

KIC 007988994

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})
007988994-01	OBS	No	5.062942	131.670647	67.7	2.302	19.3	21.0	2.48	8959	2.38	6229.88
007988994-02	OBS	No	5.062861	135.023334	59.9	2.806	15.0	17.0	2.48	8959	2.62	6230.01
007988994-03	OBS	No	5.062900	132.332088	42.8	1.983	11.2	12.9	2.48	8959	1.88	6229.95
007988994-04	OBS	No	5.062899	132.758291	46.8	1.942	11.2	14.3	2.48	8959	1.80	6229.95
007988994-05	OBS	No	1.265656	131.954276	14.3	4.441	11.0	11.7	2.48	8959	1.06	39560.61
007988994-06	OBS	No	5.062902	136.458912	179.7	2.500	11.1	-1.0	2.48	8959	3.39	6229.95
007988994-07	OBS	No	2.531530	132.435460	10.7	9.112	7.9	4.7	2.48	8959	0.94	15697.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007988994-01	OBS	FP	0.00	1	0	0	0	LPP_DV
007988994-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-05	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
007988994-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
007988994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

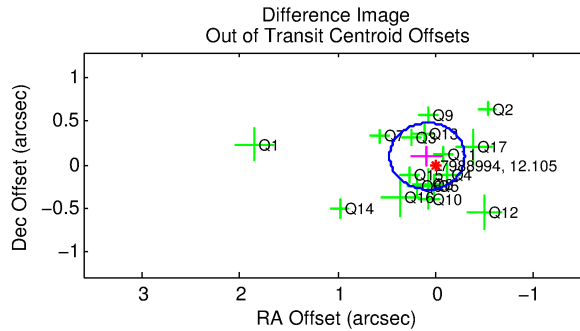
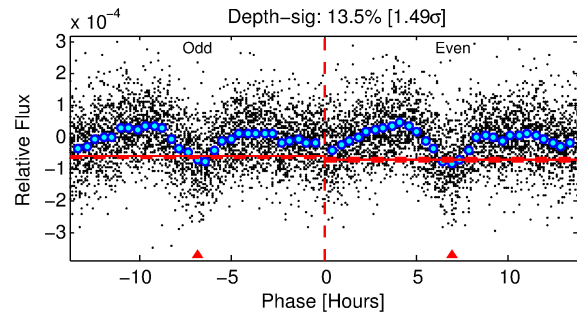
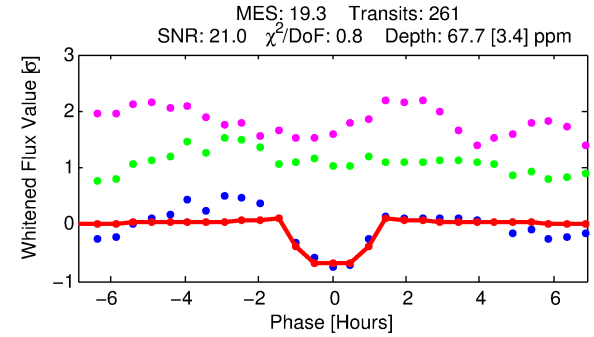
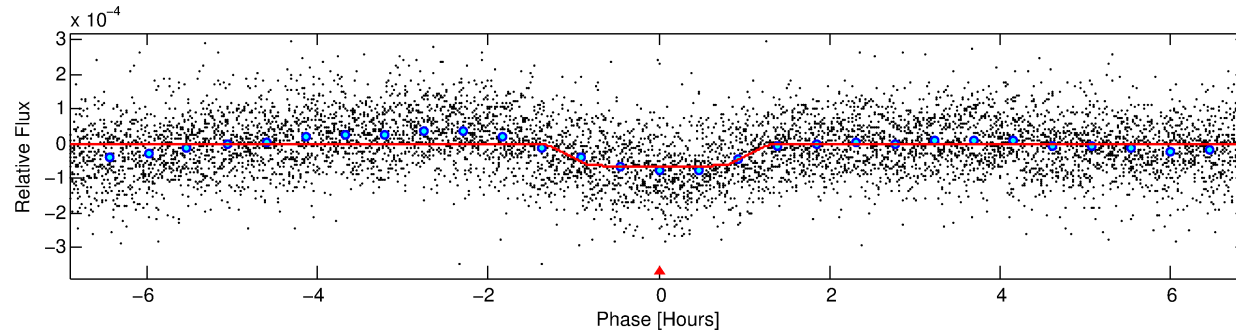
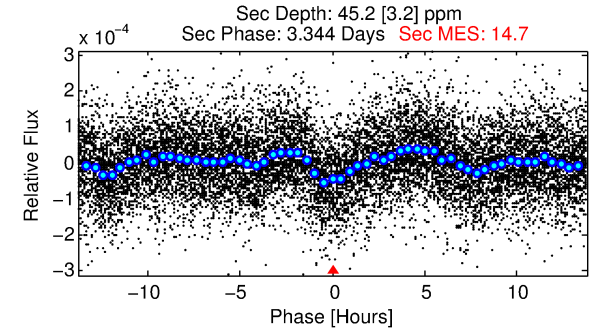
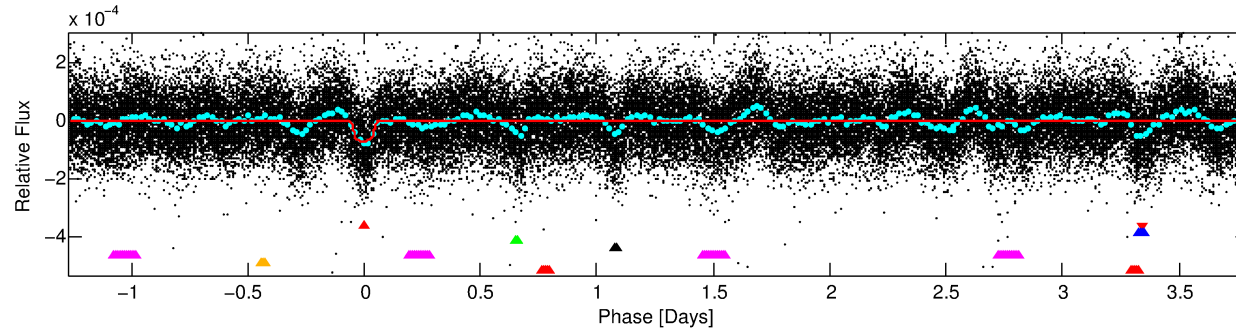
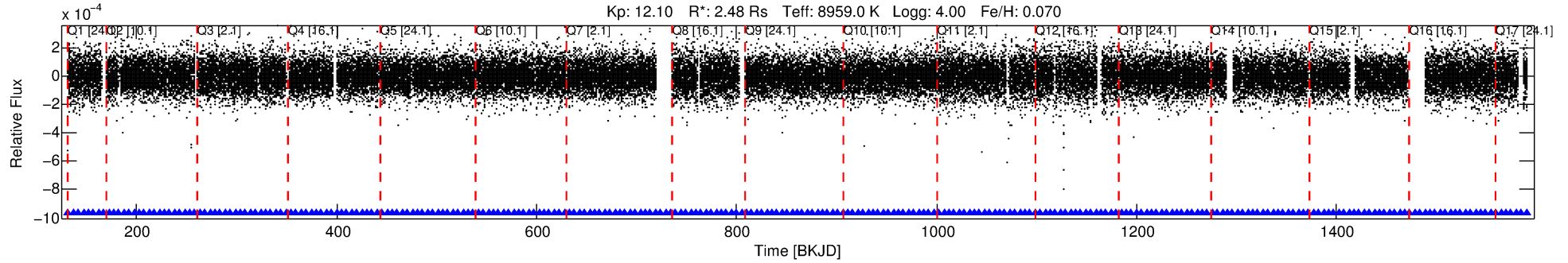
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007988994-01

No Significant Match Found

DV One-Page Summary

KIC: 7988994 Candidate: 1 of 7 Period: 5.063 d



DV Fit Results:

Period = 5.06294 [0.00001] d
Epoch = 131.6706 [0.0017] BKJD
Rp/R* = 0.0088 [0.0014]
a/R* = 7.28 [8.47]
b = 0.91 [0.22]
Seff = 6229.88 [2804.20]
Teq = 2265 [255] K
Rp = 2.38 [0.84] Re
a = 0.0755 [0.0205] AU
Ag = 25.04 [13.23] [1.82σ]
Teffp = 7835 [759] K [6.95σ]

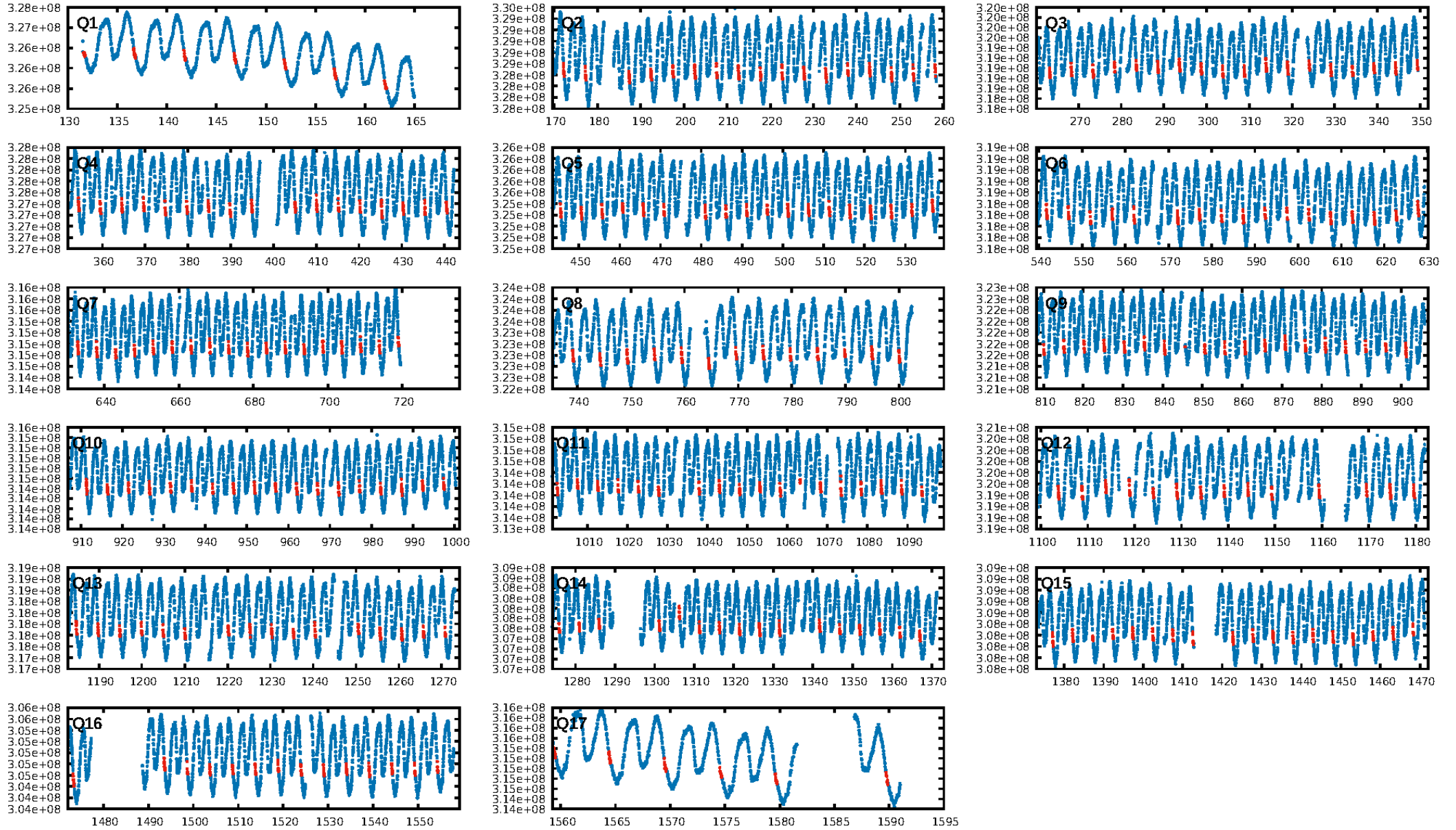
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [248/248]
GhostDiagnostic-chr: 1.359
Centroid-sig: 0.0%
Centroid-so: 1.993 arcsec [3.31σ]
OotOffset-rm: 0.130 arcsec [1.01σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.504 arcsec [3.74σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

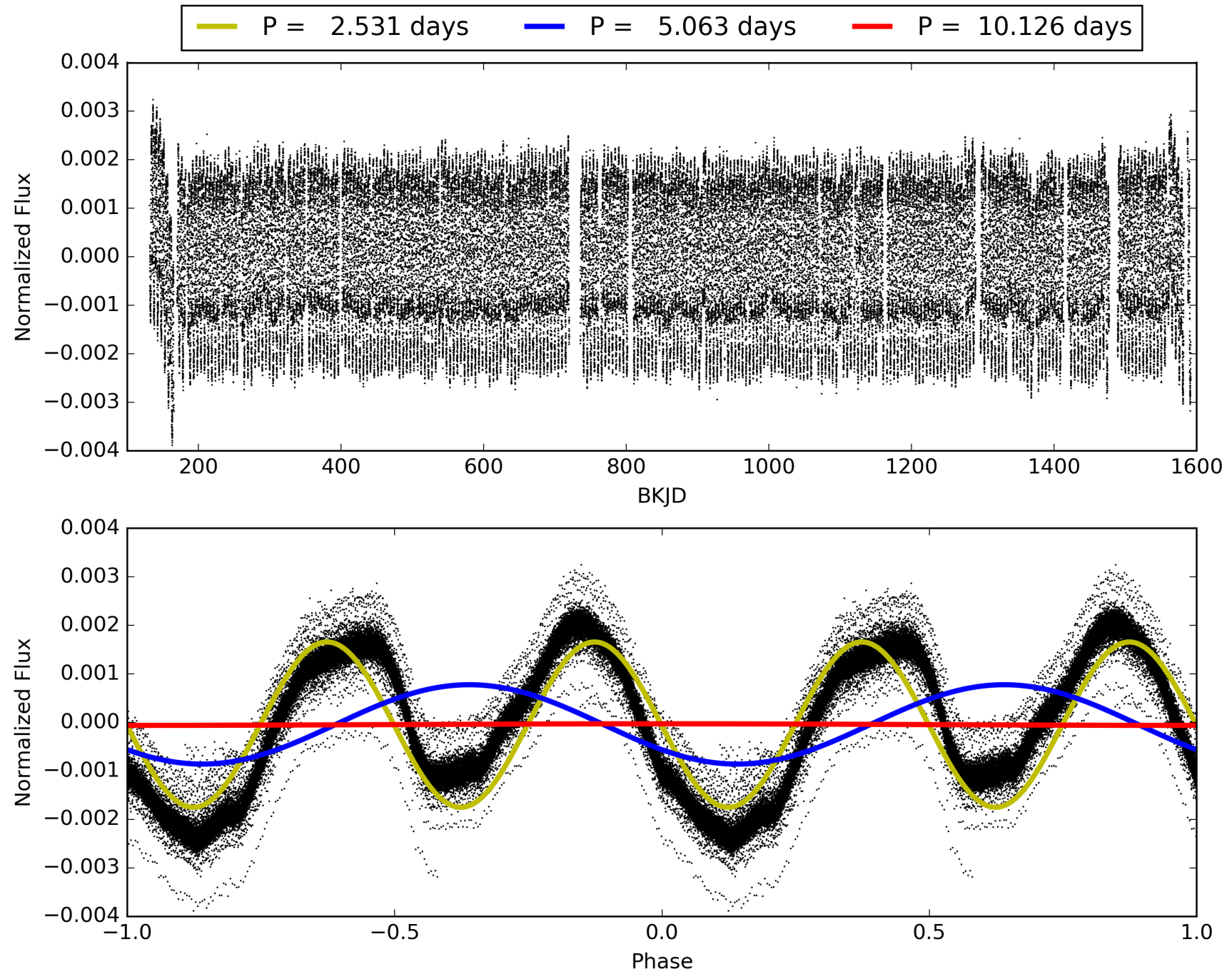
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007988994-01, PDC Light Curves

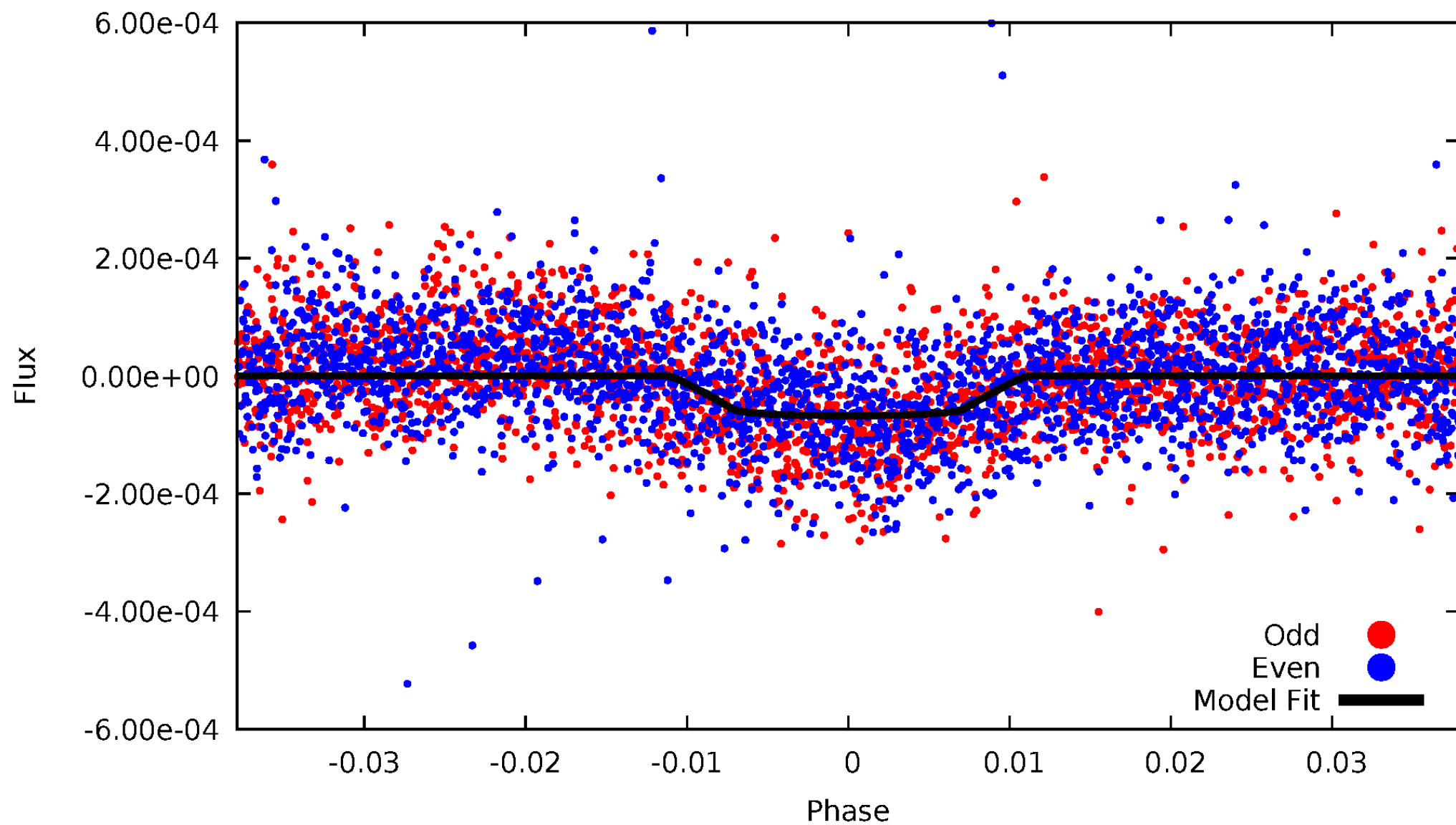


TCE 007988994-01



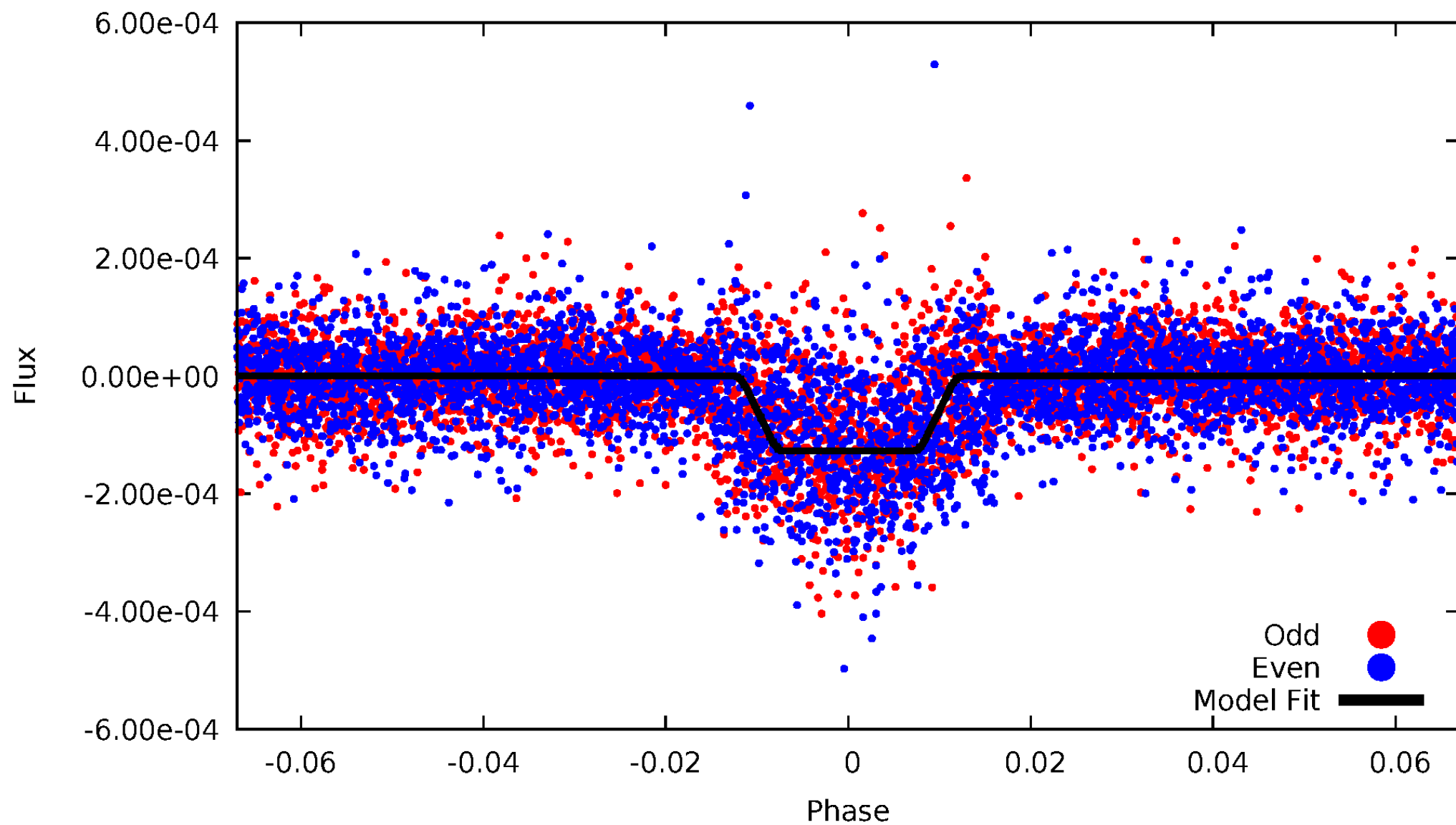
DV Odd/Even

TCE 007988994-01



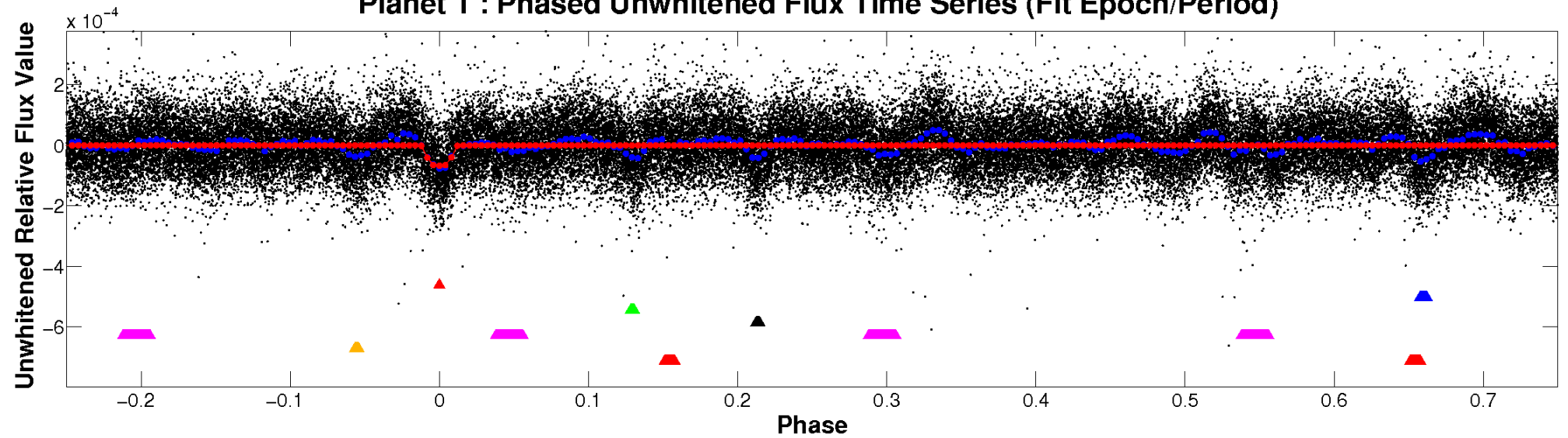
ALT Odd/Even

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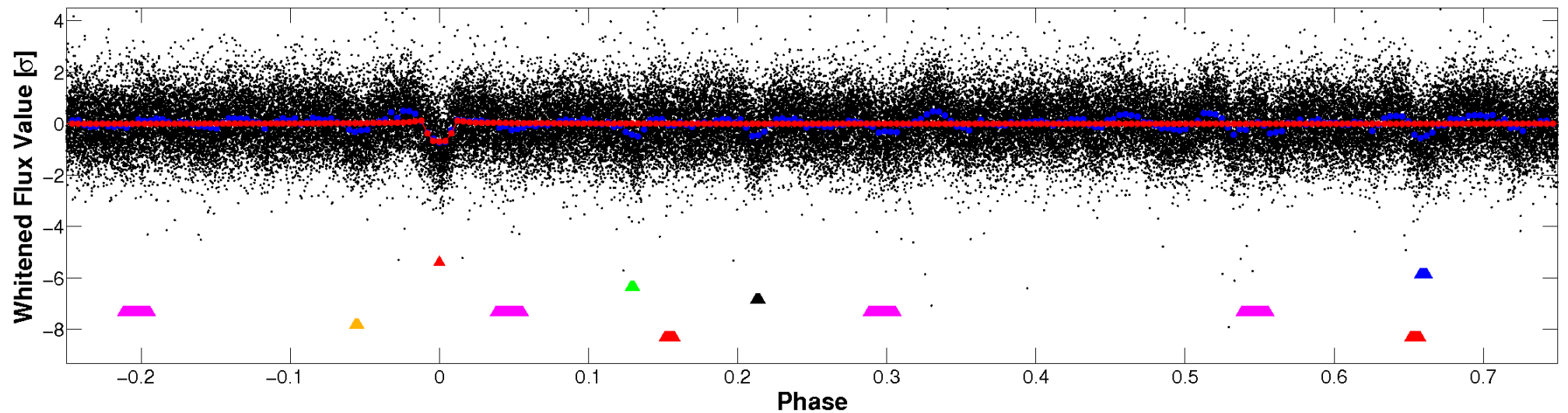


Non-Whitened Vs. Whitened Light Curve

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

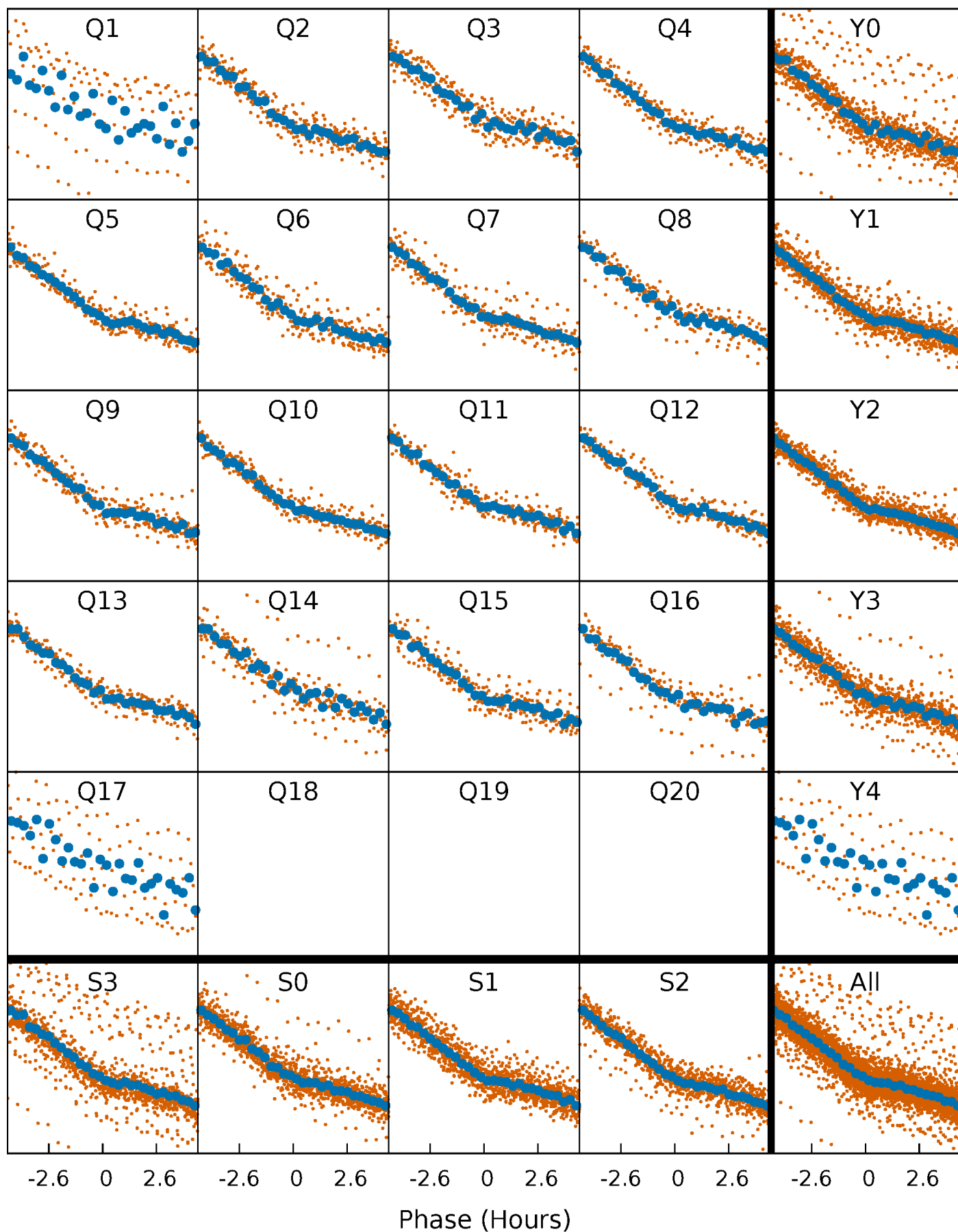


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



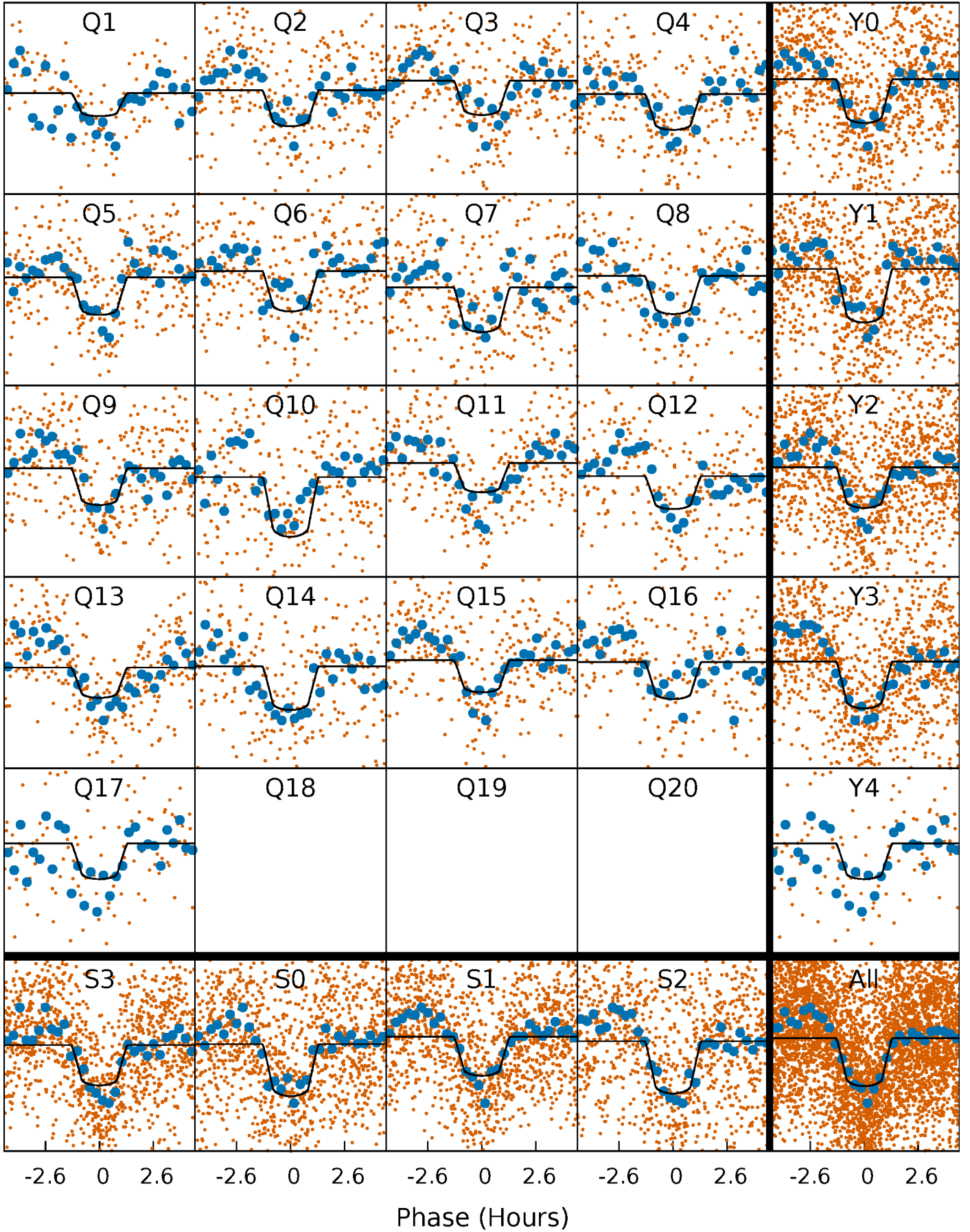
PDC Quarter-Phased Transit Curves

TCE 007988994-01 P= 5.062942 Days $T_0=131.670647$ (BKJD)



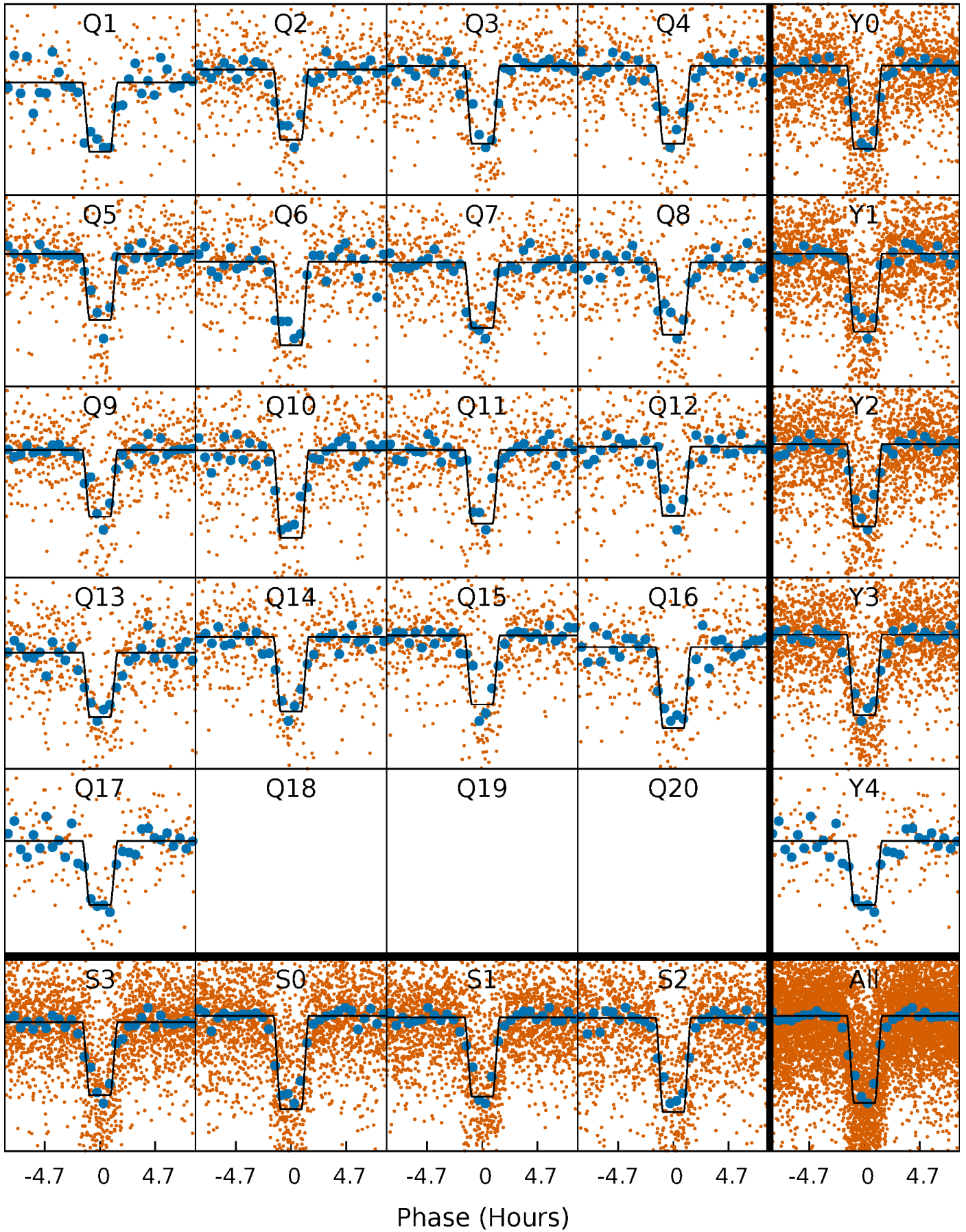
DV Quarter-Phased Transit Curves

TCE 007988994-01 P= 5.062942 Days $T_0=131.670647$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

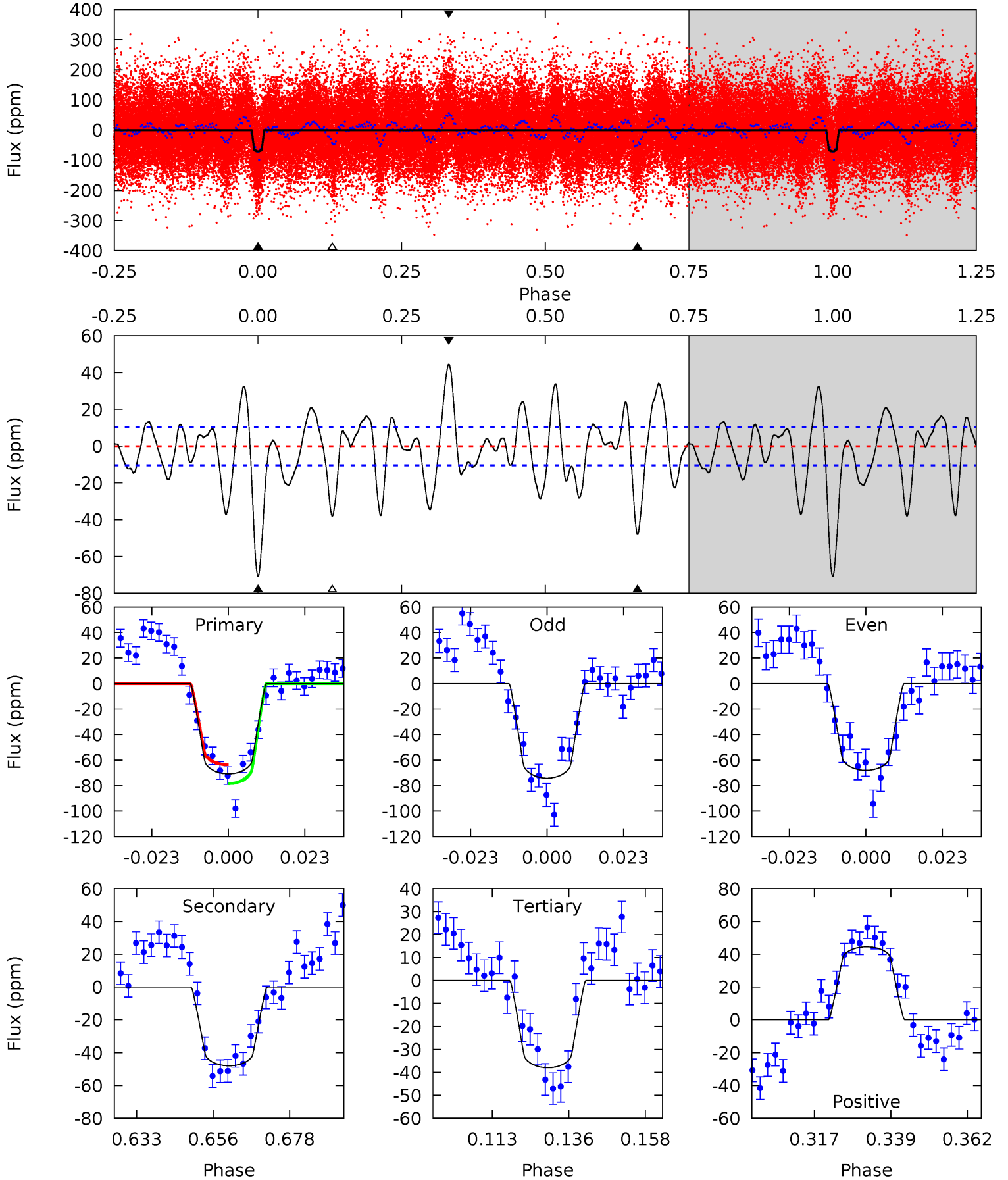
TCE 007988994-01 P= 5.062902 Days $T_0=131.671128$ (BKJD)



DV Model-Shift Uniqueness Test

007988994-01, P = 5.062942 Days, E = 126.607705 Days

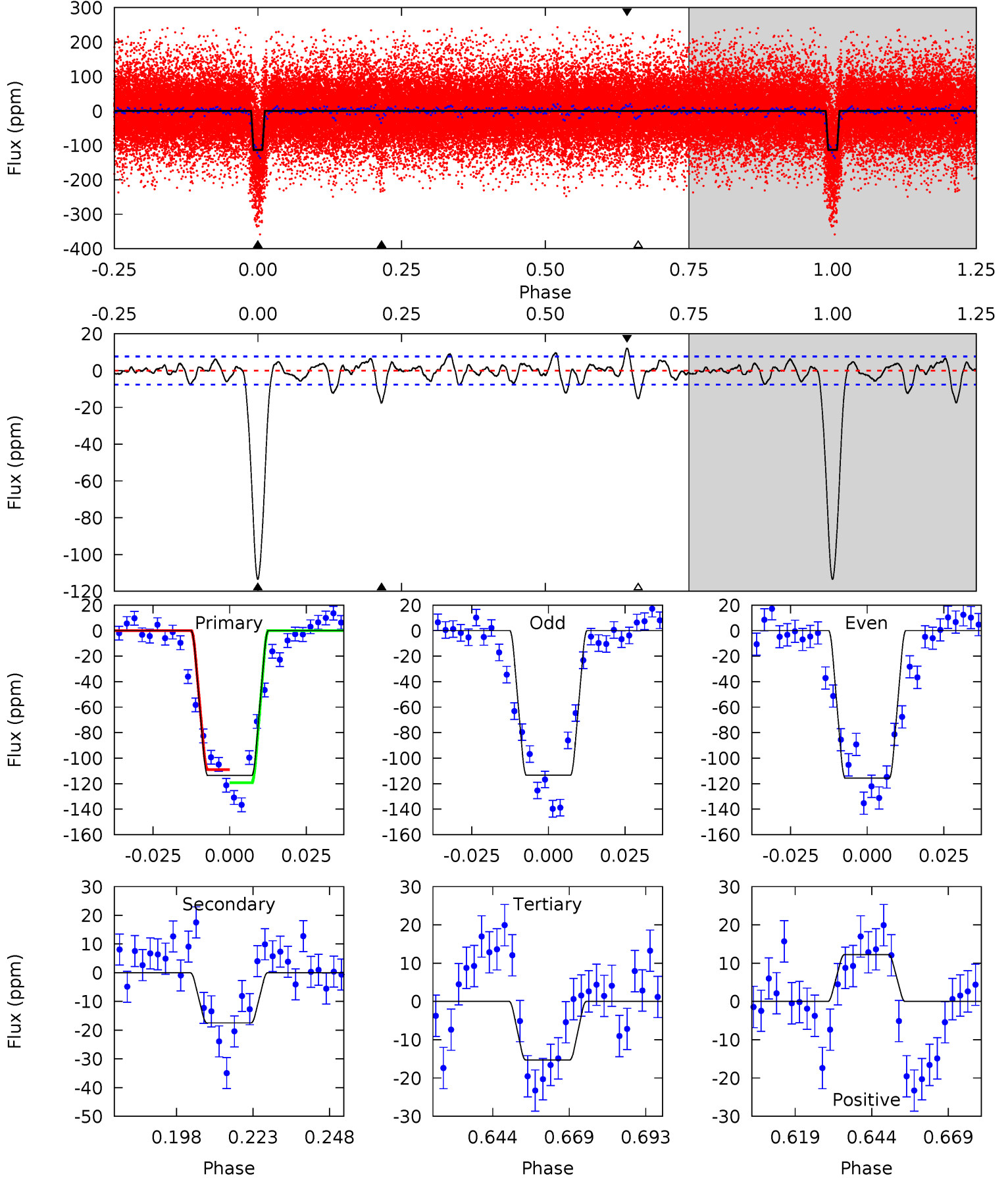
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.0	22.4	17.7	20.8	4.87	2.28	7.35	15.3	12.2	4.67	1.62	1.42	0.99	0.39	3.44



Alt Model-Shift Uniqueness Test

007988994-01, P = 5.062902 Days, E = 126.608226 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
72.0	11.1	9.70	7.77	4.85	2.25	2.54	62.3	64.2	1.40	3.33	0.72	1.01	0.10	3.23



Stellar Parameters For KIC 007988994

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8959^{+251}_{-430}	$3.999^{+0.228}_{-0.171}$	$0.070^{+0.150}_{-0.650}$	$2.481^{+0.774}_{-0.774}$	$2.240^{+0.349}_{-0.648}$	$0.207^{+0.276}_{-0.105}$
	+3%/-5%	+6%/-4%	+214%/-929%	+31%/-31%	+16%/-29%	+134%/-51%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007988994-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-48 ± 2	$2.34^{+0.61}_{-0.54}$	3136^{+275}_{-289}	7621^{+931}_{-690}	27^{+18}_{-9}
Alt.	-17 ± 2	$3.00^{+0.72}_{-0.63}$	3135^{+243}_{-249}	5139^{+410}_{-312}	$6.087^{+3.137}_{-2.046}$

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

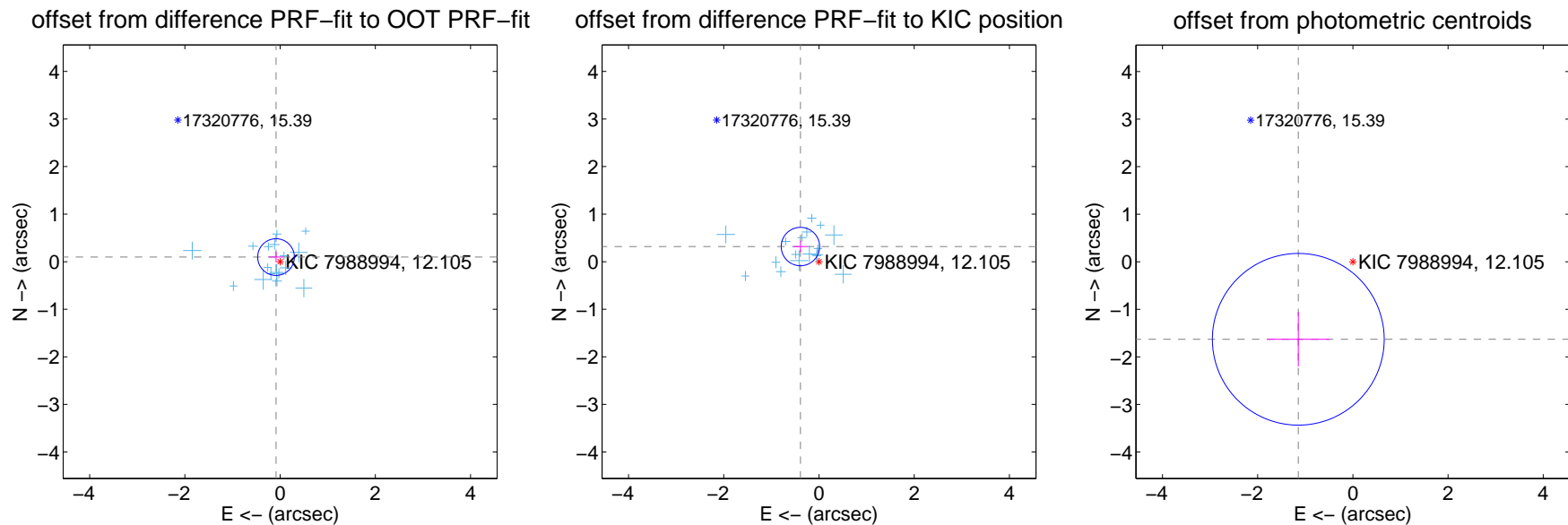
DV Centroid Data

Supplemental centroid analysis for 007988994-01. Kepler magnitude: 12.11. Transit SNR 20.96

There are 17 quarters with good PRF difference image offsets

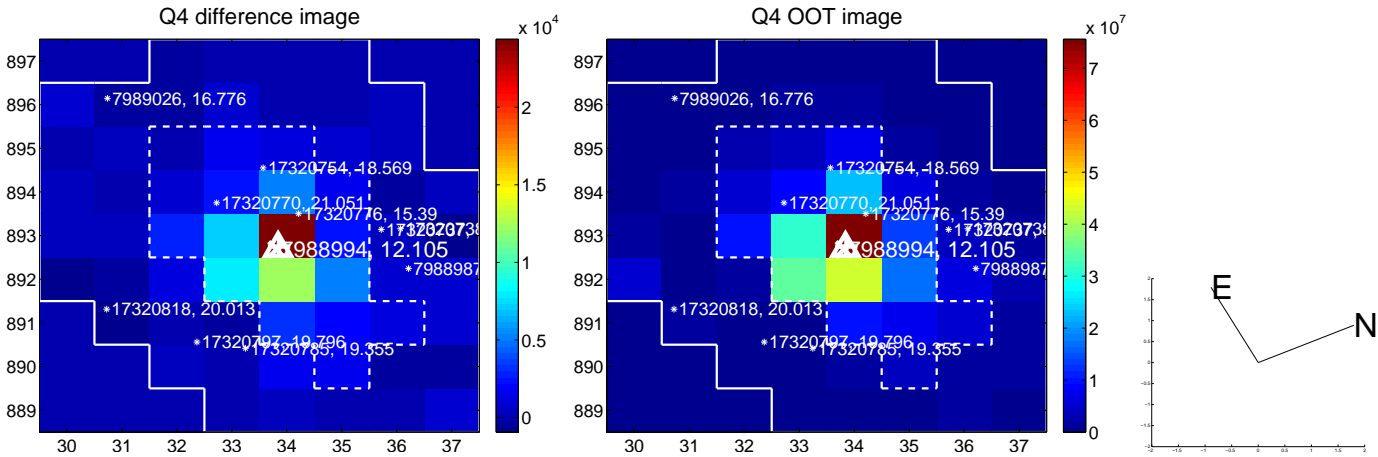
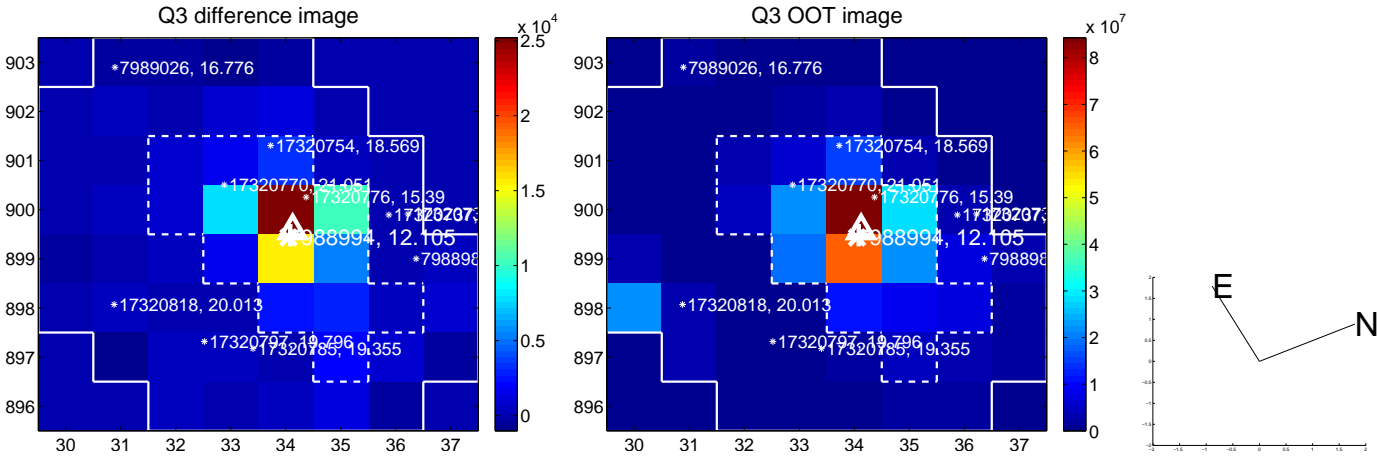
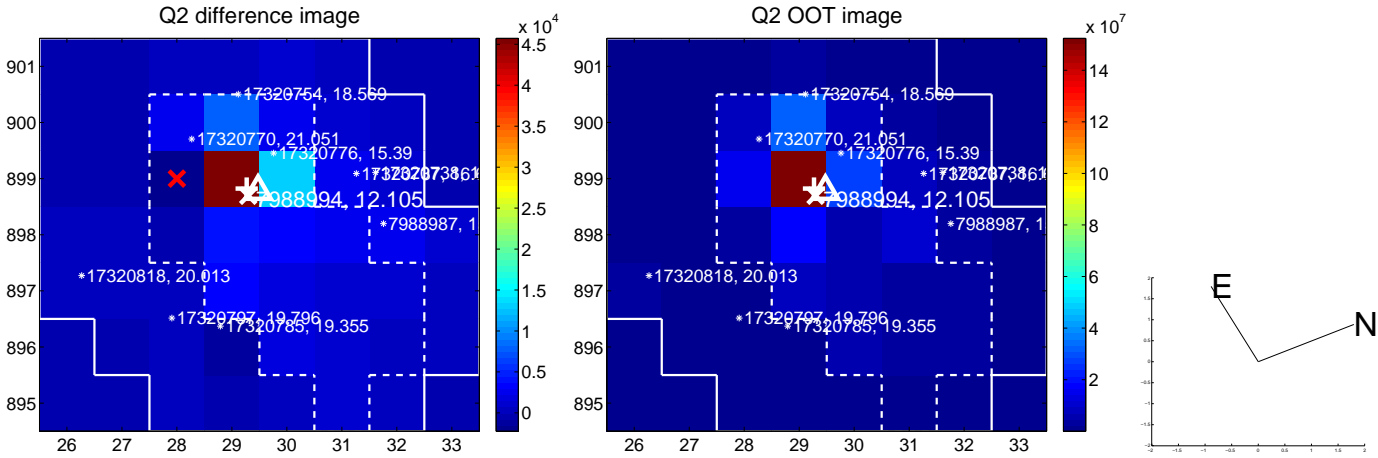
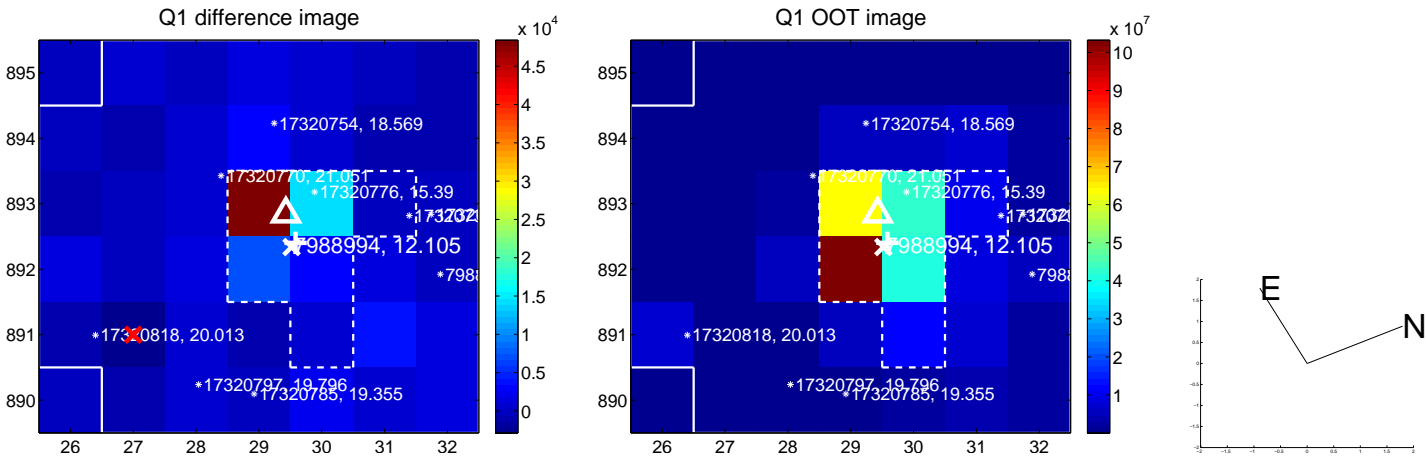
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.130 ± 0.129	1.01	0.085 ± 0.151	0.097 ± 0.110
PRF-fit source offset from KIC position	0.504 ± 0.134	3.74	0.390 ± 0.145	0.318 ± 0.118
photometric centroid source offset	1.99 ± 0.60	3.31	1.15 ± 0.66	-1.63 ± 0.57

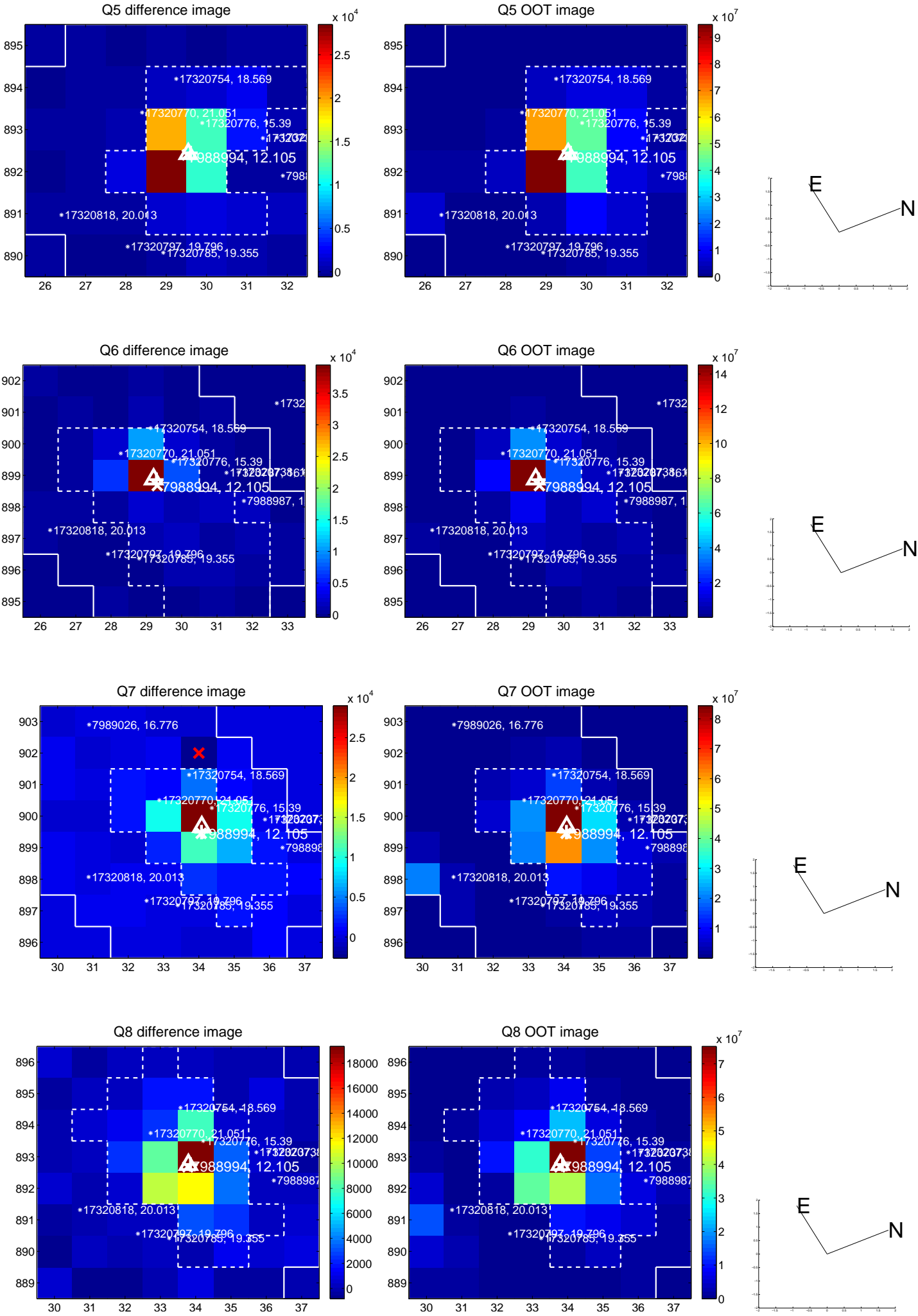


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

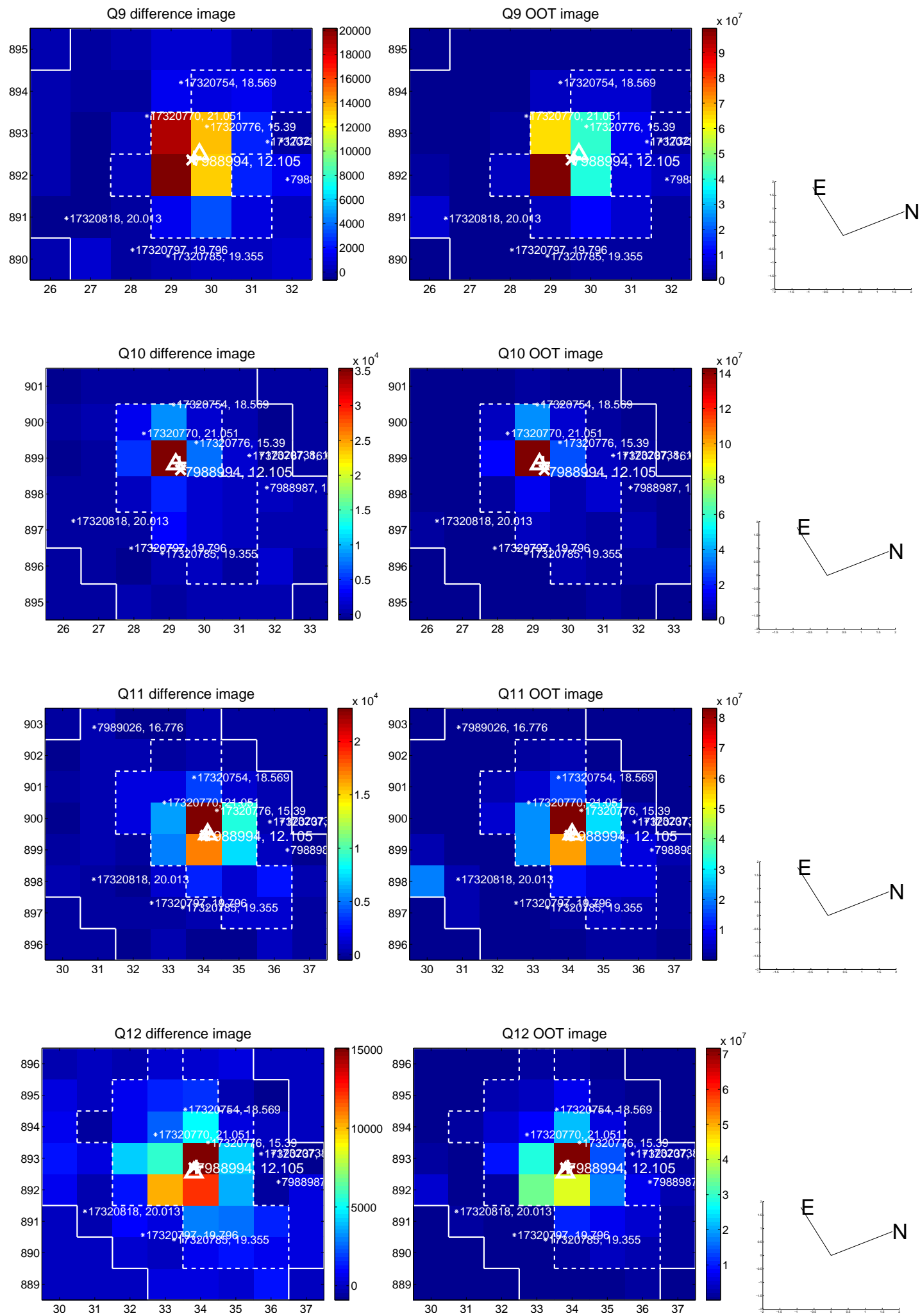
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



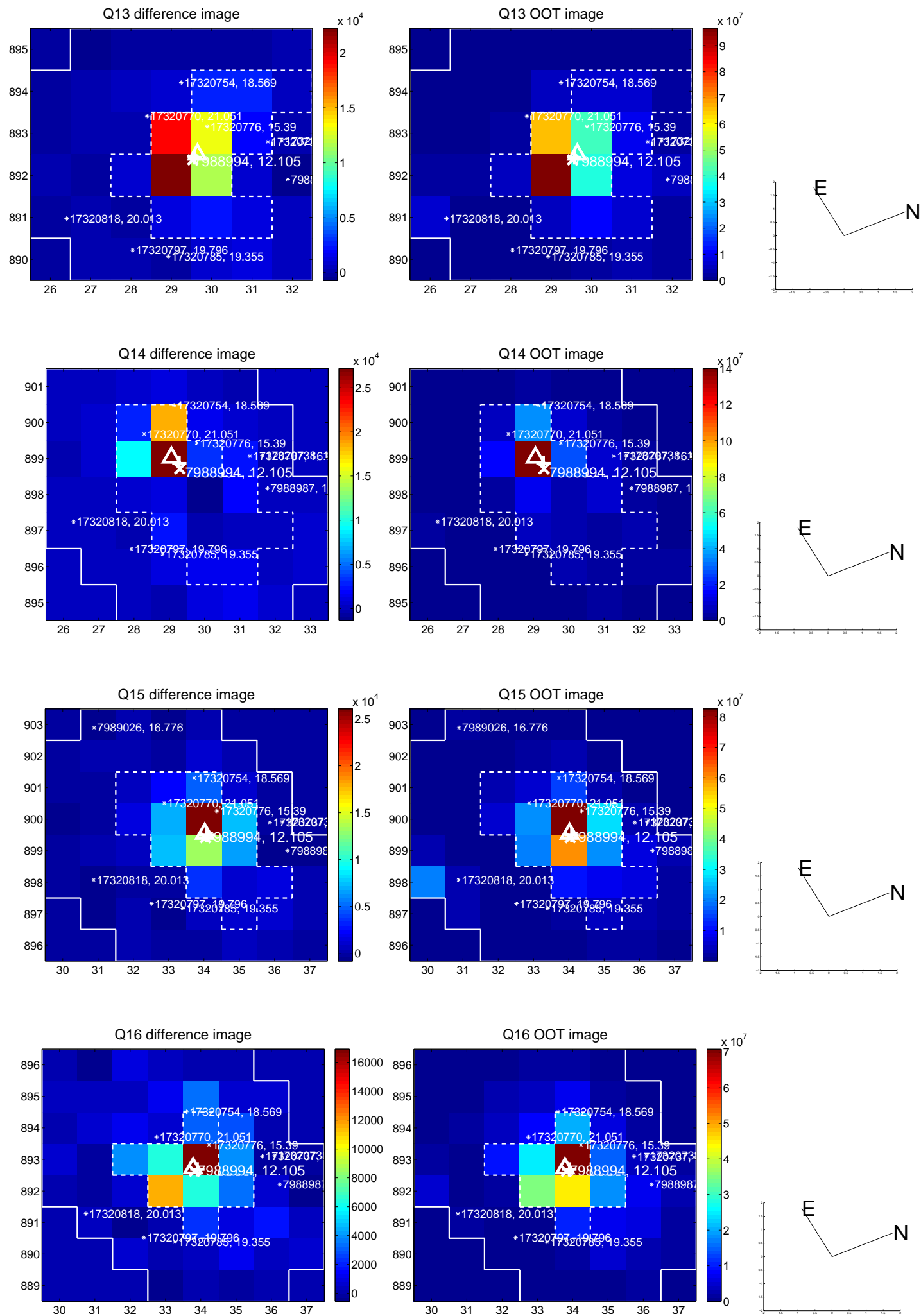
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



