

KIC 008984831

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})
008984831-01	OBS	No	4.078493	134.780363	103.0	10.500	10.1	-1.0	2.47	6493	2.52	3009.36
008984831-02	OBS	No	4.078660	132.661047	18.9	17.716	9.8	5.7	2.47	6493	1.25	3009.20
008984831-04	OBS	No	31.329661	162.027744	90.7	2.080	17.0	2.6	2.47	6493	2.74	198.55
008984831-05	OBS	No	43.086047	157.280673	104.9	14.743	17.6	5.0	2.47	6493	2.89	129.82
008984831-08	OBS	No	71.289021	156.873499	246.7	4.335	8.4	8.3	2.47	6493	4.74	66.34
008984831-09	OBS	No	60.035889	144.667774	212.2	4.691	7.9	7.5	2.47	6493	3.99	83.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008984831-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
008984831-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008984831-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008984831-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008984831-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
008984831-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

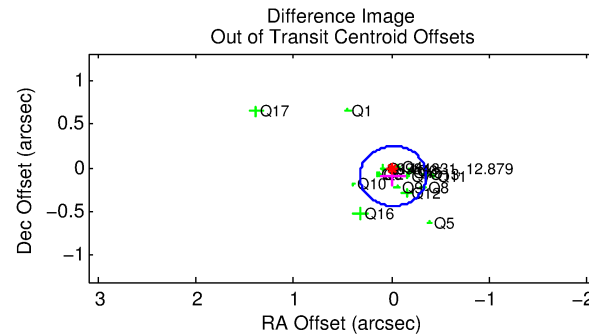
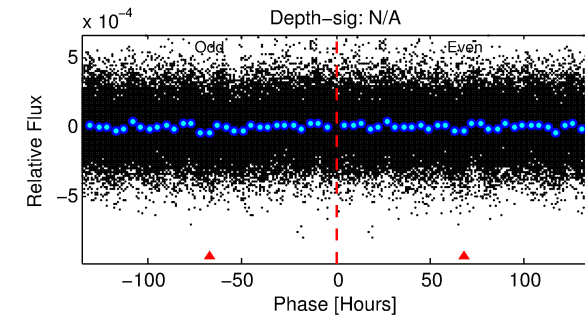
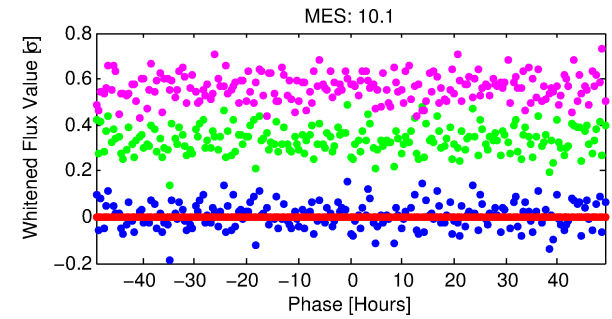
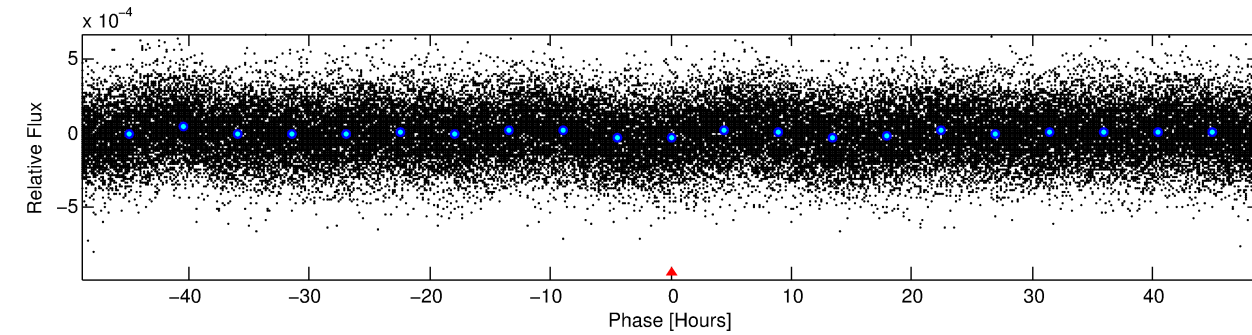
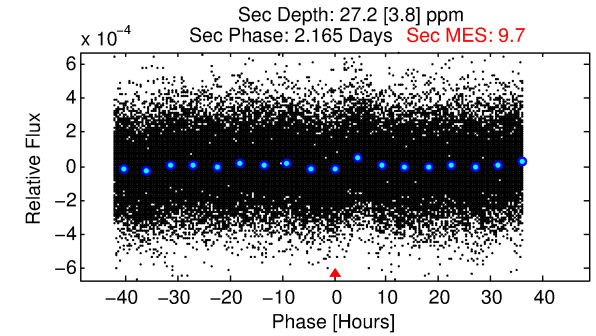
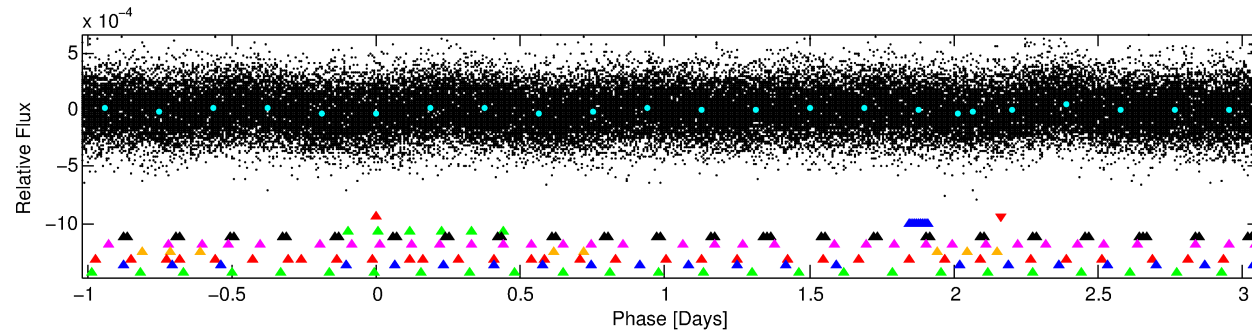
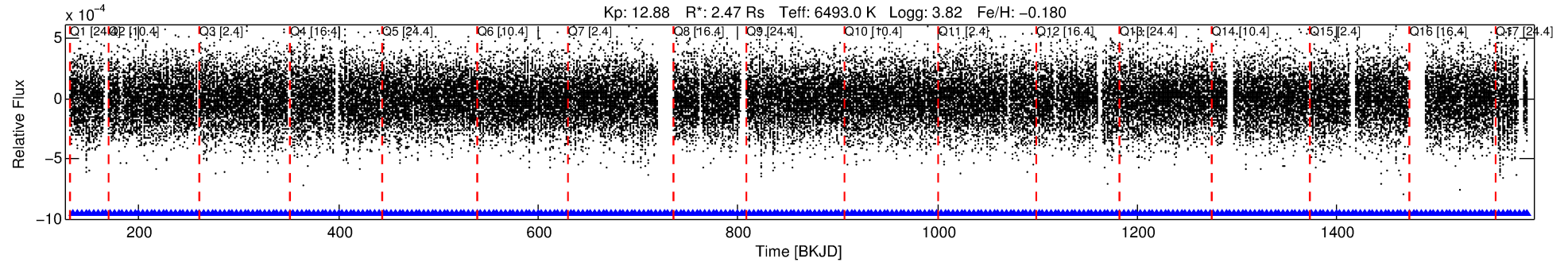
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008984831-01

No Significant Match Found

DV One-Page Summary

KIC: 8984831 Candidate: 1 of 9 Period: 4.078 d



TPS TCE Results:

Period = 4.07849 d
Epoch = 134.7804 BKJD

DV fit results are unavailable

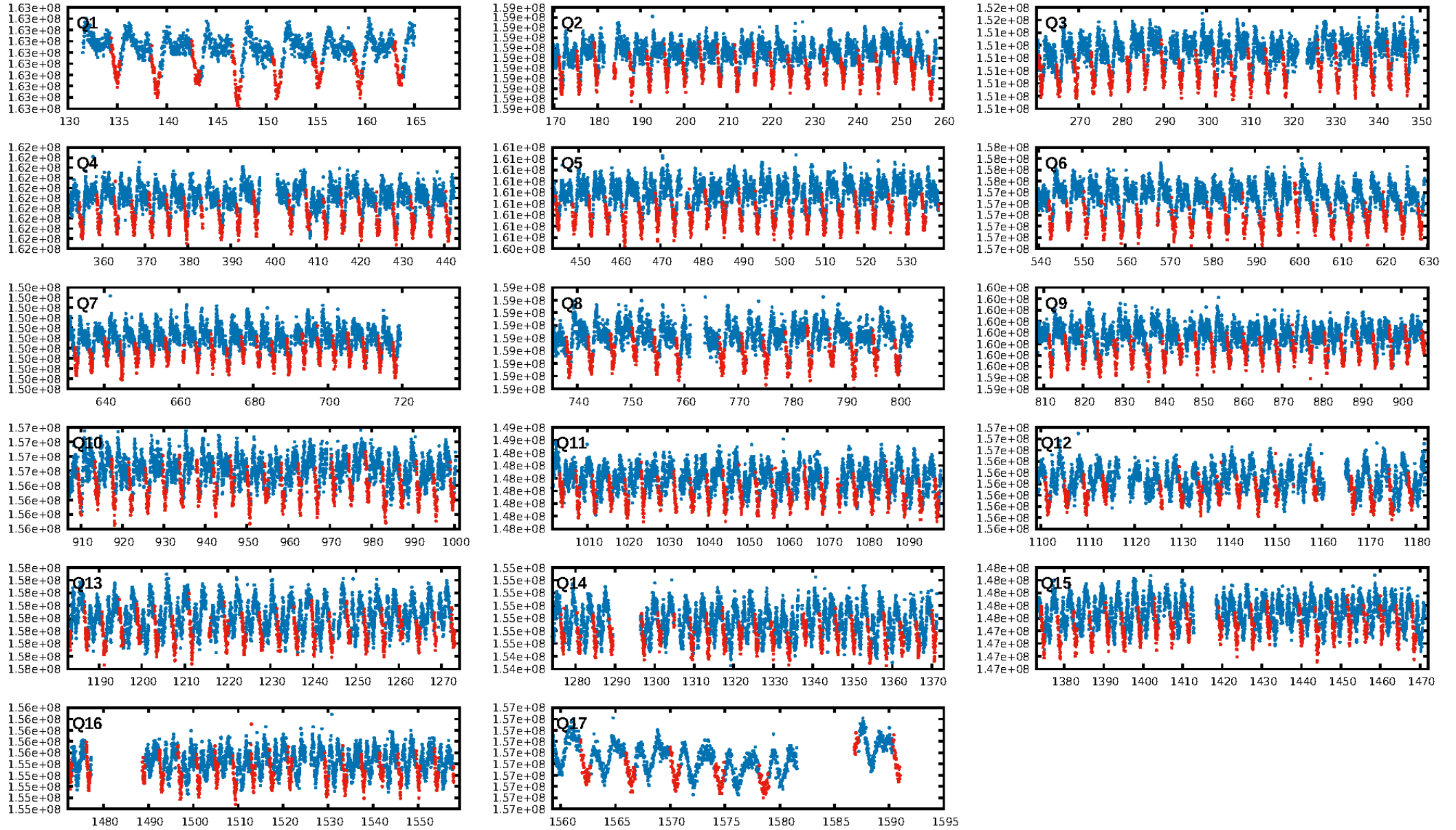
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.40e-21
RollingBand-fgt: 1.00 [321/321]
GhostDiagnostic-chr: 0.2647
Centroid-sig: 0.0%
Centroid-so: 0.194 arcsec [1.40σ]
OotOffset-rm: 0.097 arcsec [0.85σ]
KicOffset-rm: 0.148 arcsec [1.50σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.12 [2/17]

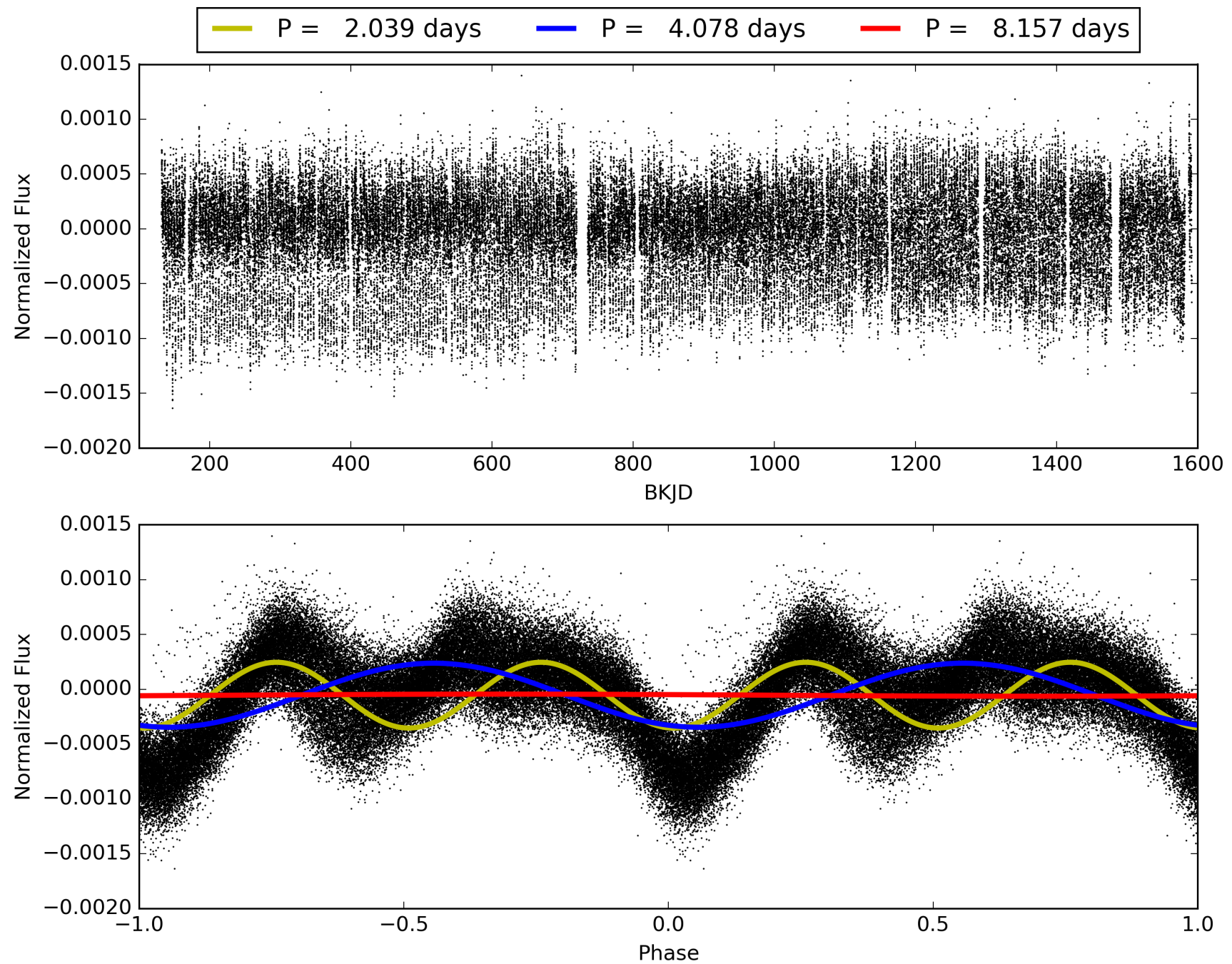
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008984831-01, PDC Light Curves

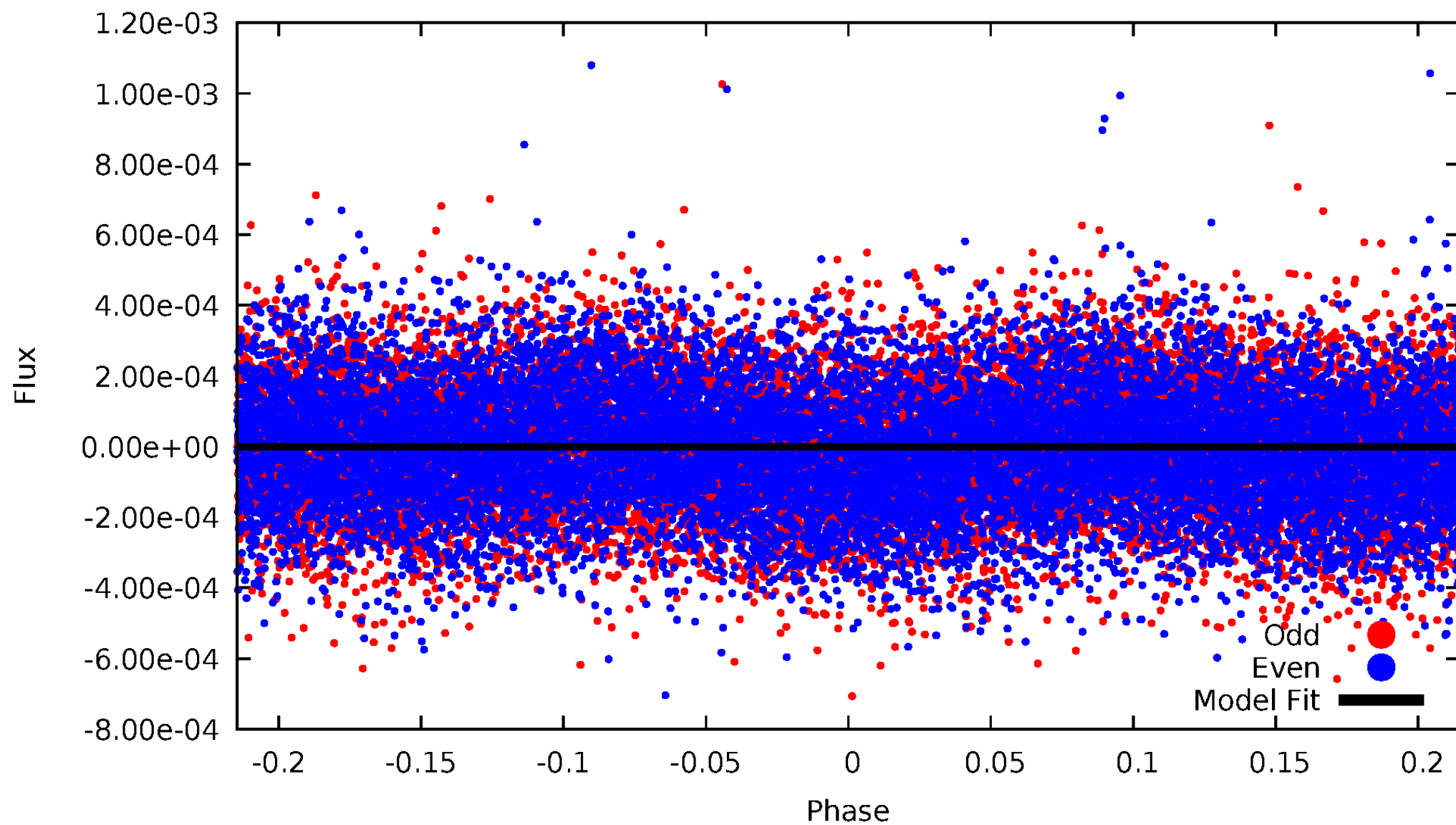


TCE 008984831-01



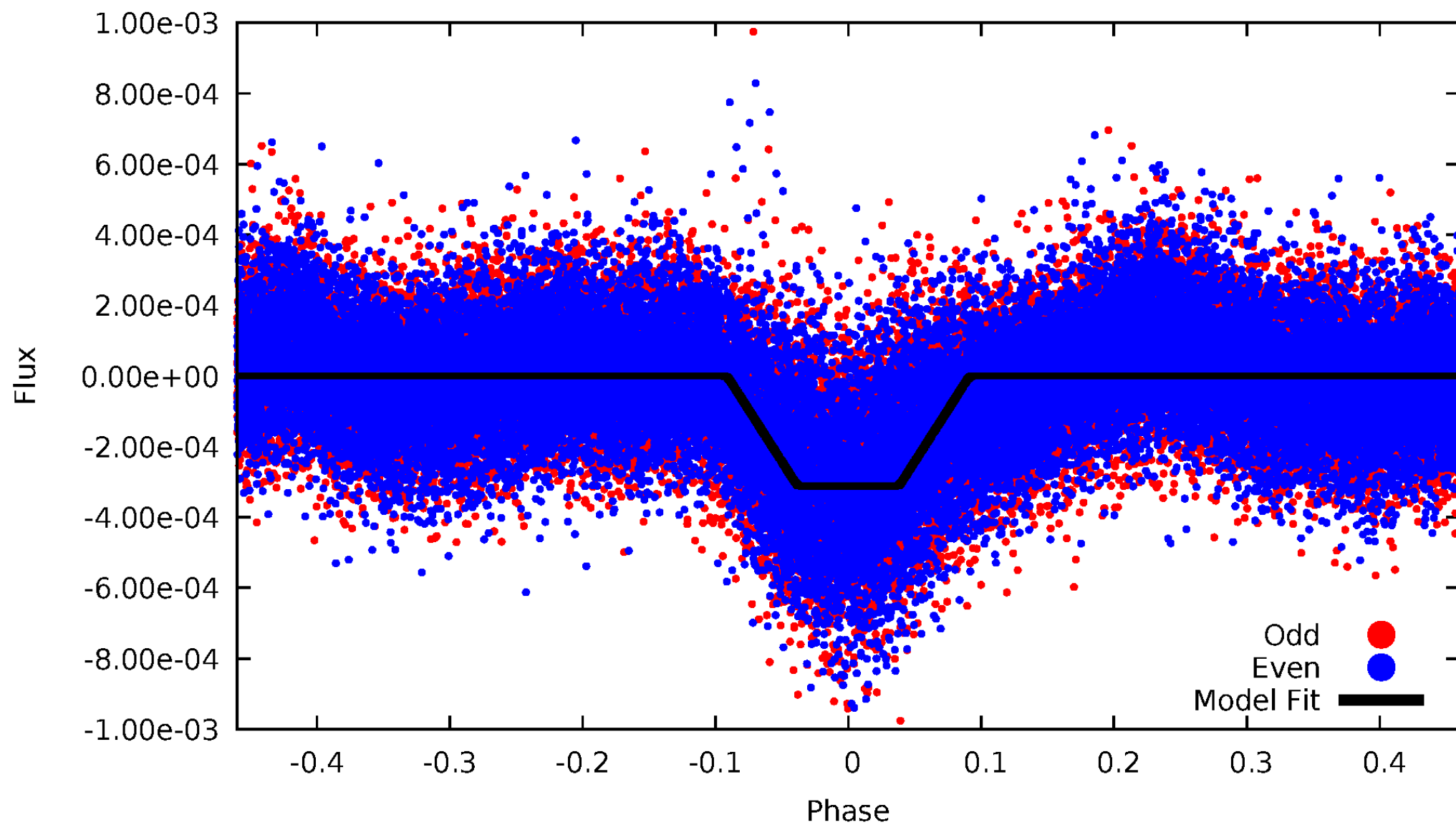
DV Odd/Even

TCE 008984831-01

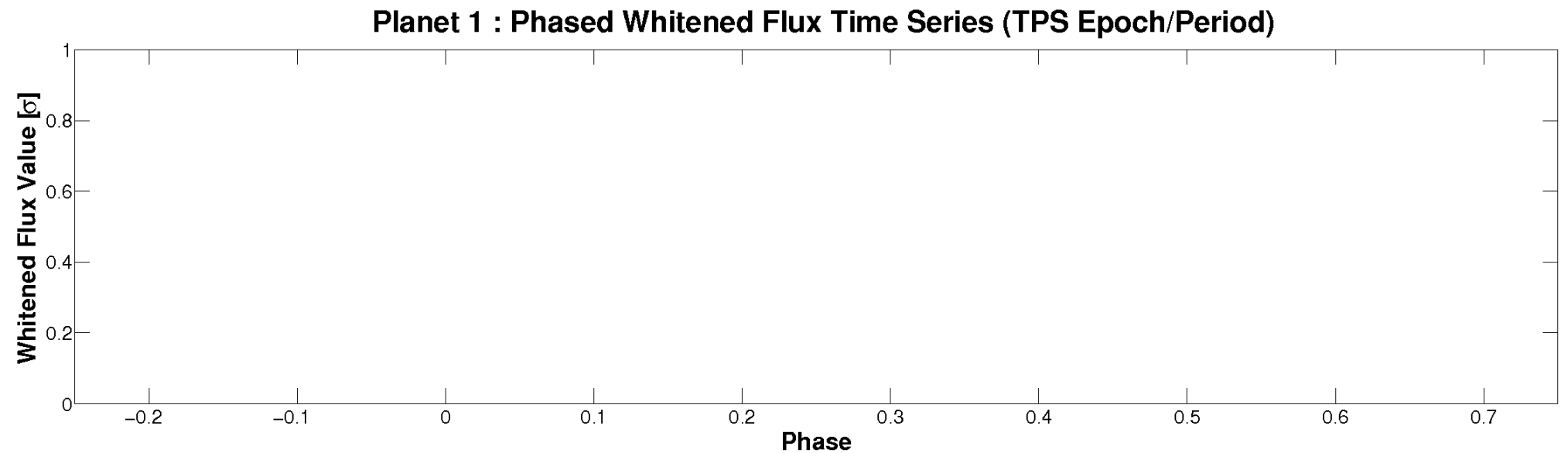
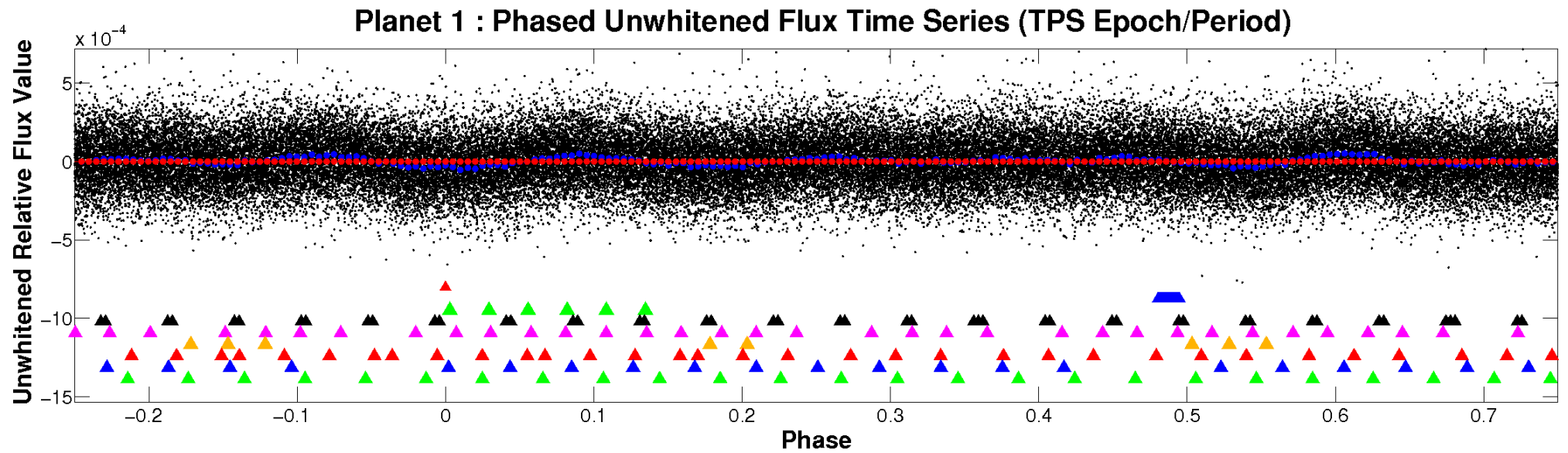


ALT Odd/Even

TCE 008984831-01

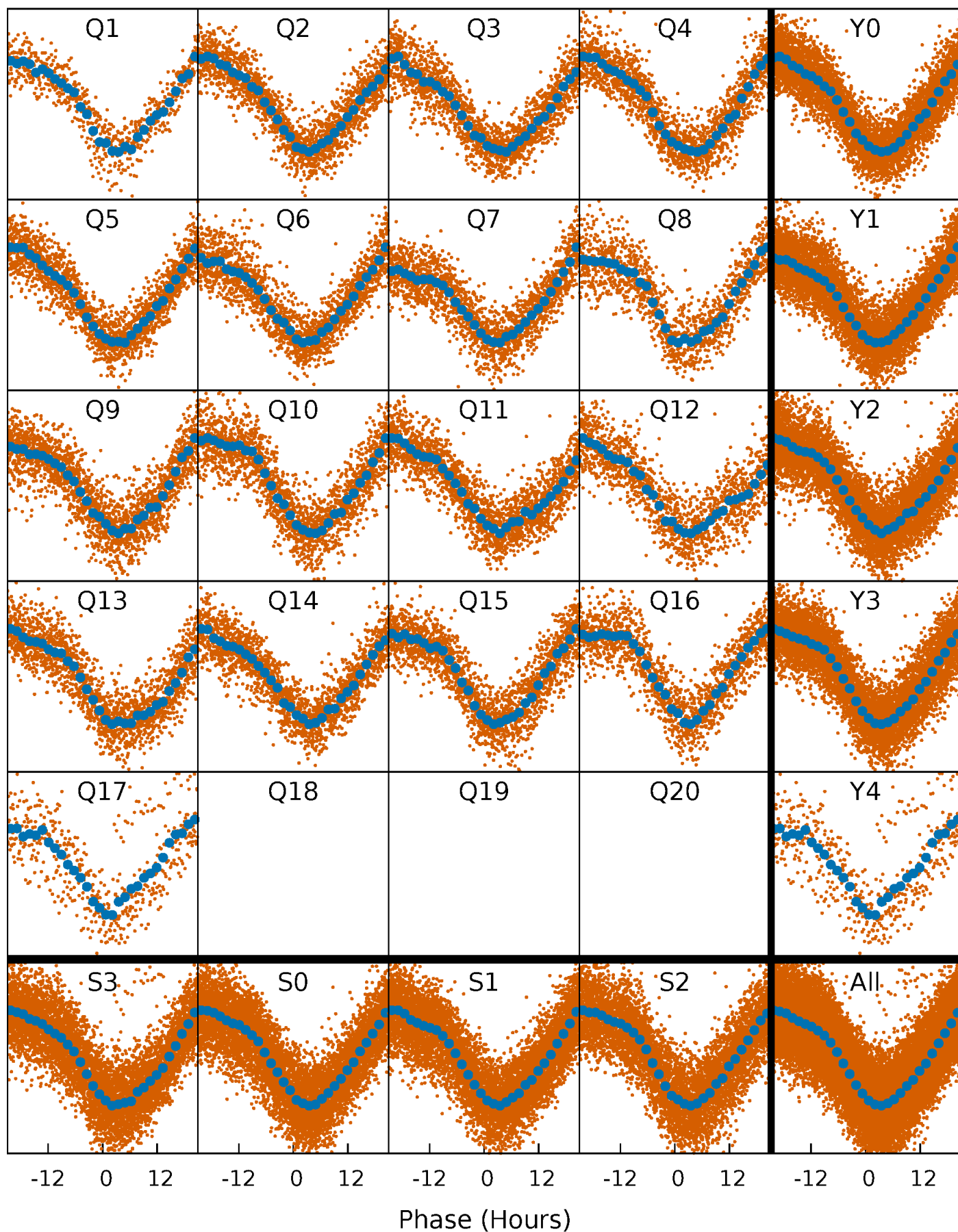


Non-Whitened Vs. Whitened Light Curve



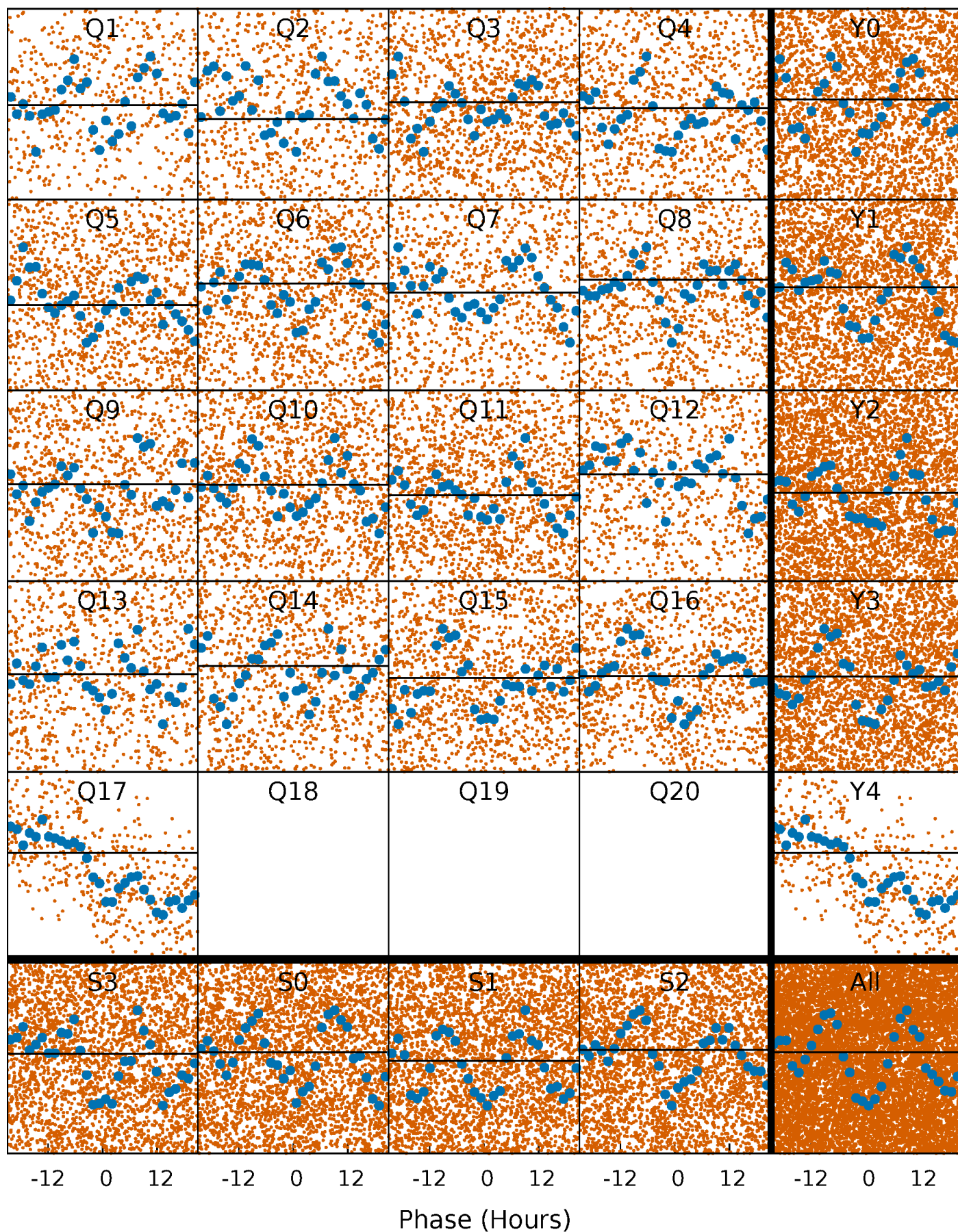
PDC Quarter-Phased Transit Curves

TCE 008984831-01 P= 4.078493 Days $T_0=134.780363$ (BKJD)



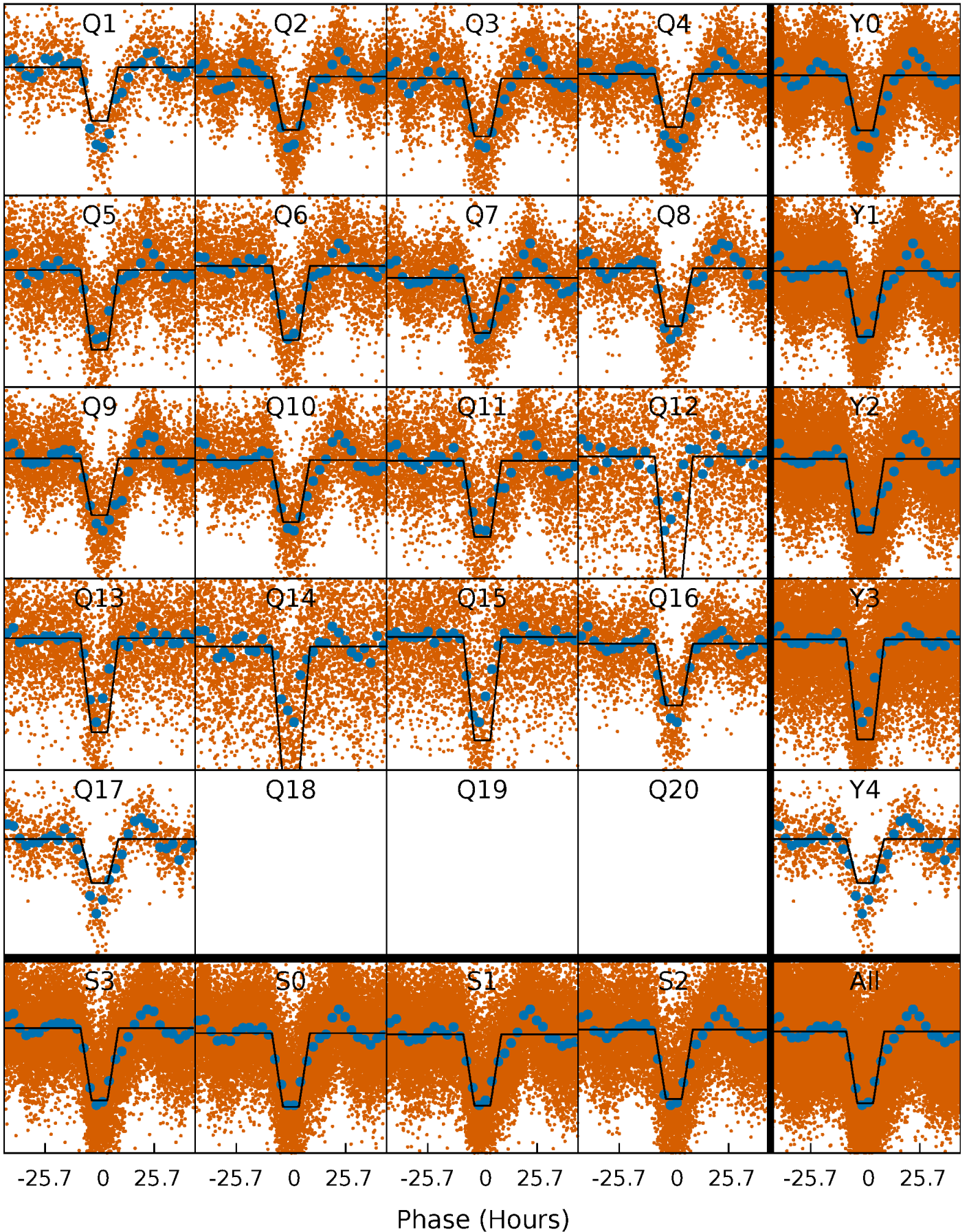
DV Quarter-Phased Transit Curves

TCE 008984831-01 P= 4.078493 Days $T_0=134.780363$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

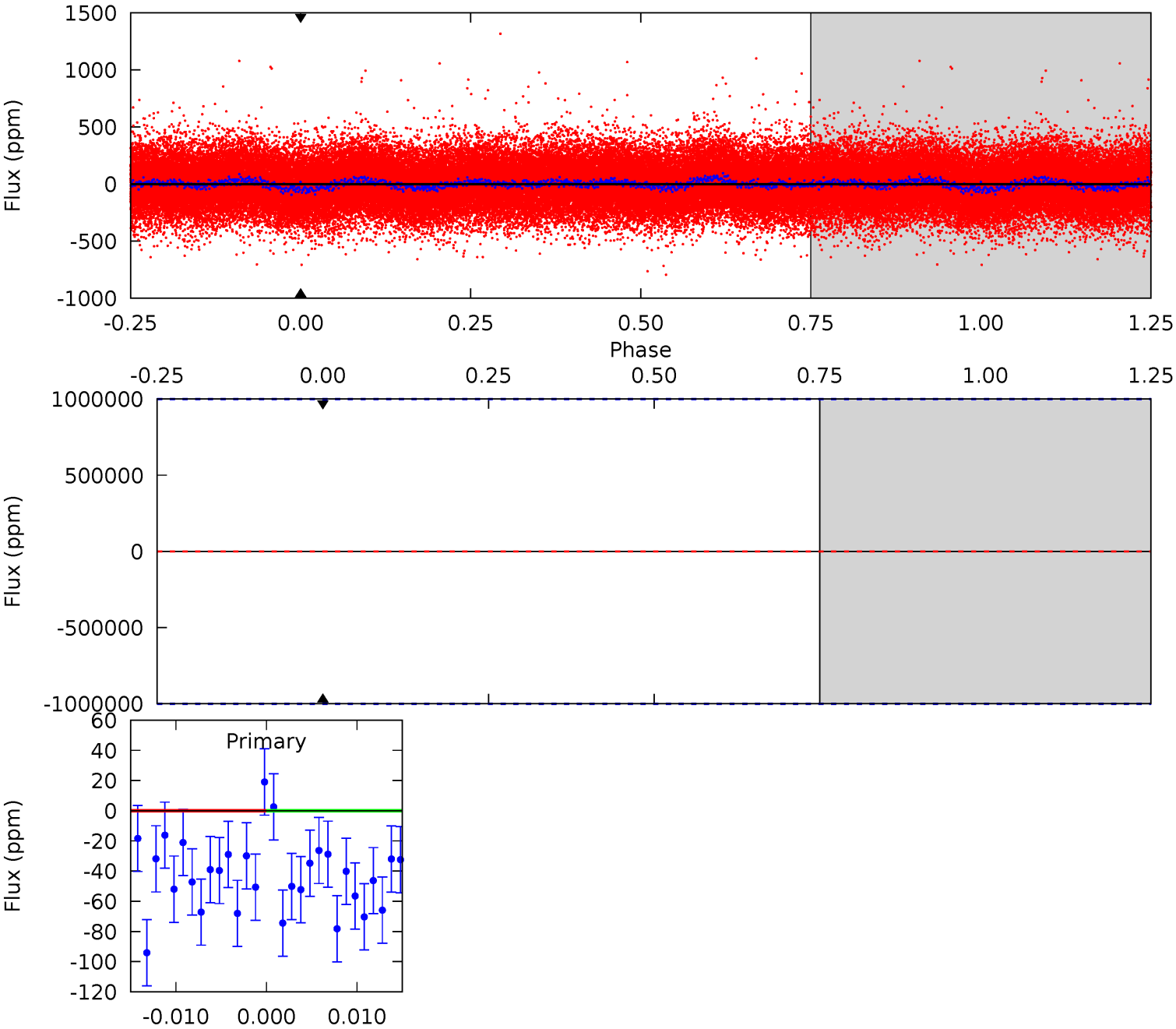
TCE 008984831-01 P= 4.078493 Days $T_0=134.891346$ (BKJD)



DV Model-Shift Uniqueness Test

008984831-01, P = 4.078493 Days, E = 130.701870 Days

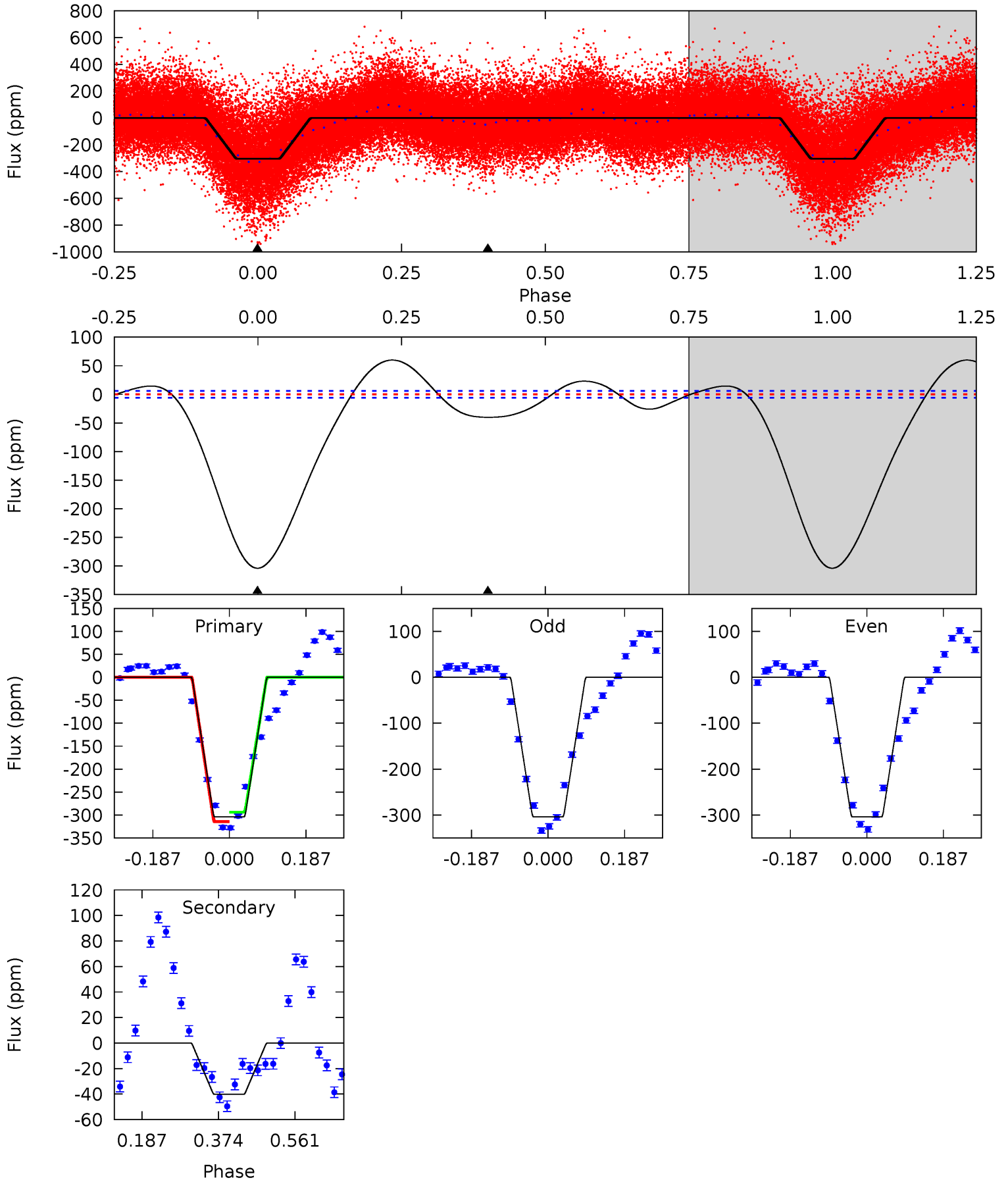
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008984831-01, P = 4.078493 Days, E = 130.812853 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
229.3	30.3	0	0	4.43	1.32	15.4	229.3	229.3	30.3	30.3	0.16	0.99	0.16	7.31



Stellar Parameters For KIC 008984831

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6493^{+175}_{-214}	$3.820^{+0.456}_{-0.114}$	$-0.180^{+0.250}_{-0.300}$	$2.470^{+0.516}_{-1.203}$	$1.471^{+0.206}_{-0.383}$	$0.138^{+0.631}_{-0.047}$
	+3%/-3%	+12%/-3%	+139%/-167%	+21%/-49%	+14%/-26%	+459%/-34%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008984831-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$16.00^{+20.34}_{-11.19}$	2565^{+192}_{-315}	5839^{+35823}_{-32276}	19^{+1638}_{-1031}
Alt.	-40 ± 1	$17.03^{+20.15}_{-12.25}$	2562^{+199}_{-301}	-2254^{+6070}_{-533}	$0.240^{+2.773}_{-0.188}$

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

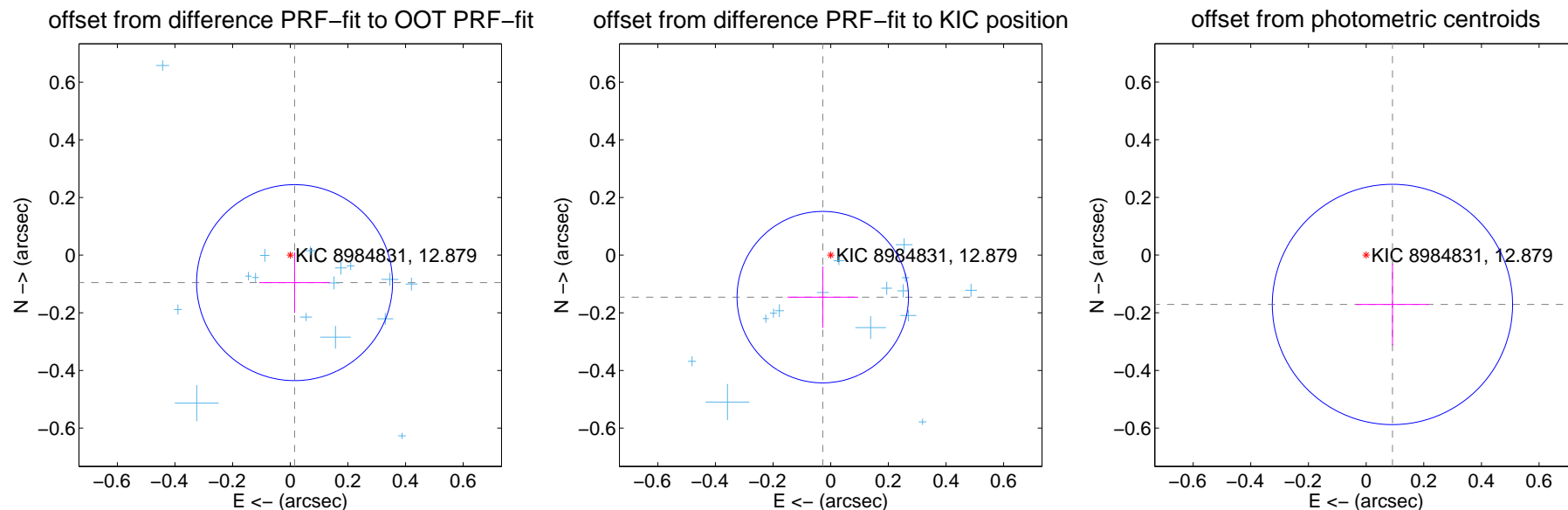
DV Centroid Data

Supplemental centroid analysis for 008984831-01. Kepler magnitude: 12.88. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

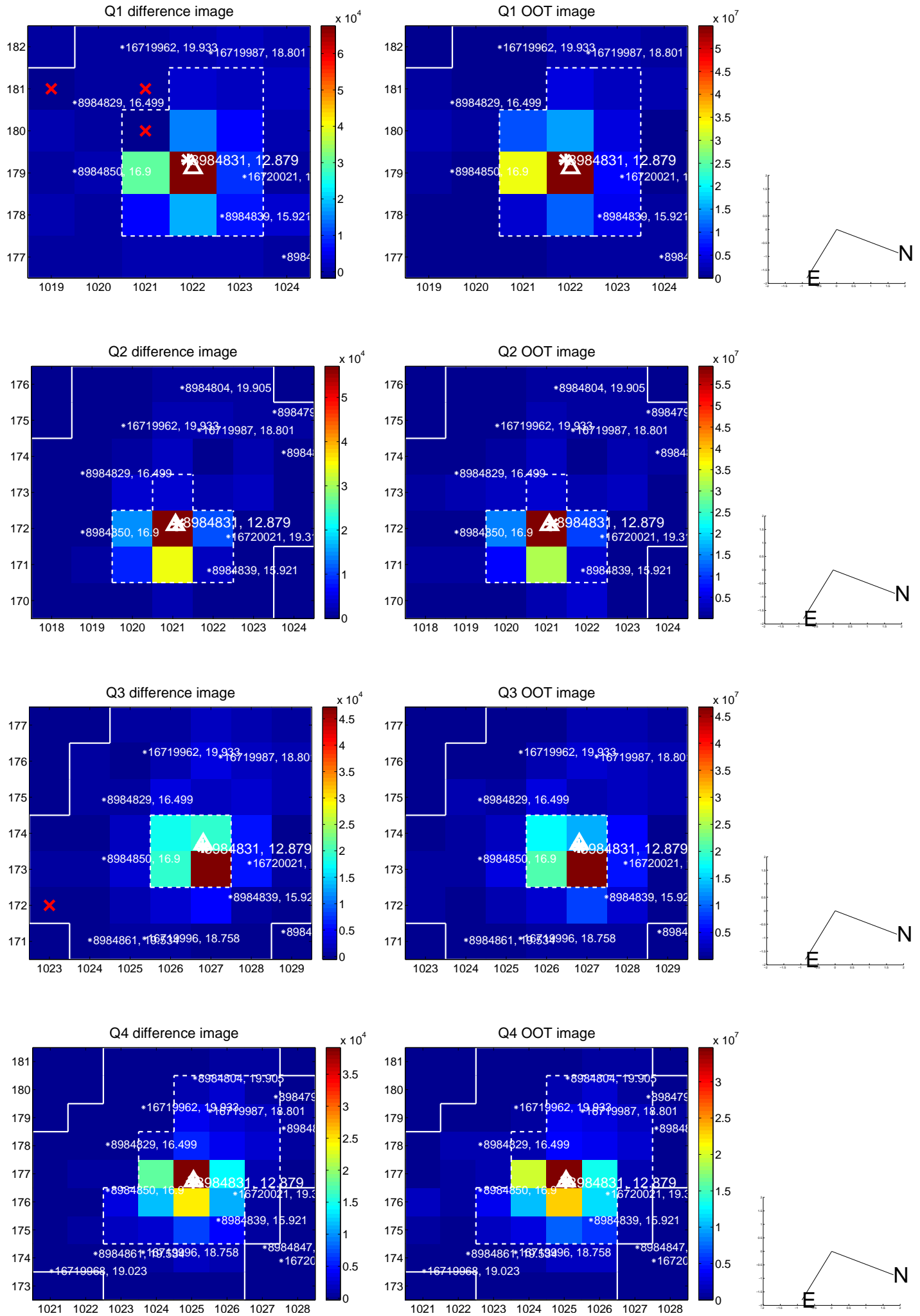
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.097 ± 0.113	0.85	-0.015 ± 0.123	-0.095 ± 0.105
PRF-fit source offset from KIC position	0.148 ± 0.099	1.50	0.028 ± 0.123	-0.146 ± 0.106
photometric centroid source offset	0.19 ± 0.14	1.40	-0.09 ± 0.13	-0.17 ± 0.14

