

KIC 012555140

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})
012555140-01	OBS	8239.01	655.246450	186.015531	272.6	19.399	7.6	7.7	0.94	6420	1.64	0.62
012555140-02	OBS	No	362.657180	454.187307	359.3	3.856	7.6	7.5	0.94	6420	1.95	1.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012555140-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
012555140-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—MOD_NONUNIQU_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

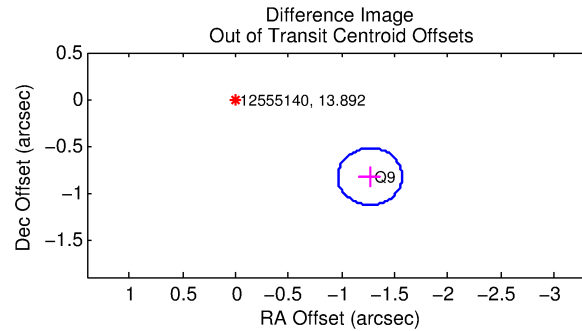
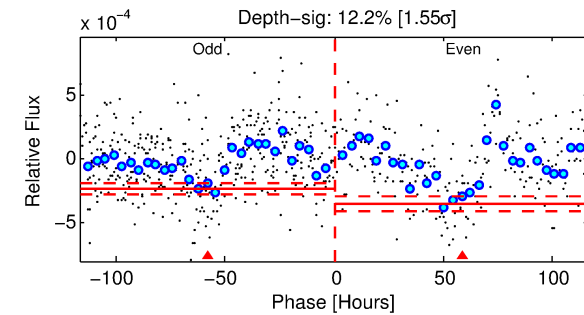
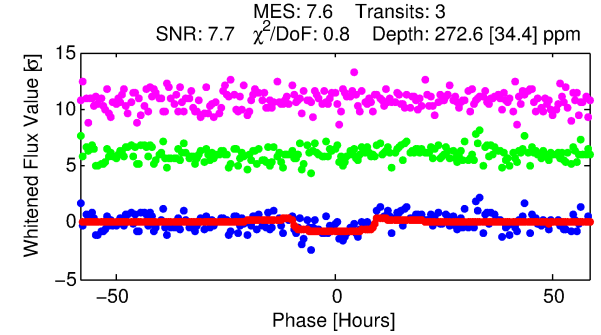
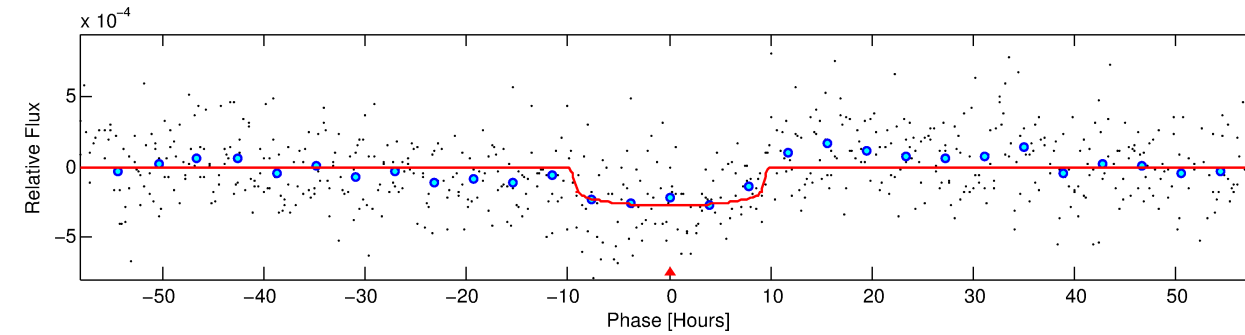
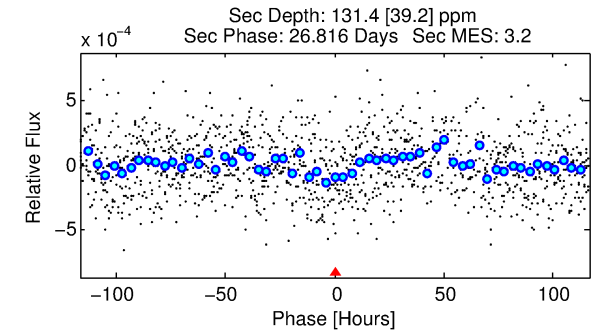
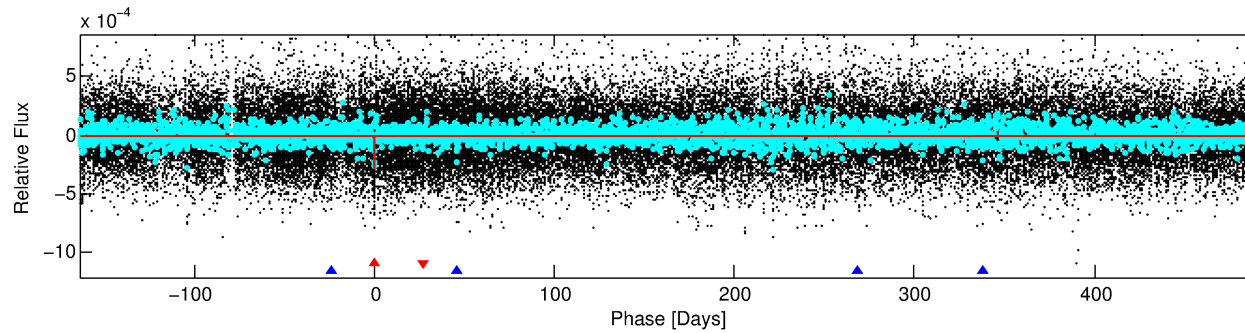
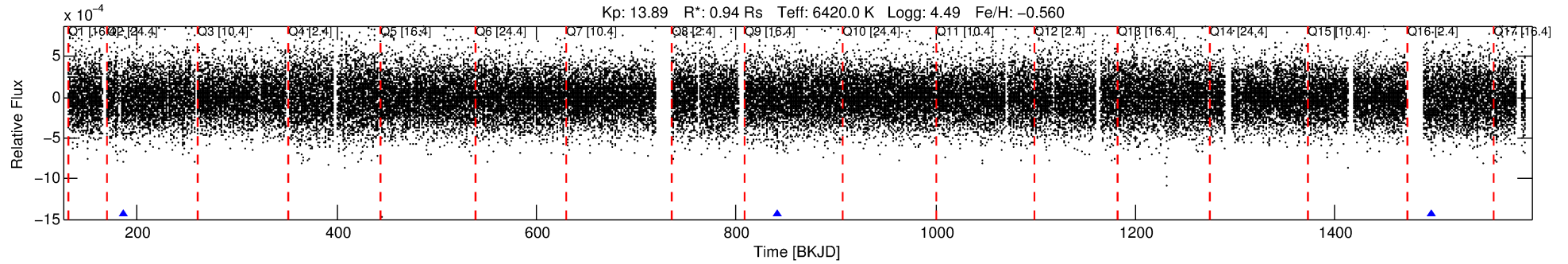
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012555140-01

No Significant Match Found

DV One-Page Summary

KIC: 12555140 Candidate: 1 of 2 Period: 655.246 d



DV Fit Results:

Period = 655.24645 [0.01615] d
Epoch = 186.0155 [0.0202] BKJD
Rp/R* = 0.0159 [0.0051]
a/R* = 206.59 [351.71]
b = 0.63 [1.67]
Seff = 0.62 [0.24]
Teq = 226 [22] K
Rp = 1.64 [0.71] Re
a = 1.4781 [0.3642] AU
Ag = 58980.50 [46932.85] [1.26σ]
Teffp = 5445 [978] K [5.34σ]

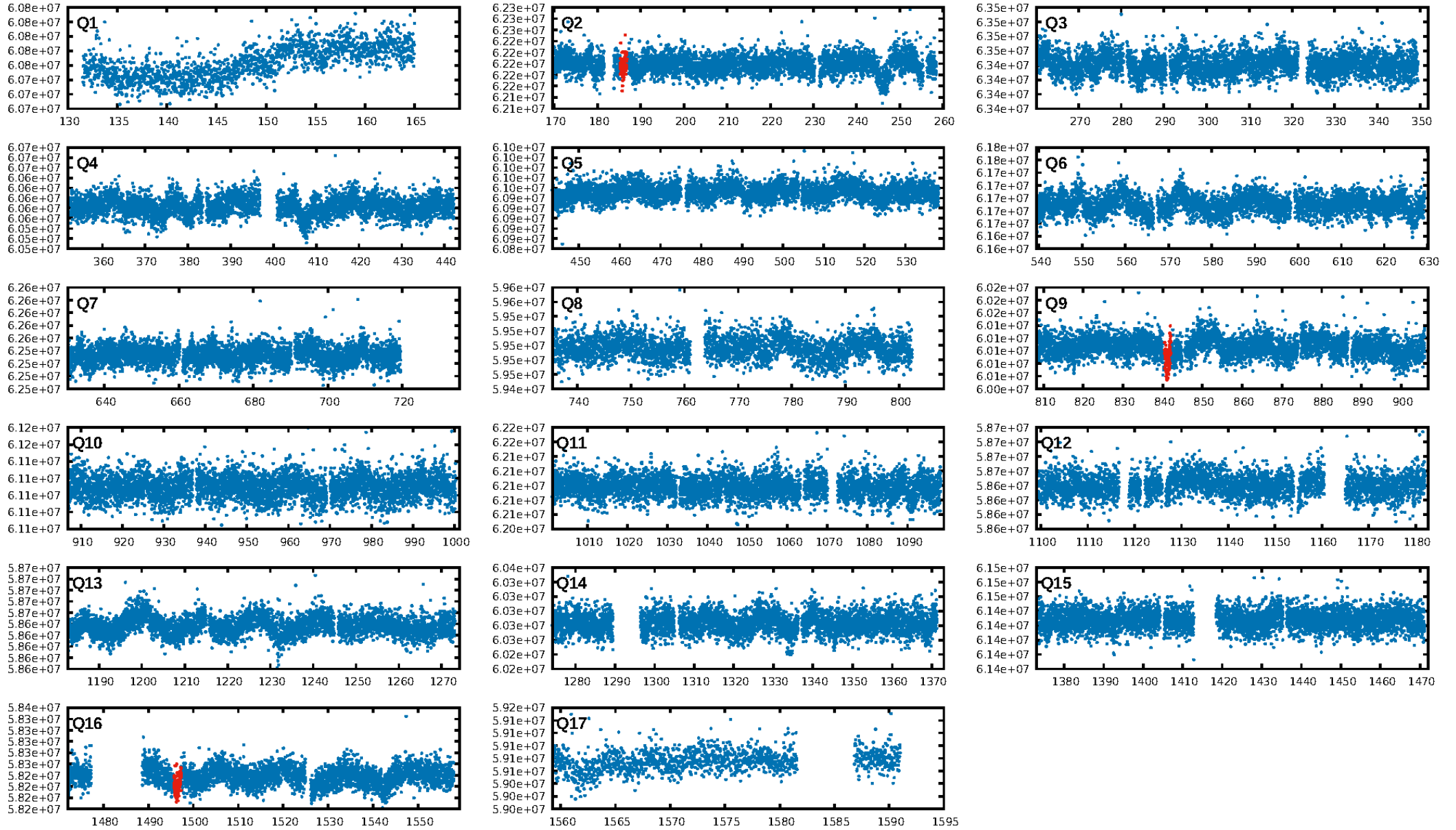
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [355.03σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 31.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.09e-15
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.3853
Centroid-sig: 12.7%
Centroid-so: 2.852 arcsec [1.74σ]
OotOffset-rm: 1.514 arcsec [15.02σ]
KicOffset-rm: 1.356 arcsec [13.46σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [3/3]

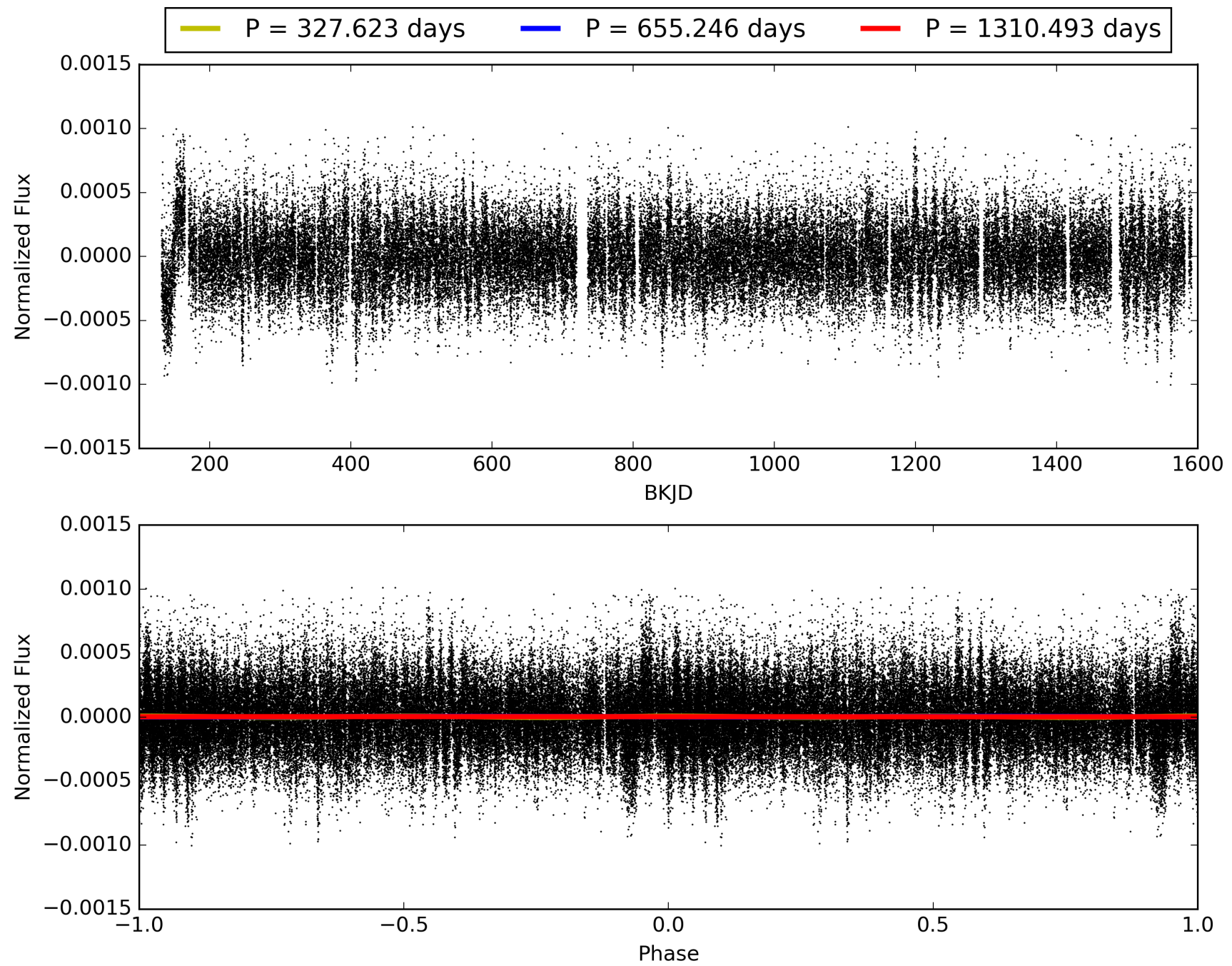
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:09:19 Z

