

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003542345-01	OBS	No	2.015637	131.623110	7.0	9.704	11.3	3.6	1.57	7063	0.48	4321.96
003542345-02	OBS	No	1.680320	132.450335	43.7	3.268	12.7	13.7	1.57	7063	1.21	5508.60
003542345-03	OBS	No	108.920138	224.658989	111.0	9.730	9.1	7.0	1.57	7063	1.90	21.16
003542345-04	OBS	No	13.776503	138.904321	82.5	4.403	9.1	8.9	1.57	7063	1.65	333.20
003542345-05	OBS	No	136.747408	205.162926	235.9	7.118	8.8	9.0	1.57	7063	3.12	15.62
003542345-06	OBS	No	117.574138	173.952297	84.3	1.804	7.9	3.2	1.57	7063	1.79	19.11
003542345-07	OBS	No	352.726752	291.867554	166.0	9.180	7.9	7.8	1.57	7063	2.09	4.42
003542345-08	OBS	No	173.017872	135.509841	235.0	5.587	8.2	8.6	1.57	7063	2.80	11.41
003542345-09	OBS	No	57.681750	183.420652	160.5	3.890	8.6	7.7	1.57	7063	2.02	49.38
003542345-10	OBS	No	17.579058	139.776078	87.2	5.090	8.1	8.5	1.57	7063	1.73	240.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003542345-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003542345-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT
003542345-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
003542345-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
003542345-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

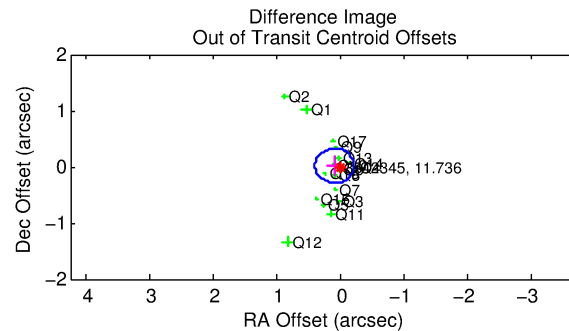
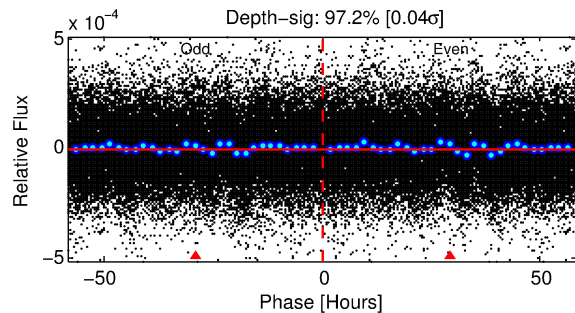
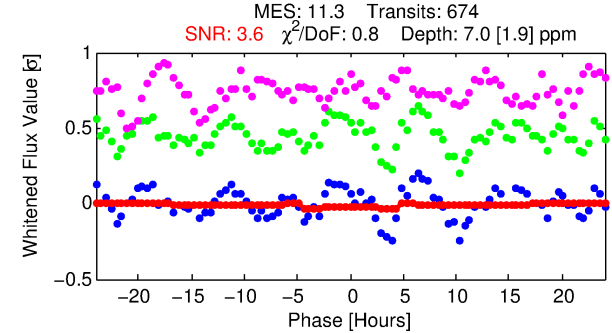
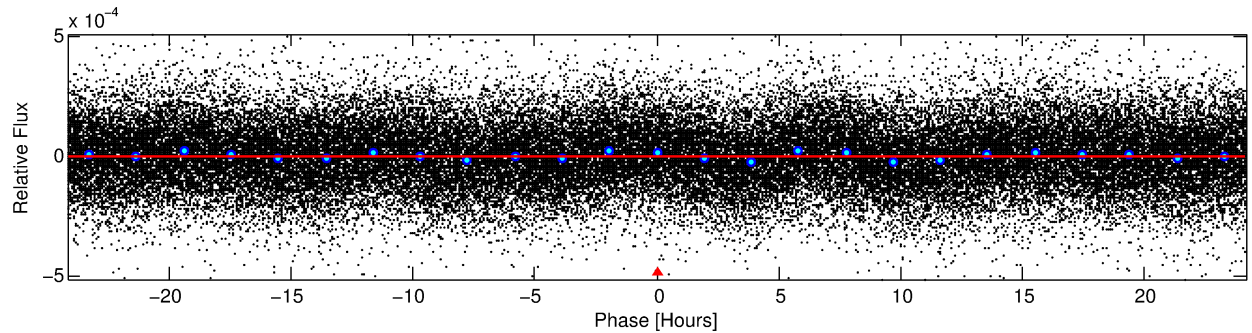
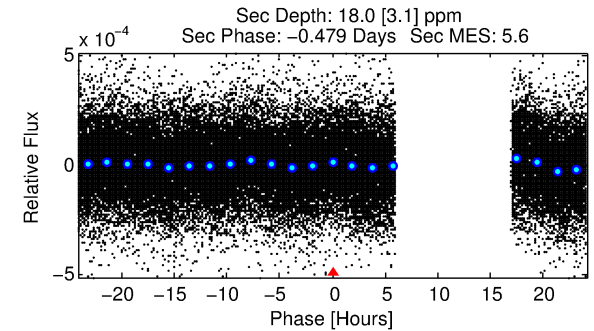
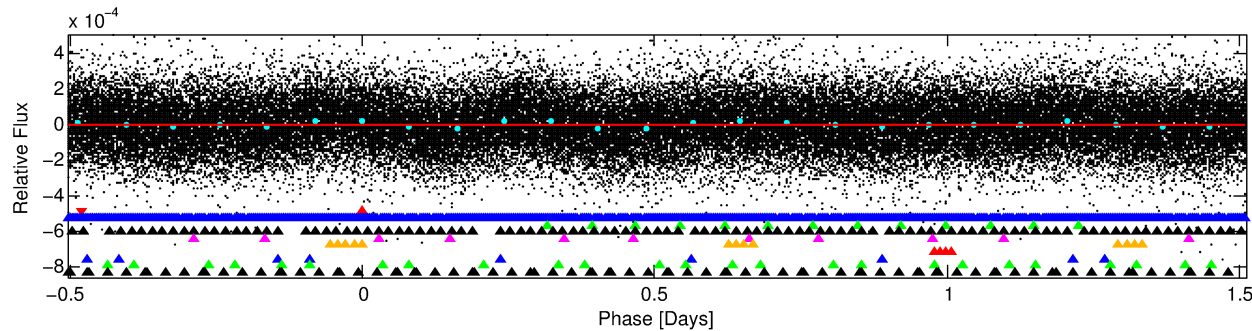
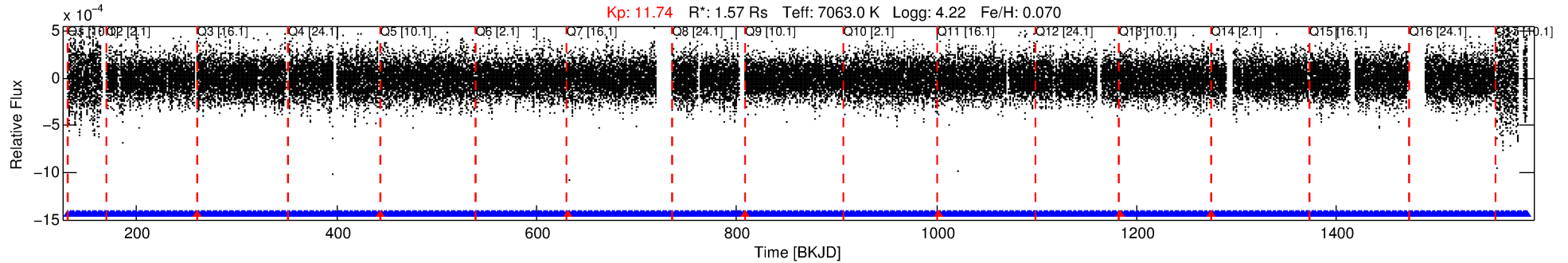
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003542345-01

No Significant Match Found

# DV One-Page Summary

KIC: 3542345 Candidate: 1 of 10 Period: 2.016 d



## DV Fit Results:

Period = 2.01564 [0.00005] d  
Epoch = 131.6231 [0.0106] BKJD  
Rp/R\* = 0.0028 [0.0009]  
a/R\* = 1.17 [0.59]  
b = 0.90 [0.40]  
Seff = 4321.96 [1912.75]  
Teq = 2068 [229] K  
Rp = 0.48 [0.23] Re  
a = 0.0356 [0.0102] AU  
Ag = 54.23 [42.63] [1.25σ]  
Teffp = 8675 [1524] K [4.29σ]

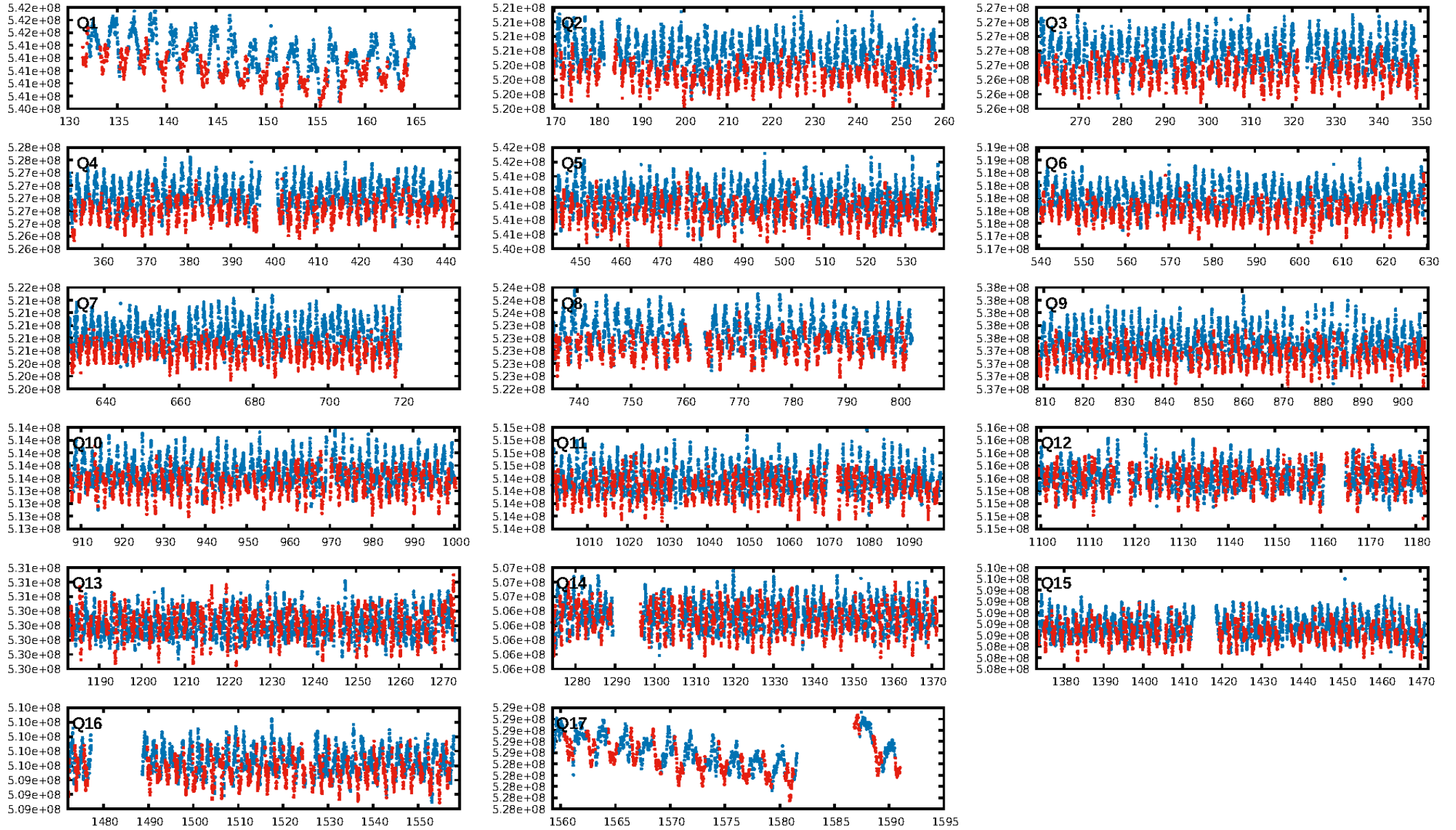
## DV Diagnostic Results:

ShortPeriod-sig: 56.8% [0.79σ]  
LongPeriod-sig: 100.0% [26.49σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [636/643]  
GhostDiagnostic-chr: 0.3258  
Centroid-sig: 0.0%  
Centroid-so: 27.057 arcsec [7.99σ]  
OotOffset-rm: 0.097 arcsec [0.94σ]  
KicOffset-rm: 0.299 arcsec [1.98σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.24 [4/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:30:15 Z

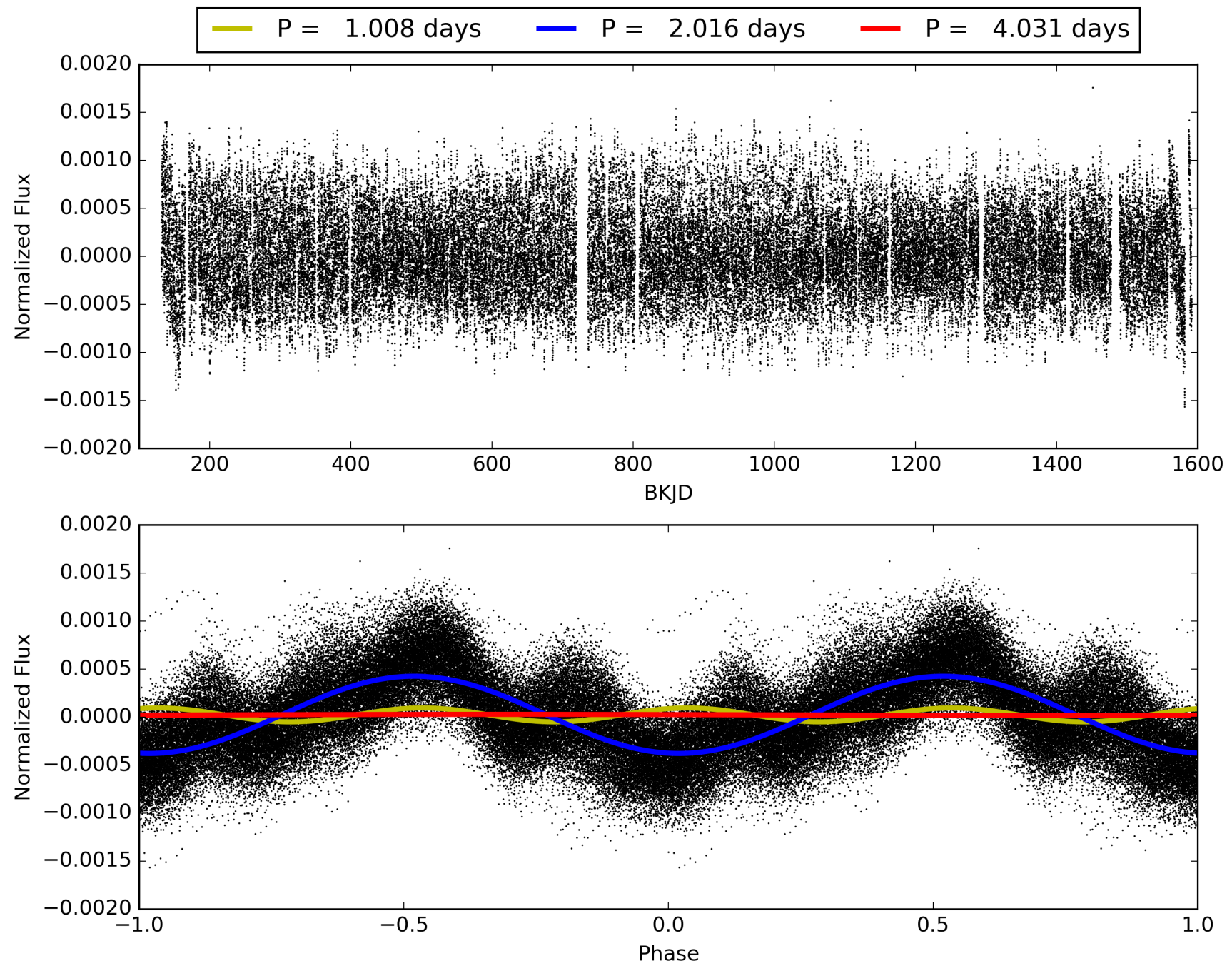
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003542345-01, PDC Light Curves





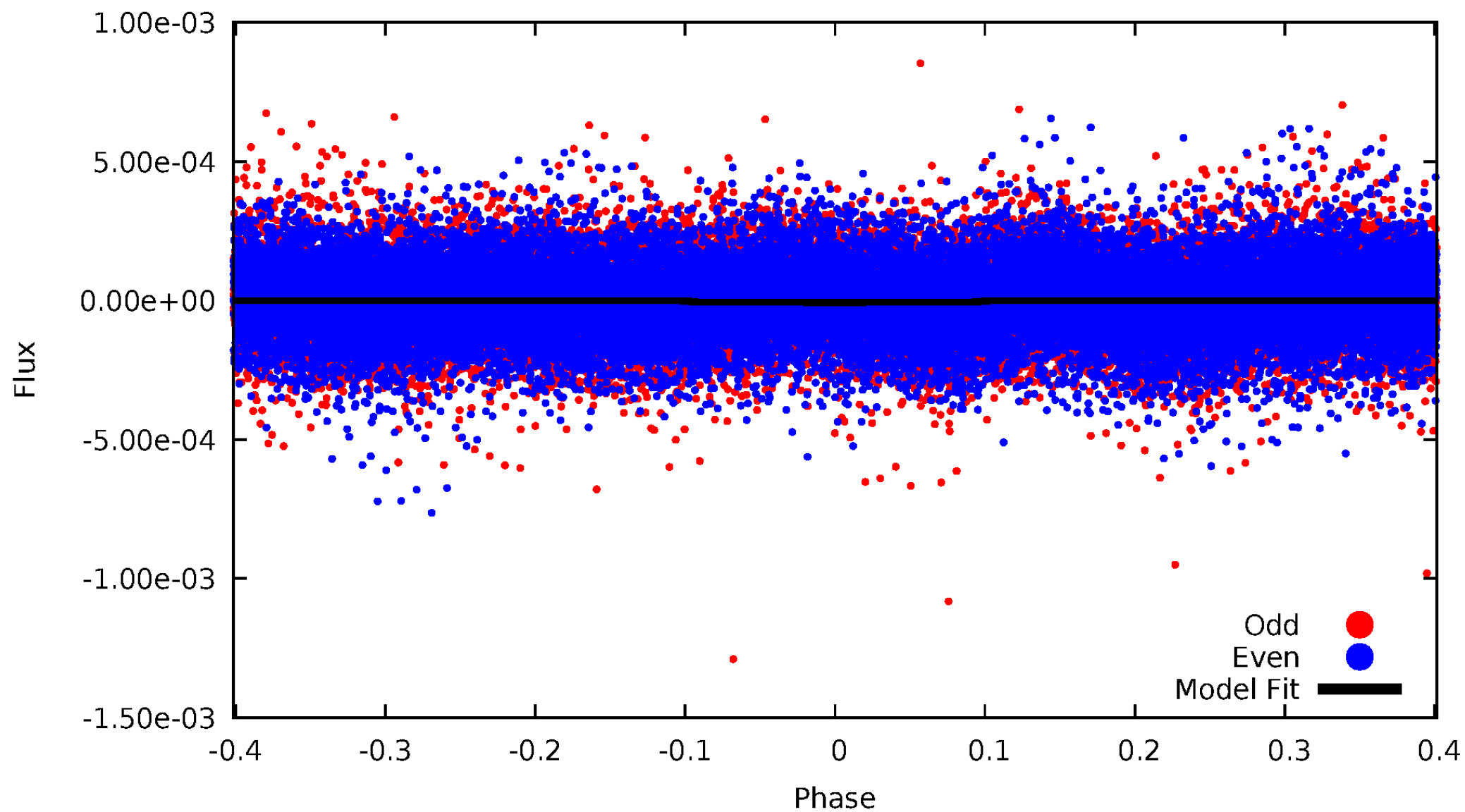
TCE 003542345-01





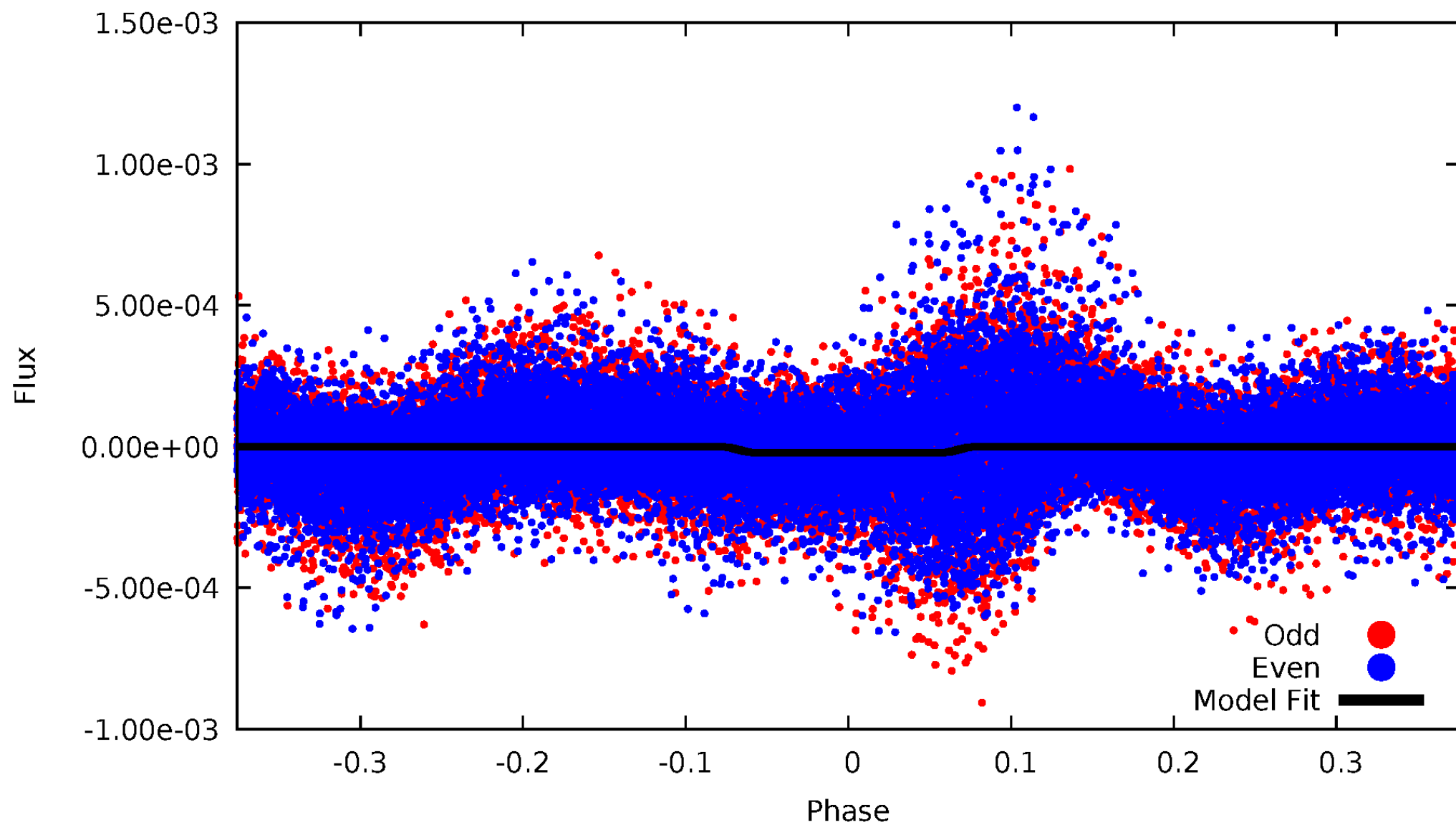
# DV Odd/Even

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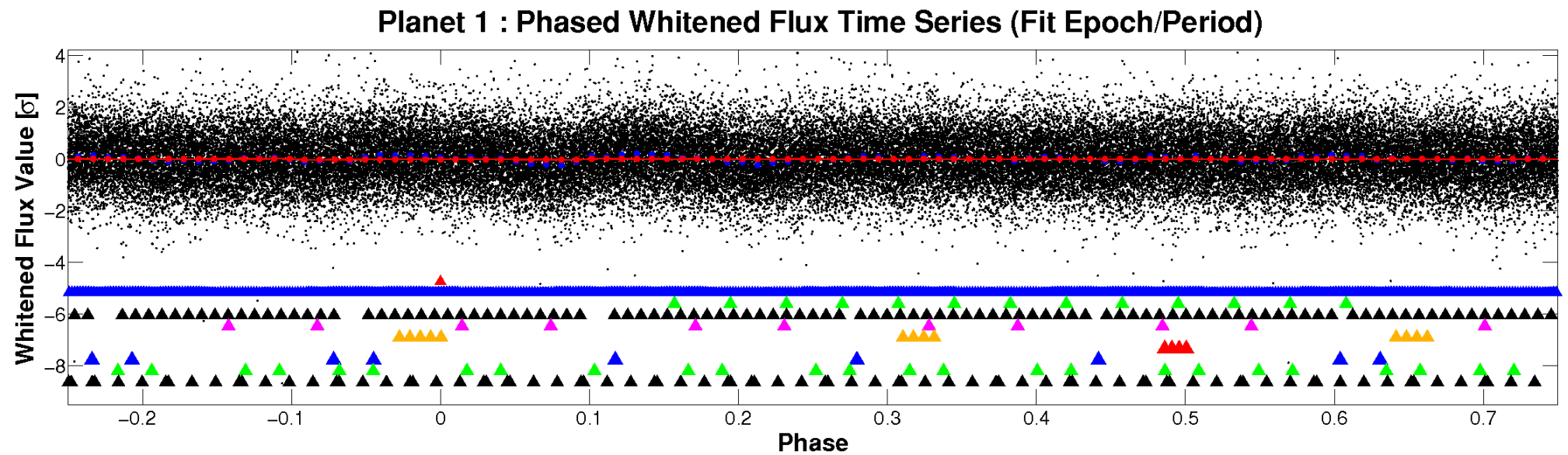
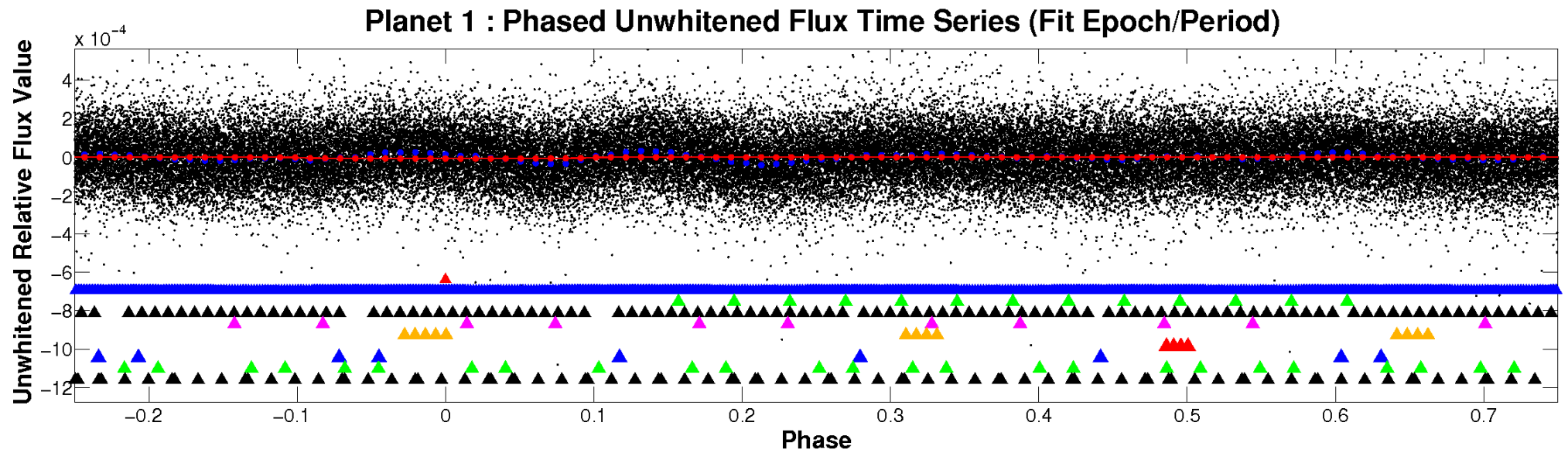


# ALT Odd/Even

TCE 003542345-01



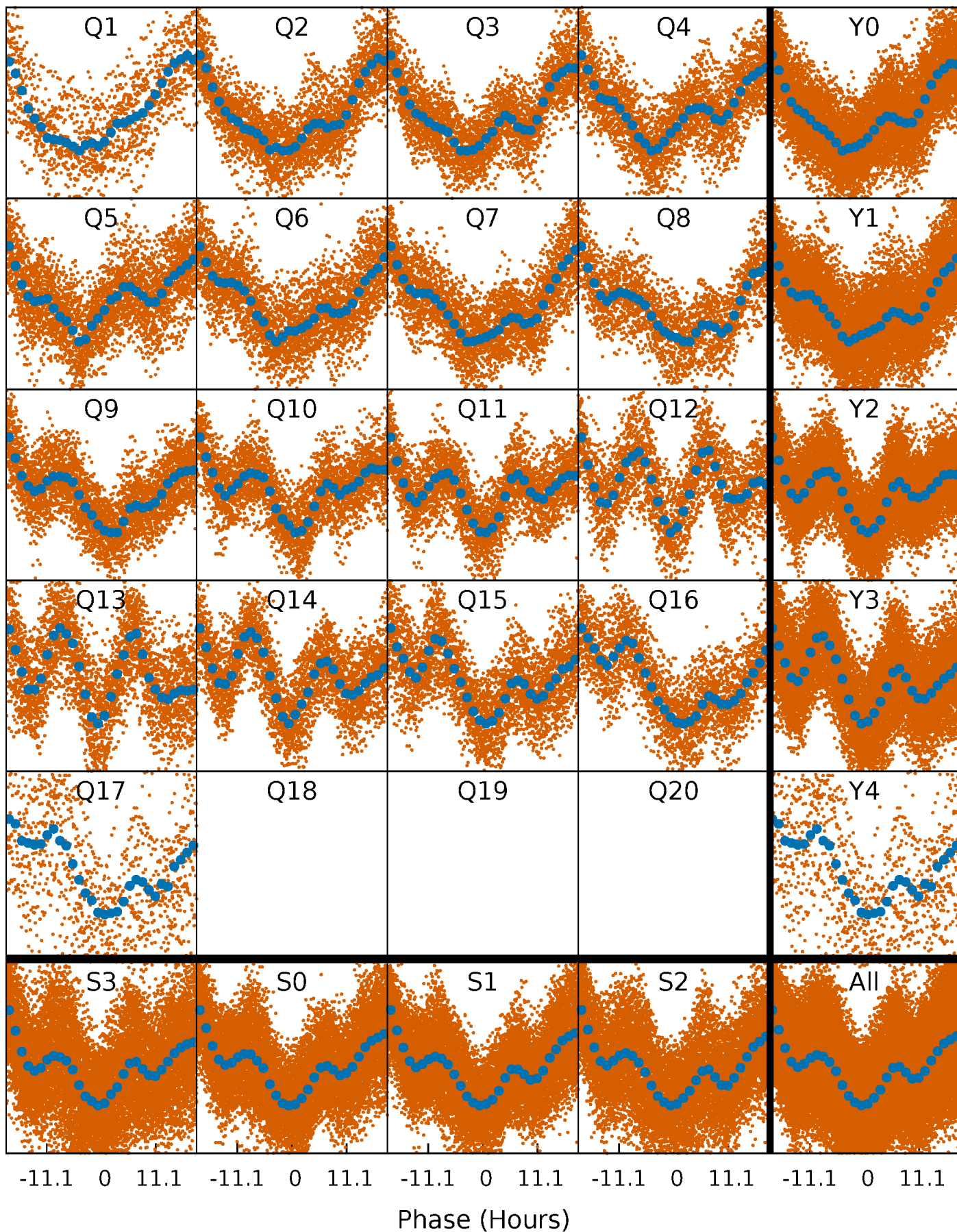
# Non-Whitened Vs. Whitened Light Curve





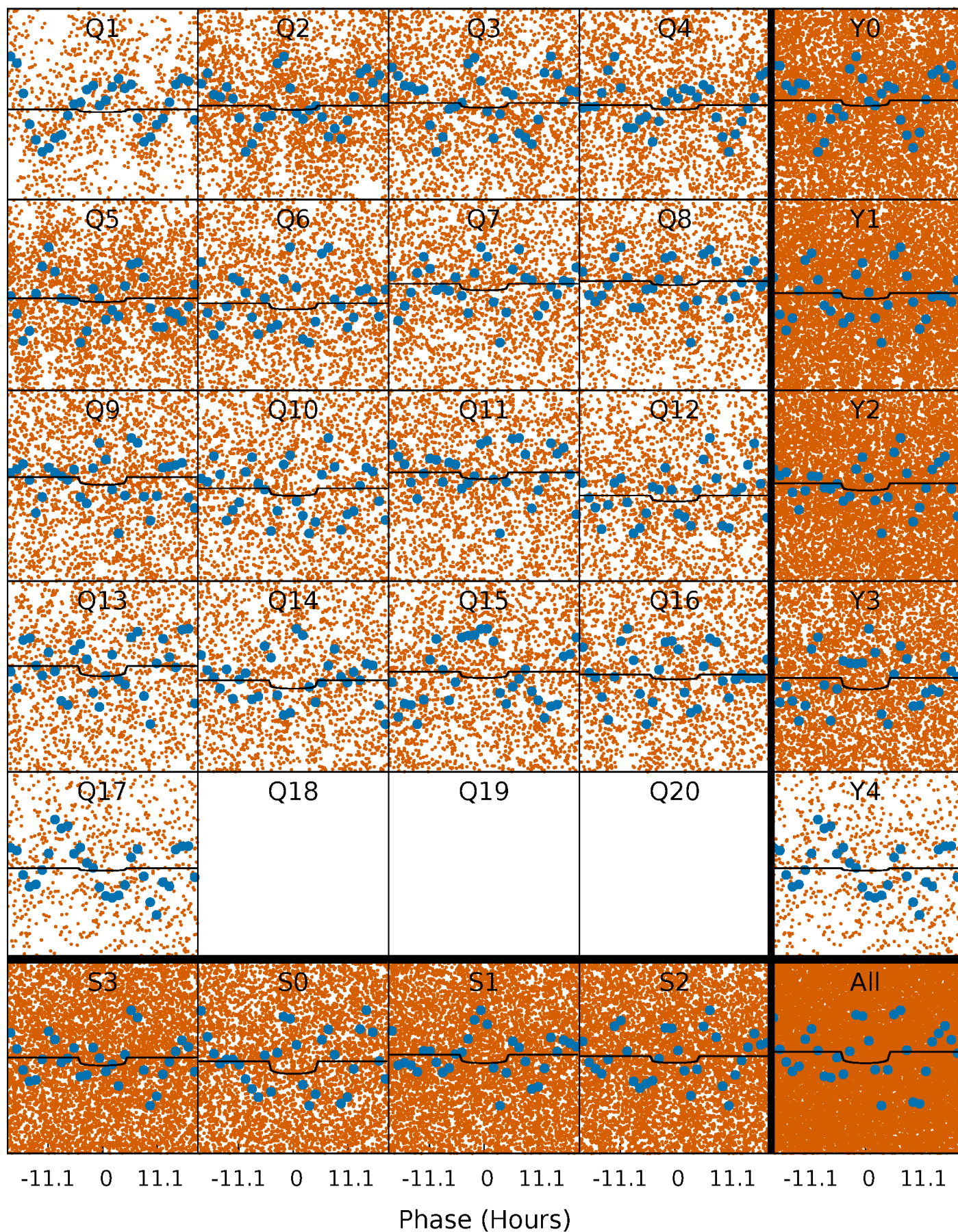
# PDC Quarter-Phased Transit Curves

TCE 003542345-01 P= 2.015637 Days  $T_0=131.623110$  (BKJD)



# DV Quarter-Phased Transit Curves

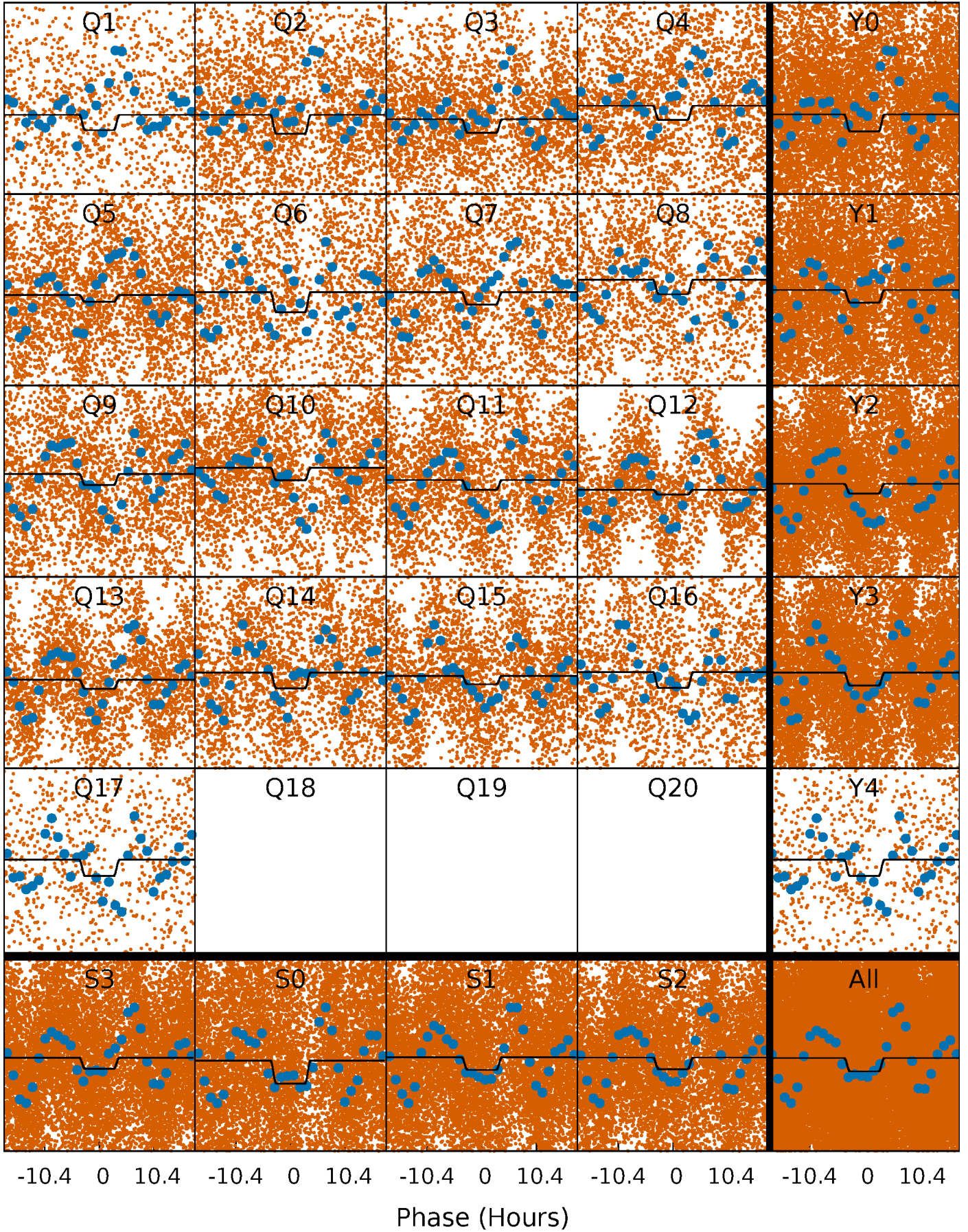
TCE 003542345-01 P= 2.015637 Days  $T_0=131.623110$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 003542345-01 P= 2.015660 Days  $T_0=131.602218$  (BKJD)

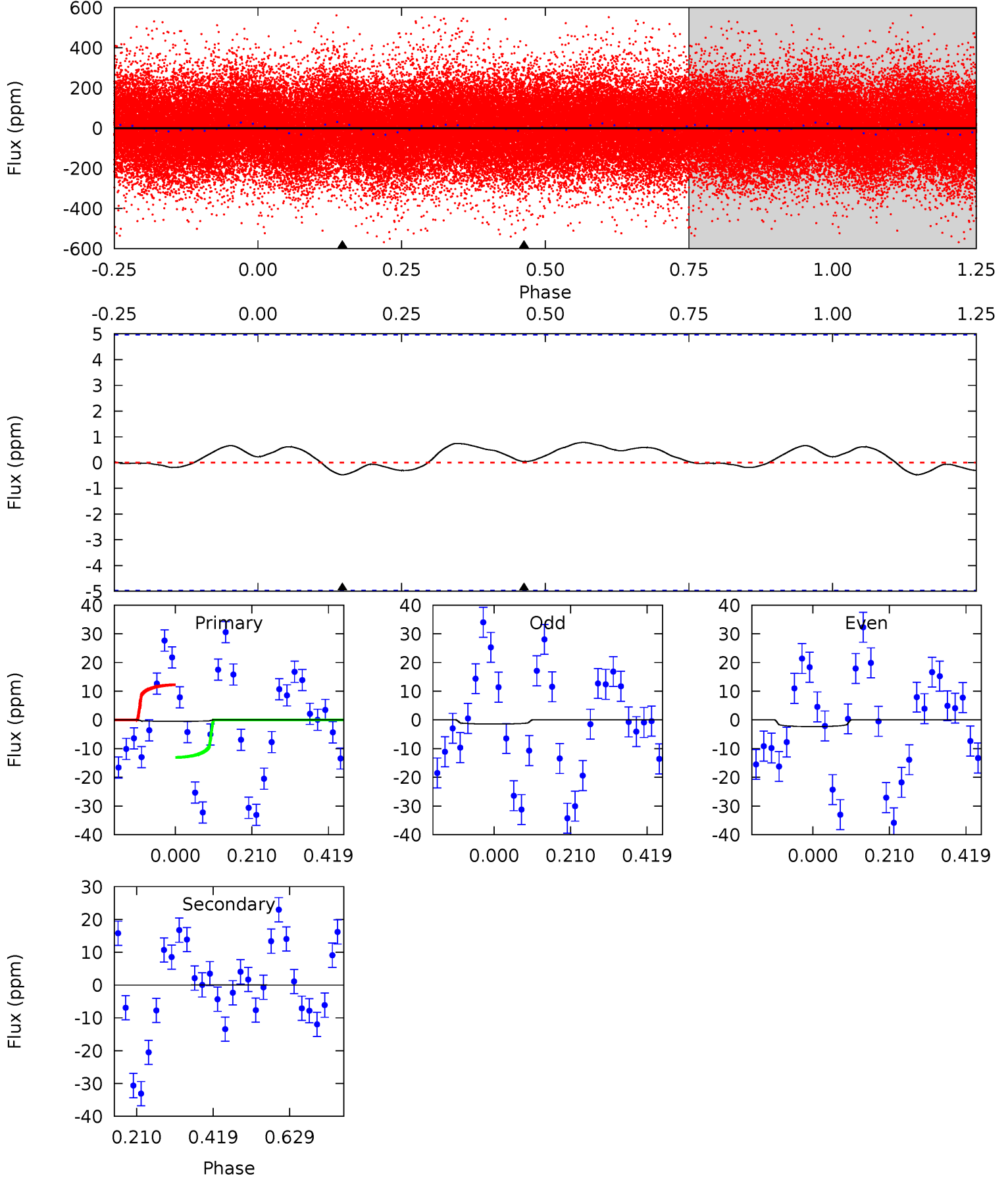




# DV Model-Shift Uniqueness Test

003542345-01, P = 2.015637 Days, E = 129.607473 Days

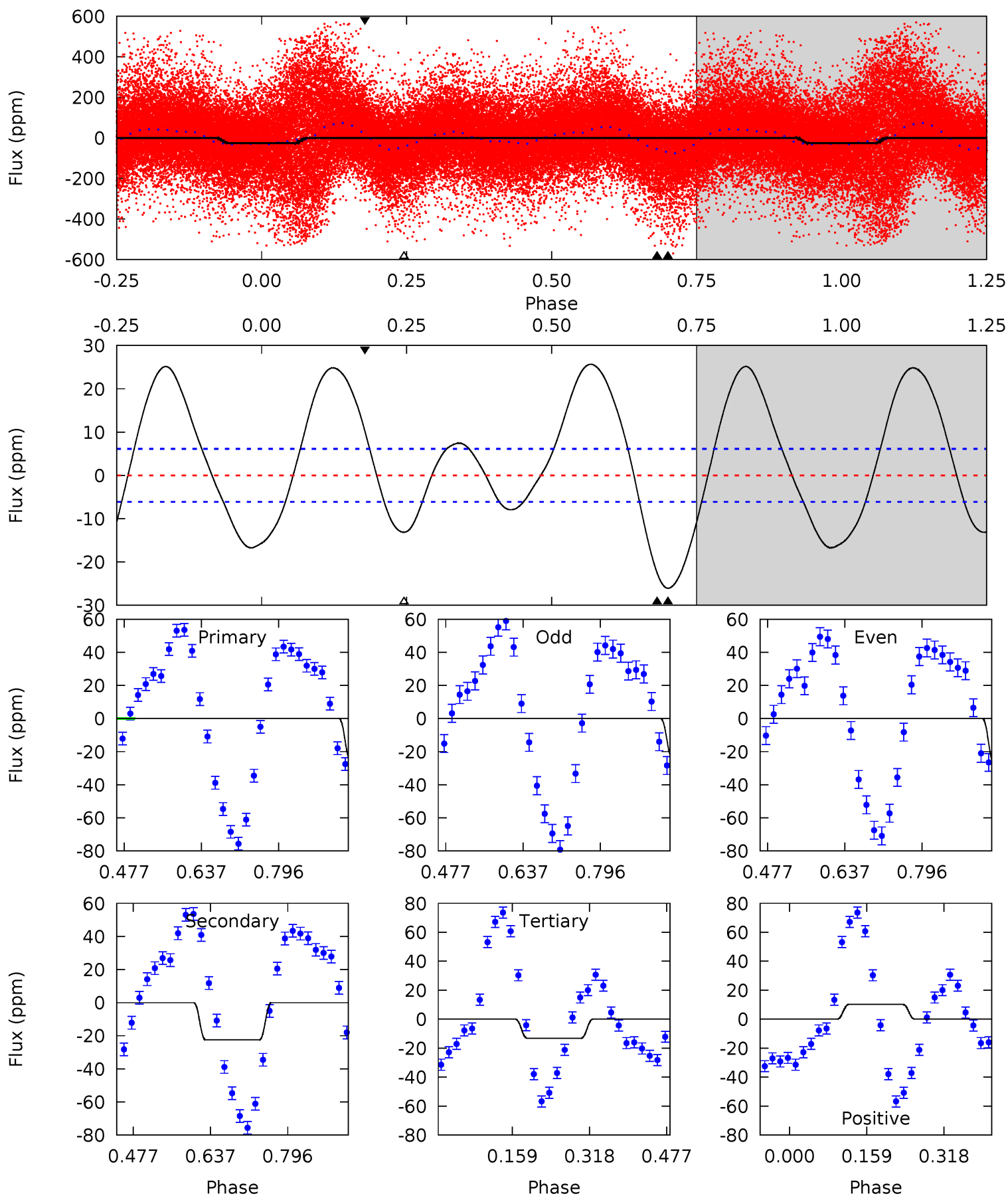
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.42	-0.04	0	0	4.41	1.25	0.21	0.42	0.42	-0.04	-0.04	0.40	1.22	0.62	0.38



# Alt Model-Shift Uniqueness Test

003542345-01, P = 2.015660 Days, E = 129.586558 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	16.5	9.60	7.50	4.47	1.41	8.31	9.46	11.6	6.86	8.97	1.36	1.16	0.50	2.92



### Stellar Parameters For KIC 003542345

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7063^{+195}_{-335}$	$4.218^{+0.090}_{-0.210}$	$0.070^{+0.200}_{-0.350}$	$1.567^{+0.556}_{-0.238}$	$1.480^{+0.214}_{-0.214}$	$0.541^{+0.228}_{-0.305}$
	+3%/-5%	+2%/-5%	+286%/-500%	+35%/-15%	+14%/-14%	+42%/-56%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 003542345-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1$	$0.50^{+0.18}_{-0.17}$	$2910^{+234}_{-174}$	$-3197^{+7624}_{-1515}$	$-0.121^{+3.455}_{-3.679}$
Alt.	$-23 \pm 1$	$0.82^{+0.21}_{-0.17}$	$2923^{+252}_{-178}$	$7058^{+1043}_{-653}$	$23^{+13}_{-8}$

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



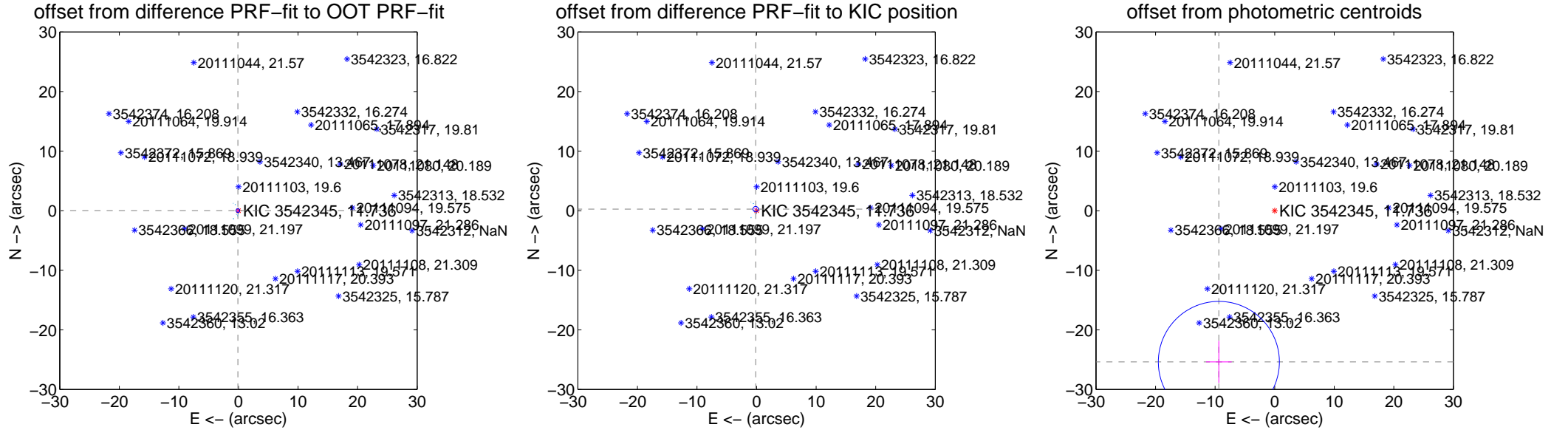
## DV Centroid Data

Supplemental centroid analysis for 003542345-01. **Kepler magnitude: 11.74.** Transit SNR 3.57

There are 17 quarters with good PRF difference image offsets

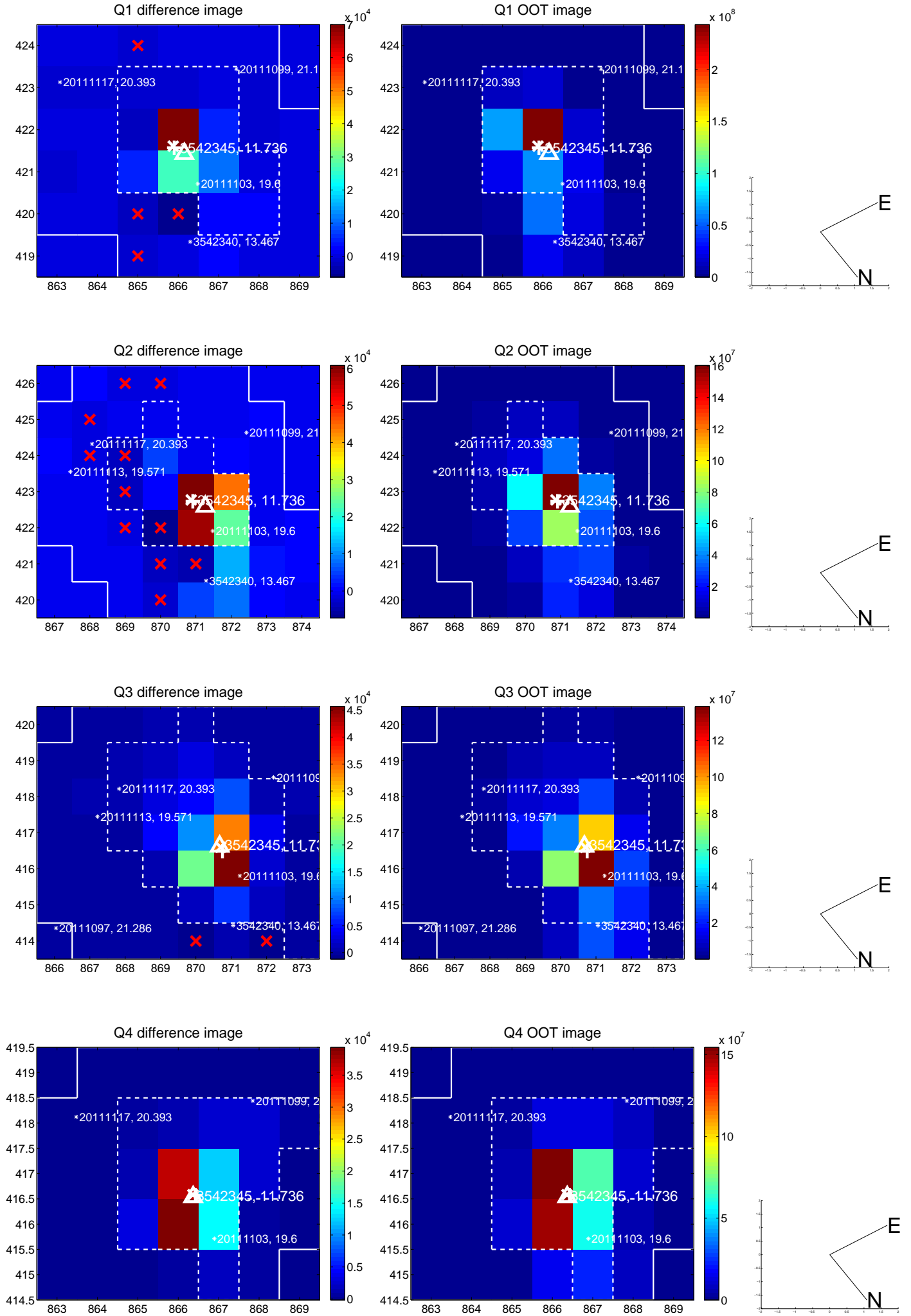
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.097 \pm 0.103$	0.94	$0.095 \pm 0.098$	$0.015 \pm 0.175$
PRF-fit source offset from KIC position	$0.299 \pm 0.151$	1.98	$0.147 \pm 0.098$	$0.260 \pm 0.162$
photometric centroid source offset	<b><math>27.06 \pm 3.39</math></b>	<b>7.99</b>	$9.37 \pm 2.15$	$-25.38 \pm 3.52$

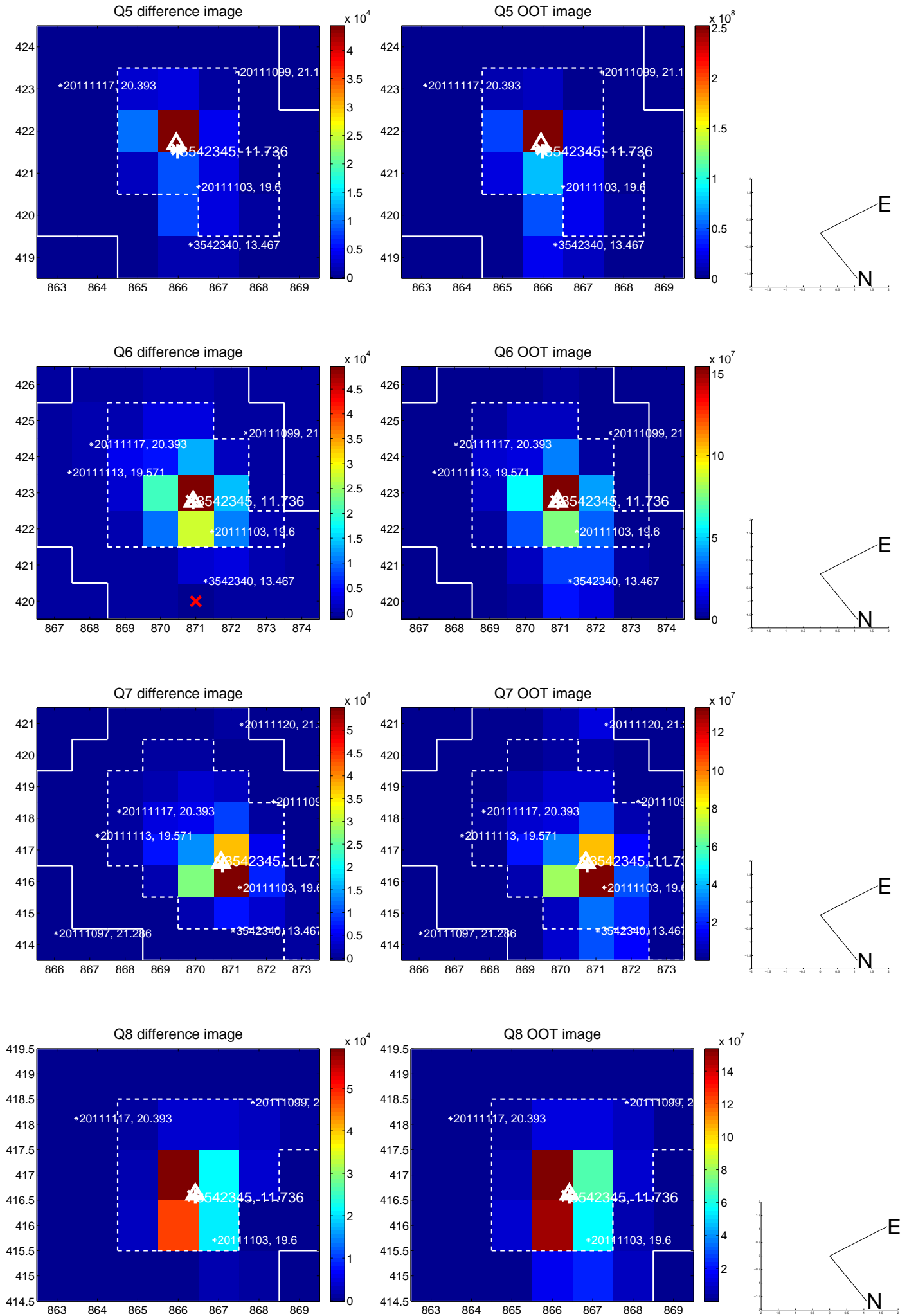


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

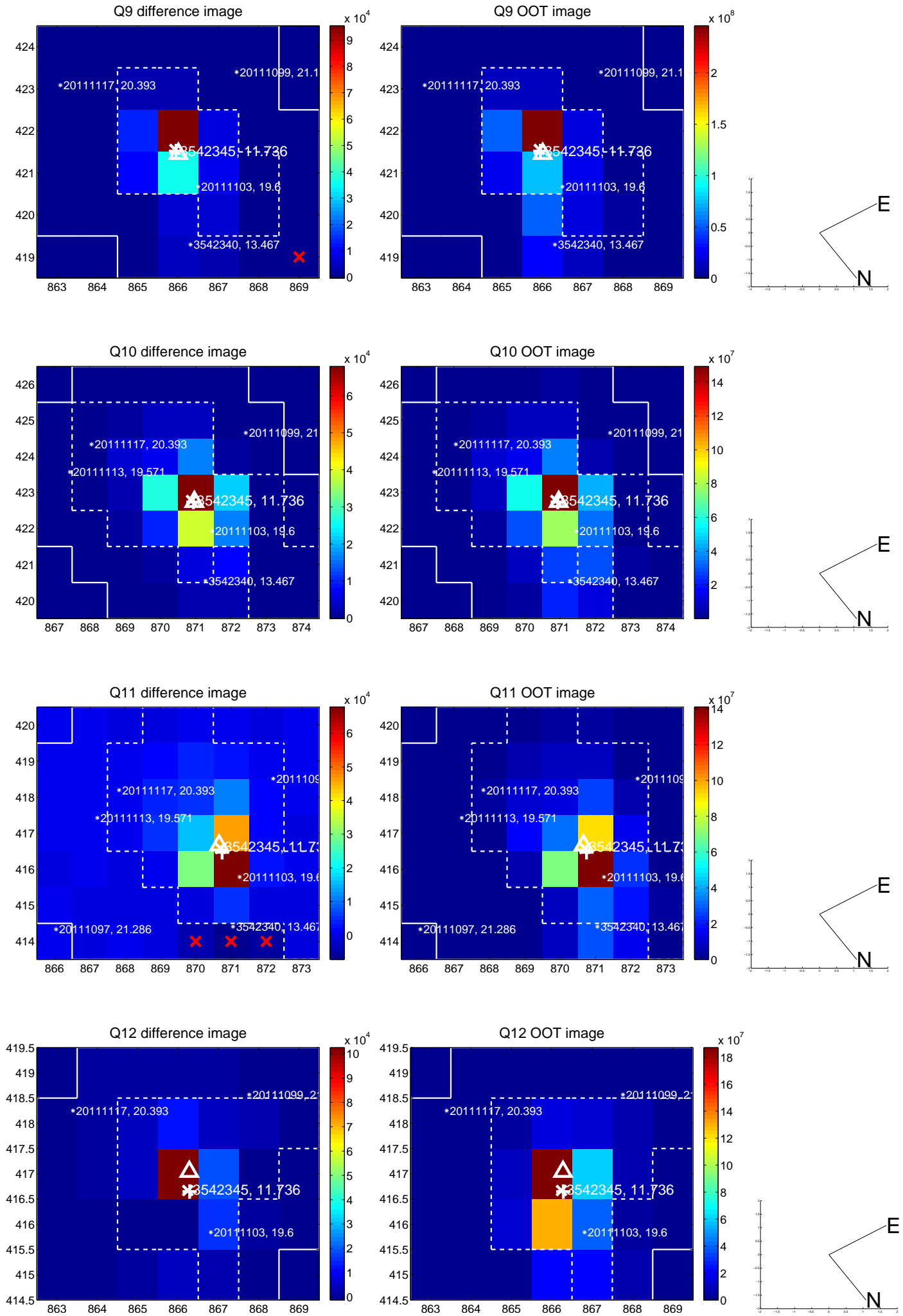


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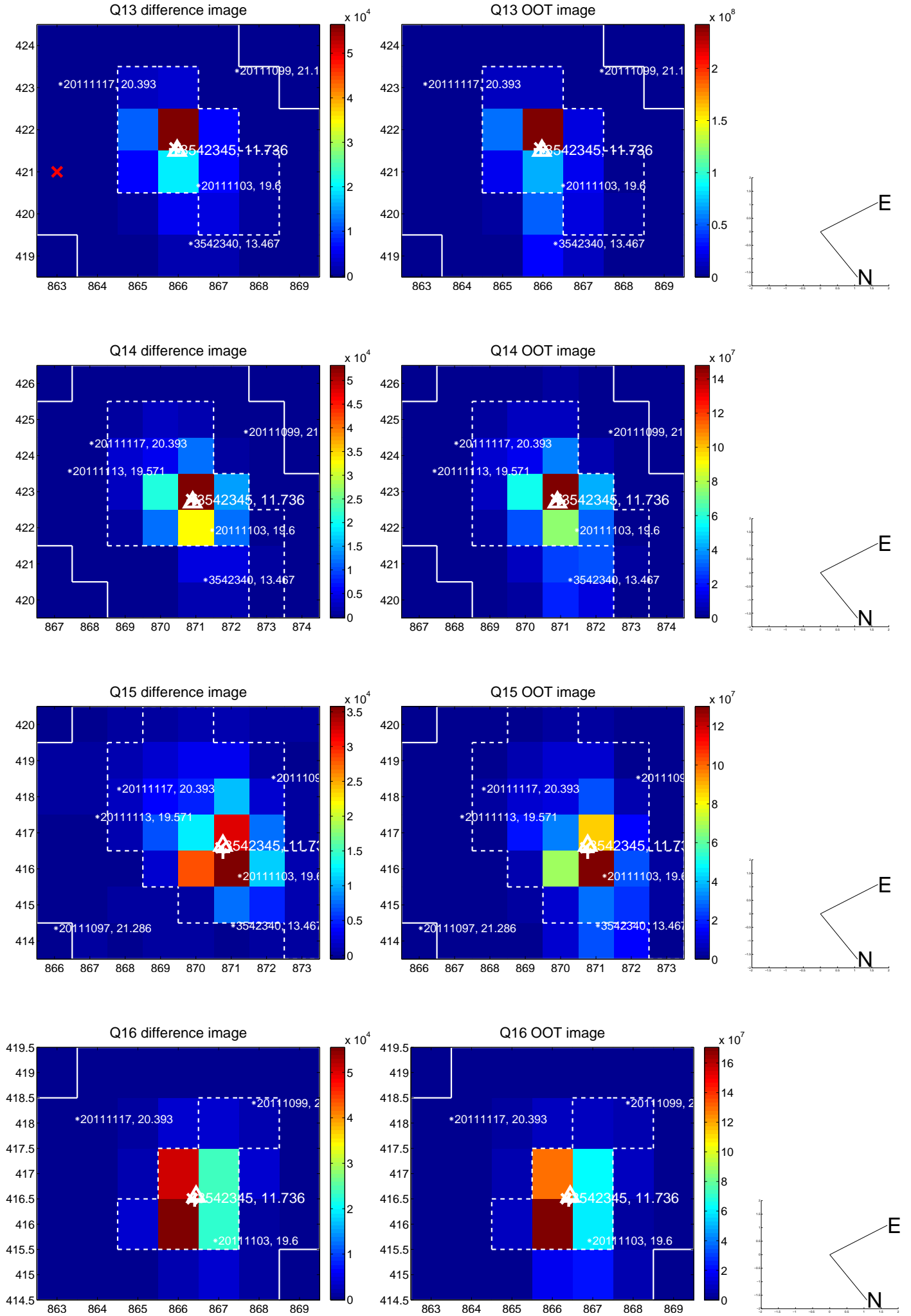




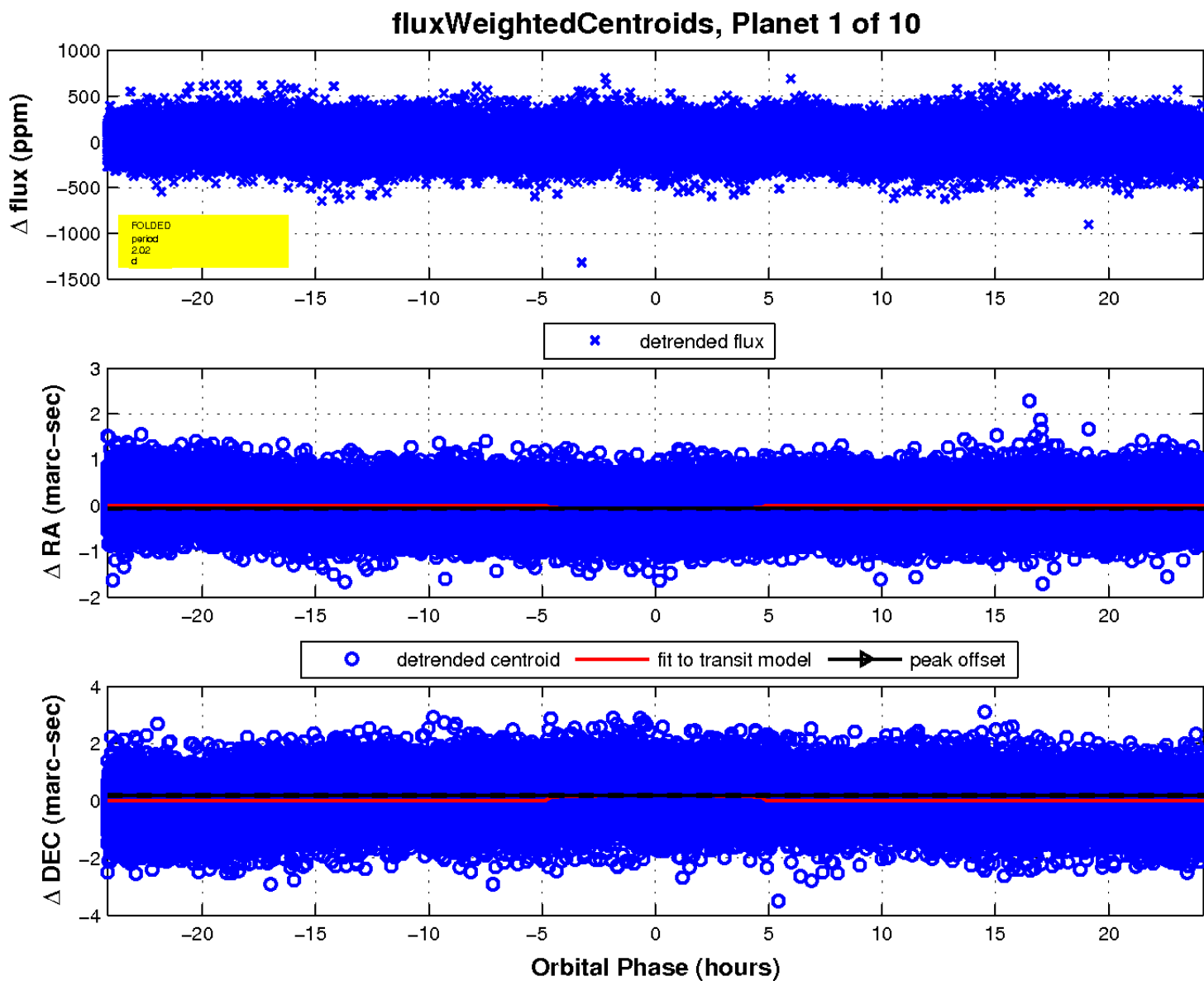
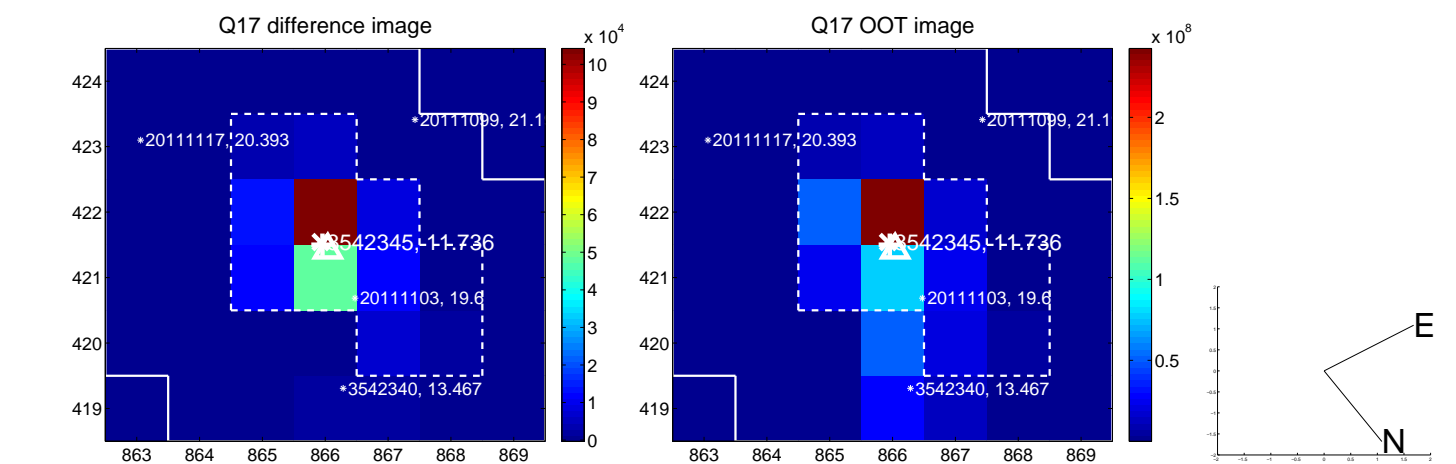
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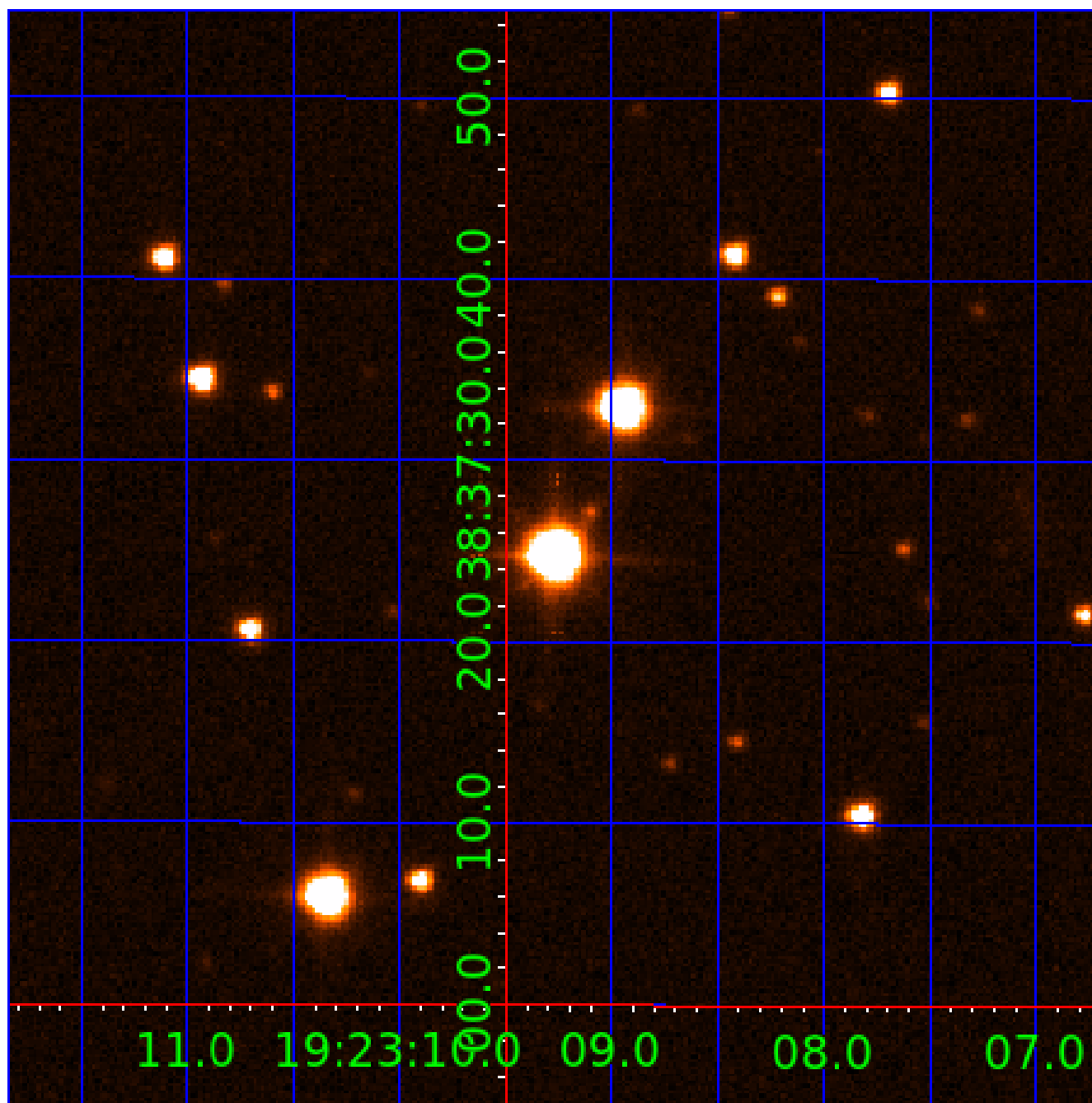


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UKIRT Image

Declination





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003542345-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
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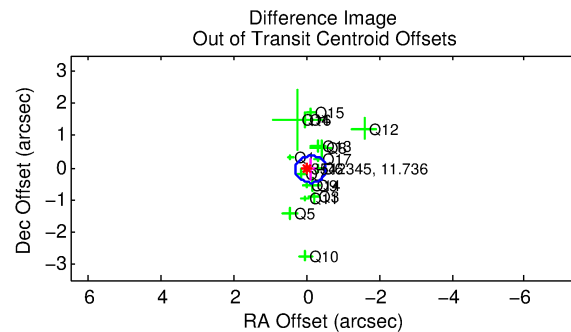
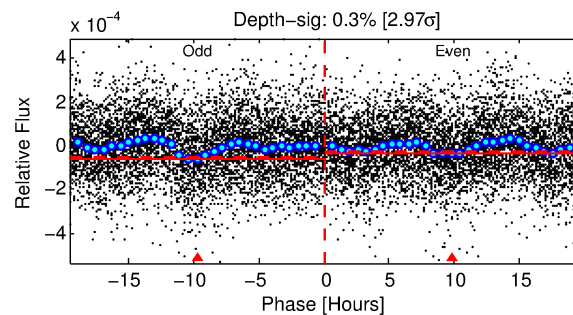
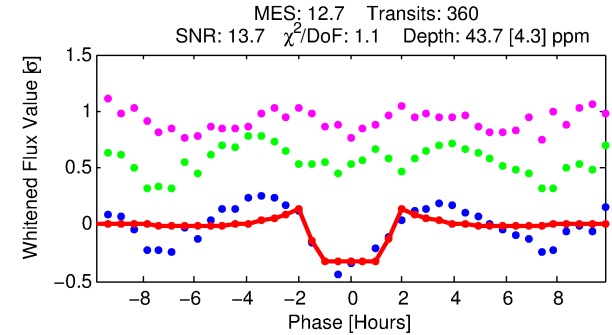
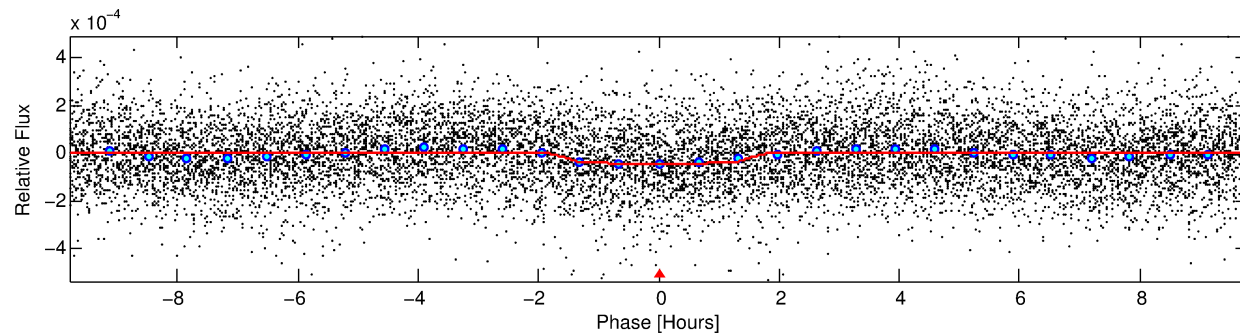
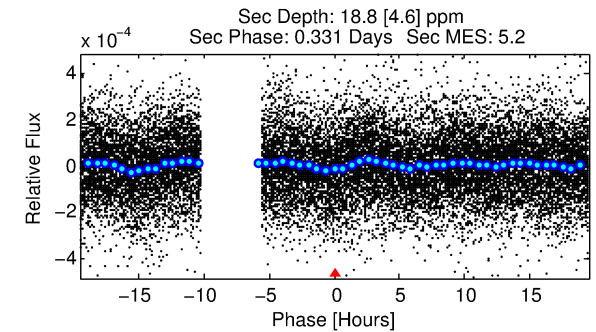
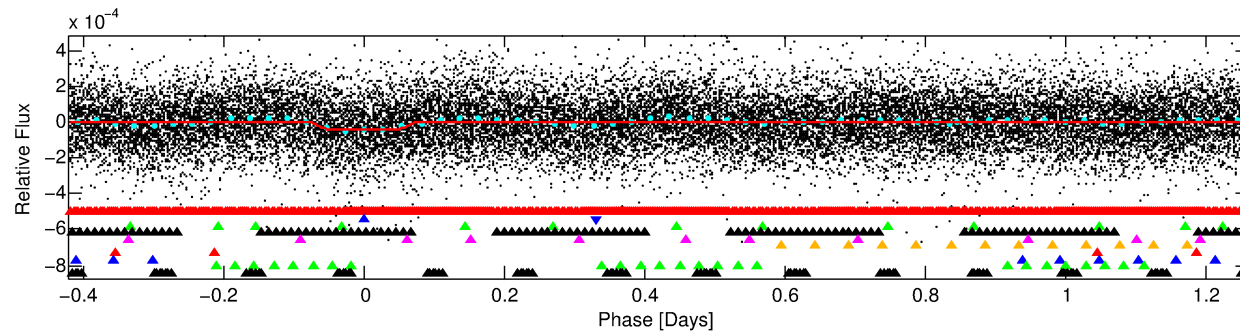
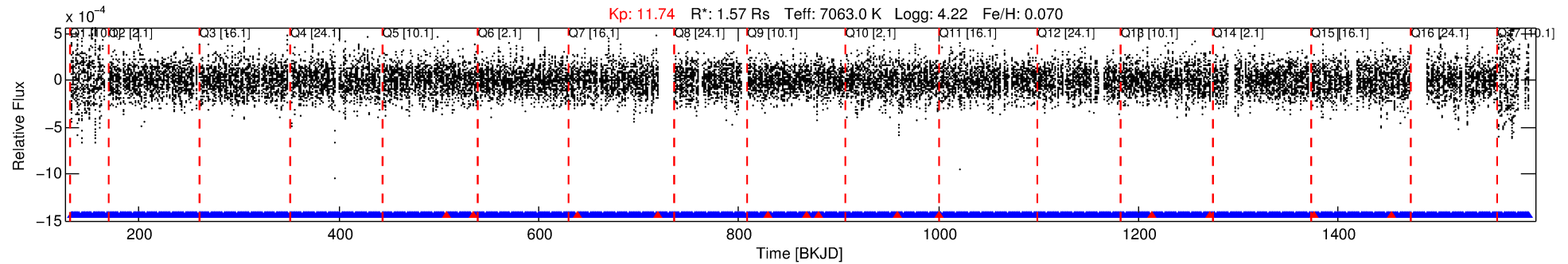
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003542345-02

No Significant Match Found

# DV One-Page Summary

KIC: 3542345 Candidate: 2 of 10 Period: 1.680 d



## DV Fit Results:

Period = 1.68032 [0.00001] d  
Epoch = 132.4503 [0.0024] BKJD  
Rp/R\* = 0.0071 [0.0016]  
a/R\* = 1.97 [1.99]  
b = 0.91 [0.27]  
Seff = 5508.60 [2437.92]  
Teq = 2197 [243] K  
Rp = 1.21 [0.51] Re  
a = 0.0315 [0.0090] AU  
Ag = 7.05 [4.59] [1.32σ]  
Teffp = 5534 [758] K [4.19σ]

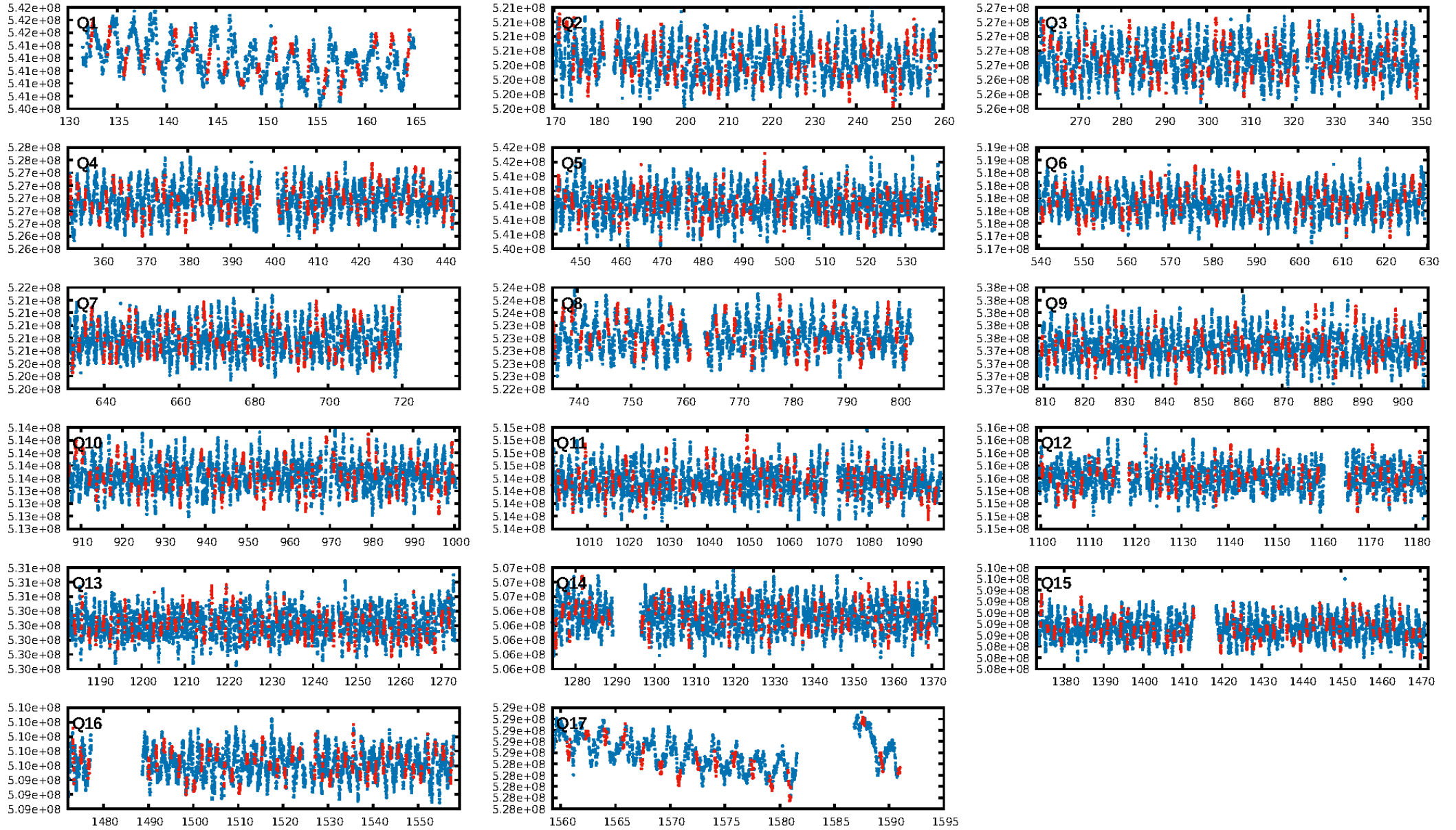
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 56.8% [0.79σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.96 [333/346]  
GhostDiagnostic-chr: 1.465  
Centroid-sig: 0.0%  
Centroid-so: 1.573 arcsec [2.71σ]  
OotOffset-rm: 0.130 arcsec [0.93σ]  
KicOffset-rm: 0.239 arcsec [0.90σ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.50 [8/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:30:27 Z

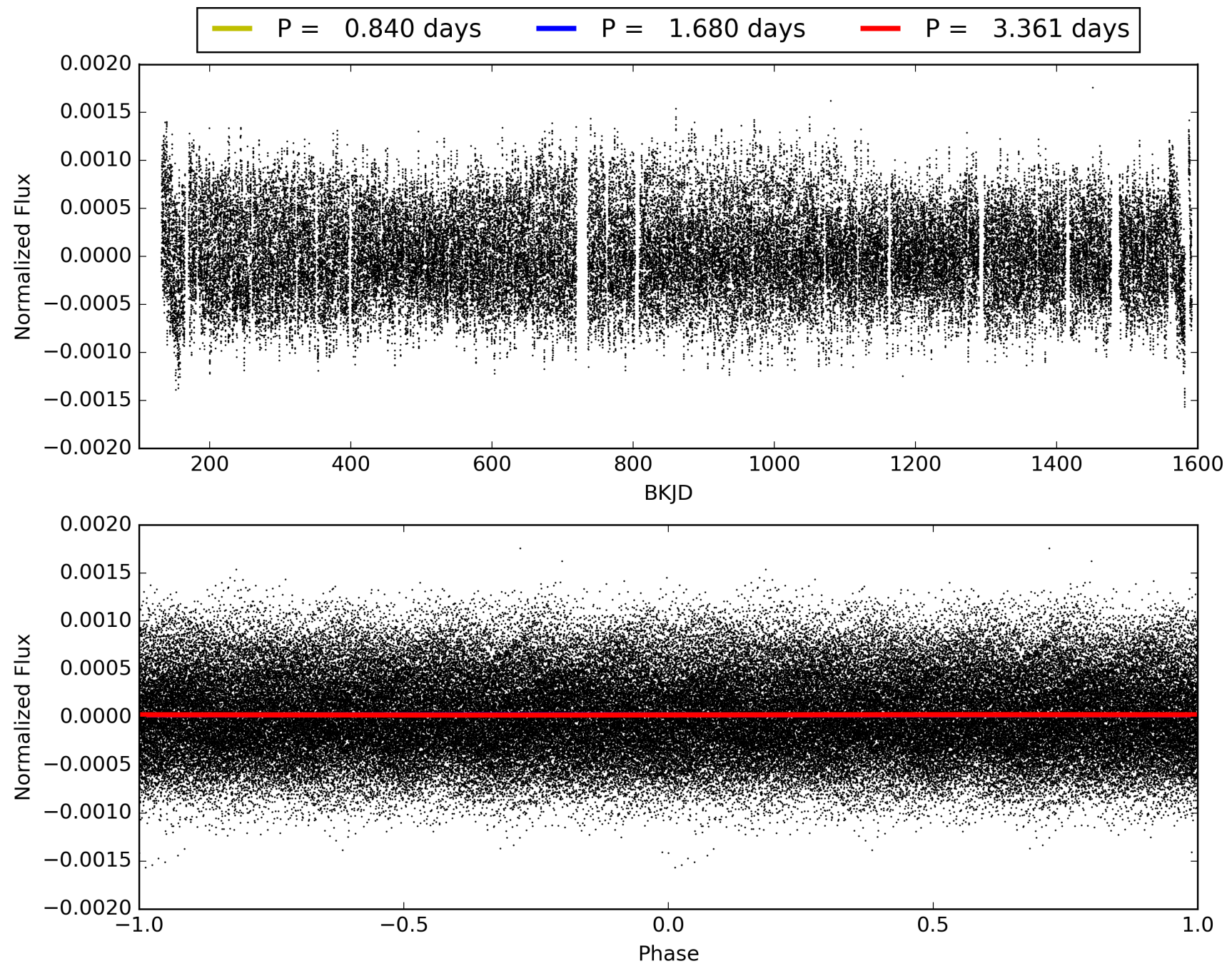
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003542345-02, PDC Light Curves





