

KIC 007977198

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})
007977198-01	OBS	No	5.554137	135.218489	52.3	13.137	8.7	6.5	1.54	7286	1.26	1253.39
007977198-02	OBS	No	1.388459	132.421359	26.8	9.611	9.8	5.6	1.54	7286	0.84	7959.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007977198-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007977198-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

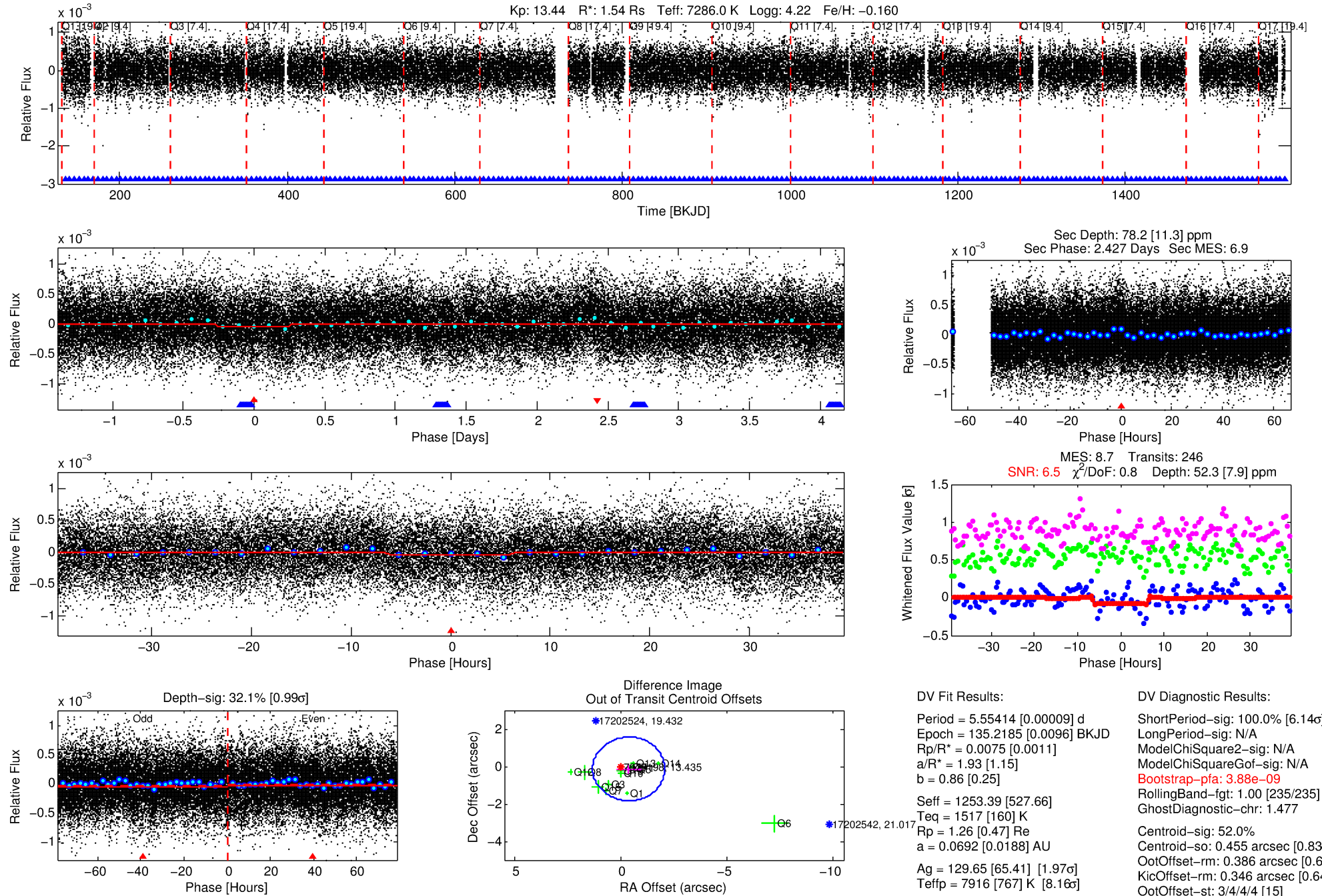
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007977198-01

No Significant Match Found

DV One-Page Summary

KIC: 7977198 Candidate: 1 of 2 Period: 5.554 d



DV Fit Results:

Period = 5.55414 [0.00009] d
Epoch = 135.2185 [0.0096] BKJD
Rp/R* = 0.0075 [0.0011]
a/R* = 1.93 [1.15]
b = 0.86 [0.25]
Seff = 1253.39 [527.66]
Teq = 1517 [160] K
Rp = 1.26 [0.47] Re
a = 0.0692 [0.0188] AU
Ag = 129.65 [65.41] [1.97 σ]
Teffp = 7916 [767] K [8.16 σ]

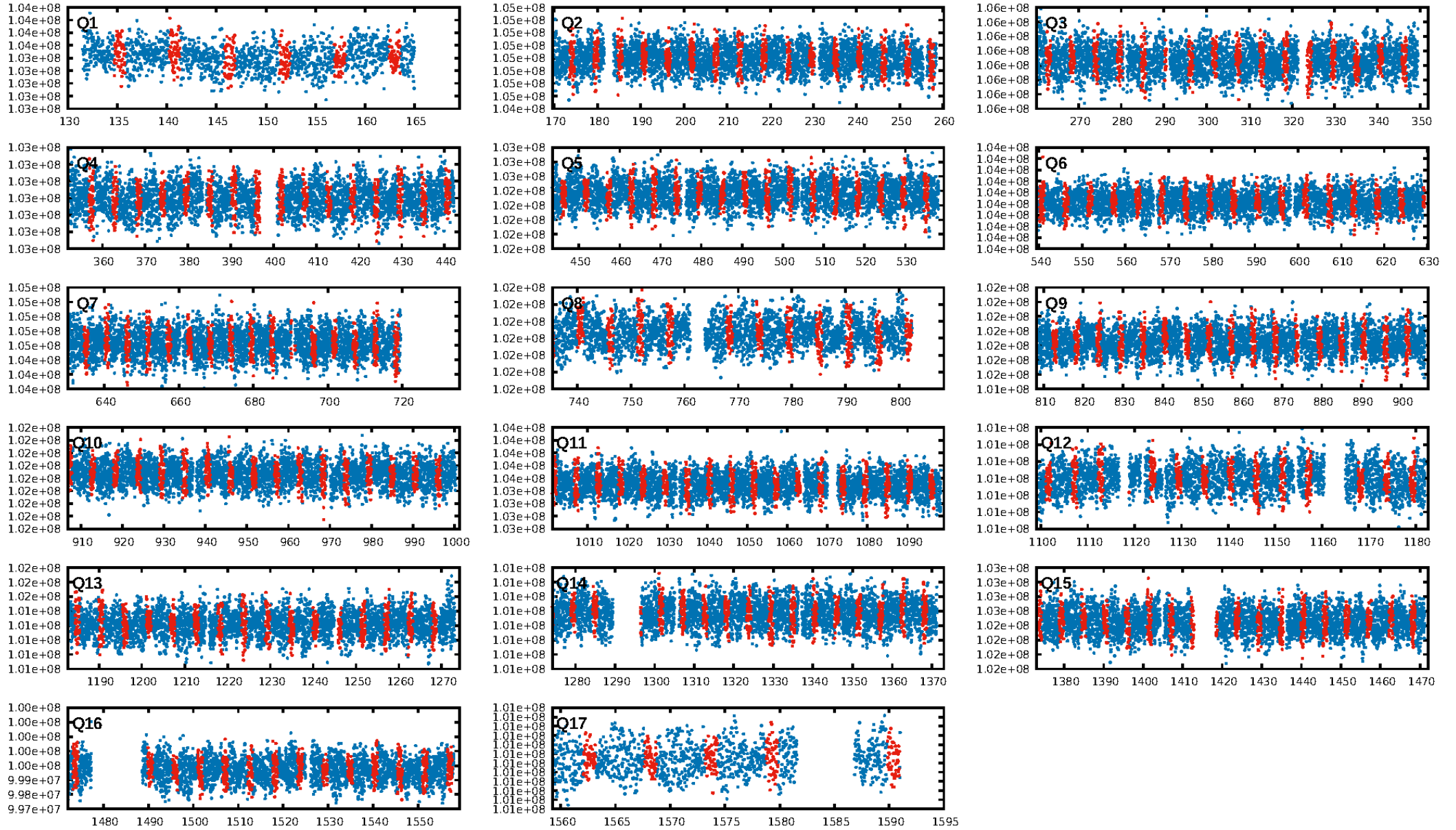
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.14 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.88e-09
RollingBand-fgt: 1.00 [235/235]
GhostDiagnostic-chr: 1.477
Centroid-sig: 52.0%
Centroid-so: 0.455 arcsec [0.83 σ]
OotOffset-rm: 0.386 arcsec [0.68 σ]
KicOffset-rm: 0.346 arcsec [0.64 σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.93 [14/15]
DiffImageOverlap-fno: 0.00 [0/17]

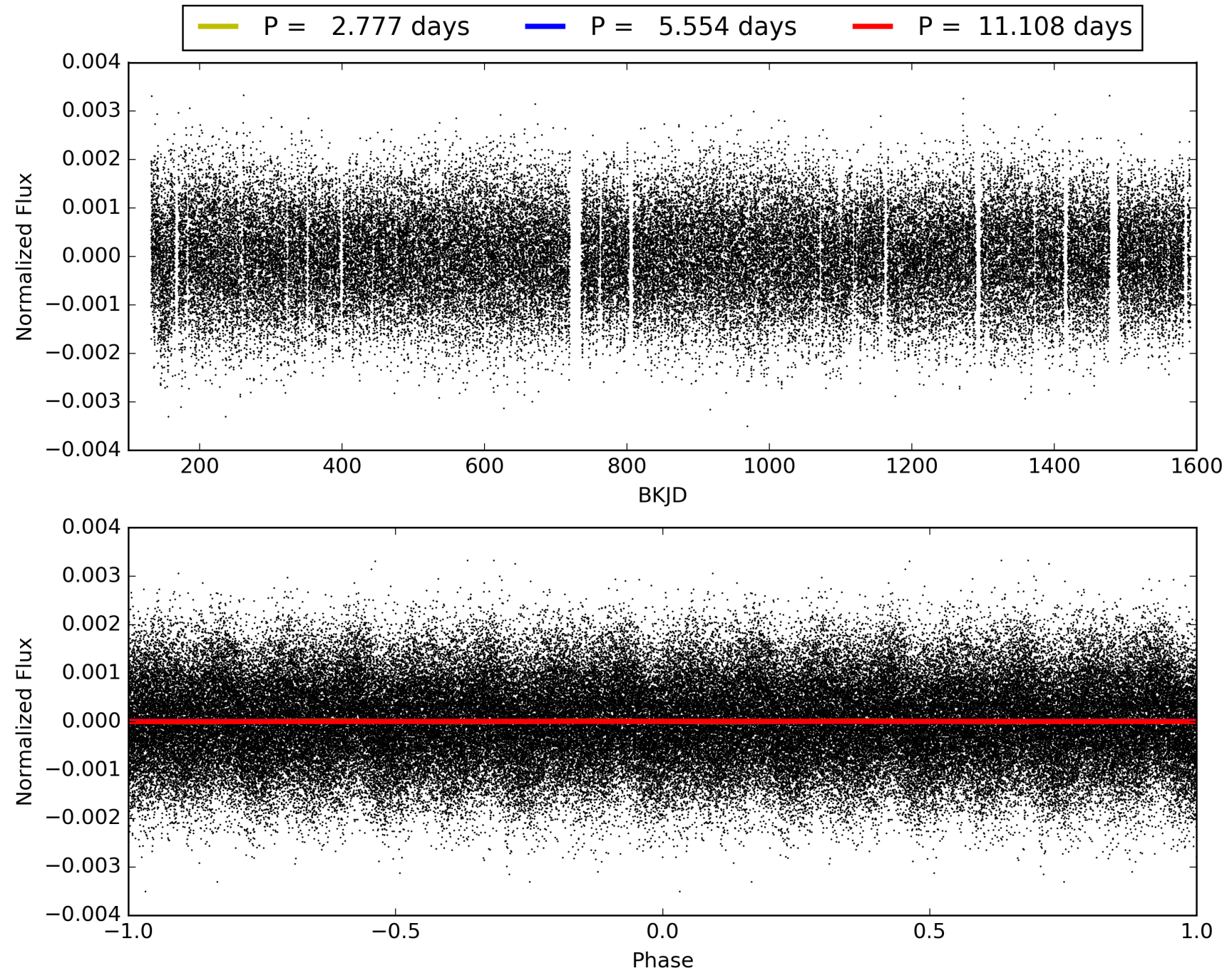
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:03:12 Z

