

KIC 005112198

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})
005112198-01	OBS	6522.01	3.215793	133.528890	39.4	17.008	11.3	10.9	1.04	6300	0.91	824.35
005112198-02	OBS	No	84.179632	151.859318	249.2	12.121	9.4	7.4	1.04	6300	1.77	10.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005112198-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005112198-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—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.

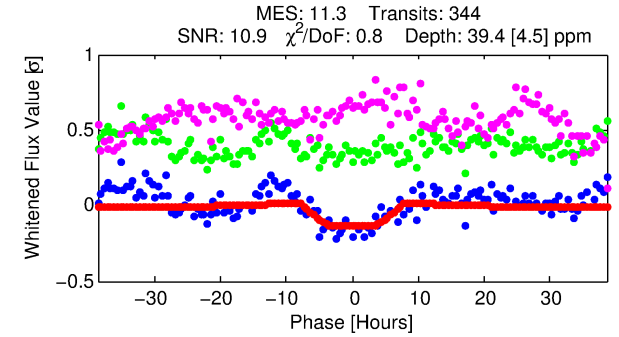
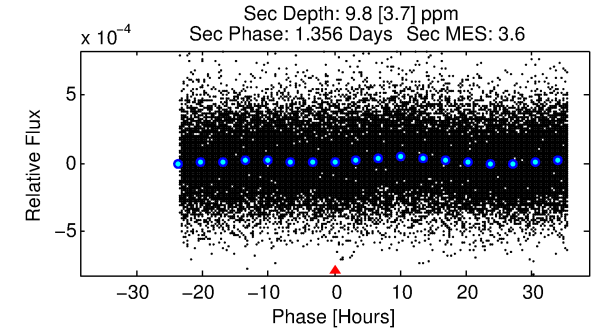
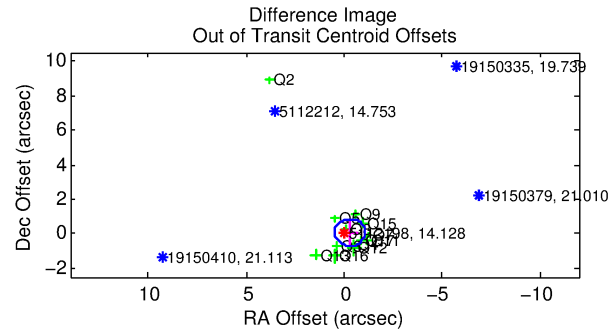
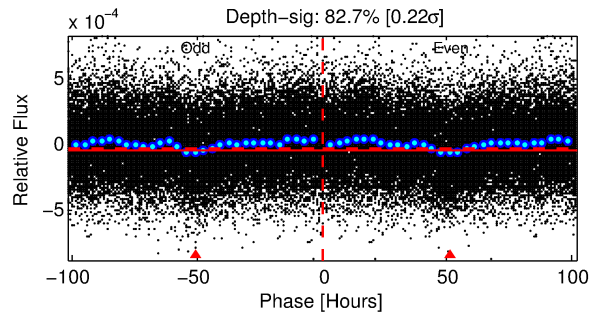
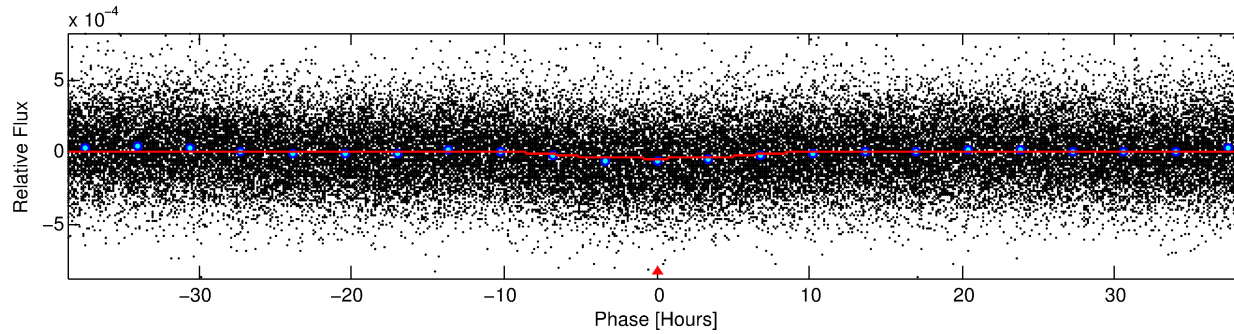
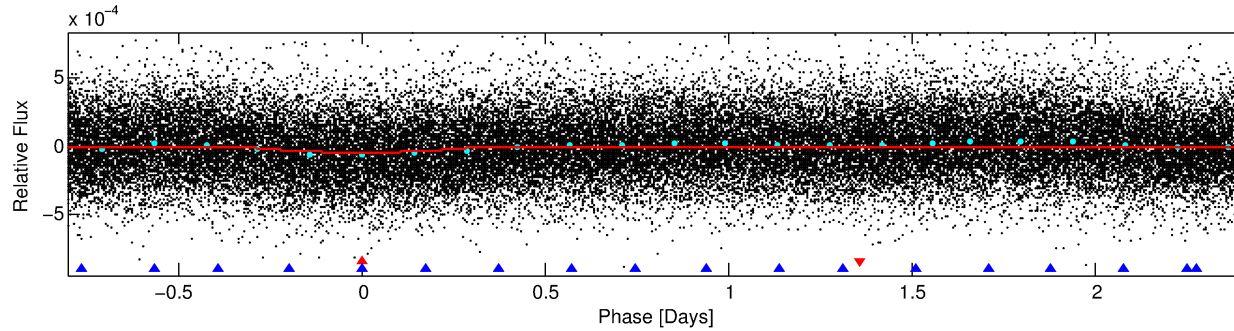
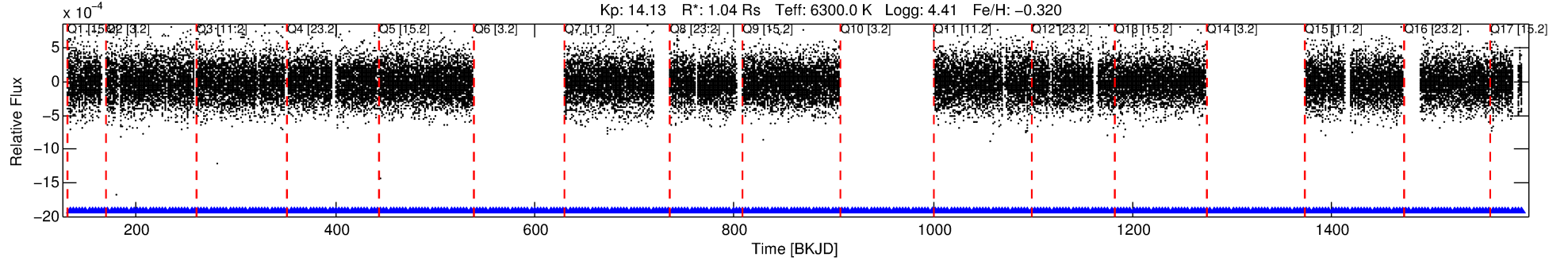
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005112198-01

No Significant Match Found

DV One-Page Summary

KIC: 5112198 Candidate: 1 of 2 Period: 3.216 d
KOI: K06522.01 Corr: 0.768



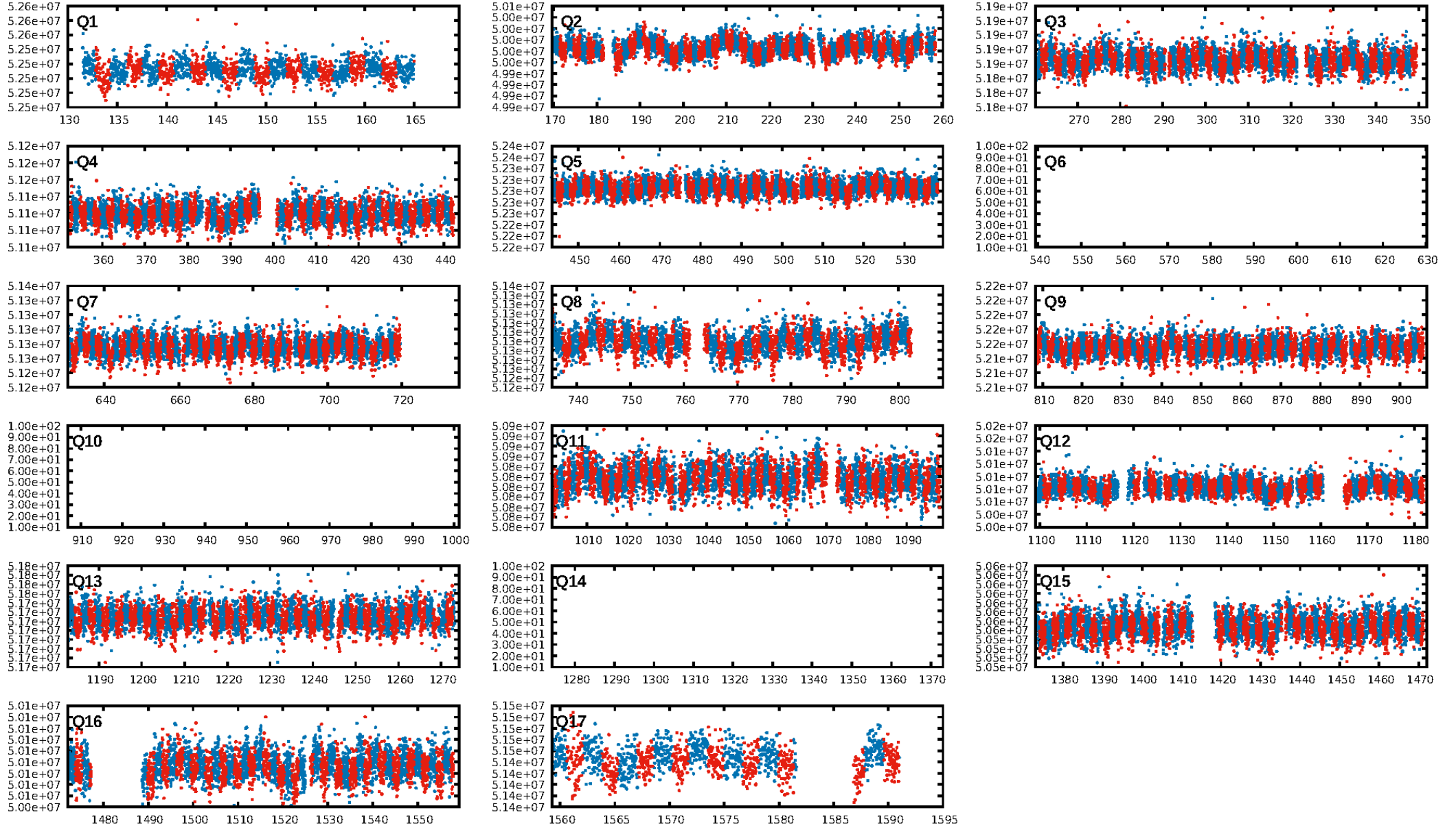
DV Fit Results:

Period = 3.21579 [0.00012] d
Epoch = 133.5289 [0.0305] BKJD
Rp/R* = 0.0080 [0.0006]
a/R* = 1.03 [0.01]
b = 0.99 [0.00]
Seff = 824.35 [334.78]
Teq = 1366 [139] K
Rp = 0.91 [0.29] Re
a = 0.0429 [0.0113] AU
Ag = 12.04 [6.73] [1.64σ]
Teffp = 3935 [420] K [5.81σ]

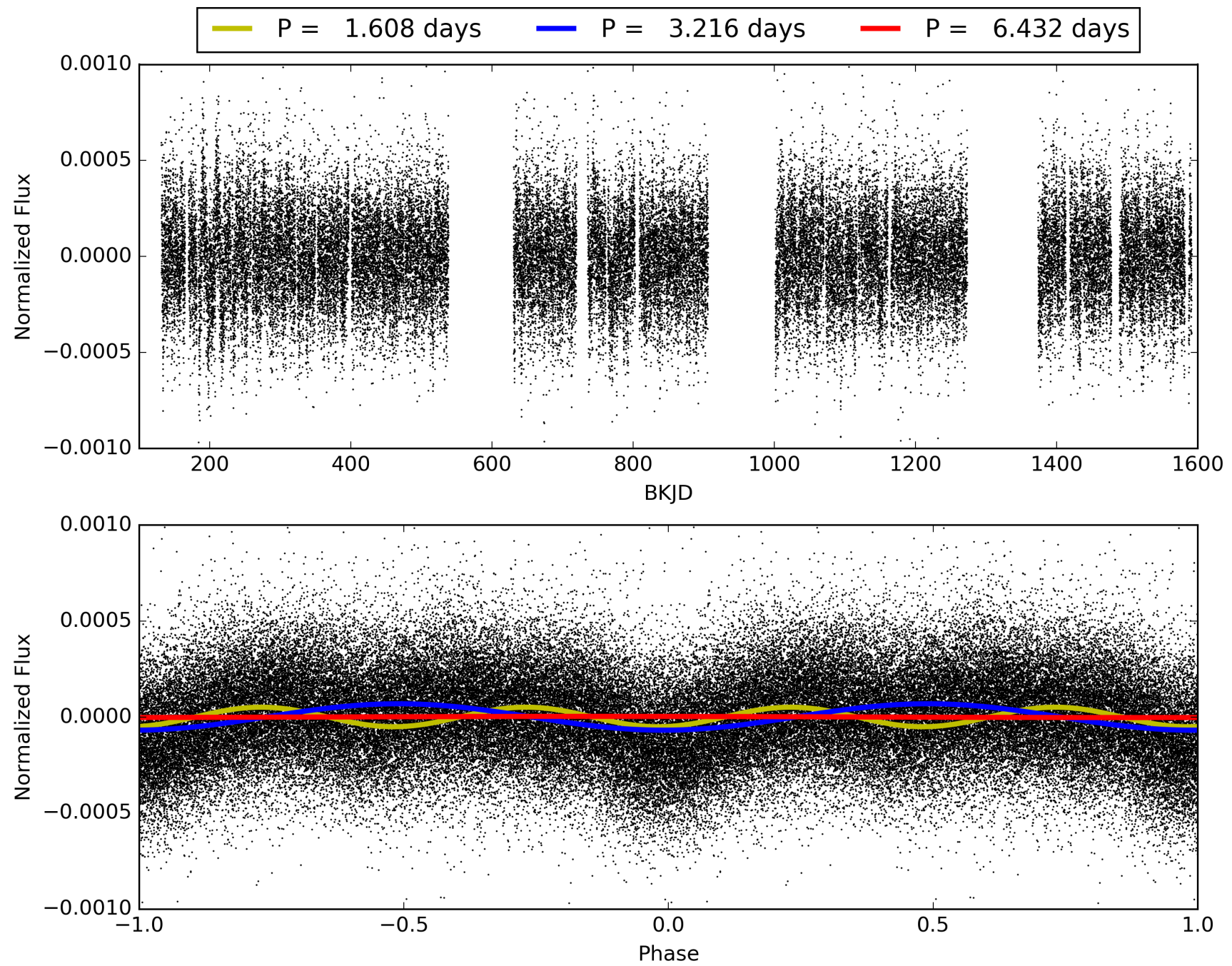
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [93.04σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.14e-22
RollingBand-fgt: 1.00 [325/325]
GhostDiagnostic-chr: 4.11
Centroid-sig: 0.0%
Centroid-so: 2.414 arcsec [2.04σ]
OotOffset-rm: 0.296 arcsec [1.14σ]
KicOffset-rm: 0.458 arcsec [0.88σ]
OotOffset-st: 1/4/4/4 [13]
KicOffset-st: 1/4/4/4 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 005112198-01, PDC Light Curves

