

KIC 010554999

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})
010554999-01	OBS	0534.01	6.400147	135.622396	726.5	2.046	39.8	44.8	0.77	5299	2.49	101.76
010554999-02	OBS	0534.02	2.735892	132.796503	417.0	2.088	37.1	41.0	0.77	5299	1.89	316.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010554999-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010554999-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

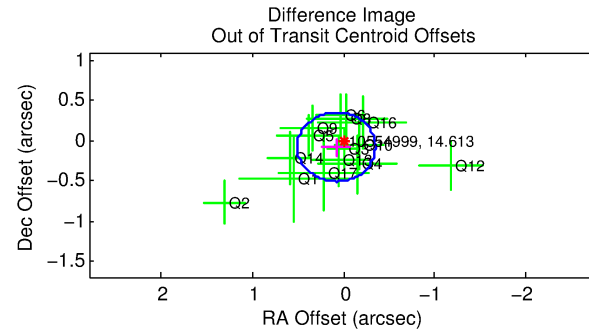
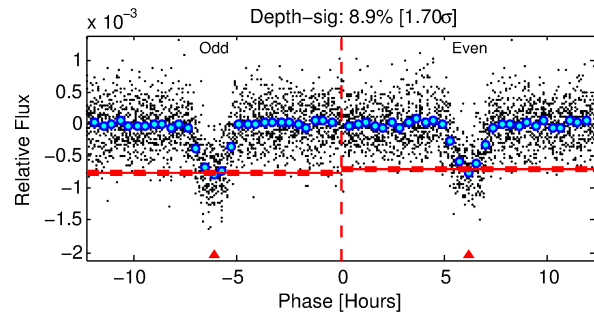
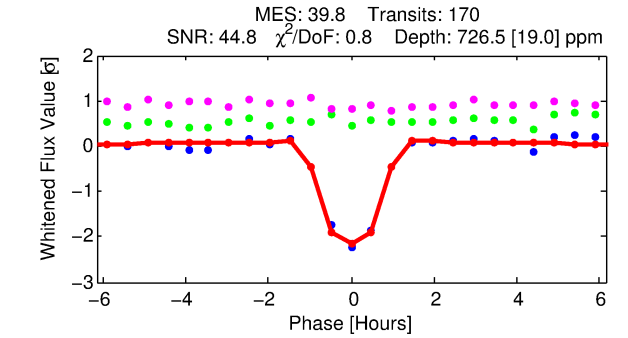
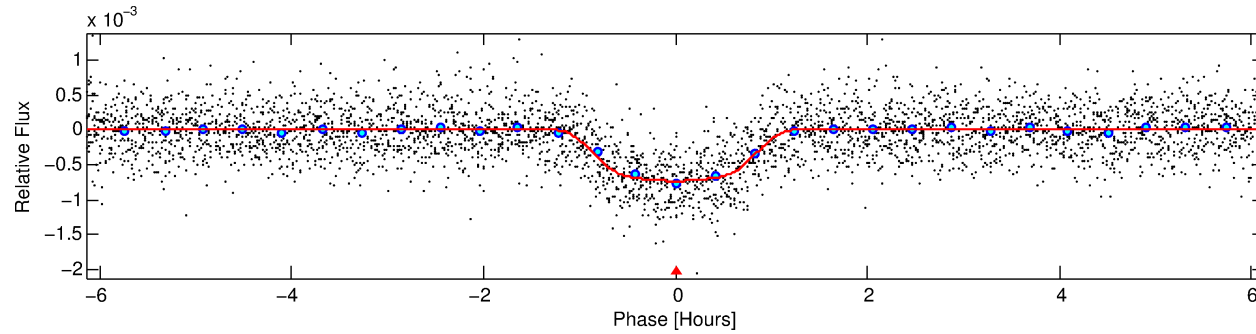
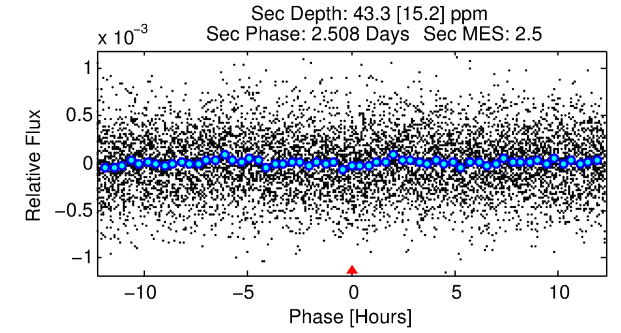
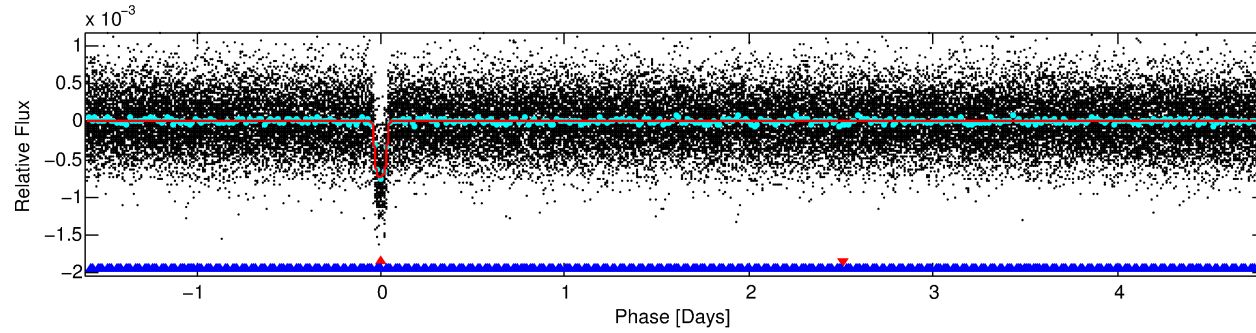
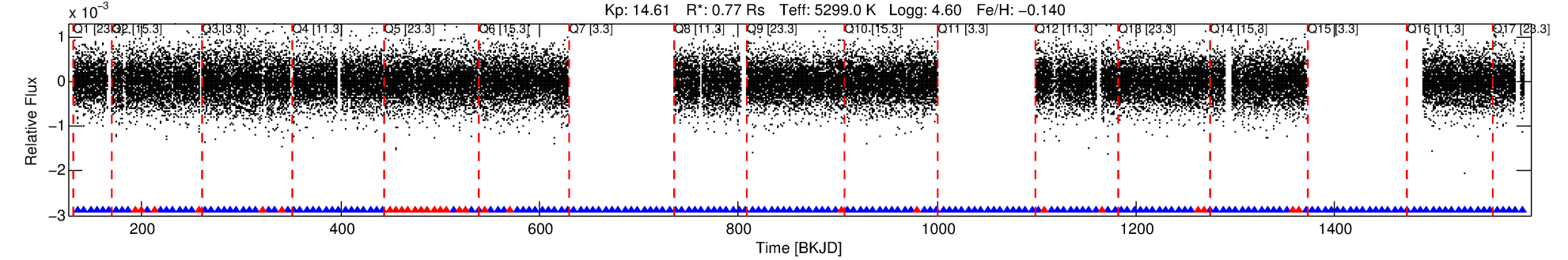
Ephemeris Match Information For 010554999-01

No Significant Match Found

DV One-Page Summary

KIC: 10554999 Candidate: 1 of 2 Period: 6.400 d
KOI: K00534.01 Name: Kepler-179c Corr: 0.955

Kp: 14.61 R*: 0.77 Rs Teff: 5299.0 K Logg: 4.60 Fe/H: -0.140



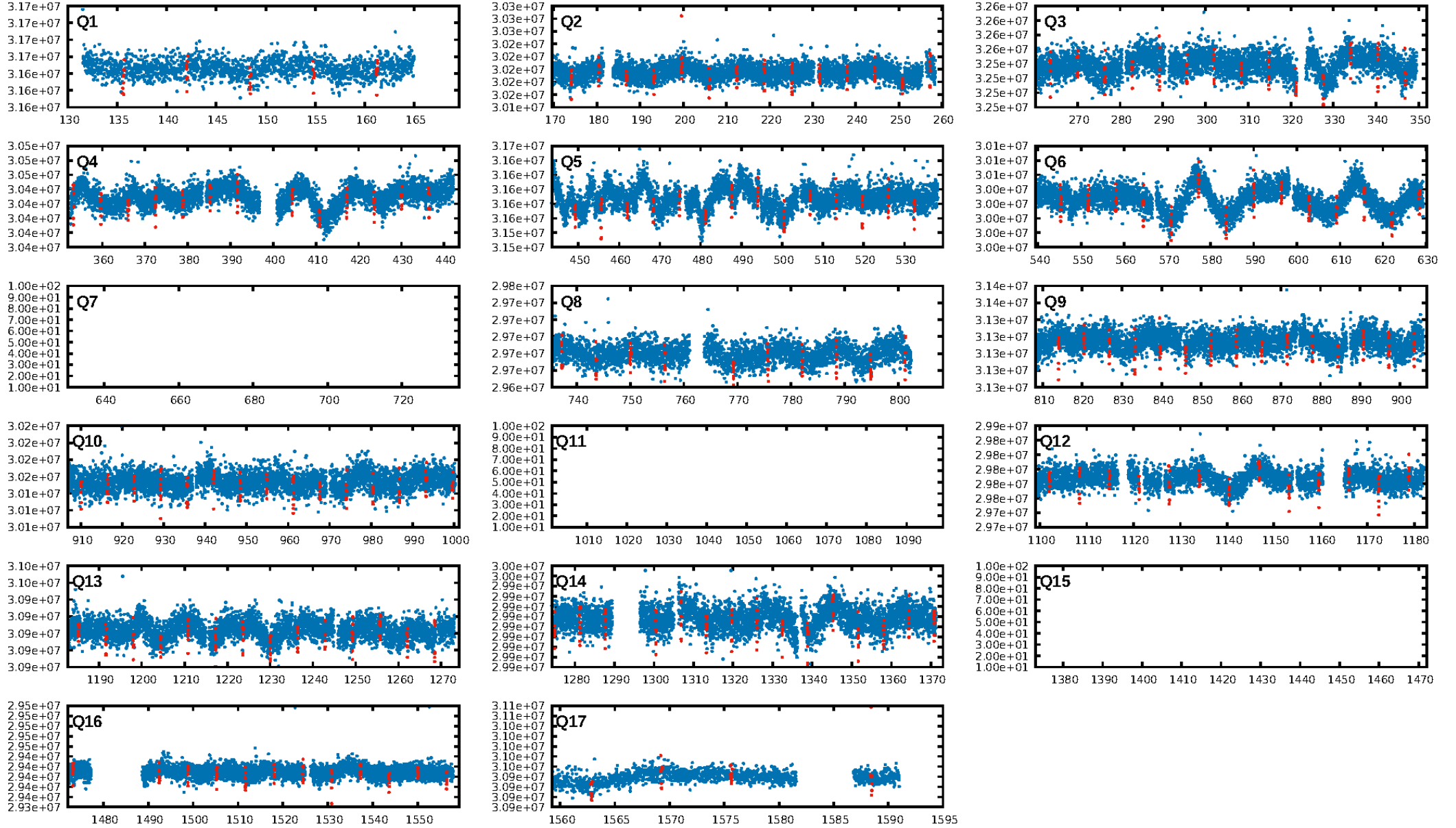
DV Fit Results:

Period = 6.40015 [0.00001] d
Epoch = 135.6224 [0.0010] BKJD
Rp/R* = 0.0298 [0.0029]
a/R* = 12.01 [4.76]
b = 0.90 [0.09]
Seff = 101.76 [21.88]
Teff = 810 [44] K
Rp = 2.49 [0.44] Re
a = 0.0638 [0.0079] AU
Ag = 15.63 [6.87] [2.13σ]
Teffp = 2490 [261] K [6.35σ]

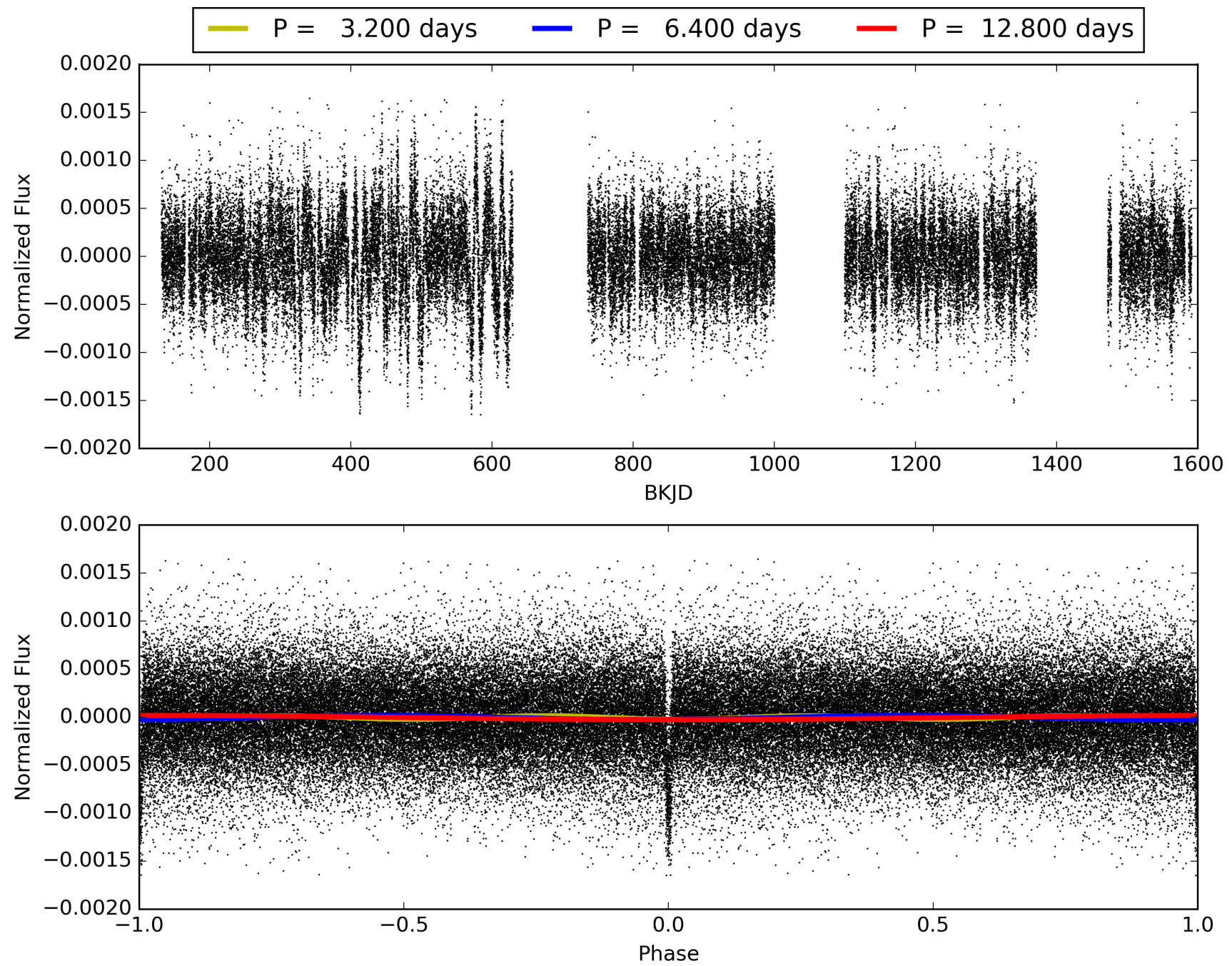
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [30.08σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.83 [133/161]
GhostDiagnostic-chr: 5.636
Centroid-sig: 79.2%
Centroid-so: 0.143 arcsec [0.46σ]
OotOffset-rm: 0.112 arcsec [0.78σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-rm: 0.396 arcsec [3.50σ]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 010554999-01, PDC Light Curves

