

# KIC 005357275

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005357275-01	OBS	No	476.255781	408.010584	751.7	10.000	14.6	4.5	1.56	5252	4.29	1.23
005357275-02	OBS	No	334.836079	181.710674	275.4	2.704	15.8	3.1	1.56	5252	2.64	1.96
005357275-03	OBS	No	390.945418	207.573411	1010.4	5.522	16.1	5.5	1.56	5252	9.99	1.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005357275-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005357275-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—HALO_GHOST
005357275-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

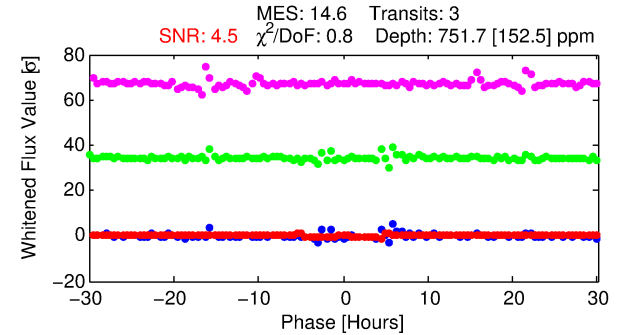
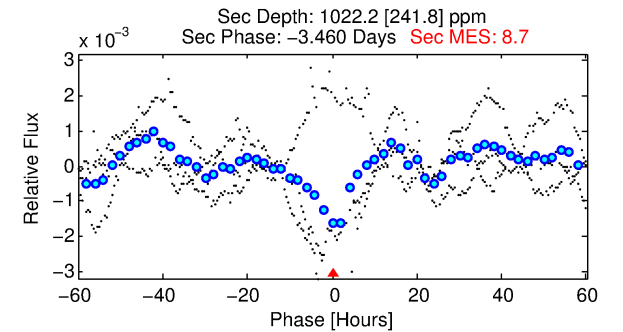
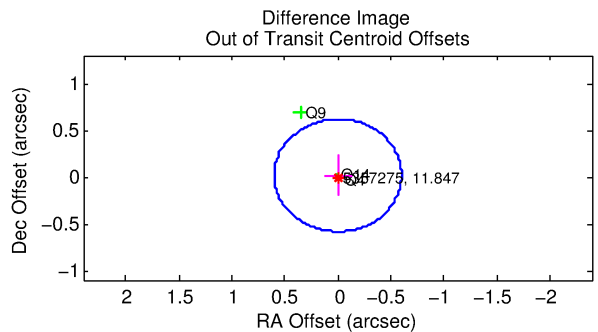
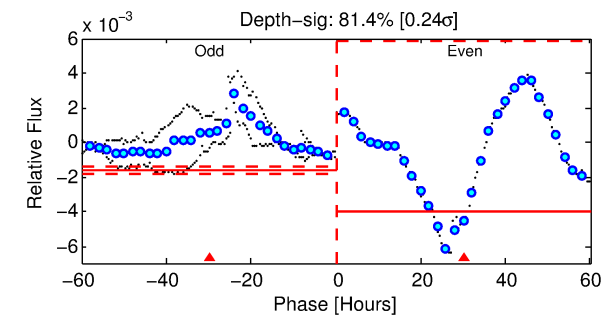
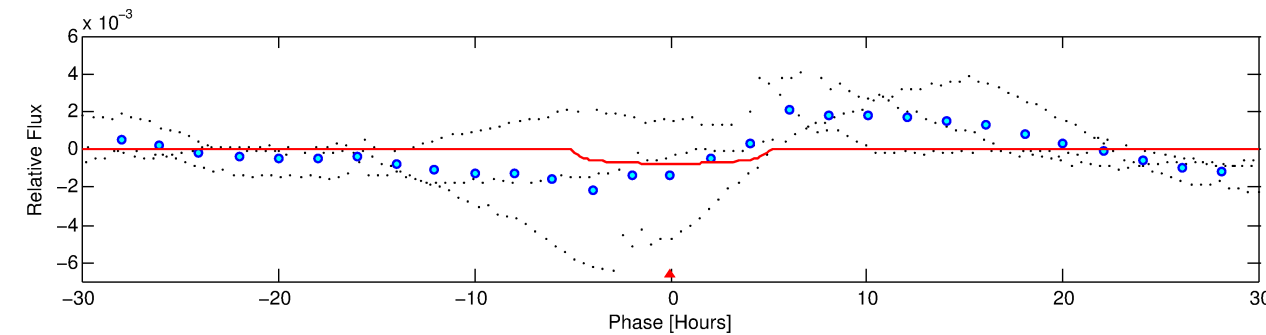
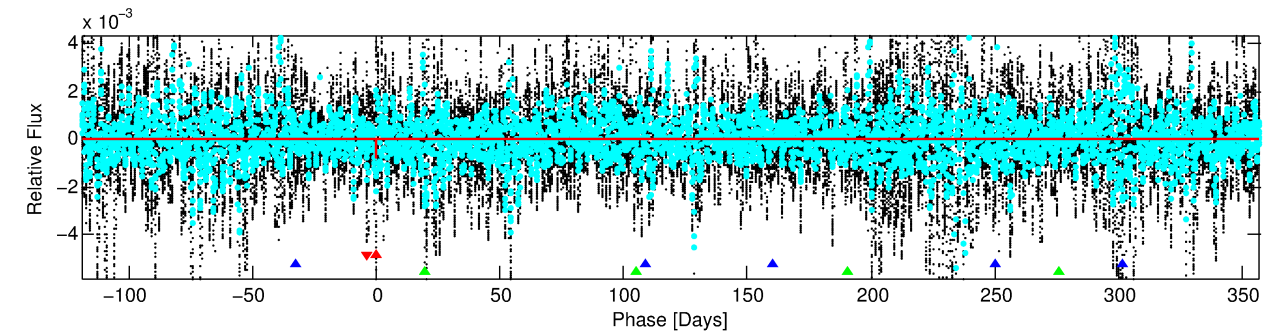
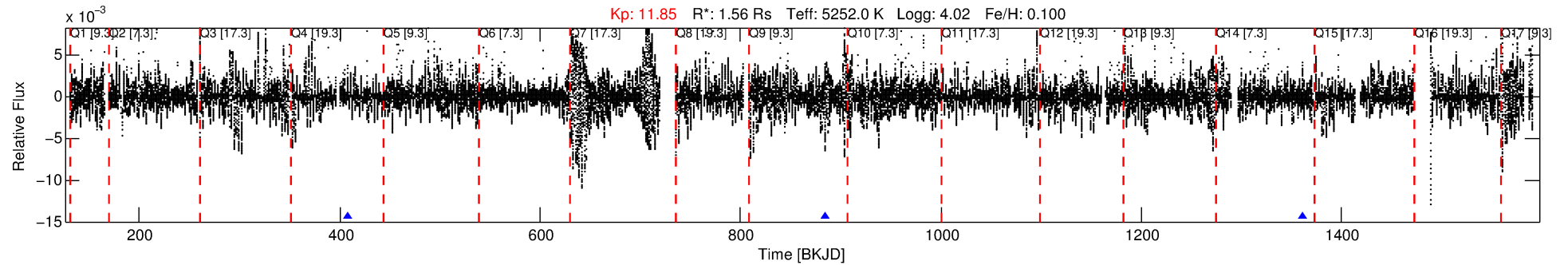
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## Ephemeris Match Information For 005357275-01

No Significant Match Found

# DV One-Page Summary

KIC: 5357275 Candidate: 1 of 3 Period: 476.256 d



## DV Fit Results:

Period = 476.25578 [0.00380] d  
Epoch = 408.0106 [0.0049] BKJD  
Rp/R\* = 0.0252 [0.0096]  
a/R\* = 337.10 [438.92]  
b = 0.44 [2.41]  
Seff = 1.23 [0.98]  
Teq = 268 [54] K  
Rp = 4.29 [2.50] Re  
a = 1.1637 [0.5521] AU  
Ag = 41410.69 [46687.41] [0.89 $\sigma$ ]  
Teffp = 5919 [1181] K [4.78 $\sigma$ ]

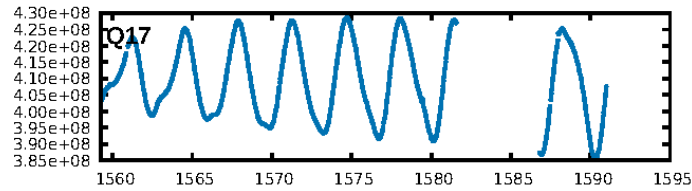
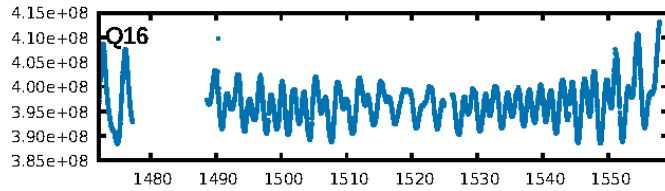
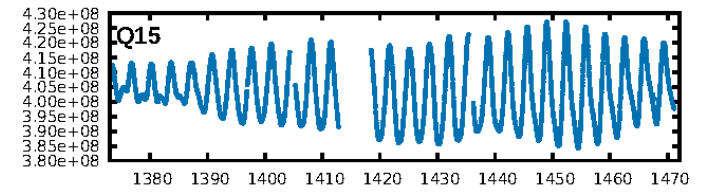
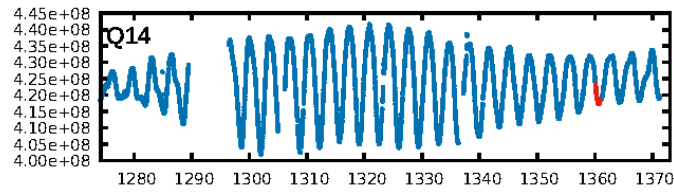
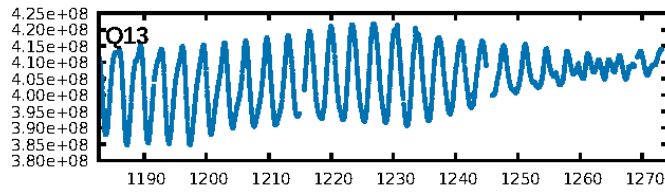
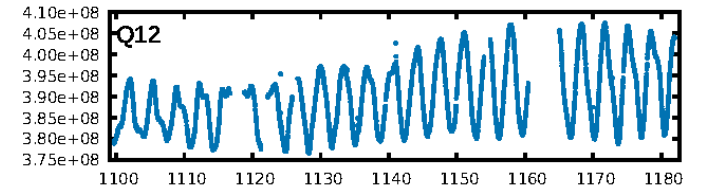
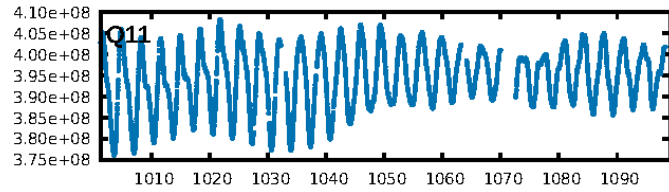
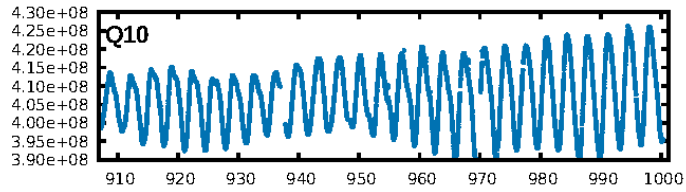
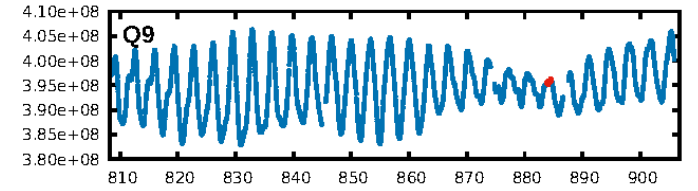
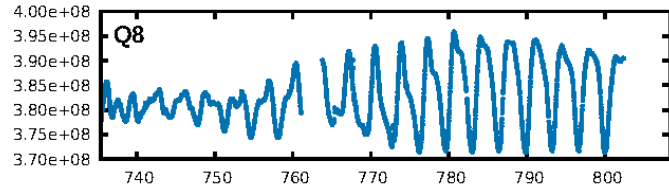
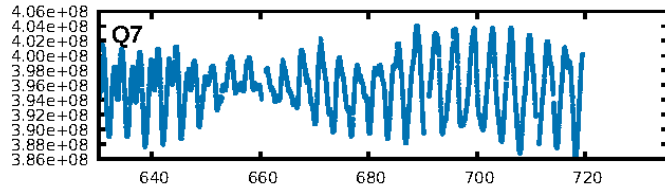
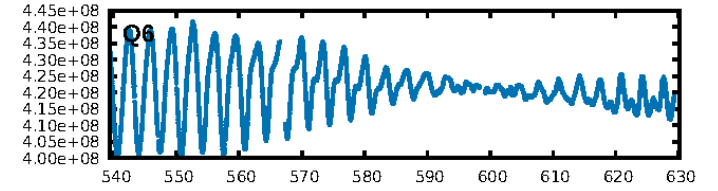
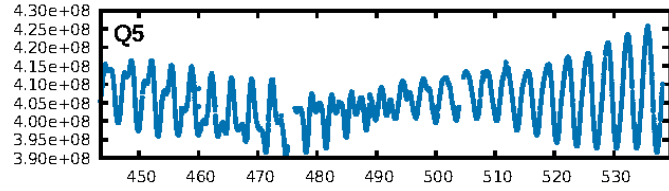
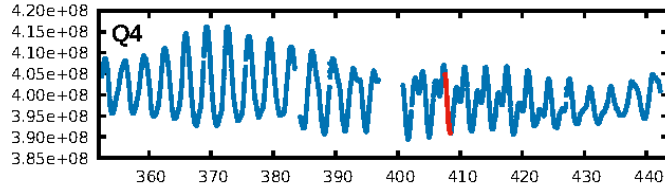
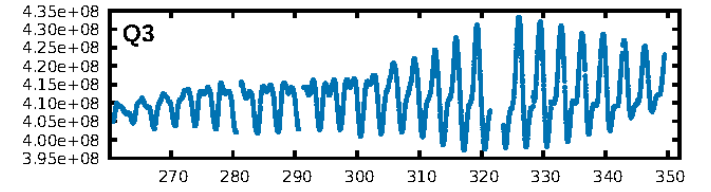
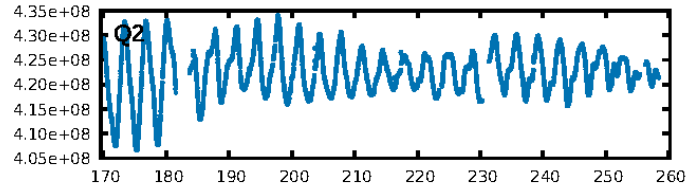
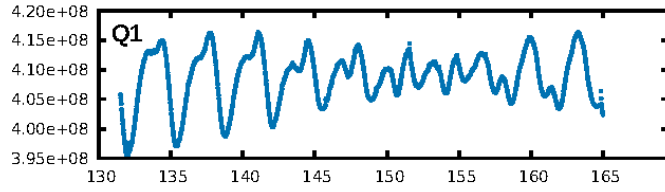
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [179.23 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 98.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 6.61e-09  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.731  
Centroid-sig: 14.7%  
Centroid-so: 0.337 arcsec [1.56 $\sigma$ ]  
OotOffset-rm: 0.018 arcsec [0.09 $\sigma$ ]  
OotOffset-st: 1/0/1/1 [3]  
KicOffset-rm: 0.252 arcsec [1.07 $\sigma$ ]  
KicOffset-st: 1/0/1/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

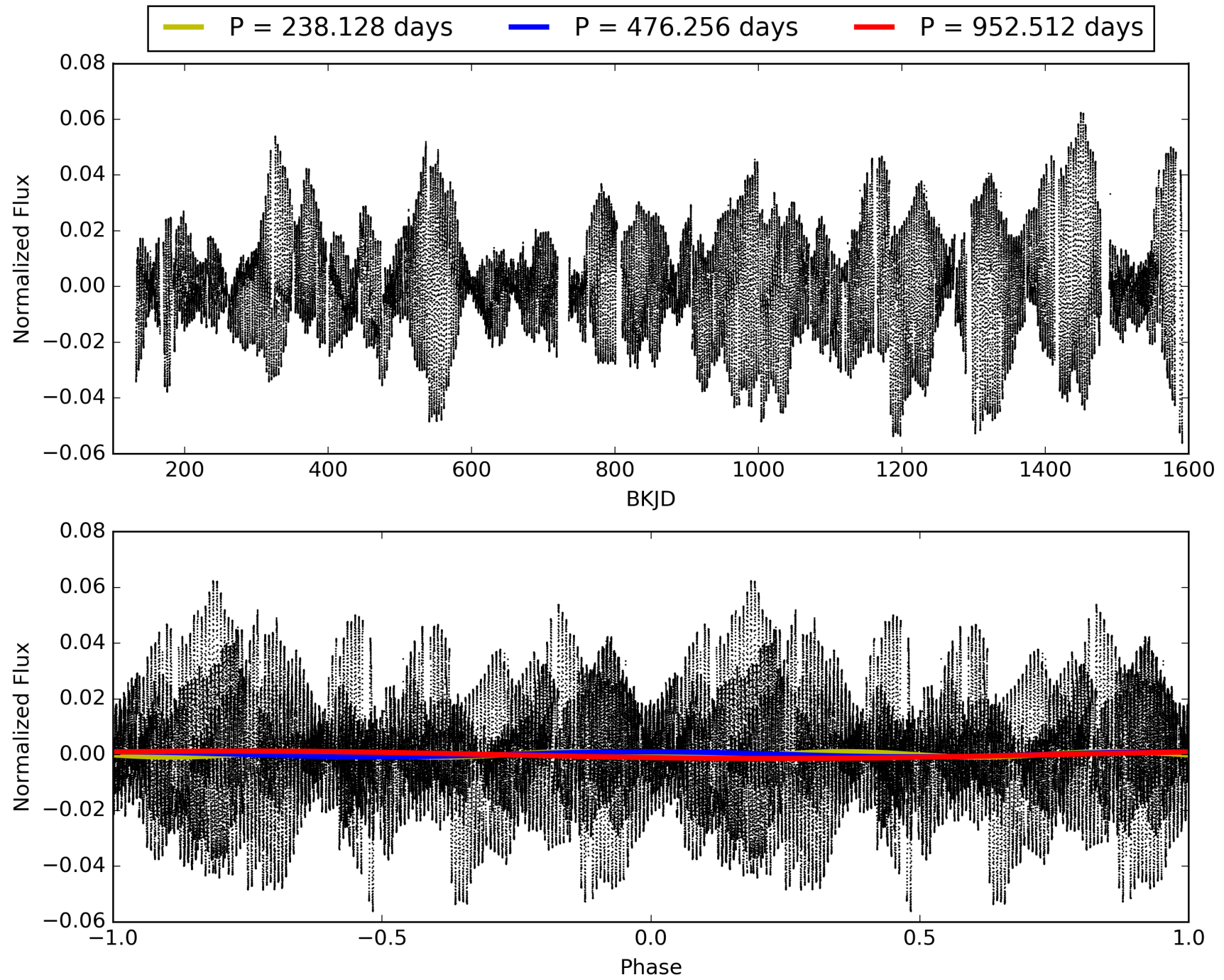
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005357275-01, PDC Light Curves

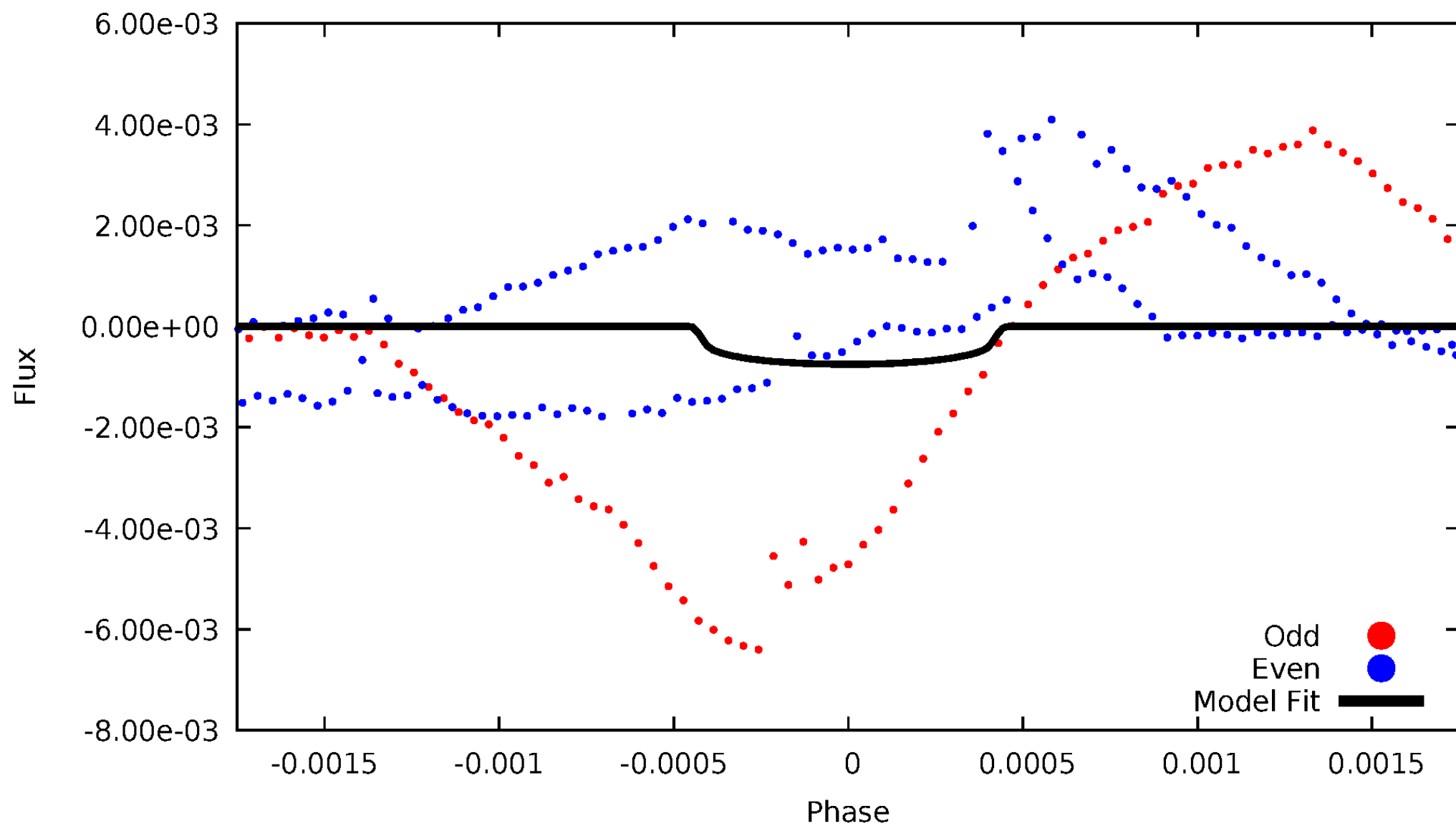


TCE 005357275-01



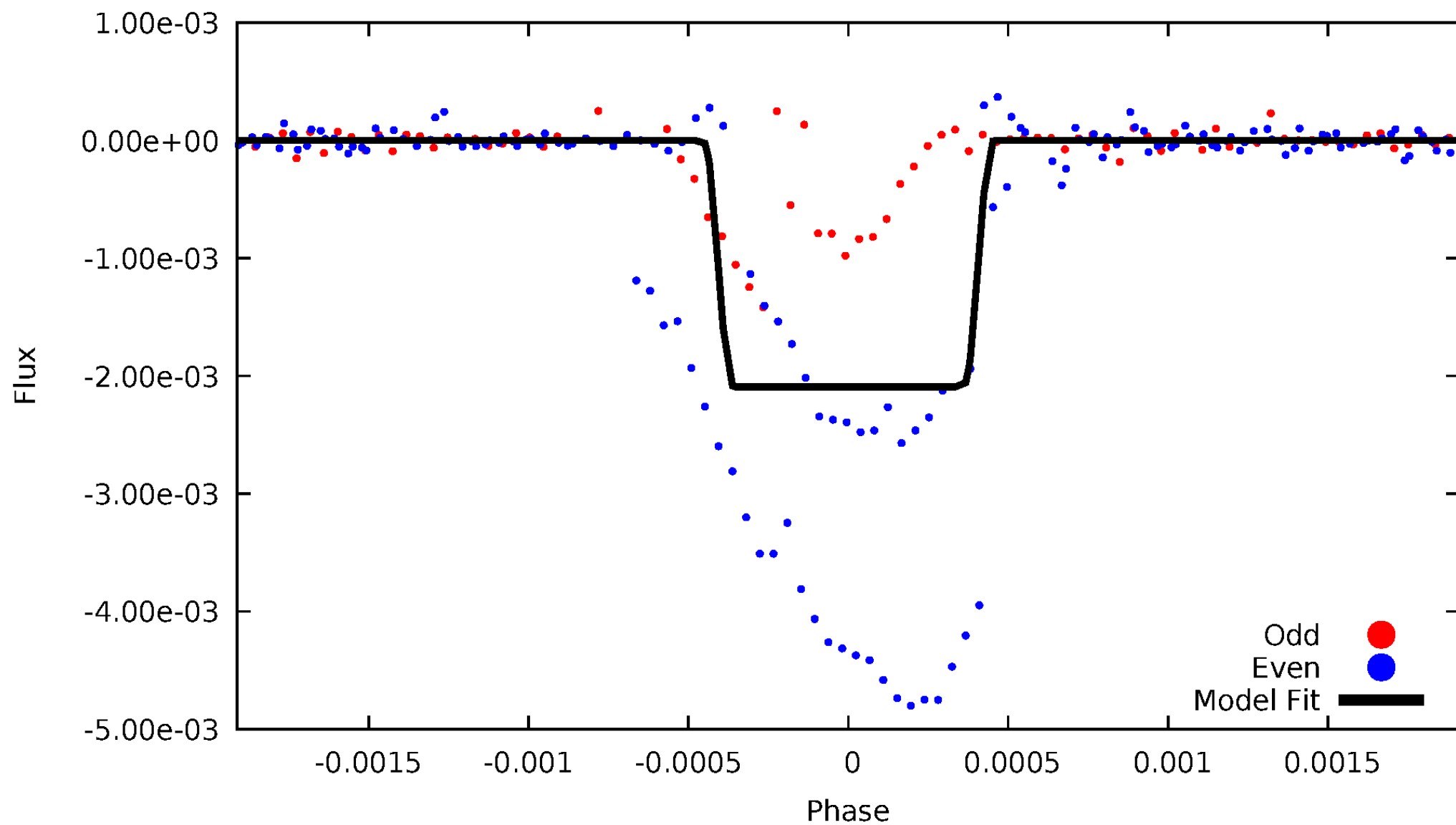
# DV Odd/Even

TCE 005357275-01



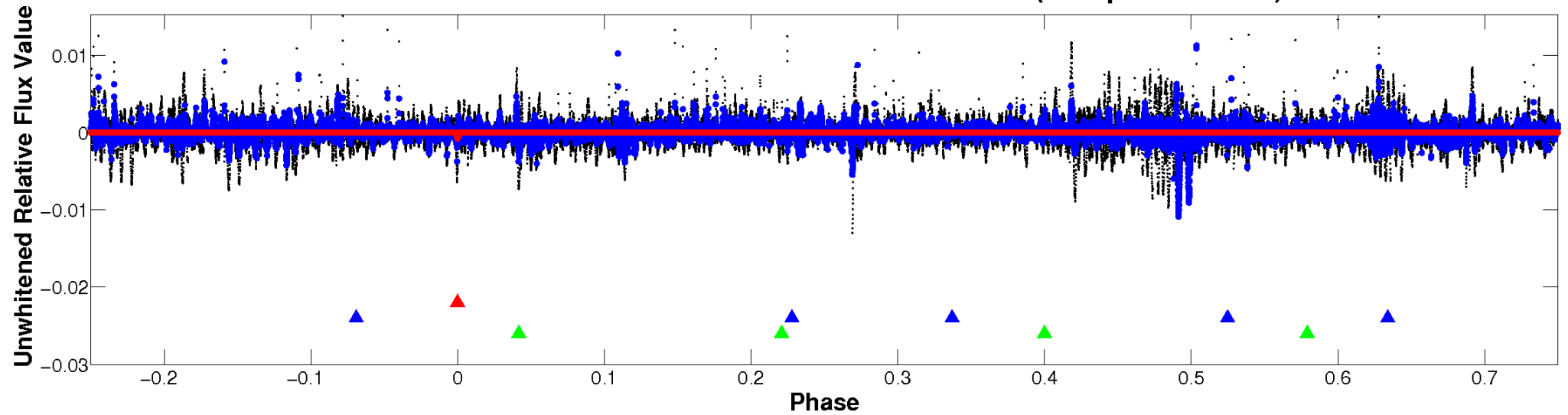
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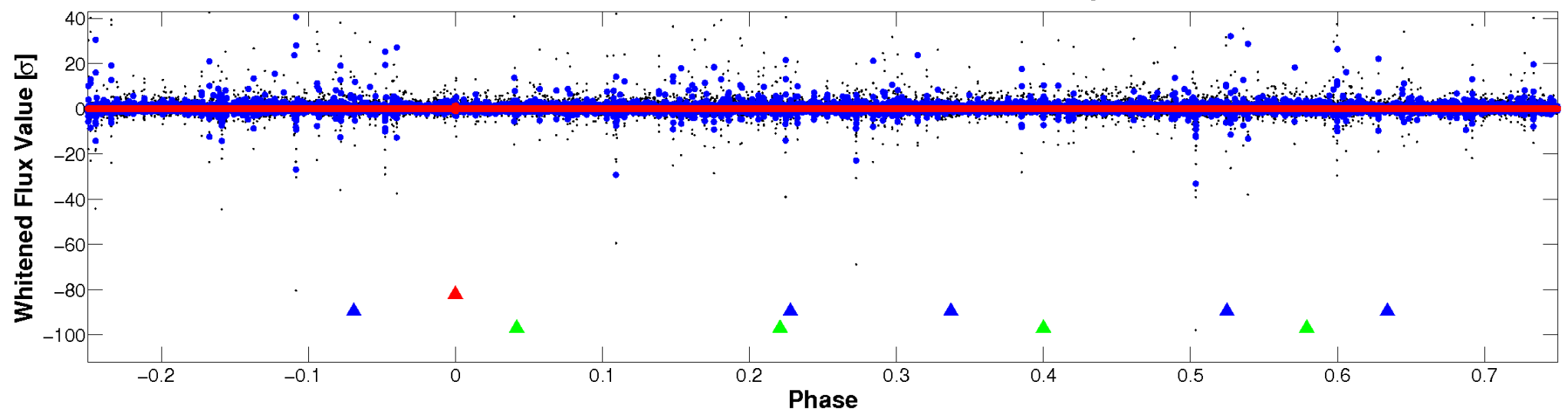