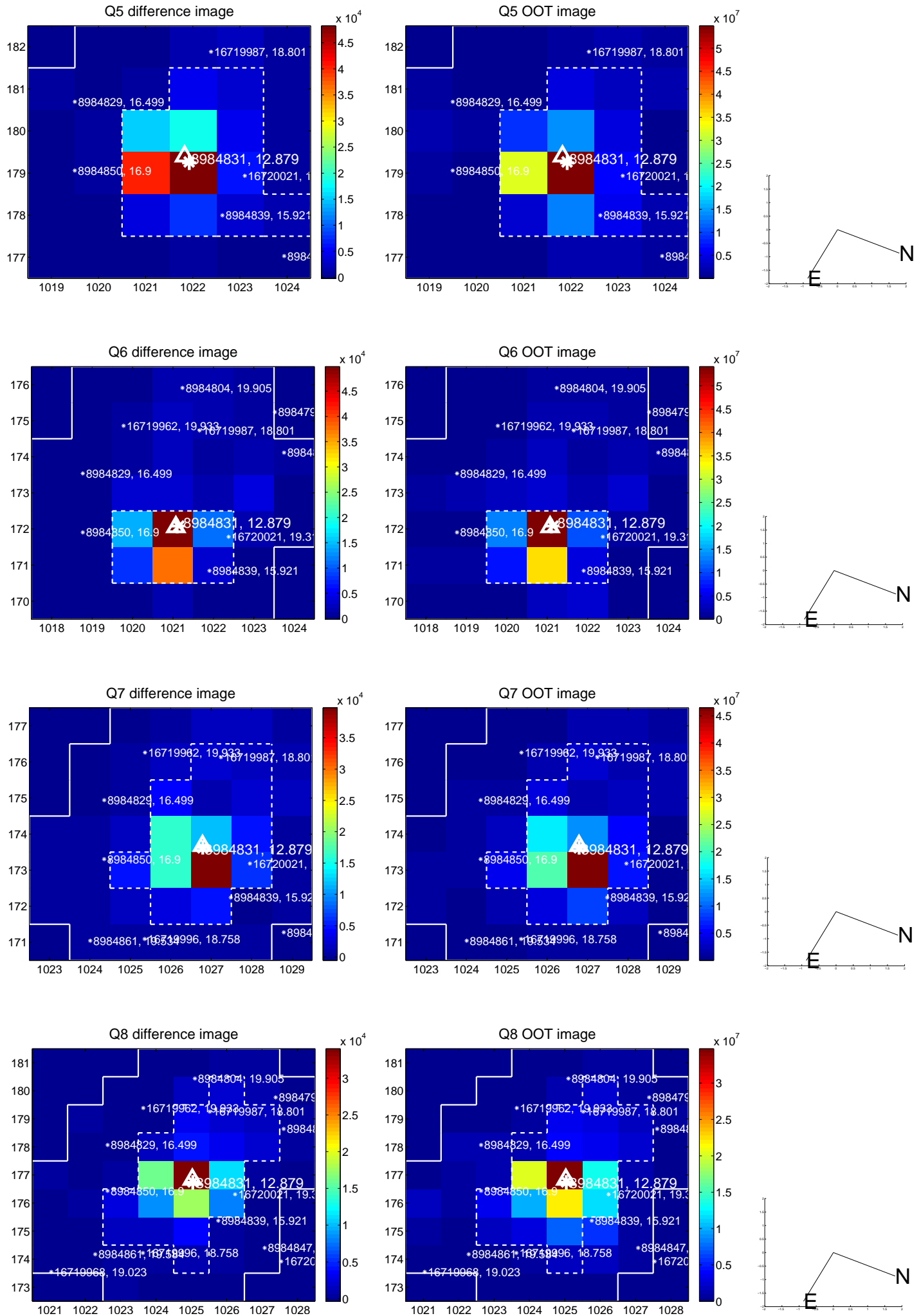


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

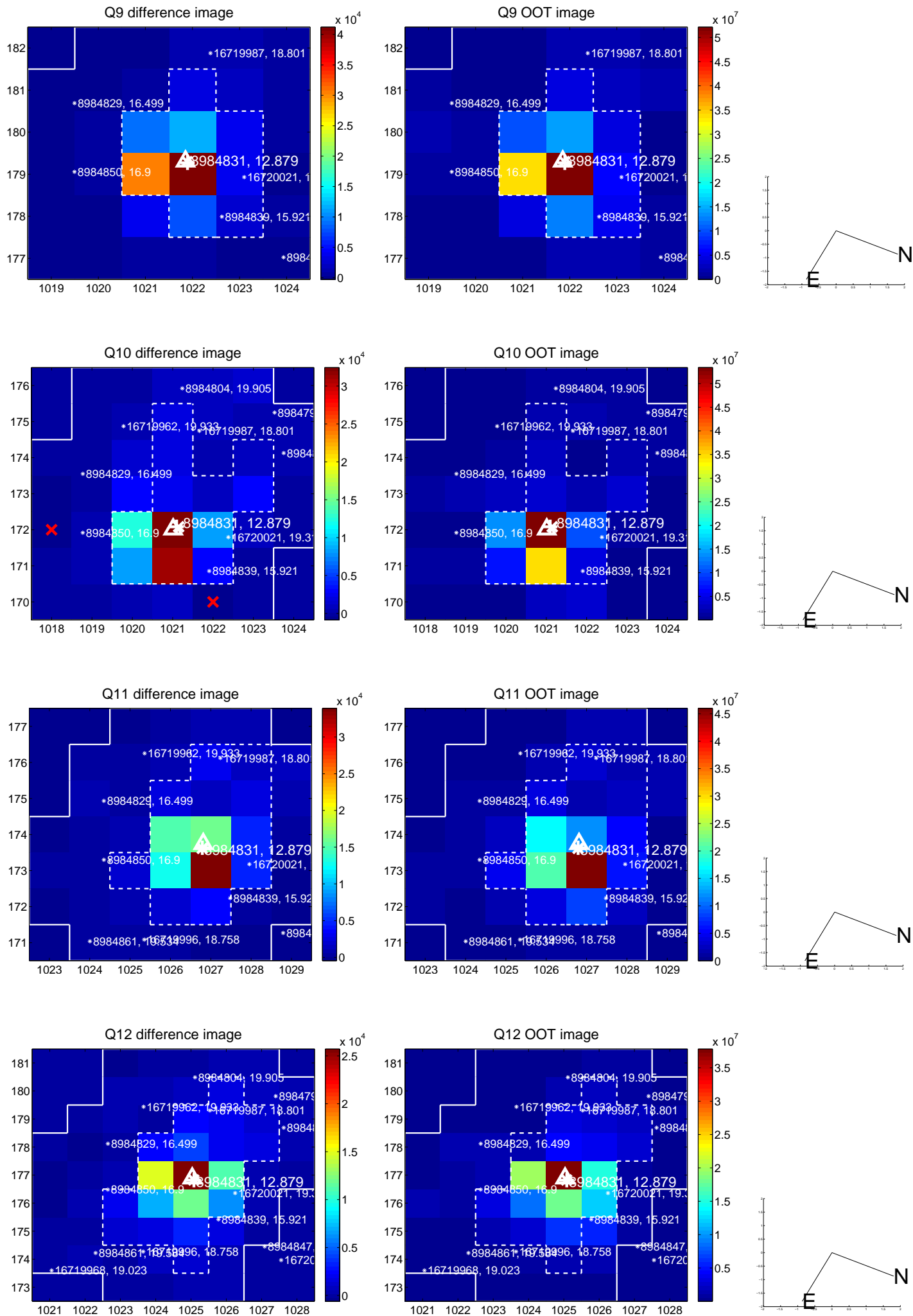
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



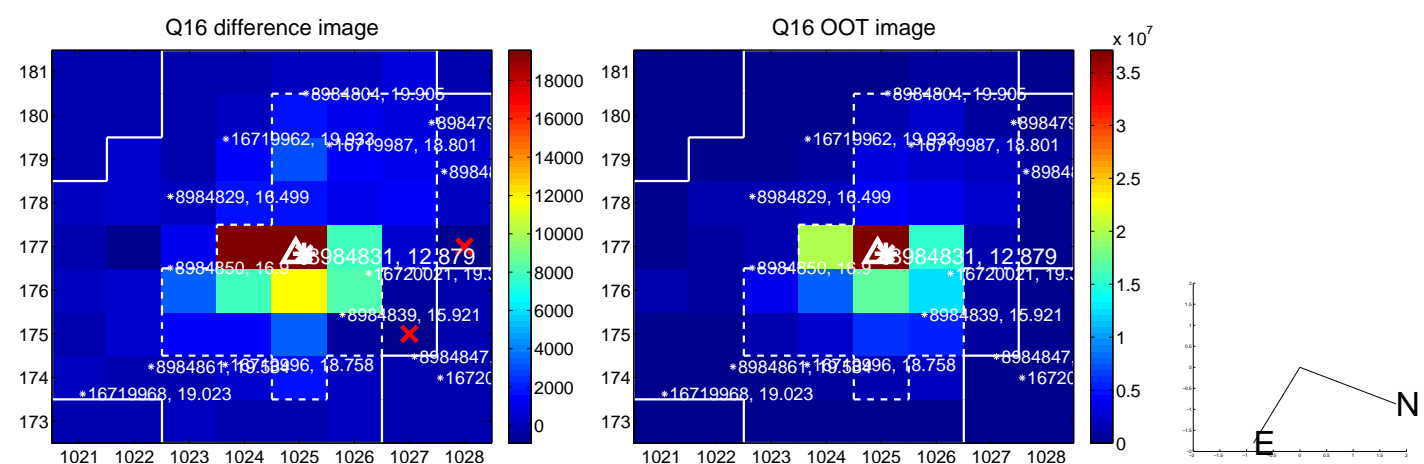
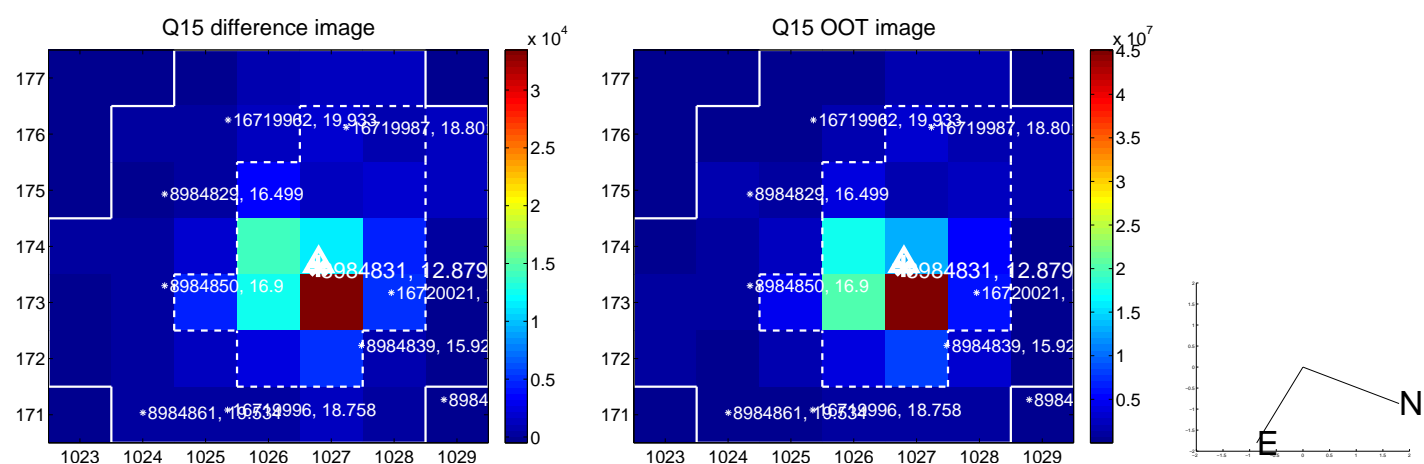
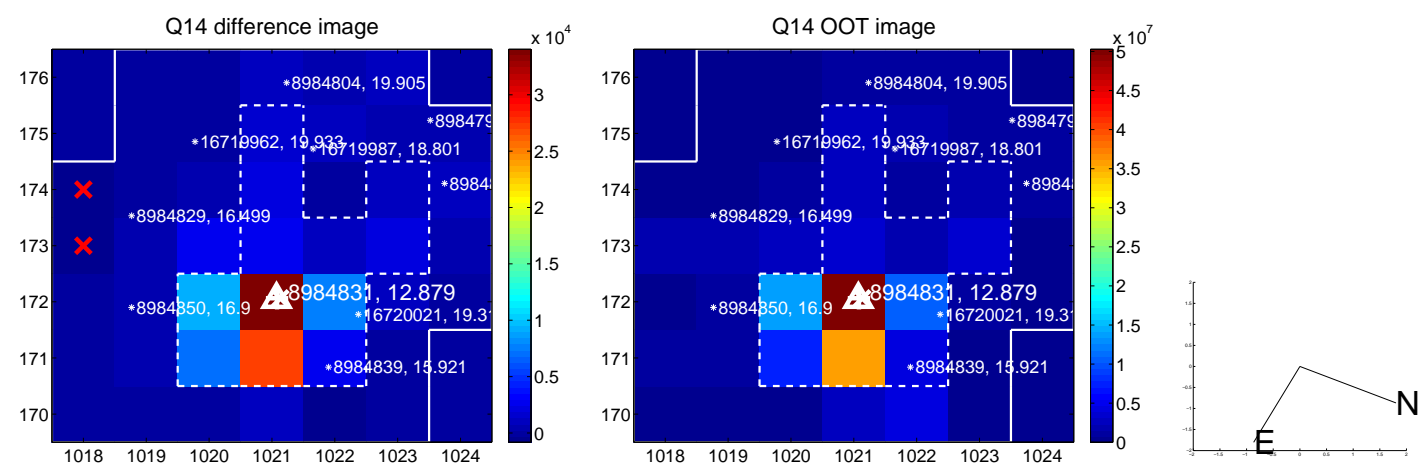
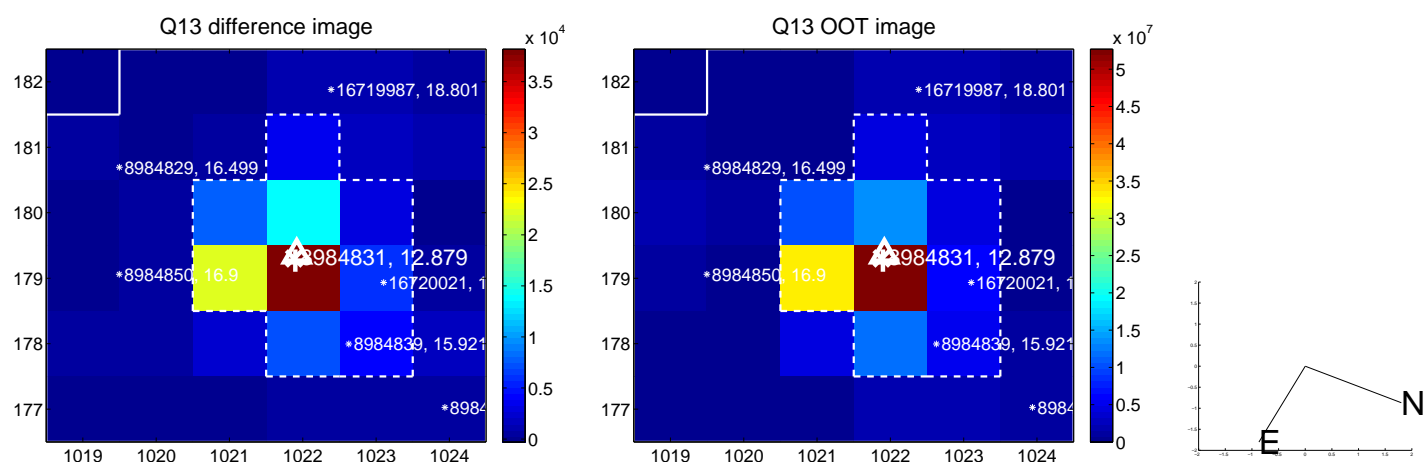
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



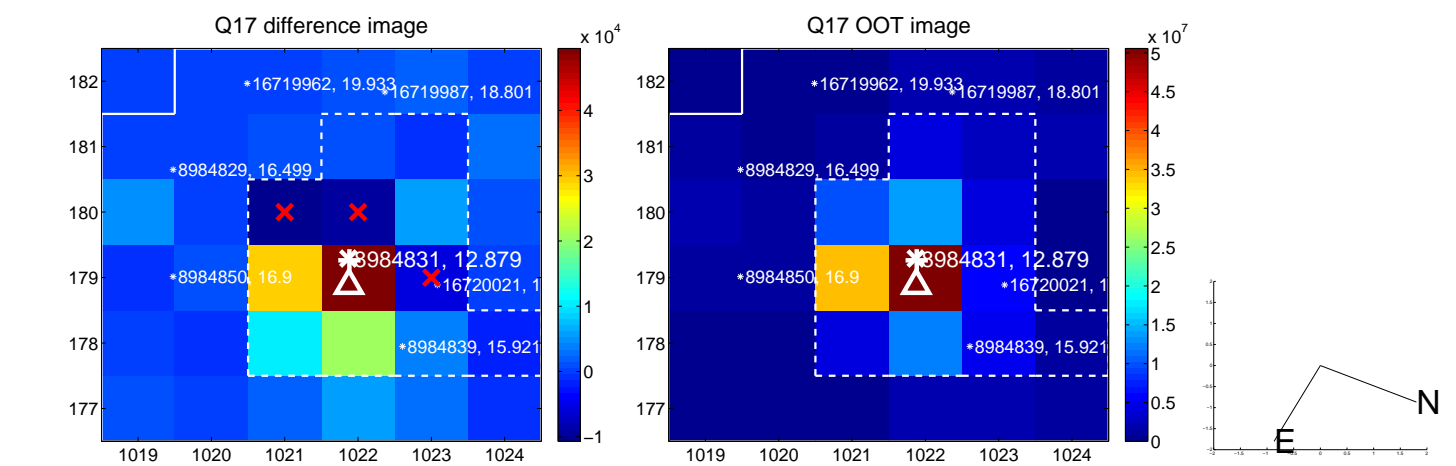
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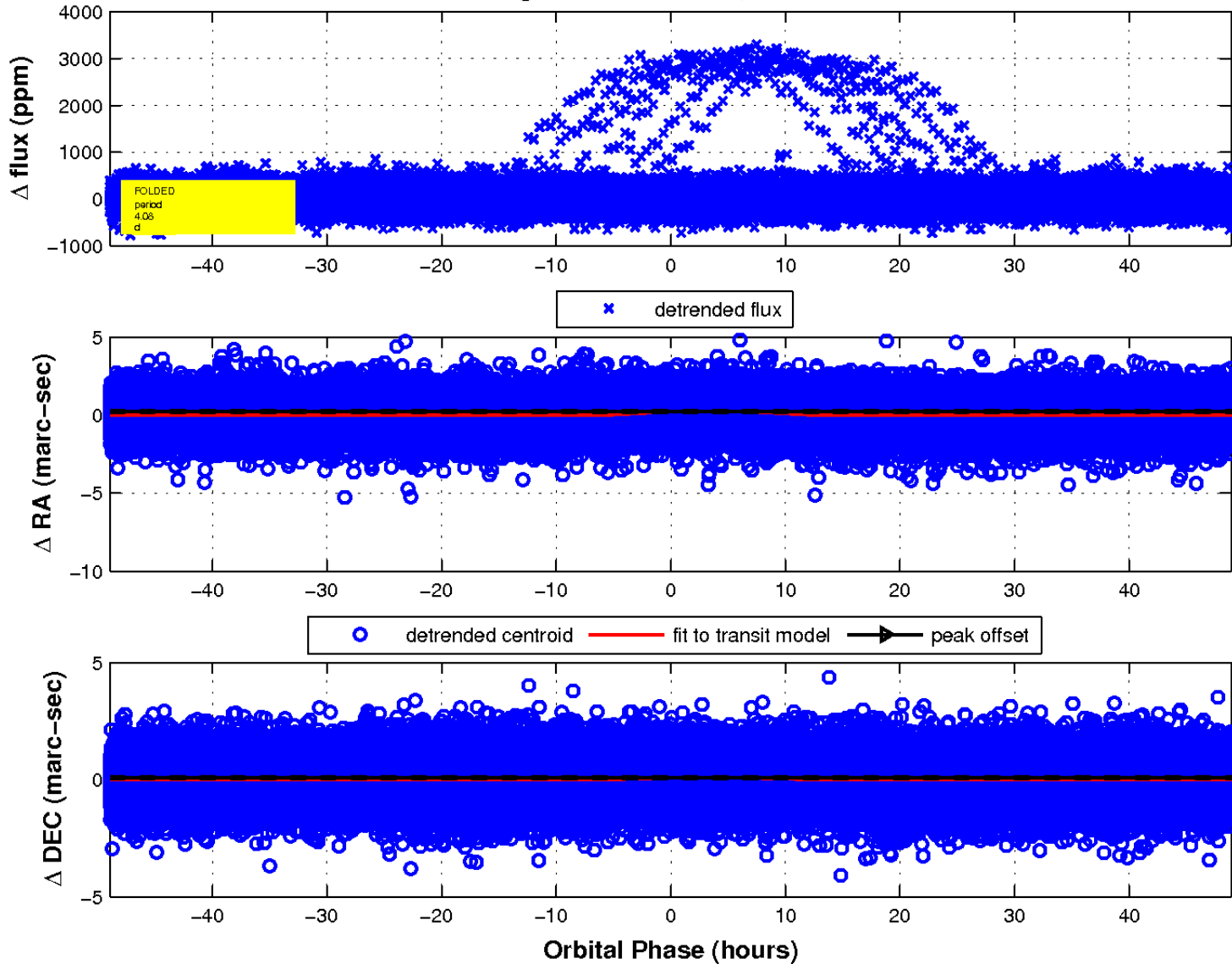
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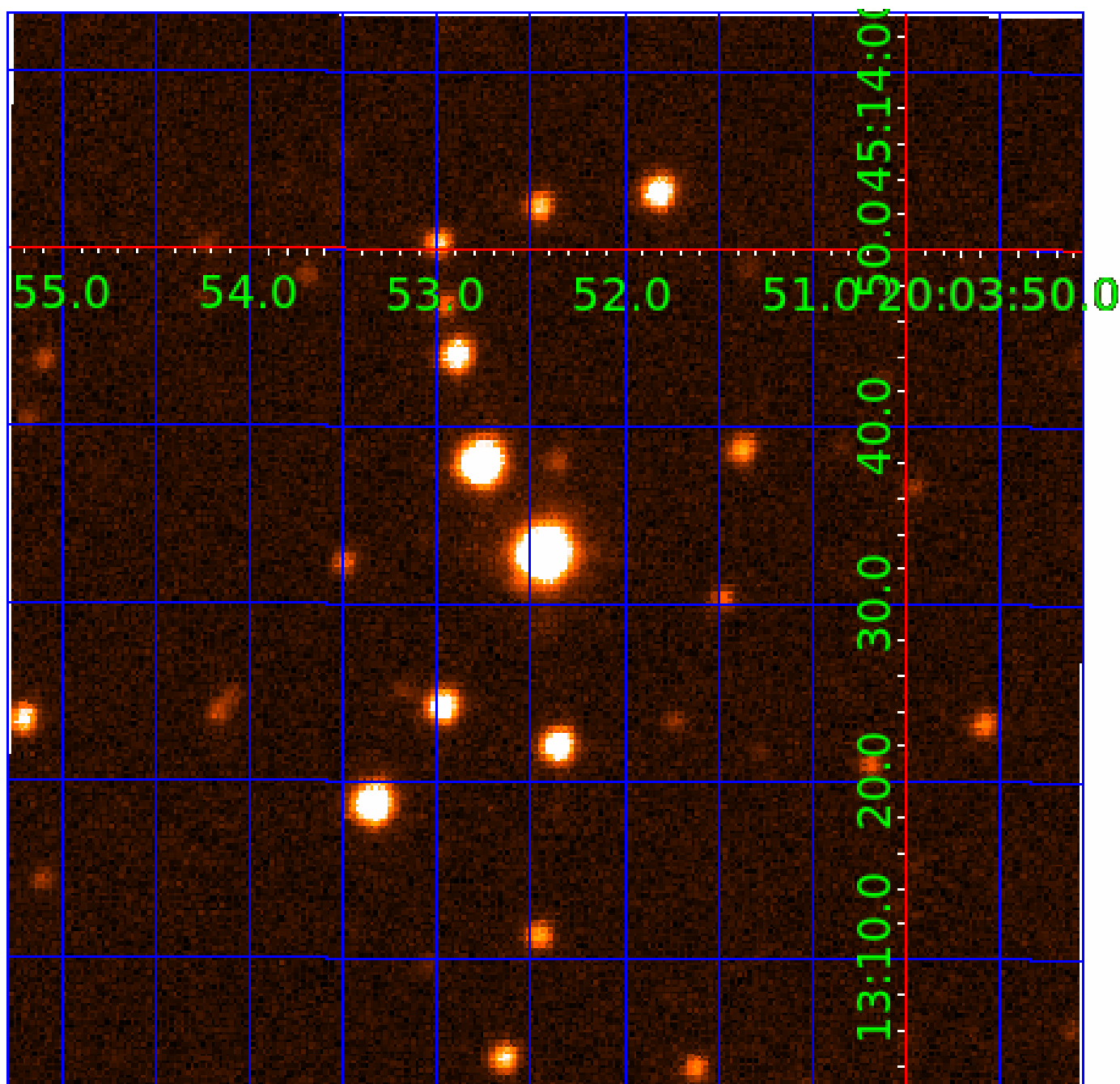


fluxWeightedCentroids, Planet 1 of 9



UKIRT Image

Declination



KIC 008984831

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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Robovetter Results

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008984831-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008984831-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008984831-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008984831-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
008984831-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

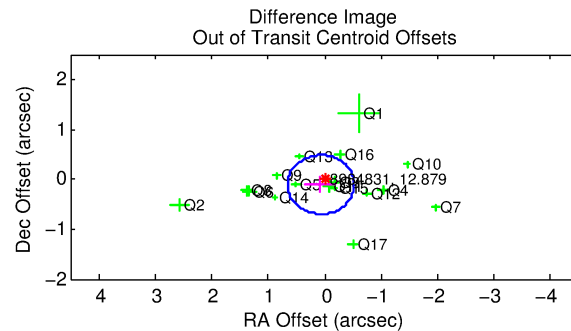
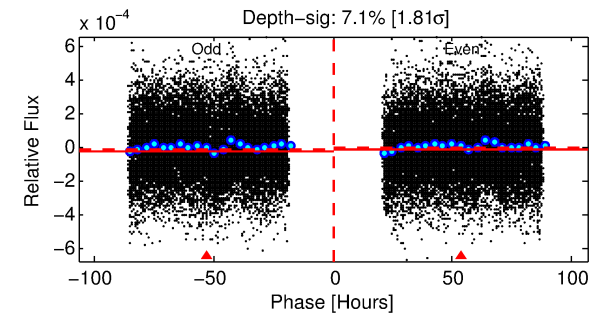
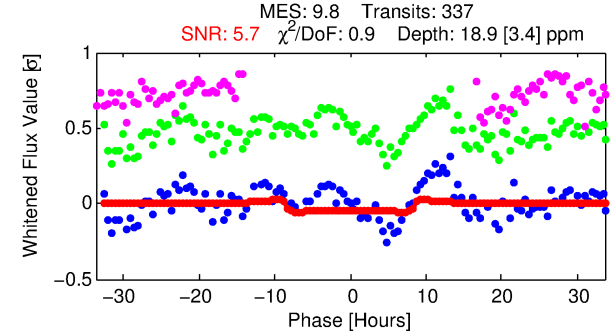
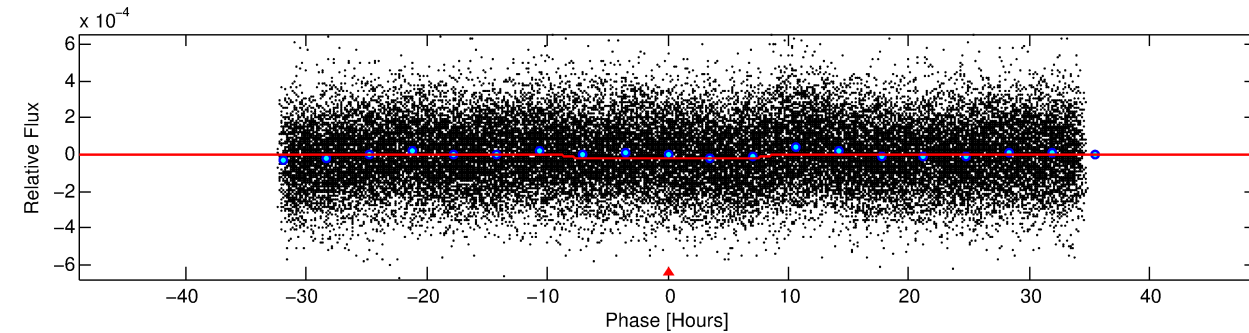
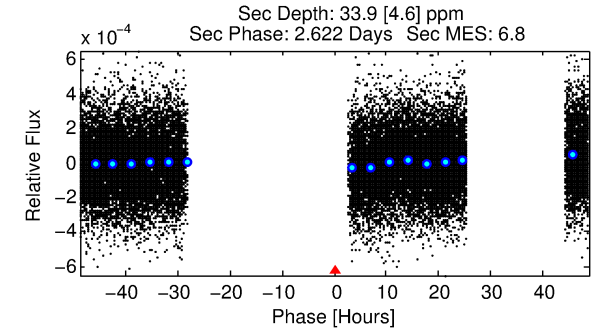
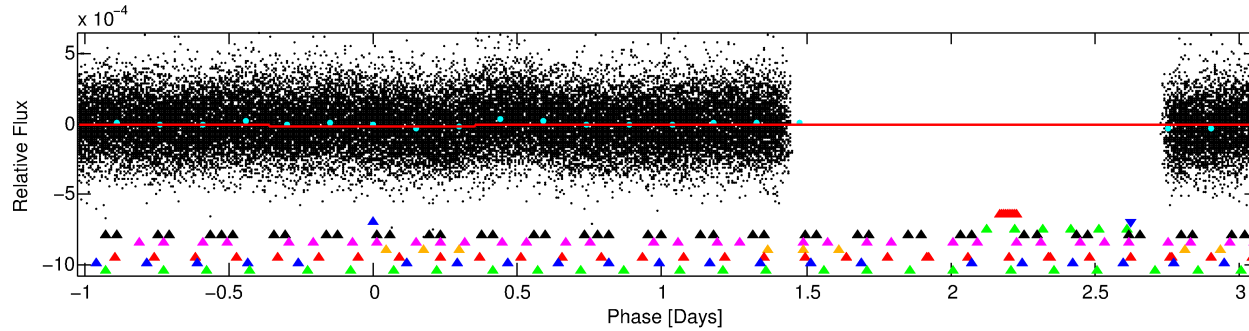
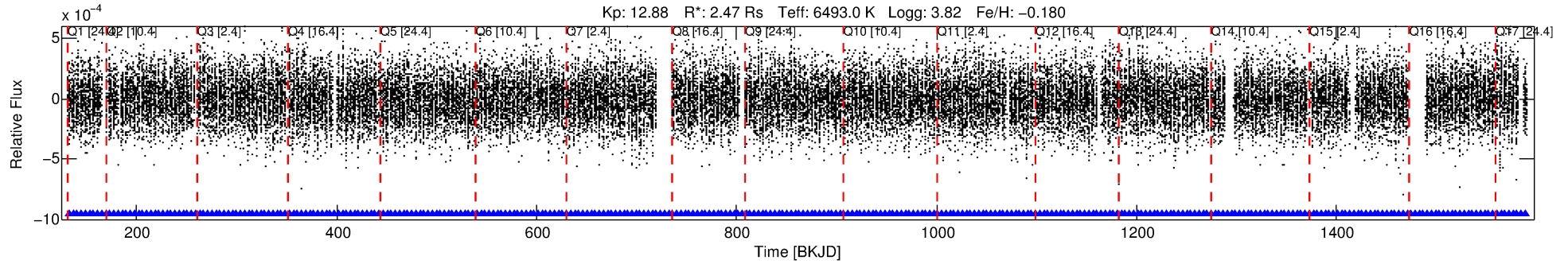
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008984831-02

No Significant Match Found

DV One-Page Summary

KIC: 8984831 Candidate: 2 of 9 Period: 4.079 d



DV Fit Results:

Period = 4.07866 [0.00010] d
Epoch = 132.6610 [0.0153] BKJD
Rp/R* = 0.0046 [0.0009]
a/R* = 1.23 [0.43]
b = 0.89 [0.23]
Seff = 3009.20 [2355.62]
Teq = 1889 [370] K
Rp = 1.25 [0.66] Re
a = 0.0568 [0.0271] AU
Ag = 38.69 [34.02] [1.11σ]
Teffp = 7283 [804] K [6.10σ]

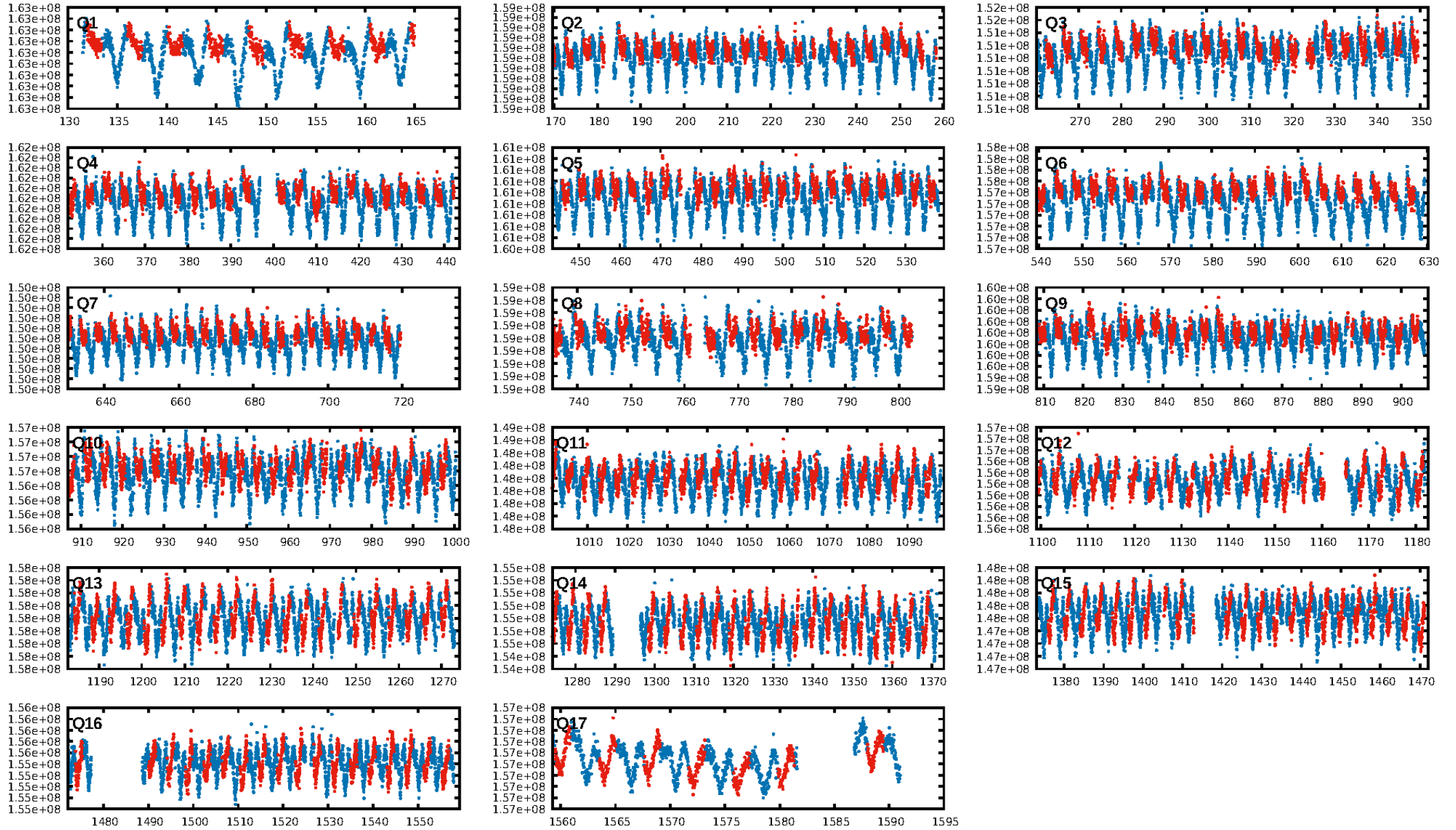
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [36.67σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.22e-13
RollingBand-fgt: 1.00 [321/321]
GhostDiagnostic-chr: 0.5925
Centroid-sig: 0.3%
Centroid-so: 3.791 arcsec [1.98σ]
OotOffset-rm: 0.130 arcsec [0.66σ]
KicOffset-rm: 0.186 arcsec [0.96σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
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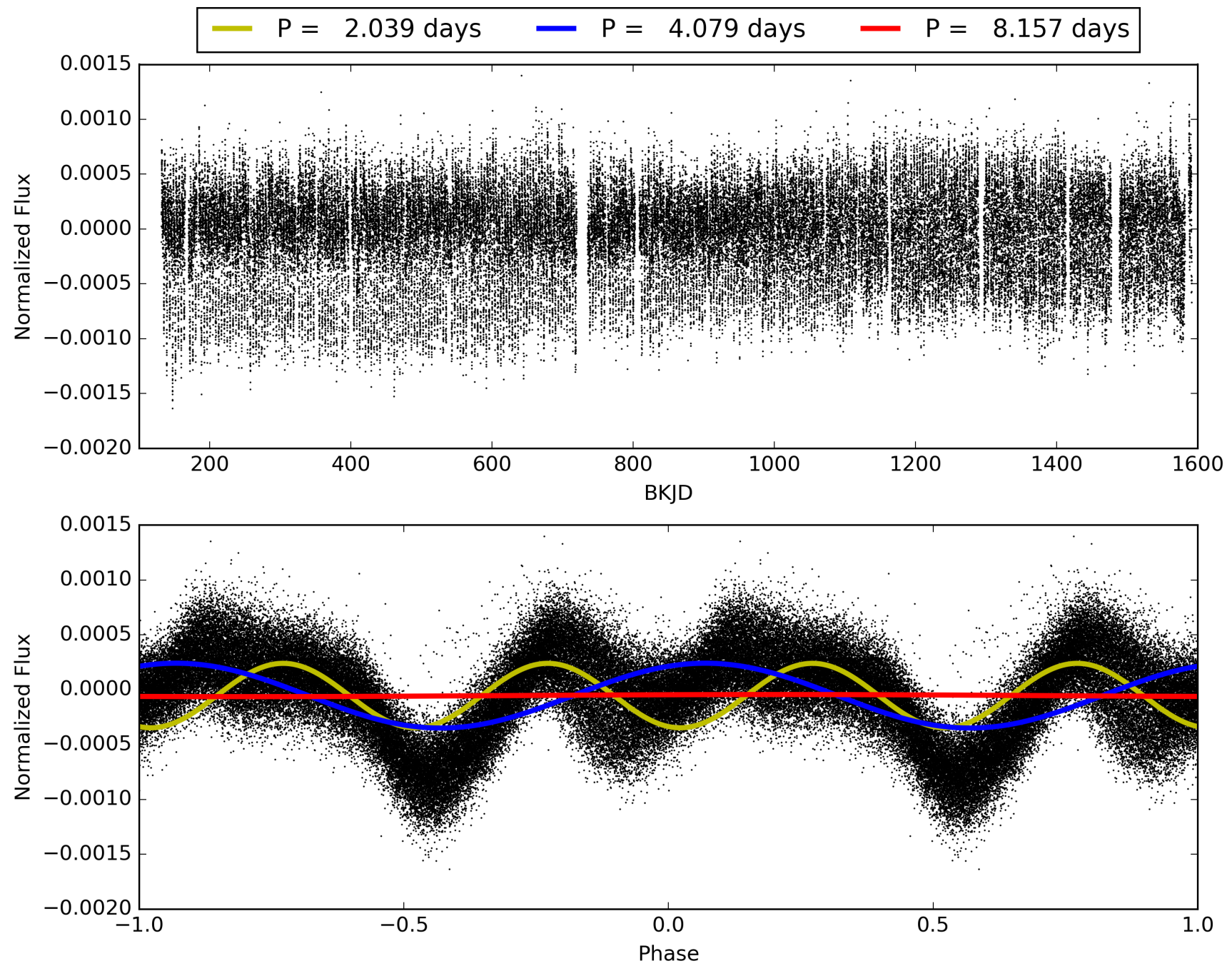
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:04:09 Z

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

TCE 008984831-02, PDC Light Curves

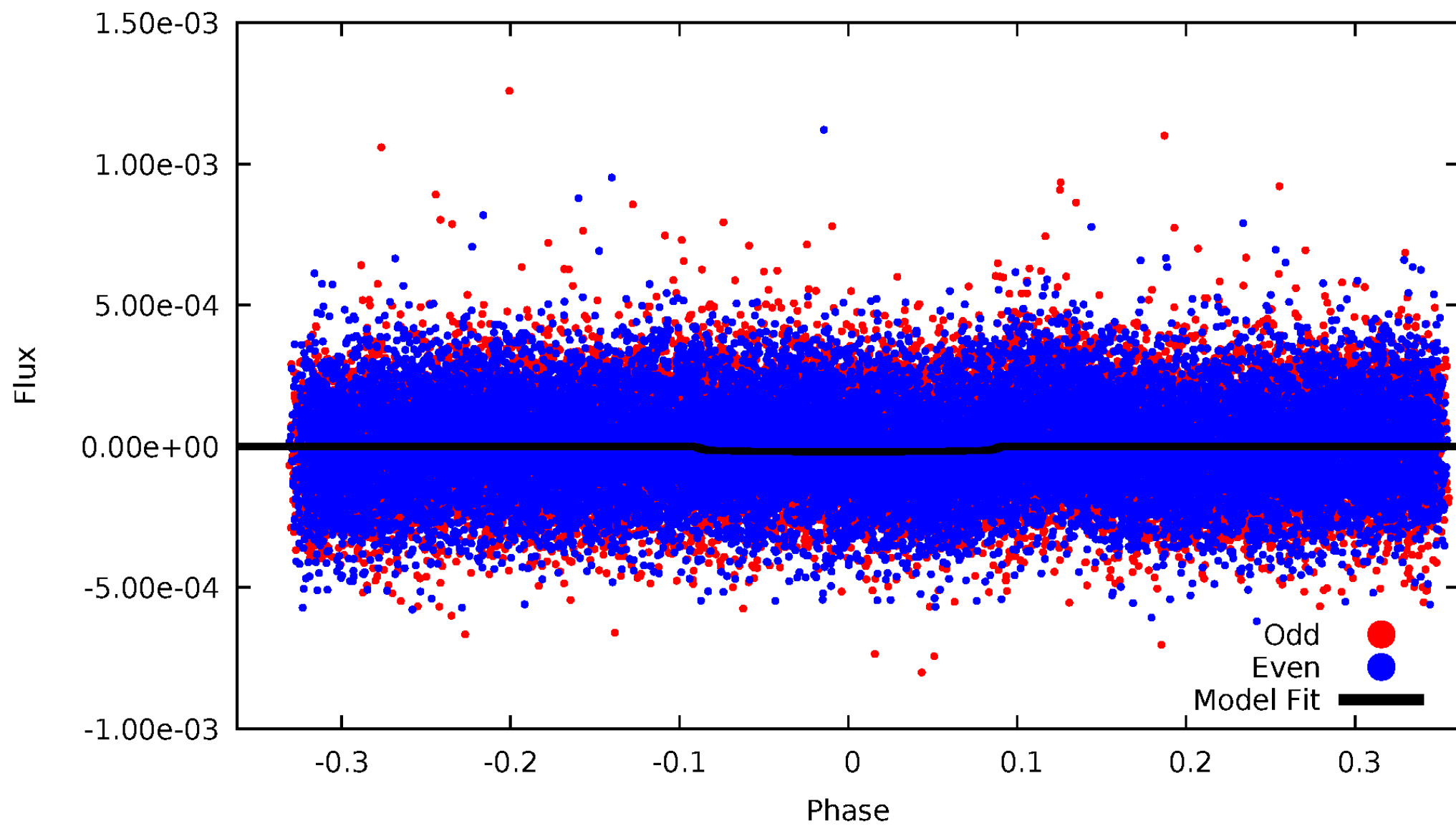


TCE 008984831-02



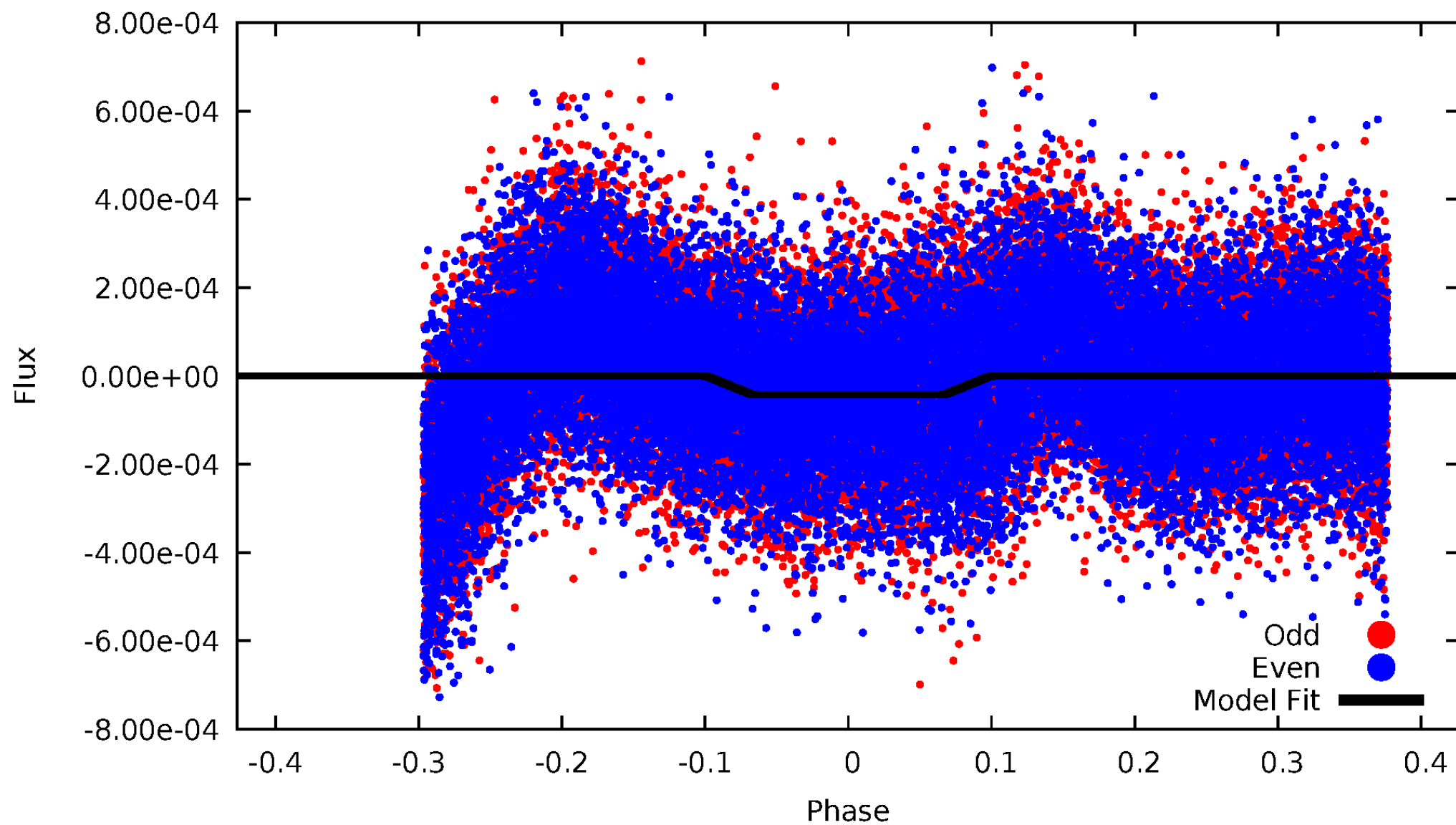
DV Odd/Even

TCE 008984831-02



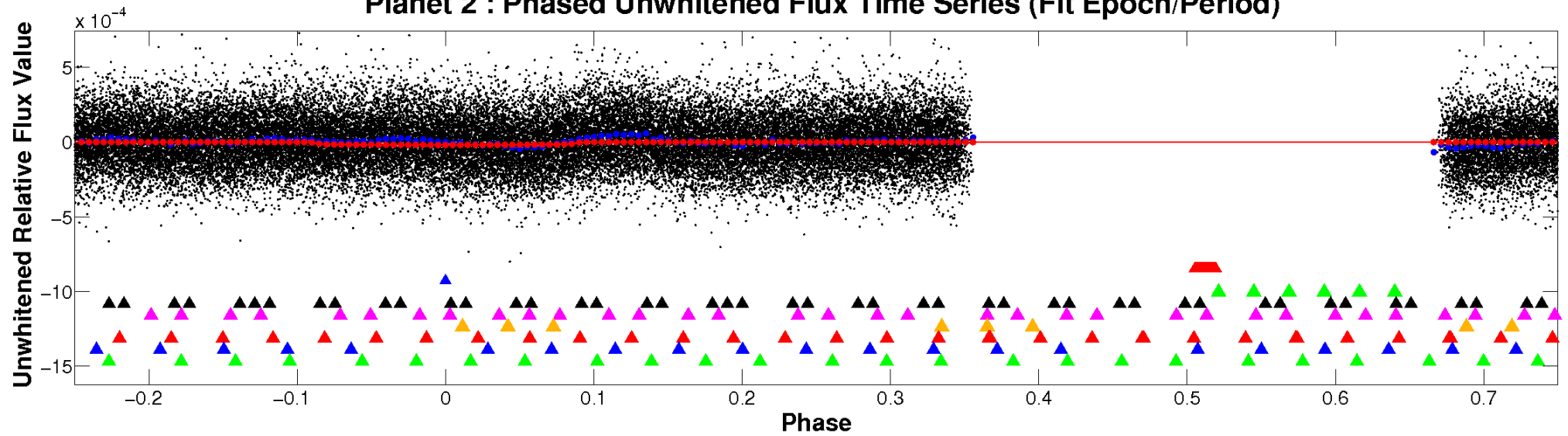
ALT Odd/Even

TCE 008984831-02

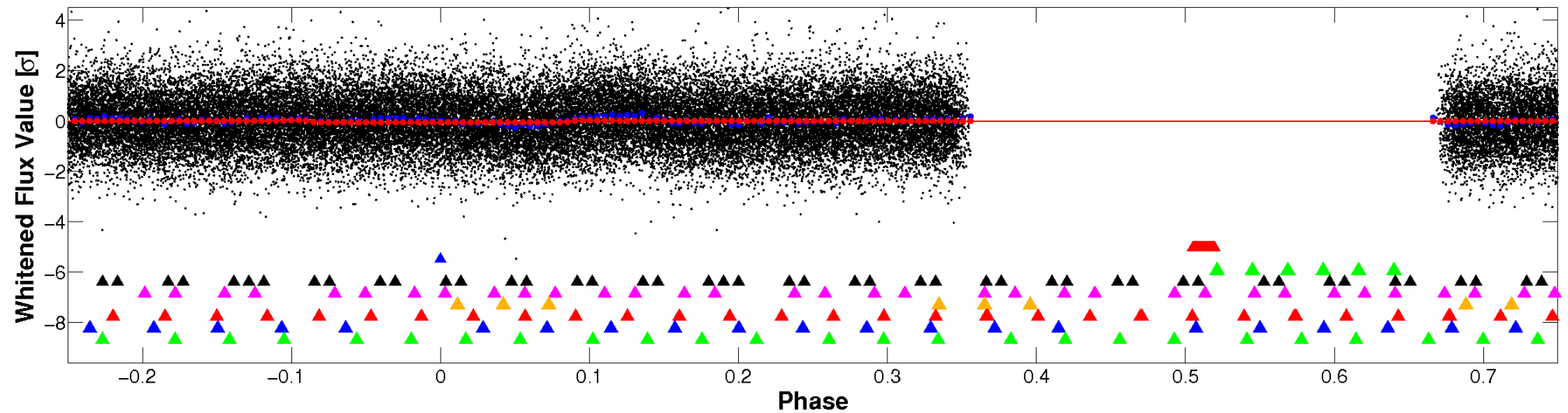


Non-Whitened Vs. Whitened Light Curve

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

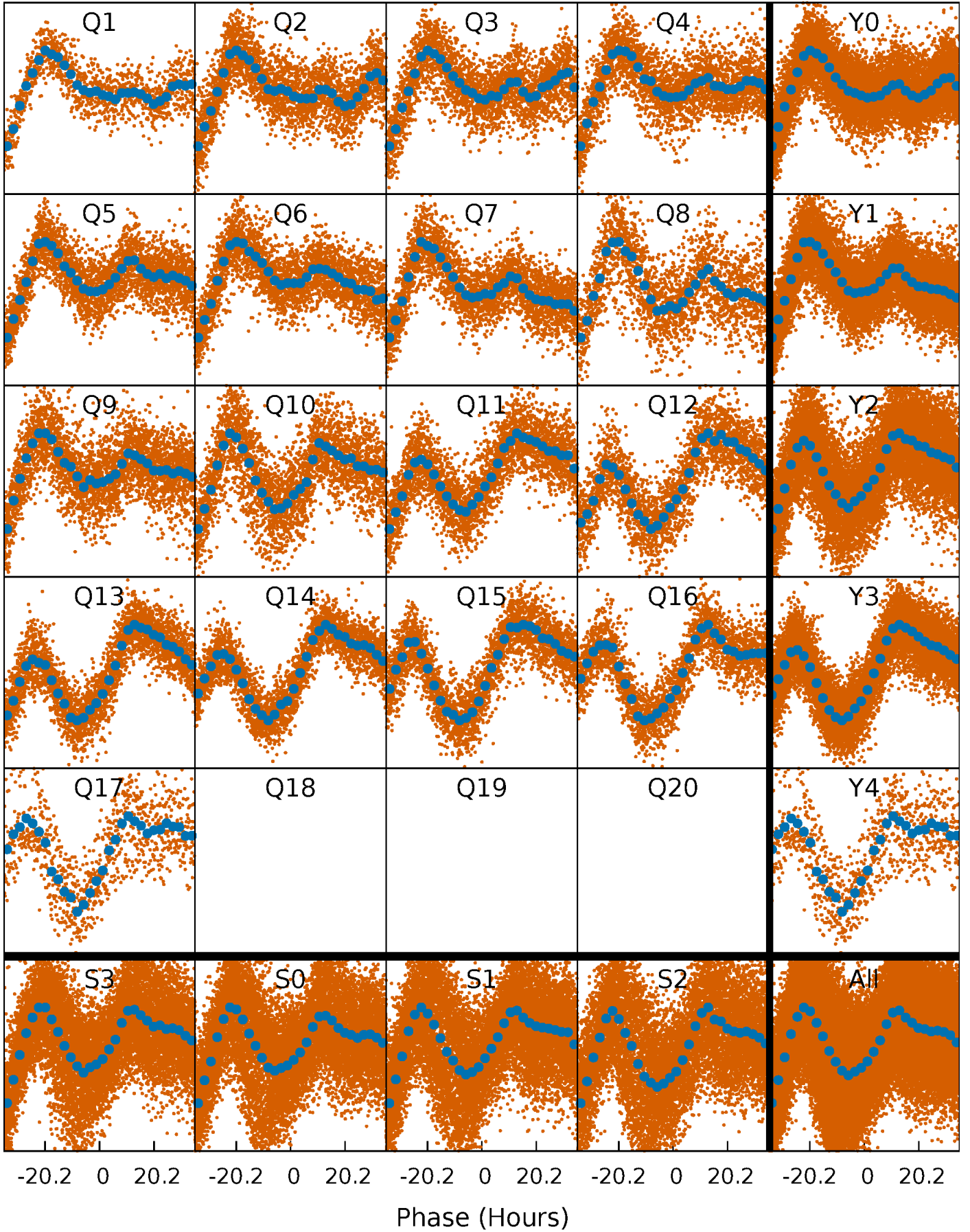


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



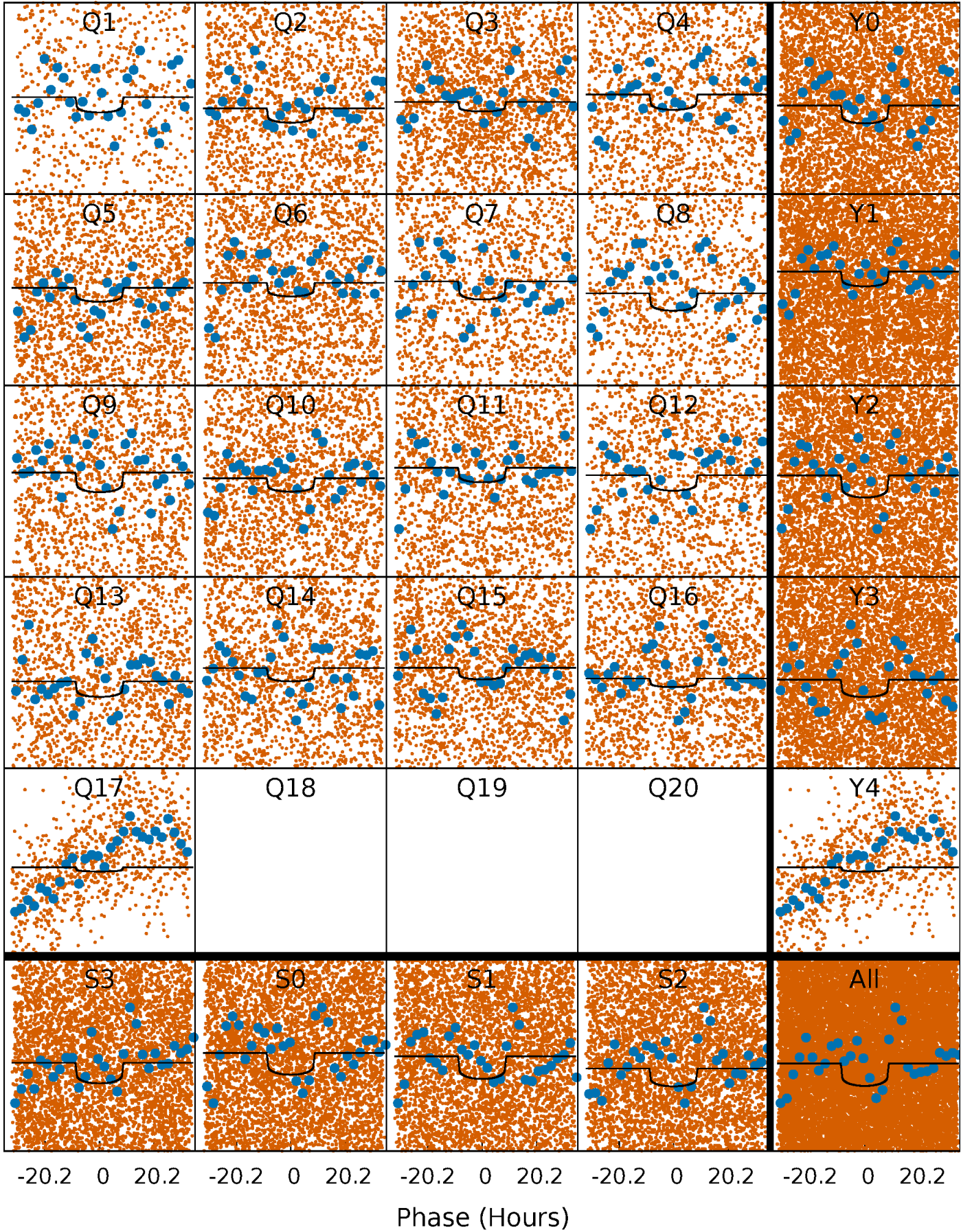
PDC Quarter-Phased Transit Curves

TCE 008984831-02 P= 4.078660 Days $T_0=132.661047$ (BKJD)