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

TCE 007977198-01, PDC Light Curves

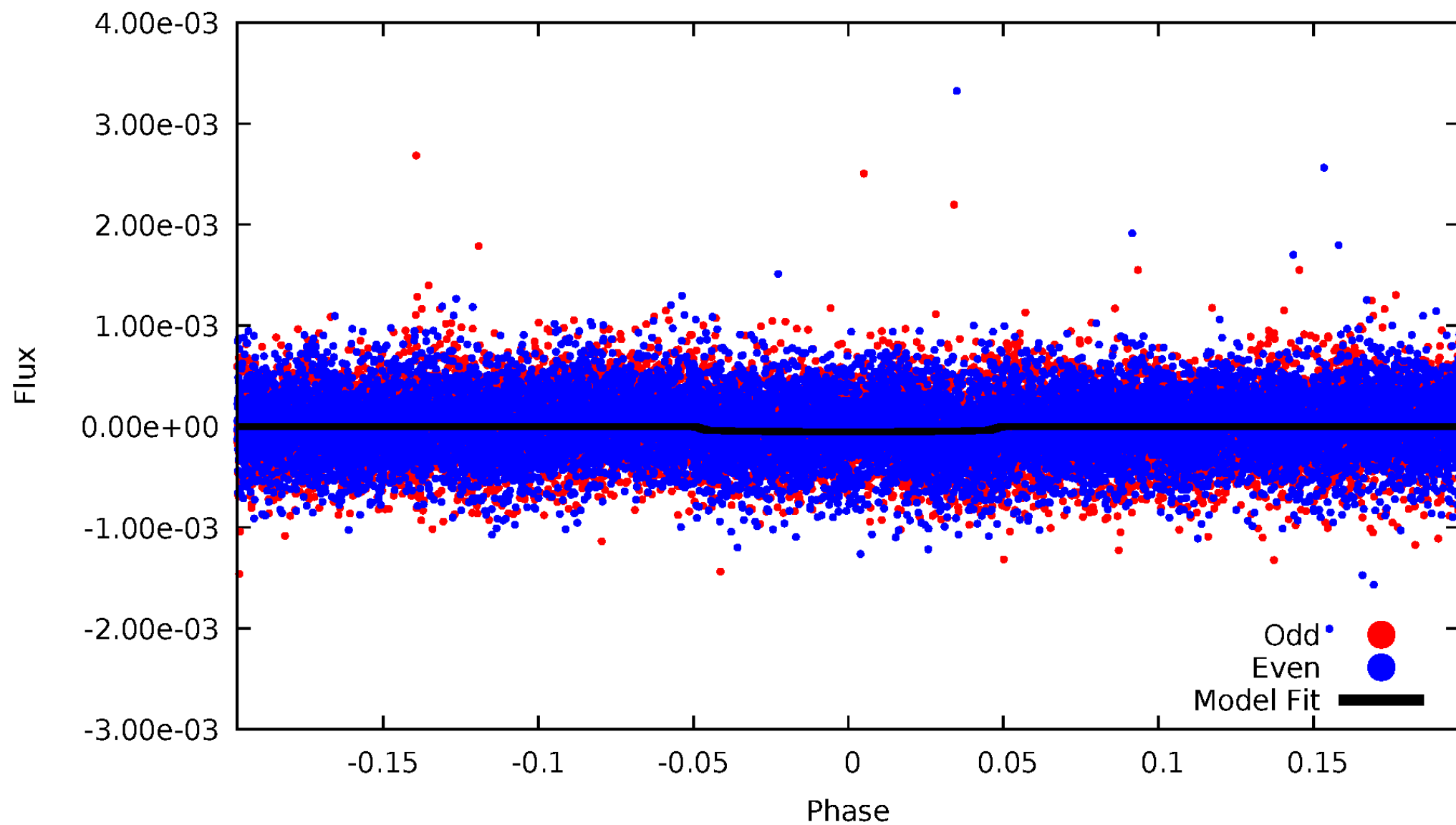


TCE 007977198-01



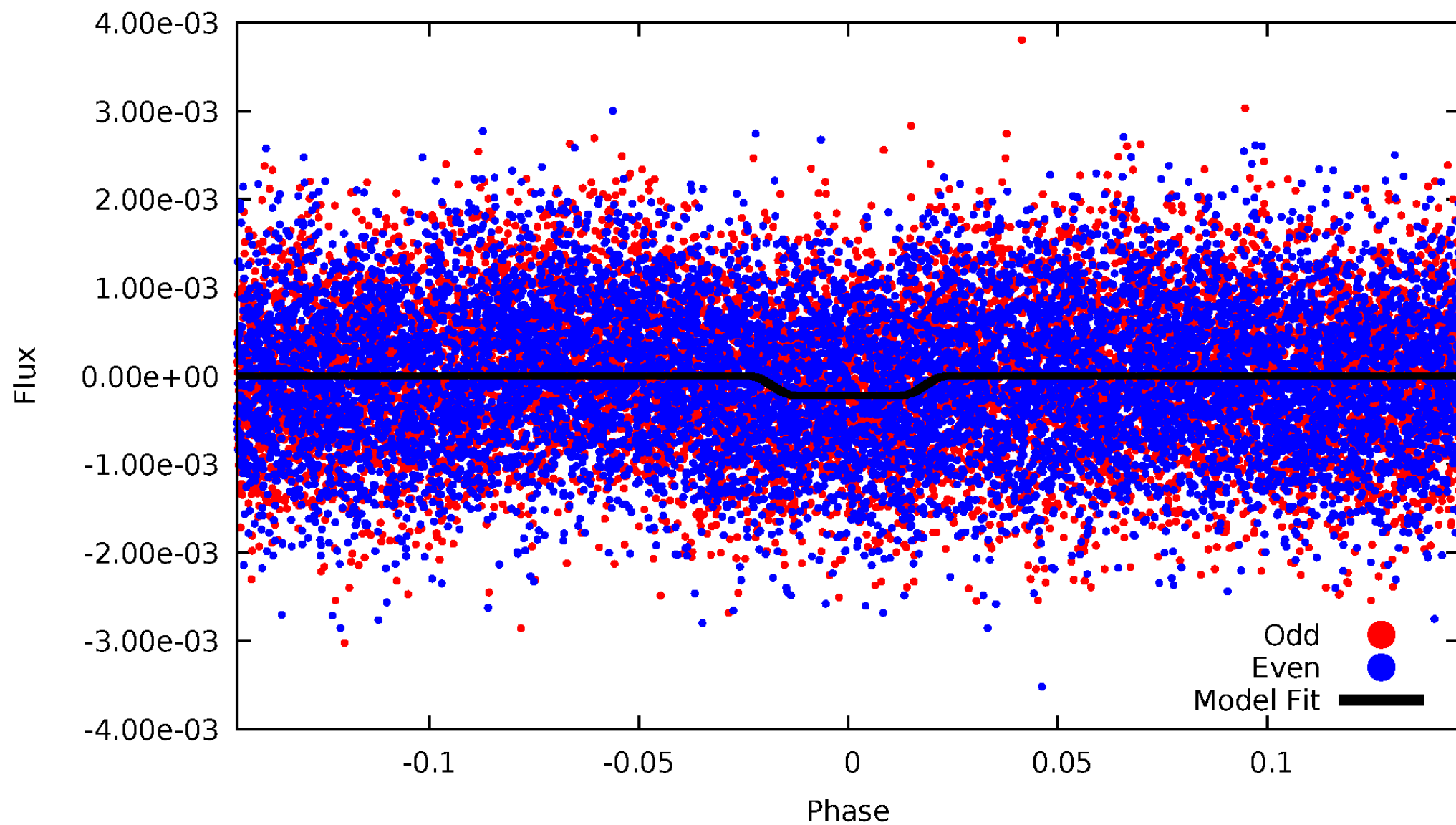
DV Odd/Even

TCE 007977198-01



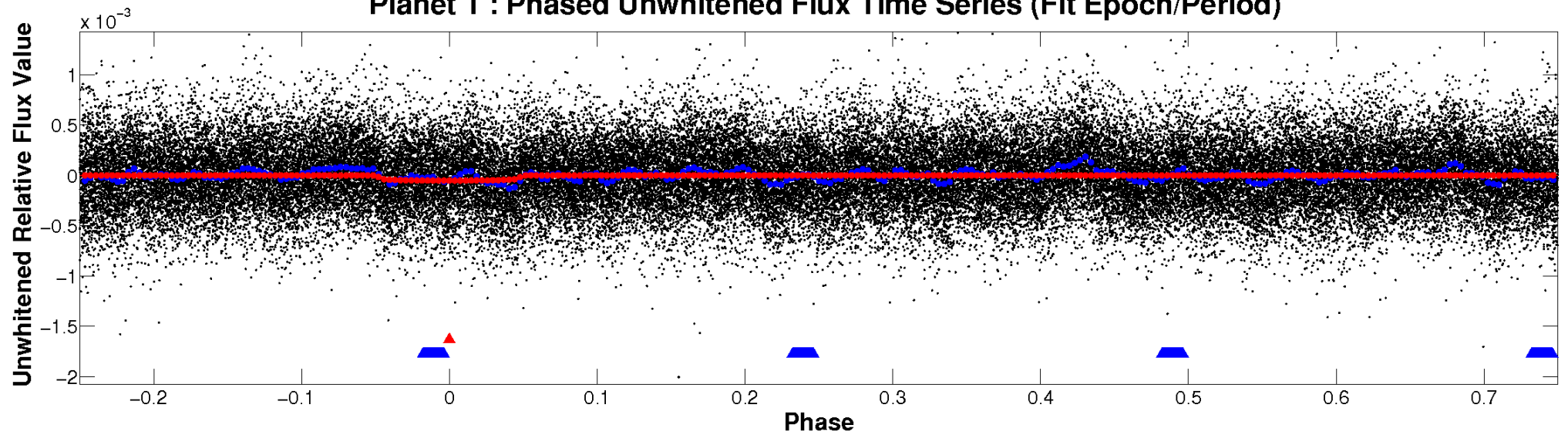
ALT Odd/Even

TCE 007977198-01

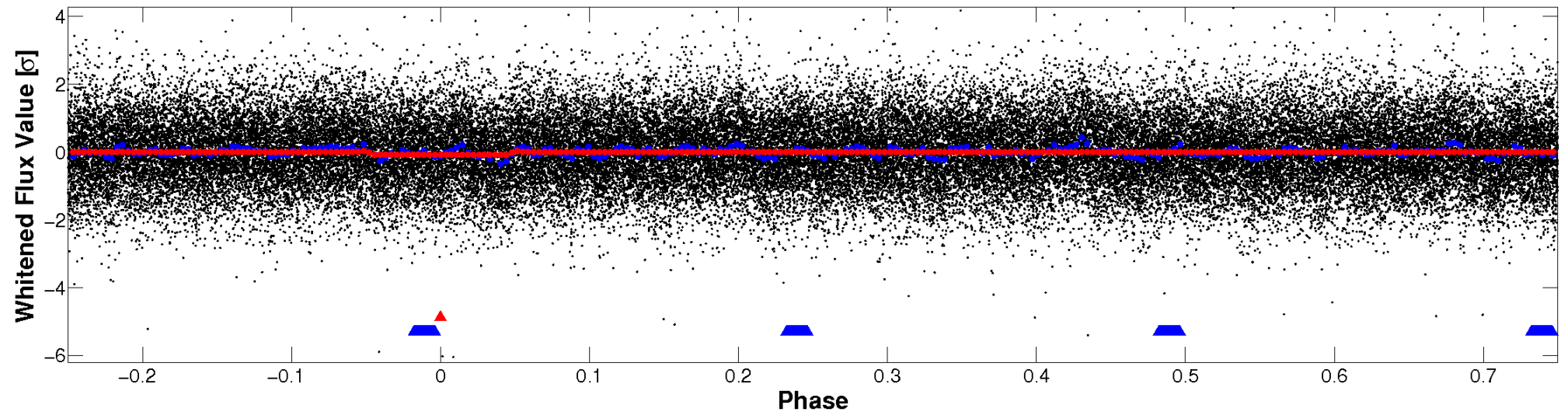


Non-Whitened Vs. Whitened Light Curve

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

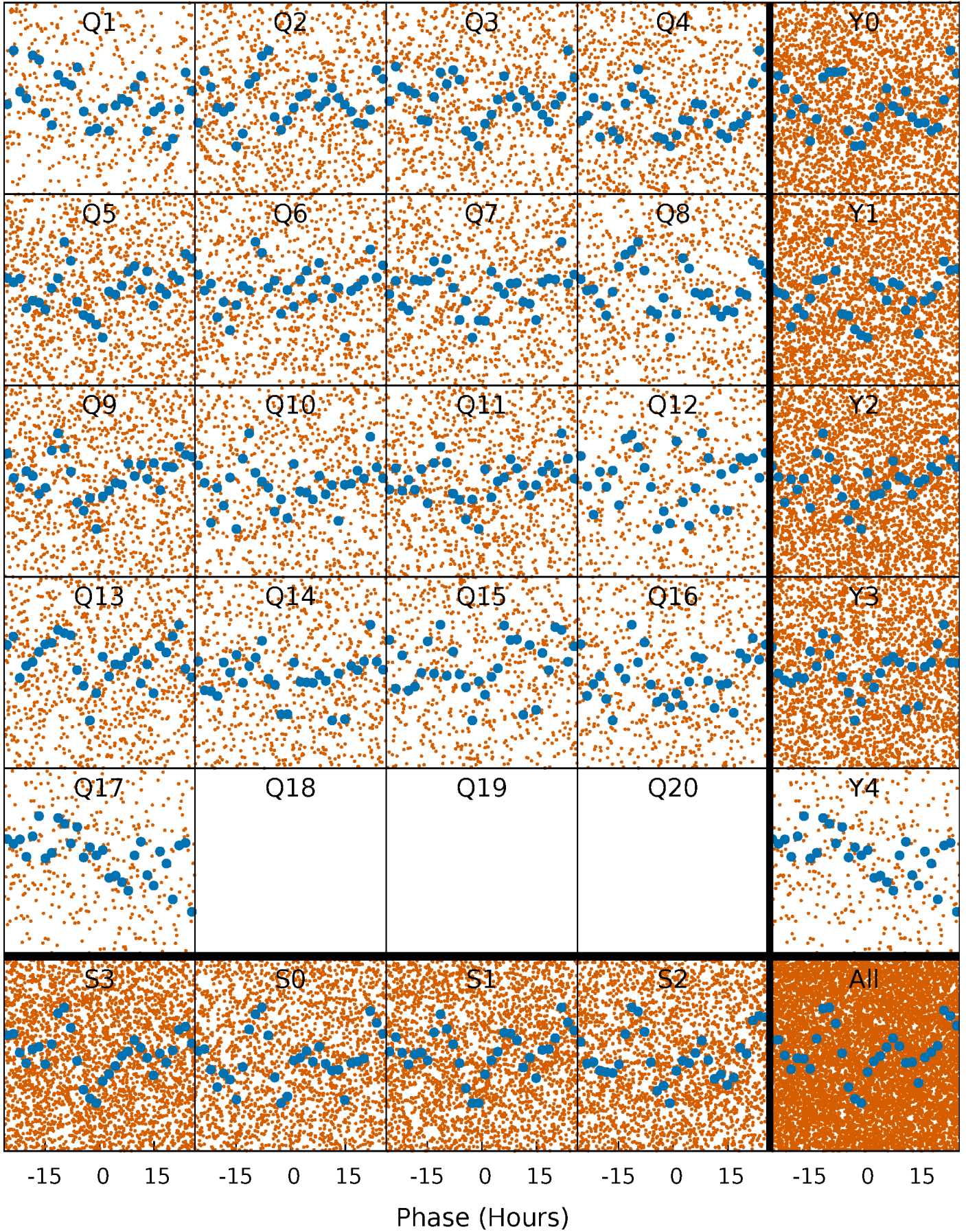


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



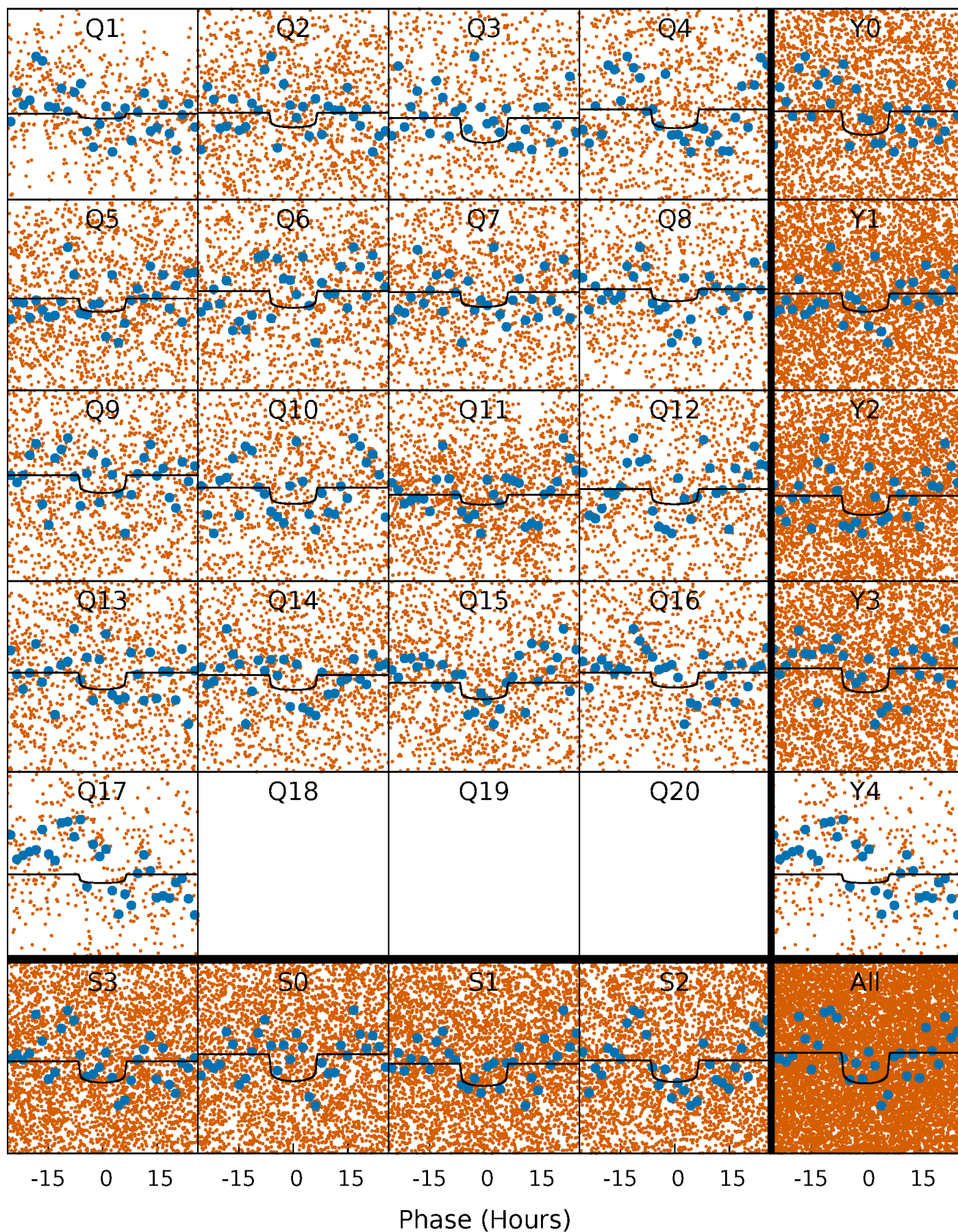
PDC Quarter-Phased Transit Curves

TCE 007977198-01 P= 5.554137 Days $T_0=135.218489$ (BKJD)



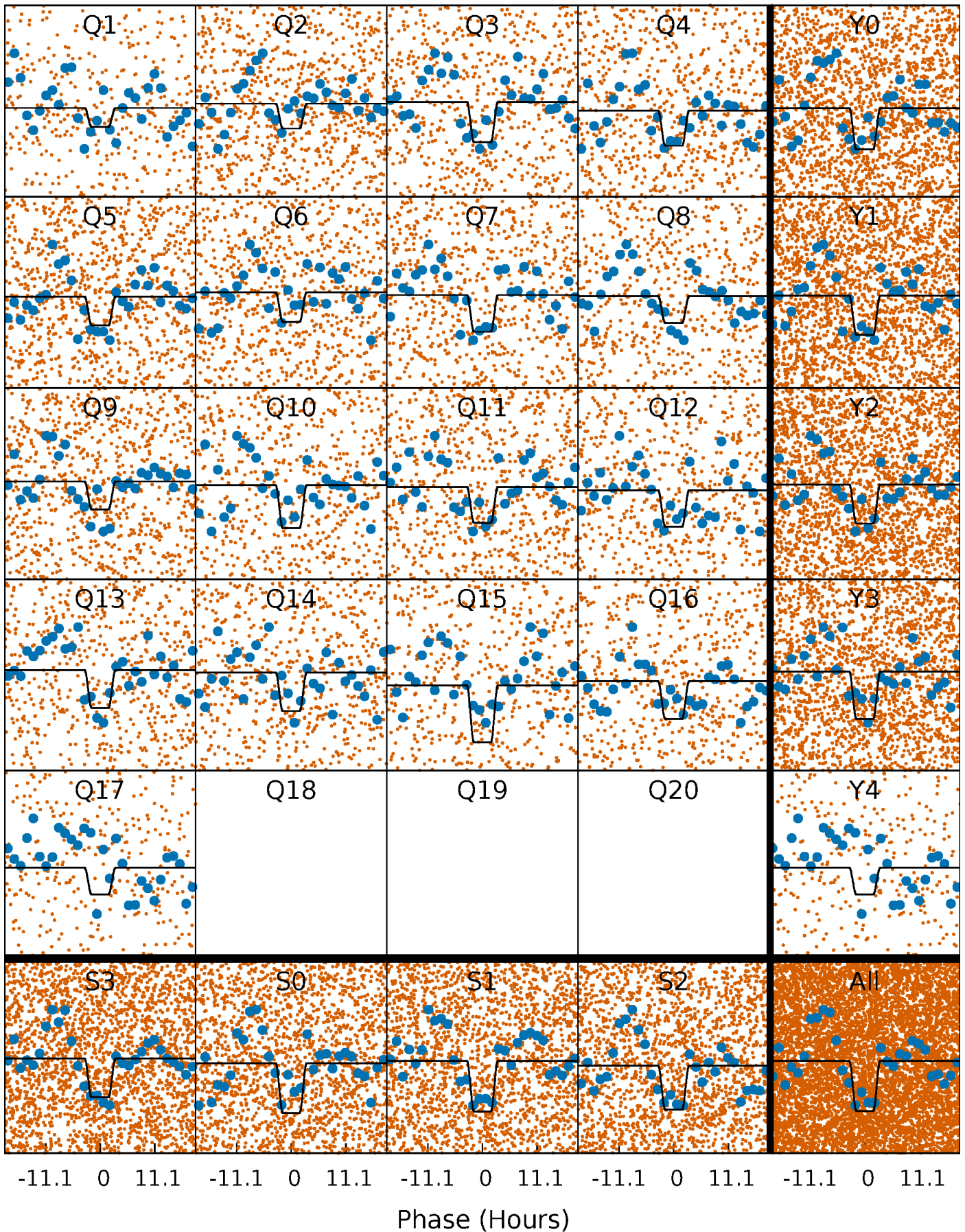
DV Quarter-Phased Transit Curves

TCE 007977198-01 P= 5.554137 Days $T_0=135.218489$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

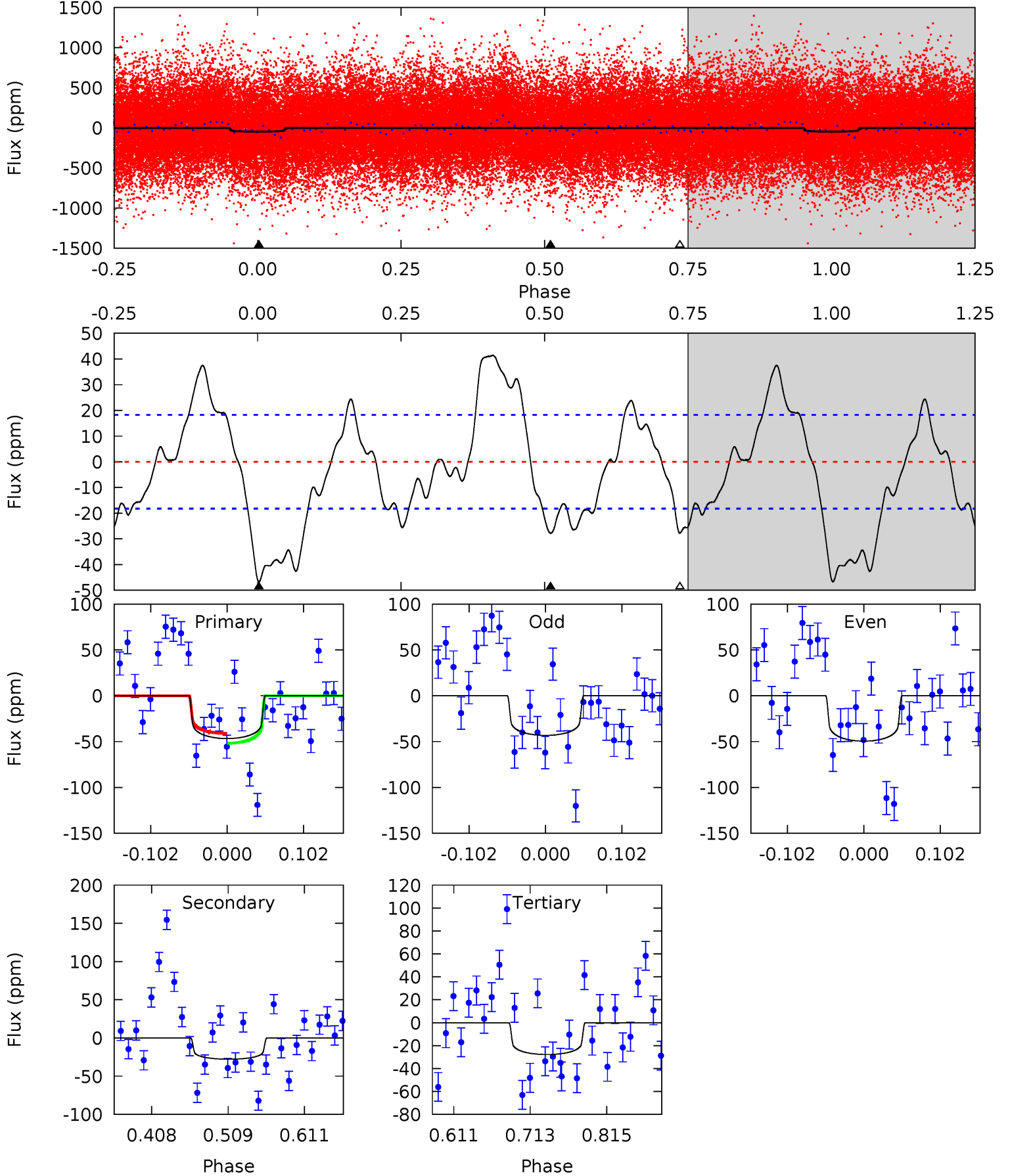
TCE 007977198-01 P= 5.553621 Days $T_0=135.215409$ (BKJD)