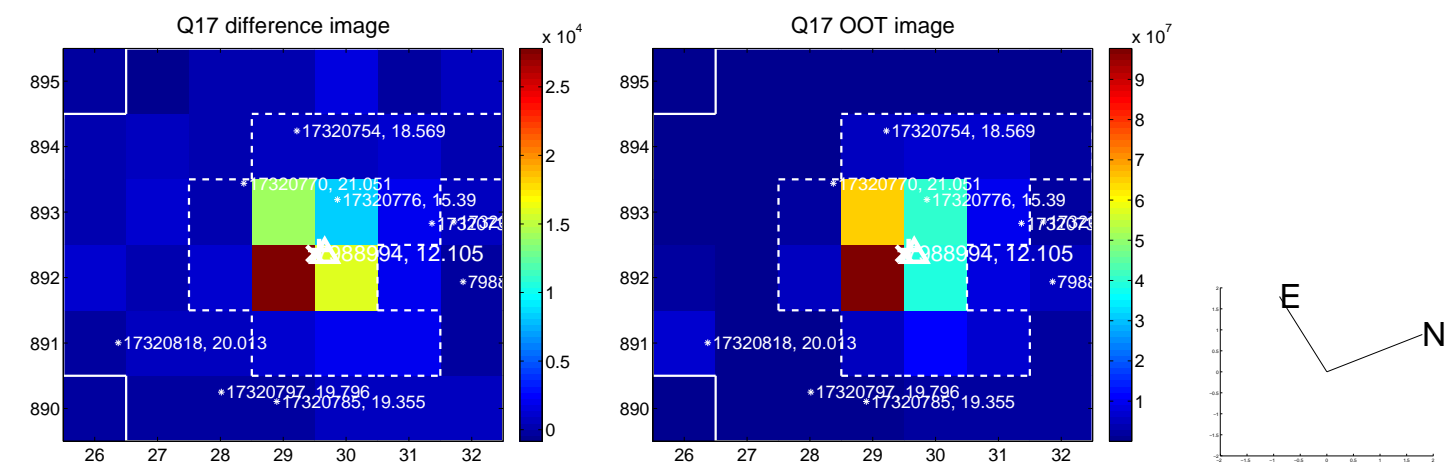
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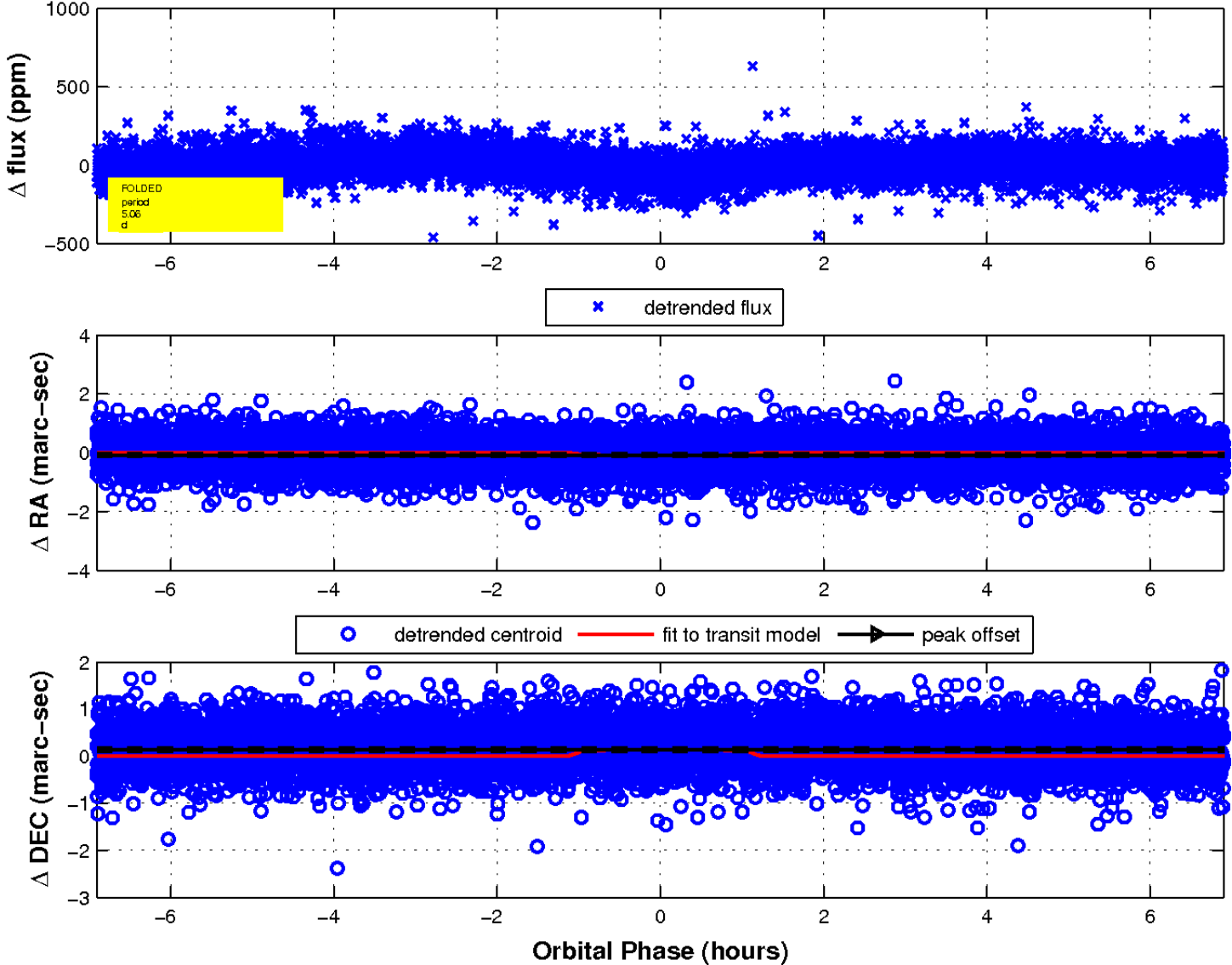
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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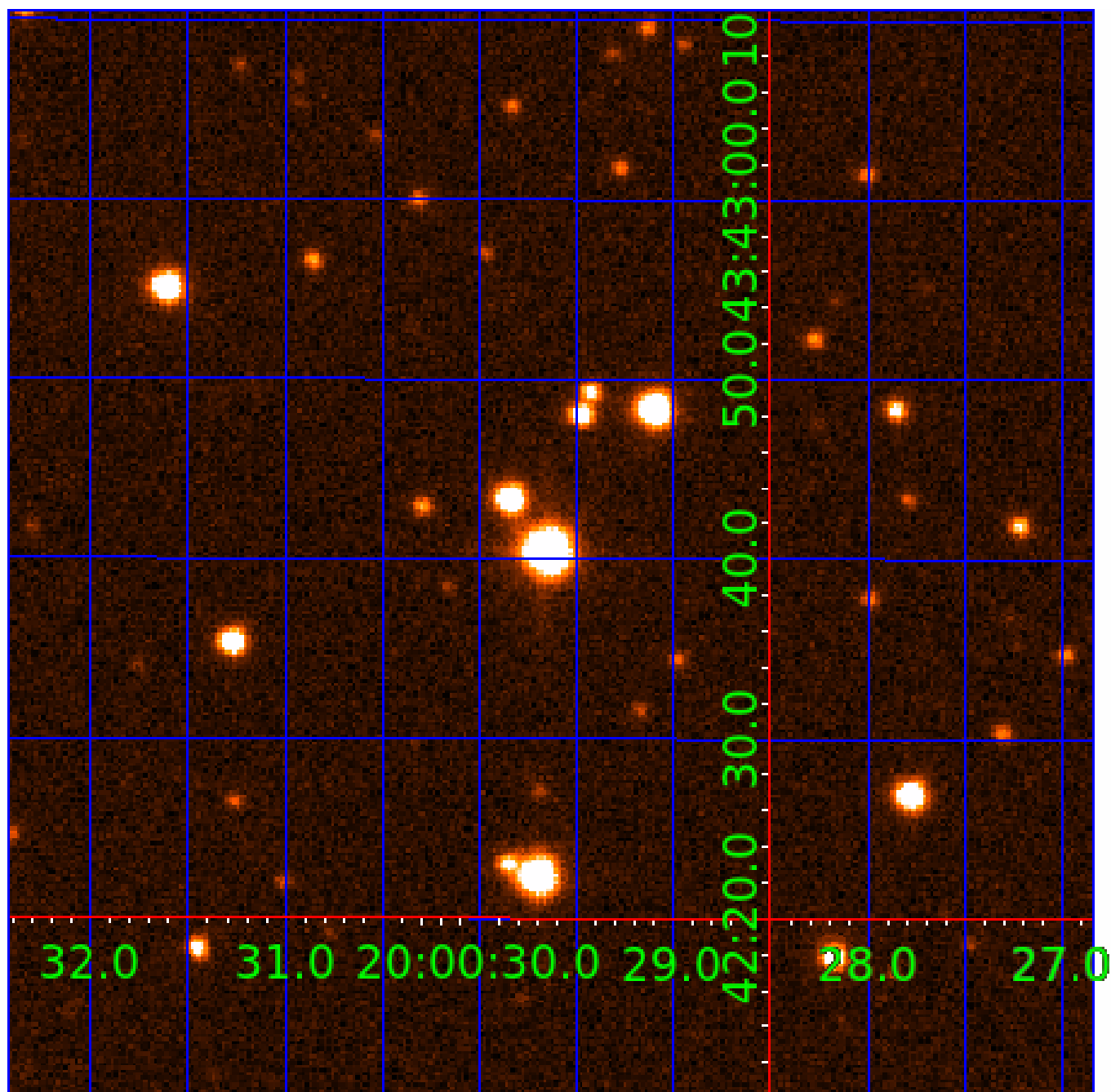


fluxWeightedCentroids, Planet 1 of 7



UKIRT Image

Declination



KIC 007988994

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})
007988994-01	OBS	No	5.062942	131.670647	67.7	2.302	19.3	21.0	2.48	8959	2.38	6229.88
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007988994-01	OBS	FP	0.00	1	0	0	0	LPP_DV
007988994-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-05	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
007988994-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
007988994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

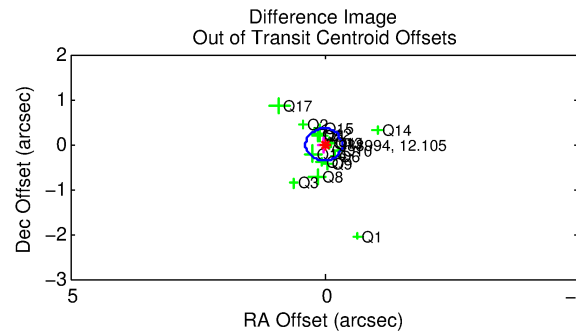
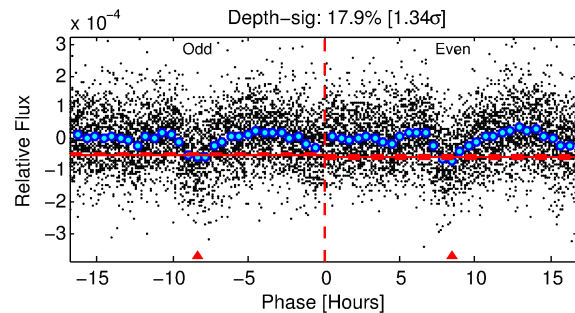
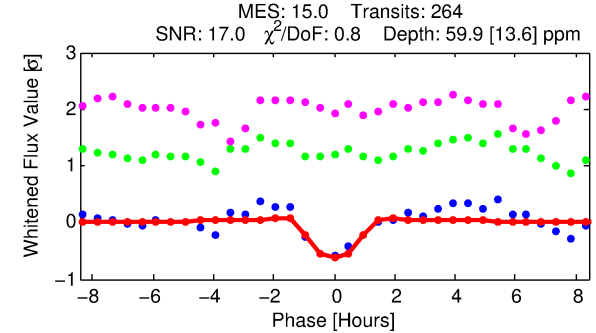
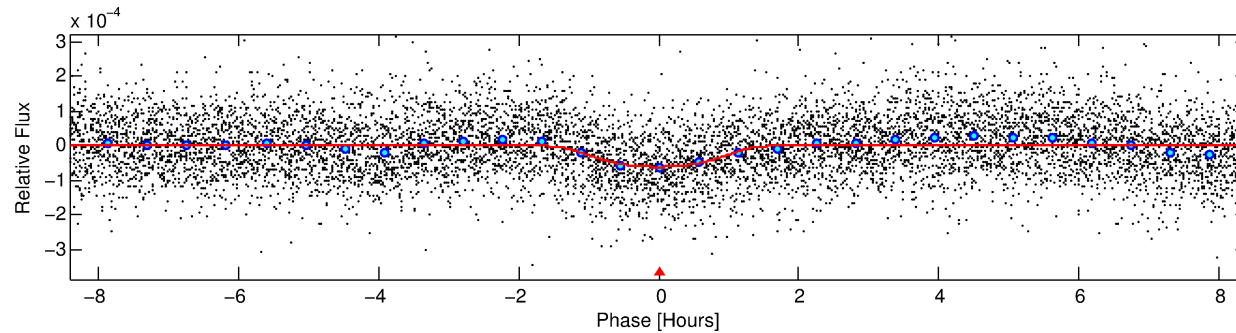
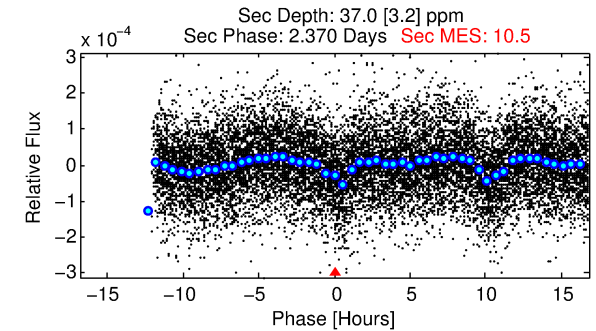
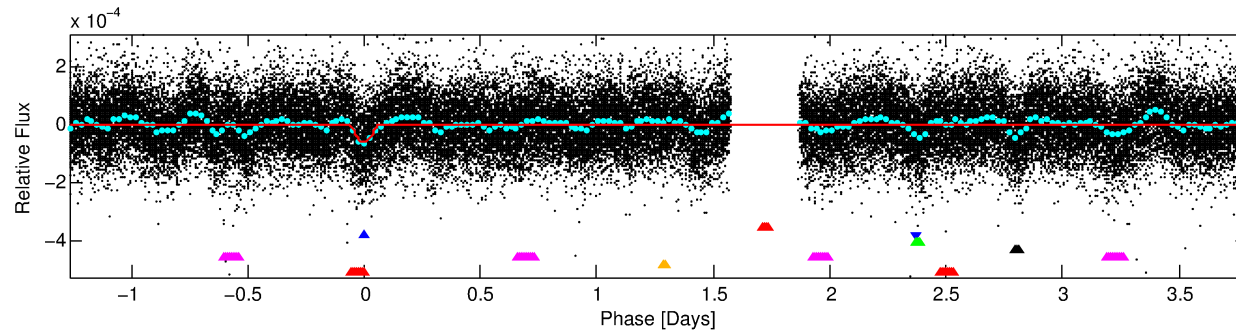
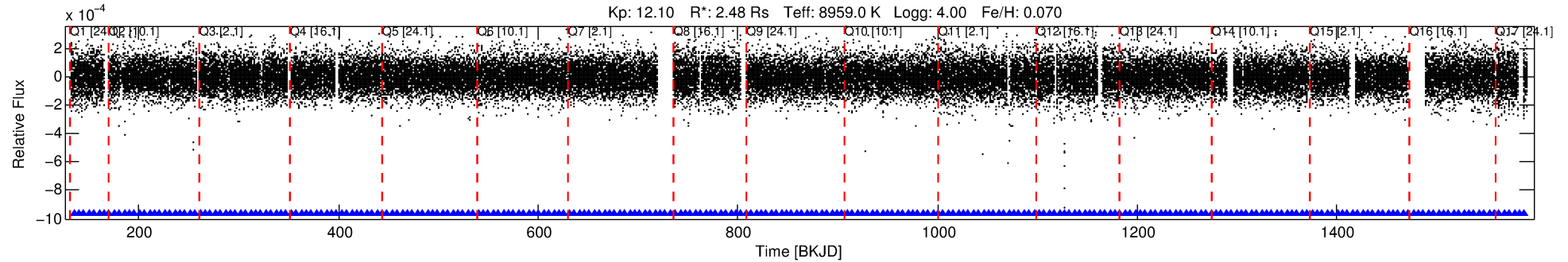
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007988994-02

No Significant Match Found

DV One-Page Summary

KIC: 7988994 Candidate: 2 of 7 Period: 5.063 d



DV Fit Results:

Period = 5.06286 [0.00002] d
Epoch = 135.0233 [0.0032] BKJD
Rp/R* = 0.0097 [0.0017]
a/R* = 2.80 [0.46]
b = 0.99 [0.01]
Seff = 6230.01 [2804.26]
Teq = 2265 [255] K
Rp = 2.62 [0.93] Re
a = 0.0755 [0.0205] AU
Ag = 16.92 [9.13] [1.74σ]
Teffp = 7104 [716] K [6.37σ]

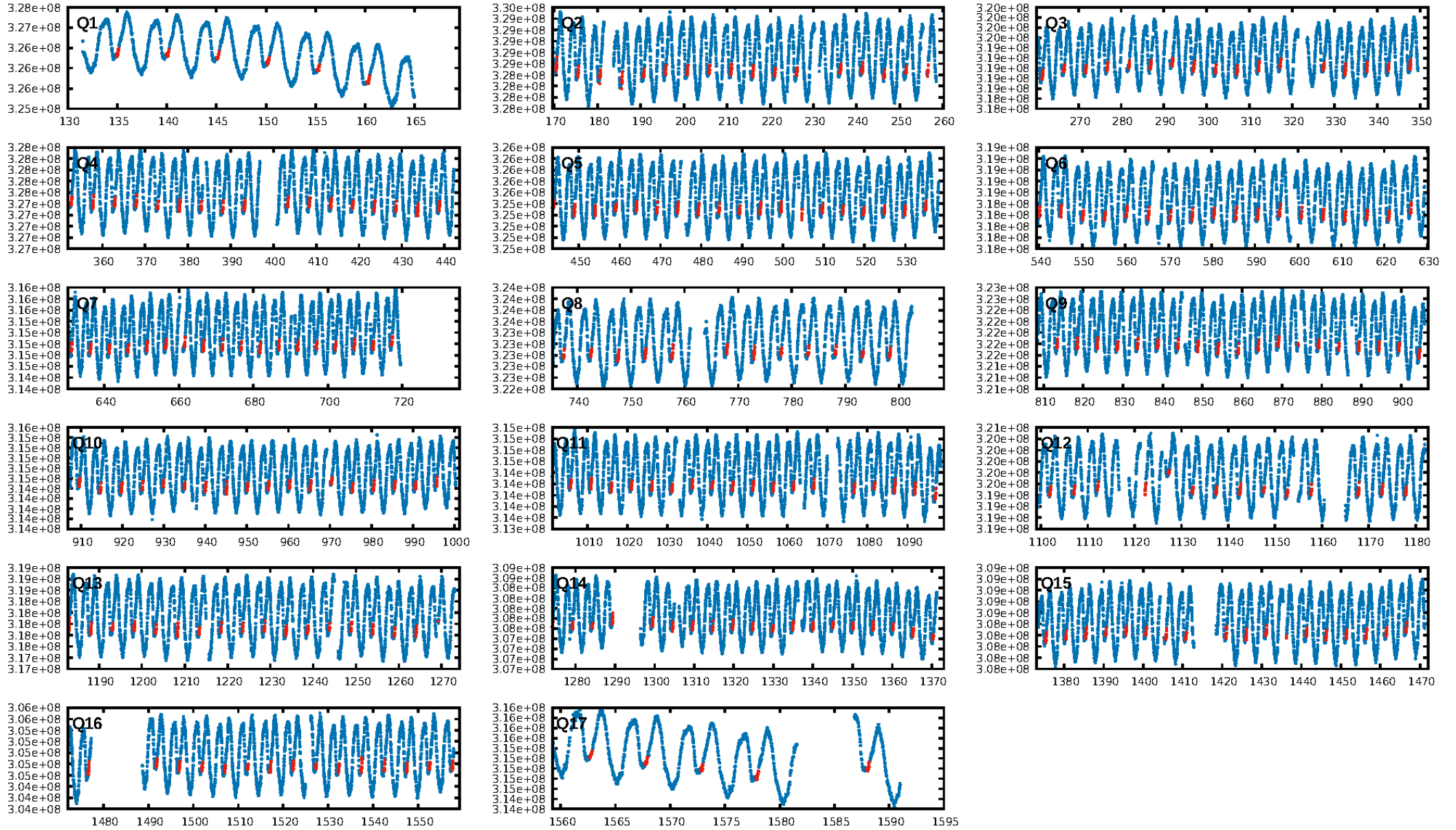
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.37σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [253/253]
GhostDiagnostic-chr: 2.942
Centroid-sig: 36.0%
Centroid-so: 1.054 arcsec [1.25σ]
OotOffset-rm: 0.021 arcsec [0.18σ]
KicOffset-rm: 0.326 arcsec [1.96σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
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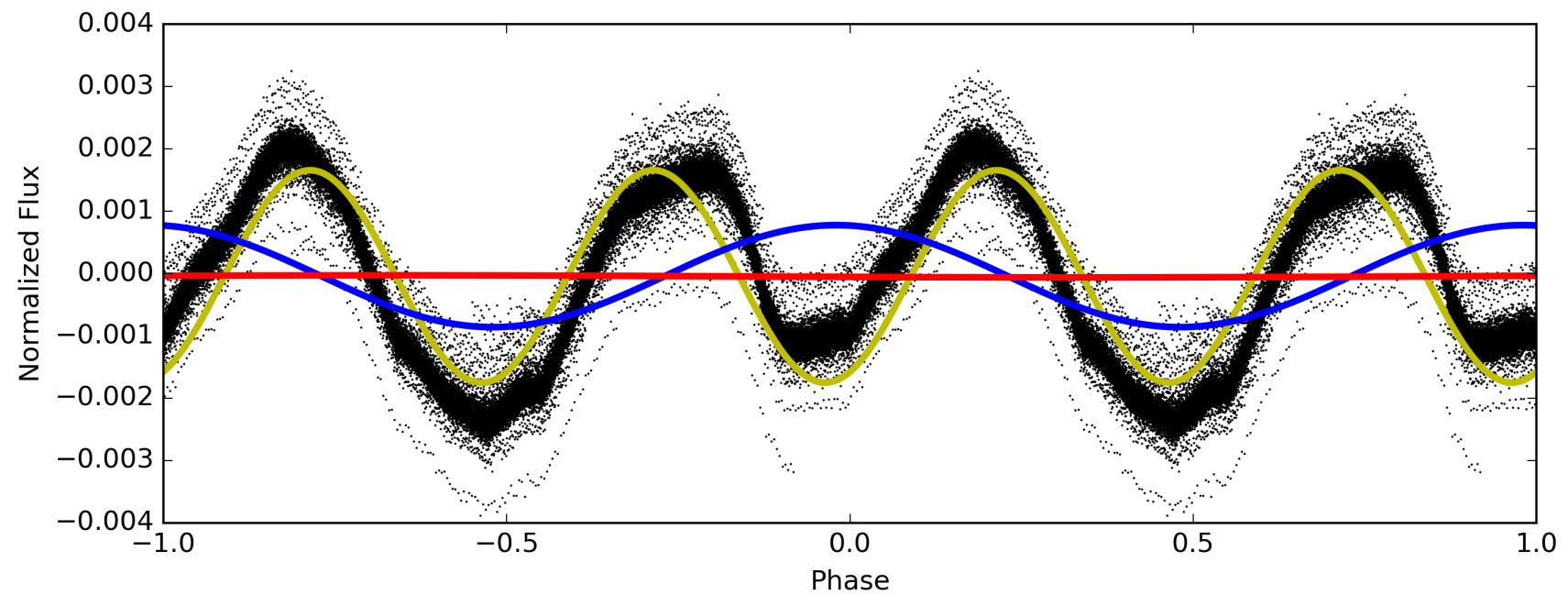
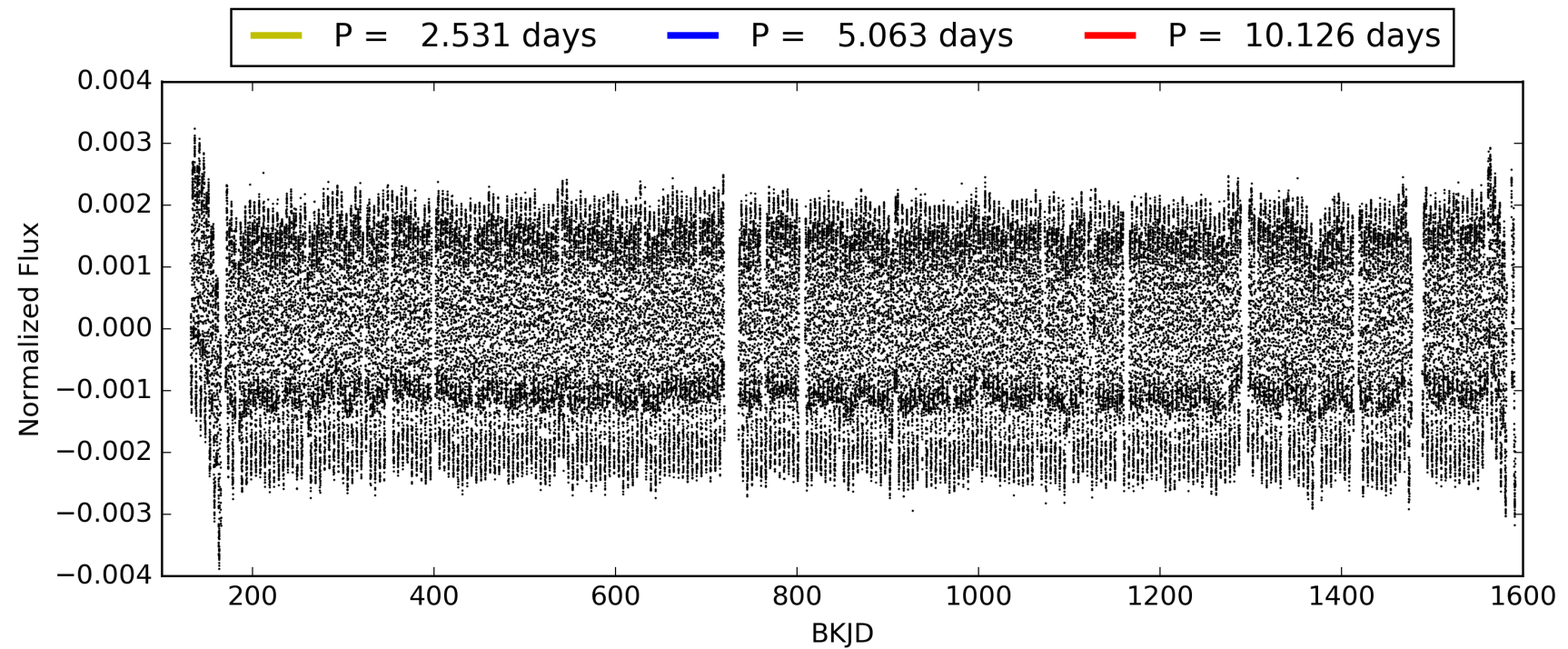
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007988994-02, PDC Light Curves

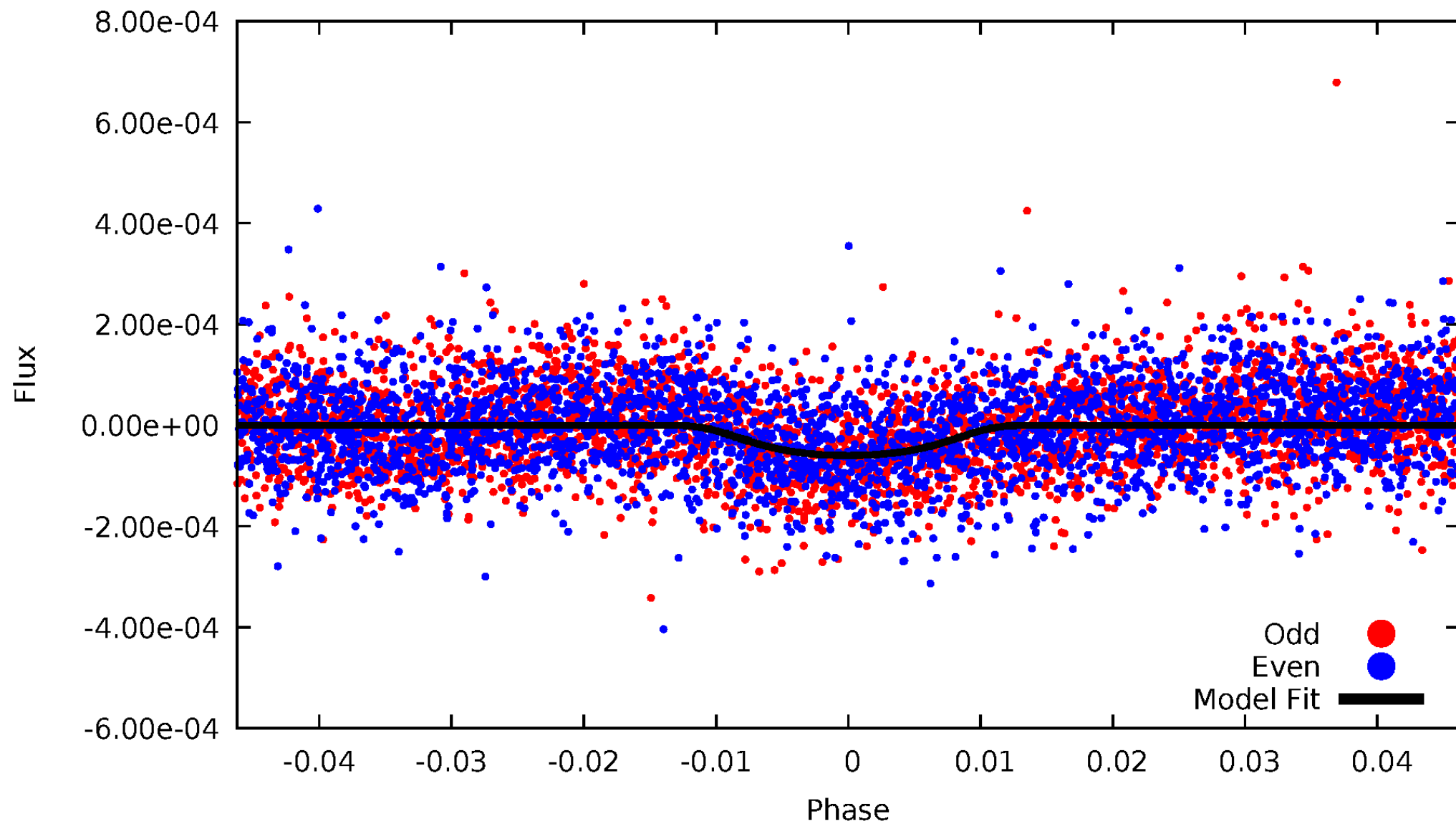


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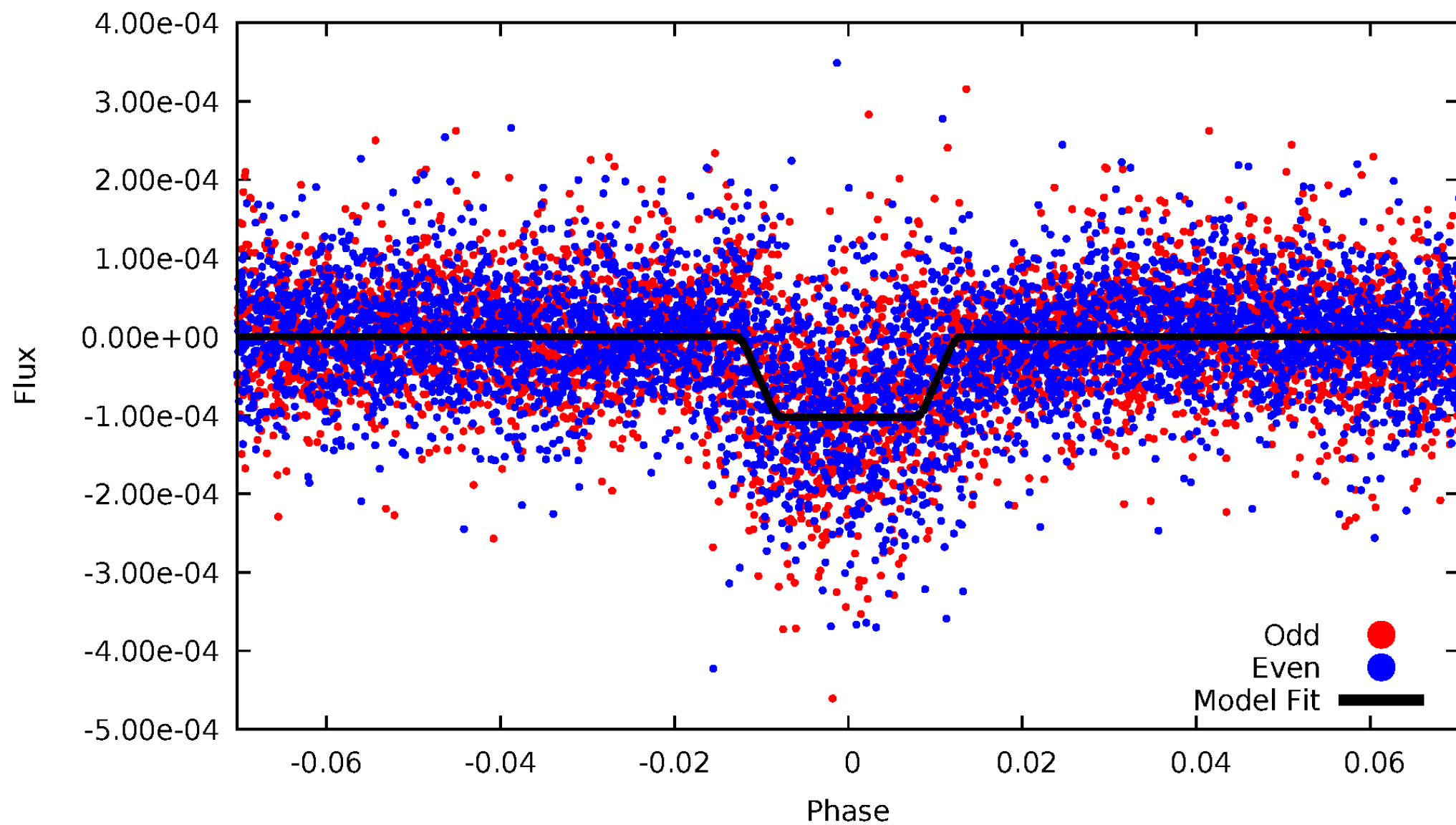
DV Odd/Even

TCE 007988994-02



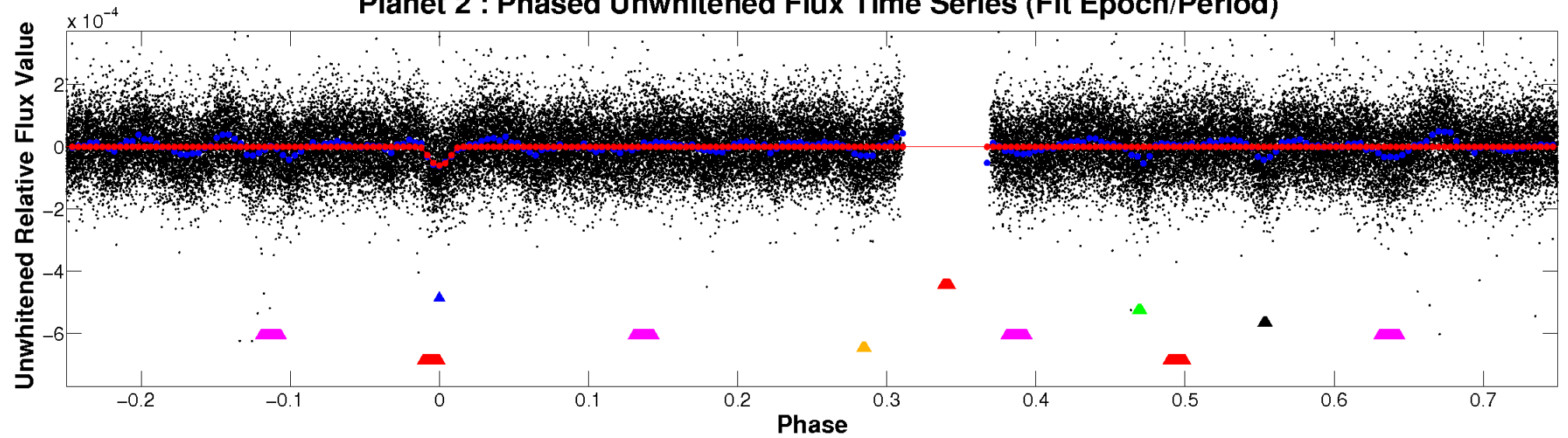
ALT Odd/Even

TCE 007988994-02

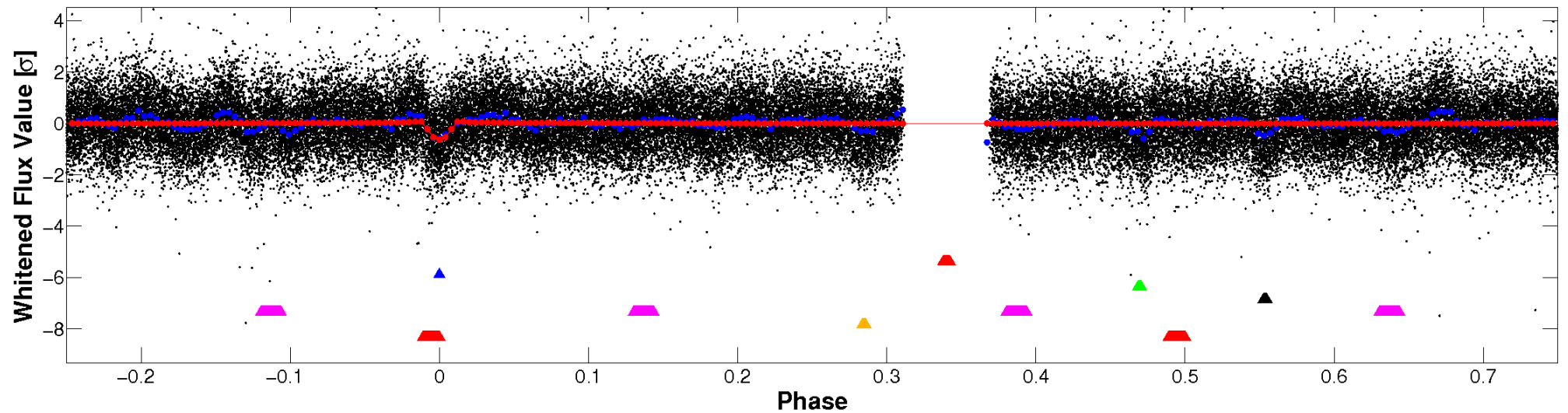


Non-Whitened Vs. Whitened Light Curve

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

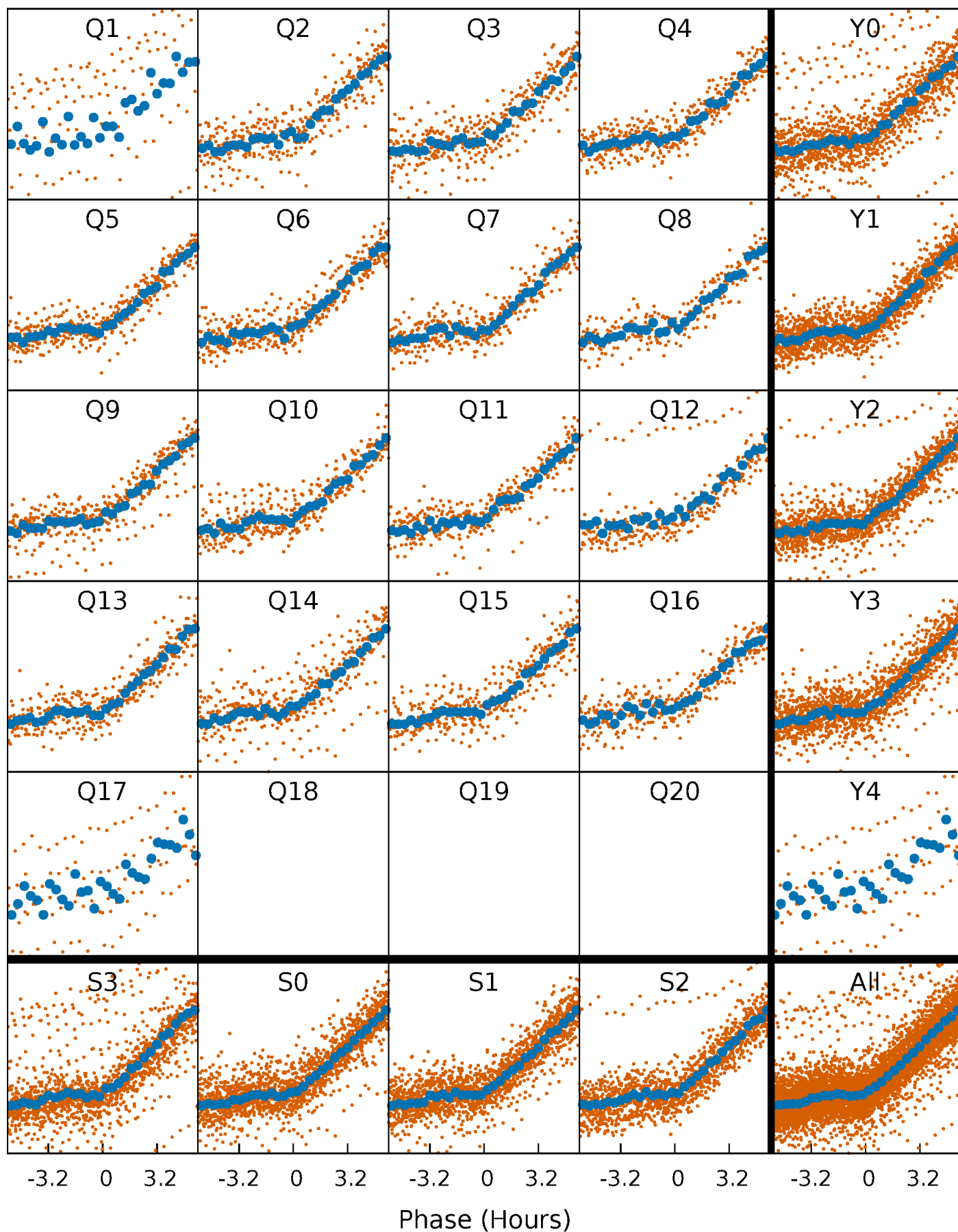


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



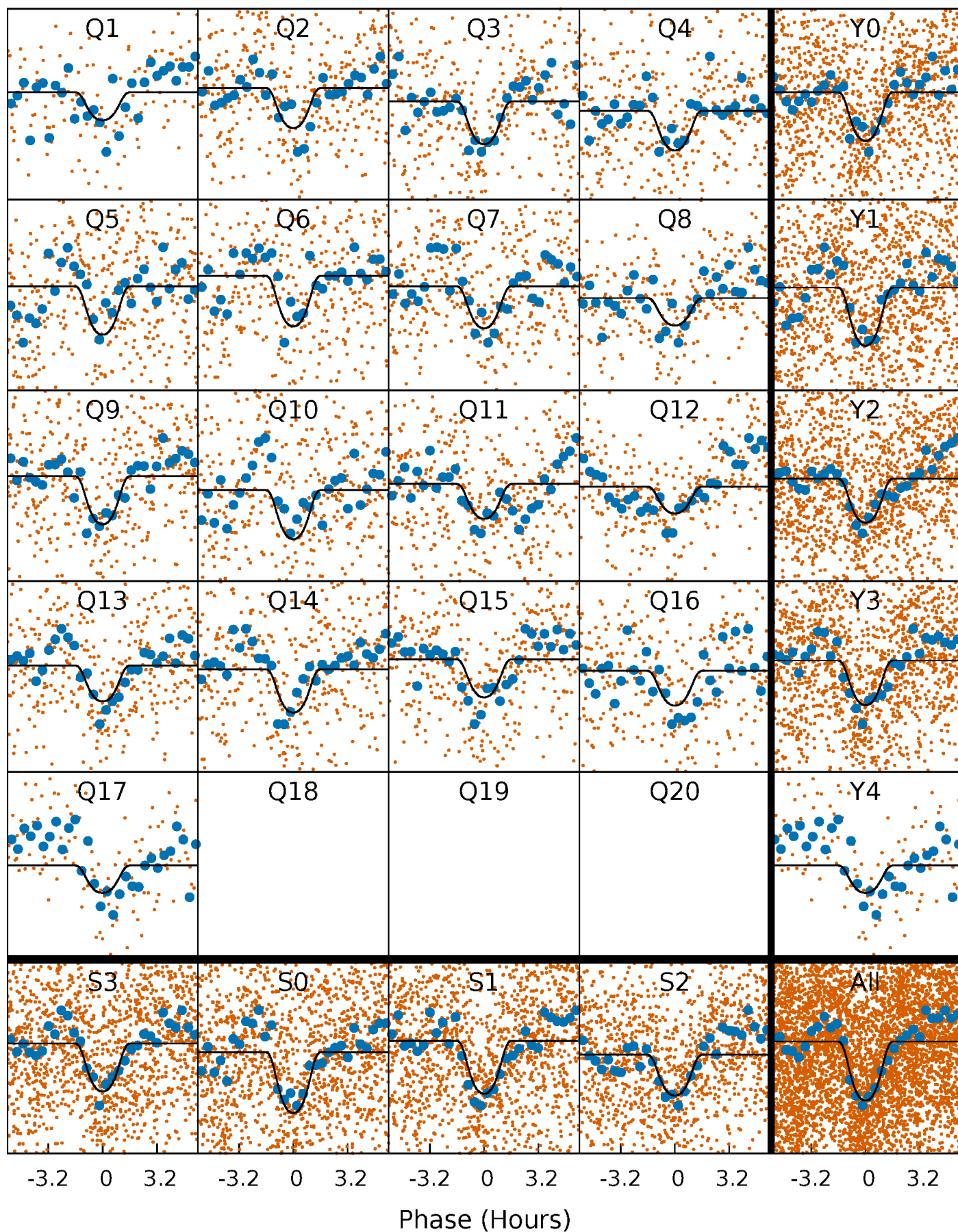
PDC Quarter-Phased Transit Curves

TCE 007988994-02 P= 5.062861 Days $T_0=135.023334$ (BKJD)



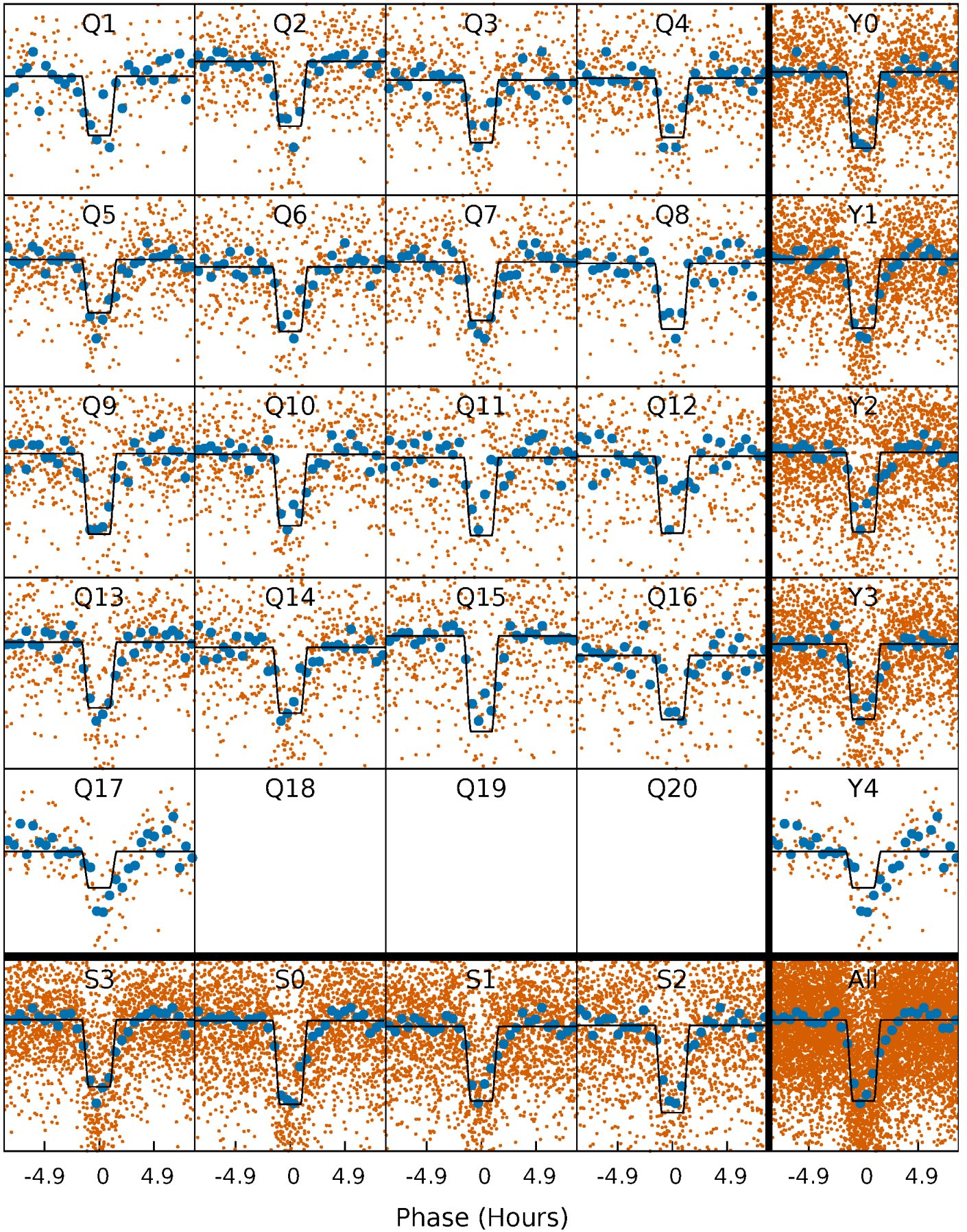
DV Quarter-Phased Transit Curves

TCE 007988994-02 P= 5.062861 Days $T_0=135.023334$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

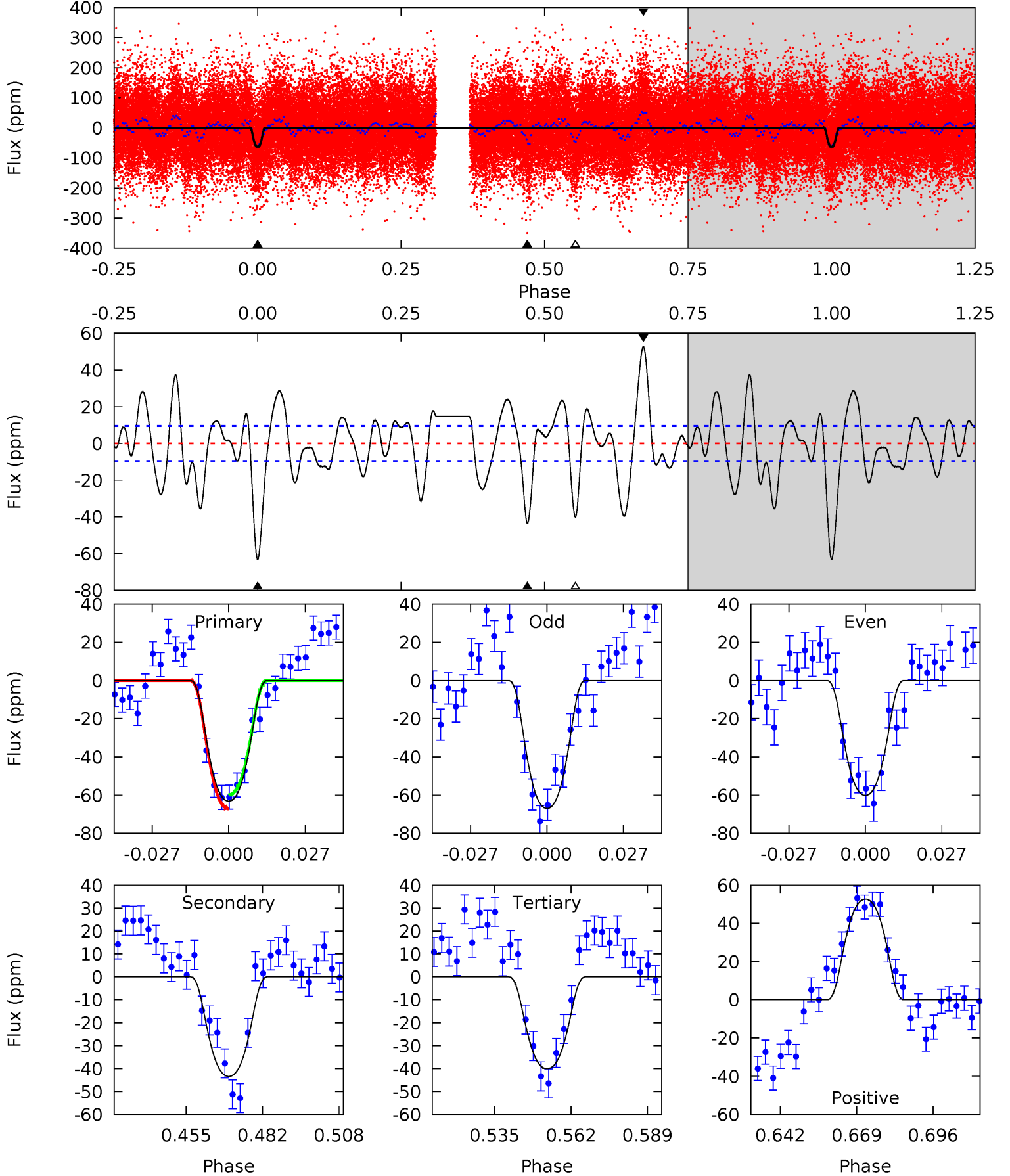
TCE 007988994-02 P= 5.062830 Days $T_0=135.031513$ (BKJD)



DV Model-Shift Uniqueness Test

007988994-02, P = 5.062861 Days, E = 129.960473 Days

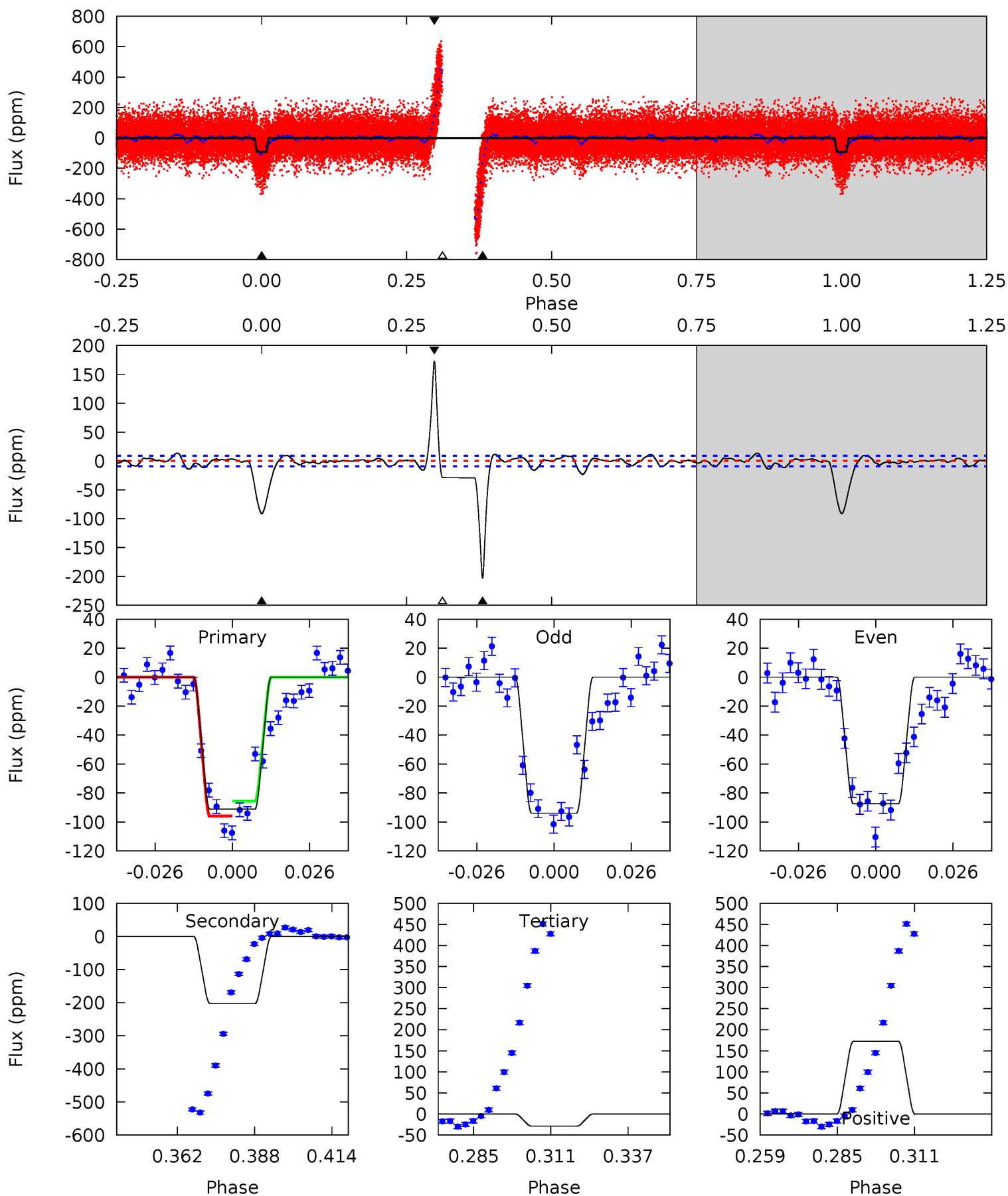
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.1	22.0	20.4	26.7	4.83	2.22	8.55	11.7	5.35	1.69	-4.66	1.74	1.01	0.45	1.86



Alt Model-Shift Uniqueness Test

007988994-02, P = 5.062830 Days, E = 129.968683 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
48.2	107.4	15.3	91.2	4.84	2.23	8.91	32.9	-43.0	92.1	16.2	1.74	0.95	0.46	2.68



Stellar Parameters For KIC 007988994

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8959^{+251}_{-430}	$3.999^{+0.228}_{-0.171}$	$0.070^{+0.150}_{-0.650}$	$2.481^{+0.774}_{-0.774}$	$2.240^{+0.349}_{-0.648}$	$0.207^{+0.276}_{-0.105}$
	+3%/-5%	+6%/-4%	+214%/-929%	+31%/-31%	+16%/-29%	+134%/-51%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007988994-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-43 ± 2	$2.55^{+0.71}_{-0.60}$	3144^{+246}_{-274}	7031^{+856}_{-685}	20^{+13}_{-8}
Alt.	-203 ± 2	$2.64^{+0.67}_{-0.60}$	3121^{+271}_{-286}	11463^{+1977}_{-1404}	89^{+54}_{-31}

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

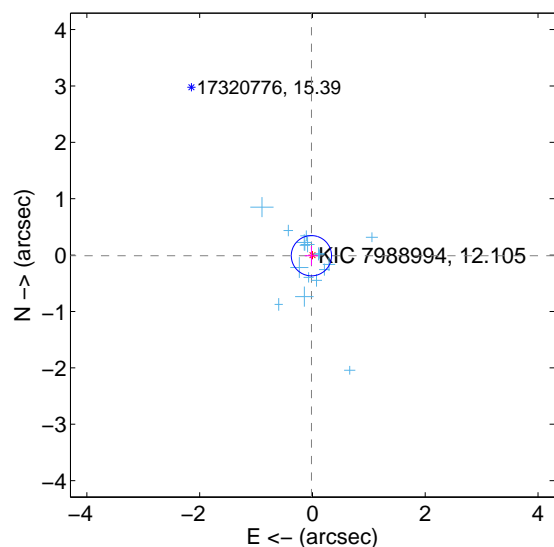
Supplemental centroid analysis for 007988994-02. Kepler magnitude: 12.11. Transit SNR 16.97

There are 17 quarters with good PRF difference image offsets

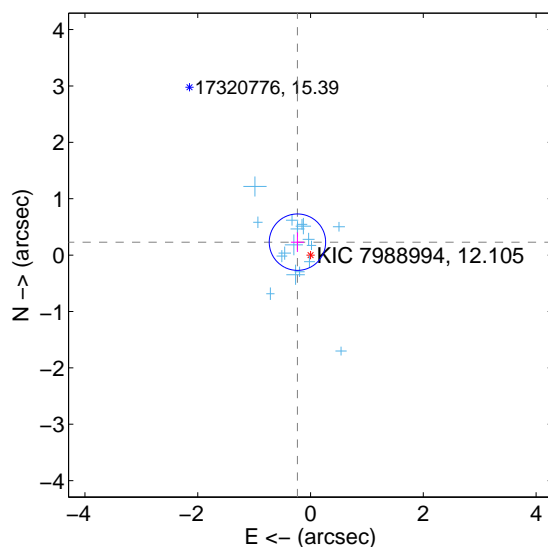
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.021 ± 0.119	0.18	0.018 ± 0.116	-0.011 ± 0.172
PRF-fit source offset from KIC position	0.326 ± 0.167	1.96	0.232 ± 0.117	0.229 ± 0.173
photometric centroid source offset	1.05 ± 0.84	1.25	-0.98 ± 0.86	0.38 ± 0.73

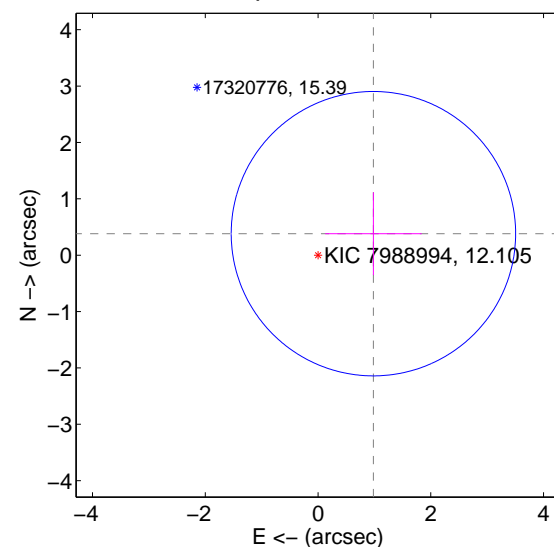
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