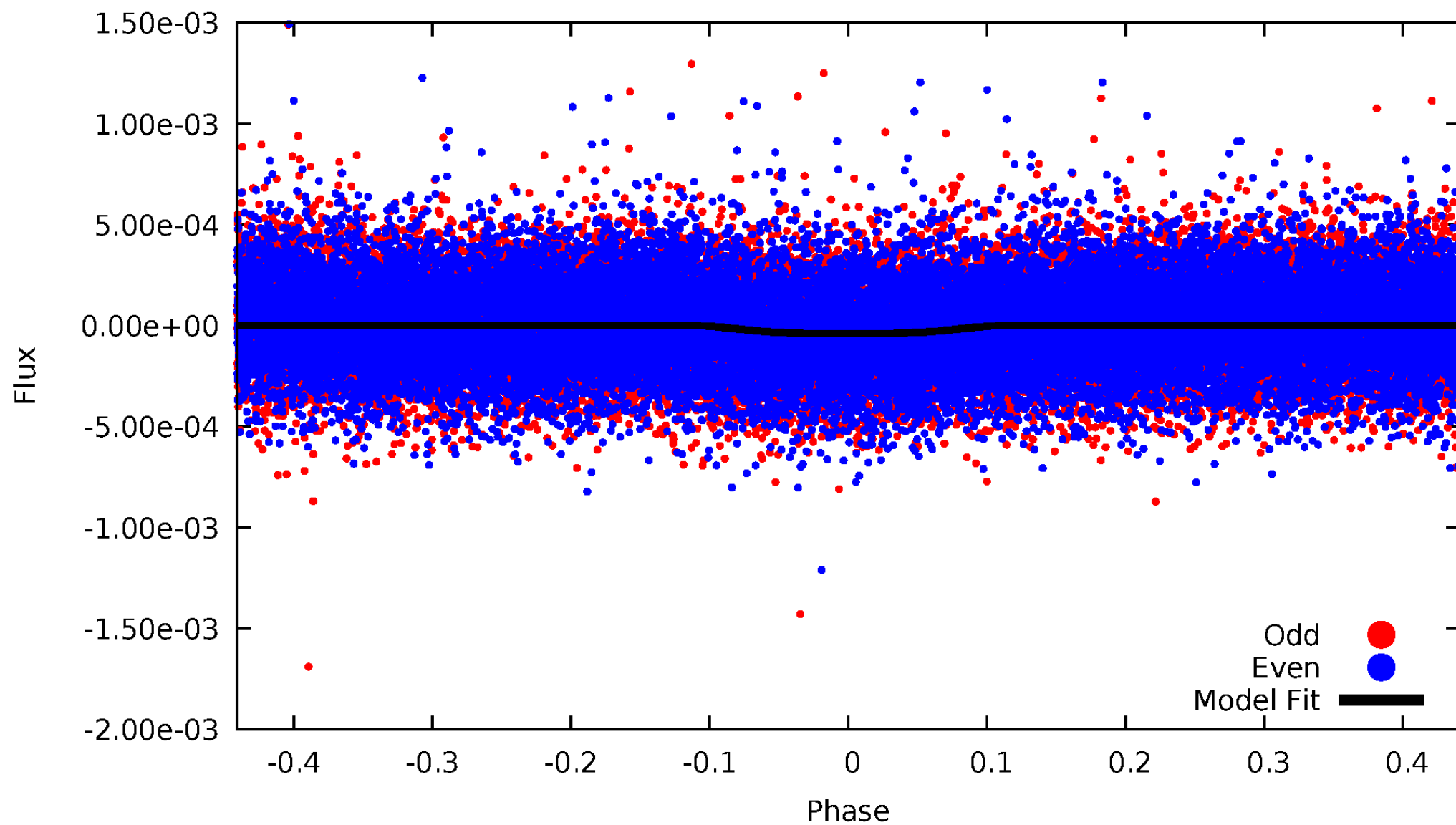


TCE 005112198-01



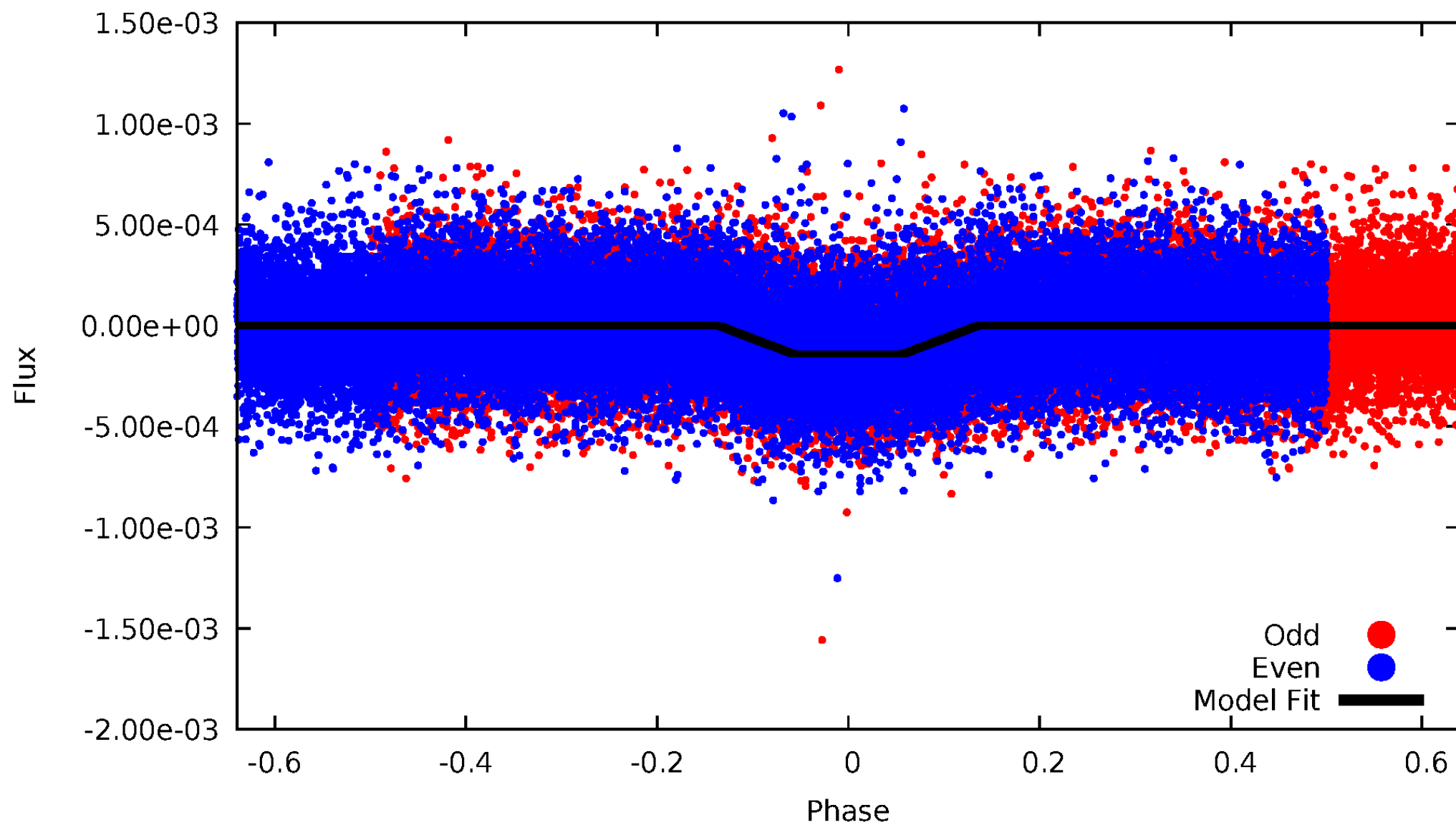
DV Odd/Even

TCE 005112198-01



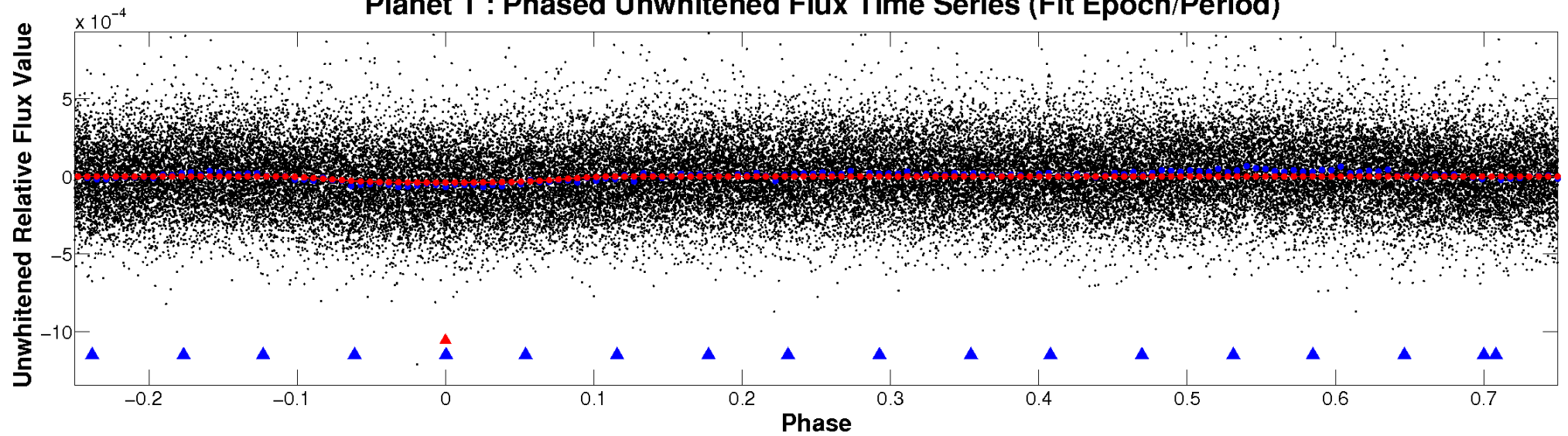
ALT Odd/Even

TCE 005112198-01

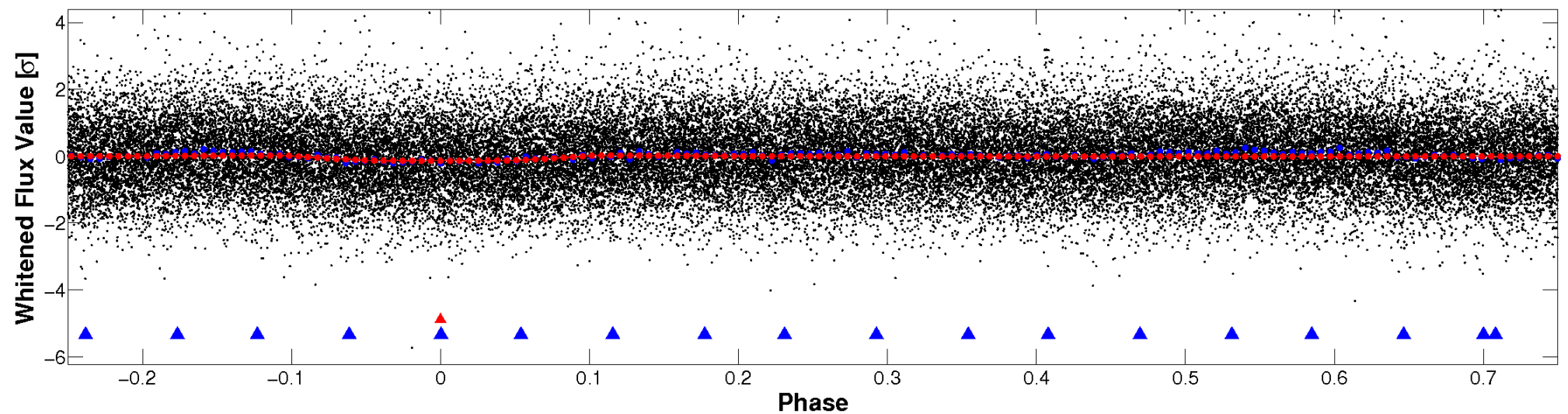


Non-Whitened Vs. Whitened Light Curve

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

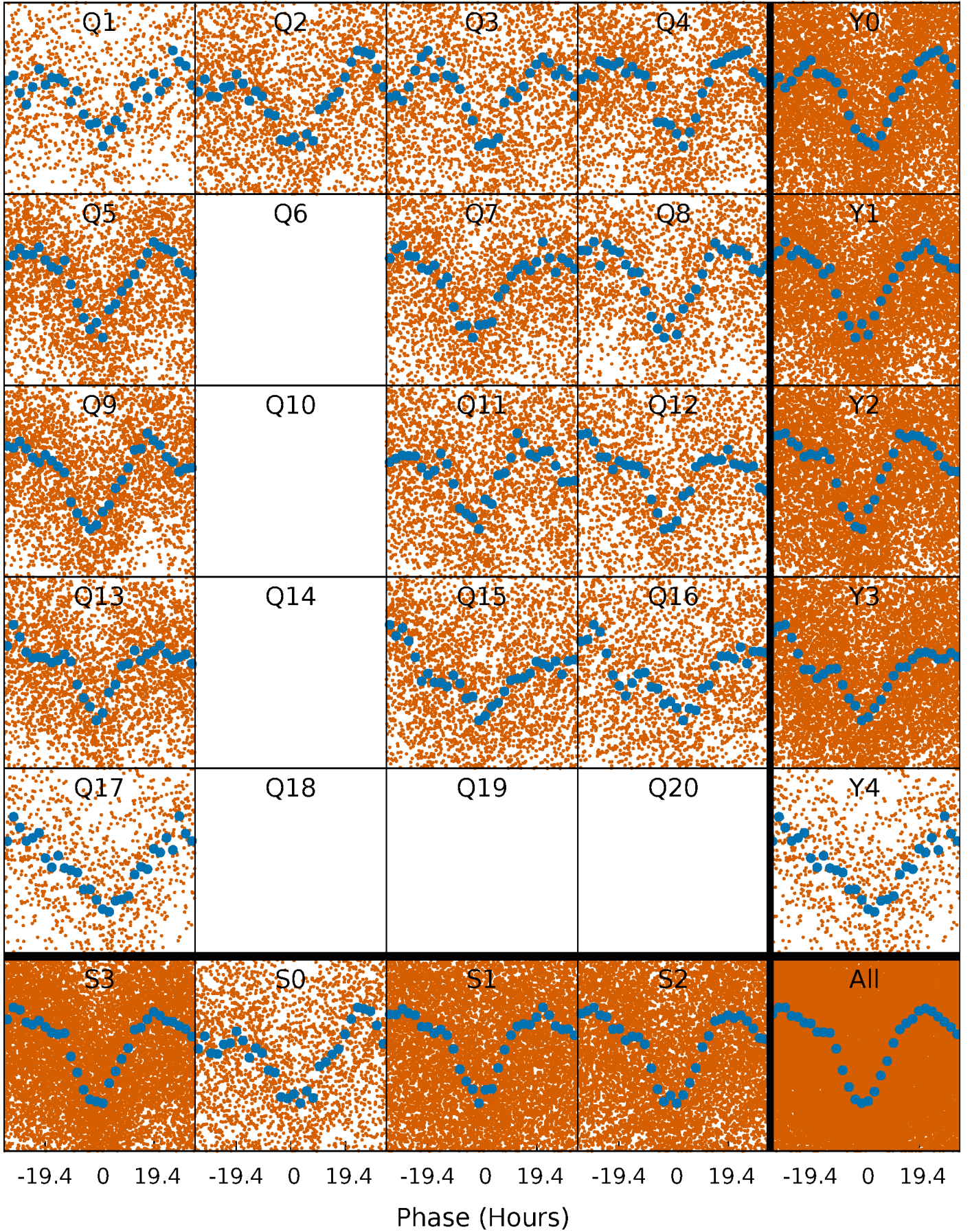


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



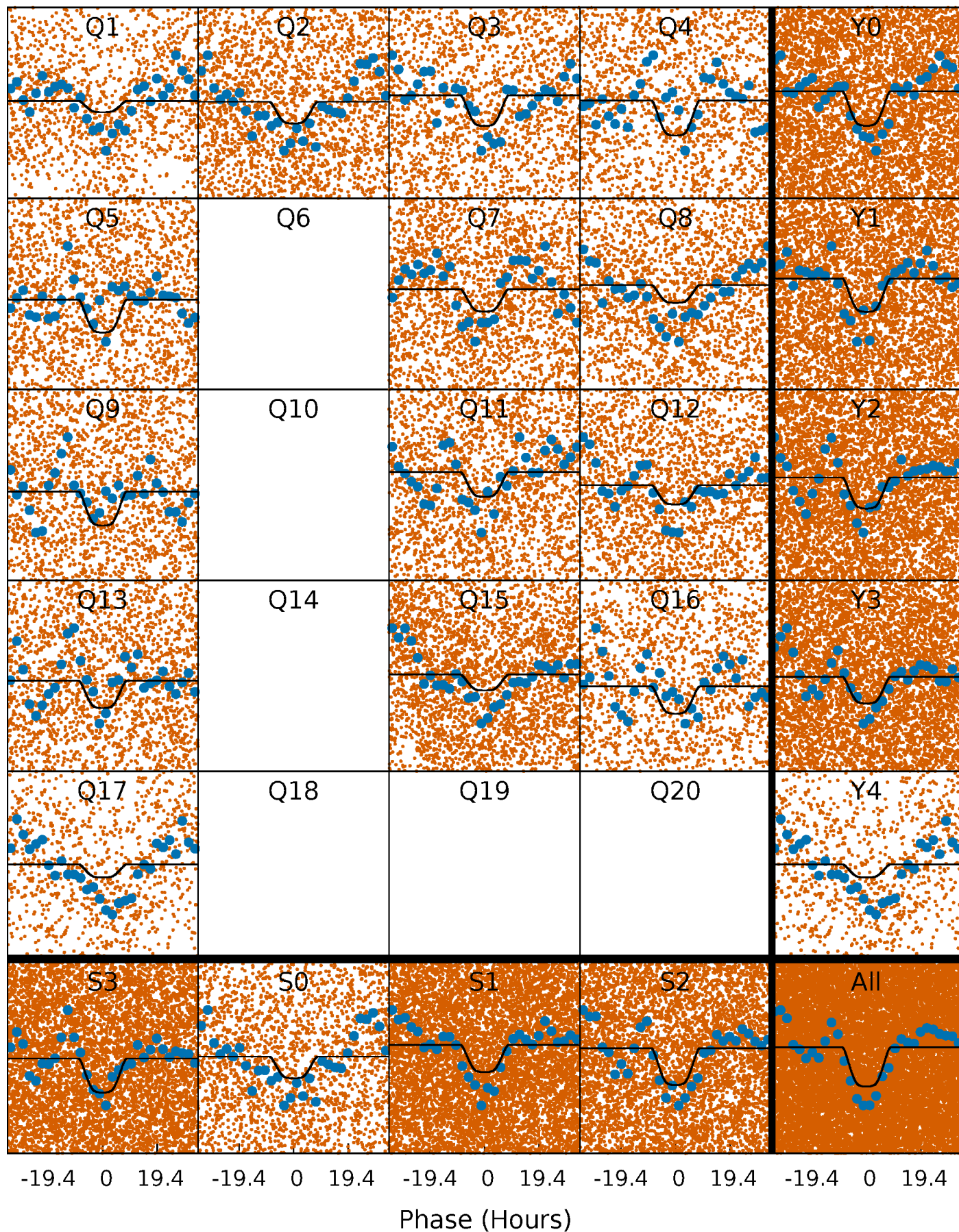
PDC Quarter-Phased Transit Curves

TCE 005112198-01 P= 3.215793 Days $T_0=133.528890$ (BKJD)



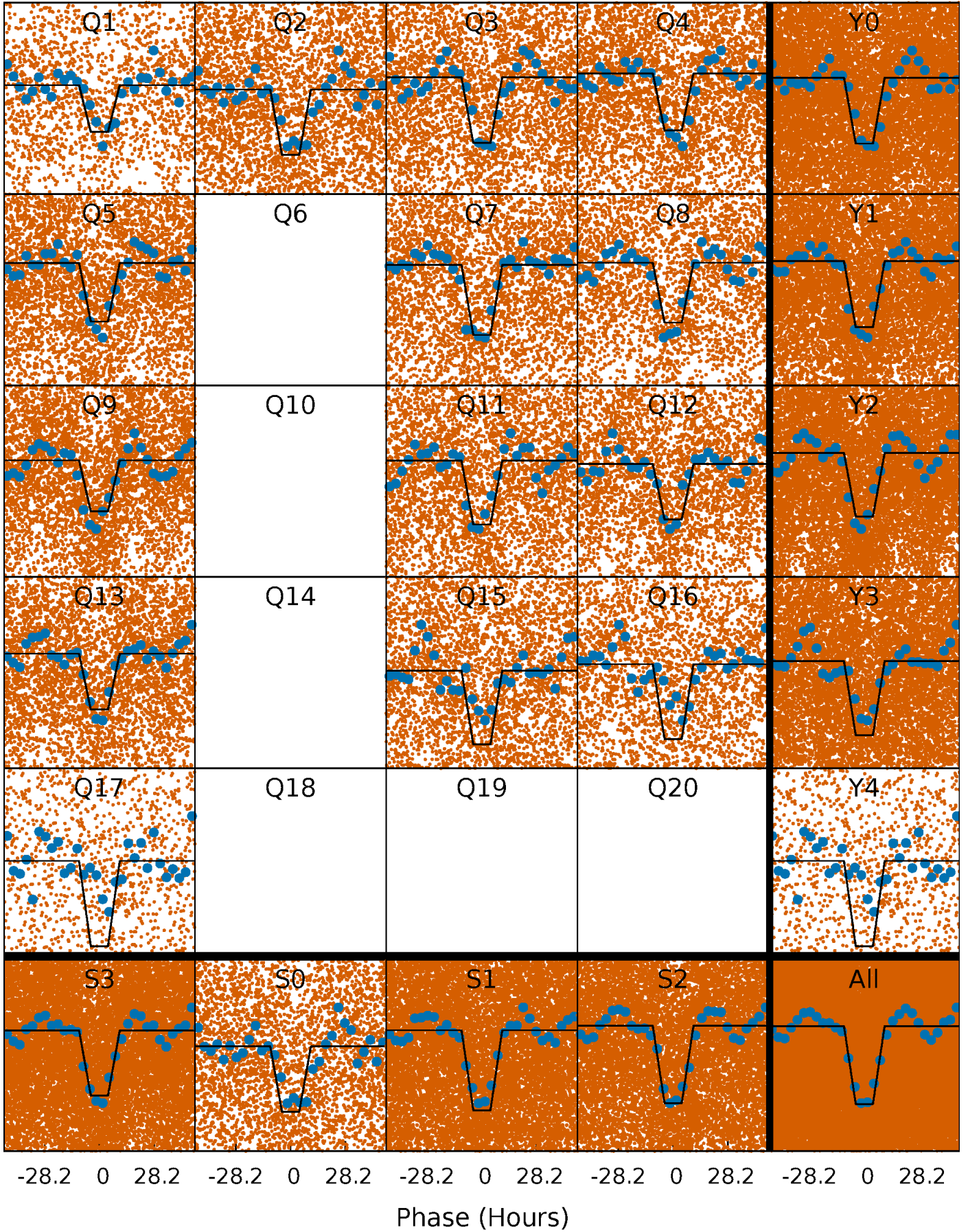
DV Quarter-Phased Transit Curves

TCE 005112198-01 P= 3.215793 Days $T_0=133.528890$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

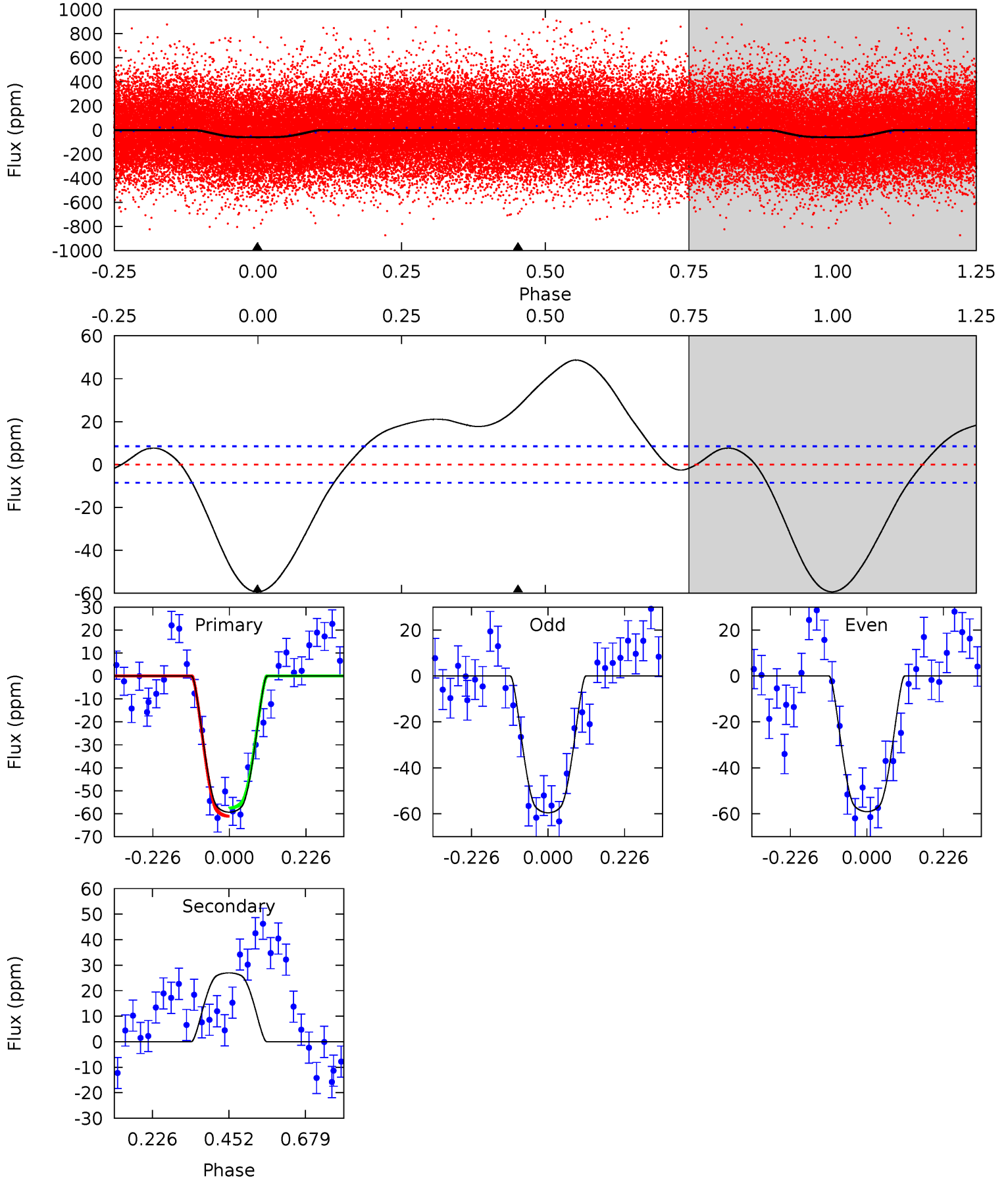
TCE 005112198-01 P= 3.215820 Days $T_0=133.502999$ (BKJD)



