

KIC 007458433

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})
007458433-01	OBS	5392.01	0.660603	131.880413	37.3	2.697	15.0	10.9	1.07	6322	0.68	6939.54
007458433-02	OBS	No	457.684140	176.666905	901.0	9.570	7.2	4.7	1.07	6322	3.94	1.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007458433-01	OBS	FP	0.00	0	1	0	1	MOD_SEC_ALT—EPHEM_MATCH
007458433-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—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.

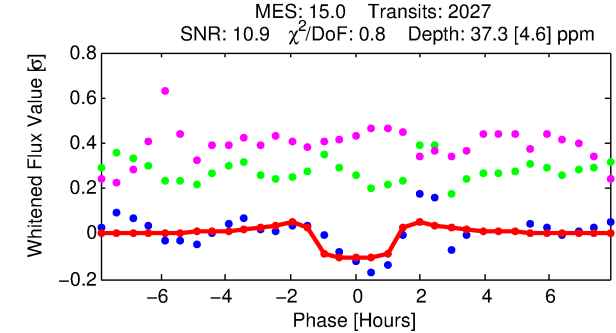
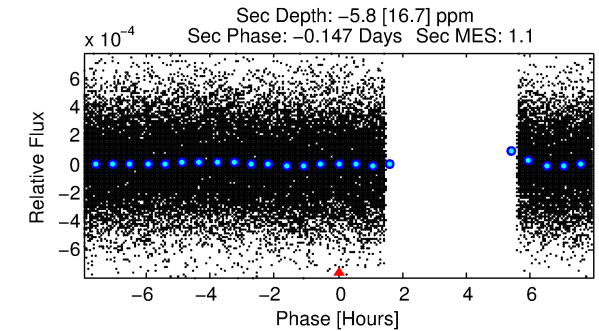
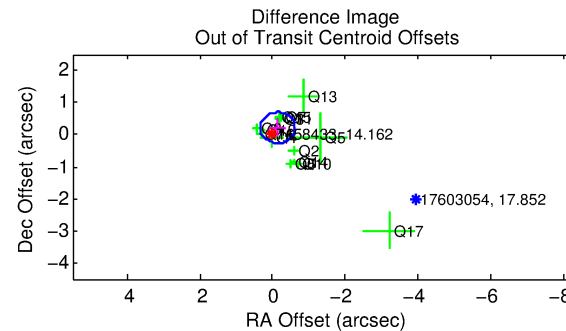
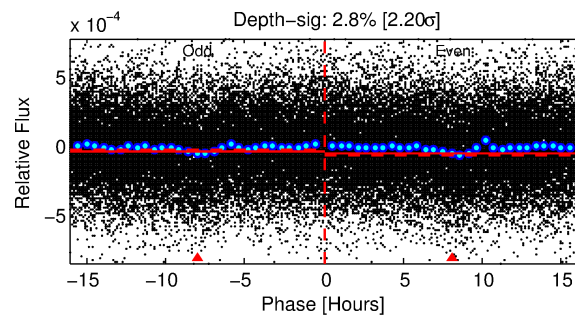
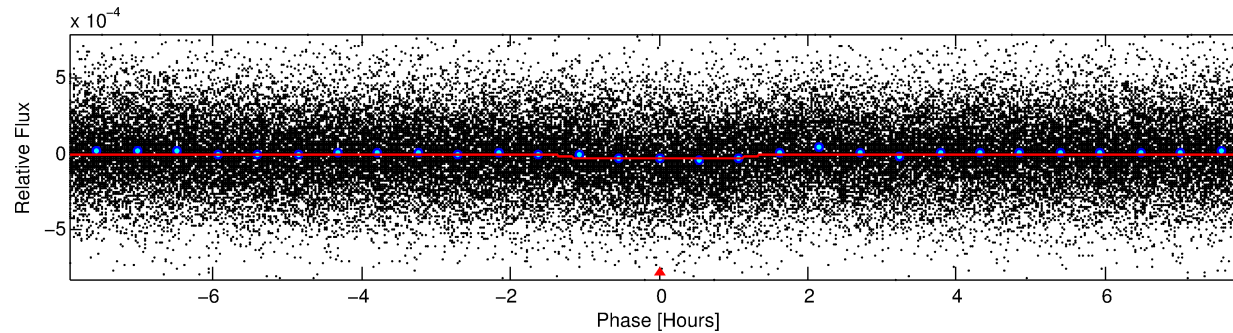
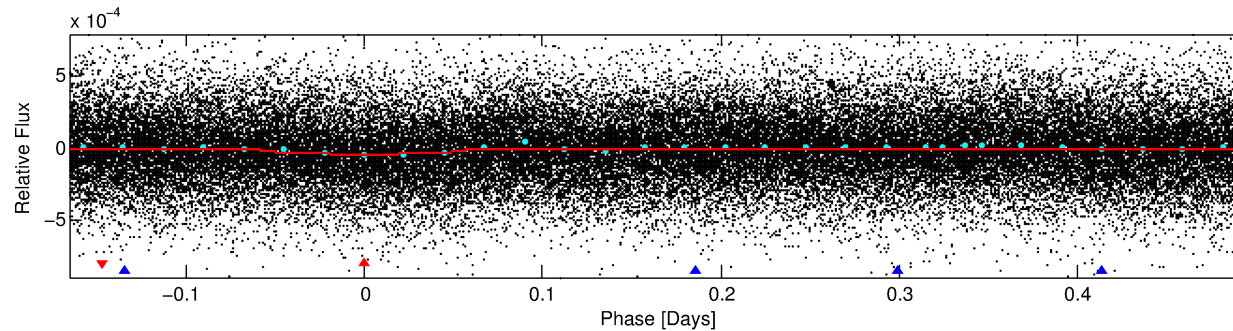
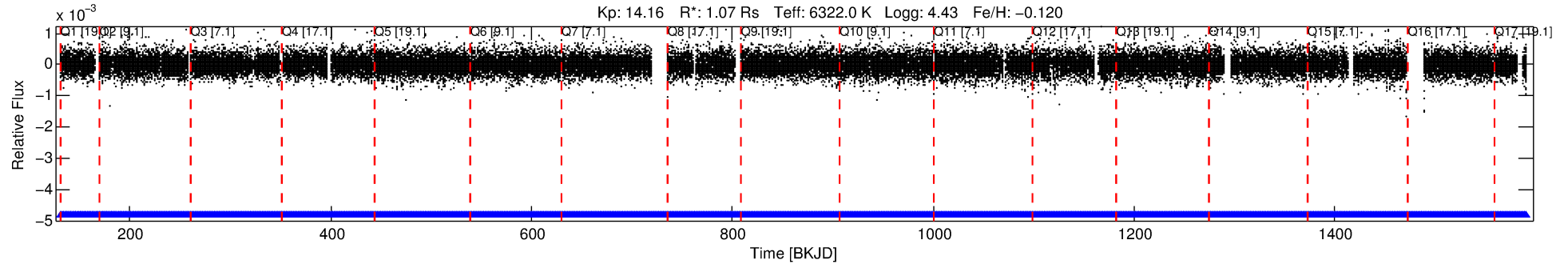
Ephemeris Match Information For 007458433-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist ($''$)	Δ Row	Δ Col	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ_P	σ_T
007458433-01	7458433	007458285-pri	7458285	1:1	109.4	27	-1	13.52	14.16	9381.10	Direct-PRF	0	4.10	1.42

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 7458433 Candidate: 1 of 2 Period: 0.661 d
KOI: K05392.01 Corr: 0.751



DV Fit Results:

Period = 0.66060 [0.00001] d
Epoch = 131.8804 [0.0021] BKJD
Rp/R* = 0.0058 [0.0018]
a/R* = 1.76 [1.86]
b = 0.53 [2.15]
Seff = 6939.54 [2892.82]
Teq = 2327 [243] K
Rp = 0.68 [0.30] Re
a = 0.0154 [0.0042] AU
Ag = N/A
Teffp = N/A

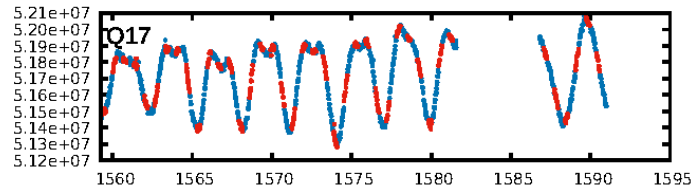
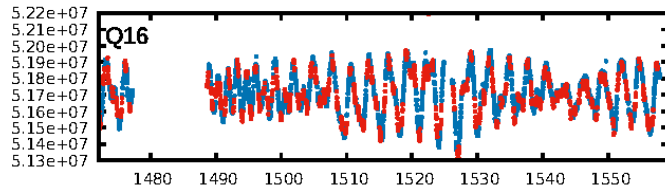
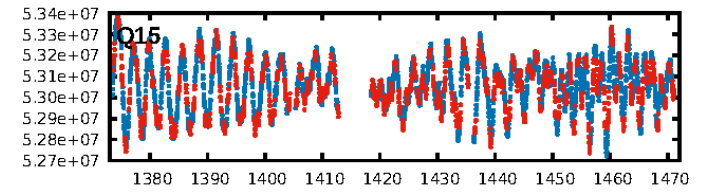
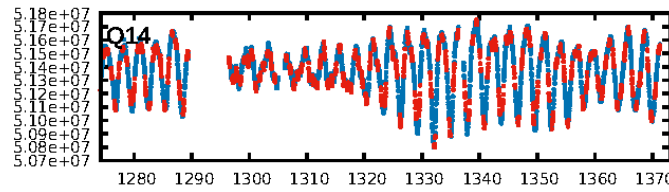
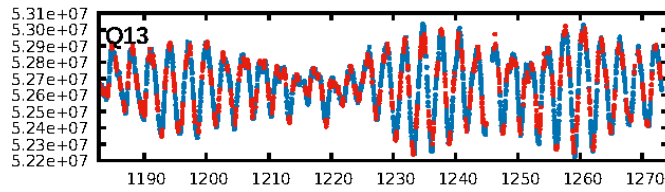
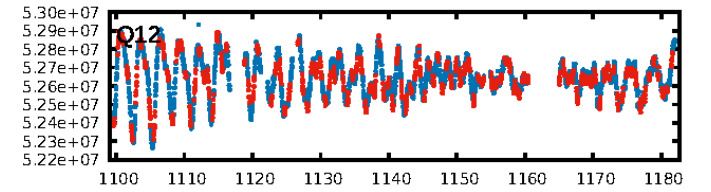
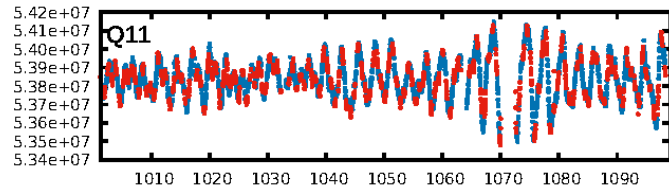
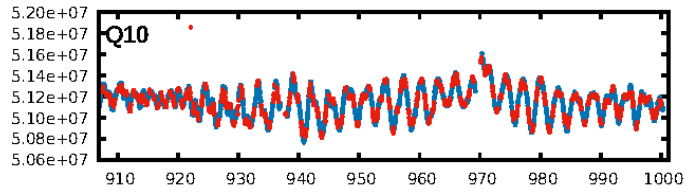
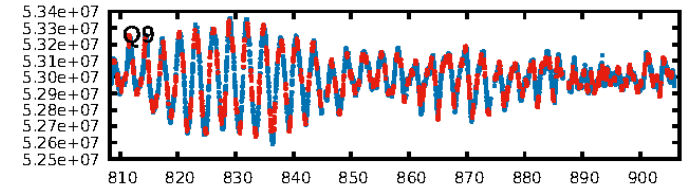
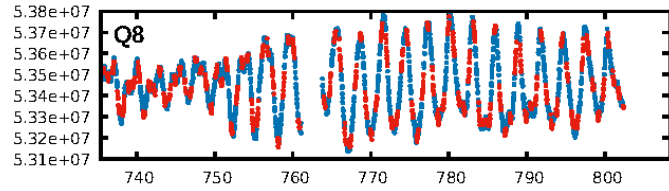
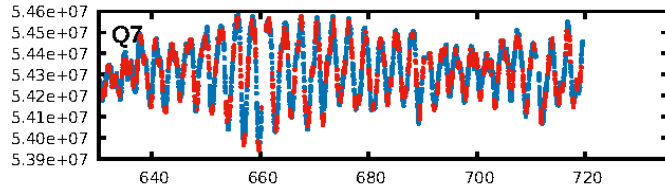
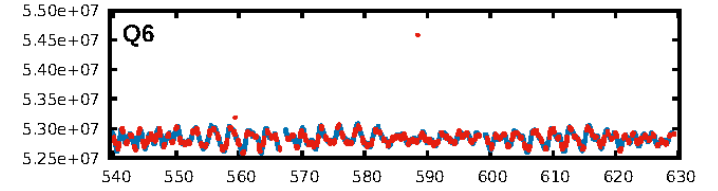
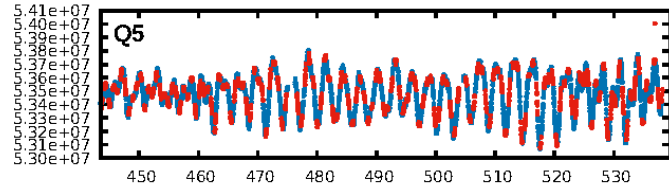
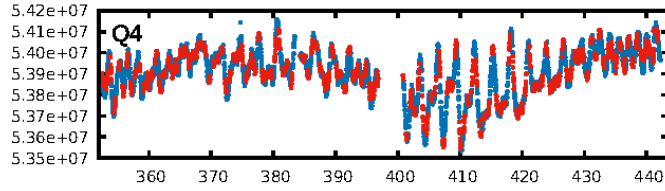
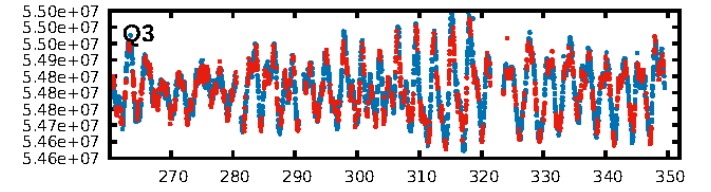
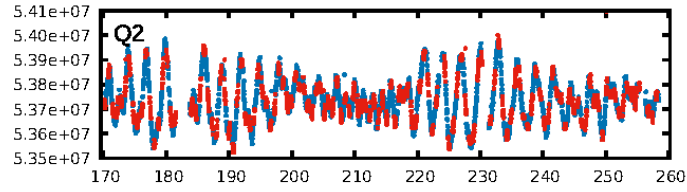
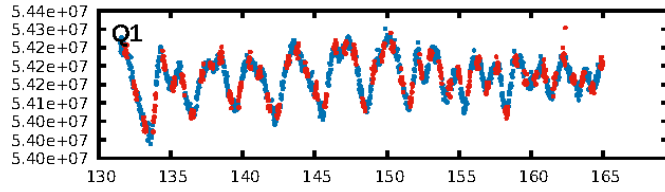
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1103.19 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.15e-56
RollingBand-fgt: 1.00 [1936/1936]
GhostDiagnostic-chr: 3.419
Centroid-sig: 0.2%
Centroid-so: 1.560 arcsec [1.98 σ]
OotOffset-rm: 0.254 arcsec [1.60 σ]
KicOffset-rm: 0.218 arcsec [1.64 σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.93 [14/15]
DiffImageOverlap-fno: 1.00 [17/17]

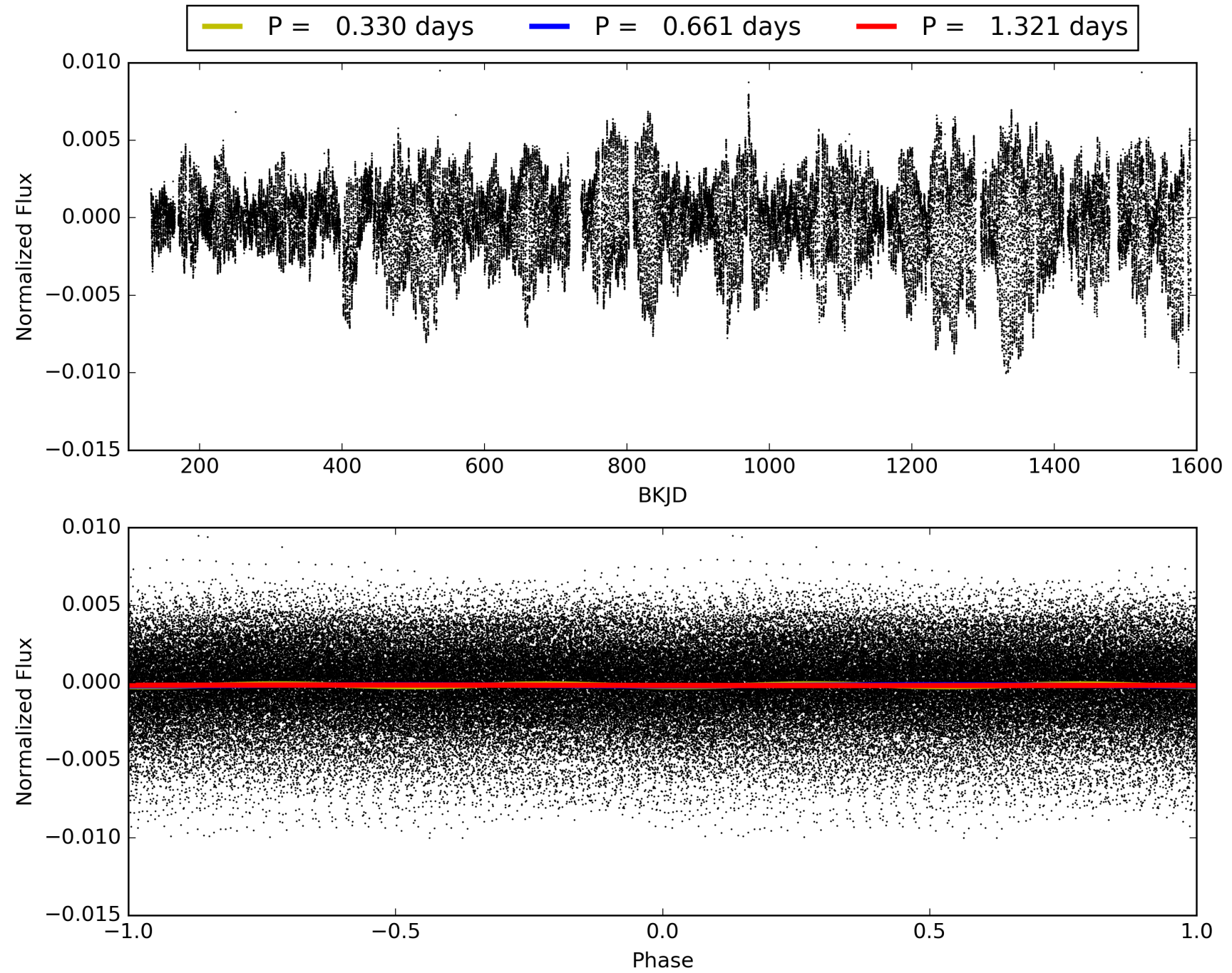
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:46:40 Z

