

# KIC 008565900

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008565900-01	OBS	7060.01	1.641204	131.948593	51.1	12.386	8.8	8.3	0.83	5207	0.58	702.69
008565900-03	OBS	No	26.304354	146.658176	141.4	1.913	29.4	1.5	0.83	5207	1.04	17.39
008565900-04	OBS	No	26.342197	145.515743	402.4	24.765	33.2	4.0	0.83	5207	1.95	17.36
008565900-05	OBS	No	26.217212	134.521411	1957.5	2.500	13.8	-1.0	0.83	5207	3.59	17.47

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008565900-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008565900-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
008565900-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_KIC_POS—HALO_GHOST
008565900-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

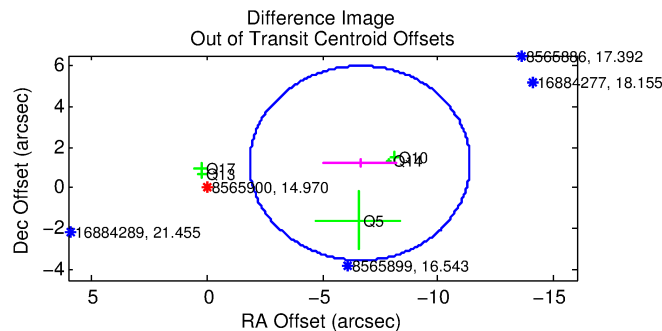
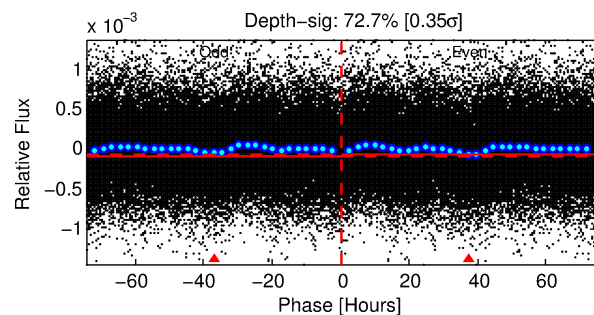
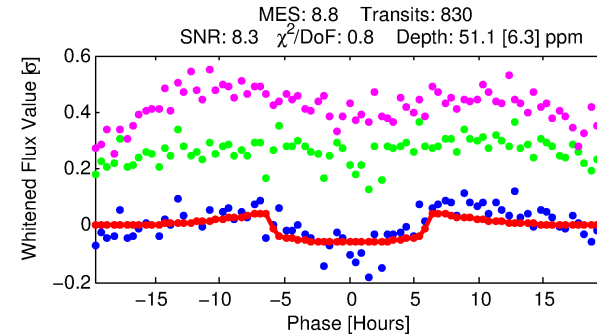
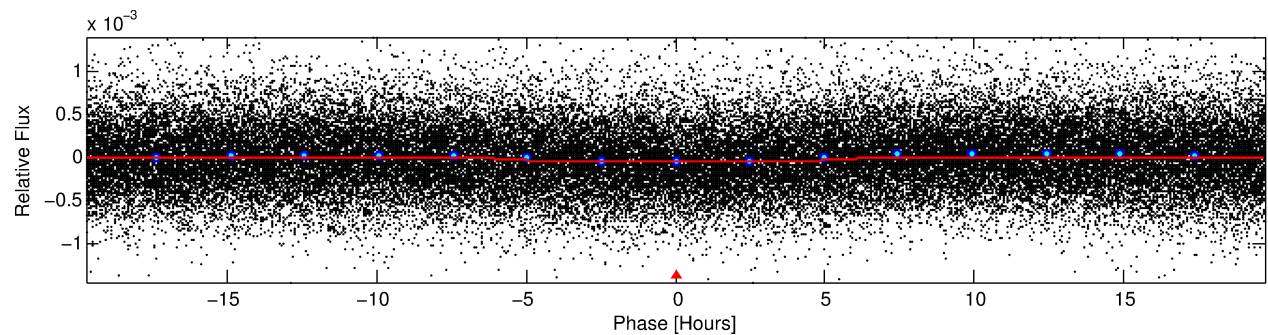
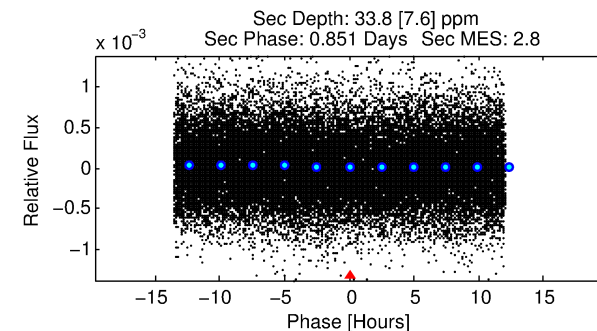
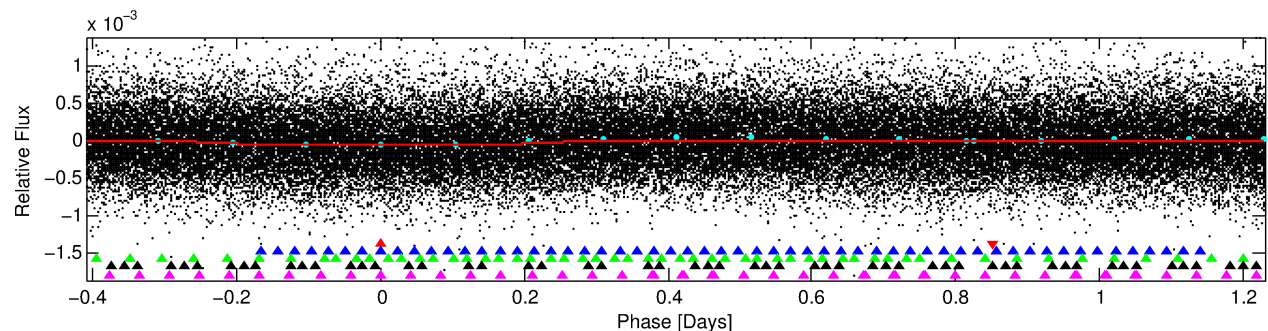
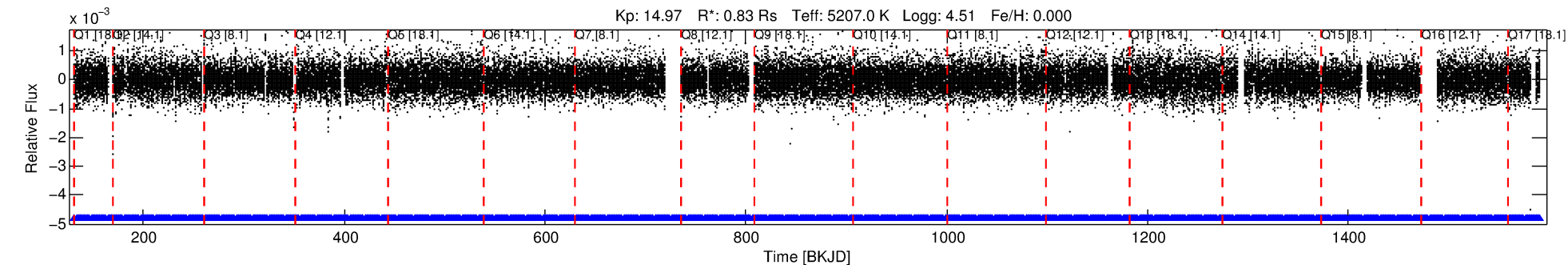
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008565900-01

No Significant Match Found

# DV One-Page Summary

KIC: 8565900 Candidate: 1 of 5 Period: 1.641 d  
KOI: K07060.01 Corr: 0.891



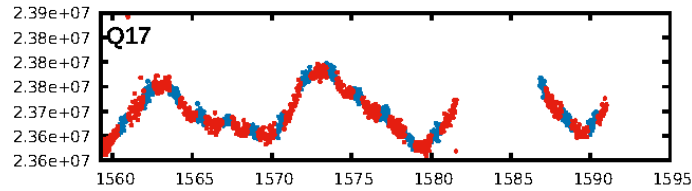
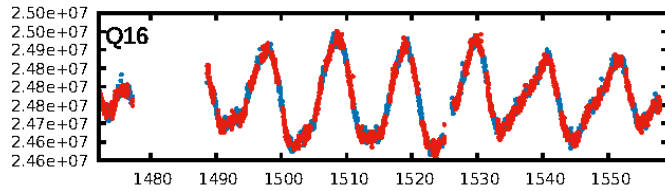
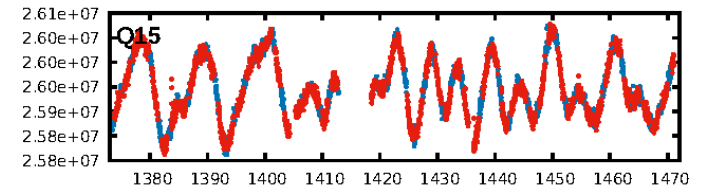
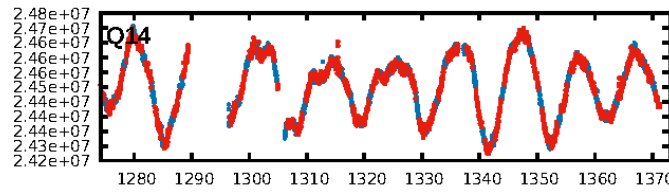
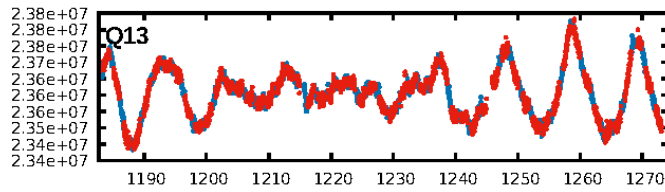
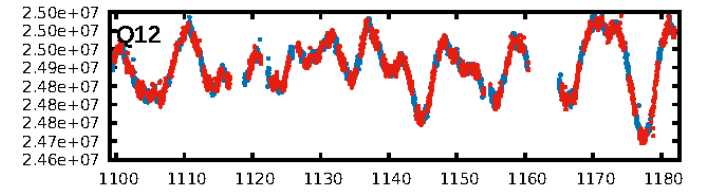
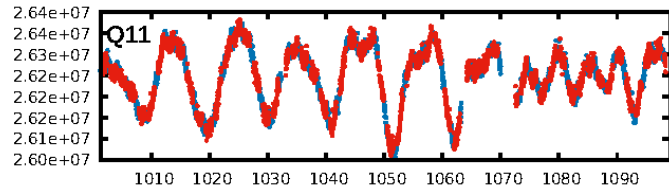
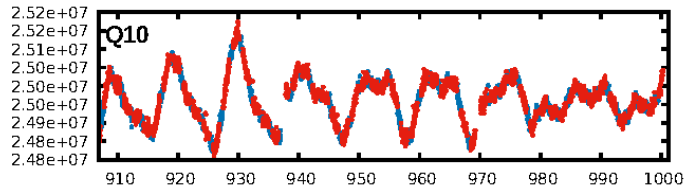
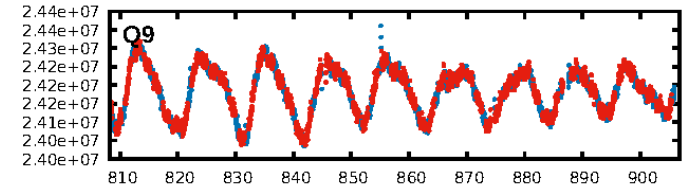
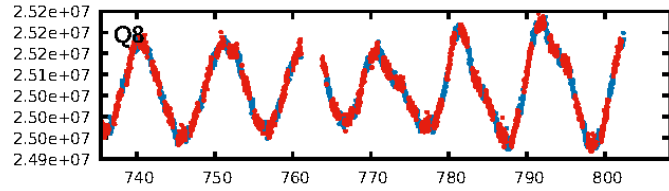
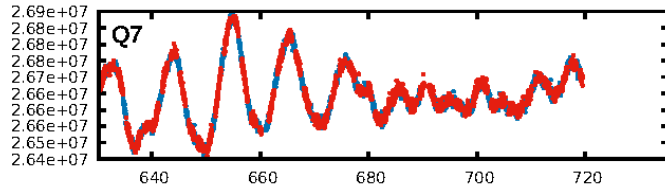
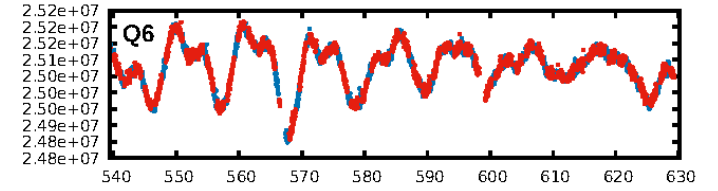
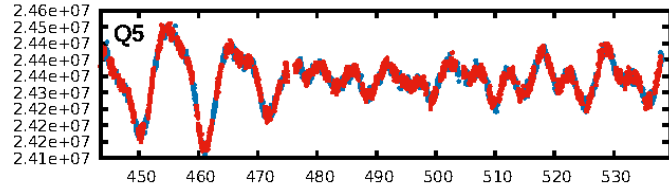
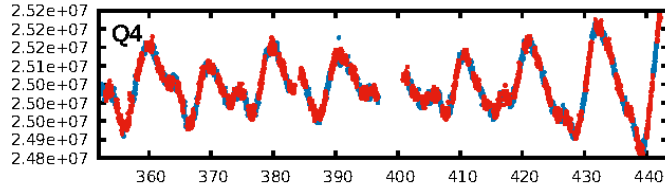
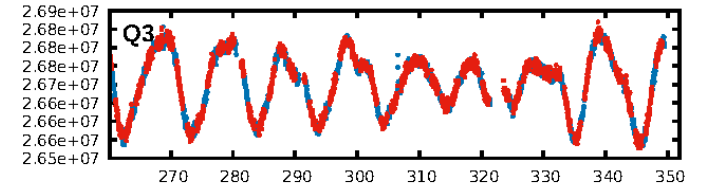
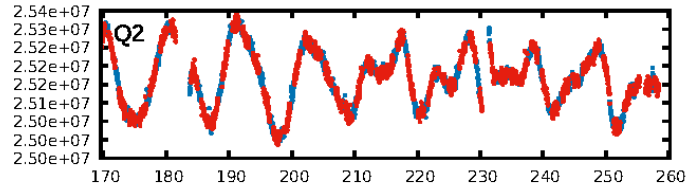
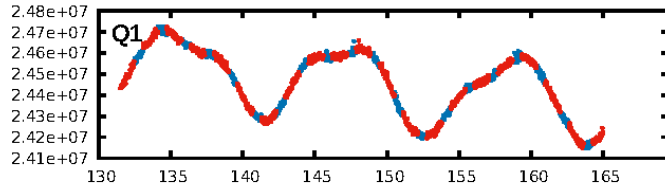
## DV Fit Results:

Period = 1.64120 [0.00003] d  
Epoch = 131.9486 [0.0080] BKJD  
Rp/R\* = 0.0064 [0.0047]  
a/R\* = 1.21 [0.99]  
b = 0.01 [494.36]  
Seff = 702.69 [135.66]  
Teff = 1313 [63] K  
Rp = 0.58 [0.43] Re  
a = 0.0254 [0.0026] AU  
Ag = 36.14 [53.86] [0.65σ]  
Teffp = 4977 [1851] K [1.98σ]

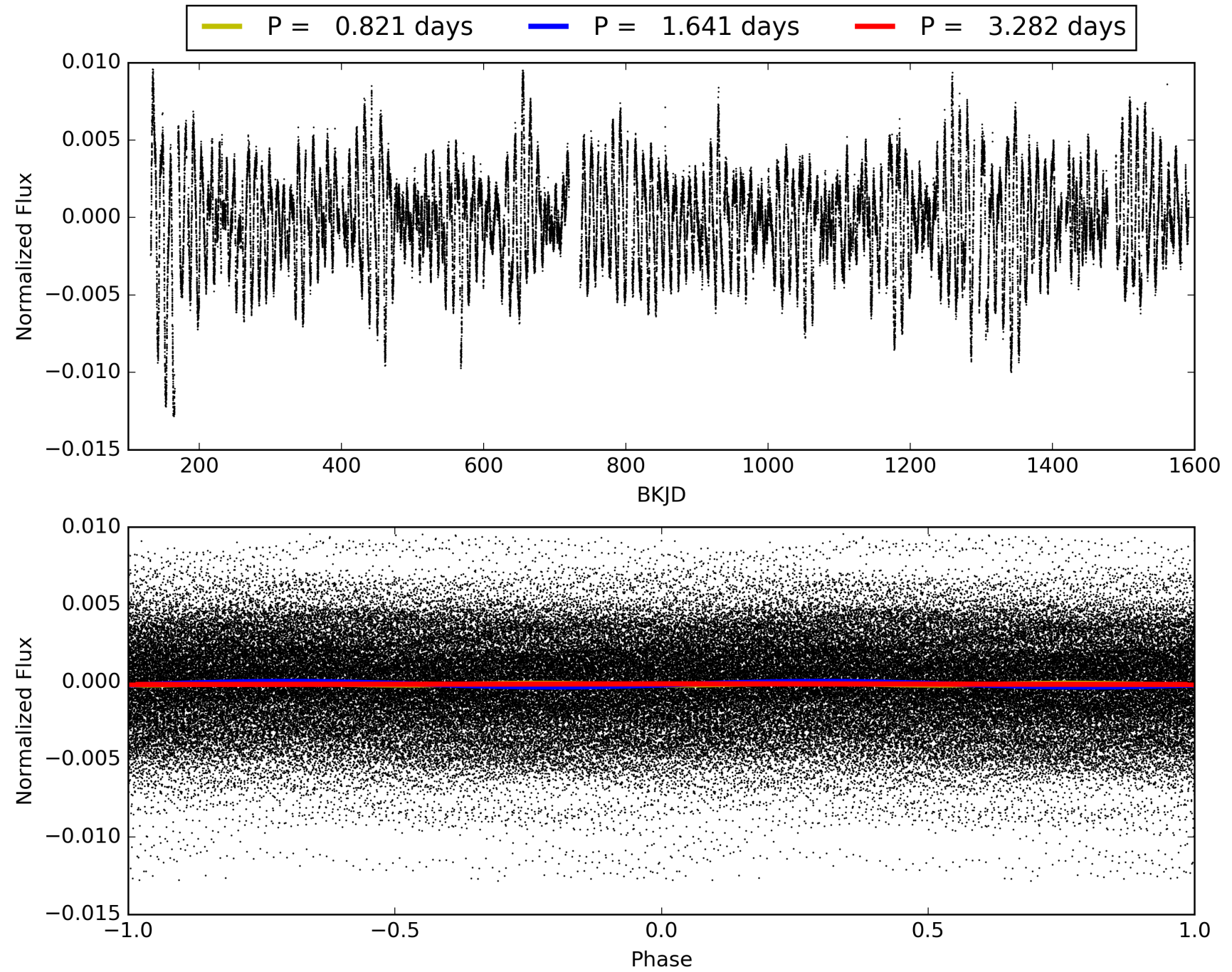
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [46.68σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.49e-59  
RollingBand-fgt: 1.00 [792/792]  
GhostDiagnostic-chr: 1.177  
Centroid-sig: 0.0%  
Centroid-so: 0.949 arcsec [2.01σ]  
OotOffset-rm: 6.732 arcsec [4.24σ]  
KicOffset-rm: 1.086 arcsec [3.10σ]  
OotOffset-st: 2/0/0/3 [5]  
KicOffset-st: 2/1/0/3 [6]  
DiffImageQuality-fgm: 0.67 [4/6]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008565900-01, PDC Light Curves



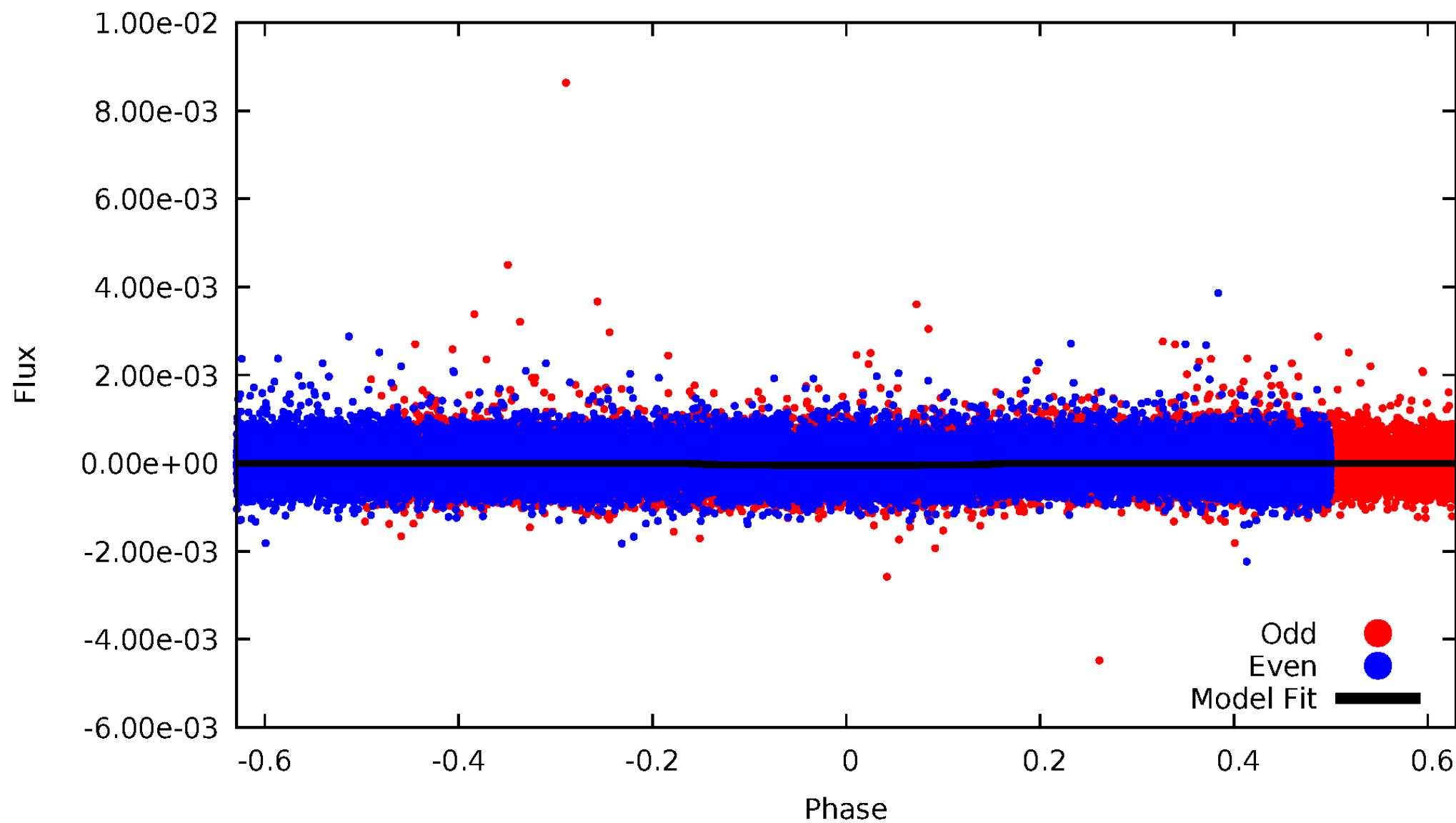
# TCE 008565900-01





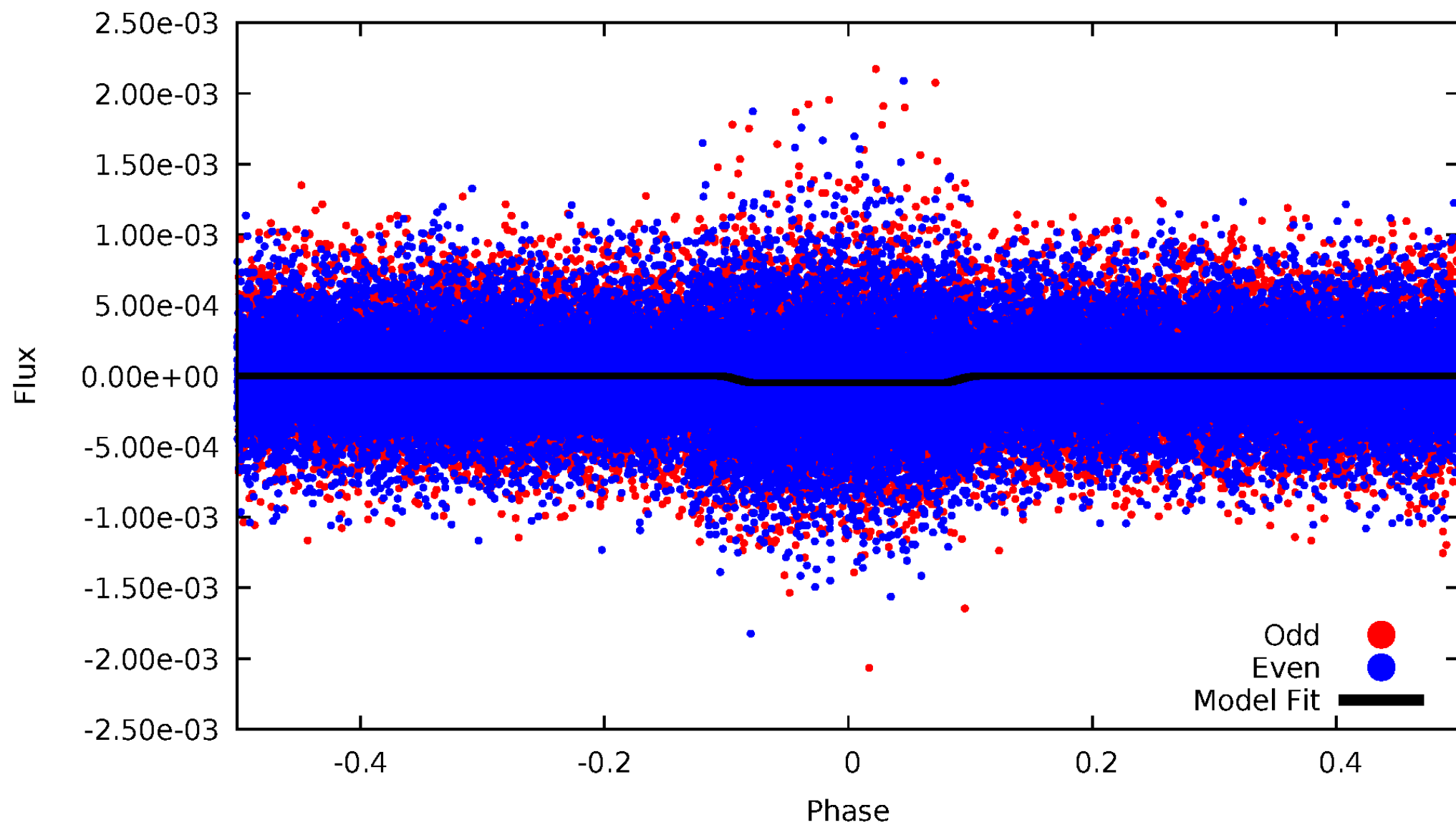
# DV Odd/Even

TCE 008565900-01

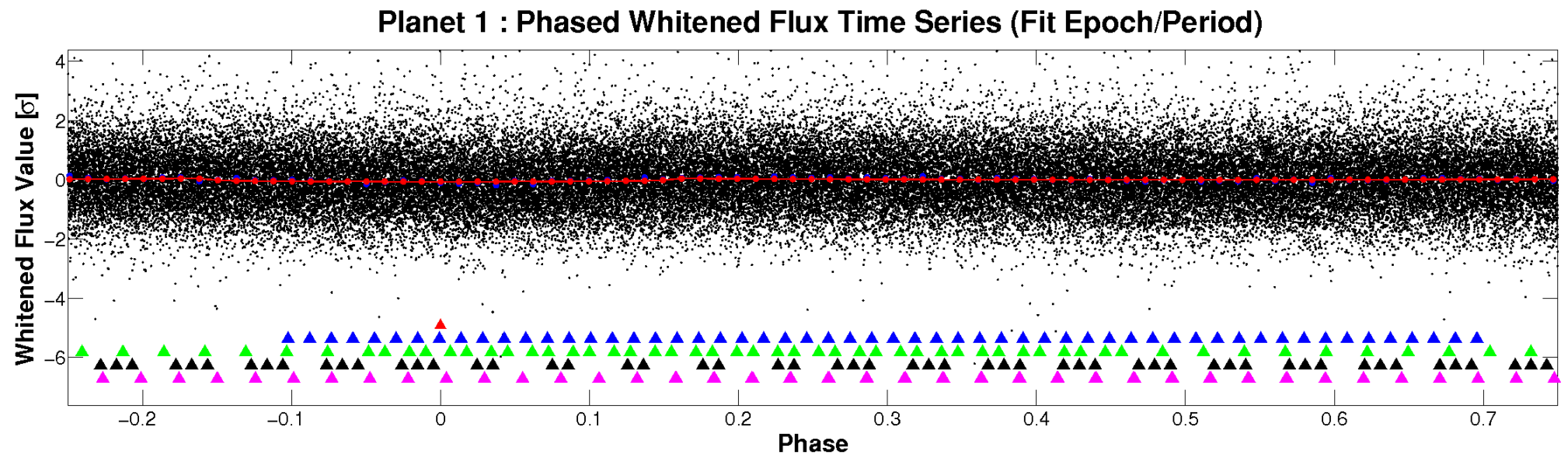
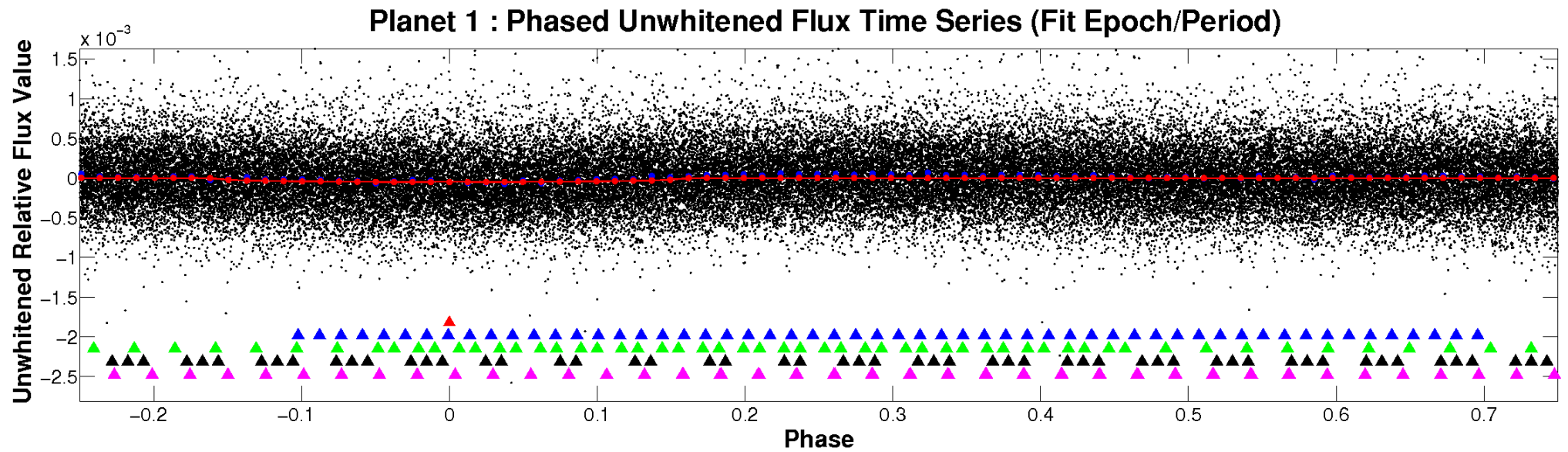


# ALT Odd/Even

TCE 008565900-01

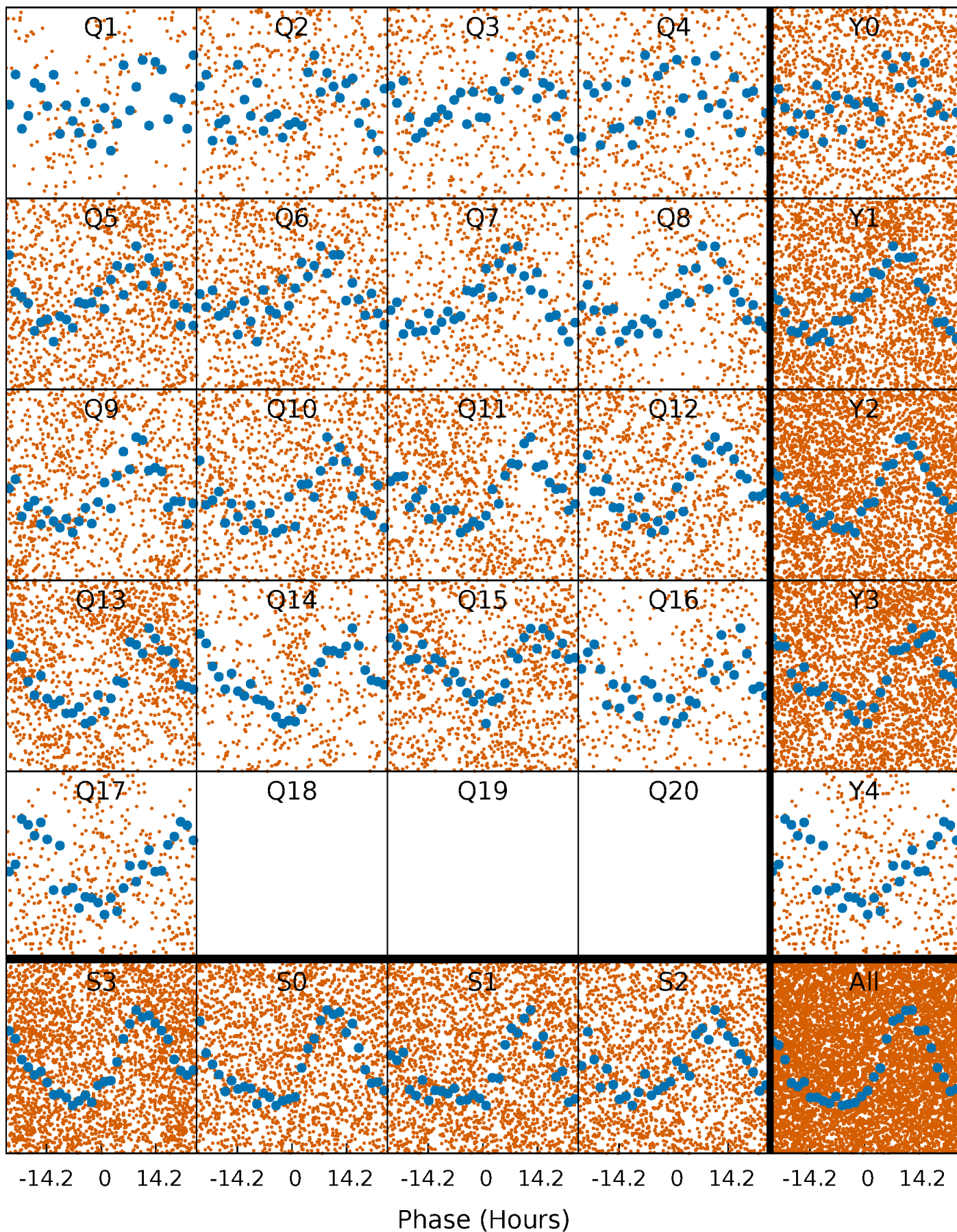


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

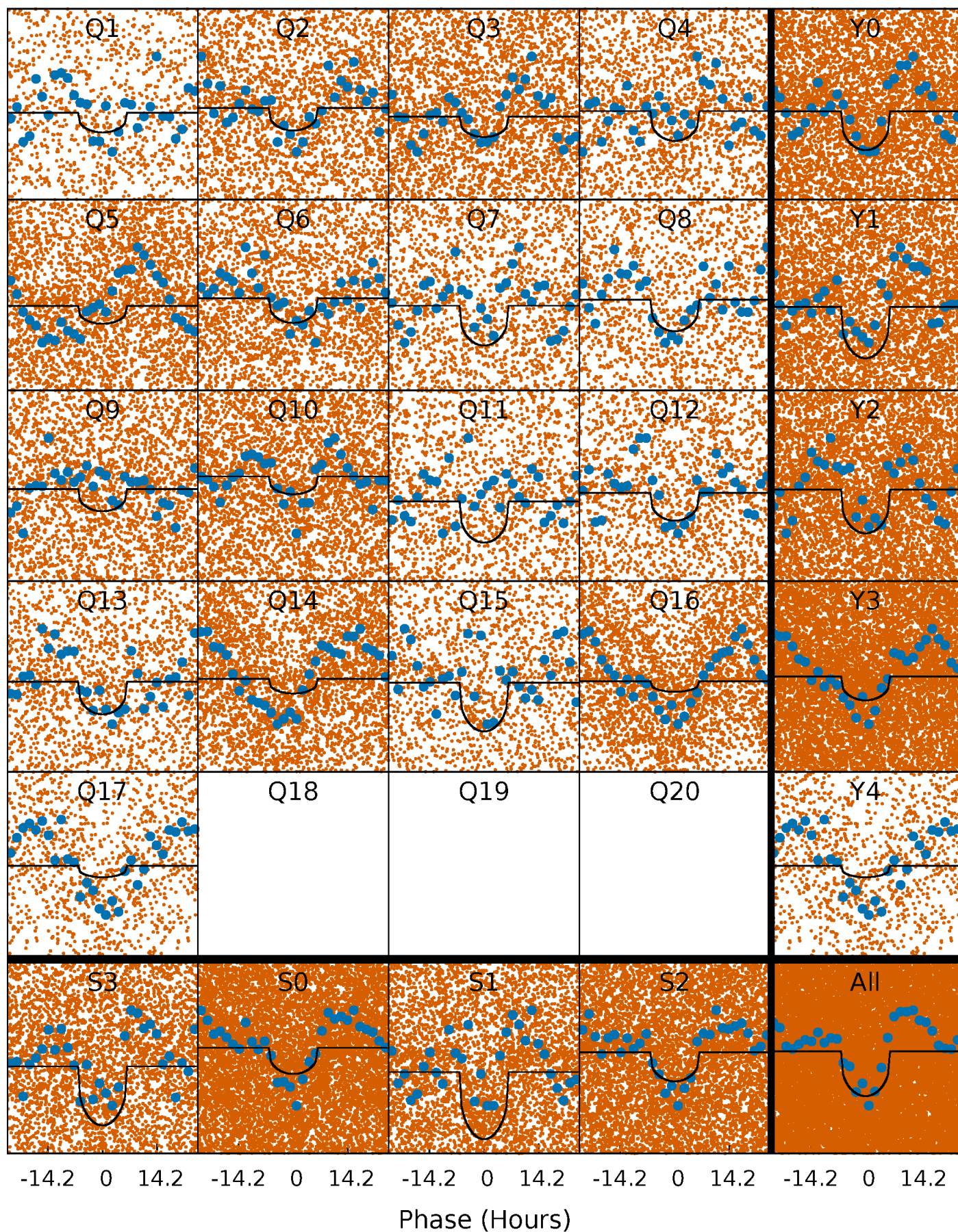
TCE 008565900-01   P= 1.641204 Days    $T_0=131.948593$  (BKJD)





# DV Quarter-Phased Transit Curves

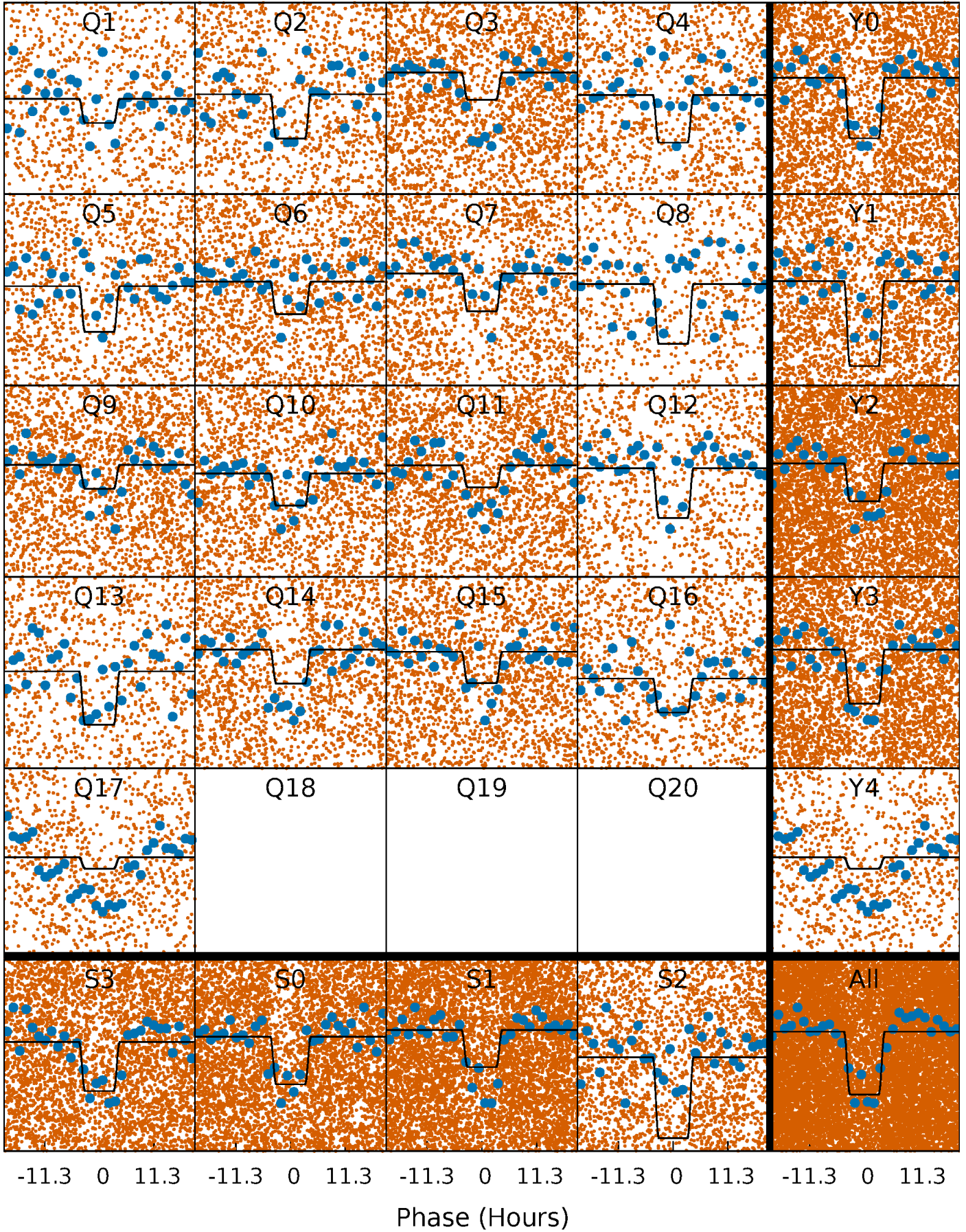
TCE 008565900-01   P= 1.641204 Days    $T_0=131.948593$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