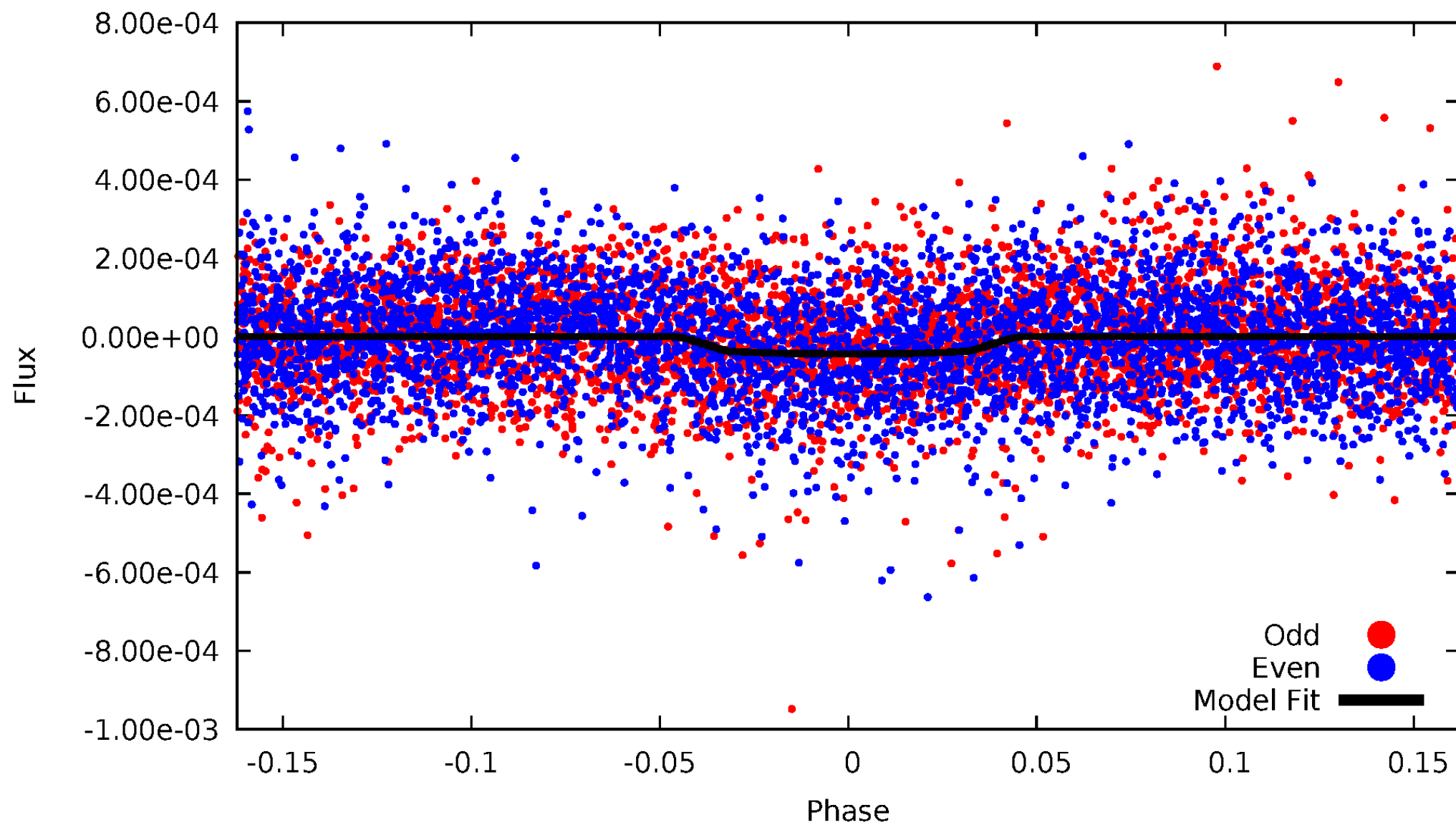
TCE 003542345-02





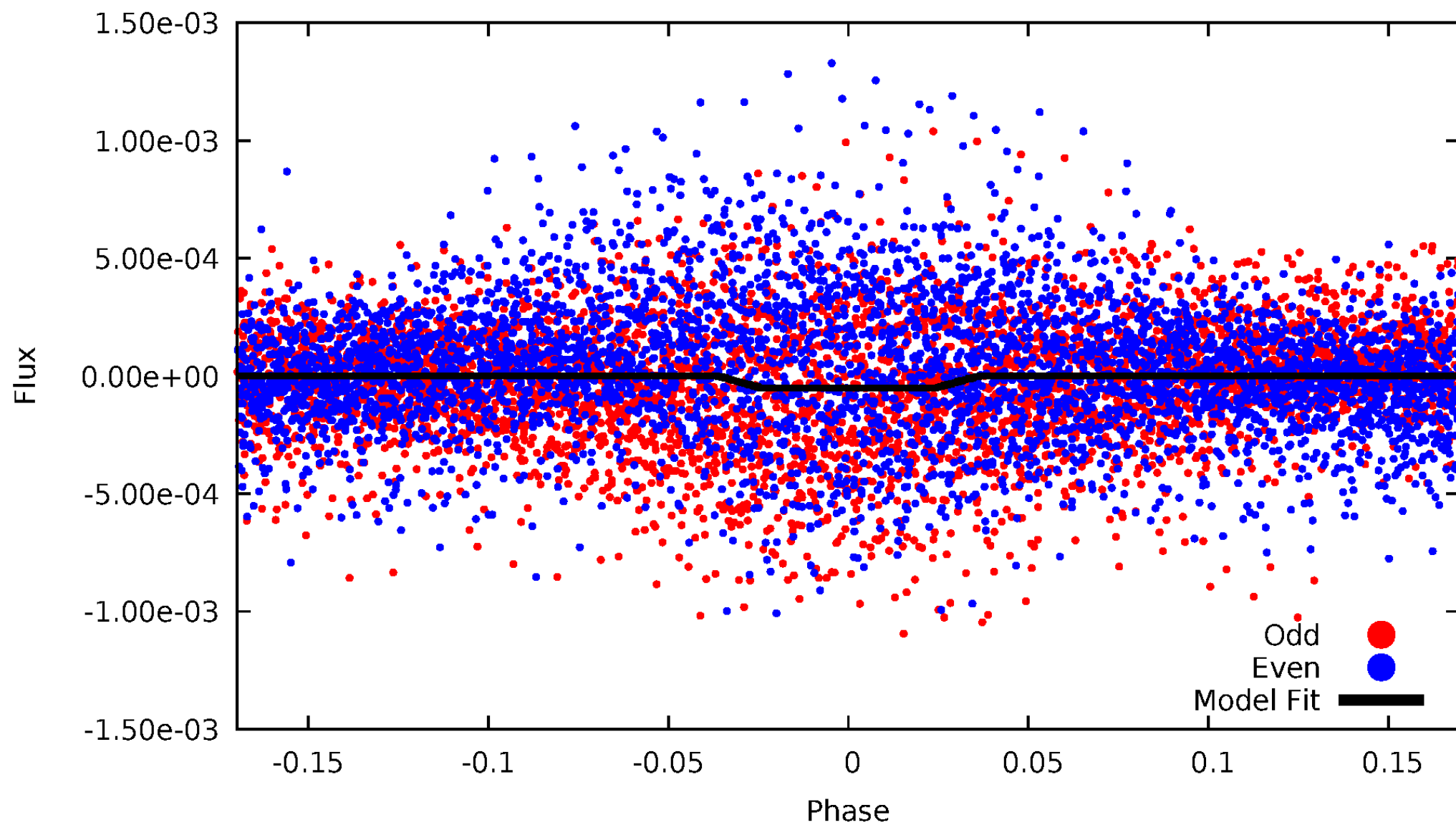
# DV Odd/Even

TCE 003542345-02



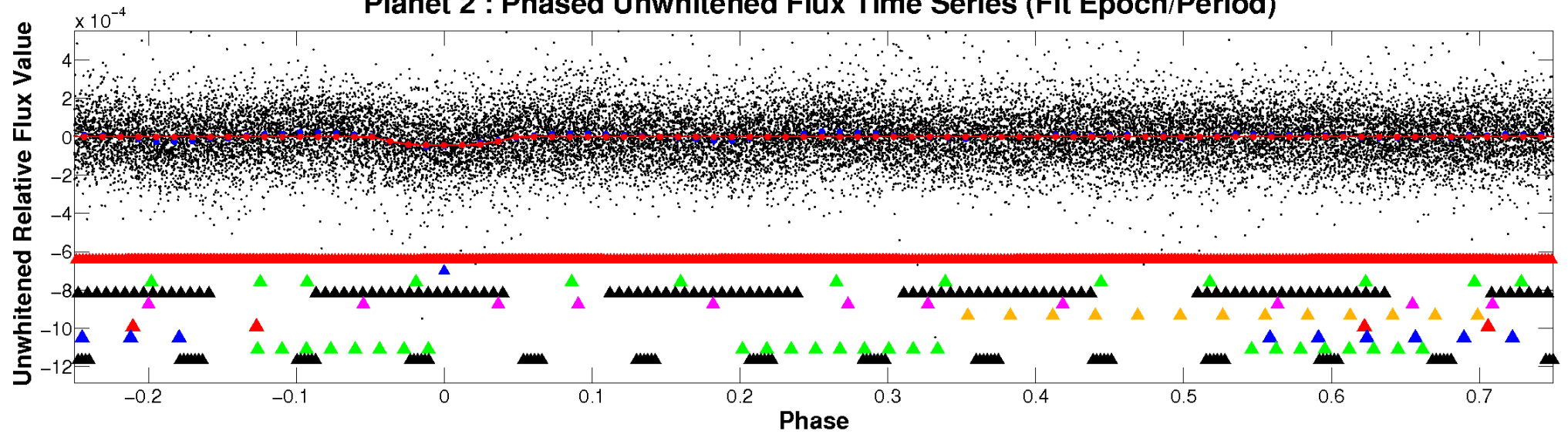
# ALT Odd/Even

TCE 003542345-02

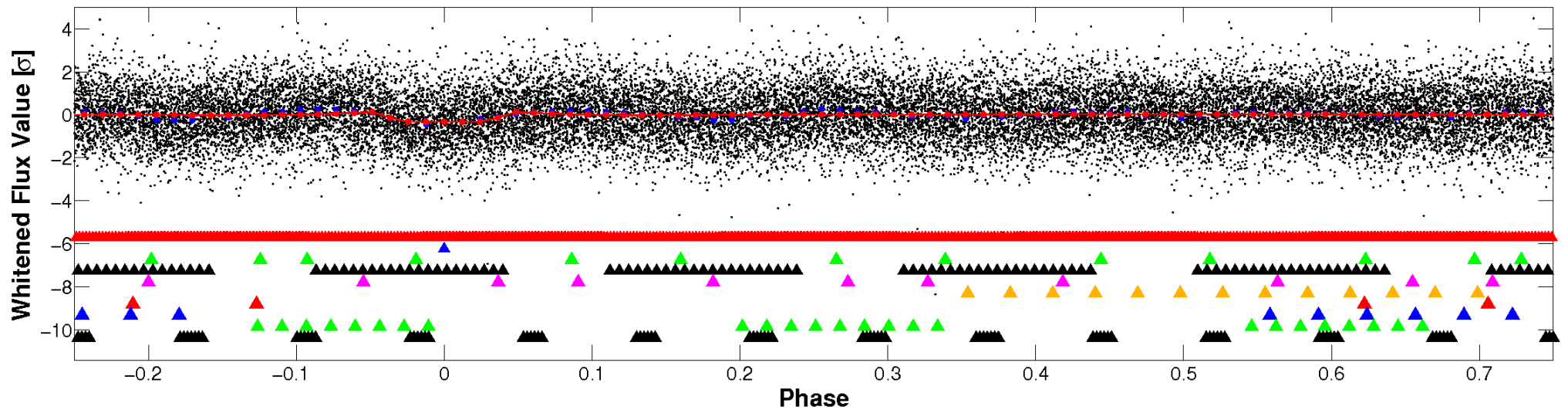


# Non-Whitened Vs. Whitened Light Curve

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

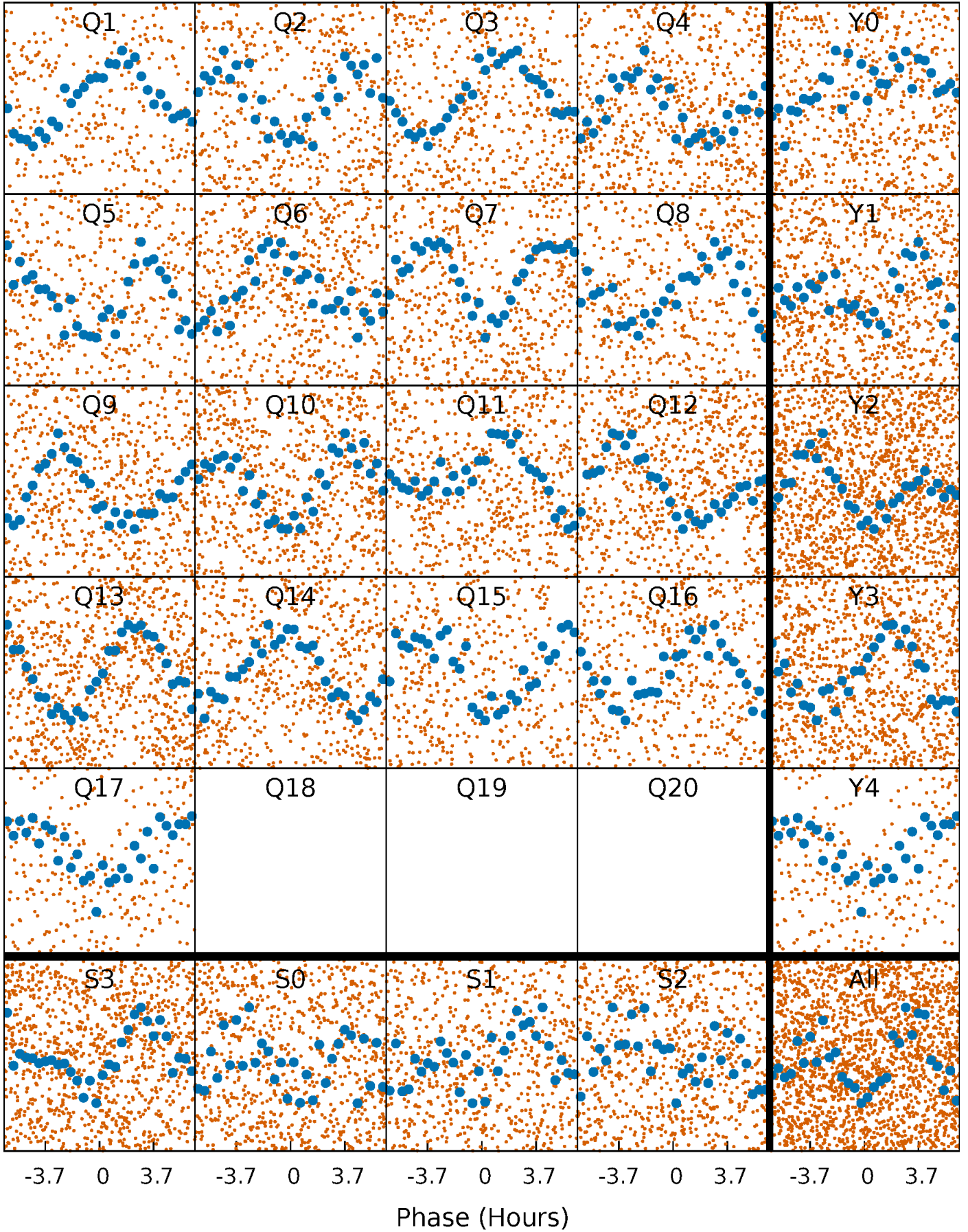


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

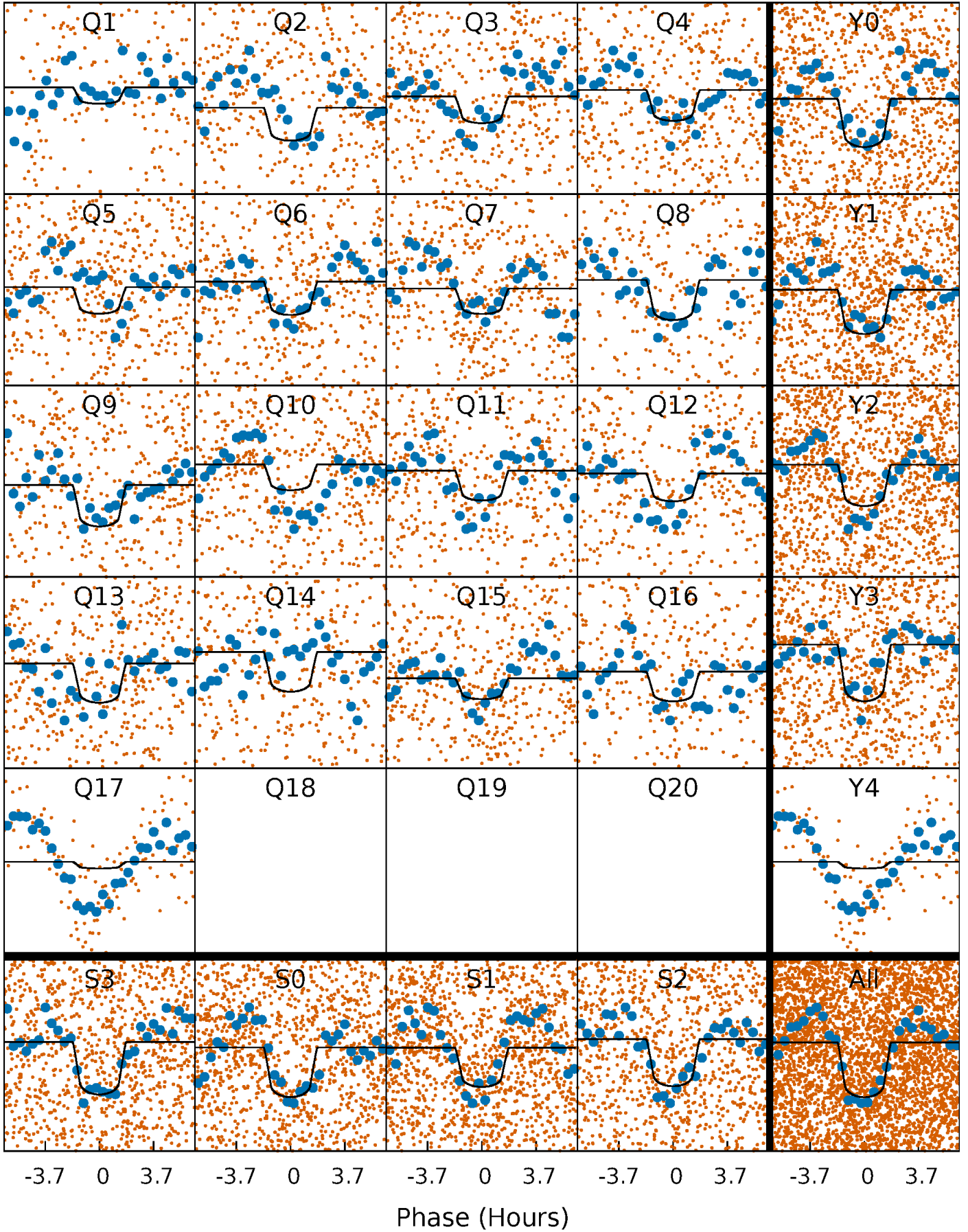
TCE 003542345-02   P= 1.680320 Days    $T_0=132.450335$  (BKJD)





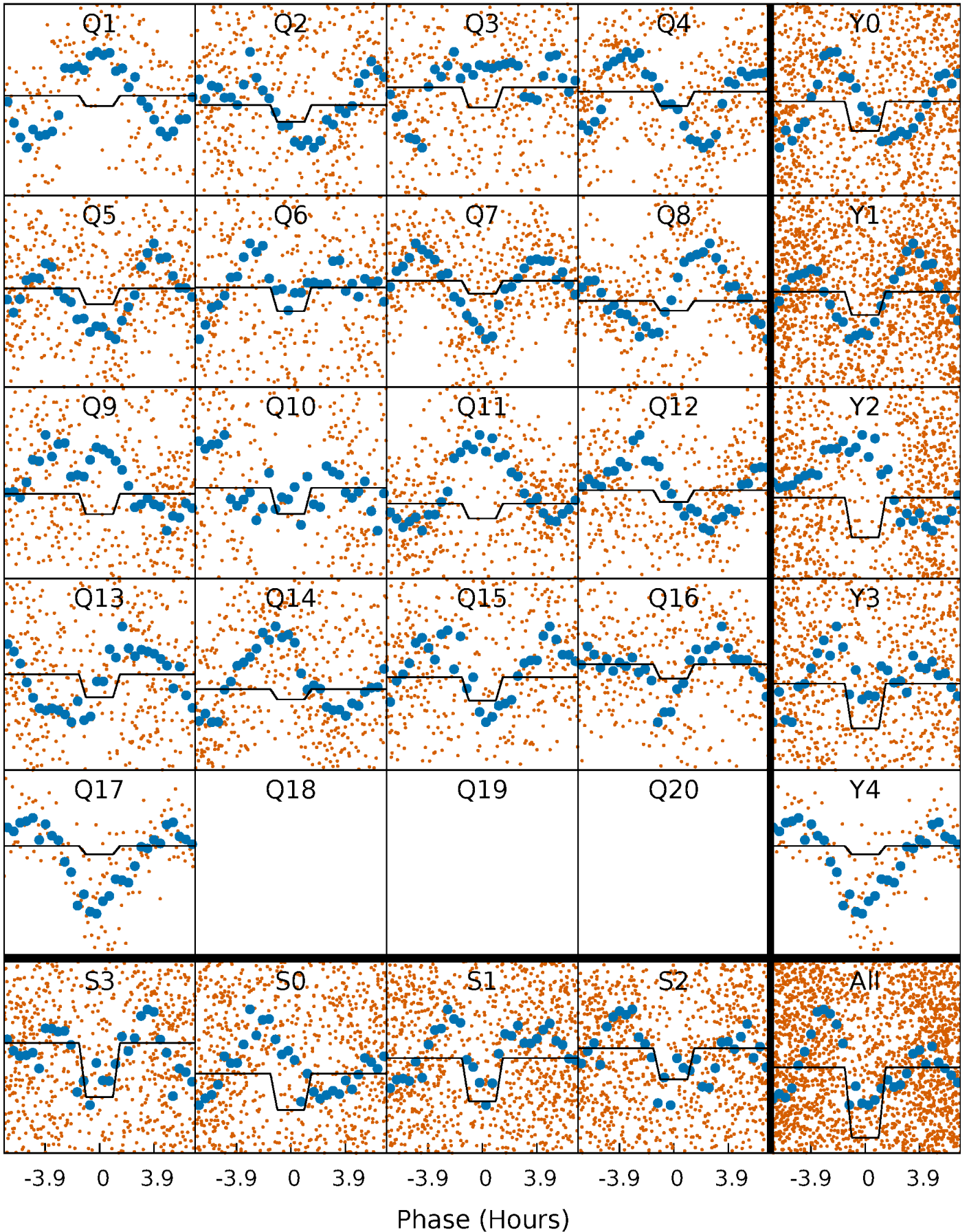
# DV Quarter-Phased Transit Curves

TCE 003542345-02   P= 1.680320 Days    $T_0=132.450335$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

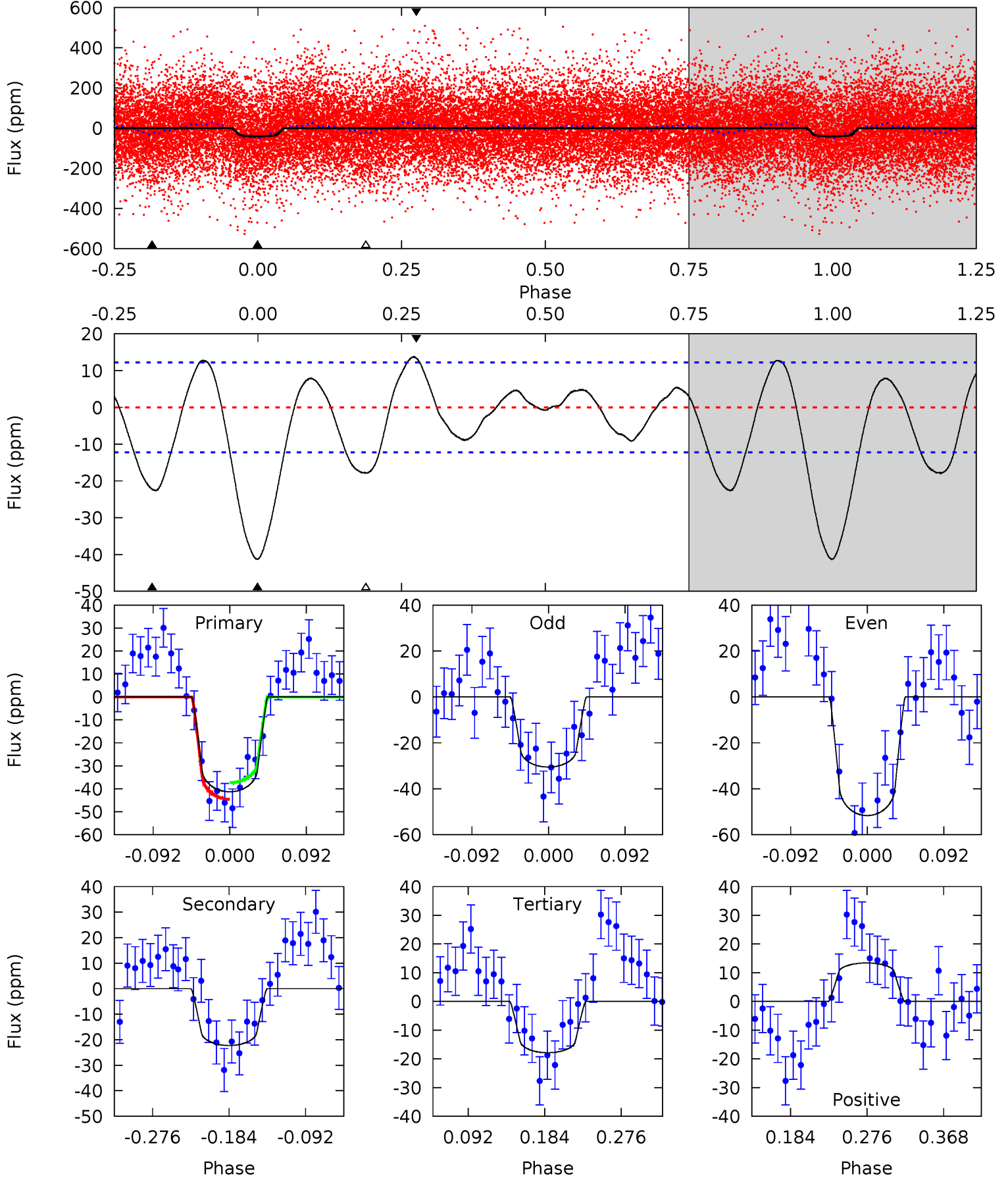
TCE 003542345-02     $P = 1.680303$  Days     $T_0 = 132.457058$  (BKJD)



# DV Model-Shift Uniqueness Test

003542345-02, P = 1.680320 Days, E = 130.770015 Days

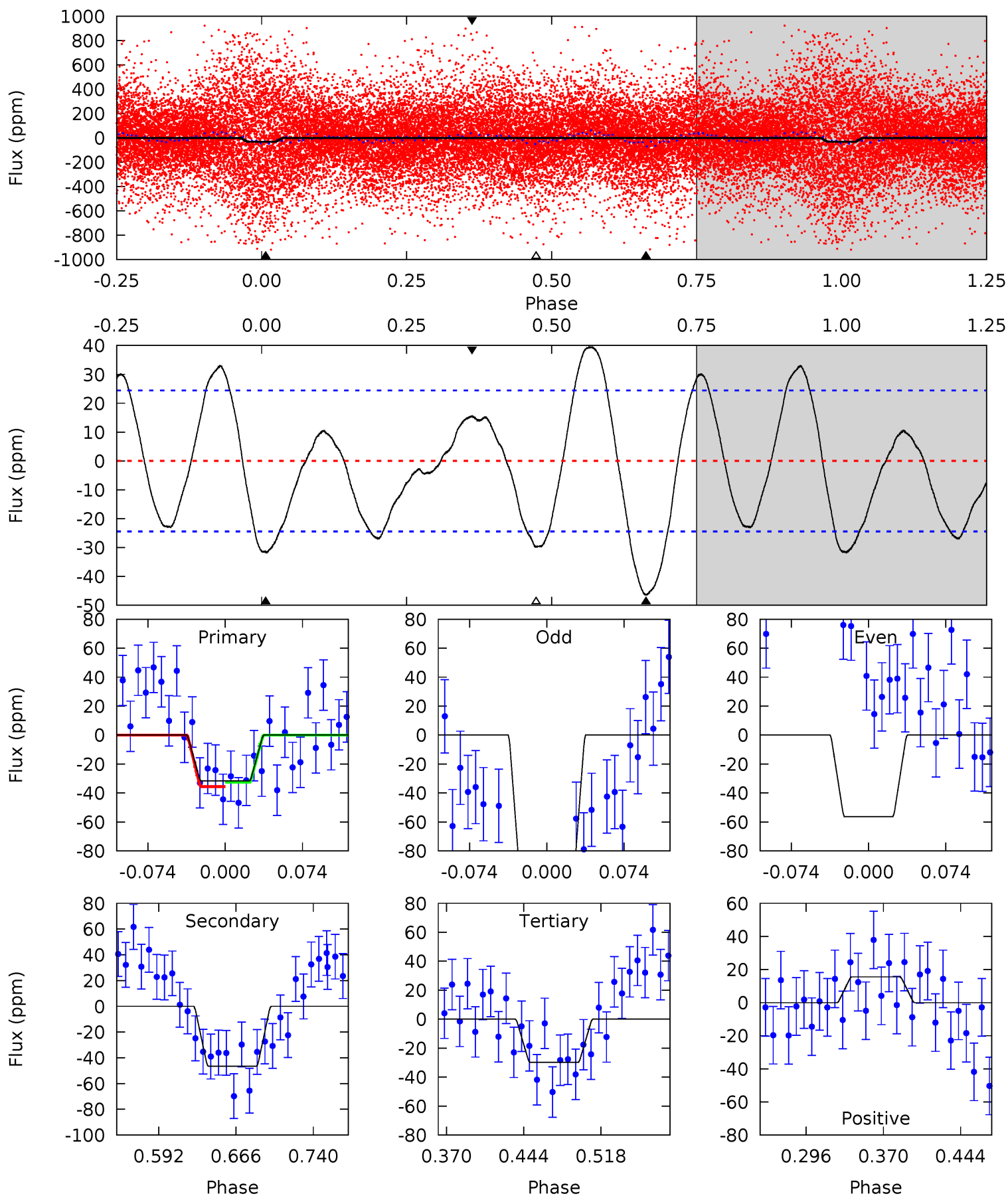
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	8.34	6.70	5.03	4.58	1.68	2.71	8.79	10.5	1.65	3.32	3.98	1.01	0.25	1.36



# Alt Model-Shift Uniqueness Test

003542345-02, P = 1.680303 Days, E = 130.776755 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
6.00	8.81	5.64	2.94	4.63	1.79	3.54	0.37	3.06	3.17	5.86	5.51	0.83	0.46	0.29





### Stellar Parameters For KIC 003542345

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7063^{+195}_{-335}$	$4.218^{+0.090}_{-0.210}$	$0.070^{+0.200}_{-0.350}$	$1.567^{+0.556}_{-0.238}$	$1.480^{+0.214}_{-0.214}$	$0.541^{+0.228}_{-0.305}$
	+3%/-5%	+2%/-5%	+286%/-500%	+35%/-15%	+14%/-14%	+42%/-56%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 003542345-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-22 \pm 3$	$1.26^{+0.35}_{-0.32}$	$3113^{+250}_{-200}$	$5663^{+824}_{-591}$	$7.614^{+5.861}_{-2.952}$
Alt.	$-46 \pm 5$	$1.27^{+0.35}_{-0.31}$	$3103^{+234}_{-178}$	$6728^{+1192}_{-731}$	$15^{+11}_{-6}$

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

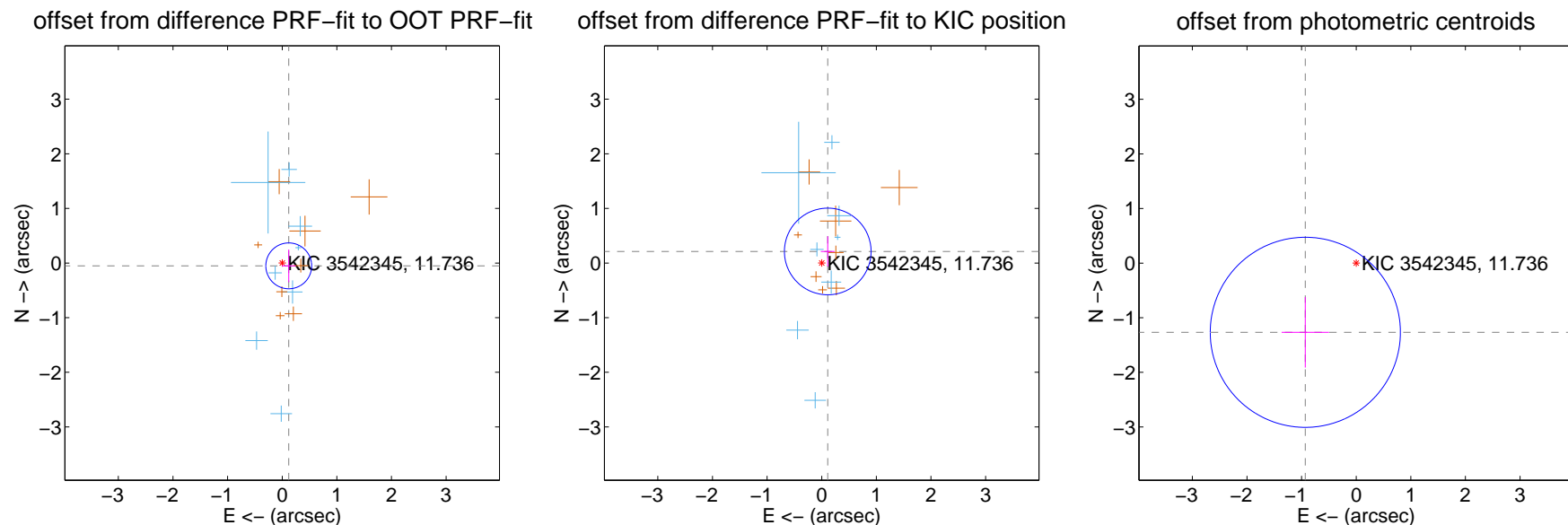
## DV Centroid Data

Supplemental centroid analysis for 003542345-02. **Kepler magnitude: 11.74.** Transit SNR 13.68

There are 8 quarters with good PRF difference image offsets

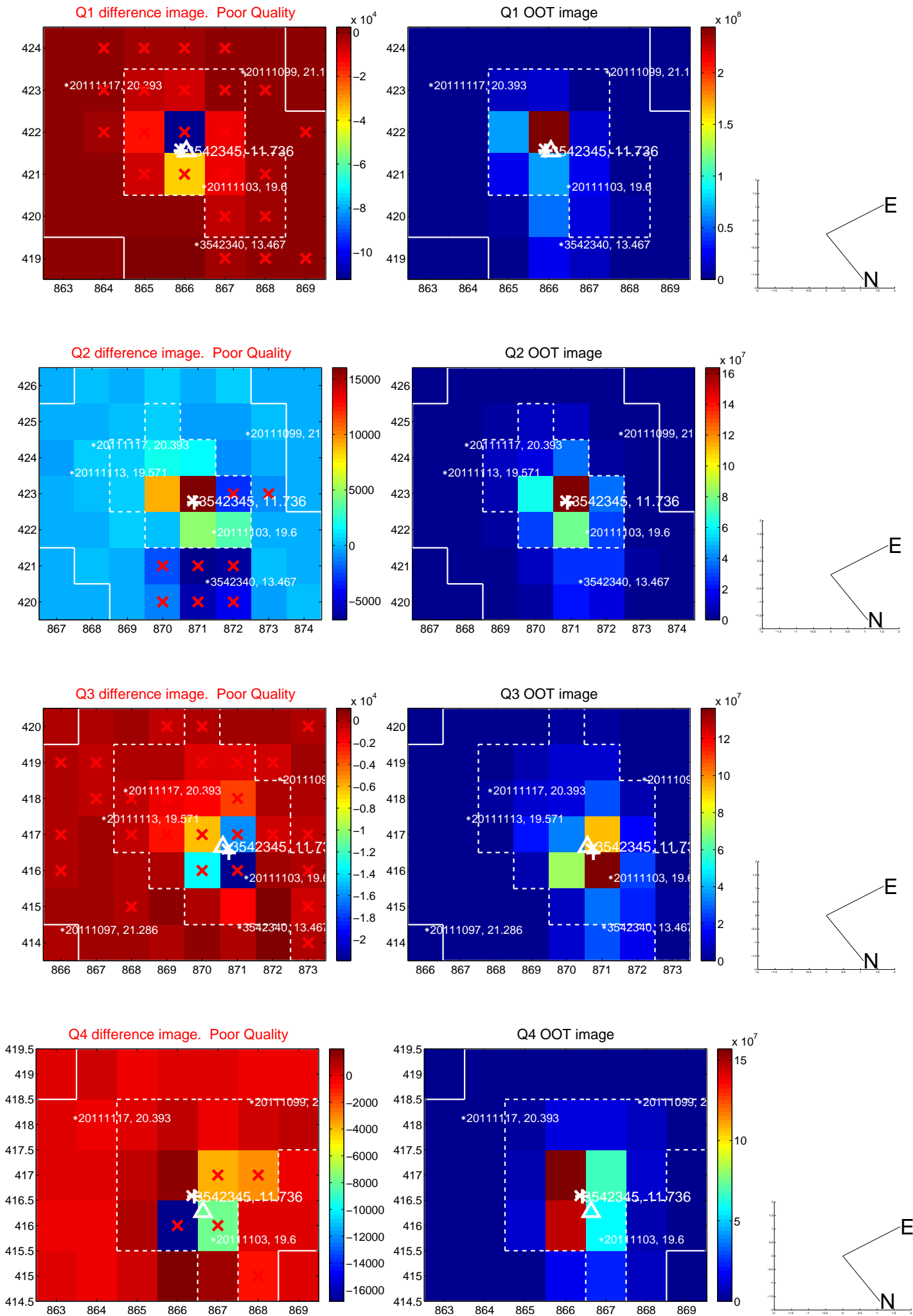
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.130 \pm 0.140$	0.93	$-0.120 \pm 0.127$	$-0.051 \pm 0.299$
PRF-fit source offset from KIC position	$0.239 \pm 0.264$	0.90	$-0.110 \pm 0.126$	$0.212 \pm 0.278$
photometric centroid source offset	$1.57 \pm 0.58$	2.71	$0.93 \pm 0.43$	$-1.27 \pm 0.65$

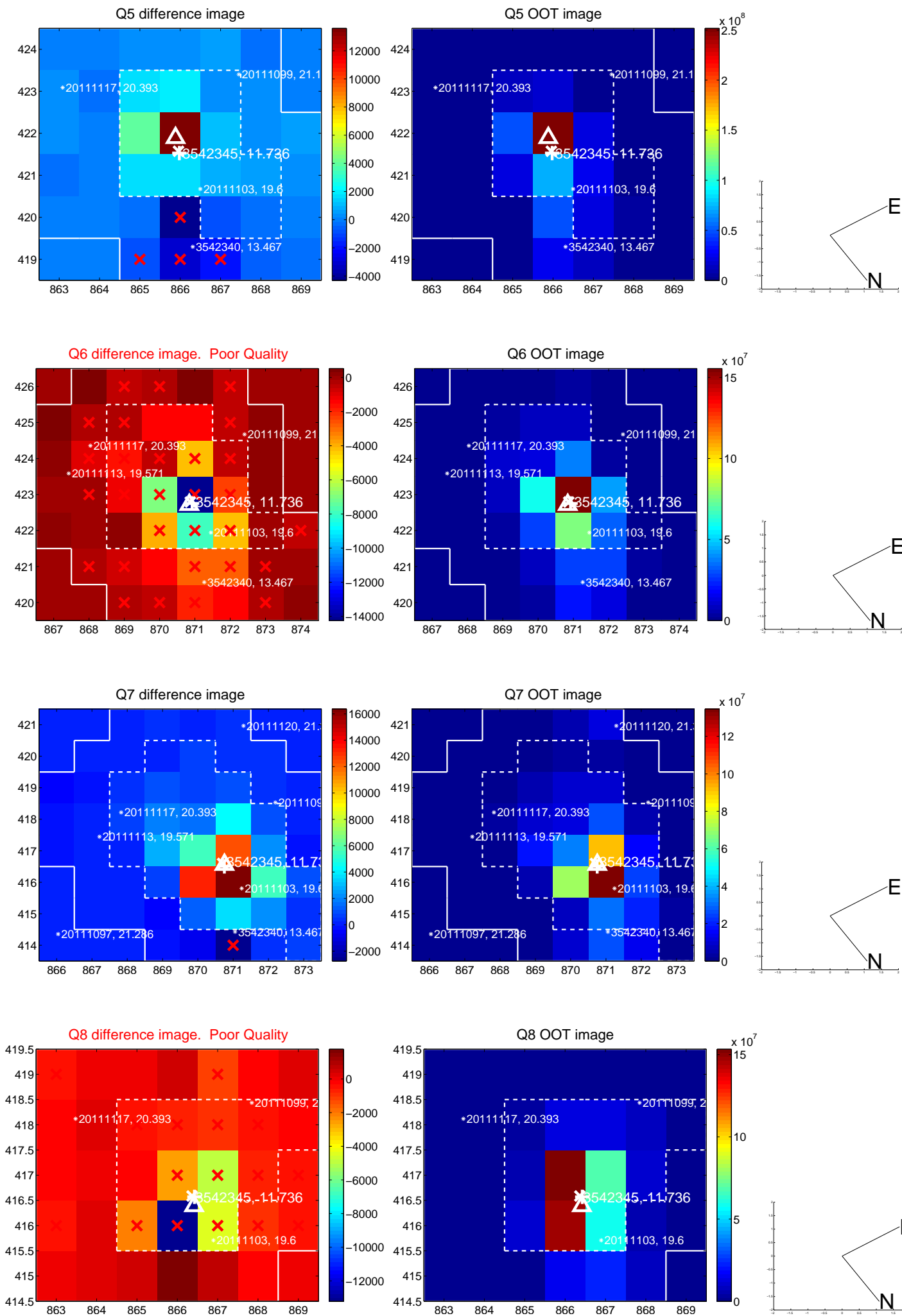


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

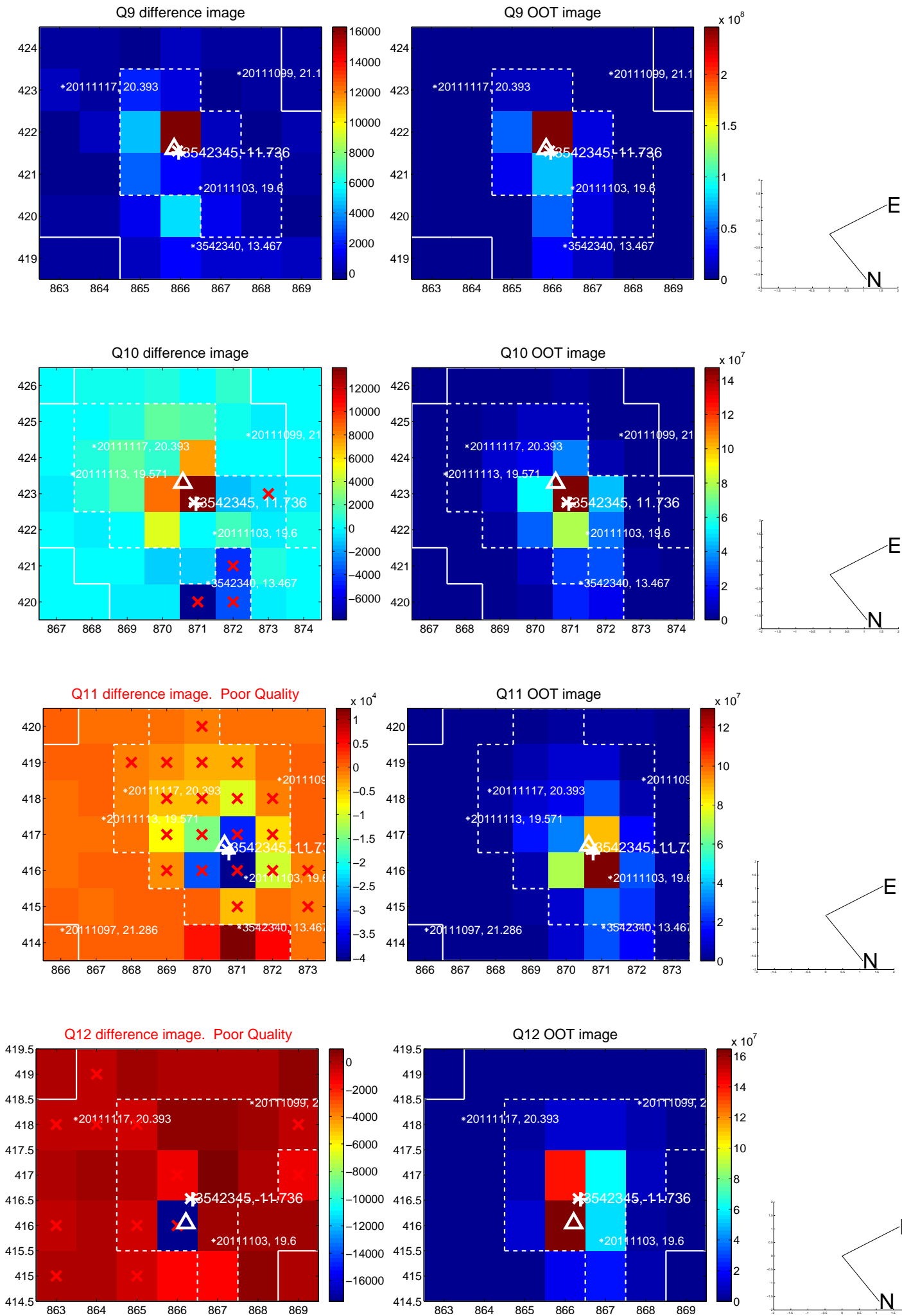
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

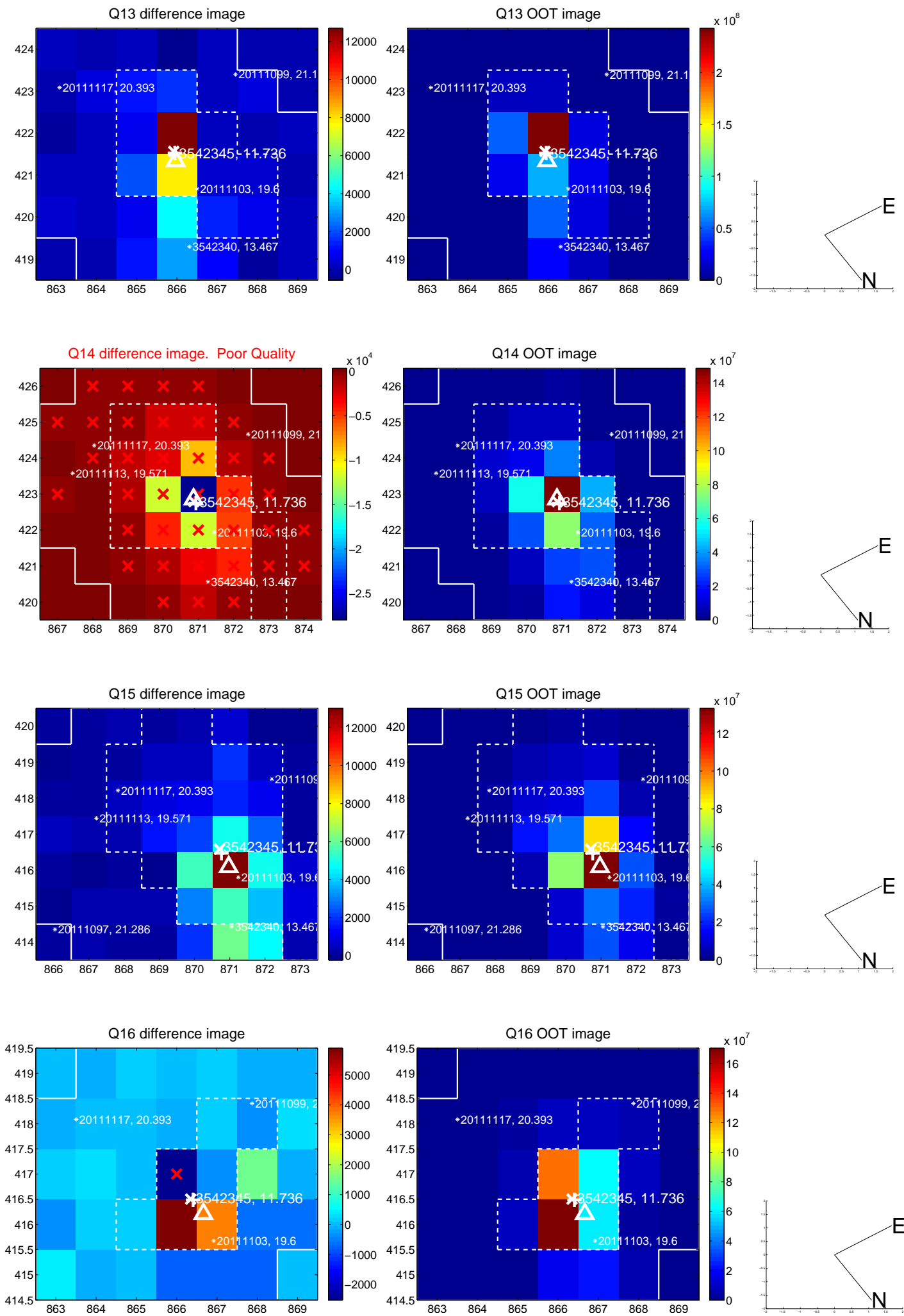


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

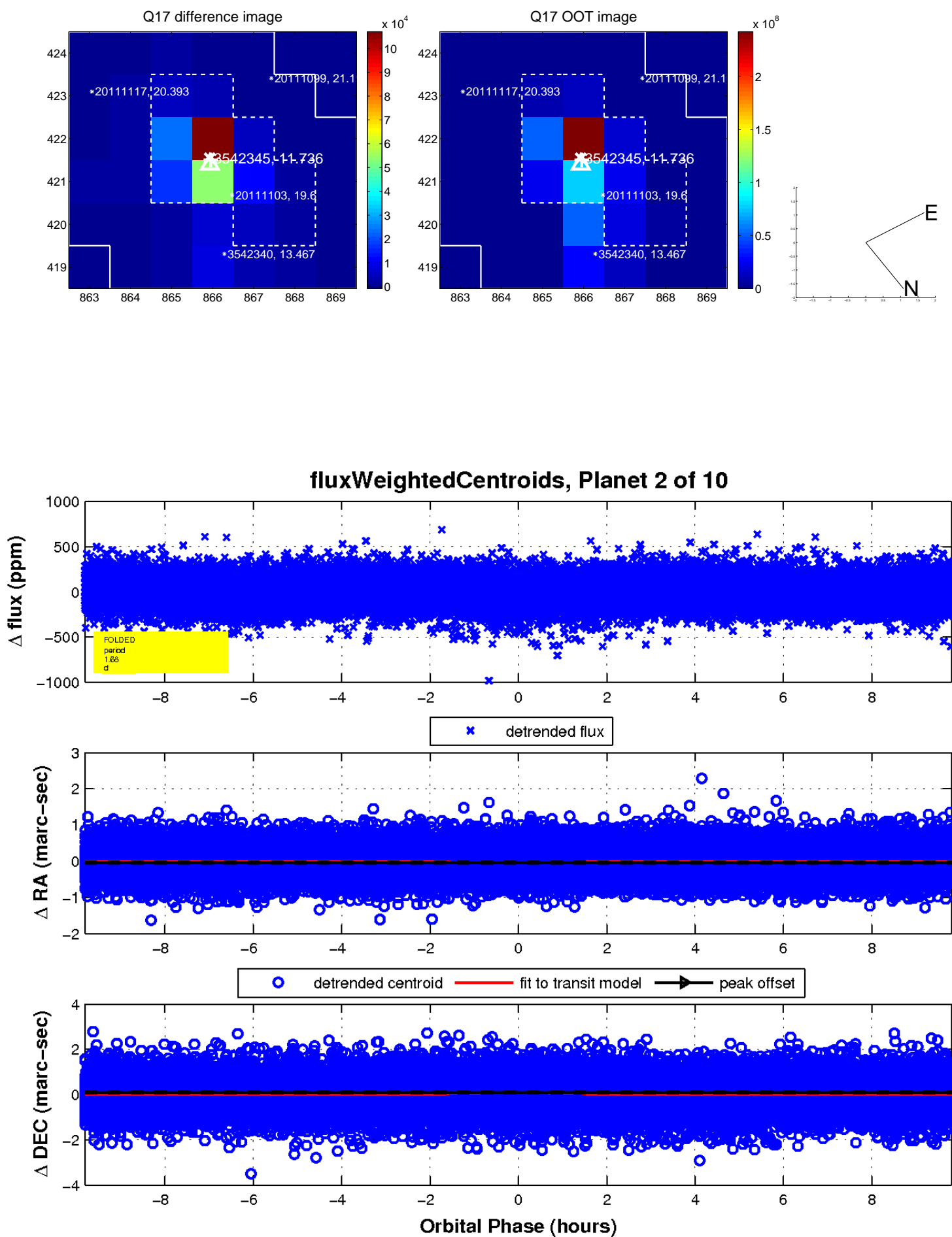




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

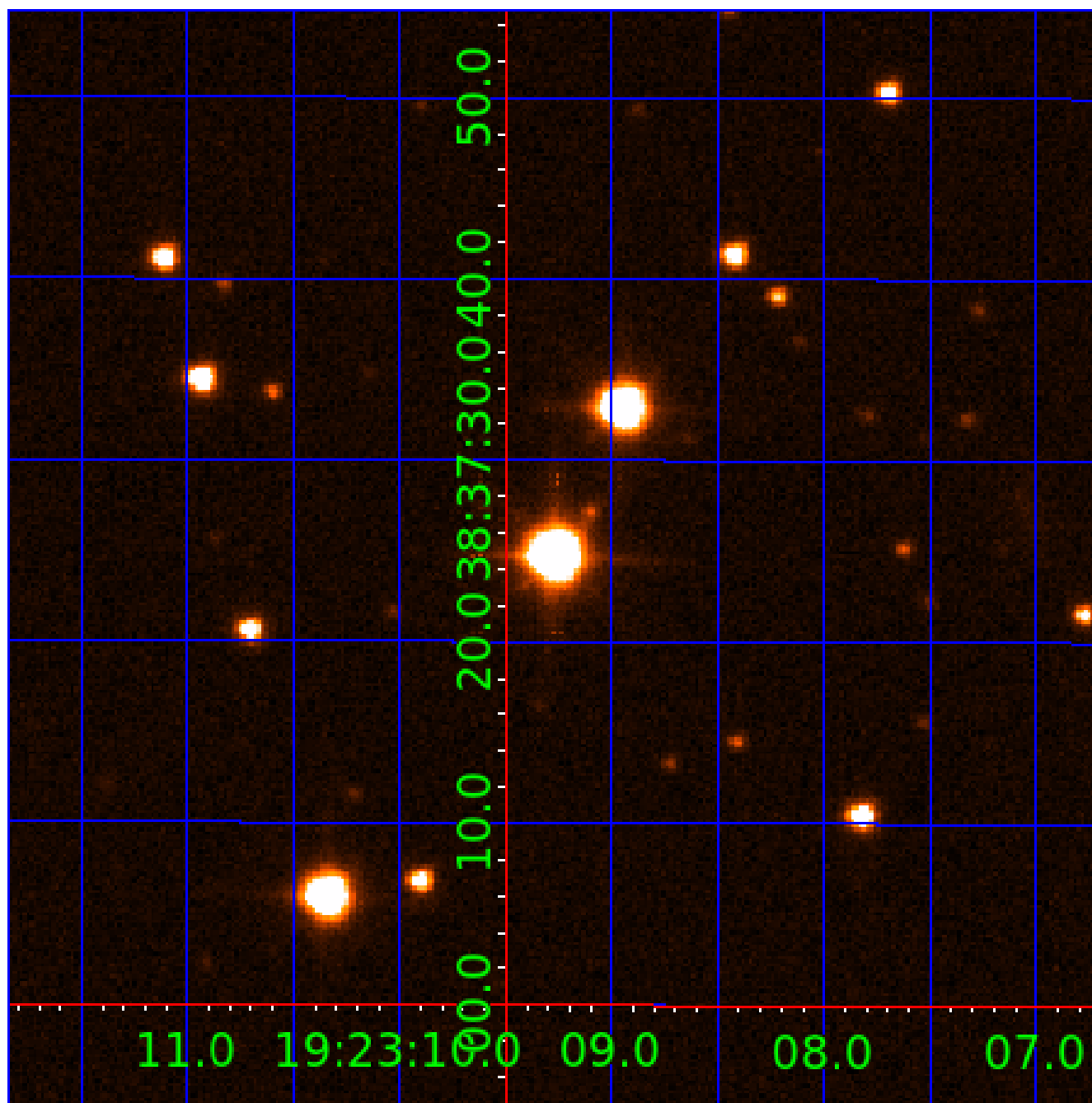


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003542345-01	OBS	No	2.015637	131.623110	7.0	9.704	11.3	3.6	1.57	7063	0.48	4321.96
003542345-02	OBS	No	1.680320	132.450335	43.7	3.268	12.7	13.7	1.57	7063	1.21	5508.60
003542345-03	OBS	No	108.920138	224.658989	111.0	9.730	9.1	7.0	1.57	7063	1.90	21.16
003542345-04	OBS	No	13.776503	138.904321	82.5	4.403	9.1	8.9	1.57	7063	1.65	333.20
003542345-05	OBS	No	136.747408	205.162926	235.9	7.118	8.8	9.0	1.57	7063	3.12	15.62
003542345-06	OBS	No	117.574138	173.952297	84.3	1.804	7.9	3.2	1.57	7063	1.79	19.11
003542345-07	OBS	No	352.726752	291.867554	166.0	9.180	7.9	7.8	1.57	7063	2.09	4.42
003542345-08	OBS	No	173.017872	135.509841	235.0	5.587	8.2	8.6	1.57	7063	2.80	11.41
003542345-09	OBS	No	57.681750	183.420652	160.5	3.890	8.6	7.7	1.57	7063	2.02	49.38
003542345-10	OBS	No	17.579058	139.776078	87.2	5.090	8.1	8.5	1.57	7063	1.73	240.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003542345-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003542345-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT
003542345-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
003542345-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
003542345-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

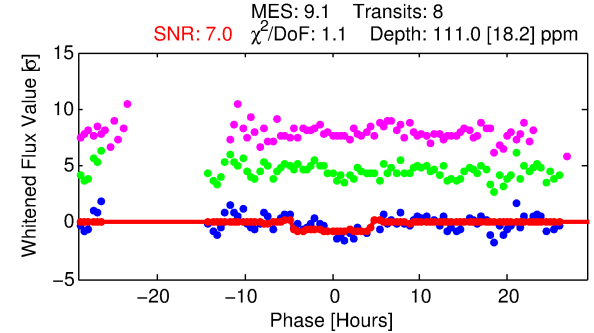
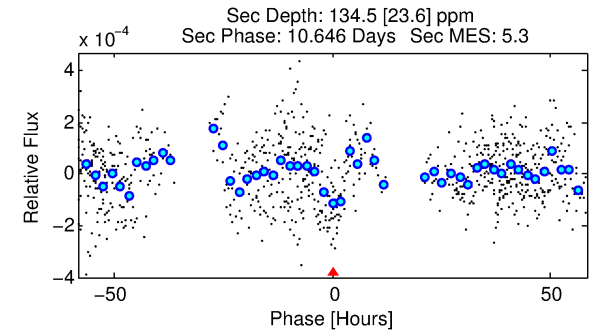
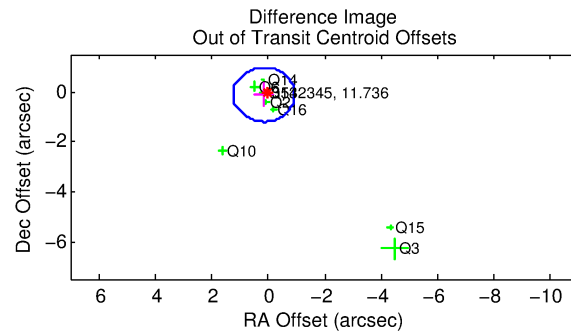
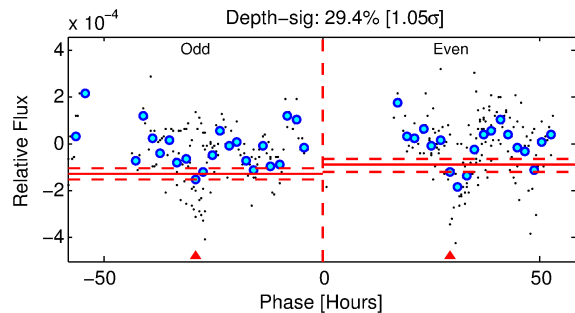
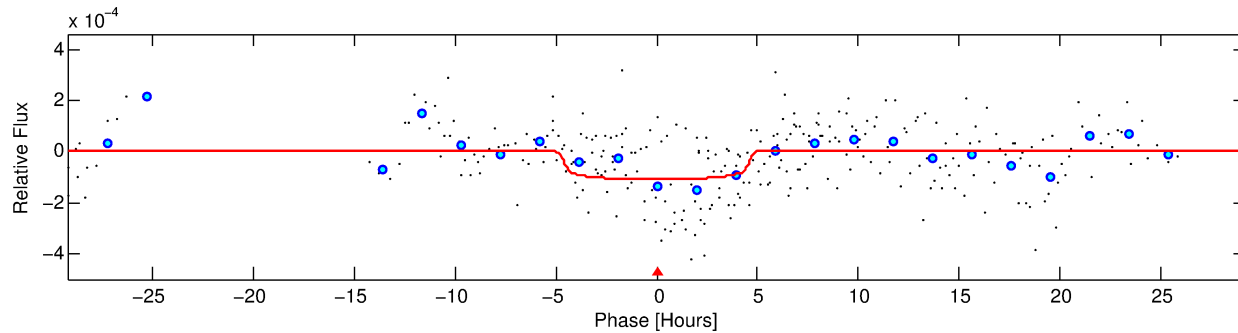
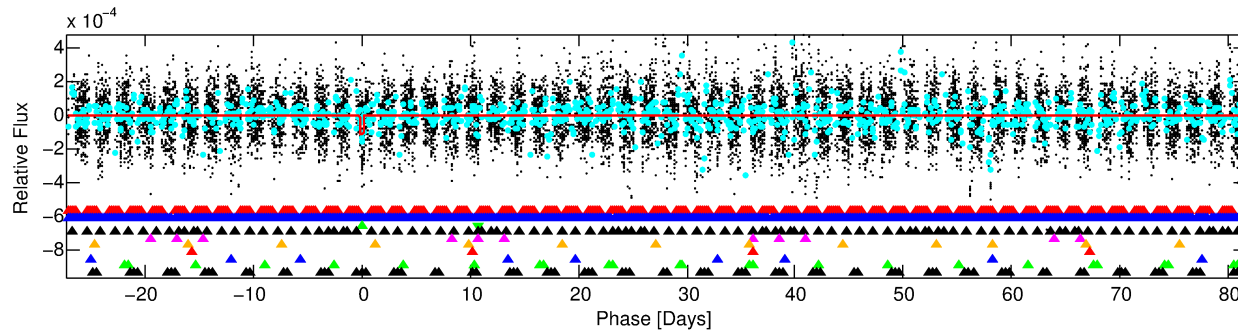
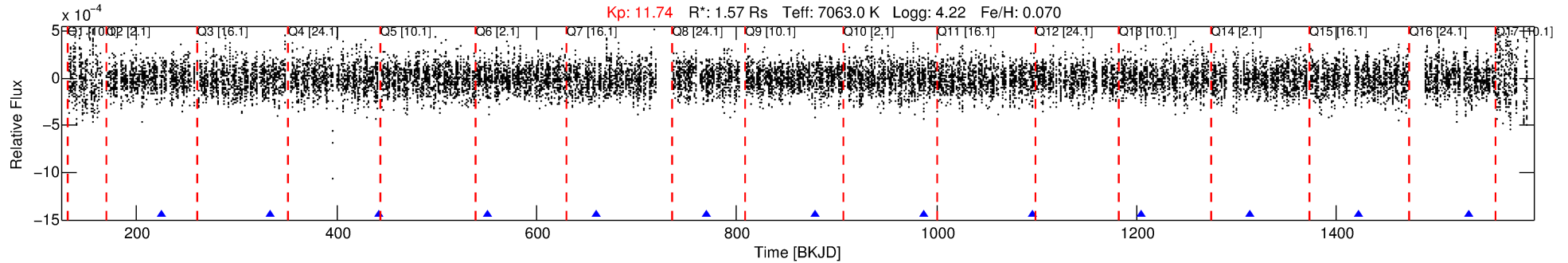
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003542345-03

No Significant Match Found

# DV One-Page Summary

KIC: 3542345 Candidate: 3 of 10 Period: 108.920 d



## DV Fit Results:

Period = 108.92014 [0.00389] d  
Epoch = 224.6590 [0.0347] BKJD  
 $R_p/R^* = 0.0111$  [0.0026]  
 $a/R^* = 41.55$  [56.39]  
 $b = 0.89$  [0.33]  
 $S_{\text{eff}} = 21.16$  [9.36]  
 $T_{\text{eq}} = 547$  [61] K  
 $R_p = 1.90$  [0.81]  $R_e$   
 $a = 0.5087$  [0.1456] AU  
 $A_g = 5311.64$  [3422.75] [1.55 $\sigma$ ]  
 $T_{\text{eff}} = 7218$  [974] K [6.84 $\sigma$ ]

## DV Diagnostic Results:

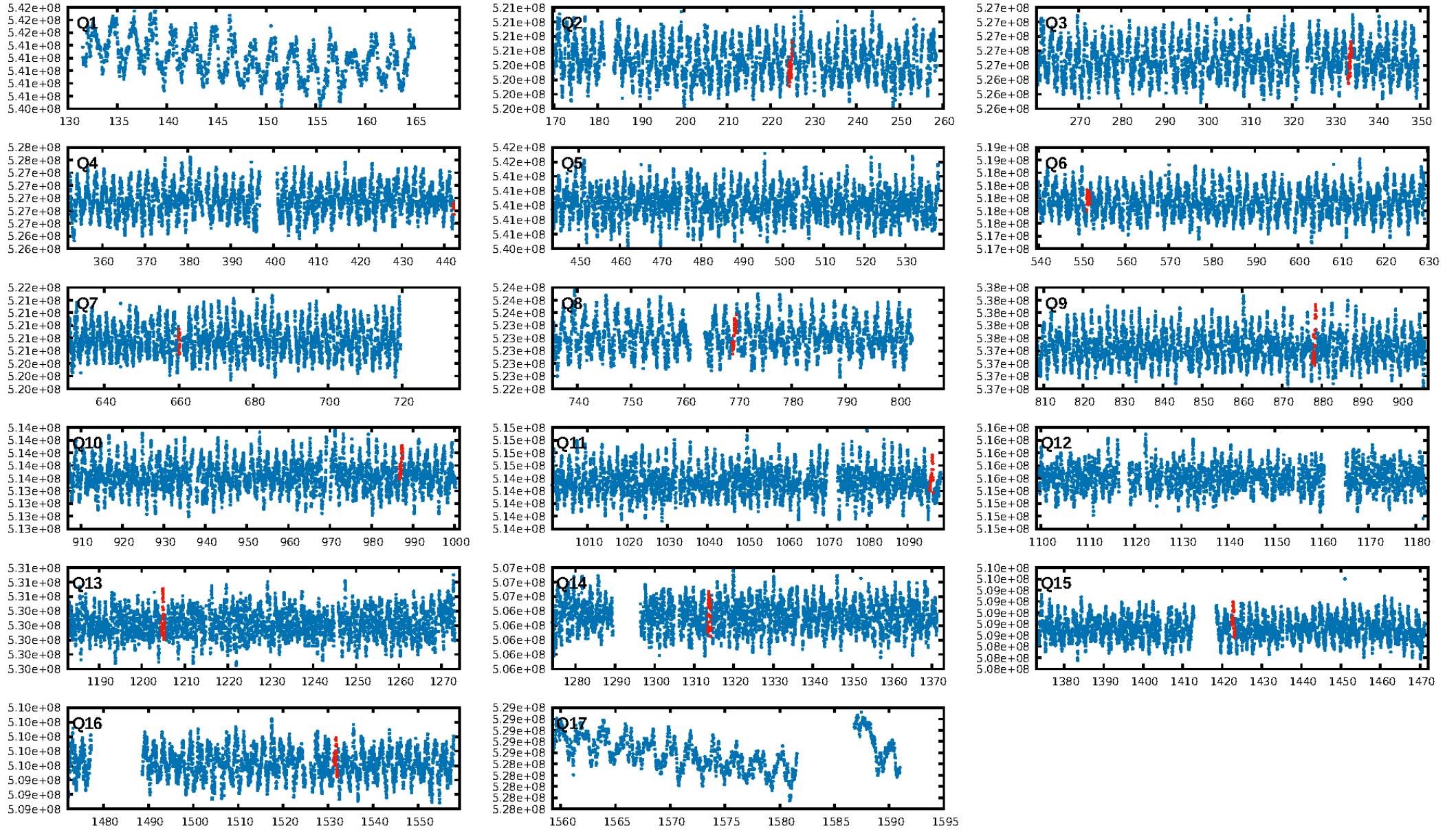
ShortPeriod-sig: 100.0% [117.35 $\sigma$ ]  
LongPeriod-sig: 100.0% [20.99 $\sigma$ ]  
ModelChiSquare2-sig: 27.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: -3.753  
Centroid-sig: 0.1%  
Centroid-so: 3.079 arcsec [2.02 $\sigma$ ]  
OotOffset-rm: 0.190 arcsec [0.52 $\sigma$ ]  
KicOffset-rm: 0.267 arcsec [0.28 $\sigma$ ]  
OotOffset-st: 4/2/1/1 [8]  
KicOffset-st: 4/2/1/1 [8]  
DiffImageQuality-fgm: 0.12 [1/8]  
DiffImageOverlap-fno: 0.00 [0/10]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:30:33 Z

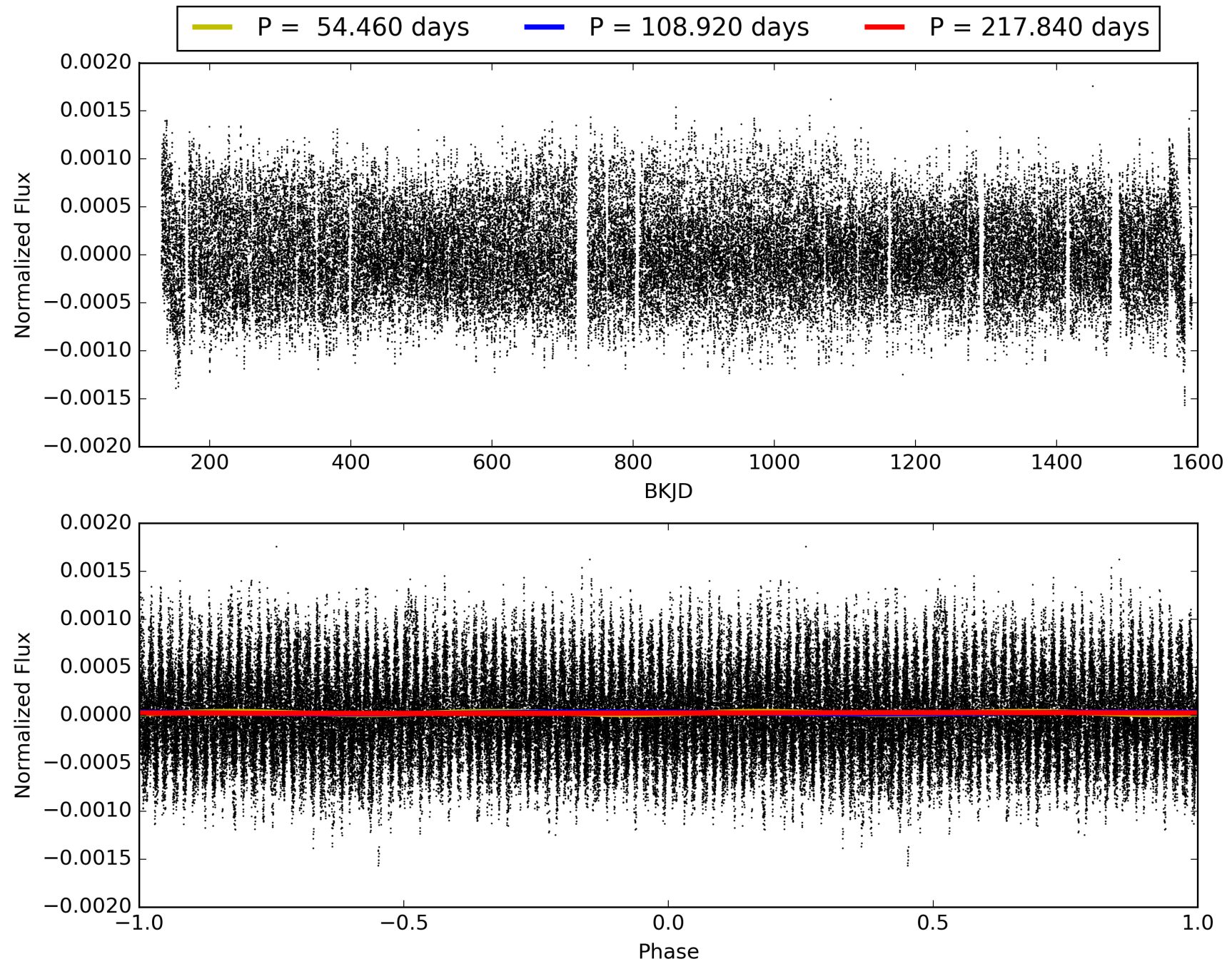
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 003542345-03, PDC Light Curves

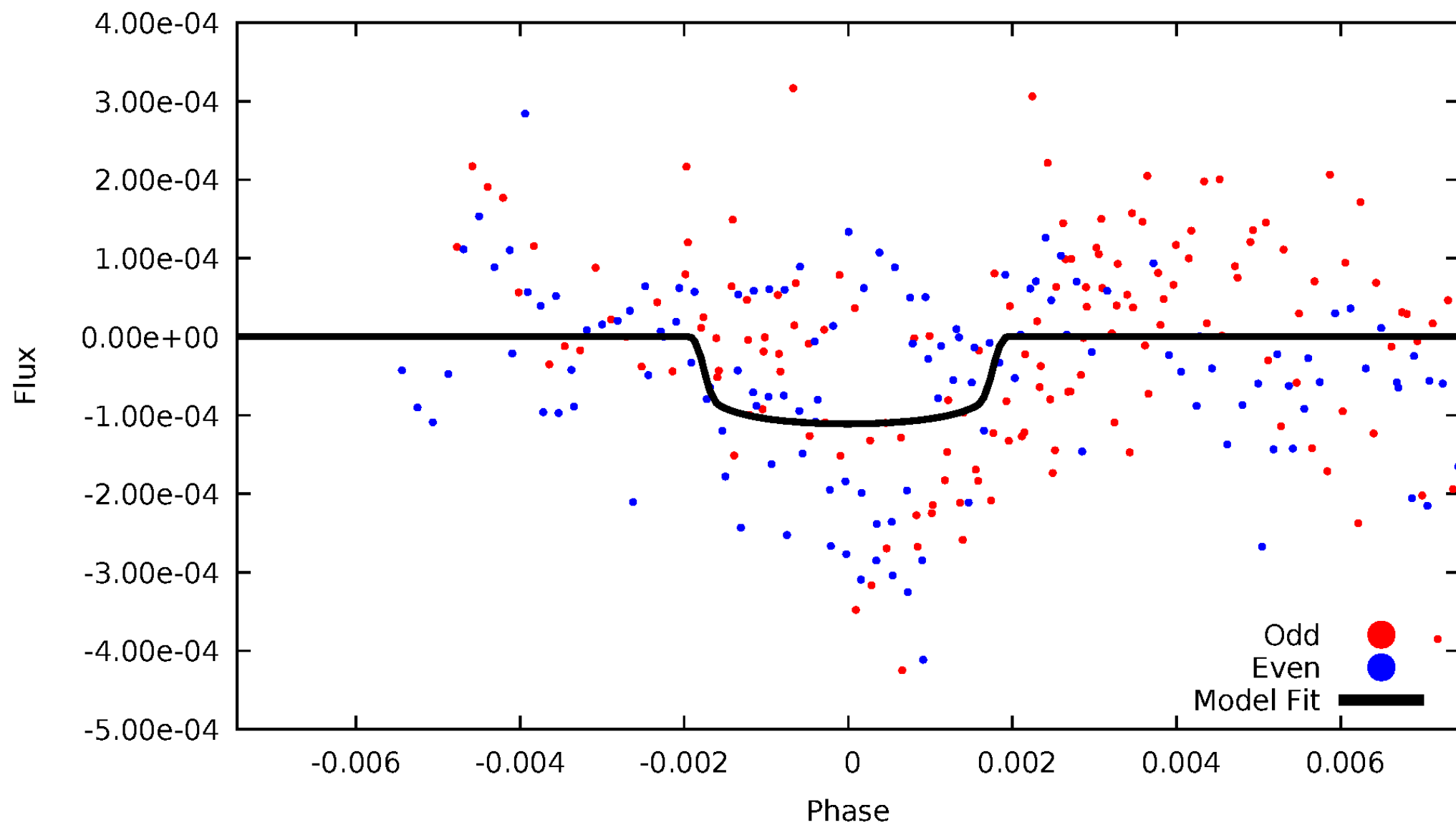


TCE 003542345-03



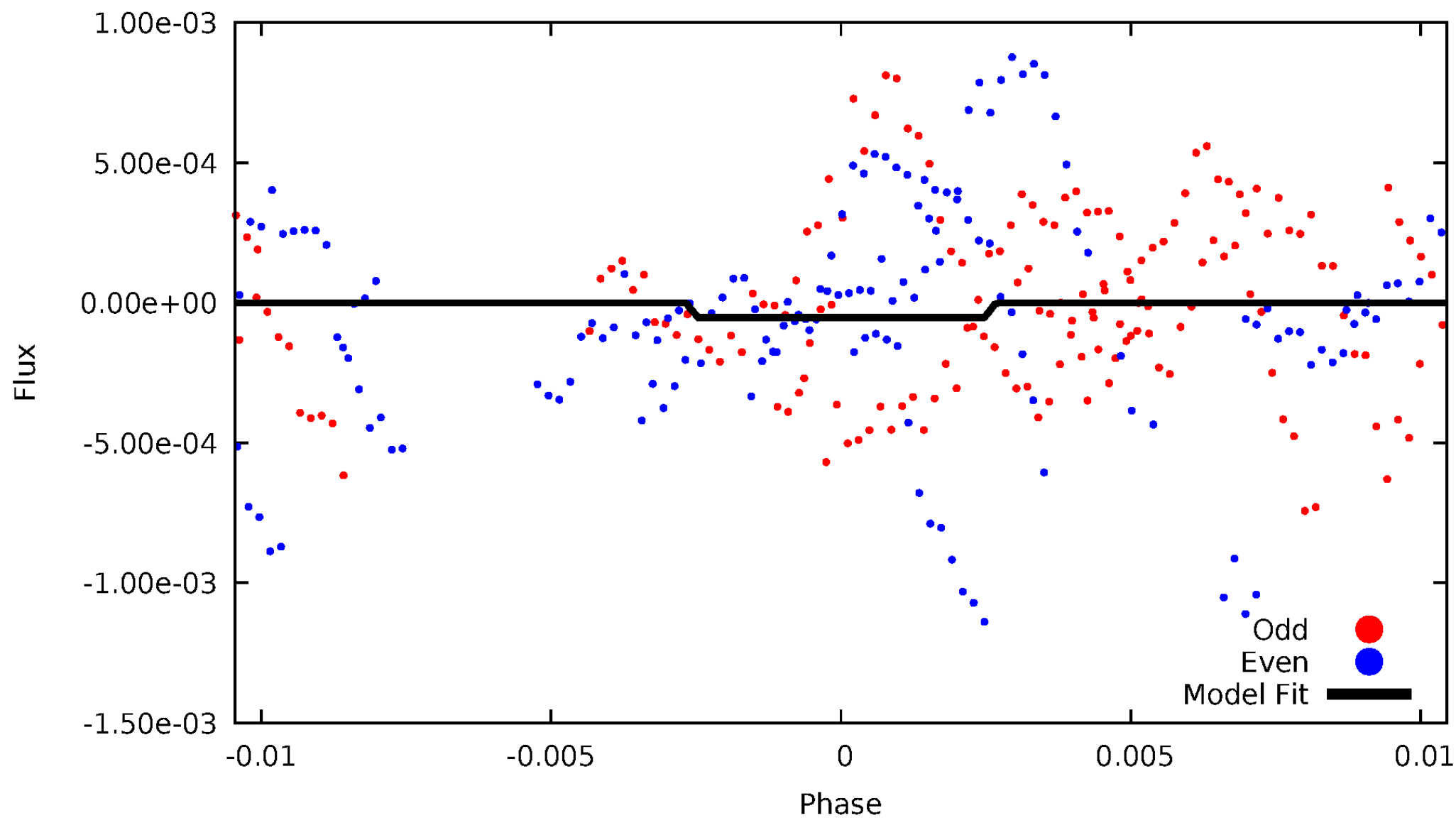
# DV Odd/Even

TCE 003542345-03



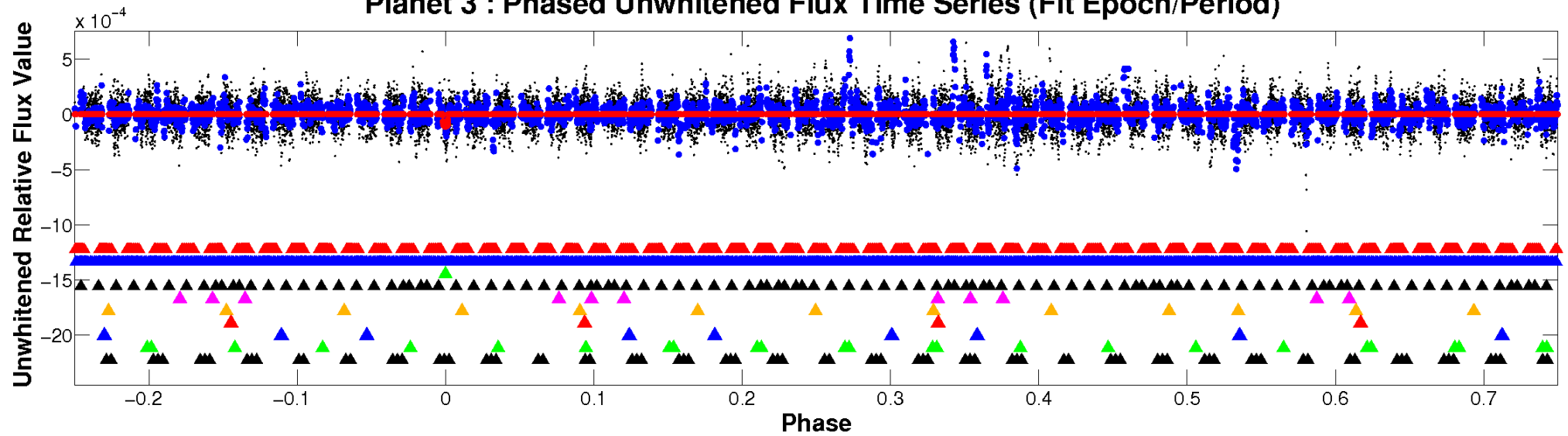
# ALT Odd/Even

TCE 003542345-03

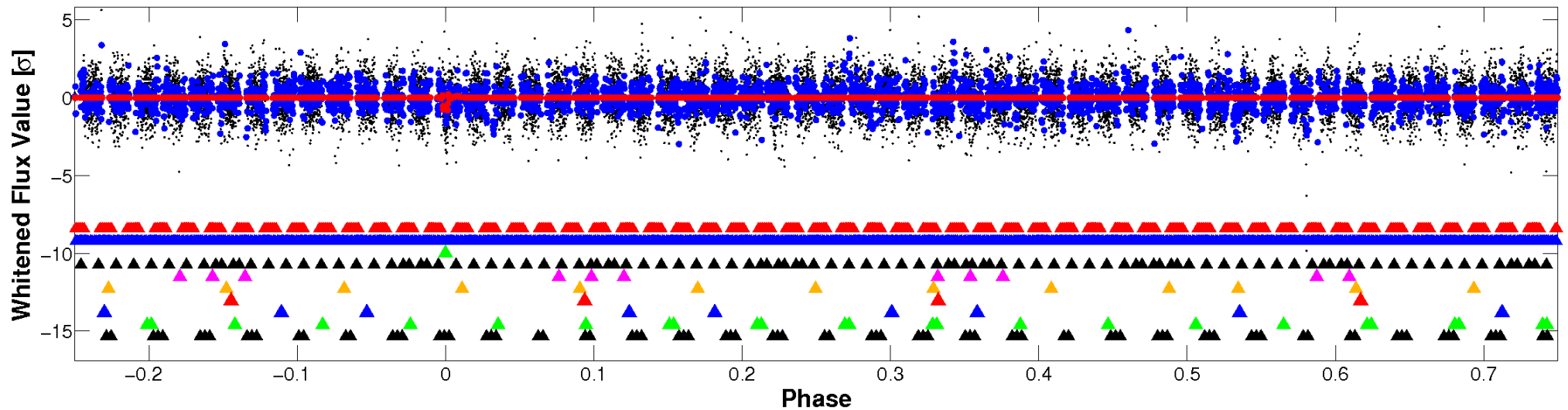


# Non-Whitened Vs. Whitened Light Curve

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



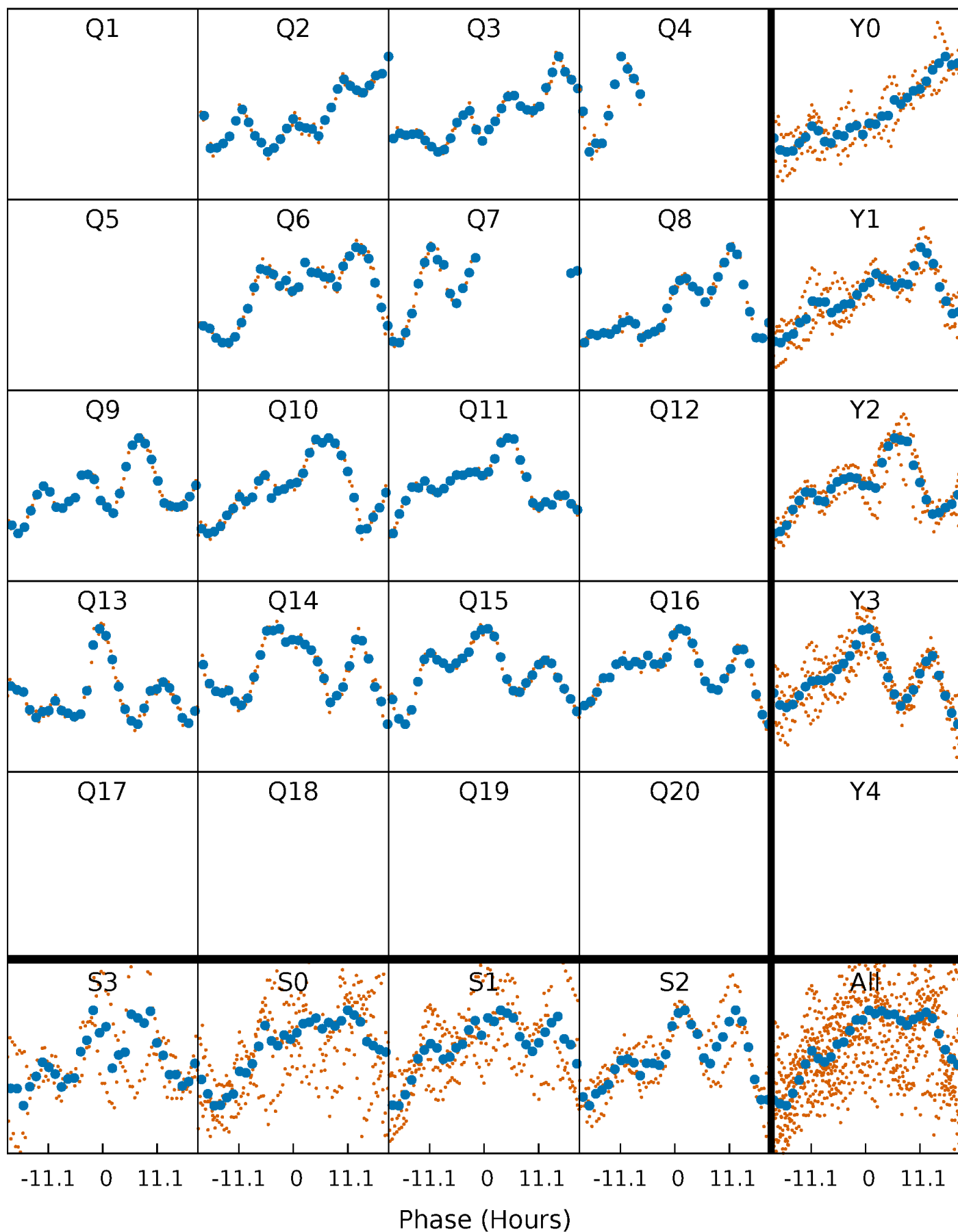
## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





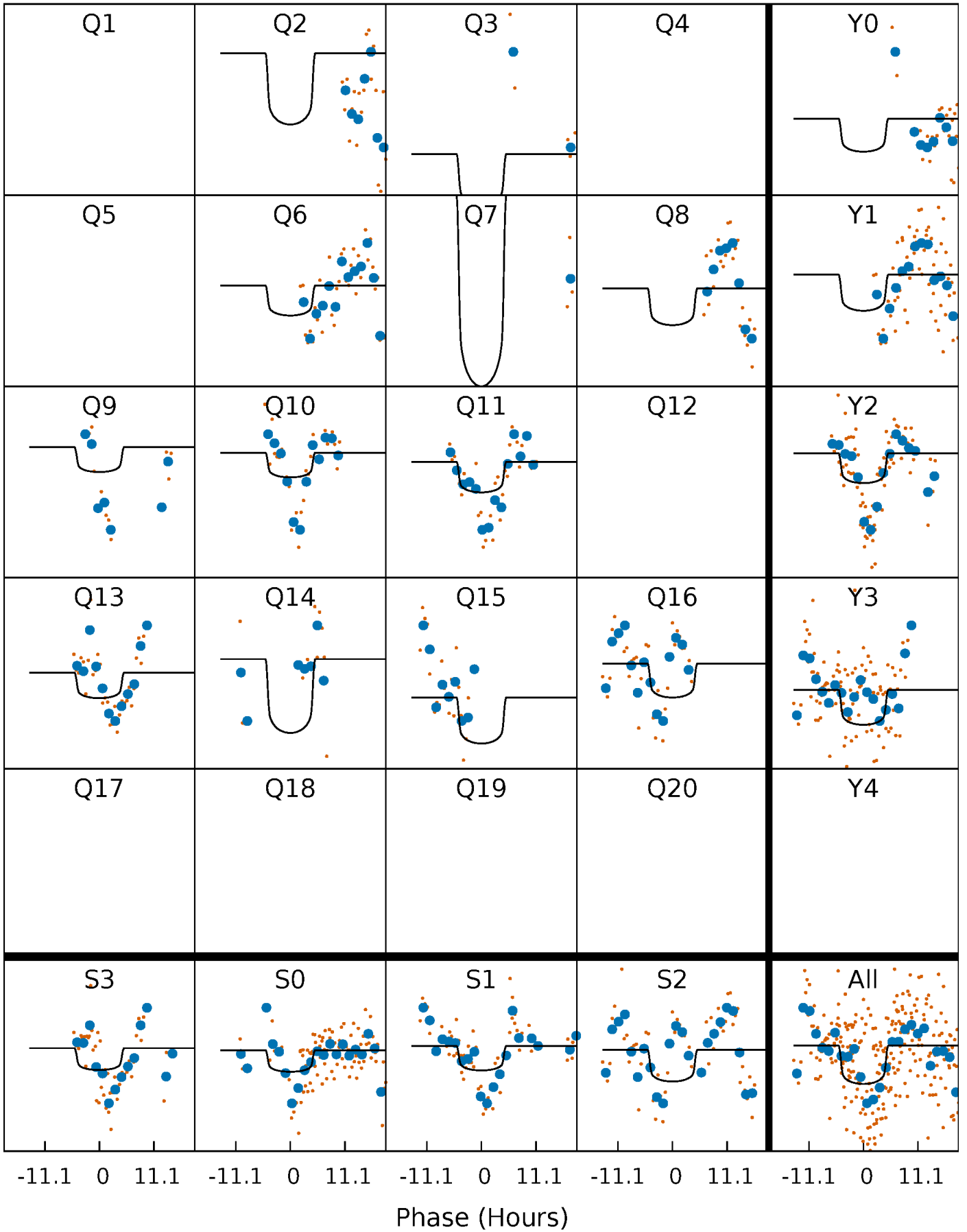
# PDC Quarter-Phased Transit Curves

TCE 003542345-03 P=108.920138 Days  $T_0=224.658989$  (BKJD)



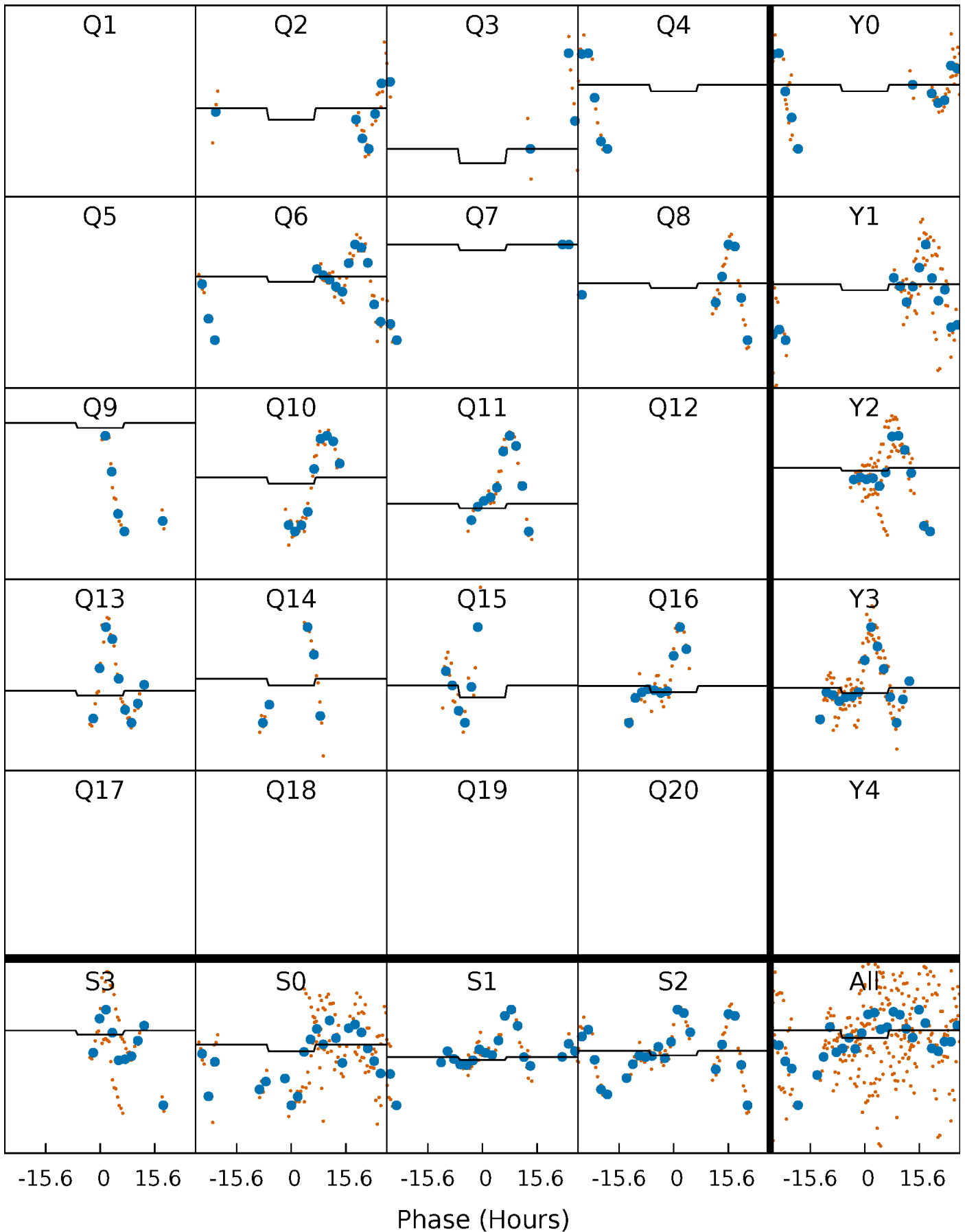
# DV Quarter-Phased Transit Curves

TCE 003542345-03 P=108.920138 Days  $T_0=224.658989$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

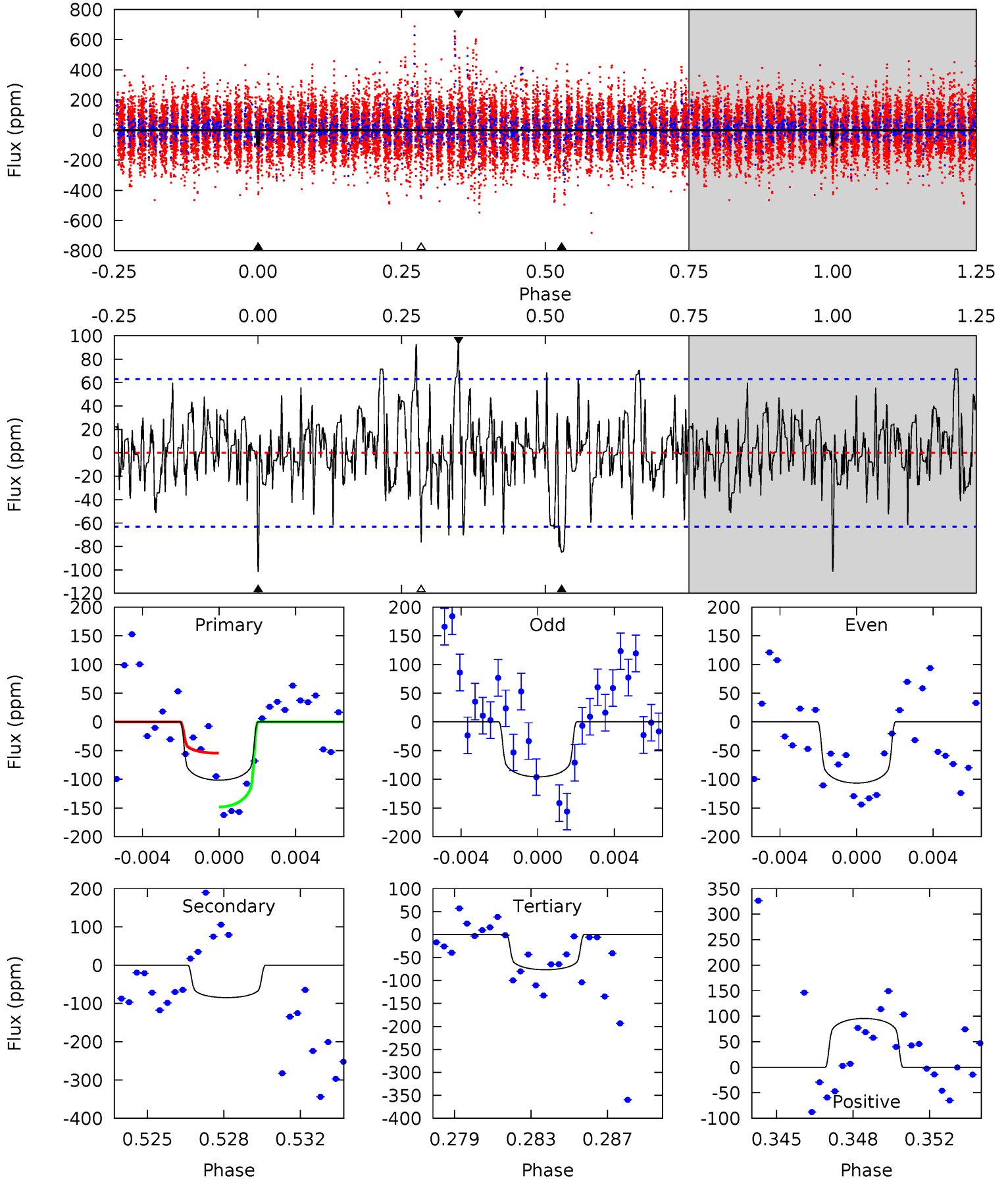
TCE 003542345-03 P=108.944868 Days  $T_0=224.339904$  (BKJD)