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

TCE 007458433-01, PDC Light Curves

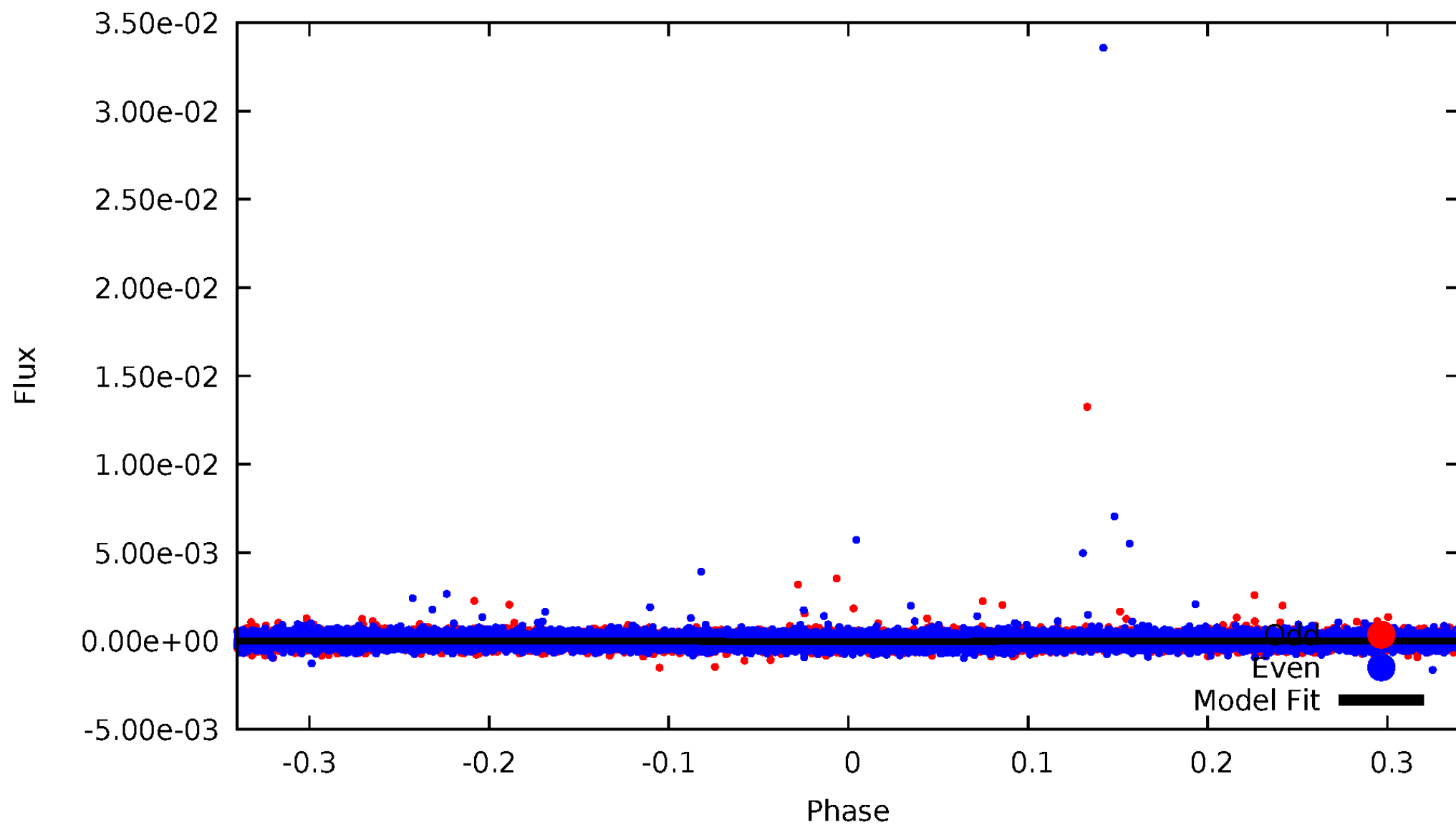


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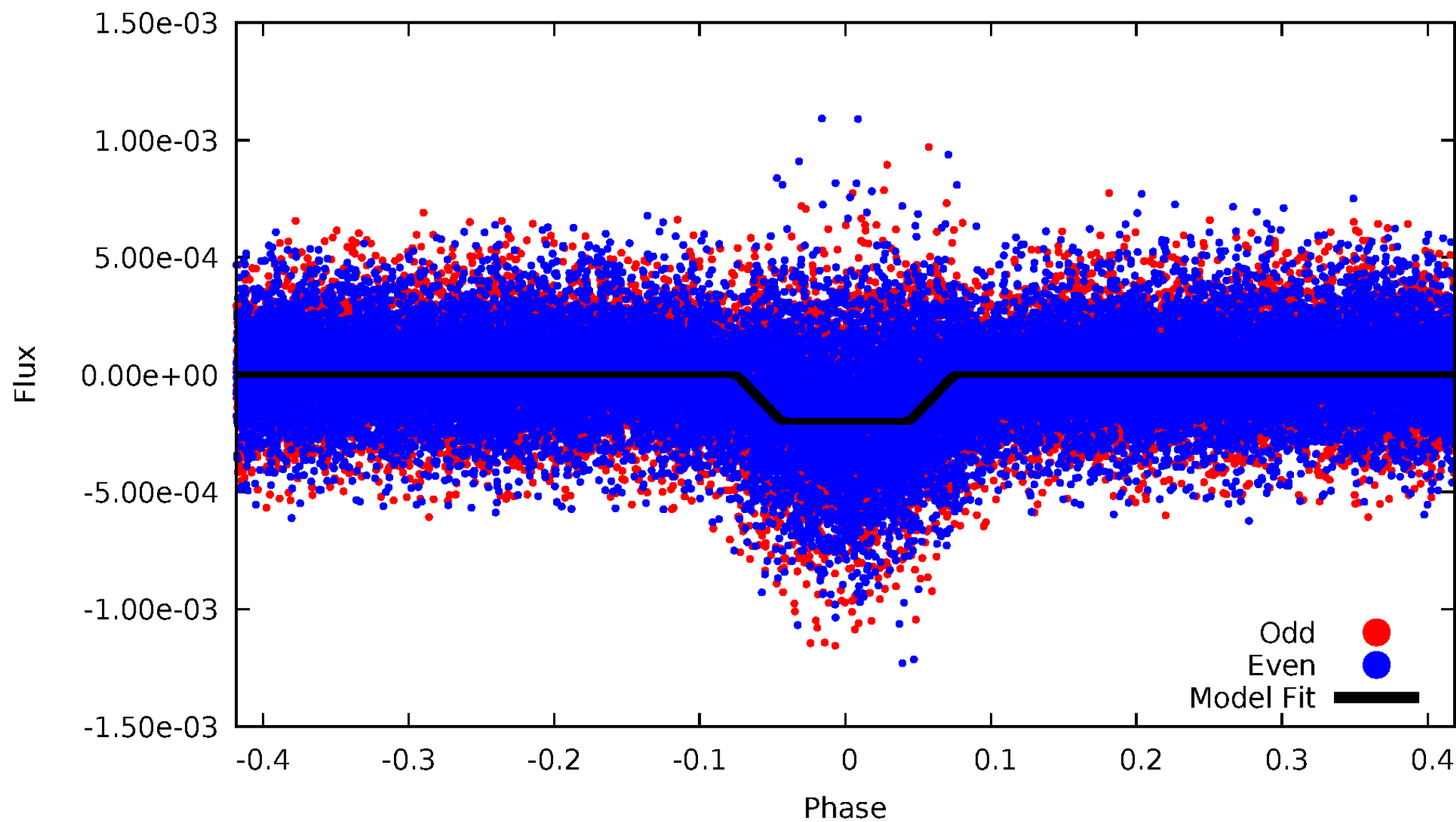
DV Odd/Even

TCE 007458433-01



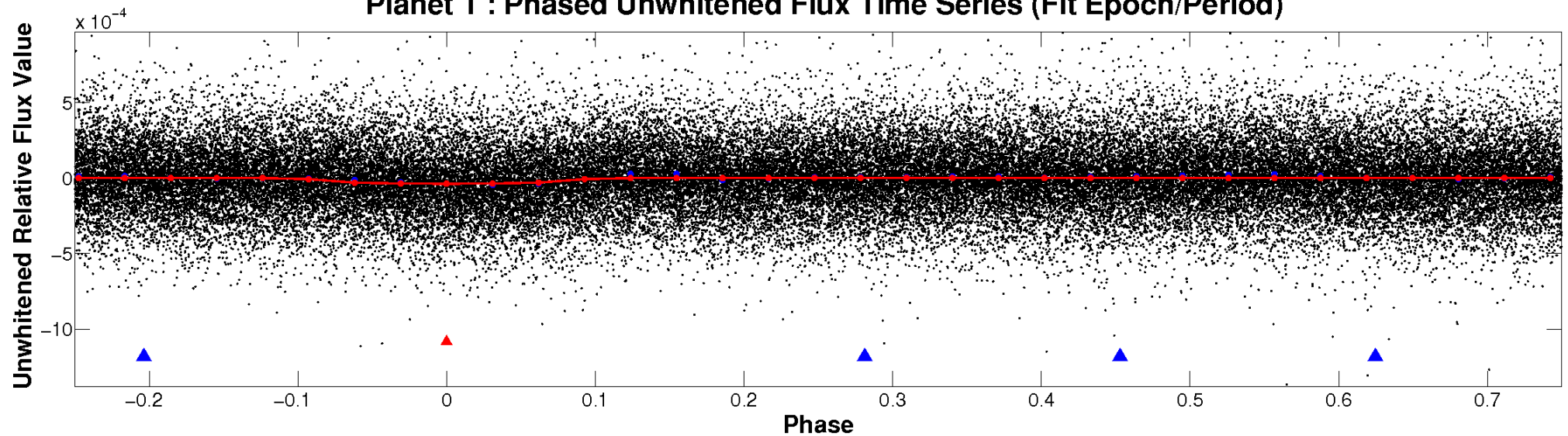
ALT Odd/Even

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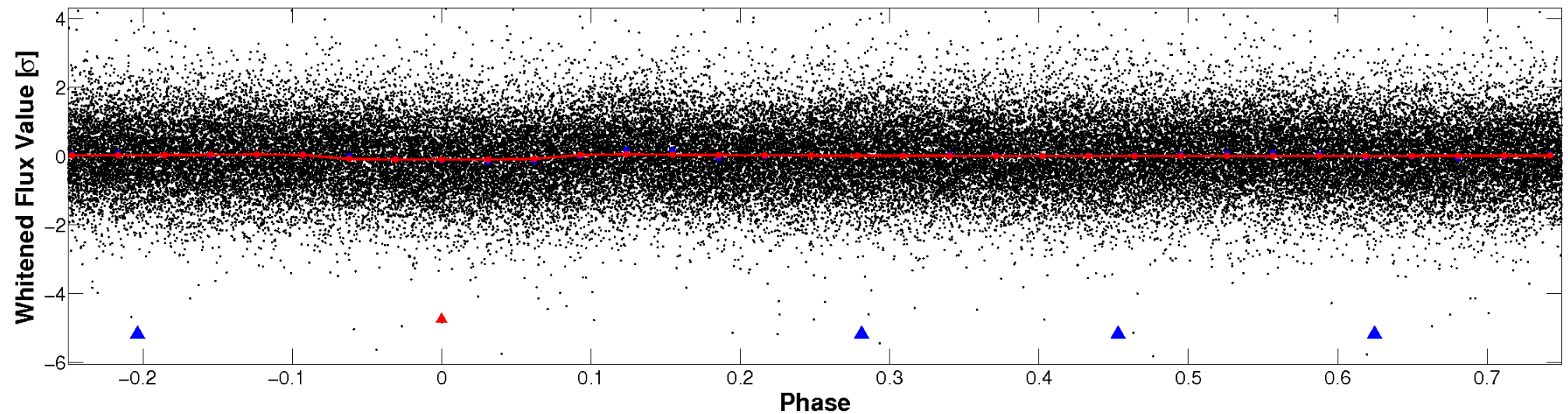


Non-Whitened Vs. Whitened Light Curve

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

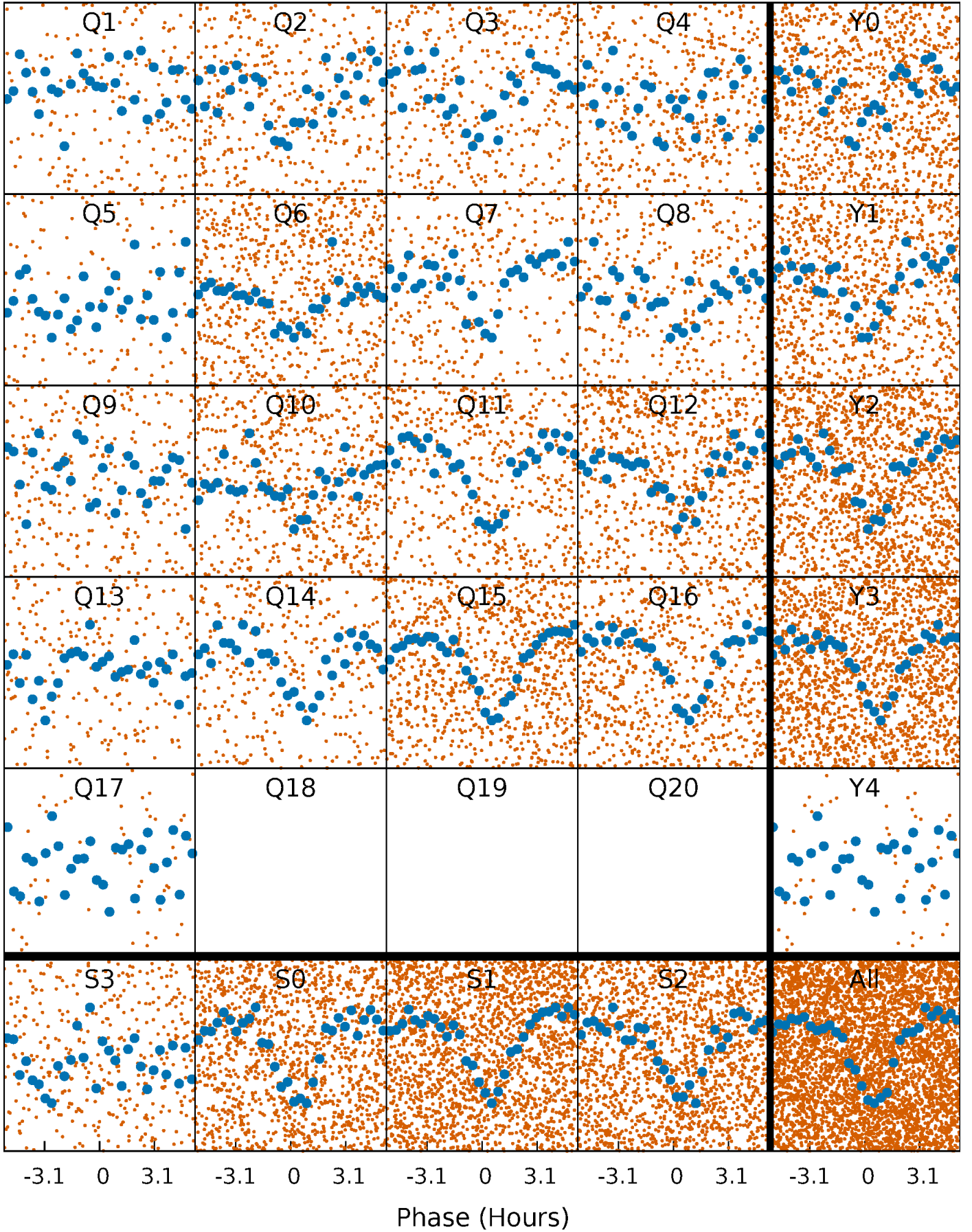


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



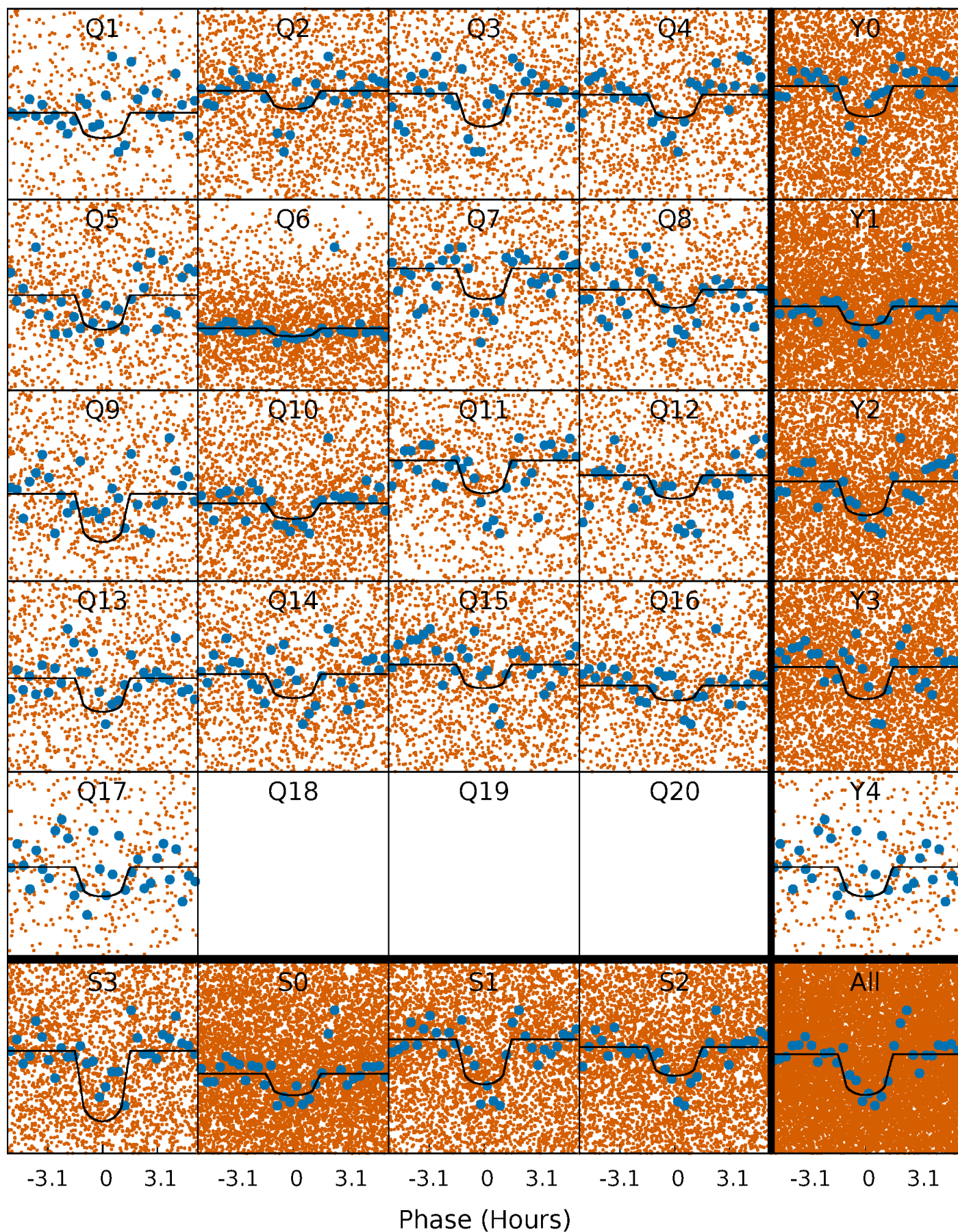
PDC Quarter-Phased Transit Curves

TCE 007458433-01 P= 0.660603 Days $T_0=131.880413$ (BKJD)



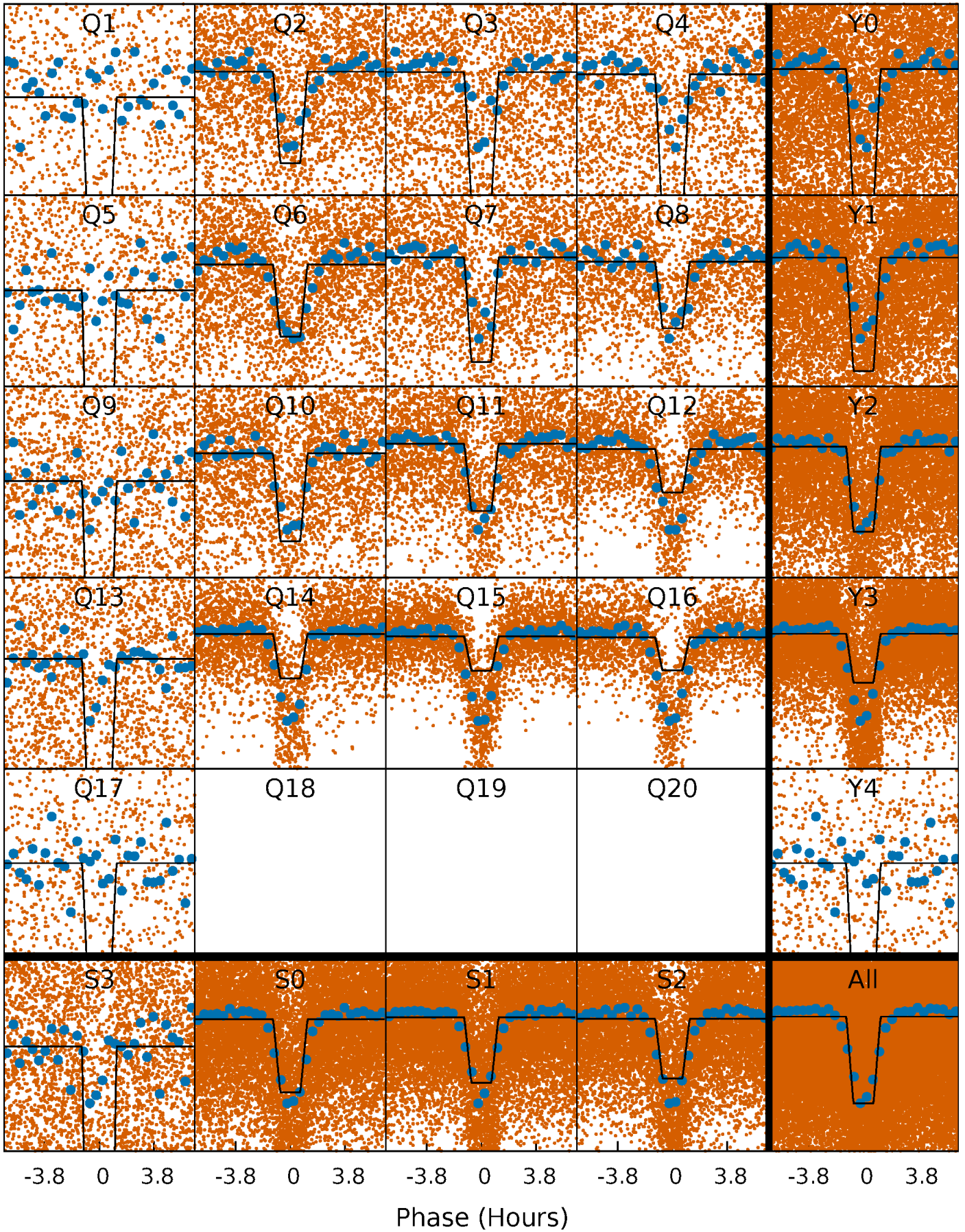
DV Quarter-Phased Transit Curves

TCE 007458433-01 P= 0.660603 Days $T_0=131.880413$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

