

KIC 012418662

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})
012418662-01	OBS	7532.01	2.751575	131.561965	69604.0	5.007	2093.8	1873.9	0.86	5461	27.96	445.87
012418662-02	OBS	No	1.375792	131.557027	10792.1	3.000	376.2	-1.0	0.86	5461	8.81	1123.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012418662-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
012418662-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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 012418662-01

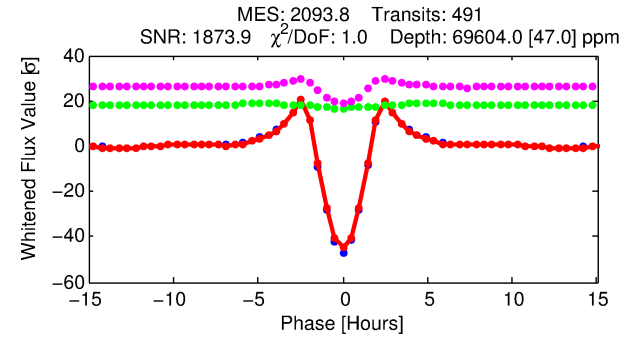
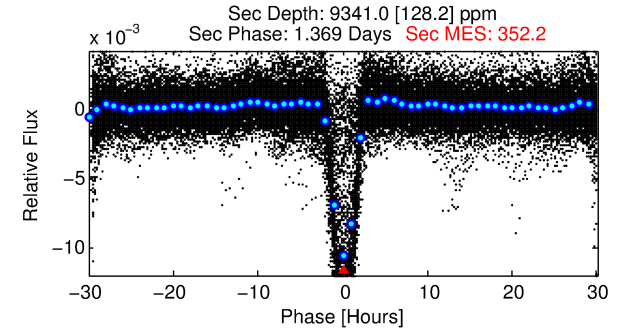
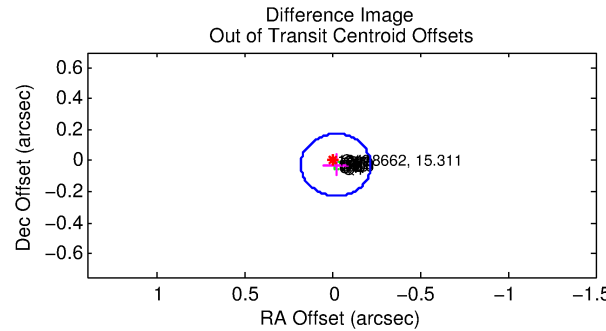
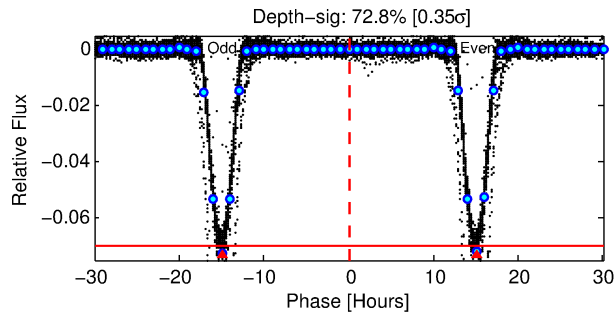
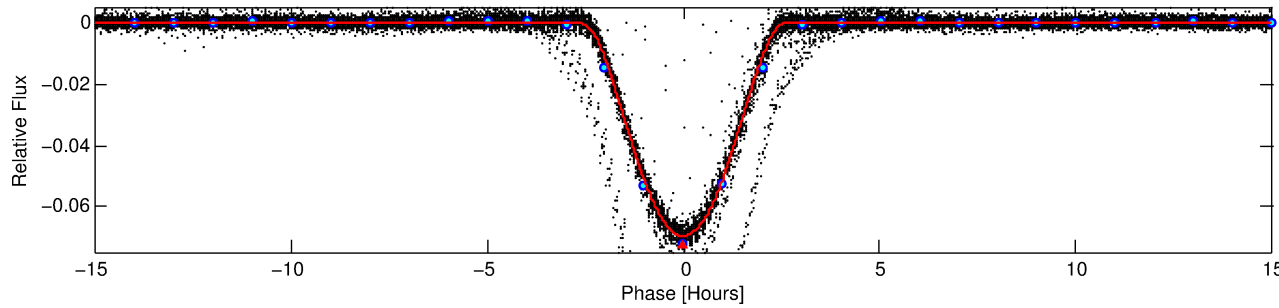
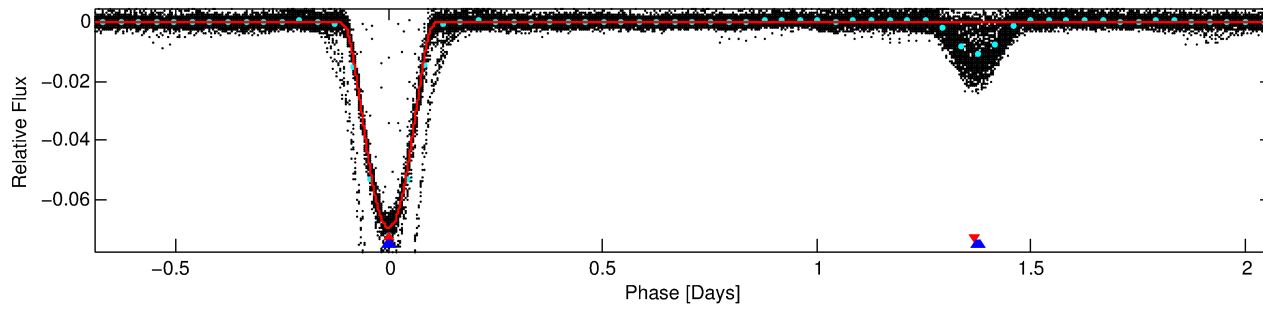
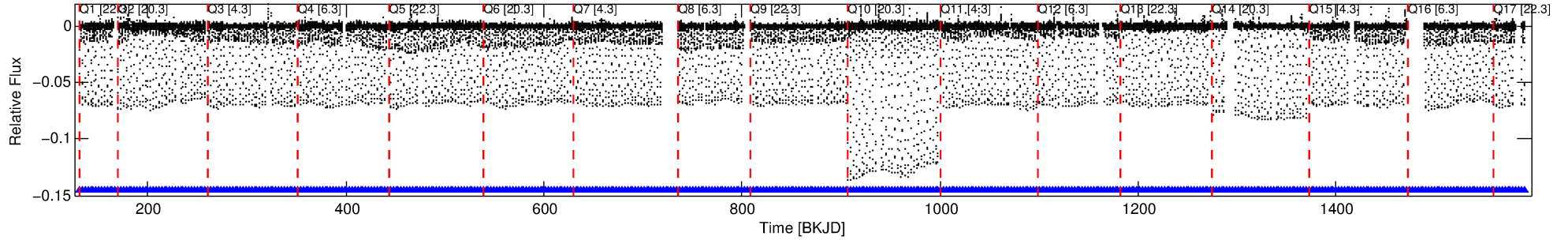
No Significant Match Found

DV One-Page Summary

KIC: 12418662 Candidate: 1 of 2 Period: 2.752 d

KOI: K07532.01 Corr: 0.977

Kp: 15.31 R*: 0.86 Rs Teff: 5461.0 K Logg: 4.50 Fe/H: -0.100



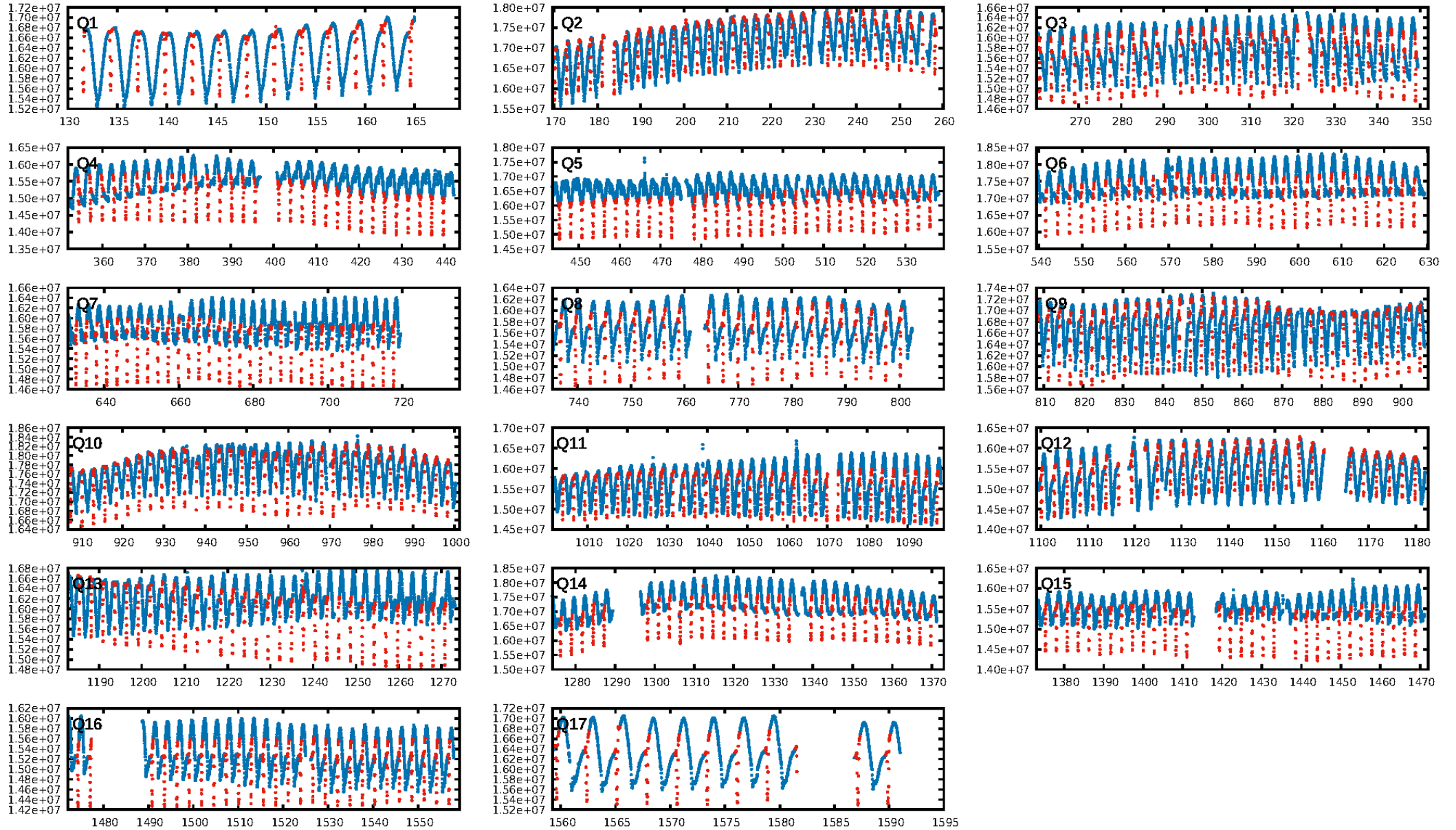
DV Fit Results:

Period = 2.75157 [0.00000] d
Epoch = 131.5620 [0.0000] BKJD
Rp/R* = 0.2976 [0.0012]
a/R* = 4.35 [0.00]
b = 0.82 [0.00]
Seff = 445.87 [125.29]
Teq = 1172 [82] K
Rp = 27.96 [5.98] Re
a = 0.0364 [0.0064] AU
Ag = 8.71 [2.22] [3.48σ]
Teffp = 3112 [94] K [15.50σ]

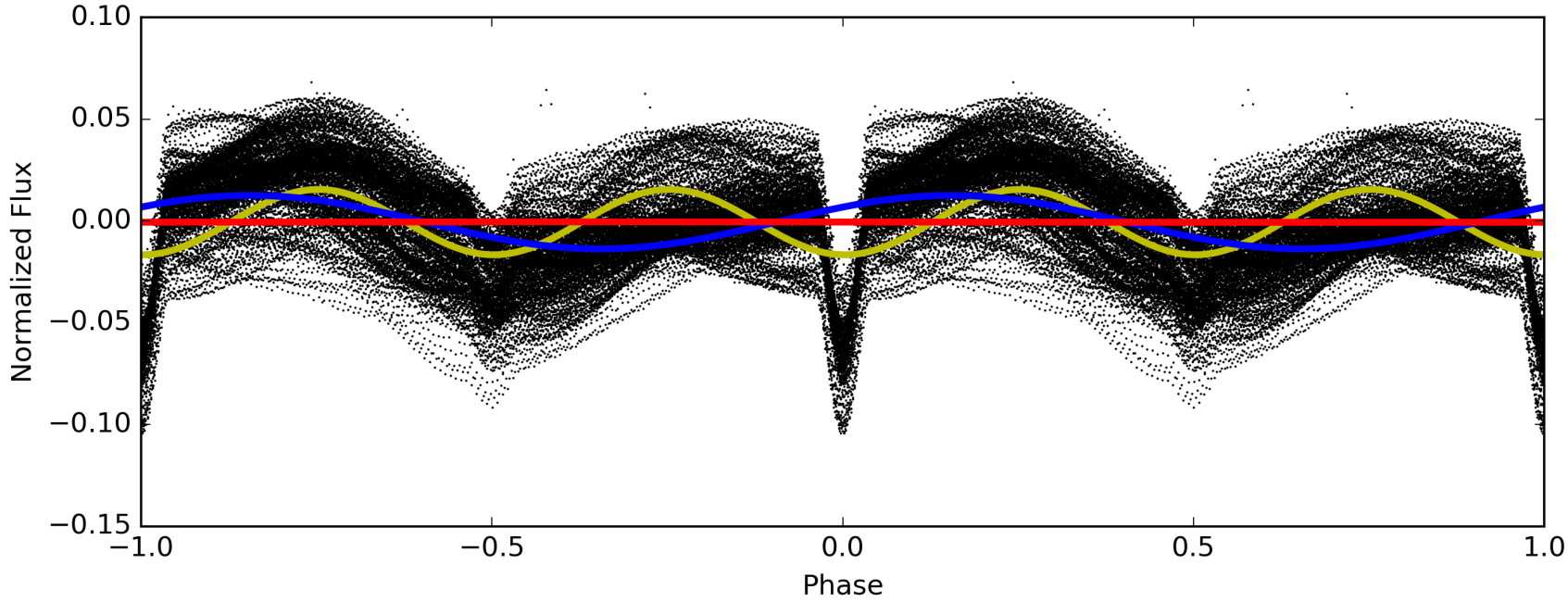
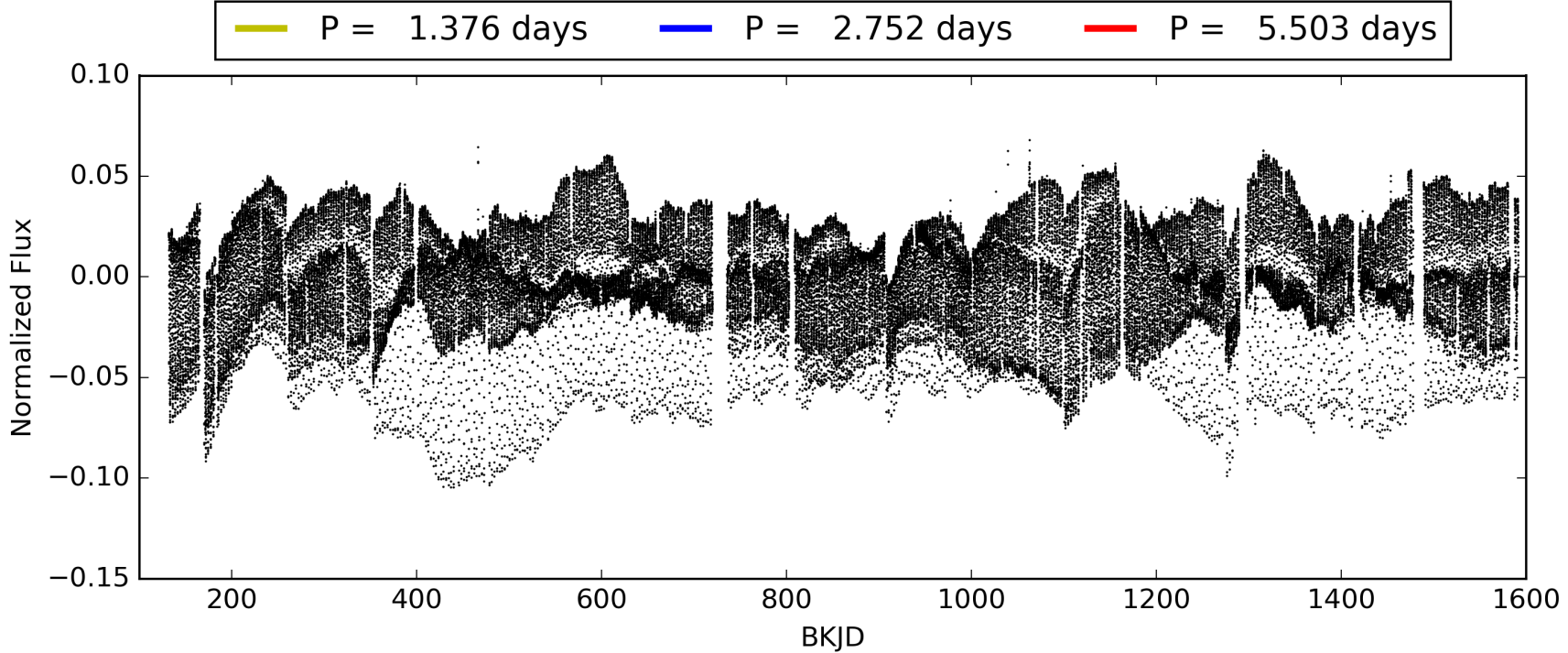
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.66σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [467/467]
GhostDiagnostic-chr: 1.426
Centroid-sig: 0.0%
Centroid-so: 1.075 arcsec [262.33σ]
OotOffset-rm: 0.032 arcsec [0.48σ]
KicOffset-rm: 0.063 arcsec [0.92σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 012418662-01, PDC Light Curves