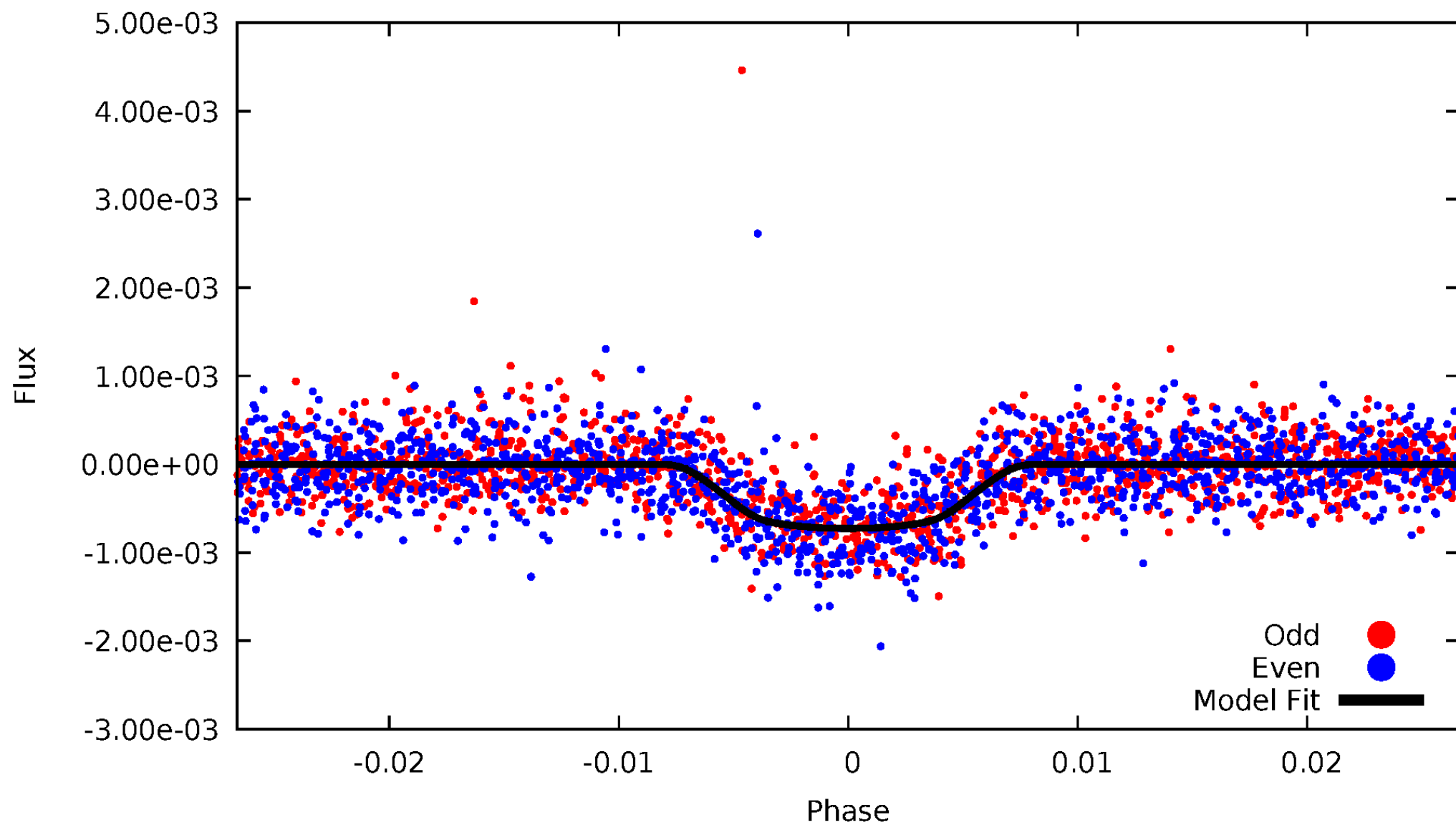


TCE 010554999-01



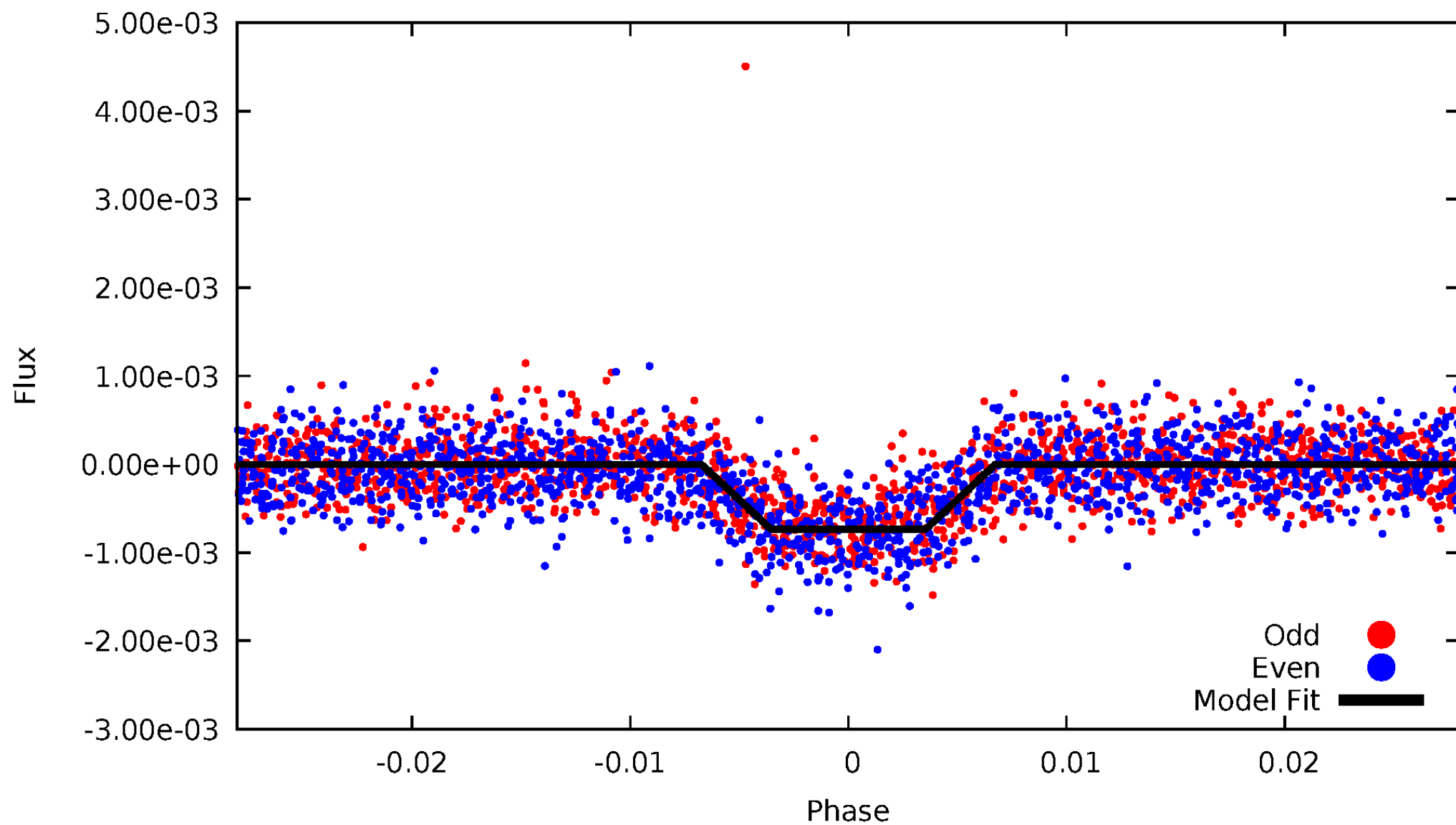
DV Odd/Even

TCE 010554999-01

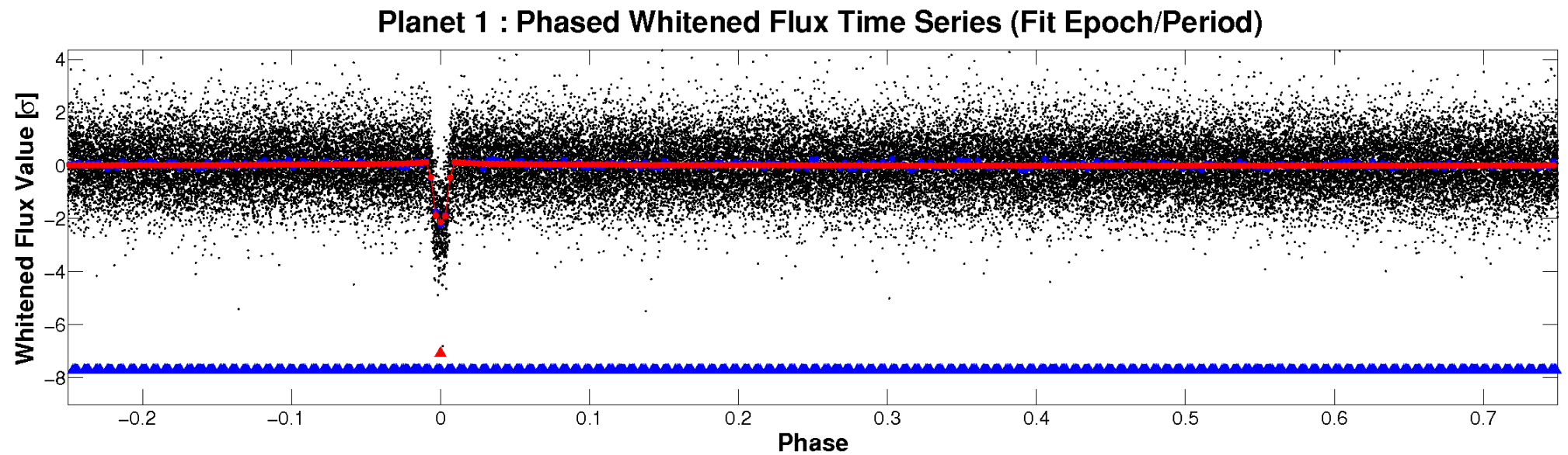
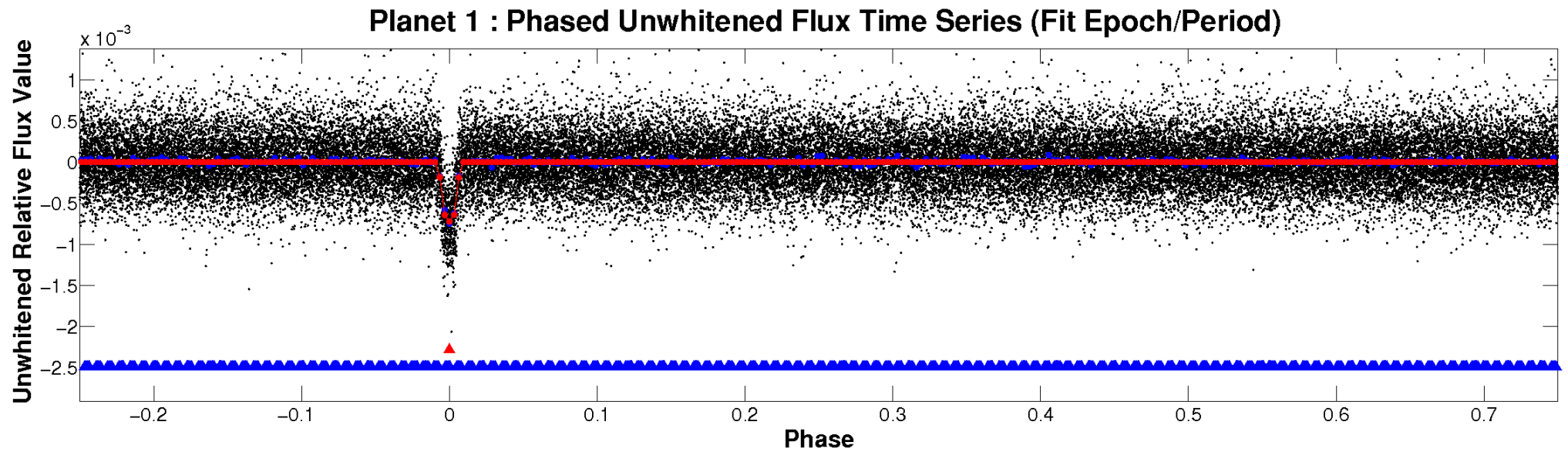


ALT Odd/Even

TCE 010554999-01

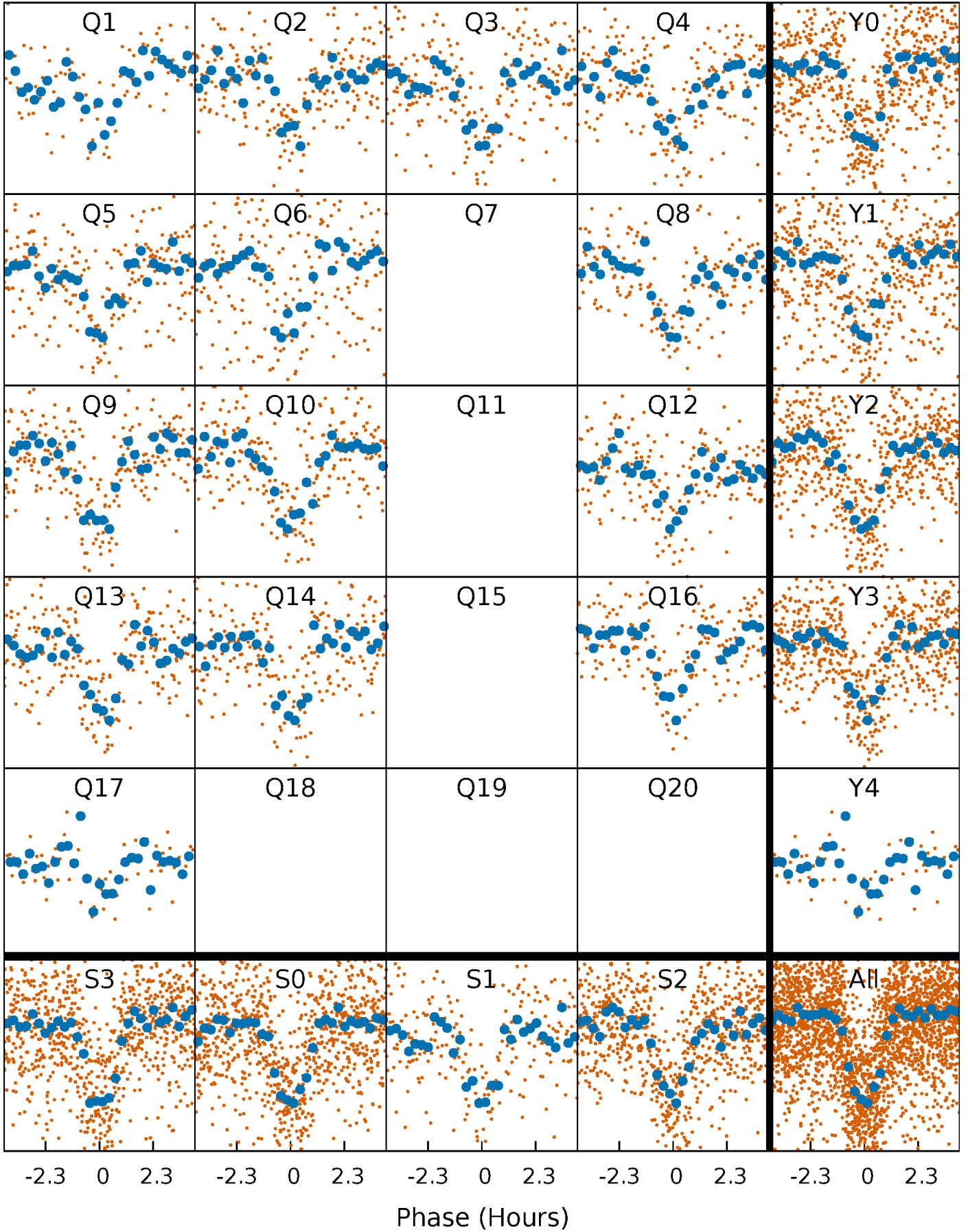


Non-Whitened Vs. Whitened Light Curve



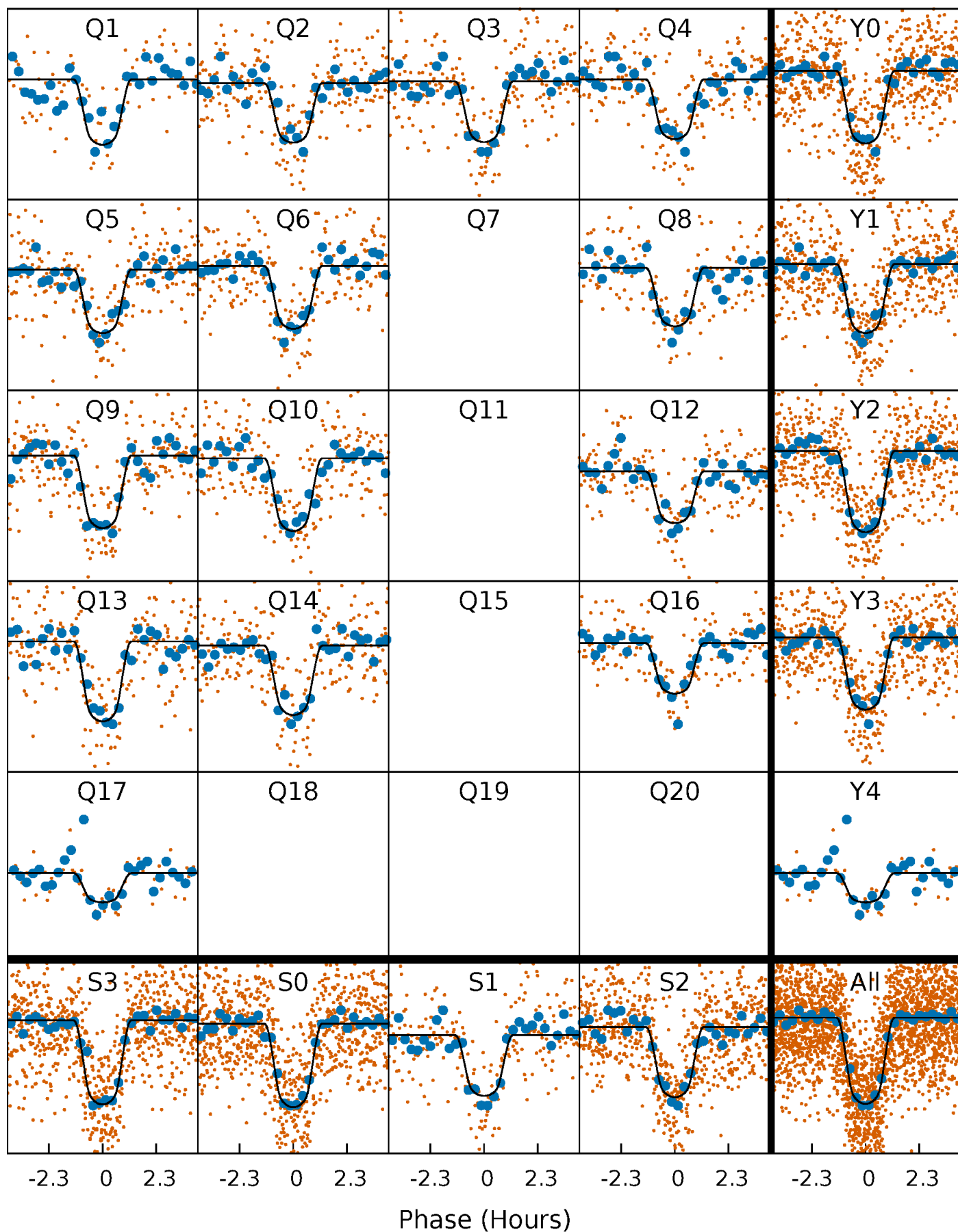
PDC Quarter-Phased Transit Curves

TCE 010554999-01 P= 6.400147 Days $T_0=135.622396$ (BKJD)



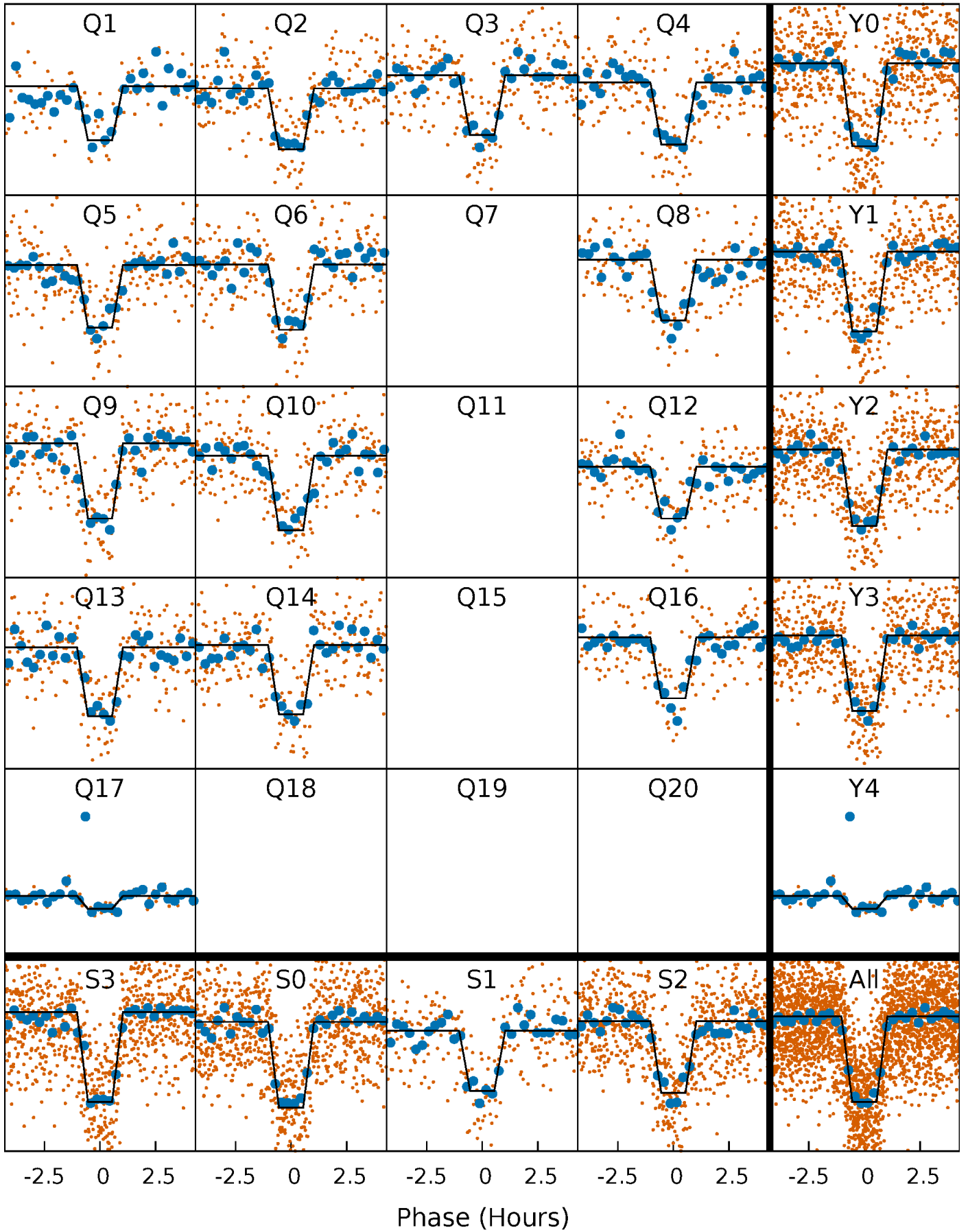
DV Quarter-Phased Transit Curves

TCE 010554999-01 P= 6.400147 Days $T_0=135.622396$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

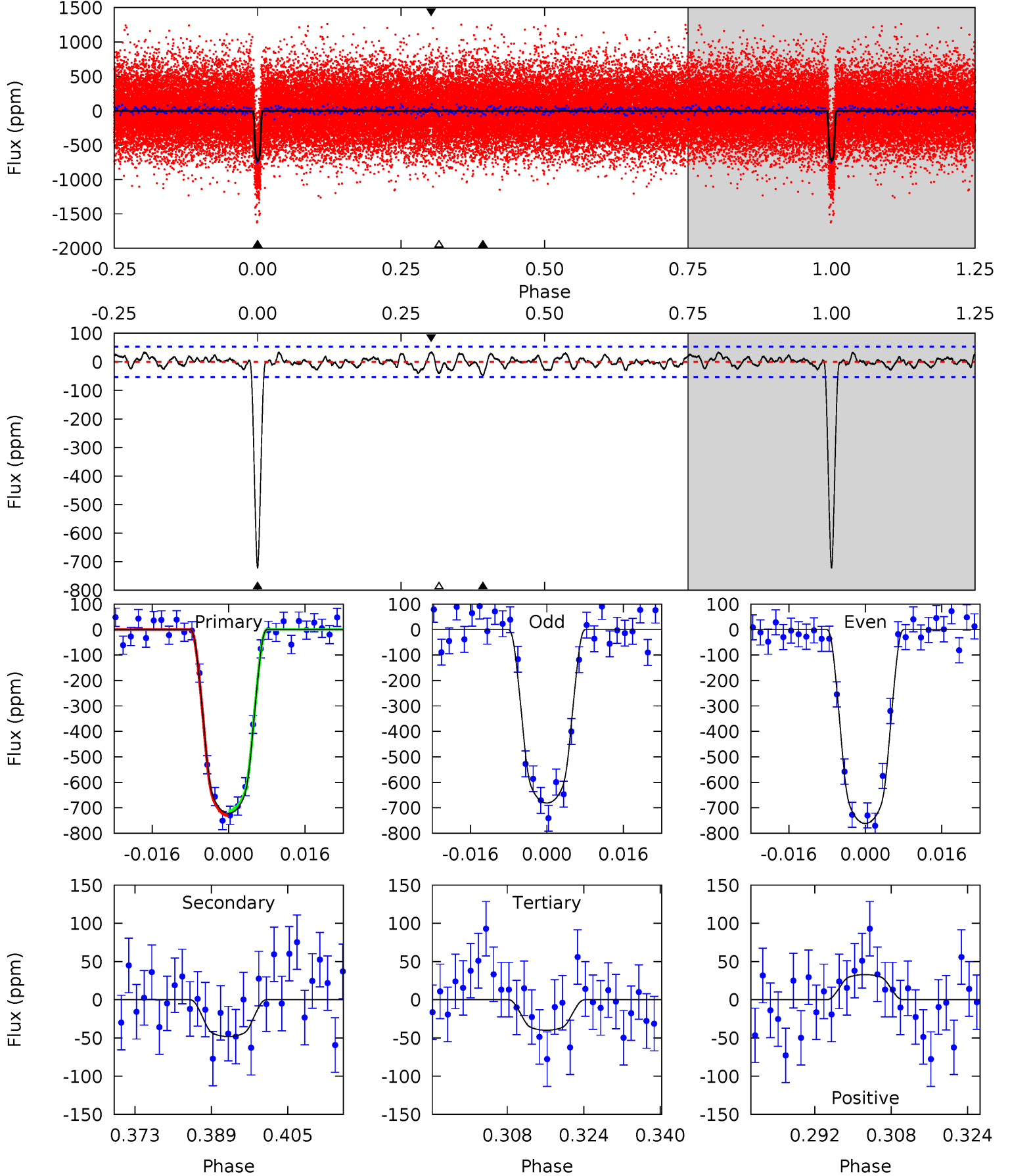
TCE 010554999-01 P= 6.400147 Days $T_0=135.622857$ (BKJD)