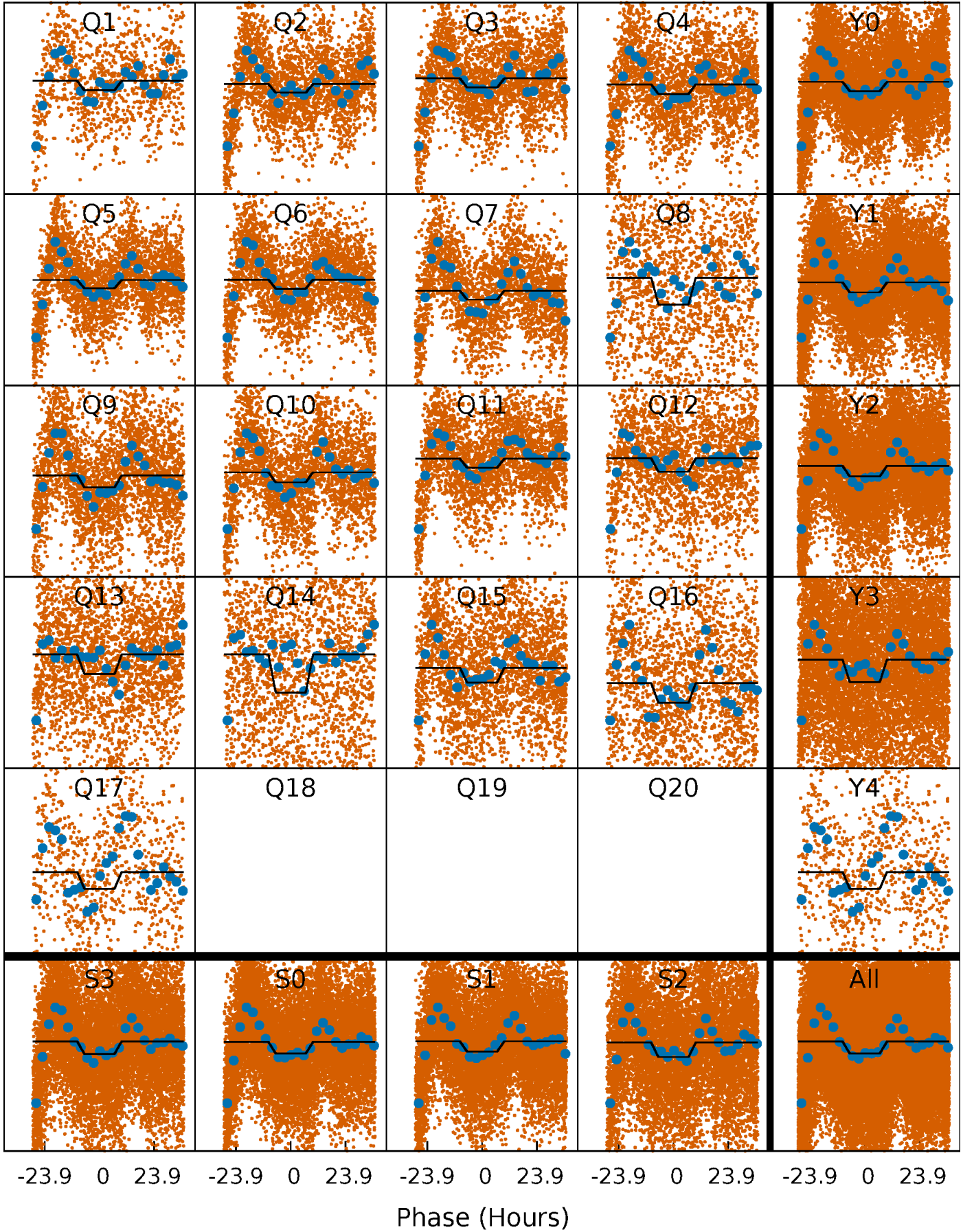
DV Quarter-Phased Transit Curves

TCE 008984831-02 P= 4.078660 Days $T_0=132.661047$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

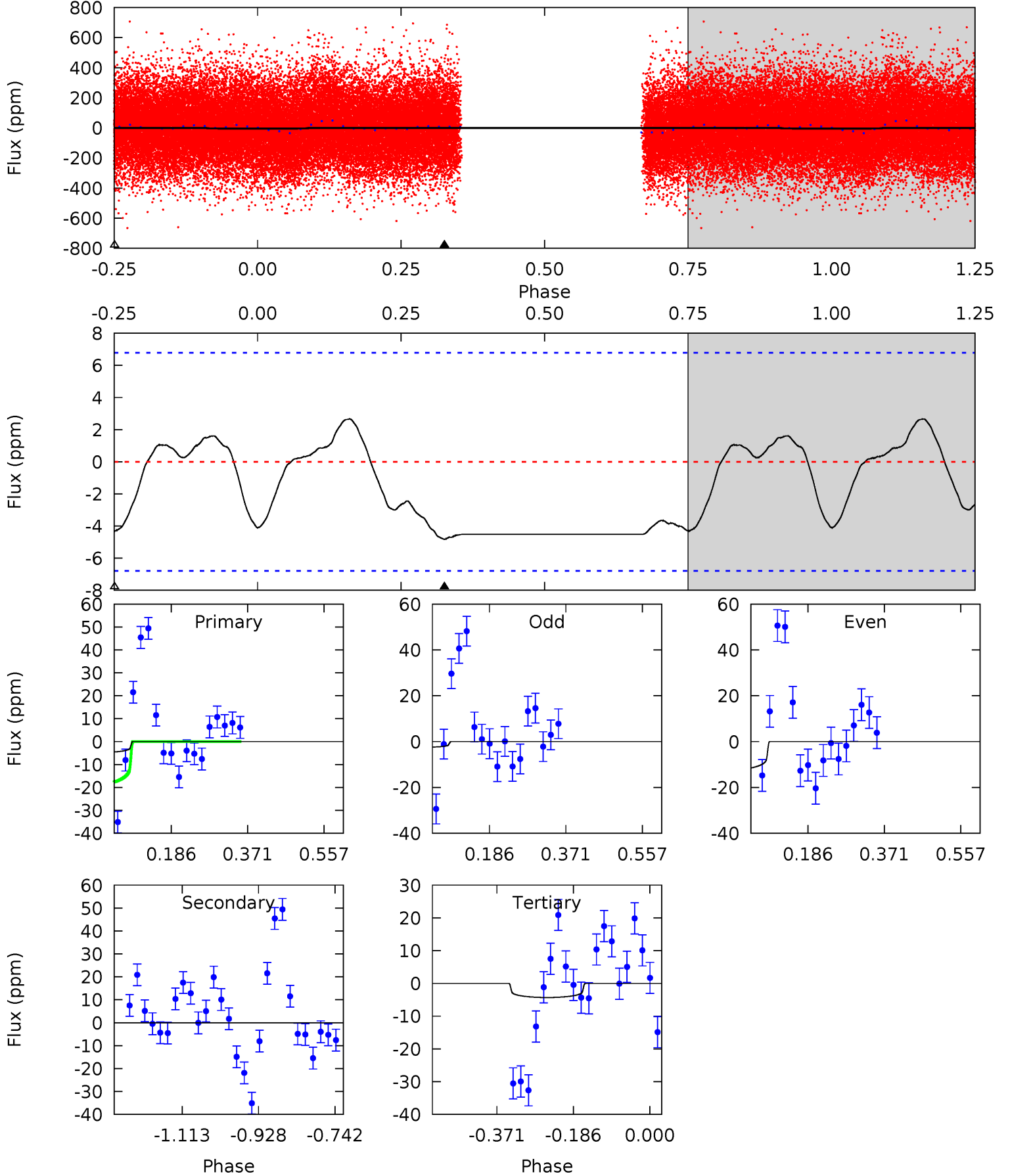
TCE 008984831-02 $P = 4.078487$ Days $T_0 = 132.579596$ (BKJD)



DV Model-Shift Uniqueness Test

008984831-02, P = 4.078660 Days, E = 128.582387 Days

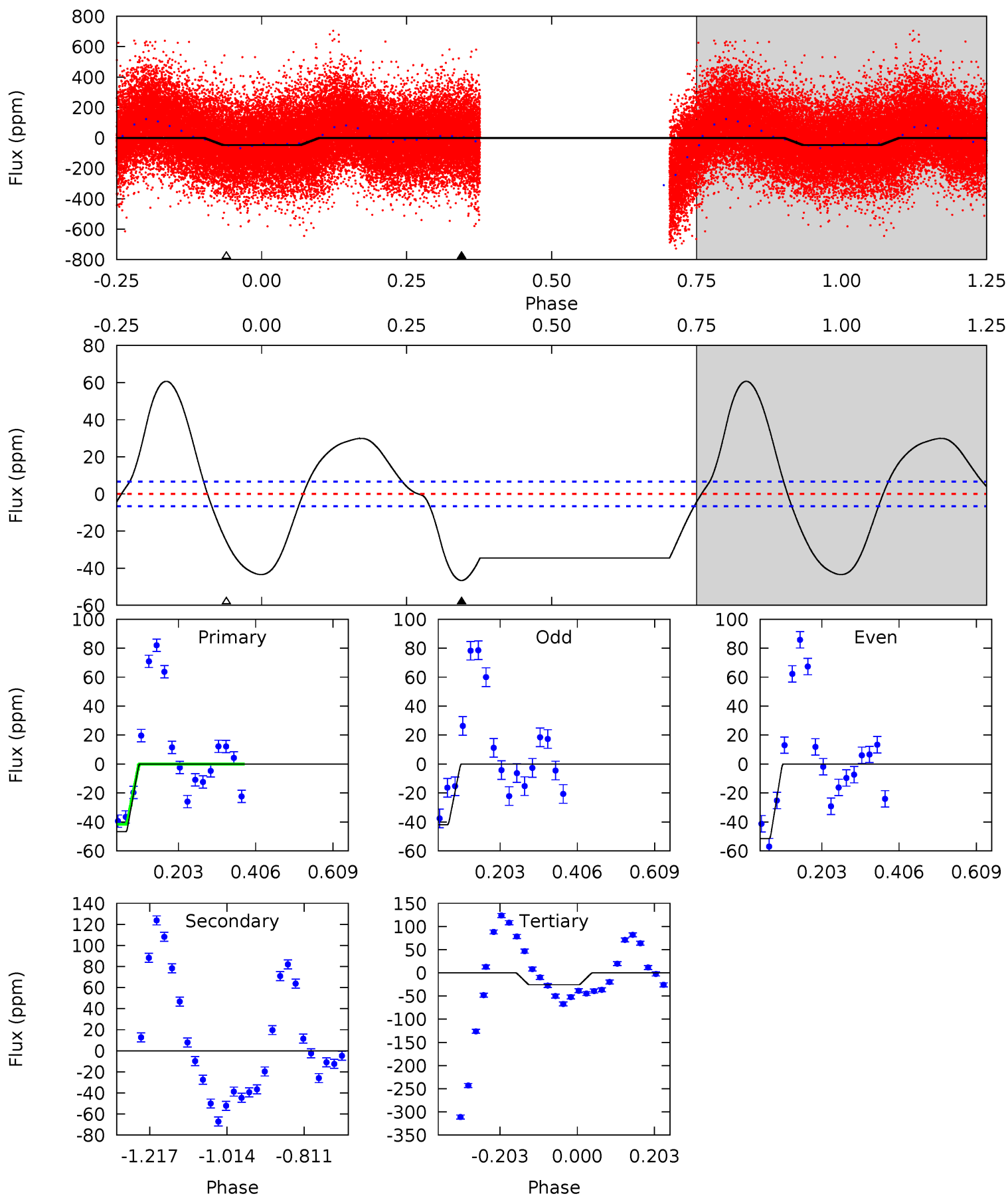
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.15	0	2.81	0	4.43	1.32	1.39	0.34	3.15	-2.81	0	3.19	0.76	0.36	3.15



Alt Model-Shift Uniqueness Test

008984831-02, P = 4.078487 Days, E = 128.501109 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.0	0	17.0	0	4.41	1.27	21.1	14.0	31.0	-17.0	0	3.22	1.02	0.57	3.77



Stellar Parameters For KIC 008984831

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6493^{+175}_{-214}	$3.820^{+0.456}_{-0.114}$	$-0.180^{+0.250}_{-0.300}$	$2.470^{+0.516}_{-1.203}$	$1.471^{+0.206}_{-0.383}$	$0.138^{+0.631}_{-0.047}$
	+3%/-3%	+12%/-3%	+139%/-167%	+21%/-49%	+14%/-26%	+459%/-34%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008984831-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 2	$1.15^{+0.34}_{-0.38}$	2567^{+195}_{-312}	-2911^{+6593}_{-984}	$-0.065^{+2.453}_{-2.263}$
Alt.	0 ± 2	$1.64^{+0.39}_{-0.44}$	2558^{+199}_{-298}	-2885^{+6027}_{-594}	$-0.067^{+1.103}_{-1.017}$

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 $A_{obs} \gg 1.0$

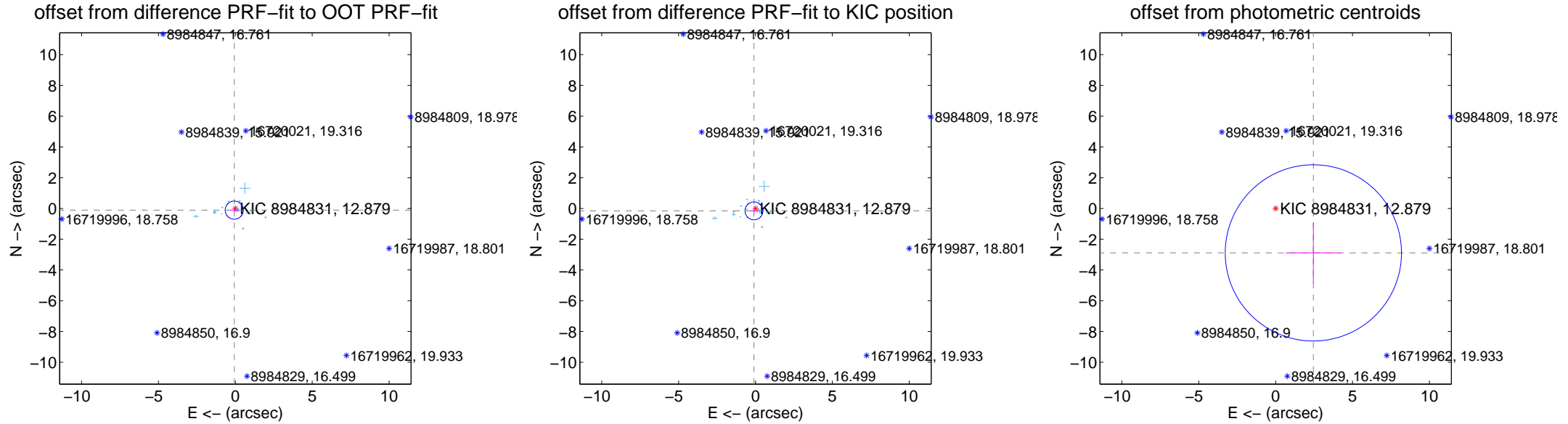
DV Centroid Data

Supplemental centroid analysis for 008984831-02. Kepler magnitude: 12.88. Transit SNR 5.65

There are 17 quarters with good PRF difference image offsets

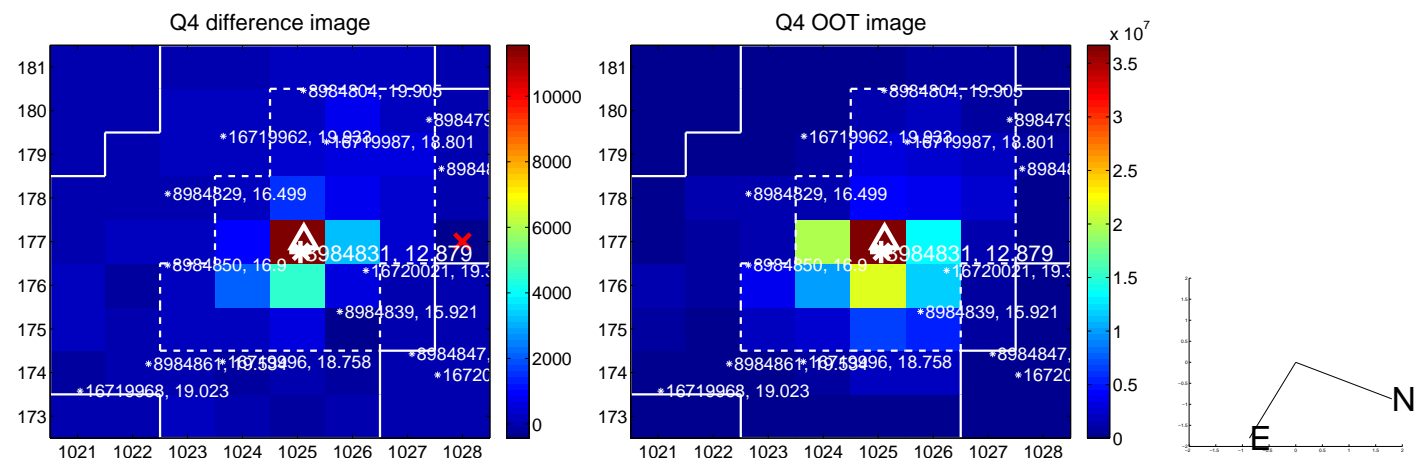
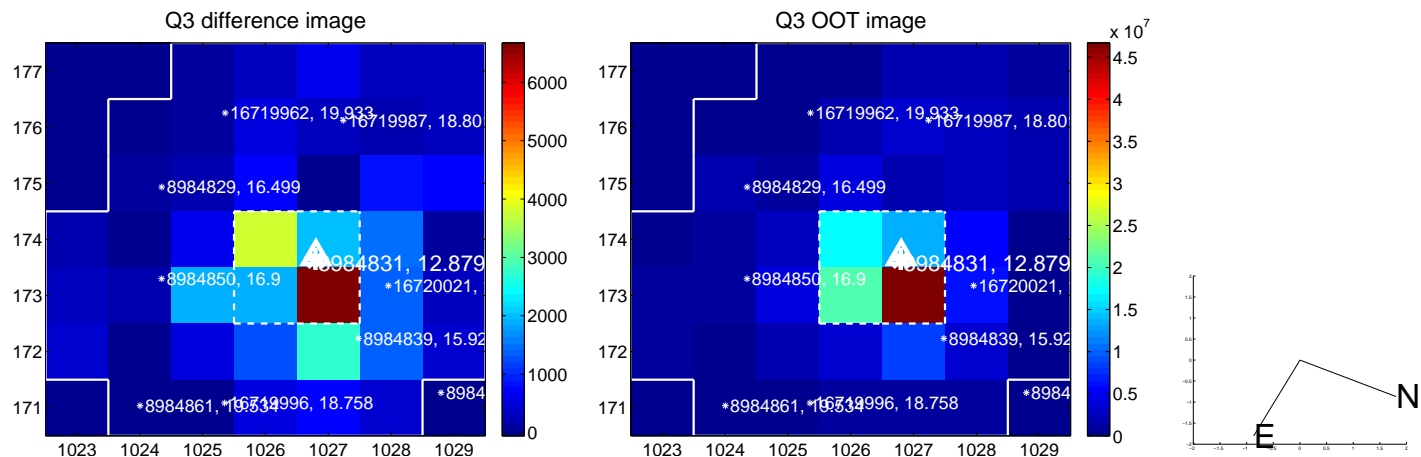
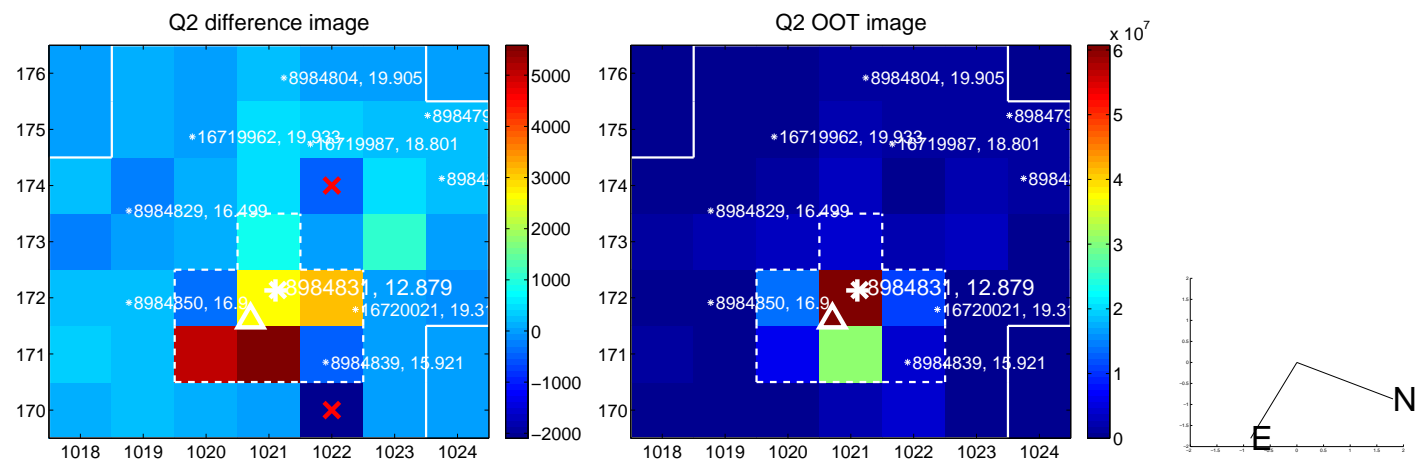
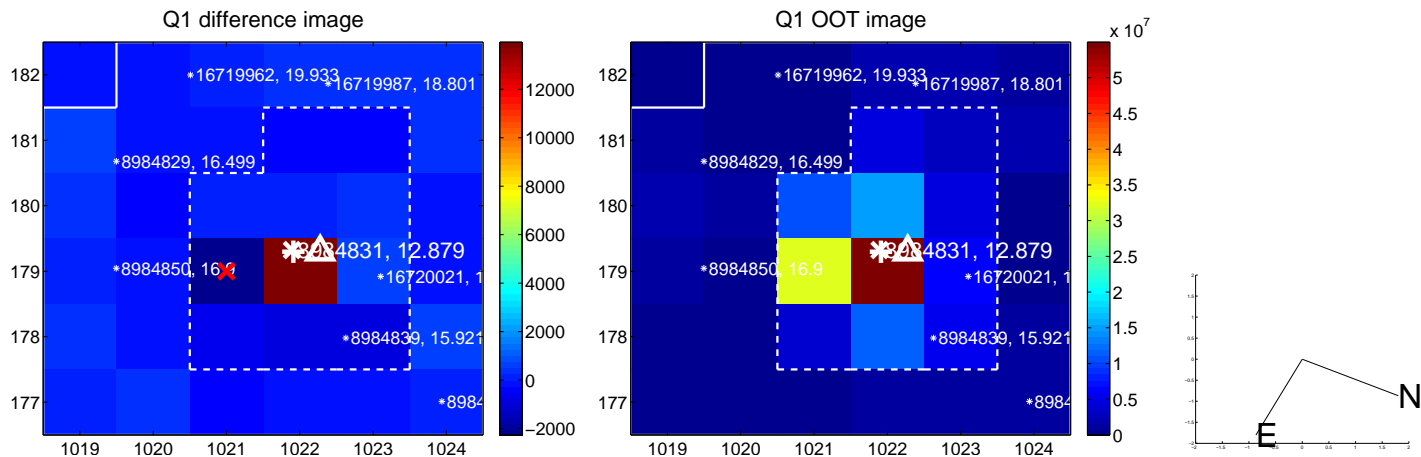
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.130 ± 0.197	0.66	0.070 ± 0.264	-0.109 ± 0.139
PRF-fit source offset from KIC position	0.186 ± 0.194	0.96	0.099 ± 0.260	-0.157 ± 0.153
photometric centroid source offset	3.79 ± 1.91	1.98	-2.45 ± 1.79	-2.89 ± 1.99

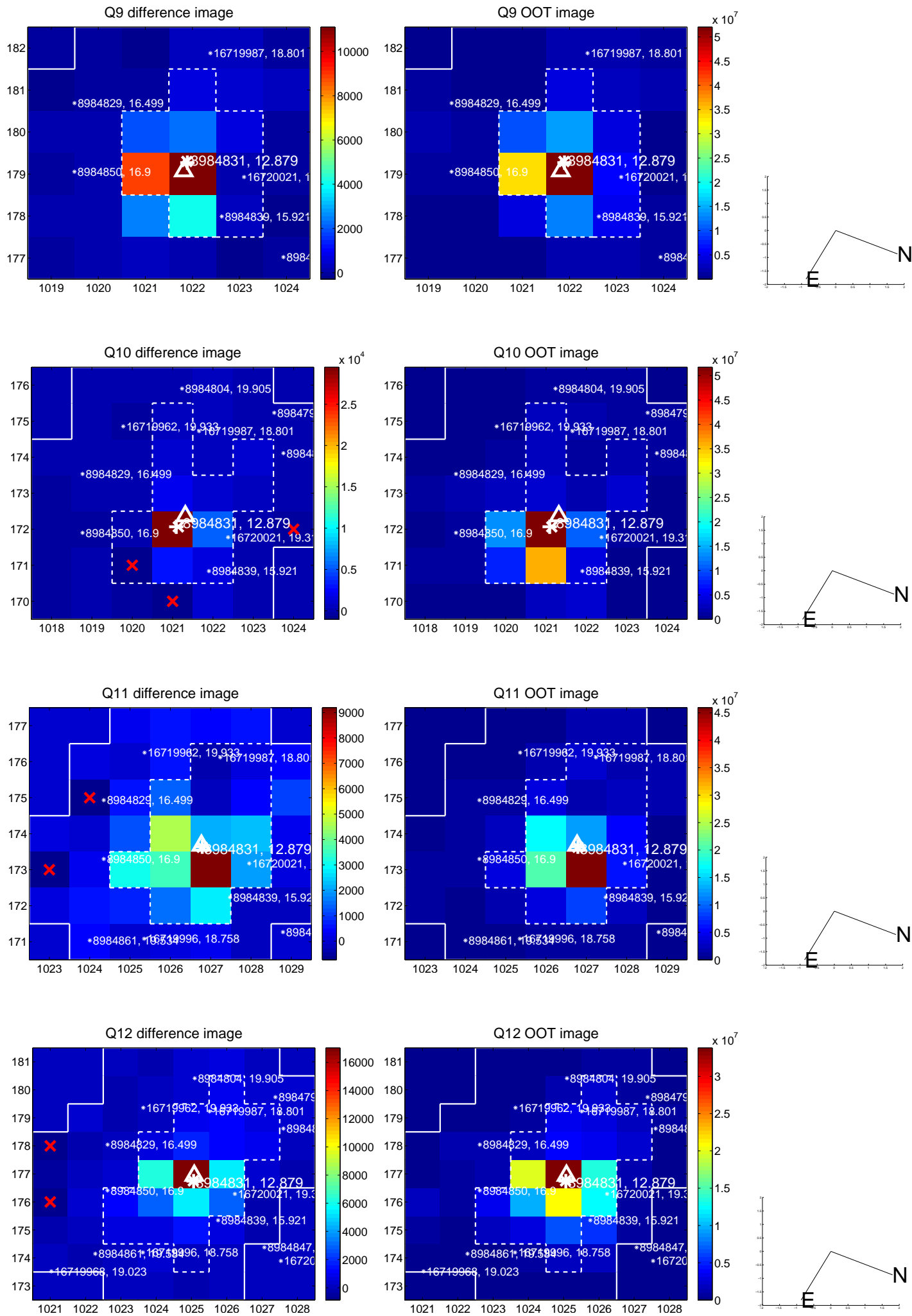


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

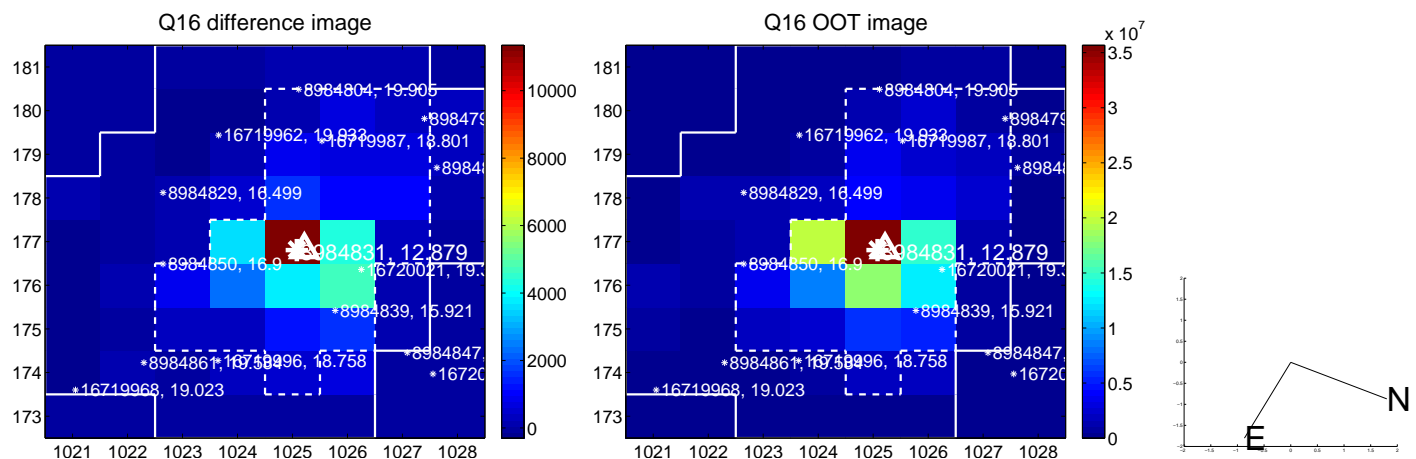
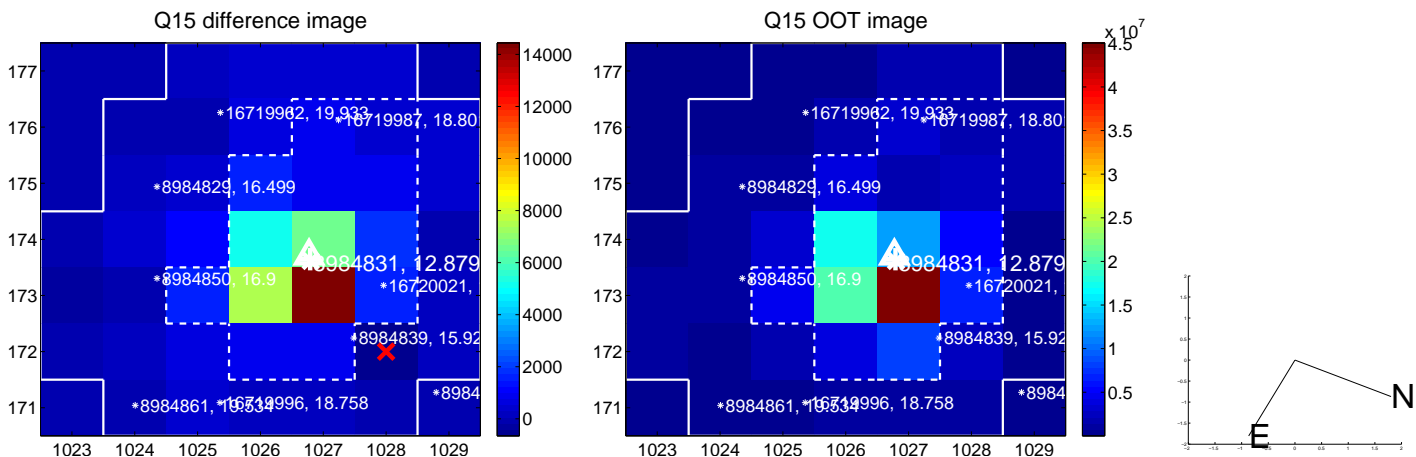
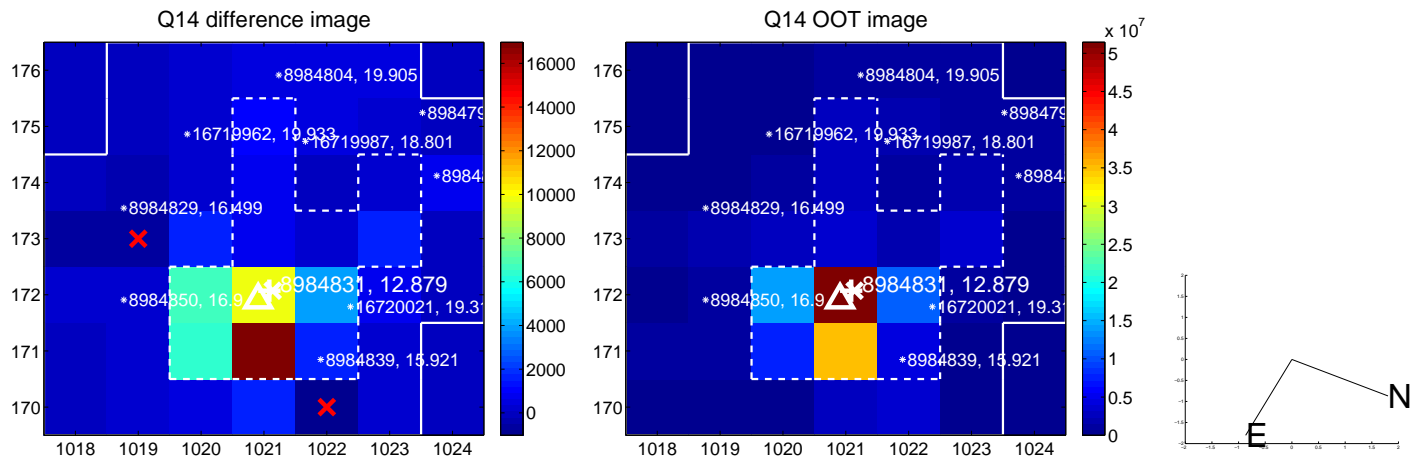
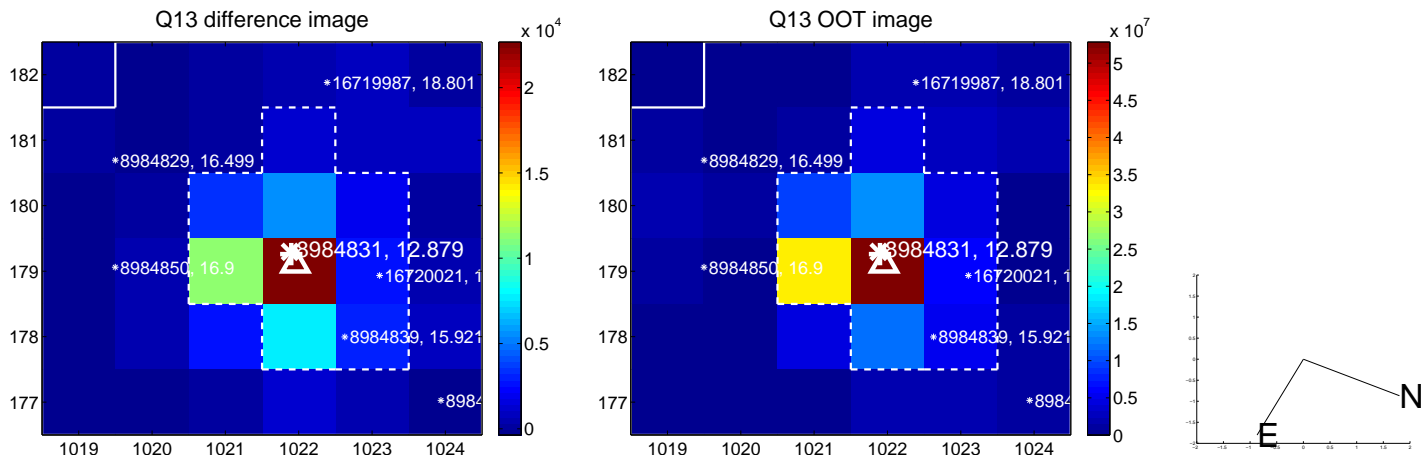
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



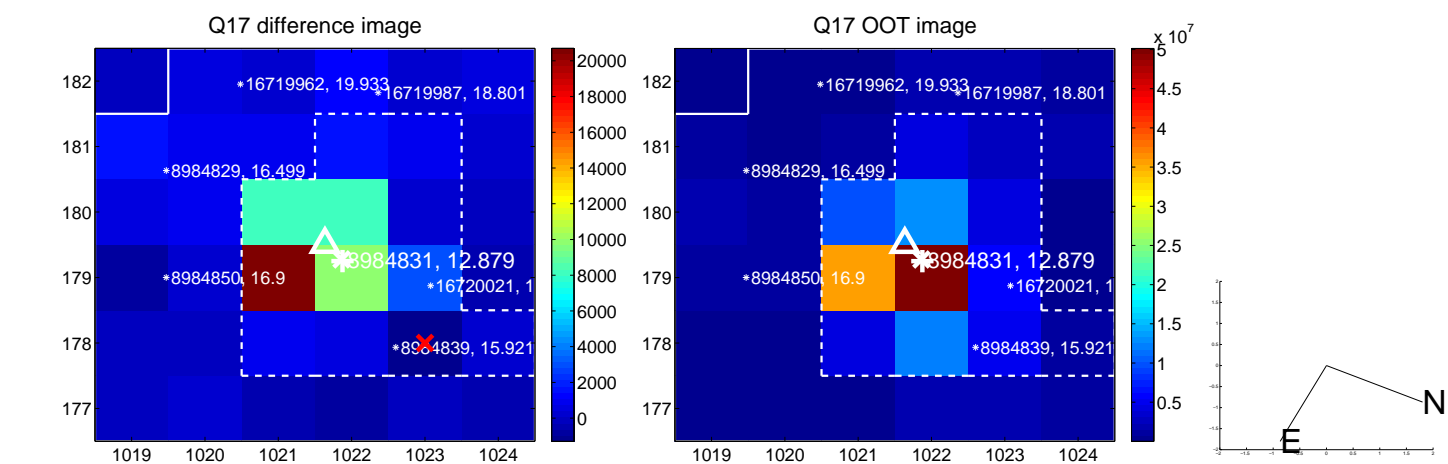
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



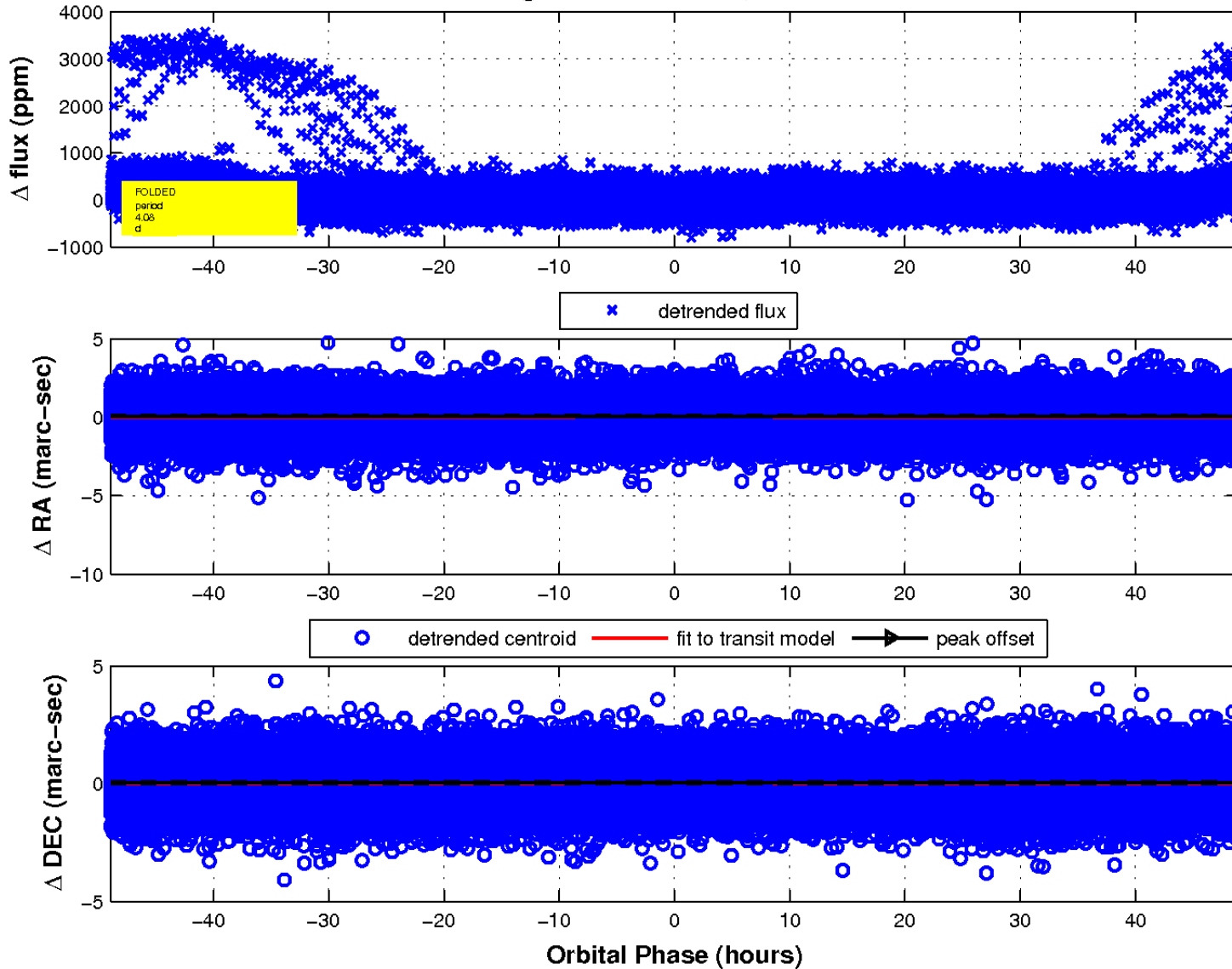
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

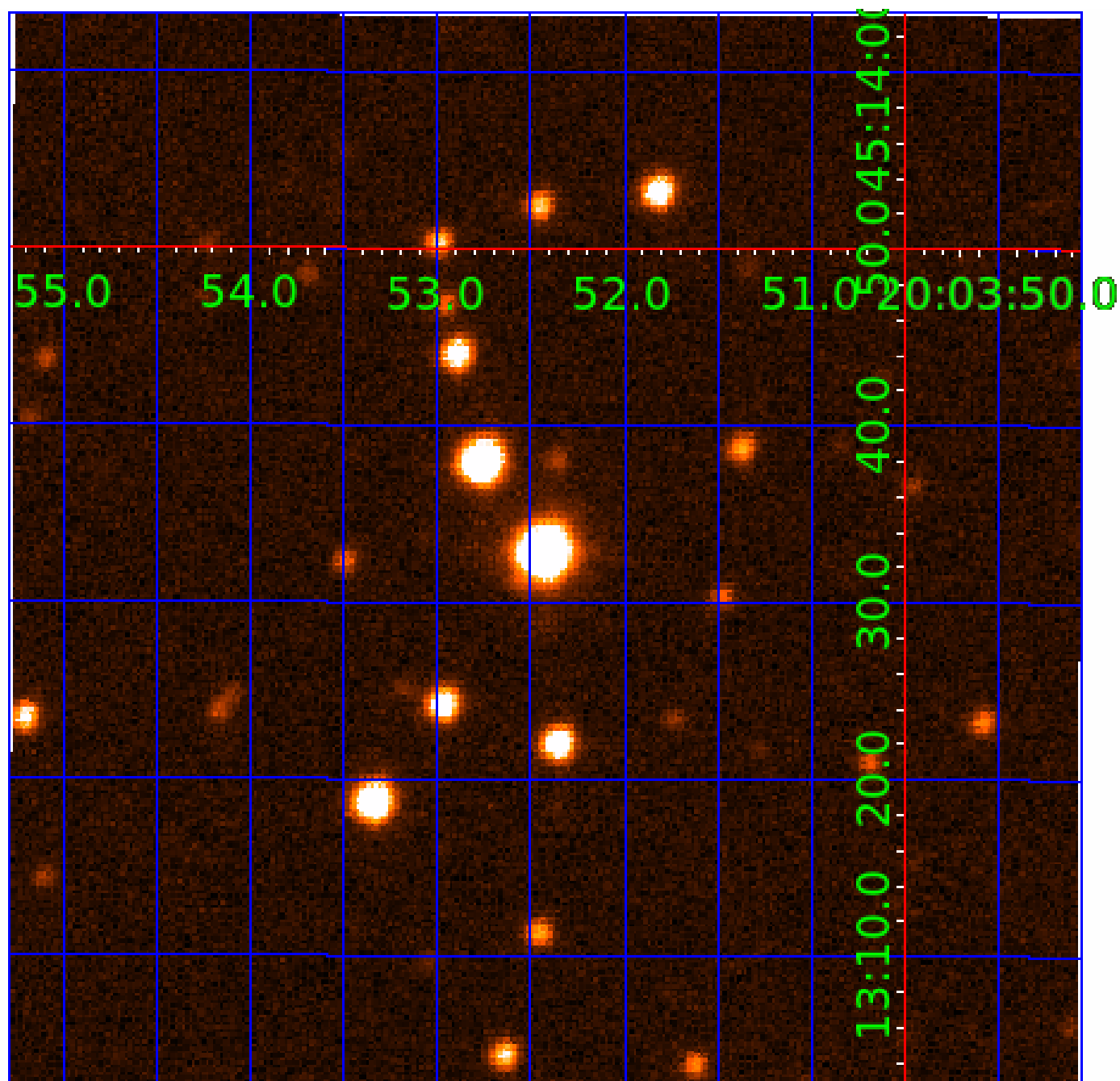


fluxWeightedCentroids, Planet 2 of 9



UKIRT Image

Declination



KIC 008984831

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})
008984831-01	OBS	No	4.078493	134.780363	103.0	10.500	10.1	-1.0	2.47	6493	2.52	3009.36
008984831-02	OBS	No	4.078660	132.661047	18.9	17.716	9.8	5.7	2.47	6493	1.25	3009.20
008984831-04	OBS	No	31.329661	162.027744	90.7	2.080	17.0	2.6	2.47	6493	2.74	198.55
008984831-05	OBS	No	43.086047	157.280673	104.9	14.743	17.6	5.0	2.47	6493	2.89	129.82
008984831-08	OBS	No	71.289021	156.873499	246.7	4.335	8.4	8.3	2.47	6493	4.74	66.34
008984831-09	OBS	No	60.035889	144.667774	212.2	4.691	7.9	7.5	2.47	6493	3.99	83.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008984831-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
008984831-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008984831-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008984831-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008984831-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
008984831-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

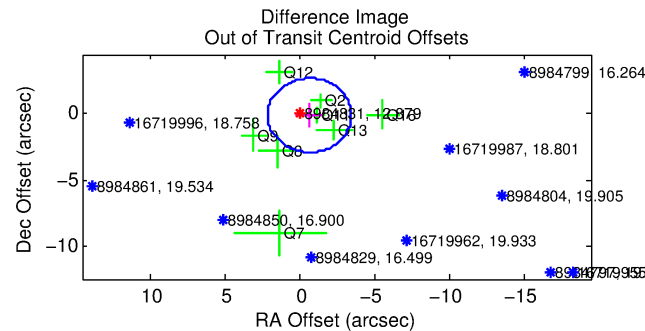
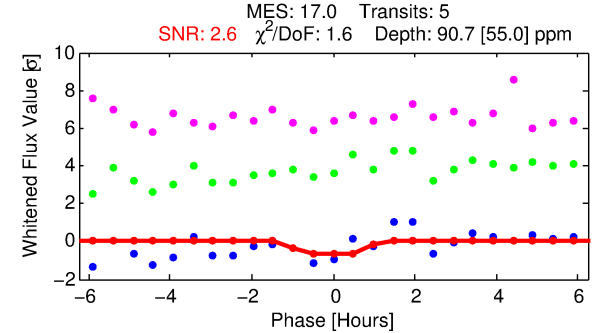
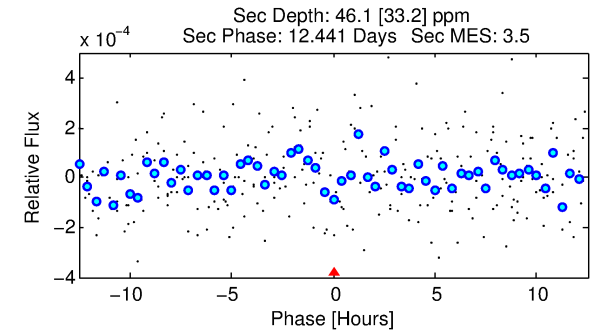
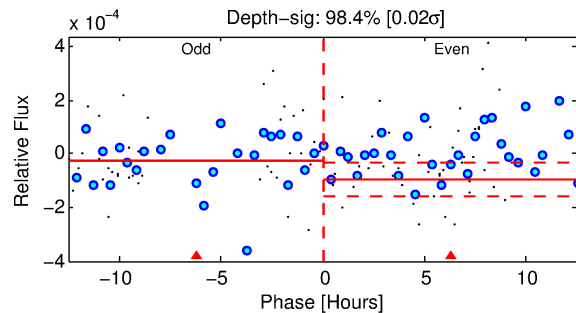
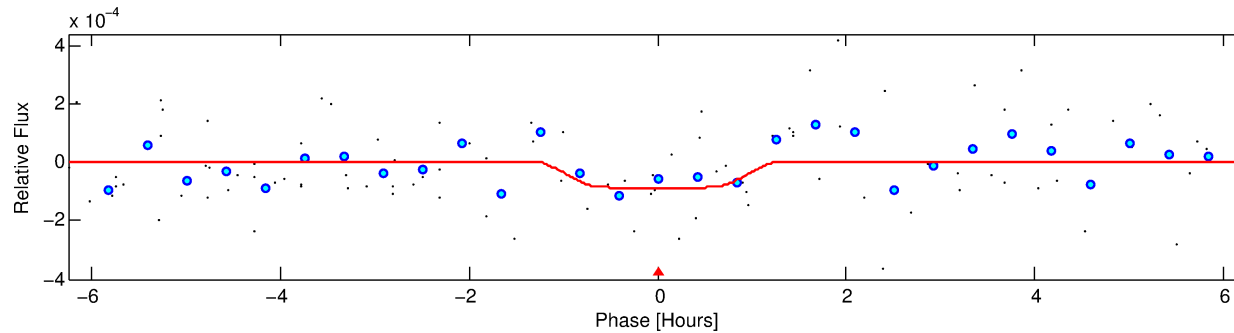
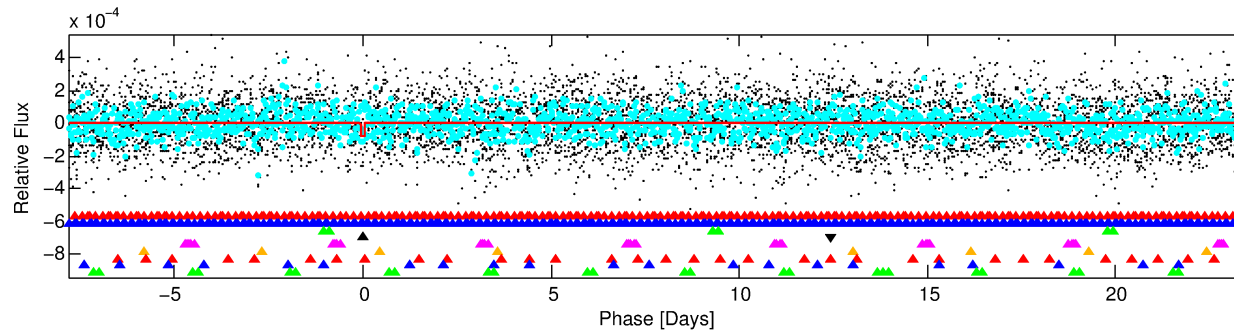
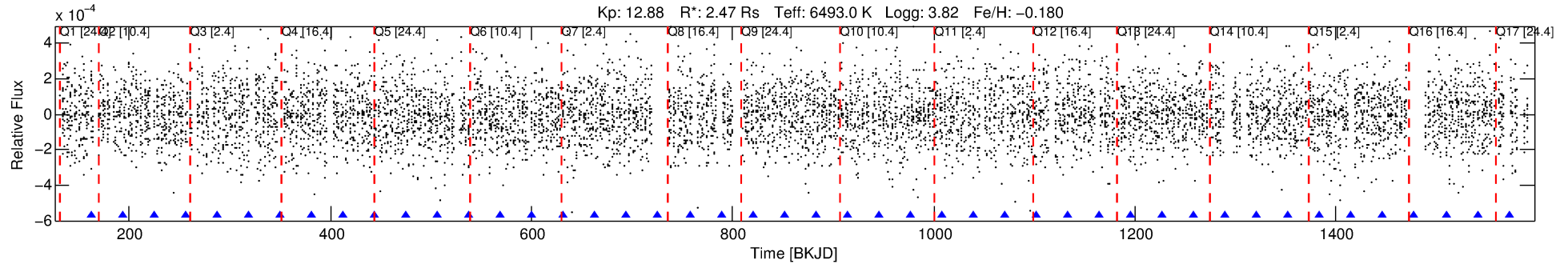
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008984831-04

No Significant Match Found

DV One-Page Summary

KIC: 8984831 Candidate: 4 of 9 Period: 31.330 d



DV Fit Results:

Period = 31.32966 [0.00147] d
Epoch = 162.0277 [0.0371] BKJD
Rp/R* = 0.0102 [0.0314]
a/R* = 53.85 [950.08]
b = 0.90 [3.95]
Seff = 198.55 [155.43]
Teq = 957 [187] K
Rp = 2.74 [8.58] Re
a = 0.2212 [0.1056] AU
Ag = 165.13 [1035.36] [0.16 σ]
Teffp = 5305 [8254] K [0.53 σ]

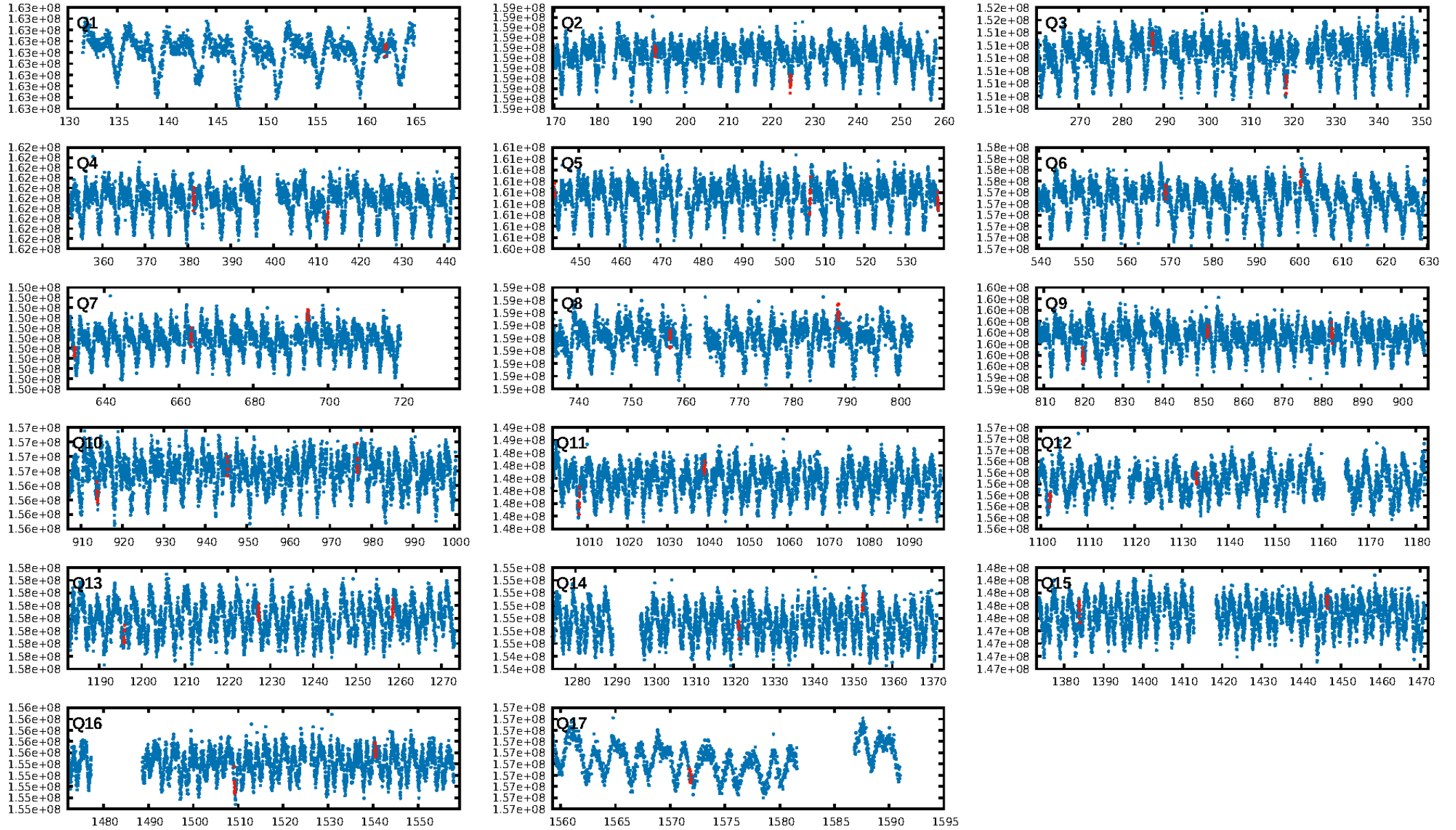
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [36.67 σ]
LongPeriod-sig: 100.0% [18.95 σ]
ModelChiSquare2-sig: 15.3%
ModelChiSquareGof-sig: 94.1%
Bootstrap-pfa: 1.19e-65
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.4406
Centroid-sig: 17.4%
Centroid-so: 1.912 arcsec [0.98 σ]
OotOffset-rm: 0.698 arcsec [0.75 σ]
OotOffset-st: 1/2/3/2 [8]
KicOffset-rm: 0.685 arcsec [0.74 σ]
KicOffset-st: 1/2/3/2 [8]
DiffImageQuality-fgm: 0.38 [3/8]
DiffImageOverlap-fno: 0.56 [9/16]

