

KIC 004175557

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})
004175557-01	OBS	No	338.312937	458.036196	2881.2	7.026	12.2	2.8	0.91	5680	4.90	0.89
004175557-02	OBS	No	1.189481	132.104642	461.4	1.370	11.1	13.6	0.91	5680	2.35	1656.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004175557-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_TER_DV—MOD_TER_ALT—INCONSISTENT_TRANS
004175557-02	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST

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

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

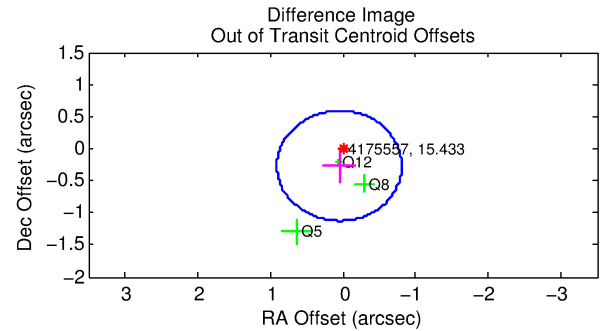
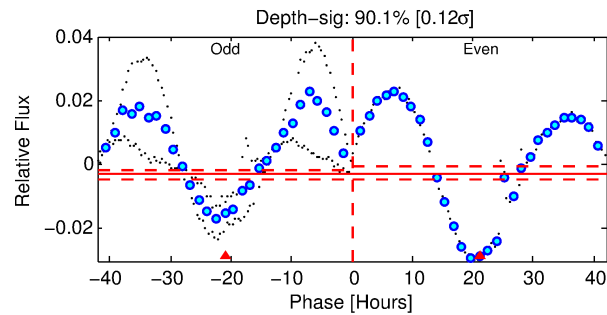
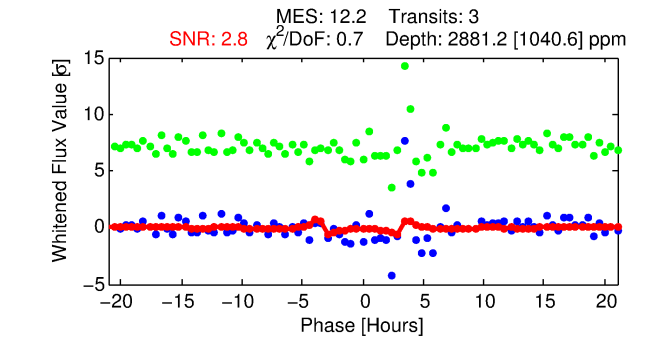
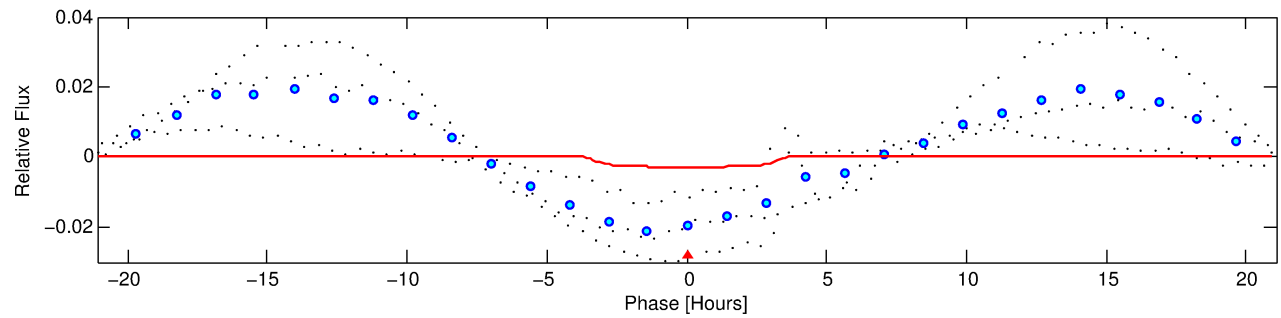
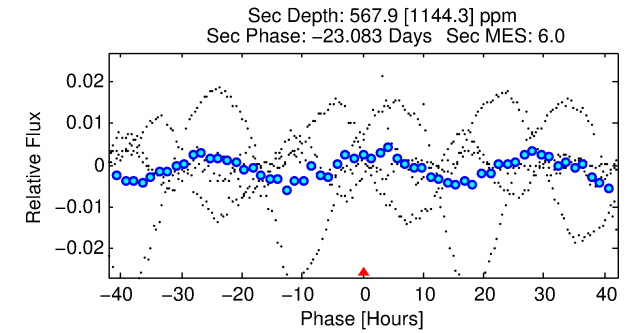
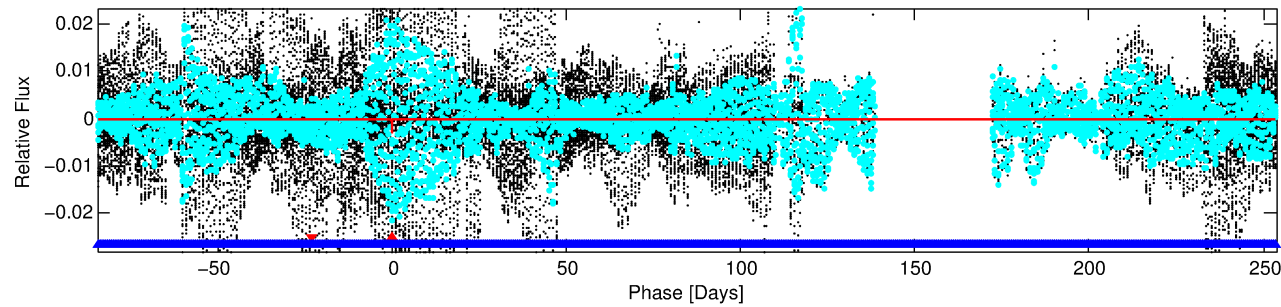
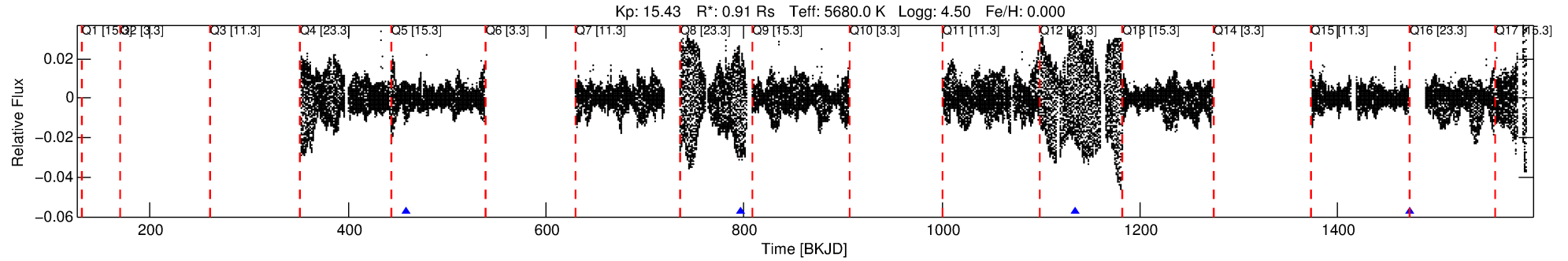
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004175557-01

No Significant Match Found

DV One-Page Summary

KIC: 4175557 Candidate: 1 of 2 Period: 338.313 d



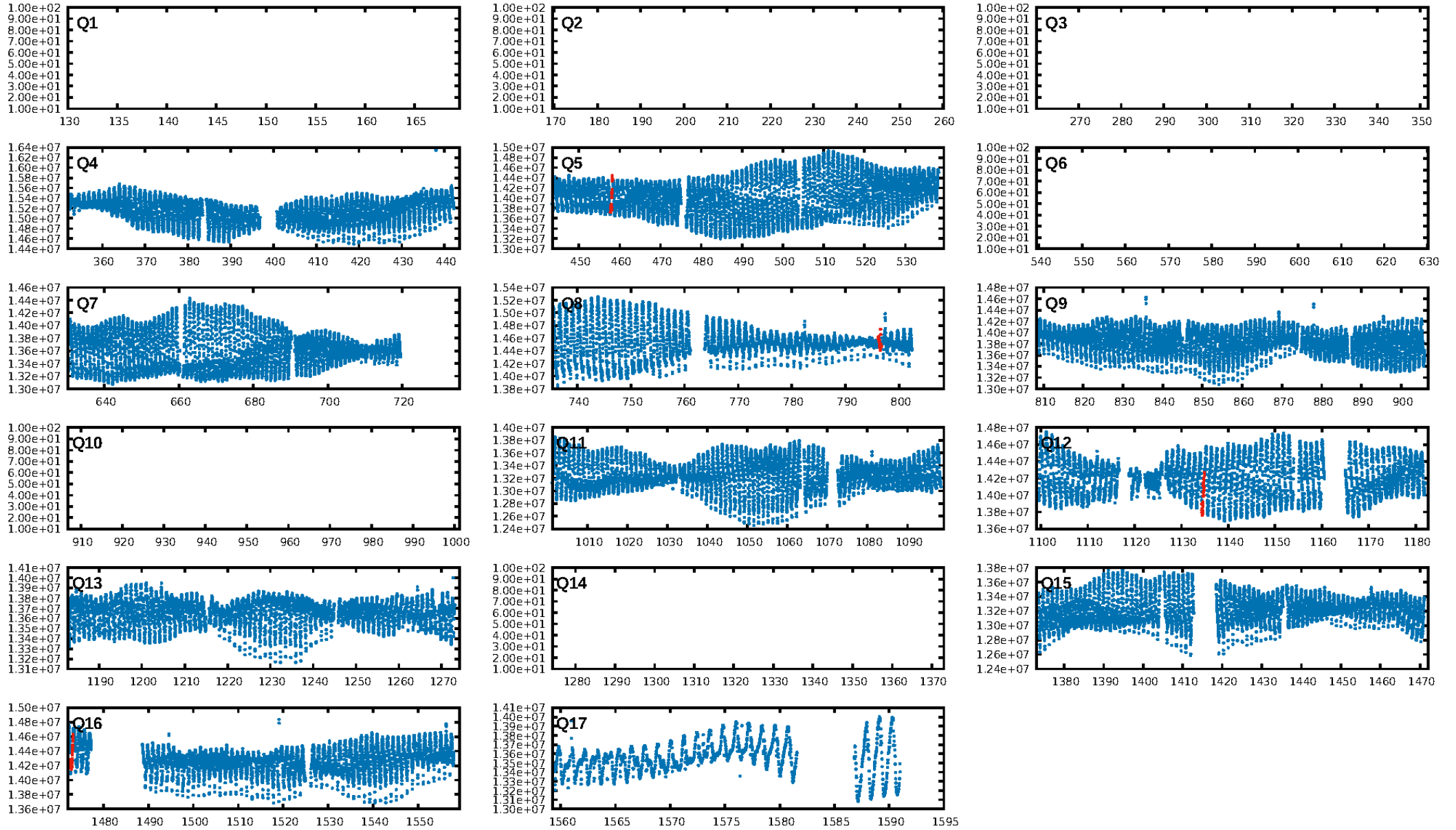
DV Fit Results:

Period = 338.31294 [0.00621] d
Epoch = 458.0362 [0.0088] BKJD
Rp/R* = 0.0492 [0.0223]
a/R* = 365.76 [531.83]
b = 0.33 [3.89]
Seff = 0.89 [0.33]
Teq = 247 [23] K
Rp = 4.90 [2.60] Re
a = 0.9359 [0.2201] AU
Ag = 11415.15 [25516.59] [0.45σ]
Teffp = 3953 [2187] K [1.69σ]

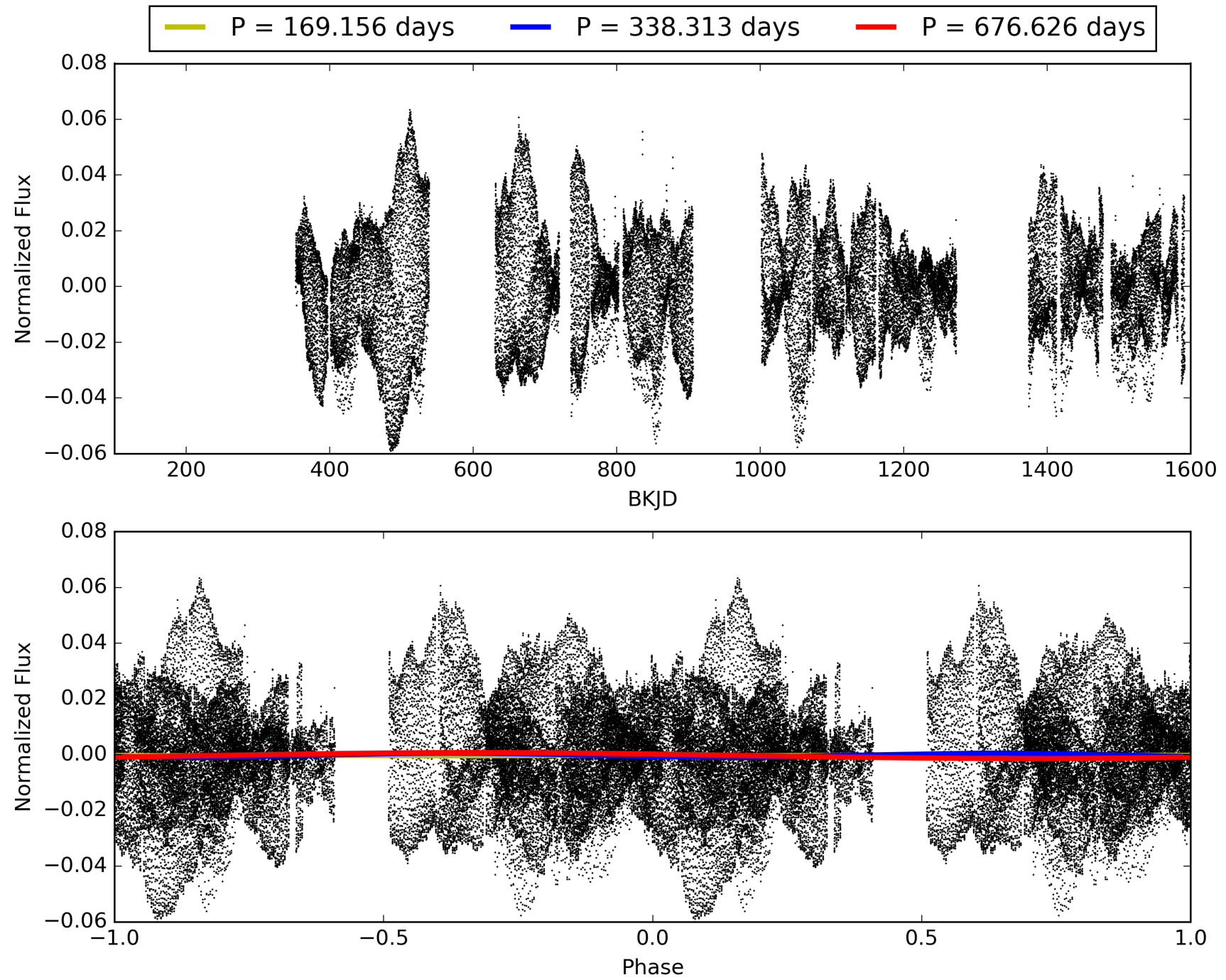
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1130.23σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 50.6%
ModelChiSquareGof-sig: 99.3%
Bootstrap-pfa: 6.13e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.7123
Centroid-sig: 39.5%
Centroid-so: 0.478 arcsec [0.68σ]
OotOffset-rm: 0.273 arcsec [0.95σ]
KicOffset-rm: 0.082 arcsec [0.78σ]
OotOffset-st: 0/0/2/1 [3]
KicOffset-st: 0/0/2/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/3]