# DV Model-Shift Uniqueness Test

003542345-03, P = 108.920138 Days, E = 115.738851 Days

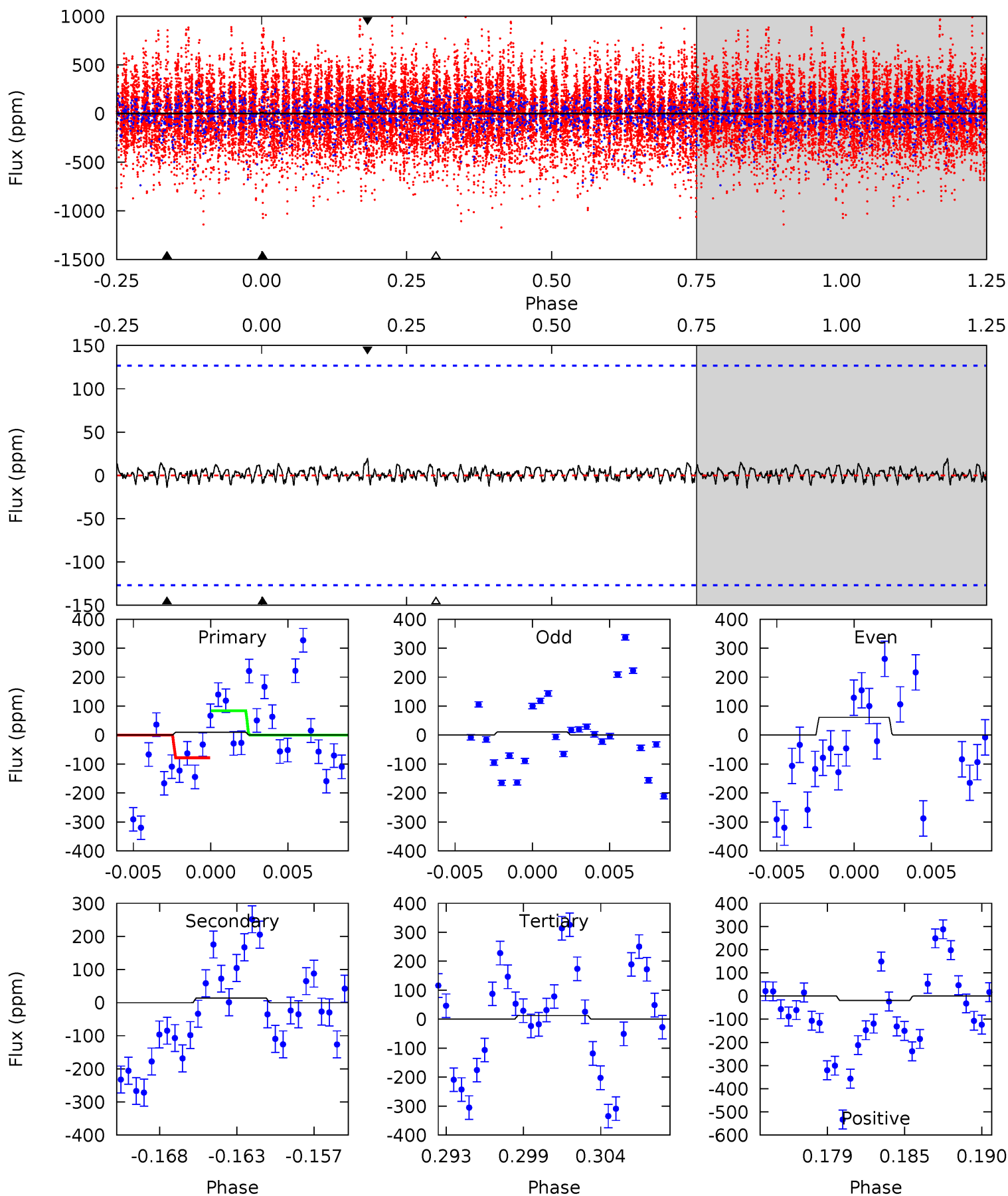
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.39	7.00	6.32	7.89	5.21	2.89	2.10	2.06	0.50	0.68	-0.89	0.45	0.97	0.48	3.89



# Alt Model-Shift Uniqueness Test

003542345-03, P = 108.944868 Days, E = 115.395036 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
0.39	0.57	0.50	0.78	5.14	2.78	0.20	-0.11	-0.39	0.07	-0.21	1.01	-0.06	0.58	0.11





### Stellar Parameters For KIC 003542345

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7063^{+195}_{-335}$	$4.218^{+0.090}_{-0.210}$	$0.070^{+0.200}_{-0.350}$	$1.567^{+0.556}_{-0.238}$	$1.480^{+0.214}_{-0.214}$	$0.541^{+0.228}_{-0.305}$
	+3%/-5%	+2%/-5%	+286%/-500%	+35%/-15%	+14%/-14%	+42%/-56%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 003542345-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-85 \pm 12$	$1.97^{+0.57}_{-0.49}$	$773^{+66}_{-52}$	$6306^{+1100}_{-623}$	$3052^{+2403}_{-1186}$
Alt.	$-14 \pm 25$	$1.30^{+0.48}_{-0.44}$	$772^{+63}_{-44}$	$4876^{+2003}_{-9710}$	$978^{+3291}_{-1950}$

$T_{max}$  = 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

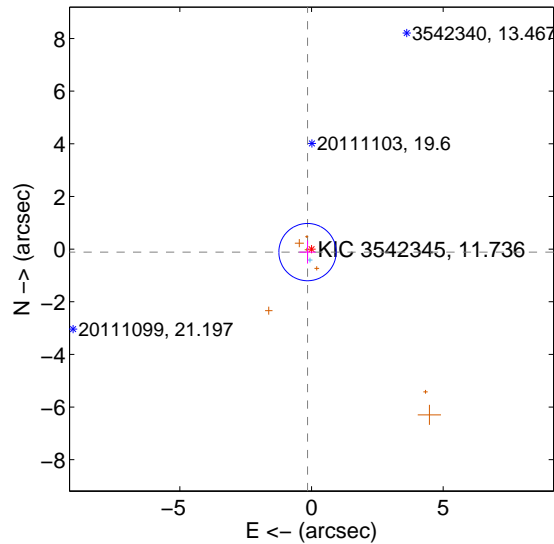
Supplemental centroid analysis for 003542345-03. **Kepler magnitude: 11.74.** Transit SNR 6.99

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

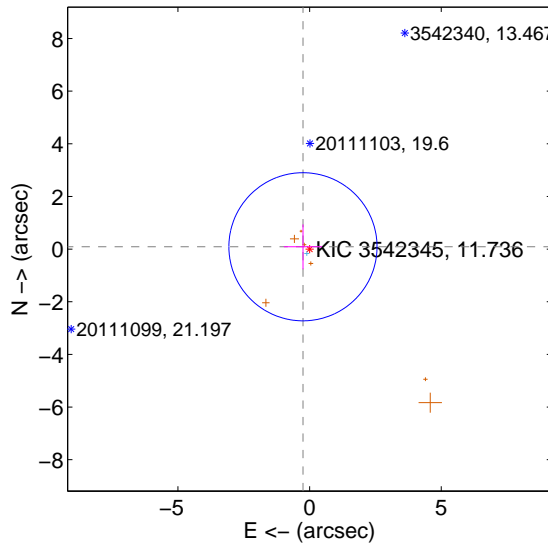
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.190 \pm 0.363$	0.52	$0.152 \pm 0.312$	$-0.114 \pm 0.438$
PRF-fit source offset from KIC position	$0.267 \pm 0.938$	0.28	$0.252 \pm 0.724$	$0.089 \pm 0.850$
photometric centroid source offset	$3.08 \pm 1.53$	2.02	$2.48 \pm 1.19$	$-1.83 \pm 2.00$

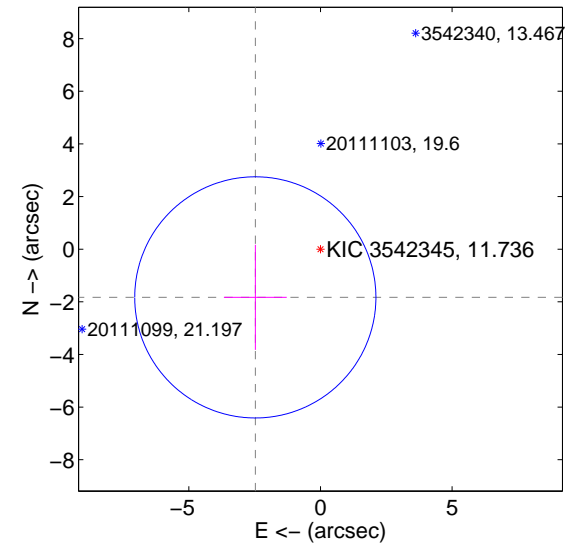
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

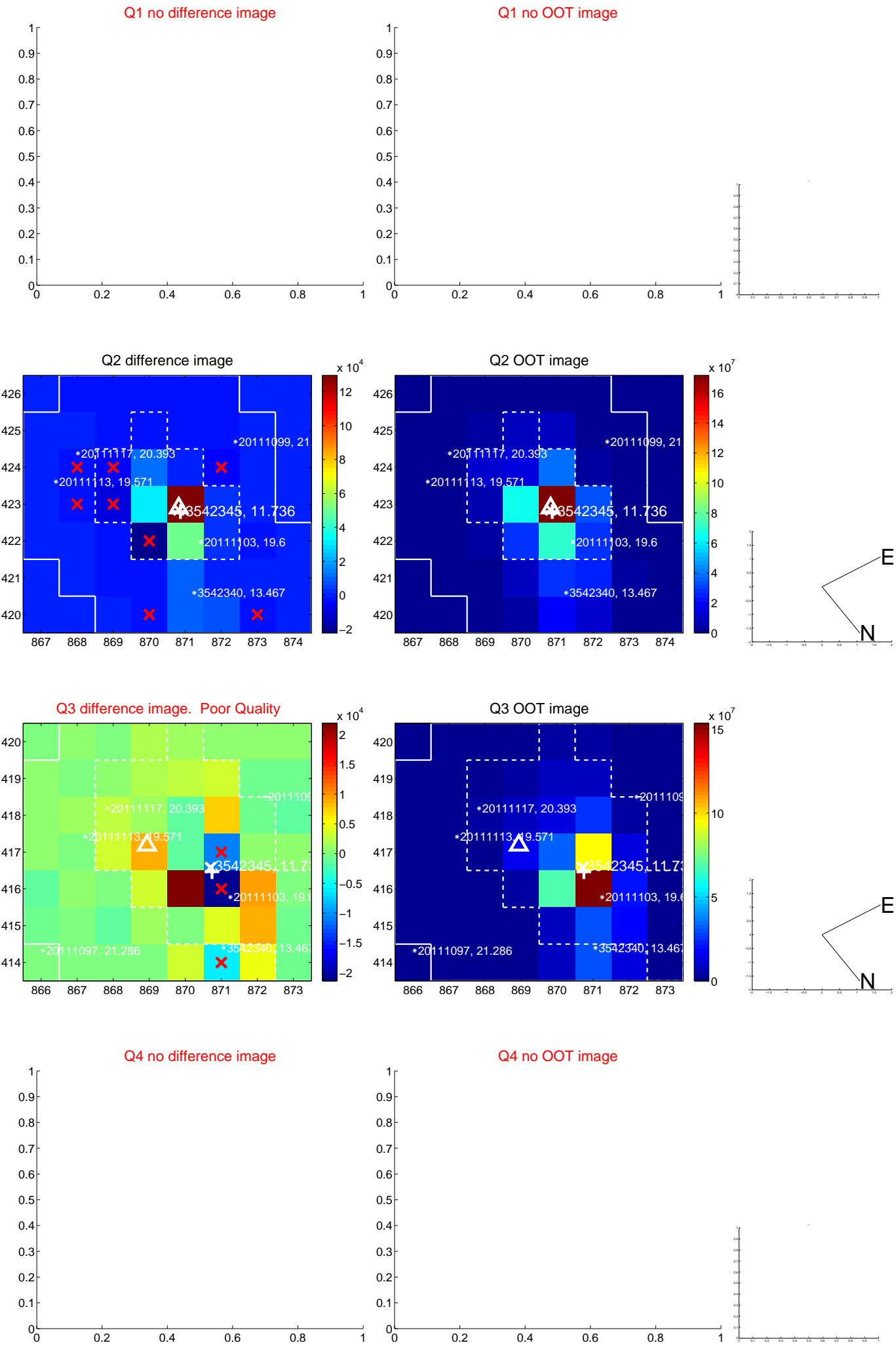


offset from photometric centroids

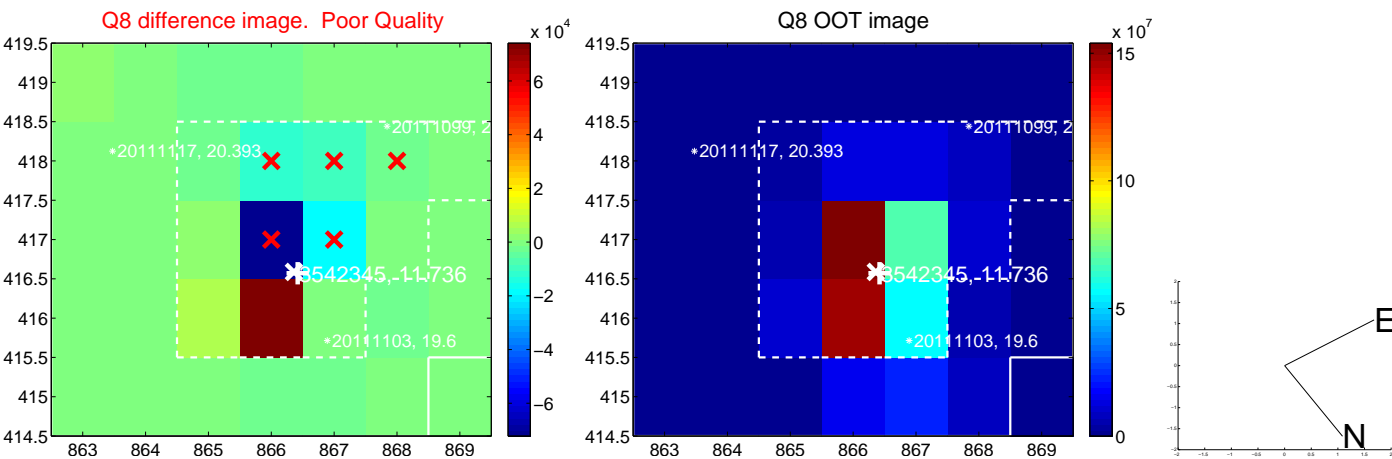
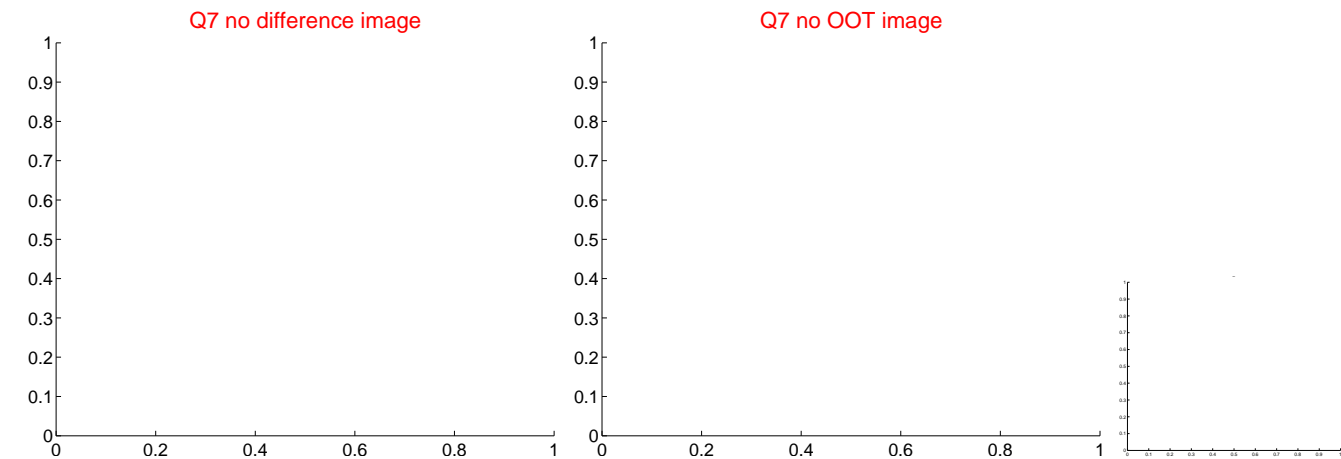
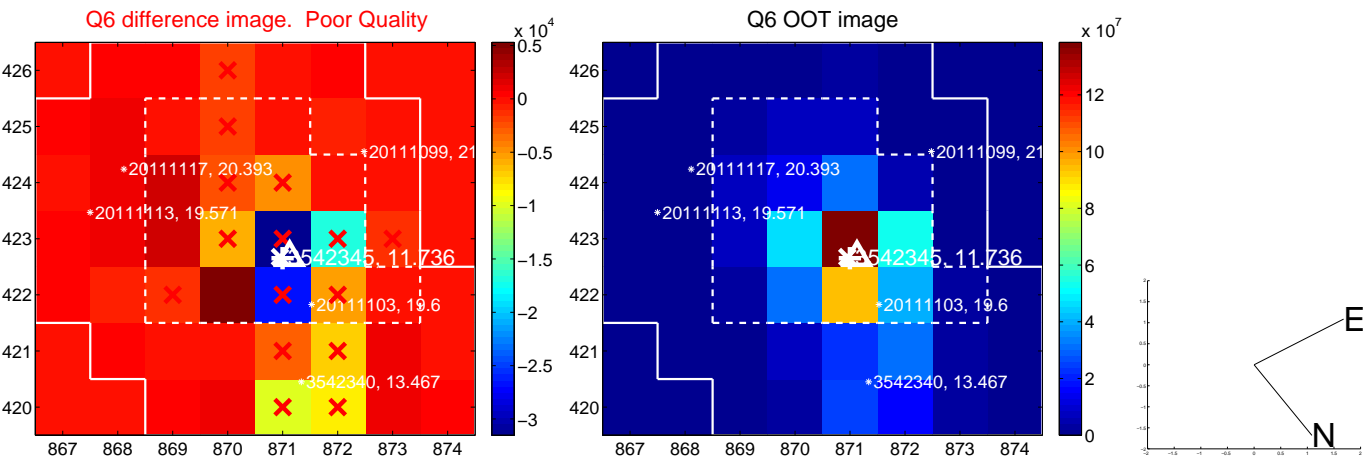


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

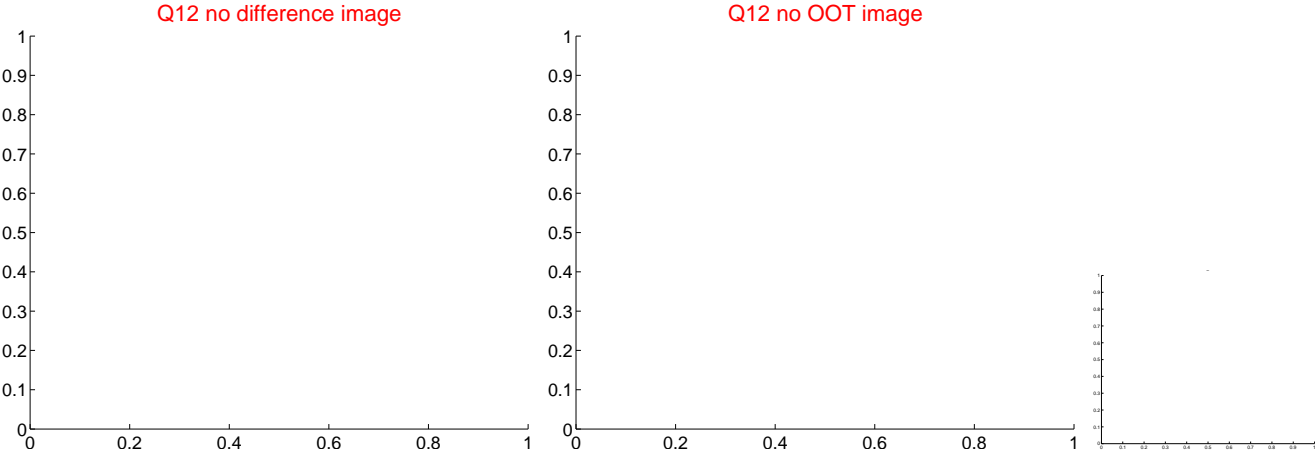
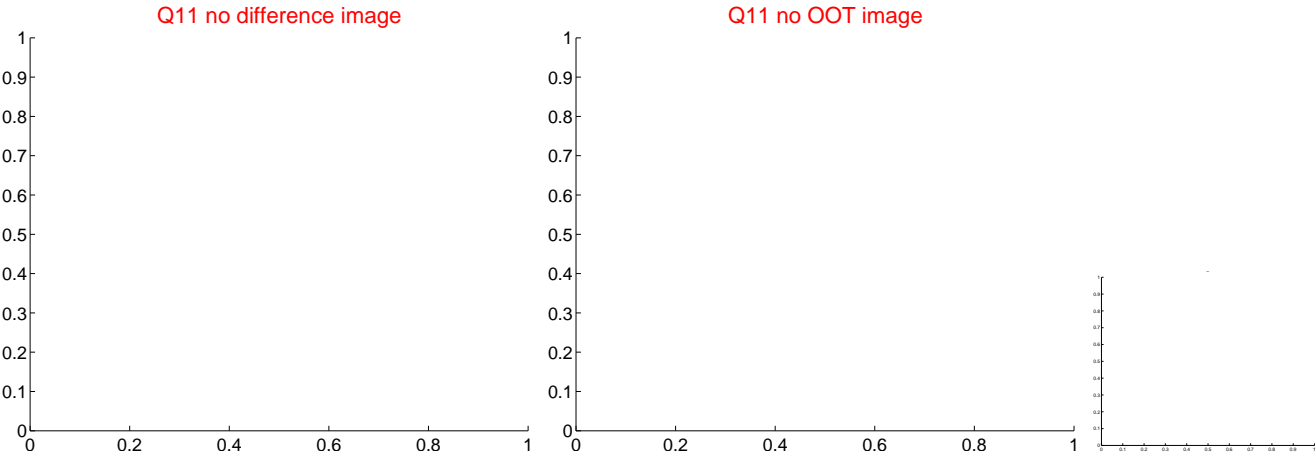
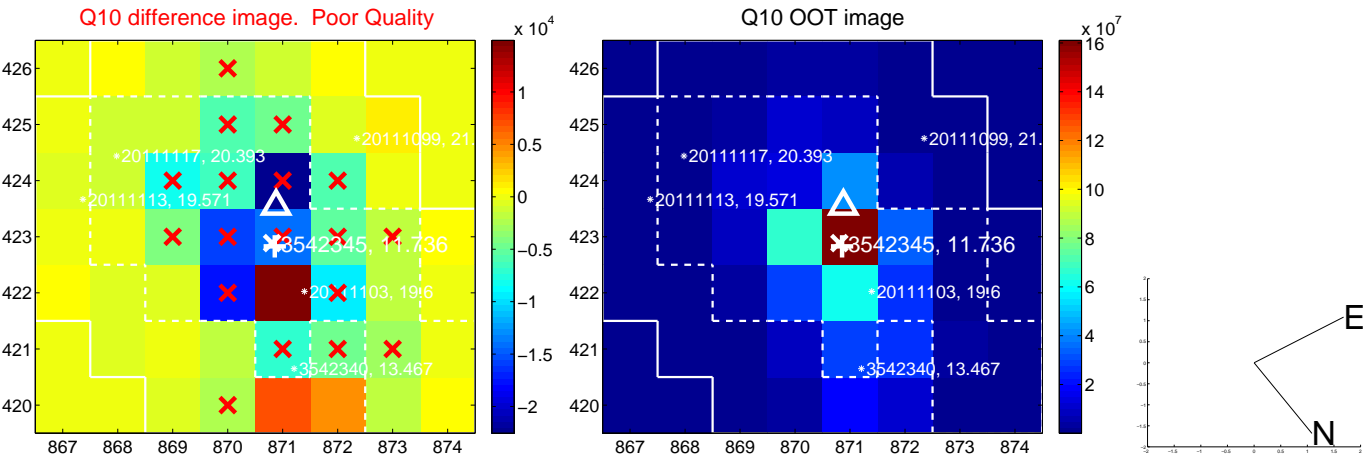
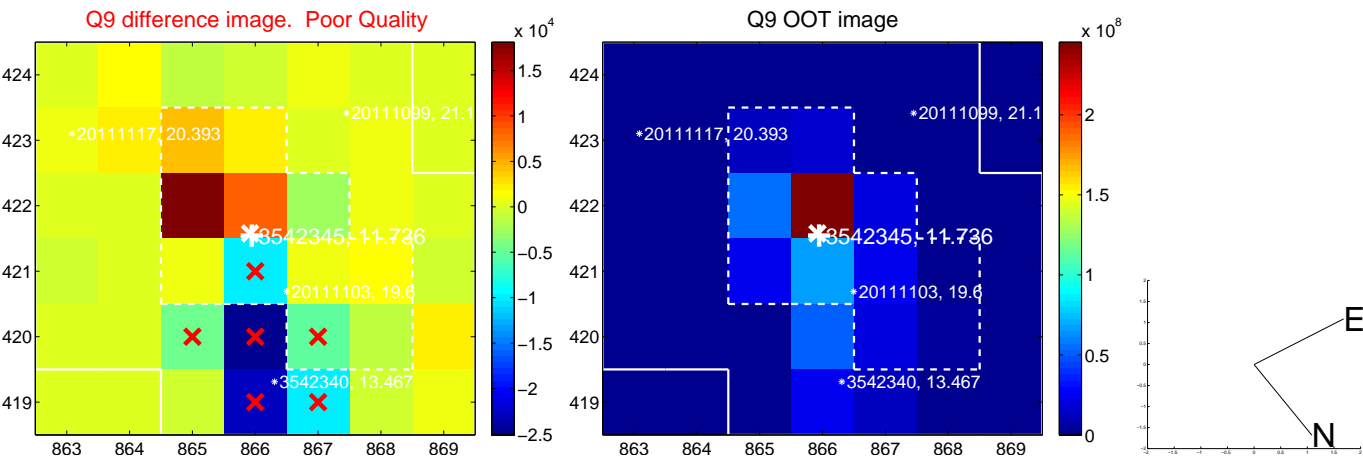
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

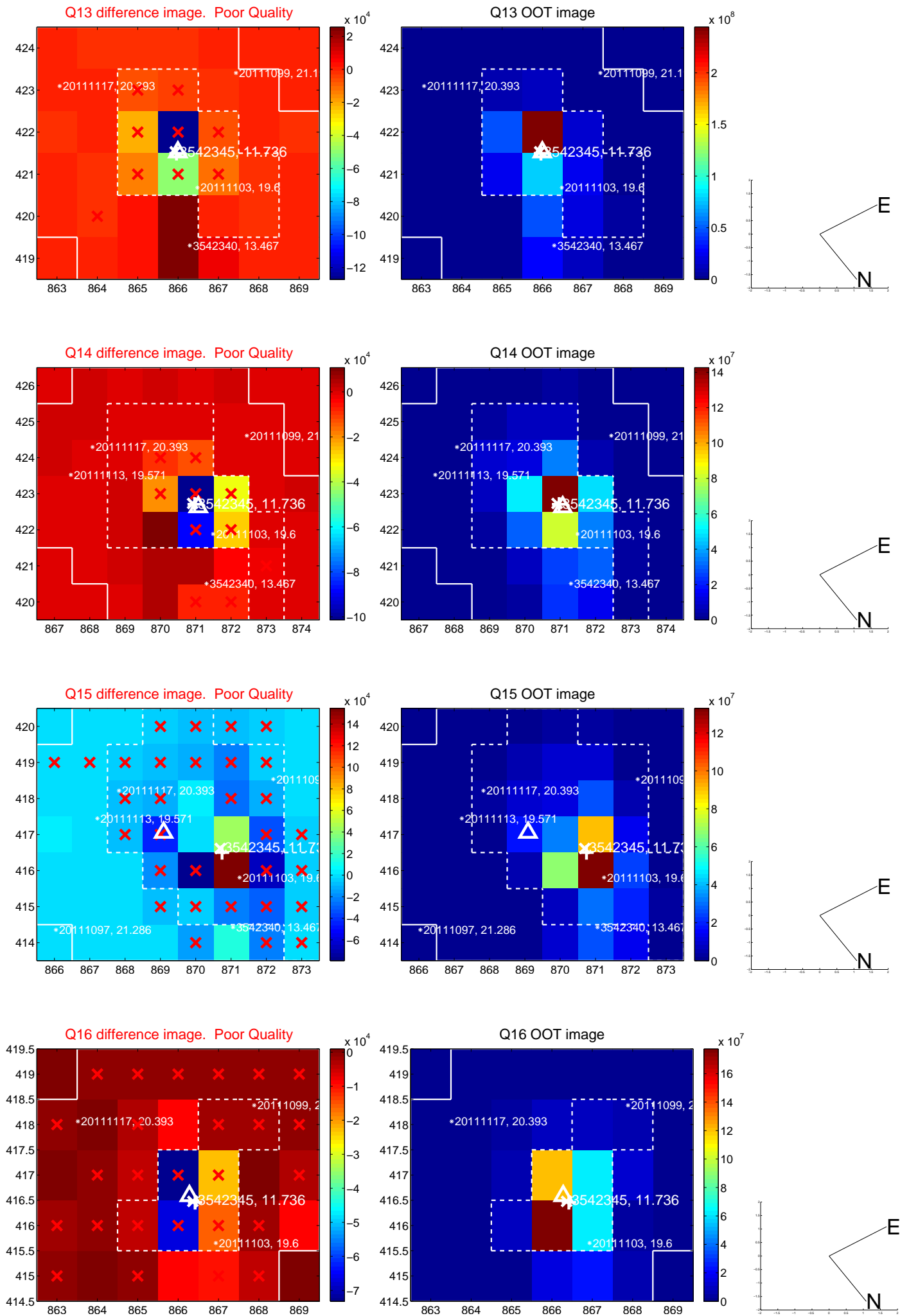


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

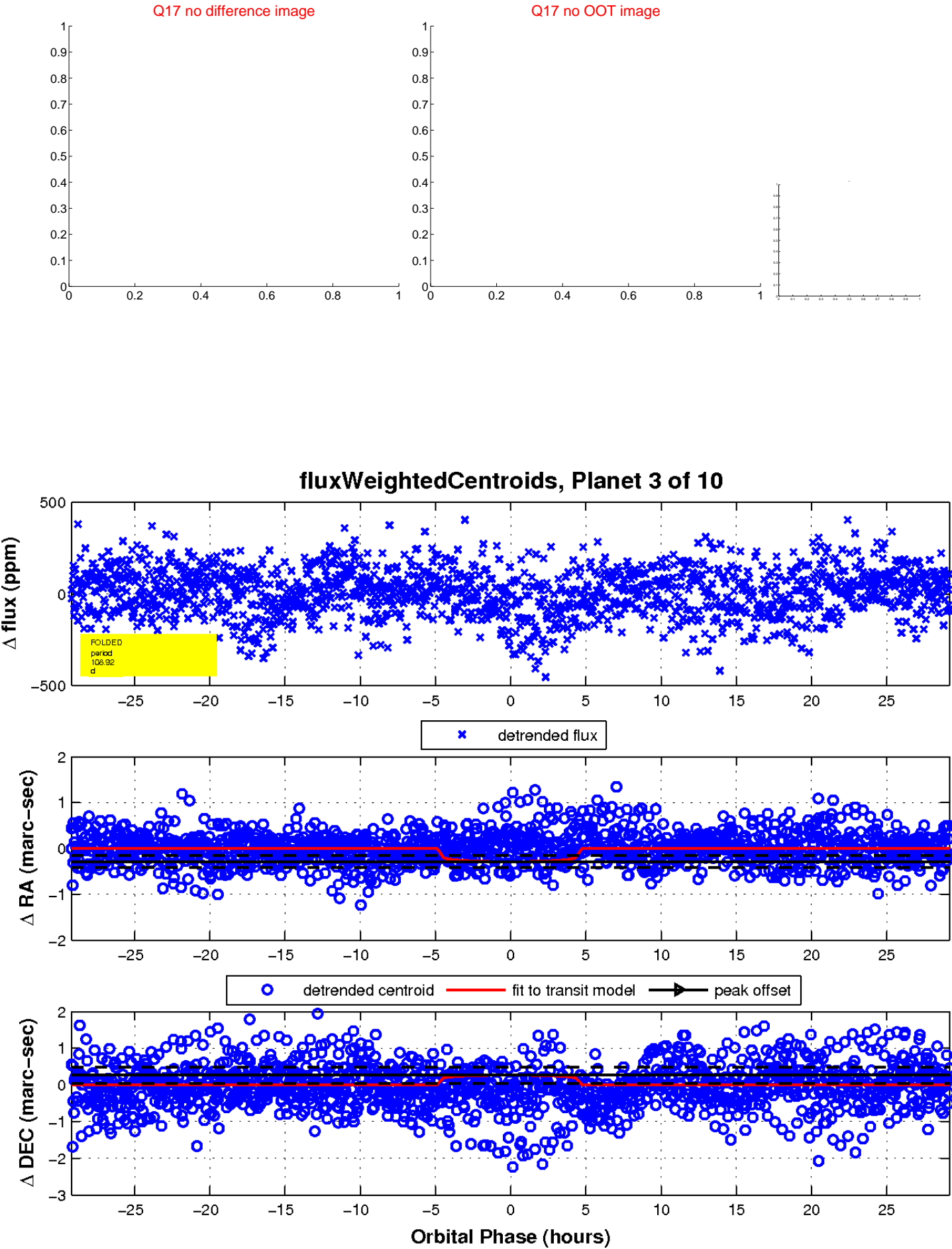




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

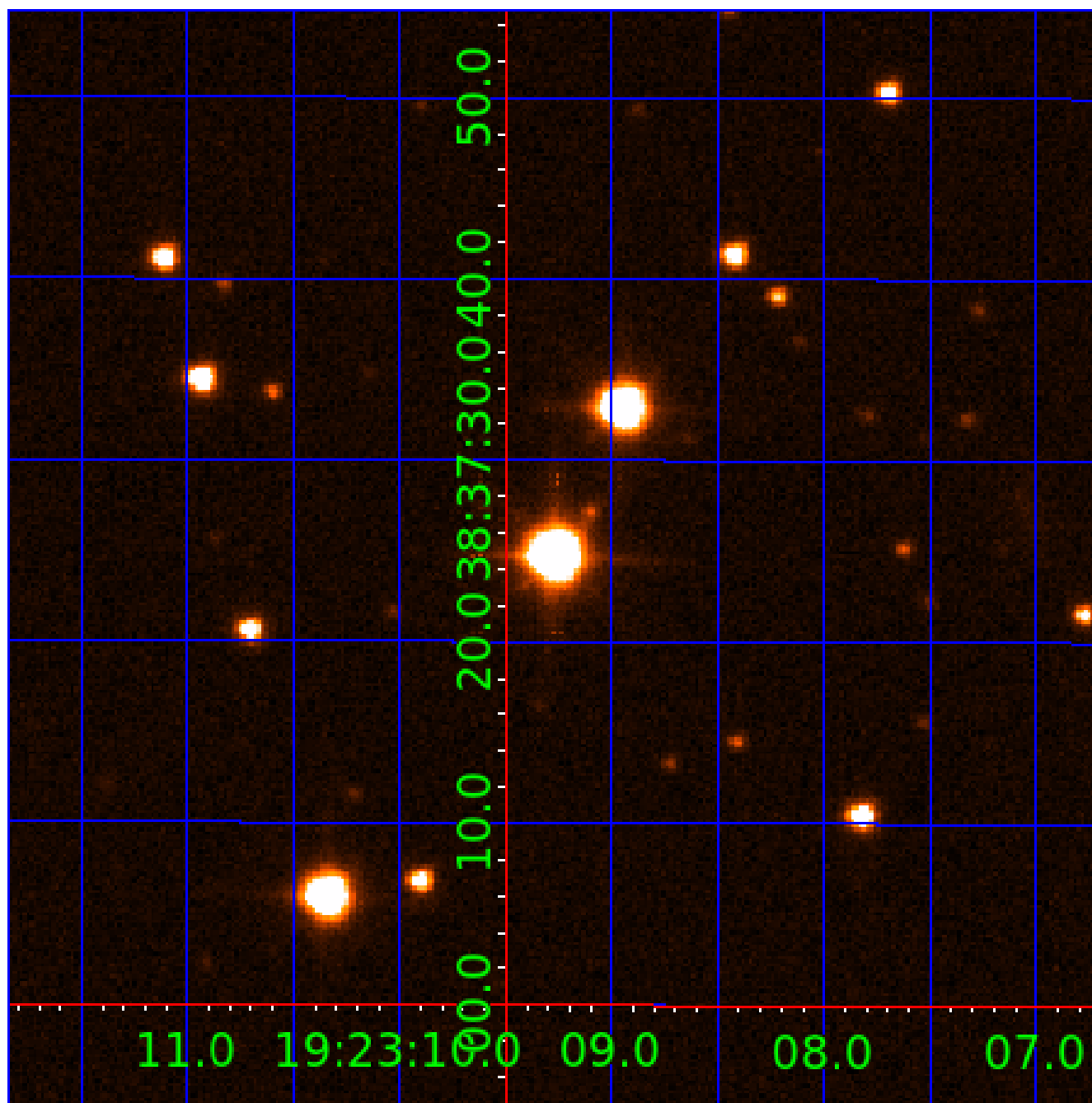


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003542345-01	OBS	No	2.015637	131.623110	7.0	9.704	11.3	3.6	1.57	7063	0.48	4321.96
003542345-02	OBS	No	1.680320	132.450335	43.7	3.268	12.7	13.7	1.57	7063	1.21	5508.60
003542345-03	OBS	No	108.920138	224.658989	111.0	9.730	9.1	7.0	1.57	7063	1.90	21.16
003542345-04	OBS	No	13.776503	138.904321	82.5	4.403	9.1	8.9	1.57	7063	1.65	333.20
003542345-05	OBS	No	136.747408	205.162926	235.9	7.118	8.8	9.0	1.57	7063	3.12	15.62
003542345-06	OBS	No	117.574138	173.952297	84.3	1.804	7.9	3.2	1.57	7063	1.79	19.11
003542345-07	OBS	No	352.726752	291.867554	166.0	9.180	7.9	7.8	1.57	7063	2.09	4.42
003542345-08	OBS	No	173.017872	135.509841	235.0	5.587	8.2	8.6	1.57	7063	2.80	11.41
003542345-09	OBS	No	57.681750	183.420652	160.5	3.890	8.6	7.7	1.57	7063	2.02	49.38
003542345-10	OBS	No	17.579058	139.776078	87.2	5.090	8.1	8.5	1.57	7063	1.73	240.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003542345-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003542345-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT
003542345-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
003542345-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
003542345-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

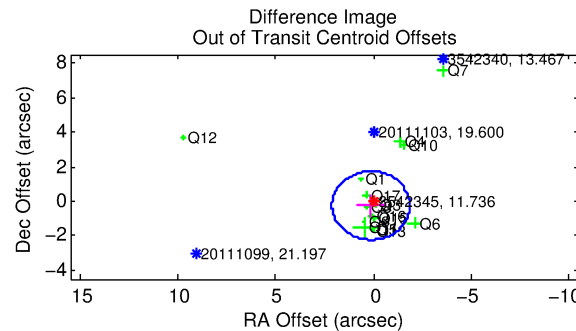
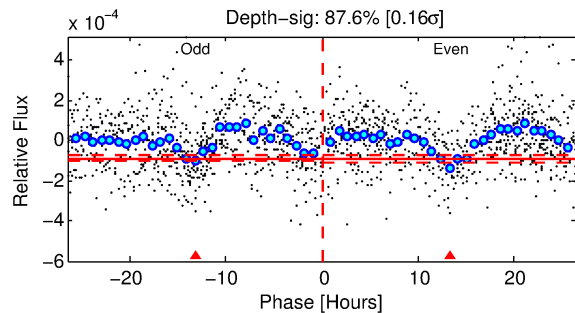
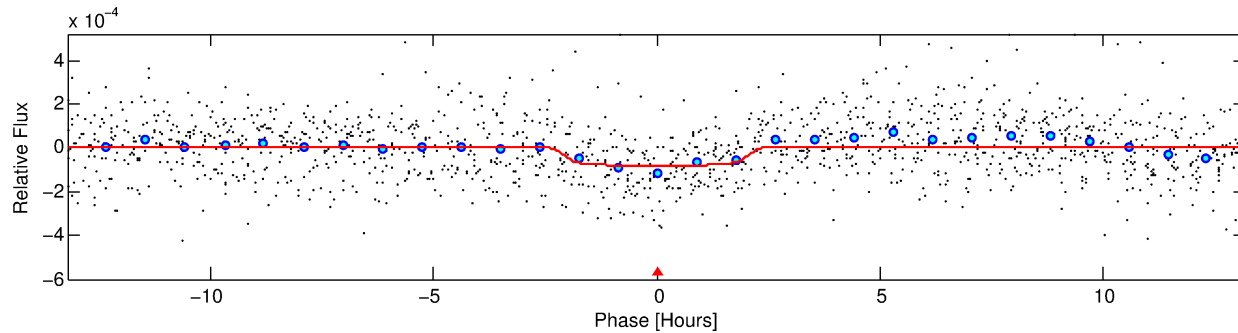
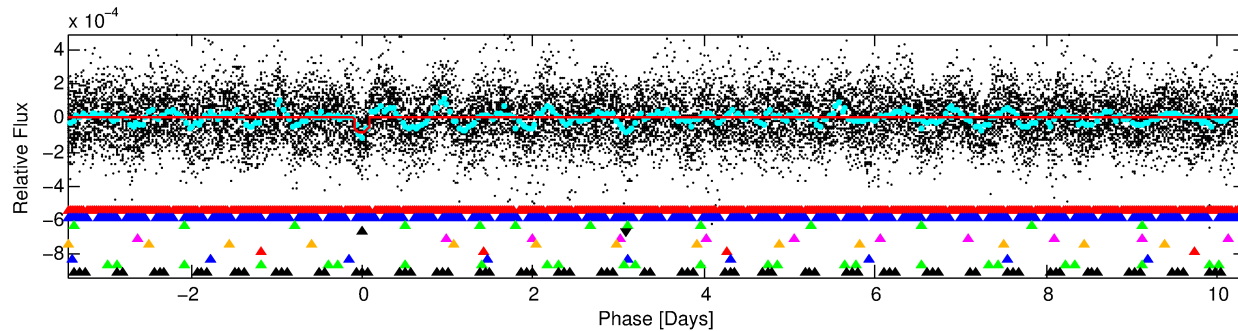
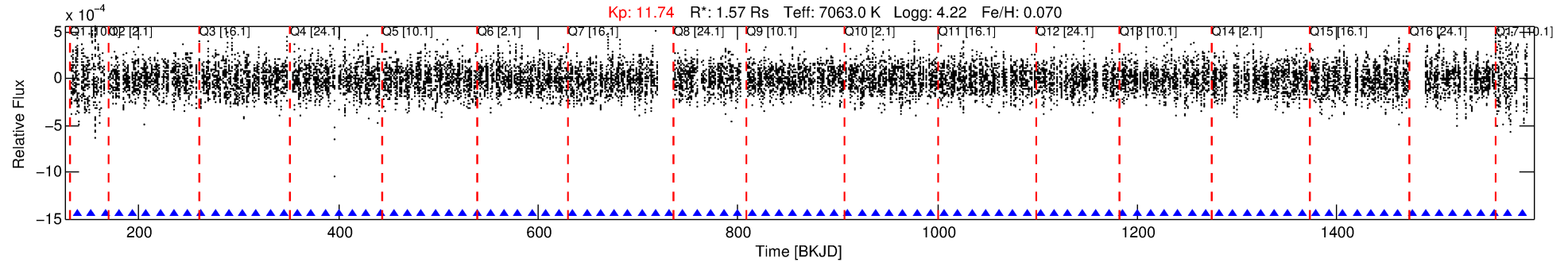
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003542345-04

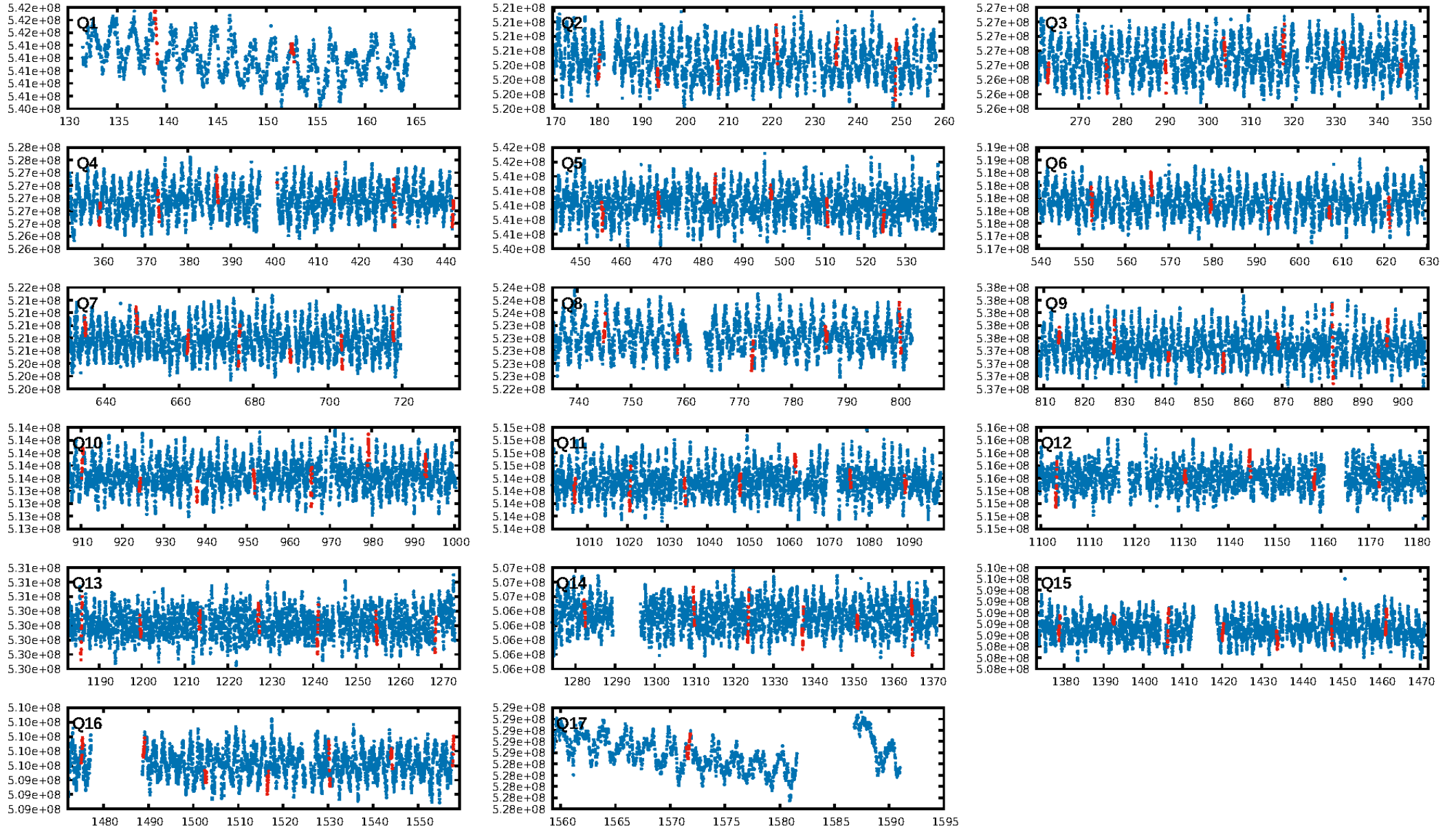
No Significant Match Found

# DV One-Page Summary

KIC: 3542345 Candidate: 4 of 10 Period: 13.777 d

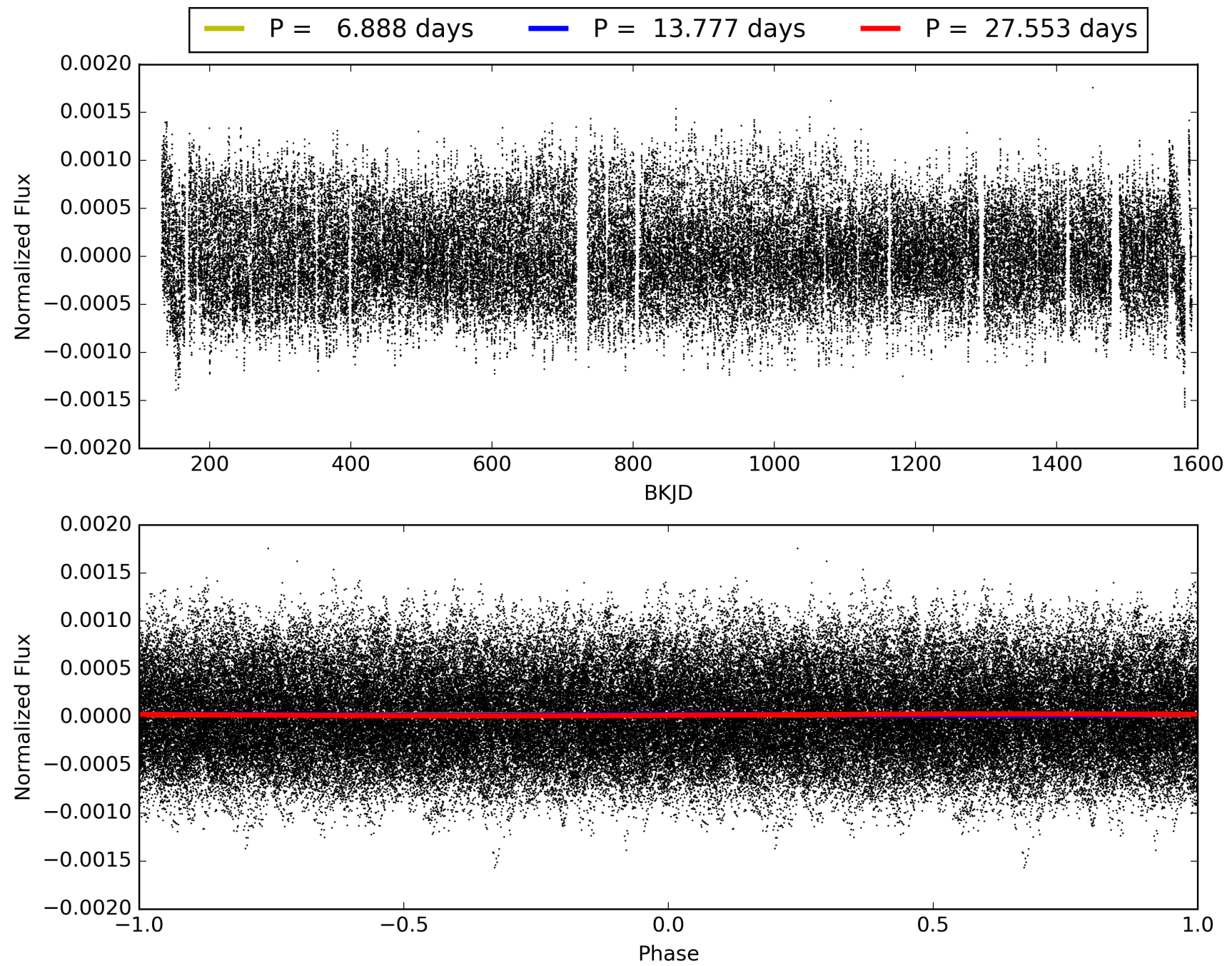


# TCE 003542345-04, PDC Light Curves



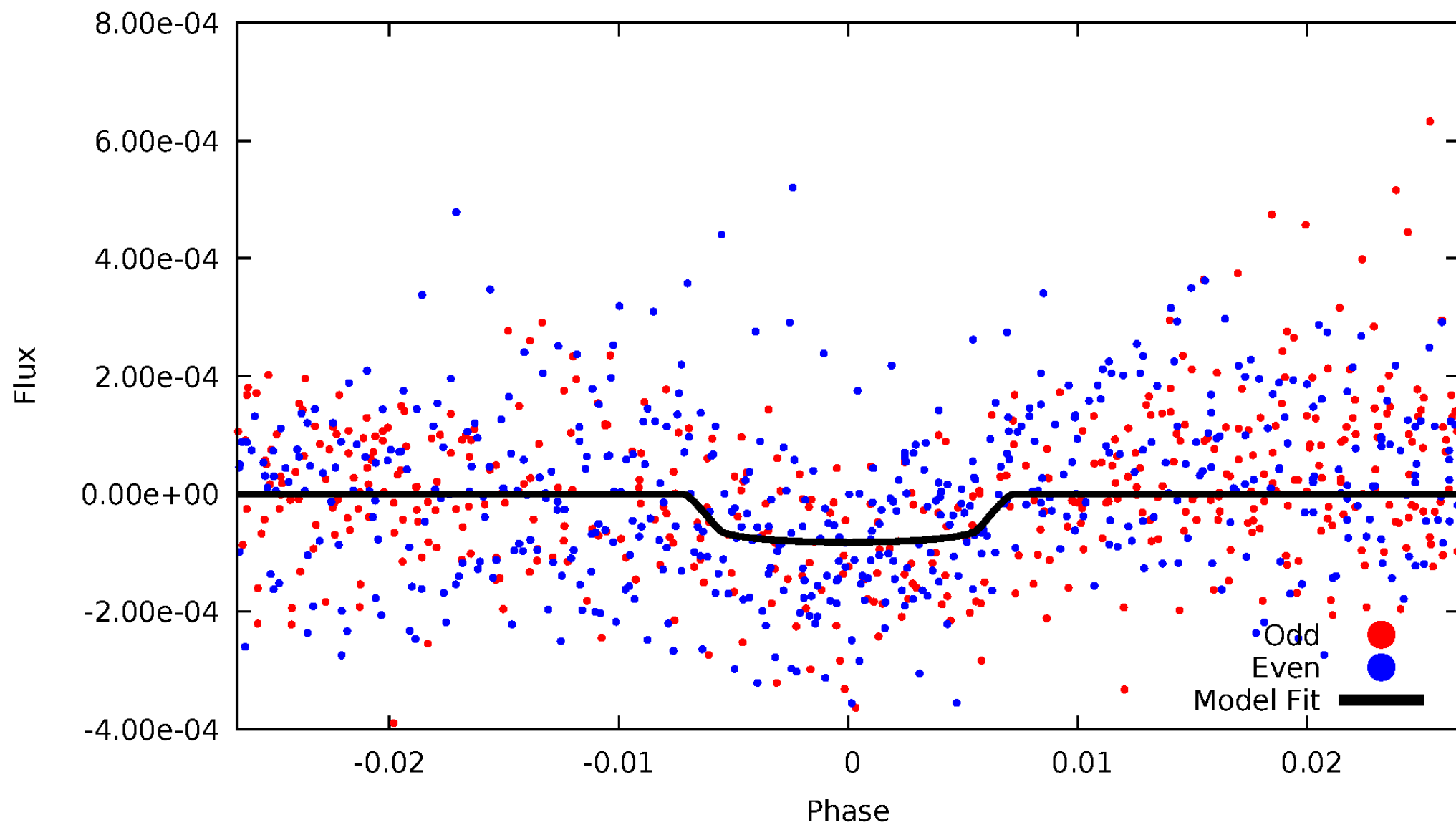


TCE 003542345-04



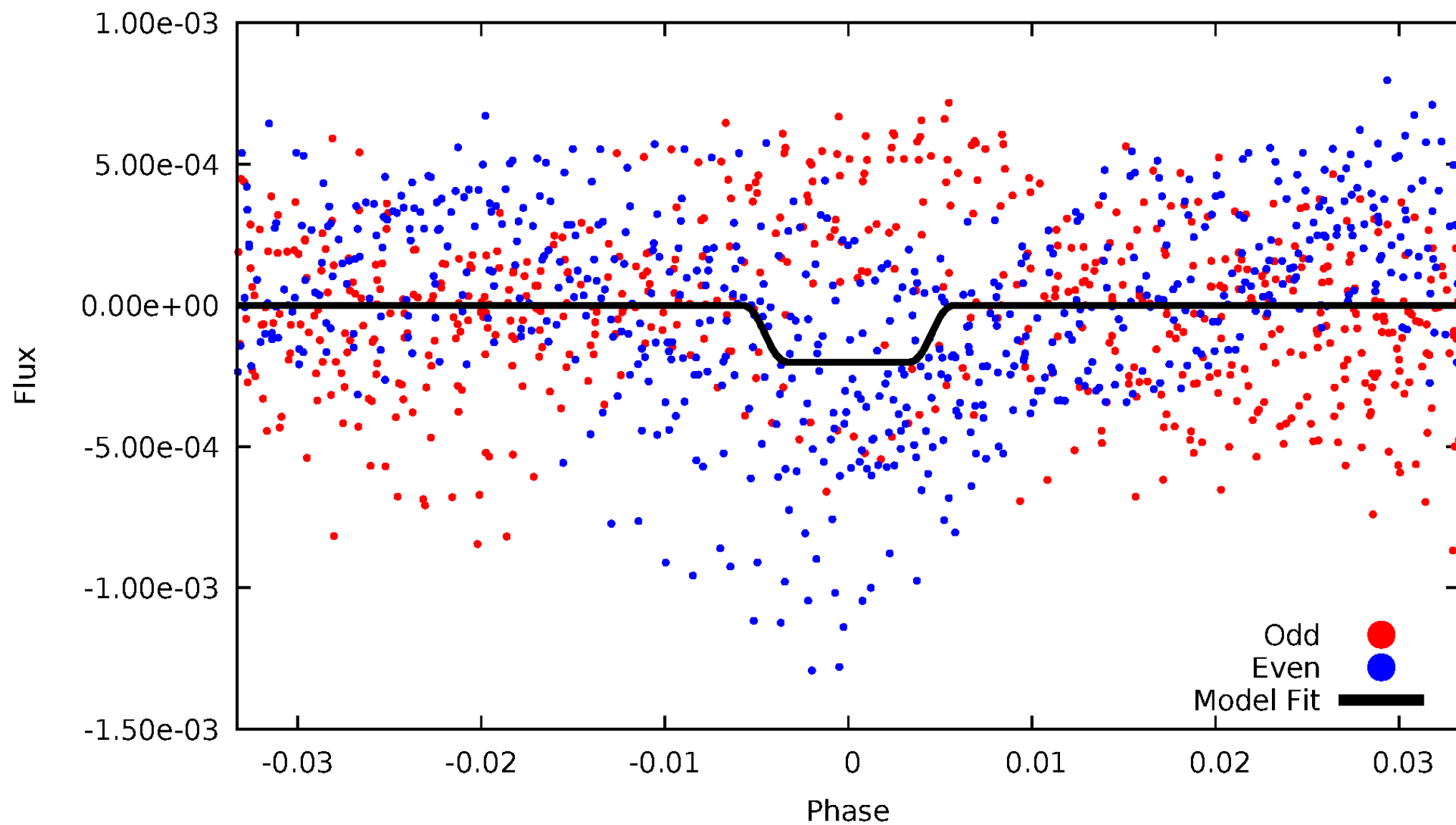
# DV Odd/Even

TCE 003542345-04



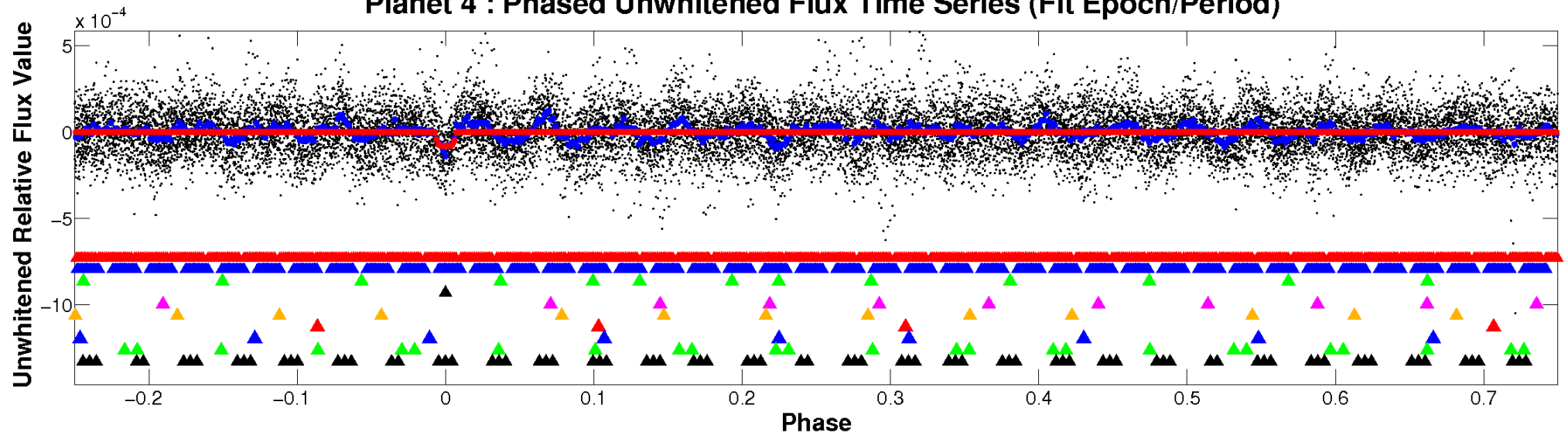
# ALT Odd/Even

TCE 003542345-04

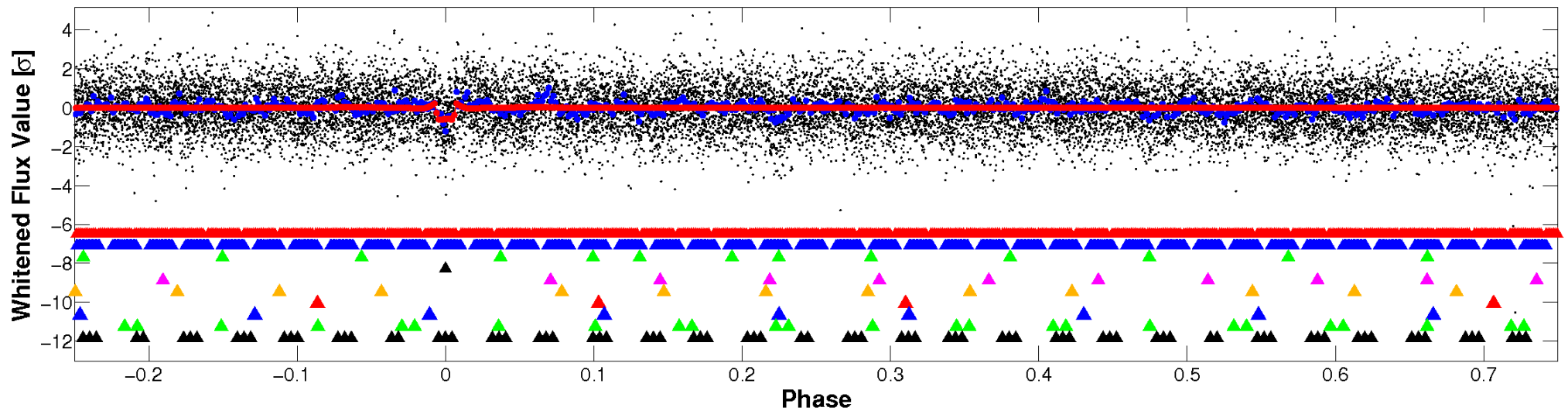


# Non-Whitened Vs. Whitened Light Curve

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

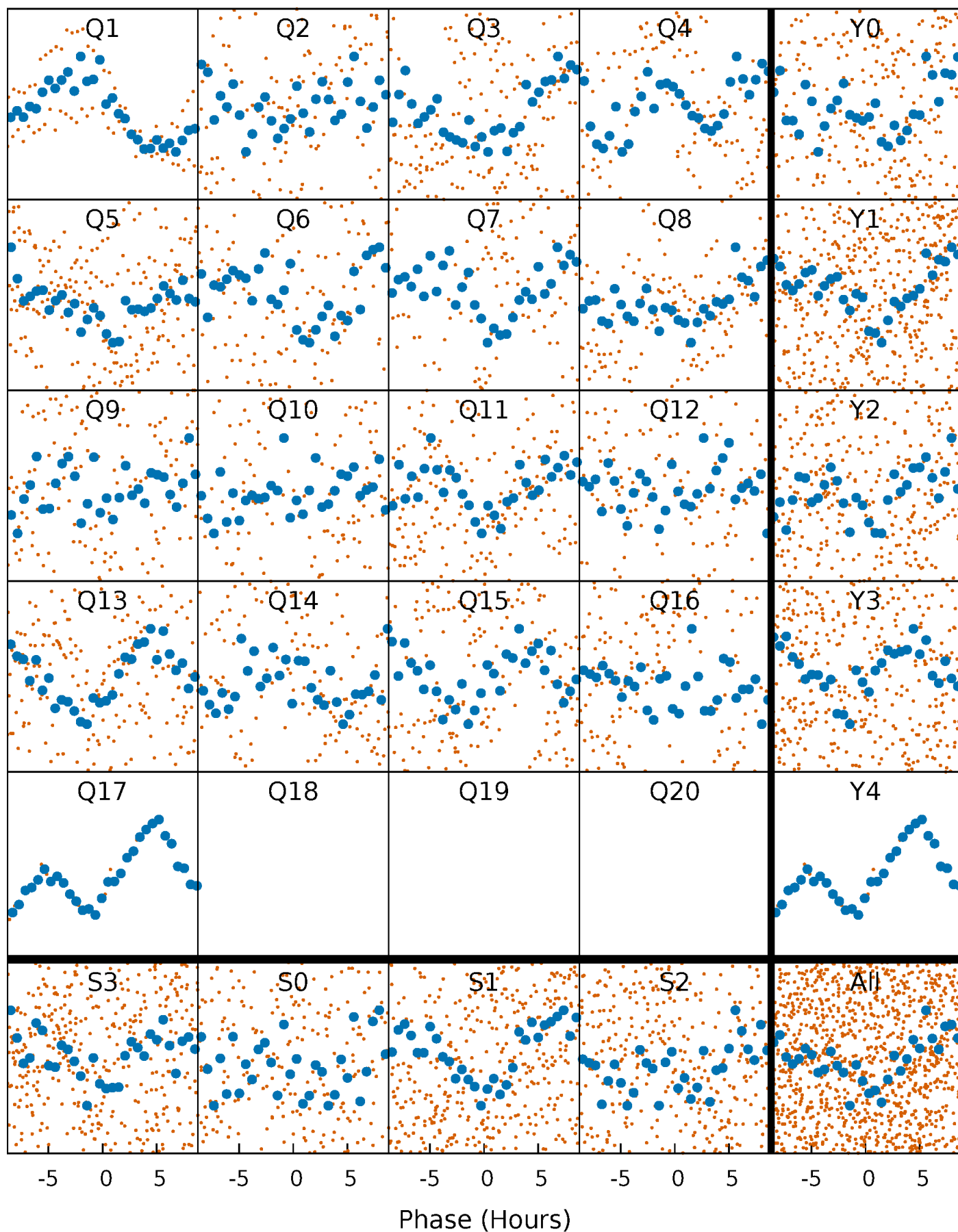


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



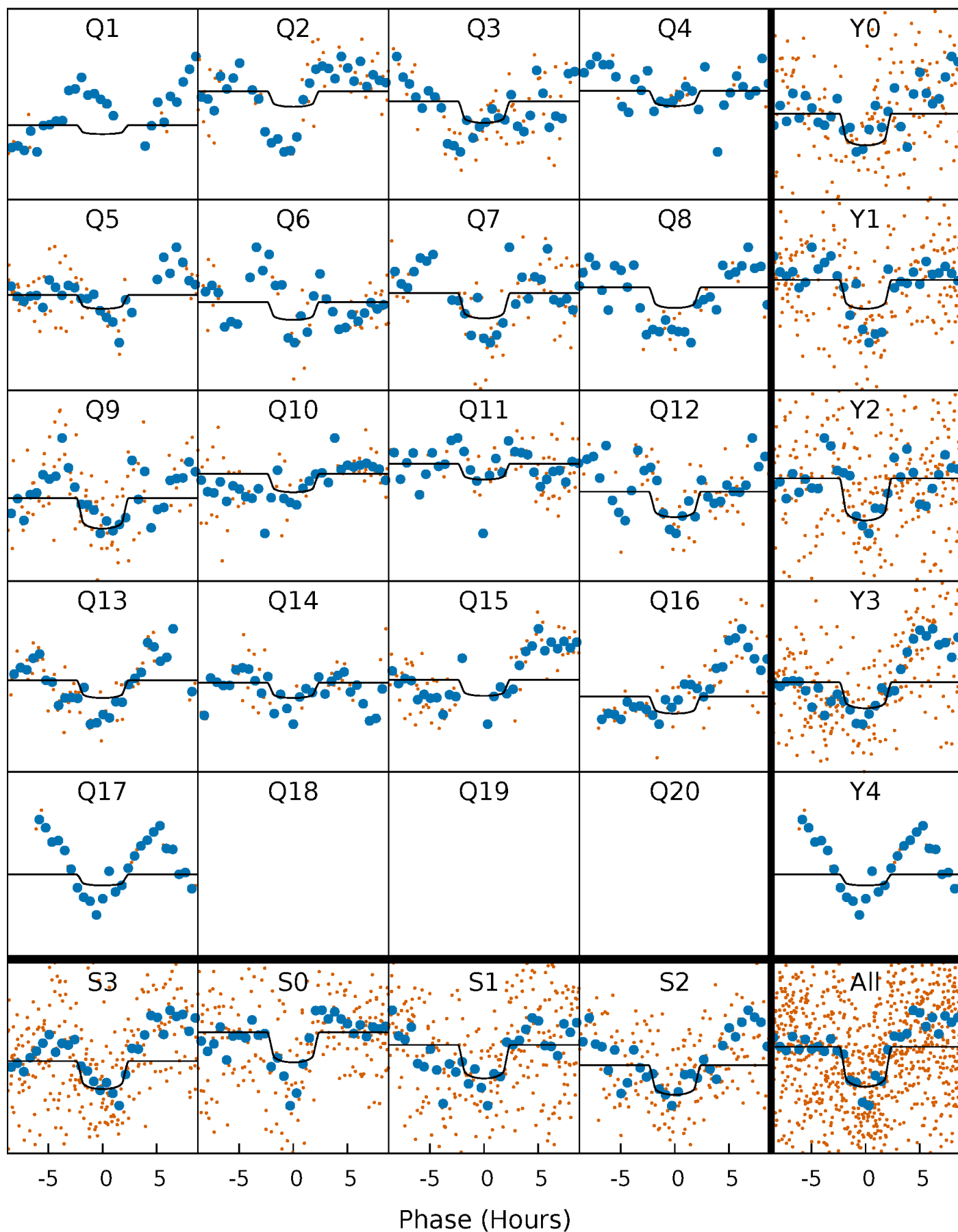
# PDC Quarter-Phased Transit Curves

TCE 003542345-04 P= 13.776503 Days  $T_0=138.904321$  (BKJD)



# DV Quarter-Phased Transit Curves

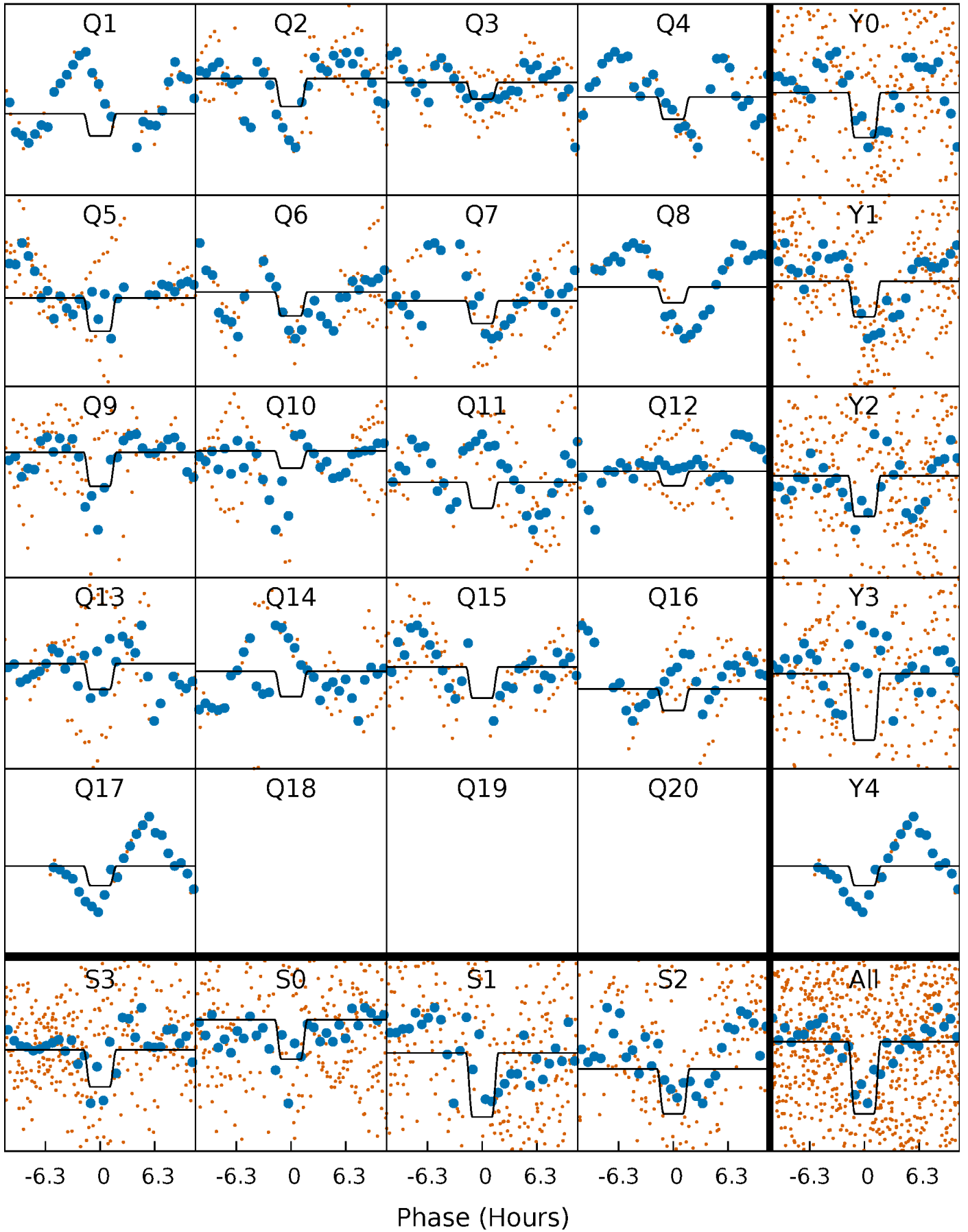
TCE 003542345-04   P= 13.776503 Days    $T_0=138.904321$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

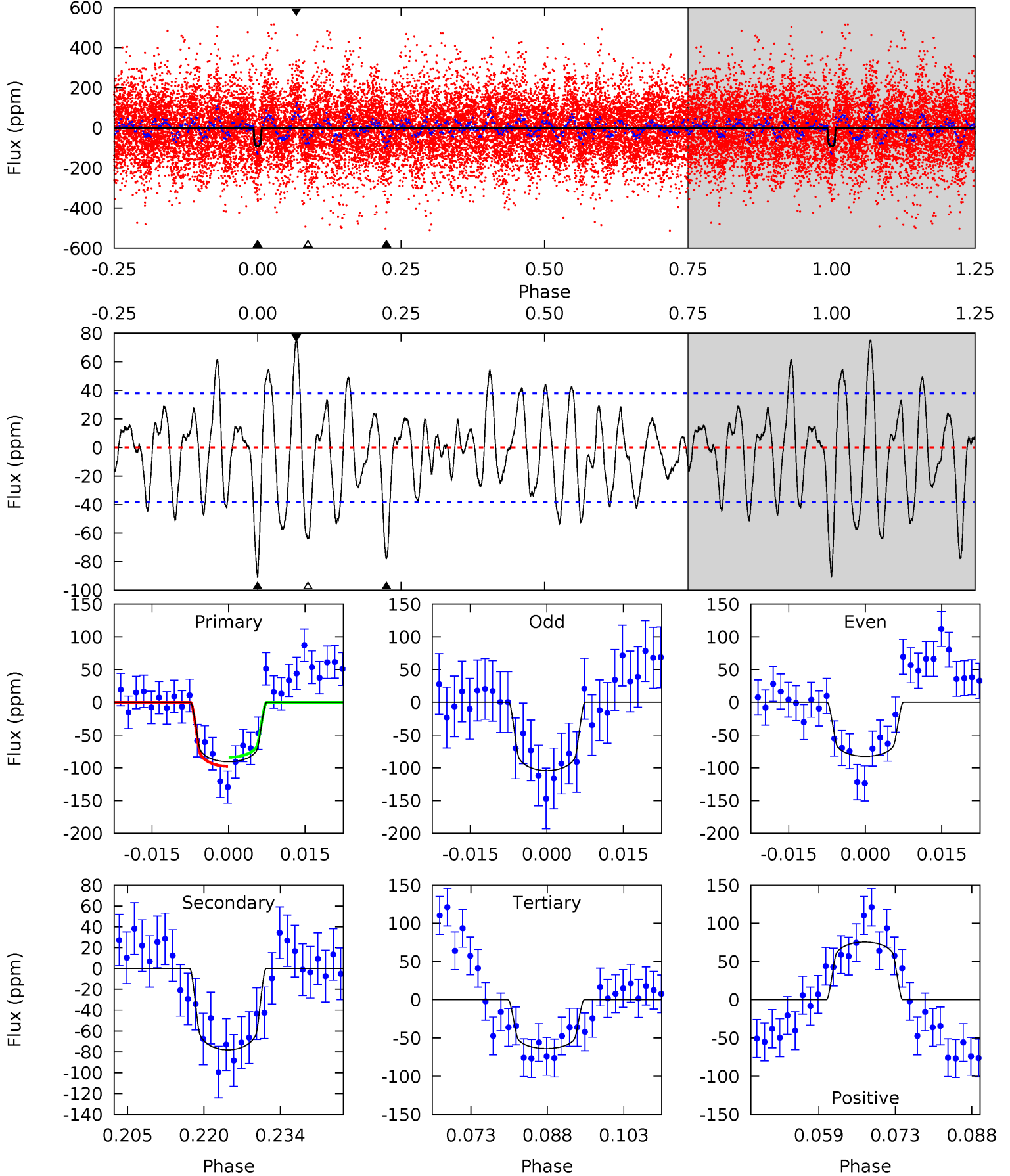
TCE 003542345-04 P= 13.776470 Days  $T_0=138.889872$  (BKJD)



# DV Model-Shift Uniqueness Test

003542345-04, P = 13.776503 Days, E = 125.127818 Days

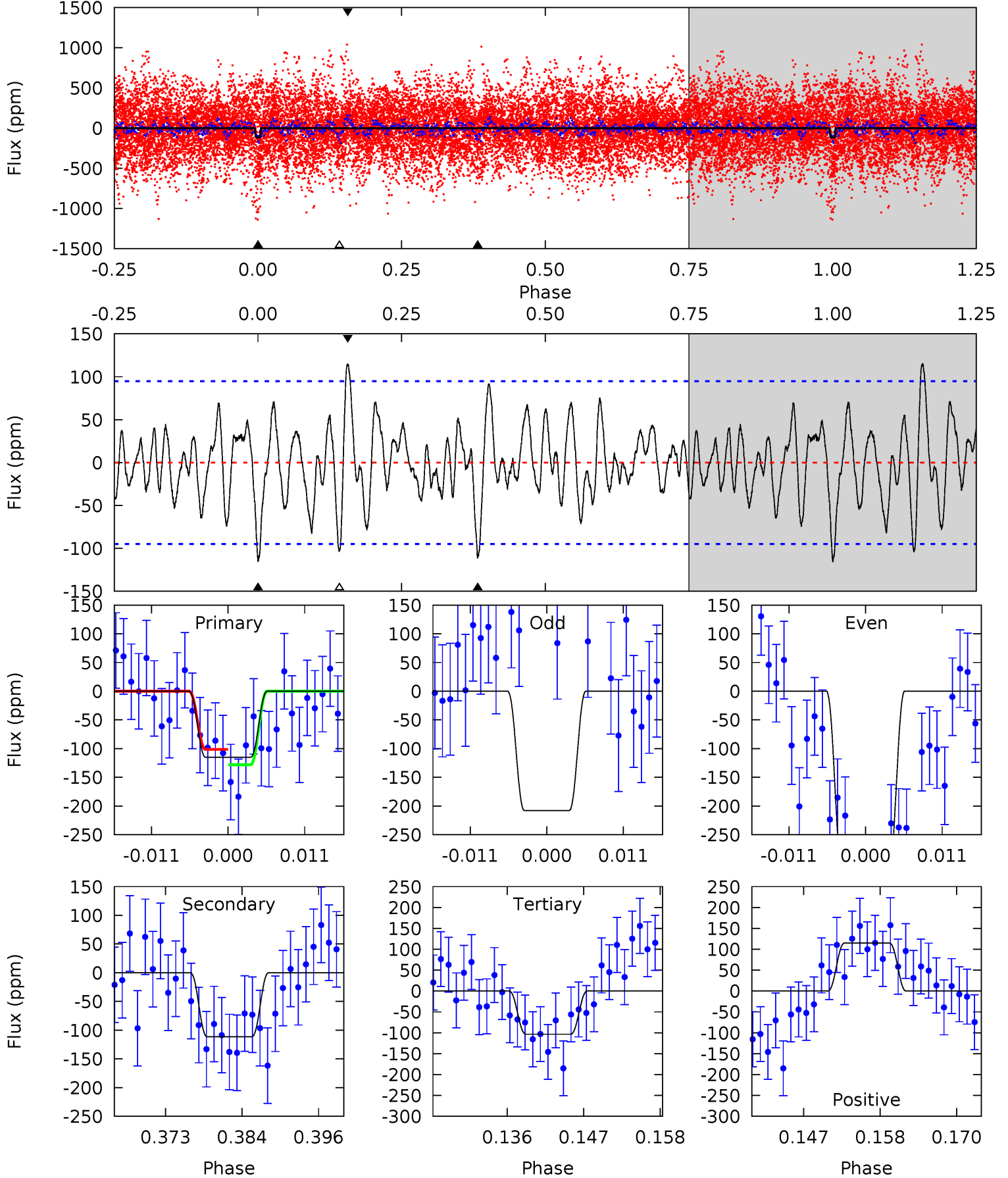
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	10.2	8.32	9.84	4.95	2.44	3.38	3.50	1.98	1.85	0.33	1.39	0.84	0.45	0.91



# Alt Model-Shift Uniqueness Test

003542345-04, P = 13.776470 Days, E = 125.113402 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
6.07	5.87	5.45	6.06	5.00	2.53	1.85	0.62	0.01	0.42	-0.20	3.08	0.82	0.50	0.70



### Stellar Parameters For KIC 003542345

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7063^{+195}_{-335}$	$4.218^{+0.090}_{-0.210}$	$0.070^{+0.200}_{-0.350}$	$1.567^{+0.556}_{-0.238}$	$1.480^{+0.214}_{-0.214}$	$0.541^{+0.228}_{-0.305}$
	+3%/-5%	+2%/-5%	+286%/-500%	+35%/-15%	+14%/-14%	+42%/-56%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 003542345-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-78 \pm 8$	$1.67^{+0.62}_{-0.58}$	$1549^{+123}_{-98}$	$6729^{+1841}_{-929}$	$251^{+306}_{-119}$
Alt.	$-111 \pm 19$	$2.52^{+0.67}_{-0.61}$	$1547^{+116}_{-91}$	$6016^{+880}_{-594}$	$153^{+118}_{-58}$

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

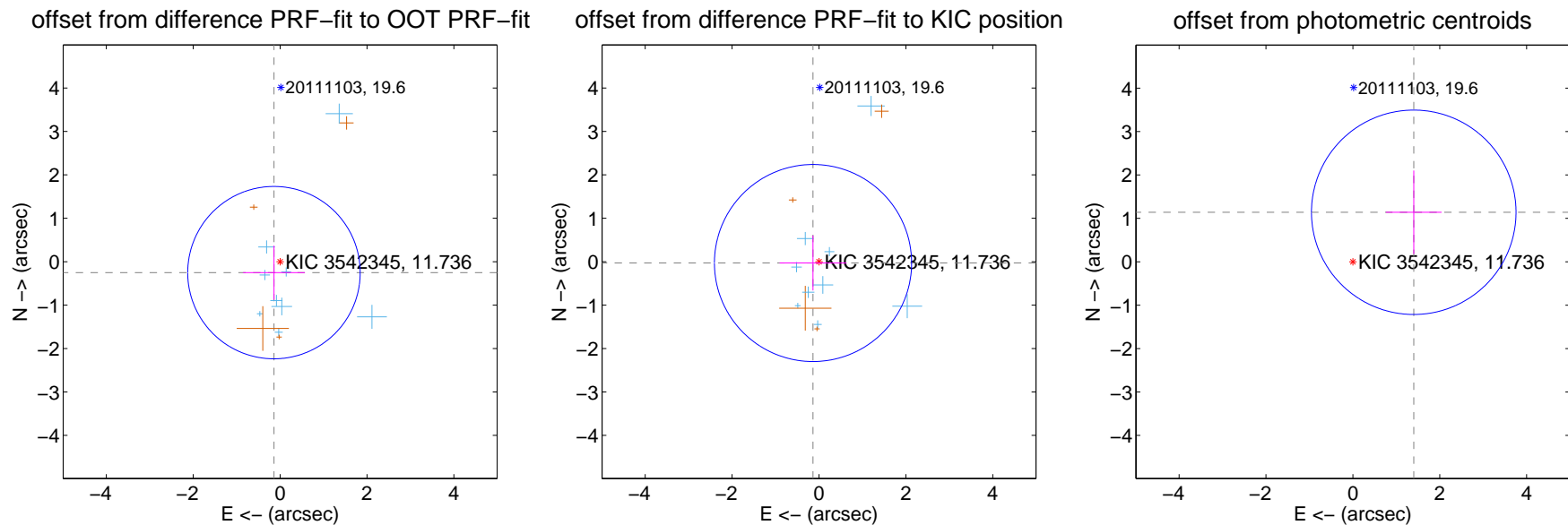
## DV Centroid Data

Supplemental centroid analysis for 003542345-04. **Kepler magnitude: 11.74.** Transit SNR 8.91

There are 9 quarters with good PRF difference image offsets

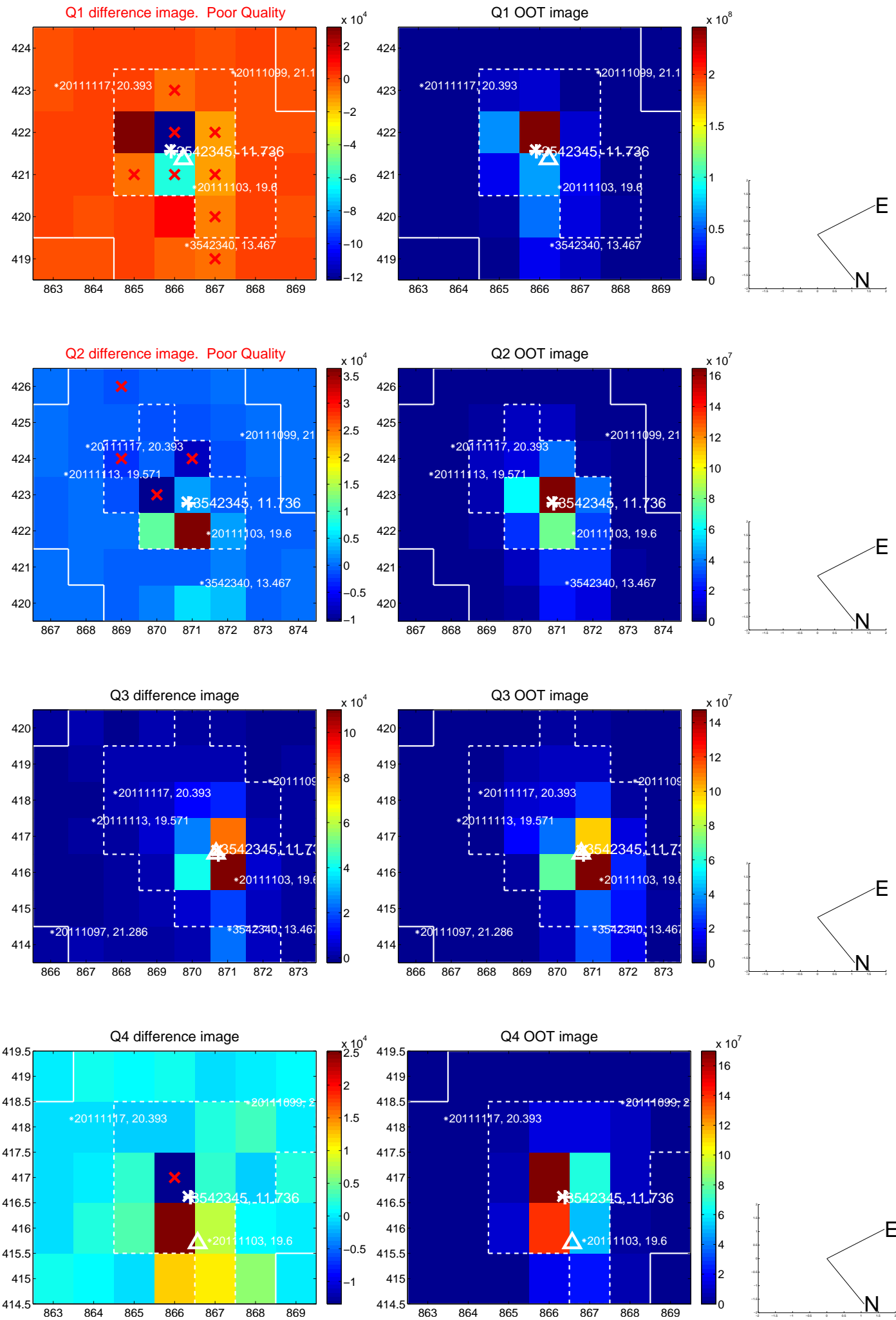
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.289 \pm 0.662$	0.44	$0.142 \pm 0.709$	$-0.252 \pm 0.622$
PRF-fit source offset from KIC position	$0.141 \pm 0.756$	0.19	$0.137 \pm 0.769$	$-0.030 \pm 0.634$
photometric centroid source offset	$1.81 \pm 0.78$	2.30	$-1.40 \pm 0.64$	$1.14 \pm 0.96$



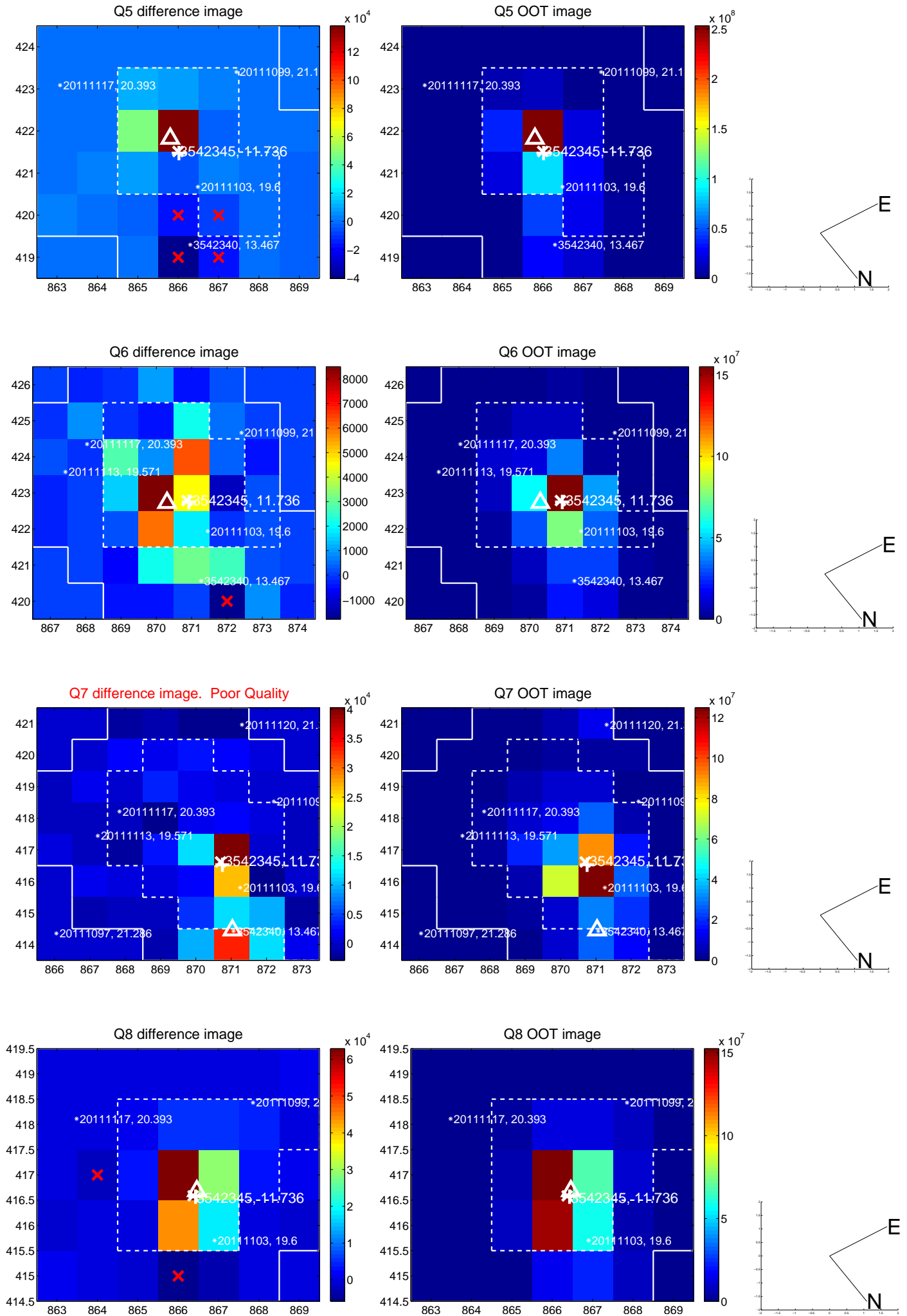
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