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

TCE 012555140-01, PDC Light Curves

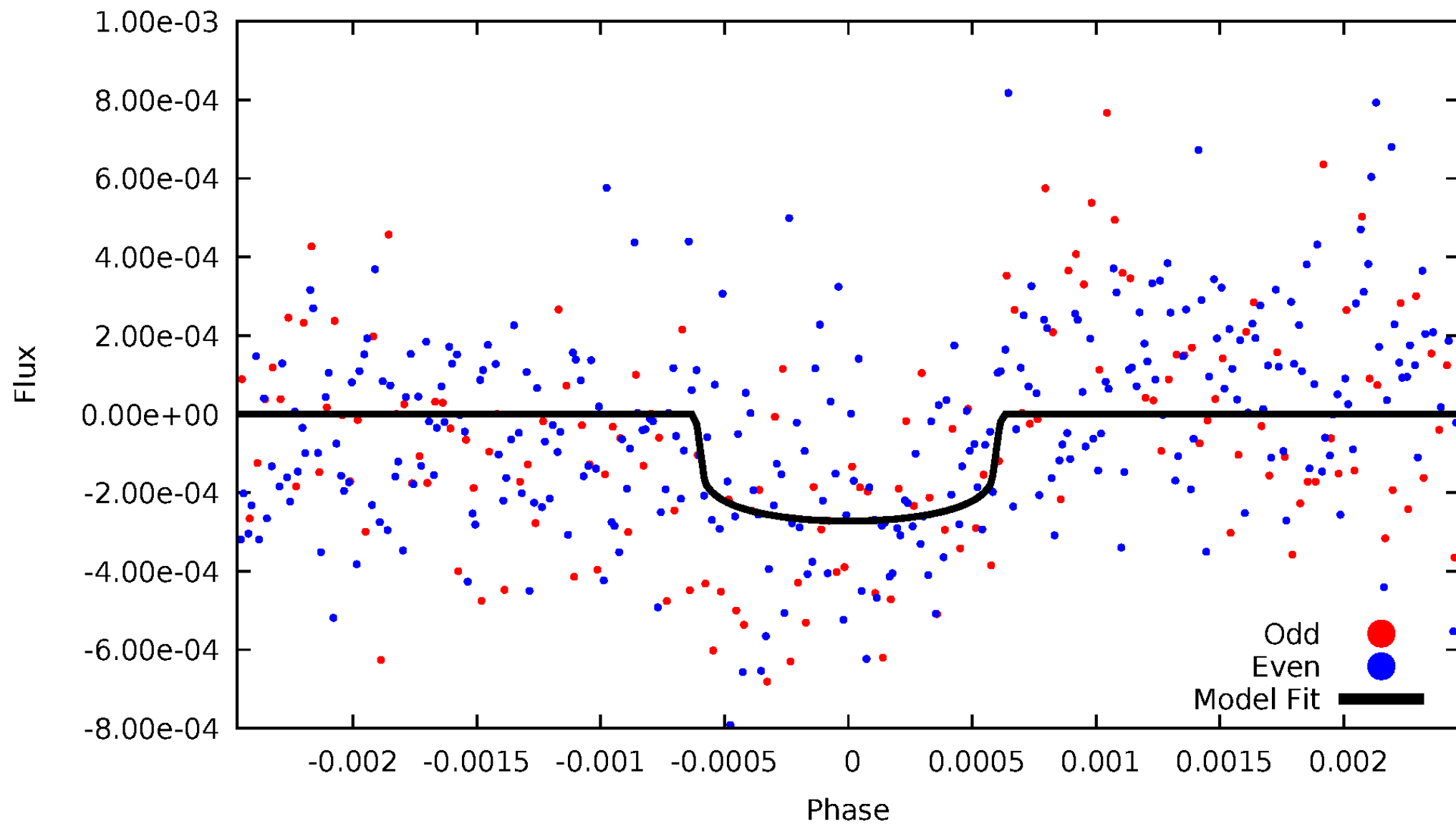


TCE 012555140-01



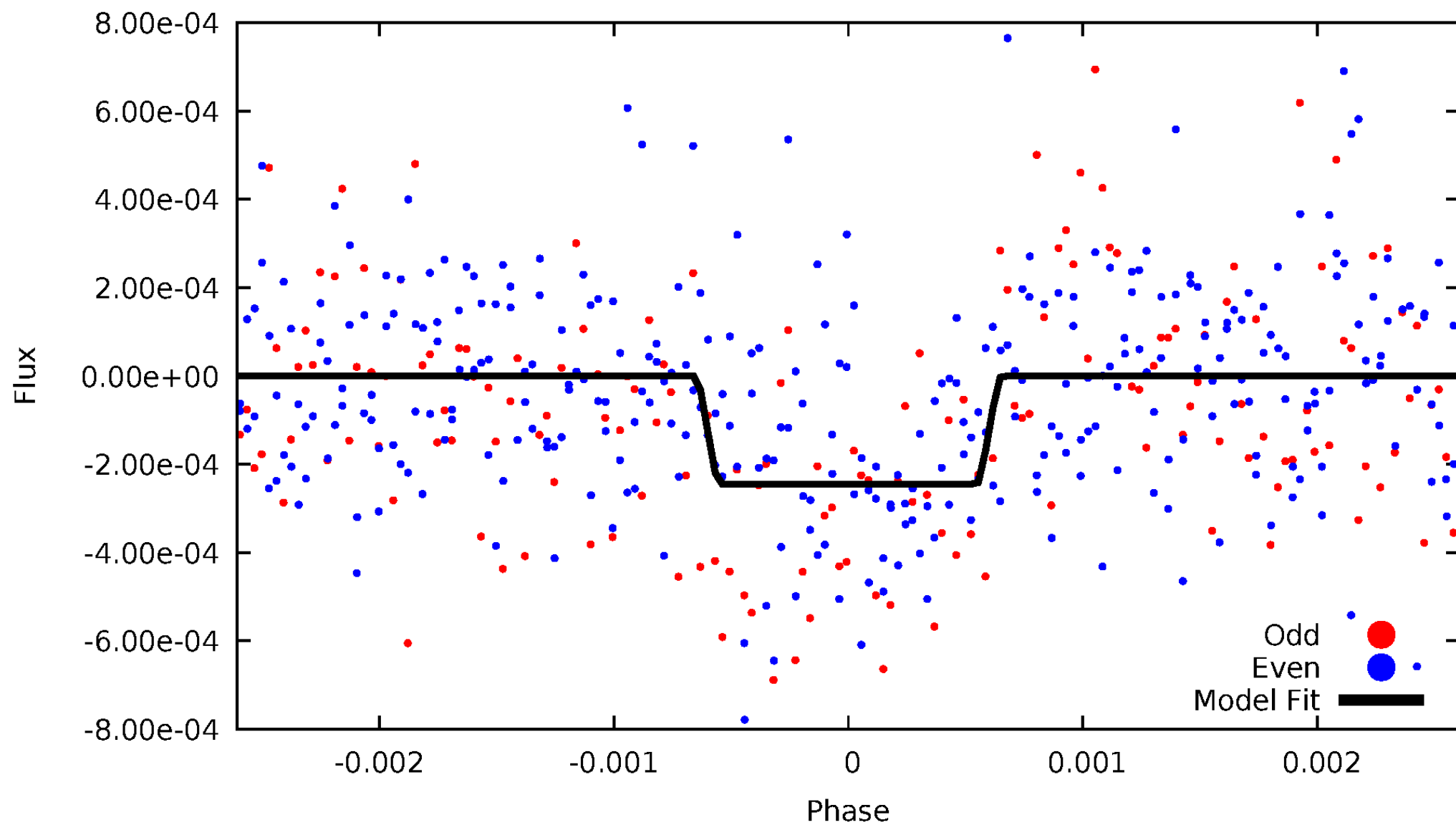
DV Odd/Even

TCE 012555140-01

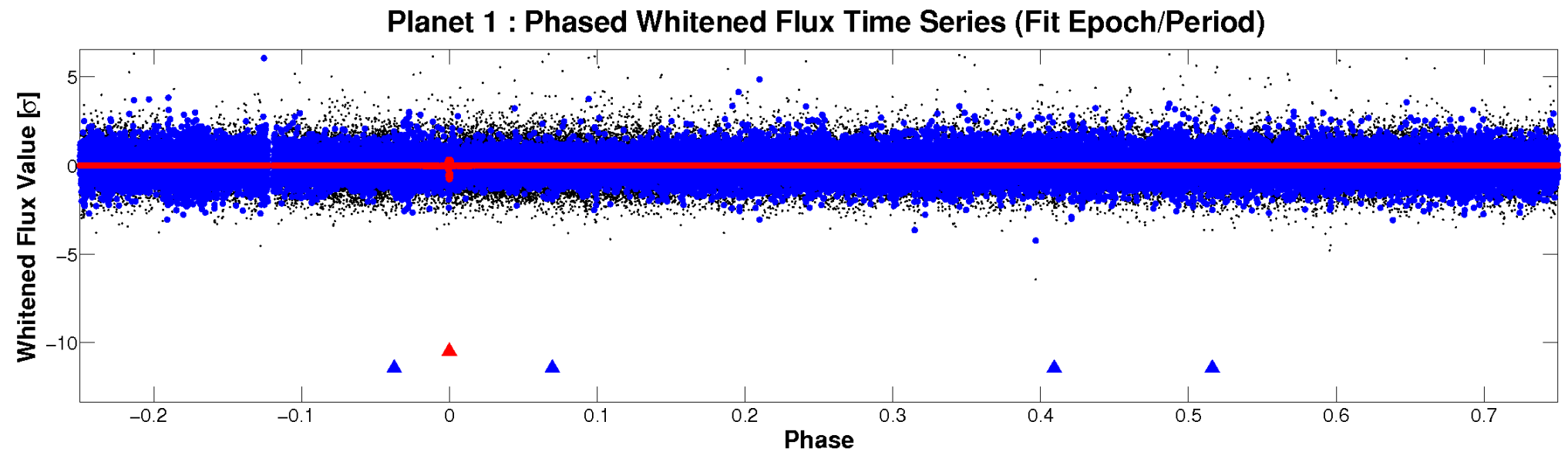
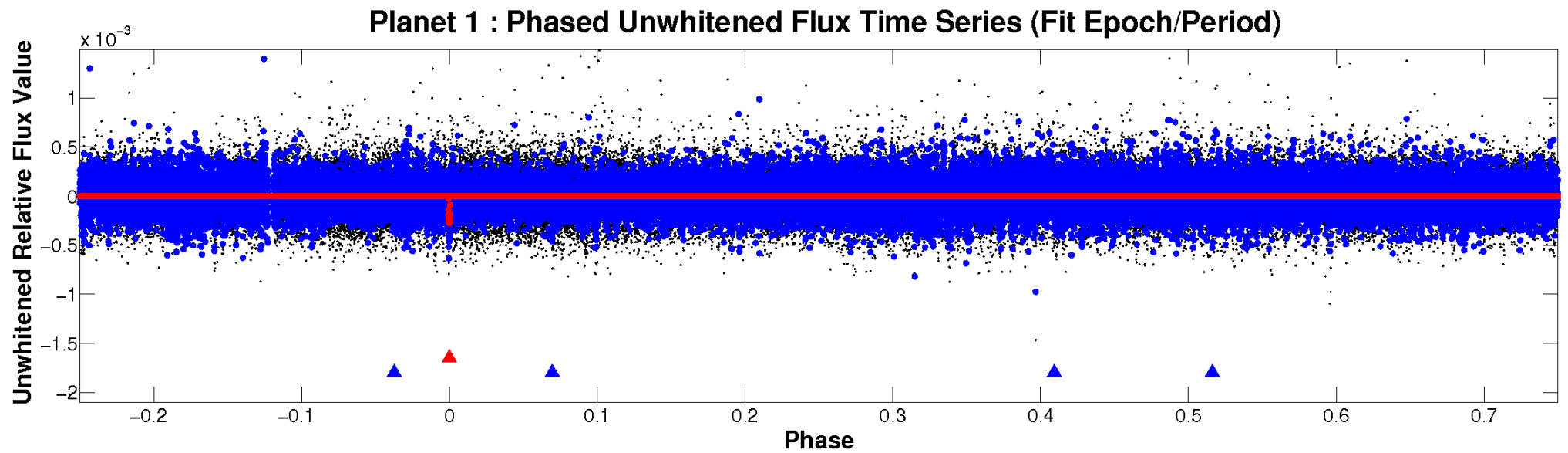


ALT Odd/Even

TCE 012555140-01

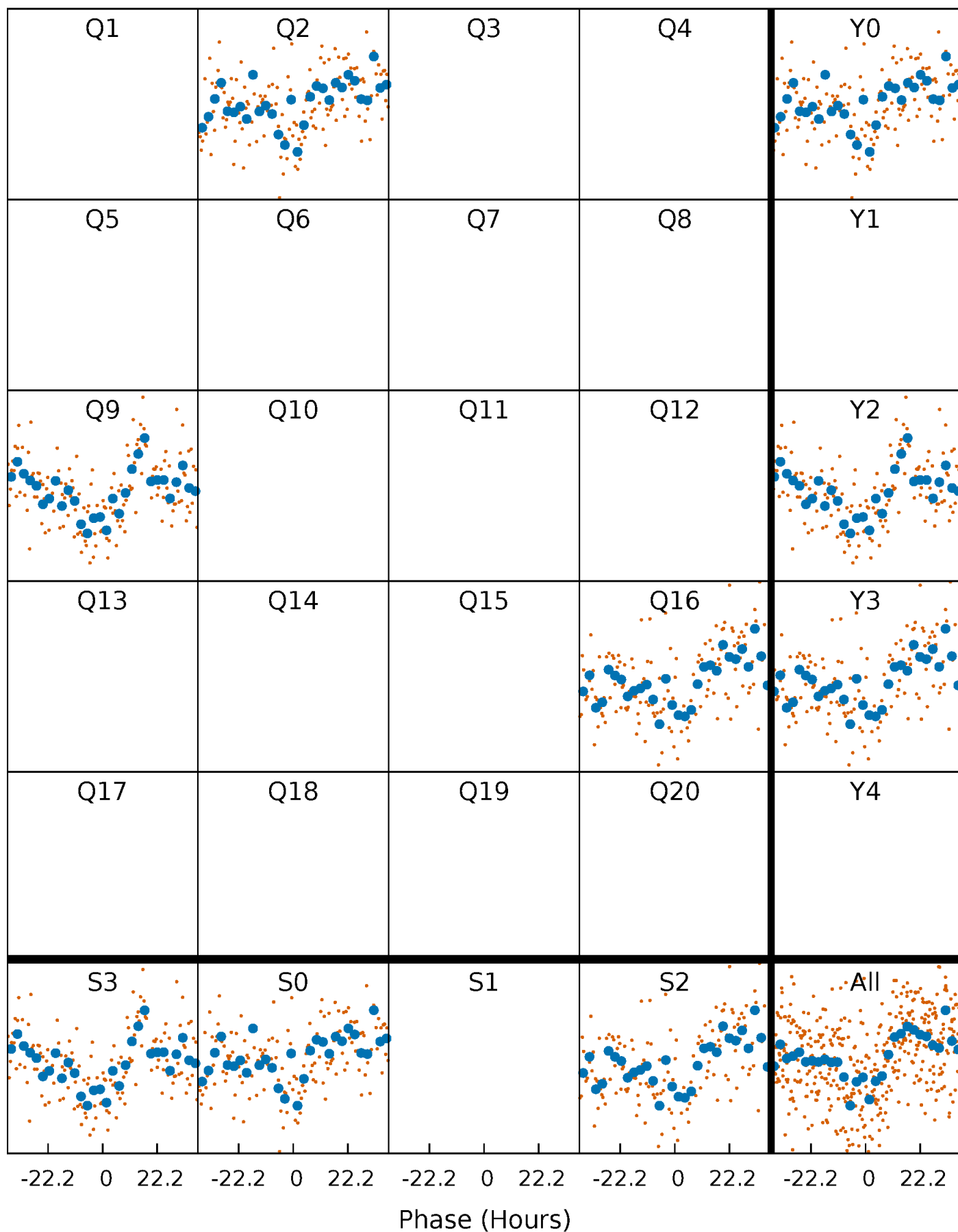


Non-Whitened Vs. Whitened Light Curve



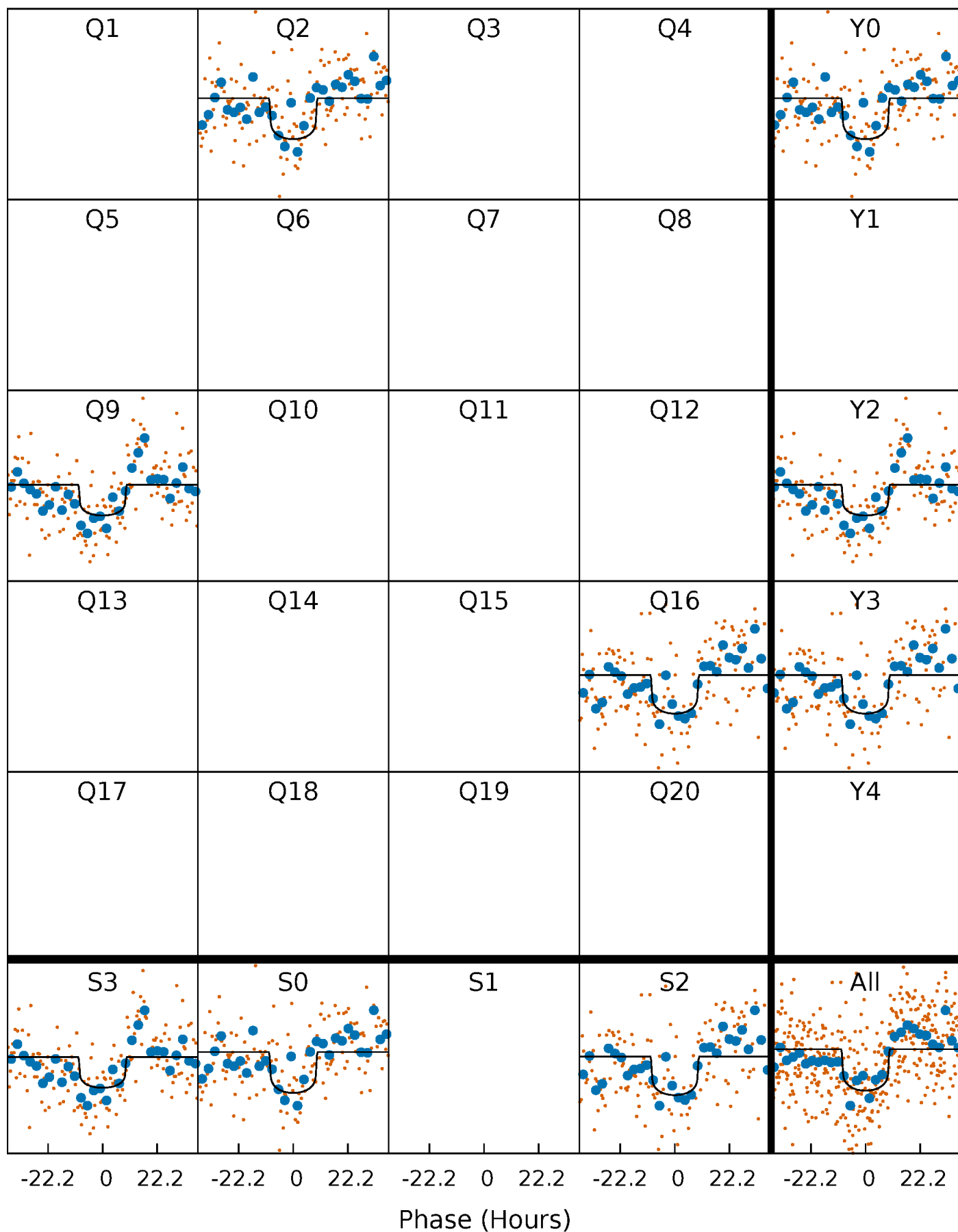
PDC Quarter-Phased Transit Curves

TCE 012555140-01 P=655.246450 Days $T_0=186.015531$ (BKJD)



