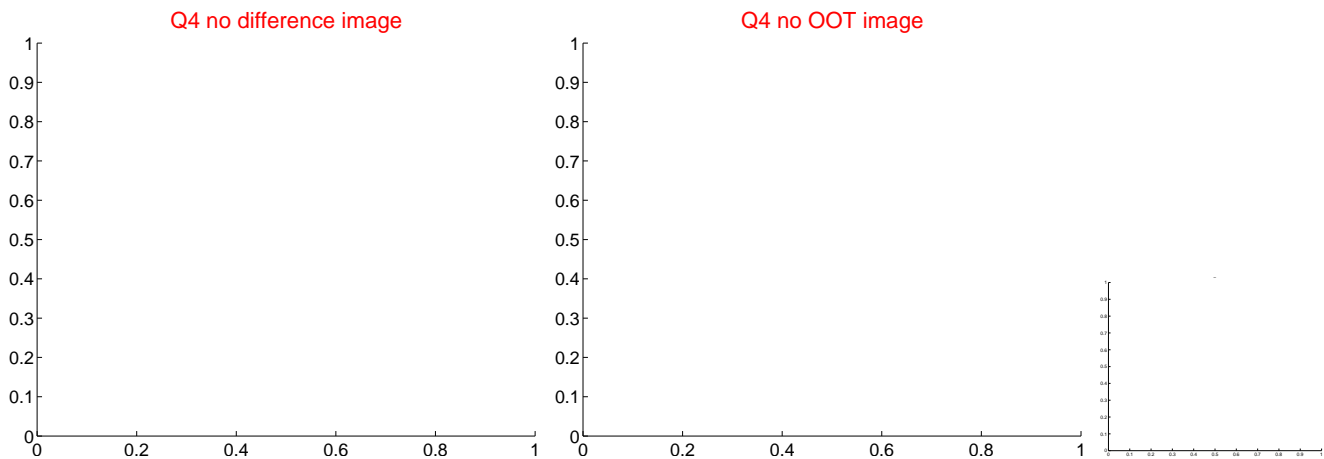
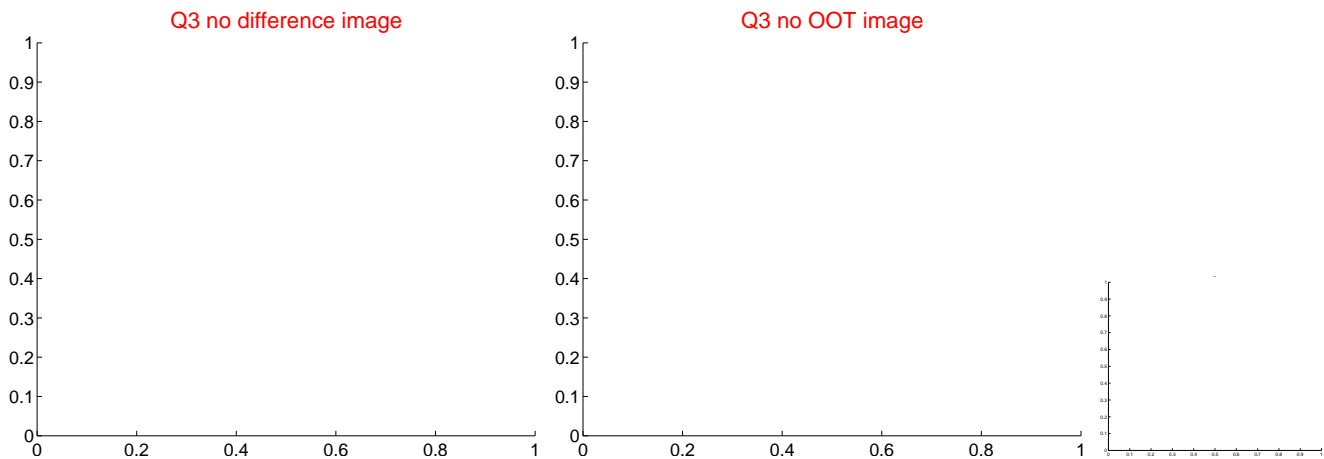