TCE 004175557-01, PDC Light Curves

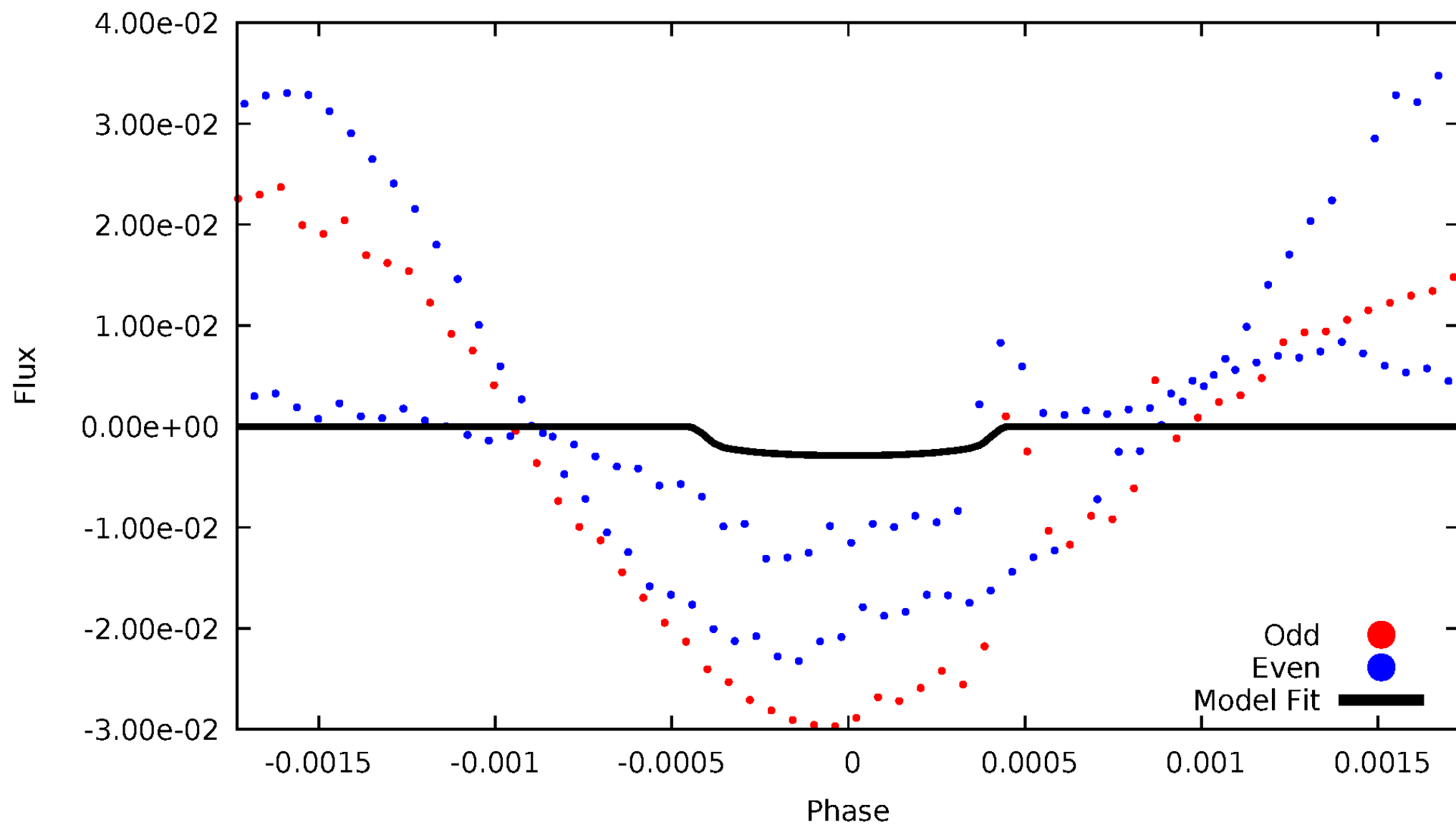


TCE 004175557-01



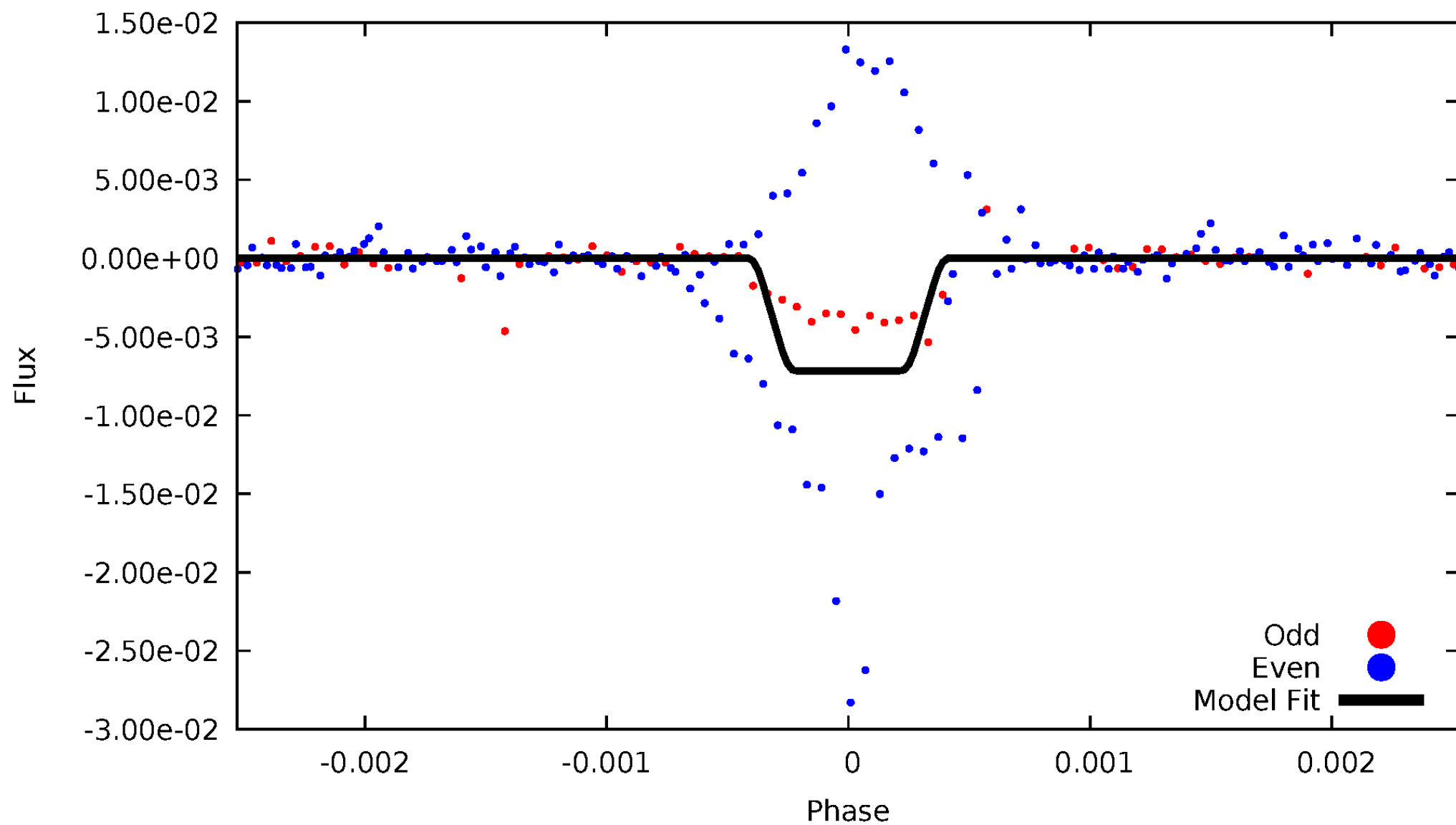
DV Odd/Even

TCE 004175557-01



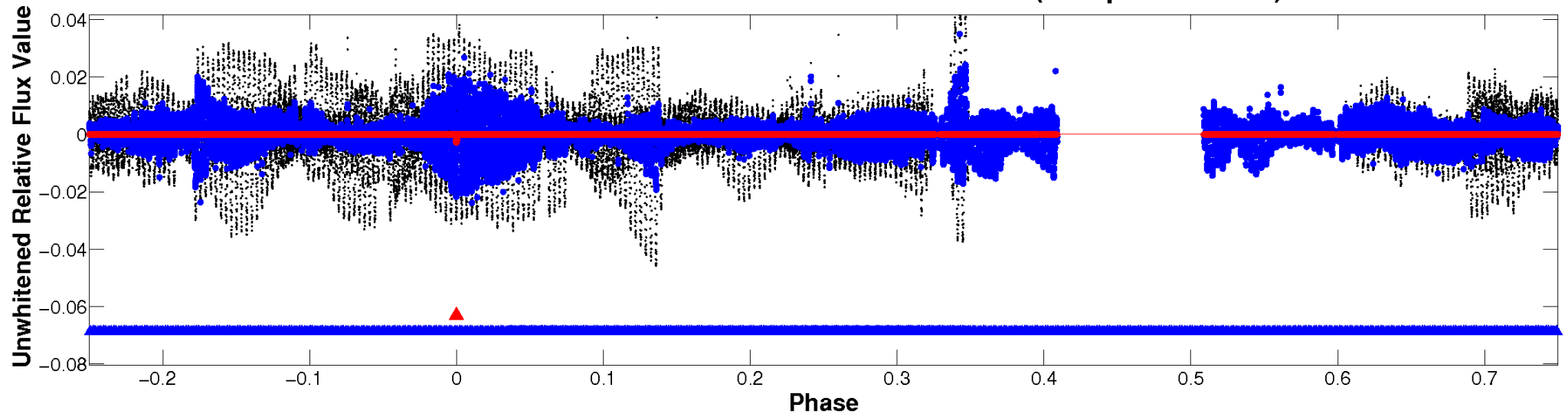
ALT Odd/Even

TCE 004175557-01

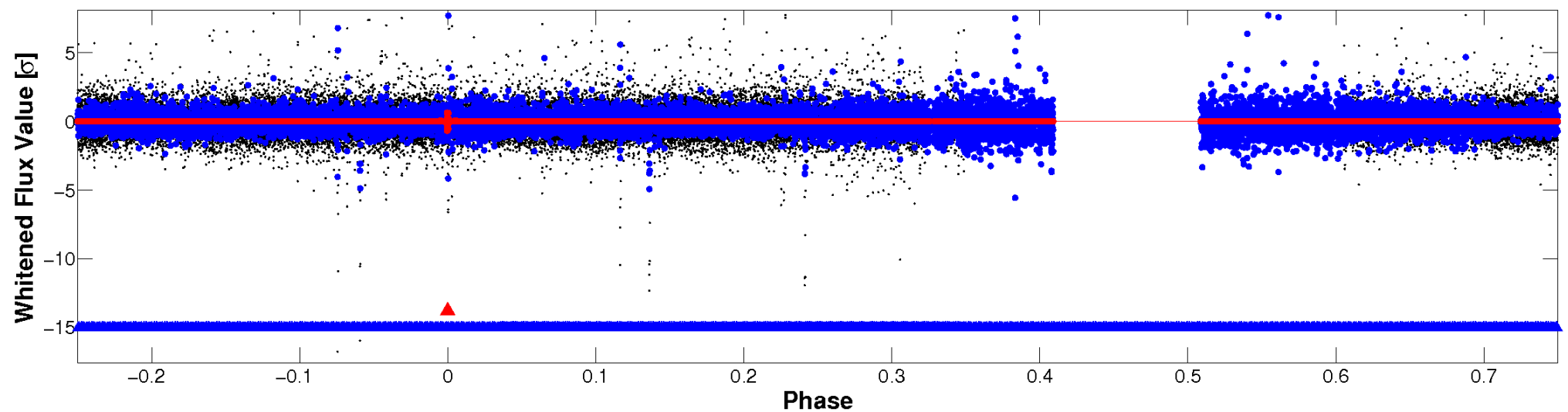


Non-Whitened Vs. Whitened Light Curve

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

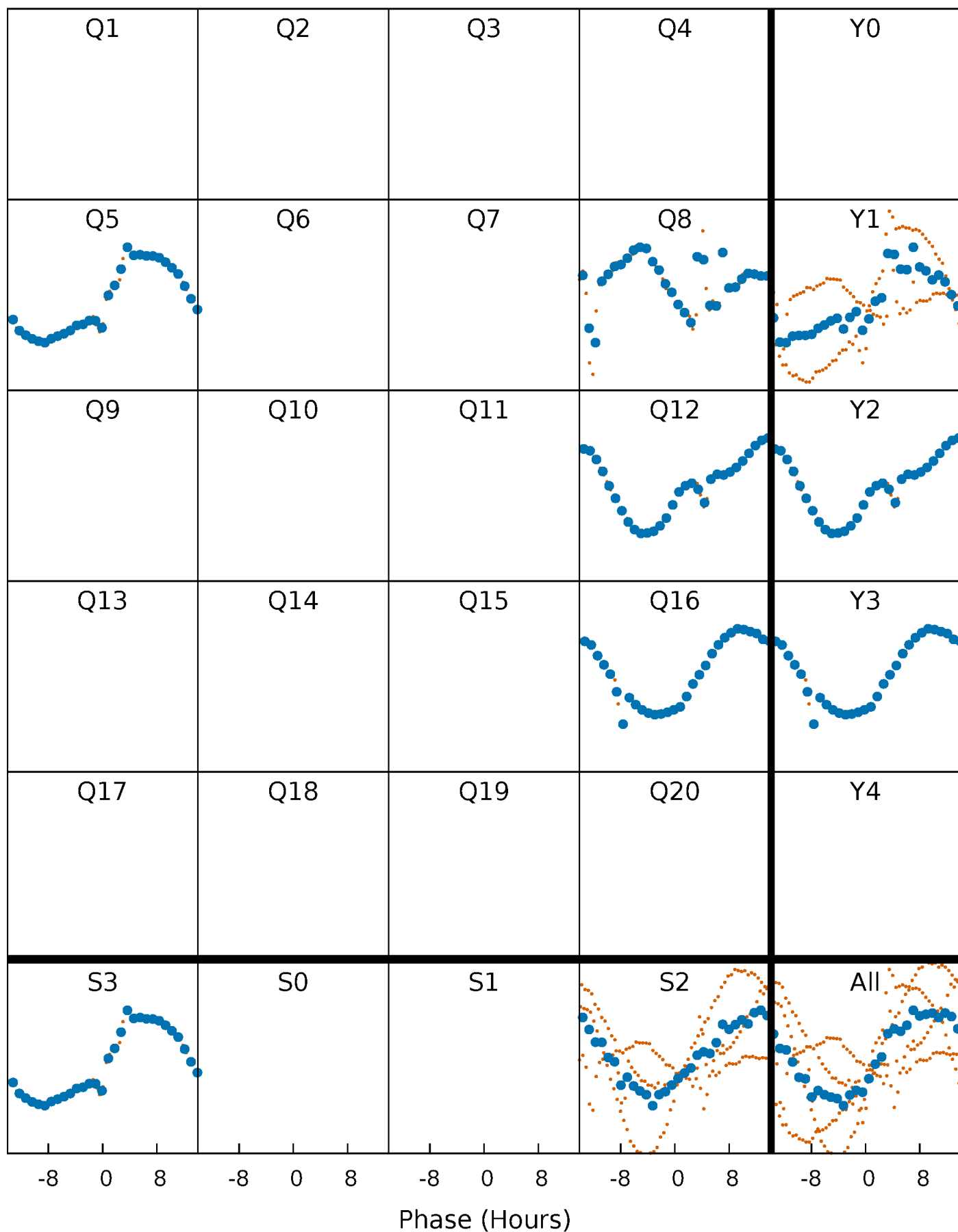


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



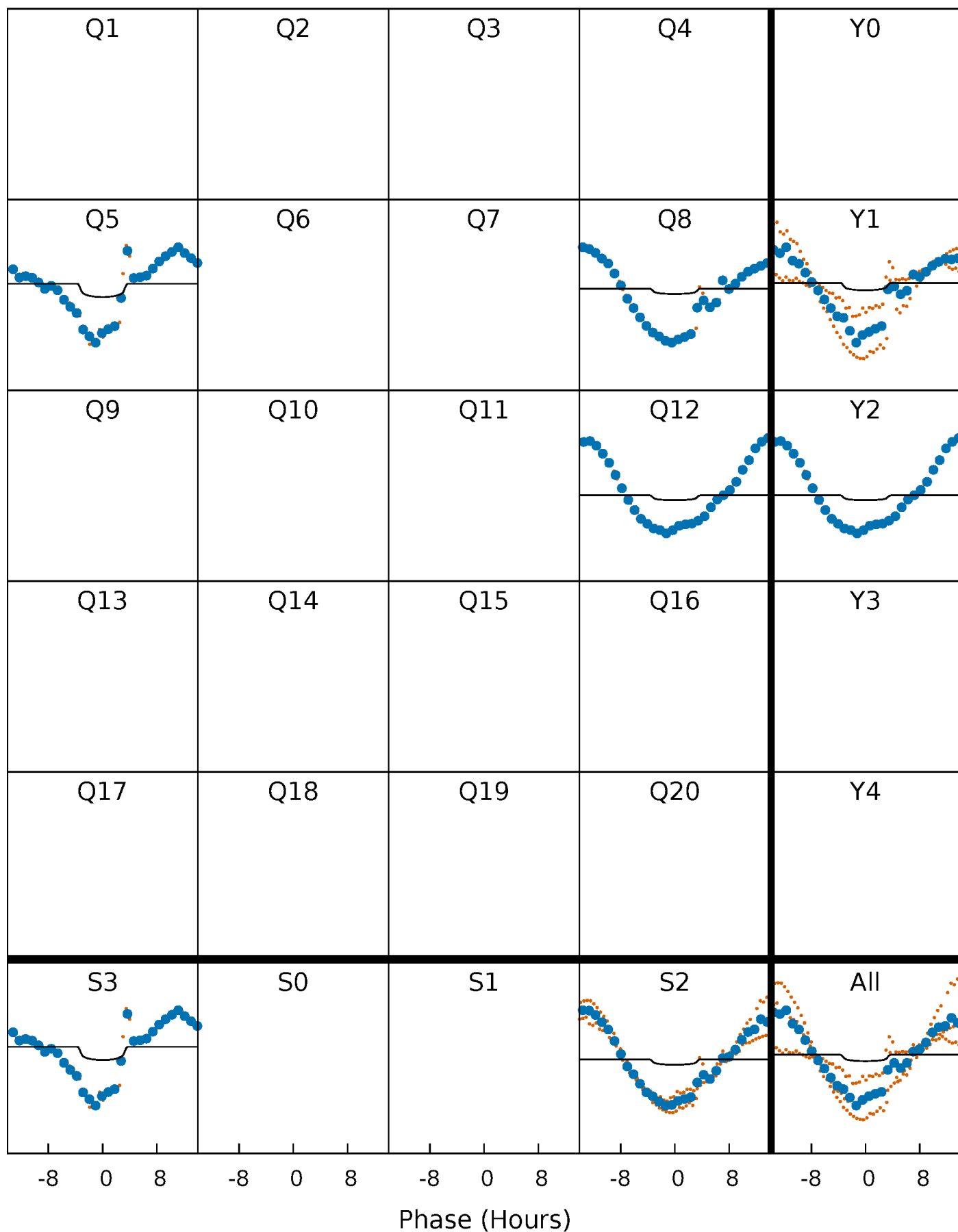
PDC Quarter-Phased Transit Curves

TCE 004175557-01 P=338.312937 Days $T_0=458.036196$ (BKJD)



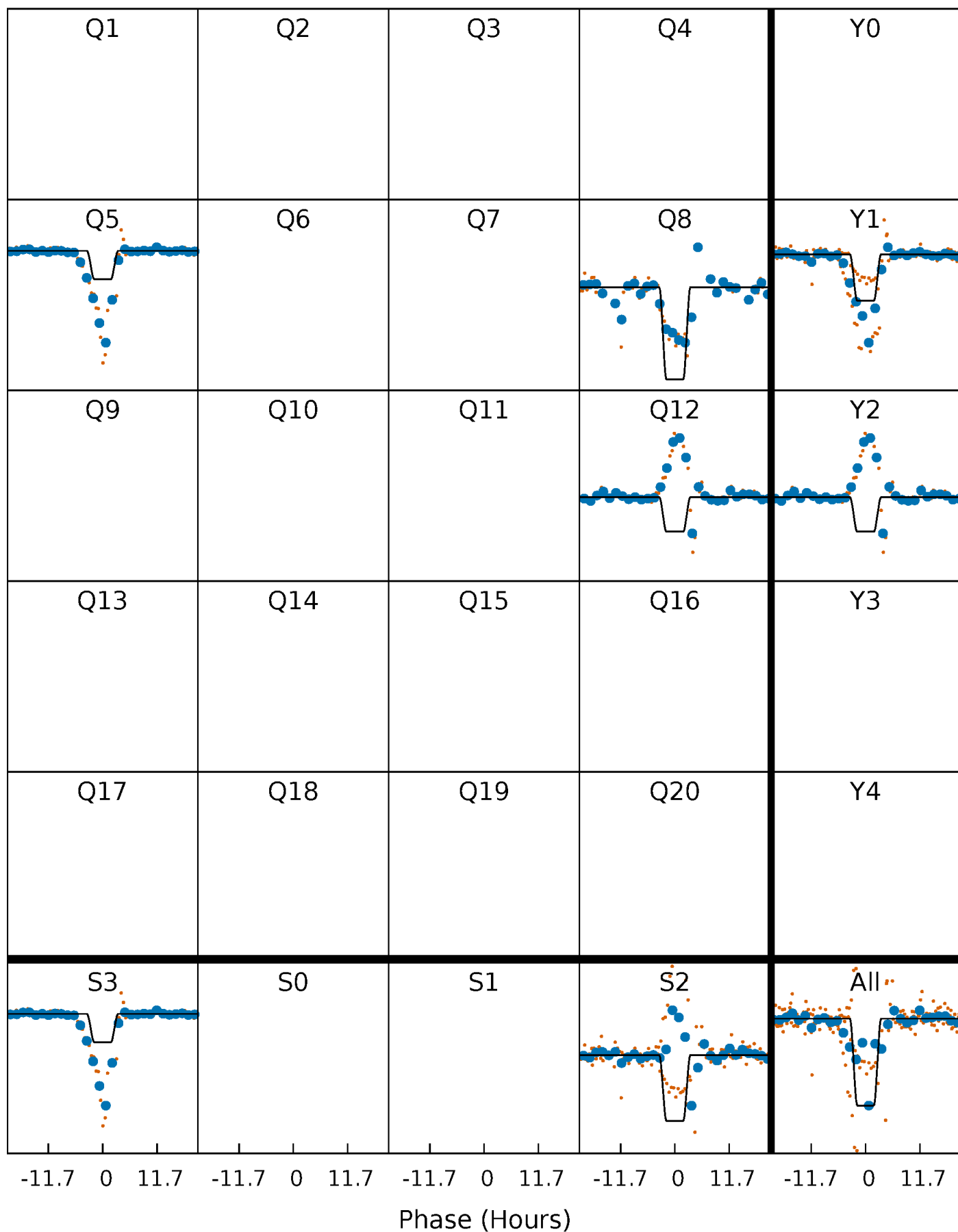
DV Quarter-Phased Transit Curves

TCE 004175557-01 P=338.312937 Days $T_0=458.036196$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