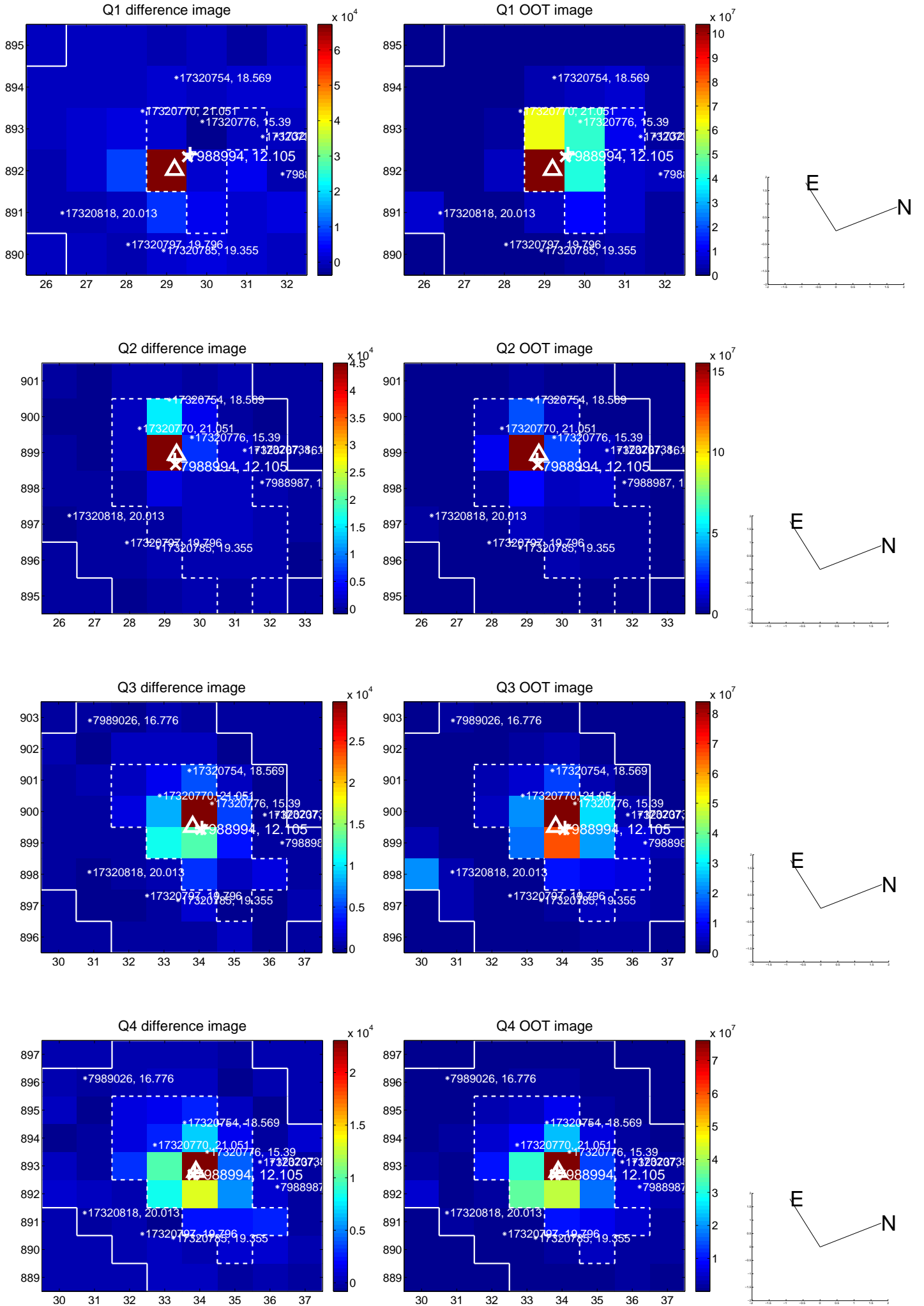


offset from photometric centroids

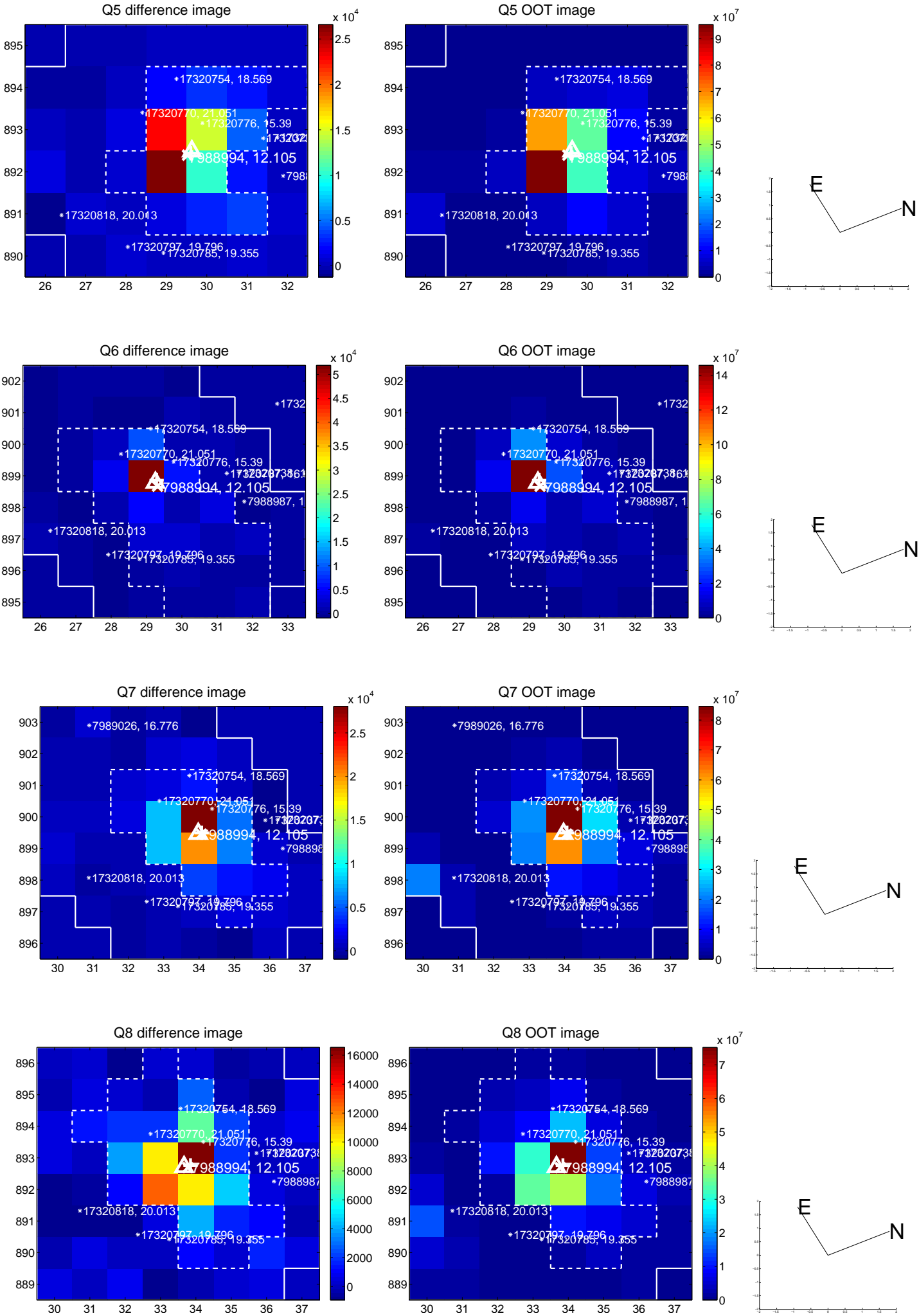


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

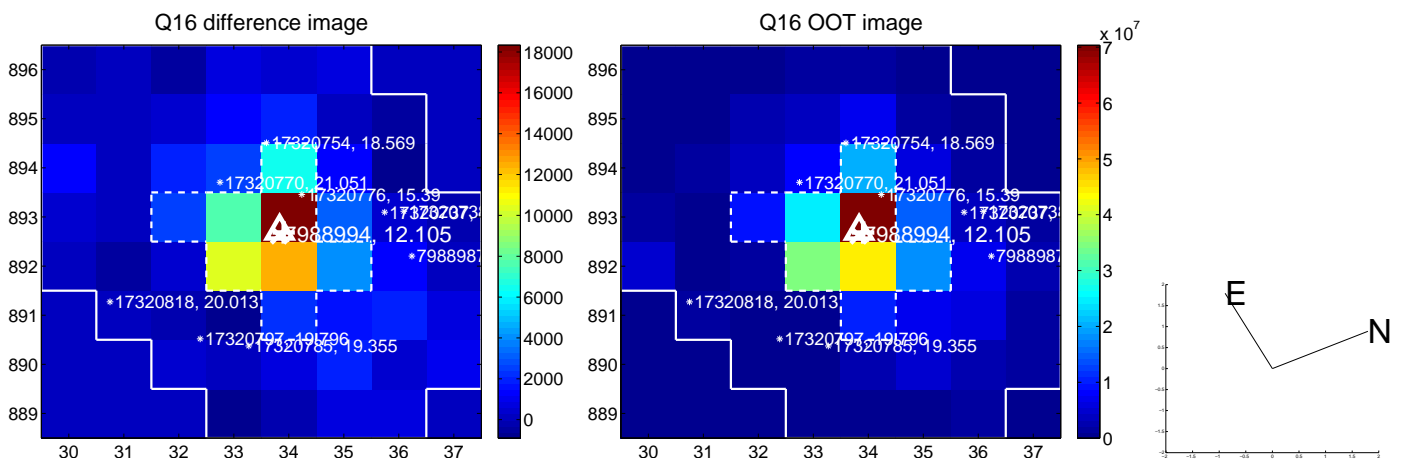
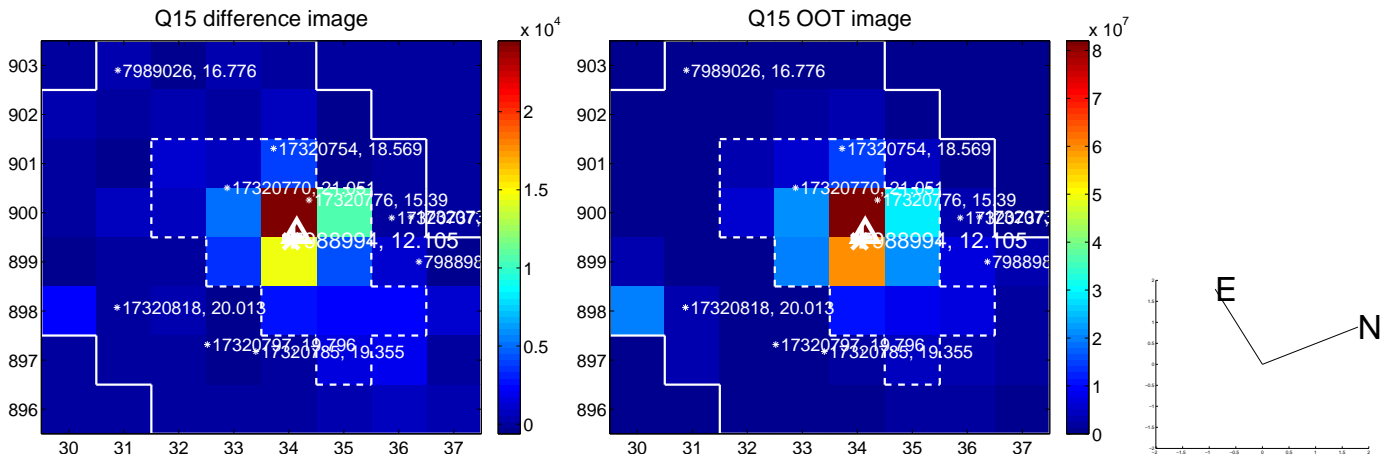
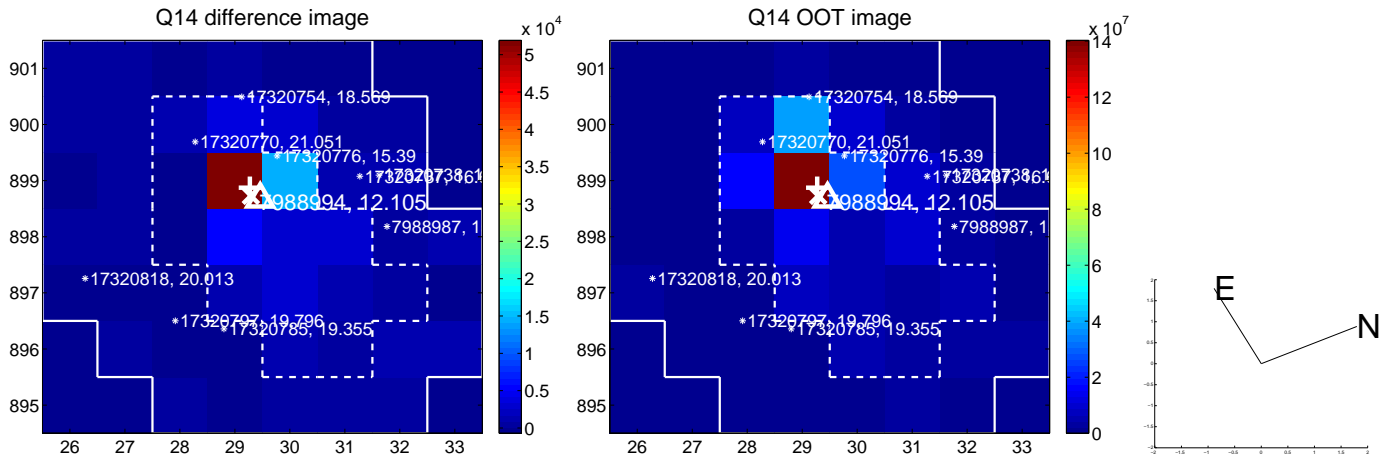
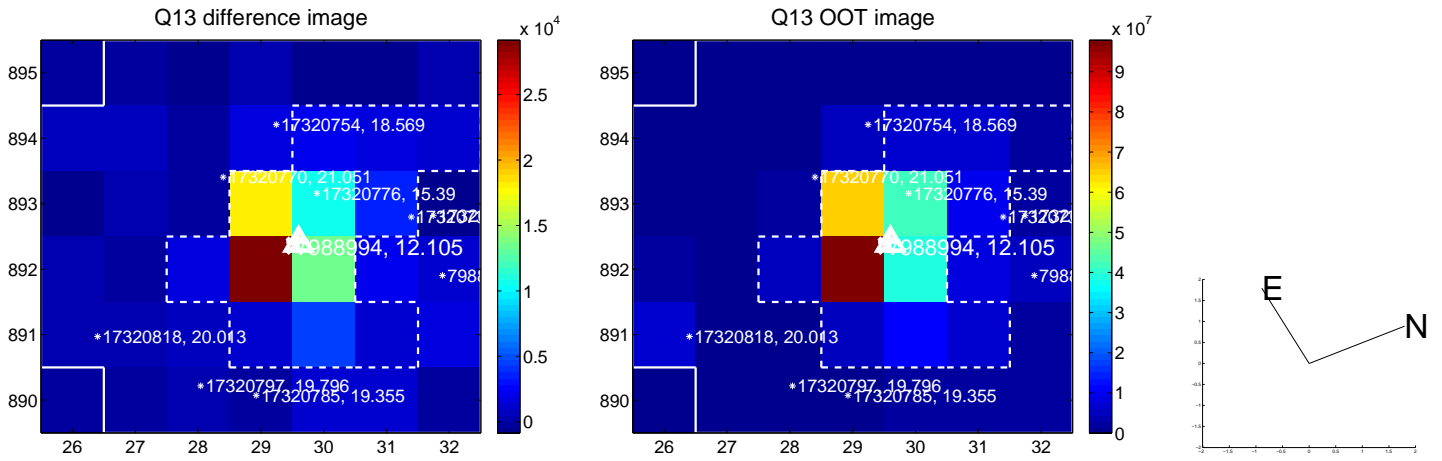
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



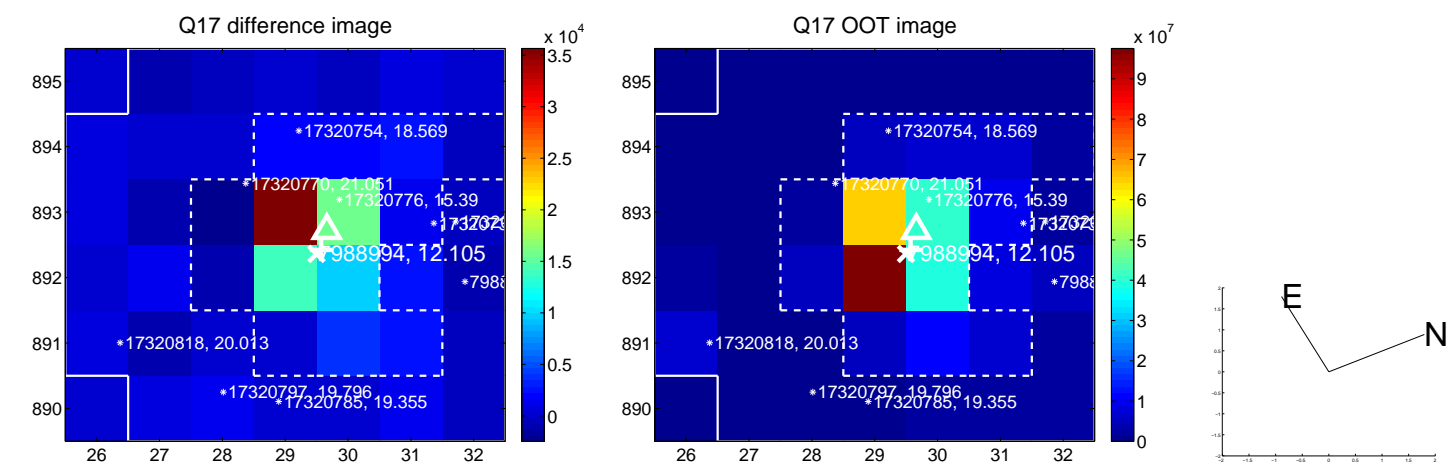
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



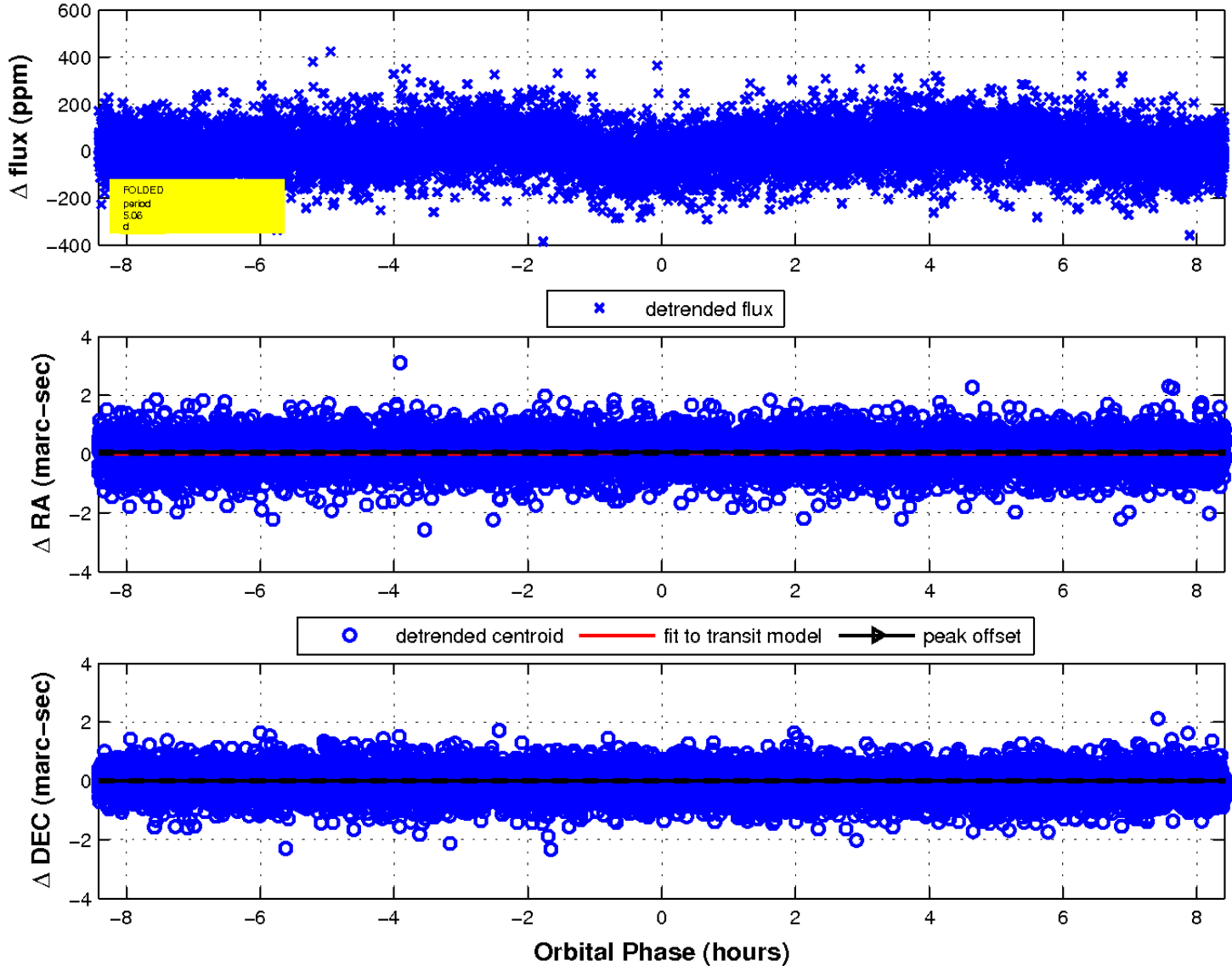
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

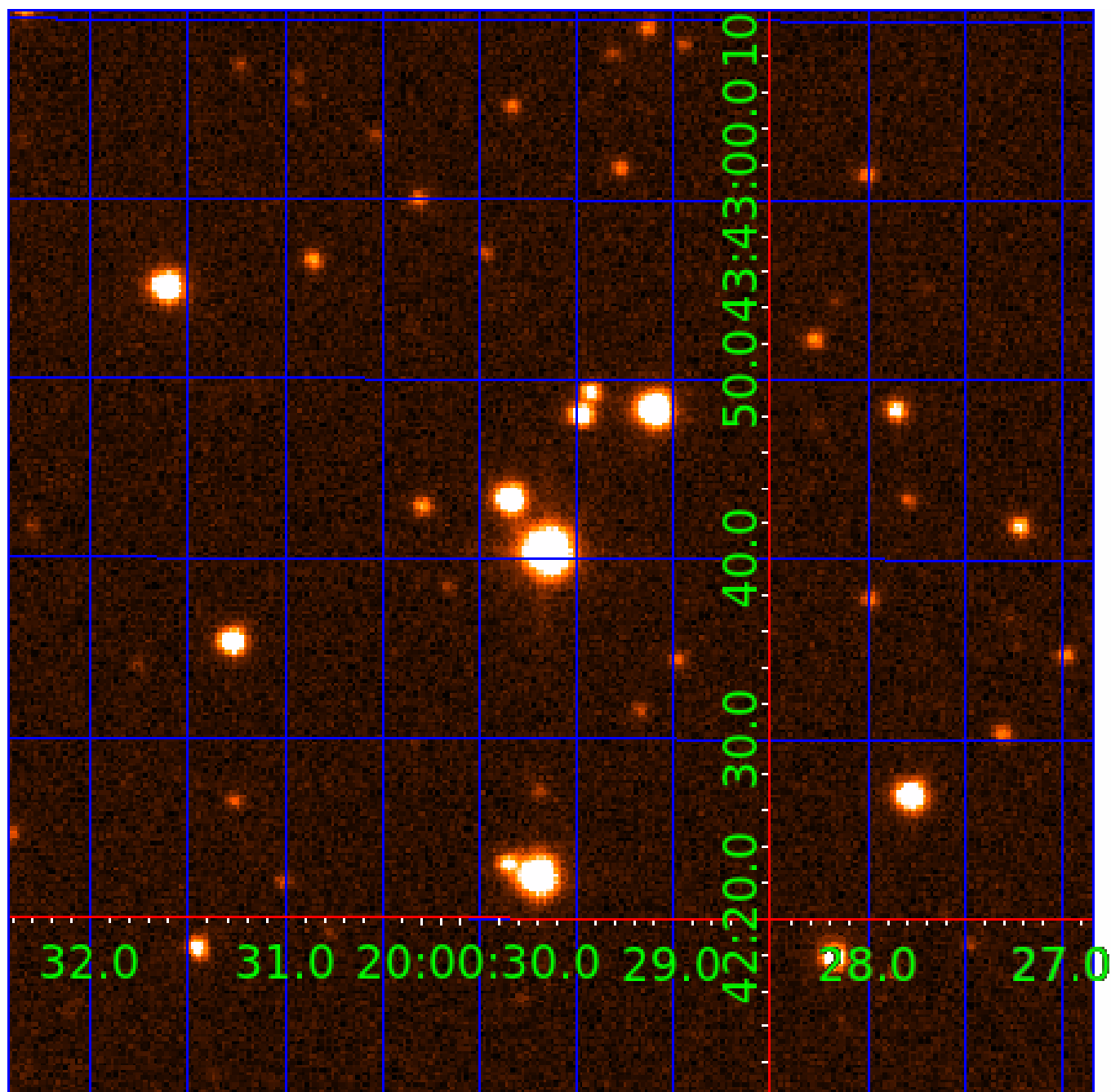


fluxWeightedCentroids, Planet 2 of 7



UKIRT Image

Declination



KIC 007988994

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})
007988994-01	OBS	No	5.062942	131.670647	67.7	2.302	19.3	21.0	2.48	8959	2.38	6229.88
007988994-02	OBS	No	5.062861	135.023334	59.9	2.806	15.0	17.0	2.48	8959	2.62	6230.01
007988994-03	OBS	No	5.062900	132.332088	42.8	1.983	11.2	12.9	2.48	8959	1.88	6229.95
007988994-04	OBS	No	5.062899	132.758291	46.8	1.942	11.2	14.3	2.48	8959	1.80	6229.95
007988994-05	OBS	No	1.265656	131.954276	14.3	4.441	11.0	11.7	2.48	8959	1.06	39560.61
007988994-06	OBS	No	5.062902	136.458912	179.7	2.500	11.1	-1.0	2.48	8959	3.39	6229.95
007988994-07	OBS	No	2.531530	132.435460	10.7	9.112	7.9	4.7	2.48	8959	0.94	15697.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007988994-01	OBS	FP	0.00	1	0	0	0	LPP_DV
007988994-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-05	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
007988994-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
007988994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

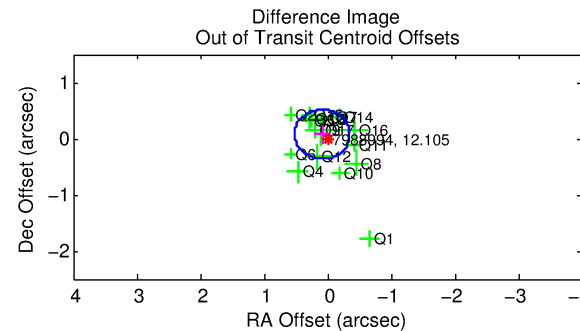
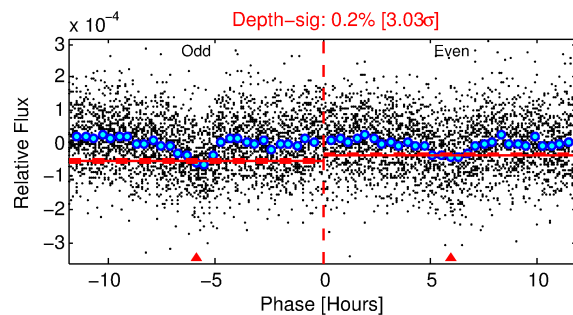
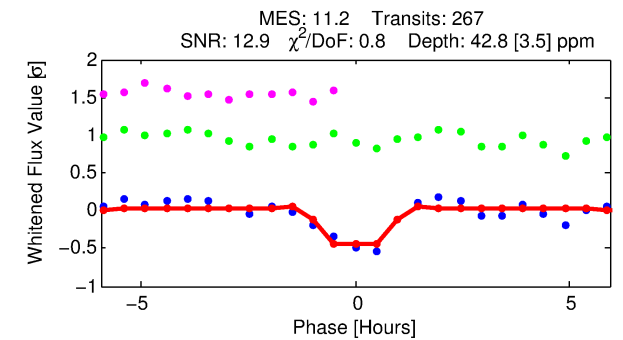
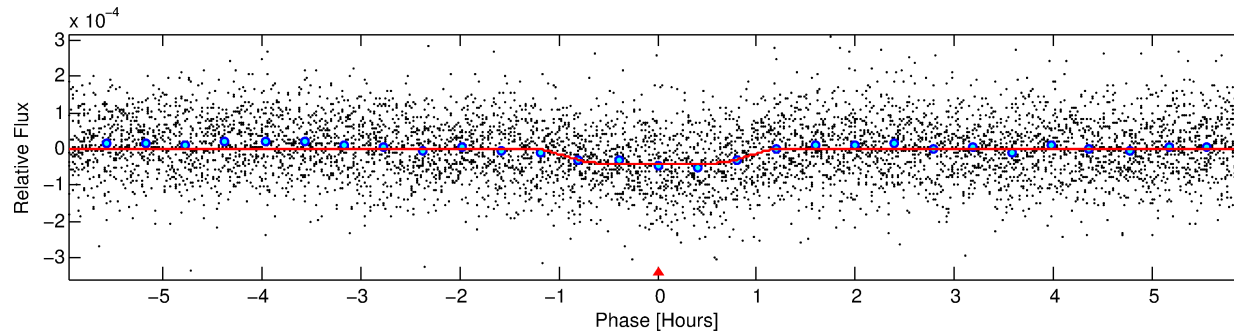
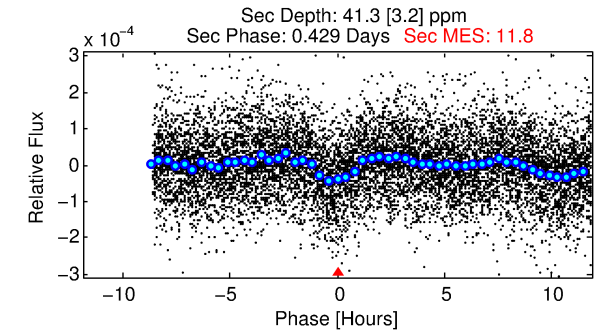
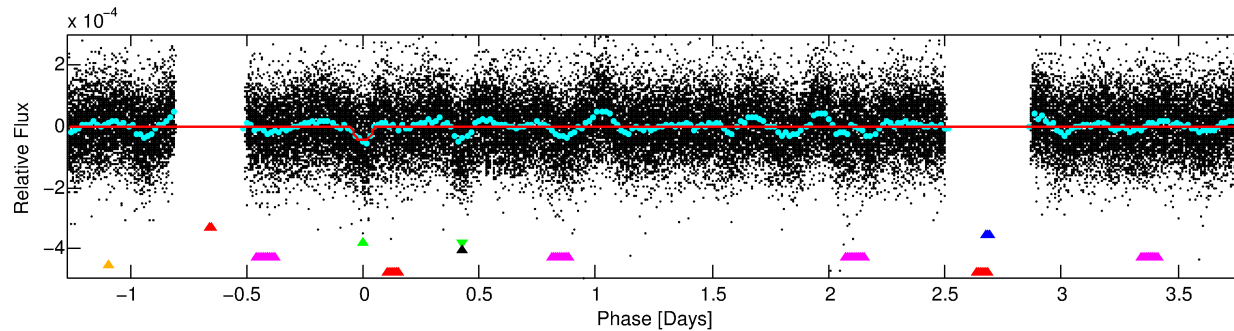
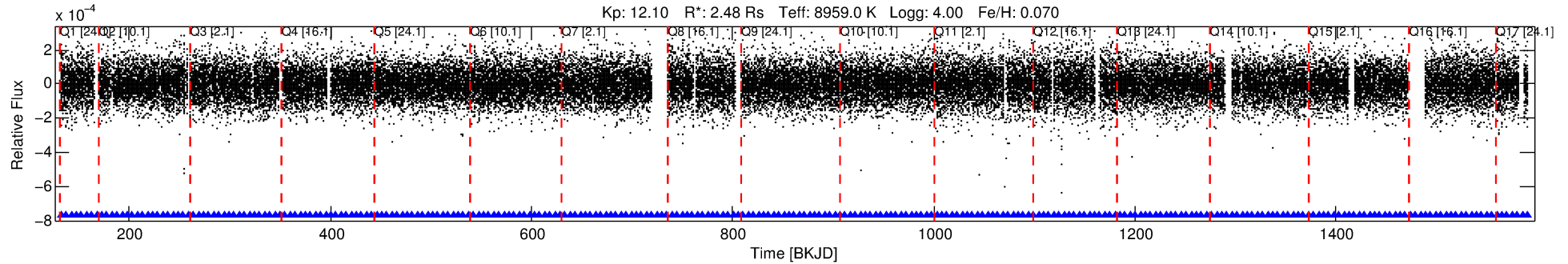
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007988994-03

No Significant Match Found

DV One-Page Summary

KIC: 7988994 Candidate: 3 of 7 Period: 5.063 d



DV Fit Results:

Period = 5.06290 [0.00002] d
Epoch = 132.3321 [0.0026] BKJD
Rp/R* = 0.0069 [0.0015]
a/R* = 8.80 [13.72]
b = 0.90 [0.33]
Seff = 6229.95 [2804.24]
Teq = 2265 [255] K
Rp = 1.88 [0.72] Re
a = 0.0755 [0.0205] AU
Ag = 36.81 [22.33] [1.60σ]
Teffp = 8627 [1055] K [5.86σ]

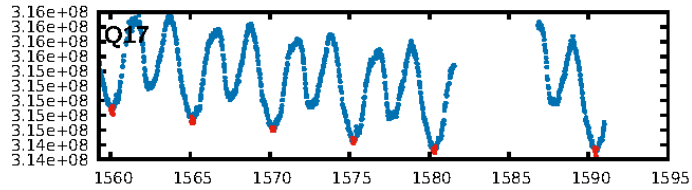
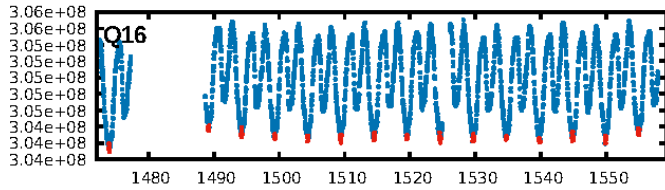
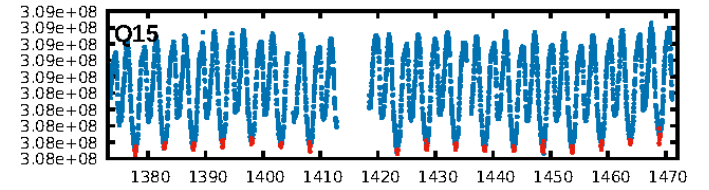
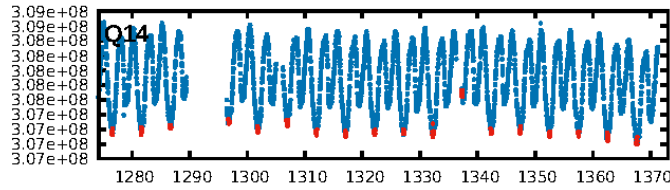
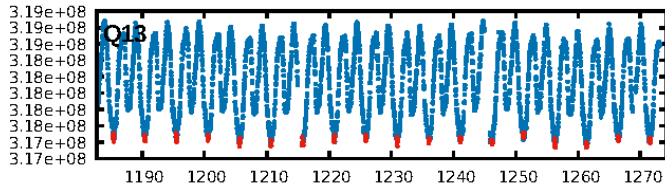
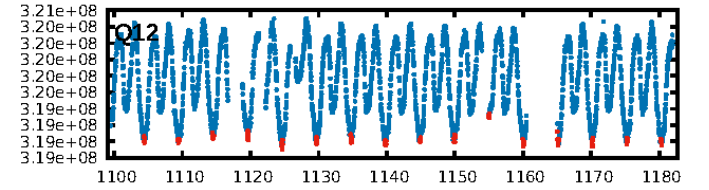
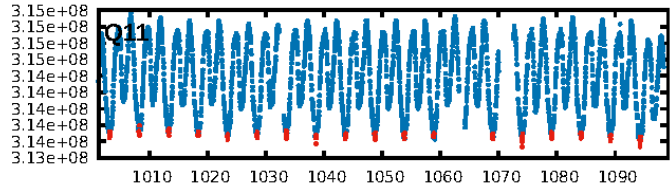
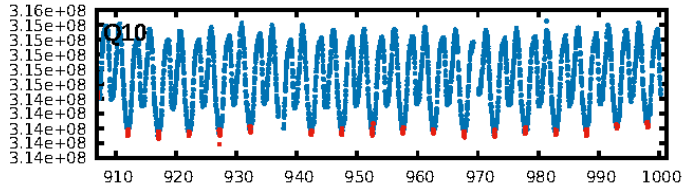
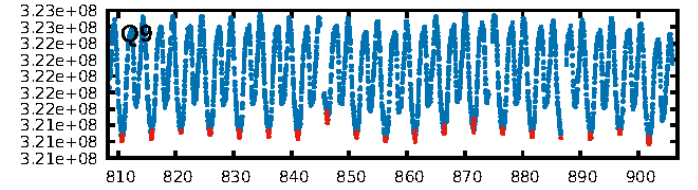
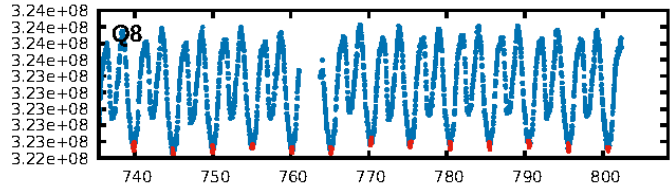
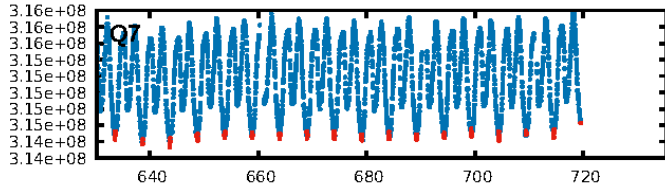
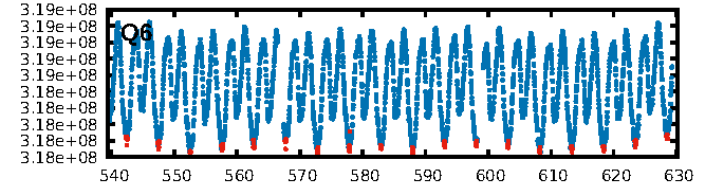
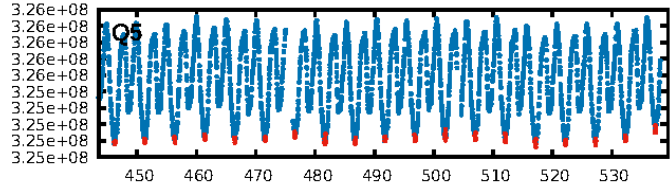
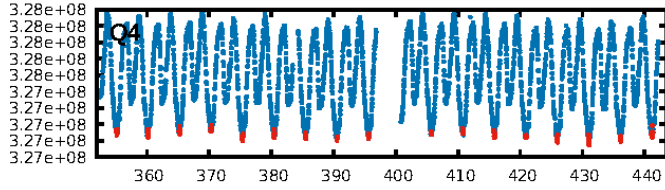
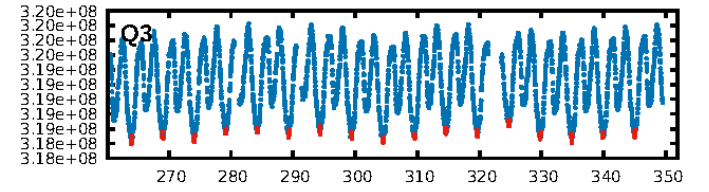
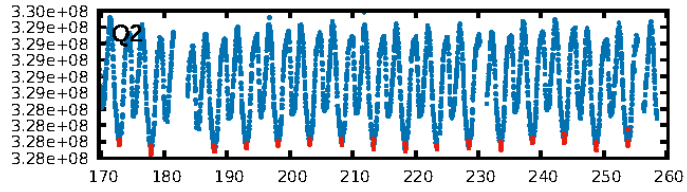
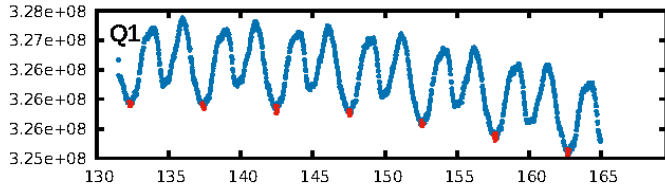
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [254/254]
GhostDiagnostic-chr: 1.304
Centroid-sig: 7.9%
Centroid-so: 0.902 arcsec [0.89σ]
OotOffset-rm: 0.117 arcsec [0.80σ]
KicOffset-rm: 0.407 arcsec [2.58σ]
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]

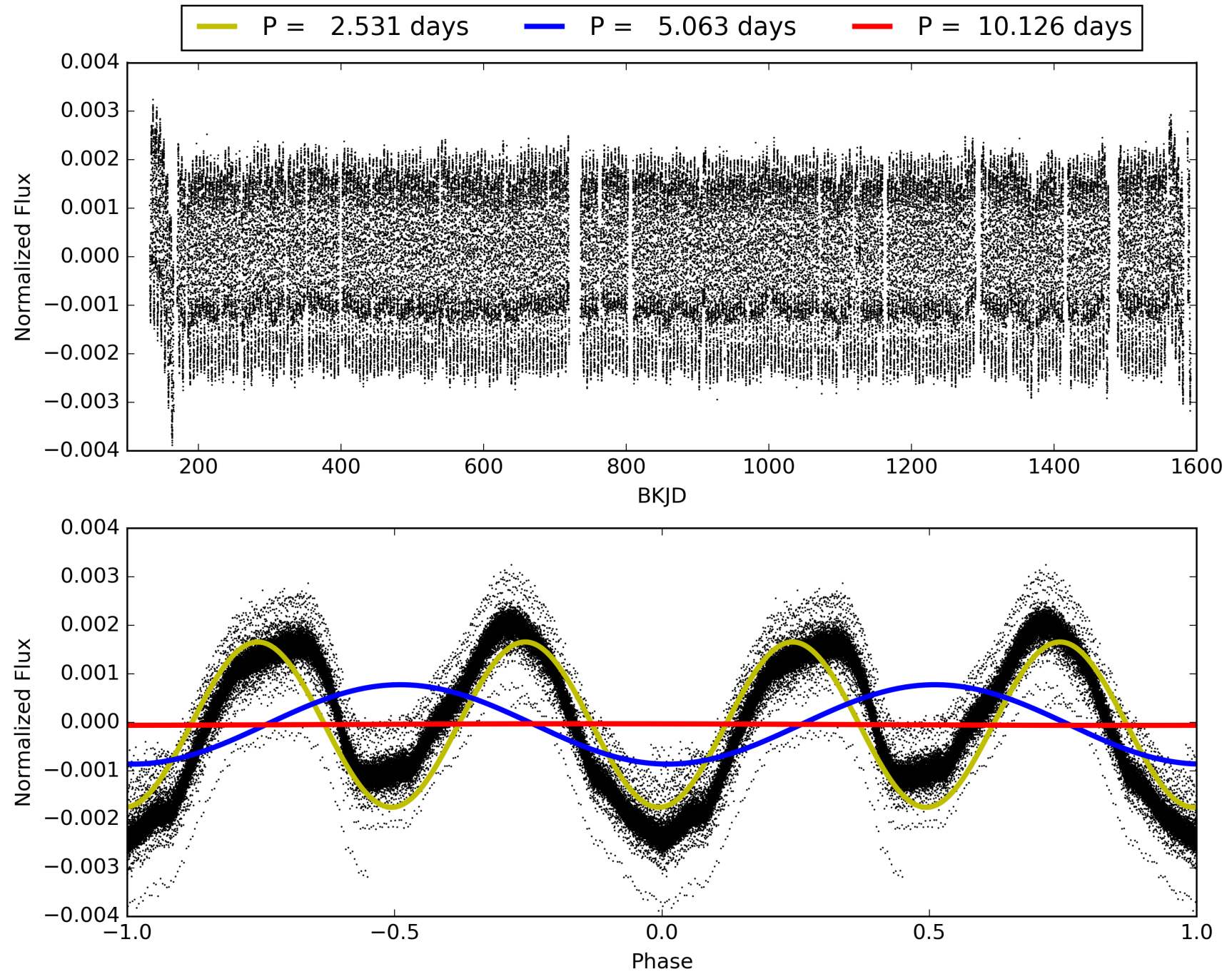
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:42:54 Z

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

TCE 007988994-03, PDC Light Curves

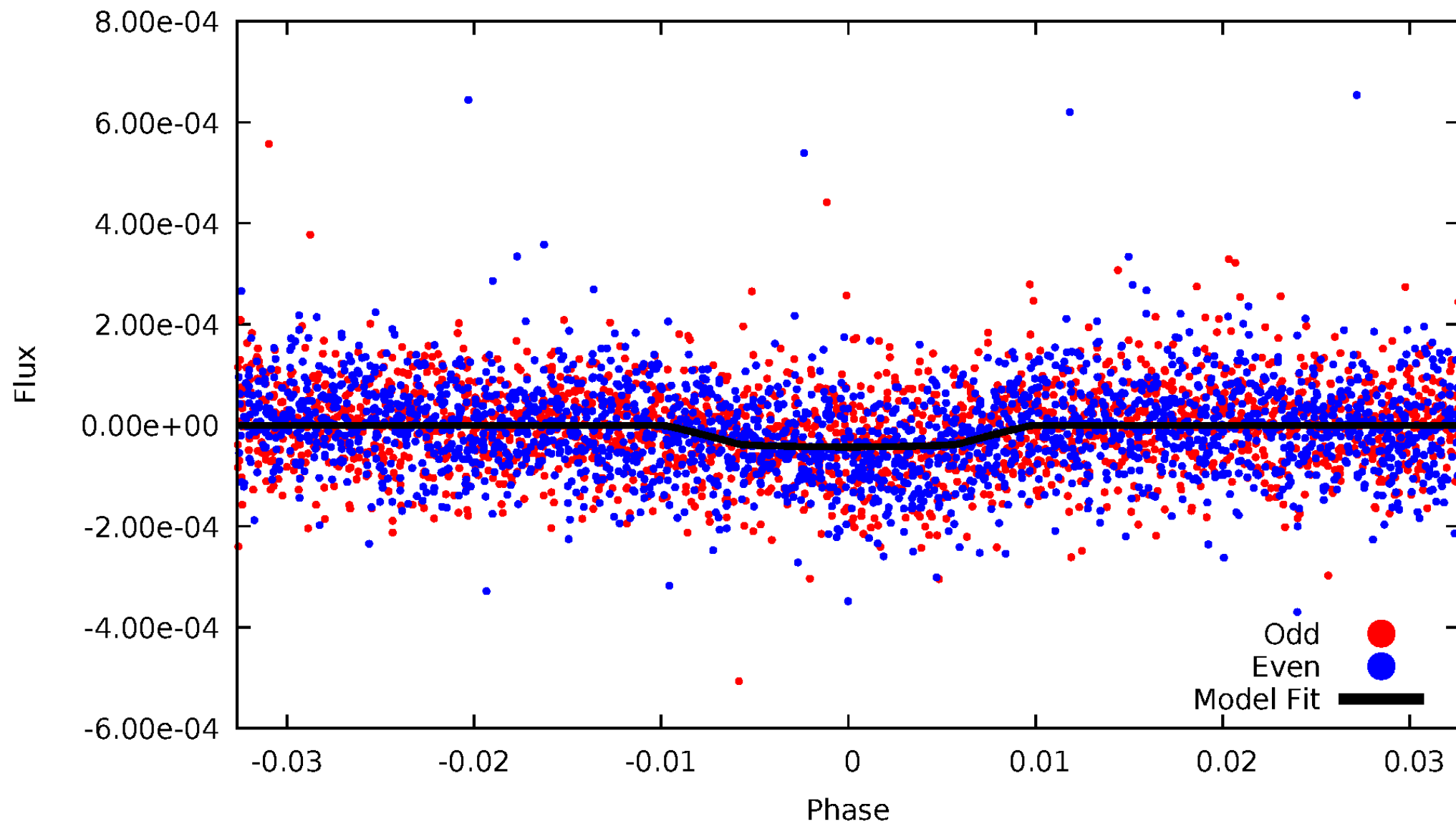


TCE 007988994-03



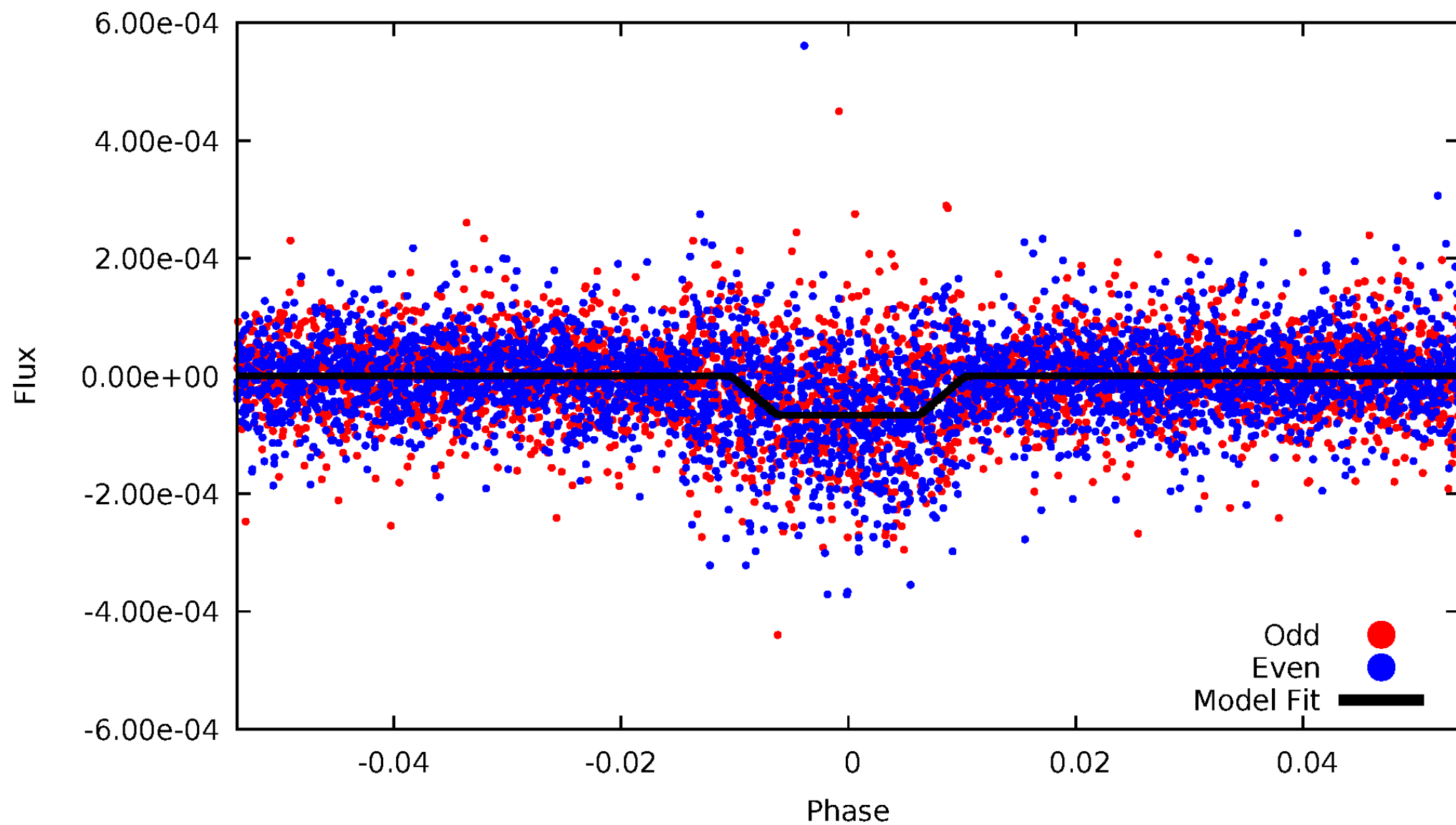
DV Odd/Even

TCE 007988994-03



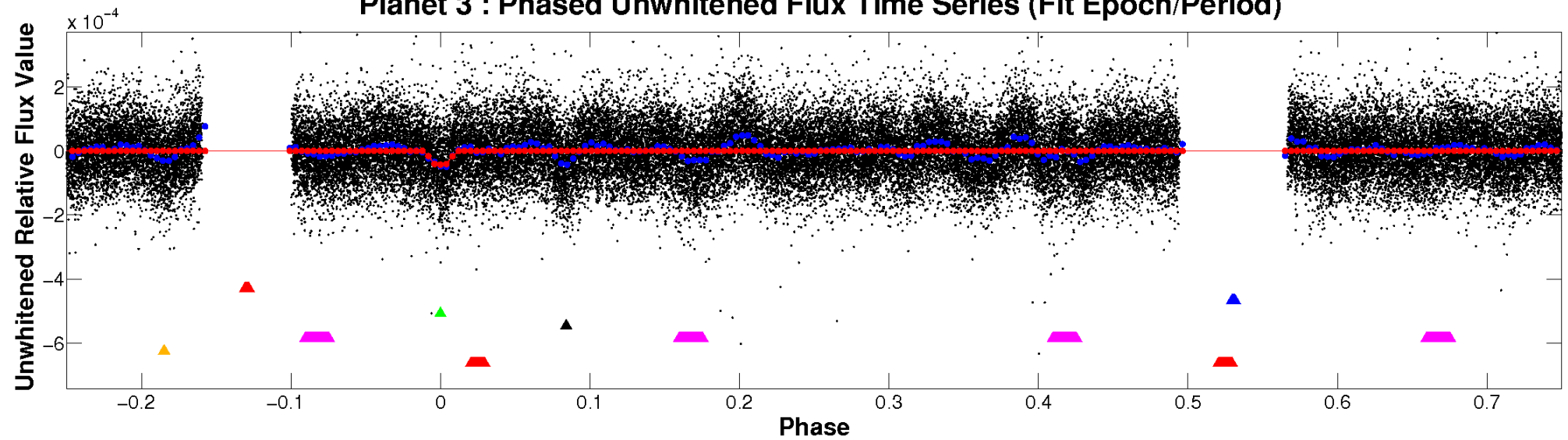
ALT Odd/Even

TCE 007988994-03

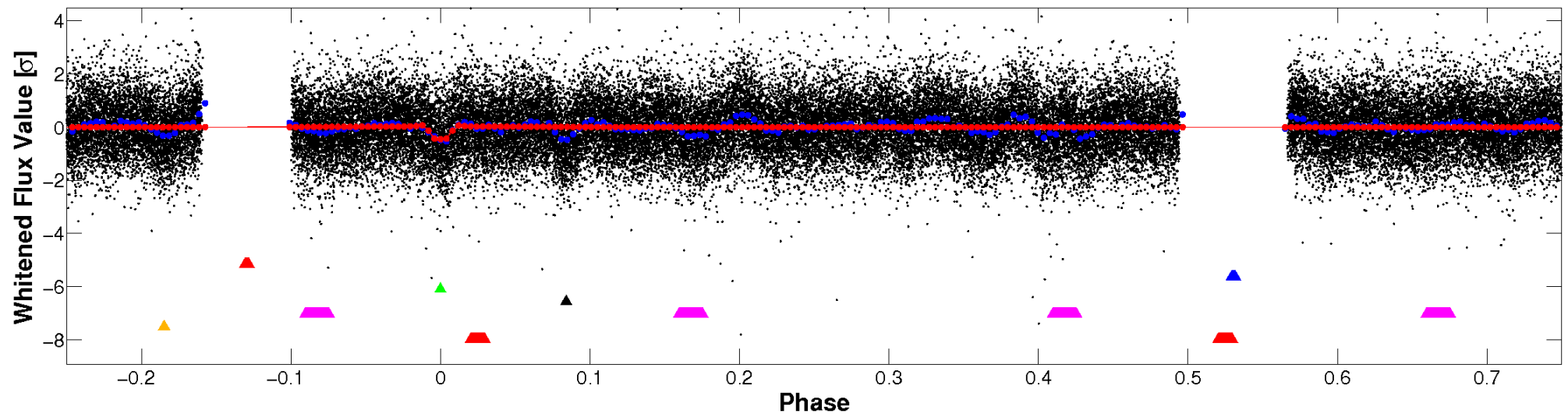


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

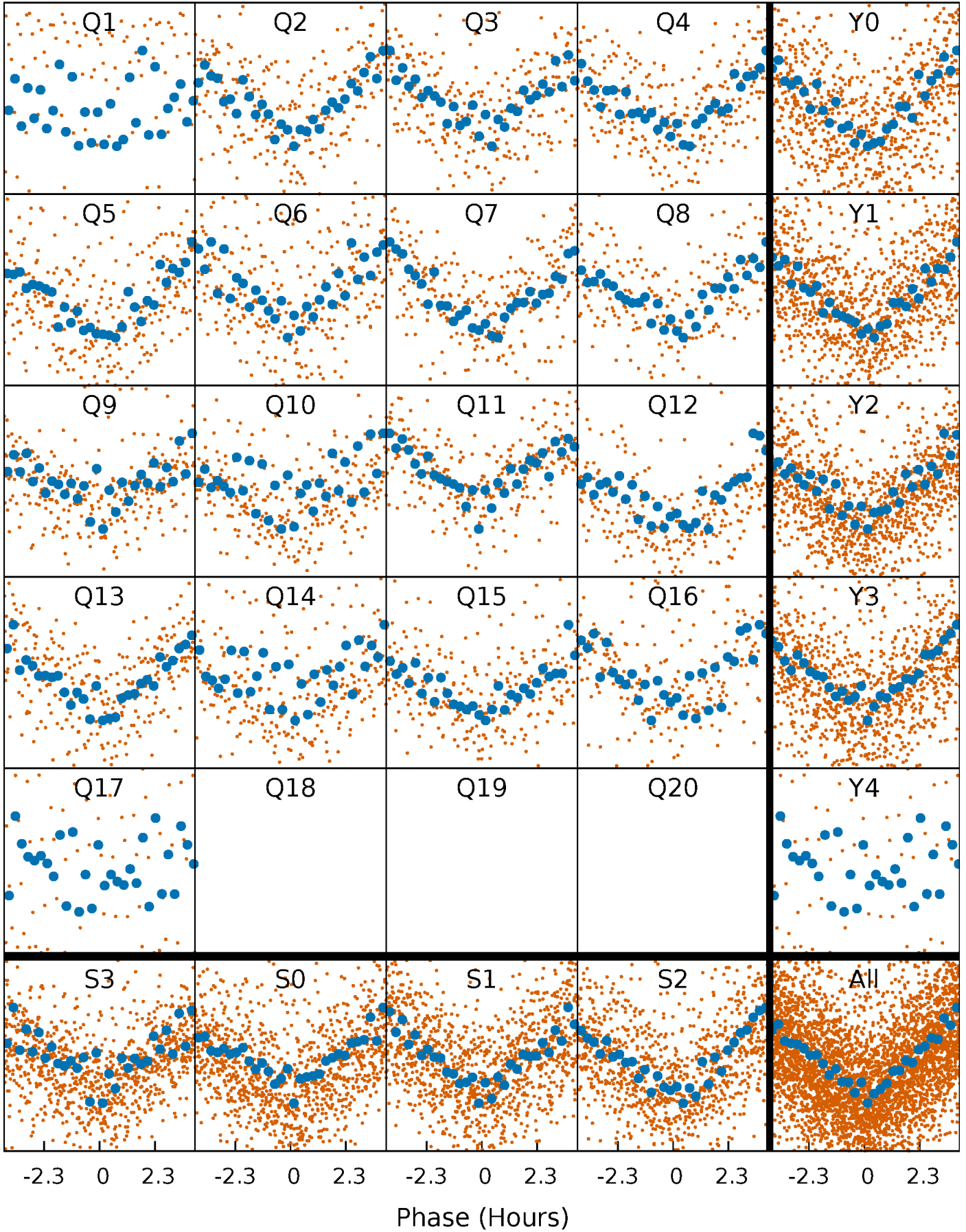


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



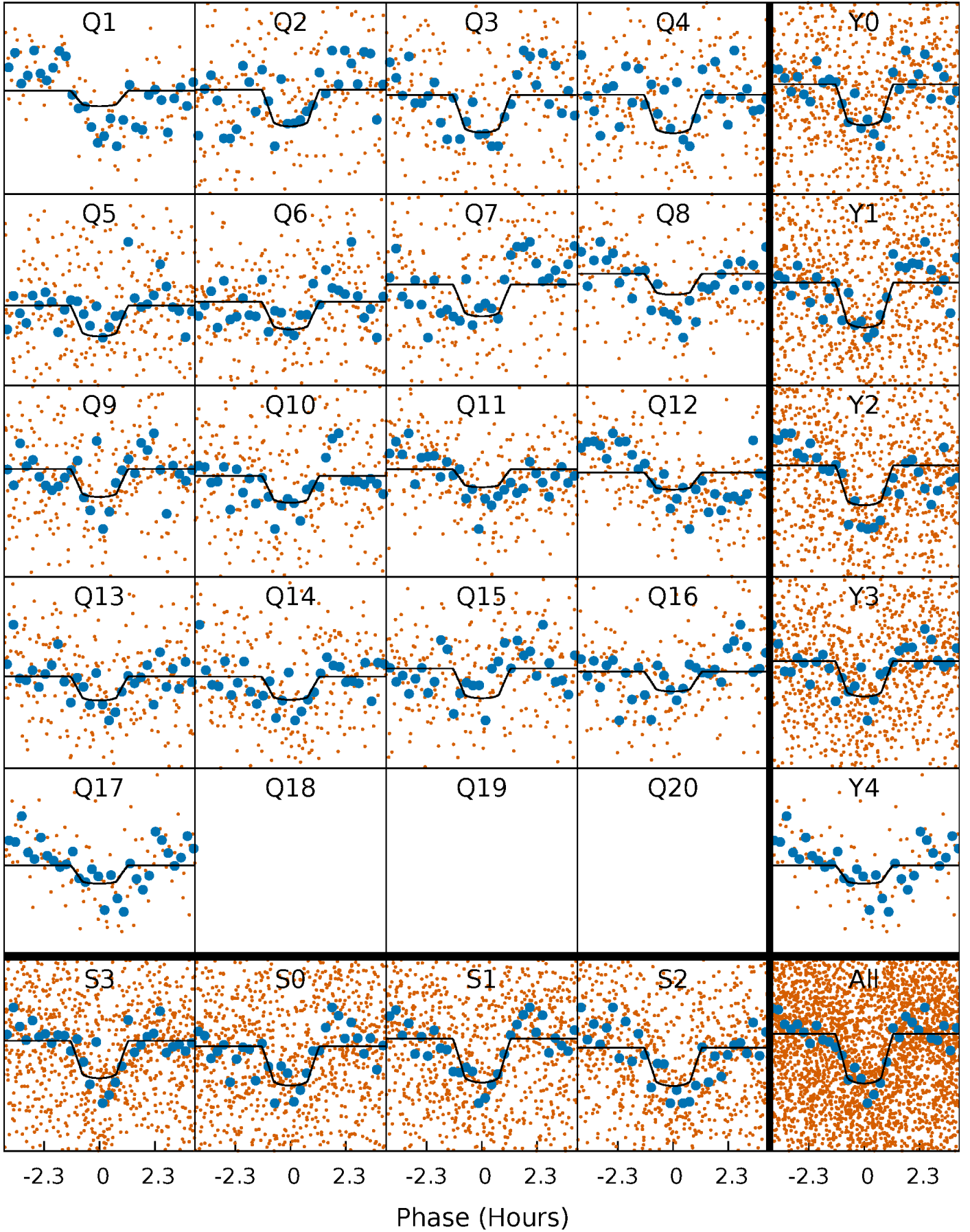
PDC Quarter-Phased Transit Curves

TCE 007988994-03 P= 5.062900 Days $T_0=132.332088$ (BKJD)



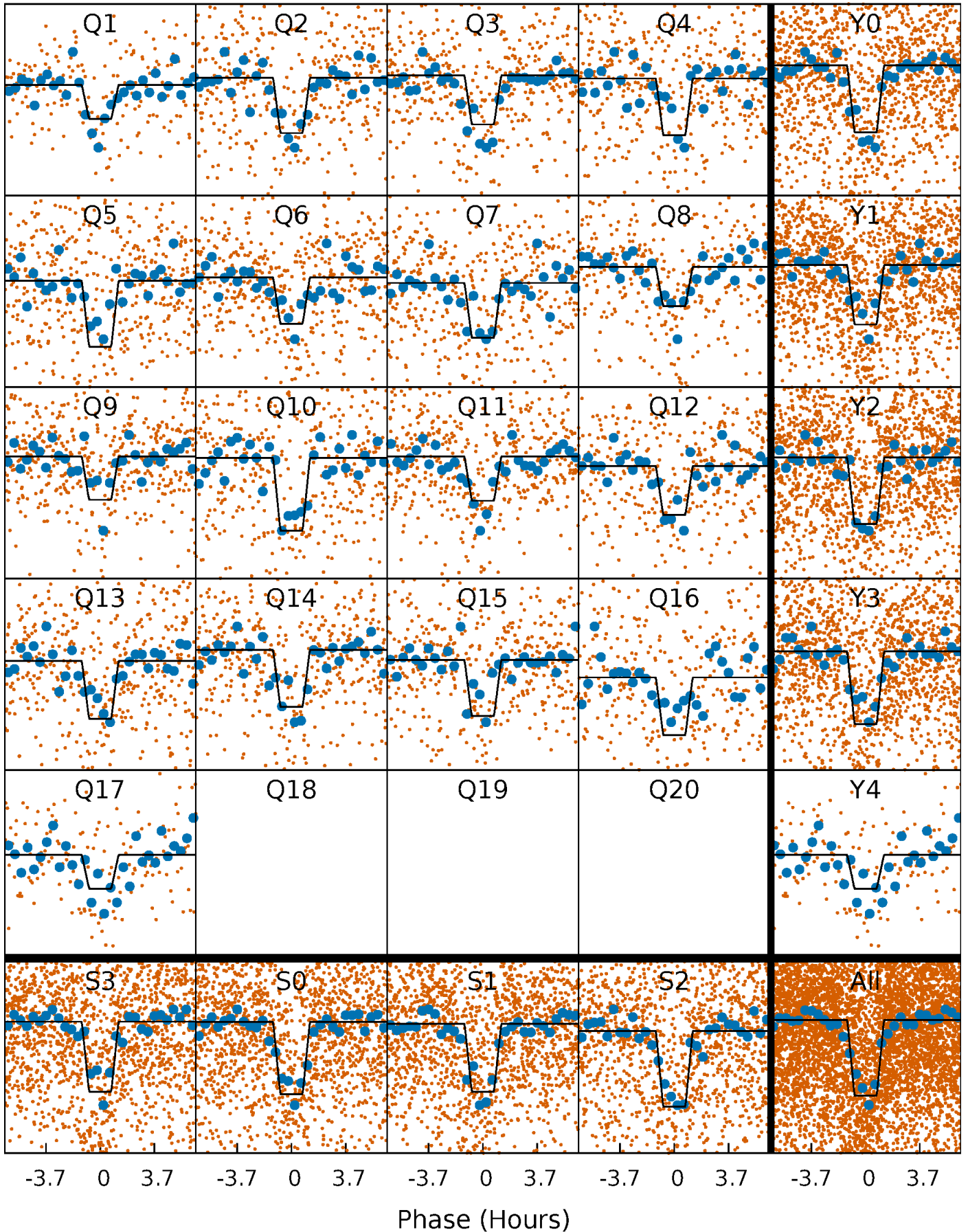
DV Quarter-Phased Transit Curves

TCE 007988994-03 $P = 5.062900$ Days $T_0 = 132.332088$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

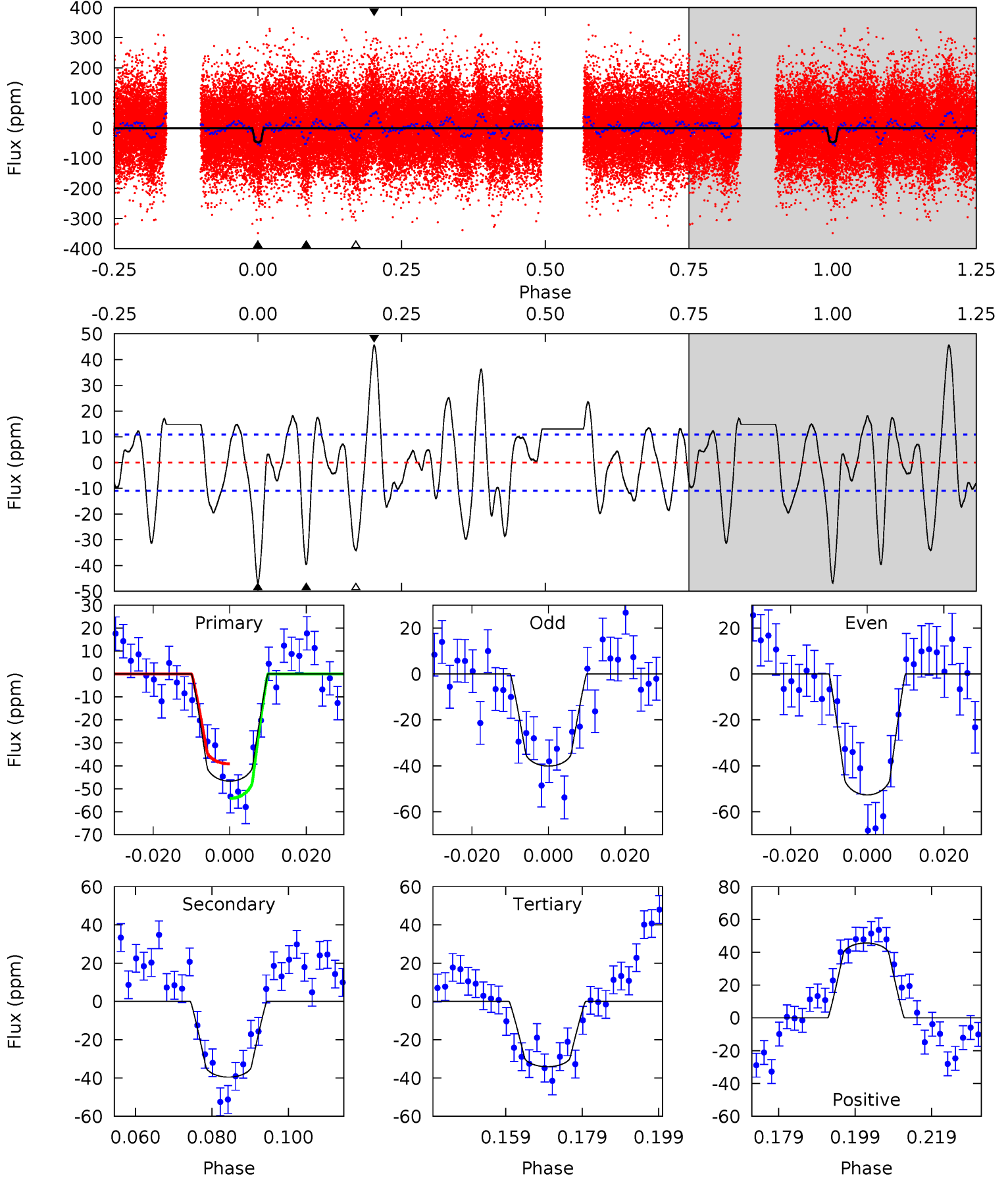
TCE 007988994-03 P= 5.062857 Days $T_0=132.340744$ (BKJD)



DV Model-Shift Uniqueness Test

007988994-03, P = 5.062900 Days, E = 127.269188 Days

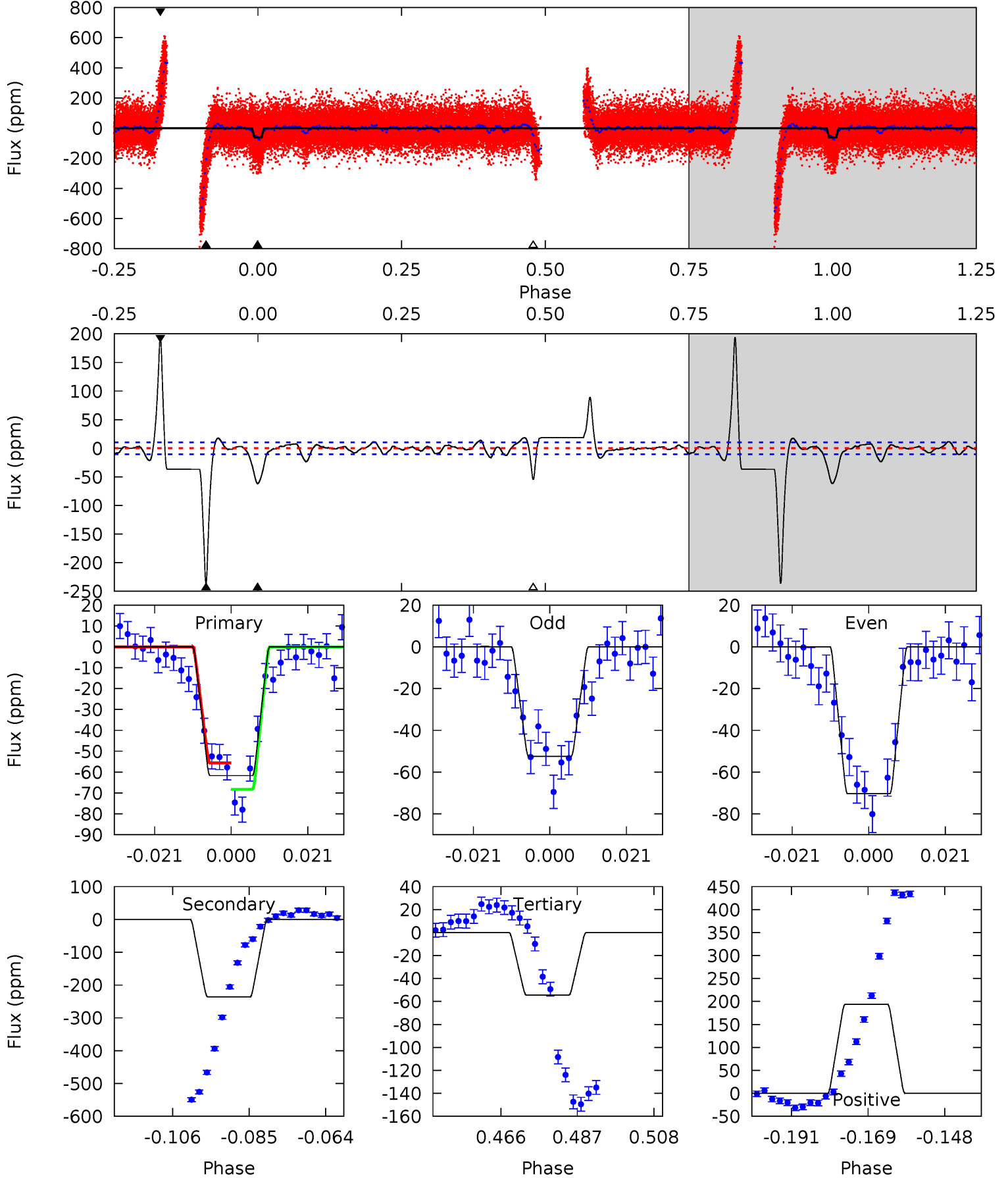
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.9	17.7	15.3	20.5	4.89	2.33	6.40	5.65	0.47	2.44	-2.73	2.82	1.04	0.49	3.38



Alt Model-Shift Uniqueness Test

007988994-03, P = 5.062857 Days, E = 127.277887 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.1	111.2	25.7	91.3	4.88	2.30	9.96	3.39	-62.2	85.5	19.9	4.19	1.00	0.45	2.92



Stellar Parameters For KIC 007988994

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8959^{+251}_{-430}	$3.999^{+0.228}_{-0.171}$	$0.070^{+0.150}_{-0.650}$	$2.481^{+0.774}_{-0.774}$	$2.240^{+0.349}_{-0.648}$	$0.207^{+0.276}_{-0.105}$
	+3%/-5%	+6%/-4%	+214%/-929%	+31%/-31%	+16%/-29%	+134%/-51%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007988994-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-40 ± 2	$1.83^{+0.55}_{-0.49}$	3128^{+258}_{-258}	8299^{+1709}_{-1005}	36^{+30}_{-14}
Alt.	-236 ± 2	$2.14^{+0.60}_{-0.51}$	3122^{+268}_{-262}	14603^{+3741}_{-2174}	159^{+108}_{-60}