DV Model-Shift Uniqueness Test

005112198-01, P = 3.215793 Days, E = 130.313097 Days

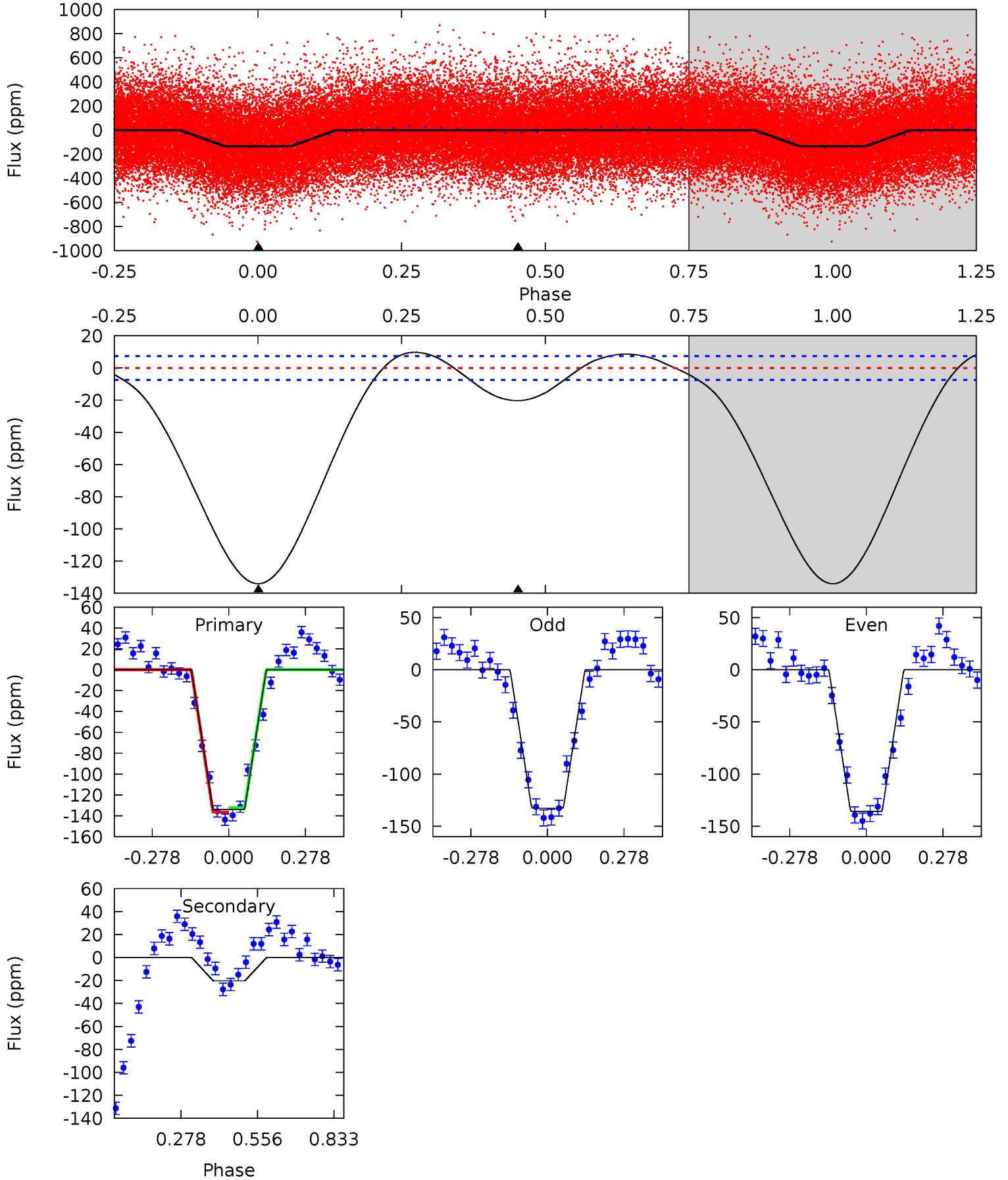
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.8	-14.0	0	0	4.39	1.21	2.37	30.8	30.8	-14.0	-14.0	0.14	0.93	0.45	0.91



Alt Model-Shift Uniqueness Test

005112198-01, P = 3.215820 Days, E = 130.287179 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
78.8	11.9	0	0	4.35	1.09	2.80	78.8	78.8	11.9	11.9	0.85	0.96	0.07	1.18



Stellar Parameters For KIC 005112198

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6300^{+169}_{-207}	$4.414^{+0.084}_{-0.210}$	$-0.320^{+0.300}_{-0.300}$	$1.036^{+0.325}_{-0.116}$	$1.012^{+0.146}_{-0.120}$	$1.283^{+0.473}_{-0.663}$
	+3%/-3%	+2%/-5%	+94%/-94%	+31%/-11%	+14%/-12%	+37%/-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 005112198-01 / KOI 6522.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	27 ± 2	$0.92^{+0.16}_{-0.10}$	1924^{+141}_{-87}	-5139^{+215}_{-225}	$-31.457^{+8.267}_{-8.155}$
Alt.	-20 ± 2	$1.36^{+0.24}_{-0.13}$	1932^{+158}_{-101}	4131^{+131}_{-138}	11^{+3}_{-3}

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

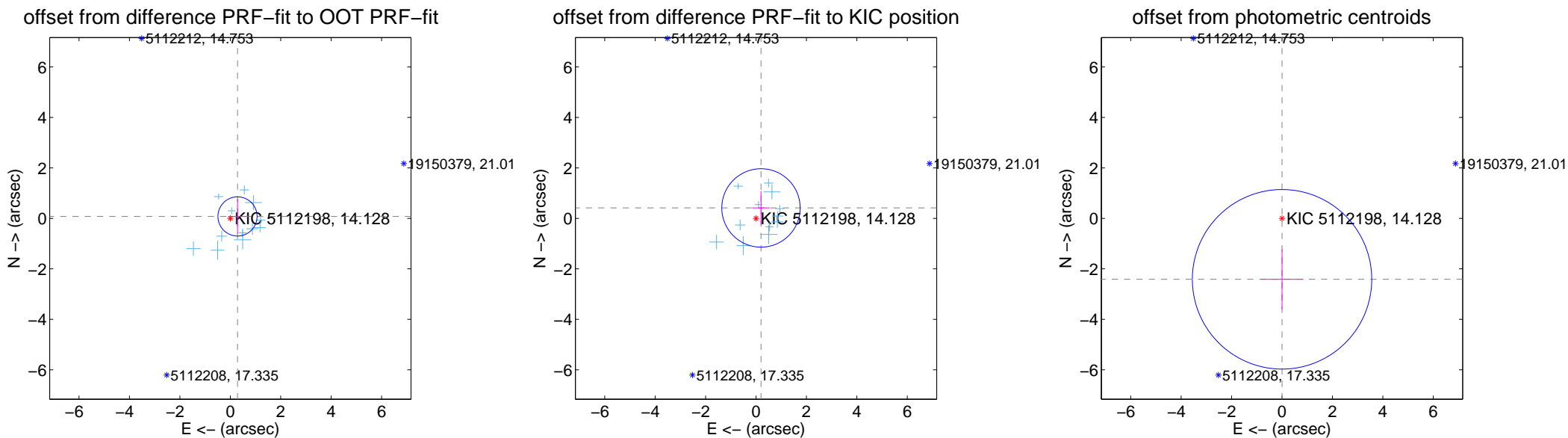
DV Centroid Data

Supplemental centroid analysis for 005112198-01. Kepler magnitude: 14.13. Transit SNR 10.92

There are 12 quarters with good PRF difference image offsets

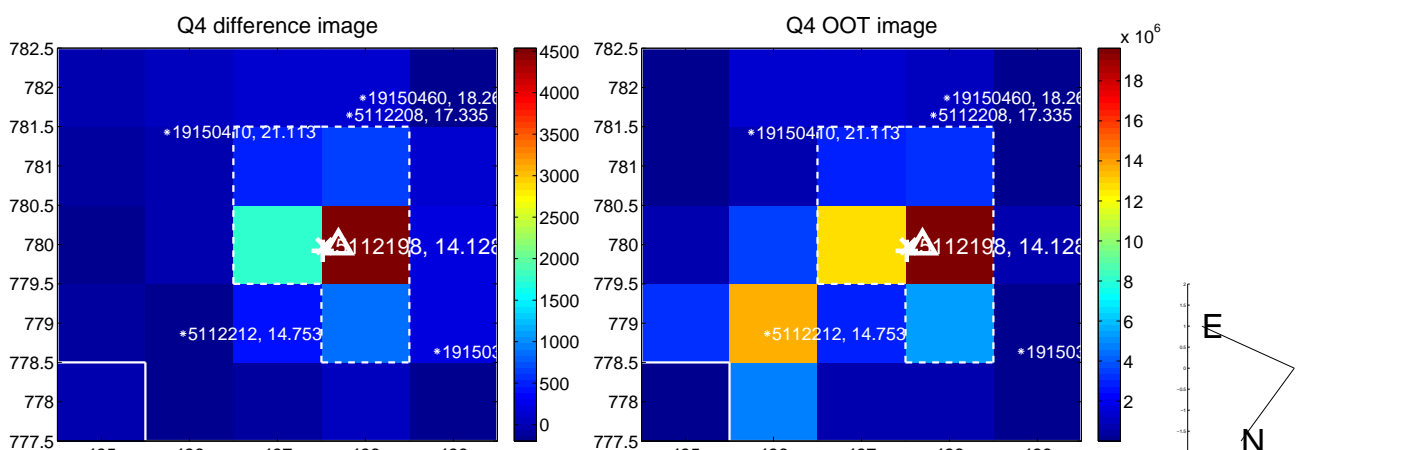
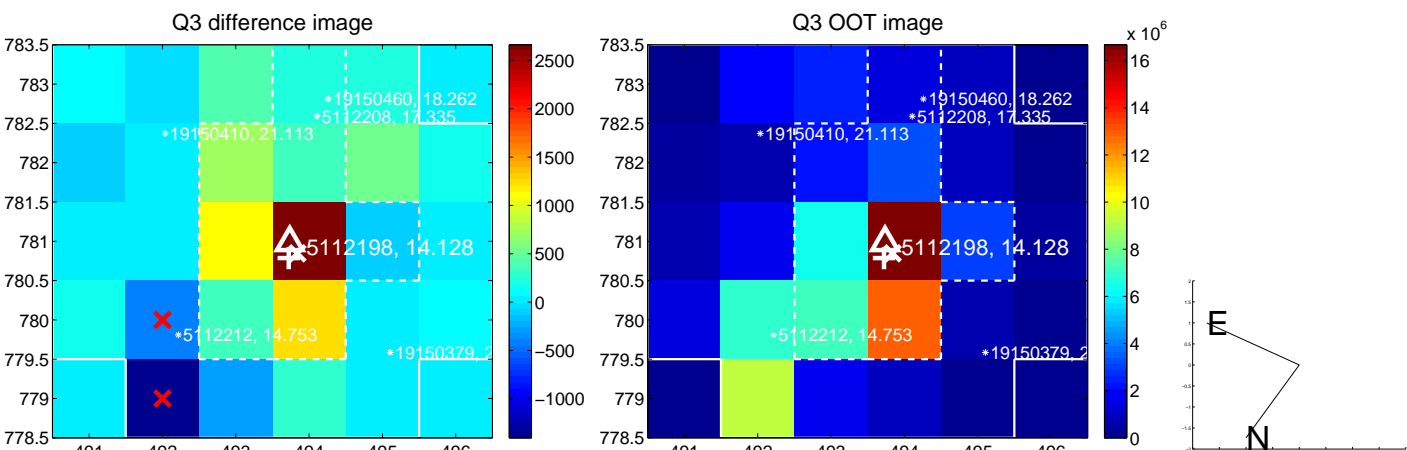
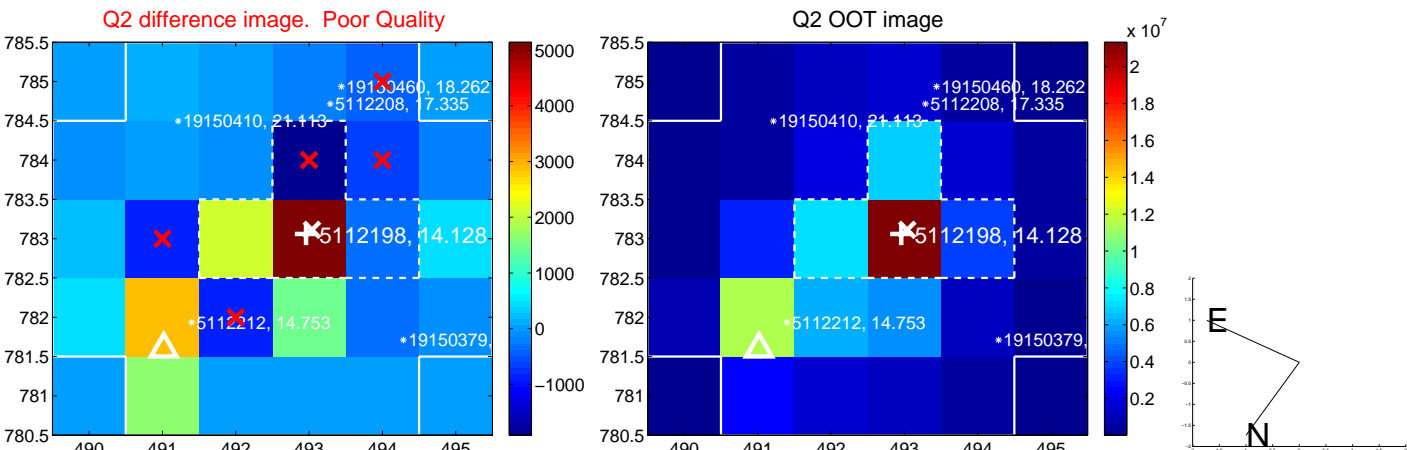
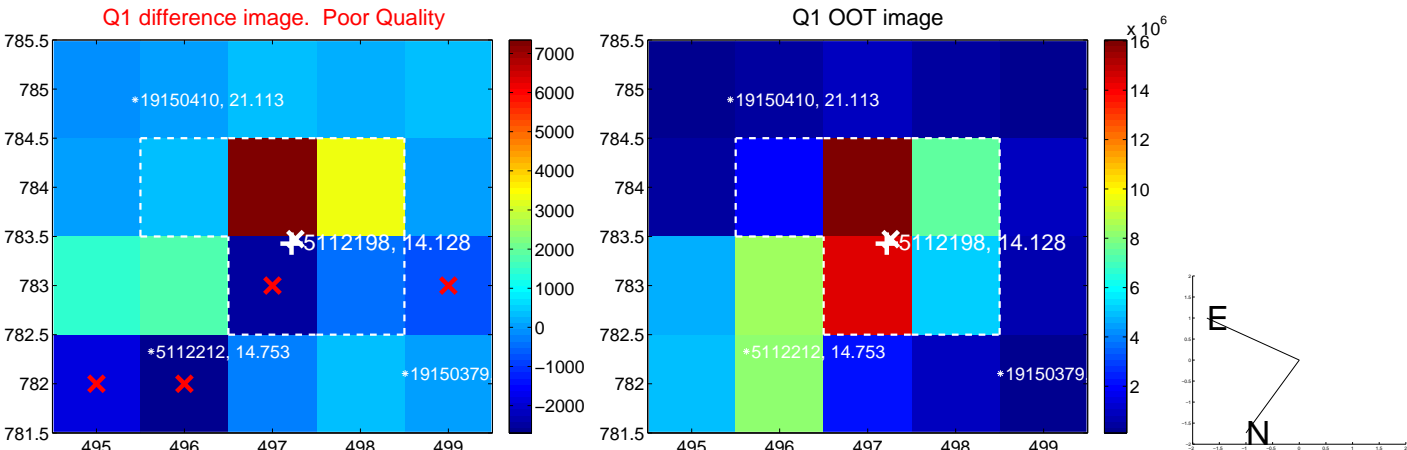
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.296 ± 0.259	1.14	-0.286 ± 0.357	0.077 ± 0.691
PRF-fit source offset from KIC position	0.458 ± 0.518	0.88	-0.197 ± 0.346	0.414 ± 0.671
photometric centroid source offset	2.41 ± 1.19	2.04	-0.00 ± 0.84	-2.41 ± 1.19