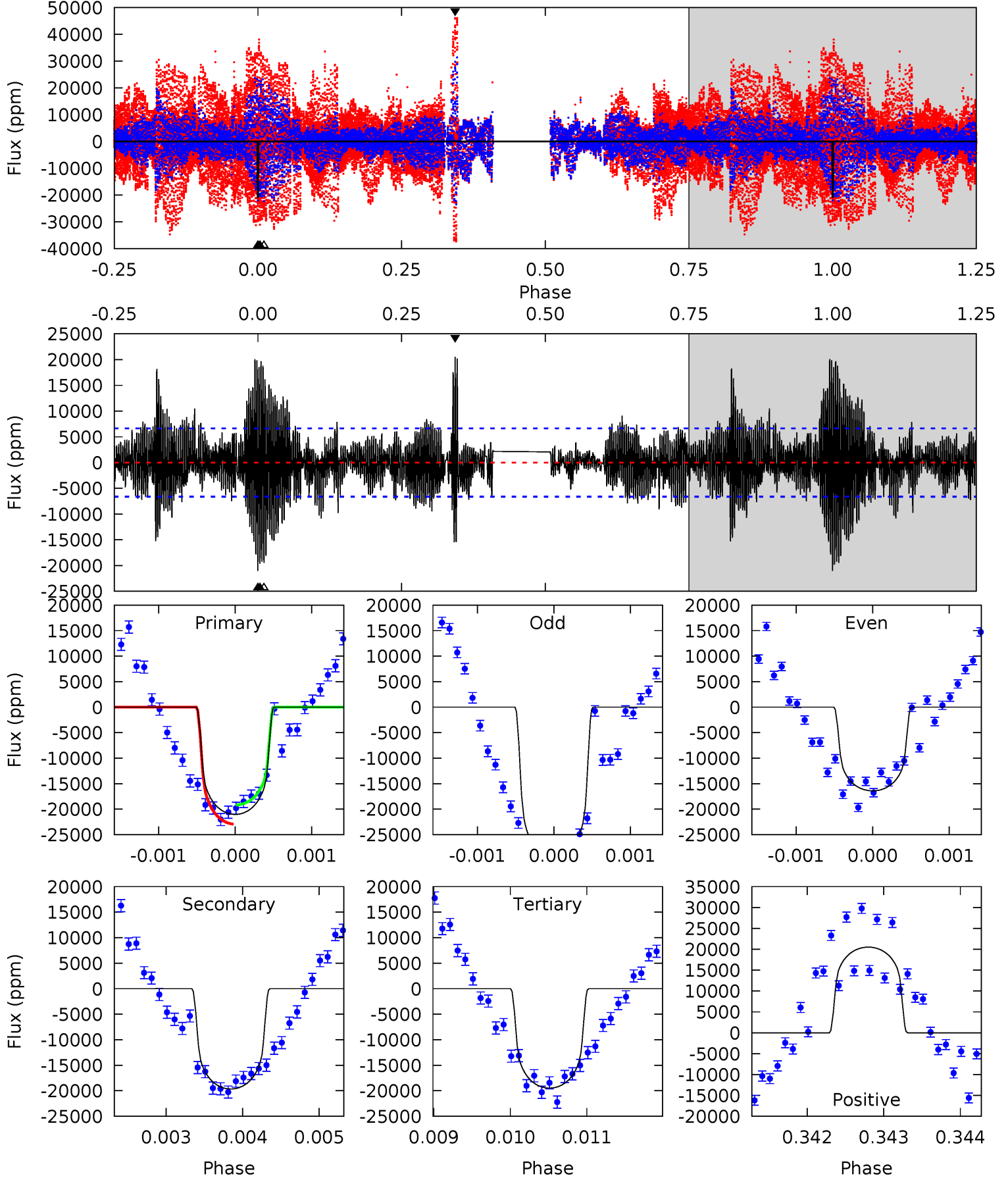
TCE 004175557-01 P=338.332075 Days $T_0=458.015289$ (BKJD)



DV Model-Shift Uniqueness Test

004175557-01, P = 338.312937 Days, E = 119.723259 Days

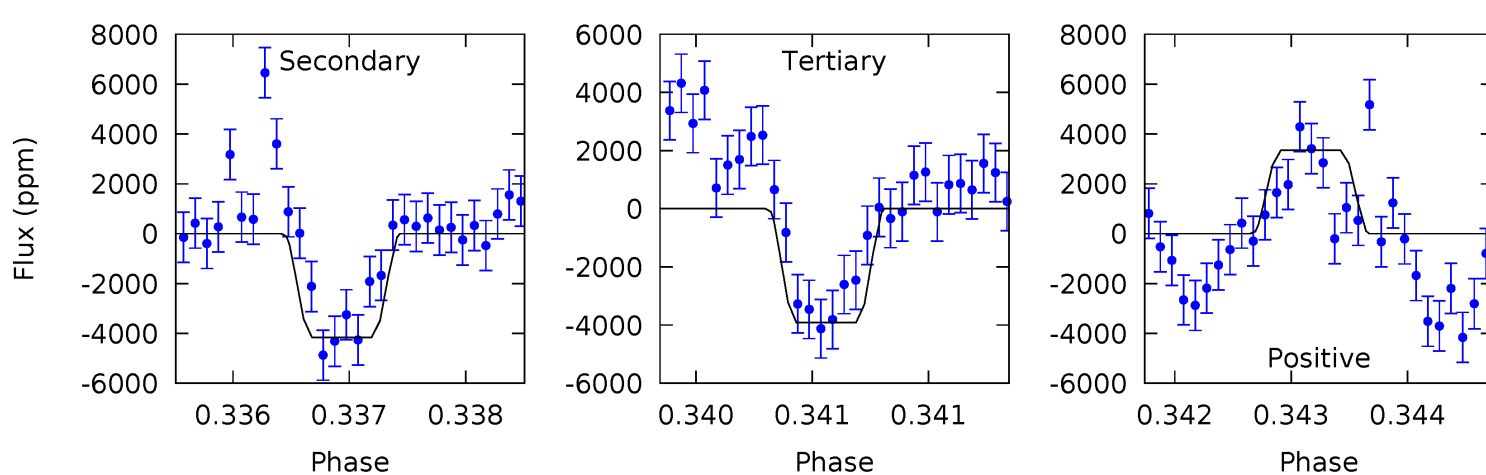
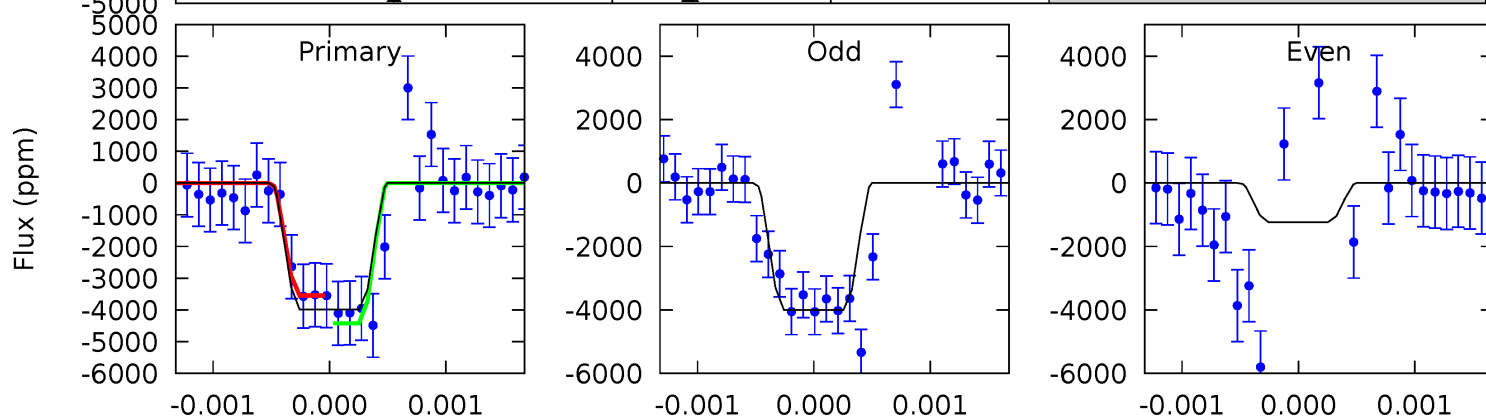
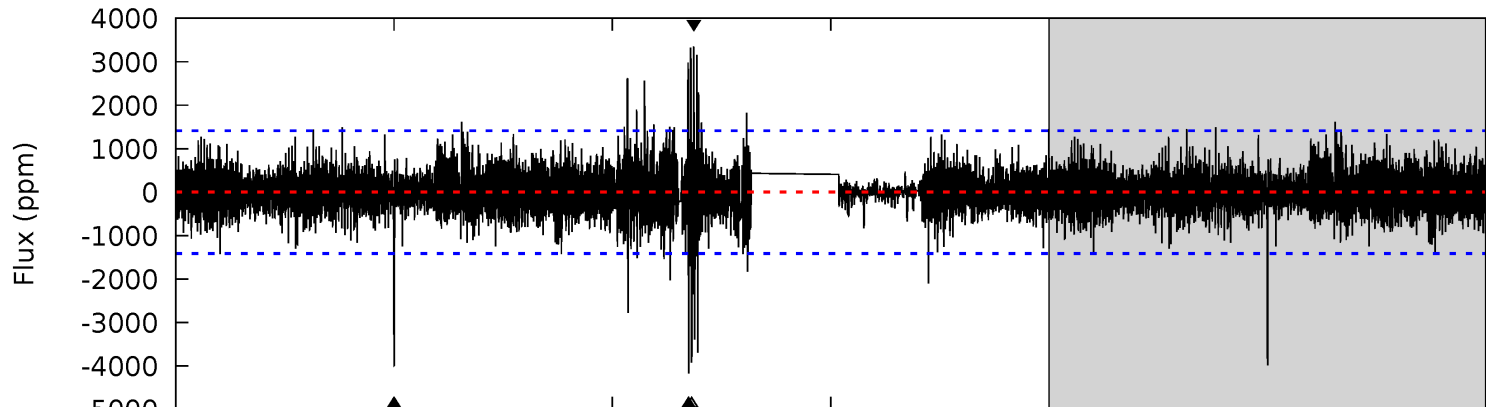
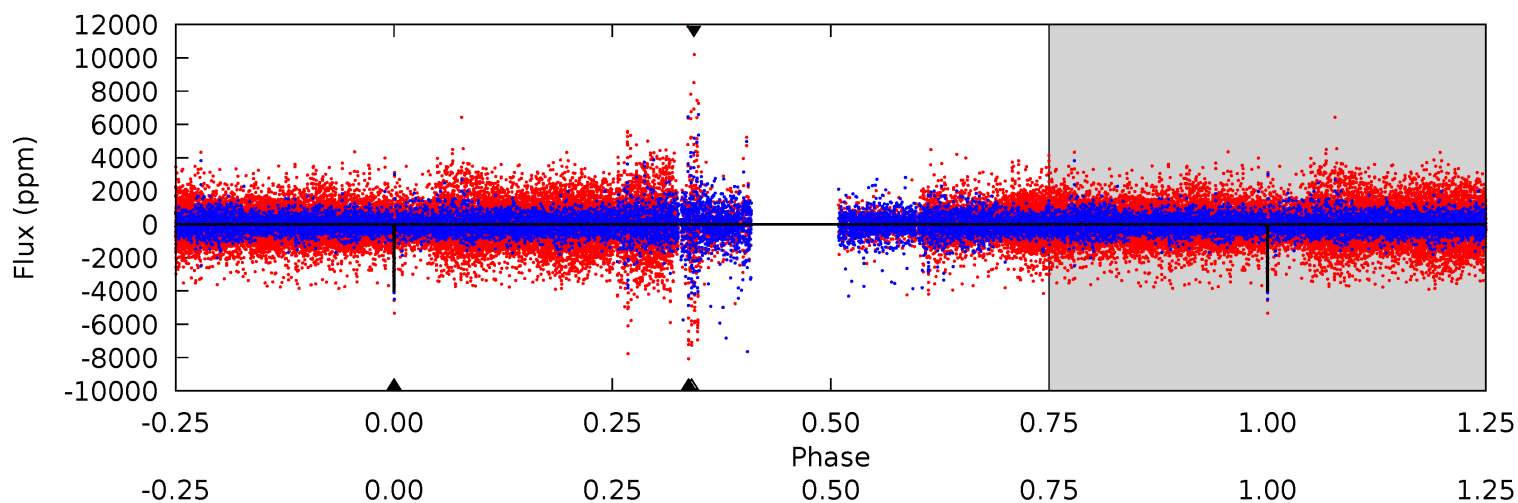
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.3	16.2	16.1	16.9	5.47	3.32	3.86	1.27	0.42	0.14	-0.71	5.16	0.96	0.49	1.56



Alt Model-Shift Uniqueness Test

004175557-01, P = 338.332075 Days, E = 119.683214 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	16.2	15.2	13.0	5.49	3.34	1.66	0.27	2.48	0.96	3.17	6.88	0.97	0.45	0



Stellar Parameters For KIC 004175557

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5680^{+169}_{-186}	$4.498^{+0.062}_{-0.188}$	$0.000^{+0.250}_{-0.300}$	$0.912^{+0.254}_{-0.091}$	$0.956^{+0.104}_{-0.104}$	$1.774^{+0.457}_{-0.880}$
	+3%/-3%	+1%/-4%	+inf%/-inf%	+28%/-10%	+11%/-11%	+26%/-50%
Source	KIC0	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 004175557-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-19649 ± 1213	$5.04^{+2.51}_{-2.09}$	351^{+23}_{-16}	10682^{+6734}_{-2470}	$371319^{+706199}_{-202800}$
Alt.	-4164 ± 257	$8.57^{+2.65}_{-2.22}$	352^{+24}_{-18}	5077^{+748}_{-542}	27385^{+20761}_{-11684}

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

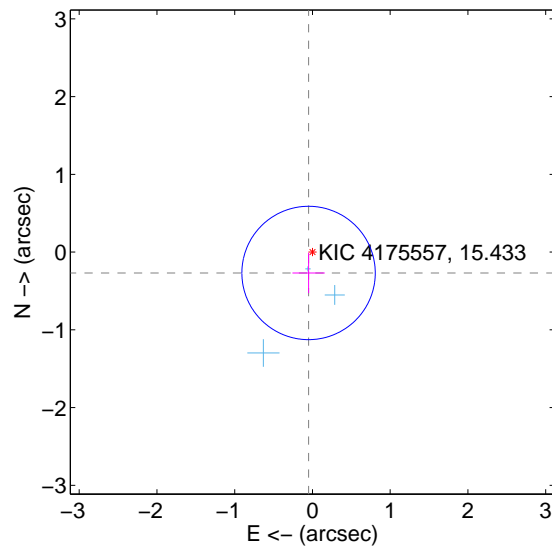
Supplemental centroid analysis for 004175557-01. Kepler magnitude: 15.43. Transit SNR 2.80

There are 3 quarters with good PRF difference image offsets

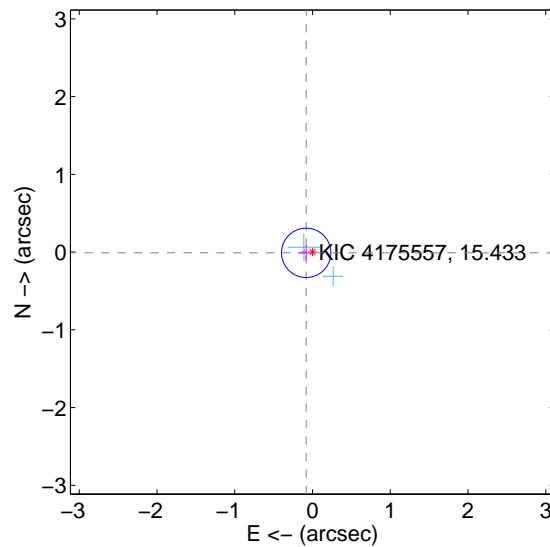
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.273 ± 0.286	0.95	0.050 ± 0.208	-0.268 ± 0.259
PRF-fit source offset from KIC position	0.082 ± 0.106	0.78	0.082 ± 0.106	-0.009 ± 0.099
photometric centroid source offset	0.48 ± 0.71	0.68	0.40 ± 0.73	-0.27 ± 0.65

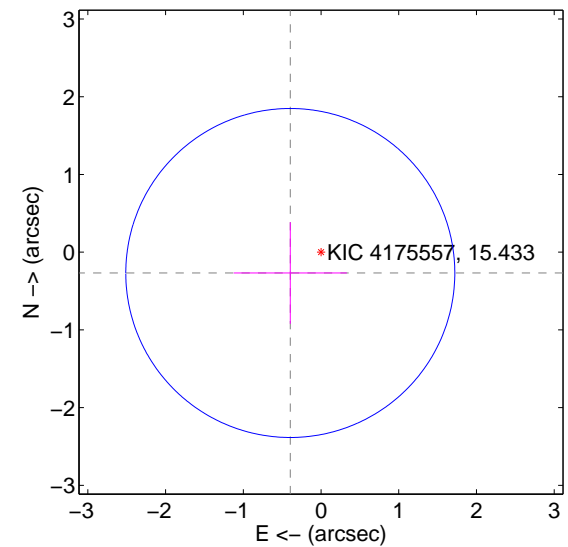
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