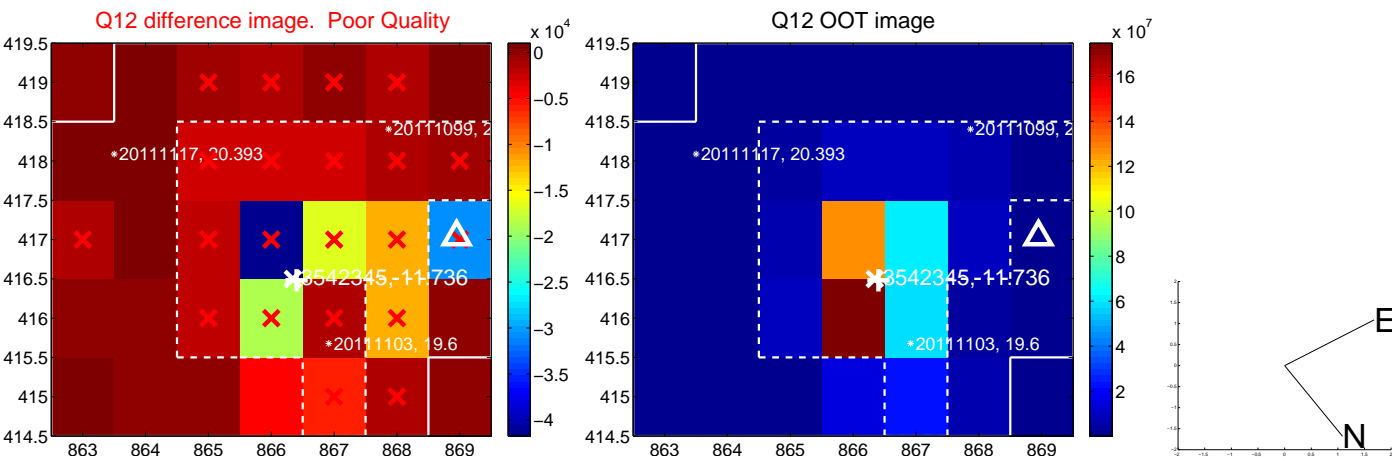
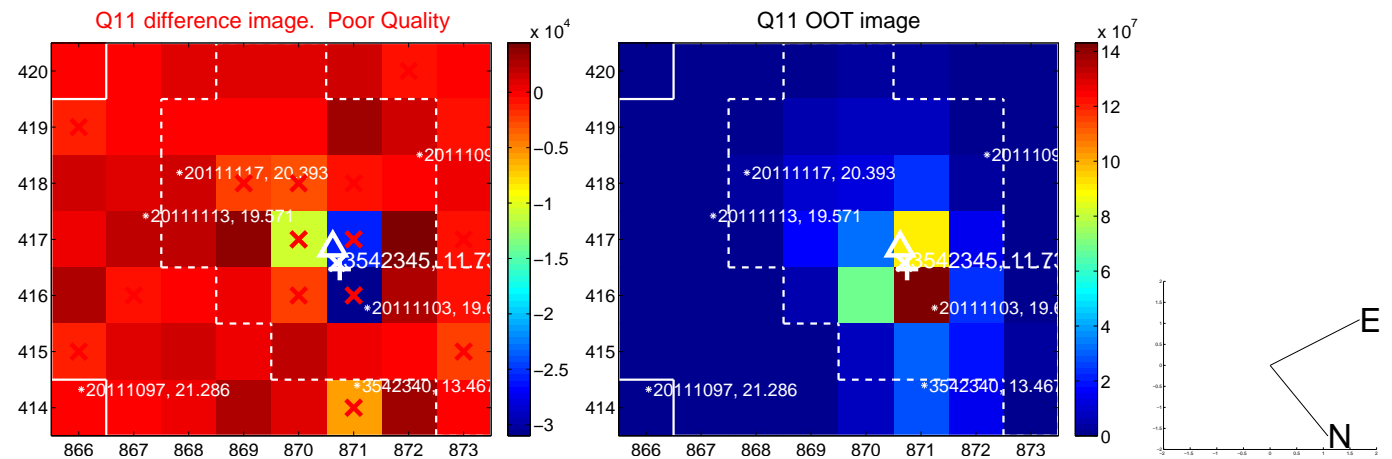
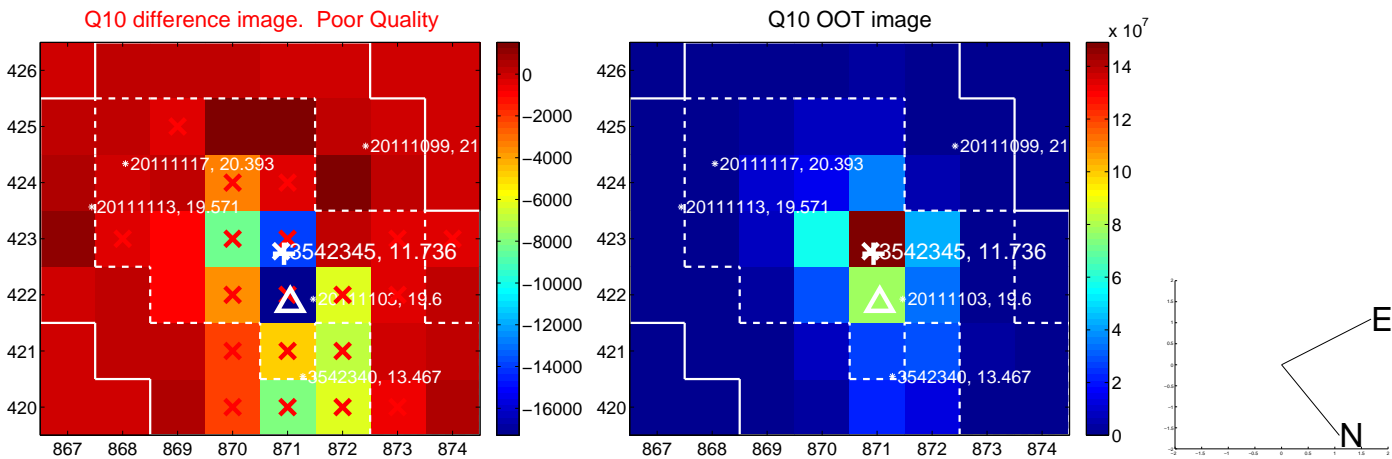
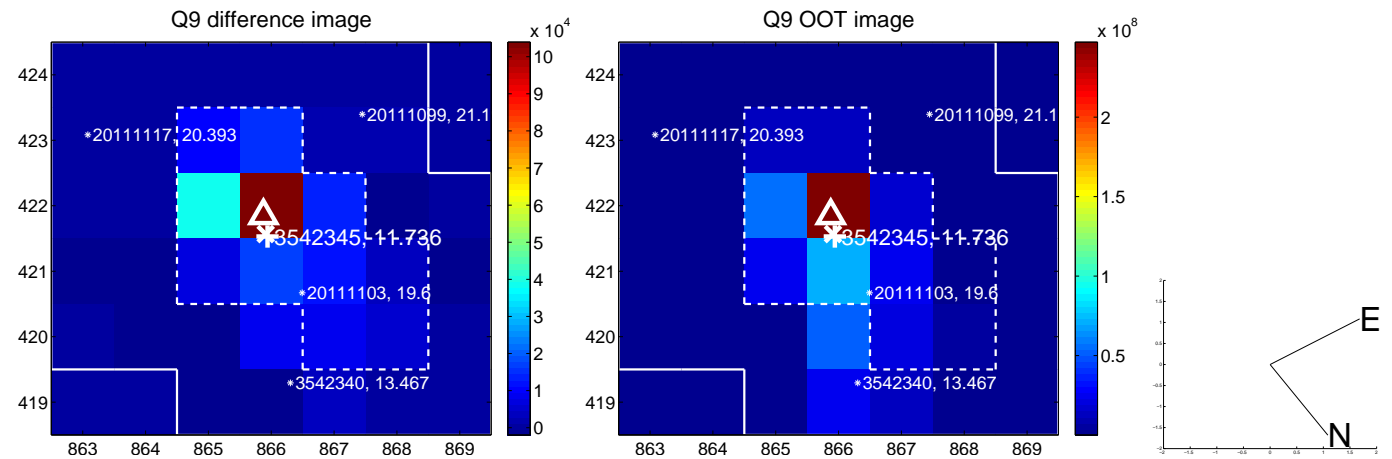




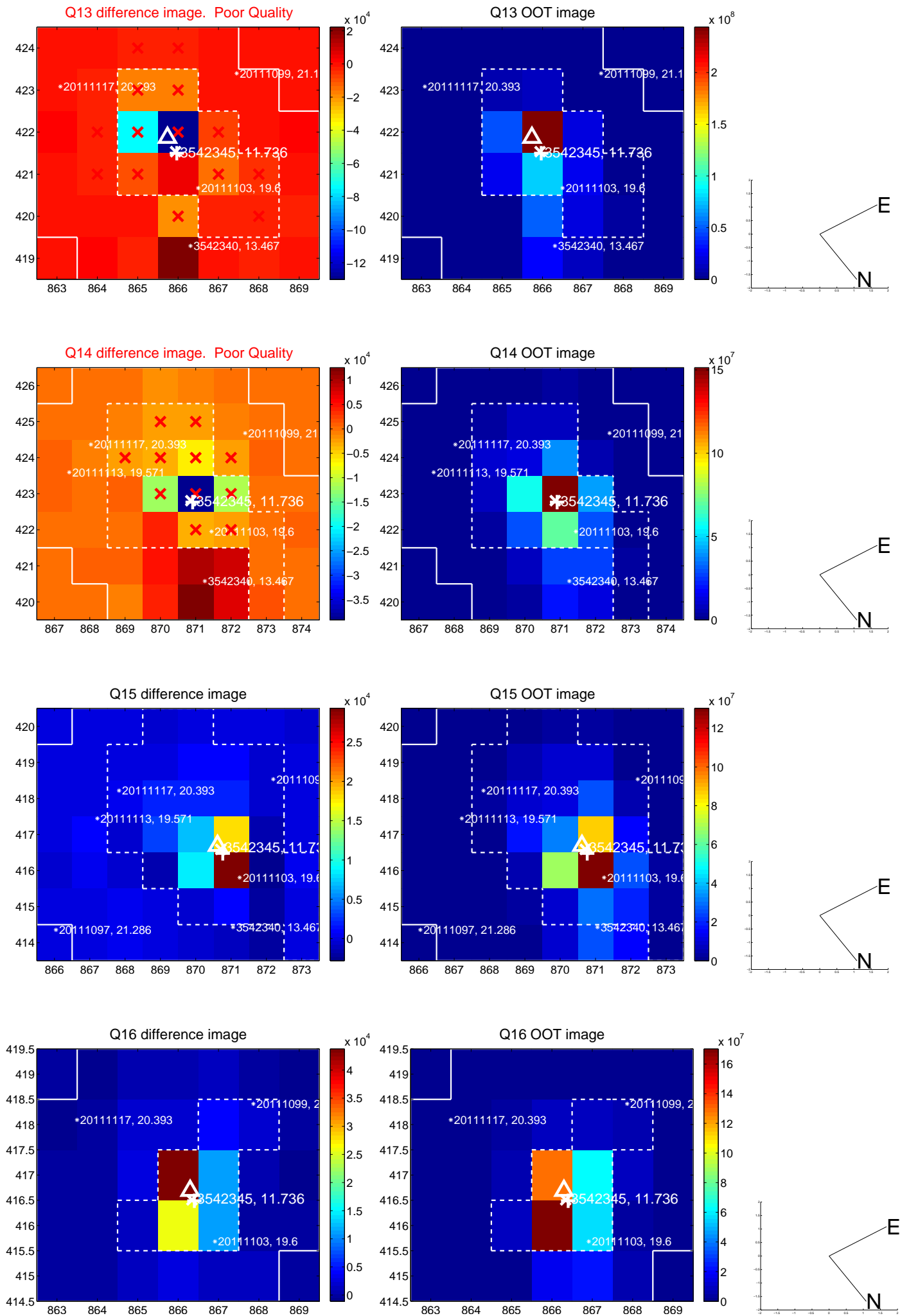
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



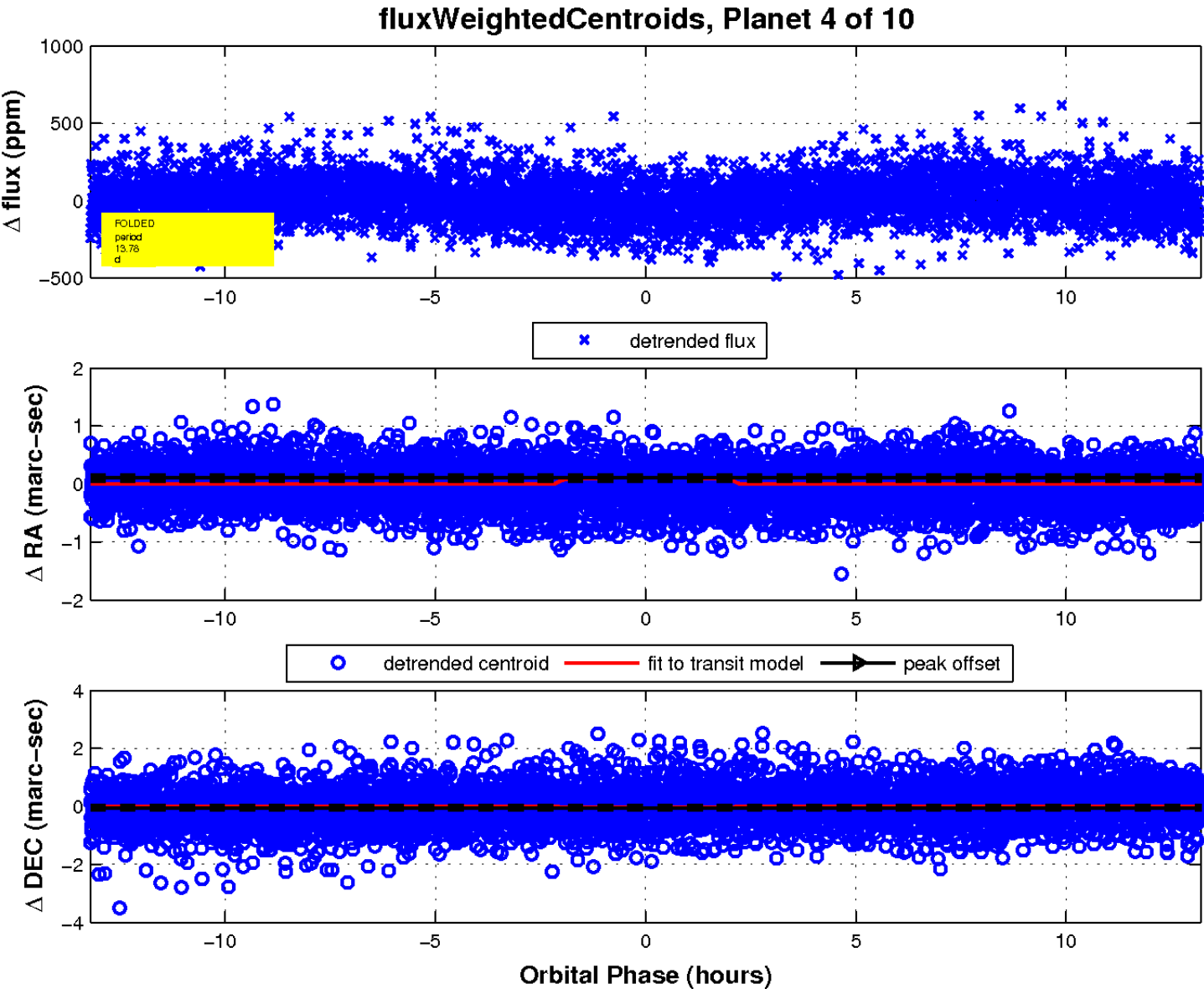
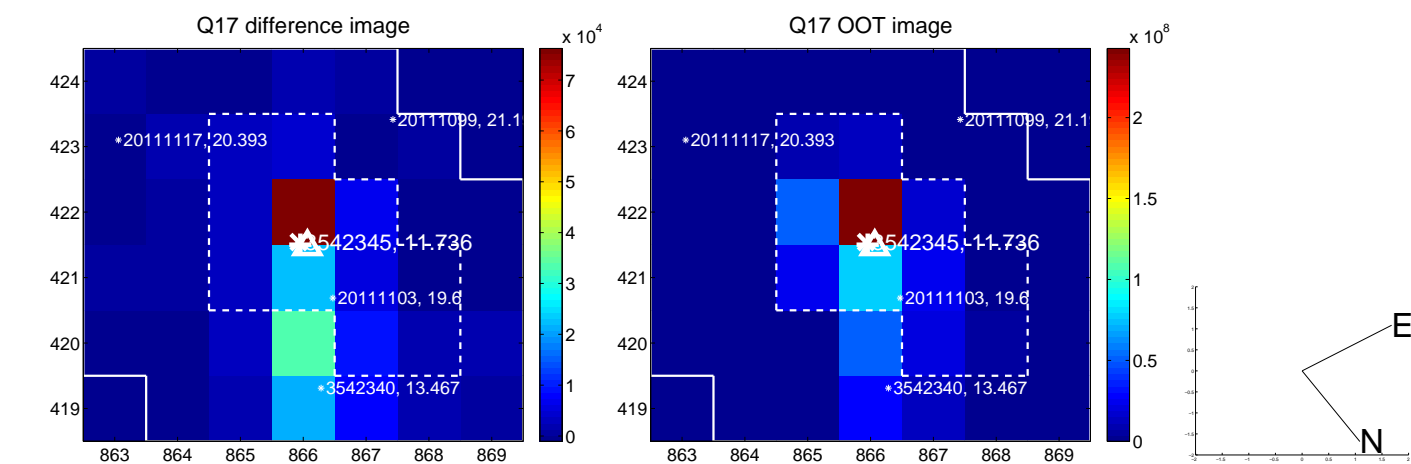
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

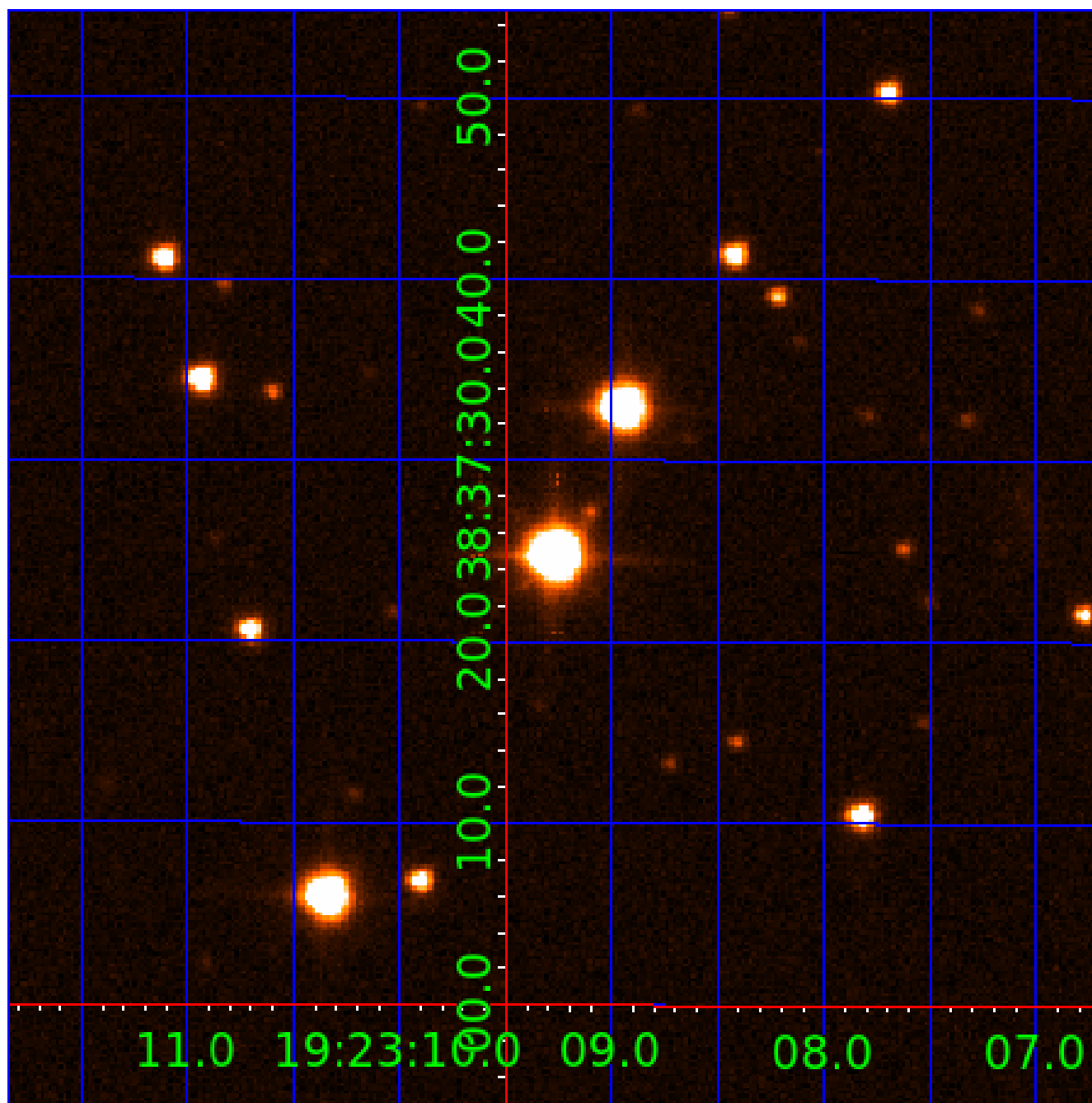


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003542345-01	OBS	No	2.015637	131.623110	7.0	9.704	11.3	3.6	1.57	7063	0.48	4321.96
003542345-02	OBS	No	1.680320	132.450335	43.7	3.268	12.7	13.7	1.57	7063	1.21	5508.60
003542345-03	OBS	No	108.920138	224.658989	111.0	9.730	9.1	7.0	1.57	7063	1.90	21.16
003542345-04	OBS	No	13.776503	138.904321	82.5	4.403	9.1	8.9	1.57	7063	1.65	333.20
003542345-05	OBS	No	136.747408	205.162926	235.9	7.118	8.8	9.0	1.57	7063	3.12	15.62
003542345-06	OBS	No	117.574138	173.952297	84.3	1.804	7.9	3.2	1.57	7063	1.79	19.11
003542345-07	OBS	No	352.726752	291.867554	166.0	9.180	7.9	7.8	1.57	7063	2.09	4.42
003542345-08	OBS	No	173.017872	135.509841	235.0	5.587	8.2	8.6	1.57	7063	2.80	11.41
003542345-09	OBS	No	57.681750	183.420652	160.5	3.890	8.6	7.7	1.57	7063	2.02	49.38
003542345-10	OBS	No	17.579058	139.776078	87.2	5.090	8.1	8.5	1.57	7063	1.73	240.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003542345-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003542345-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT
003542345-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
003542345-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
003542345-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

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

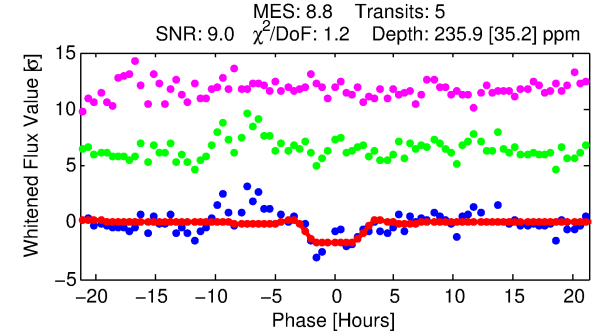
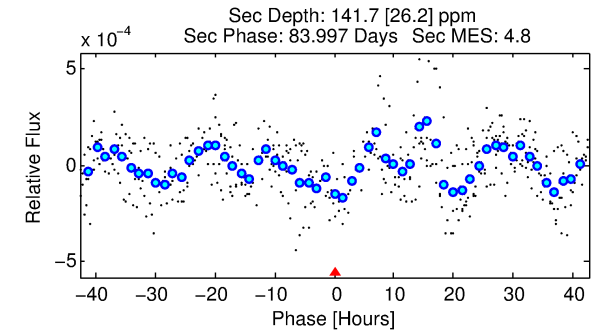
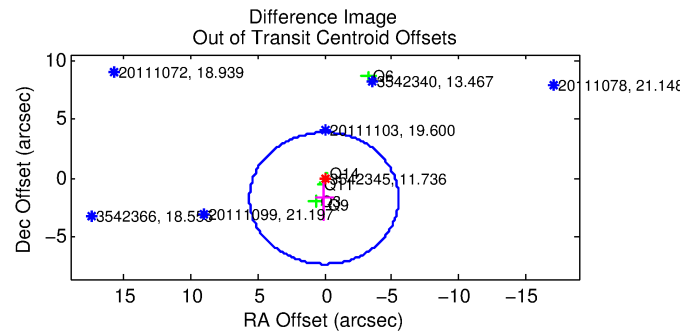
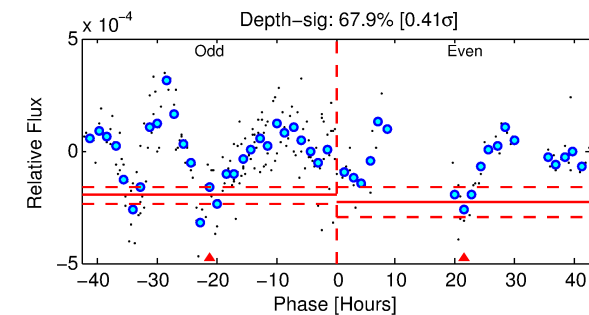
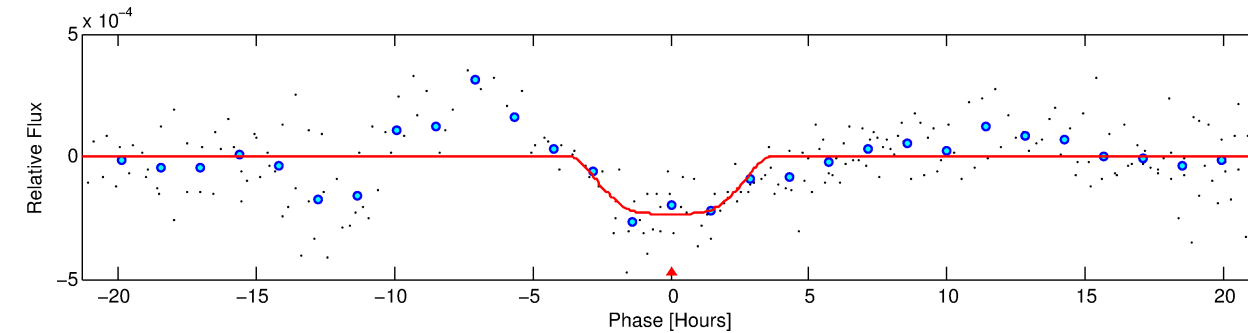
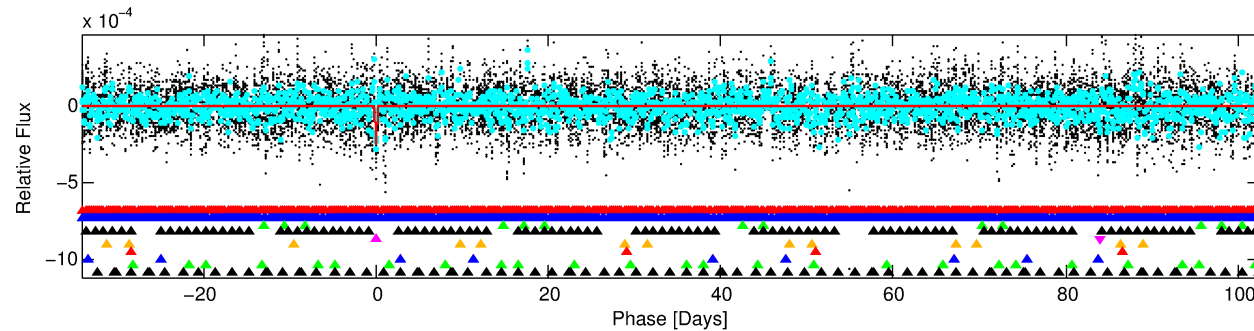
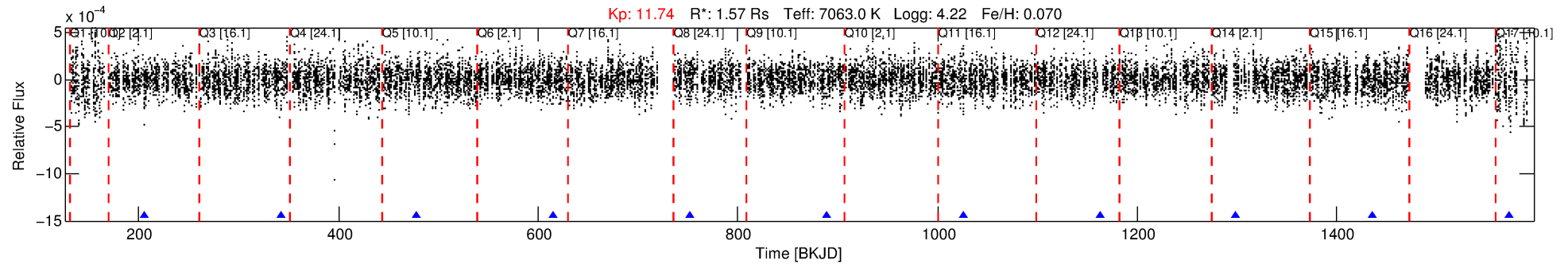
Ephemeris Match Information For 003542345-05

No Significant Match Found



# DV One-Page Summary

KIC: 3542345 Candidate: 5 of 10 Period: 136.747 d



## DV Fit Results:

Period = 136.74741 [0.00379] d  
Epoch = 205.1629 [0.0148] BKJD  
Rp/R\* = 0.0182 [0.0017]  
a/R\* = 42.55 [9.13]  
b = 0.98 [0.01]  
Seff = 15.62 [6.91]  
Teff = 507 [56] K  
Rp = 3.12 [1.14] Re  
a = 0.5920 [0.1695] AU  
Ag = 2814.28 [1343.48] [2.09 $\sigma$ ]  
Teffp = 5709 [460] K [11.22 $\sigma$ ]

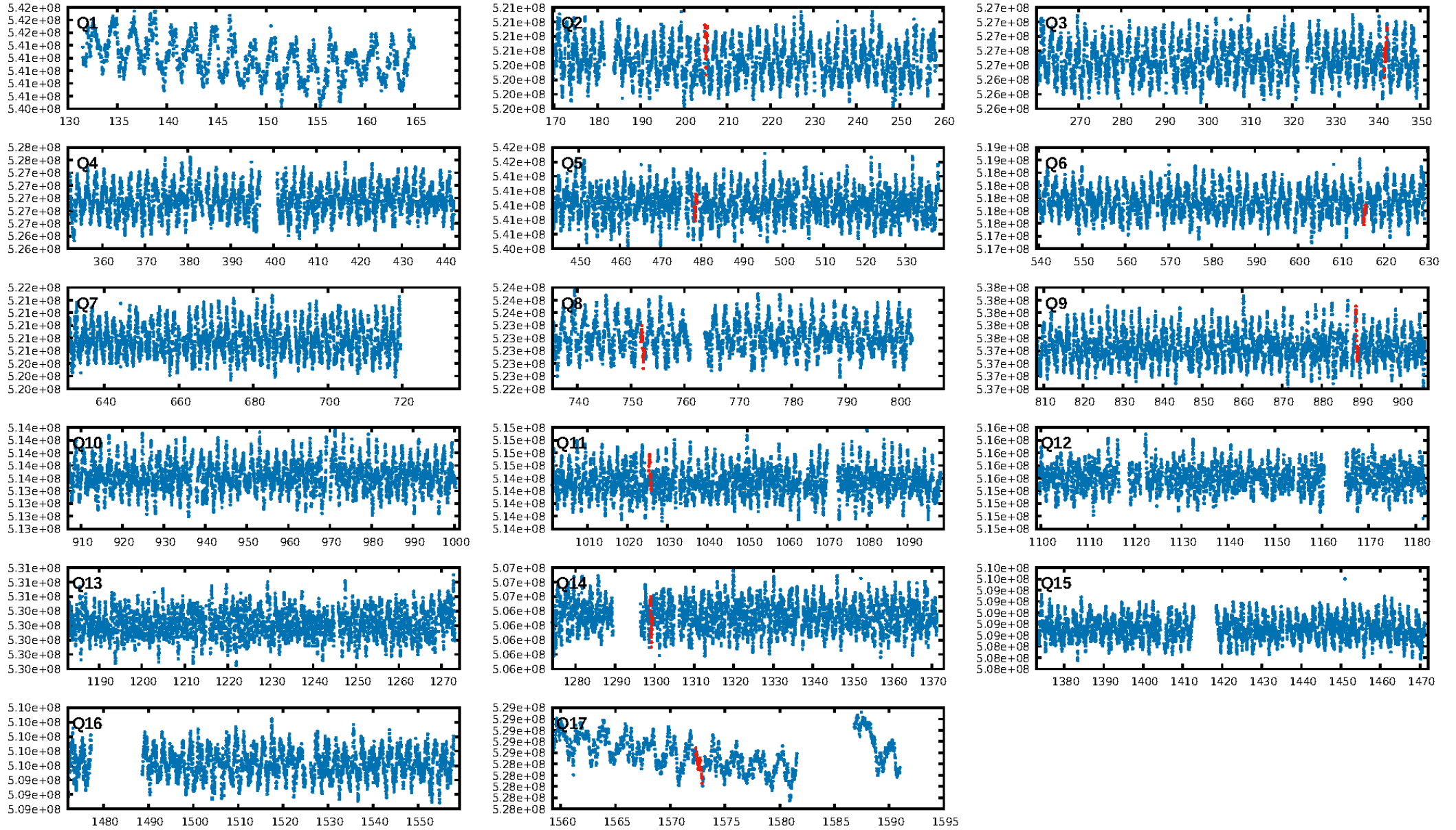
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [62.66 $\sigma$ ]  
LongPeriod-sig: 100.0% [96.19 $\sigma$ ]  
ModelChiSquare2-sig: 89.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -0.3095  
Centroid-sig: 3.8%  
Centroid-so: 1.371 arcsec [1.24 $\sigma$ ]  
OotOffset-rm: 1.676 arcsec [0.90 $\sigma$ ]  
KicOffset-rm: 1.486 arcsec [0.97 $\sigma$ ]  
OotOffset-st: 2/2/0/1 [5]  
KicOffset-st: 2/2/0/1 [5]  
DiffImageQuality-fgm: 0.40 [2/5]  
DiffImageOverlap-fno: 0.11 [1/9]

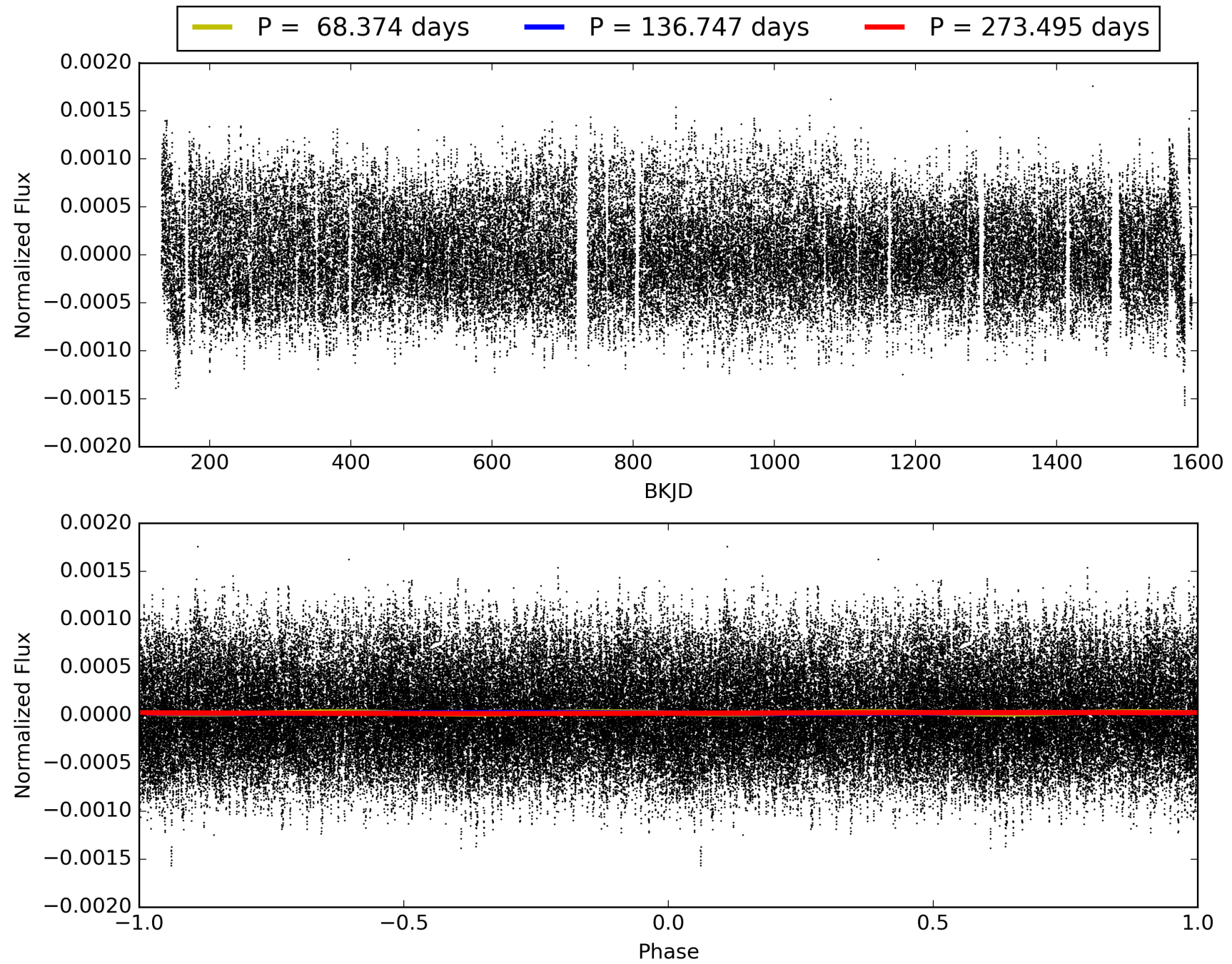
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:30:41 Z

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

# TCE 003542345-05, PDC Light Curves

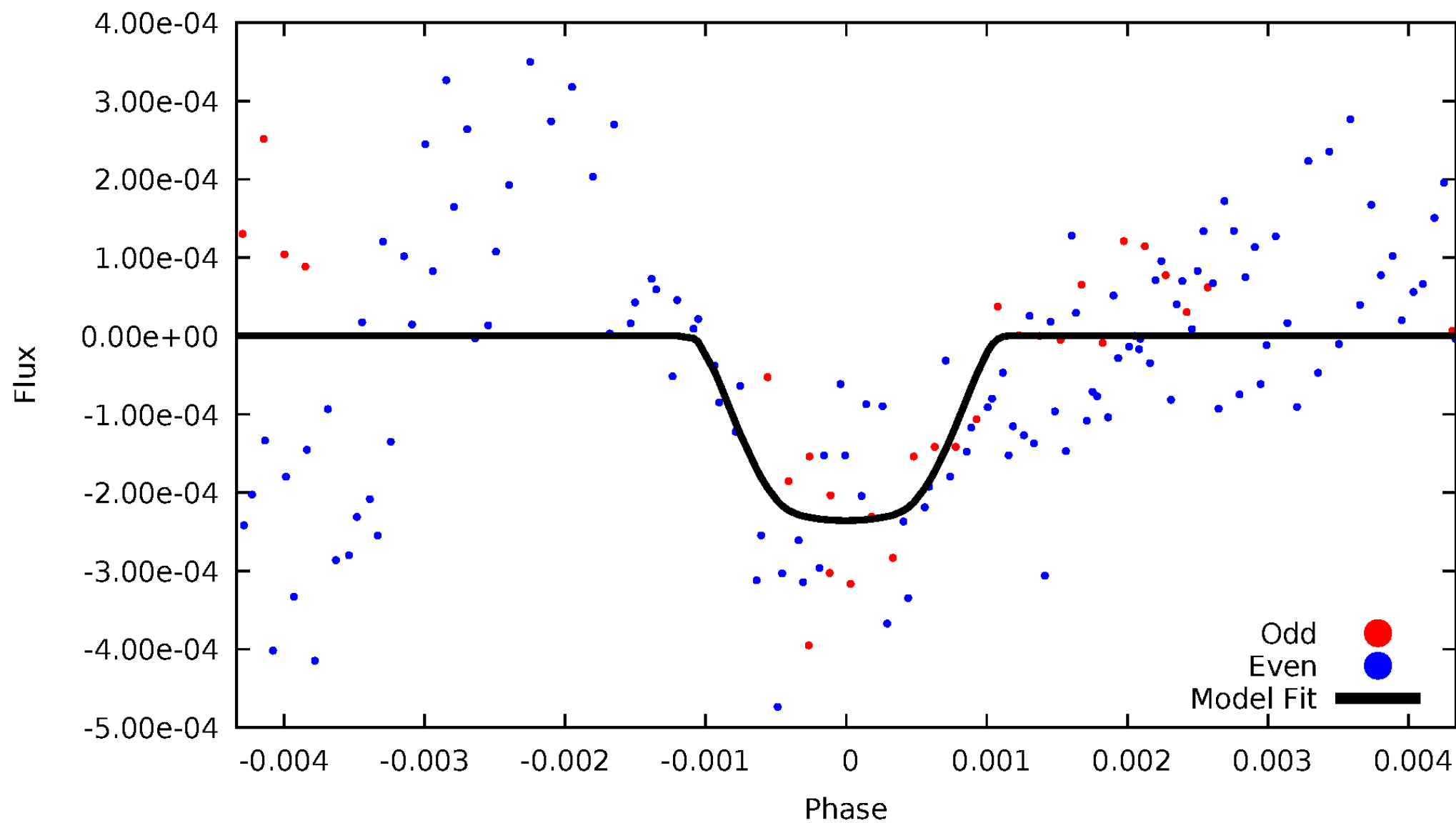


TCE 003542345-05



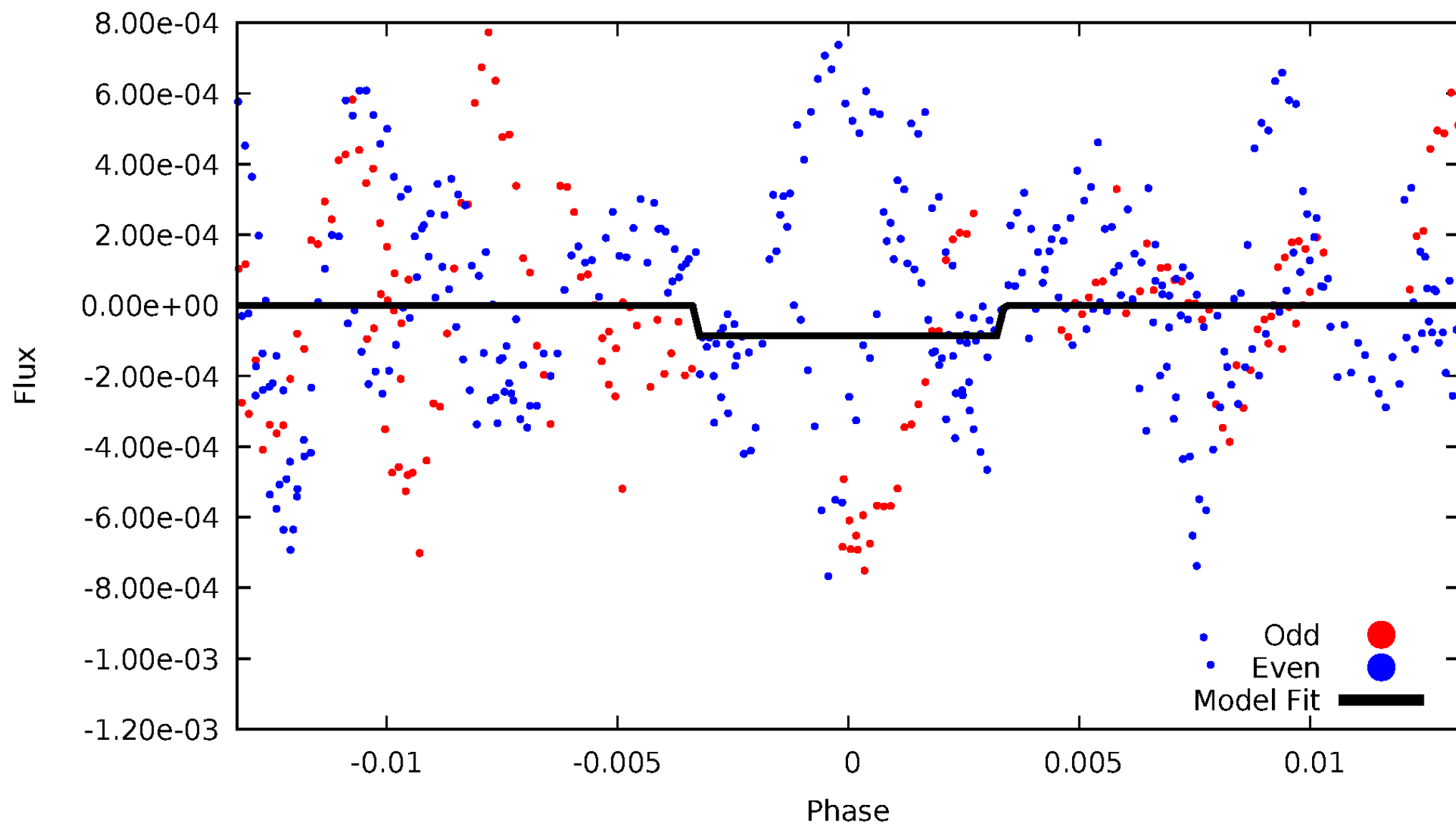
# DV Odd/Even

TCE 003542345-05



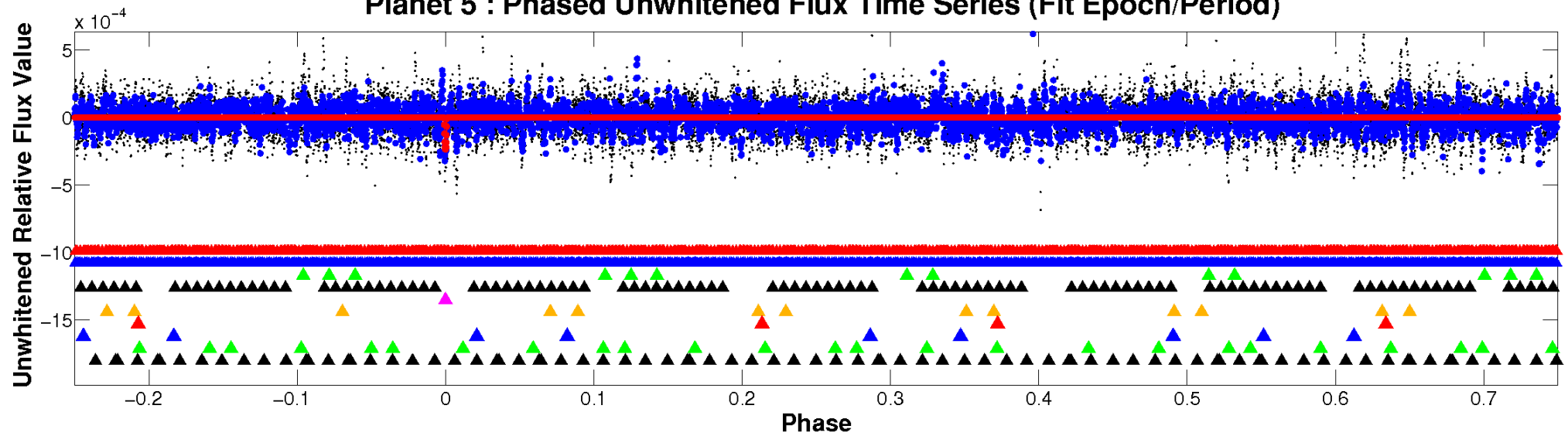
# ALT Odd/Even

TCE 003542345-05

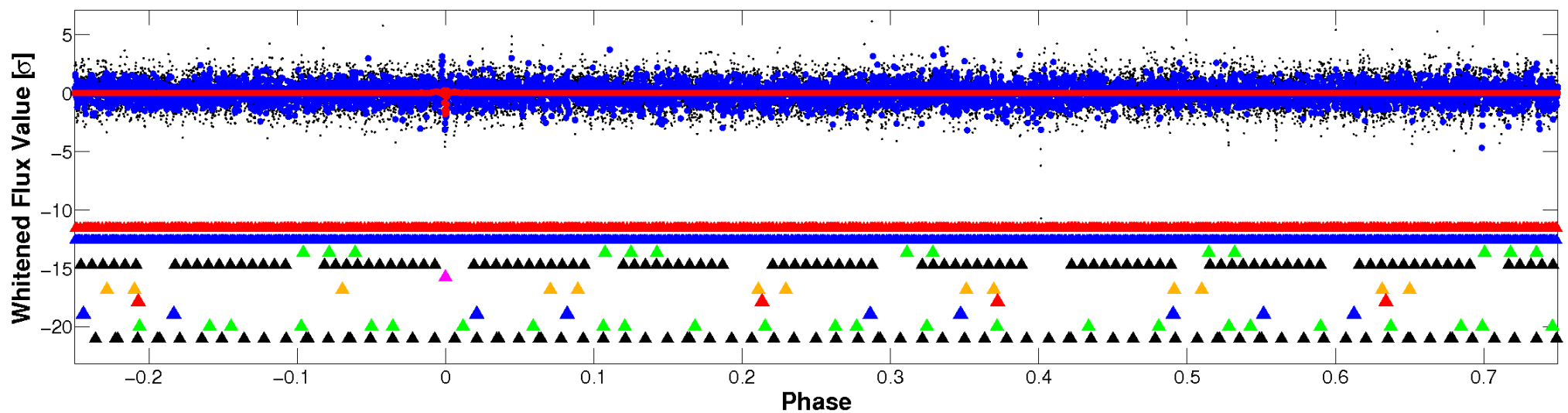


# Non-Whitened Vs. Whitened Light Curve

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



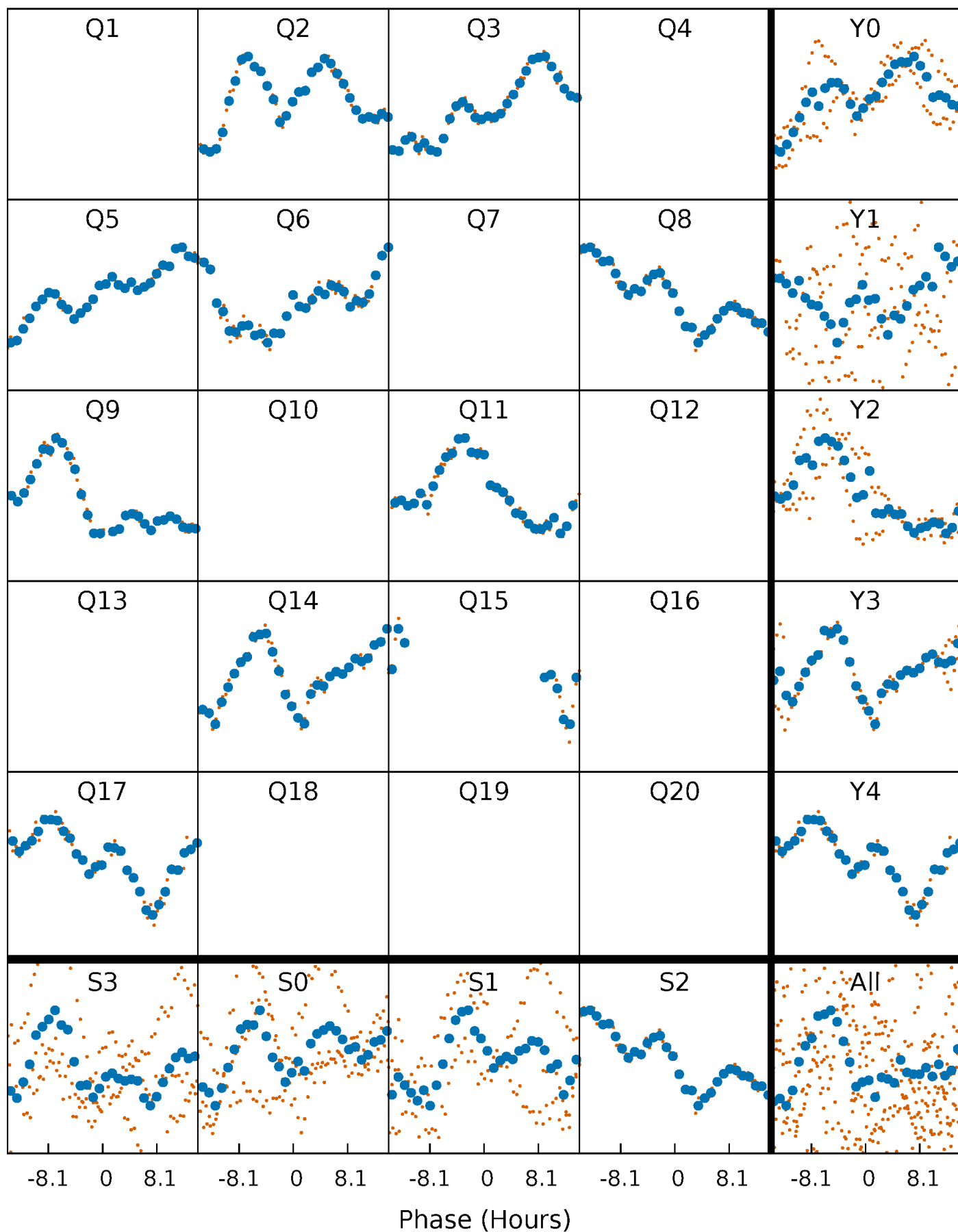
## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)





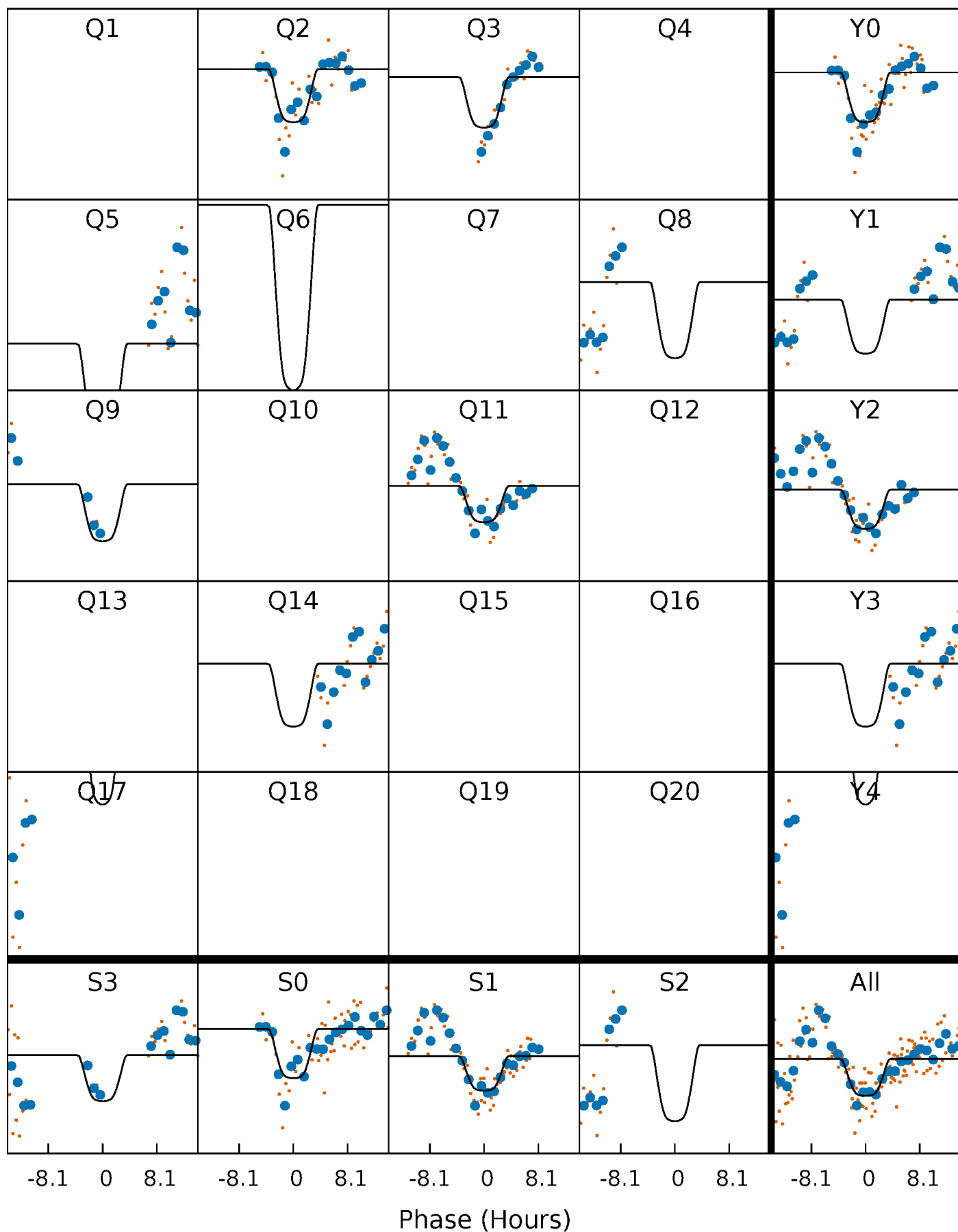
# PDC Quarter-Phased Transit Curves

TCE 003542345-05     $P=136.747408$  Days     $T_0=205.162926$  (BKJD)



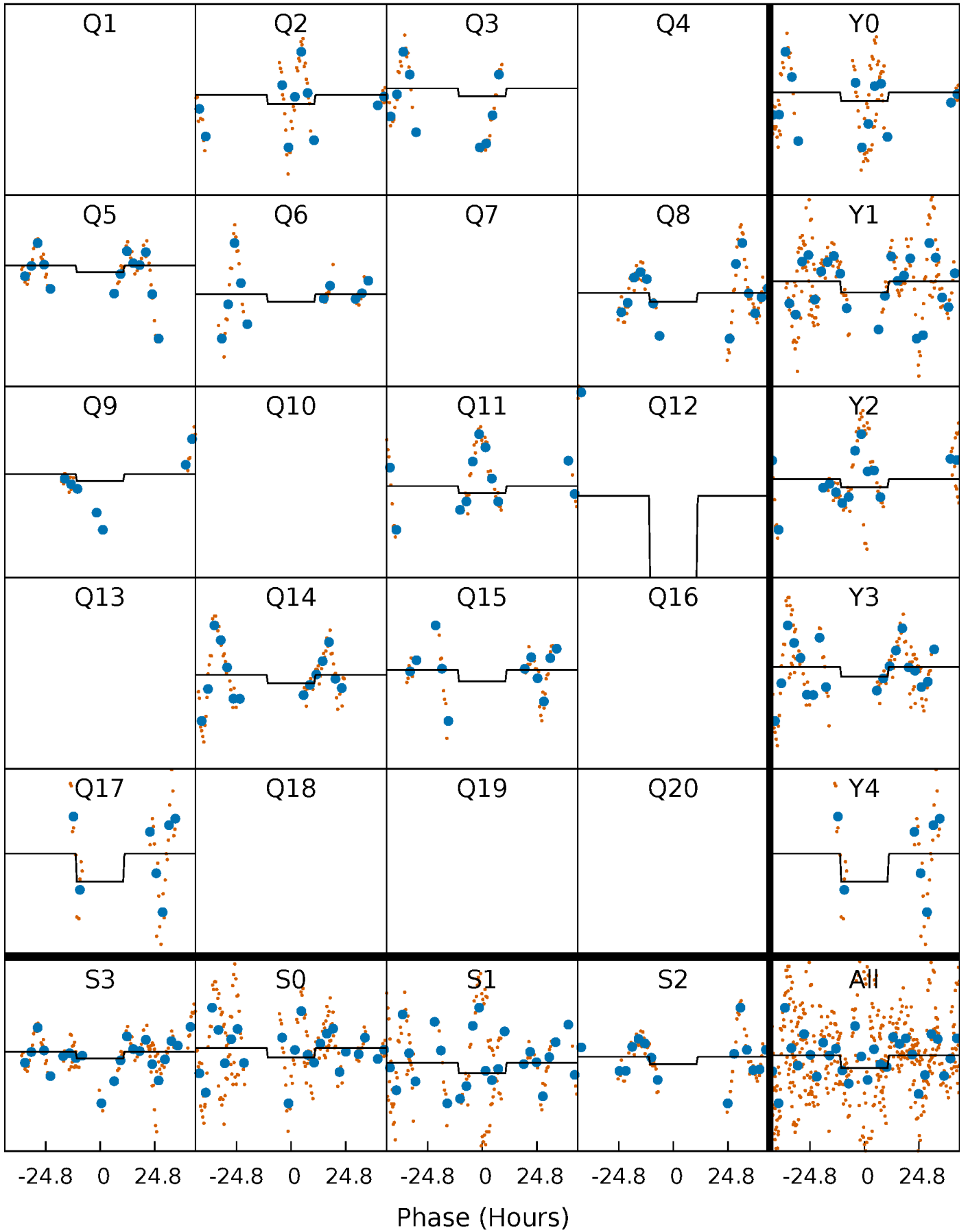
# DV Quarter-Phased Transit Curves

TCE 003542345-05     $P=136.747408$  Days     $T_0=205.162926$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

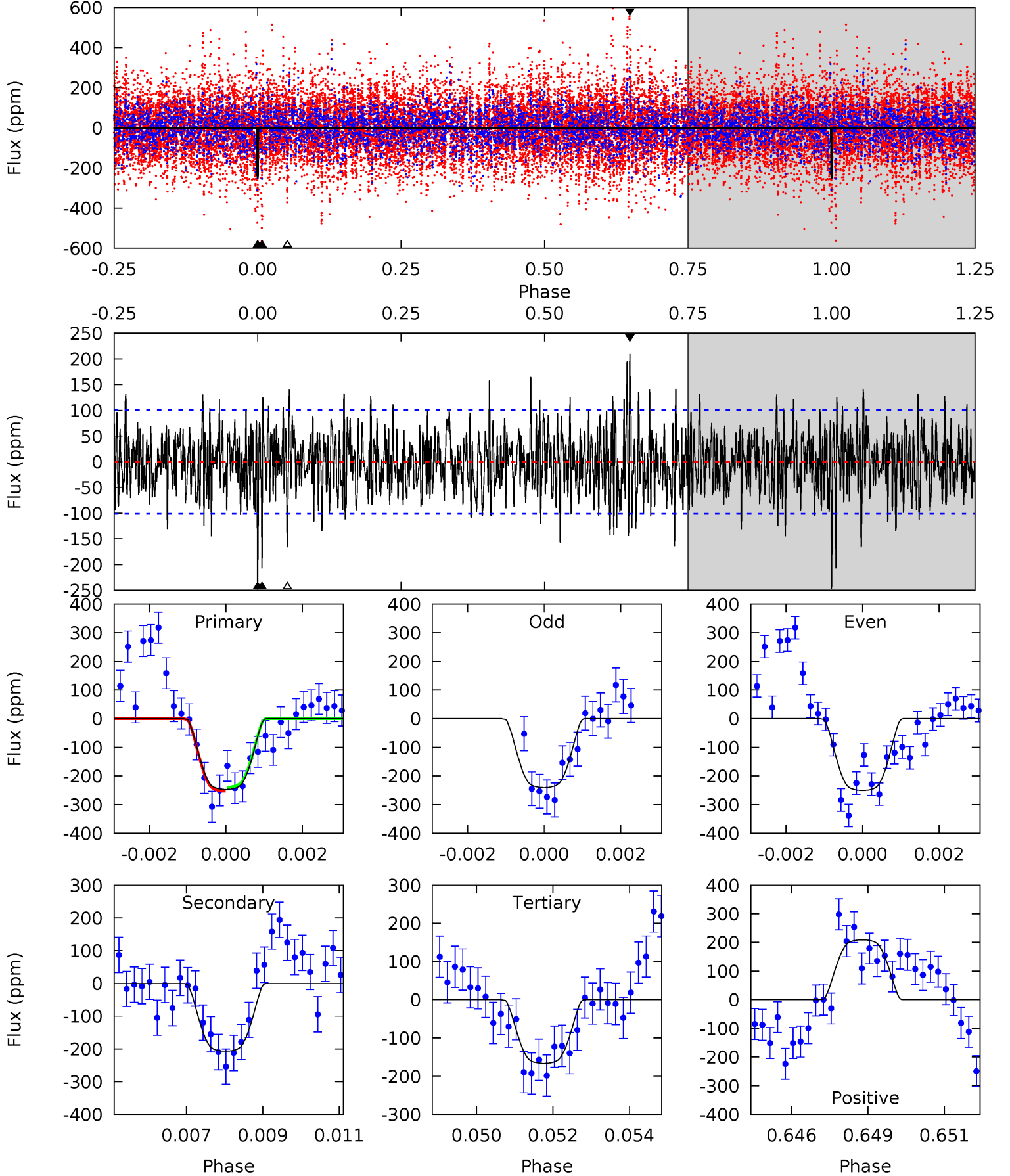
TCE 003542345-05     $P=136.736368$  Days     $T_0=205.155014$  (BKJD)



# DV Model-Shift Uniqueness Test

003542345-05, P = 136.747408 Days, E = 68.415518 Days

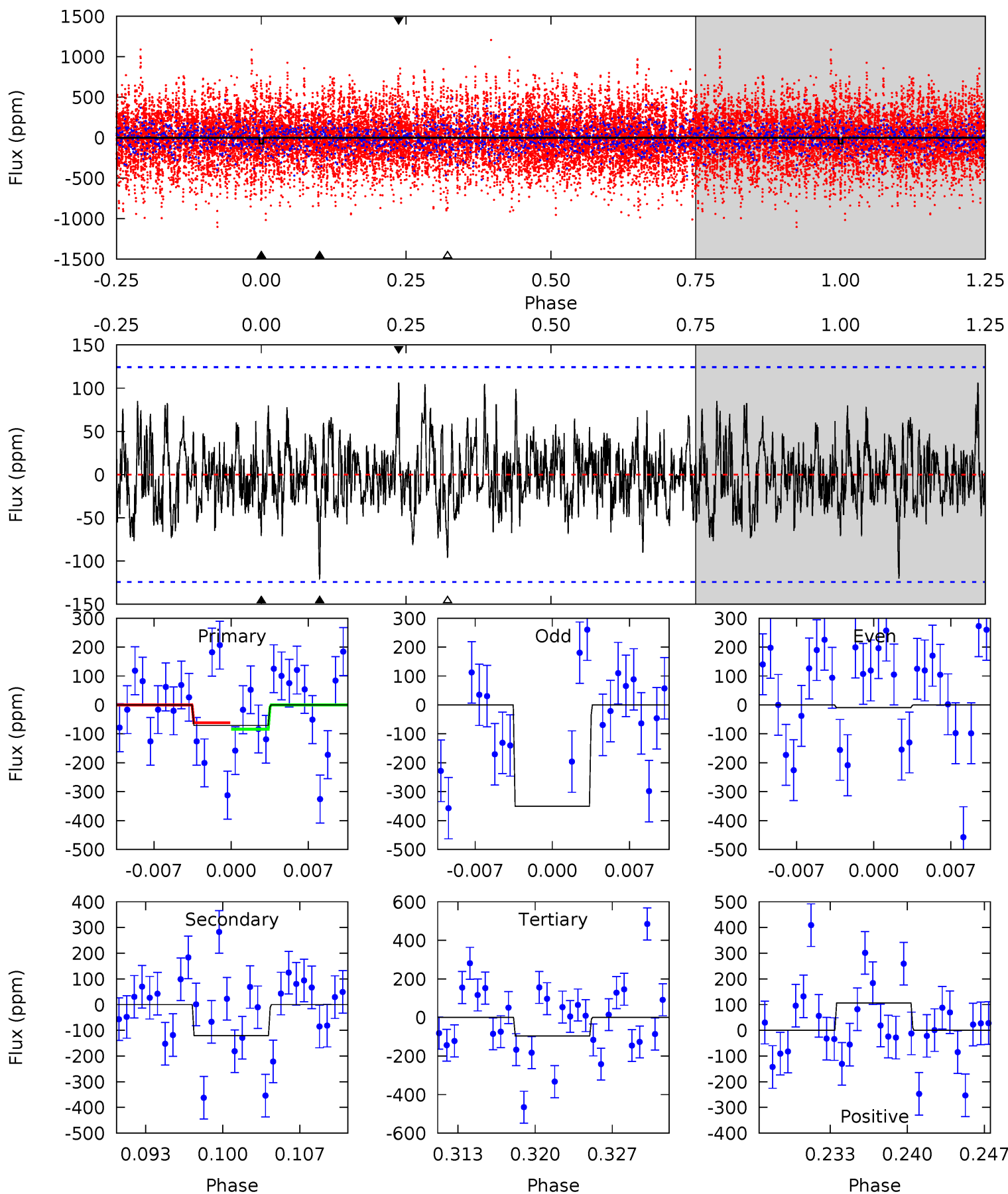
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	10.9	8.74	11.0	5.31	3.07	2.75	4.23	1.99	2.13	-0.11	0.26	0.94	0.46	0.36



# Alt Model-Shift Uniqueness Test

003542345-05, P = 136.736368 Days, E = 68.418646 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
2.92	4.94	3.95	4.37	5.10	2.71	1.26	-1.03	-1.45	0.99	0.57	5.50	1.22	0.47	0



### Stellar Parameters For KIC 003542345

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7063^{+195}_{-335}$	$4.218^{+0.090}_{-0.210}$	$0.070^{+0.200}_{-0.350}$	$1.567^{+0.556}_{-0.238}$	$1.480^{+0.214}_{-0.214}$	$0.541^{+0.228}_{-0.305}$
	+3%/-5%	+2%/-5%	+286%/-500%	+35%/-15%	+14%/-14%	+42%/-56%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 003542345-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-207 \pm 19$	$3.20^{+0.63}_{-0.44}$	$716^{+60}_{-45}$	$6204^{+424}_{-383}$	$3836^{+1241}_{-1121}$
Alt.	$-120 \pm 24$	$1.62^{+0.39}_{-0.33}$	$714^{+59}_{-44}$	$7731^{+1155}_{-837}$	$8468^{+5489}_{-3011}$

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



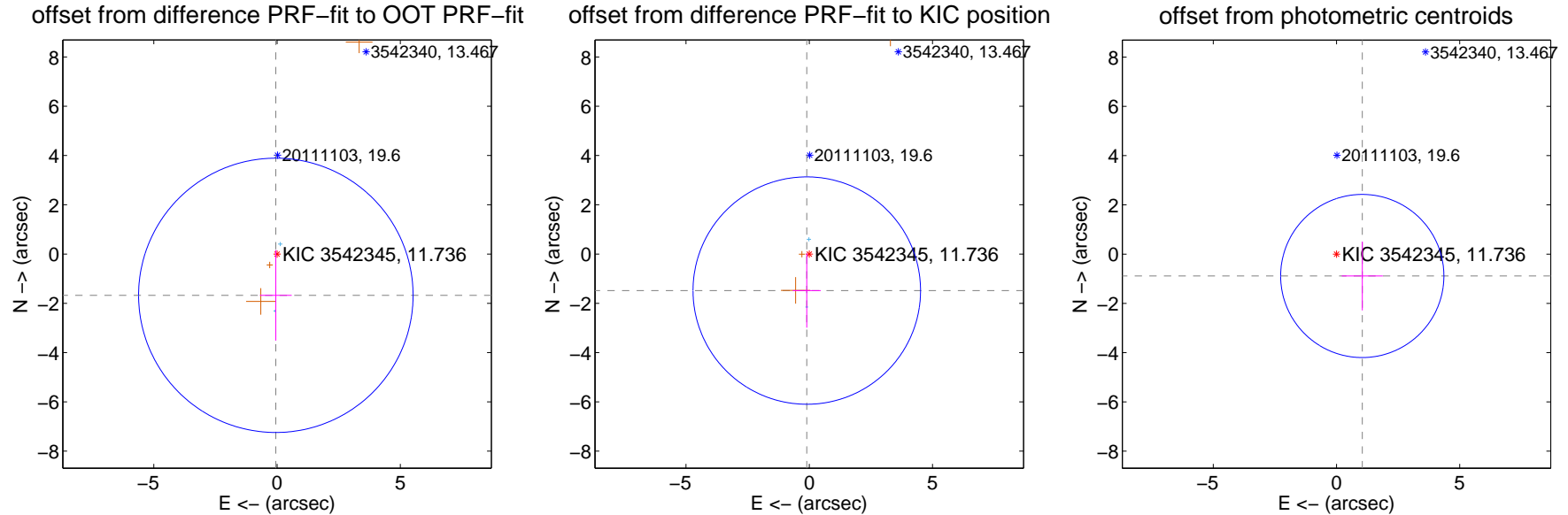
## DV Centroid Data

Supplemental centroid analysis for 003542345-05. **Kepler magnitude: 11.74.** Transit SNR 8.99

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

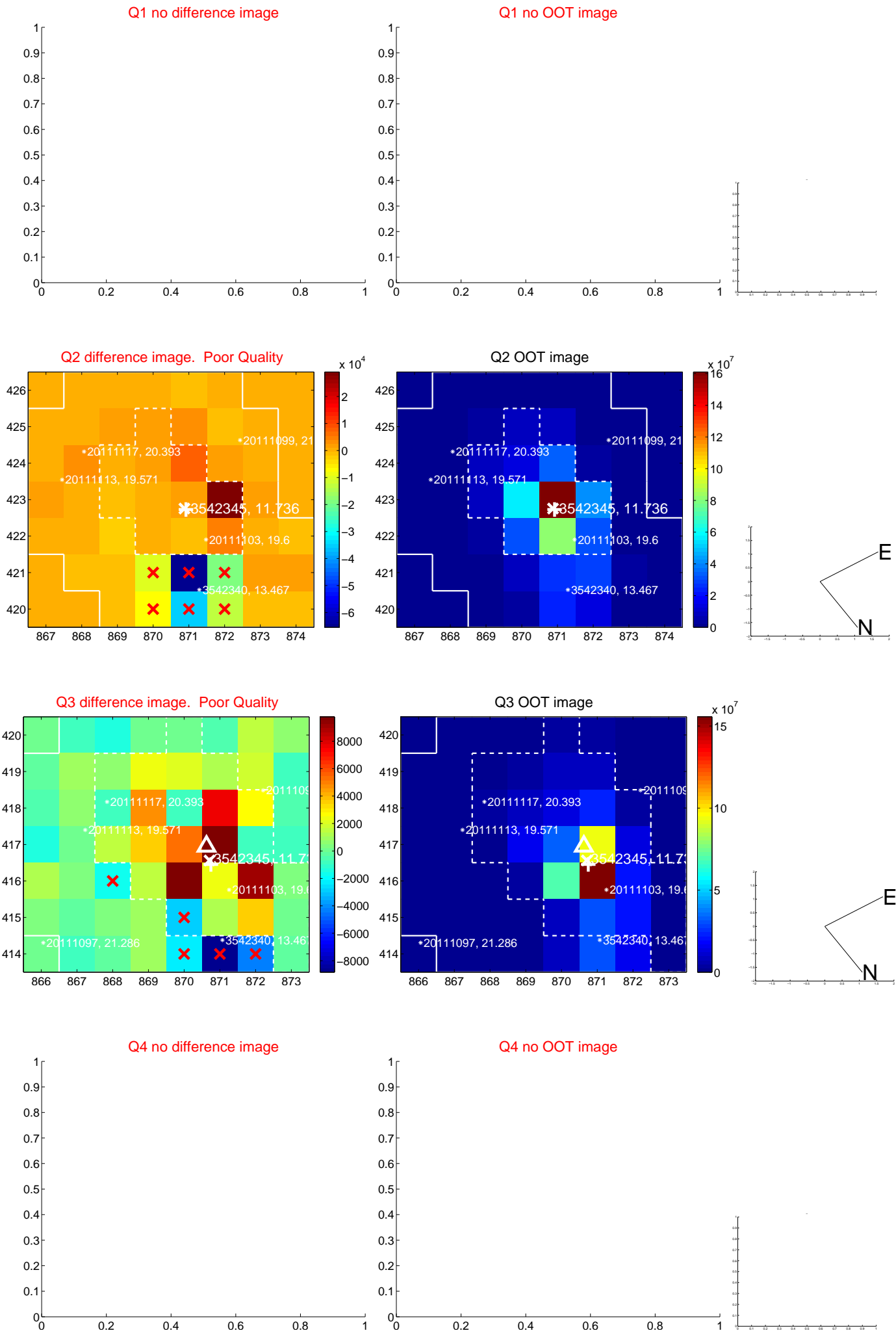
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.676 \pm 1.856$	0.90	$0.050 \pm 0.646$	$-1.675 \pm 1.838$
PRF-fit source offset from KIC position	$1.486 \pm 1.538$	0.97	$0.100 \pm 0.567$	$-1.482 \pm 1.505$
photometric centroid source offset	$1.37 \pm 1.10$	1.24	$-1.05 \pm 0.83$	$-0.89 \pm 1.40$

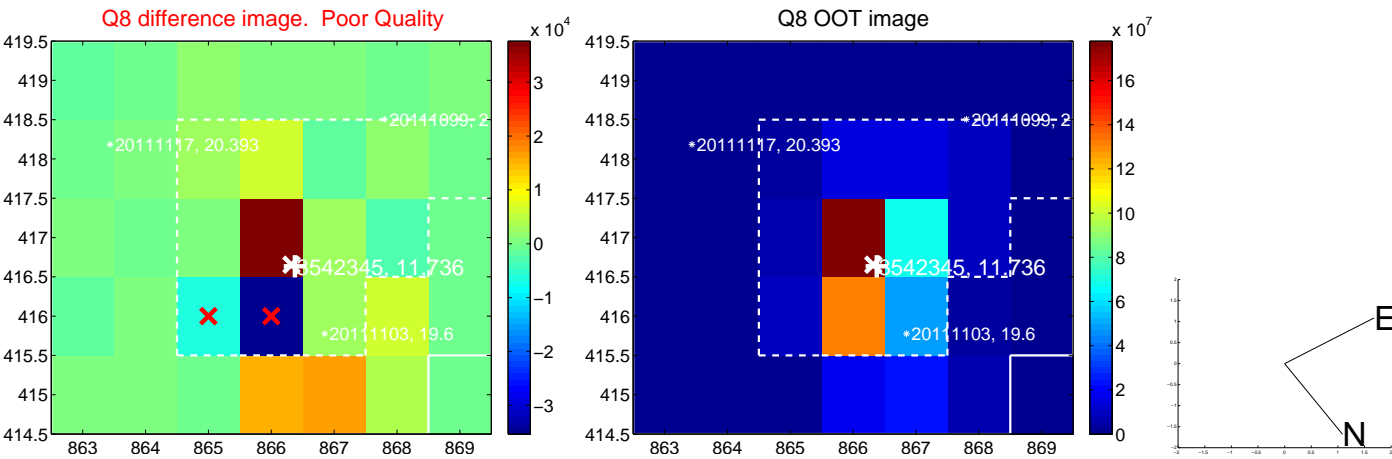
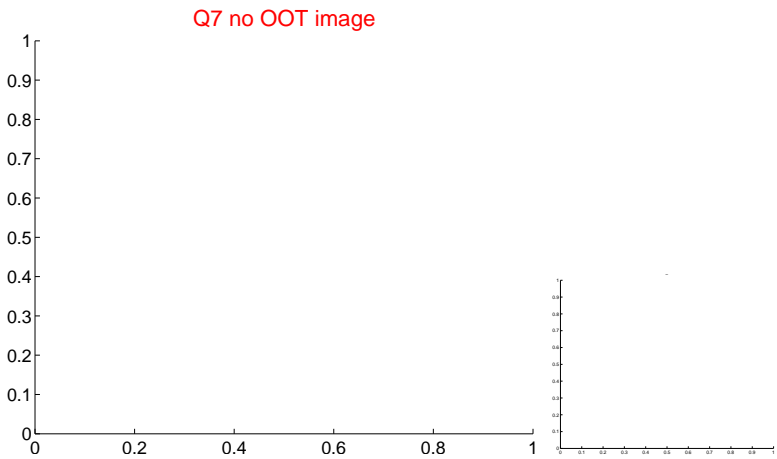
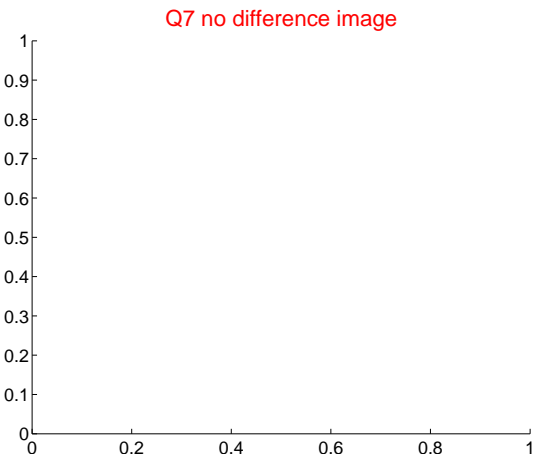
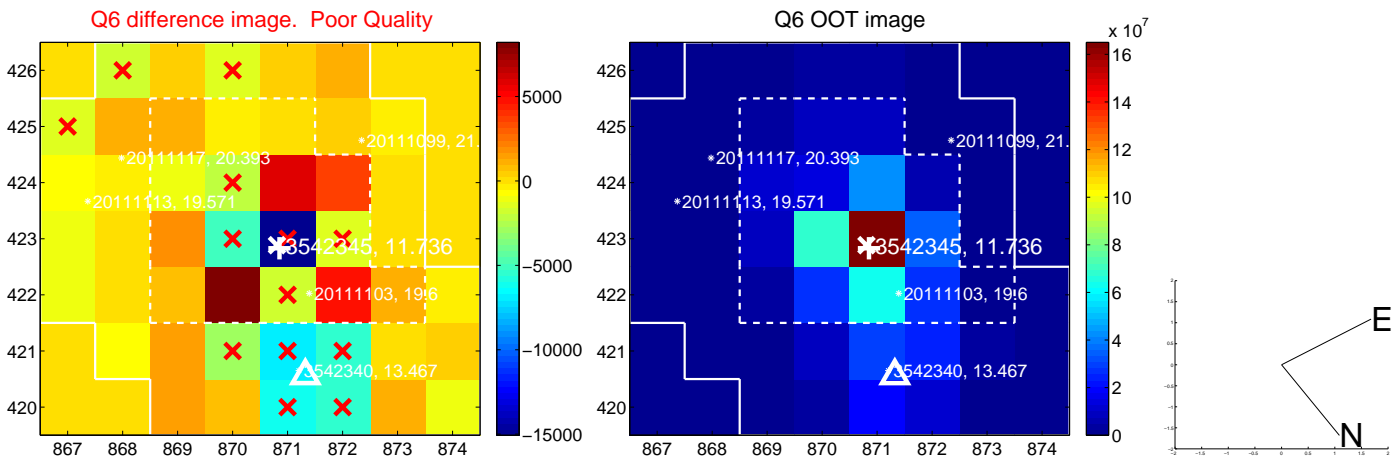
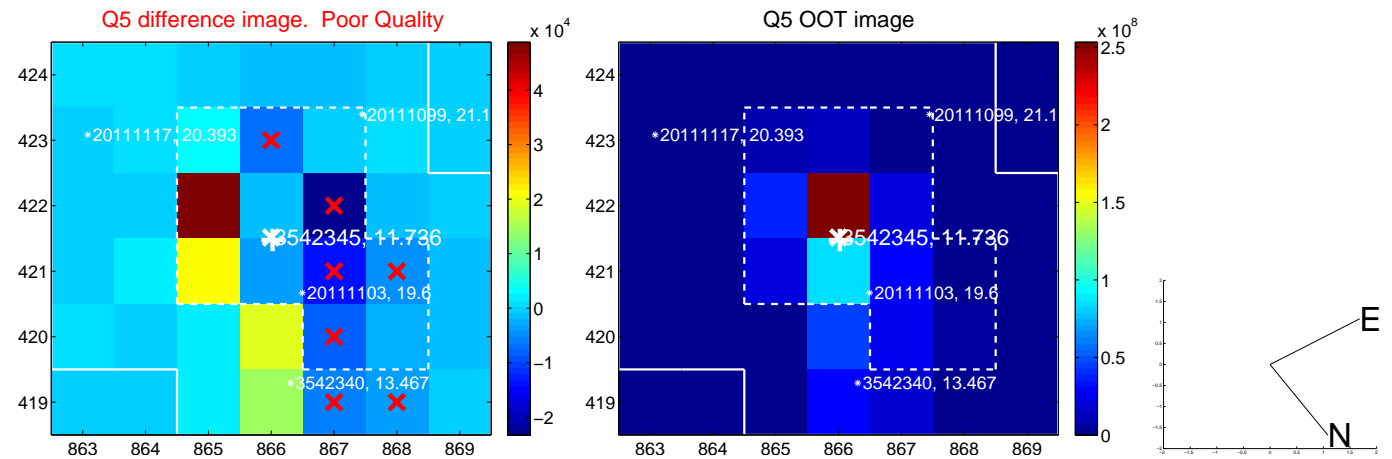


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

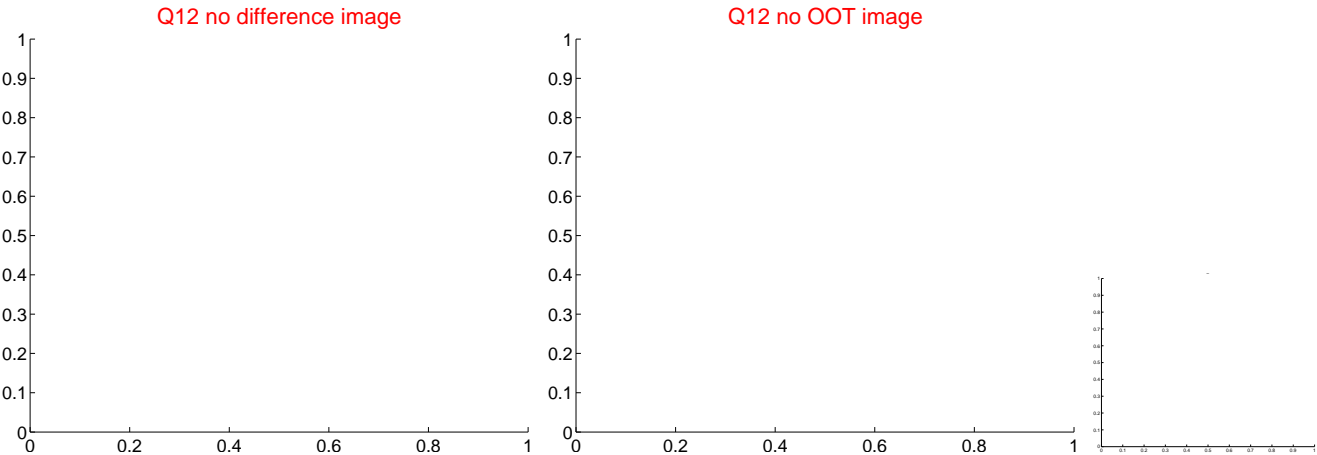
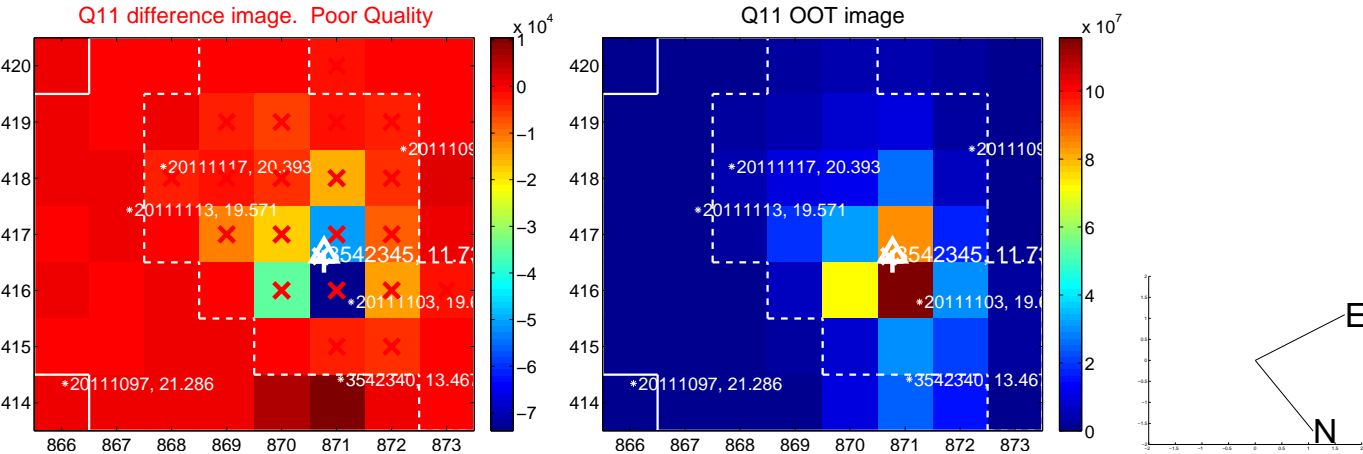
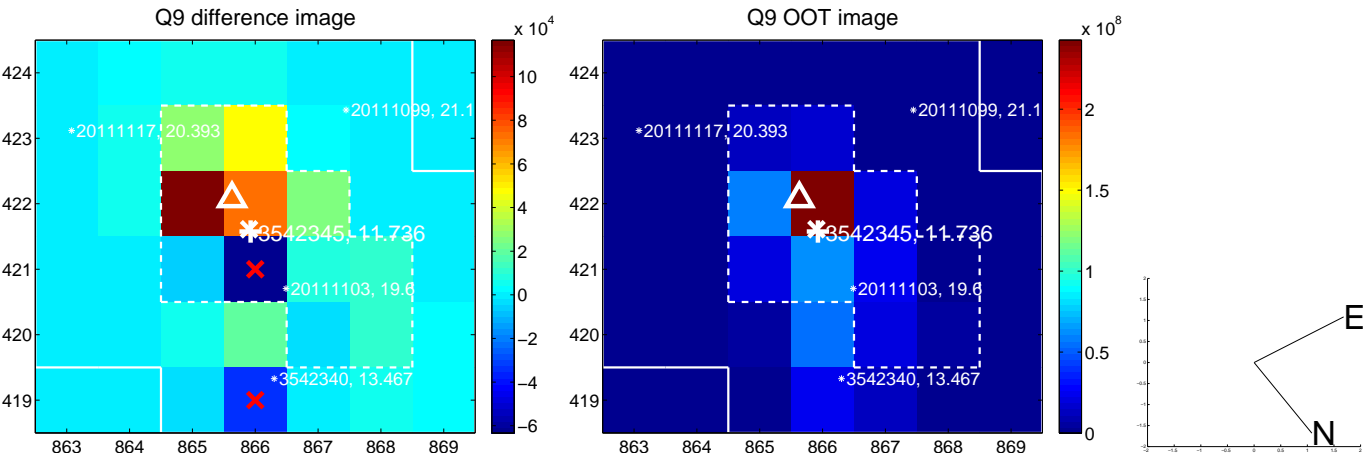
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



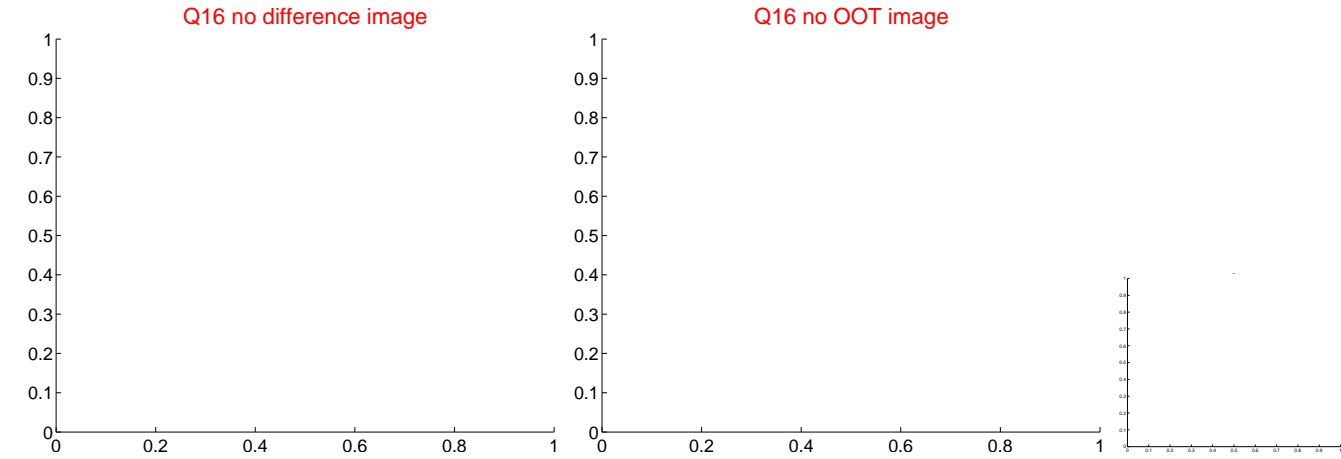
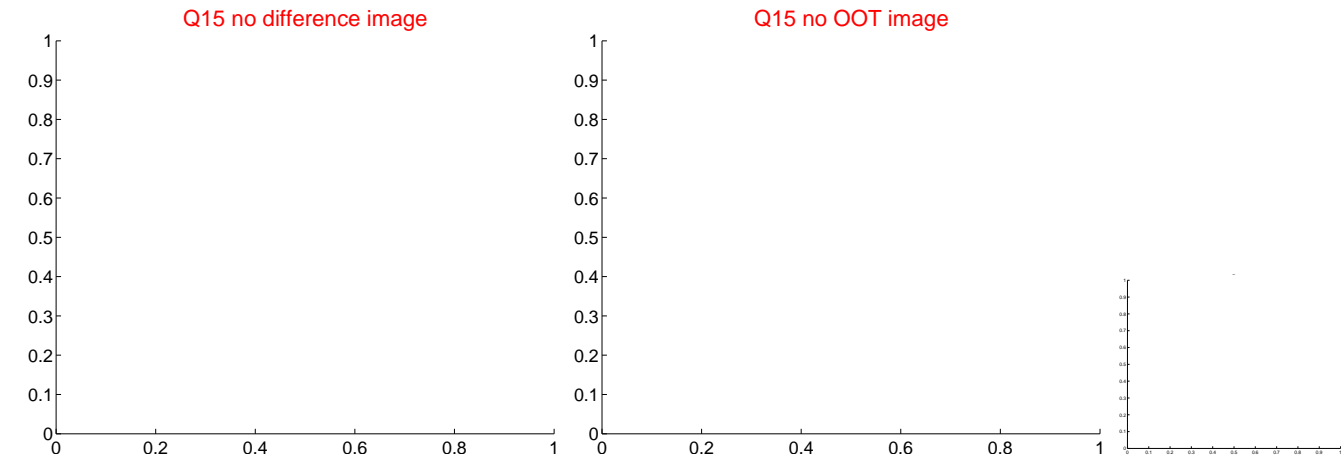
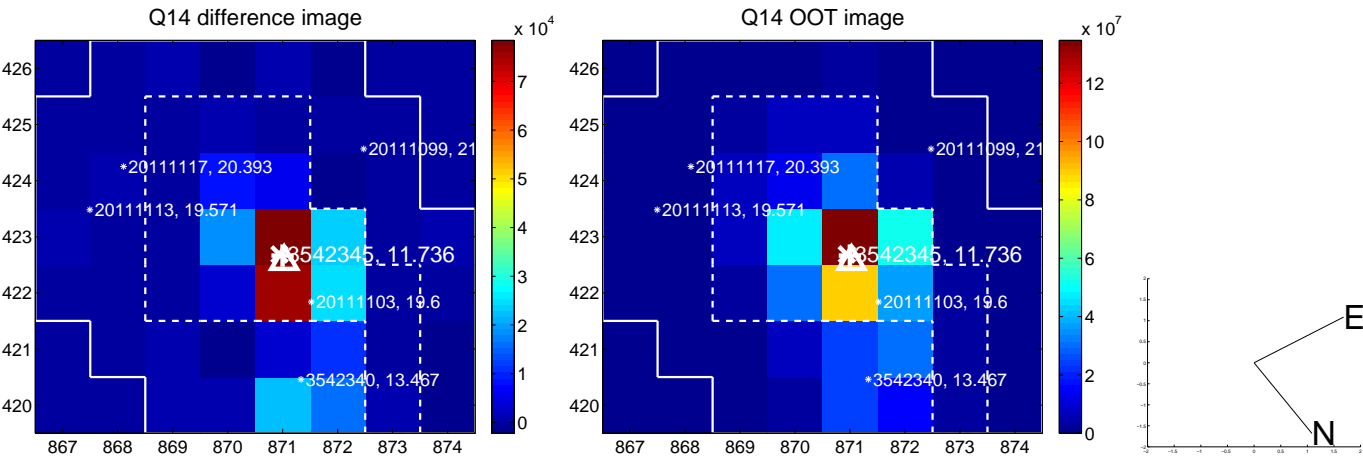
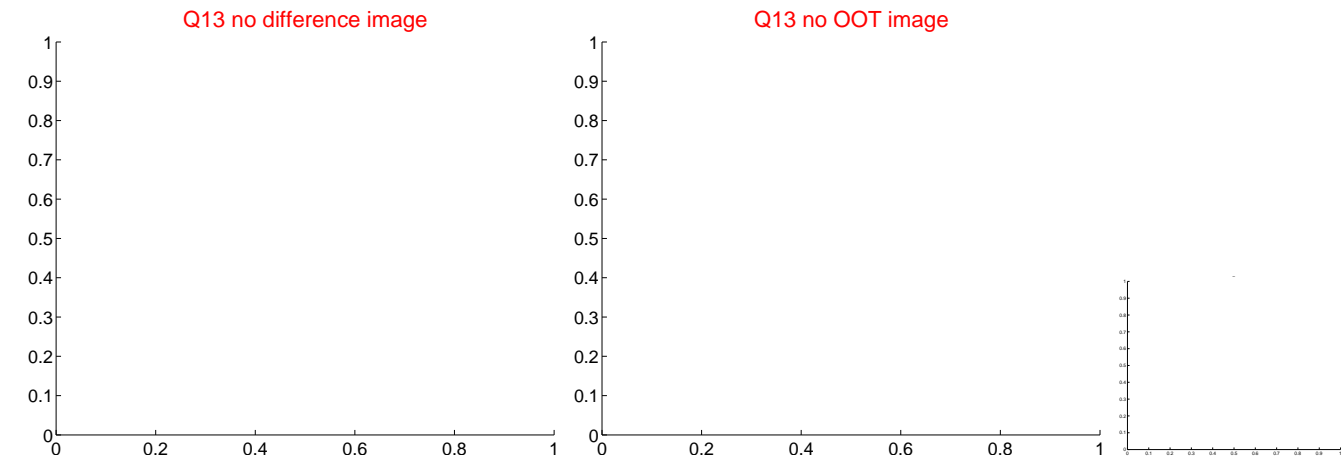
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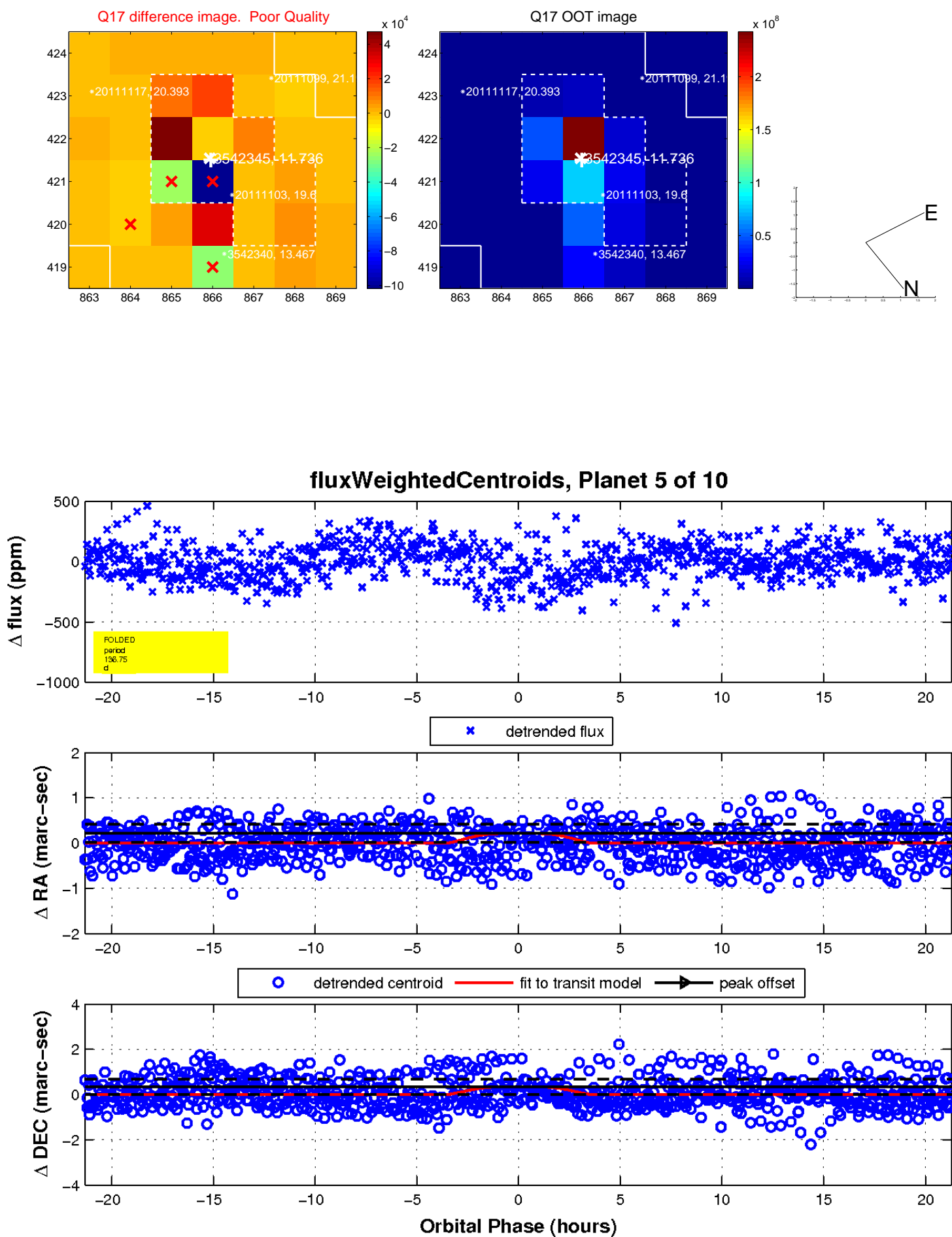
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