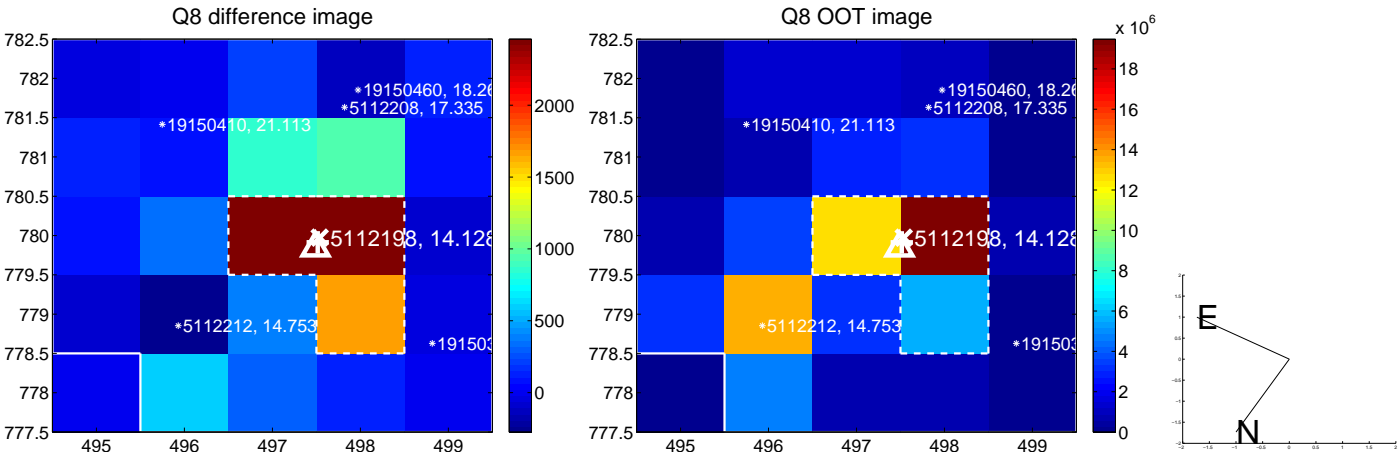
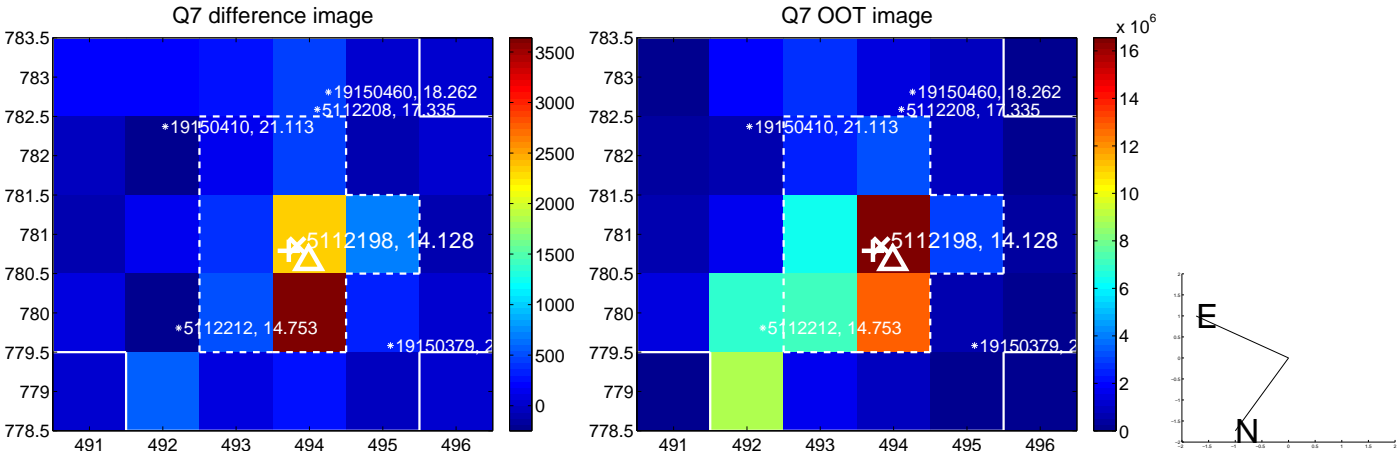
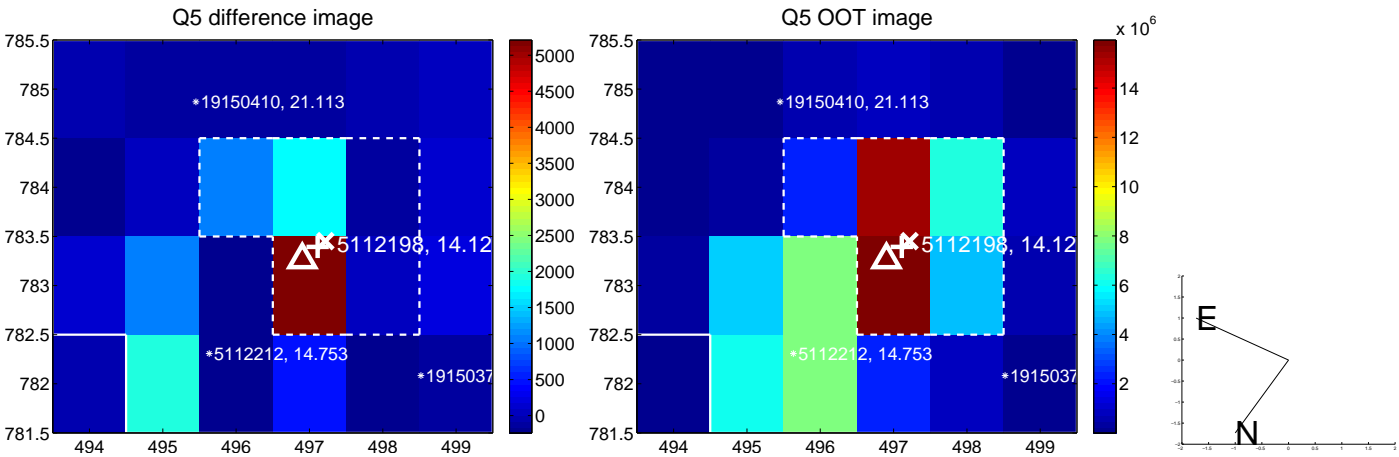


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

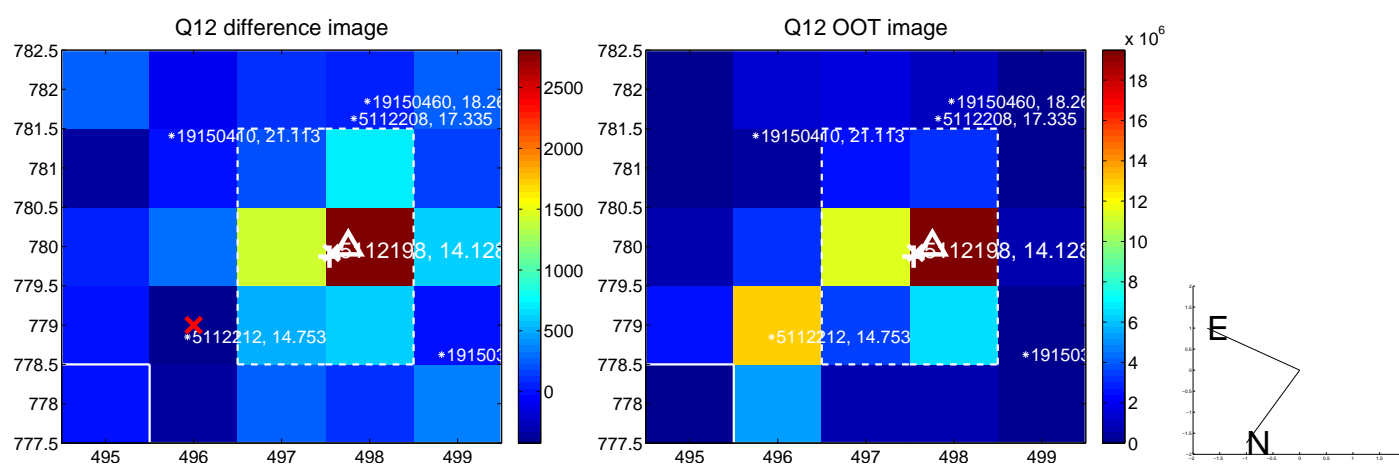
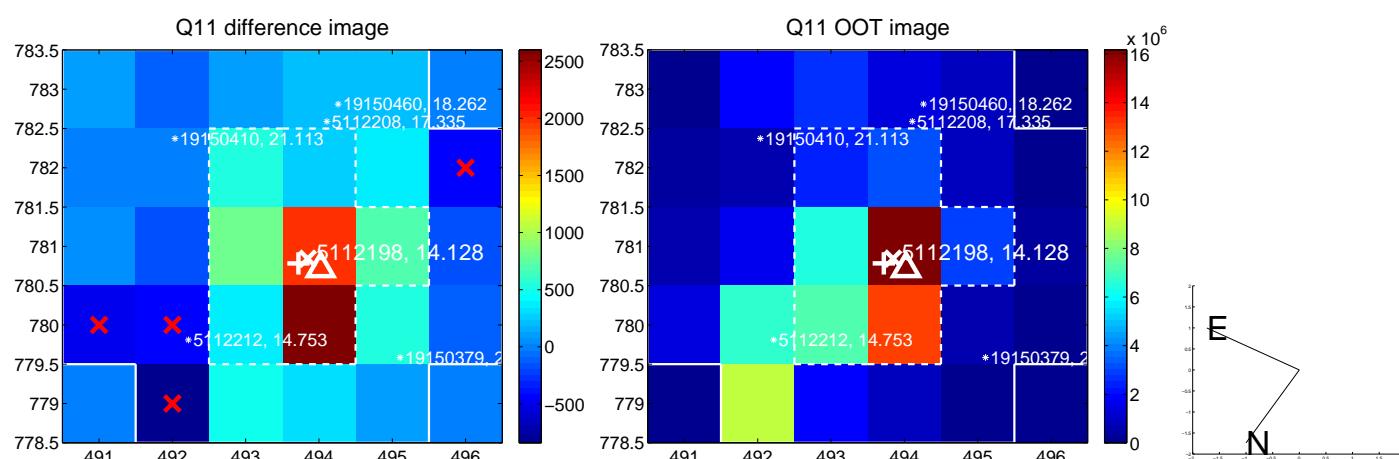
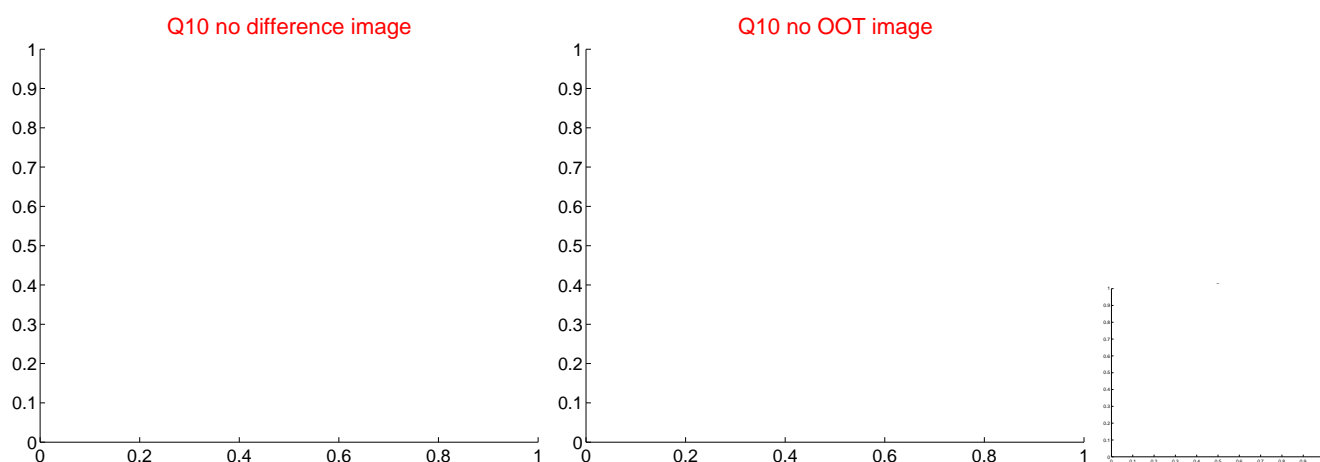
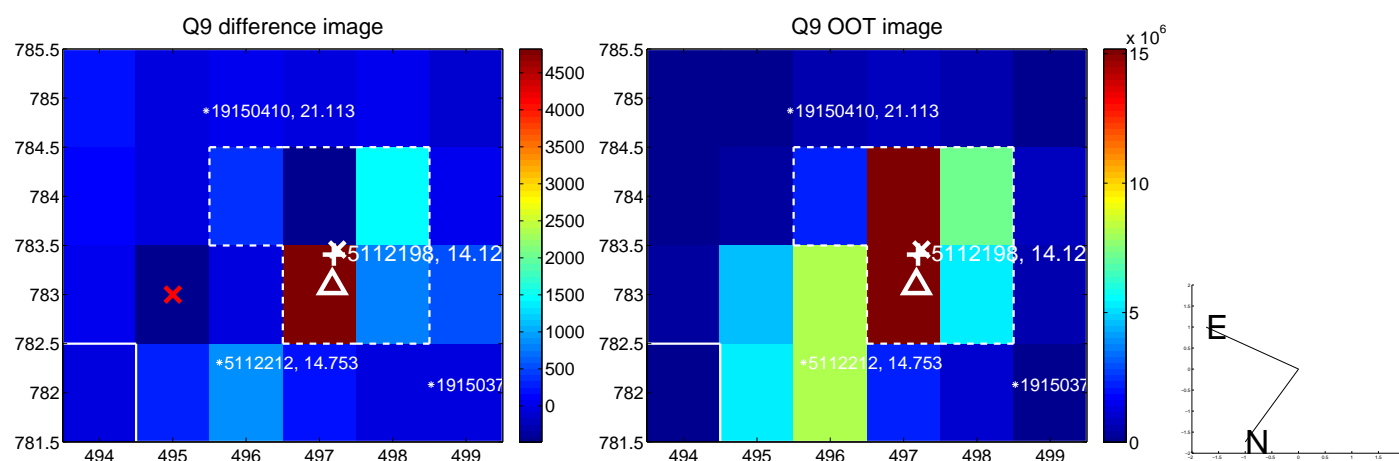
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



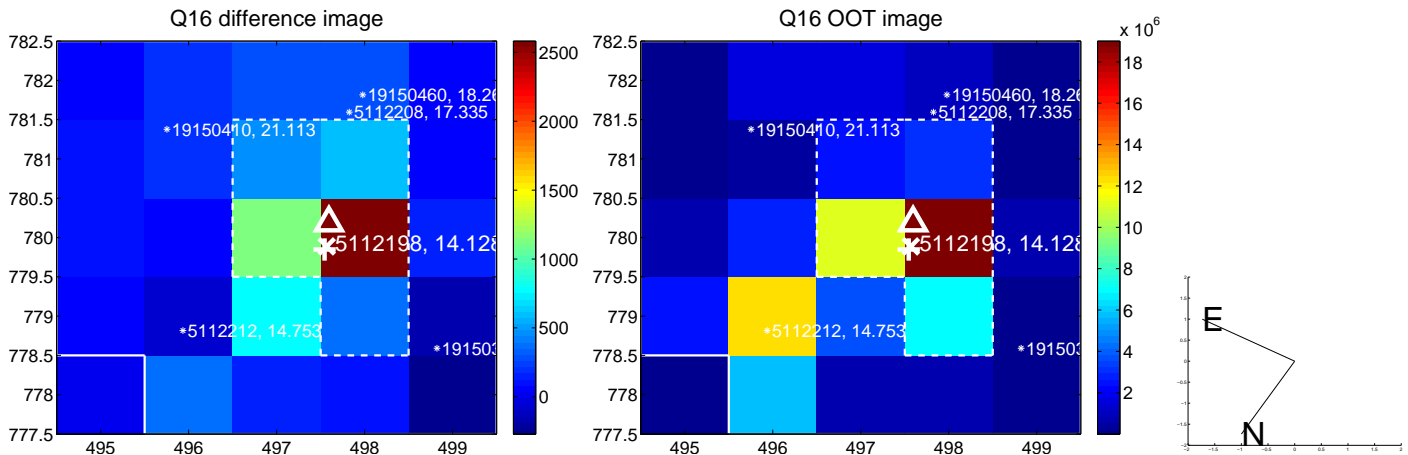
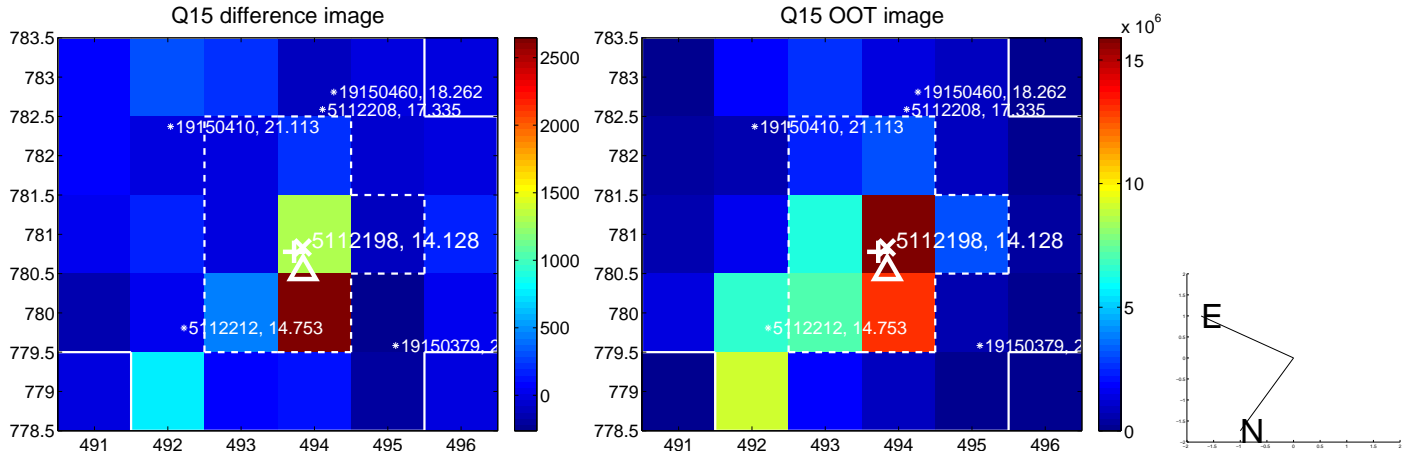
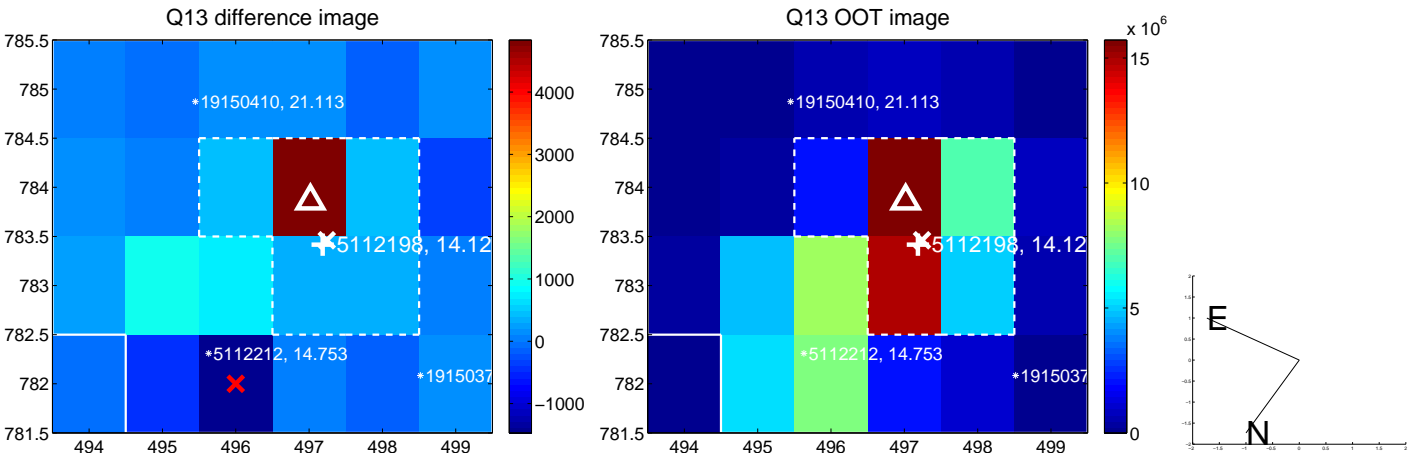
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



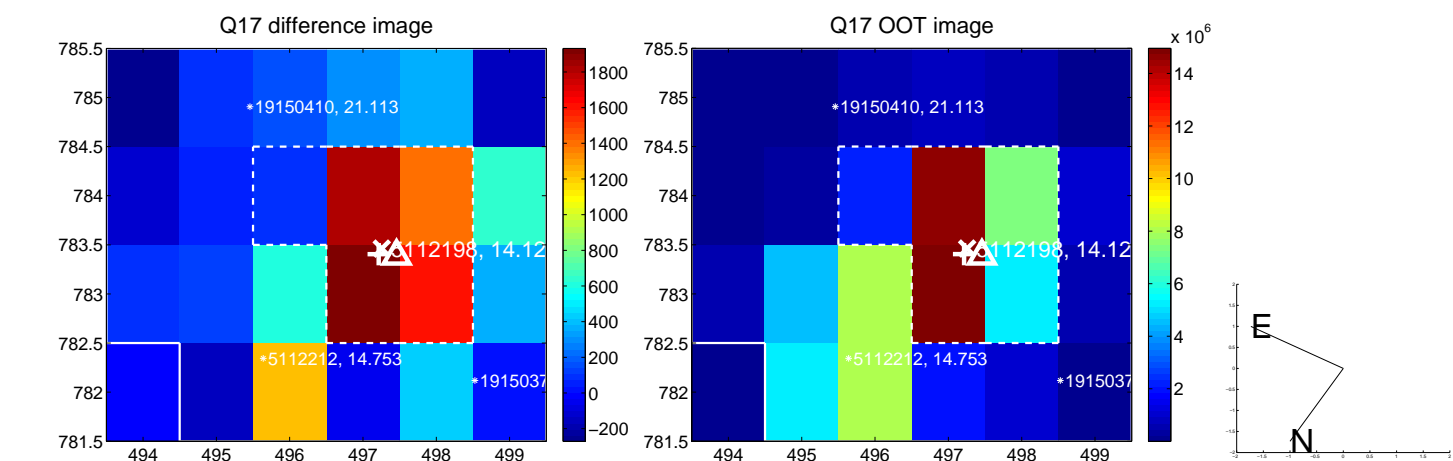
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