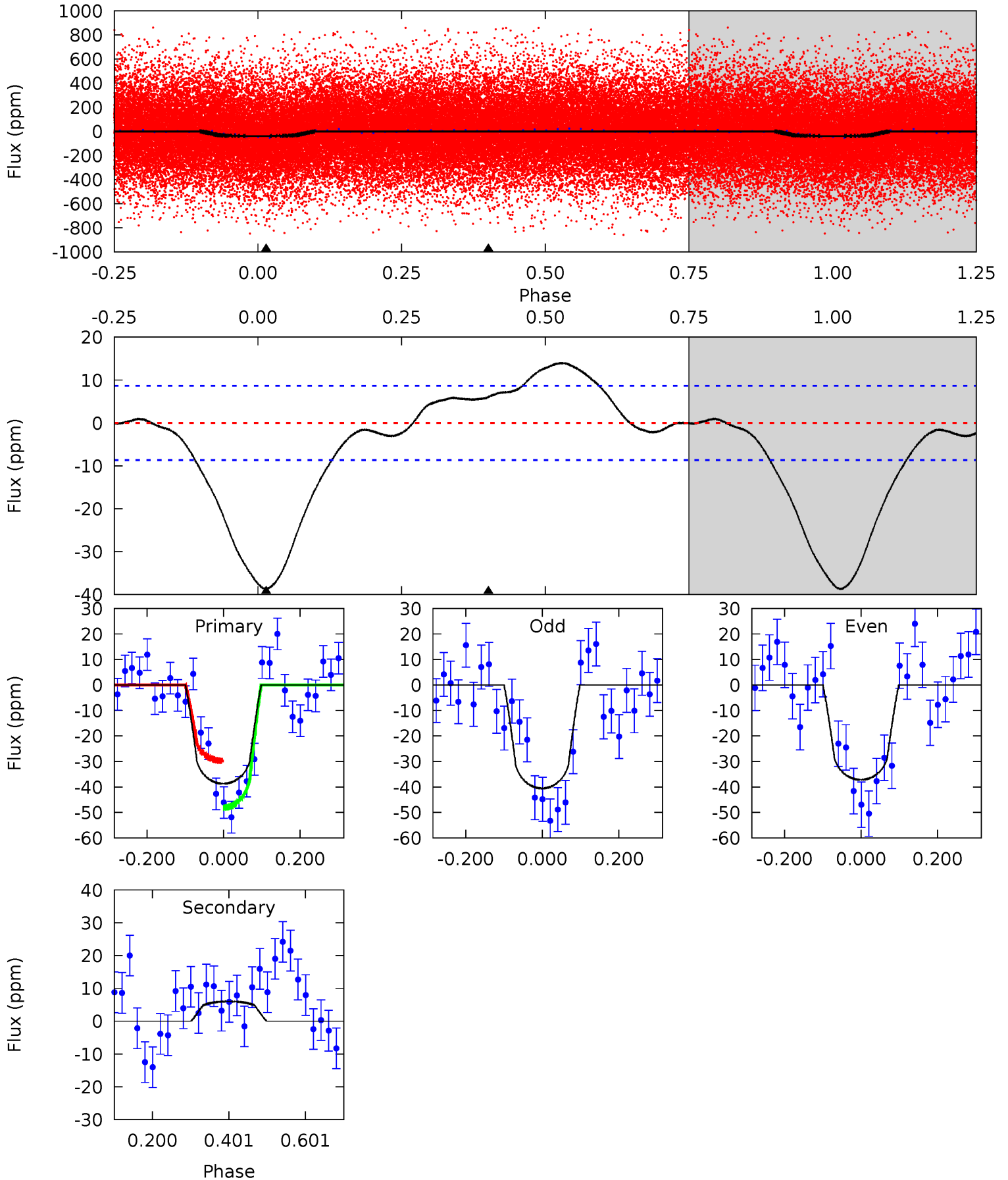
TCE 007458433-01 P= 0.660633 Days $T_0=131.855598$ (BKJD)



DV Model-Shift Uniqueness Test

007458433-01, P = 0.660603 Days, E = 131.219810 Days

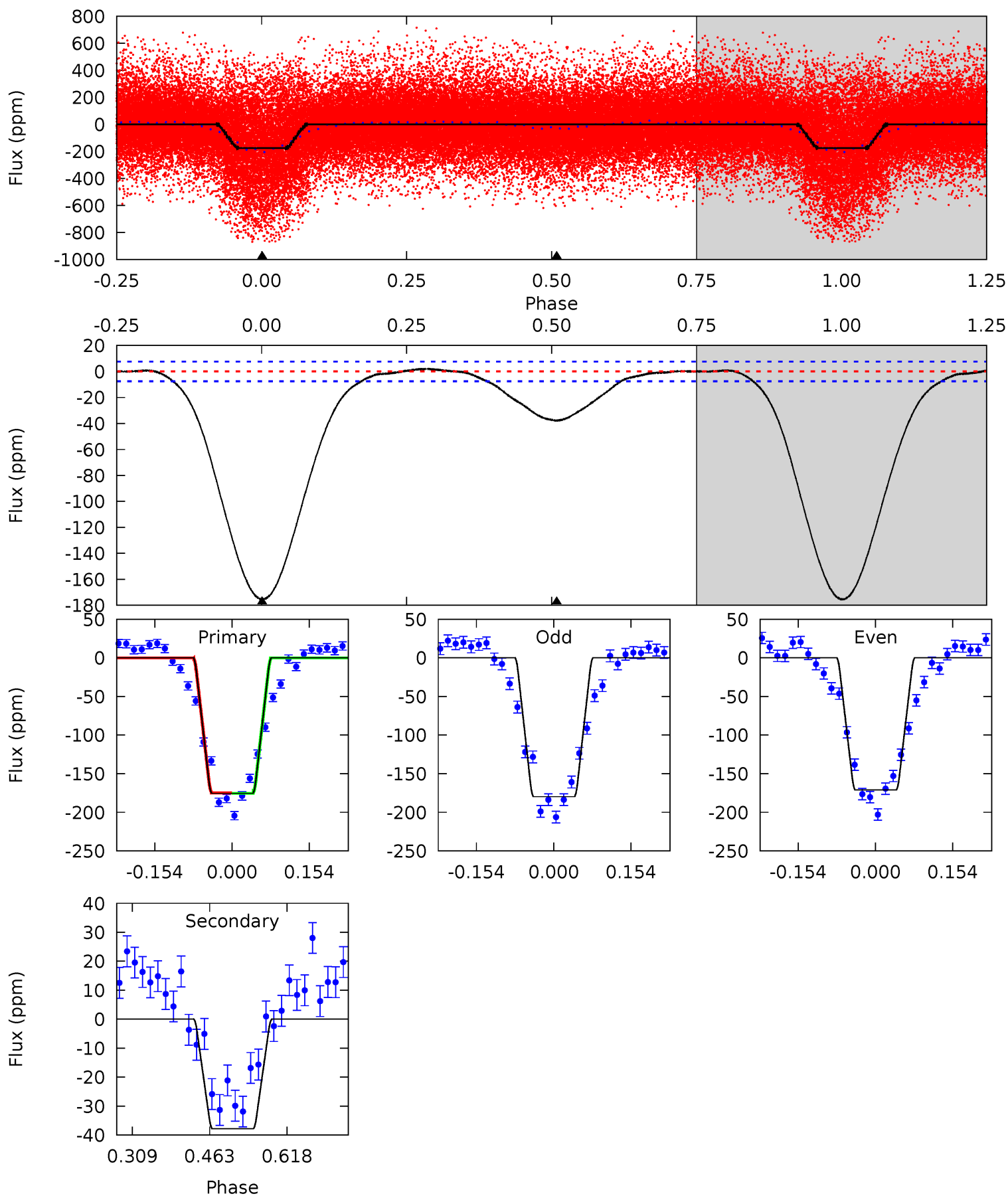
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.8	-3.07	0	0	4.42	1.28	1.11	19.8	19.8	-3.07	-3.07	0.86	0.96	0.27	4.69



Alt Model-Shift Uniqueness Test

007458433-01, P = 0.660633 Days, E = 131.194965 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
103.1	22.2	0	0	4.47	1.42	1.53	103.1	103.1	22.2	22.2	2.54	1.10	0.01	0.16



Stellar Parameters For KIC 007458433

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6322^{+169}_{-206}	$4.426^{+0.054}_{-0.216}$	$-0.120^{+0.250}_{-0.300}$	$1.075^{+0.349}_{-0.116}$	$1.124^{+0.154}_{-0.154}$	$1.274^{+0.358}_{-0.661}$
	+3%/-3%	+1%/-5%	+208%/-250%	+32%/-11%	+14%/-14%	+28%/-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 007458433-01 / KOI 5392.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	6 ± 2	$0.73^{+0.25}_{-0.23}$	3328^{+245}_{-168}	-4446^{+406}_{-685}	$-1.435^{+0.722}_{-1.710}$
Alt.	-38 ± 2	$1.73^{+0.37}_{-0.26}$	3325^{+256}_{-159}	4222^{+277}_{-268}	$1.638^{+0.607}_{-0.489}$

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

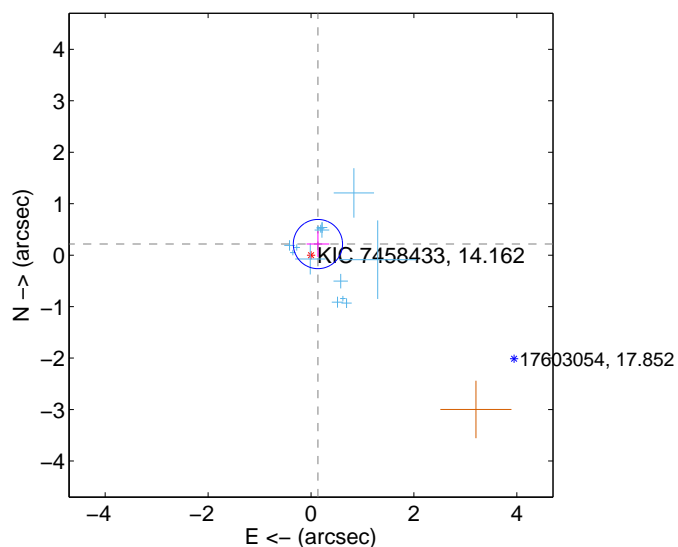
Supplemental centroid analysis for 007458433-01. Kepler magnitude: 14.16. Transit SNR 10.86

There are 14 quarters with good PRF difference image offsets

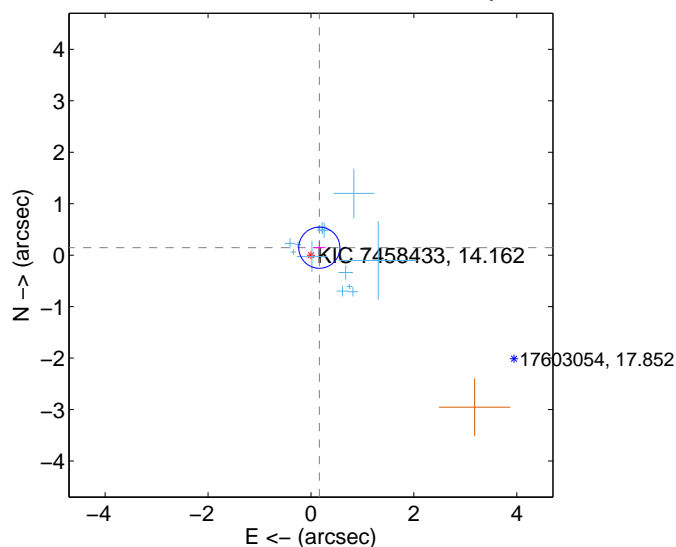
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.254 ± 0.159	1.60	-0.134 ± 0.221	0.216 ± 0.250
PRF-fit source offset from KIC position	0.218 ± 0.133	1.64	-0.163 ± 0.125	0.145 ± 0.143
photometric centroid source offset	1.56 ± 0.79	1.98	-0.48 ± 0.79	-1.48 ± 0.79

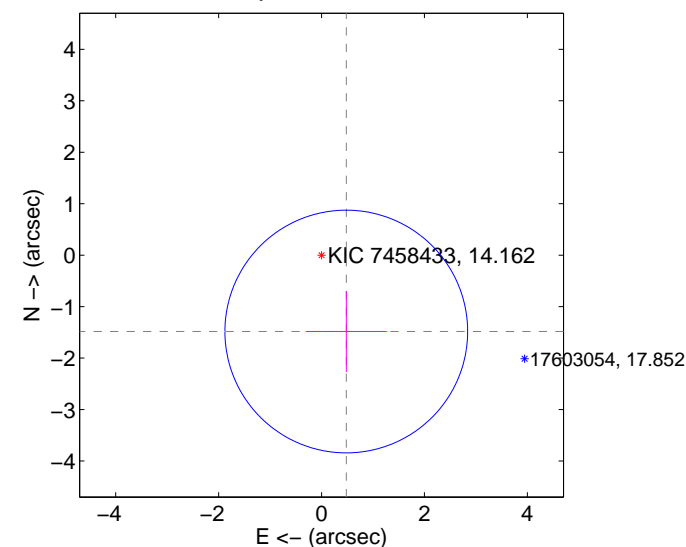
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

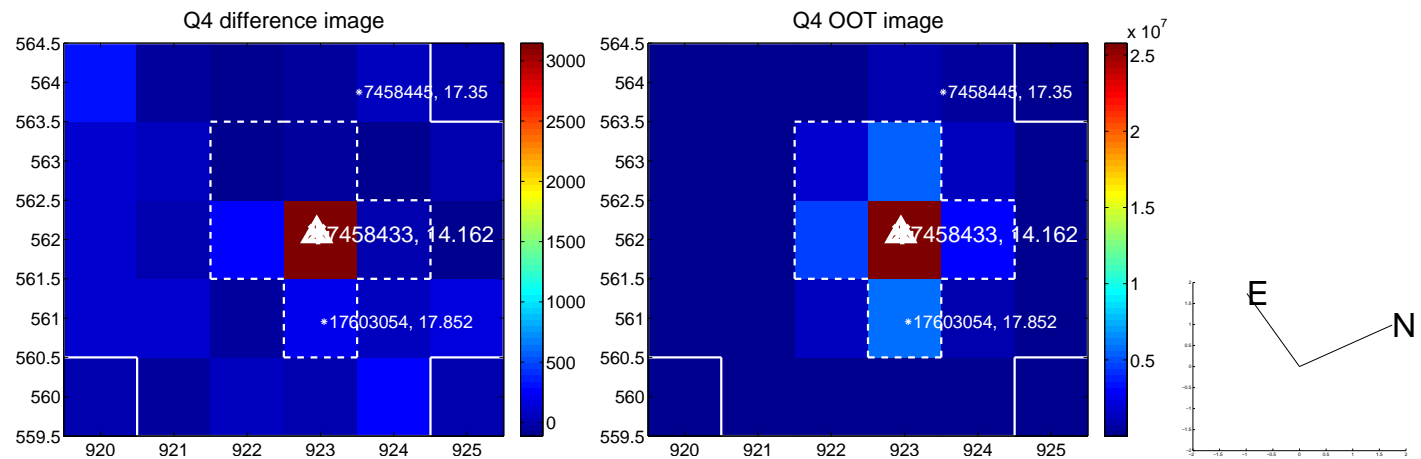
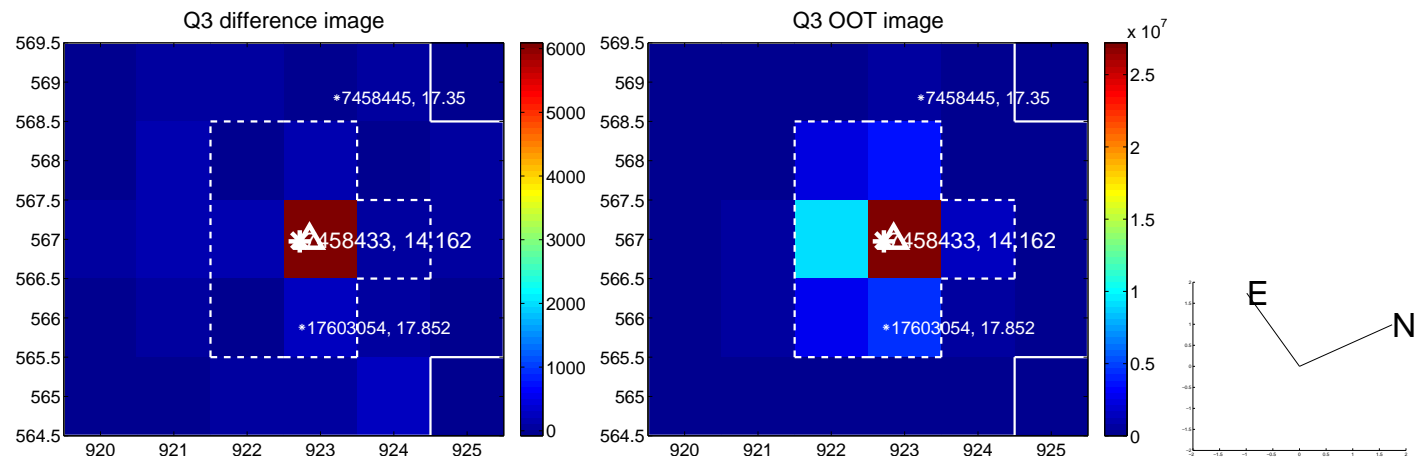
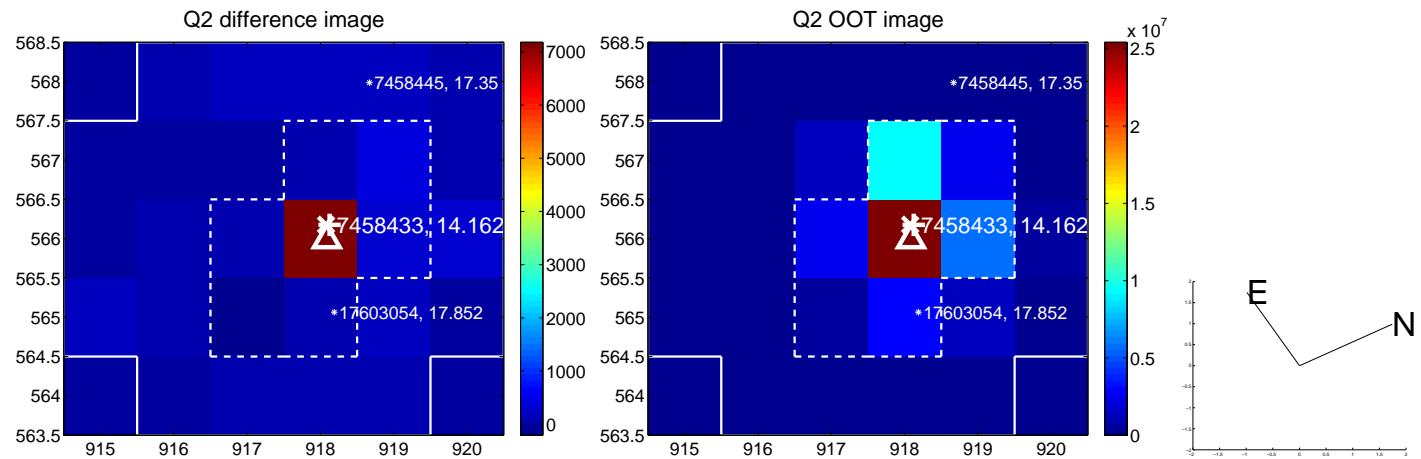
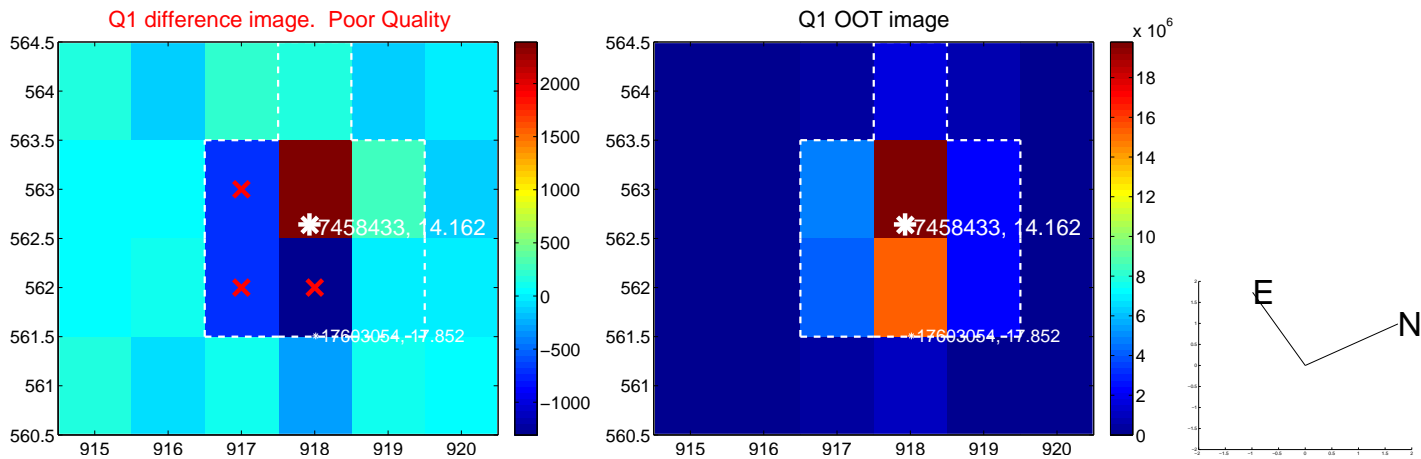