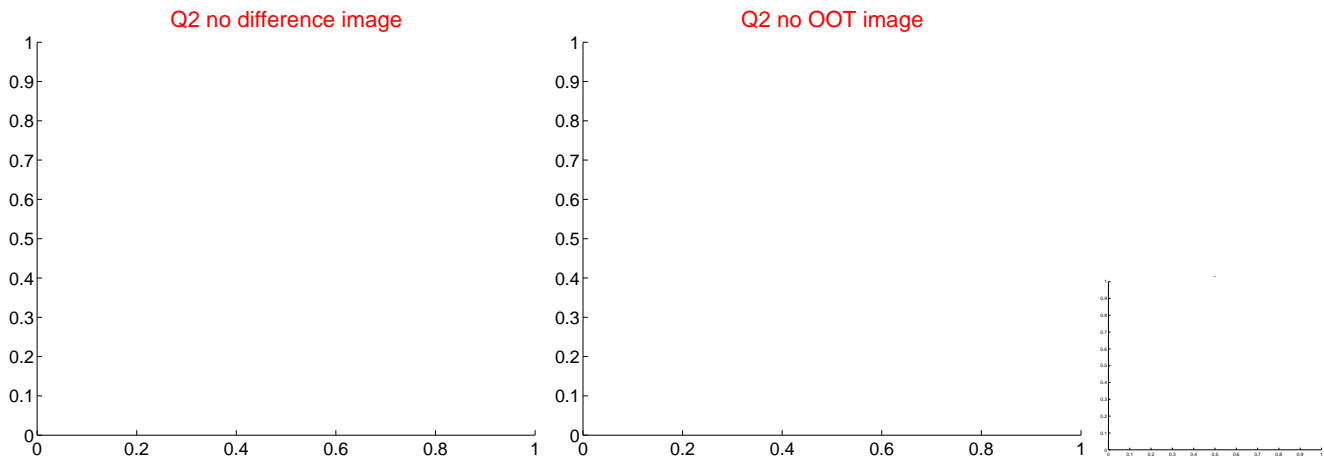
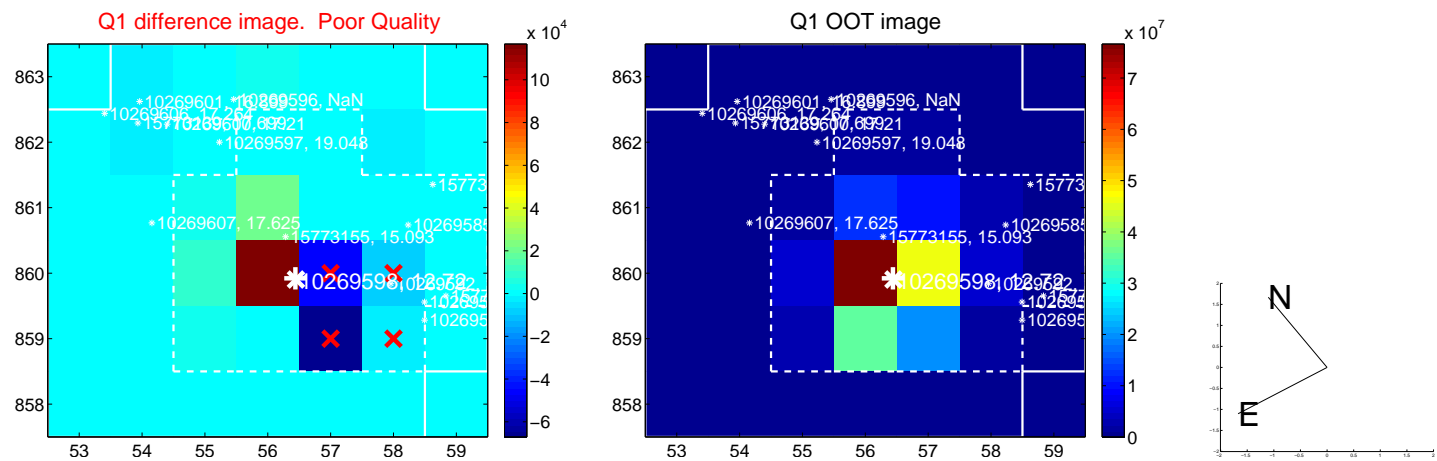