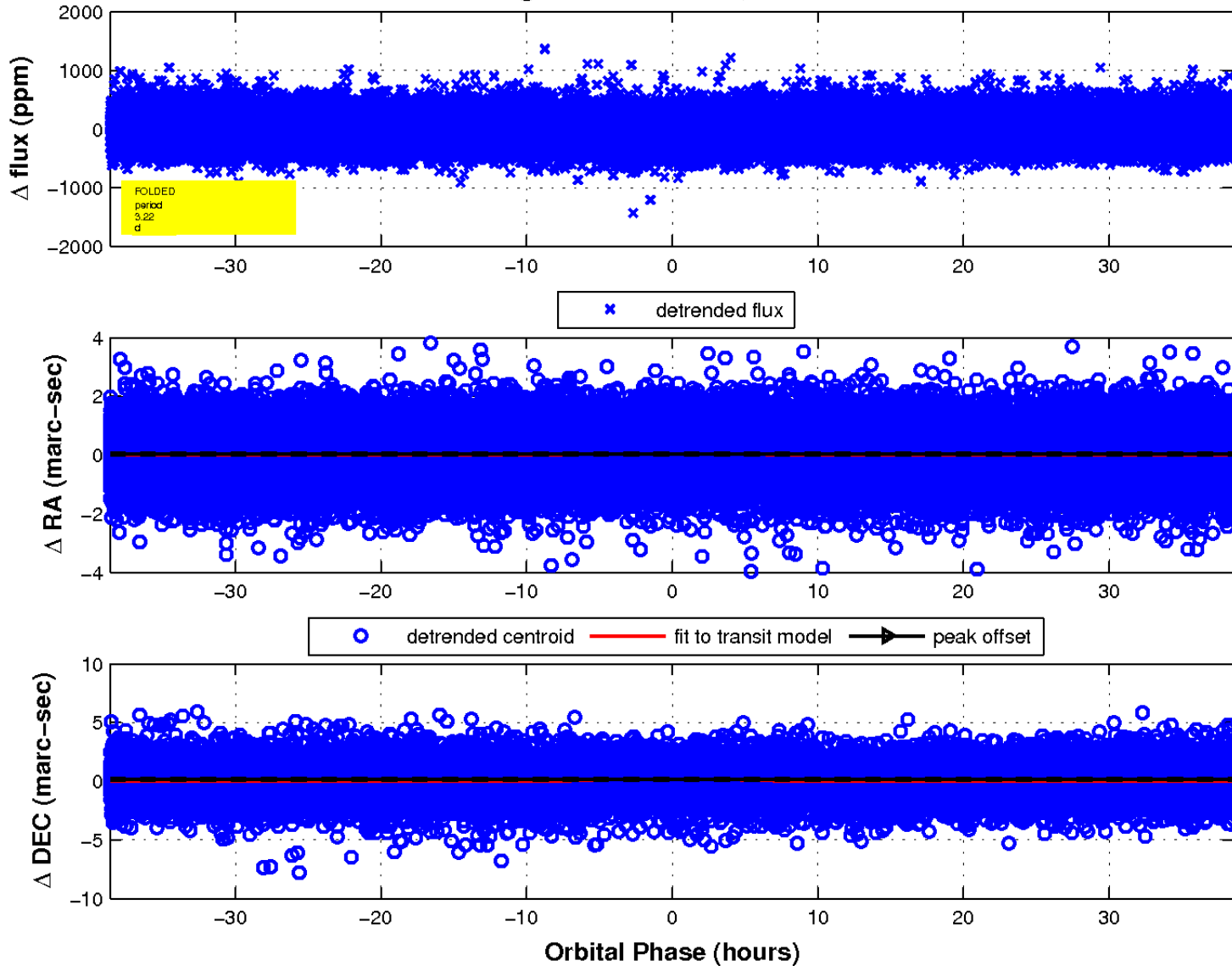
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

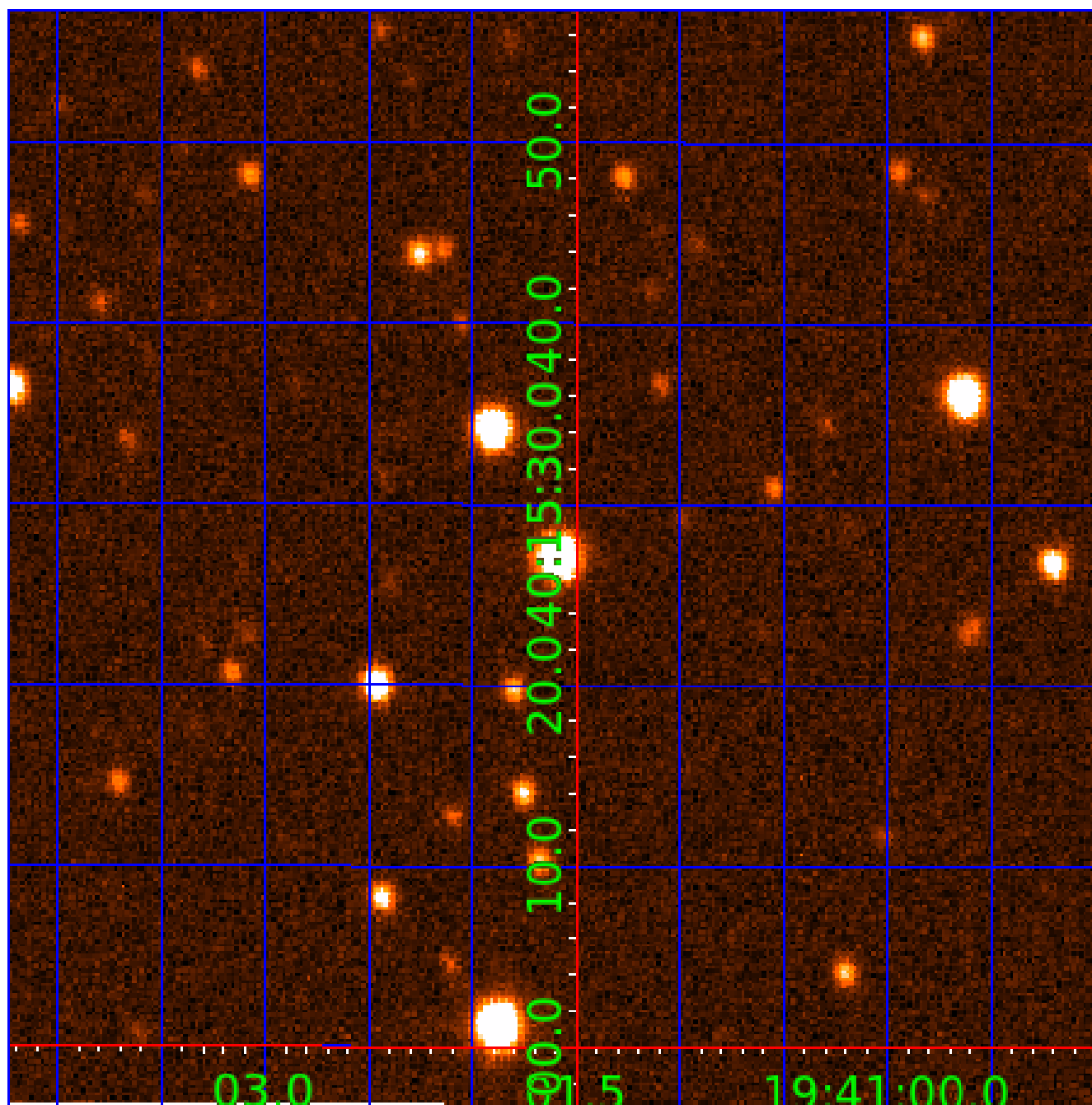


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005112198

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})
005112198-01	OBS	6522.01	3.215793	133.528890	39.4	17.008	11.3	10.9	1.04	6300	0.91	824.35
005112198-02	OBS	No	84.179632	151.859318	249.2	12.121	9.4	7.4	1.04	6300	1.77	10.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005112198-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005112198-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—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.

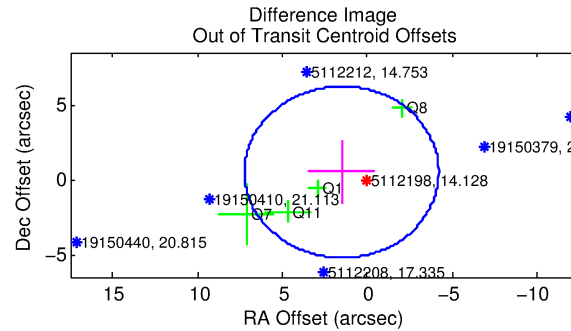
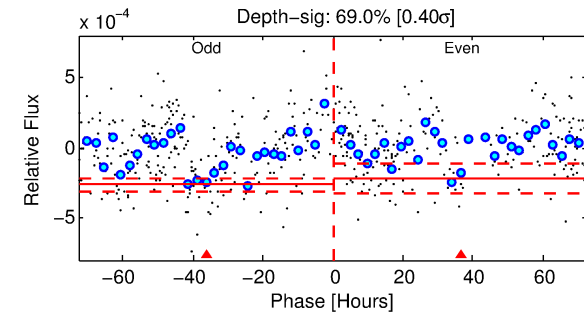
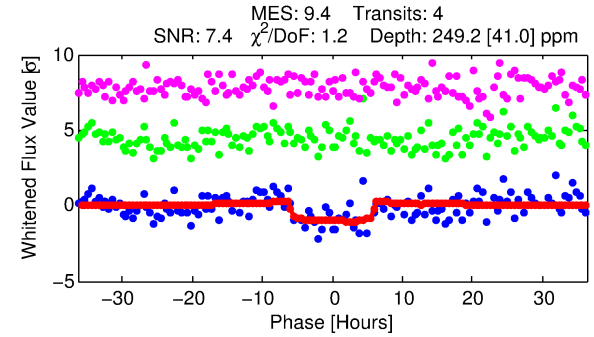
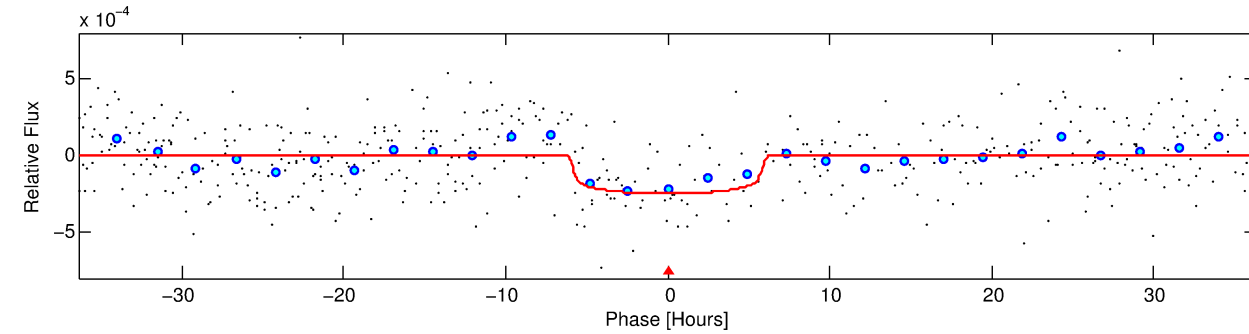
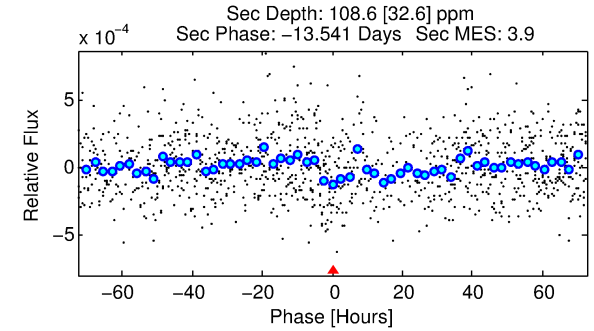
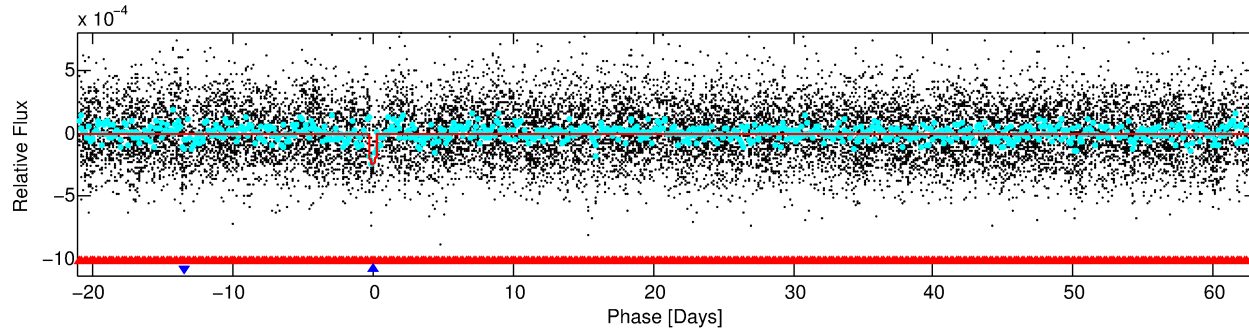
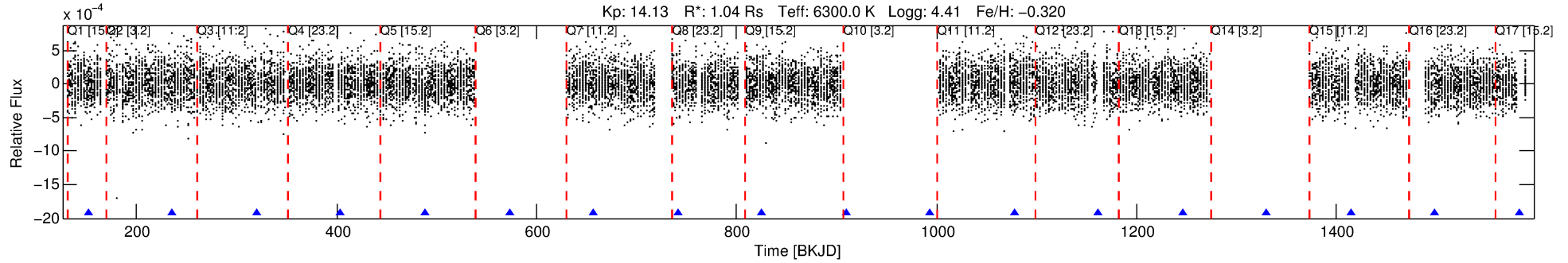
Ephemeris Match Information For 005112198-02

No Significant Match Found

DV One-Page Summary

KIC: 5112198 Candidate: 2 of 2 Period: 84.180 d

KOI: K06522 Corr: No Ephemeris Match



DV Fit Results:

Period = 84.17963 [0.00203] d
Epoch = 151.8593 [0.0217] BKJD
Rp/R* = 0.0156 [0.0066]
a/R* = 37.28 [81.83]
b = 0.73 [1.39]
Seff = 10.61 [4.31]
Teq = 460 [47] K
Rp = 1.77 [0.93] Re
a = 0.3779 [0.0998] AU
Ag = 2737.14 [2665.53] [1.03σ]
Teffp = 5146 [1164] K [4.02σ]

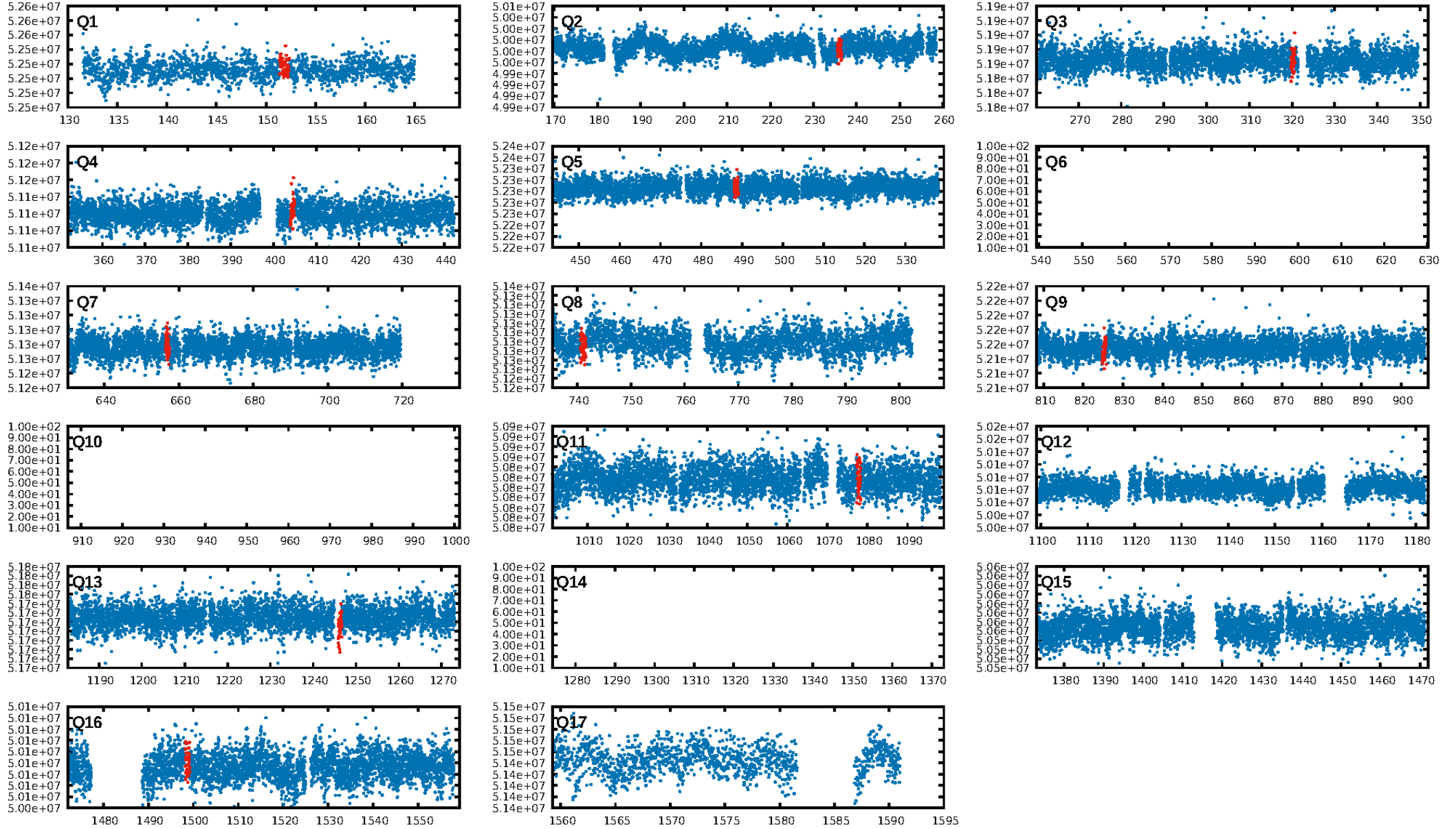
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [93.04σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 26.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.98e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.7702
Centroid-sig: 0.0%
Centroid-so: 1.293 arcsec [1.70σ]
OotOffset-rm: 1.580 arcsec [0.83σ]
KicOffset-rm: 1.745 arcsec [0.88σ]
OotOffset-st: 0/2/1/1 [4]
KicOffset-st: 0/2/1/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 0.11 [1/9]

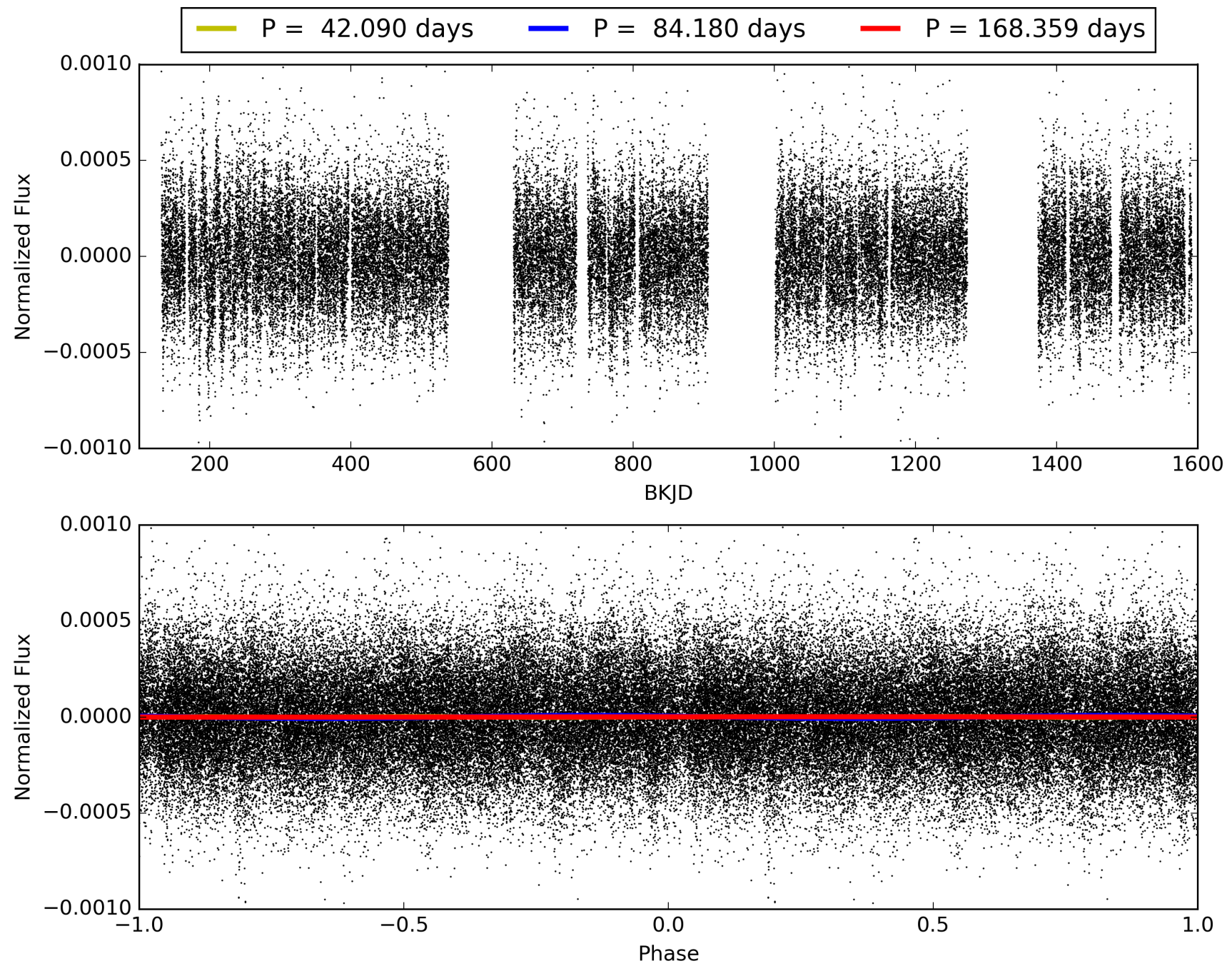
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:53:35 Z