offset from photometric centroids

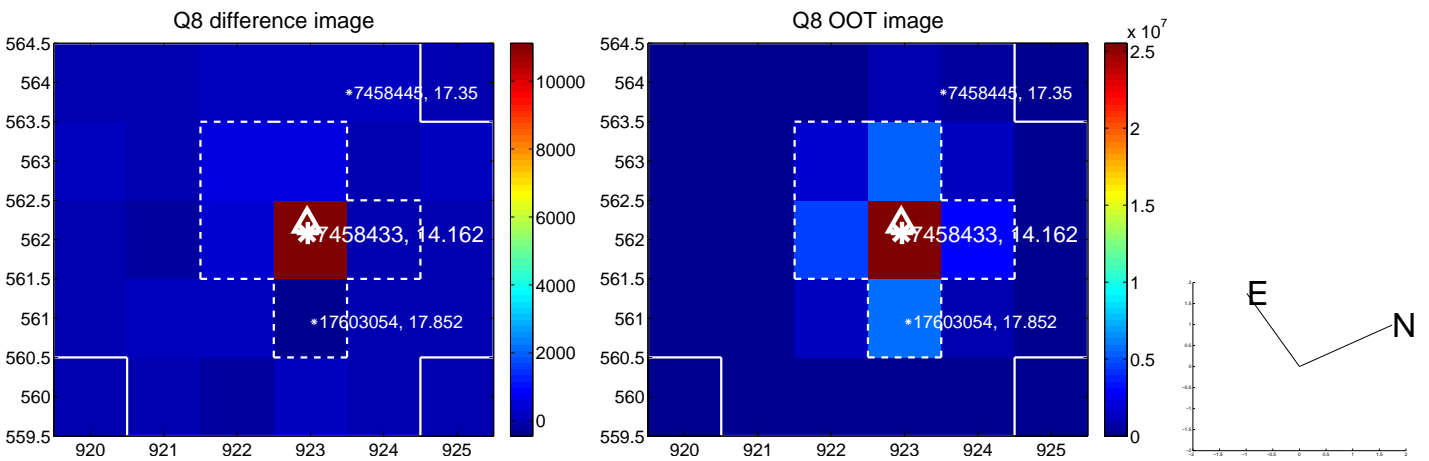
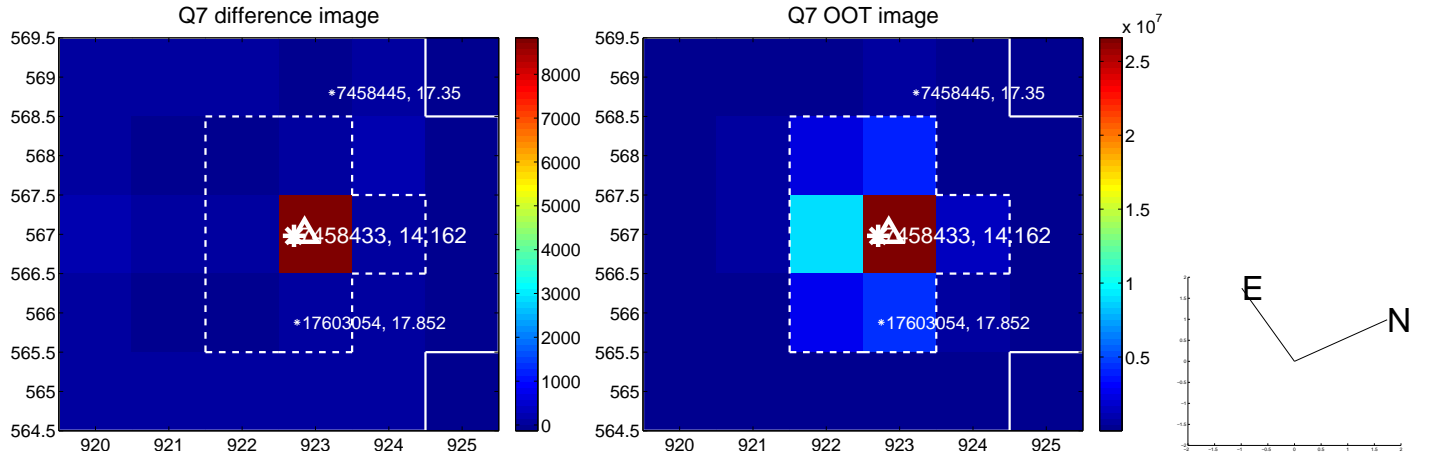
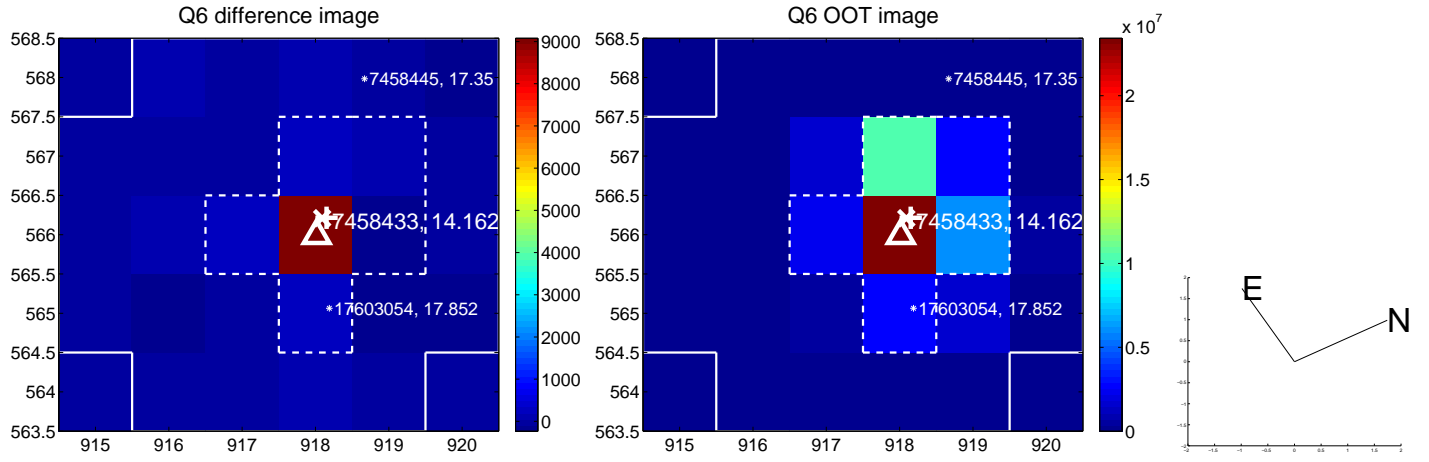
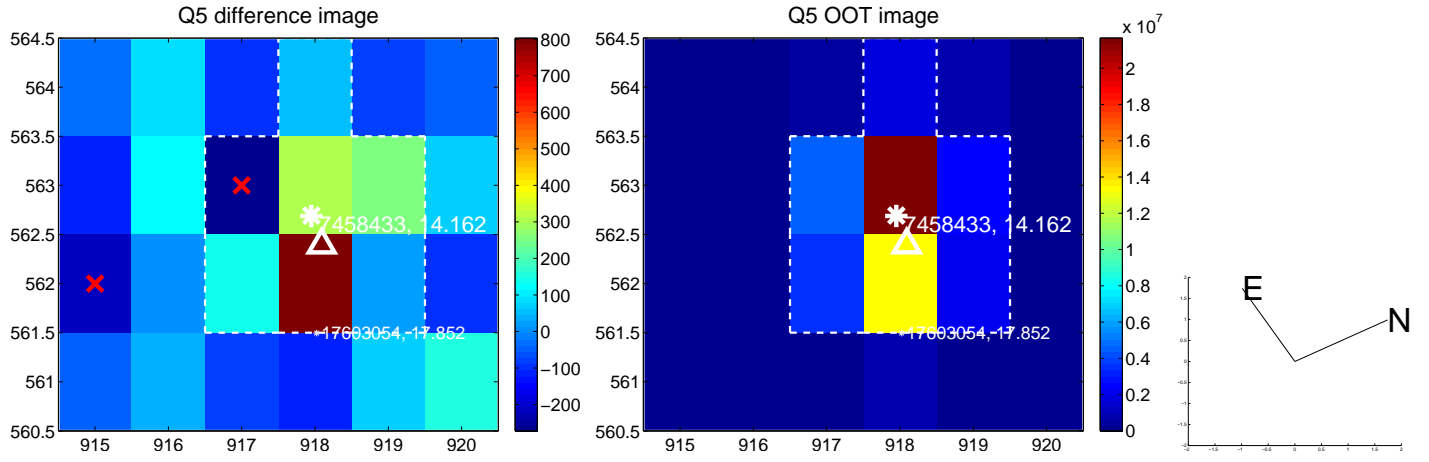


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

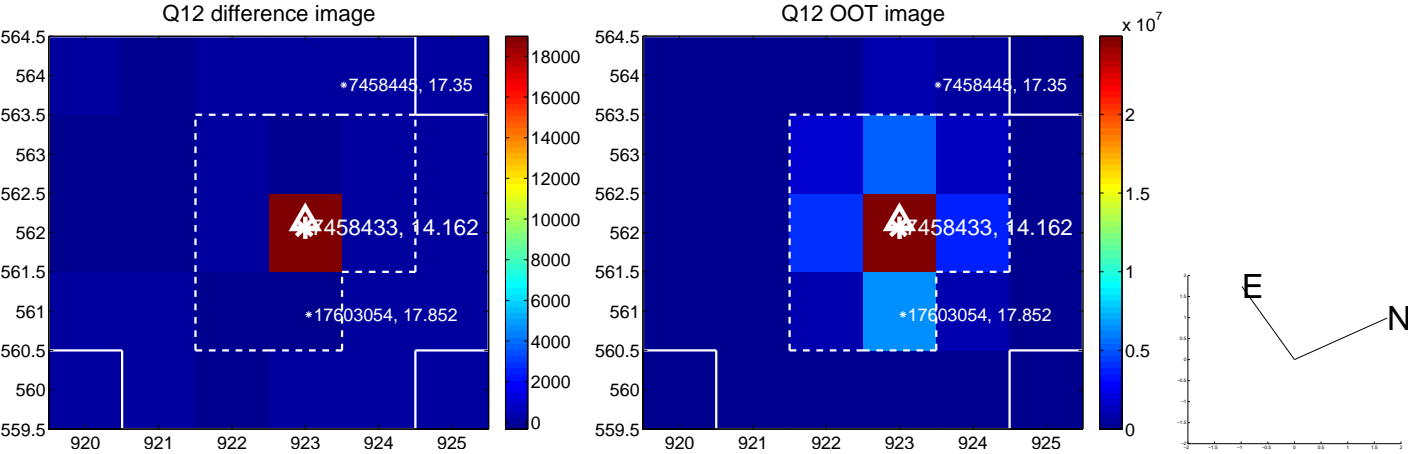
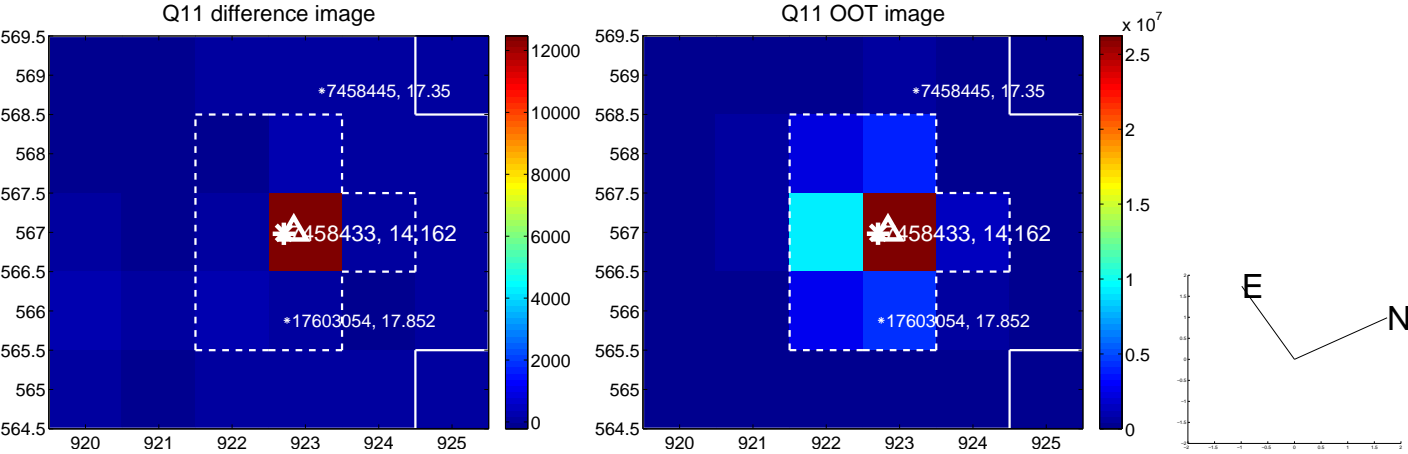
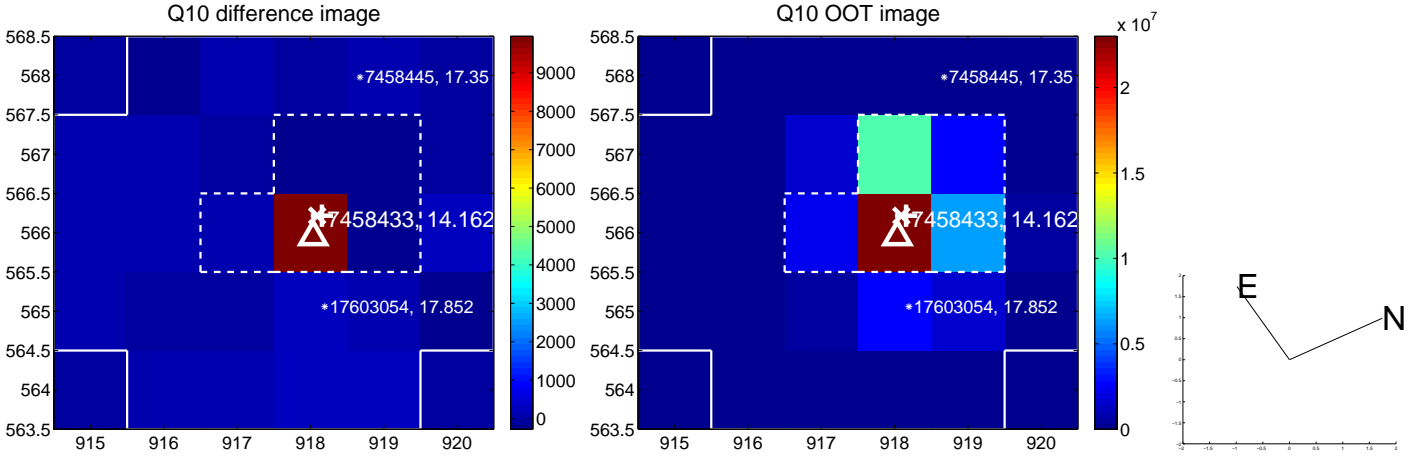
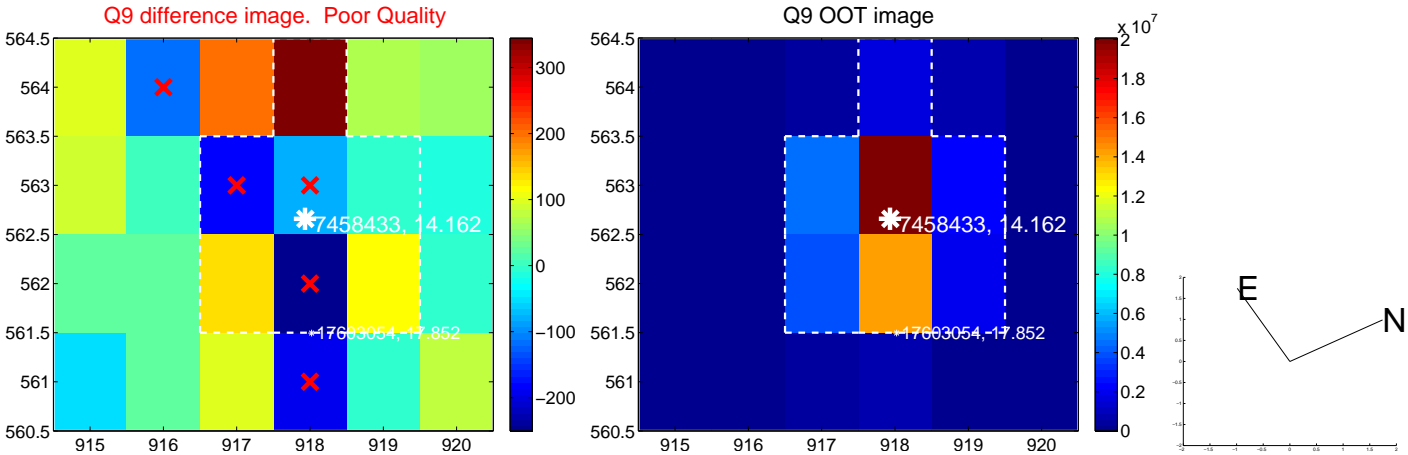
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