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

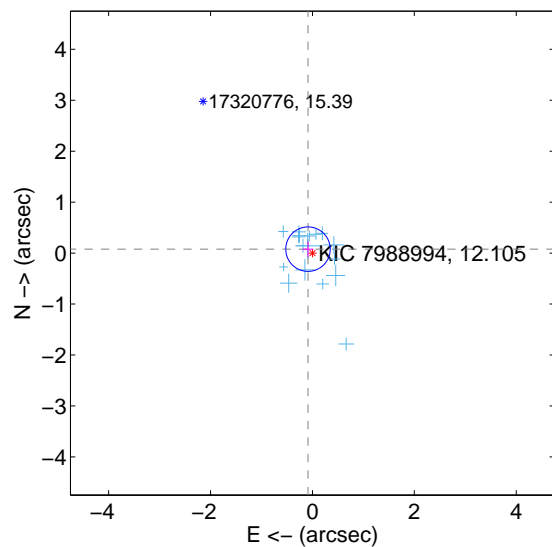
Supplemental centroid analysis for 007988994-03. Kepler magnitude: 12.11. Transit SNR 12.91

There are 17 quarters with good PRF difference image offsets

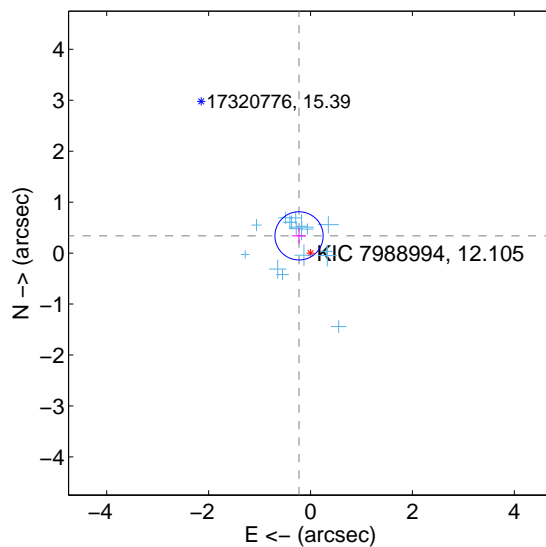
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.117 ± 0.145	0.80	0.087 ± 0.107	0.077 ± 0.151
PRF-fit source offset from KIC position	0.407 ± 0.158	2.58	0.225 ± 0.137	0.338 ± 0.148
photometric centroid source offset	0.90 ± 1.02	0.89	0.50 ± 1.12	-0.75 ± 0.97

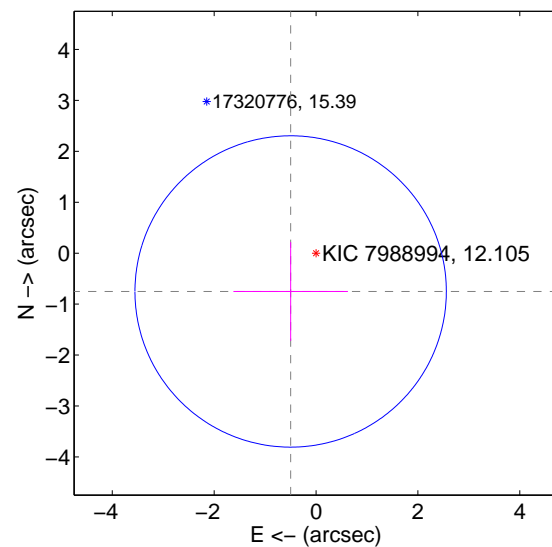
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

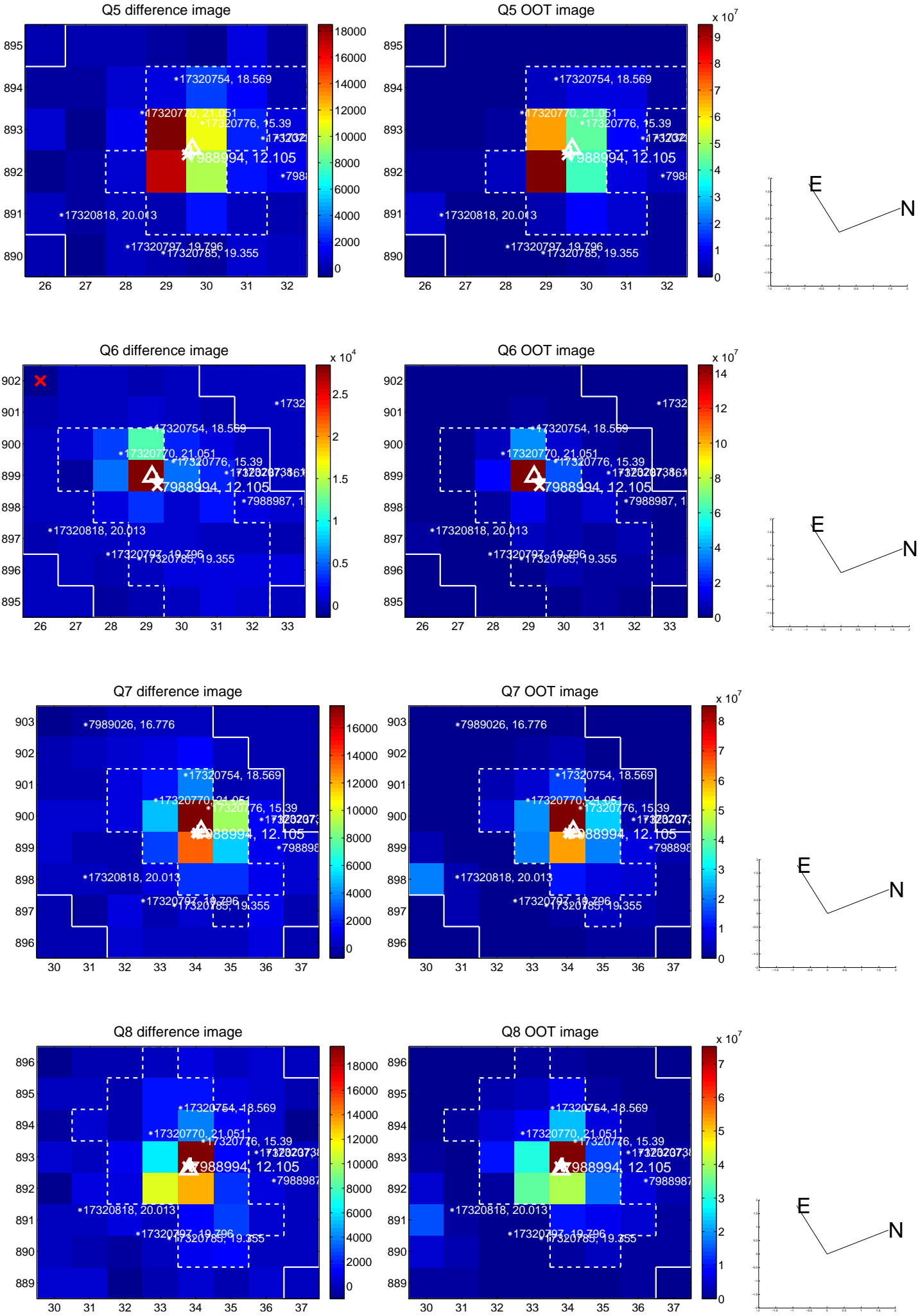


offset from photometric centroids

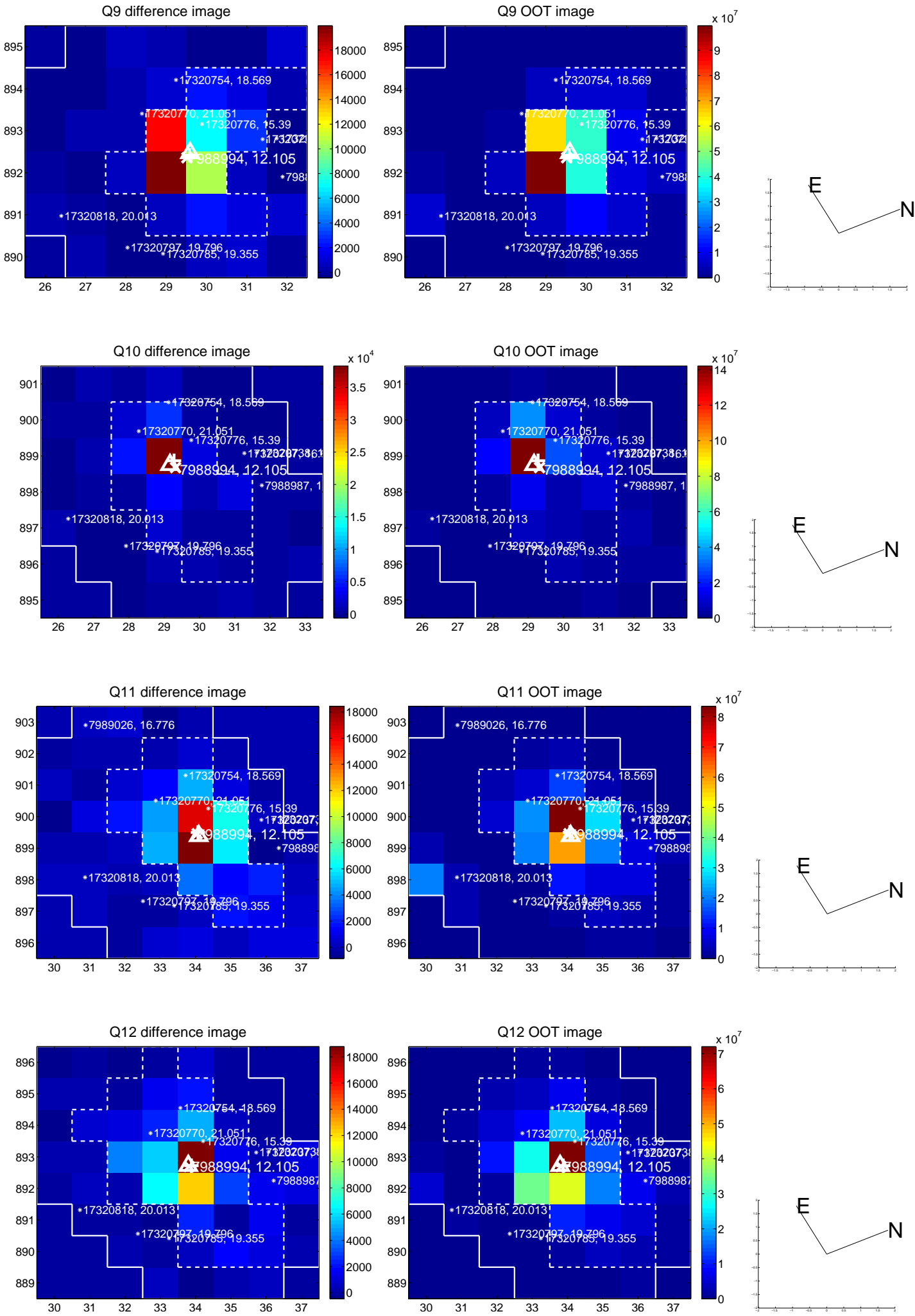


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

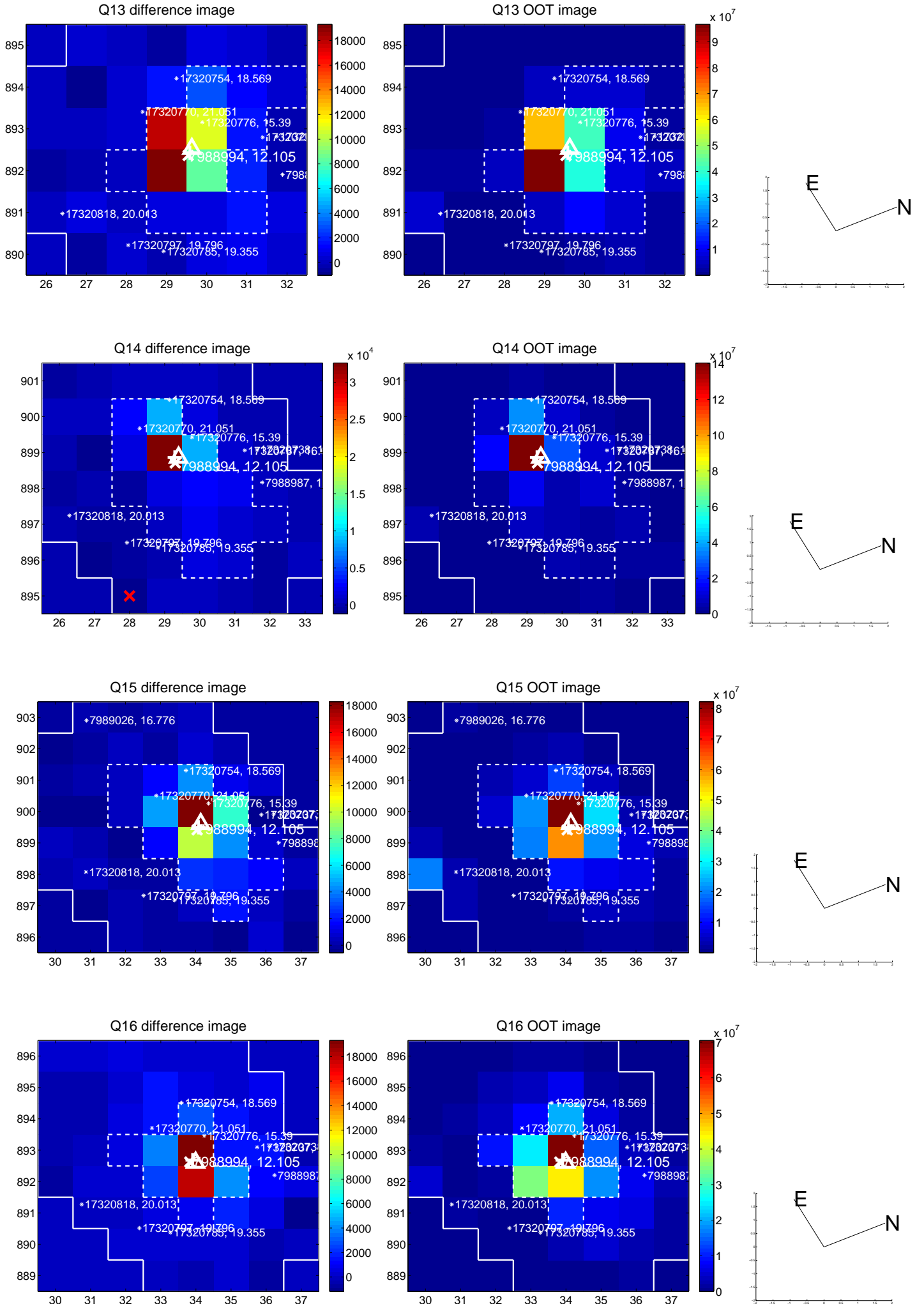
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



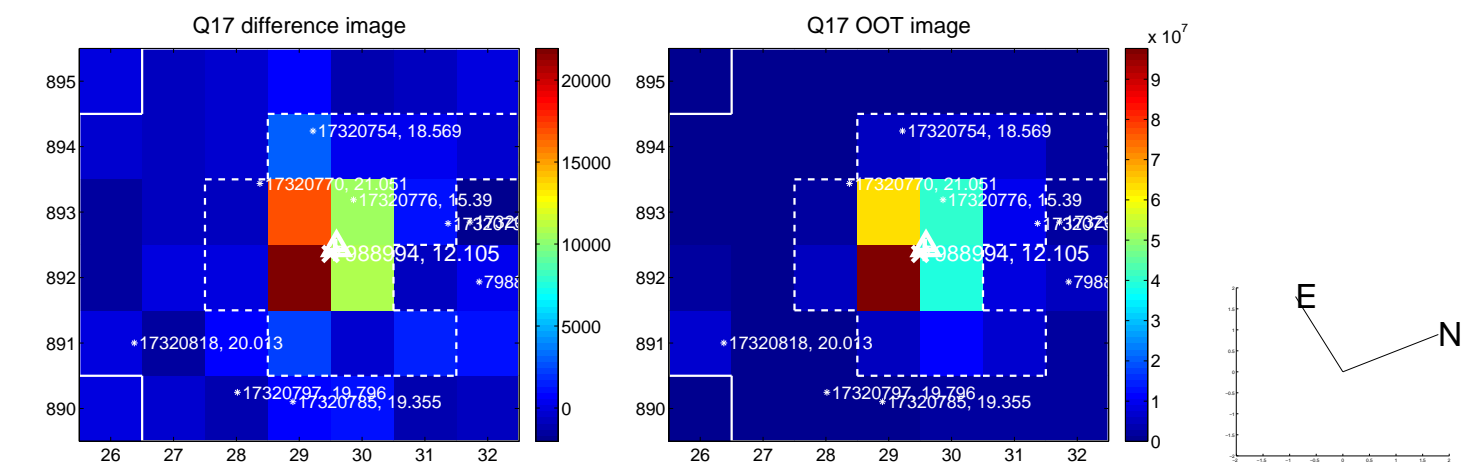
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



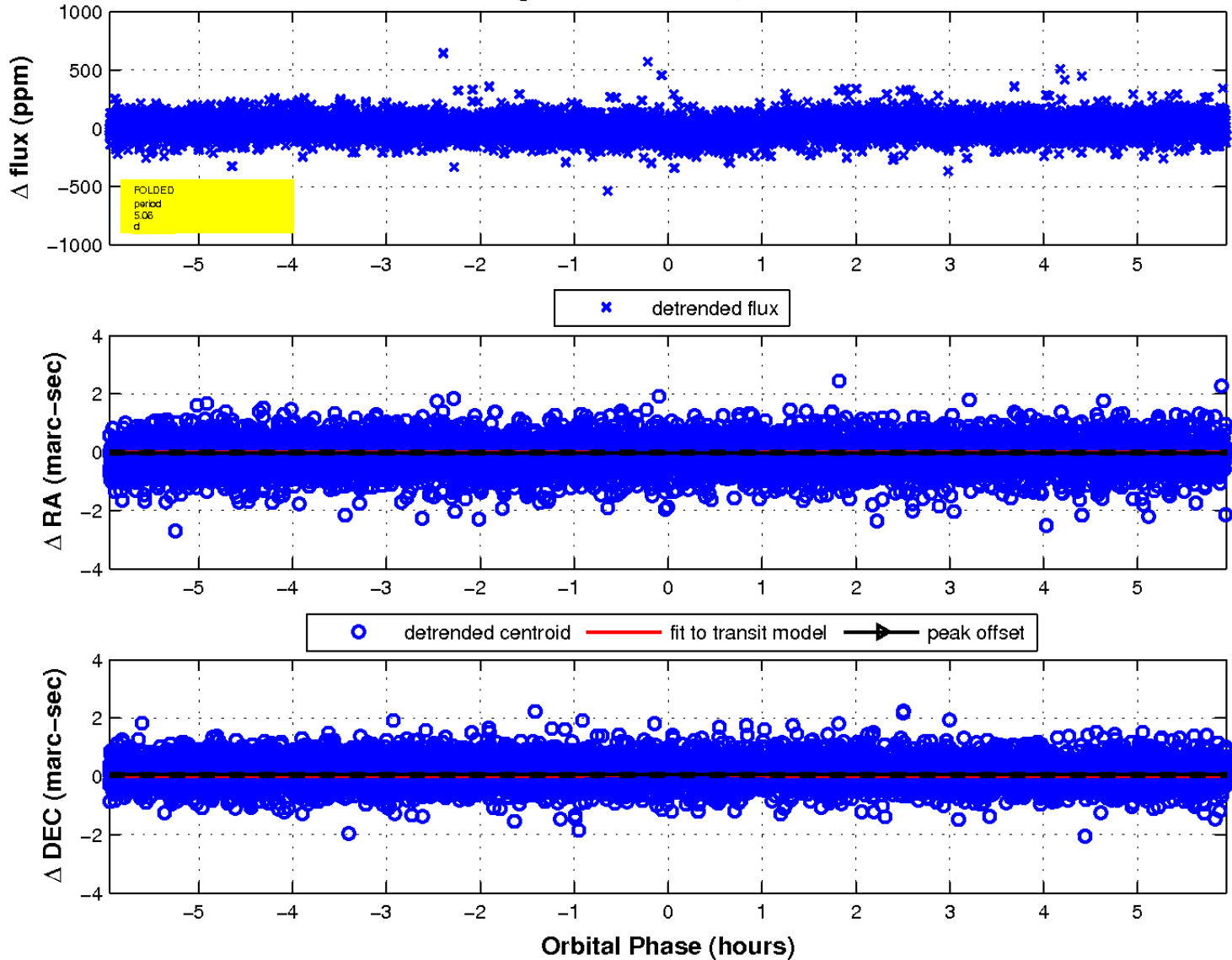
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

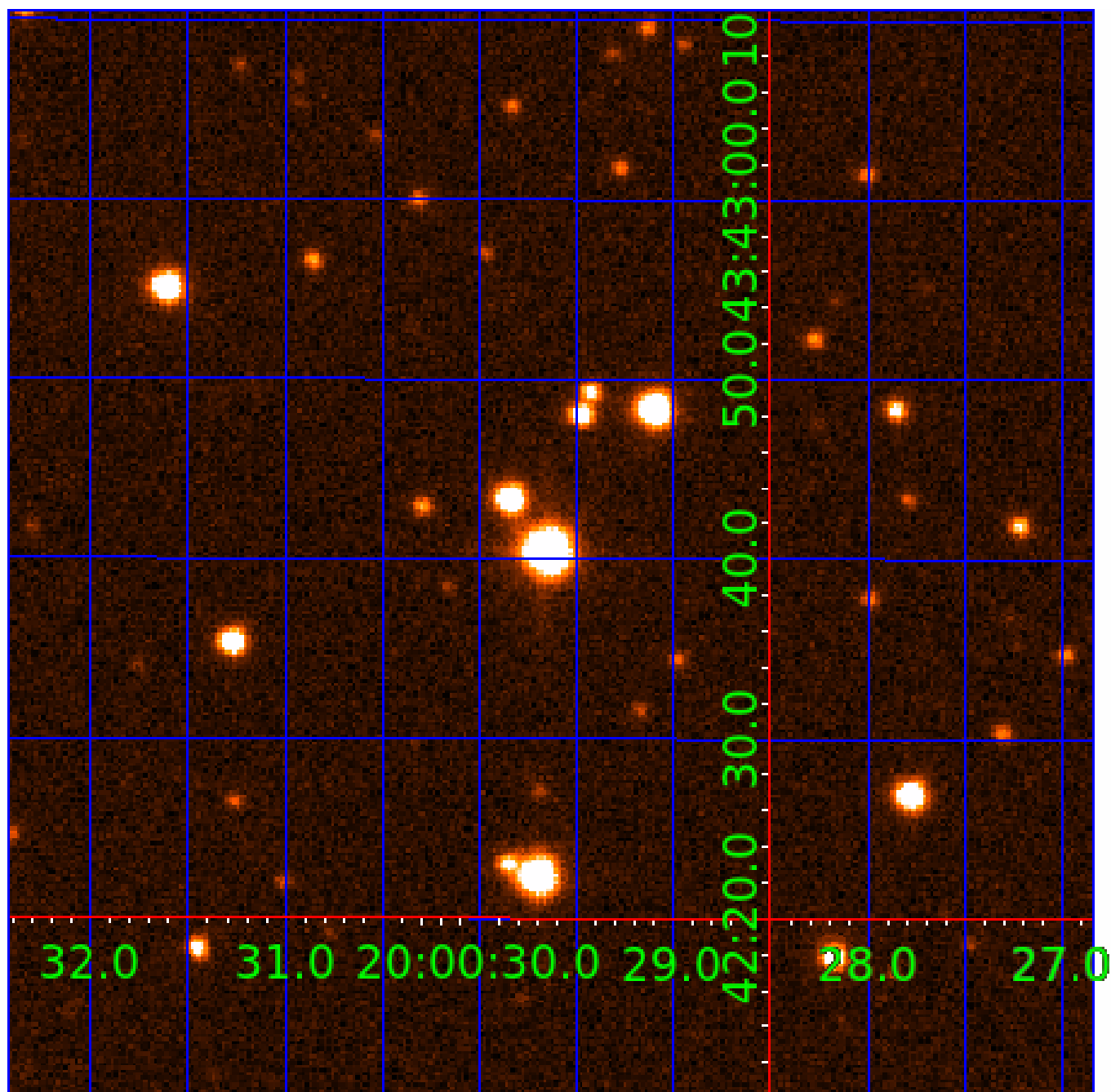


fluxWeightedCentroids, Planet 3 of 7



UKIRT Image

Declination



KIC 007988994

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})
007988994-01	OBS	No	5.062942	131.670647	67.7	2.302	19.3	21.0	2.48	8959	2.38	6229.88
007988994-02	OBS	No	5.062861	135.023334	59.9	2.806	15.0	17.0	2.48	8959	2.62	6230.01
007988994-03	OBS	No	5.062900	132.332088	42.8	1.983	11.2	12.9	2.48	8959	1.88	6229.95
007988994-04	OBS	No	5.062899	132.758291	46.8	1.942	11.2	14.3	2.48	8959	1.80	6229.95
007988994-05	OBS	No	1.265656	131.954276	14.3	4.441	11.0	11.7	2.48	8959	1.06	39560.61
007988994-06	OBS	No	5.062902	136.458912	179.7	2.500	11.1	-1.0	2.48	8959	3.39	6229.95
007988994-07	OBS	No	2.531530	132.435460	10.7	9.112	7.9	4.7	2.48	8959	0.94	15697.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007988994-01	OBS	FP	0.00	1	0	0	0	LPP_DV
007988994-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-05	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
007988994-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
007988994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

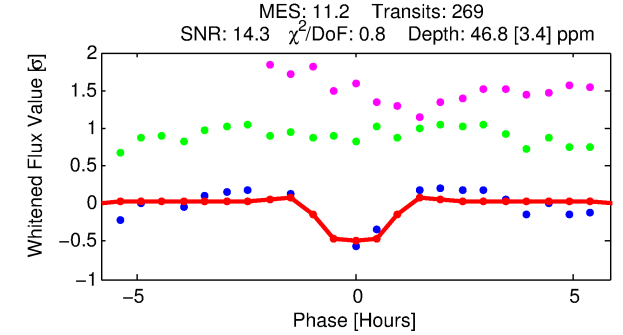
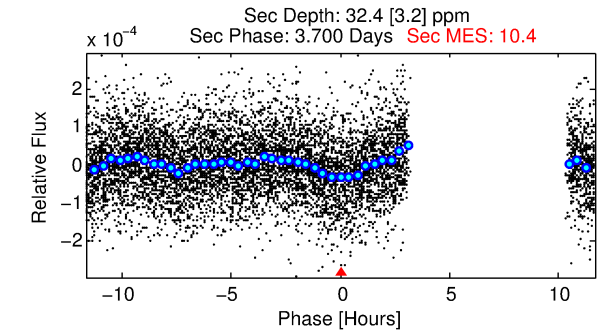
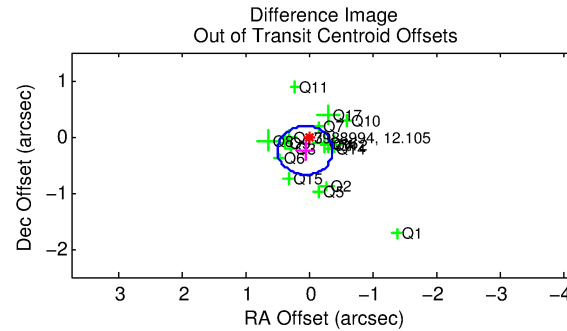
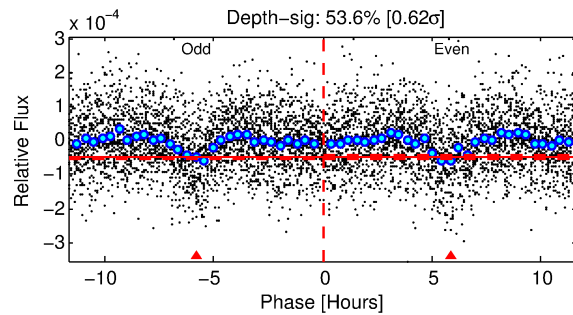
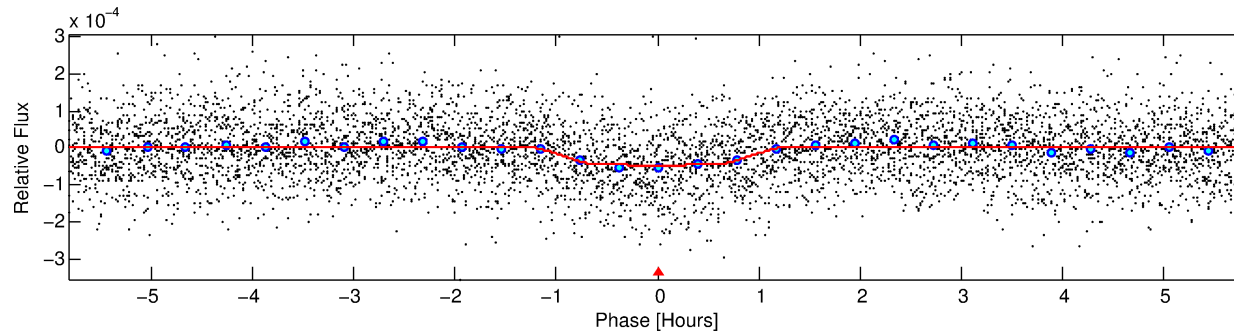
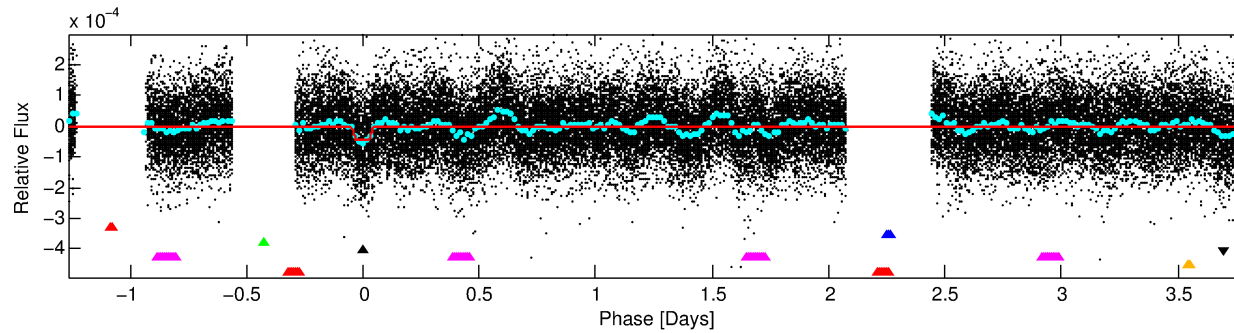
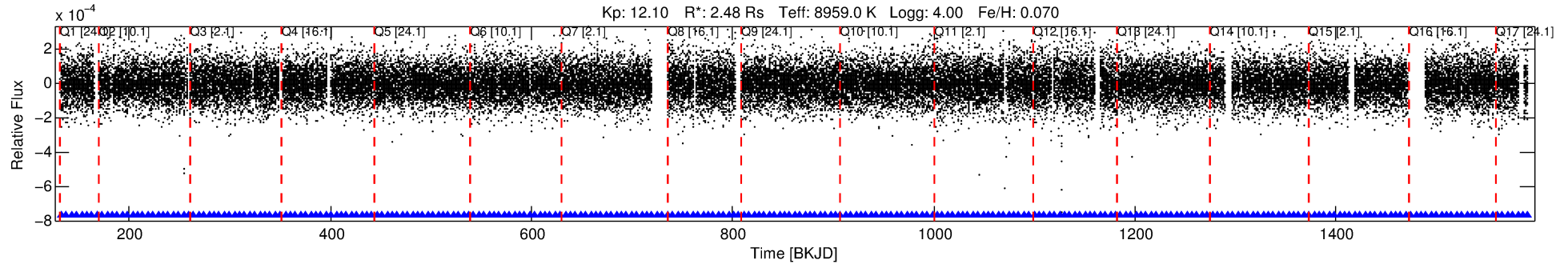
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007988994-04

No Significant Match Found

DV One-Page Summary

KIC: 7988994 Candidate: 4 of 7 Period: 5.063 d



DV Fit Results:

Period = 5.06290 [0.00002] d
Epoch = 132.7583 [0.0023] BKJD
Rp/R* = 0.0067 [0.0008]
a/R* = 15.47 [11.84]
b = 0.64 [0.71]
Seff = 6229.95 [2804.24]
Teq = 2265 [255] K
Rp = 1.80 [0.61] Re
a = 0.0755 [0.0205] AU
Ag = 31.24 [15.17] [1.99 σ]
Teffp = 8280 [677] K [8.31 σ]

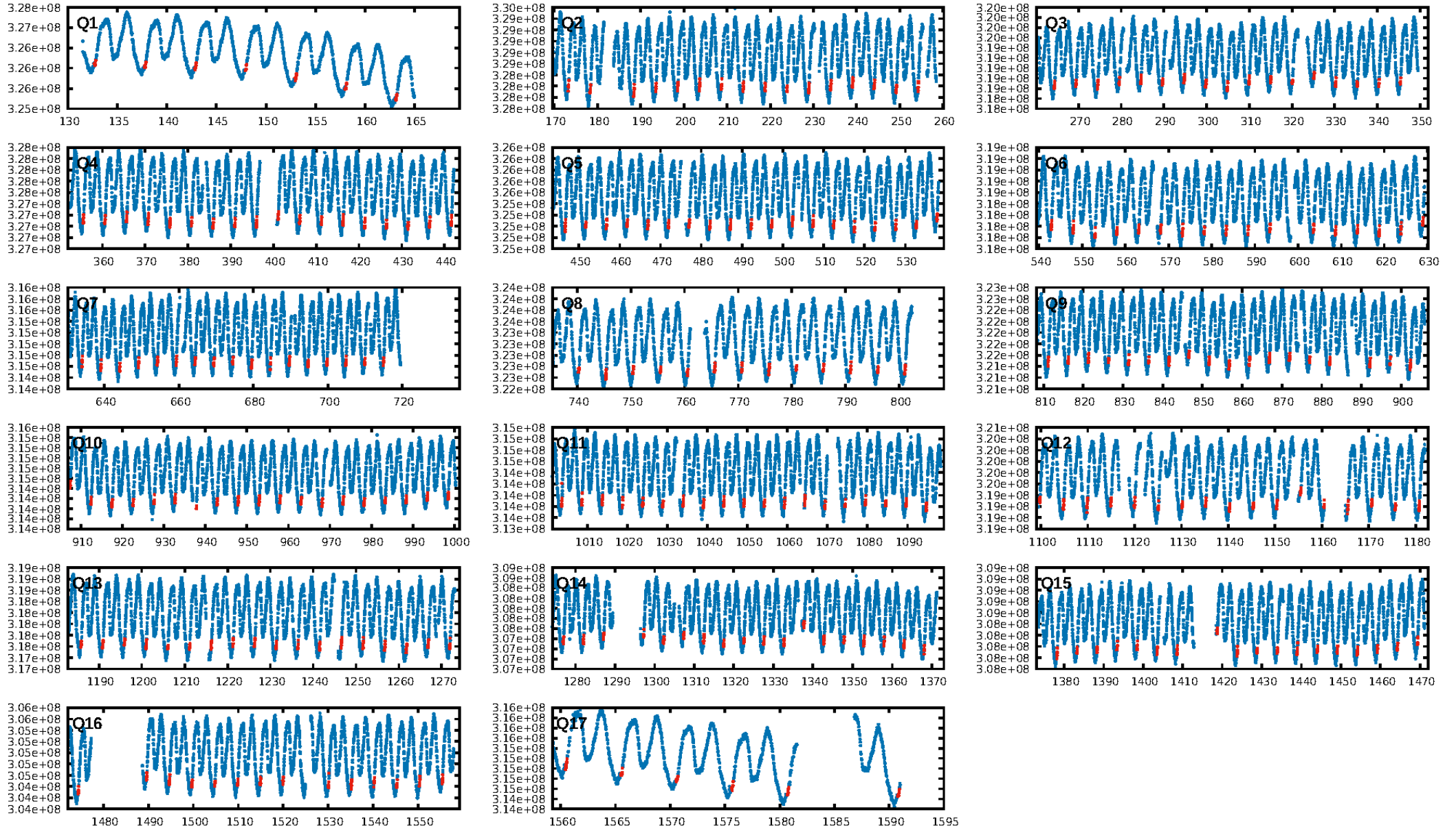
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [256/256]
GhostDiagnostic-chr: 1.28
Centroid-sig: 0.1%
Centroid-so: 1.722 arcsec [1.84 σ]
OotOffset-rm: 0.257 arcsec [1.77 σ]
KicOffset-rm: 0.227 arcsec [1.65 σ]
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]

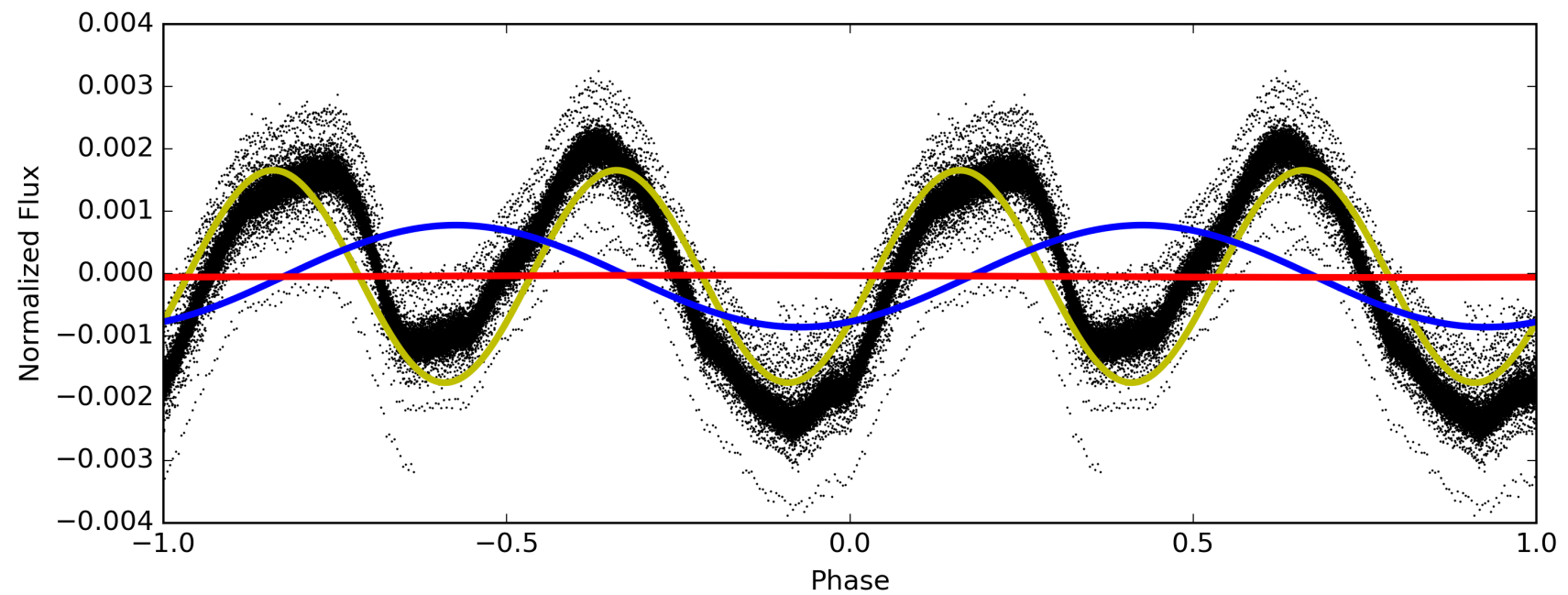
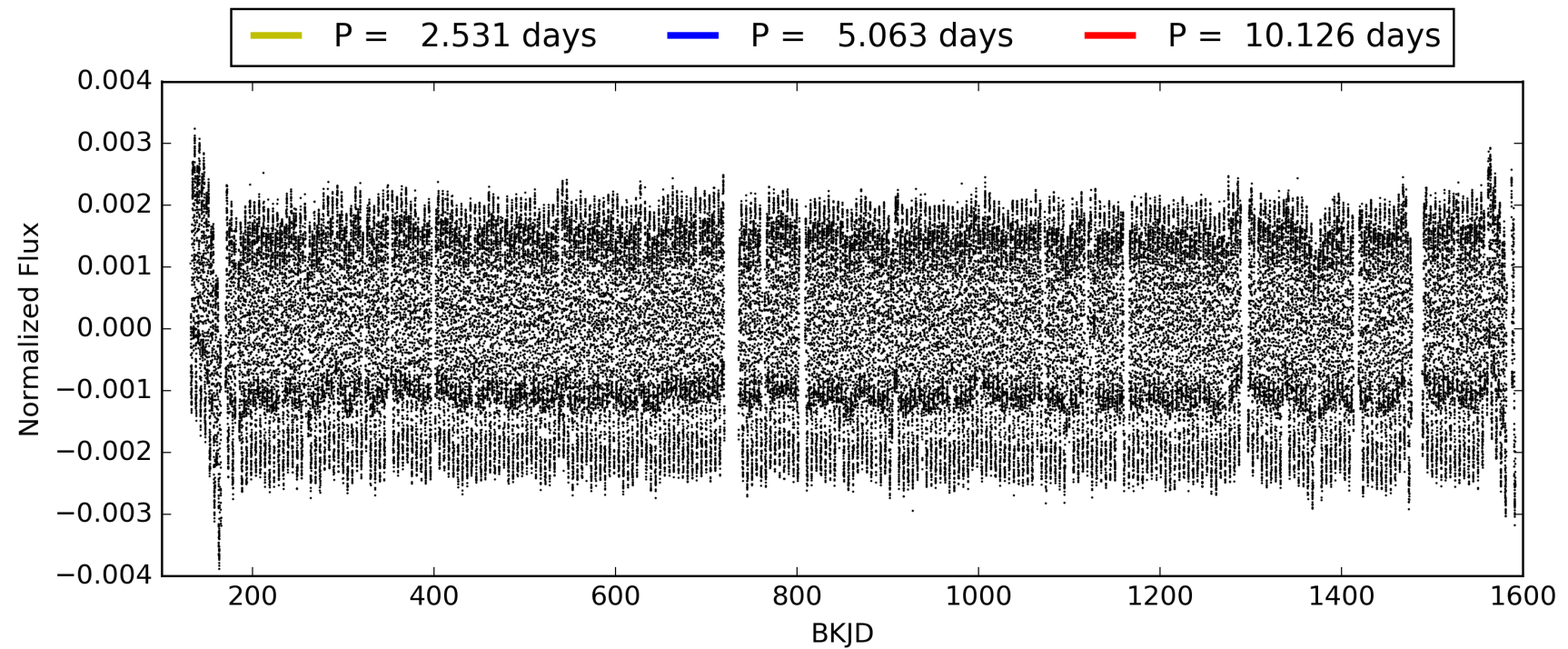
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:43:00 Z

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

TCE 007988994-04, PDC Light Curves

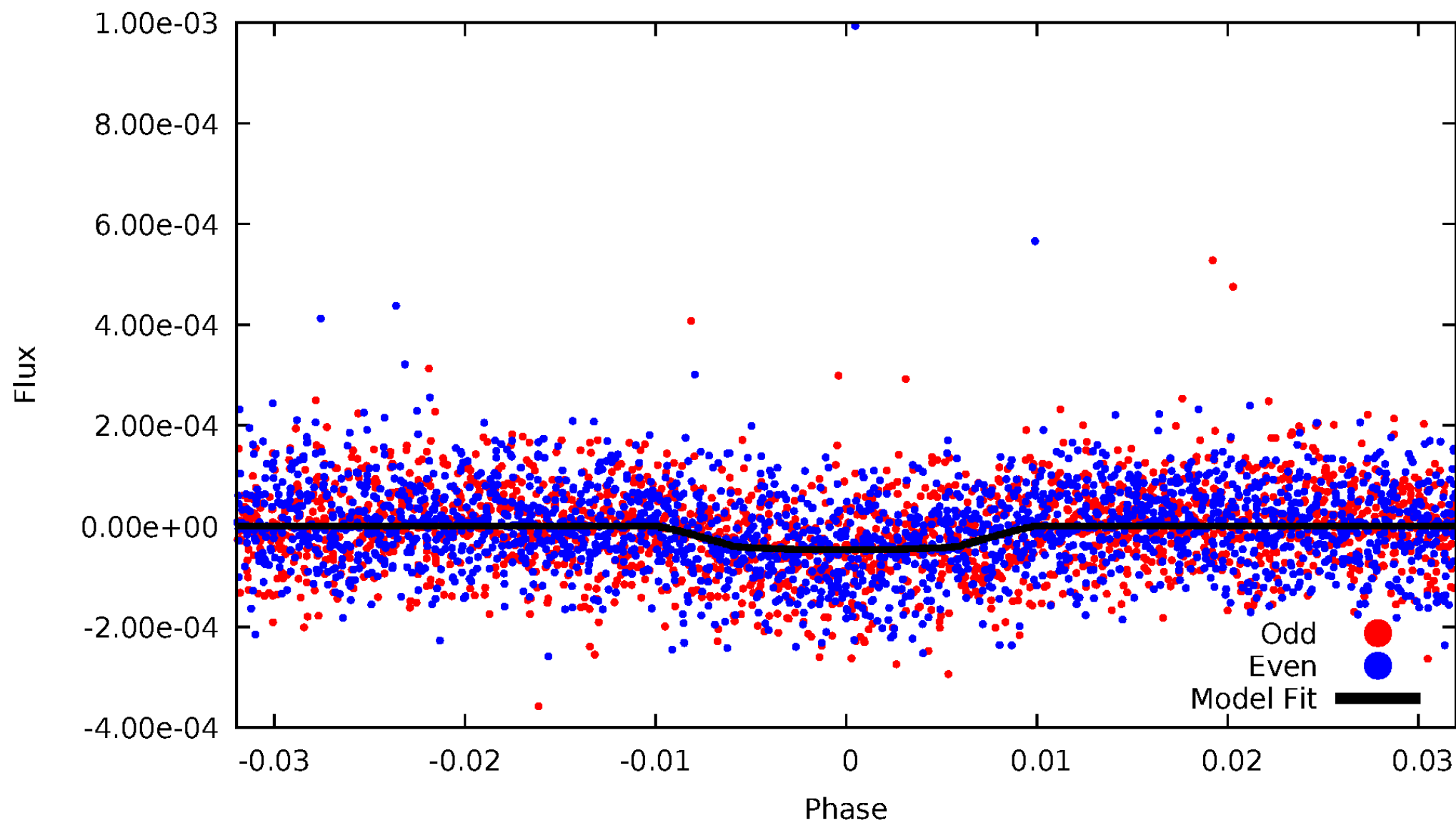


TCE 007988994-04



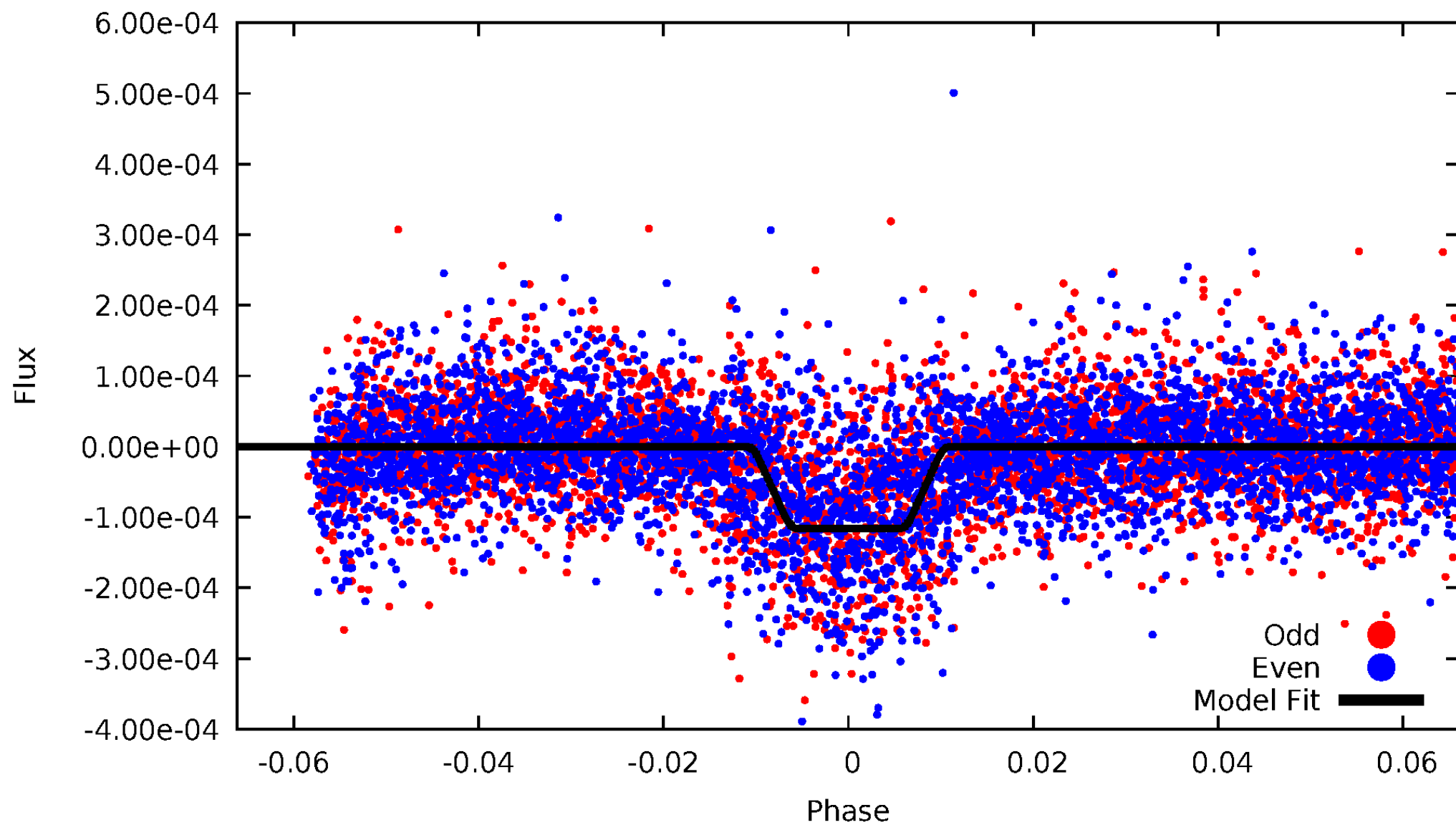
DV Odd/Even

TCE 007988994-04



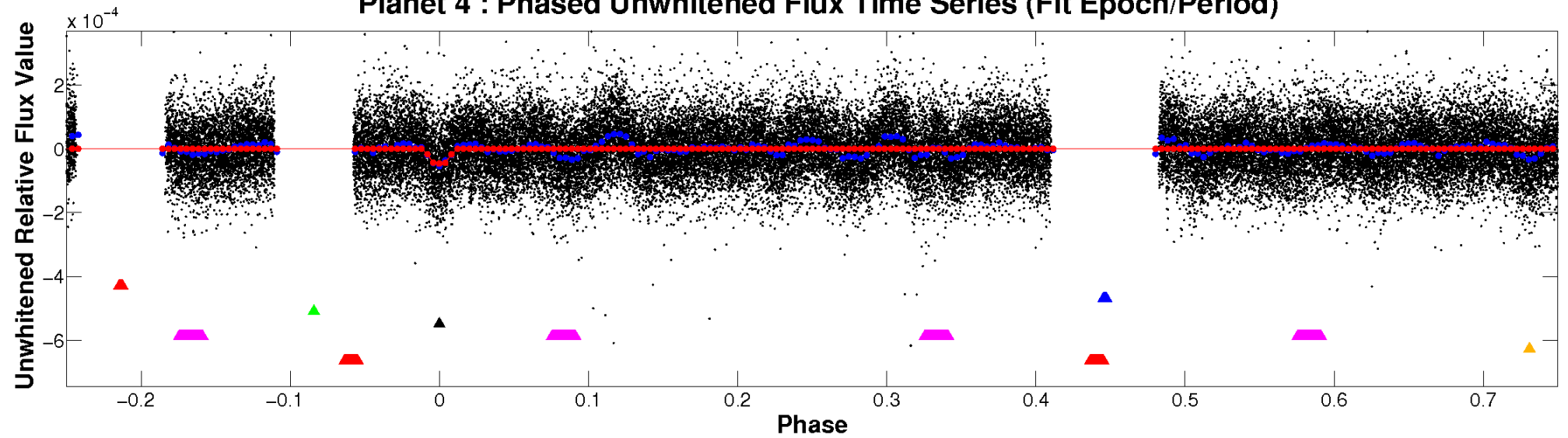
ALT Odd/Even

TCE 007988994-04

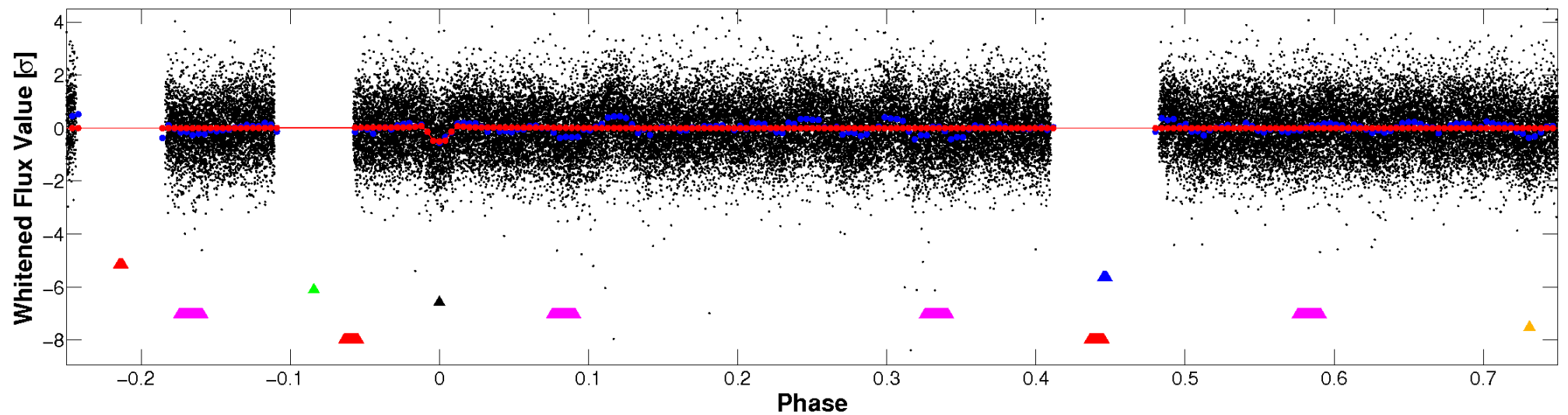


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

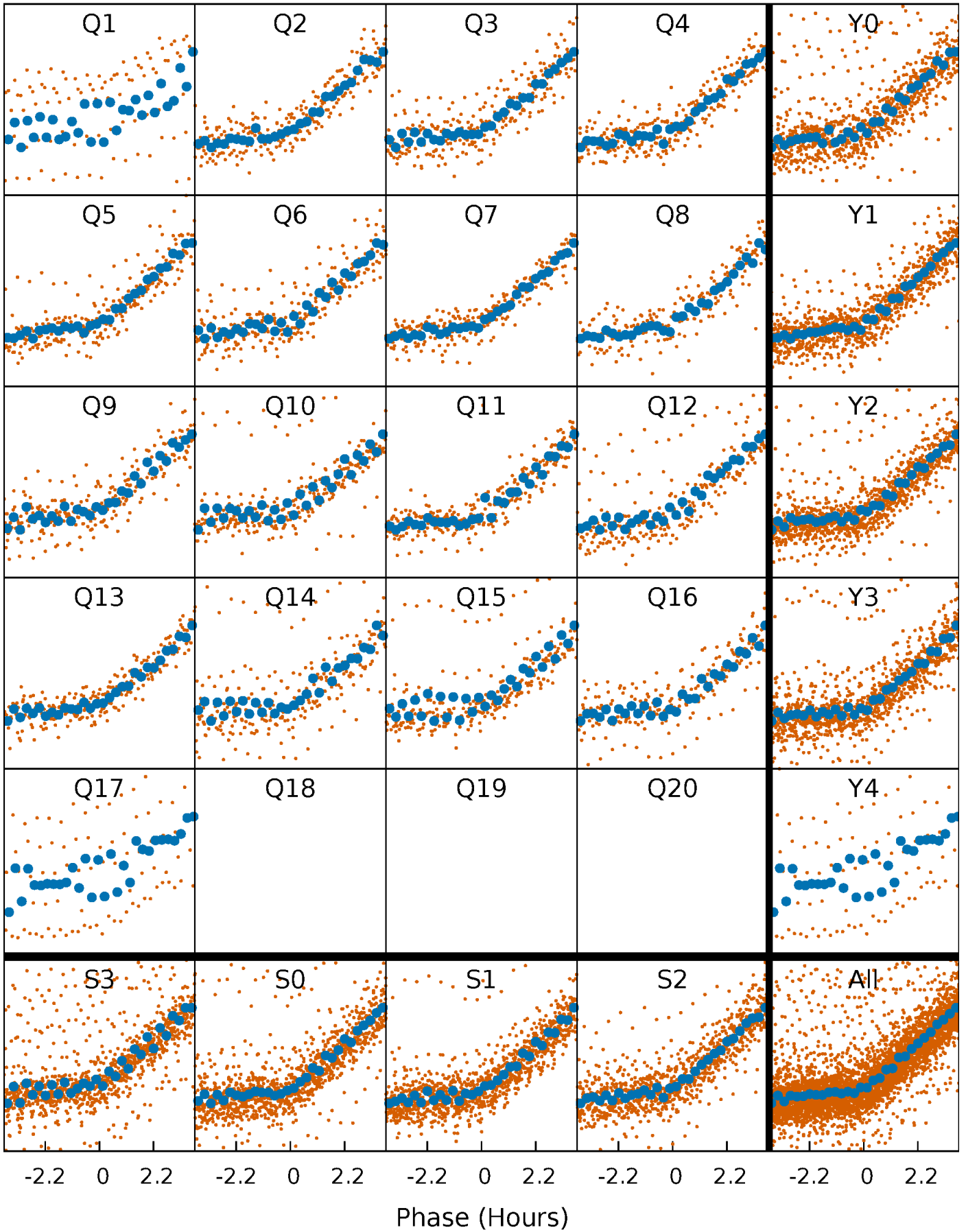


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



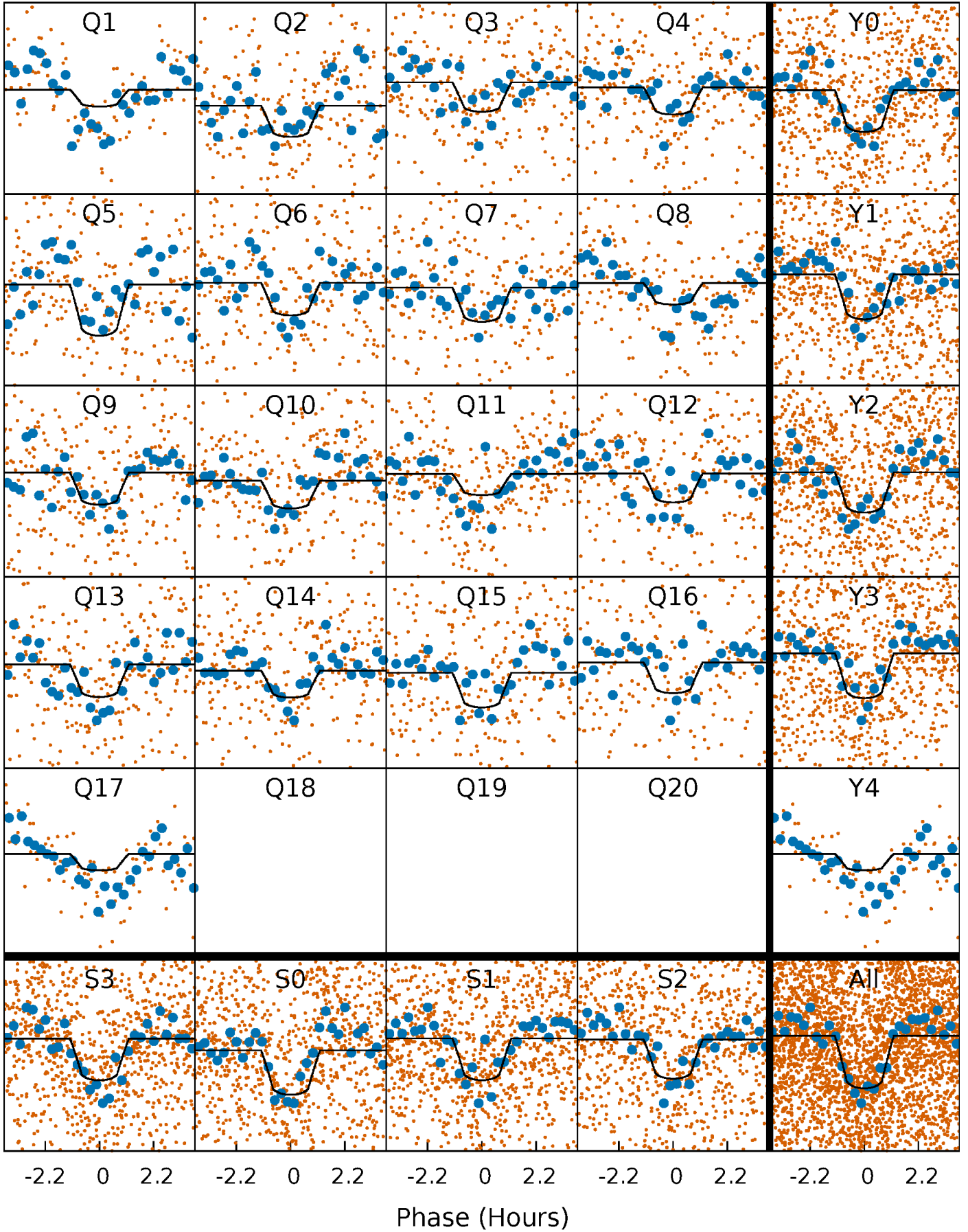
PDC Quarter-Phased Transit Curves

TCE 007988994-04 P= 5.062899 Days $T_0=132.758291$ (BKJD)



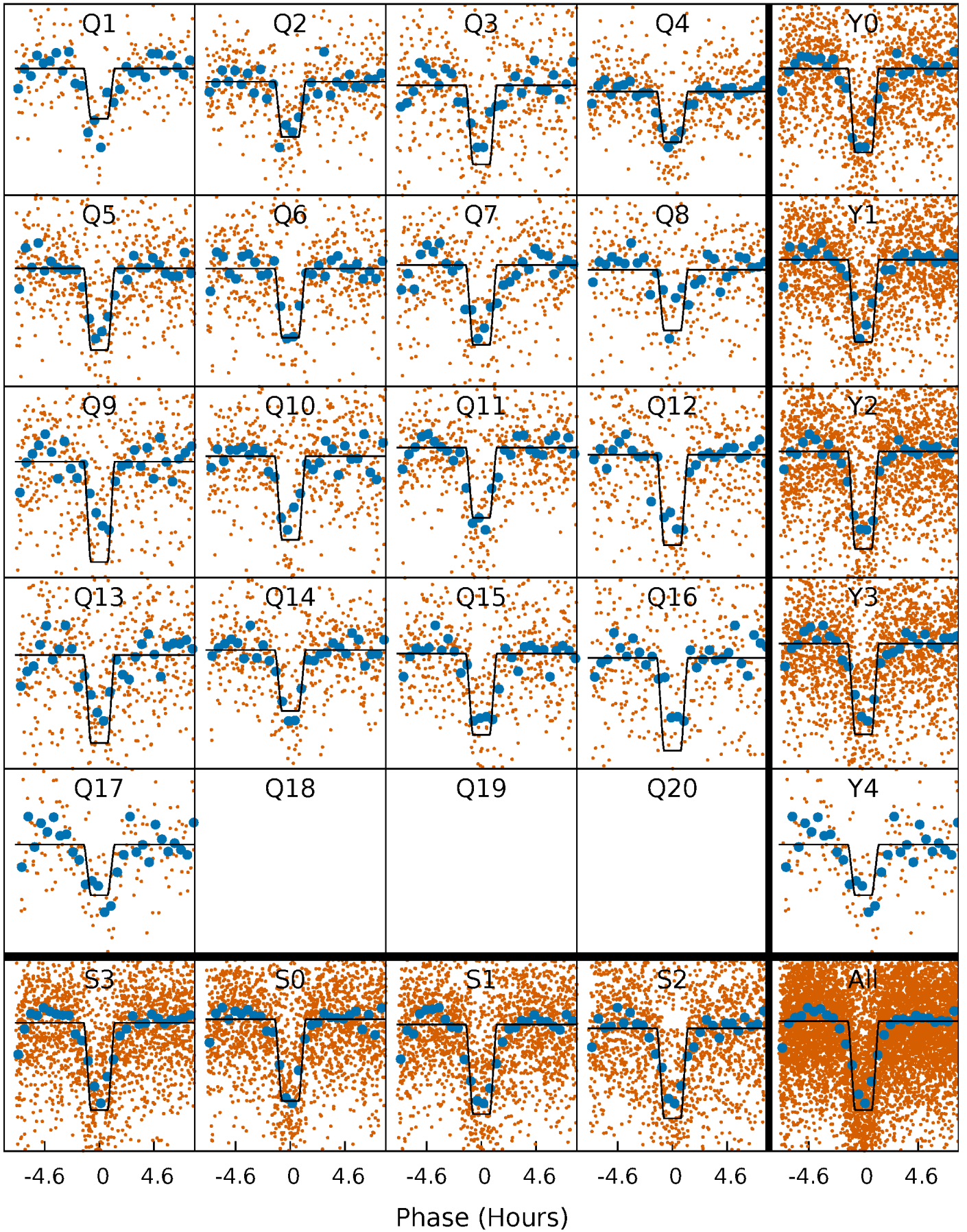
DV Quarter-Phased Transit Curves

TCE 007988994-04 P= 5.062899 Days $T_0=132.758291$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

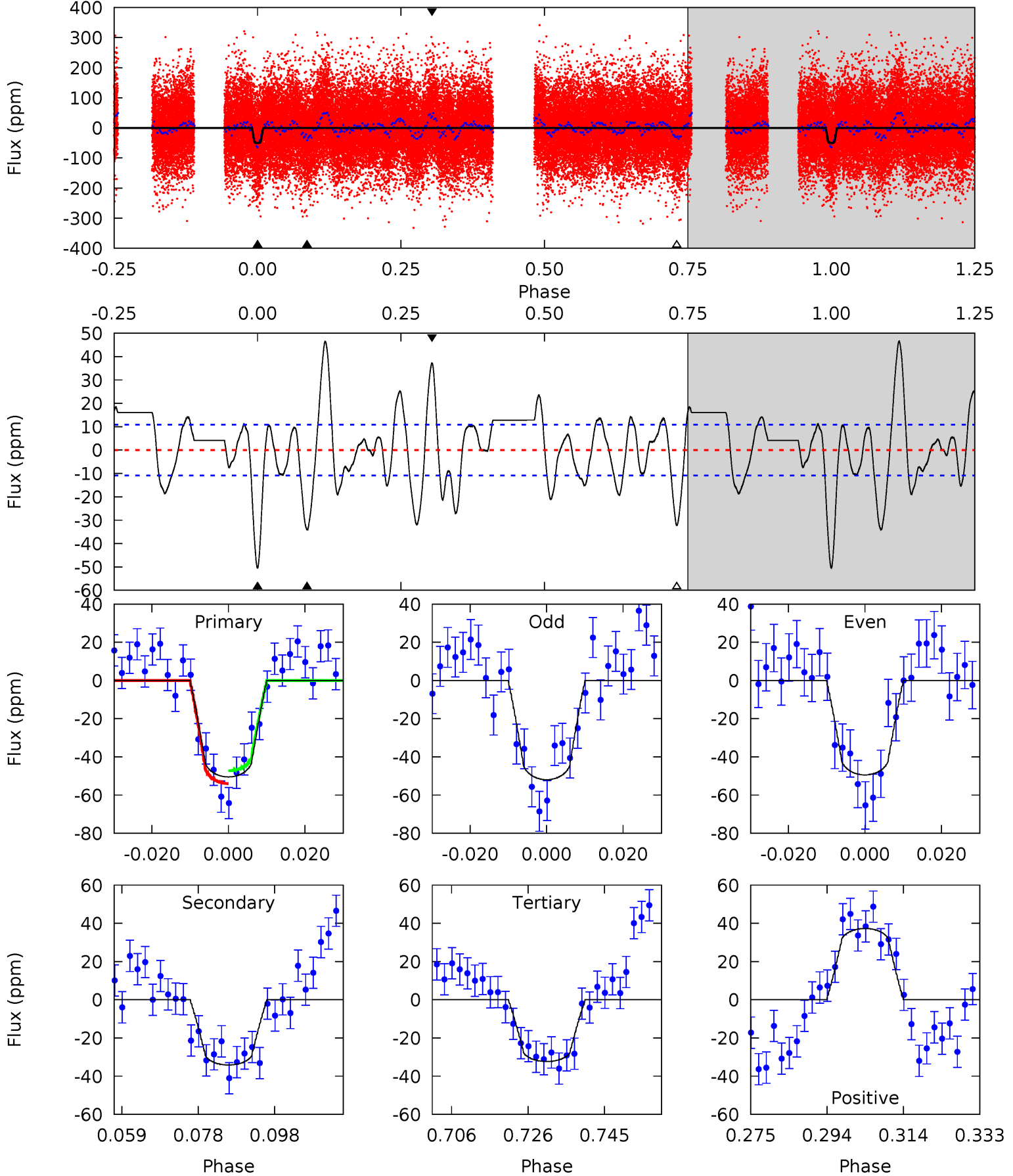
TCE 007988994-04 P= 5.062857 Days $T_0=132.762295$ (BKJD)