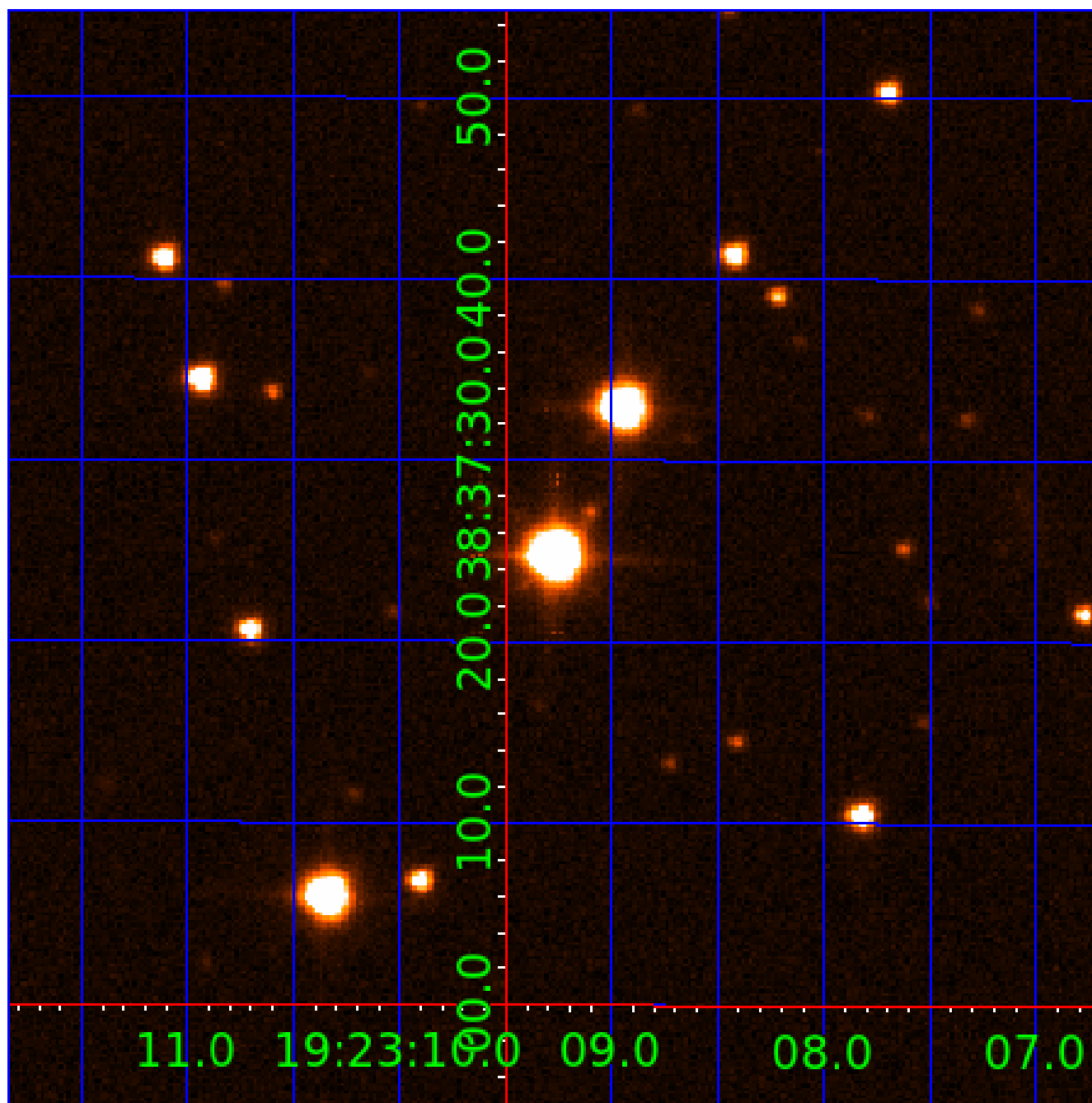
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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003542345-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT
003542345-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
003542345-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
003542345-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

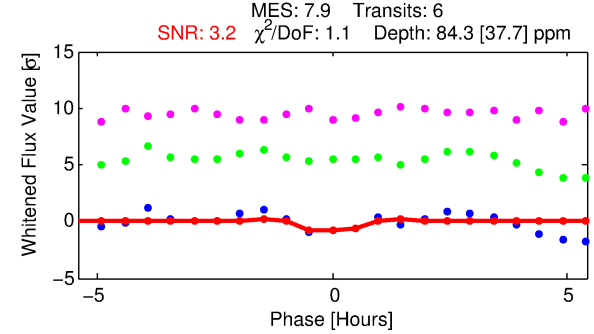
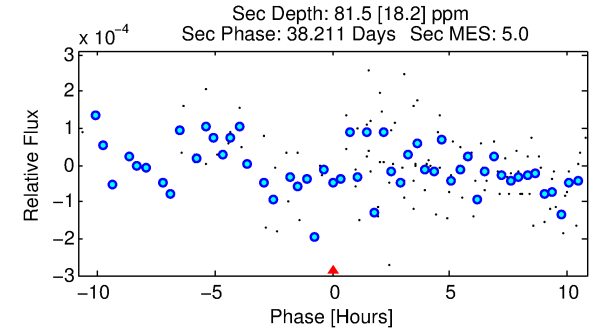
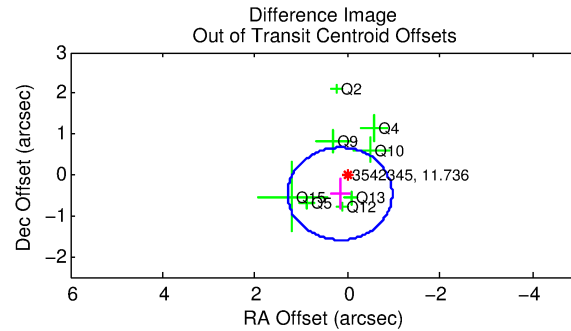
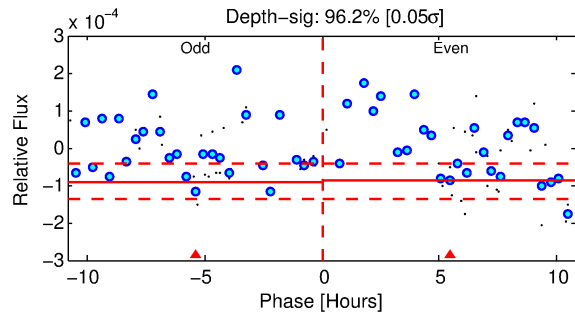
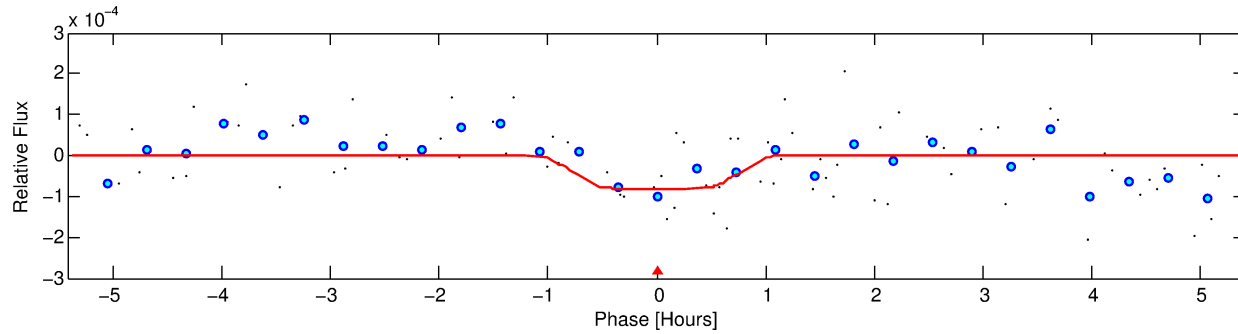
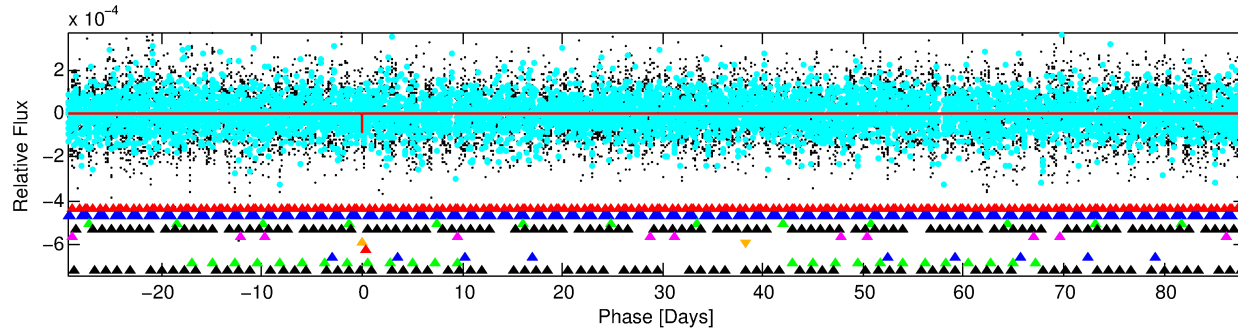
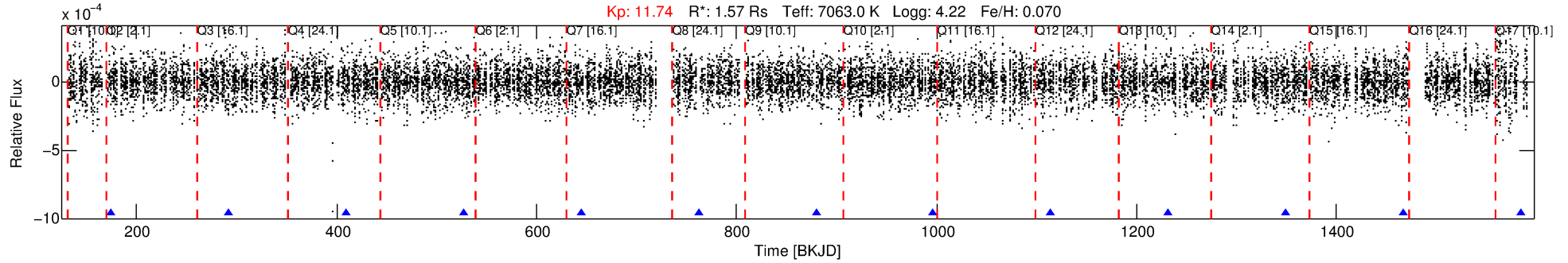
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003542345-06

No Significant Match Found

# DV One-Page Summary

KIC: 3542345 Candidate: 6 of 10 Period: 117.574 d



## DV Fit Results:

Period = 117.57414 [0.00215] d  
Epoch = 173.9523 [0.0163] BKJD  
Rp/R\* = 0.0105 [0.0097]  
a/R\* = 158.75 [890.40]  
b = 0.96 [0.48]  
Seff = 19.11 [8.46]  
Teff = 533 [59] K  
Rp = 1.79 [1.78] Re  
a = 0.5353 [0.1532] AU  
Ag = 4012.68 [7688.21] [0.52 $\sigma$ ]  
Teffp = 6560 [3089] K [1.95 $\sigma$ ]

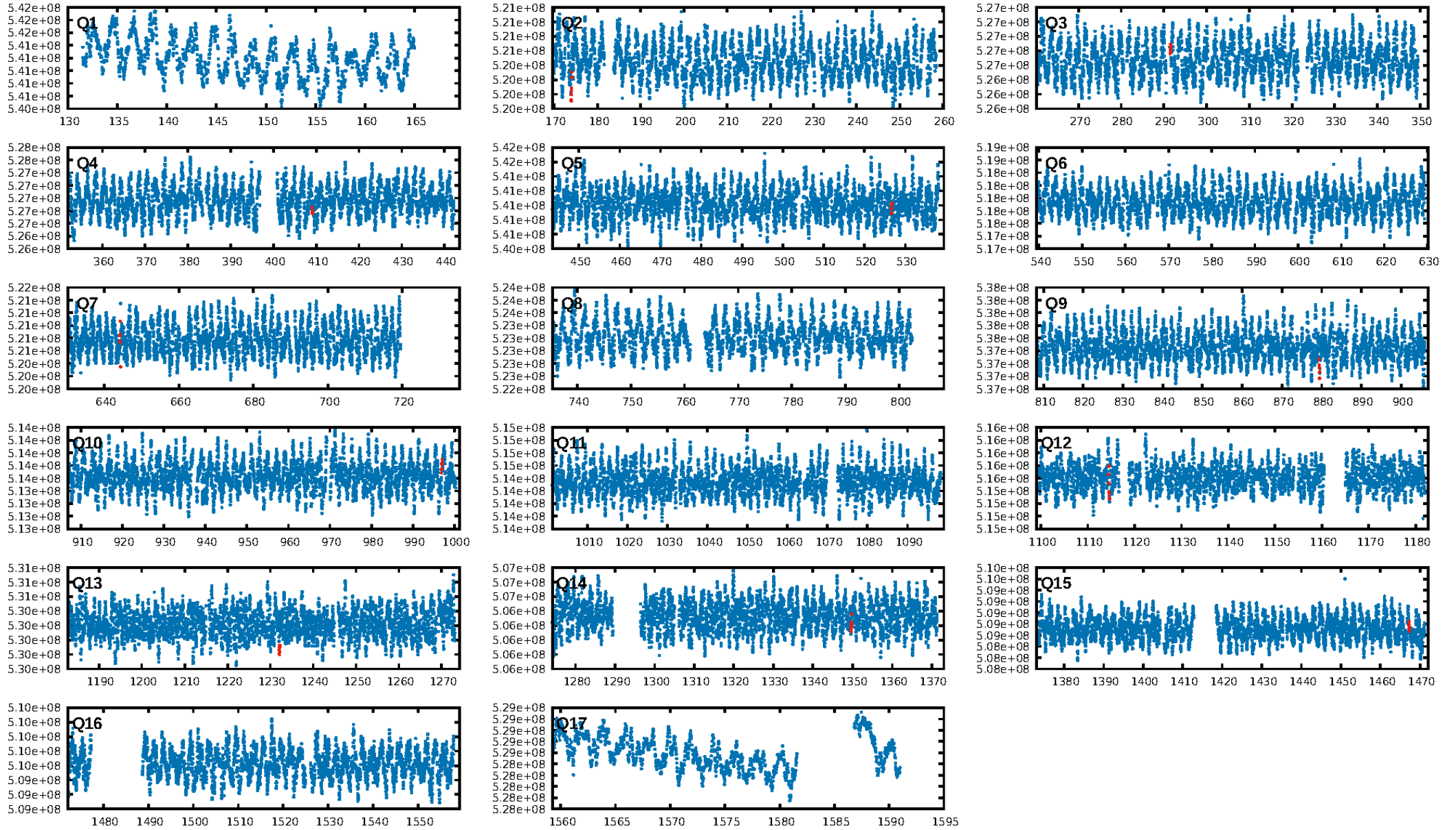
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [20.99 $\sigma$ ]  
LongPeriod-sig: 100.0% [62.66 $\sigma$ ]  
ModelChiSquare2-sig: 62.2%  
ModelChiSquareGof-sig: 99.6%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: -1.471  
Centroid-sig: 2.0%  
Centroid-so: 4.040 arcsec [1.72 $\sigma$ ]  
OotOffset-rm: 0.494 arcsec [1.31 $\sigma$ ]  
OotOffset-st: 2/1/2/3 [8]  
KicOffset-rm: 0.382 arcsec [1.12 $\sigma$ ]  
KicOffset-st: 2/1/2/3 [8]  
DiffImageQuality-fgm: 0.75 [6/8]  
DiffImageOverlap-fno: 0.33 [3/9]

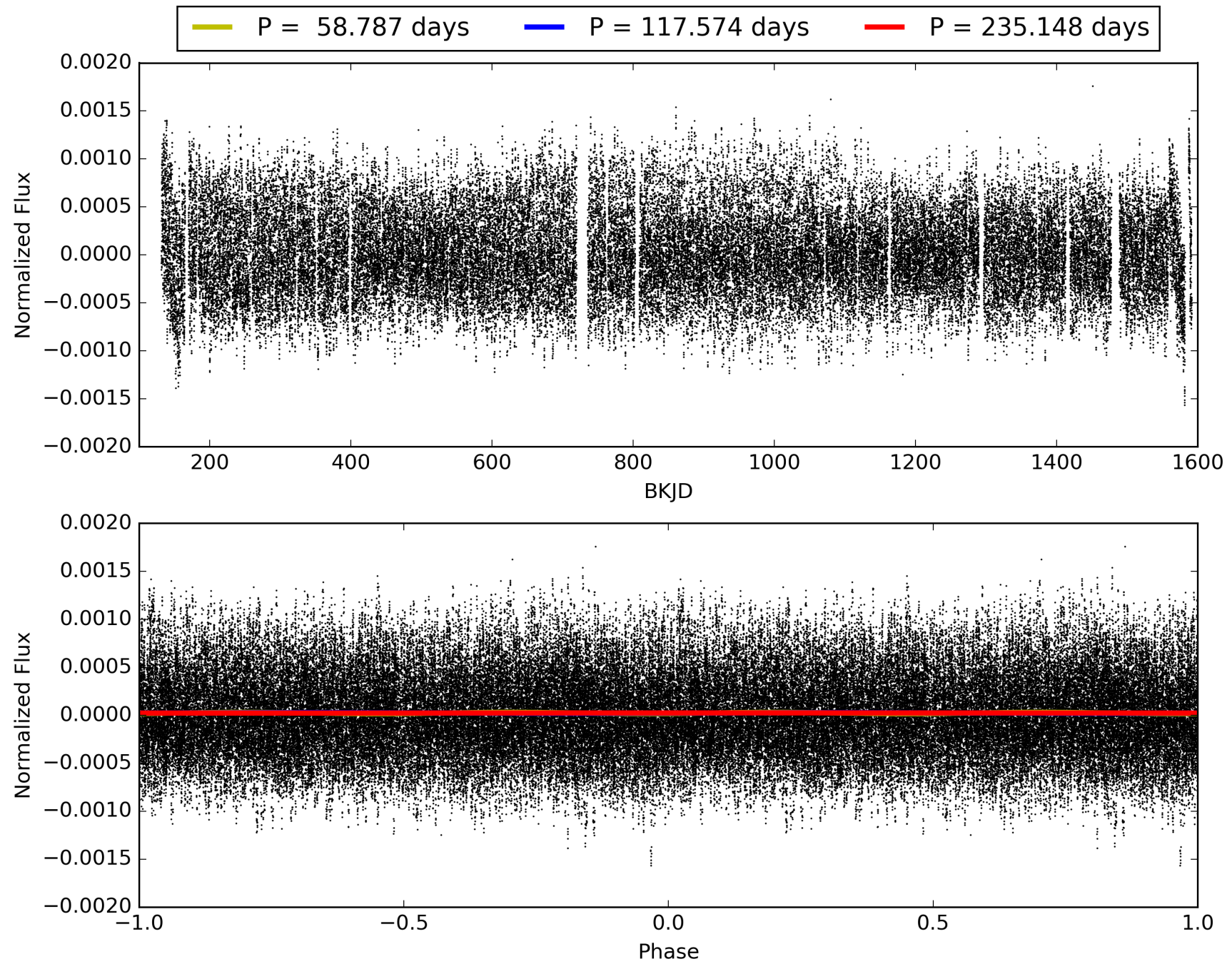
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:30:47 Z

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

# TCE 003542345-06, PDC Light Curves



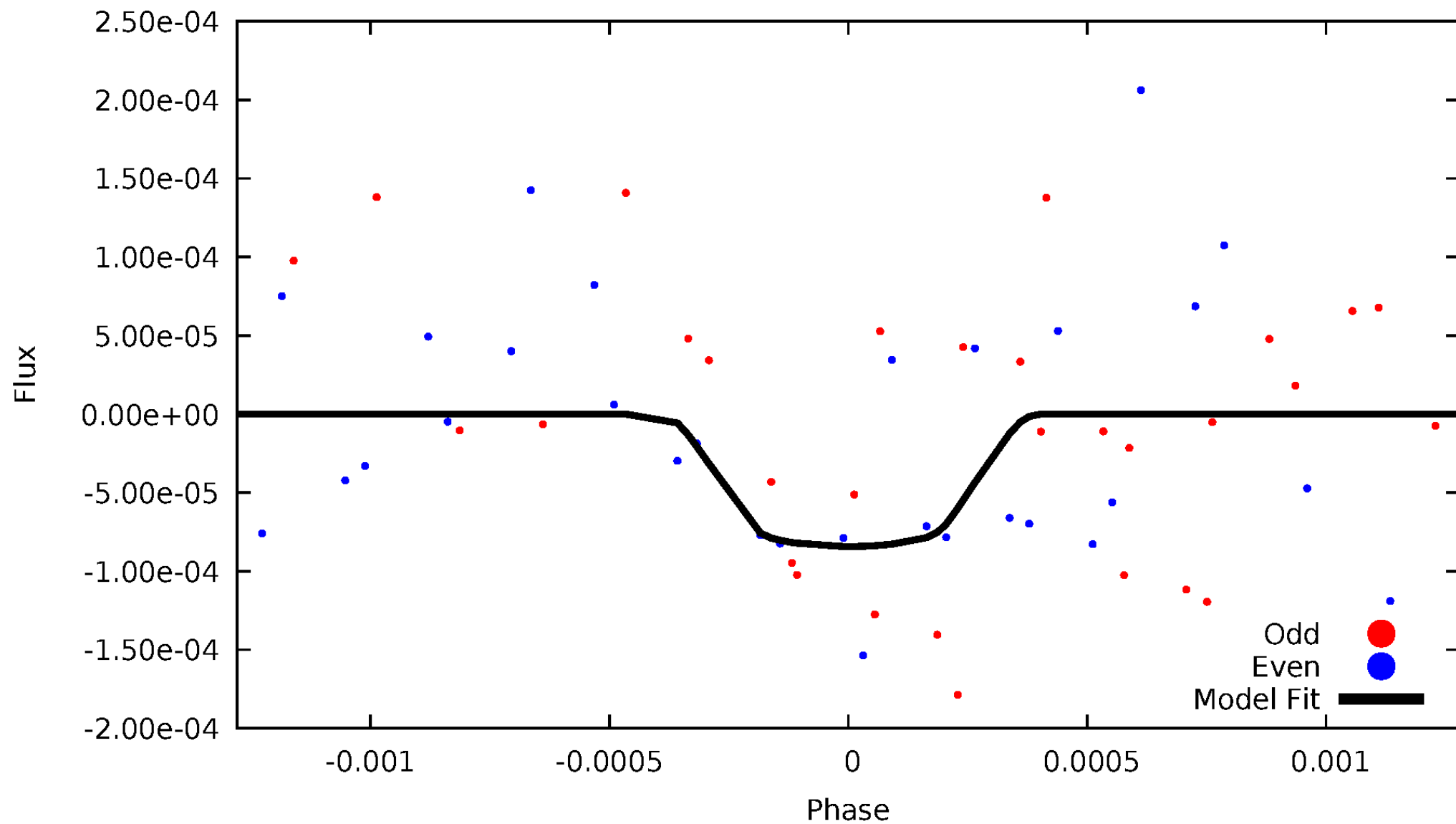
TCE 003542345-06





# DV Odd/Even

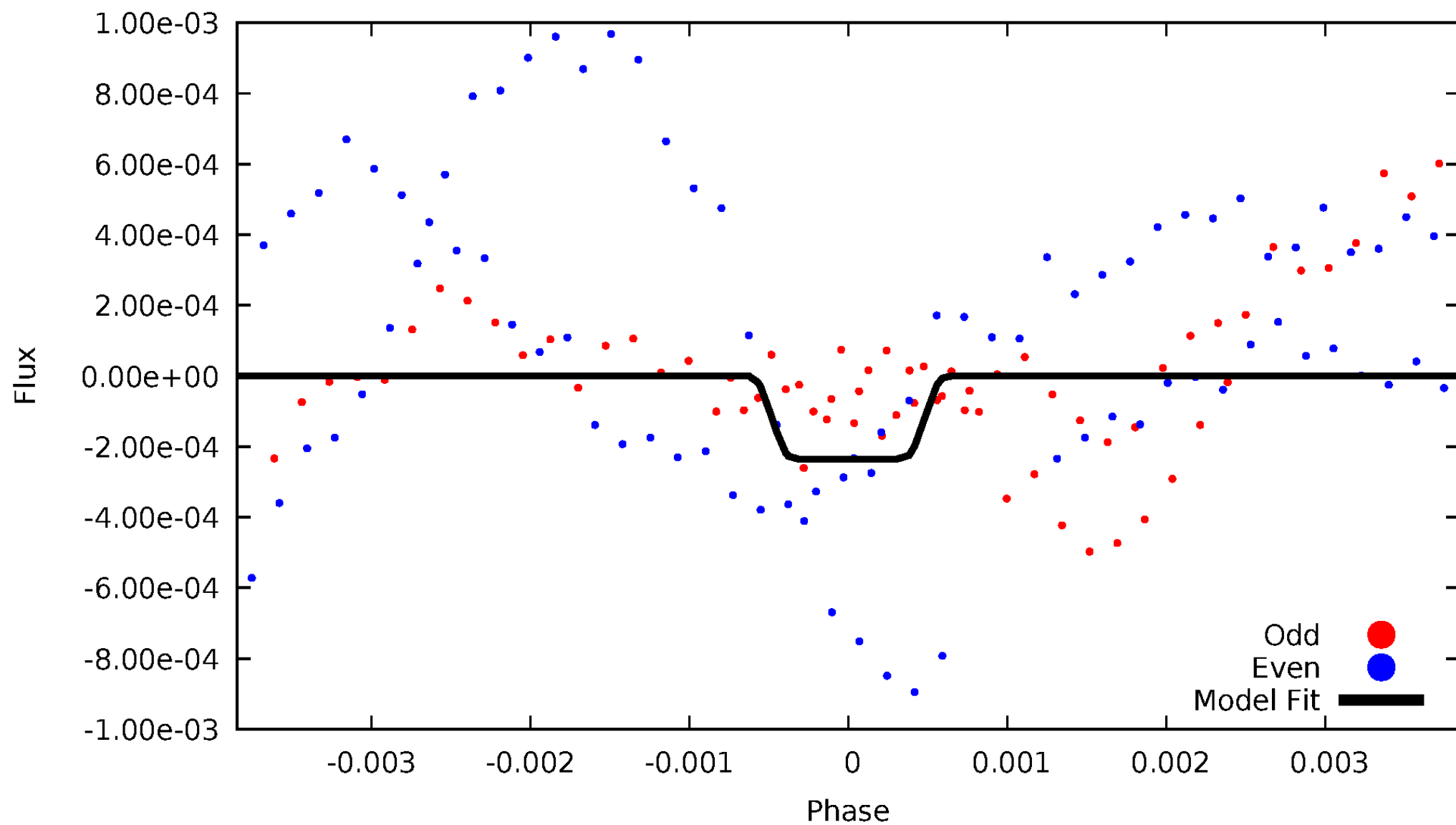
TCE 003542345-06





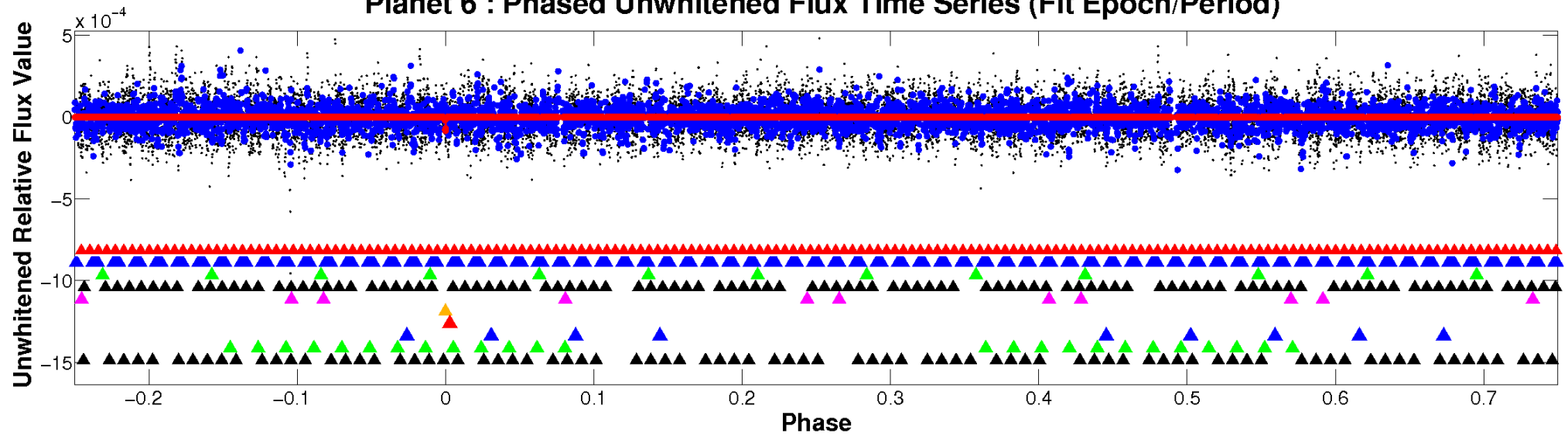
# ALT Odd/Even

TCE 003542345-06

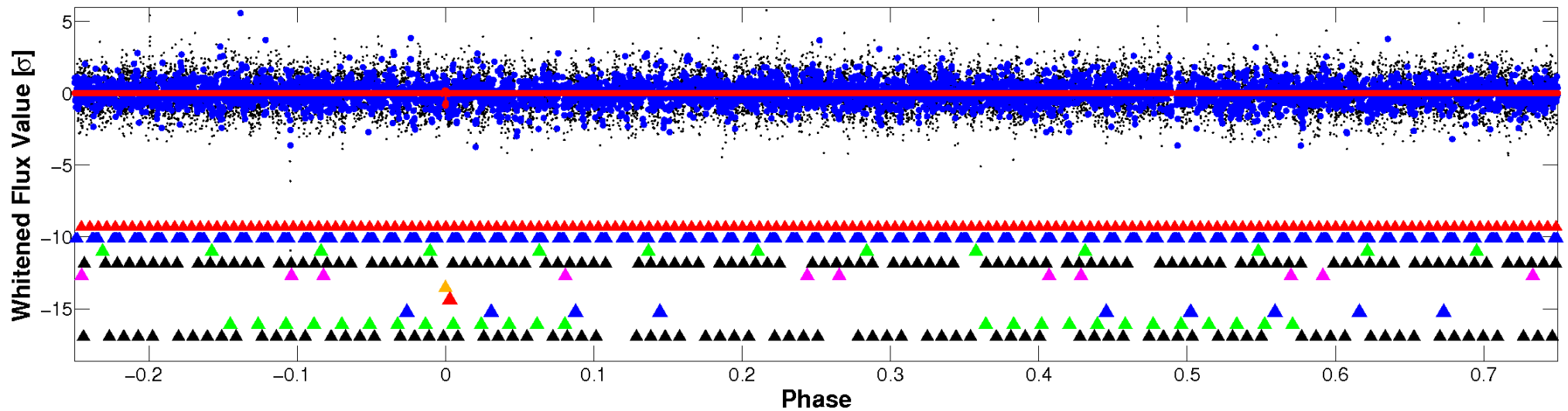


# Non-Whitened Vs. Whitened Light Curve

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

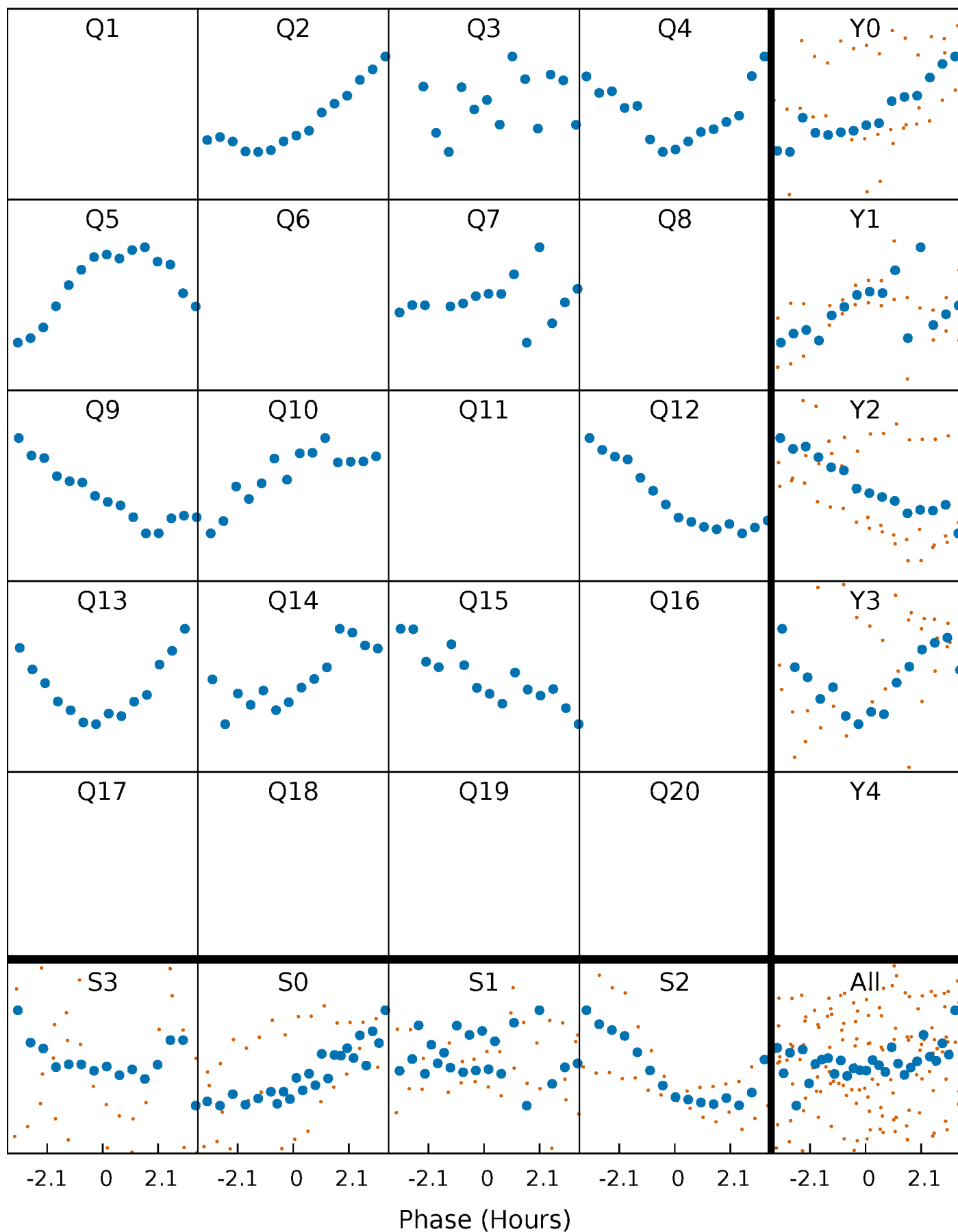


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

TCE 003542345-06 P=117.574138 Days  $T_0=173.952297$  (BKJD)



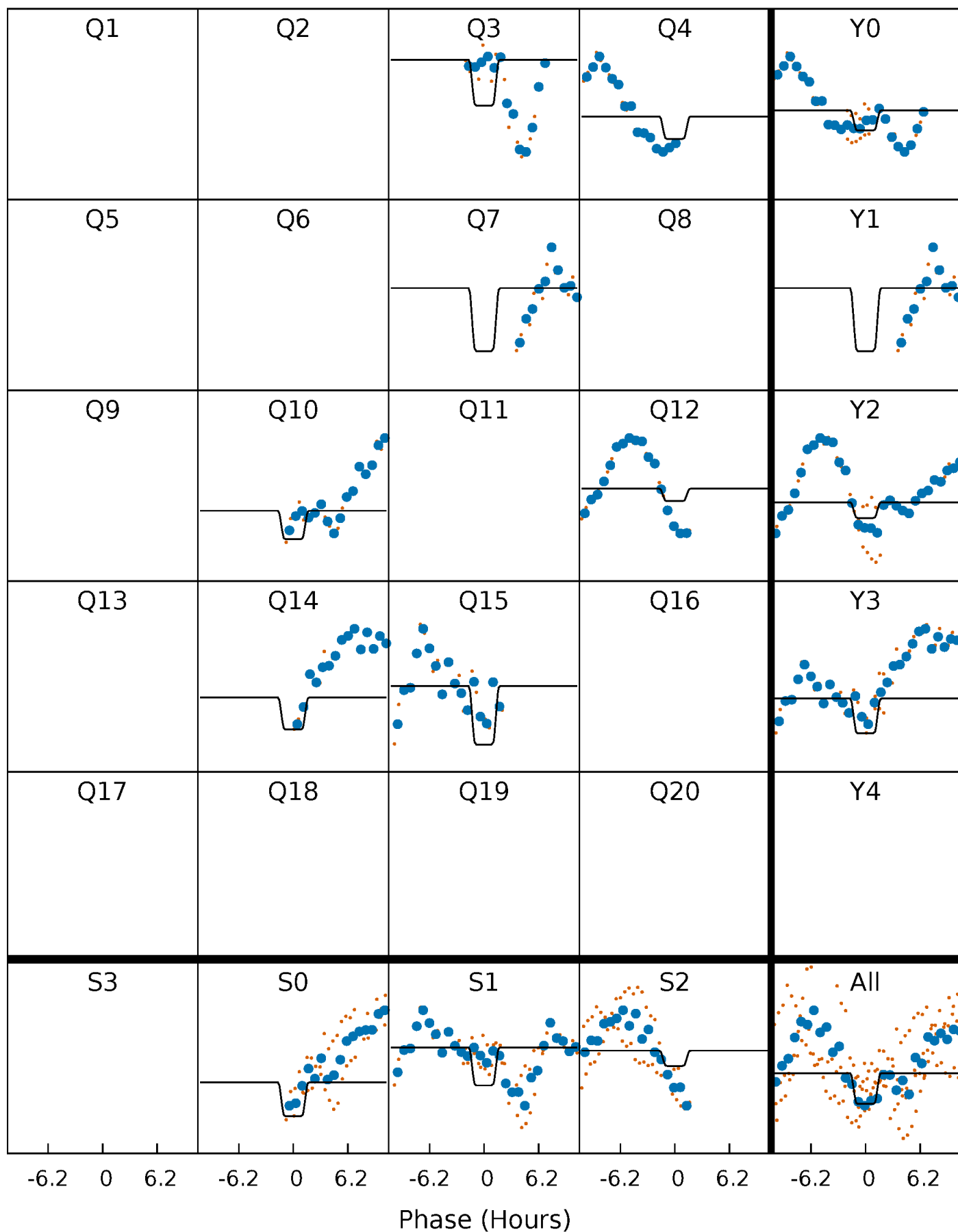
# DV Quarter-Phased Transit Curves

TCE 003542345-06     $P=117.574138$  Days     $T_0=173.952297$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

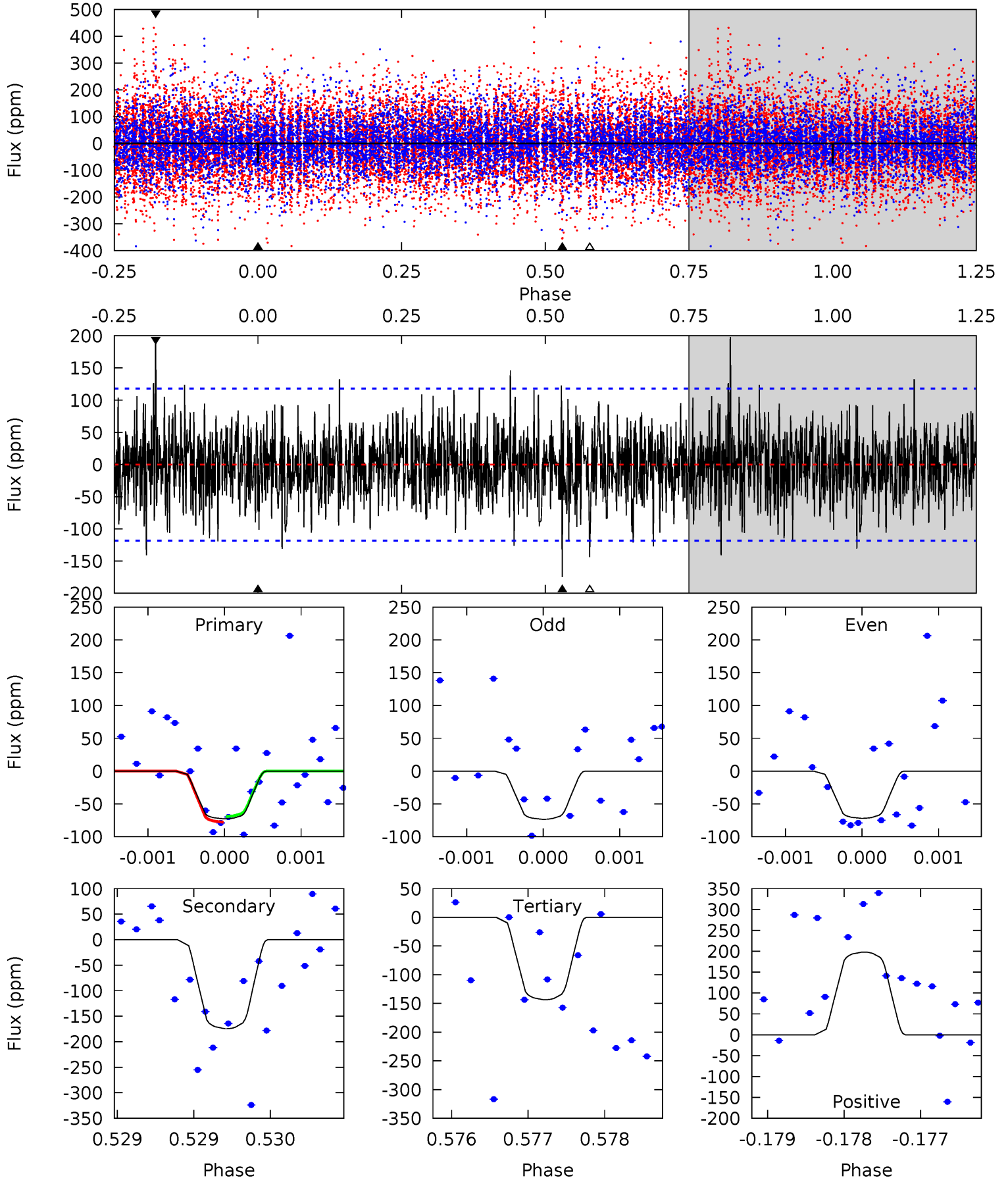
TCE 003542345-06 P=117.569577 Days  $T_0=174.004603$  (BKJD)



# DV Model-Shift Uniqueness Test

003542345-06, P = 117.574138 Days, E = 56.378159 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
3.39	8.13	6.69	9.23	5.51	3.38	1.85	-3.30	-5.84	1.44	-1.10	0.04	0.76	0.53	0.20

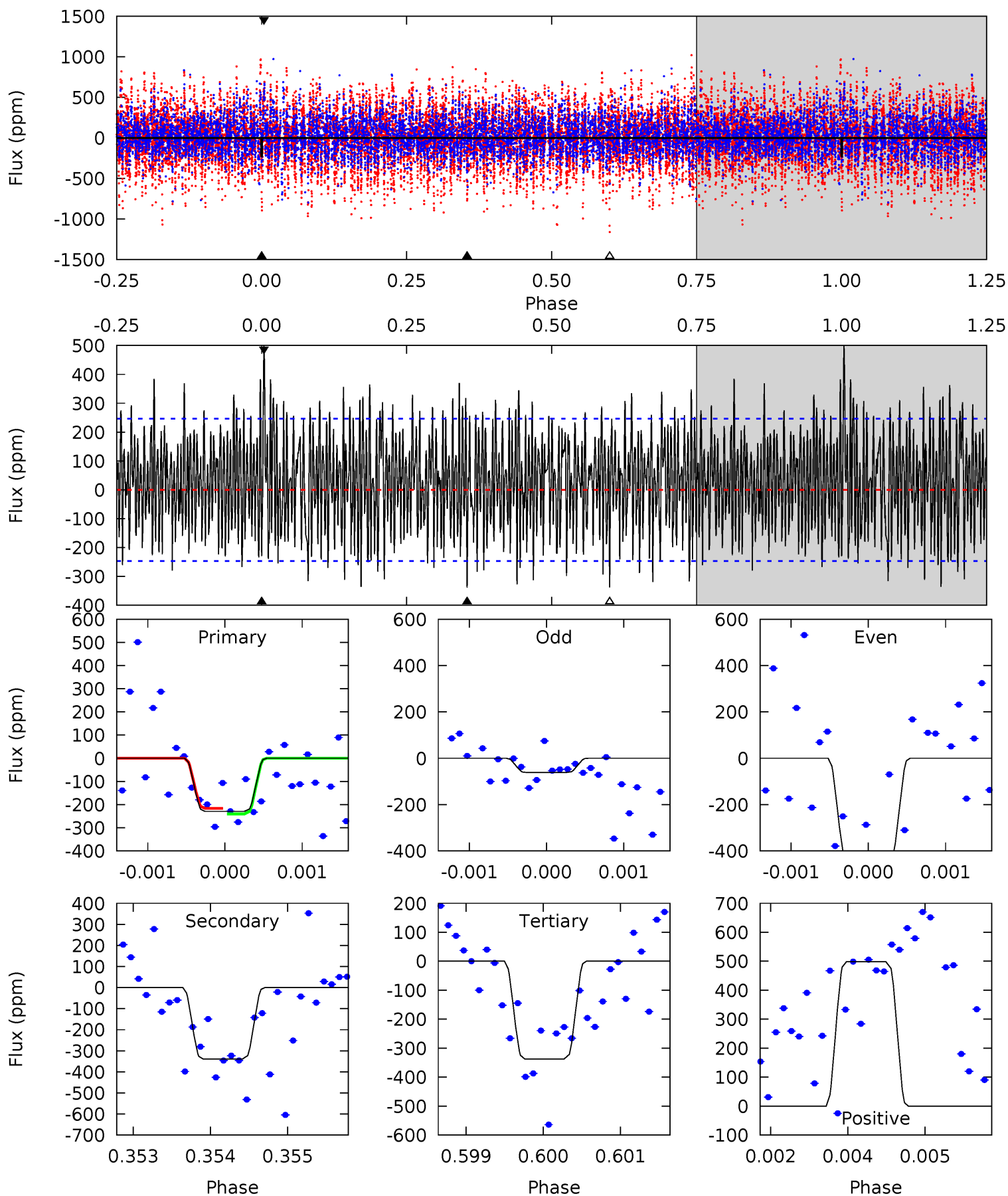




# Alt Model-Shift Uniqueness Test

003542345-06, P = 117.569577 Days, E = 56.435026 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
5.04	7.45	7.41	10.9	5.42	3.24	3.24	-2.37	-5.91	0.04	-3.50	4.12	1.95	0.60	0.26



### Stellar Parameters For KIC 003542345

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7063^{+195}_{-335}$	$4.218^{+0.090}_{-0.210}$	$0.070^{+0.200}_{-0.350}$	$1.567^{+0.556}_{-0.238}$	$1.480^{+0.214}_{-0.214}$	$0.541^{+0.228}_{-0.305}$
	+3%/-5%	+2%/-5%	+286%/-500%	+35%/-15%	+14%/-14%	+42%/-56%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 003542345-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-175 \pm 21$	$2.22^{+1.72}_{-1.42}$	$755^{+59}_{-48}$	$7273^{+7463}_{-1861}$	$5480^{+35434}_{-3742}$
Alt.	$-339 \pm 46$	$2.84^{+1.77}_{-1.63}$	$752^{+62}_{-47}$	$7589^{+6737}_{-1735}$	$6561^{+29722}_{-4120}$

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

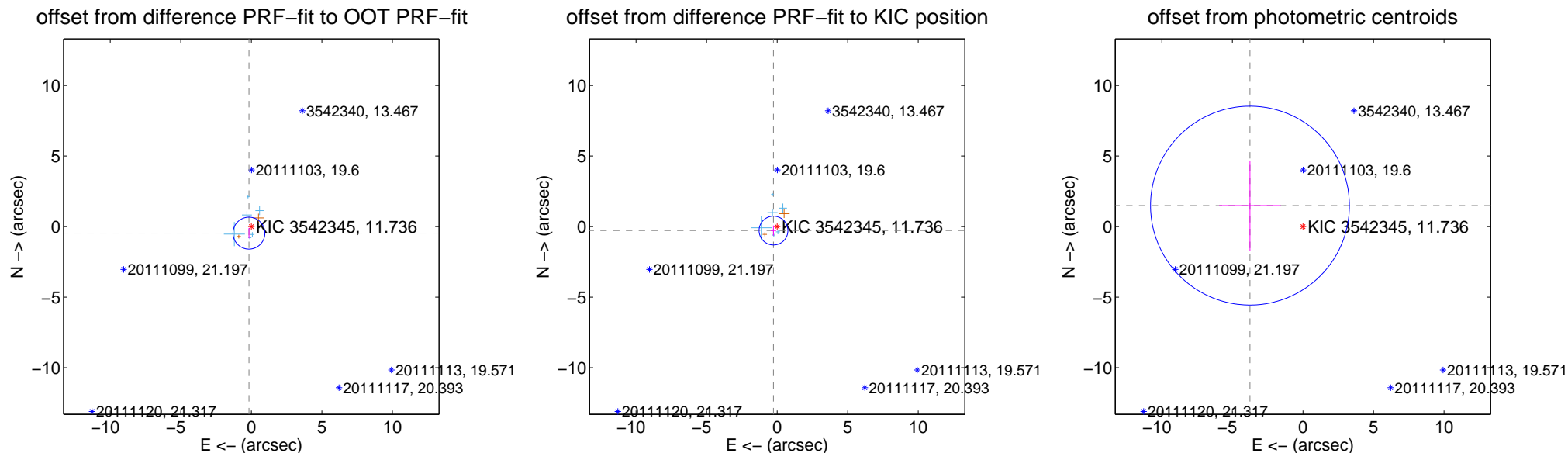
## DV Centroid Data

Supplemental centroid analysis for 003542345-06. **Kepler magnitude: 11.74.** Transit SNR 3.21

There are 6 quarters with good PRF difference image offsets

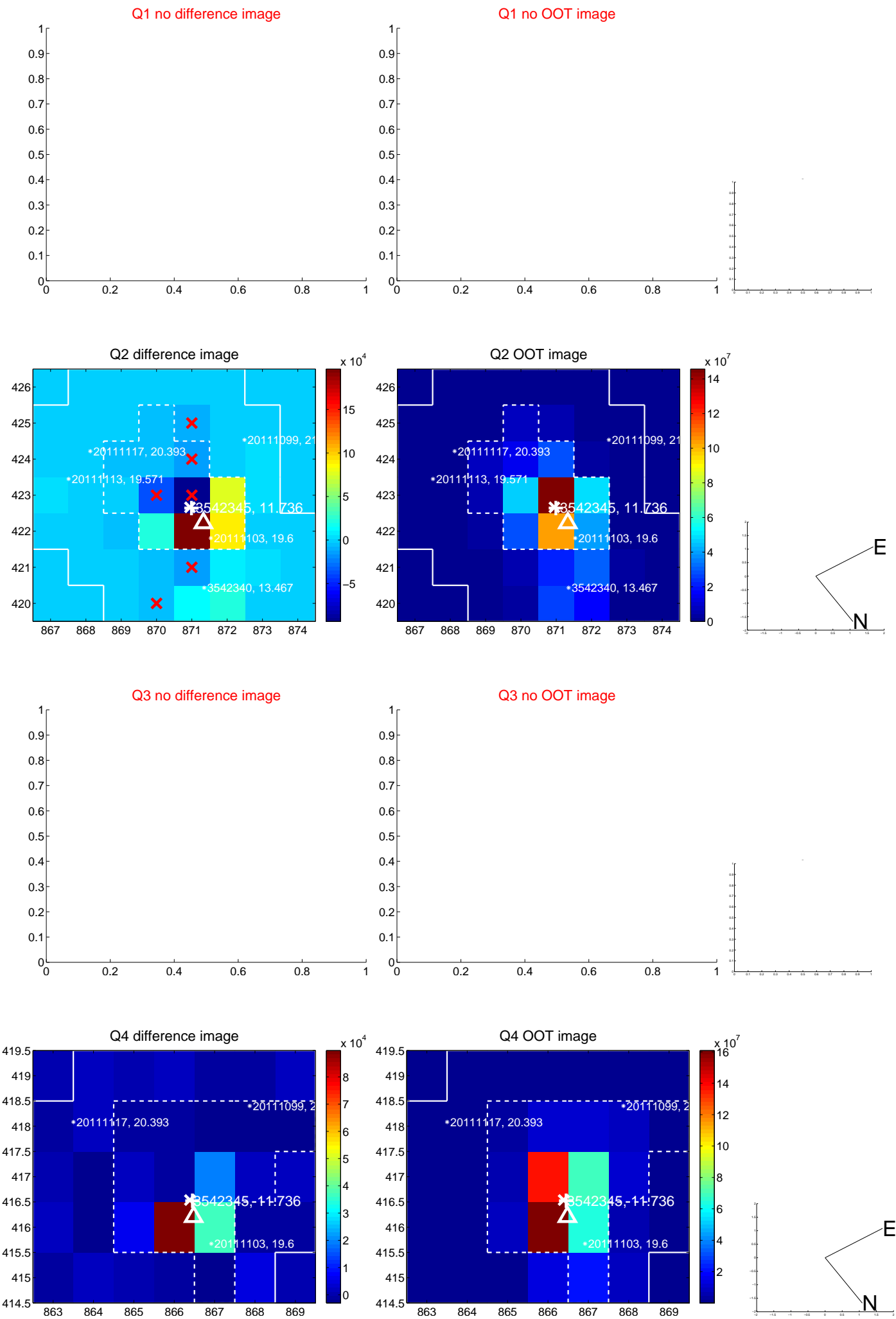
The direct PRF centroid is offset from the target star catalog position by about 0.45 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.494 \pm 0.377$	1.31	$0.169 \pm 0.198$	$-0.464 \pm 0.370$
PRF-fit source offset from KIC position	$0.382 \pm 0.341$	1.12	$0.258 \pm 0.191$	$-0.282 \pm 0.363$
photometric centroid source offset	$4.04 \pm 2.35$	1.72	$3.76 \pm 2.19$	$1.49 \pm 3.20$

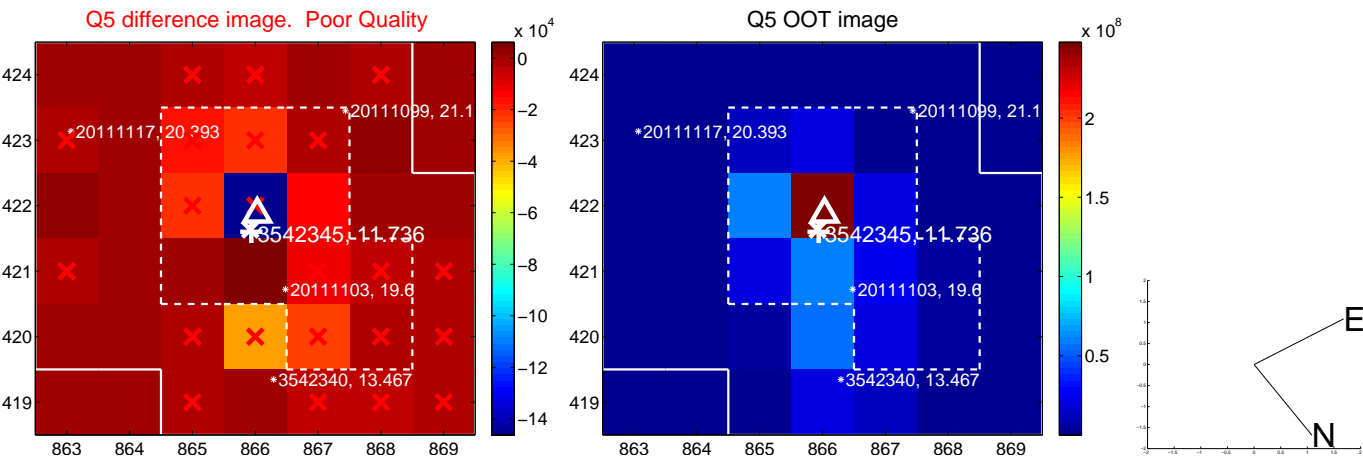


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

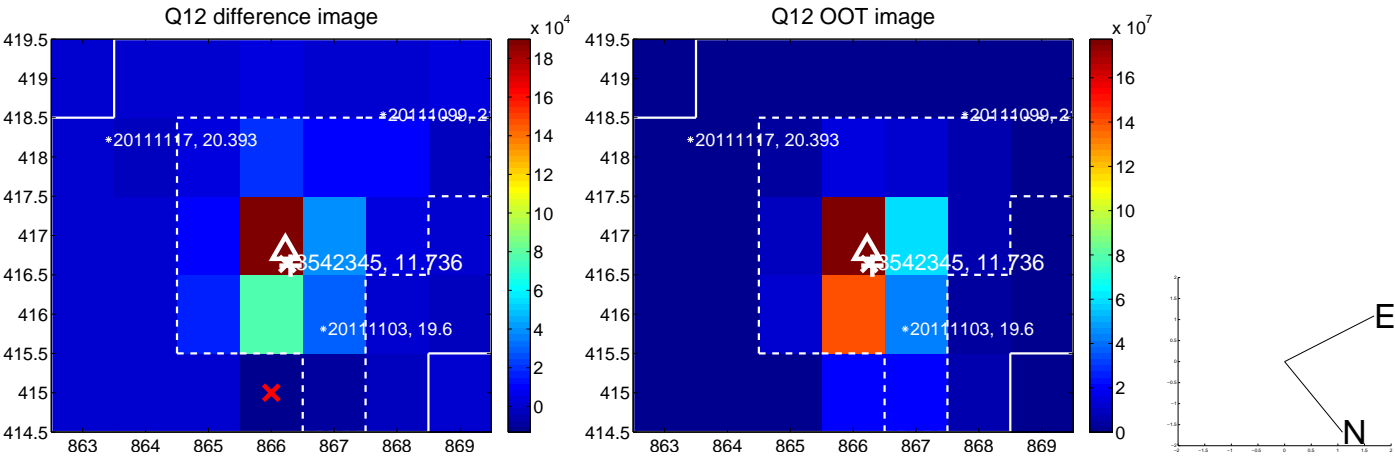
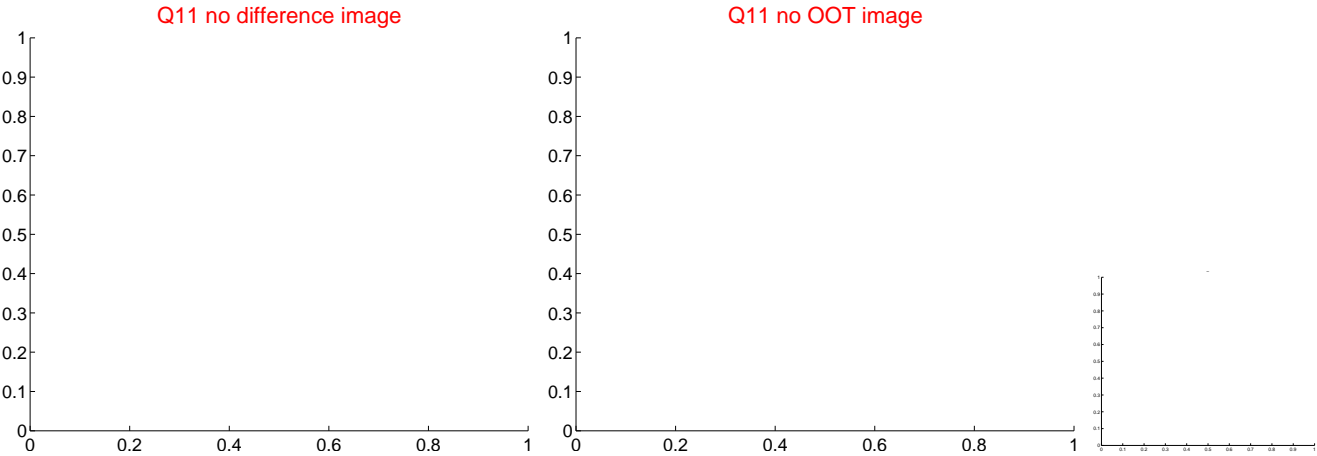
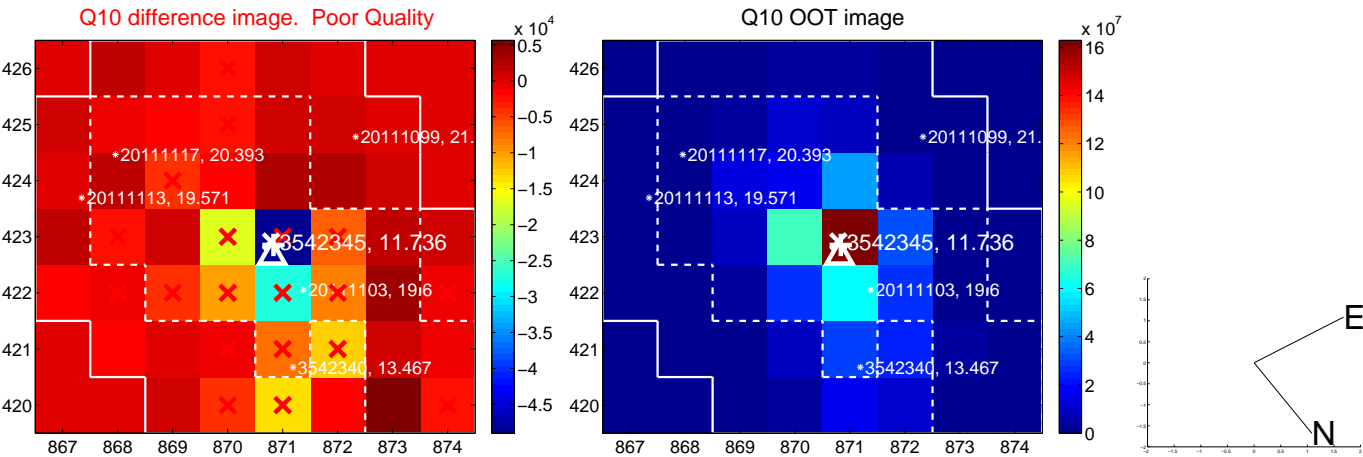
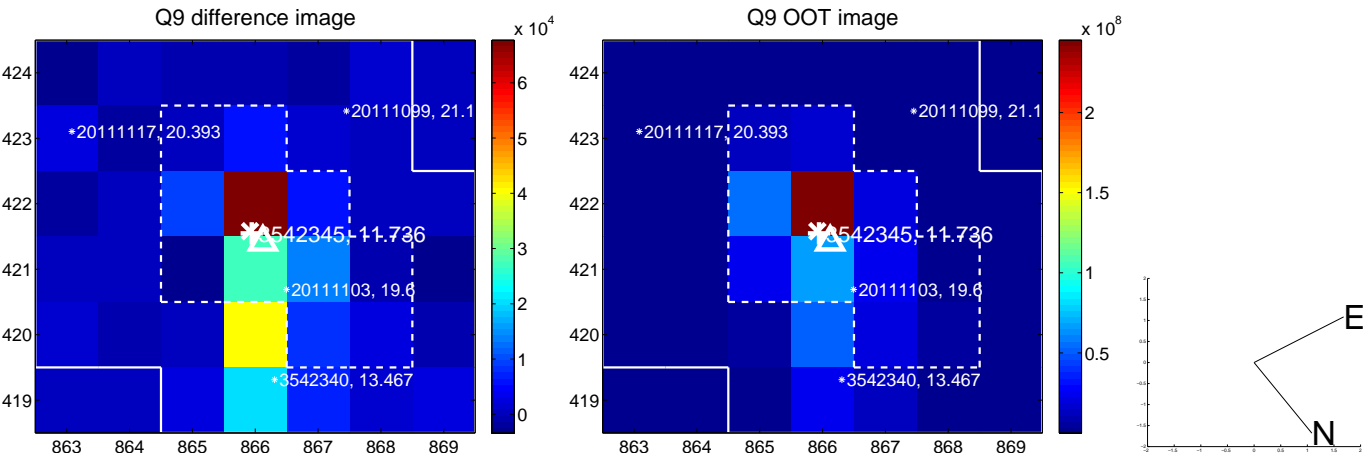
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



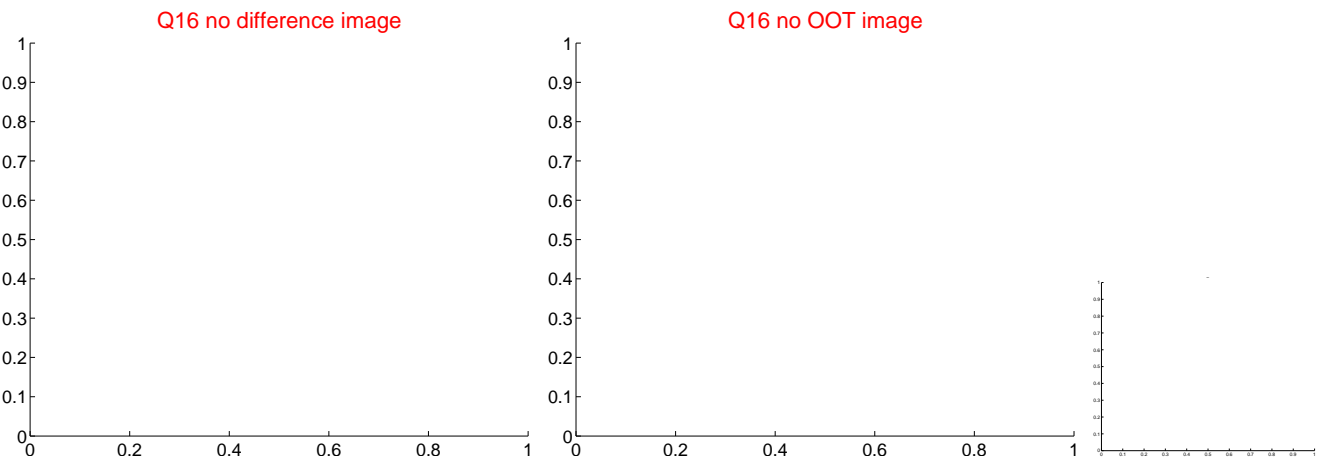
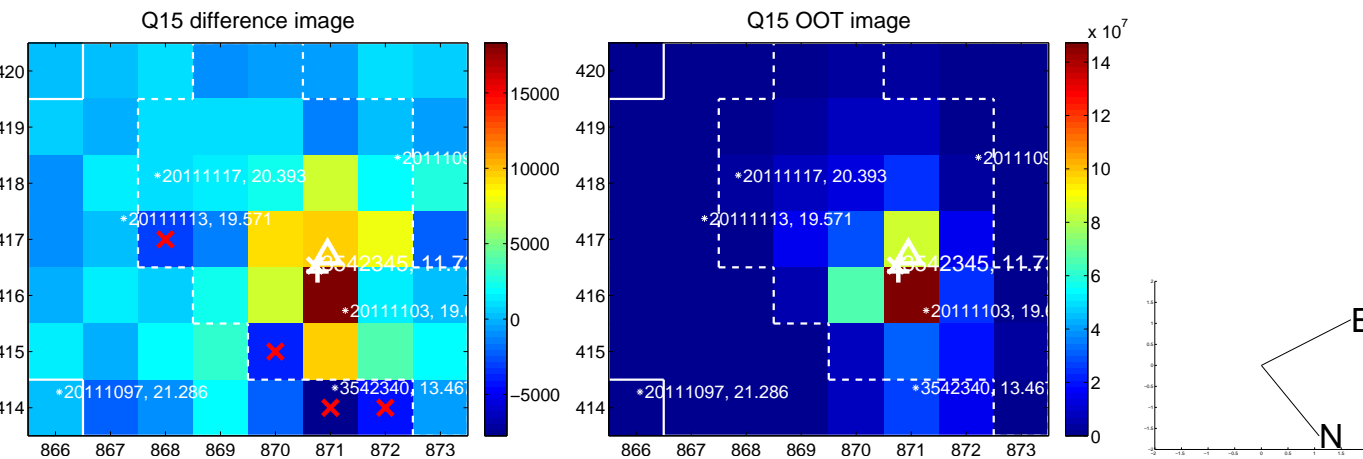
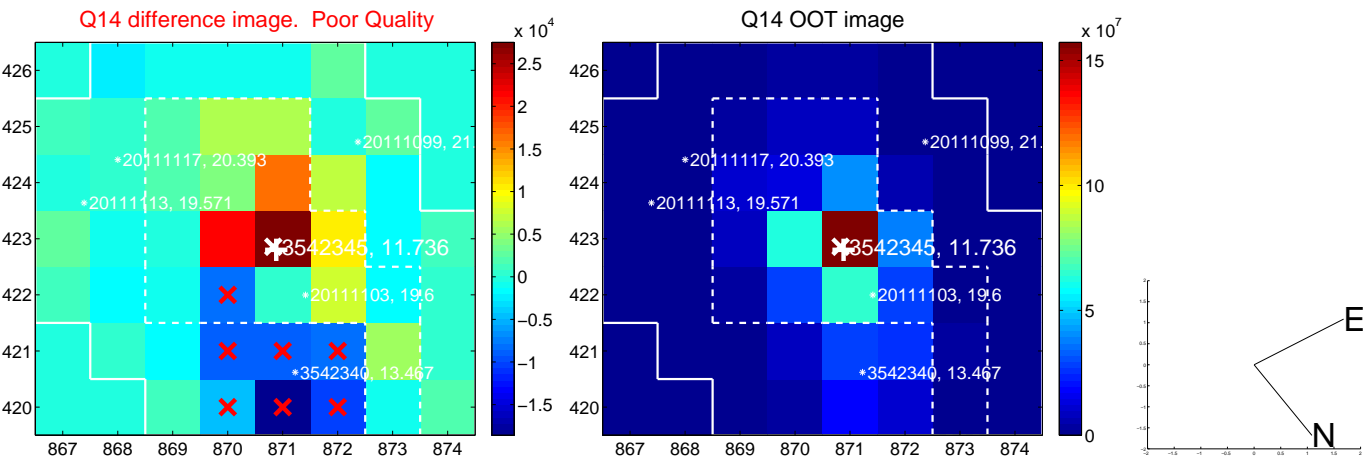
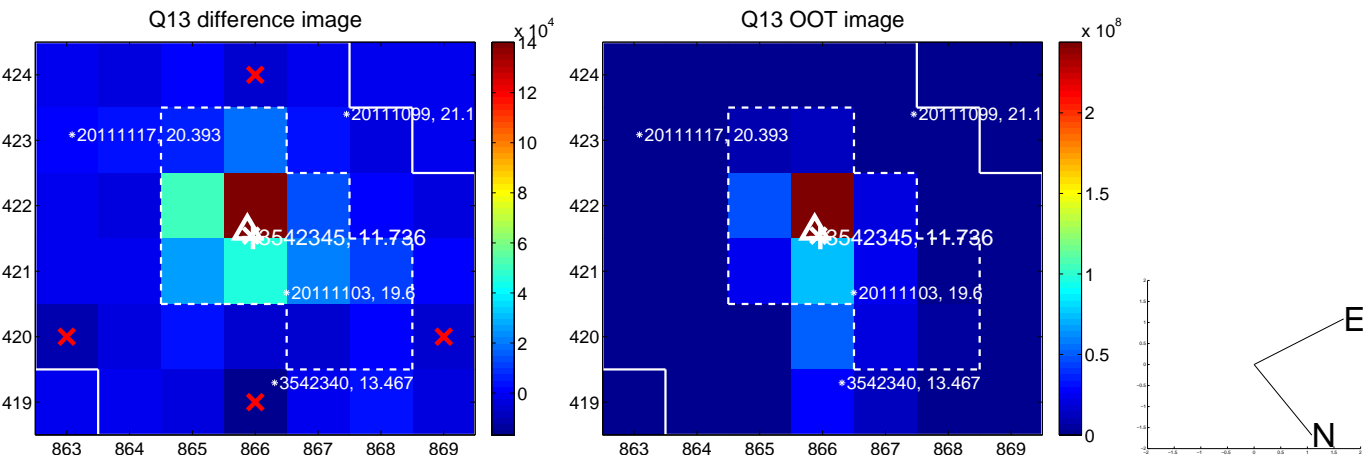
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

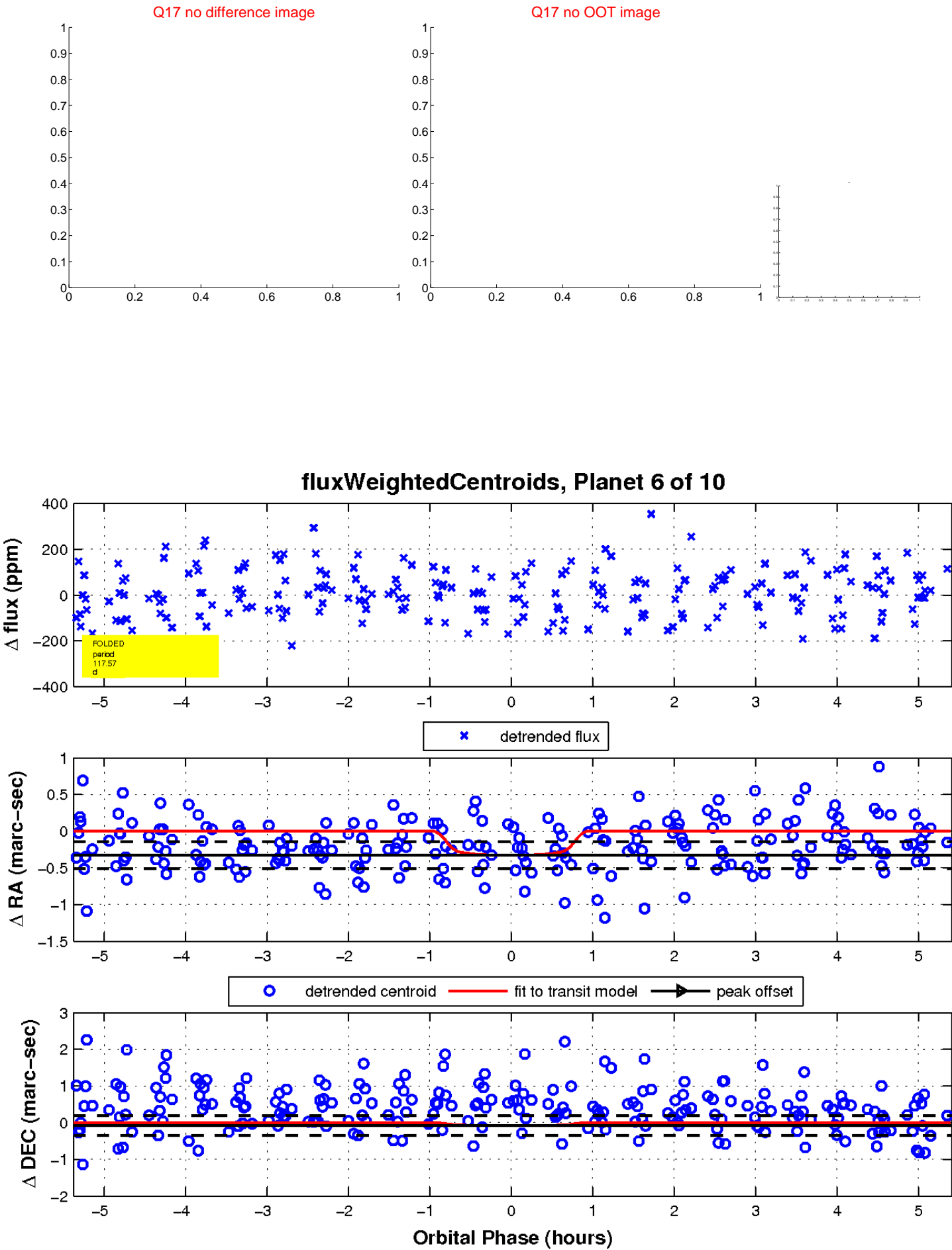


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



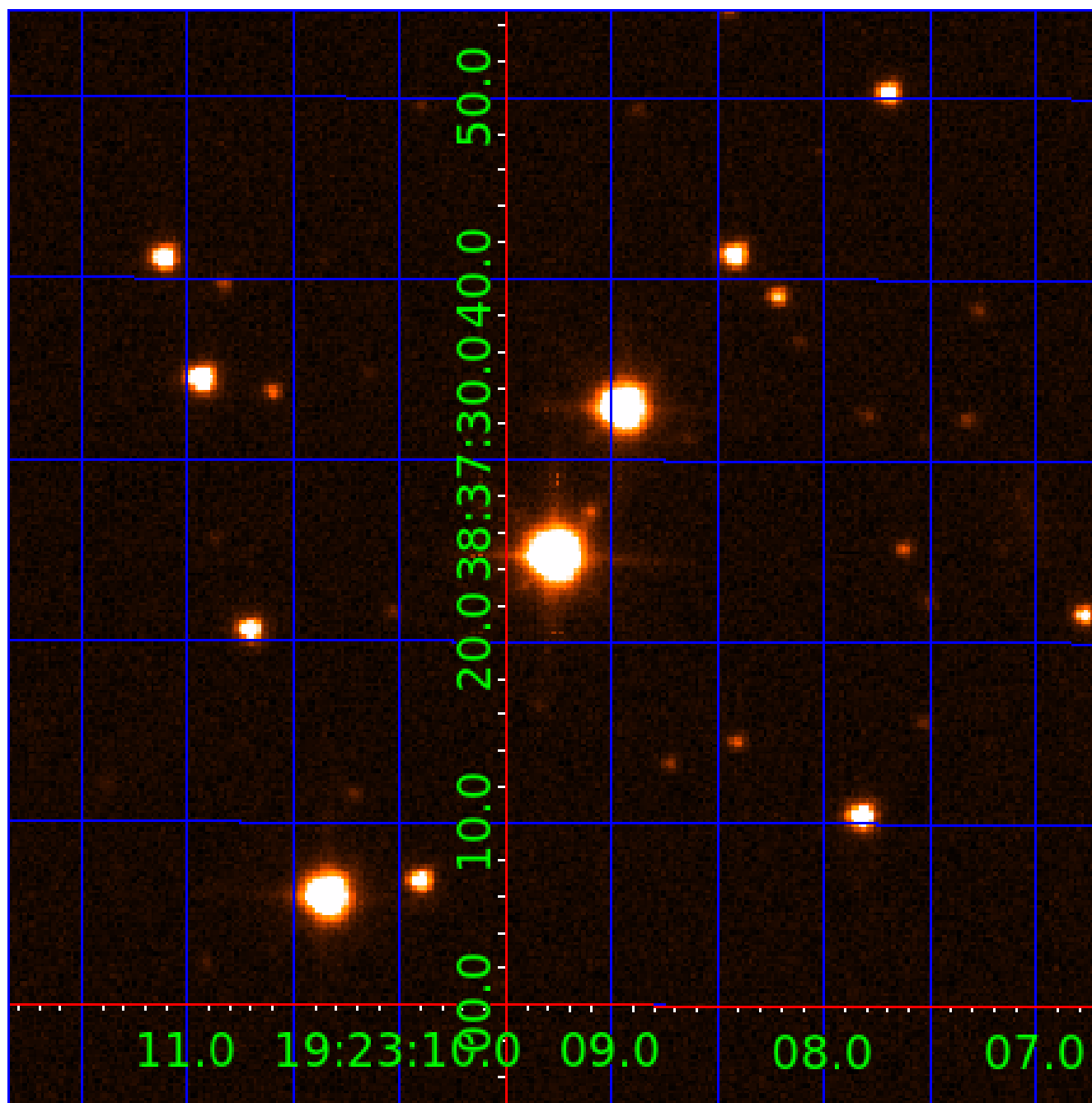


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003542345-01	OBS	No	2.015637	131.623110	7.0	9.704	11.3	3.6	1.57	7063	0.48	4321.96
003542345-02	OBS	No	1.680320	132.450335	43.7	3.268	12.7	13.7	1.57	7063	1.21	5508.60
003542345-03	OBS	No	108.920138	224.658989	111.0	9.730	9.1	7.0	1.57	7063	1.90	21.16
003542345-04	OBS	No	13.776503	138.904321	82.5	4.403	9.1	8.9	1.57	7063	1.65	333.20
003542345-05	OBS	No	136.747408	205.162926	235.9	7.118	8.8	9.0	1.57	7063	3.12	15.62
003542345-06	OBS	No	117.574138	173.952297	84.3	1.804	7.9	3.2	1.57	7063	1.79	19.11
003542345-07	OBS	No	352.726752	291.867554	166.0	9.180	7.9	7.8	1.57	7063	2.09	4.42
003542345-08	OBS	No	173.017872	135.509841	235.0	5.587	8.2	8.6	1.57	7063	2.80	11.41
003542345-09	OBS	No	57.681750	183.420652	160.5	3.890	8.6	7.7	1.57	7063	2.02	49.38
003542345-10	OBS	No	17.579058	139.776078	87.2	5.090	8.1	8.5	1.57	7063	1.73	240.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003542345-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003542345-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT
003542345-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
003542345-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
003542345-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

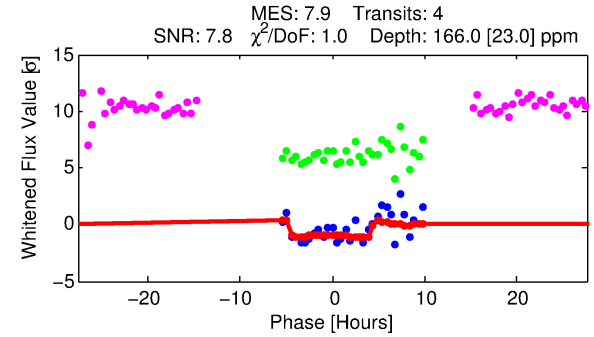
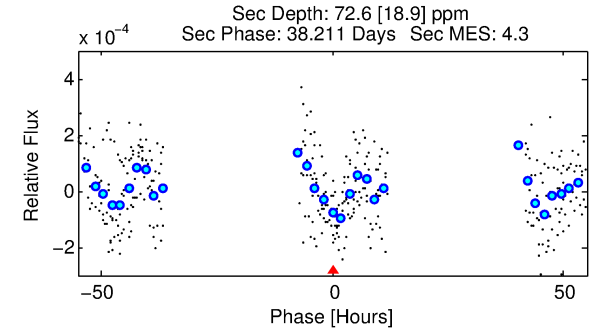
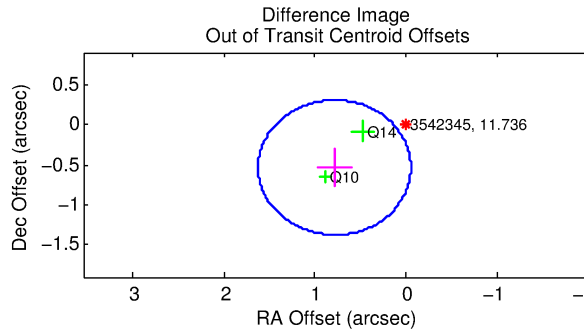
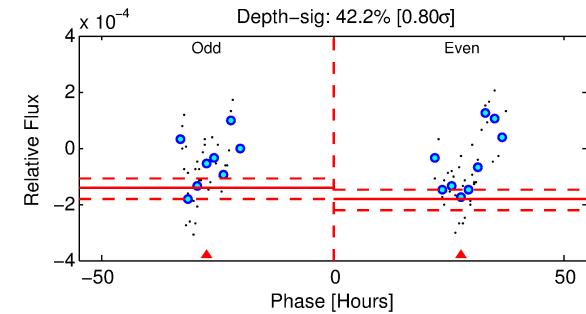
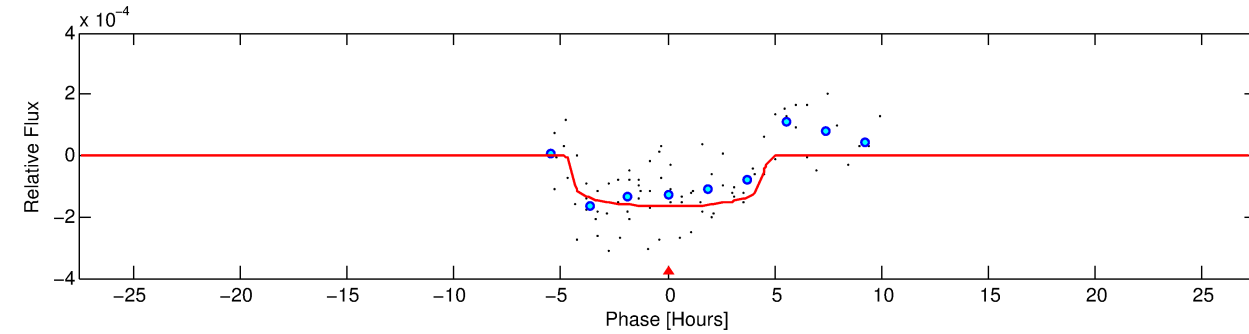
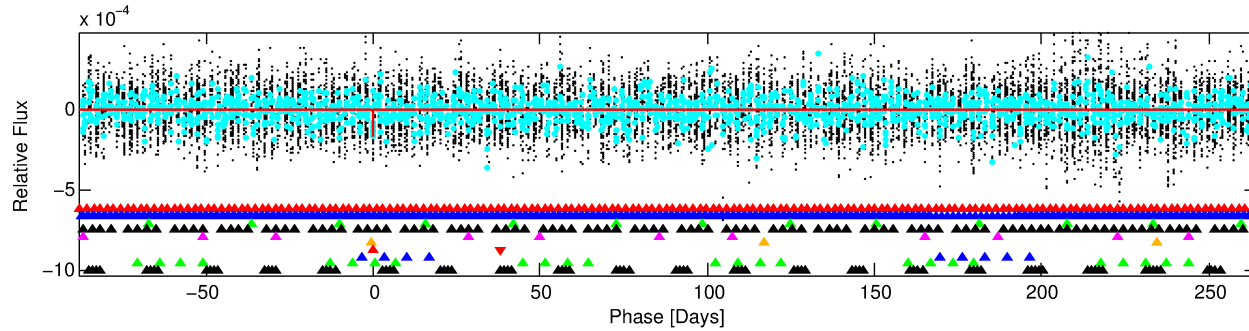
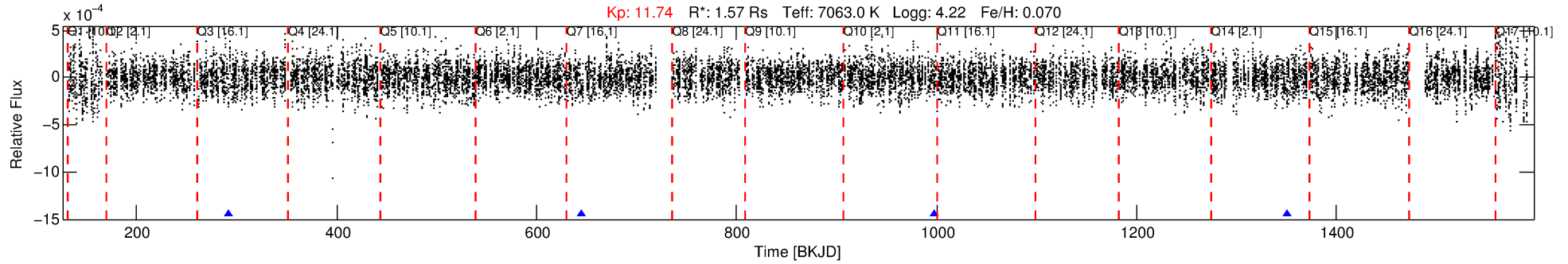
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003542345-07

No Significant Match Found

# DV One-Page Summary

KIC: 3542345 Candidate: 7 of 10 Period: 352.727 d



## DV Fit Results:

Period = 352.72675 [0.00734] d  
Epoch = 291.8676 [0.0179] BKJD  
Rp/R\* = 0.0122 [0.0085]  
a/R\* = 261.00 [1052.96]  
b = 0.48 [6.40]  
Seff = 4.42 [1.95]  
Teff = 370 [41] K  
Rp = 2.09 [1.63] Re  
a = 1.1135 [0.3187] AU  
Ag = 11360.52 [16692.82] [0.68 $\sigma$ ]  
Teffp = 5900 [2104] K [2.63 $\sigma$ ]

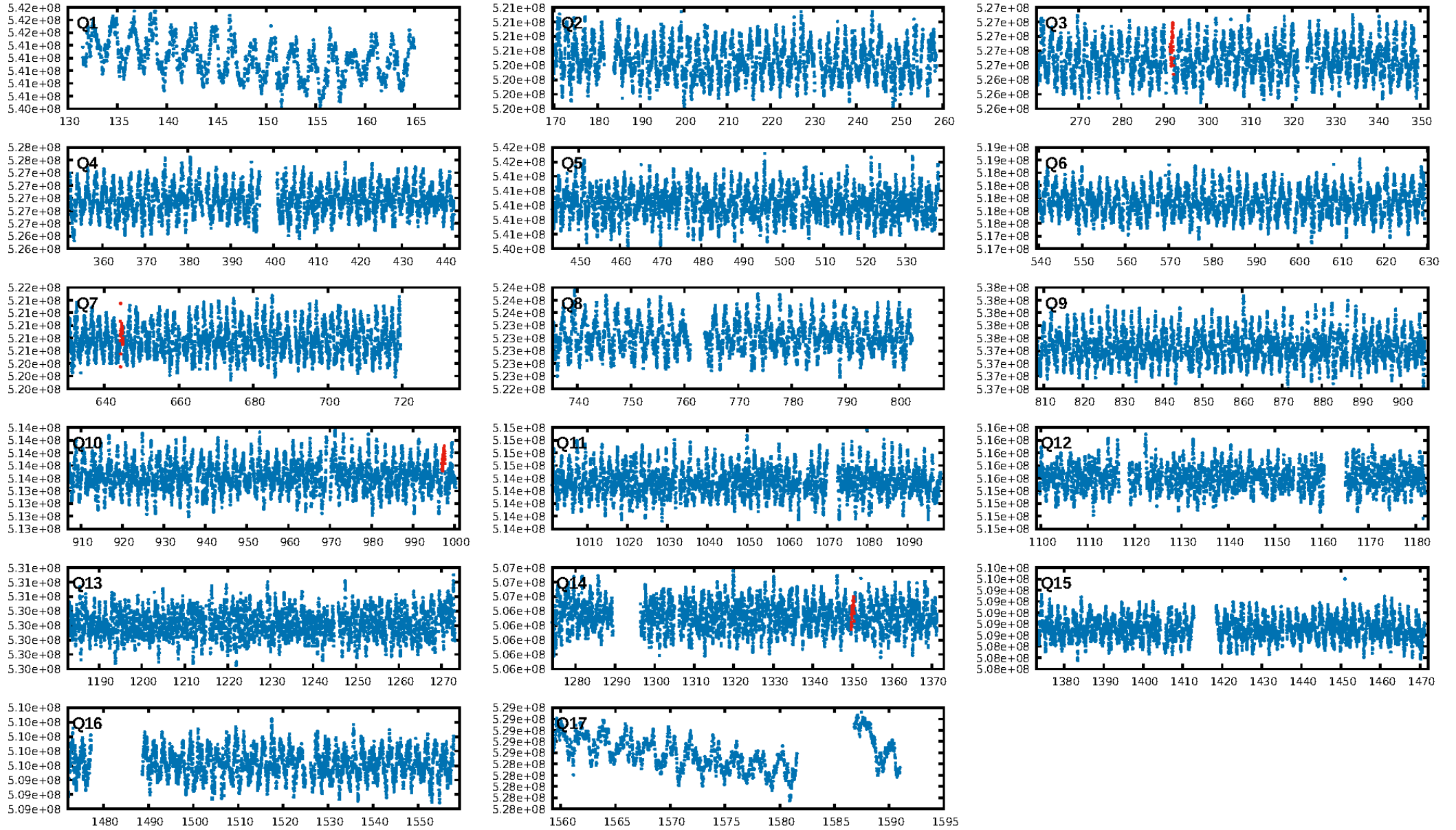
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [401.32 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 42.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.02953  
Centroid-sig: 10.3%  
Centroid-so: 2.465 arcsec [1.37 $\sigma$ ]  
OotOffset-rm: 0.950 arcsec [3.39 $\sigma$ ]  
KicOffset-rm: 0.844 arcsec [4.16 $\sigma$ ]  
OotOffset-st: 2/0/0/0 [2]  
KicOffset-st: 2/0/0/0 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 0.00 [0/2]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:30:53 Z