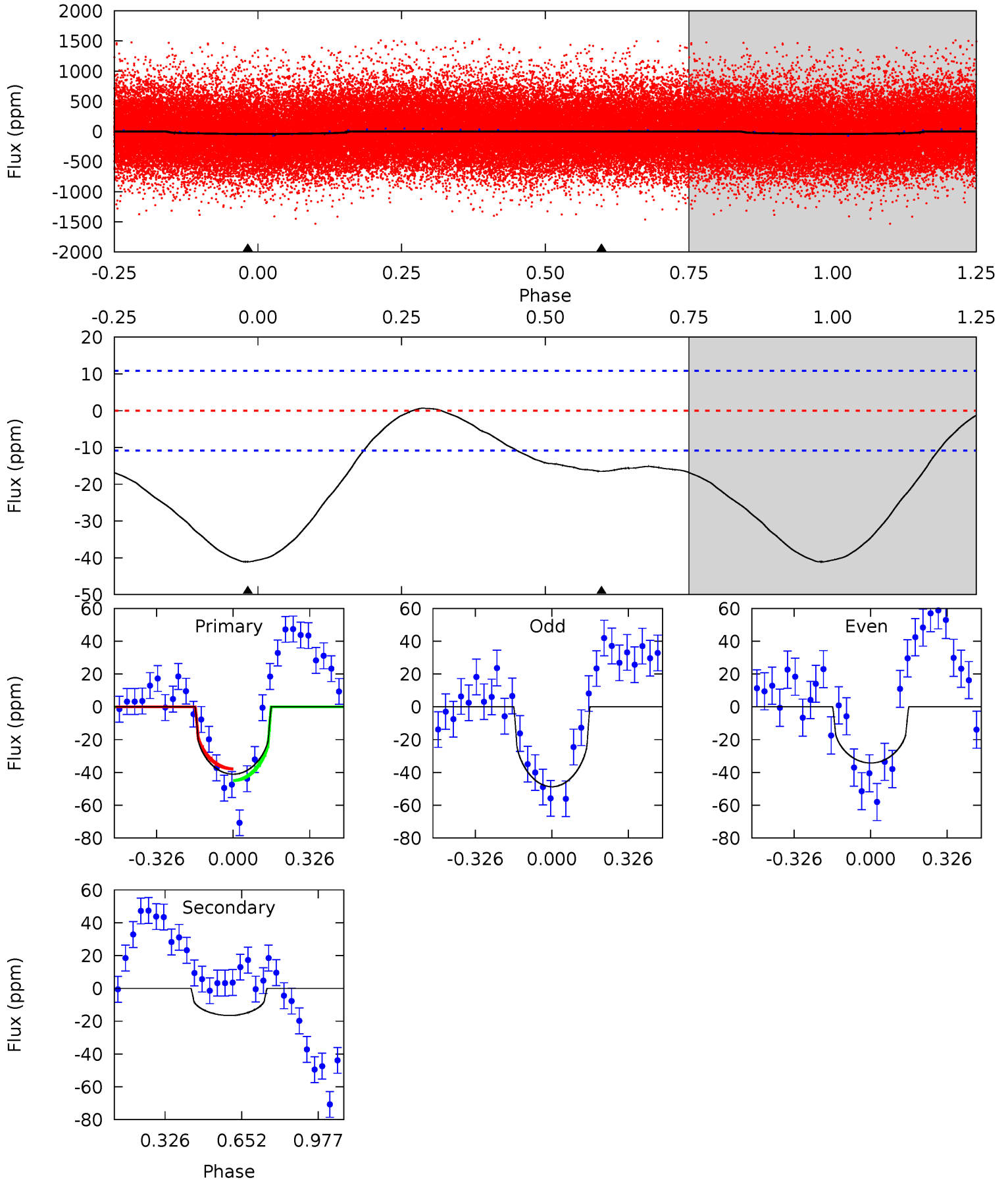
TCE 008565900-01   P= 1.641187 Days    $T_0=131.963642$  (BKJD)



# DV Model-Shift Uniqueness Test

008565900-01, P = 1.641204 Days, E = 130.307389 Days

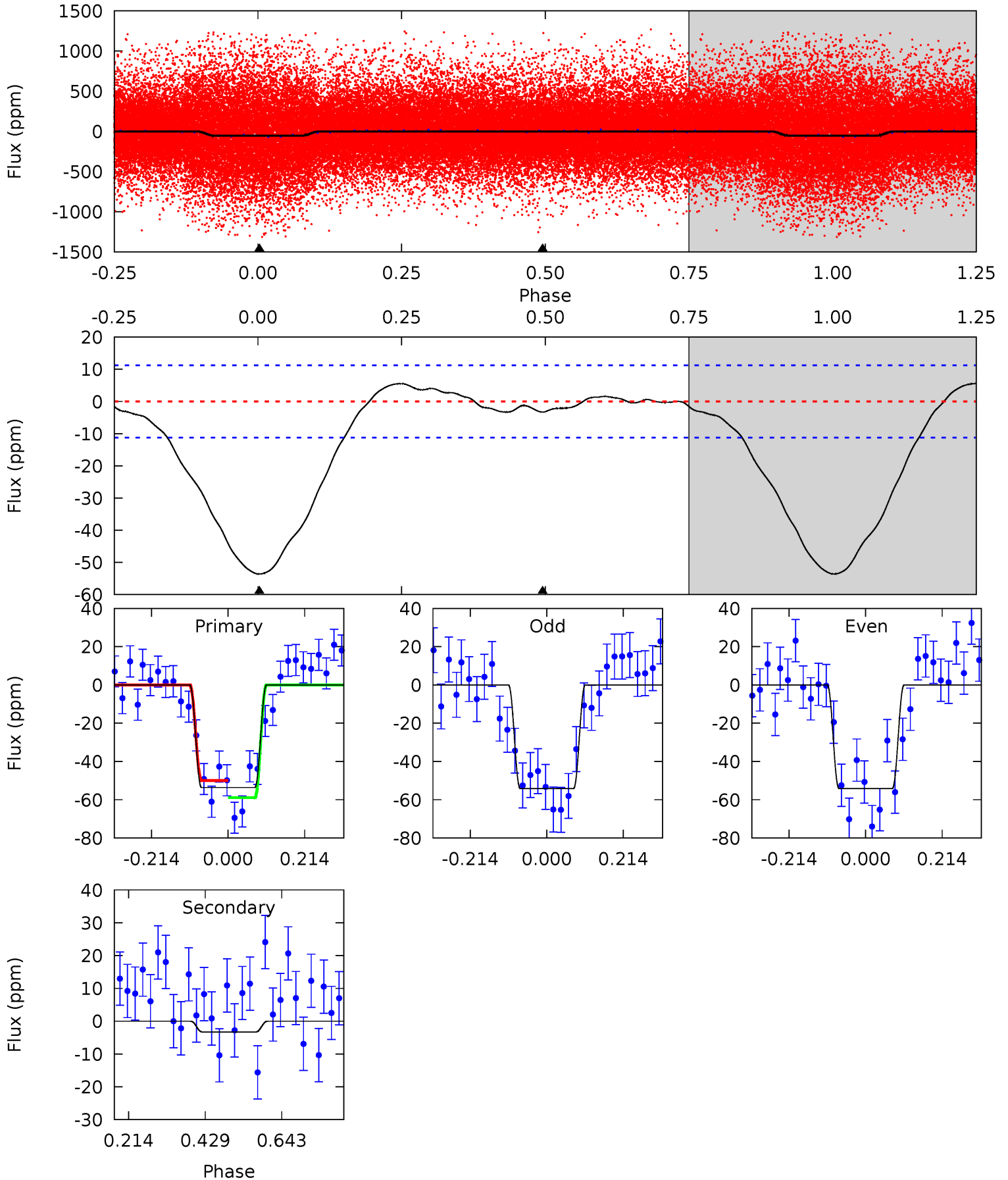
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.3	6.57	0	0	4.31	0.98	0.31	16.3	16.3	6.57	6.57	2.87	1.08	0.02	1.40



# Alt Model-Shift Uniqueness Test

008565900-01, P = 1.641187 Days, E = 130.322455 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
21.0	1.29	0	0	4.40	1.24	1.35	21.0	21.0	1.29	1.29	0.01	1.19	0.09	1.77





### Stellar Parameters For KIC 008565900

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5207^{+158}_{-158}$	$4.510^{+0.075}_{-0.082}$	$0.000^{+0.300}_{-0.300}$	$0.831^{+0.102}_{-0.091}$	$0.814^{+0.093}_{-0.070}$	$2.000^{+0.671}_{-0.546}$
	+3%/-3%	+2%/-2%	+inf%/-inf%	+12%/-11%	+11%/-9%	+34%/-27%
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 008565900-01 / KOI 7060.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-17 \pm 3$	$0.62^{+0.41}_{-0.34}$	$1839^{+73}_{-77}$	$4212^{+1766}_{-718}$	$15^{+65}_{-10}$
Alt.	$-3 \pm 3$	$0.67^{+0.38}_{-0.36}$	$1835^{+79}_{-80}$	$3046^{+1001}_{-1056}$	$2.324^{+10.033}_{-1.959}$

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

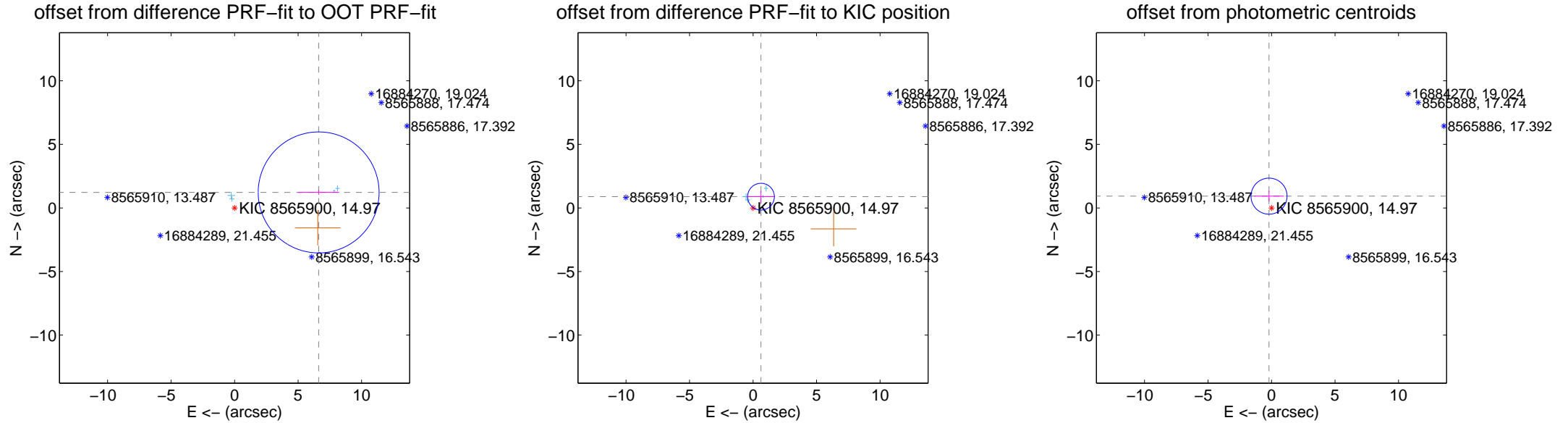
## DV Centroid Data

Supplemental centroid analysis for 008565900-01. Kepler magnitude: 14.97. Transit SNR 8.27

There are 4 quarters with good PRF difference image offsets

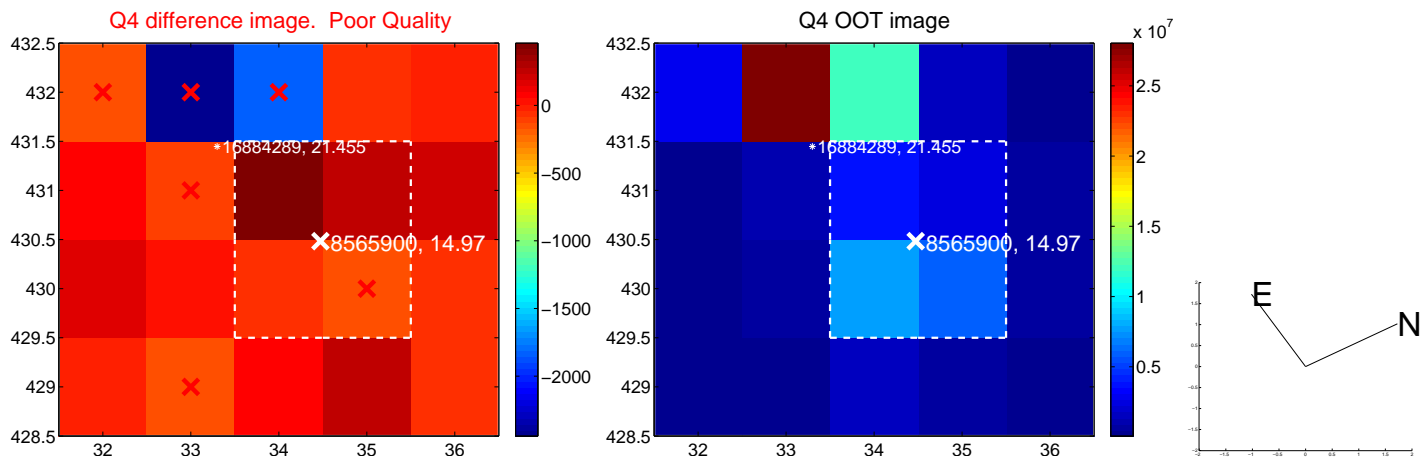
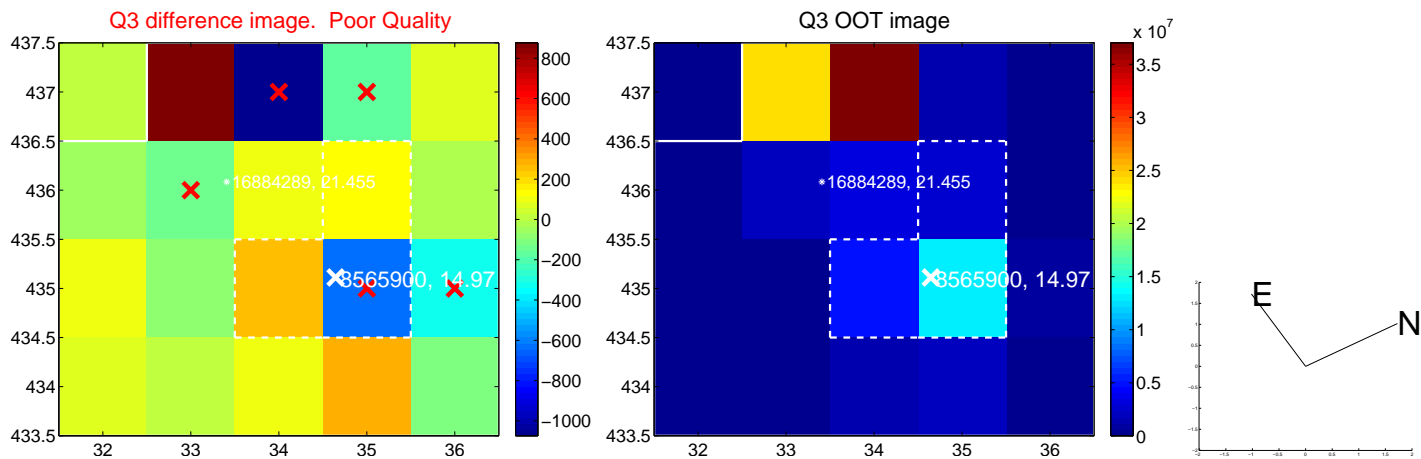
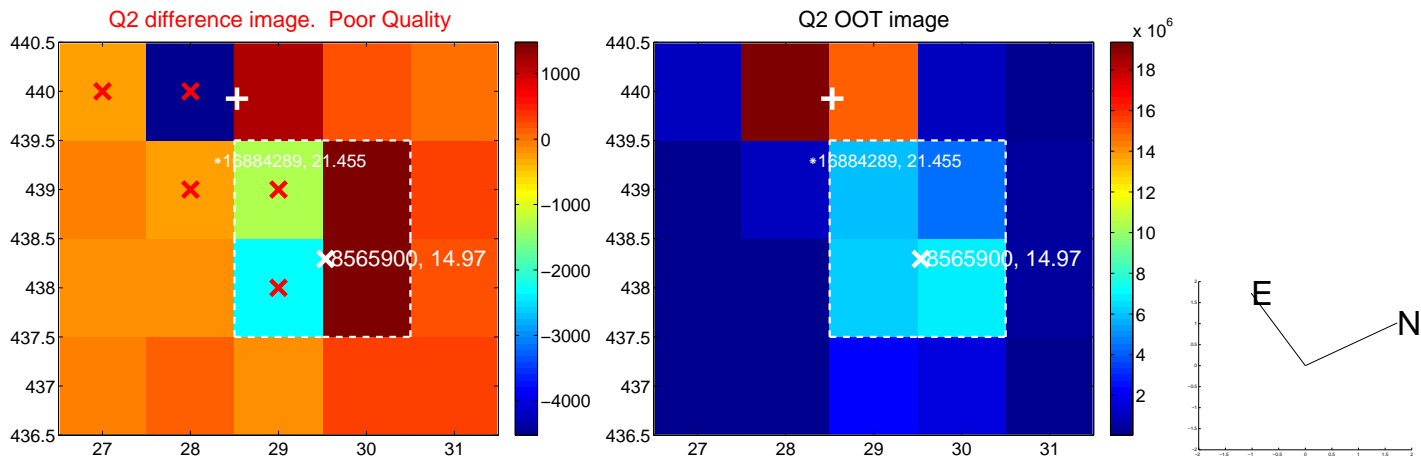
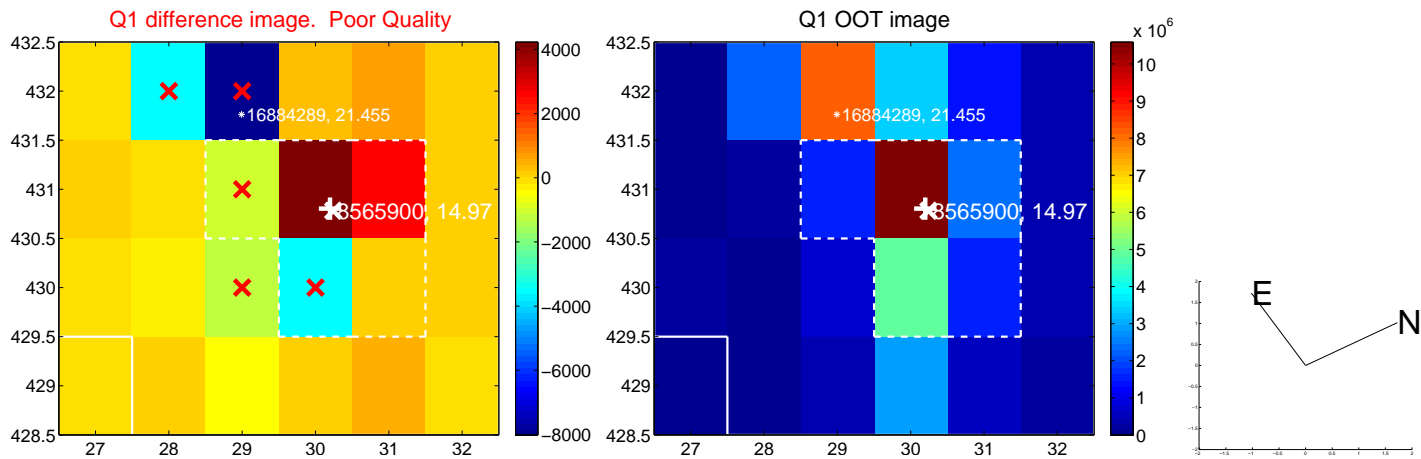
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>6.732 \pm 1.587</math></b>	<b>4.24</b>	$-6.621 \pm 1.613$	$1.222 \pm 0.183$
PRF-fit source offset from KIC position	<b><math>1.086 \pm 0.351</math></b>	<b>3.10</b>	$-0.626 \pm 1.103$	$0.888 \pm 0.456$
photometric centroid source offset	$0.95 \pm 0.47$	2.01	$0.20 \pm 1.17$	$0.93 \pm 0.41$

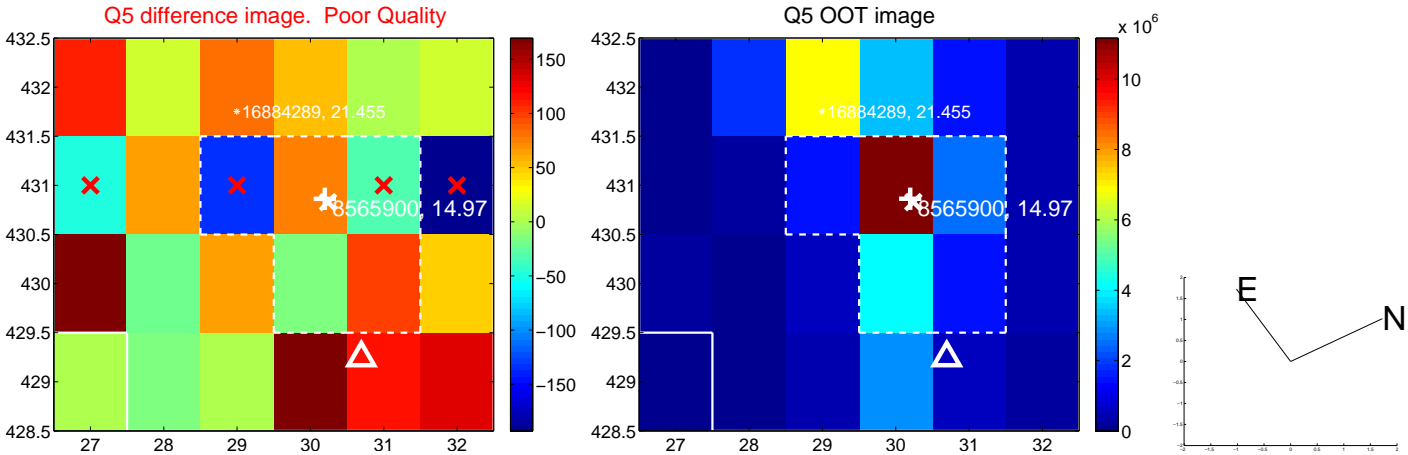


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

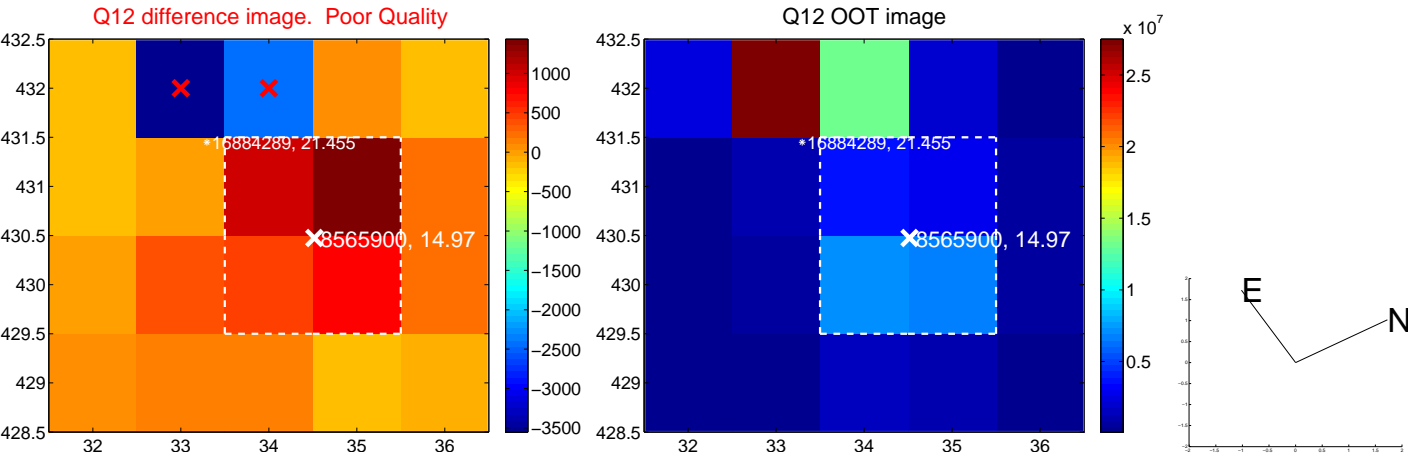
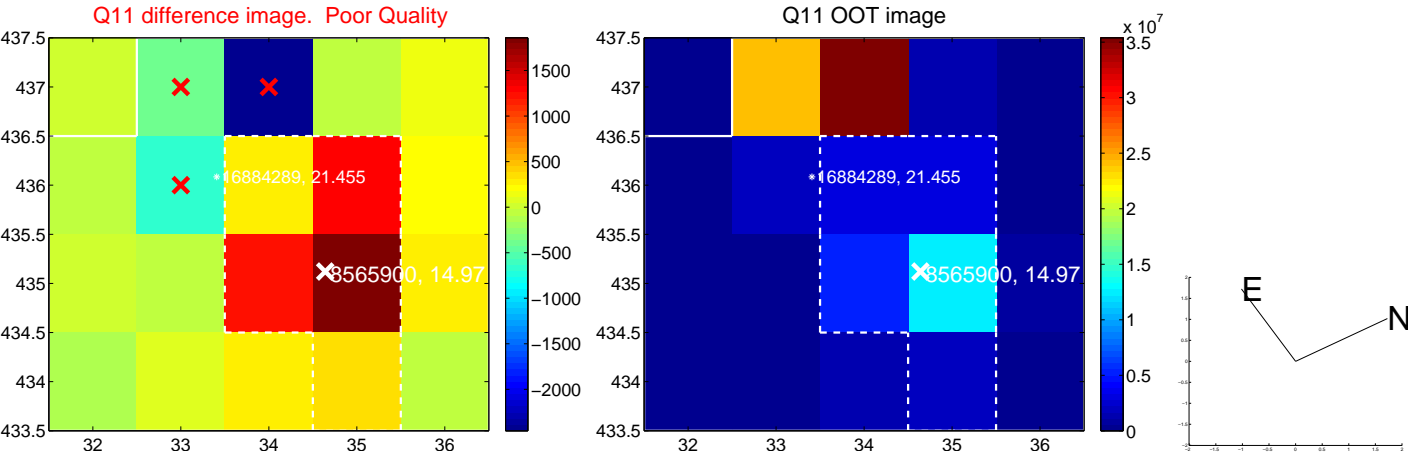
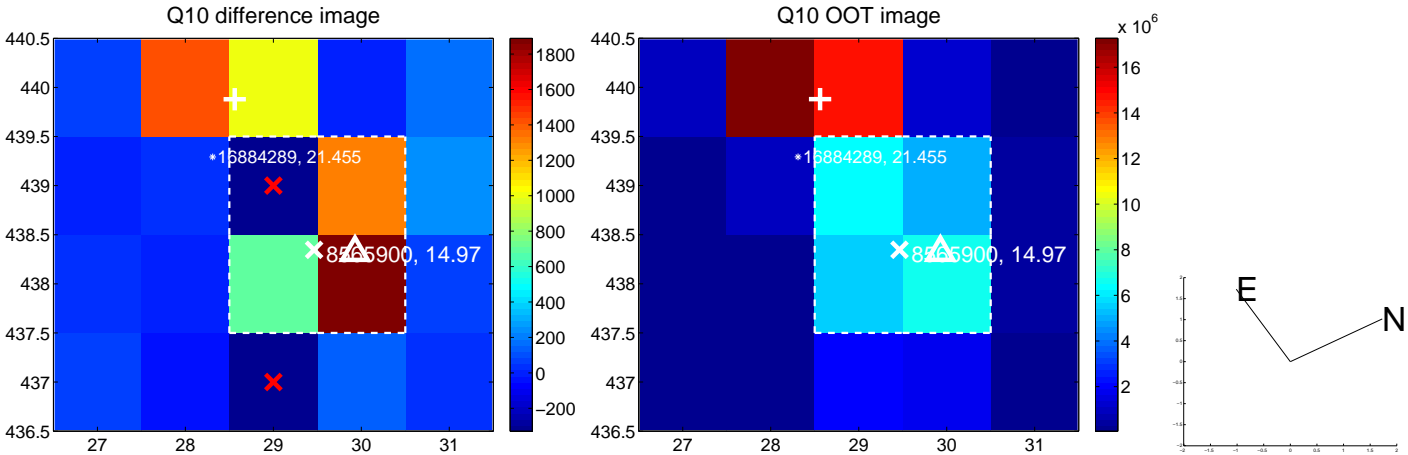
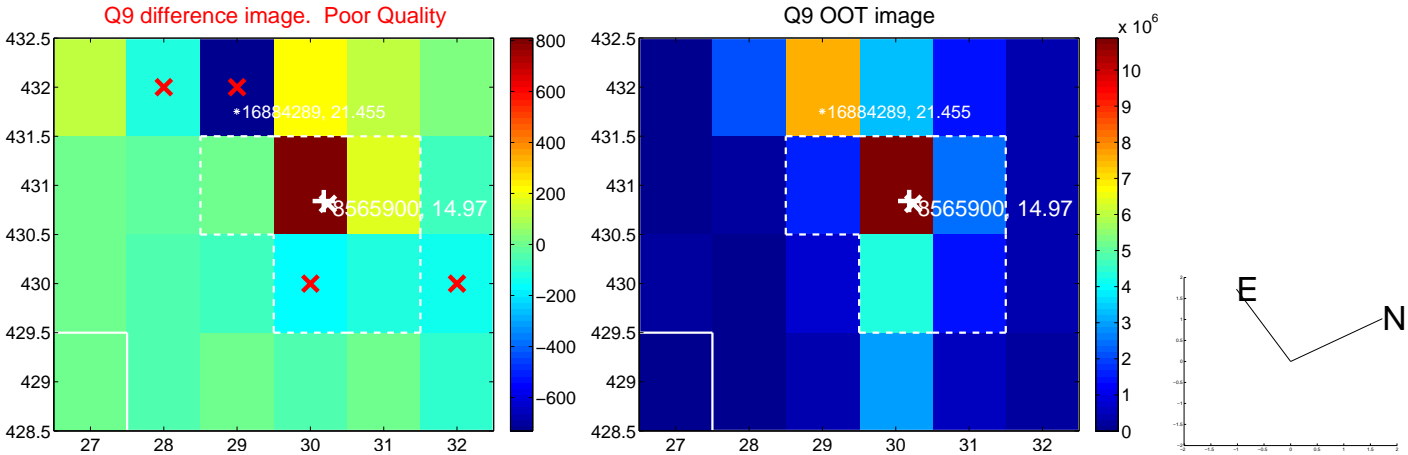


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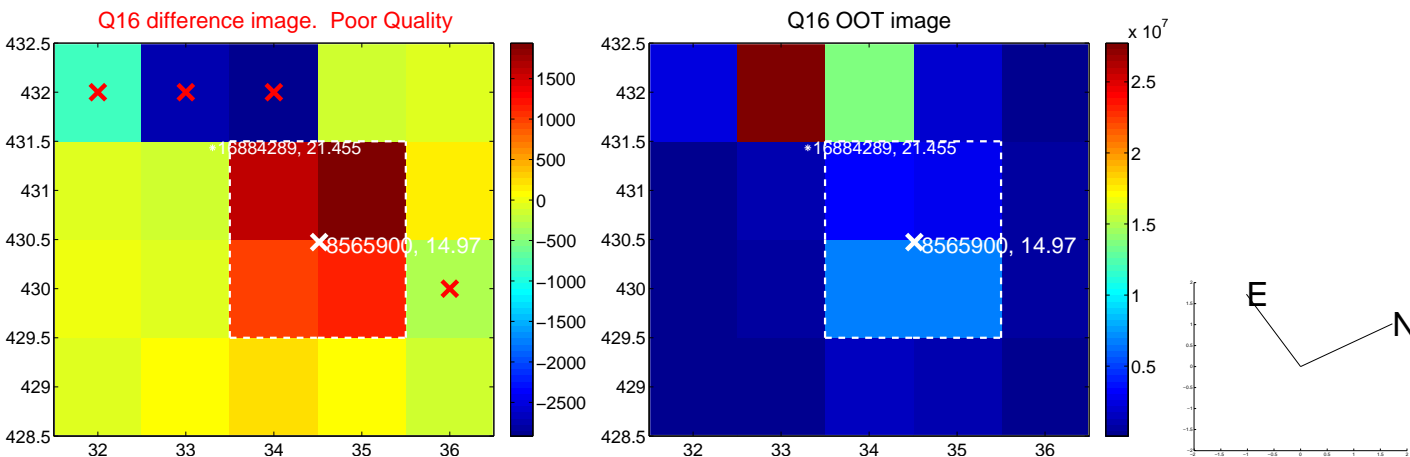
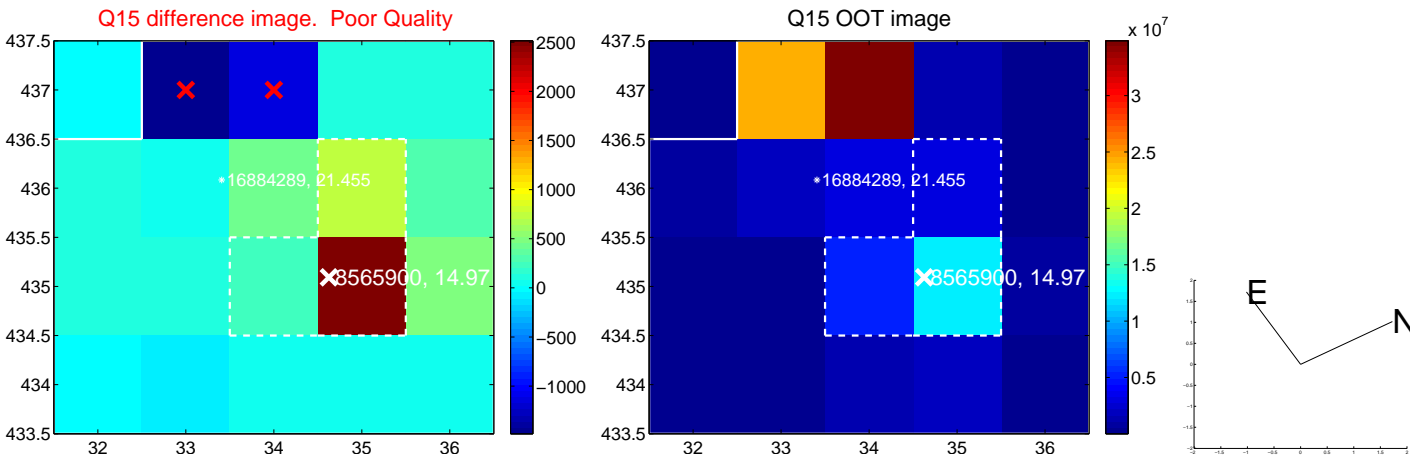
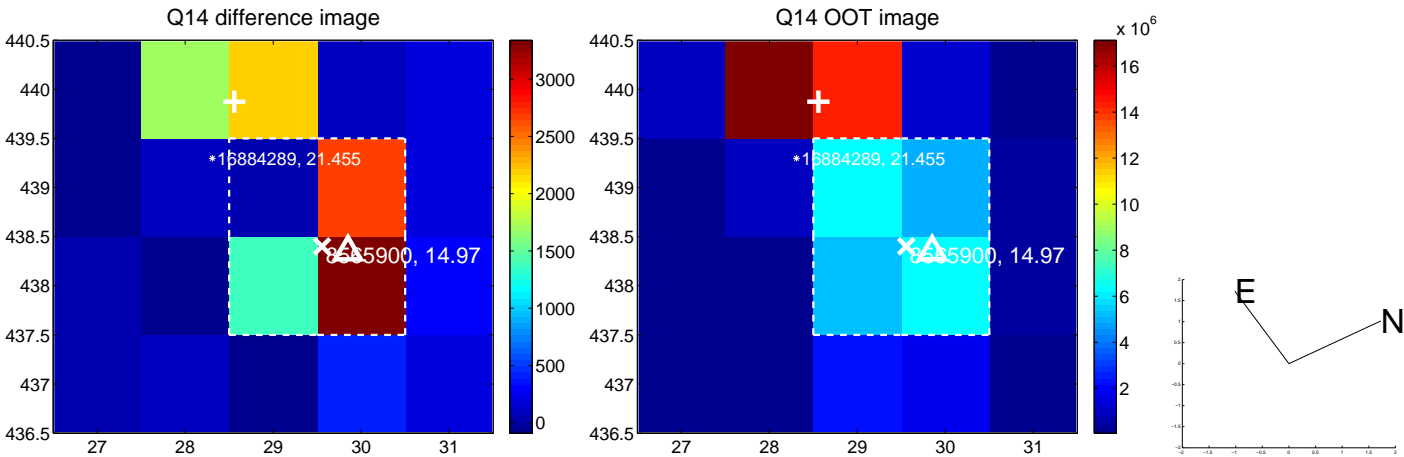
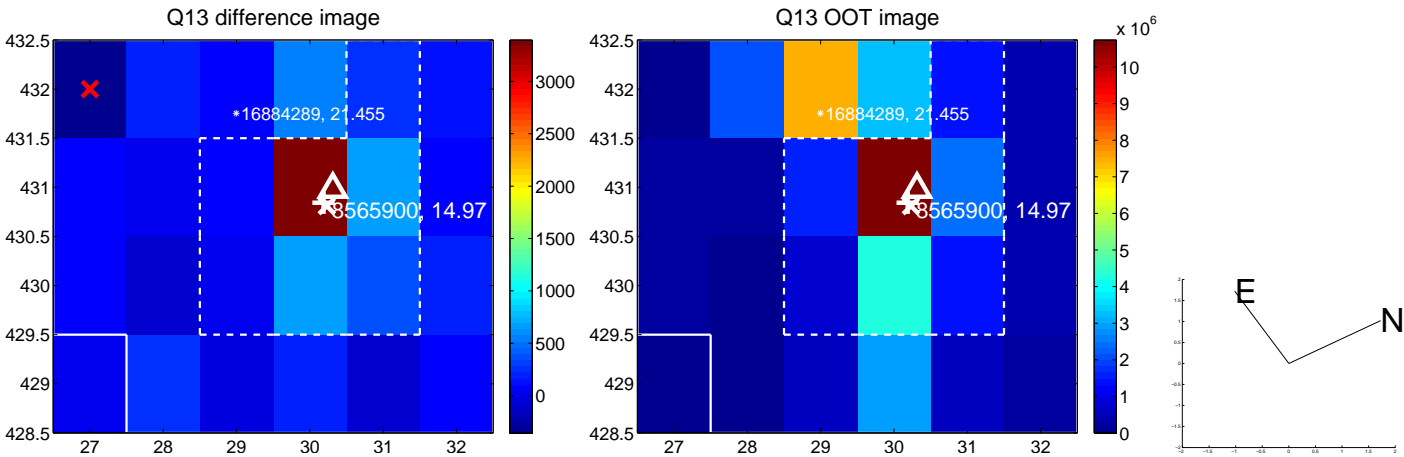




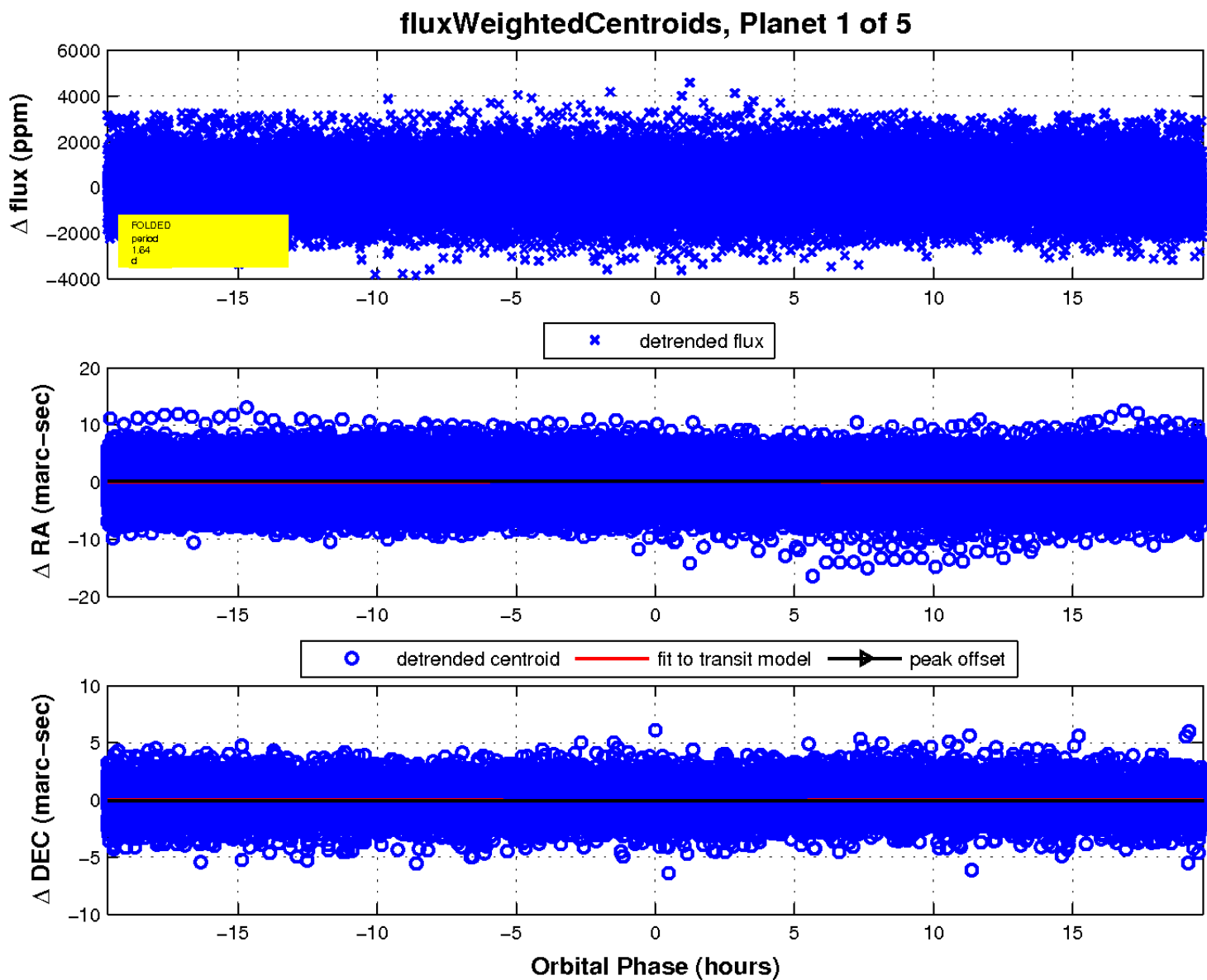
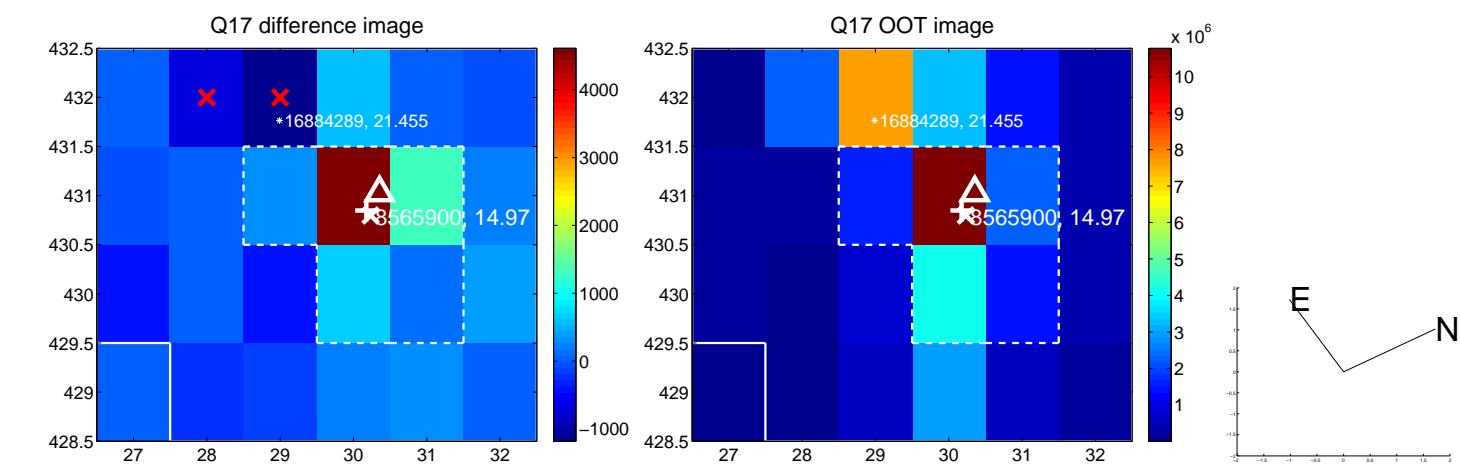
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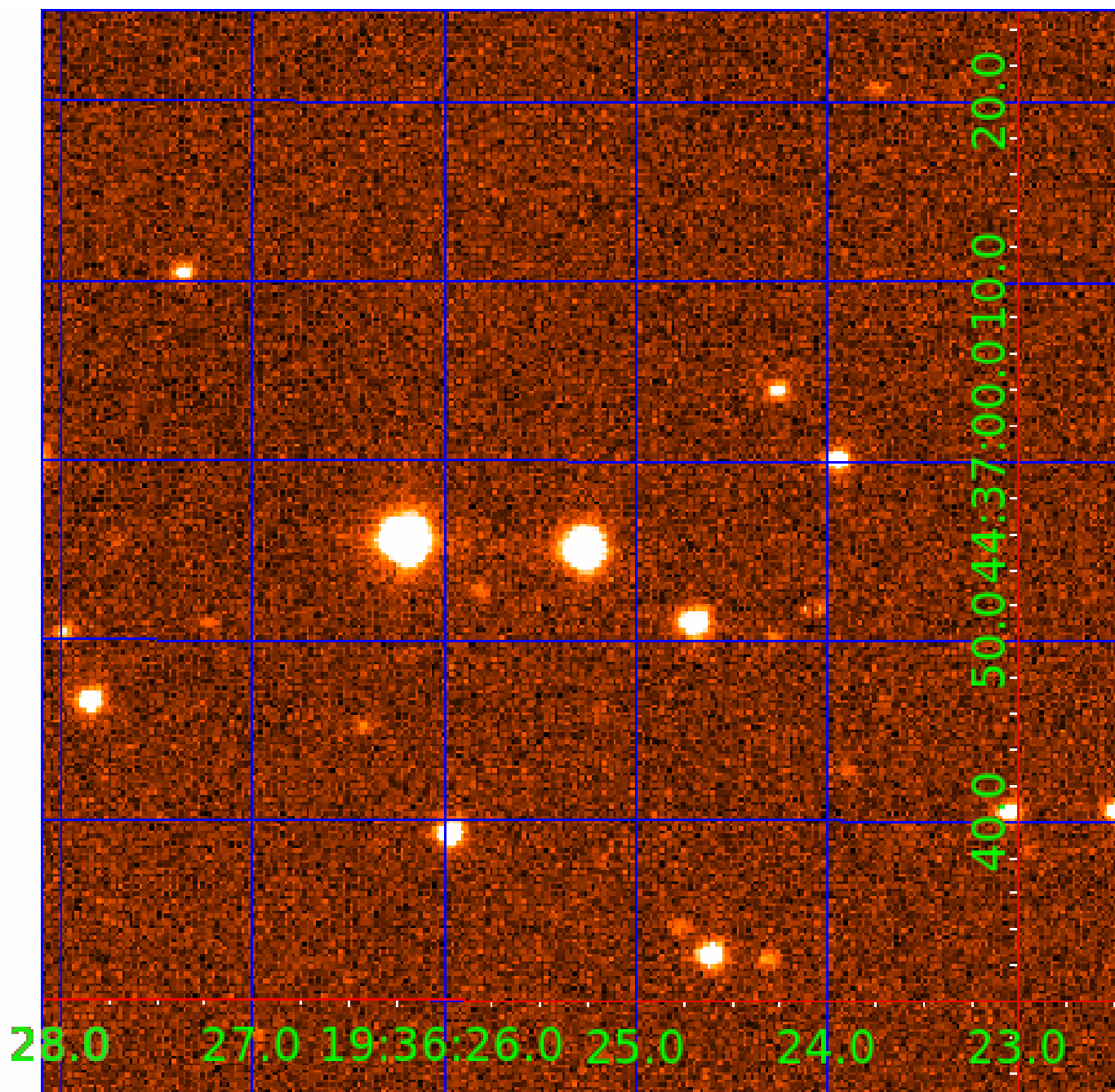