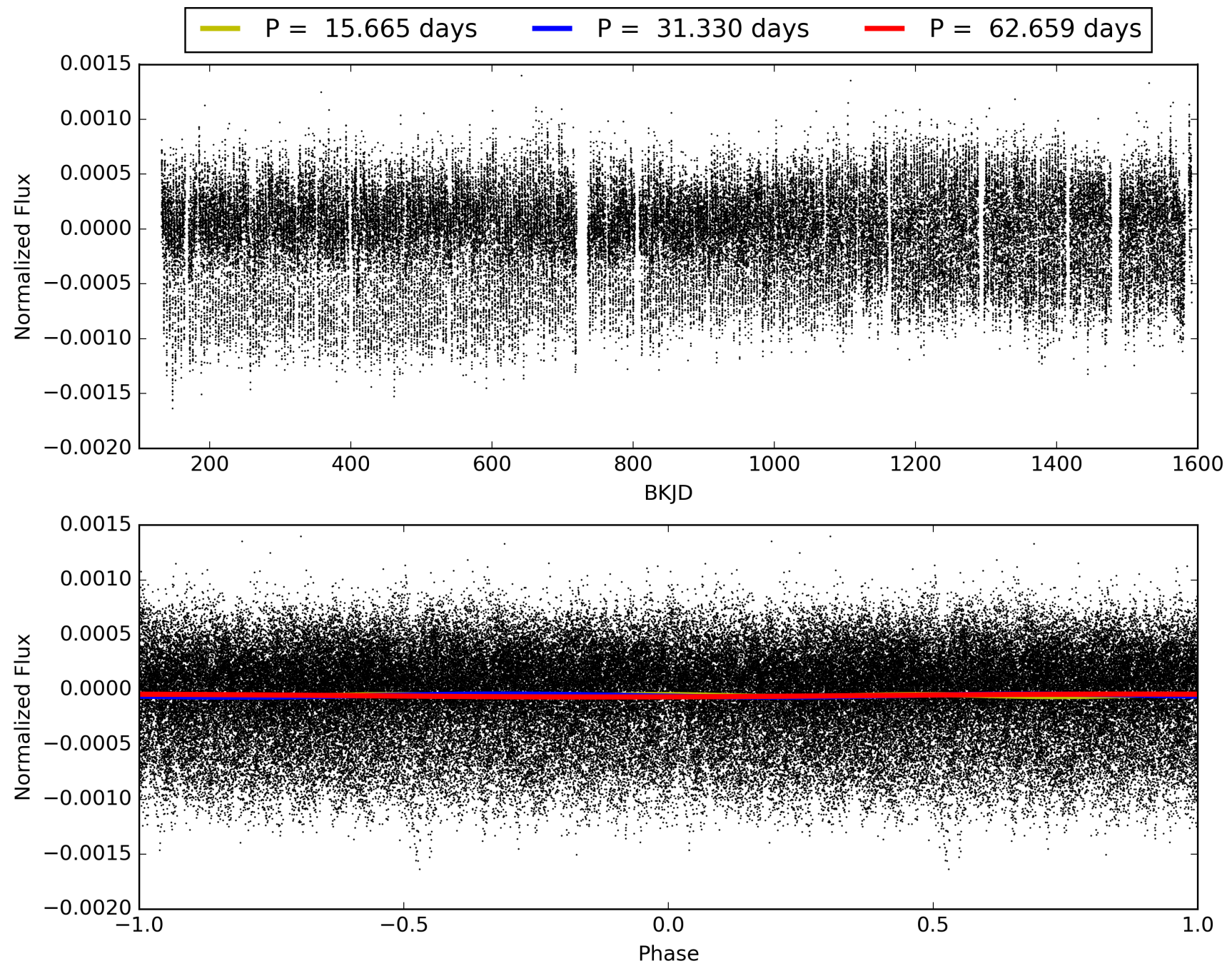
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:04:22 Z

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

TCE 008984831-04, PDC Light Curves

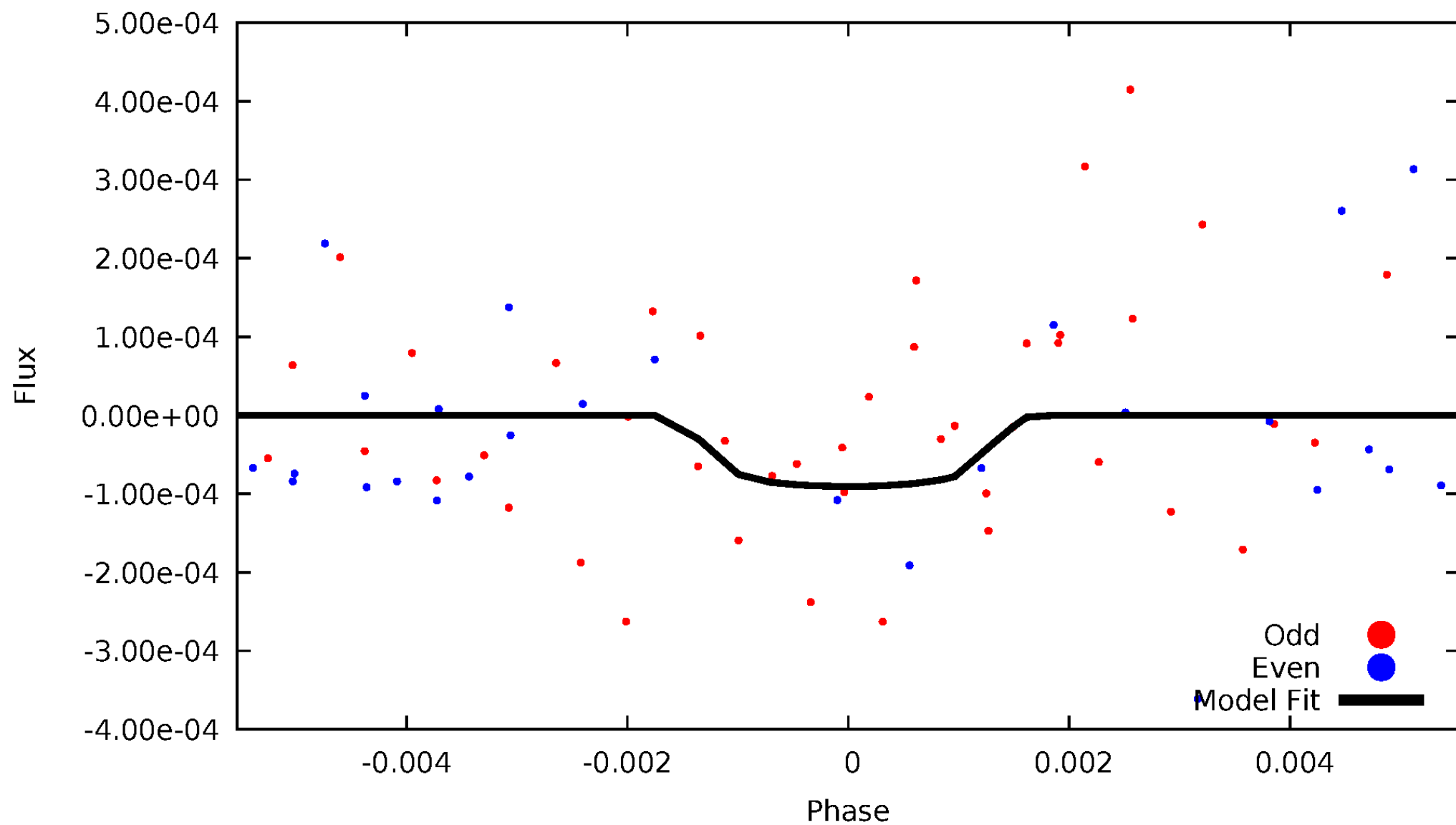


TCE 008984831-04



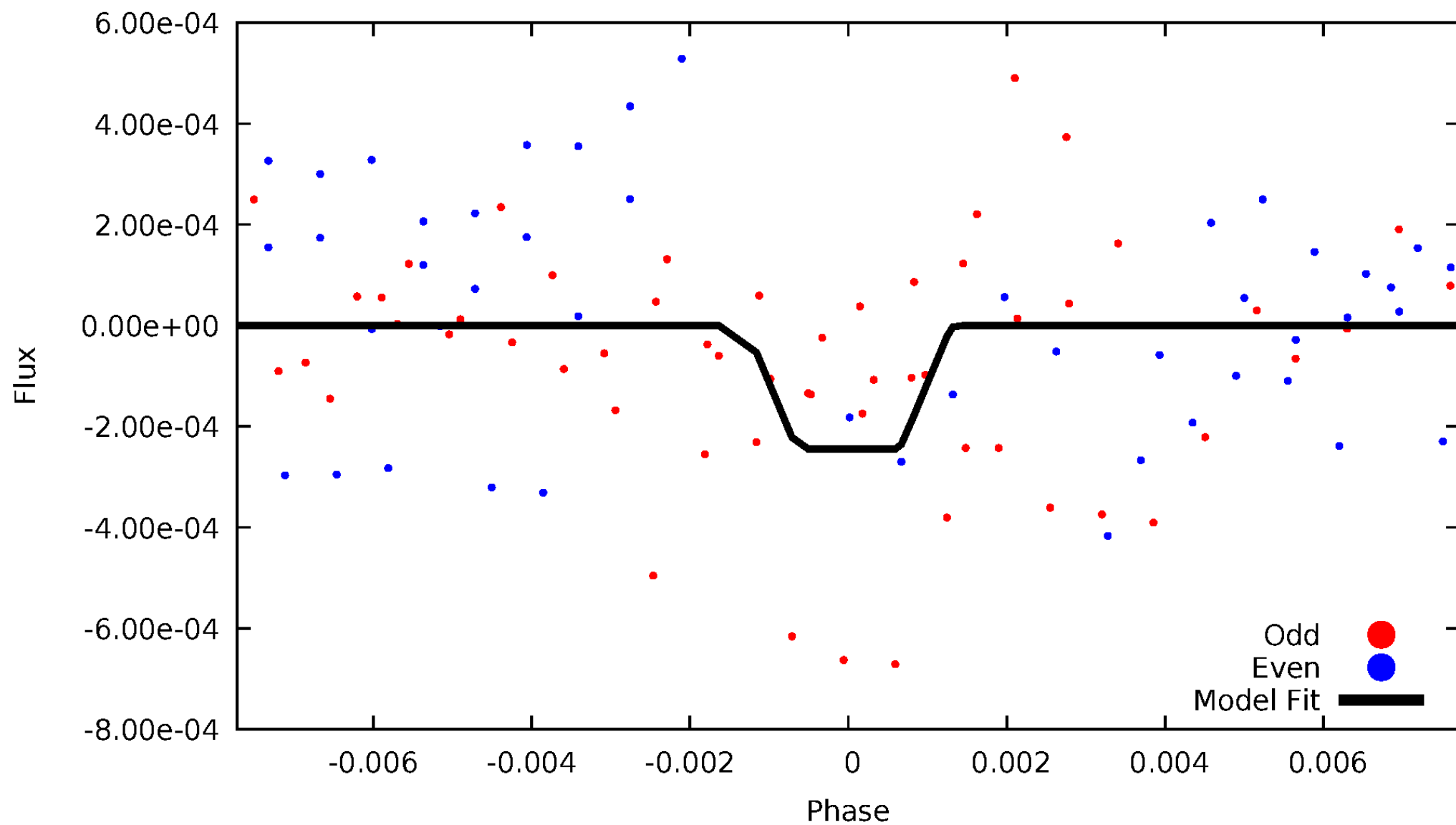
DV Odd/Even

TCE 008984831-04



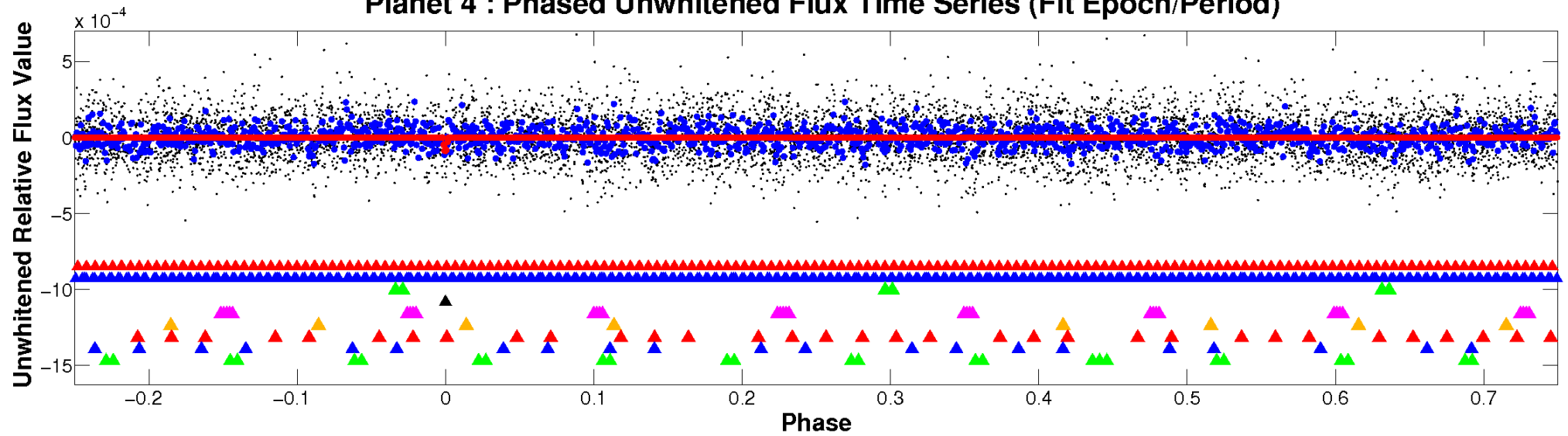
ALT Odd/Even

TCE 008984831-04

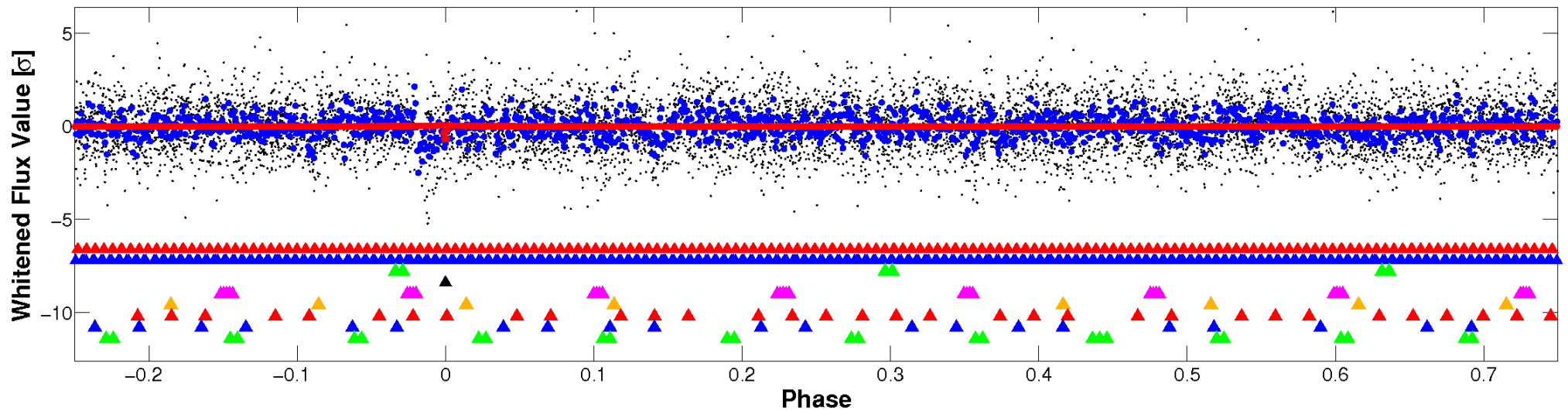


Non-Whitened Vs. Whitened Light Curve

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

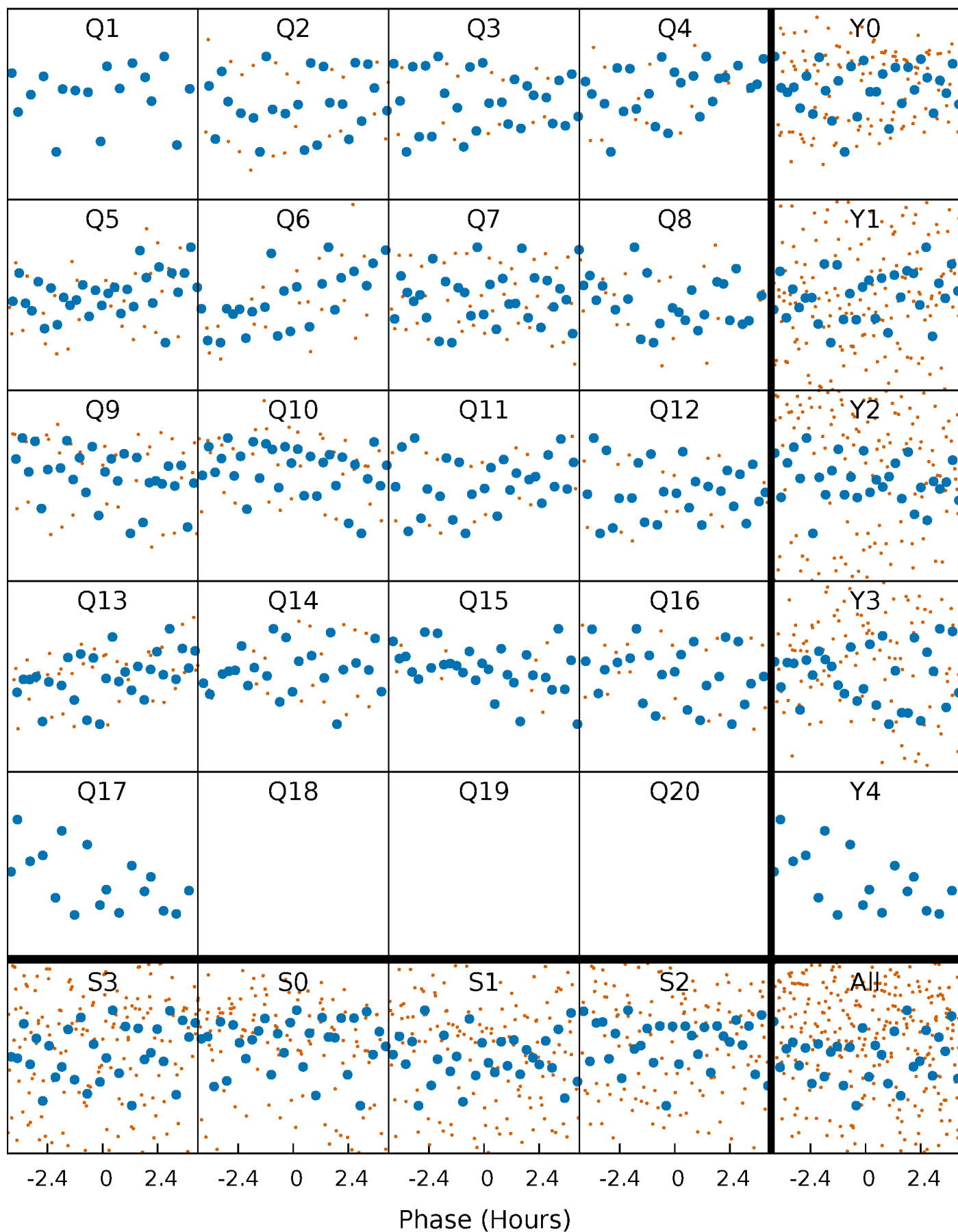


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



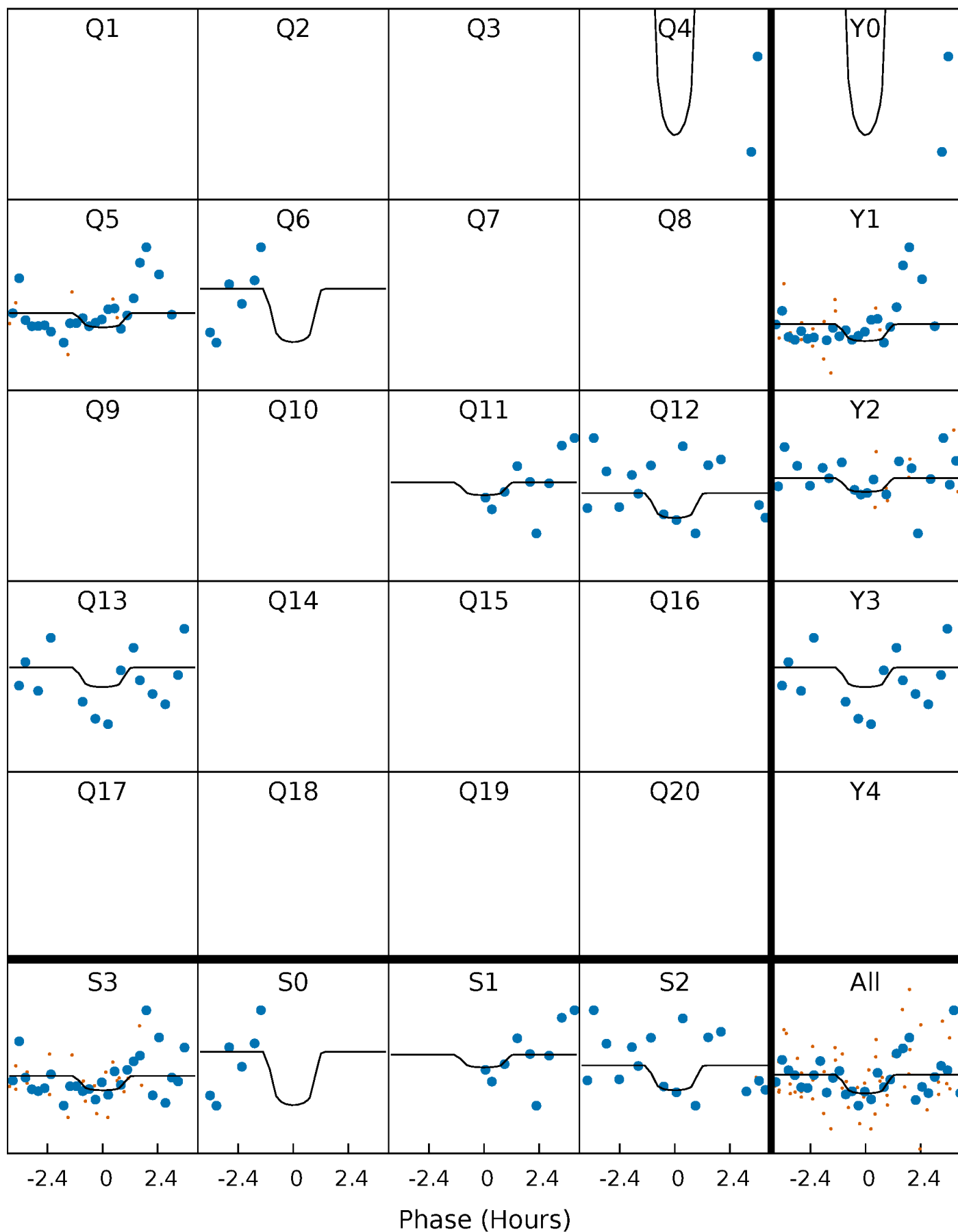
PDC Quarter-Phased Transit Curves

TCE 008984831-04 P= 31.329661 Days $T_0=162.027744$ (BKJD)



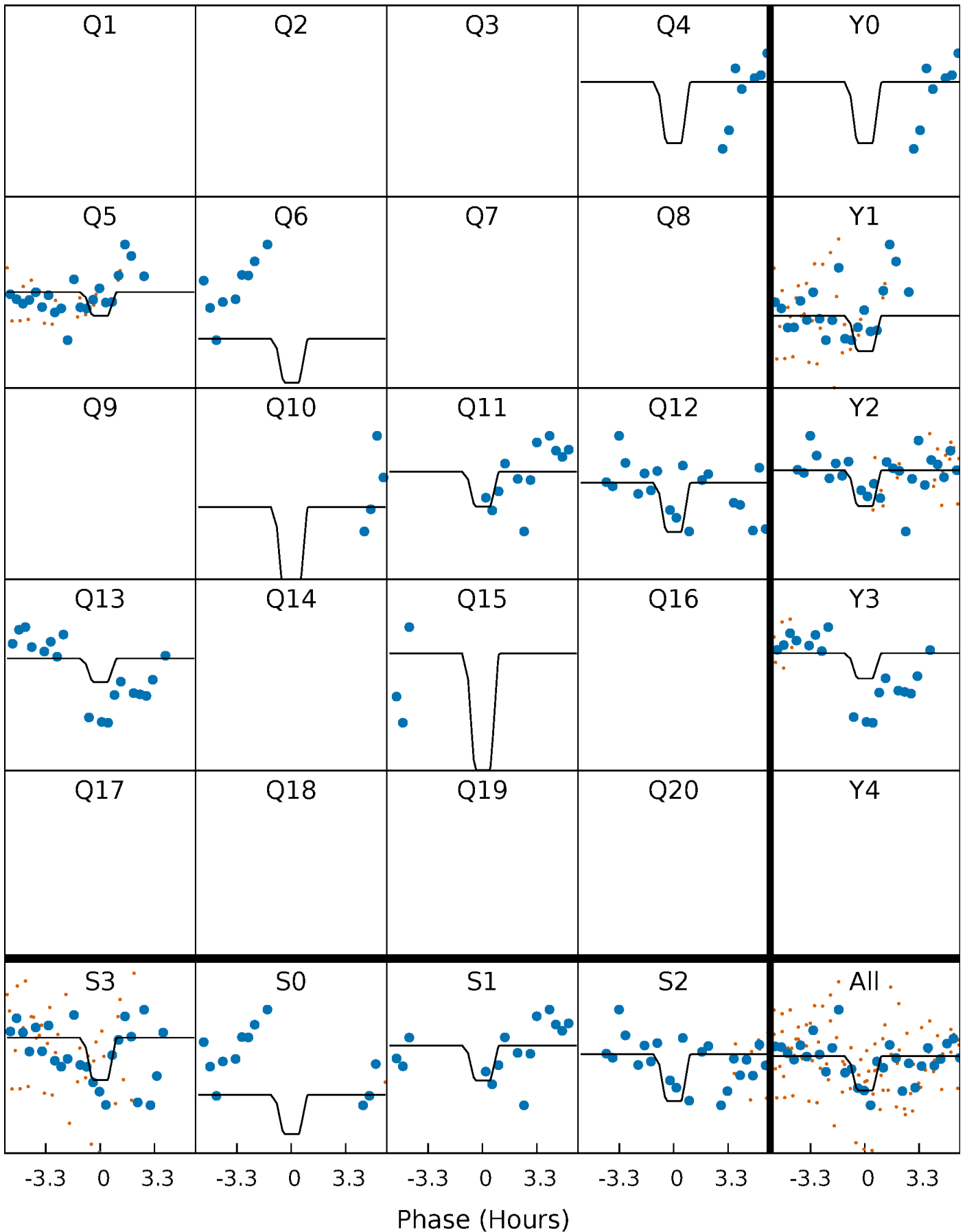
DV Quarter-Phased Transit Curves

TCE 008984831-04 P= 31.329661 Days $T_0=162.027744$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

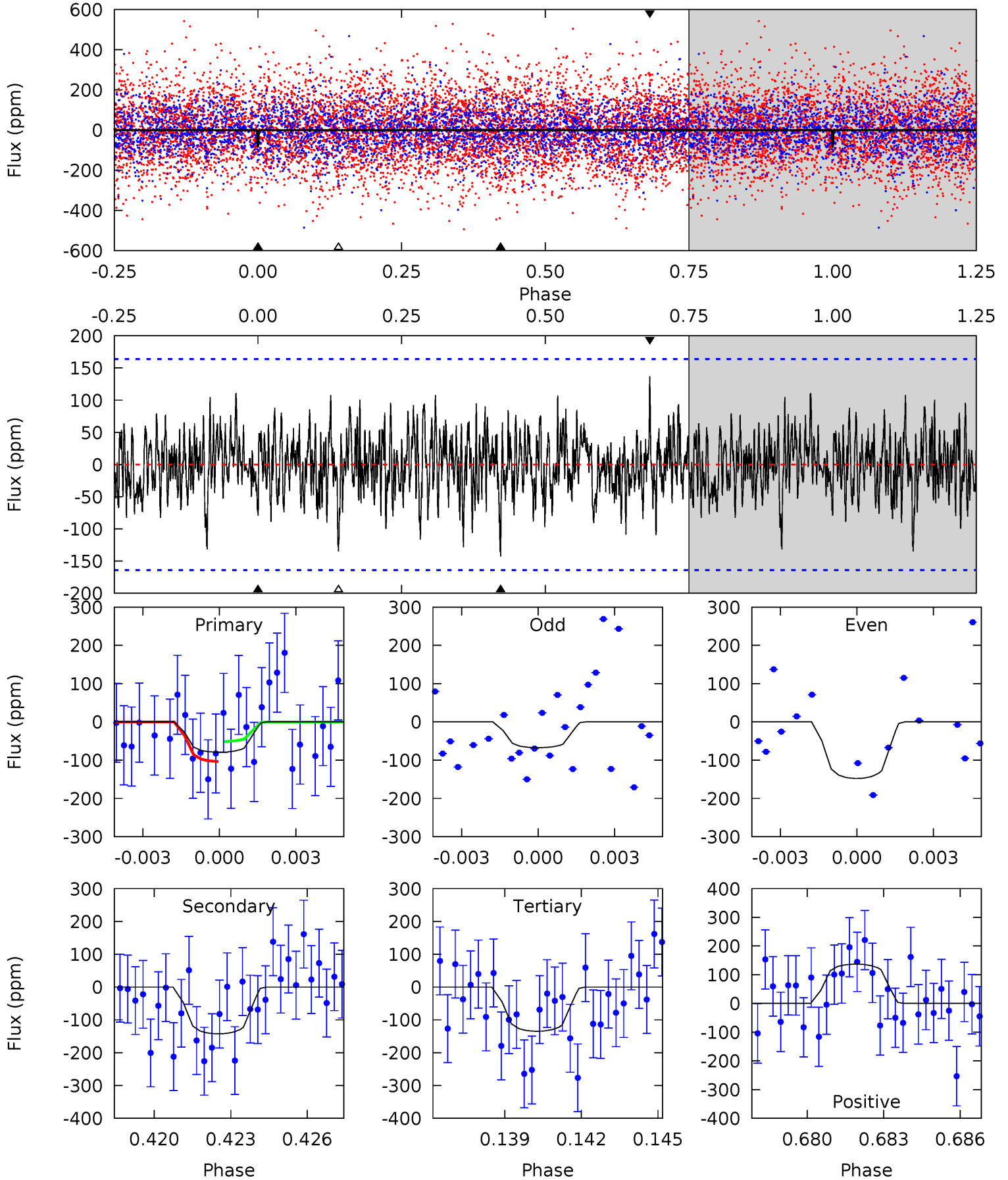
TCE 008984831-04 P= 31.328616 Days $T_0=162.053375$ (BKJD)



DV Model-Shift Uniqueness Test

008984831-04, $P = 31.329661$ Days, $E = 130.698083$ Days

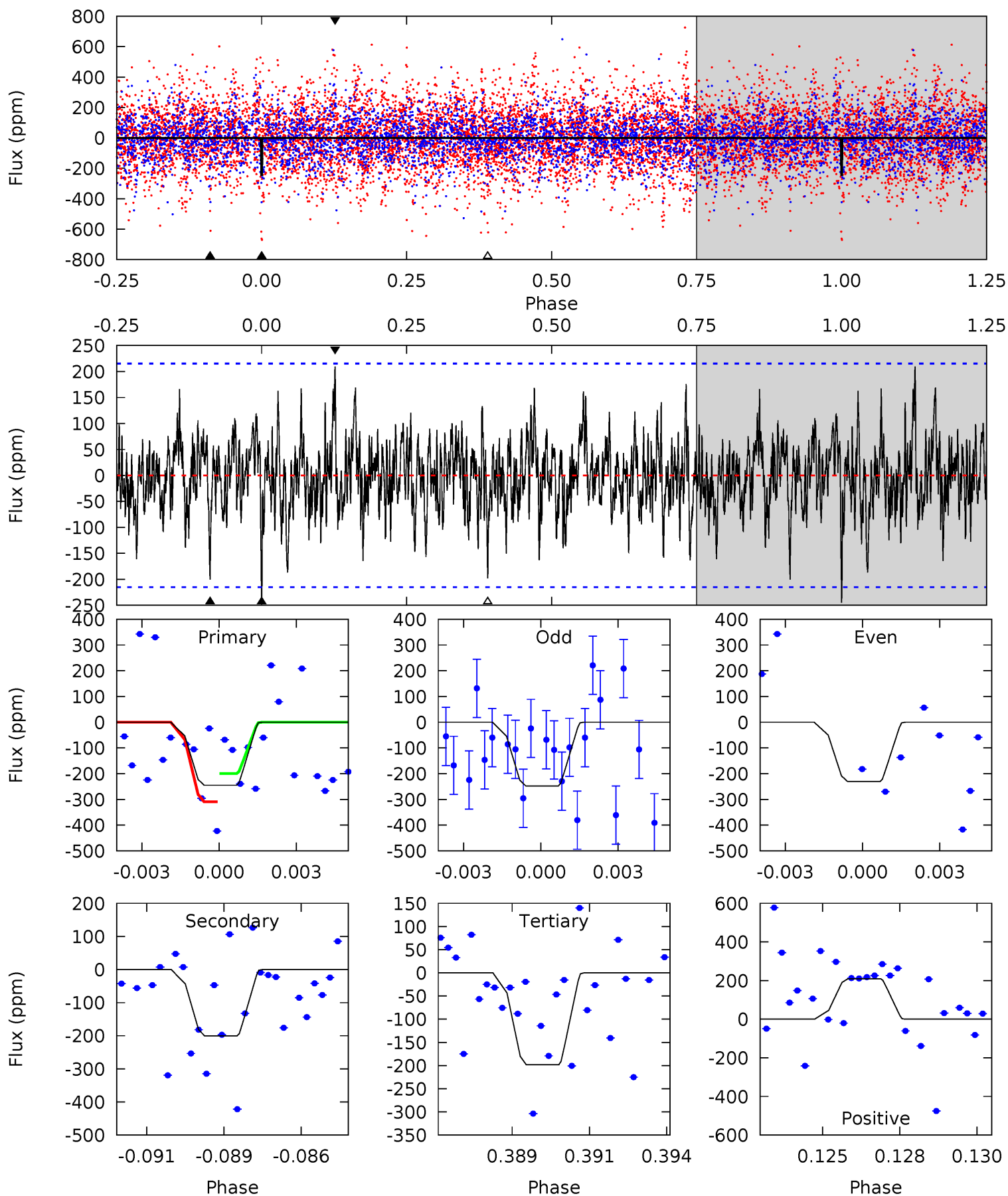
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.54	4.57	4.32	4.39	5.26	2.97	1.28	-1.78	-1.85	0.25	0.18	0.93	2.44	0.49	0.84



Alt Model-Shift Uniqueness Test

008984831-04, P = 31.328616 Days, E = 130.724759 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.00	4.91	4.86	5.14	5.28	3.01	1.41	1.14	0.86	0.05	-0.23	0.16	2.53	0.46	1.32



Stellar Parameters For KIC 008984831

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6493^{+175}_{-214}	$3.820^{+0.456}_{-0.114}$	$-0.180^{+0.250}_{-0.300}$	$2.470^{+0.516}_{-1.203}$	$1.471^{+0.206}_{-0.383}$	$0.138^{+0.631}_{-0.047}$
	+3%/-3%	+12%/-3%	+139%/-167%	+21%/-49%	+14%/-26%	+459%/-34%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008984831-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-143 ± 31	$6.07^{+6.16}_{-4.05}$	1299^{+98}_{-156}	4575^{+3369}_{-968}	100^{+853}_{-75}
Alt.	-200 ± 41	$6.83^{+6.88}_{-4.75}$	1306^{+93}_{-160}	4692^{+4176}_{-989}	120^{+1234}_{-92}

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

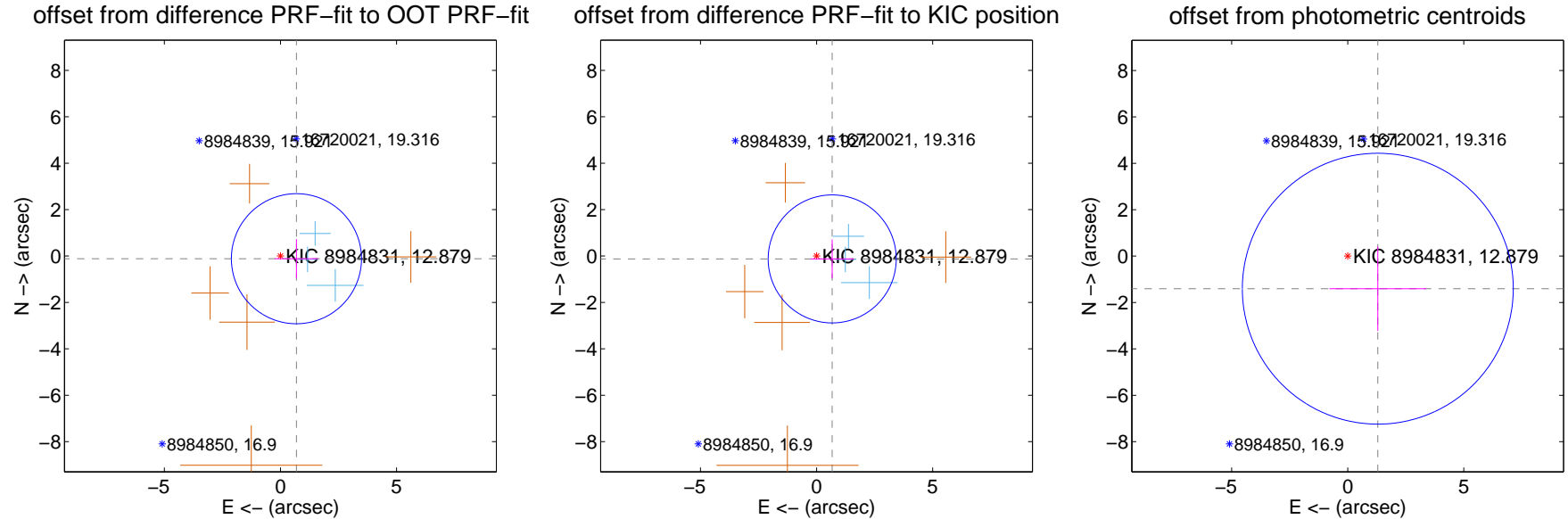
DV Centroid Data

Supplemental centroid analysis for 008984831-04. Kepler magnitude: 12.88. Transit SNR 2.62

There are 3 quarters with good PRF difference image offsets

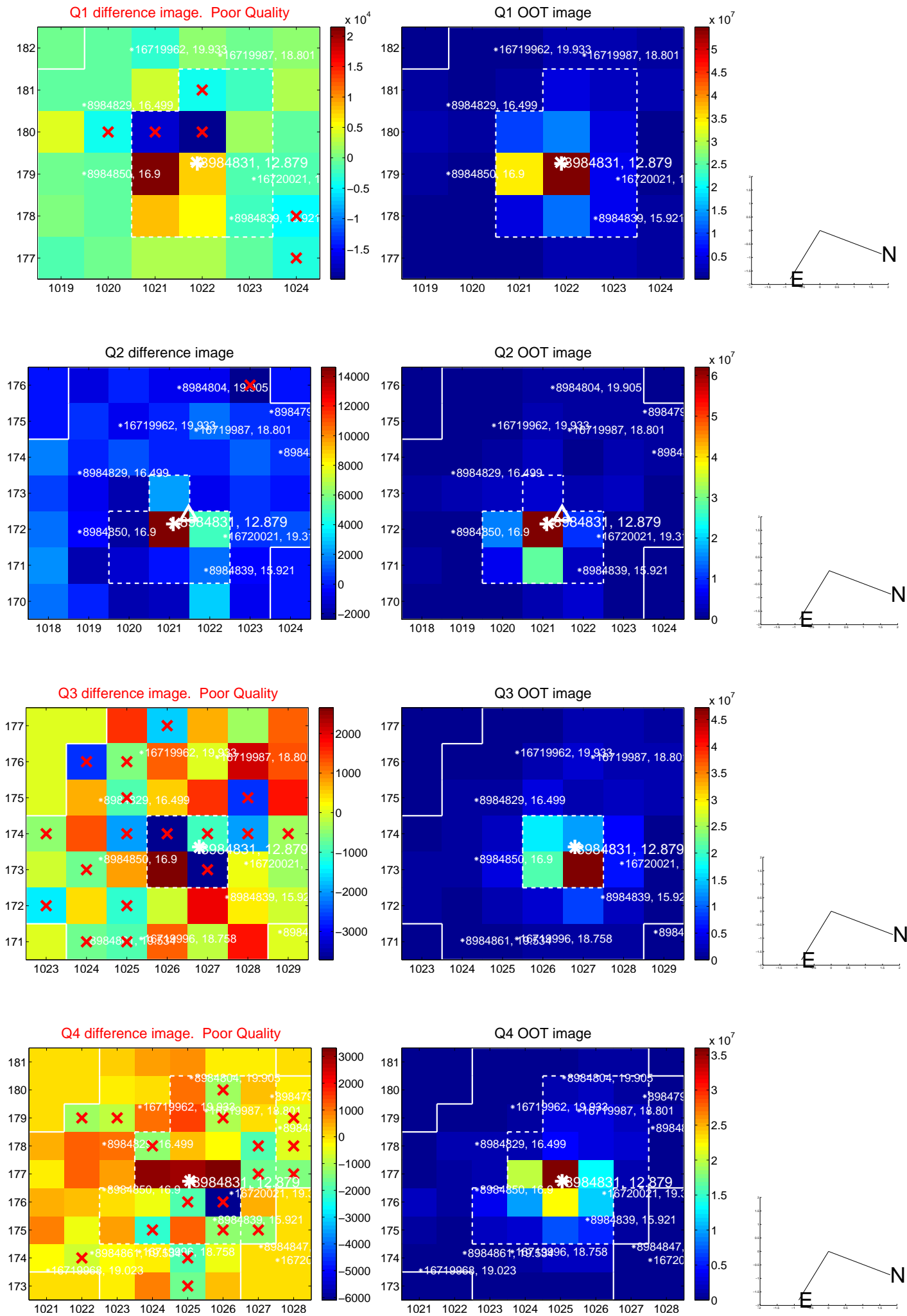
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.698 ± 0.934	0.75	-0.688 ± 0.936	-0.116 ± 0.843
PRF-fit source offset from KIC position	0.685 ± 0.919	0.74	-0.673 ± 0.922	-0.125 ± 0.837
photometric centroid source offset	1.91 ± 1.95	0.98	-1.30 ± 2.09	-1.40 ± 1.82

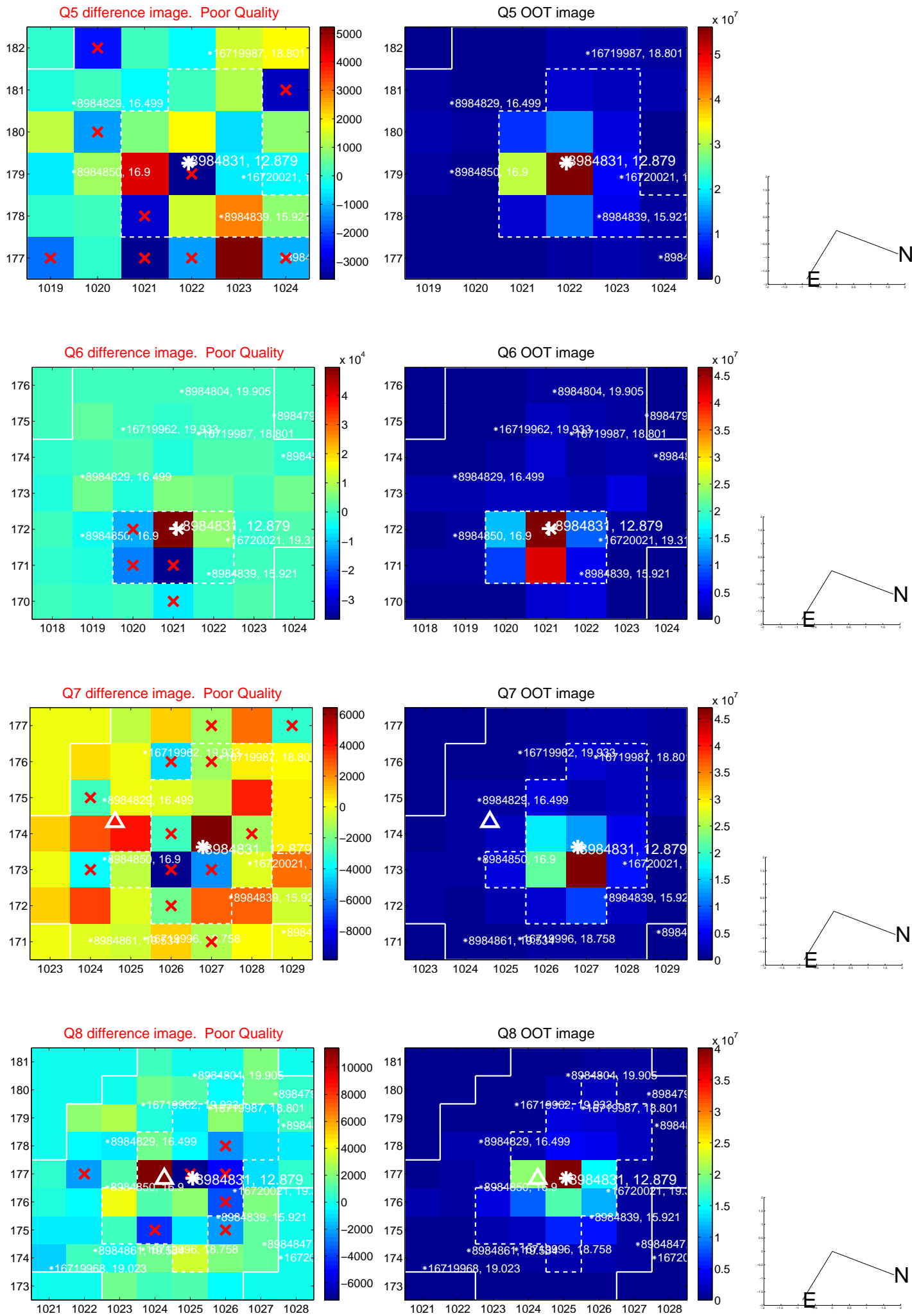


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

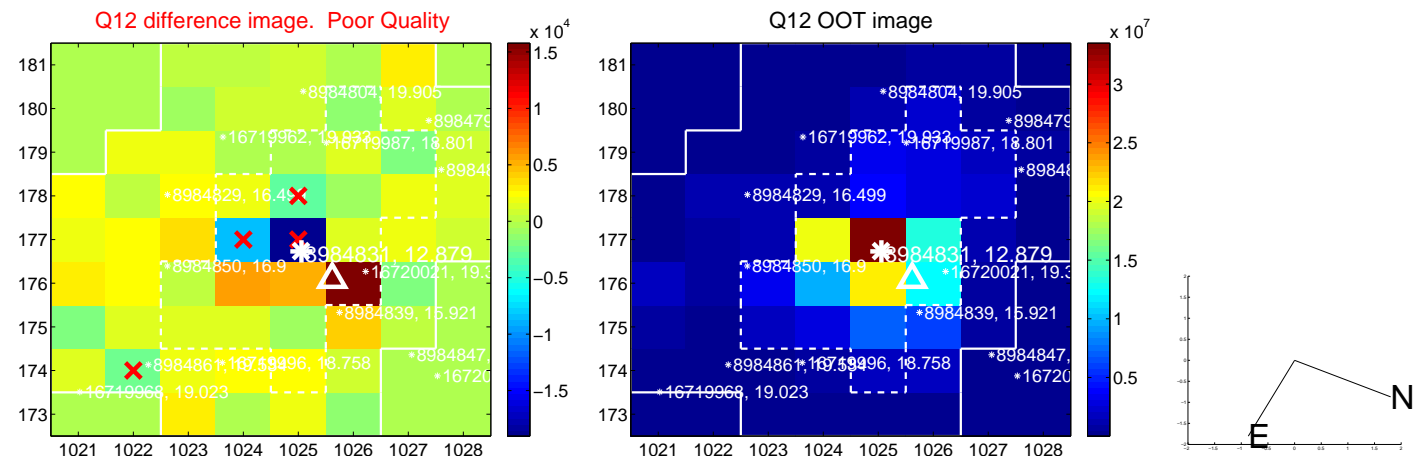
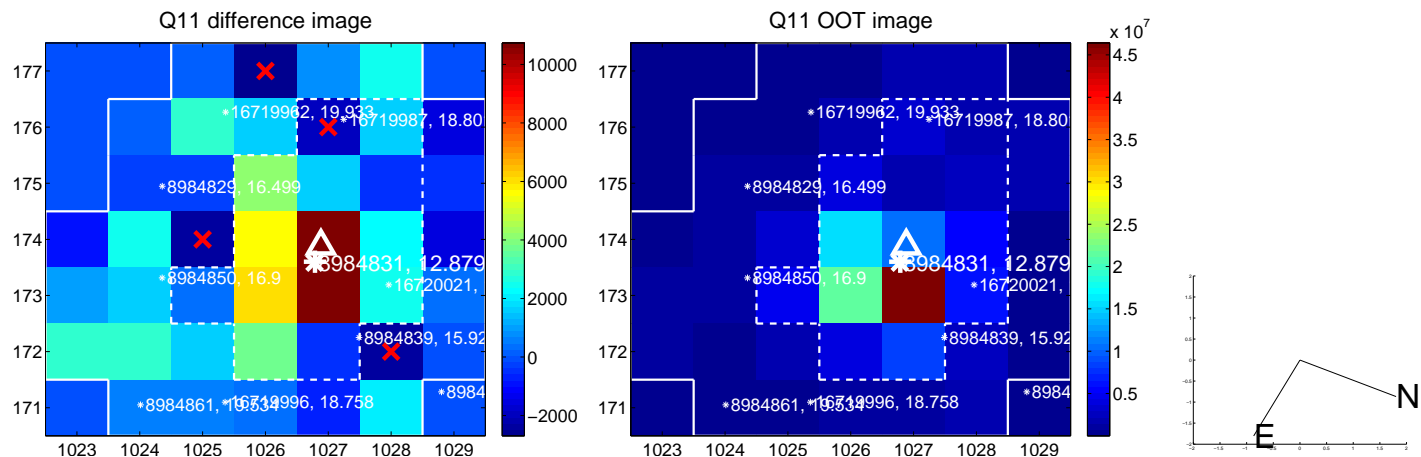
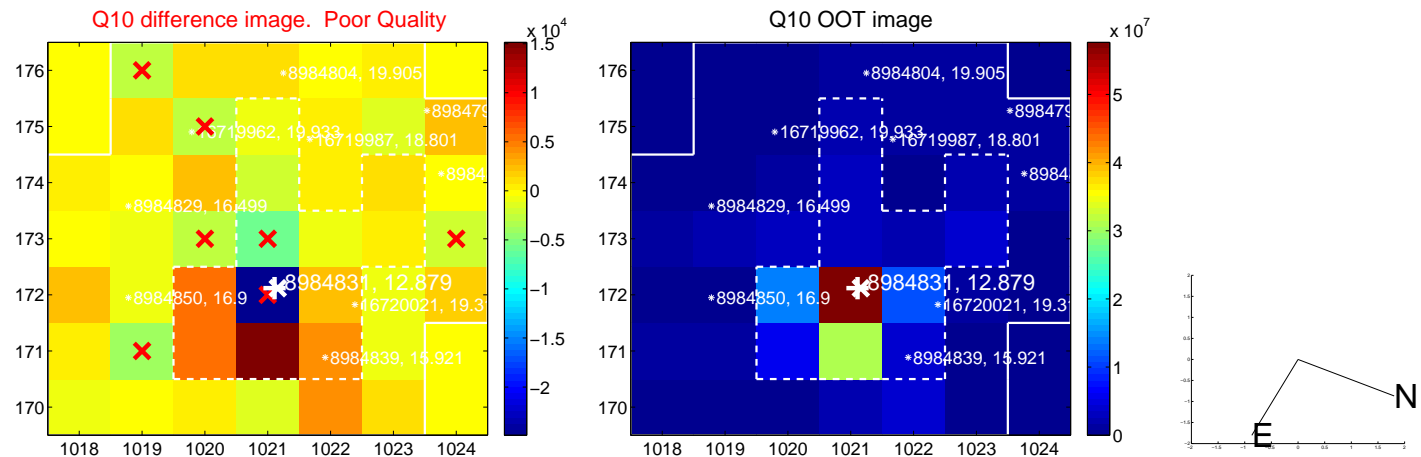
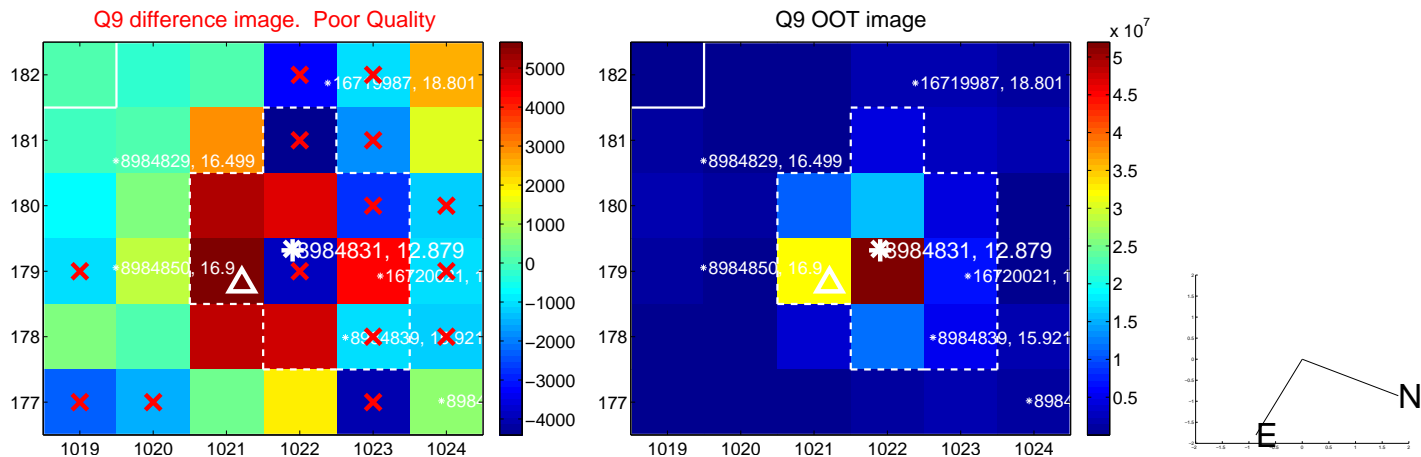
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



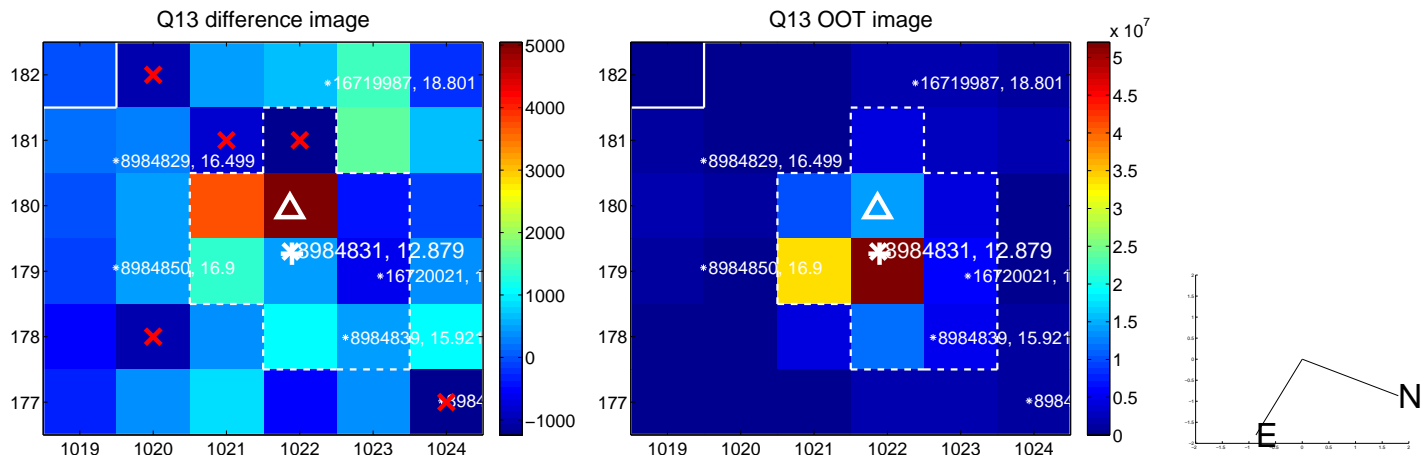
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



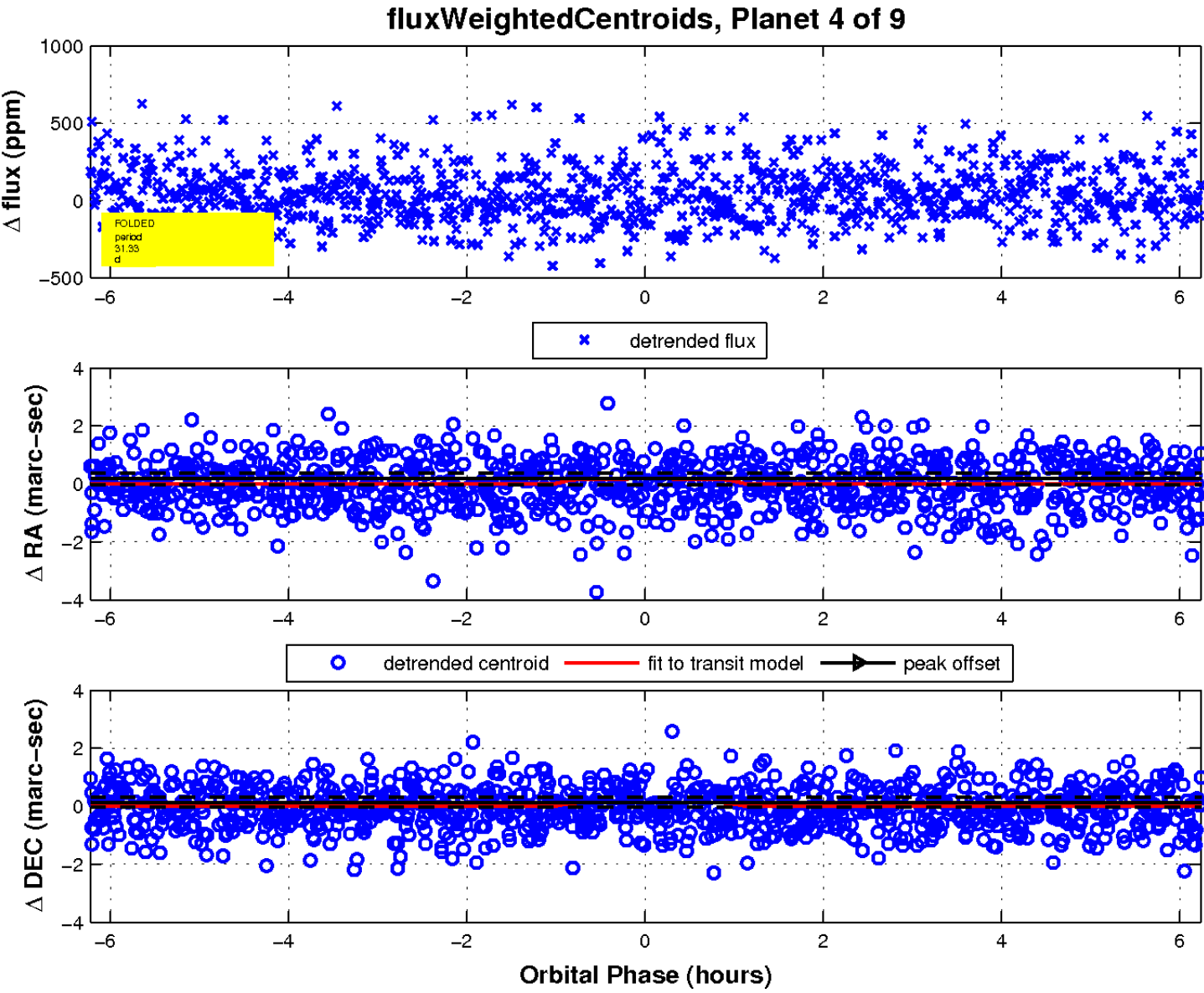
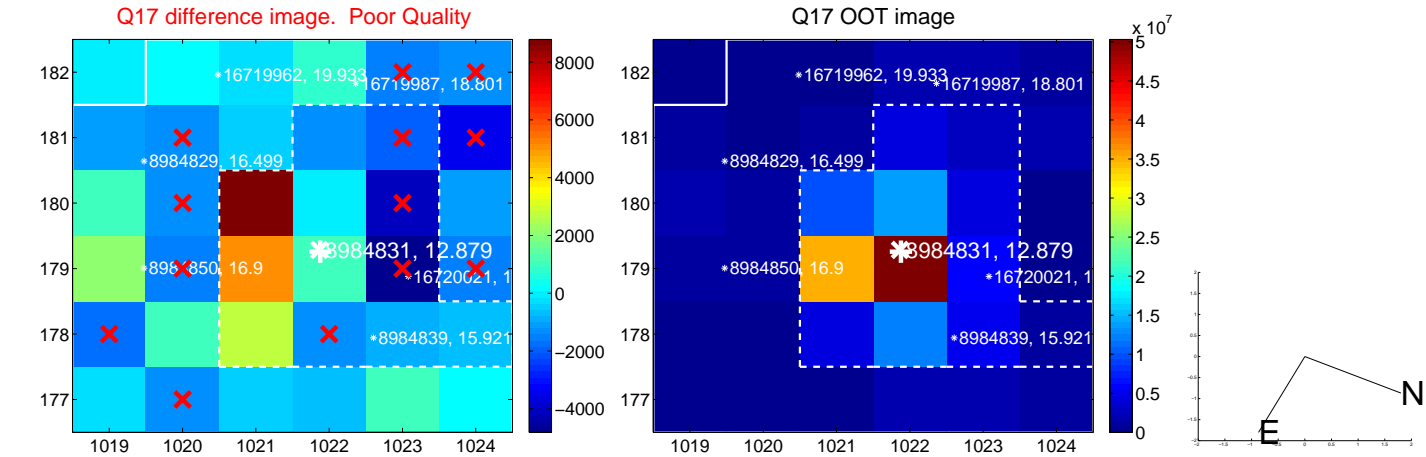
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