# Non-Whitened Vs. Whitened Light Curve

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



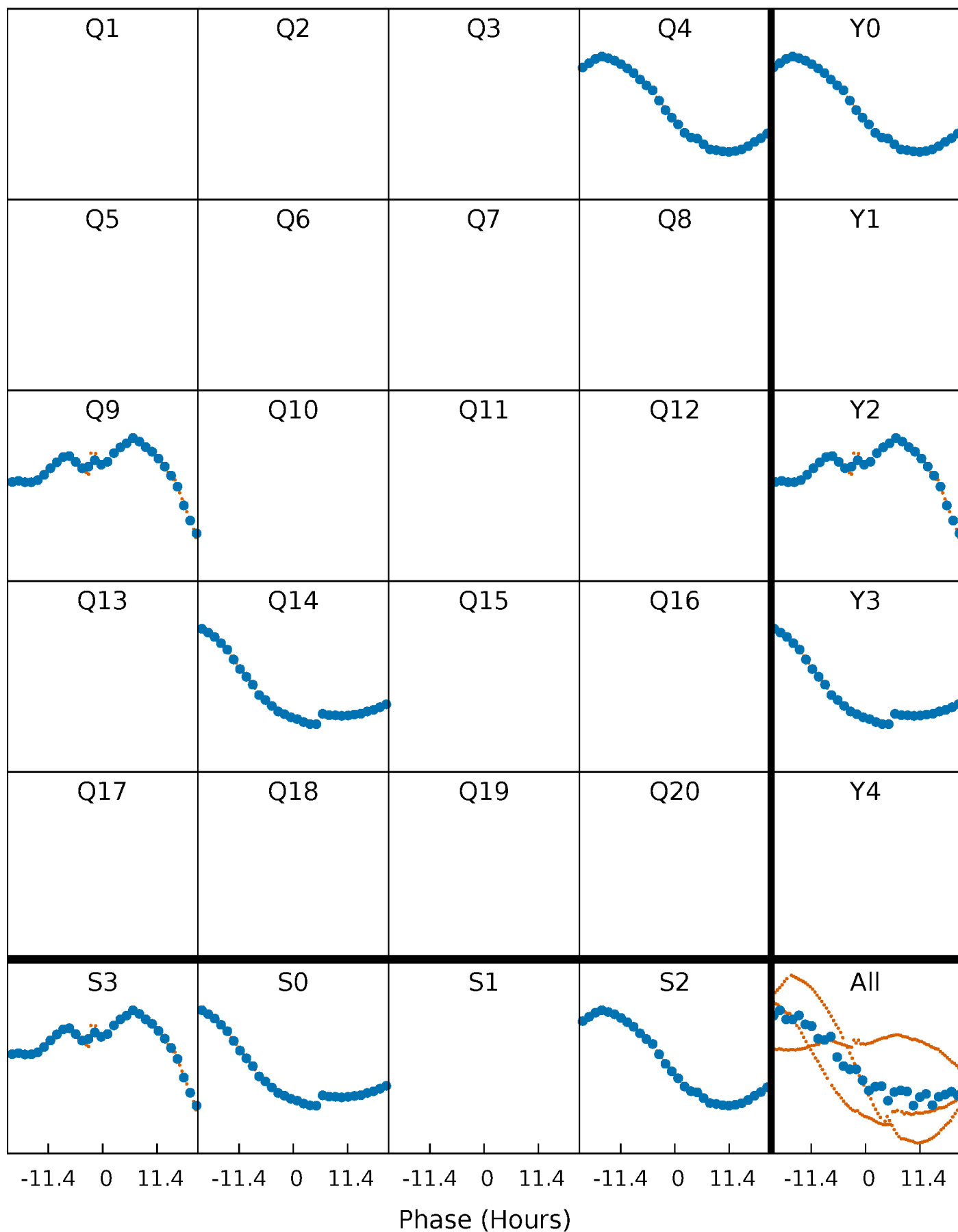
Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

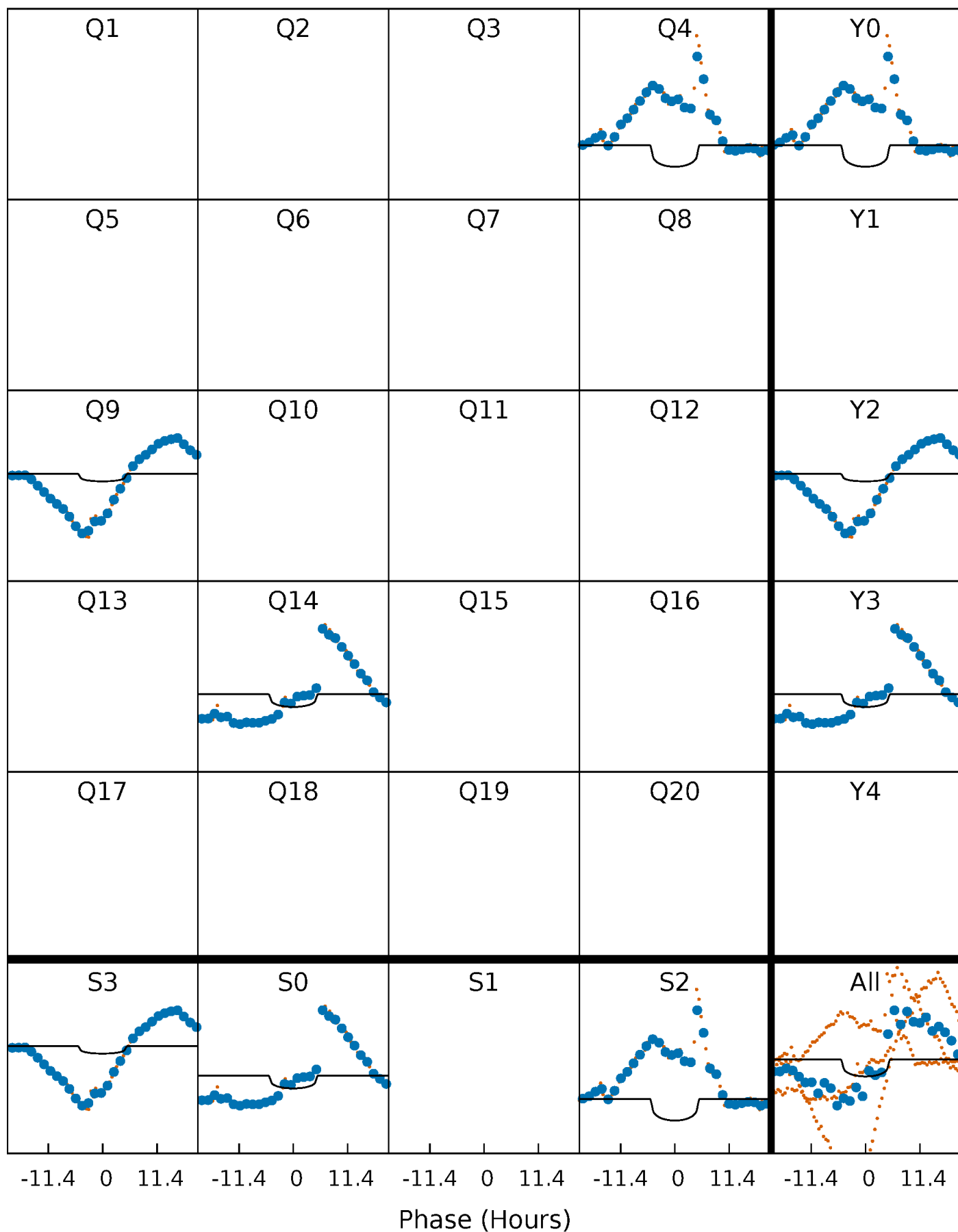
TCE 005357275-01 P=476.255781 Days  $T_0=408.010584$  (BKJD)





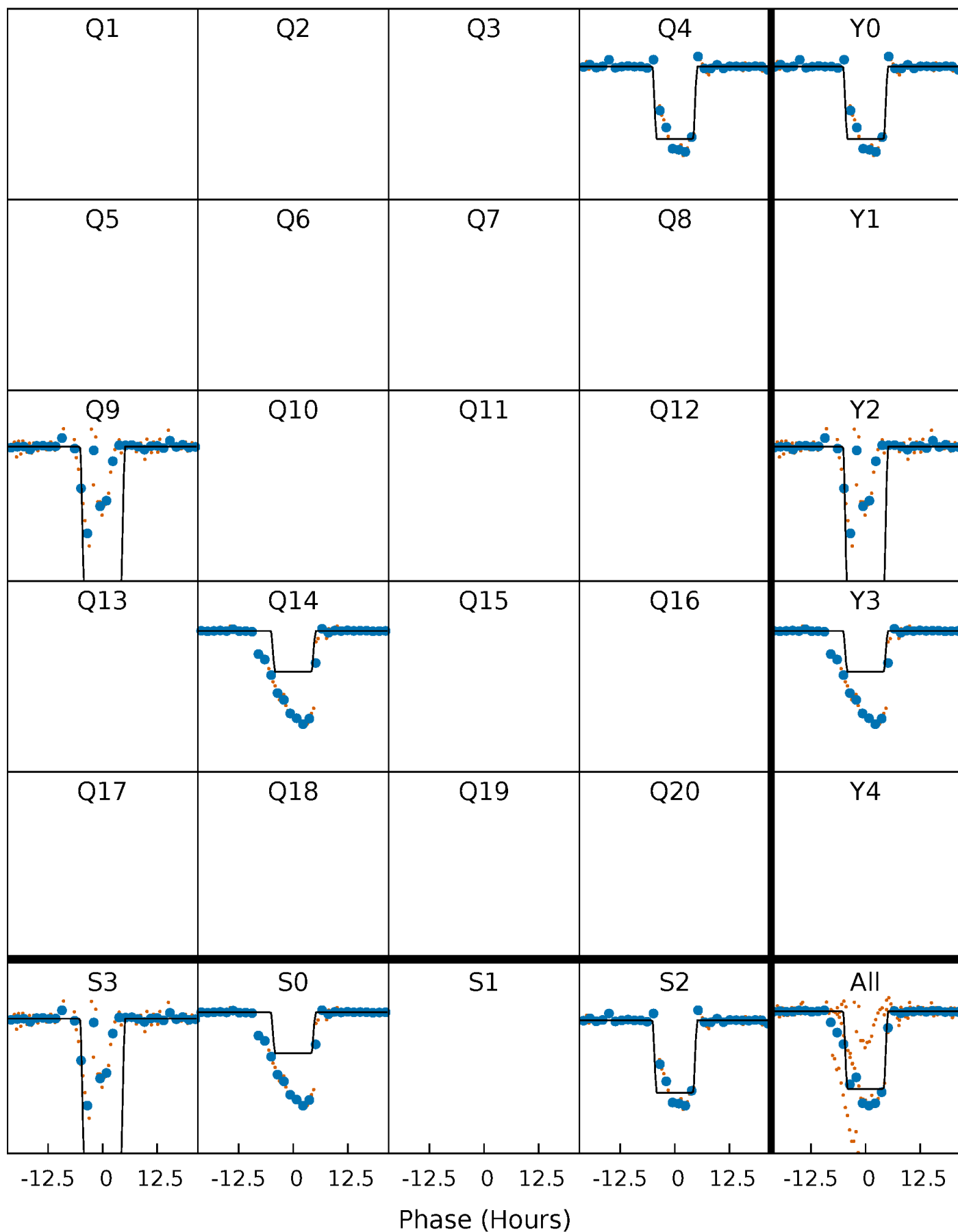
# DV Quarter-Phased Transit Curves

TCE 005357275-01 P=476.255781 Days  $T_0=408.010584$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

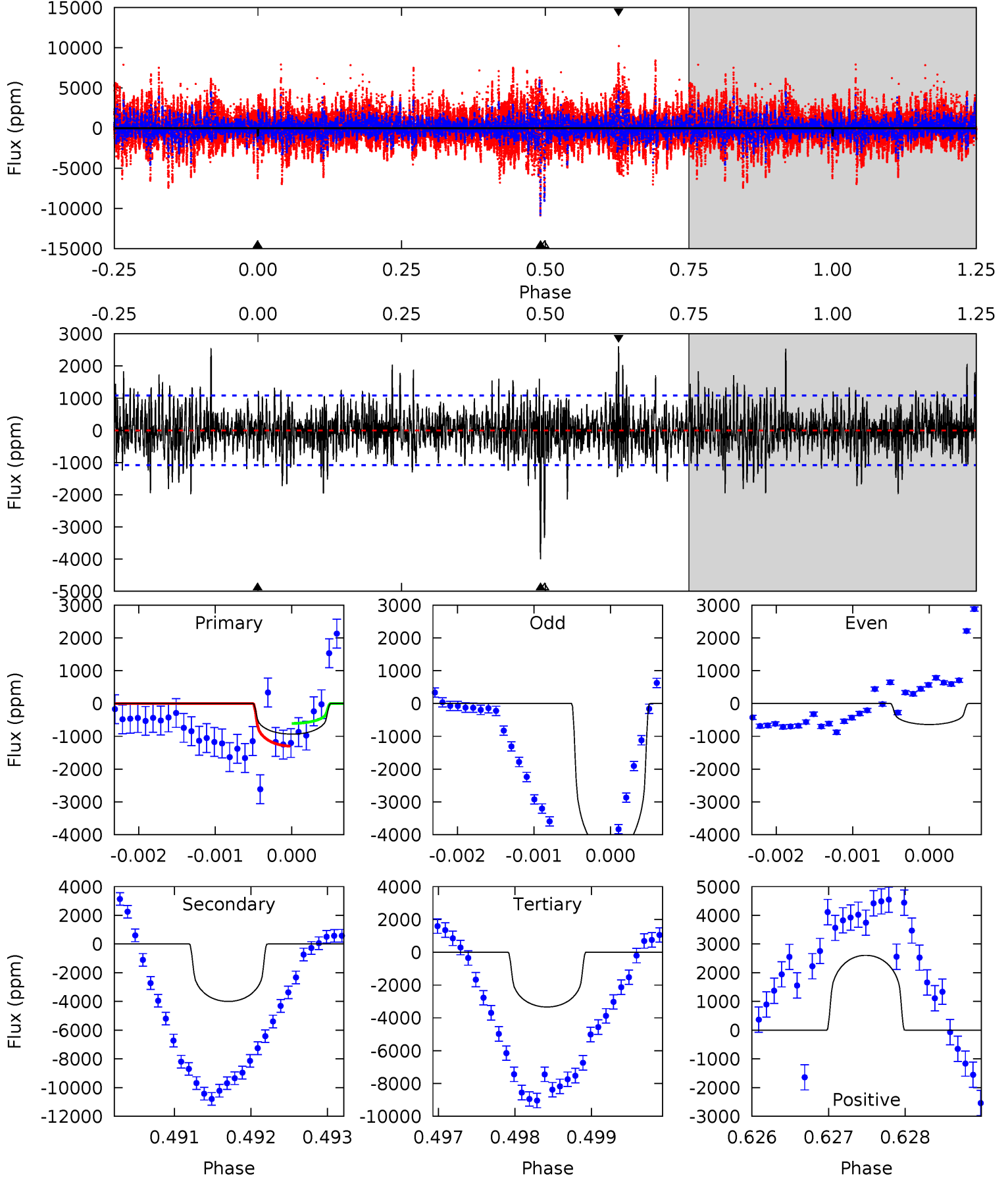
TCE 005357275-01 P=476.272228 Days  $T_0=407.998534$  (BKJD)



# DV Model-Shift Uniqueness Test

005357275-01, P = 476.255781 Days, E = 408.010584 Days

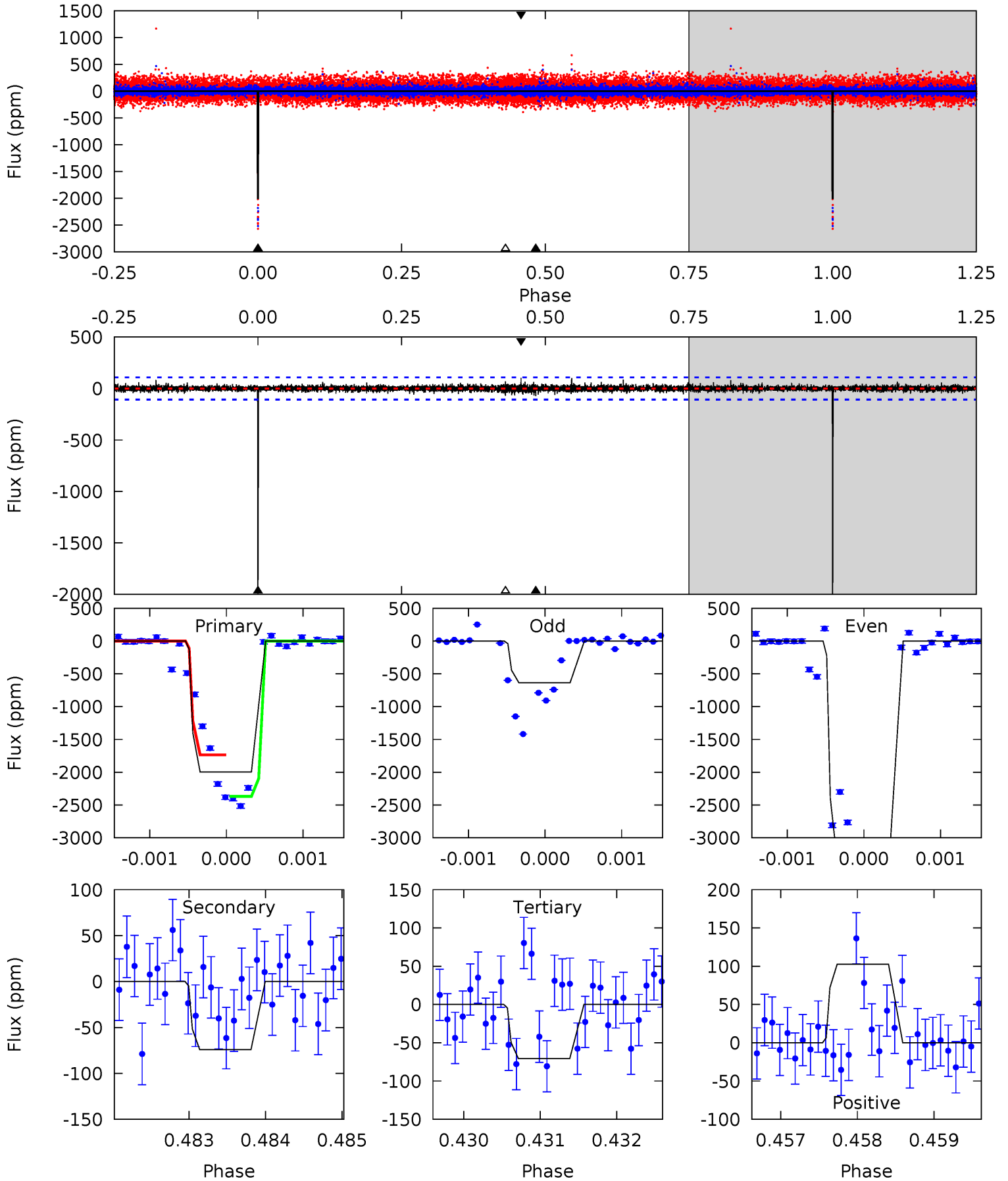
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.71	20.2	16.9	13.2	5.47	3.32	2.75	-12.2	-8.46	3.35	7.04	8.72	2.10	0.39	1.76



# Alt Model-Shift Uniqueness Test

005357275-01, P = 476.272228 Days, E = 407.998534 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
101.5	3.77	3.60	5.22	5.47	3.32	0.70	97.9	96.3	0.17	-1.46	99.7	1.11	0.05	16.4



### Stellar Parameters For KIC 005357275

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5252^{+94}_{-71}$	$4.018^{+0.484}_{-0.085}$	$0.100^{+0.200}_{-0.100}$	$1.561^{+0.230}_{-0.691}$	$0.926^{+0.053}_{-0.087}$	$0.343^{+1.591}_{-0.091}$
	+2%/-1%	+12%/-2%	+200%/-100%	+15%/-44%	+6%/-9%	+464%/-26%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005357275-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-4001 \pm 198$	$3.86^{+1.76}_{-1.67}$	$369^{+20}_{-44}$	$8609^{+3874}_{-1517}$	$200417^{+404773}_{-102664}$
Alt.	$-74 \pm 20$	$7.12^{+2.06}_{-2.13}$	$368^{+21}_{-47}$	$2958^{+236}_{-218}$	$1067^{+1274}_{-483}$

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

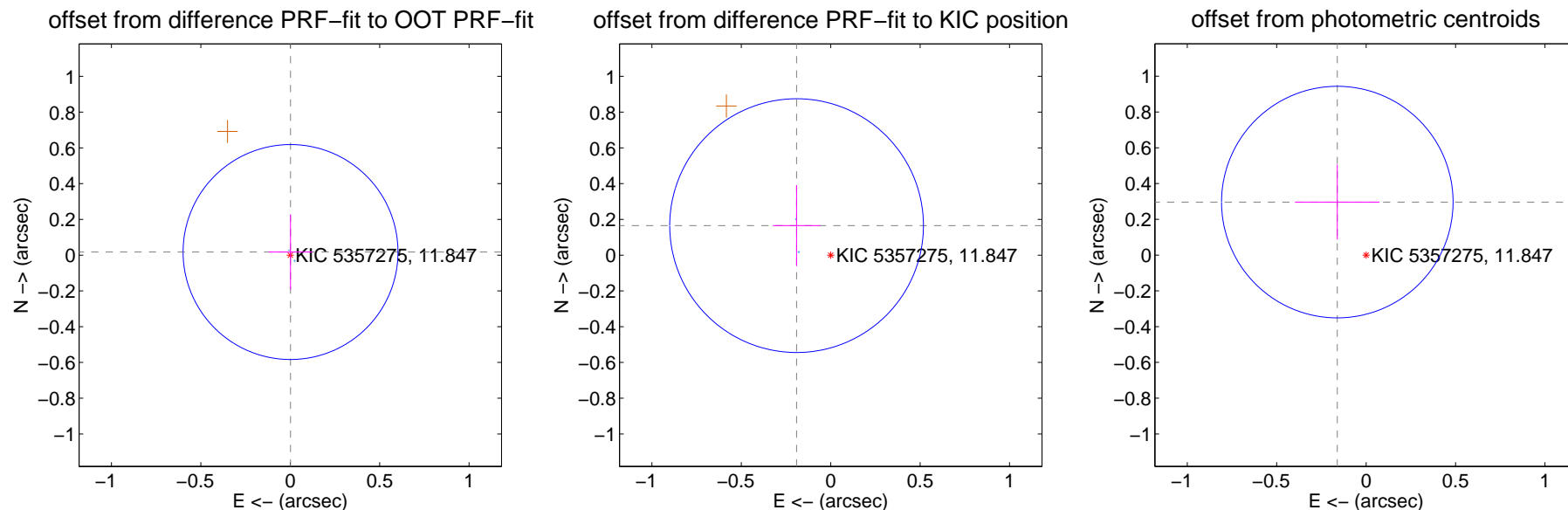
## DV Centroid Data

Supplemental centroid analysis for 005357275-01. **Kepler magnitude: 11.85.** Transit SNR 4.47

**There are 2 quarters with good PRF difference image offsets**

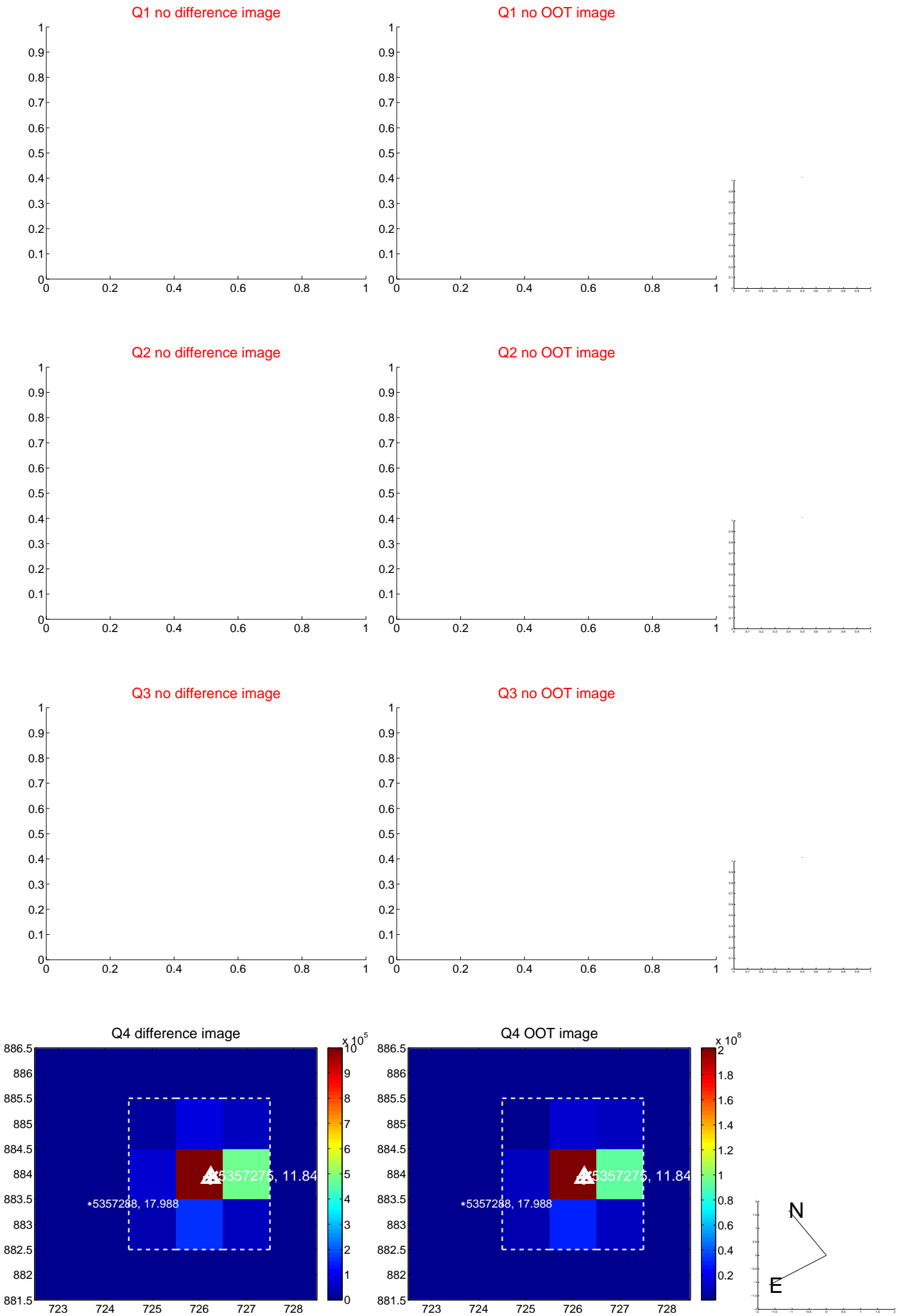
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.018 \pm 0.200$	0.09	$-0.002 \pm 0.123$	$0.017 \pm 0.209$
PRF-fit source offset from KIC position	$0.252 \pm 0.237$	1.07	$0.191 \pm 0.133$	$0.165 \pm 0.226$
photometric centroid source offset	$0.34 \pm 0.22$	1.56	$0.16 \pm 0.24$	$0.30 \pm 0.21$



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.