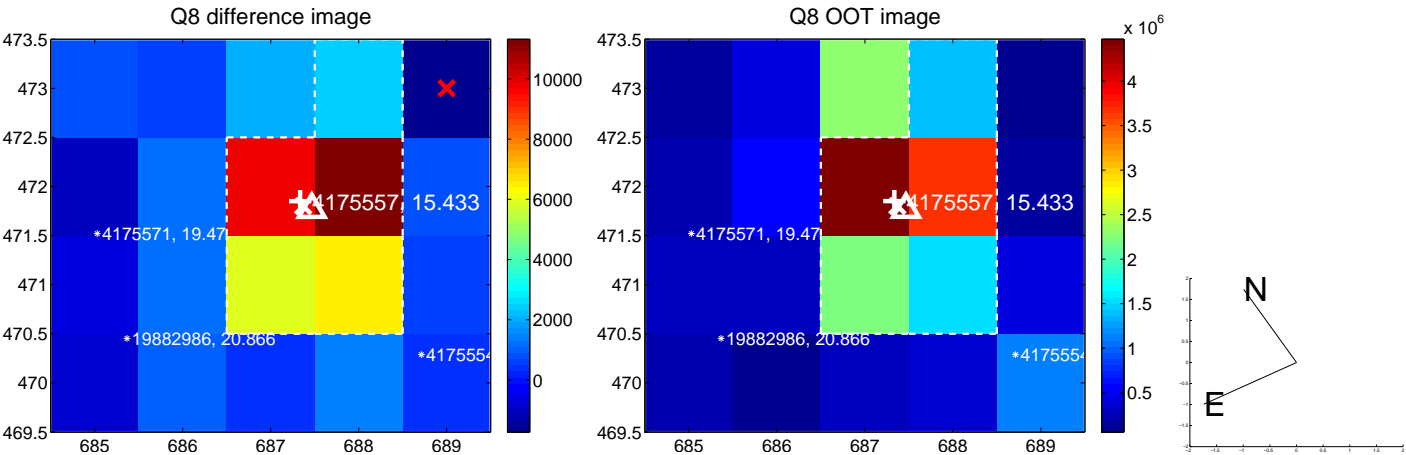
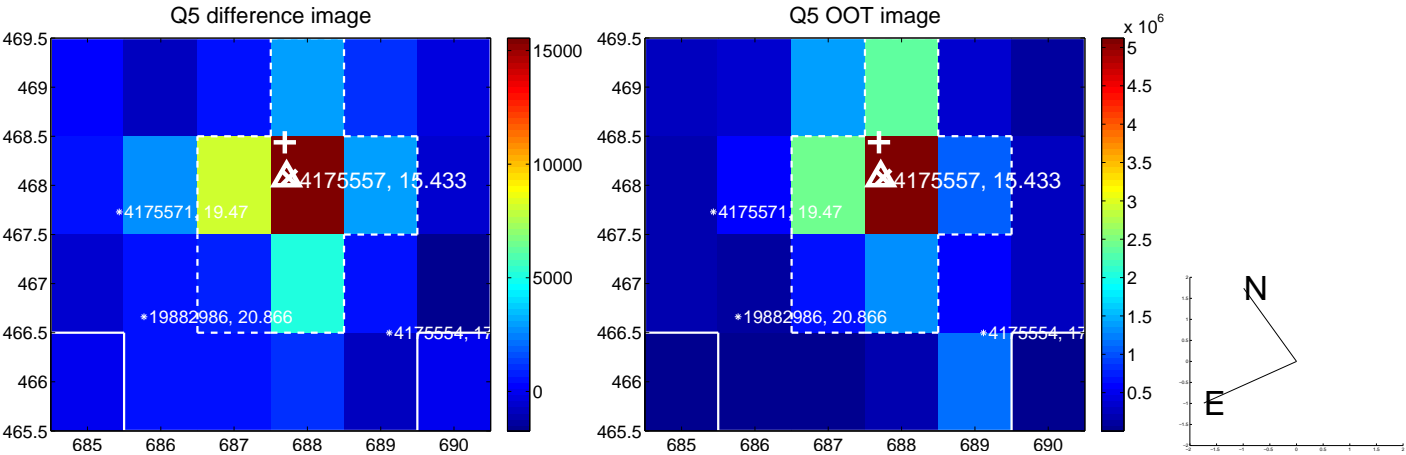


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

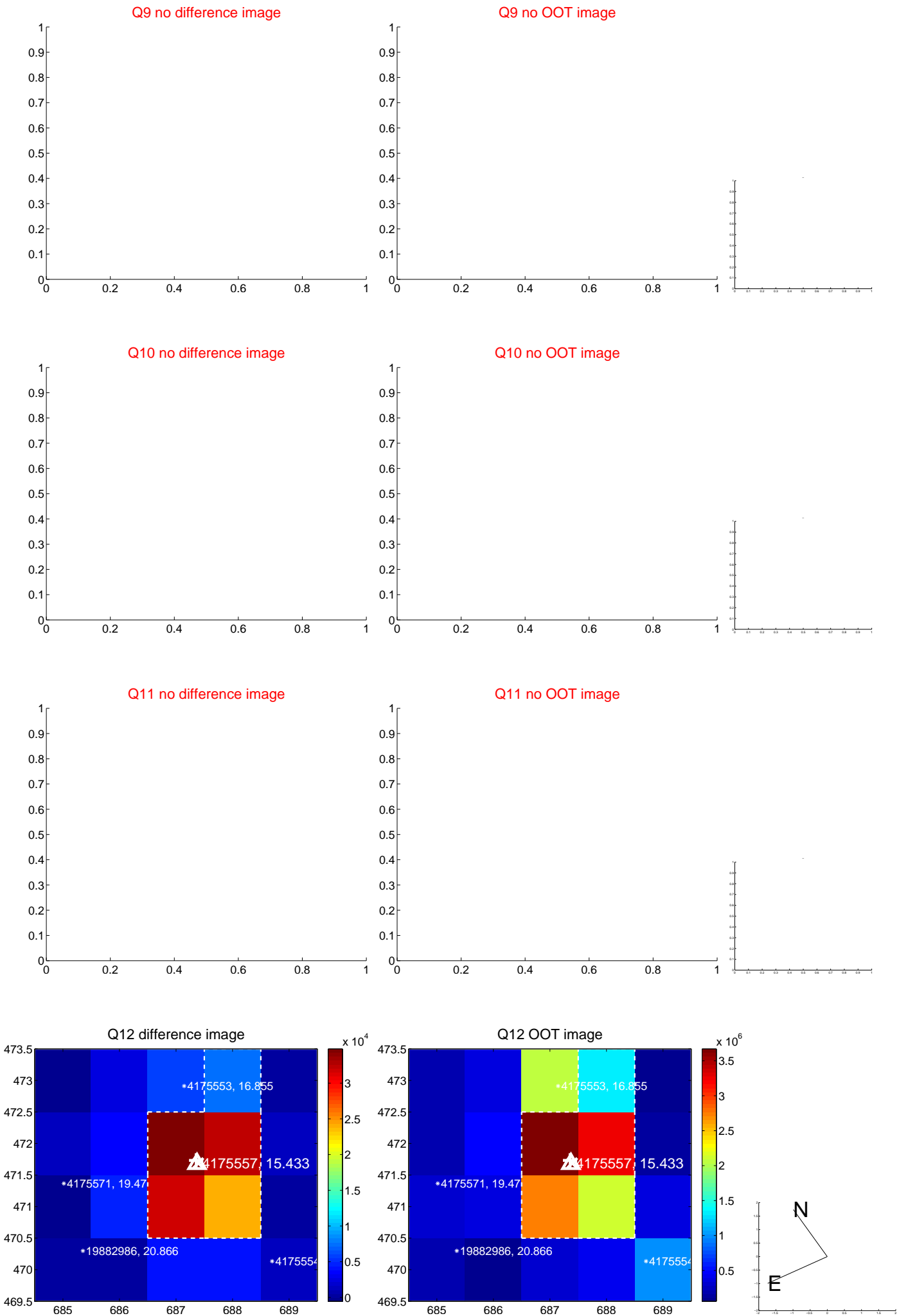
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



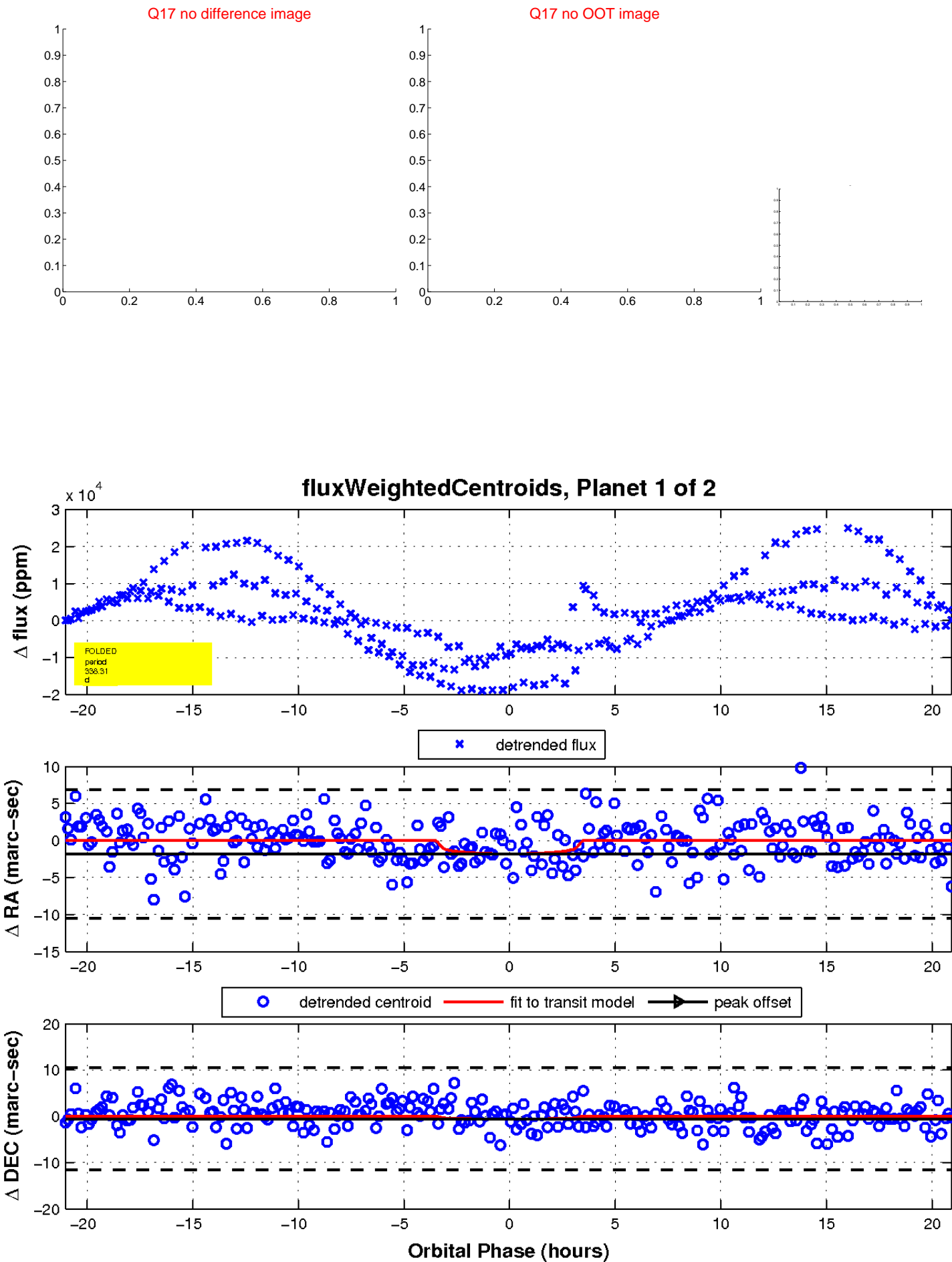
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

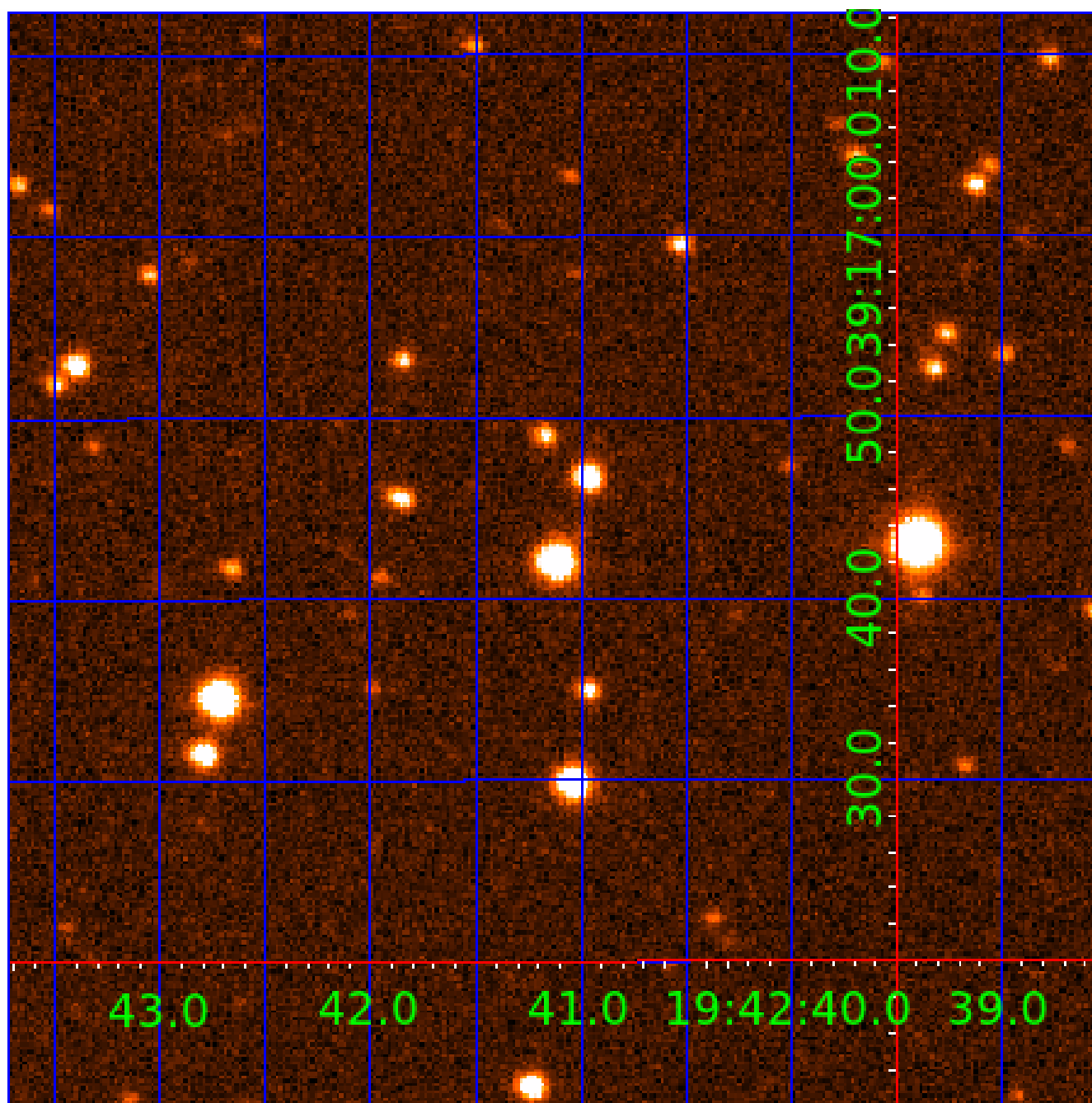


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004175557

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})
004175557-01	OBS	No	338.312937	458.036196	2881.2	7.026	12.2	2.8	0.91	5680	4.90	0.89
004175557-02	OBS	No	1.189481	132.104642	461.4	1.370	11.1	13.6	0.91	5680	2.35	1656.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004175557-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_TER_DV—MOD_TER_ALT—INCONSISTENT_TRANS
004175557-02	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST

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

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

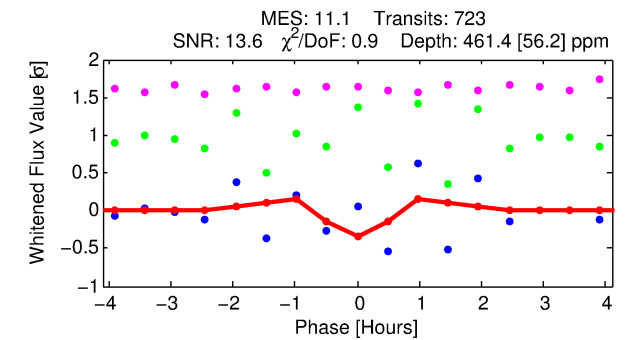
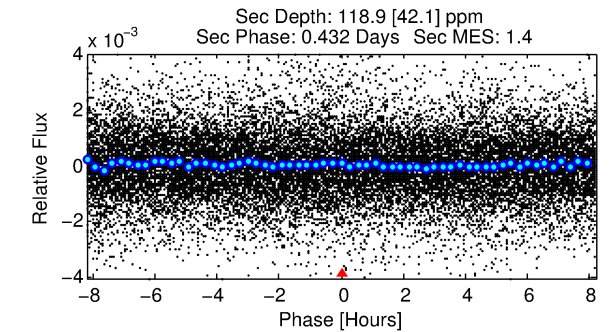
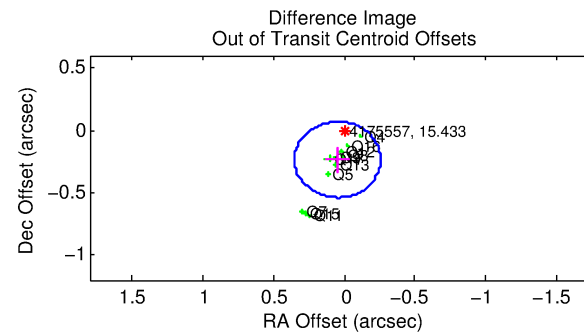
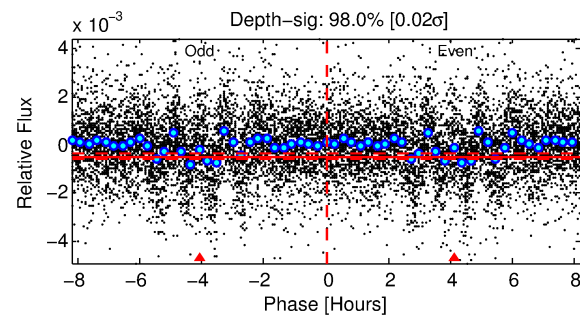
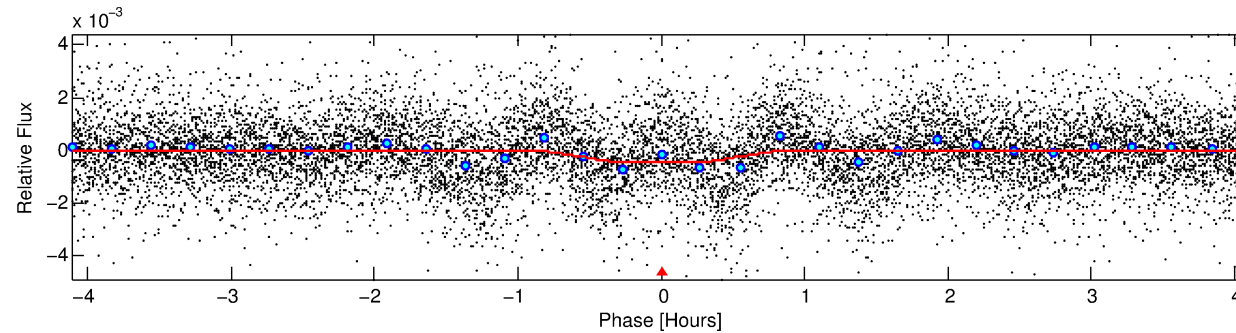
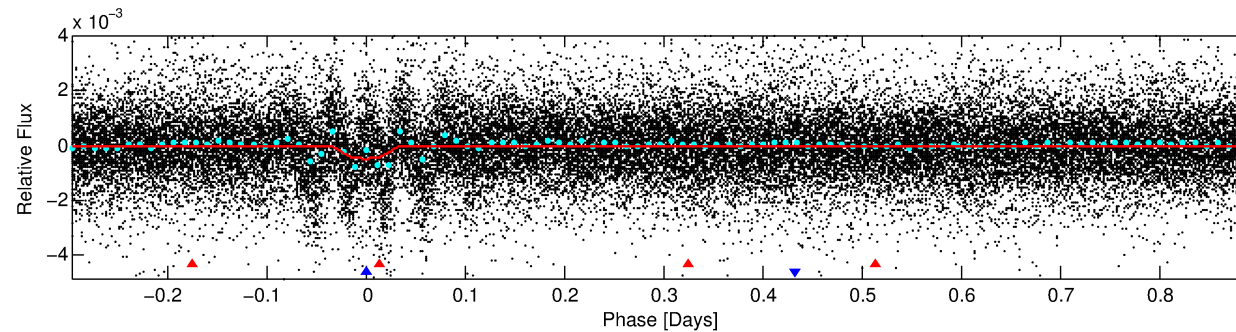
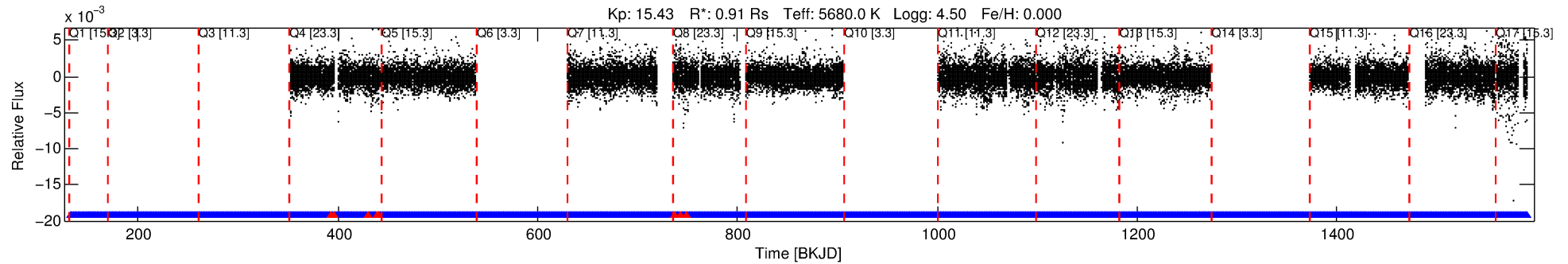
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004175557-02