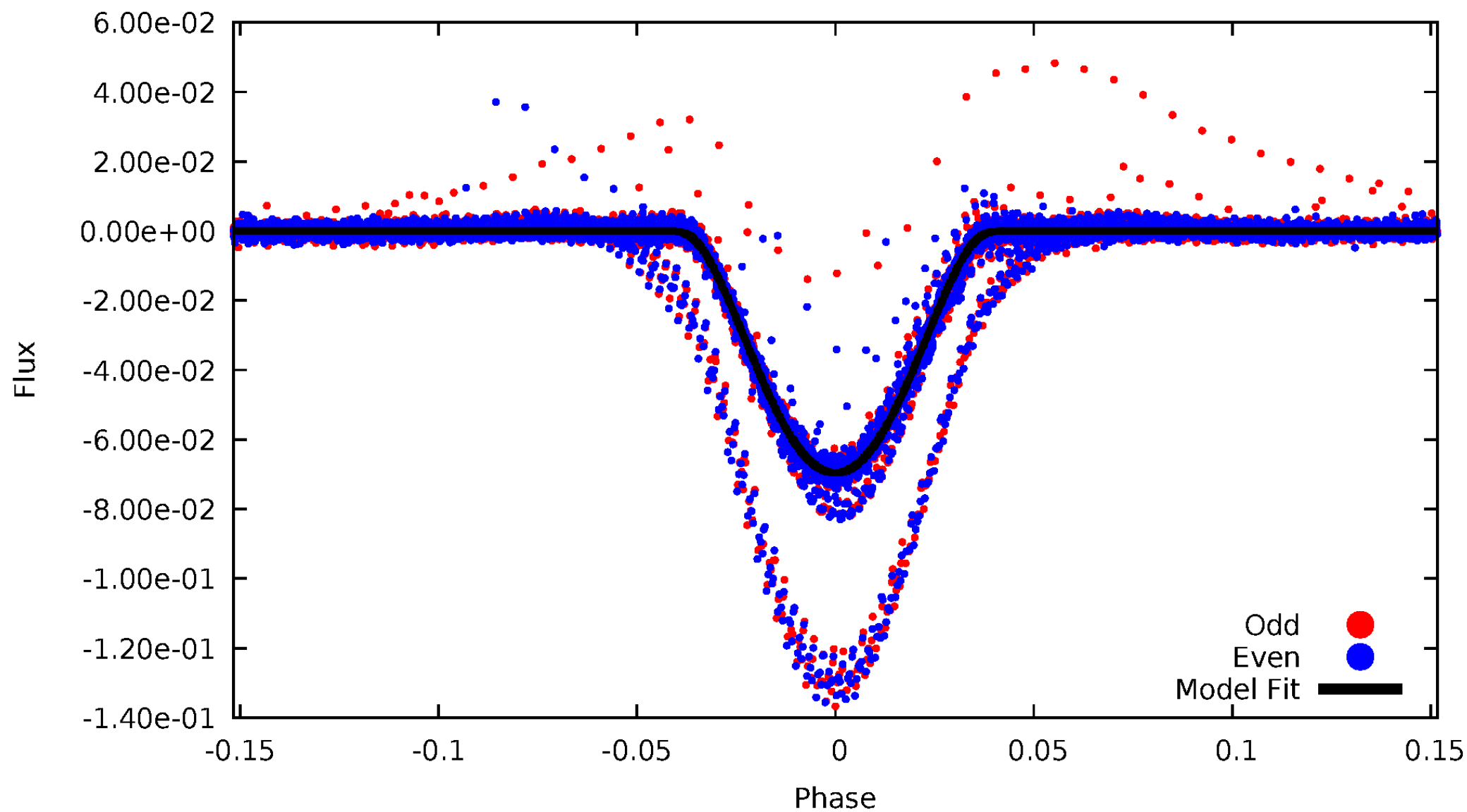


TCE 012418662-01



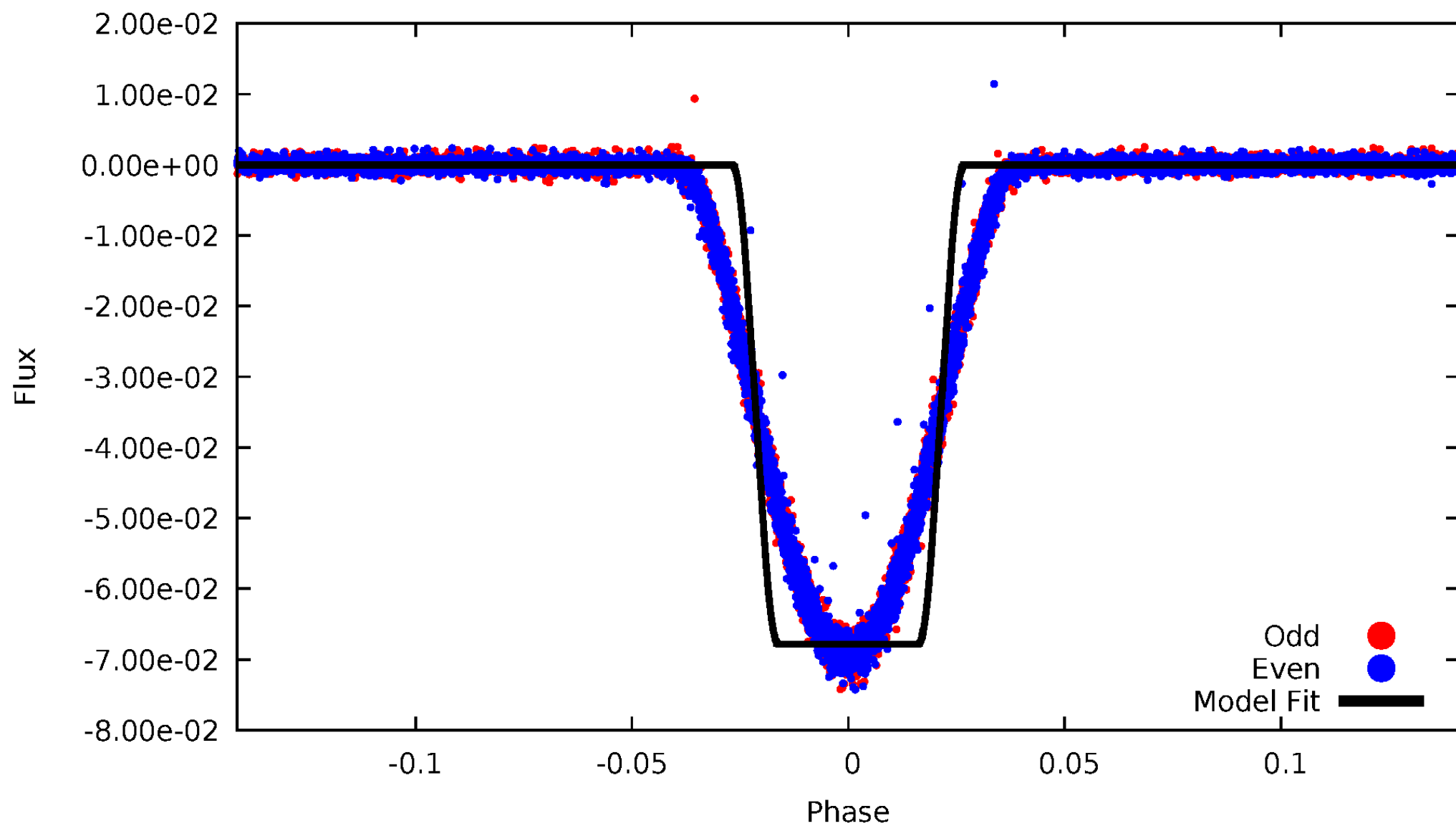
DV Odd/Even

TCE 012418662-01



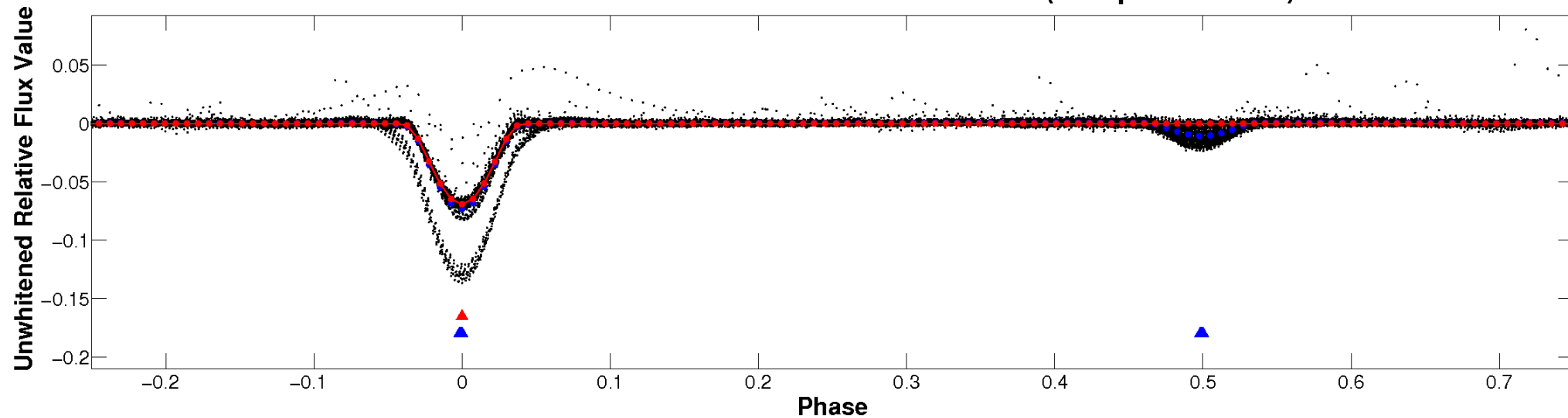
ALT Odd/Even

TCE 012418662-01

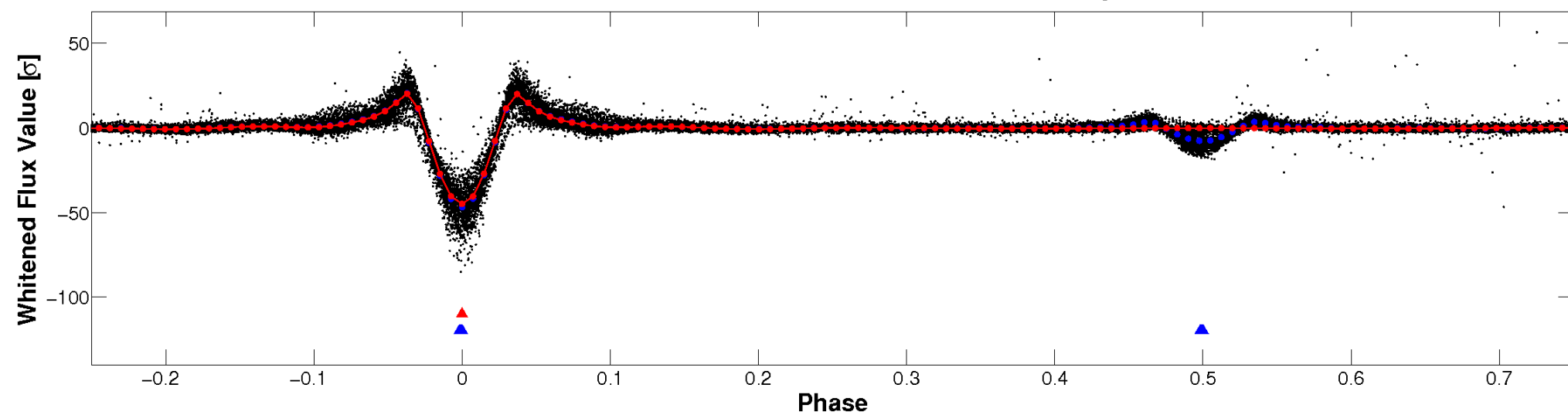


Non-Whitened Vs. Whitened Light Curve

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

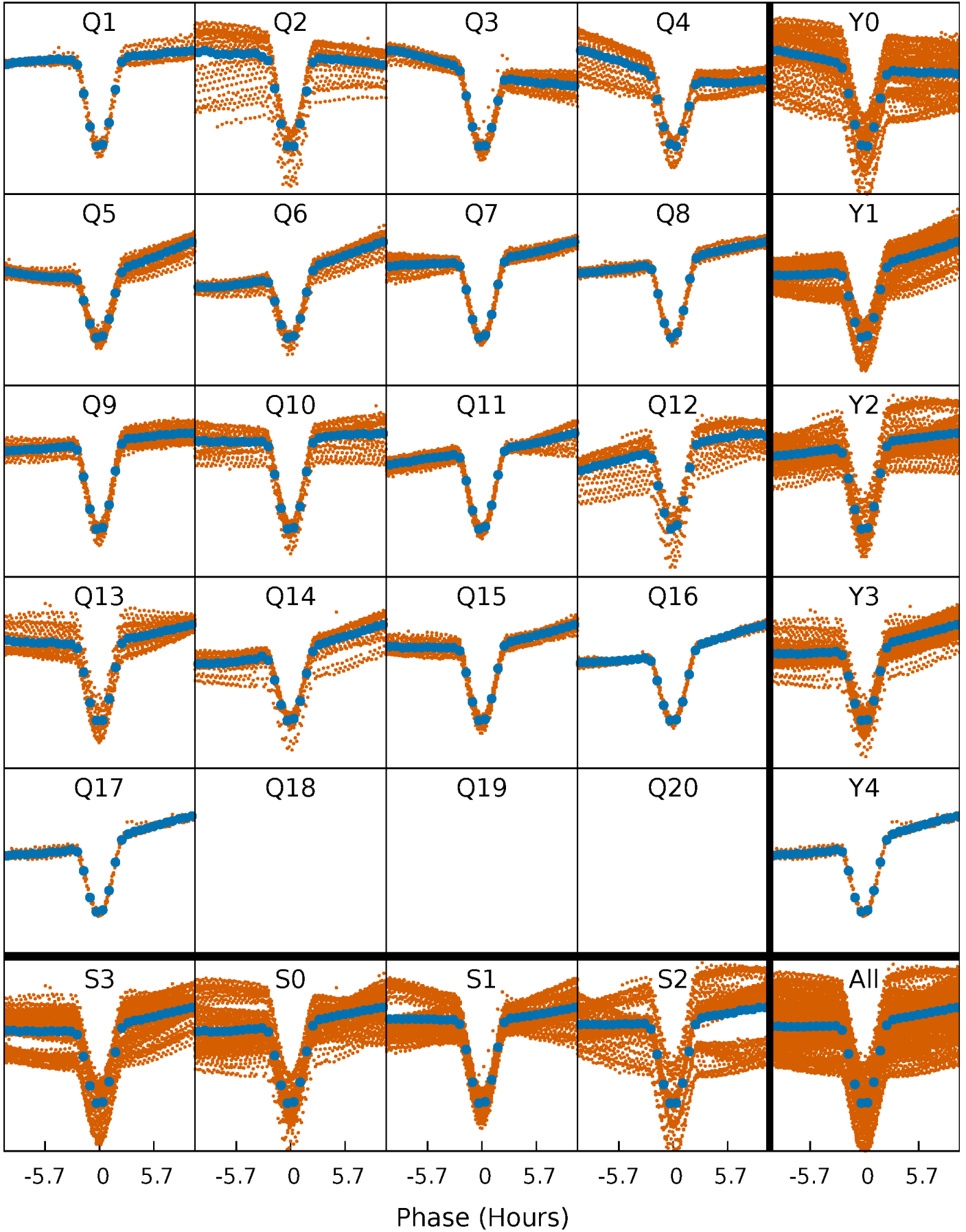


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



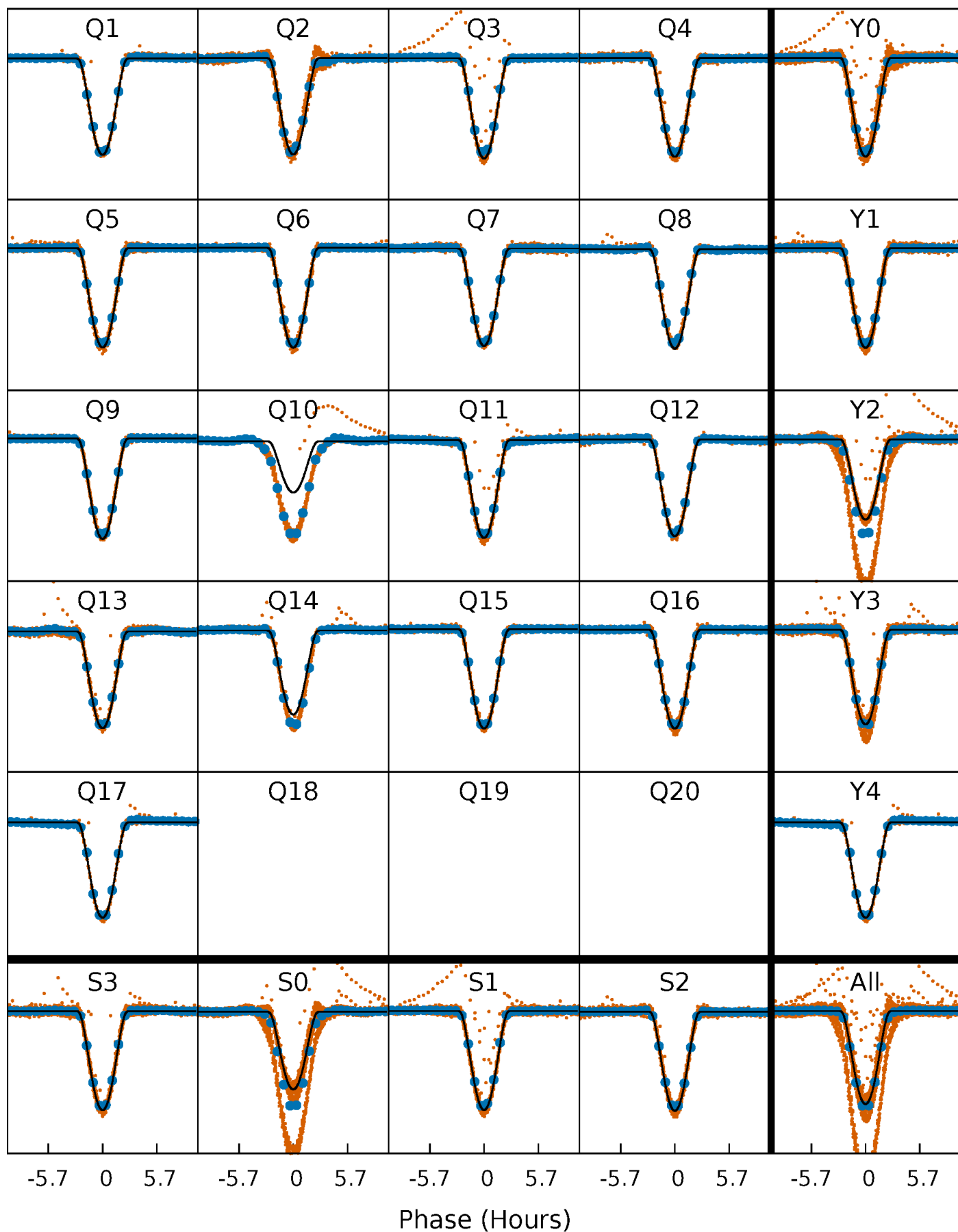
PDC Quarter-Phased Transit Curves

TCE 012418662-01 P= 2.751575 Days $T_0=131.561965$ (BKJD)



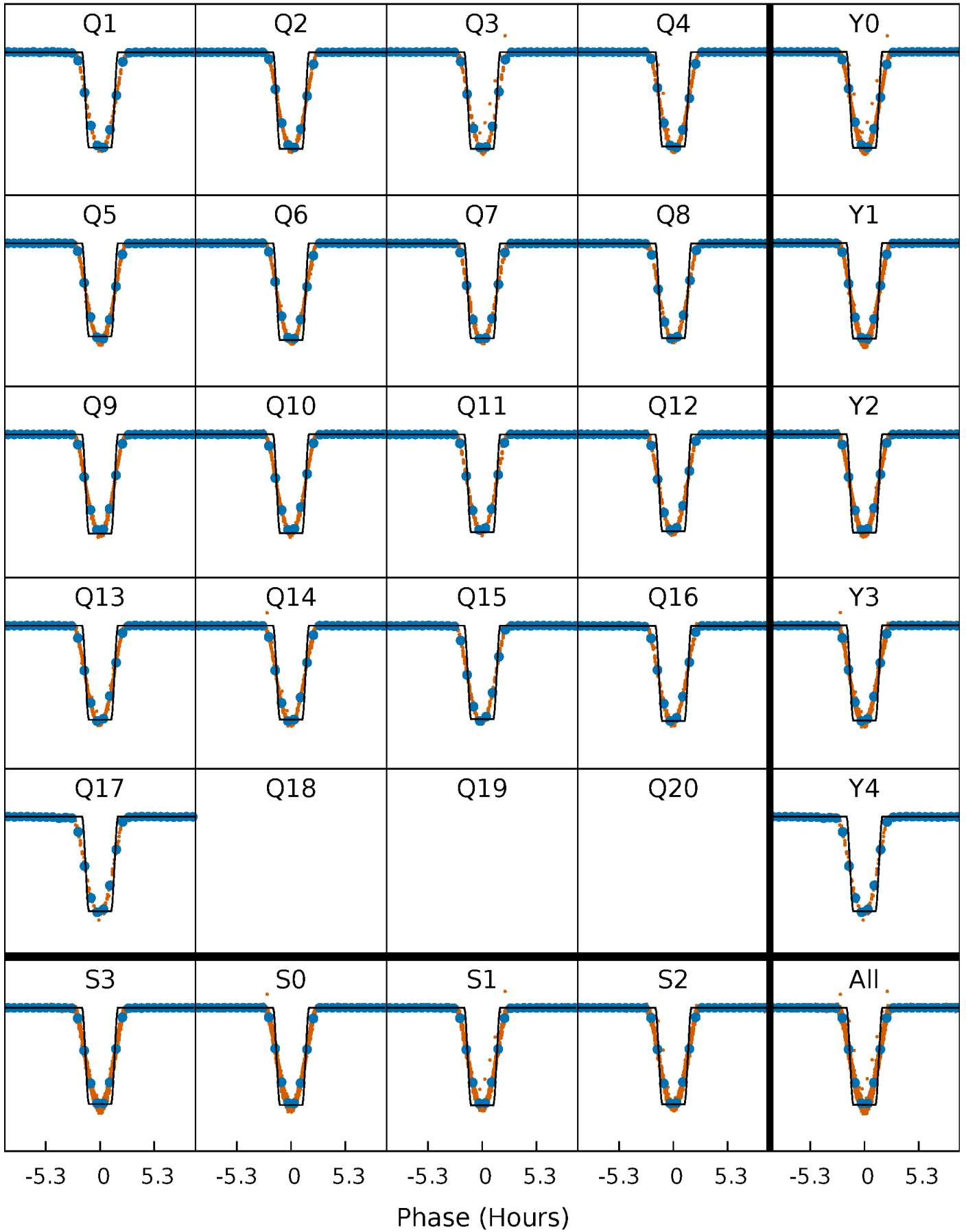
DV Quarter-Phased Transit Curves

TCE 012418662-01 P= 2.751575 Days $T_0=131.561965$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

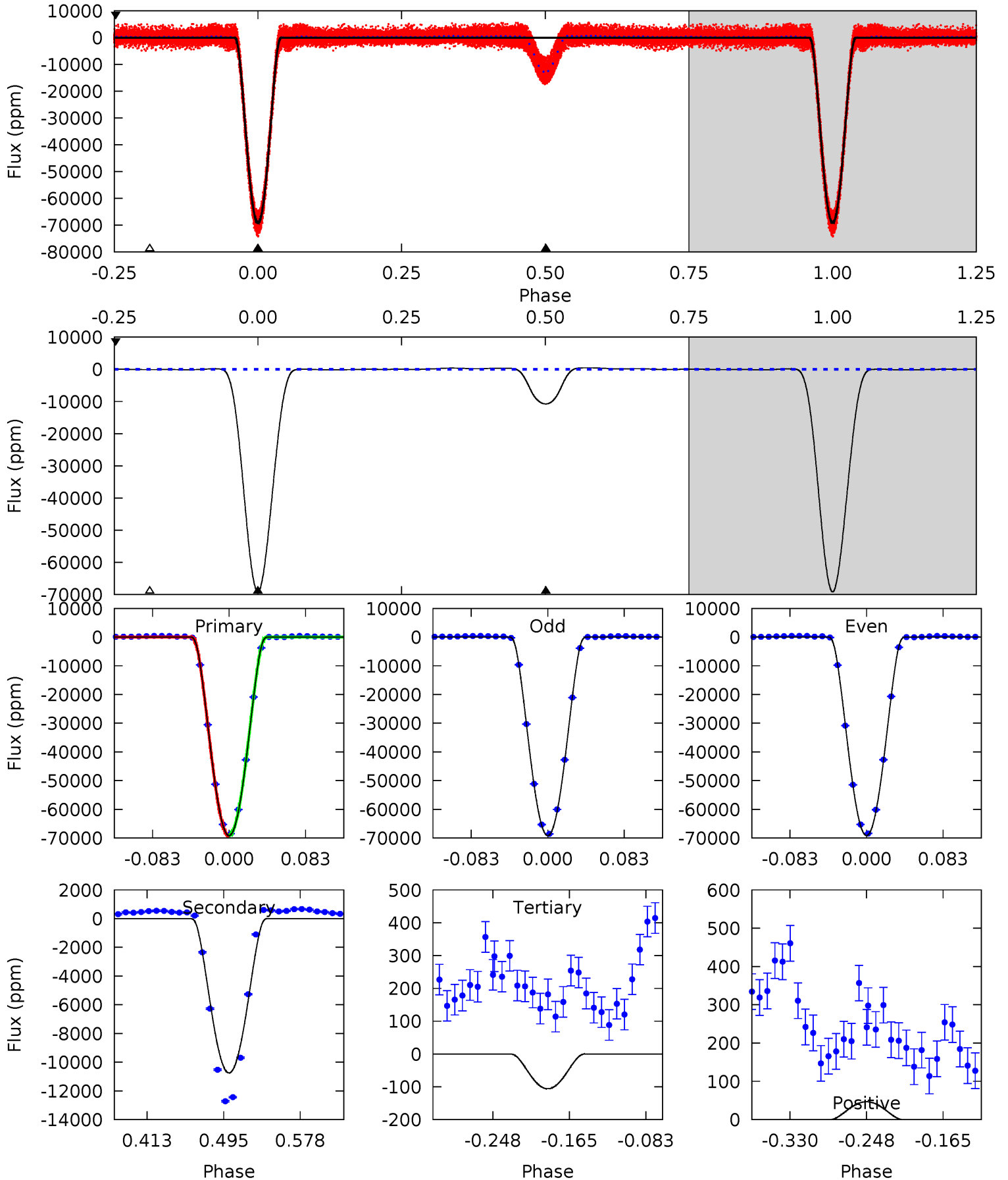
TCE 012418662-01 P= 2.751590 Days $T_0=131.557909$ (BKJD)