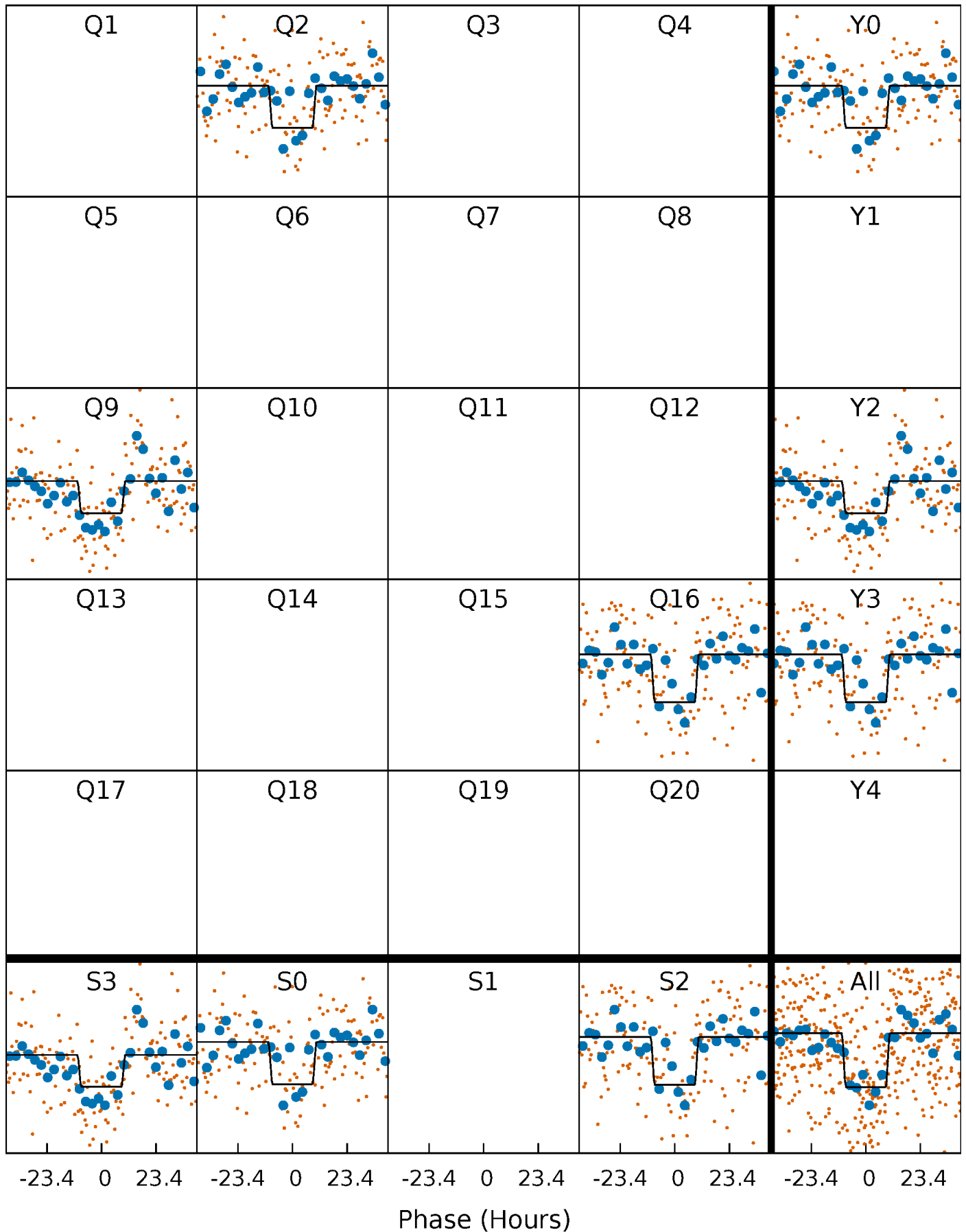
DV Quarter-Phased Transit Curves

TCE 012555140-01 P=655.246450 Days $T_0=186.015531$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

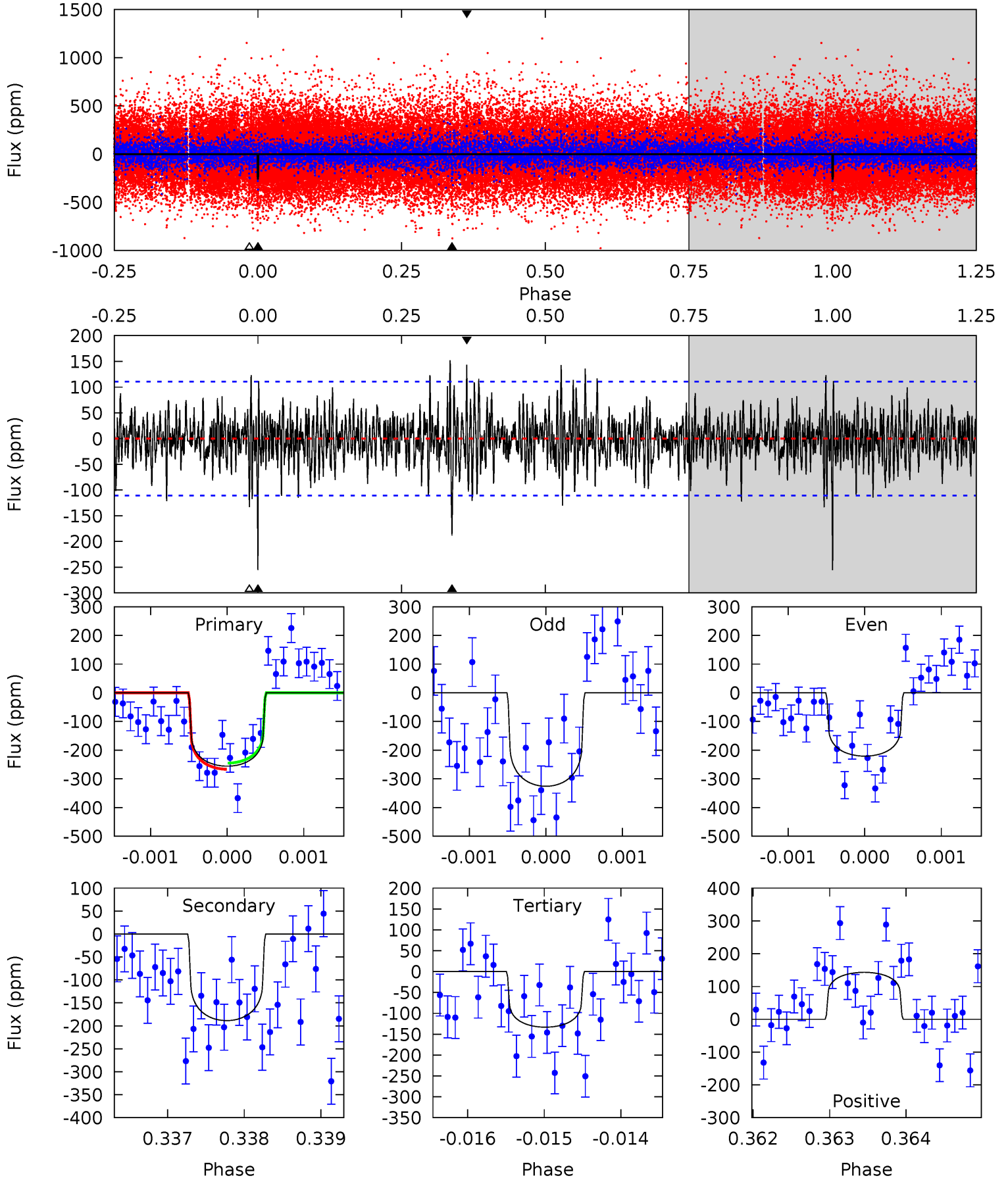
TCE 012555140-01 P=655.263402 Days $T_0=185.993176$ (BKJD)



DV Model-Shift Uniqueness Test

012555140-01, P = 655.246450 Days, E = 186.015531 Days

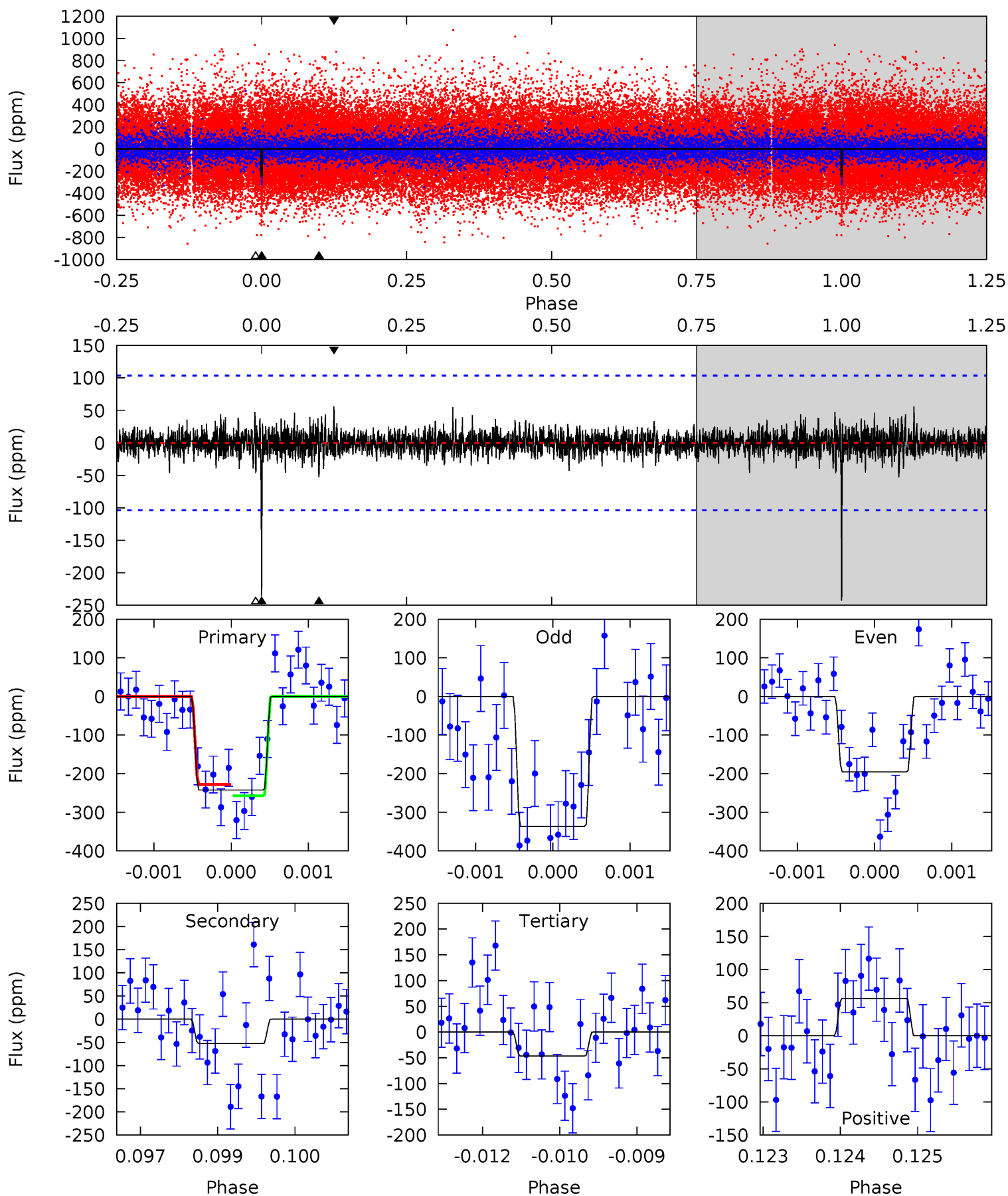
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	9.22	6.51	6.99	5.41	3.23	1.85	5.99	5.51	2.71	2.22	2.44	1.04	0.37	0.52



Alt Model-Shift Uniqueness Test

012555140-01, P = 655.263402 Days, E = 185.993176 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	2.74	2.42	2.93	5.41	3.22	0.64	10.2	9.71	0.32	-0.19	3.48	1.18	0.19	0.77



Stellar Parameters For KIC 012555140

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6420^{+154}_{-192}	$4.492^{+0.050}_{-0.200}$	$-0.560^{+0.300}_{-0.350}$	$0.941^{+0.272}_{-0.091}$	$1.001^{+0.121}_{-0.121}$	$1.695^{+0.432}_{-0.880}$
	+2%/-3%	+1%/-4%	+54%/-62%	+29%/-10%	+12%/-12%	+26%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012555140-01 / KOI 8239.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-189 ± 20	$1.74^{+0.59}_{-0.56}$	322^{+23}_{-15}	5891^{+1350}_{-706}	75072^{+84907}_{-35437}
Alt.	-53 ± 19	$1.67^{+0.58}_{-0.54}$	321^{+22}_{-14}	4515^{+944}_{-574}	22132^{+31825}_{-12217}

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

DV Centroid Data

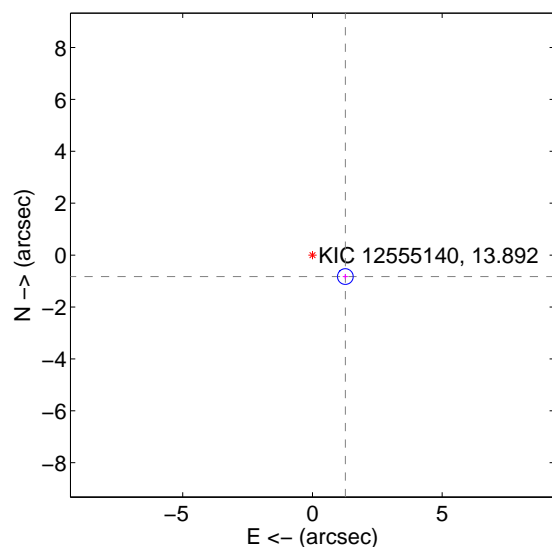
Supplemental centroid analysis for 012555140-01. Kepler magnitude: 13.89. Transit SNR 7.68

There are 1 quarters with good PRF difference image offsets

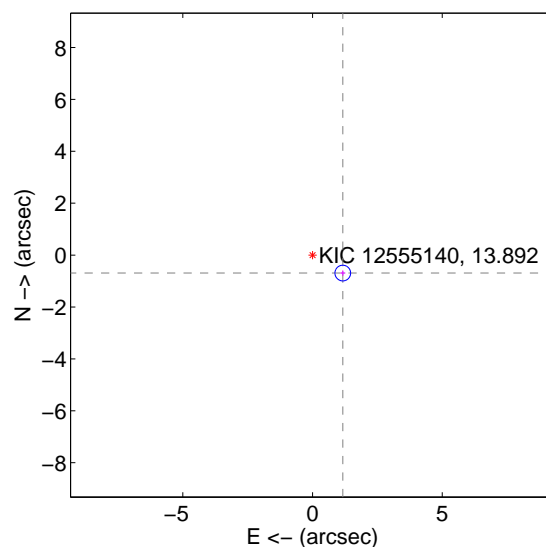
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.514 ± 0.101	15.02	-1.268 ± 0.100	-0.827 ± 0.102
PRF-fit source offset from KIC position	1.356 ± 0.101	13.46	-1.165 ± 0.100	-0.693 ± 0.102
photometric centroid source offset	2.85 ± 1.64	1.74	-1.96 ± 1.62	2.07 ± 1.66

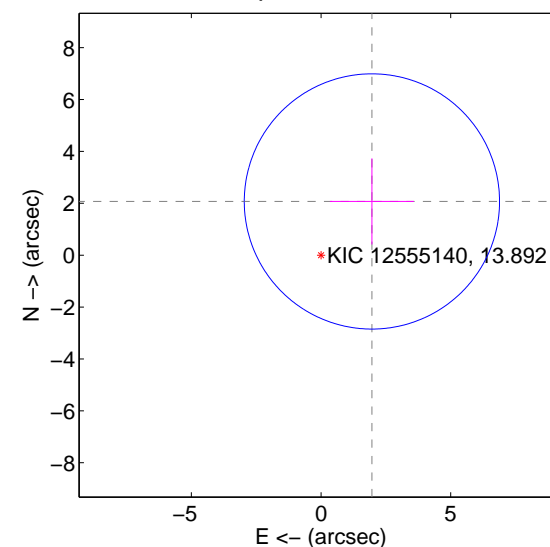
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

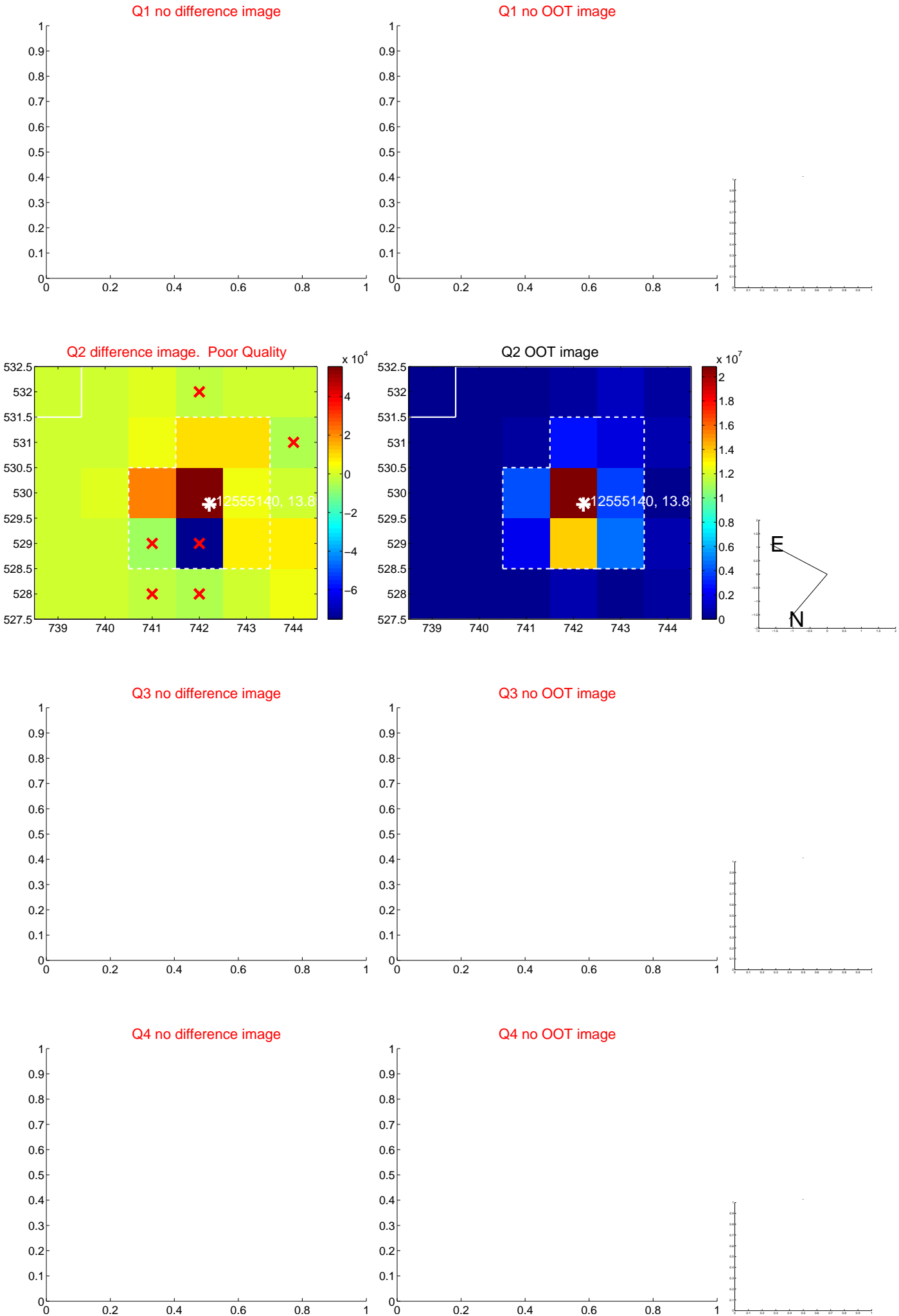


offset from photometric centroids



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- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