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UKIRT Image

Declination





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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 008565900-03

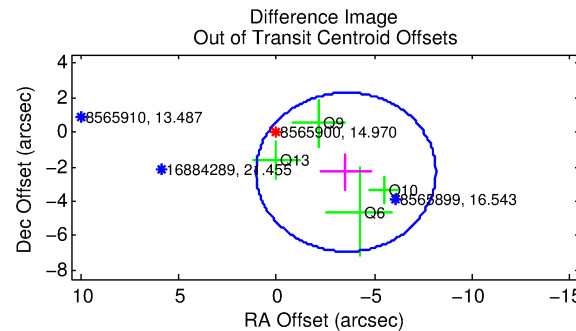
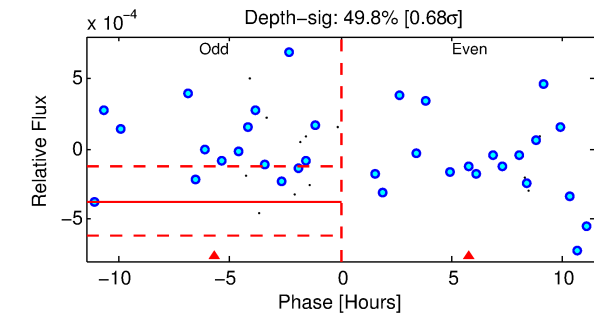
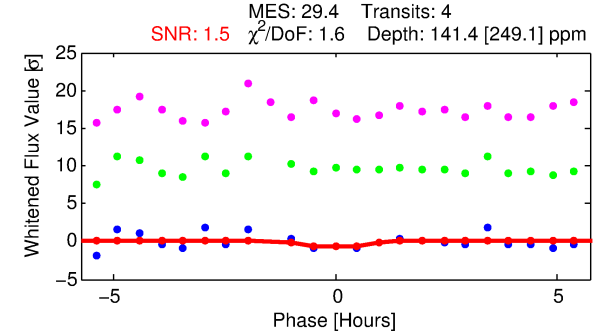
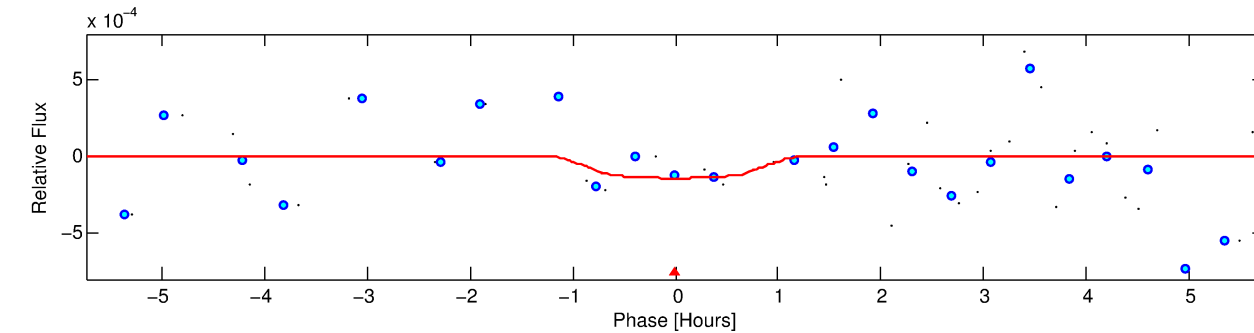
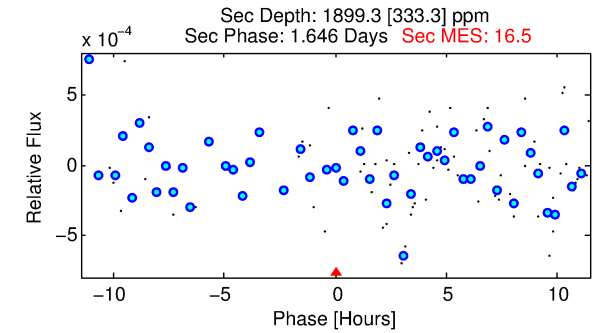
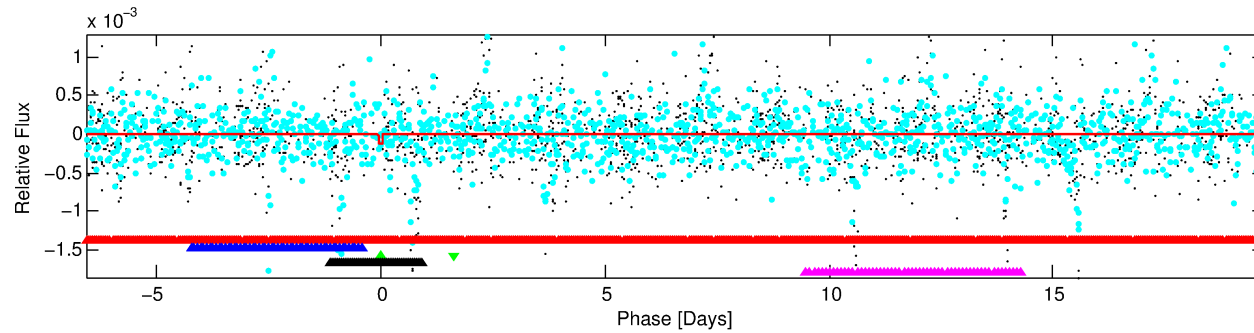
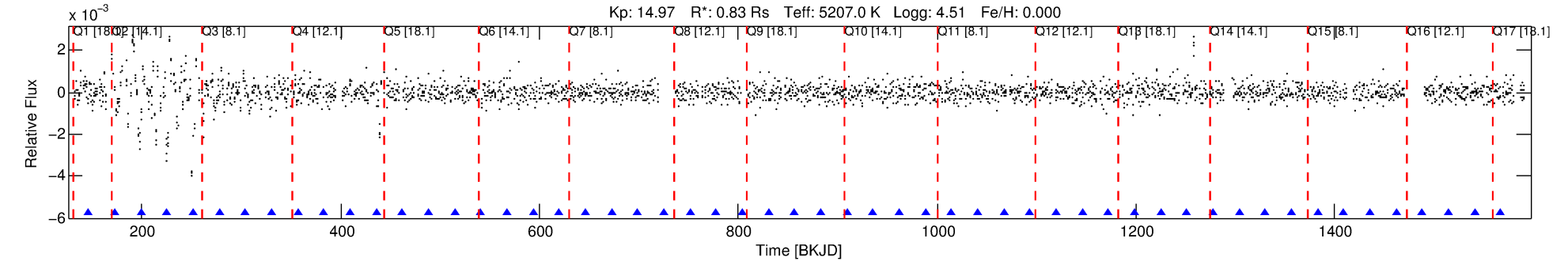
No Significant Match Found

# DV One-Page Summary

KIC: 8565900 Candidate: 3 of 5 Period: 26.304 d

KOI: K07060 Corr: No Ephemeris Match

Kp: 14.97 R\*: 0.83 Rs Teff: 5207.0 K Logg: 4.51 Fe/H: 0.000



## DV Fit Results:

Period = 26.30435 [0.06098] d  
Epoch = 146.6582 [1.1927] BKJD  
Rp/R\* = 0.0115 [0.8272]  
a/R\* = 80.46 [20527.56]  
b = 0.66 [227.23]  
Seff = 17.39 [3.36]  
Teff = 521 [25] K  
Rp = 1.04 [75.01] Re  
a = 0.1617 [0.0167] AU  
Ag = 25151.29 [3619800.25] [0.01σ]  
Teffp = 10139 [364788] K [0.03σ]

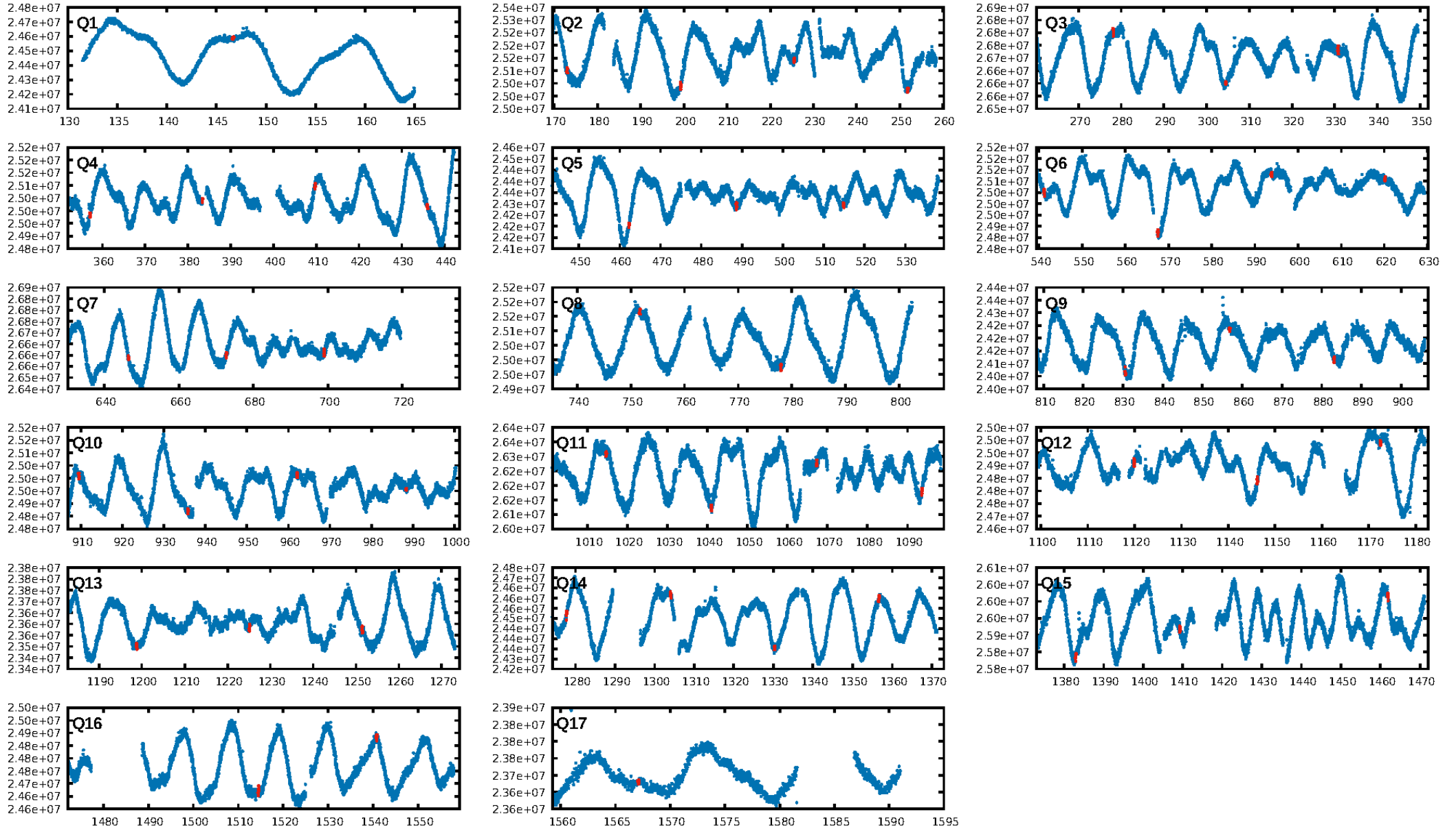
## DV Diagnostic Results:

ShortPeriod-sig: 56.5% [0.78σ]  
LongPeriod-sig: 2.9% [0.04σ]  
ModelChiSquare2-sig: 76.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.61e-124  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.02052  
Centroid-sig: 58.6%  
Centroid-so: 3.956 arcsec [1.91σ]  
OotOffset-rm: 4.238 arcsec [2.76σ]  
KicOffset-rm: 2.523 arcsec [1.91σ]  
OotOffset-st: 2/0/0/2 [4]  
KicOffset-st: 2/0/0/2 [4]  
DiffImageQuality-fgm: 0.00 [0/4]  
DiffImageOverlap-fno: 0.12 [2/17]

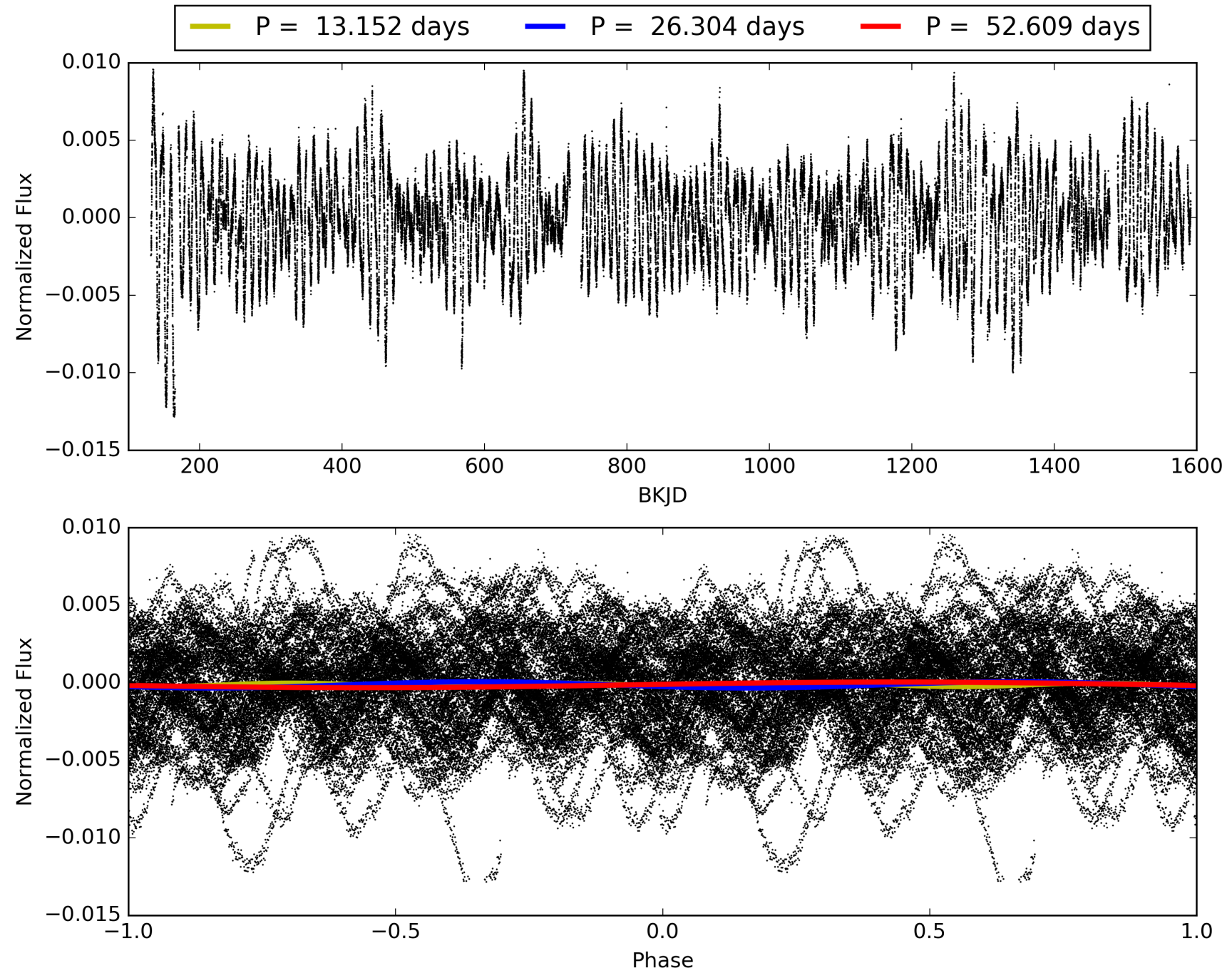
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 19:45:10 Z

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

# TCE 008565900-03, PDC Light Curves

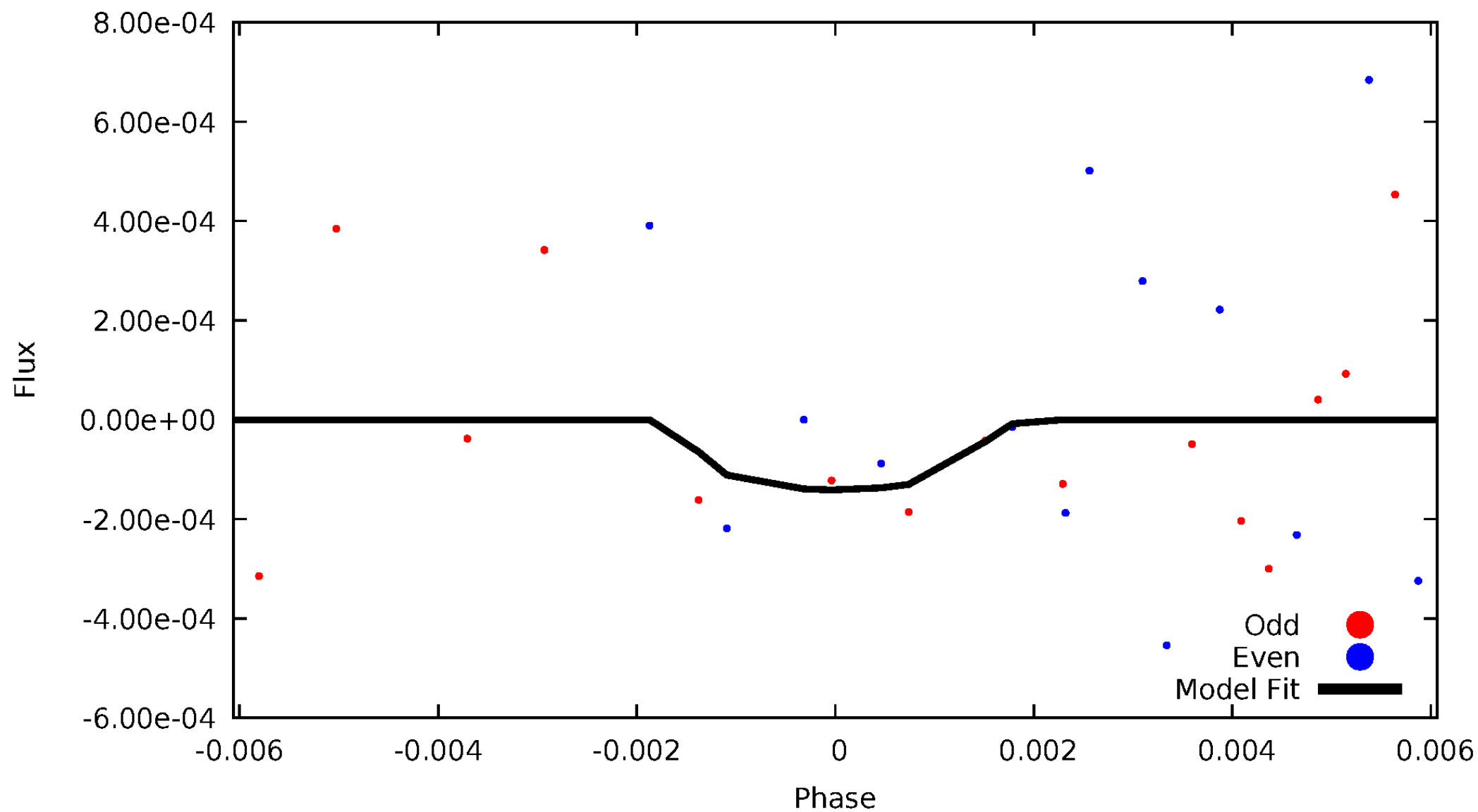


TCE 008565900-03



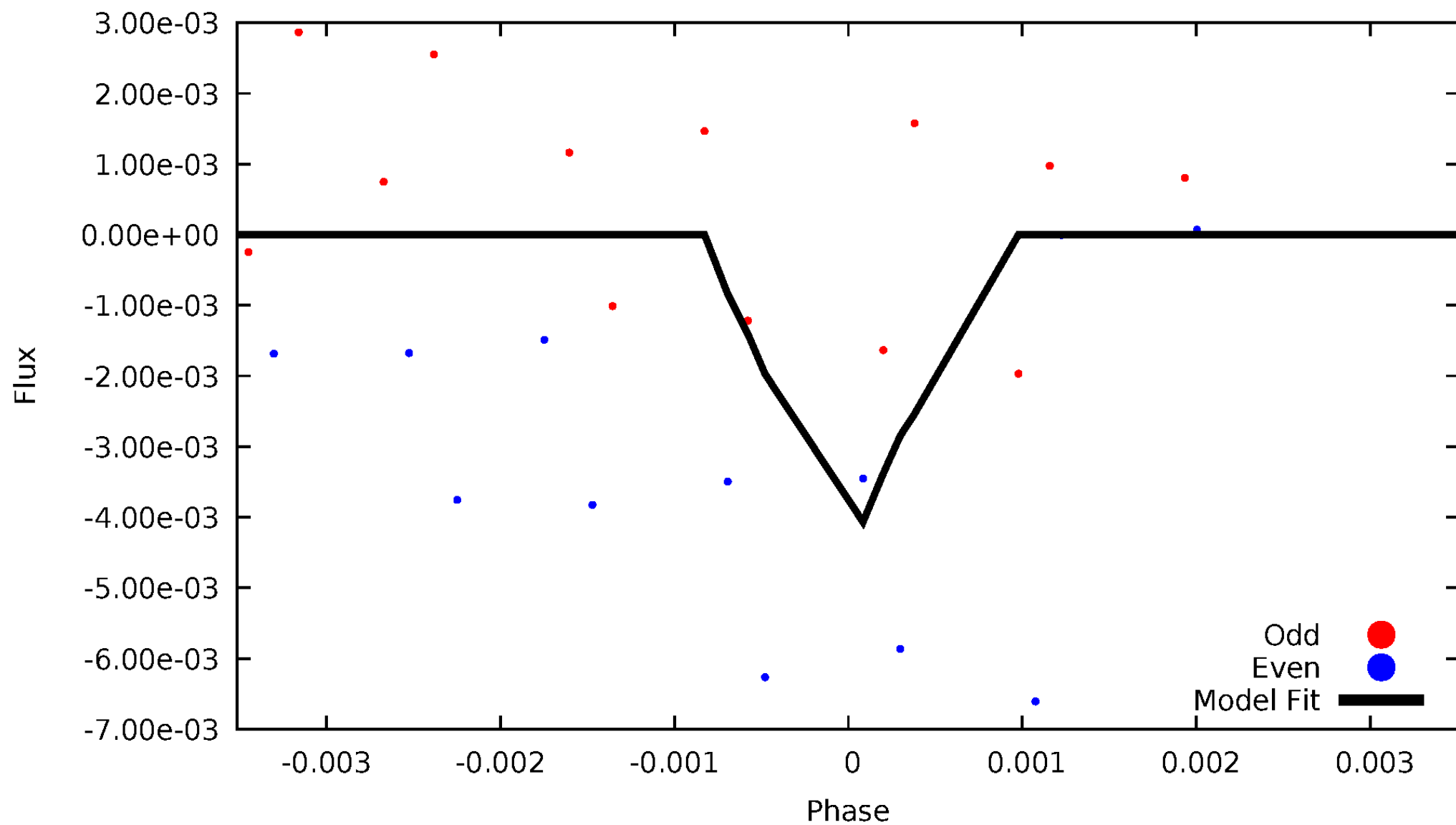
# DV Odd/Even

TCE 008565900-03



# ALT Odd/Even

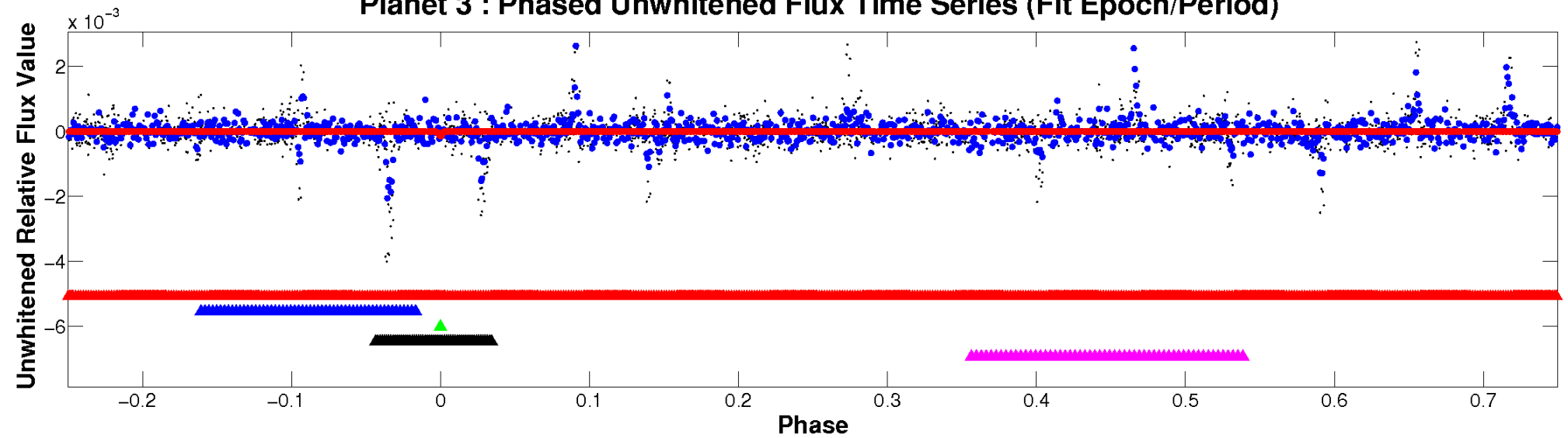
TCE 008565900-03



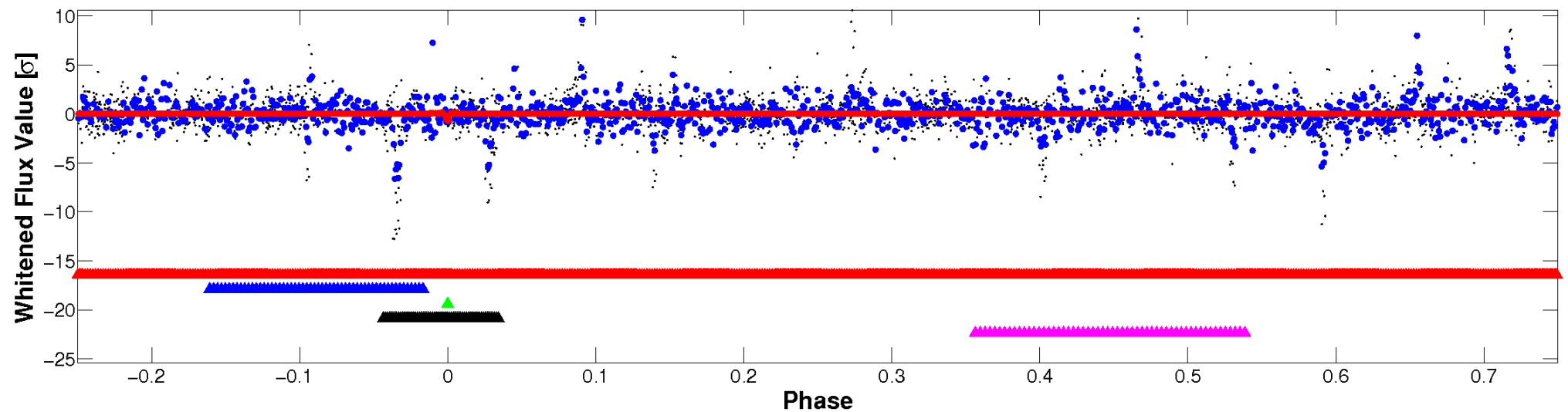


# Non-Whitened Vs. Whitened Light Curve

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

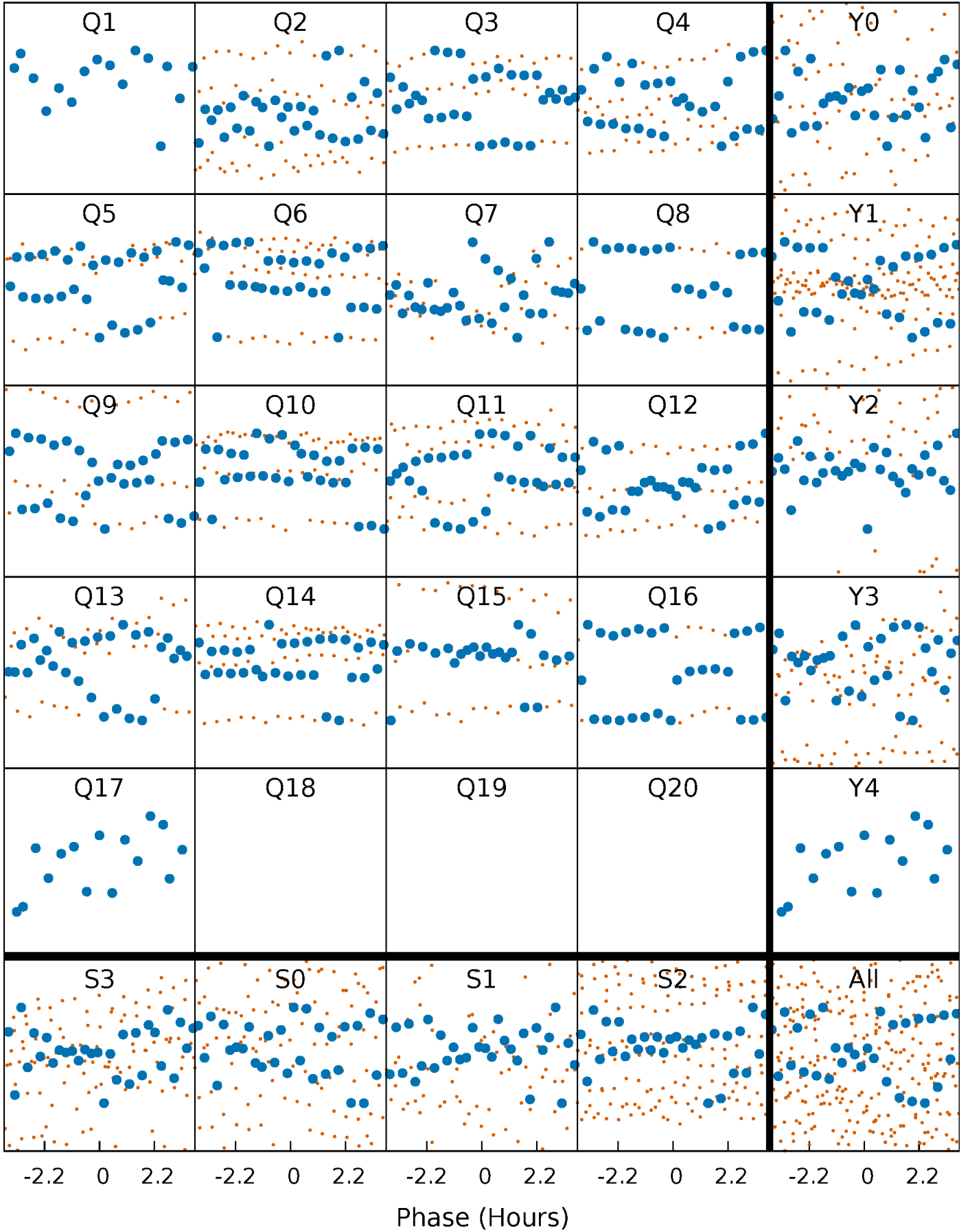


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



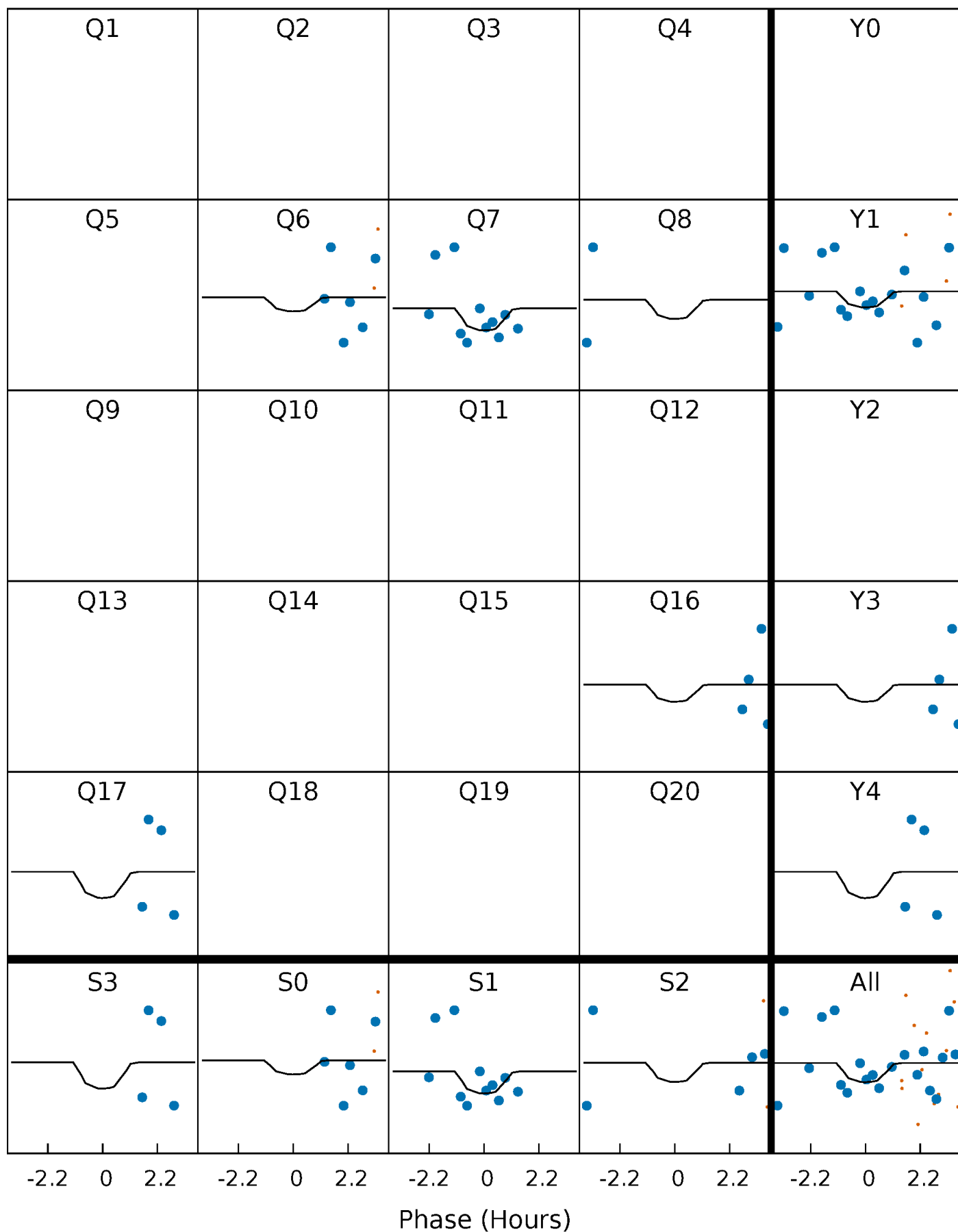
# PDC Quarter-Phased Transit Curves

TCE 008565900-03     $P = 26.304354$  Days     $T_0 = 146.658176$  (BKJD)



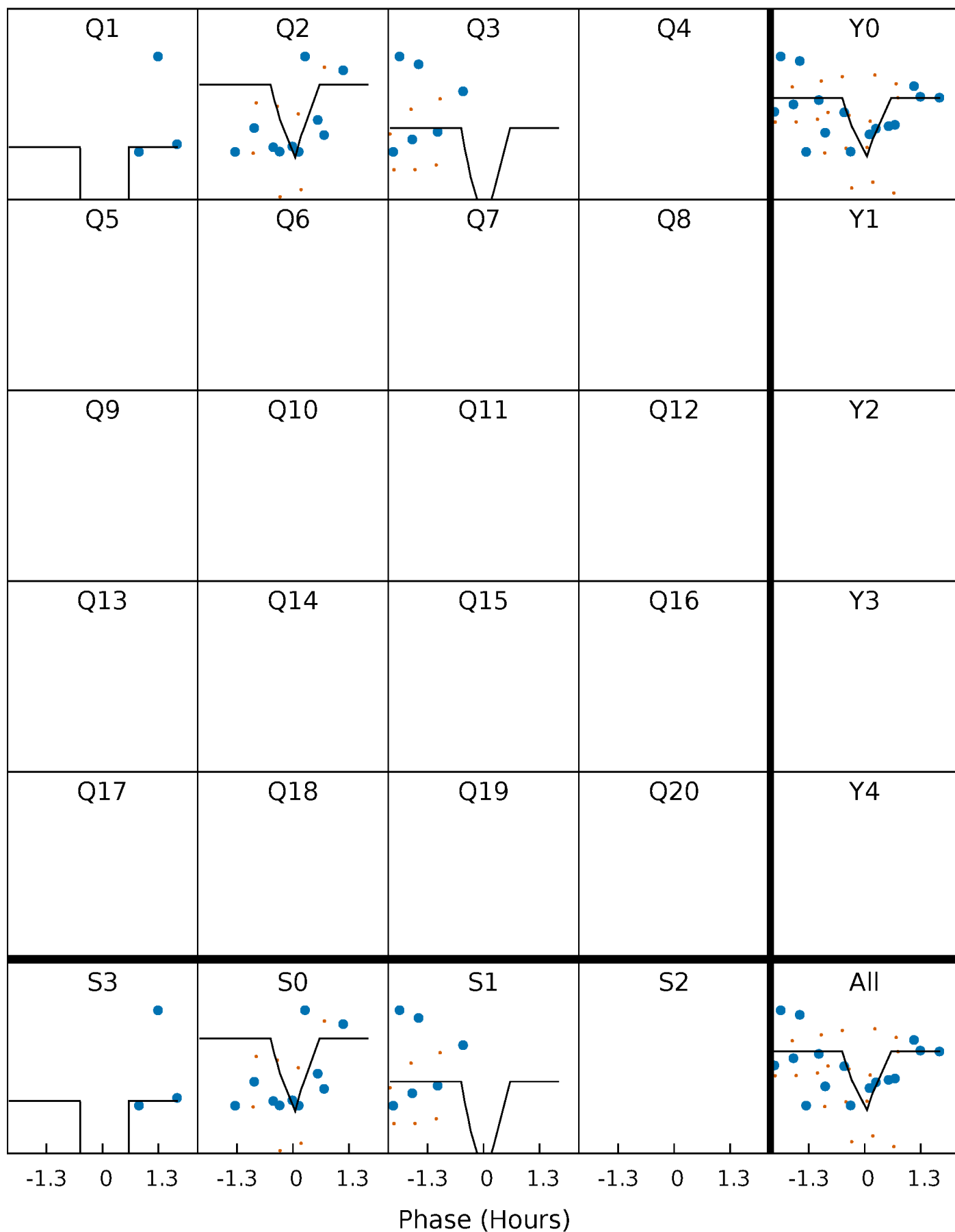
# DV Quarter-Phased Transit Curves

TCE 008565900-03     $P = 26.304354$  Days     $T_0 = 146.658176$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

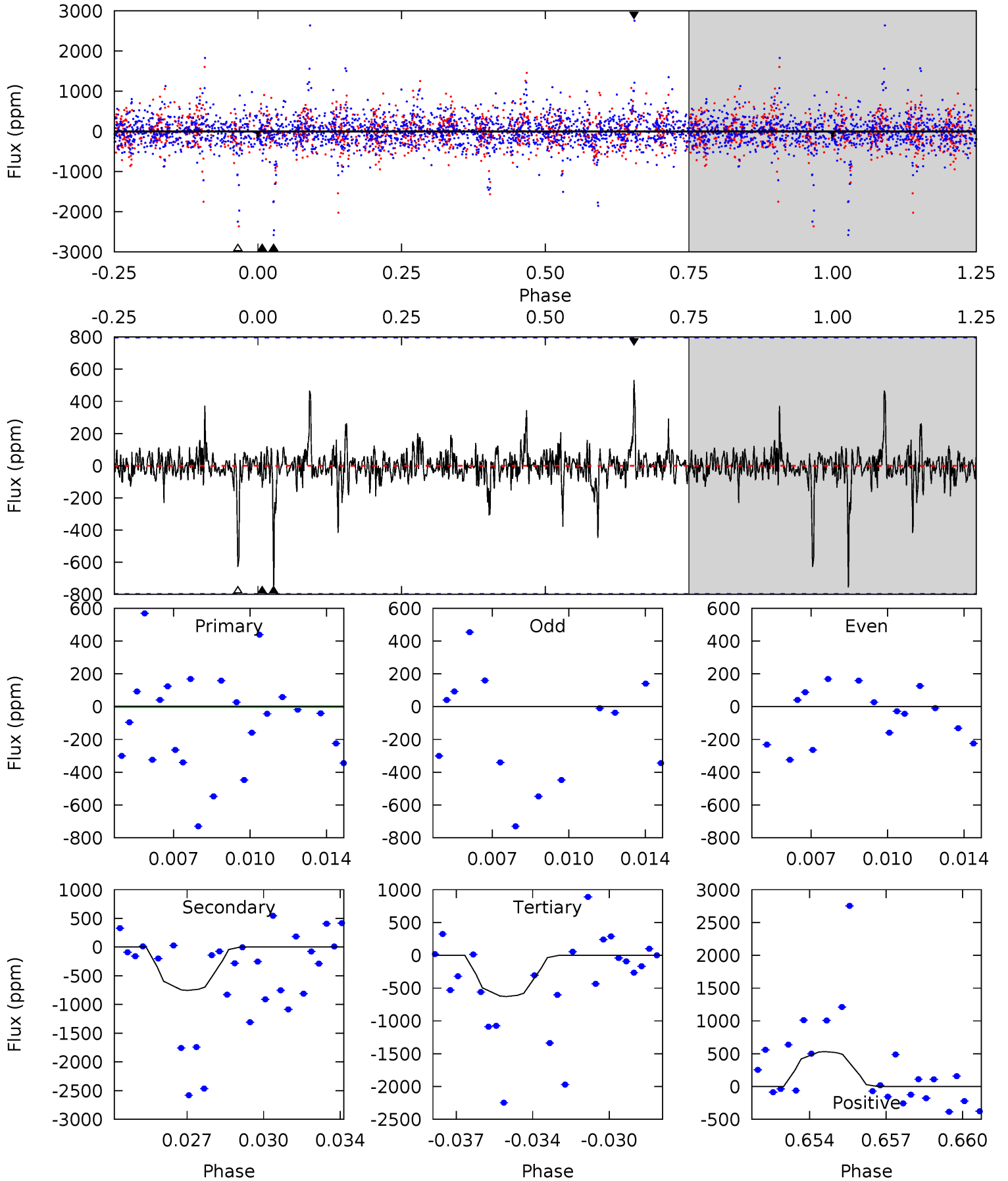
TCE 008565900-03 P= 26.280318 Days  $T_0=145.845284$  (BKJD)



# DV Model-Shift Uniqueness Test

008565900-03, P = 26.304354 Days, E = 120.353822 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.89	4.95	4.12	3.49	5.23	2.93	0.58	-3.23	-2.60	0.83	1.46	0.22	1.00	0.41	0.02