DV Model-Shift Uniqueness Test

012418662-01, P = 2.751575 Days, E = 128.810390 Days

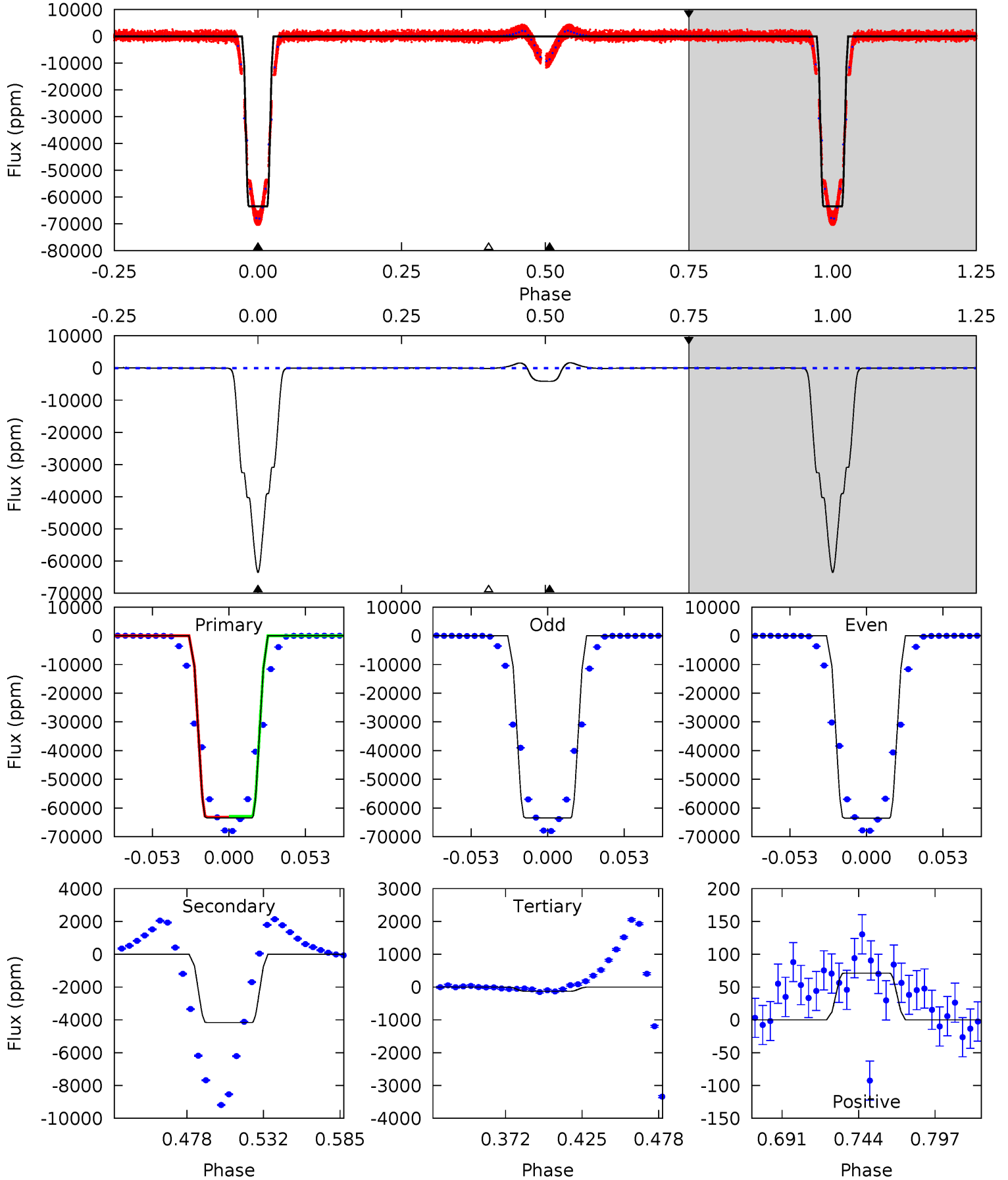
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4121	640.4	6.31	2.78	4.60	1.74	9.10	4115	4118	634.1	637.7	0.58	1.06	0.01	10.0



Alt Model-Shift Uniqueness Test

012418662-01, P = 2.751590 Days, E = 128.806319 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4720	309.5	9.57	5.30	4.70	1.93	13.5	4710	4714	300.0	304.2	1.56	1.00	0.03	8.98



Stellar Parameters For KIC 012418662

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5461^{+164}_{-147}	$4.497^{+0.074}_{-0.137}$	$-0.100^{+0.300}_{-0.300}$	$0.861^{+0.184}_{-0.099}$	$0.851^{+0.101}_{-0.073}$	$1.878^{+0.584}_{-0.739}$
	+3%/-3%	+2%/-3%	+300%/-300%	+21%/-11%	+12%/-9%	+31%/-39%
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 012418662-01 / KOI 7532.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-10749 ± 17	$28.13^{+3.25}_{-1.73}$	1650^{+88}_{-71}	3628^{+76}_{-72}	$9.932^{+1.286}_{-1.690}$
Alt.	-4164 ± 13	$24.65^{+2.82}_{-1.58}$	1654^{+87}_{-78}	3240^{+65}_{-60}	$4.969^{+0.667}_{-0.835}$

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 $A_{obs} \gg 1.0$

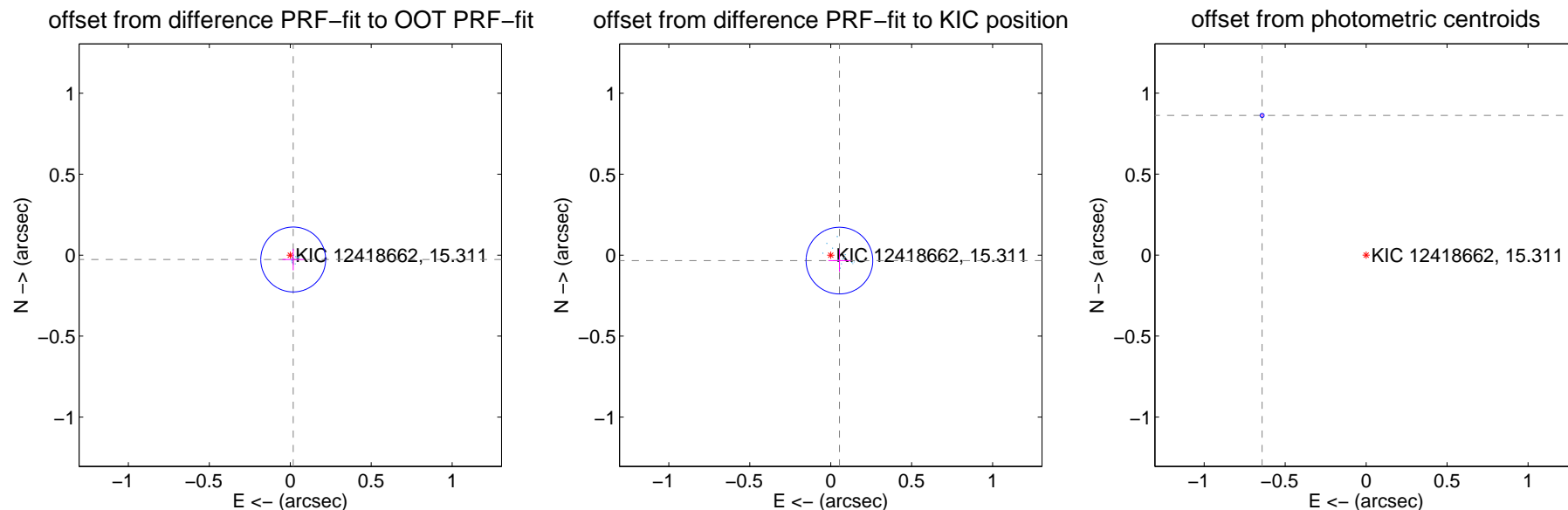
DV Centroid Data

Supplemental centroid analysis for 012418662-01. Kepler magnitude: 15.31. Transit SNR 1873.91

There are 17 quarters with good PRF difference image offsets

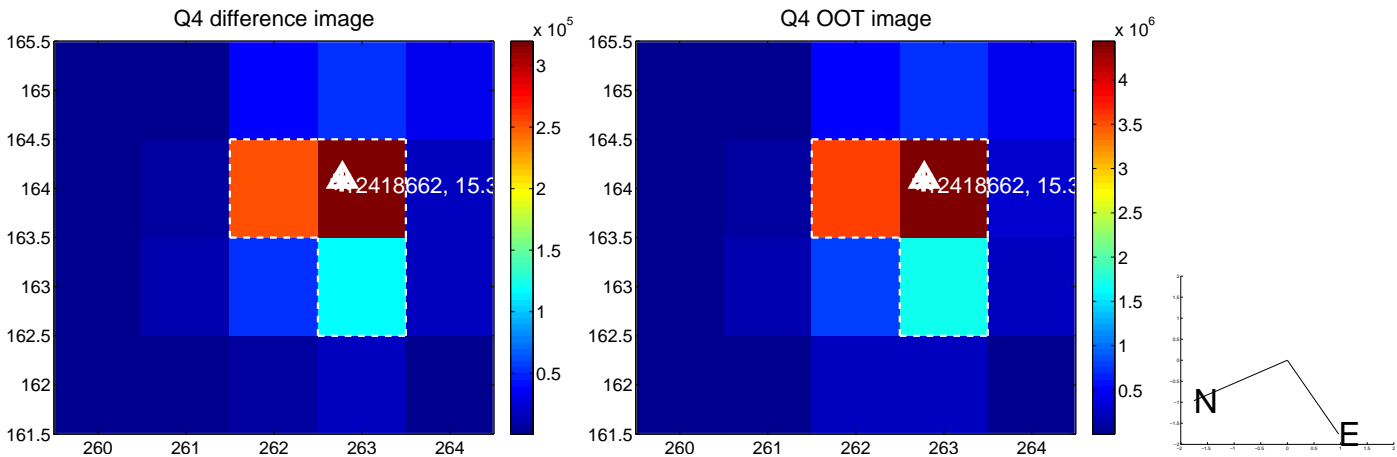
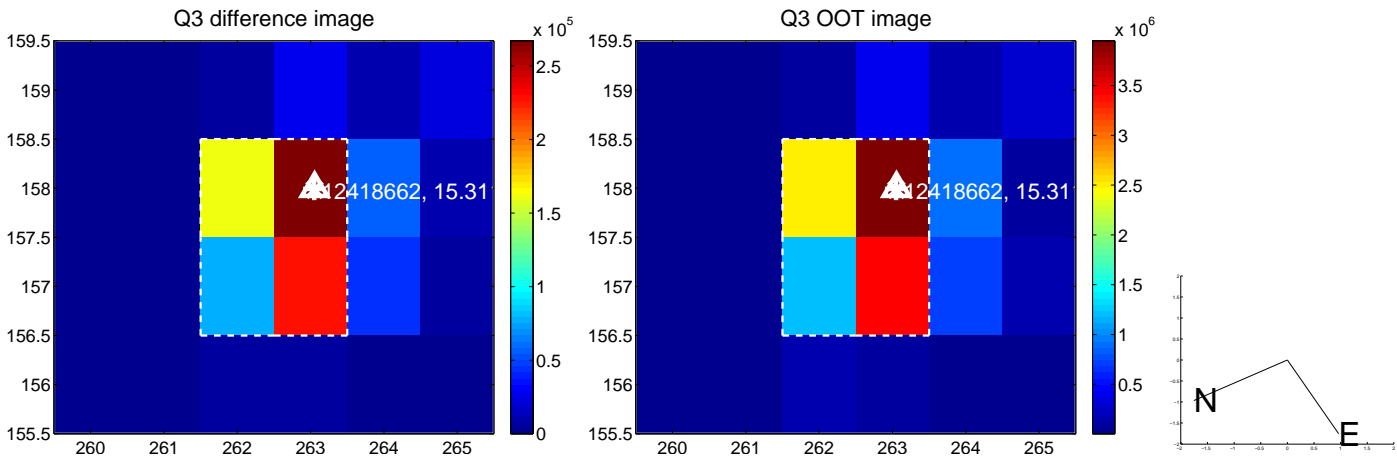
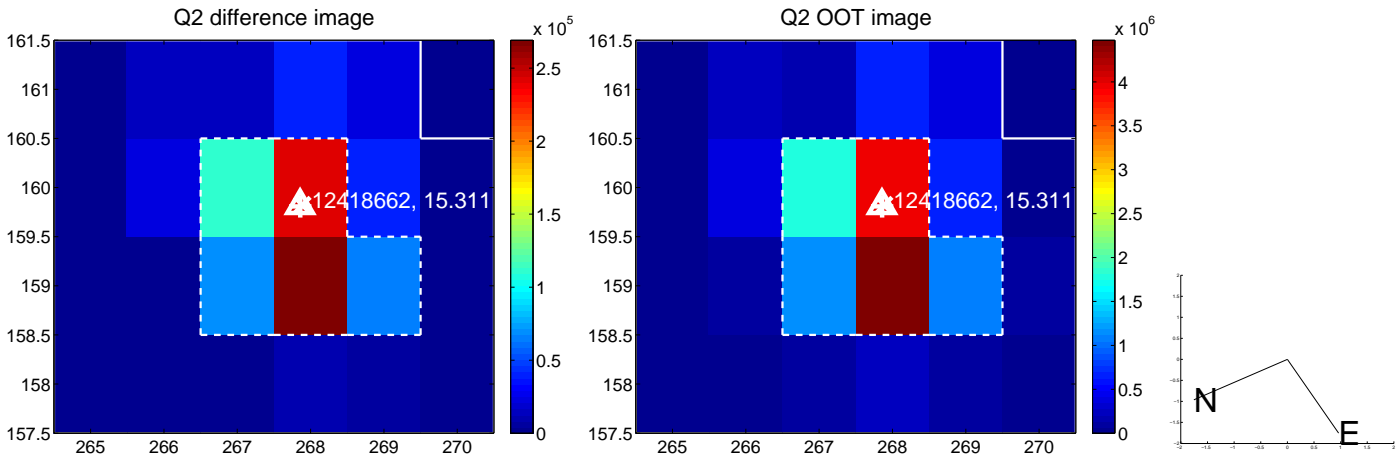
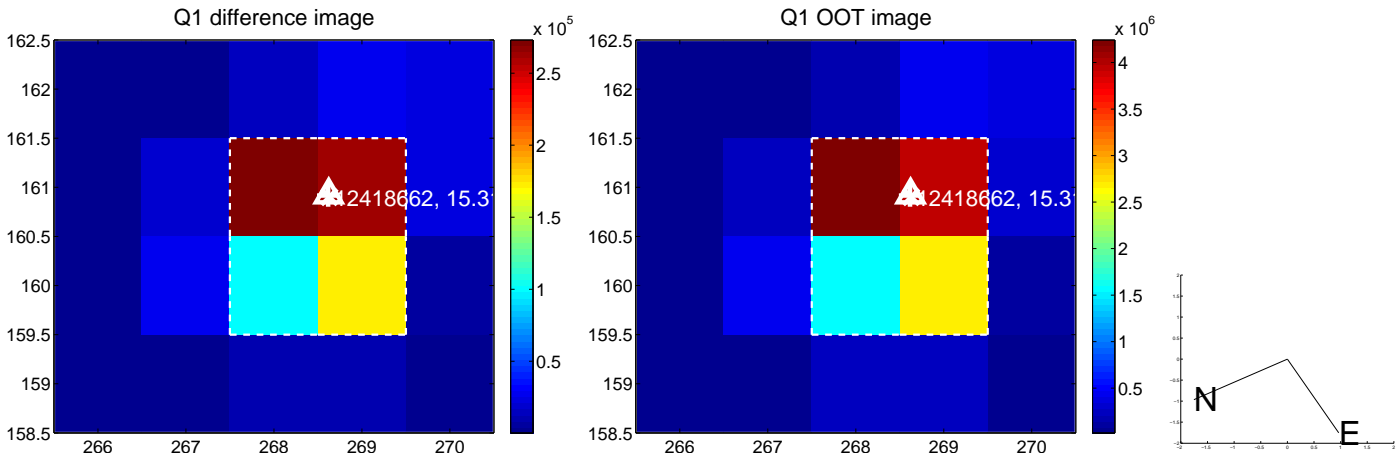
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.032 ± 0.067	0.48	-0.018 ± 0.067	-0.027 ± 0.067
PRF-fit source offset from KIC position	0.063 ± 0.069	0.92	-0.054 ± 0.068	-0.034 ± 0.068
photometric centroid source offset	1.07 ± 0.00	262.33	0.64 ± 0.00	0.86 ± 0.00

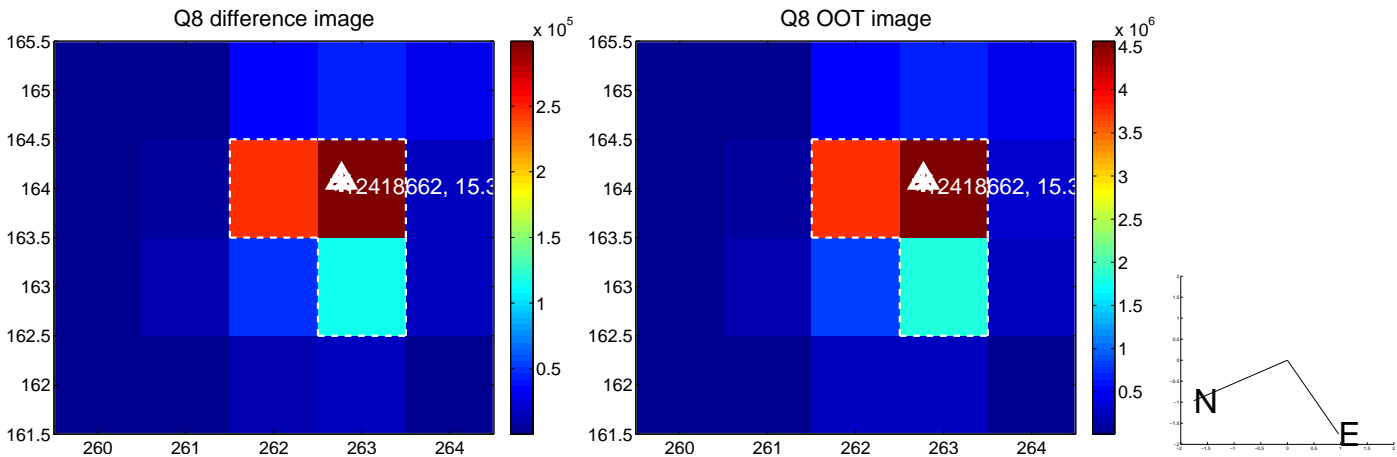
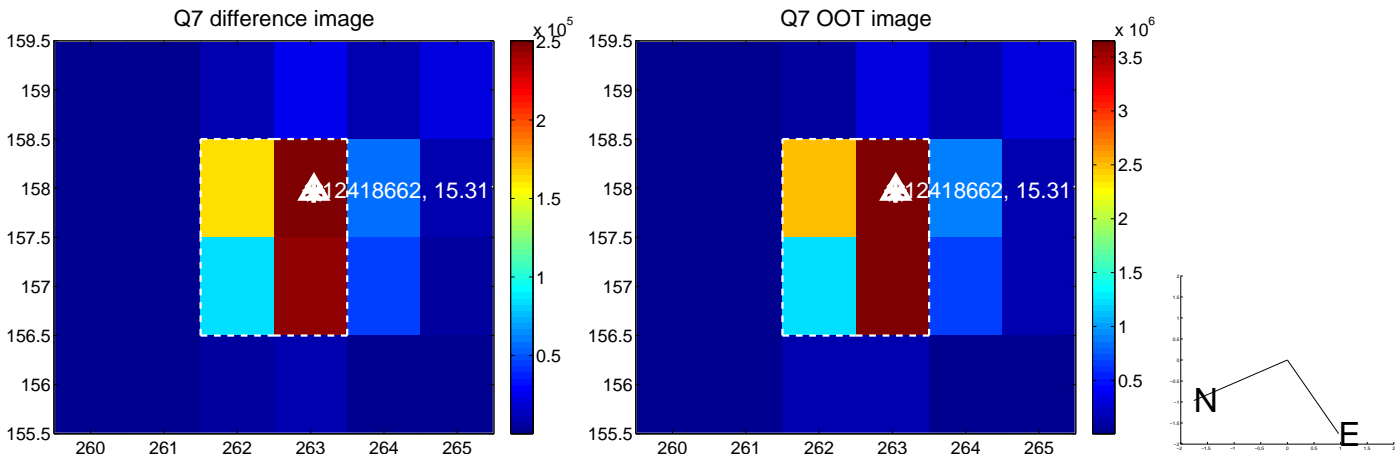
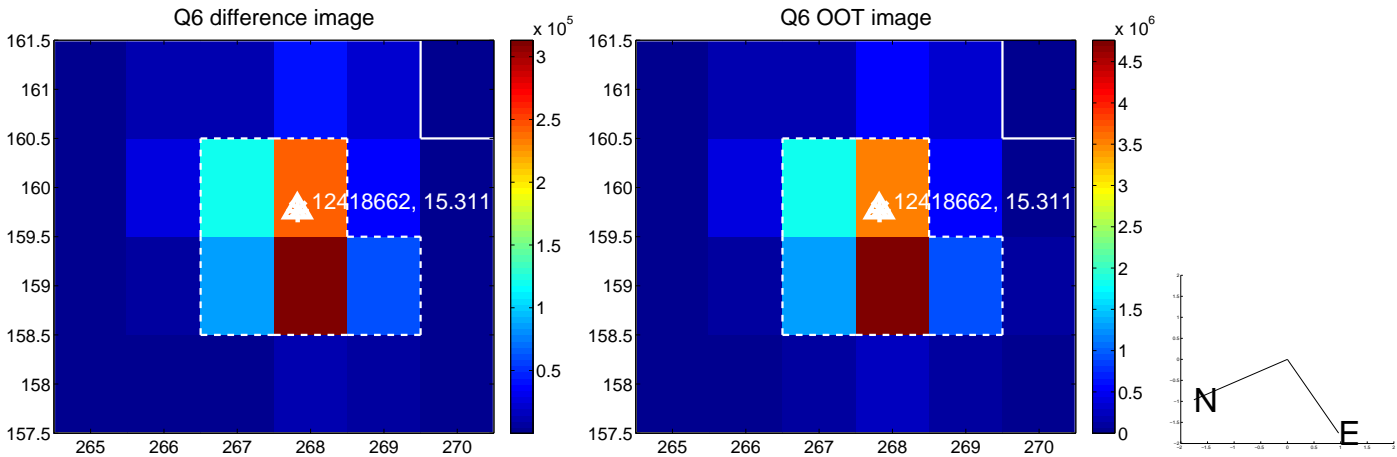
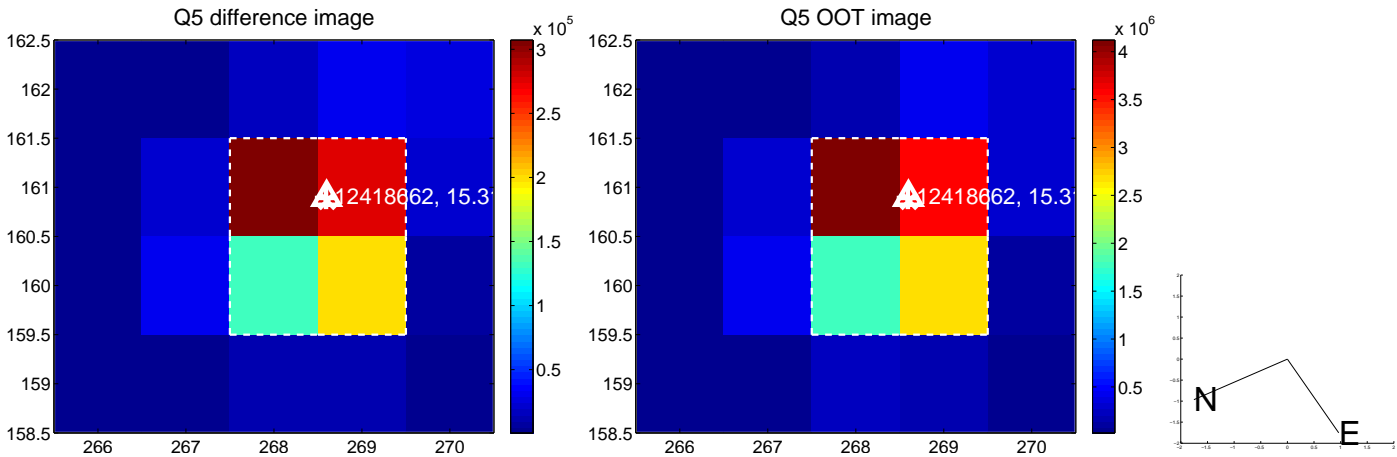