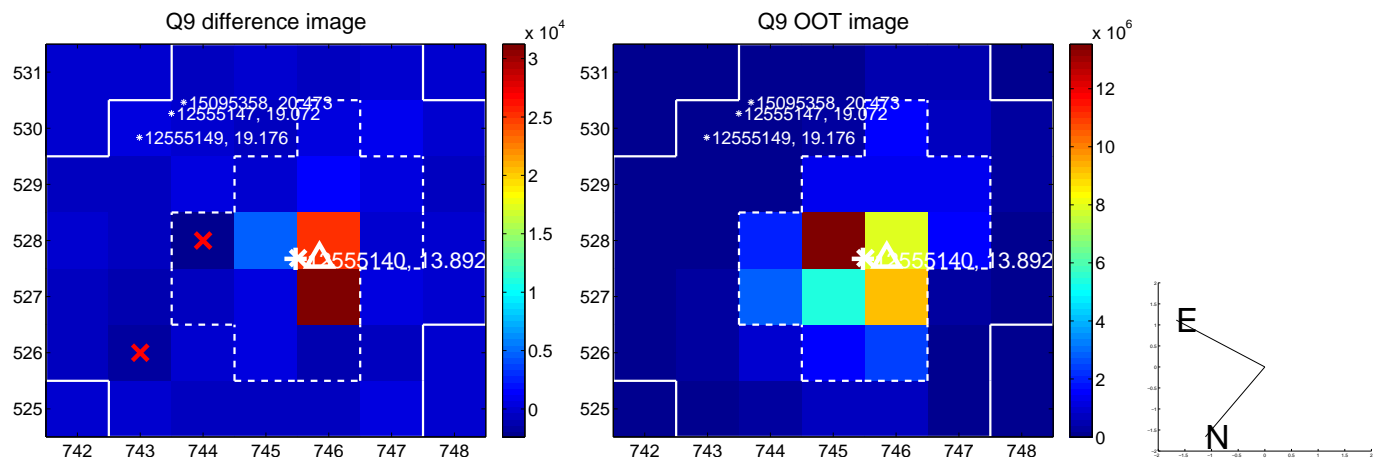
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



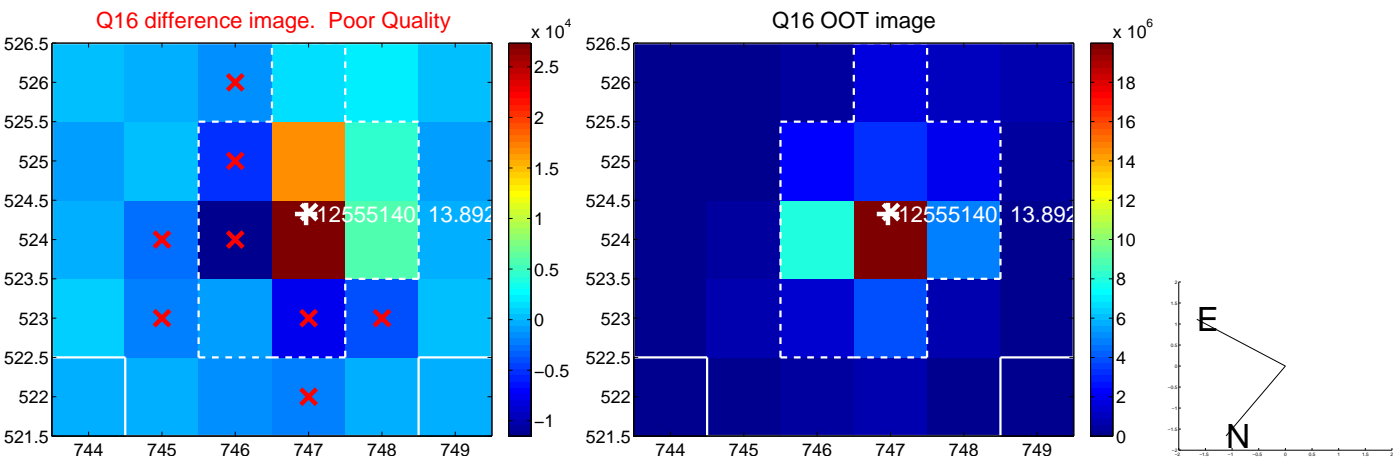
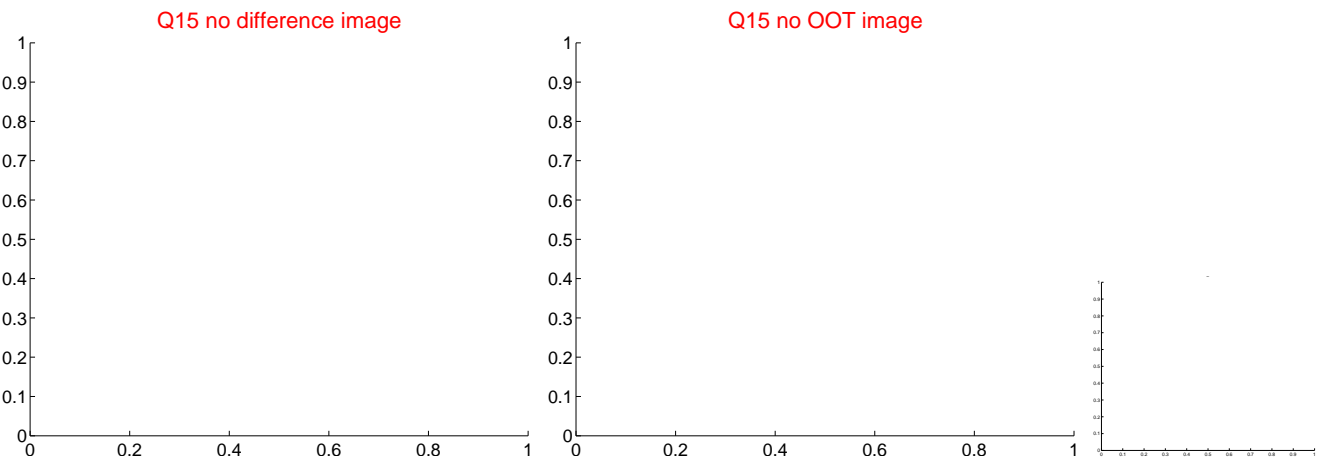
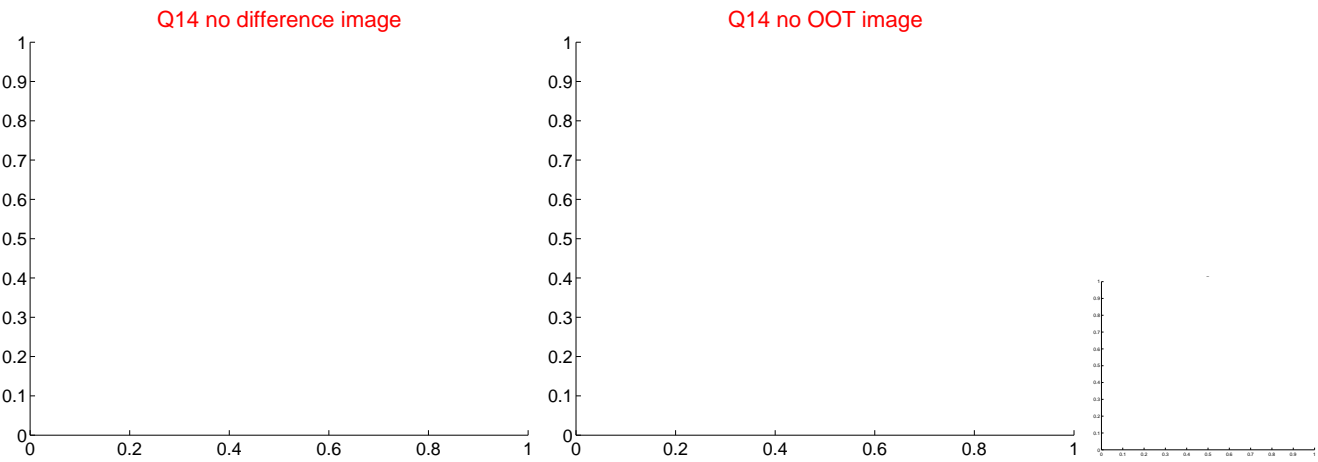
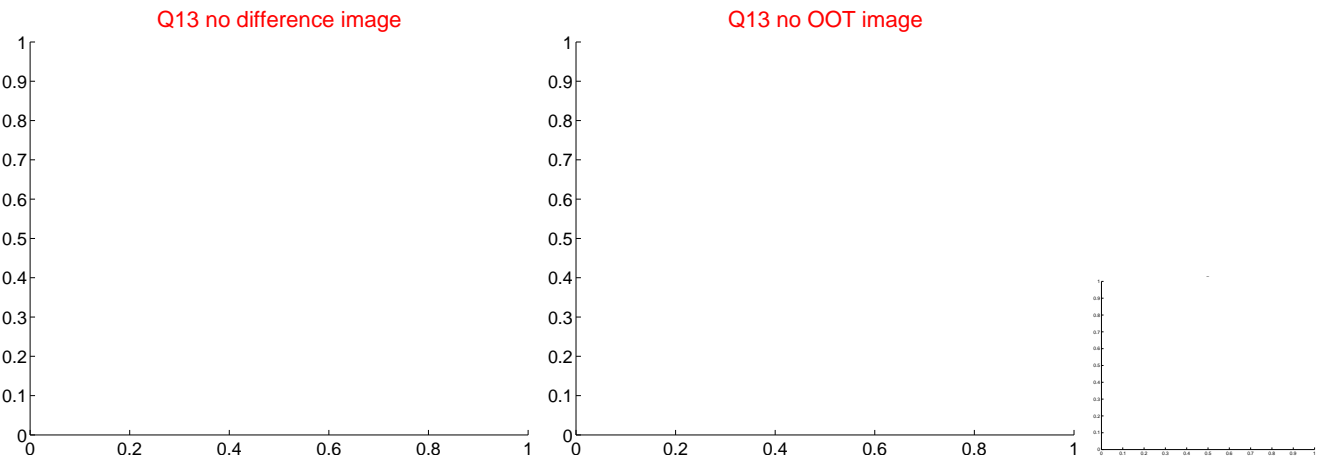
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



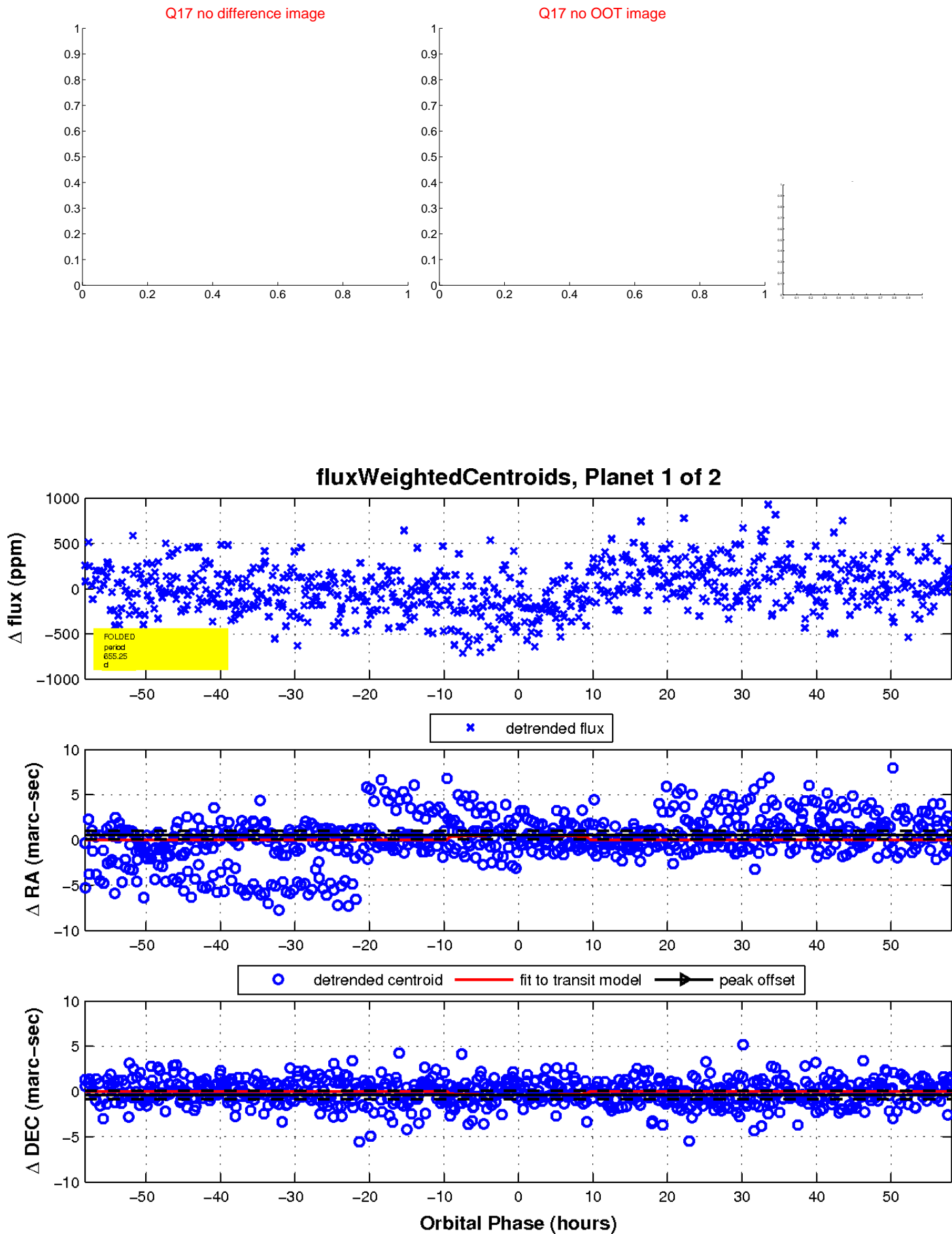
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

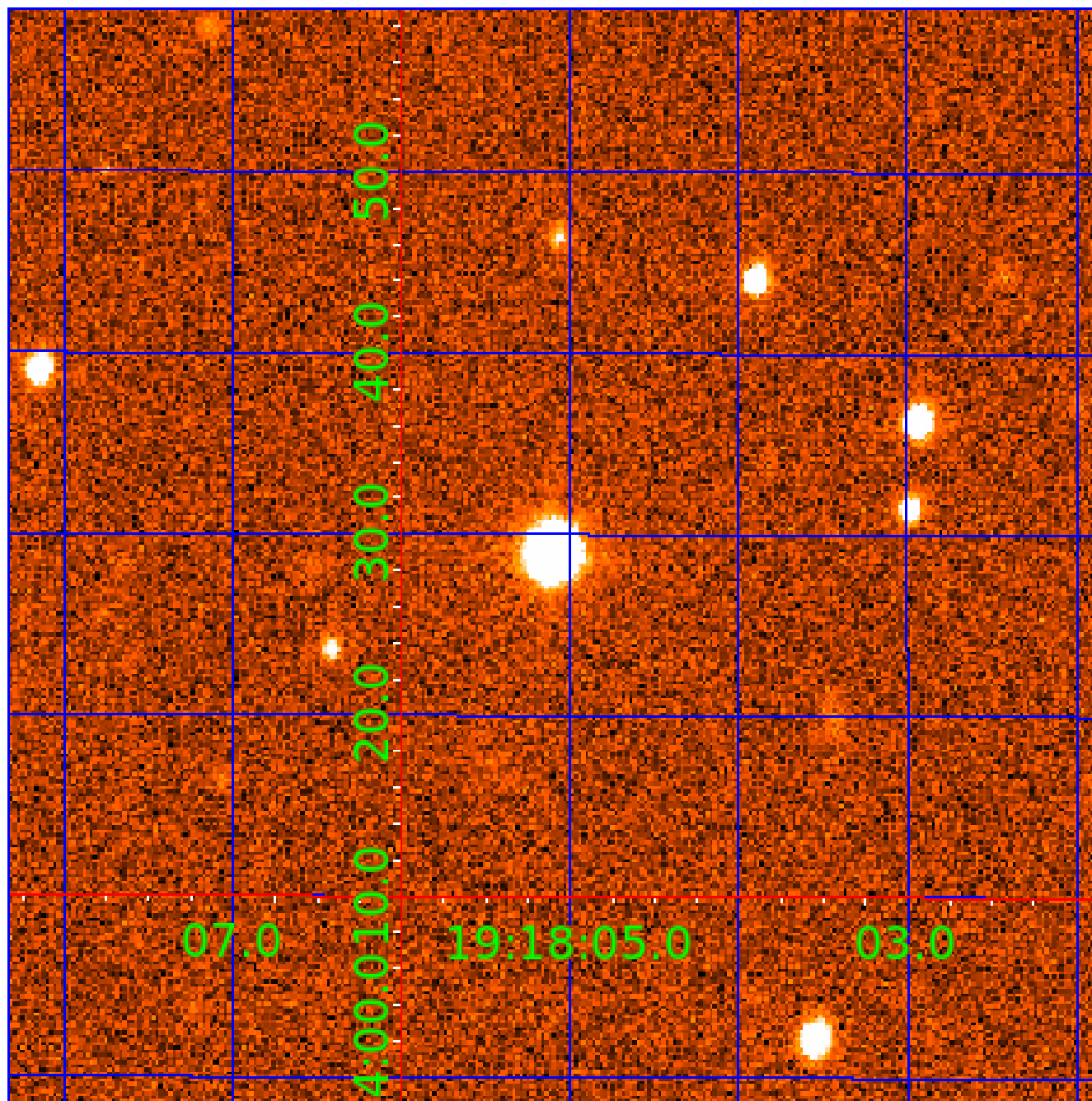


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012555140

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})
012555140-01	OBS	8239.01	655.246450	186.015531	272.6	19.399	7.6	7.7	0.94	6420	1.64	0.62
012555140-02	OBS	No	362.657180	454.187307	359.3	3.856	7.6	7.5	0.94	6420	1.95	1.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012555140-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
012555140-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