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

TCE 005112198-02, PDC Light Curves

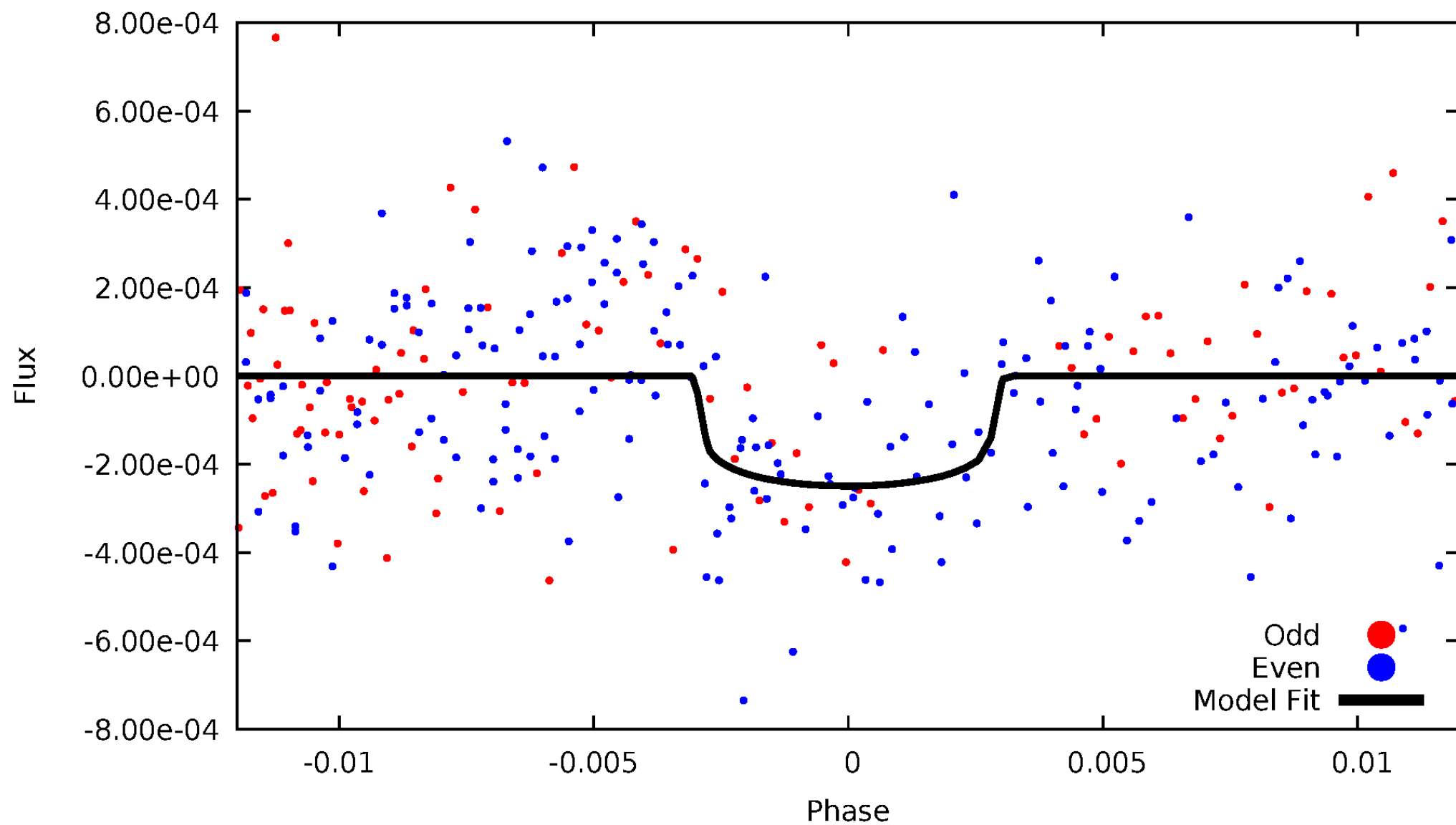


TCE 005112198-02



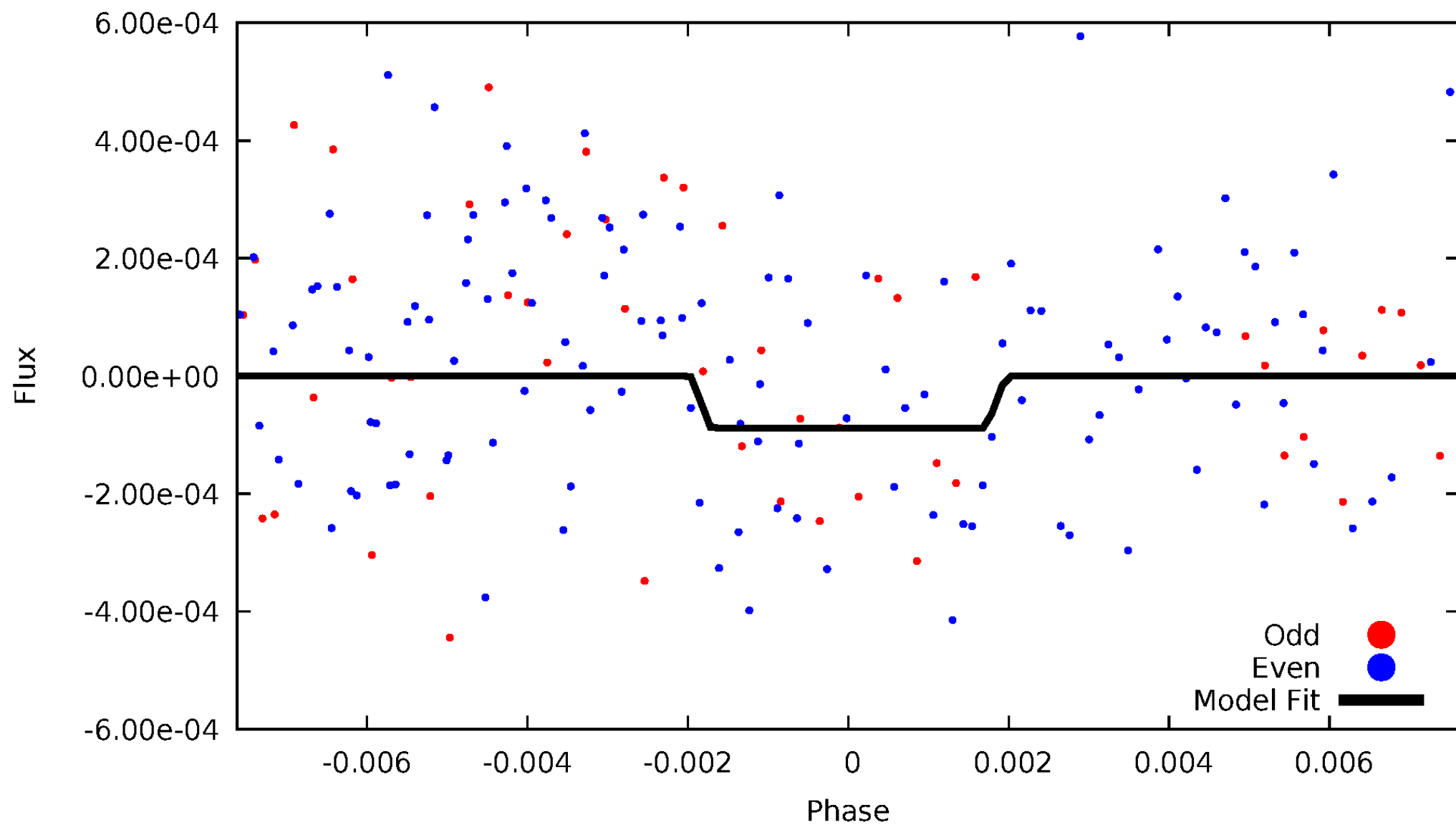
DV Odd/Even

TCE 005112198-02



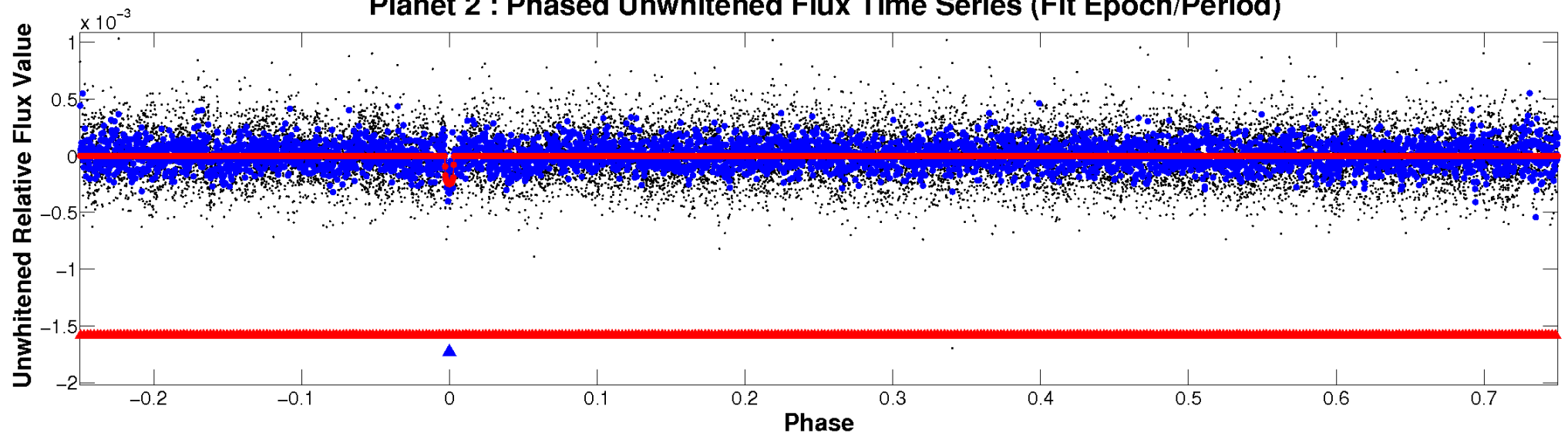
ALT Odd/Even

TCE 005112198-02

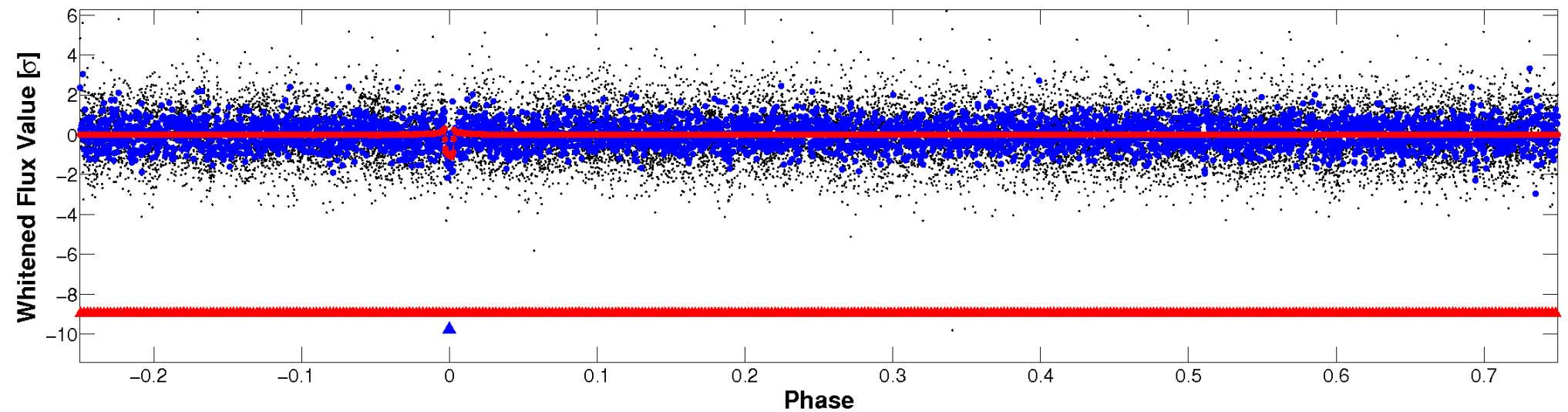


Non-Whitened Vs. Whitened Light Curve

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

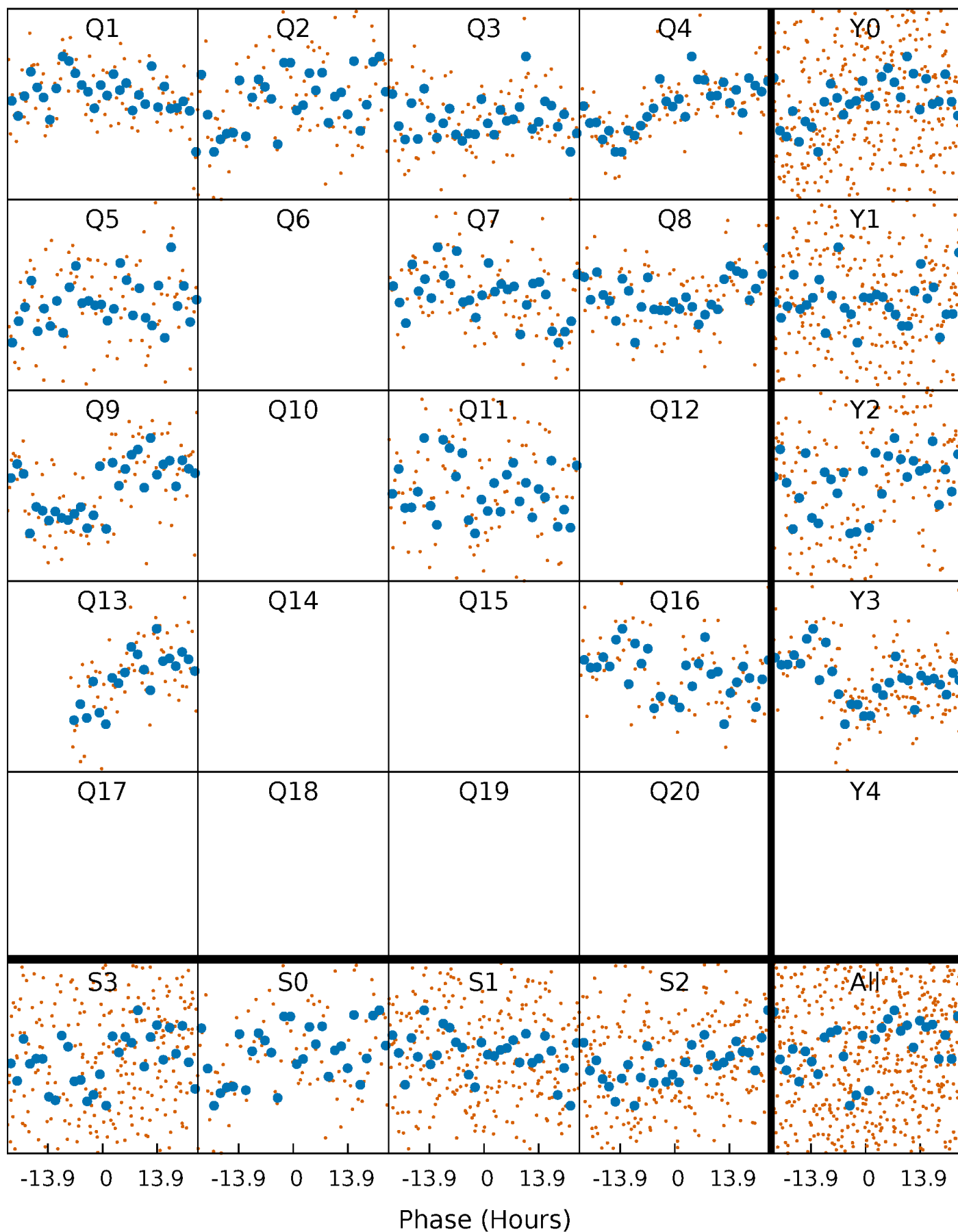


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



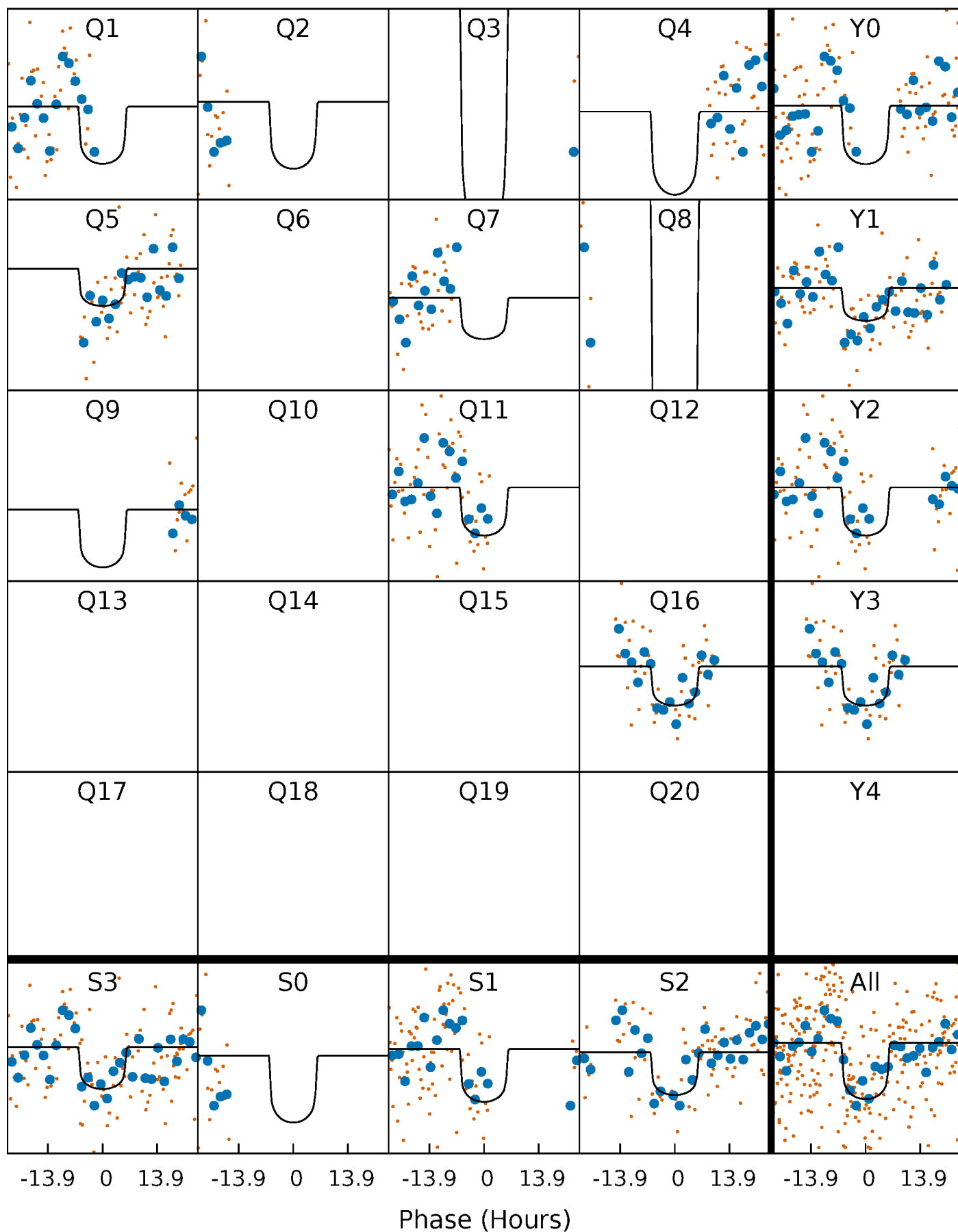
PDC Quarter-Phased Transit Curves

TCE 005112198-02 P= 84.179632 Days $T_0=151.859318$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 005112198-02 P= 84.179632 Days $T_0=151.859318$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