DV Model-Shift Uniqueness Test

010554999-01, P = 6.400147 Days, E = 129.222249 Days

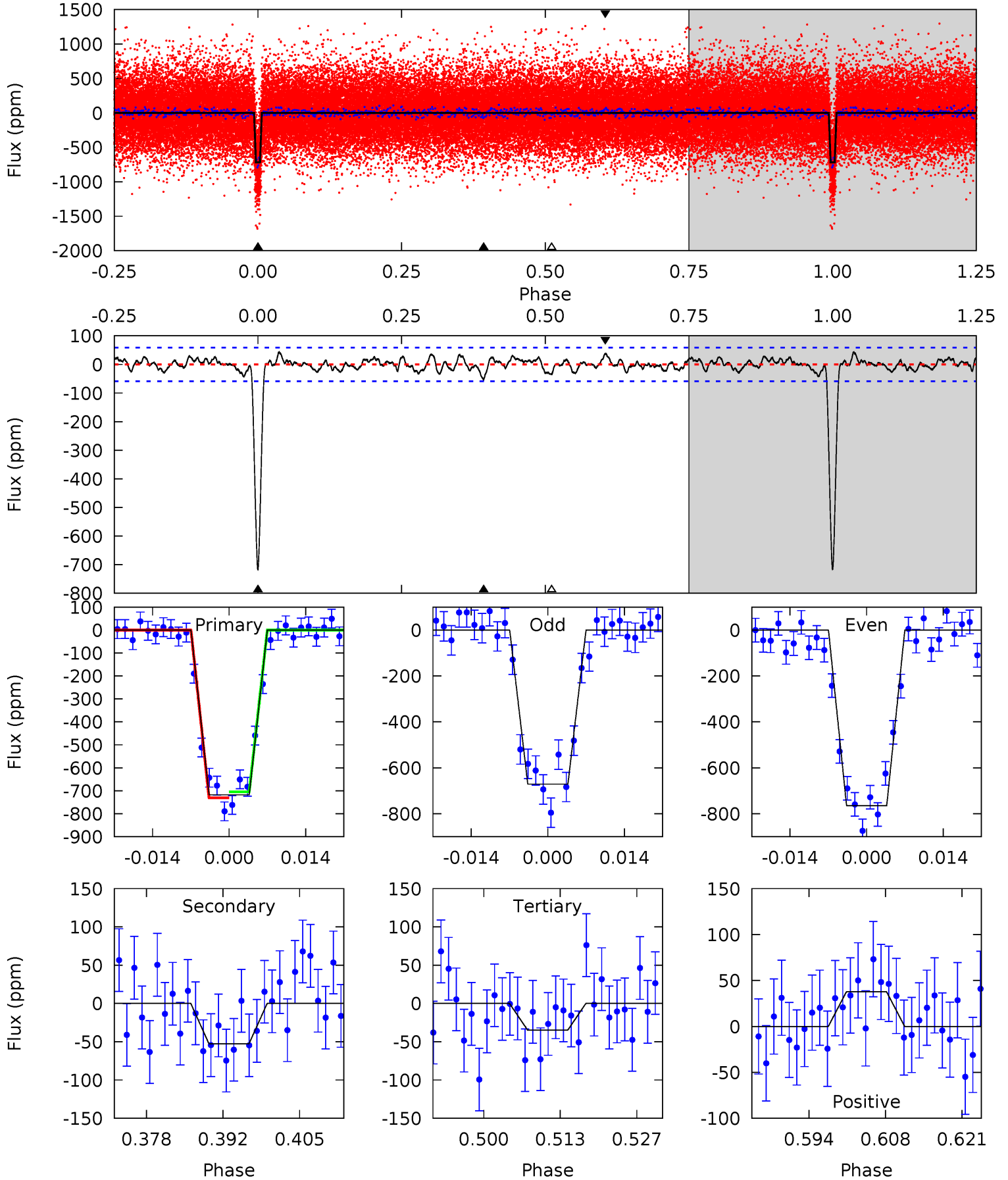
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
67.5	4.50	3.73	3.08	4.93	2.40	1.36	63.7	64.4	0.77	1.42	3.75	0.99	0.04	0.84



Alt Model-Shift Uniqueness Test

010554999-01, P = 6.400147 Days, E = 129.222710 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
60.8	4.46	2.95	3.20	4.97	2.47	1.31	57.9	57.6	1.50	1.26	3.98	1.01	0.06	1.11



Stellar Parameters For KIC 010554999

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5299^{+159}_{-143}	$4.597^{+0.032}_{-0.097}$	$-0.140^{+0.300}_{-0.300}$	$0.766^{+0.113}_{-0.066}$	$0.856^{+0.070}_{-0.104}$	$2.677^{+0.458}_{-0.824}$
	+3%/-3%	+1%/-2%	+214%/-214%	+15%/-9%	+8%/-12%	+17%/-31%
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 010554999-01 / KOI 0534.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-48 ± 11	$2.58^{+0.30}_{-0.31}$	1149^{+49}_{-41}	3131^{+169}_{-145}	16^{+6}_{-5}
Alt.	-53 ± 12	$2.32^{+0.32}_{-0.32}$	1145^{+52}_{-40}	3273^{+179}_{-173}	22^{+8}_{-7}

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

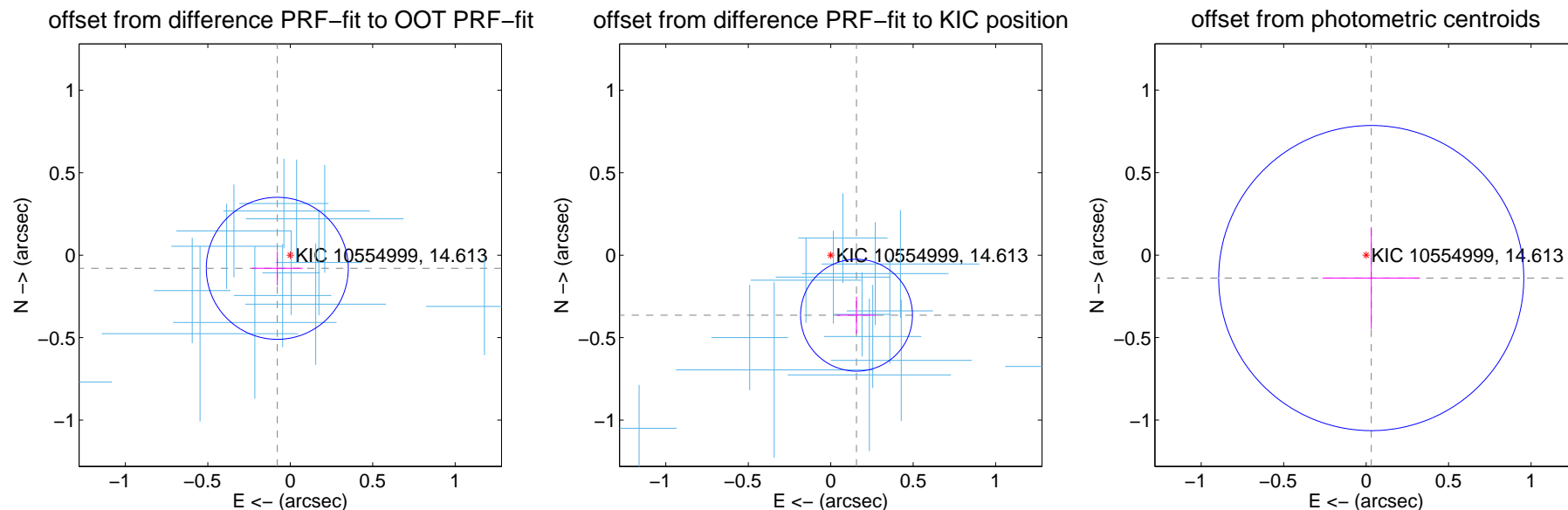
DV Centroid Data

Supplemental centroid analysis for 010554999-01. Kepler magnitude: 14.61. Transit SNR 44.78

There are 14 quarters with good PRF difference image offsets

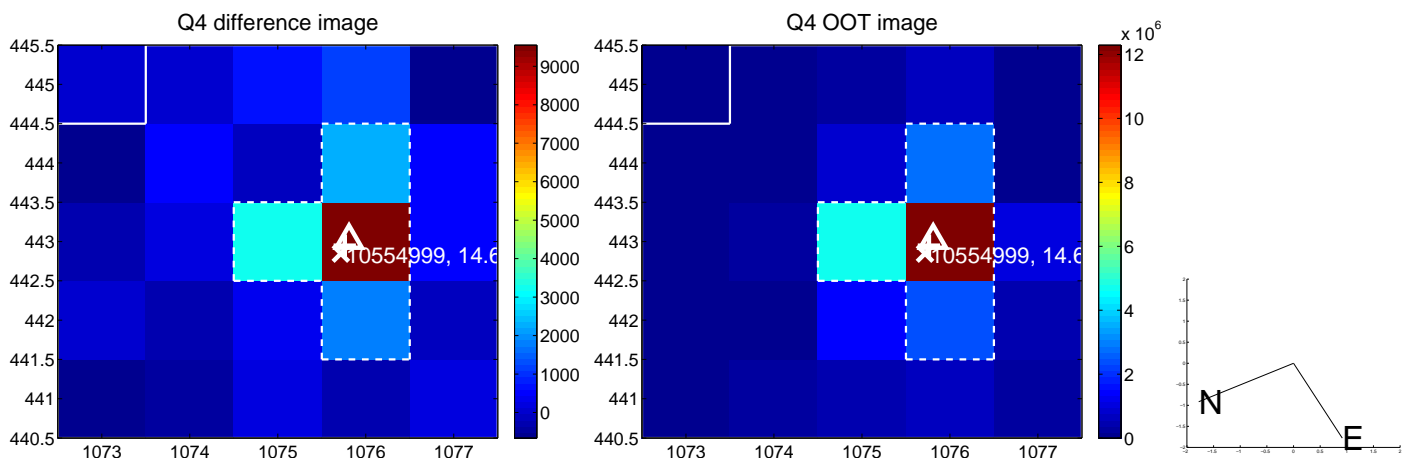
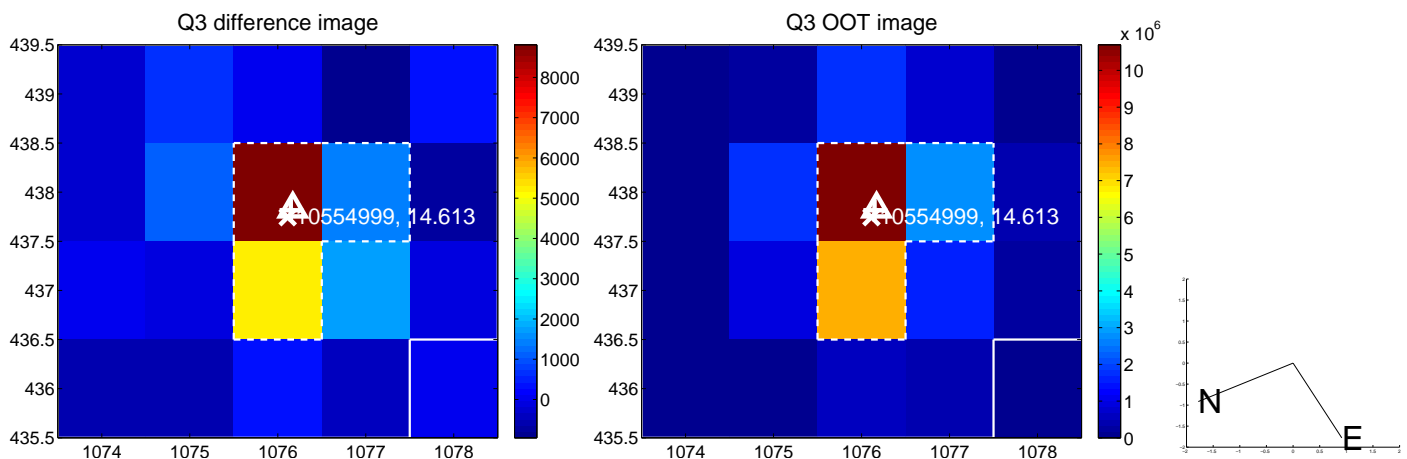
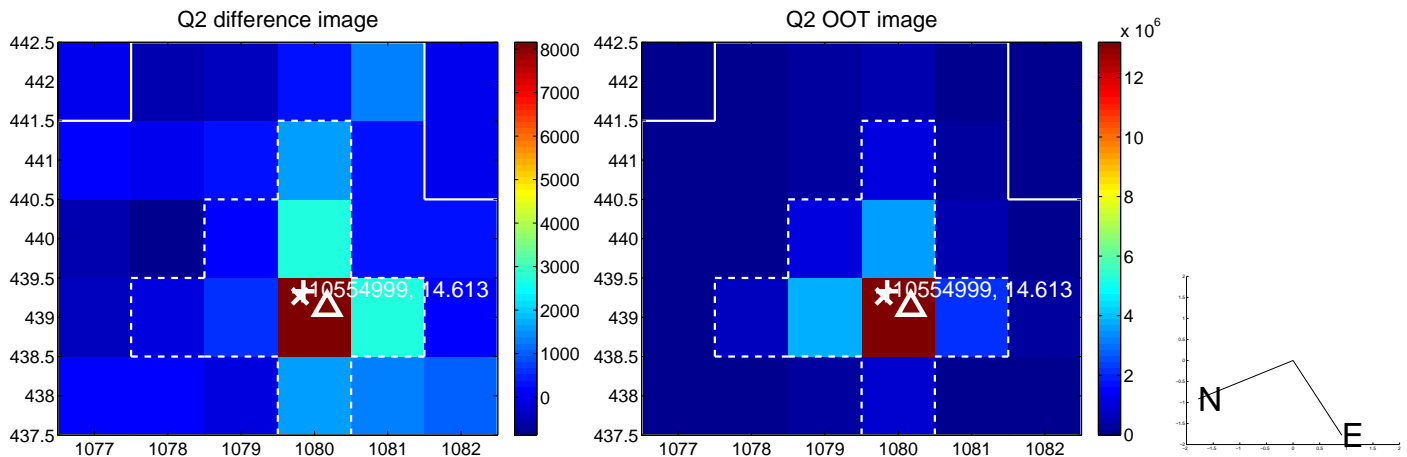
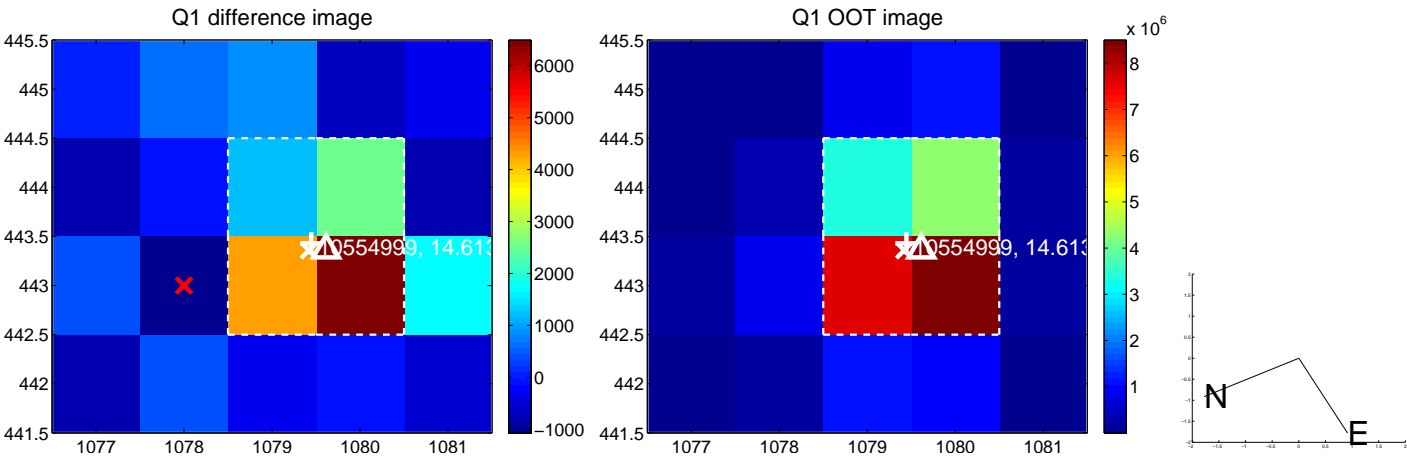
The direct PRF centroid is offset from the target star catalog position by about 0.55 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.112 ± 0.143	0.78	0.079 ± 0.153	-0.080 ± 0.104
PRF-fit source offset from KIC position	0.396 ± 0.113	3.50	-0.156 ± 0.120	-0.364 ± 0.112
photometric centroid source offset	0.14 ± 0.31	0.46	-0.03 ± 0.30	-0.14 ± 0.31

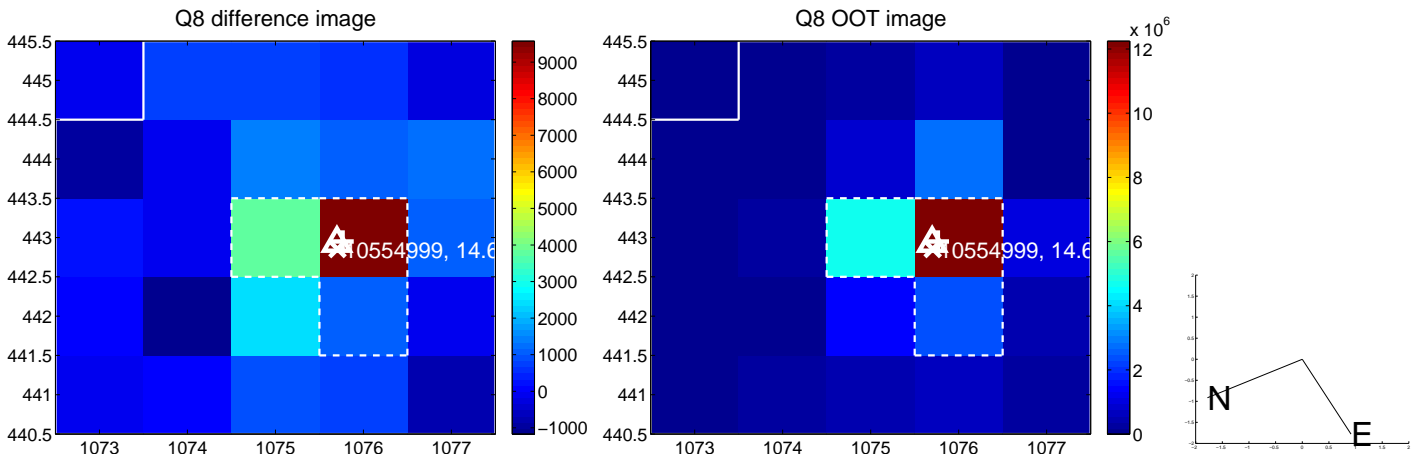
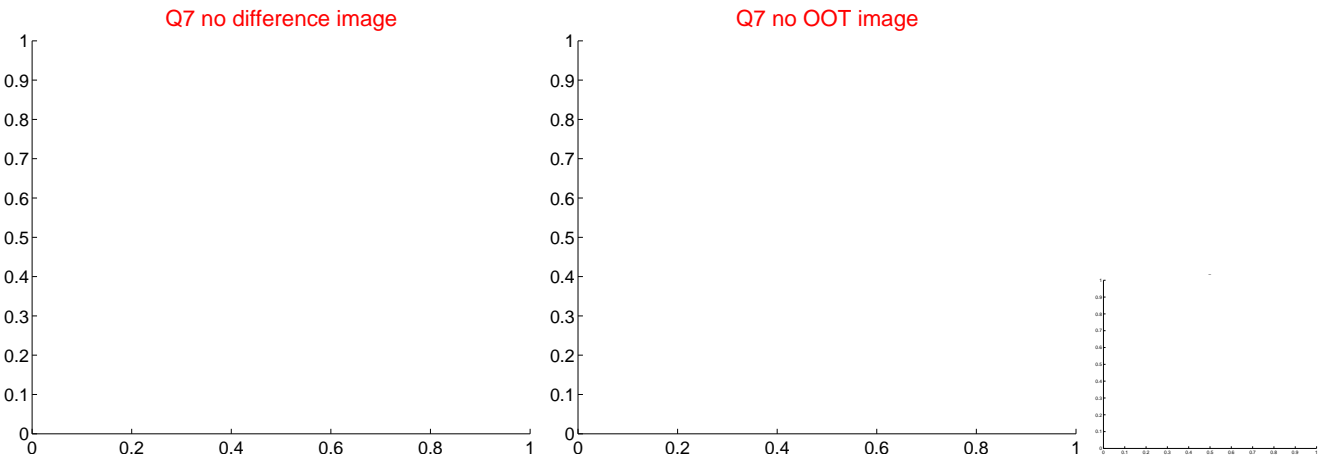
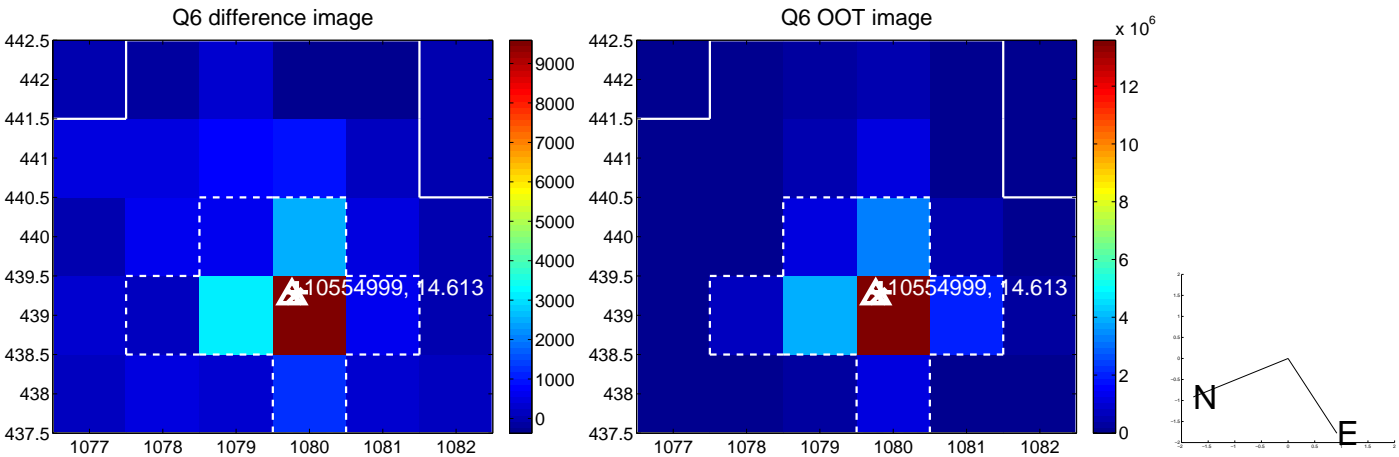
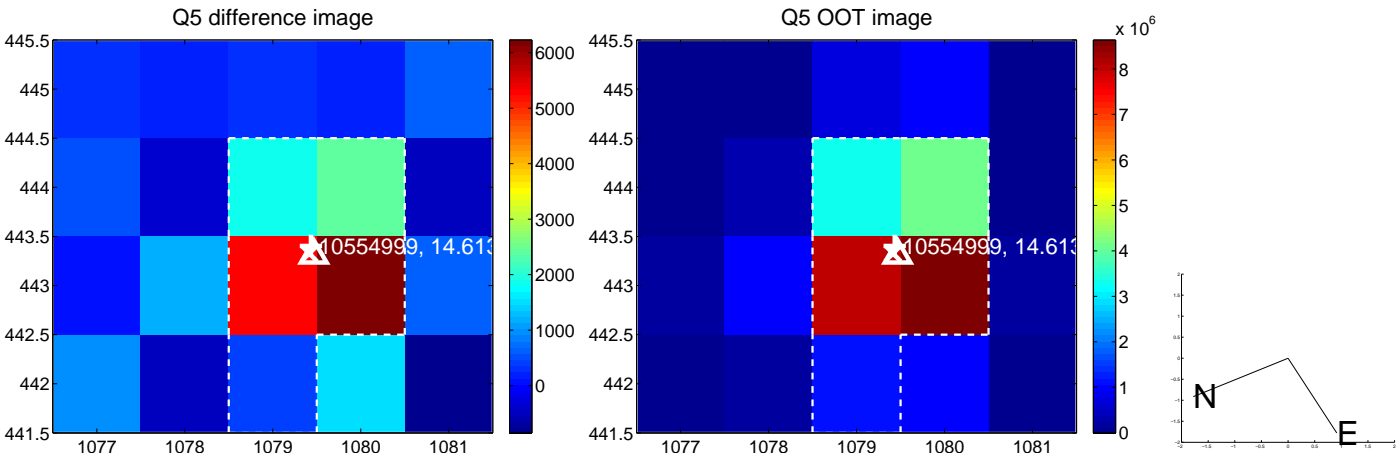