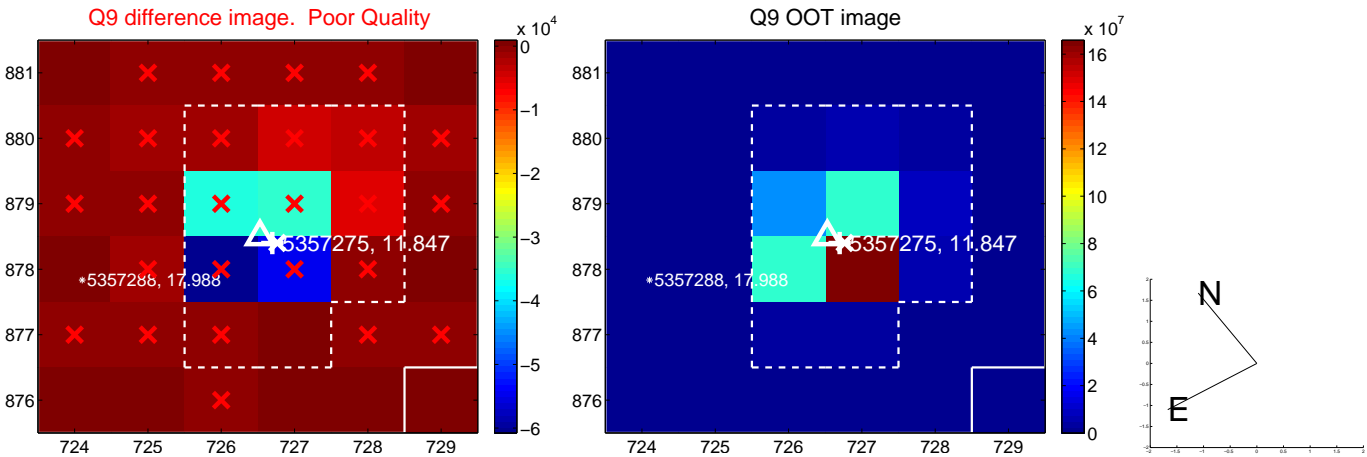




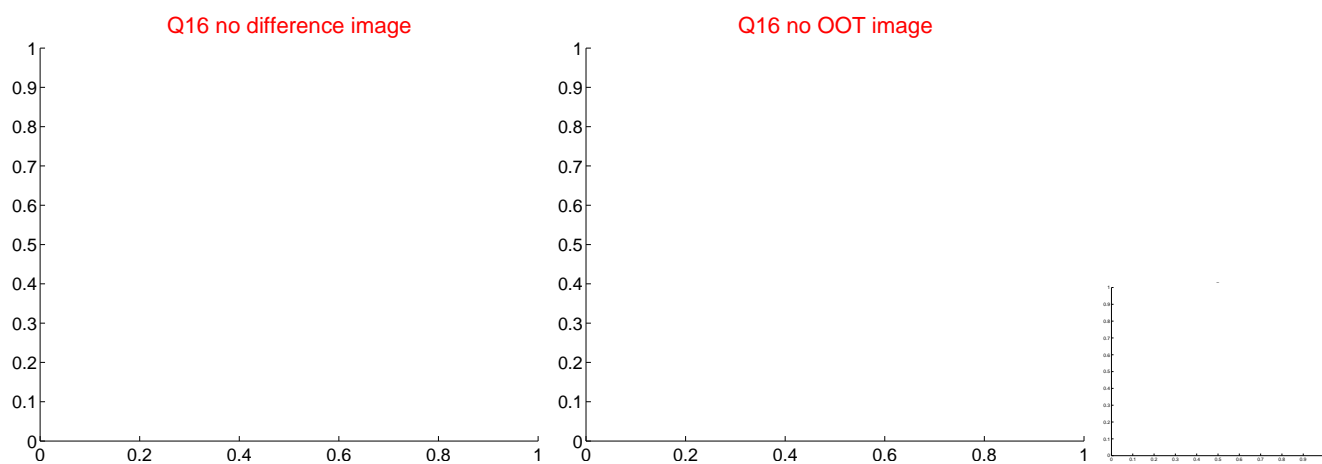
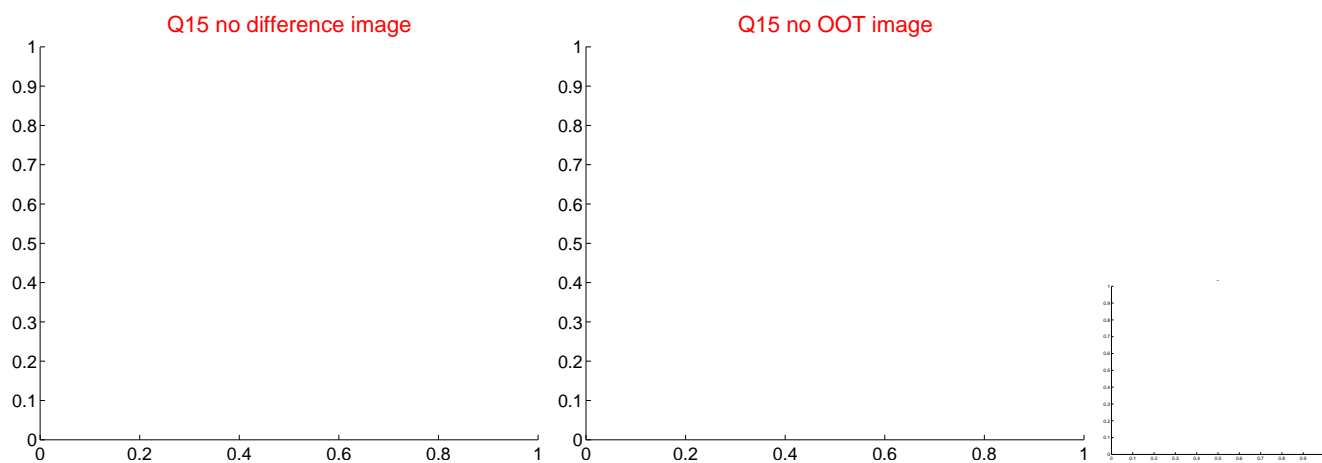
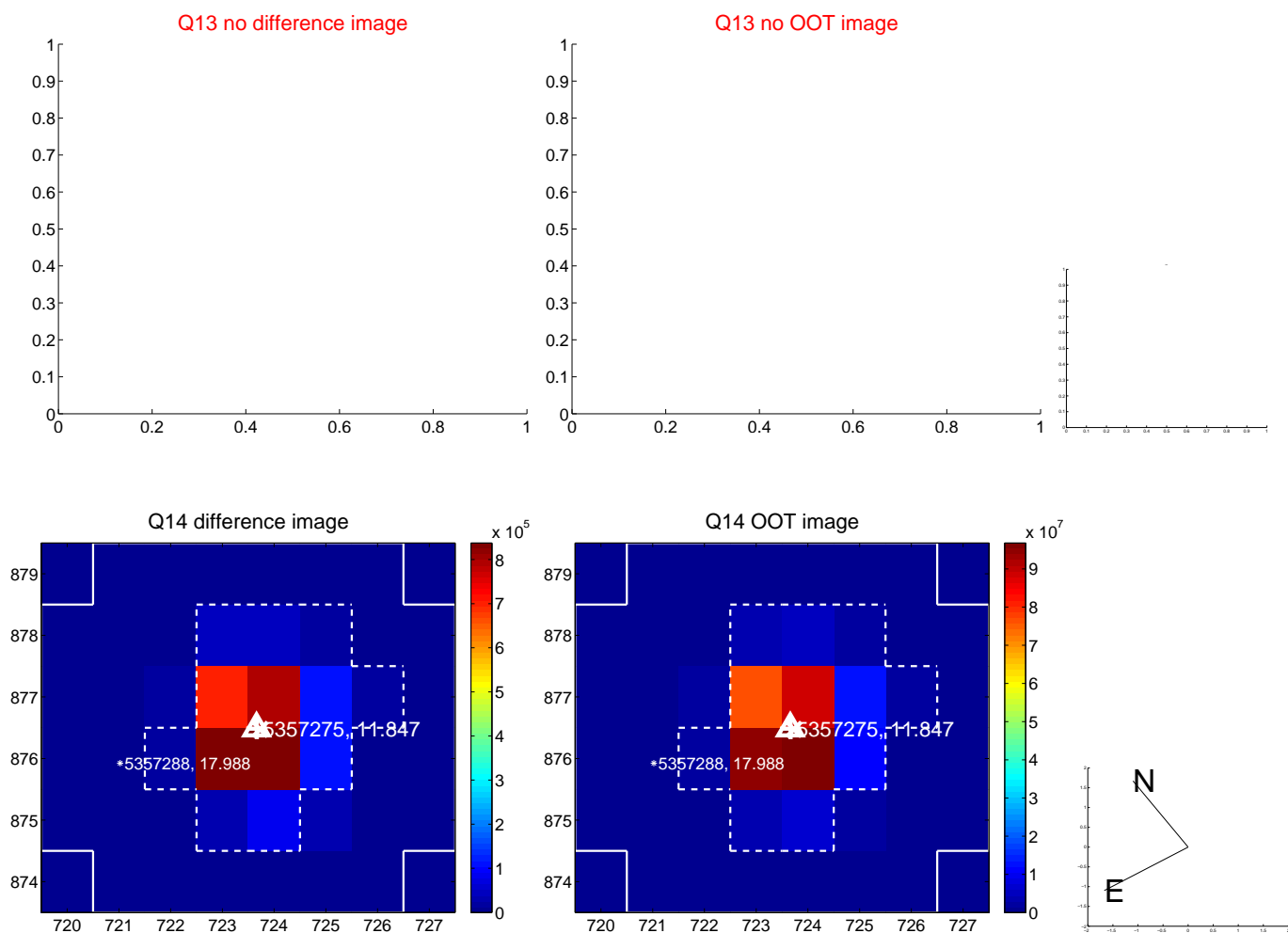
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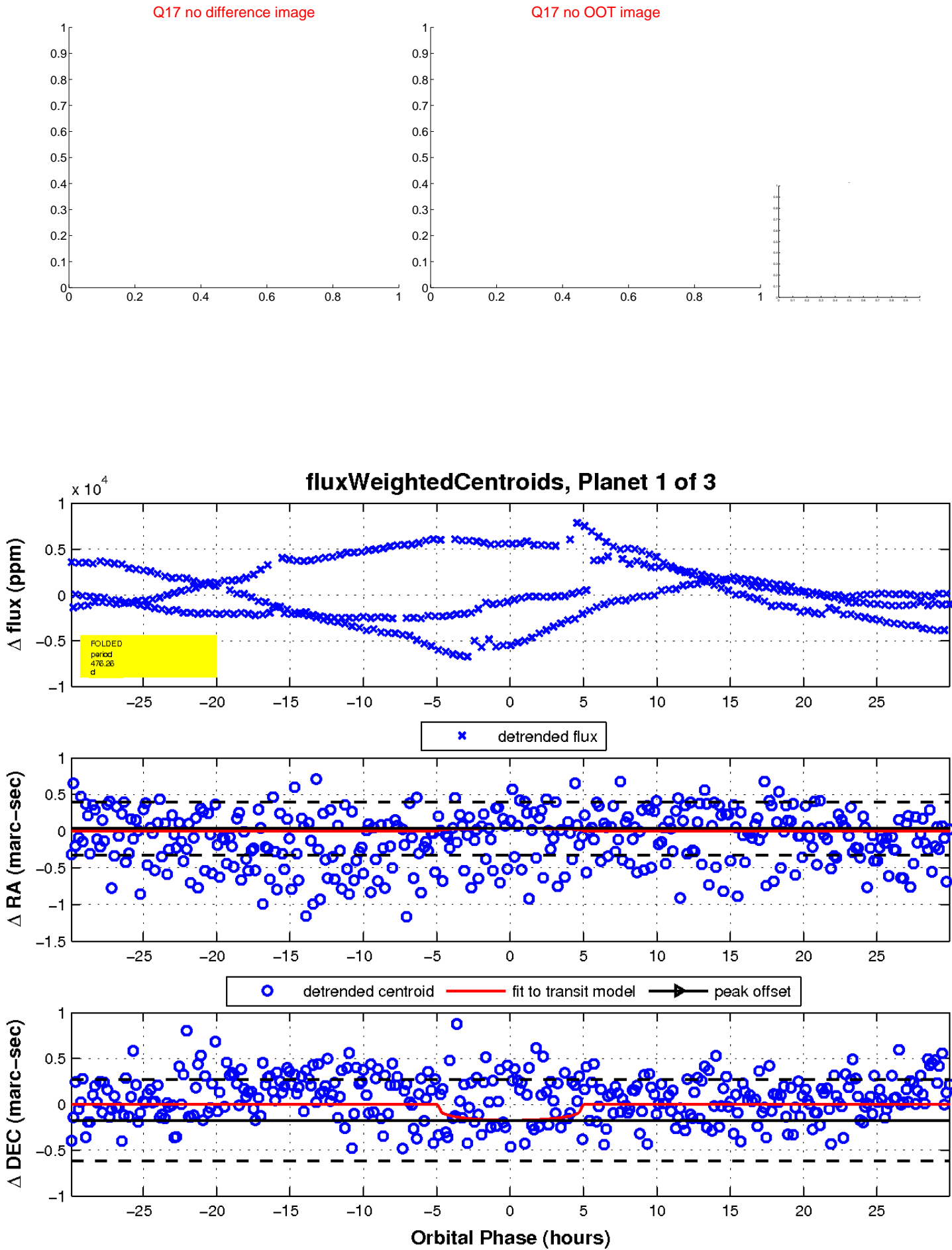
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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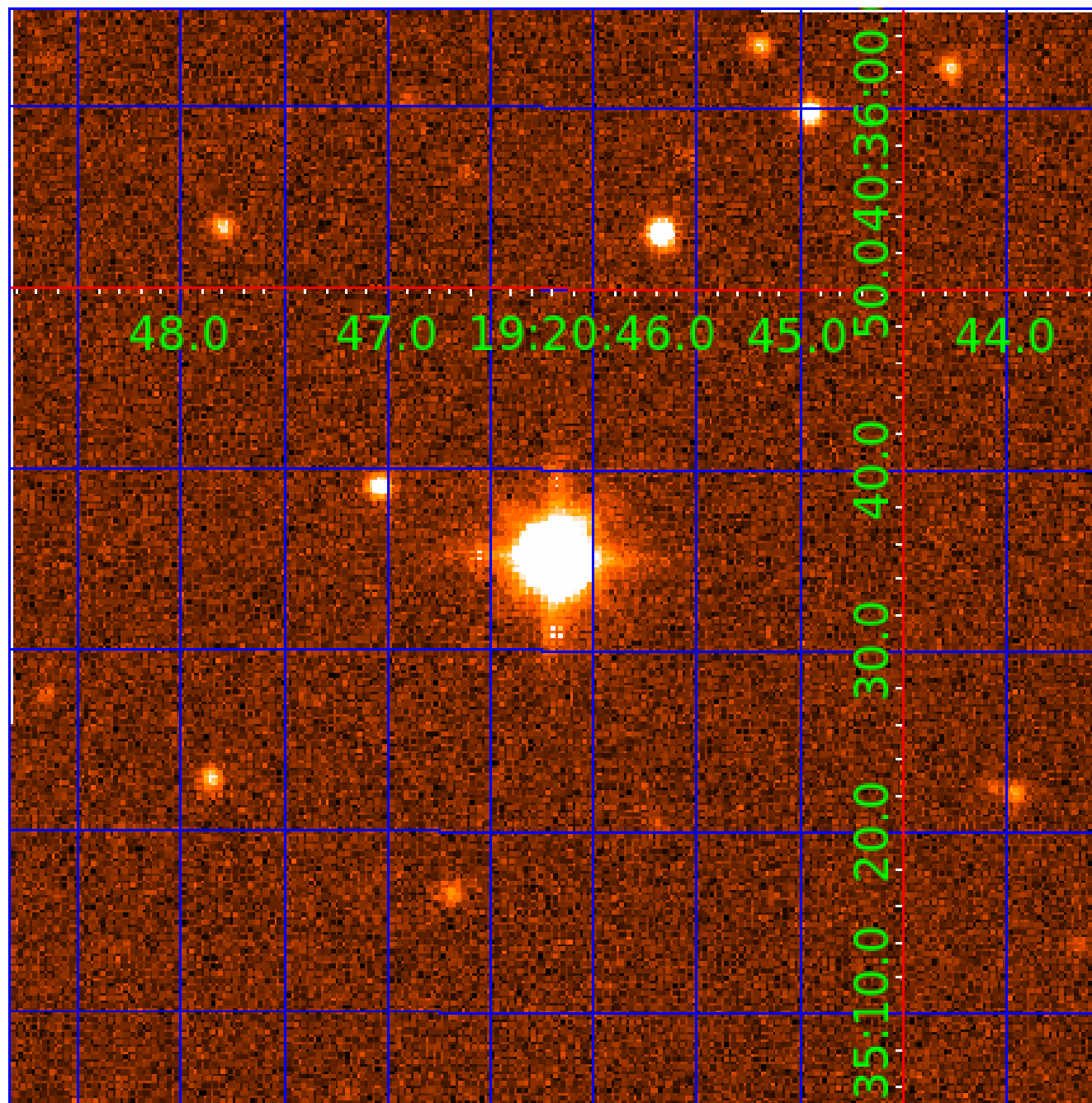


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005357275

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005357275-01	OBS	No	476.255781	408.010584	751.7	10.000	14.6	4.5	1.56	5252	4.29	1.23
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005357275-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005357275-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—HALO_GHOST
005357275-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

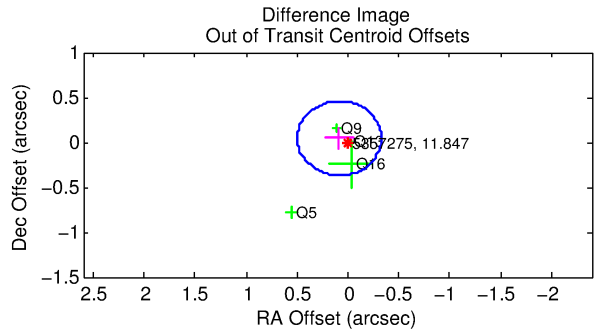
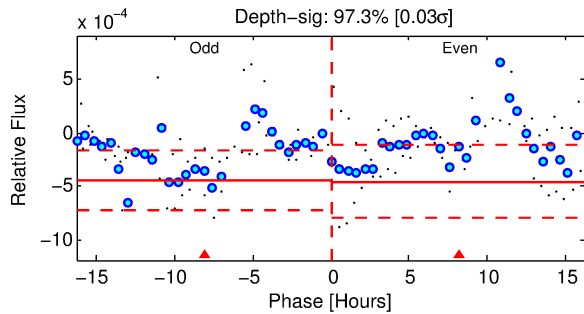
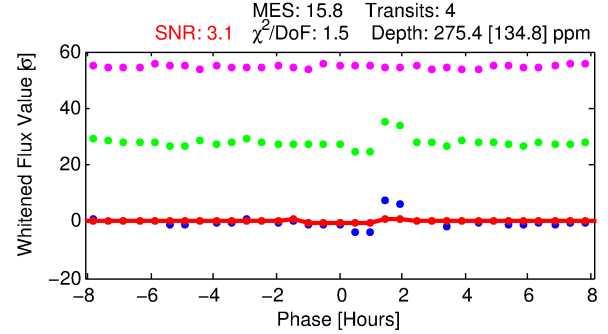
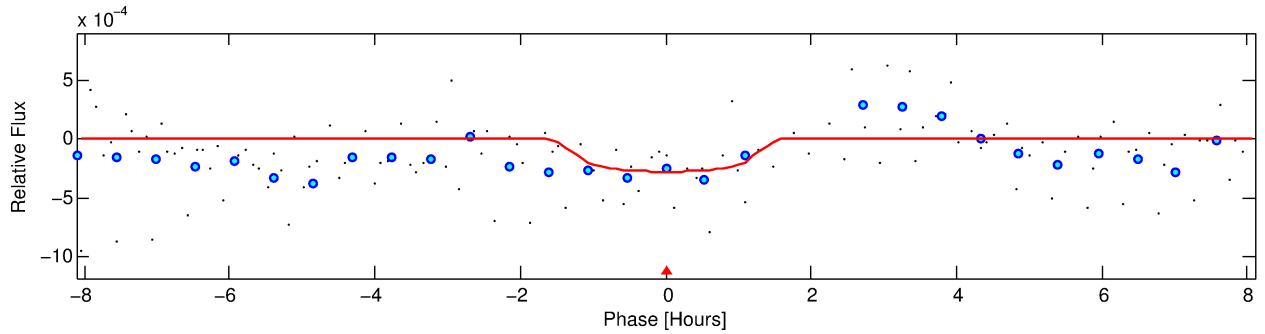
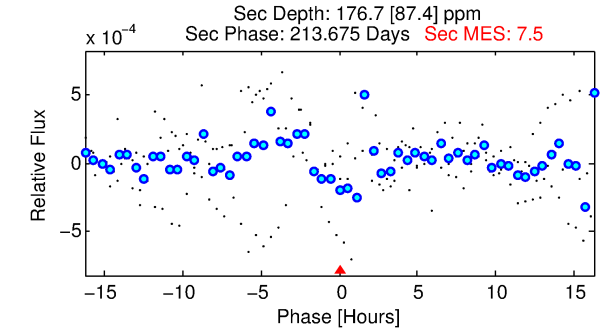
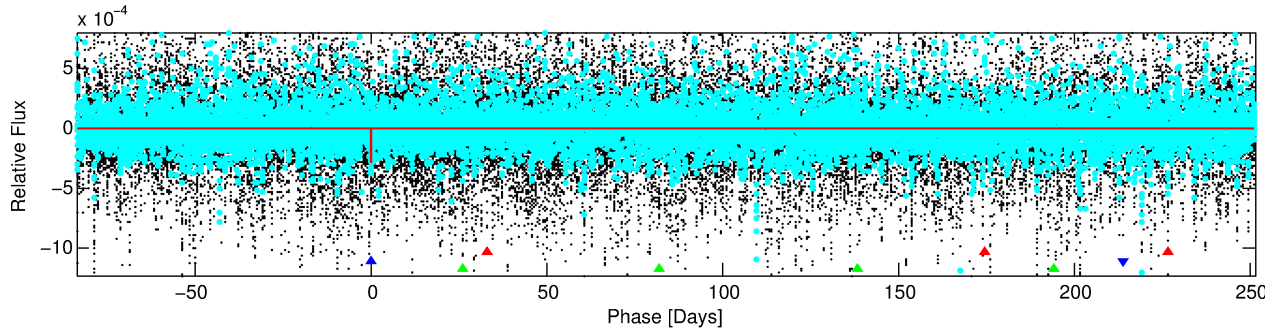
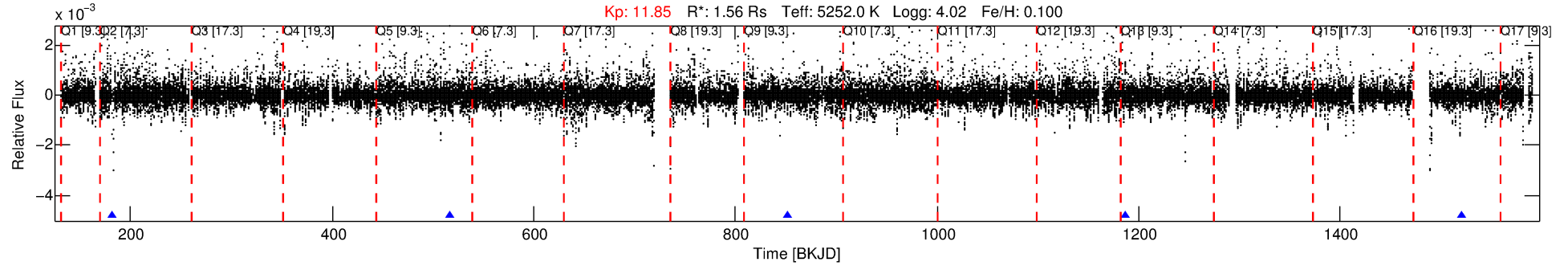
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005357275-02

No Significant Match Found

# DV One-Page Summary

KIC: 5357275 Candidate: 2 of 3 Period: 334.836 d



## DV Fit Results:

Period = 334.83608 [0.00574] d  
Epoch = 181.7107 [0.0160] BKJD  
Rp/R\* = 0.0155 [0.0719]  
a/R\* = 824.89 [13970.42]  
b = 0.52 [24.06]  
Seff = 1.96 [1.57]  
Teq = 302 [61] K  
Rp = 2.64 [12.31] Re  
a = 0.9201 [0.4365] AU  
Ag = 11849.37 [110700.76] [0.11 sigma]  
Teffp = 4868 [11329] K [0.40 sigma]