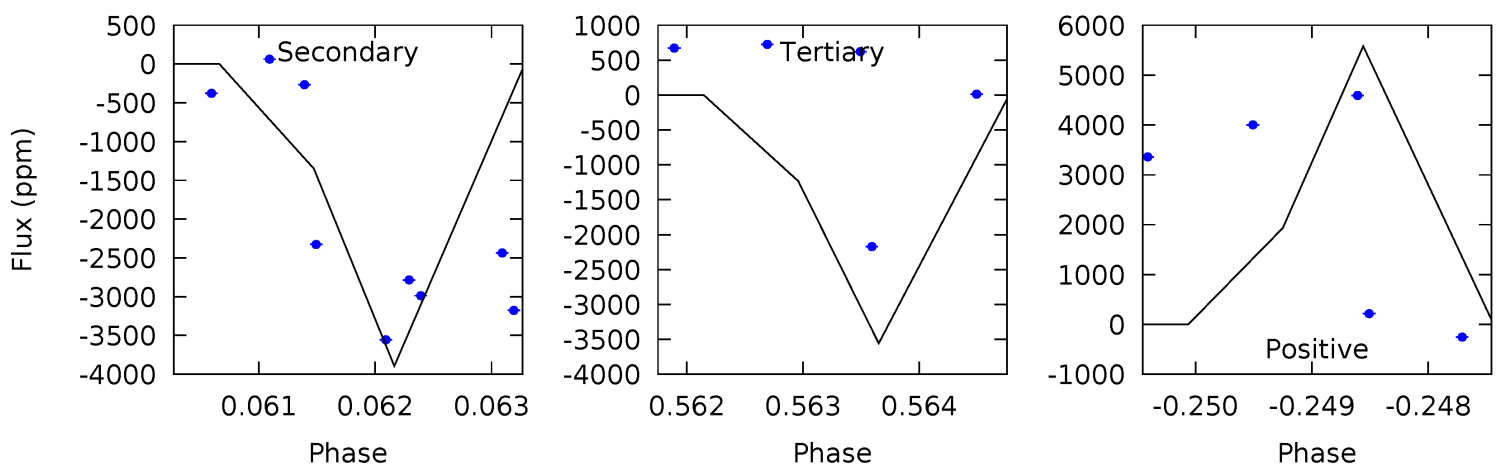
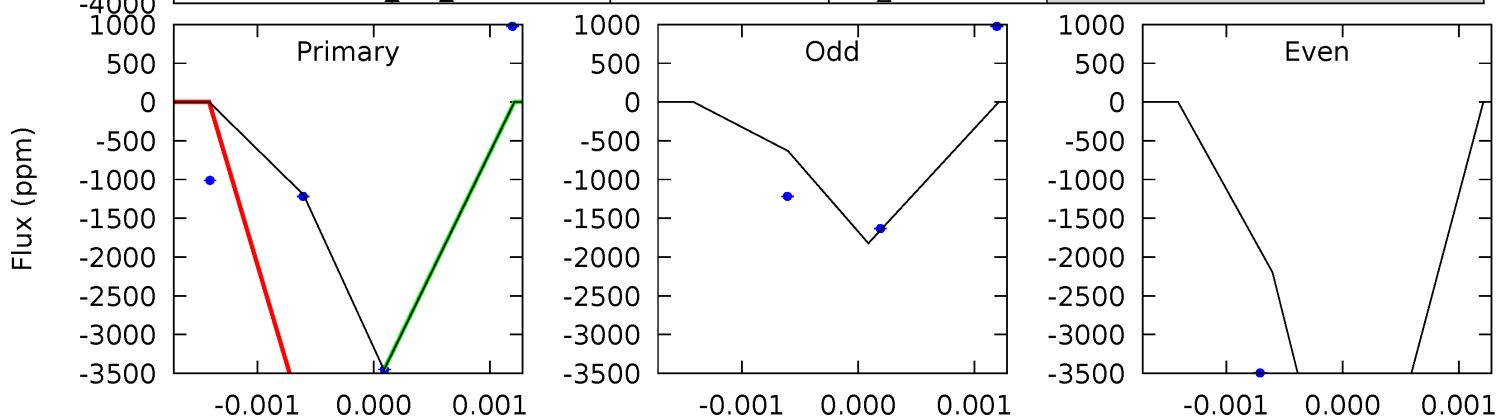
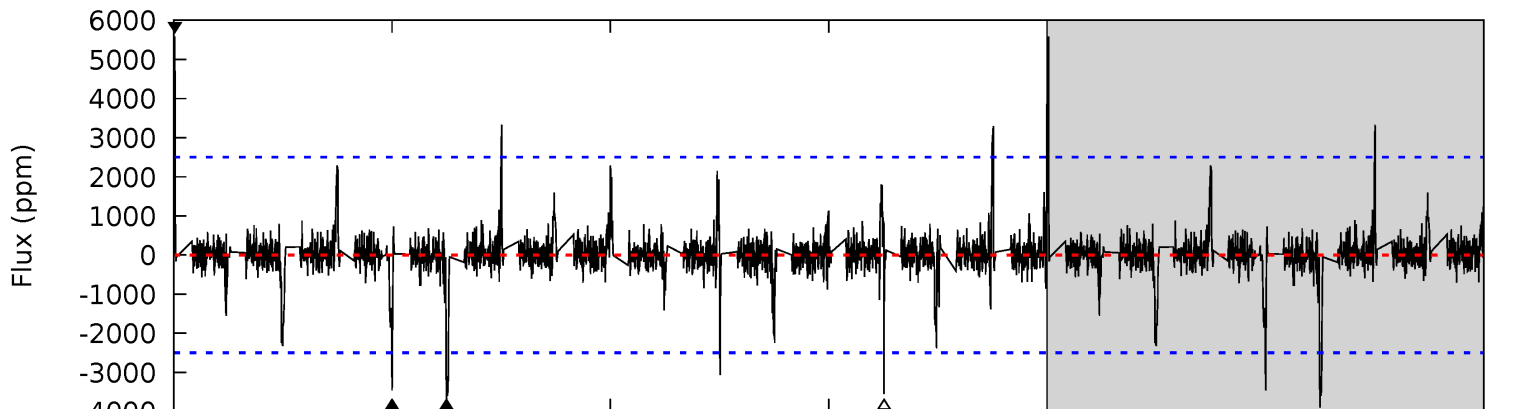
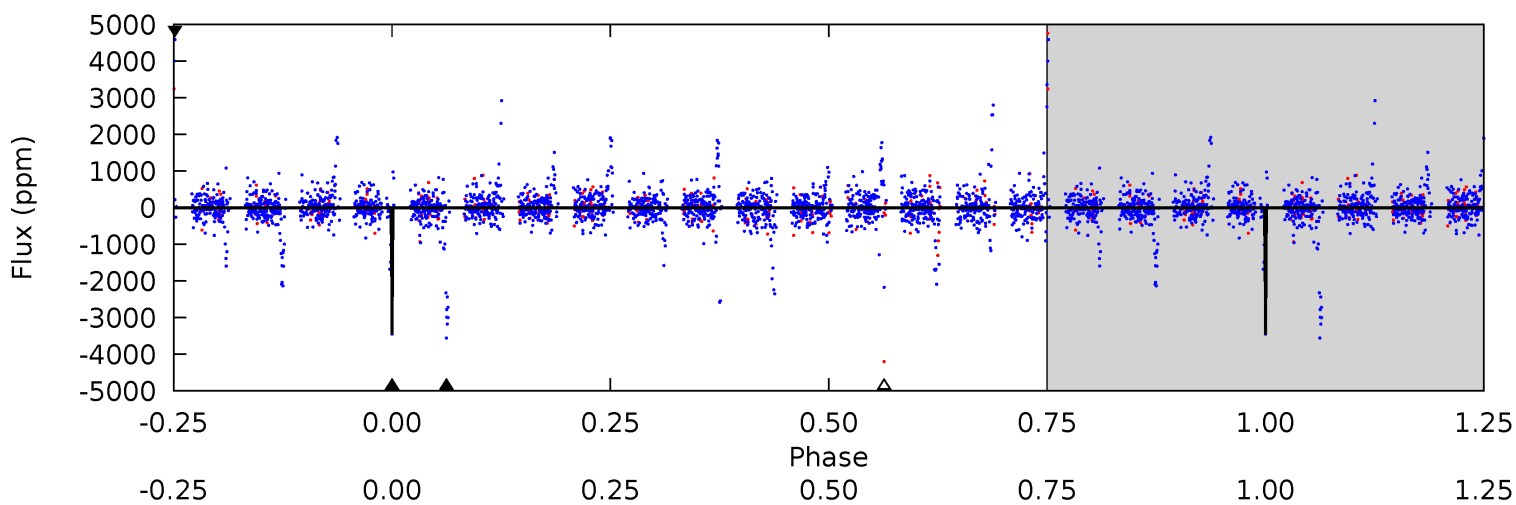




# Alt Model-Shift Uniqueness Test

008565900-03, P = 26.280318 Days, E = 119.564966 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
7.55	8.51	7.77	12.2	5.46	3.30	1.05	-0.22	-4.64	0.74	-3.68	4.76	1.34	0.59	0



### Stellar Parameters For KIC 008565900

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5207^{+158}_{-158}$	$4.510^{+0.075}_{-0.082}$	$0.000^{+0.300}_{-0.300}$	$0.831^{+0.102}_{-0.091}$	$0.814^{+0.093}_{-0.070}$	$2.000^{+0.671}_{-0.546}$
	+3%/-3%	+2%/-2%	+inf%/-inf%	+12%/-11%	+11%/-9%	+34%/-27%
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 008565900-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-755 \pm 152$	$52.43^{+53.16}_{-38.35}$	$729^{+29}_{-29}$	$2105^{+757}_{-334}$	$4.200^{+46.893}_{-3.182}$
Alt.	$-3894 \pm 458$	$54.51^{+55.87}_{-38.28}$	$732^{+32}_{-33}$	$2506^{+1022}_{-380}$	$19^{+196}_{-14}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

## DV Centroid Data

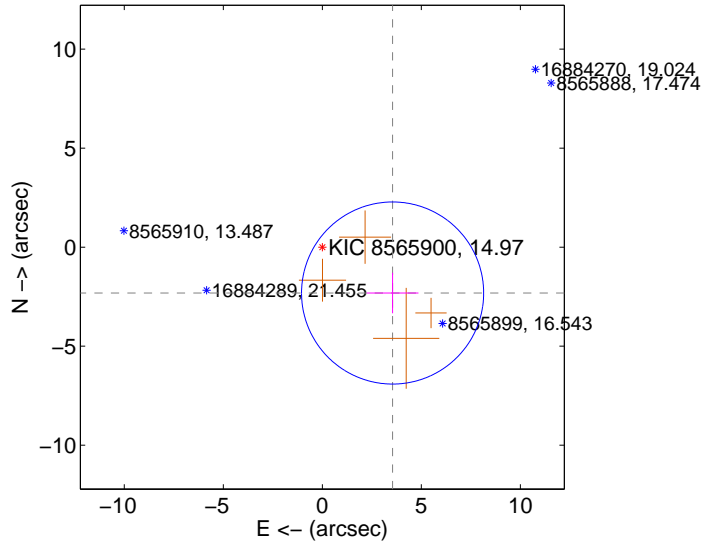
Supplemental centroid analysis for 008565900-03. Kepler magnitude: 14.97. Transit SNR 1.51

There are 0 quarters with good PRF difference image offsets

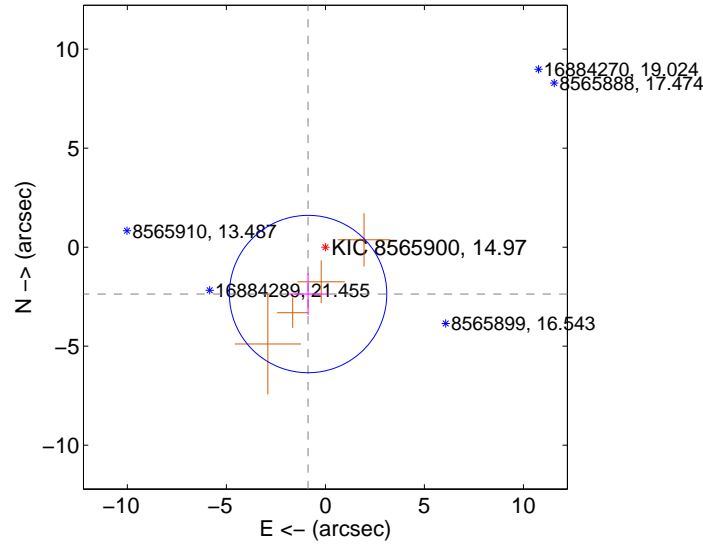
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.238 \pm 1.533$	2.76	$-3.549 \pm 1.308$	$-2.315 \pm 1.022$
PRF-fit source offset from KIC position	$2.523 \pm 1.324$	1.91	$0.874 \pm 0.973$	$-2.367 \pm 1.054$
photometric centroid source offset	$3.96 \pm 2.08$	1.91	$3.95 \pm 2.08$	$0.28 \pm 1.21$

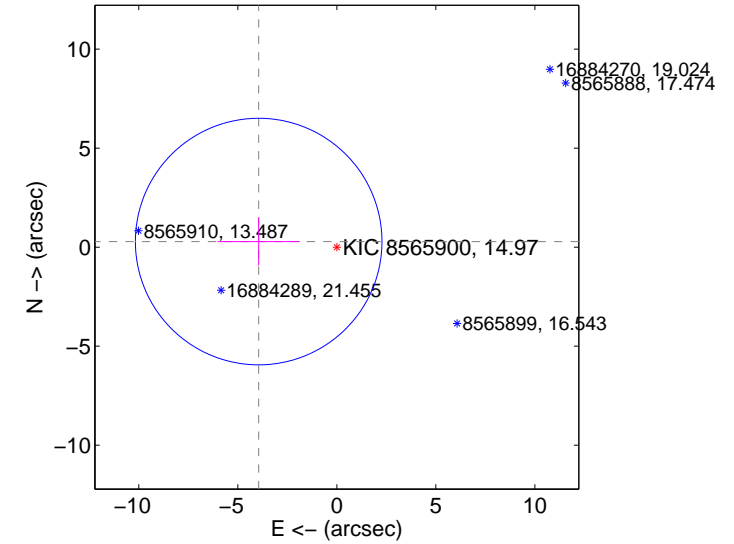
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

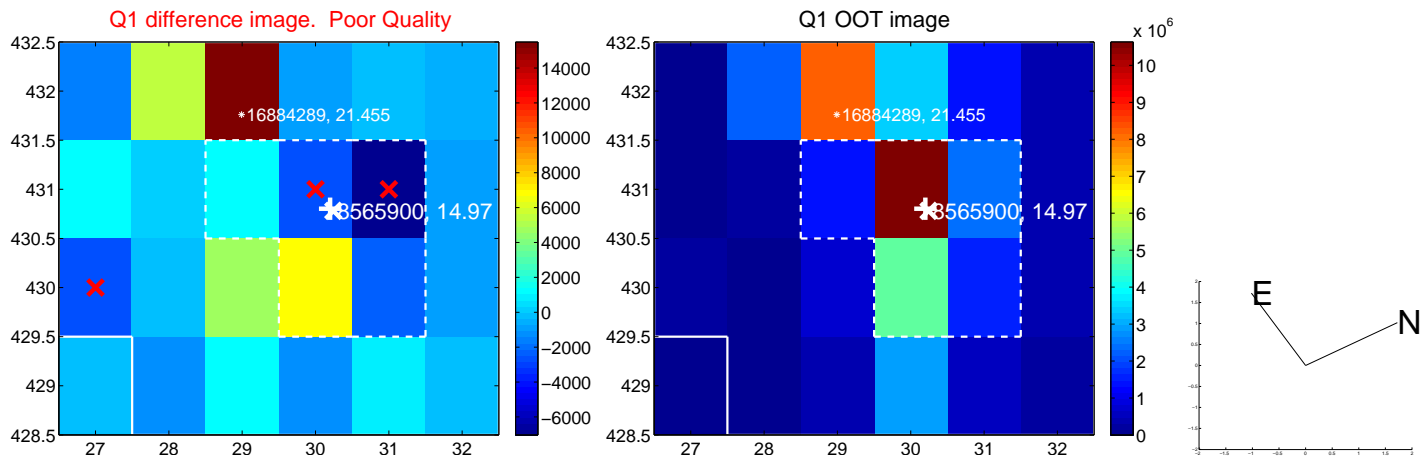


offset from photometric centroids

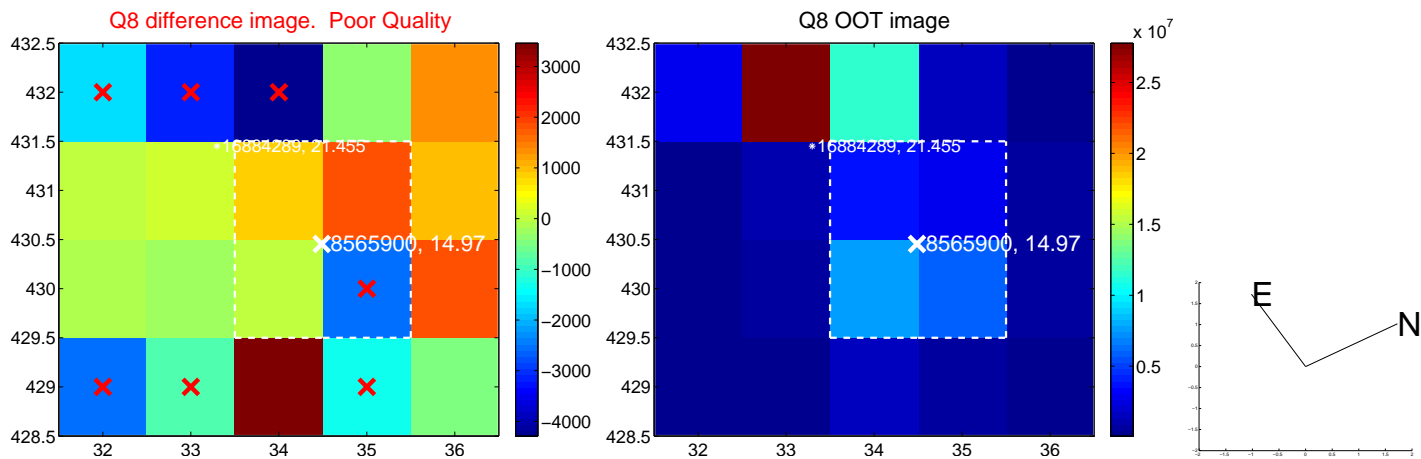
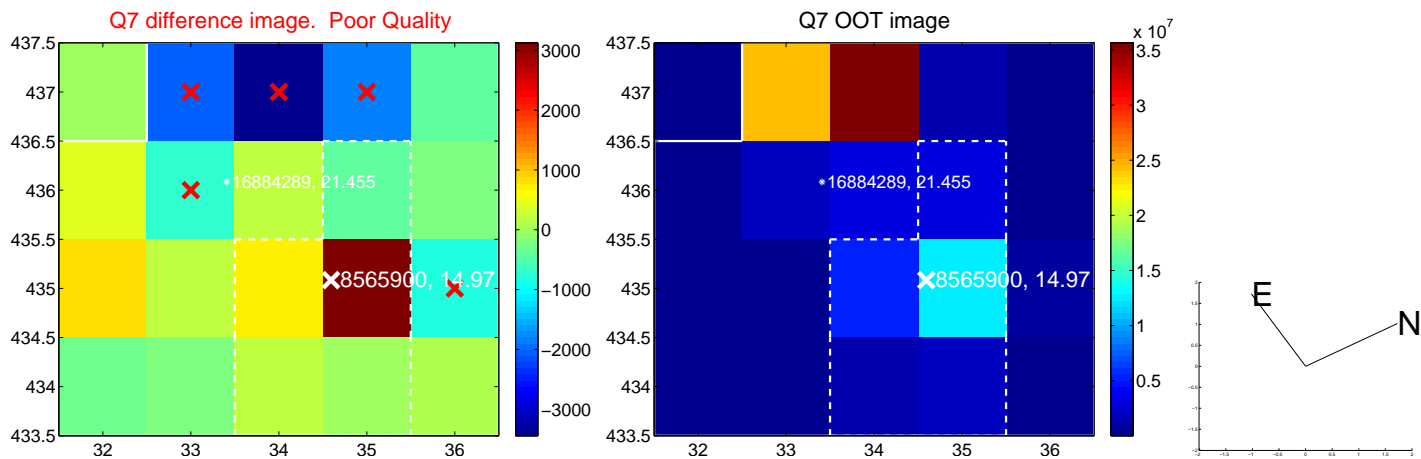
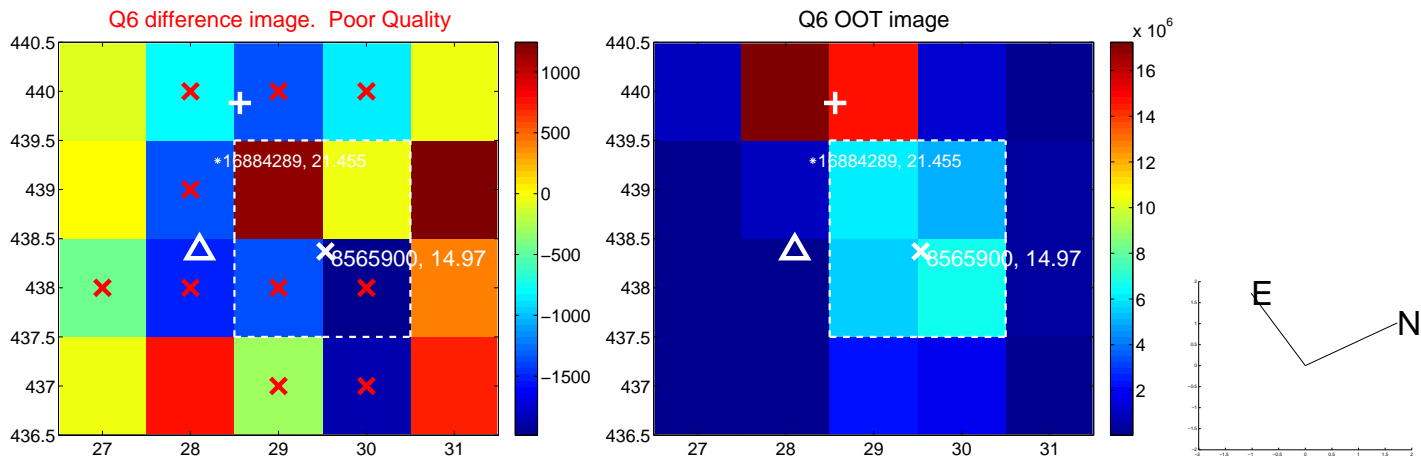
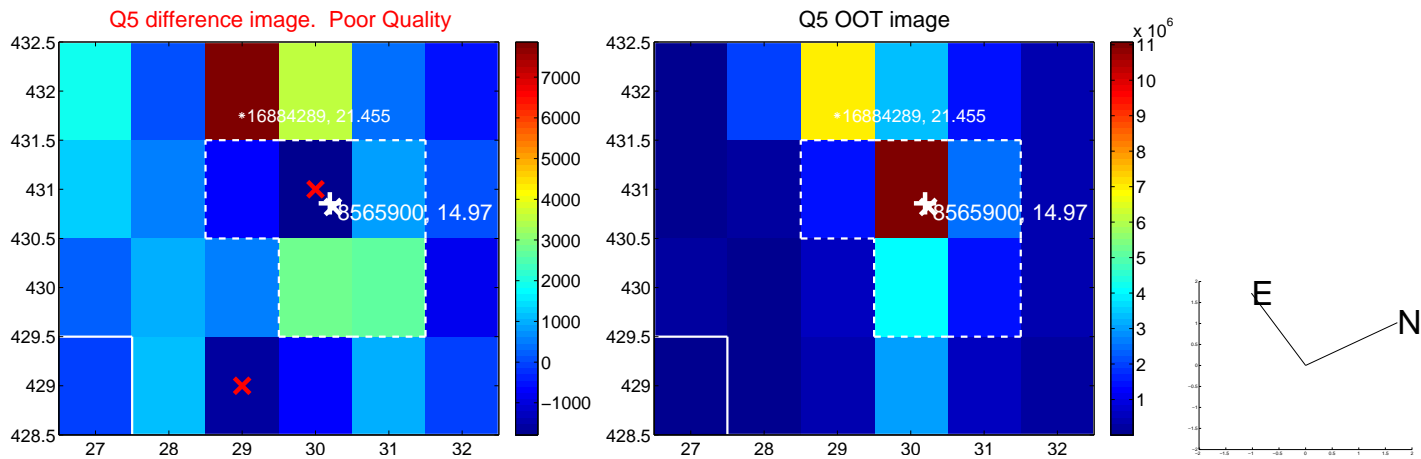


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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

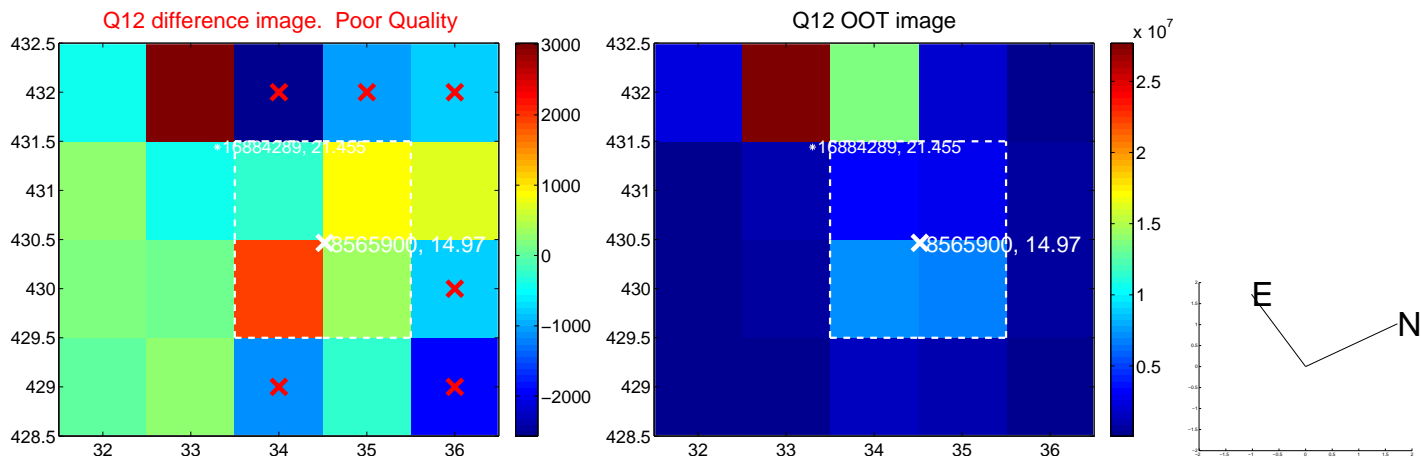
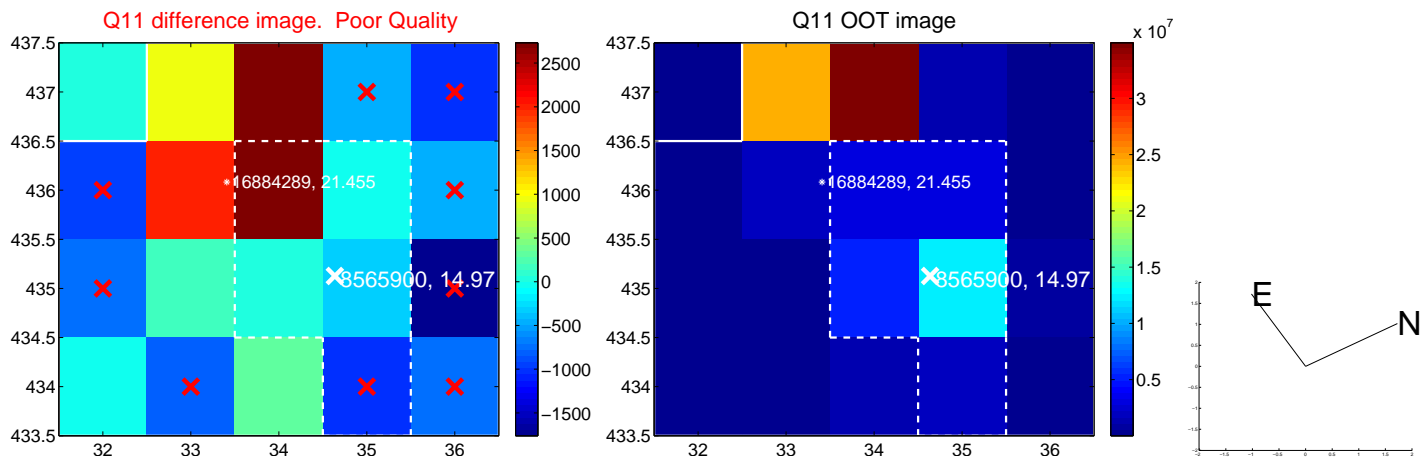
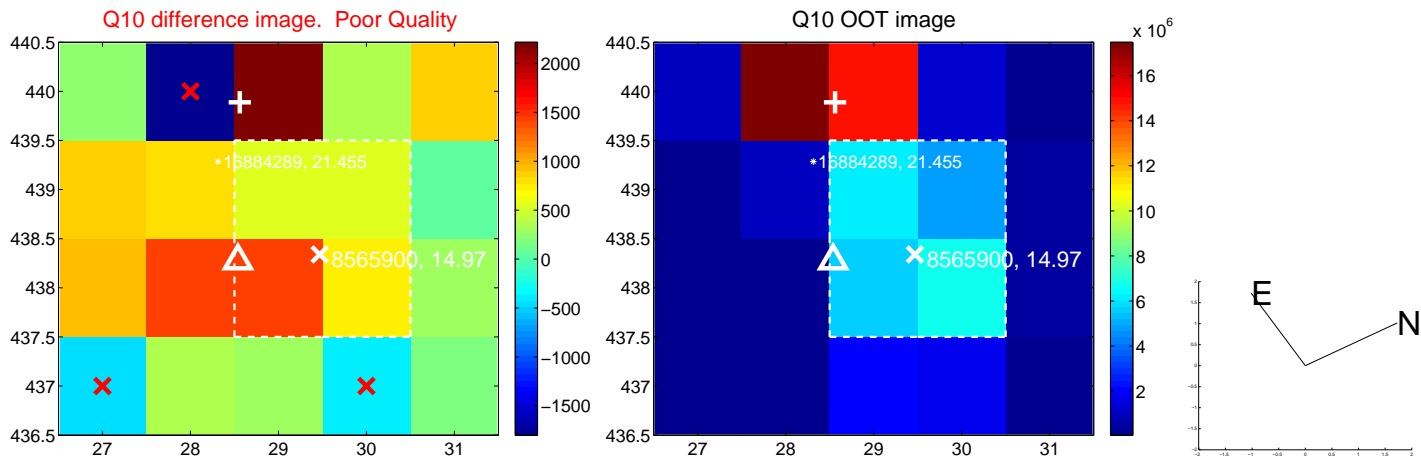
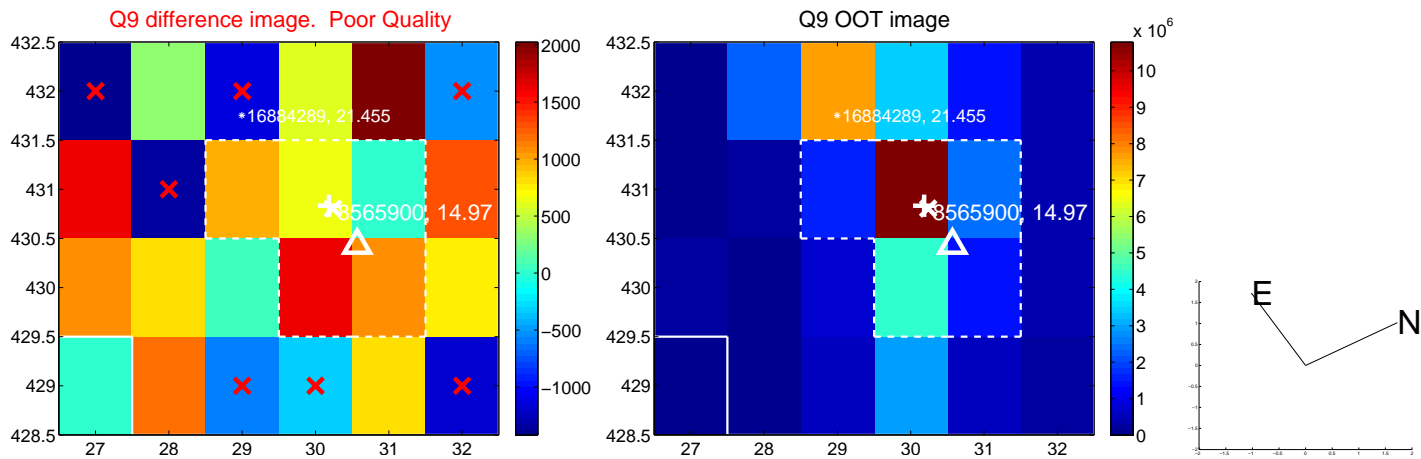


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

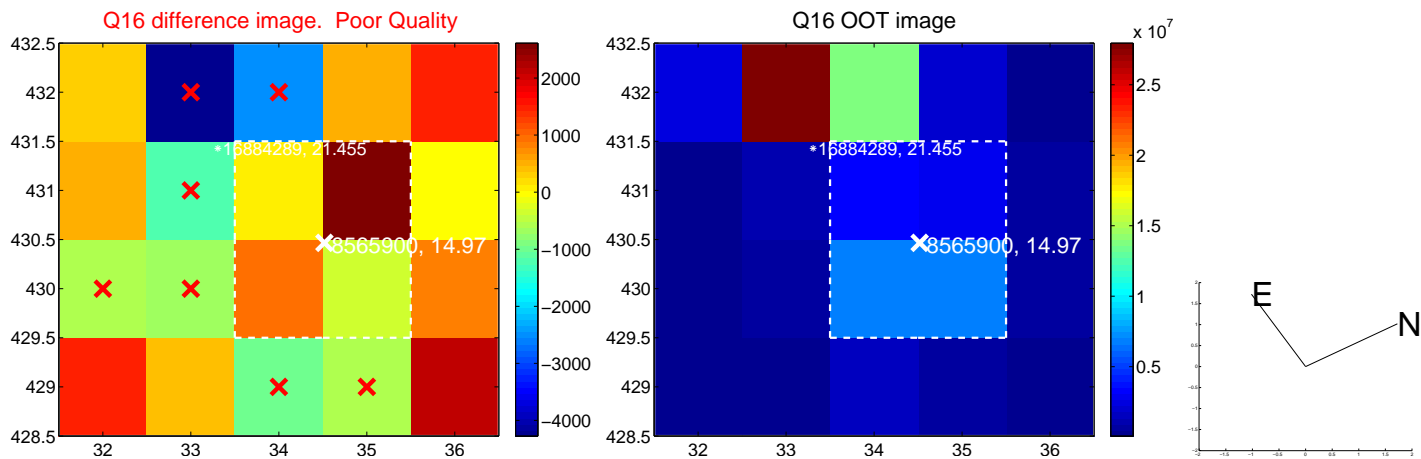
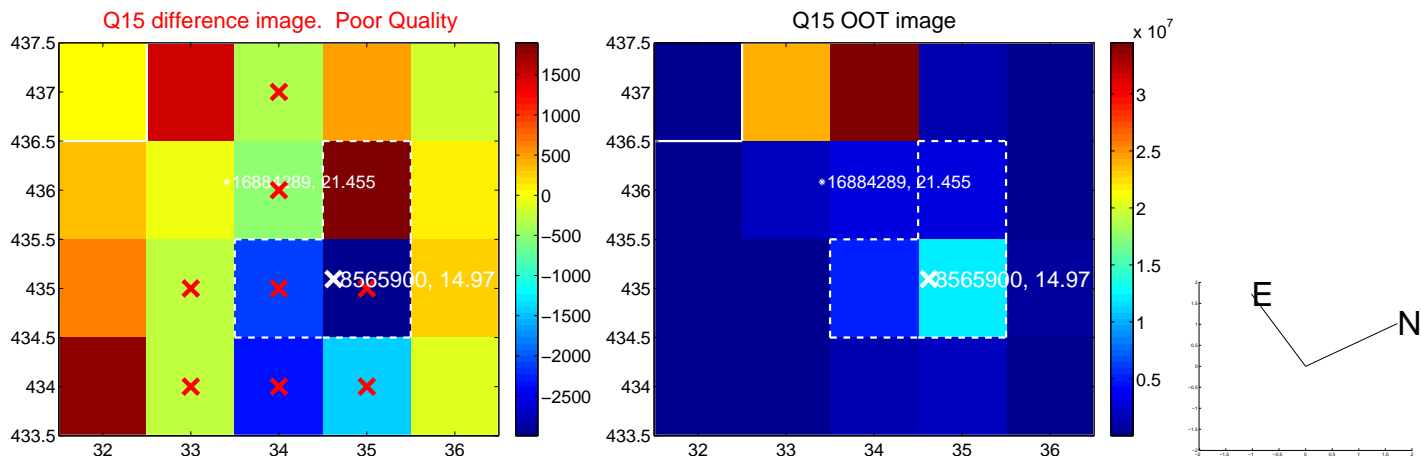
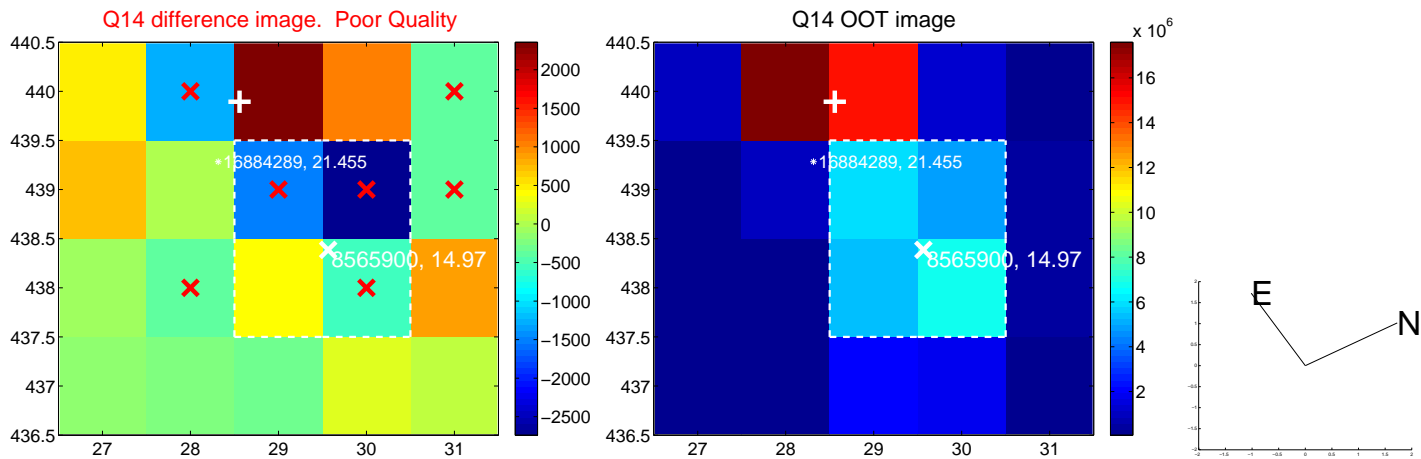
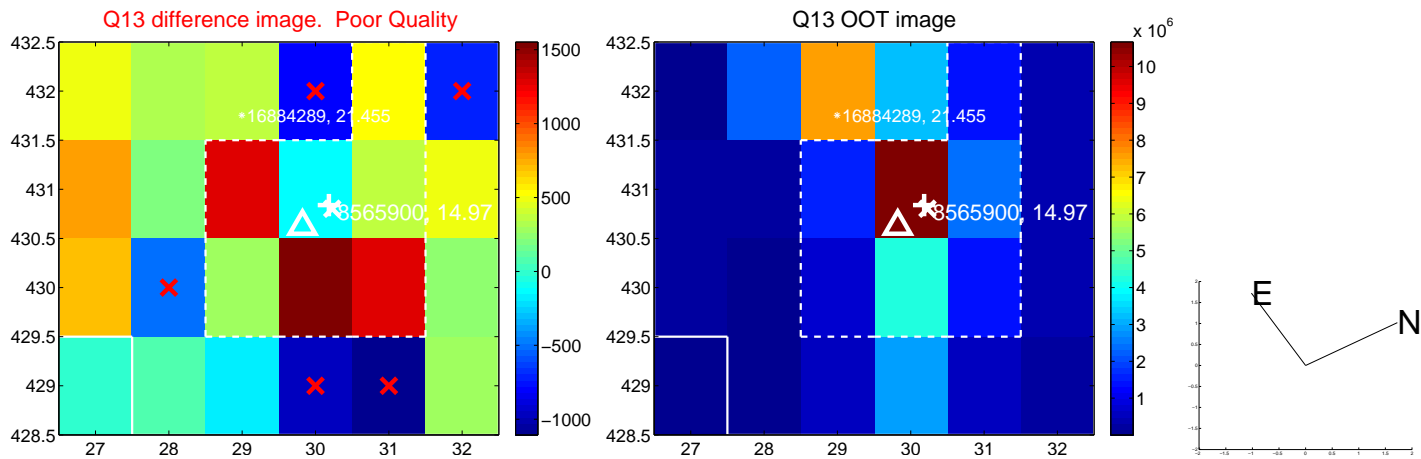




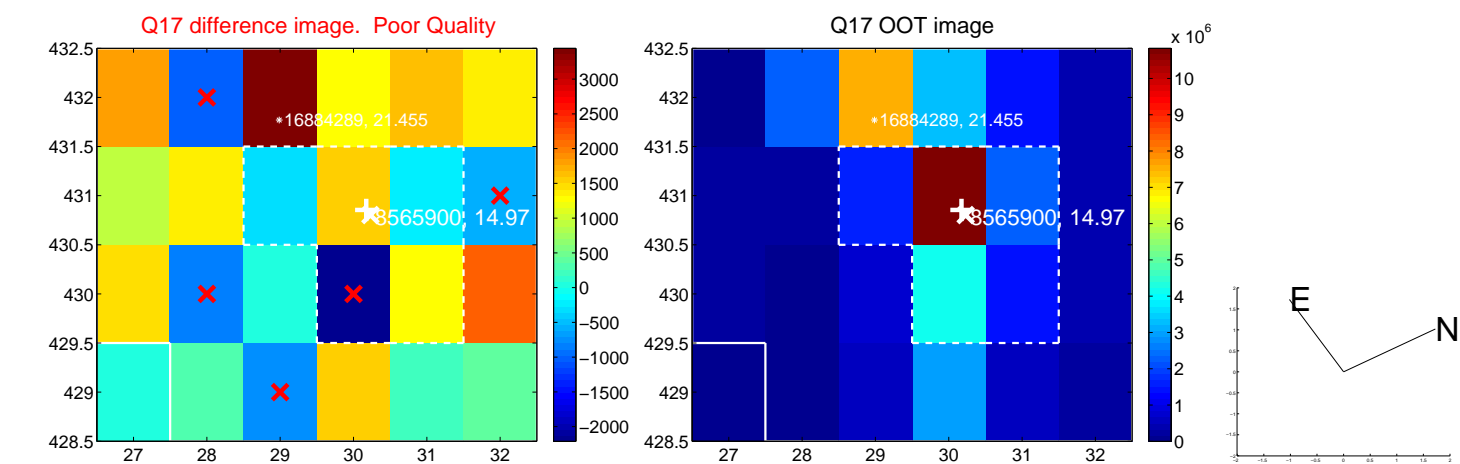
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