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

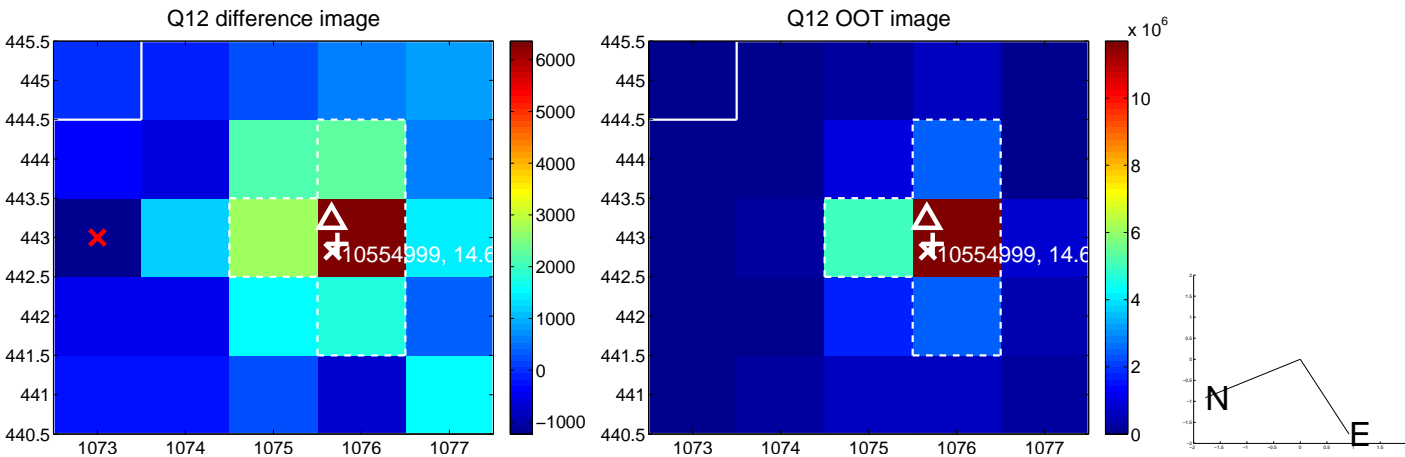
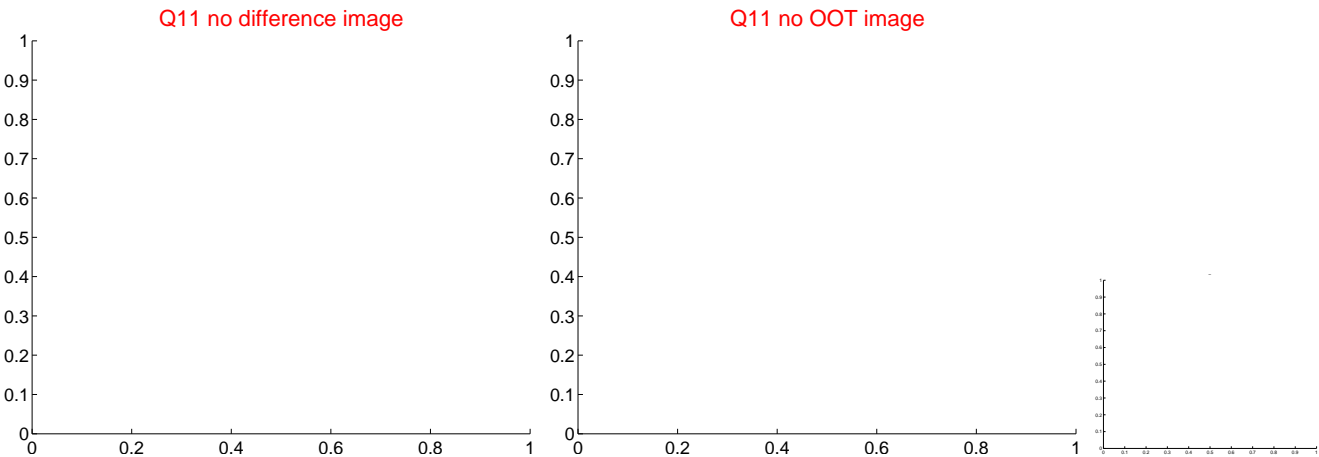
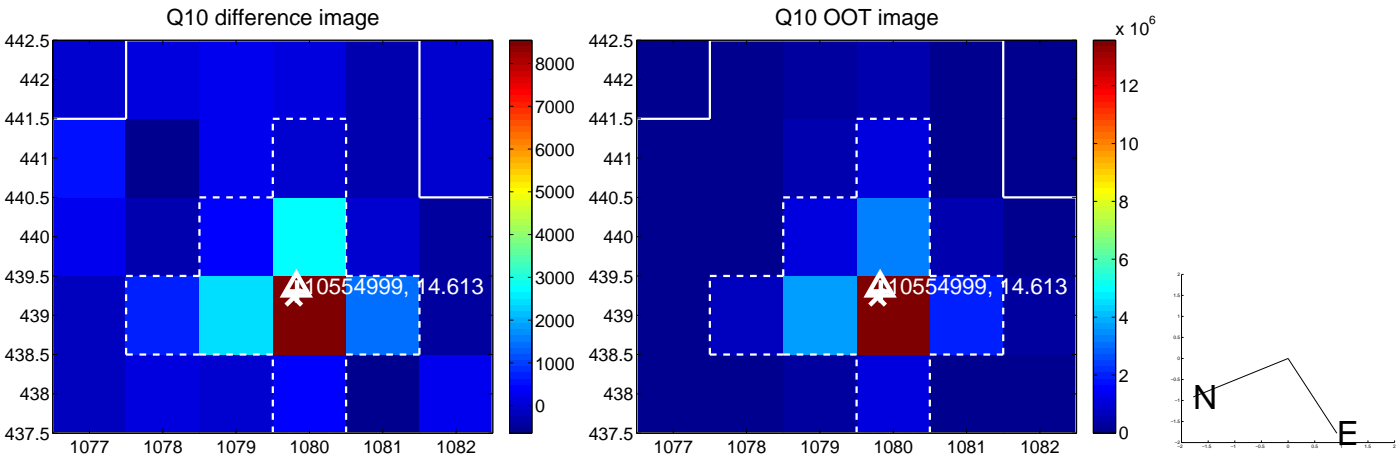
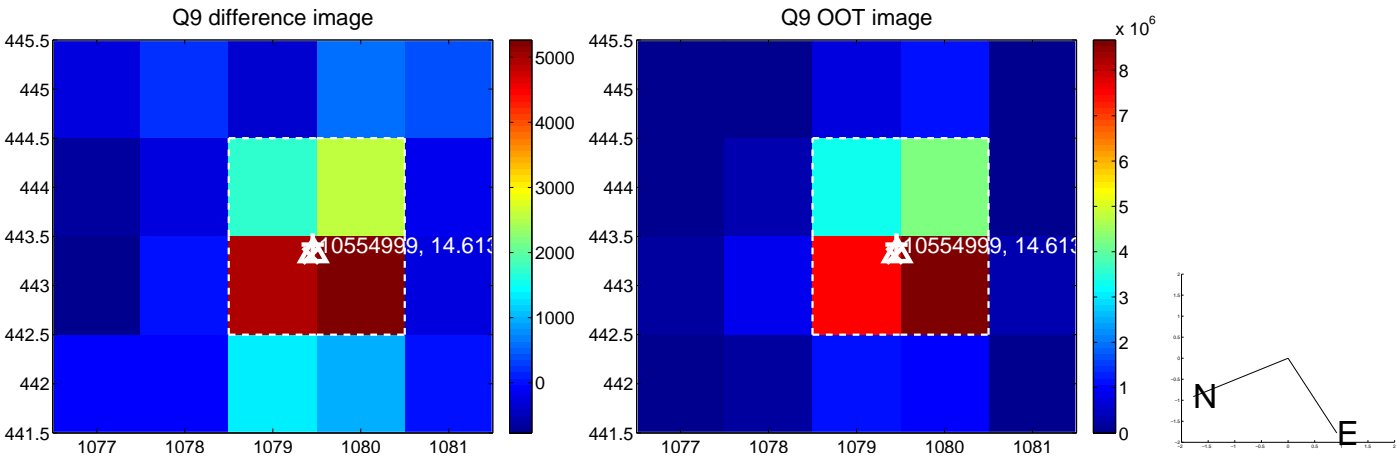
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



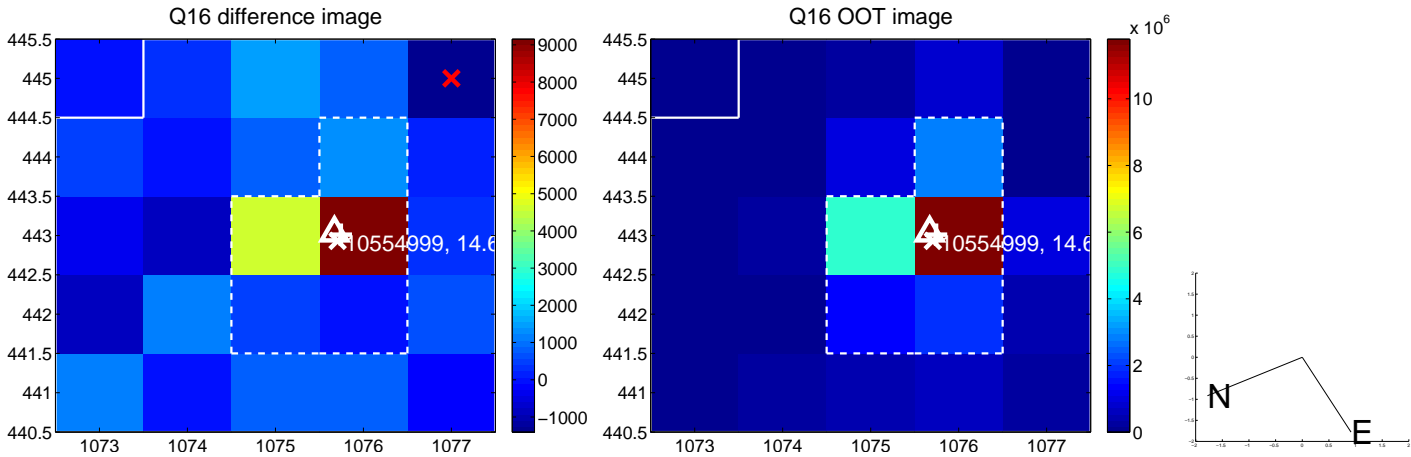
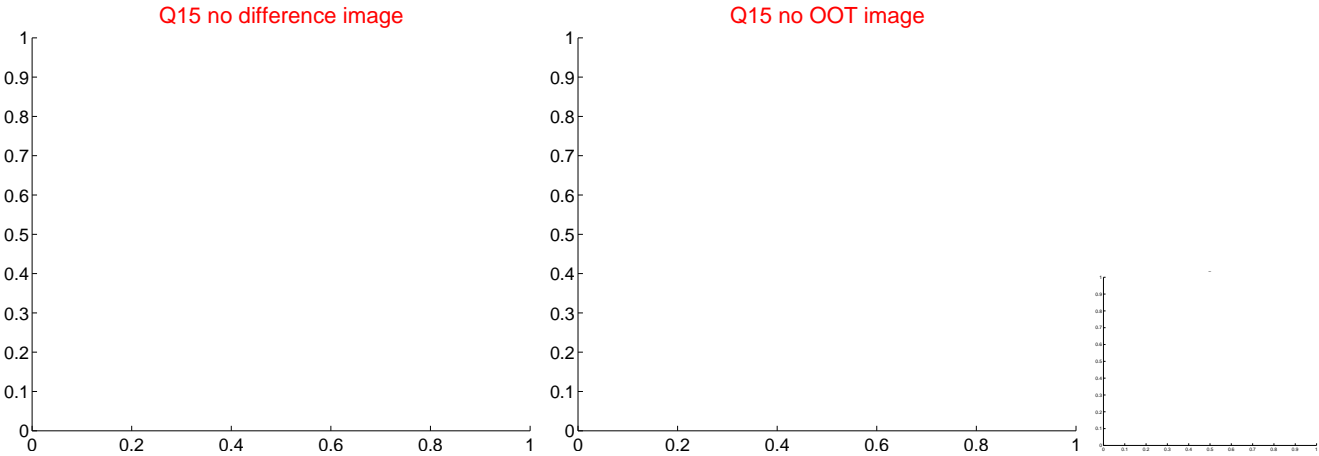
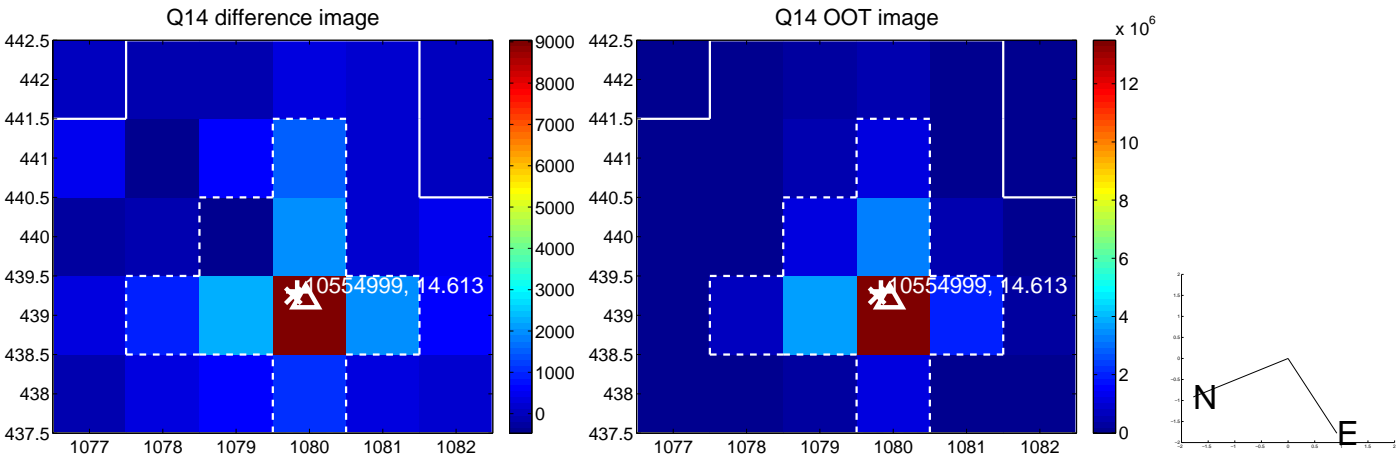
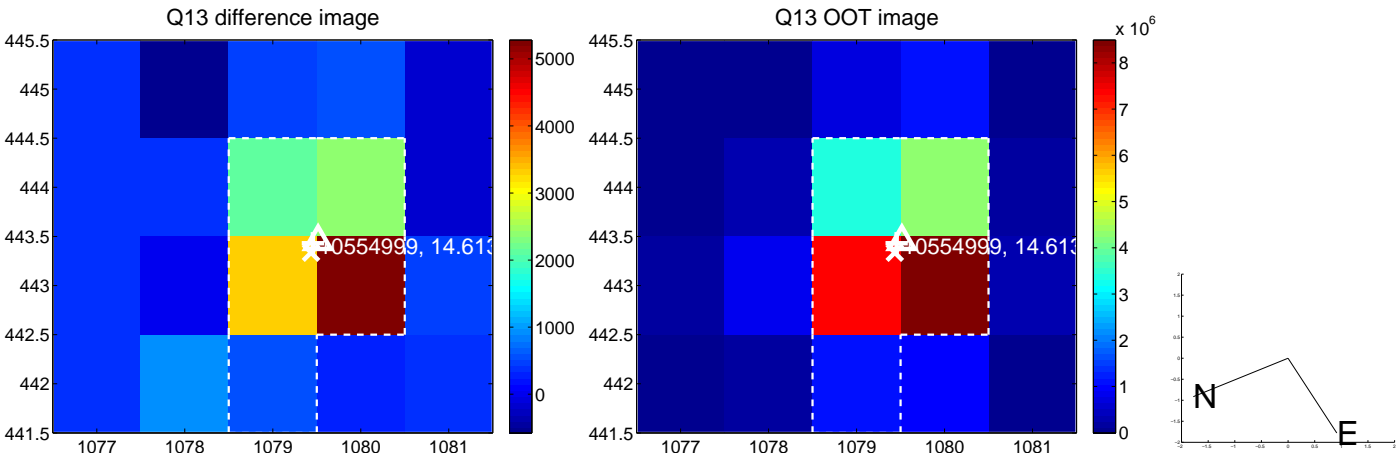
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



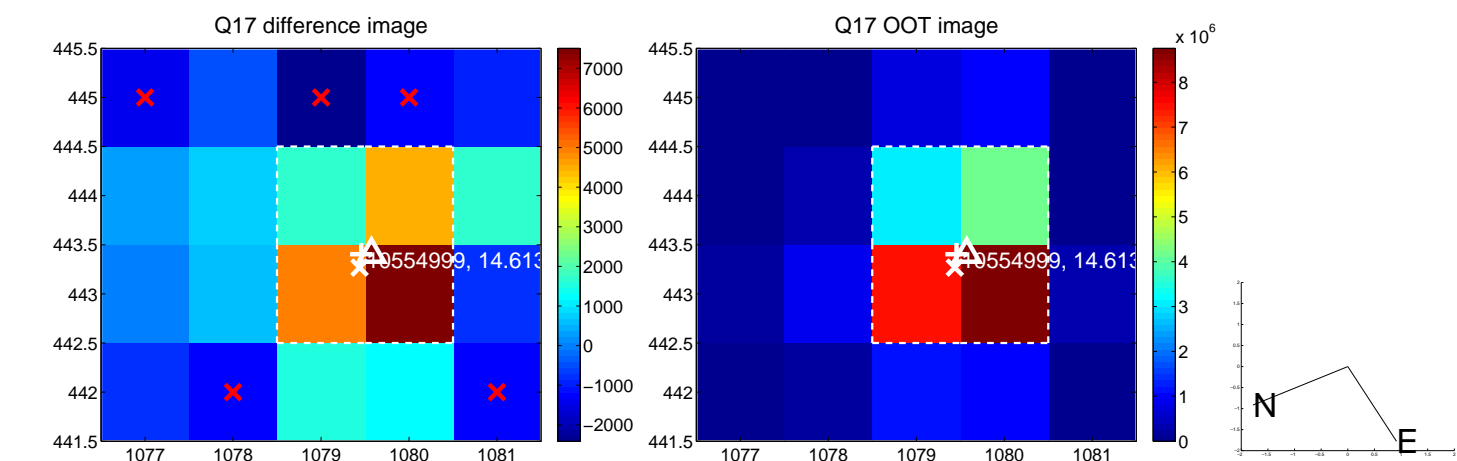
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



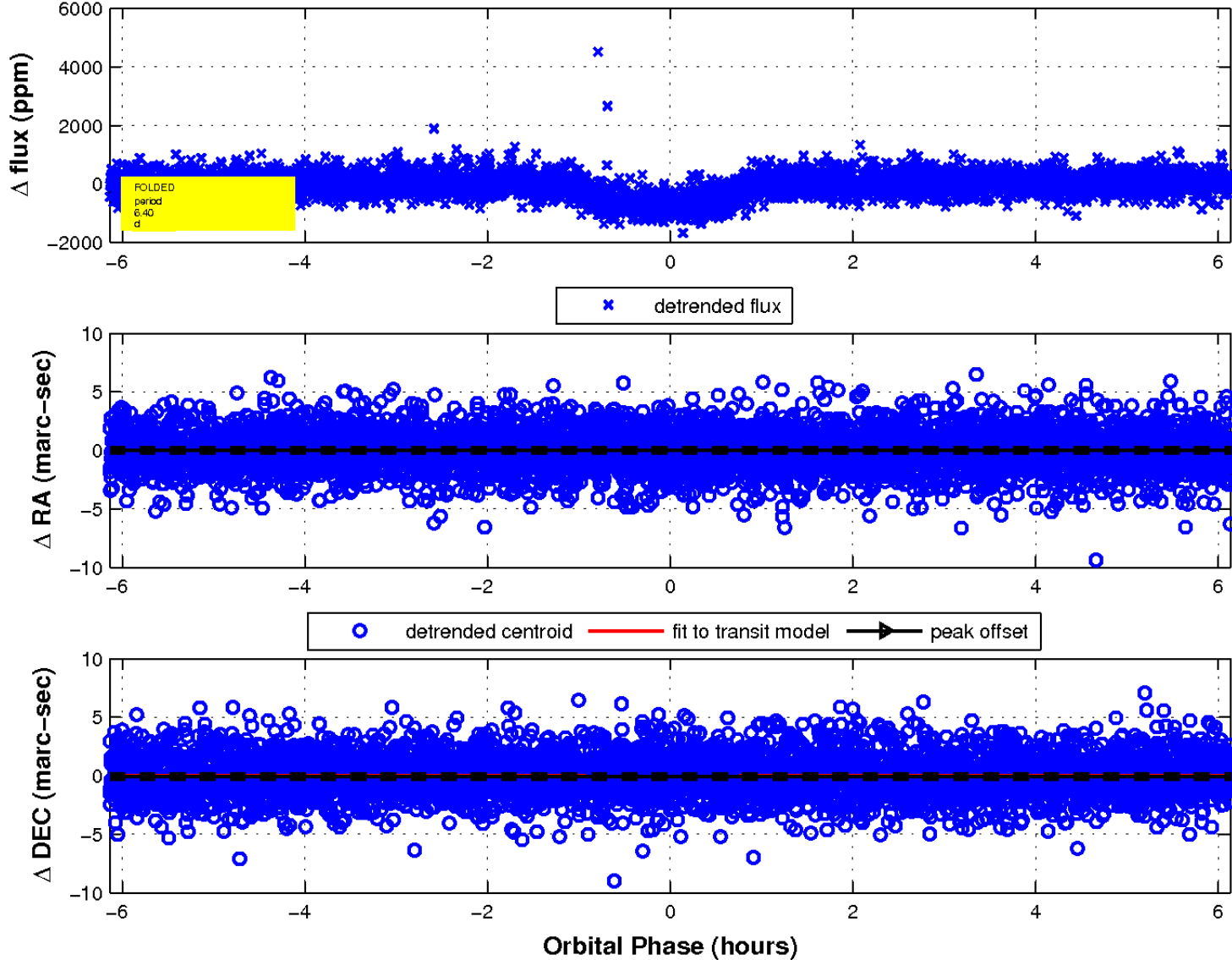
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