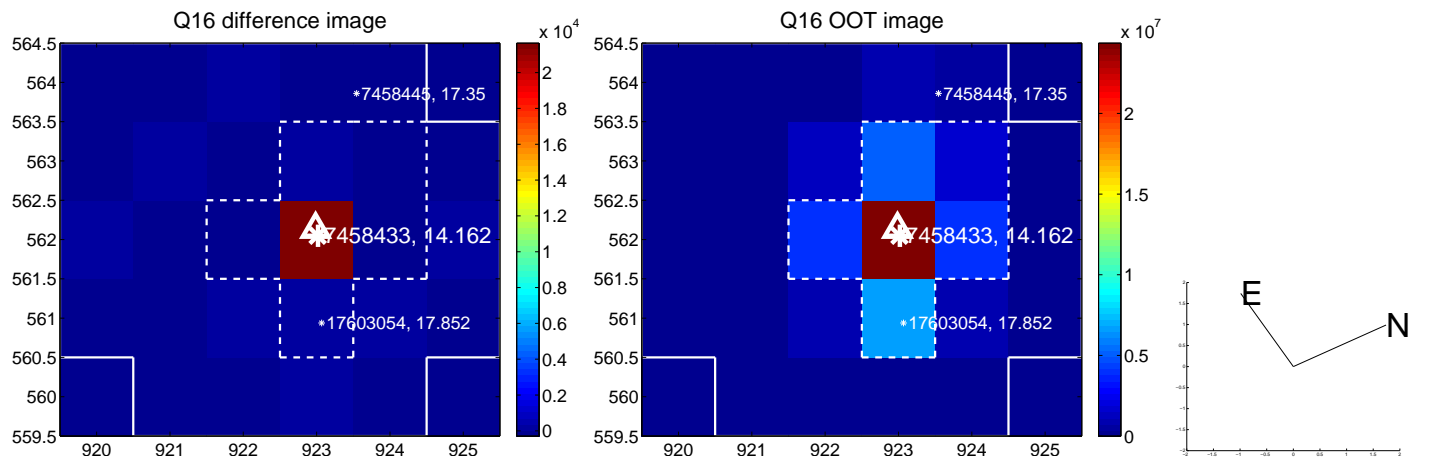
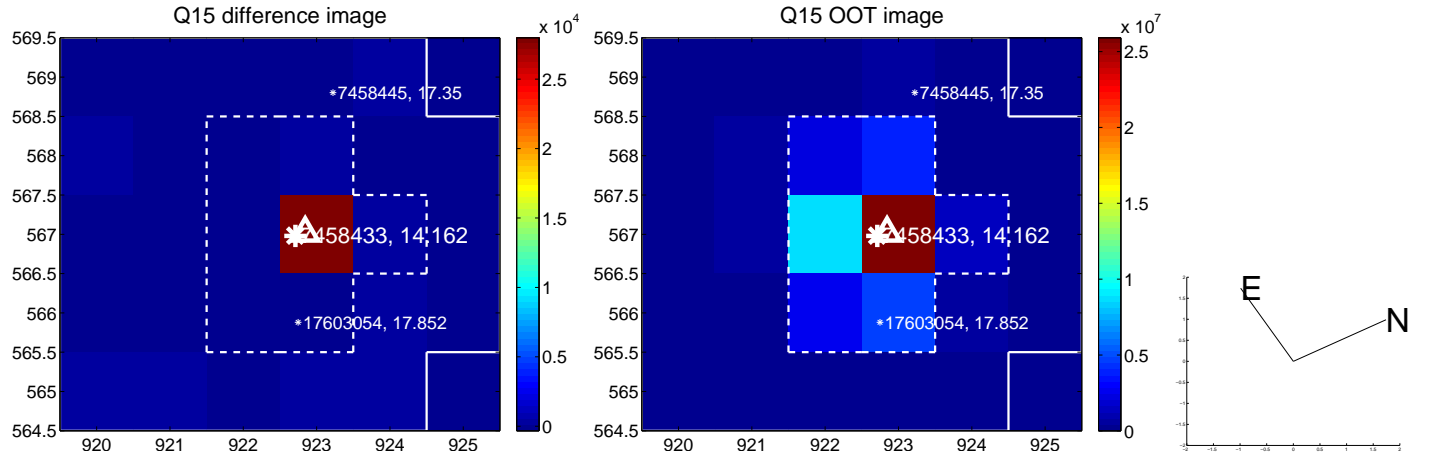
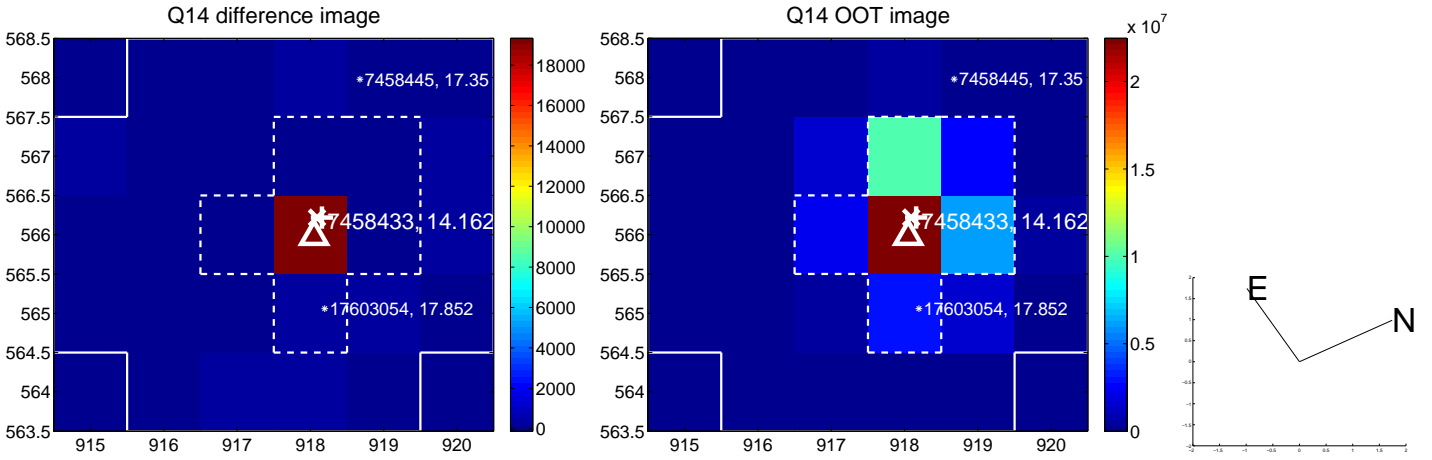
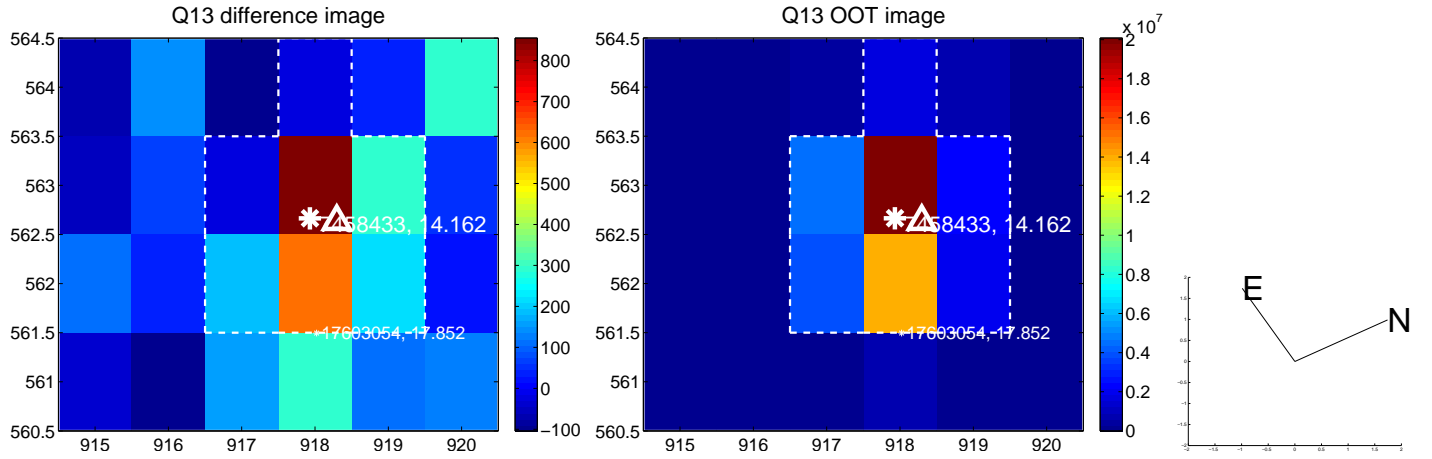
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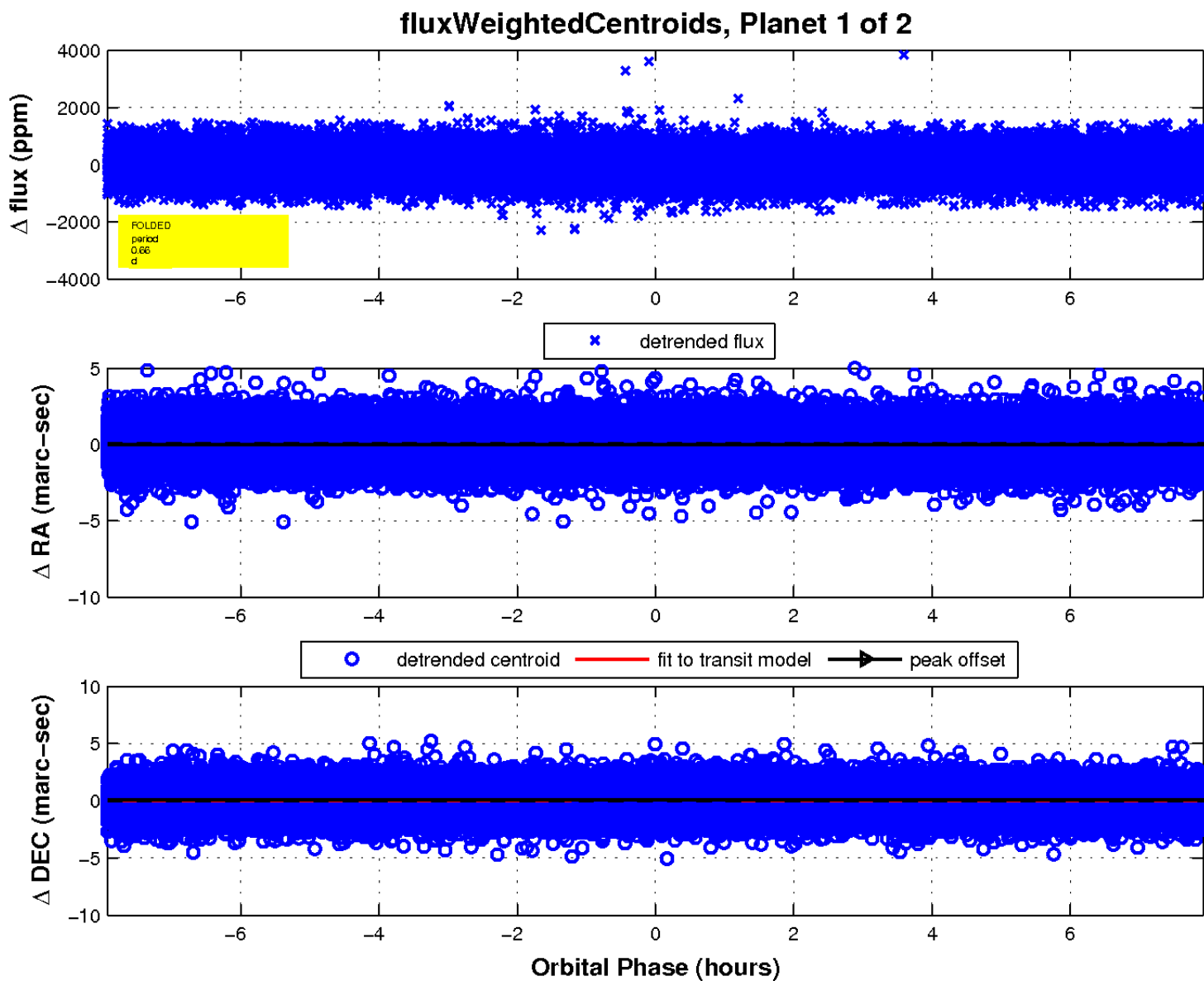
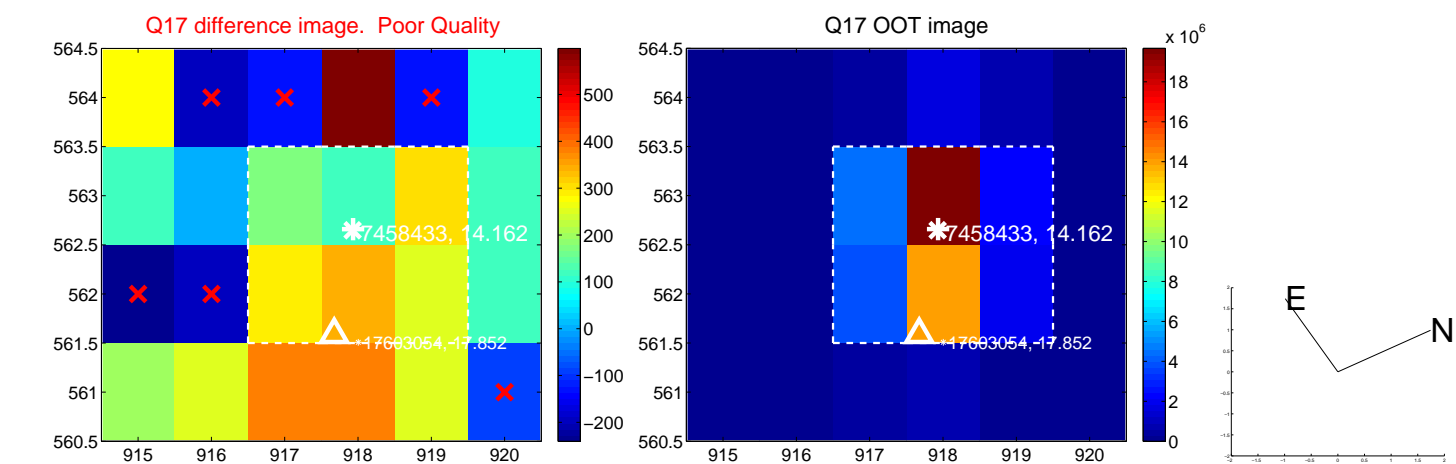
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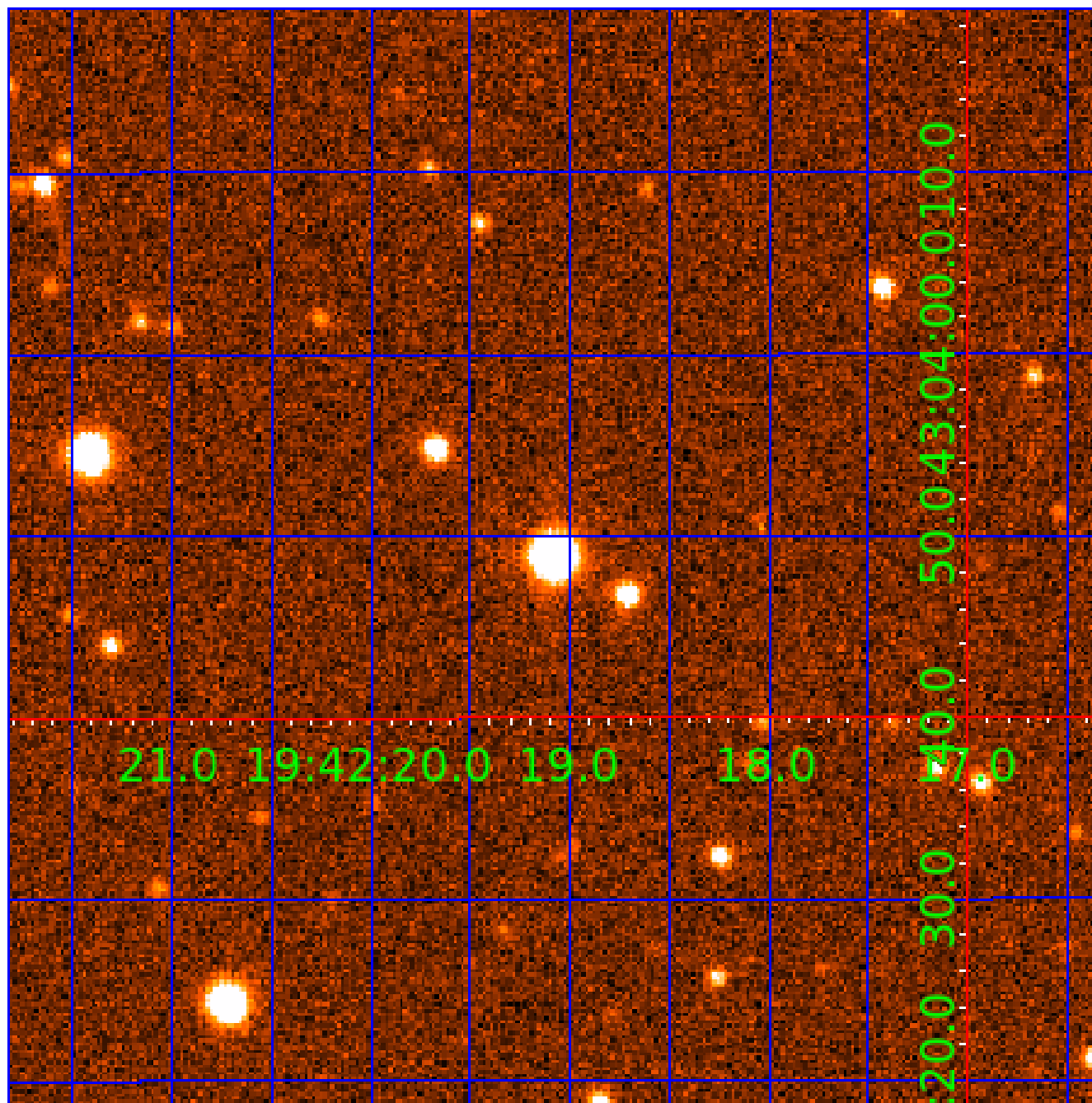


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007458433

Q1-17 DR25 TCE Parameters

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

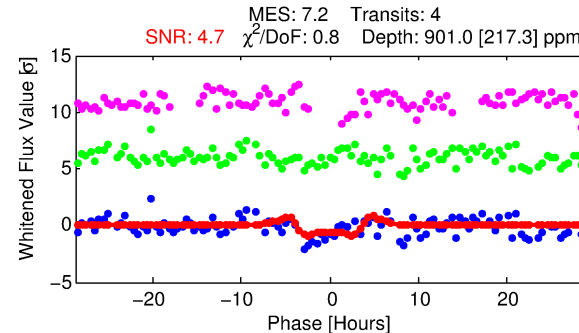
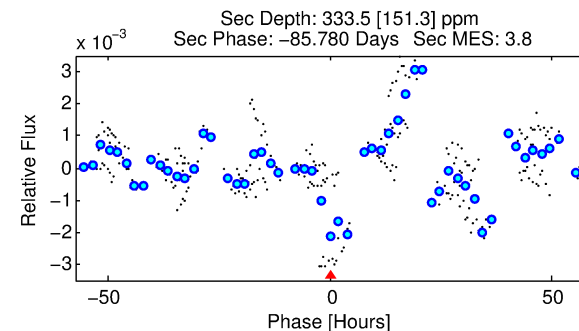
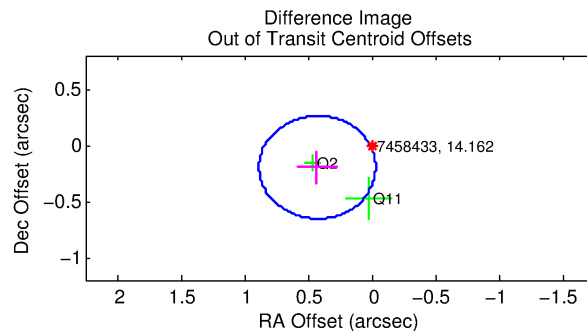
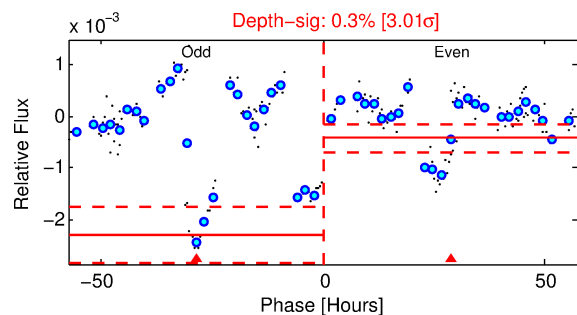
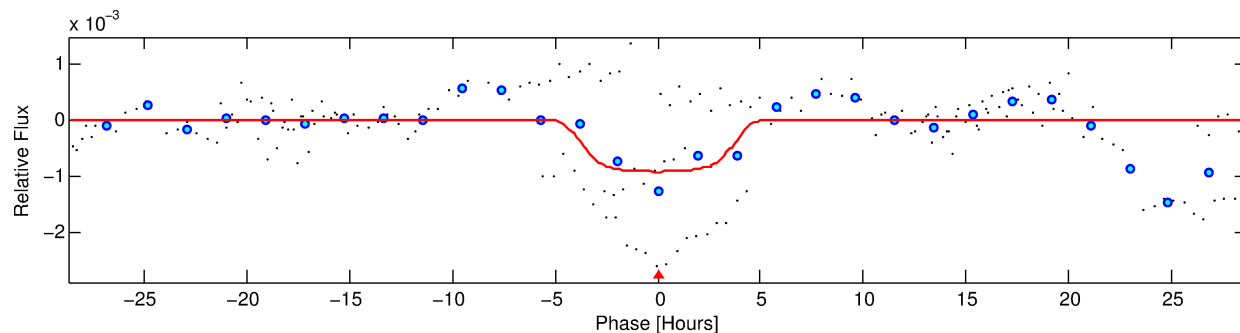
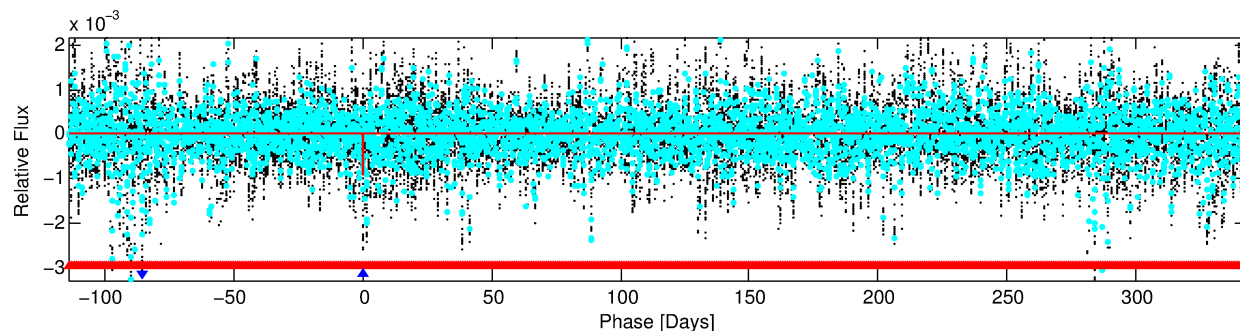
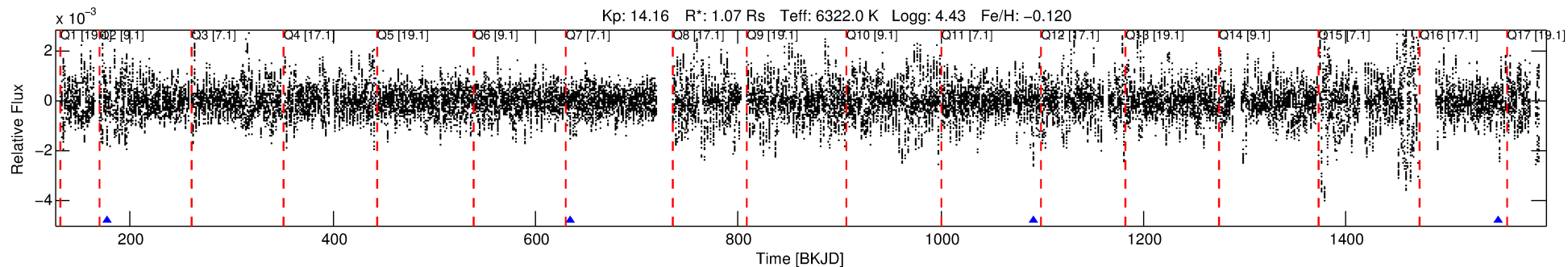
Ephemeris Match Information For 007458433-02