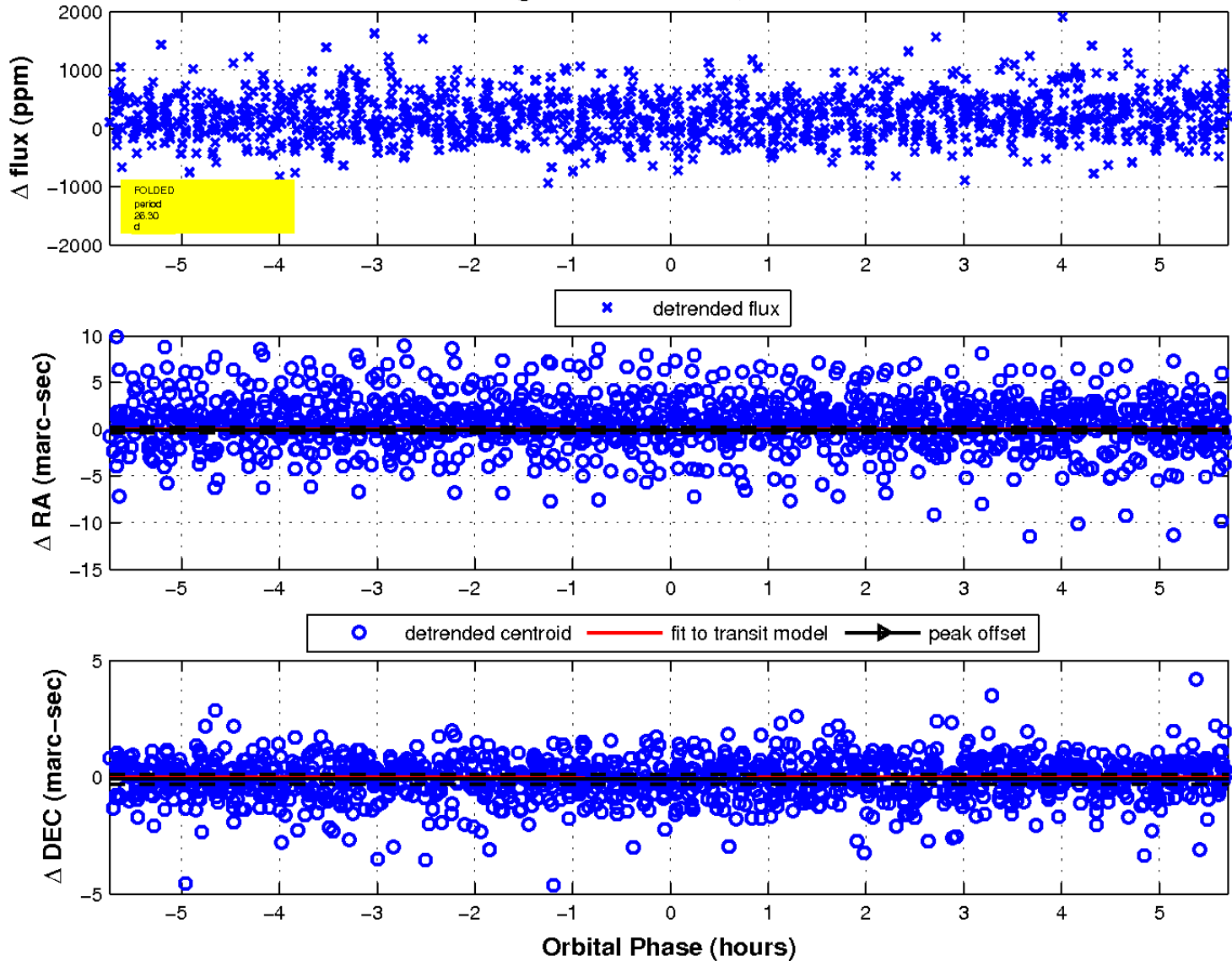
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

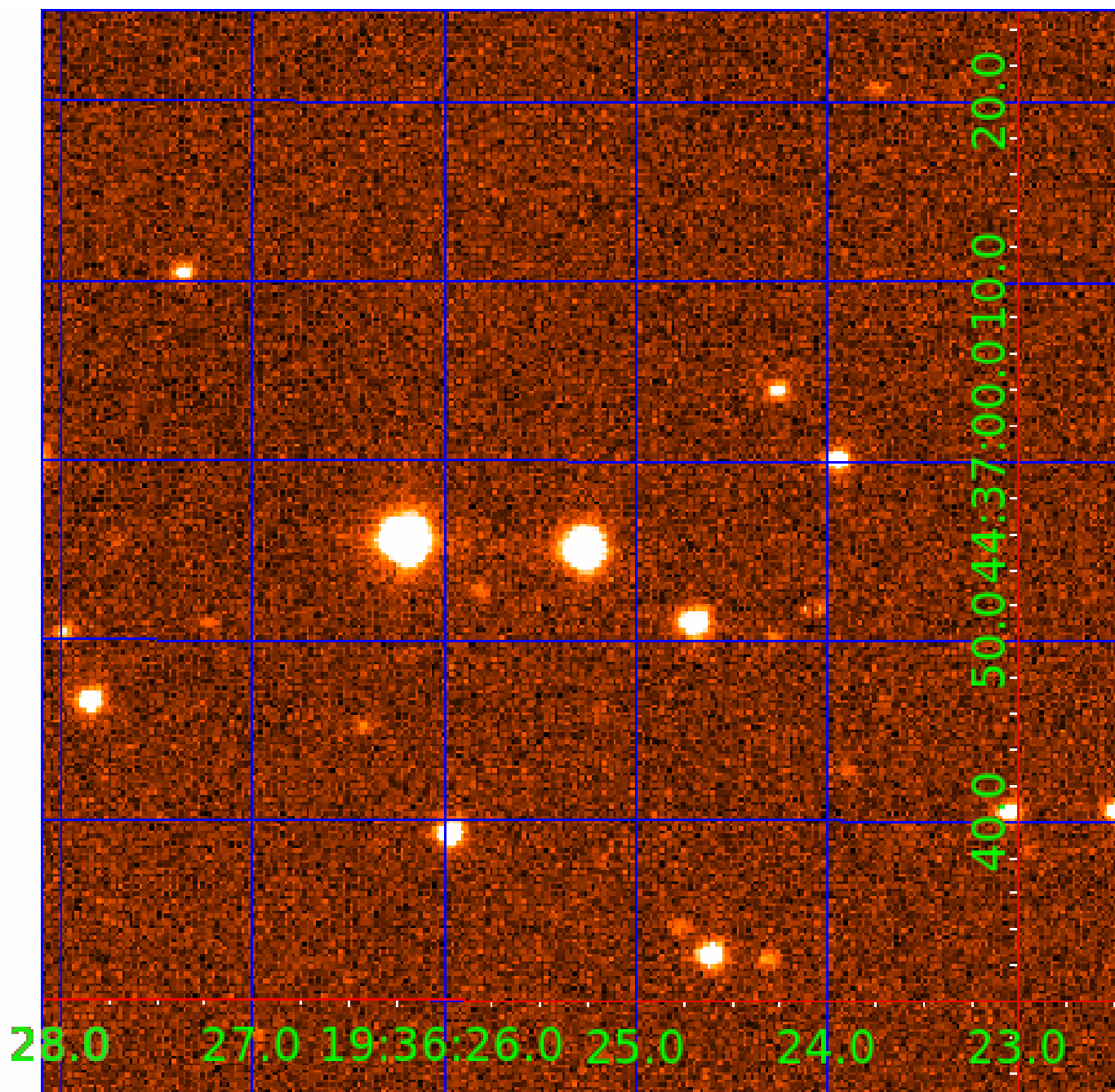


fluxWeightedCentroids, Planet 3 of 5



UKIRT Image

Declination



# KIC 008565900

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008565900-01	OBS	7060.01	1.641204	131.948593	51.1	12.386	8.8	8.3	0.83	5207	0.58	702.69
008565900-03	OBS	No	26.304354	146.658176	141.4	1.913	29.4	1.5	0.83	5207	1.04	17.39
008565900-04	OBS	No	26.342197	145.515743	402.4	24.765	33.2	4.0	0.83	5207	1.95	17.36
008565900-05	OBS	No	26.217212	134.521411	1957.5	2.500	13.8	-1.0	0.83	5207	3.59	17.47

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008565900-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008565900-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
008565900-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_KIC_POS—HALO_GHOST
008565900-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

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

## Ephemeris Match Information For 008565900-04

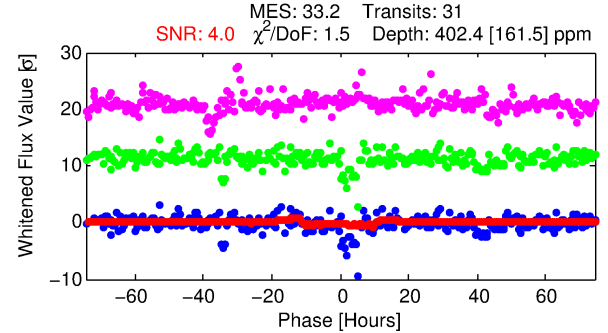
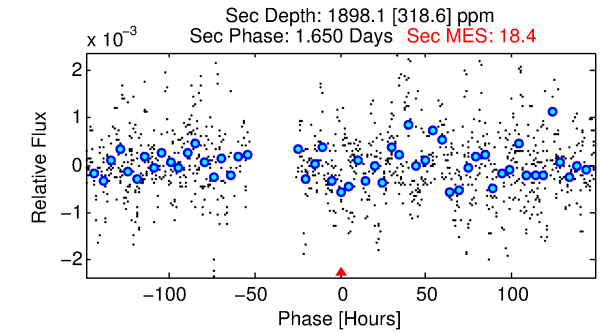
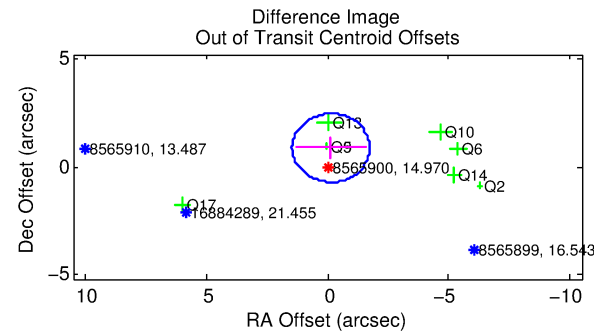
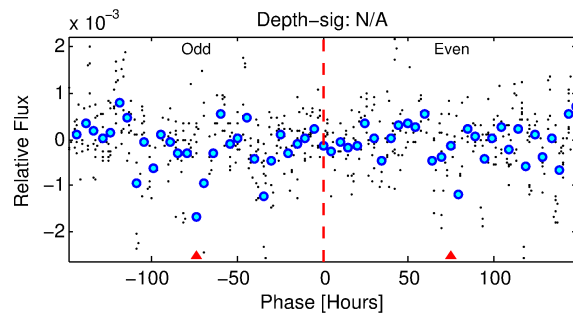
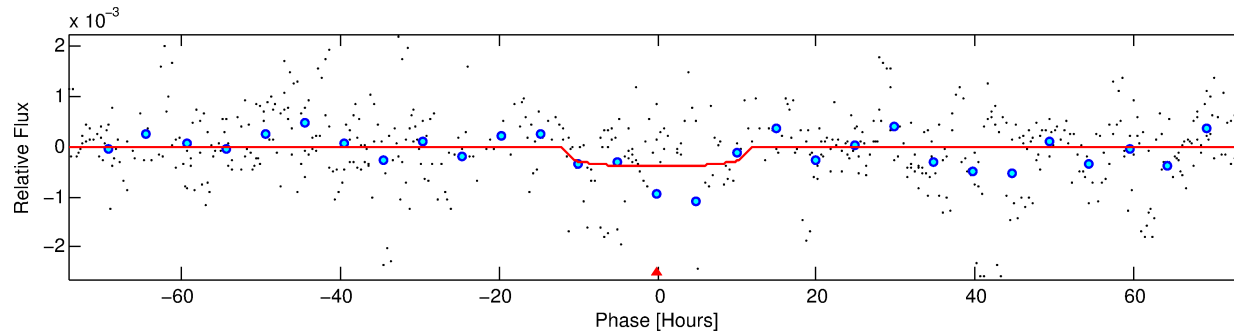
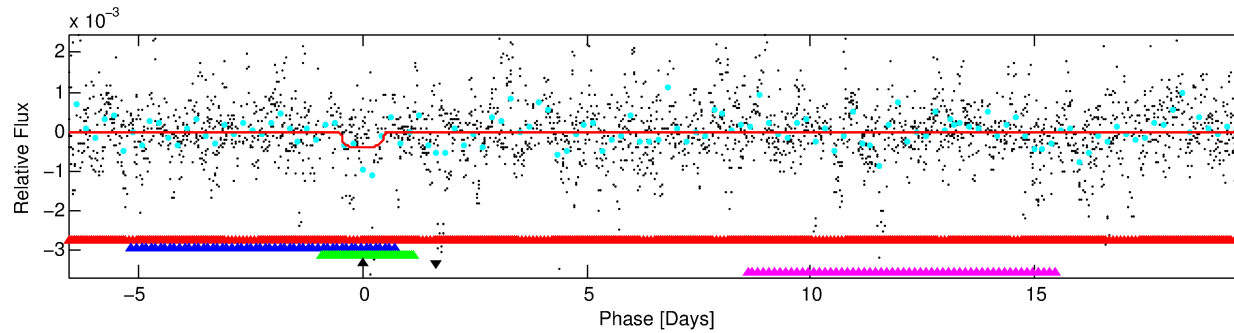
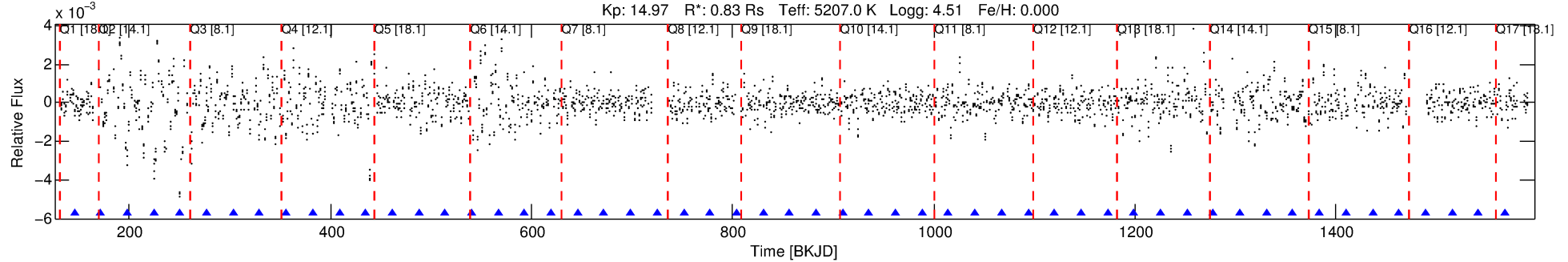
No Significant Match Found



# DV One-Page Summary

KIC: 8565900 Candidate: 4 of 5 Period: 26.342 d  
KOI: K07060 Corr: No Ephemeris Match

Kp: 14.97 R\*: 0.83 Rs Teff: 5207.0 K Logg: 4.51 Fe/H: 0.000



## DV Fit Results:

Period = 26.34220 [0.00336] d  
Epoch = 145.5157 [0.1312] BKJD  
Rp/R\* = 0.0215 [0.0078]  
a/R\* = 4.51 [4.77]  
b = 0.86 [0.33]  
Seff = 17.36 [3.35]  
Teq = 520 [25] K  
Rp = 1.95 [0.75] Re  
a = 0.1619 [0.0167] AU  
Ag = 7214.42 [5476.20] [1.32σ]  
Teffp = 7416 [1398] K [4.93σ]

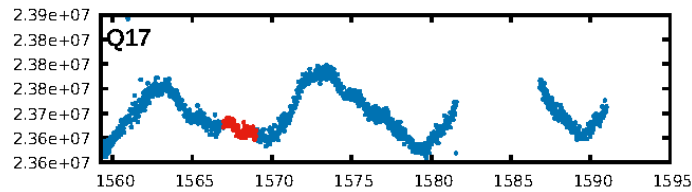
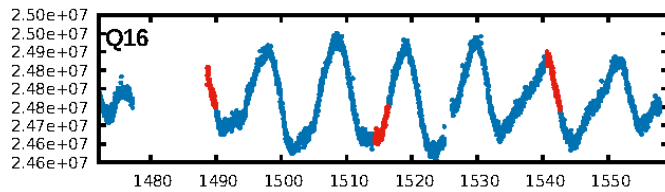
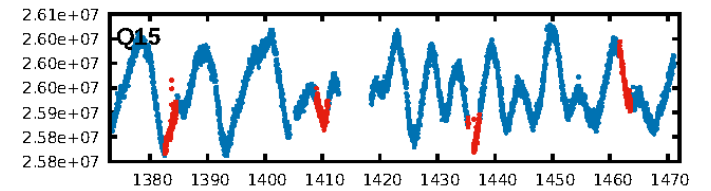
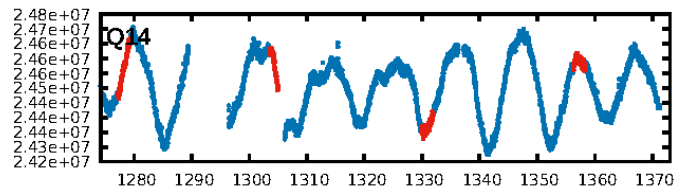
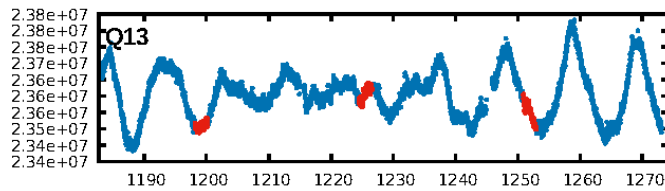
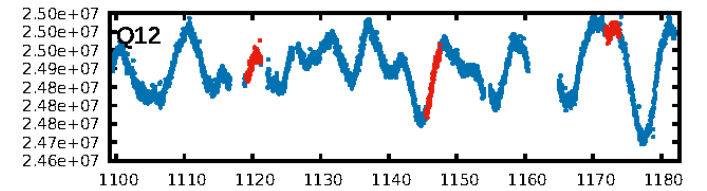
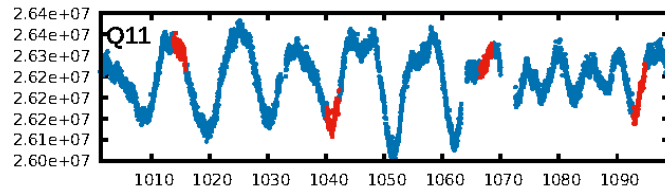
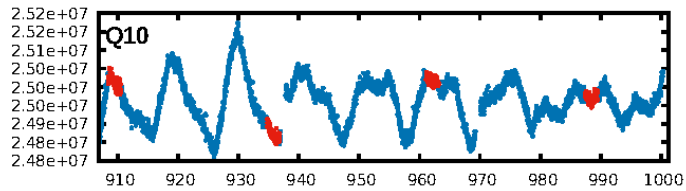
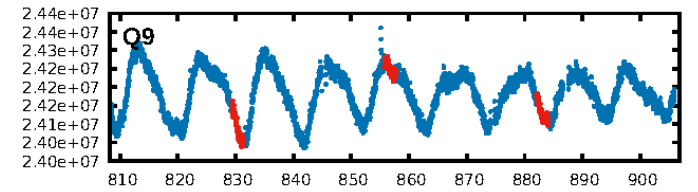
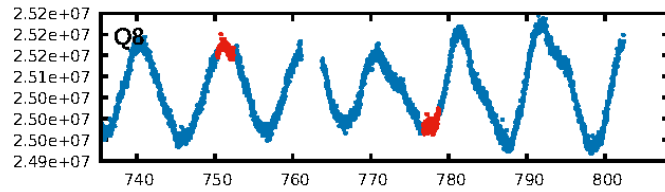
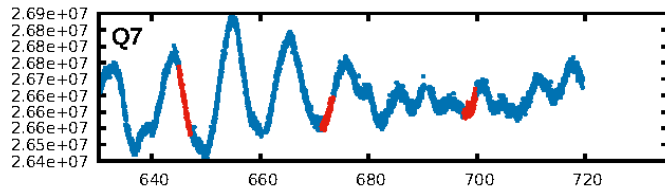
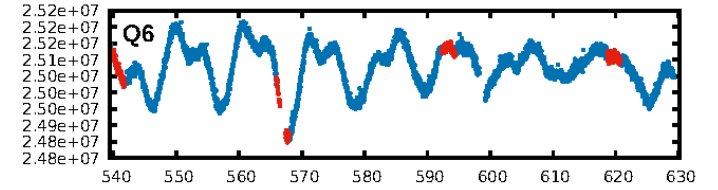
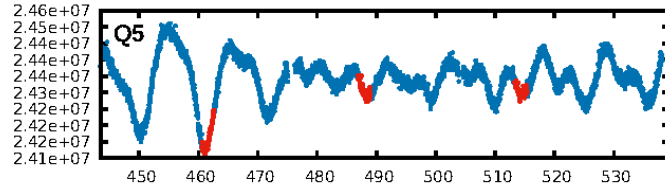
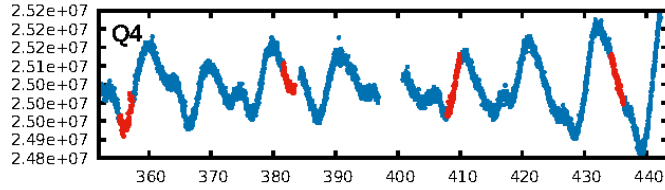
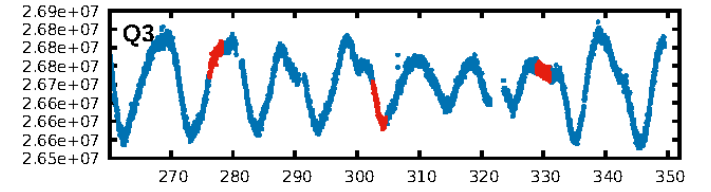
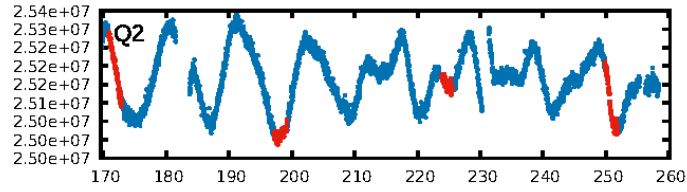
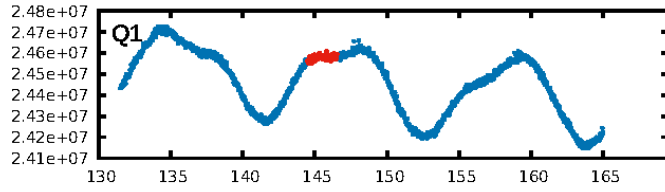
## DV Diagnostic Results:

ShortPeriod-sig: 2.9% [0.04σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 13.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.60e-158  
RollingBand-fgt: 1.00 [30/30]  
GhostDiagnostic-chr: 0.04794  
Centroid-sig: 66.2%  
Centroid-so: 3.593 arcsec [5.44σ]  
OotOffset-rm: 0.886 arcsec [1.66σ]  
KicOffset-rm: 0.476 arcsec [1.18σ]  
OotOffset-st: 4/0/0/4 [8]  
KicOffset-st: 4/4/3/4 [15]  
DiffImageQuality-fgm: 0.60 [9/15]  
DiffImageOverlap-fno: 0.00 [0/17]

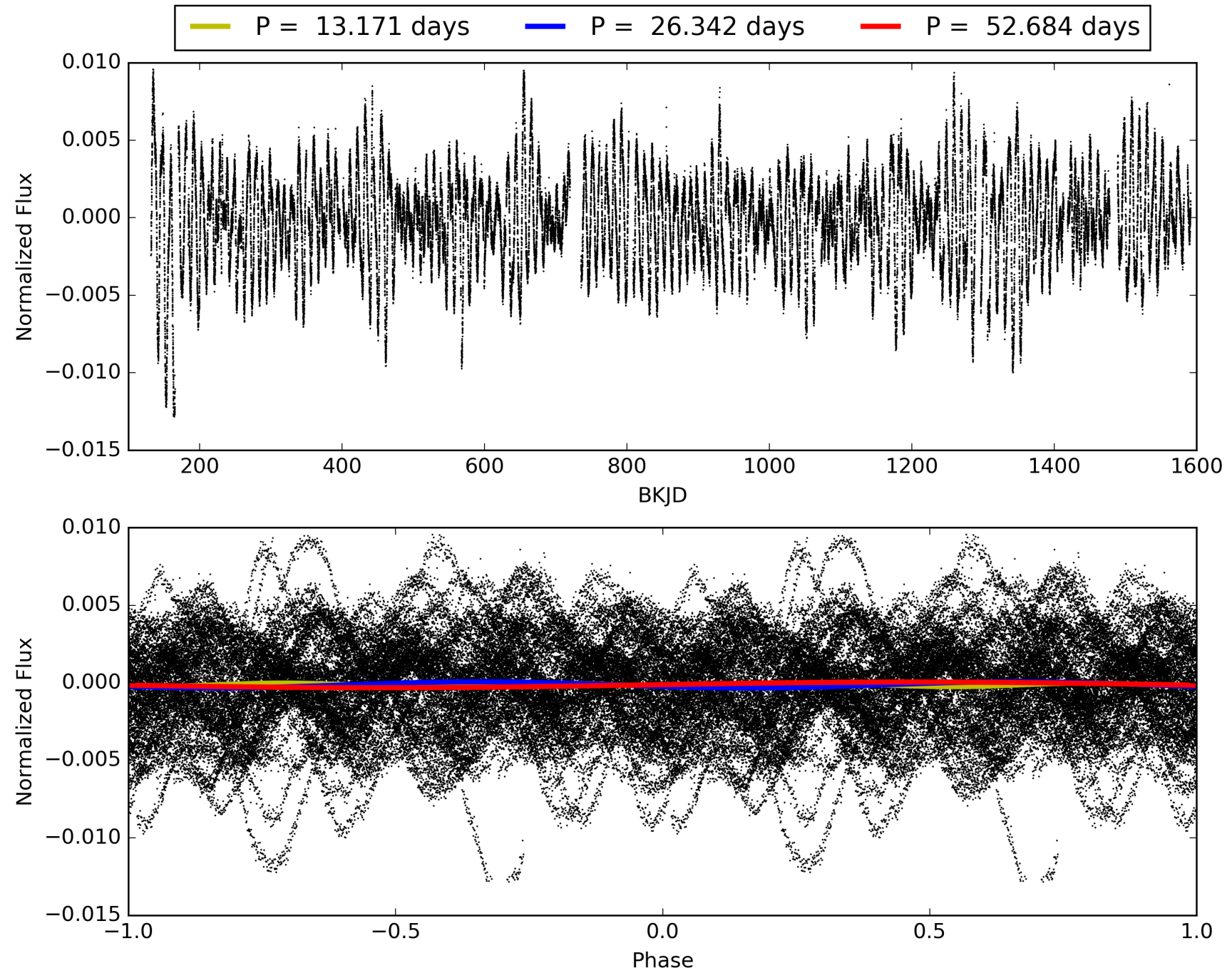
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 19:45:14 Z

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

# TCE 008565900-04, PDC Light Curves

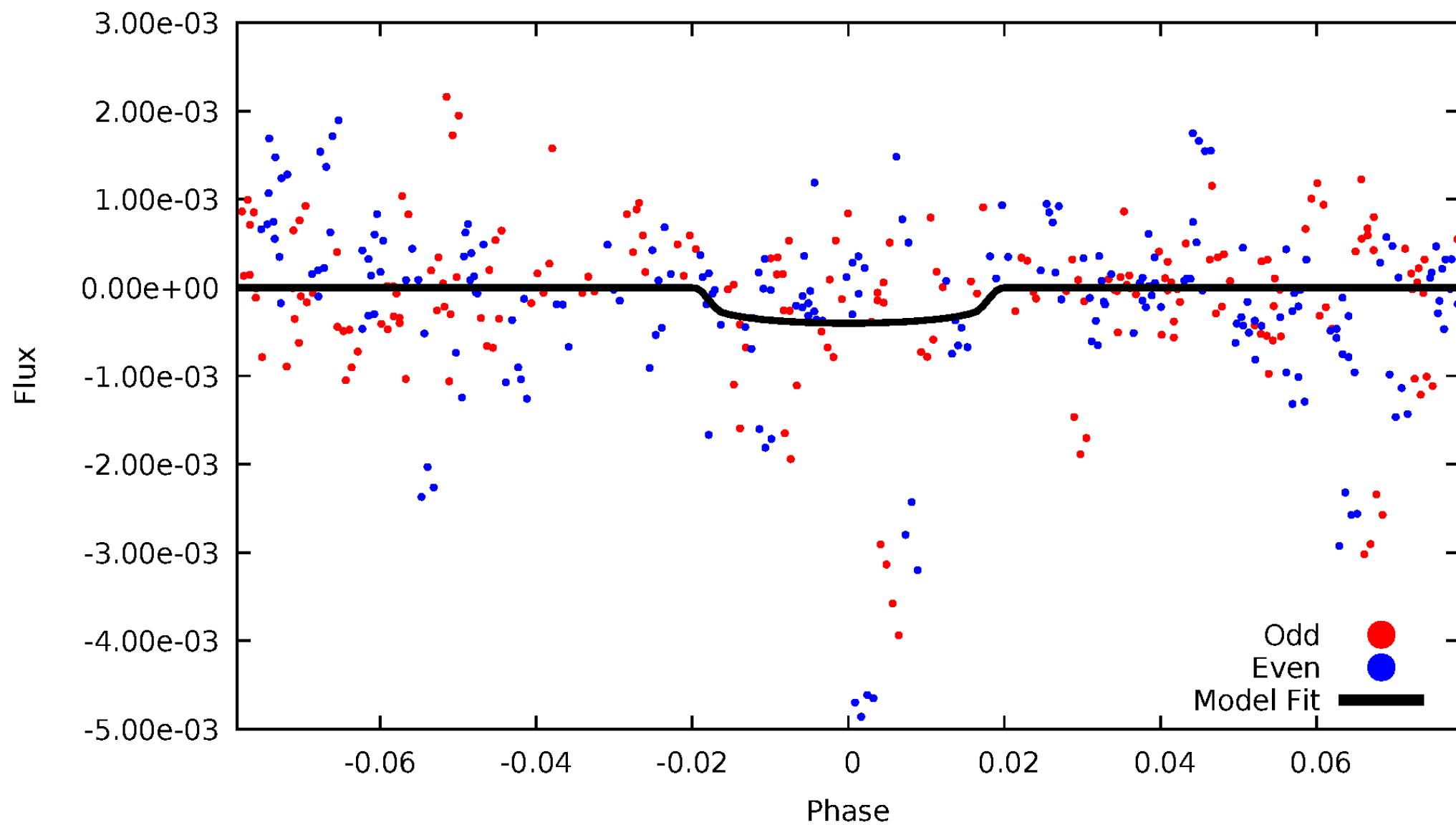


TCE 008565900-04



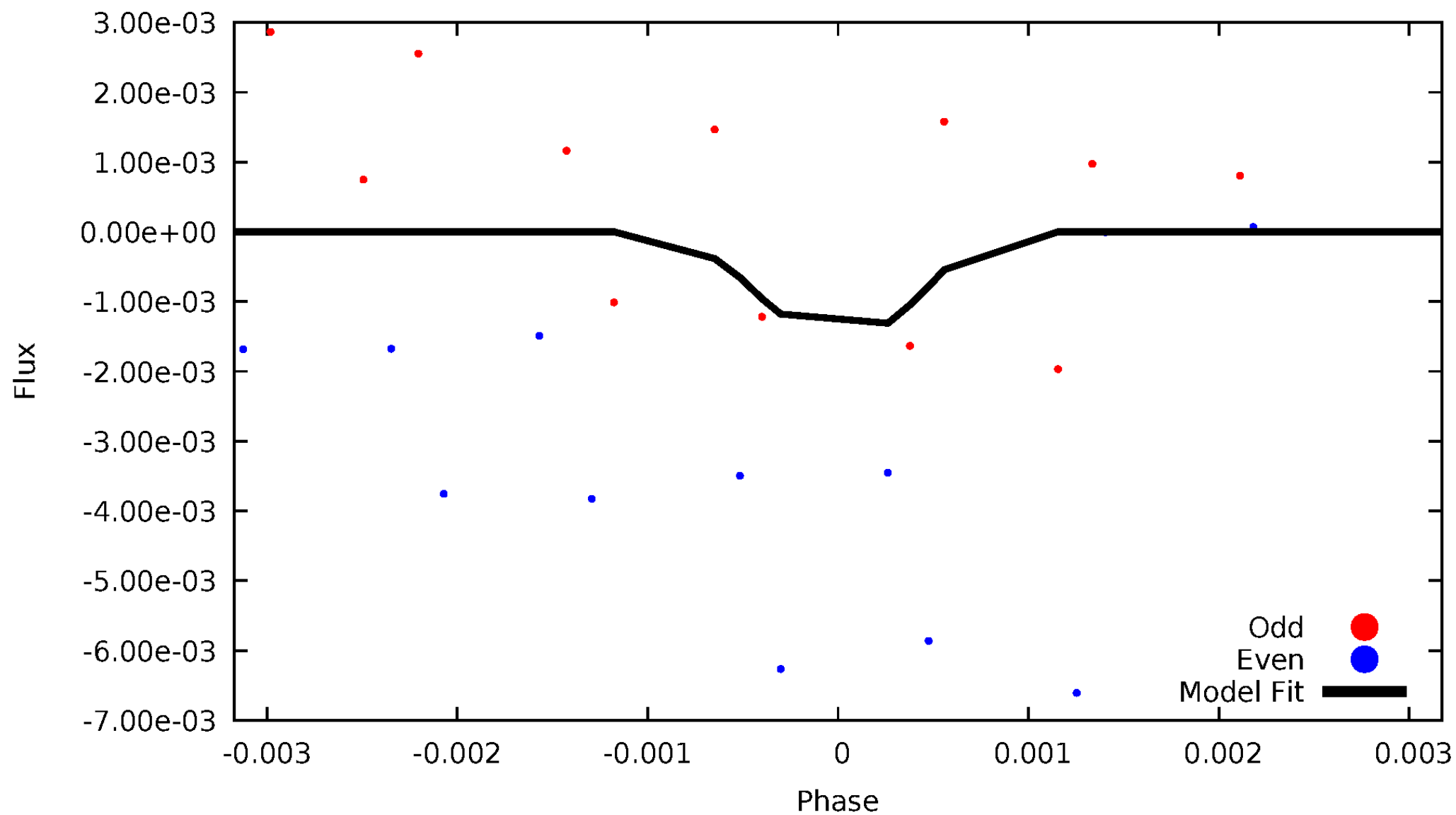
# DV Odd/Even

TCE 008565900-04



# ALT Odd/Even

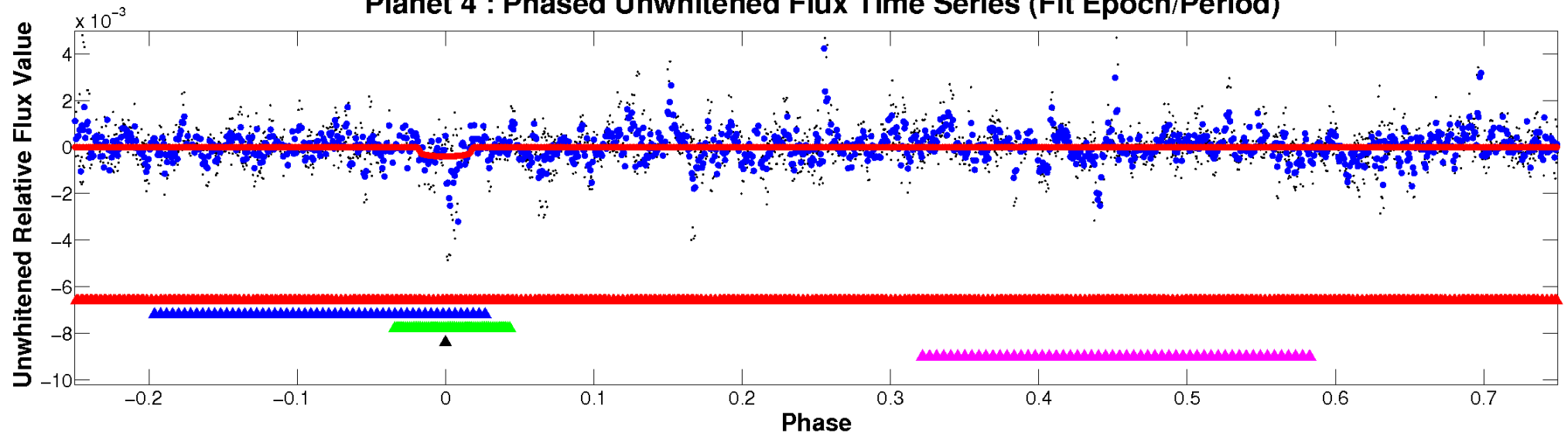
TCE 008565900-04



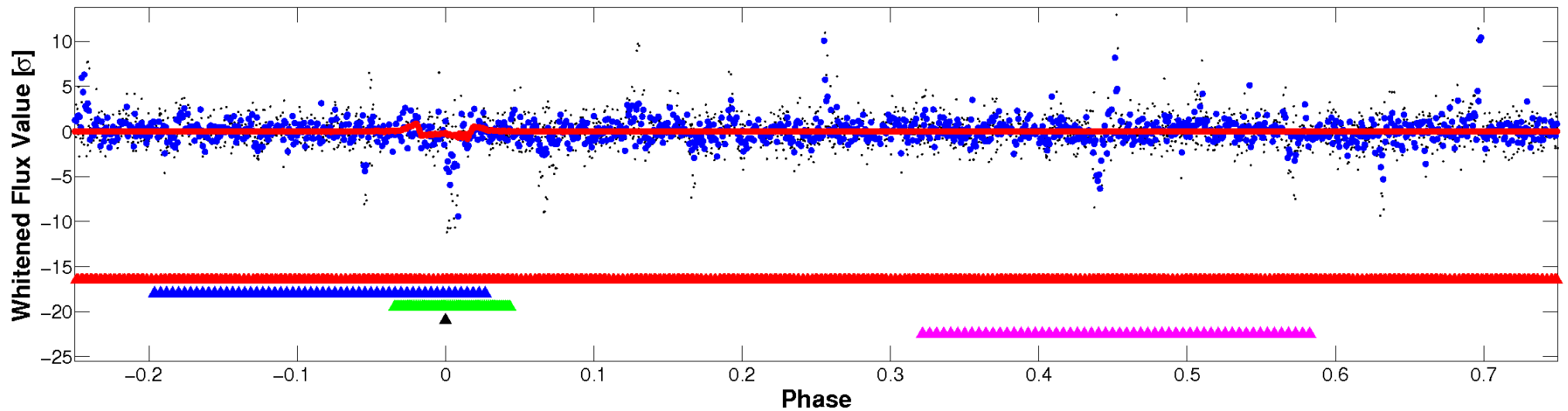


# Non-Whitened Vs. Whitened Light Curve

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

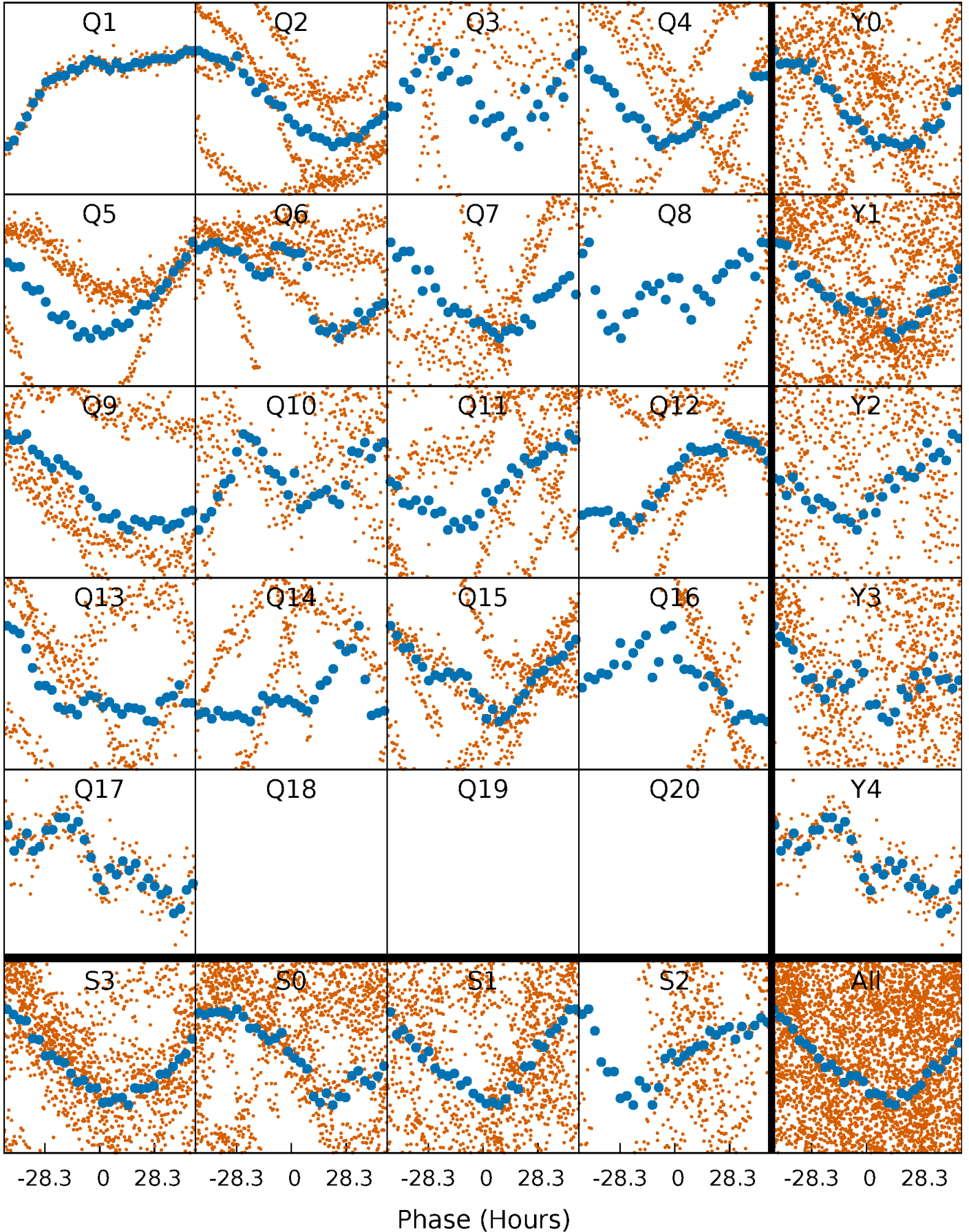


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



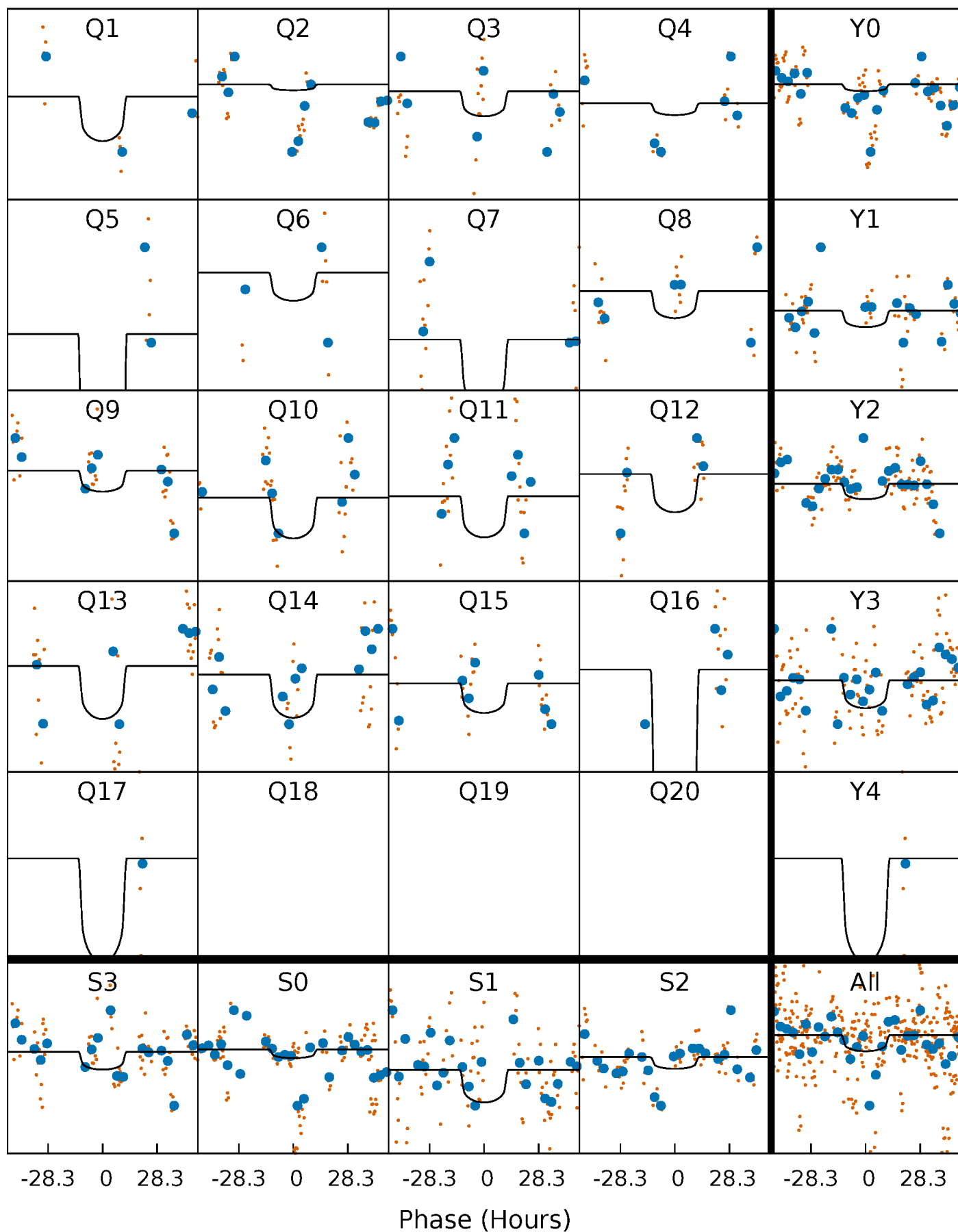
# PDC Quarter-Phased Transit Curves

TCE 008565900-04 P= 26.342197 Days  $T_0=145.515743$  (BKJD)