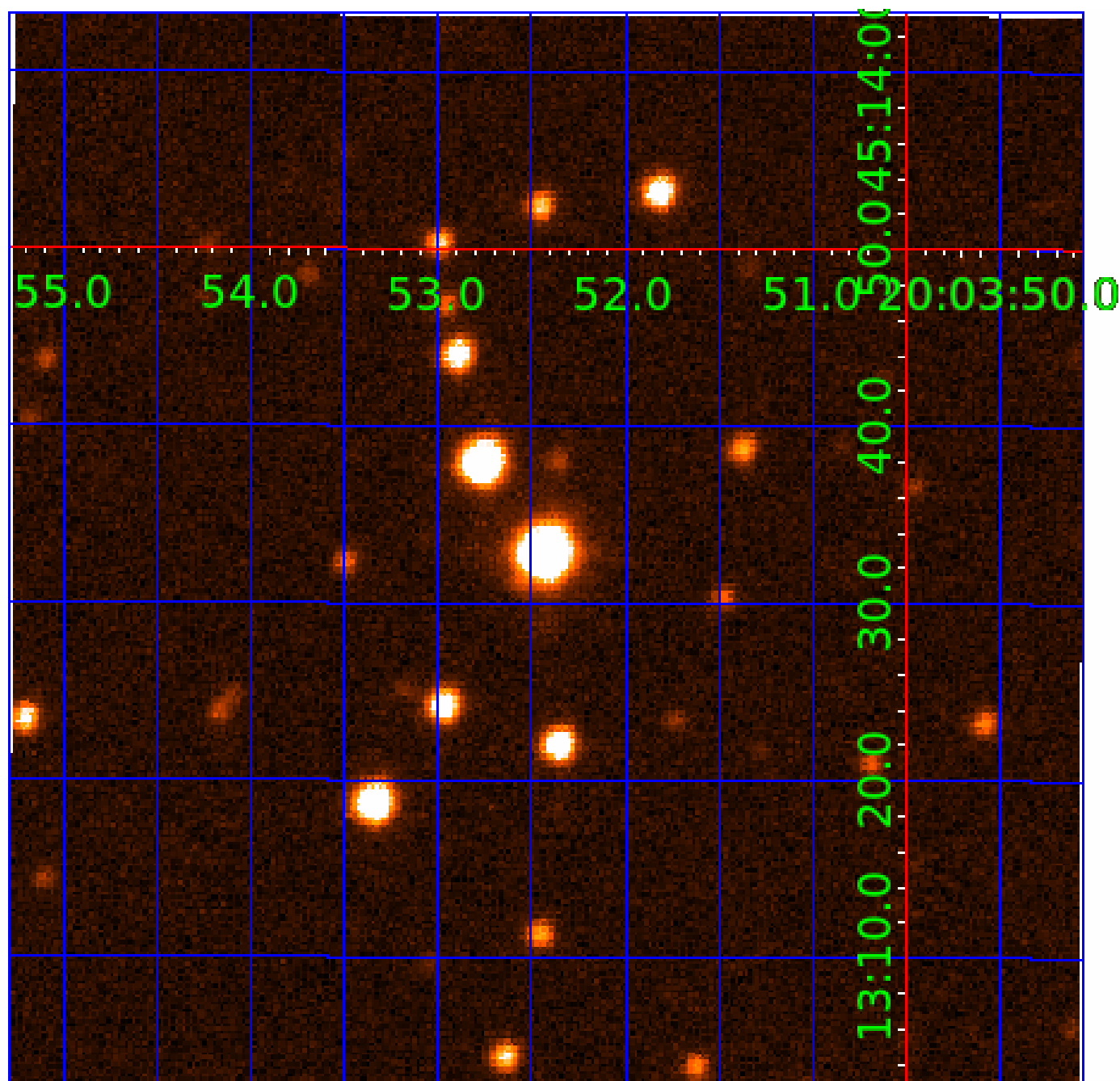


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008984831

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})
008984831-01	OBS	No	4.078493	134.780363	103.0	10.500	10.1	-1.0	2.47	6493	2.52	3009.36
008984831-02	OBS	No	4.078660	132.661047	18.9	17.716	9.8	5.7	2.47	6493	1.25	3009.20
008984831-04	OBS	No	31.329661	162.027744	90.7	2.080	17.0	2.6	2.47	6493	2.74	198.55
008984831-05	OBS	No	43.086047	157.280673	104.9	14.743	17.6	5.0	2.47	6493	2.89	129.82
008984831-08	OBS	No	71.289021	156.873499	246.7	4.335	8.4	8.3	2.47	6493	4.74	66.34
008984831-09	OBS	No	60.035889	144.667774	212.2	4.691	7.9	7.5	2.47	6493	3.99	83.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008984831-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
008984831-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008984831-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008984831-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008984831-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
008984831-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

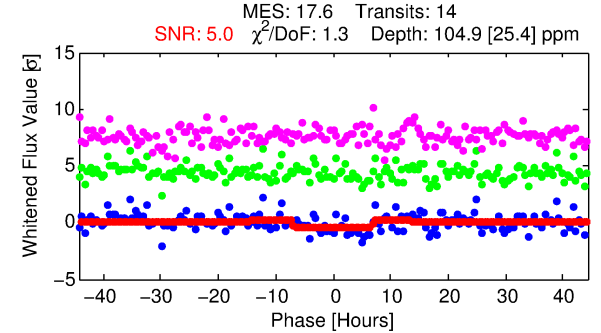
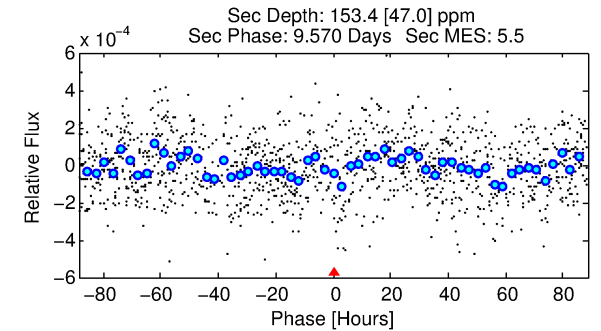
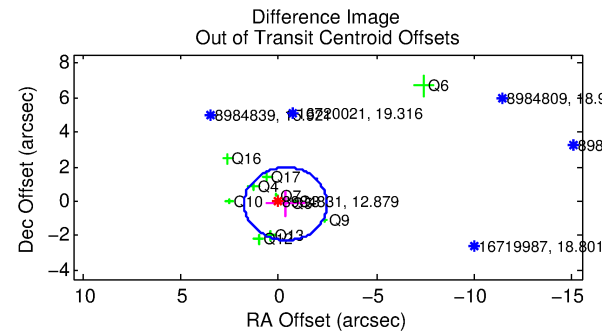
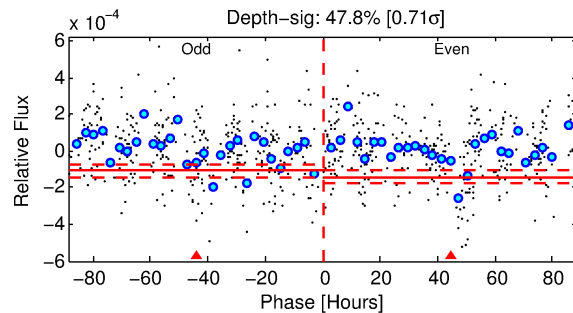
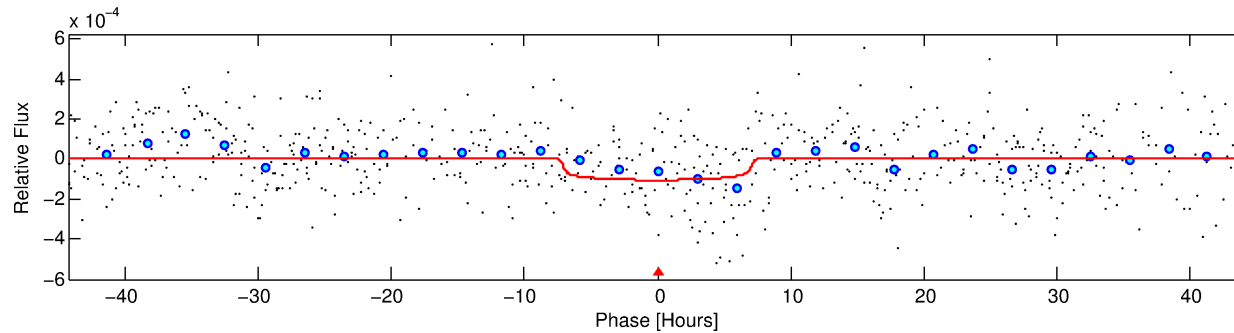
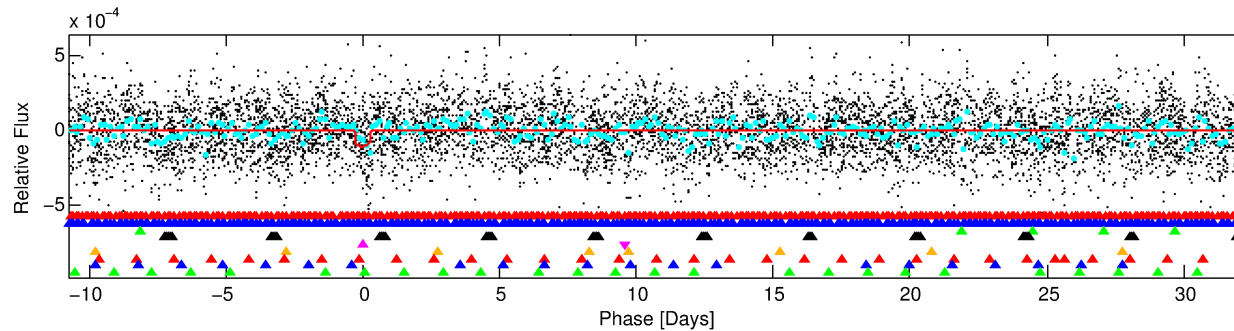
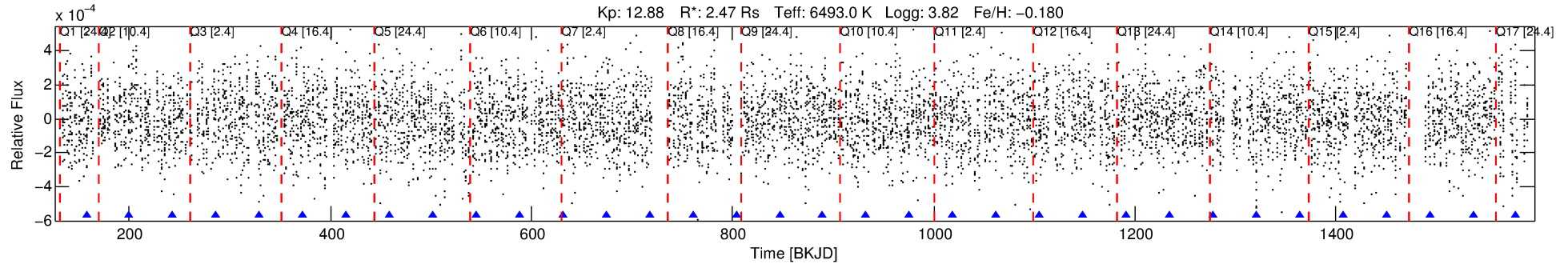
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008984831-05

No Significant Match Found

DV One-Page Summary

KIC: 8984831 Candidate: 5 of 9 Period: 43.086 d



DV Fit Results:

Period = 43.08605 [0.00220] d
Epoch = 157.2807 [0.0478] BKJD
Rp/R* = 0.0107 [0.0033]
a/R* = 11.65 [18.21]
b = 0.87 [0.45]
Seff = 129.83 [101.63]
Teq = 861 [168] K
Rp = 2.89 [1.66] Re
a = 0.2736 [0.1306] AU
Ag = 758.36 [783.99] [0.97 σ]
Teffp = 6984 [1223] K [4.96 σ]

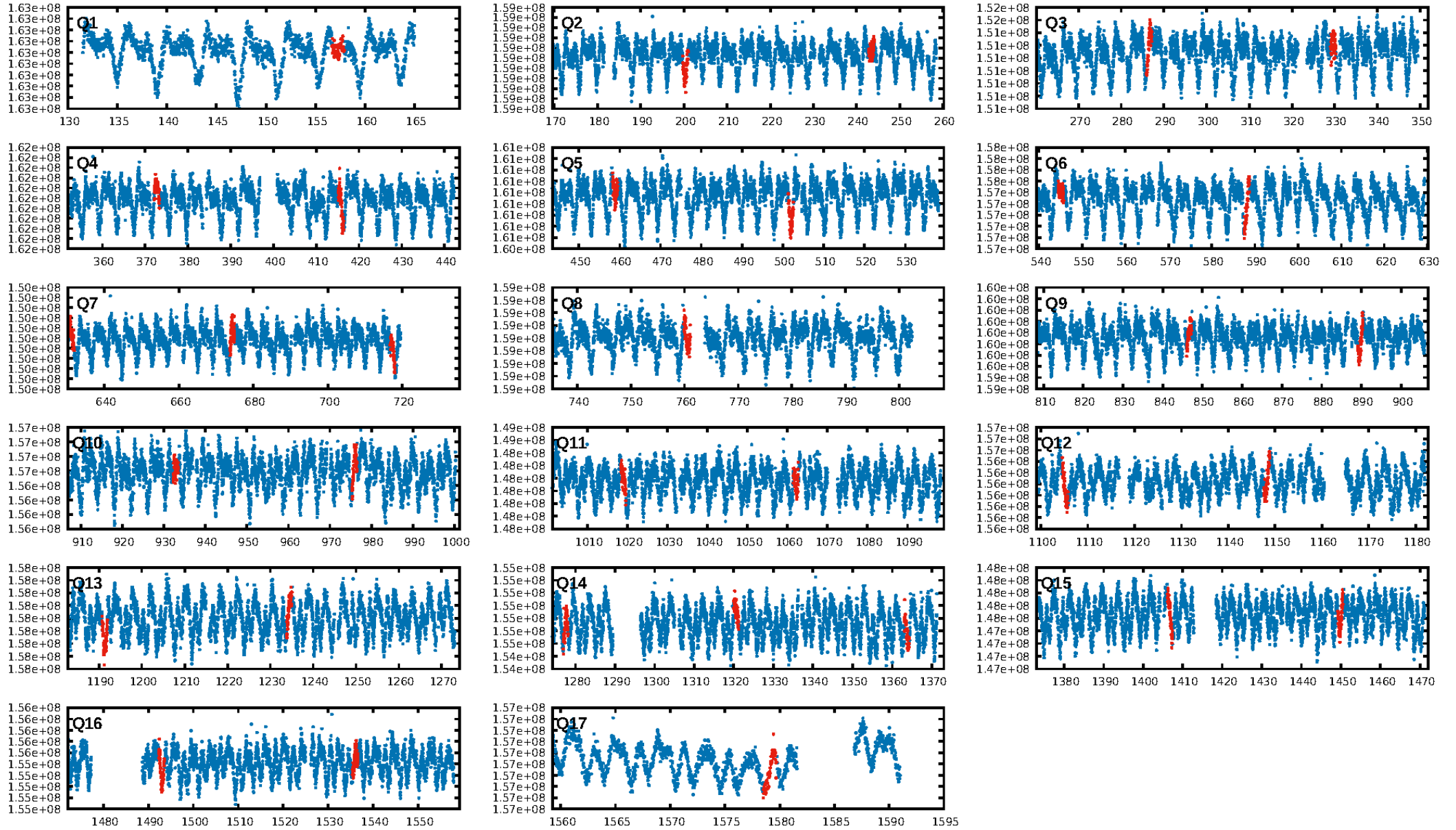
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [18.95 σ]
LongPeriod-sig: 96.6% [2.12 σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.49e-100
RollingBand-fgt: 1.00 [13/13]
GhostDiagnostic-chr: 0.5817
Centroid-sig: 0.0%
Centroid-so: 3.940 arcsec [3.15 σ]
OotOffset-rm: 0.391 arcsec [0.56 σ]
KicOffset-rm: 0.377 arcsec [0.65 σ]
OotOffset-st: 2/2/3/4 [11]
KicOffset-st: 2/2/3/4 [11]
DiffImageQuality-fgm: 0.36 [4/11]
DiffImageOverlap-fno: 0.00 [0/15]

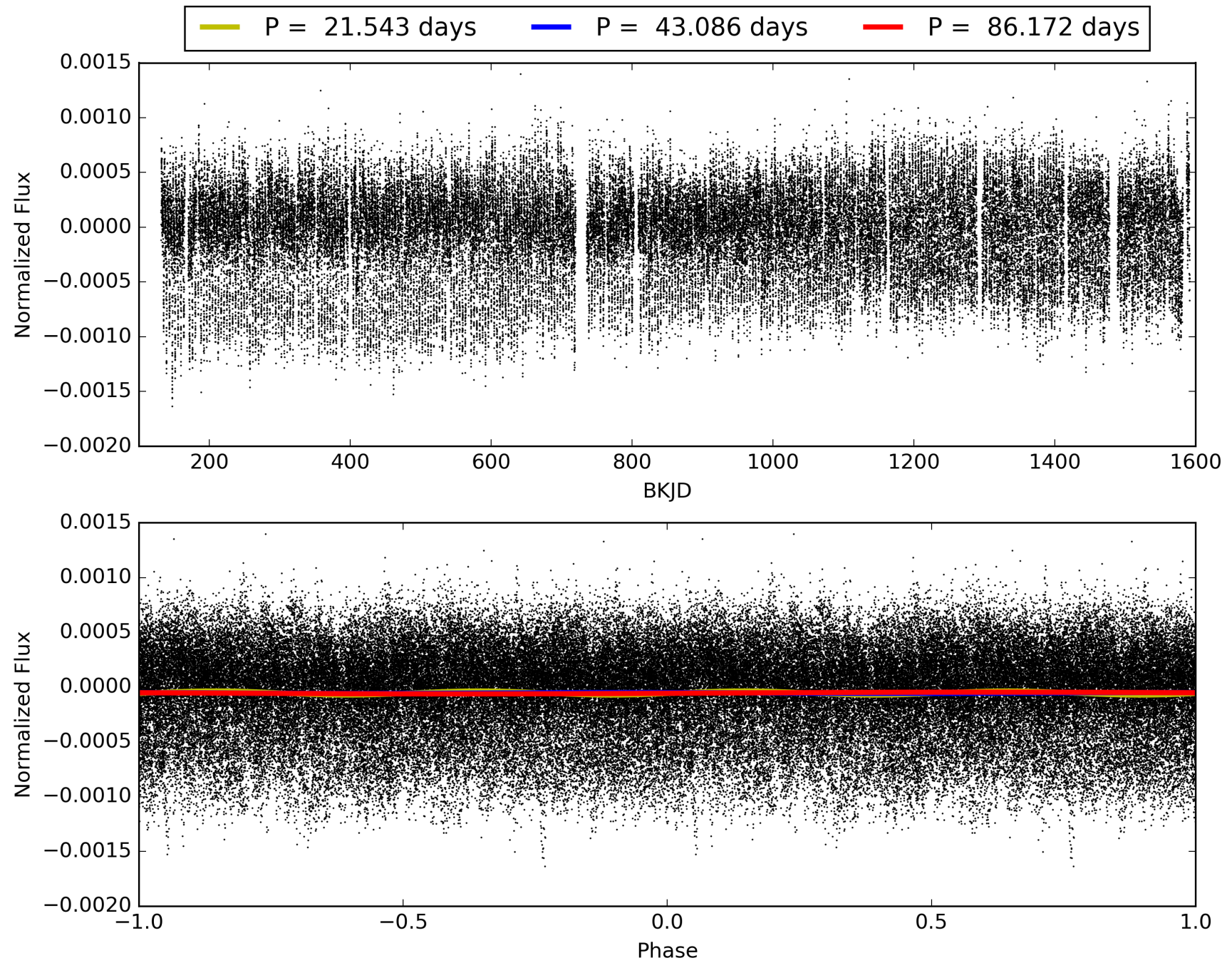
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:04:25 Z

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

TCE 008984831-05, PDC Light Curves

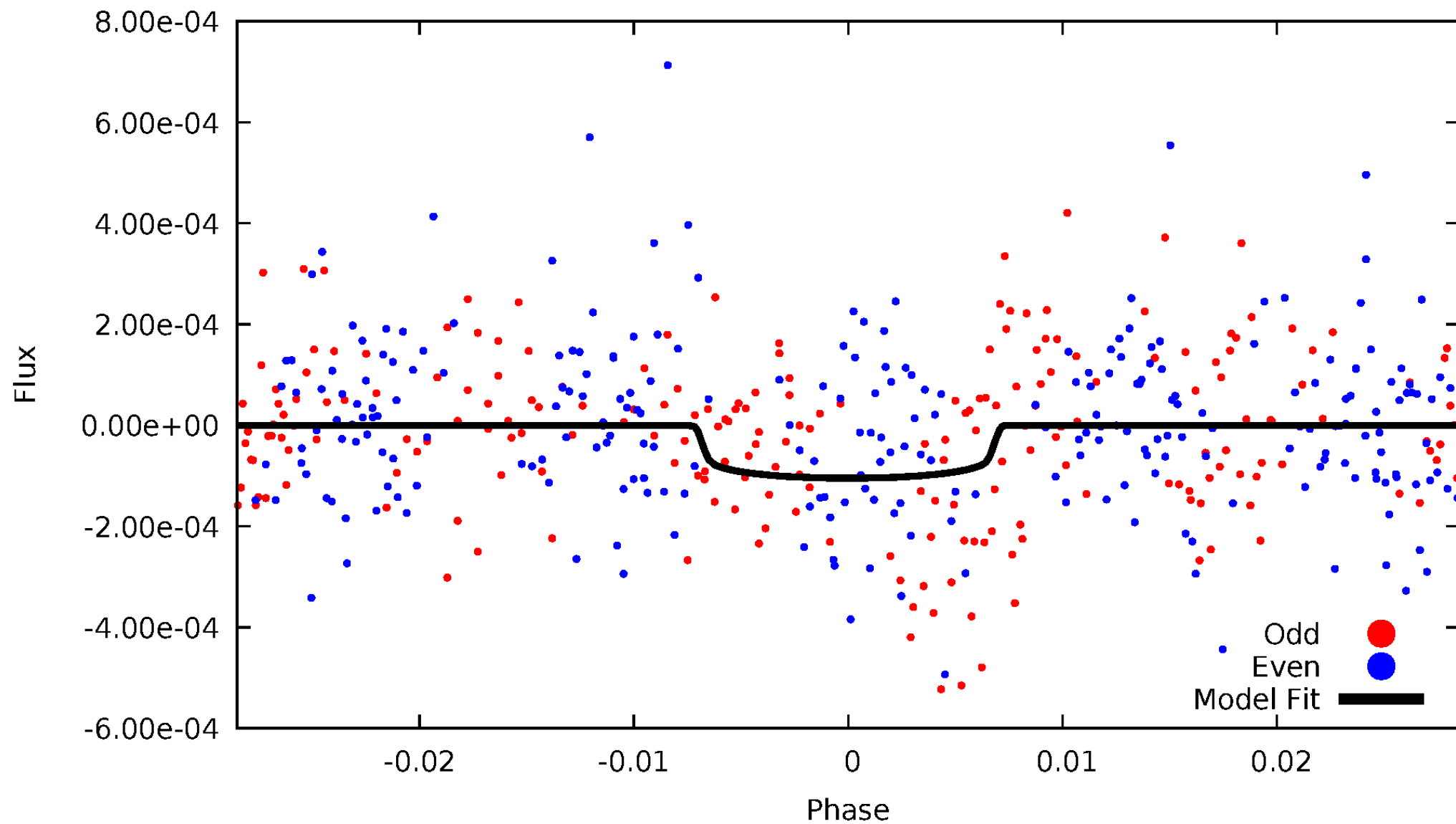


TCE 008984831-05



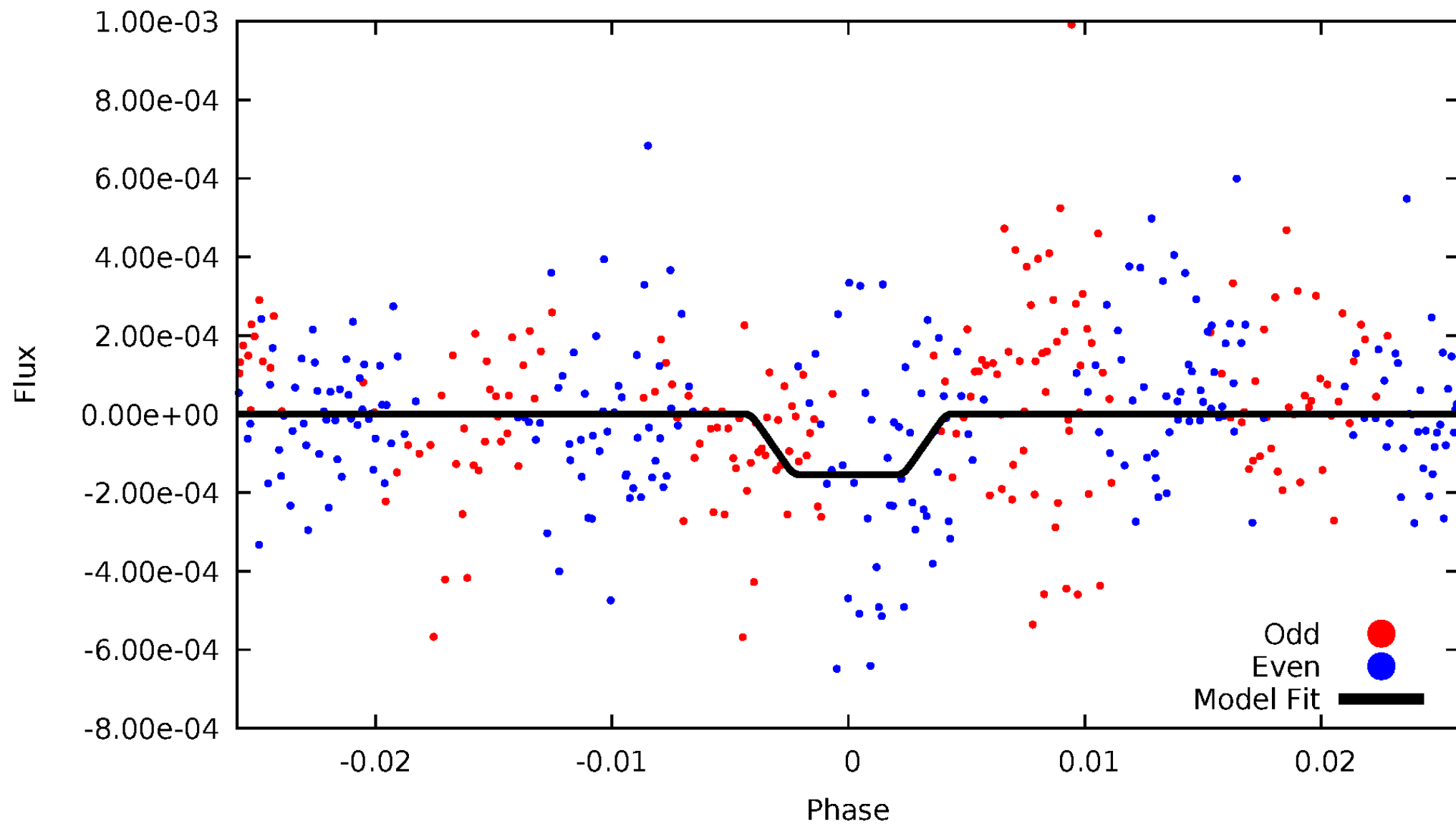
DV Odd/Even

TCE 008984831-05



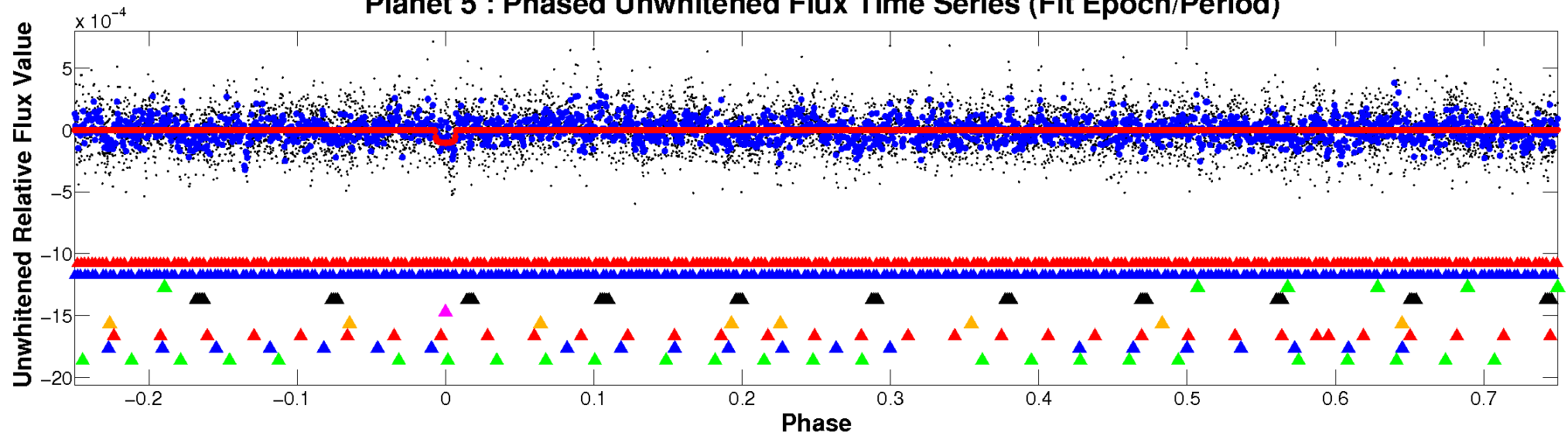
ALT Odd/Even

TCE 008984831-05

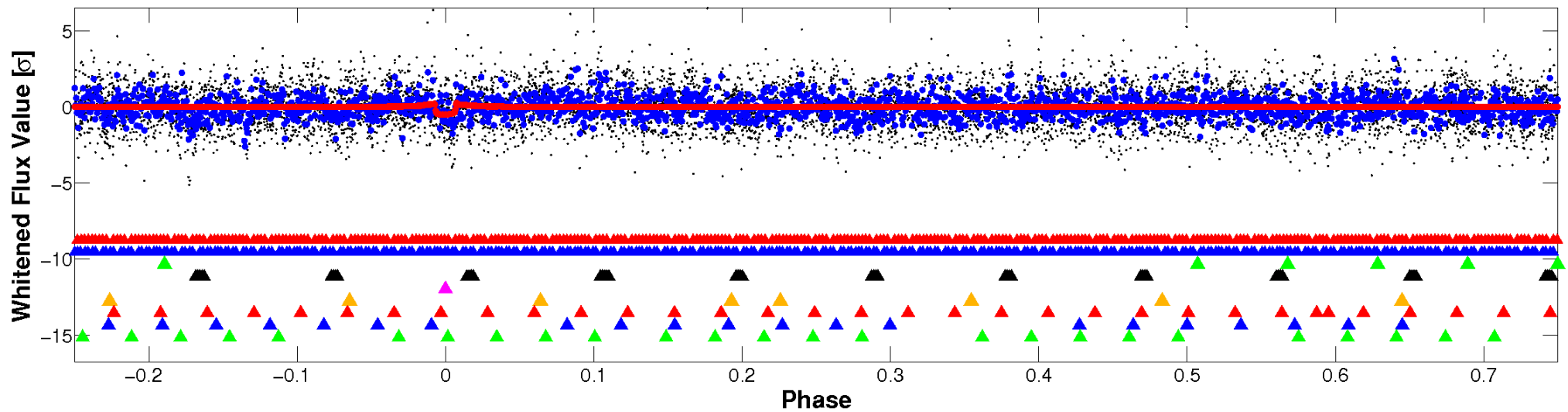


Non-Whitened Vs. Whitened Light Curve

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

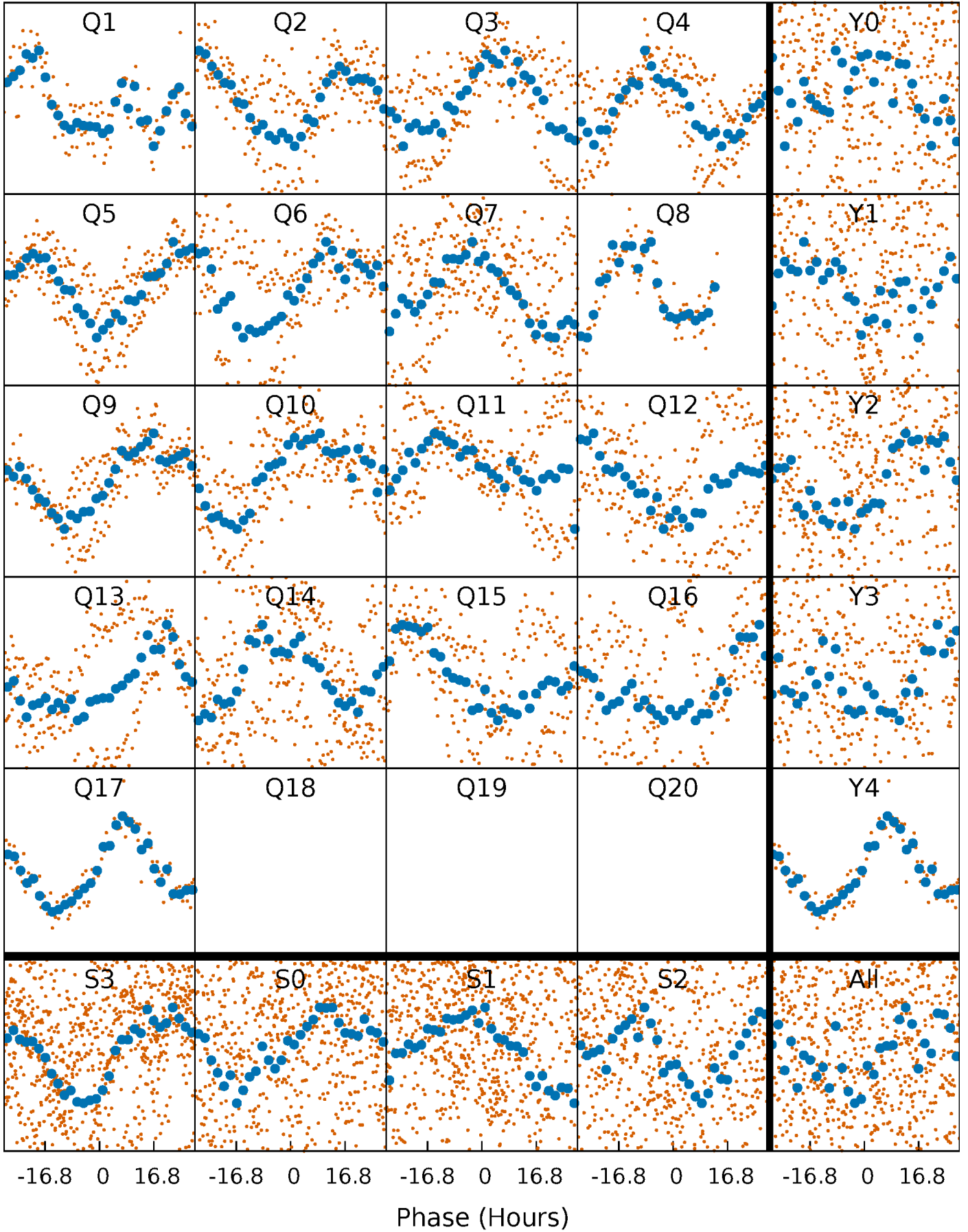


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



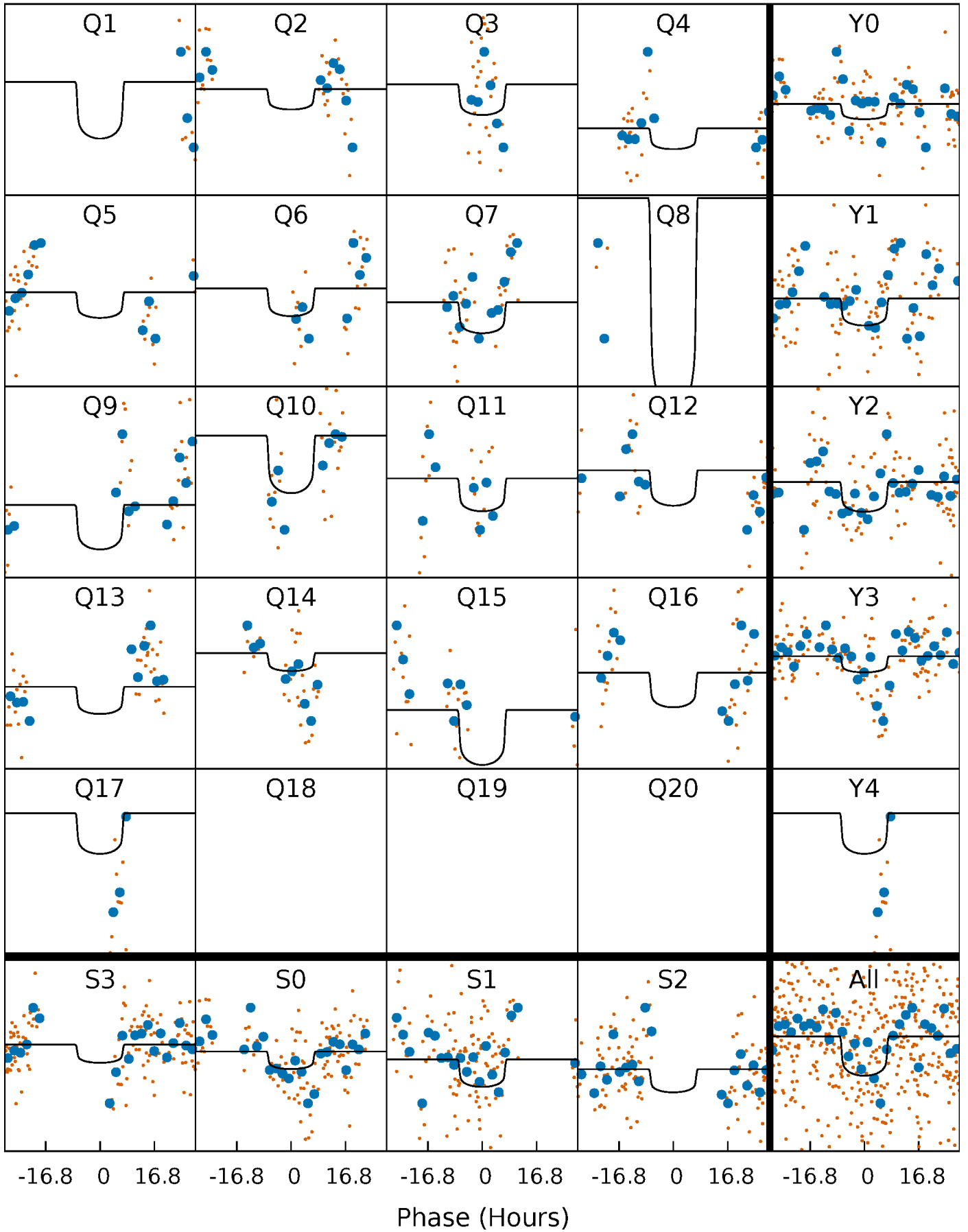
PDC Quarter-Phased Transit Curves

TCE 008984831-05 P= 43.086047 Days $T_0=157.280673$ (BKJD)



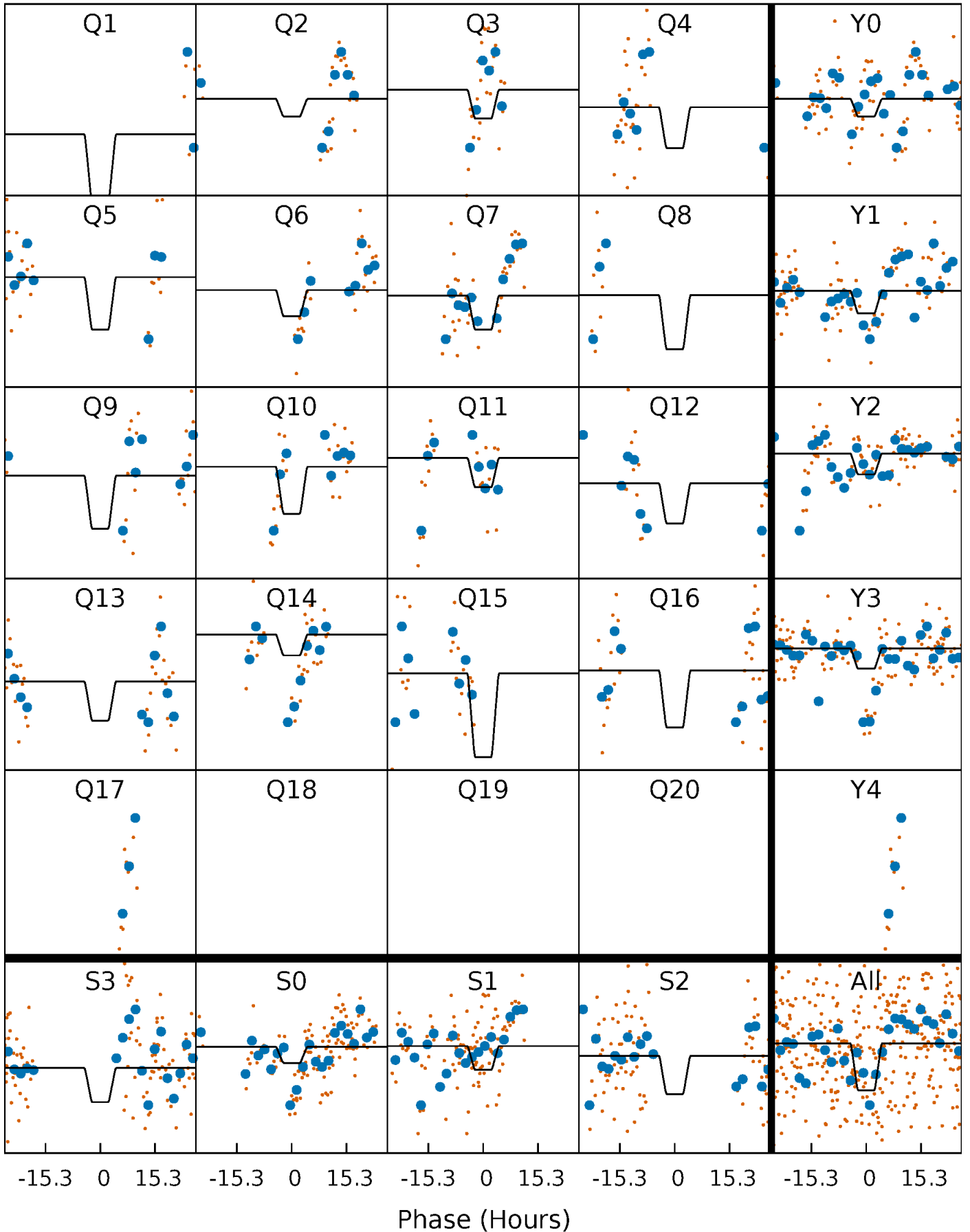
DV Quarter-Phased Transit Curves

TCE 008984831-05 $P = 43.086047$ Days $T_0 = 157.280673$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

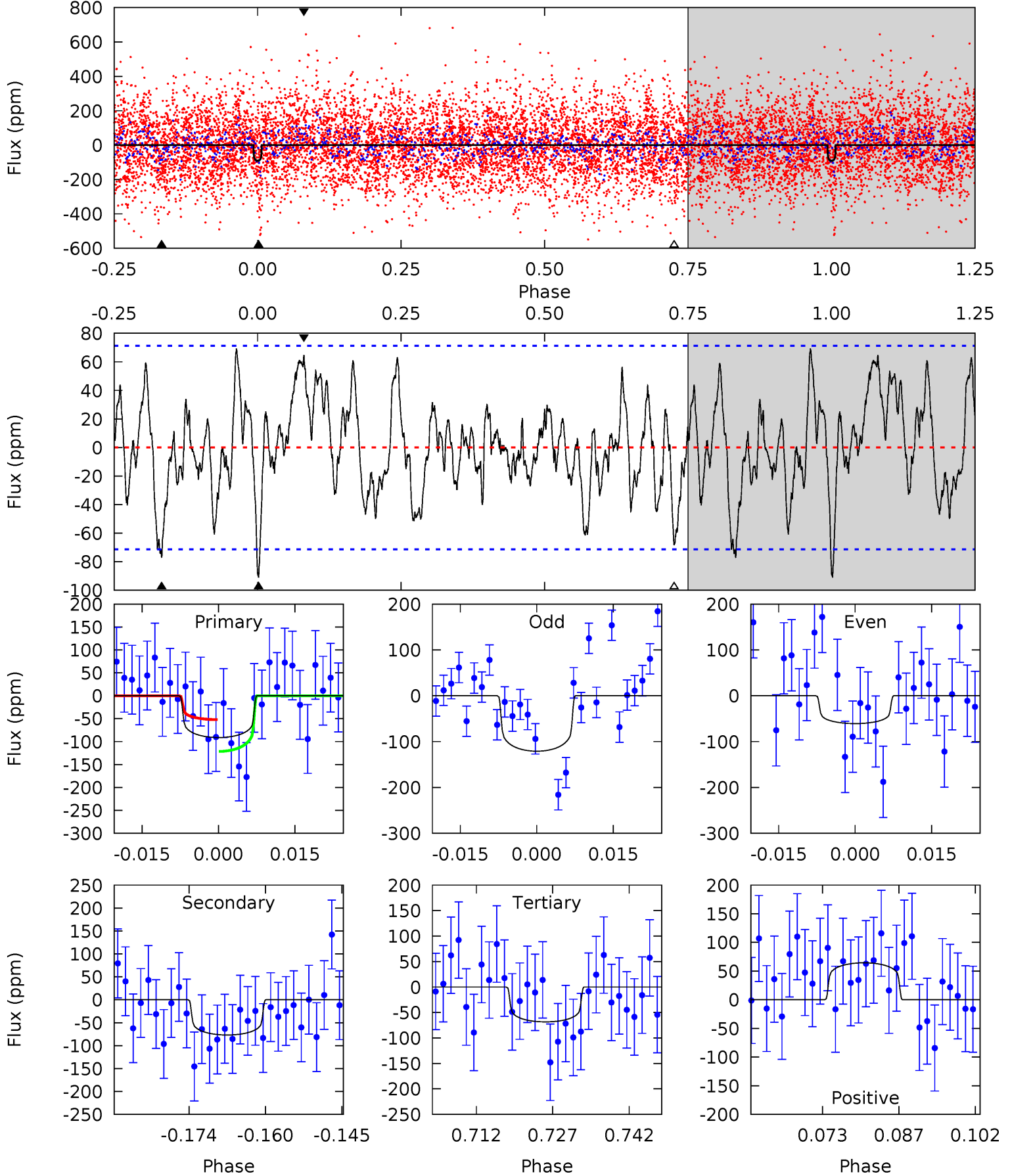
TCE 008984831-05 $P = 43.082548$ Days $T_0 = 157.303822$ (BKJD)



DV Model-Shift Uniqueness Test

008984831-05, P = 43.086047 Days, E = 114.194626 Days

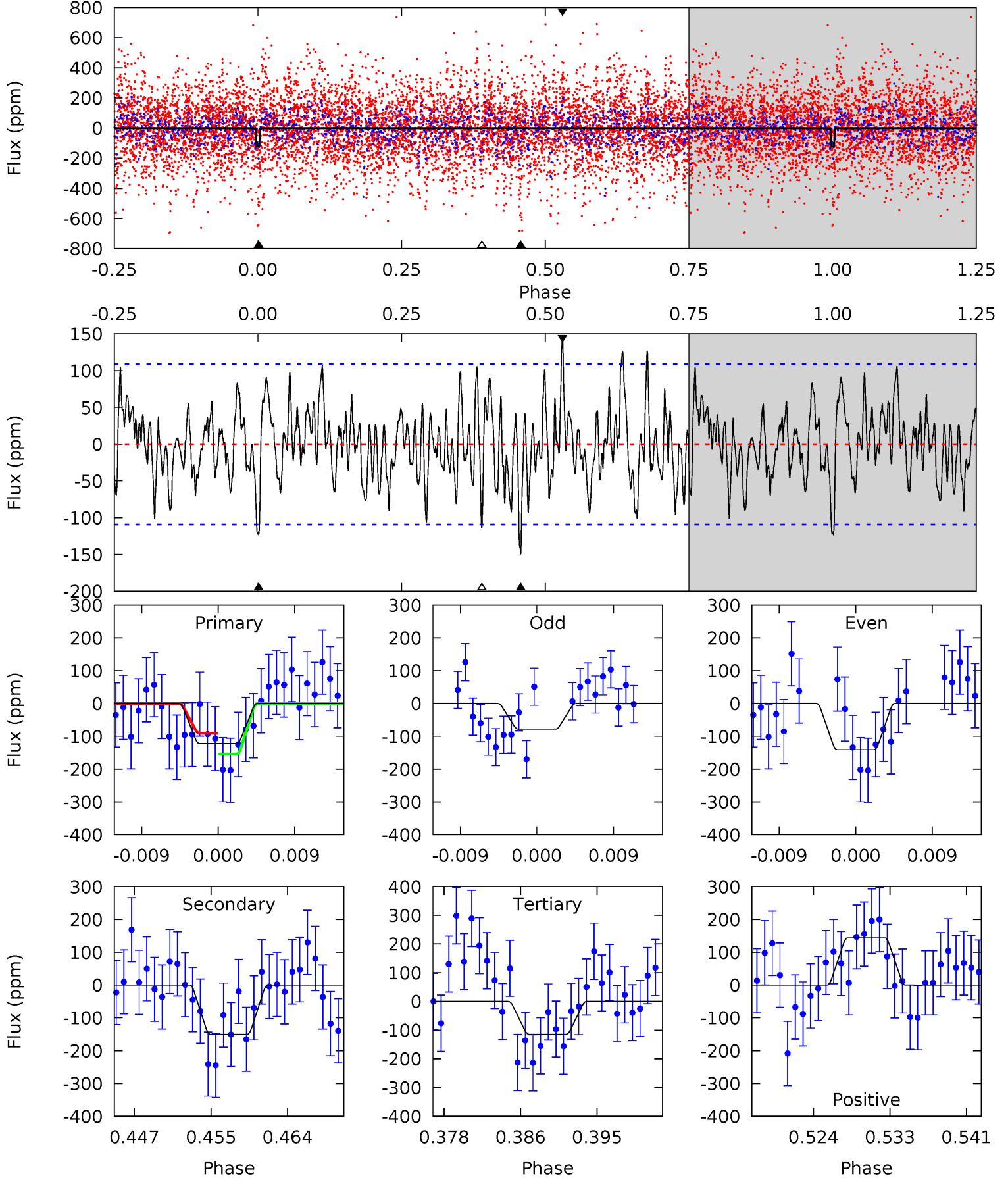
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.33	5.34	4.76	4.48	4.95	2.44	1.86	1.58	1.85	0.58	0.86	2.08	1.46	0.43	2.39



Alt Model-Shift Uniqueness Test

008984831-05, P = 43.082548 Days, E = 114.221274 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.66	6.95	5.28	6.67	5.06	2.63	2.04	0.38	-1.01	1.66	0.27	1.42	0.61	0.49	1.47



Stellar Parameters For KIC 008984831

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6493^{+175}_{-214}	$3.820^{+0.456}_{-0.114}$	$-0.180^{+0.250}_{-0.300}$	$2.470^{+0.516}_{-1.203}$	$1.471^{+0.206}_{-0.383}$	$0.138^{+0.631}_{-0.047}$
	+3%/-3%	+12%/-3%	+139%/-167%	+21%/-49%	+14%/-26%	+459%/-34%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008984831-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-77 ± 14	$2.57^{+1.11}_{-0.97}$	1171^{+91}_{-143}	5848^{+1310}_{-698}	473^{+689}_{-249}
Alt.	-150 ± 22	$3.06^{+1.08}_{-1.01}$	1176^{+81}_{-143}	6448^{+1117}_{-830}	649^{+784}_{-300}

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

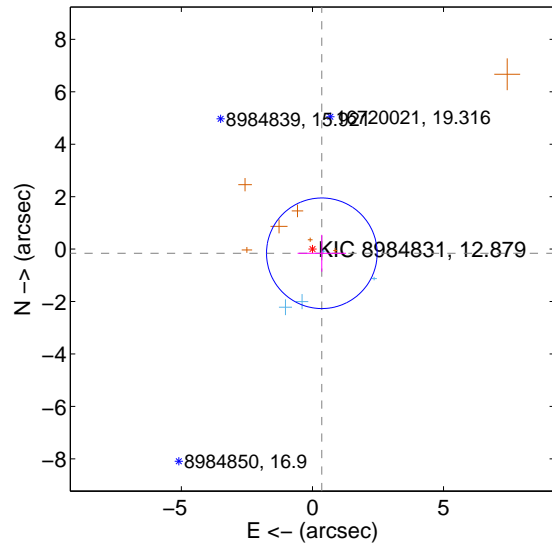
Supplemental centroid analysis for 008984831-05. Kepler magnitude: 12.88. Transit SNR 5.04

There are 4 quarters with good PRF difference image offsets

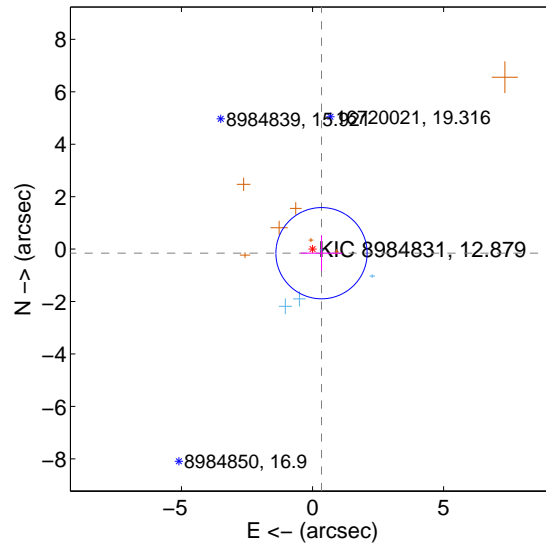
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.391 ± 0.703	0.56	-0.358 ± 0.923	-0.159 ± 0.704
PRF-fit source offset from KIC position	0.377 ± 0.580	0.65	-0.343 ± 0.794	-0.156 ± 0.681
photometric centroid source offset	3.94 ± 1.25	3.15	-0.37 ± 1.15	-3.92 ± 1.25

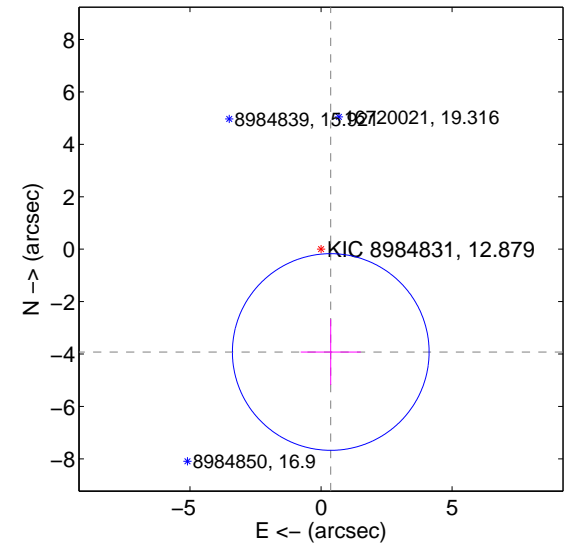
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