No Significant Match Found

DV One-Page Summary

KIC: 4175557 Candidate: 2 of 2 Period: 1.189 d



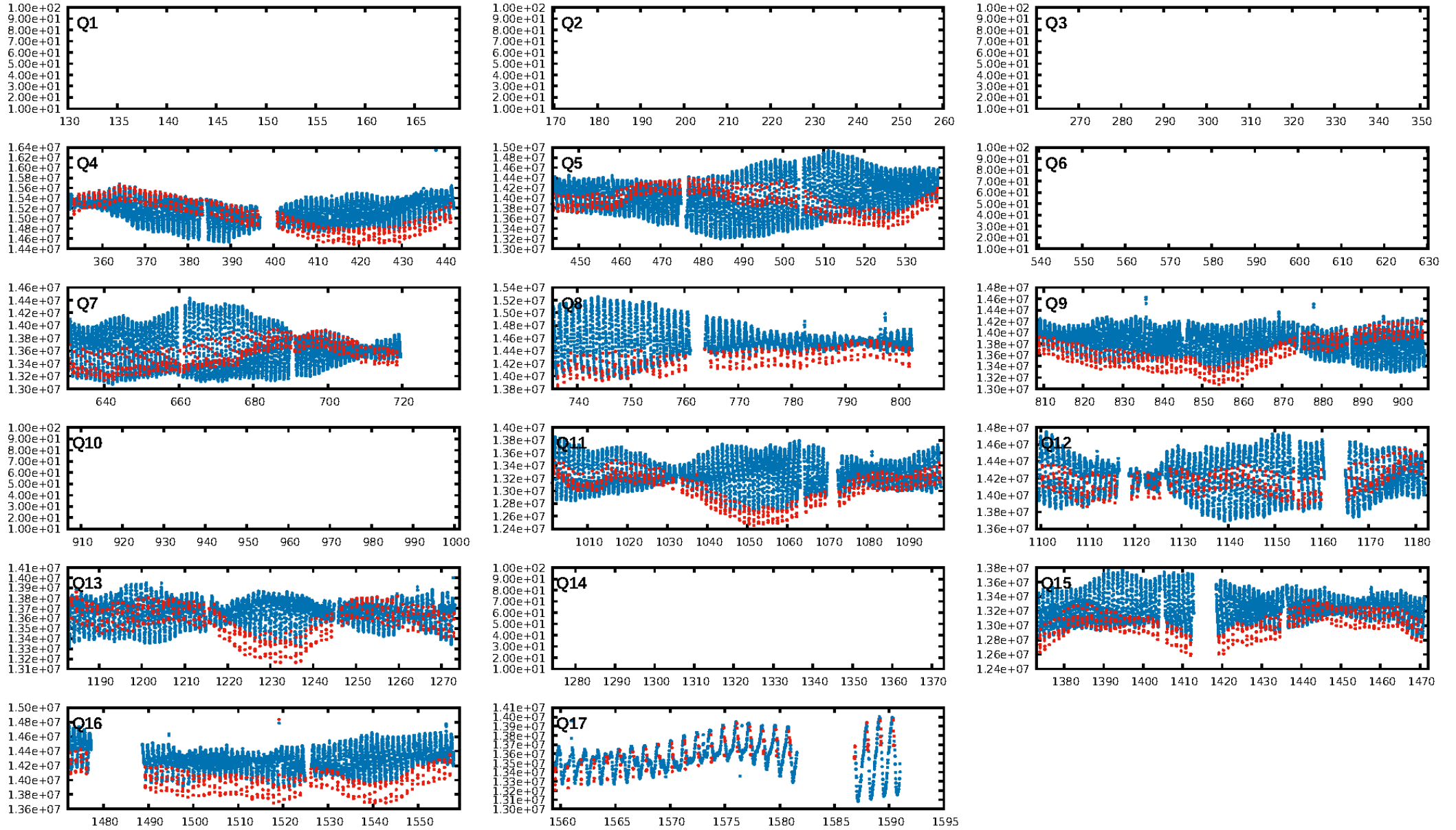
DV Fit Results:

Period = 1.18948 [0.00001] d
Epoch = 132.1046 [0.0012] BKJD
Rp/R* = 0.0236 [0.0093]
a/R* = 3.38 [5.35]
b = 0.90 [0.38]
Seff = 1656.31 [608.38]
Teq = 1627 [149] K
Rp = 2.35 [1.13] Re
a = 0.0216 [0.0051] AU
Ag = 5.56 [5.16] [0.88σ]
Teffp = 3863 [841] K [2.62σ]

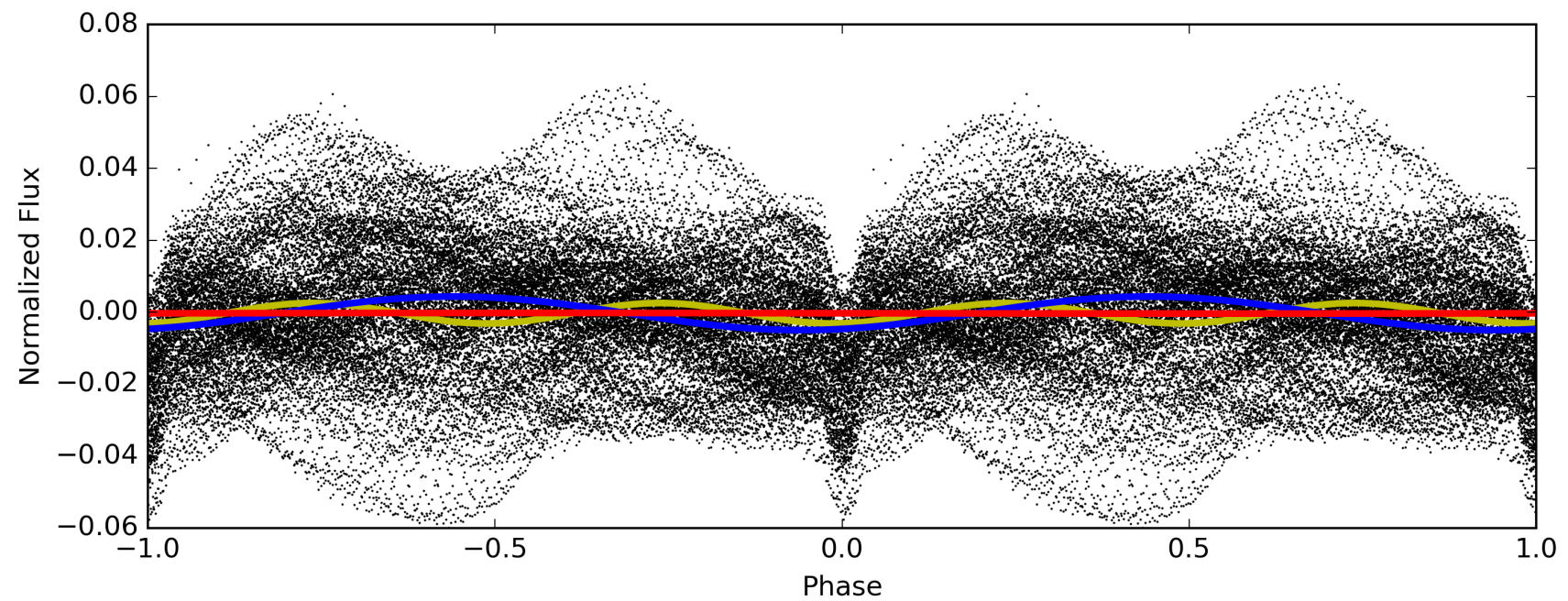
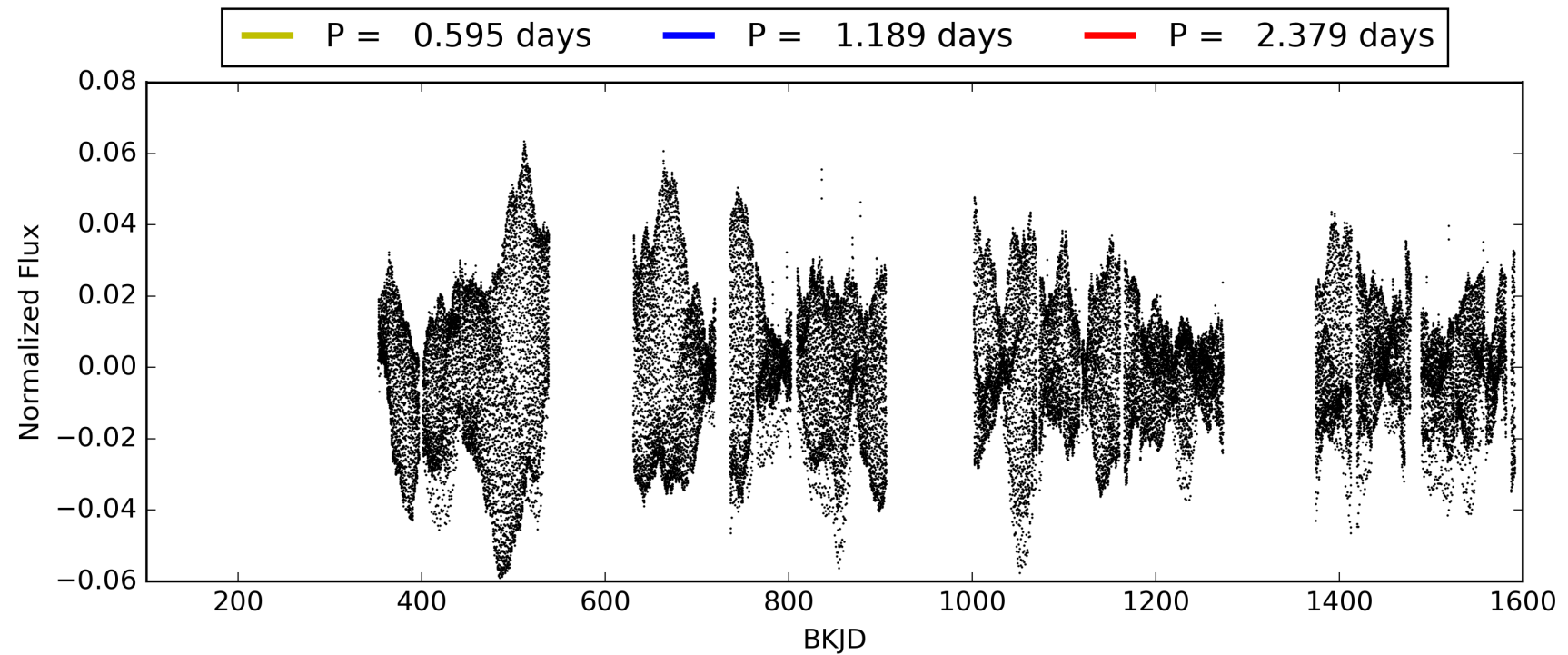
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1130.23σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.14e-28
RollingBand-fgt: 0.99 [691/700]
GhostDiagnostic-chr: 0.1593
Centroid-sig: 0.0%
Centroid-so: 7.131 arcsec [16.30σ]
OotOffset-rm: 0.241 arcsec [2.37σ]
KicOffset-rm: 0.058 arcsec [0.86σ]
OotOffset-st: 0/3/4/4 [11]
KicOffset-st: 0/3/4/4 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 1.00 [11/11]