DV Model-Shift Uniqueness Test

007988994-04, P = 5.062899 Days, E = 127.695392 Days

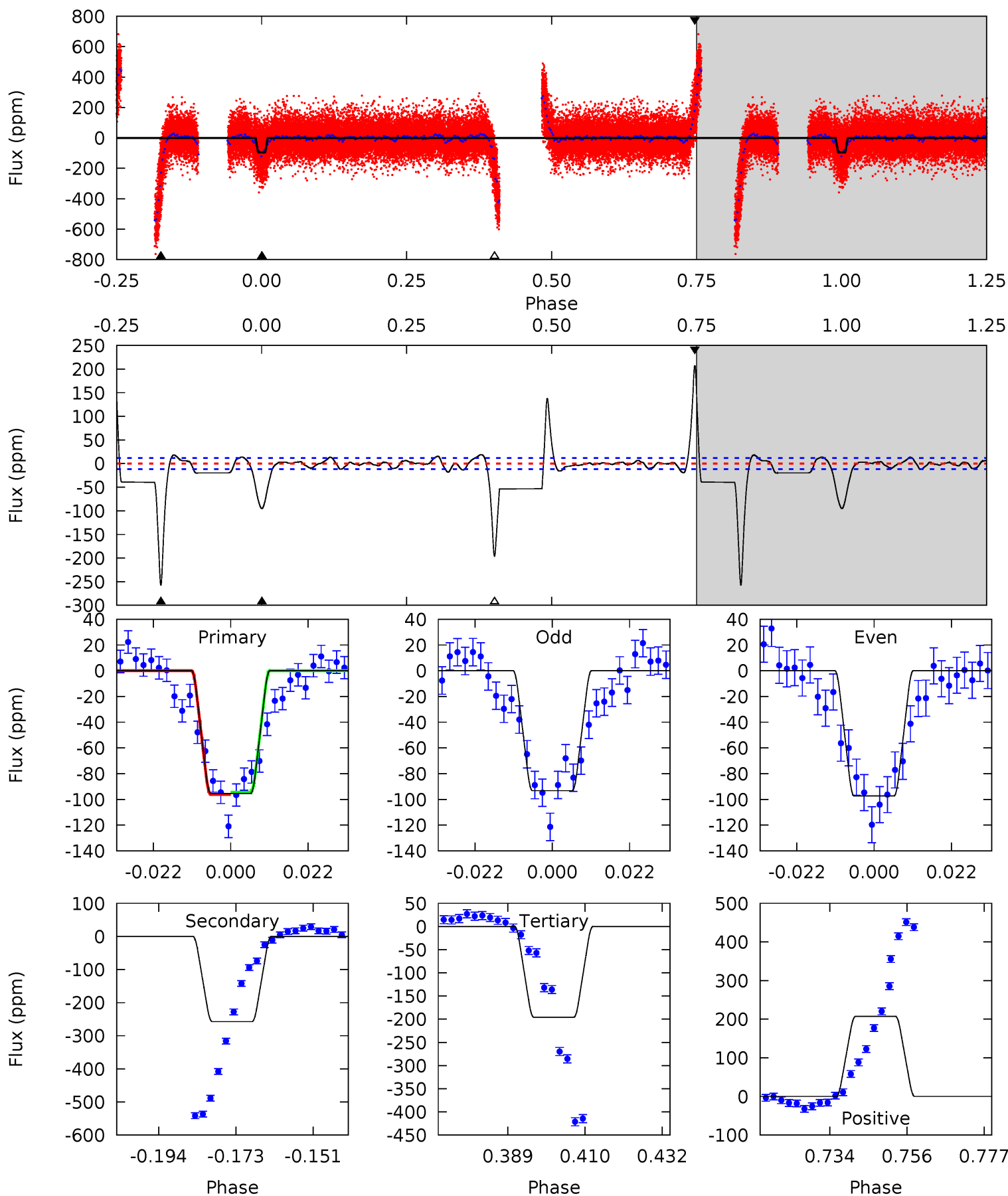
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.7	15.3	14.5	16.7	4.90	2.33	6.31	8.17	5.93	0.83	-1.41	0.56	1.02	0.48	1.51



Alt Model-Shift Uniqueness Test

007988994-04, P = 5.062857 Days, E = 127.699438 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.3	106.1	80.8	85.4	4.88	2.30	13.3	-41.5	-46.1	25.3	20.7	0.86	0.98	0.45	0.38



Stellar Parameters For KIC 007988994

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8959^{+251}_{-430}	$3.999^{+0.228}_{-0.171}$	$0.070^{+0.150}_{-0.650}$	$2.481^{+0.774}_{-0.774}$	$2.240^{+0.349}_{-0.648}$	$0.207^{+0.276}_{-0.105}$
	+3%/-5%	+6%/-4%	+214%/-929%	+31%/-31%	+16%/-29%	+134%/-51%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007988994-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-34 ± 2	$1.77^{+0.39}_{-0.38}$	3126^{+262}_{-259}	8163^{+828}_{-687}	34^{+17}_{-11}
Alt.	-257 ± 2	$2.89^{+0.58}_{-0.53}$	3172^{+240}_{-283}	12001^{+1020}_{-885}	95^{+45}_{-25}

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

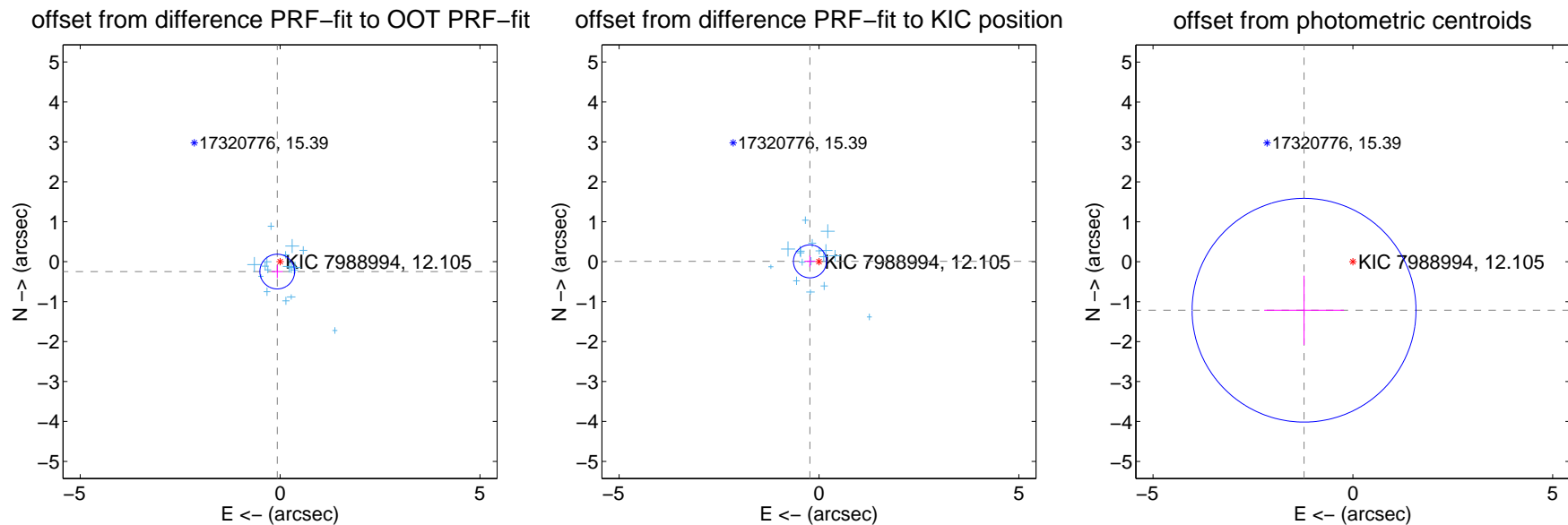
DV Centroid Data

Supplemental centroid analysis for 007988994-04. Kepler magnitude: 12.11. Transit SNR 14.28

There are 17 quarters with good PRF difference image offsets

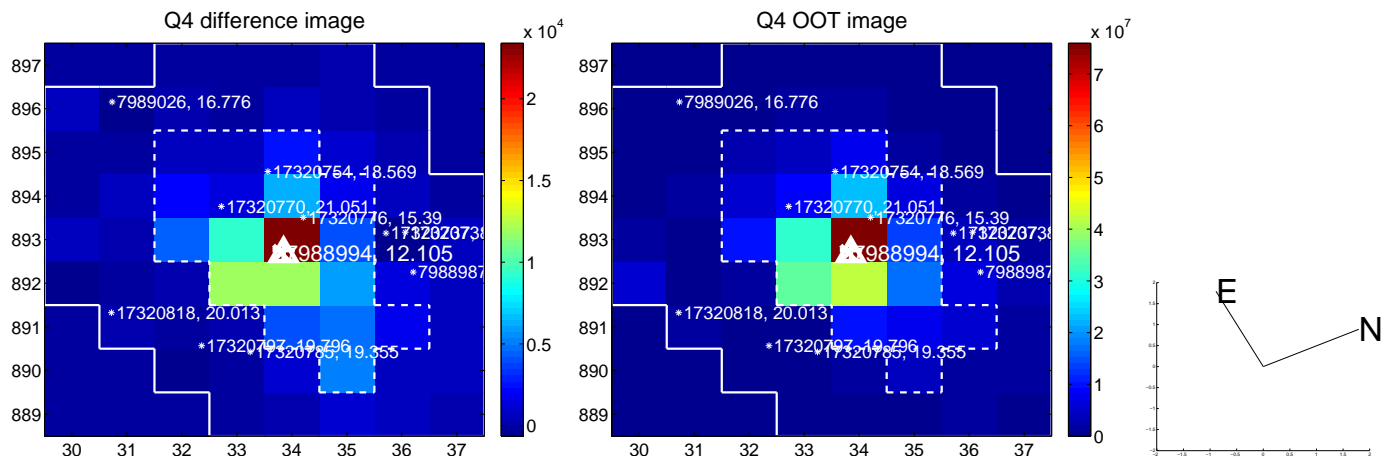
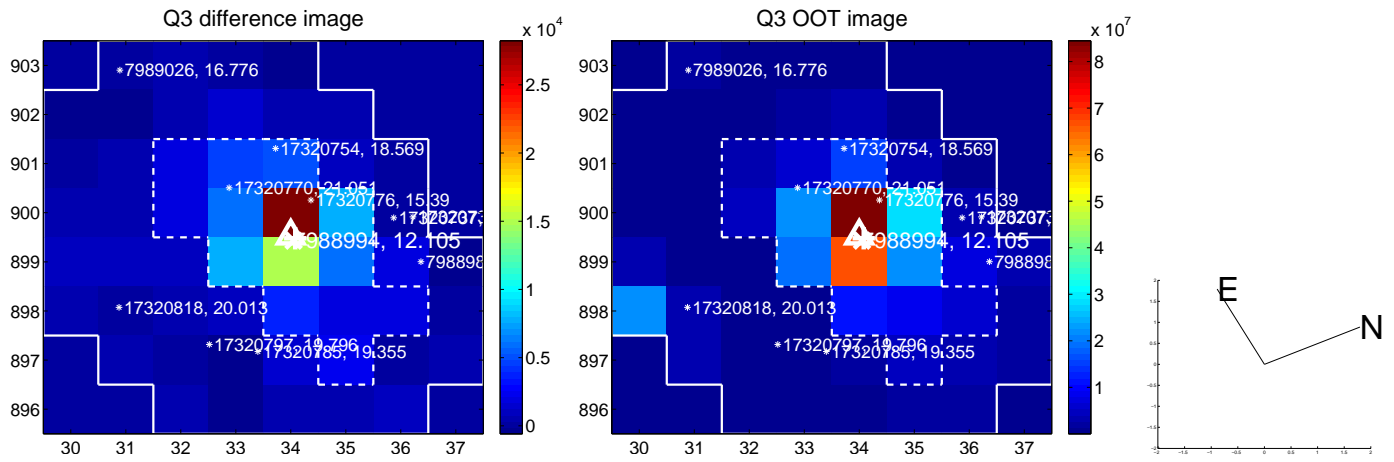
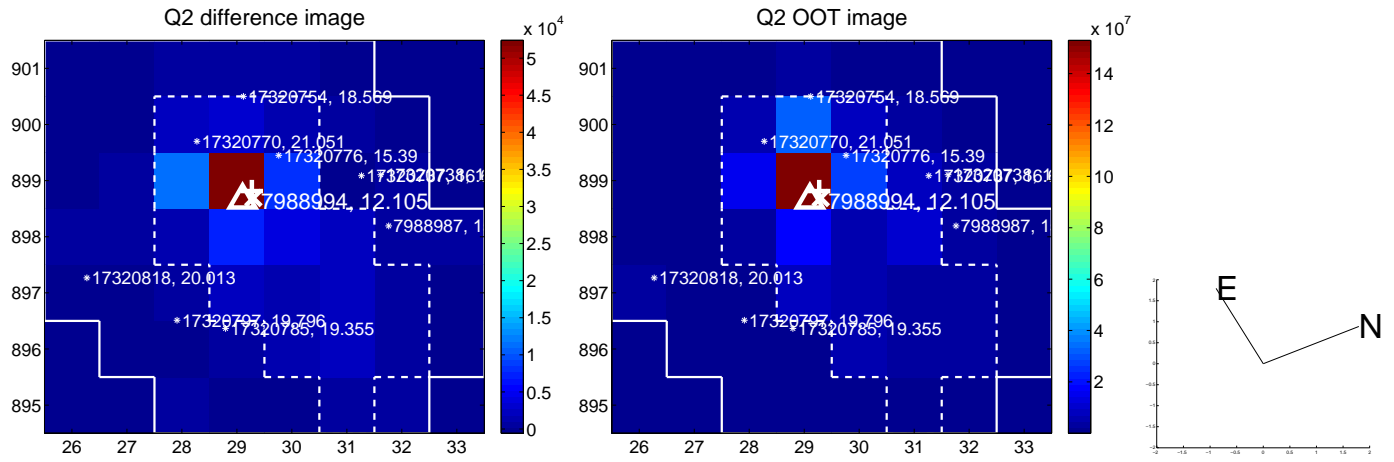
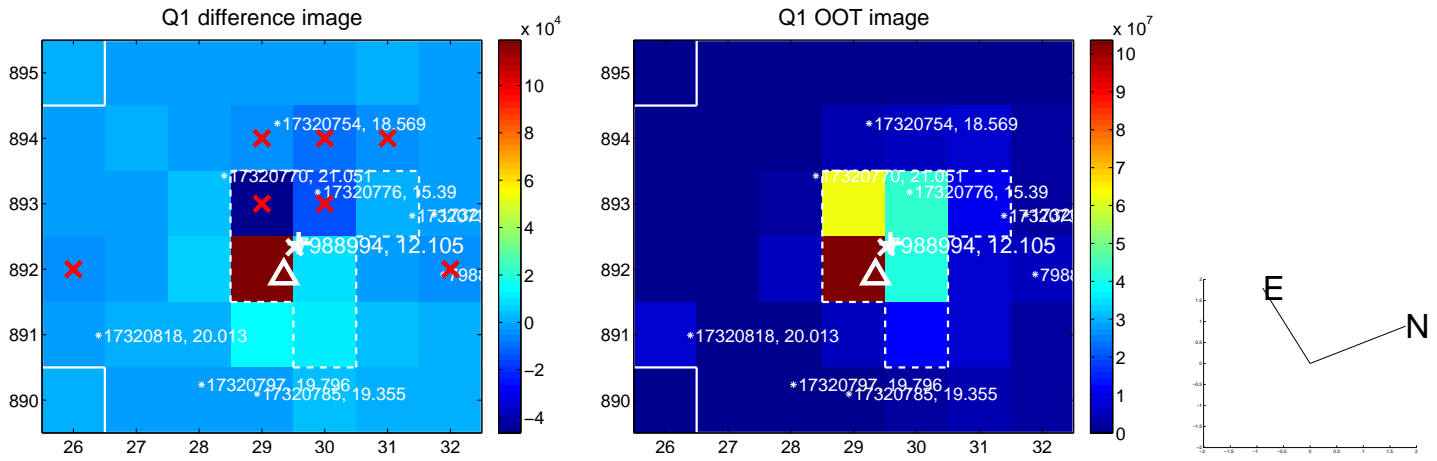
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.257 ± 0.145	1.77	0.072 ± 0.139	-0.247 ± 0.163
PRF-fit source offset from KIC position	0.227 ± 0.138	1.65	0.226 ± 0.136	0.009 ± 0.144
photometric centroid source offset	1.72 ± 0.93	1.84	1.22 ± 1.00	-1.21 ± 0.87

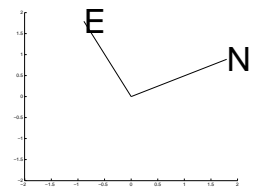
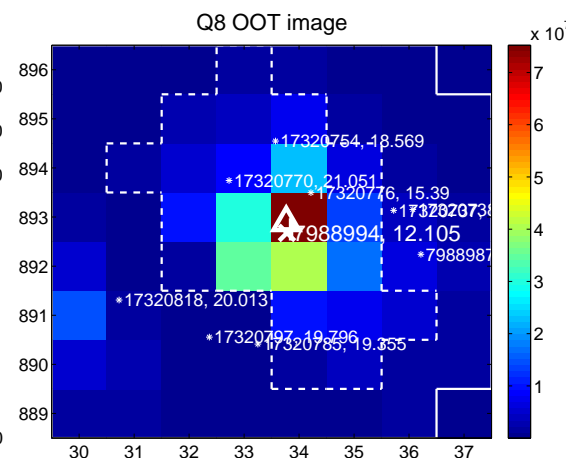
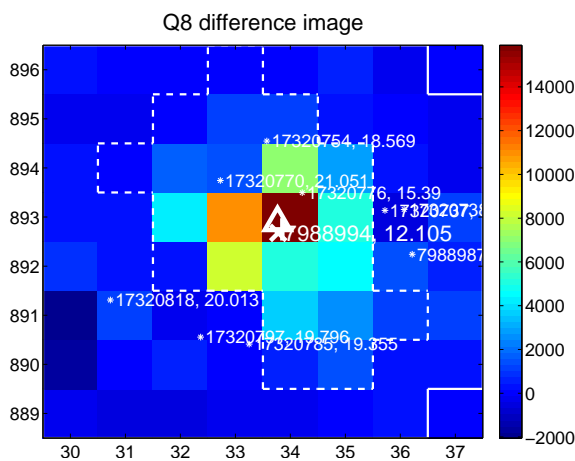
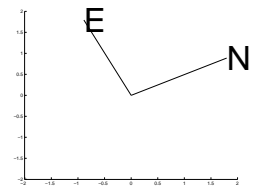
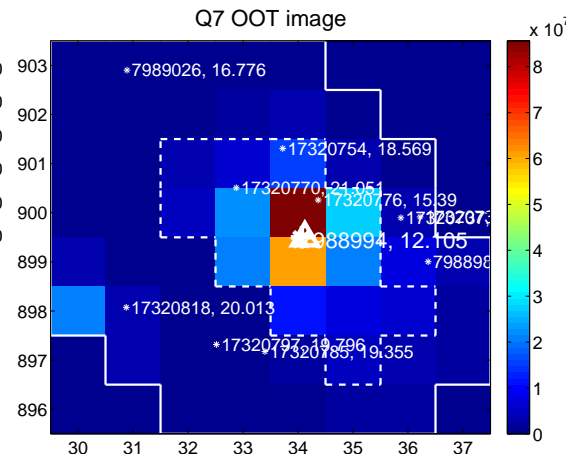
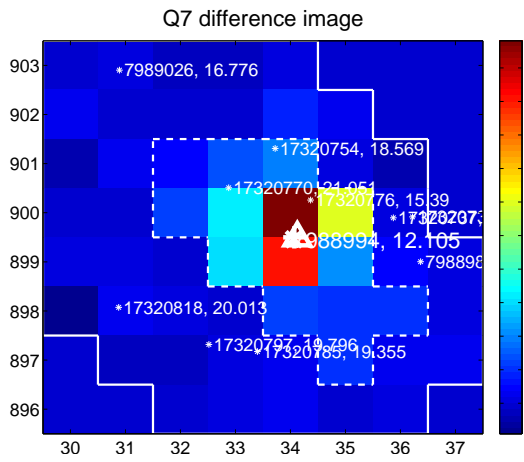
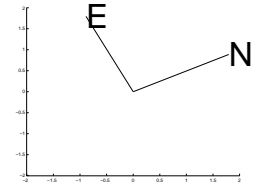
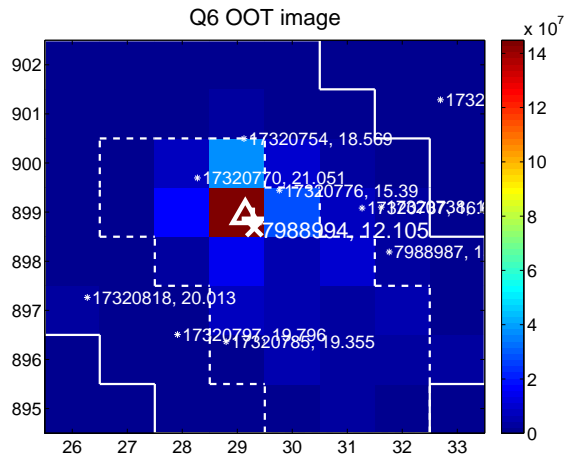
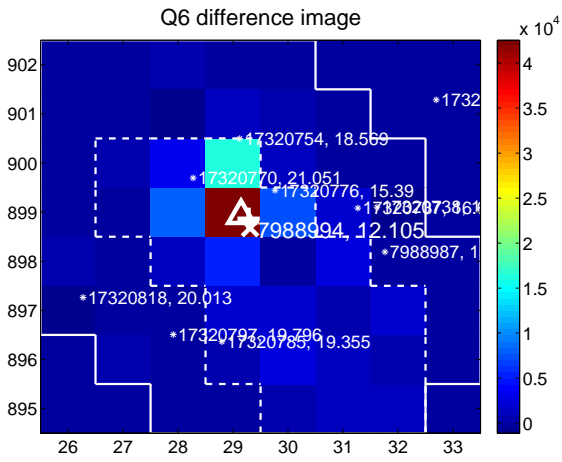
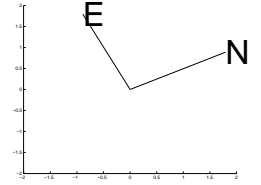
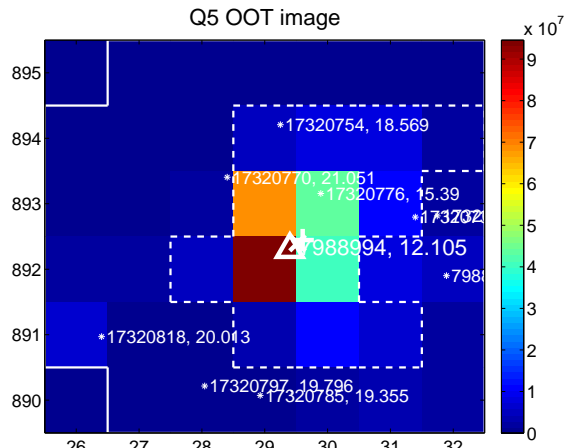
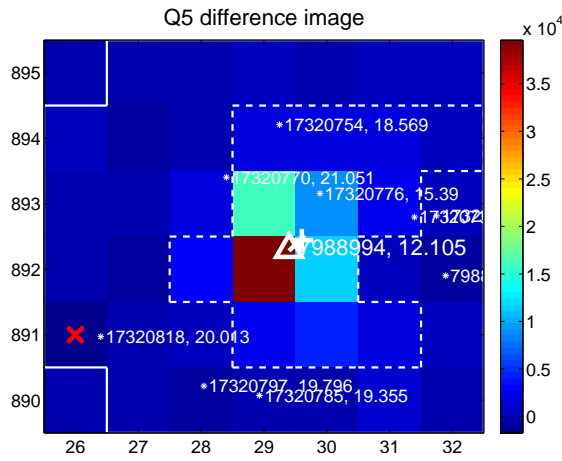


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

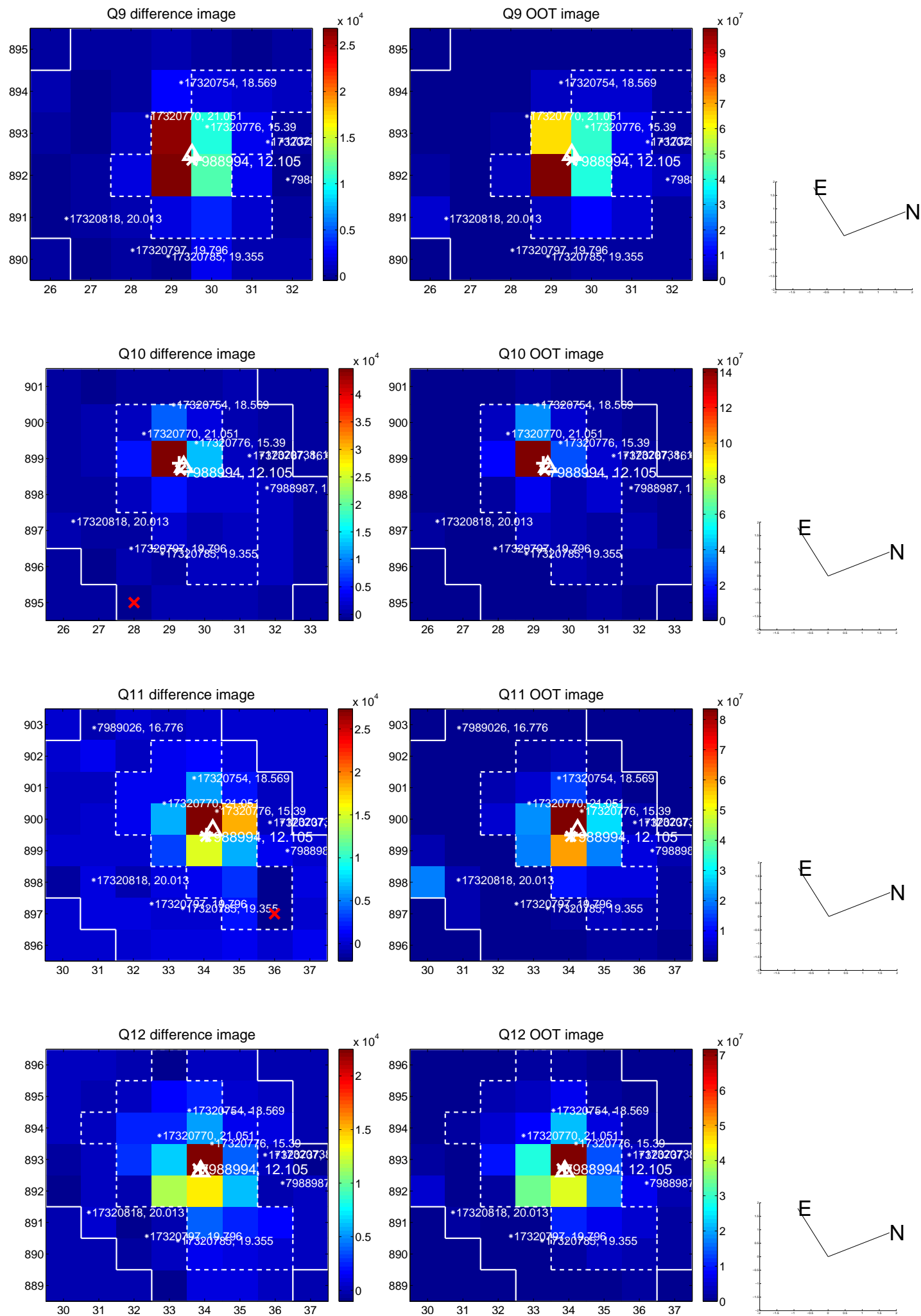
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



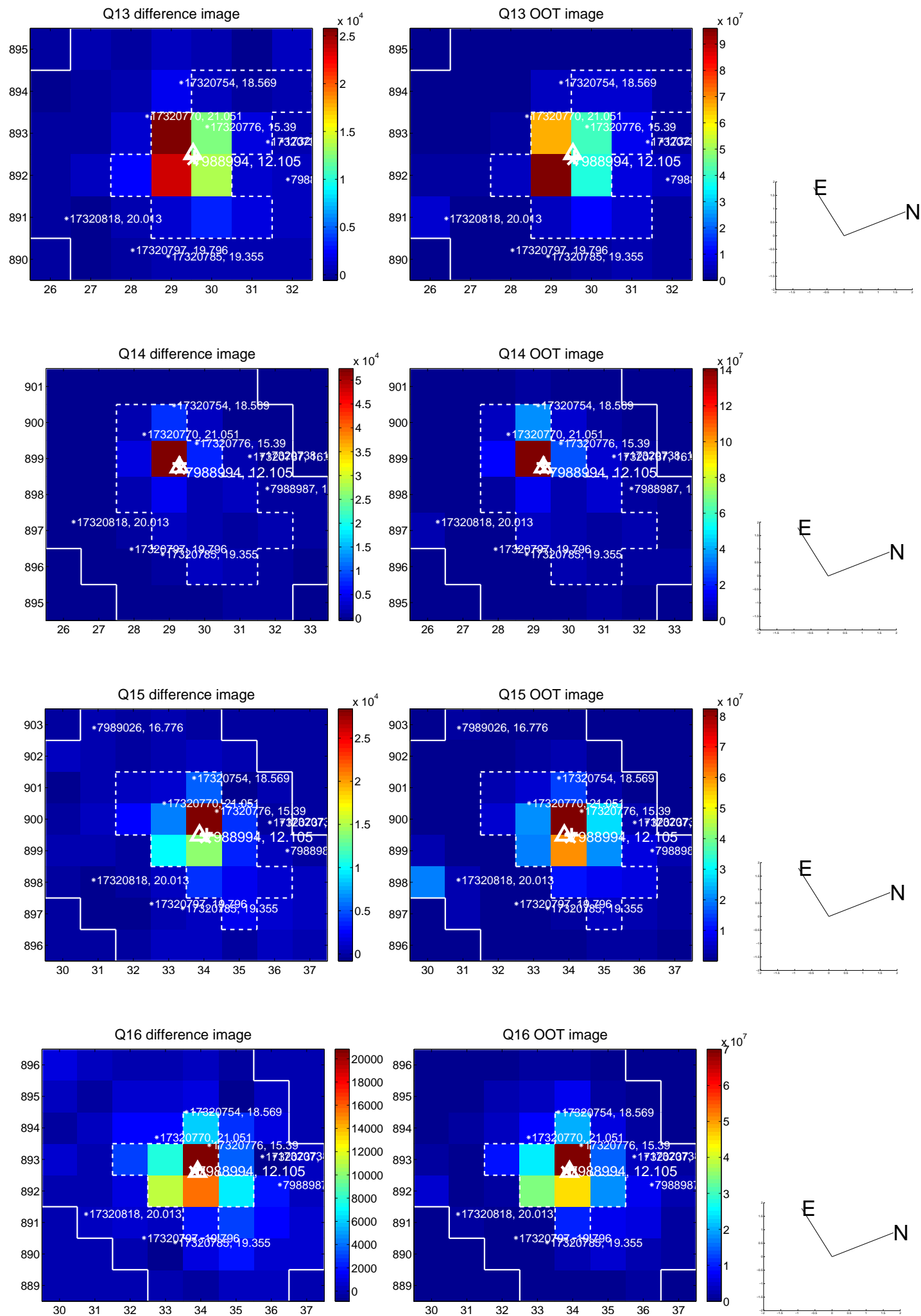
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



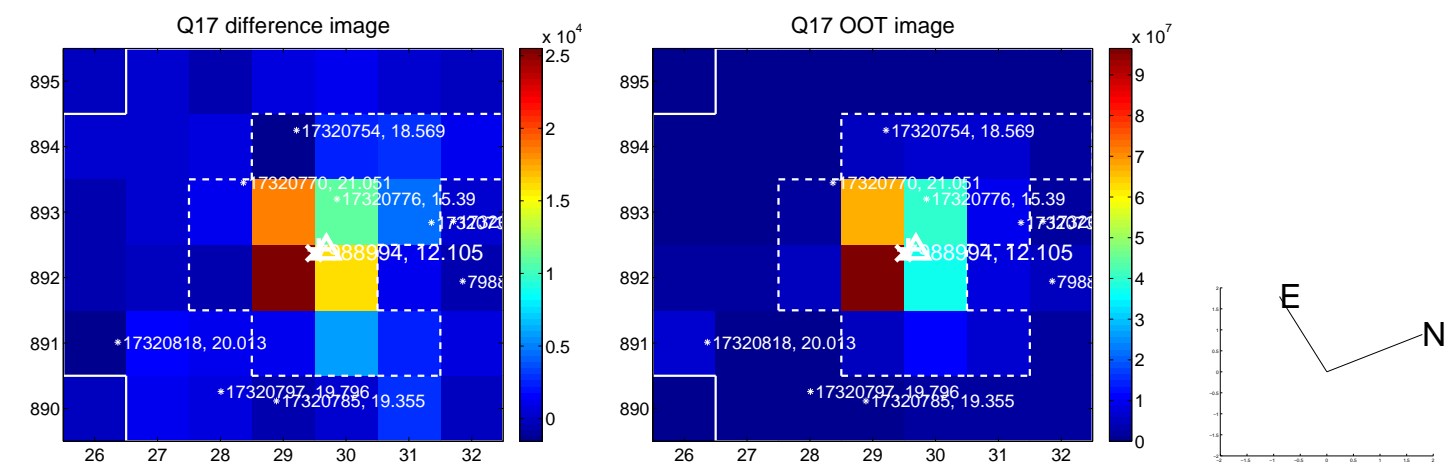
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



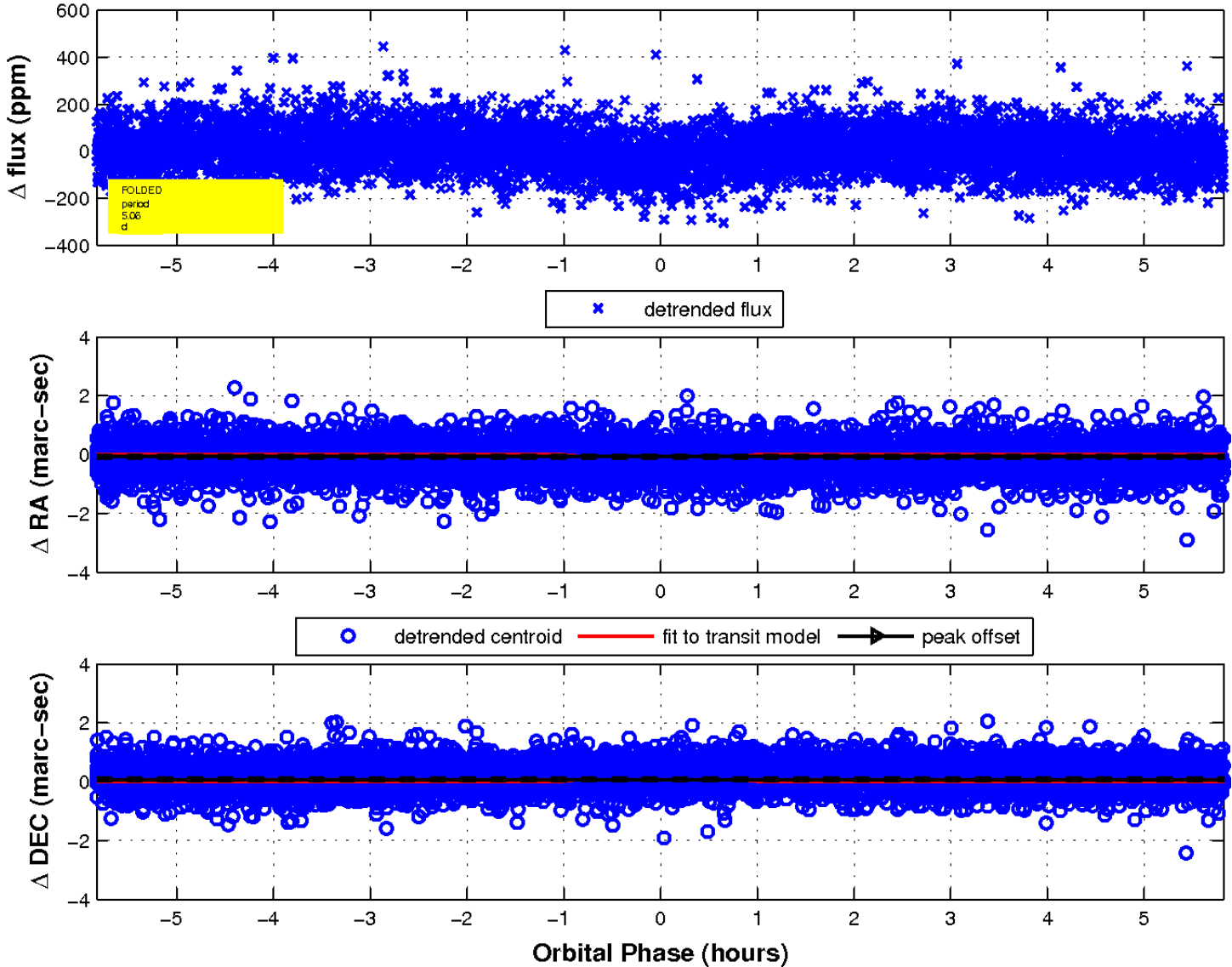
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

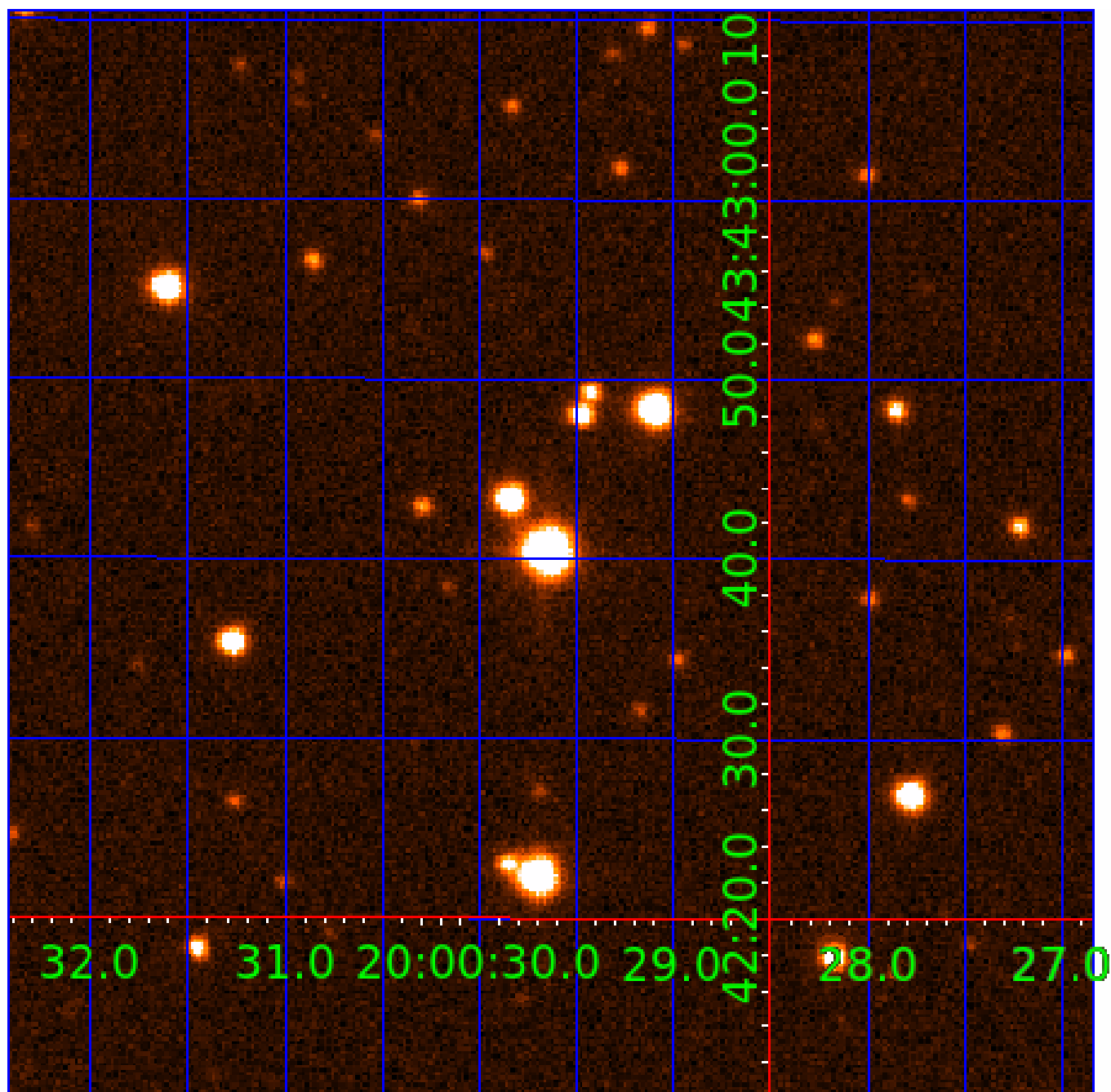


fluxWeightedCentroids, Planet 4 of 7



UKIRT Image

Declination



KIC 007988994

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})
007988994-01	OBS	No	5.062942	131.670647	67.7	2.302	19.3	21.0	2.48	8959	2.38	6229.88
007988994-02	OBS	No	5.062861	135.023334	59.9	2.806	15.0	17.0	2.48	8959	2.62	6230.01
007988994-03	OBS	No	5.062900	132.332088	42.8	1.983	11.2	12.9	2.48	8959	1.88	6229.95
007988994-04	OBS	No	5.062899	132.758291	46.8	1.942	11.2	14.3	2.48	8959	1.80	6229.95
007988994-05	OBS	No	1.265656	131.954276	14.3	4.441	11.0	11.7	2.48	8959	1.06	39560.61
007988994-06	OBS	No	5.062902	136.458912	179.7	2.500	11.1	-1.0	2.48	8959	3.39	6229.95
007988994-07	OBS	No	2.531530	132.435460	10.7	9.112	7.9	4.7	2.48	8959	0.94	15697.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007988994-01	OBS	FP	0.00	1	0	0	0	LPP_DV
007988994-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-05	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
007988994-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
007988994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

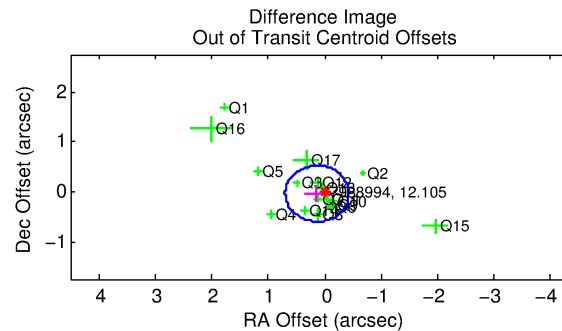
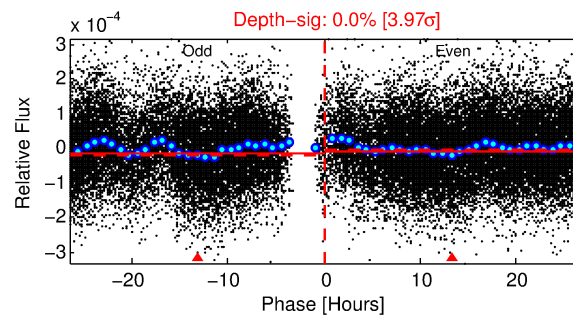
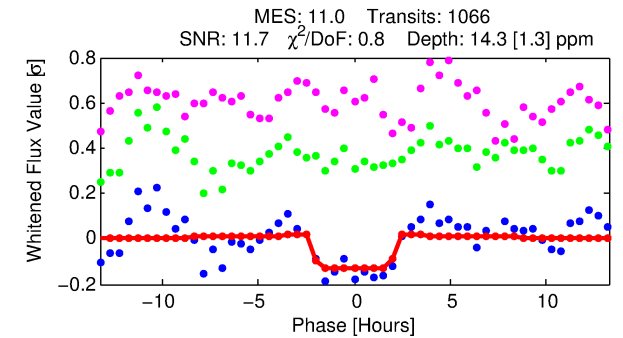
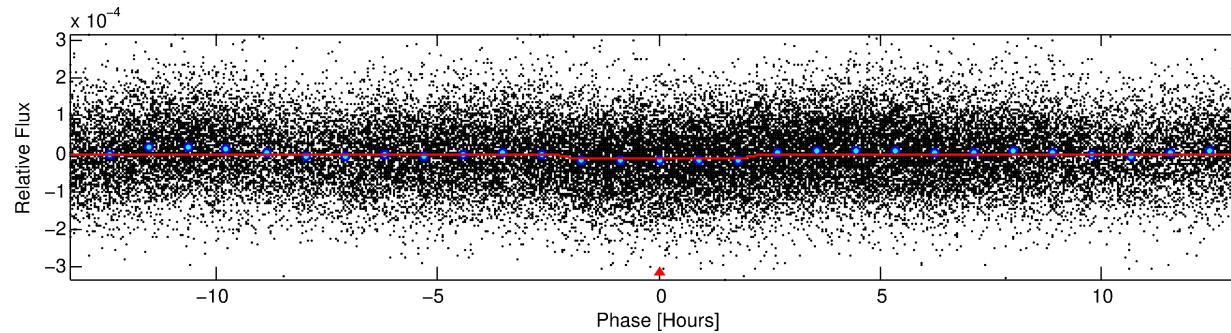
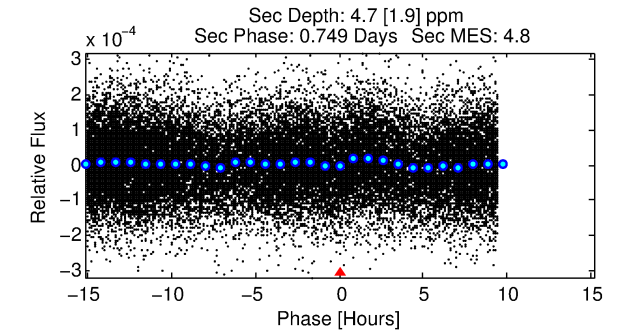
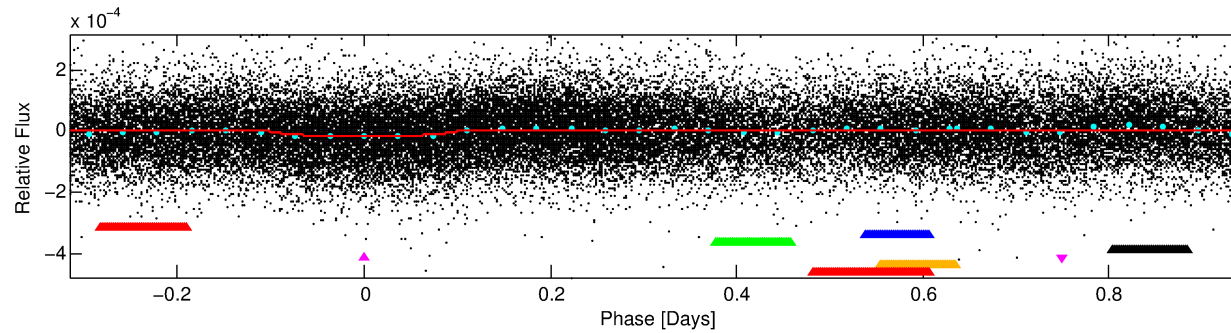
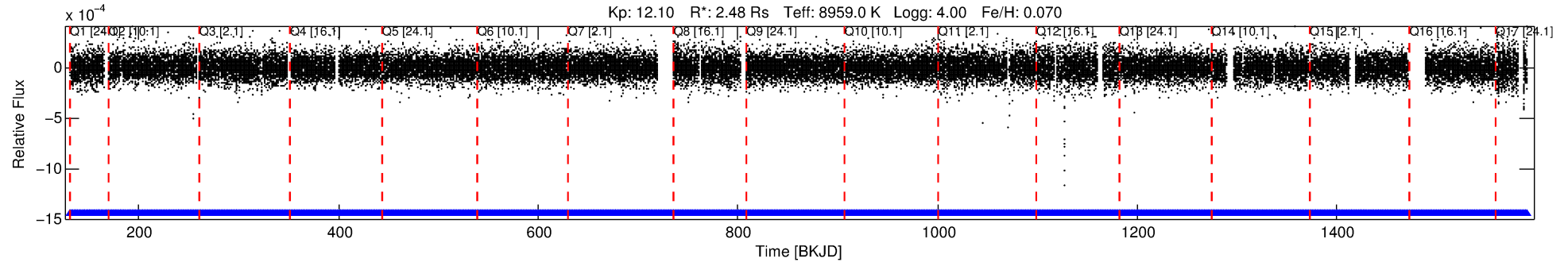
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007988994-05

No Significant Match Found

DV One-Page Summary

KIC: 7988994 Candidate: 5 of 7 Period: 1.266 d



DV Fit Results:

Period = 1.26566 [0.00001] d
Epoch = 131.9543 [0.0036] BKJD
Rp/R* = 0.0039 [0.0006]
a/R* = 1.44 [0.77]
b = 0.87 [0.31]
Seff = 39560.61 [17807.09]
Teq = 3596 [405] K
Rp = 1.06 [0.37] Re
a = 0.0300 [0.0081] AU
Ag = 2.08 [1.36] [0.79σ]
Teffp = 6676 [914] K [3.08σ]

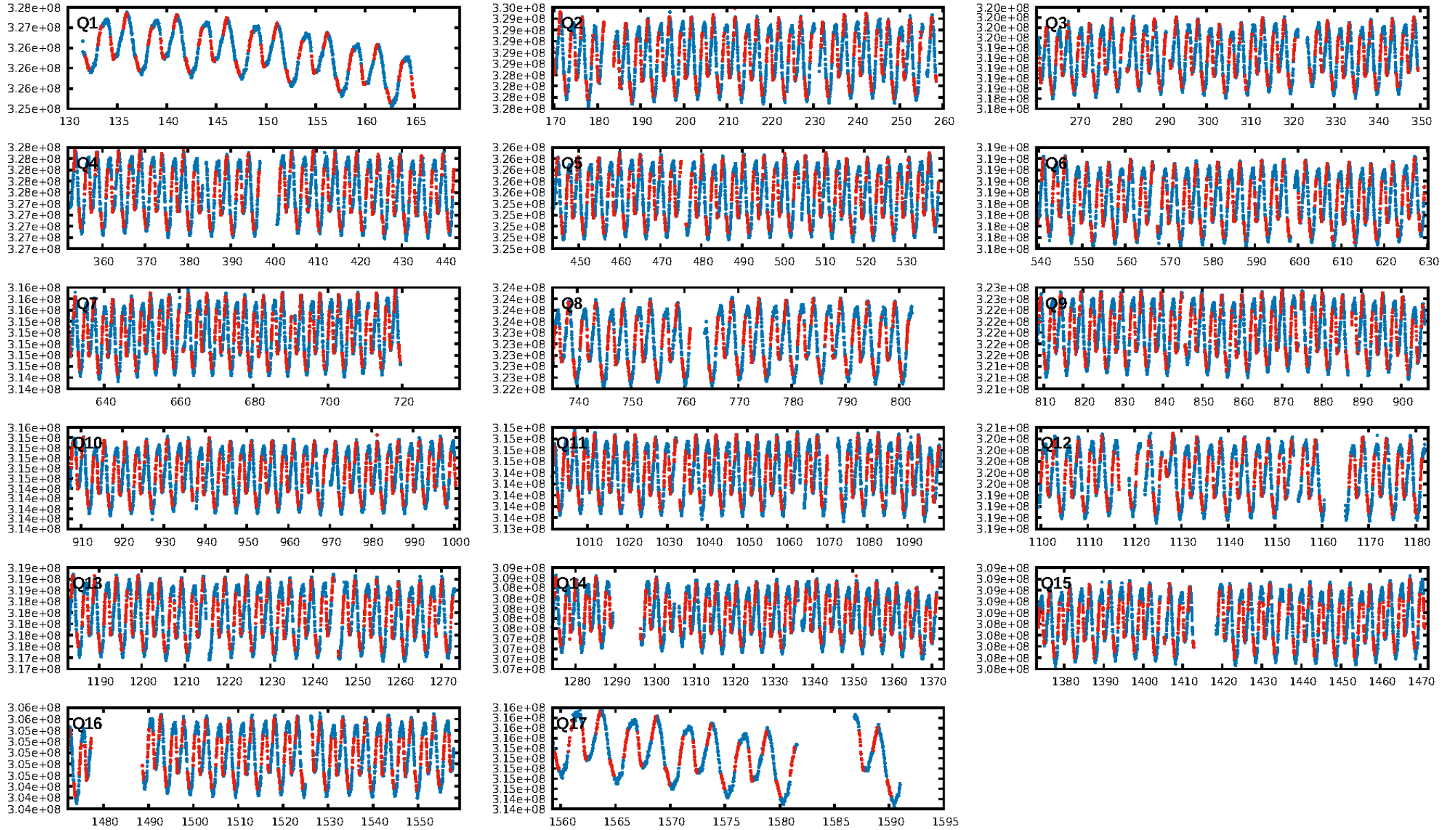
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 99.7% [3.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1018/1018]
GhostDiagnostic-chr: 0.6504
Centroid-sig: 0.0%
Centroid-so: 2.028 arcsec [1.88σ]
OotOffset-rm: 0.141 arcsec [0.75σ]
KicOffset-rm: 0.458 arcsec [1.98σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.06 [1/17]
DiffImageOverlap-fno: 1.00 [17/17]

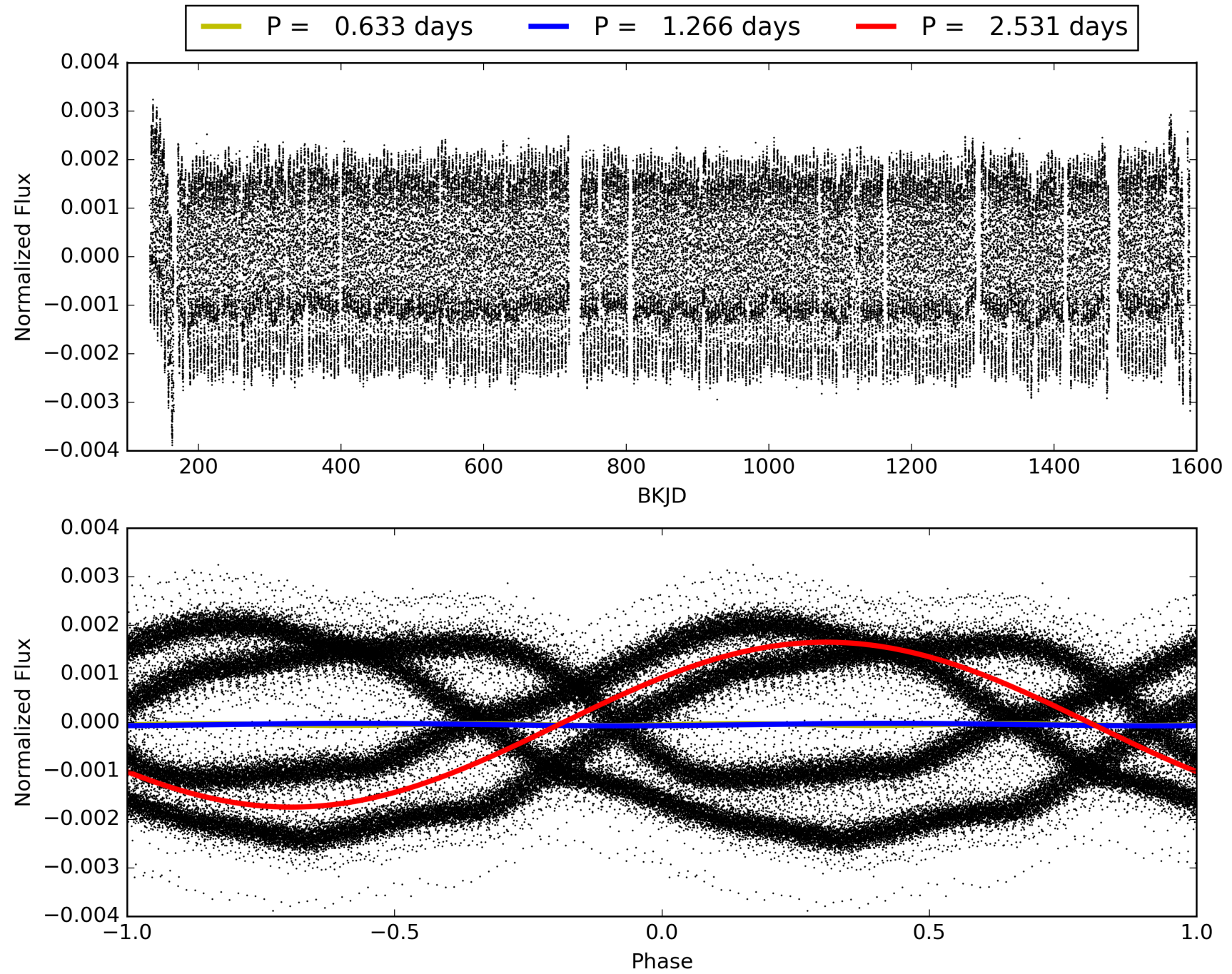
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:43:08 Z

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

TCE 007988994-05, PDC Light Curves

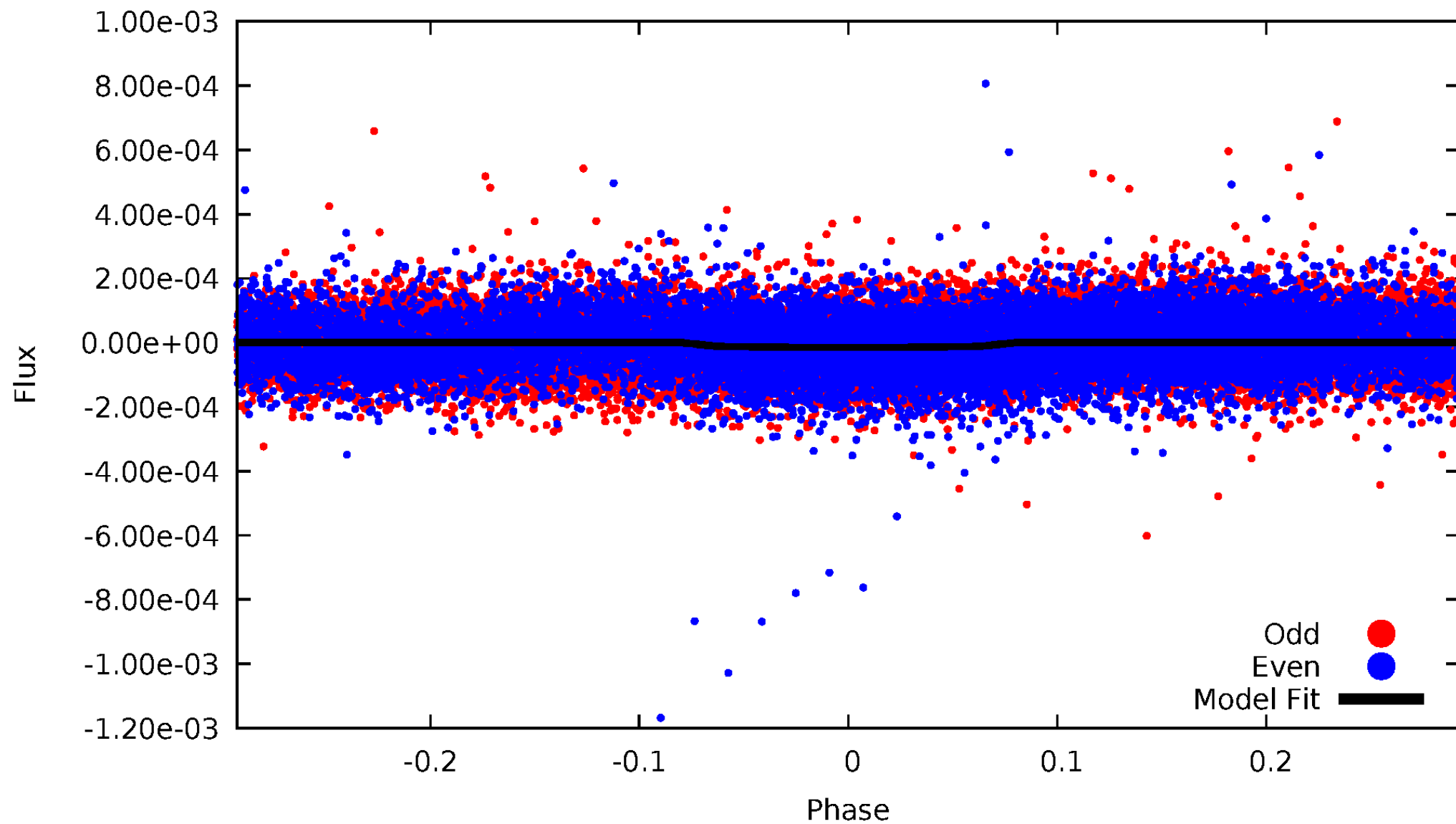


TCE 007988994-05



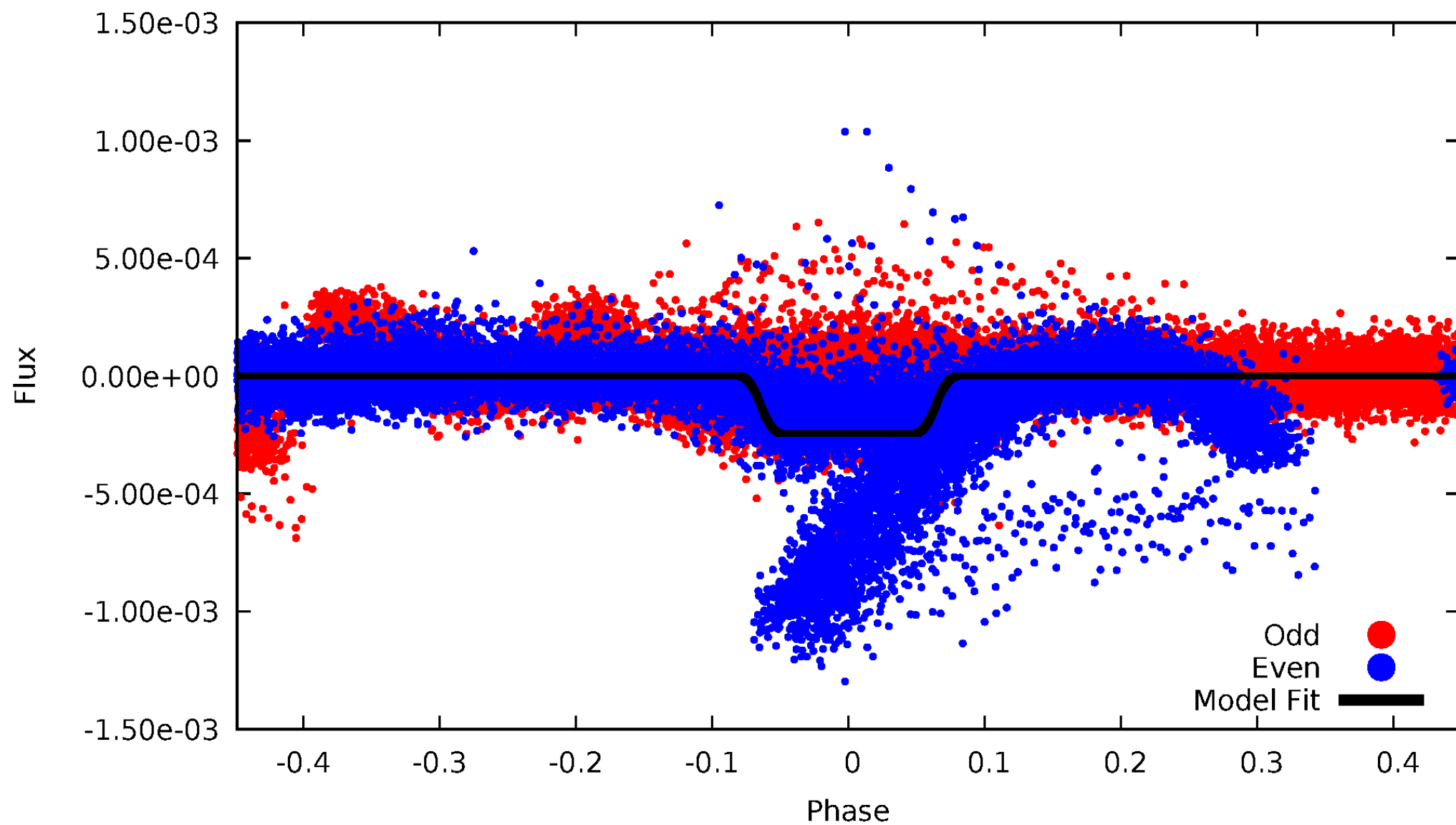
DV Odd/Even

TCE 007988994-05



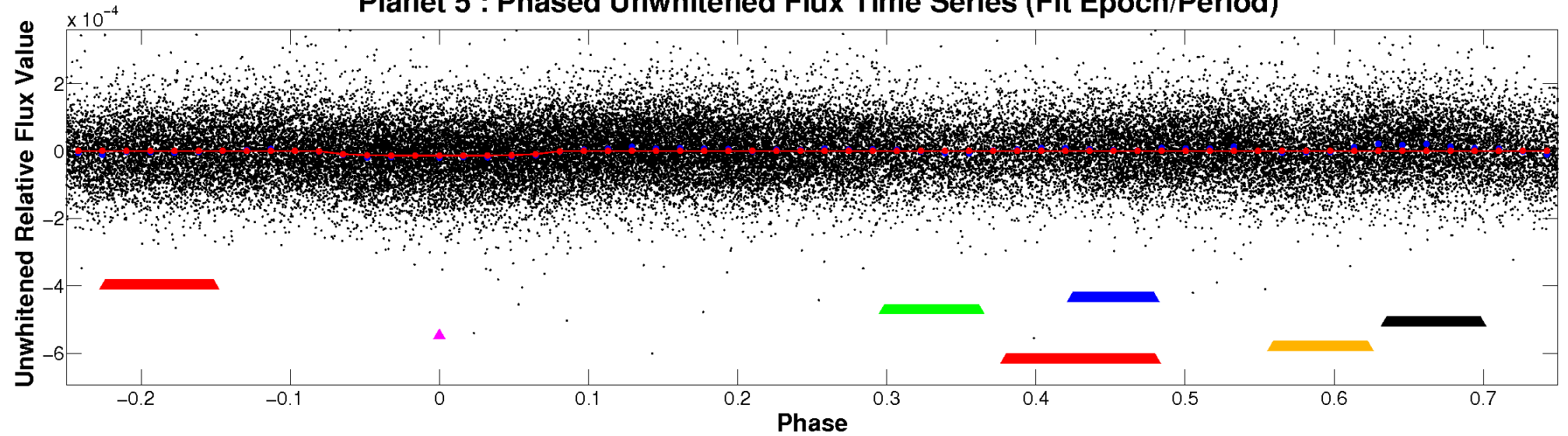
ALT Odd/Even

TCE 007988994-05

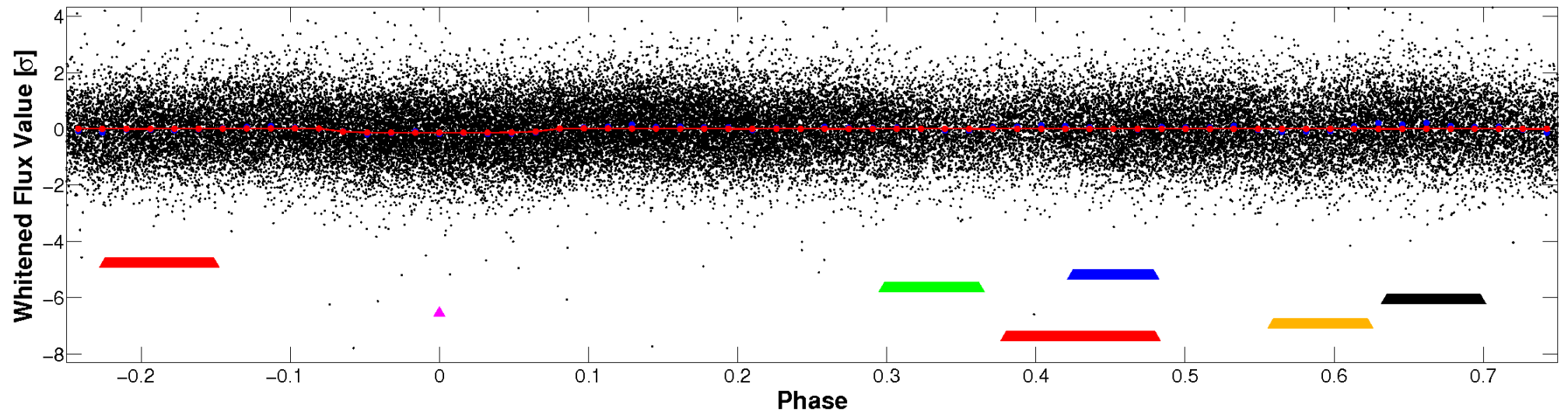


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

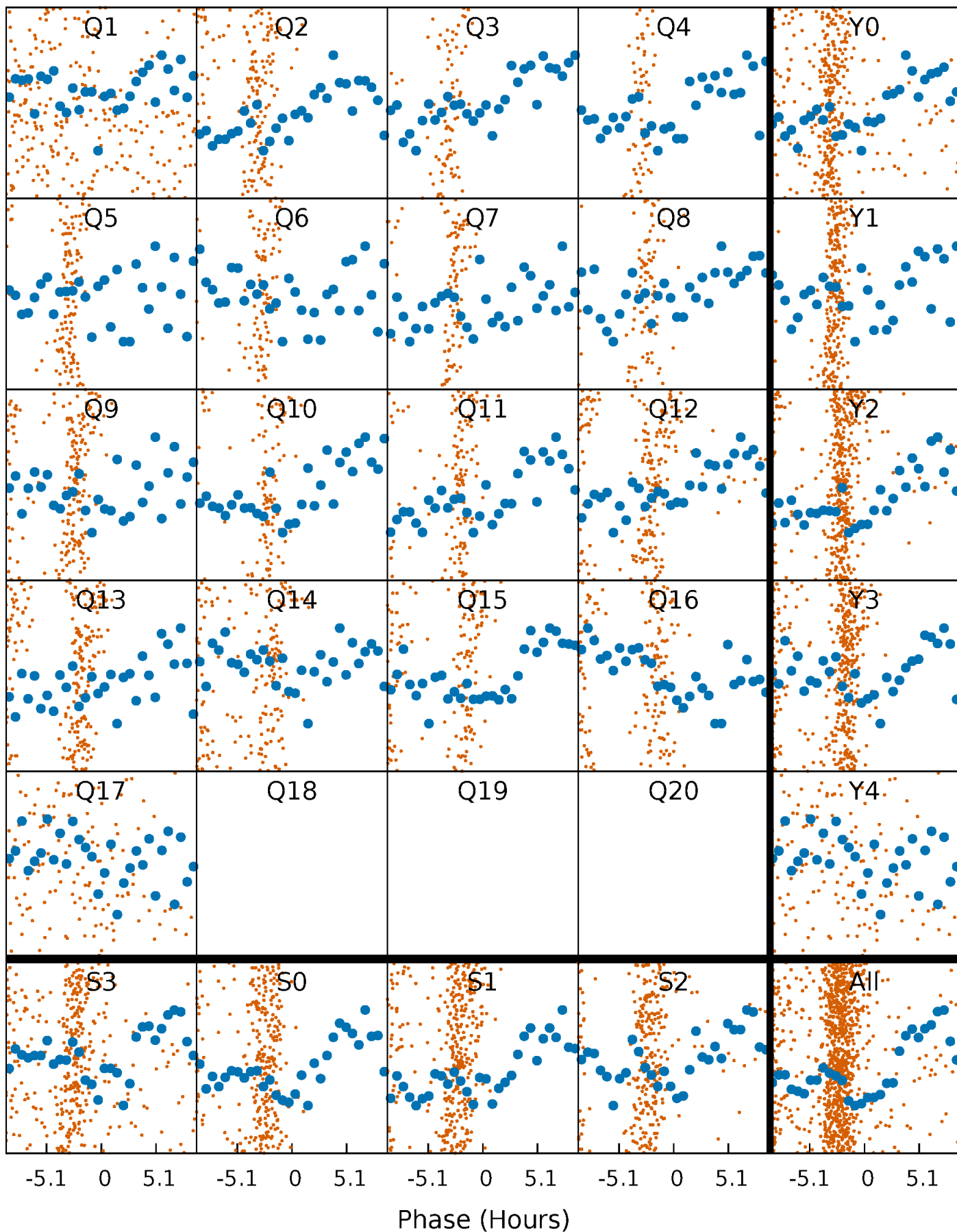


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



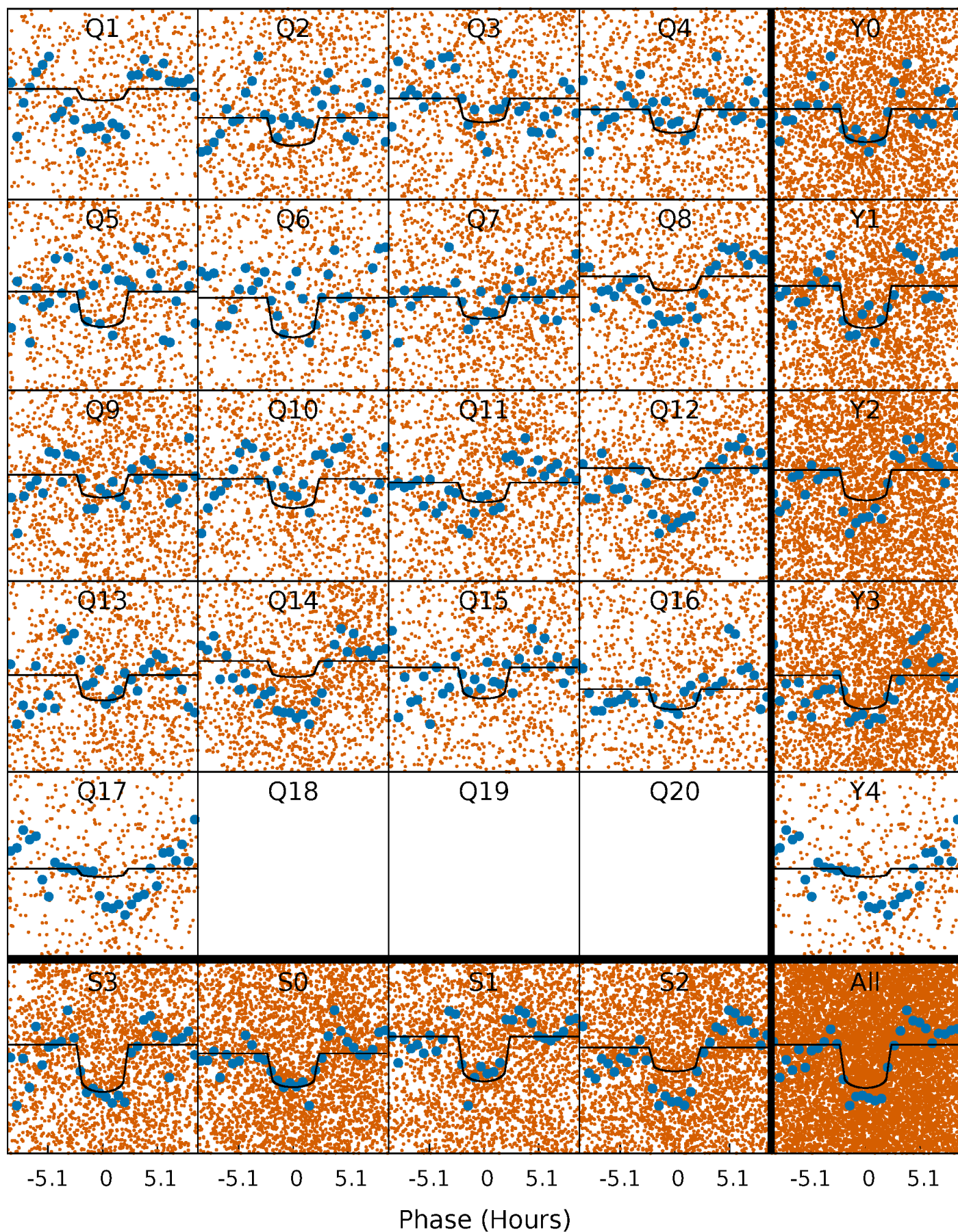
PDC Quarter-Phased Transit Curves

TCE 007988994-05 P= 1.265656 Days $T_0=131.954276$ (BKJD)