DV Model-Shift Uniqueness Test

007977198-01, P = 5.554137 Days, E = 129.664352 Days

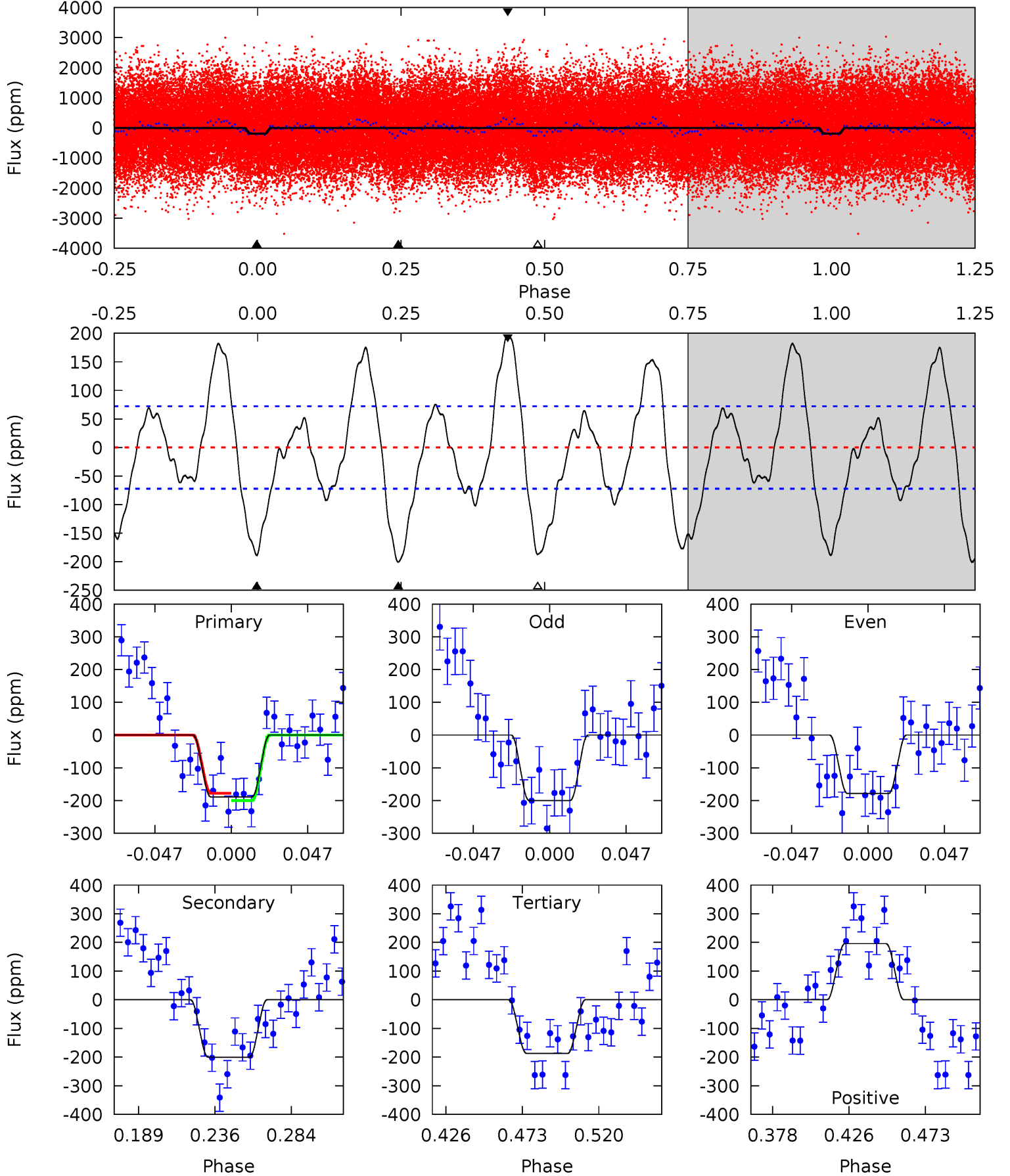
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	6.95	6.94	0	4.56	1.64	4.01	4.73	11.7	0.01	6.95	0.78	0.88	0.47	1.33



Alt Model-Shift Uniqueness Test

007977198-01, P = 5.553621 Days, E = 129.661788 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	13.1	12.2	12.8	4.72	1.98	6.07	0.12	-0.44	0.88	0.31	0.69	0.98	0.49	0.73



Stellar Parameters For KIC 007977198

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7286^{+232}_{-348}	$4.218^{+0.105}_{-0.195}$	$-0.160^{+0.250}_{-0.350}$	$1.542^{+0.523}_{-0.261}$	$1.434^{+0.219}_{-0.219}$	$0.551^{+0.313}_{-0.282}$
	+3%/-5%	+2%/-5%	+156%/-219%	+34%/-17%	+15%/-15%	+57%/-51%
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 007977198-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-28 ± 4	$1.27^{+0.29}_{-0.22}$	2132^{+172}_{-137}	6021^{+605}_{-513}	44^{+22}_{-15}
Alt.	-200 ± 15	$2.55^{+0.44}_{-0.34}$	2140^{+172}_{-127}	7071^{+473}_{-426}	80^{+26}_{-21}

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 $A_{obs} \gg 1.0$

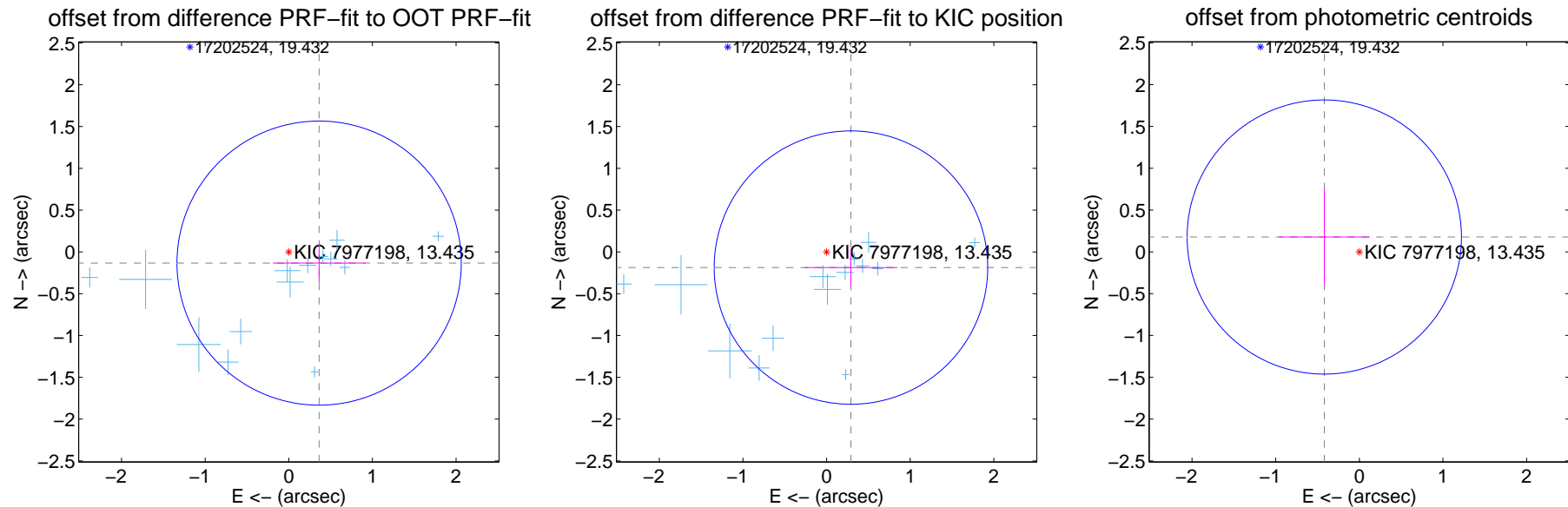
DV Centroid Data

Supplemental centroid analysis for 007977198-01. Kepler magnitude: 13.44. Transit SNR 6.47

There are 14 quarters with good PRF difference image offsets

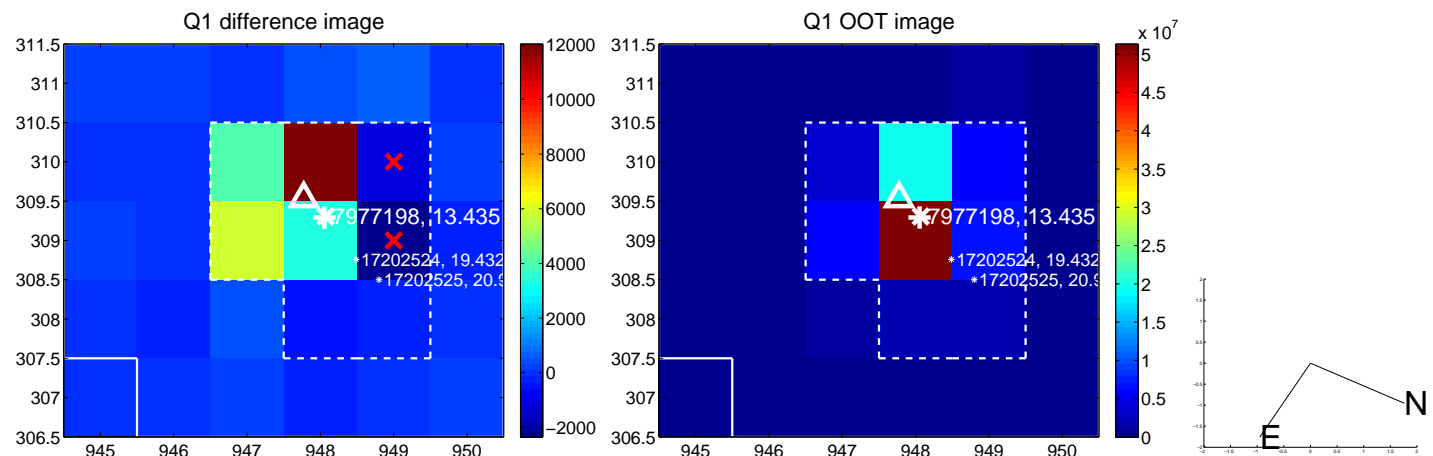
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.386 ± 0.567	0.68	-0.362 ± 0.552	-0.134 ± 0.236
PRF-fit source offset from KIC position	0.346 ± 0.545	0.64	-0.291 ± 0.556	-0.187 ± 0.224
photometric centroid source offset	0.45 ± 0.55	0.83	0.42 ± 0.54	0.18 ± 0.57

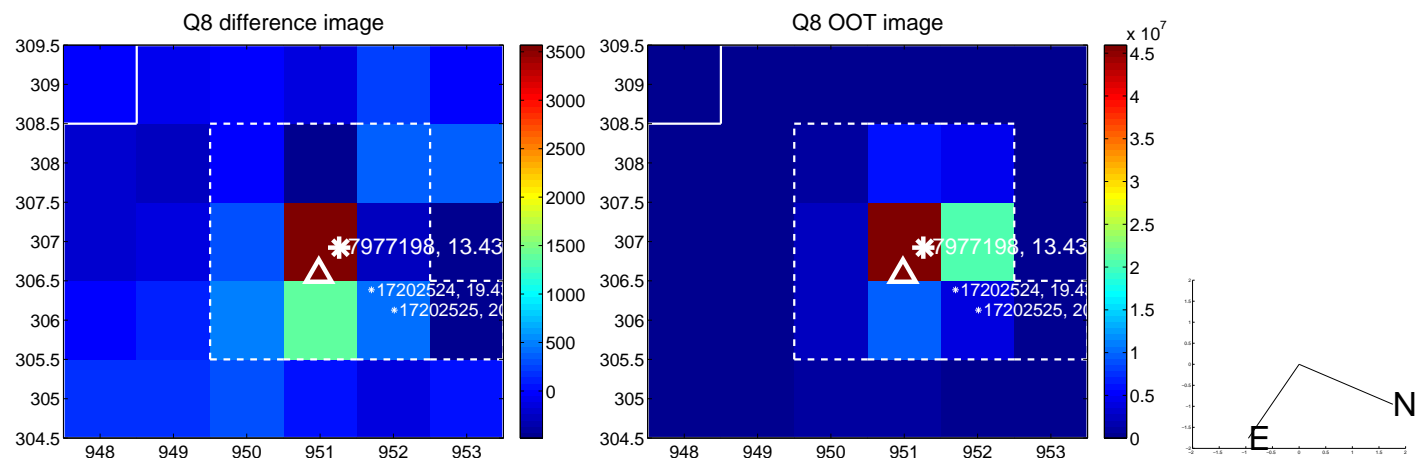
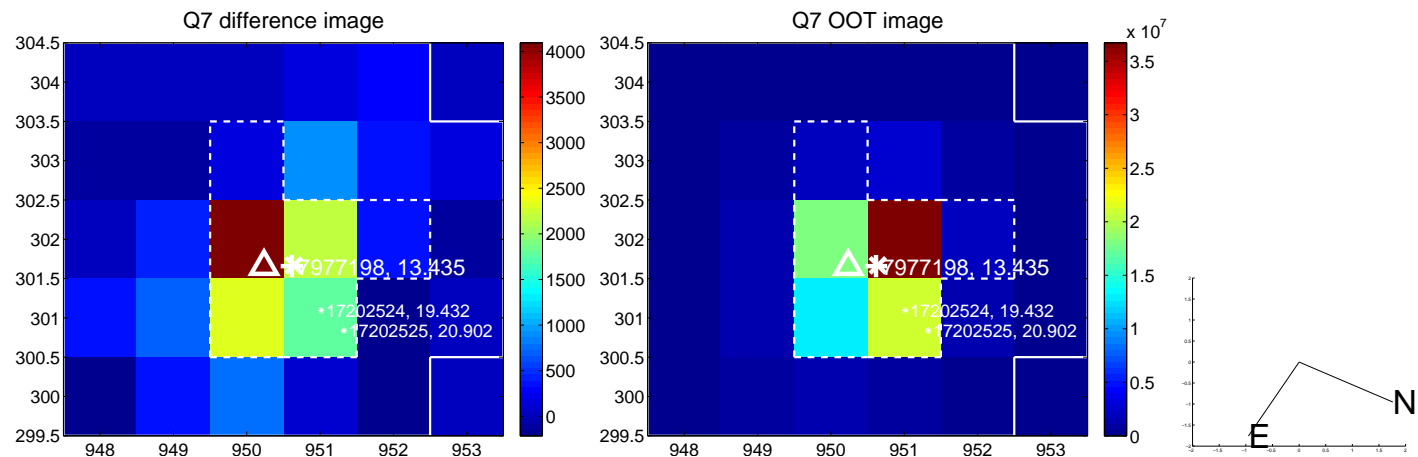
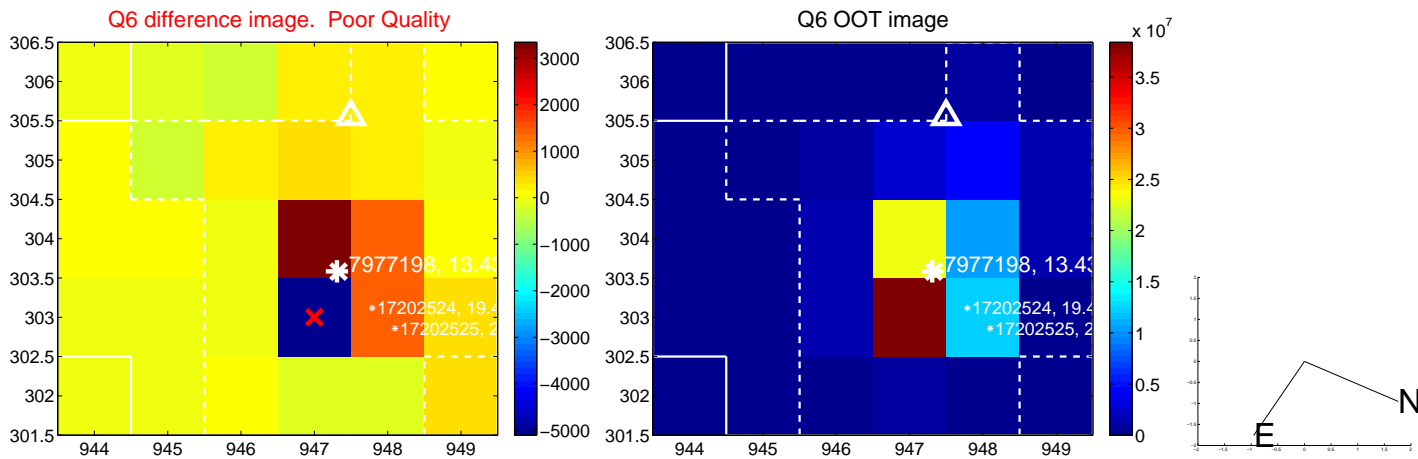
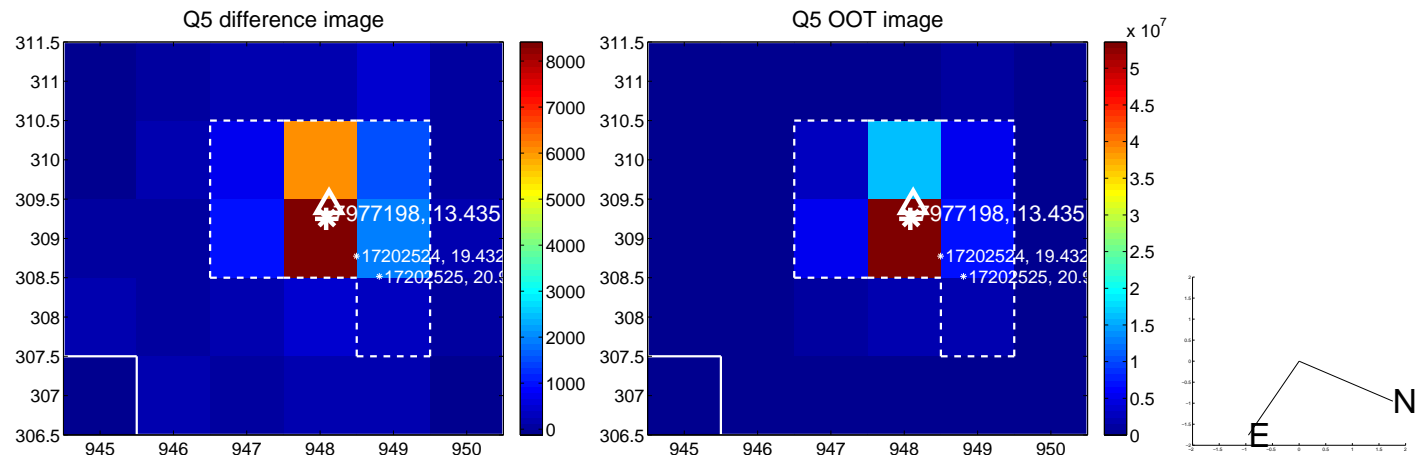