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

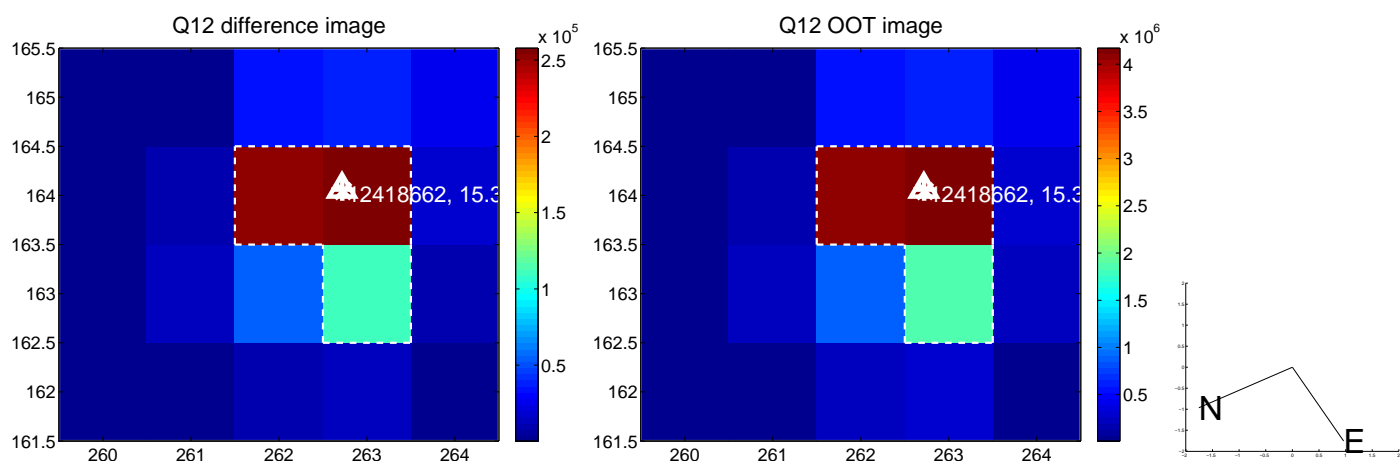
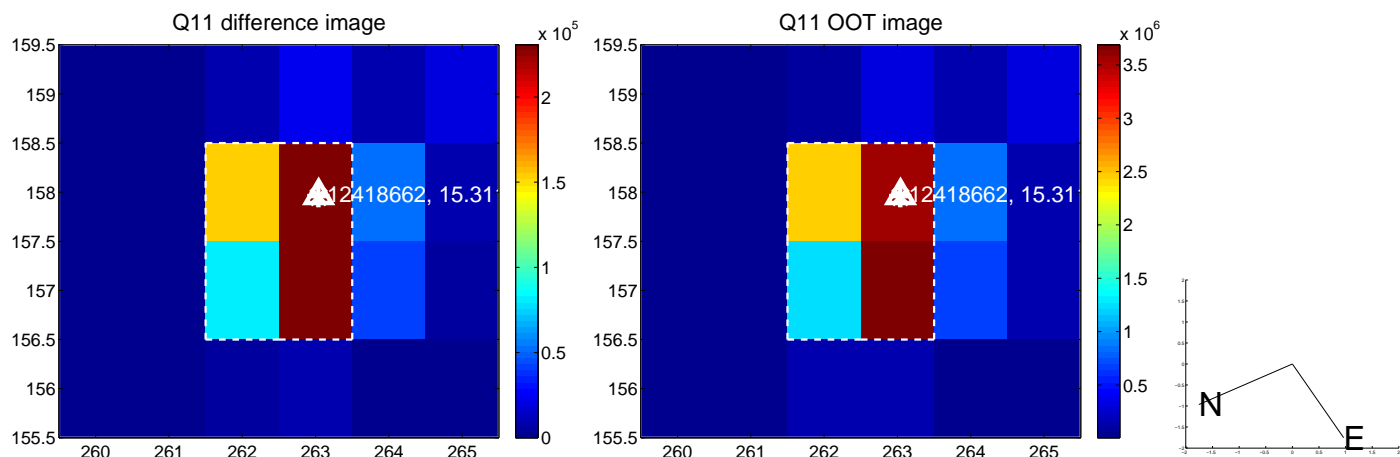
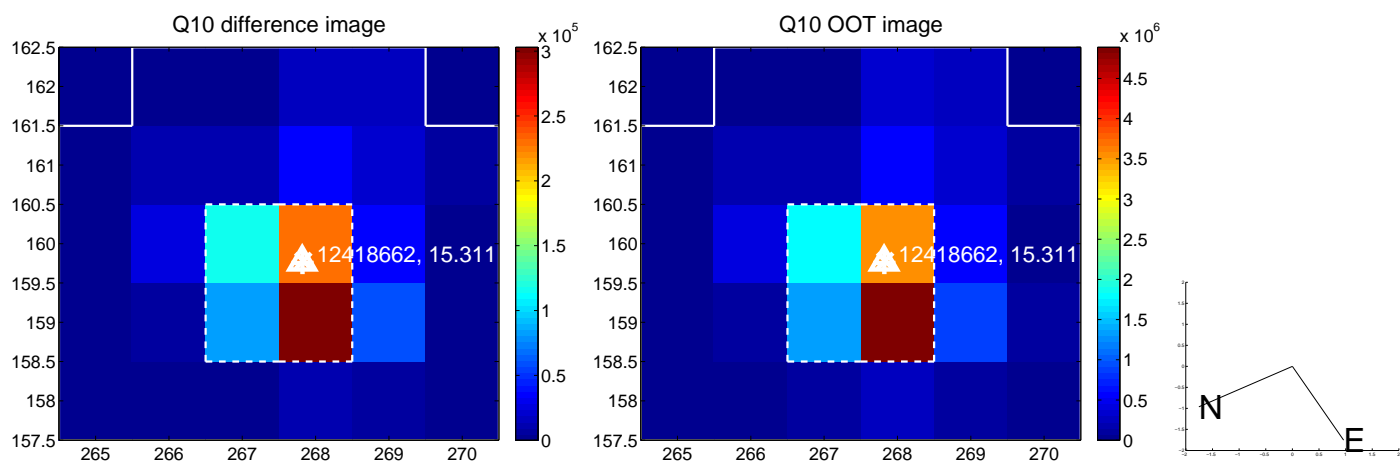
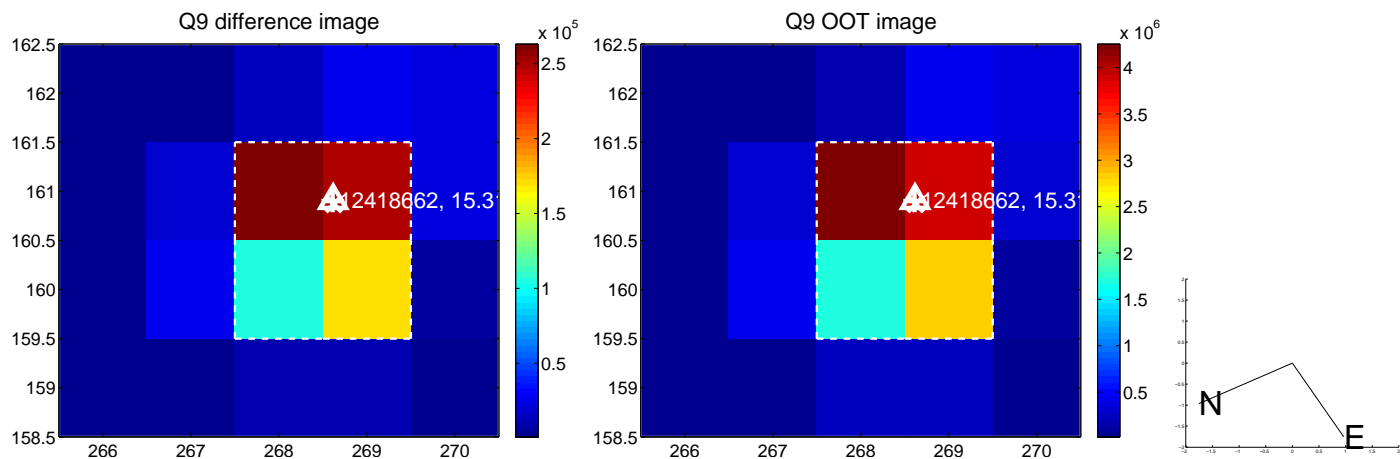
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



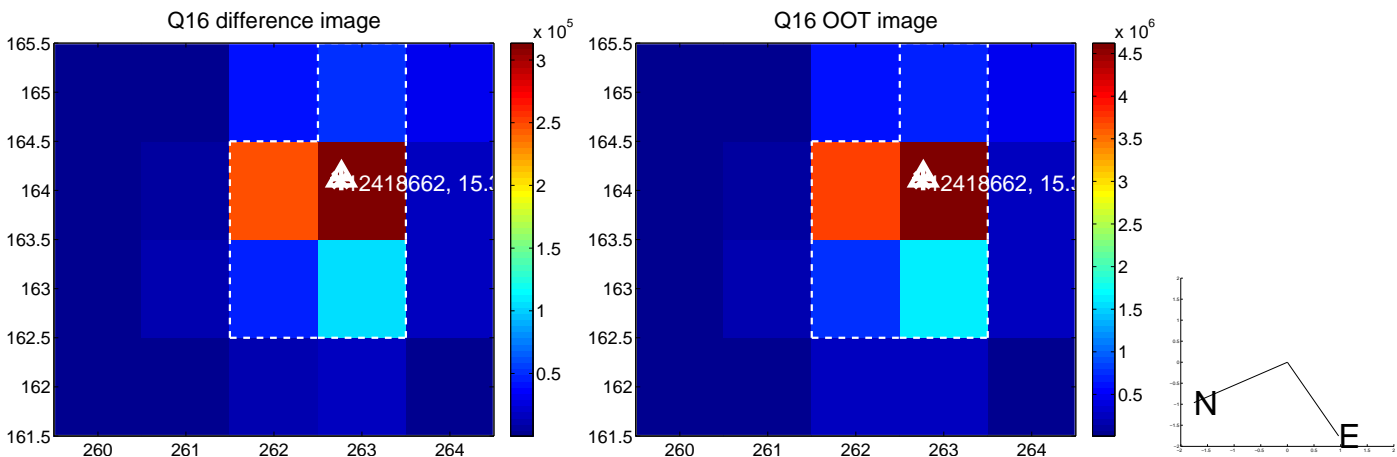
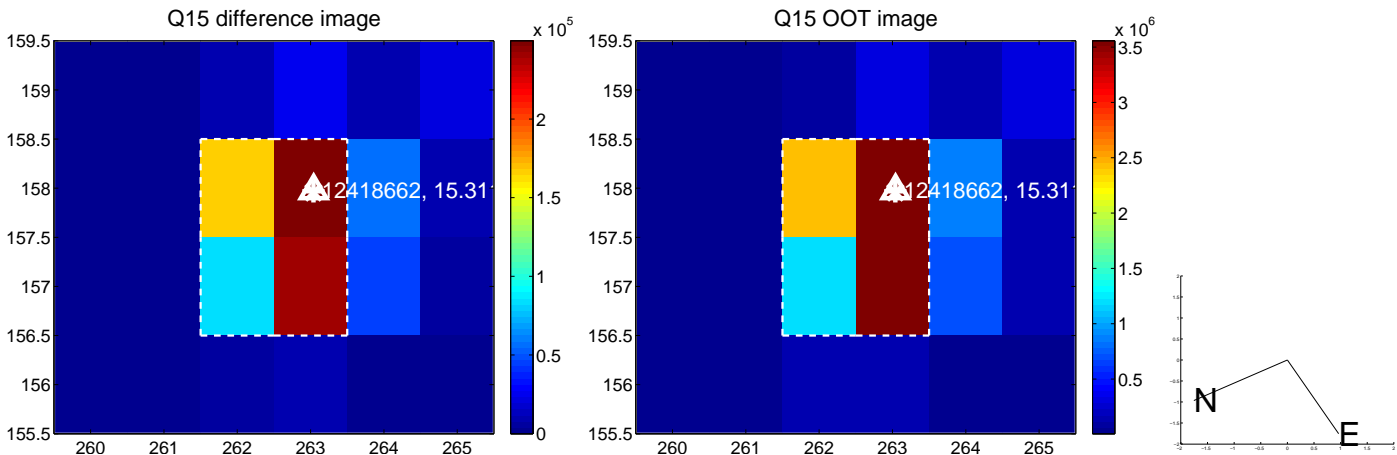
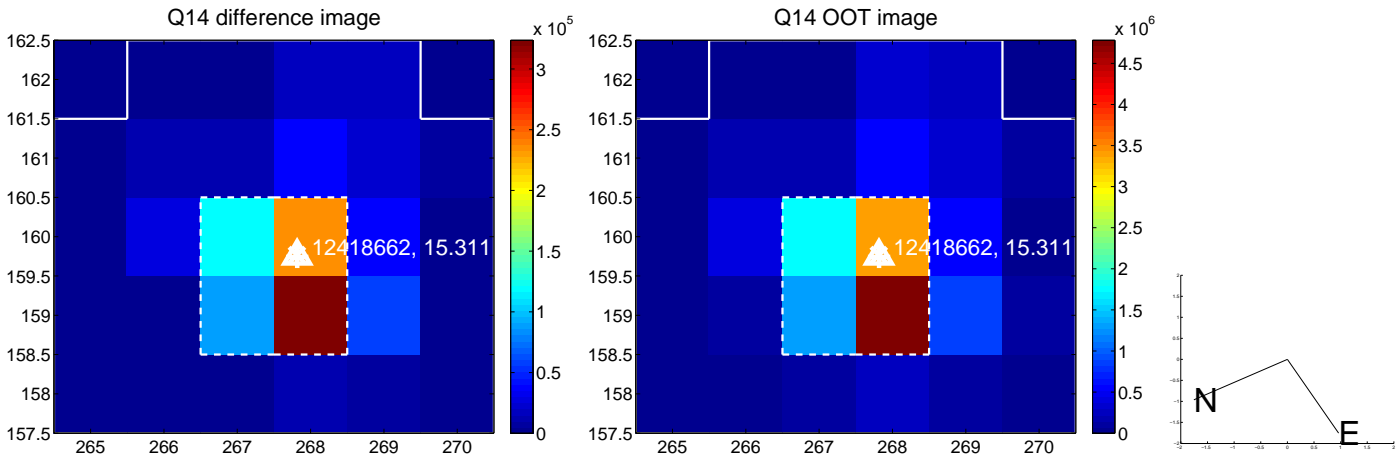
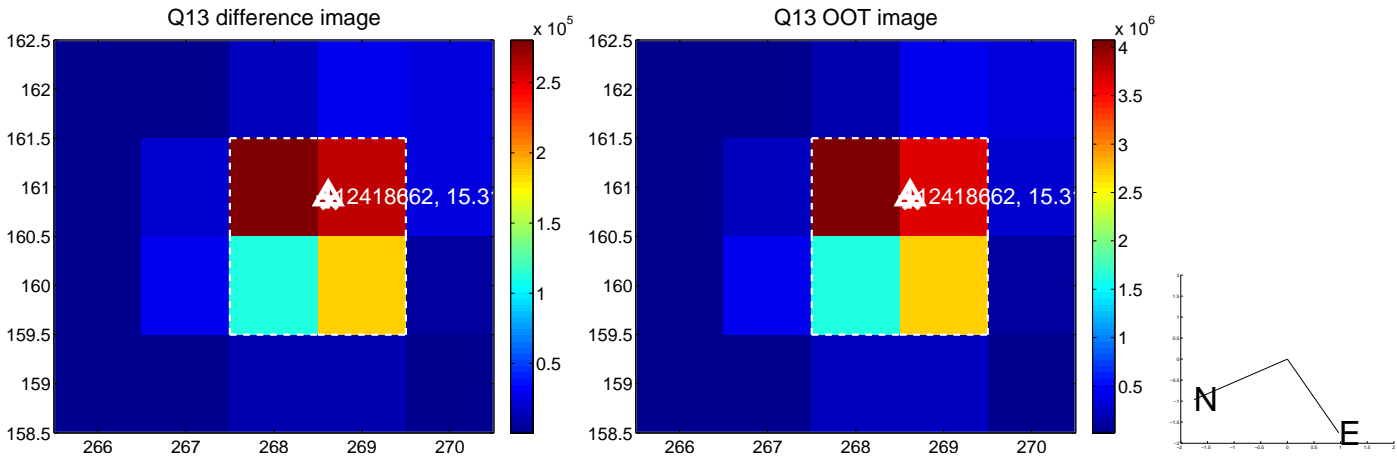
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