No Significant Match Found

DV One-Page Summary

KIC: 7458433 Candidate: 2 of 2 Period: 457.684 d
KOI: K05392 Corr: No Ephemeris Match

Kp: 14.16 R*: 1.07 Rs Teff: 6322.0 K Logg: 4.43 Fe/H: -0.120



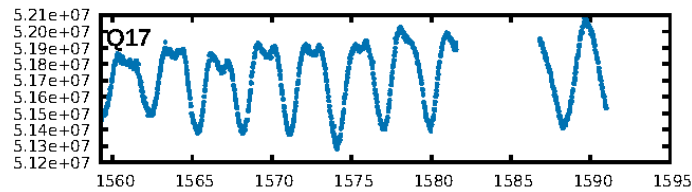
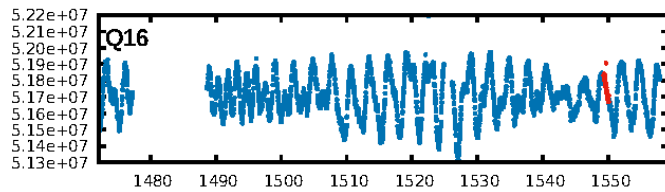
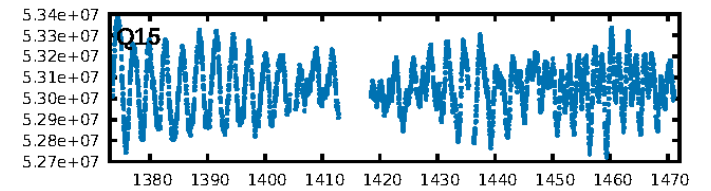
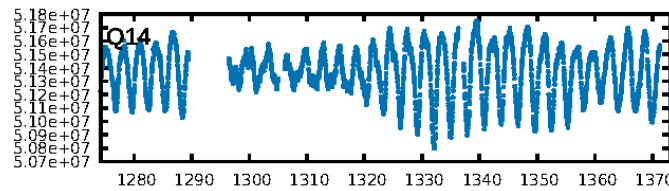
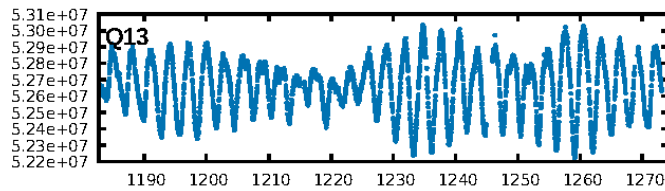
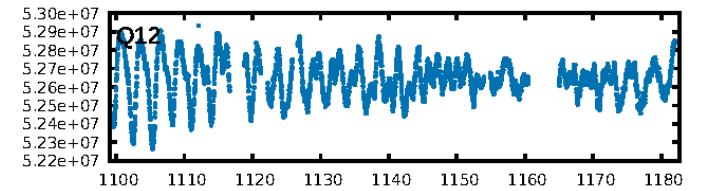
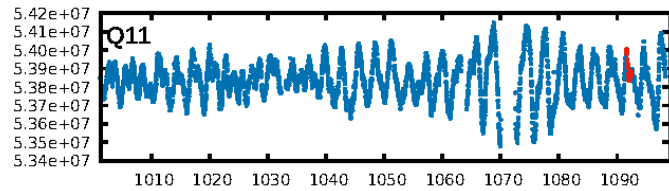
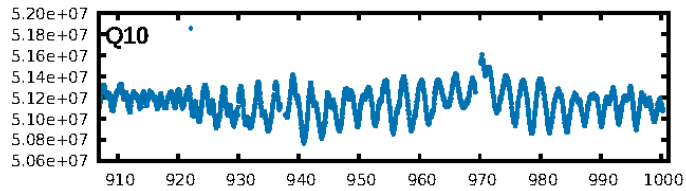
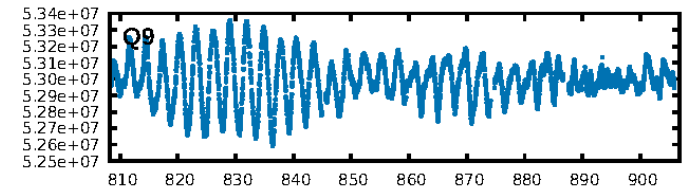
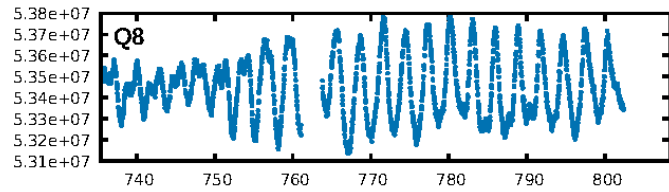
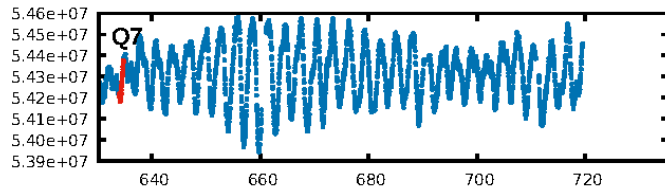
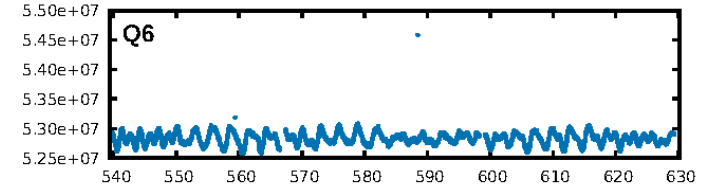
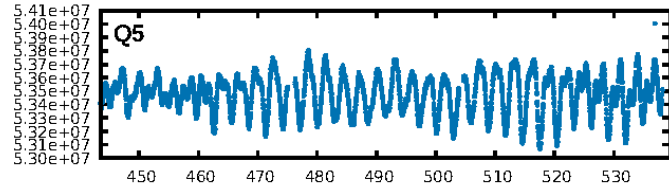
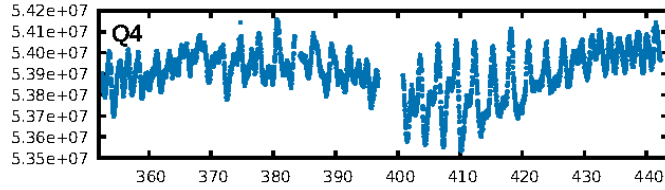
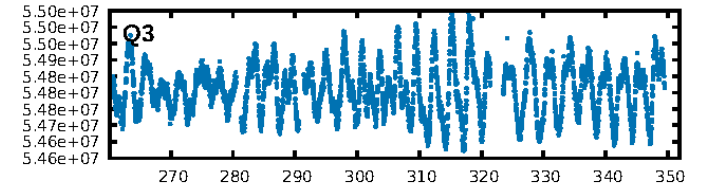
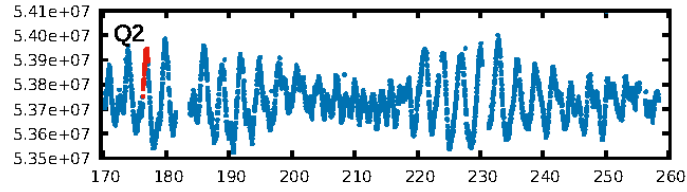
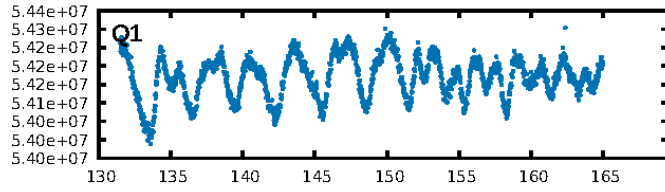
DV Fit Results:

Period = 457.68414 [0.01833] d
Epoch = 176.6669 [0.0301] BKJD
Rp/R* = 0.0336 [0.0042]
a/R* = 159.09 [27.59]
b = 0.94 [0.02]
Seff = 1.13 [0.47]
Teq = 263 [27] K
Rp = 3.94 [1.37] Re
a = 1.2088 [0.3296] AU
Ag = 17260.02 [11252.89] [1.53σ]
Teff = 4661 [622] K [7.06σ]

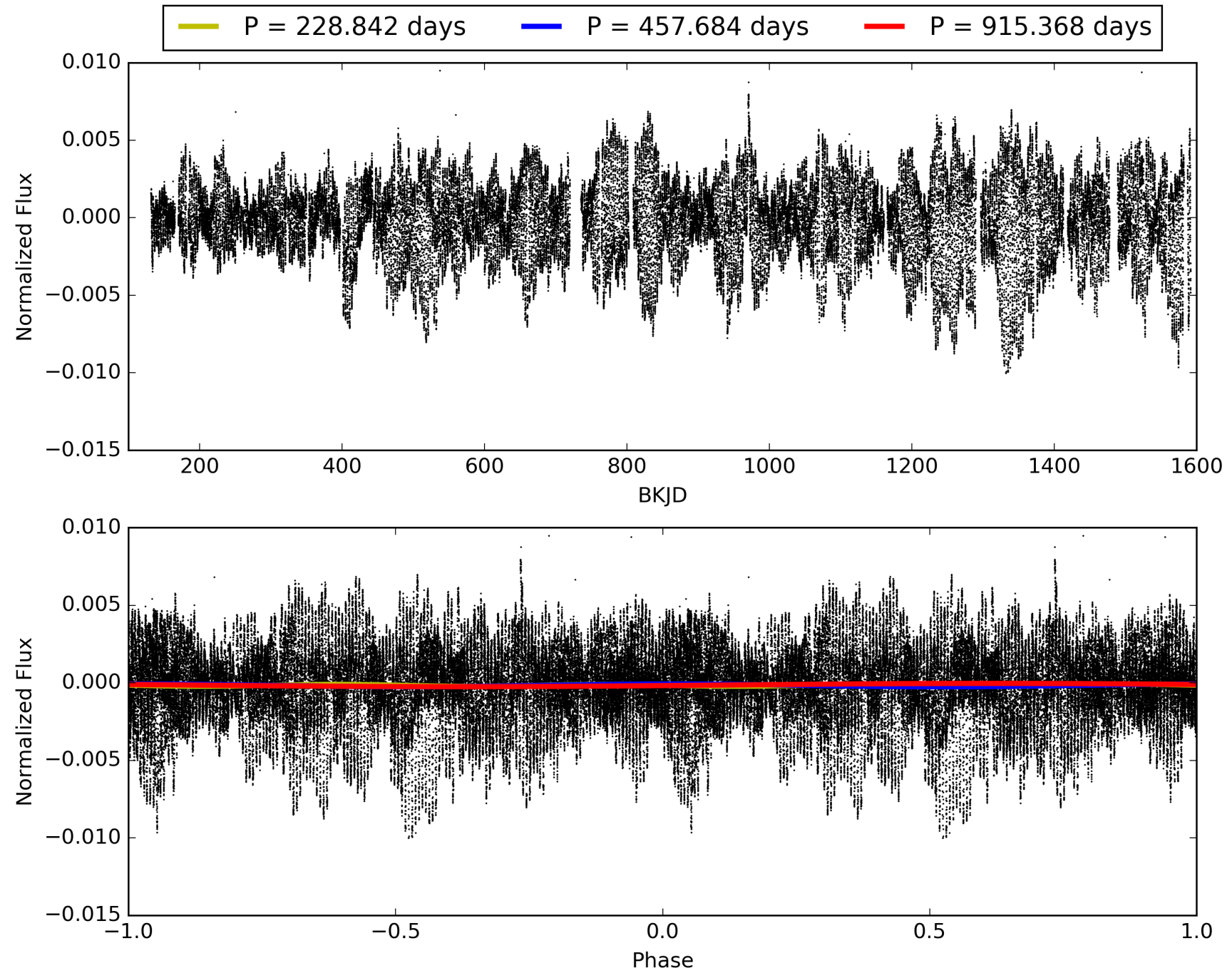
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1103.19σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.53e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.843
Centroid-sig: 48.5%
Centroid-so: 0.272 arcsec [0.58σ]
OotOffset-rm: 0.470 arcsec [3.08σ]
KicOffset-rm: 0.340 arcsec [2.35σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/2]