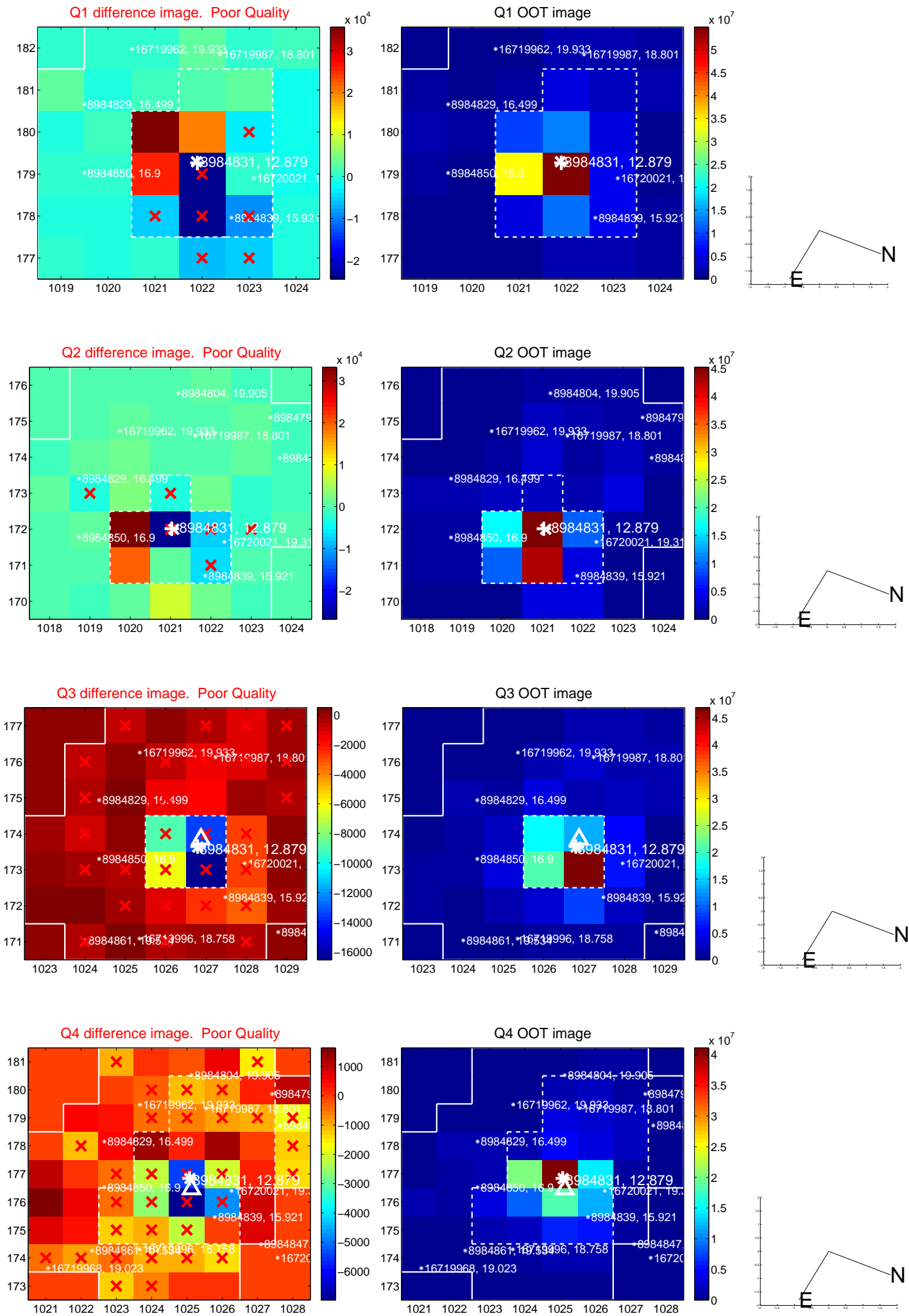


offset from photometric centroids

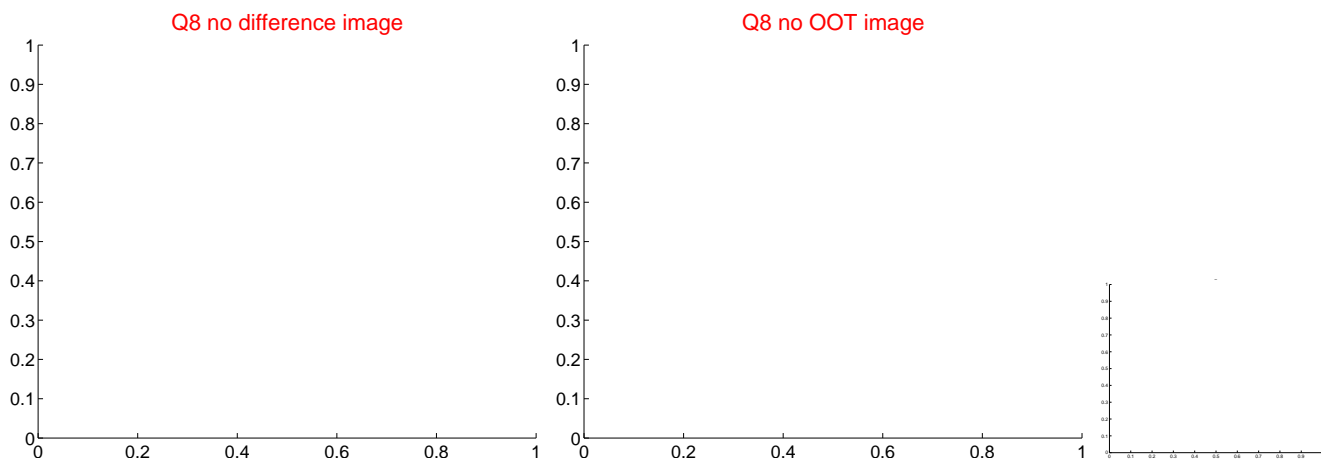
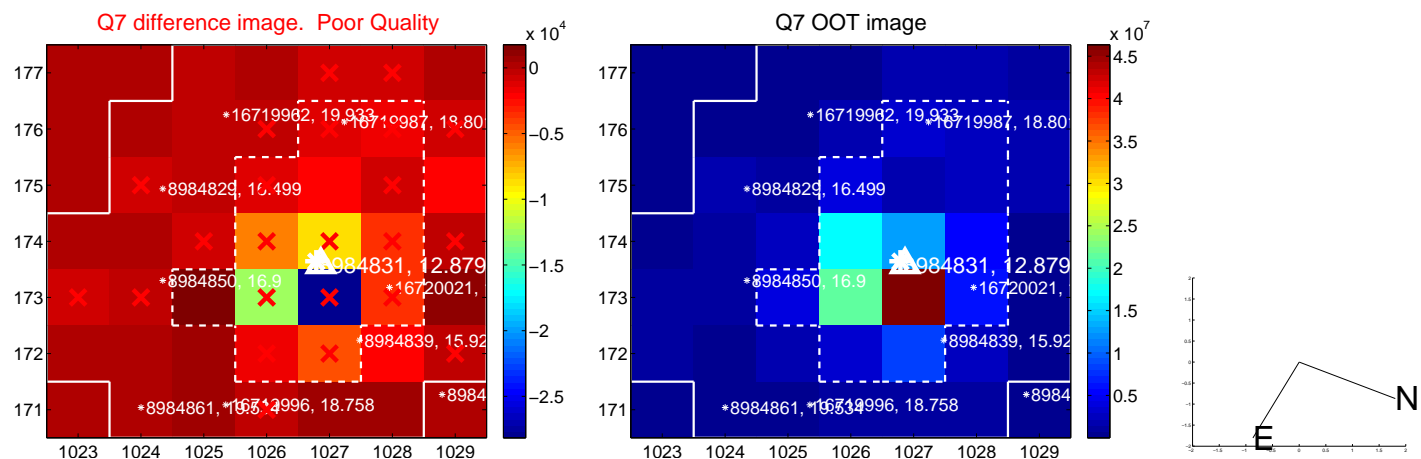
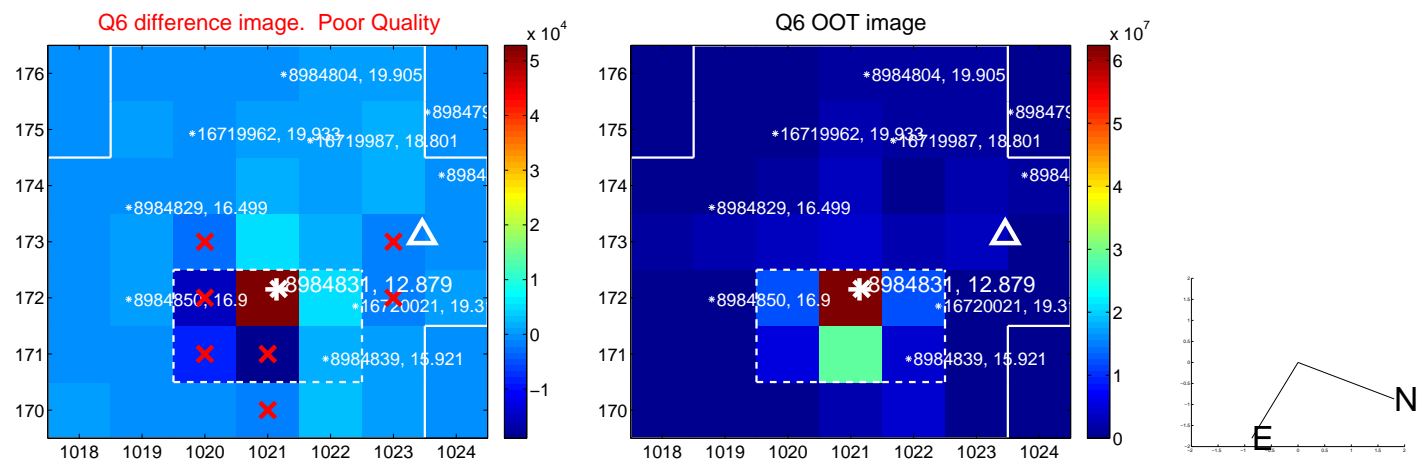
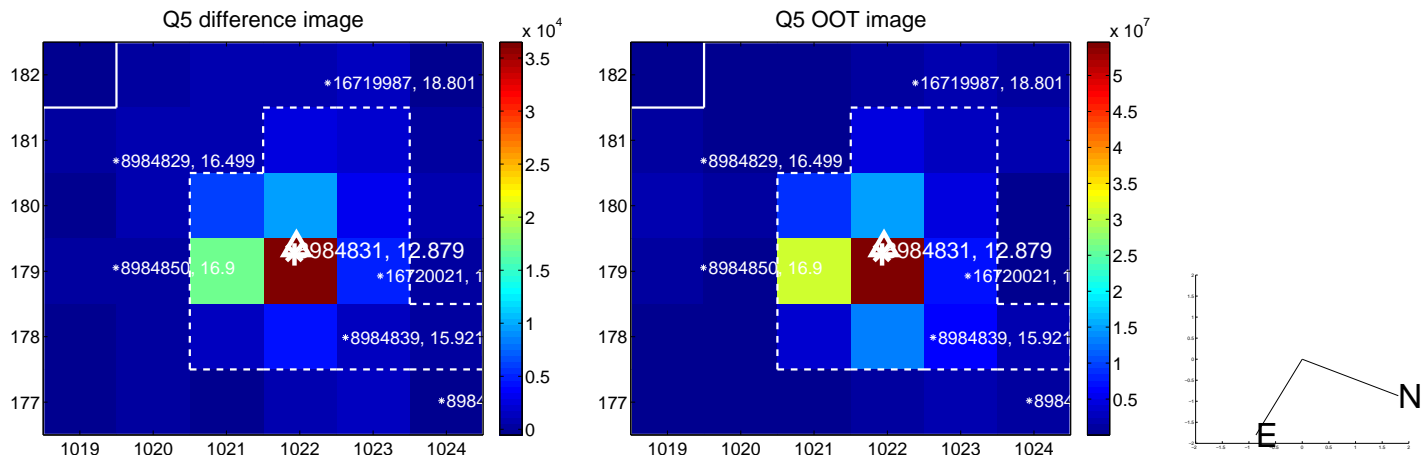


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

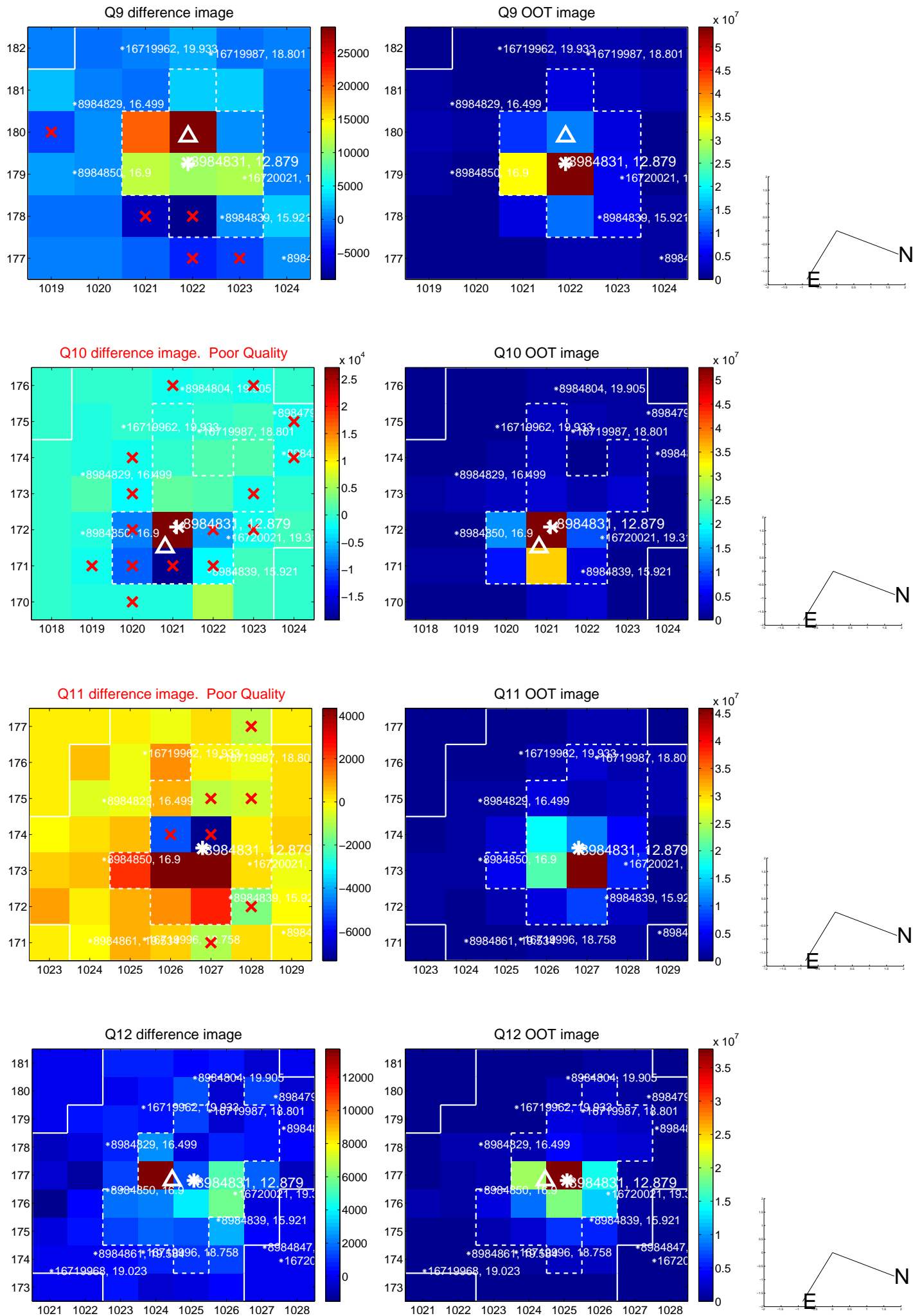
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



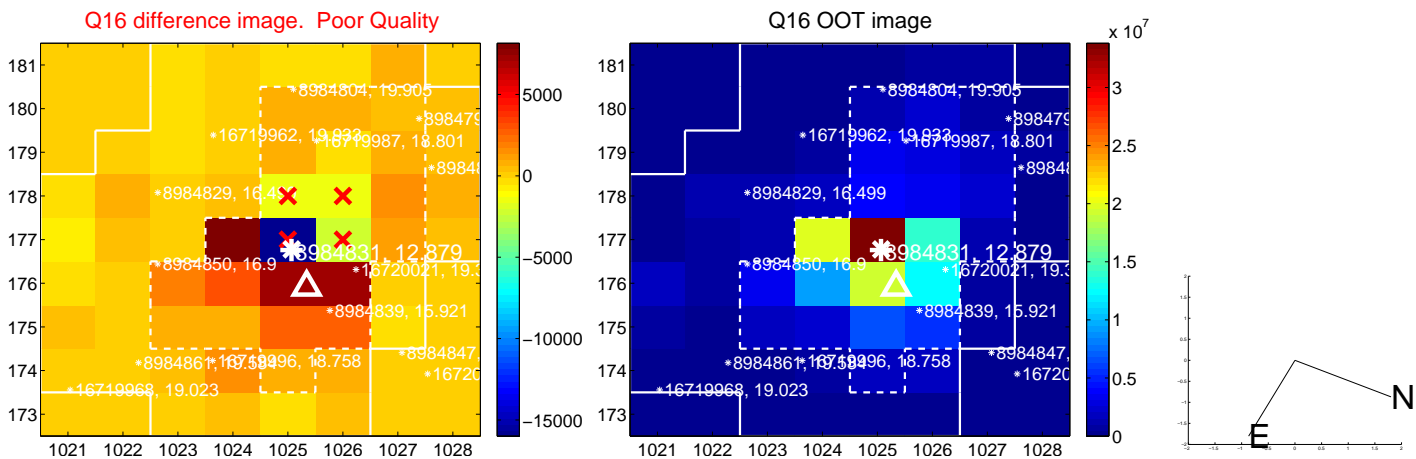
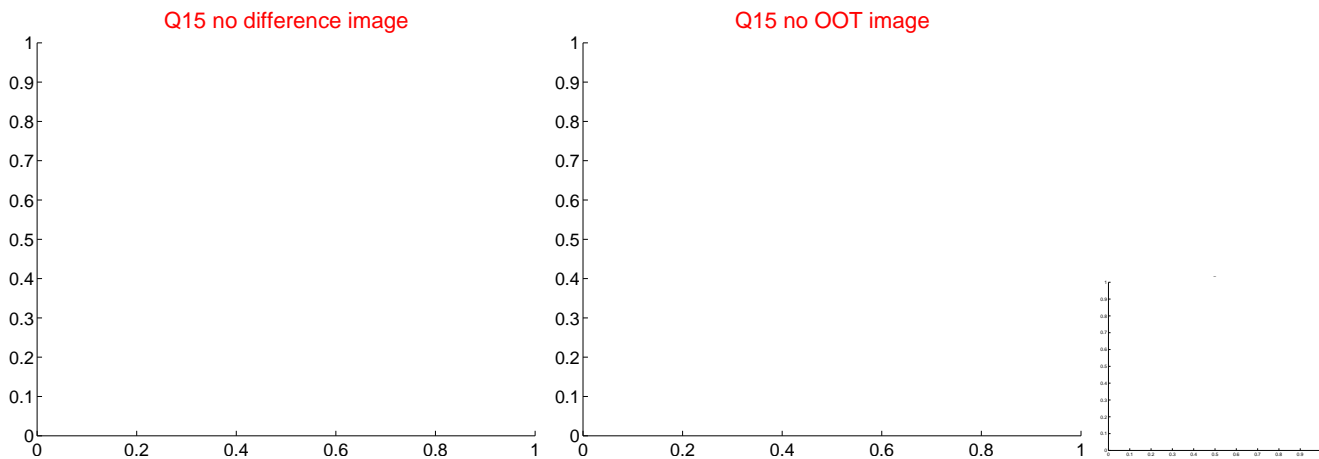
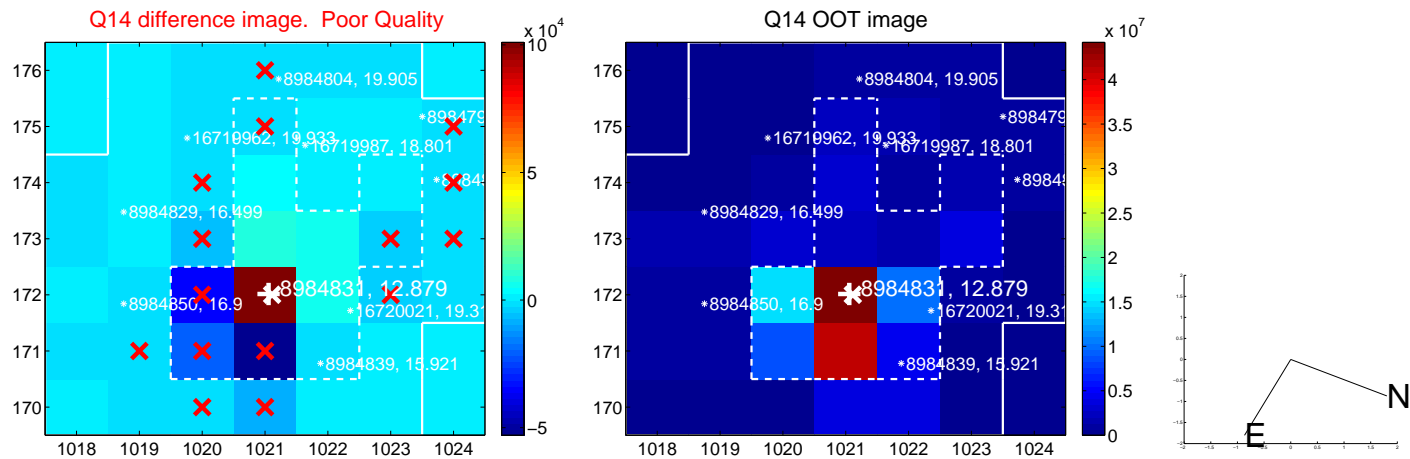
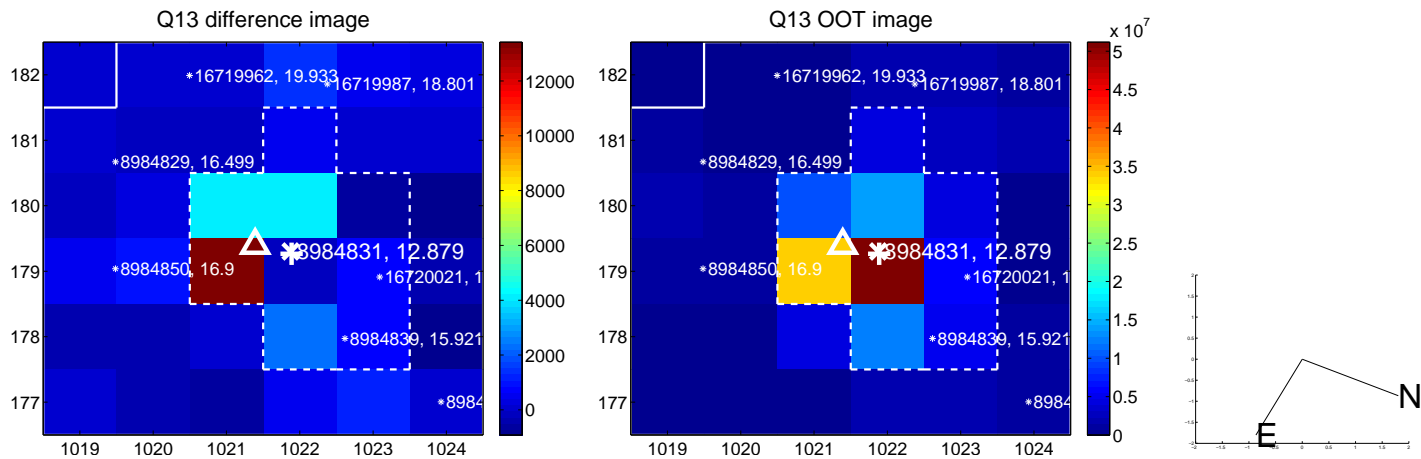
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



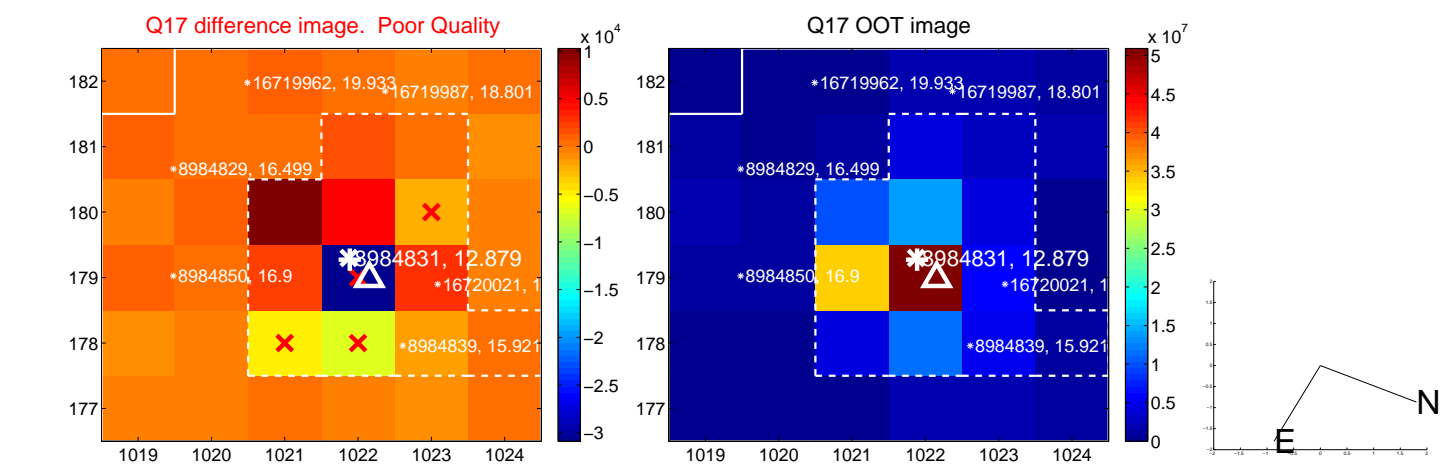
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



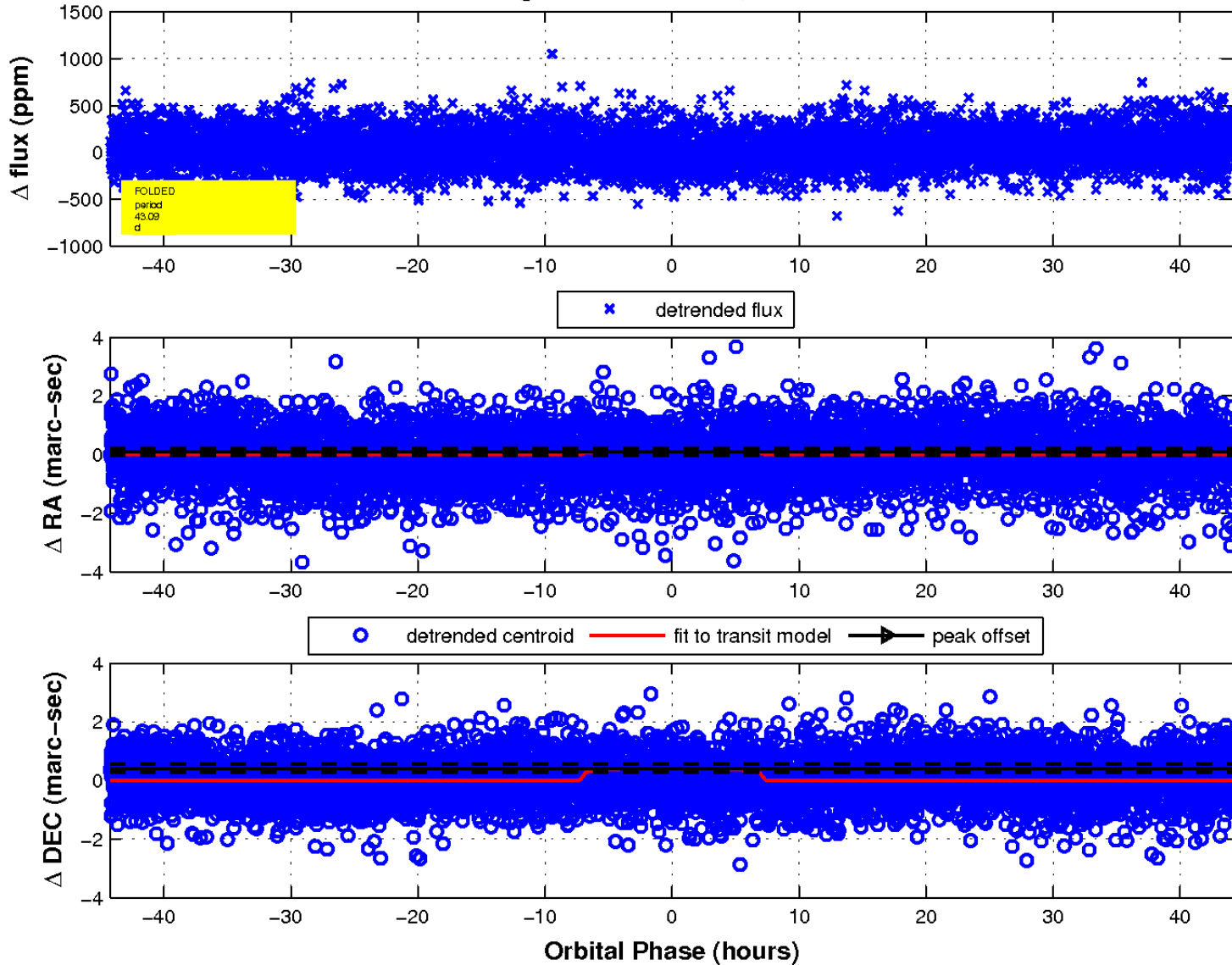
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

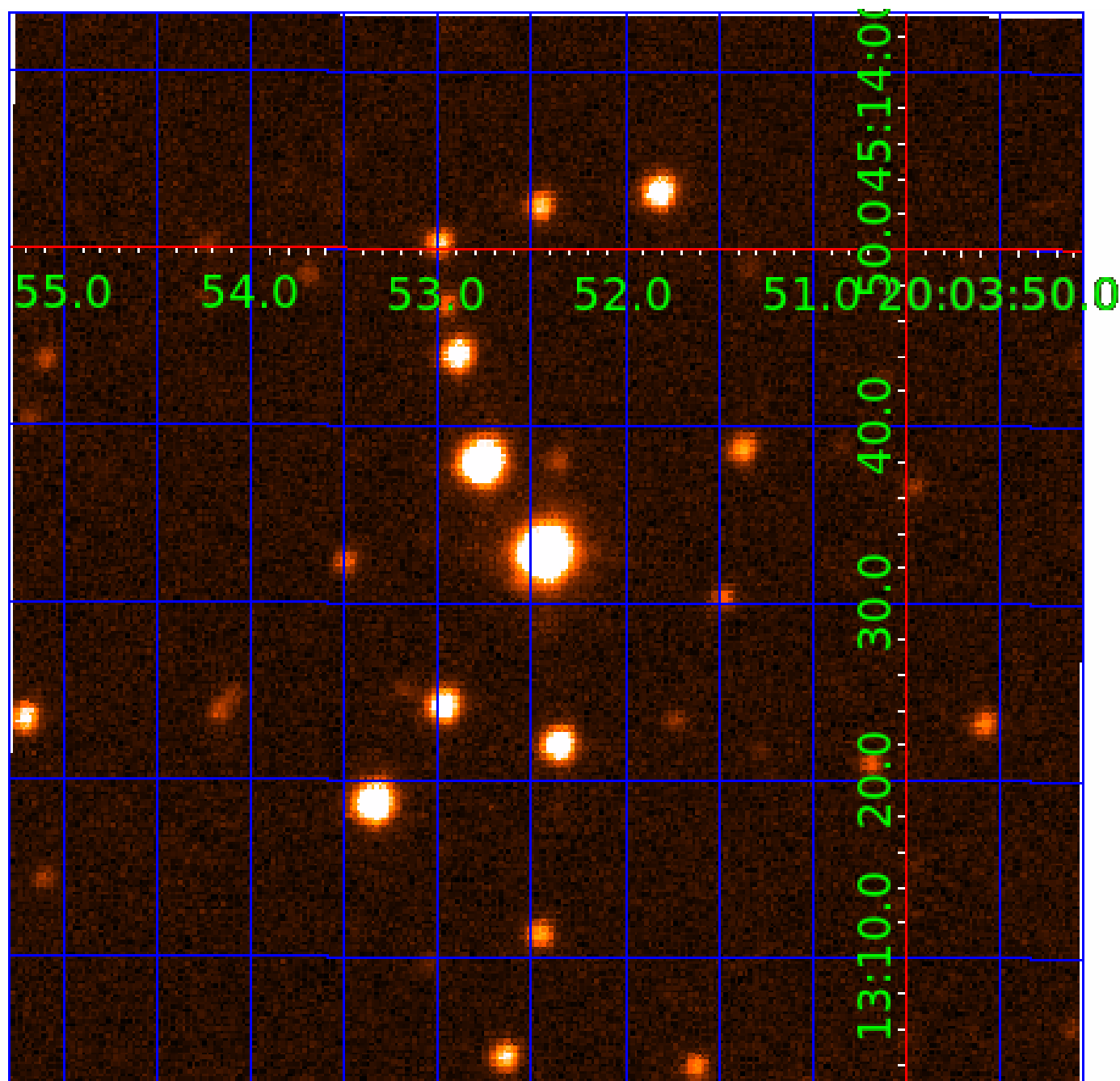


fluxWeightedCentroids, Planet 5 of 9



UKIRT Image

Declination



KIC 008984831

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})
008984831-01	OBS	No	4.078493	134.780363	103.0	10.500	10.1	-1.0	2.47	6493	2.52	3009.36
008984831-02	OBS	No	4.078660	132.661047	18.9	17.716	9.8	5.7	2.47	6493	1.25	3009.20
008984831-04	OBS	No	31.329661	162.027744	90.7	2.080	17.0	2.6	2.47	6493	2.74	198.55
008984831-05	OBS	No	43.086047	157.280673	104.9	14.743	17.6	5.0	2.47	6493	2.89	129.82
008984831-08	OBS	No	71.289021	156.873499	246.7	4.335	8.4	8.3	2.47	6493	4.74	66.34
008984831-09	OBS	No	60.035889	144.667774	212.2	4.691	7.9	7.5	2.47	6493	3.99	83.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008984831-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
008984831-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008984831-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008984831-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008984831-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
008984831-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

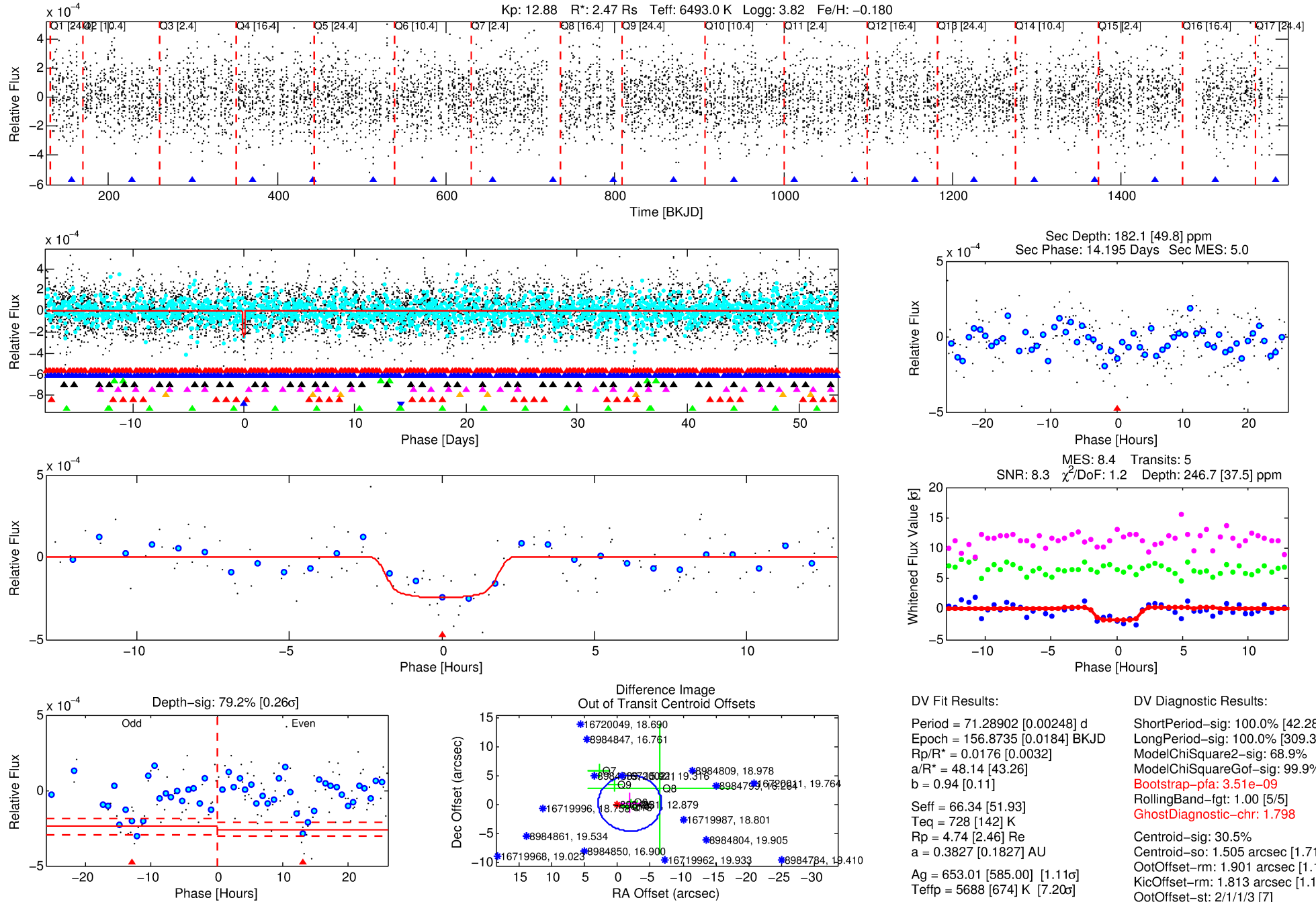
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008984831-08

No Significant Match Found

DV One-Page Summary

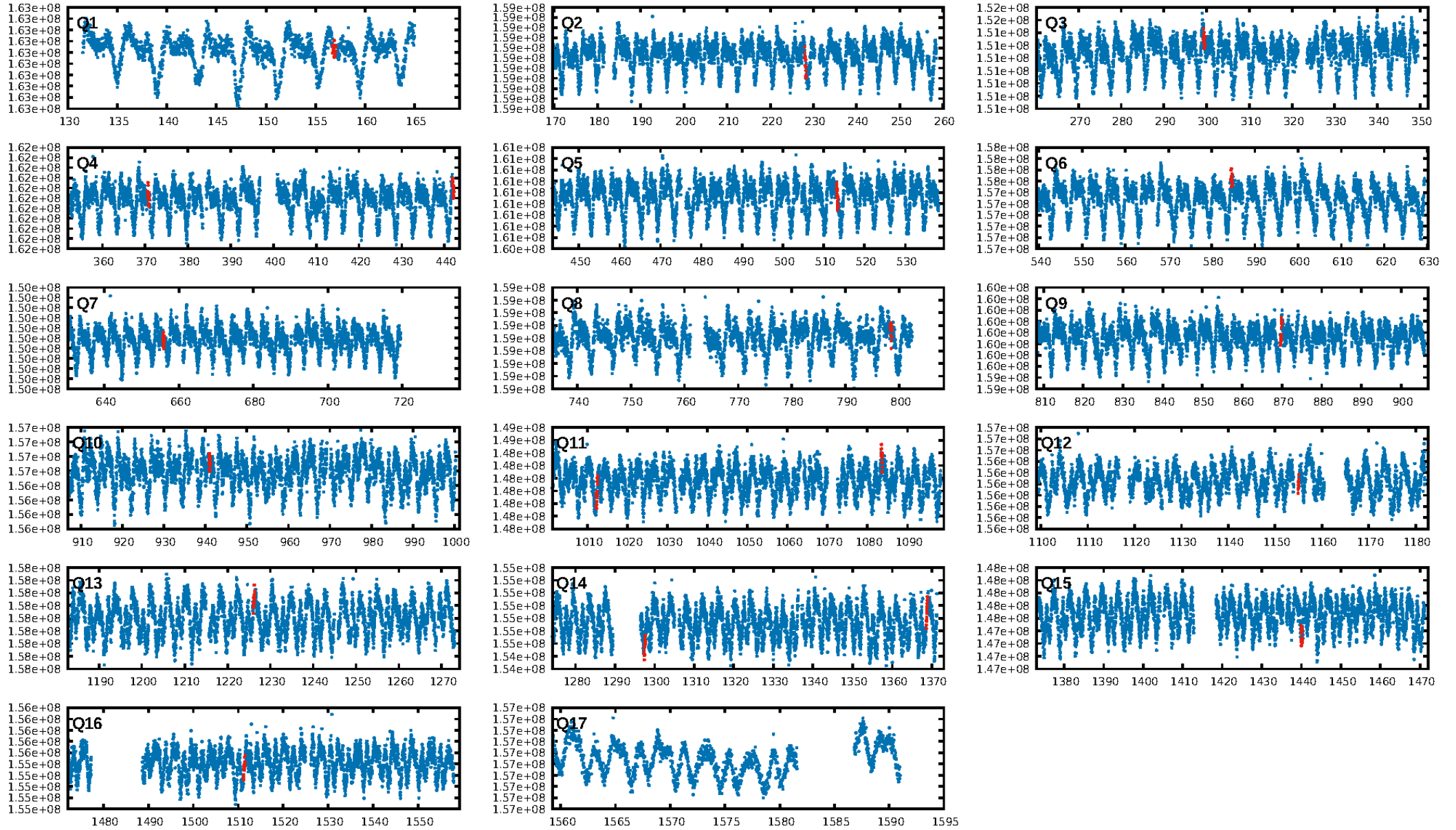
KIC: 8984831 Candidate: 8 of 9 Period: 71.289 d



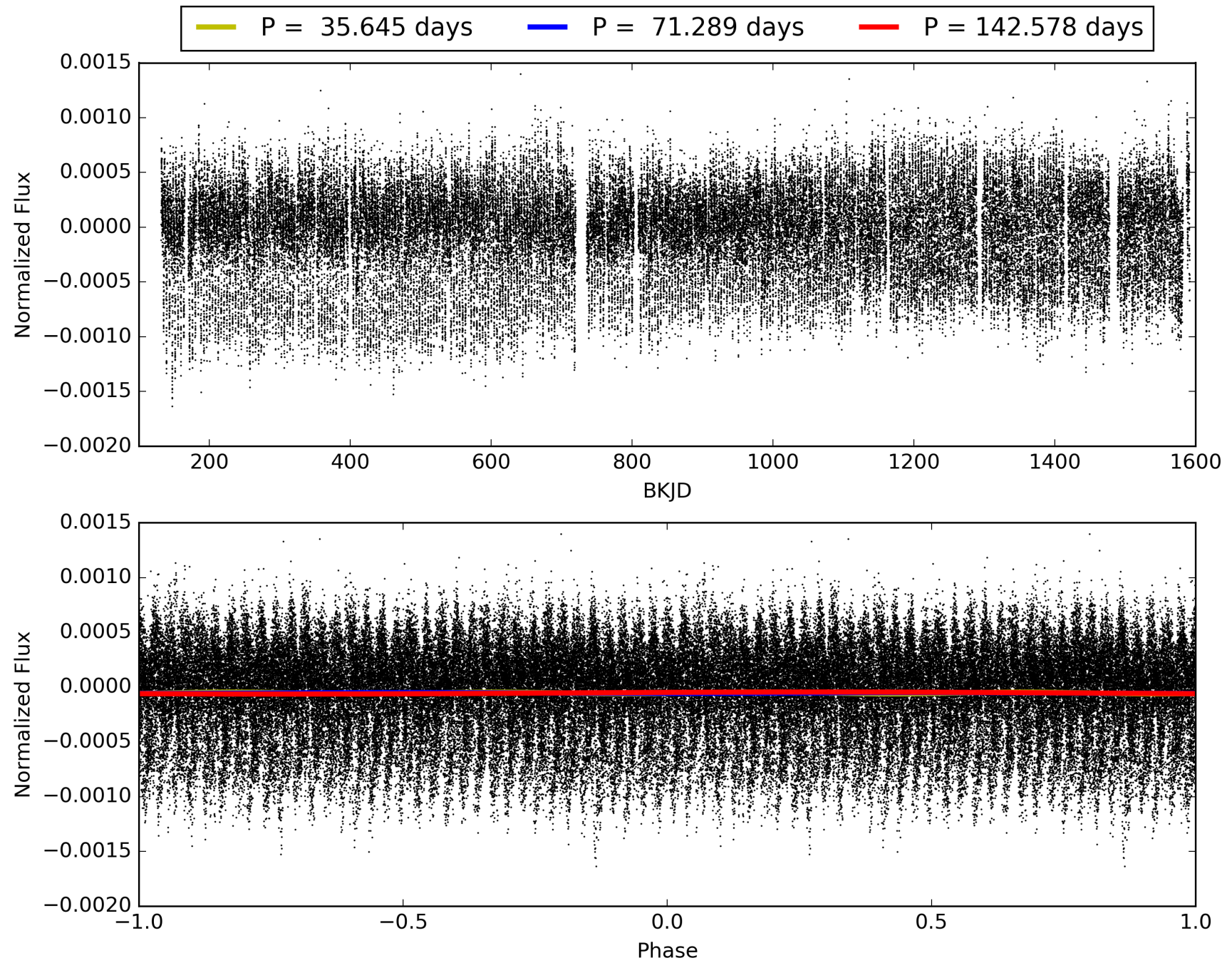
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:04:36 Z

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

TCE 008984831-08, PDC Light Curves

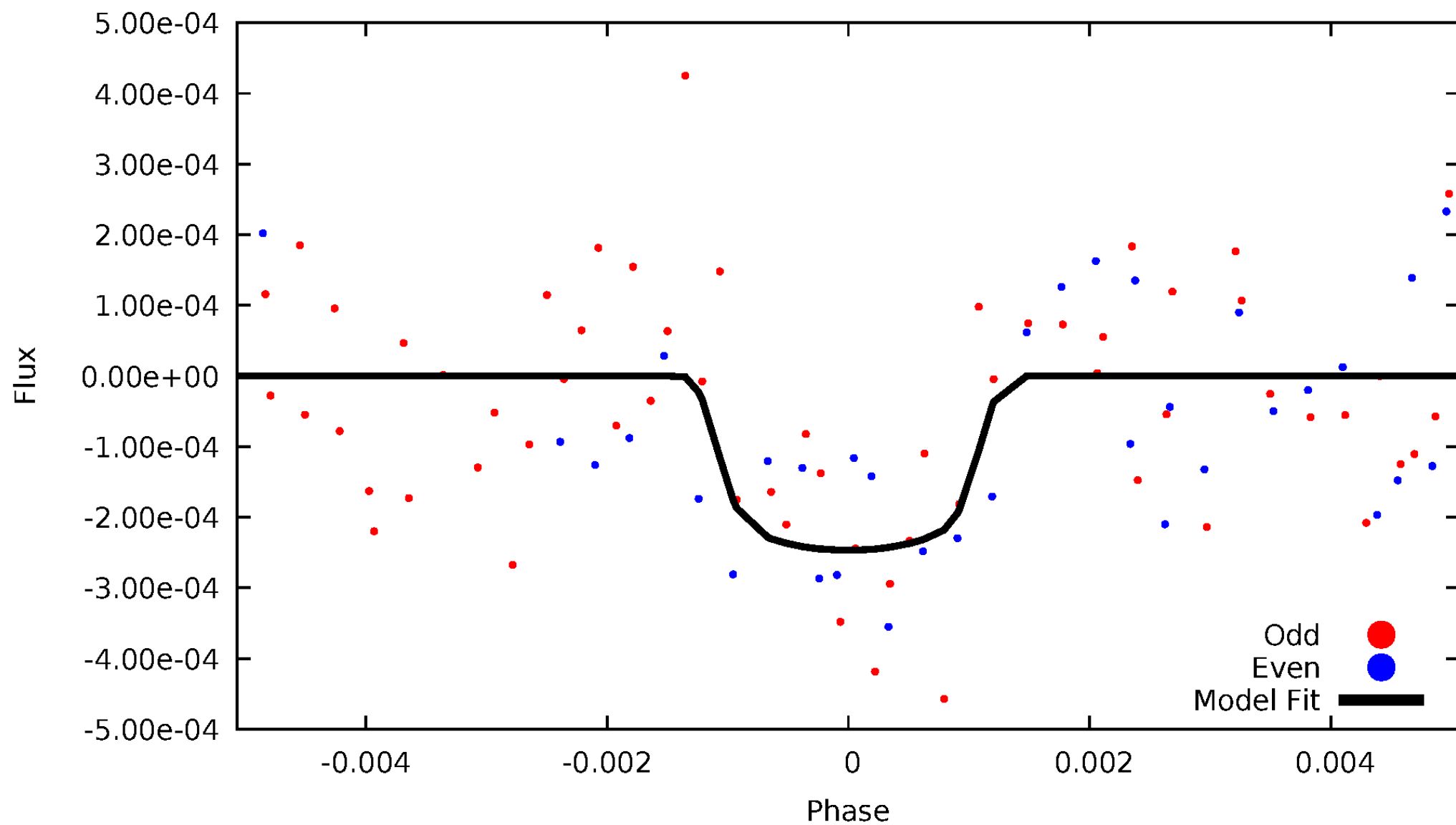


TCE 008984831-08



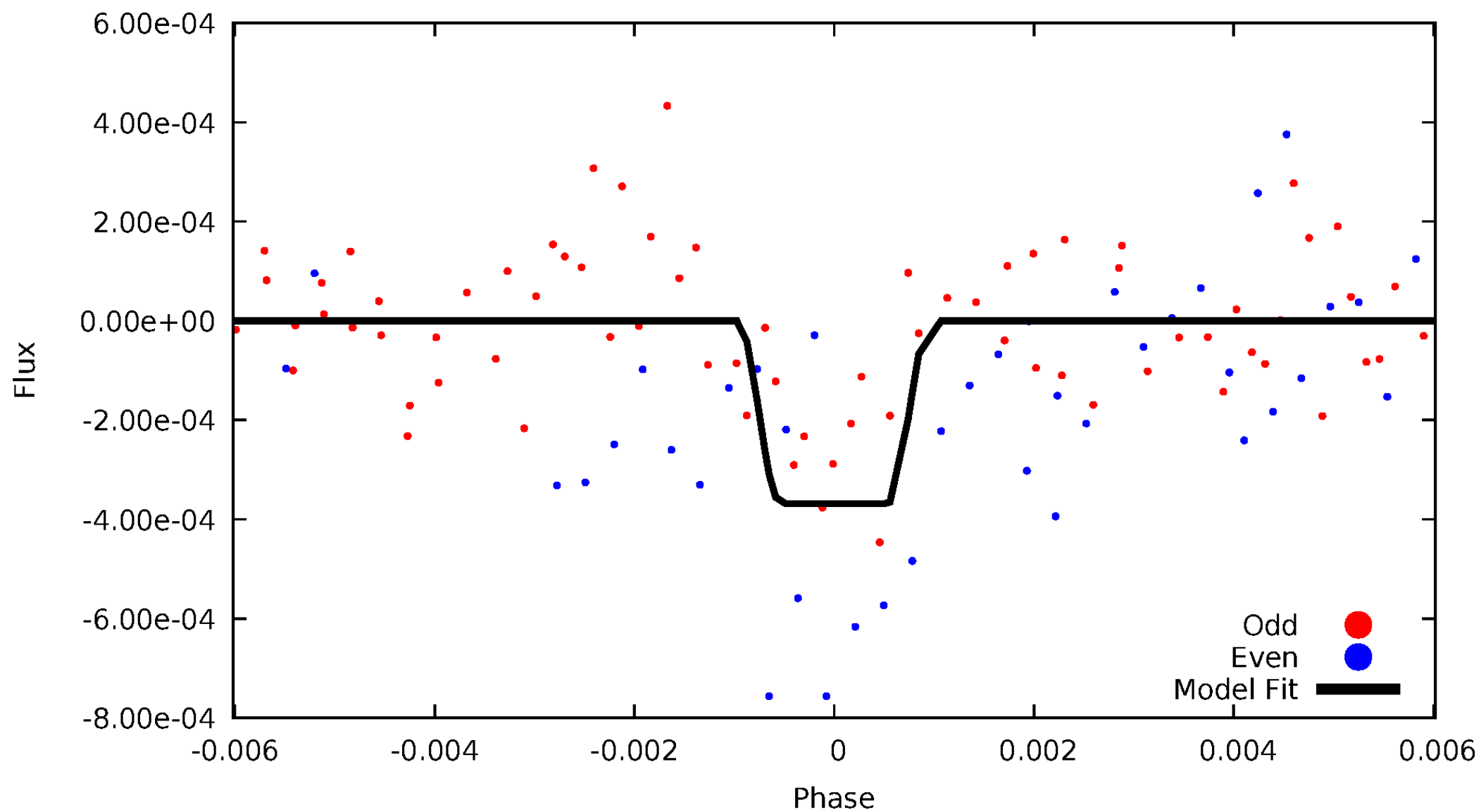
DV Odd/Even

TCE 008984831-08



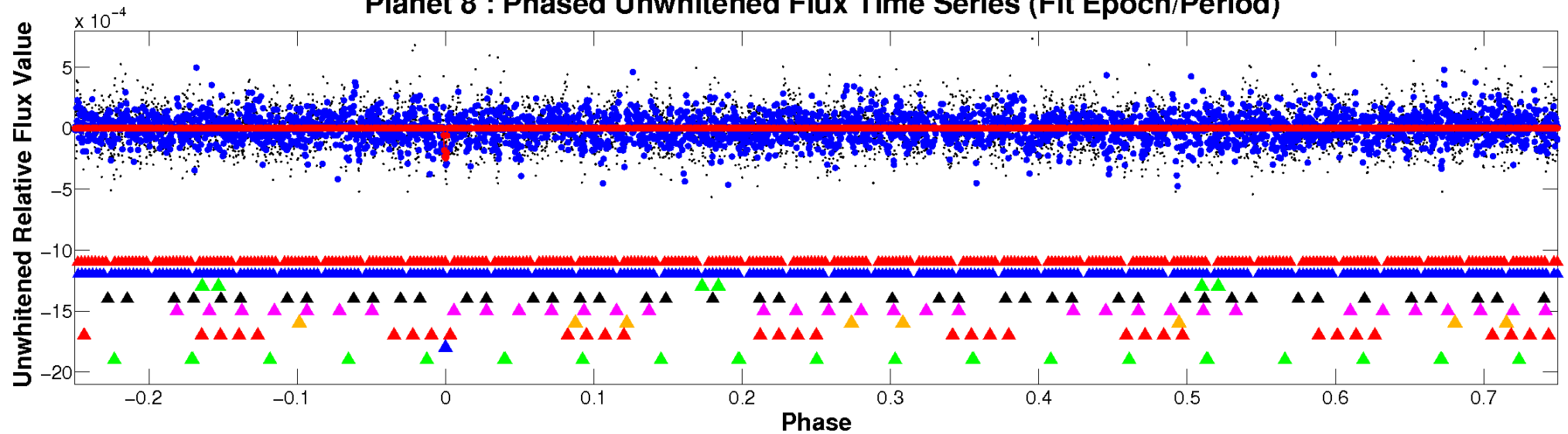
ALT Odd/Even

TCE 008984831-08

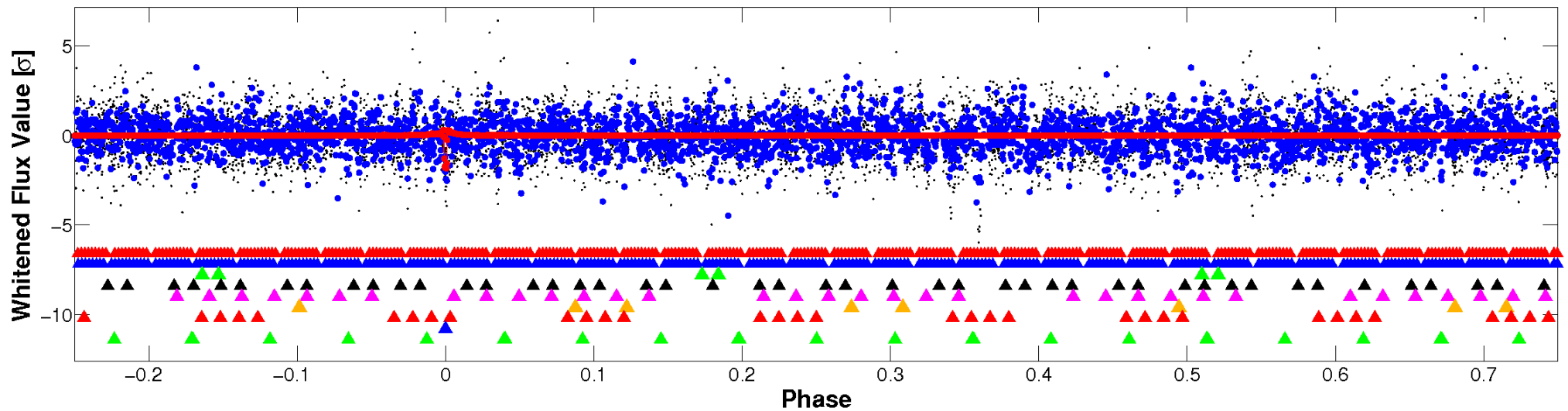


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

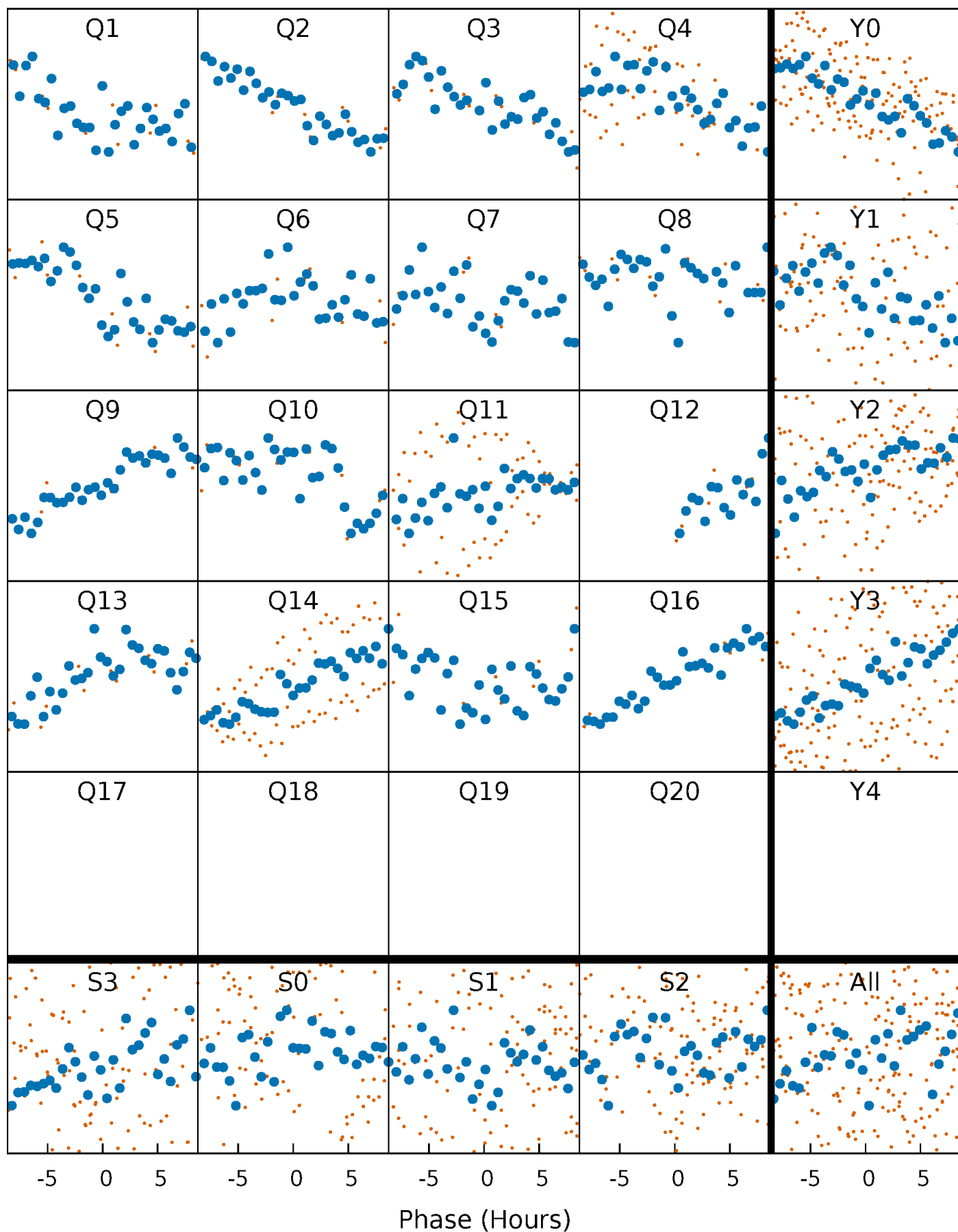


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



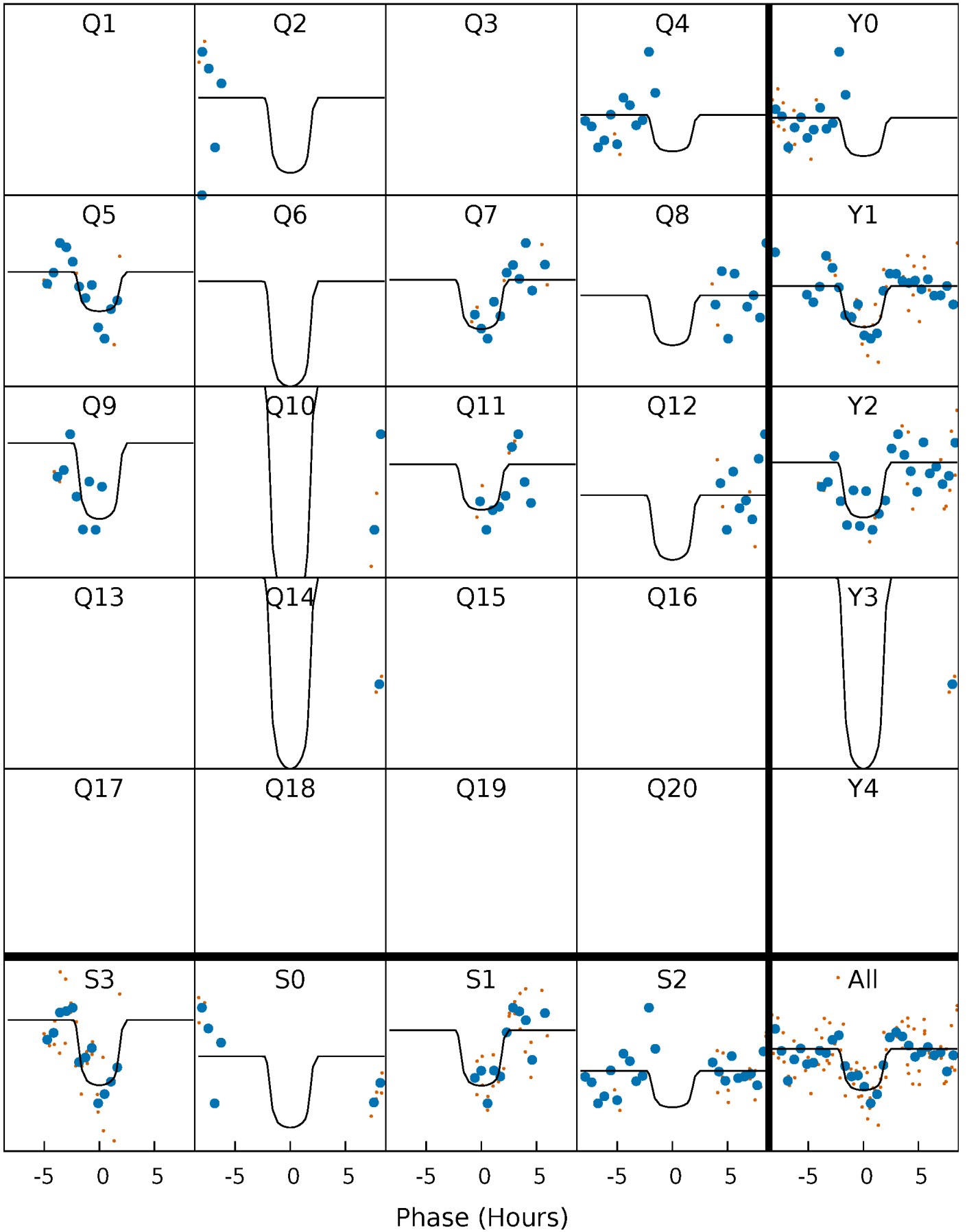
PDC Quarter-Phased Transit Curves

TCE 008984831-08 P= 71.289021 Days $T_0=156.873499$ (BKJD)