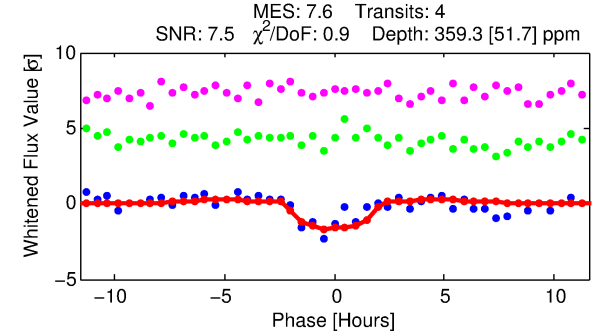
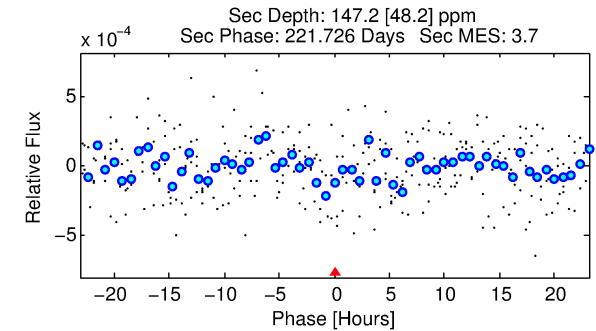
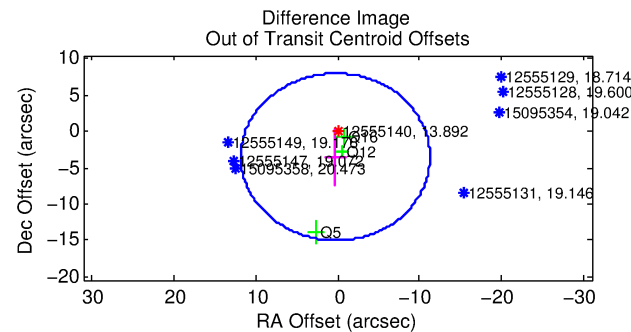
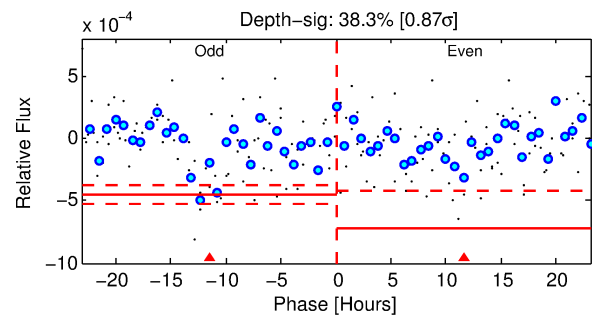
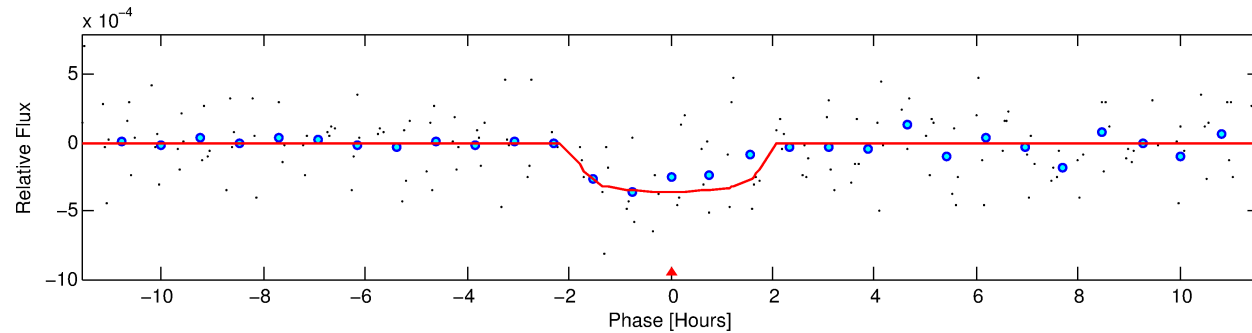
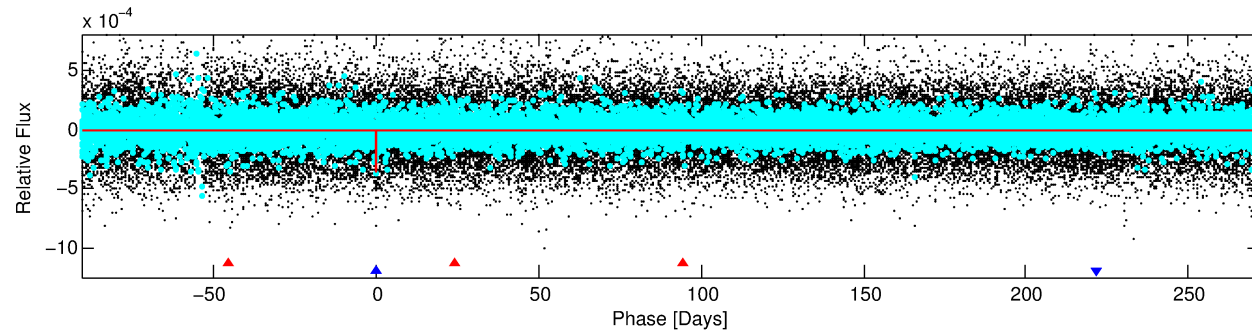
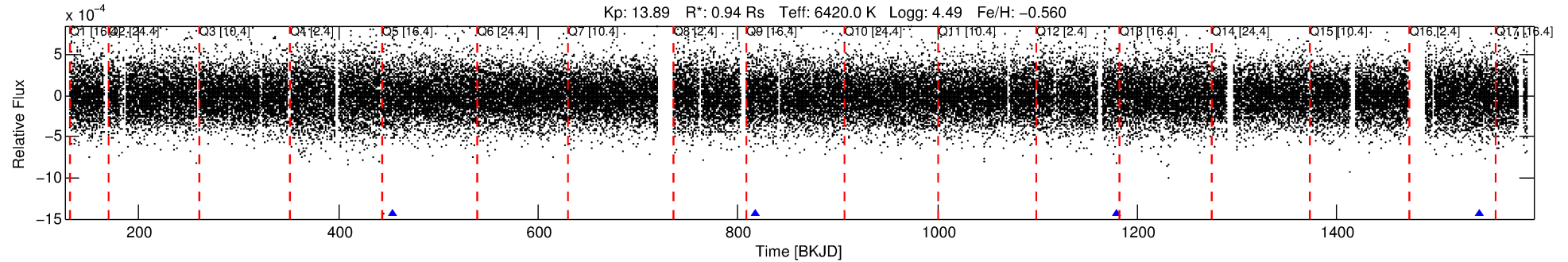
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012555140-02

No Significant Match Found

DV One-Page Summary

KIC: 12555140 Candidate: 2 of 2 Period: 362.657 d



DV Fit Results:

Period = 362.65718 [0.00629] d
Epoch = 454.1873 [0.0099] BKJD
Rp/R* = 0.0190 [0.0245]
a/R* = 475.19 [3377.19]
b = 0.78 [3.73]
Seff = 1.36 [0.52]
Teq = 275 [26] K
Rp = 1.95 [2.58] Re
a = 0.9964 [0.2455] AU
Ag = 21076.47 [55257.20] [0.38 σ]
Teffp = 5128 [3332] K [1.46 σ]

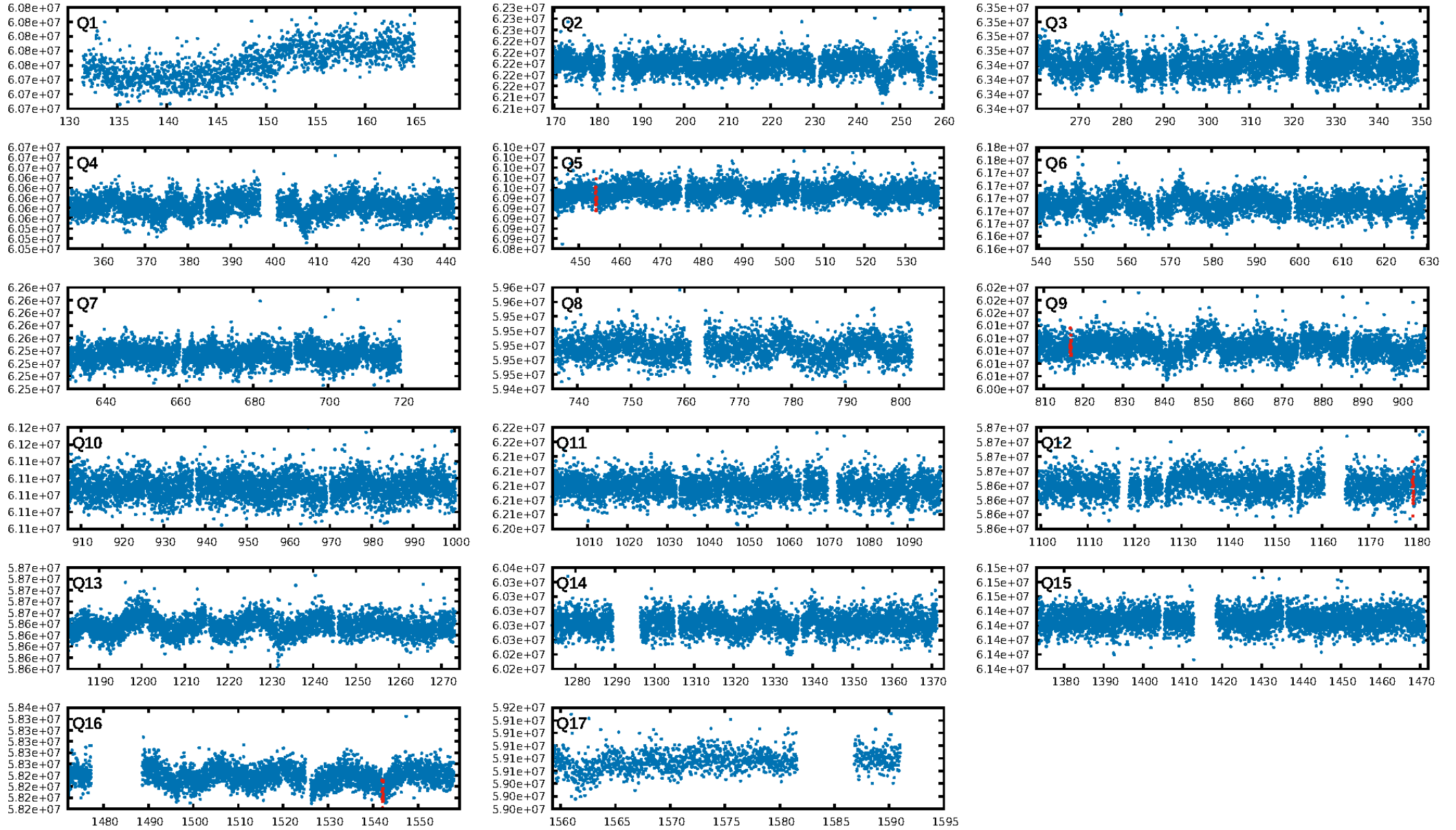
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [355.03 σ]
ModelChiSquare2-sig: 1.0%
ModelChiSquareGof-sig: 94.3%
Bootstrap-pfa: 8.57e-14
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.9489
Centroid-sig: 28.5%
Centroid-so: 1.590 arcsec [0.67 σ]
OotOffset-rm: 3.534 arcsec [0.92 σ]
OotOffset-st: 0/0/2/1 [3]
KicOffset-rm: 3.355 arcsec [0.87 σ]
KicOffset-st: 0/0/2/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [4/4]

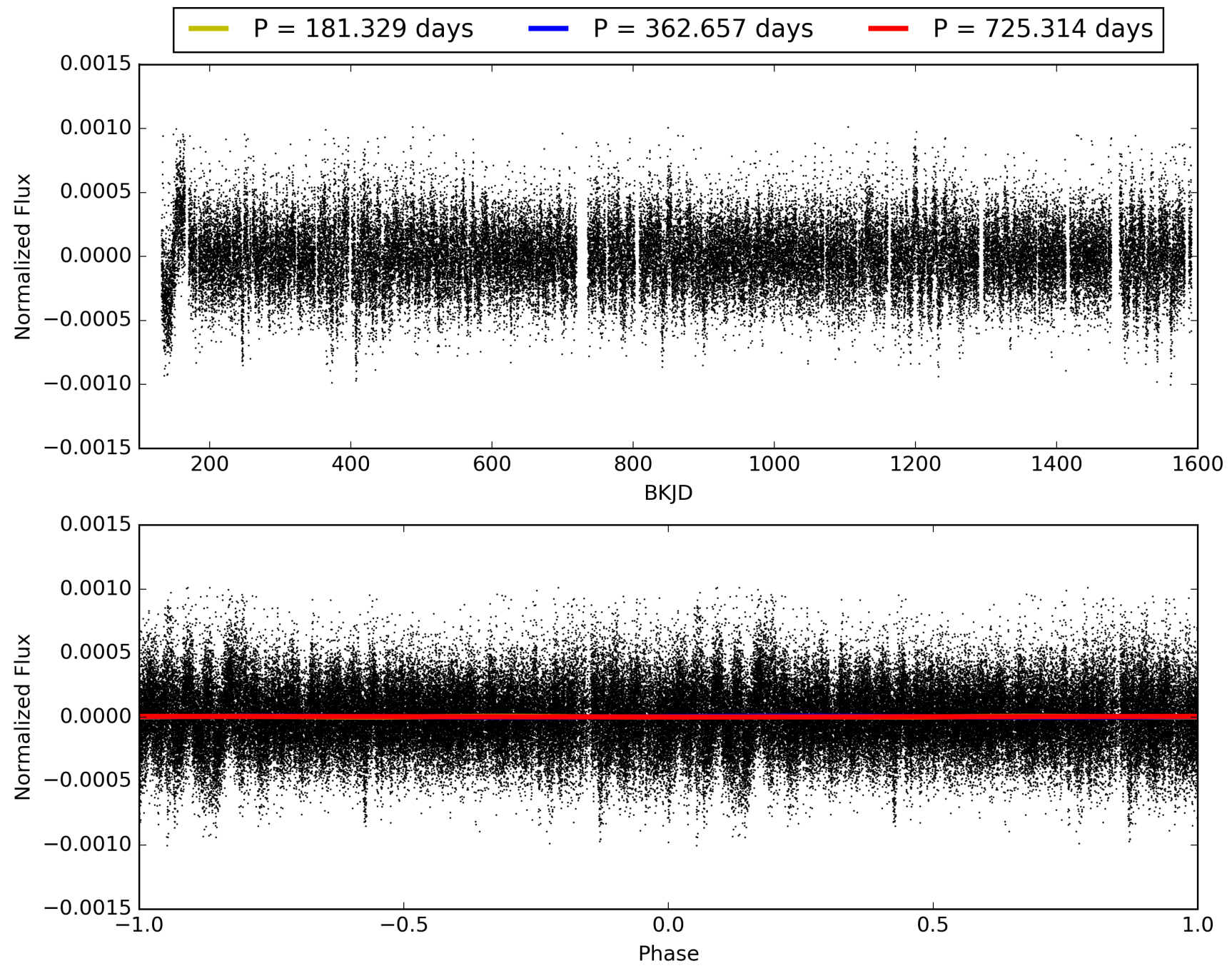
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:09:35 Z