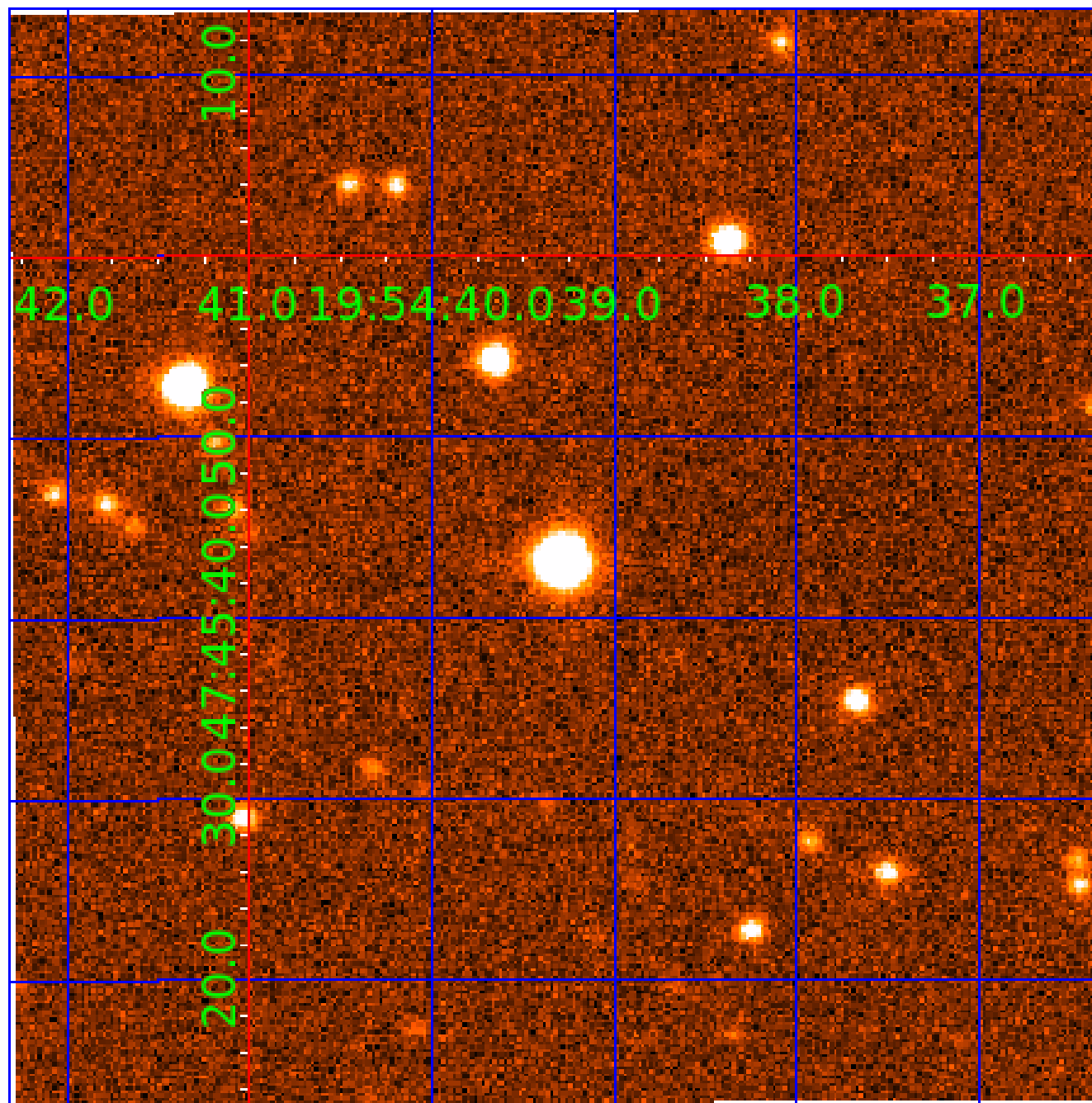


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 010554999

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})
010554999-01	OBS	0534.01	6.400147	135.622396	726.5	2.046	39.8	44.8	0.77	5299	2.49	101.76
010554999-02	OBS	0534.02	2.735892	132.796503	417.0	2.088	37.1	41.0	0.77	5299	1.89	316.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010554999-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010554999-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

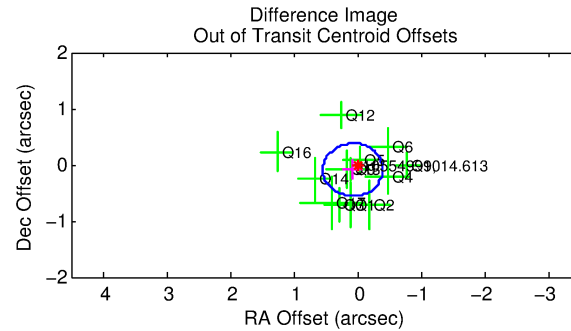
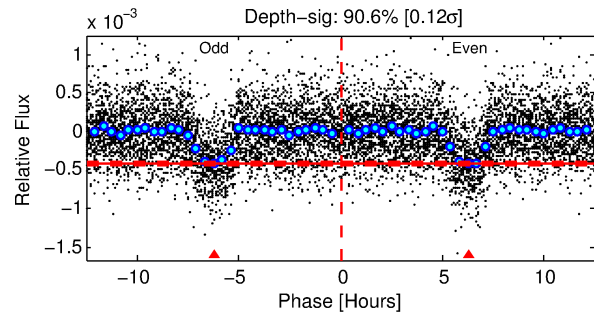
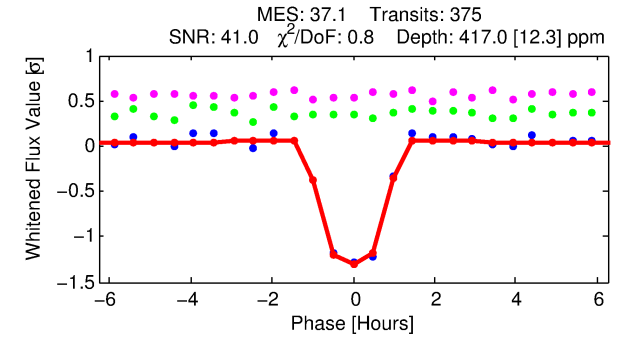
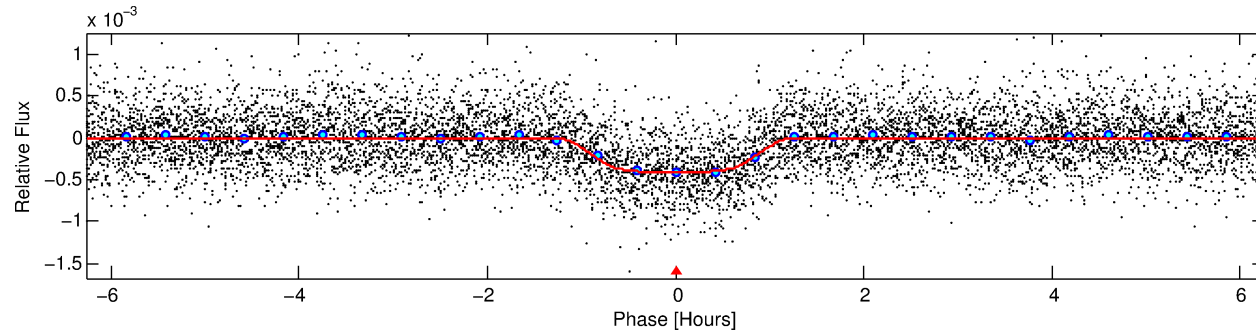
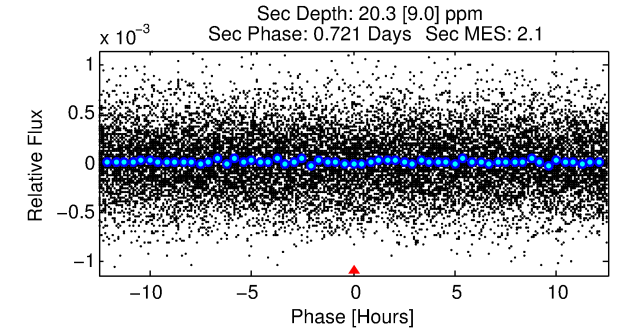
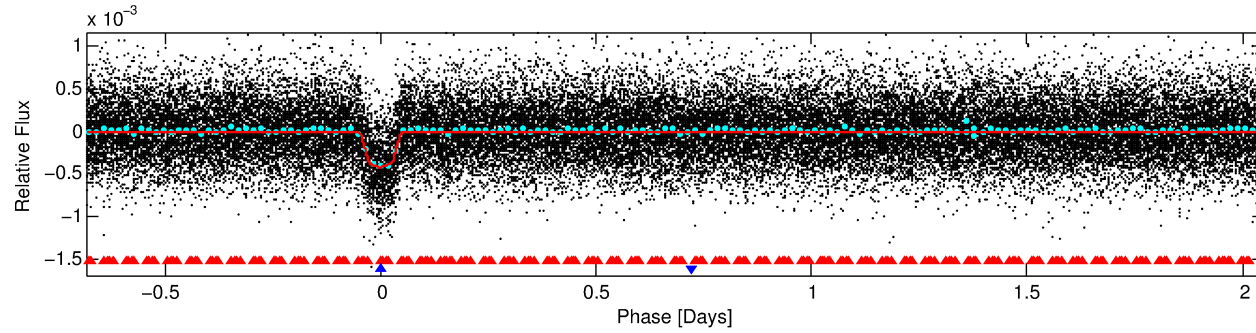
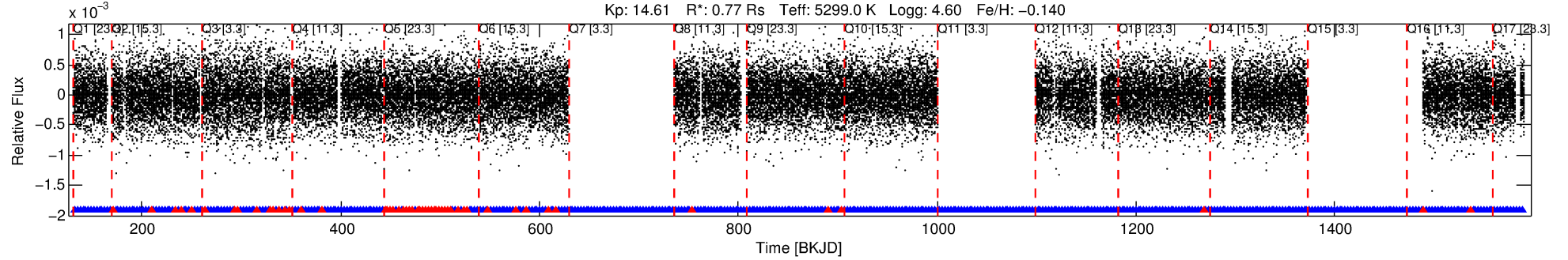
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010554999-02

No Significant Match Found

DV One-Page Summary

KIC: 10554999 Candidate: 2 of 2 Period: 2.736 d
KOI: K00534.02 Name: Kepler-179b Corr: 0.971



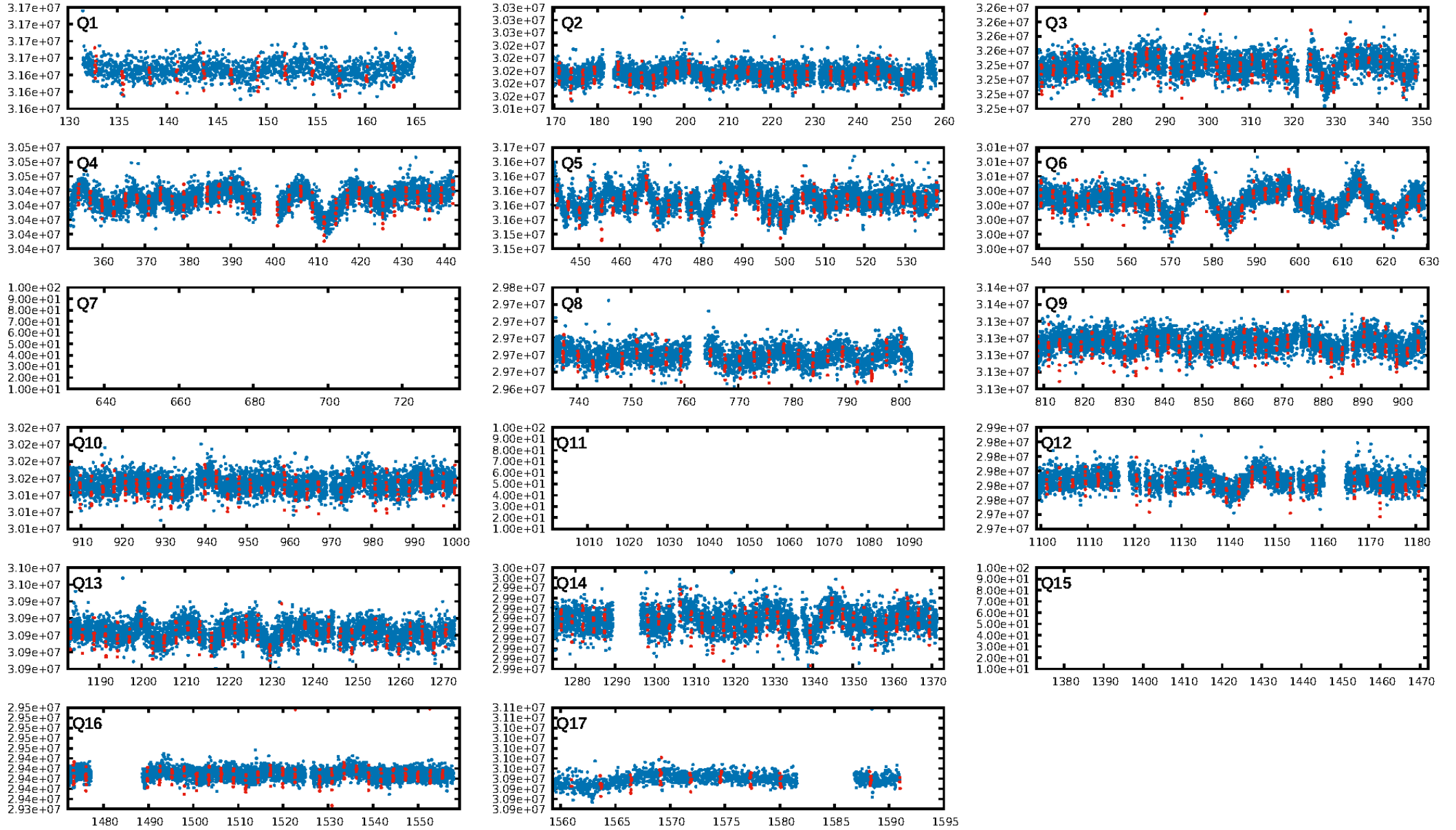
DV Fit Results:

Period = 2.73589 [0.00000] d
Epoch = 132.7965 [0.0008] BKJD
Rp/R* = 0.0226 [0.0032]
a/R* = 4.95 [2.80]
b = 0.90 [0.13]
Seff = 316.00 [67.96]
Teff = 1075 [58] K
Rp = 1.89 [0.38] Re
a = 0.0362 [0.0045] AU
Ag = 4.12 [2.28] [1.37σ]
Teffp = 2368 [318] K [4.00σ]

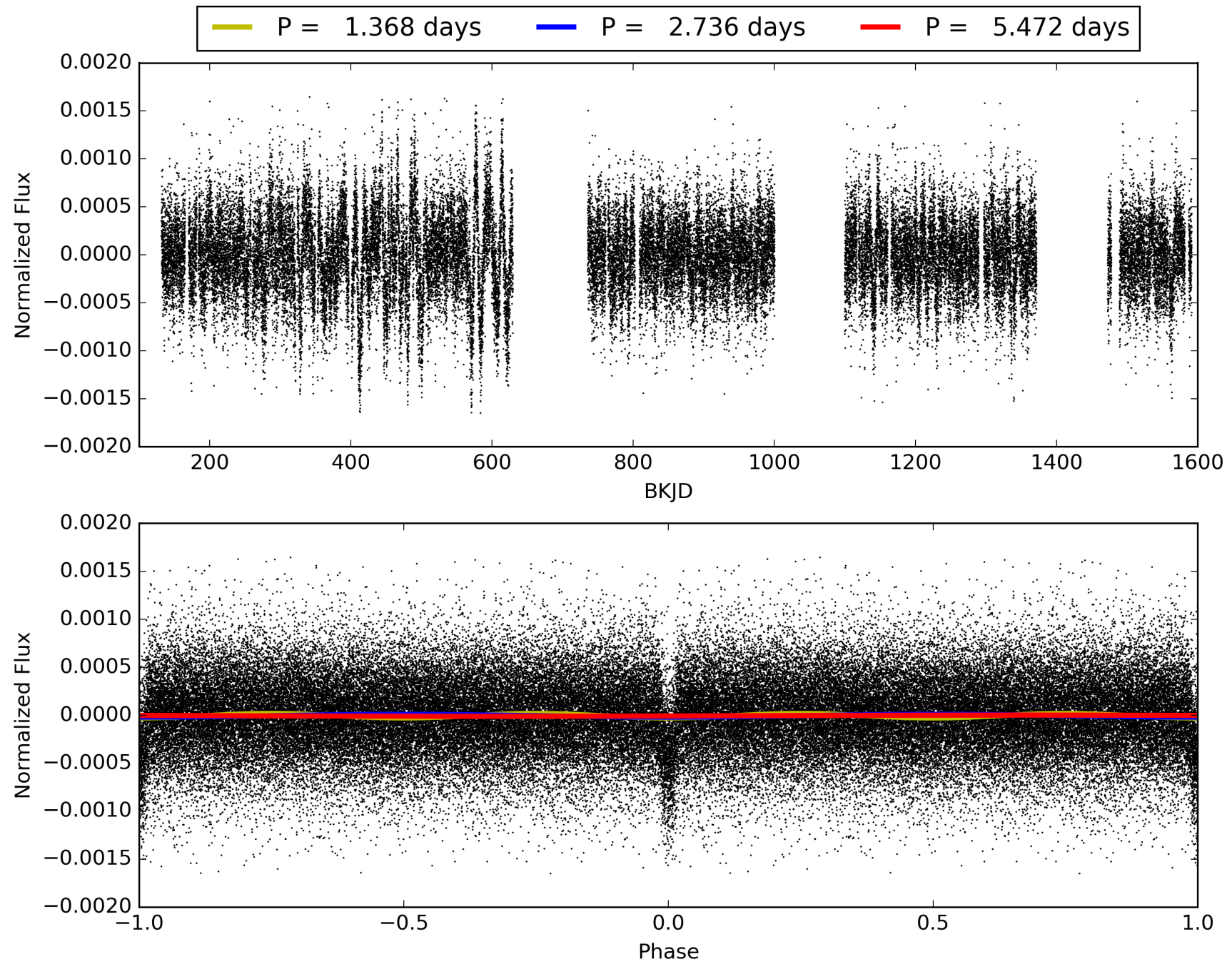
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [30.08σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.48e-301
RollingBand-fgt: 0.85 [302/354]
GhostDiagnostic-chr: 4.589
Centroid-sig: 10.1%
Centroid-so: 0.172 arcsec [0.51σ]
OotOffset-rm: 0.117 arcsec [0.74σ]
KicOffset-rm: 0.393 arcsec [2.77σ]
OotOffset-st: 4/1/3/5 [13]
KicOffset-st: 4/1/3/5 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 010554999-02, PDC Light Curves