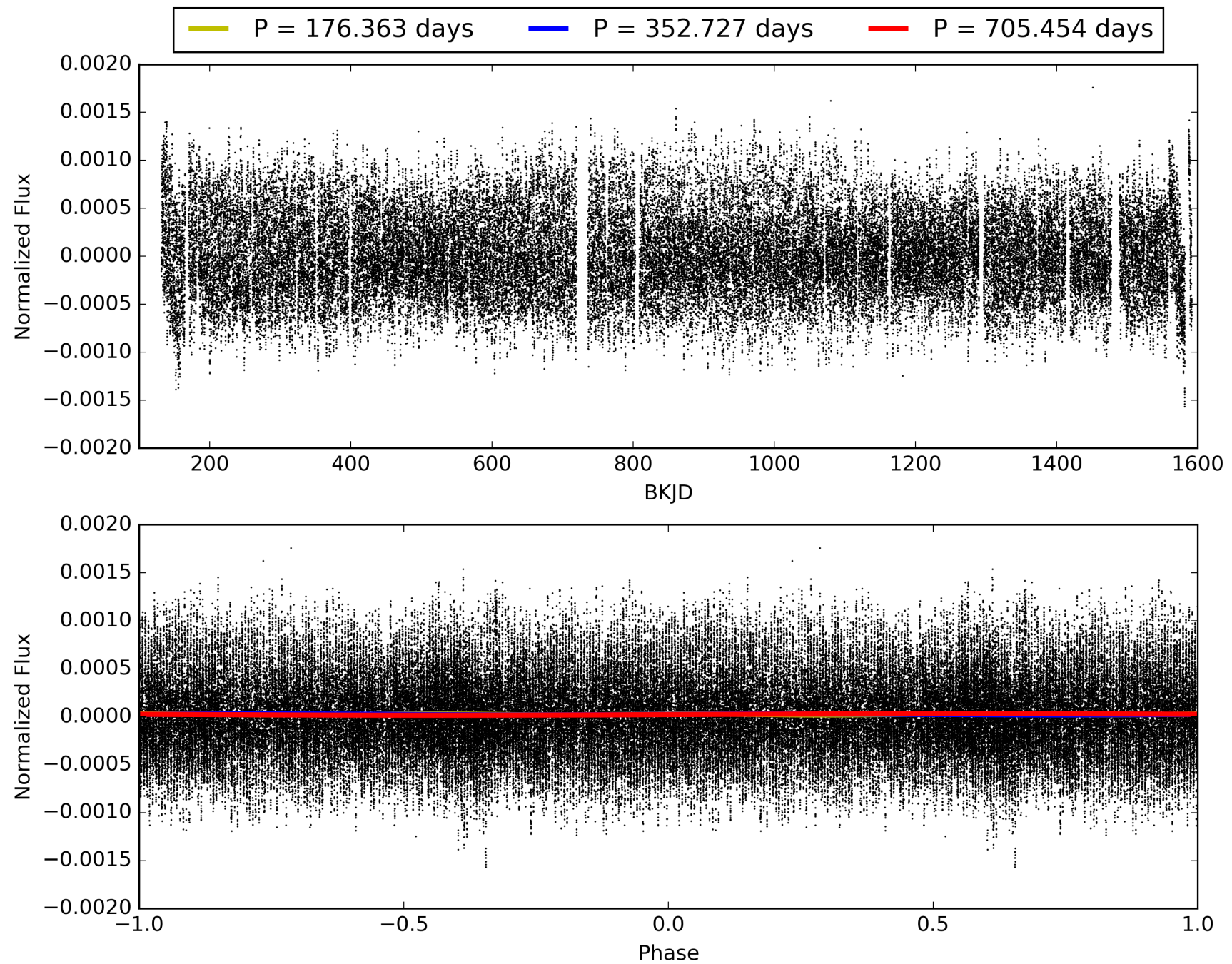
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003542345-07, PDC Light Curves



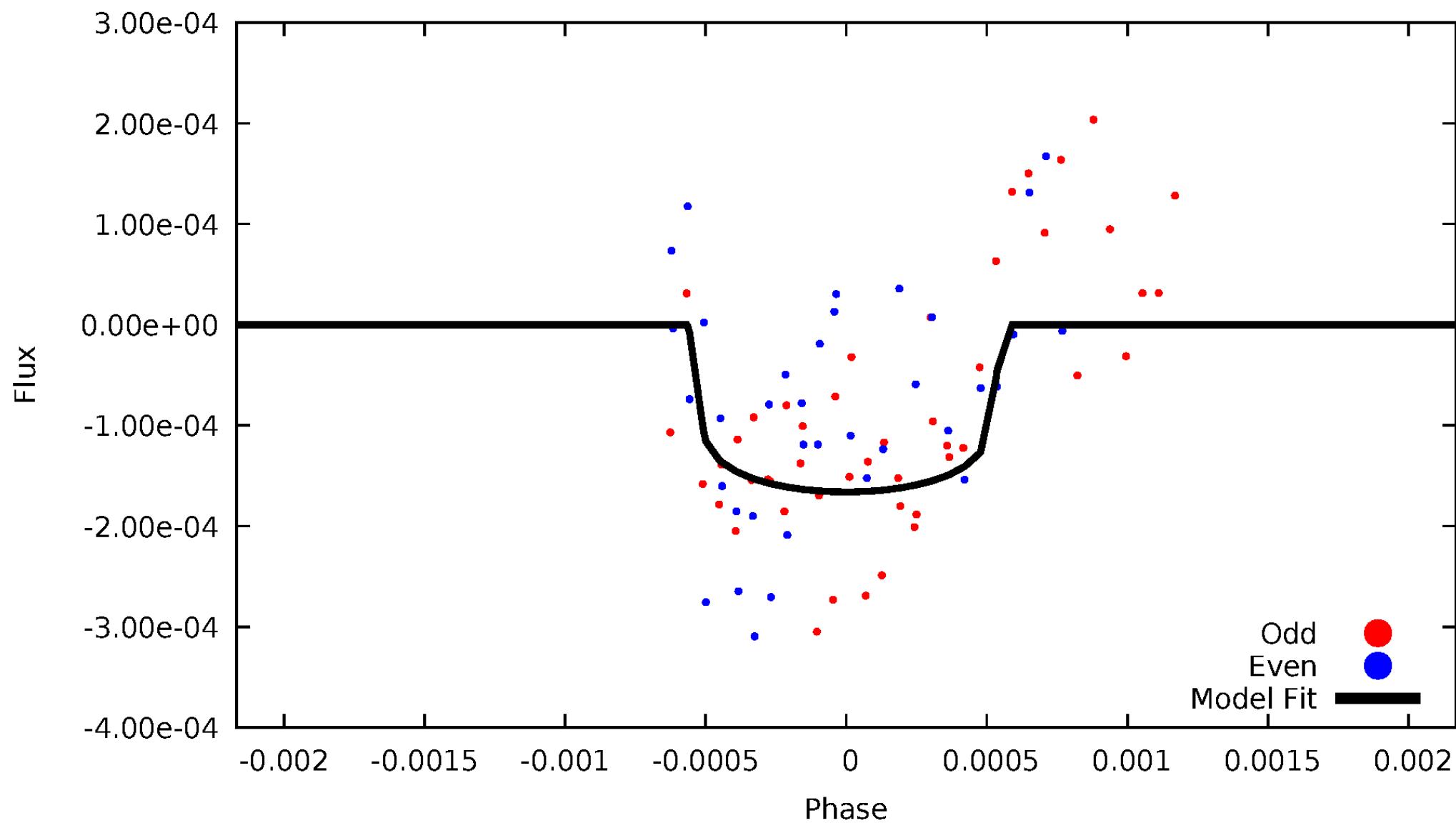


TCE 003542345-07



# DV Odd/Even

TCE 003542345-07





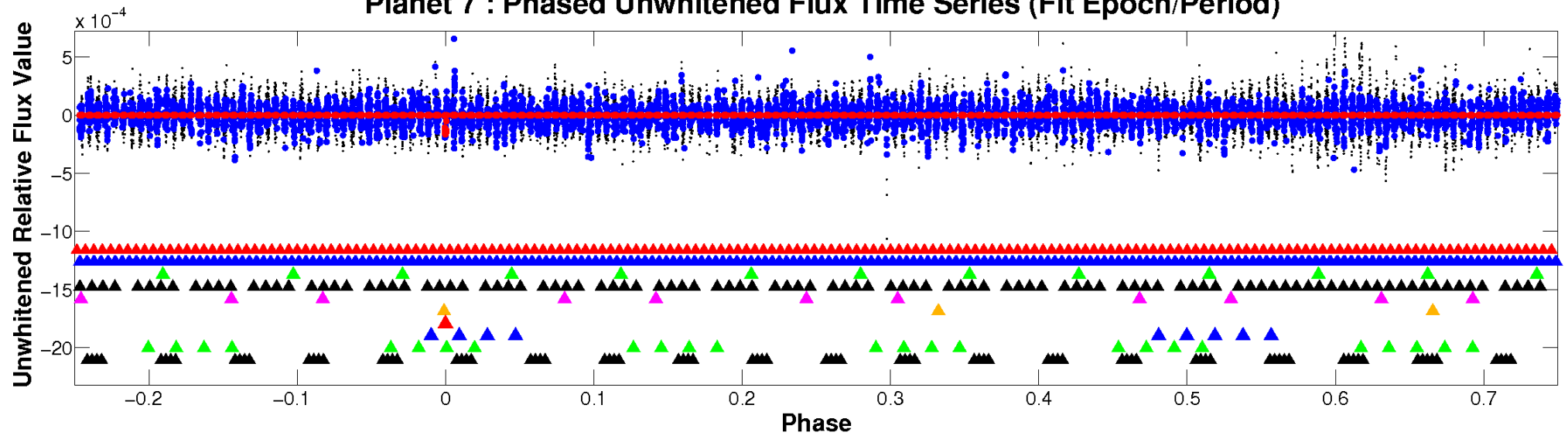


ALT Odd/Even

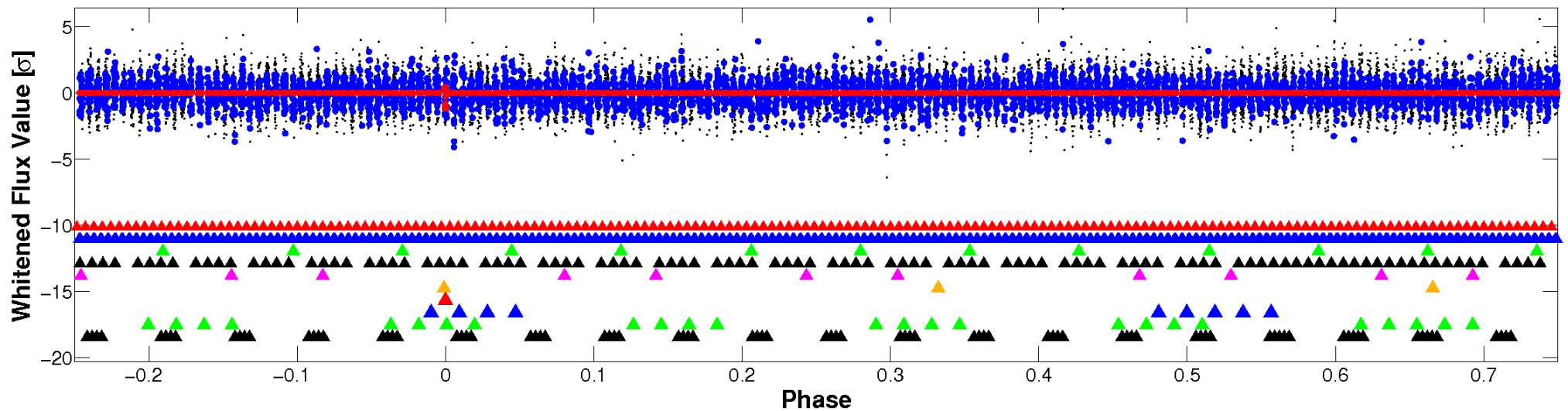
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

## Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

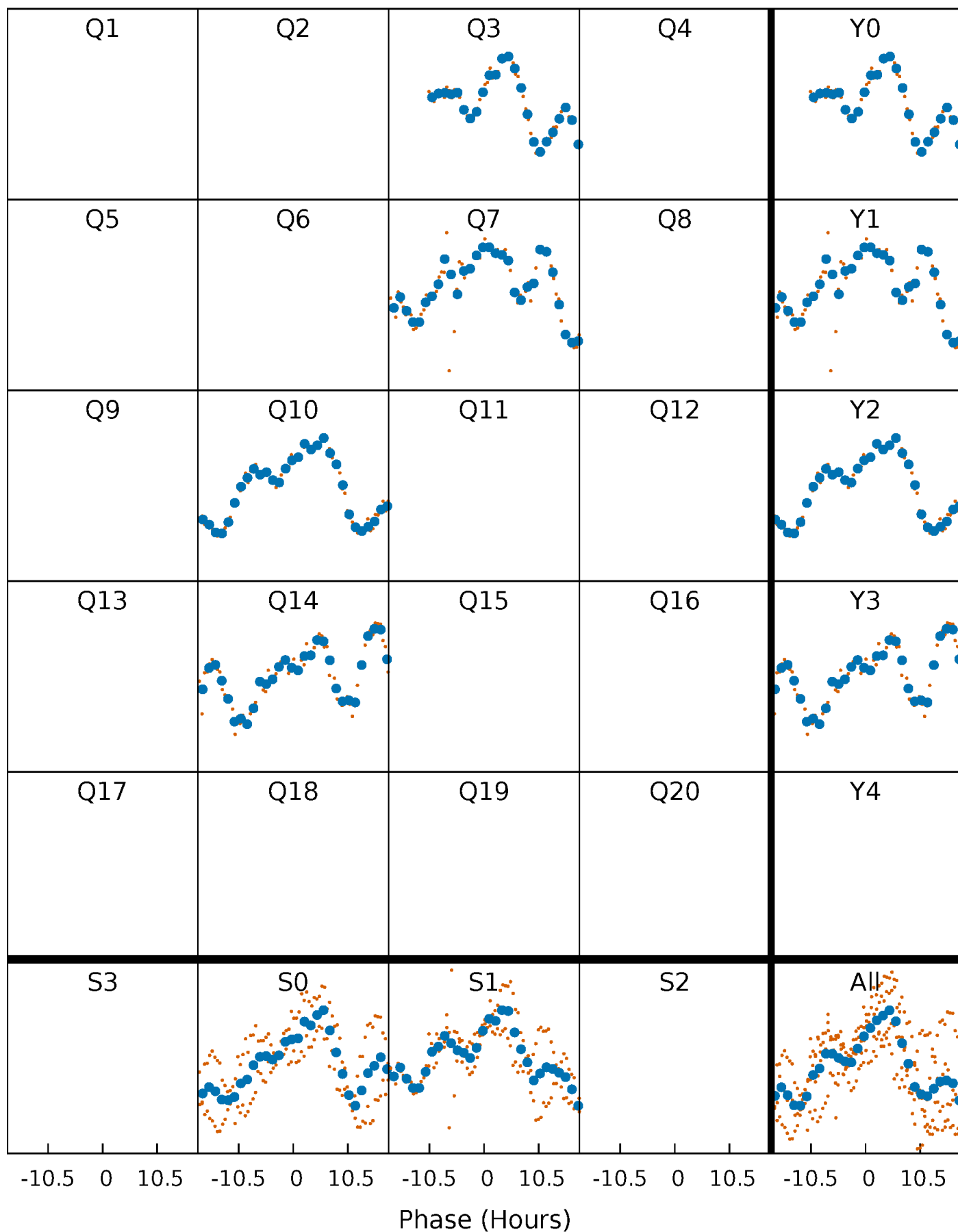


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



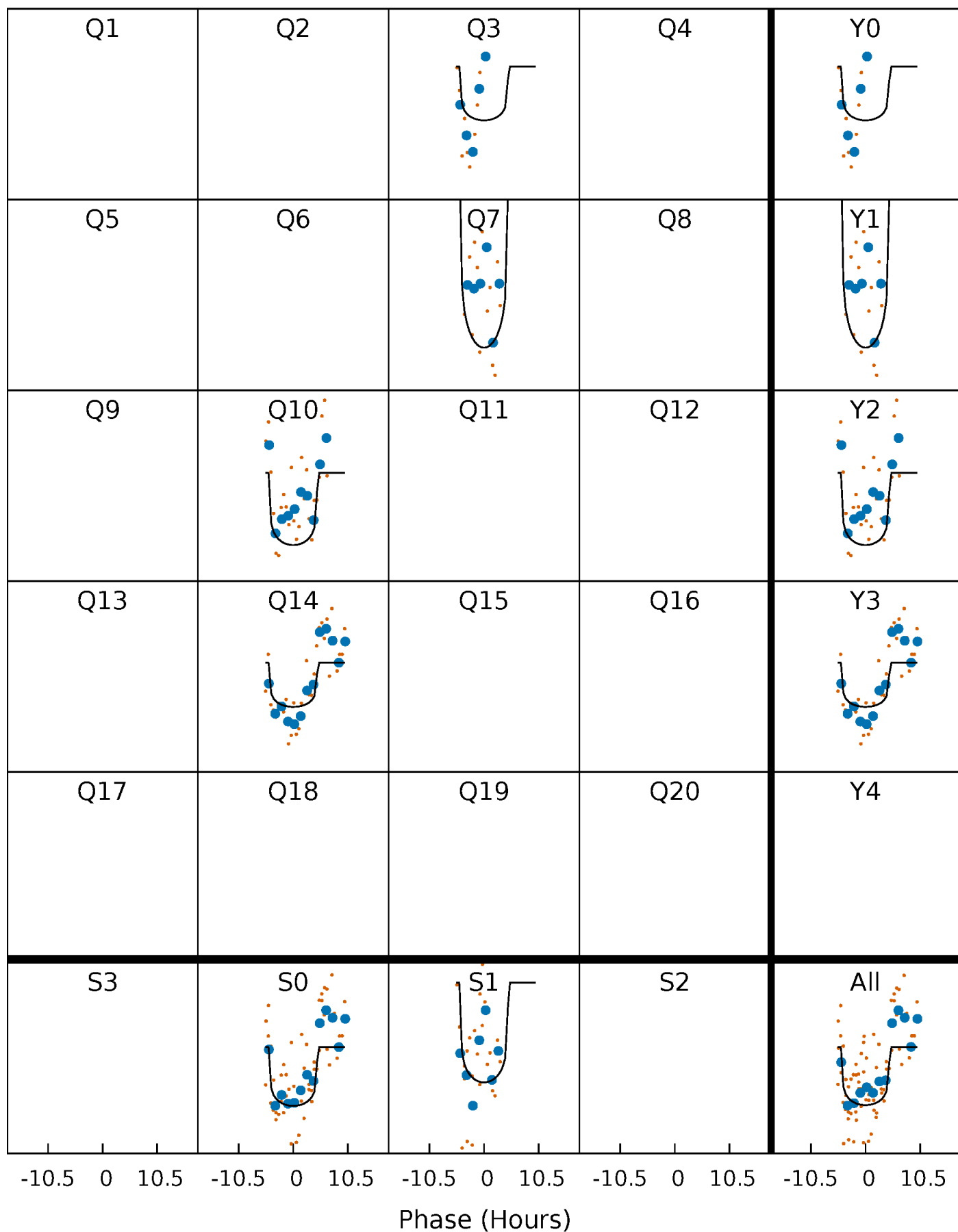
# PDC Quarter-Phased Transit Curves

TCE 003542345-07     $P=352.726752$  Days     $T_0=291.867554$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 003542345-07     $P=352.726752$  Days     $T_0=291.867554$  (BKJD)

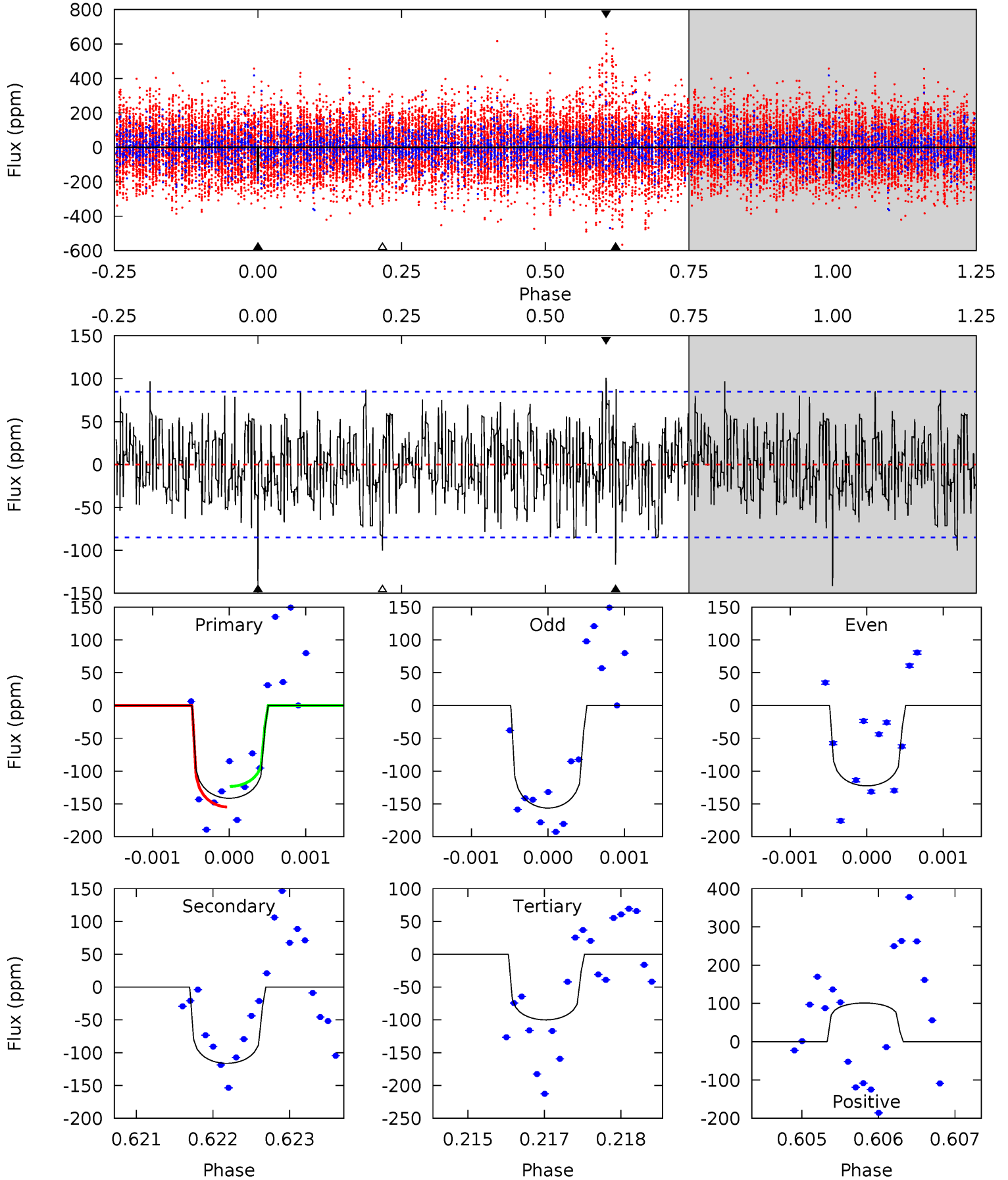


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

003542345-07, P = 352.726752 Days, E = 291.867554 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
9.03	7.42	6.38	6.46	5.43	3.25	2.03	2.64	2.57	1.04	0.96	1.07	0.95	0.42	1.00





## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 003542345

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7063^{+195}_{-335}$	$4.218^{+0.090}_{-0.210}$	$0.070^{+0.200}_{-0.350}$	$1.567^{+0.556}_{-0.238}$	$1.480^{+0.214}_{-0.214}$	$0.541^{+0.228}_{-0.305}$
	+3%/-5%	+2%/-5%	+286%/-500%	+35%/-15%	+14%/-14%	+42%/-56%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 003542345-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-116 \pm 16$	$2.24^{+1.47}_{-1.27}$	$522^{+39}_{-31}$	$6388^{+4651}_{-1323}$	$15131^{+69393}_{-9709}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

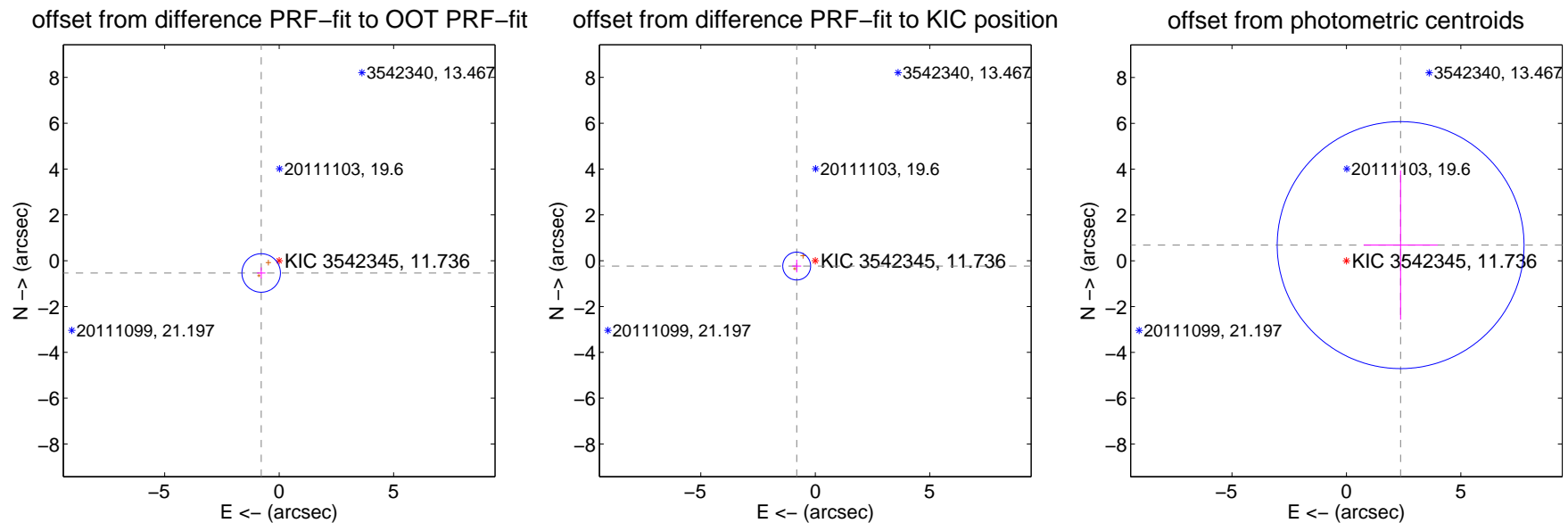
## DV Centroid Data

Supplemental centroid analysis for 003542345-07. **Kepler magnitude: 11.74.** Transit SNR 7.84

**There are 0 quarters with good PRF difference image offsets**

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>0.950 \pm 0.280</math></b>	<b>3.39</b>	$0.785 \pm 0.183$	$-0.536 \pm 0.243$
PRF-fit source offset from KIC position	<b><math>0.844 \pm 0.203</math></b>	<b>4.16</b>	$0.811 \pm 0.195$	$-0.234 \pm 0.277$
photometric centroid source offset	$2.47 \pm 1.80$	1.37	$-2.37 \pm 1.62$	$0.68 \pm 3.26$



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.

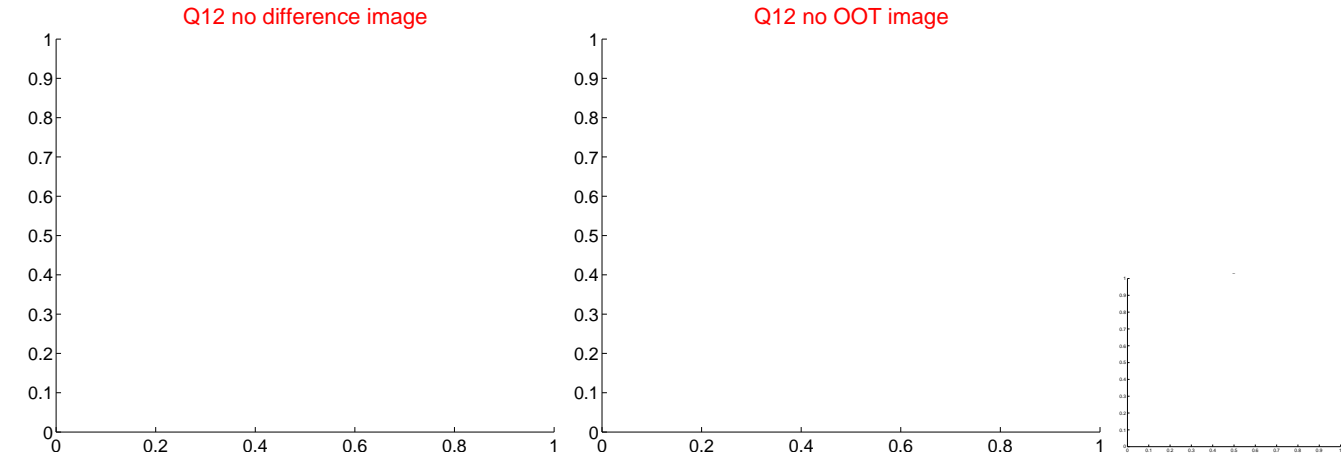
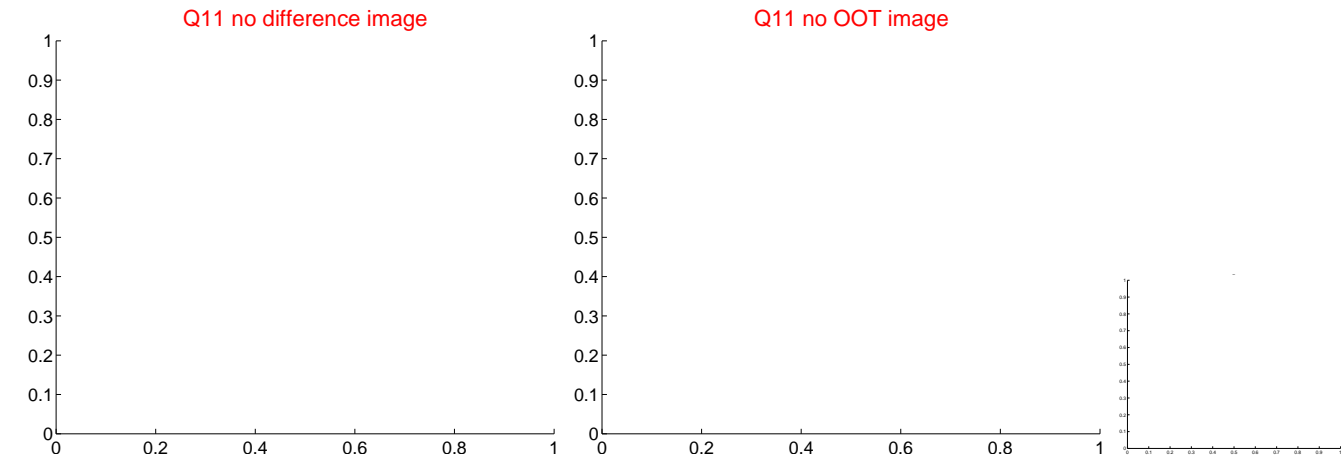
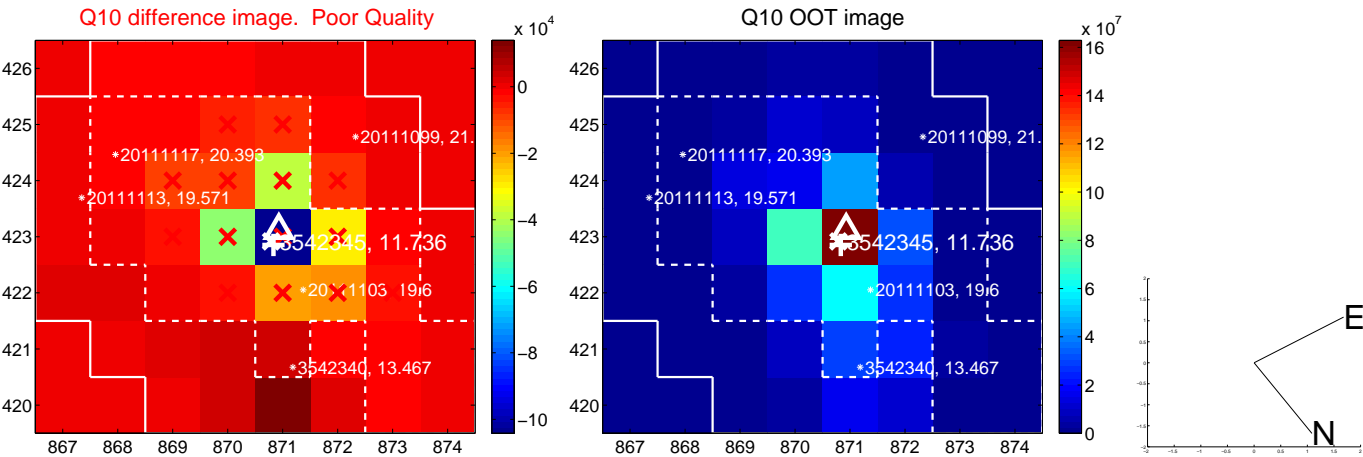
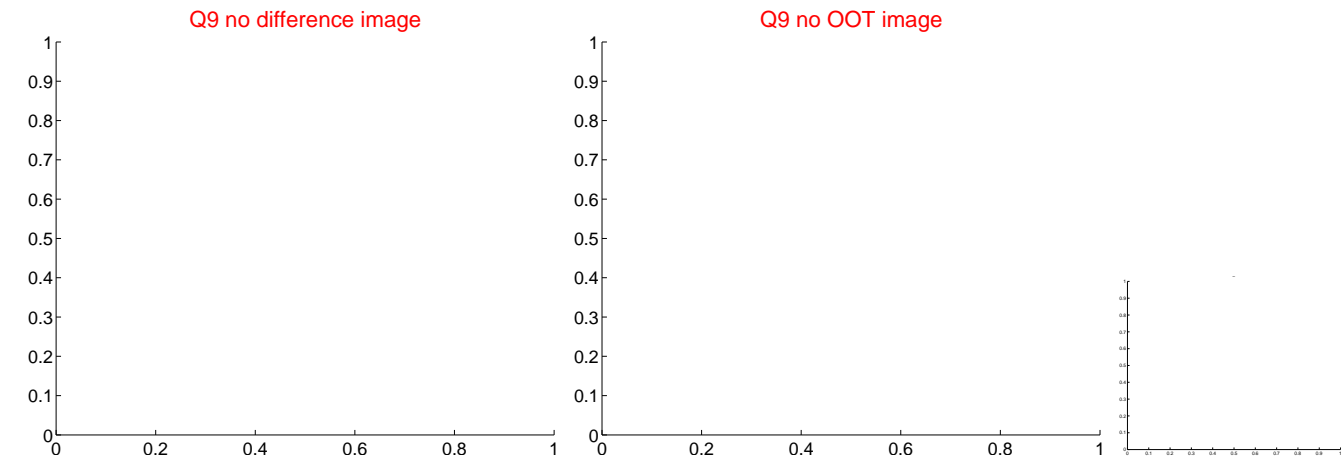
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



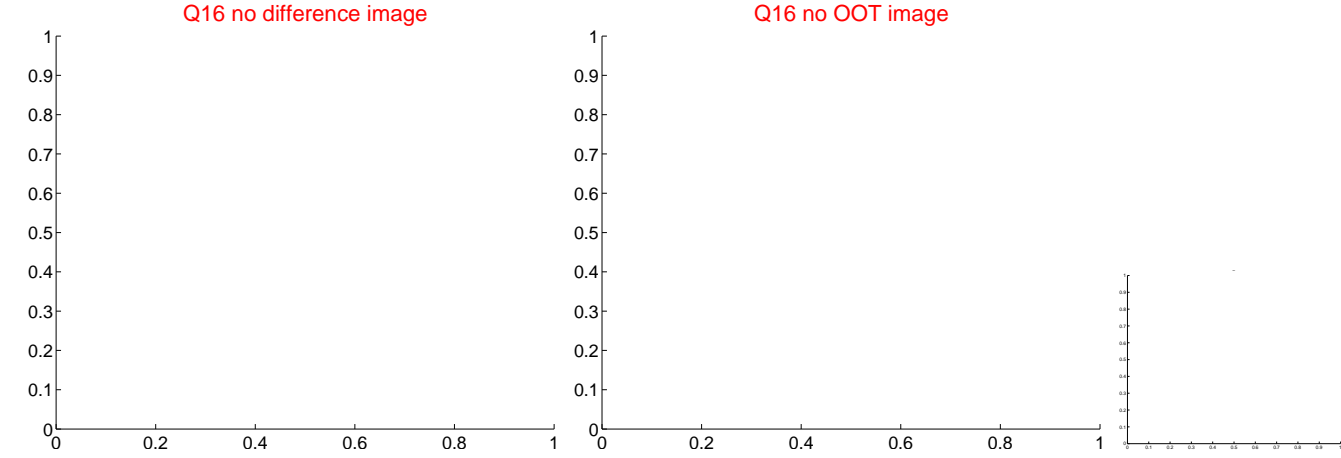
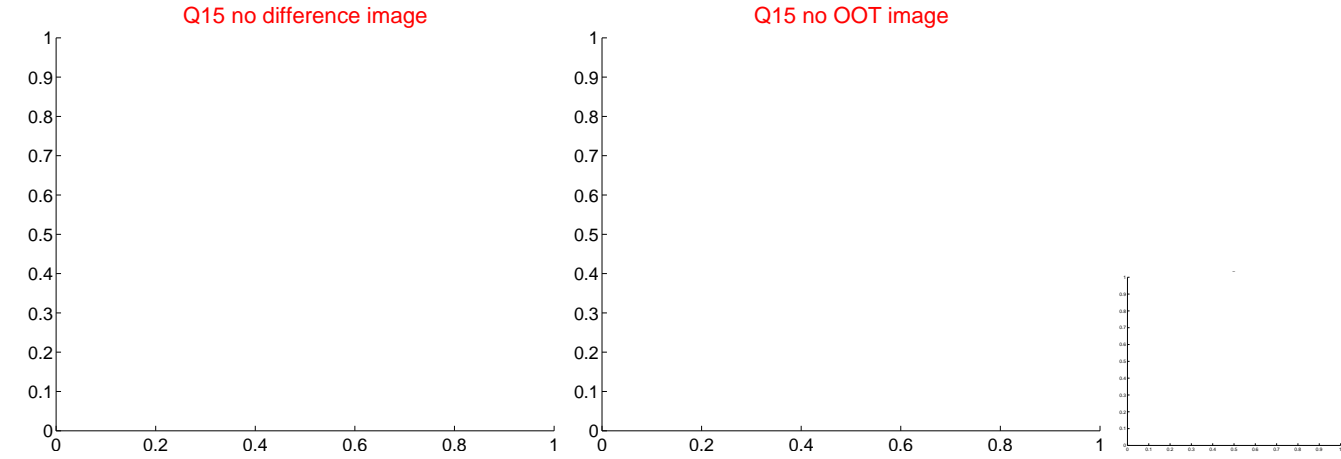
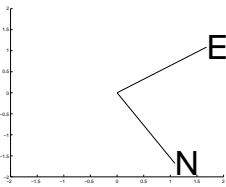
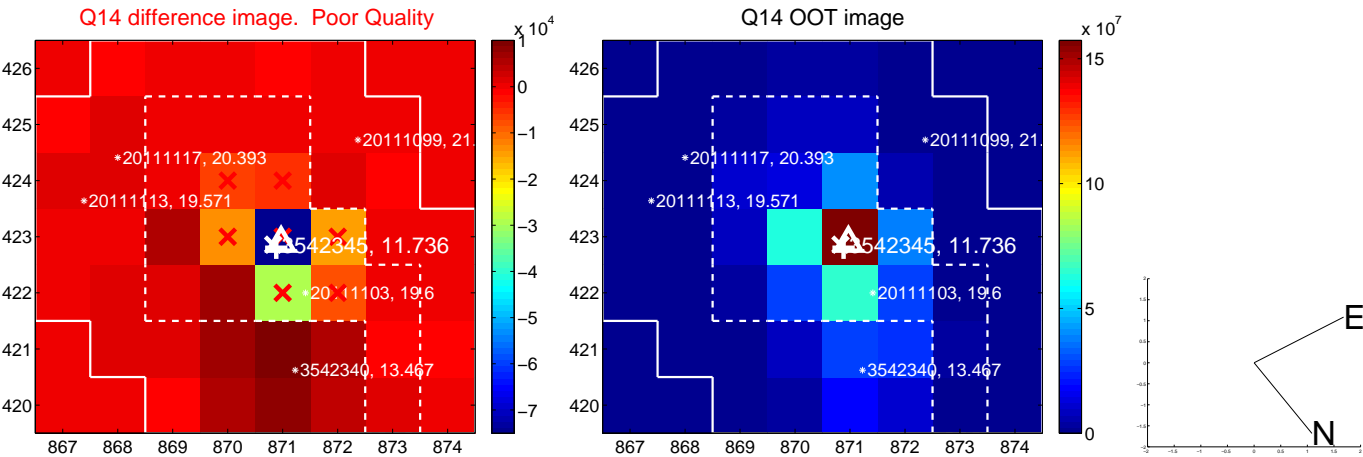
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

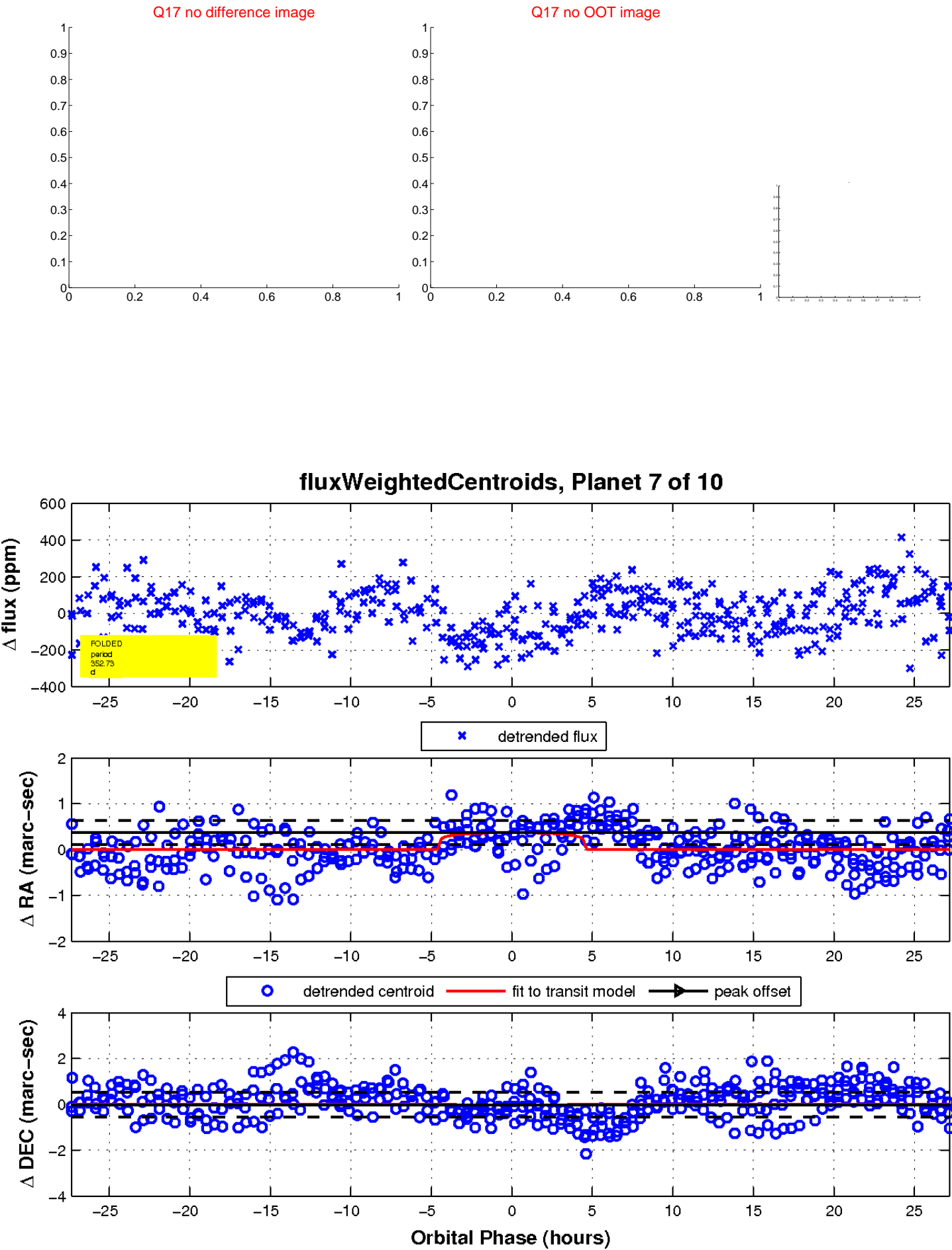


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



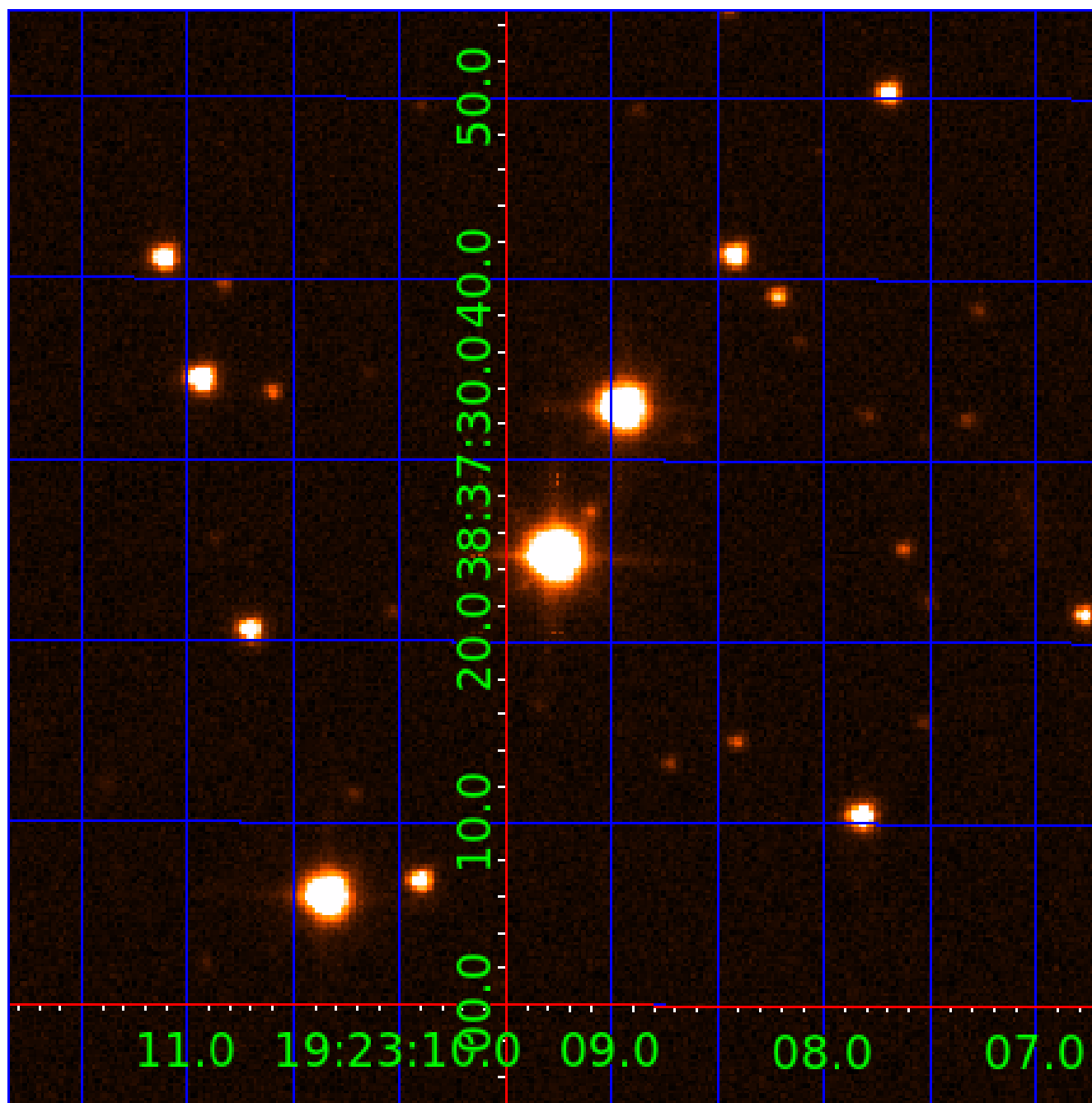


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003542345-01	OBS	No	2.015637	131.623110	7.0	9.704	11.3	3.6	1.57	7063	0.48	4321.96
003542345-02	OBS	No	1.680320	132.450335	43.7	3.268	12.7	13.7	1.57	7063	1.21	5508.60
003542345-03	OBS	No	108.920138	224.658989	111.0	9.730	9.1	7.0	1.57	7063	1.90	21.16
003542345-04	OBS	No	13.776503	138.904321	82.5	4.403	9.1	8.9	1.57	7063	1.65	333.20
003542345-05	OBS	No	136.747408	205.162926	235.9	7.118	8.8	9.0	1.57	7063	3.12	15.62
003542345-06	OBS	No	117.574138	173.952297	84.3	1.804	7.9	3.2	1.57	7063	1.79	19.11
003542345-07	OBS	No	352.726752	291.867554	166.0	9.180	7.9	7.8	1.57	7063	2.09	4.42
003542345-08	OBS	No	173.017872	135.509841	235.0	5.587	8.2	8.6	1.57	7063	2.80	11.41
003542345-09	OBS	No	57.681750	183.420652	160.5	3.890	8.6	7.7	1.57	7063	2.02	49.38
003542345-10	OBS	No	17.579058	139.776078	87.2	5.090	8.1	8.5	1.57	7063	1.73	240.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003542345-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003542345-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT
003542345-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
003542345-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
003542345-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

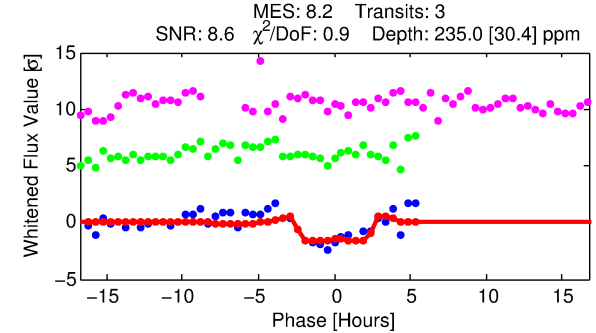
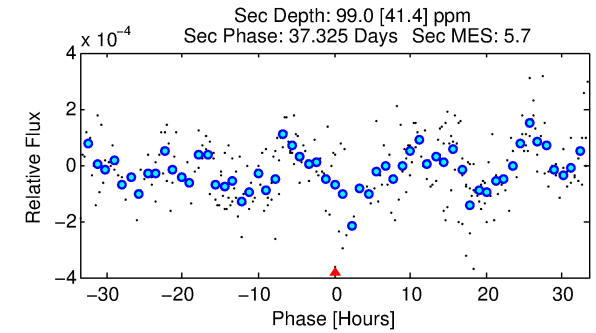
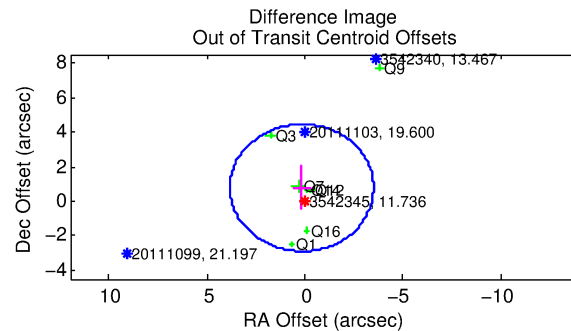
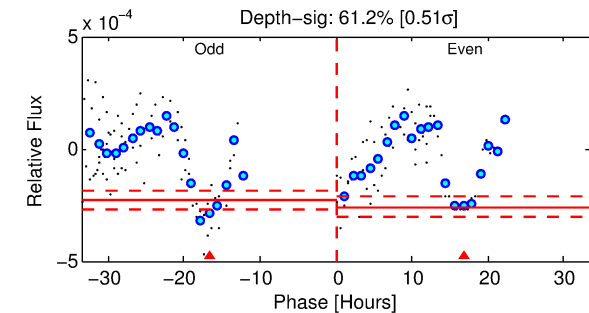
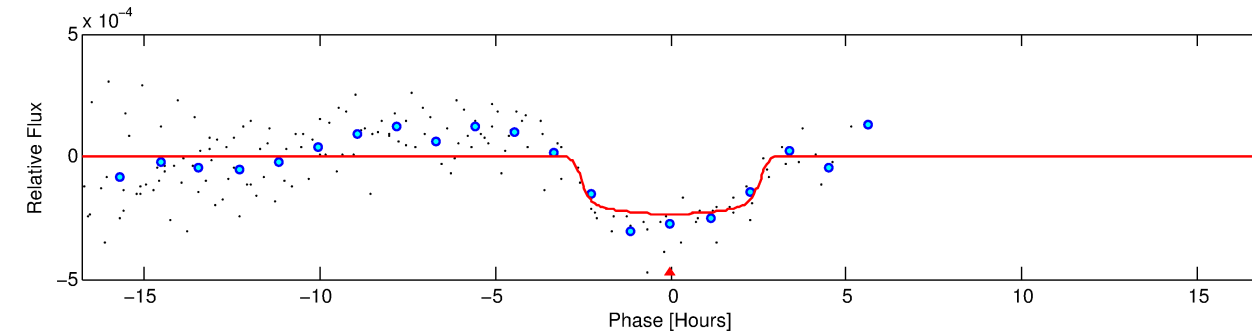
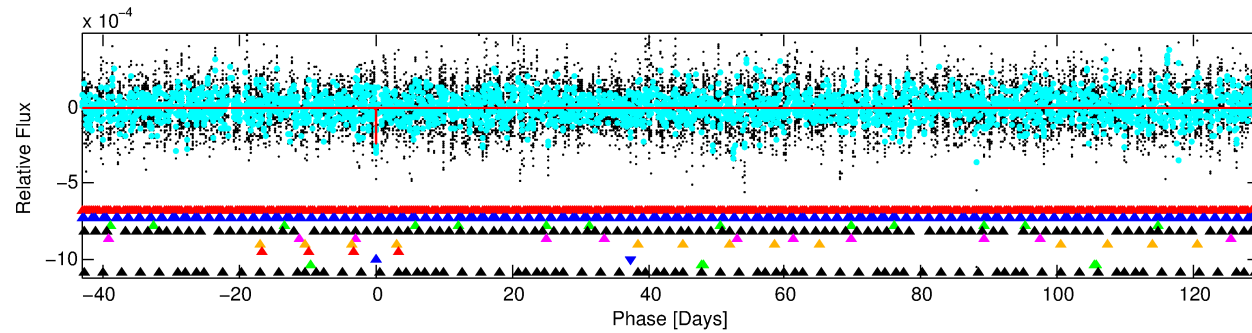
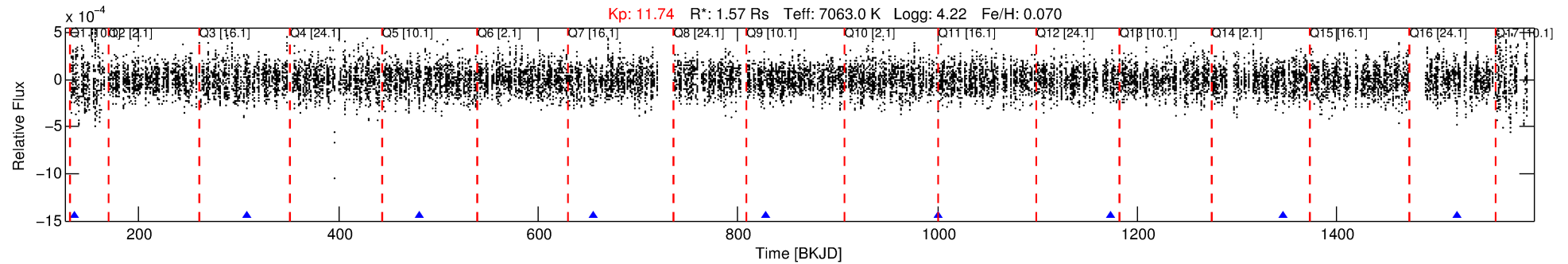
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003542345-08

No Significant Match Found

# DV One-Page Summary

KIC: 3542345 Candidate: 8 of 10 Period: 173.018 d



## DV Fit Results:

Period = 173.01787 [0.00189] d  
Epoch = 135.5098 [0.0087] BKJD  
Rp/R\* = 0.0164 [0.0026]  
a/R\* = 110.49 [87.00]  
b = 0.90 [0.17]  
Seff = 11.41 [5.05]  
Teff = 469 [52] K  
Rp = 2.80 [1.09] Re  
a = 0.6926 [0.1982] AU  
Ag = 3341.35 [2201.36] [1.52 $\sigma$ ]  
Teffp = 5509 [767] K [6.56 $\sigma$ ]

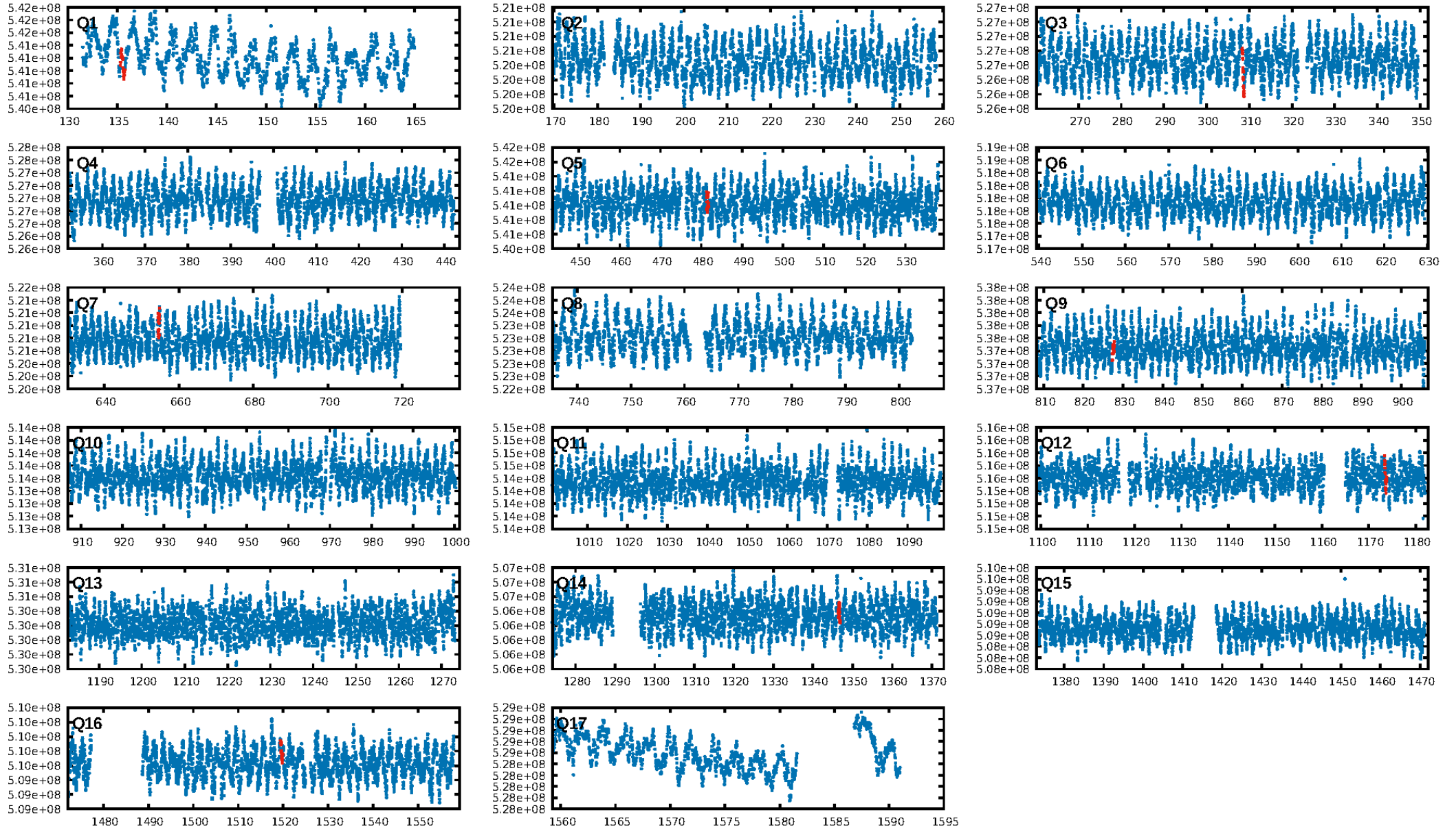
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [96.19 $\sigma$ ]  
LongPeriod-sig: 100.0% [401.32 $\sigma$ ]  
ModelChiSquare2-sig: 54.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.4087  
Centroid-sig: 20.3%  
Centroid-so: 1.184 arcsec [1.18 $\sigma$ ]  
OotOffset-rm: 0.794 arcsec [0.65 $\sigma$ ]  
OotOffset-st: 1/2/2/2 [7]  
KicOffset-rm: 1.057 arcsec [0.86 $\sigma$ ]  
KicOffset-st: 1/2/2/2 [7]  
DiffImageQuality-fgm: 0.57 [4/7]  
DiffImageOverlap-fno: 0.12 [1/8]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:30:57 Z

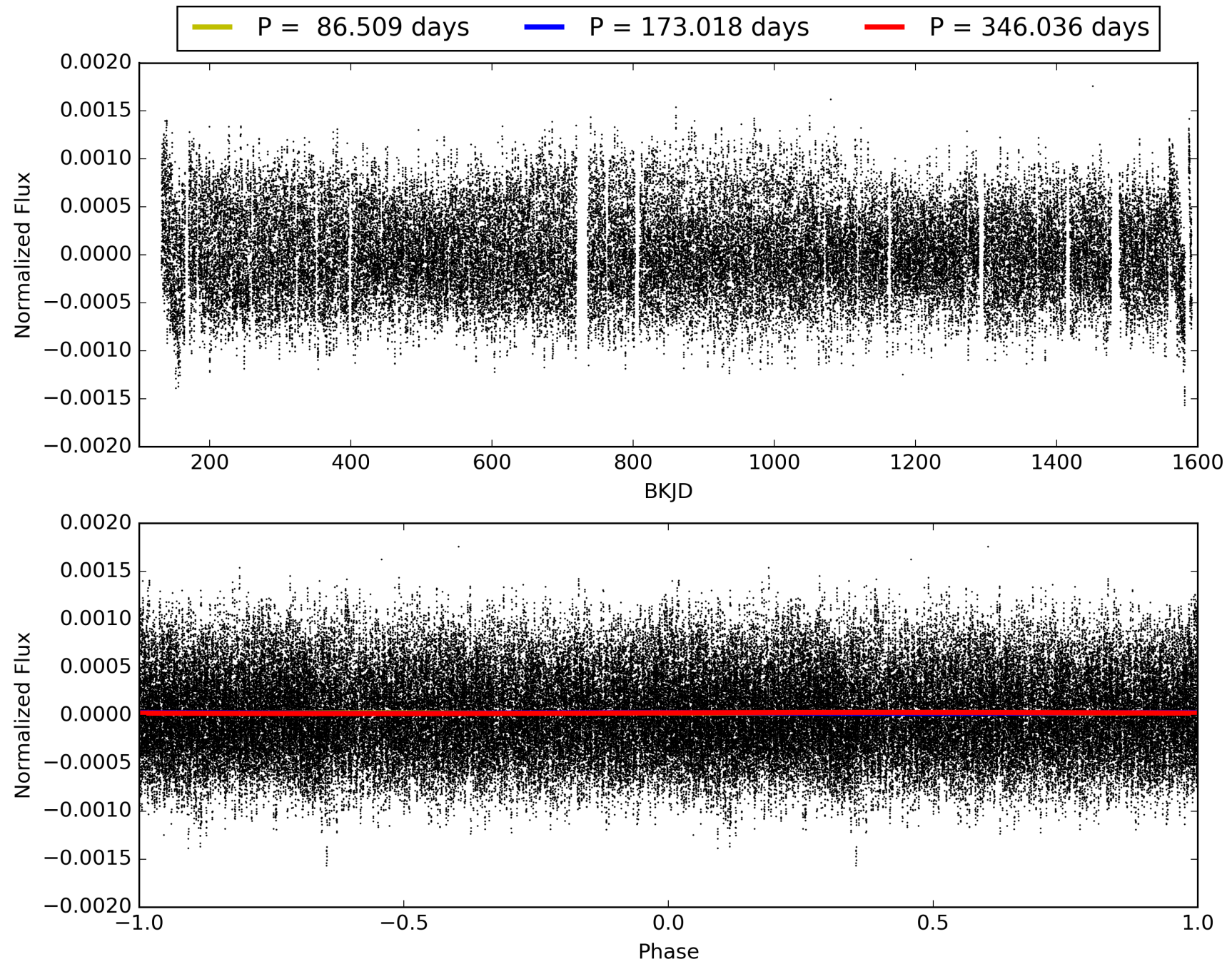
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003542345-08, PDC Light Curves



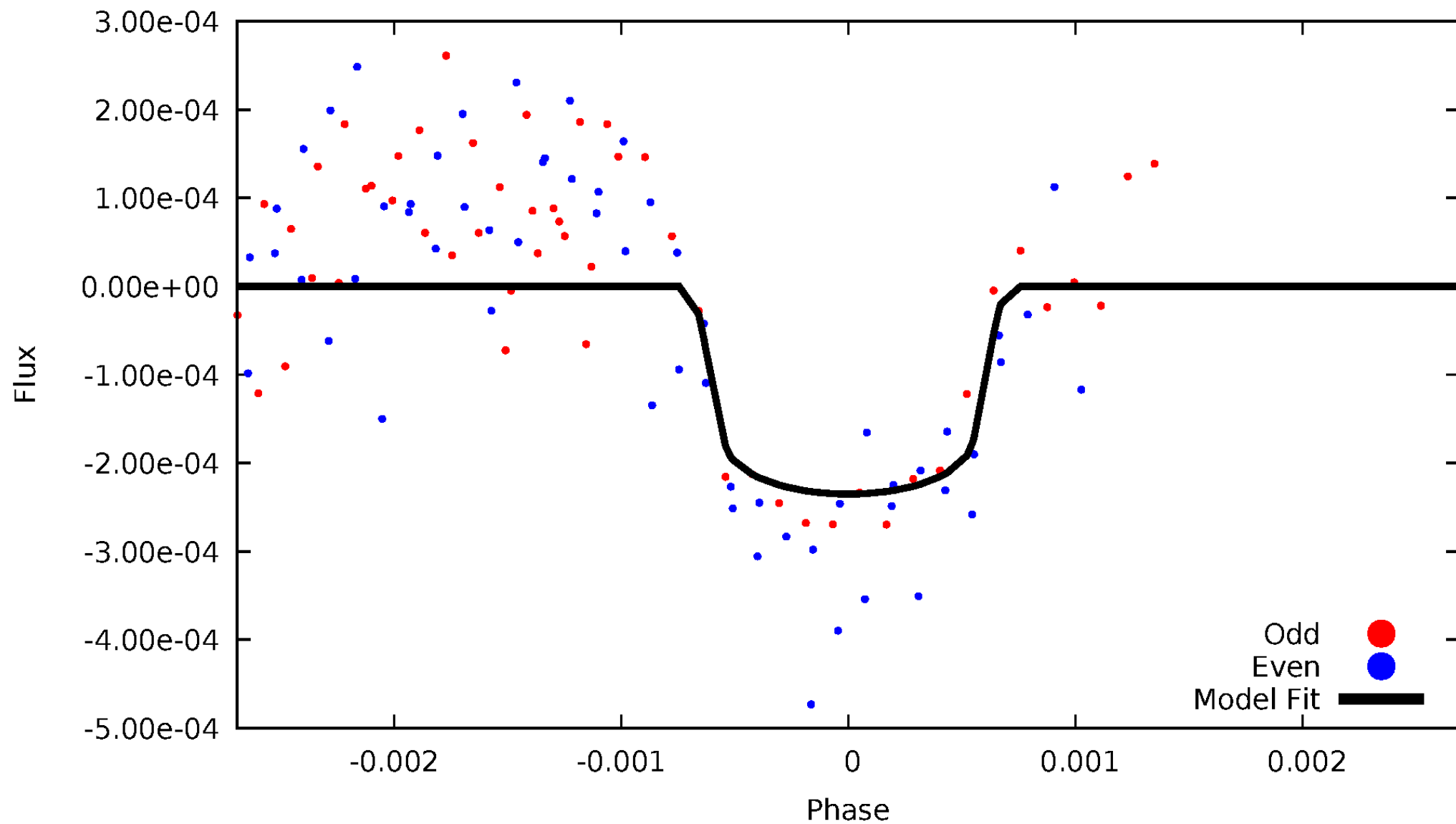


TCE 003542345-08



DV Odd/Even

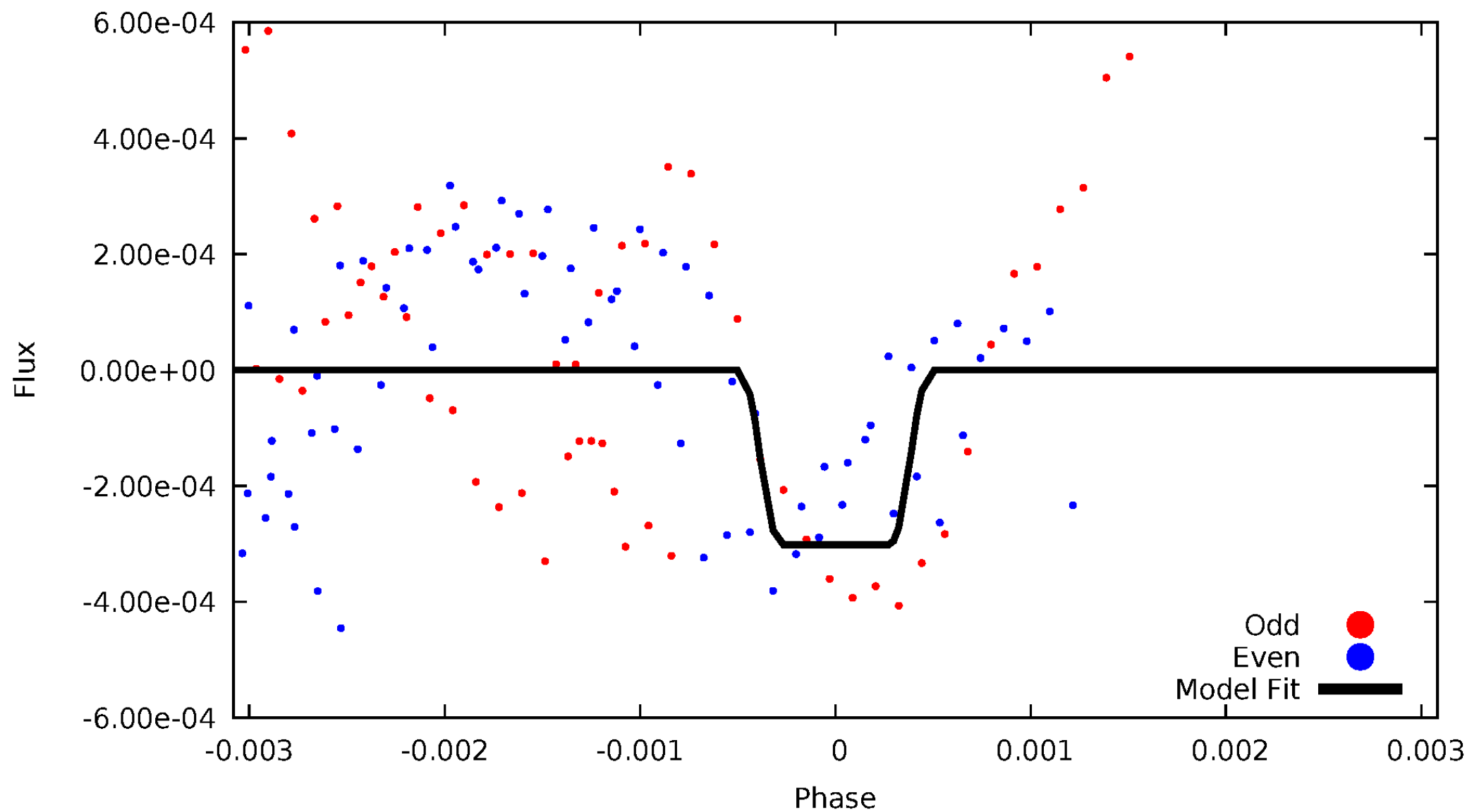
TCE 003542345-08





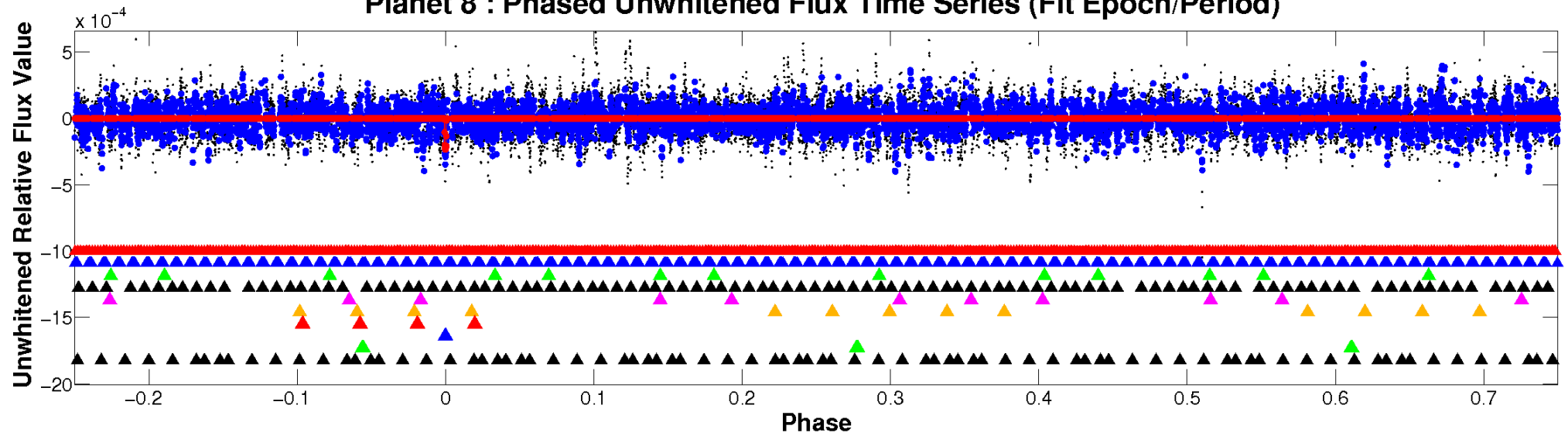
# ALT Odd/Even

TCE 003542345-08

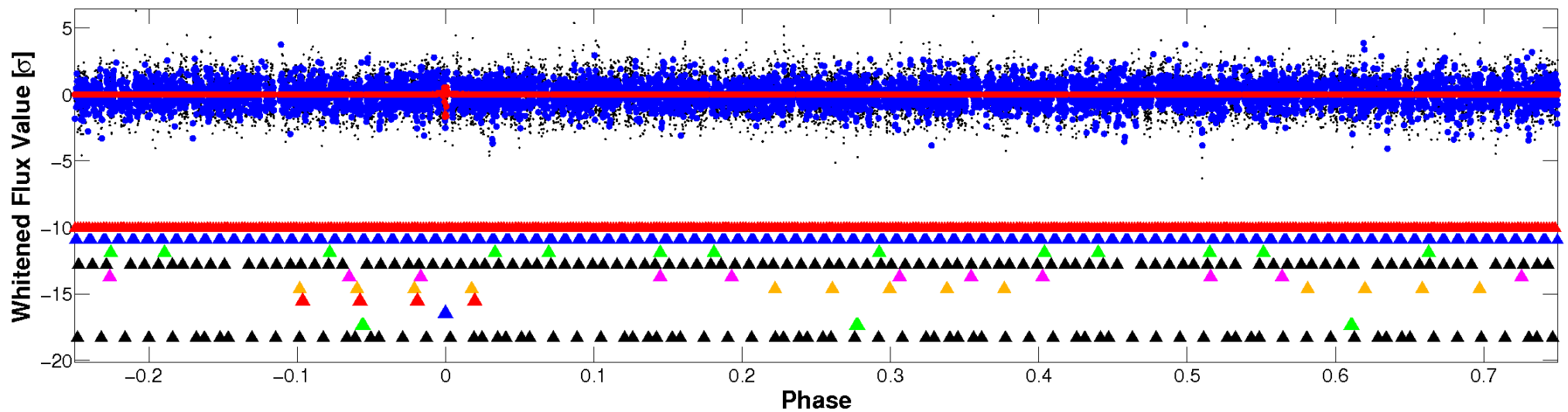


# Non-Whitened Vs. Whitened Light Curve

## Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

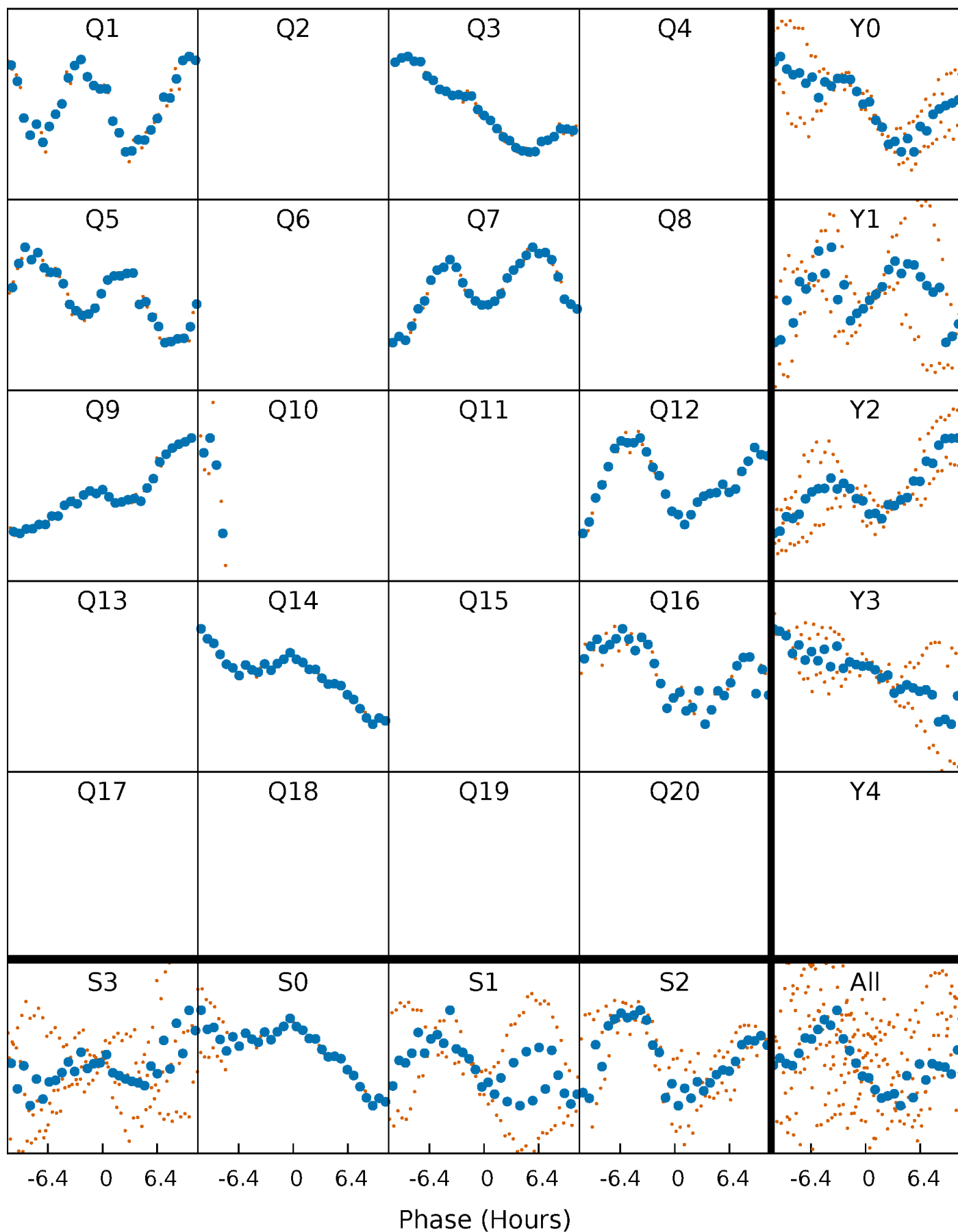


## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



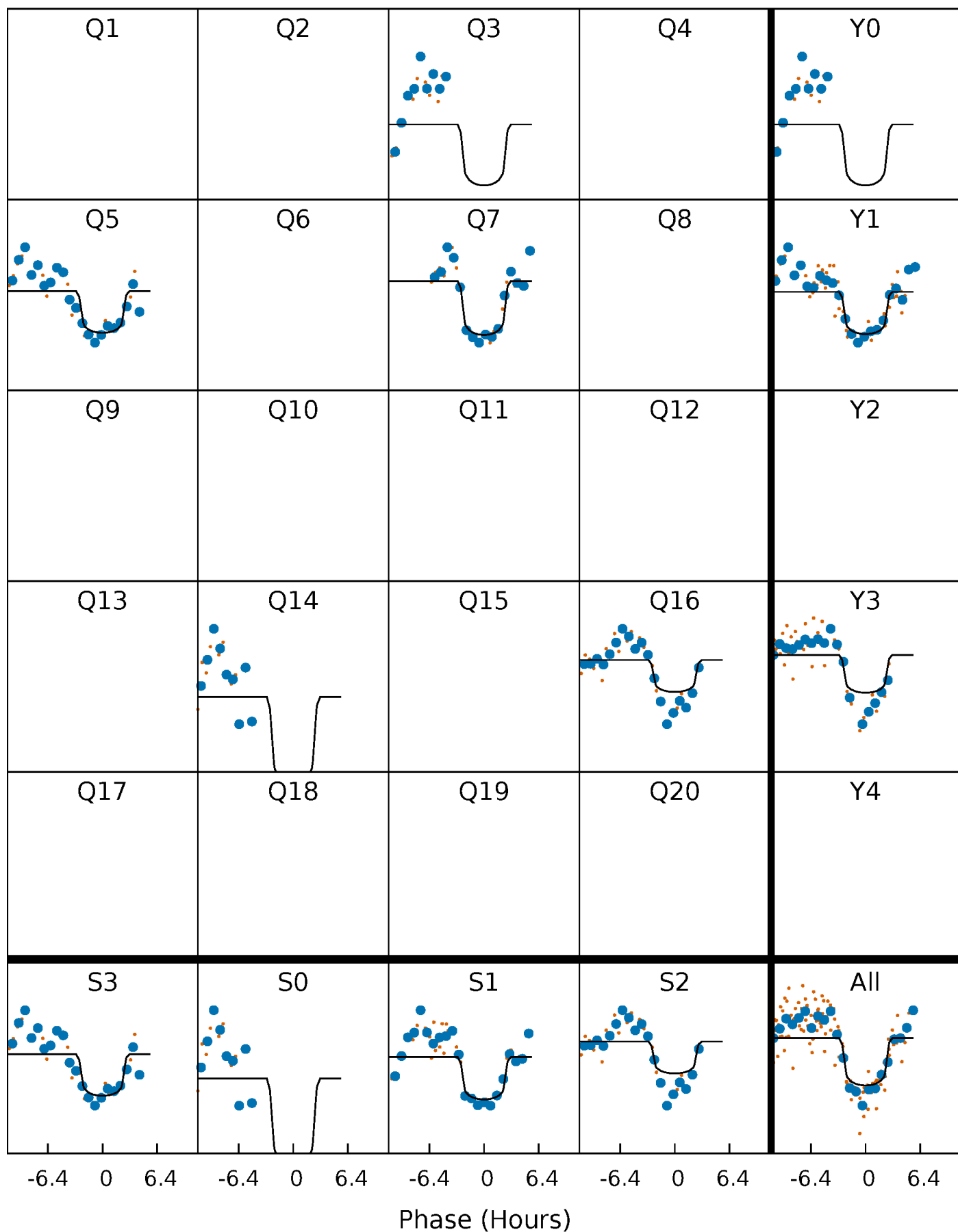
# PDC Quarter-Phased Transit Curves

TCE 003542345-08 P=173.017872 Days  $T_0=135.509841$  (BKJD)



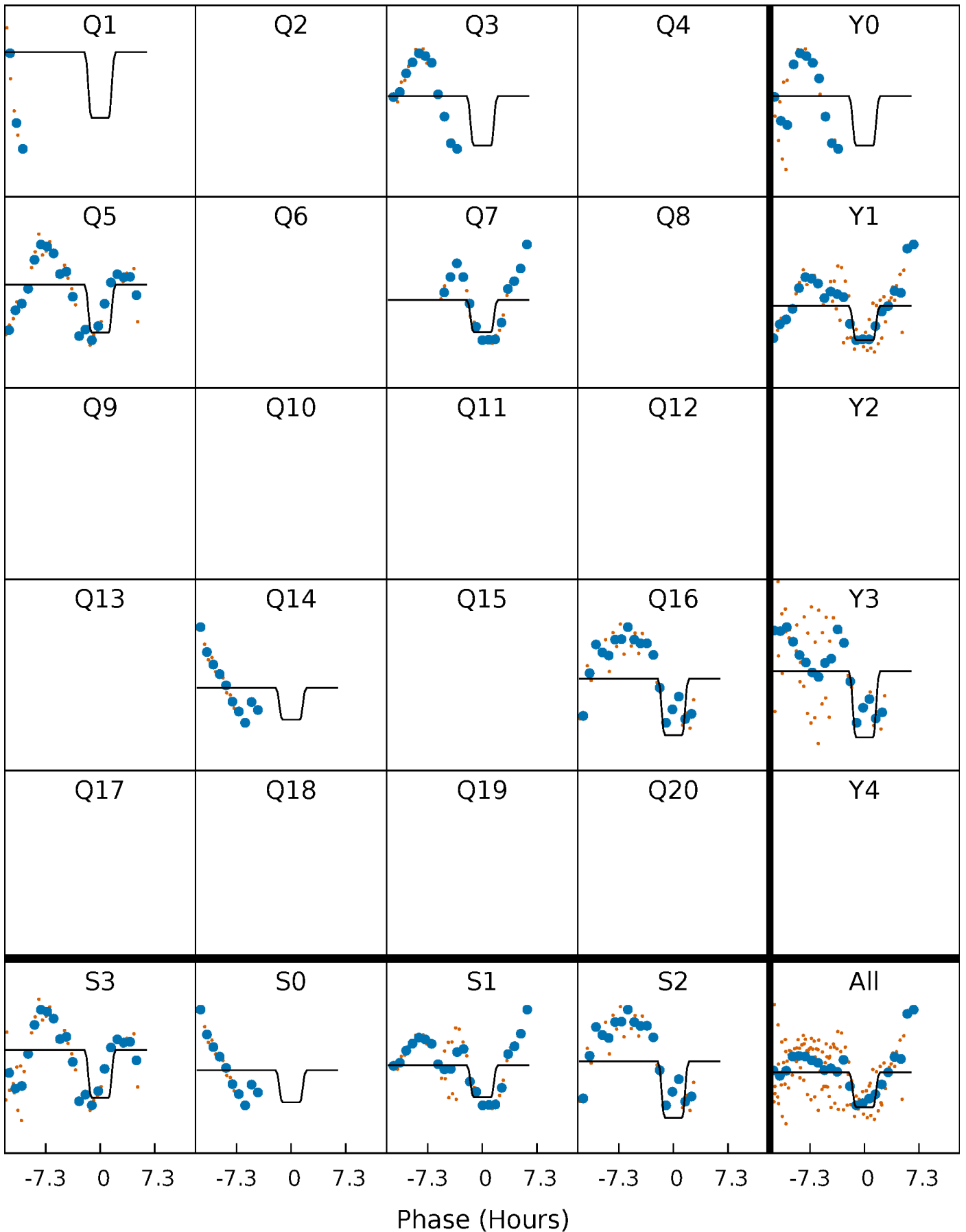
# DV Quarter-Phased Transit Curves

TCE 003542345-08     $P=173.017872$  Days     $T_0=135.509841$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

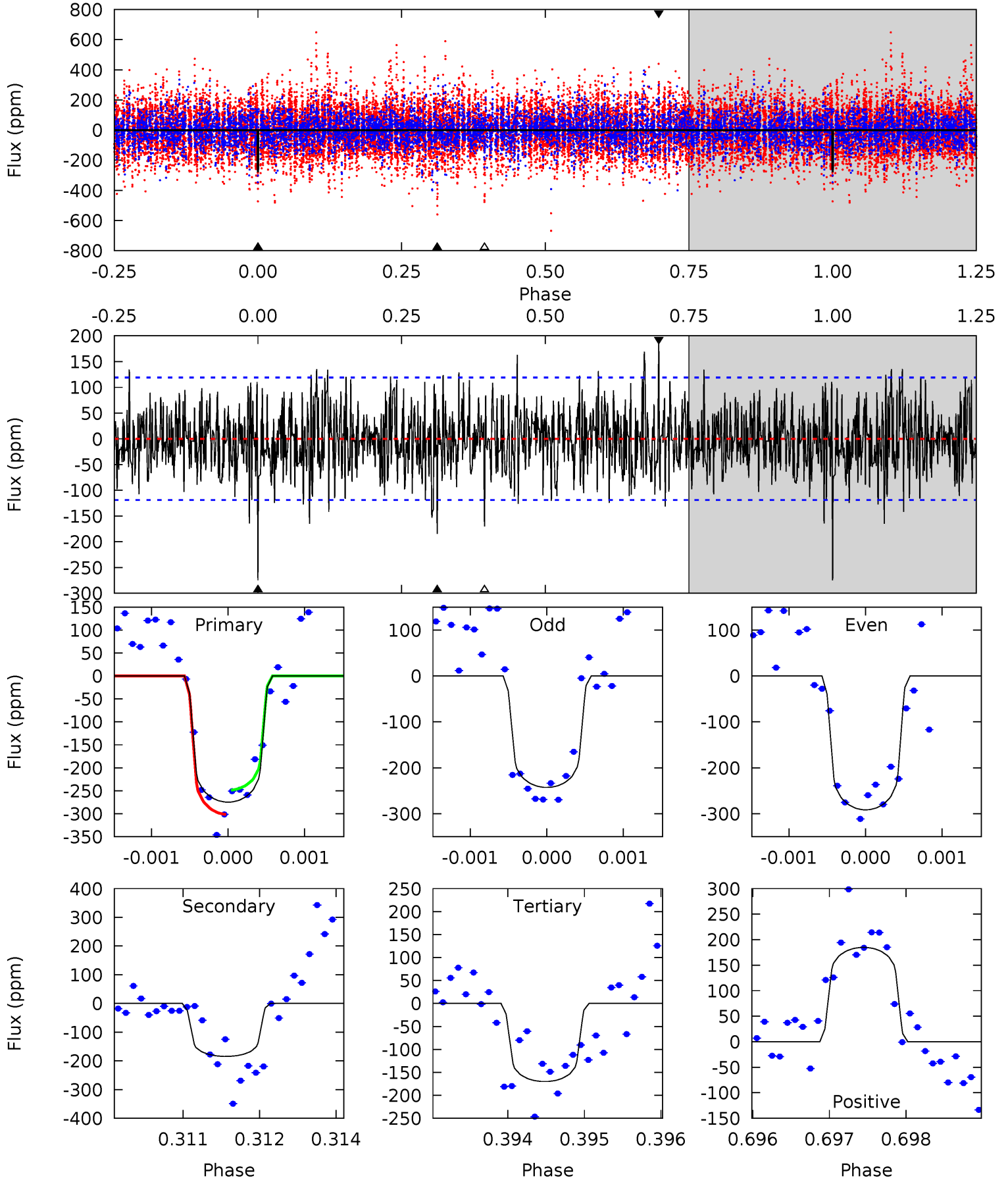
TCE 003542345-08     $P=173.023648$  Days     $T_0=135.465447$  (BKJD)



# DV Model-Shift Uniqueness Test

003542345-08, P = 173.017872 Days, E = 135.509841 Days

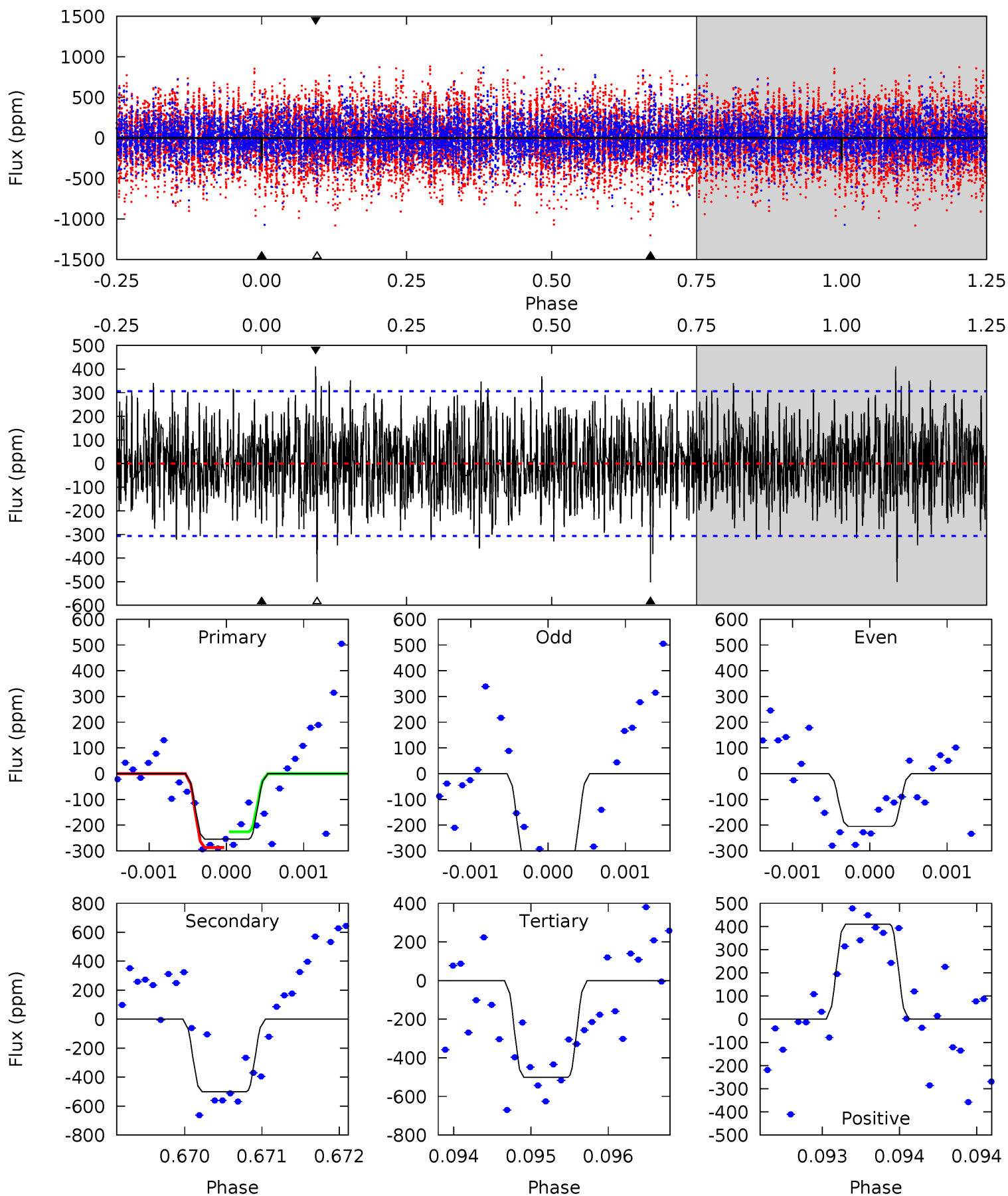
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	8.38	7.72	8.40	5.40	3.21	2.24	4.75	4.08	0.66	-0.02	1.07	1.12	0.40	1.20