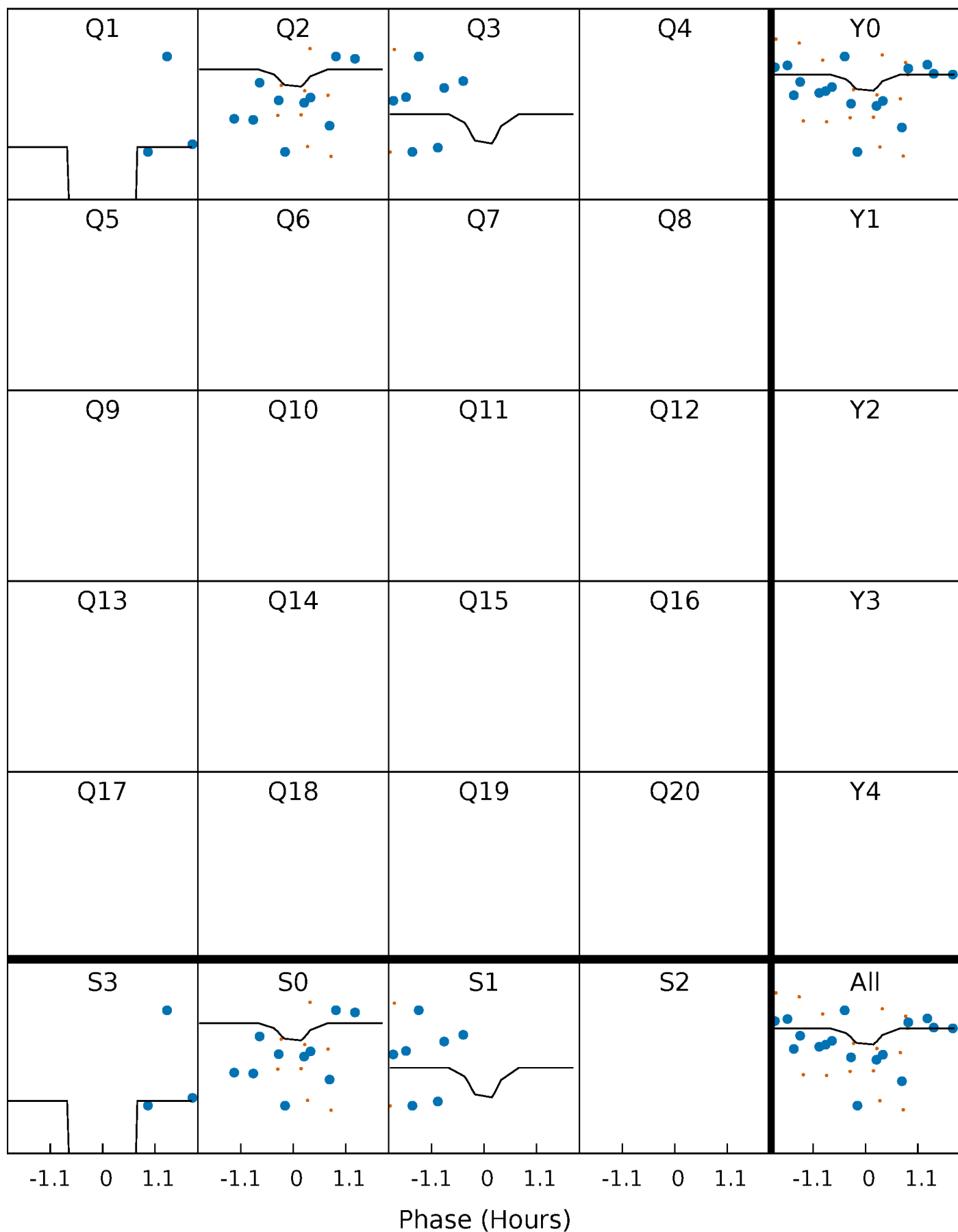
# DV Quarter-Phased Transit Curves

TCE 008565900-04 P= 26.342197 Days  $T_0=145.515743$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

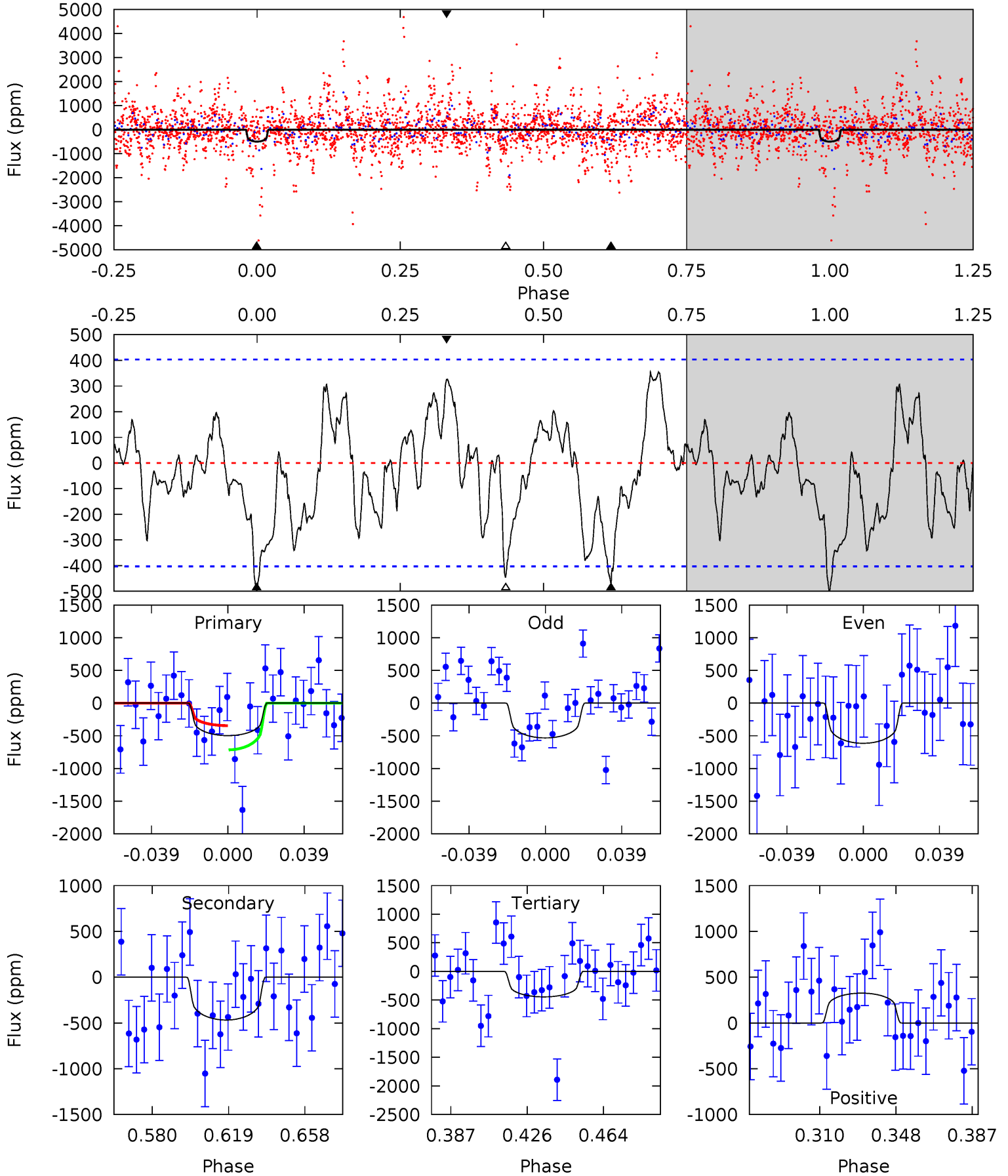
TCE 008565900-04 P= 26.280318 Days  $T_0=145.840619$  (BKJD)



# DV Model-Shift Uniqueness Test

008565900-04, P = 26.342197 Days, E = 119.173546 Days

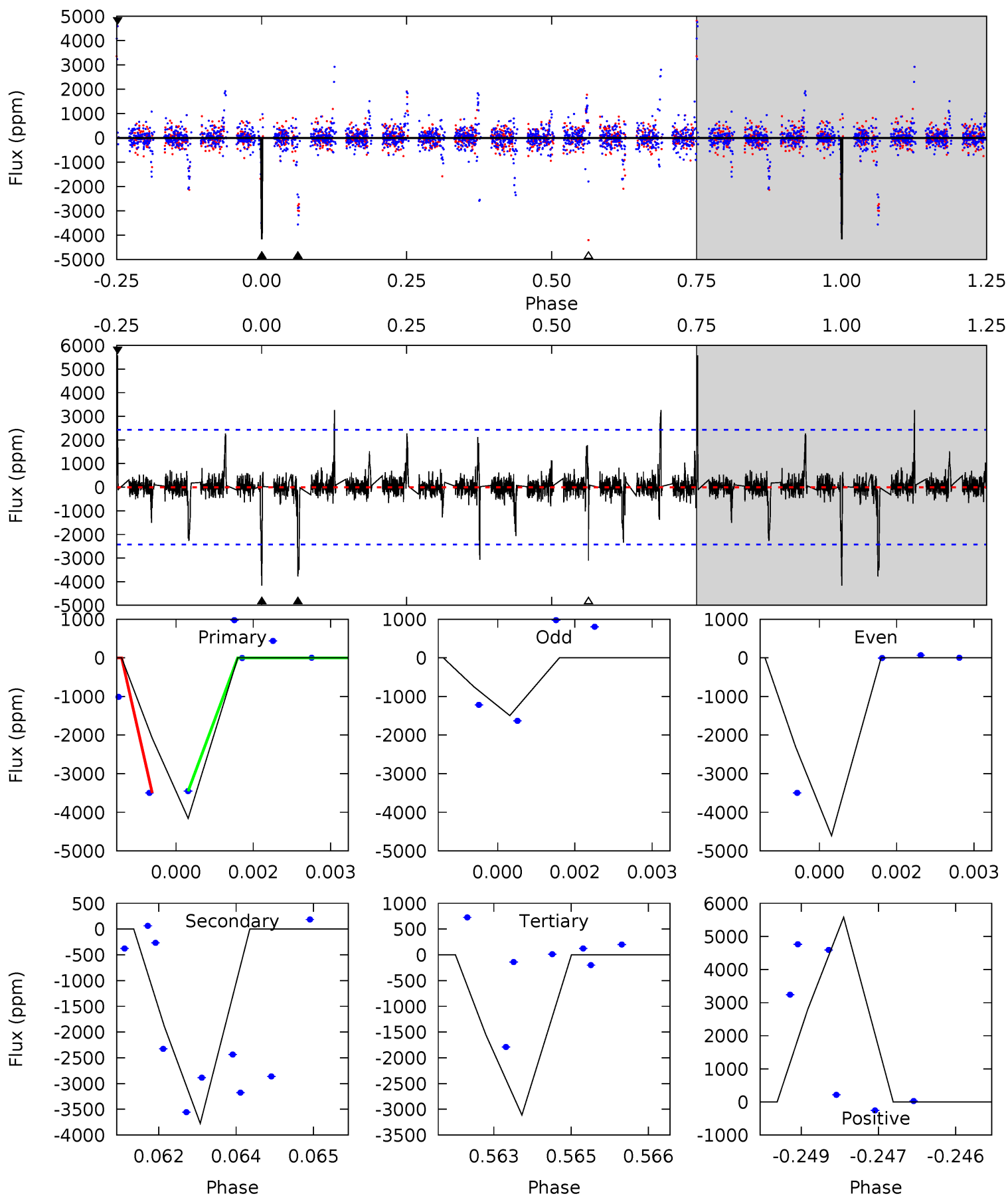
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.87	5.53	5.25	3.84	4.76	2.07	1.91	0.62	2.03	0.27	1.68	0.47	3.26	0.42	2.12



# Alt Model-Shift Uniqueness Test

008565900-04, P = 26.280318 Days, E = 119.560301 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	8.33	6.87	12.3	5.36	3.14	1.01	2.31	-3.14	1.46	-3.98	4.54	1.11	0.57	0





### Stellar Parameters For KIC 008565900

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5207^{+158}_{-158}$	$4.510^{+0.075}_{-0.082}$	$0.000^{+0.300}_{-0.300}$	$0.831^{+0.102}_{-0.091}$	$0.814^{+0.093}_{-0.070}$	$2.000^{+0.671}_{-0.546}$
	+3%/-3%	+2%/-2%	+inf%/-inf%	+12%/-11%	+11%/-9%	+34%/-27%
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 008565900-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-468 \pm 85$	$1.98^{+0.68}_{-0.70}$	$729^{+31}_{-31}$	$5204^{+1222}_{-605}$	$1761^{+2436}_{-827}$
Alt.	$-3775 \pm 453$	$4.02^{+0.75}_{-0.72}$	$727^{+33}_{-29}$	$6058^{+717}_{-518}$	$3359^{+1725}_{-1038}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

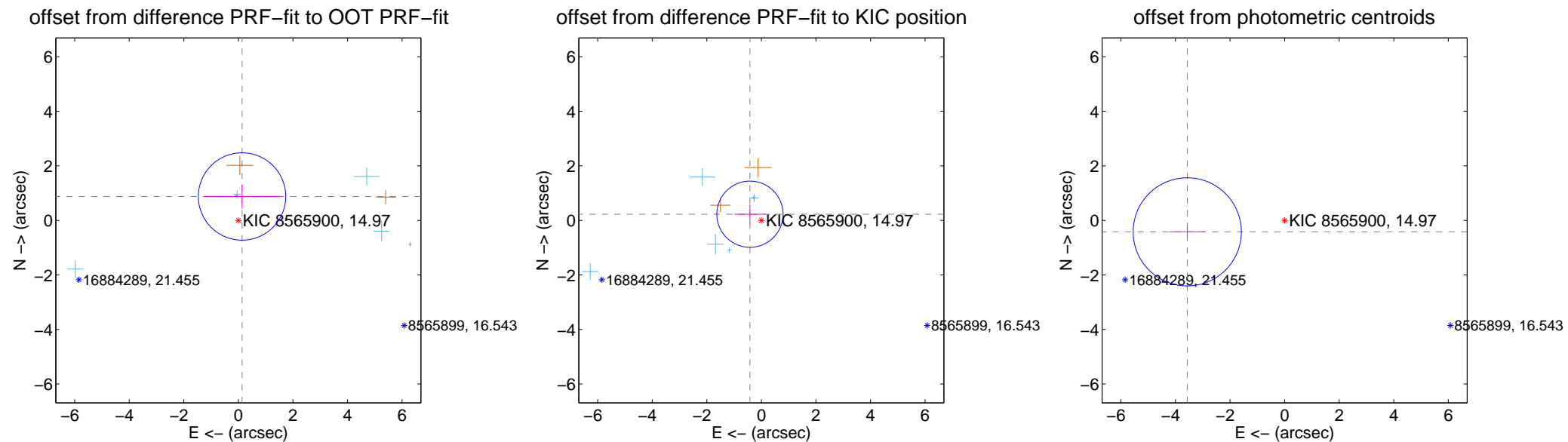
## DV Centroid Data

Supplemental centroid analysis for 008565900-04. Kepler magnitude: 14.97. Transit SNR 4.02

There are 9 quarters with good PRF difference image offsets

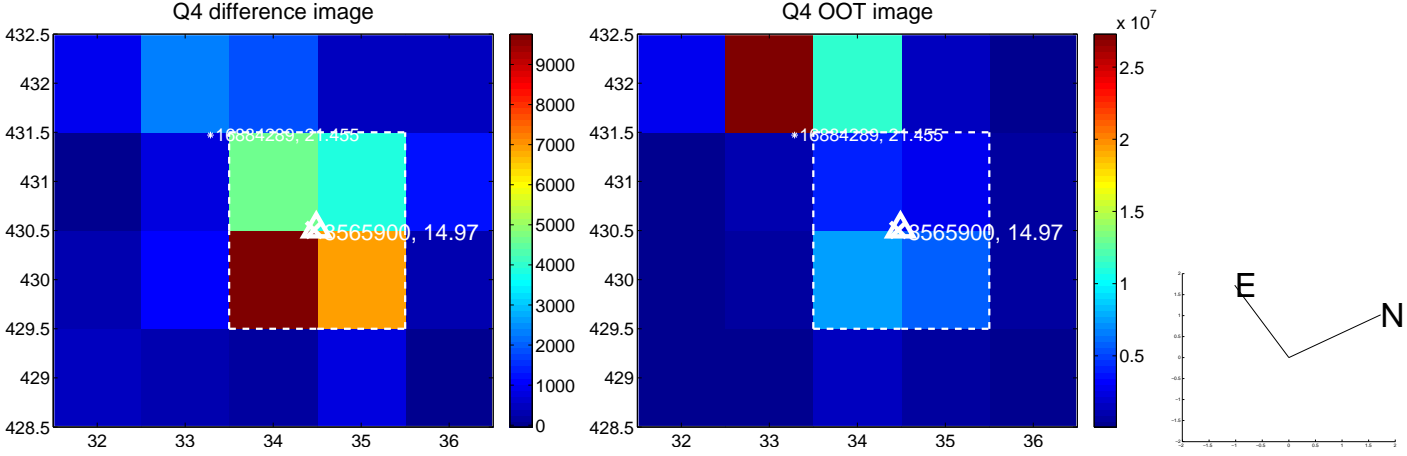
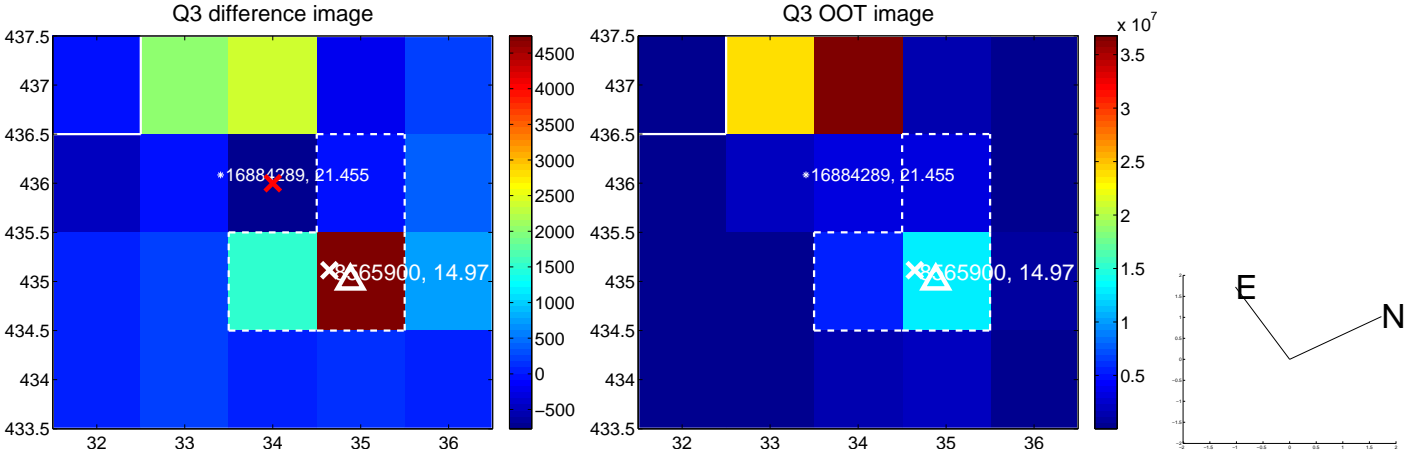
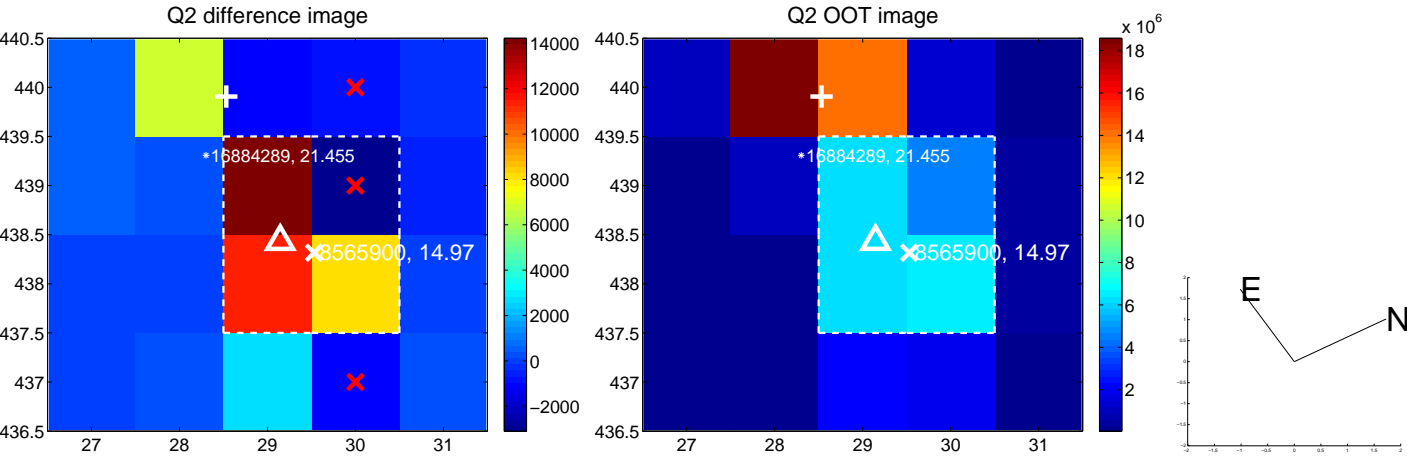
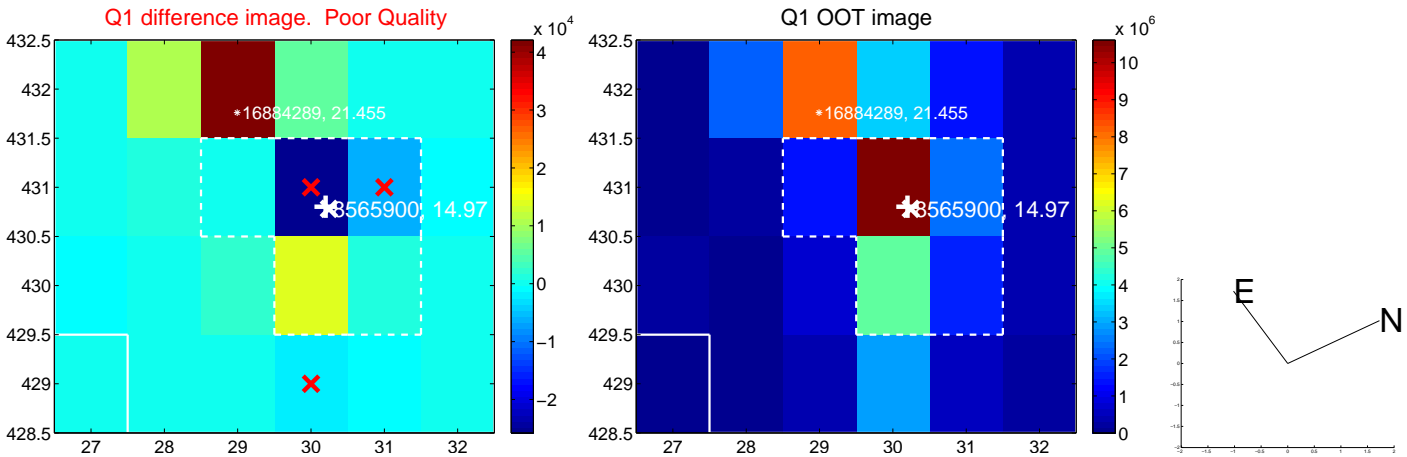
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.886 \pm 0.534$	1.66	$-0.134 \pm 1.418$	$0.876 \pm 0.445$
PRF-fit source offset from KIC position	$0.476 \pm 0.405$	1.18	$0.419 \pm 0.573$	$0.226 \pm 0.353$
photometric centroid source offset	$3.59 \pm 0.66$	5.44	$3.57 \pm 0.66$	$-0.42 \pm 0.21$

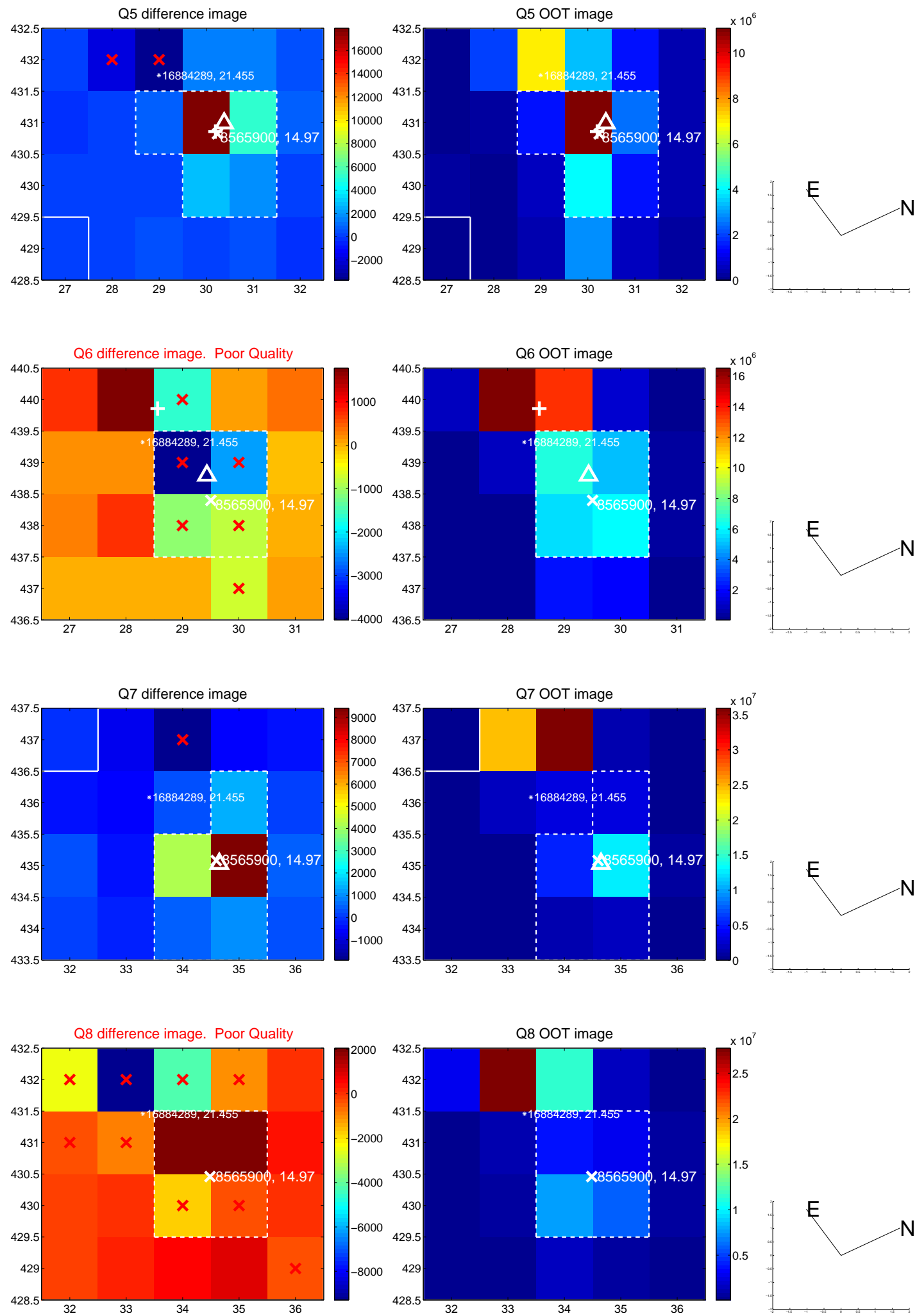


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

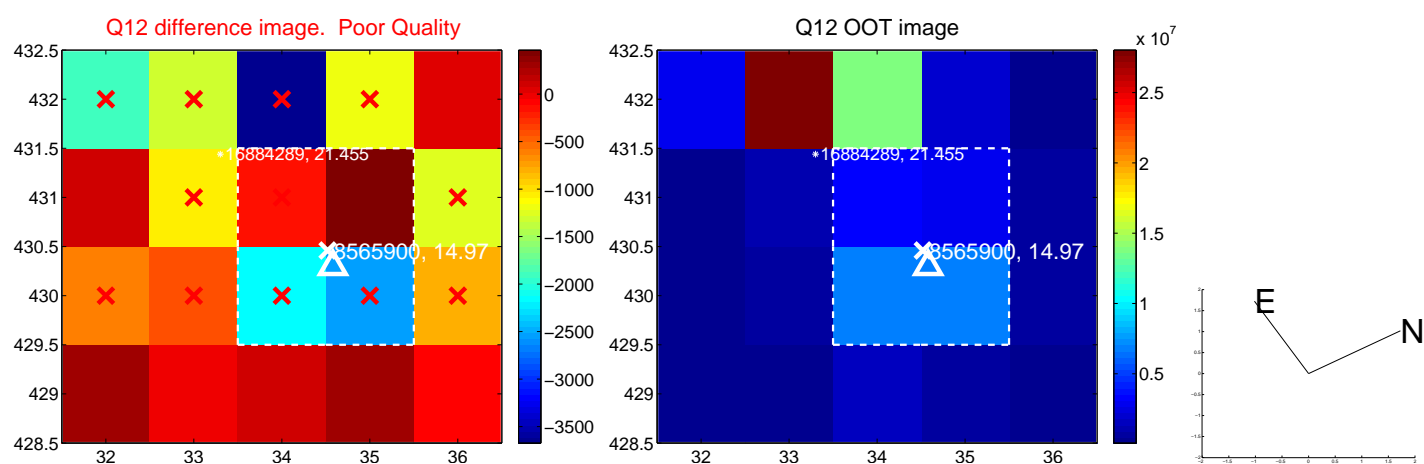
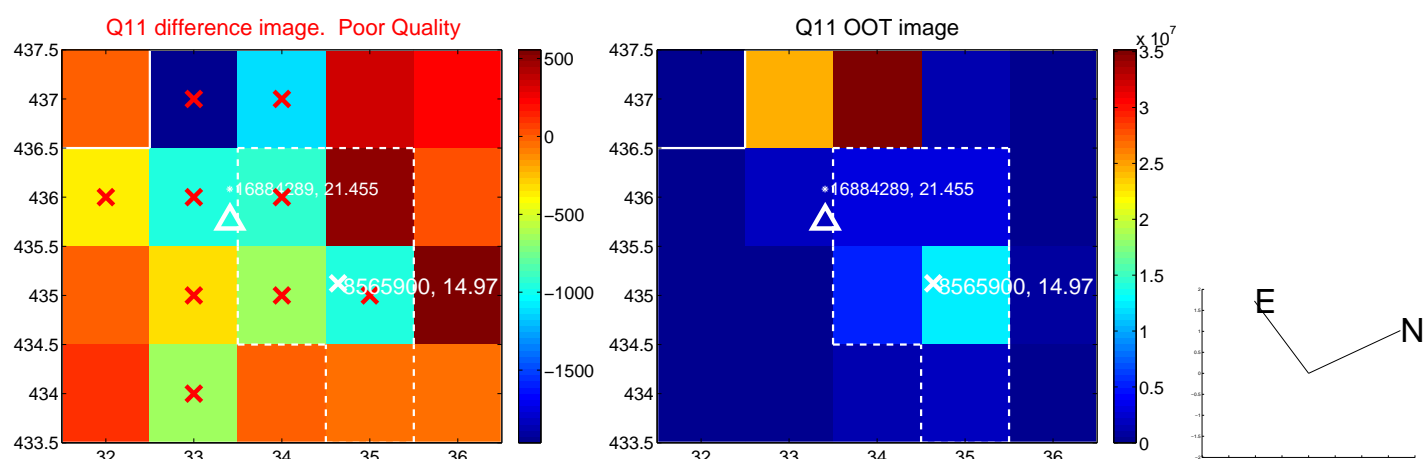
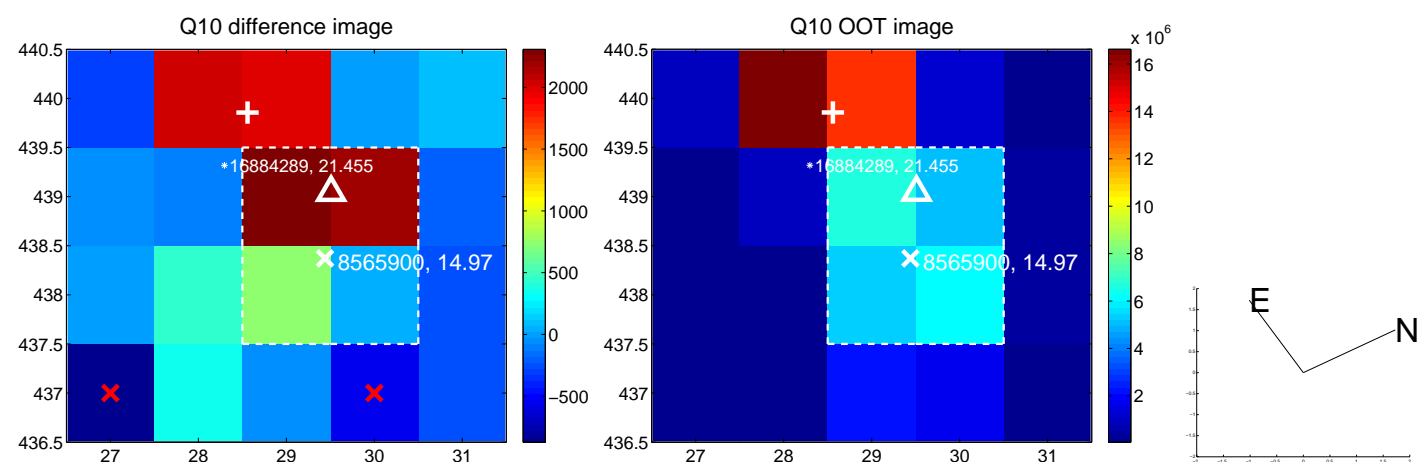
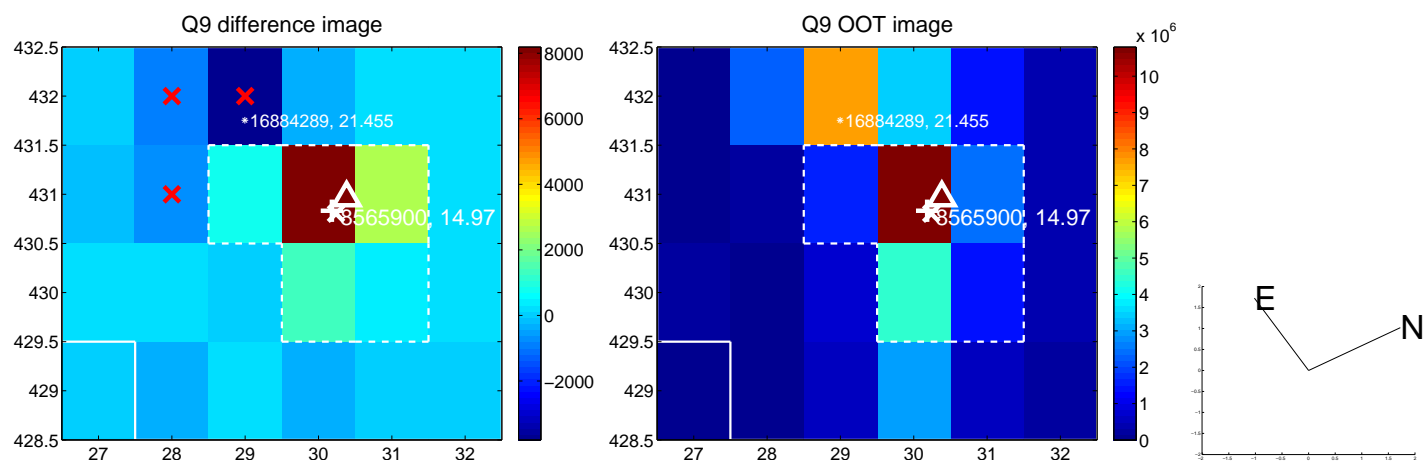
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



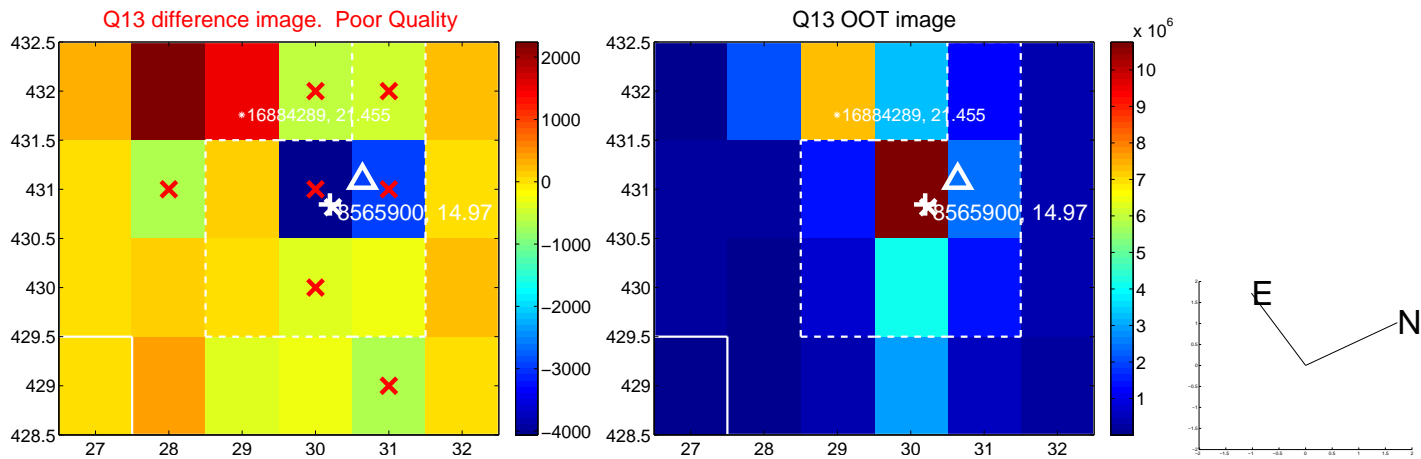
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



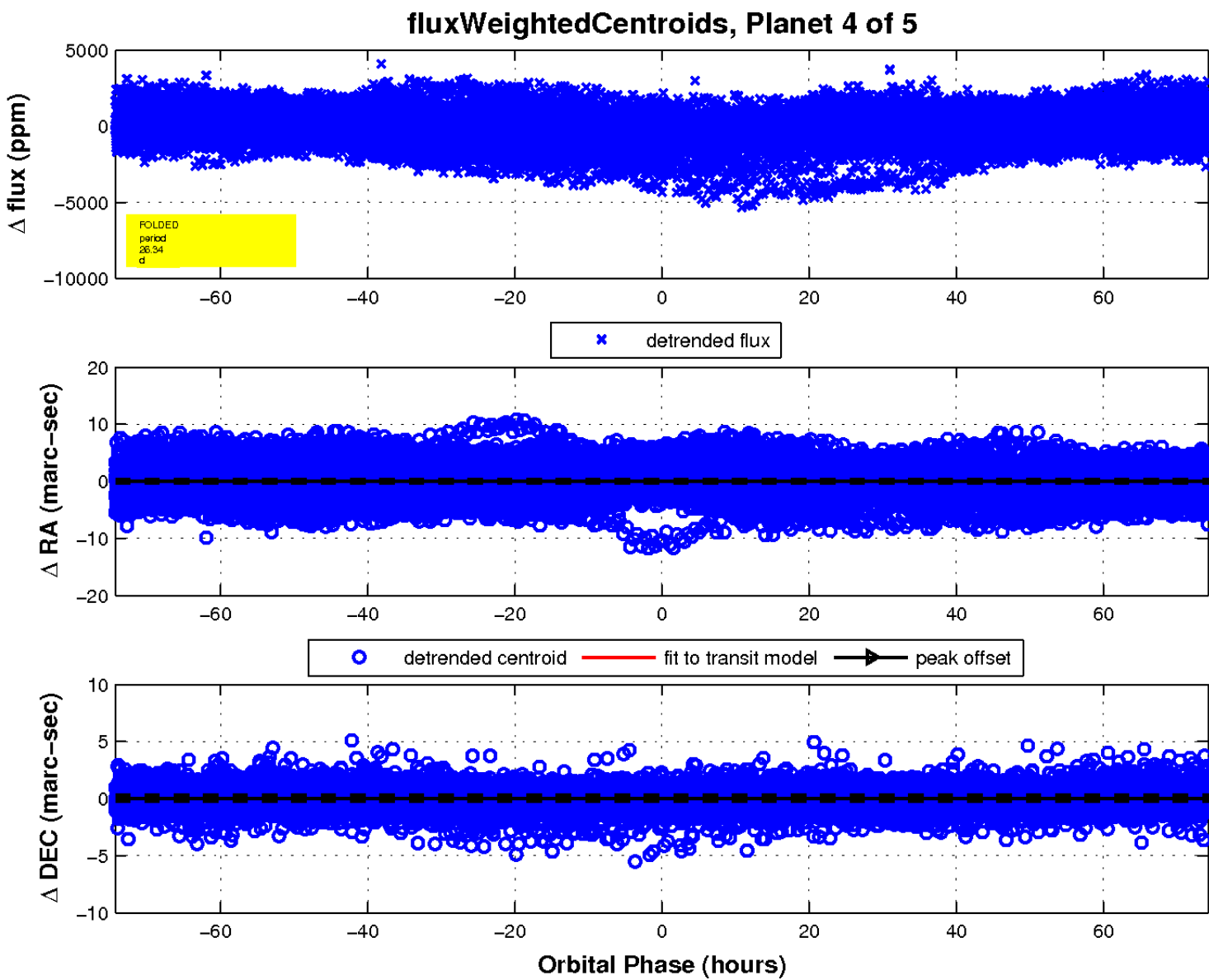
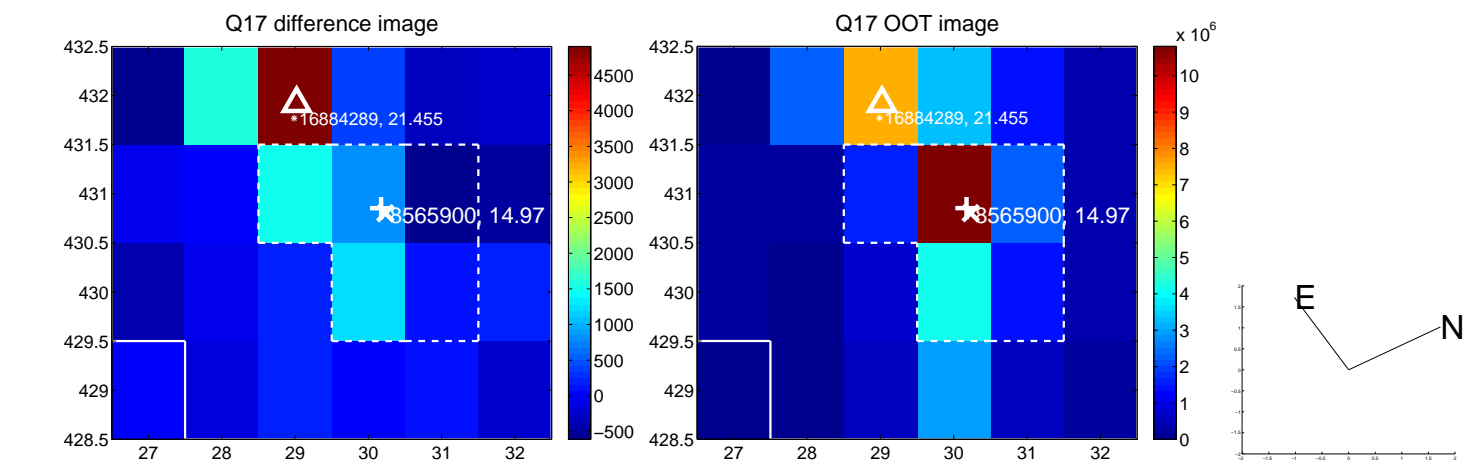
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