offset from photometric centroids



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

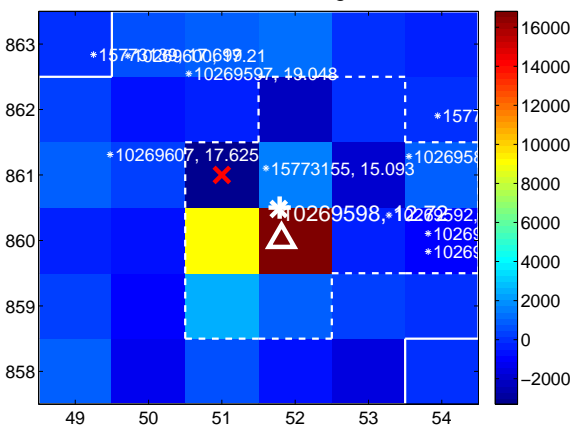
Q5 no difference image



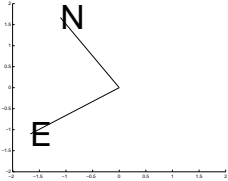
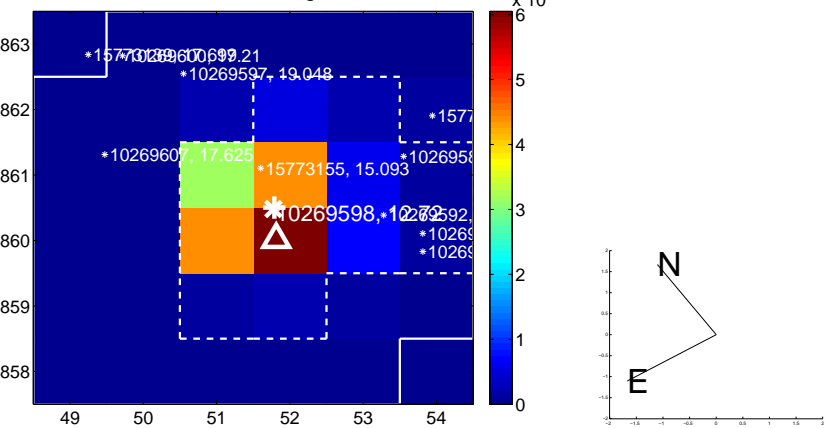
Q5 no OOT image