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

TCE 012555140-02, PDC Light Curves

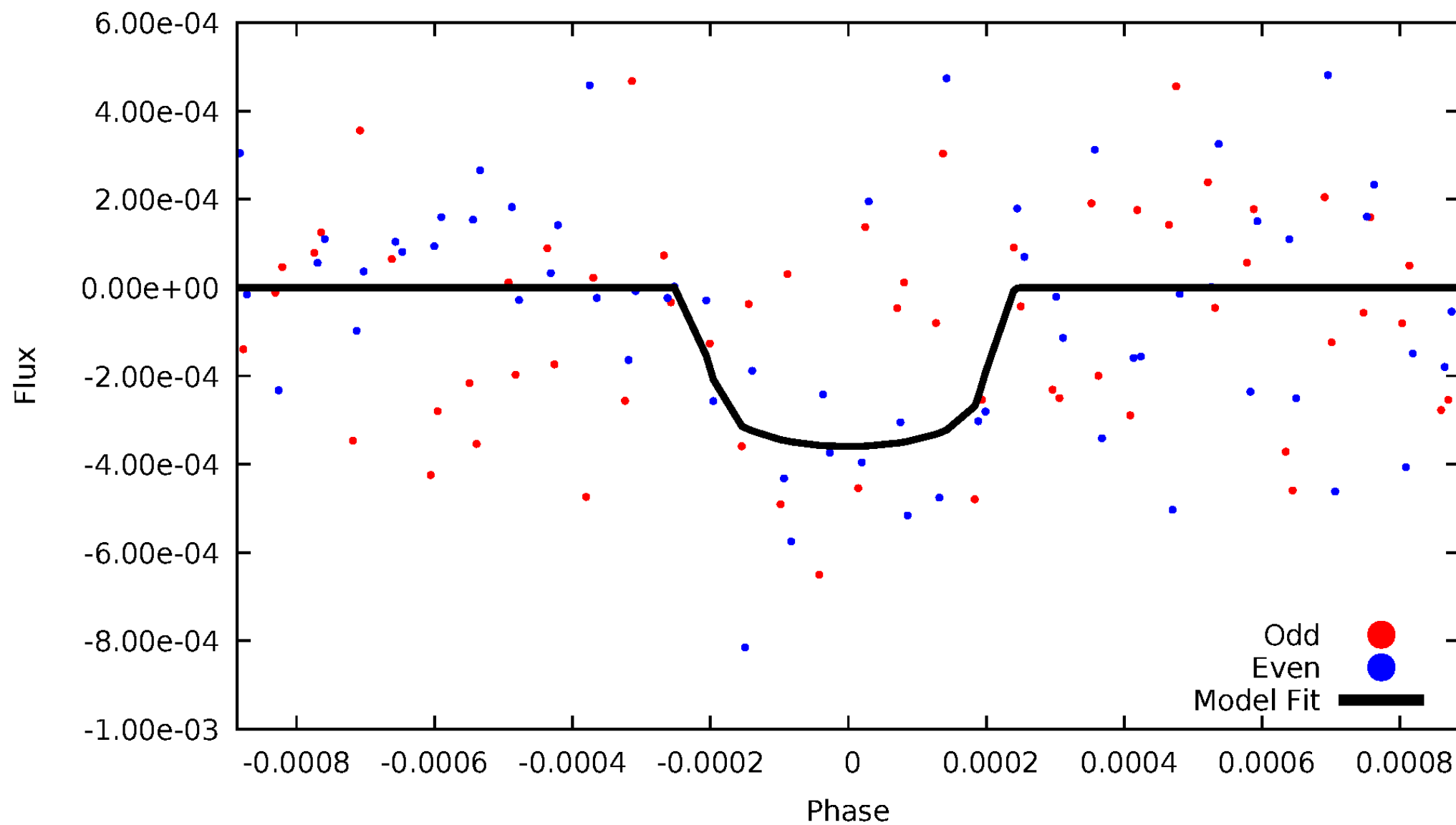


TCE 012555140-02



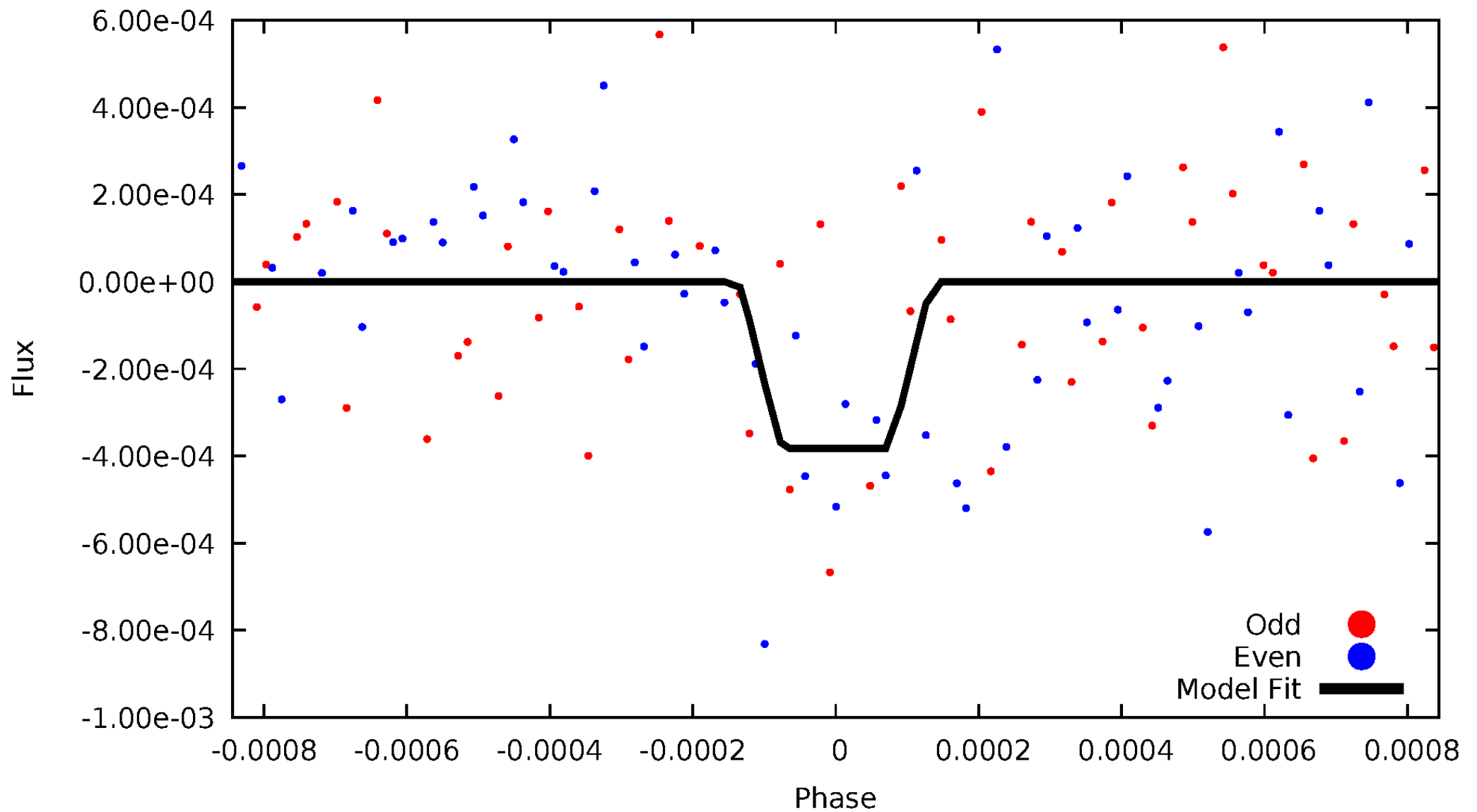
DV Odd/Even

TCE 012555140-02



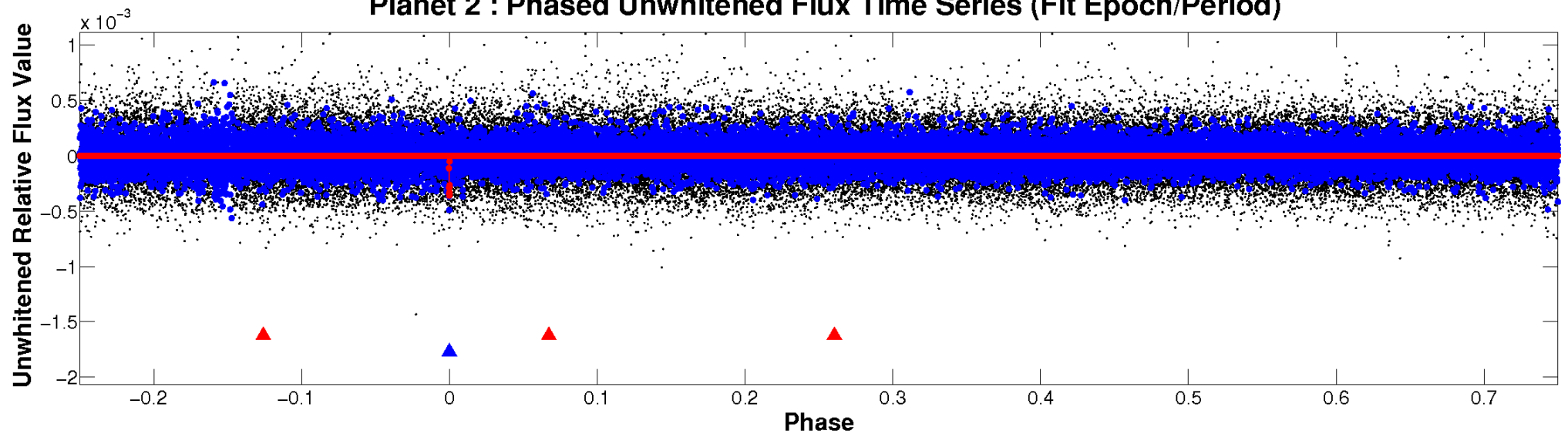
ALT Odd/Even

TCE 012555140-02

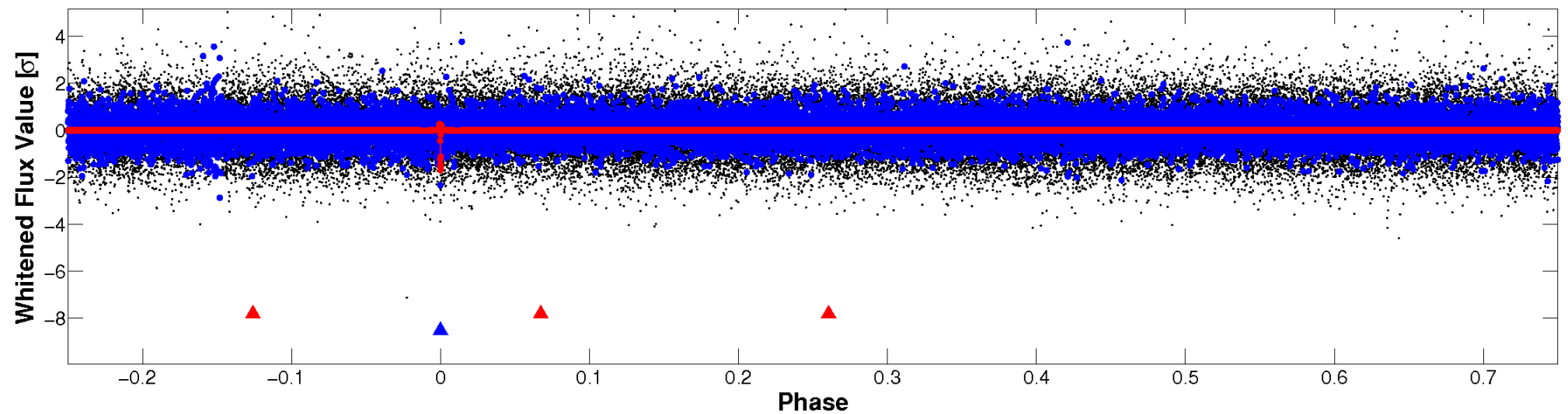


Non-Whitened Vs. Whitened Light Curve

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

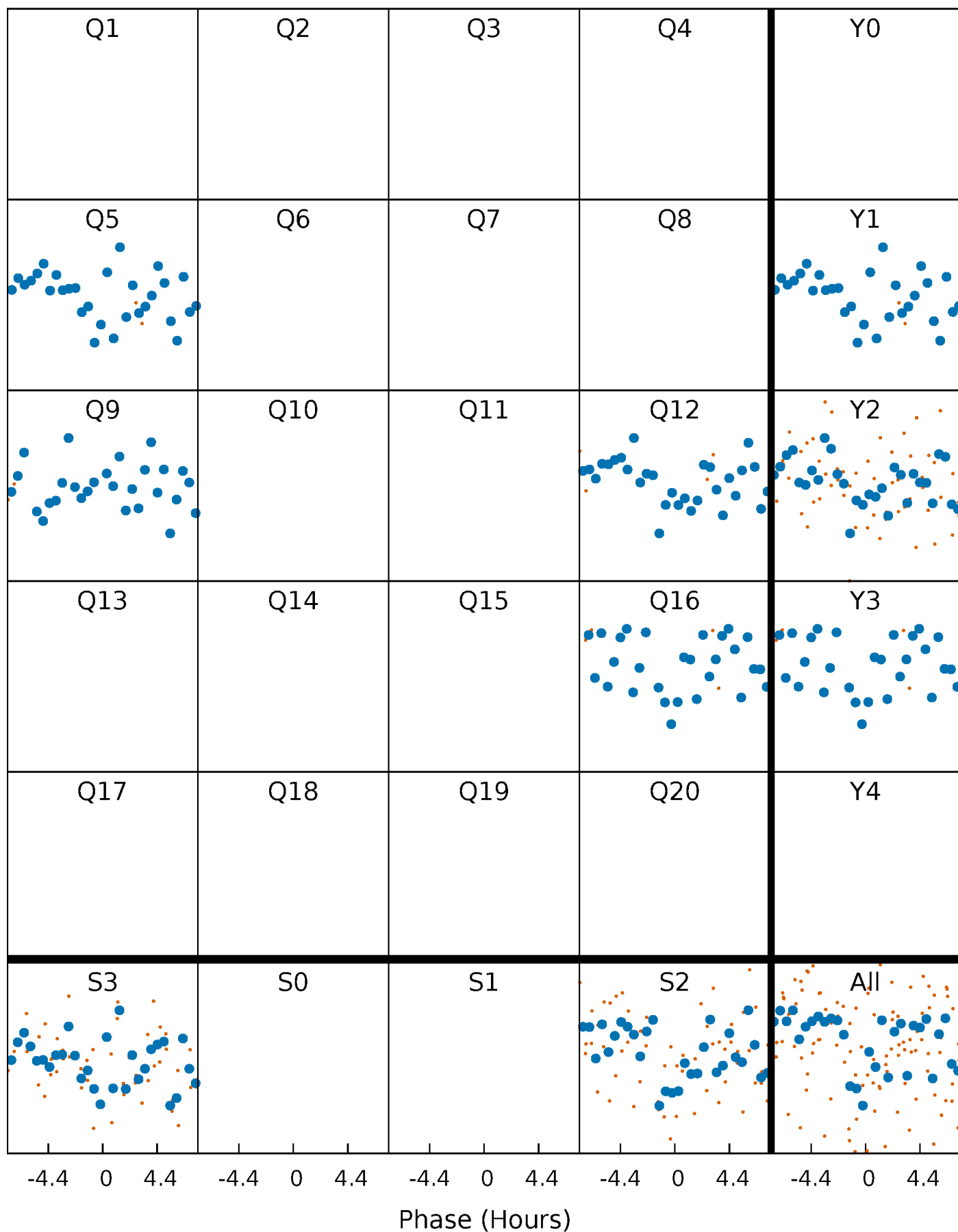


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 012555140-02 P=362.657180 Days $T_0=454.187307$ (BKJD)



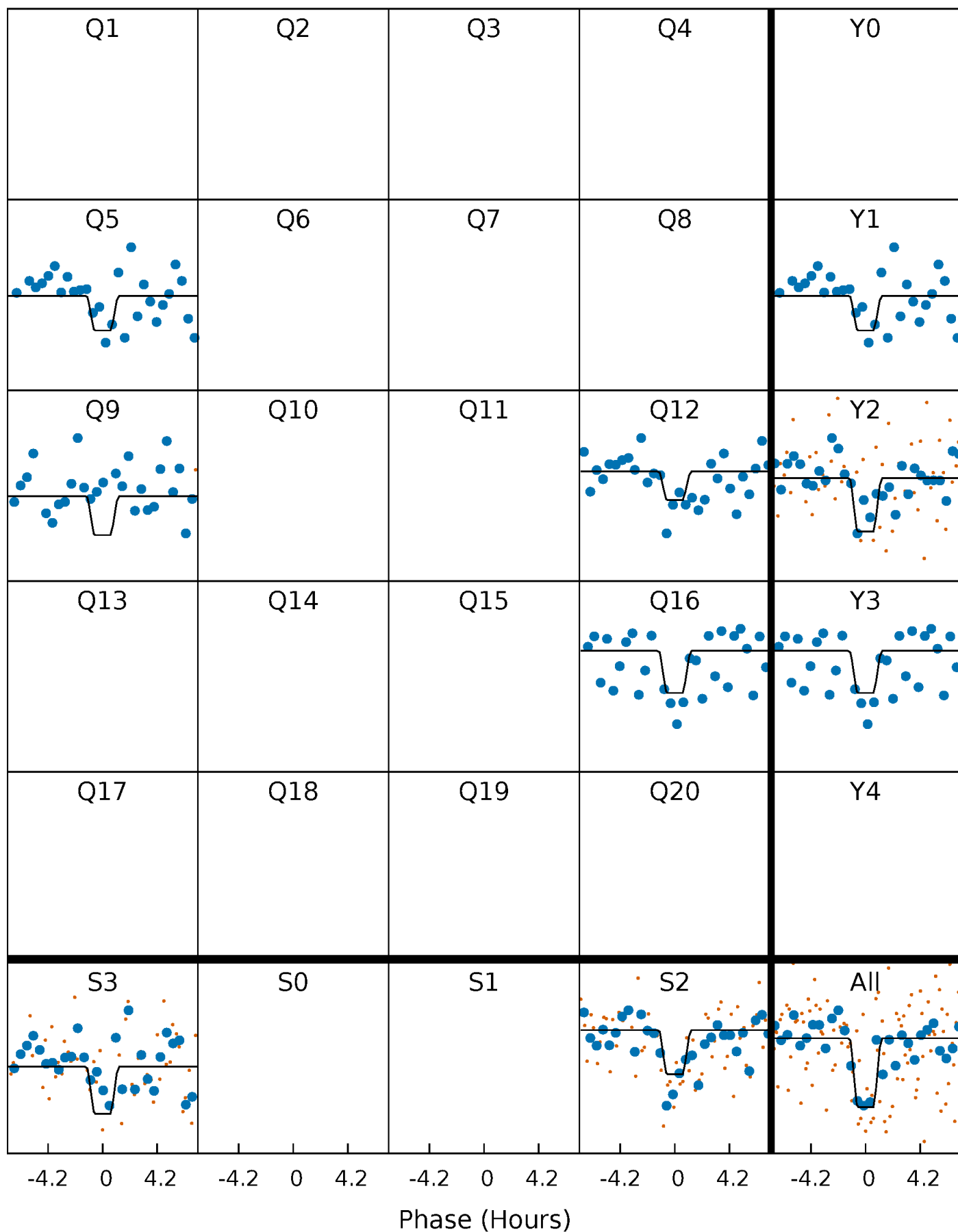
DV Quarter-Phased Transit Curves

TCE 012555140-02 $P=362.657180$ Days $T_0=454.187307$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