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

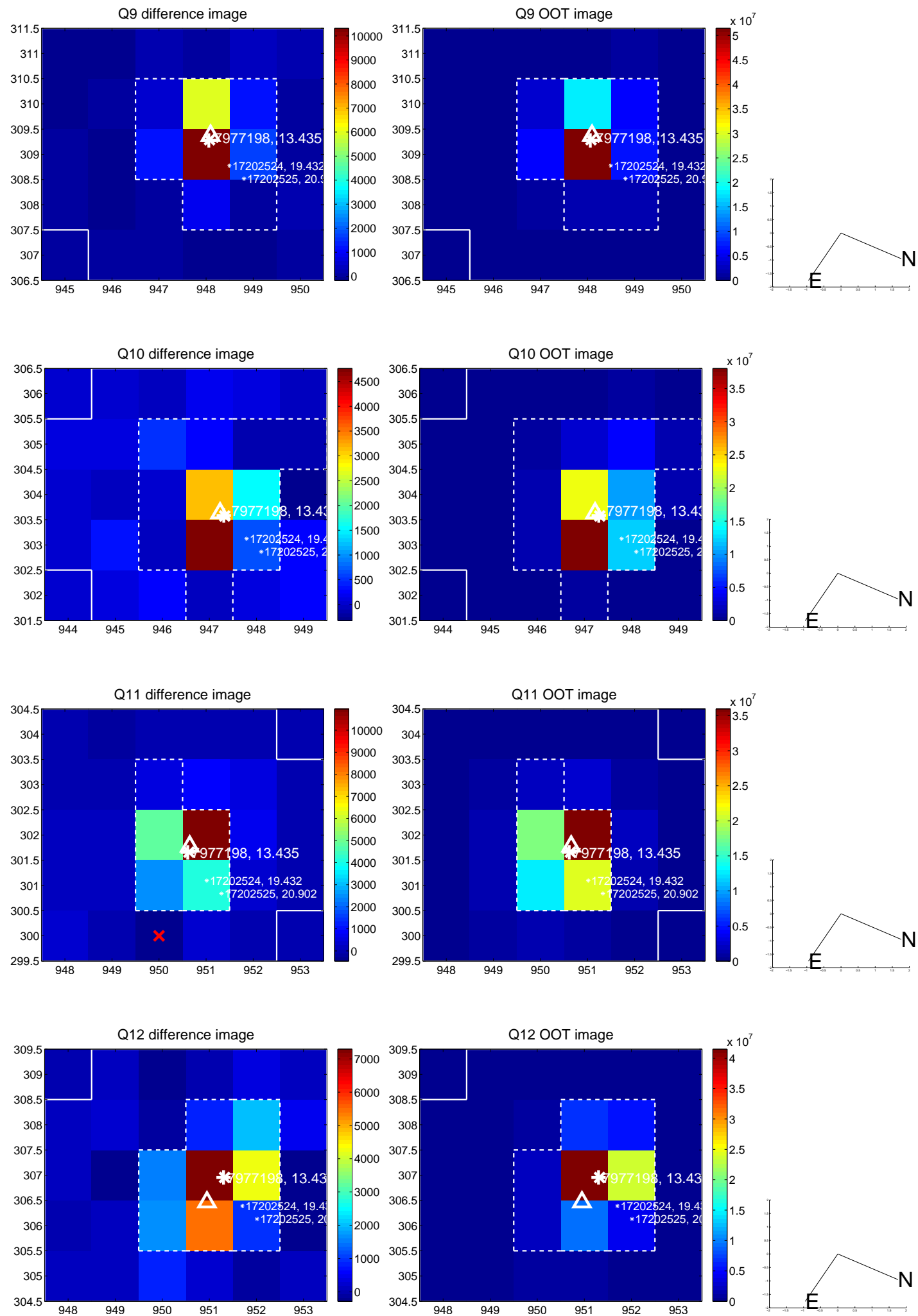
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



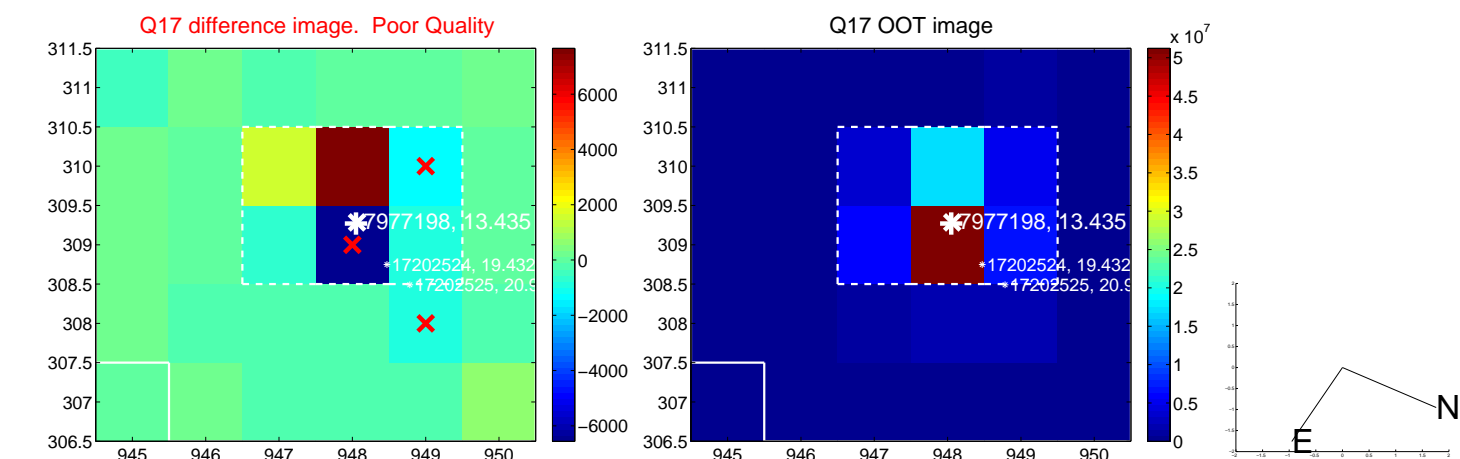
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



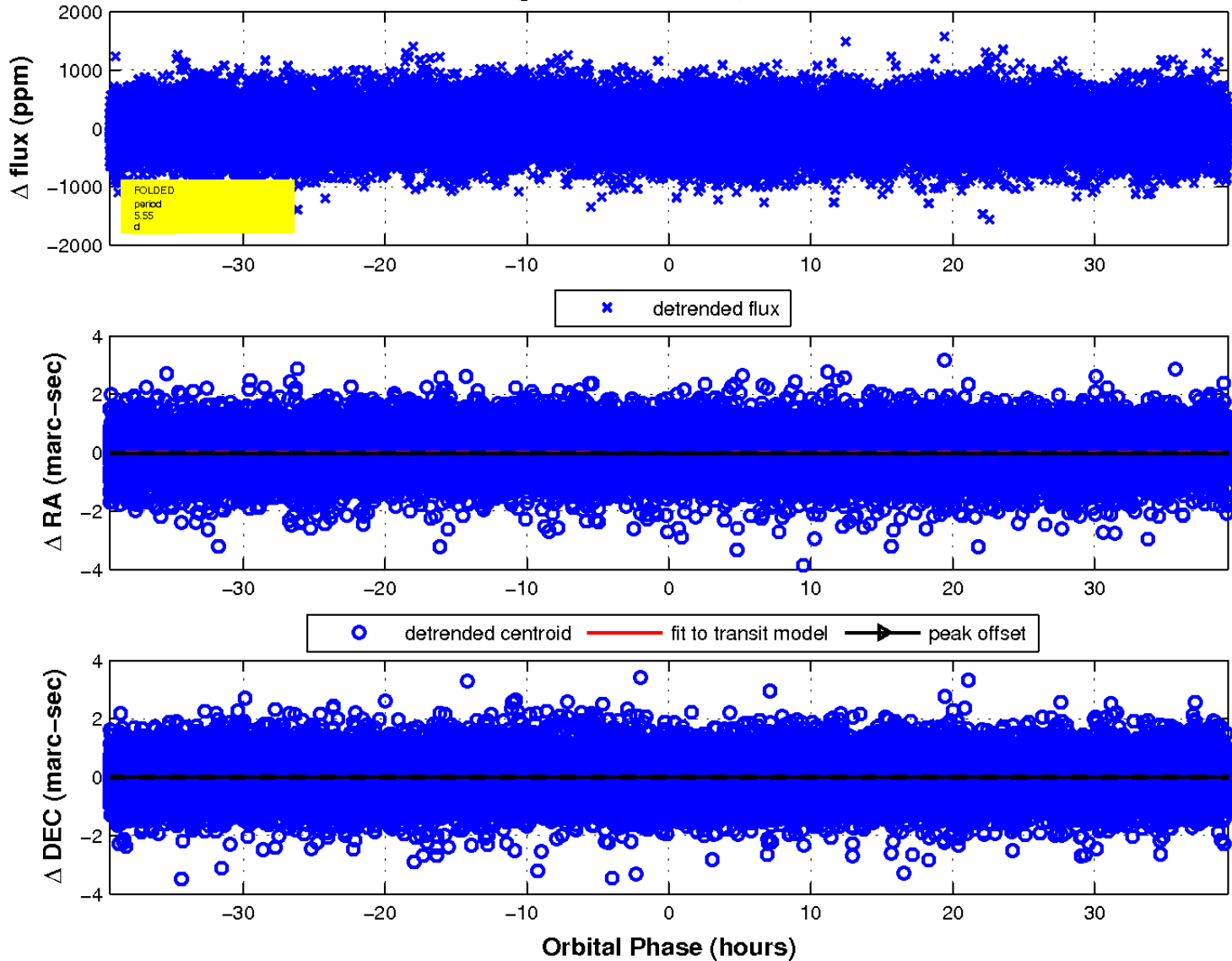
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

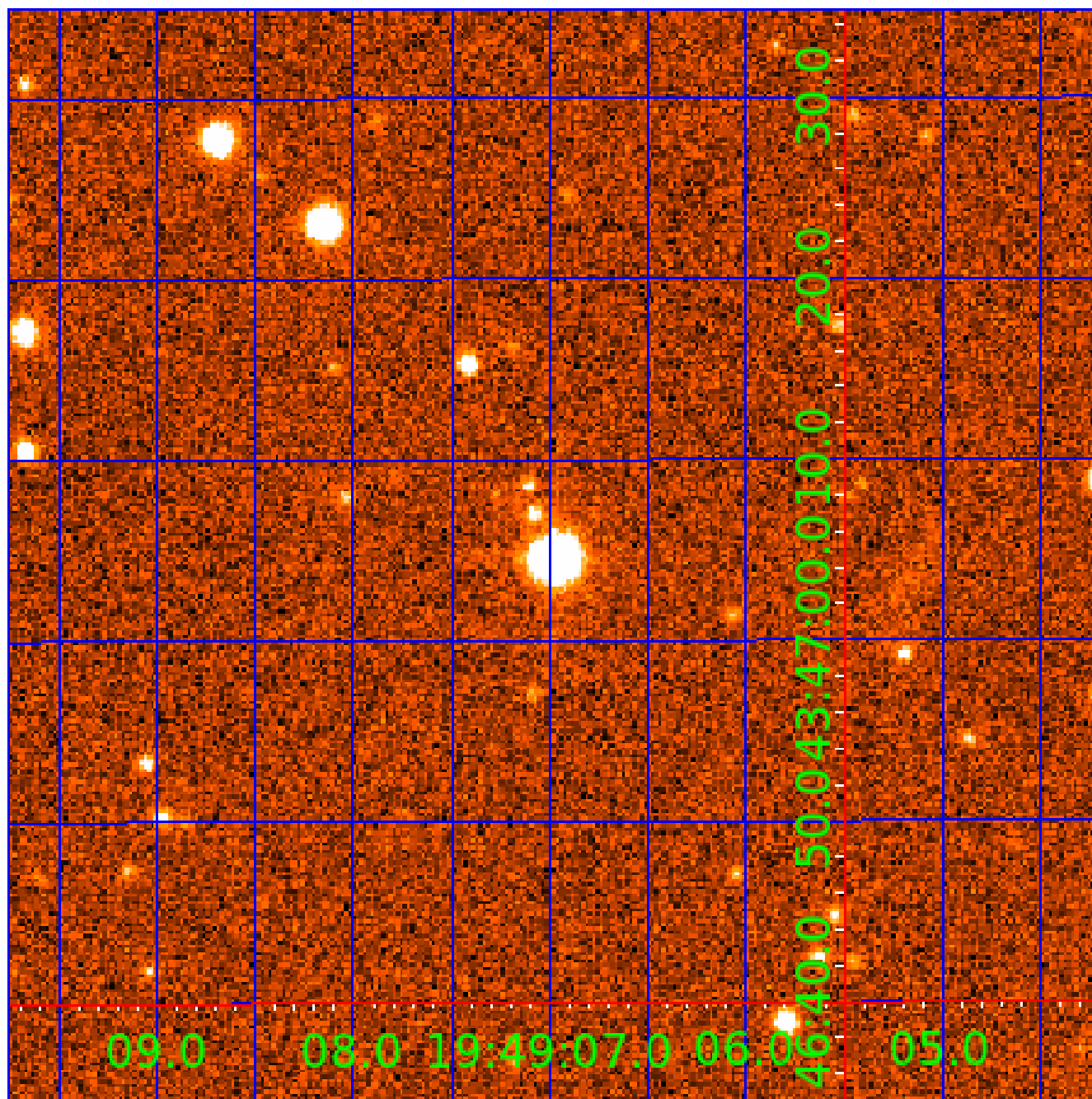


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 007977198

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})
007977198-01	OBS	No	5.554137	135.218489	52.3	13.137	8.7	6.5	1.54	7286	1.26	1253.39
007977198-02	OBS	No	1.388459	132.421359	26.8	9.611	9.8	5.6	1.54	7286	0.84	7959.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007977198-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007977198-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

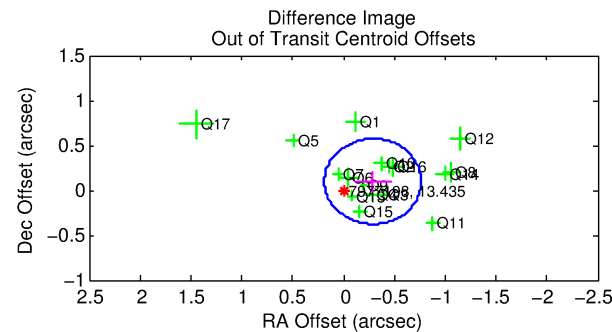
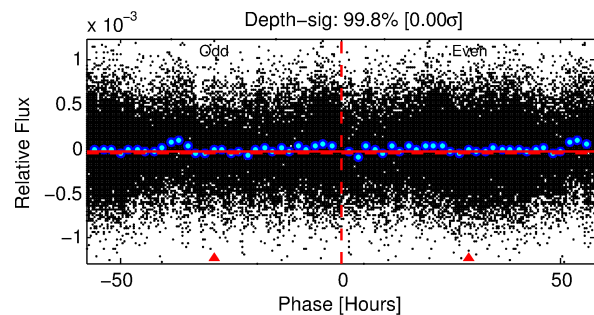
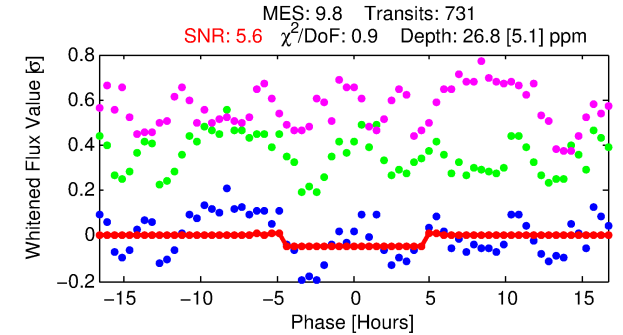
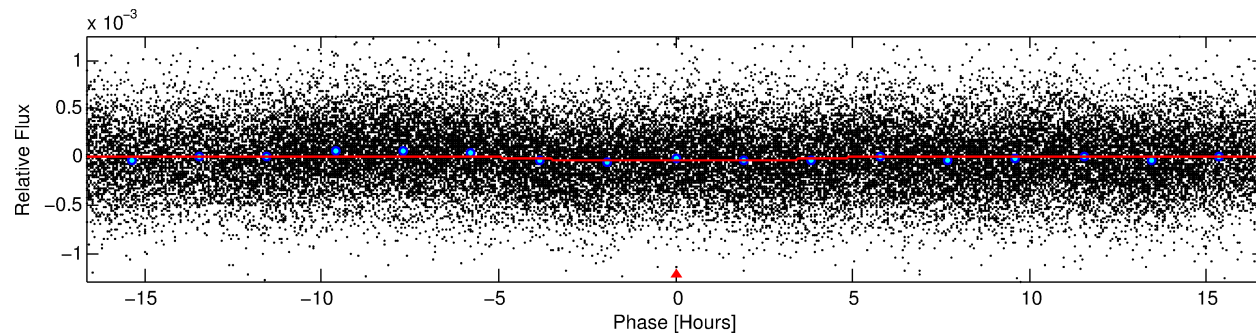
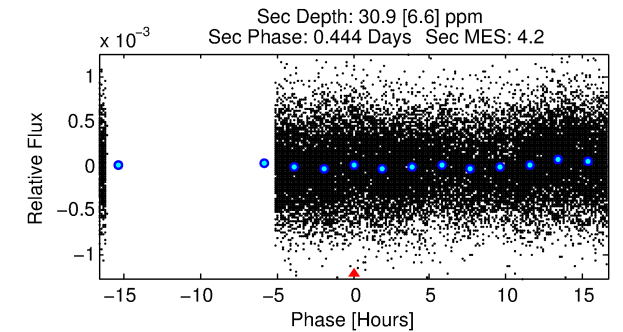
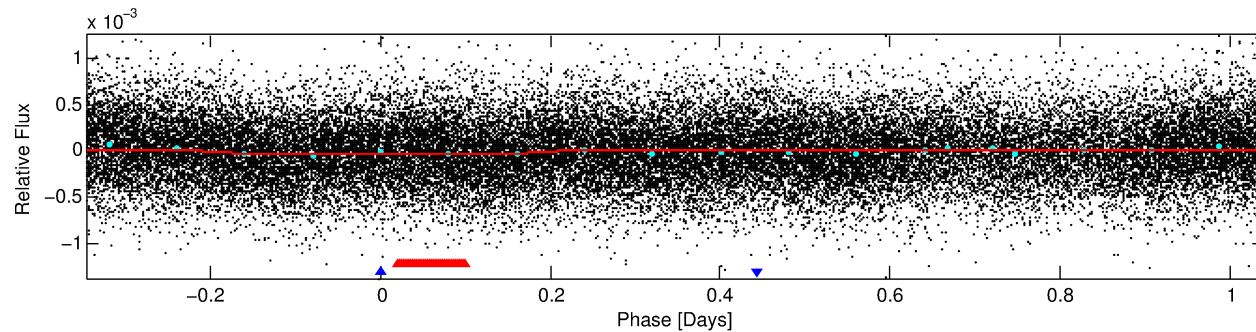
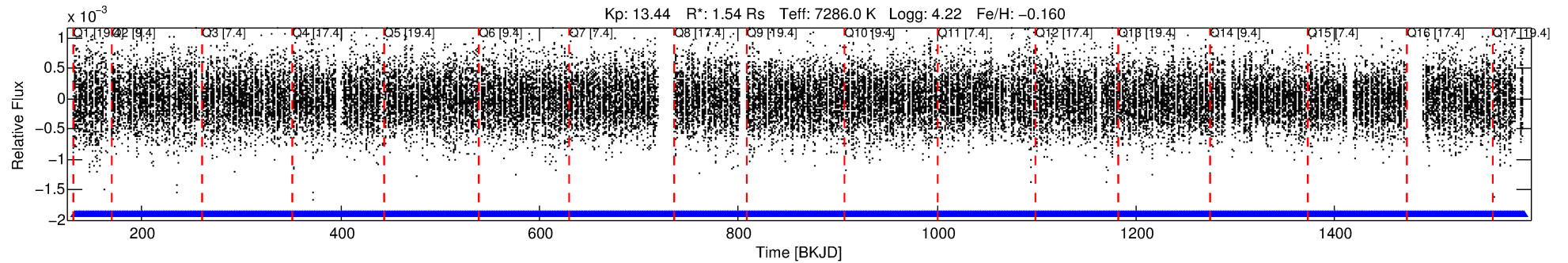
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007977198-02