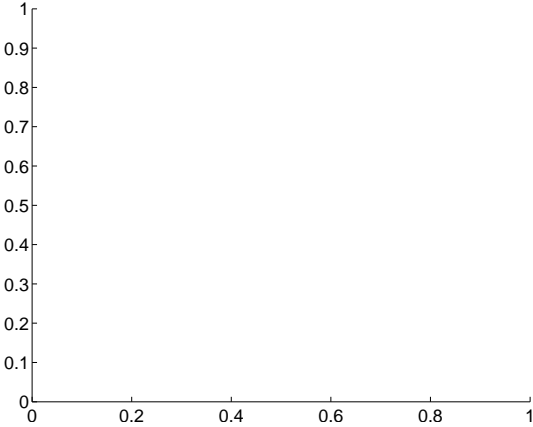
Q6 difference image



Q6 OOT image



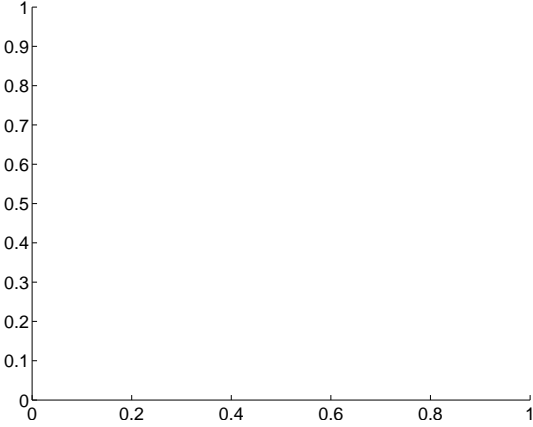
Q7 no difference image



Q7 no OOT image



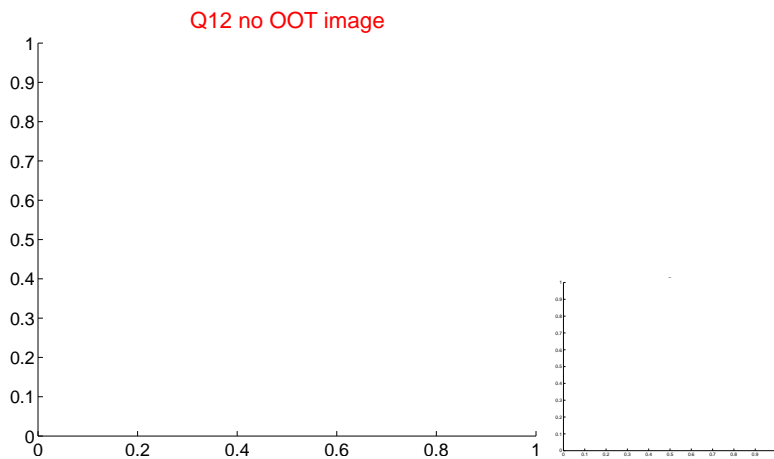
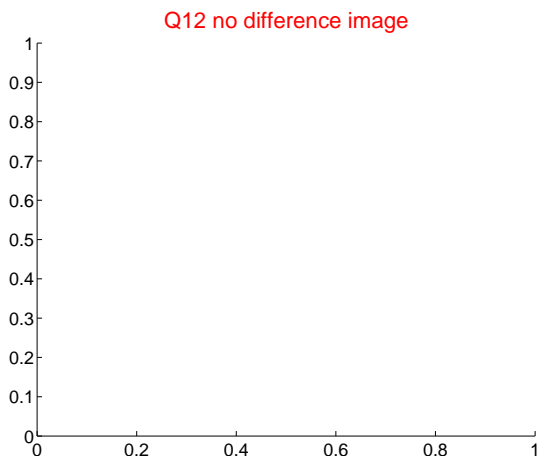