## DV Diagnostic Results:

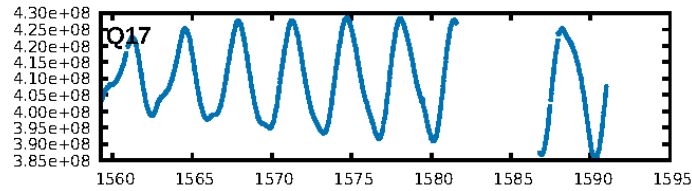
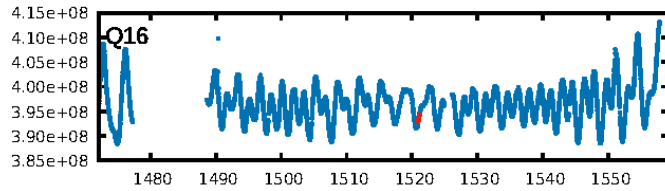
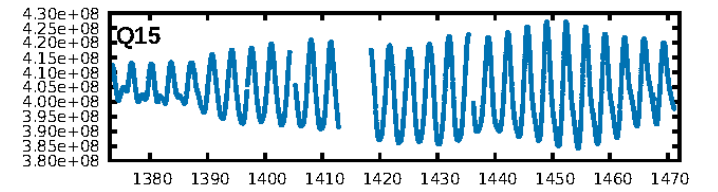
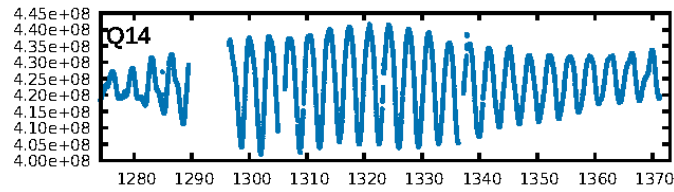
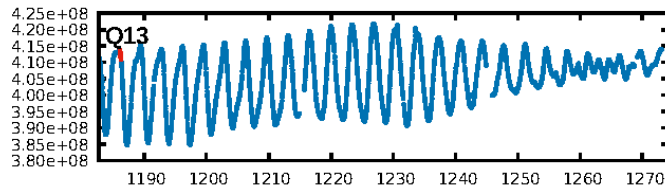
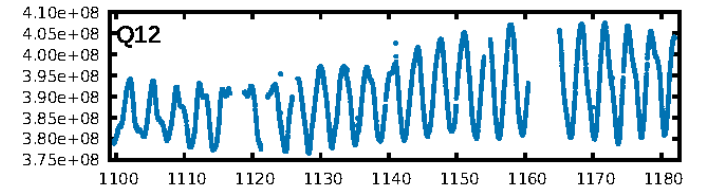
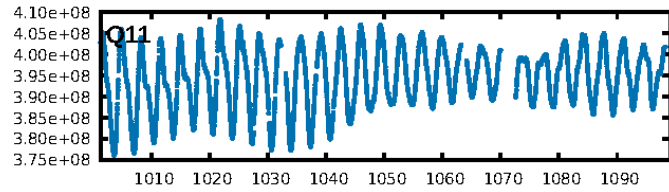
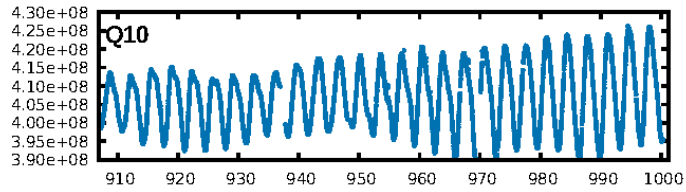
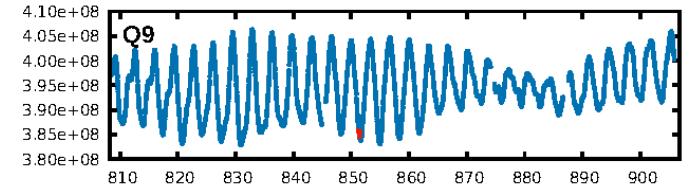
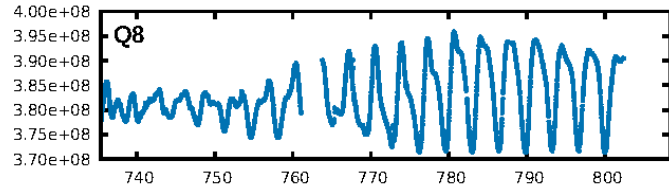
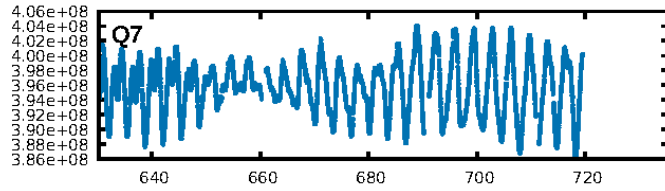
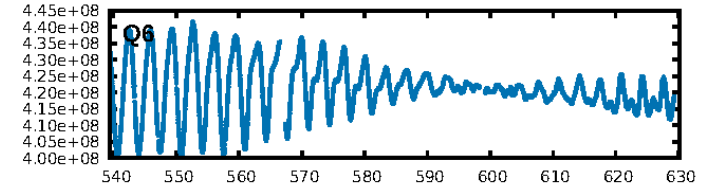
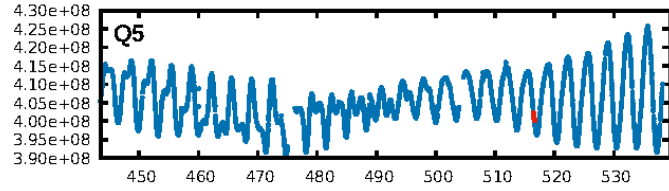
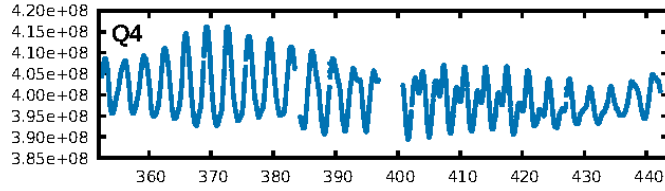
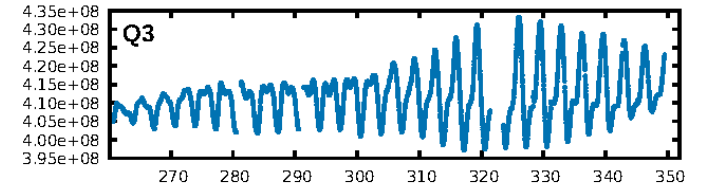
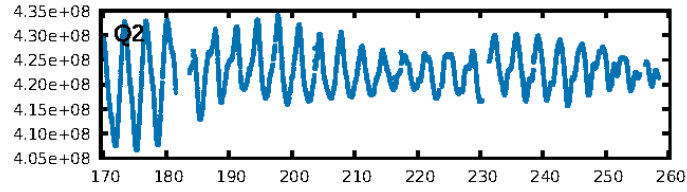
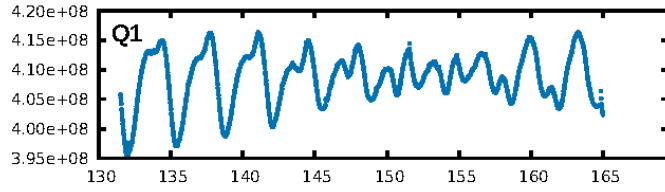
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [219.03 sigma]  
ModelChiSquare2-sig: 3.2%  
ModelChiSquareGof-sig: 72.4%  
Bootstrap-pfa: 3.74e-12  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.1591  
Centroid-sig: 19.3%  
Centroid-so: 0.552 arcsec [0.82 sigma]  
OotOffset-rm: 0.094 arcsec [0.68 sigma]  
OotOffset-st: 0/0/1/3 [4]  
KicOffset-rm: 0.350 arcsec [2.64 sigma]  
KicOffset-st: 0/0/1/3 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 1.00 [4/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:31:19 Z

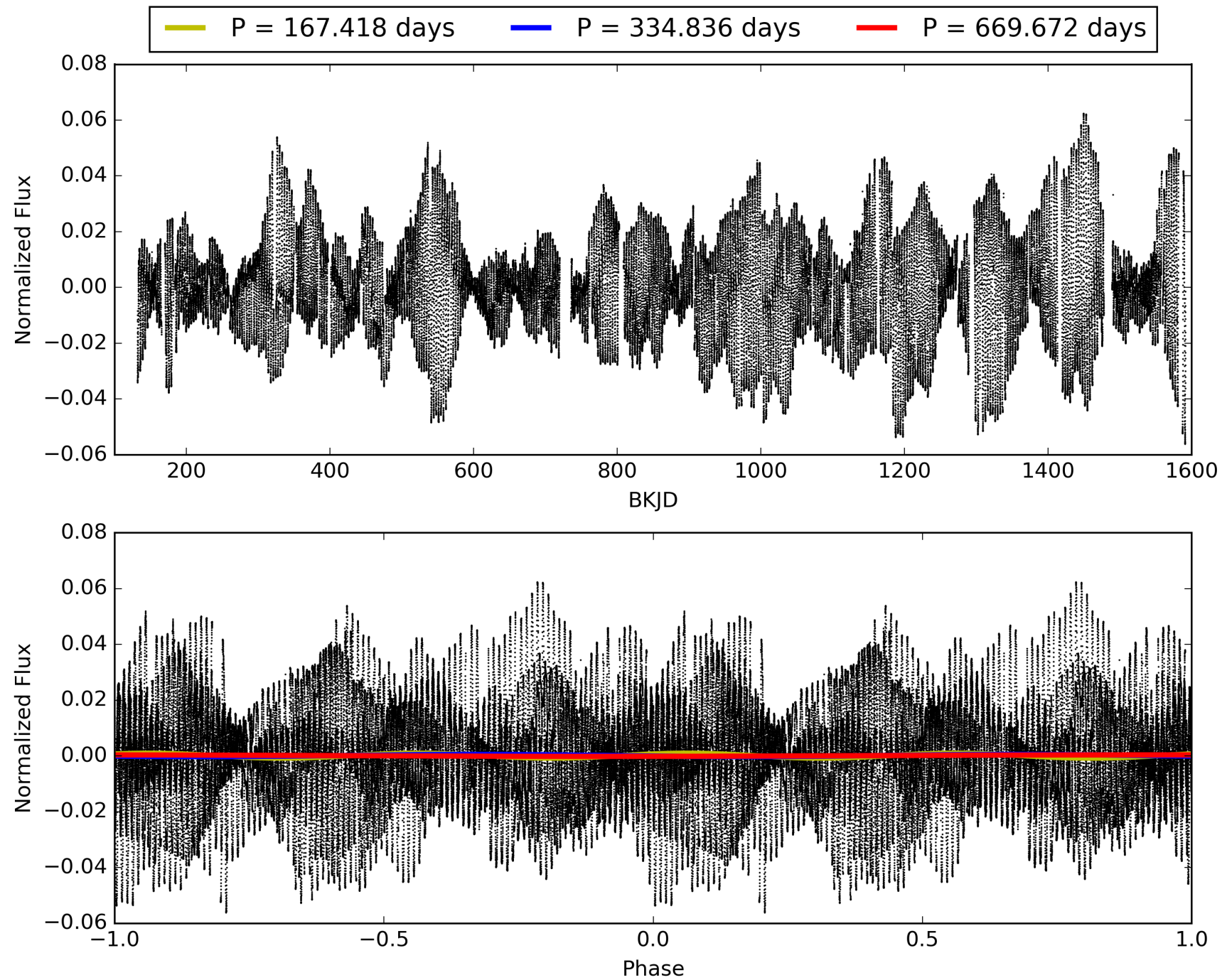
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 005357275-02, PDC Light Curves

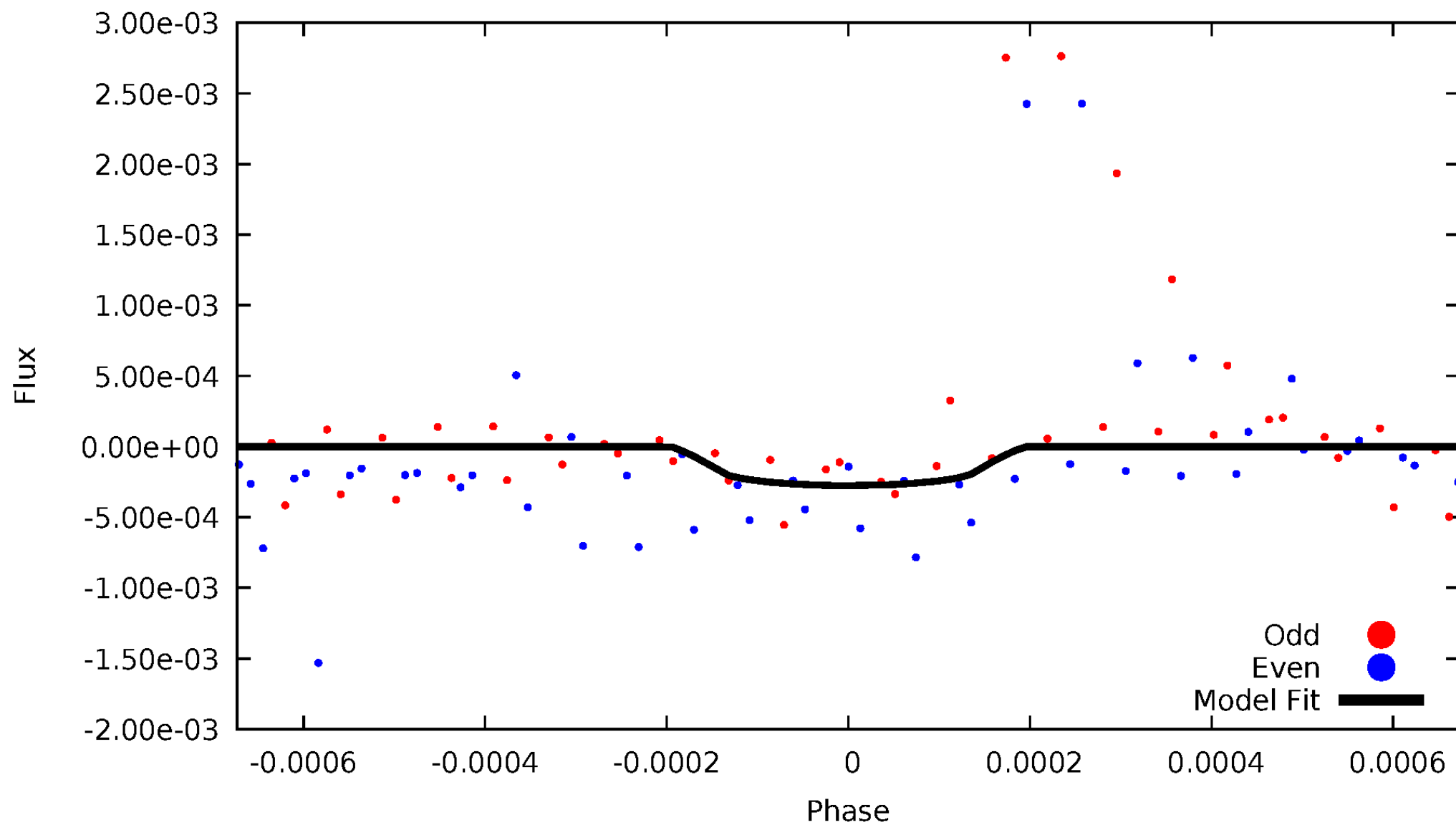


TCE 005357275-02



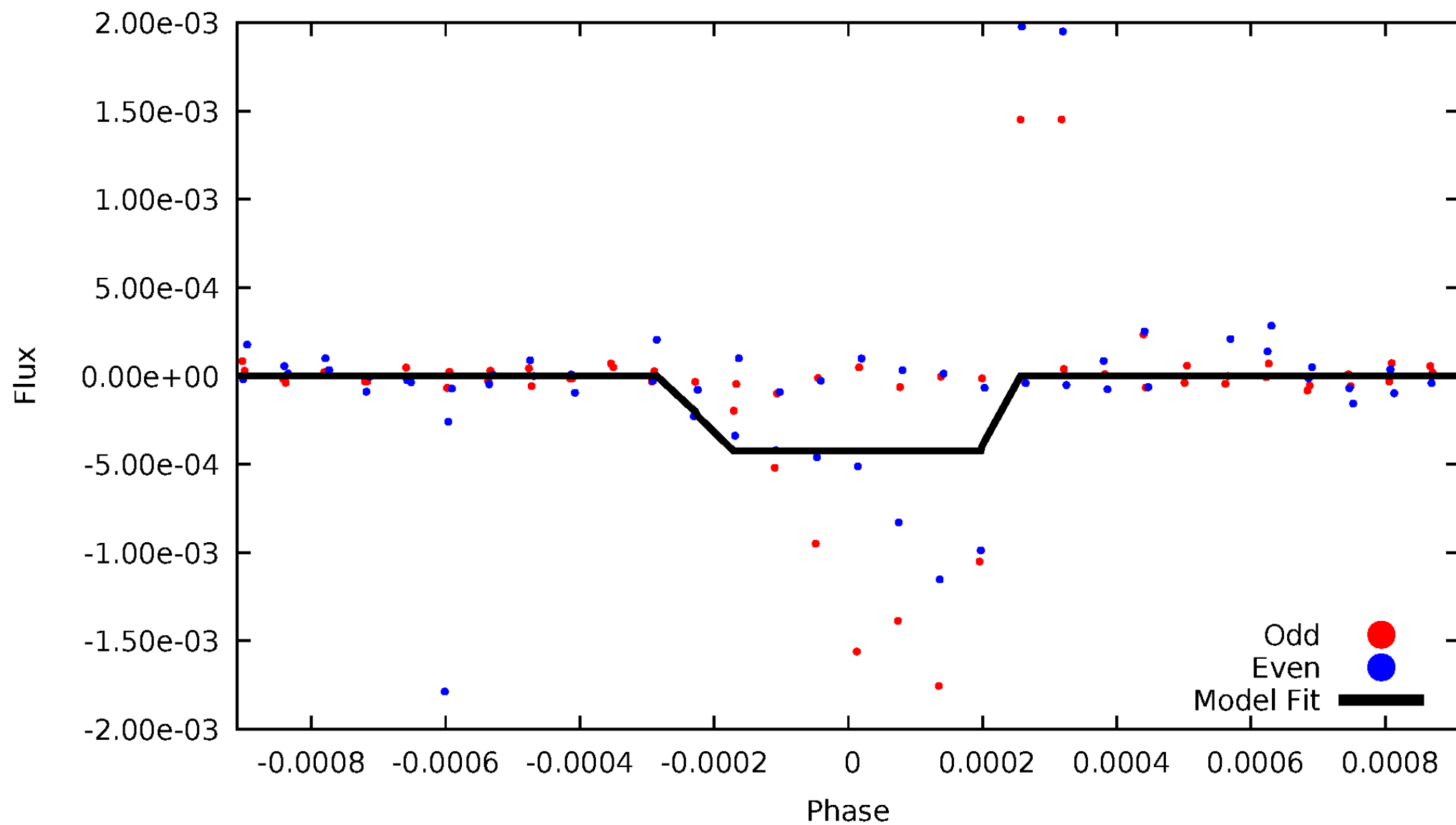
# DV Odd/Even

TCE 005357275-02



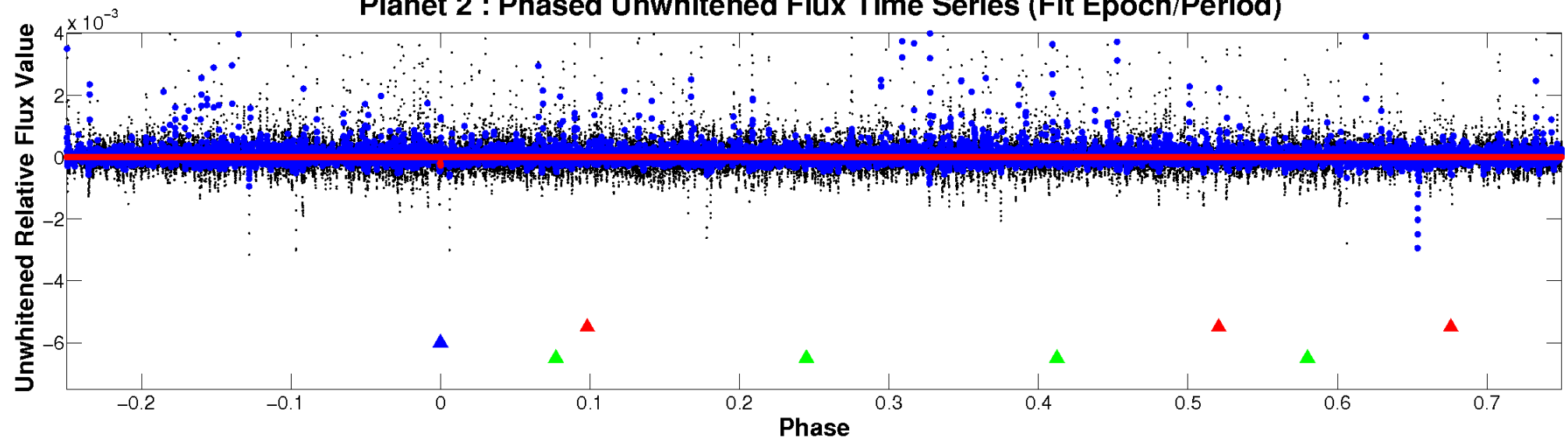
# ALT Odd/Even

TCE 005357275-02

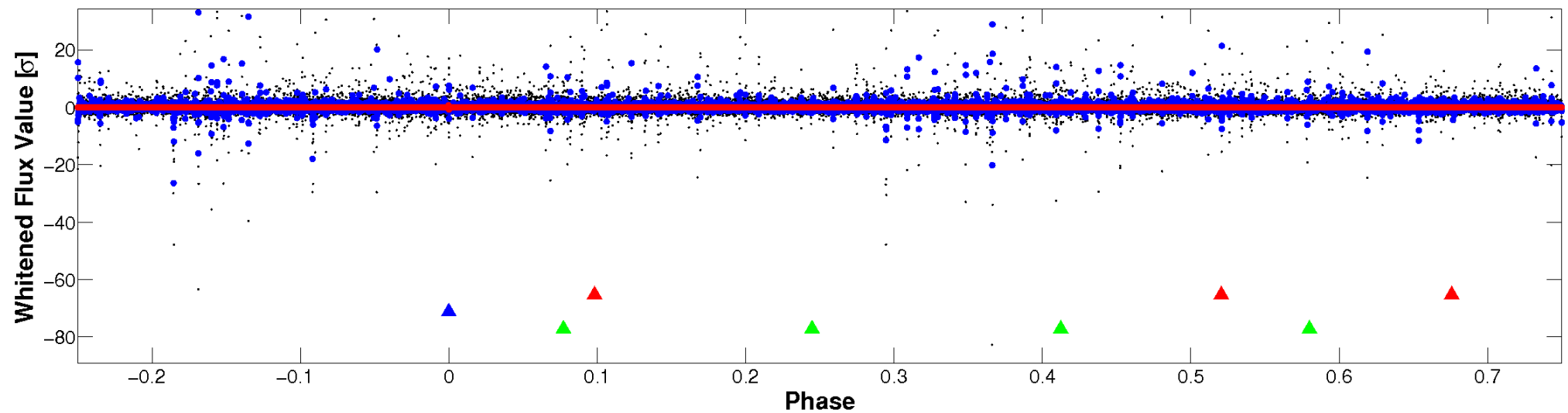


# Non-Whitened Vs. Whitened Light Curve

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

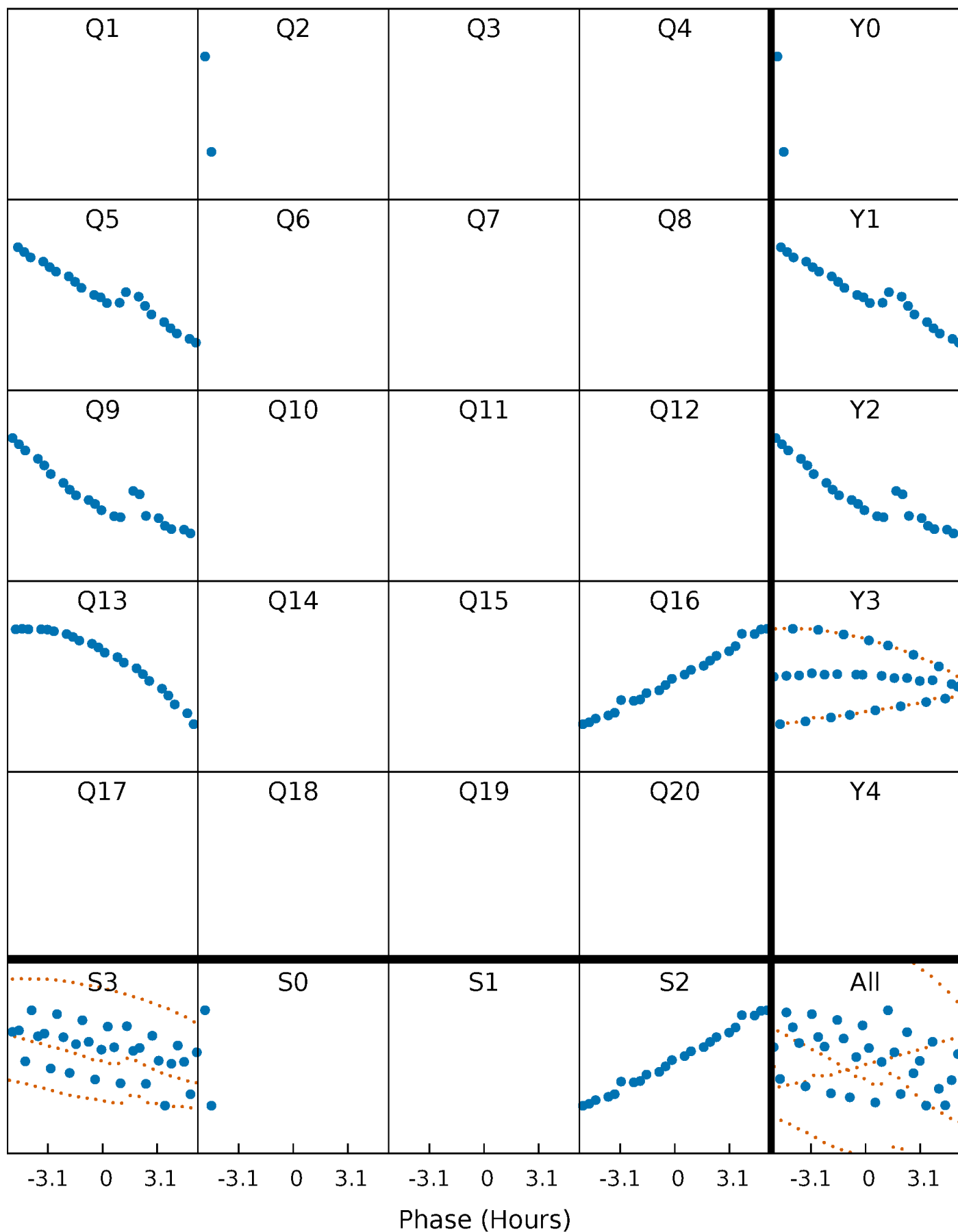


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



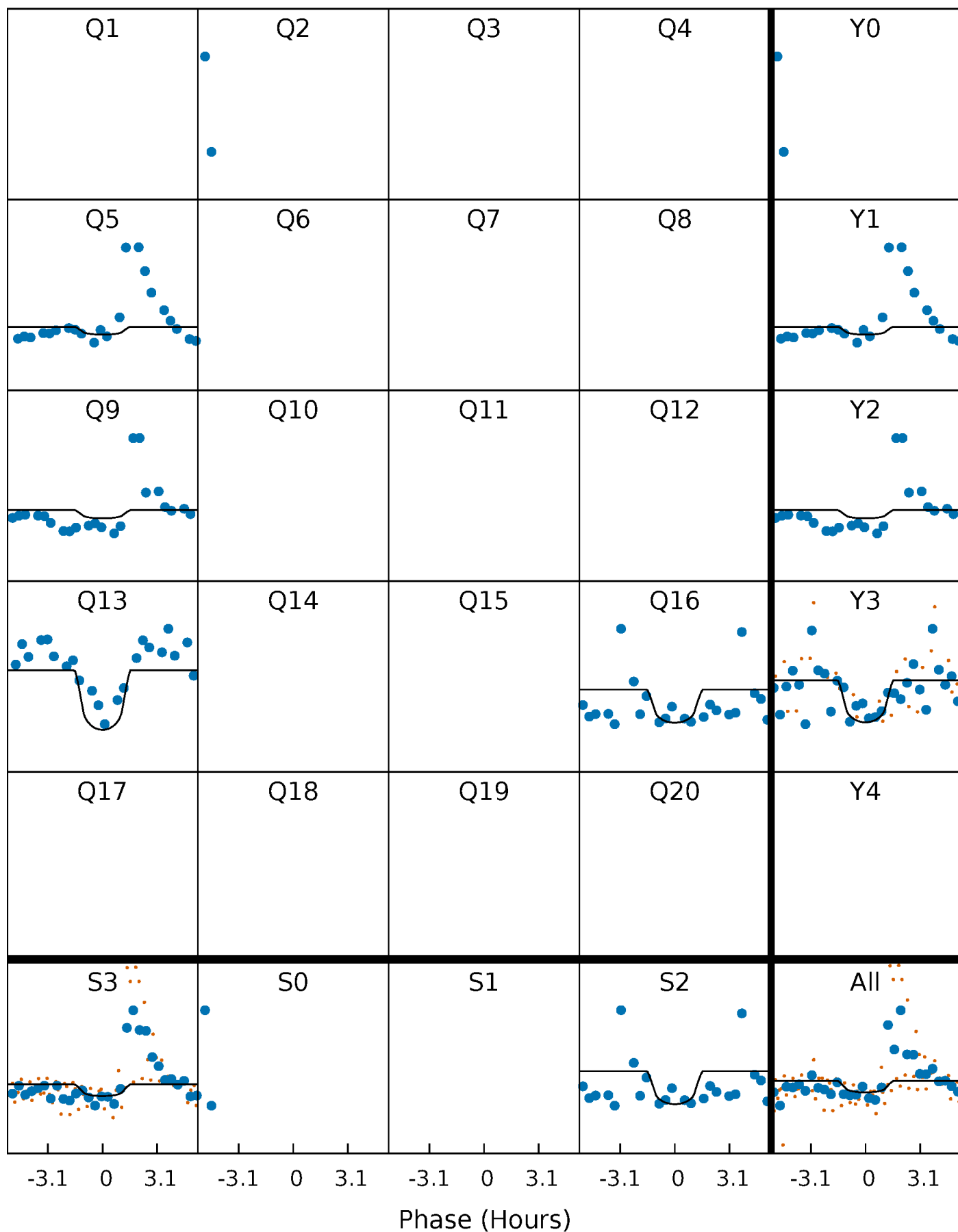
# PDC Quarter-Phased Transit Curves

TCE 005357275-02 P=334.836079 Days  $T_0=181.710674$  (BKJD)