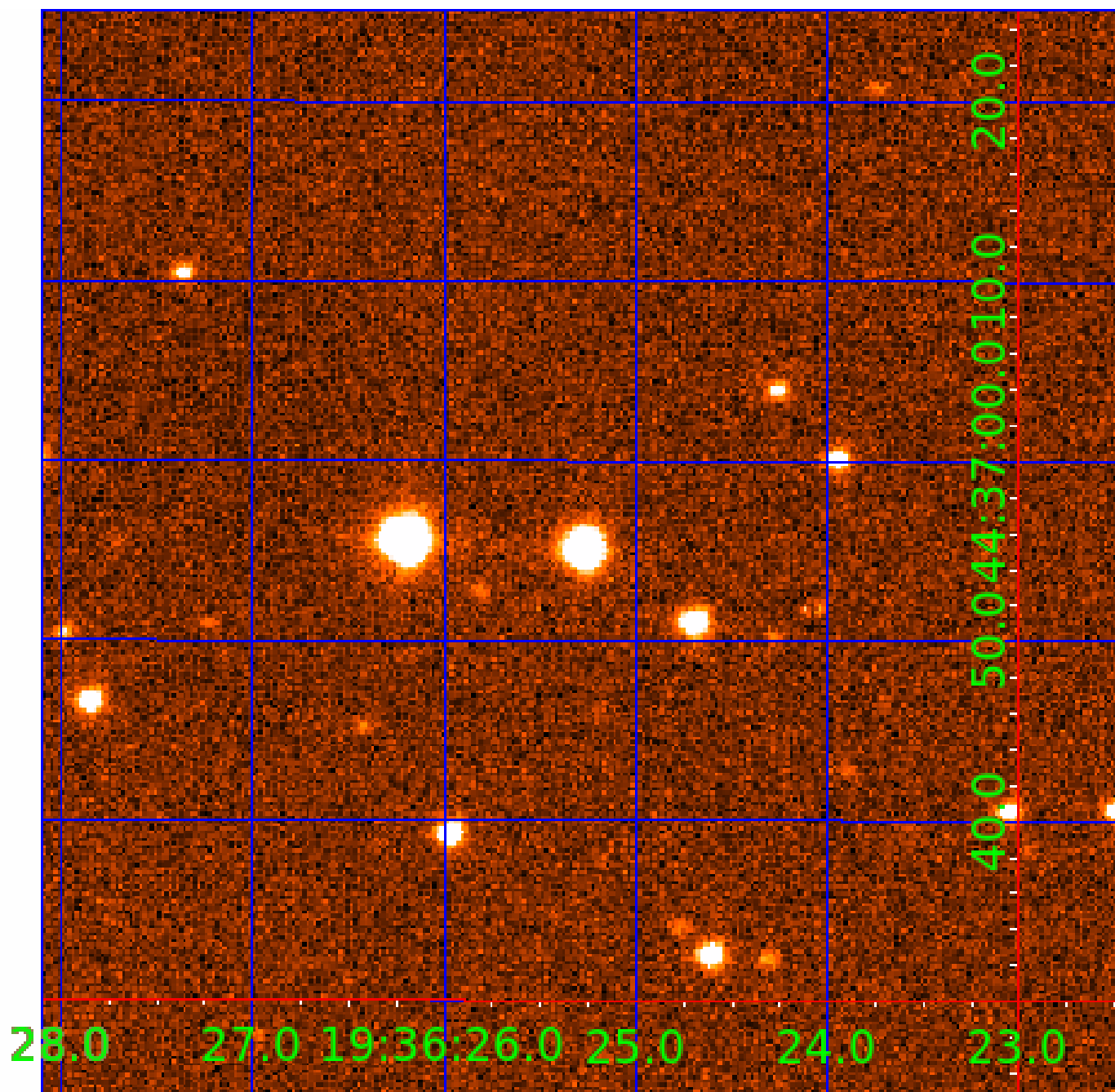
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 008565900

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008565900-01	OBS	7060.01	1.641204	131.948593	51.1	12.386	8.8	8.3	0.83	5207	0.58	702.69
008565900-03	OBS	No	26.304354	146.658176	141.4	1.913	29.4	1.5	0.83	5207	1.04	17.39
008565900-04	OBS	No	26.342197	145.515743	402.4	24.765	33.2	4.0	0.83	5207	1.95	17.36
008565900-05	OBS	No	26.217212	134.521411	1957.5	2.500	13.8	-1.0	0.83	5207	3.59	17.47

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008565900-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008565900-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
008565900-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_KIC_POS—HALO_GHOST
008565900-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

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

## Ephemeris Match Information For 008565900-05

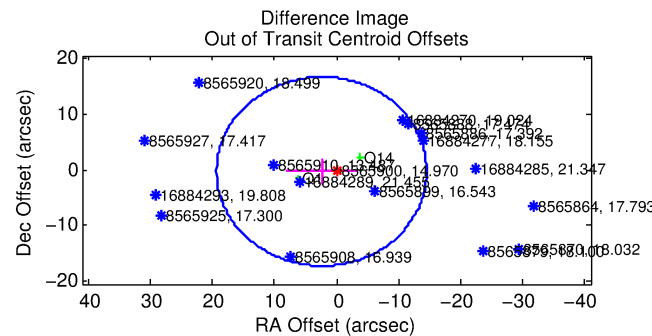
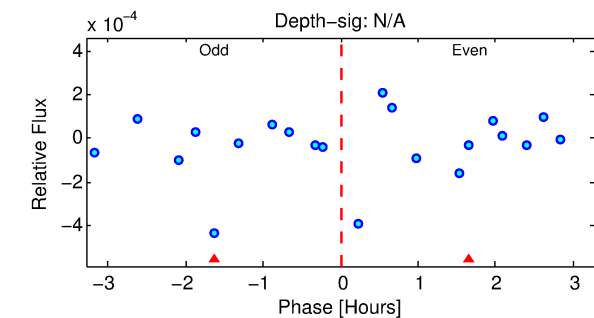
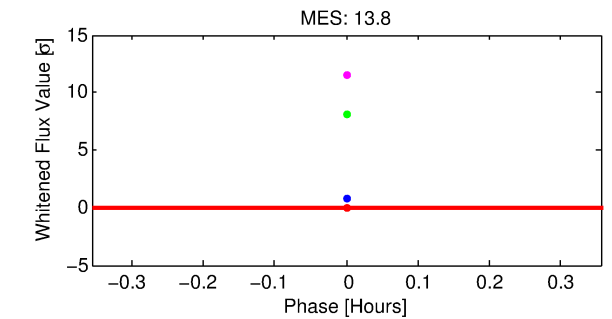
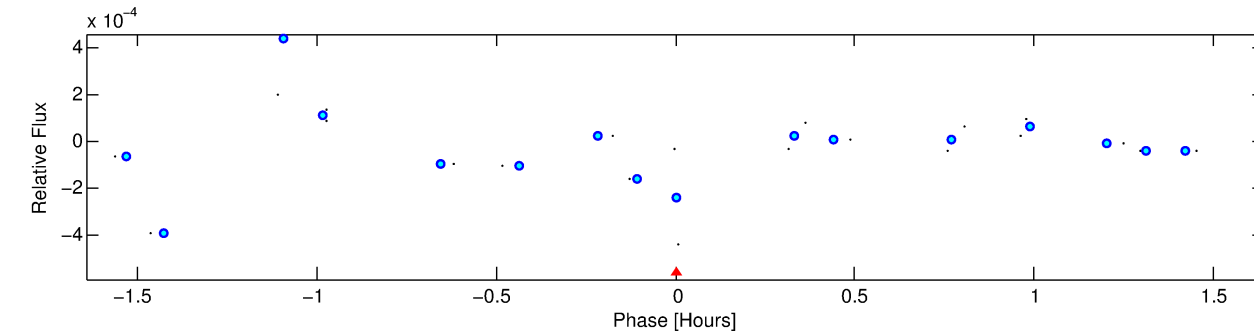
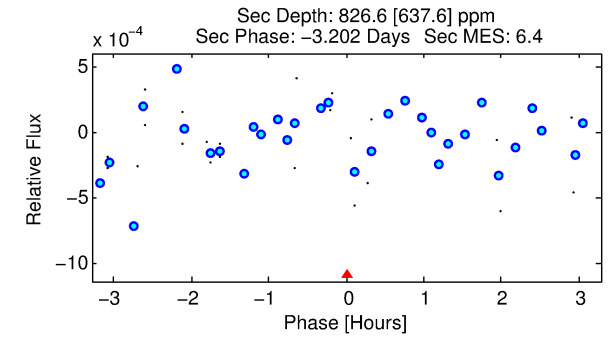
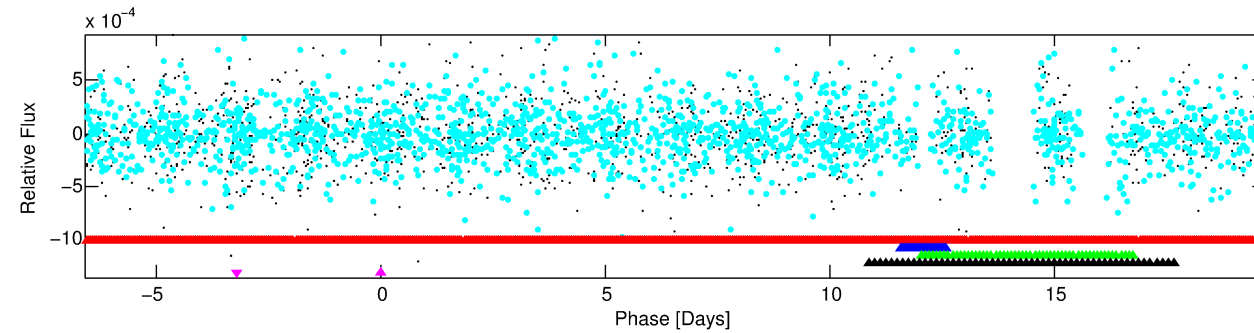
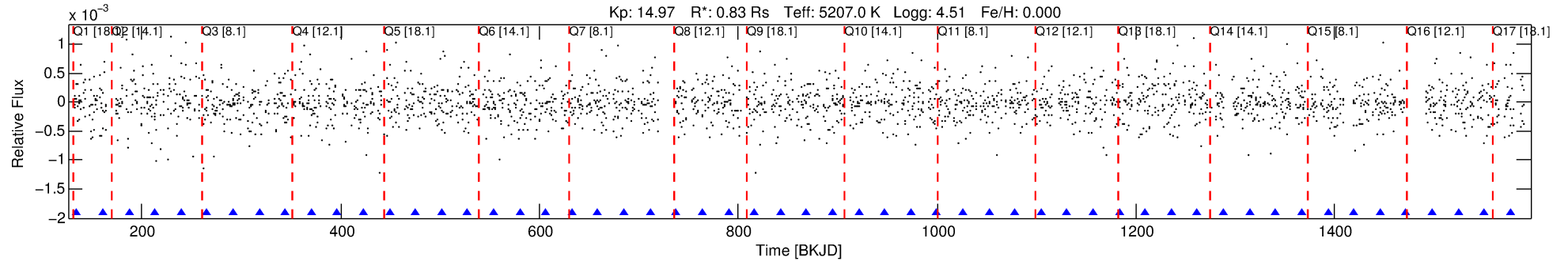
No Significant Match Found

# DV One-Page Summary

KIC: 8565900 Candidate: 5 of 5 Period: 26.217 d

KOI: K07060 Corr: No Ephemeris Match

Kp: 14.97 R\*: 0.83 Rs Teff: 5207.0 K Logg: 4.51 Fe/H: 0.000



TPS TCE Results:

Period = 26.21721 d

Epoch = 134.5214 BKJD

DV fit results are unavailable

DV Diagnostic Results:

ShortPeriod-sig: 100.0% [46.68σ]

LongPeriod-sig: 13.1% [0.16σ]

ModelChiSquare2-sig: N/A

ModelChiSquareGof-sig: N/A

Bootstrap-pfa: 5.52e-32

RollingBand-fgt: 1.00 [7/7]

GhostDiagnostic-chr: 0.4798

Centroid-sig: 49.9%

Centroid-so: 3.971 arcsec [1.05σ]

OotOffset-rm: 2.407 arcsec [0.43σ]

KicOffset-rm: 5.217 arcsec [2.98σ]

OotOffset-st: 1/0/0/1 [2]

KicOffset-st: 1/0/0/1 [2]

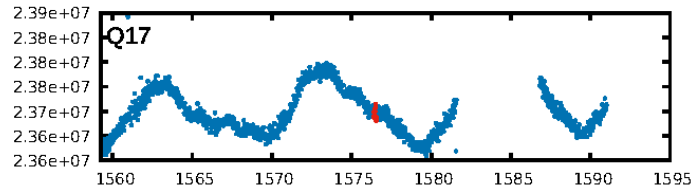
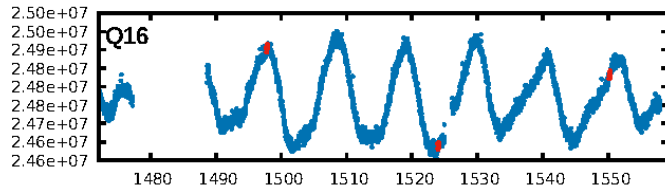
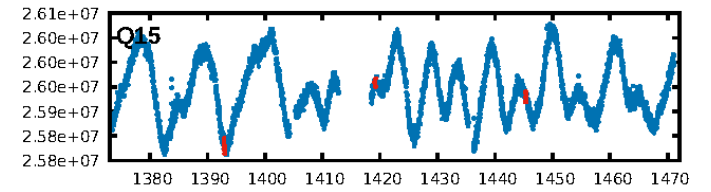
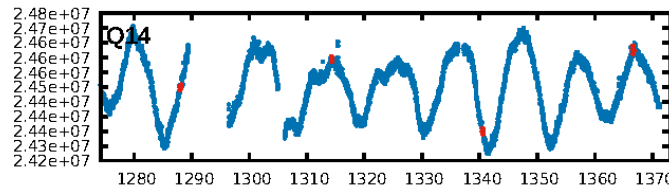
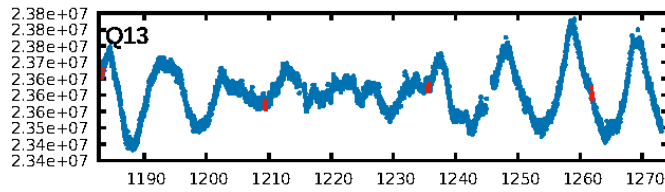
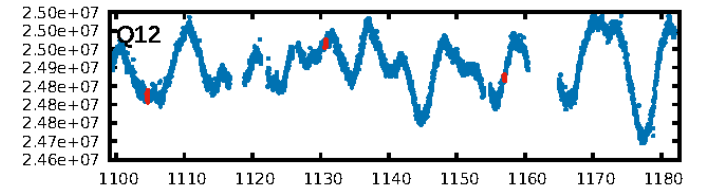
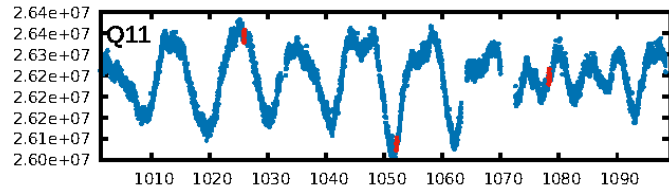
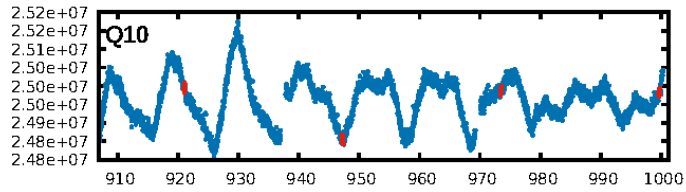
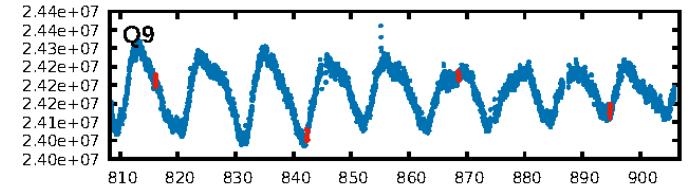
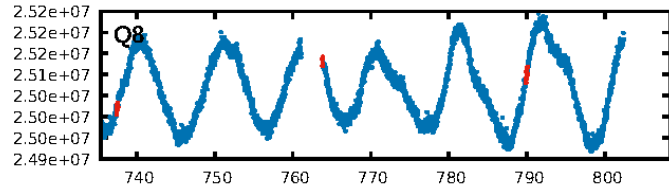
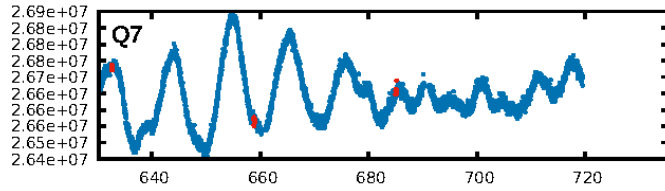
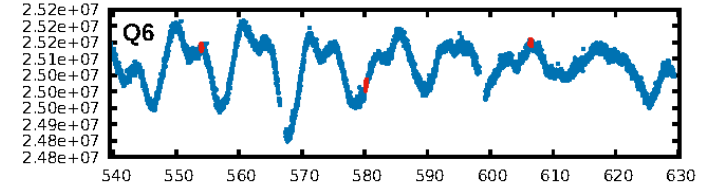
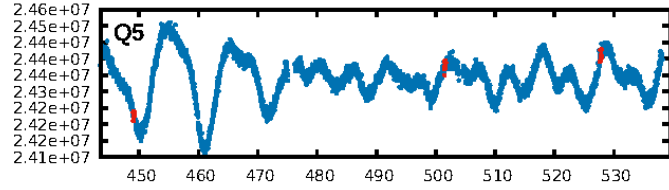
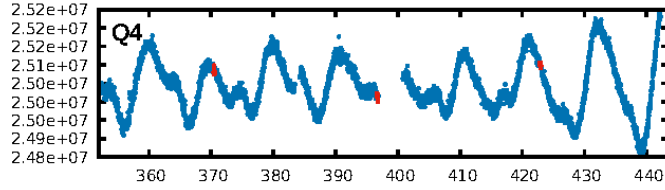
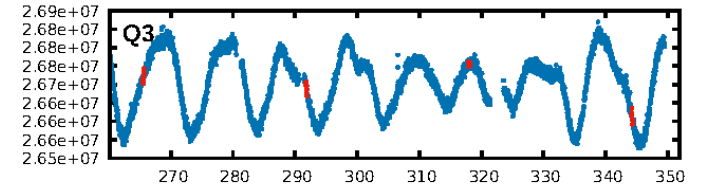
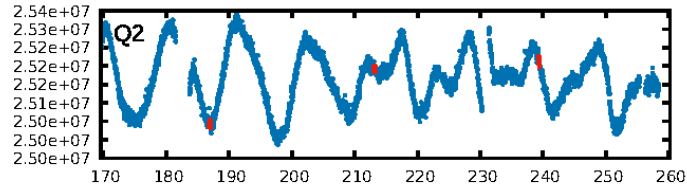
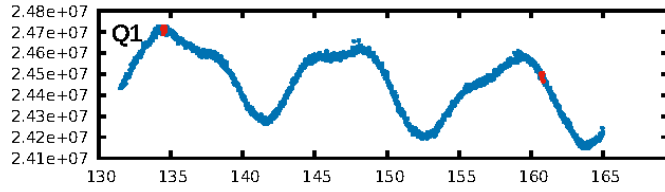
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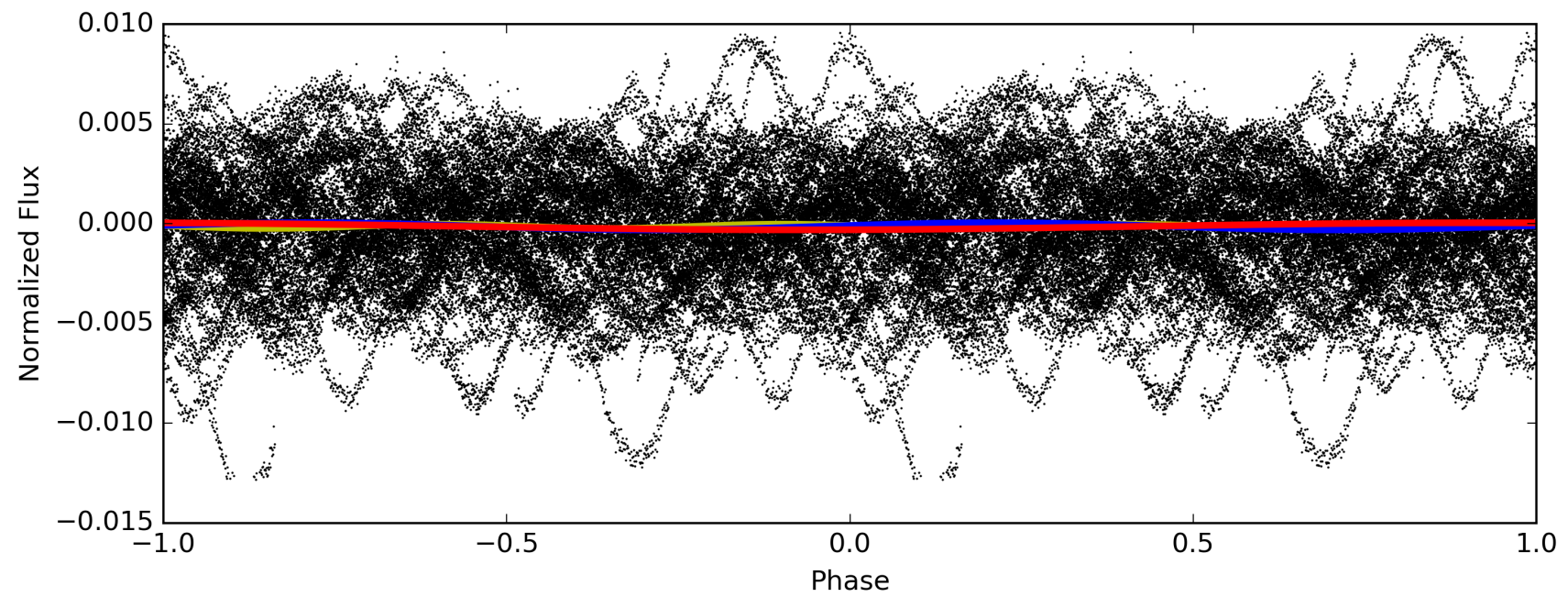
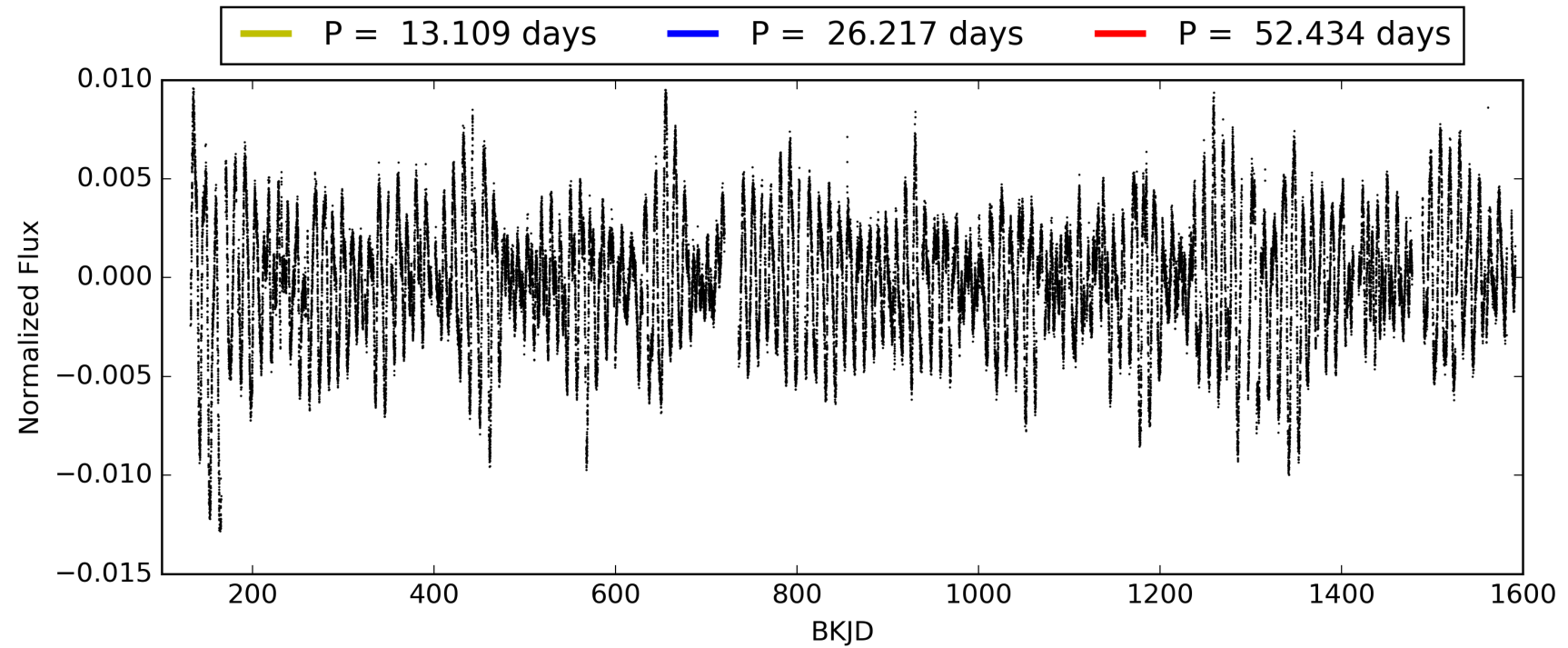
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 19:45:17 Z

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

# TCE 008565900-05, PDC Light Curves

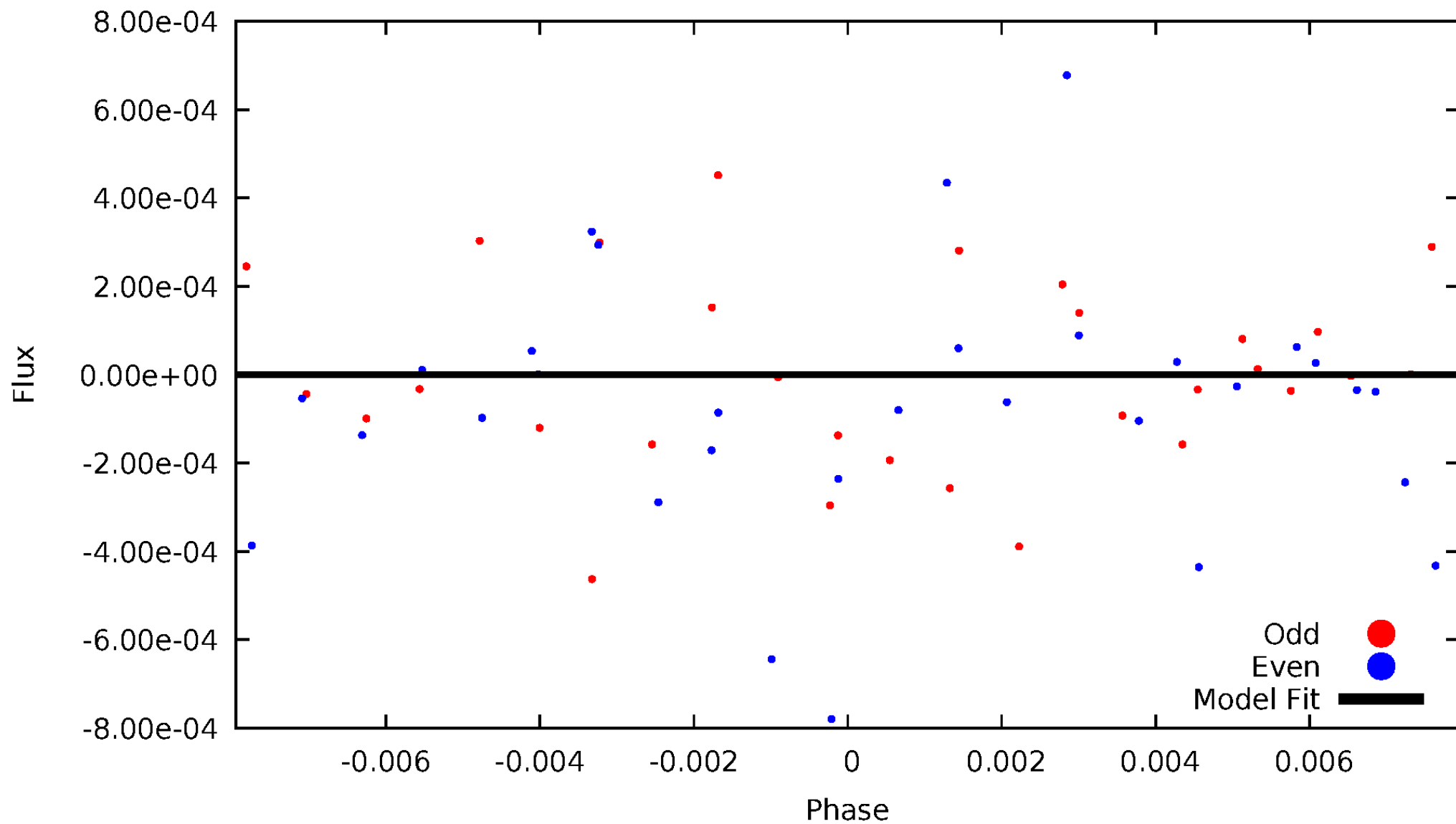


TCE 008565900-05



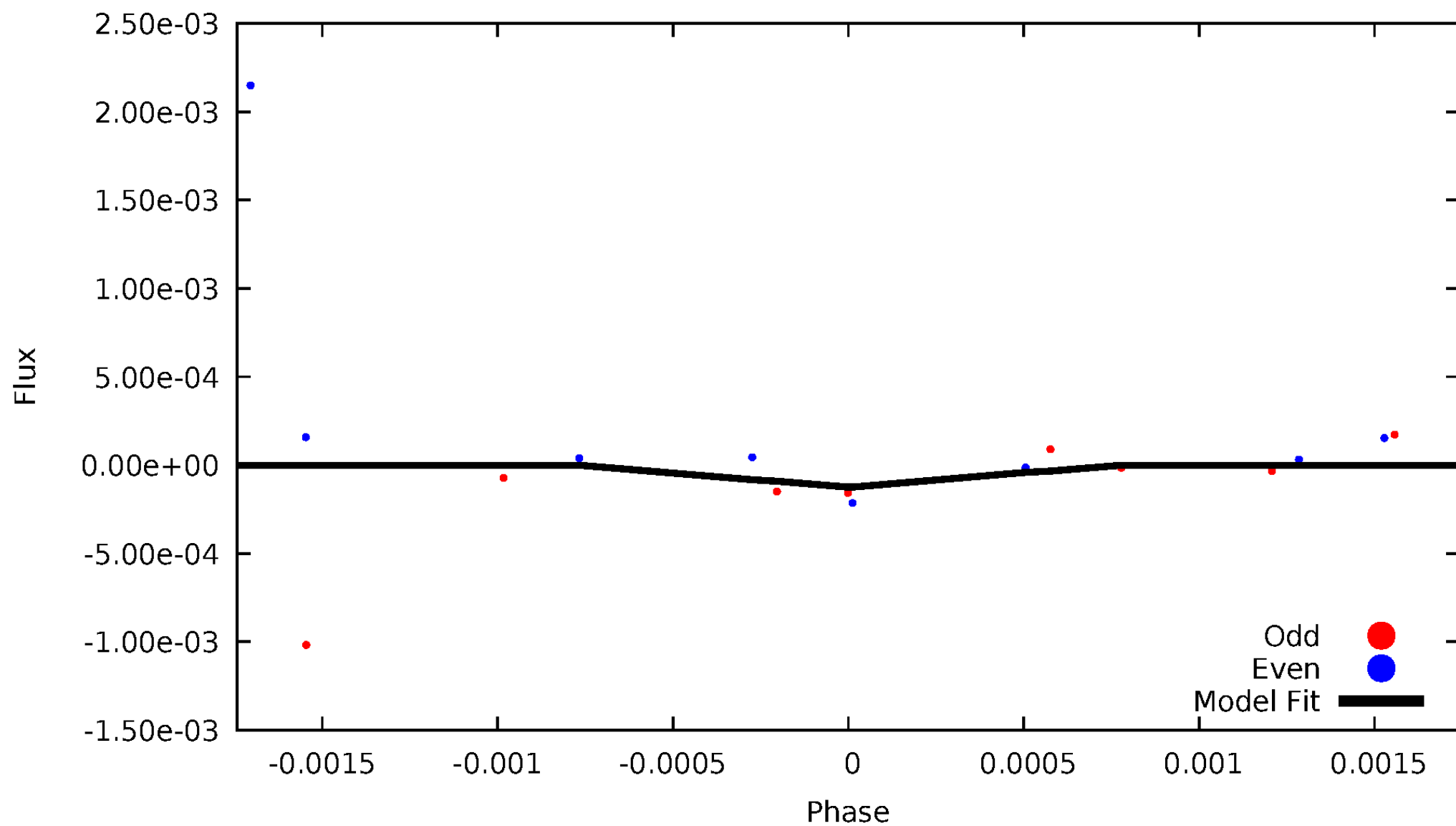
# DV Odd/Even

TCE 008565900-05



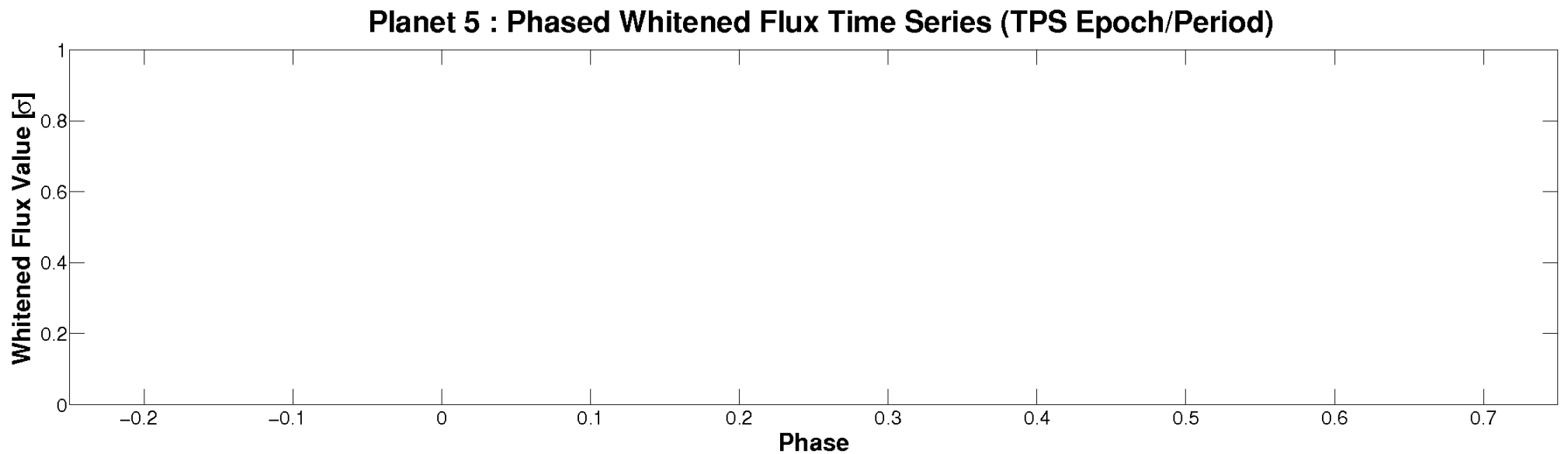
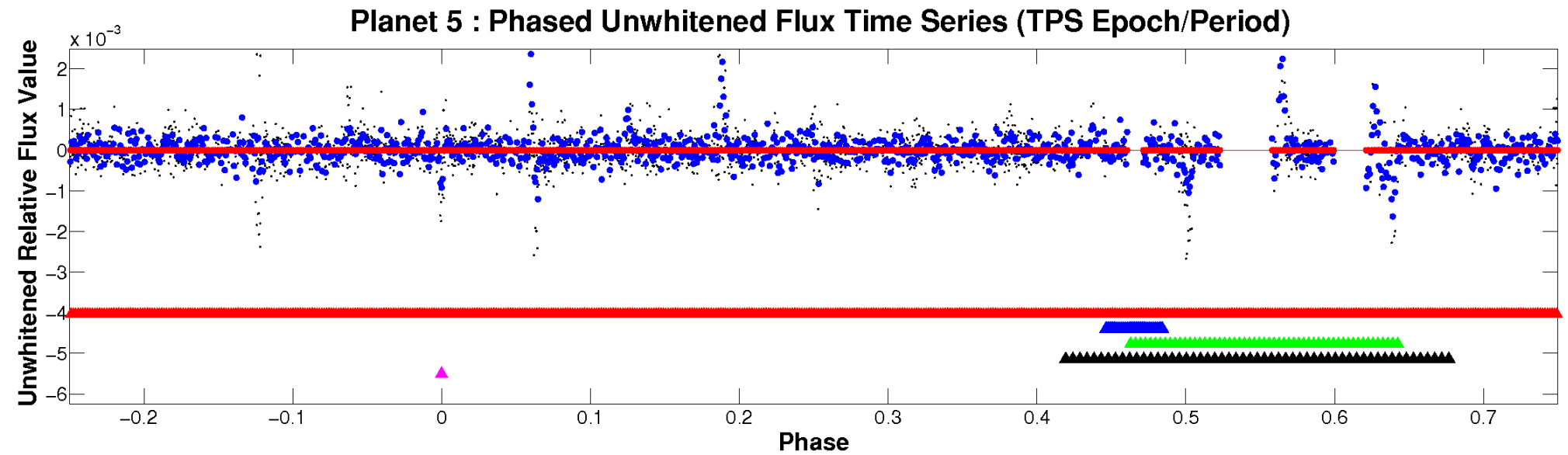
# ALT Odd/Even

TCE 008565900-05



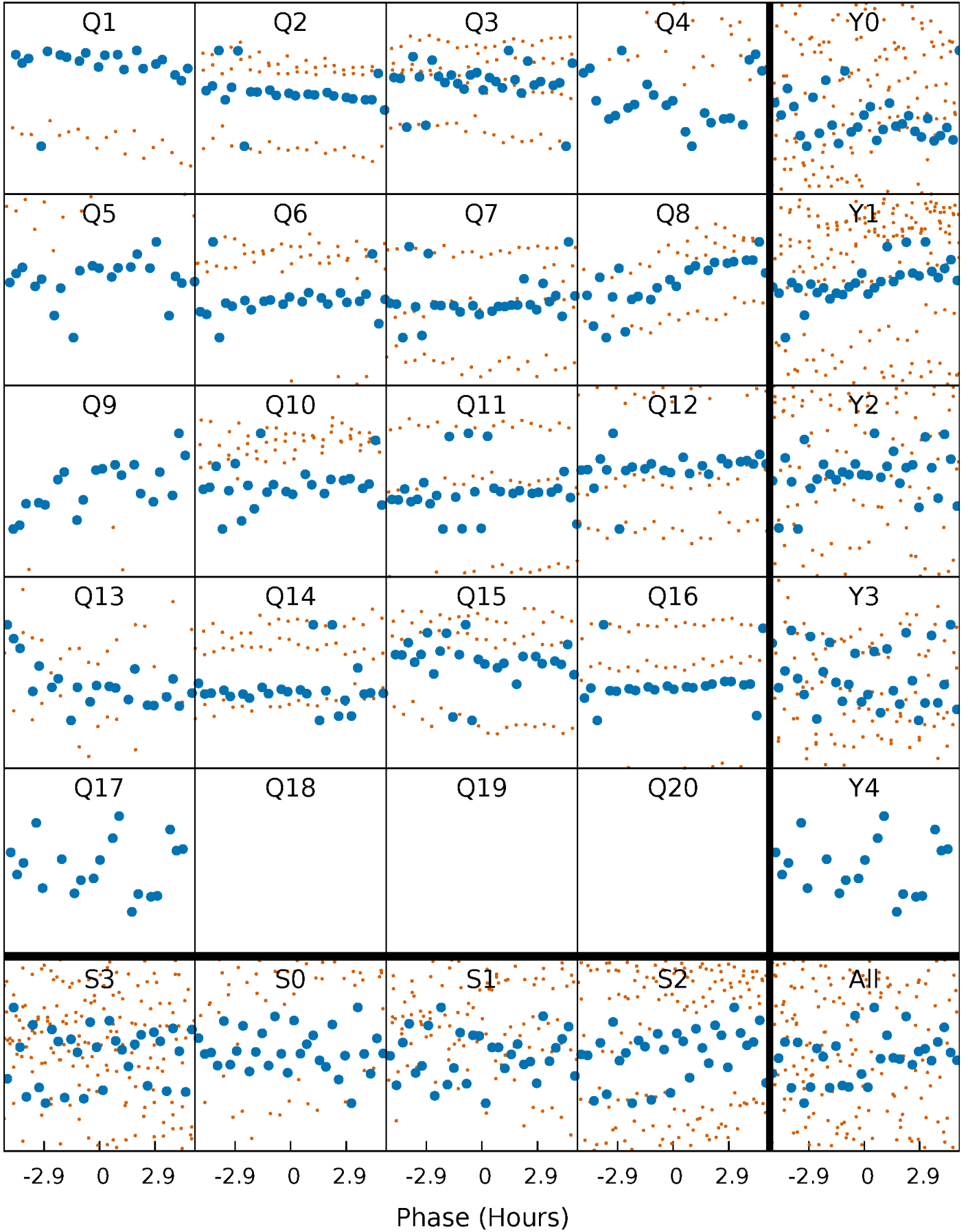


# Non-Whitened Vs. Whitened Light Curve



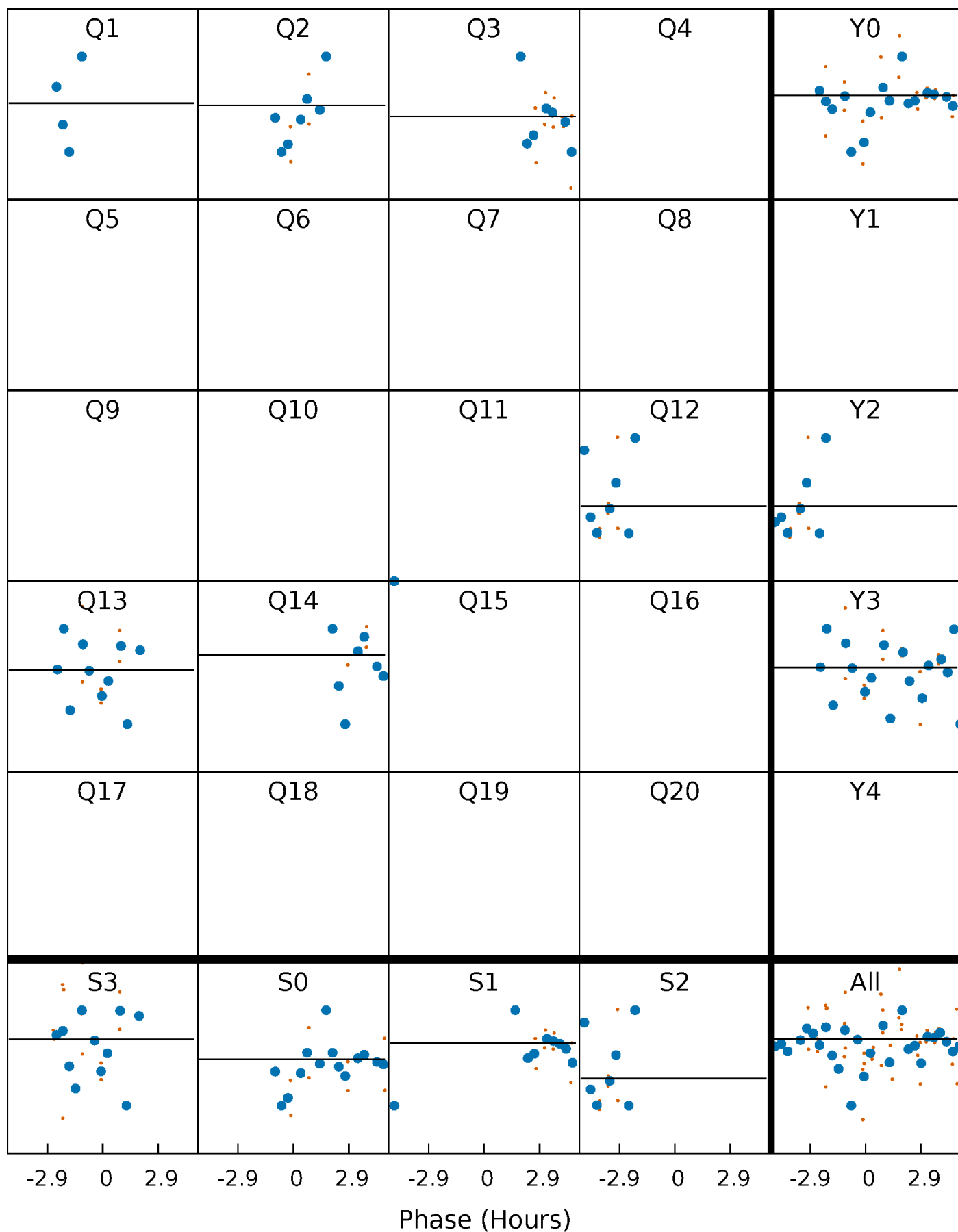
# PDC Quarter-Phased Transit Curves

TCE 008565900-05     $P = 26.217212$  Days     $T_0 = 134.521411$  (BKJD)