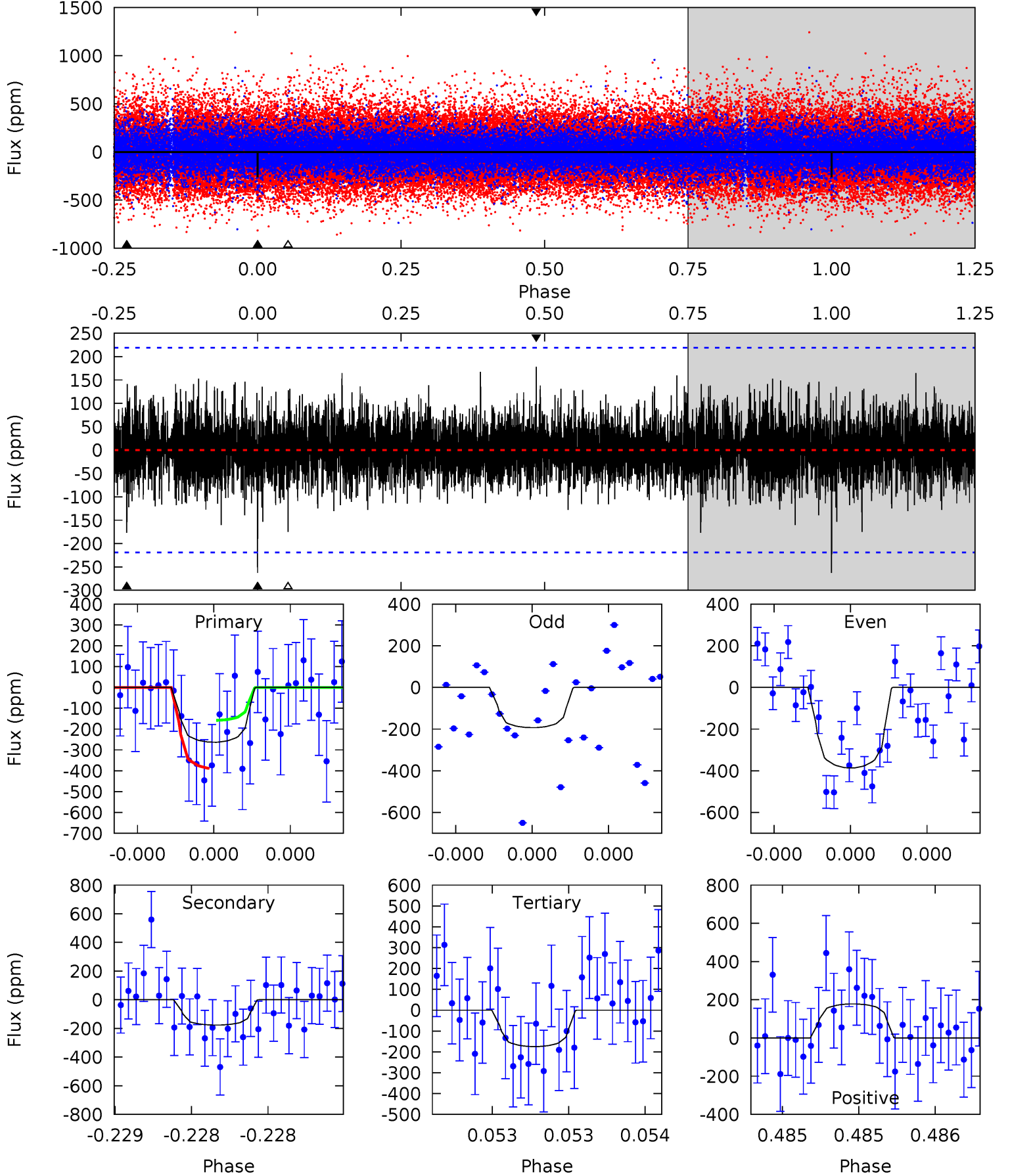
TCE 012555140-02 P=362.663186 Days $T_0=454.156984$ (BKJD)



DV Model-Shift Uniqueness Test

012555140-02, $P = 362.657180$ Days, $E = 91.530127$ Days

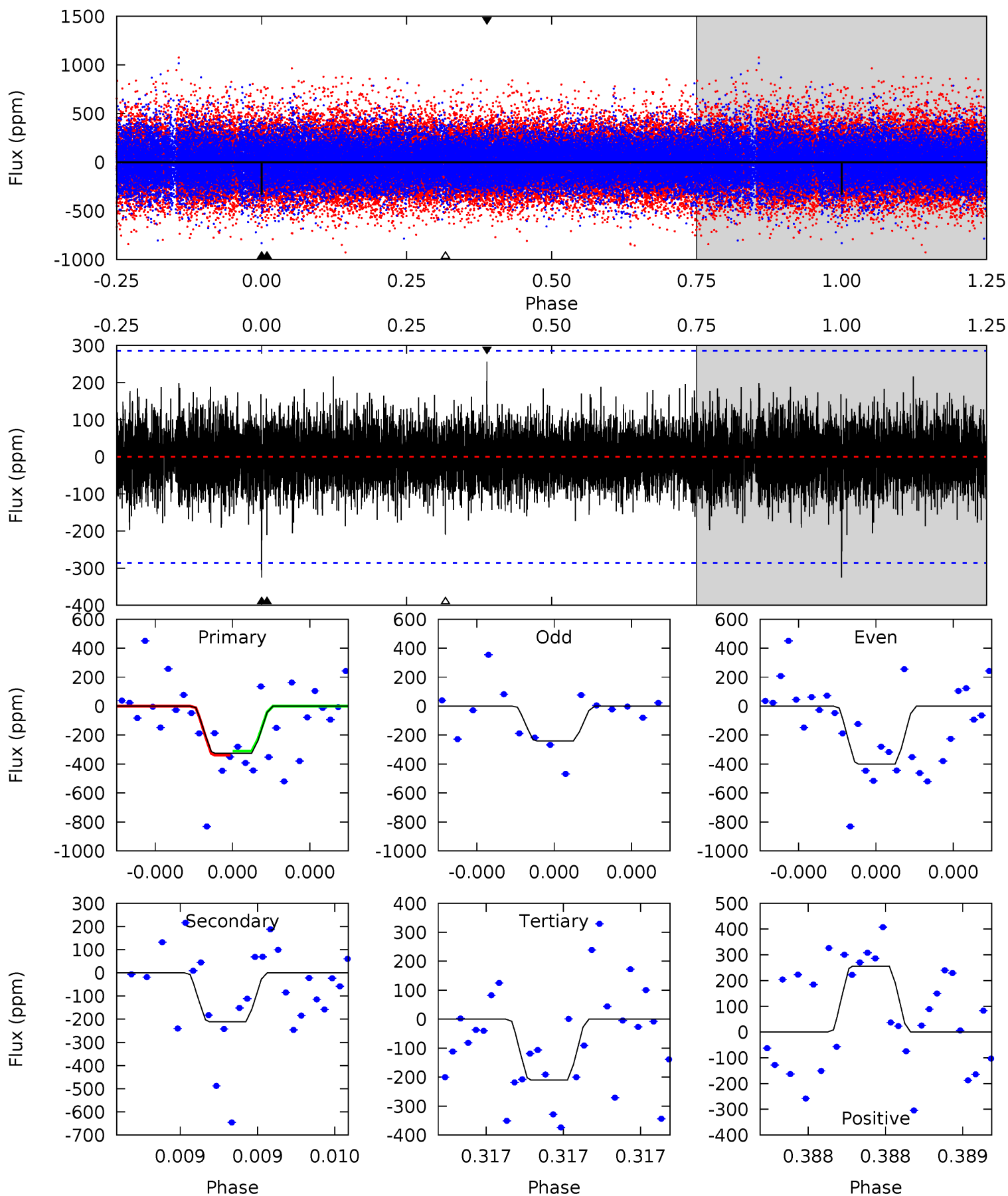
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.72	4.51	4.46	4.55	5.59	3.51	1.07	2.26	2.17	0.05	-0.04	2.43	0.84	0.40	2.88



Alt Model-Shift Uniqueness Test

012555140-02, P = 362.663186 Days, E = 91.493798 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.46	4.18	4.16	5.09	5.67	3.63	1.07	2.29	1.37	0.02	-0.90	1.58	0.74	0.44	0.29



Stellar Parameters For KIC 012555140

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6420^{+154}_{-192}	$4.492^{+0.050}_{-0.200}$	$-0.560^{+0.300}_{-0.350}$	$0.941^{+0.272}_{-0.091}$	$1.001^{+0.121}_{-0.121}$	$1.695^{+0.432}_{-0.880}$
	+2%/-3%	+1%/-4%	+54%/-62%	+29%/-10%	+12%/-12%	+26%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012555140-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-177 ± 39	$2.65^{+2.42}_{-1.79}$	391^{+28}_{-17}	4811^{+3567}_{-1040}	$13495^{+115414}_{-10073}$
Alt.	-211 ± 50	$2.85^{+2.26}_{-1.72}$	392^{+24}_{-18}	4813^{+2954}_{-923}	13331^{+74347}_{-9065}

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 $A_{obs} \gg 1.0$

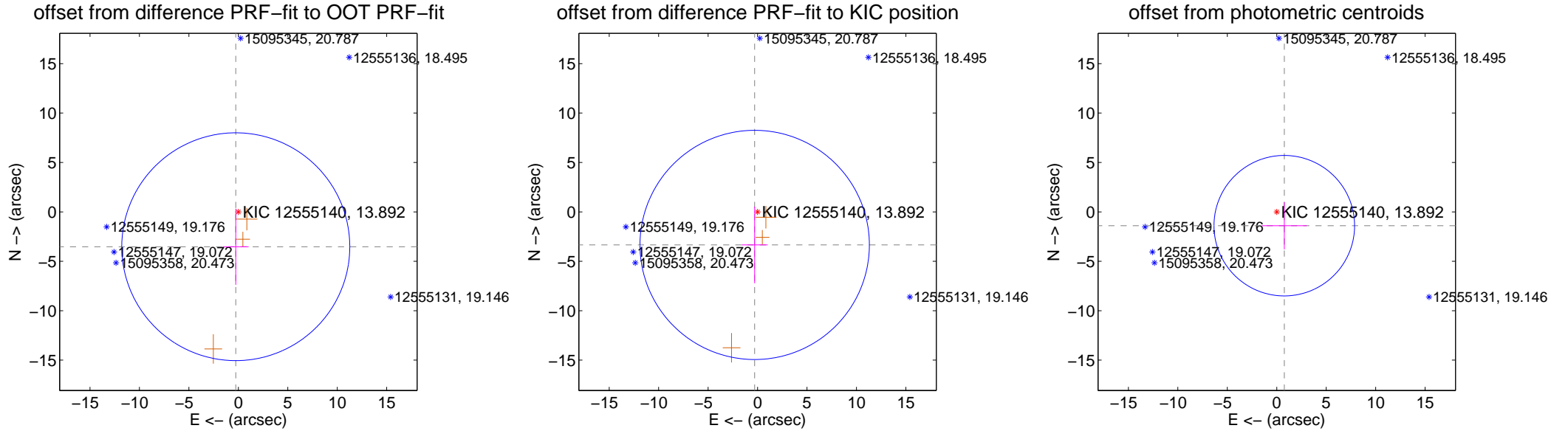
DV Centroid Data

Supplemental centroid analysis for 012555140-02. Kepler magnitude: 13.89. Transit SNR 7.54

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.534 ± 3.842	0.92	0.261 ± 1.296	-3.524 ± 3.851
PRF-fit source offset from KIC position	3.355 ± 3.865	0.87	0.291 ± 1.314	-3.343 ± 3.878
photometric centroid source offset	1.59 ± 2.37	0.67	-0.76 ± 2.28	-1.40 ± 2.39

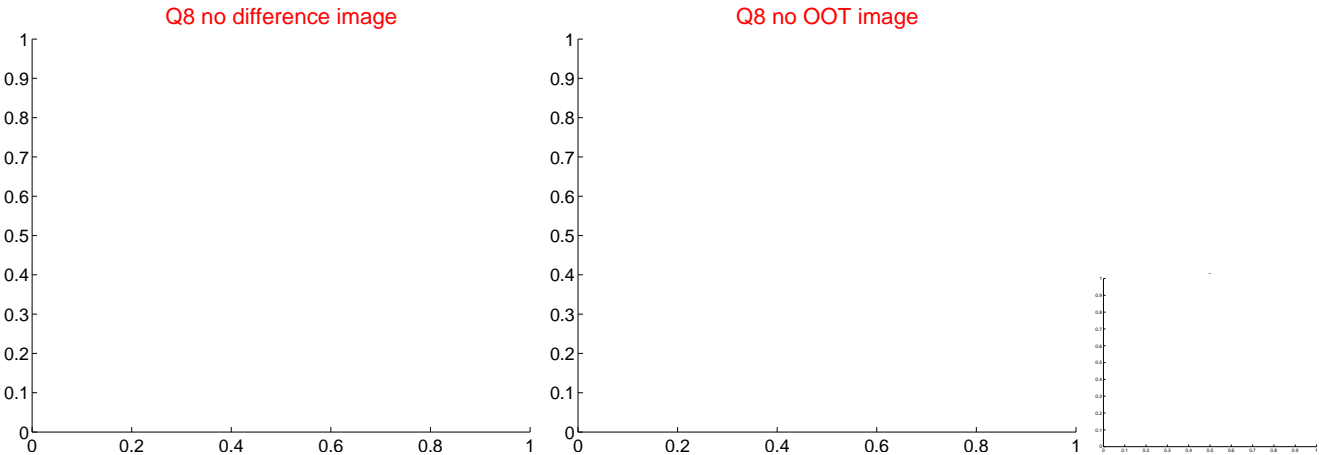
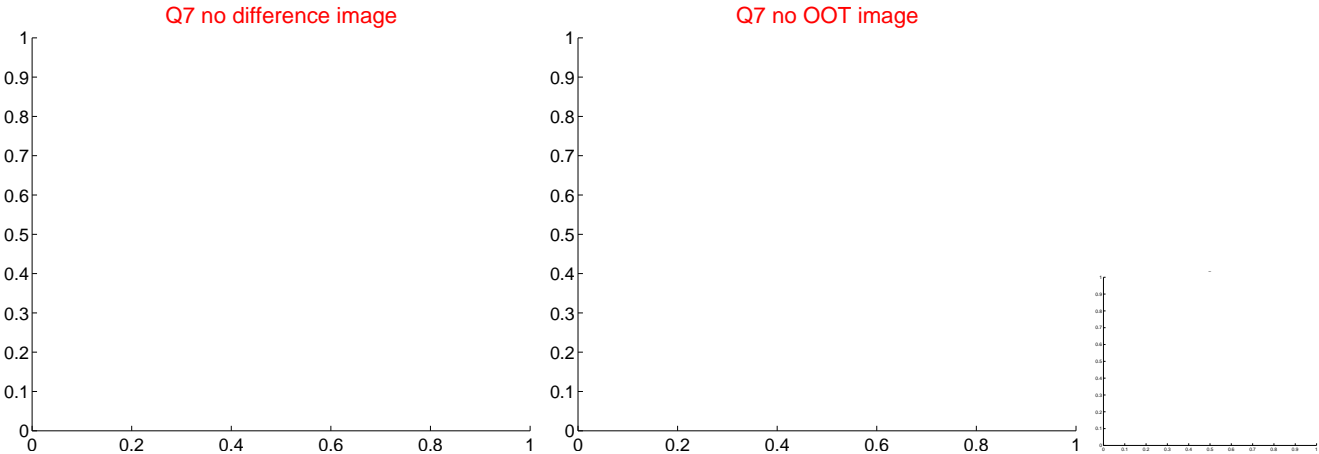
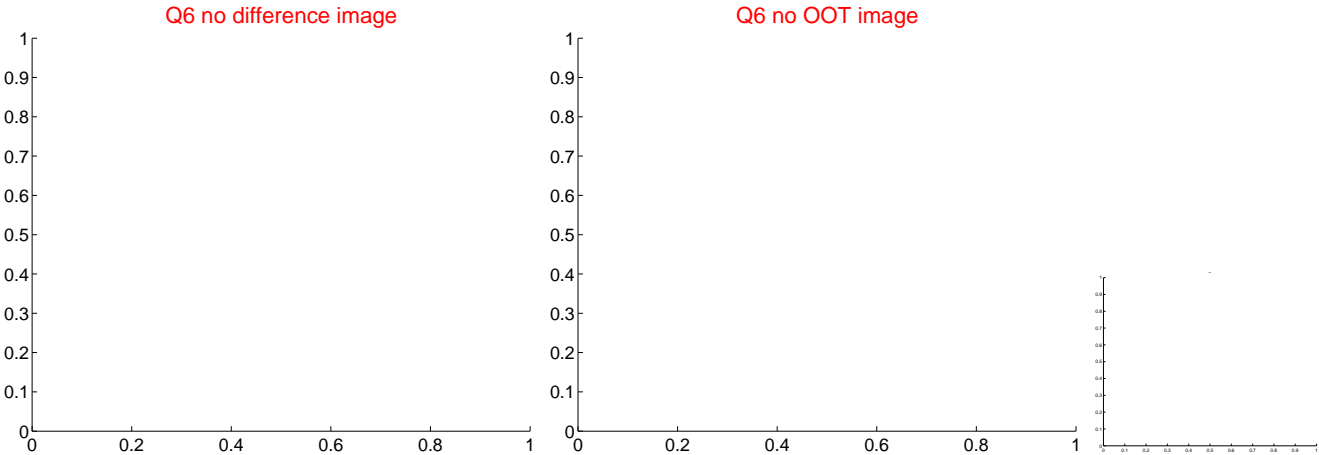
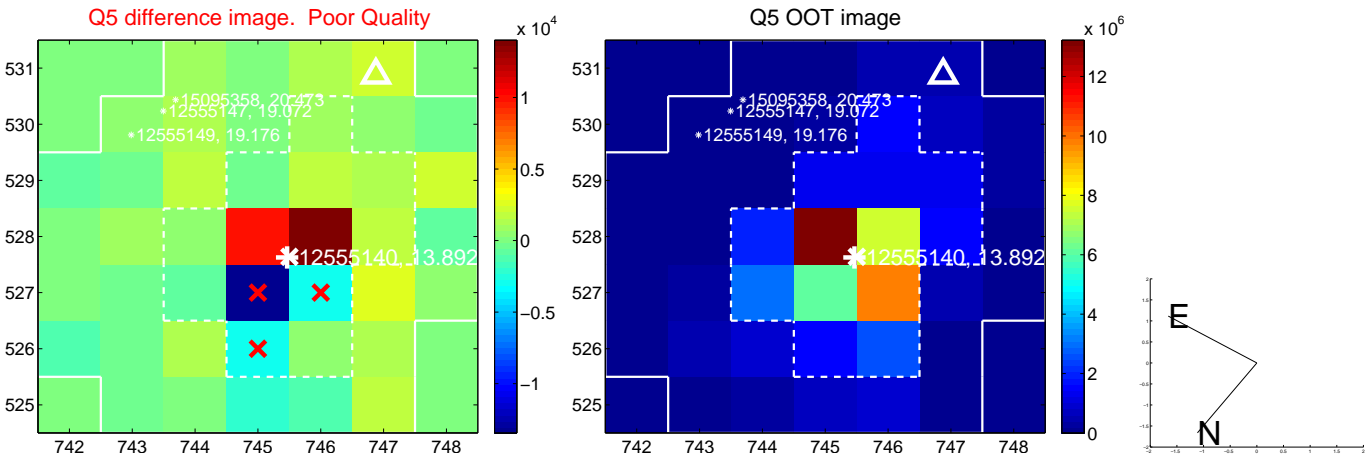