# DV Quarter-Phased Transit Curves

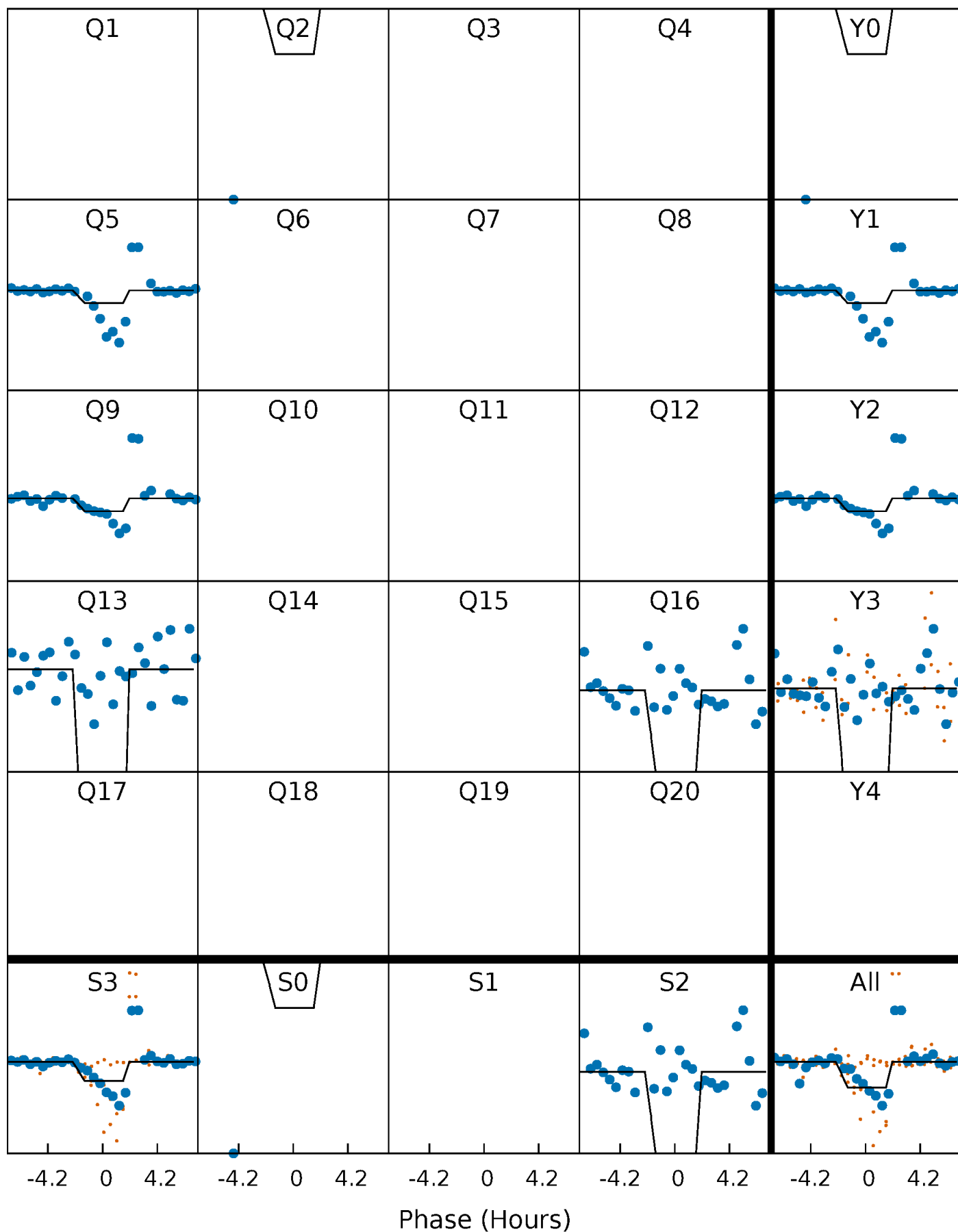
TCE 005357275-02 P=334.836079 Days  $T_0=181.710674$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

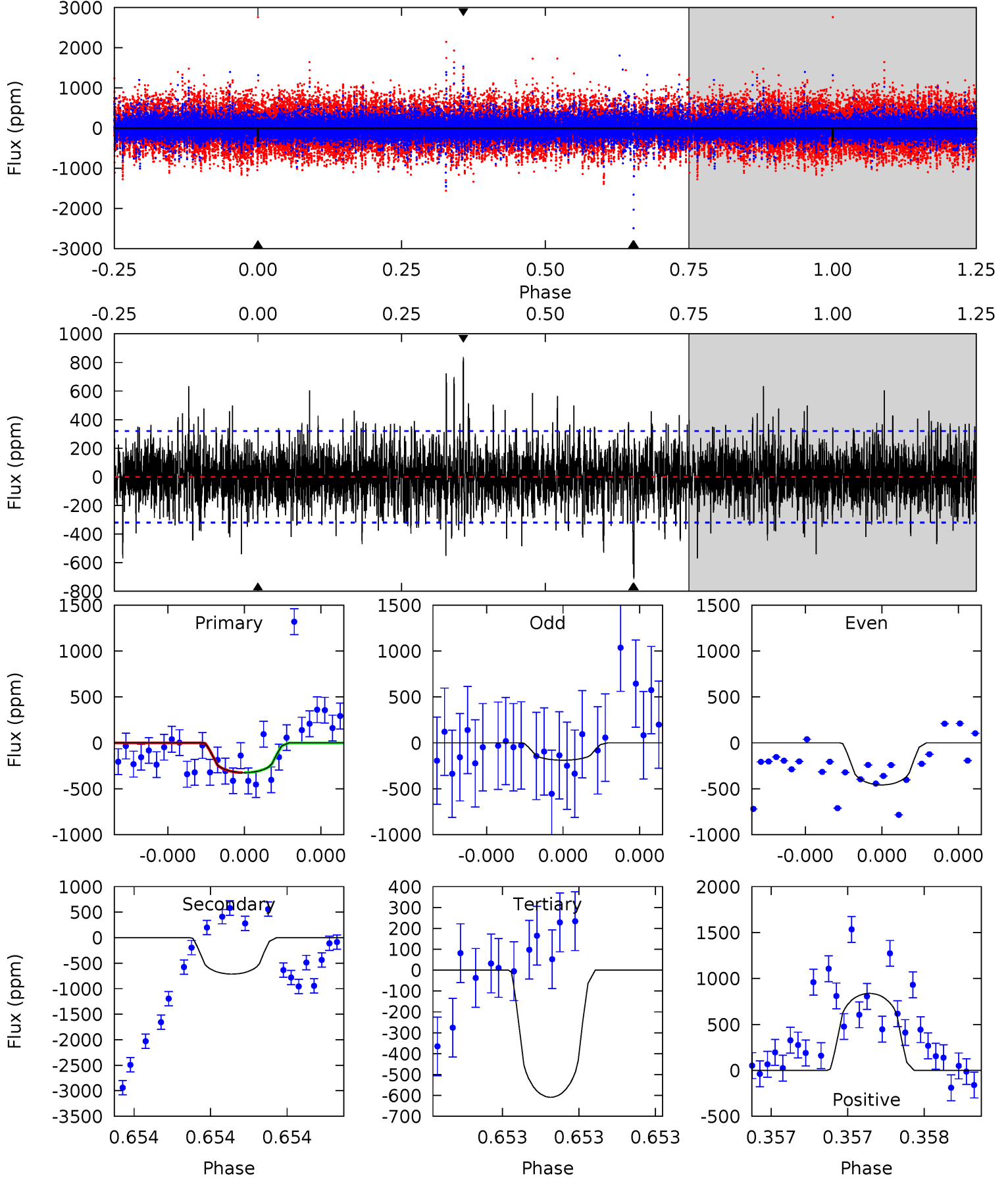
TCE 005357275-02 P=334.843180 Days  $T_0=181.675698$  (BKJD)



# DV Model-Shift Uniqueness Test

005357275-02, P = 334.836079 Days, E = 181.710674 Days

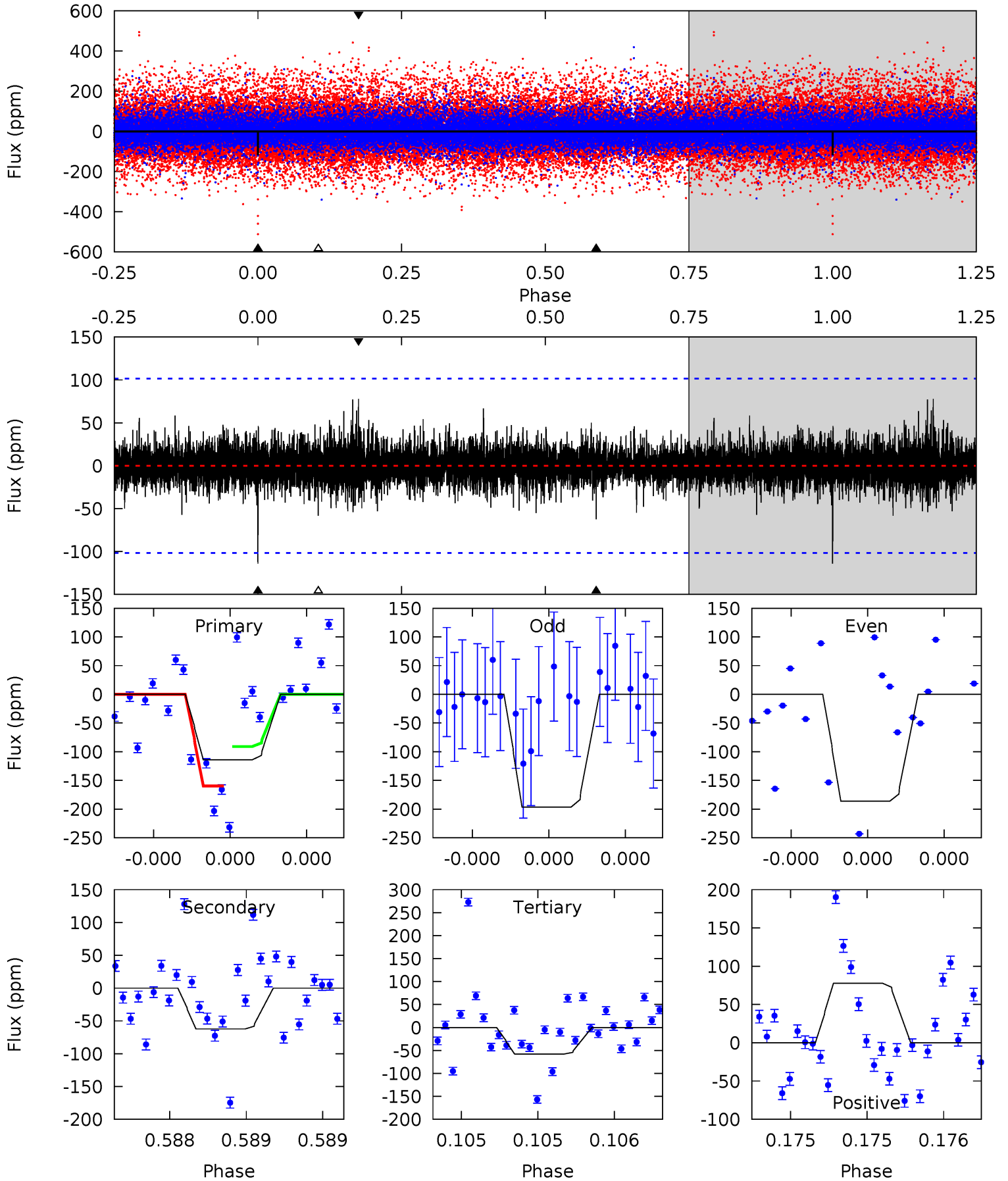
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.70	12.5	10.7	14.7	5.62	3.56	2.38	-4.99	-9.01	1.84	-2.18	2.15	1.36	0.54	0.01



# Alt Model-Shift Uniqueness Test

005357275-02, P = 334.843180 Days, E = 181.675698 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
6.26	3.42	3.19	4.27	5.58	3.49	0.75	3.07	1.99	0.23	-0.85	0.28	1.26	0.41	1.68



### Stellar Parameters For KIC 005357275

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5252^{+94}_{-71}$	$4.018^{+0.484}_{-0.085}$	$0.100^{+0.200}_{-0.100}$	$1.561^{+0.230}_{-0.691}$	$0.926^{+0.053}_{-0.087}$	$0.343^{+1.591}_{-0.091}$
	+2%/-1%	+12%/-2%	+200%/-100%	+15%/-44%	+6%/-9%	+464%/-26%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005357275-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-714 \pm 57$	$7.67^{+8.89}_{-5.40}$	$414^{+21}_{-53}$	$4073^{+2952}_{-862}$	$5641^{+63461}_{-4452}$
Alt.	$-62 \pm 18$	$8.62^{+9.54}_{-5.82}$	$414^{+23}_{-50}$	$2708^{+1019}_{-429}$	$370^{+3003}_{-286}$

$T_{max}$  = 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

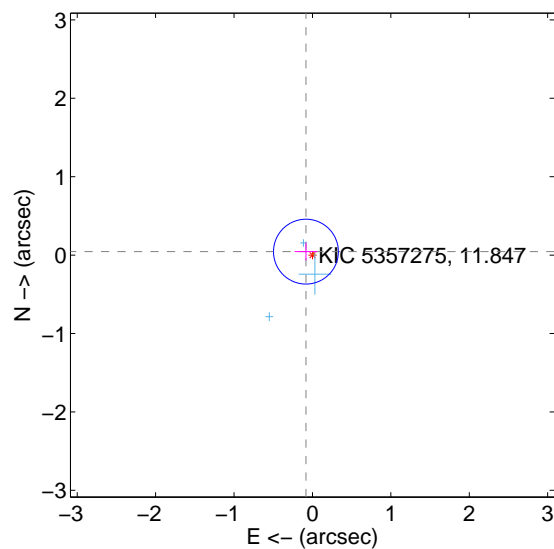
Supplemental centroid analysis for 005357275-02. **Kepler magnitude: 11.85.** Transit SNR 3.12

**There are 3 quarters with good PRF difference image offsets**

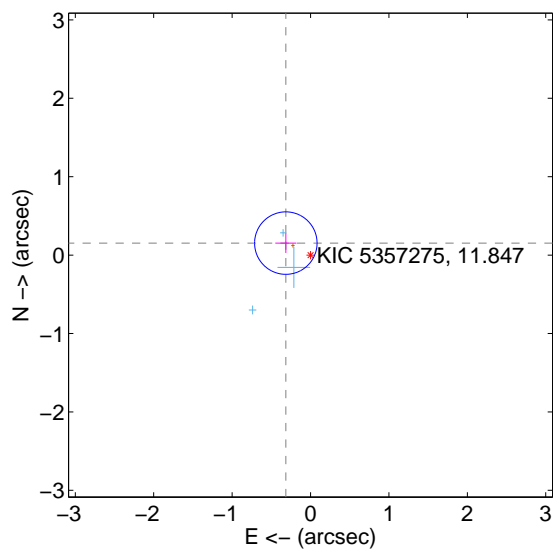
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.094 \pm 0.138$	0.68	$0.083 \pm 0.144$	$0.044 \pm 0.113$
PRF-fit source offset from KIC position	$0.350 \pm 0.133$	2.64	$0.315 \pm 0.134$	$0.153 \pm 0.127$
photometric centroid source offset	$0.55 \pm 0.67$	0.82	$0.10 \pm 0.73$	$-0.54 \pm 0.67$

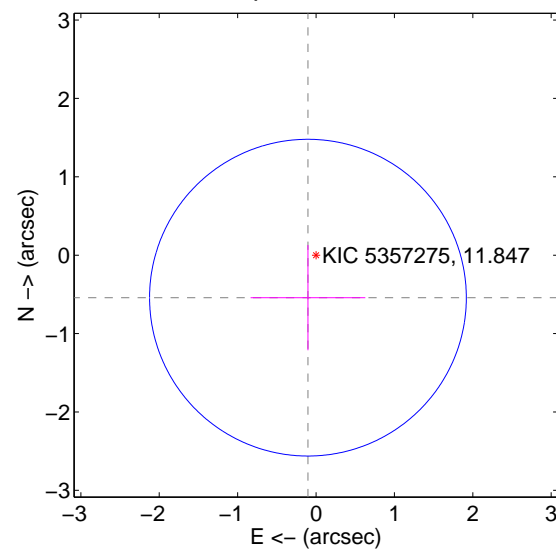
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

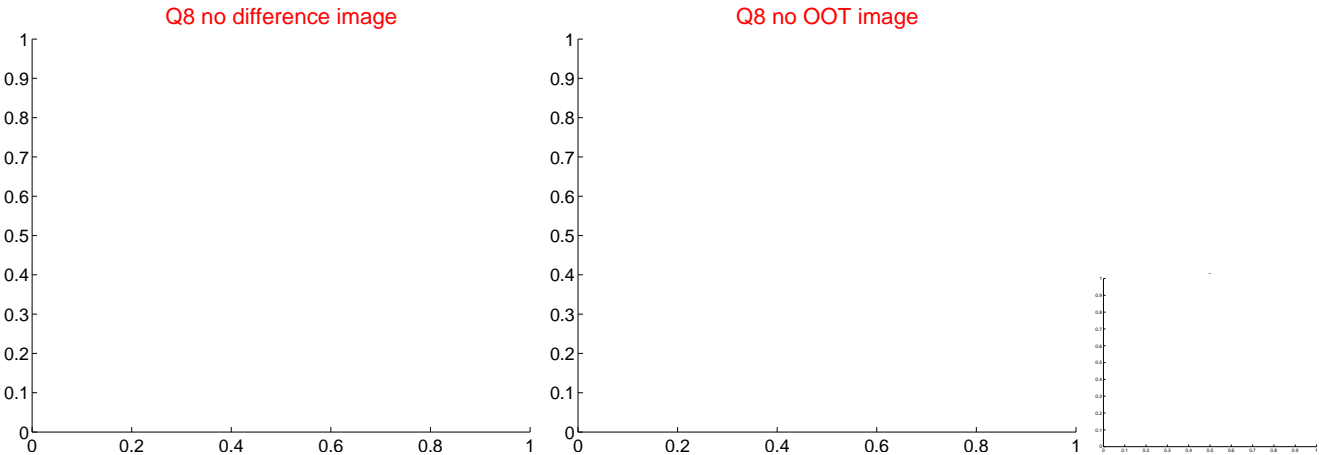
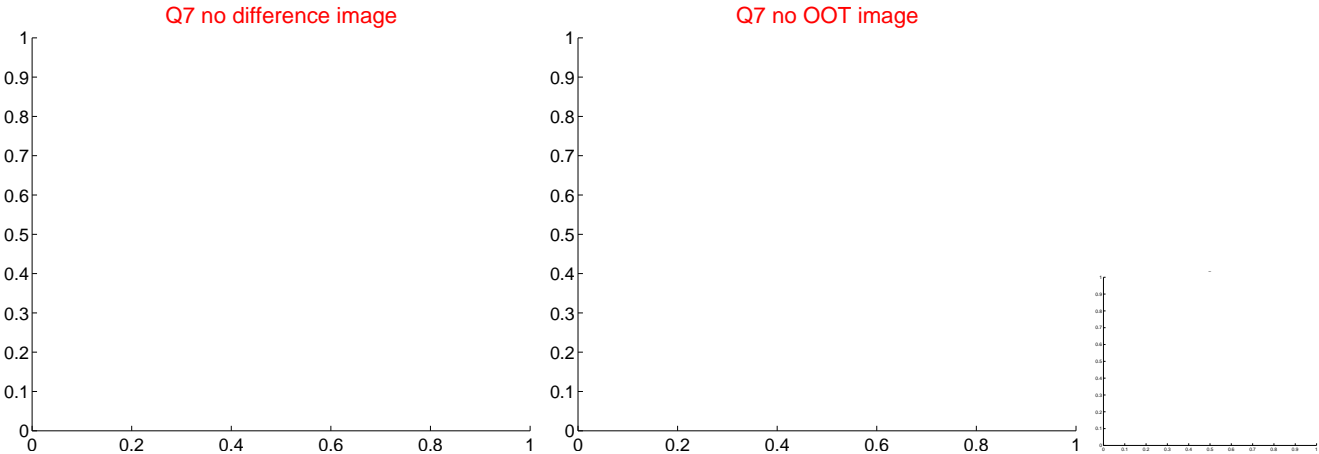
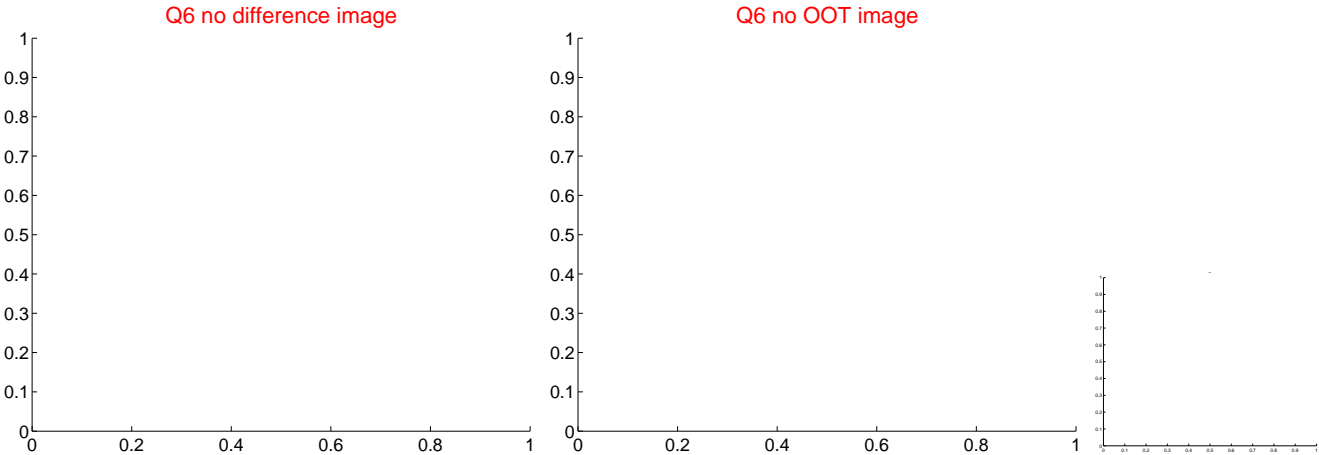
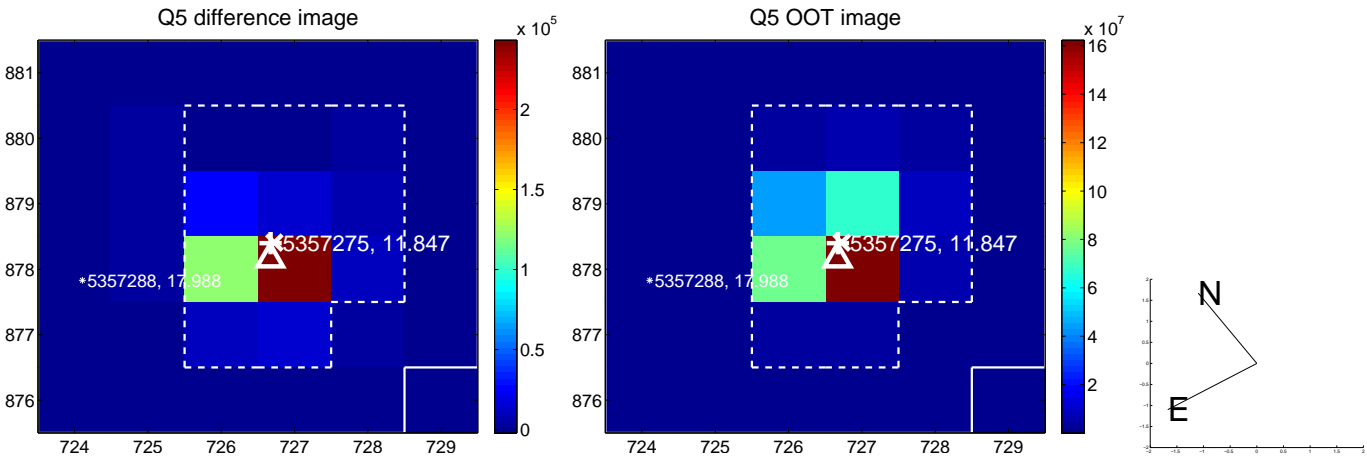