No Significant Match Found

DV One-Page Summary

KIC: 7977198 Candidate: 2 of 2 Period: 1.388 d



DV Fit Results:

Period = 1.38846 [0.00003] d
Epoch = 132.4214 [0.0076] BKJD
Rp/R* = 0.0050 [0.0044]
a/R* = 1.19 [1.90]
b = 0.58 [6.15]
Seff = 7959.09 [3350.67]
Teq = 2408 [253] K
Rp = 0.84 [0.79] Re
a = 0.0275 [0.0074] AU
Ag = 18.34 [33.11] [0.52σ]
Teffp = 7706 [3422] K [1.54σ]

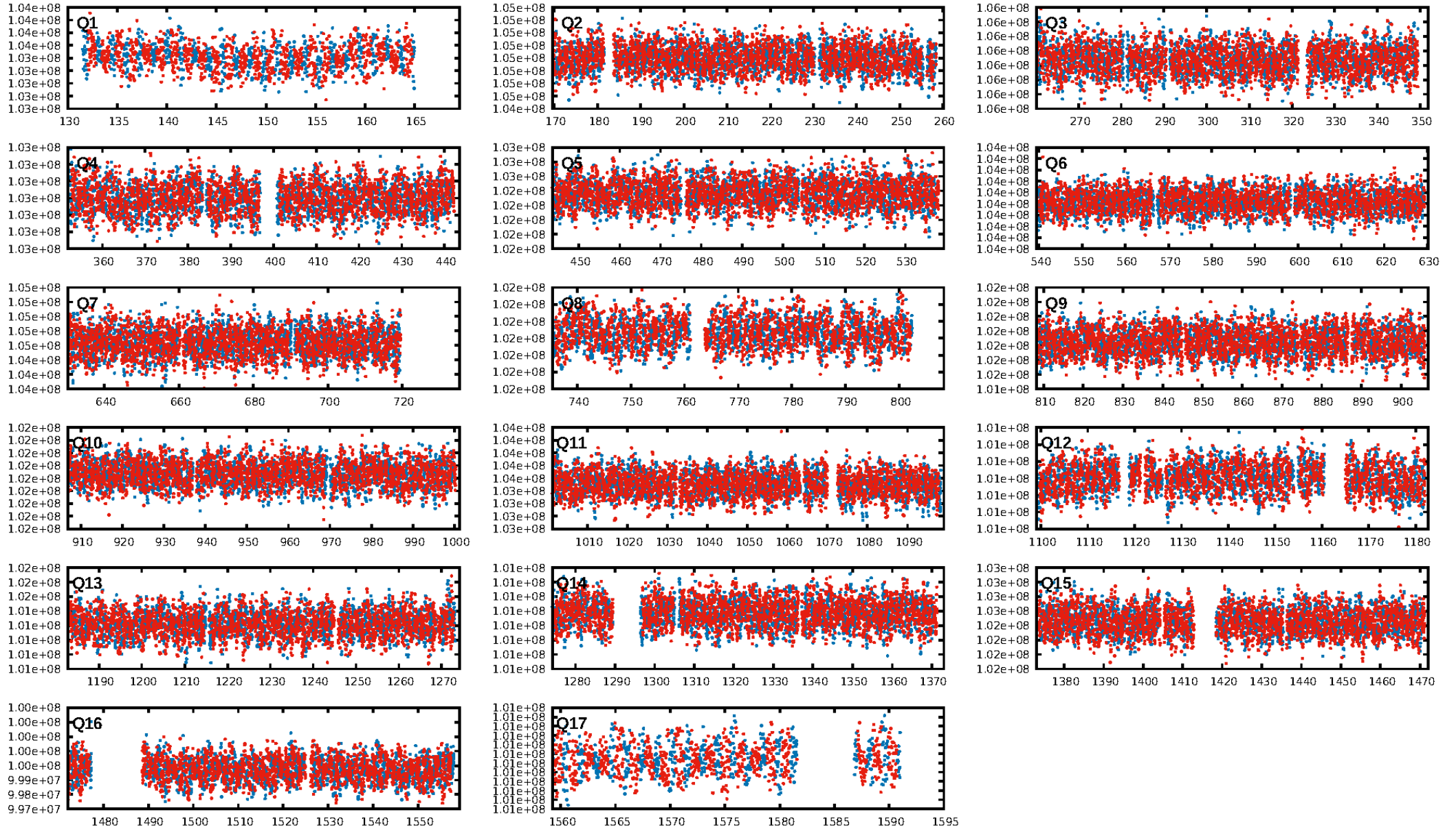
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [6.14σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.09e-10
RollingBand-fgt: 1.00 [699/699]
GhostDiagnostic-chr: 0.8038
Centroid-sig: 0.0%
Centroid-so: 1.712 arcsec [2.88σ]
OotOffset-rm: 0.303 arcsec [1.92σ]
KicOffset-rm: 0.238 arcsec [1.57σ]
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]

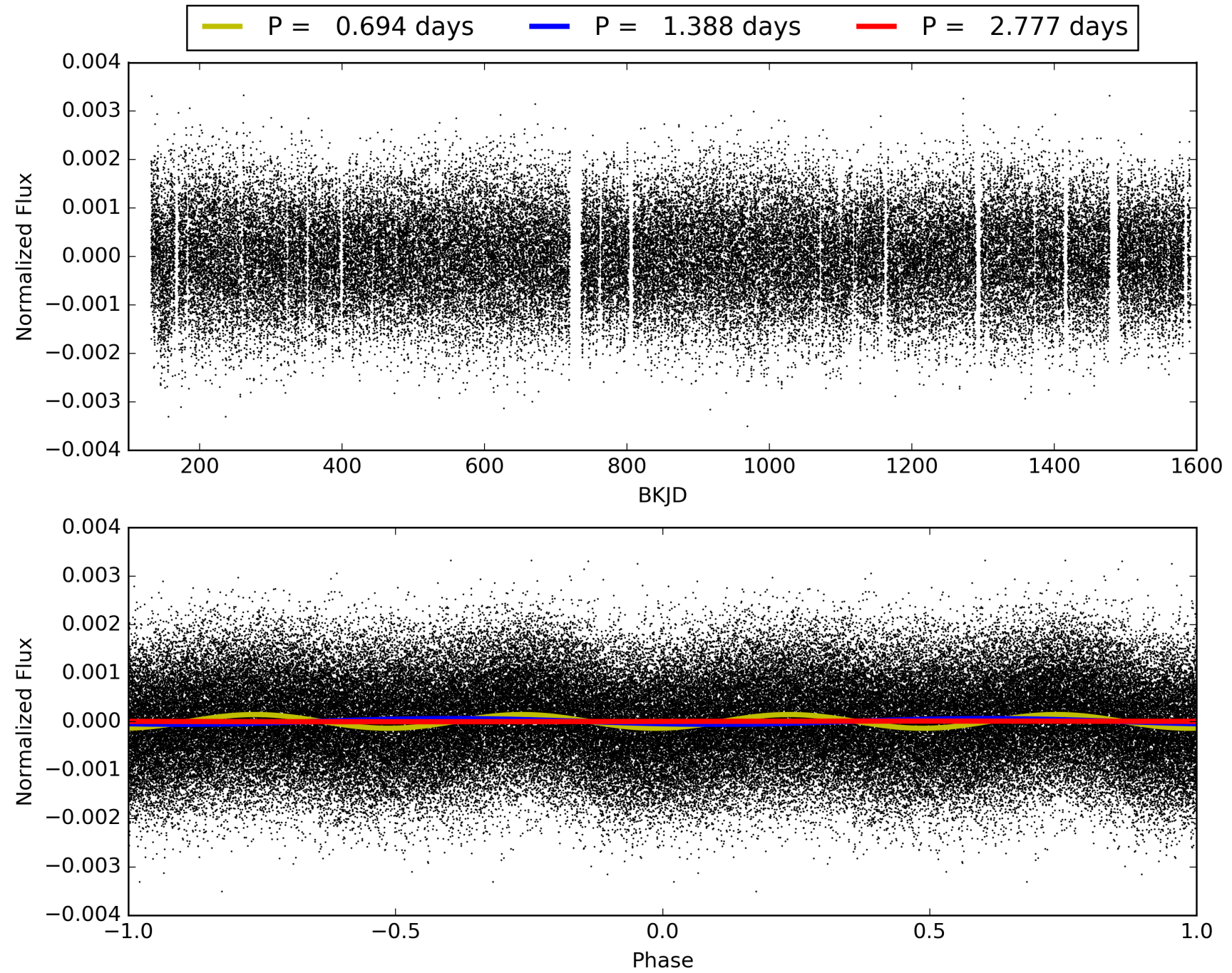
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:03:25 Z