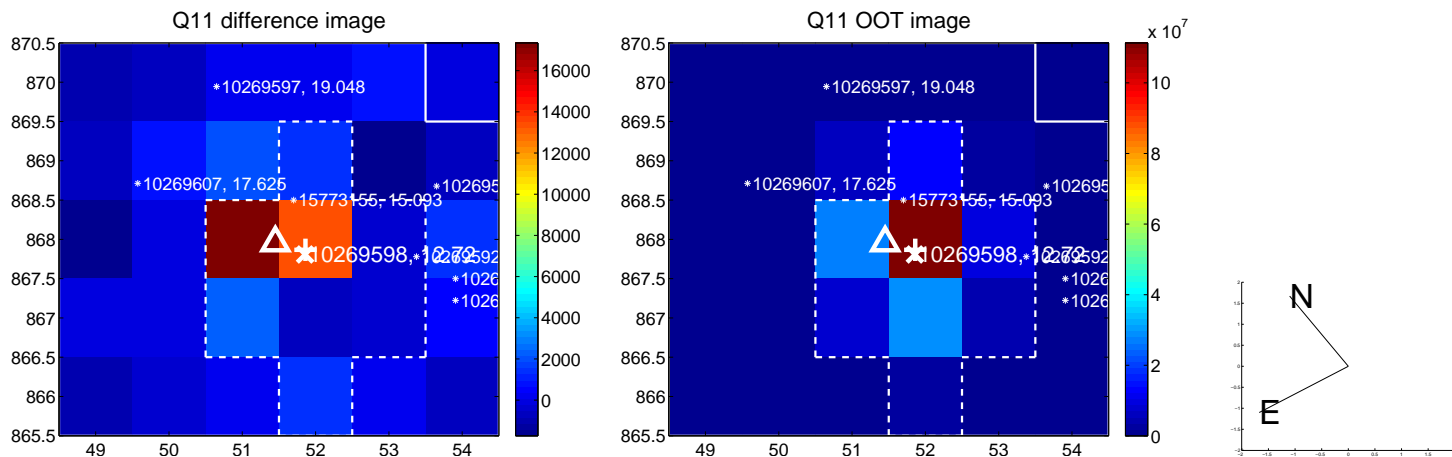
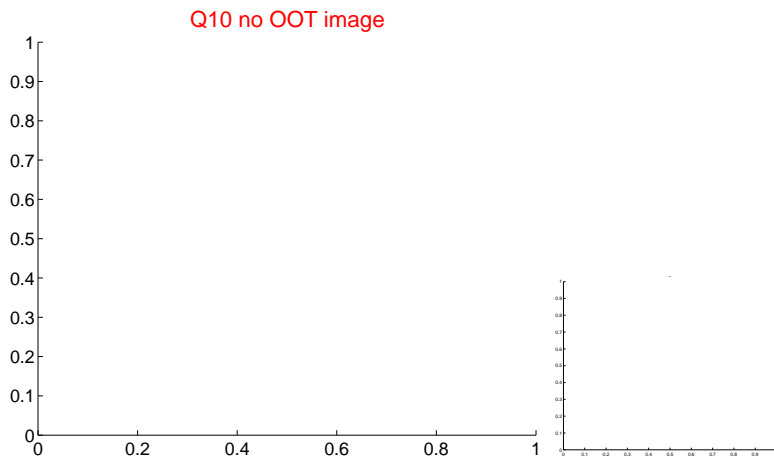
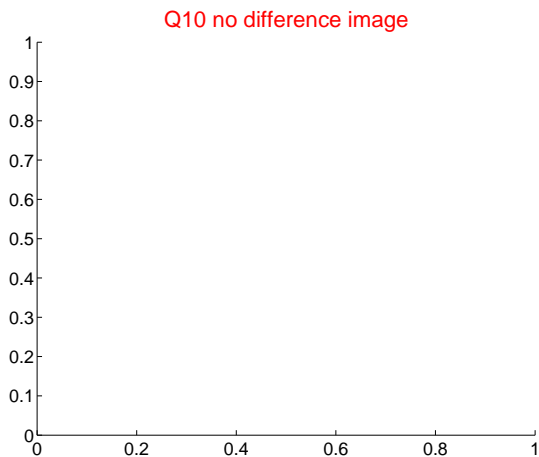
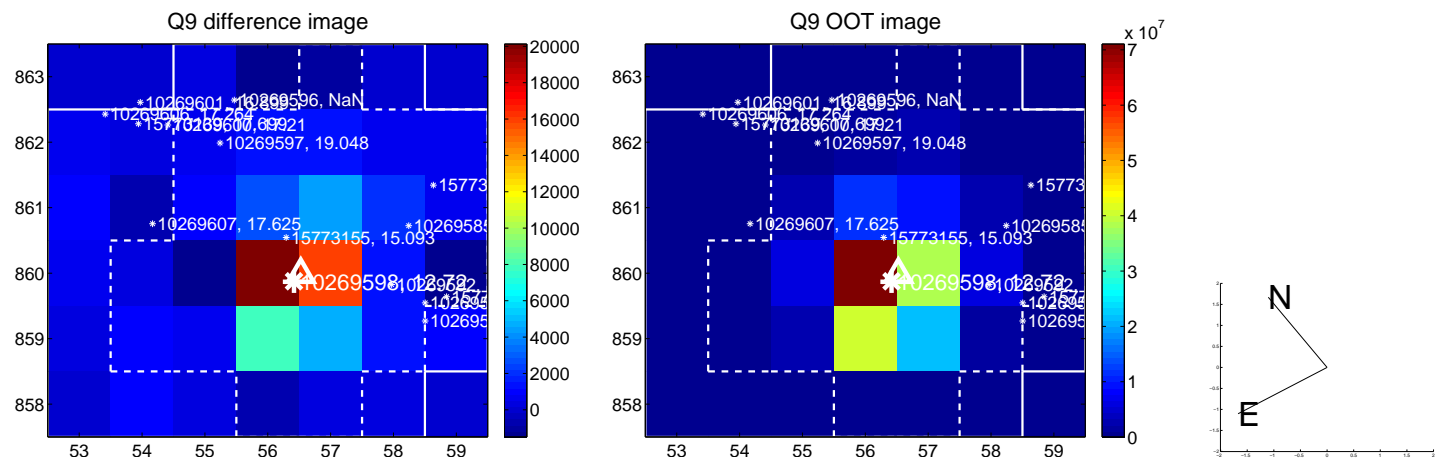
Q8 no difference image



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.