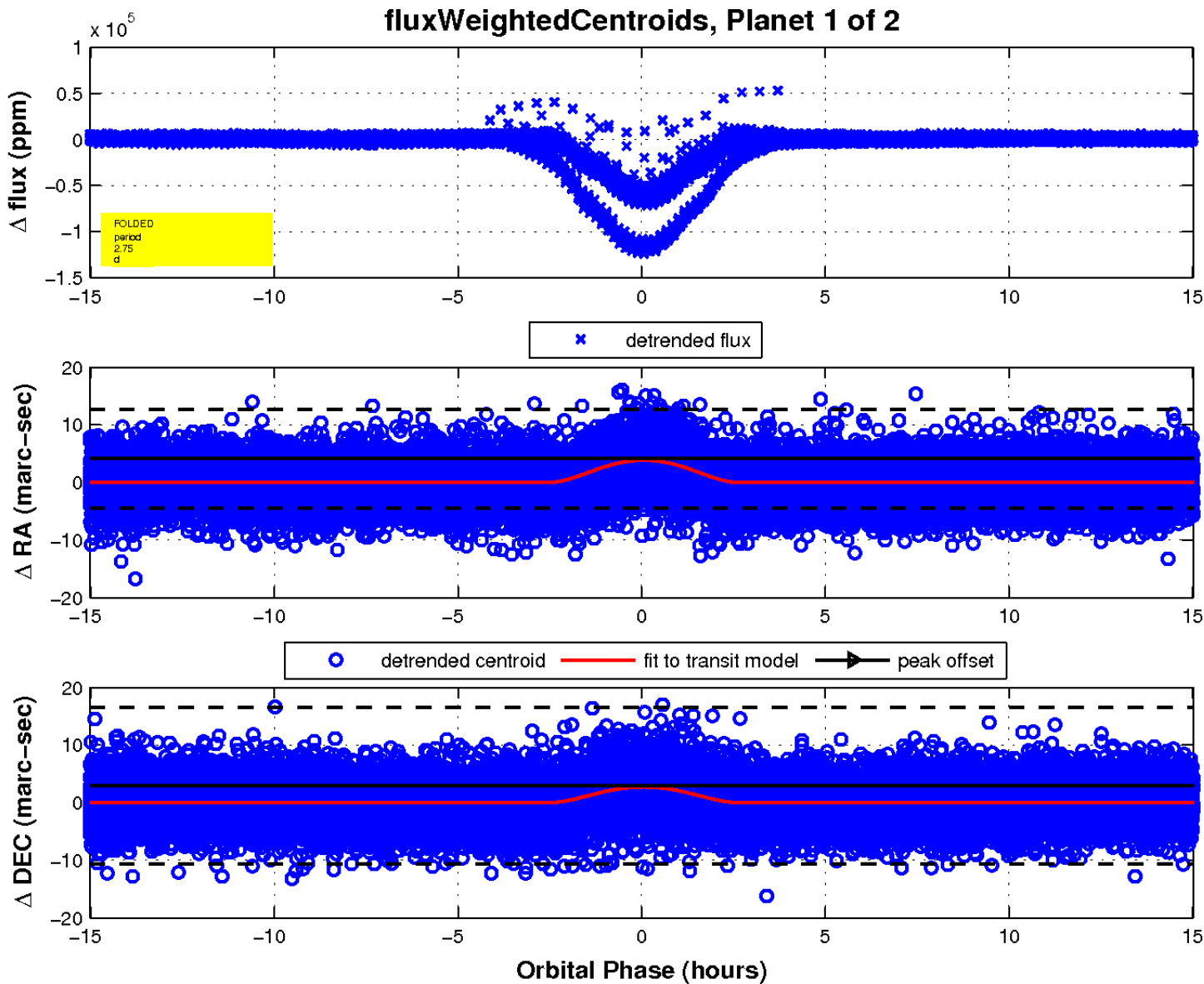
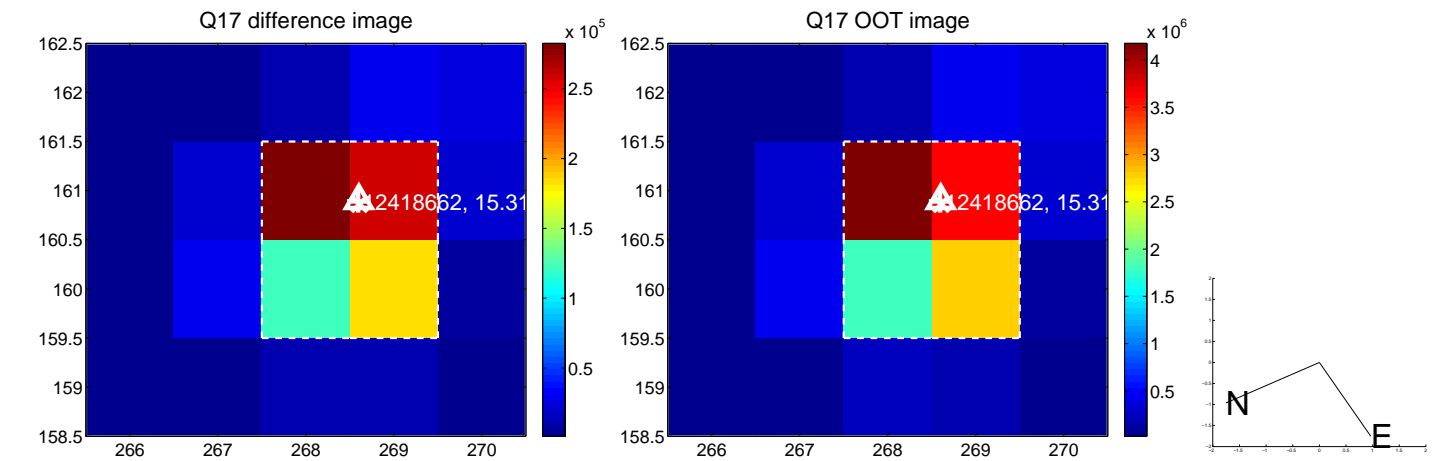
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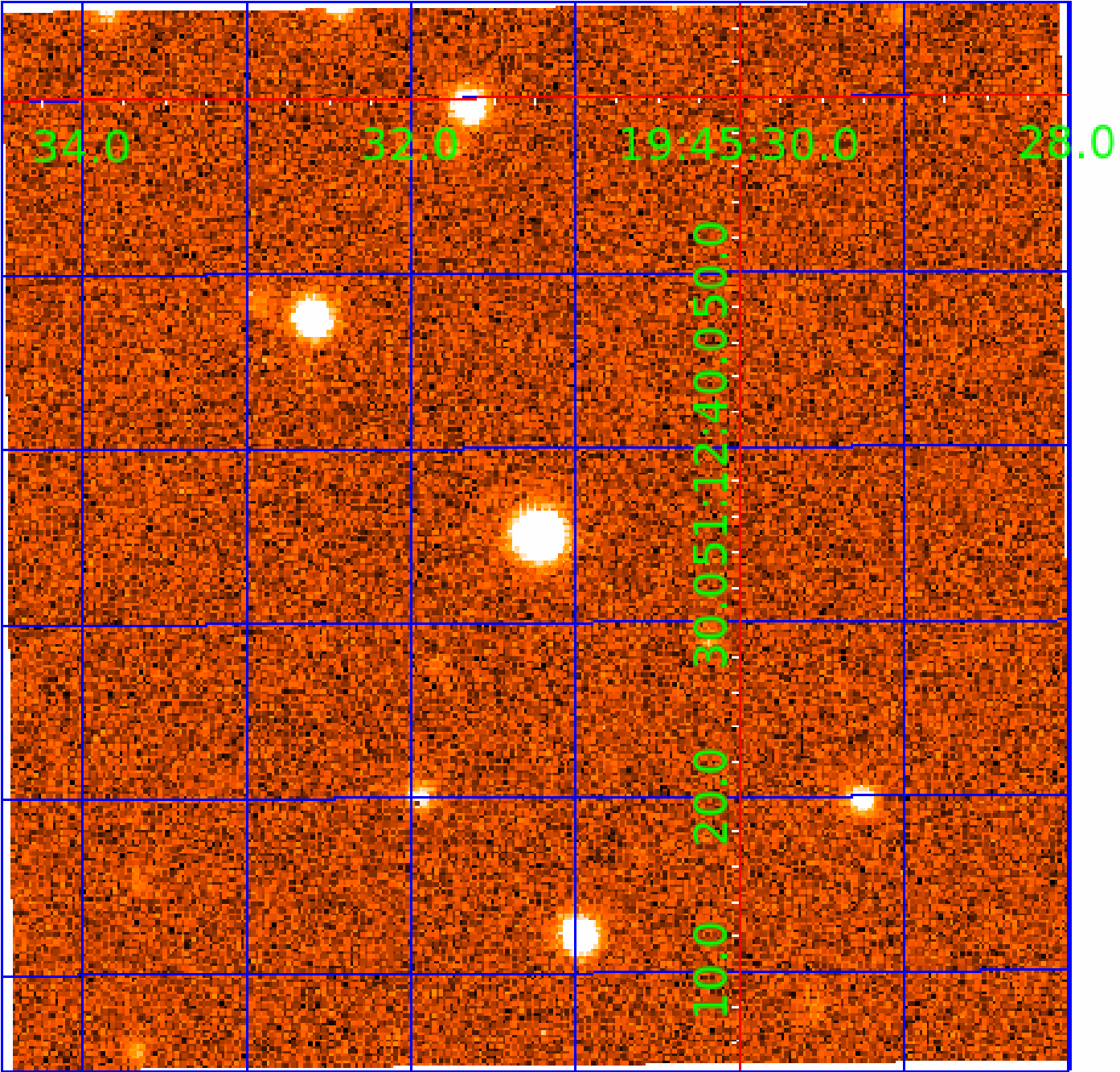


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012418662

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

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012418662-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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.

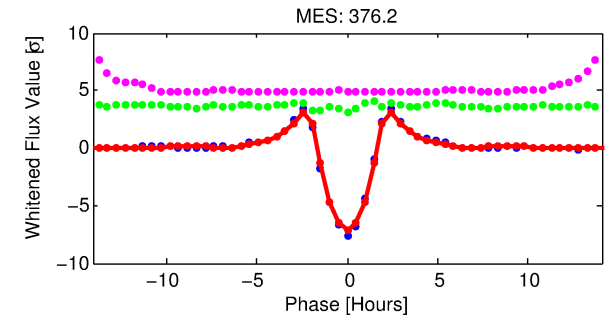
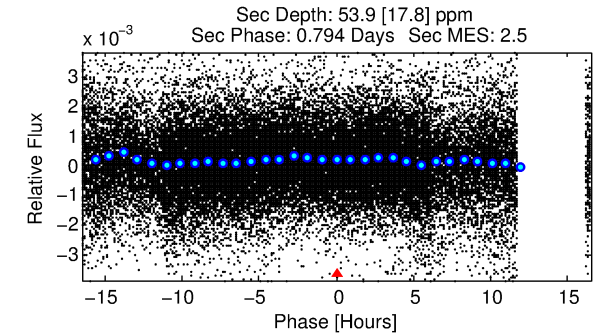
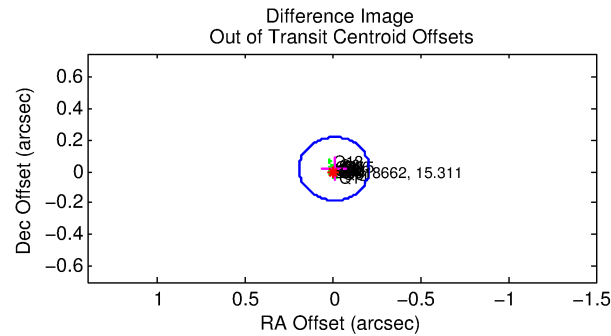
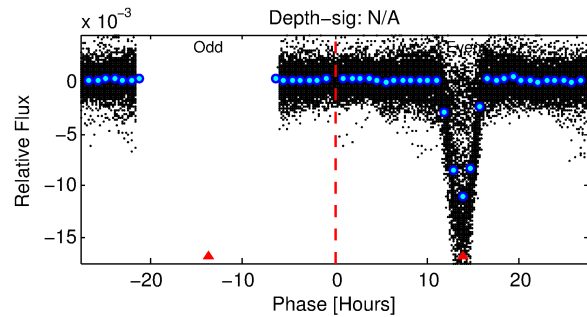
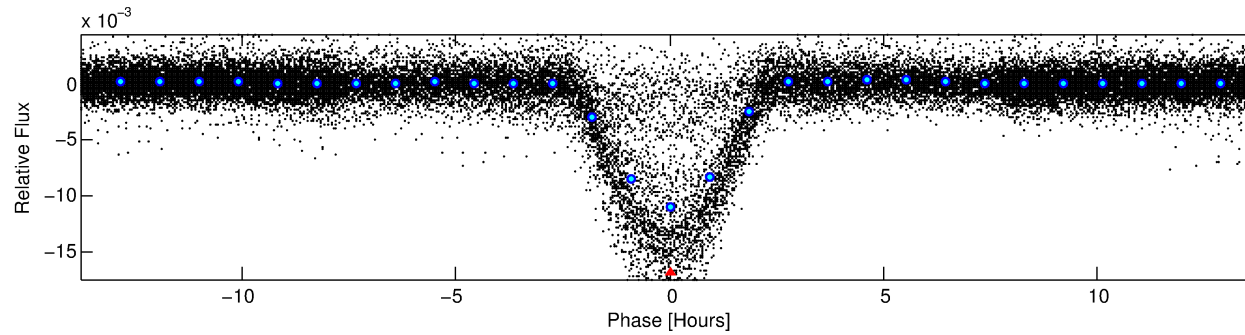
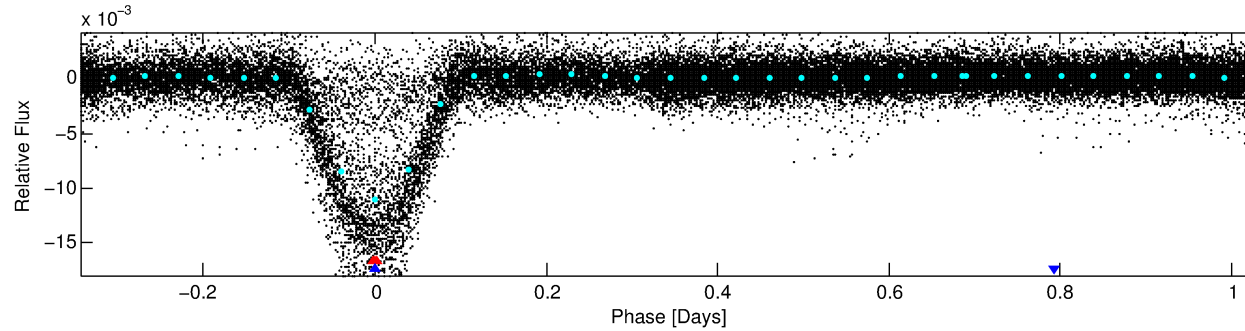
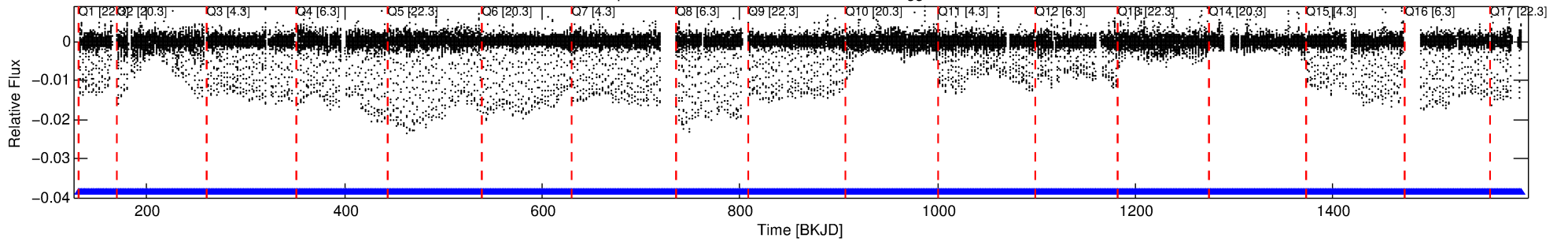
Ephemeris Match Information For 012418662-02

No Significant Match Found

DV One-Page Summary

KIC: 12418662 Candidate: 2 of 2 Period: 1.376 d
KOI: K07532 Corr: No Ephemeris Match

Kp: 15.31 R*: 0.86 Rs Teff: 5461.0 K Logg: 4.50 Fe/H: -0.100



TPS TCE Results:

Period = 1.37579 d
Epoch = 131.5570 BKJD

DV fit results are unavailable

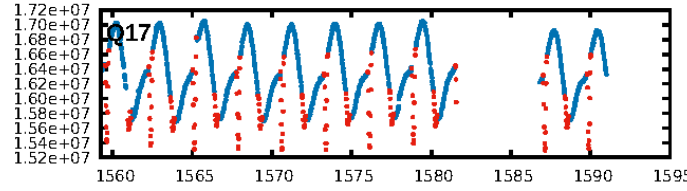
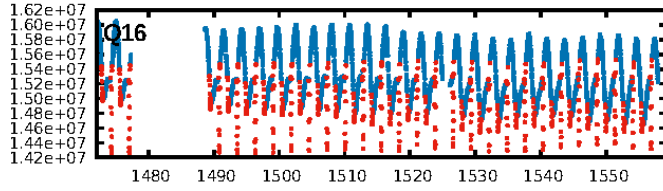
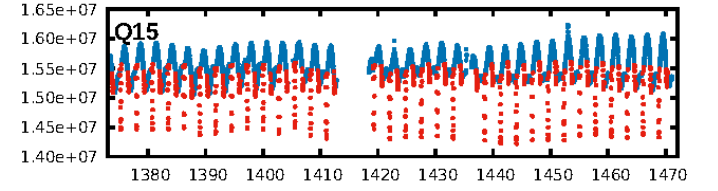
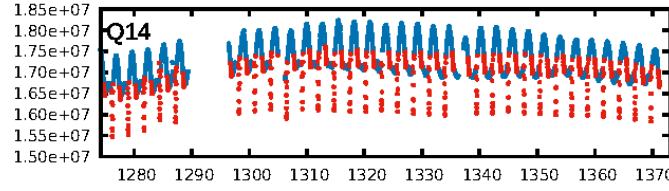
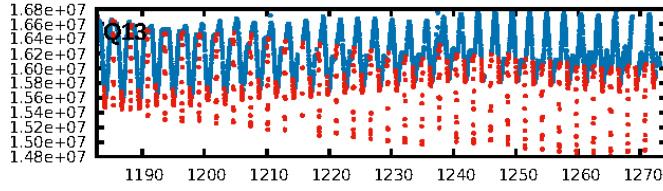
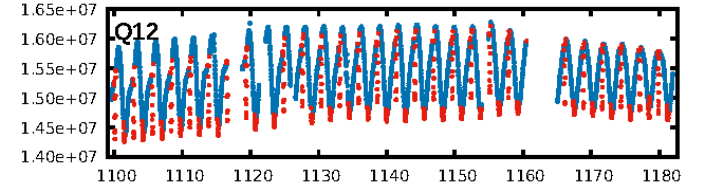
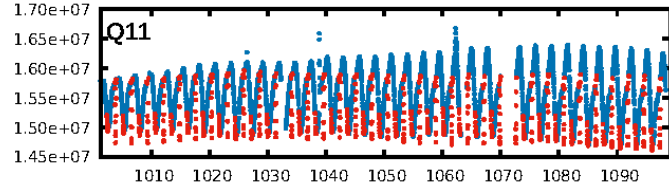
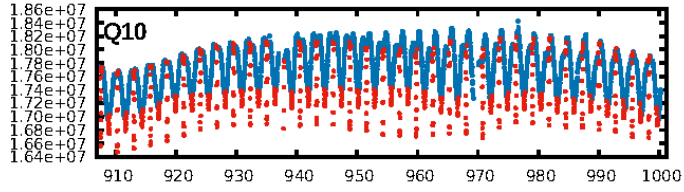
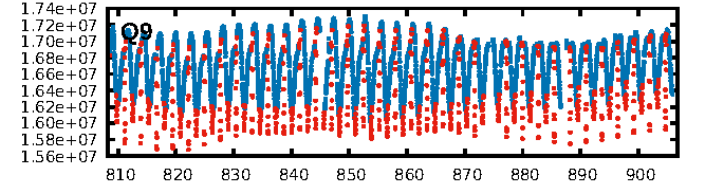
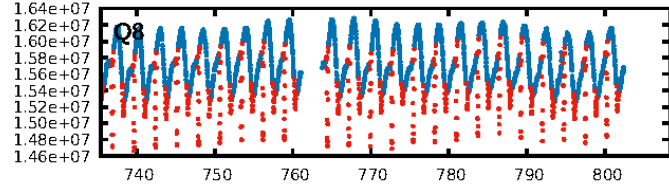
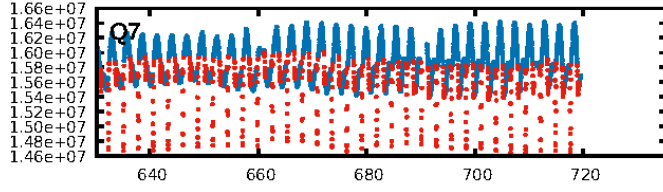
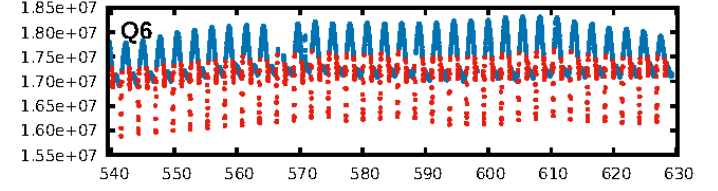
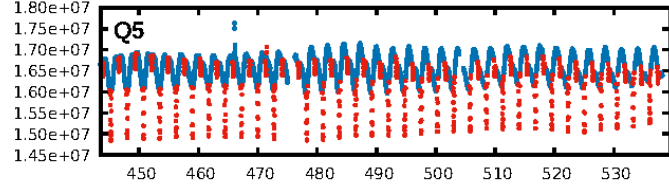
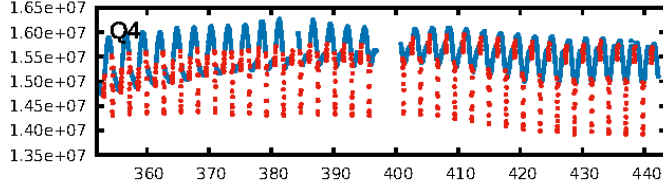
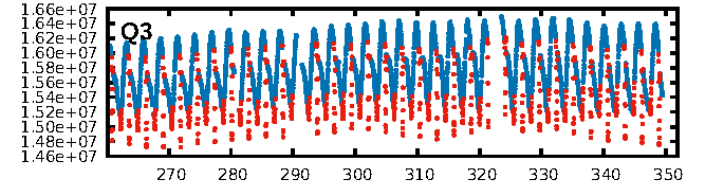
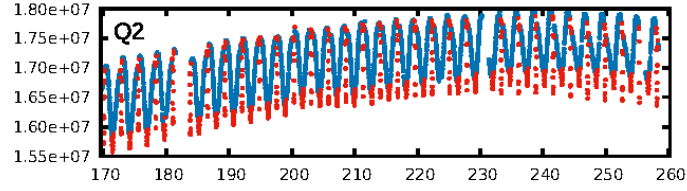
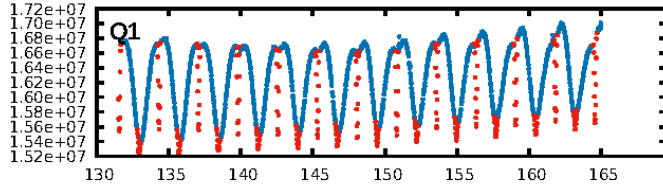
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [5.66σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [466/466]
GhostDiagnostic-chr: 1.922
Centroid-sig: 0.4%
Centroid-so: 1.121 arcsec [83.01σ]
OotOffset-rm: 0.020 arcsec [0.30σ]
KicOffset-rm: 0.066 arcsec [0.95σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

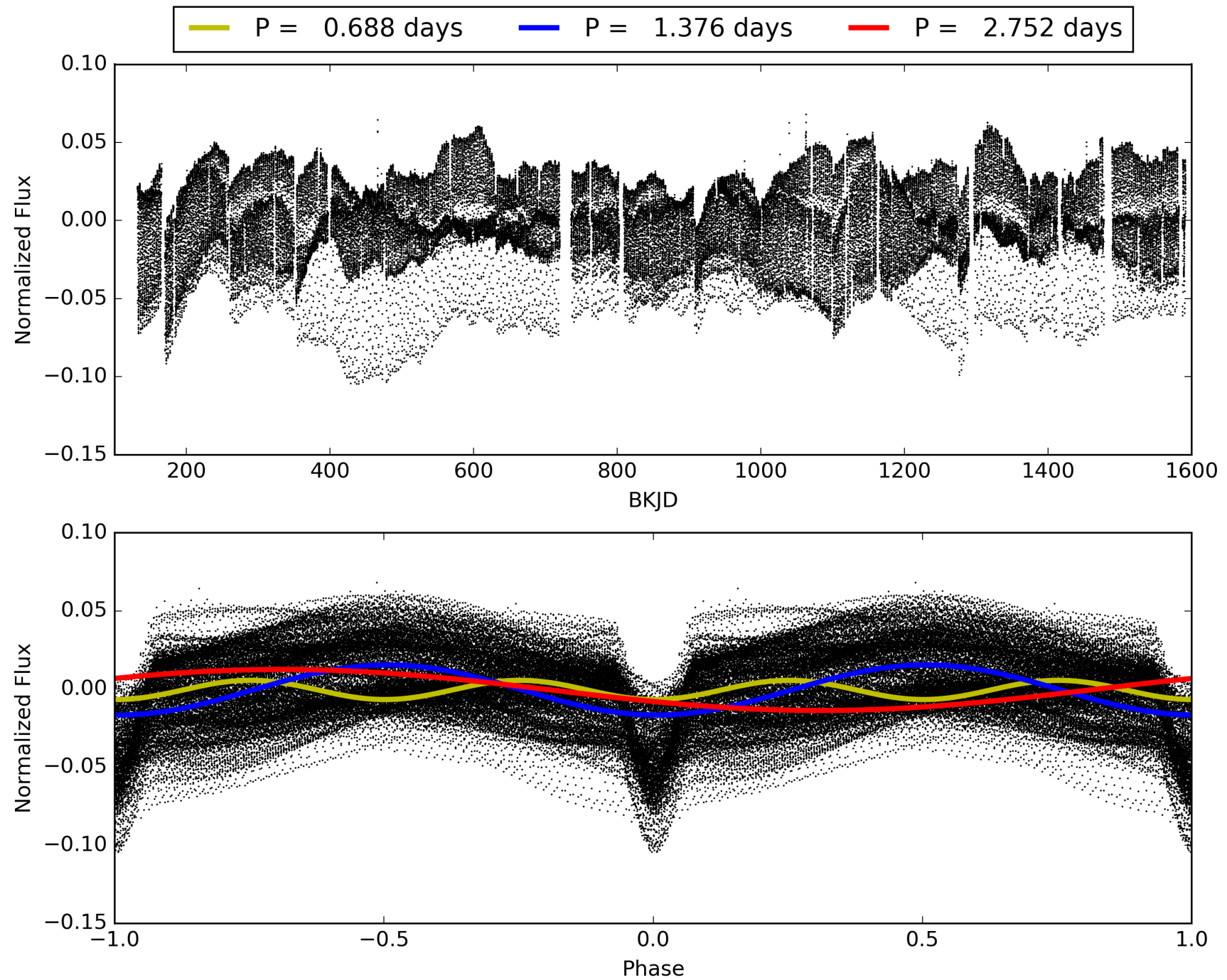
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:40:19 Z