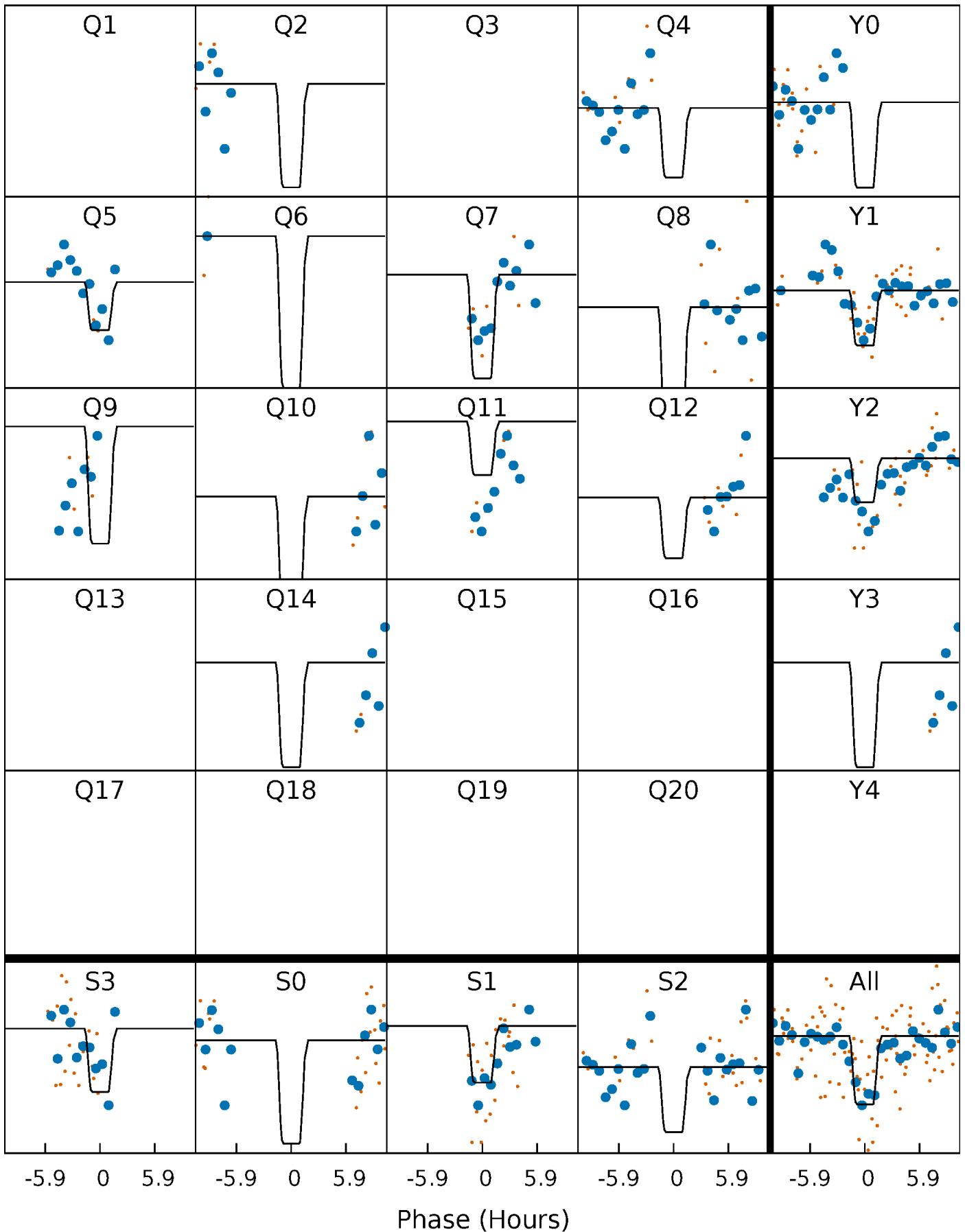
DV Quarter-Phased Transit Curves

TCE 008984831-08 P= 71.289021 Days $T_0=156.873499$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

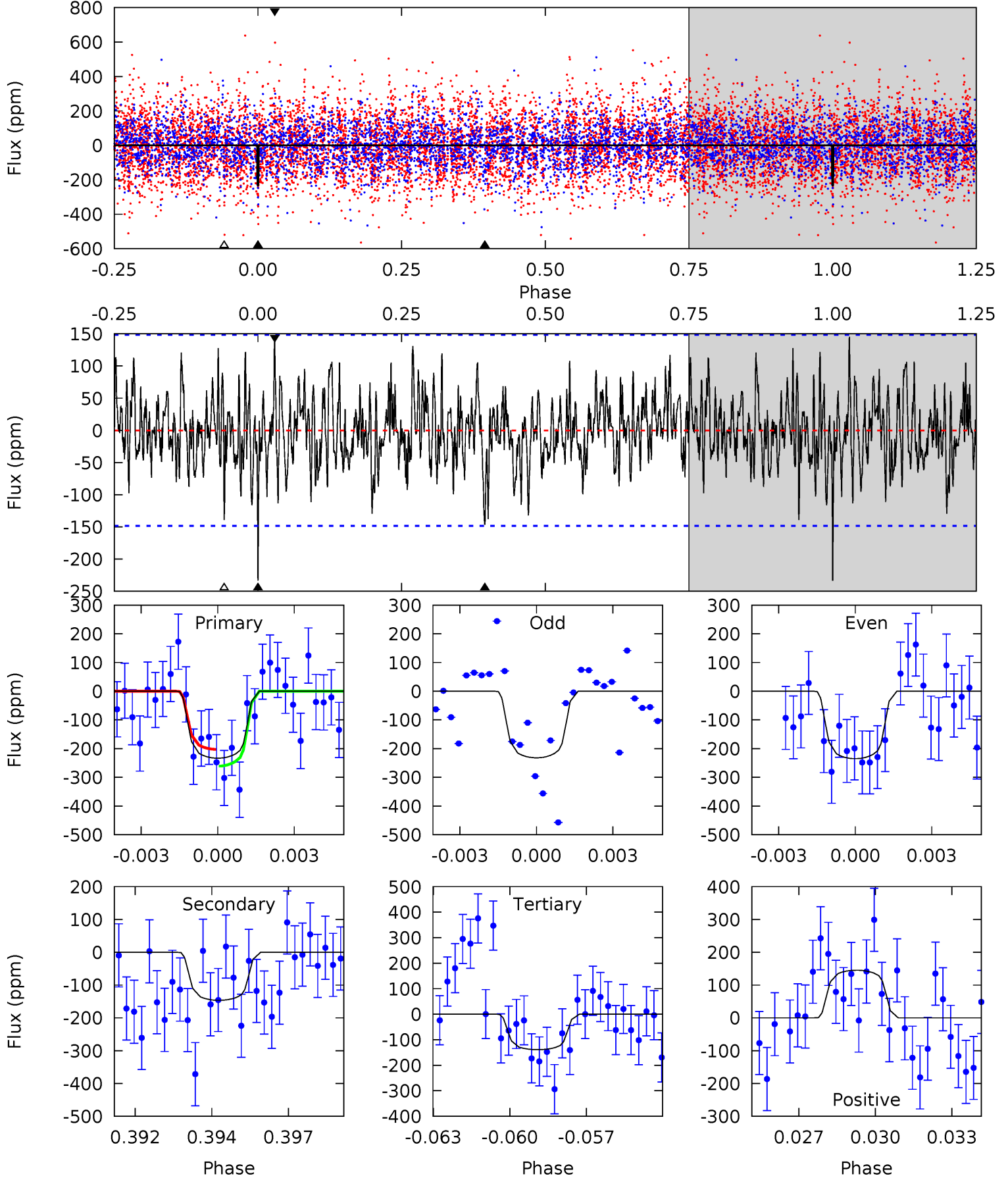
TCE 008984831-08 P= 71.289736 Days $T_0=156.894045$ (BKJD)



DV Model-Shift Uniqueness Test

008984831-08, P = 71.289021 Days, E = 85.584478 Days

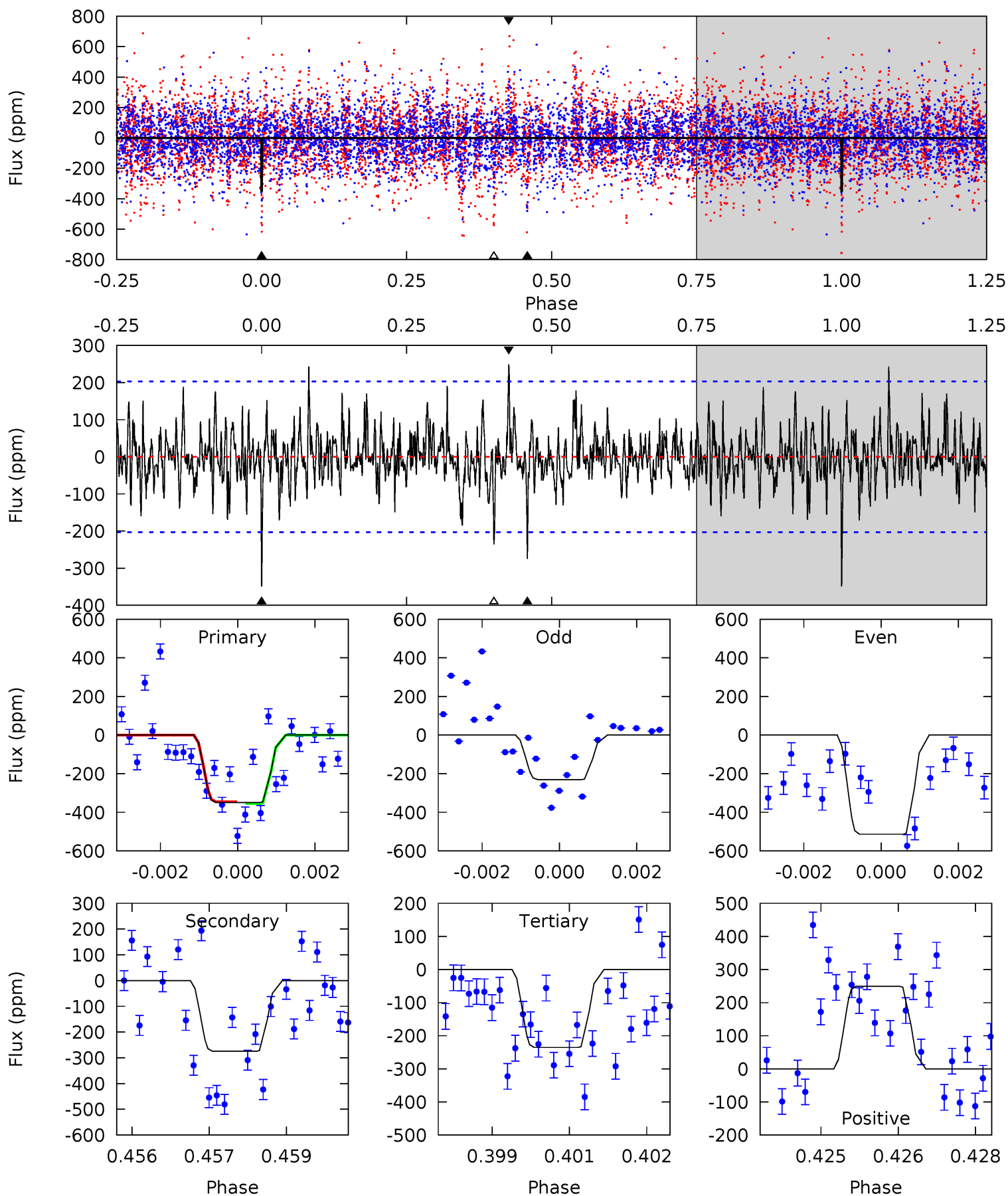
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.29	5.20	4.94	5.16	5.27	3.00	1.59	3.35	3.14	0.27	0.05	0.05	0.60	0.38	1.04



Alt Model-Shift Uniqueness Test

008984831-08, P = 71.289736 Days, E = 85.604309 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.21	7.25	6.21	6.57	5.35	3.13	1.60	3.00	2.64	1.04	0.68	3.72	1.39	0.42	0.11



Stellar Parameters For KIC 008984831

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6493^{+175}_{-214}	$3.820^{+0.456}_{-0.114}$	$-0.180^{+0.250}_{-0.300}$	$2.470^{+0.516}_{-1.203}$	$1.471^{+0.206}_{-0.383}$	$0.138^{+0.631}_{-0.047}$
	+3%/-3%	+12%/-3%	+139%/-167%	+21%/-49%	+14%/-26%	+459%/-34%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008984831-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-146 ± 28	$4.40^{+1.24}_{-1.26}$	993^{+72}_{-118}	5424^{+603}_{-476}	610^{+559}_{-247}
Alt.	-275 ± 38	$4.89^{+1.30}_{-1.33}$	995^{+68}_{-114}	5971^{+647}_{-451}	907^{+757}_{-323}

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 $A_{obs} \gg 1.0$

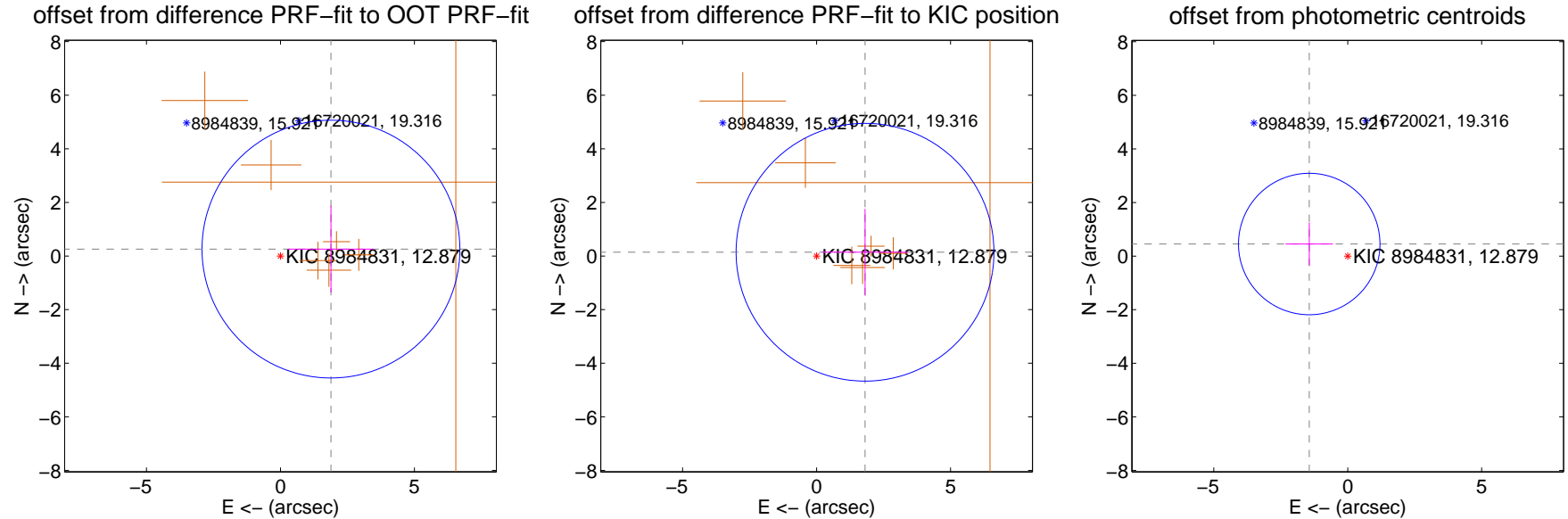
DV Centroid Data

Supplemental centroid analysis for 008984831-08. Kepler magnitude: 12.88. Transit SNR 8.32

There are 0 quarters with good PRF difference image offsets

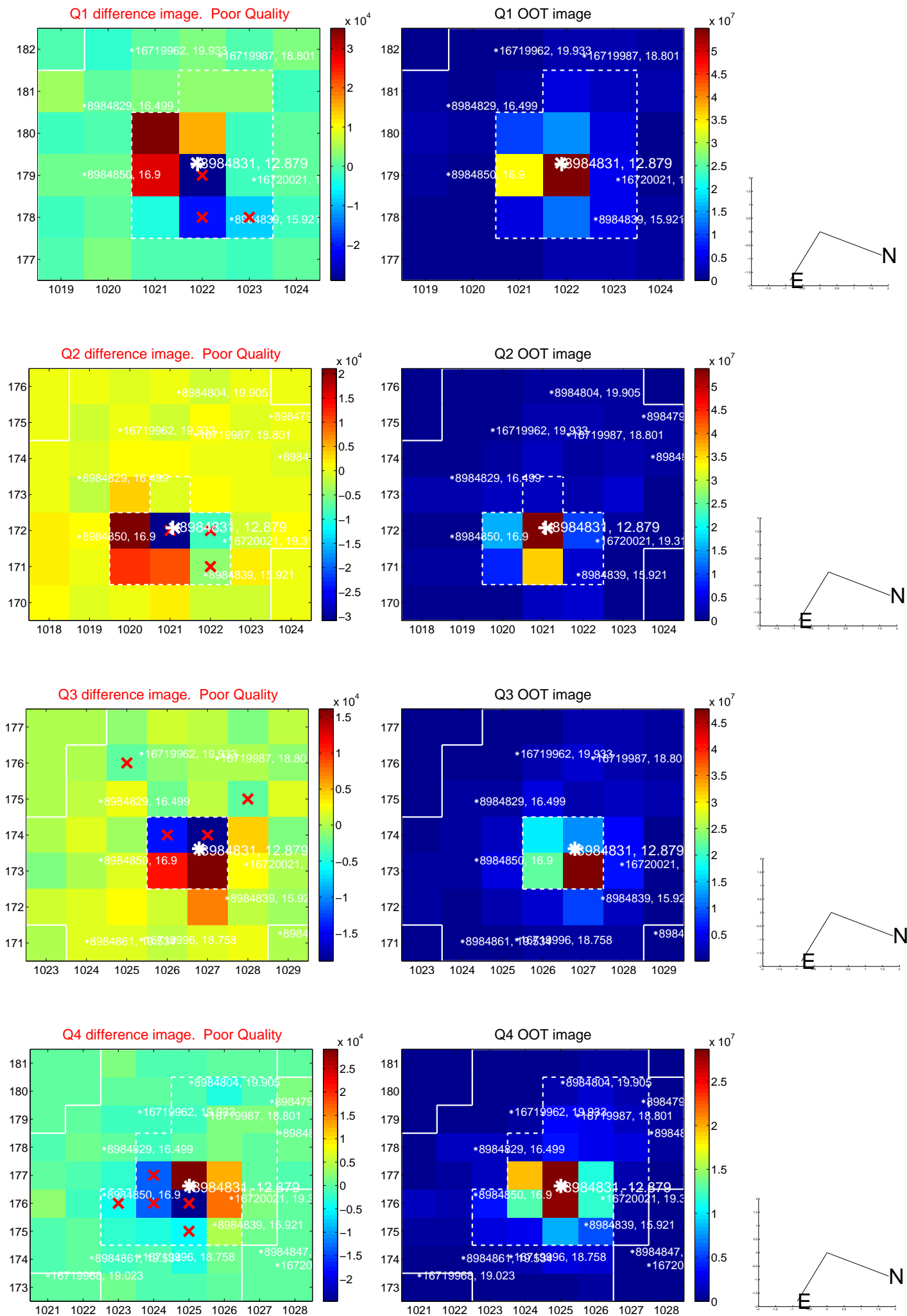
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.901 ± 1.603	1.19	-1.883 ± 1.603	0.259 ± 1.616
PRF-fit source offset from KIC position	1.813 ± 1.603	1.13	-1.807 ± 1.603	0.142 ± 1.616
photometric centroid source offset	1.51 ± 0.88	1.71	1.44 ± 0.89	0.45 ± 0.80

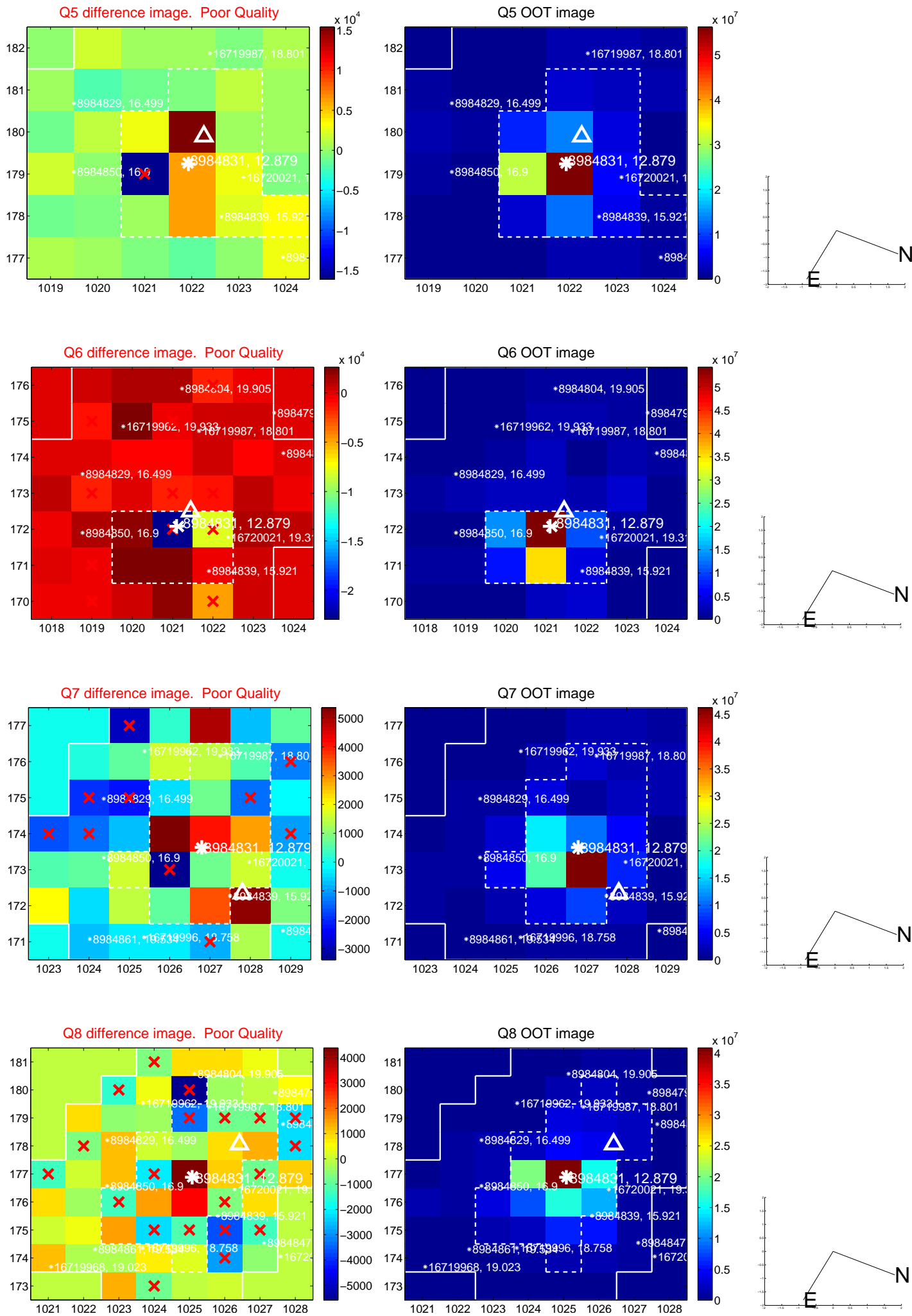


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

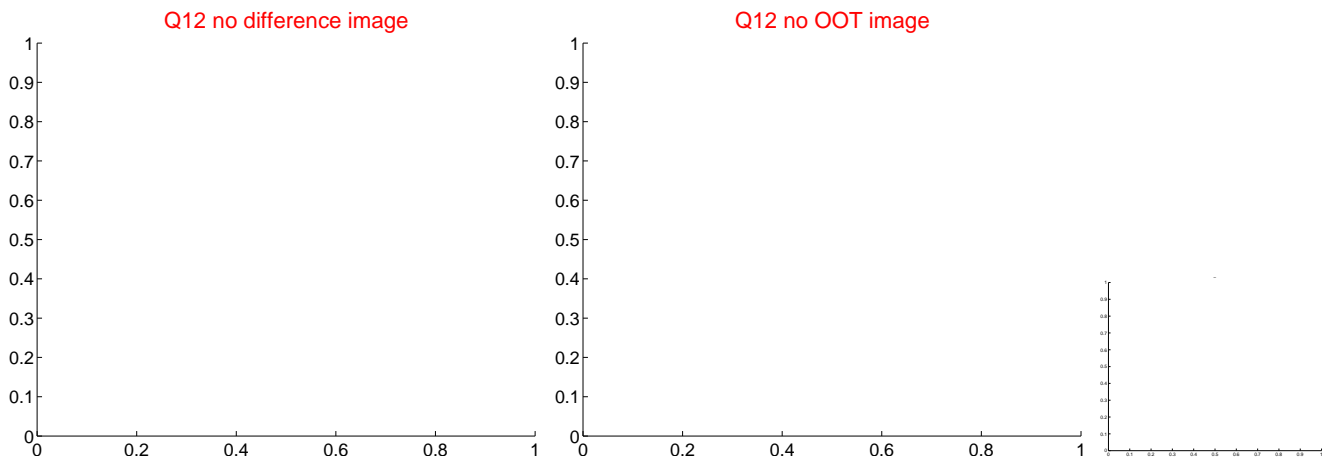
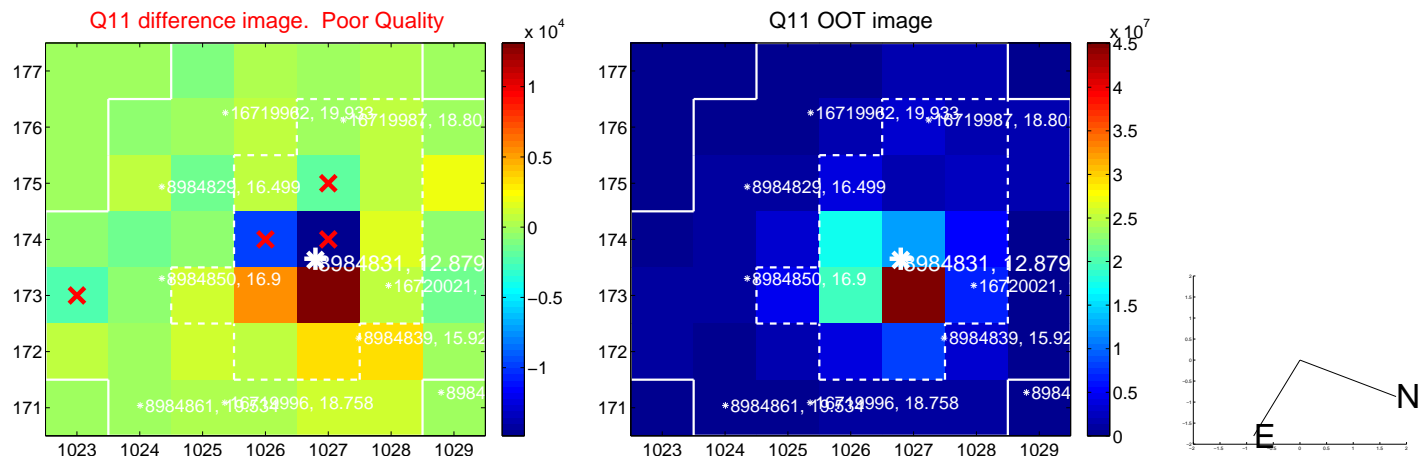
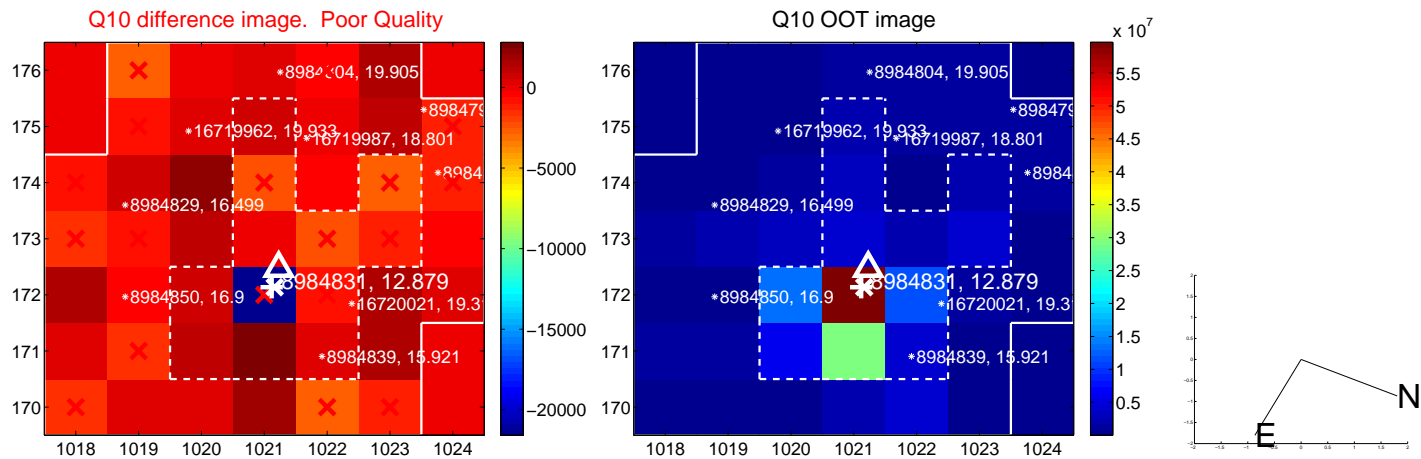
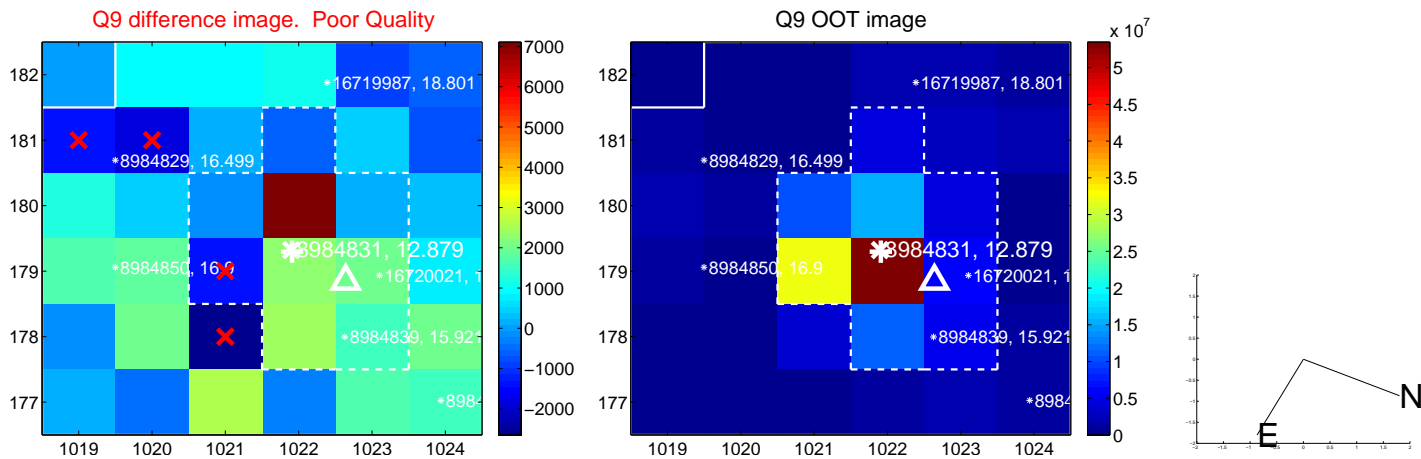
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



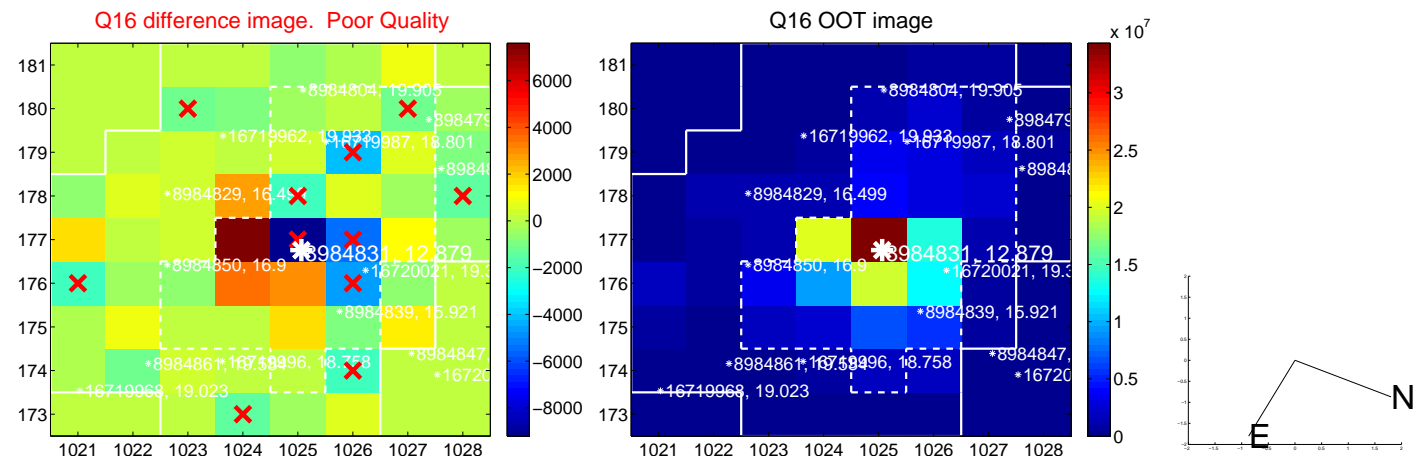
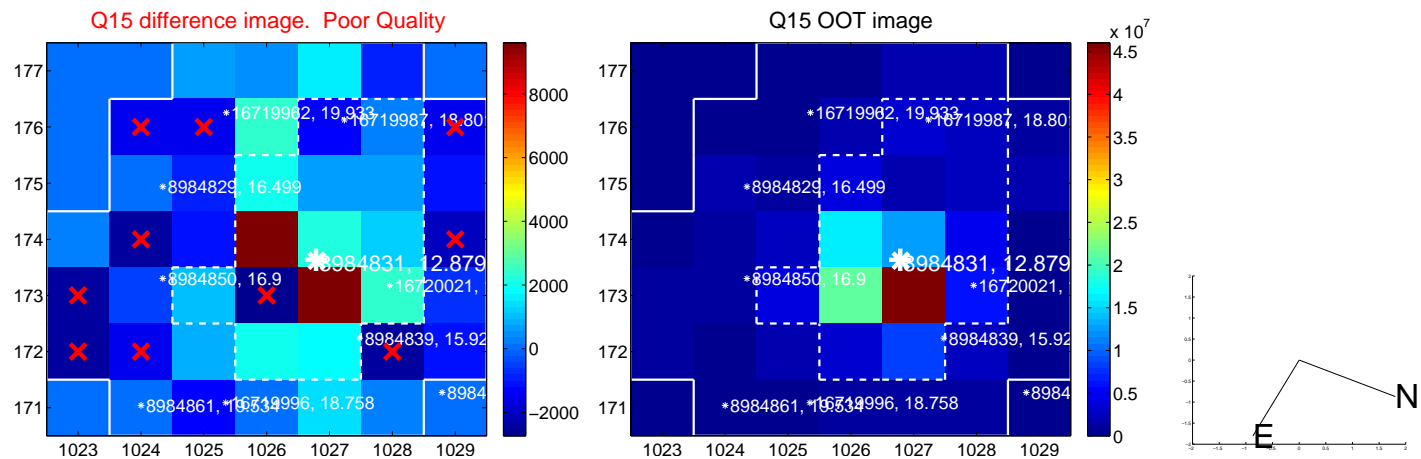
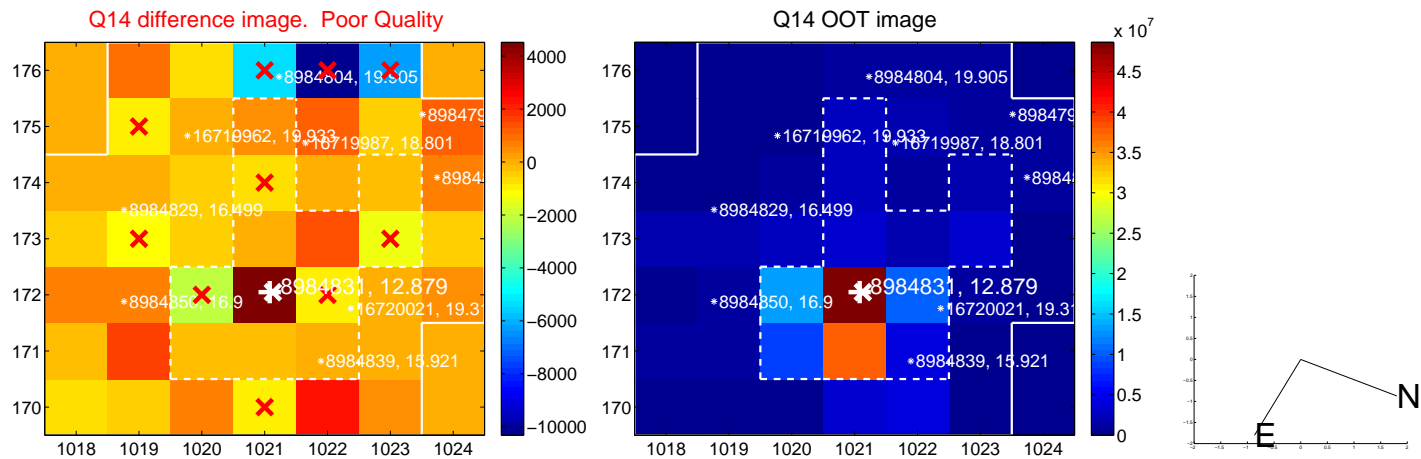
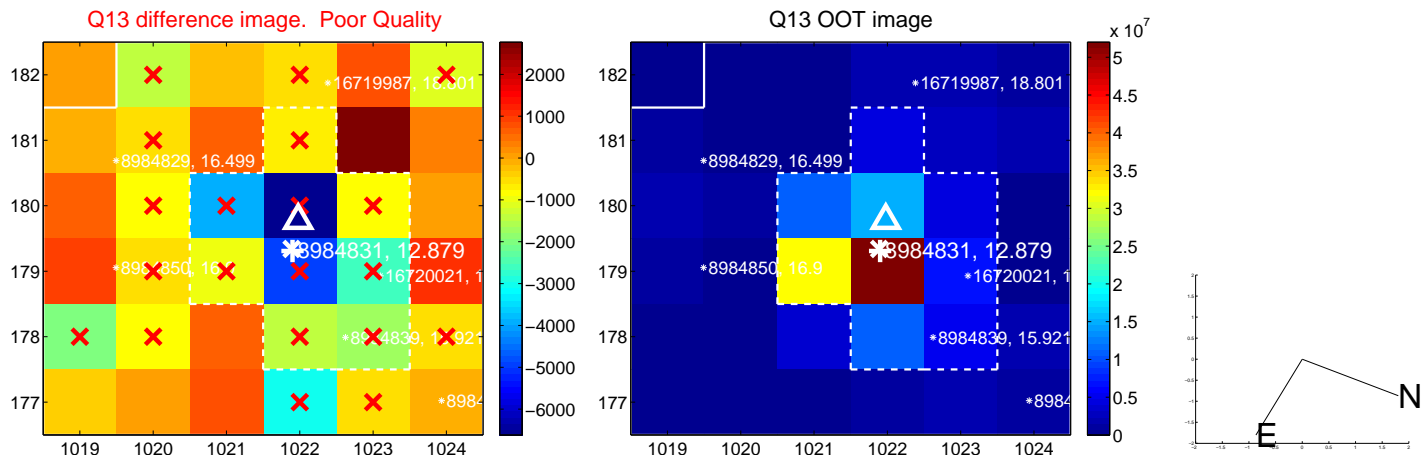
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



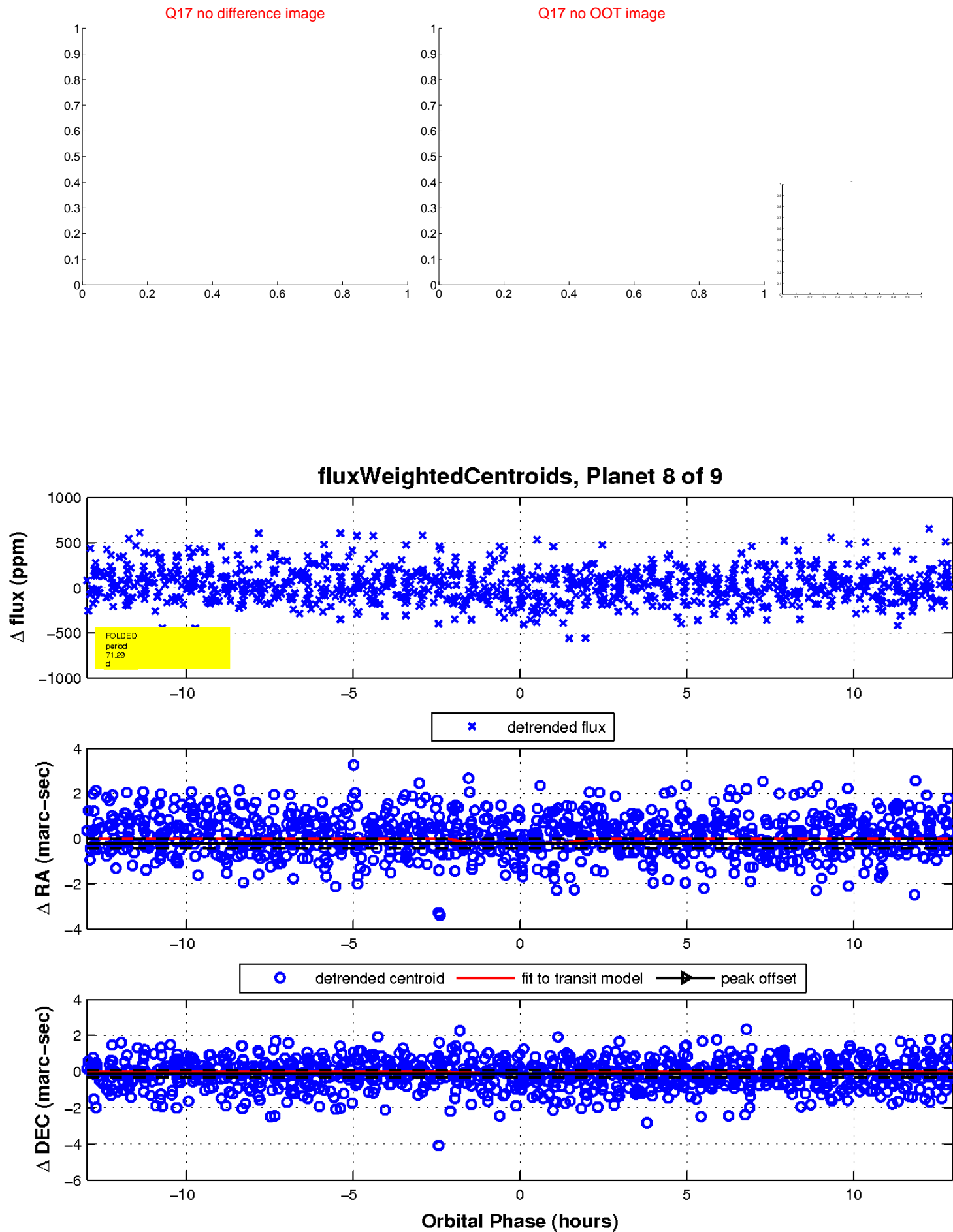
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

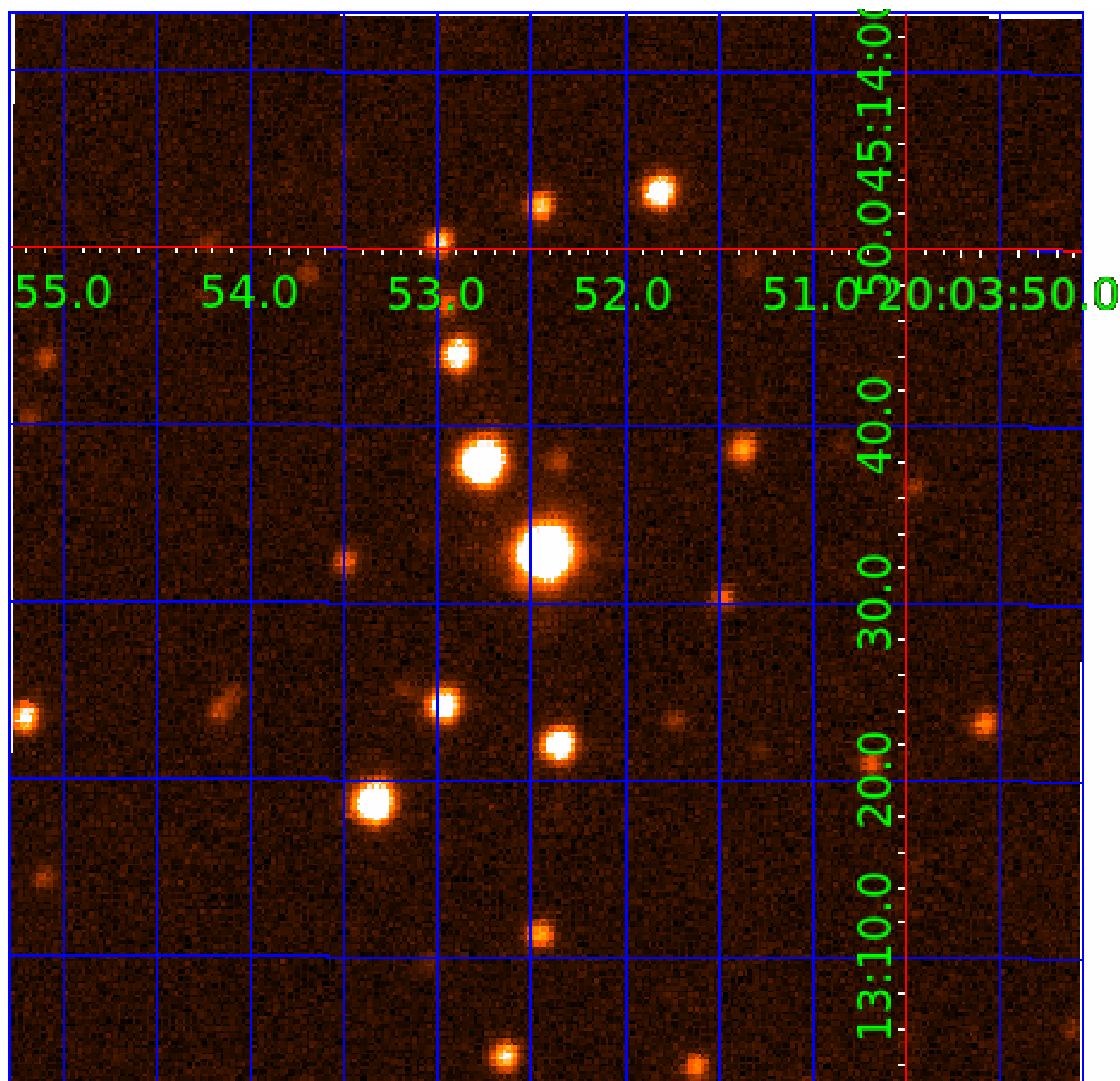


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008984831

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})
008984831-01	OBS	No	4.078493	134.780363	103.0	10.500	10.1	-1.0	2.47	6493	2.52	3009.36
008984831-02	OBS	No	4.078660	132.661047	18.9	17.716	9.8	5.7	2.47	6493	1.25	3009.20
008984831-04	OBS	No	31.329661	162.027744	90.7	2.080	17.0	2.6	2.47	6493	2.74	198.55
008984831-05	OBS	No	43.086047	157.280673	104.9	14.743	17.6	5.0	2.47	6493	2.89	129.82
008984831-08	OBS	No	71.289021	156.873499	246.7	4.335	8.4	8.3	2.47	6493	4.74	66.34
008984831-09	OBS	No	60.035889	144.667774	212.2	4.691	7.9	7.5	2.47	6493	3.99	83.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008984831-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
008984831-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008984831-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008984831-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008984831-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
008984831-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