TCE 007458433-02, PDC Light Curves

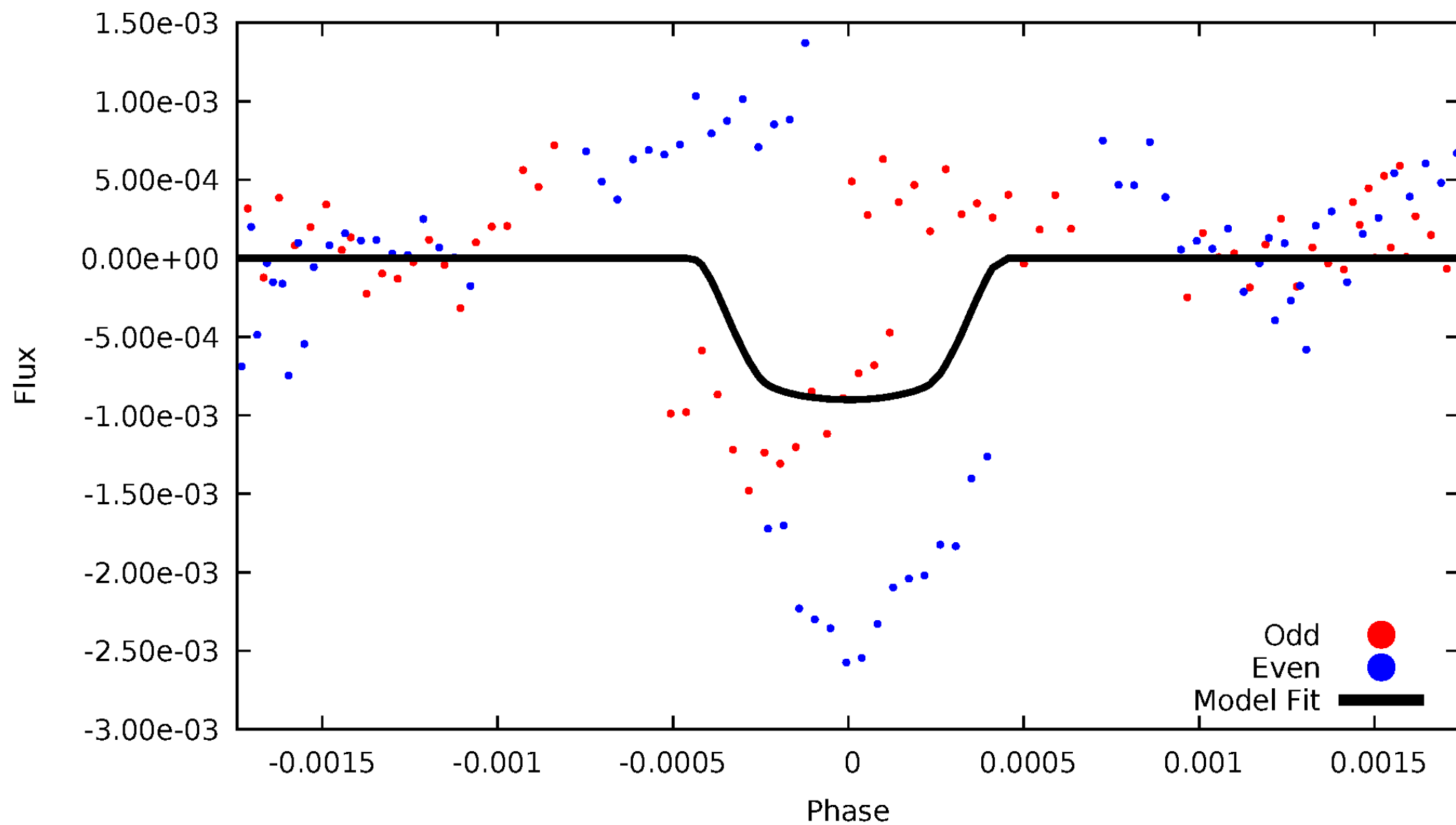


TCE 007458433-02



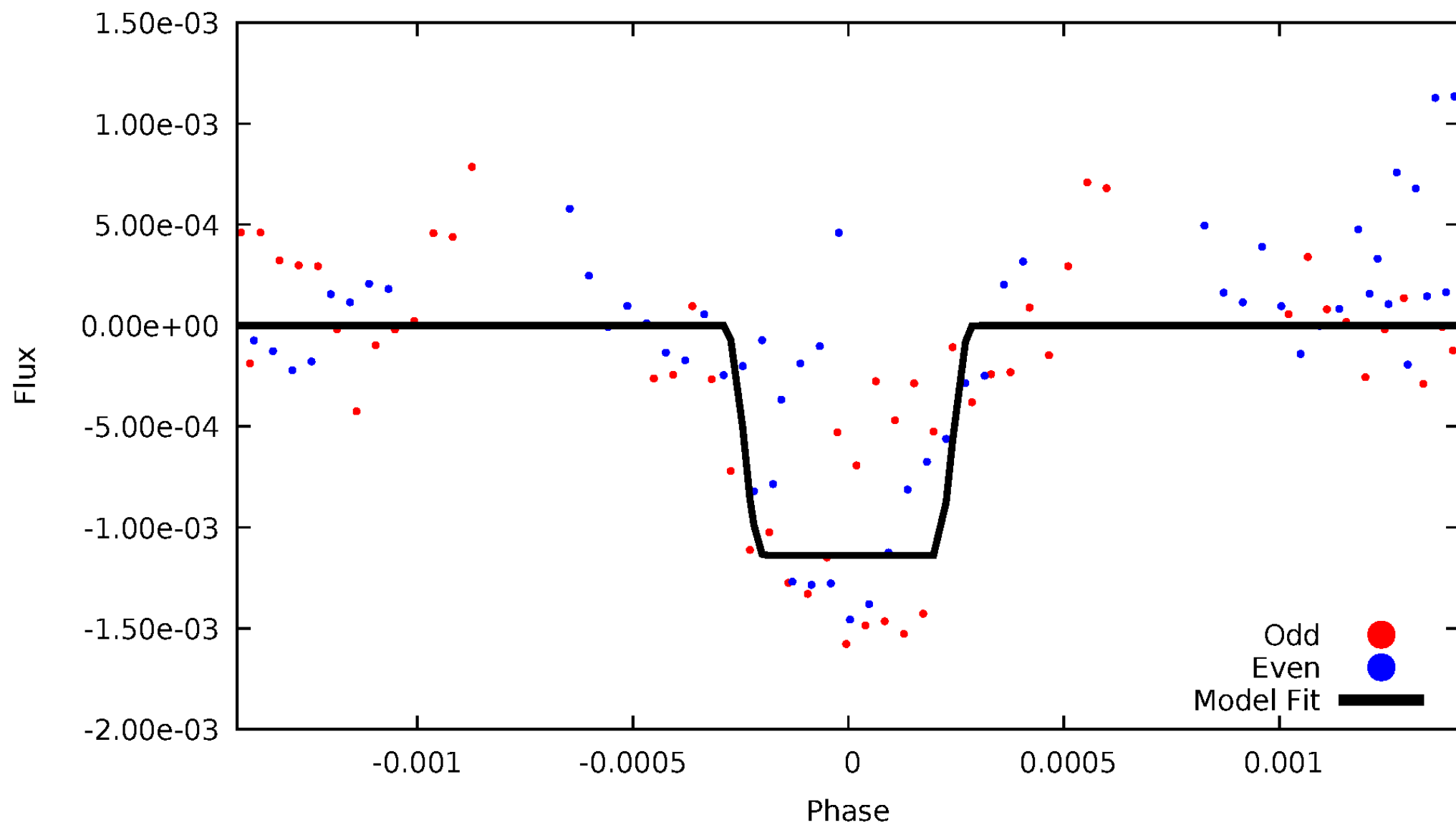
DV Odd/Even

TCE 007458433-02



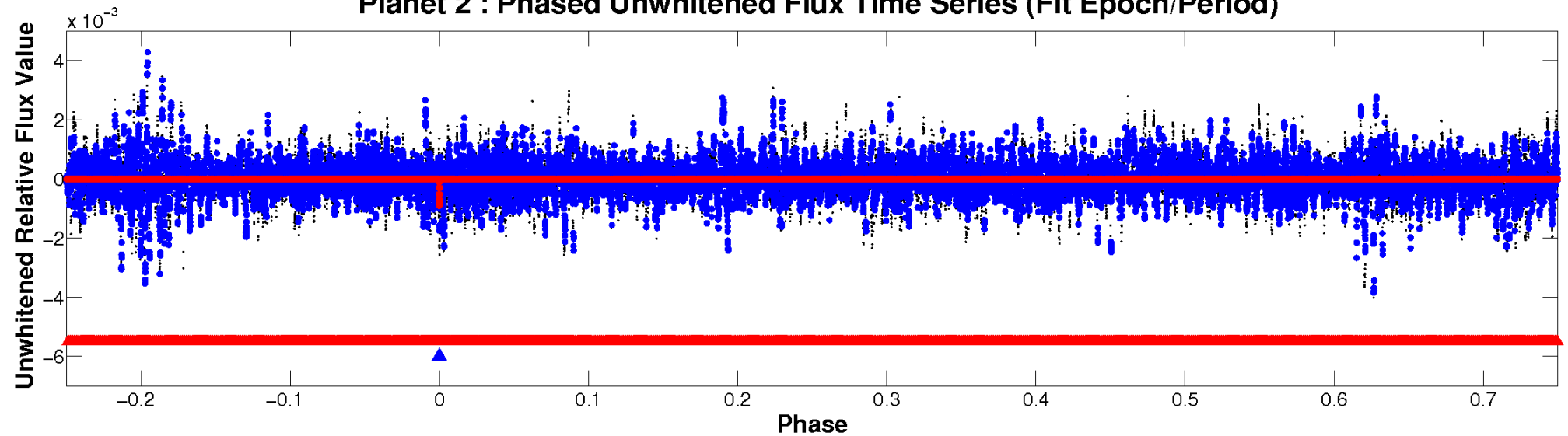
ALT Odd/Even

TCE 007458433-02

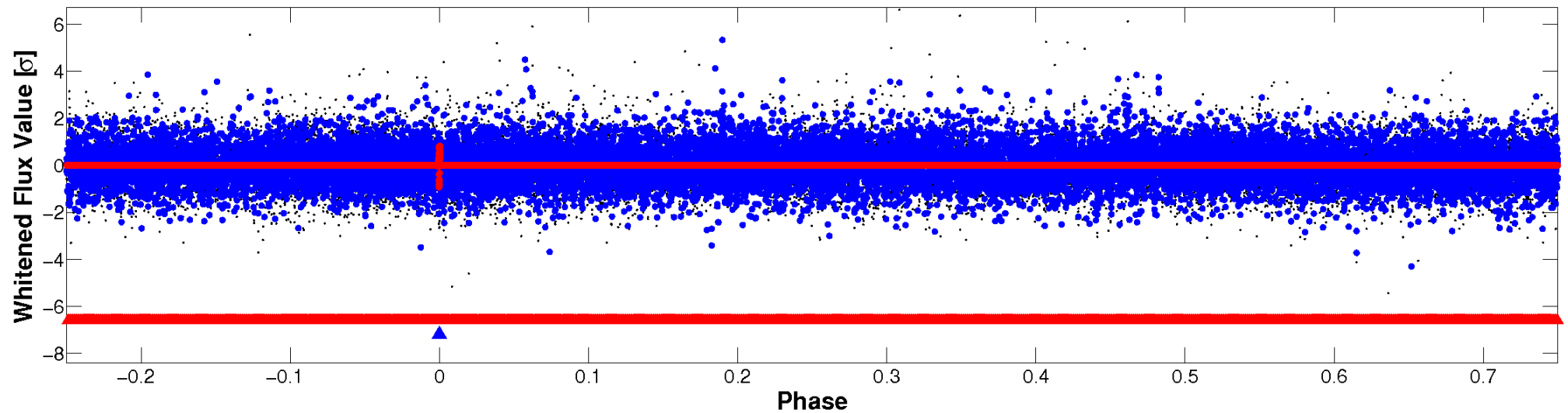


Non-Whitened Vs. Whitened Light Curve

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

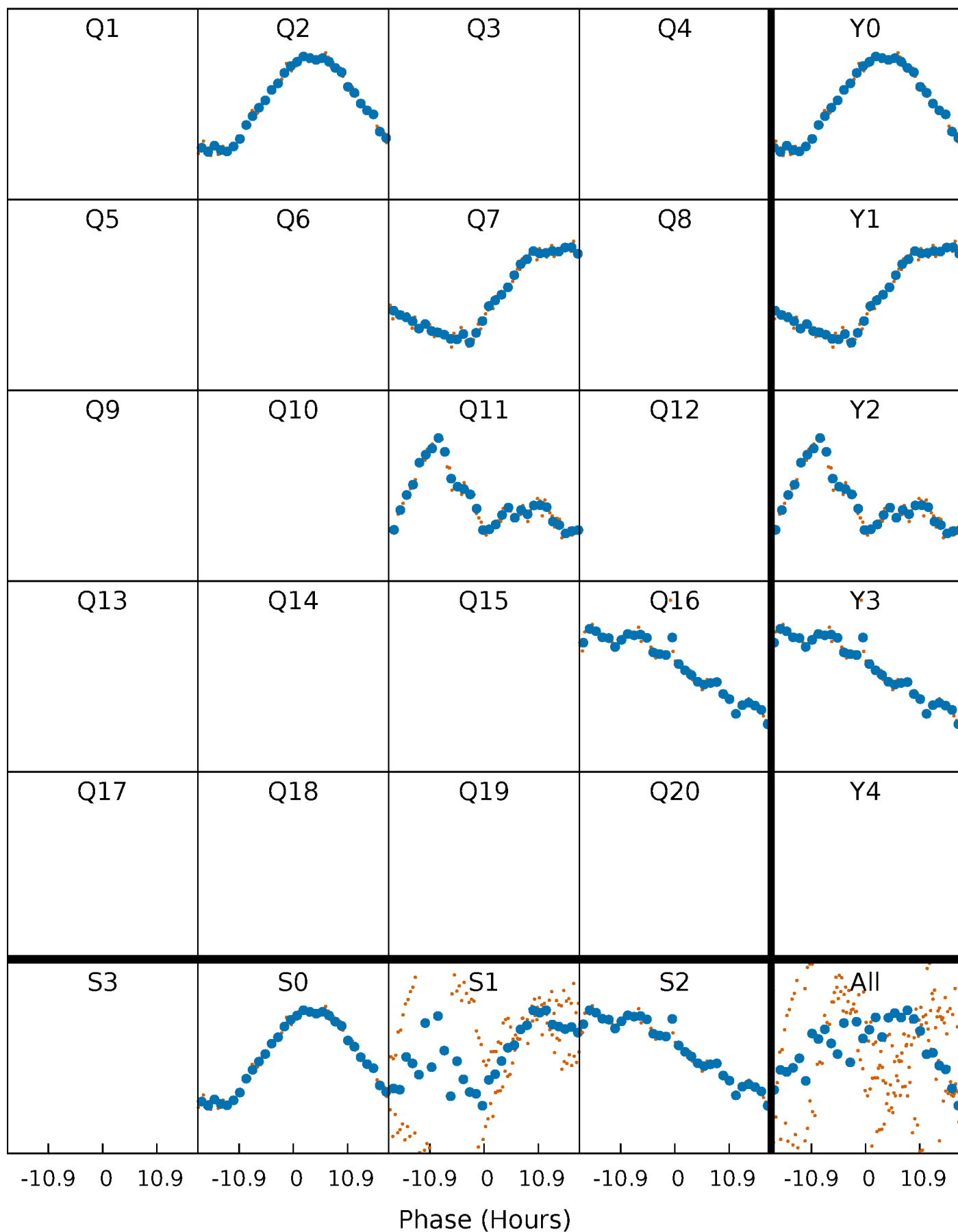


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



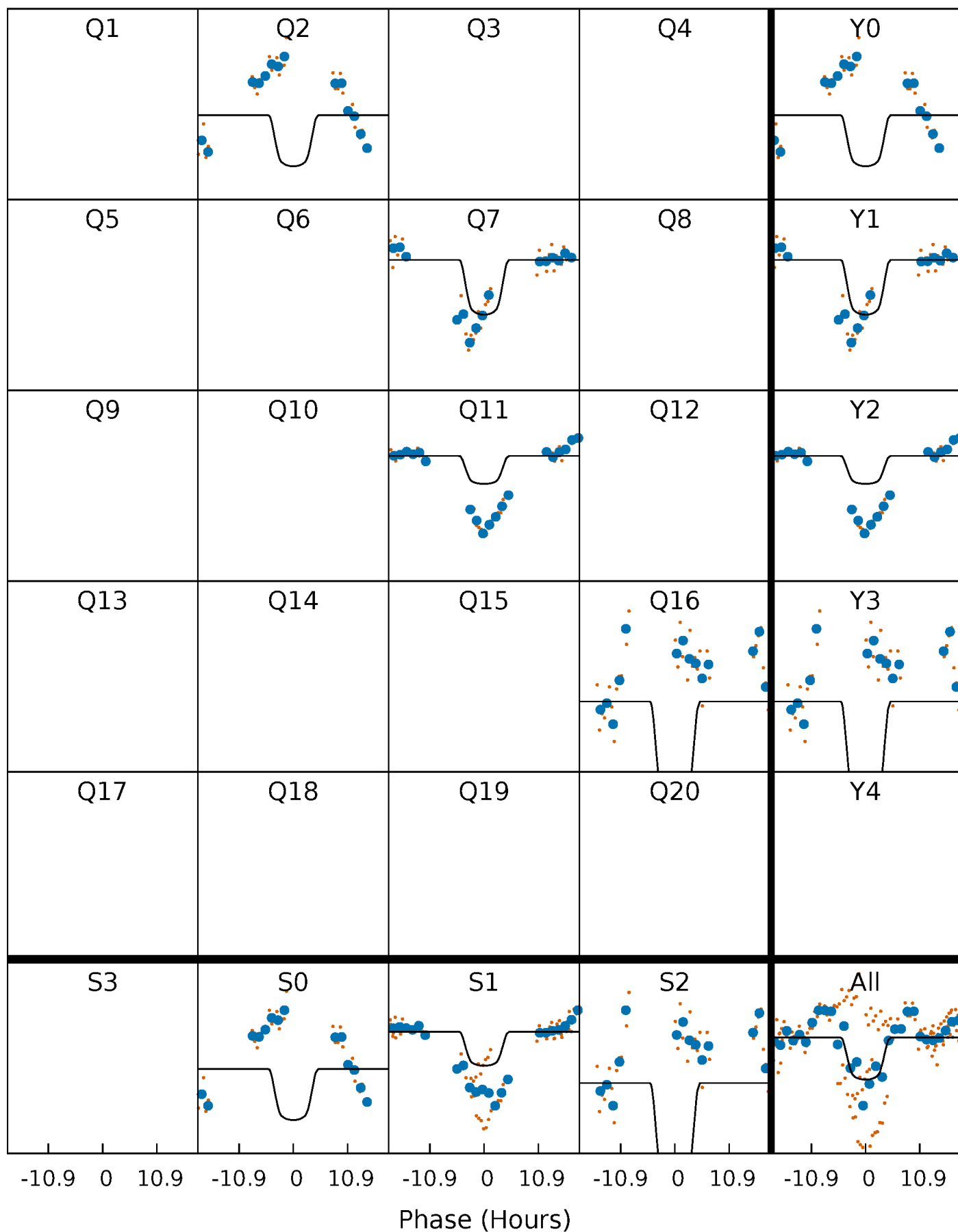
PDC Quarter-Phased Transit Curves

TCE 007458433-02 $P=457.684140$ Days $T_0=176.666905$ (BKJD)



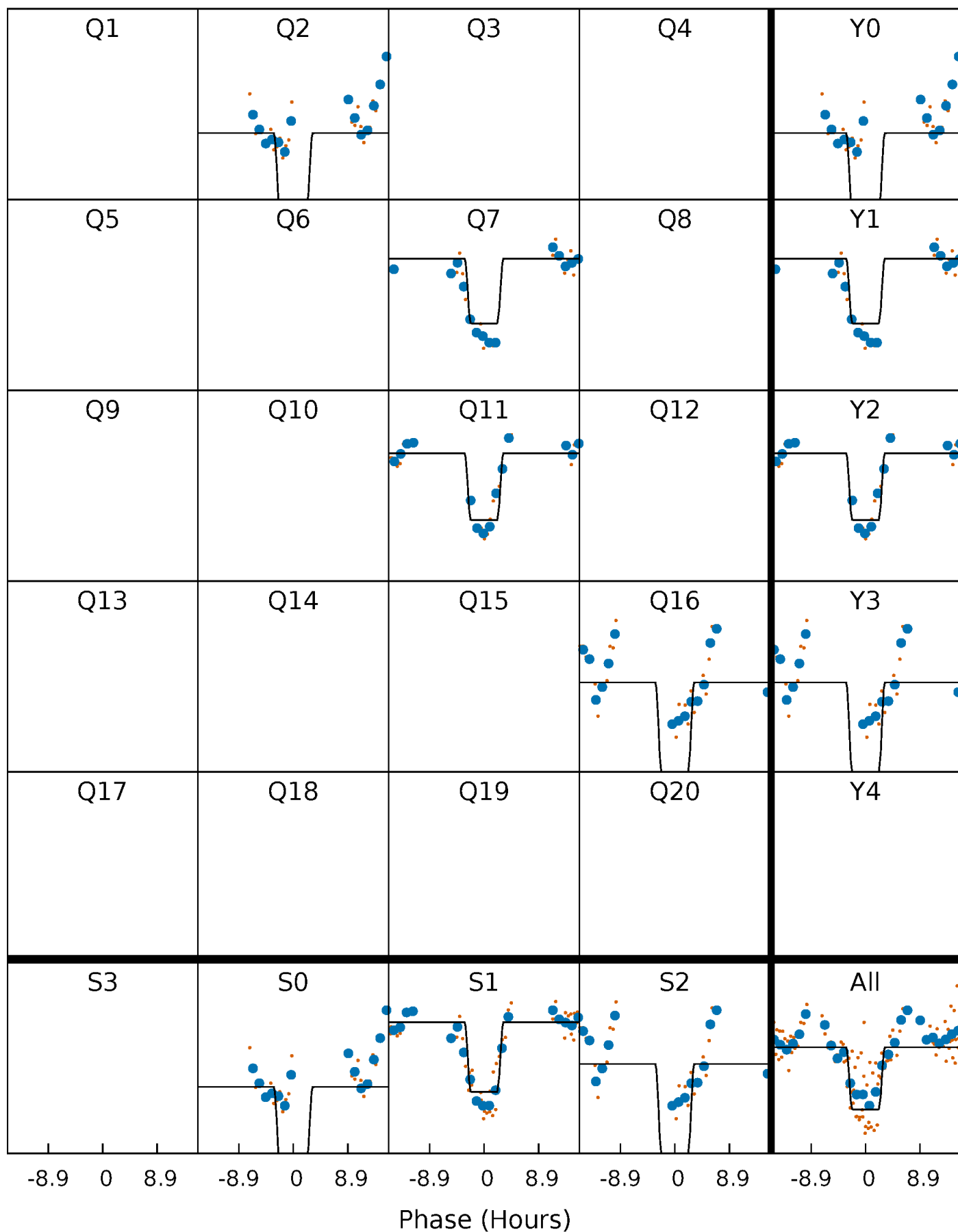
DV Quarter-Phased Transit Curves

TCE 007458433-02 $P=457.684140$ Days $T_0=176.666905$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

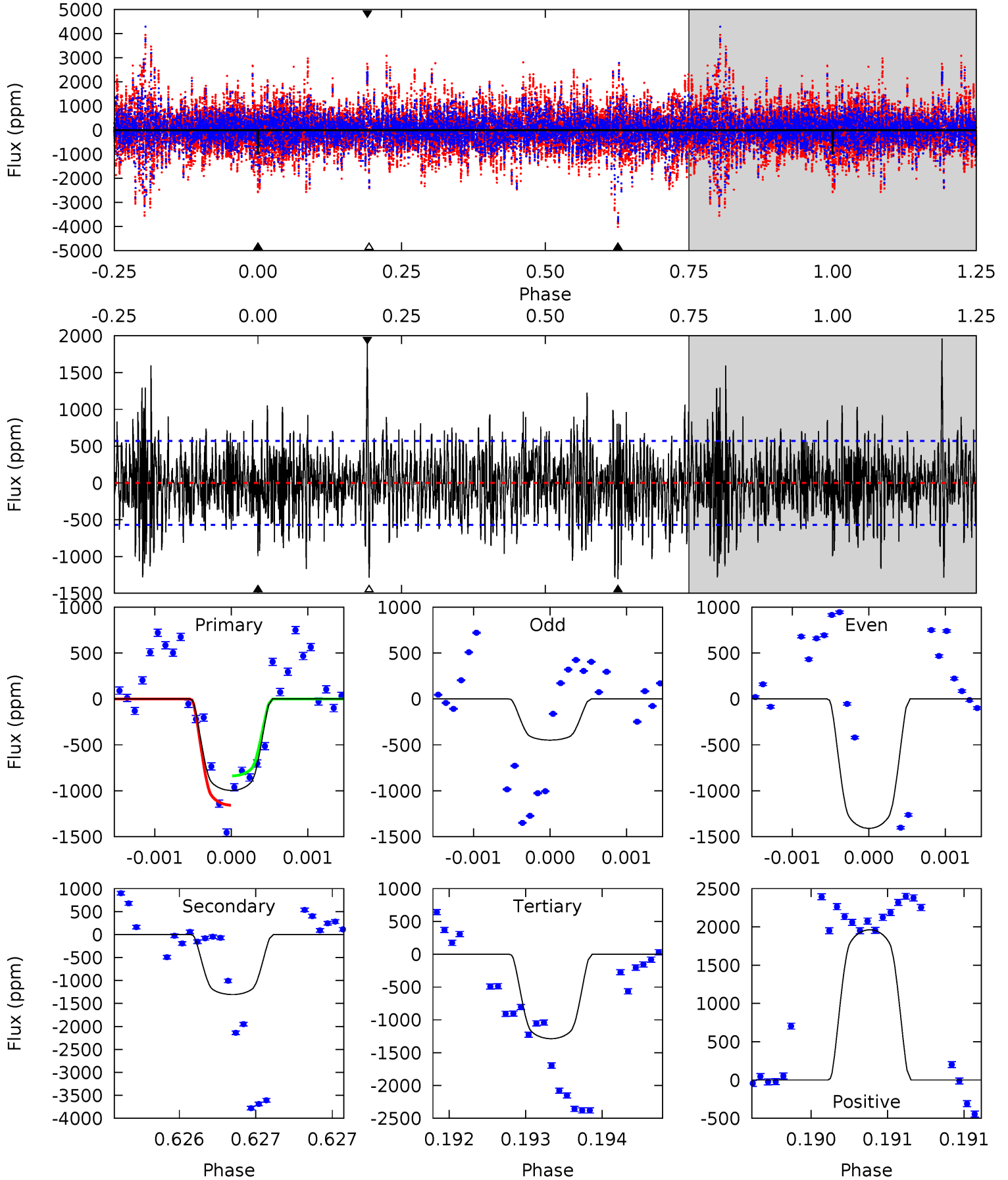
TCE 007458433-02 P=457.704933 Days $T_0=176.620724$ (BKJD)