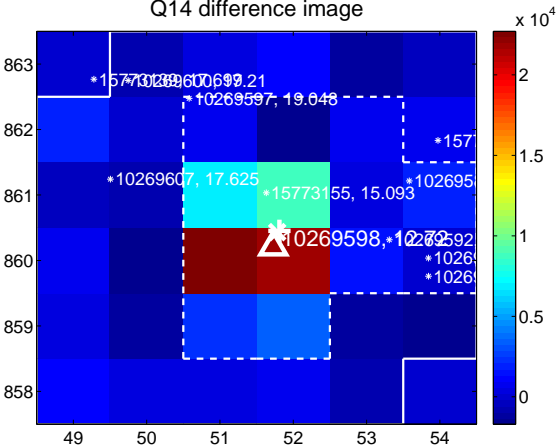
Q13 no difference image



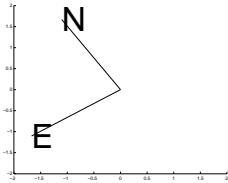
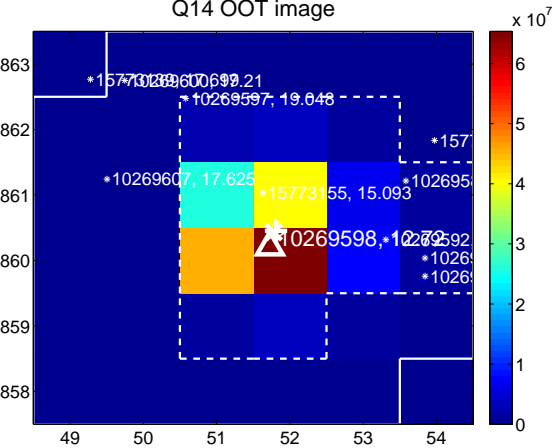
Q13 no OOT image



Q14 difference image



Q14 OOT image



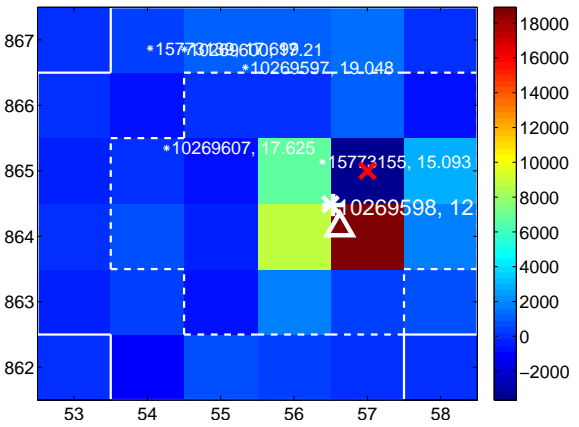
Q15 no difference image



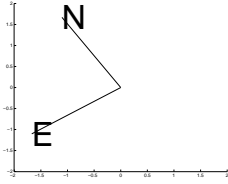
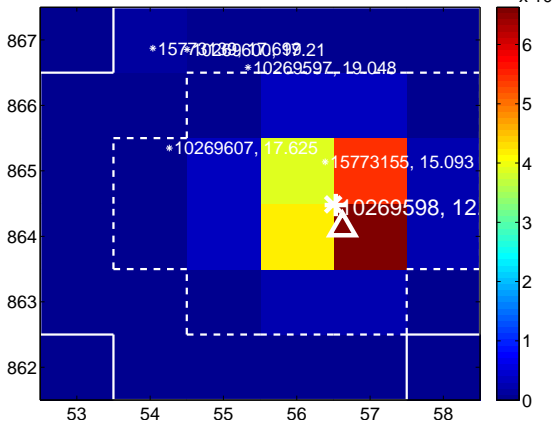
Q15 no OOT image