# Alt Model-Shift Uniqueness Test

003542345-08, P = 173.023648 Days, E = 135.465447 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
4.53	8.94	8.93	7.31	5.46	3.31	2.20	-4.40	-2.77	0.01	1.63	1.22	1.16	0.45	0.55





### Stellar Parameters For KIC 003542345

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7063^{+195}_{-335}$	$4.218^{+0.090}_{-0.210}$	$0.070^{+0.200}_{-0.350}$	$1.567^{+0.556}_{-0.238}$	$1.480^{+0.214}_{-0.214}$	$0.541^{+0.228}_{-0.305}$
	+3%/-5%	+2%/-5%	+286%/-500%	+35%/-15%	+14%/-14%	+42%/-56%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 003542345-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-184 \pm 22$	$2.90^{+0.68}_{-0.58}$	$663^{+58}_{-40}$	$6366^{+683}_{-550}$	$5753^{+2937}_{-1928}$
Alt.	$-502 \pm 56$	$3.03^{+0.65}_{-0.51}$	$660^{+51}_{-41}$	$8156^{+1049}_{-800}$	$14146^{+6644}_{-4601}$

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

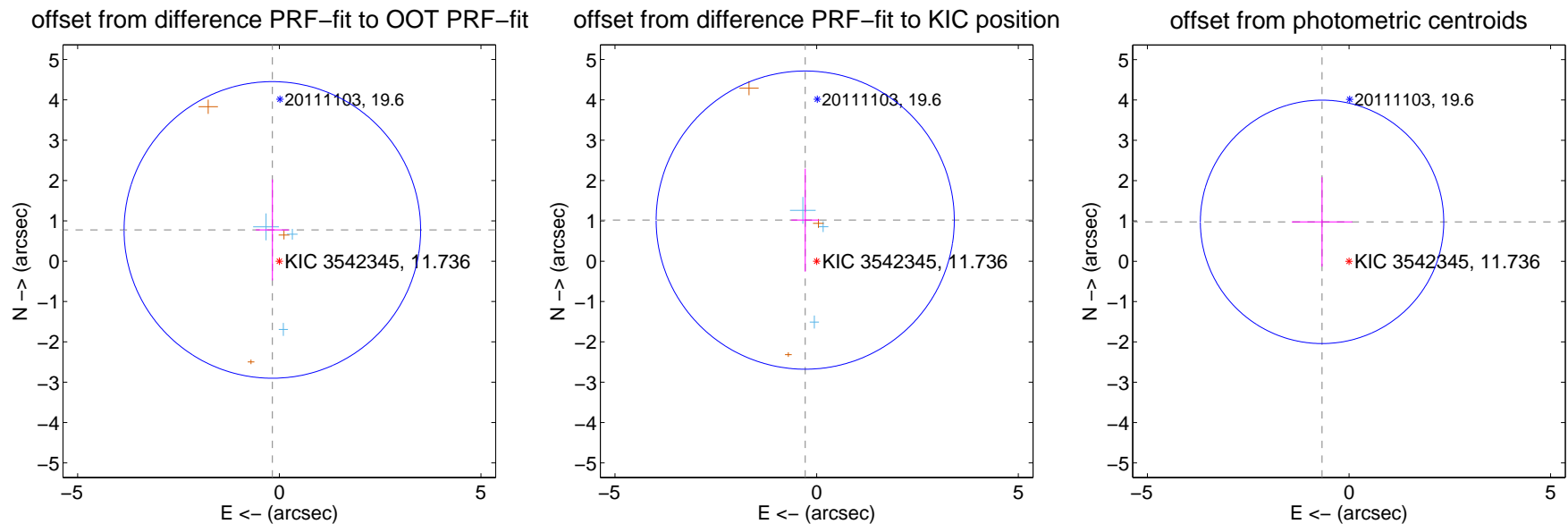
## DV Centroid Data

Supplemental centroid analysis for 003542345-08. **Kepler magnitude: 11.74.** Transit SNR 8.57

There are 4 quarters with good PRF difference image offsets

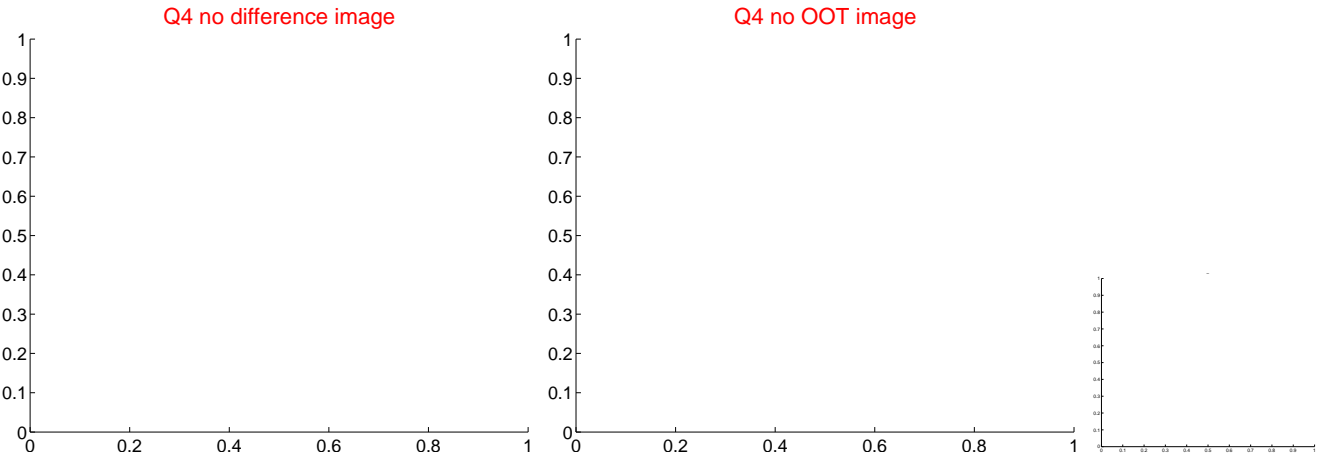
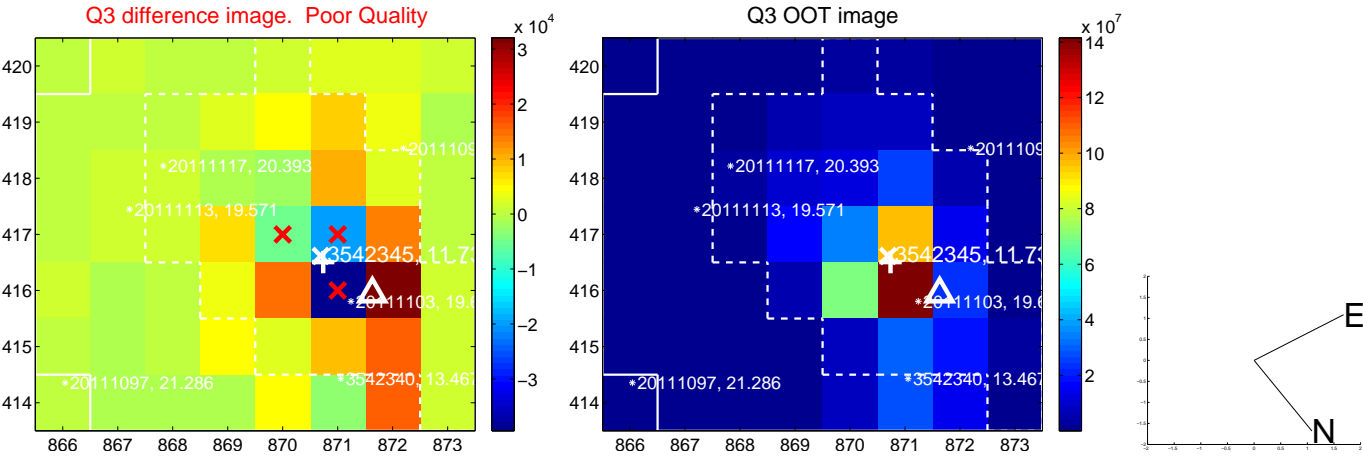
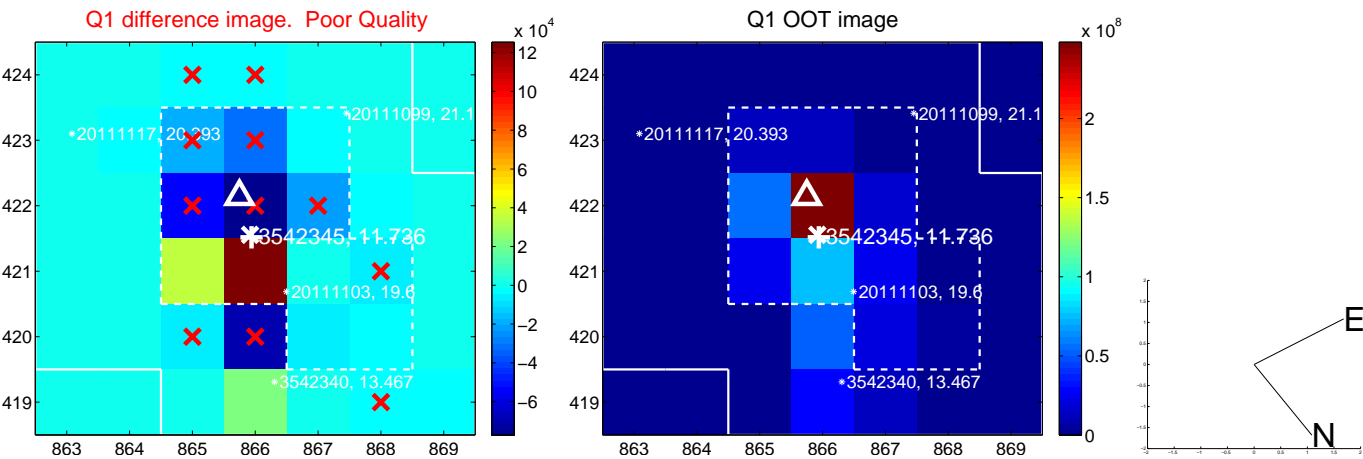
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.794 \pm 1.225$	0.65	$0.173 \pm 0.409$	$0.775 \pm 1.252$
PRF-fit source offset from KIC position	$1.057 \pm 1.232$	0.86	$0.284 \pm 0.345$	$1.018 \pm 1.275$
photometric centroid source offset	$1.18 \pm 1.01$	1.18	$0.67 \pm 0.75$	$0.98 \pm 1.11$

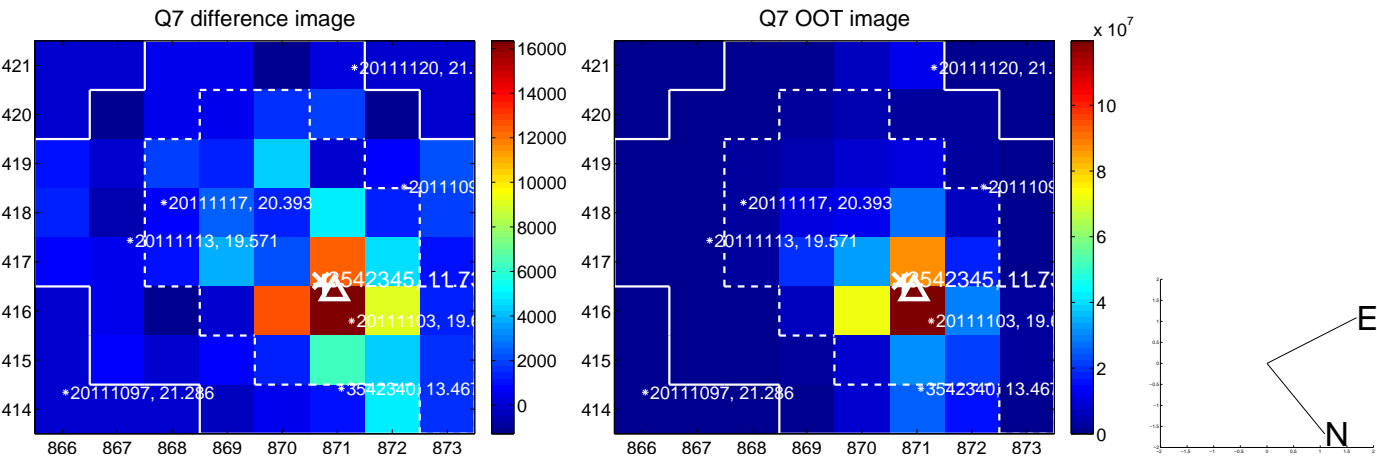
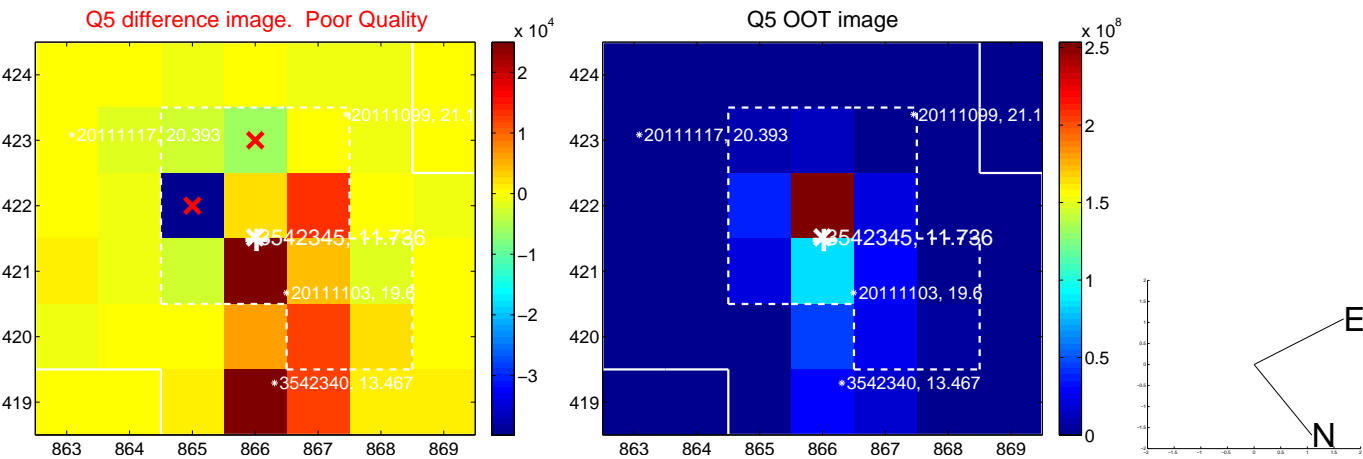


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

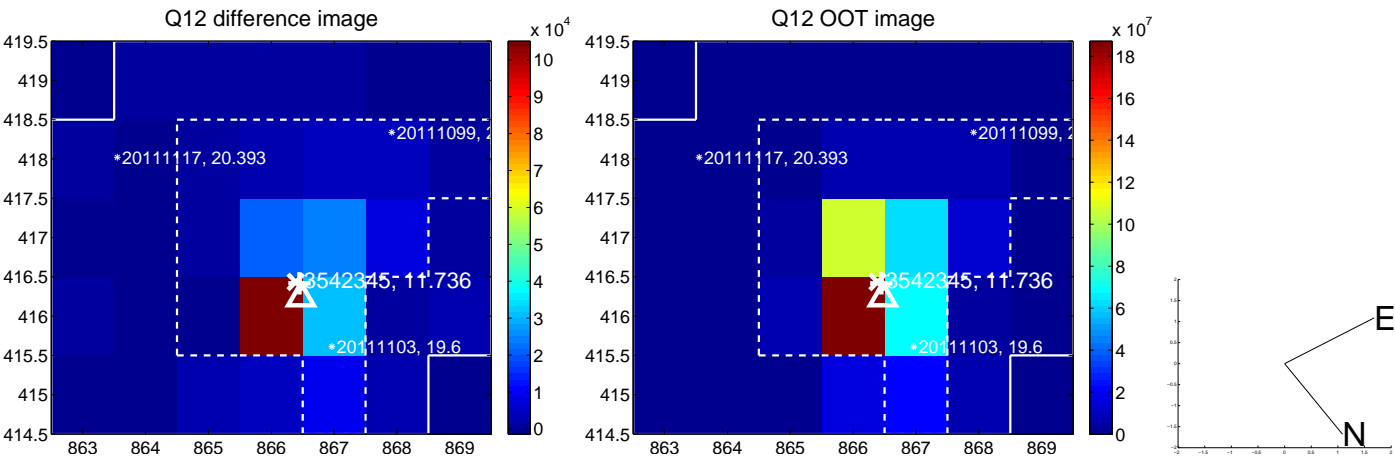
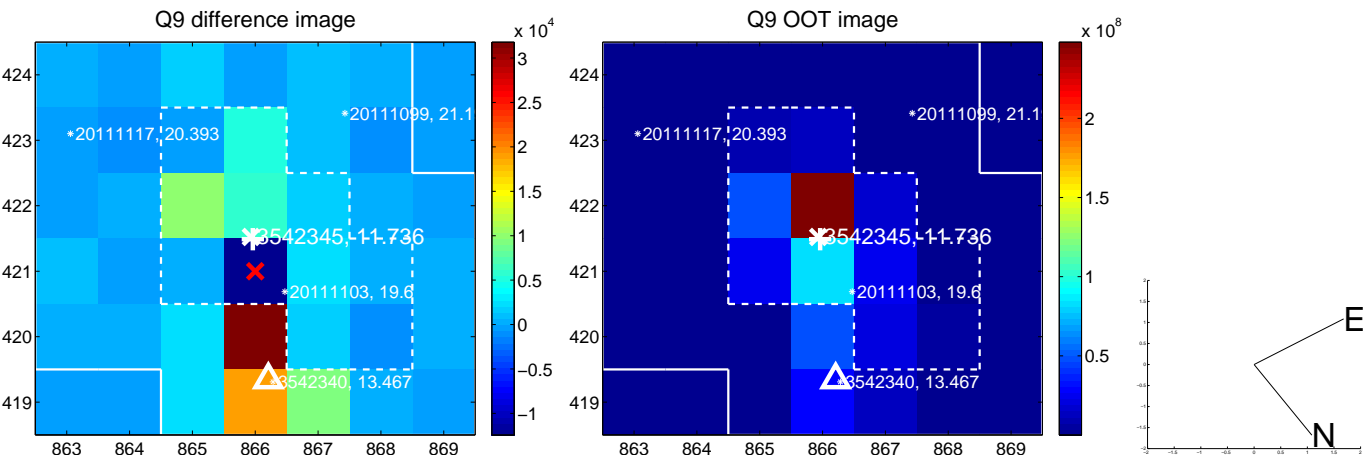
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



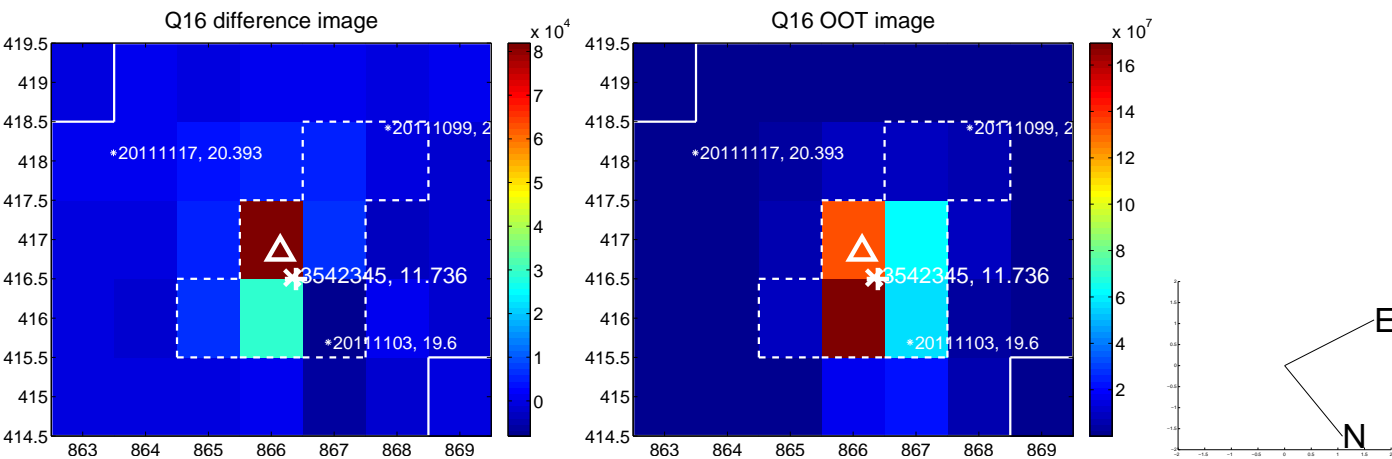
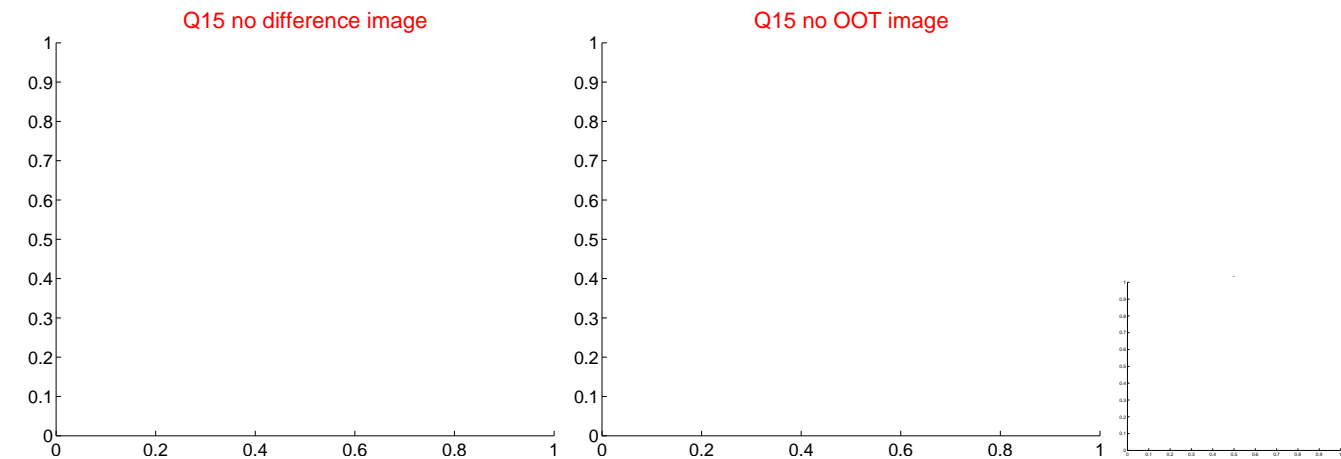
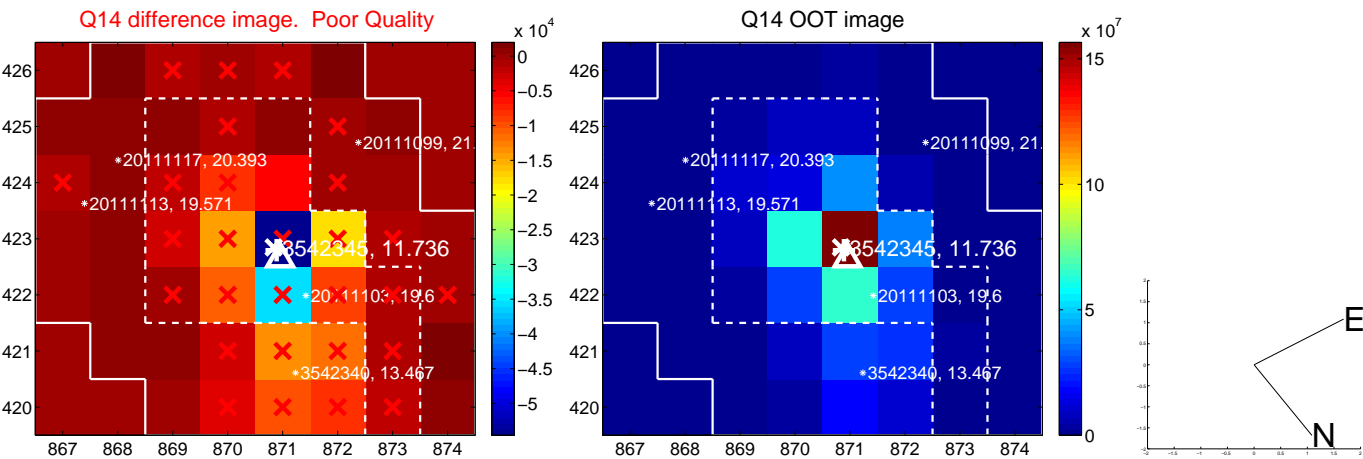
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



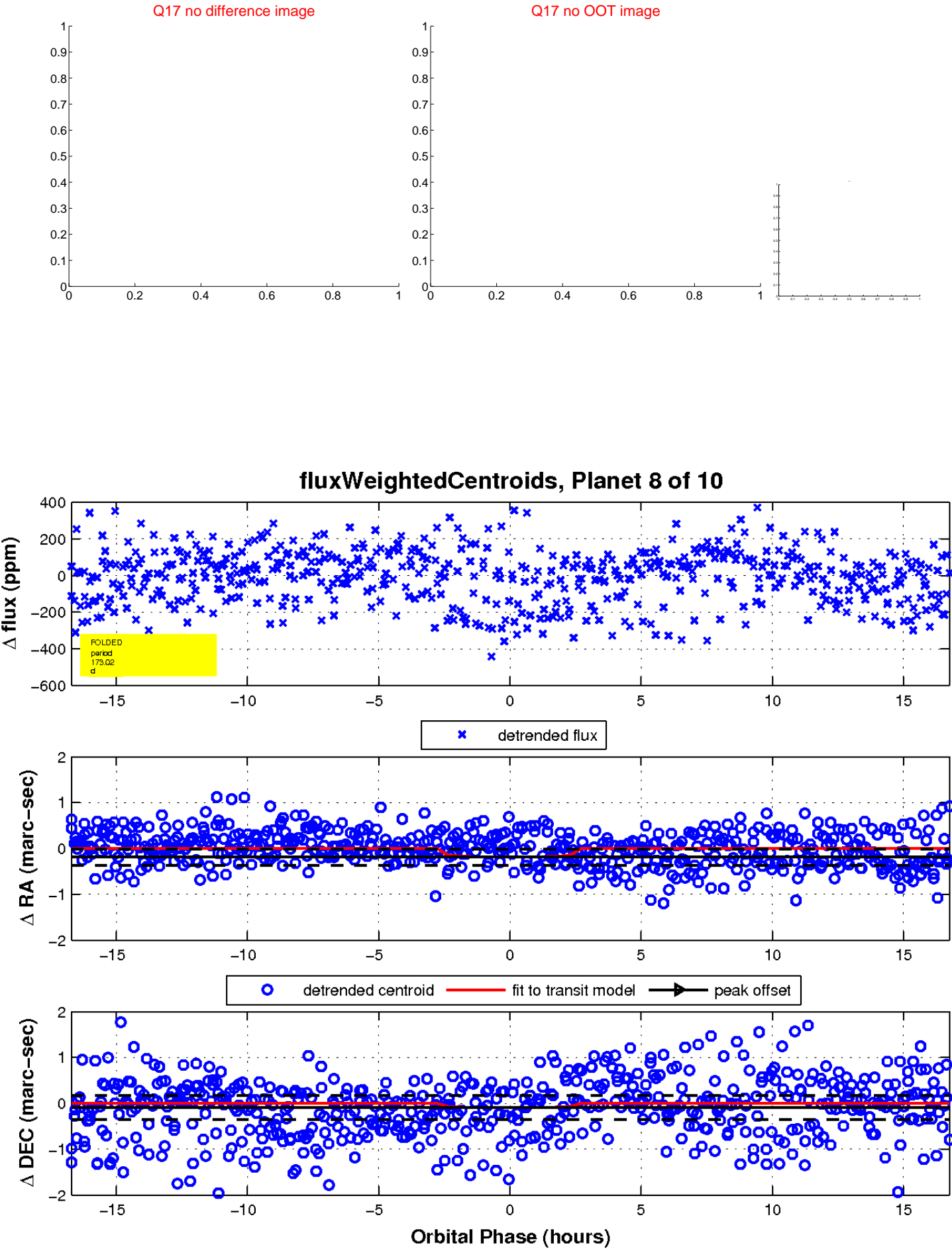
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



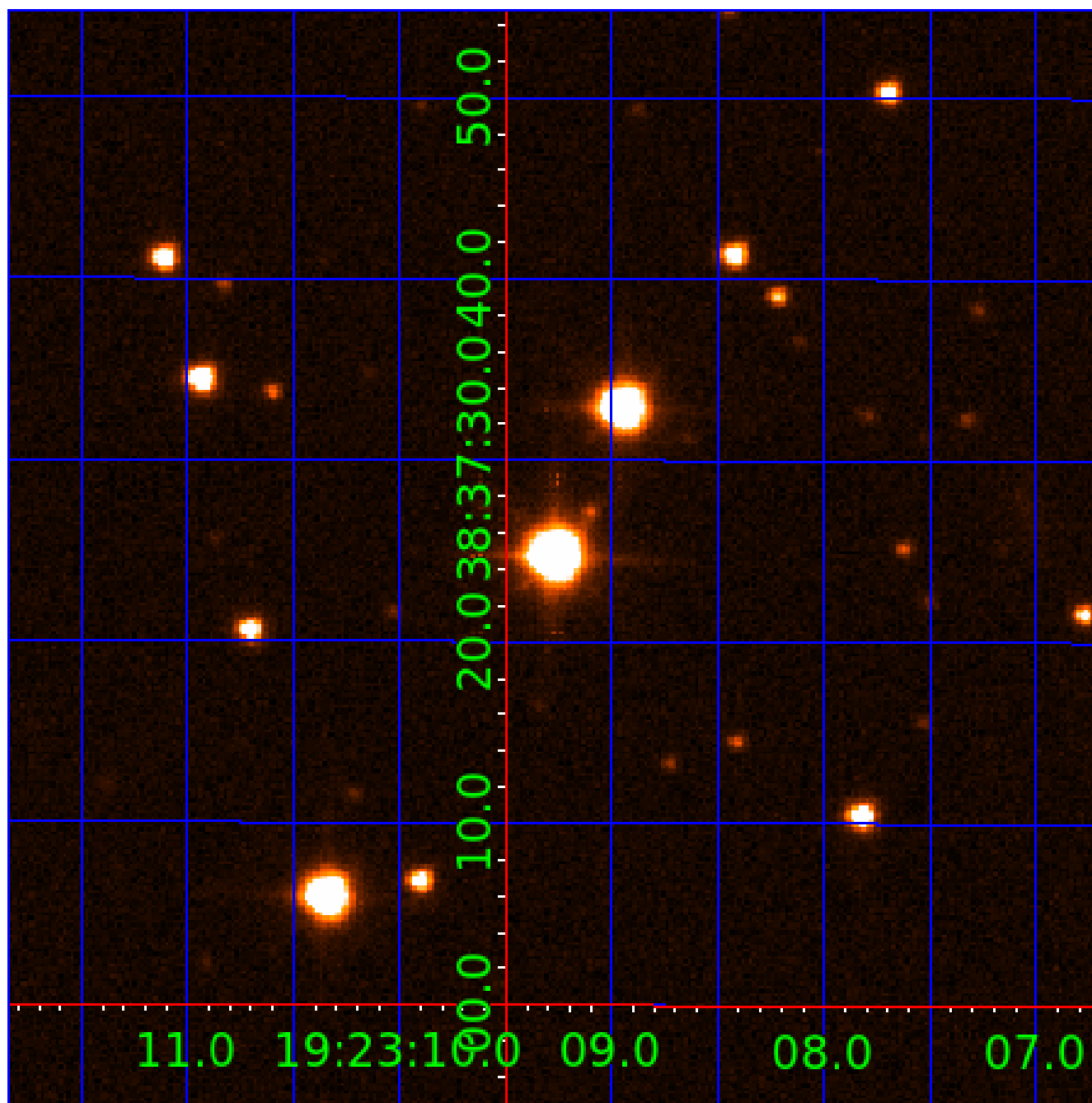
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003542345-01	OBS	No	2.015637	131.623110	7.0	9.704	11.3	3.6	1.57	7063	0.48	4321.96
003542345-02	OBS	No	1.680320	132.450335	43.7	3.268	12.7	13.7	1.57	7063	1.21	5508.60
003542345-03	OBS	No	108.920138	224.658989	111.0	9.730	9.1	7.0	1.57	7063	1.90	21.16
003542345-04	OBS	No	13.776503	138.904321	82.5	4.403	9.1	8.9	1.57	7063	1.65	333.20
003542345-05	OBS	No	136.747408	205.162926	235.9	7.118	8.8	9.0	1.57	7063	3.12	15.62
003542345-06	OBS	No	117.574138	173.952297	84.3	1.804	7.9	3.2	1.57	7063	1.79	19.11
003542345-07	OBS	No	352.726752	291.867554	166.0	9.180	7.9	7.8	1.57	7063	2.09	4.42
003542345-08	OBS	No	173.017872	135.509841	235.0	5.587	8.2	8.6	1.57	7063	2.80	11.41
003542345-09	OBS	No	57.681750	183.420652	160.5	3.890	8.6	7.7	1.57	7063	2.02	49.38
003542345-10	OBS	No	17.579058	139.776078	87.2	5.090	8.1	8.5	1.57	7063	1.73	240.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003542345-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003542345-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT
003542345-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
003542345-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
003542345-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

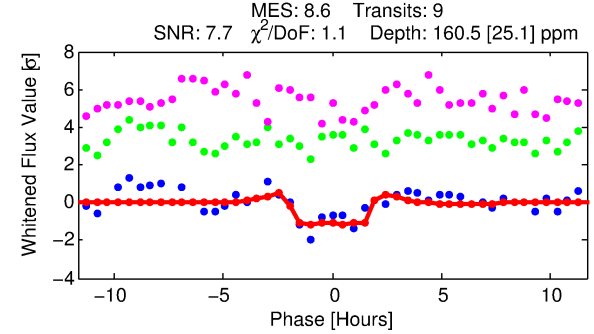
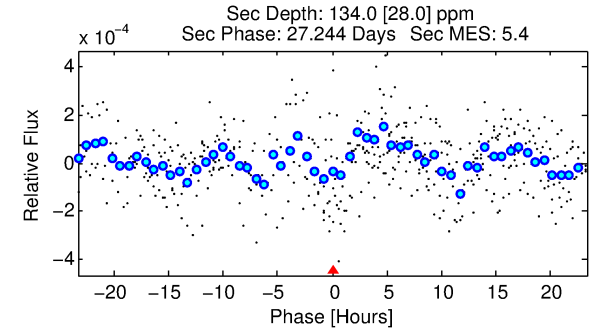
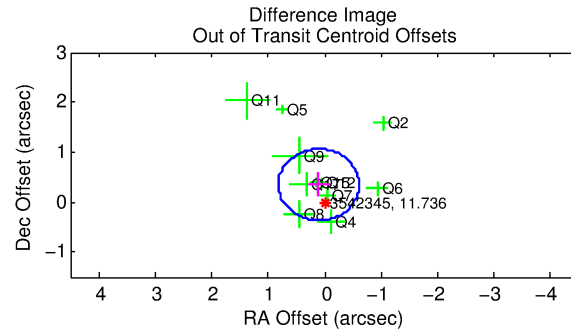
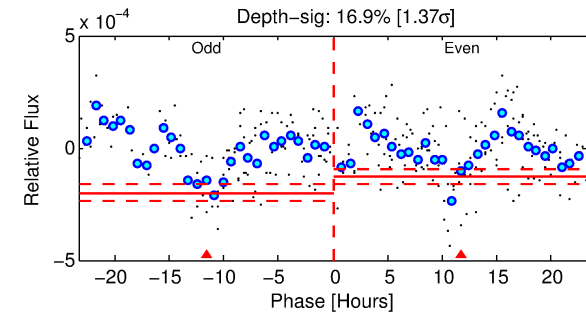
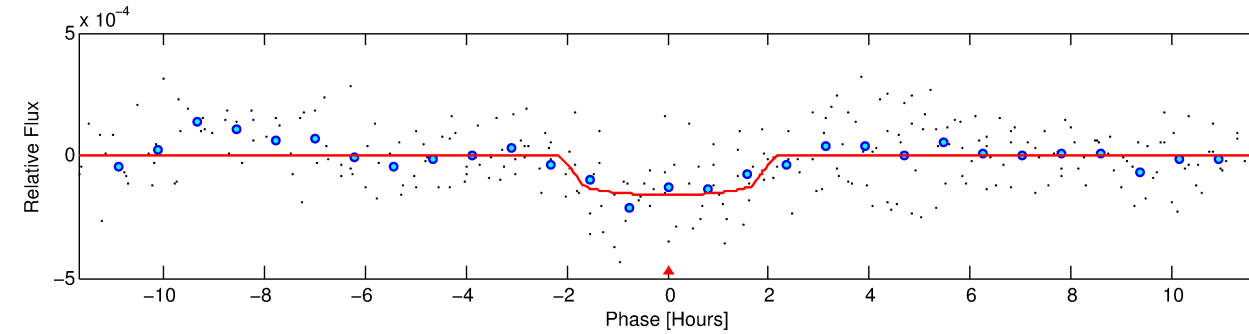
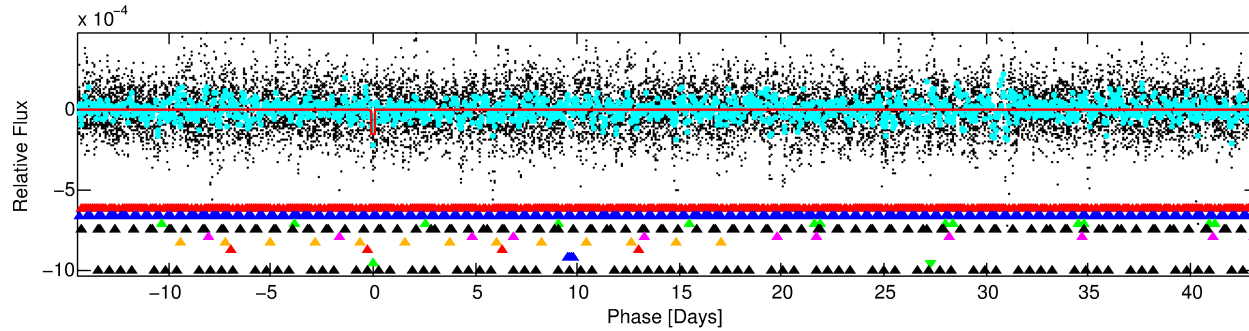
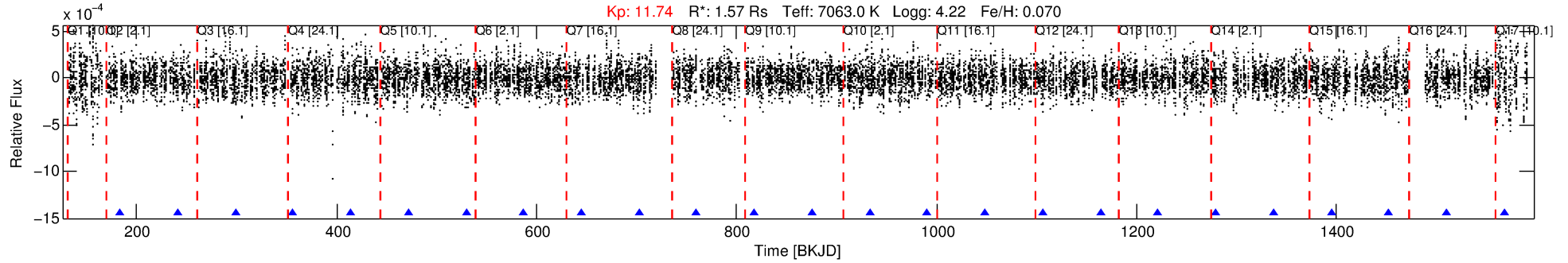
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003542345-09

No Significant Match Found

# DV One-Page Summary

KIC: 3542345 Candidate: 9 of 10 Period: 57.682 d



## DV Fit Results:

Period = 57.68175 [0.00055] d  
Epoch = 183.4207 [0.0082] BKJD  
Rp/R\* = 0.0118 [0.0115]  
a/R\* = 112.02 [625.33]  
b = 0.21 [24.99]  
Seff = 49.38 [21.85]  
Teq = 676 [75] K  
Rp = 2.01 [2.09] Re  
a = 0.3330 [0.0953] AU  
Ag = 2012.94 [4037.62] [0.50 $\sigma$ ]  
Teffp = 7000 [3456] K [1.83 $\sigma$ ]

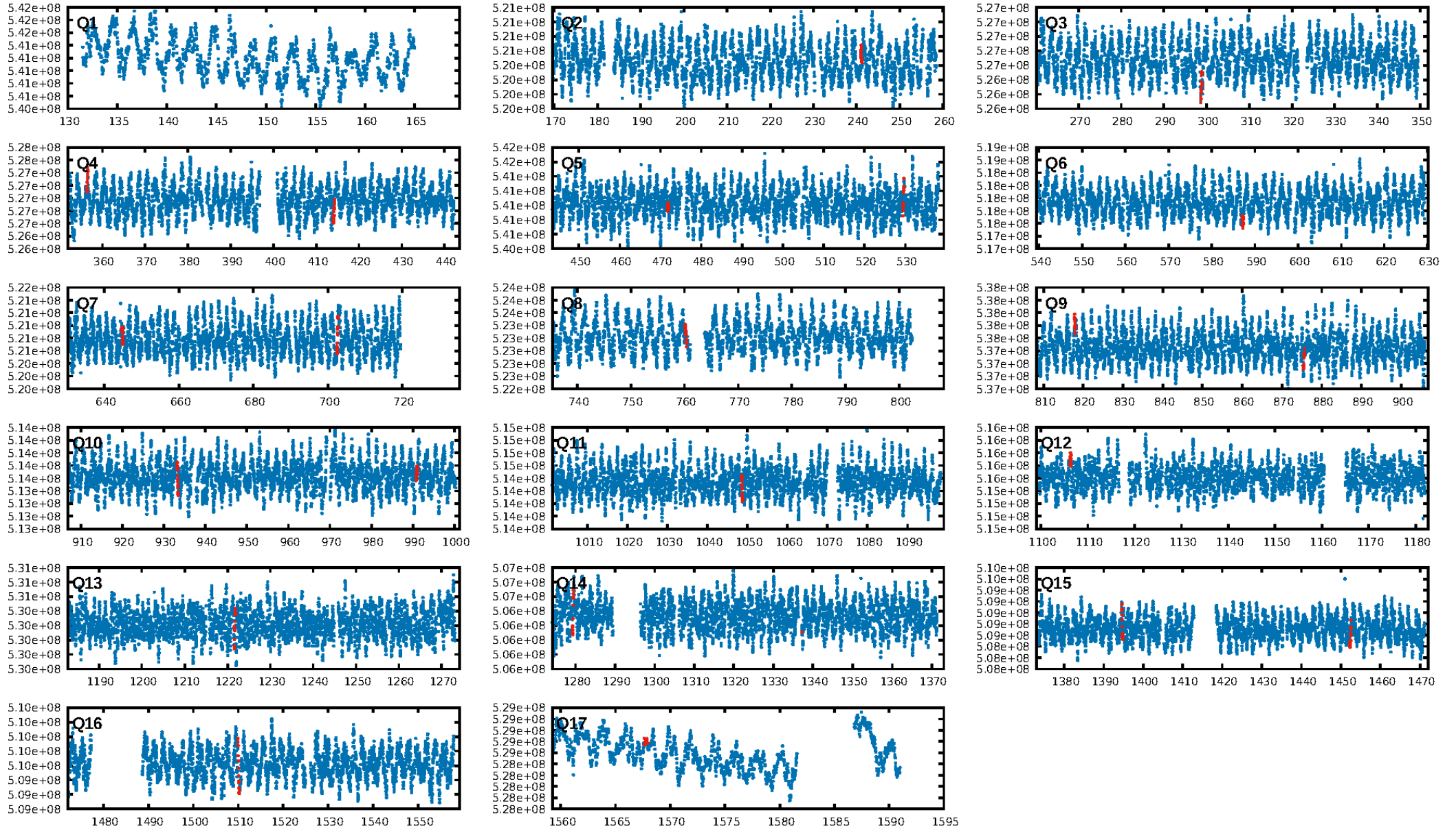
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [150.24 $\sigma$ ]  
LongPeriod-sig: 100.0% [117.35 $\sigma$ ]  
ModelChiSquare2-sig: 3.2%  
ModelChiSquareGof-sig: 99.8%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: 2.819  
Centroid-sig: 77.3%  
Centroid-so: 0.994 arcsec [0.90 $\sigma$ ]  
OotOffset-rm: 0.363 arcsec [1.53 $\sigma$ ]  
KicOffset-rm: 0.721 arcsec [2.41 $\sigma$ ]  
OotOffset-st: 2/3/3/3 [11]  
KicOffset-st: 2/3/3/3 [11]  
DiffImageQuality-fgm: 0.45 [5/11]  
DiffImageOverlap-fno: 0.21 [3/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:31:01 Z

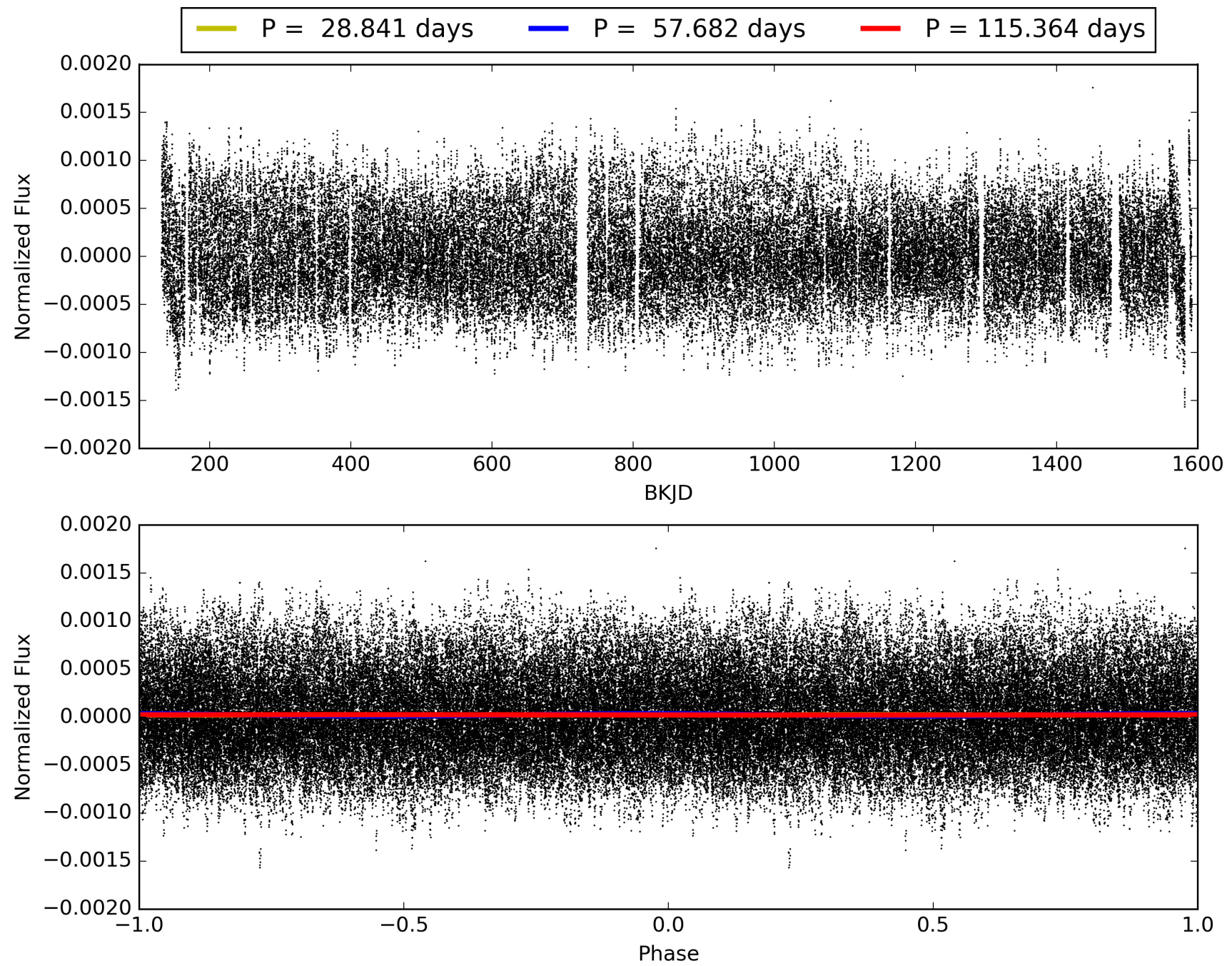
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003542345-09, PDC Light Curves



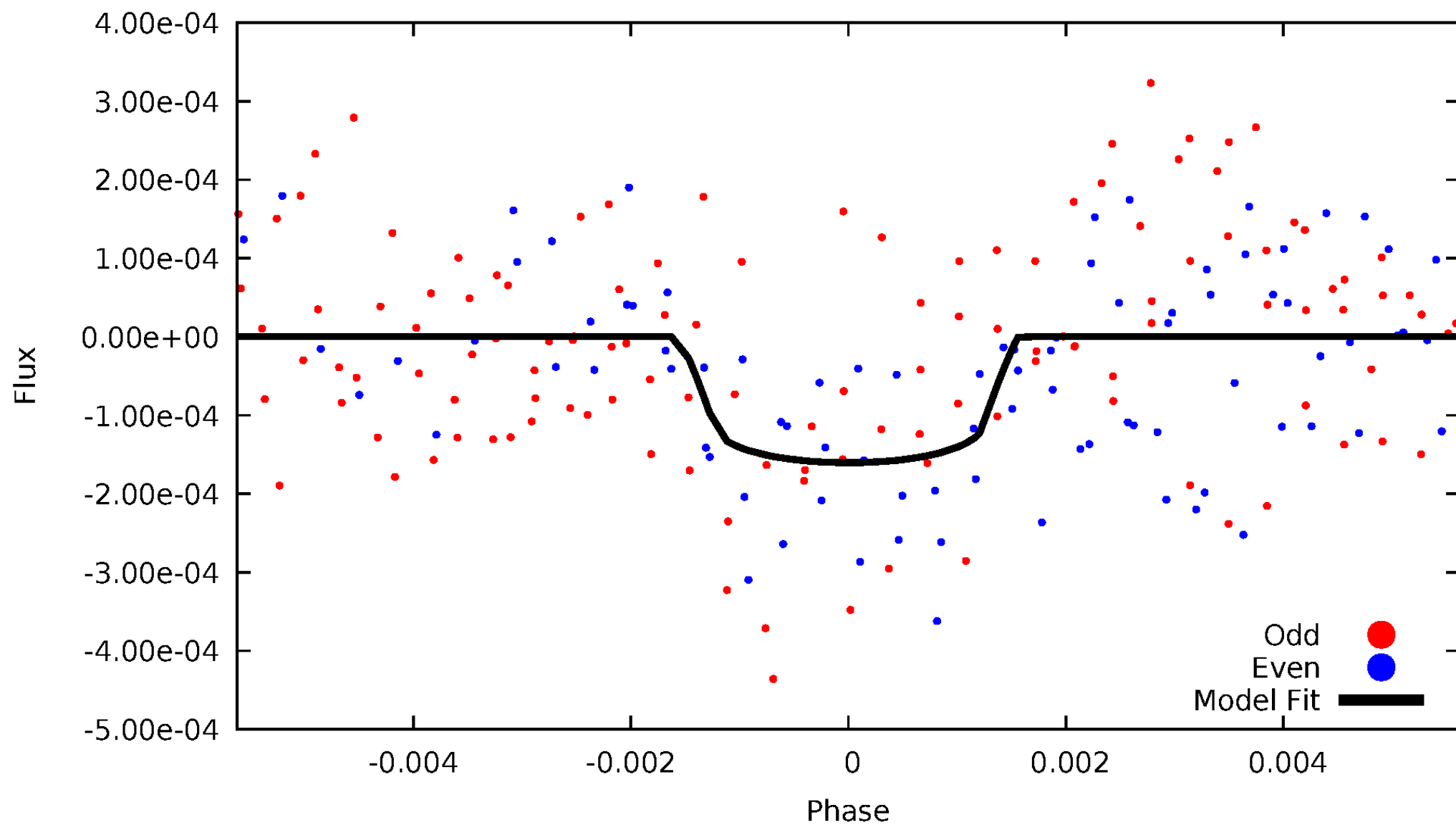


TCE 003542345-09



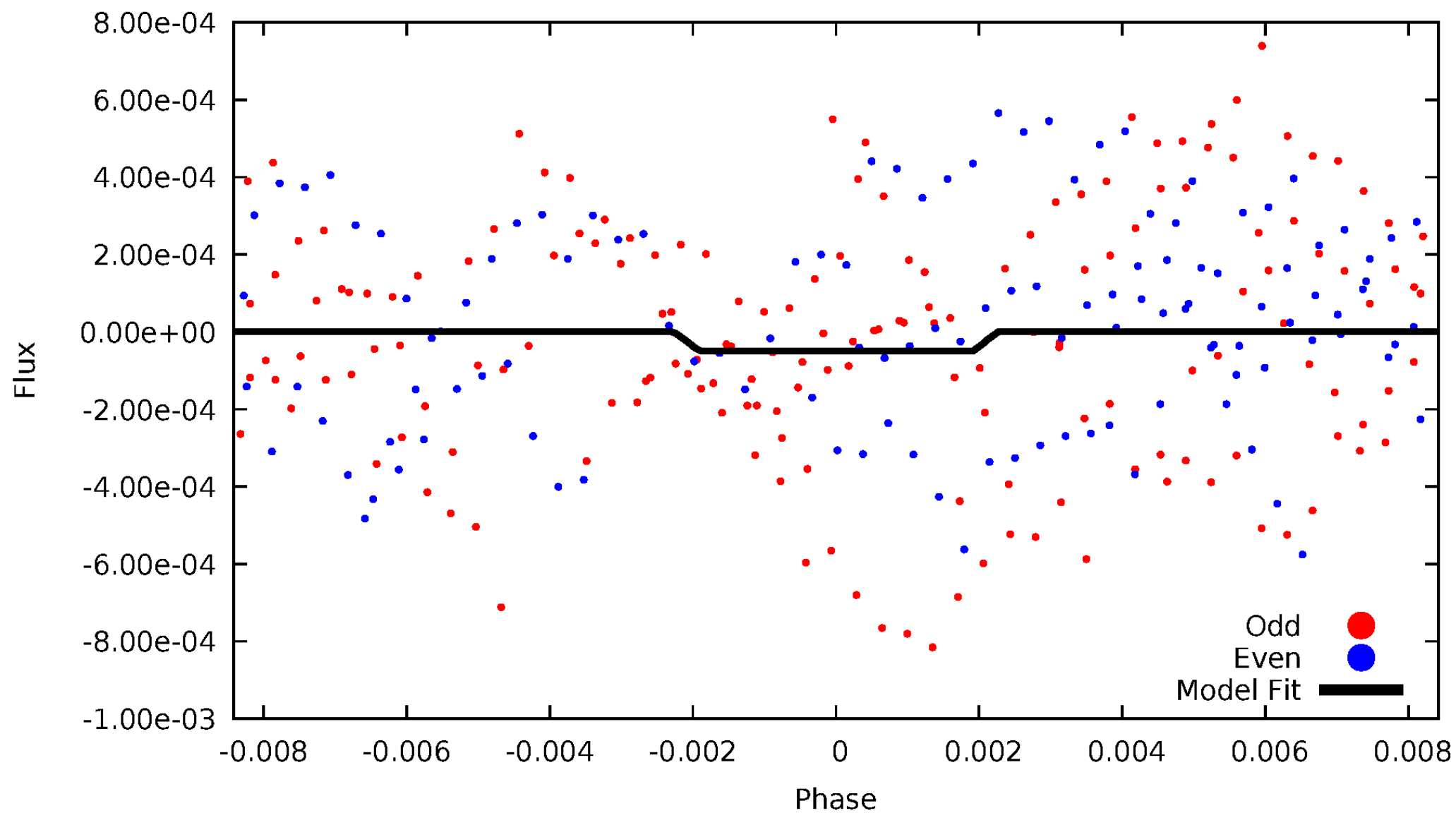
# DV Odd/Even

TCE 003542345-09



# ALT Odd/Even

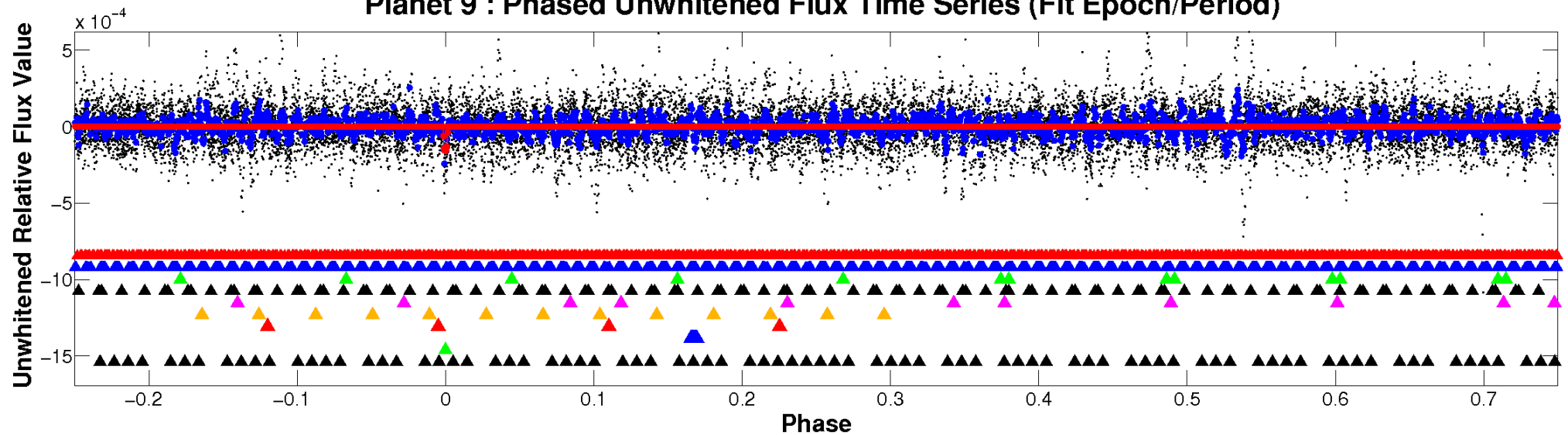
TCE 003542345-09



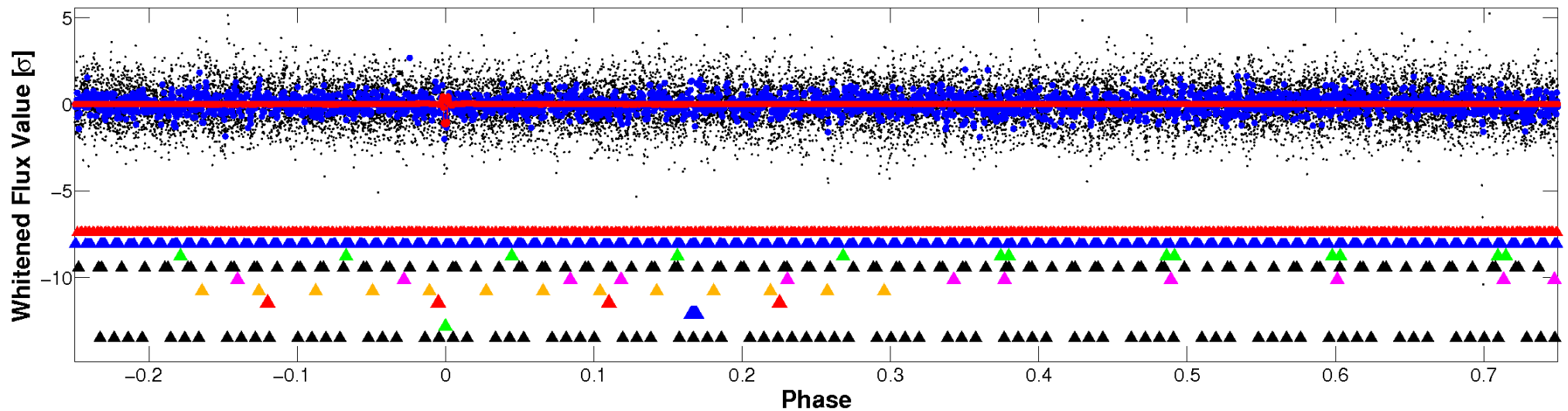


# Non-Whitened Vs. Whitened Light Curve

## Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

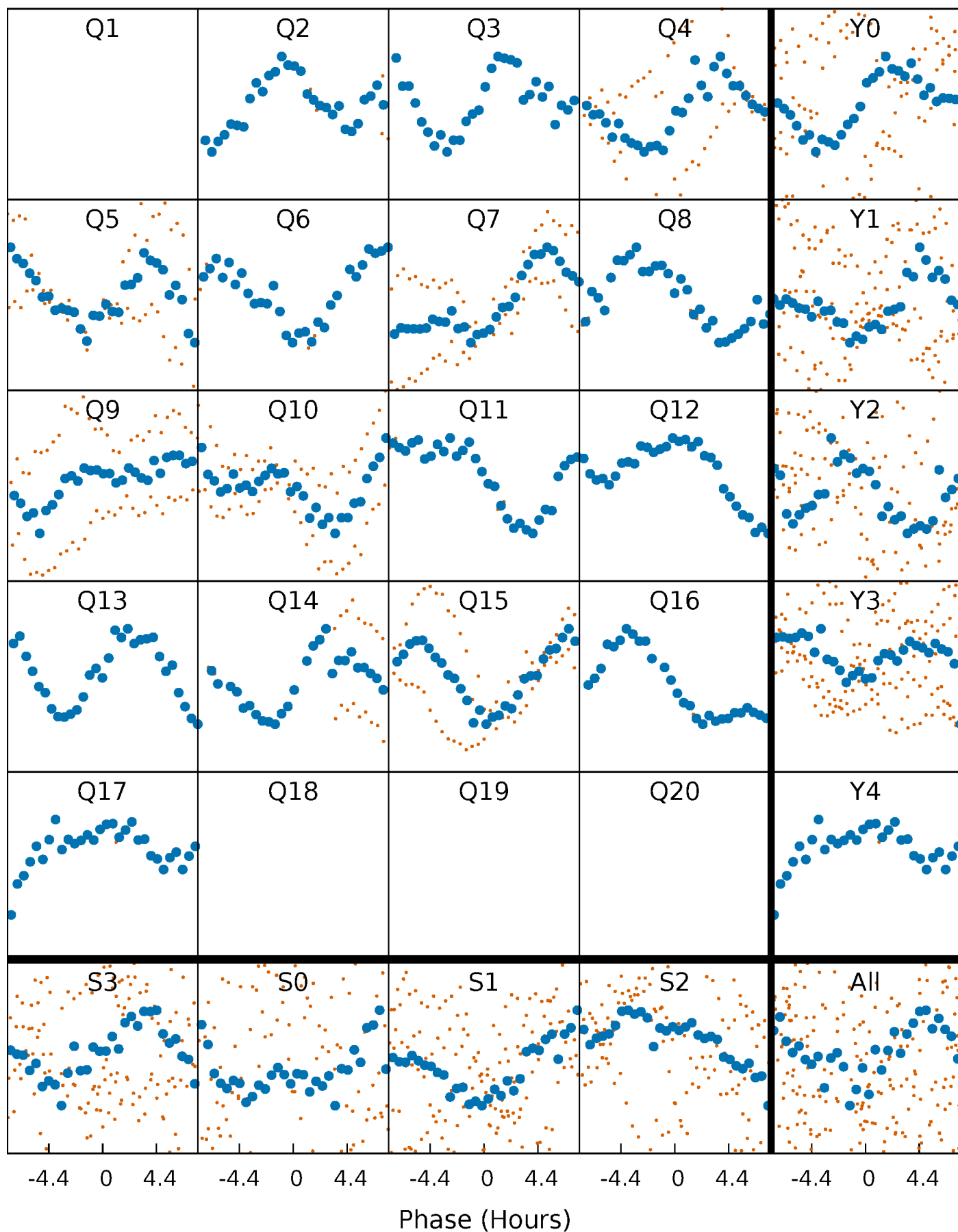


## Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



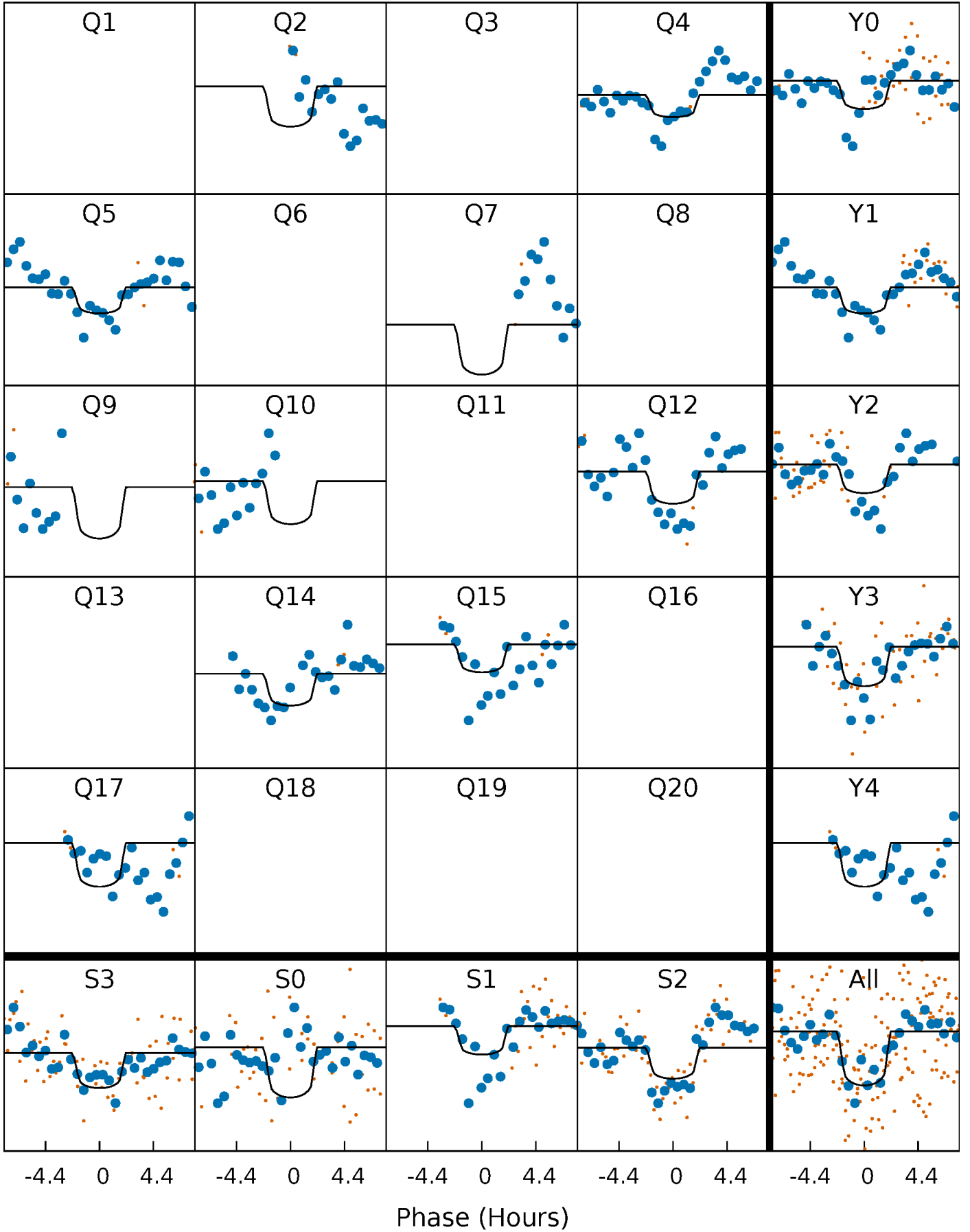
# PDC Quarter-Phased Transit Curves

TCE 003542345-09   P= 57.681750 Days    $T_0=183.420652$  (BKJD)



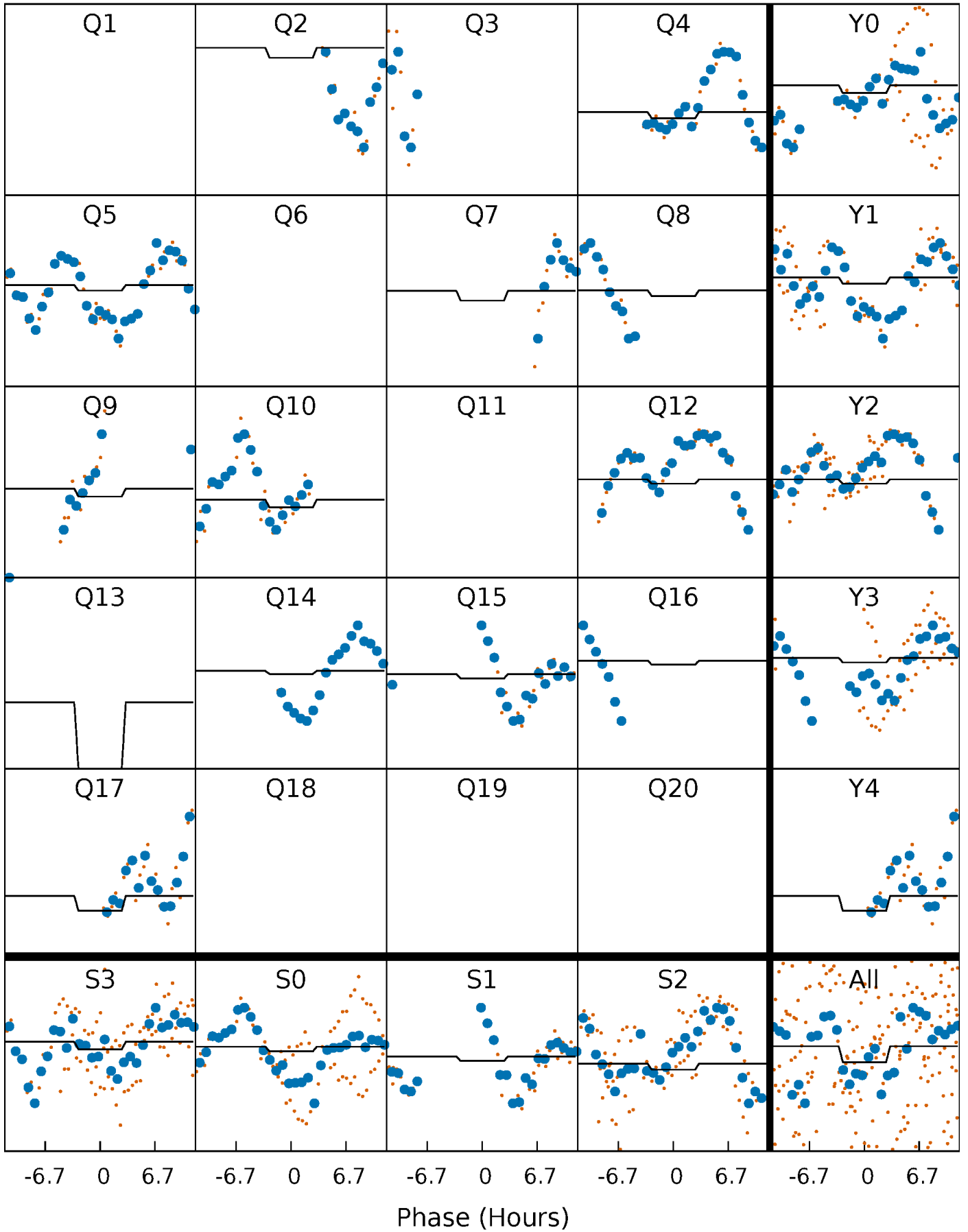
# DV Quarter-Phased Transit Curves

TCE 003542345-09   P= 57.681750 Days    $T_0=183.420652$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

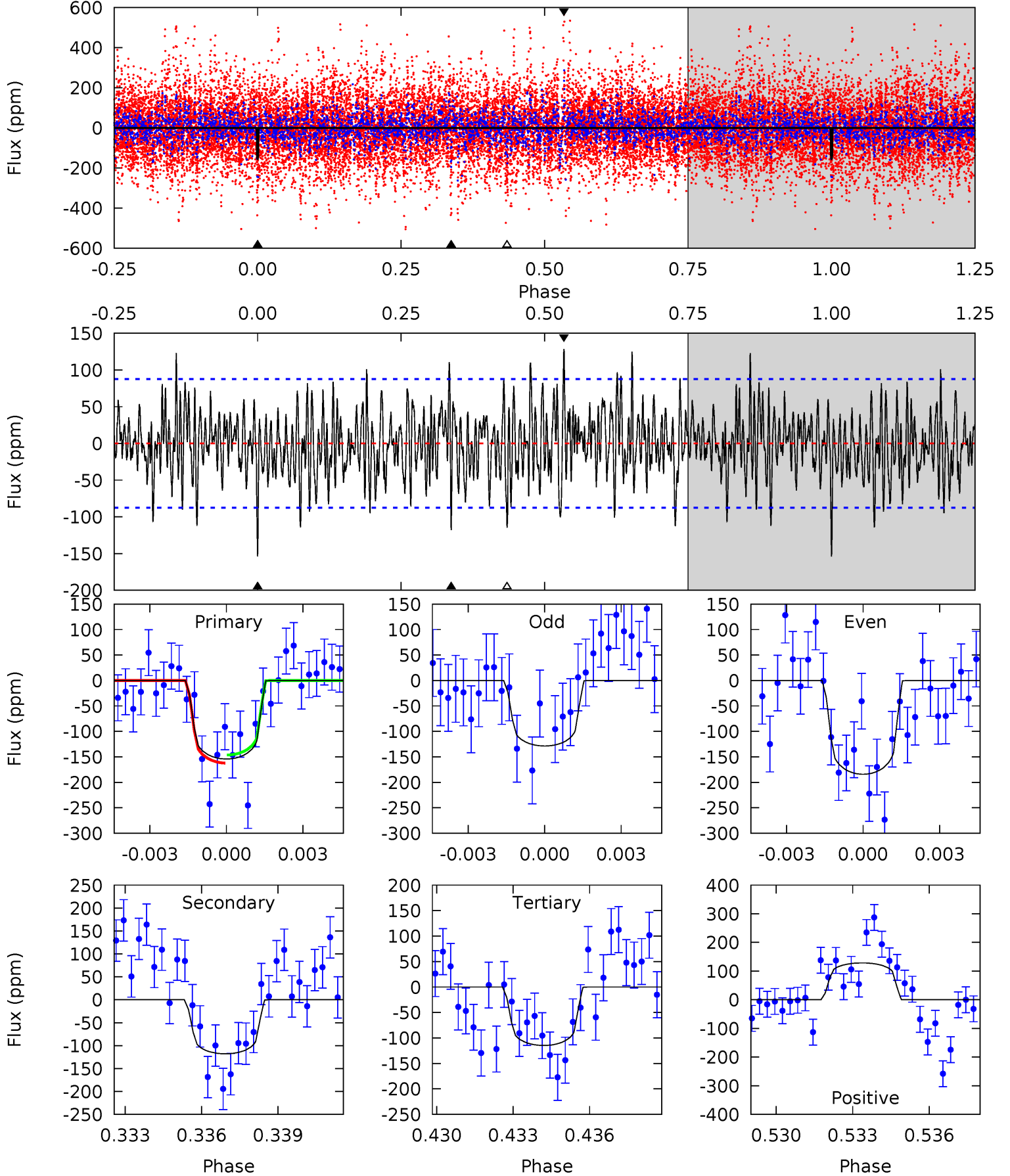
TCE 003542345-09     $P = 57.682882$  Days     $T_0 = 183.257428$  (BKJD)



# DV Model-Shift Uniqueness Test

003542345-09, P = 57.681750 Days, E = 125.738902 Days

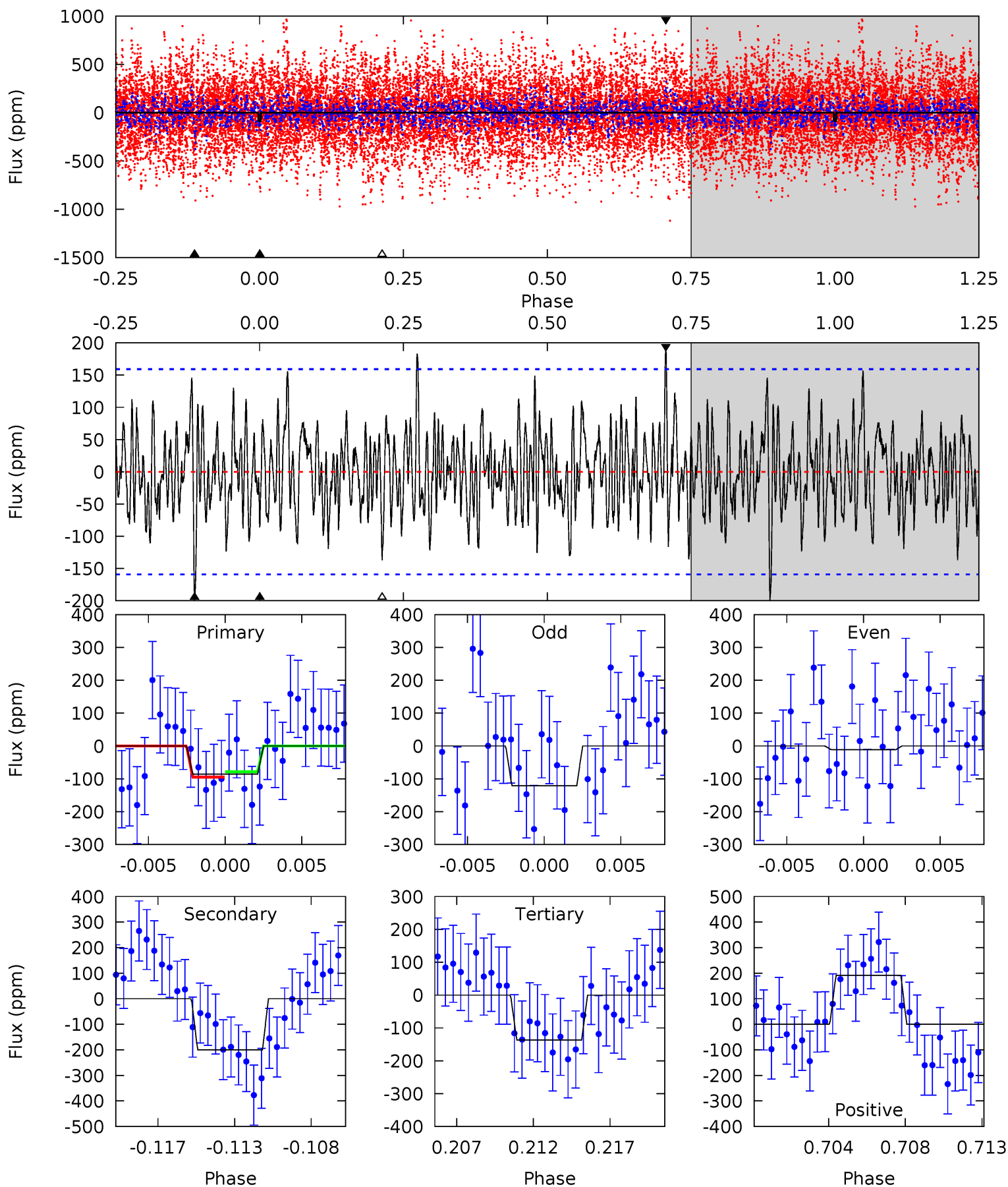
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.24	7.06	6.87	7.70	5.25	2.96	2.31	2.36	1.54	0.19	-0.64	1.66	0.76	0.45	0.48



# Alt Model-Shift Uniqueness Test

003542345-09, P = 57.682882 Days, E = 125.574546 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
2.79	6.49	4.45	6.22	5.18	2.84	1.76	-1.66	-3.43	2.03	0.27	1.68	1.76	0.49	0.26



### Stellar Parameters For KIC 003542345

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7063^{+195}_{-335}$	$4.218^{+0.090}_{-0.210}$	$0.070^{+0.200}_{-0.350}$	$1.567^{+0.556}_{-0.238}$	$1.480^{+0.214}_{-0.214}$	$0.541^{+0.228}_{-0.305}$
	+3%/-5%	+2%/-5%	+286%/-500%	+35%/-15%	+14%/-14%	+42%/-56%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 003542345-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-118 \pm 17$	$2.56^{+1.77}_{-1.52}$	$952^{+76}_{-62}$	$5990^{+4609}_{-1291}$	$1084^{+5642}_{-726}$
Alt.	$-200 \pm 31$	$2.08^{+1.75}_{-1.40}$	$952^{+78}_{-55}$	$7808^{+11194}_{-2214}$	$2656^{+21491}_{-1845}$

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



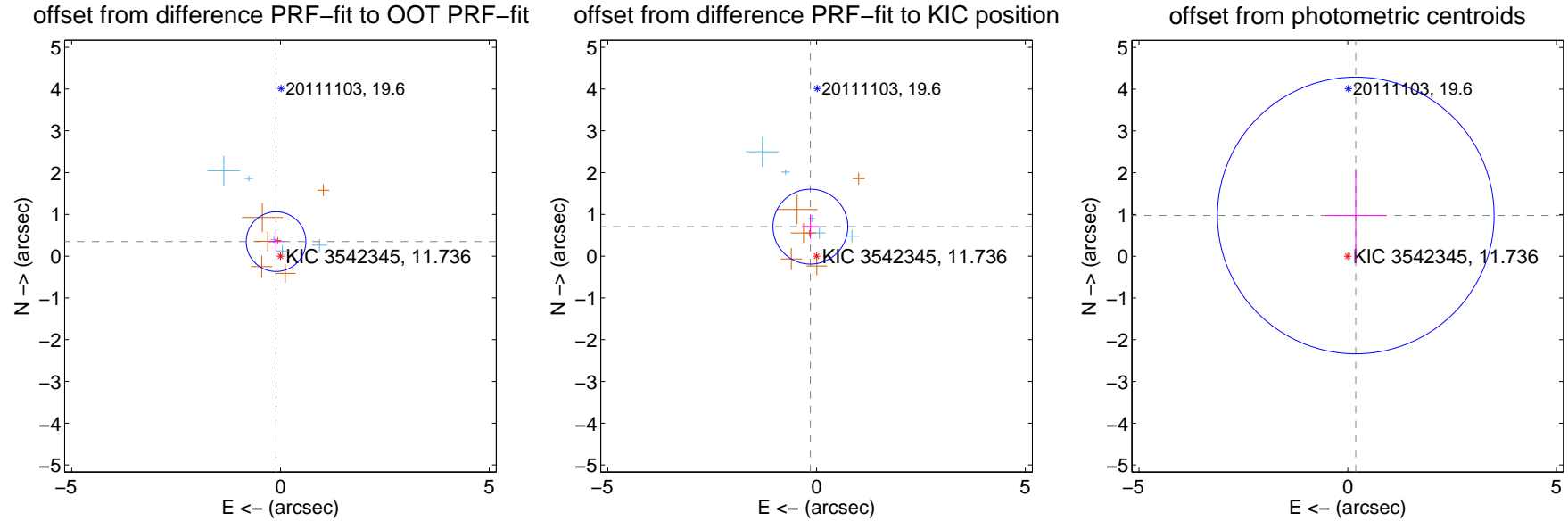
## DV Centroid Data

Supplemental centroid analysis for 003542345-09. **Kepler magnitude: 11.74.** Transit SNR 7.70

There are 5 quarters with good PRF difference image offsets

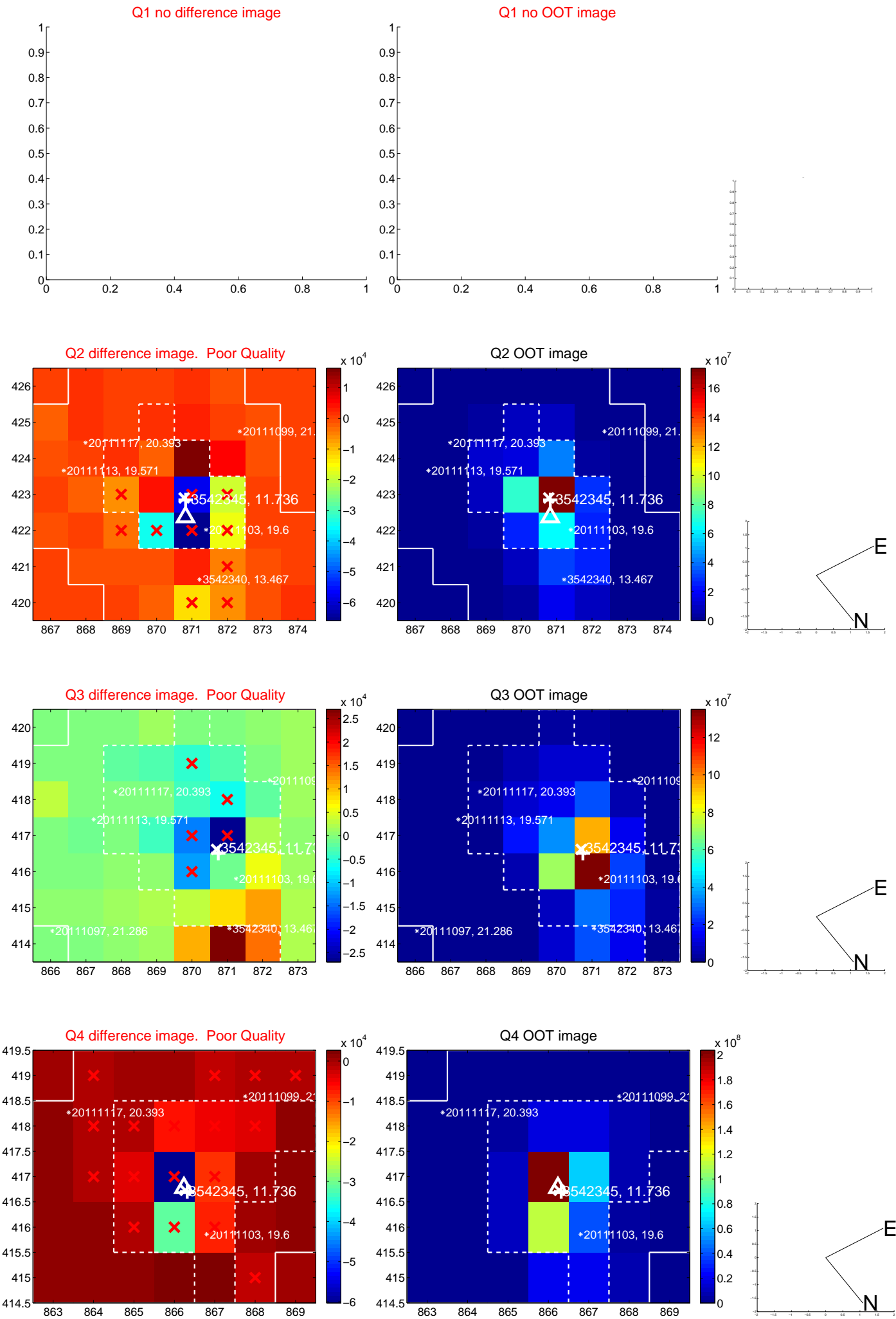
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.363 \pm 0.238$	1.53	$0.105 \pm 0.180$	$0.348 \pm 0.227$
PRF-fit source offset from KIC position	$0.721 \pm 0.299$	2.41	$0.148 \pm 0.206$	$0.706 \pm 0.292$
photometric centroid source offset	$0.99 \pm 1.10$	0.90	$-0.19 \pm 0.73$	$0.98 \pm 1.12$

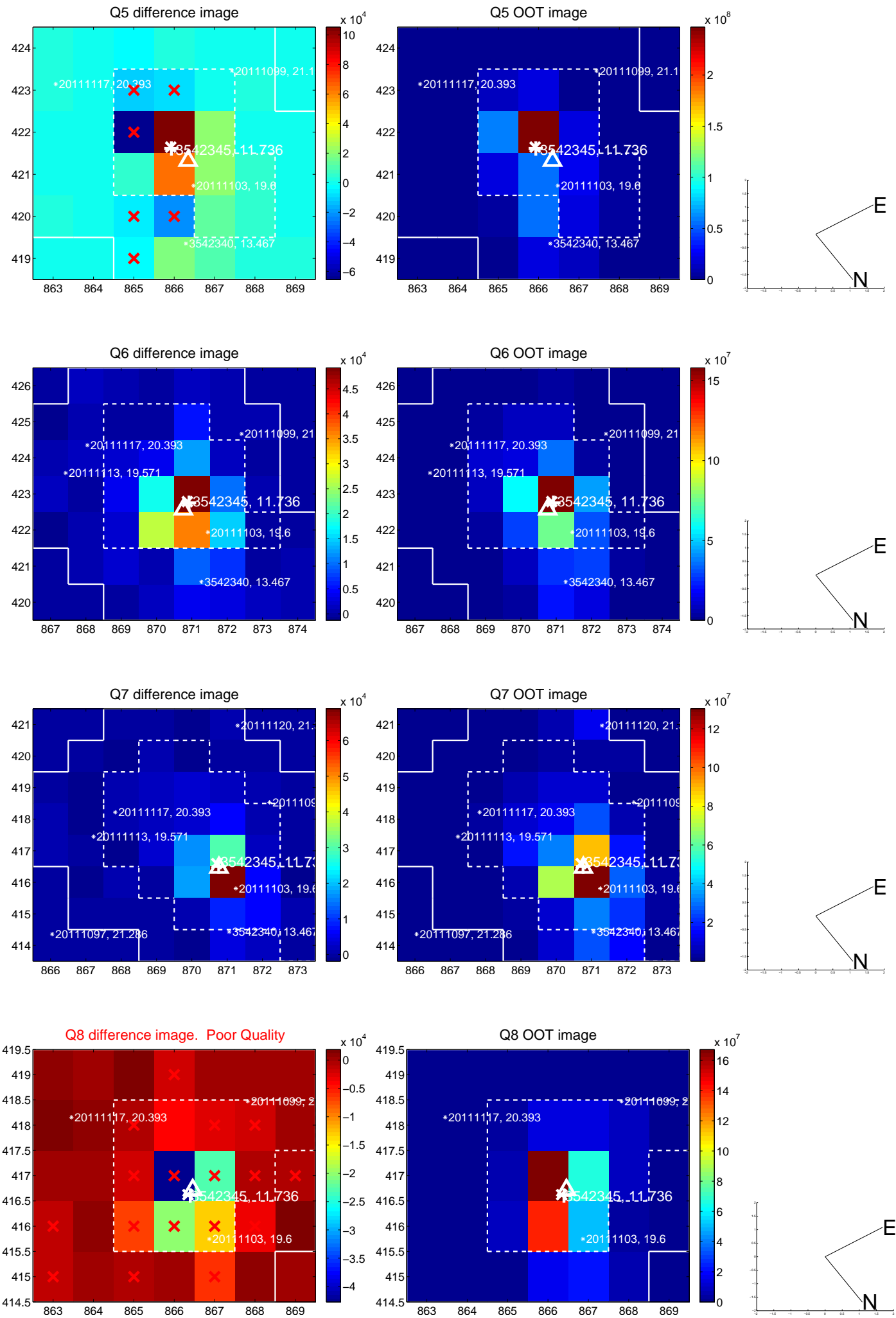


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

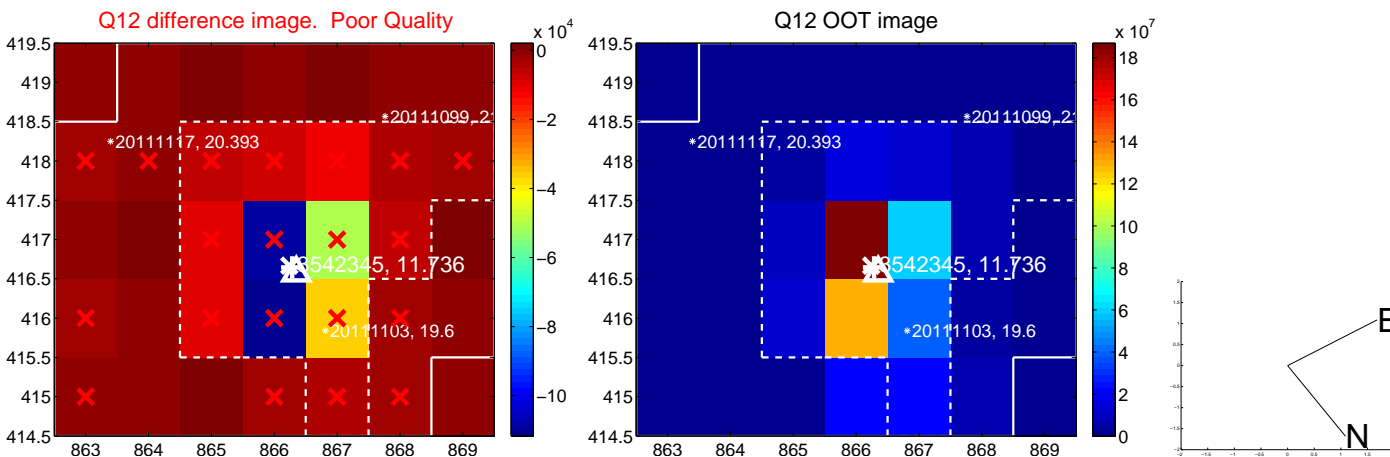
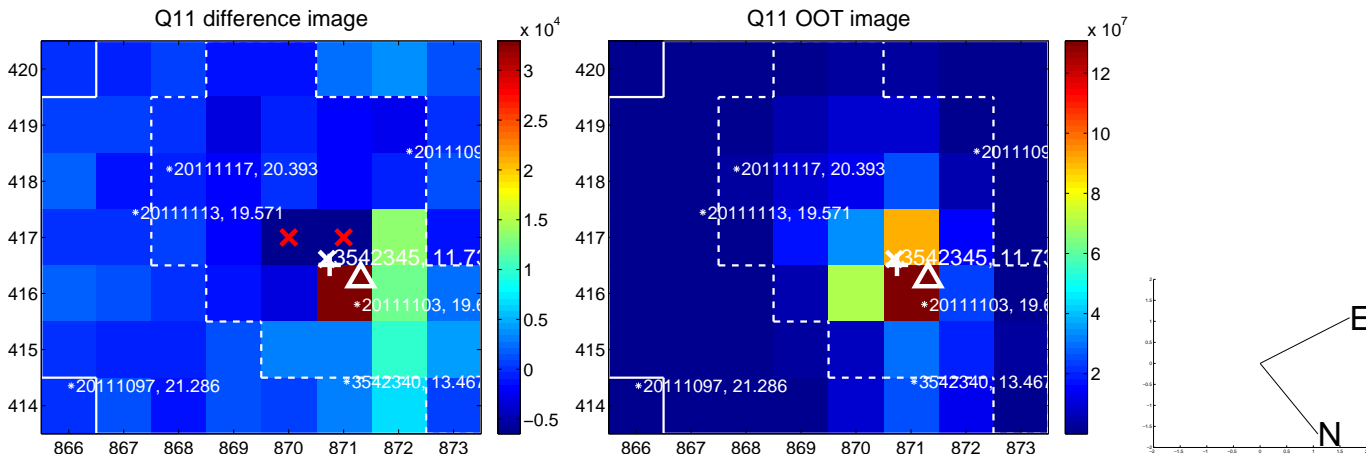
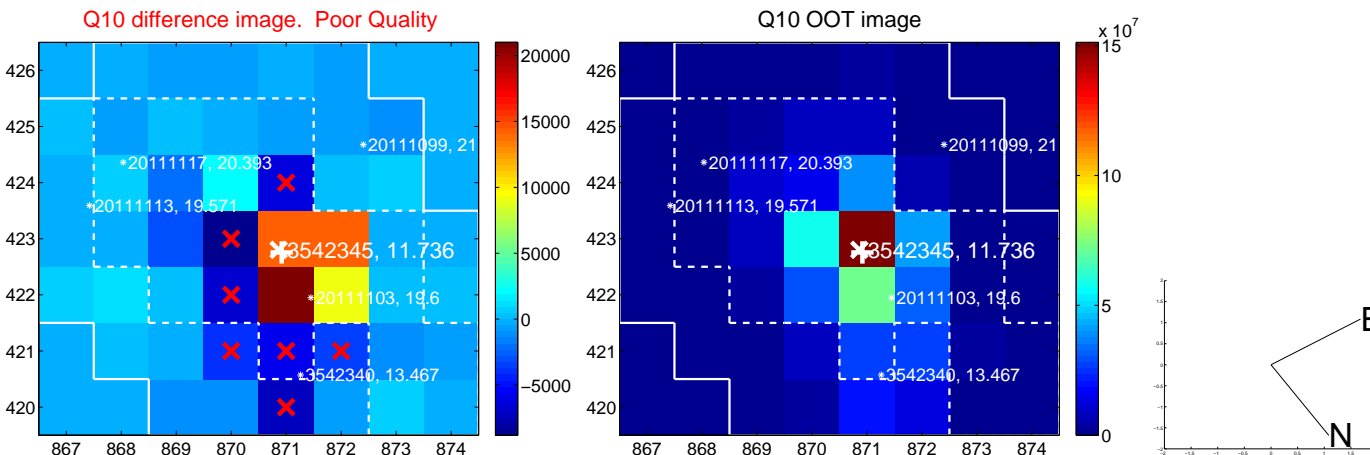
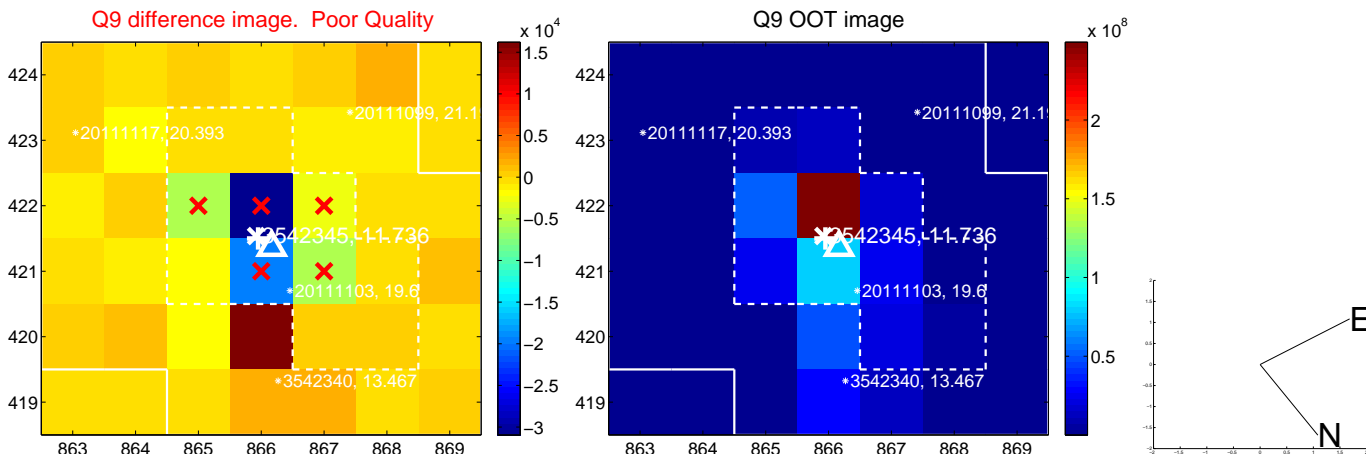
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