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

TCE 007977198-02, PDC Light Curves

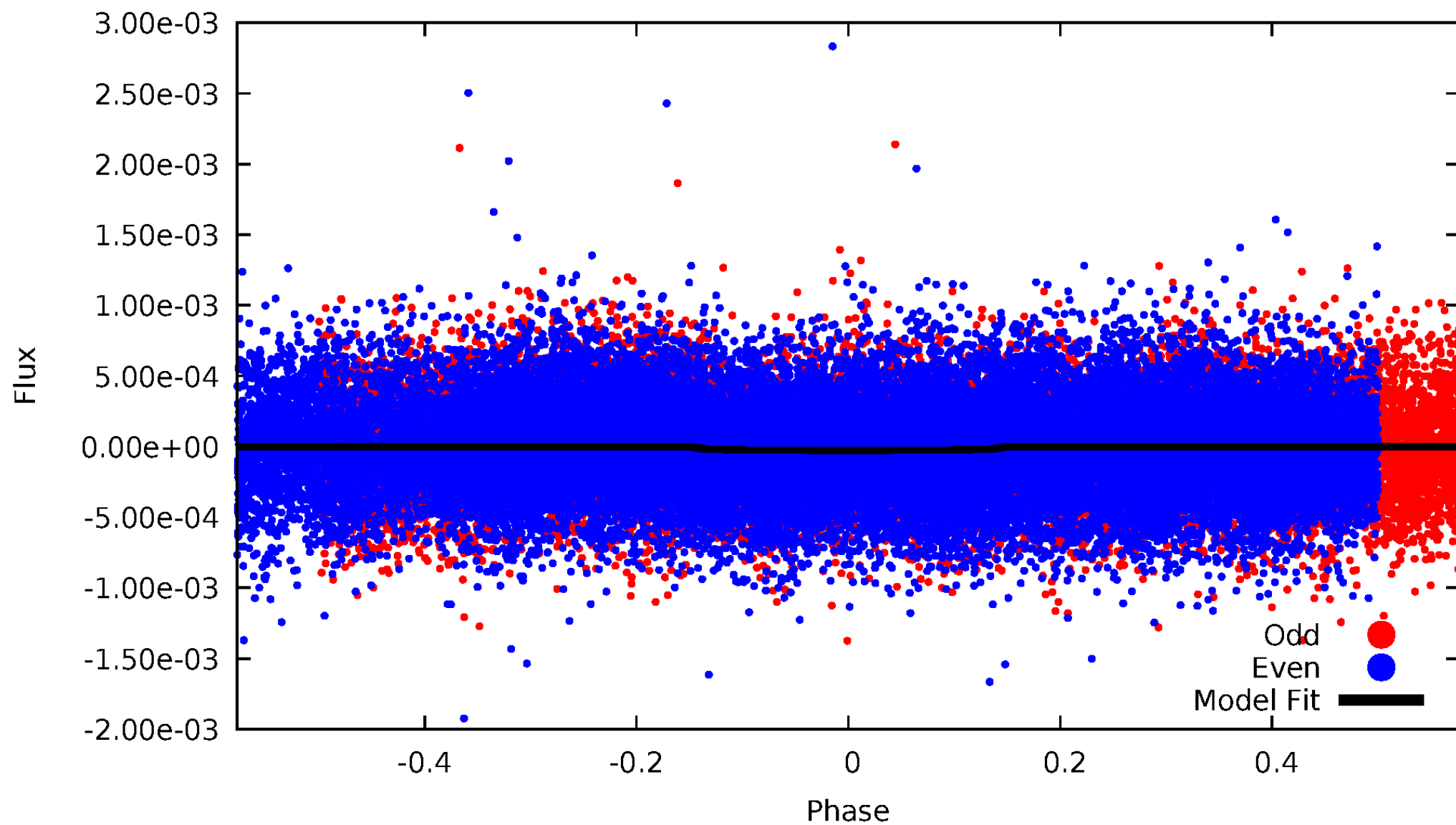


TCE 007977198-02



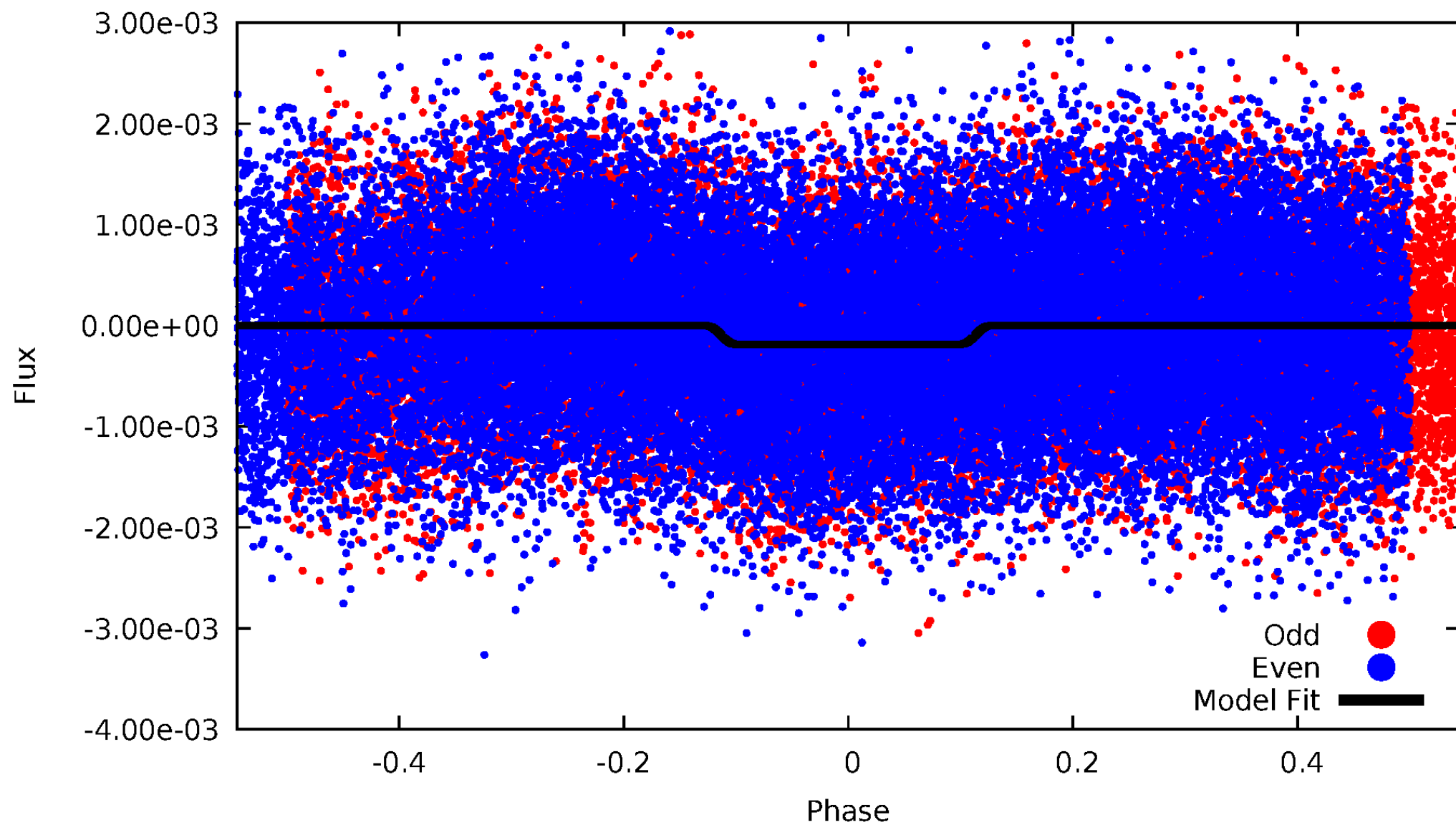
DV Odd/Even

TCE 007977198-02



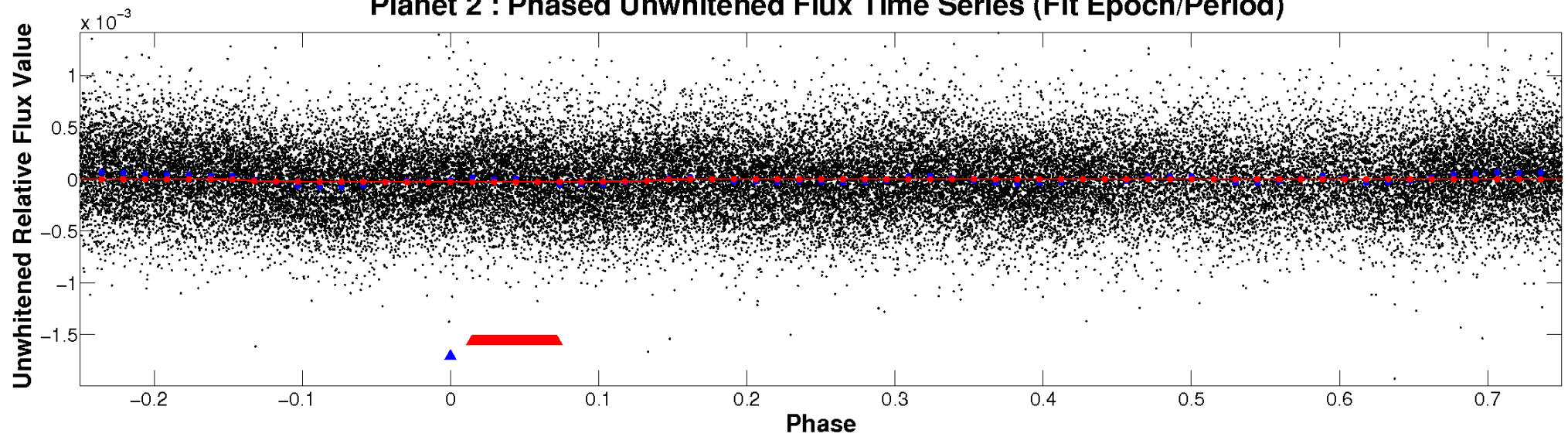
ALT Odd/Even

TCE 007977198-02

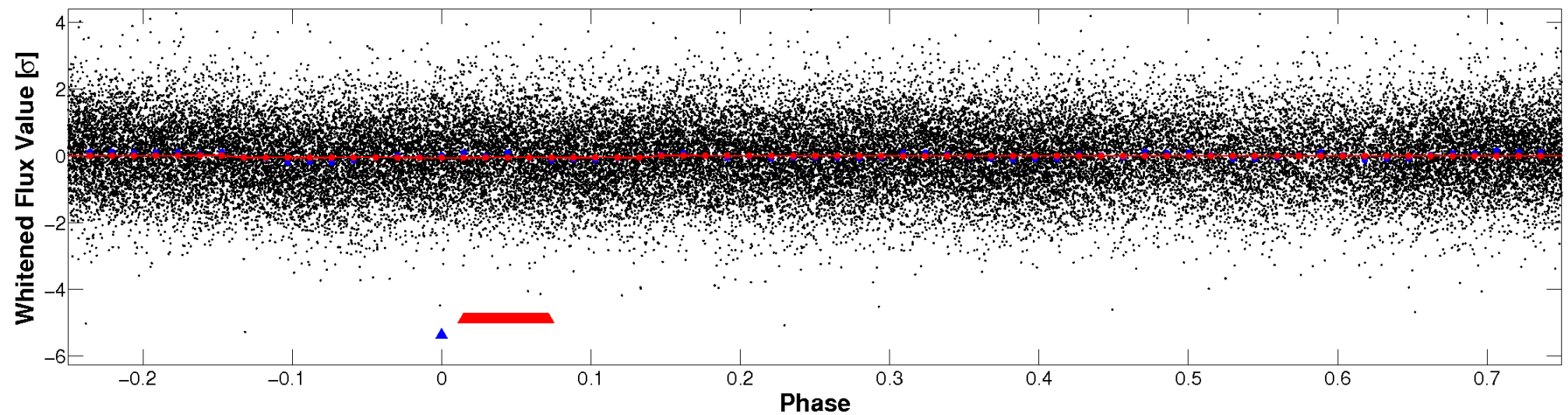


Non-Whitened Vs. Whitened Light Curve

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

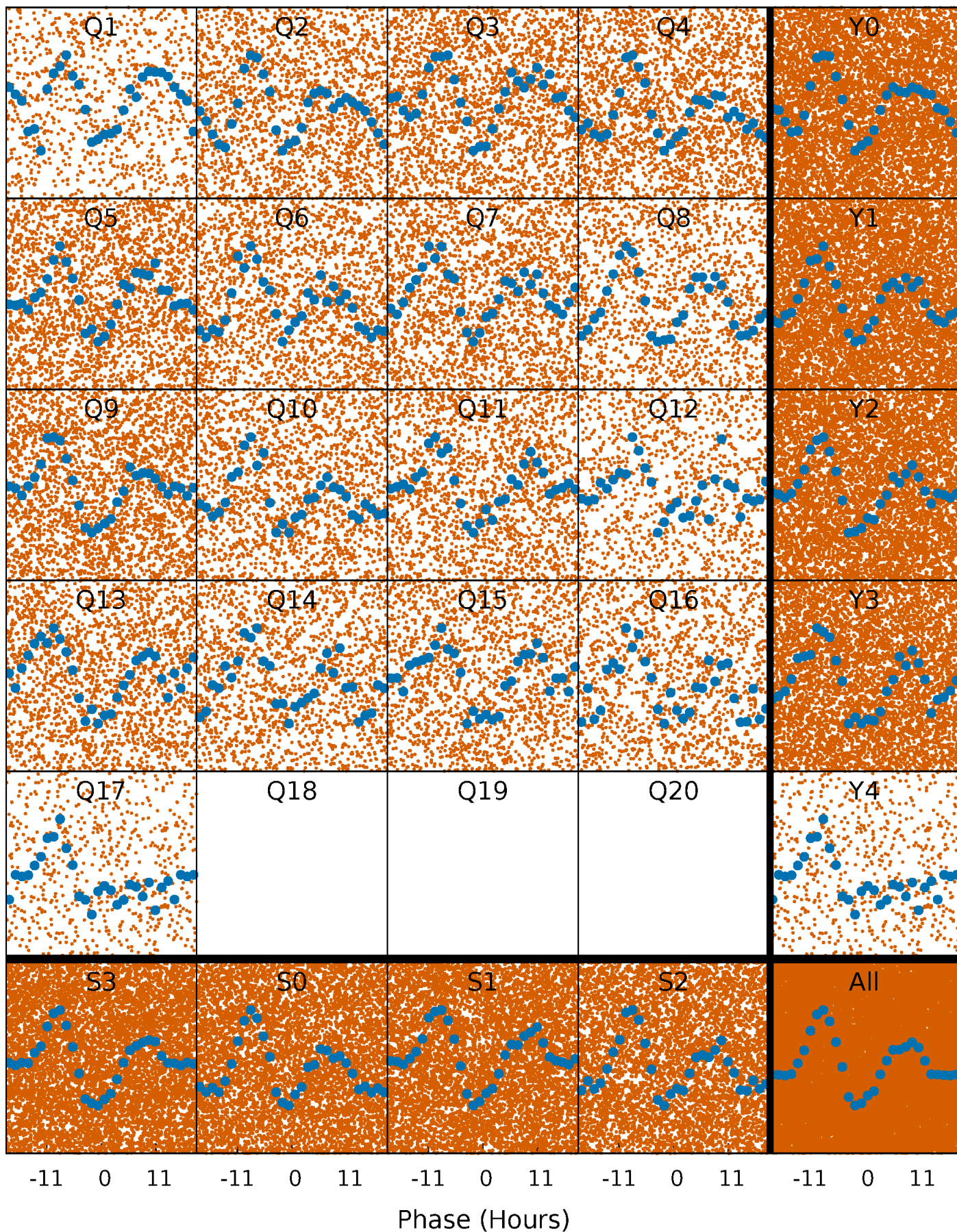


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



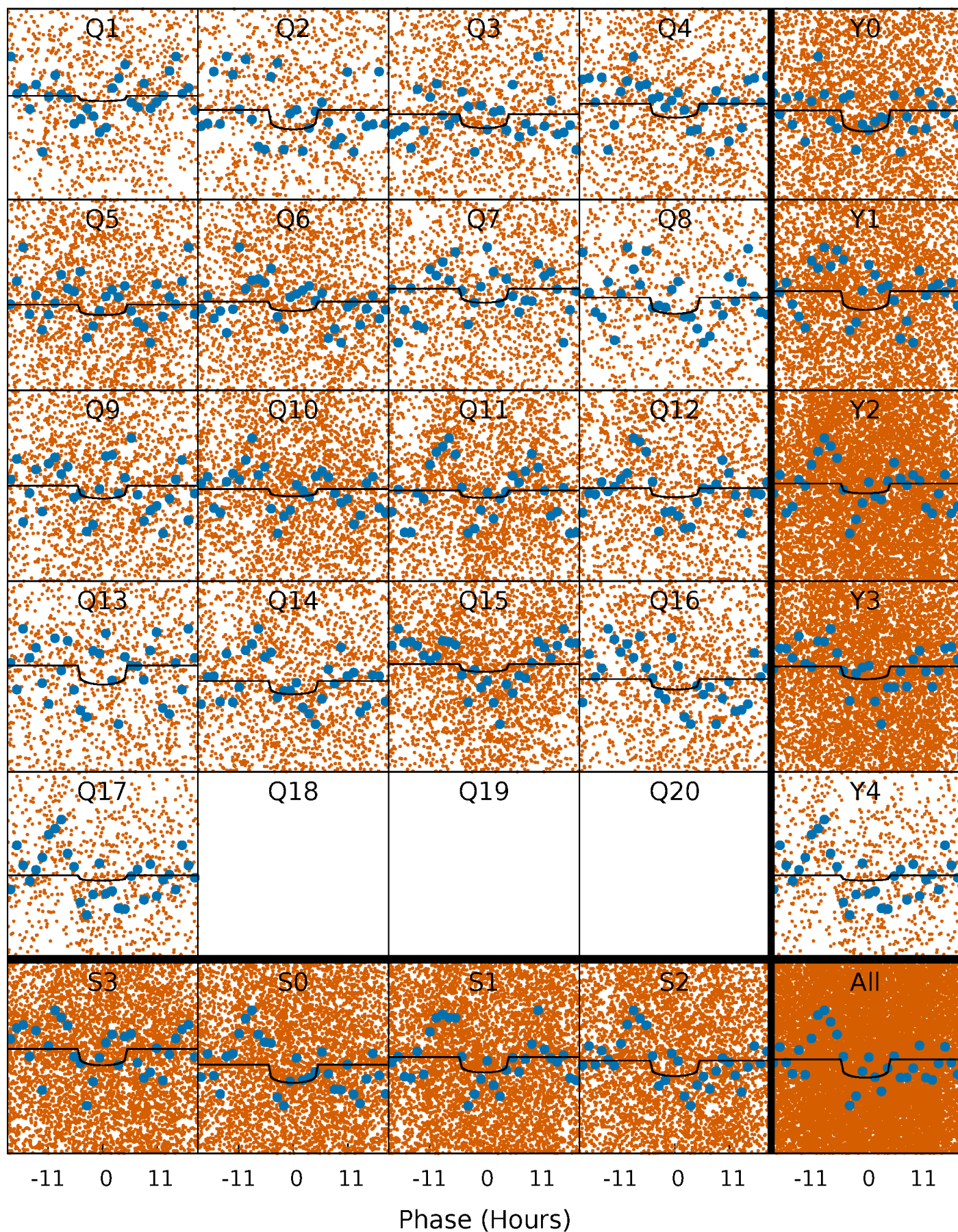
PDC Quarter-Phased Transit Curves

TCE 007977198-02 P= 1.388458 Days $T_0=132.421359$ (BKJD)



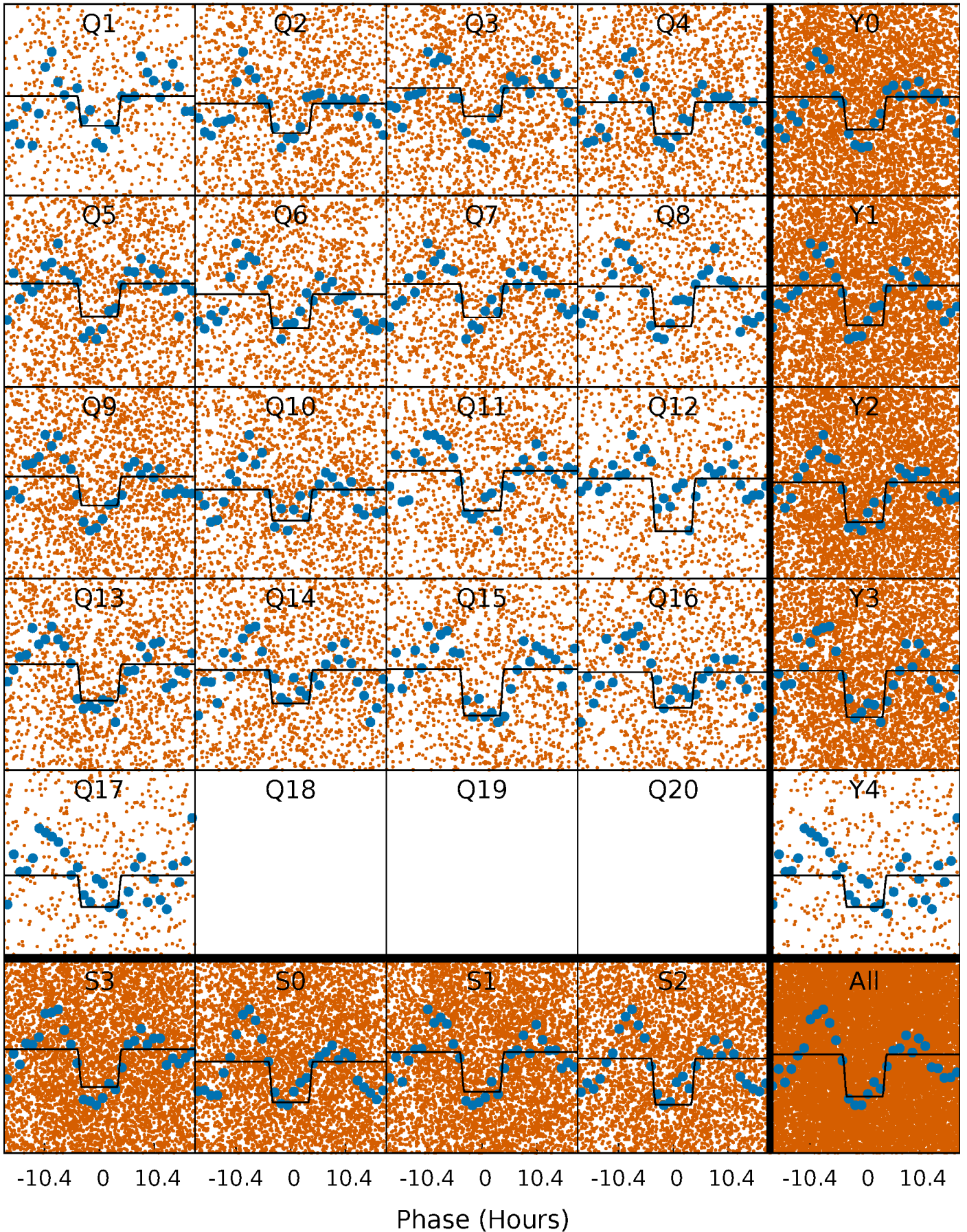
DV Quarter-Phased Transit Curves

TCE 007977198-02 P= 1.388458 Days $T_0=132.421359$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

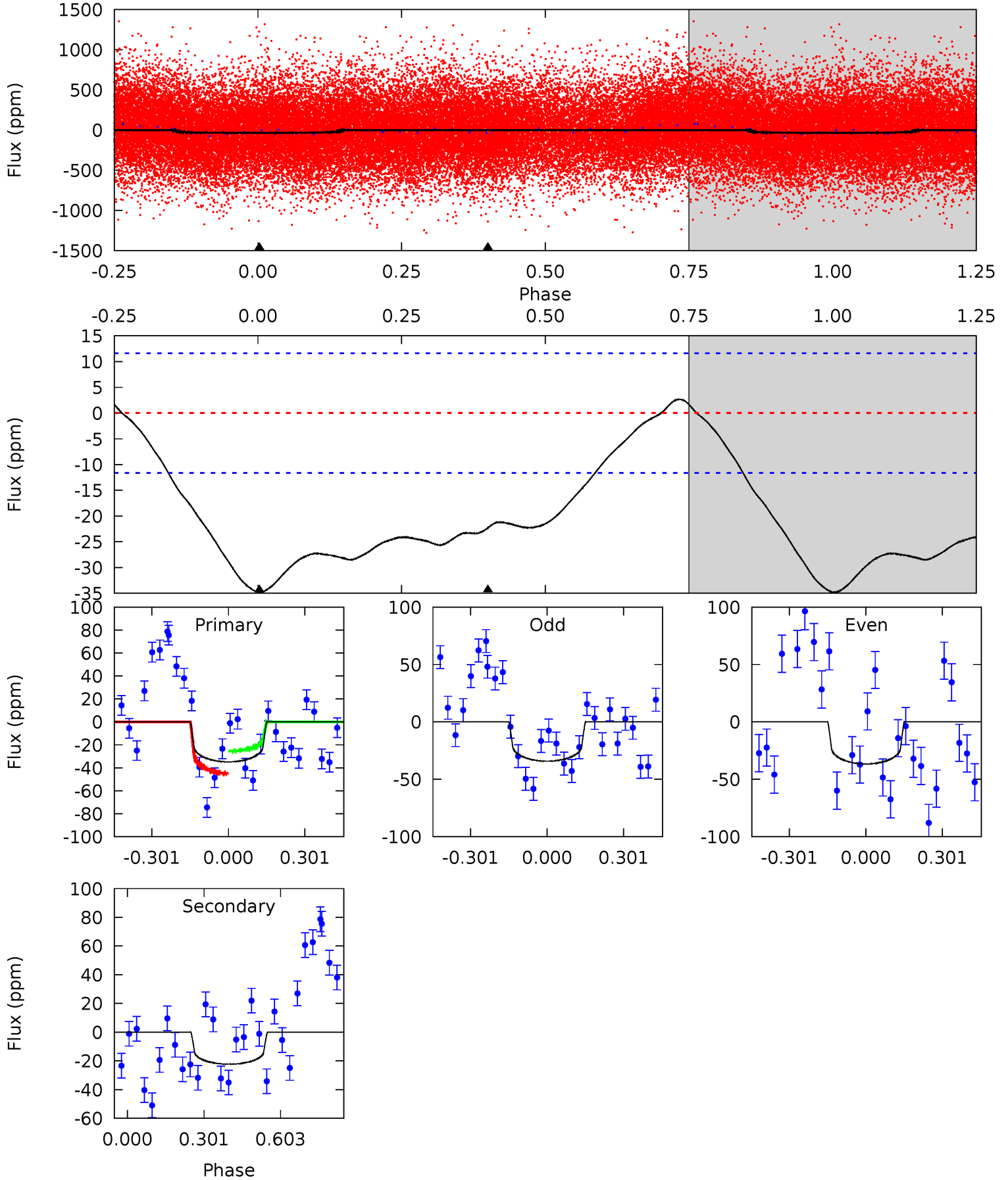
TCE 007977198-02 P= 1.388405 Days $T_0=132.433882$ (BKJD)