TCE 004175557-02, PDC Light Curves

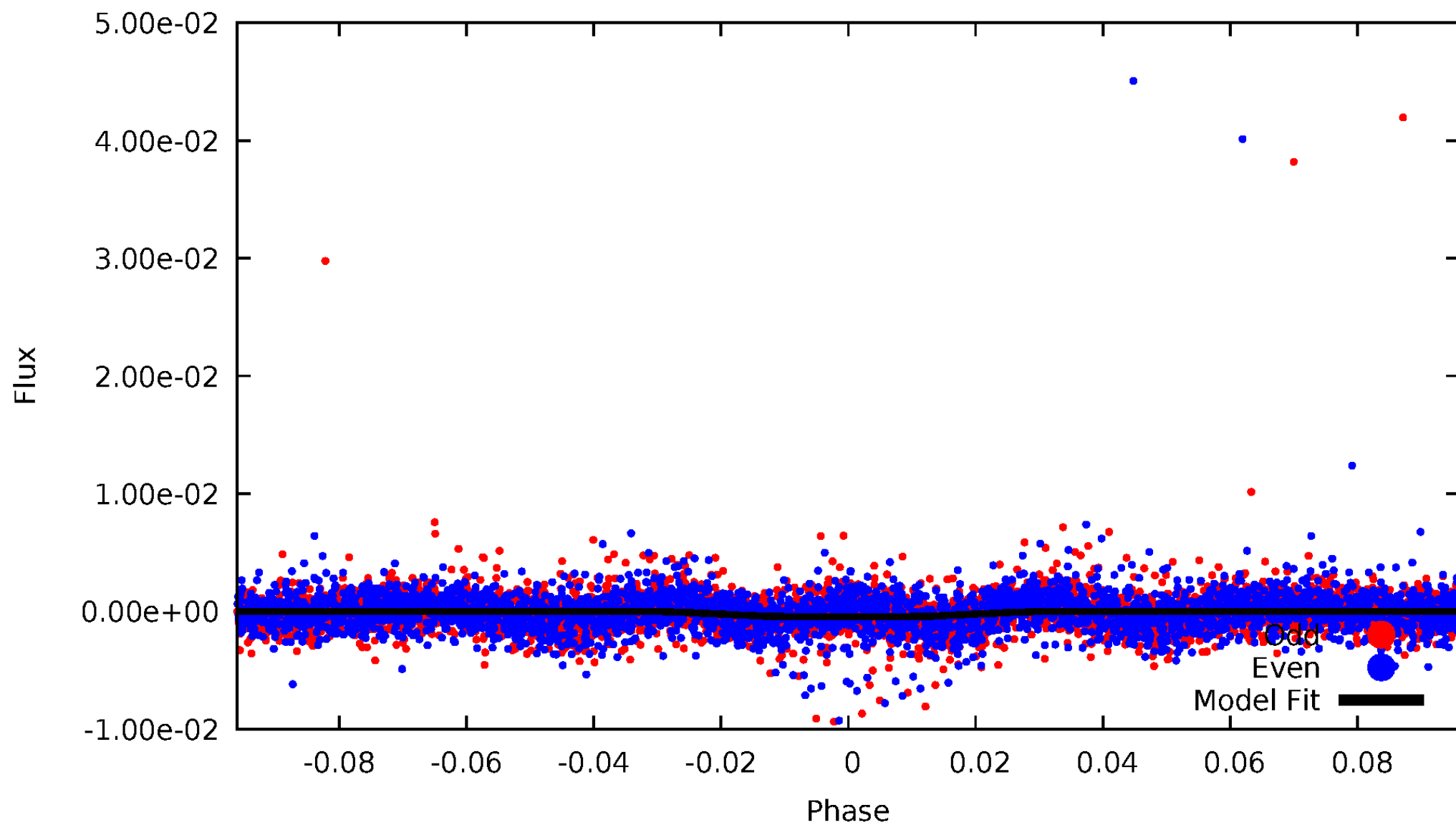


TCE 004175557-02



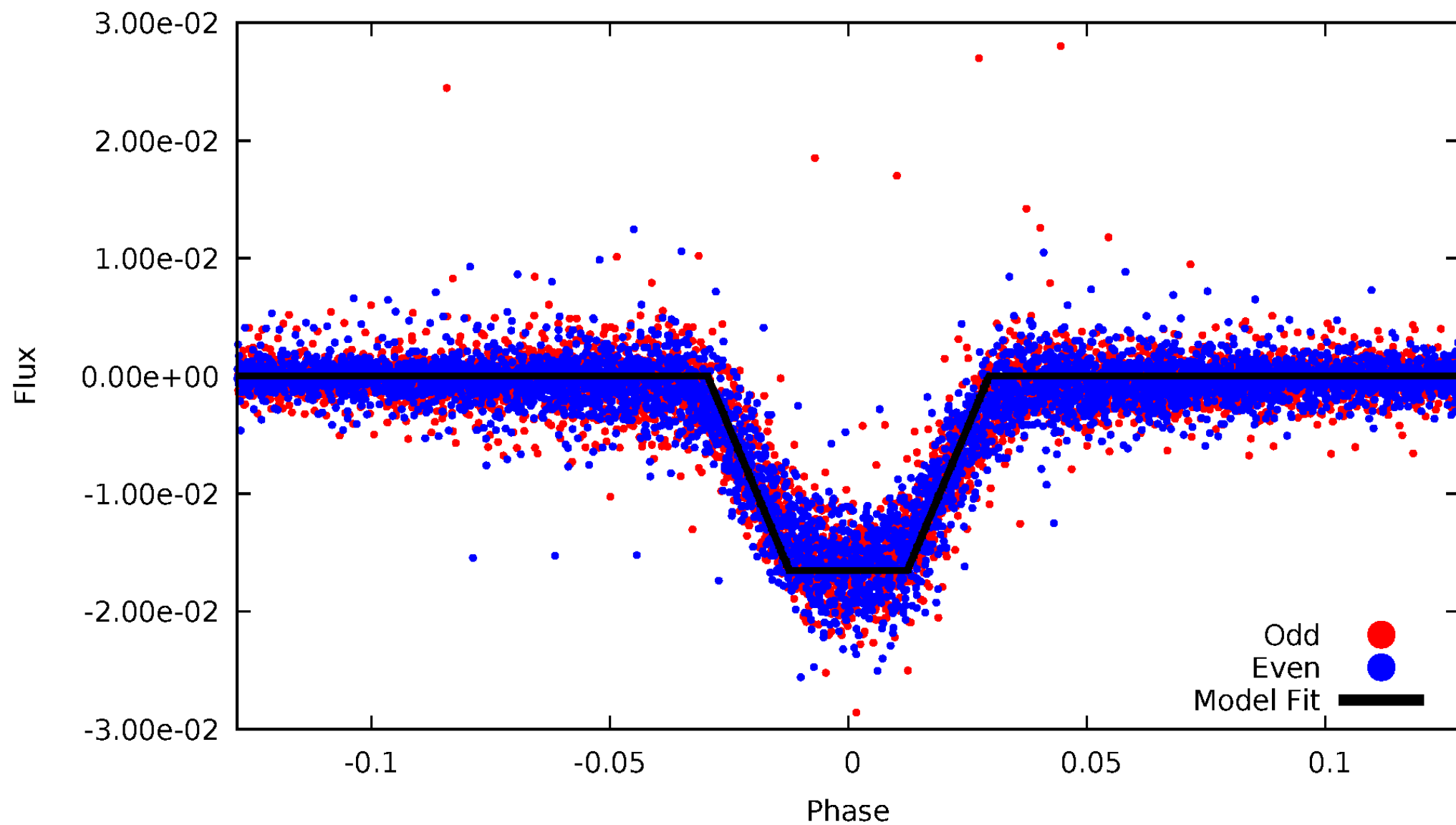
DV Odd/Even

TCE 004175557-02



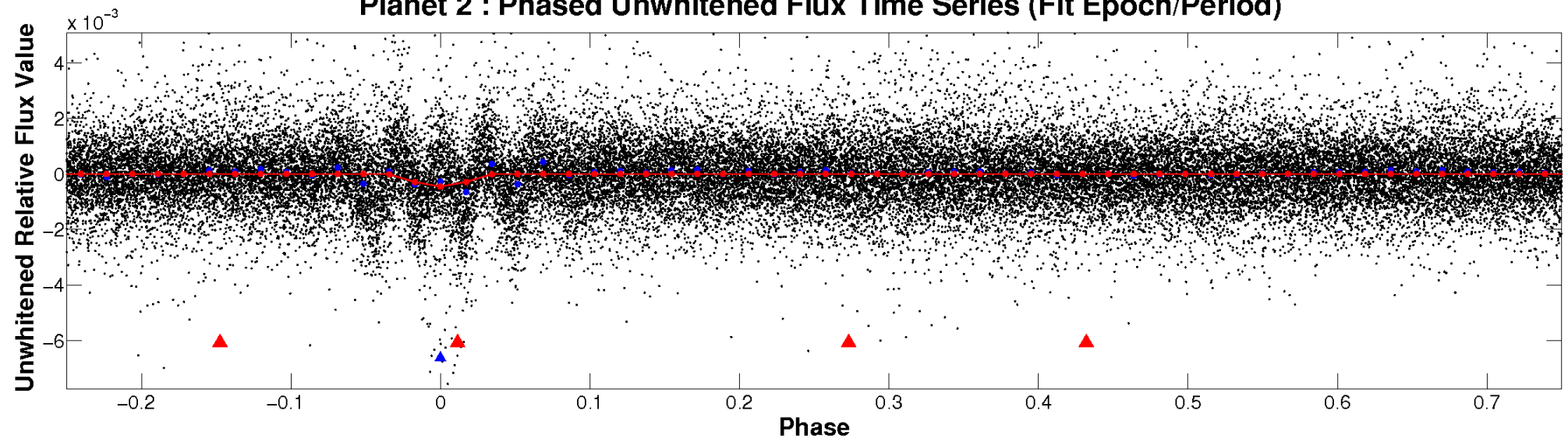
ALT Odd/Even

TCE 004175557-02

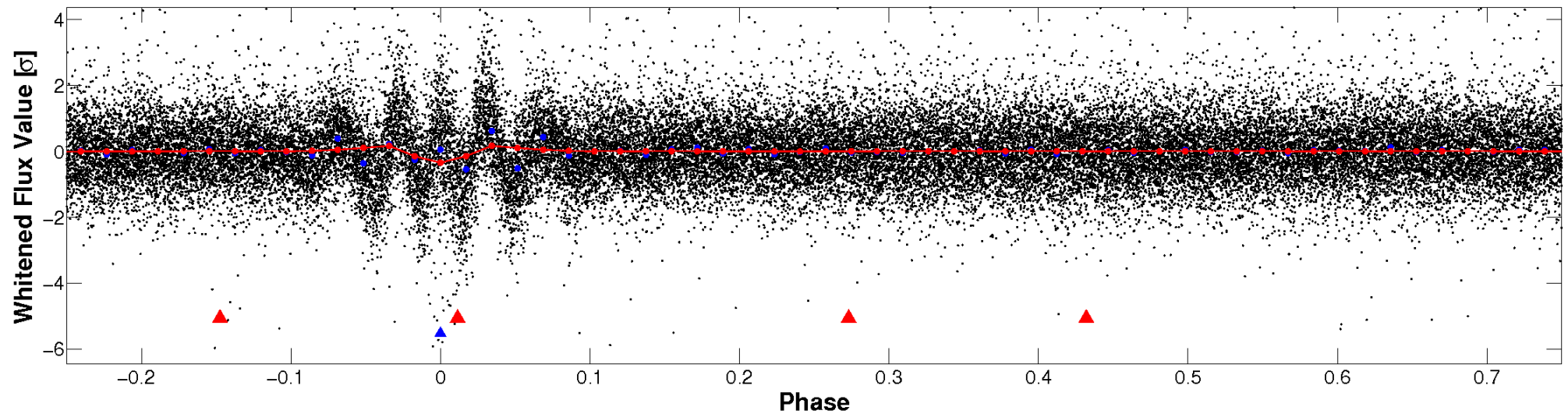


Non-Whitened Vs. Whitened Light Curve

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

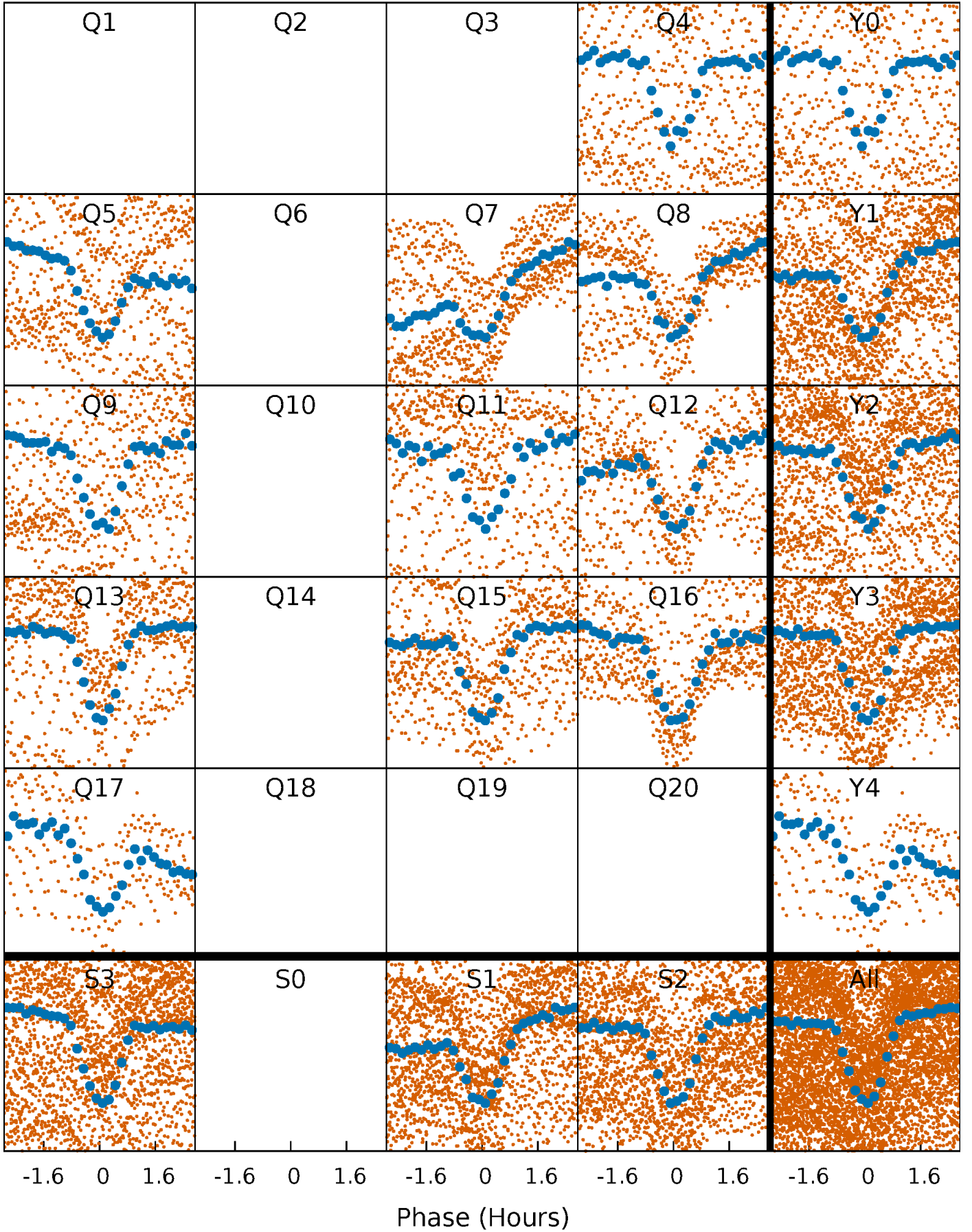


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



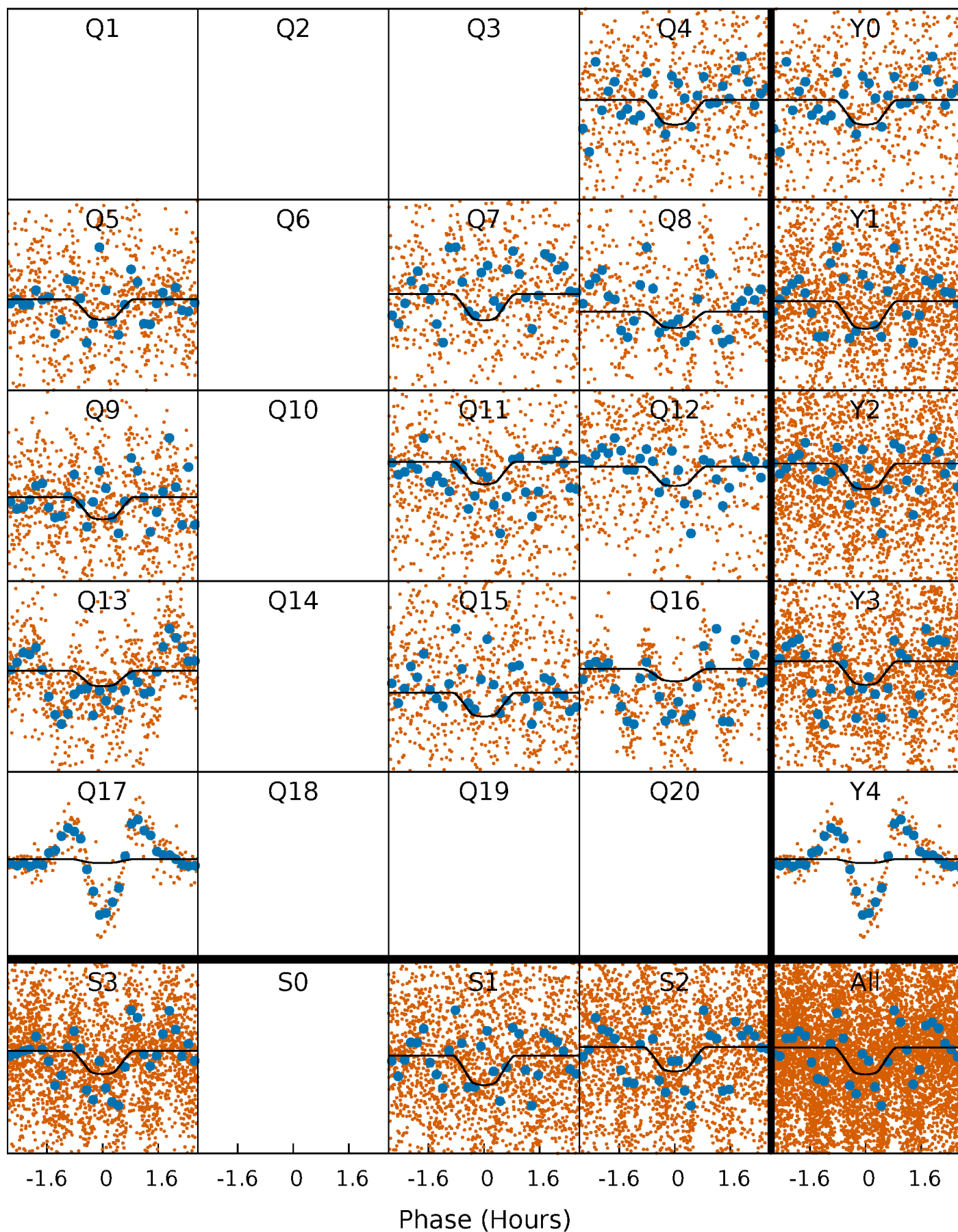
PDC Quarter-Phased Transit Curves

TCE 004175557-02 P= 1.189481 Days $T_0=132.104642$ (BKJD)



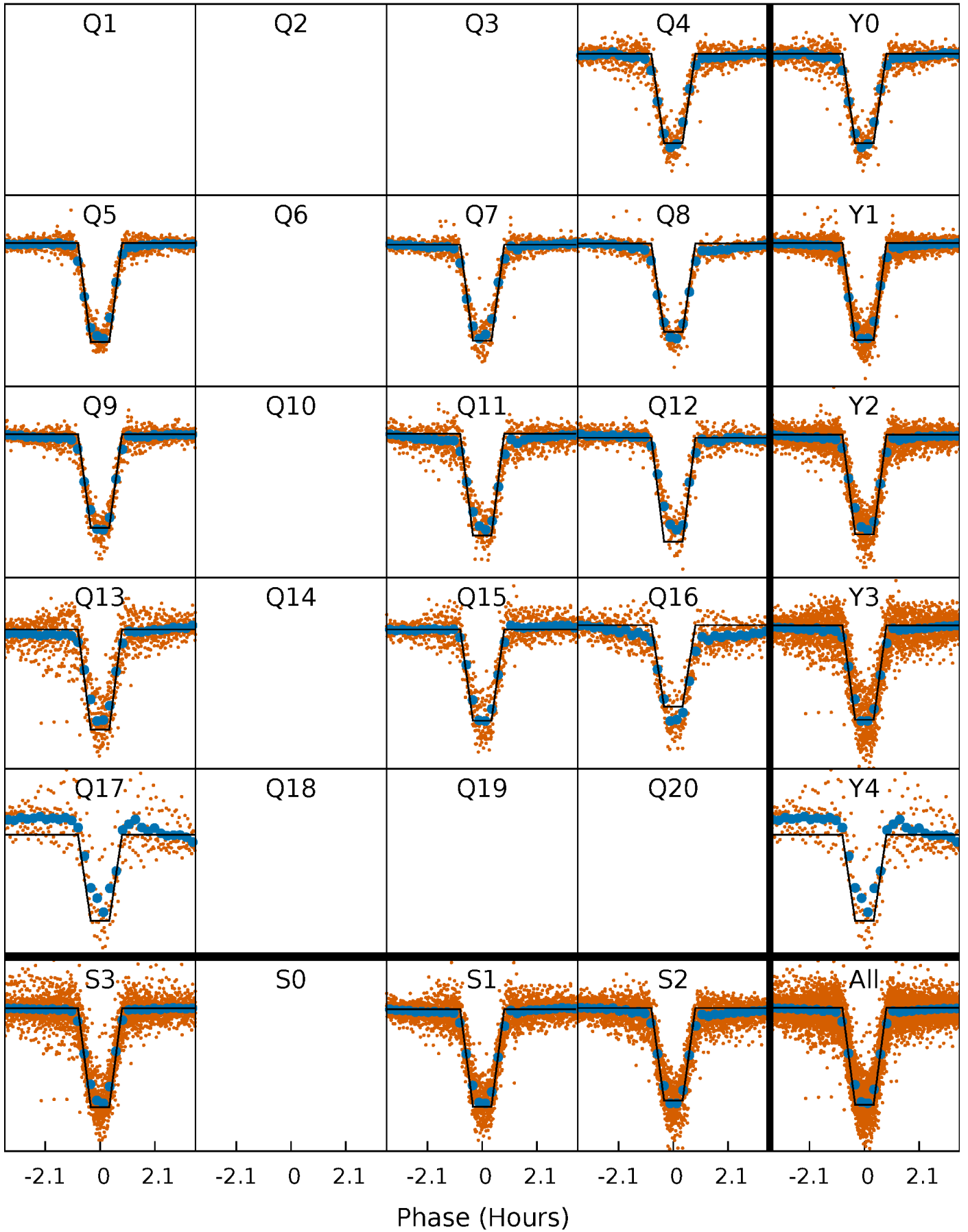
DV Quarter-Phased Transit Curves

TCE 004175557-02 P= 1.189481 Days $T_0=132.104642$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

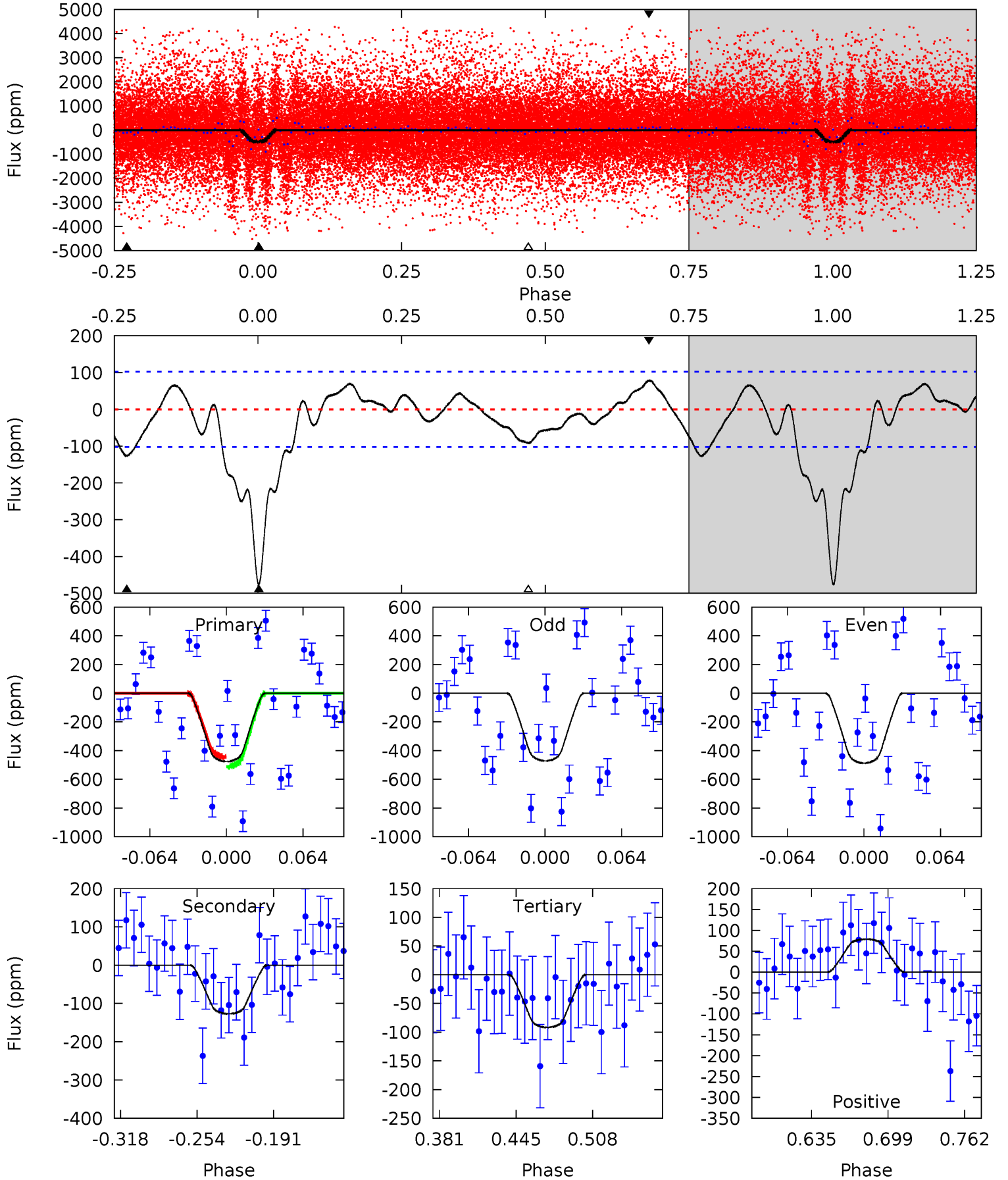
TCE 004175557-02 P= 1.189479 Days $T_0=132.107639$ (BKJD)