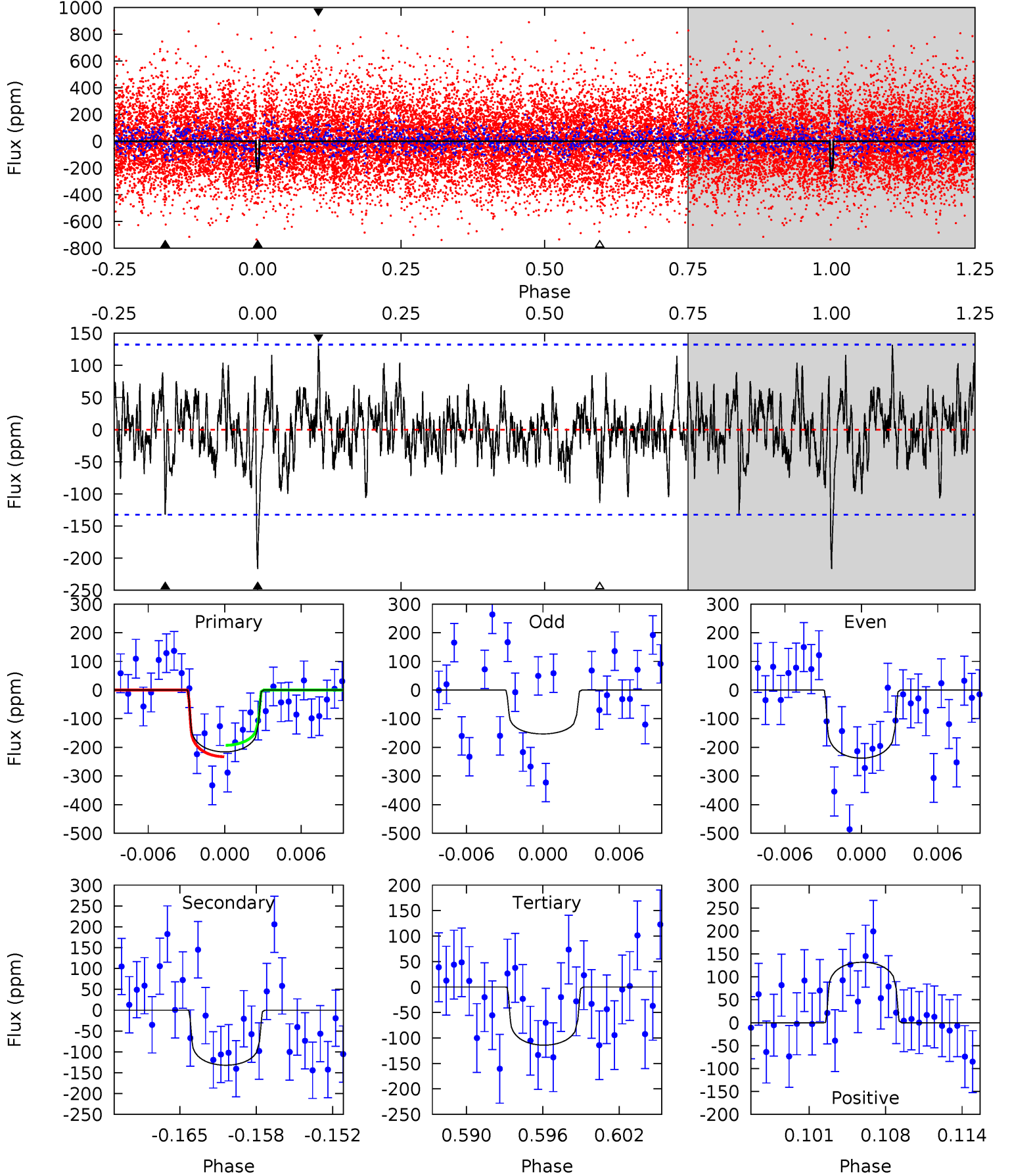
TCE 005112198-02 P= 84.178632 Days $T_0=151.794277$ (BKJD)



DV Model-Shift Uniqueness Test

005112198-02, P = 84.179632 Days, E = 67.679686 Days

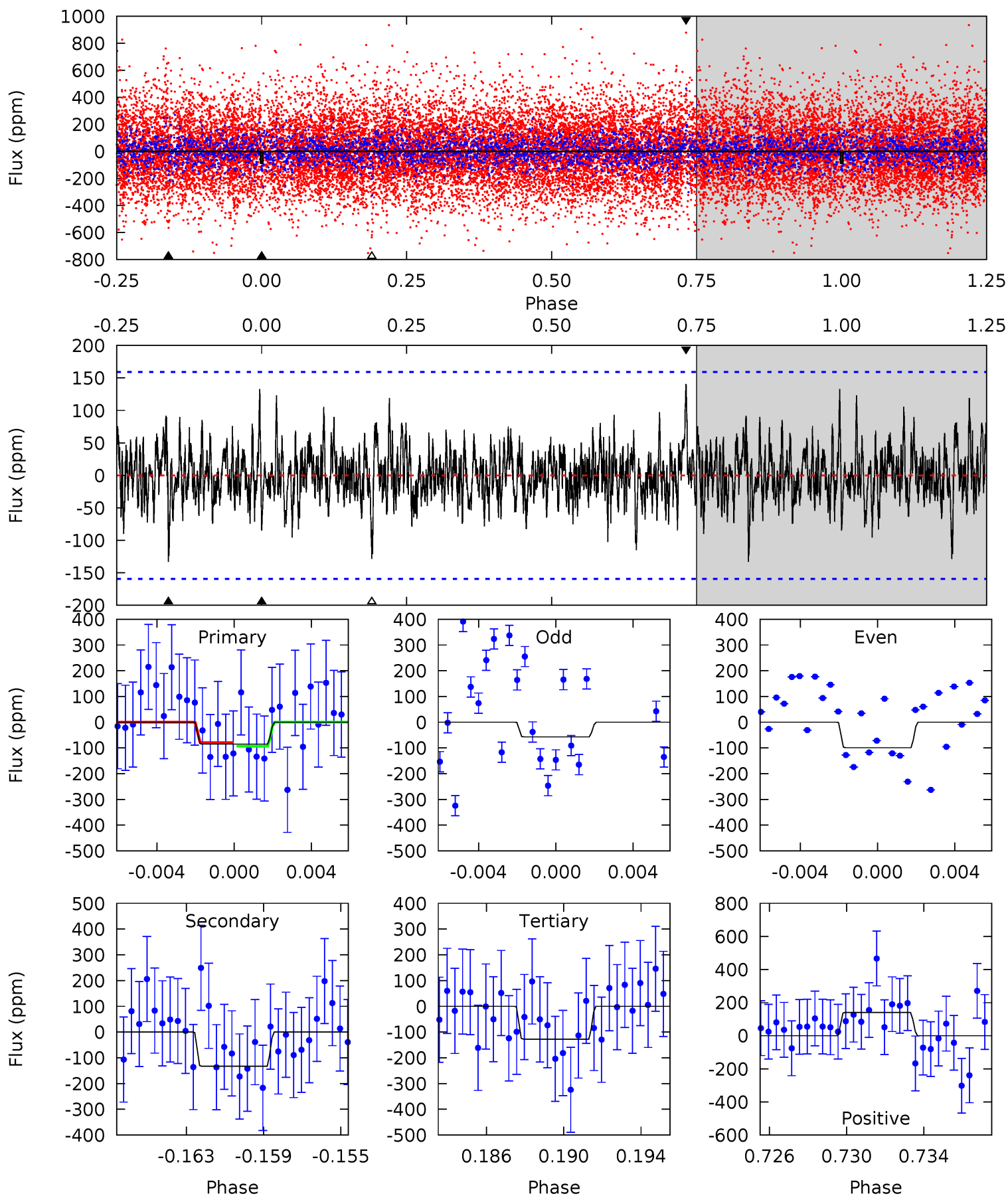
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.34	5.10	4.41	5.09	5.11	2.73	1.37	3.94	3.25	0.69	0.01	1.39	0.92	0.38	0.76



Alt Model-Shift Uniqueness Test

005112198-02, P = 84.178632 Days, E = 67.615645 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.78	4.35	4.17	4.59	5.20	2.89	1.10	-1.39	-1.81	0.18	-0.24	0.65	1.59	0.51	0.22



Stellar Parameters For KIC 005112198

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6300^{+169}_{-207}	$4.414^{+0.084}_{-0.210}$	$-0.320^{+0.300}_{-0.300}$	$1.036^{+0.325}_{-0.116}$	$1.012^{+0.146}_{-0.120}$	$1.283^{+0.473}_{-0.663}$
	+3%/-3%	+2%/-5%	+94%/-94%	+31%/-11%	+14%/-12%	+37%/-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 005112198-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-132 ± 26	$1.84^{+0.81}_{-0.77}$	652^{+45}_{-35}	5383^{+1635}_{-744}	3067^{+5797}_{-1625}
Alt.	-133 ± 31	$1.16^{+0.79}_{-0.65}$	652^{+48}_{-35}	6796^{+5155}_{-1515}	7700^{+34187}_{-5118}

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

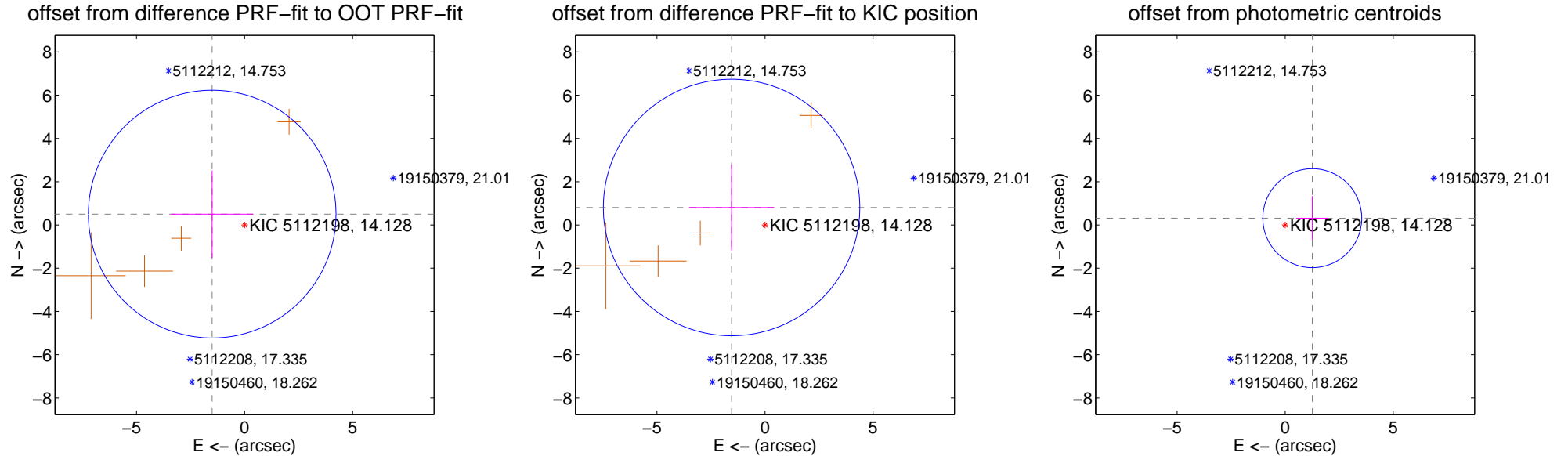
DV Centroid Data

Supplemental centroid analysis for 005112198-02. Kepler magnitude: 14.13. Transit SNR 7.36

There are 0 quarters with good PRF difference image offsets

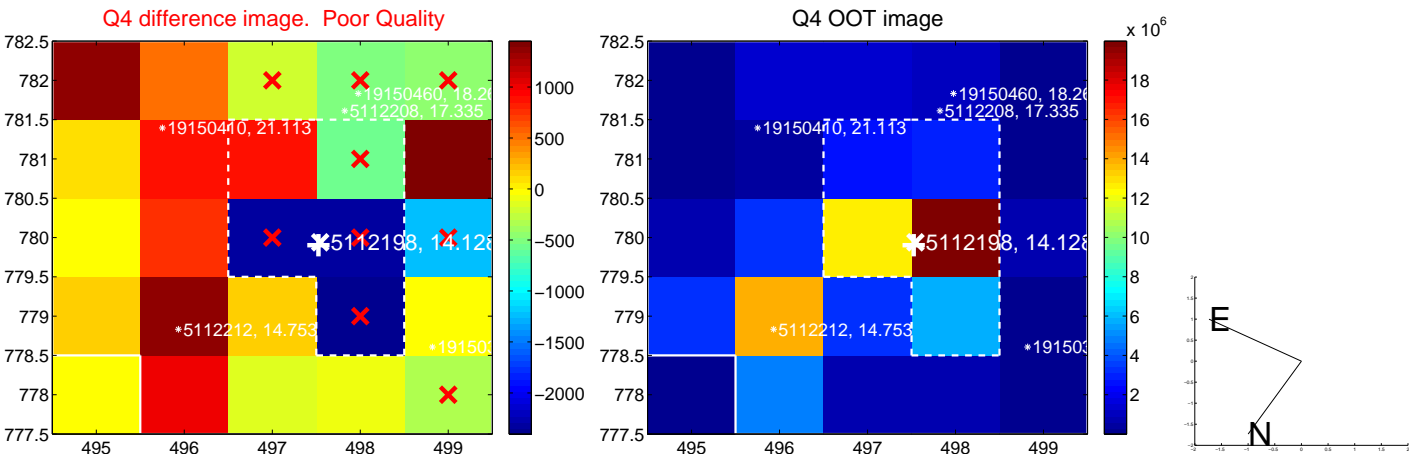
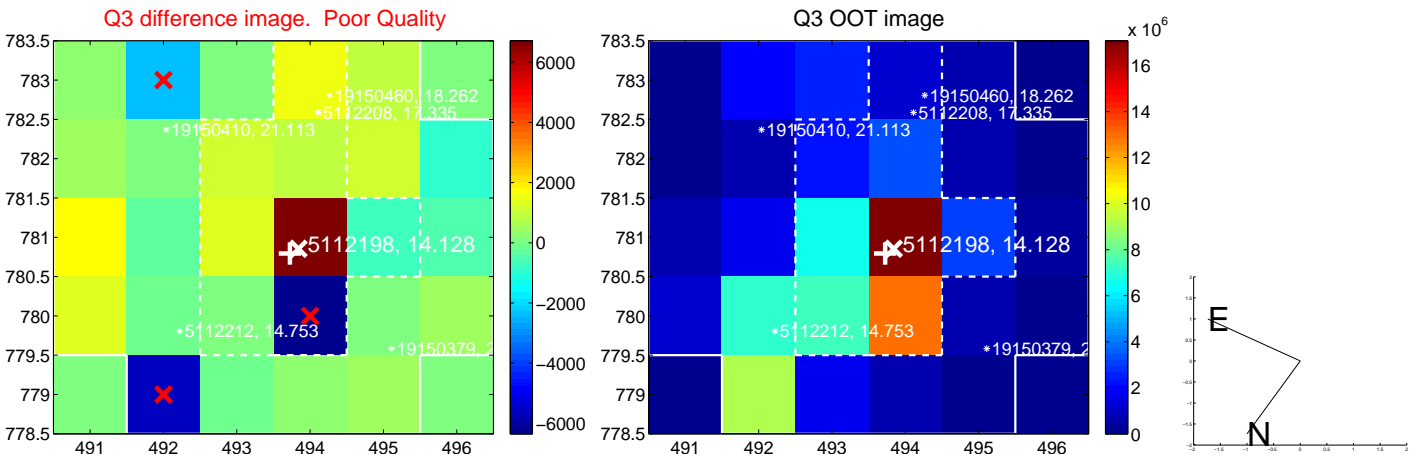
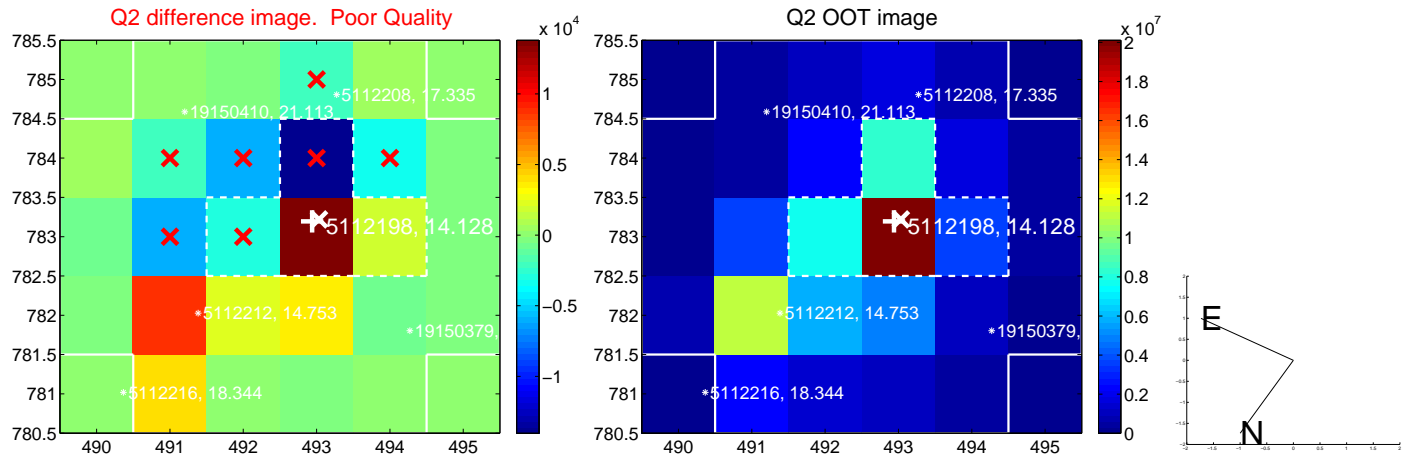
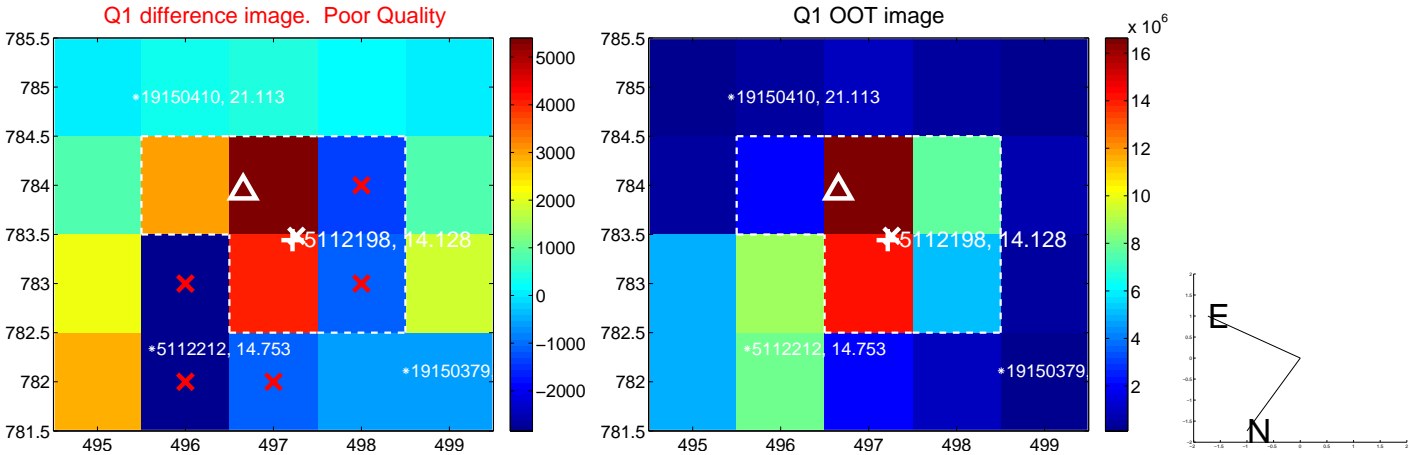
The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.580 ± 1.910	0.83	1.498 ± 1.897	0.501 ± 2.016
PRF-fit source offset from KIC position	1.745 ± 1.977	0.88	1.547 ± 1.975	0.807 ± 1.986
photometric centroid source offset	1.29 ± 0.76	1.70	-1.25 ± 0.74	0.31 ± 1.02