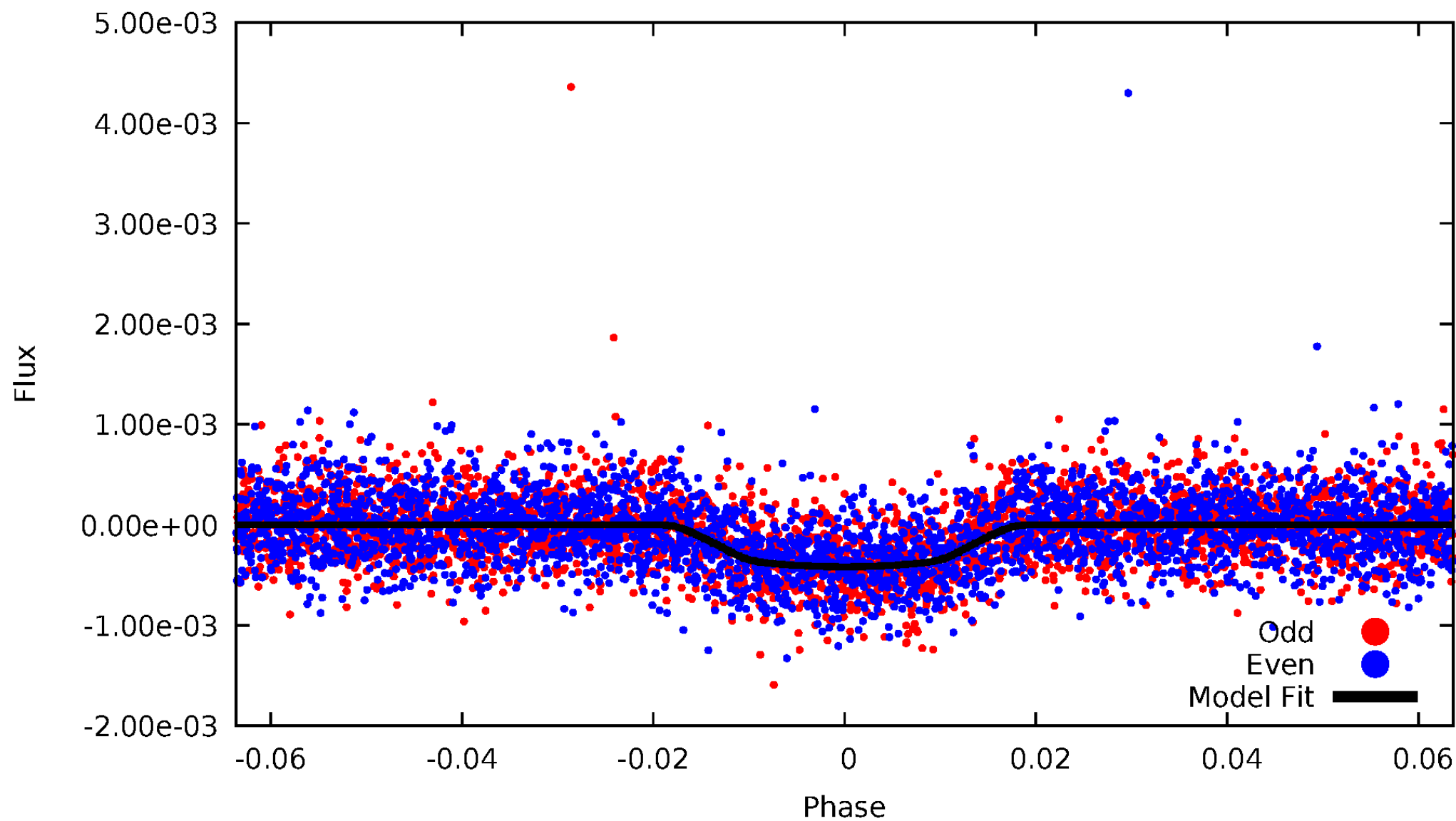


TCE 010554999-02



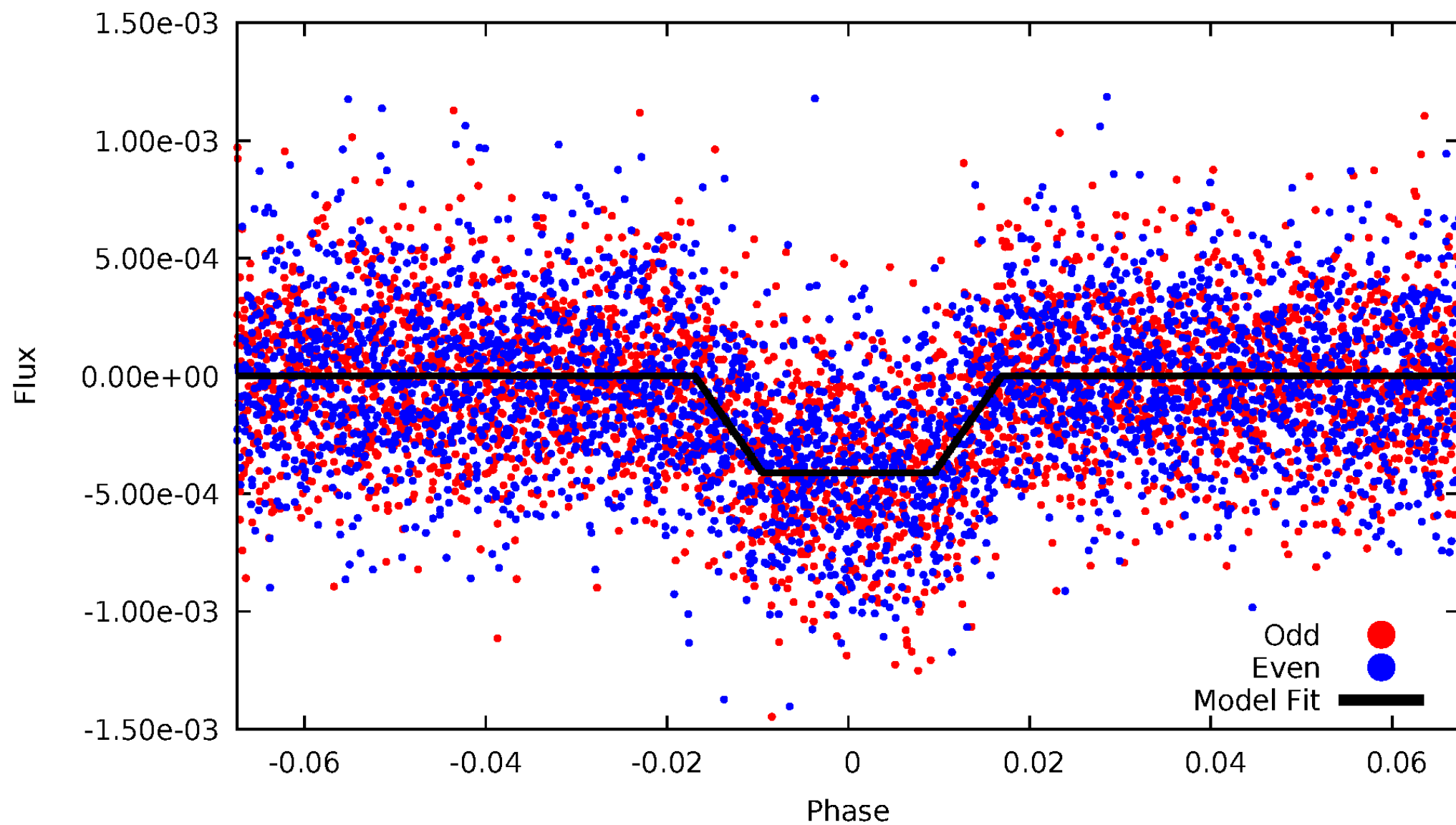
DV Odd/Even

TCE 010554999-02



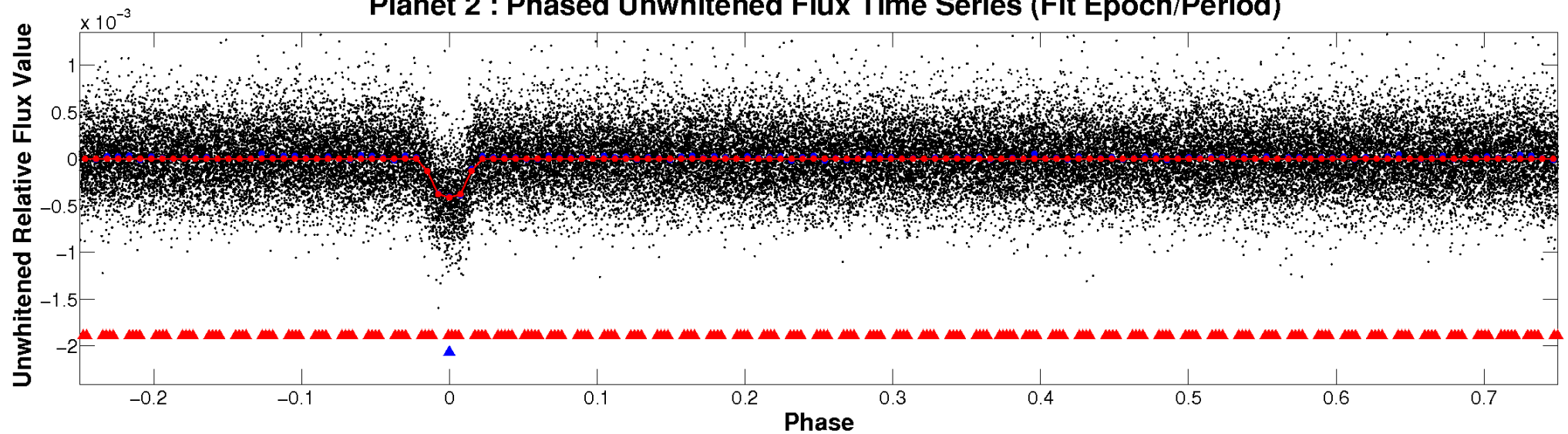
ALT Odd/Even

TCE 010554999-02

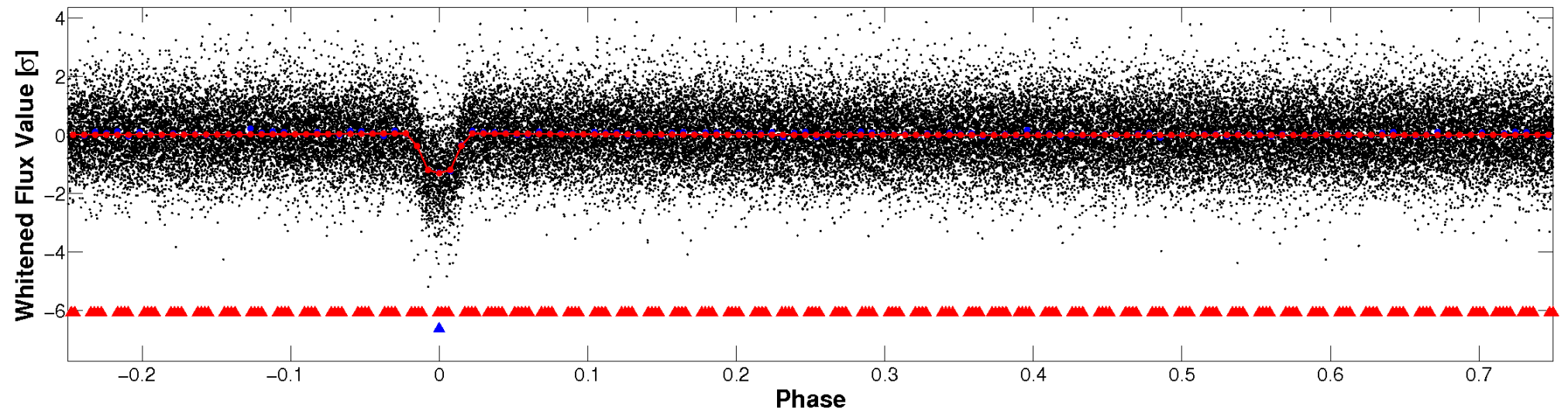


Non-Whitened Vs. Whitened Light Curve

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

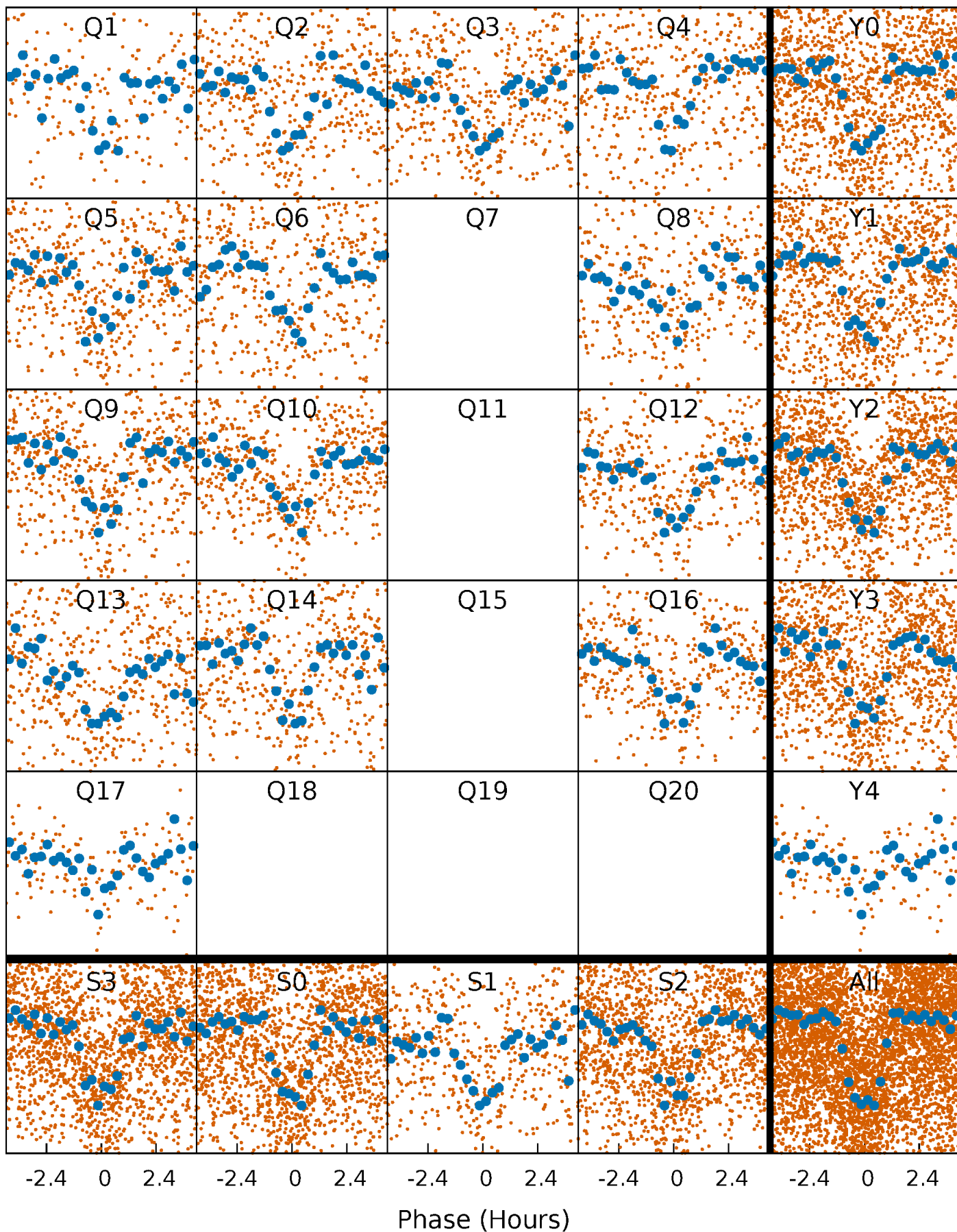


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



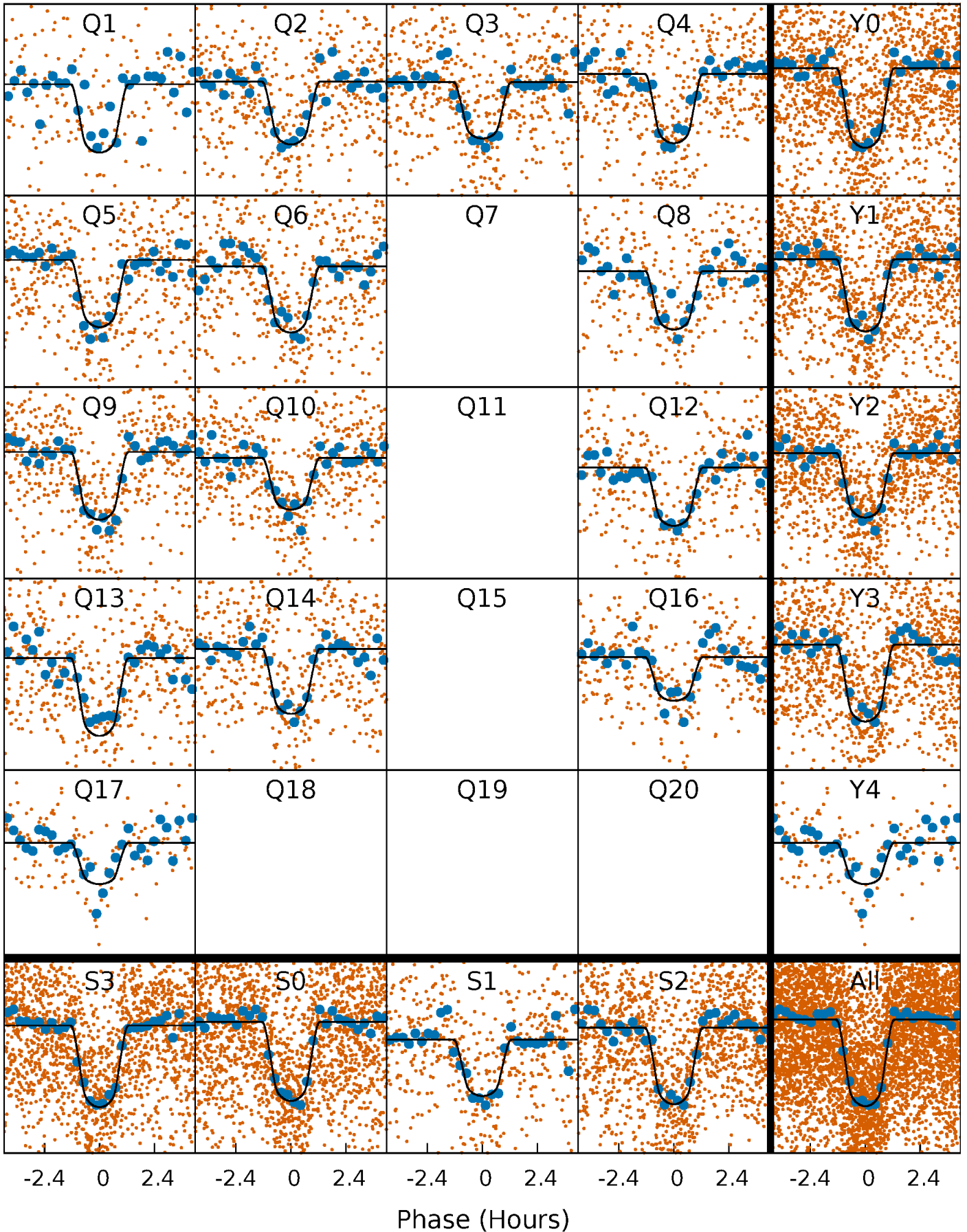
PDC Quarter-Phased Transit Curves

TCE 010554999-02 P= 2.735892 Days $T_0=132.796503$ (BKJD)



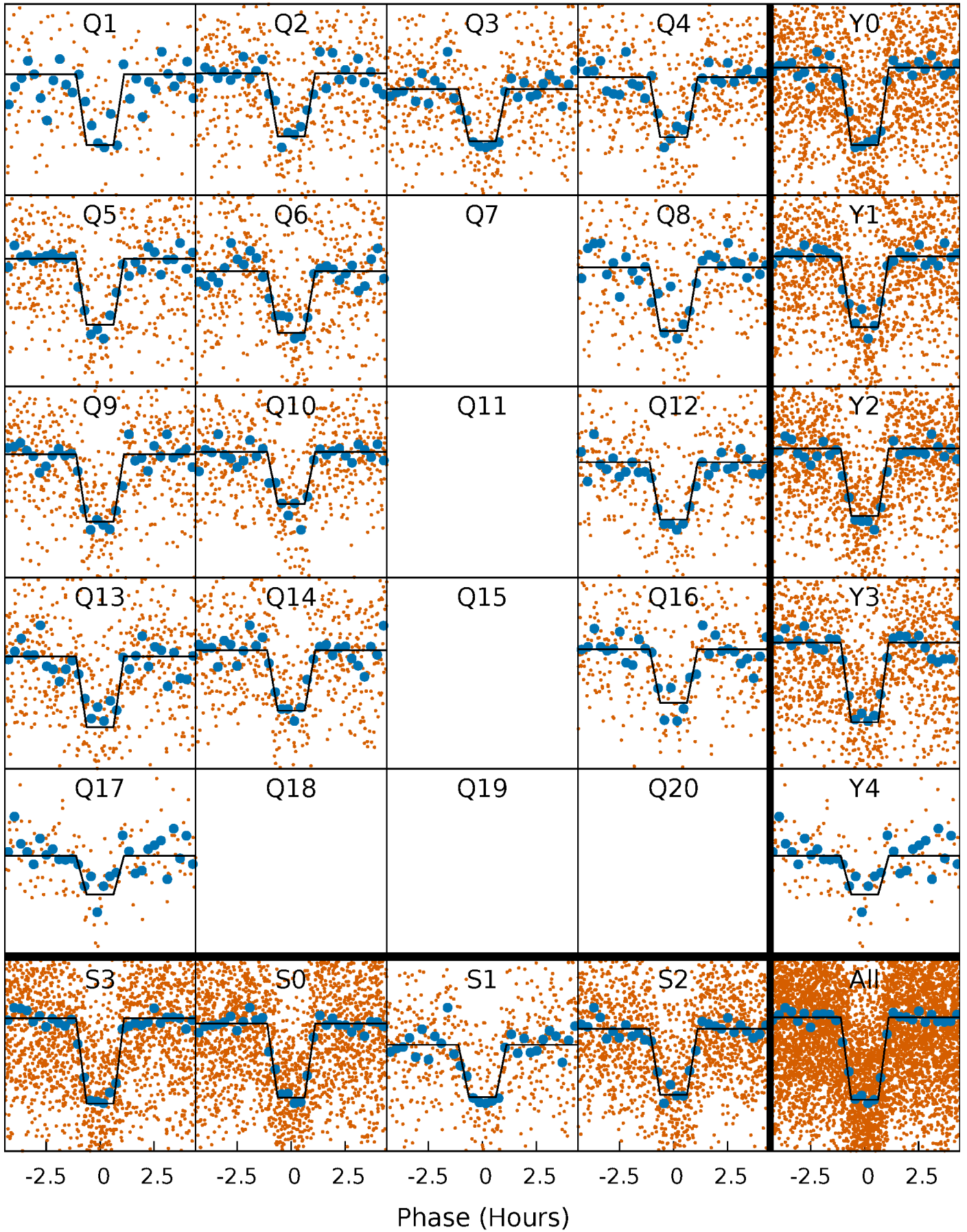
DV Quarter-Phased Transit Curves

TCE 010554999-02 P= 2.735892 Days $T_0=132.796503$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