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

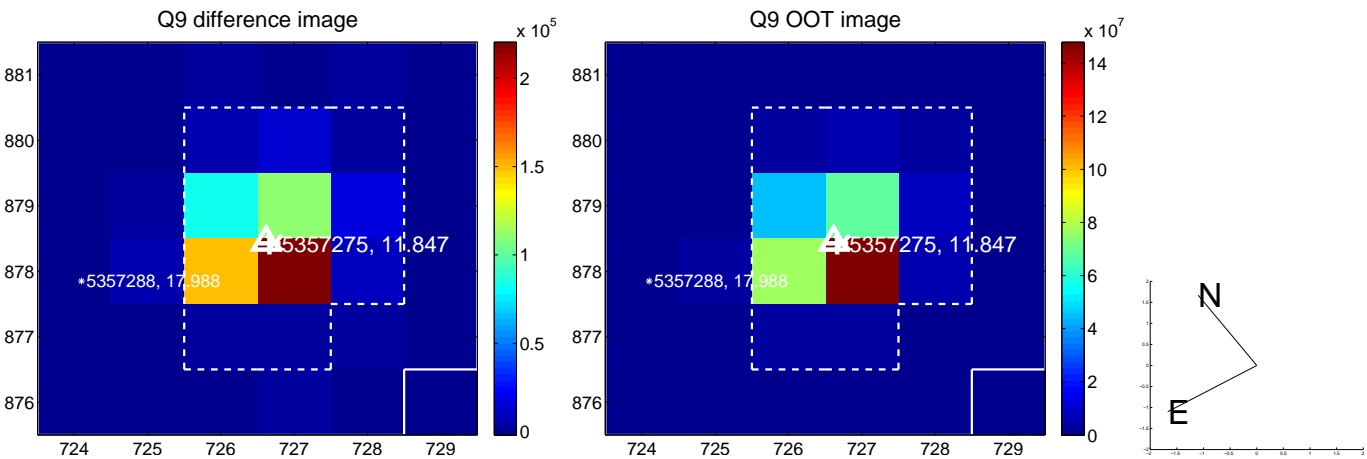


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

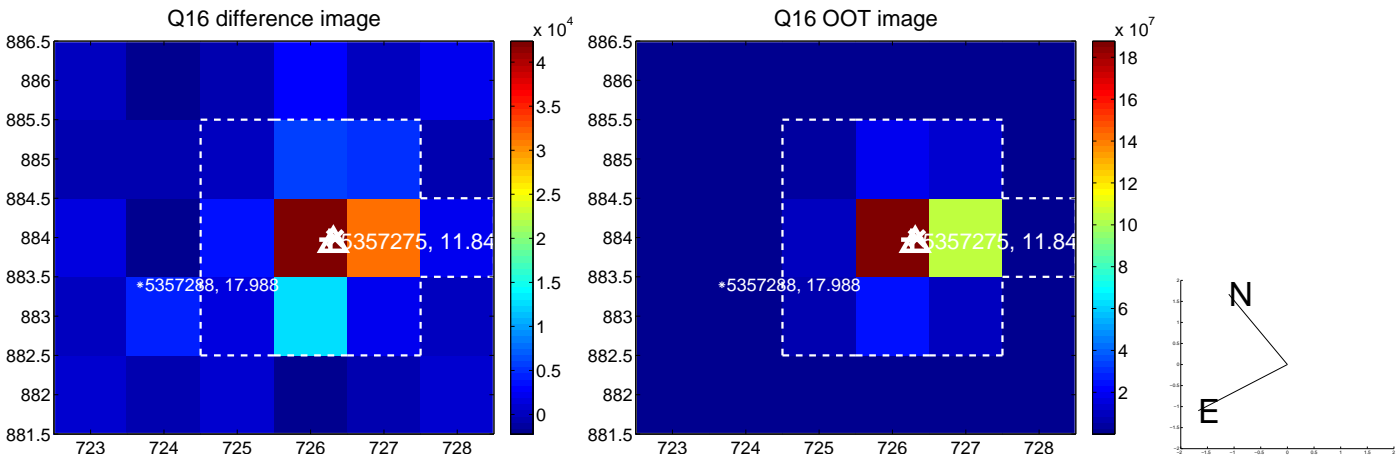
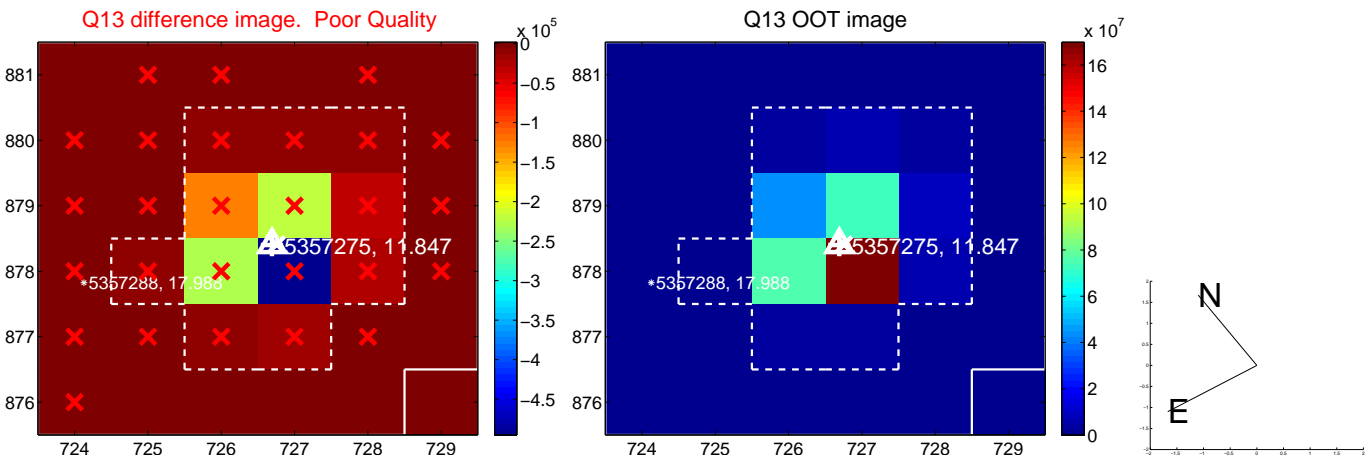




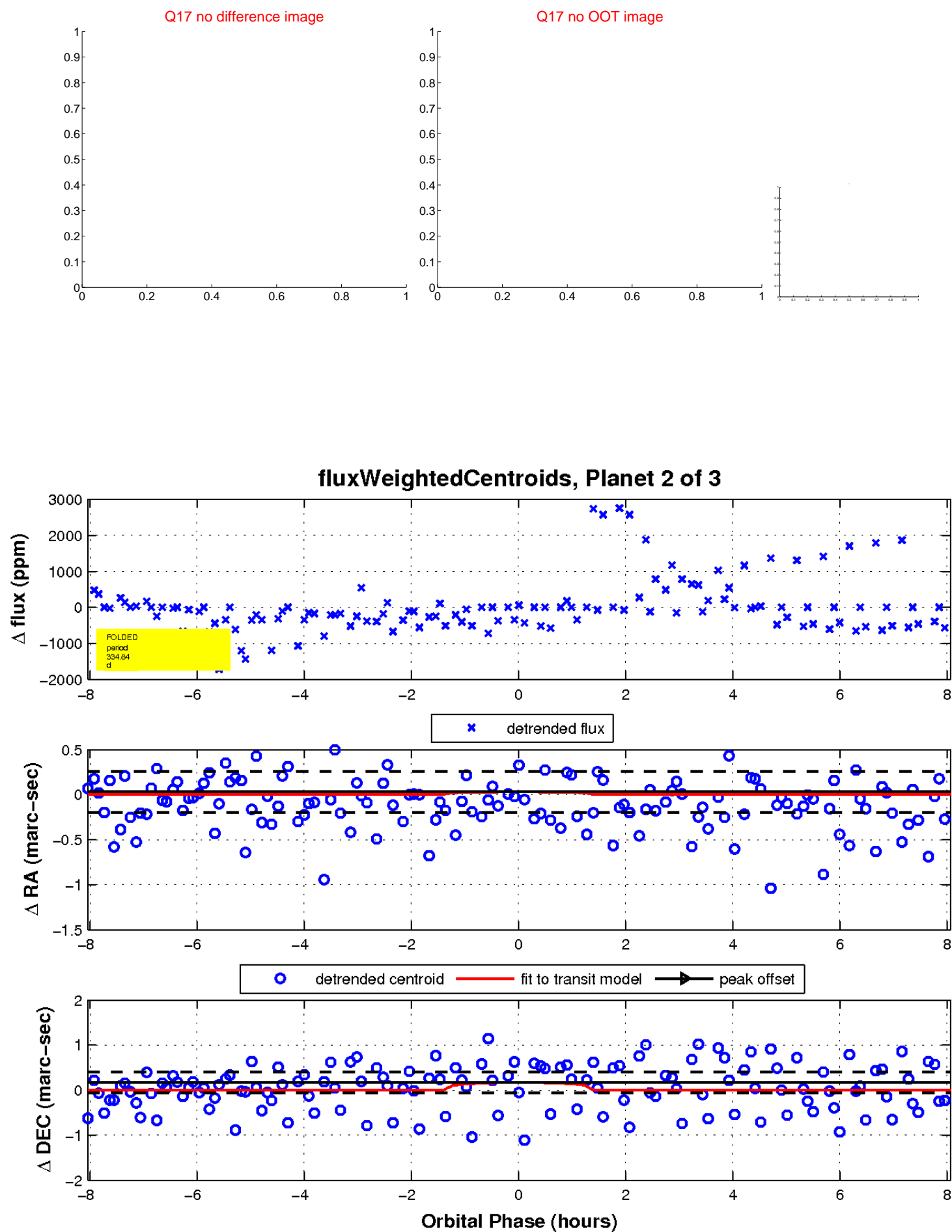
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

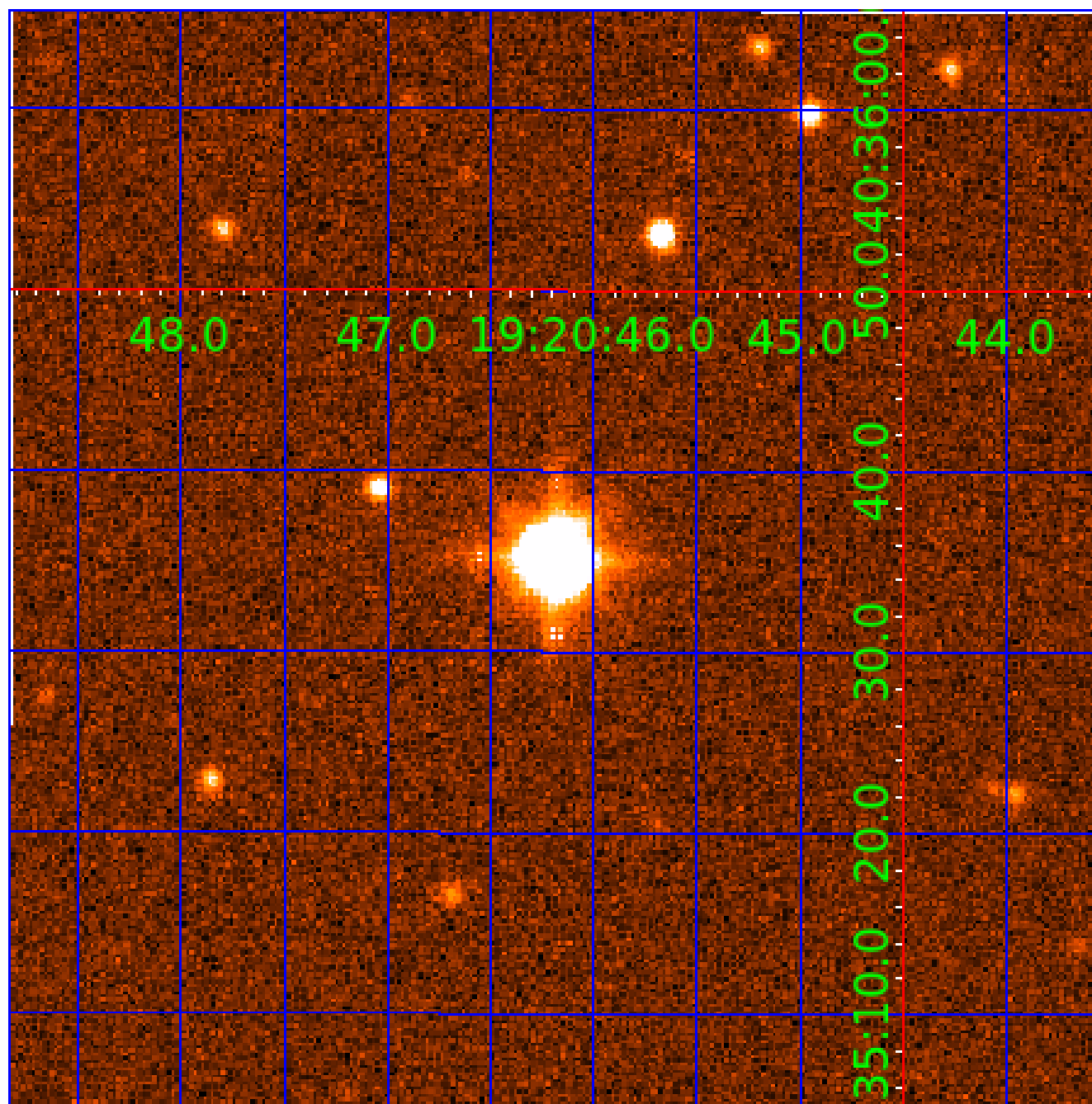


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005357275

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005357275-01	OBS	No	476.255781	408.010584	751.7	10.000	14.6	4.5	1.56	5252	4.29	1.23
005357275-02	OBS	No	334.836079	181.710674	275.4	2.704	15.8	3.1	1.56	5252	2.64	1.96
005357275-03	OBS	No	390.945418	207.573411	1010.4	5.522	16.1	5.5	1.56	5252	9.99	1.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005357275-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005357275-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—HALO_GHOST
005357275-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

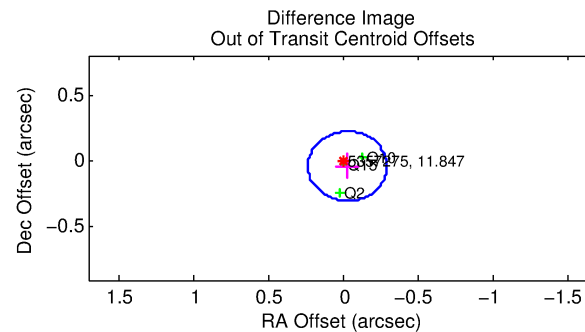
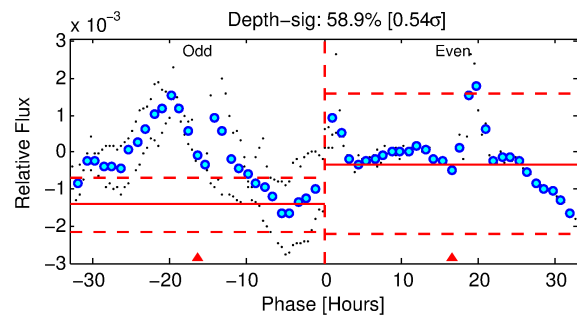
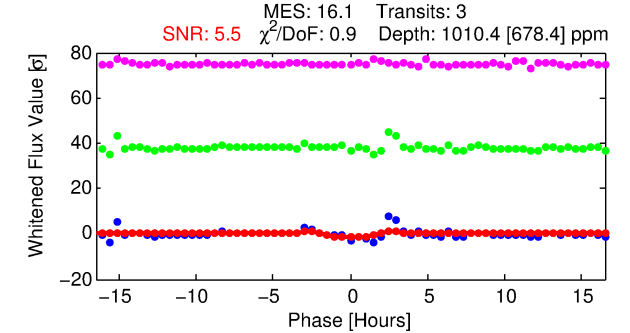
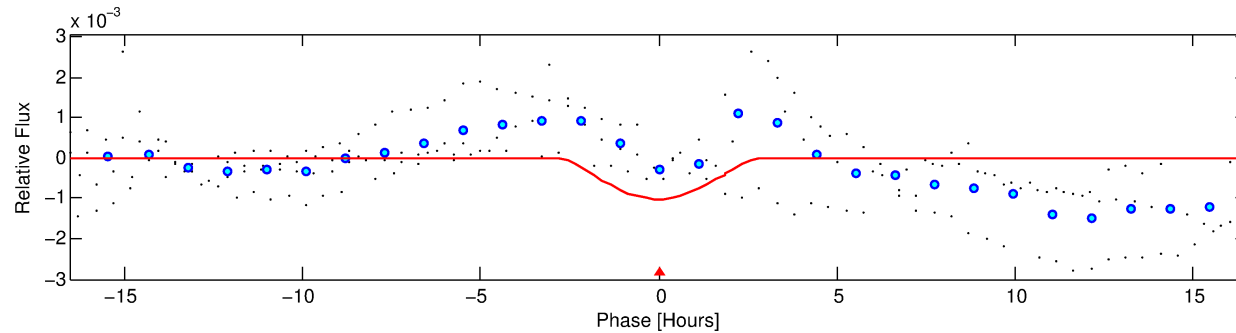
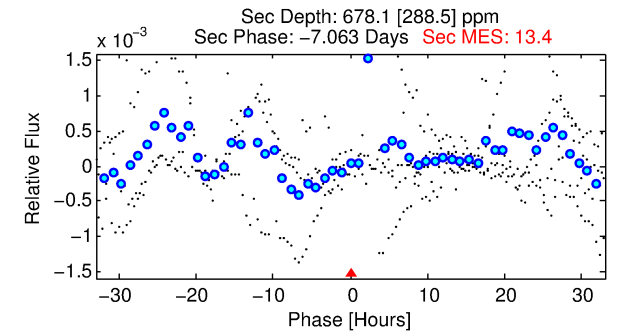
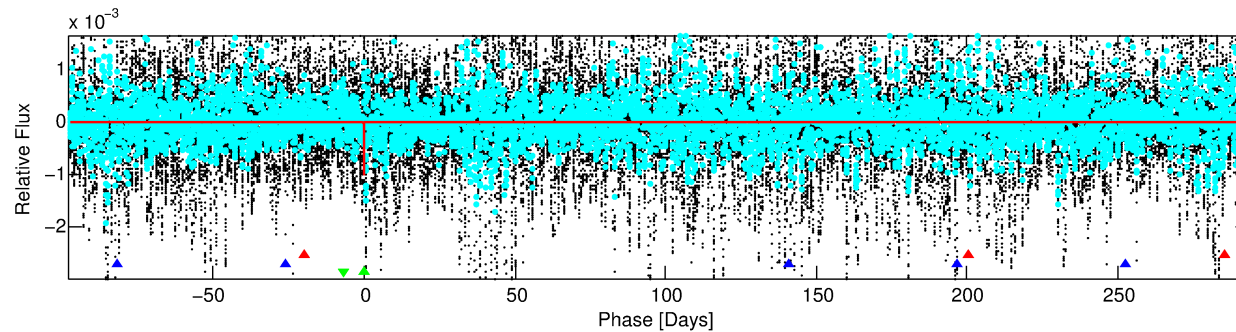
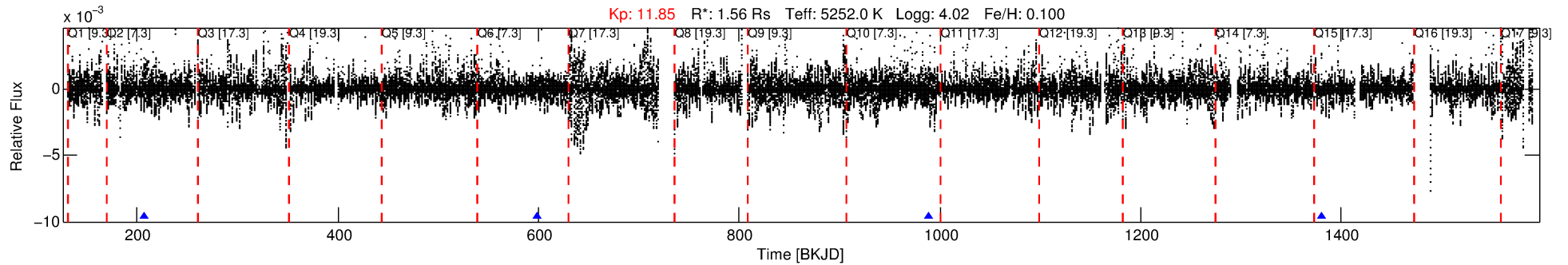
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005357275-03

No Significant Match Found

# DV One-Page Summary

KIC: 5357275 Candidate: 3 of 3 Period: 390.945 d



## DV Fit Results:

Period = 390.94542 [0.00716] d  
Epoch = 207.5734 [0.0165] BKJD  
Rp/R\* = 0.0586 [0.1905]  
a/R\* = 187.98 [142.36]  
b = 1.00 [0.25]  
Seff = 1.60 [1.28]  
Teq = 287 [58] K  
Rp = 9.99 [32.75] Re  
a = 1.0203 [0.4840] AU  
Ag = 3891.02 [25523.61] [0.15 $\sigma$ ]  
Teffp = 3500 [5697] K [0.56 $\sigma$ ]

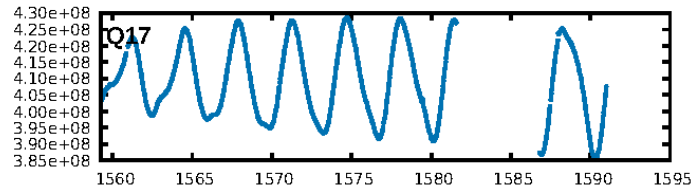
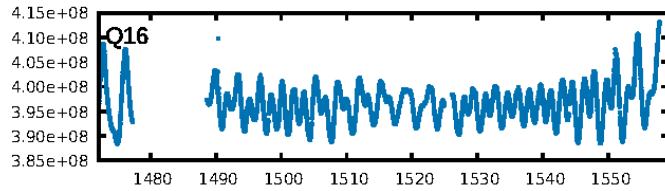
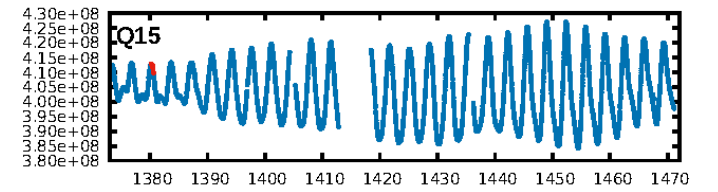
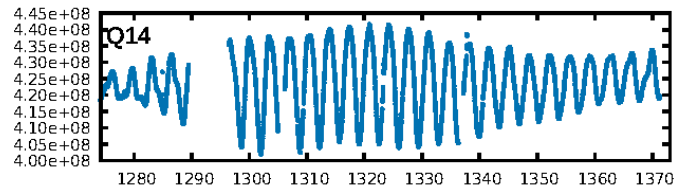
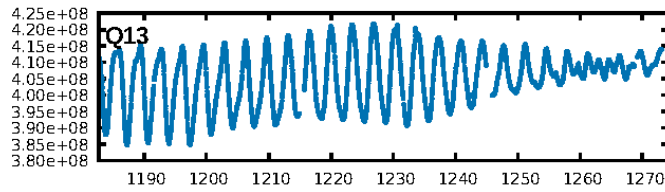
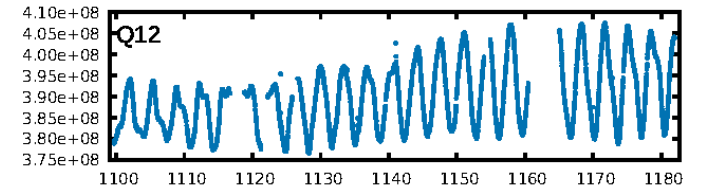
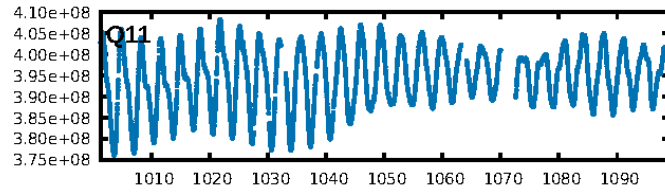
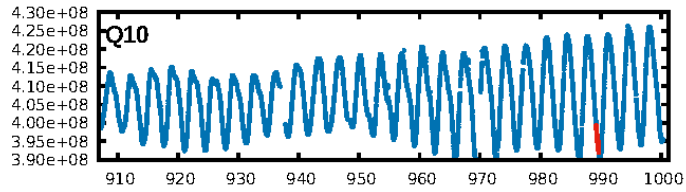
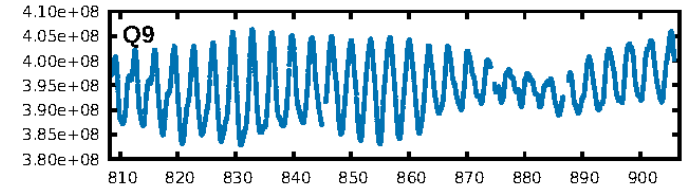
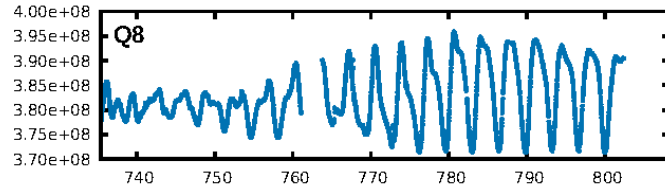
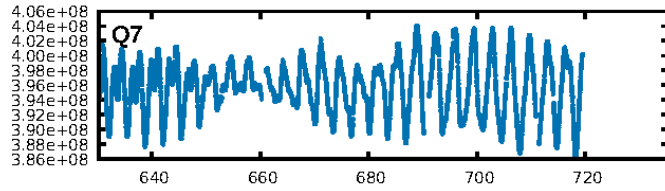
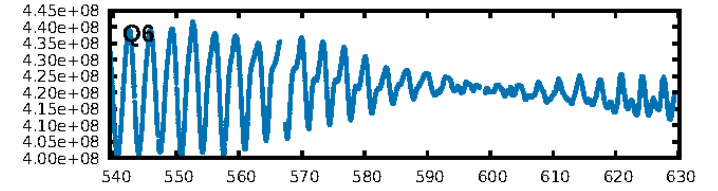
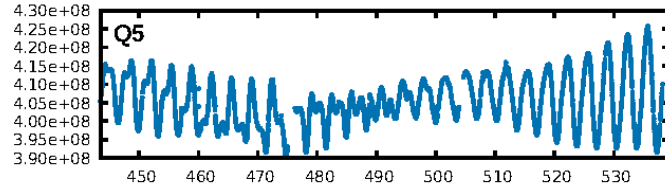
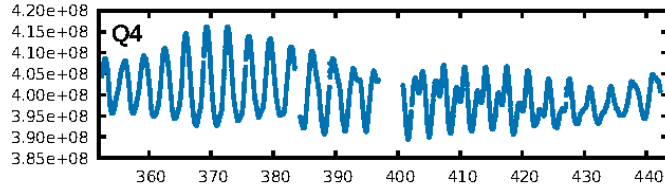
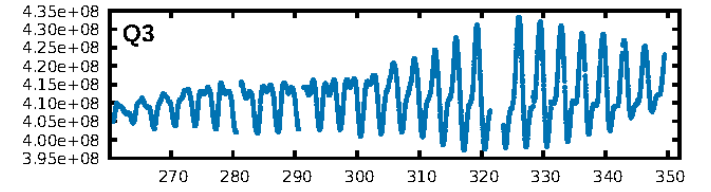
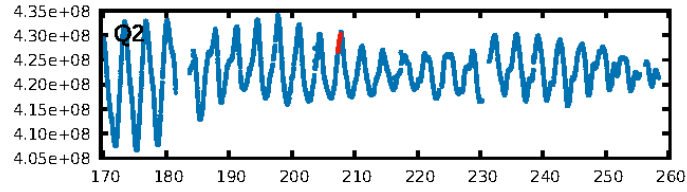
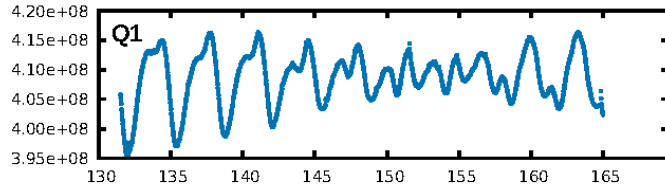
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [219.03 $\sigma$ ]  
LongPeriod-sig: 100.0% [179.23 $\sigma$ ]  
ModelChiSquare2-sig: 1.3%  
ModelChiSquareGof-sig: 99.8%  
Bootstrap-pfa: 1.38e-11  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.3721  
Centroid-sig: 62.6%  
Centroid-so: 0.158 arcsec [0.69 $\sigma$ ]  
OotOffset-rm: 0.050 arcsec [0.57 $\sigma$ ]  
OotOffset-st: 2/1/0/0 [3]  
KicOffset-rm: 0.202 arcsec [2.39 $\sigma$ ]  
KicOffset-st: 2/1/0/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:31:31 Z