DV Model-Shift Uniqueness Test

007977198-02, P = 1.388458 Days, E = 131.032901 Days

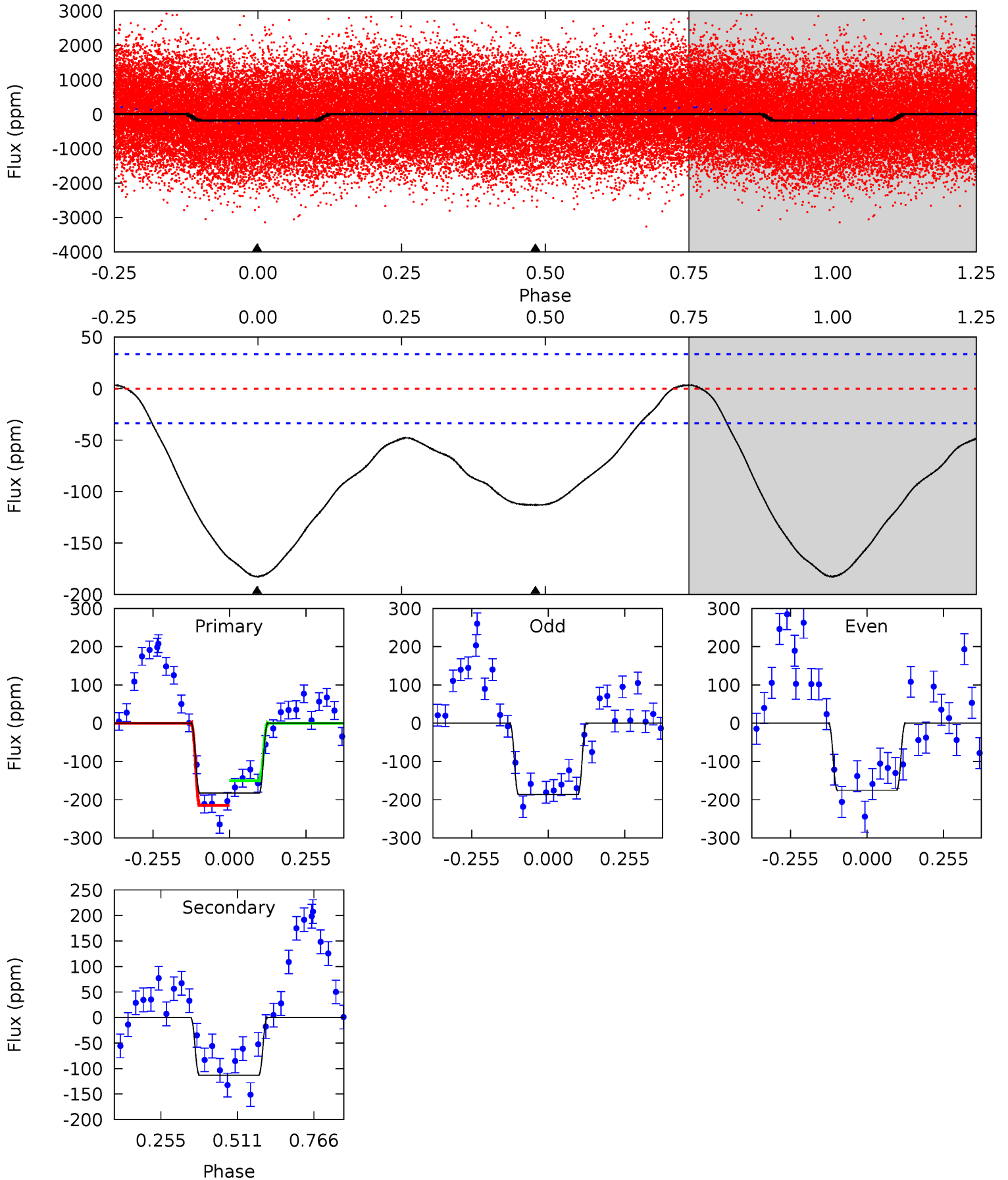
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	8.31	0	0	4.33	1.03	0.74	13.0	13.0	8.31	8.31	0.42	0.99	0.07	3.52



Alt Model-Shift Uniqueness Test

007977198-02, P = 1.388405 Days, E = 131.045477 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.7	14.7	0	0	4.36	1.14	3.21	23.7	23.7	14.7	14.7	0.67	1.10	0.02	4.23



Stellar Parameters For KIC 007977198

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7286^{+232}_{-348}	$4.218^{+0.105}_{-0.195}$	$-0.160^{+0.250}_{-0.350}$	$1.542^{+0.523}_{-0.261}$	$1.434^{+0.219}_{-0.219}$	$0.551^{+0.313}_{-0.282}$
	+3%/-5%	+2%/-5%	+156%/-219%	+34%/-17%	+15%/-15%	+57%/-51%
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 007977198-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-22 ± 3	$1.00^{+0.76}_{-0.61}$	3386^{+278}_{-228}	6453^{+5257}_{-1552}	$9.256^{+53.321}_{-6.227}$
Alt.	-113 ± 8	$2.34^{+0.84}_{-0.74}$	3380^{+269}_{-219}	6275^{+1508}_{-854}	$8.238^{+9.149}_{-3.659}$

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

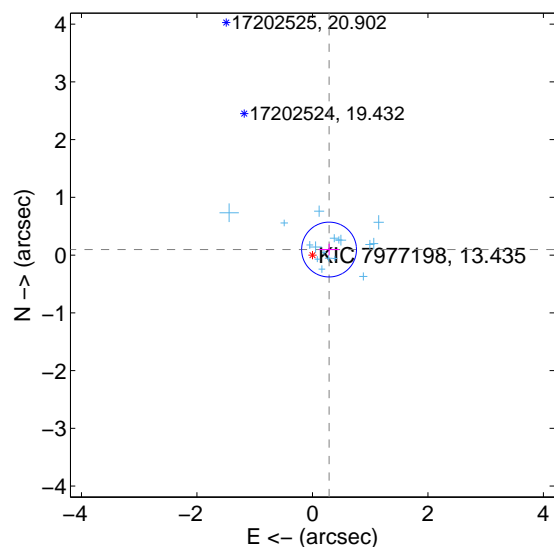
Supplemental centroid analysis for 007977198-02. Kepler magnitude: 13.44. Transit SNR 5.61

There are 17 quarters with good PRF difference image offsets

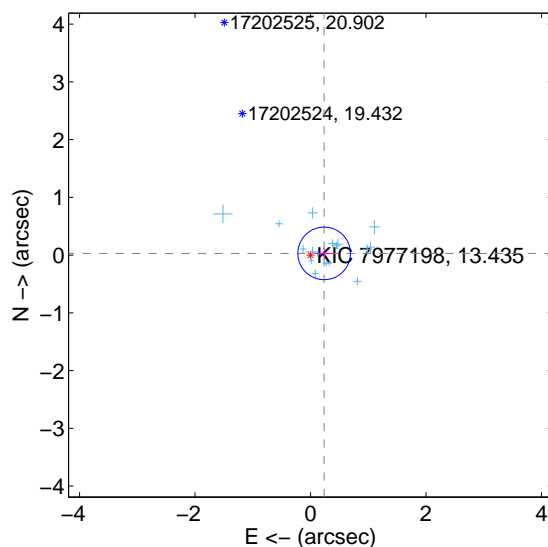
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.303 ± 0.158	1.92	-0.288 ± 0.173	0.096 ± 0.099
PRF-fit source offset from KIC position	0.238 ± 0.152	1.57	-0.236 ± 0.156	0.029 ± 0.103
photometric centroid source offset	1.71 ± 0.59	2.88	-1.55 ± 0.58	-0.73 ± 0.64

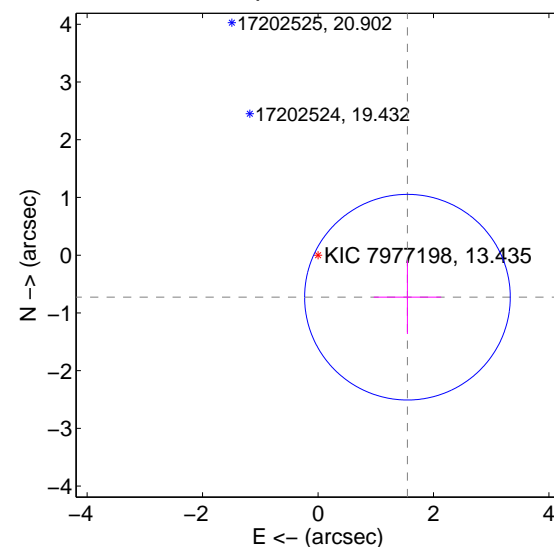
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

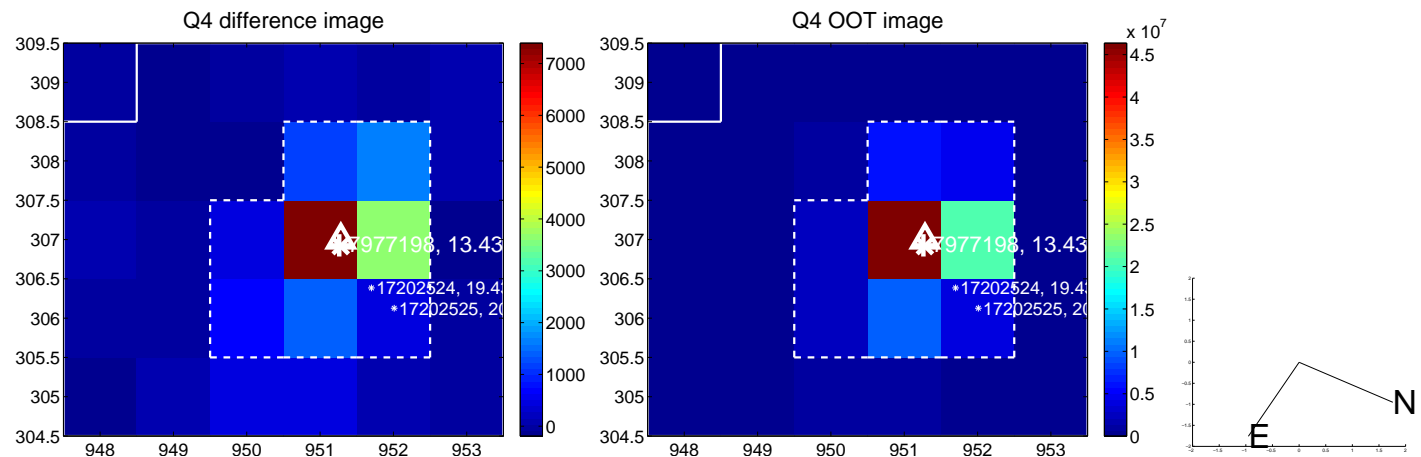
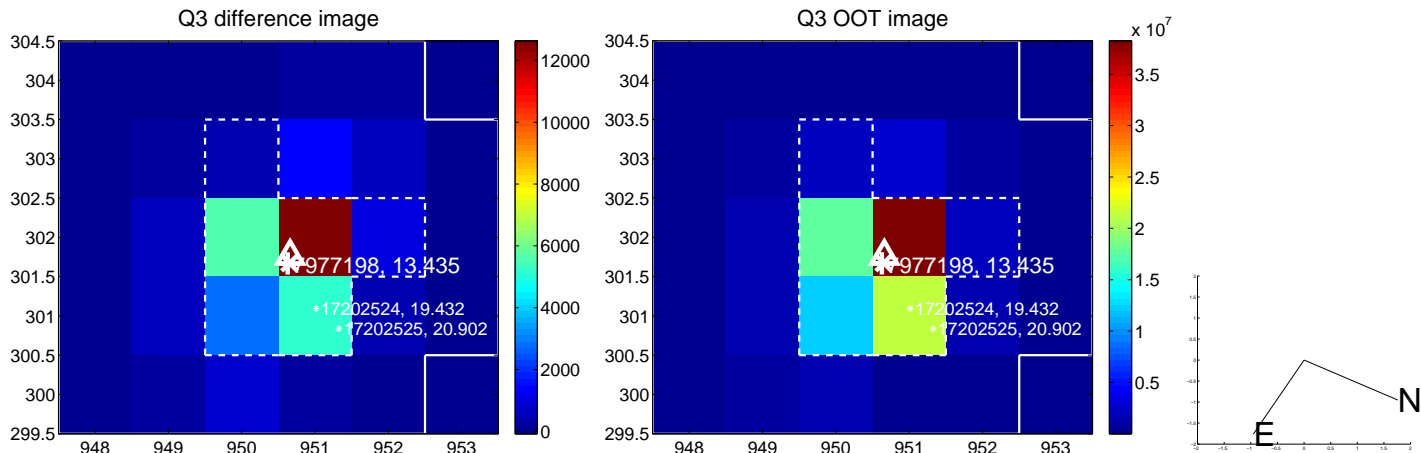
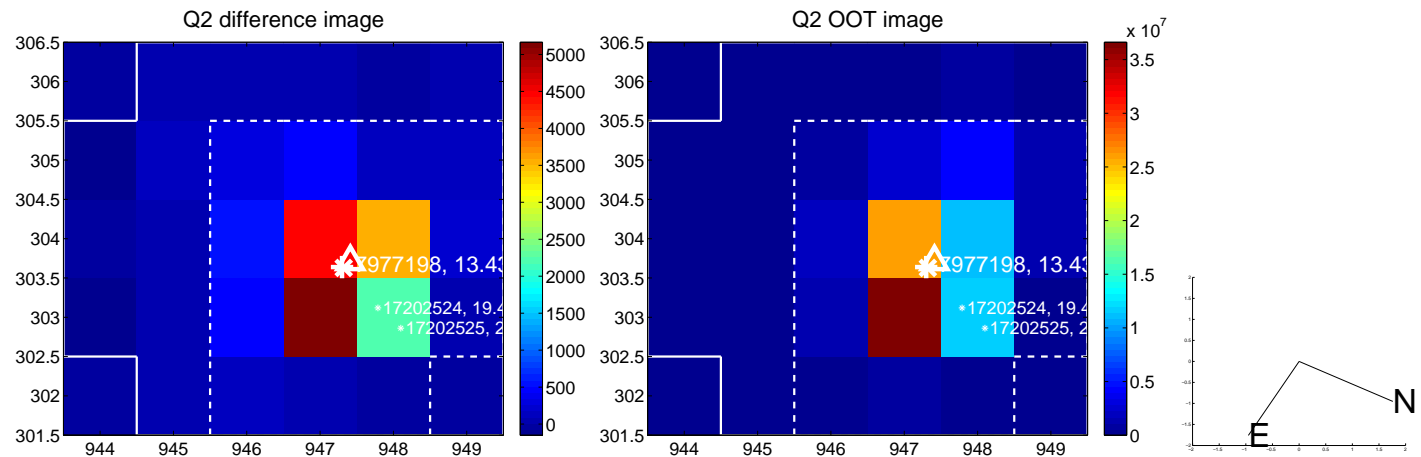
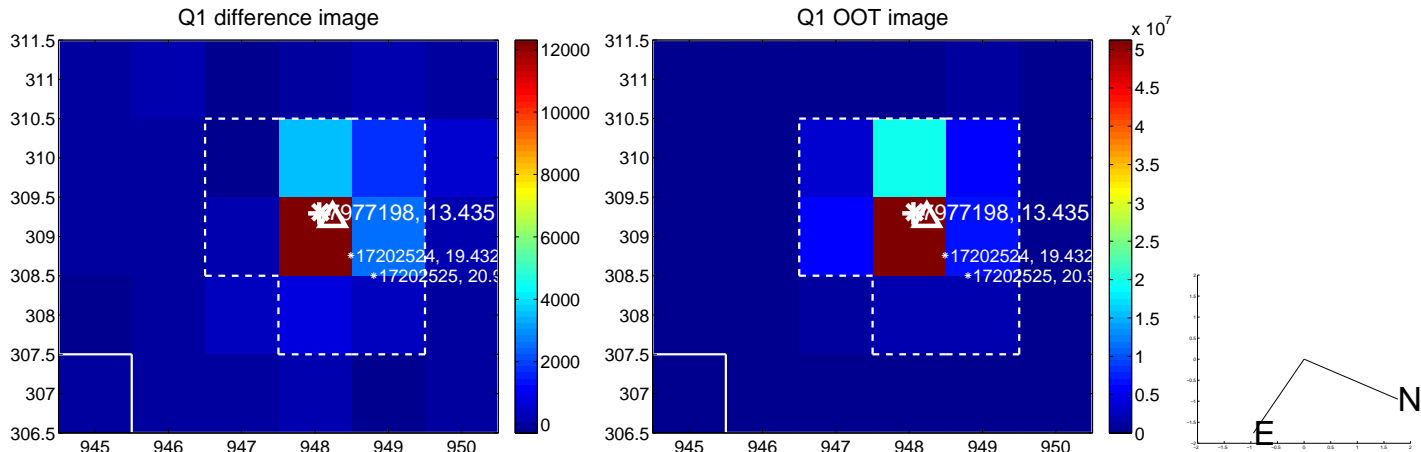