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

TCE 012418662-02, PDC Light Curves

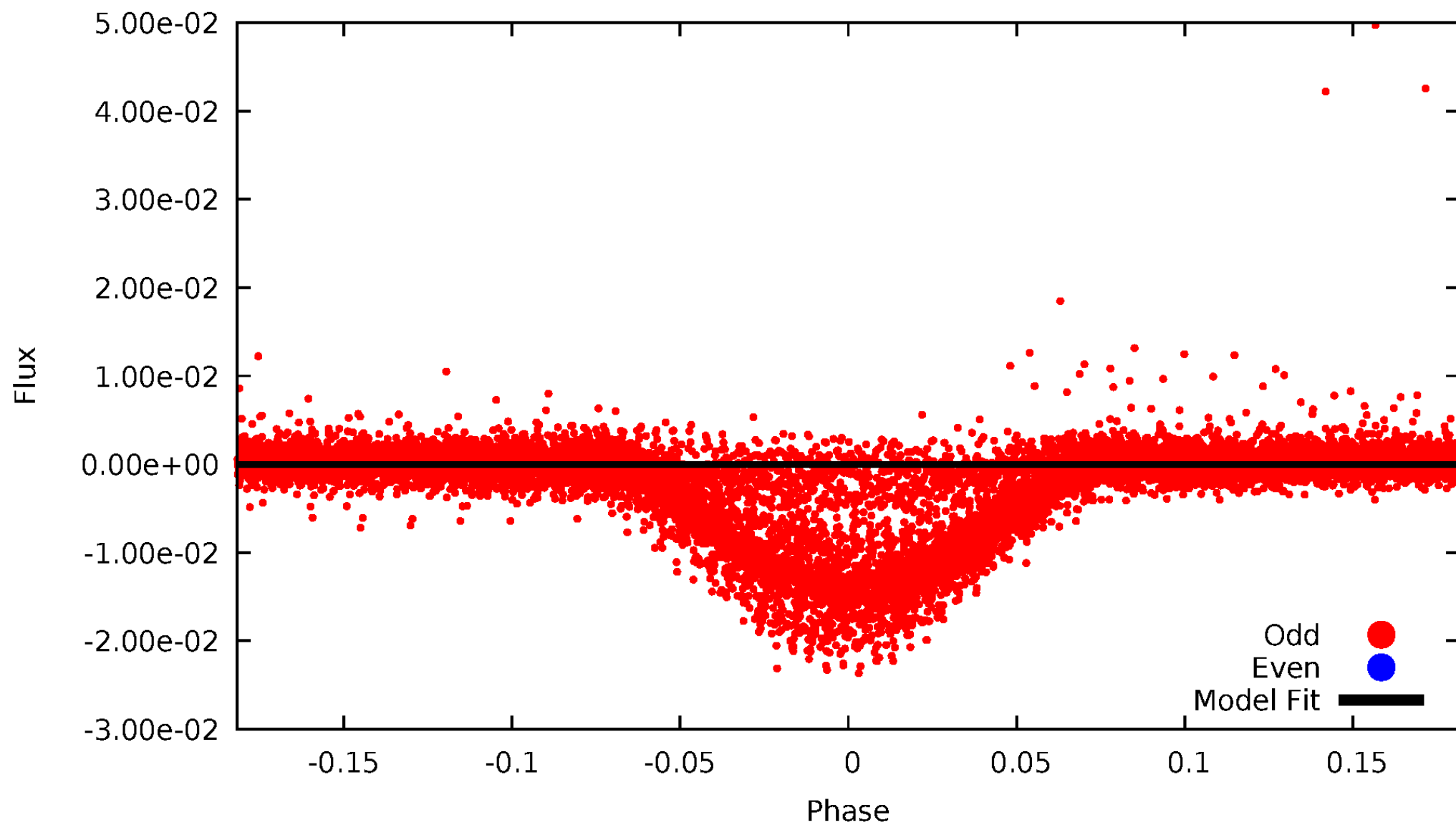


TCE 012418662-02



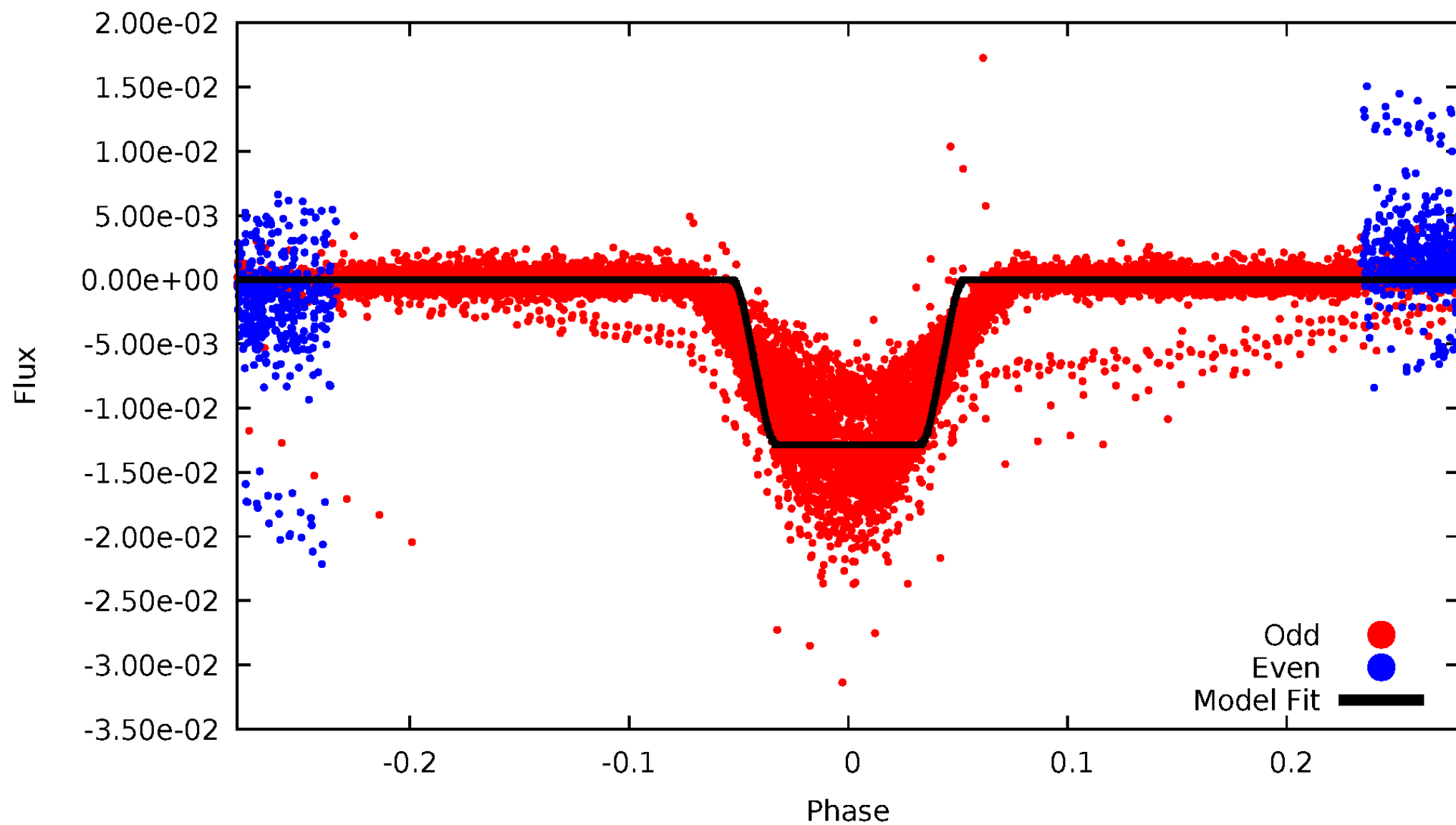
DV Odd/Even

TCE 012418662-02



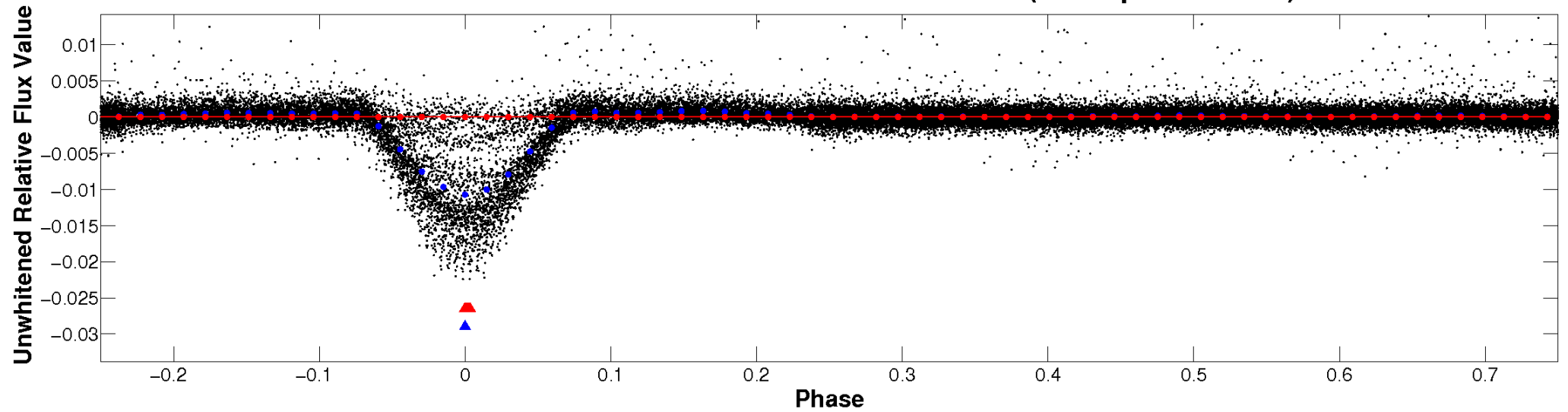
ALT Odd/Even

TCE 012418662-02

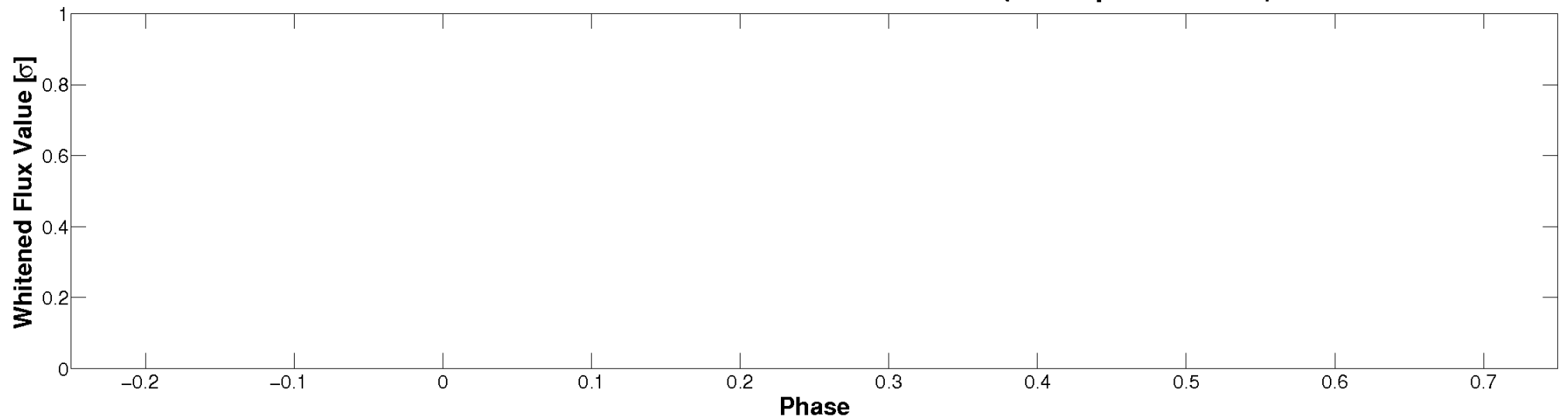


Non-Whitened Vs. Whitened Light Curve

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

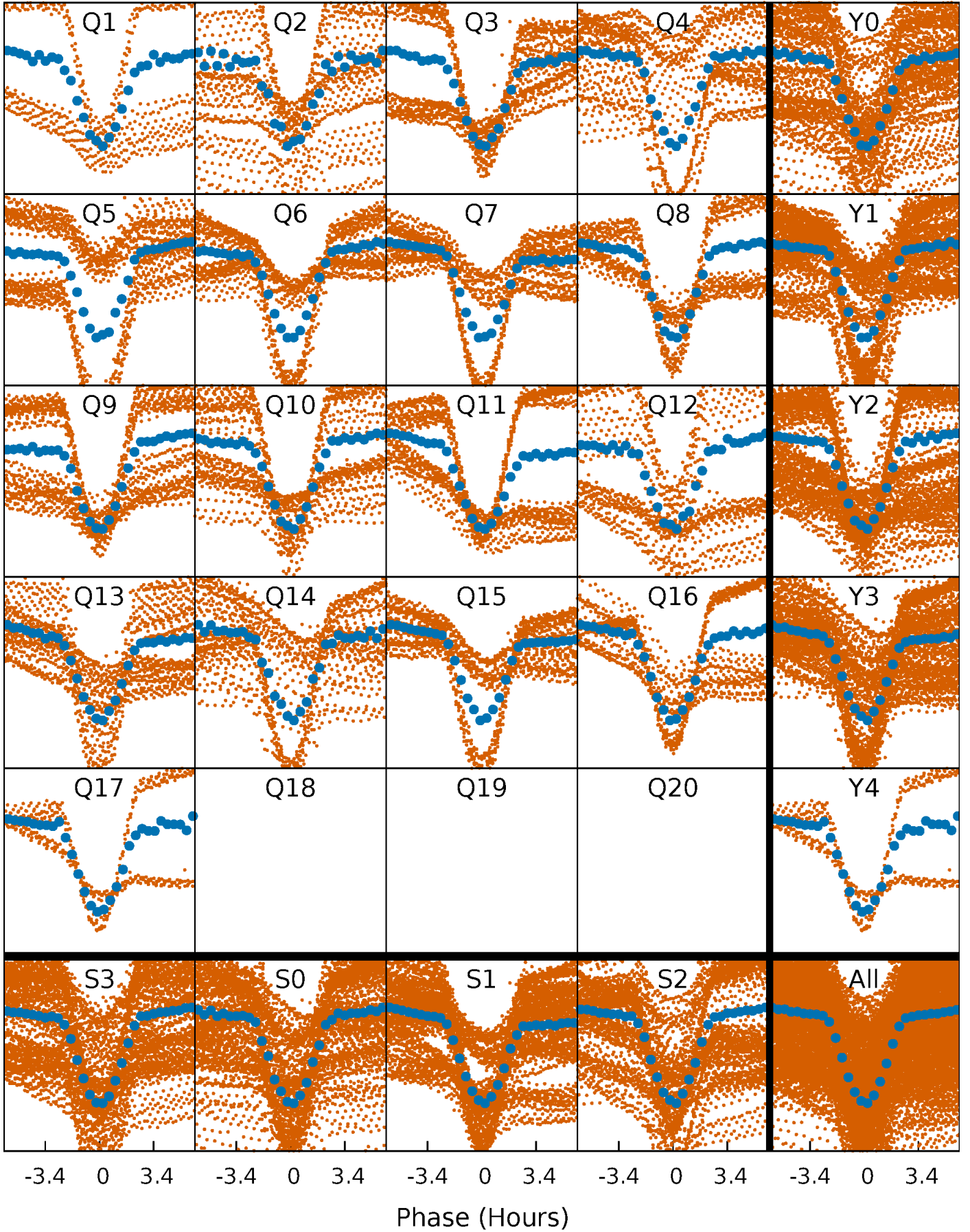


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



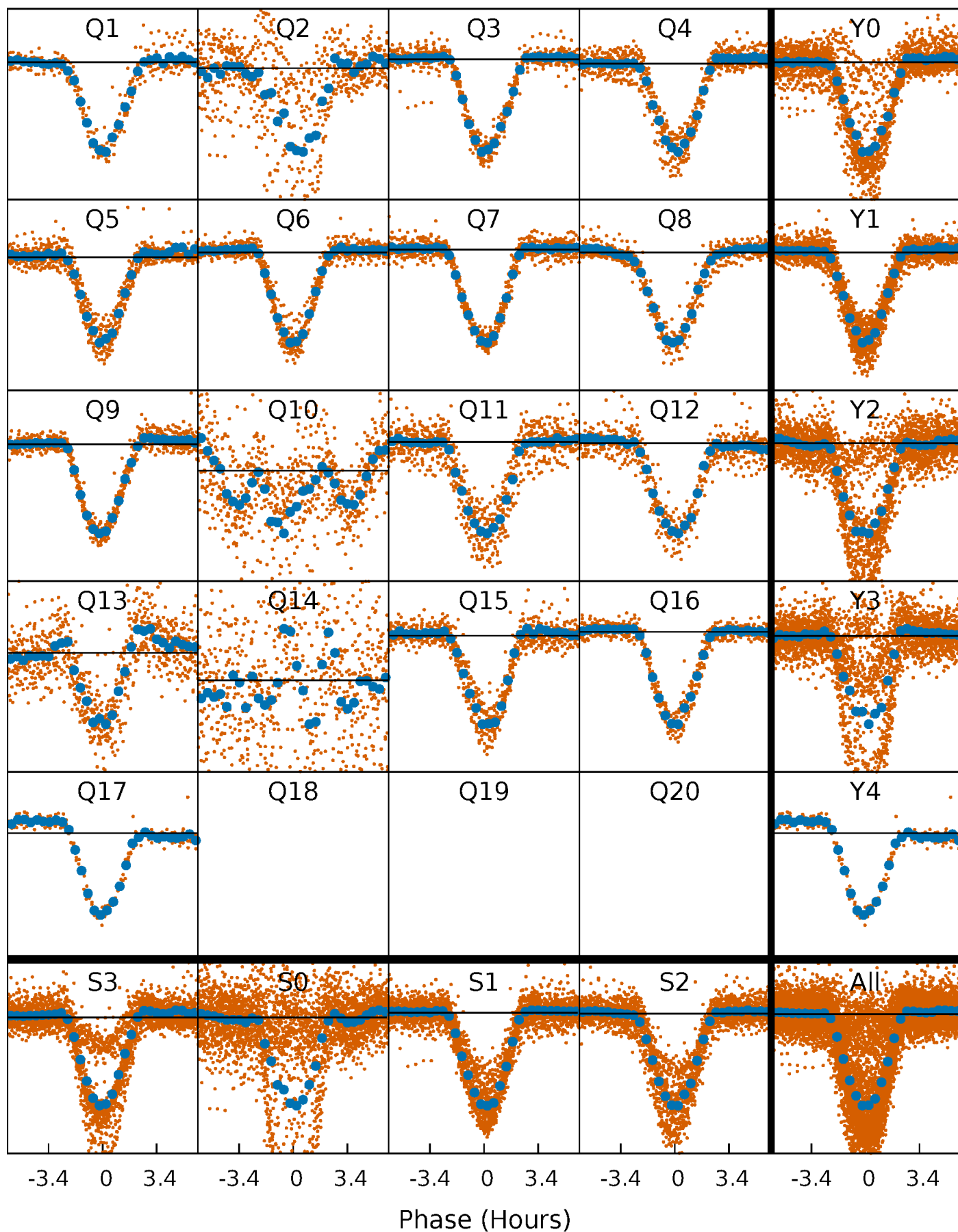
PDC Quarter-Phased Transit Curves

TCE 012418662-02 P= 1.375792 Days $T_0=131.557027$ (BKJD)



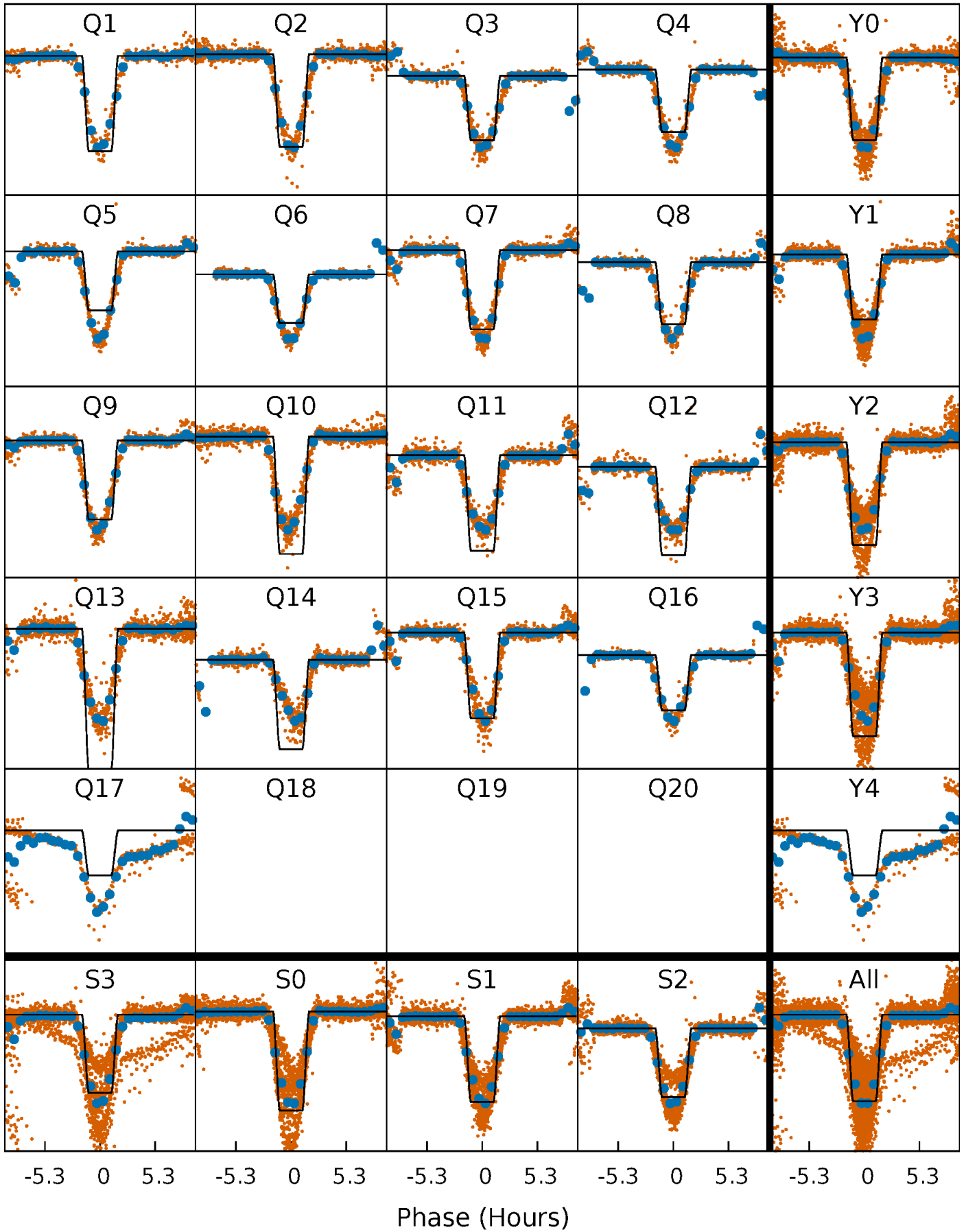
DV Quarter-Phased Transit Curves

TCE 012418662-02 P= 1.375792 Days $T_0=131.557027$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