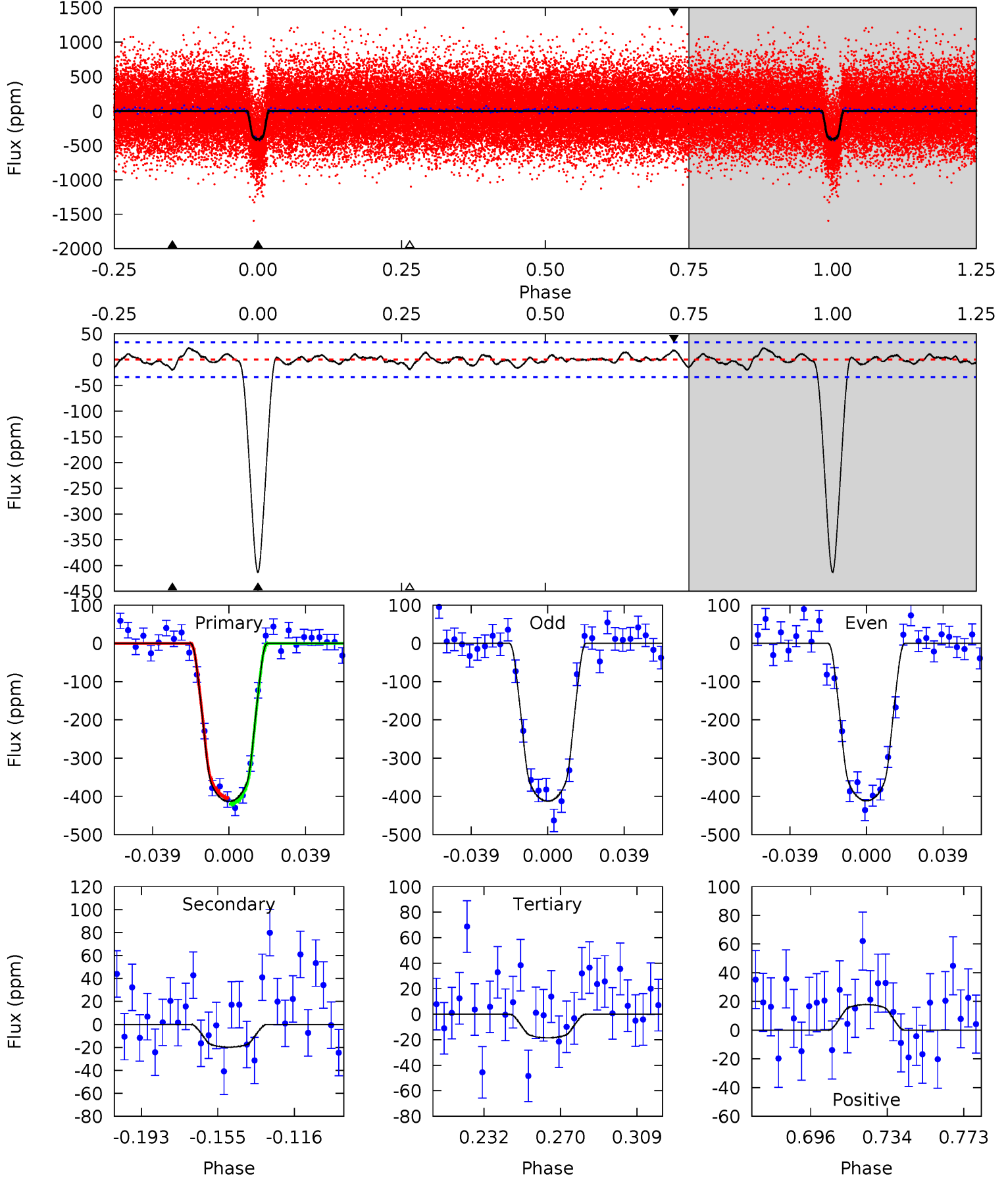
TCE 010554999-02 $P = 2.735904$ Days $T_0 = 132.793079$ (BKJD)



DV Model-Shift Uniqueness Test

010554999-02, P = 2.735892 Days, E = 130.060611 Days

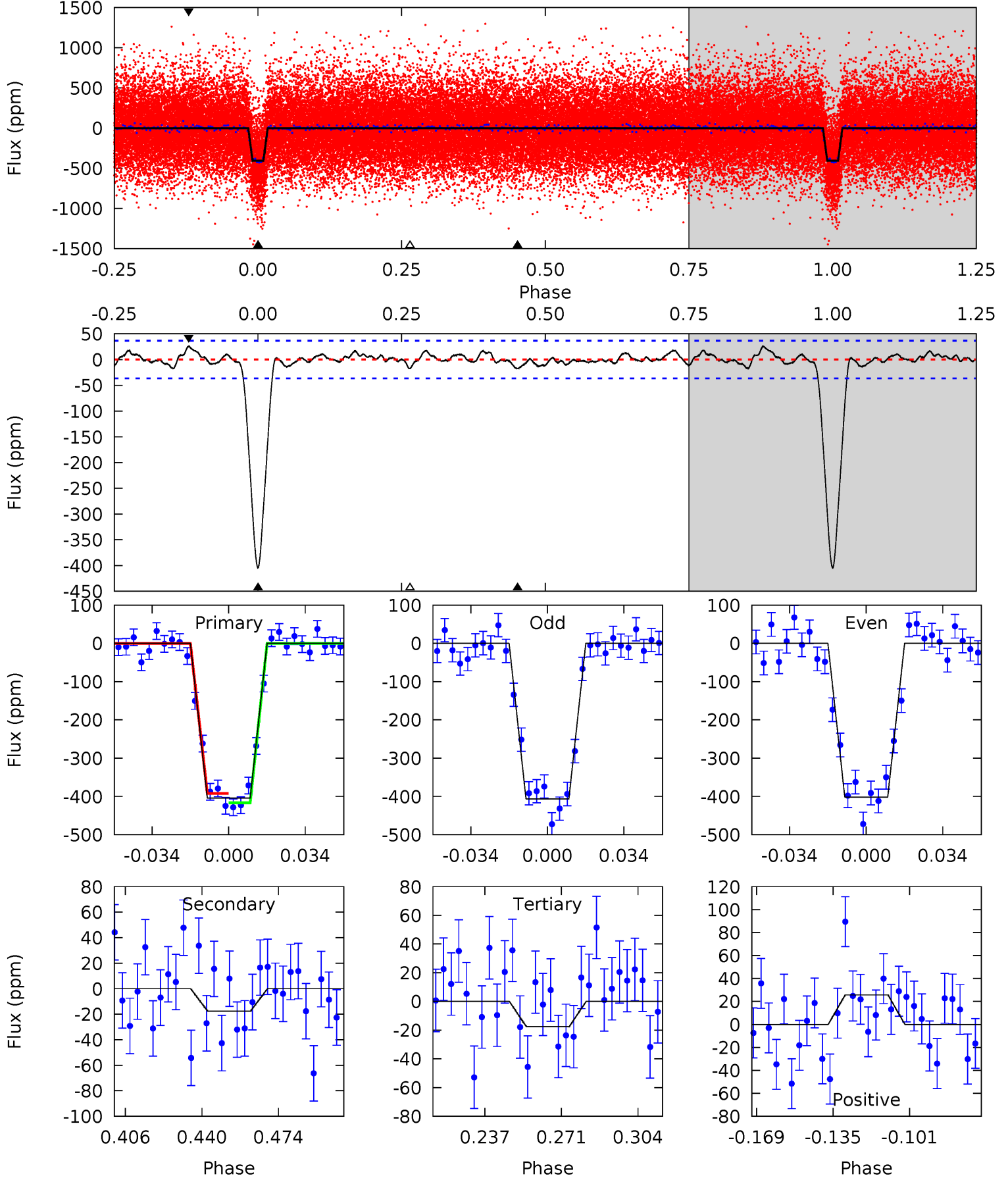
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
58.1	2.79	2.61	2.50	4.76	2.07	0.93	55.5	55.6	0.18	0.28	0.07	0.98	0.05	1.17



Alt Model-Shift Uniqueness Test

010554999-02, P = 2.735904 Days, E = 130.057175 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.9	2.31	2.30	3.36	4.79	2.12	1.03	50.6	49.6	0.01	-1.05	0.29	1.00	0.06	1.60



Stellar Parameters For KIC 010554999

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5299^{+159}_{-143}	$4.597^{+0.032}_{-0.097}$	$-0.140^{+0.300}_{-0.300}$	$0.766^{+0.113}_{-0.066}$	$0.856^{+0.070}_{-0.104}$	$2.677^{+0.458}_{-0.824}$
	+3%/-3%	+1%/-2%	+214%/-214%	+15%/-9%	+8%/-12%	+17%/-31%
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 010554999-02 / KOI 0534.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-20 ± 7	$1.93^{+0.31}_{-0.28}$	1521^{+69}_{-53}	2965^{+204}_{-242}	$3.746^{+2.101}_{-1.627}$
Alt.	-18 ± 8	$1.76^{+0.31}_{-0.31}$	1526^{+66}_{-57}	3015^{+238}_{-273}	$4.095^{+3.070}_{-1.904}$

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

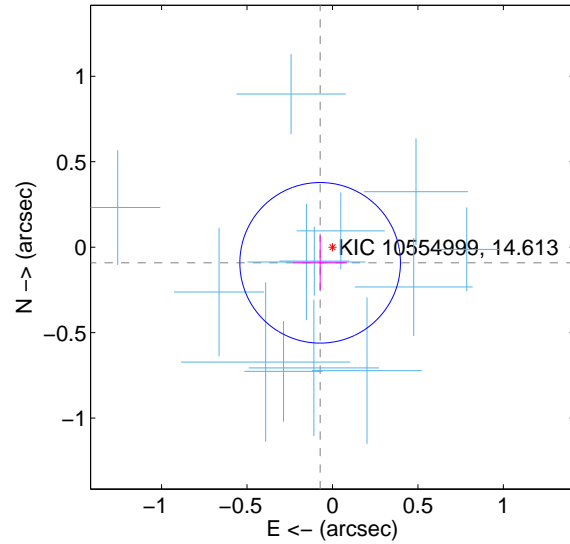
Supplemental centroid analysis for 010554999-02. Kepler magnitude: 14.61. Transit SNR 40.97

There are 13 quarters with good PRF difference image offsets

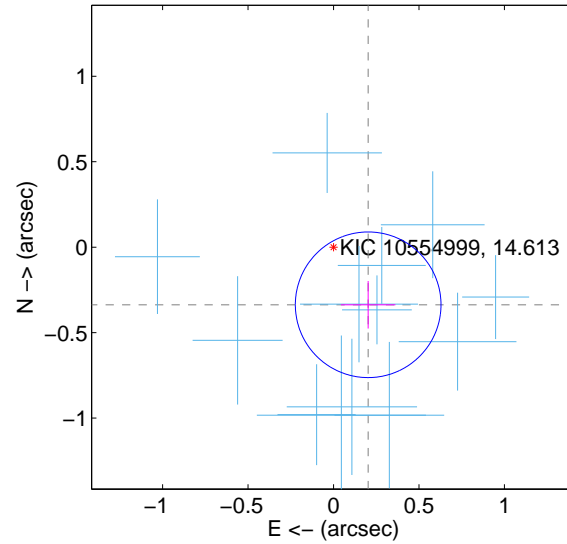
The direct PRF centroid is offset from the target star catalog position by about 0.54 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.117 ± 0.157	0.74	0.072 ± 0.157	-0.092 ± 0.159
PRF-fit source offset from KIC position	0.393 ± 0.142	2.77	-0.203 ± 0.159	-0.337 ± 0.139
photometric centroid source offset	0.17 ± 0.34	0.51	-0.12 ± 0.33	0.12 ± 0.34

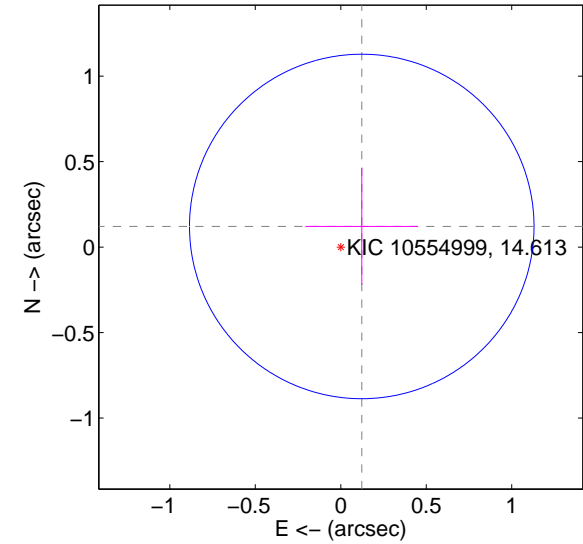
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

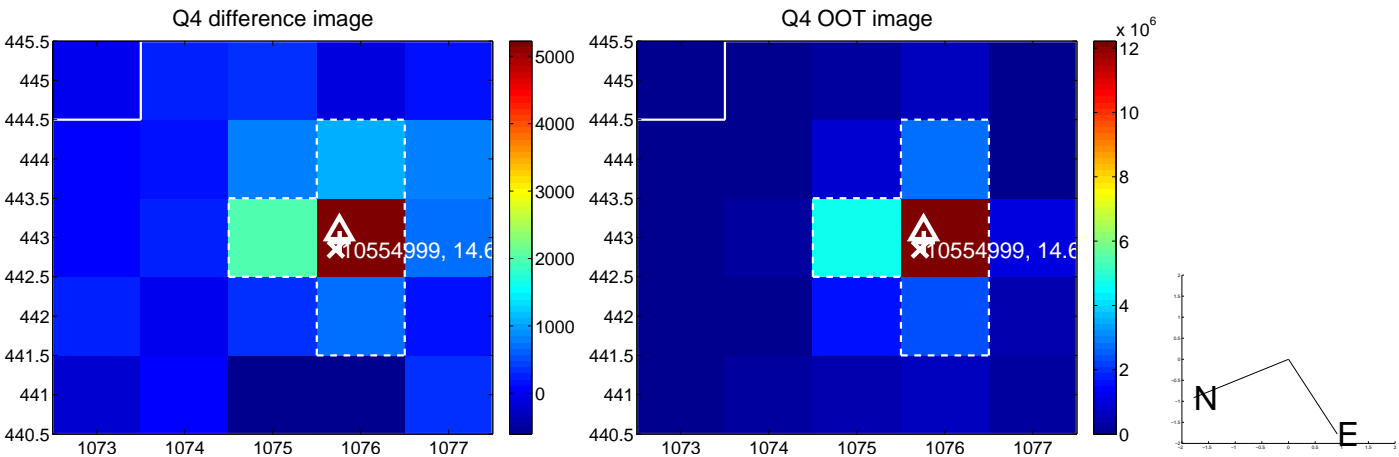
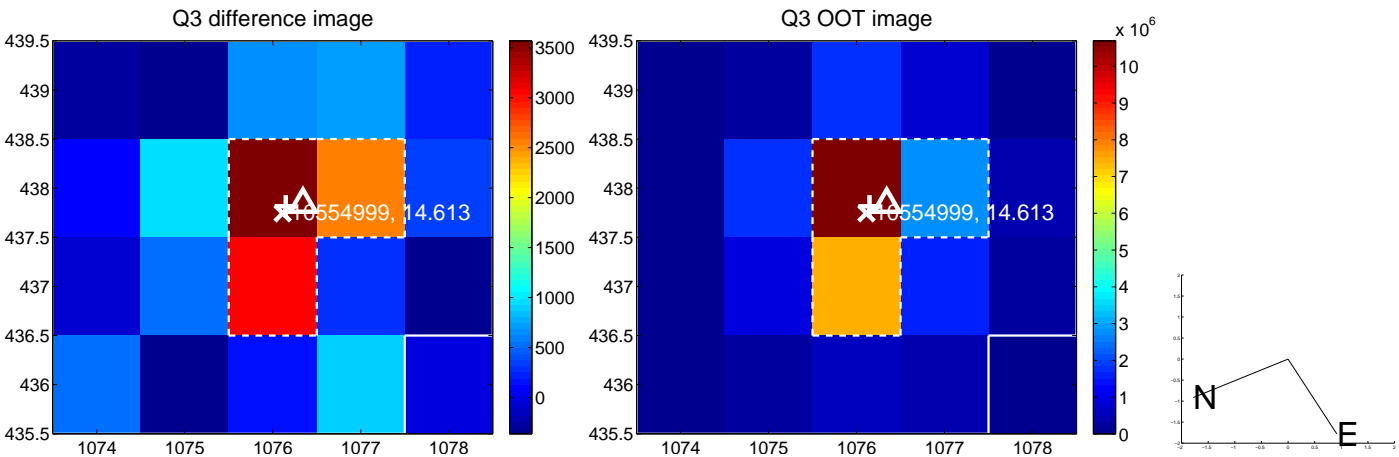
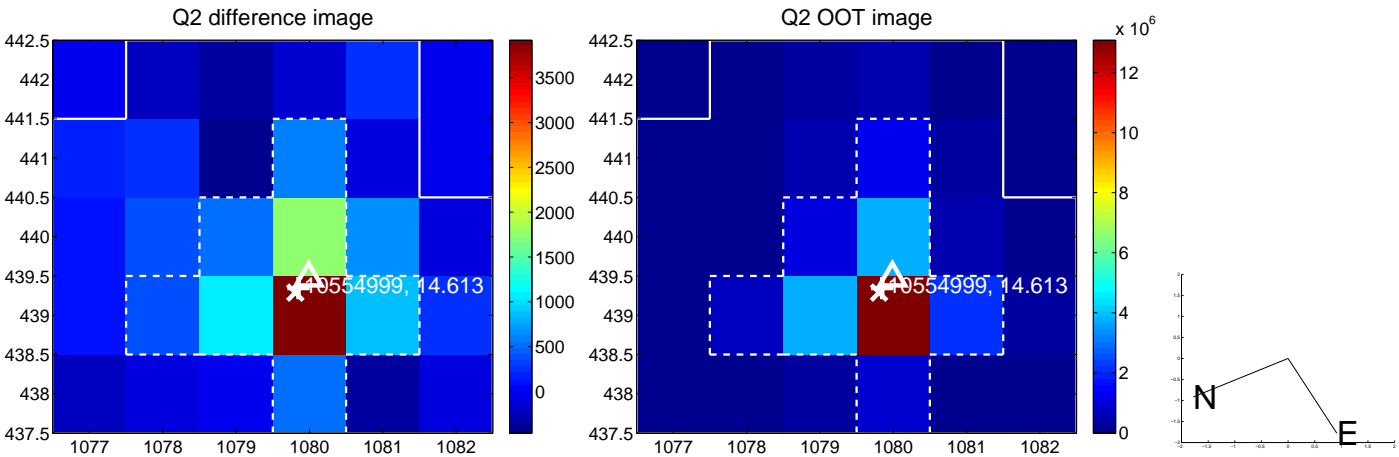
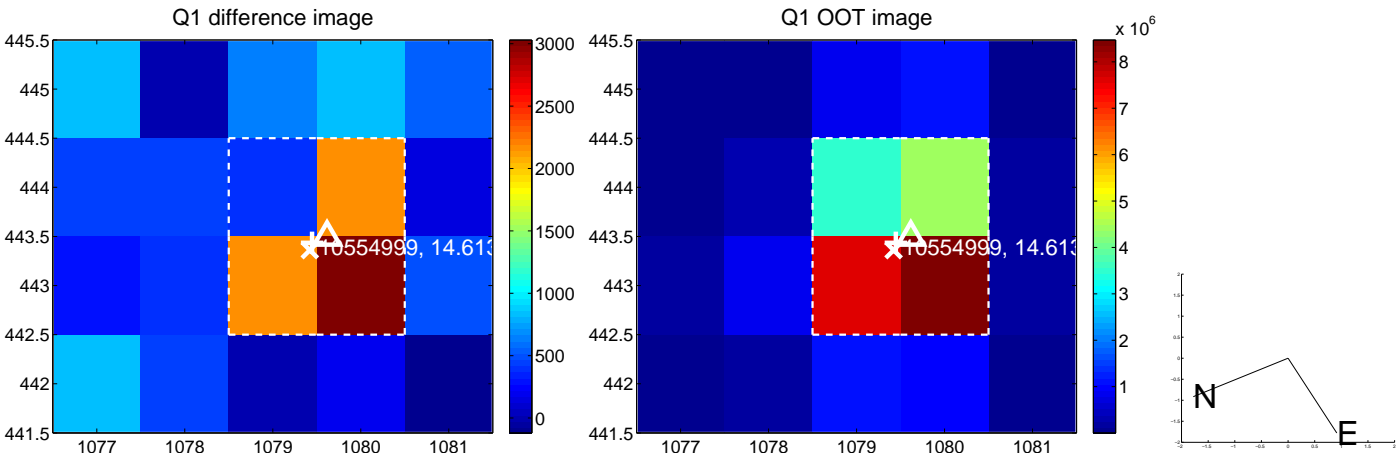