DV Model-Shift Uniqueness Test

004175557-02, P = 1.189481 Days, E = 132.104642 Days

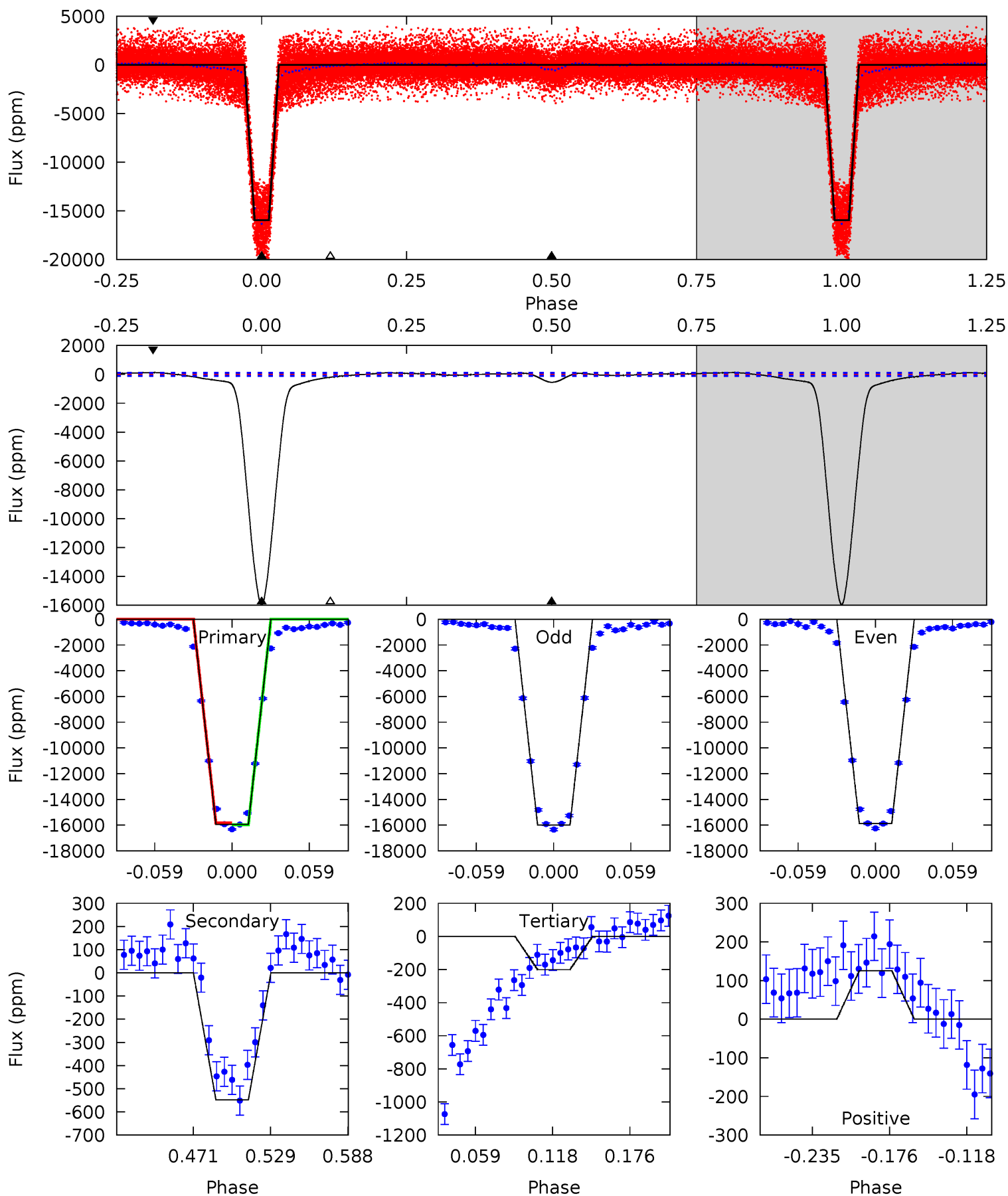
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.7	5.79	4.18	3.59	4.66	1.86	1.90	17.5	18.1	1.61	2.20	0.36	1.18	0.14	1.53



Alt Model-Shift Uniqueness Test

004175557-02, P = 1.189479 Days, E = 132.107639 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
716.3	24.6	9.01	5.64	4.67	1.89	7.30	707.3	710.6	15.6	19.0	2.60	0.99	0.01	0



Stellar Parameters For KIC 004175557

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5680^{+169}_{-186}	$4.498^{+0.062}_{-0.188}$	$0.000^{+0.250}_{-0.300}$	$0.912^{+0.254}_{-0.091}$	$0.956^{+0.104}_{-0.104}$	$1.774^{+0.457}_{-0.880}$
	+3%/-3%	+1%/-4%	+inf%/-inf%	+28%/-10%	+11%/-11%	+26%/-50%
Source	KIC0	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 004175557-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-127 ± 22	$2.41^{+1.01}_{-0.98}$	2311^{+150}_{-101}	4164^{+987}_{-542}	$5.610^{+10.117}_{-2.997}$
Alt.	-548 ± 22	$13.17^{+2.01}_{-1.43}$	2311^{+140}_{-110}	2863^{+117}_{-130}	$0.806^{+0.194}_{-0.184}$

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 $A_{\text{obs}} \gg 1.0$

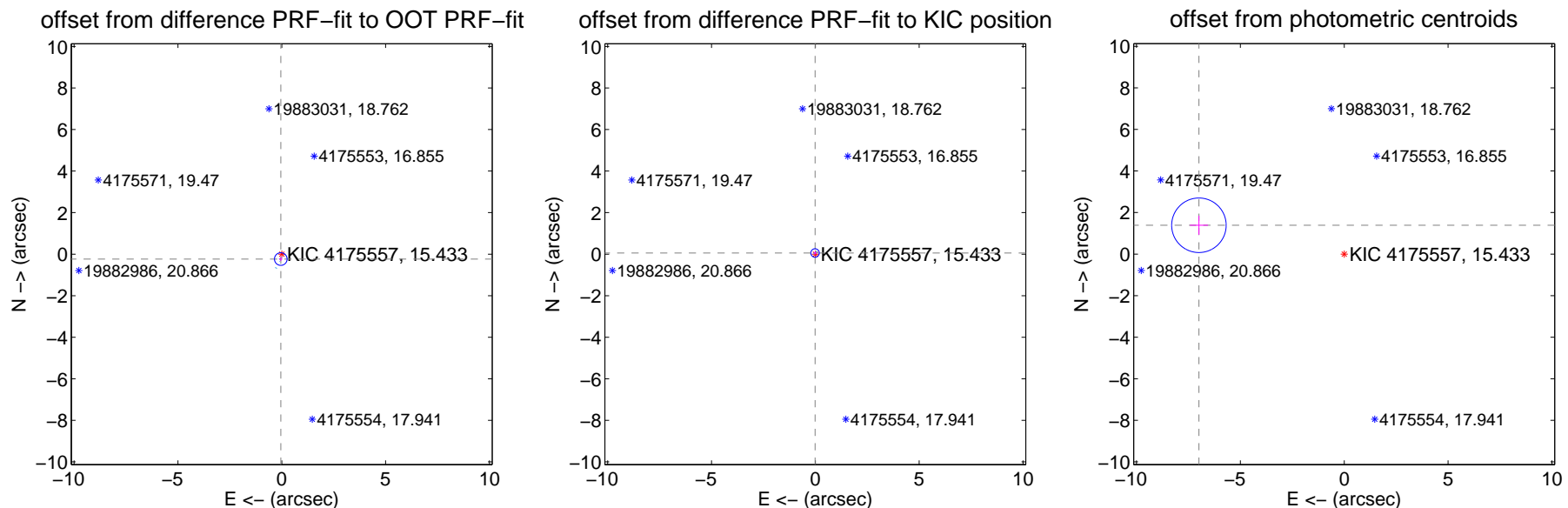
DV Centroid Data

Supplemental centroid analysis for 004175557-02. Kepler magnitude: 15.43. Transit SNR 13.63

There are 11 quarters with good PRF difference image offsets

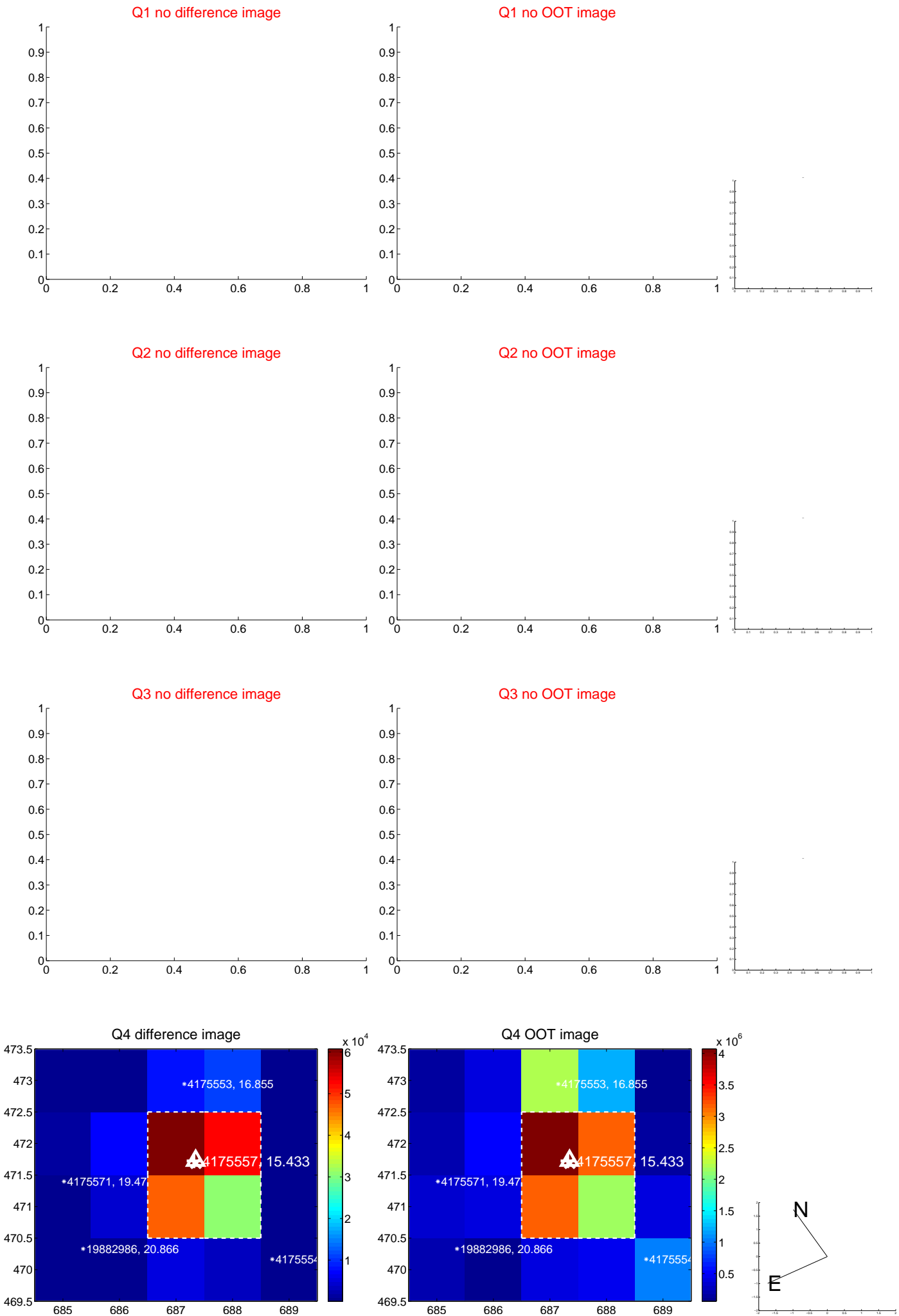
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.241 ± 0.101	2.37	0.048 ± 0.078	-0.236 ± 0.097
PRF-fit source offset from KIC position	0.058 ± 0.068	0.86	0.014 ± 0.070	0.056 ± 0.068
photometric centroid source offset	7.13 ± 0.44	16.30	6.99 ± 0.44	1.39 ± 0.45

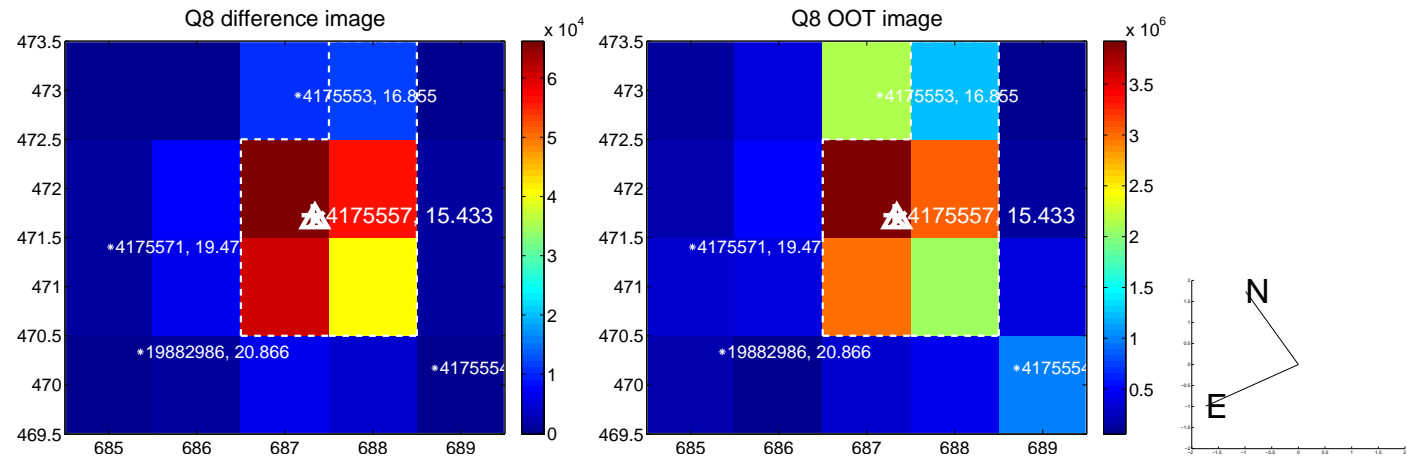
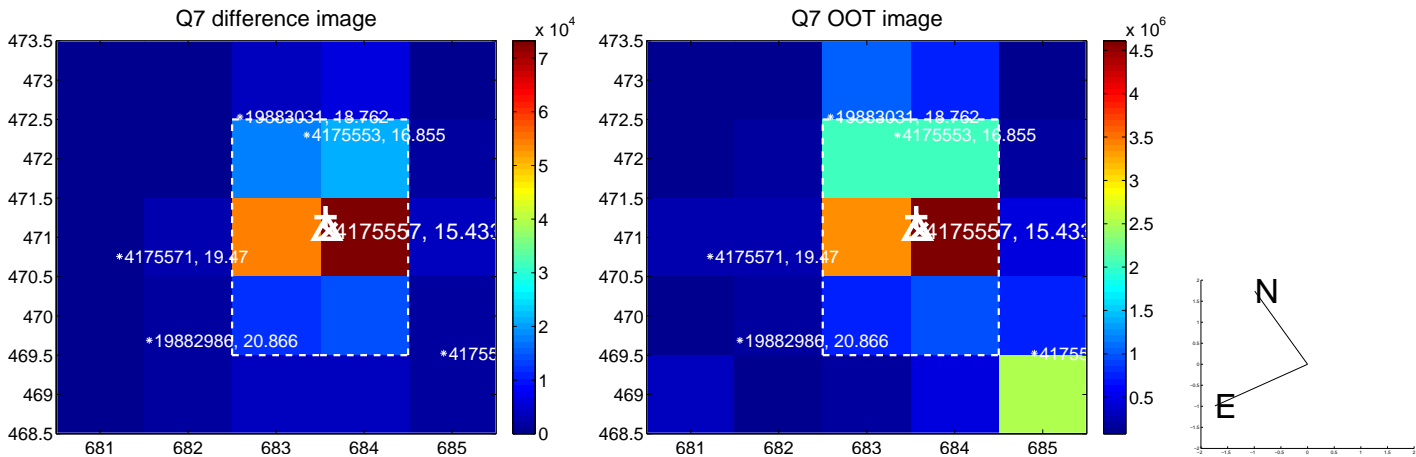
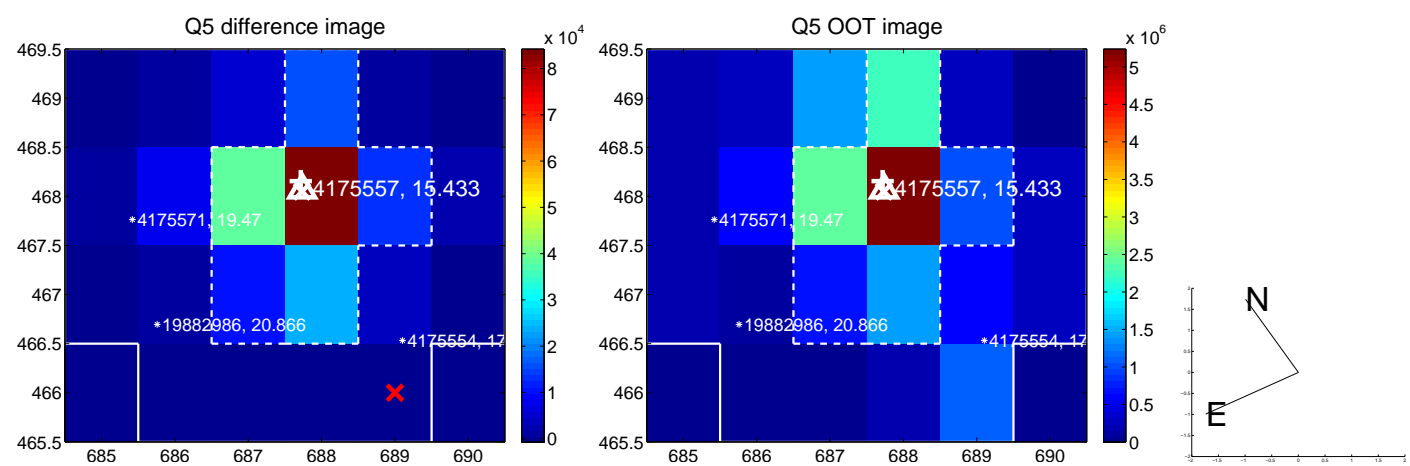