offset from photometric centroids

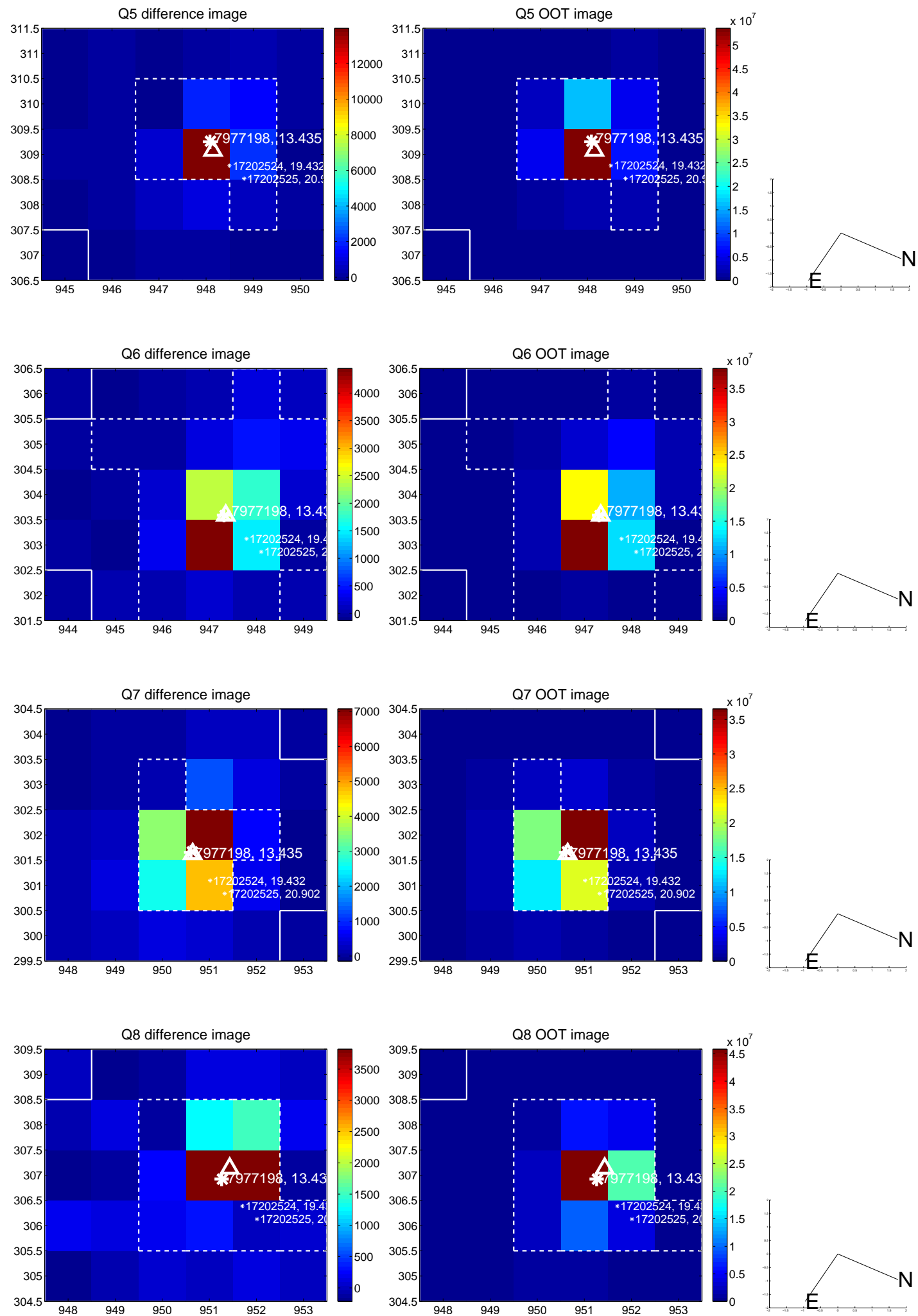


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

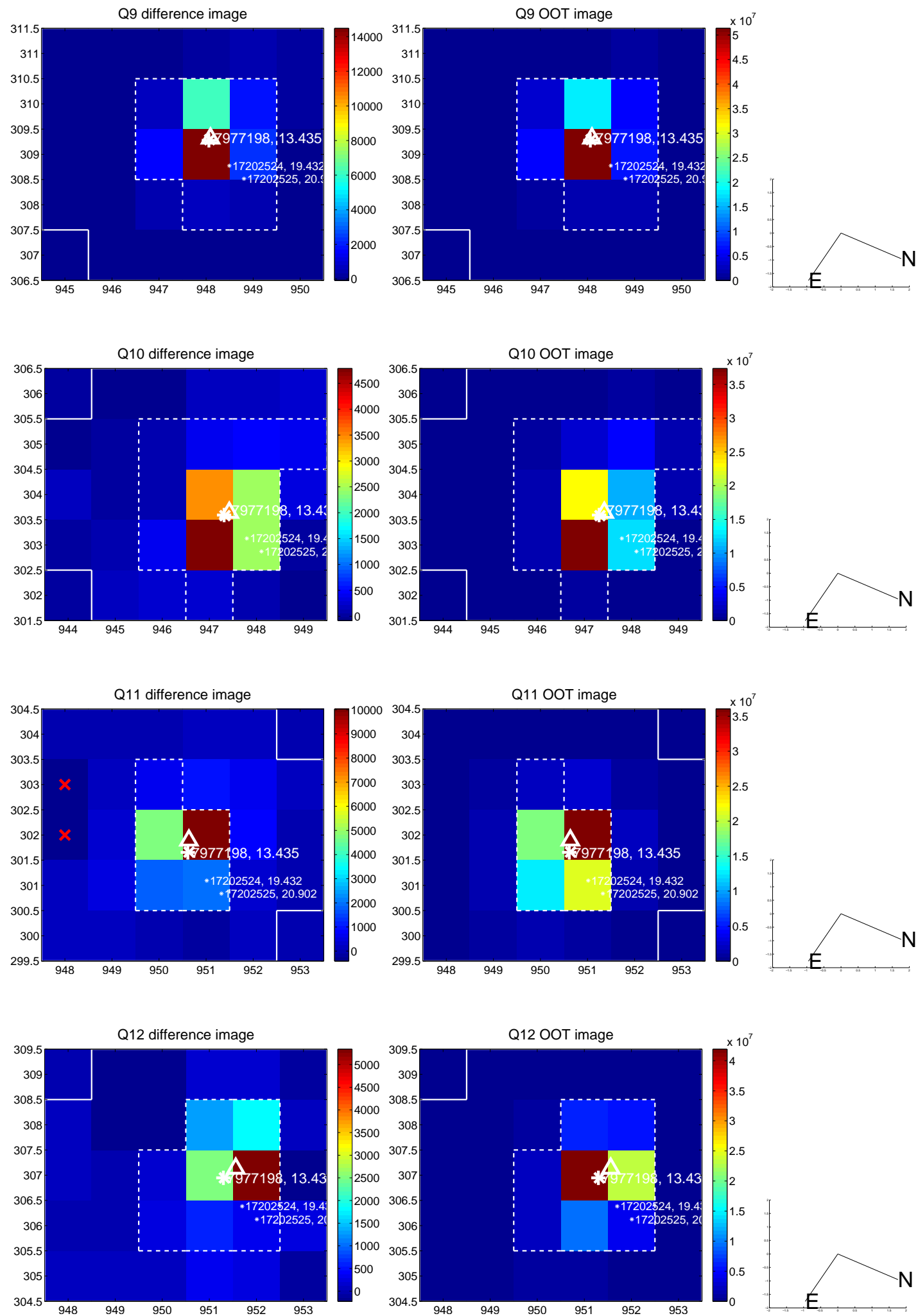
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



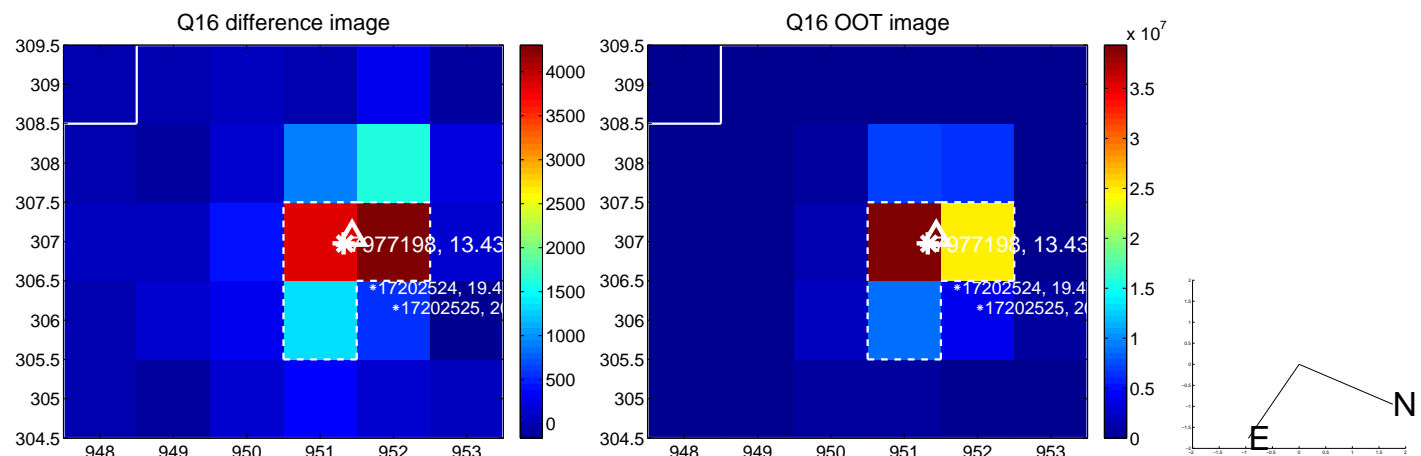
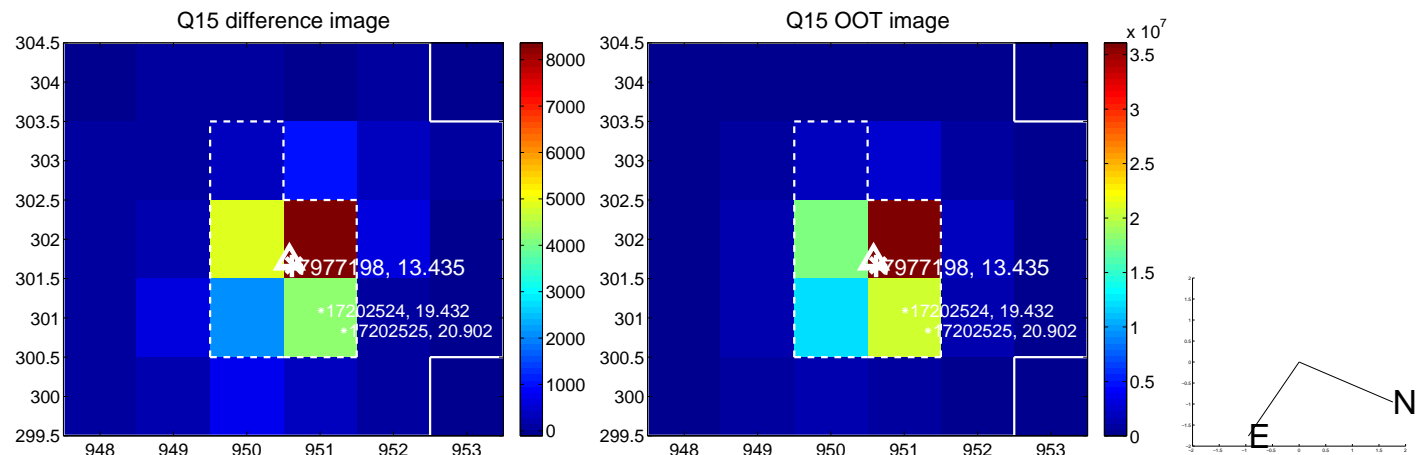
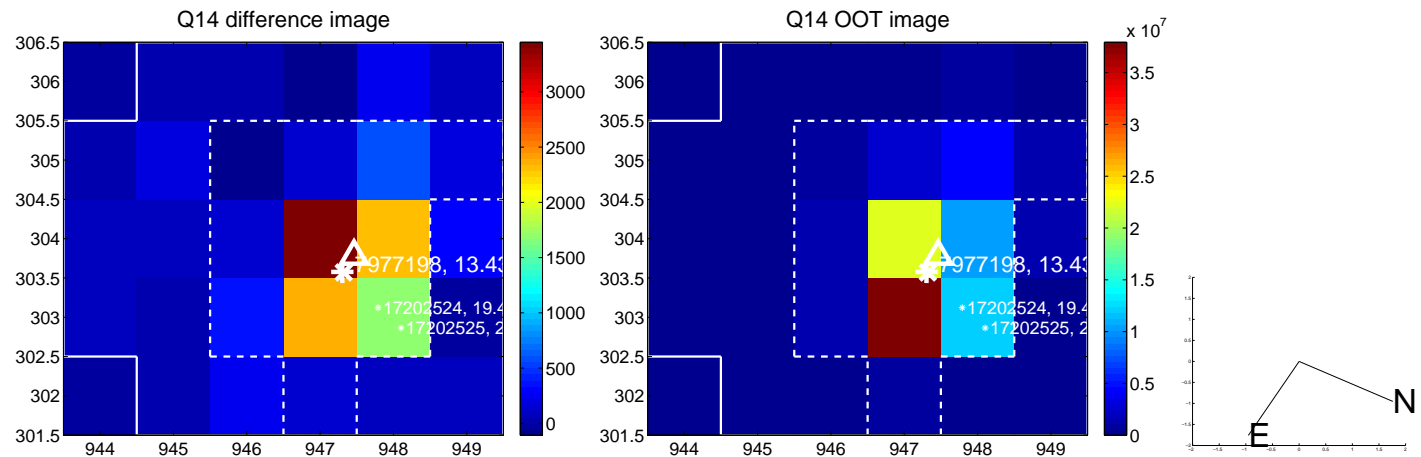
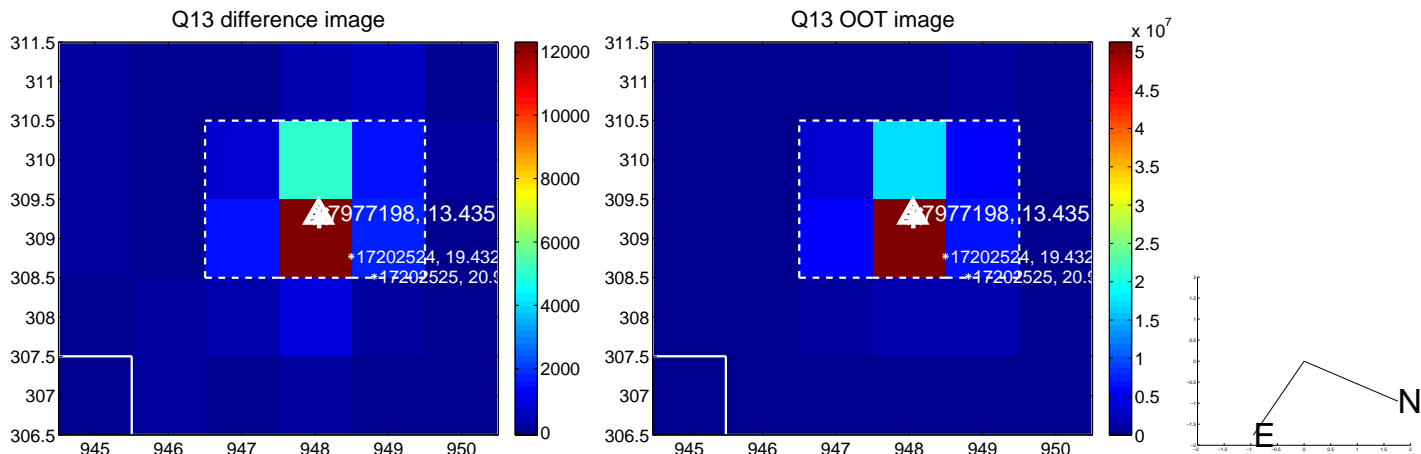
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



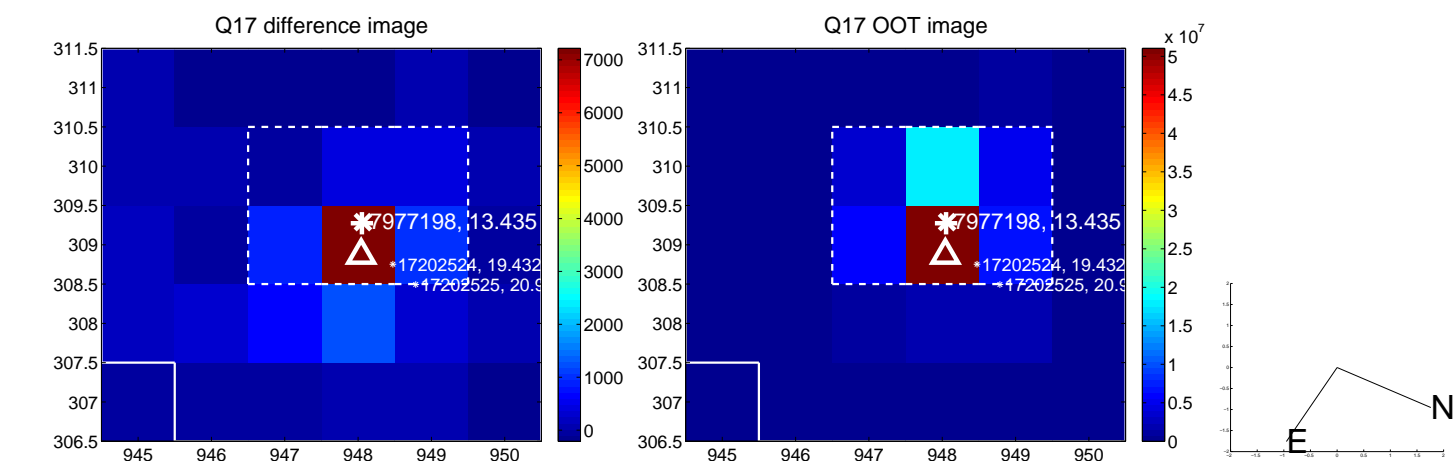
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



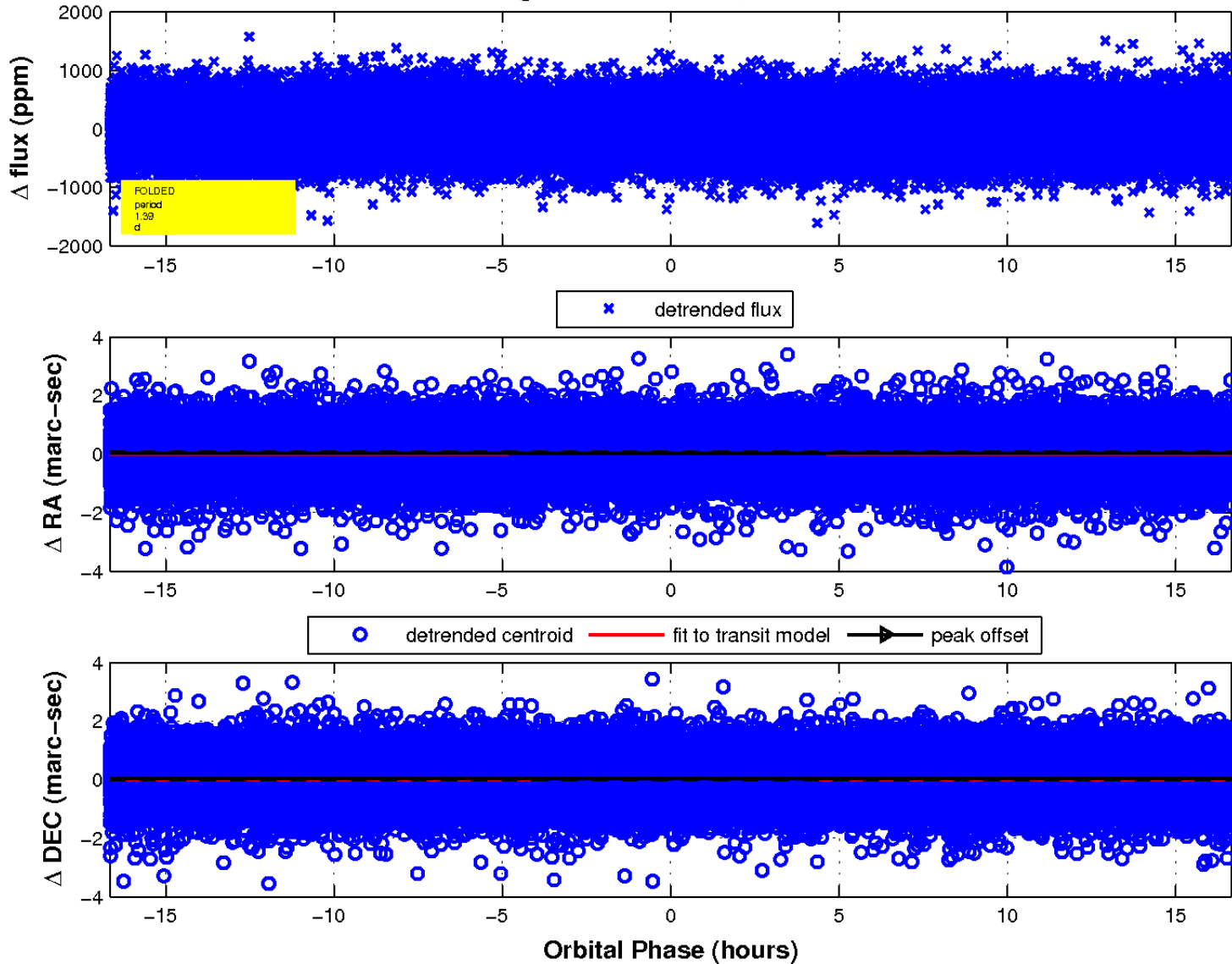
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