offset from photometric centroids

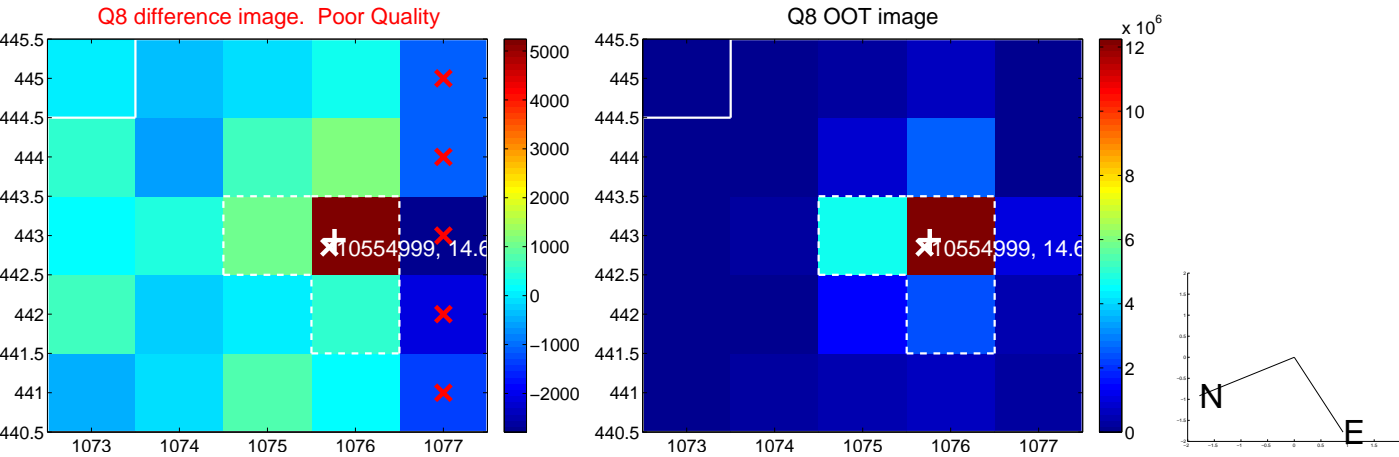
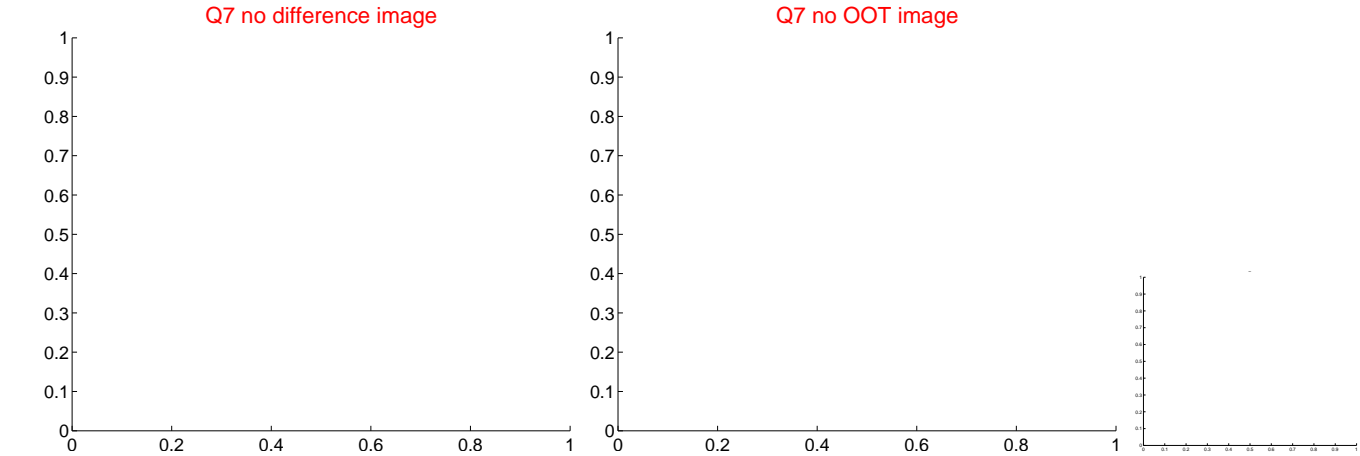
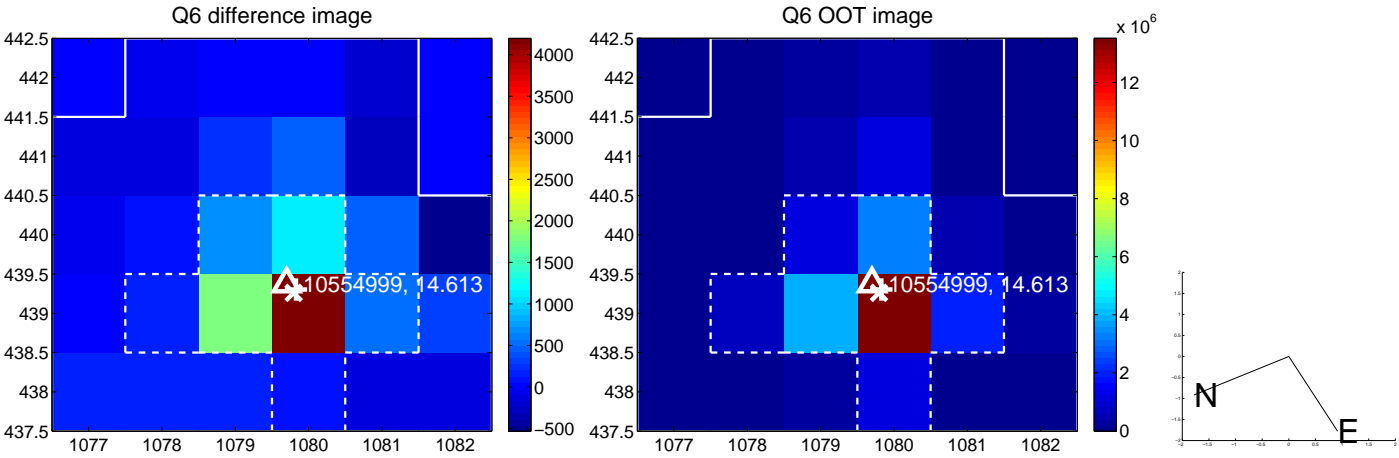
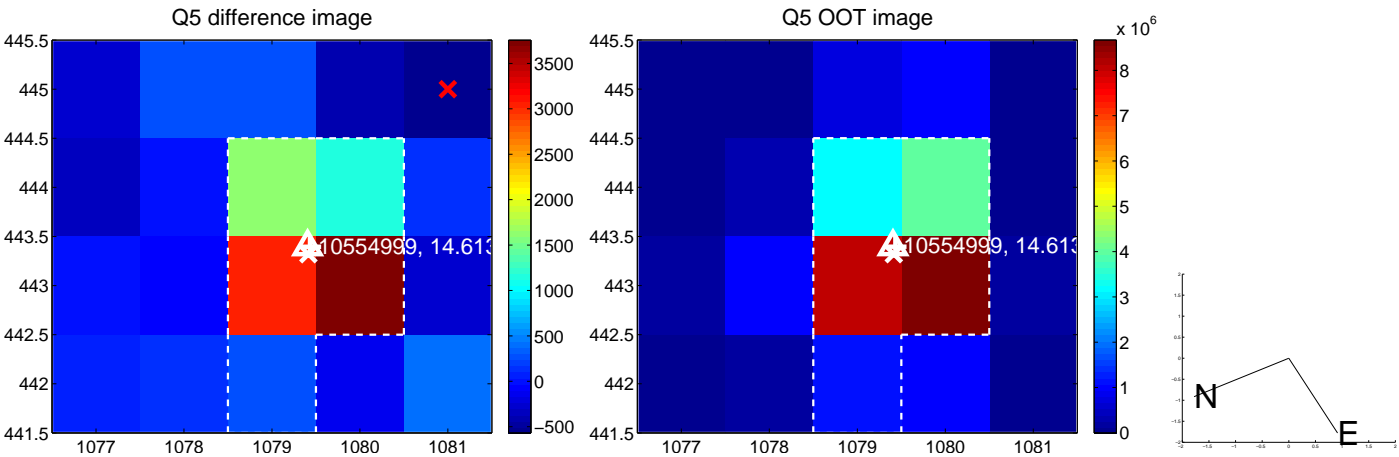


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

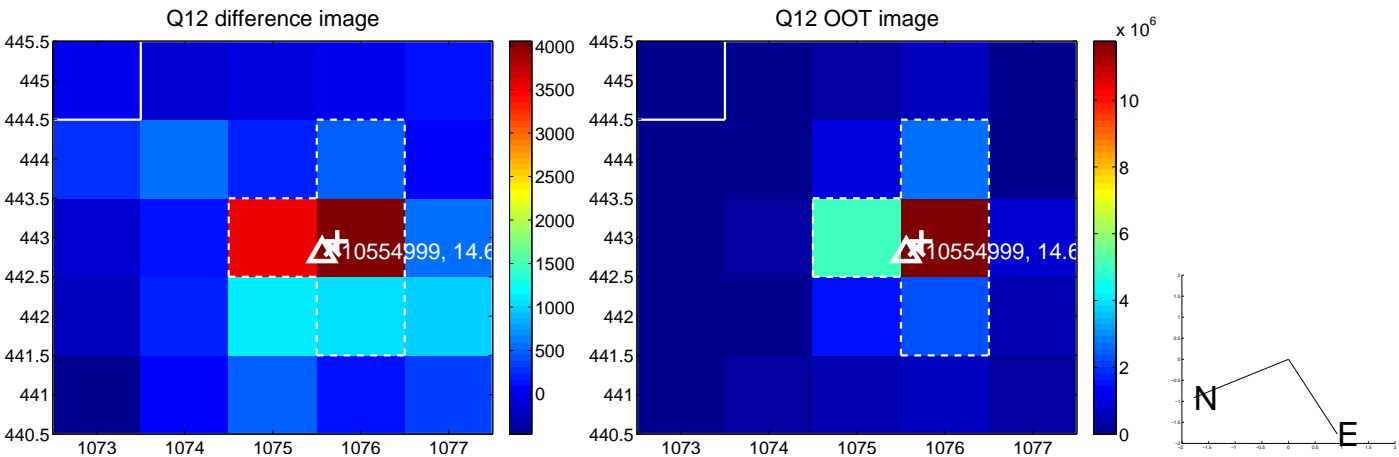
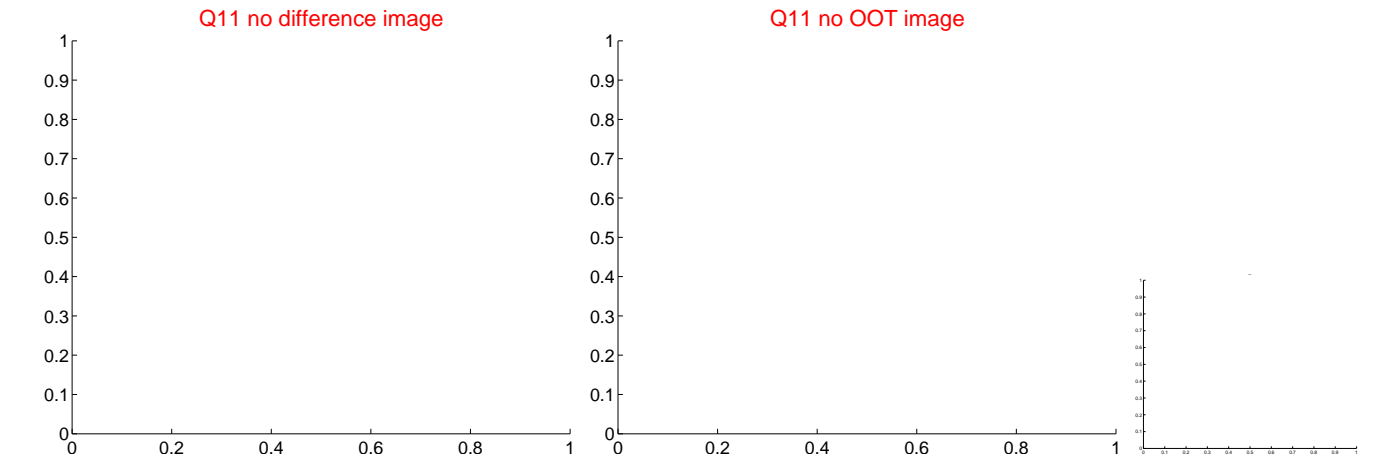
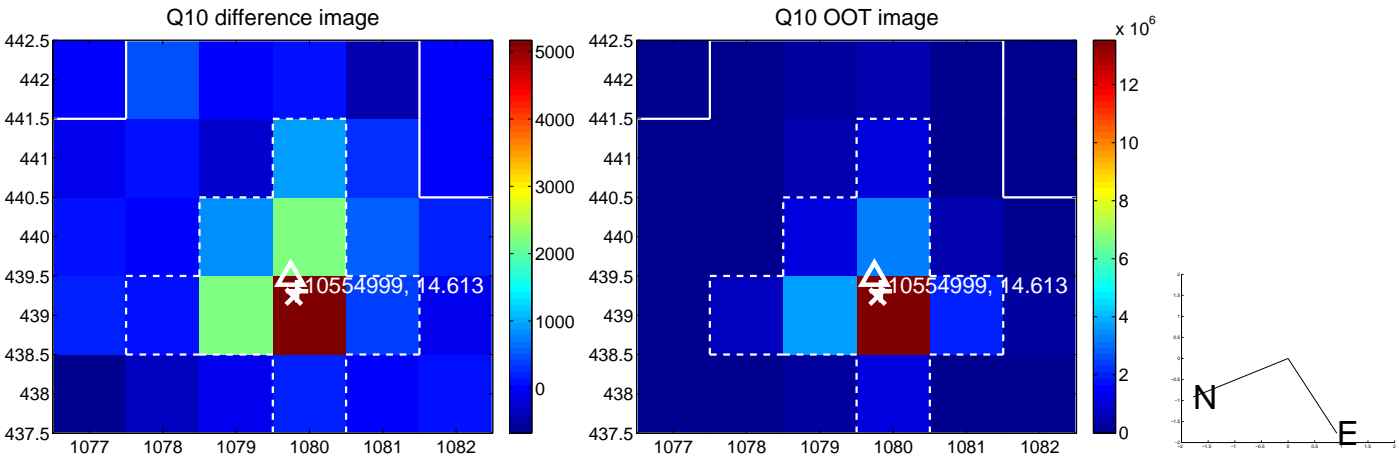
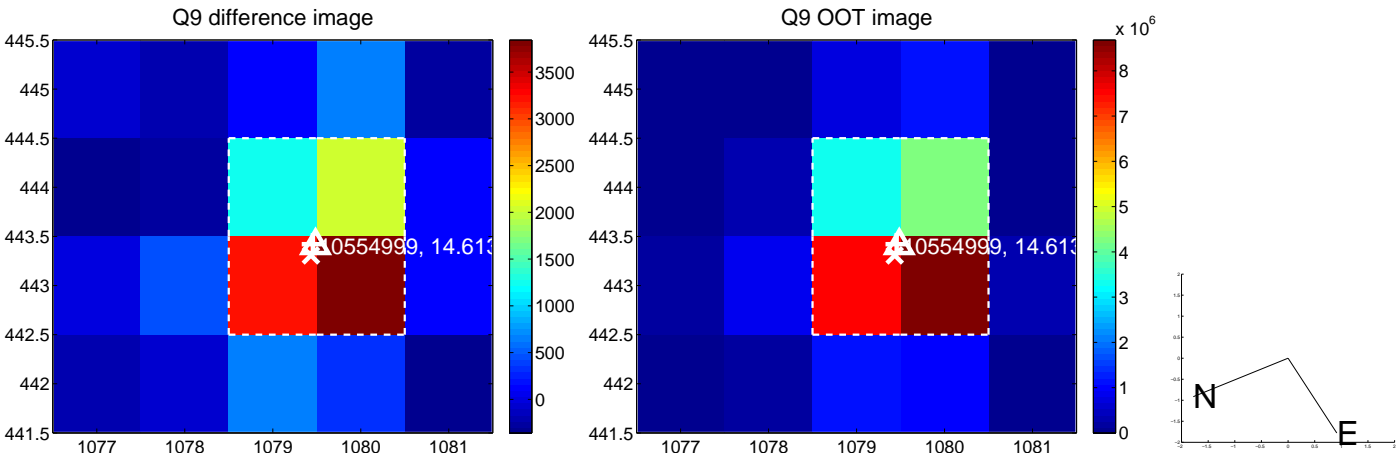
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



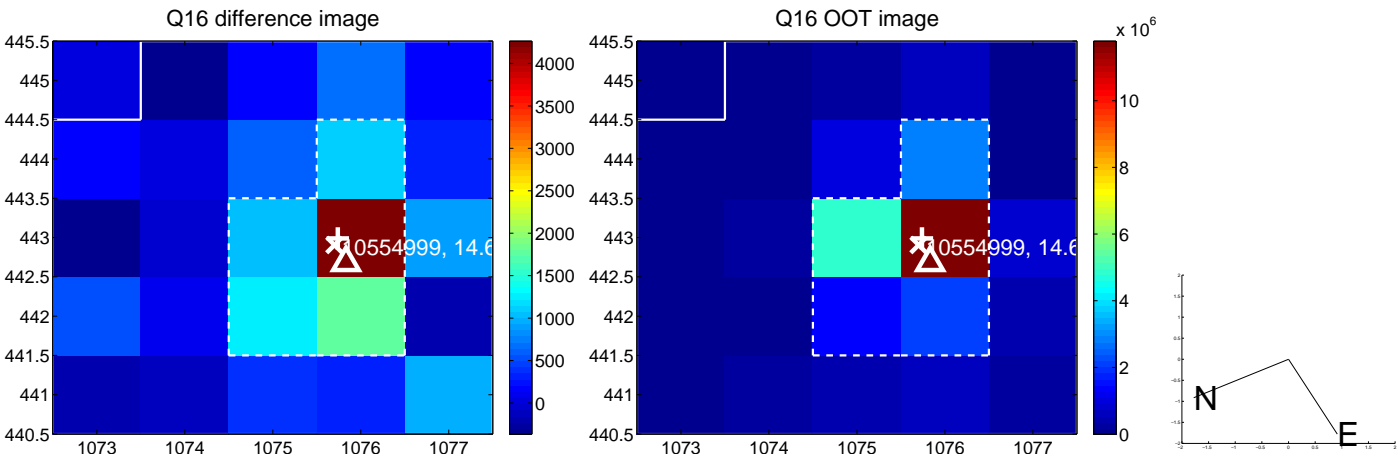
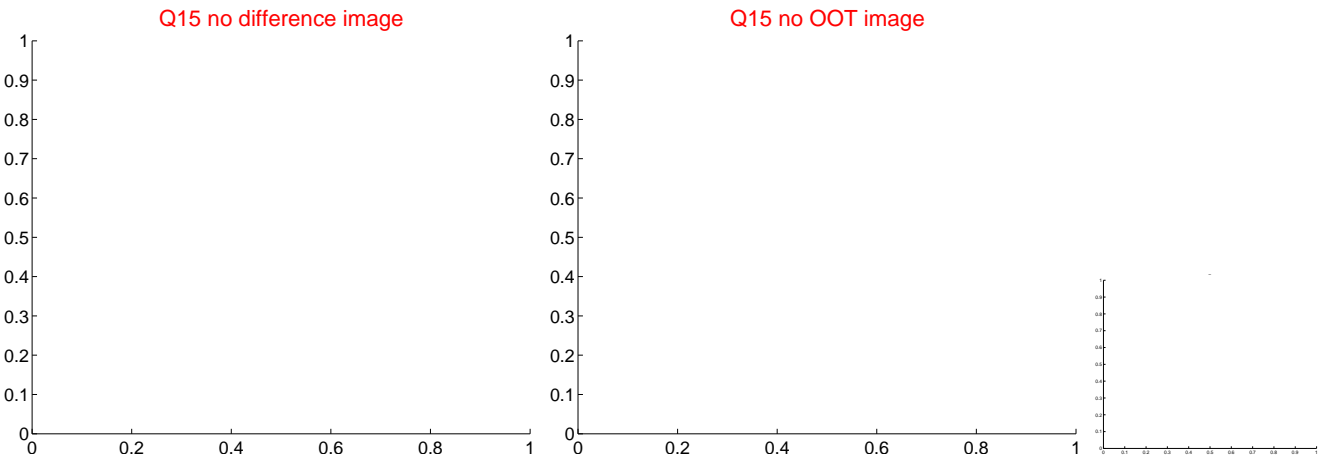
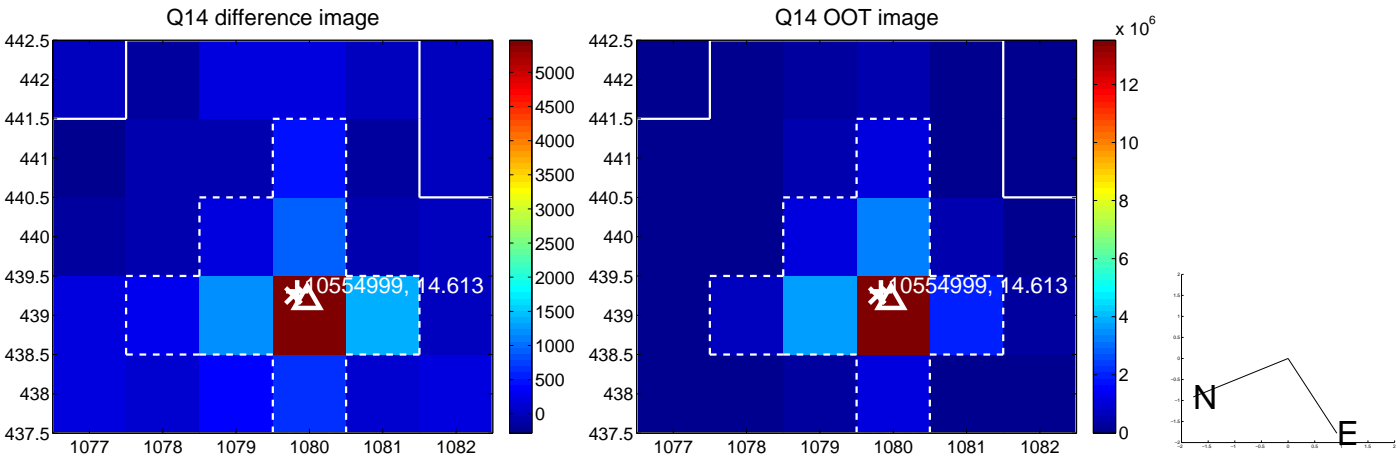
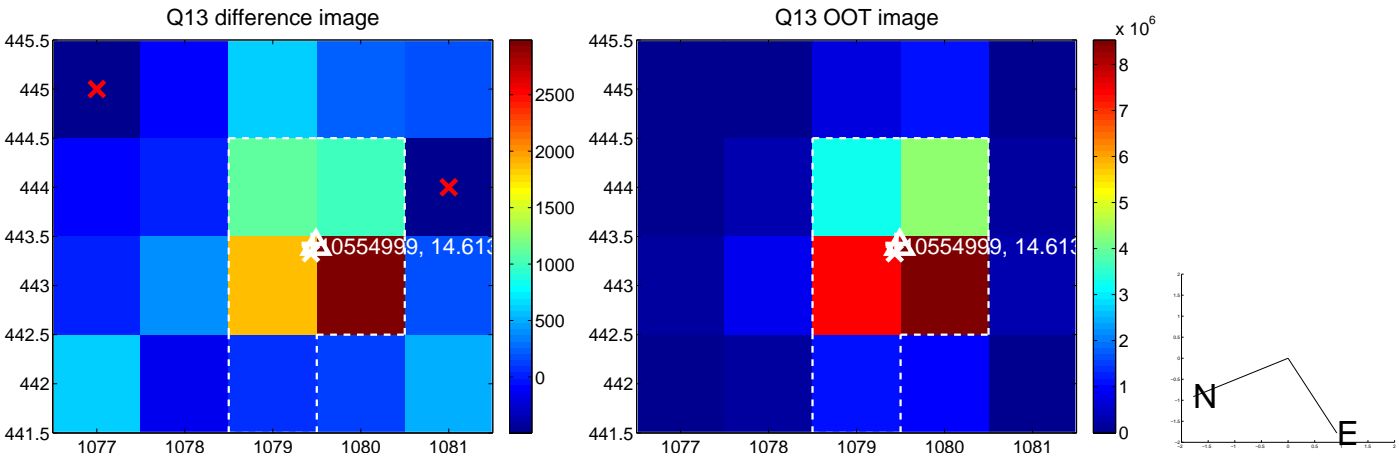
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