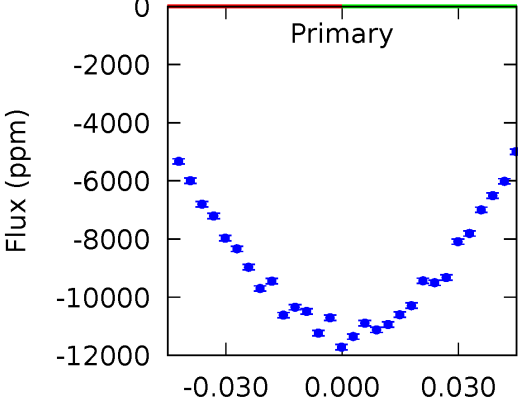
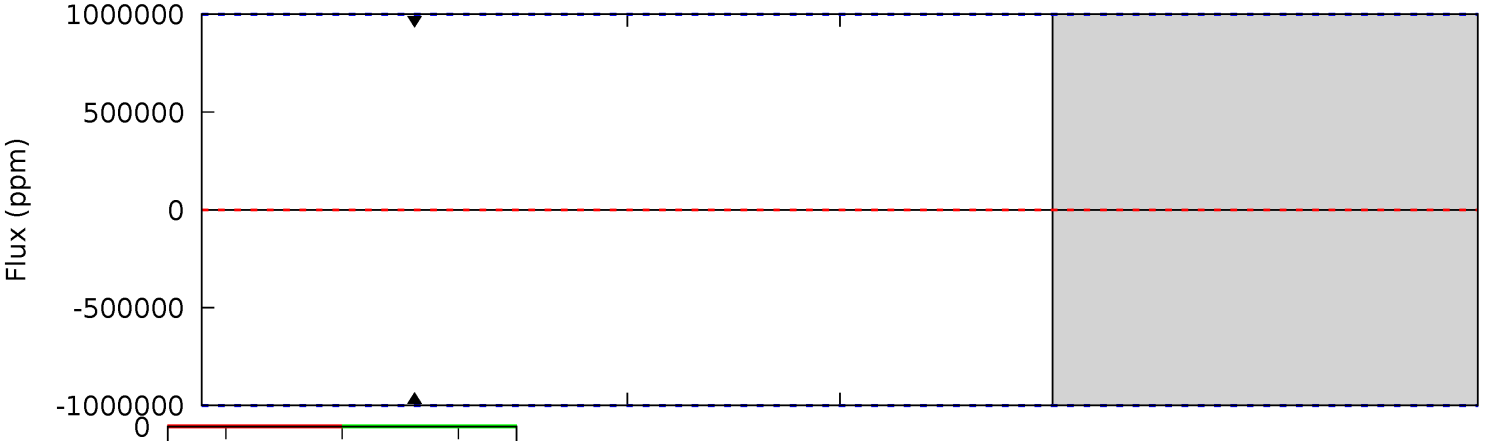
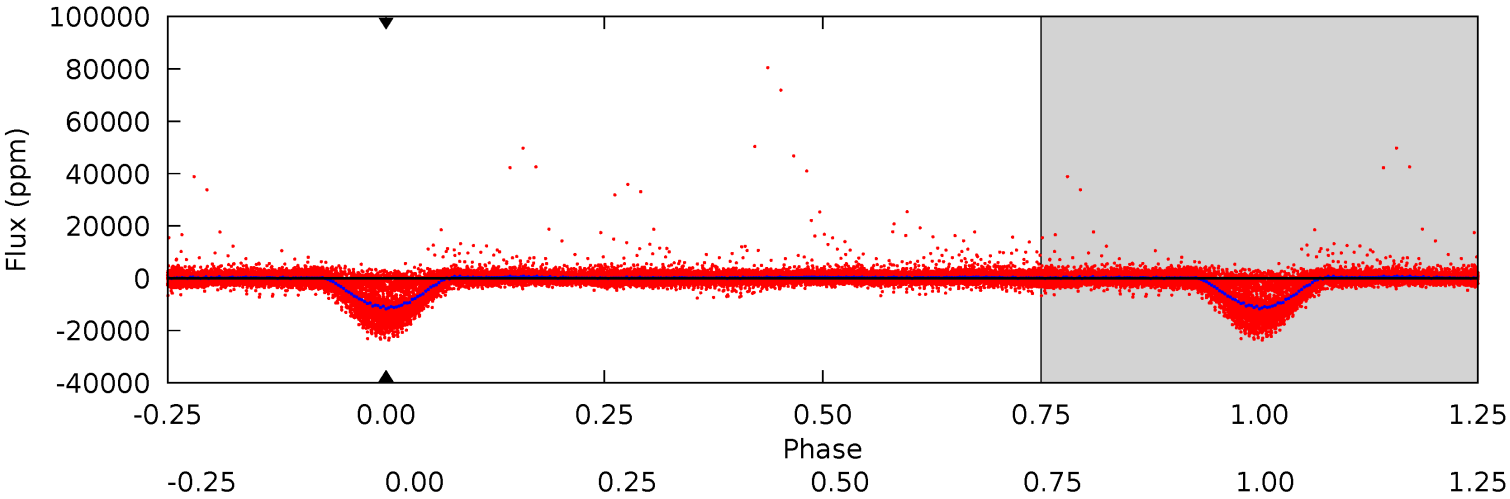
TCE 012418662-02 $P = 1.375792$ Days $T_0 = 131.559142$ (BKJD)



DV Model-Shift Uniqueness Test

012418662-02, P = 1.375792 Days, E = 131.557027 Days

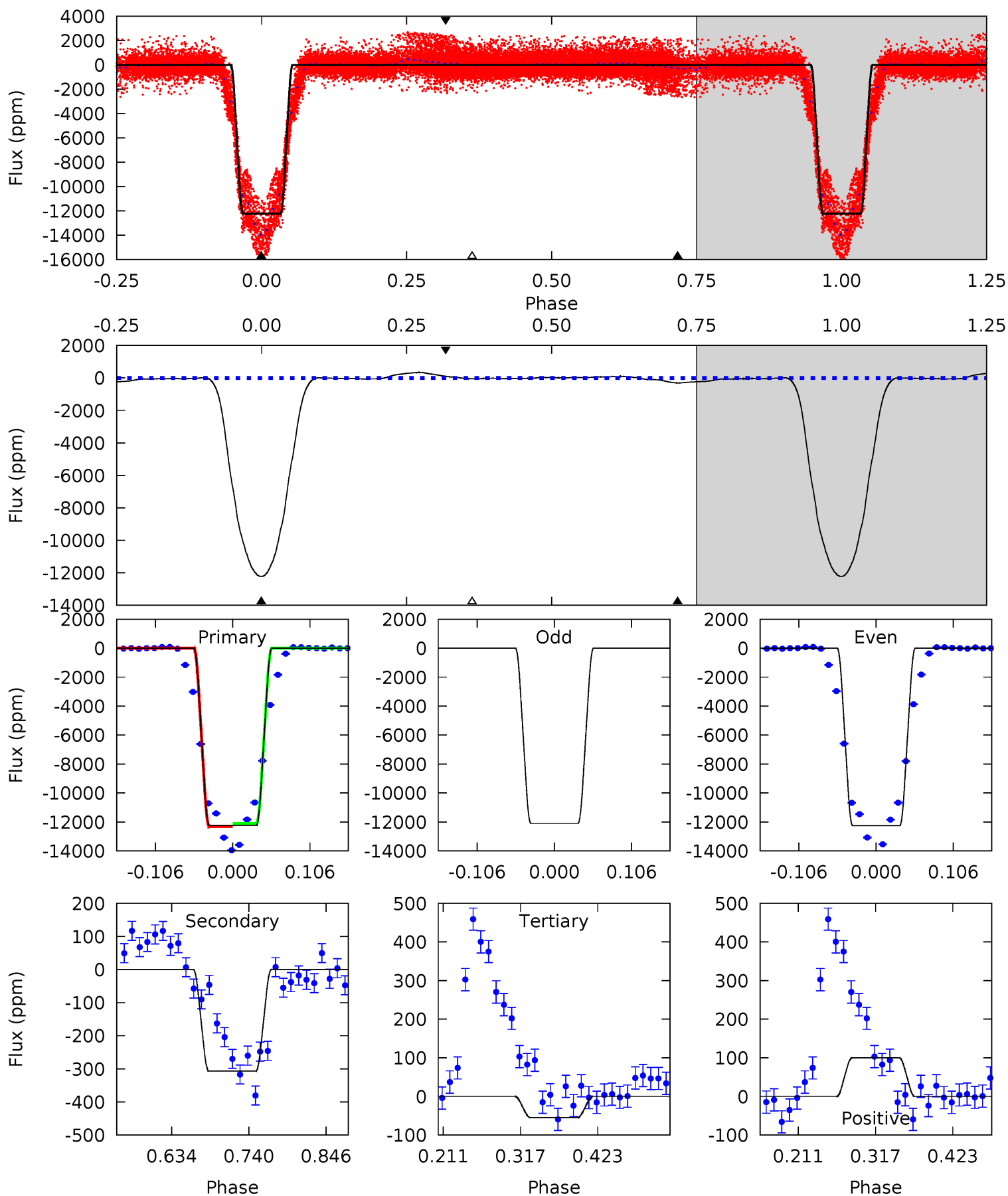
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

012418662-02, P = 1.375792 Days, E = 131.559142 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
914.4	22.9	4.08	7.46	4.55	1.62	6.35	910.3	906.9	18.9	15.5	6.23	0.98	0.03	0



Stellar Parameters For KIC 012418662

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5461^{+164}_{-147}	$4.497^{+0.074}_{-0.137}$	$-0.100^{+0.300}_{-0.300}$	$0.861^{+0.184}_{-0.099}$	$0.851^{+0.101}_{-0.073}$	$1.878^{+0.584}_{-0.739}$
	+3%/-3%	+2%/-3%	+300%/-300%	+21%/-11%	+12%/-9%	+31%/-39%
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 012418662-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$10.92^{+9.44}_{-6.90}$	2080^{+109}_{-89}	3095^{+8925}_{-13796}	$1.430^{+399.450}_{-321.208}$
Alt.	-307 ± 13	$12.37^{+10.40}_{-7.36}$	2081^{+127}_{-93}	2524^{+1034}_{-4818}	$0.585^{+3.001}_{-0.408}$

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 $A_{obs} \gg 1.0$

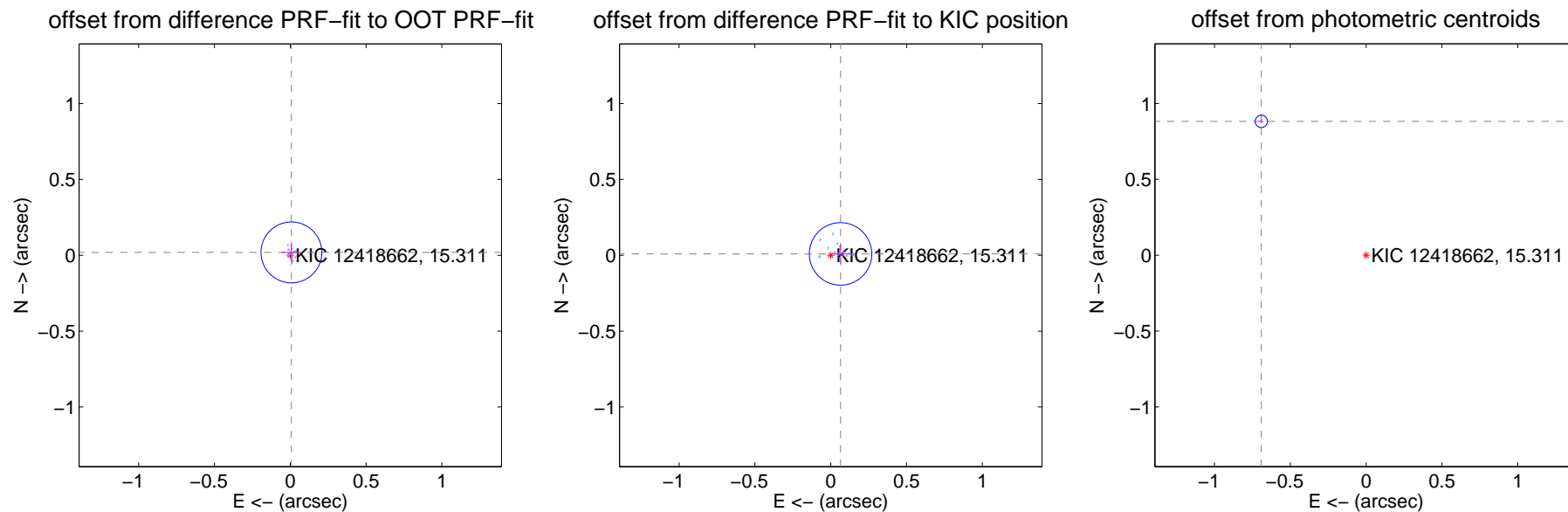
DV Centroid Data

Supplemental centroid analysis for 012418662-02. Kepler magnitude: 15.31. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

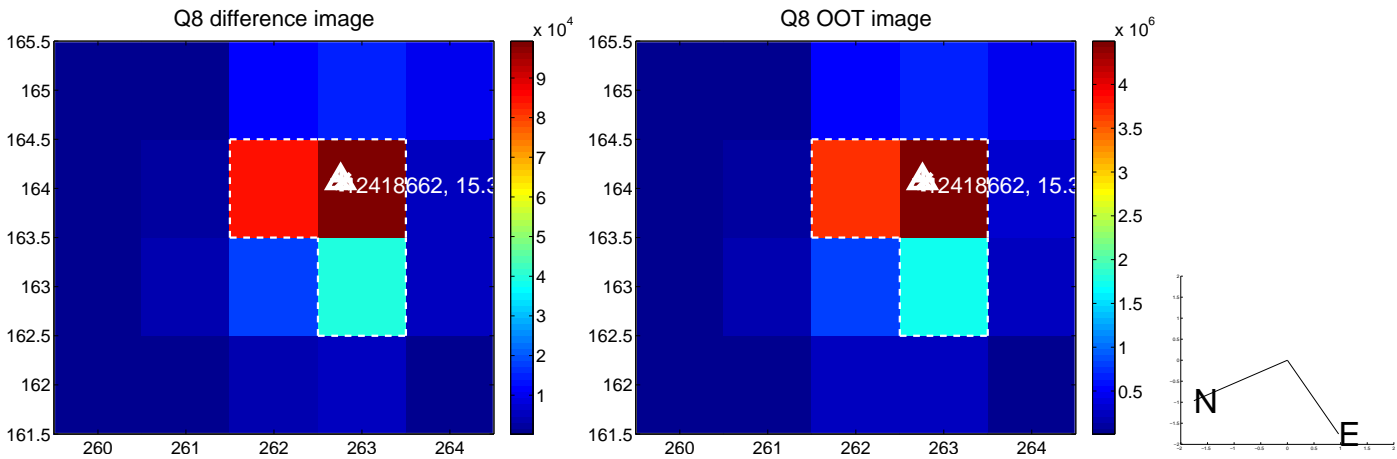
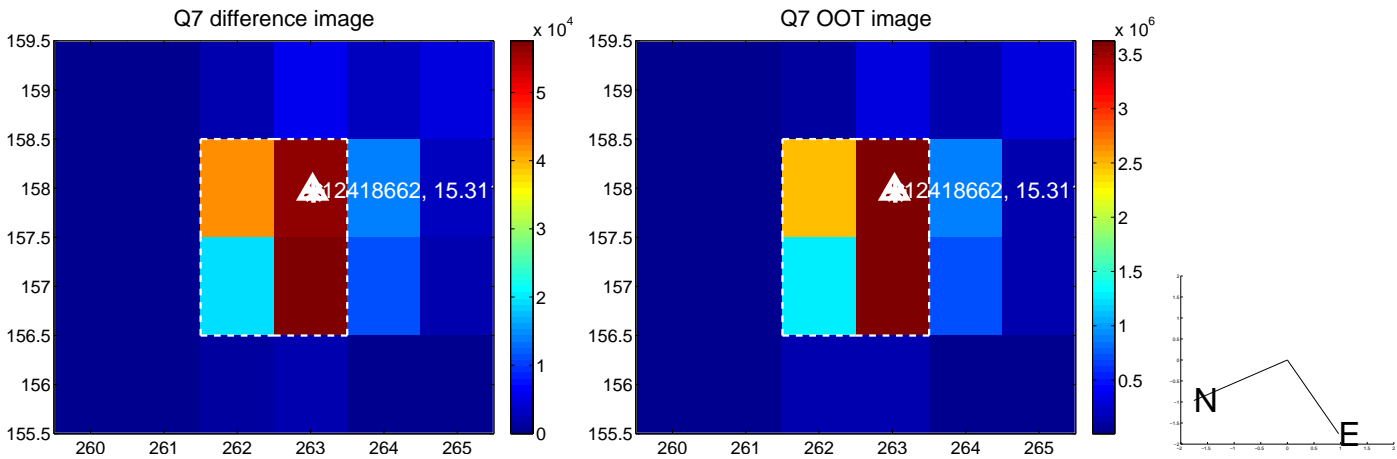
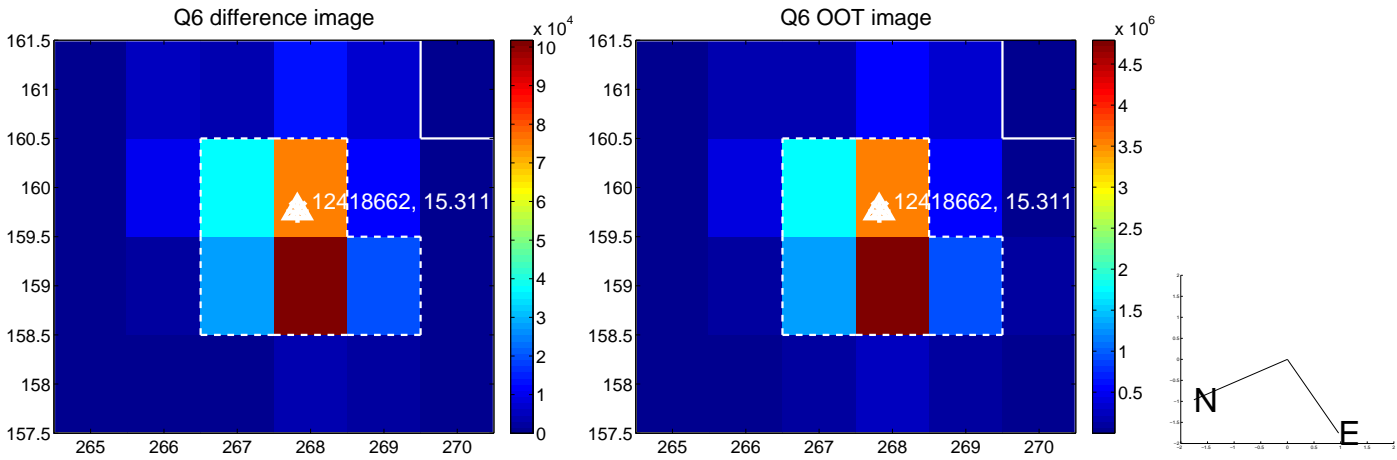
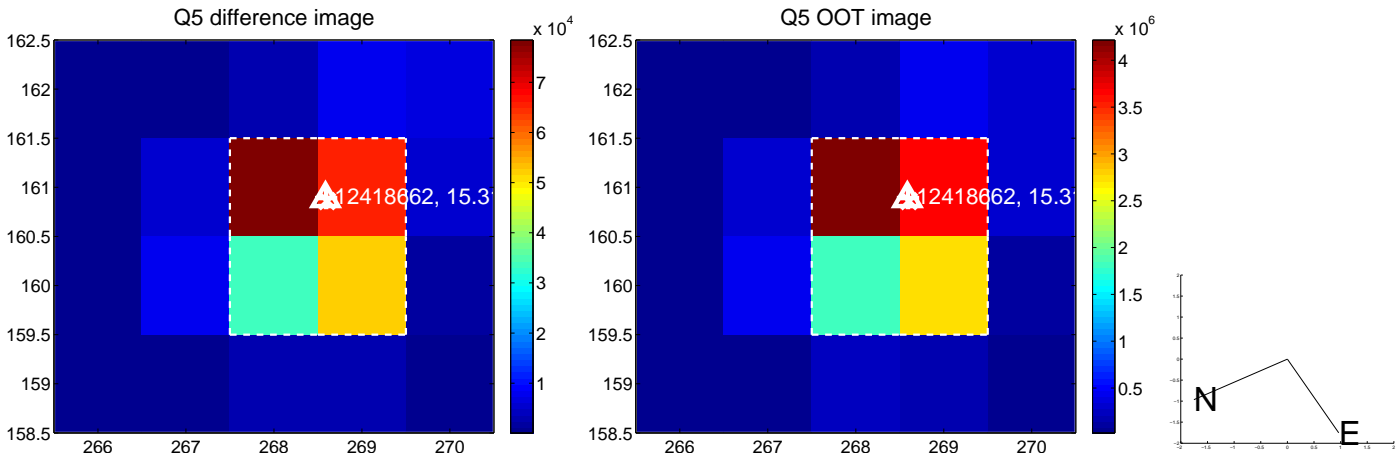
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.020 ± 0.067	0.30	-0.008 ± 0.067	0.019 ± 0.067
PRF-fit source offset from KIC position	0.066 ± 0.069	0.95	-0.065 ± 0.069	0.009 ± 0.067
photometric centroid source offset	1.12 ± 0.01	83.01	0.69 ± 0.01	0.88 ± 0.01