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

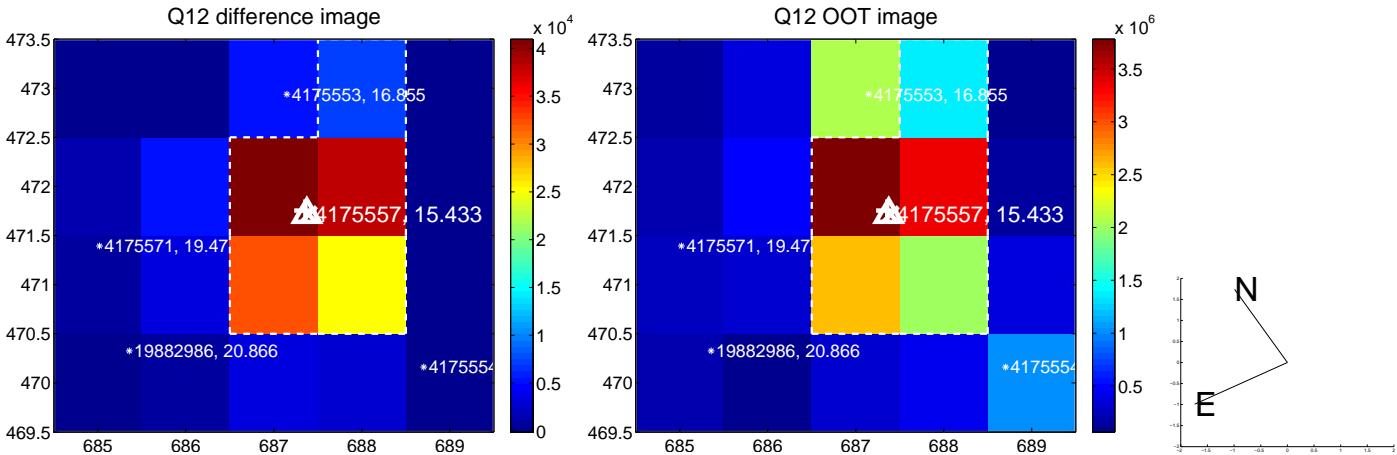
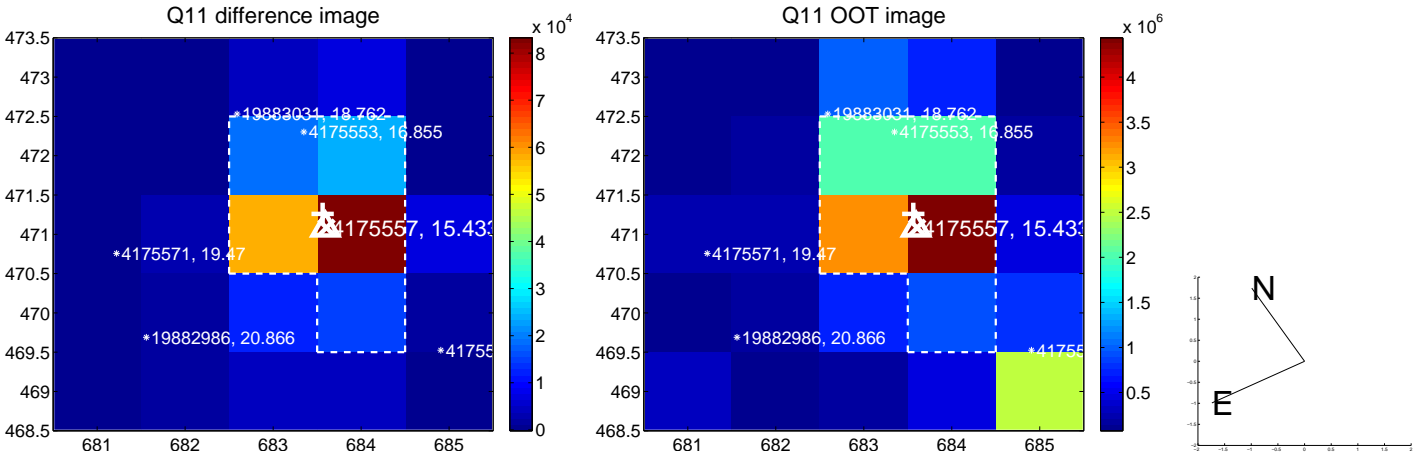
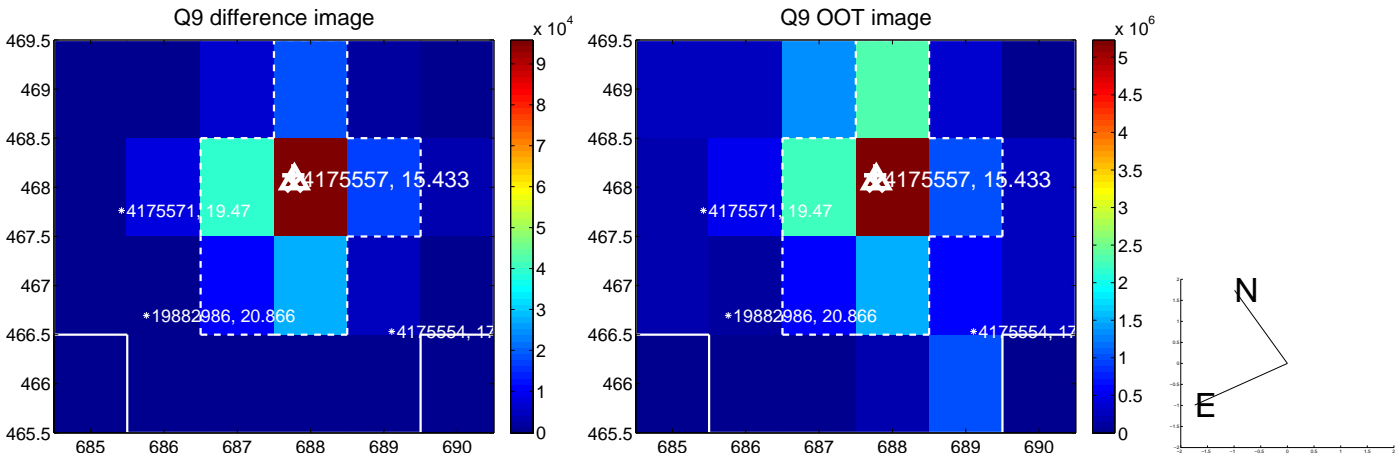
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



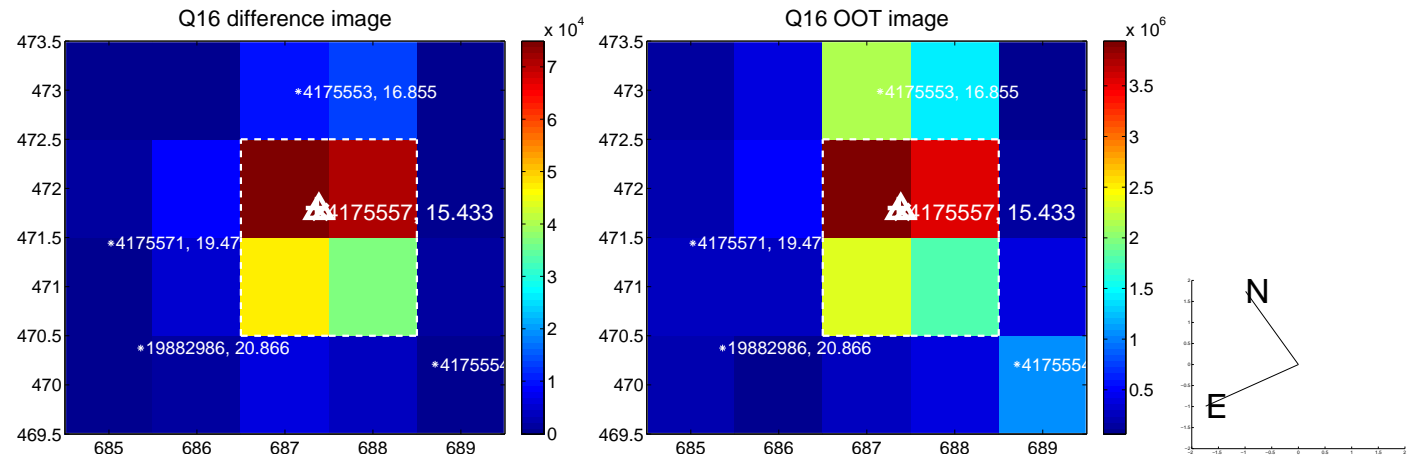
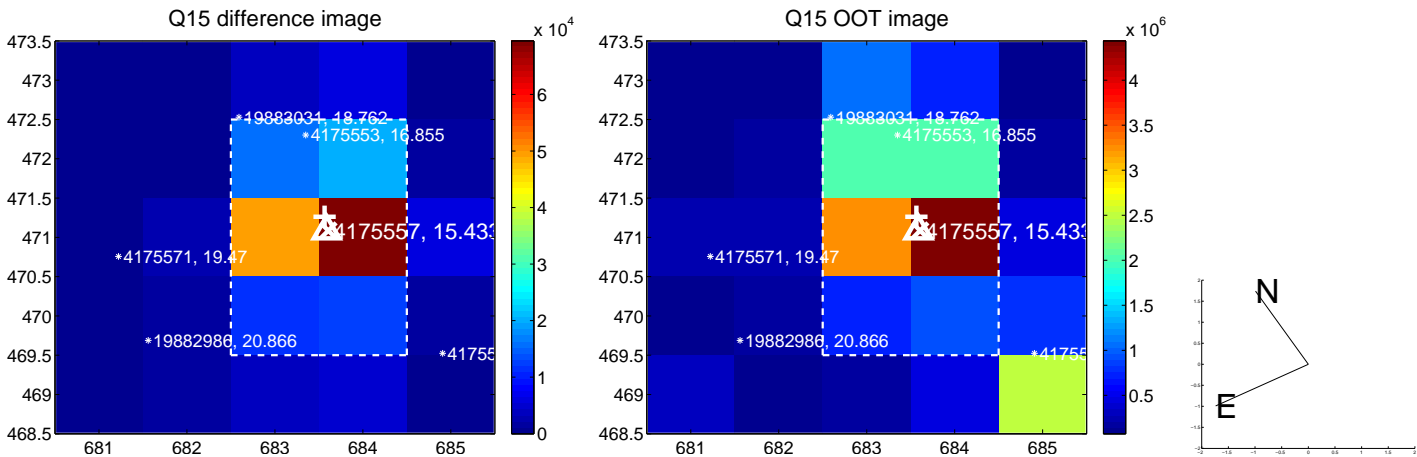
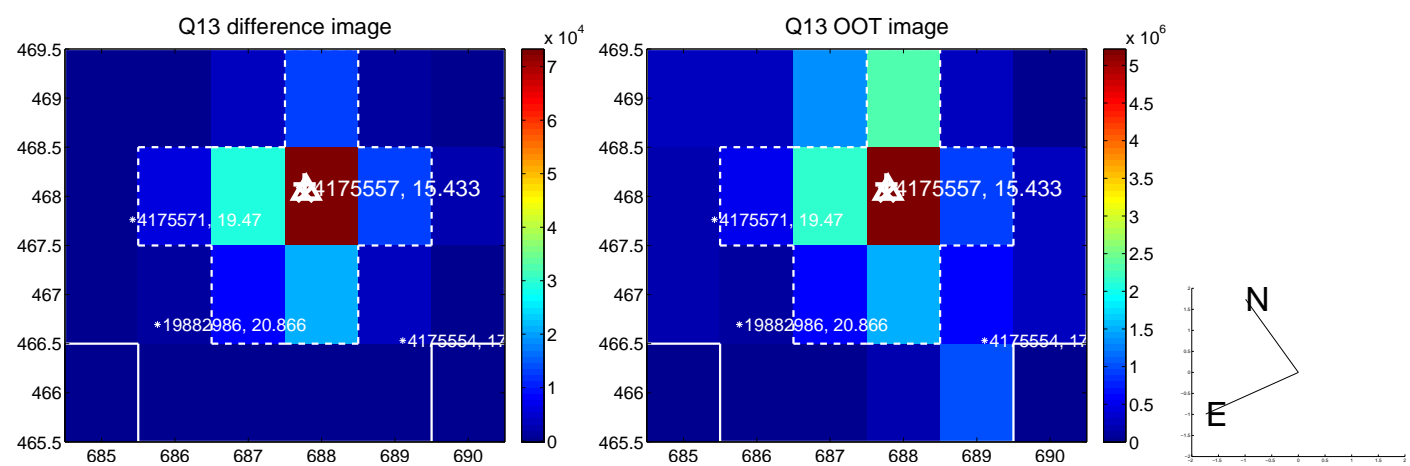
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



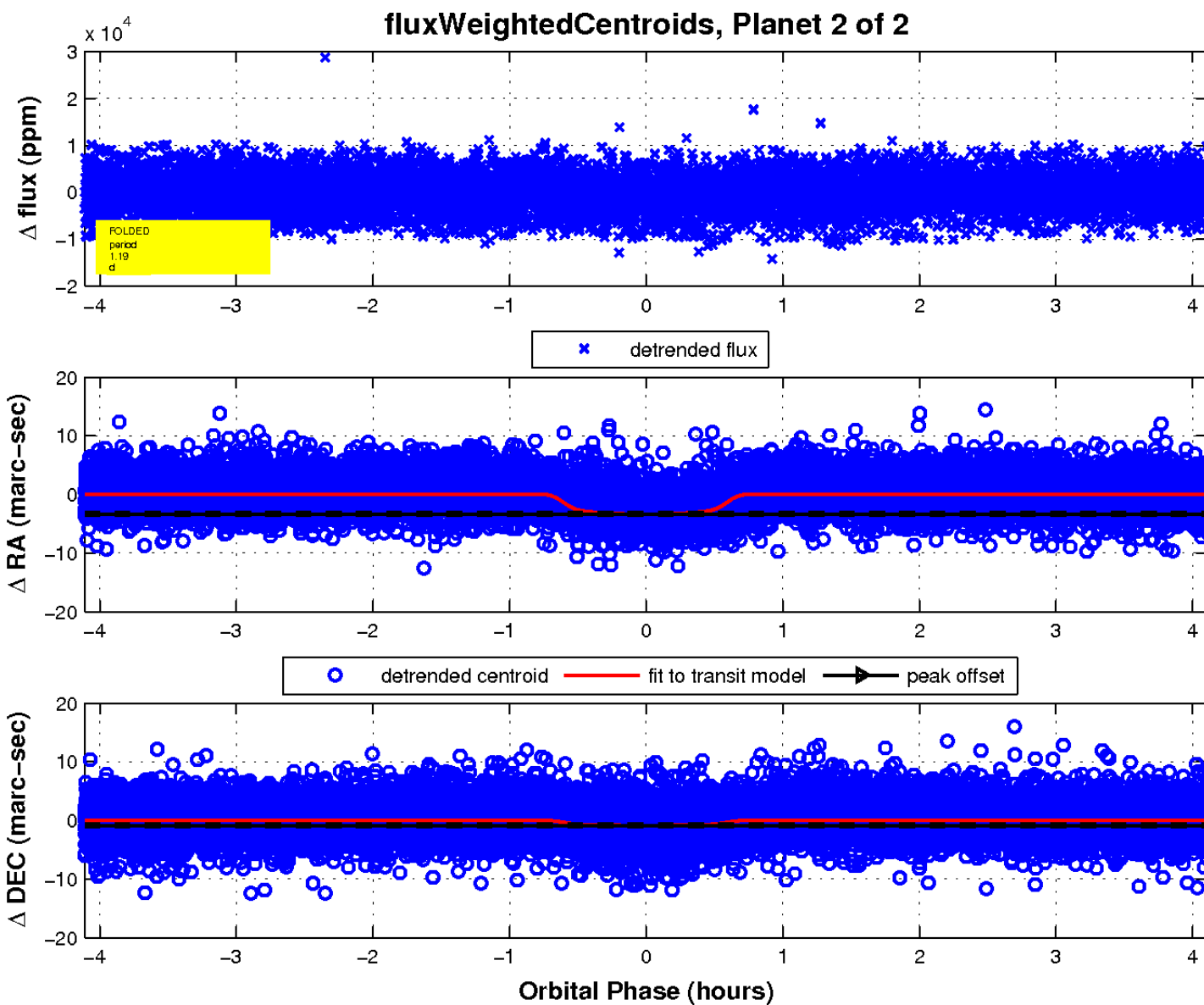
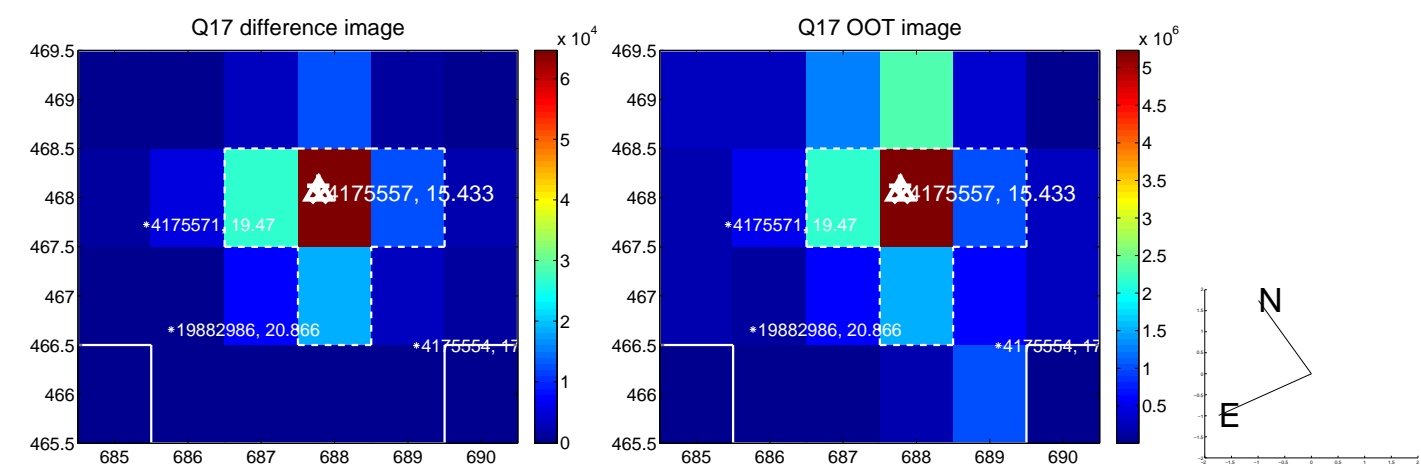
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UKIRT Image

Declination