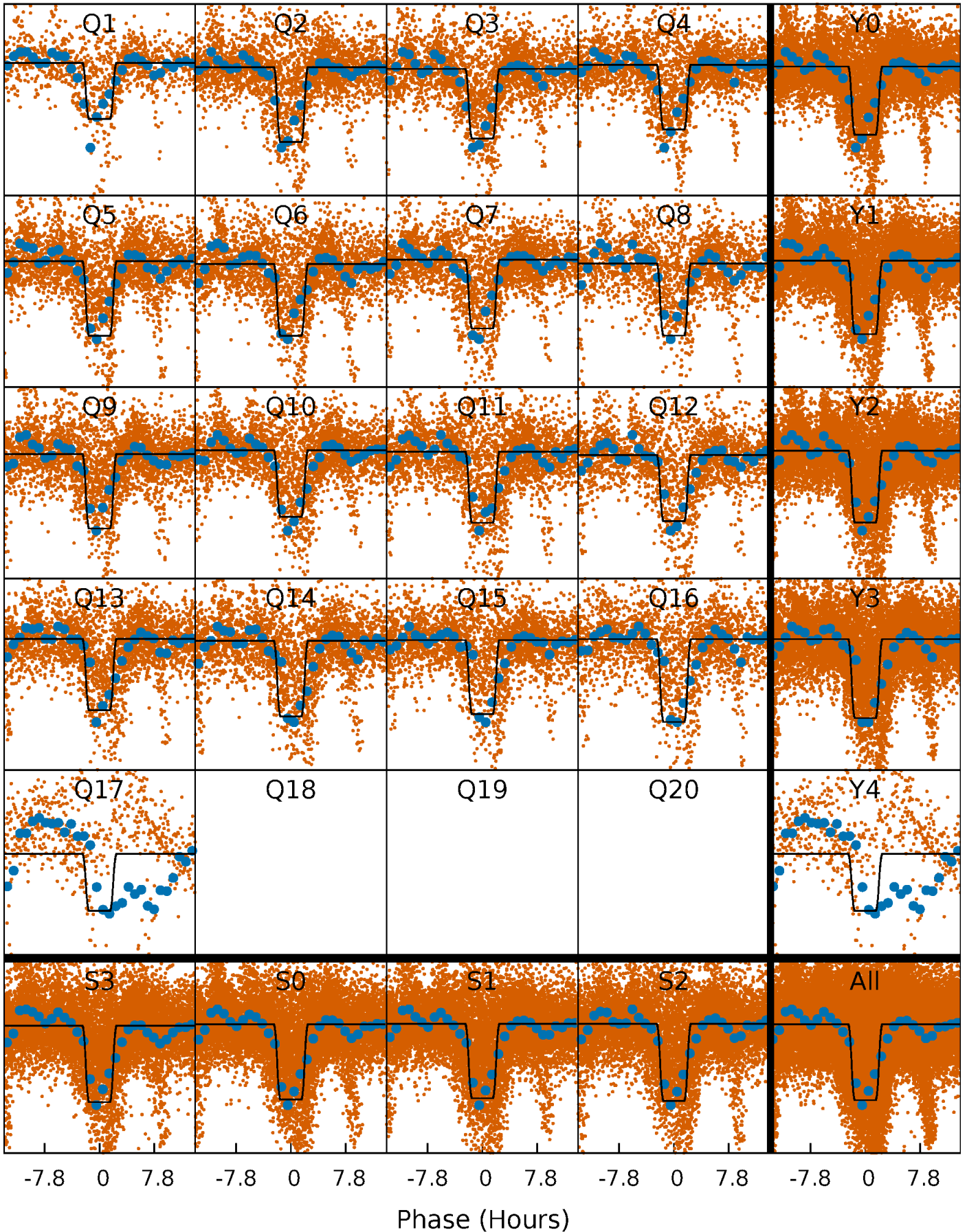
DV Quarter-Phased Transit Curves

TCE 007988994-05 P= 1.265656 Days $T_0=131.954276$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

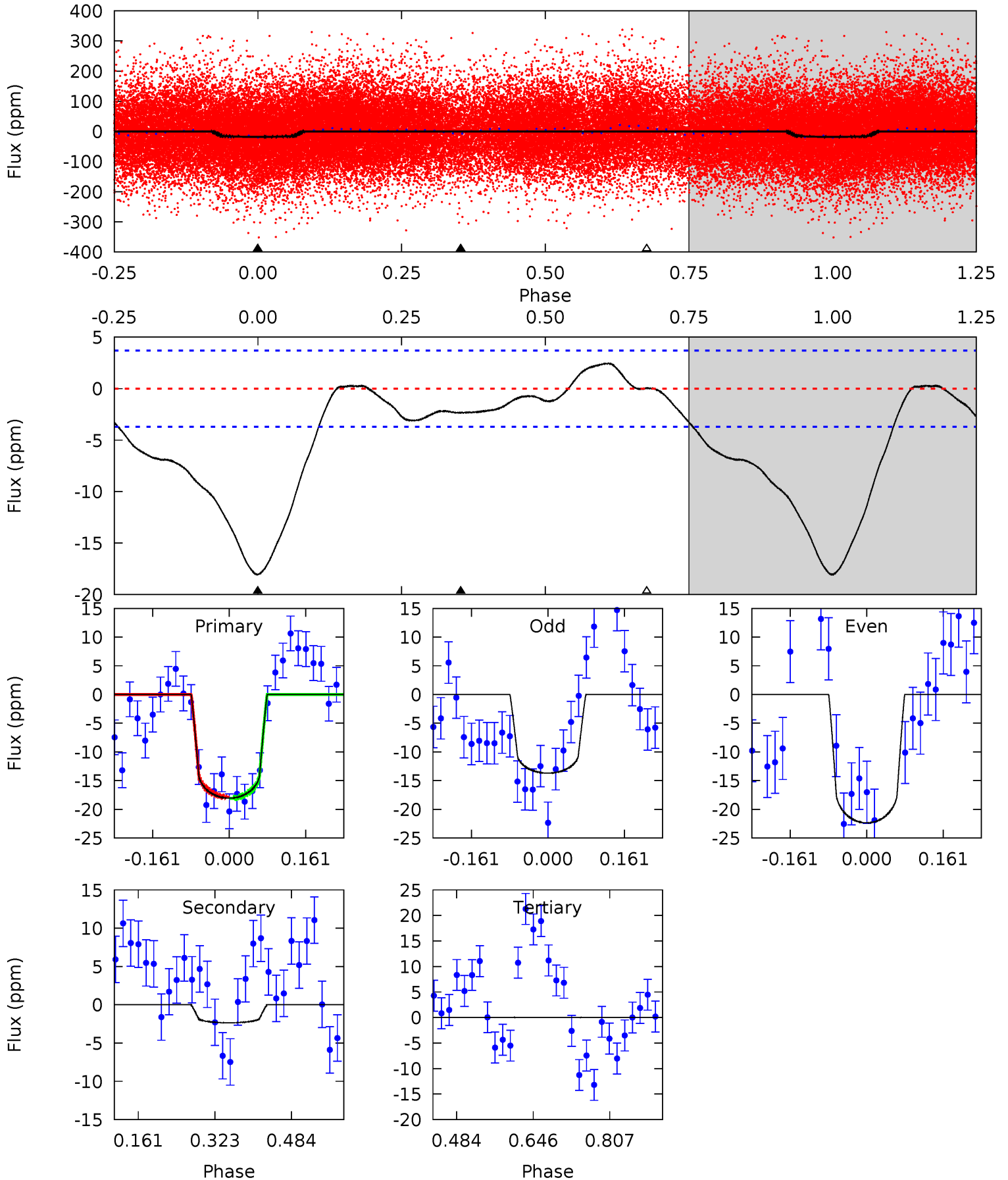
TCE 007988994-05 $P = 1.265670$ Days $T_0 = 131.920943$ (BKJD)



DV Model-Shift Uniqueness Test

007988994-05, P = 1.265656 Days, E = 130.688620 Days

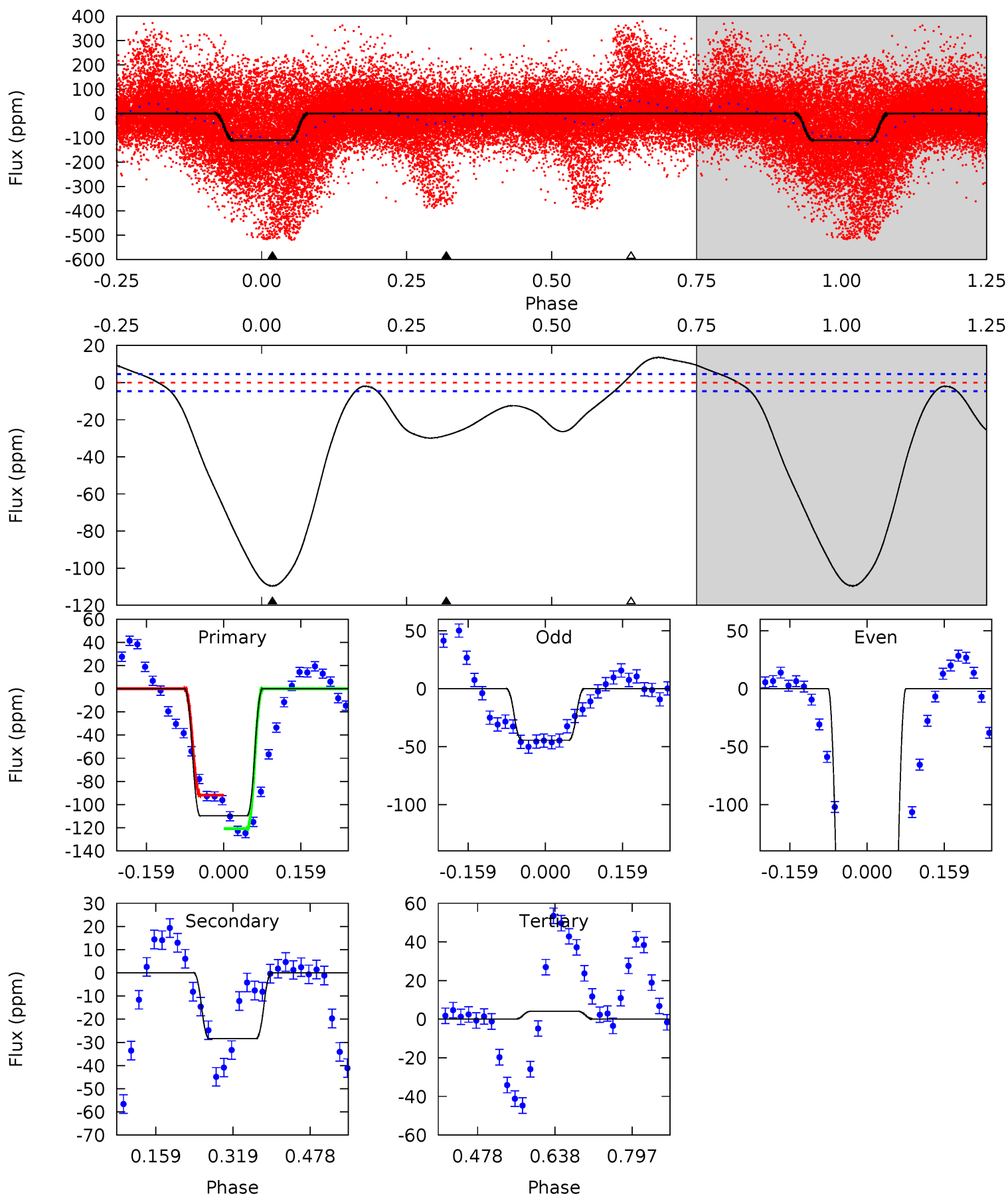
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.8	2.83	-0.03	0	4.46	1.40	3.55	21.8	21.8	2.86	2.83	5.24	1.19	0.12	0.13



Alt Model-Shift Uniqueness Test

007988994-05, P = 1.265670 Days, E = 130.655273 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
105.4	27.3	-3.91	0	4.47	1.41	12.9	109.3	105.4	31.2	27.3	142.8	1.67	0.11	0



Stellar Parameters For KIC 007988994

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8959^{+251}_{-430}	$3.999^{+0.228}_{-0.171}$	$0.070^{+0.150}_{-0.650}$	$2.481^{+0.774}_{-0.774}$	$2.240^{+0.349}_{-0.648}$	$0.207^{+0.276}_{-0.105}$
	+3%/-5%	+6%/-4%	+214%/-929%	+31%/-31%	+16%/-29%	+134%/-51%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007988994-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2 ± 1	$1.03^{+0.27}_{-0.22}$	4956^{+425}_{-402}	4883^{+716}_{-777}	$1.004^{+0.733}_{-0.459}$
Alt.	-28 ± 1	$4.20^{+0.69}_{-0.70}$	5007^{+369}_{-416}	4552^{+224}_{-236}	$0.783^{+0.280}_{-0.184}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

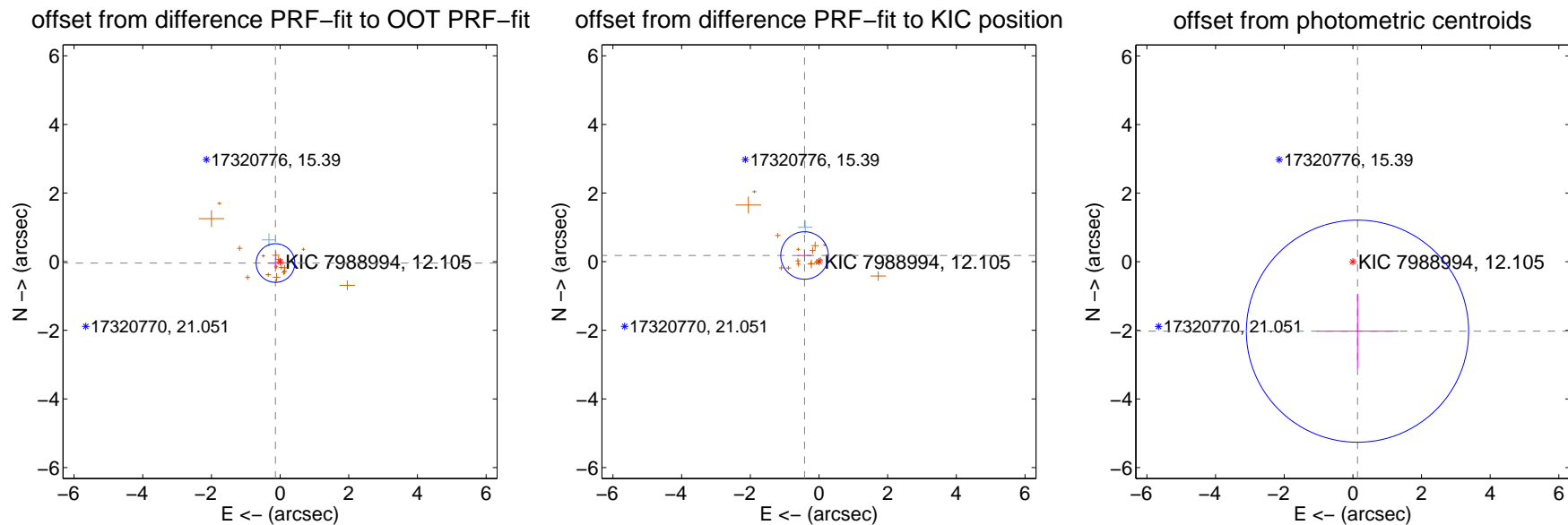
DV Centroid Data

Supplemental centroid analysis for 007988994-05. Kepler magnitude: 12.11. Transit SNR 11.66

There are 1 quarters with good PRF difference image offsets

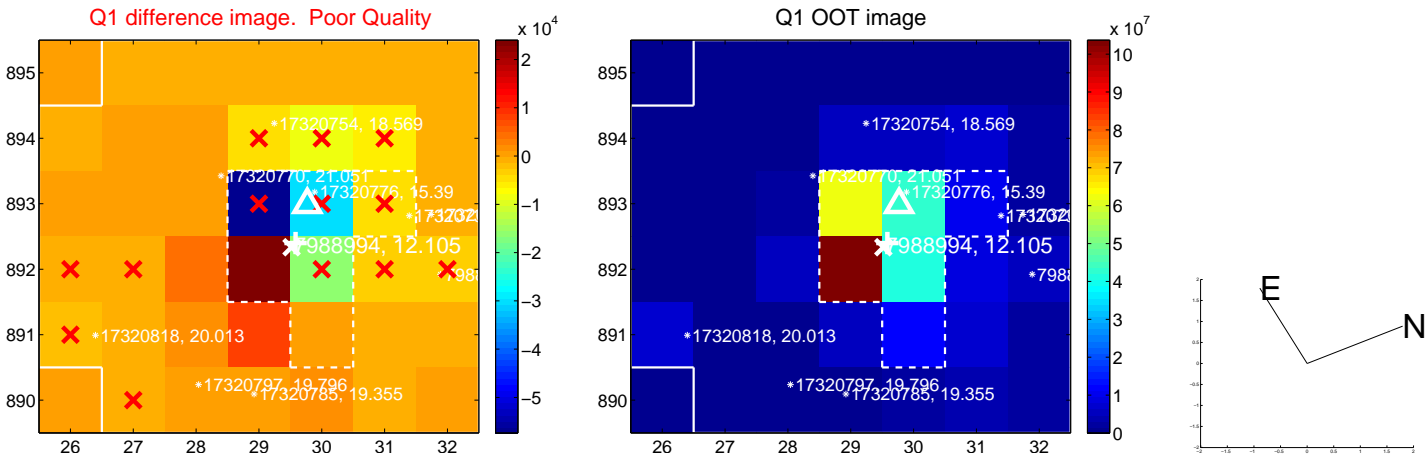
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.141 ± 0.188	0.75	0.135 ± 0.222	-0.039 ± 0.164
PRF-fit source offset from KIC position	0.458 ± 0.231	1.98	0.420 ± 0.203	0.181 ± 0.170
photometric centroid source offset	2.03 ± 1.08	1.88	-0.14 ± 1.19	-2.02 ± 1.08

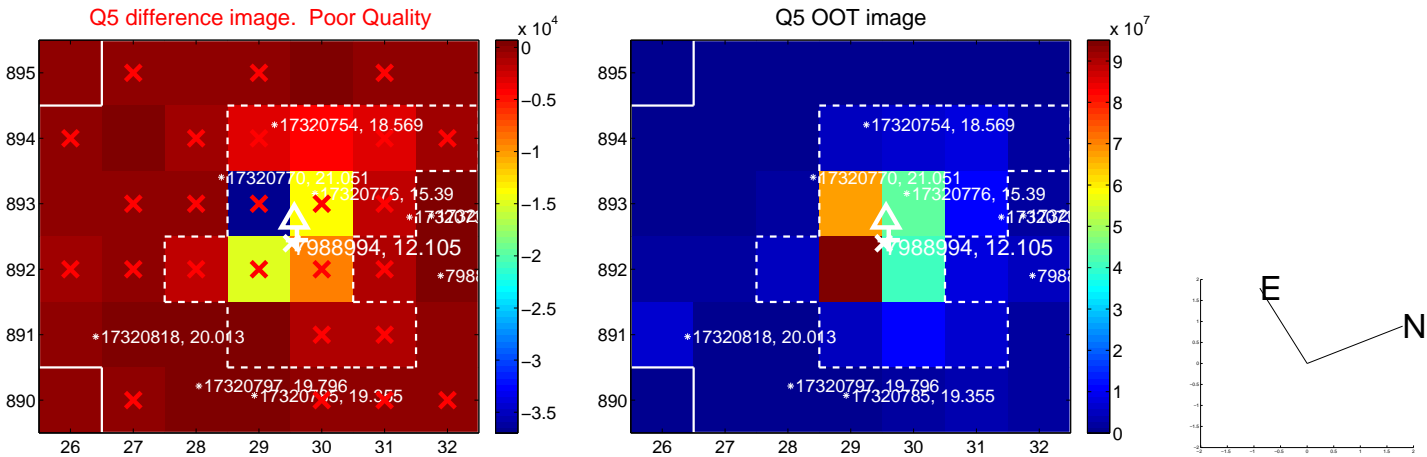


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

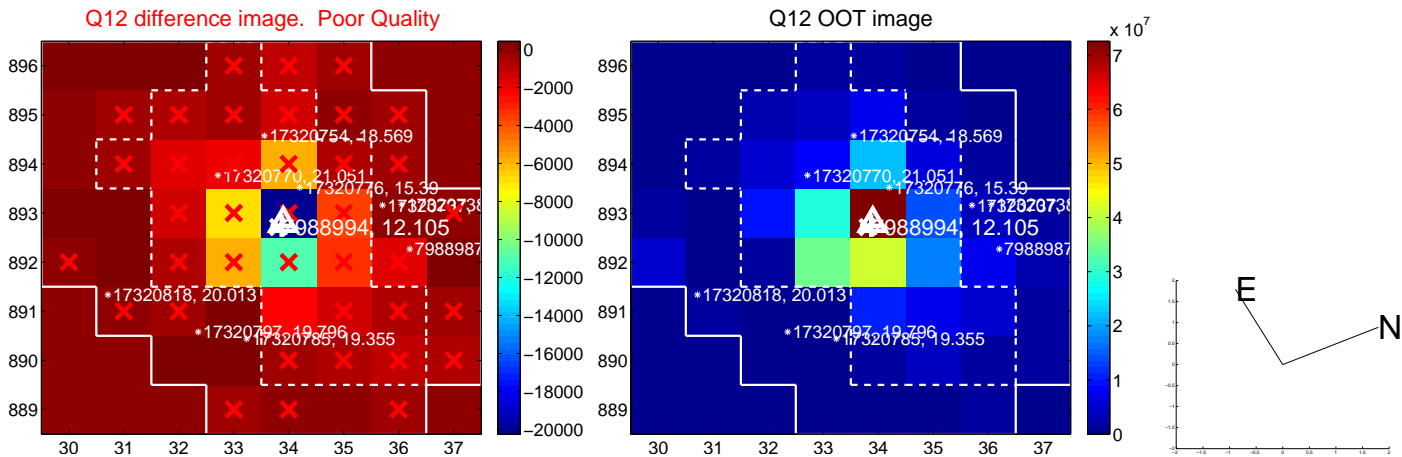
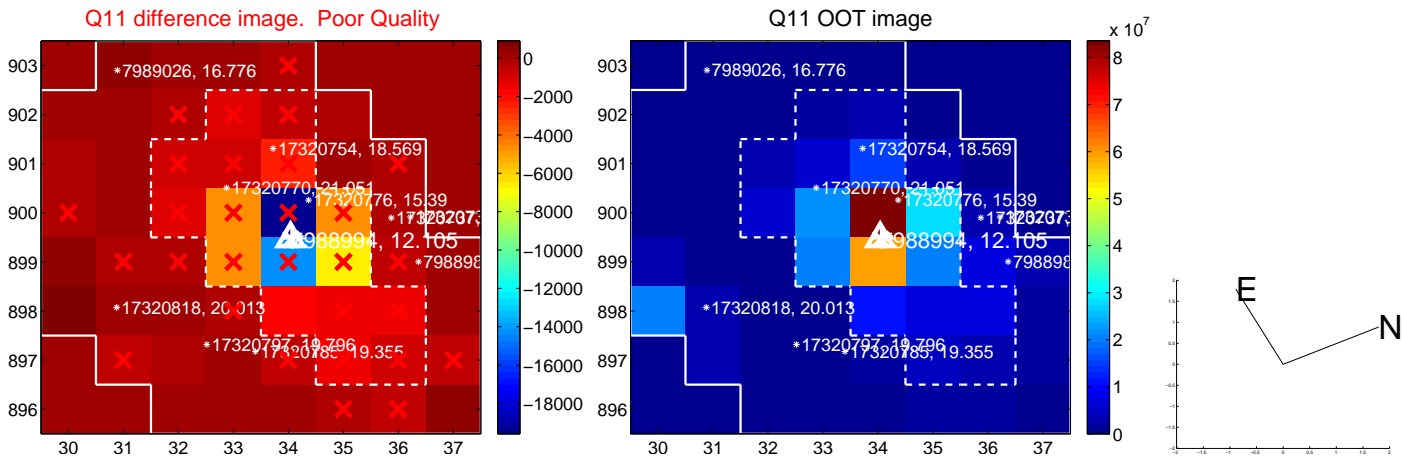
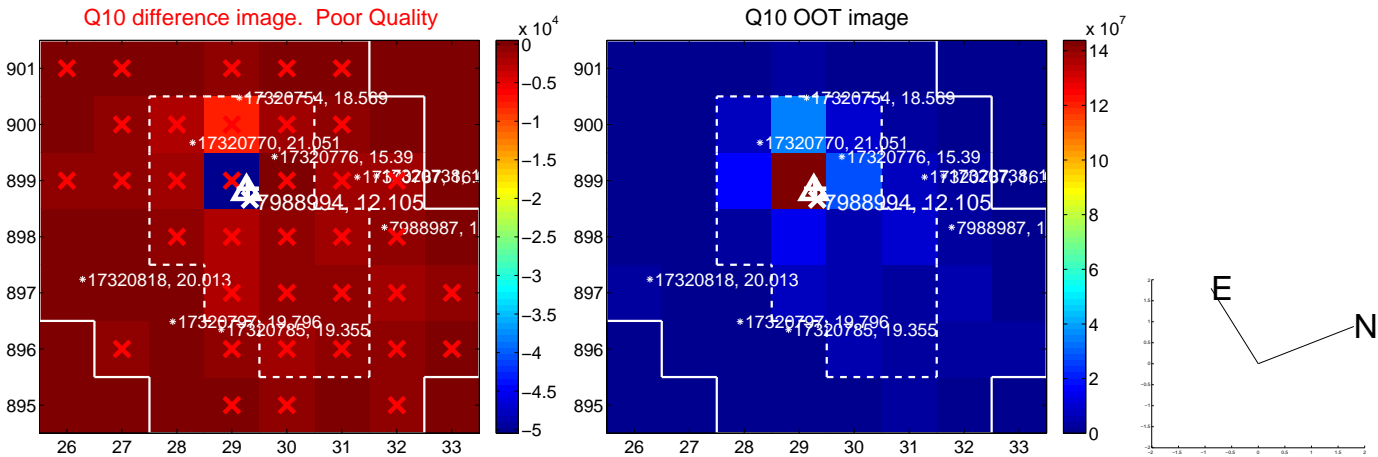
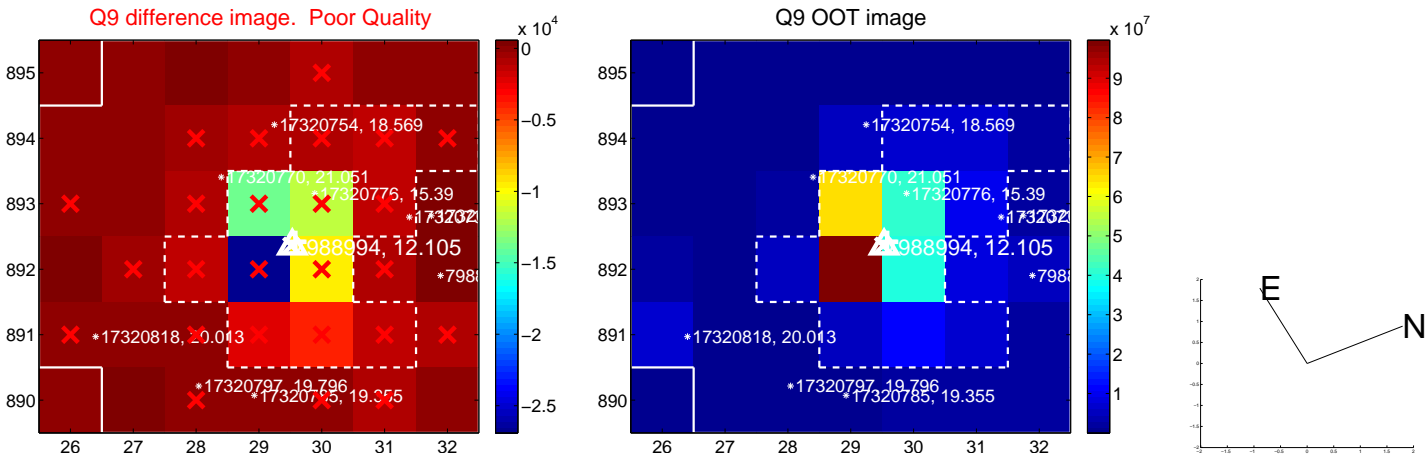
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



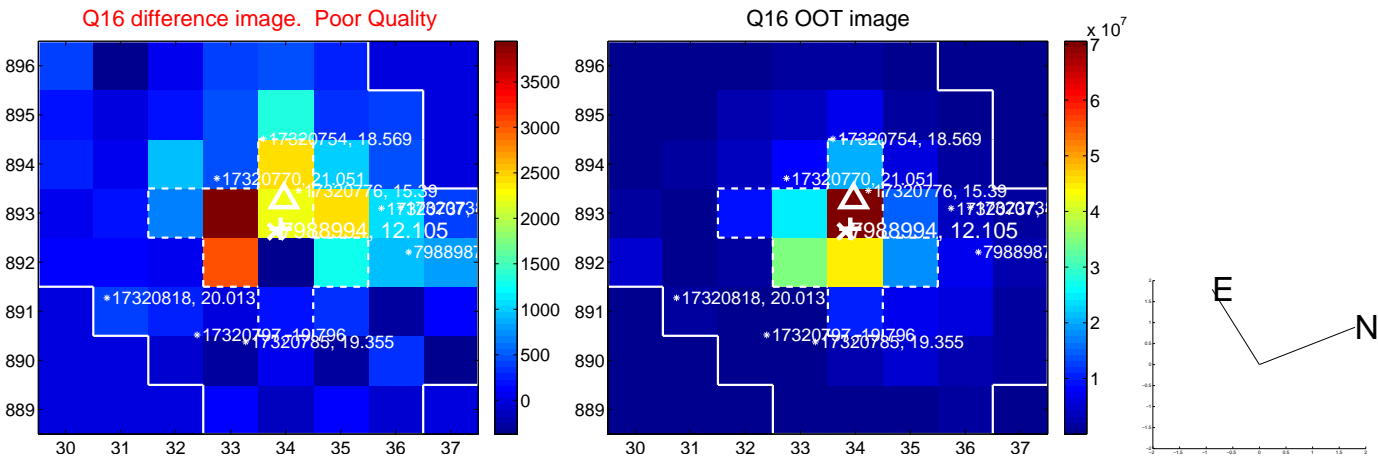
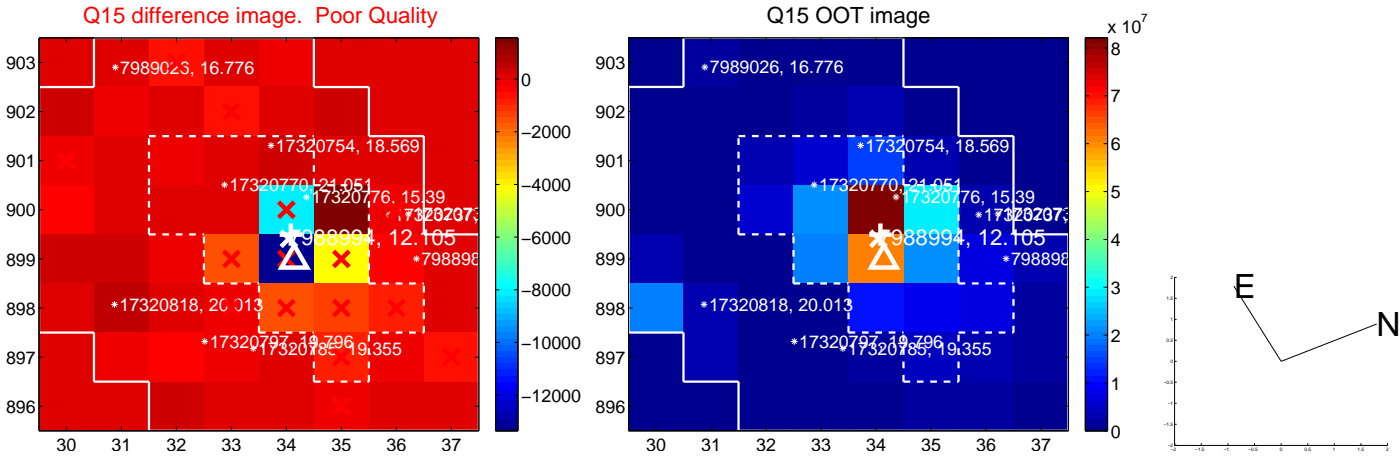
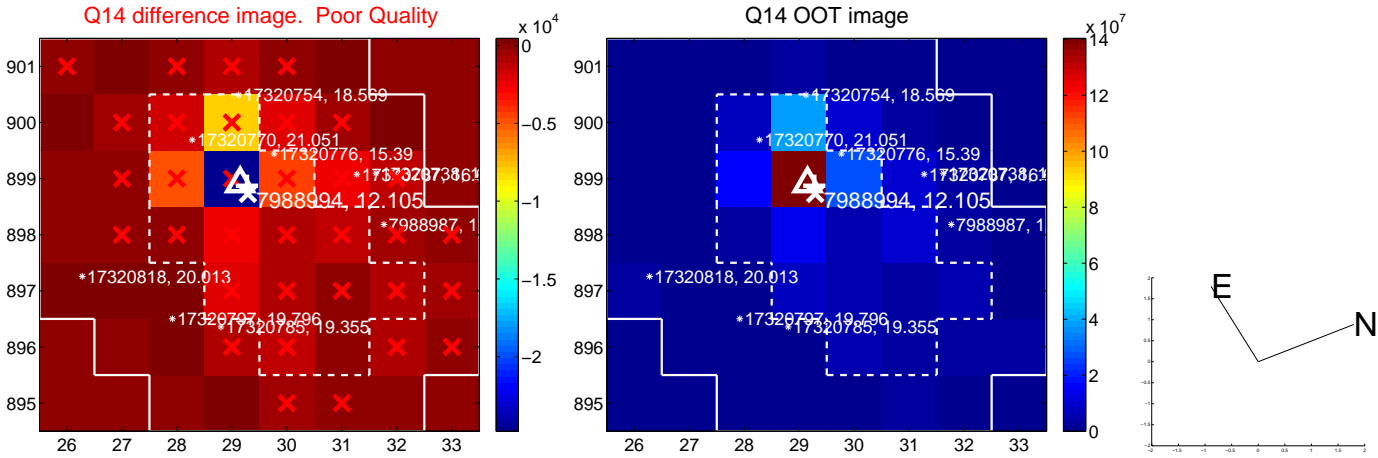
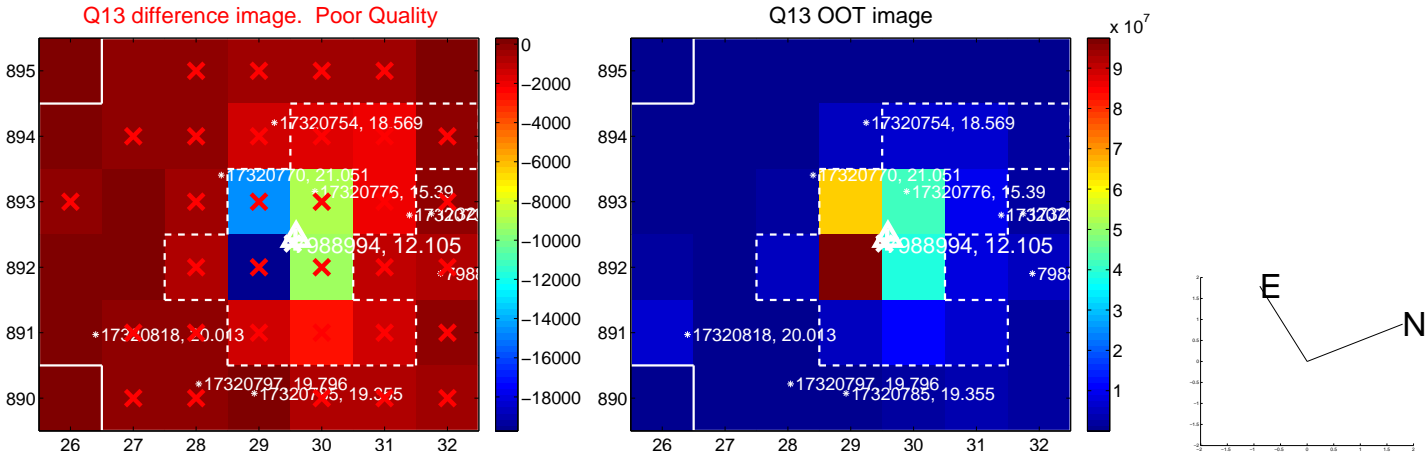
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



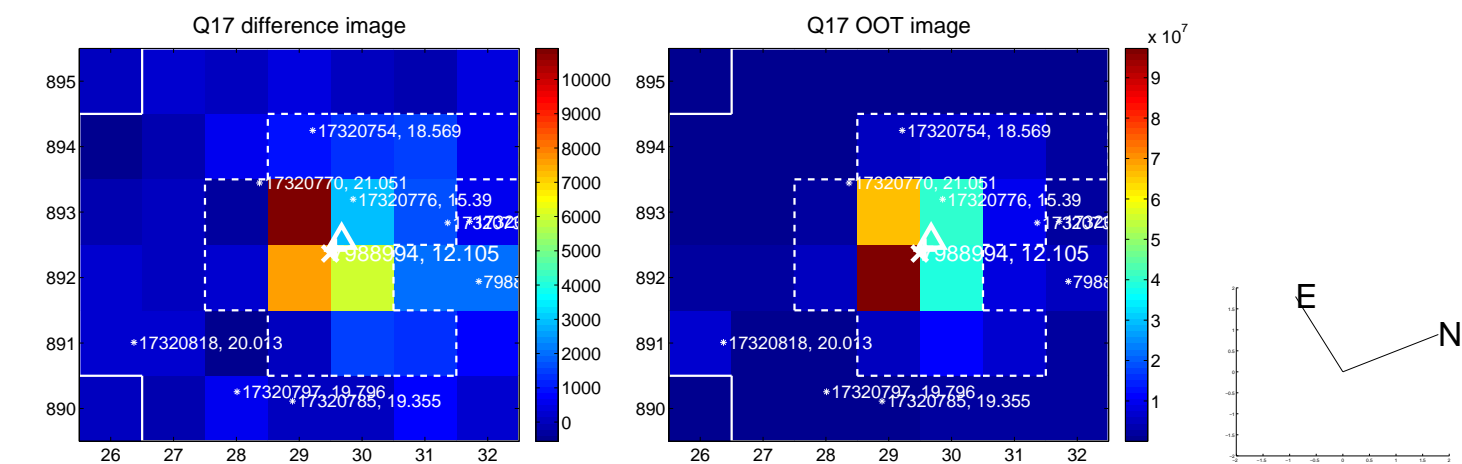
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



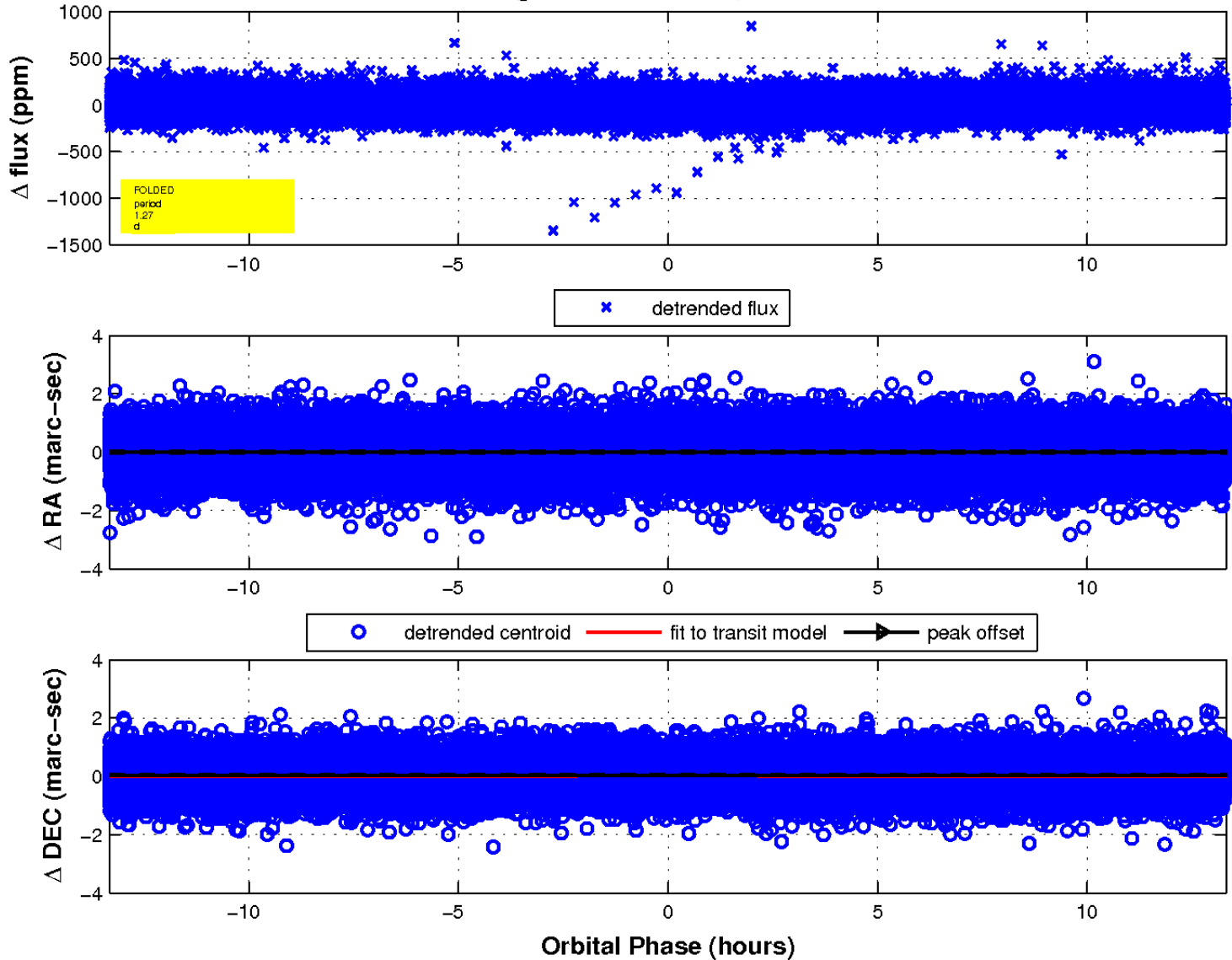
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

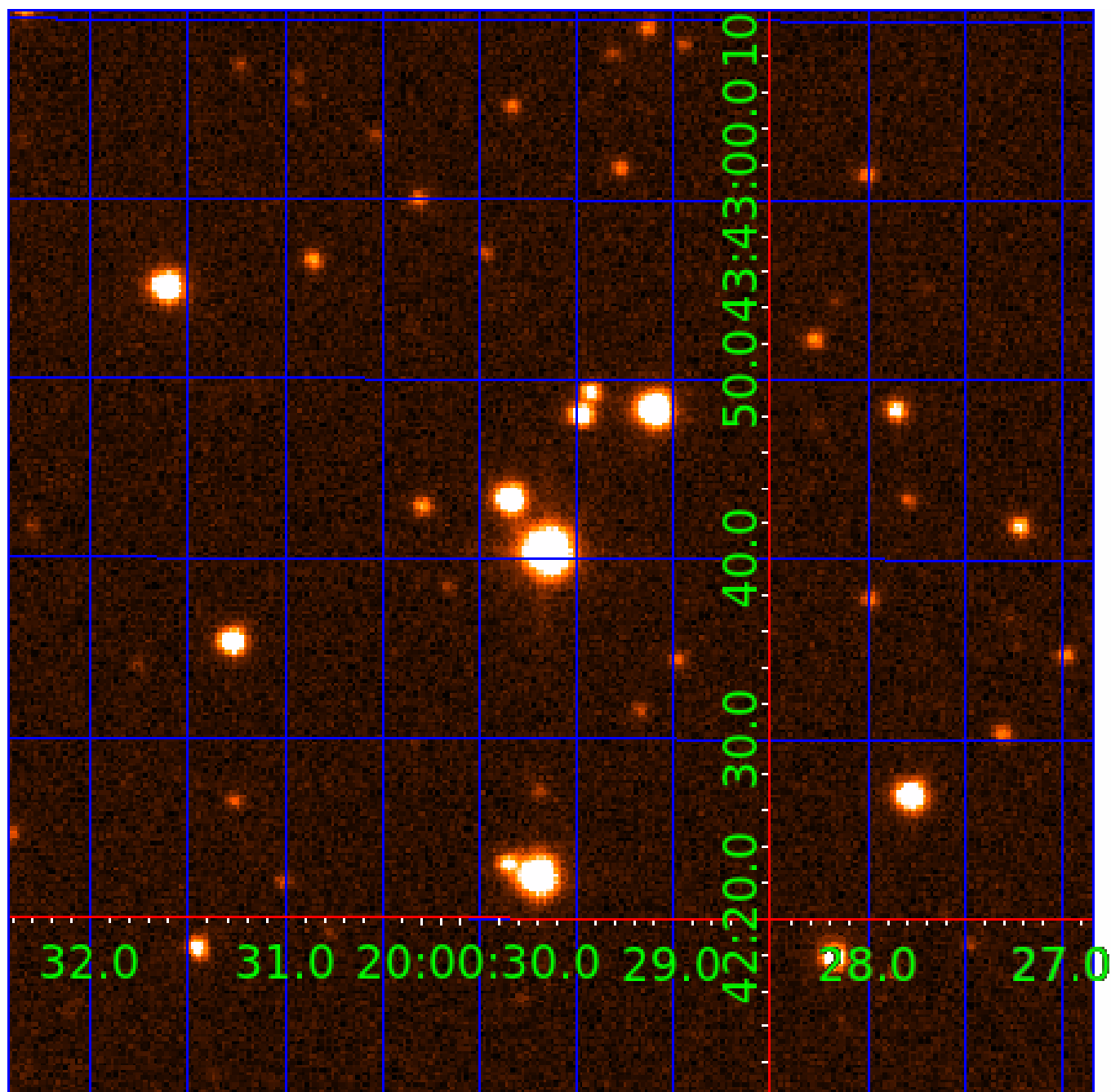


fluxWeightedCentroids, Planet 5 of 7



UKIRT Image

Declination



KIC 007988994

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})
007988994-01	OBS	No	5.062942	131.670647	67.7	2.302	19.3	21.0	2.48	8959	2.38	6229.88
007988994-02	OBS	No	5.062861	135.023334	59.9	2.806	15.0	17.0	2.48	8959	2.62	6230.01
007988994-03	OBS	No	5.062900	132.332088	42.8	1.983	11.2	12.9	2.48	8959	1.88	6229.95
007988994-04	OBS	No	5.062899	132.758291	46.8	1.942	11.2	14.3	2.48	8959	1.80	6229.95
007988994-05	OBS	No	1.265656	131.954276	14.3	4.441	11.0	11.7	2.48	8959	1.06	39560.61
007988994-06	OBS	No	5.062902	136.458912	179.7	2.500	11.1	-1.0	2.48	8959	3.39	6229.95
007988994-07	OBS	No	2.531530	132.435460	10.7	9.112	7.9	4.7	2.48	8959	0.94	15697.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007988994-01	OBS	FP	0.00	1	0	0	0	LPP_DV
007988994-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-05	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
007988994-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
007988994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

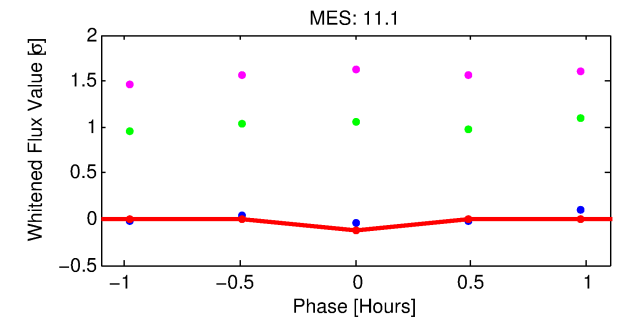
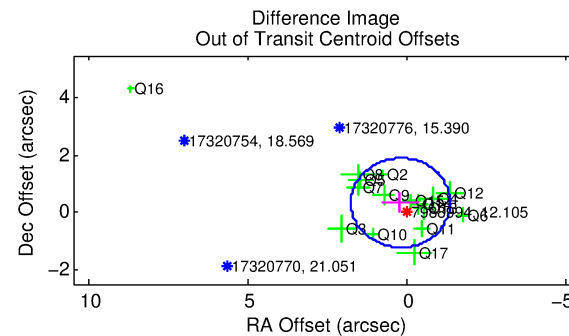
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

Ephemeris Match Information For 007988994-06

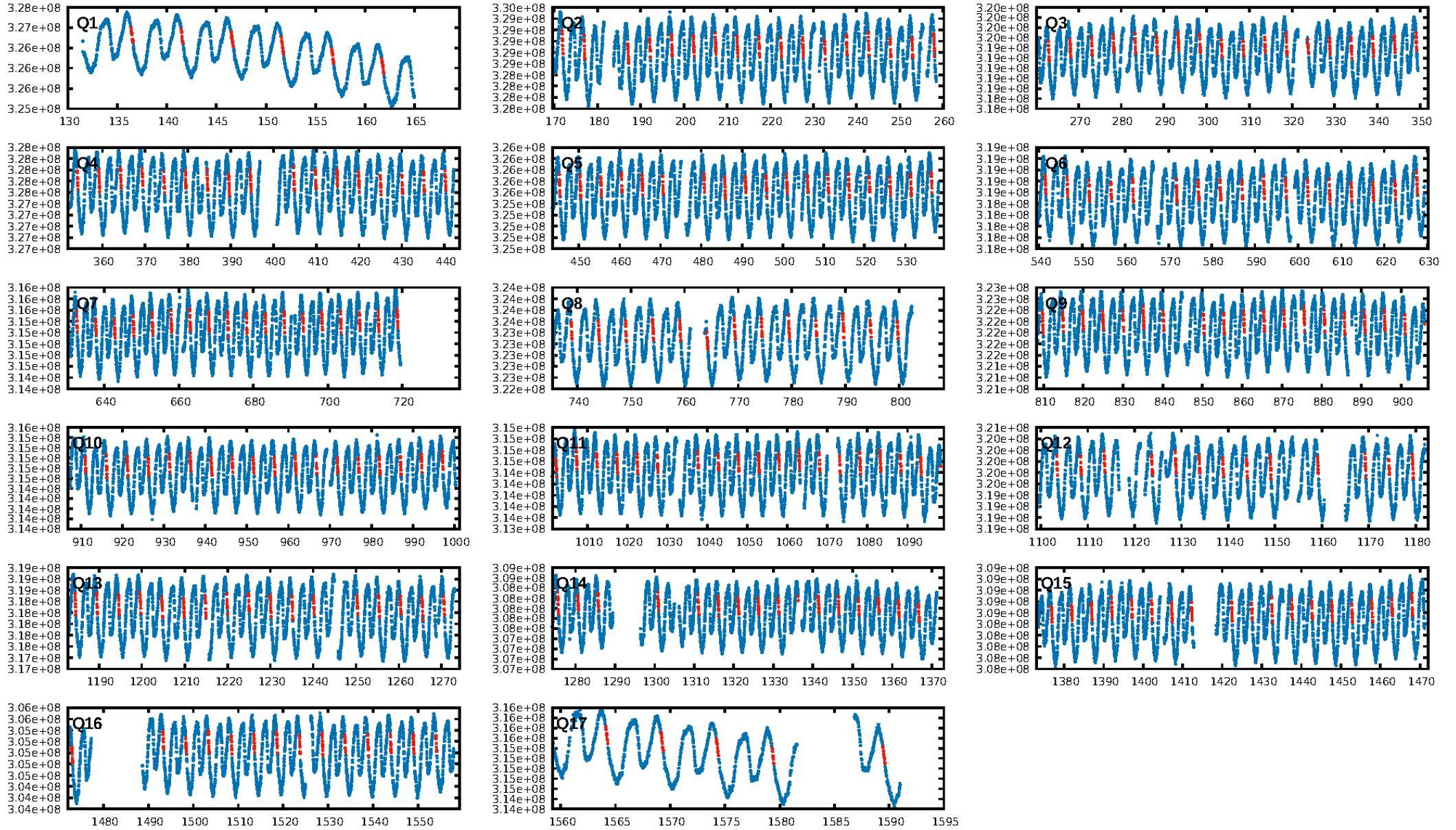
No Significant Match Found

KIC: 7988994 Candidate: 6 of 7 Period: 5.063 d

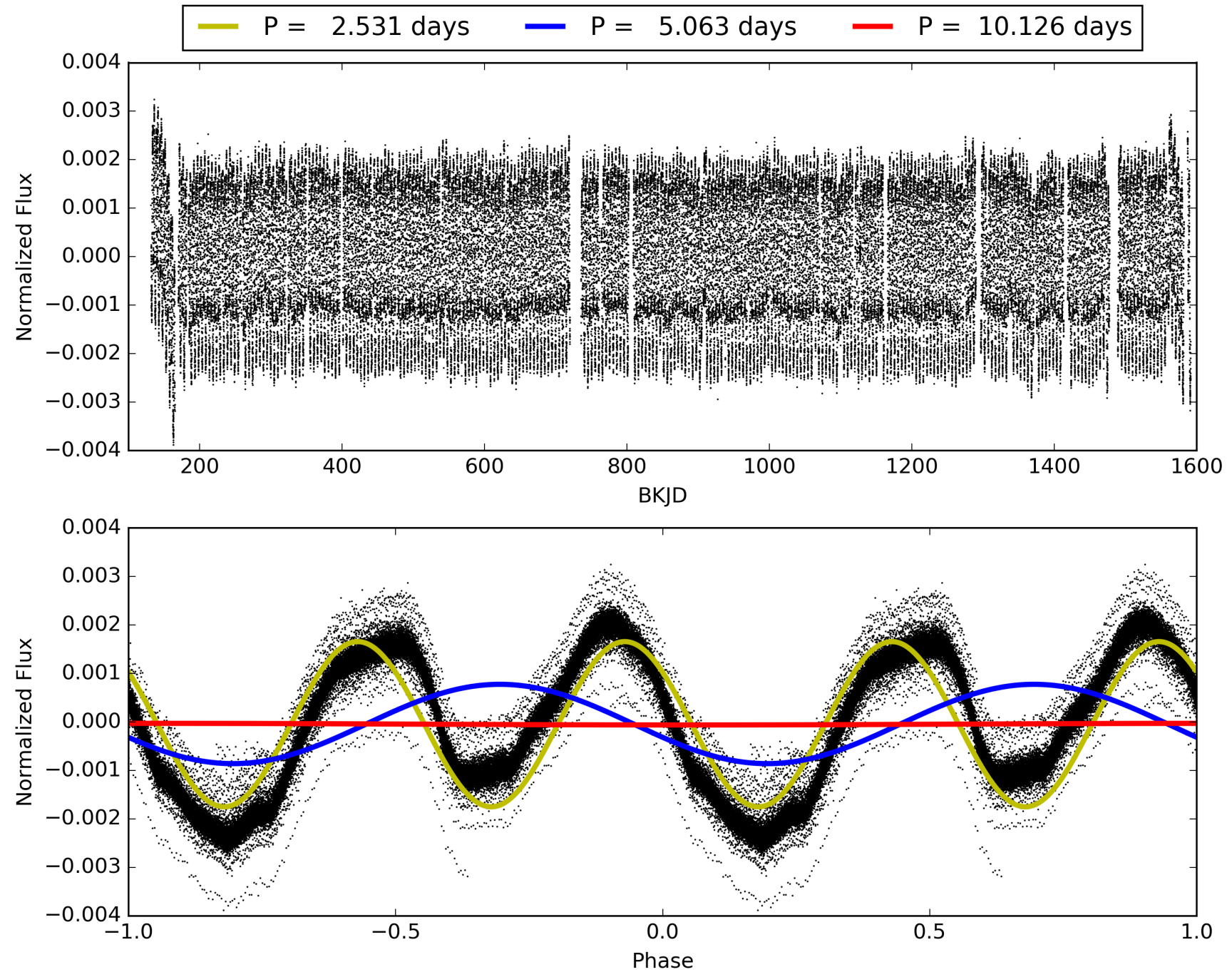


Centroid-sig: 0.0%
Centroid-so: 8.931 arcsec [3.67σ]
OotOffset-rm: 0.398 arcsec [0.76σ]
KicOffset-rm: 0.772 arcsec [1.28σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-figm: 0.00 [0/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007988994-06, PDC Light Curves

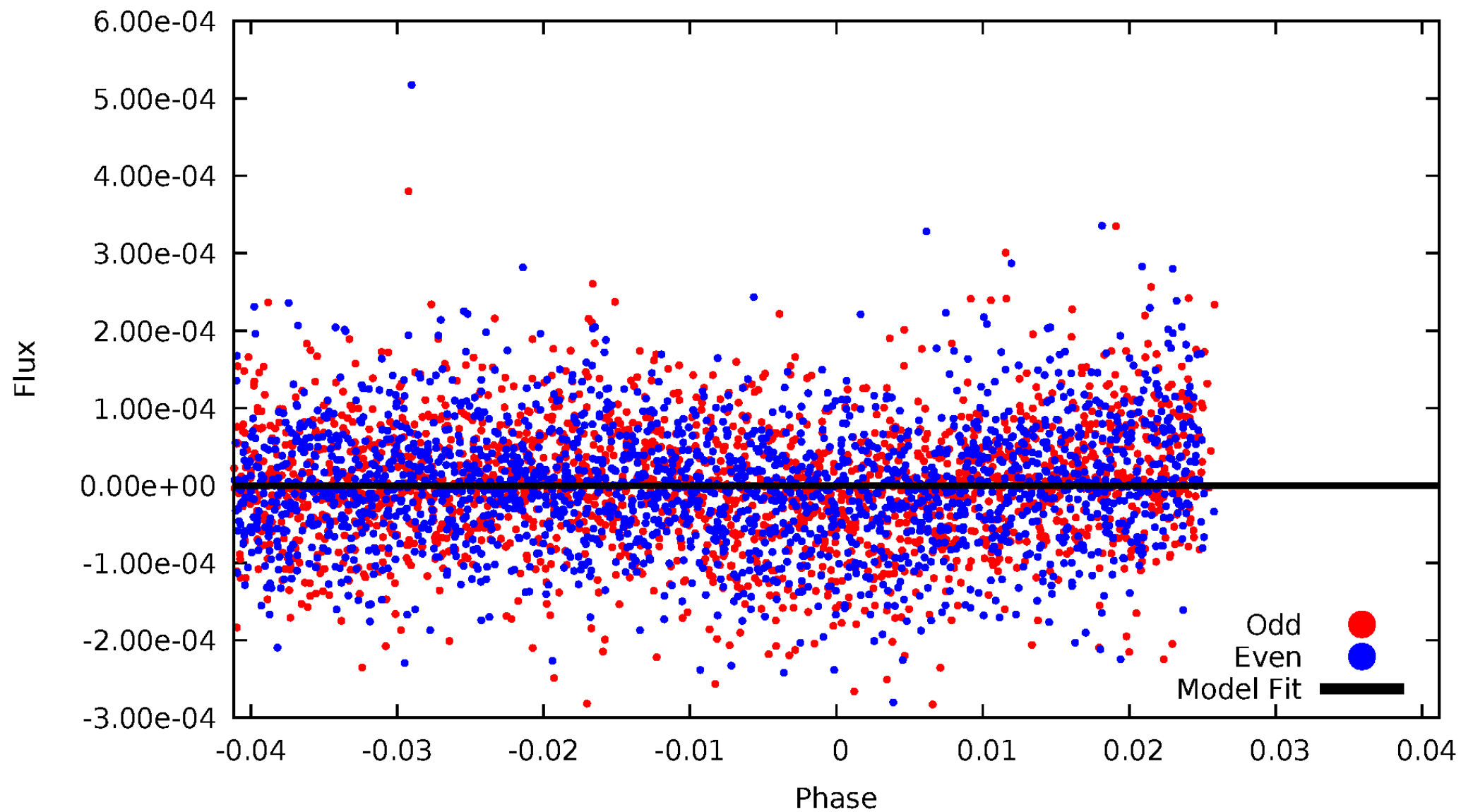


TCE 007988994-06



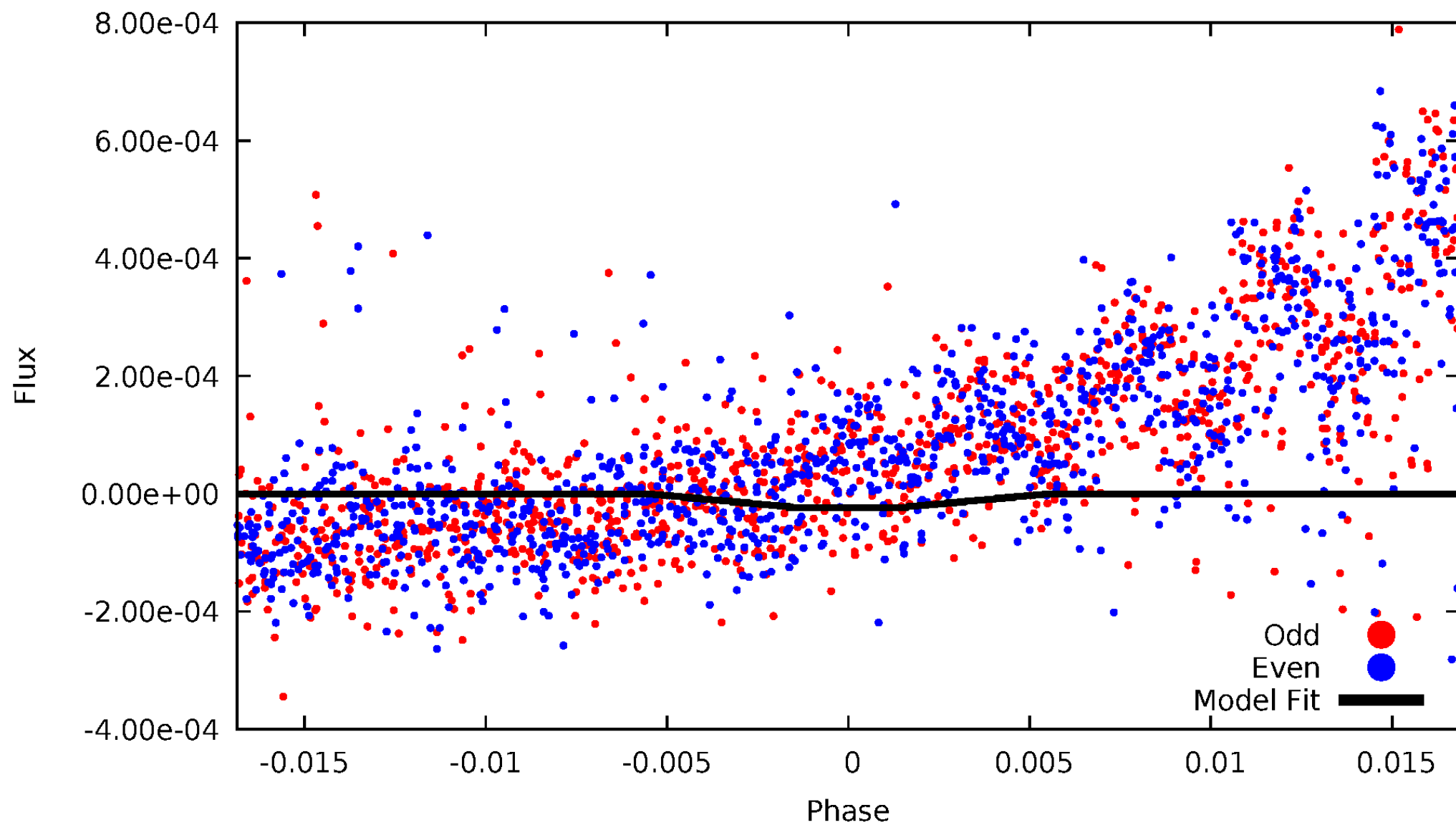
DV Odd/Even

TCE 007988994-06



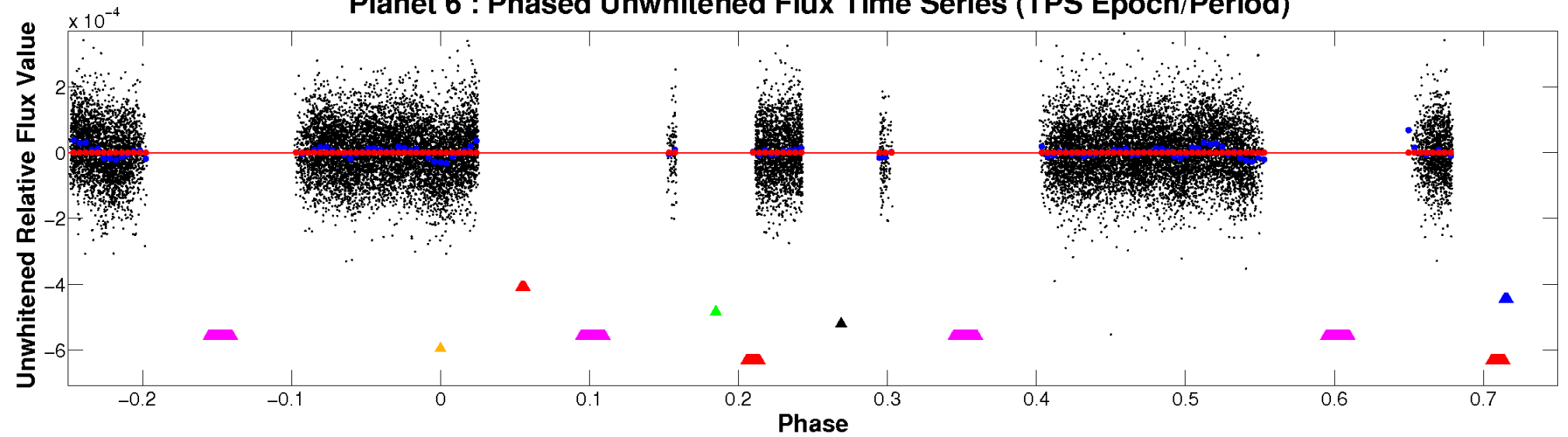
ALT Odd/Even

TCE 007988994-06



Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

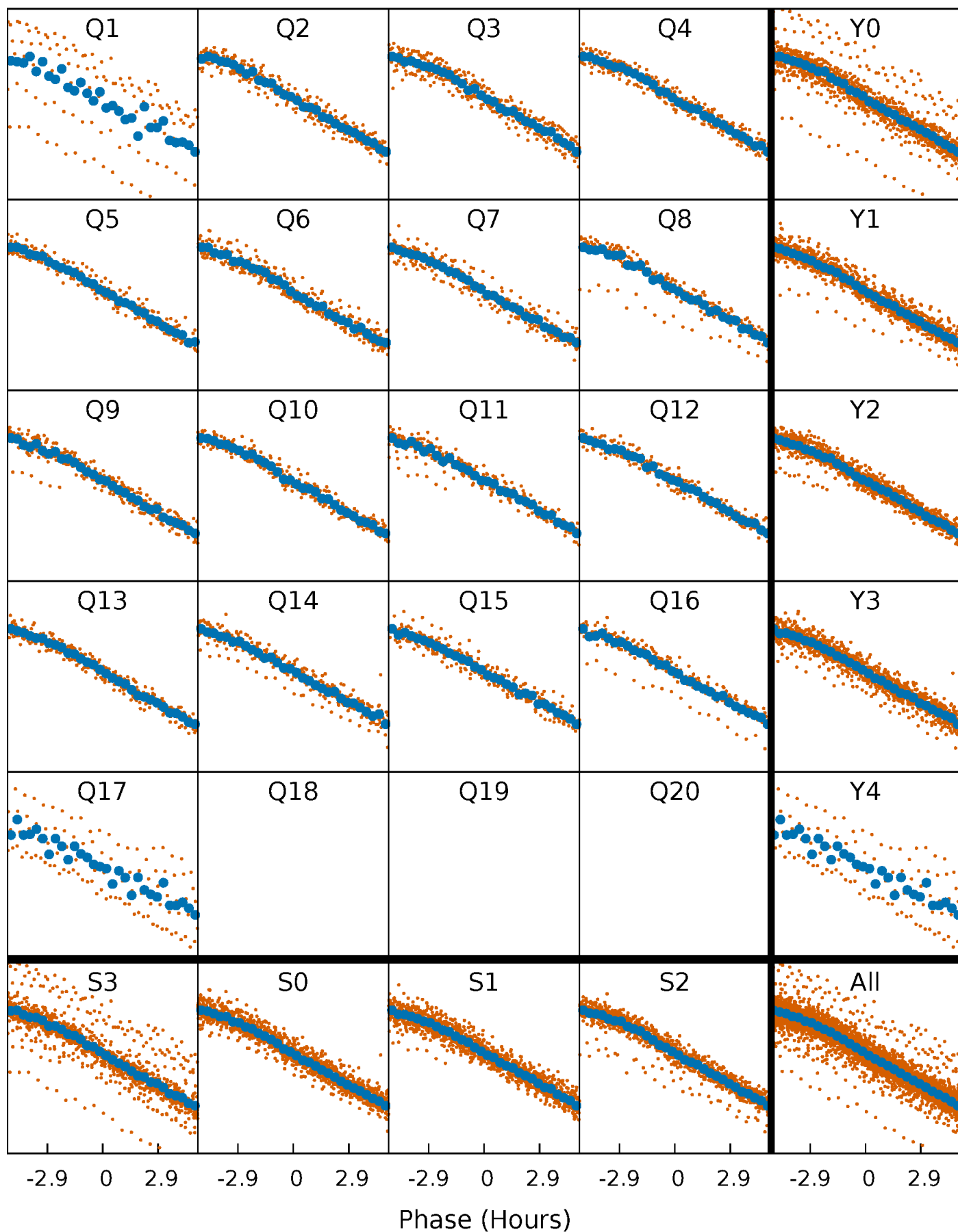


Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)