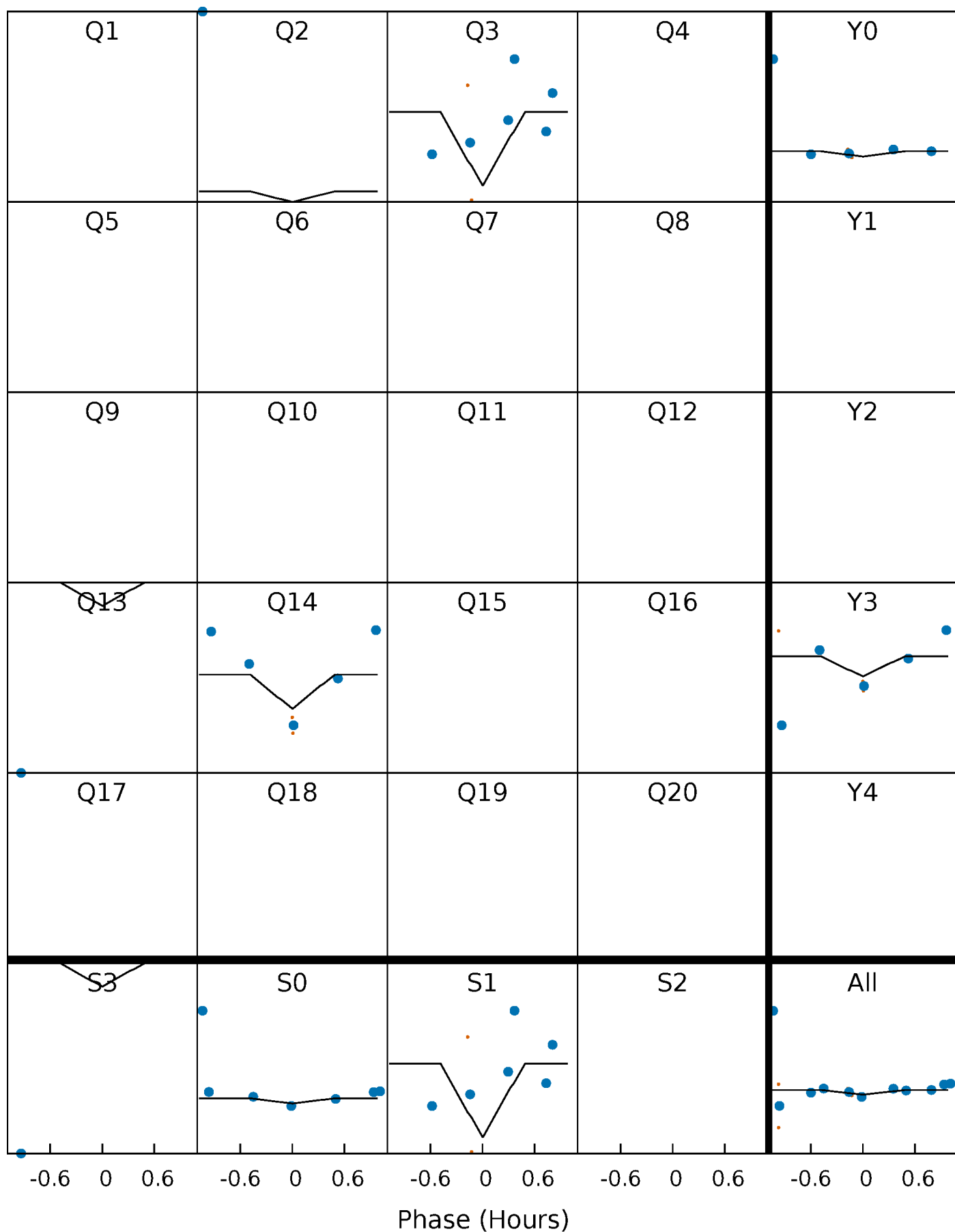
# DV Quarter-Phased Transit Curves

TCE 008565900-05     $P = 26.217212$  Days     $T_0 = 134.521411$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

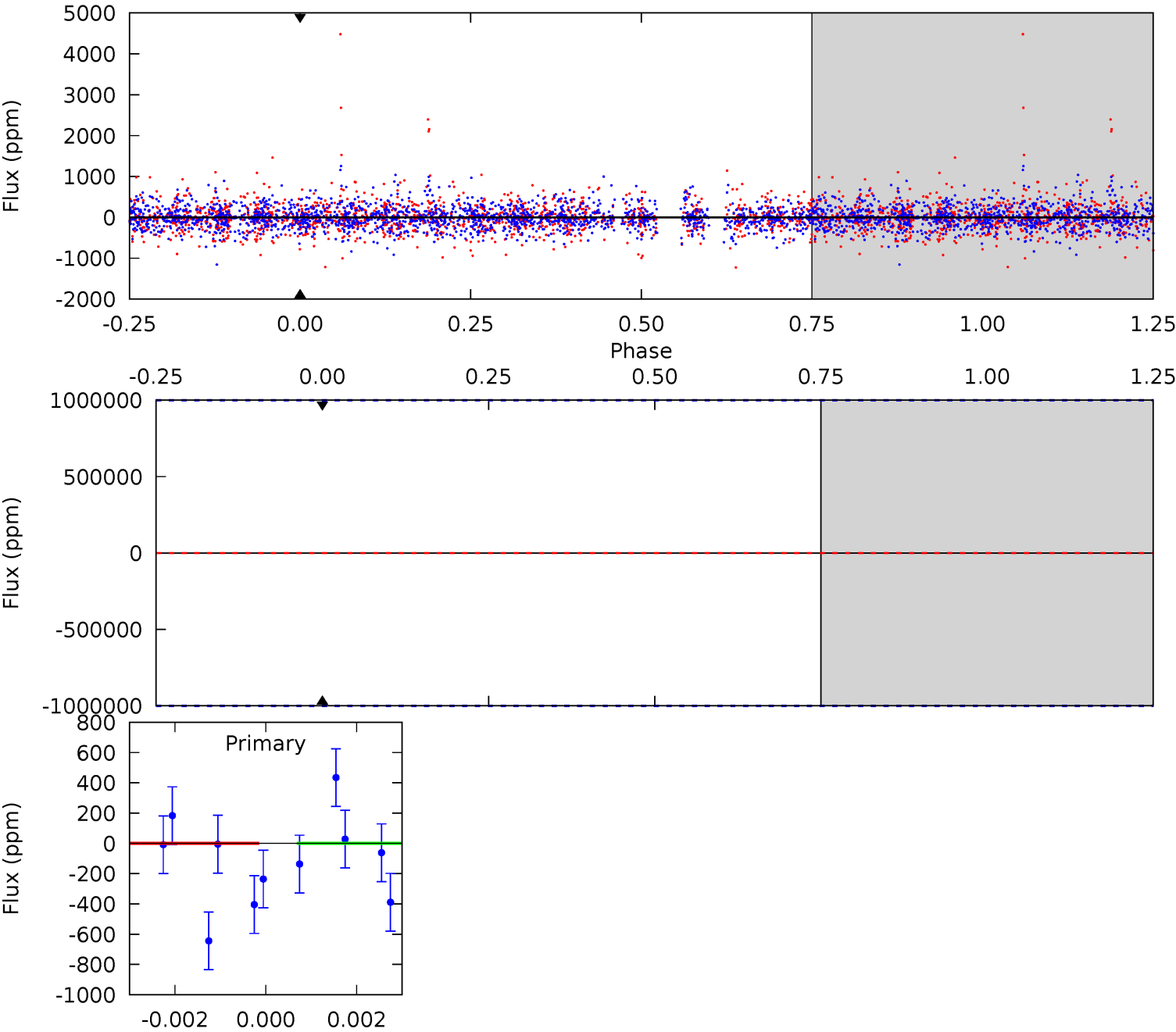
TCE 008565900-05 P= 26.217212 Days  $T_0=134.640695$  (BKJD)



# DV Model-Shift Uniqueness Test

008565900-05, P = 26.217212 Days, E = 108.304199 Days

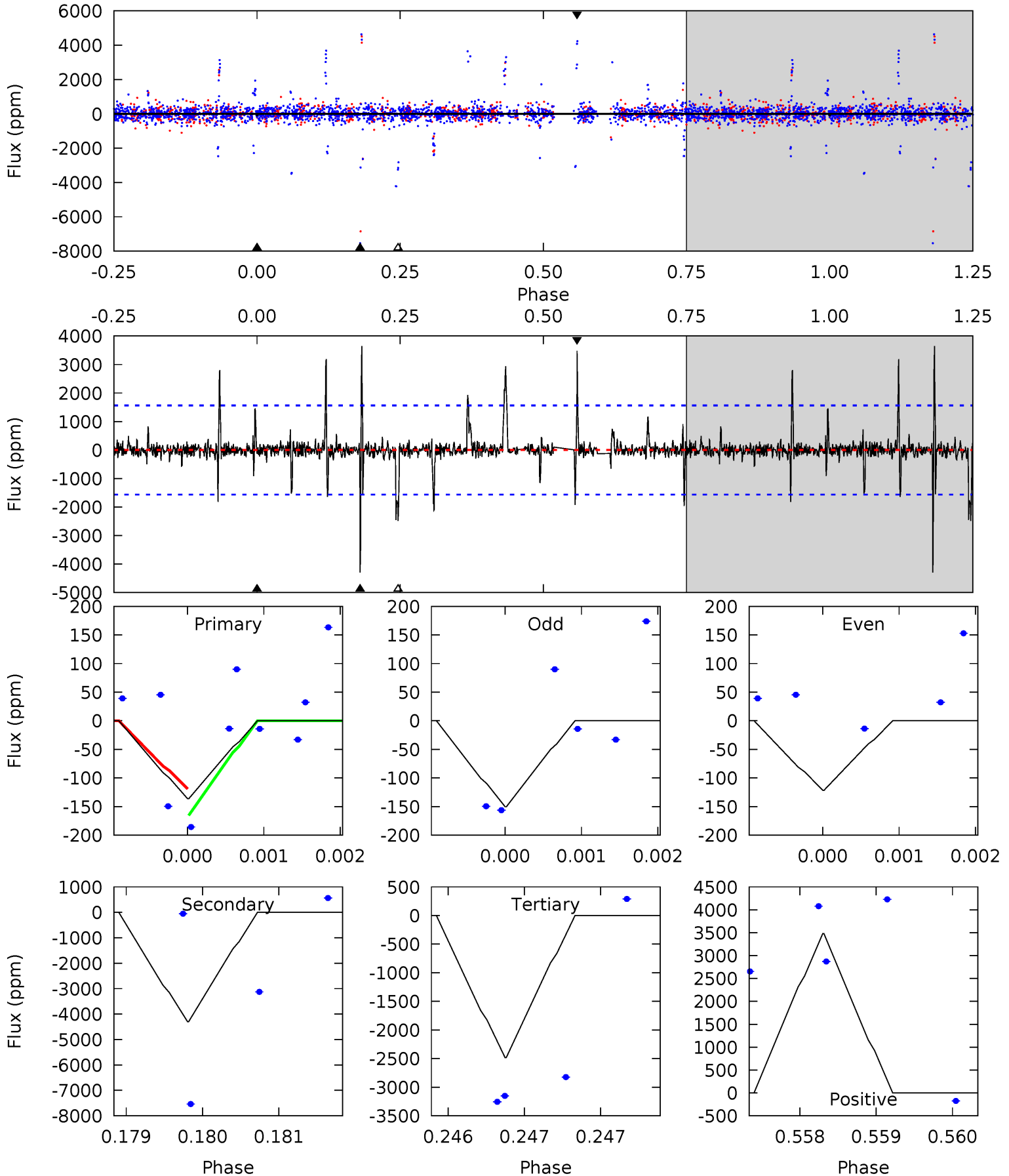
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008565900-05, P = 26.217212 Days, E = 108.423483 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.48	15.1	8.70	12.2	5.48	3.34	1.41	-8.22	-11.7	6.36	2.86	0.03	1.00	0.46	0.08



### Stellar Parameters For KIC 008565900

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5207^{+158}_{-158}$	$4.510^{+0.075}_{-0.082}$	$0.000^{+0.300}_{-0.300}$	$0.831^{+0.102}_{-0.091}$	$0.814^{+0.093}_{-0.070}$	$2.000^{+0.671}_{-0.546}$
	+3%/-3%	+2%/-2%	+inf%/-inf%	+12%/-11%	+11%/-9%	+34%/-27%
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 008565900-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$7.64^{+6.87}_{-5.36}$	$728^{+32}_{-29}$	$3135^{+13048}_{-17155}$	$107^{+55130}_{-40014}$
Alt.	$-4299 \pm 285$	$6.21^{+6.76}_{-4.18}$	$728^{+33}_{-30}$	$5136^{+4166}_{-1306}$	$1663^{+13011}_{-1290}$

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



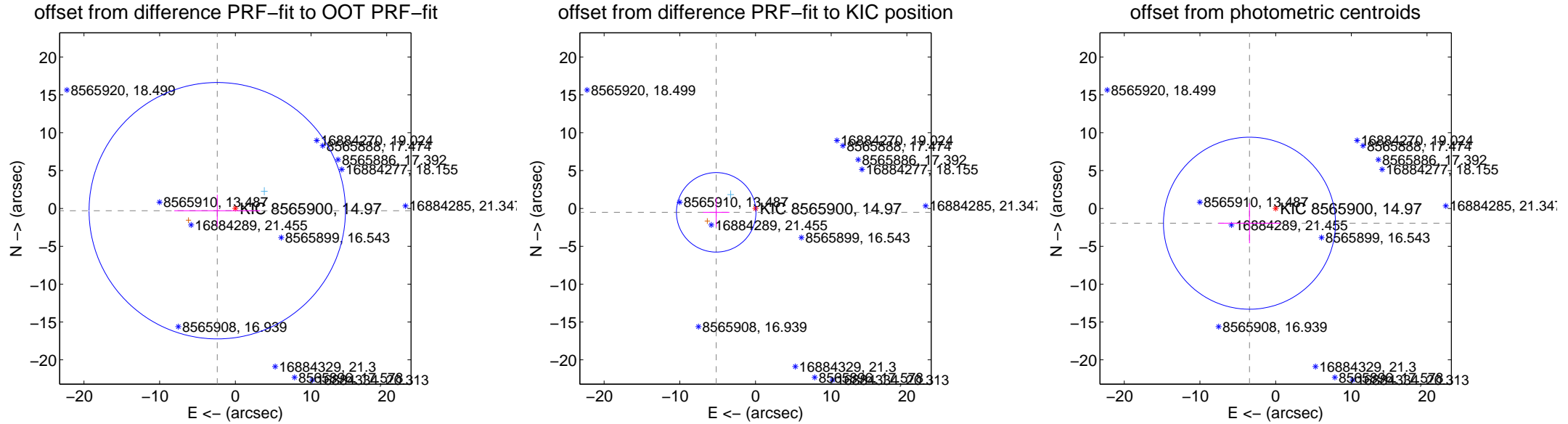
## DV Centroid Data

Supplemental centroid analysis for 008565900-05. Kepler magnitude: 14.97. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

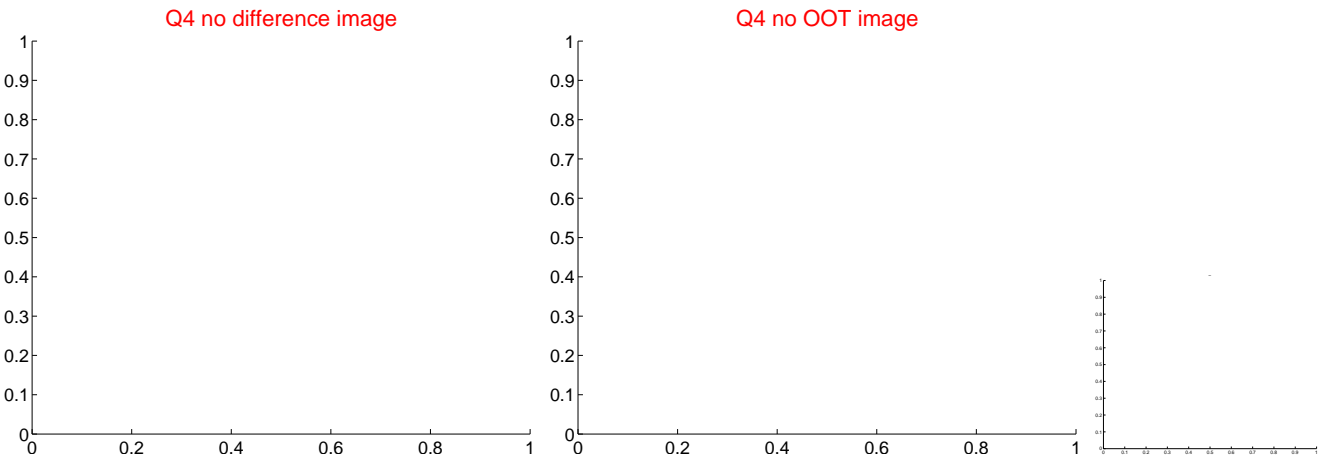
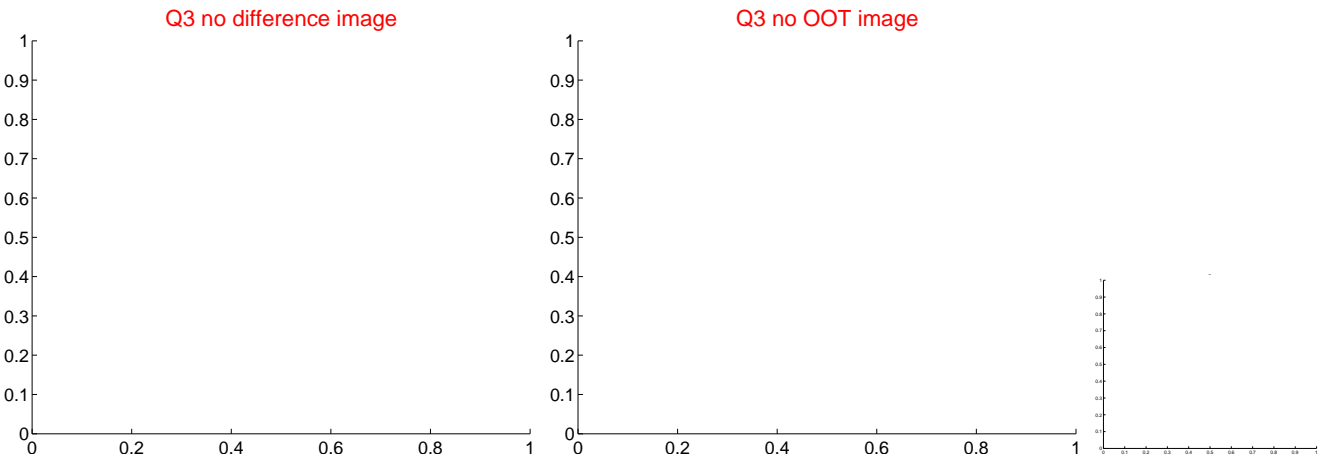
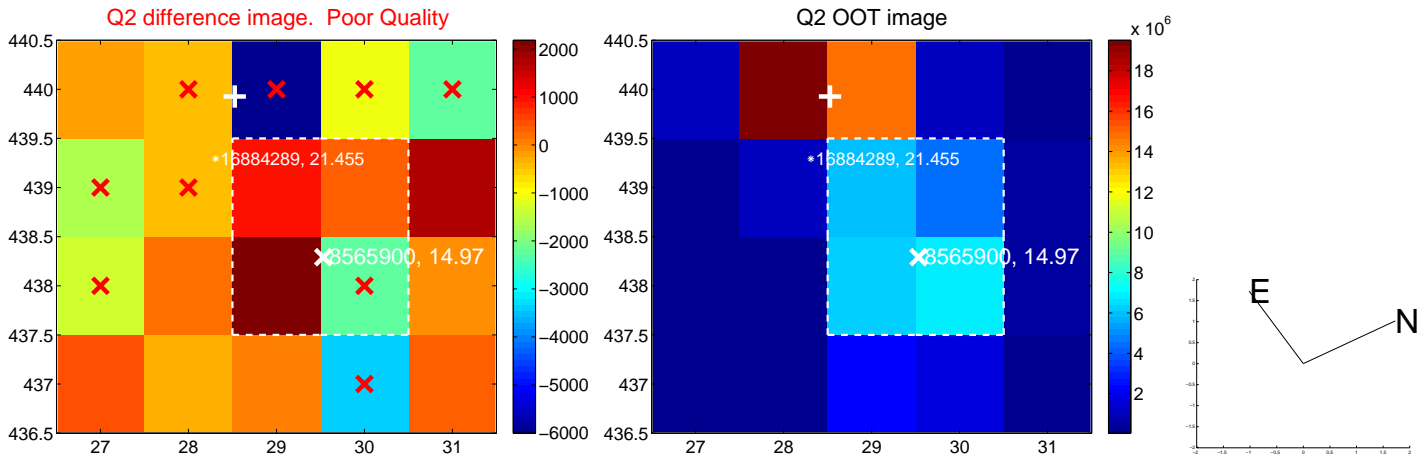
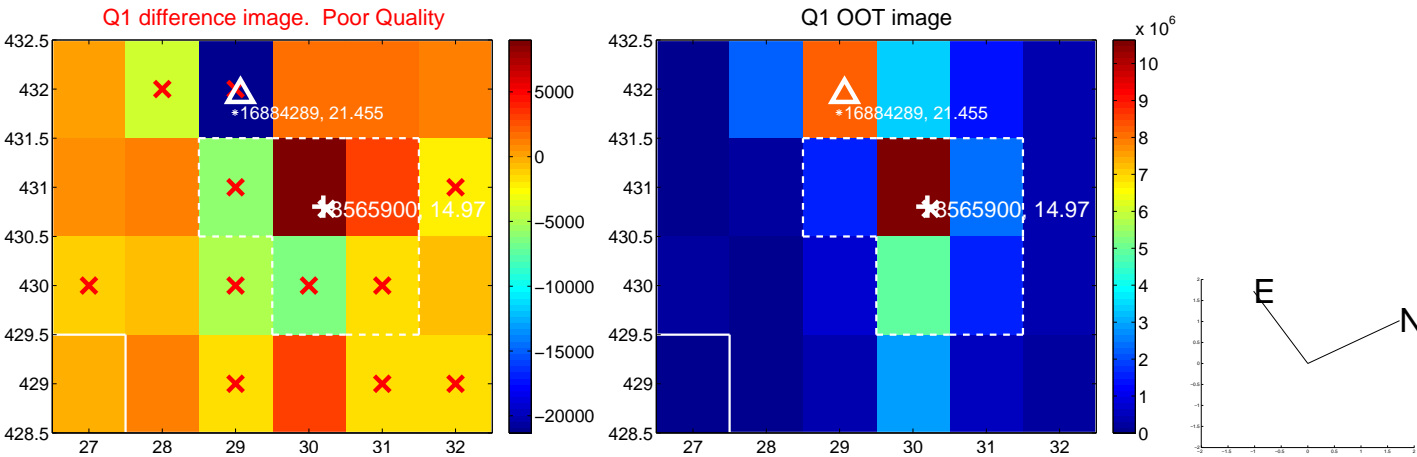
The OOT PRF centroid is offset from the target star catalog position by about 7.12 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.407 \pm 5.647$	0.43	$2.389 \pm 5.684$	$-0.298 \pm 2.101$
PRF-fit source offset from KIC position	$5.217 \pm 1.751$	2.98	$5.192 \pm 1.749$	$-0.514 \pm 1.922$
photometric centroid source offset	$3.97 \pm 3.79$	1.05	$3.46 \pm 4.09$	$-1.95 \pm 2.65$



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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



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

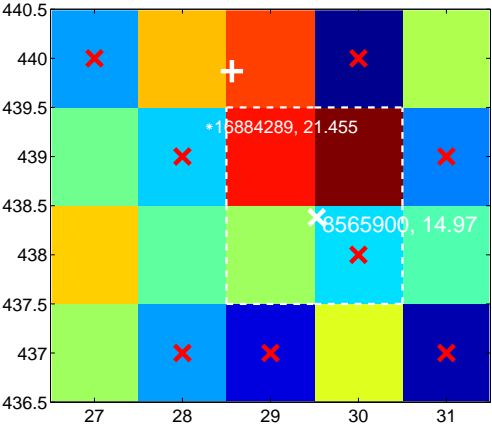
Q5 no difference image



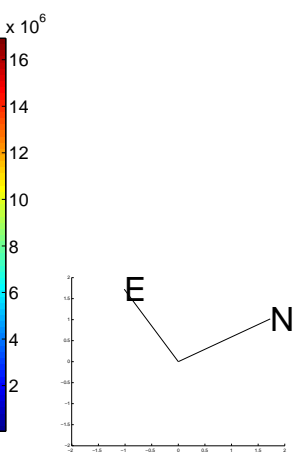
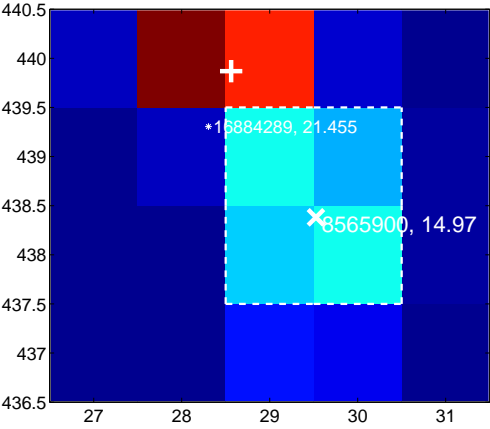
Q5 no OOT image



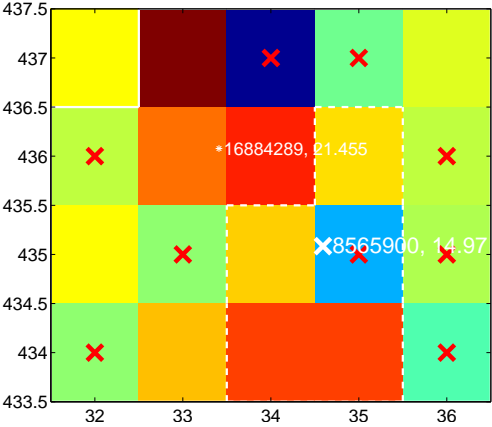
Q6 difference image. Poor Quality



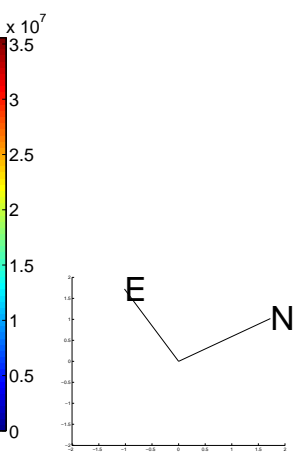
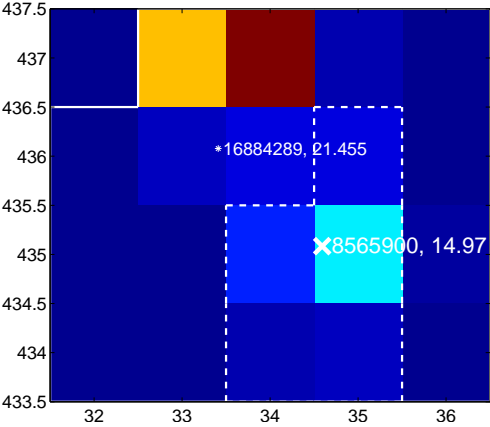
Q6 OOT image



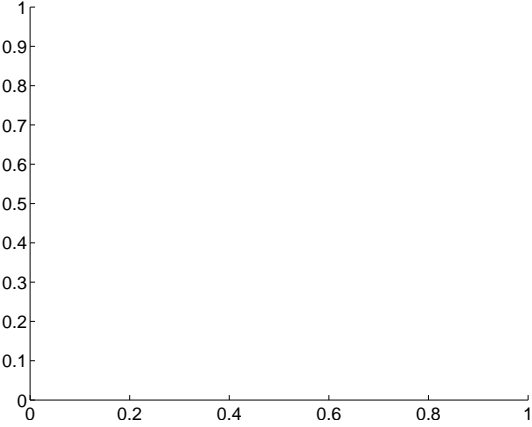
Q7 difference image. Poor Quality



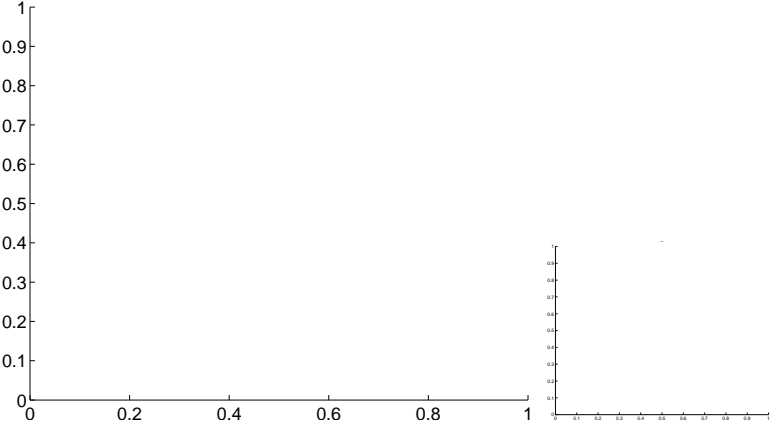
Q7 OOT image



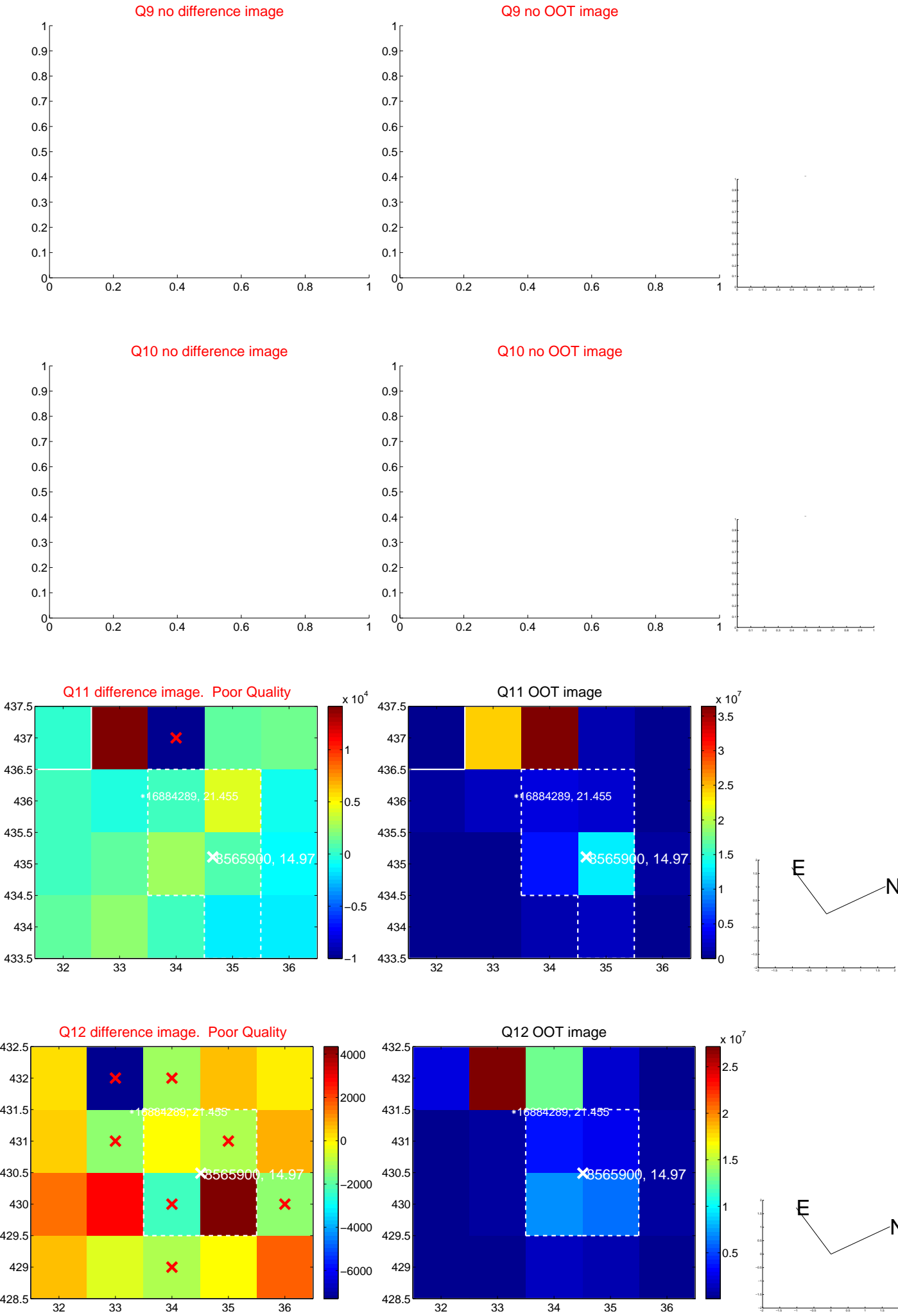
Q8 no difference image



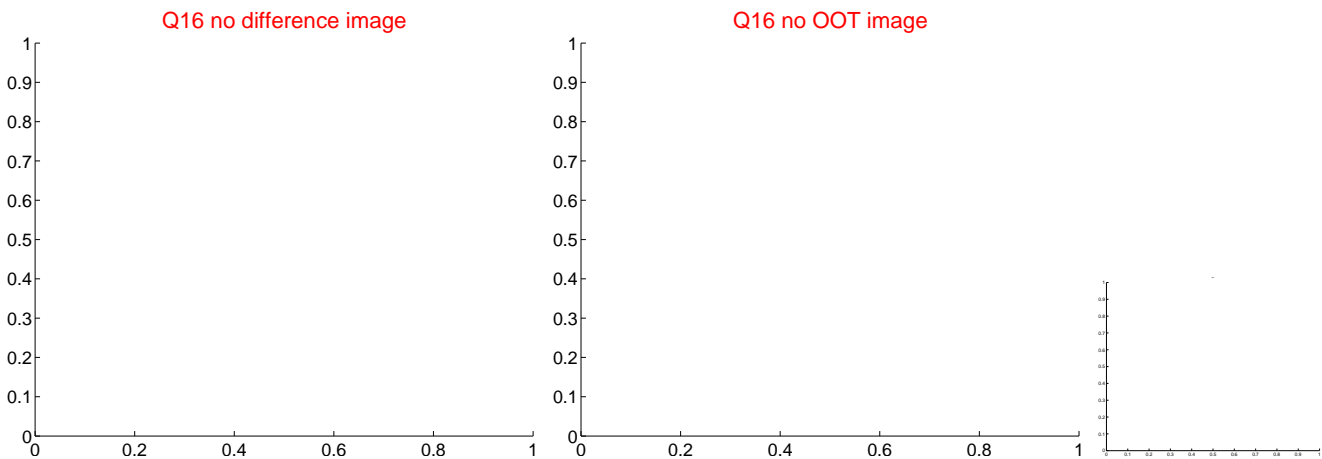
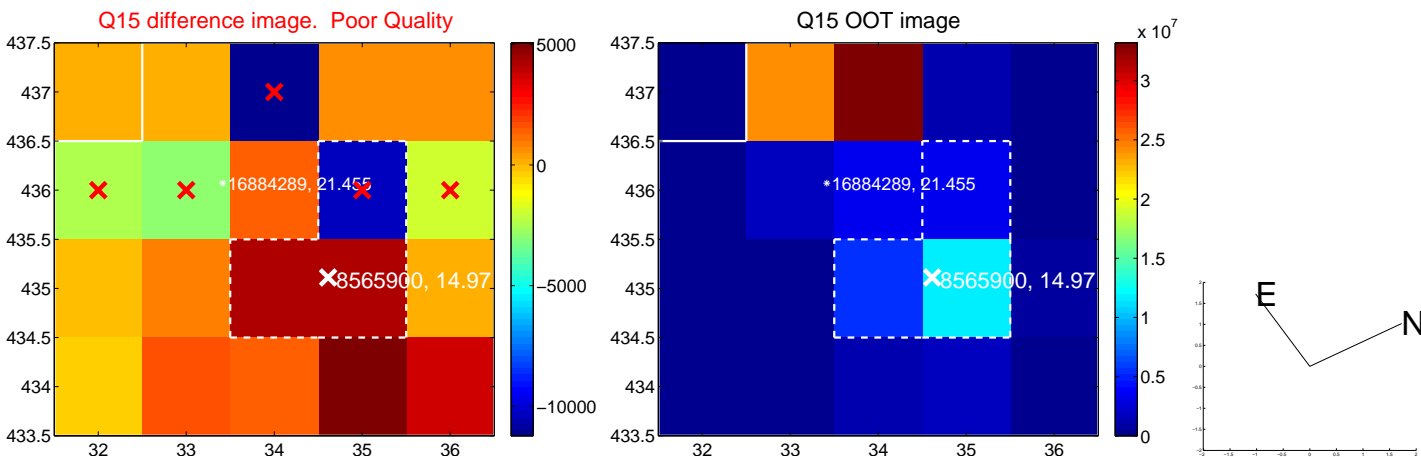
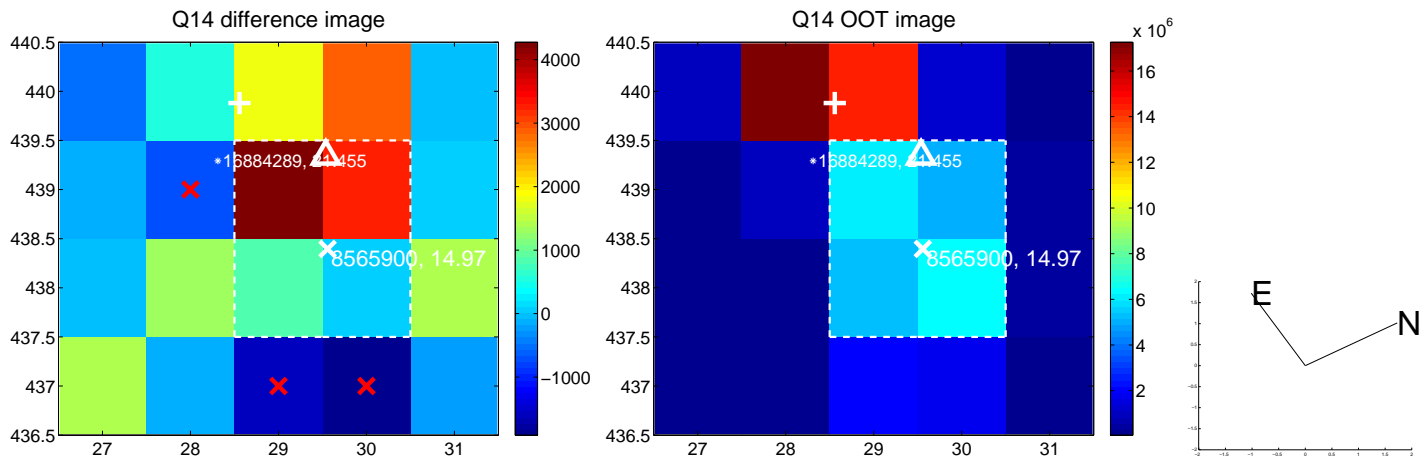
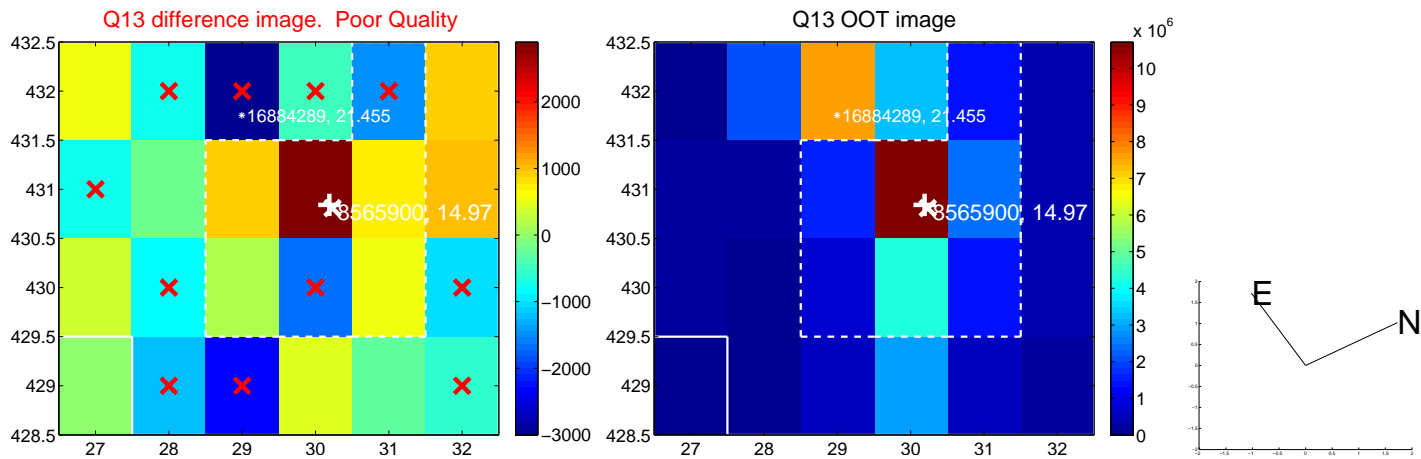
Q8 no OOT image



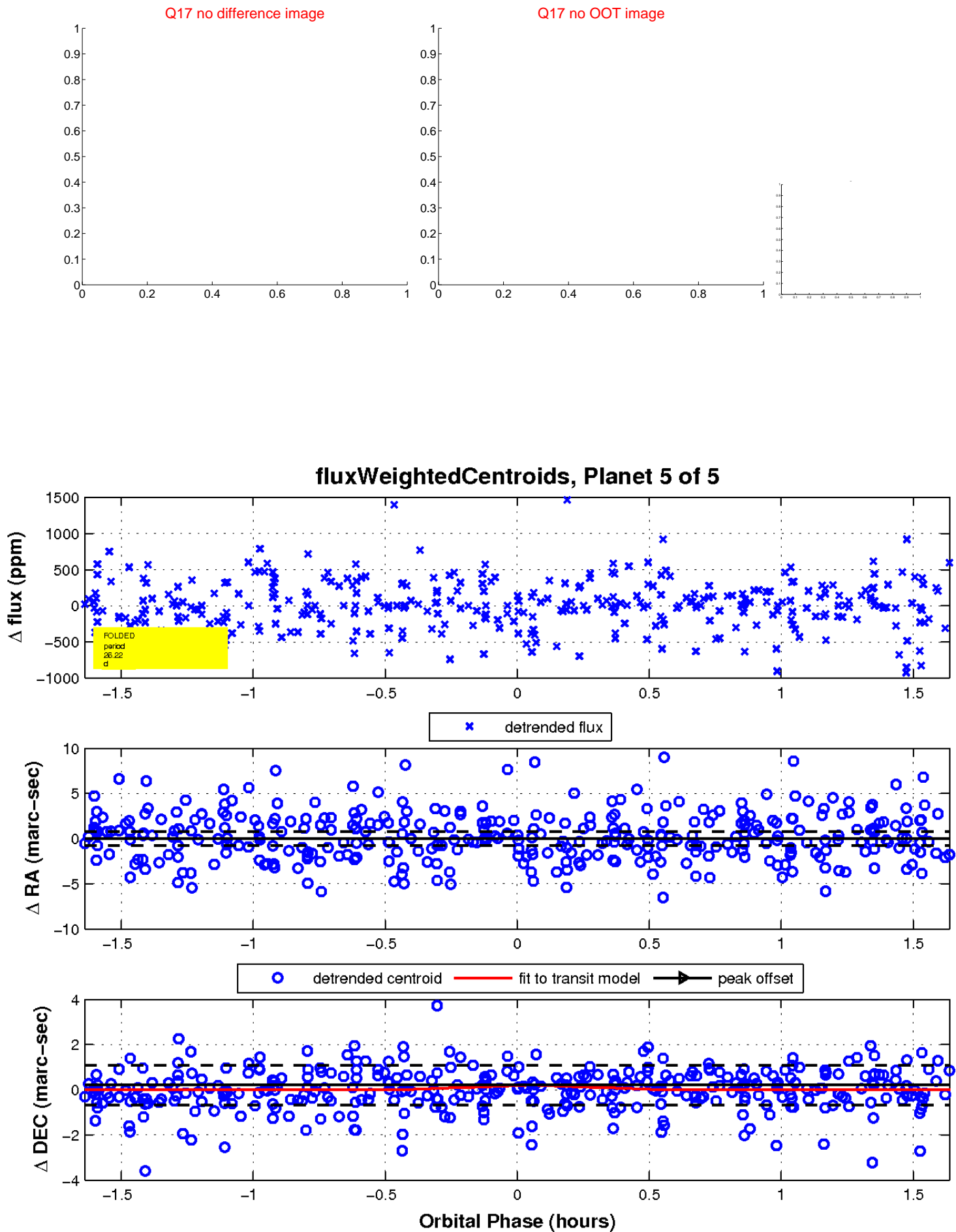
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