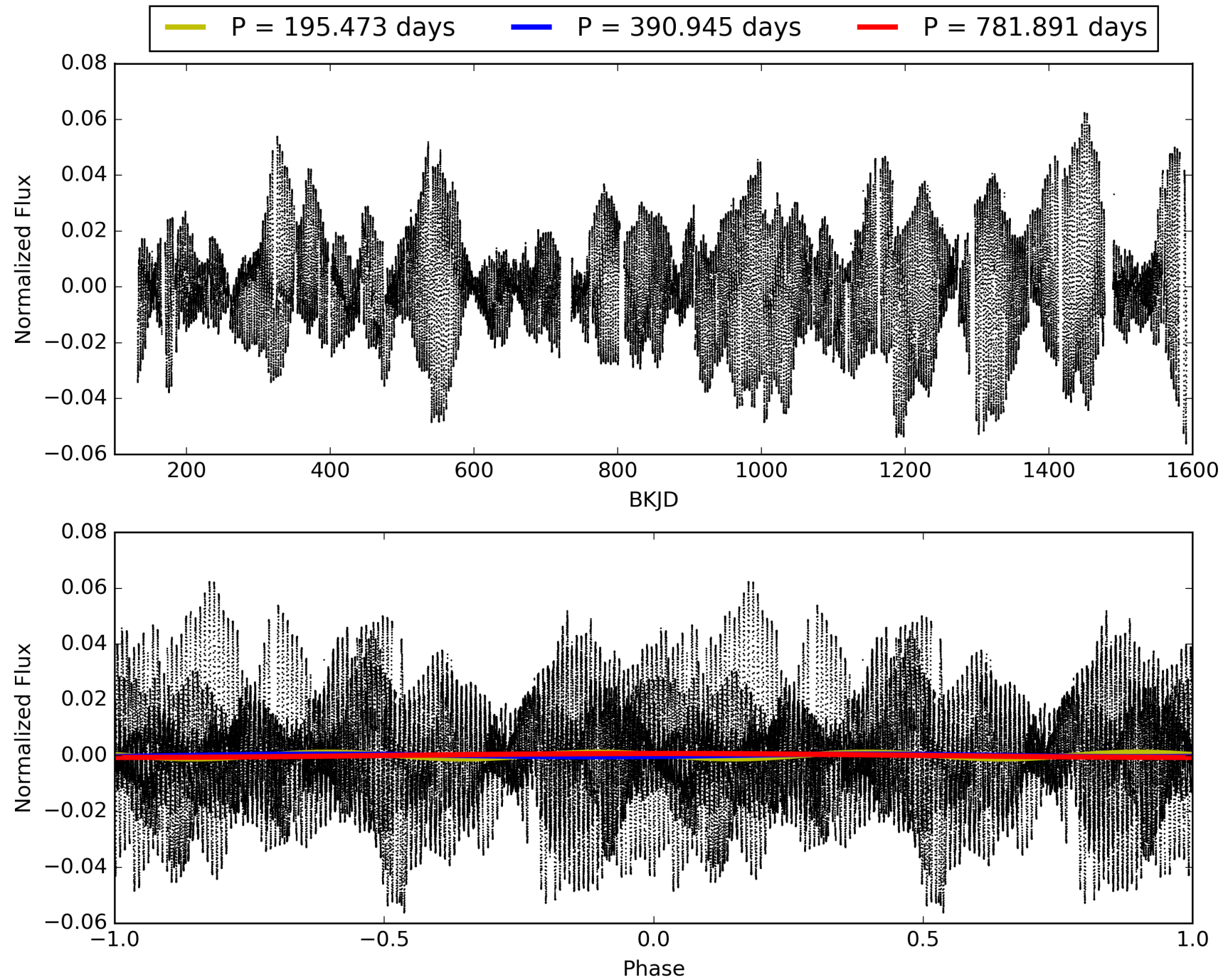
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005357275-03, PDC Light Curves





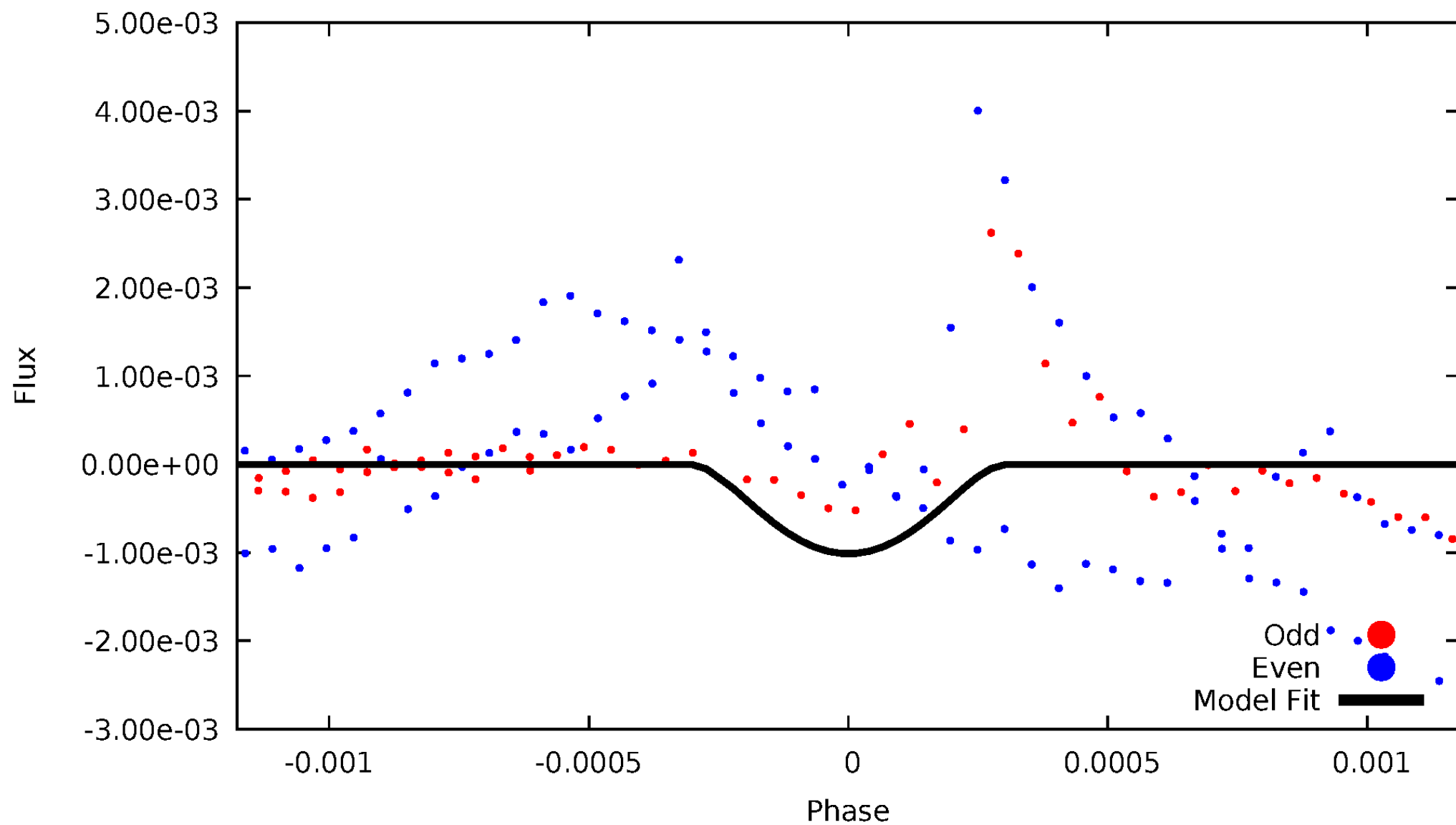
TCE 005357275-03





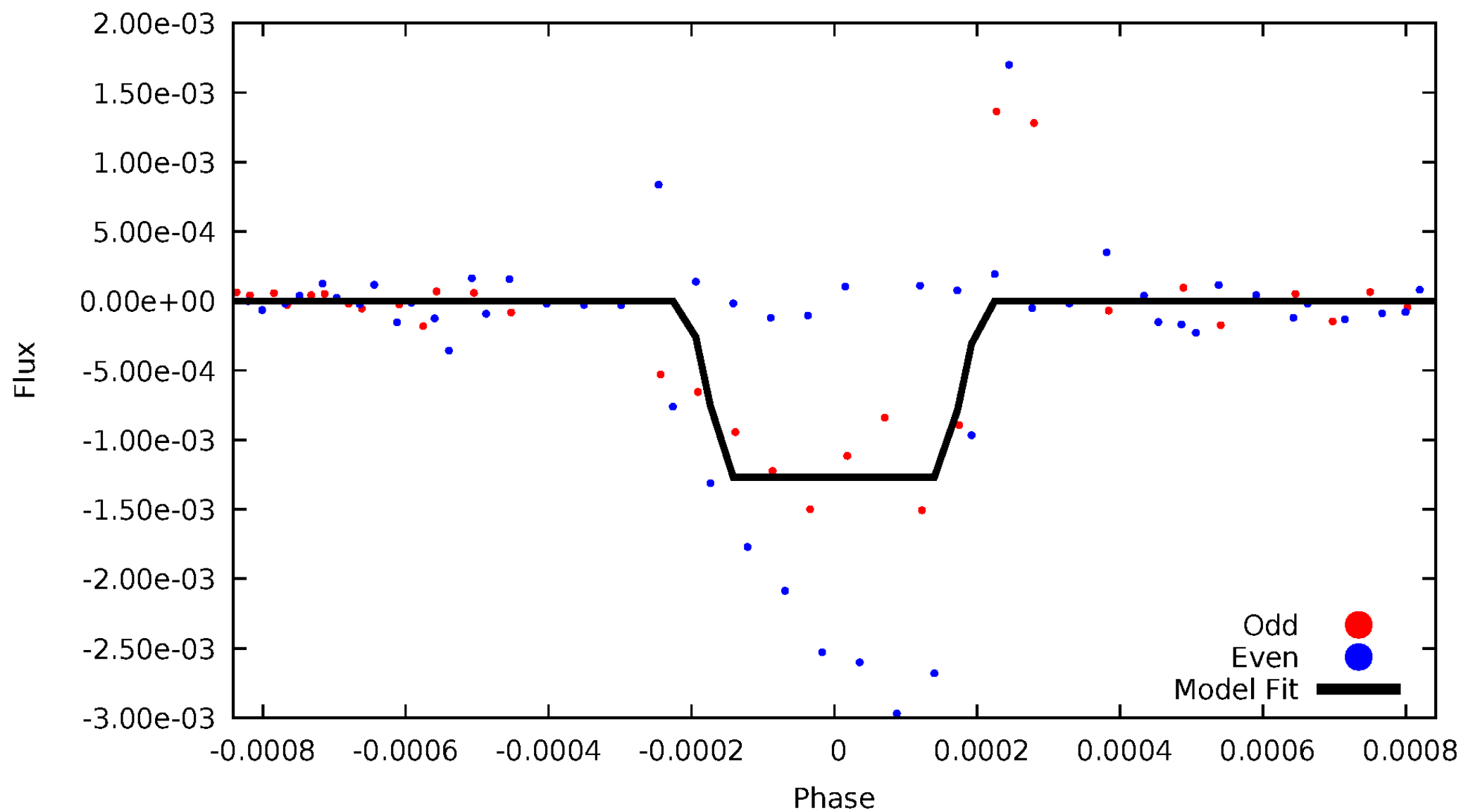
# DV Odd/Even

TCE 005357275-03



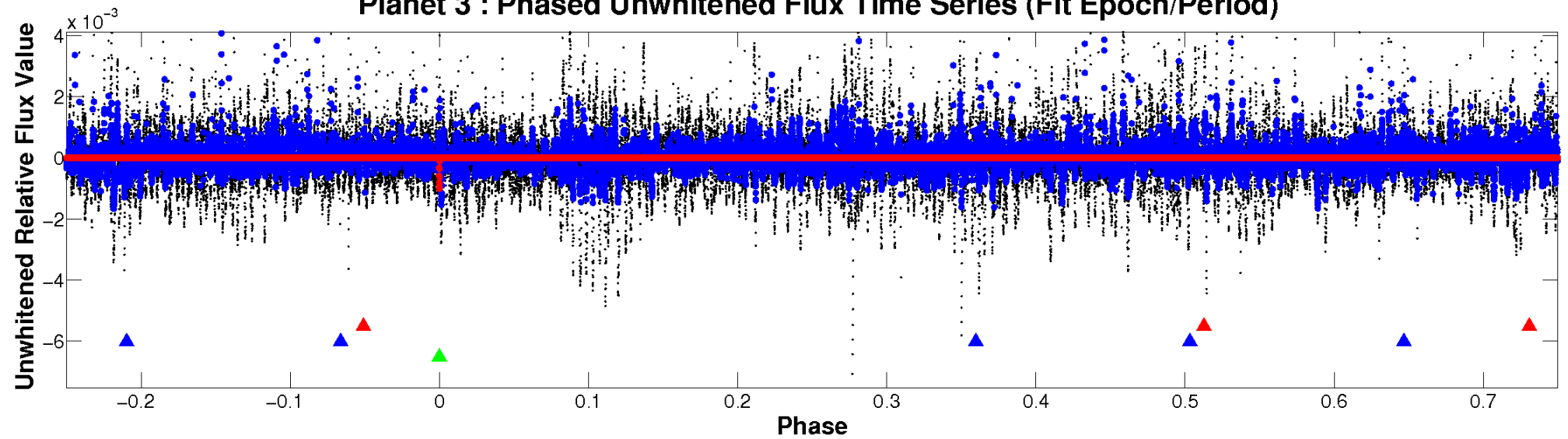
# ALT Odd/Even

TCE 005357275-03

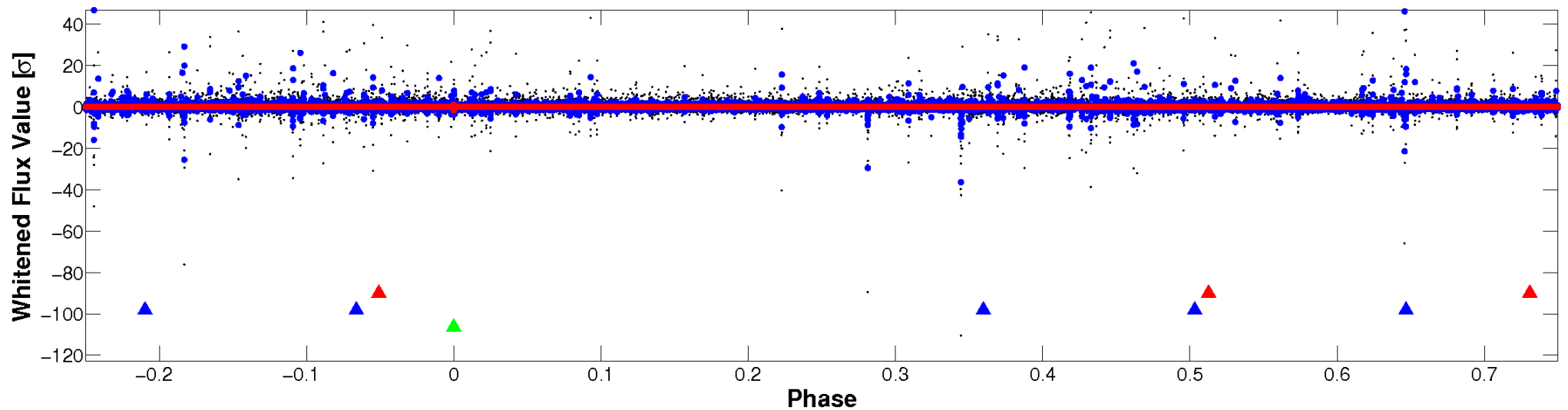


# Non-Whitened Vs. Whitened Light Curve

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

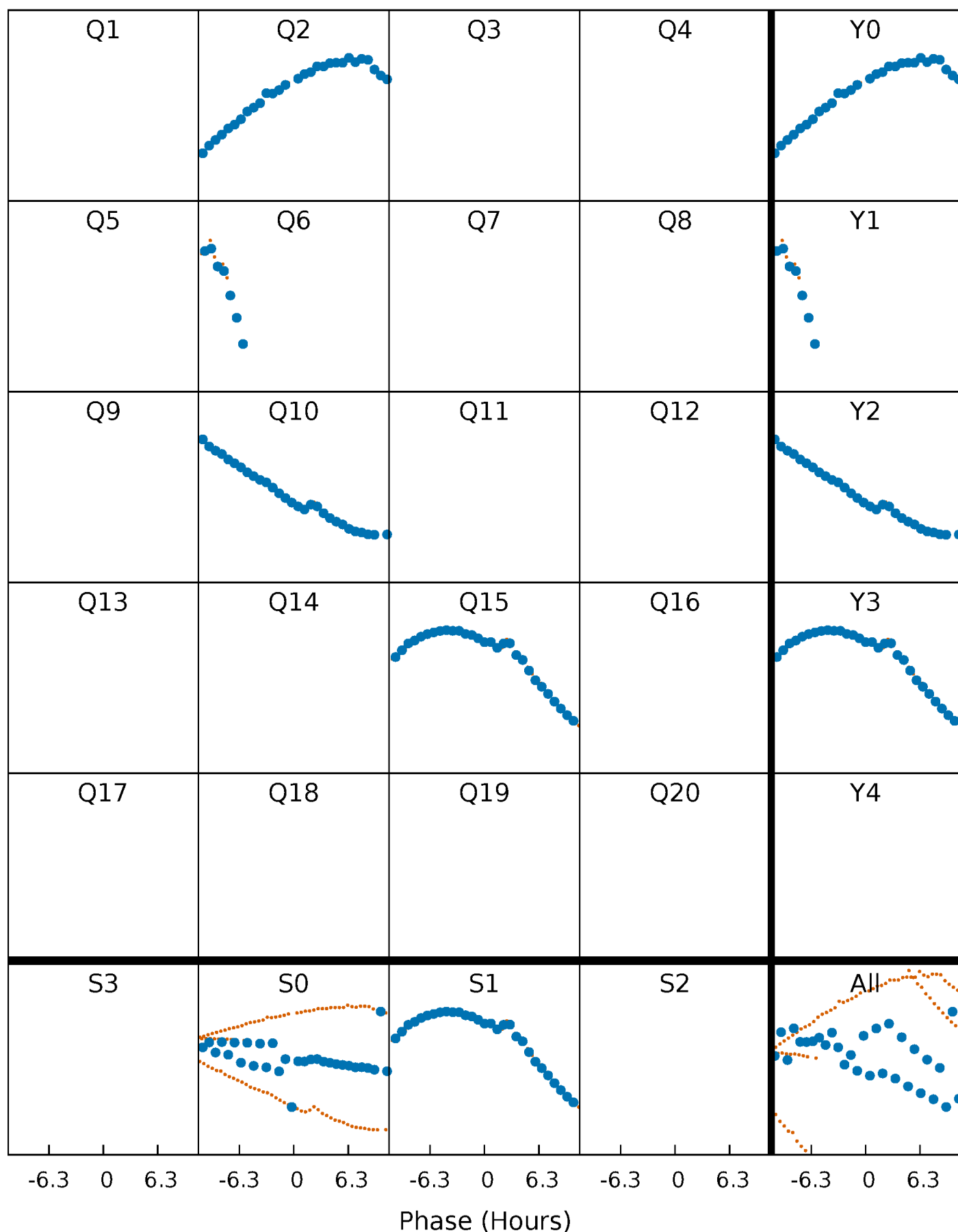


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



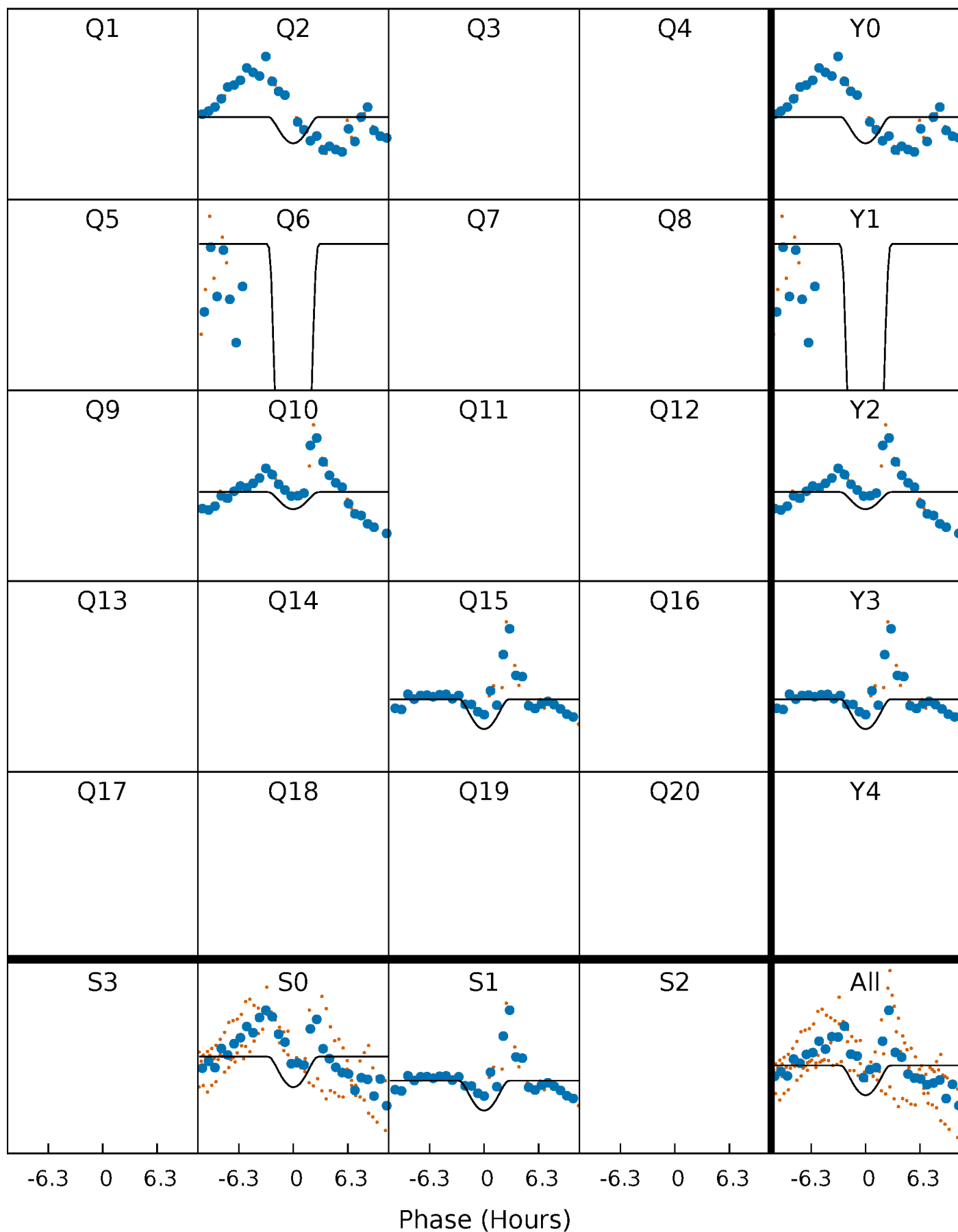
# PDC Quarter-Phased Transit Curves

TCE 005357275-03     $P=390.945418$  Days     $T_0=207.573411$  (BKJD)



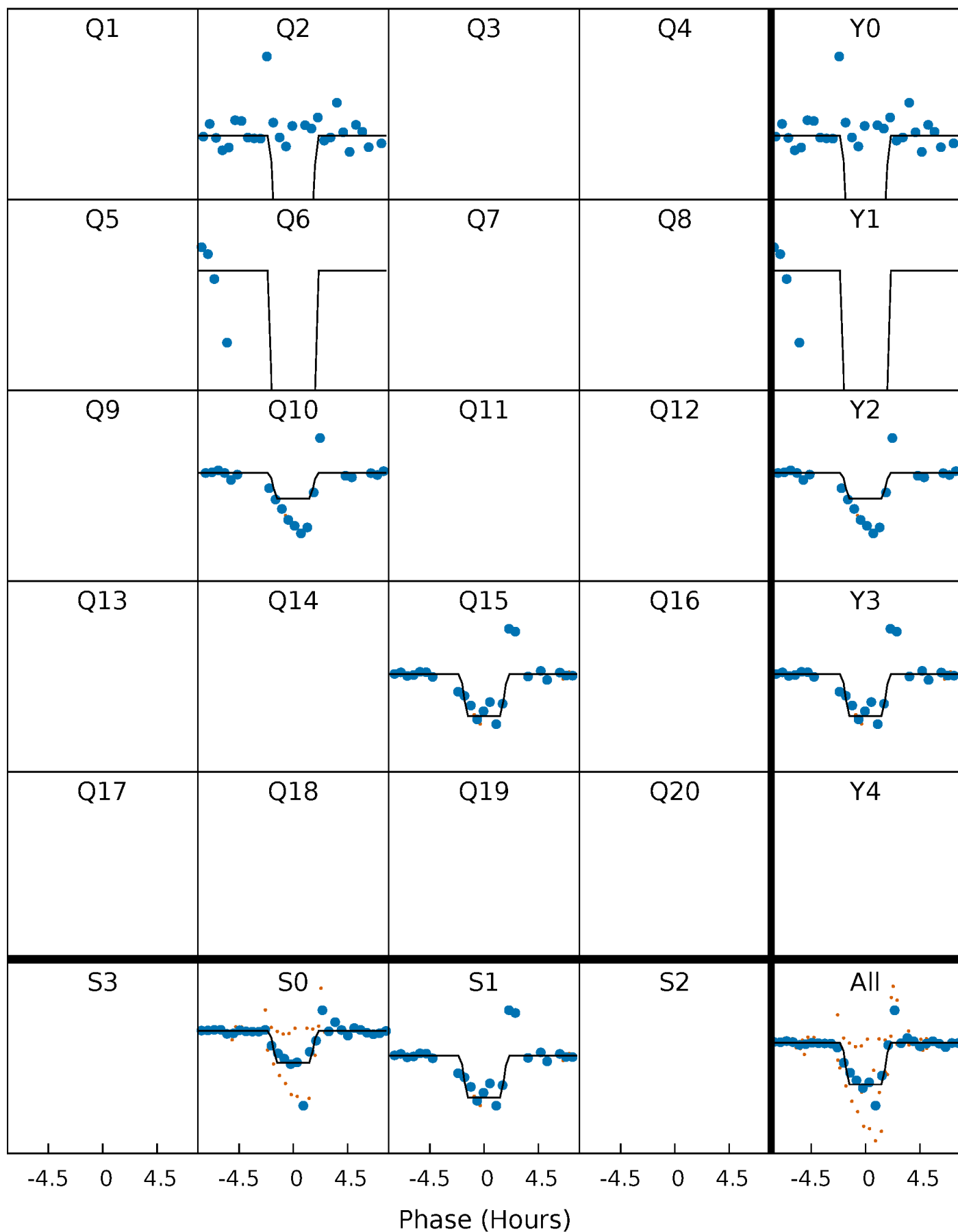
# DV Quarter-Phased Transit Curves

TCE 005357275-03 P=390.945418 Days  $T_0=207.573411$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