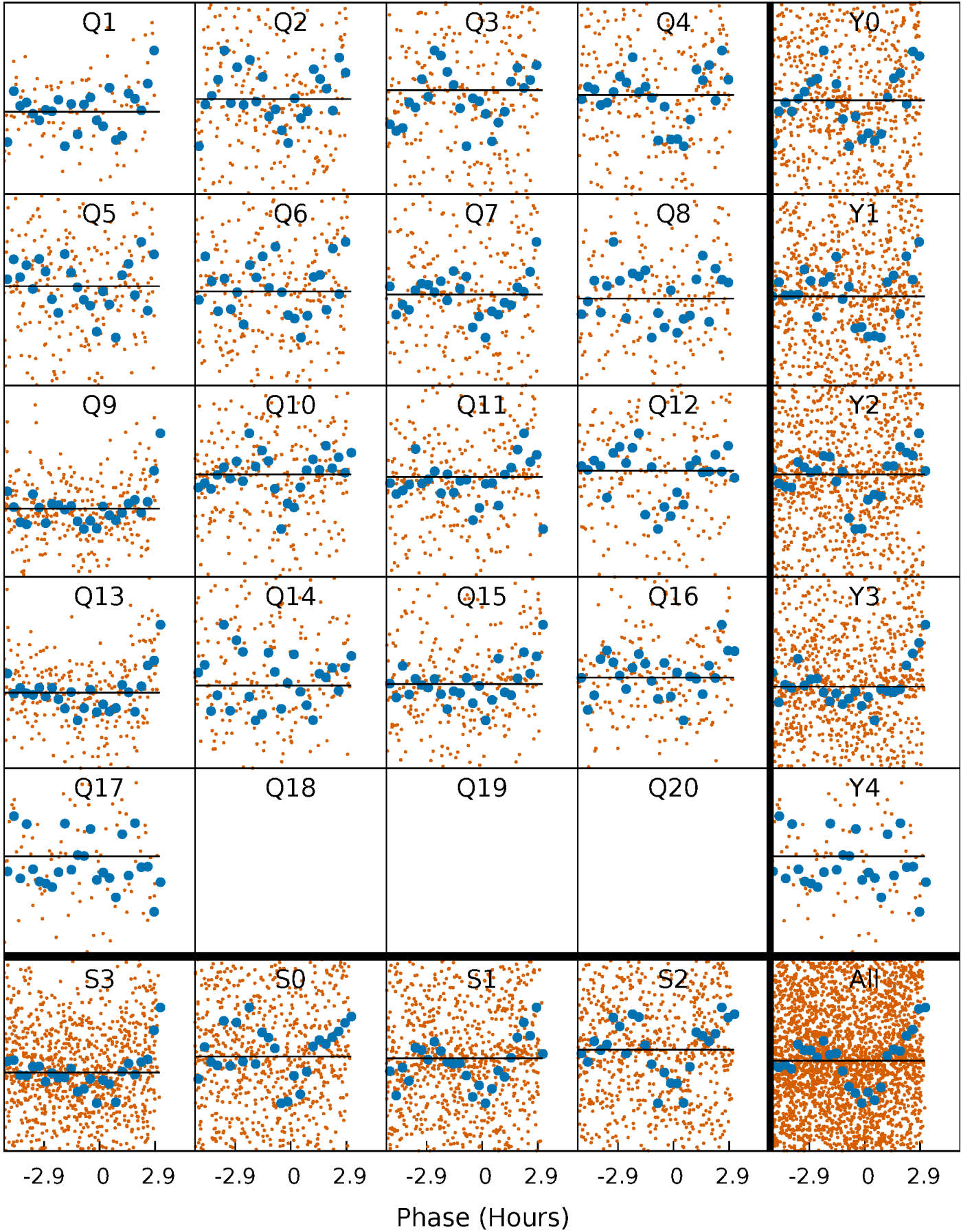
PDC Quarter-Phased Transit Curves

TCE 007988994-06 P= 5.062902 Days $T_0=136.458912$ (BKJD)



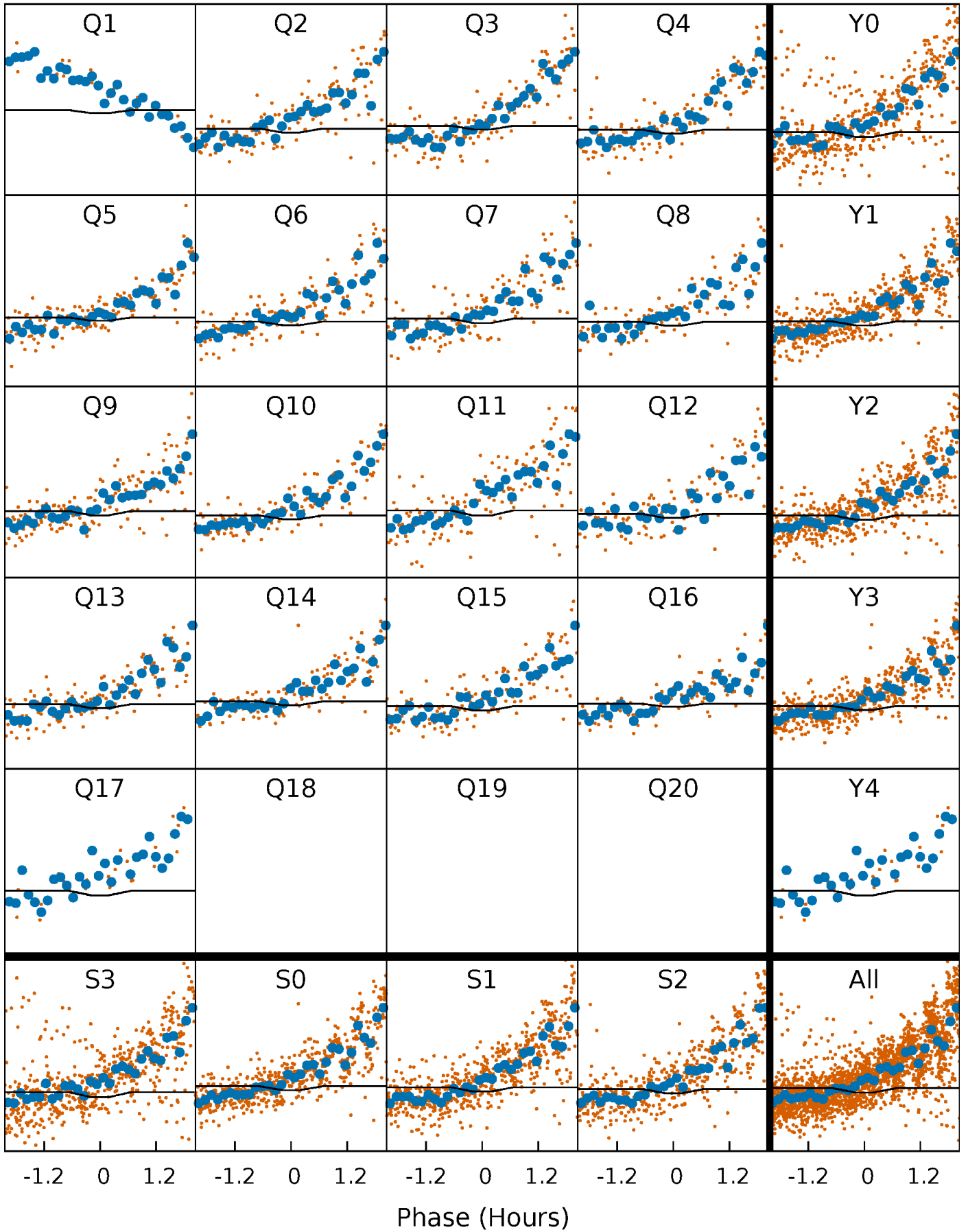
DV Quarter-Phased Transit Curves

TCE 007988994-06 P= 5.062902 Days $T_0=136.458912$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

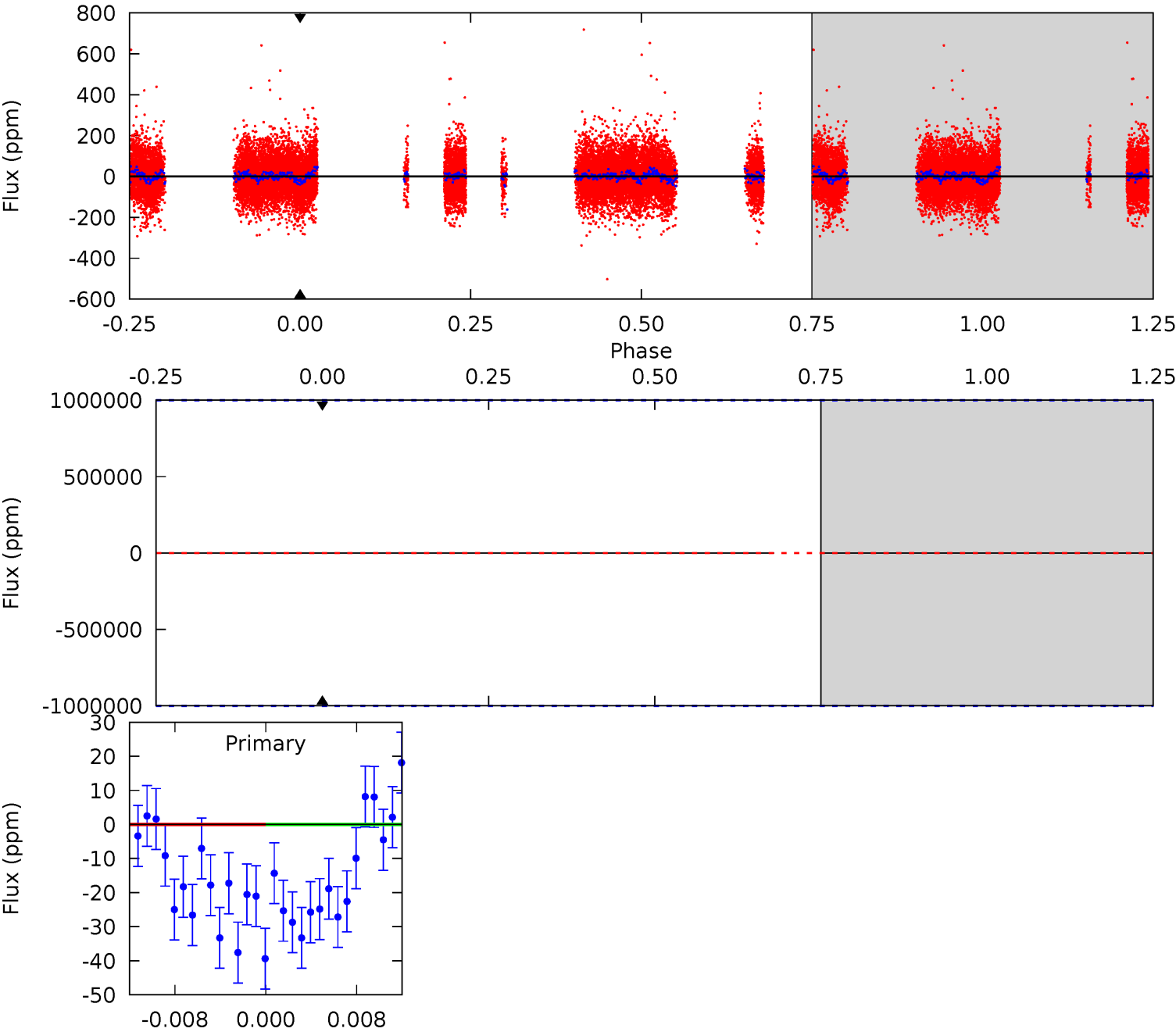
TCE 007988994-06 P= 5.062902 Days $T_0=136.305448$ (BKJD)



DV Model-Shift Uniqueness Test

007988994-06, P = 5.062902 Days, E = 131.396010 Days

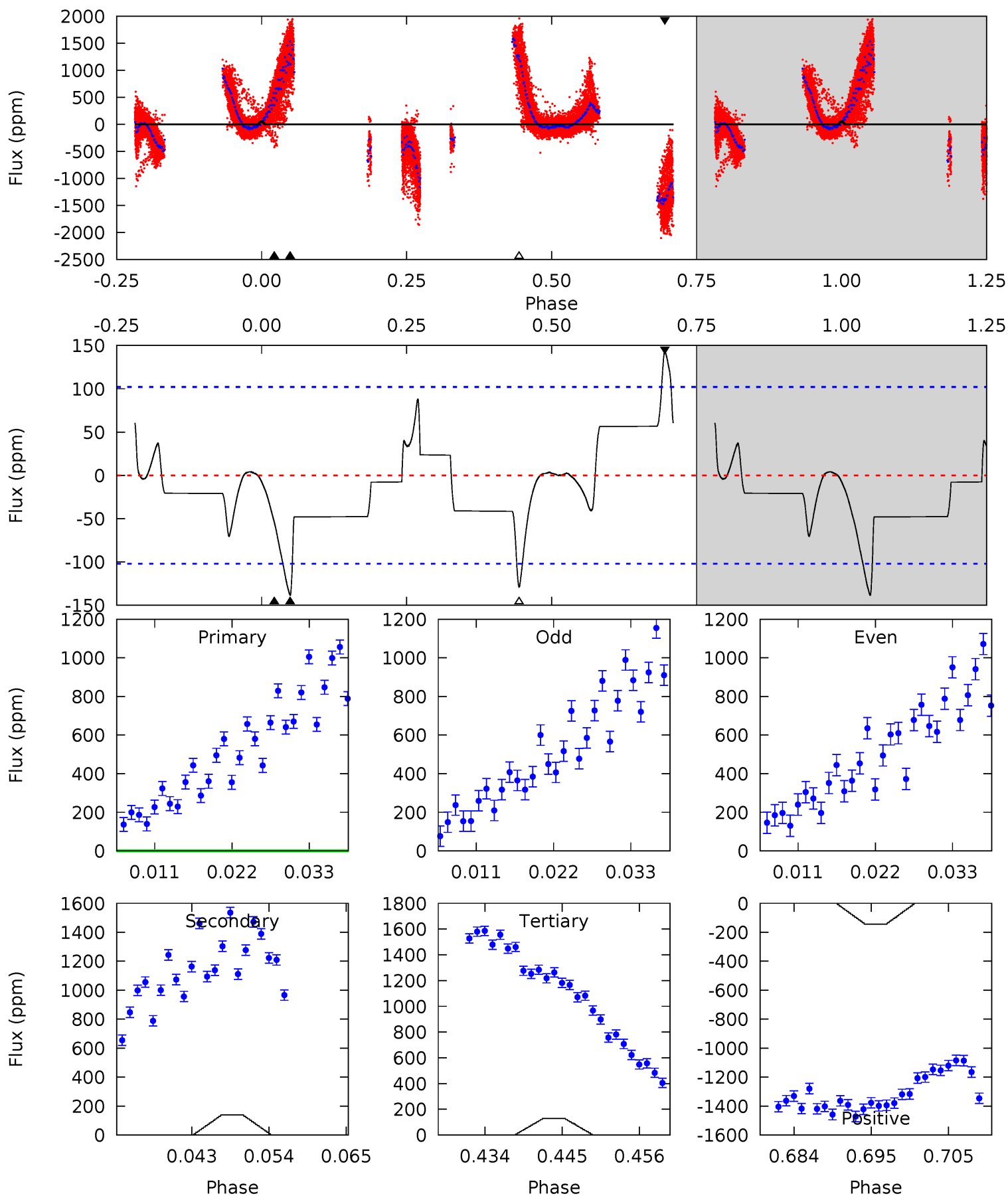
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

007988994-06, P = 5.062902 Days, E = 131.242546 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.66	6.81	6.33	7.03	5.01	2.55	2.29	-3.67	-4.38	0.48	-0.22	0.13	1.06	0.51	1.53



Stellar Parameters For KIC 007988994

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8959^{+251}_{-430}	$3.999^{+0.228}_{-0.171}$	$0.070^{+0.150}_{-0.650}$	$2.481^{+0.774}_{-0.774}$	$2.240^{+0.349}_{-0.648}$	$0.207^{+0.276}_{-0.105}$
	+3%/-5%	+6%/-4%	+214%/-929%	+31%/-31%	+16%/-29%	+134%/-51%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007988994-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$17.69^{+20.45}_{-12.72}$	3146^{+257}_{-274}	5310^{+79361}_{-74451}	$4.587^{+2202.889}_{-1751.849}$
Alt.	-139 ± 20	$18.42^{+20.23}_{-12.74}$	3132^{+274}_{-282}	3674^{+2537}_{-5815}	$1.200^{+12.144}_{-0.912}$

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

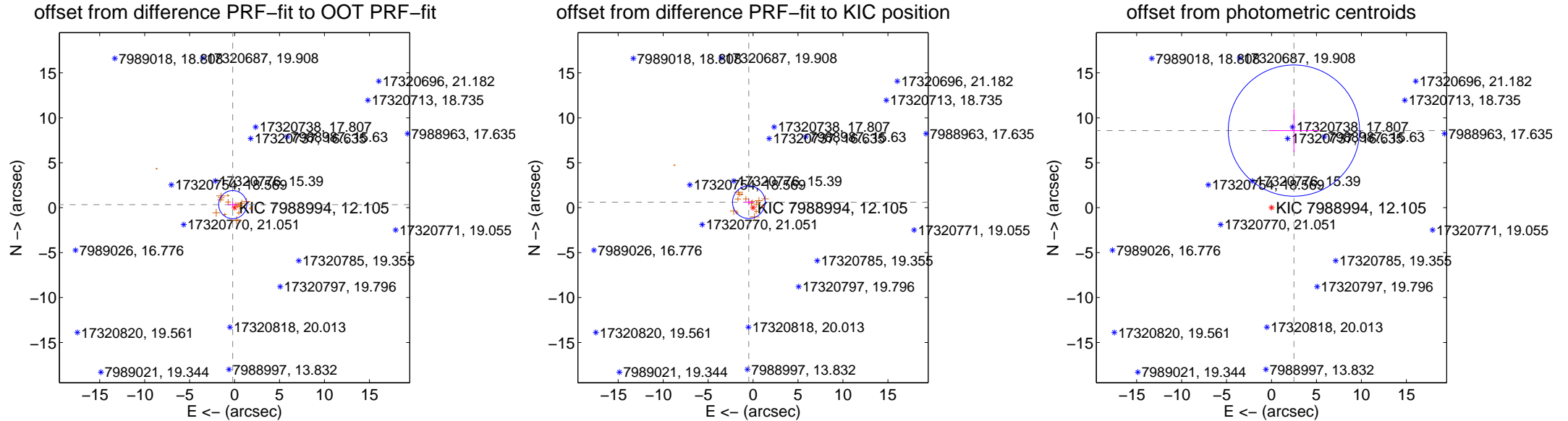
DV Centroid Data

Supplemental centroid analysis for 007988994-06. Kepler magnitude: 12.11. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

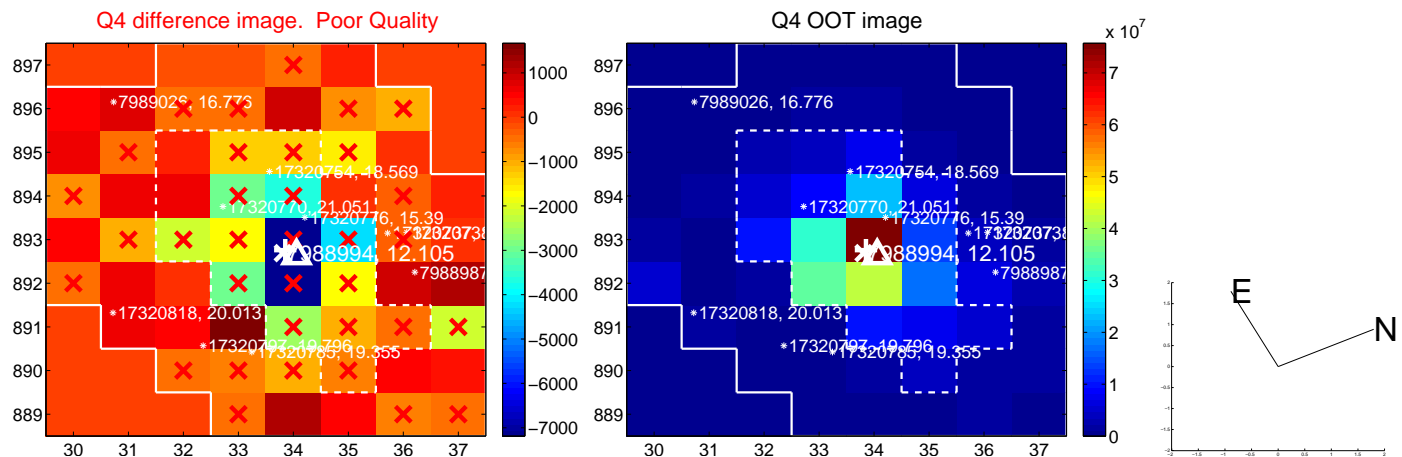
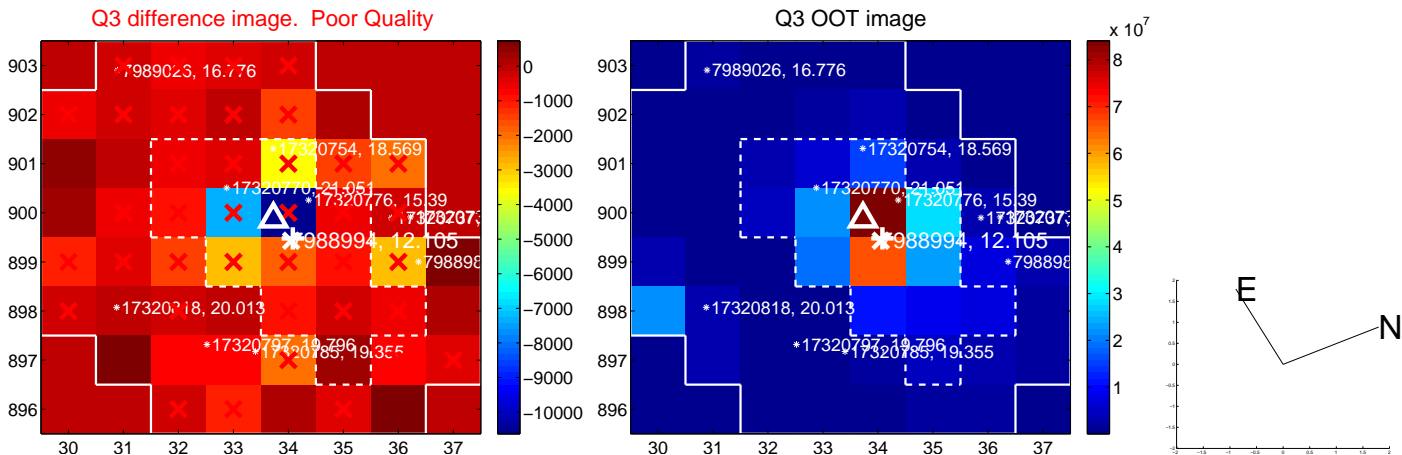
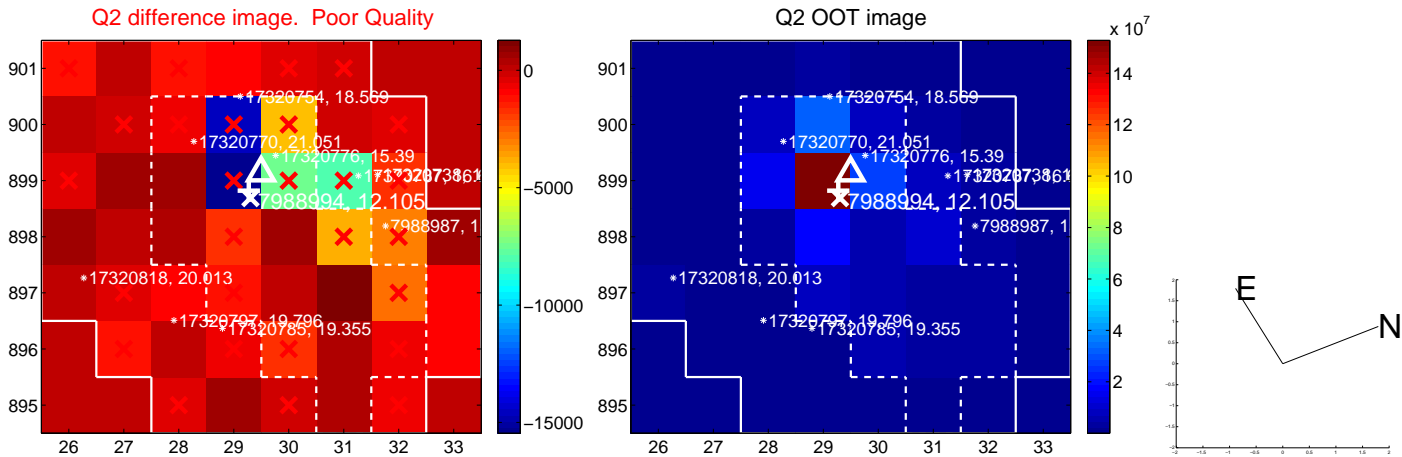
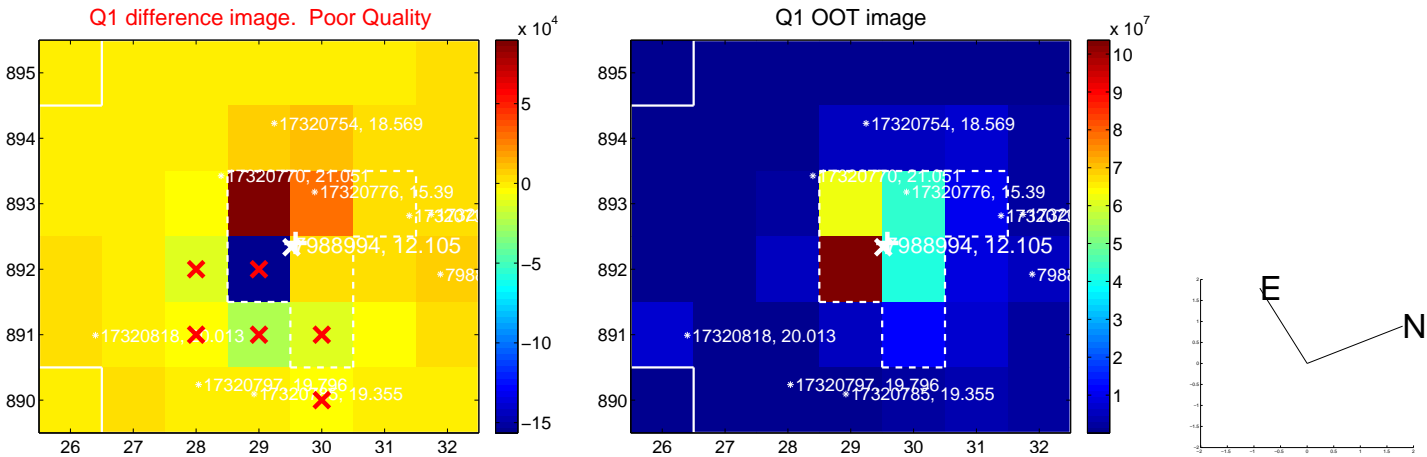
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.398 ± 0.521	0.76	0.206 ± 0.570	0.340 ± 0.316
PRF-fit source offset from KIC position	0.772 ± 0.604	1.28	0.472 ± 0.602	0.611 ± 0.345
photometric centroid source offset	8.93 ± 2.43	3.67	-2.49 ± 2.84	8.58 ± 2.40

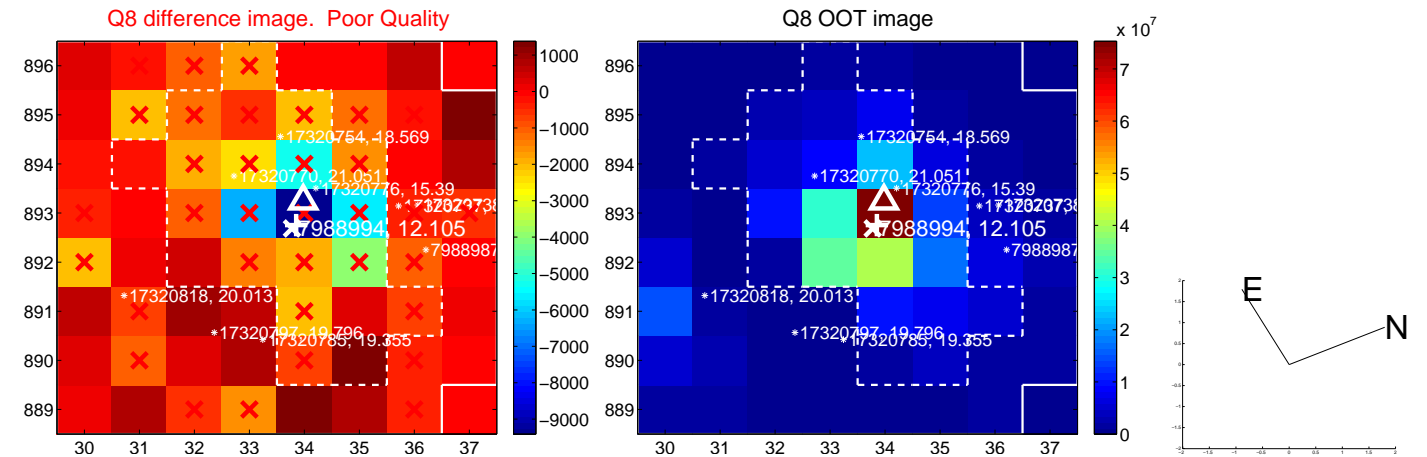
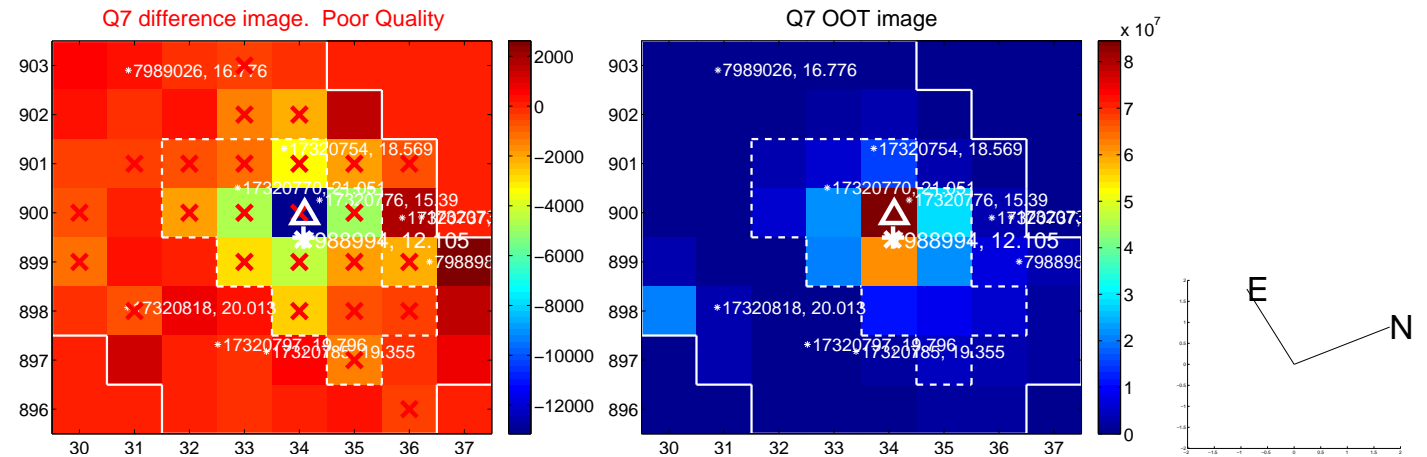
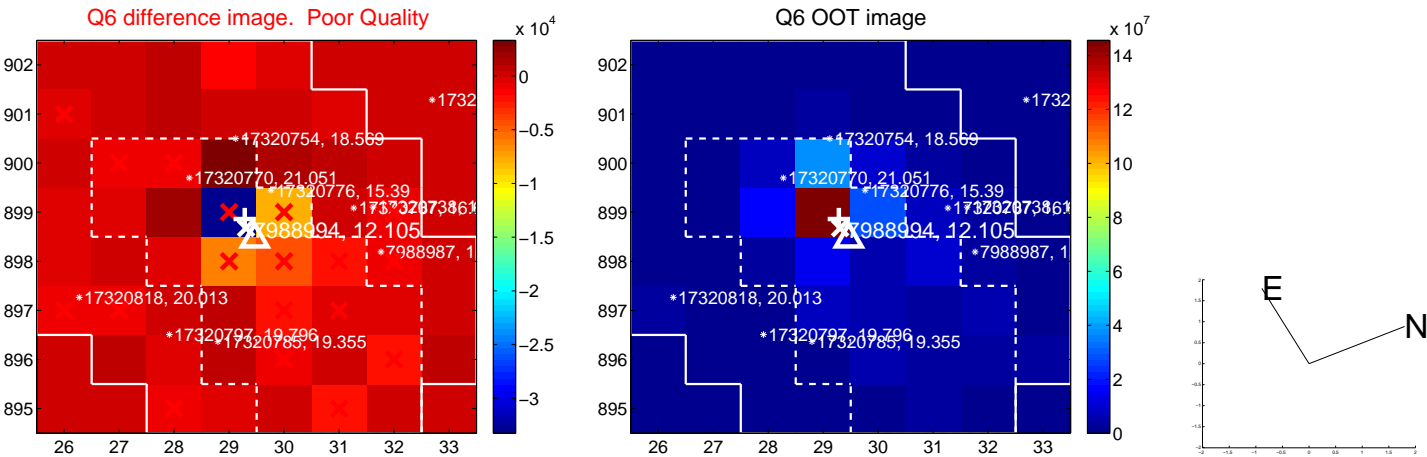
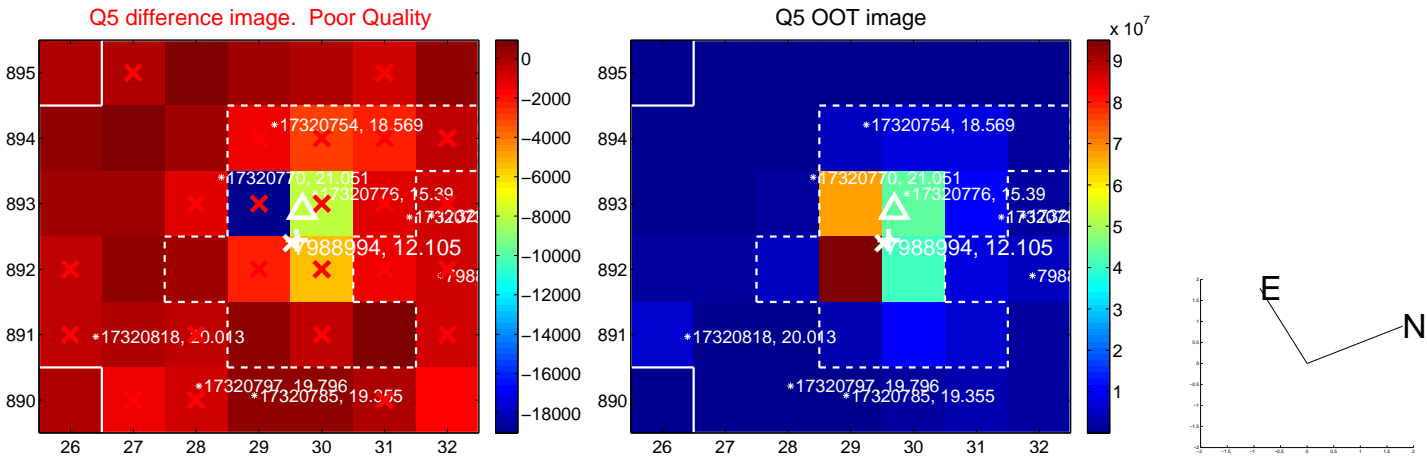


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

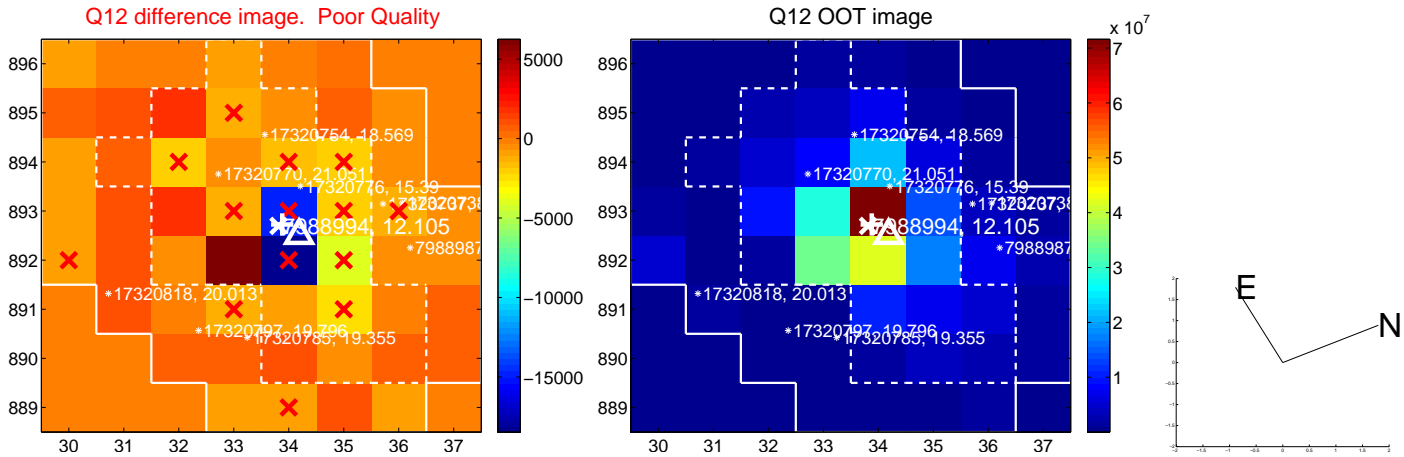
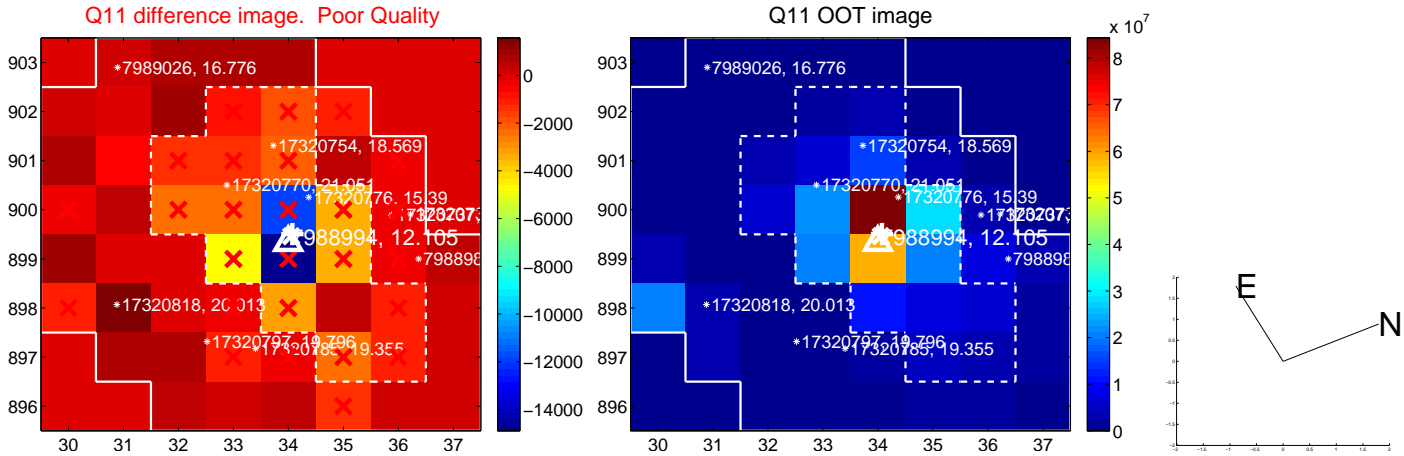
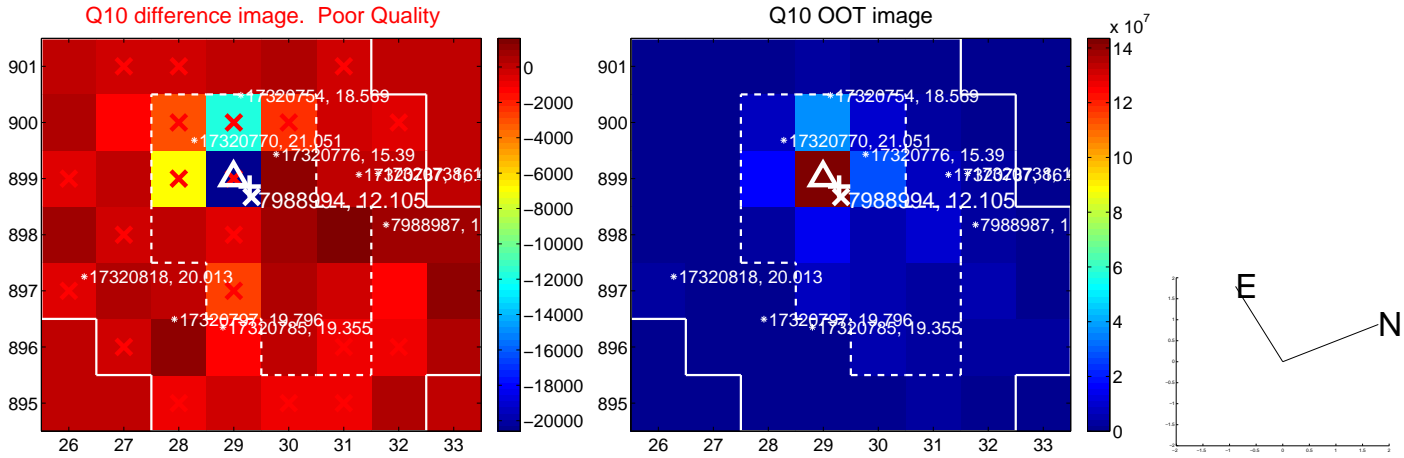
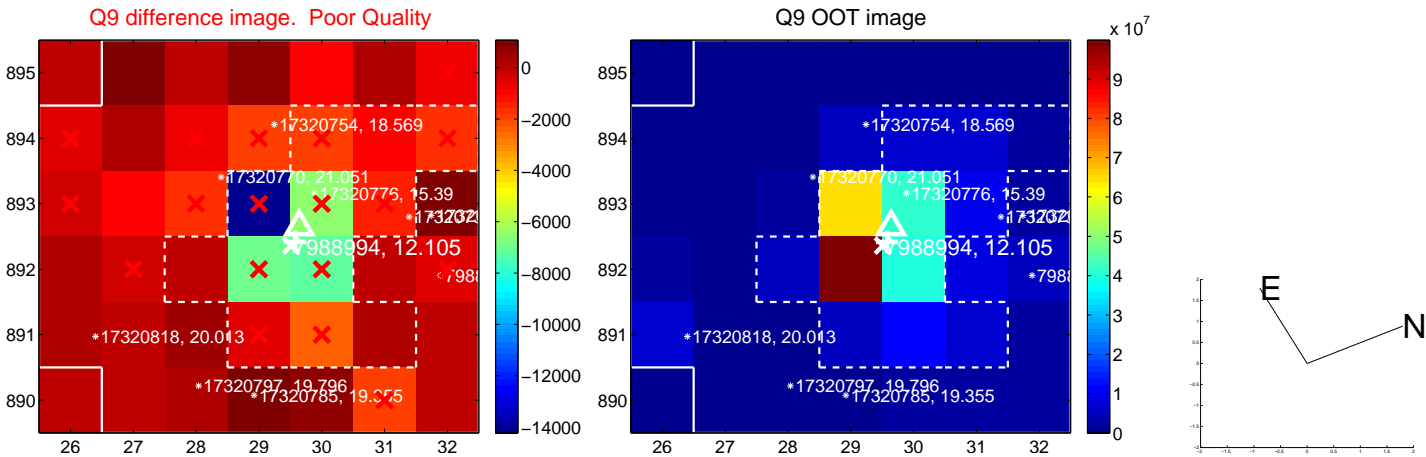
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



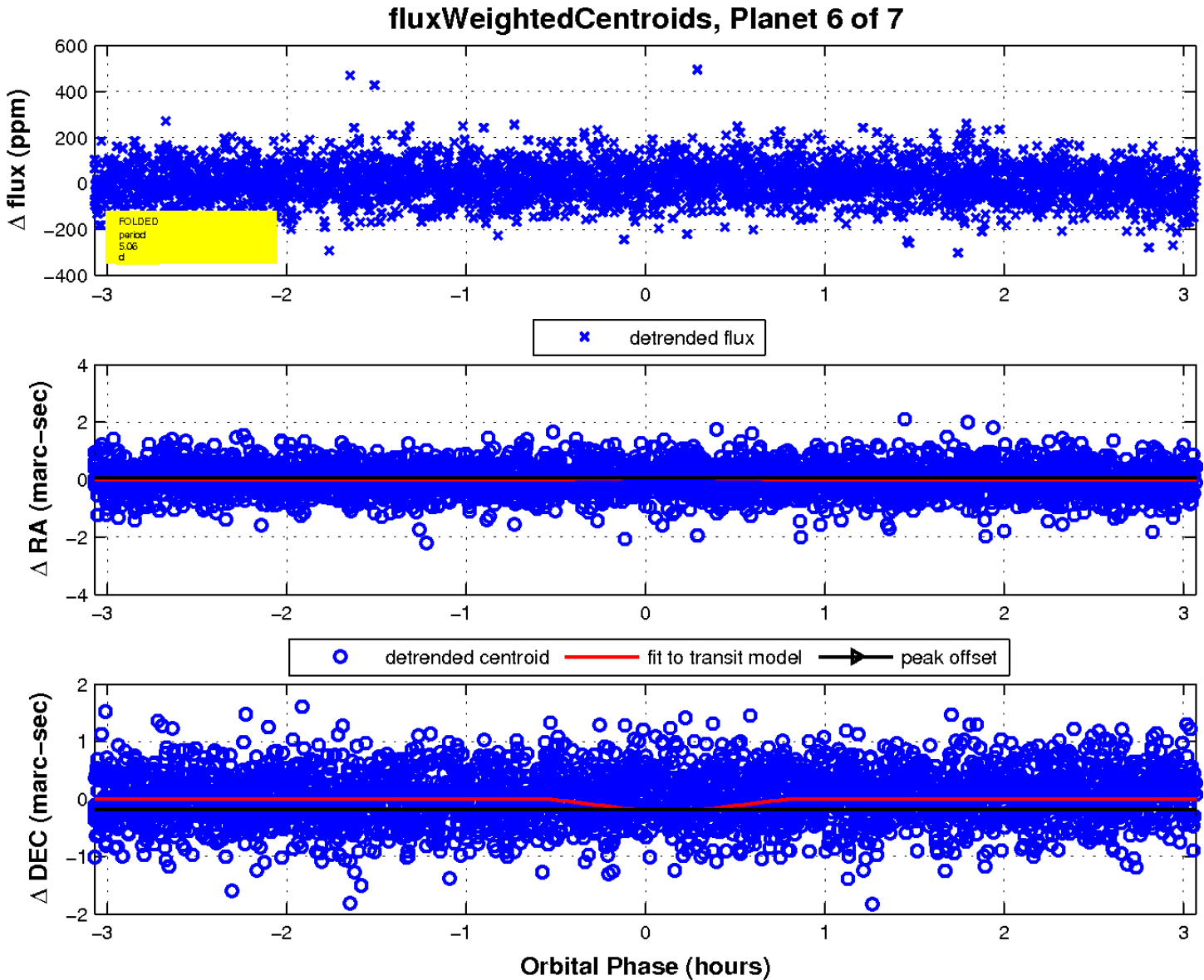
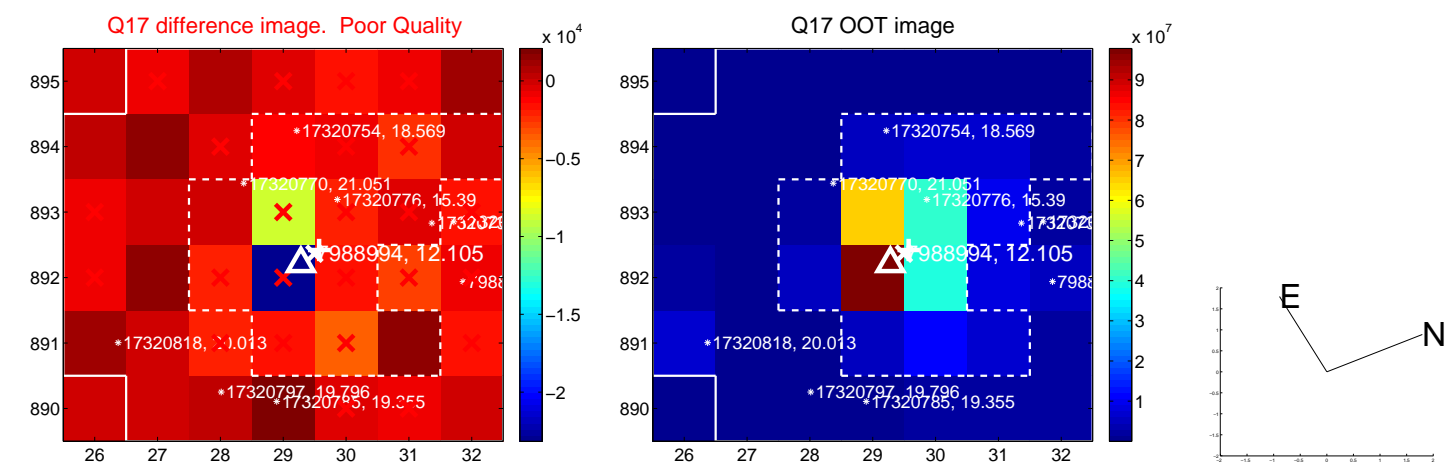
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

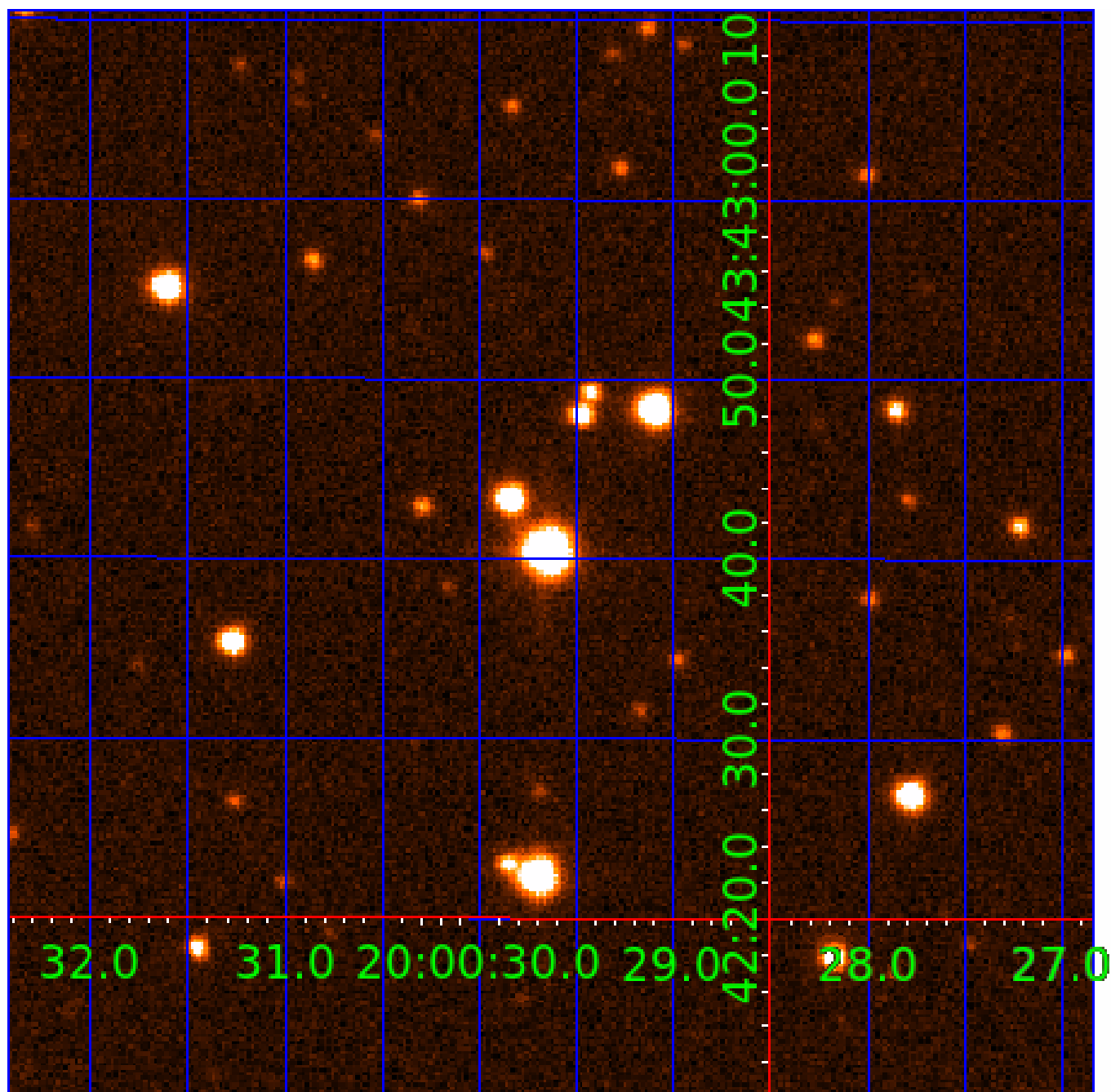


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007988994

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})
007988994-01	OBS	No	5.062942	131.670647	67.7	2.302	19.3	21.0	2.48	8959	2.38	6229.88
007988994-02	OBS	No	5.062861	135.023334	59.9	2.806	15.0	17.0	2.48	8959	2.62	6230.01
007988994-03	OBS	No	5.062900	132.332088	42.8	1.983	11.2	12.9	2.48	8959	1.88	6229.95
007988994-04	OBS	No	5.062899	132.758291	46.8	1.942	11.2	14.3	2.48	8959	1.80	6229.95
007988994-05	OBS	No	1.265656	131.954276	14.3	4.441	11.0	11.7	2.48	8959	1.06	39560.61
007988994-06	OBS	No	5.062902	136.458912	179.7	2.500	11.1	-1.0	2.48	8959	3.39	6229.95
007988994-07	OBS	No	2.531530	132.435460	10.7	9.112	7.9	4.7	2.48	8959	0.94	15697.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007988994-01	OBS	FP	0.00	1	0	0	0	LPP_DV
007988994-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
007988994-05	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
007988994-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
007988994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

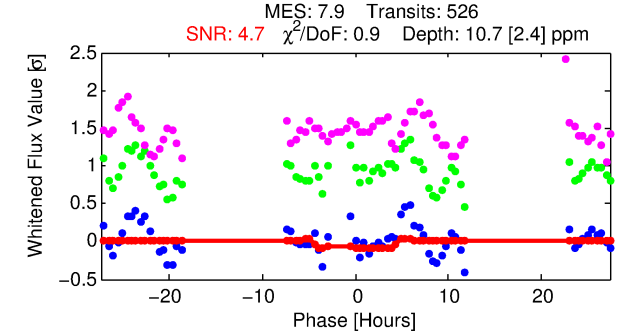
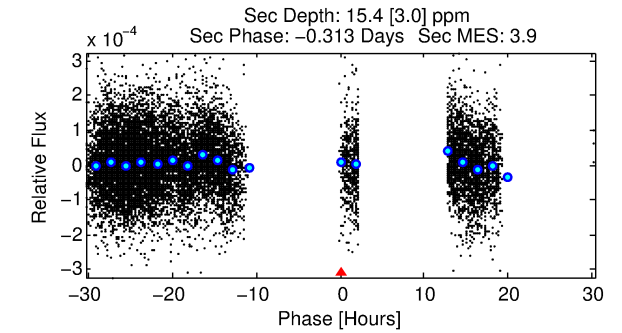
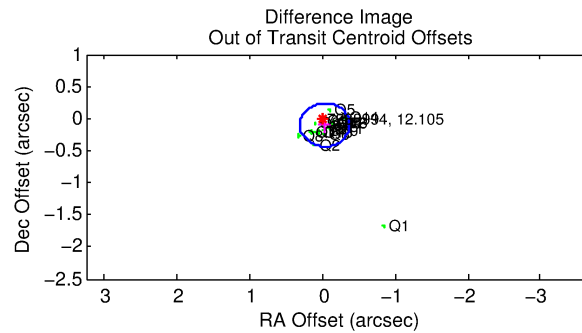
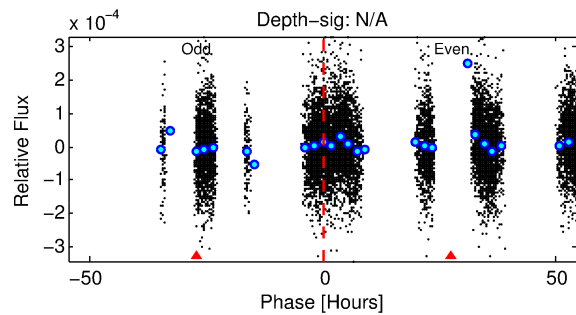
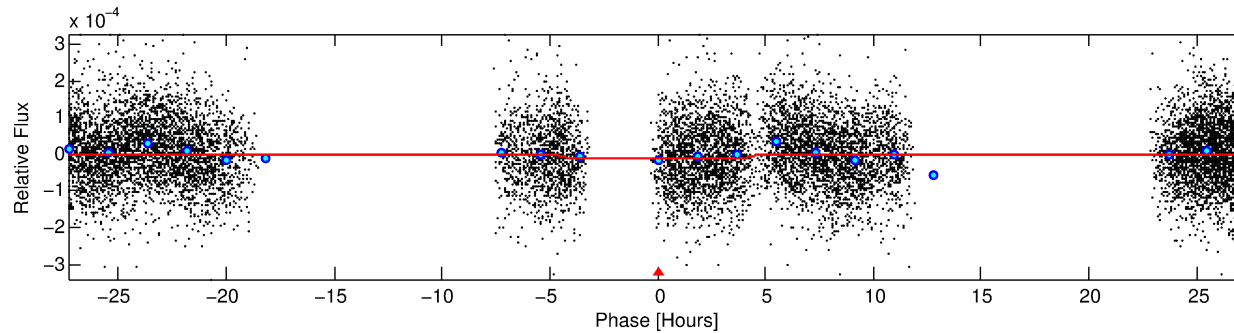
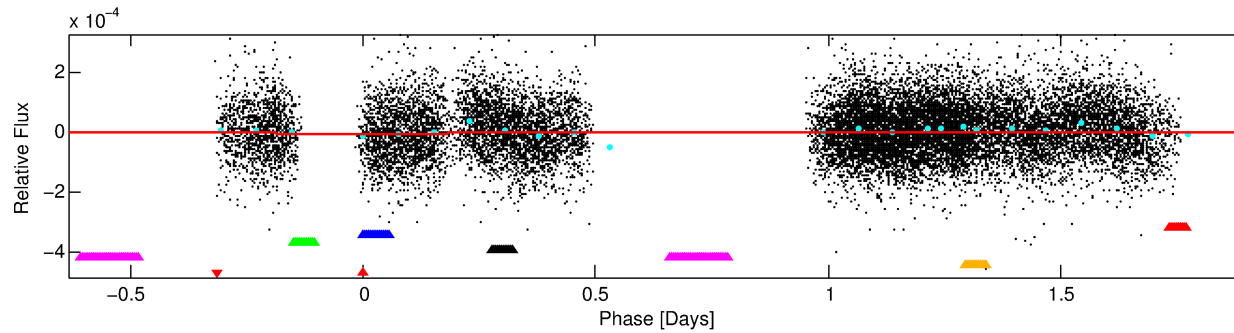
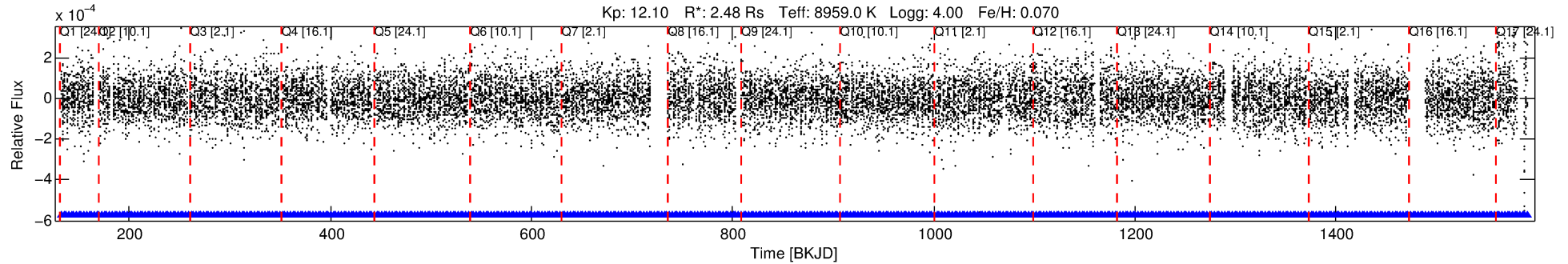
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007988994-07

No Significant Match Found

DV One-Page Summary

KIC: 7988994 Candidate: 7 of 7 Period: 2.532 d



DV Fit Results:

Period = 2.53153 [0.00007] d
Epoch = 132.4355 [0.0177] BKJD
Rp/R* = 0.0035 [0.0011]
a/R* = 1.33 [1.24]
b = 0.90 [0.46]
Seff = 15697.83 [7065.93]
Teq = 2854 [321] K
Rp = 0.94 [0.42] Re
a = 0.0476 [0.0129] AU
Ag = 21.74 [16.89] [1.23σ]
Teffp = 9529 [1642] K [3.99σ]