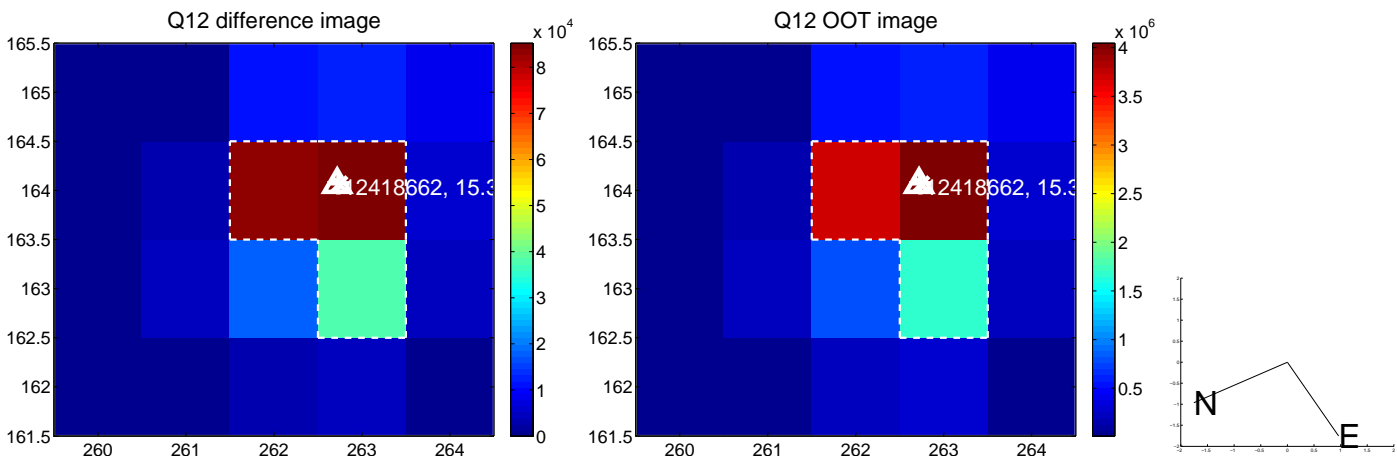
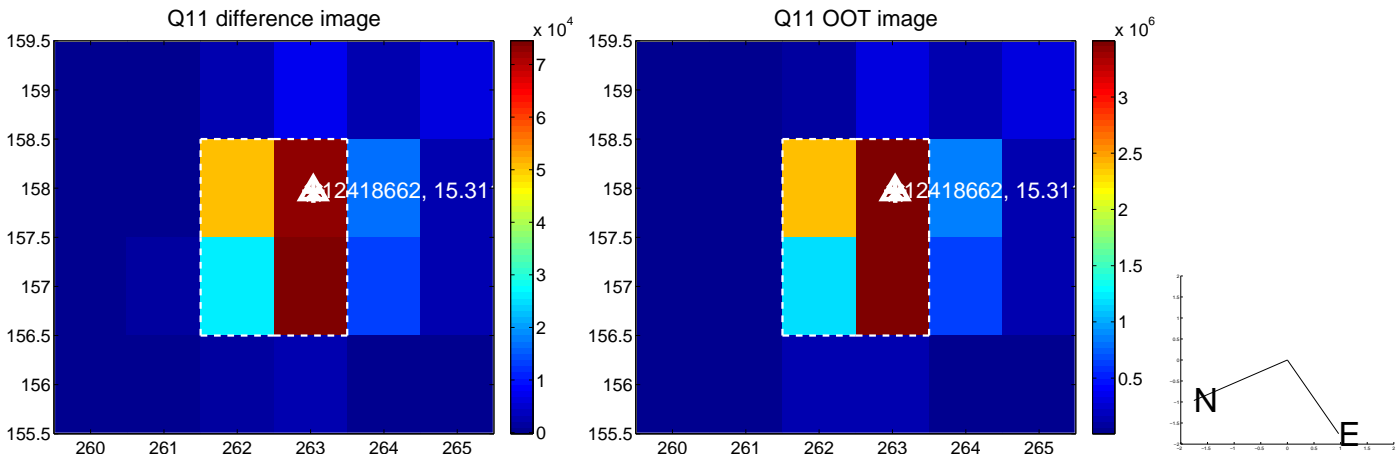
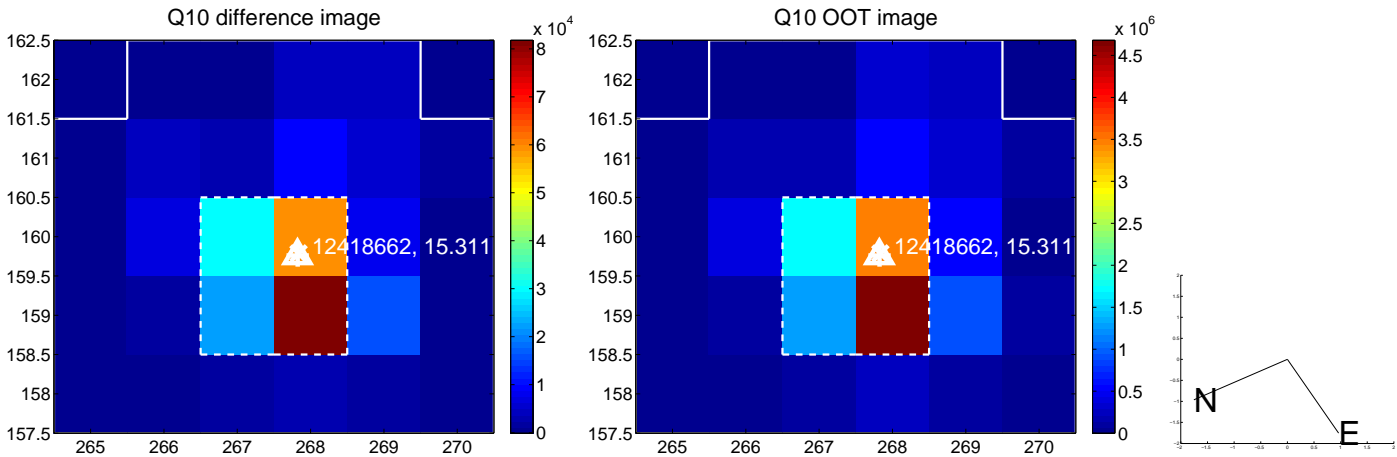
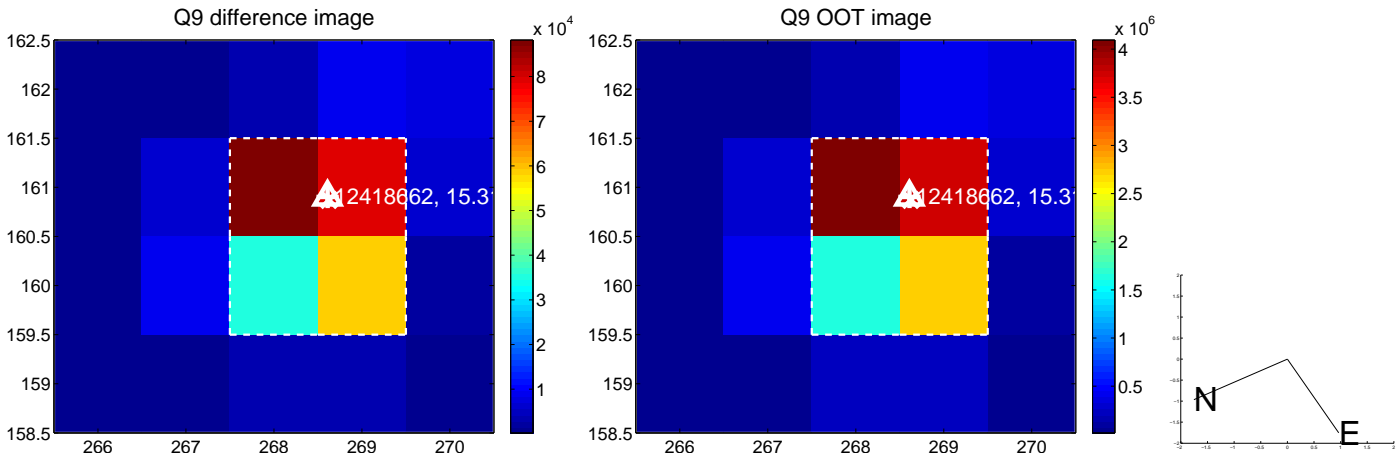


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

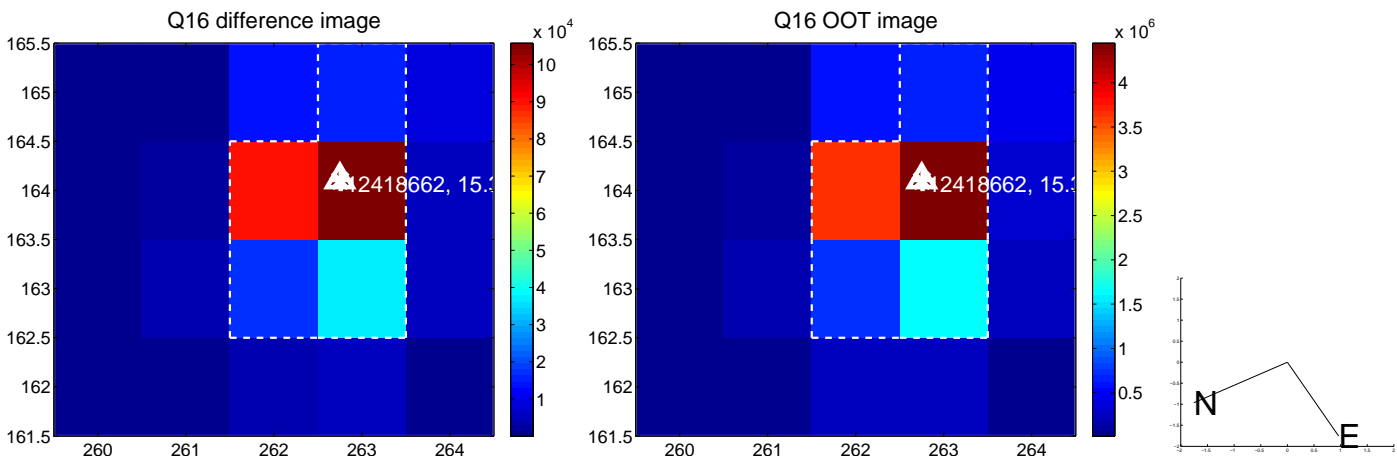
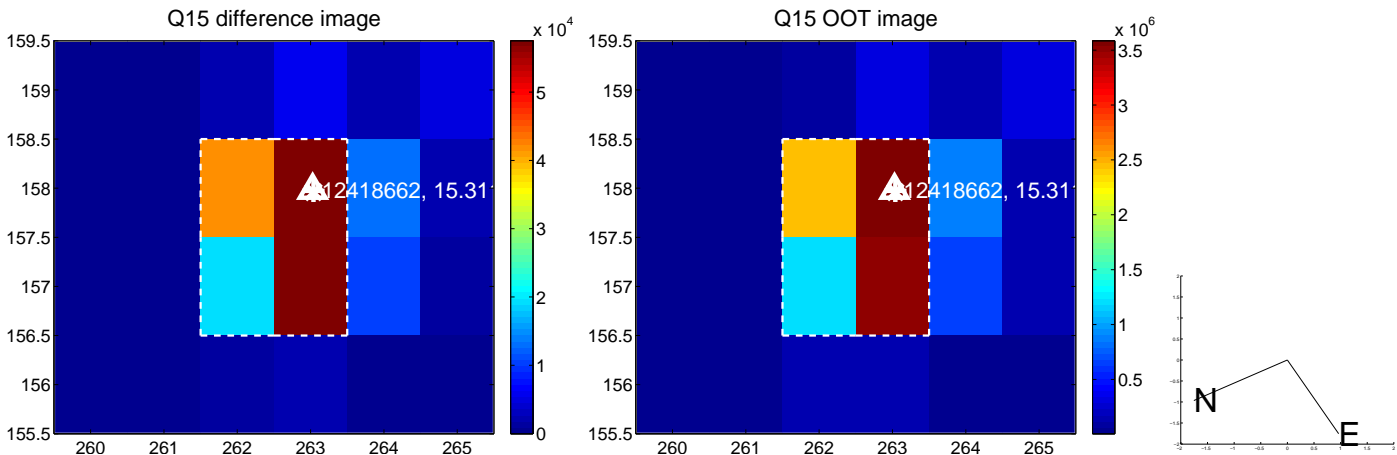
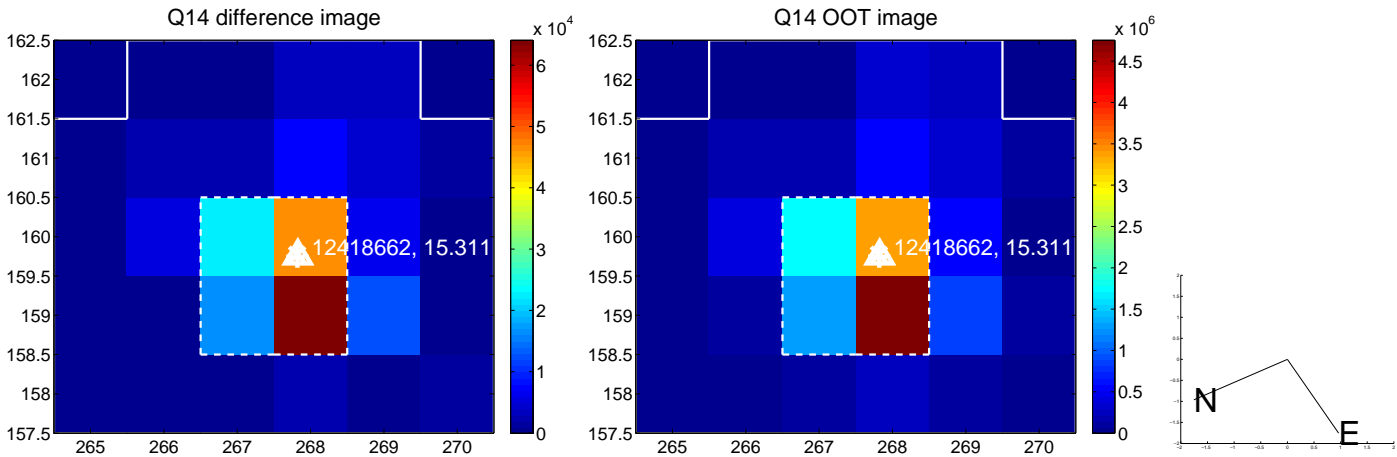
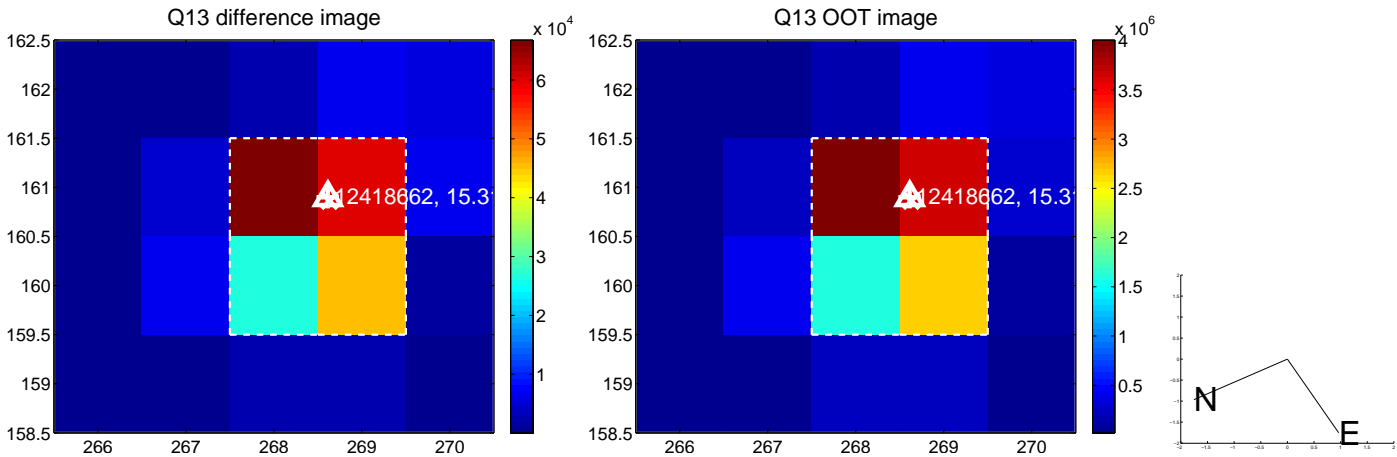
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



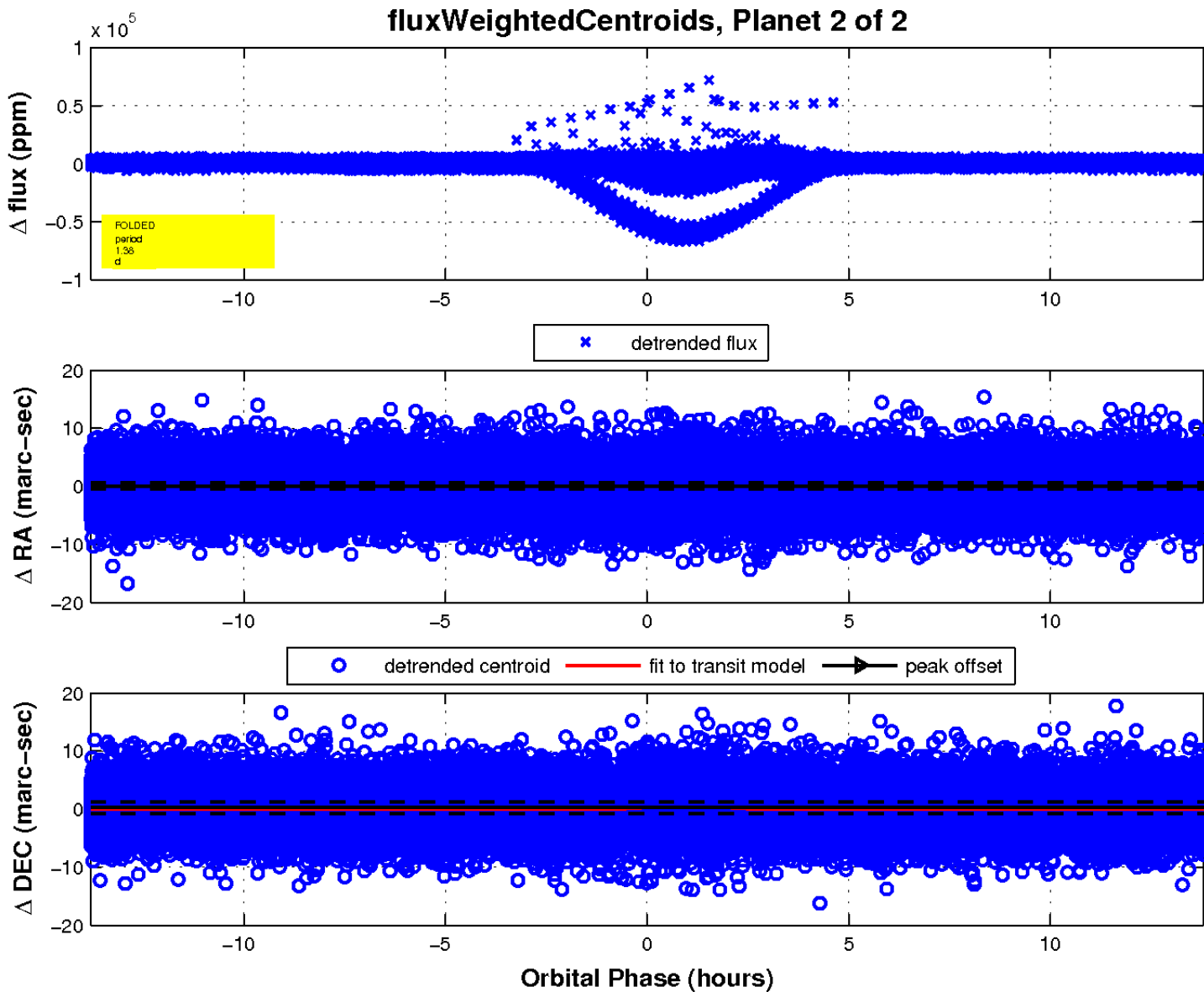
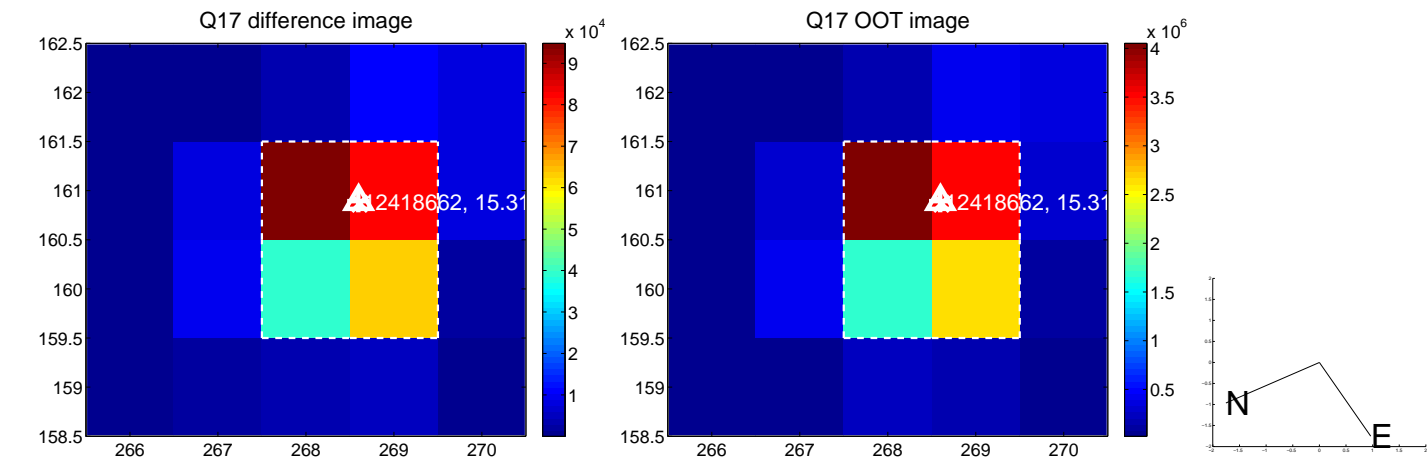
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