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

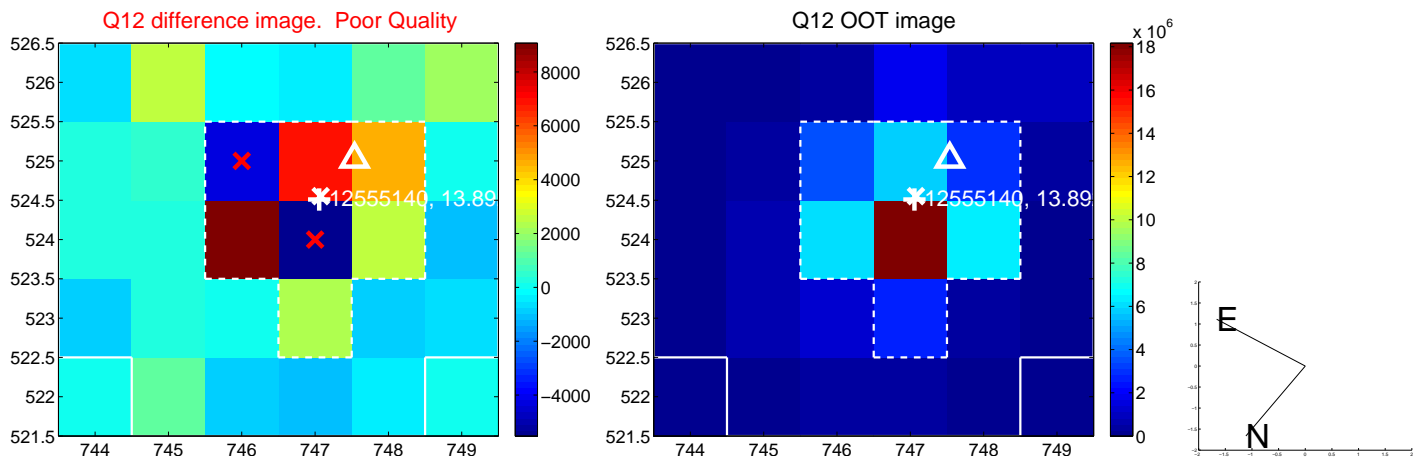
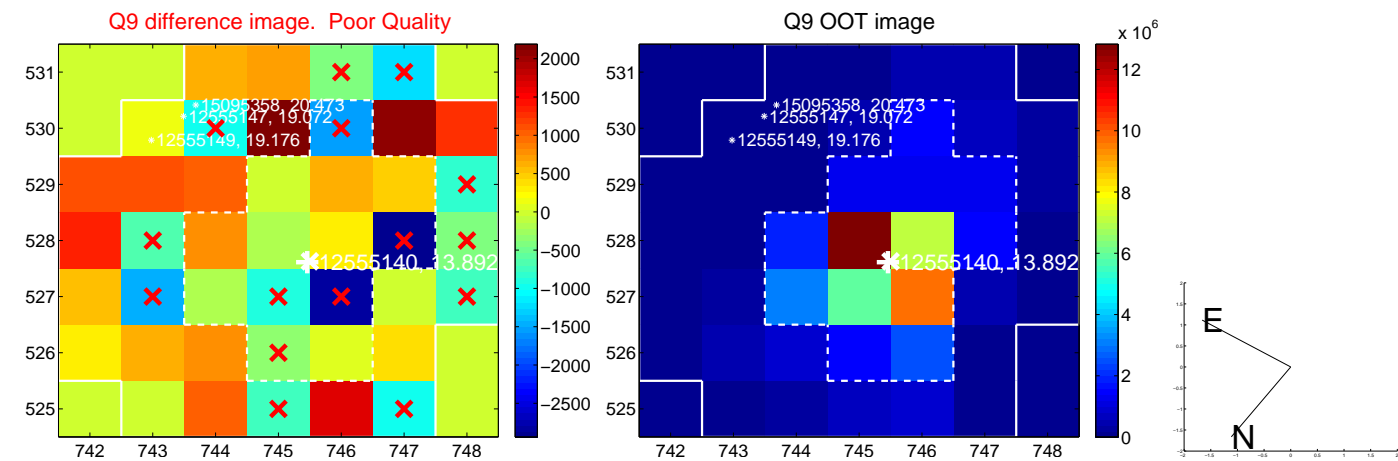
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



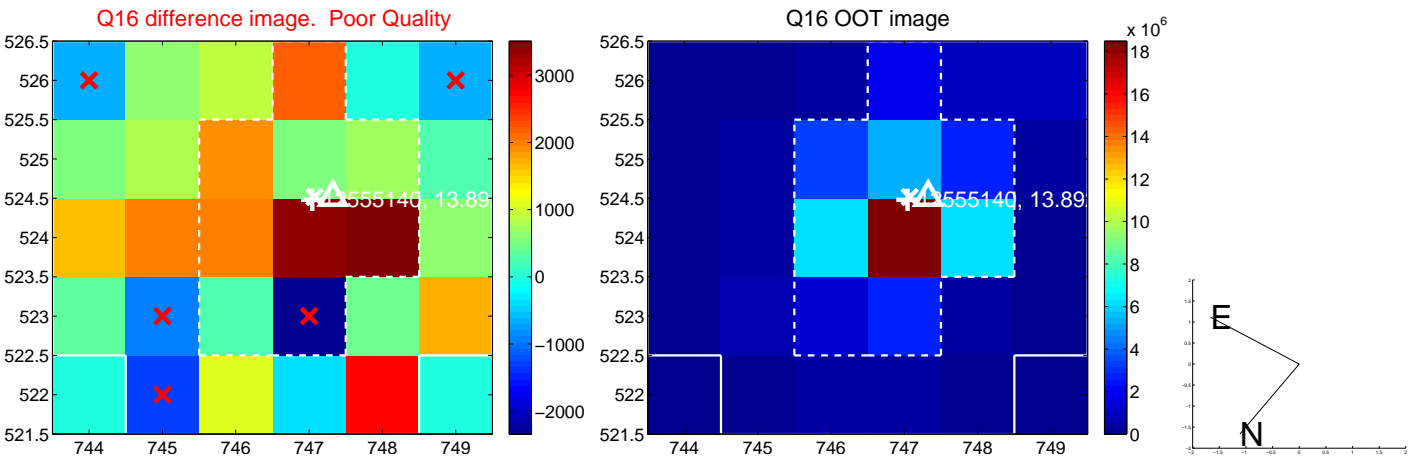
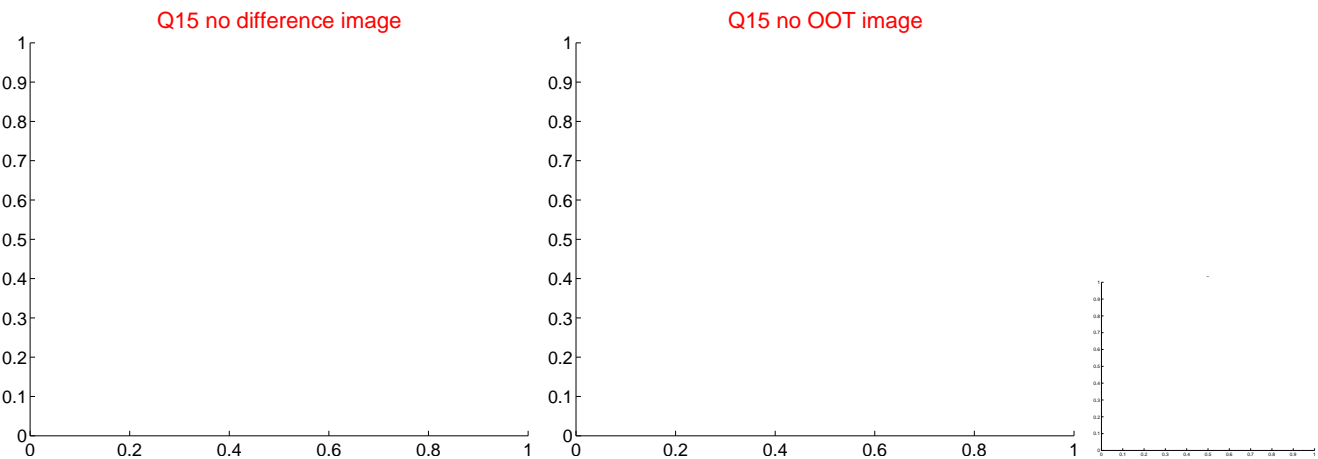
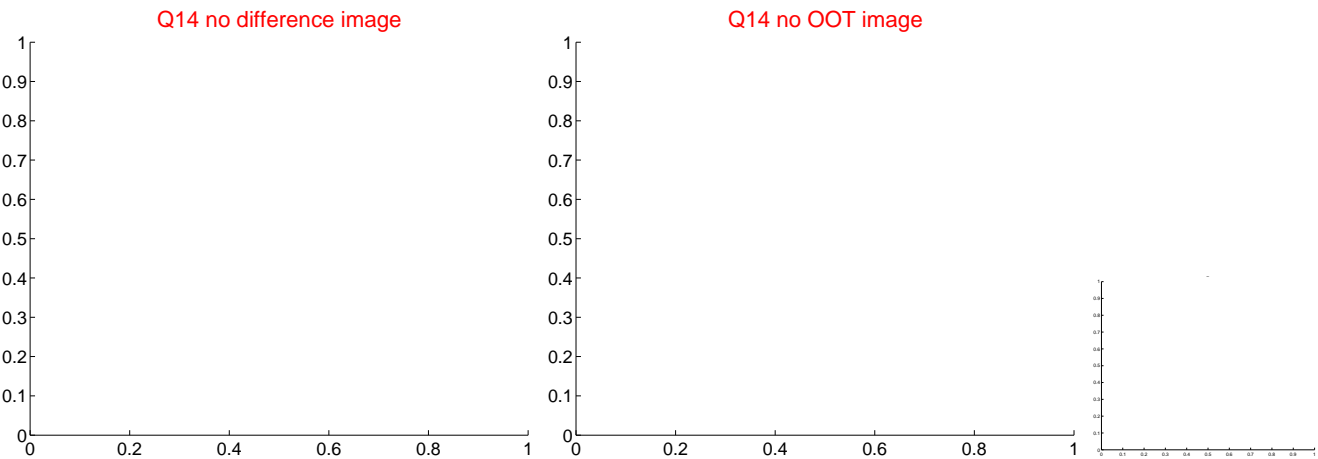
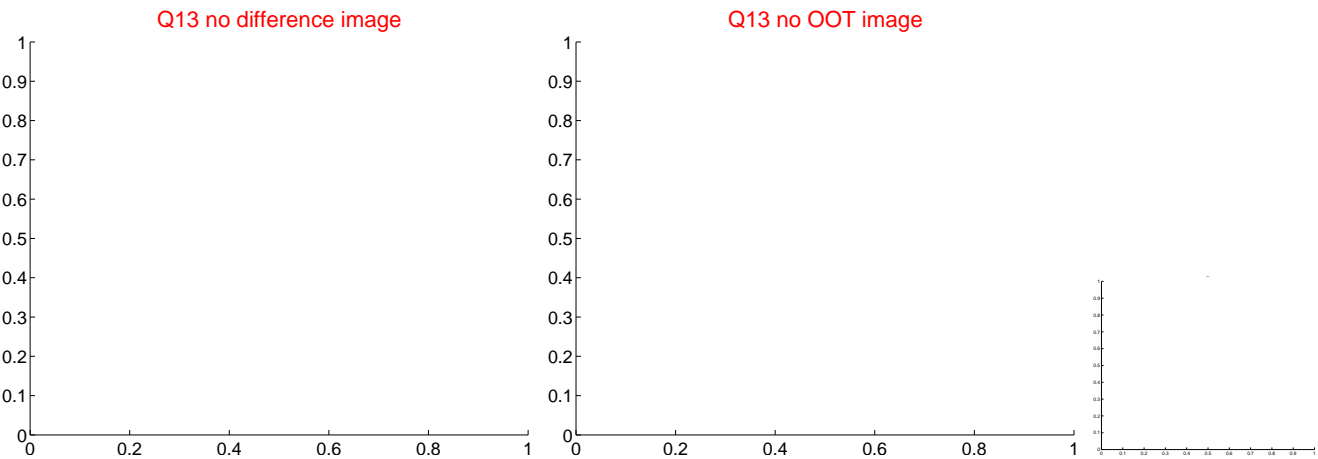
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



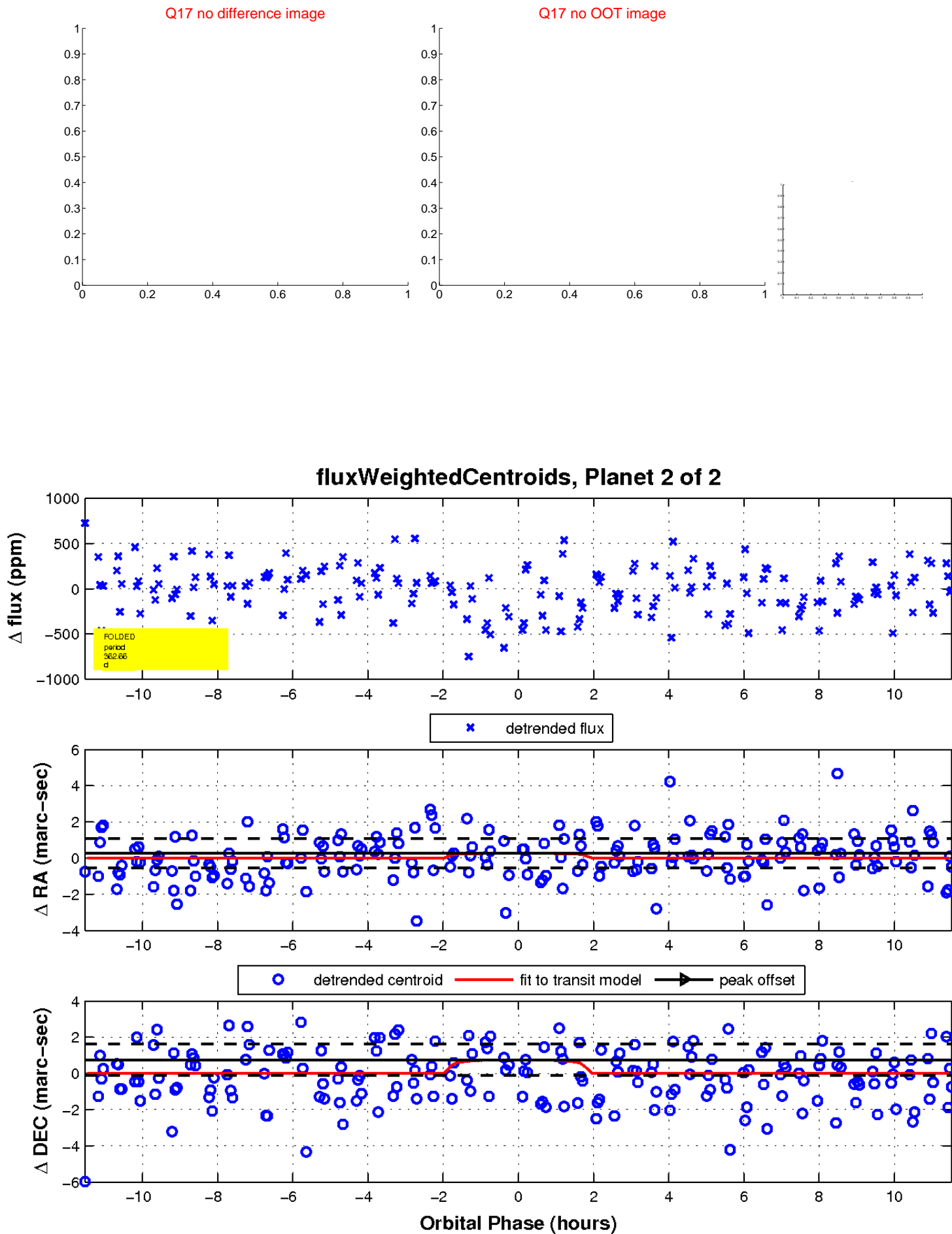
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