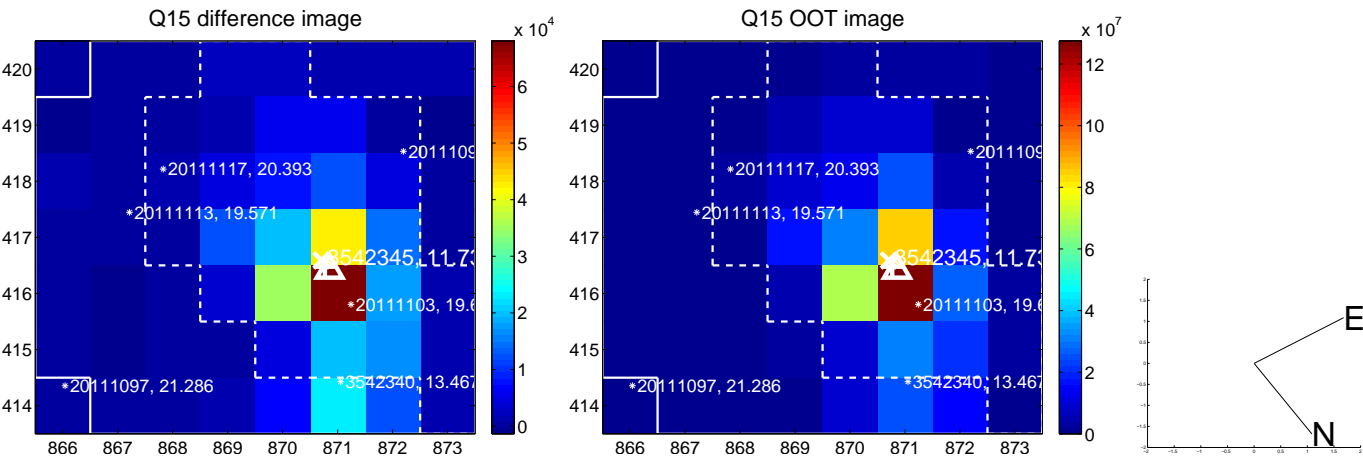
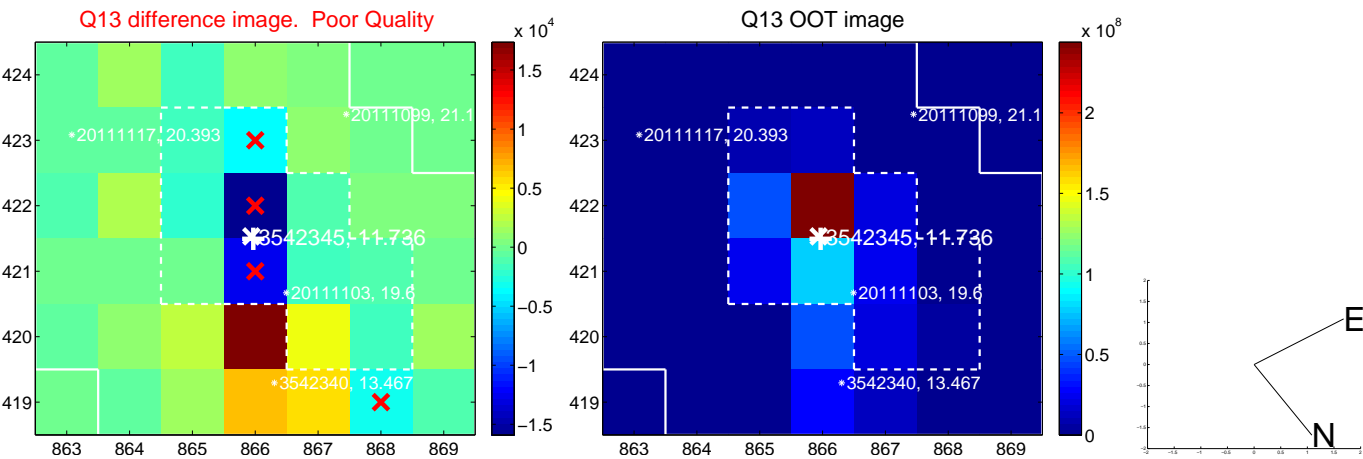
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



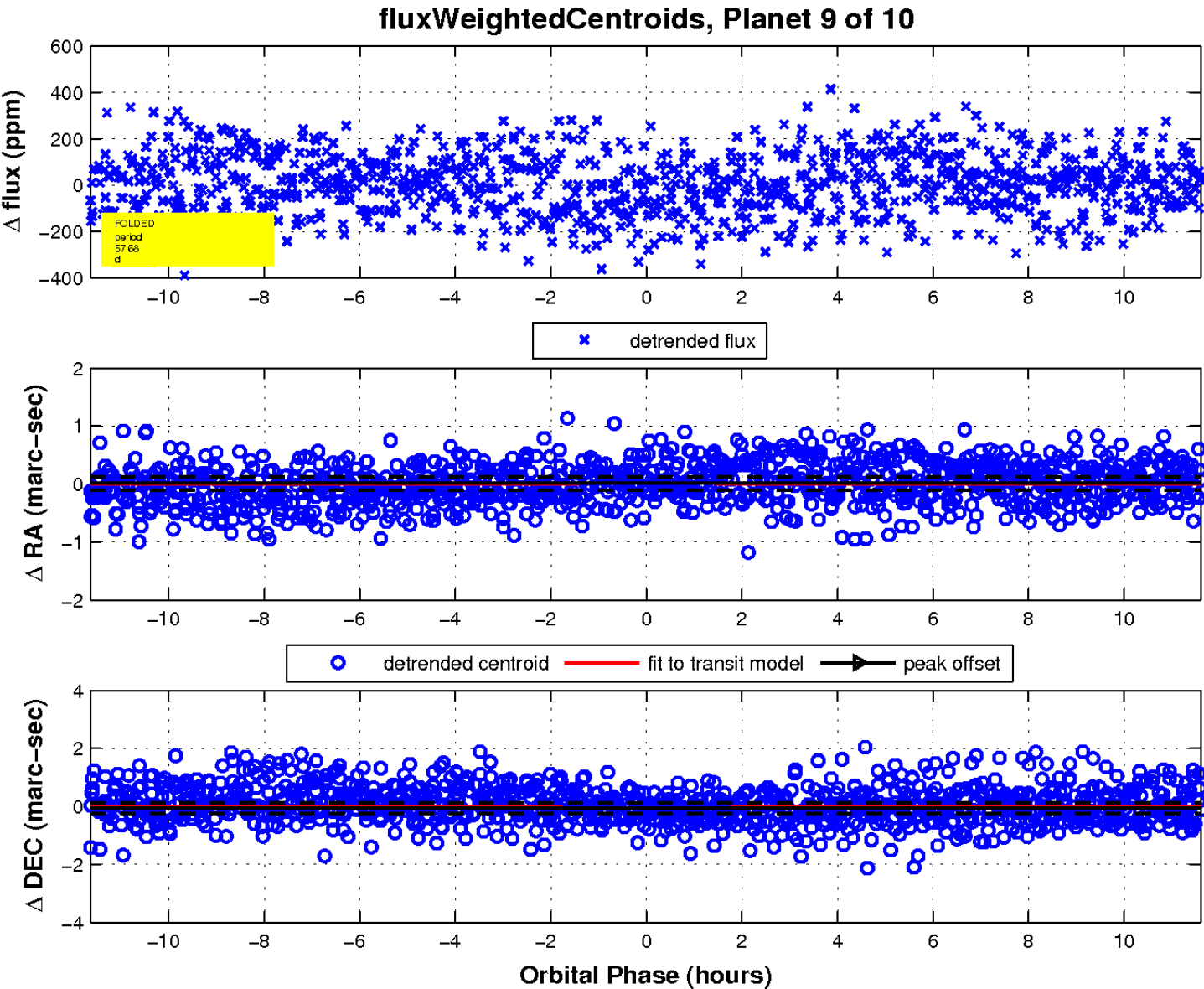
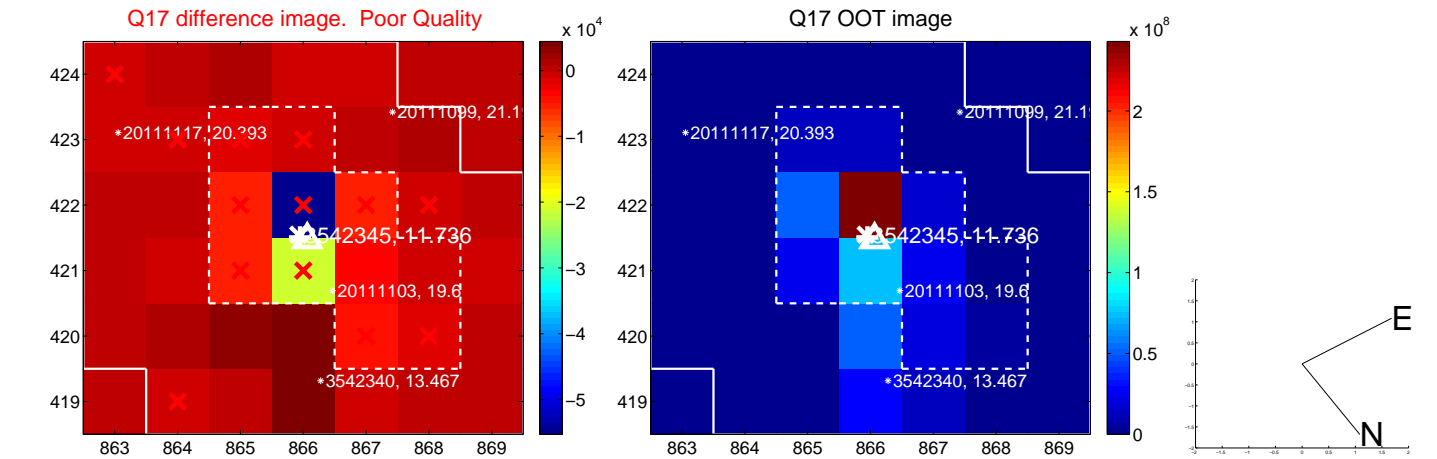
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

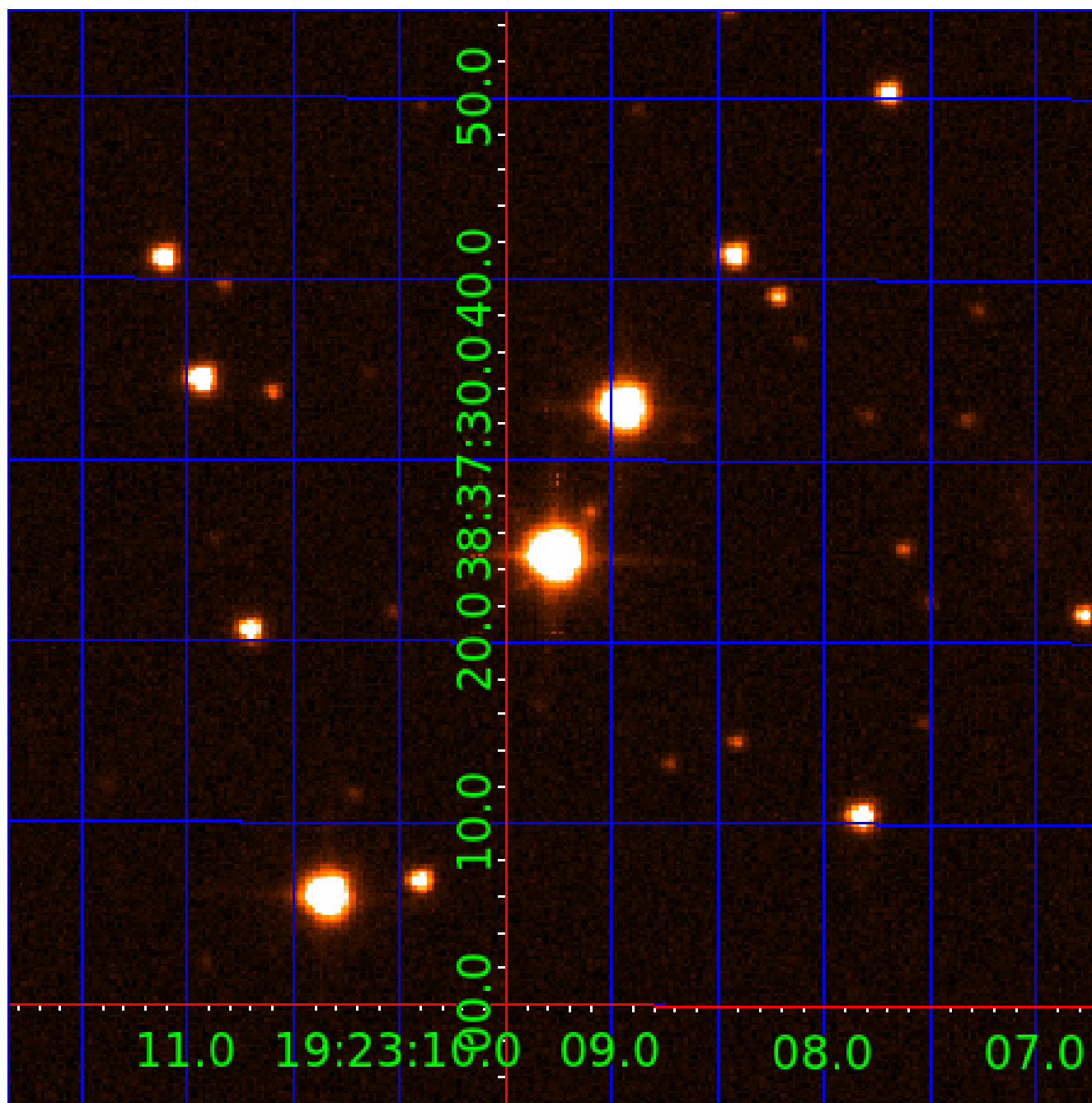


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003542345-01	OBS	No	2.015637	131.623110	7.0	9.704	11.3	3.6	1.57	7063	0.48	4321.96
003542345-02	OBS	No	1.680320	132.450335	43.7	3.268	12.7	13.7	1.57	7063	1.21	5508.60
003542345-03	OBS	No	108.920138	224.658989	111.0	9.730	9.1	7.0	1.57	7063	1.90	21.16
003542345-04	OBS	No	13.776503	138.904321	82.5	4.403	9.1	8.9	1.57	7063	1.65	333.20
003542345-05	OBS	No	136.747408	205.162926	235.9	7.118	8.8	9.0	1.57	7063	3.12	15.62
003542345-06	OBS	No	117.574138	173.952297	84.3	1.804	7.9	3.2	1.57	7063	1.79	19.11
003542345-07	OBS	No	352.726752	291.867554	166.0	9.180	7.9	7.8	1.57	7063	2.09	4.42
003542345-08	OBS	No	173.017872	135.509841	235.0	5.587	8.2	8.6	1.57	7063	2.80	11.41
003542345-09	OBS	No	57.681750	183.420652	160.5	3.890	8.6	7.7	1.57	7063	2.02	49.38
003542345-10	OBS	No	17.579058	139.776078	87.2	5.090	8.1	8.5	1.57	7063	1.73	240.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003542345-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003542345-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT
003542345-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003542345-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST
003542345-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003542345-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
003542345-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

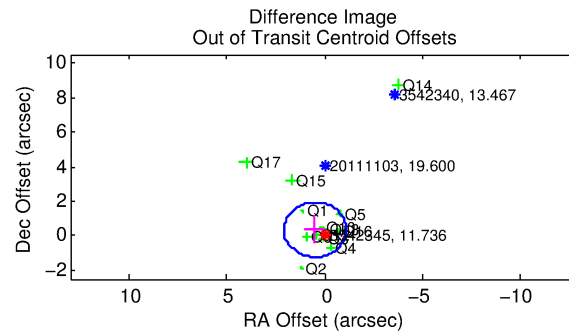
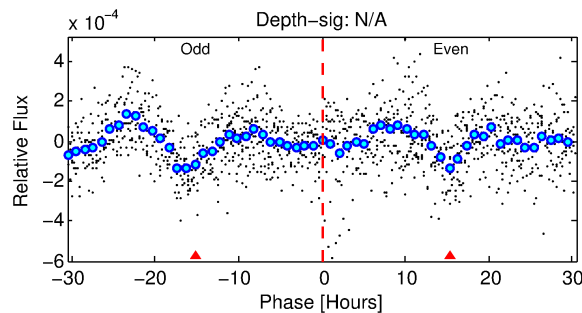
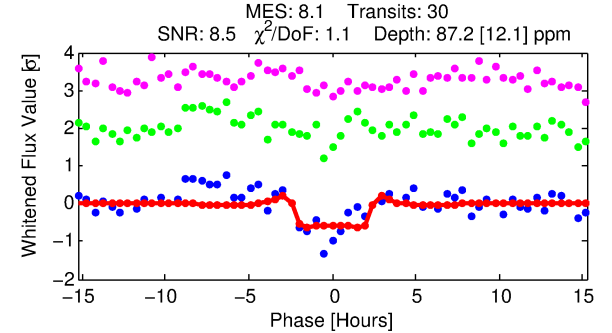
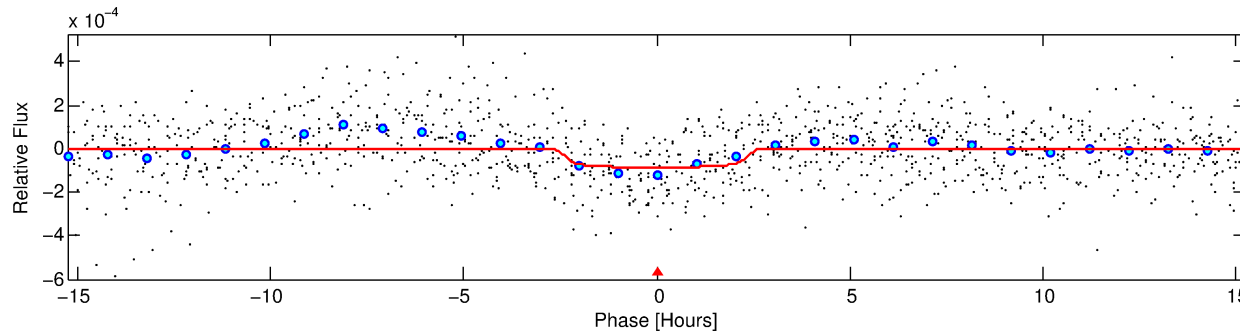
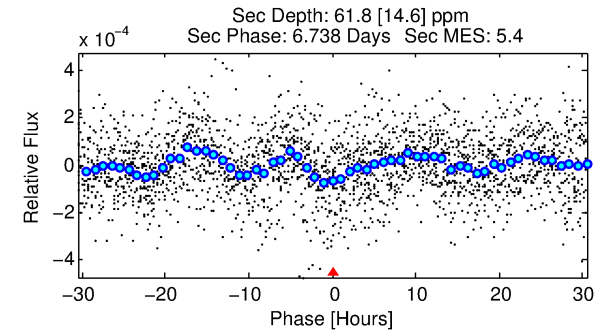
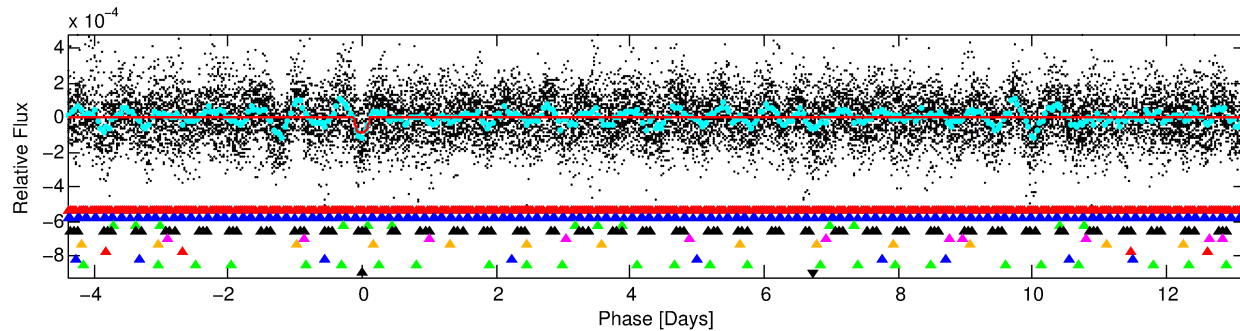
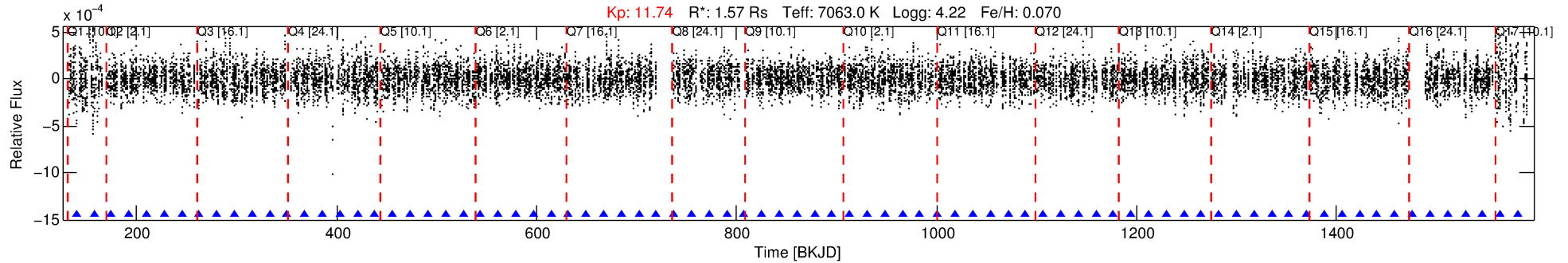
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003542345-10

No Significant Match Found

# DV One-Page Summary

KIC: 3542345 Candidate: 10 of 10 Period: 17.579 d



## DV Fit Results:

Period = 17.57906 [0.00017] d  
Epoch = 139.7761 [0.0080] BKJD  
Rp/R\* = 0.0101 [0.0022]  
a/R\* = 11.02 [13.27]  
b = 0.92 [0.20]  
Seff = 240.75 [106.55]  
Teq = 1004 [111] K  
Rp = 1.73 [0.72] Re  
a = 0.1508 [0.0432] AU  
Ag = 258.66 [163.41] [1.58σ]  
Teffp = 6228 [817] K [6.34σ]

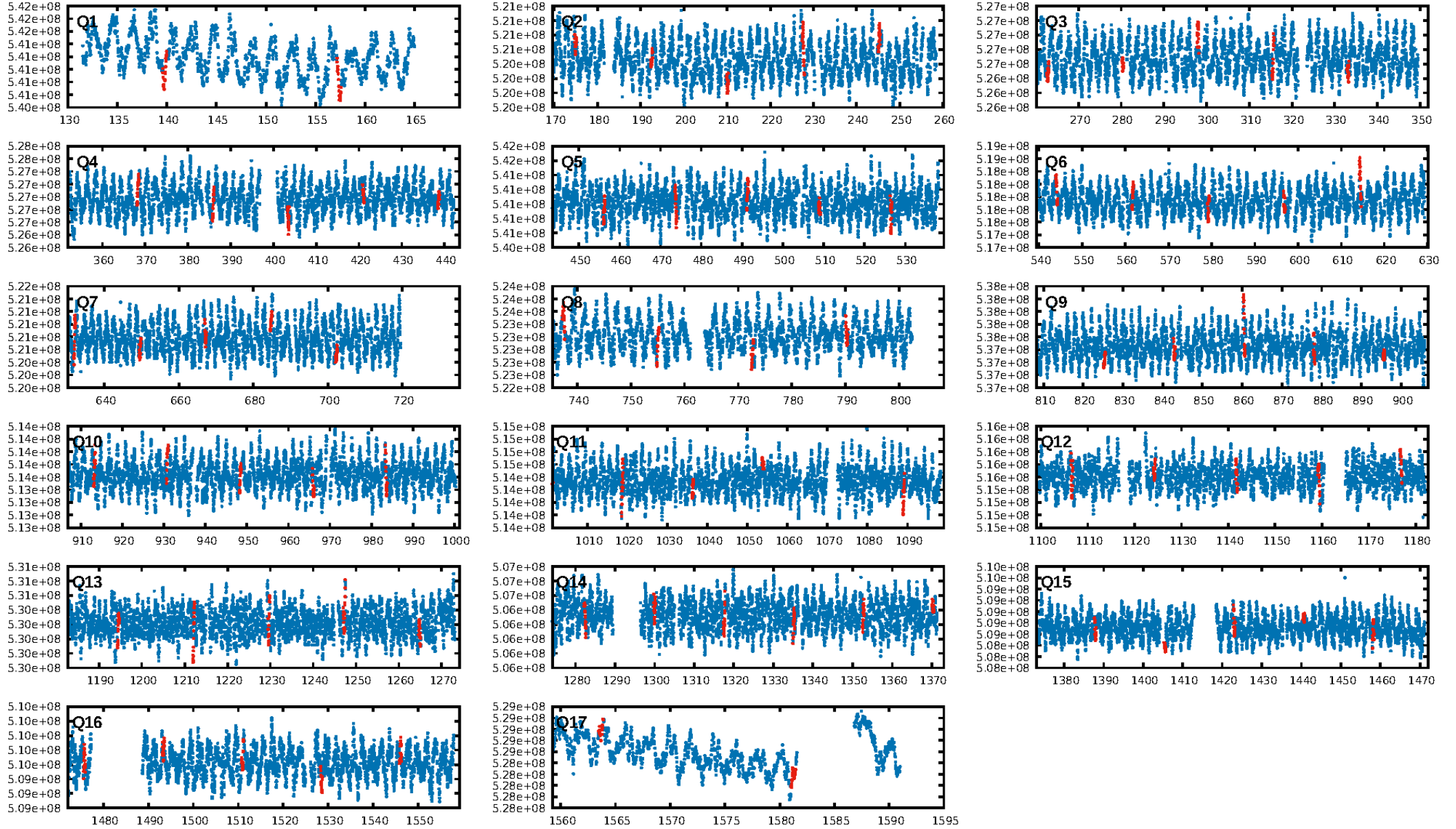
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [13.56σ]  
LongPeriod-sig: 100.0% [150.24σ]  
ModelChiSquare2-sig: 7.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [29/29]  
GhostDiagnostic-chr: 0.981  
Centroid-sig: 87.9%  
Centroid-so: 0.839 arcsec [0.85σ]  
OotOffset-rm: 0.605 arcsec [1.14σ]  
OotOffset-st: 3/2/4/4 [13]  
KicOffset-rm: 1.141 arcsec [2.01σ]  
KicOffset-st: 3/2/4/4 [13]  
DiffImageQuality-fgm: 0.38 [5/13]  
DiffImageOverlap-fno: 0.65 [11/17]

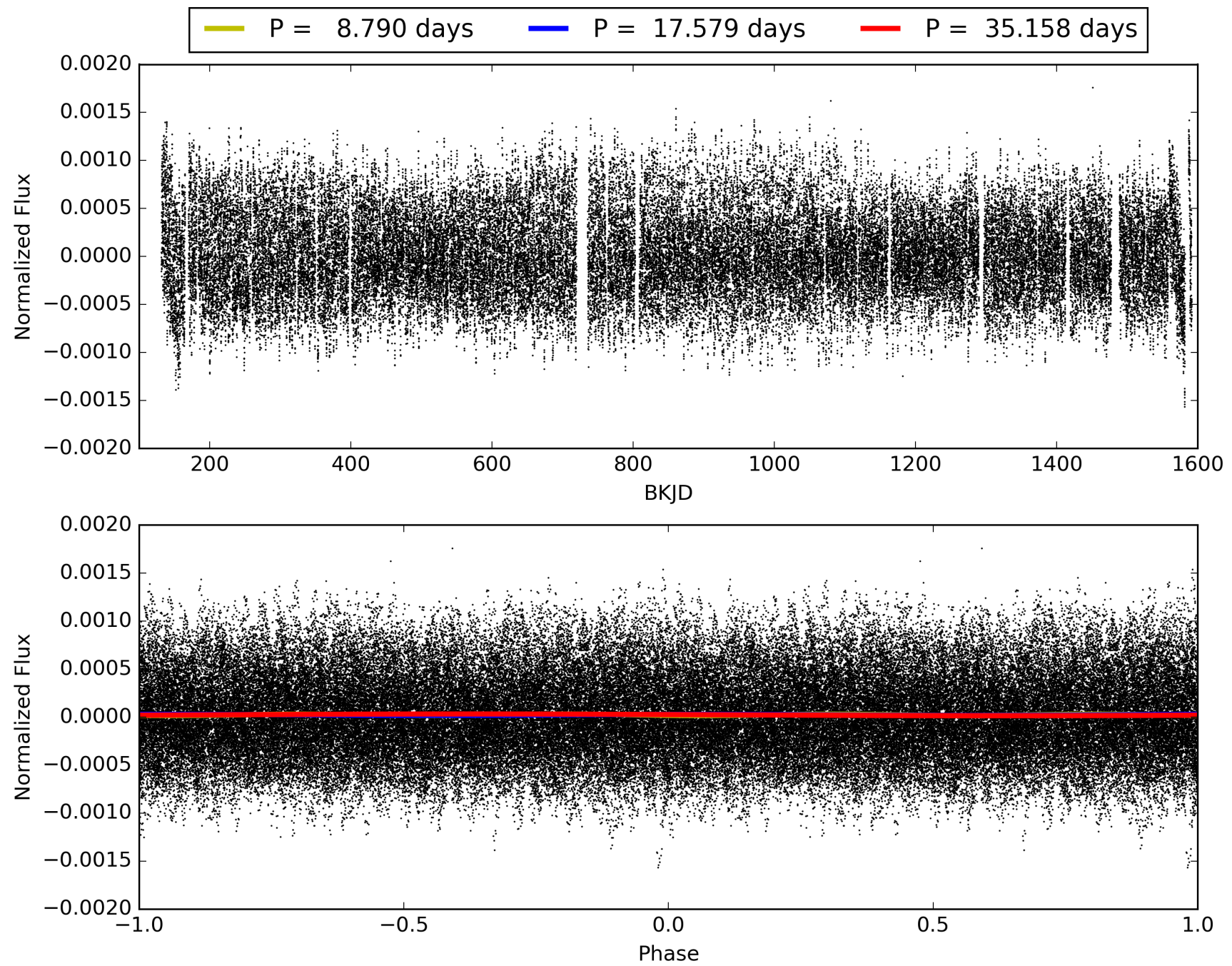
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:31:05 Z

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

# TCE 003542345-10, PDC Light Curves



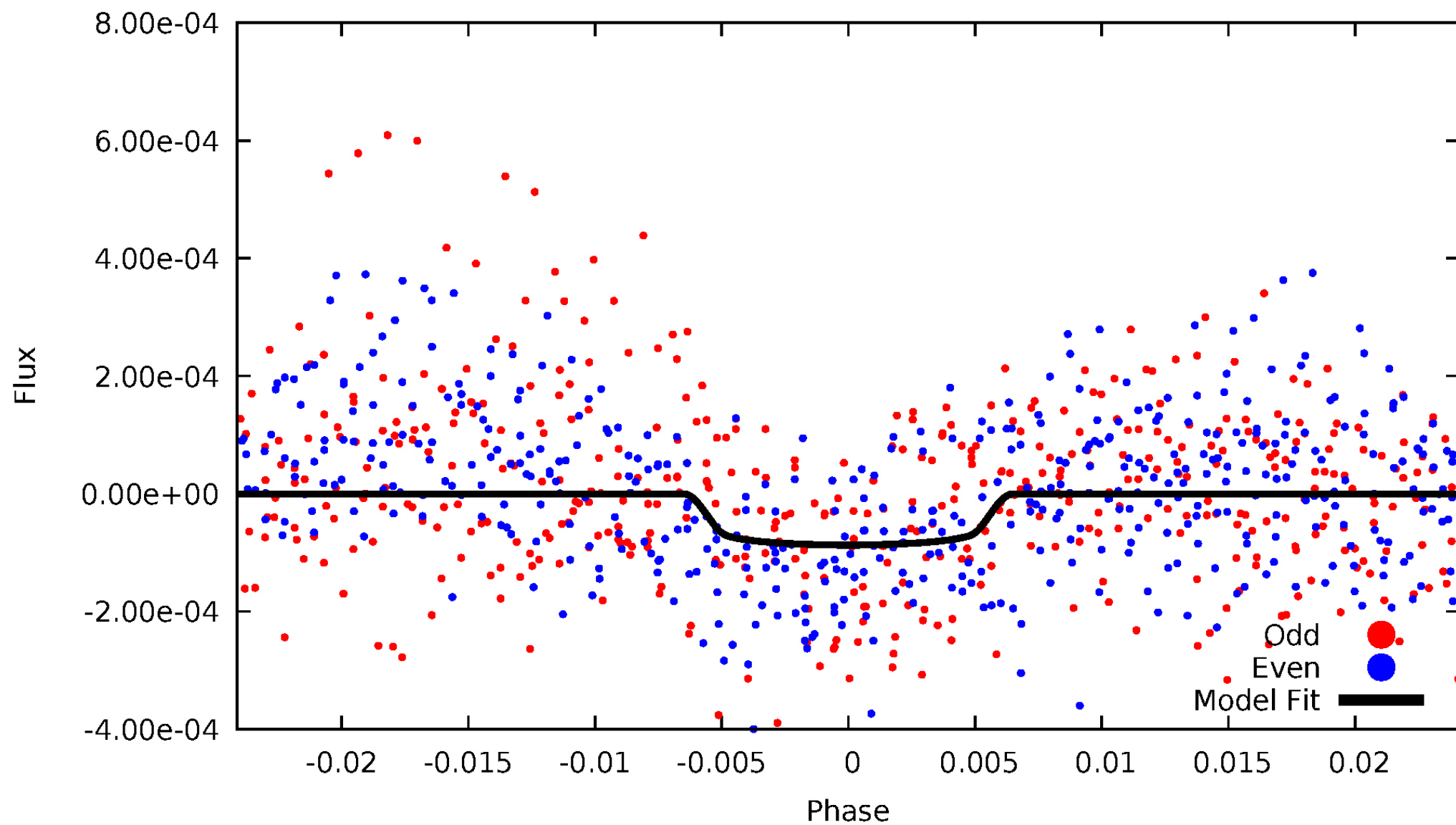
TCE 003542345-10





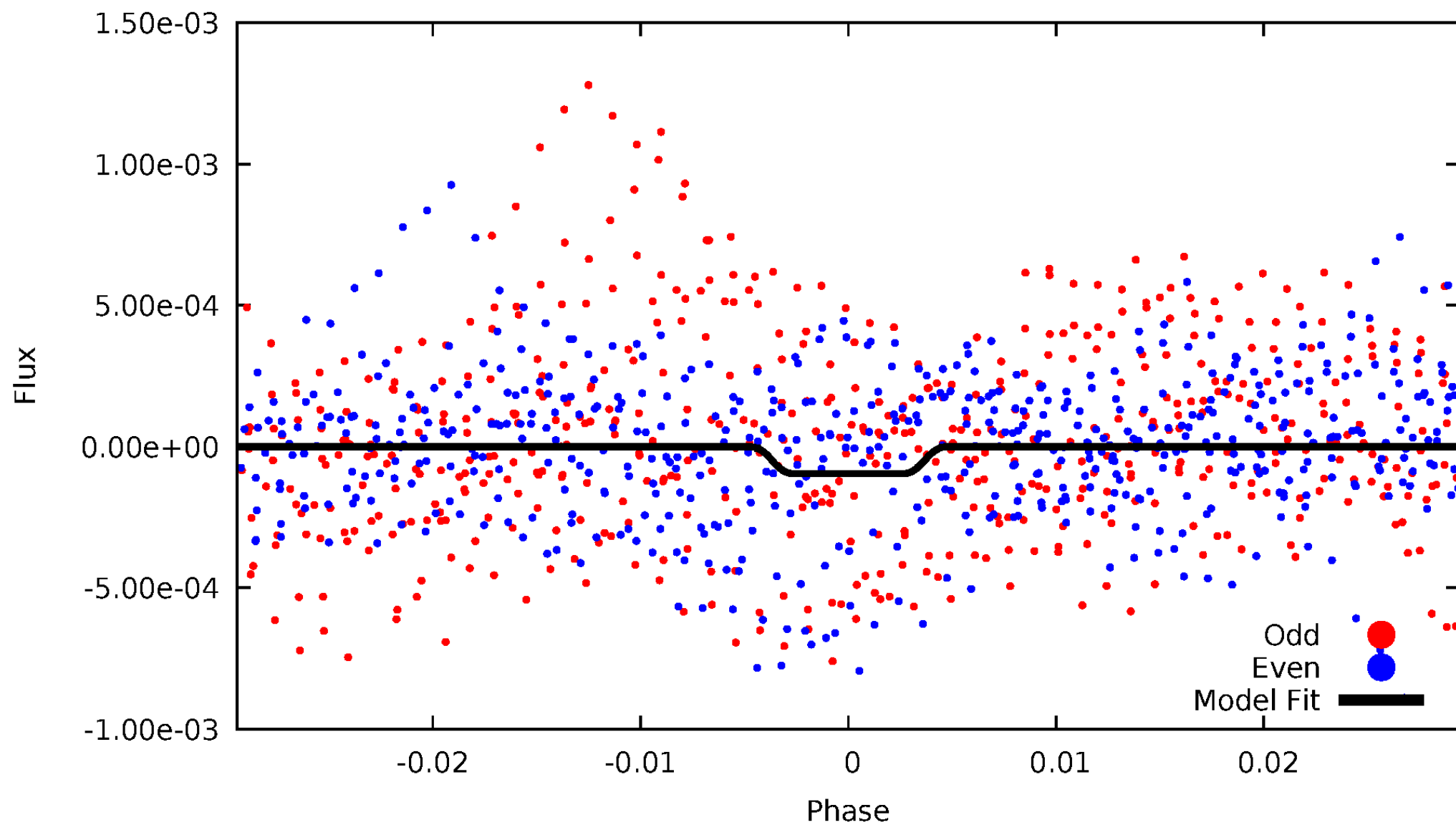
# DV Odd/Even

TCE 003542345-10



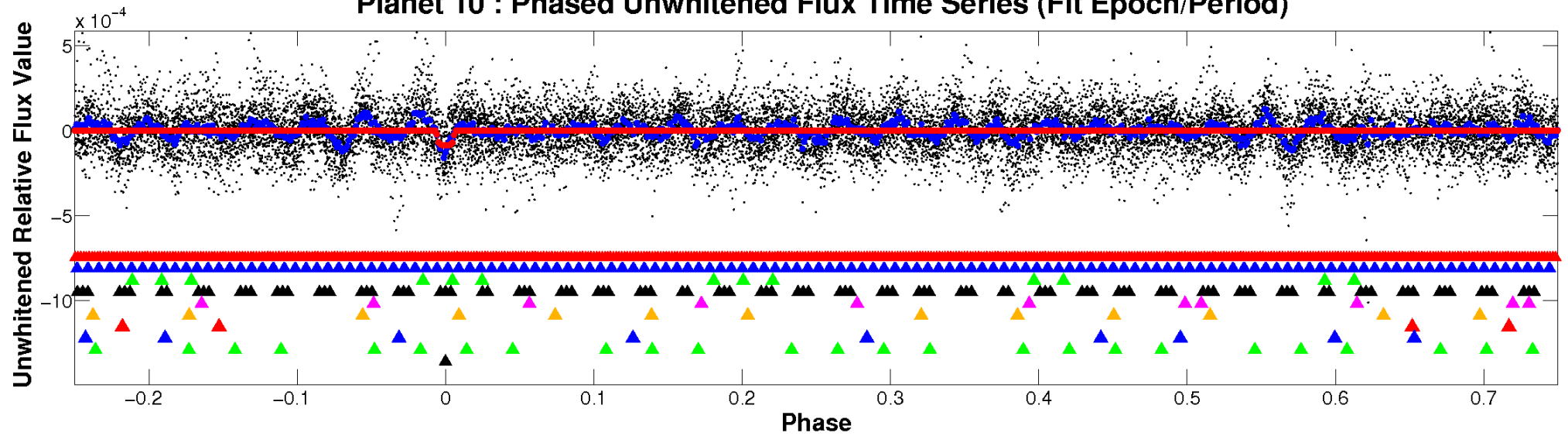
# ALT Odd/Even

TCE 003542345-10

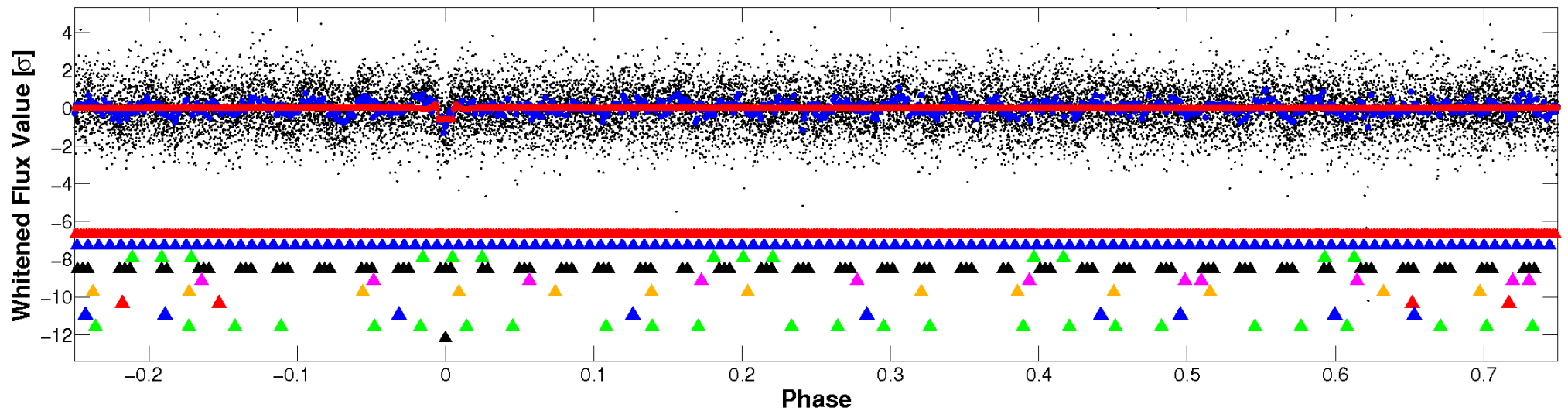


# Non-Whitened Vs. Whitened Light Curve

## Planet 10 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



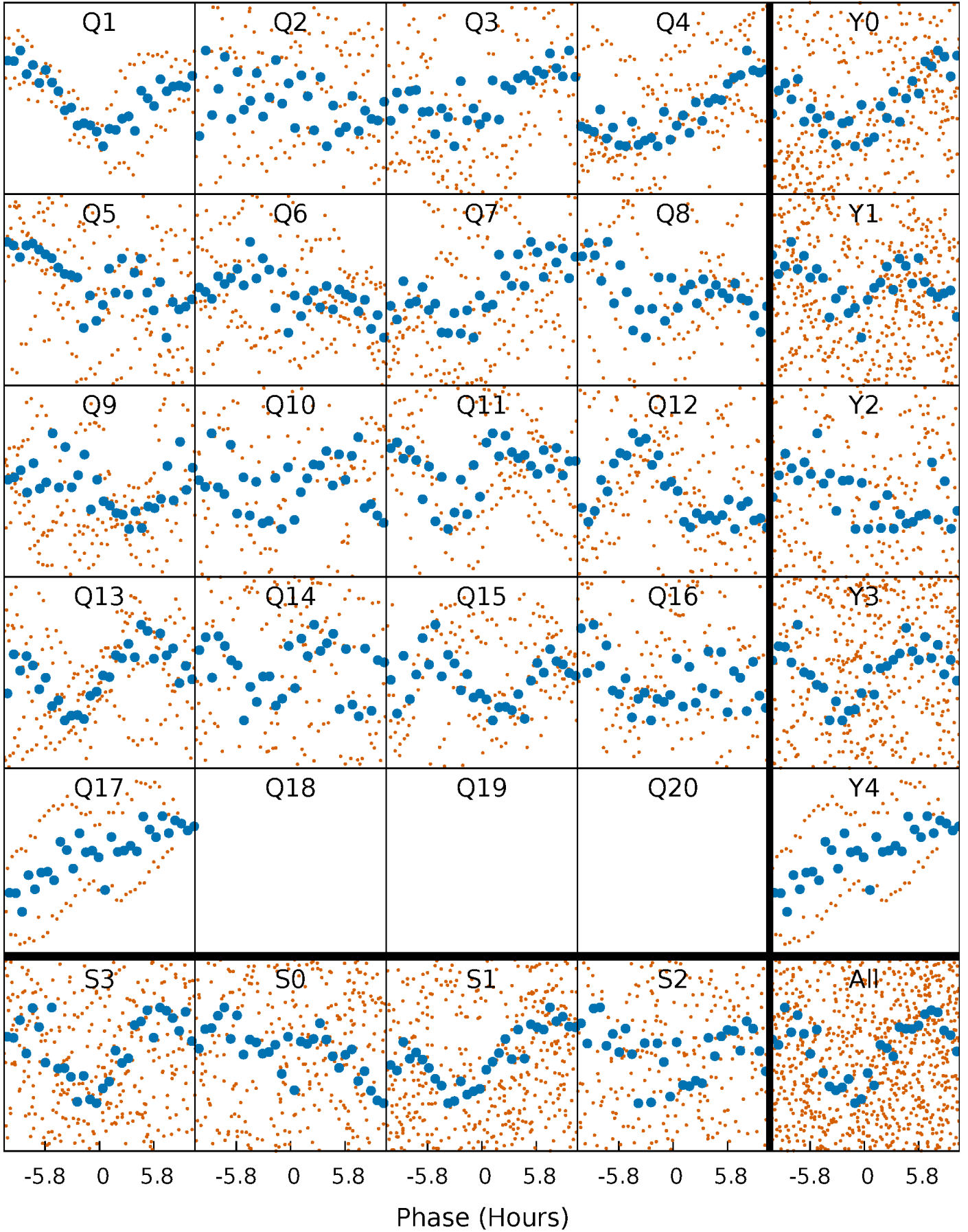
## Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)





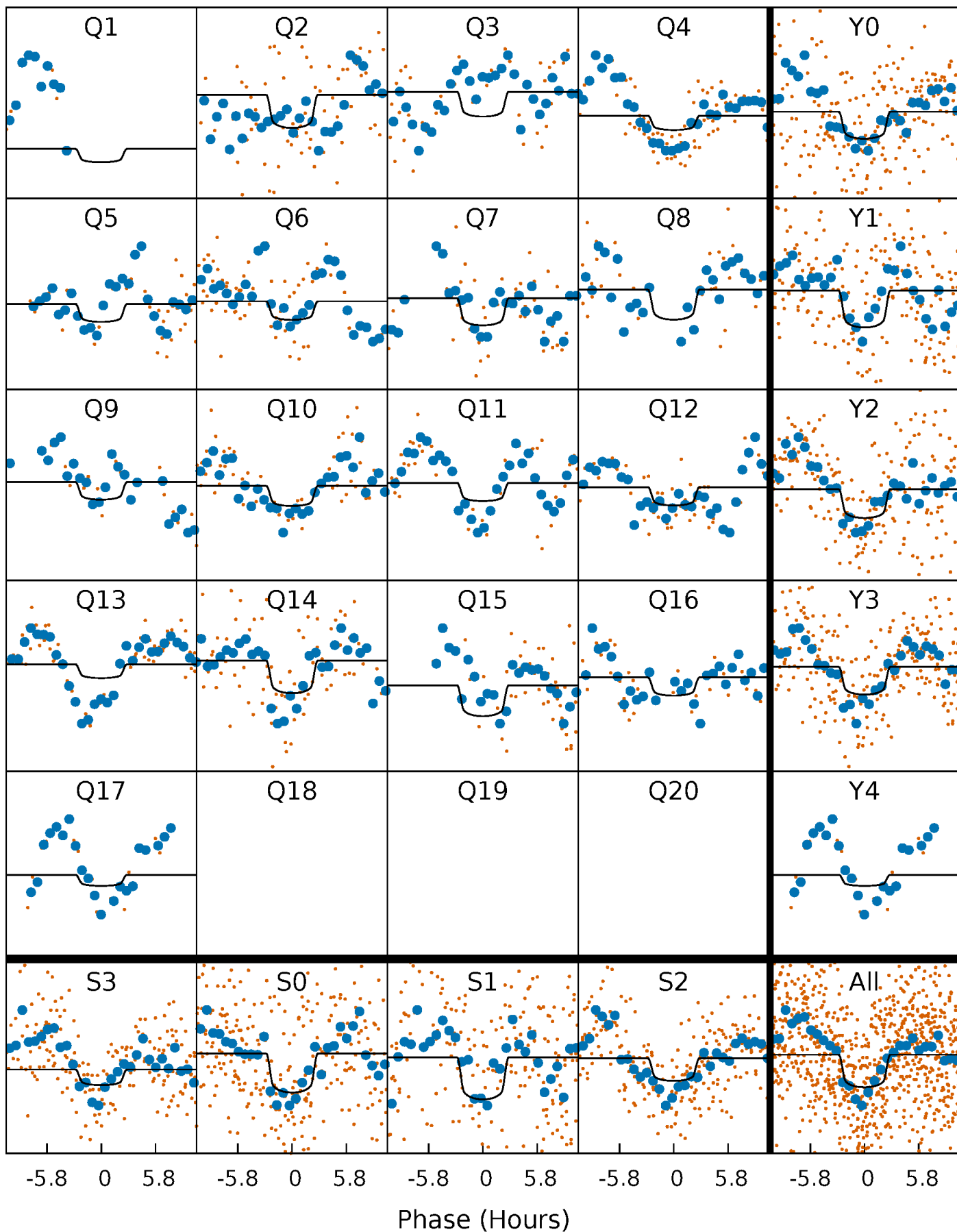
# PDC Quarter-Phased Transit Curves

TCE 003542345-10 P= 17.579058 Days  $T_0=139.776078$  (BKJD)



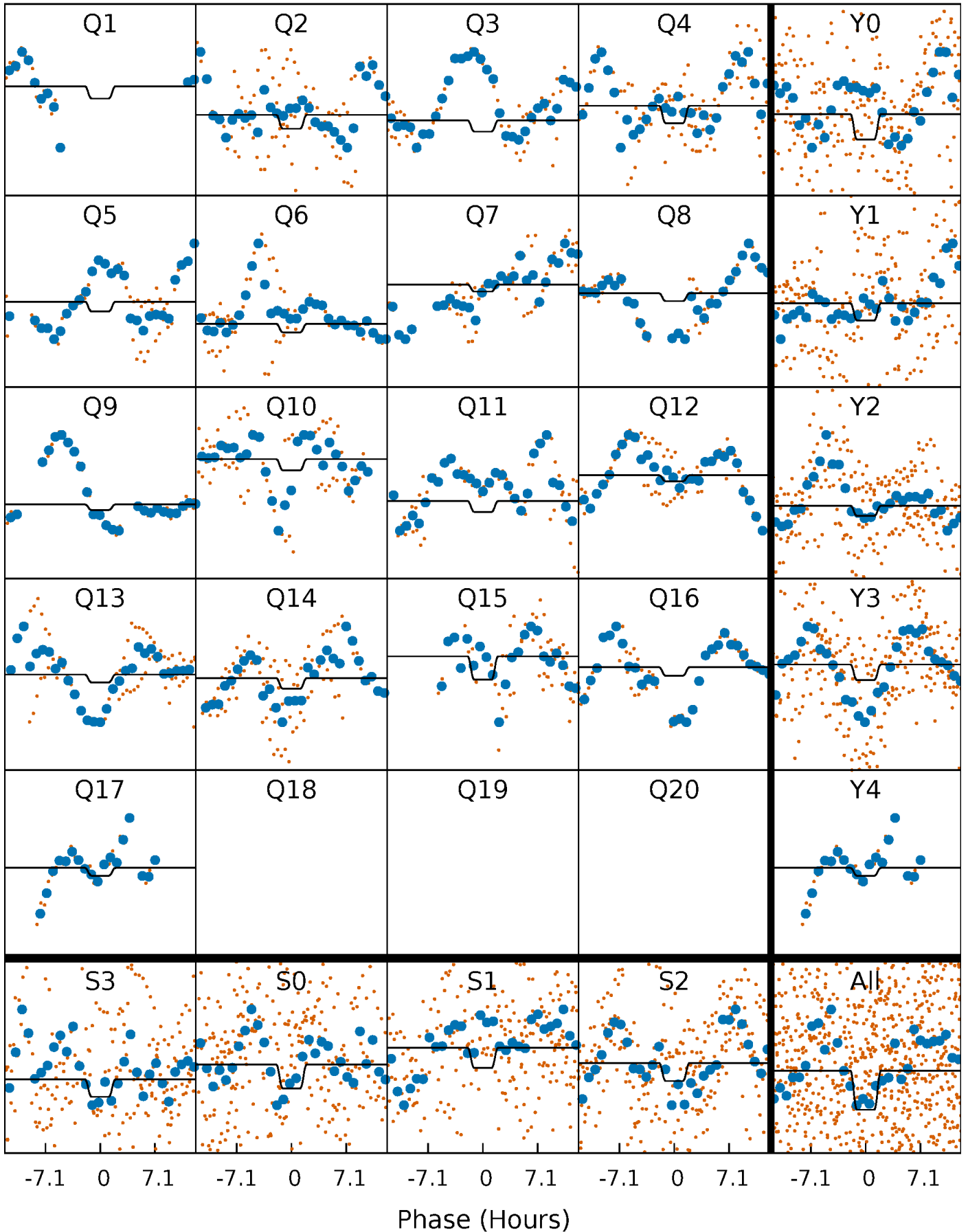
# DV Quarter-Phased Transit Curves

TCE 003542345-10   P= 17.579058 Days    $T_0=139.776078$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

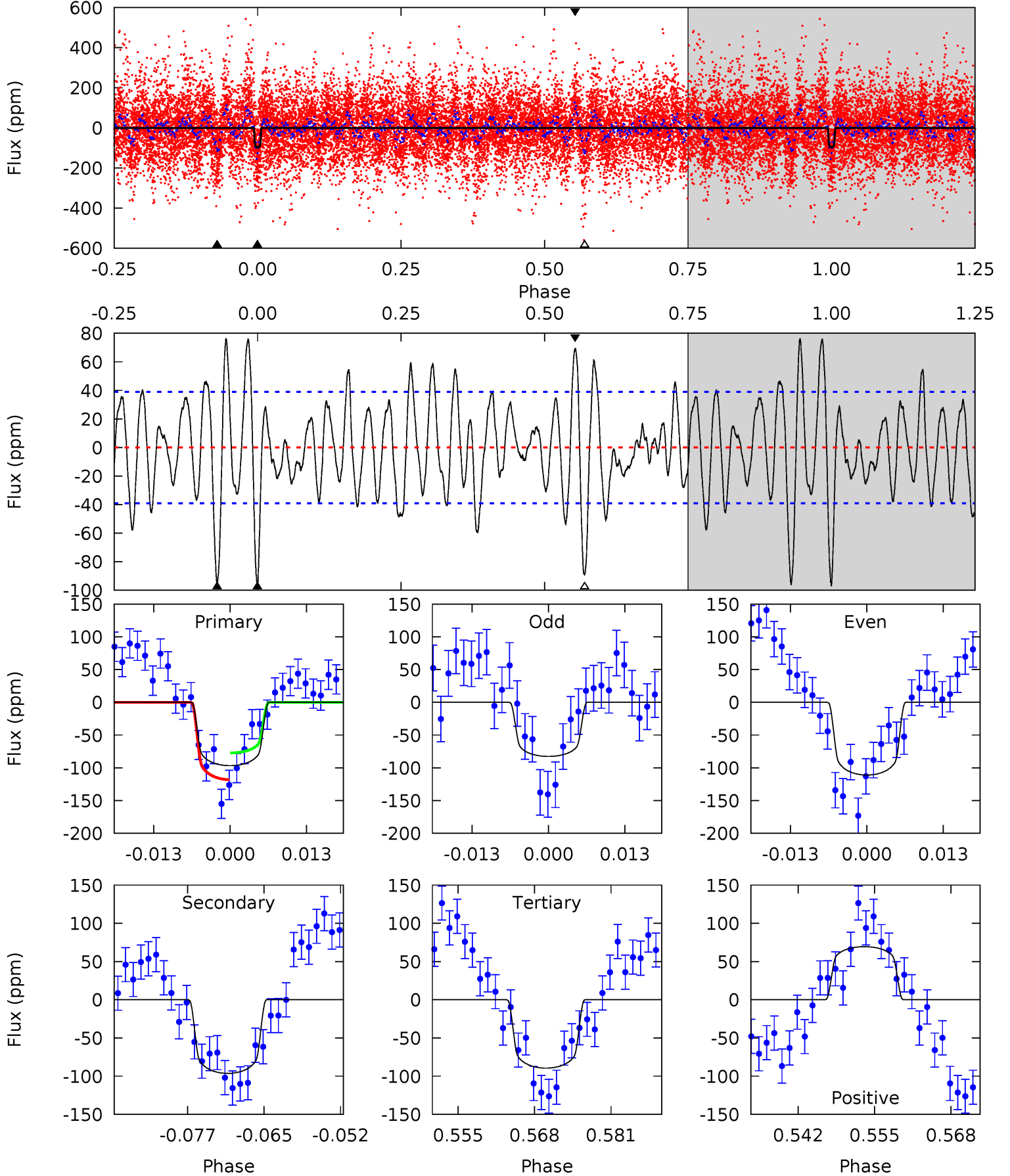
TCE 003542345-10 P= 17.578418 Days  $T_0=139.842363$  (BKJD)



# DV Model-Shift Uniqueness Test

003542345-10,  $P = 17.579058$  Days,  $E = 122.197020$  Days

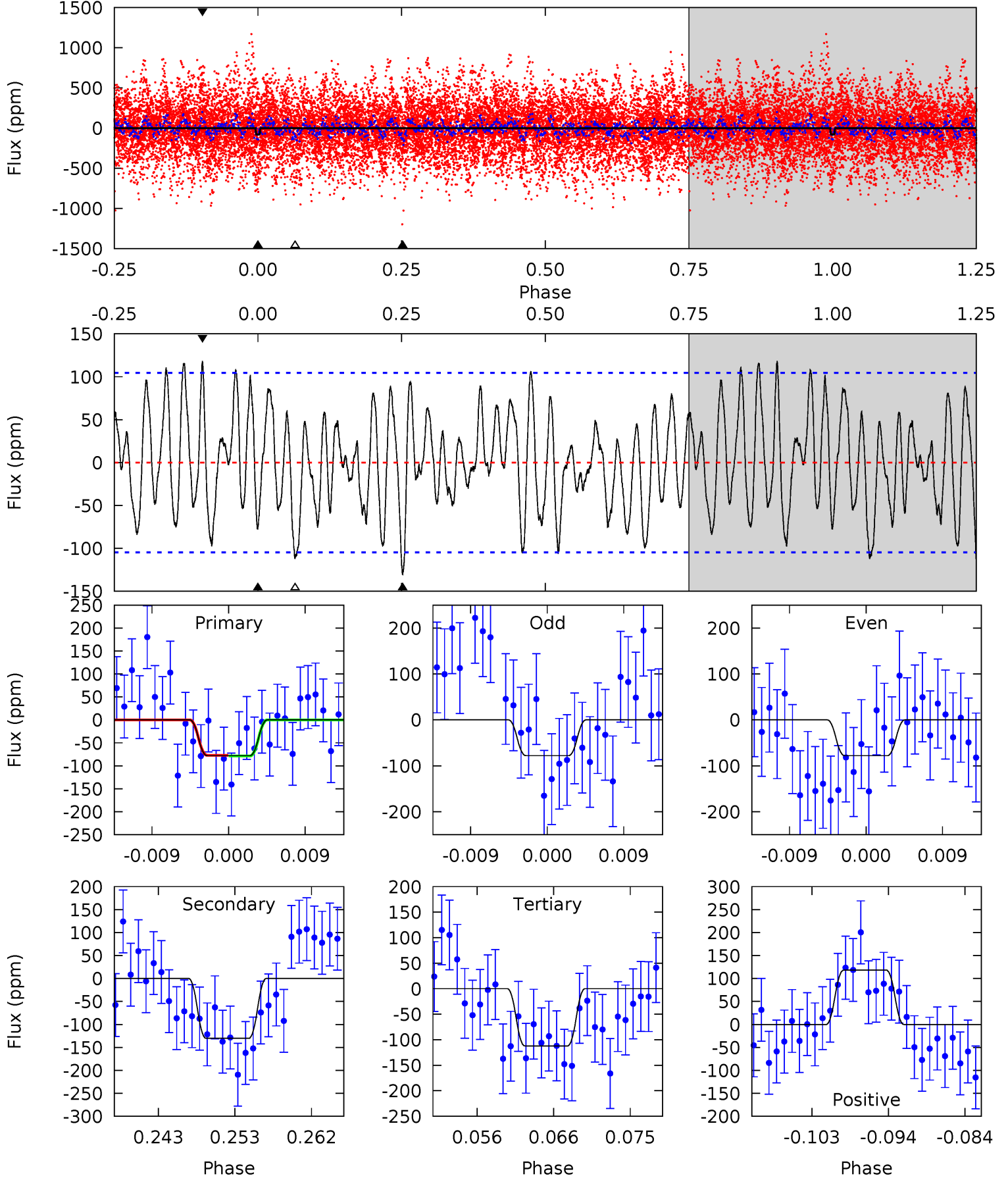
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	12.3	11.4	8.85	4.98	2.49	3.66	0.93	3.48	0.88	3.43	1.82	0.86	0.44	2.60



# Alt Model-Shift Uniqueness Test

003542345-10, P = 17.578418 Days, E = 122.263945 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
3.75	6.28	5.40	5.70	5.04	2.60	2.41	-1.65	-1.94	0.87	0.58	0.00	3.40	0.48	0.04



### Stellar Parameters For KIC 003542345

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7063^{+195}_{-335}$	$4.218^{+0.090}_{-0.210}$	$0.070^{+0.200}_{-0.350}$	$1.567^{+0.556}_{-0.238}$	$1.480^{+0.214}_{-0.214}$	$0.541^{+0.228}_{-0.305}$
	+3%/-5%	+2%/-5%	+286%/-500%	+35%/-15%	+14%/-14%	+42%/-56%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 003542345-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-96 \pm 8$	$1.78^{+0.44}_{-0.41}$	$1417^{+117}_{-89}$	$6895^{+1030}_{-700}$	$369^{+268}_{-132}$
Alt.	$-130 \pm 21$	$1.73^{+0.51}_{-0.45}$	$1418^{+102}_{-88}$	$7677^{+1349}_{-964}$	$541^{+427}_{-222}$

$T_{max}$  = 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

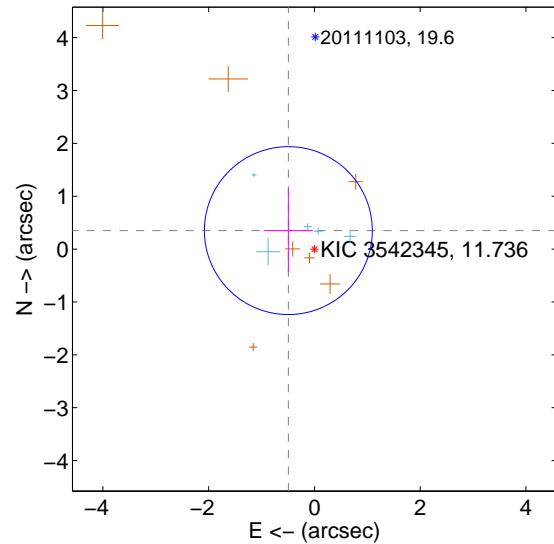
Supplemental centroid analysis for 003542345-10. **Kepler magnitude: 11.74.** Transit SNR 8.52

There are 5 quarters with good PRF difference image offsets

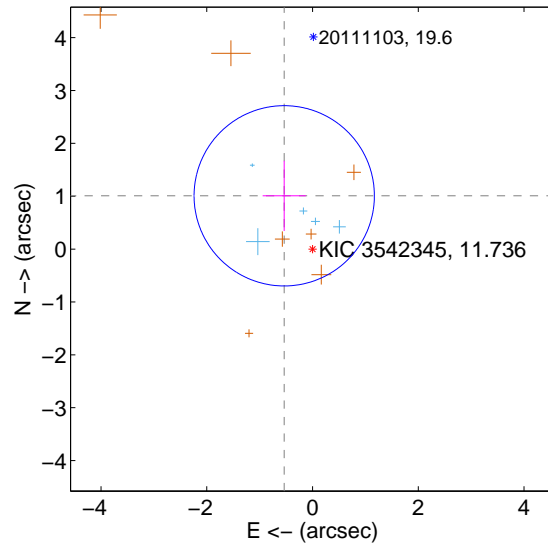
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.605 \pm 0.529$	1.14	$0.493 \pm 0.464$	$0.350 \pm 0.785$
PRF-fit source offset from KIC position	$1.141 \pm 0.568$	2.01	$0.535 \pm 0.409$	$1.008 \pm 0.664$
photometric centroid source offset	$0.84 \pm 0.99$	0.85	$-0.12 \pm 0.66$	$0.83 \pm 1.00$

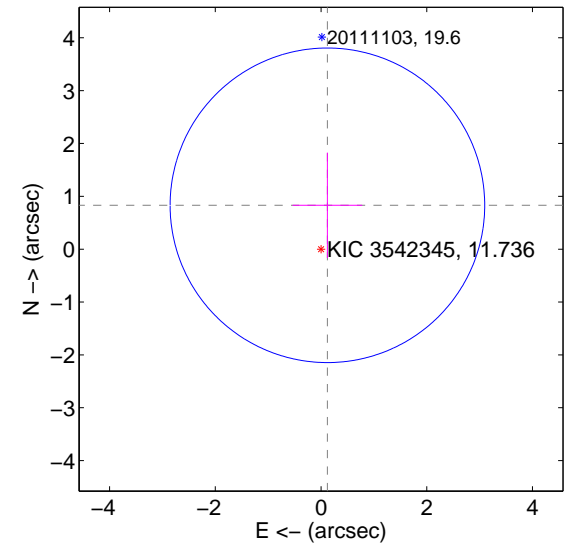
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



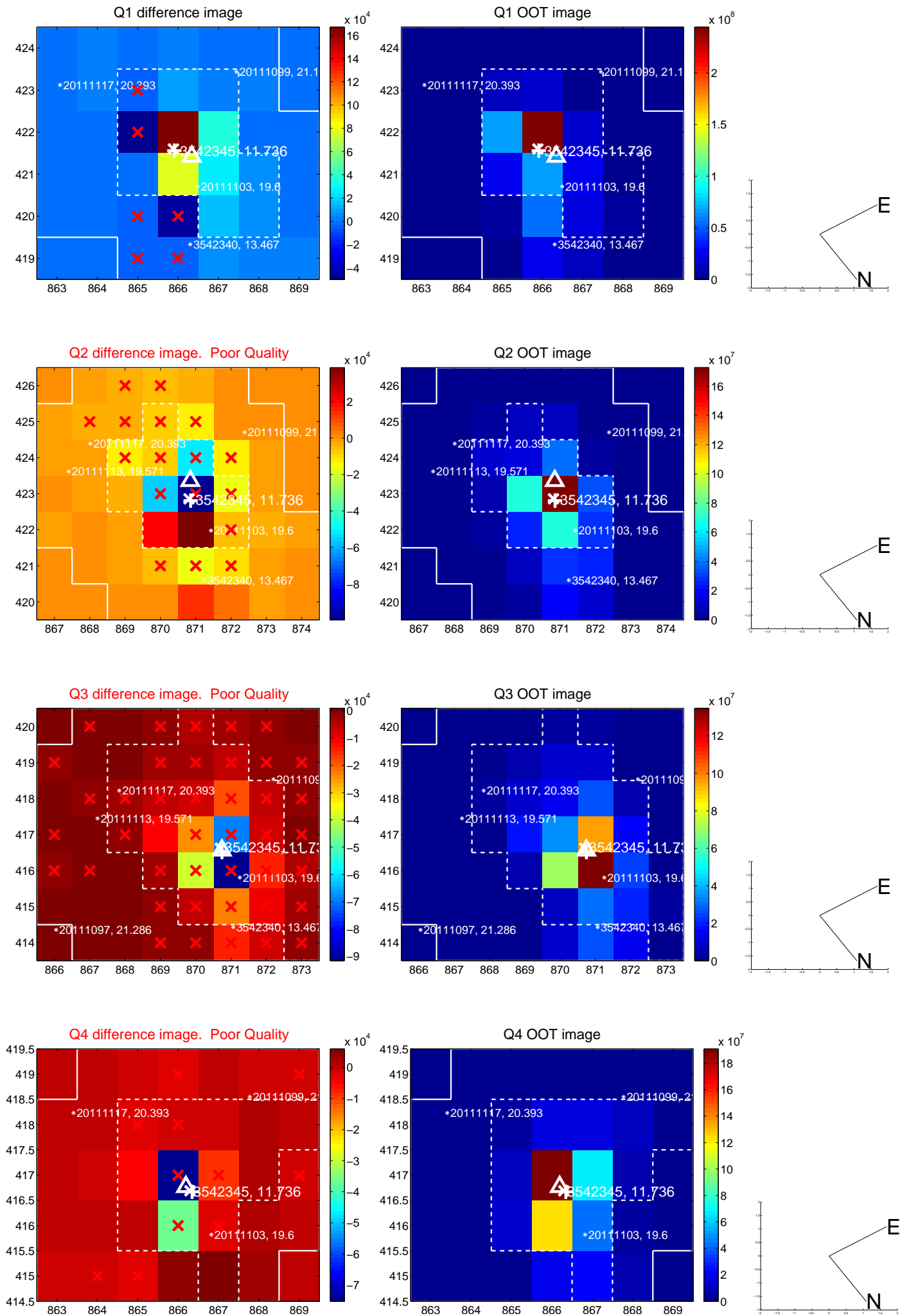
offset from photometric centroids



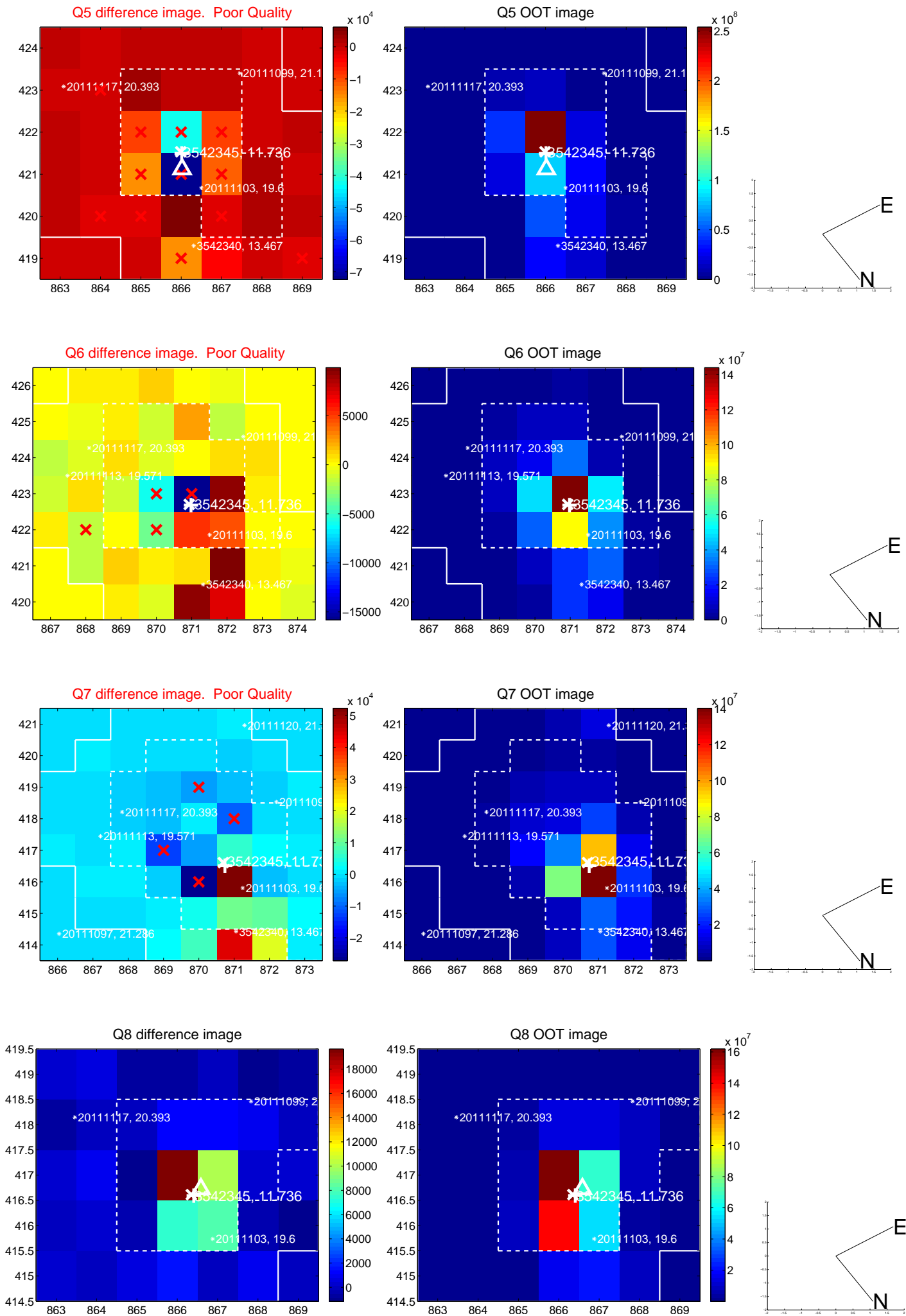
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



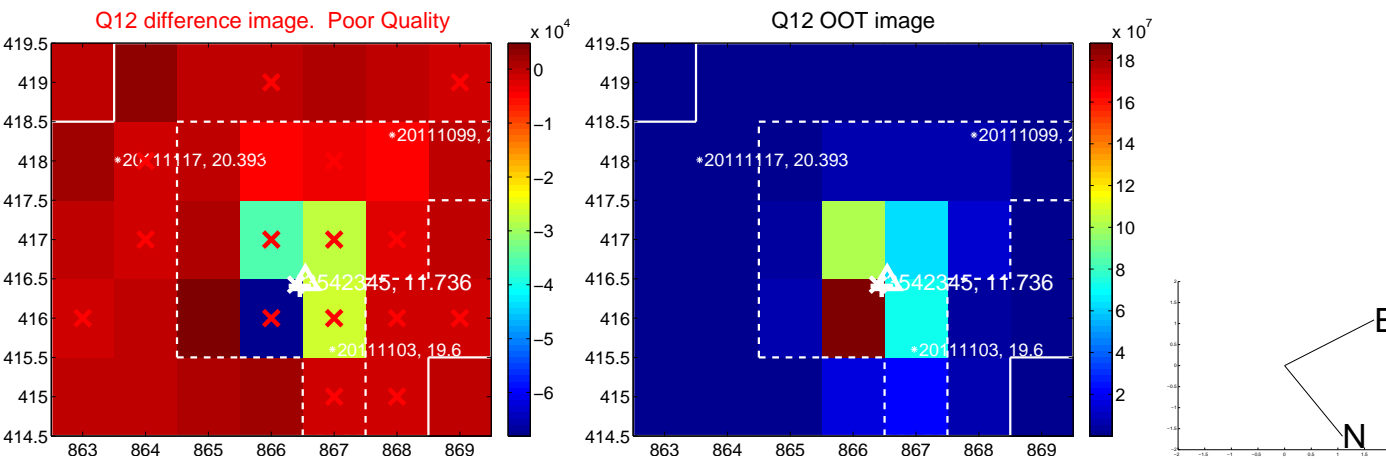
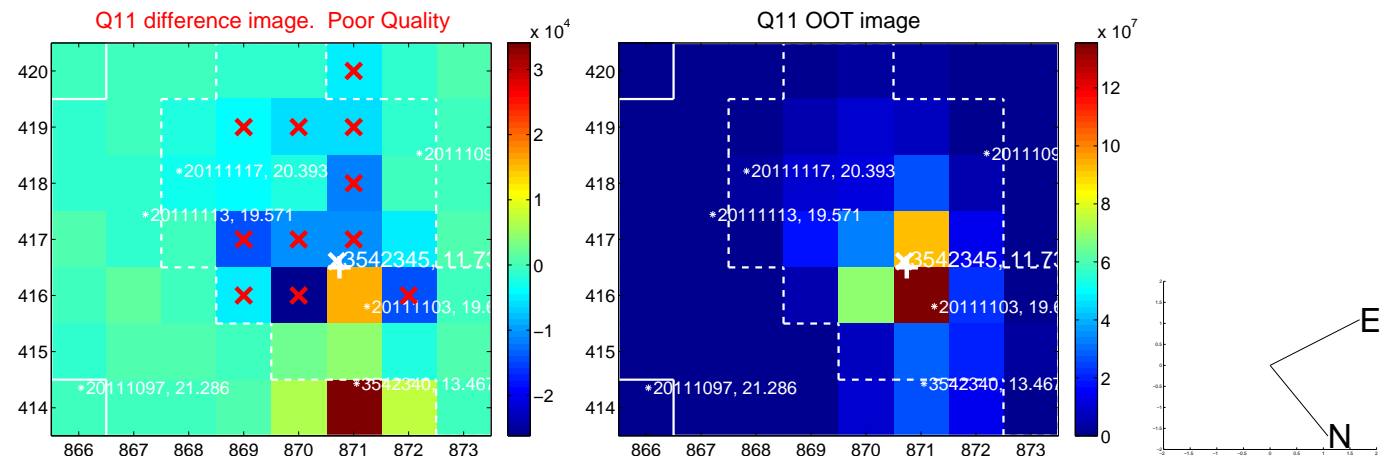
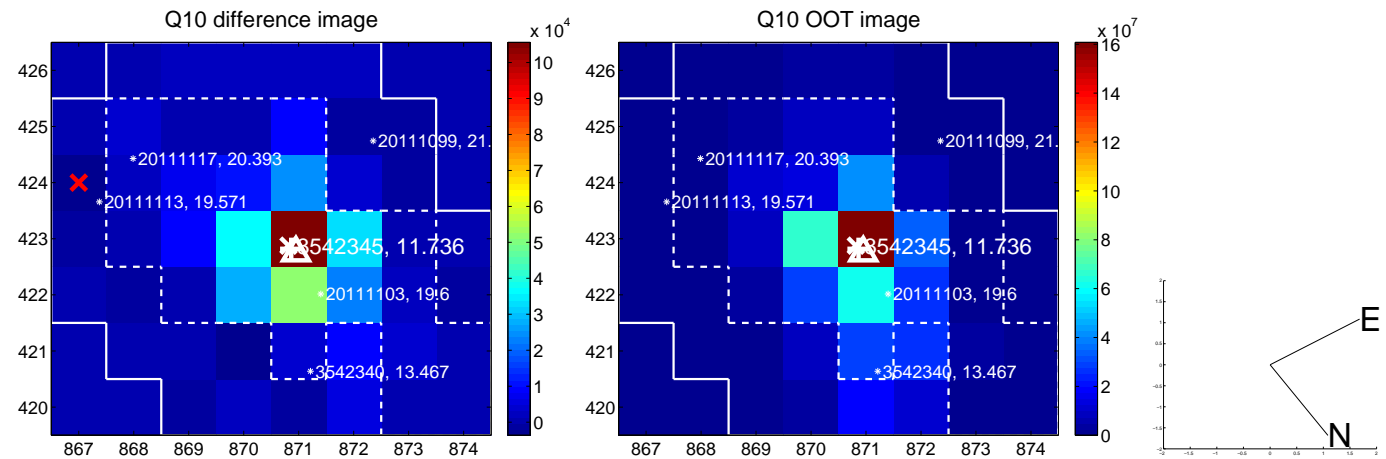
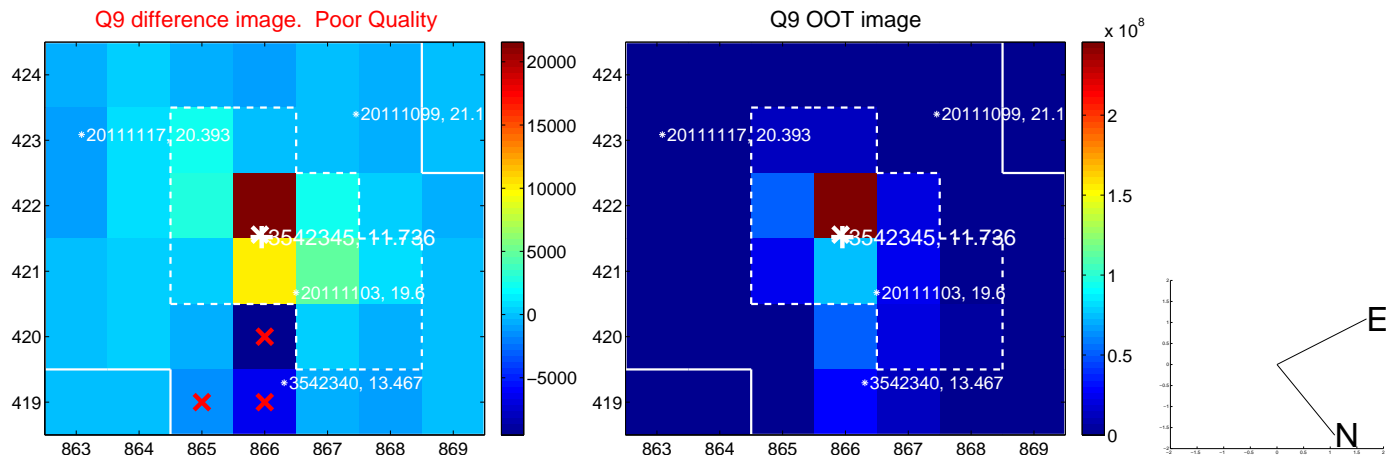
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



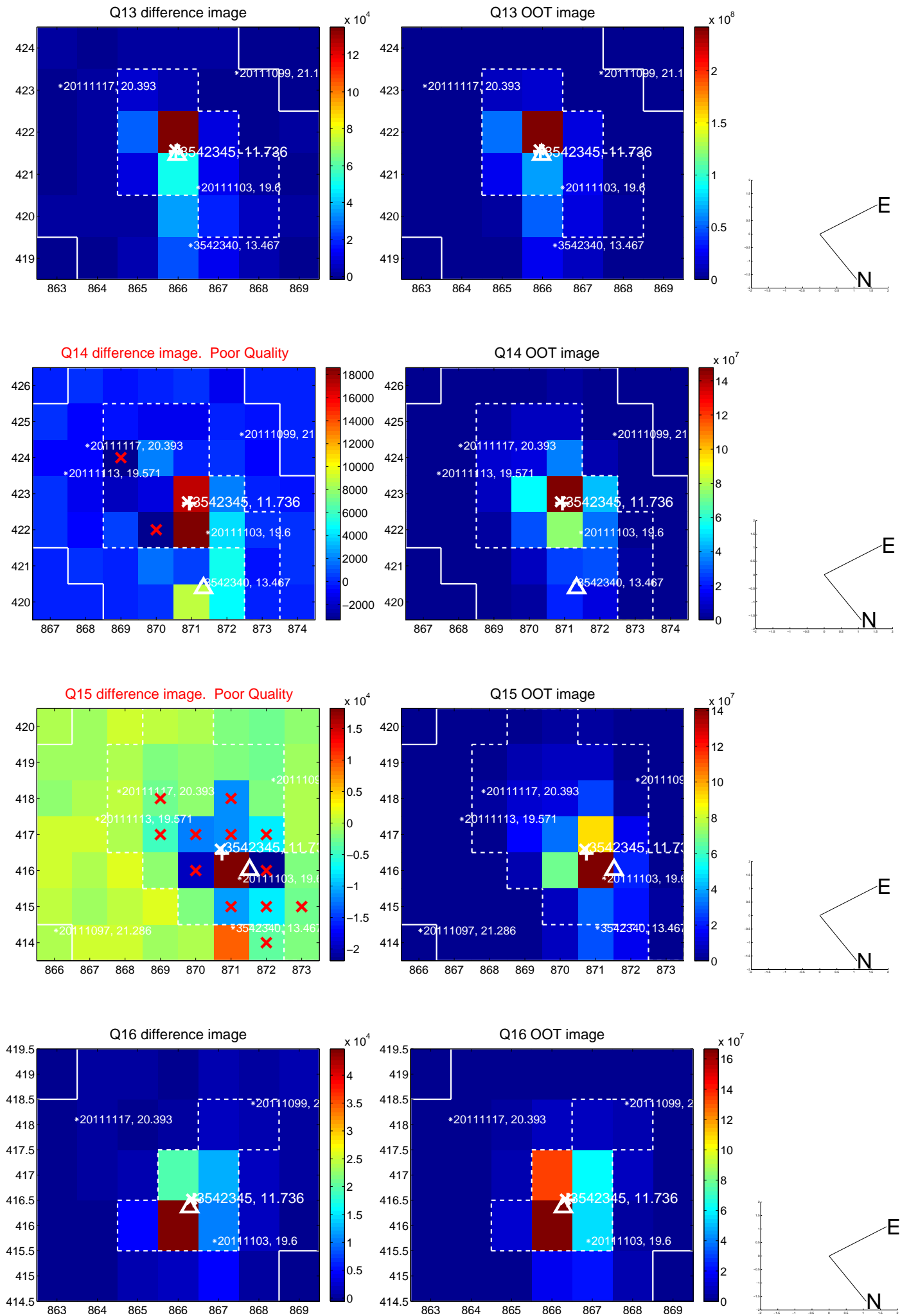
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



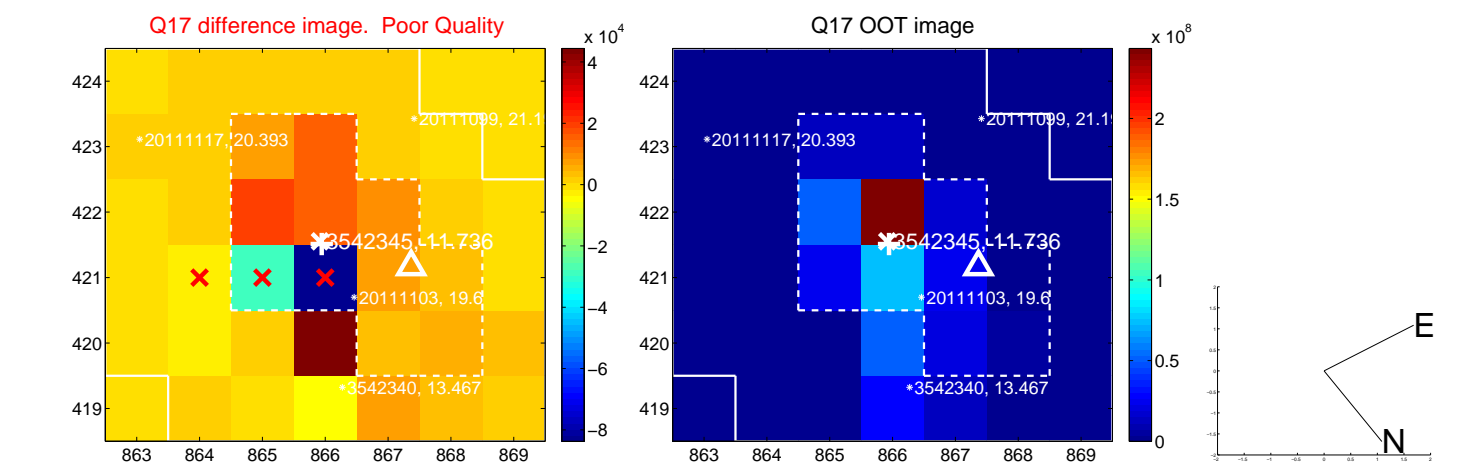
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



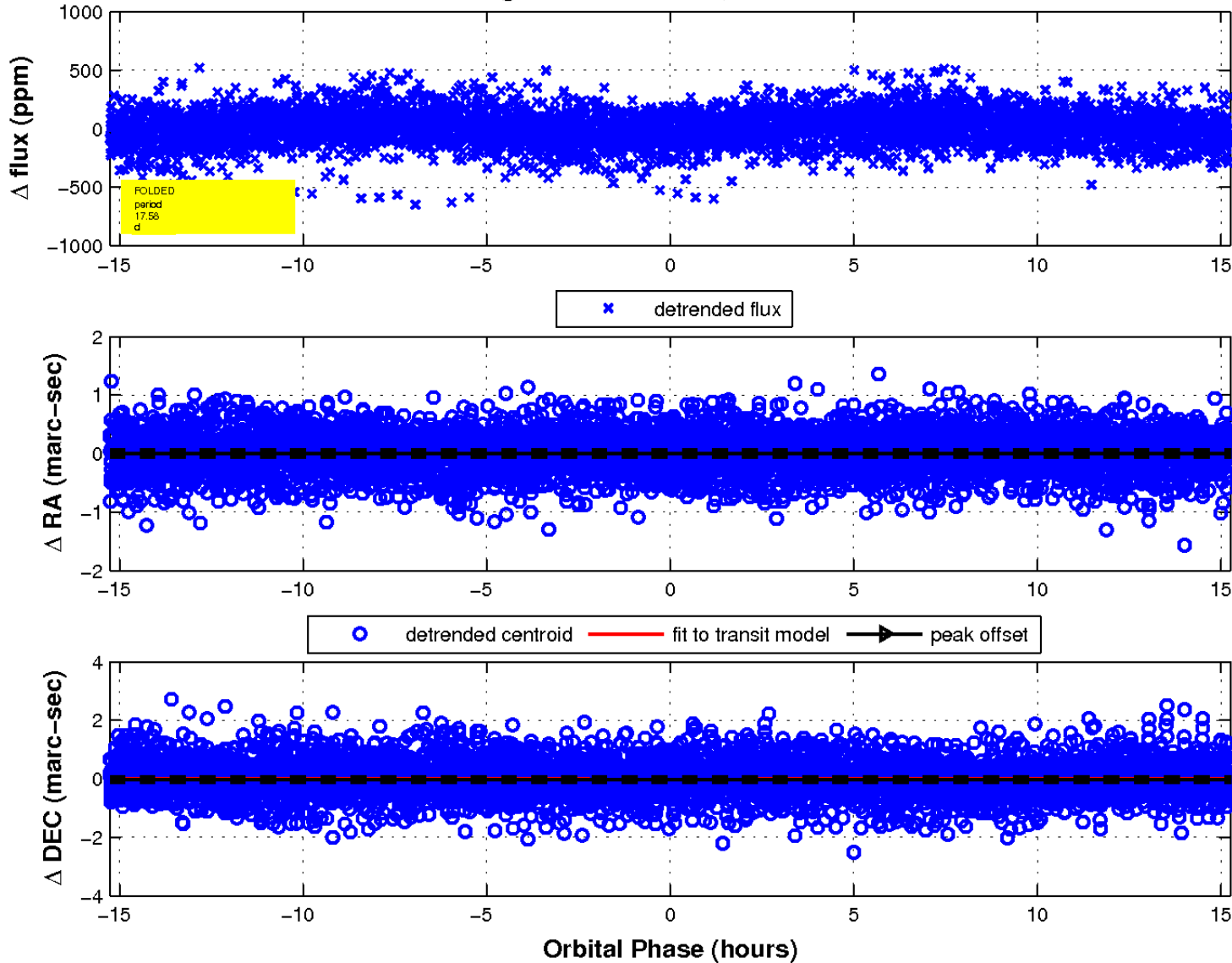
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 10 of 10



UKIRT Image

Declination