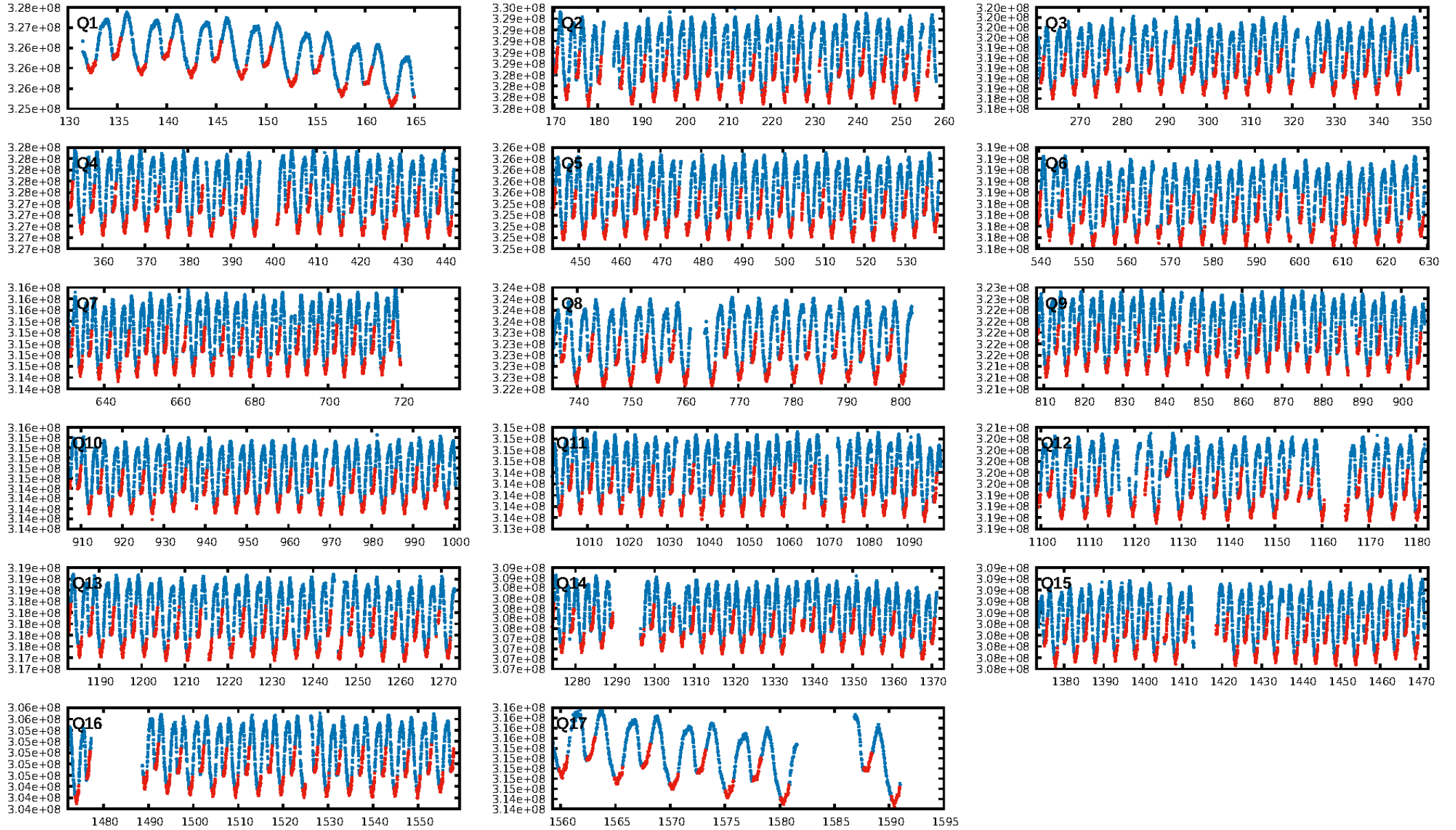
DV Diagnostic Results:

ShortPeriod-sig: 99.7% [3.00σ]
LongPeriod-sig: 100.0% [6.37σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [503/503]
GhostDiagnostic-chr: 1.077
Centroid-sig: 0.0%
Centroid-so: 6.034 arcsec [2.96σ]
OotOffset-rm: 0.105 arcsec [0.92σ]
KicOffset-rm: 0.221 arcsec [1.77σ]
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]

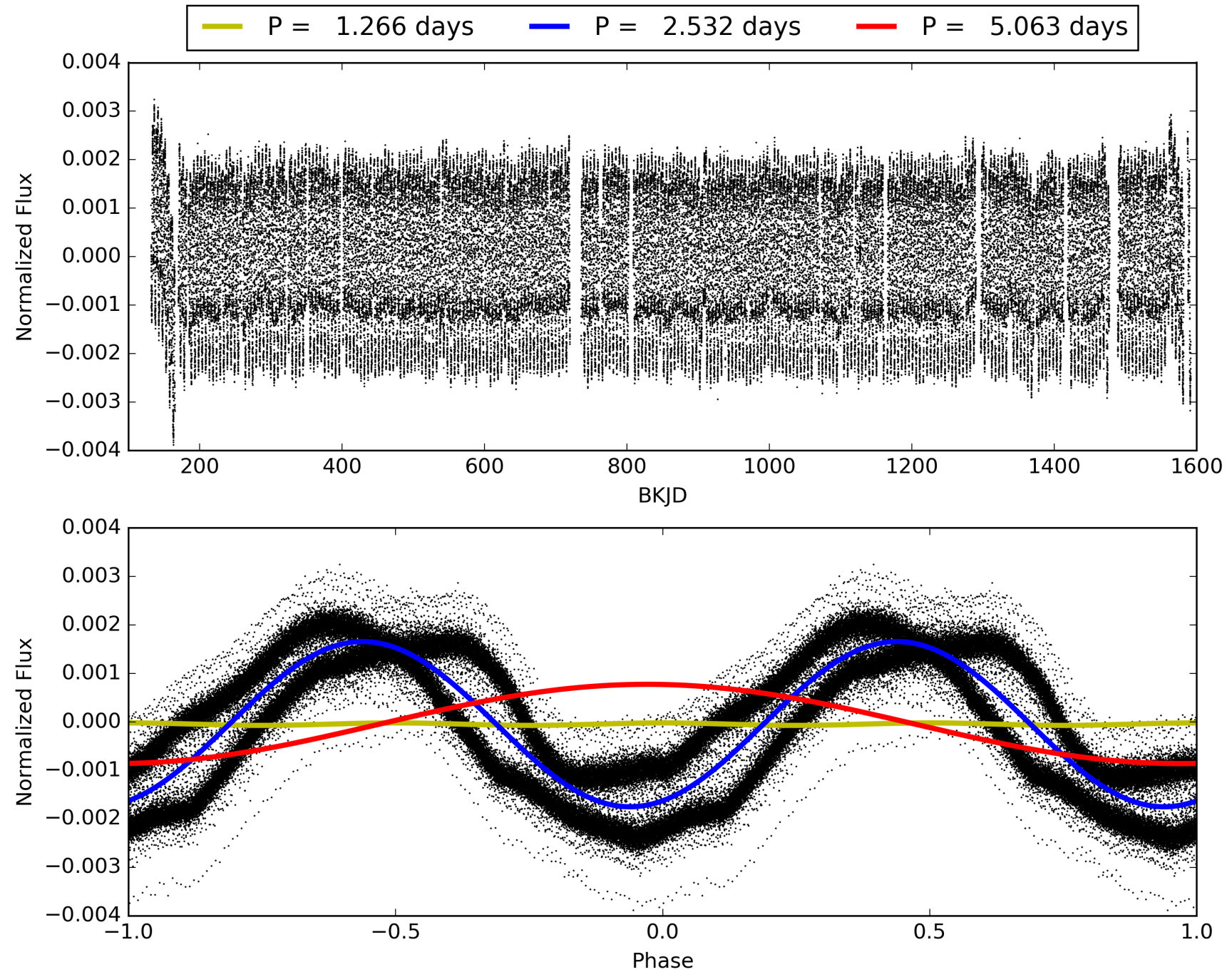
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:43:23 Z

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

TCE 007988994-07, PDC Light Curves

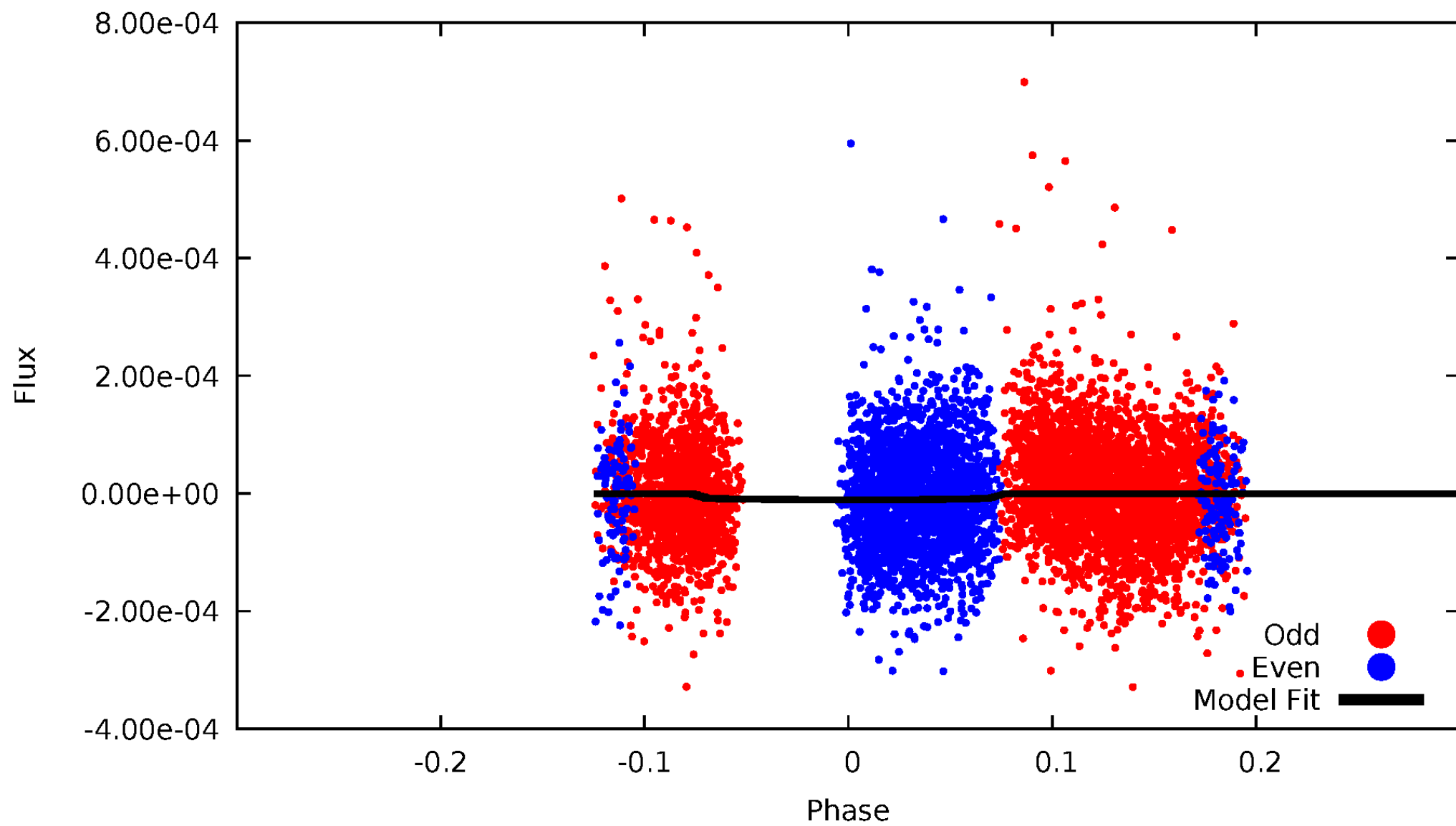


TCE 007988994-07



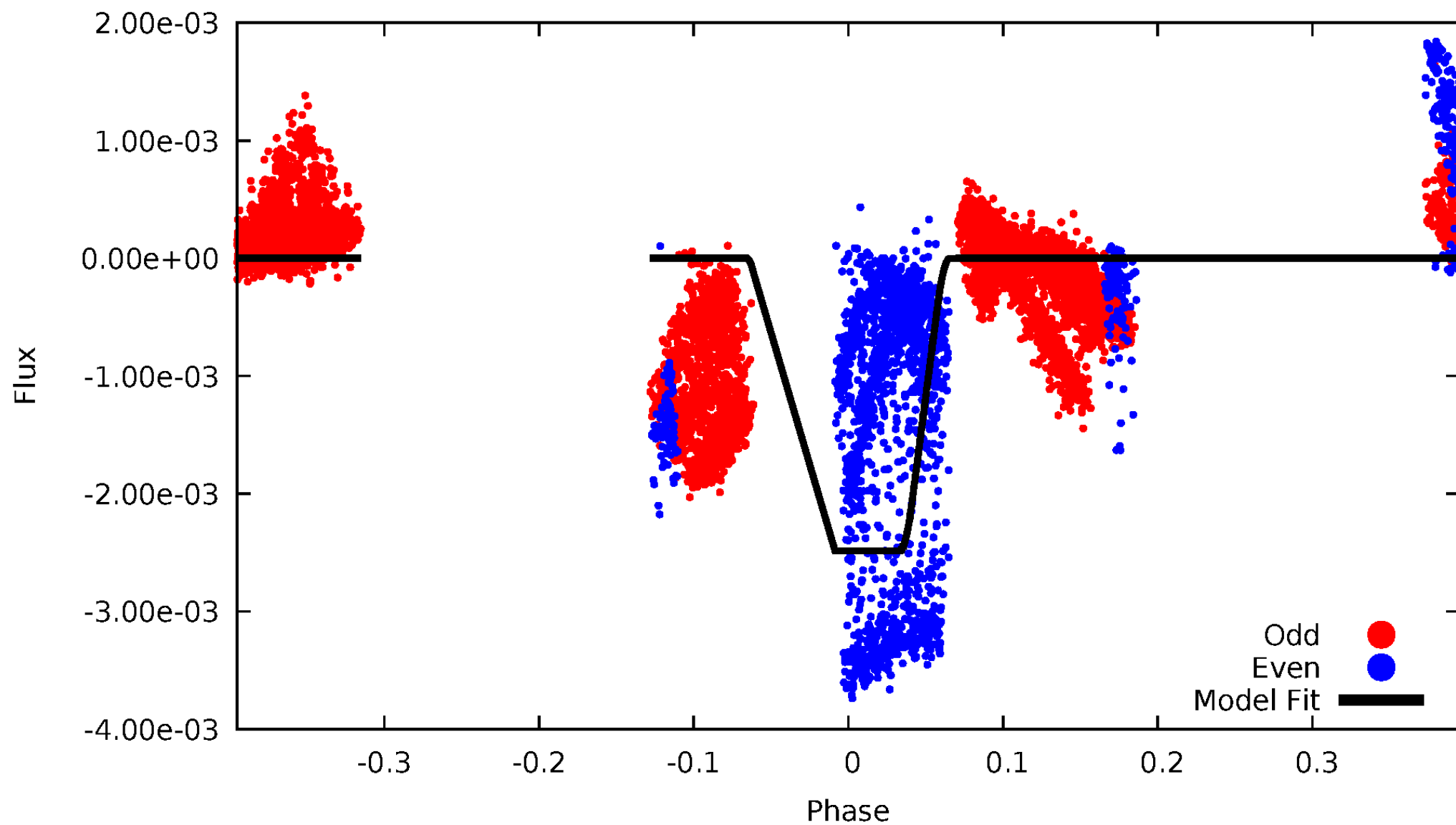
DV Odd/Even

TCE 007988994-07



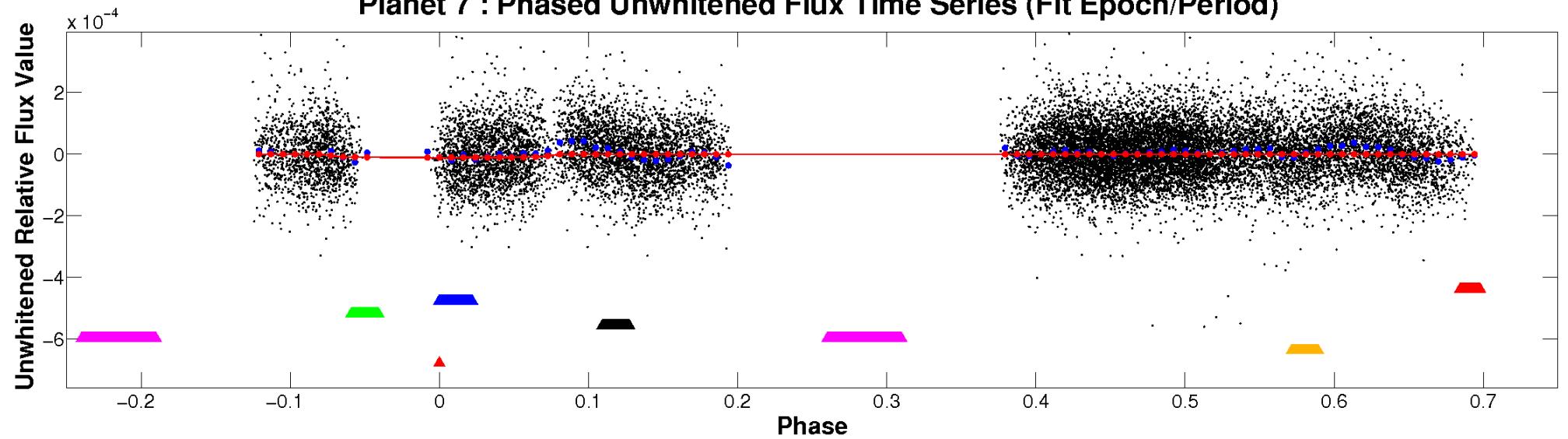
ALT Odd/Even

TCE 007988994-07

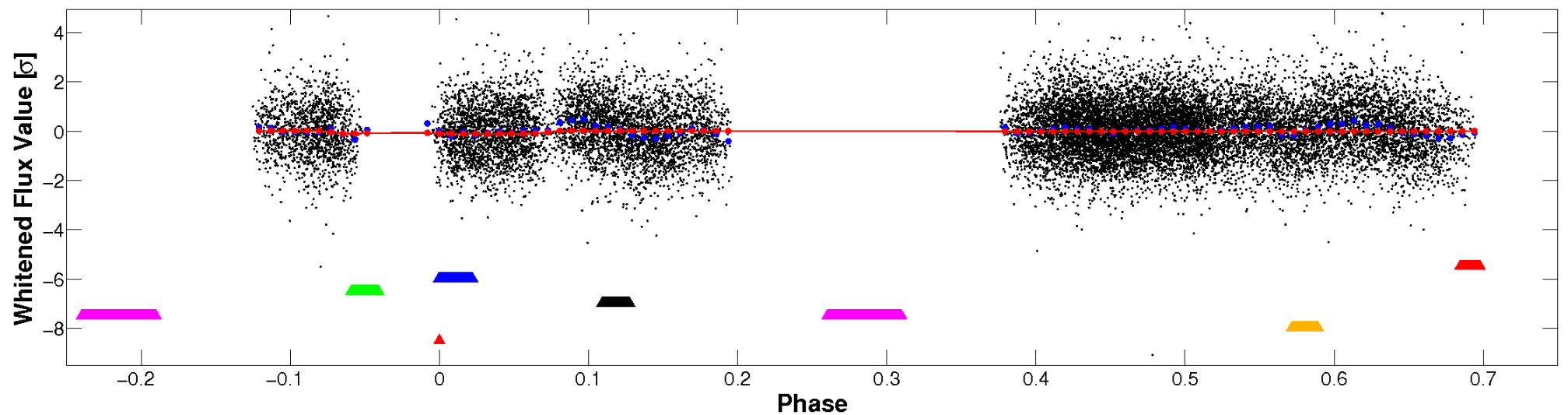


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

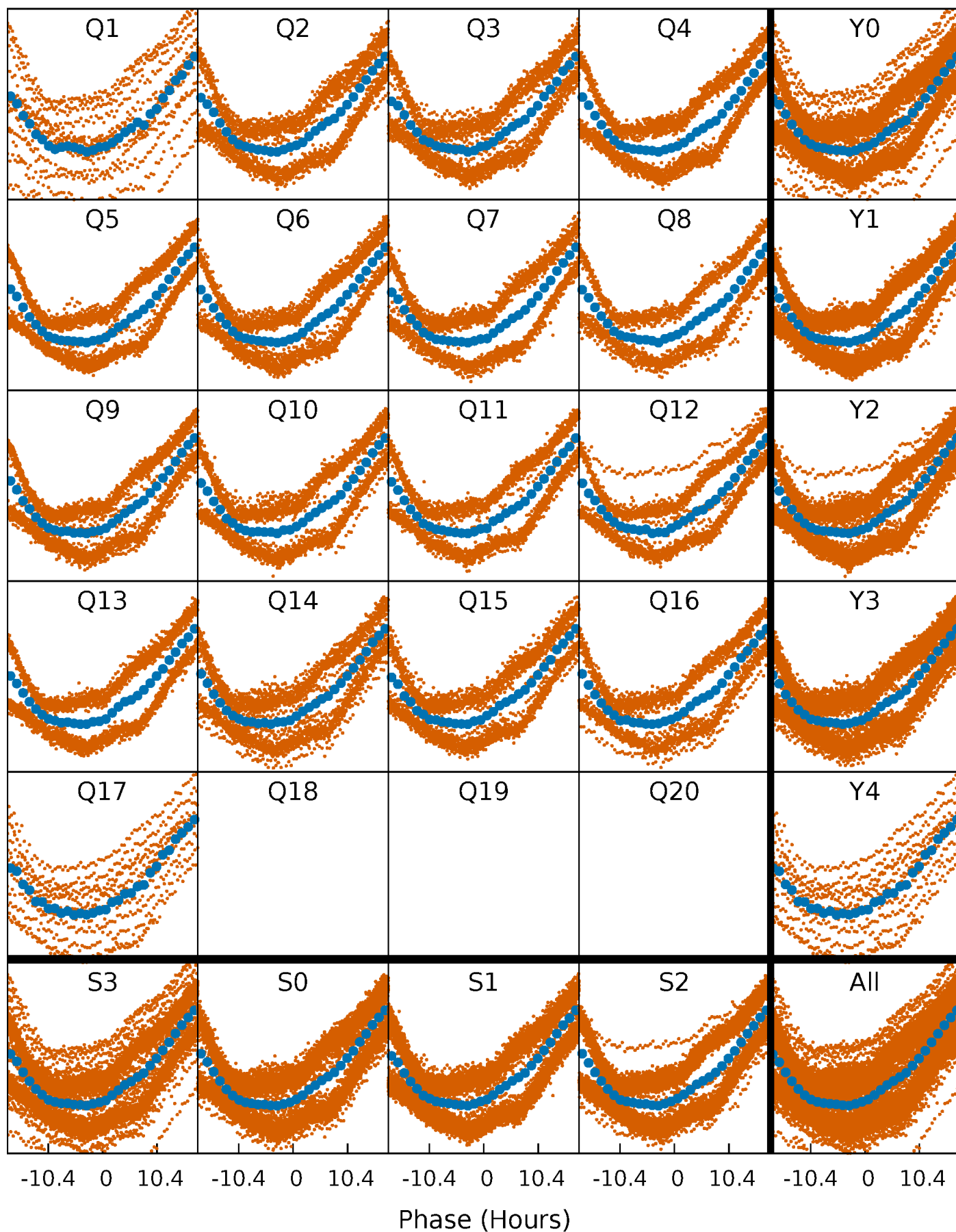


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



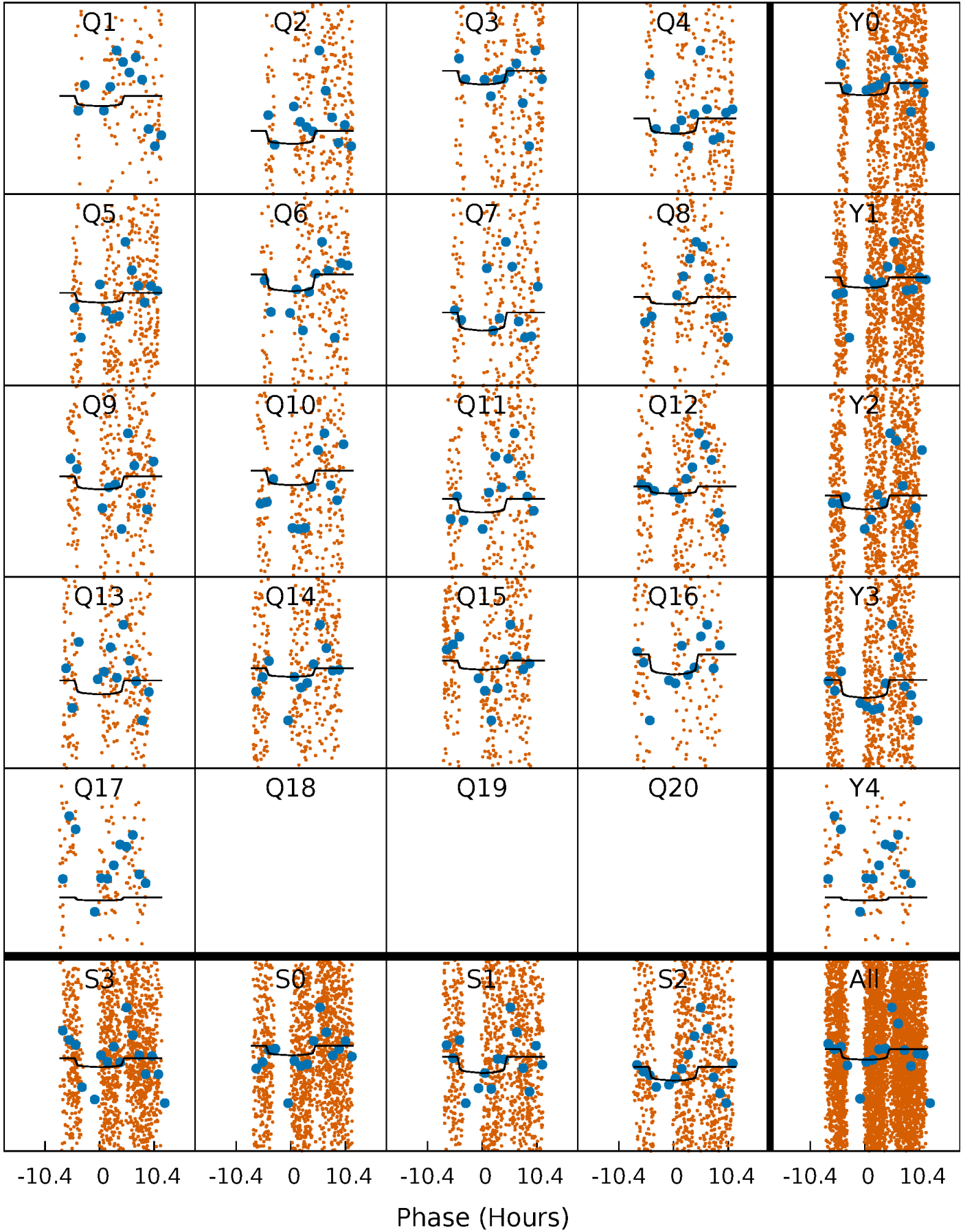
PDC Quarter-Phased Transit Curves

TCE 007988994-07 P= 2.531530 Days $T_0=132.435460$ (BKJD)



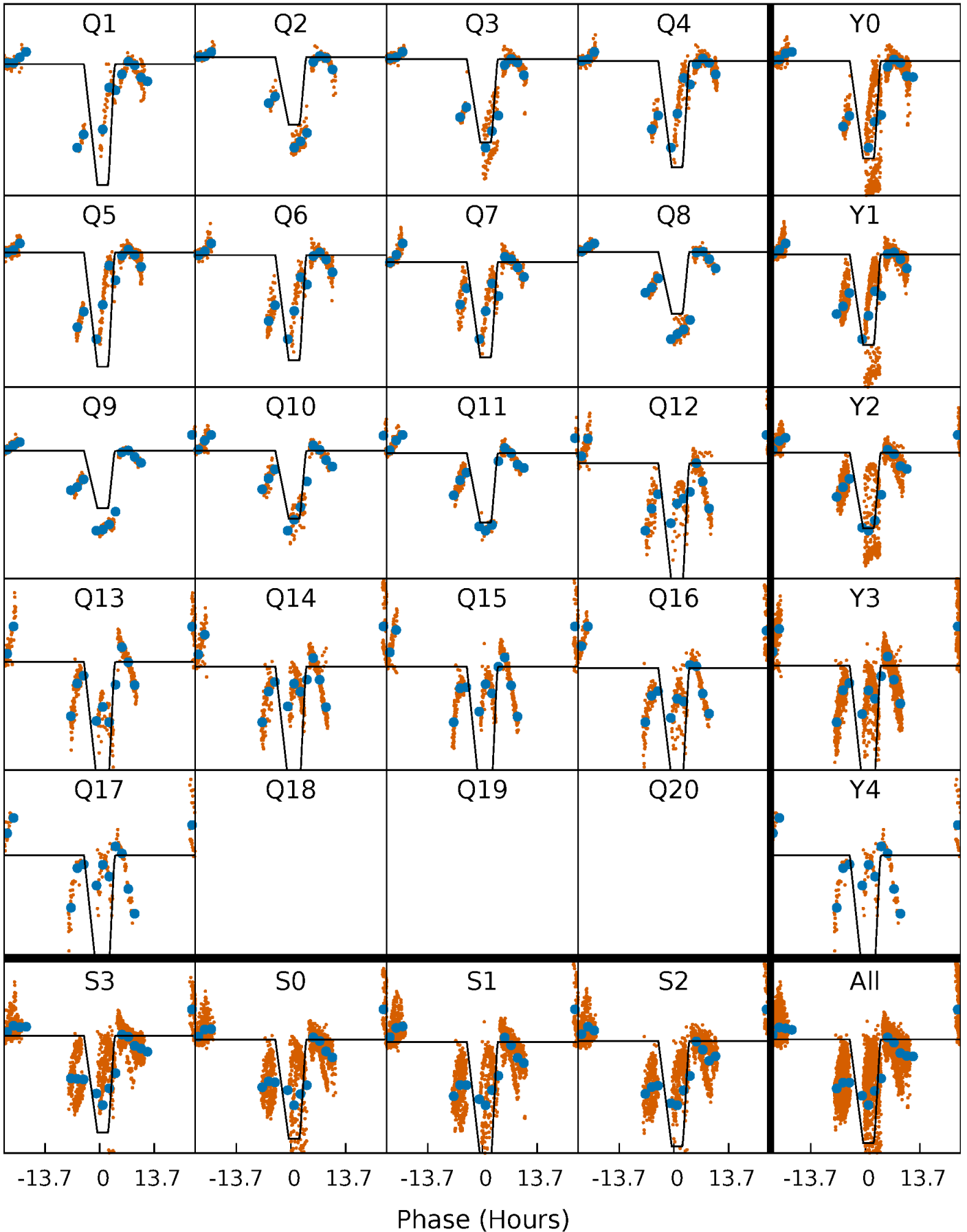
DV Quarter-Phased Transit Curves

TCE 007988994-07 P= 2.531530 Days $T_0=132.435460$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

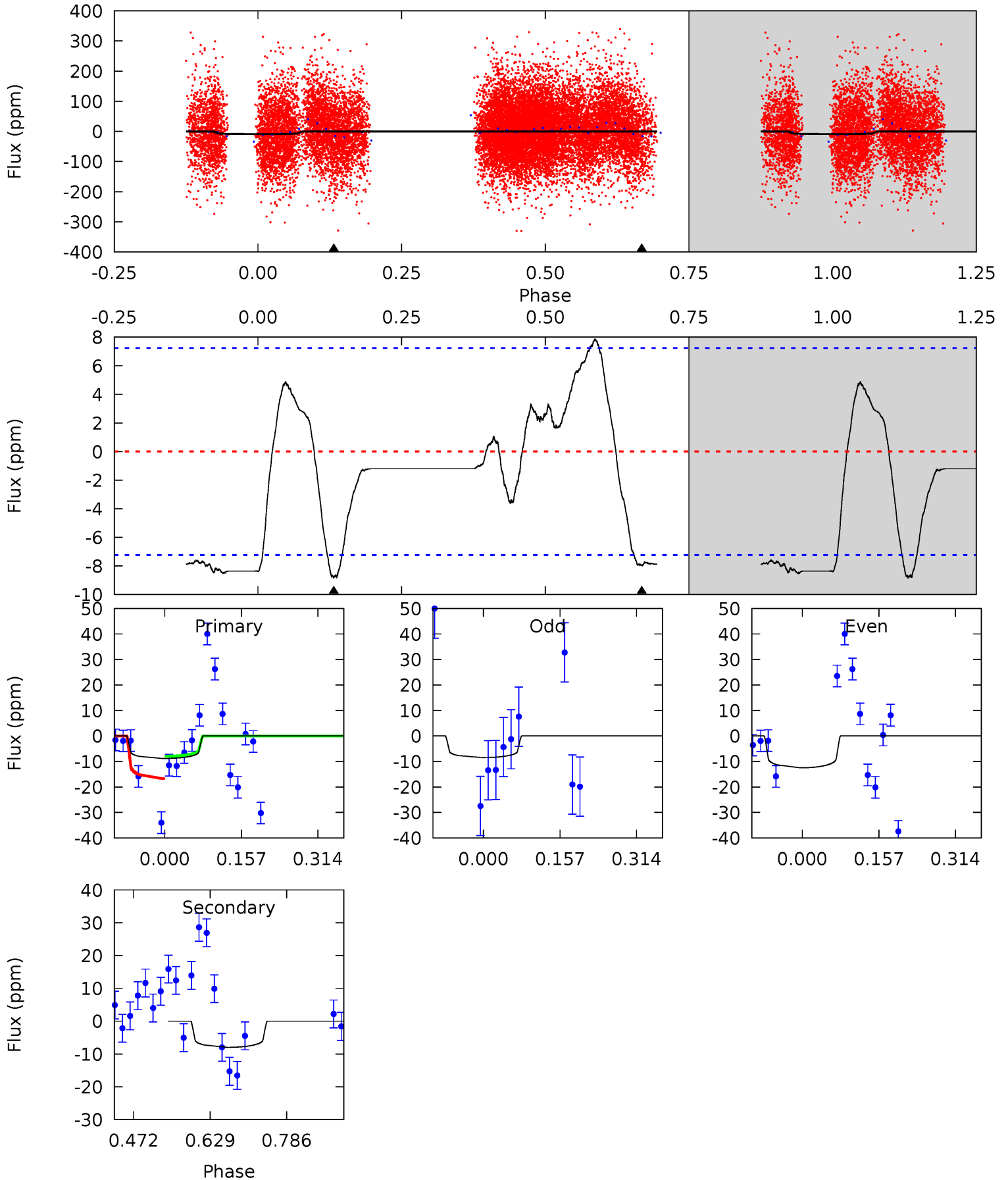
TCE 007988994-07 $P = 2.531500$ Days $T_0 = 132.460082$ (BKJD)



DV Model-Shift Uniqueness Test

007988994-07, P = 2.531530 Days, E = 132.435460 Days

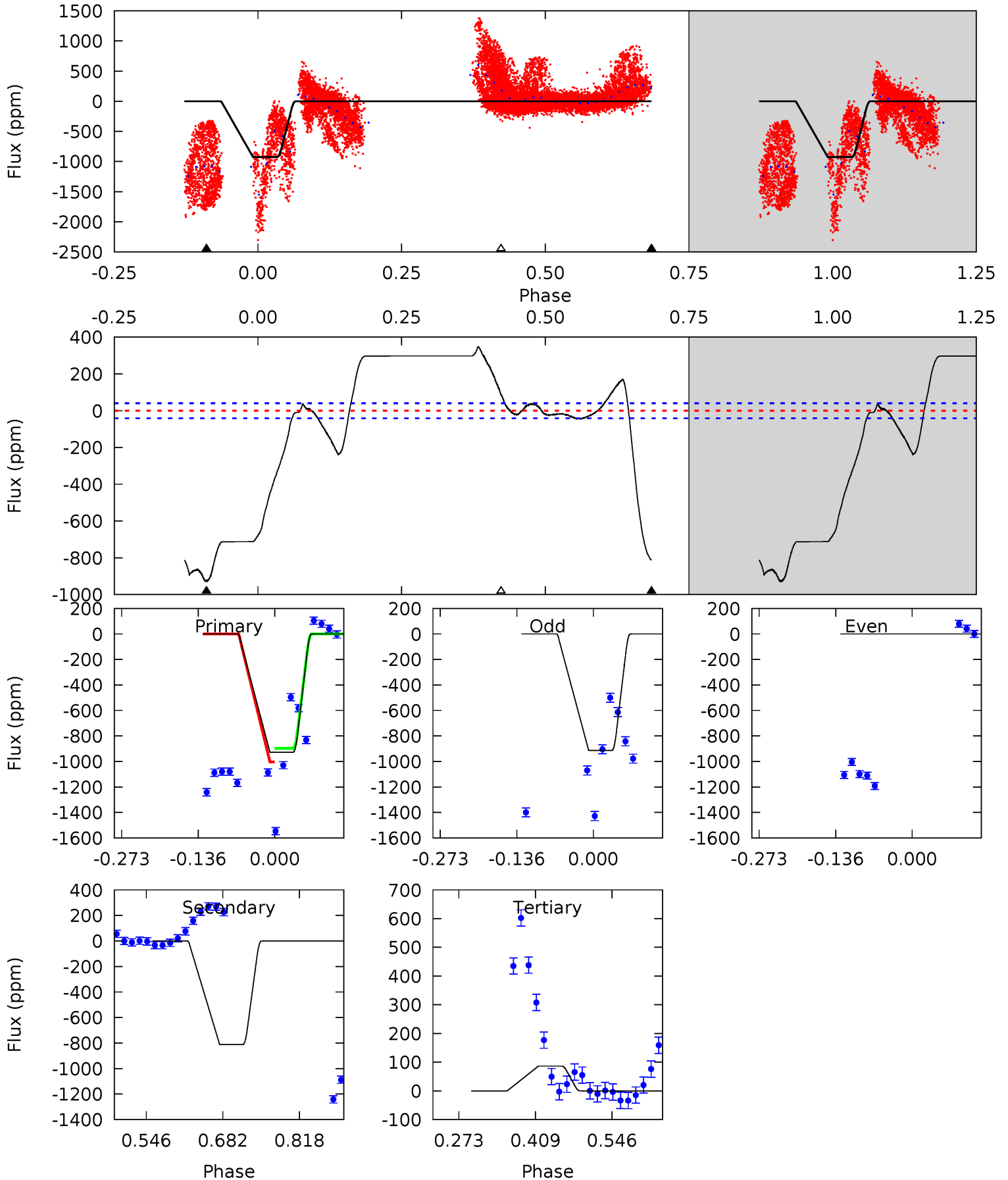
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.44	4.92	0	0	4.47	1.41	2.26	5.44	5.44	4.92	4.92	1.00	-0.38	0.47	2.19



Alt Model-Shift Uniqueness Test

007988994-07, P = 2.531500 Days, E = 132.460082 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
102.0	89.4	-9.49	0	4.50	1.49	12.1	111.5	102.0	98.9	89.4	0	1.53	0.27	0



Stellar Parameters For KIC 007988994

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8959^{+251}_{-430}	$3.999^{+0.228}_{-0.171}$	$0.070^{+0.150}_{-0.650}$	$2.481^{+0.774}_{-0.774}$	$2.240^{+0.349}_{-0.648}$	$0.207^{+0.276}_{-0.105}$
	+3%/-5%	+6%/-4%	+214%/-929%	+31%/-31%	+16%/-29%	+134%/-51%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007988994-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-8 ± 2	$0.90^{+0.35}_{-0.30}$	3941^{+325}_{-332}	7712^{+2092}_{-1214}	12^{+14}_{-6}
Alt.	-812 ± 9	$13.29^{+2.21}_{-2.24}$	3939^{+353}_{-351}	6329^{+181}_{-219}	$5.752^{+2.039}_{-1.510}$

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

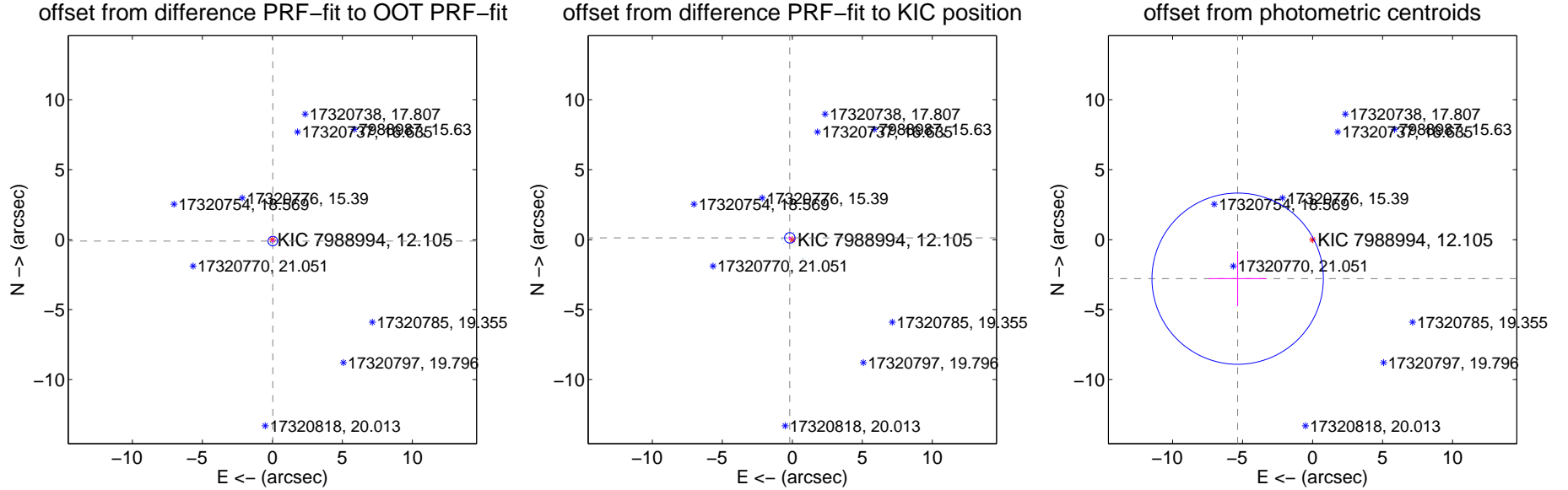
DV Centroid Data

Supplemental centroid analysis for 007988994-07. Kepler magnitude: 12.11. Transit SNR 4.73

There are 17 quarters with good PRF difference image offsets

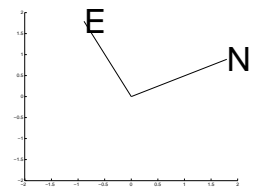
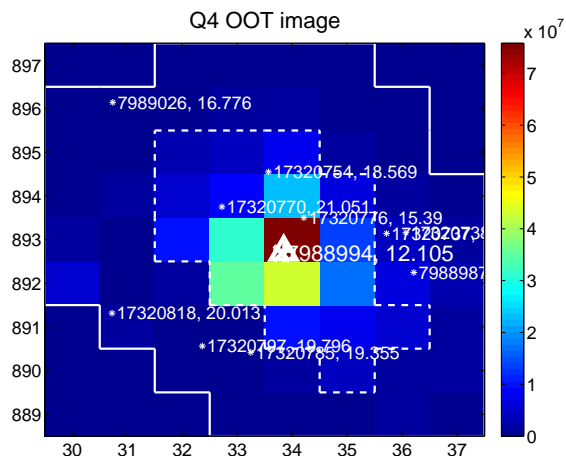
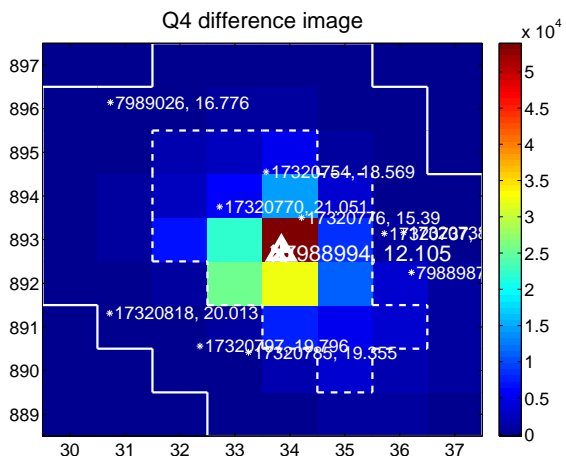
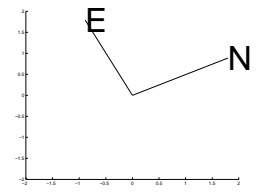
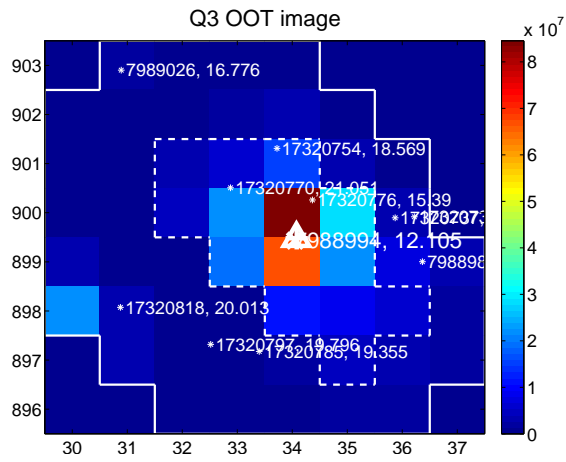
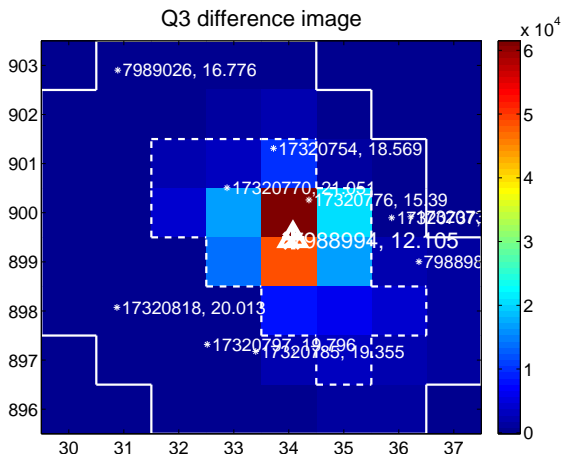
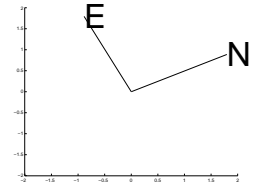
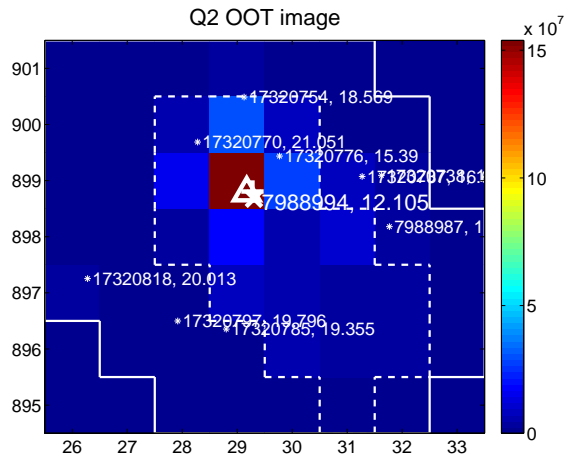
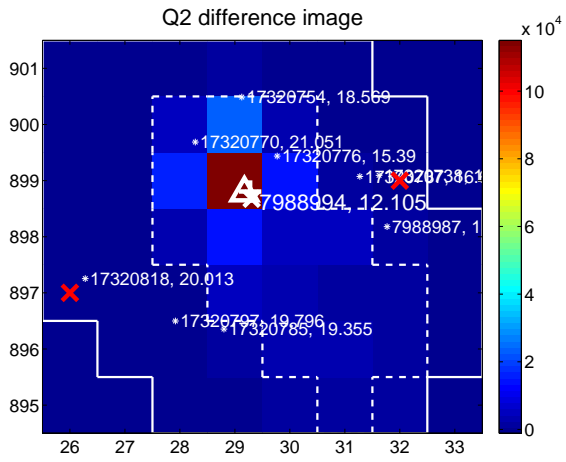
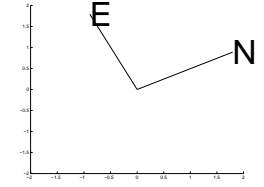
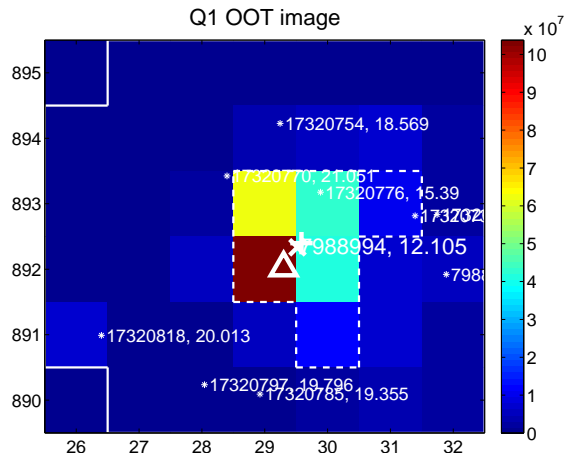
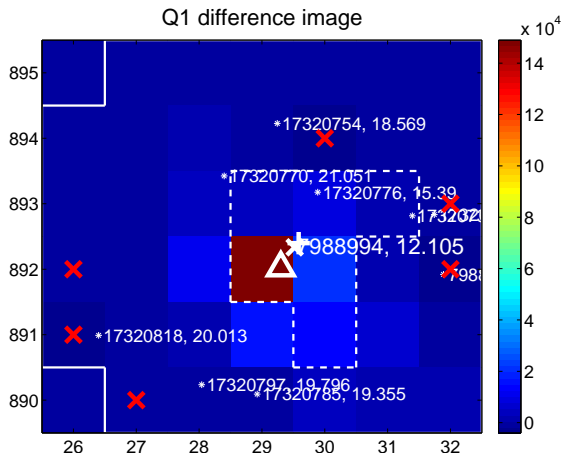
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.105 ± 0.114	0.92	-0.033 ± 0.085	-0.100 ± 0.108
PRF-fit source offset from KIC position	0.221 ± 0.125	1.77	0.180 ± 0.106	0.128 ± 0.117
photometric centroid source offset	6.03 ± 2.04	2.96	5.35 ± 2.06	-2.79 ± 1.96

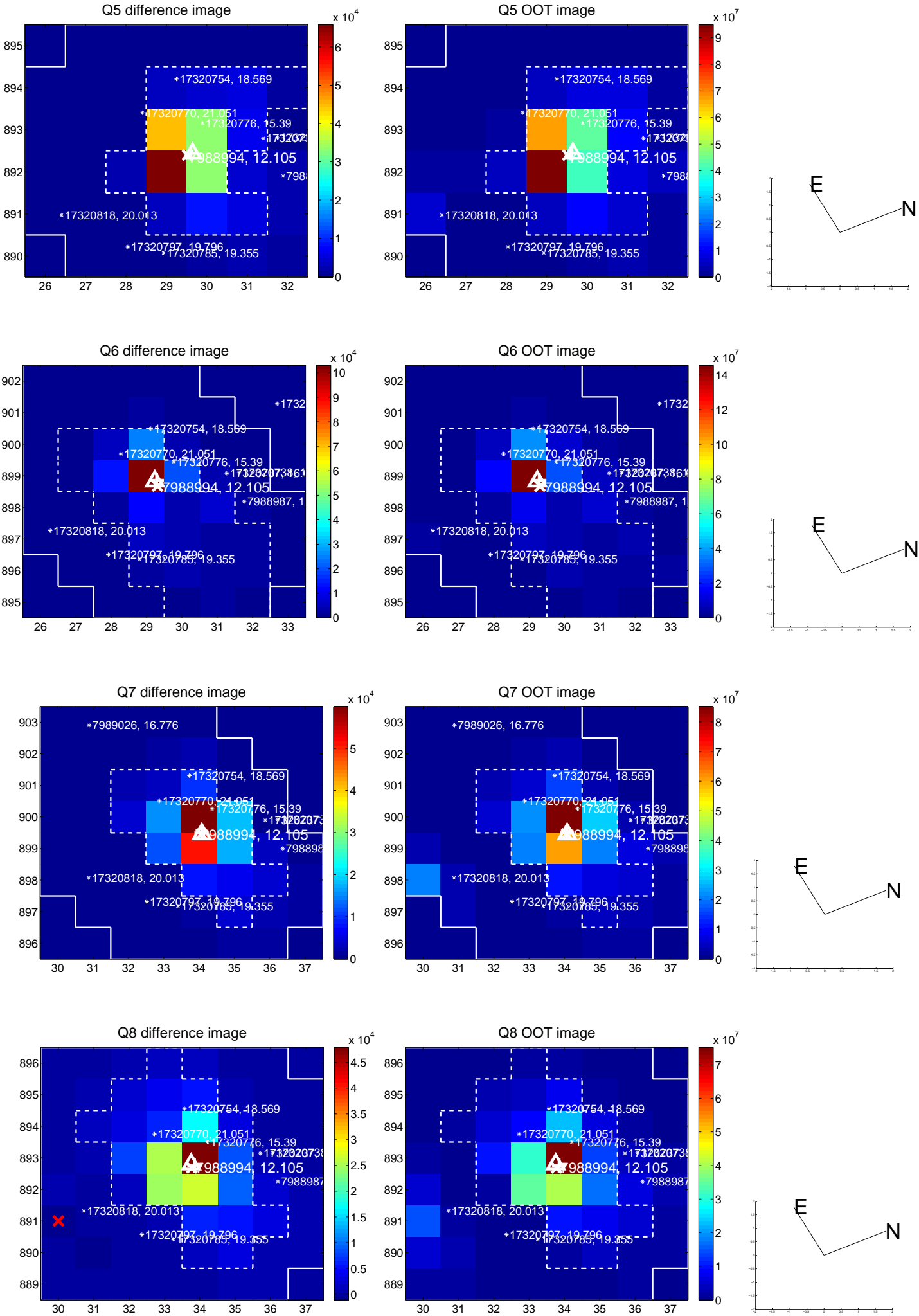


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

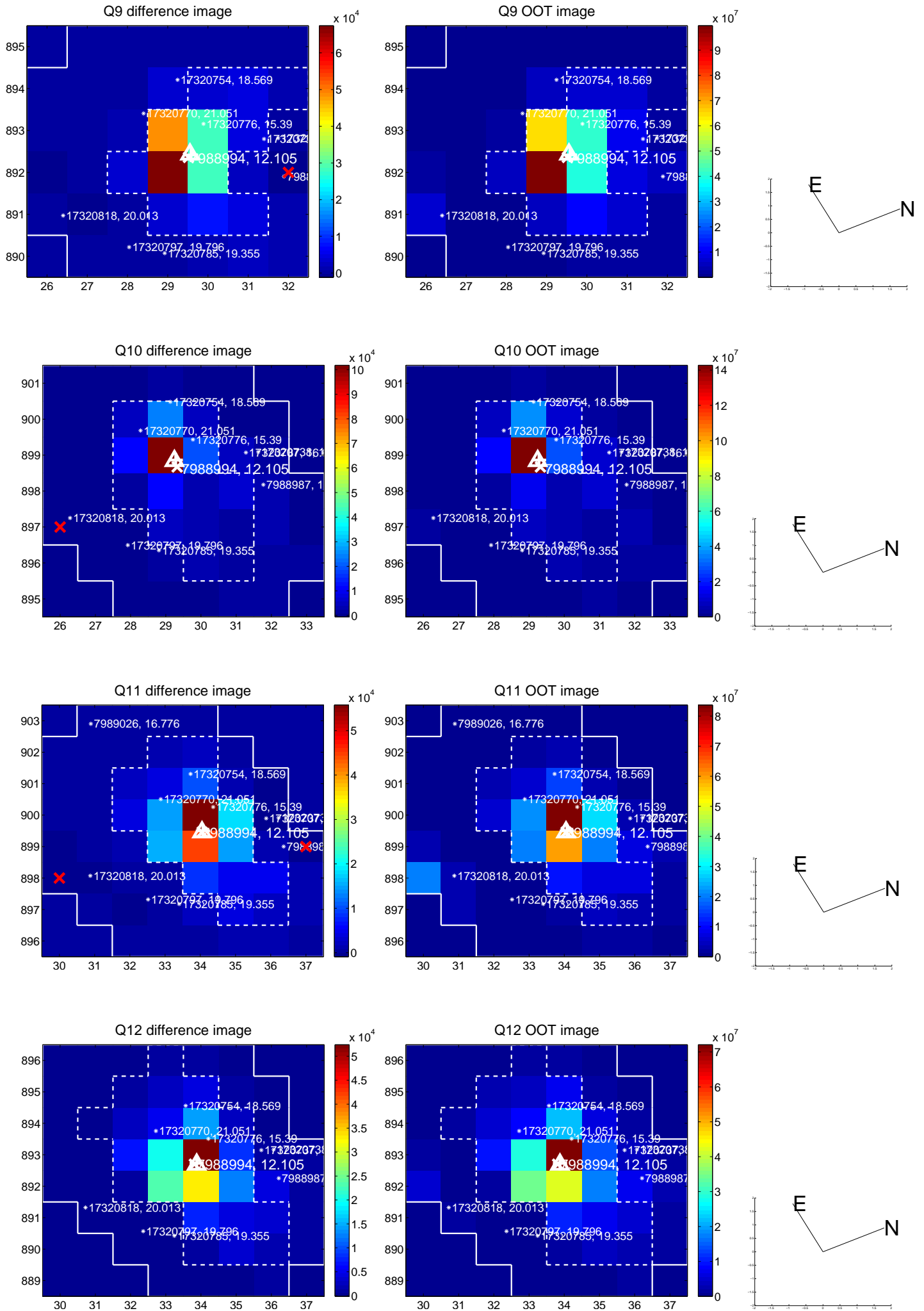
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



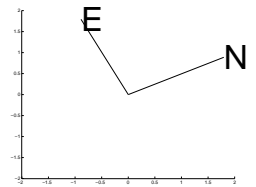
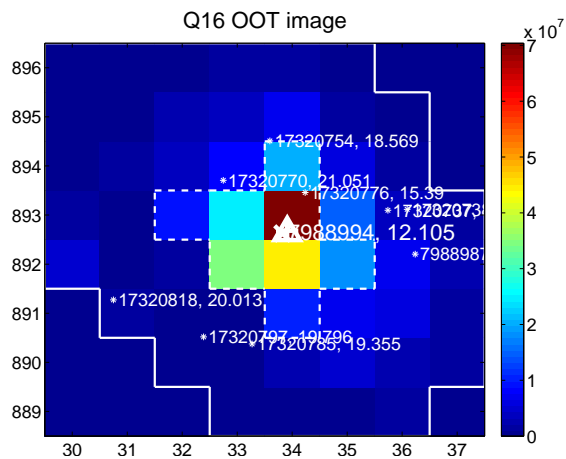
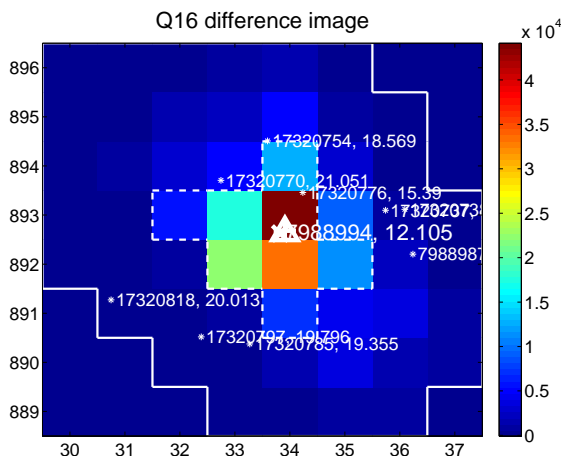
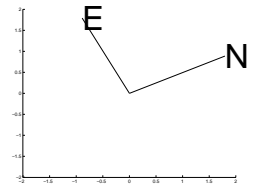
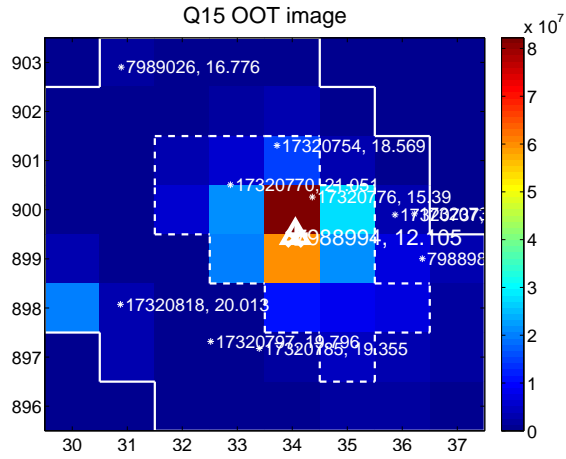
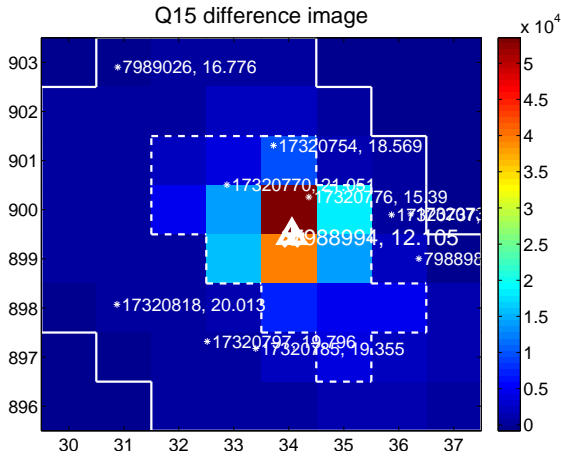
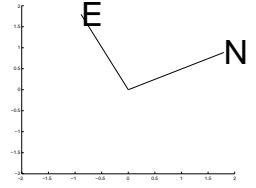
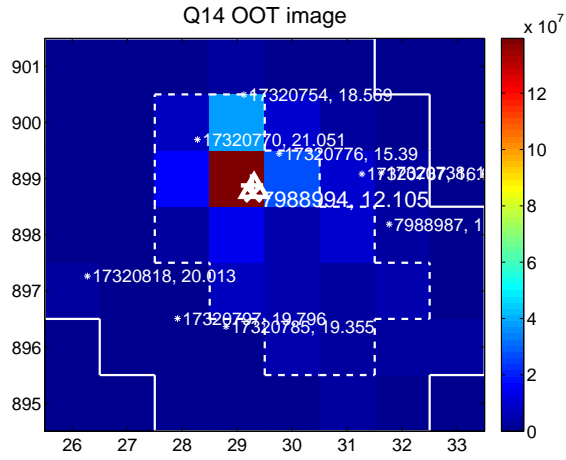
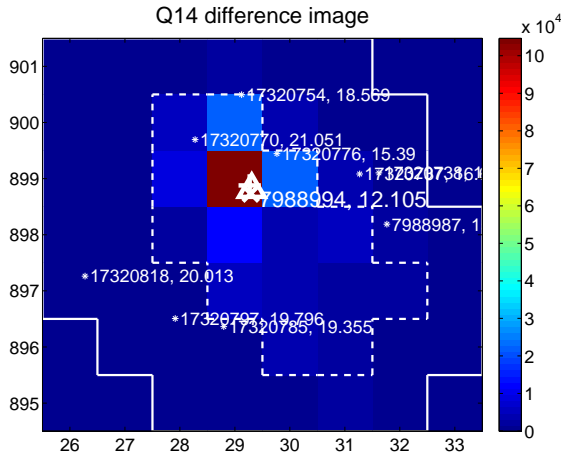
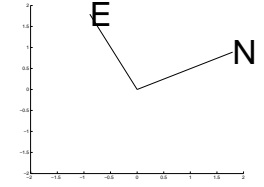
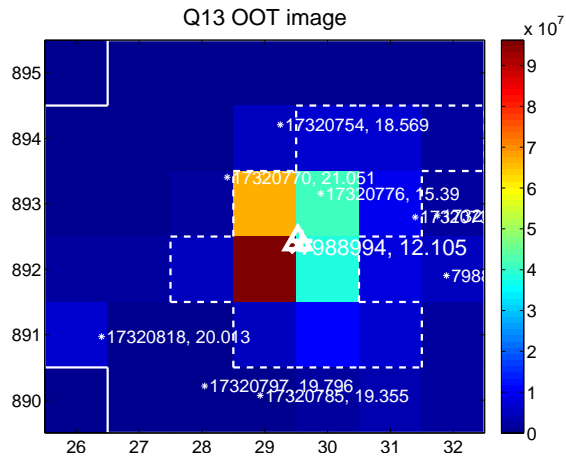
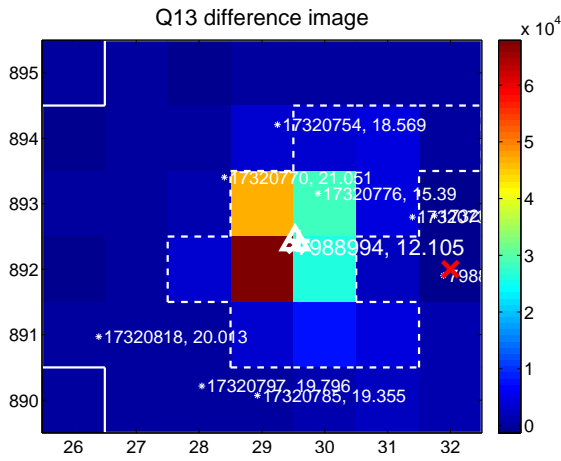
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



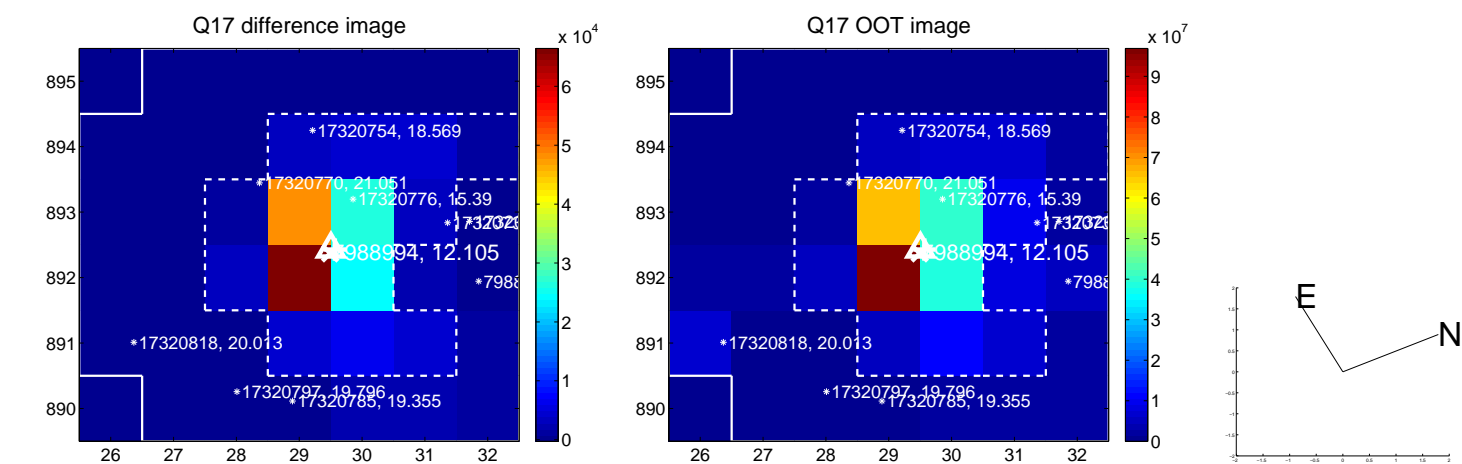
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



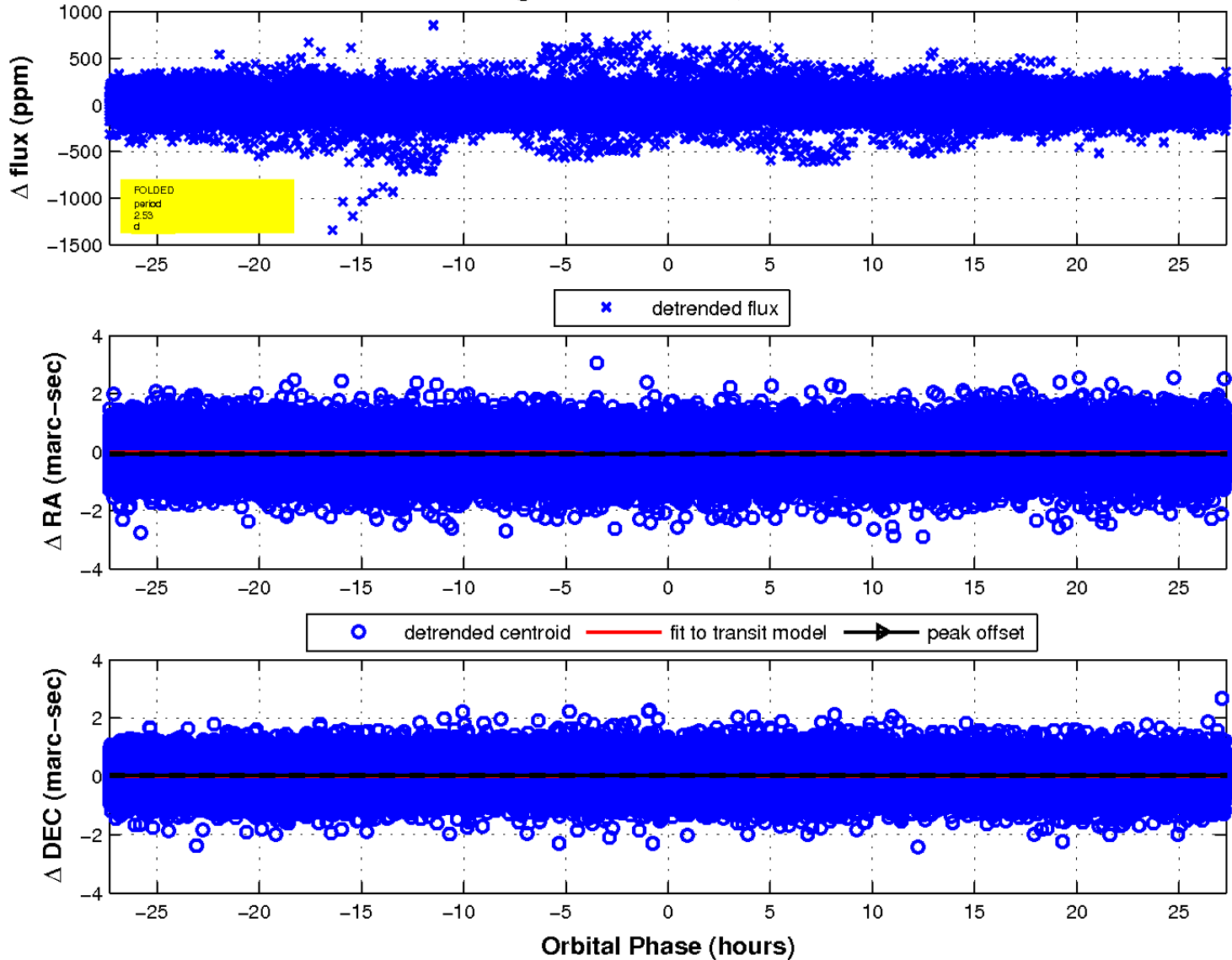
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 7 of 7



UKIRT Image

Declination