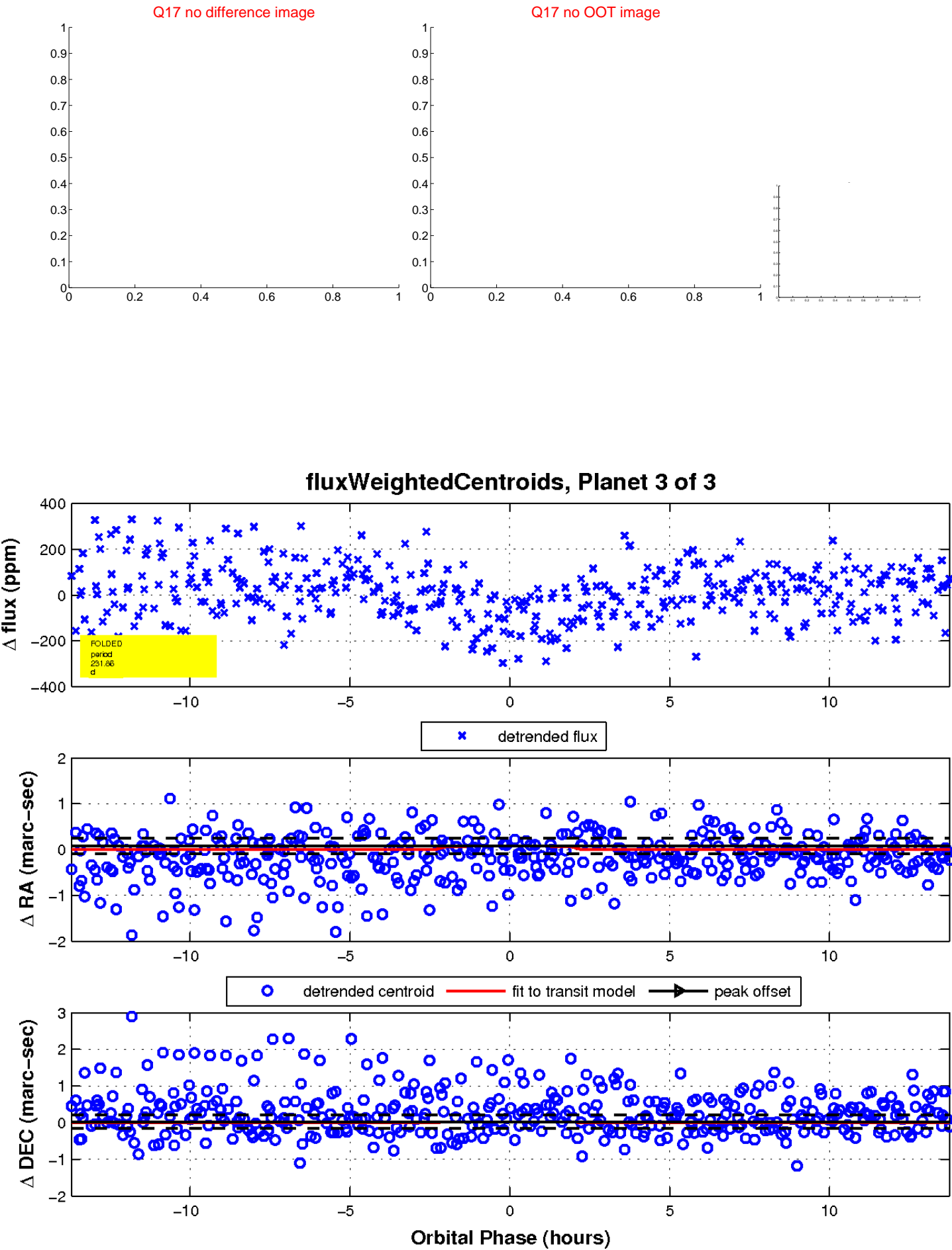
Q16 difference image



Q16 OOT image



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



UKIRT Image

Declination