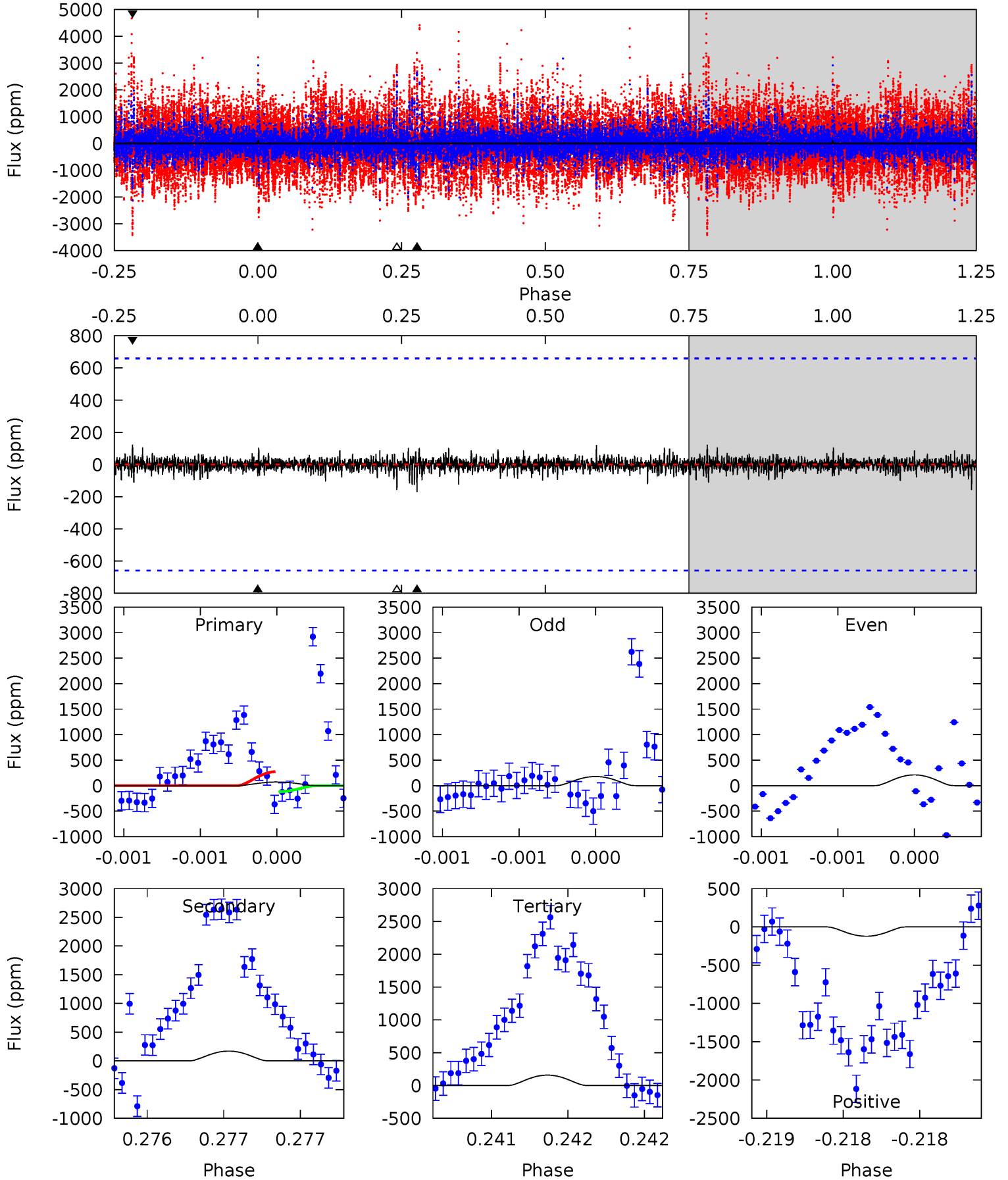
TCE 005357275-03 P=390.962115 Days  $T_0=207.542053$  (BKJD)



# DV Model-Shift Uniqueness Test

005357275-03, P = 390.945418 Days, E = 207.573411 Days

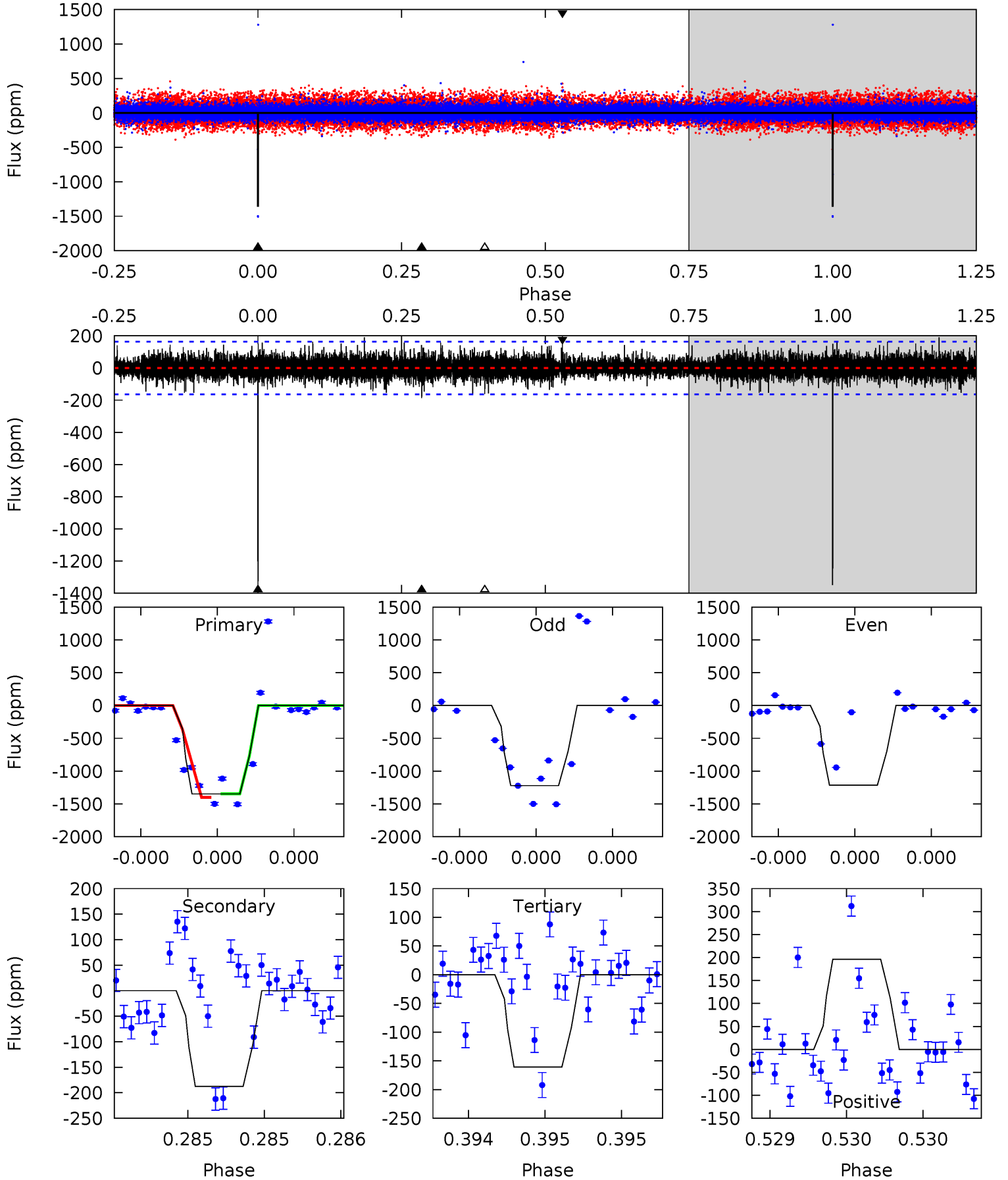
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.61	1.44	1.33	1.03	5.54	3.43	0.23	-0.72	-0.42	0.11	0.41	0.10	0.48	0.42	0.66



# Alt Model-Shift Uniqueness Test

005357275-03, P = 390.962115 Days, E = 207.542053 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
46.2	6.42	5.51	6.72	5.60	3.53	1.16	40.7	39.5	0.91	-0.30	0.10	1.00	0.13	0





### Stellar Parameters For KIC 005357275

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5252^{+94}_{-71}$	$4.018^{+0.484}_{-0.085}$	$0.100^{+0.200}_{-0.100}$	$1.561^{+0.230}_{-0.691}$	$0.926^{+0.053}_{-0.087}$	$0.343^{+1.591}_{-0.091}$
	+2%/-1%	+12%/-2%	+200%/-100%	+15%/-44%	+6%/-9%	+464%/-26%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005357275-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	-171±119	$23.51^{+25.34}_{-16.29}$	$392^{+21}_{-42}$	$2355^{+829}_{-449}$	$143^{+1382}_{-122}$
Alt.	-187±29	$21.76^{+25.10}_{-15.61}$	$393^{+22}_{-47}$	$2465^{+993}_{-365}$	$230^{+2429}_{-180}$

$T_{max}$  = 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

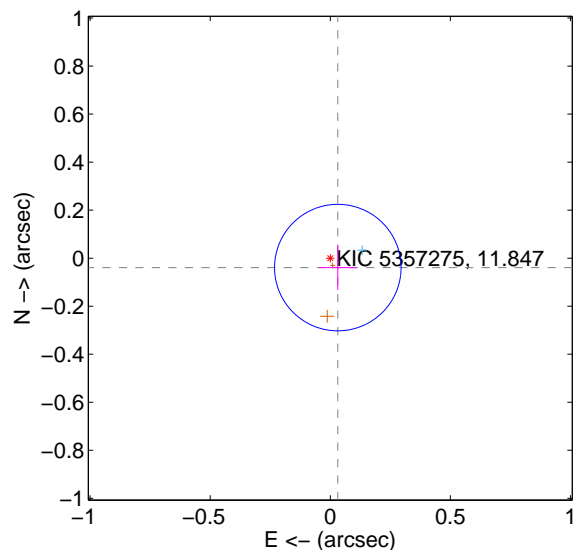
Supplemental centroid analysis for 005357275-03. **Kepler magnitude: 11.85.** Transit SNR 5.51

**There are 1 quarters with good PRF difference image offsets**

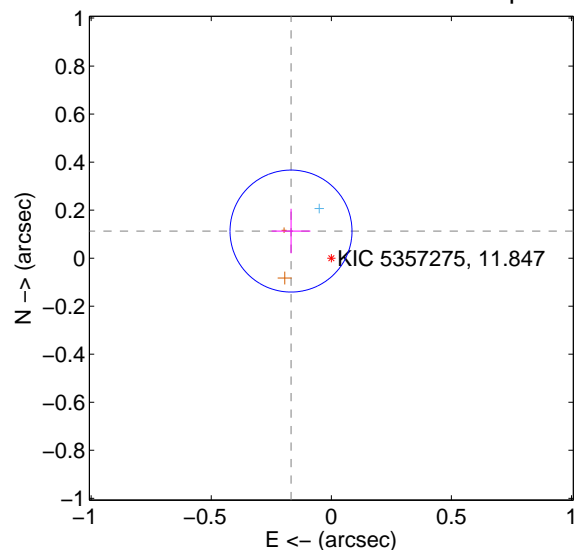
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.050 \pm 0.088$	0.57	$-0.031 \pm 0.078$	$-0.039 \pm 0.094$
PRF-fit source offset from KIC position	$0.202 \pm 0.085$	2.39	$0.168 \pm 0.081$	$0.113 \pm 0.093$
photometric centroid source offset	$0.16 \pm 0.23$	0.69	$0.15 \pm 0.22$	$-0.04 \pm 0.26$

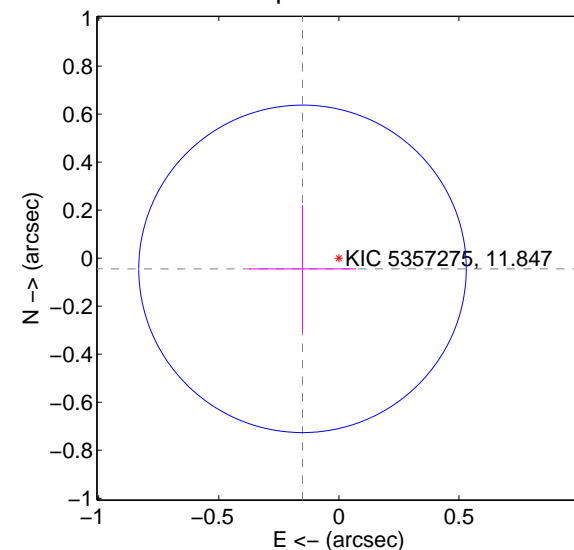
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

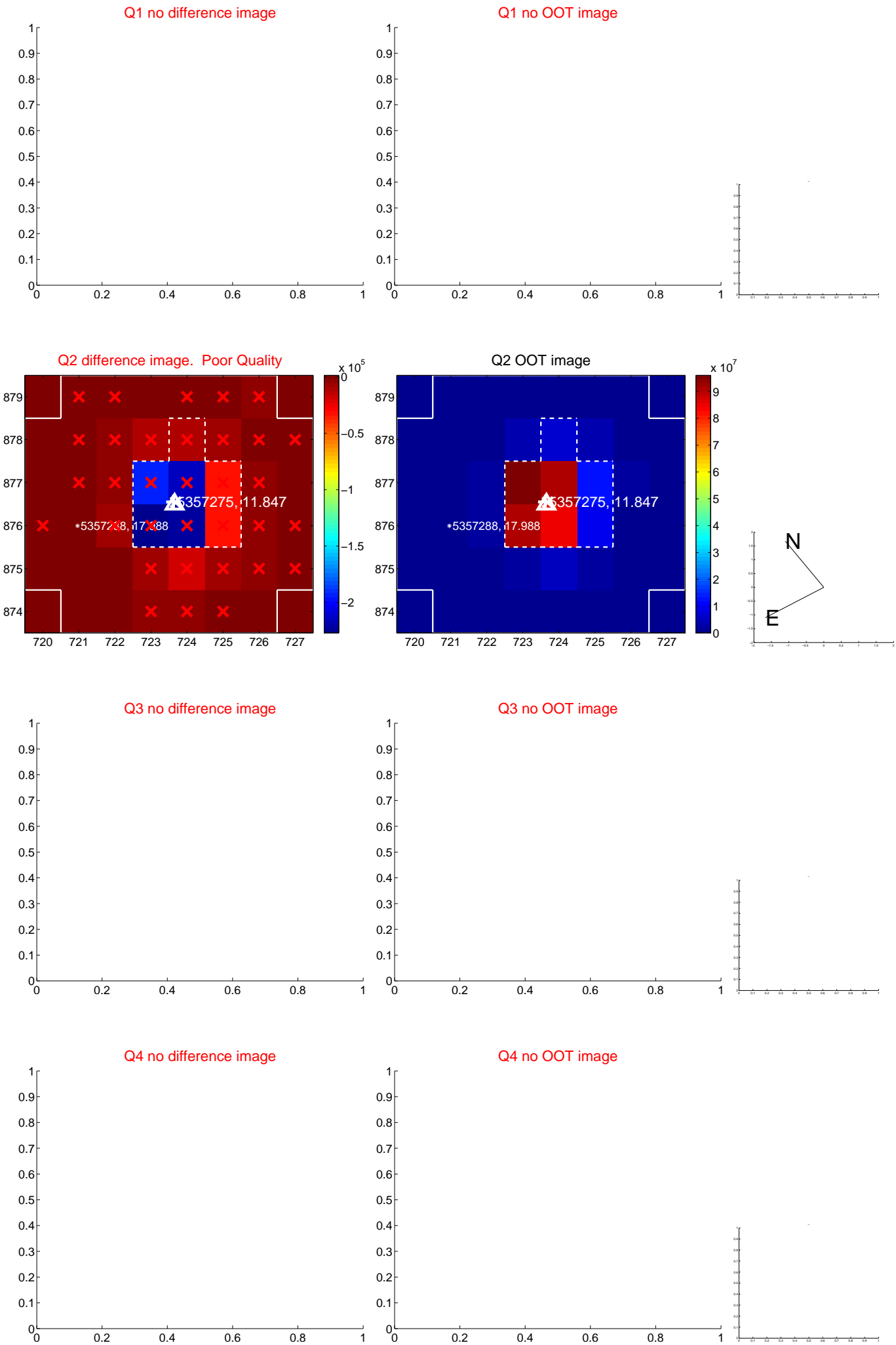


offset from photometric centroids



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.

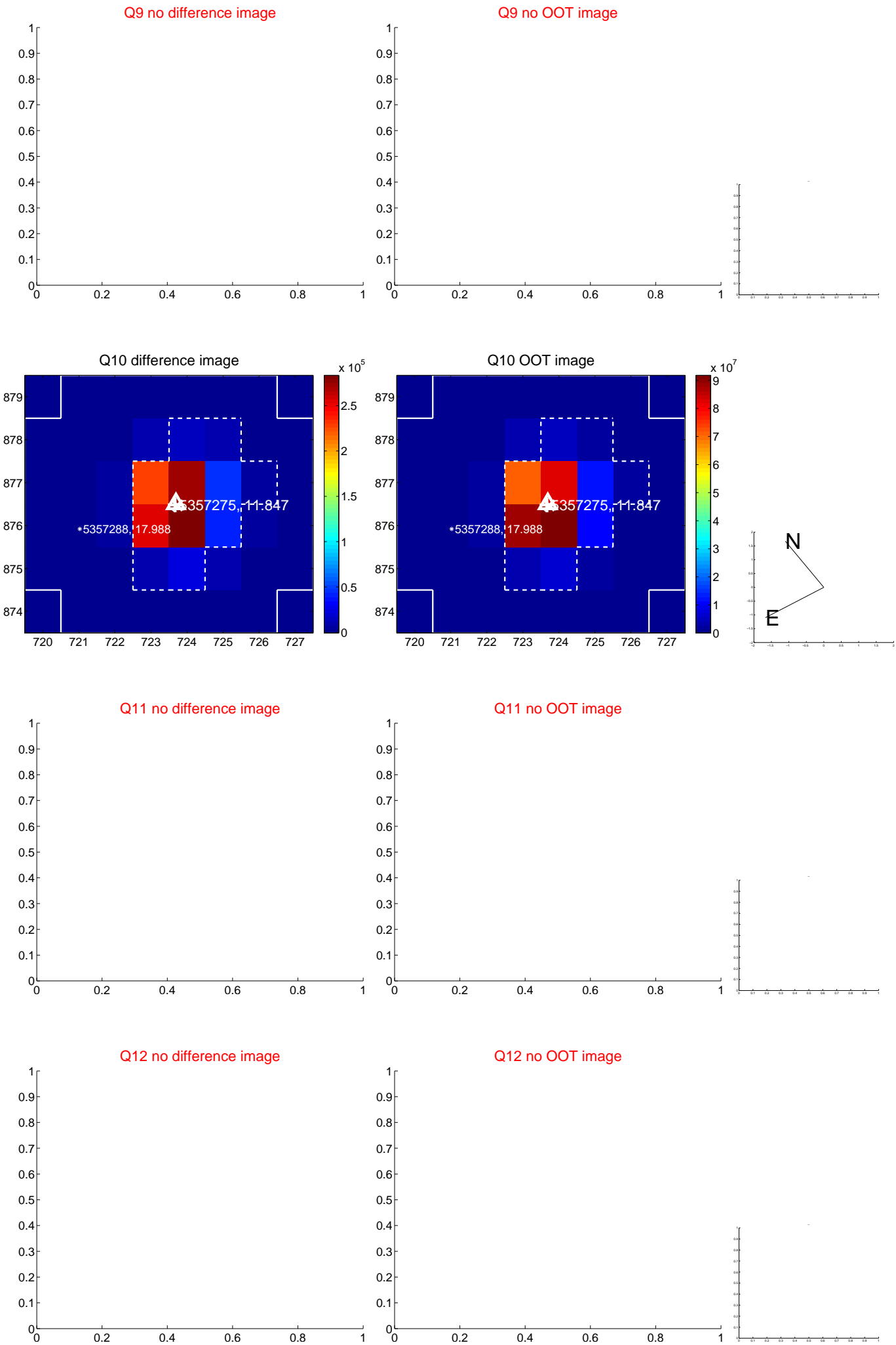
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



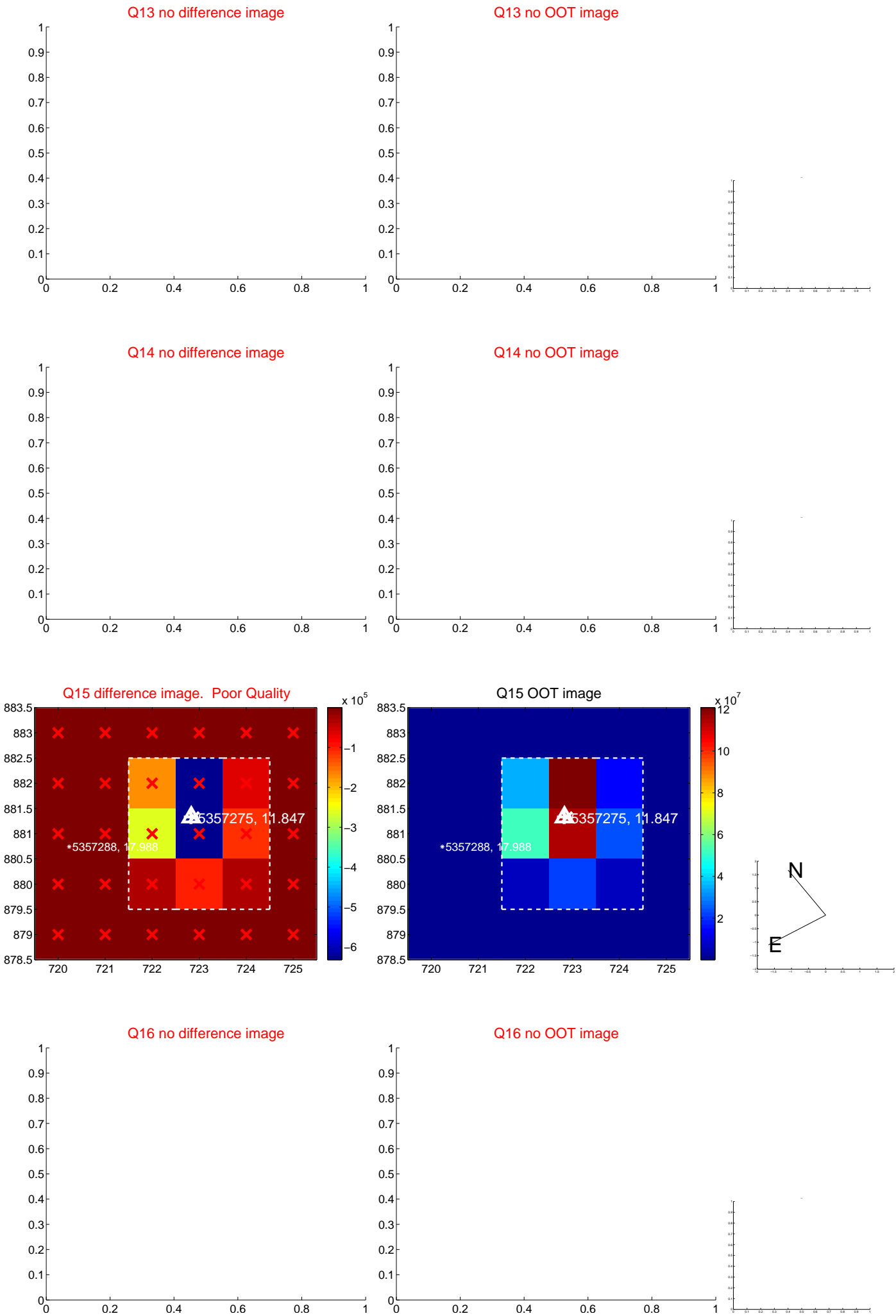
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



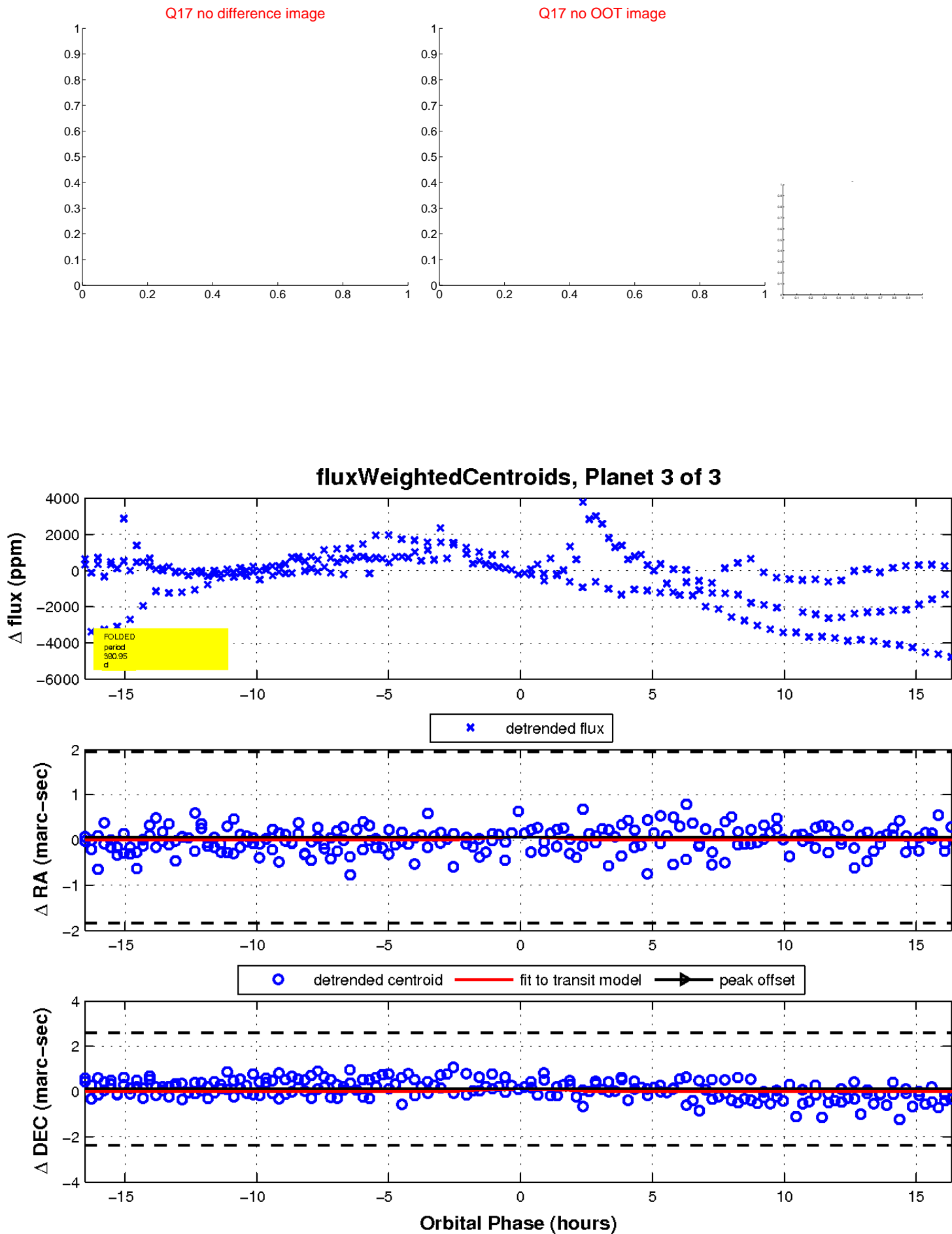
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