DV Model-Shift Uniqueness Test

007458433-02, P = 457.684140 Days, E = 176.666905 Days

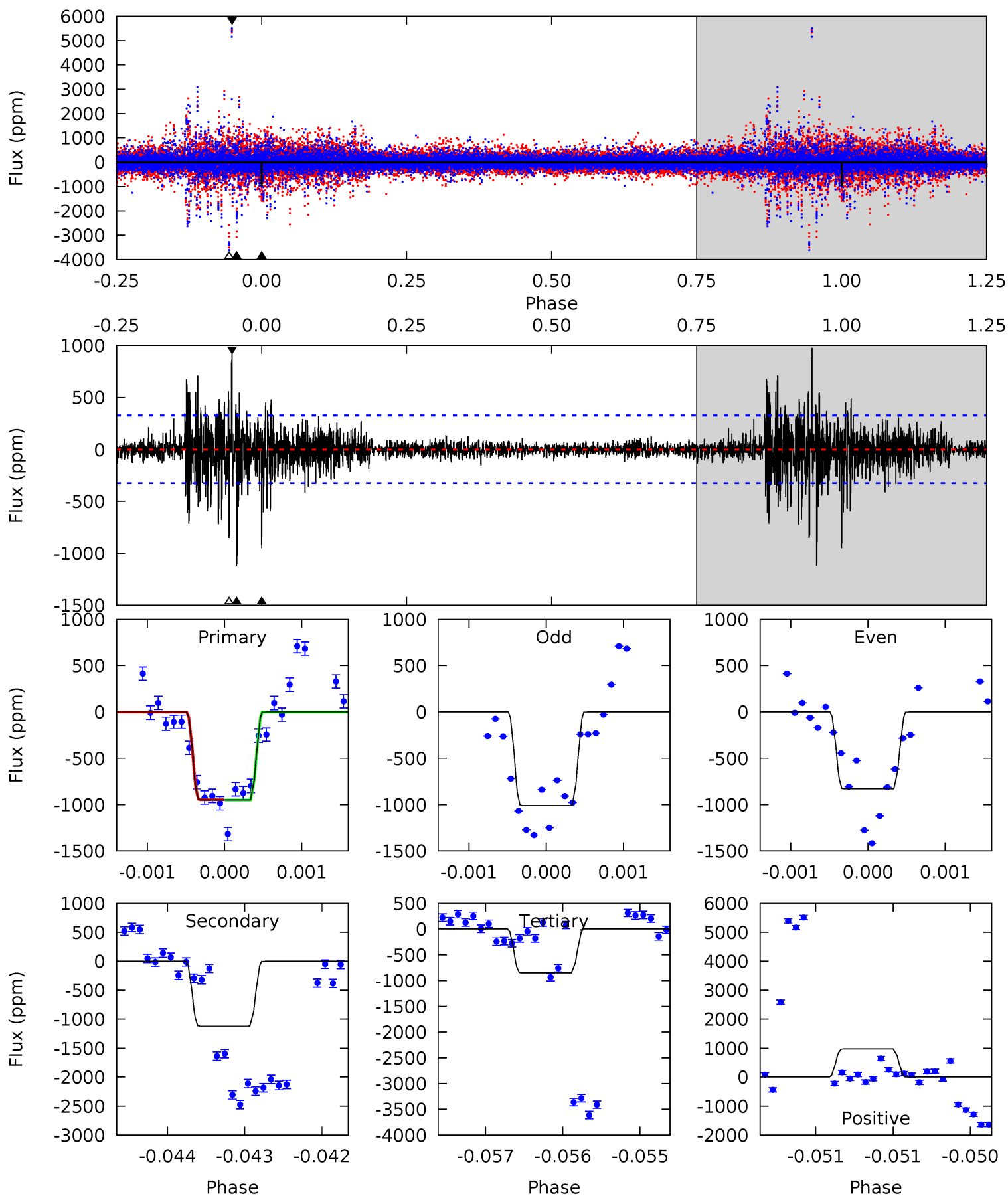
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.58	12.6	12.4	18.9	5.48	3.34	3.55	-2.79	-9.29	0.19	-6.31	4.70	1.41	0.60	1.54



Alt Model-Shift Uniqueness Test

007458433-02, P = 457.704933 Days, E = 176.620724 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	19.1	14.5	16.6	5.54	3.44	2.11	1.67	-0.45	4.59	2.46	1.49	0.97	0.47	0.04



Stellar Parameters For KIC 007458433

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6322^{+169}_{-206}	$4.426^{+0.054}_{-0.216}$	$-0.120^{+0.250}_{-0.300}$	$1.075^{+0.349}_{-0.116}$	$1.124^{+0.154}_{-0.154}$	$1.274^{+0.358}_{-0.661}$
	+3%/-3%	+1%/-5%	+208%/-250%	+32%/-11%	+14%/-14%	+28%/-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 007458433-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1306 ± 104	$4.10^{+0.84}_{-0.62}$	376^{+26}_{-19}	6572^{+550}_{-489}	60934^{+21803}_{-17575}
Alt.	-1120 ± 59	$4.12^{+0.90}_{-0.67}$	376^{+28}_{-18}	6299^{+510}_{-430}	52258^{+20375}_{-17087}

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 $A_{obs} \gg 1.0$

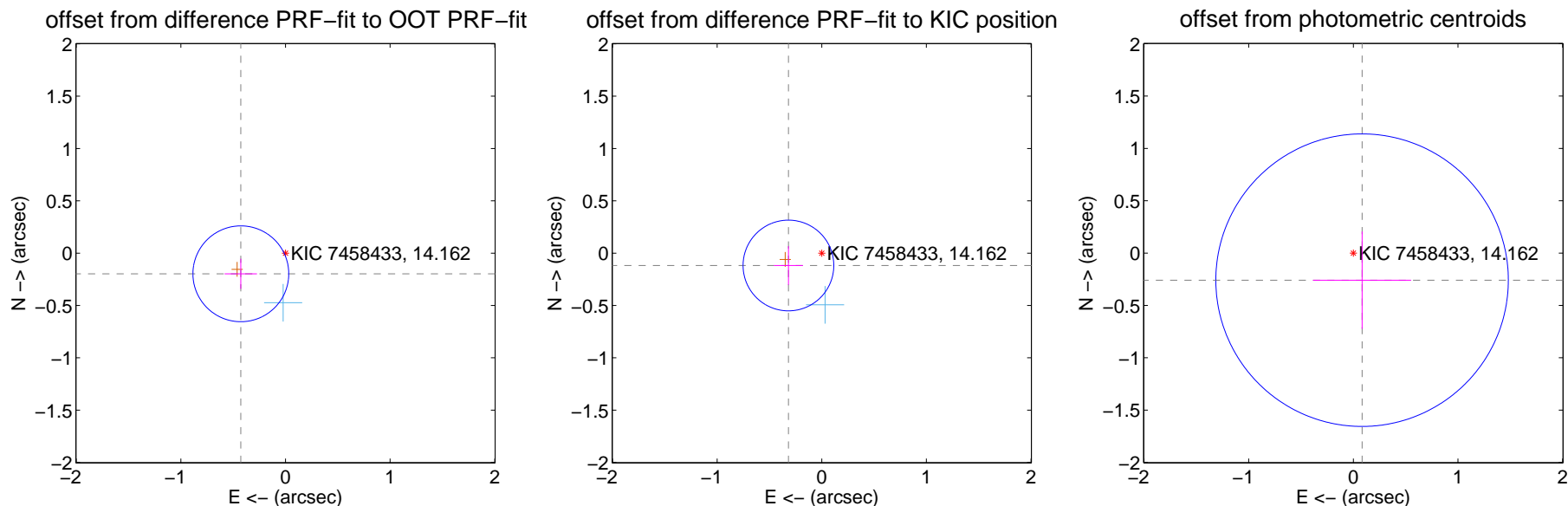
DV Centroid Data

Supplemental centroid analysis for 007458433-02. Kepler magnitude: 14.16. Transit SNR 4.69

There are 1 quarters with good PRF difference image offsets

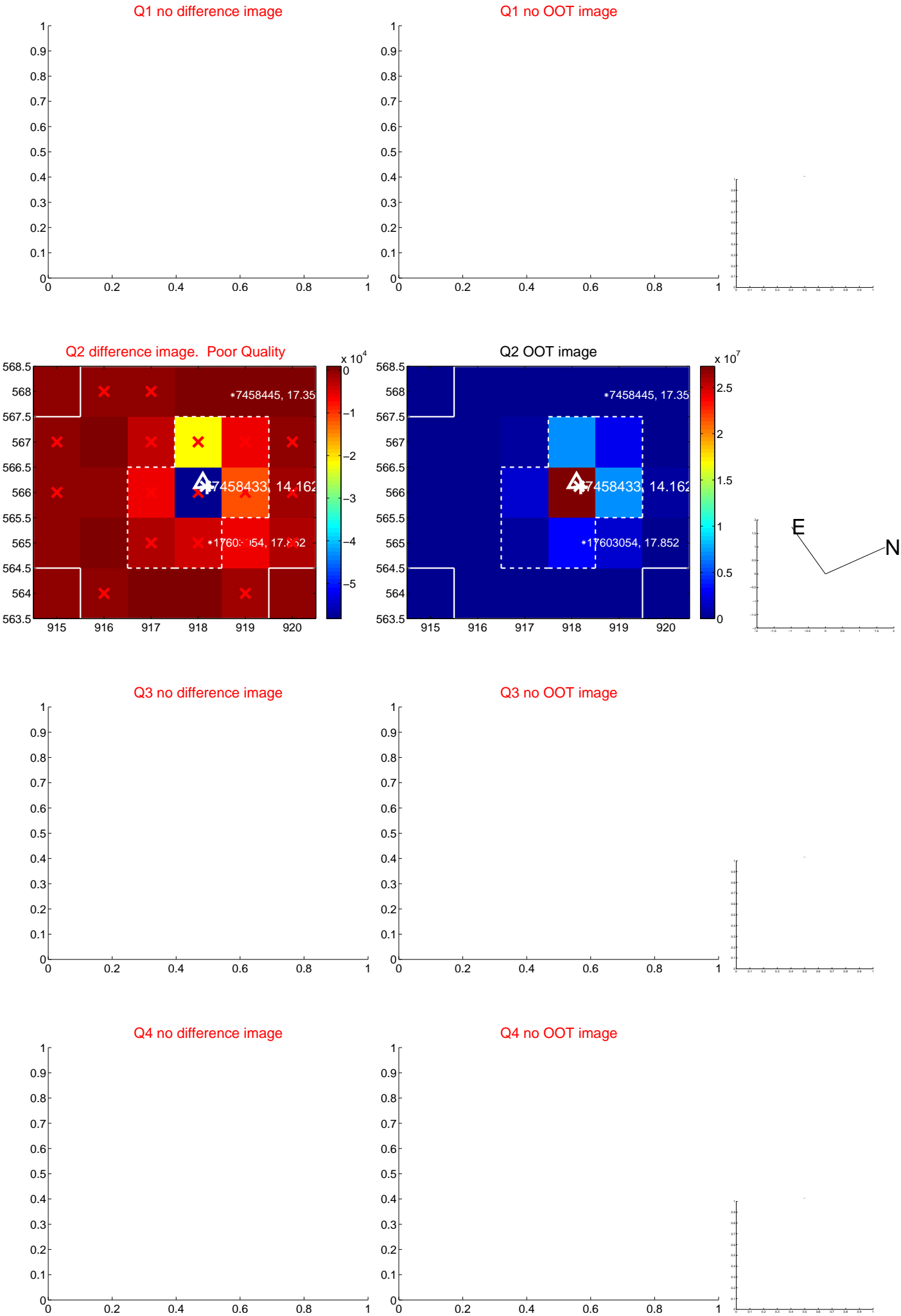
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.470 ± 0.153	3.08	0.427 ± 0.155	-0.197 ± 0.143
PRF-fit source offset from KIC position	0.340 ± 0.144	2.35	0.319 ± 0.138	-0.118 ± 0.185
photometric centroid source offset	0.27 ± 0.47	0.58	-0.08 ± 0.47	-0.26 ± 0.47



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.

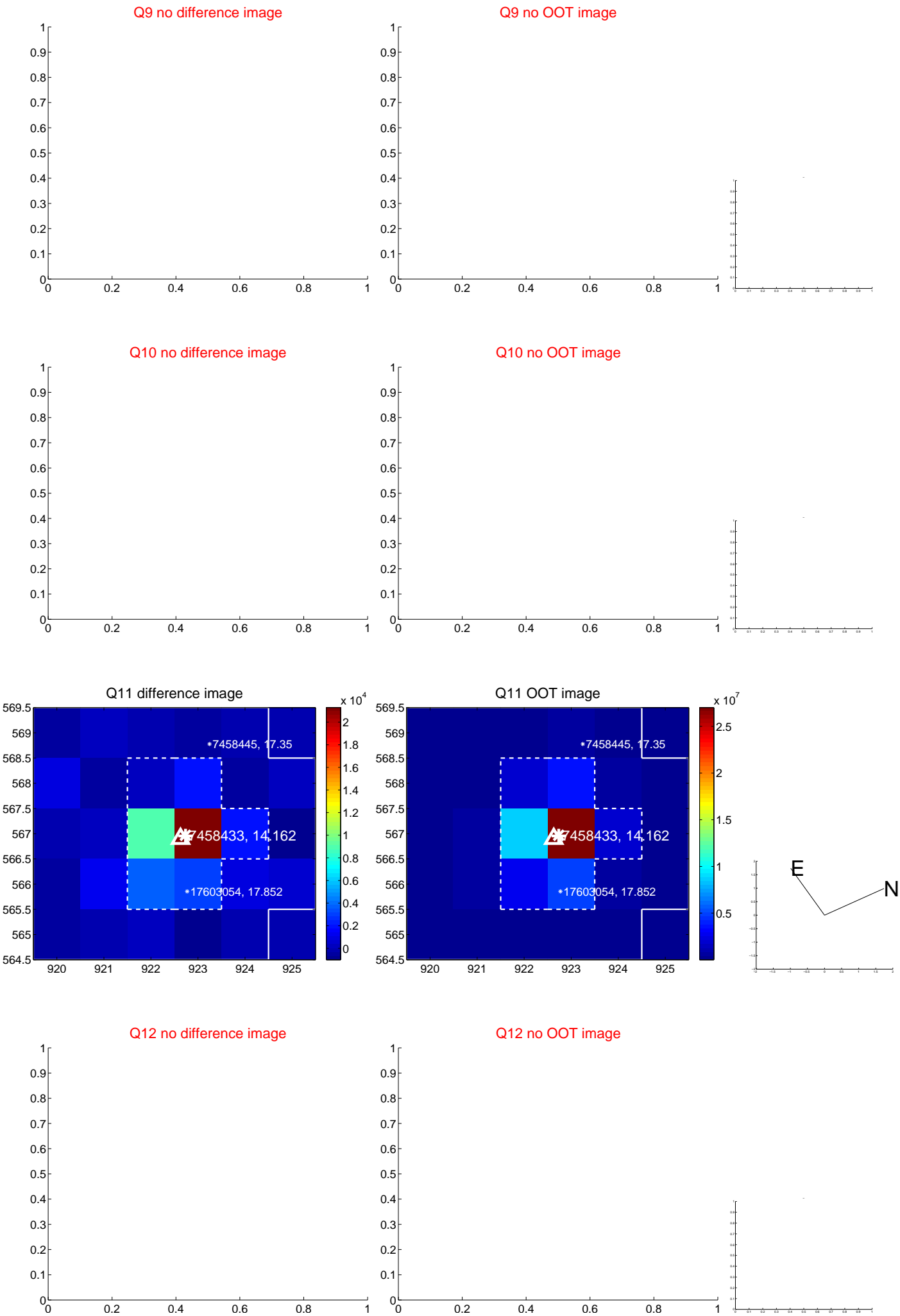
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



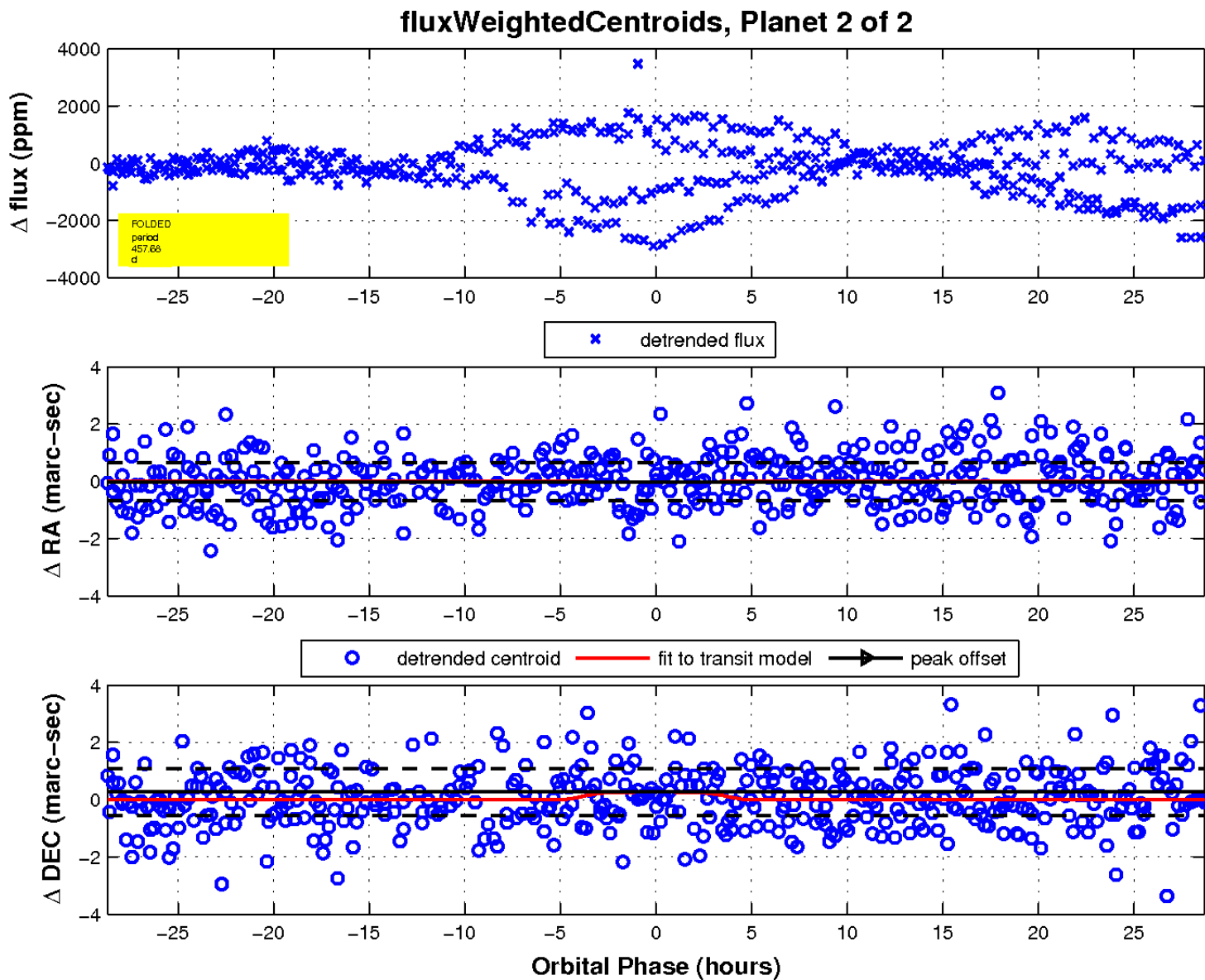
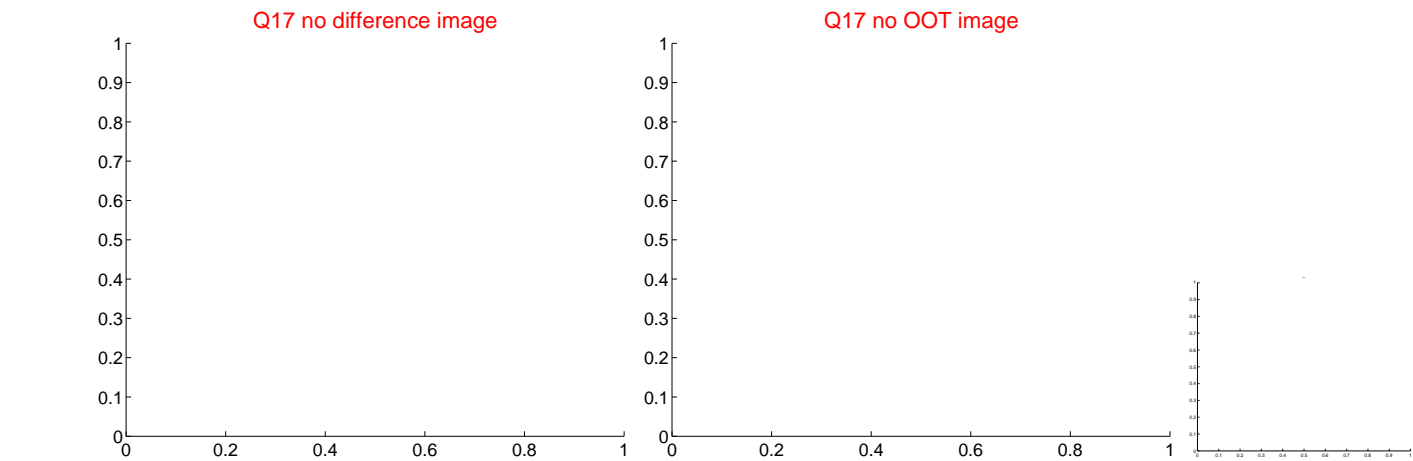
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



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



UKIRT Image

Declination