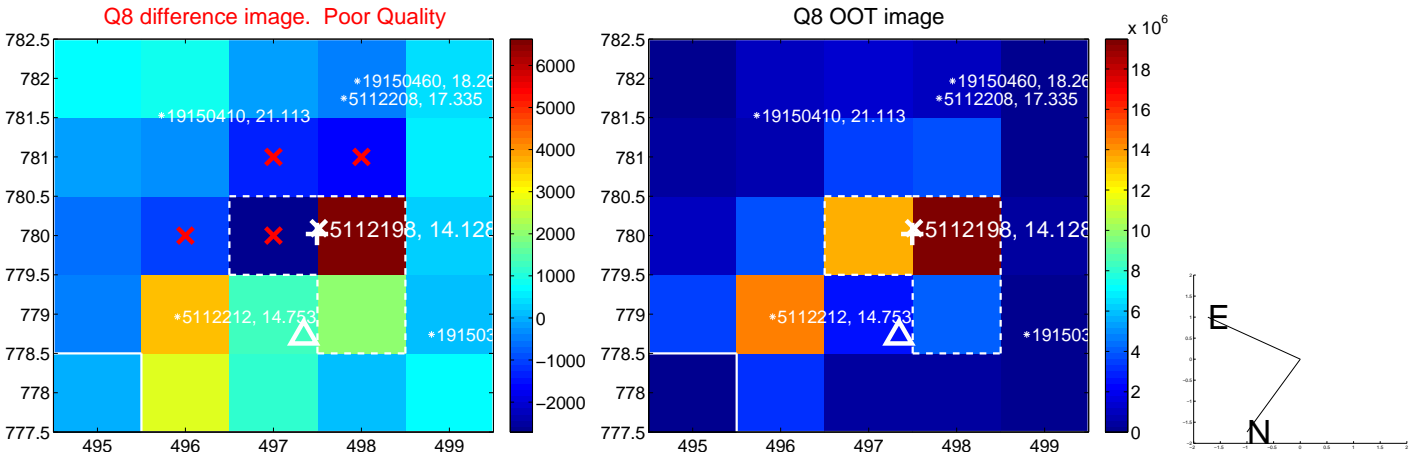
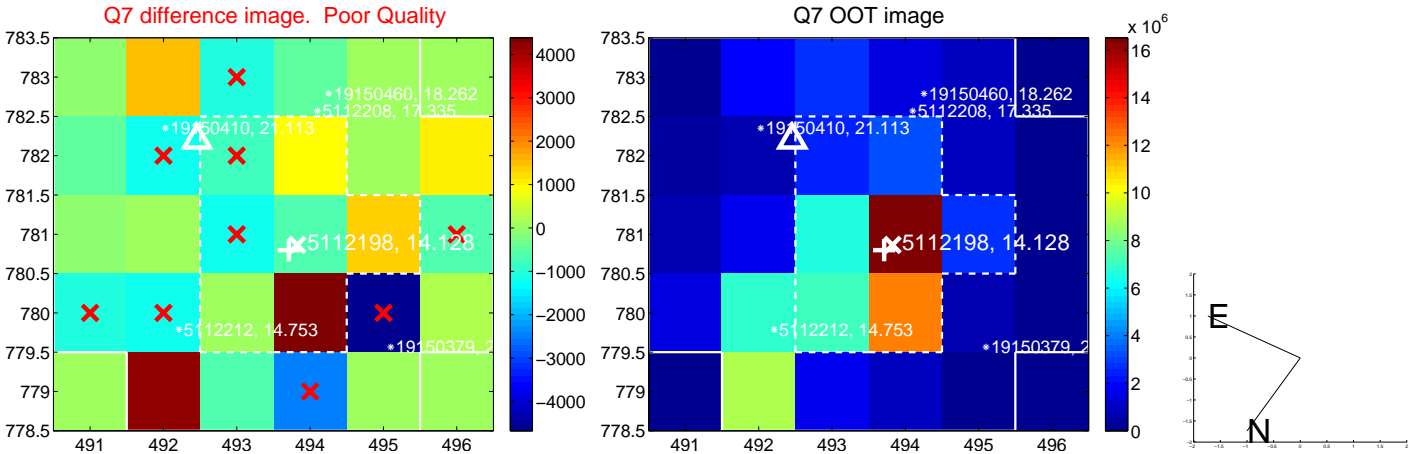
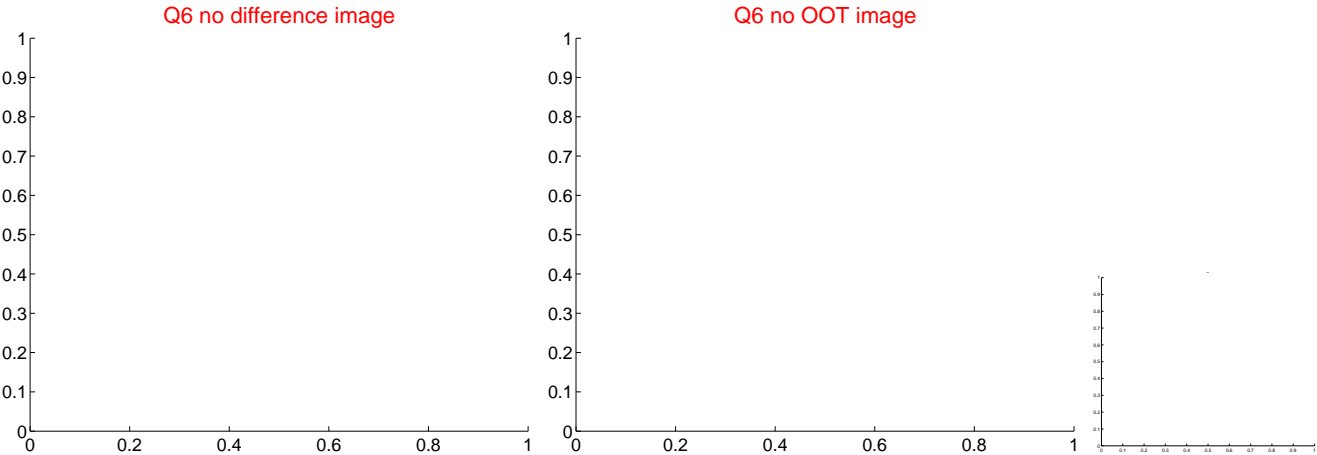
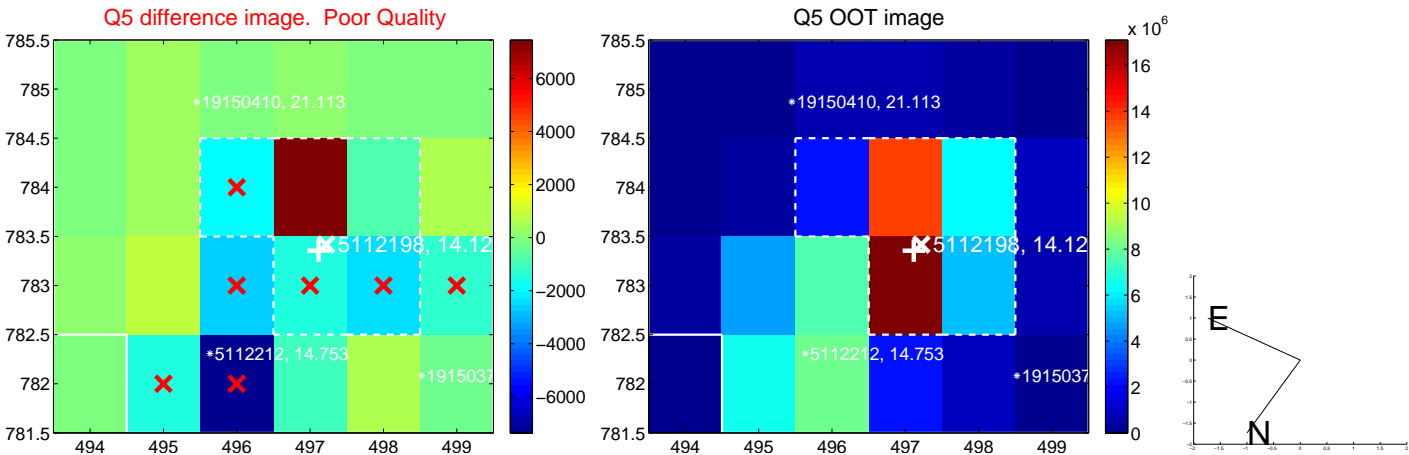


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

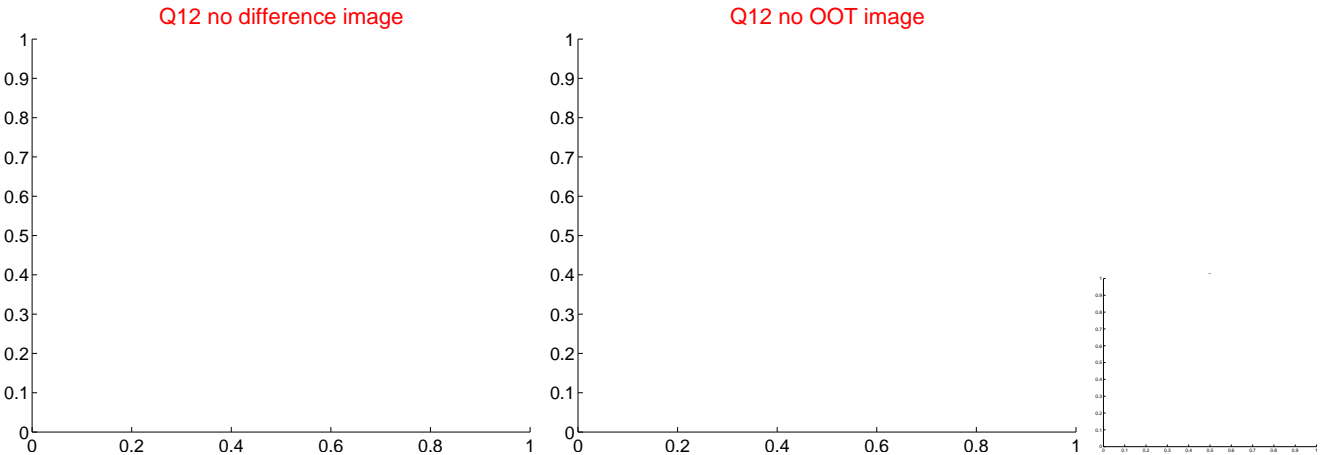
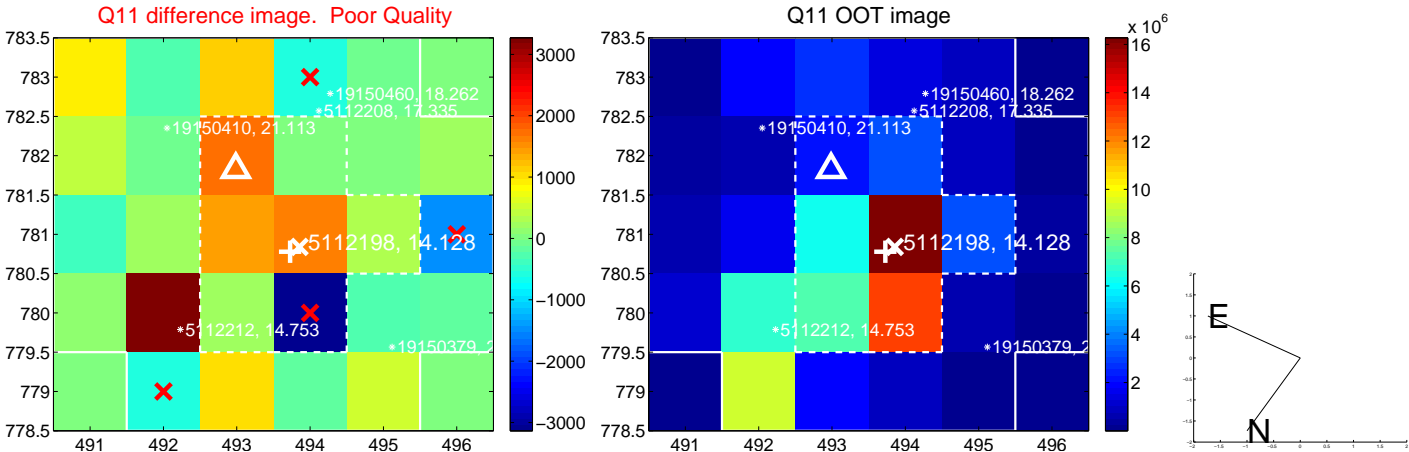
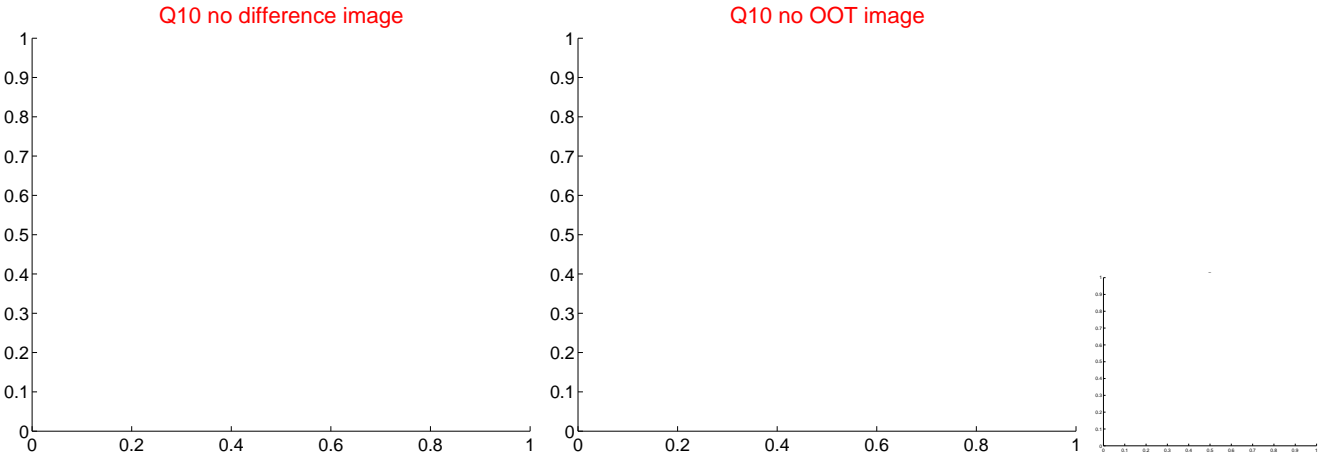
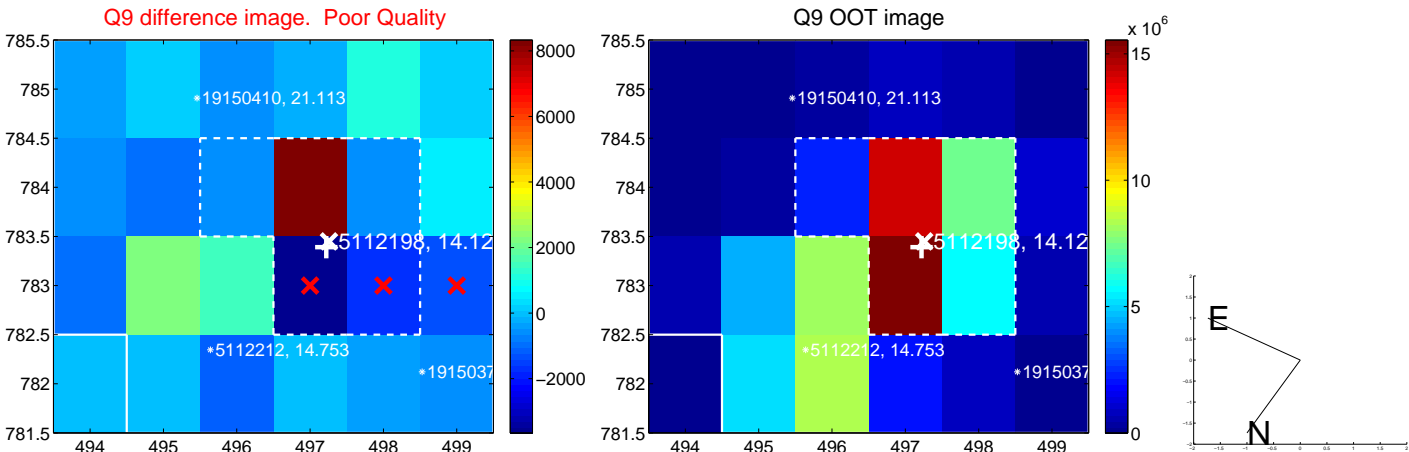
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



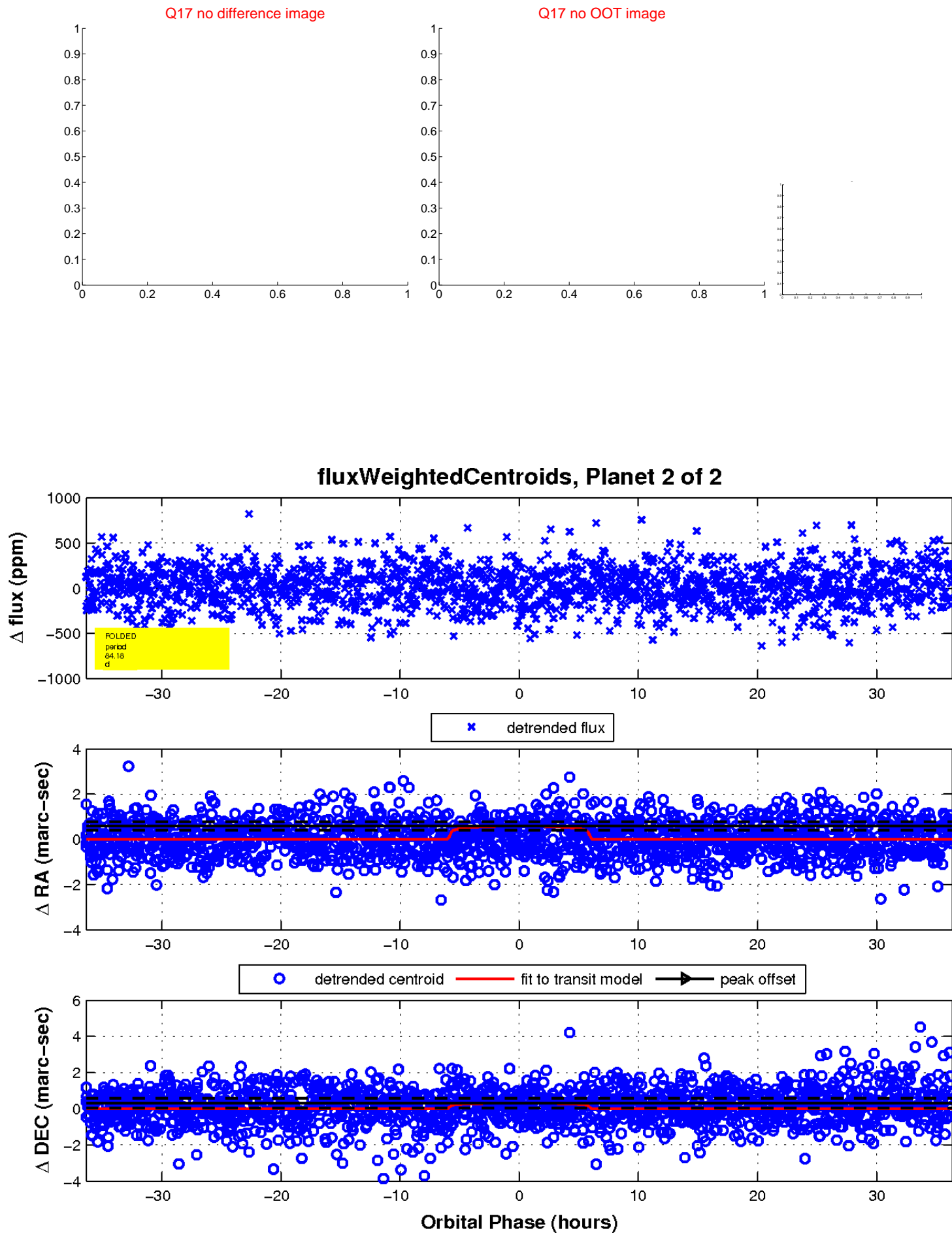
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