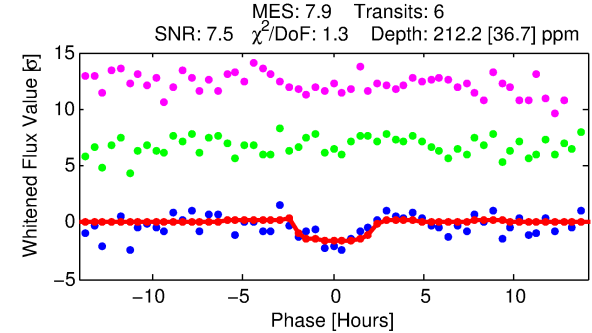
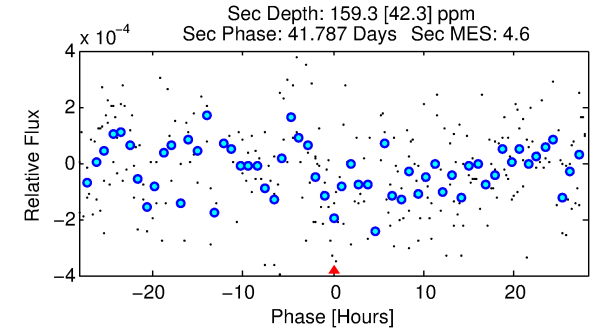
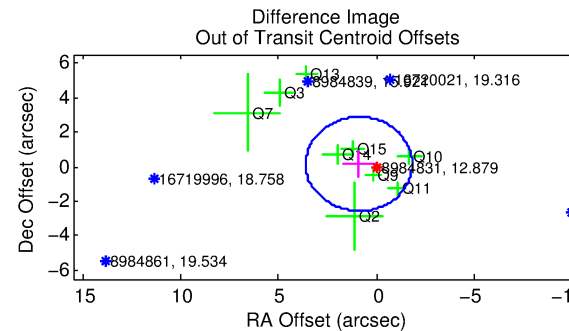
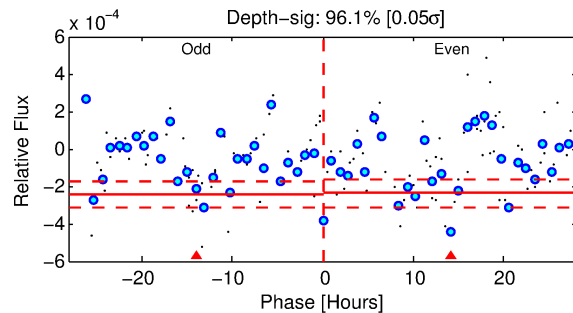
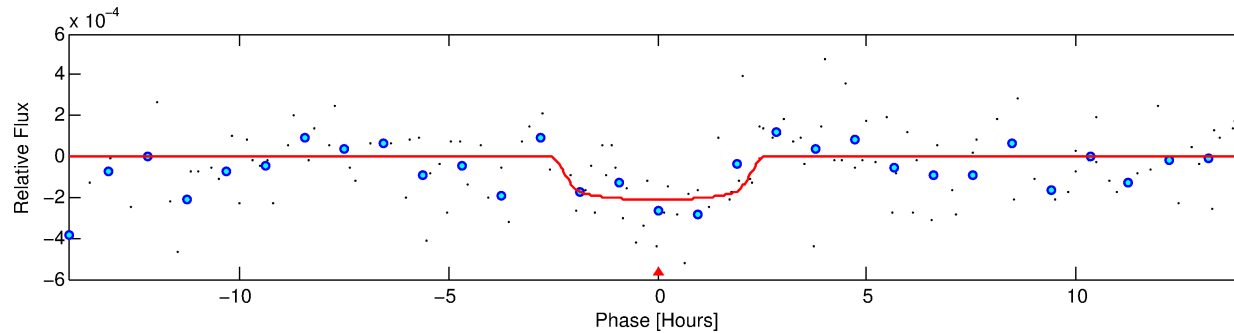
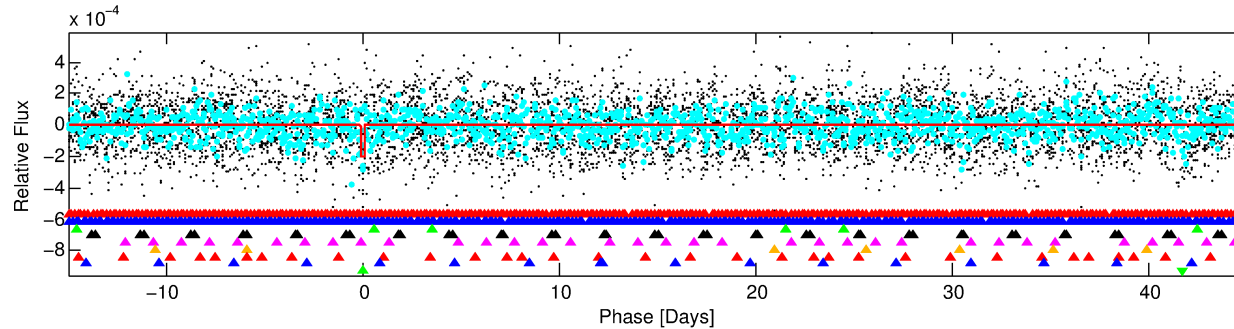
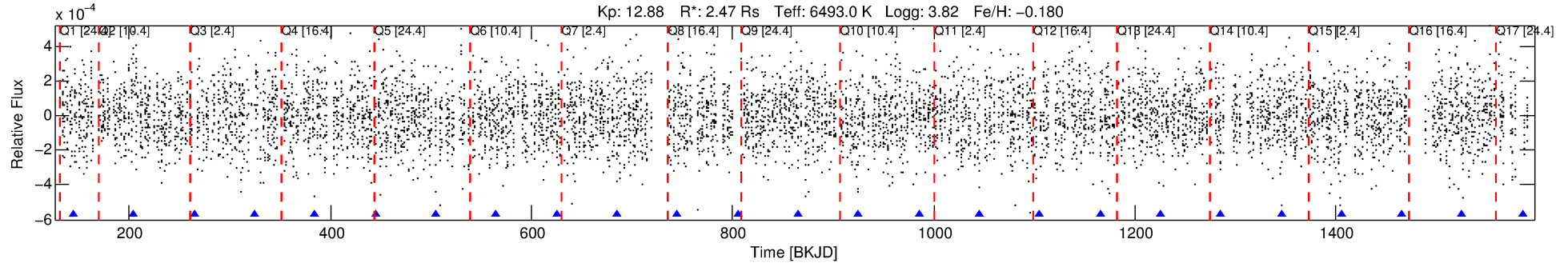
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008984831-09

No Significant Match Found

DV One-Page Summary

KIC: 8984831 Candidate: 9 of 9 Period: 60.036 d



DV Fit Results:

Period = 60.03589 [0.00298] d
Epoch = 144.6678 [0.0344] BKJD
Rp/R* = 0.0148 [0.0229]
a/R* = 59.75 [519.28]
b = 0.81 [3.71]
Seff = 83.42 [65.30]
Teq = 771 [151] K
Rp = 3.99 [6.47] Re
a = 0.3413 [0.1629] AU
Ag = 640.79 [2050.80] [0.31 σ]
Teffp = 5995 [4659] K [1.12 σ]

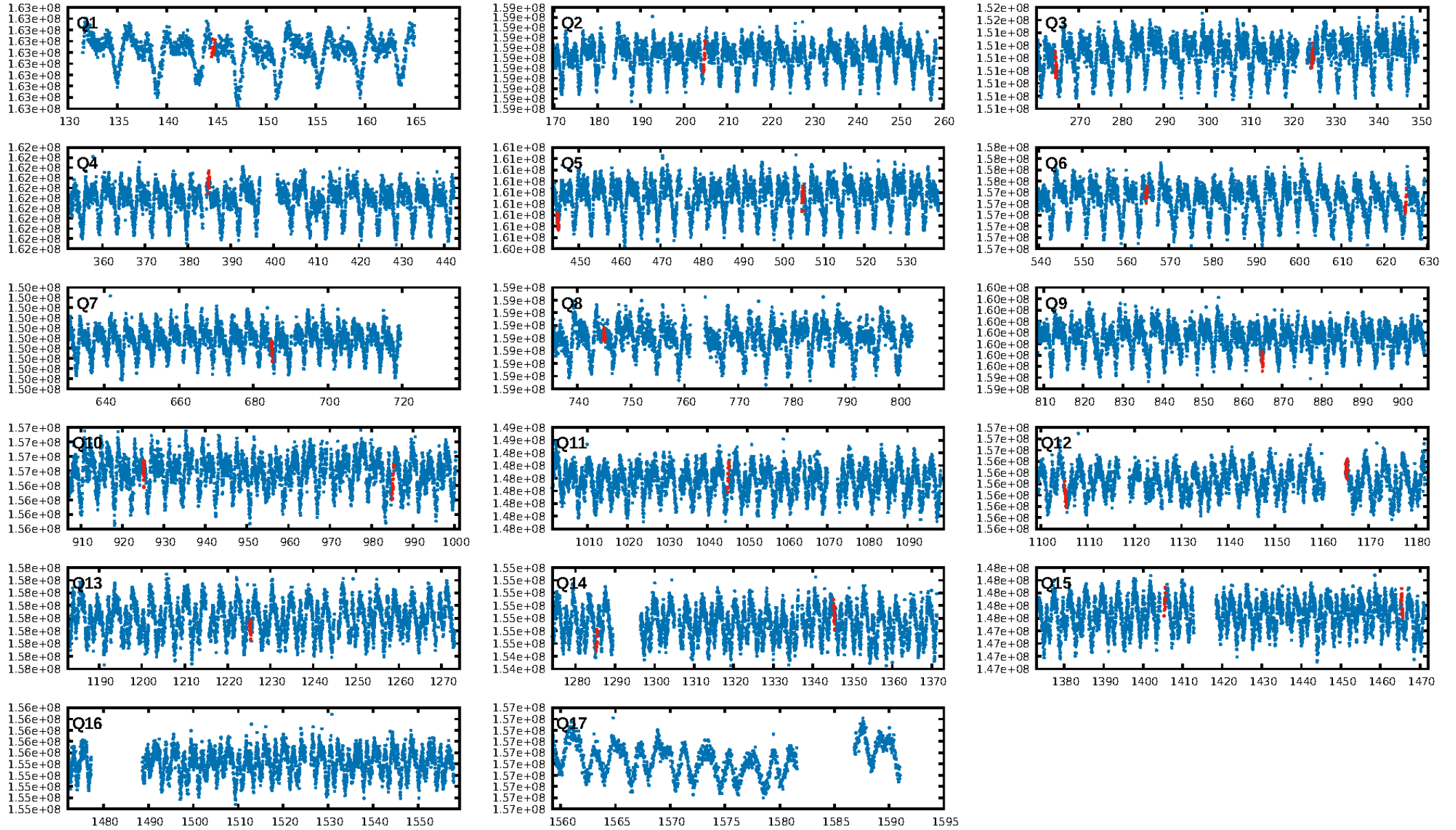
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [58.01 σ]
LongPeriod-sig: 100.0% [42.28 σ]
ModelChiSquare2-sig: 37.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.25e-08
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -1.492
Centroid-sig: 0.1%
Centroid-so: 1.705 arcsec [2.07 σ]
OotOffset-rm: 0.913 arcsec [1.01 σ]
KicOffset-rm: 0.934 arcsec [1.09 σ]
OotOffset-st: 3/4/0/2 [9]
KicOffset-st: 3/4/0/2 [9]
DiffImageQuality-fgm: 0.33 [3/9]
DiffImageOverlap-fno: 0.14 [2/14]

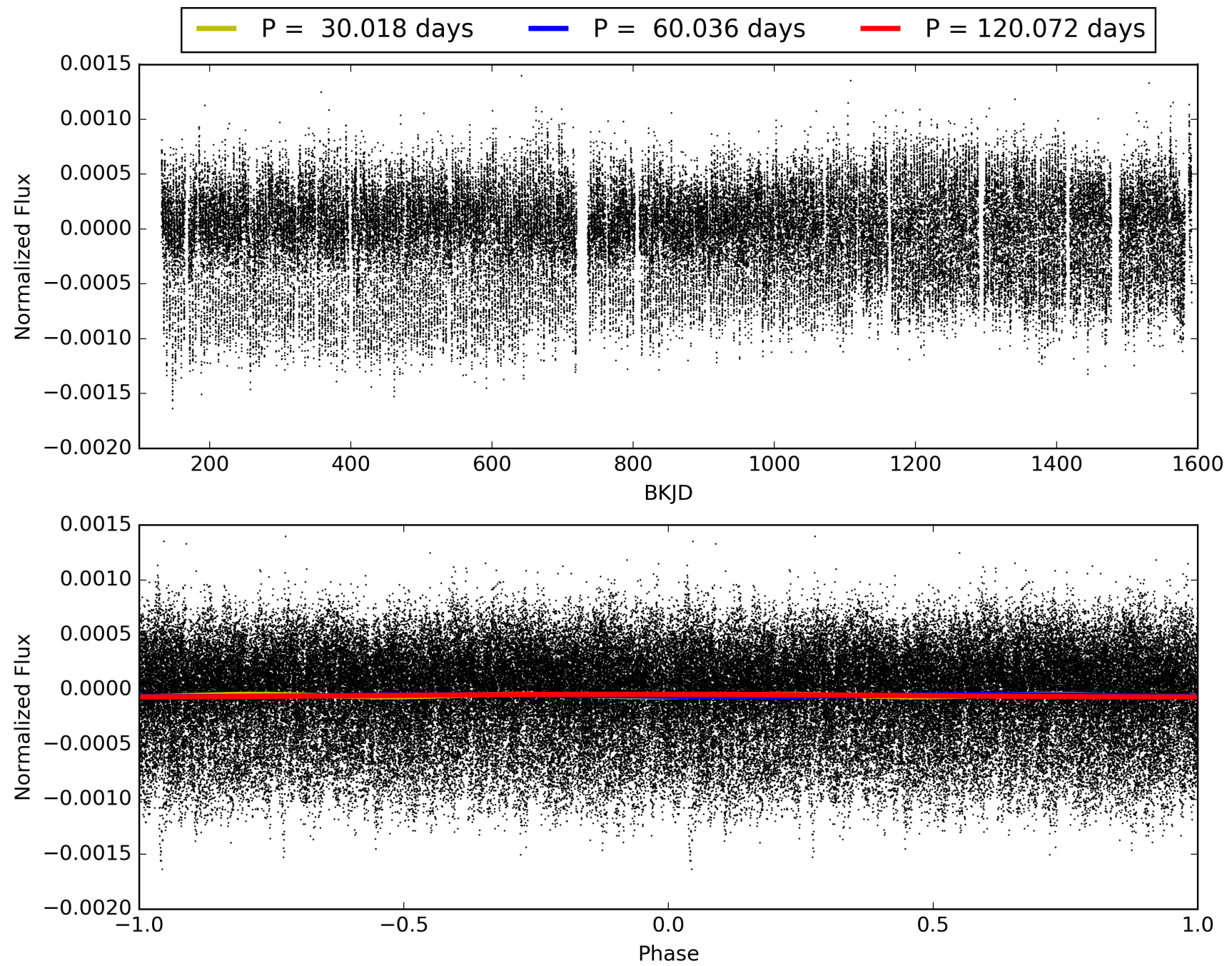
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:04:39 Z

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

TCE 008984831-09, PDC Light Curves

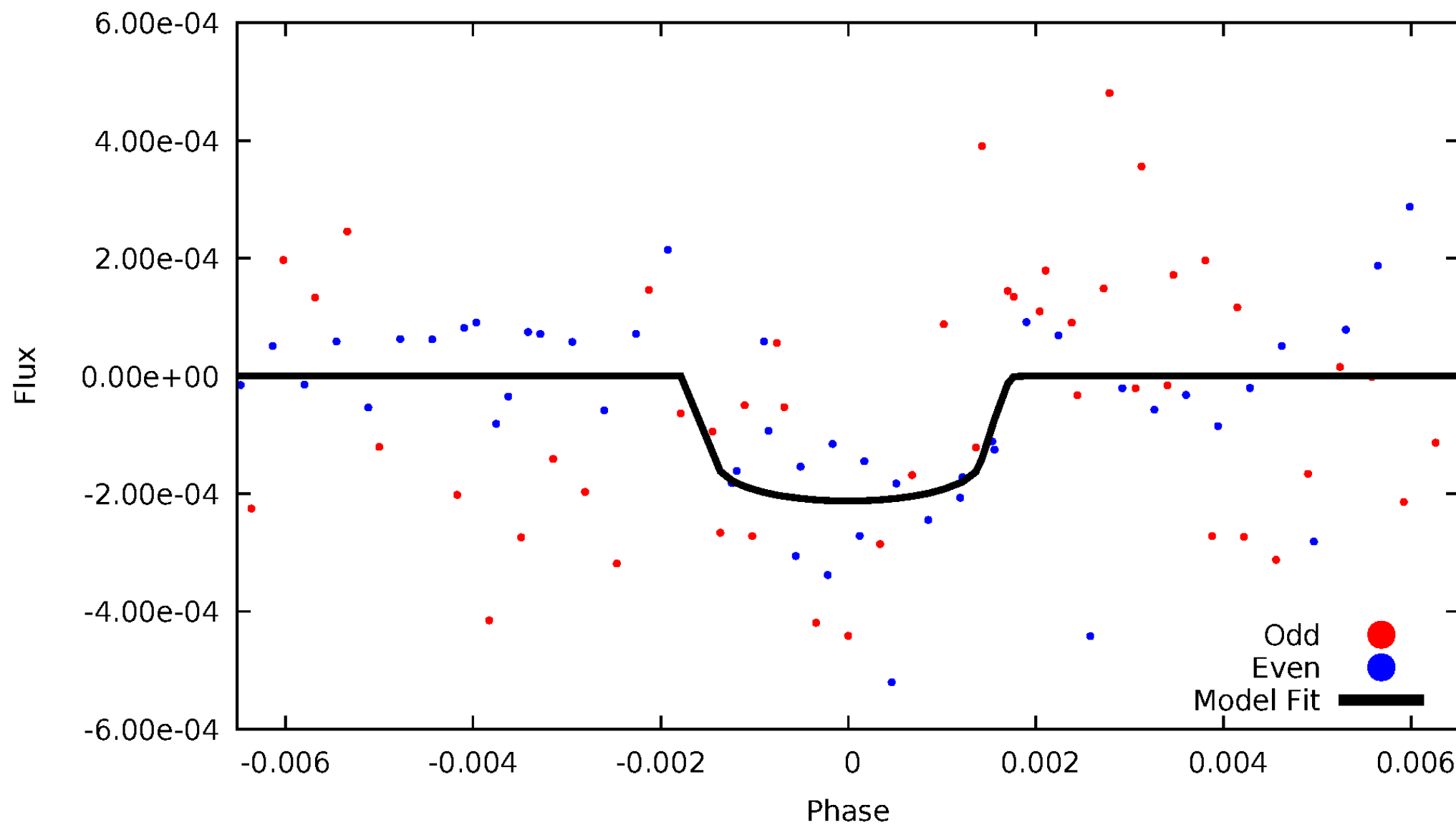


TCE 008984831-09



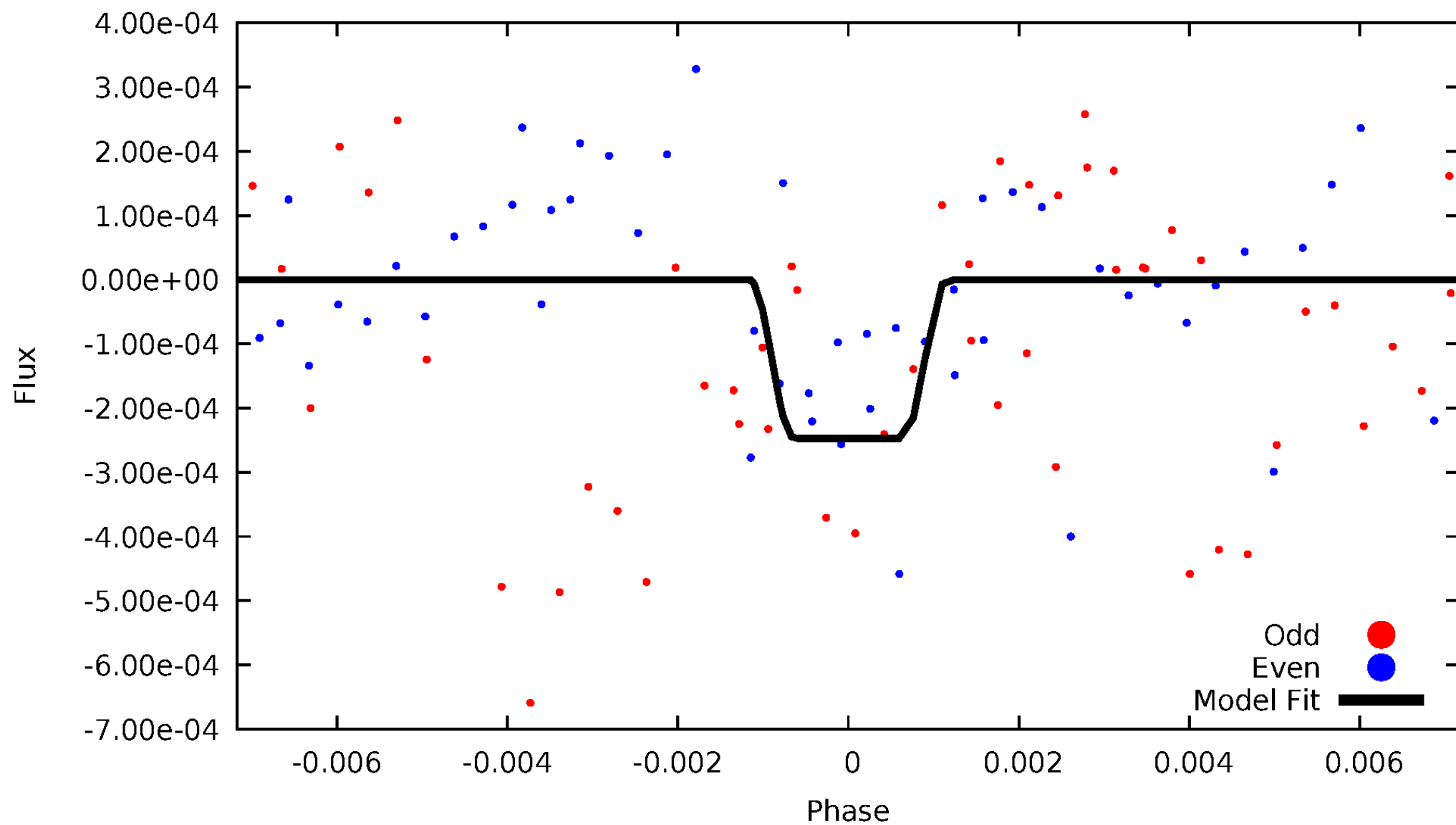
DV Odd/Even

TCE 008984831-09



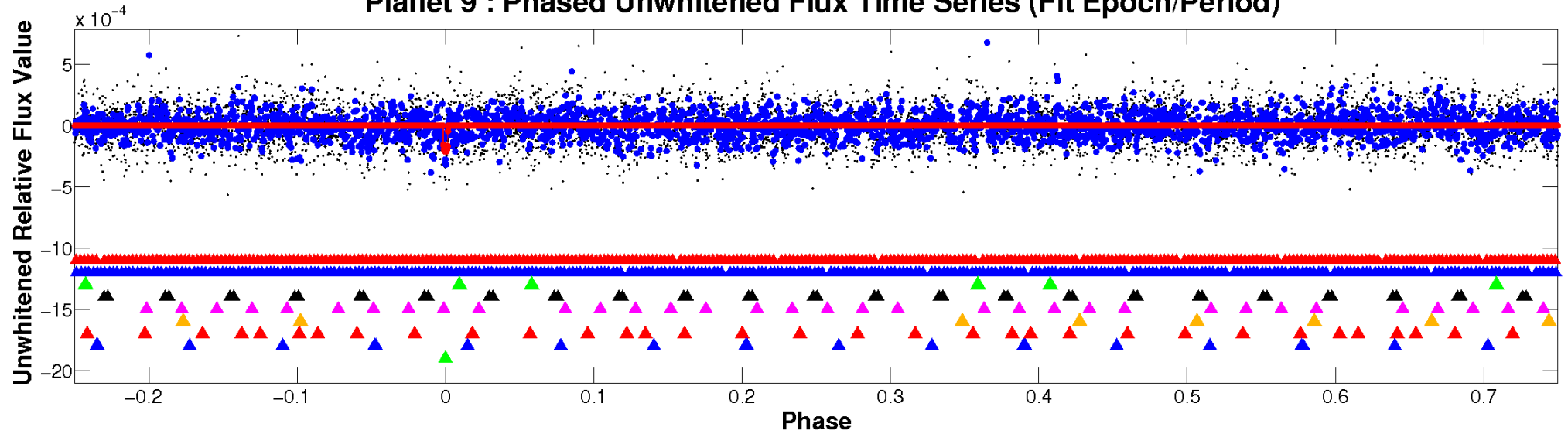
ALT Odd/Even

TCE 008984831-09

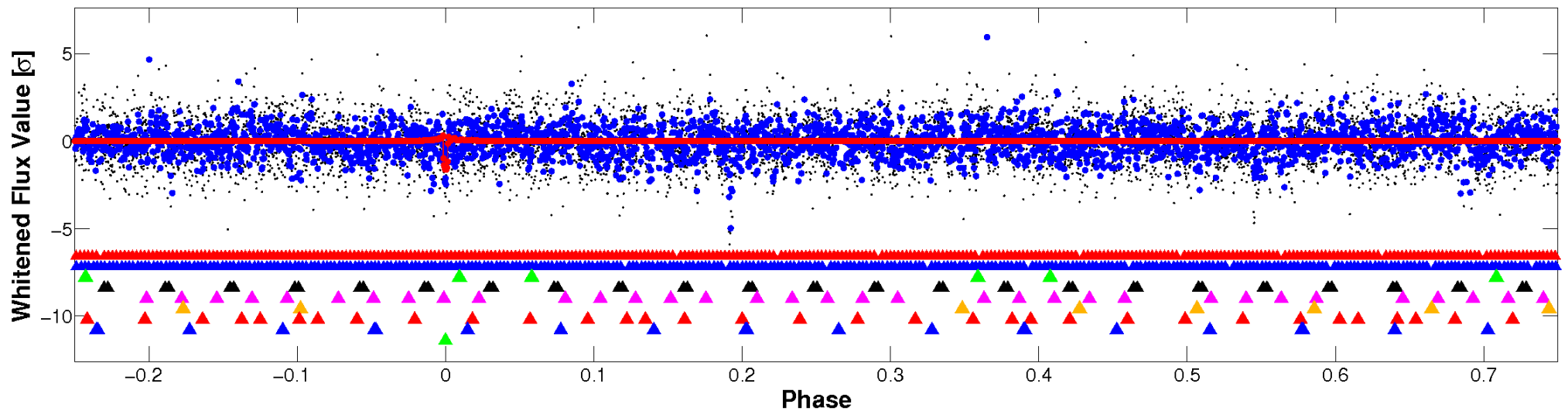


Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

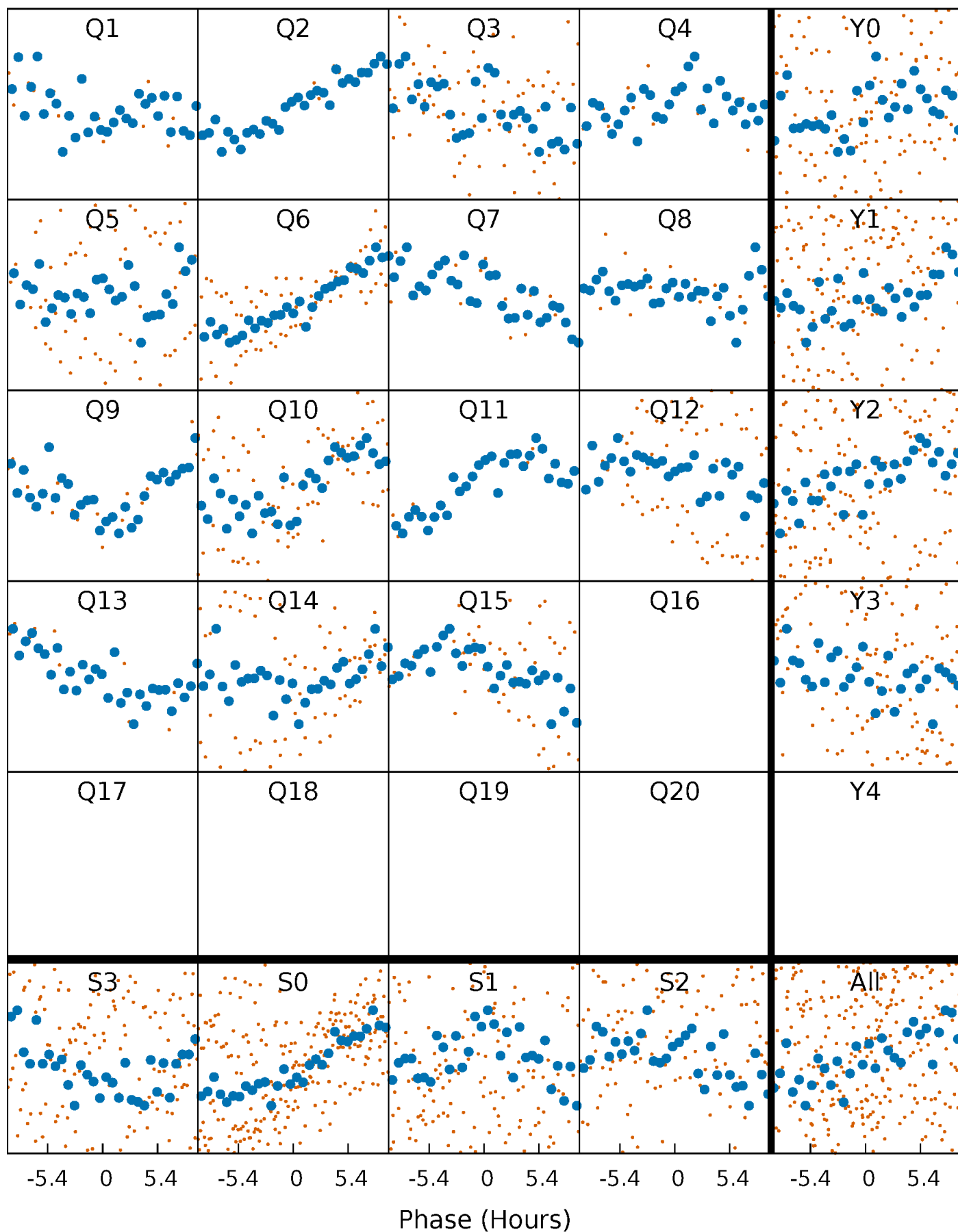


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



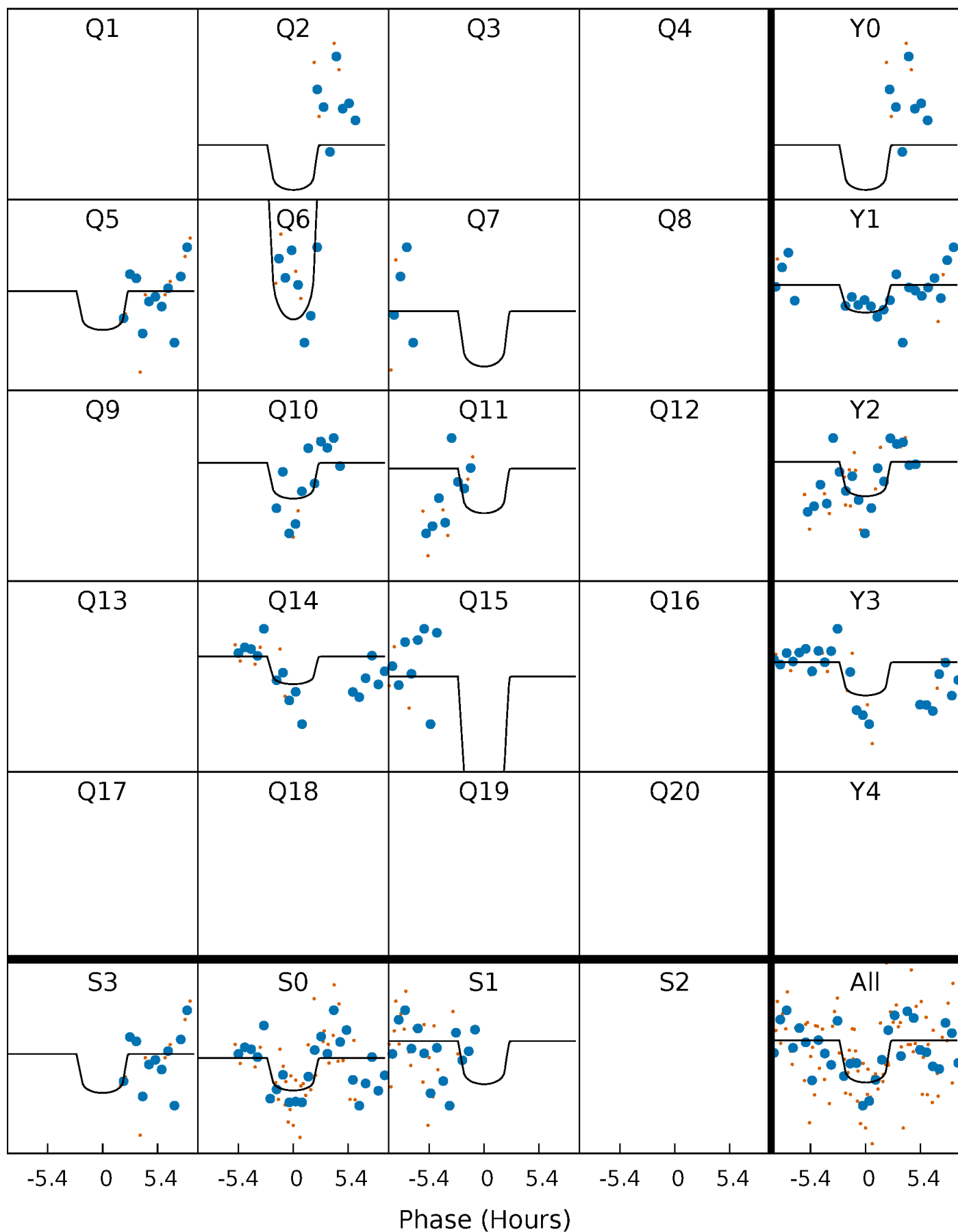
PDC Quarter-Phased Transit Curves

TCE 008984831-09 $P = 60.035889$ Days $T_0 = 144.667774$ (BKJD)



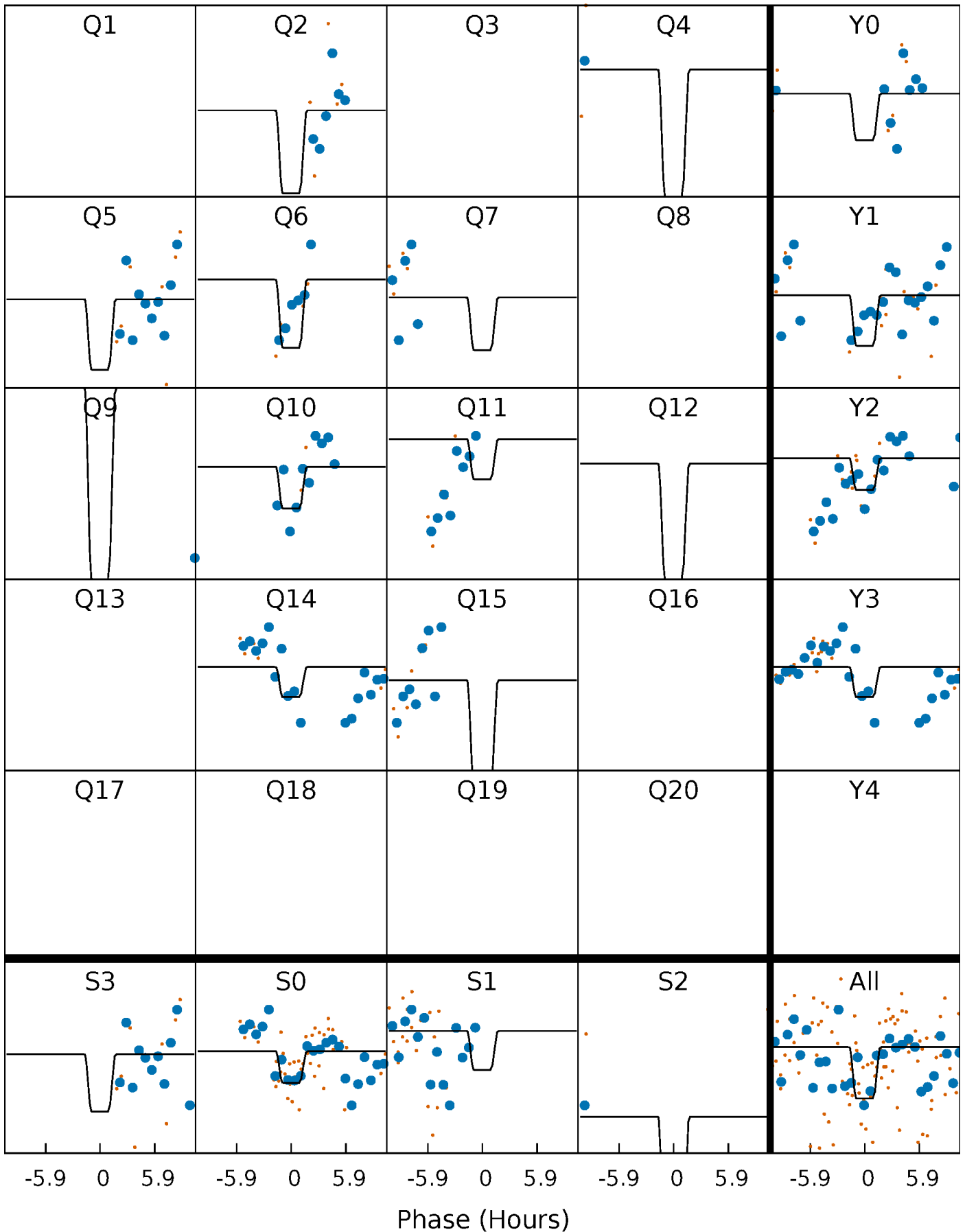
DV Quarter-Phased Transit Curves

TCE 008984831-09 $P = 60.035889$ Days $T_0 = 144.667774$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

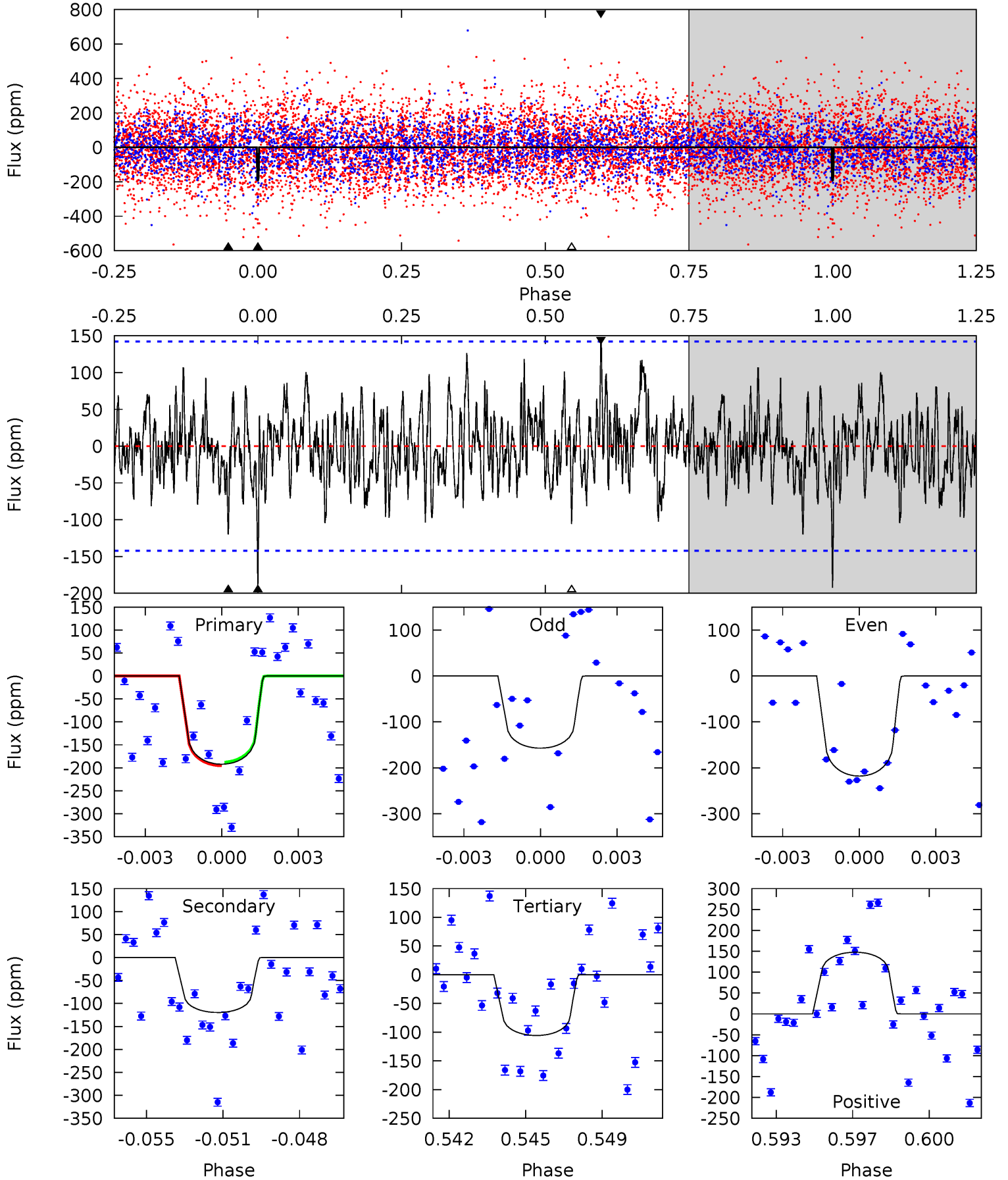
TCE 008984831-09 P= 60.035436 Days $T_0=144.668662$ (BKJD)



DV Model-Shift Uniqueness Test

008984831-09, P = 60.035889 Days, E = 84.631885 Days

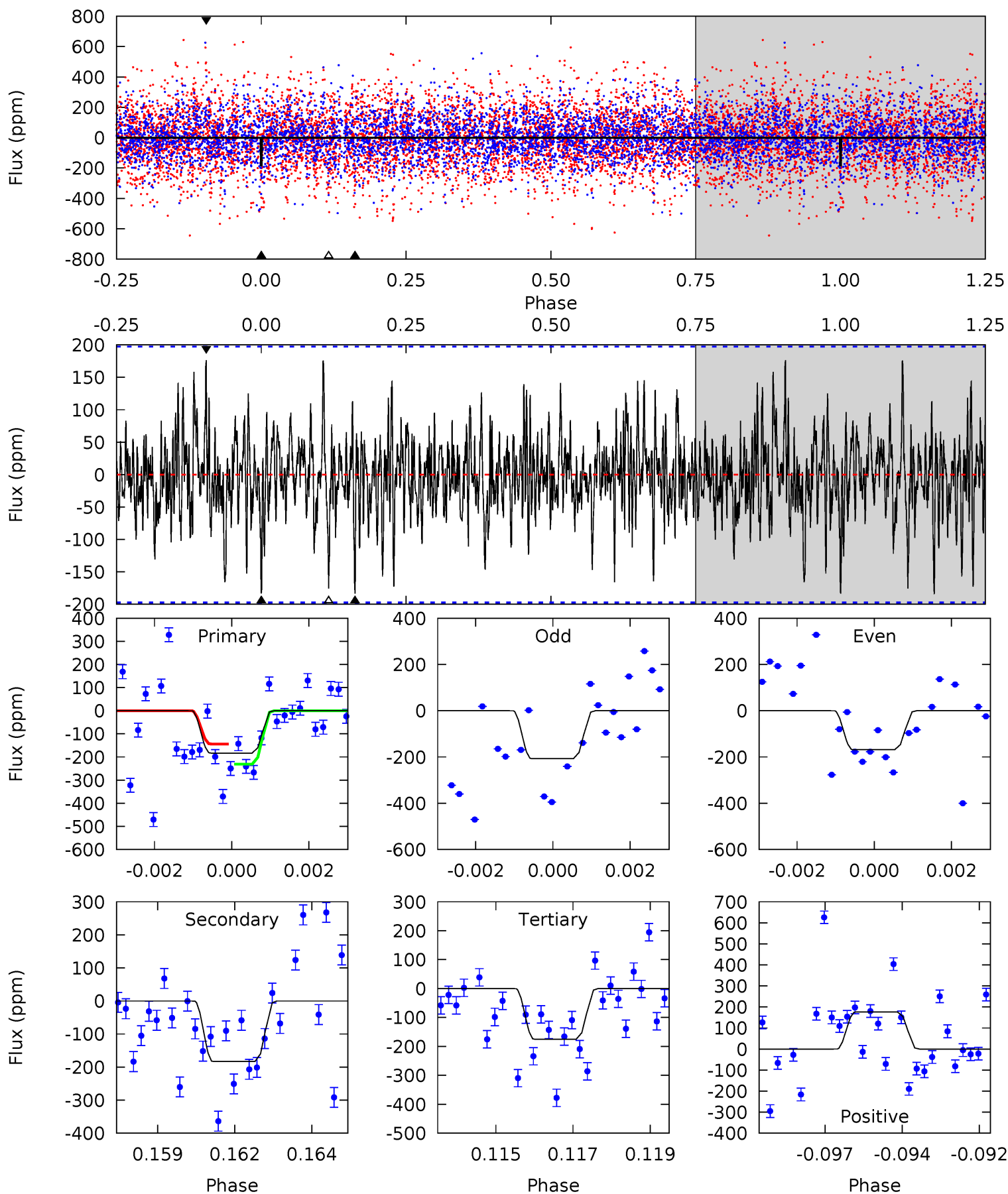
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.09	4.41	3.90	5.45	5.24	2.95	1.52	3.19	1.64	0.51	-1.03	1.10	0.29	0.43	0.14



Alt Model-Shift Uniqueness Test

008984831-09, P = 60.035436 Days, E = 84.633226 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.93	4.93	4.71	4.74	5.31	3.06	1.40	0.22	0.19	0.21	0.19	0.51	0.87	0.49	1.15



Stellar Parameters For KIC 008984831

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6493^{+175}_{-214}	$3.820^{+0.456}_{-0.114}$	$-0.180^{+0.250}_{-0.300}$	$2.470^{+0.516}_{-1.203}$	$1.471^{+0.206}_{-0.383}$	$0.138^{+0.631}_{-0.047}$
	+3%/-3%	+12%/-3%	+139%/-167%	+21%/-49%	+14%/-26%	+459%/-34%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008984831-09 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-120 ± 27	$5.42^{+4.87}_{-3.50}$	1046^{+74}_{-118}	4621^{+2913}_{-890}	257^{+1708}_{-187}
Alt.	-183 ± 37	$5.26^{+5.24}_{-3.55}$	1043^{+82}_{-127}	5104^{+4036}_{-1186}	419^{+3244}_{-321}

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

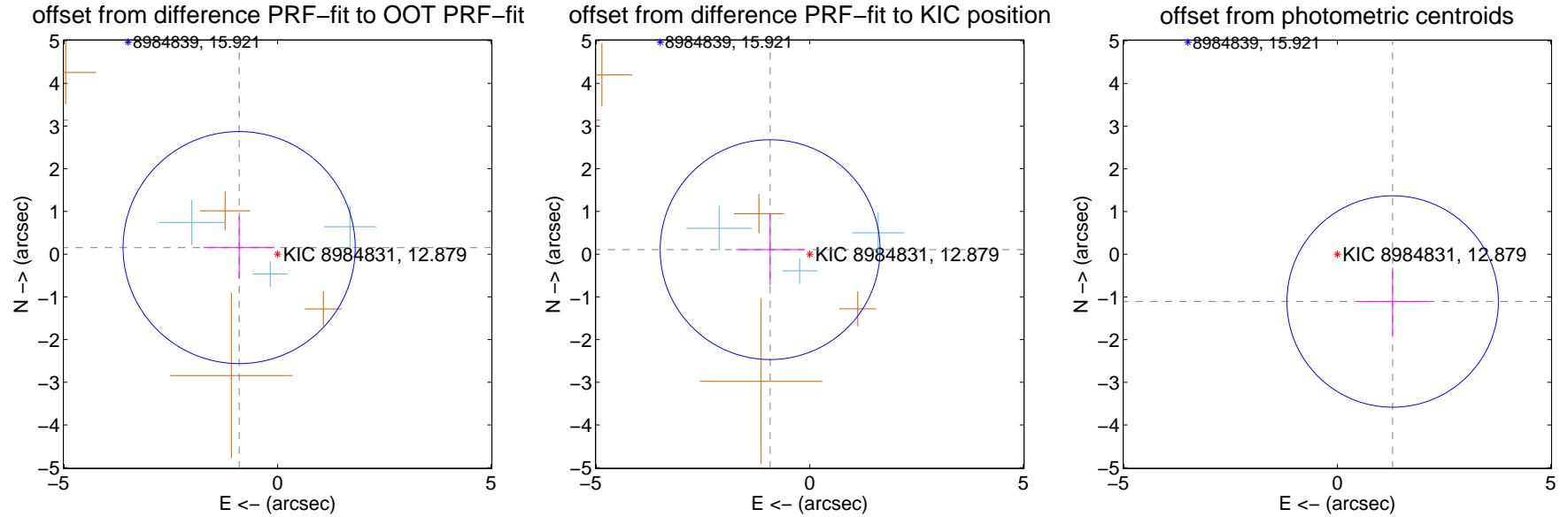
DV Centroid Data

Supplemental centroid analysis for 008984831-09. Kepler magnitude: 12.88. Transit SNR 7.53

There are 3 quarters with good PRF difference image offsets

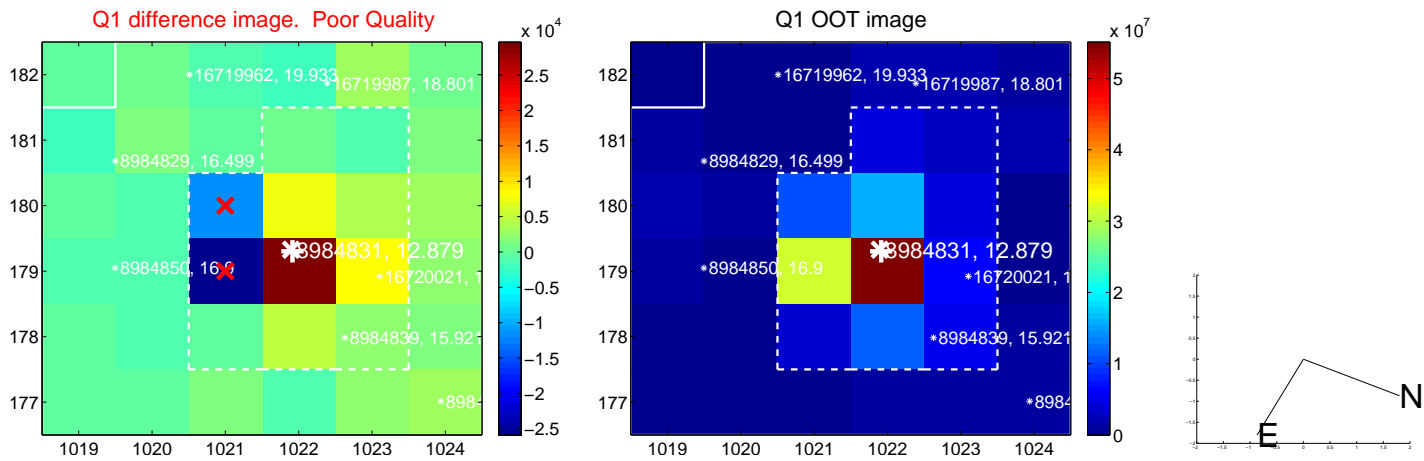
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.913 ± 0.906	1.01	0.900 ± 0.835	0.154 ± 0.729
PRF-fit source offset from KIC position	0.934 ± 0.858	1.09	0.928 ± 0.799	0.106 ± 0.832
photometric centroid source offset	1.71 ± 0.83	2.07	-1.30 ± 0.85	-1.11 ± 0.79

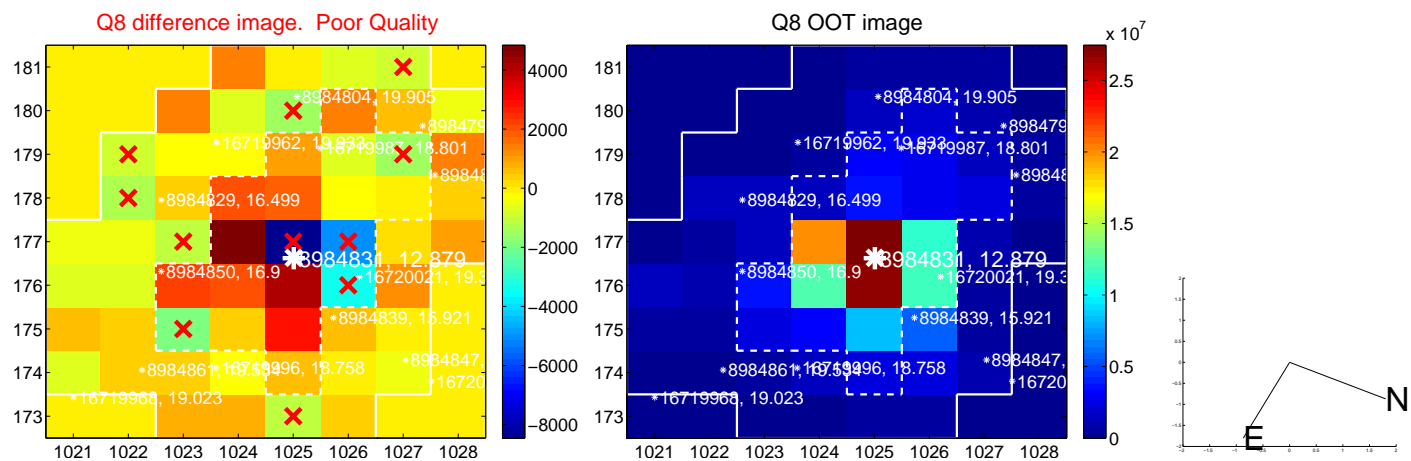
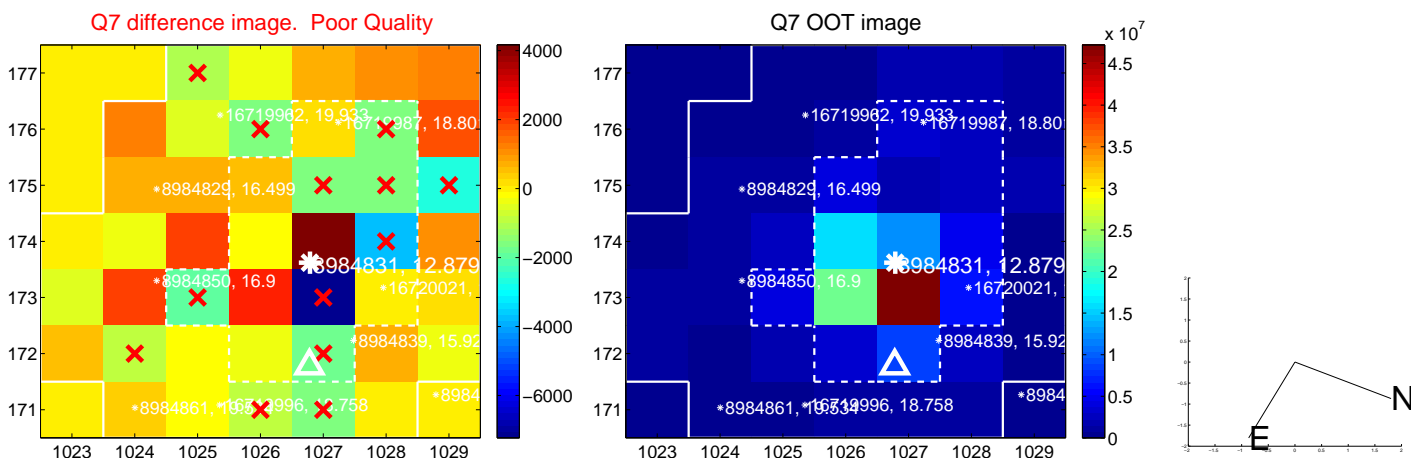
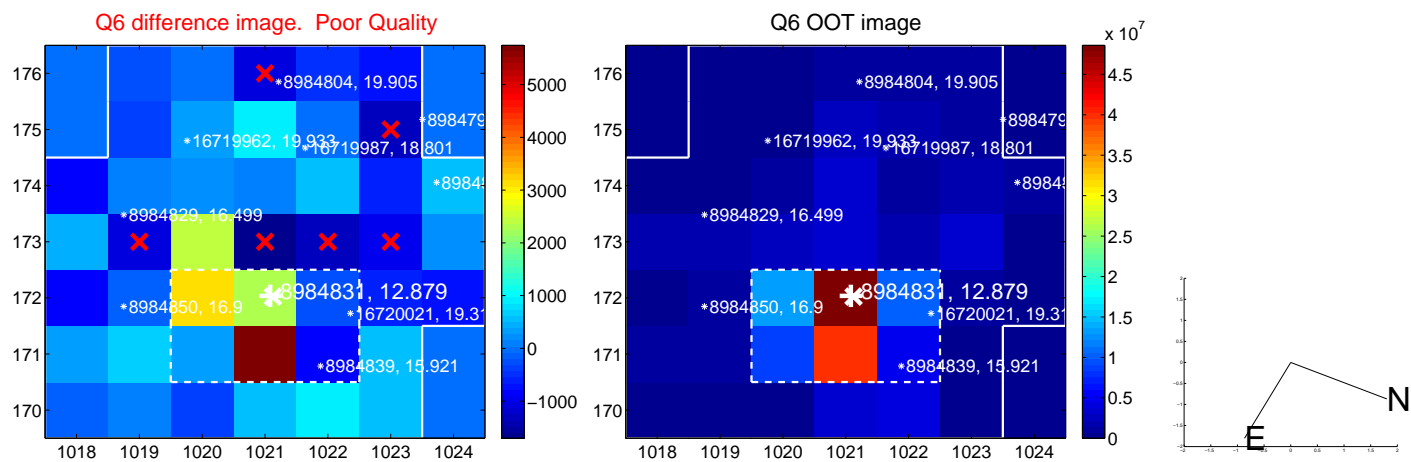
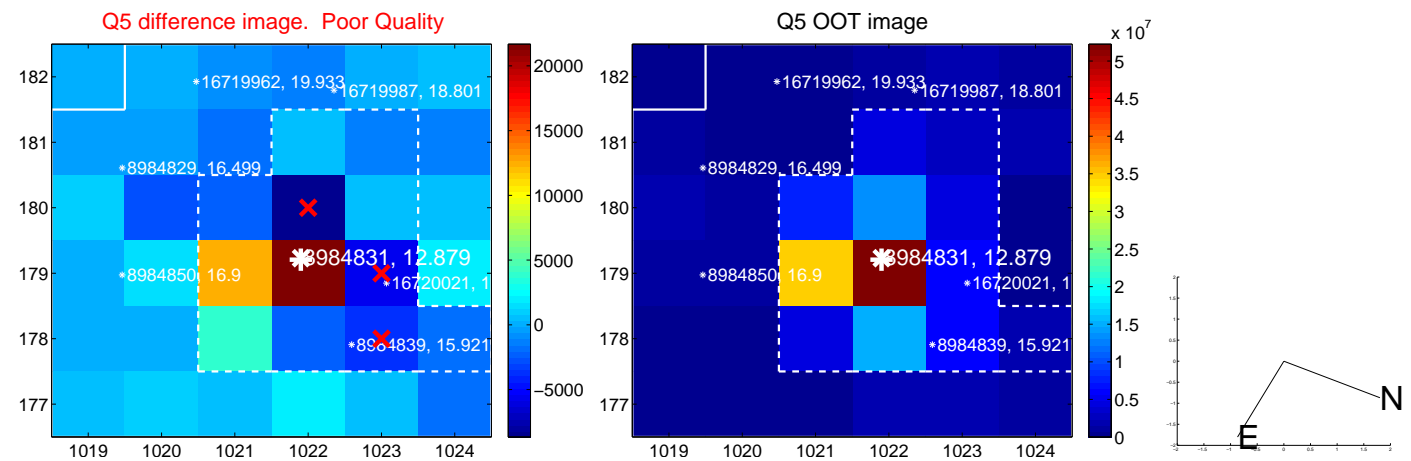


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs $> 15,000$, are from the UKIRT catalog.

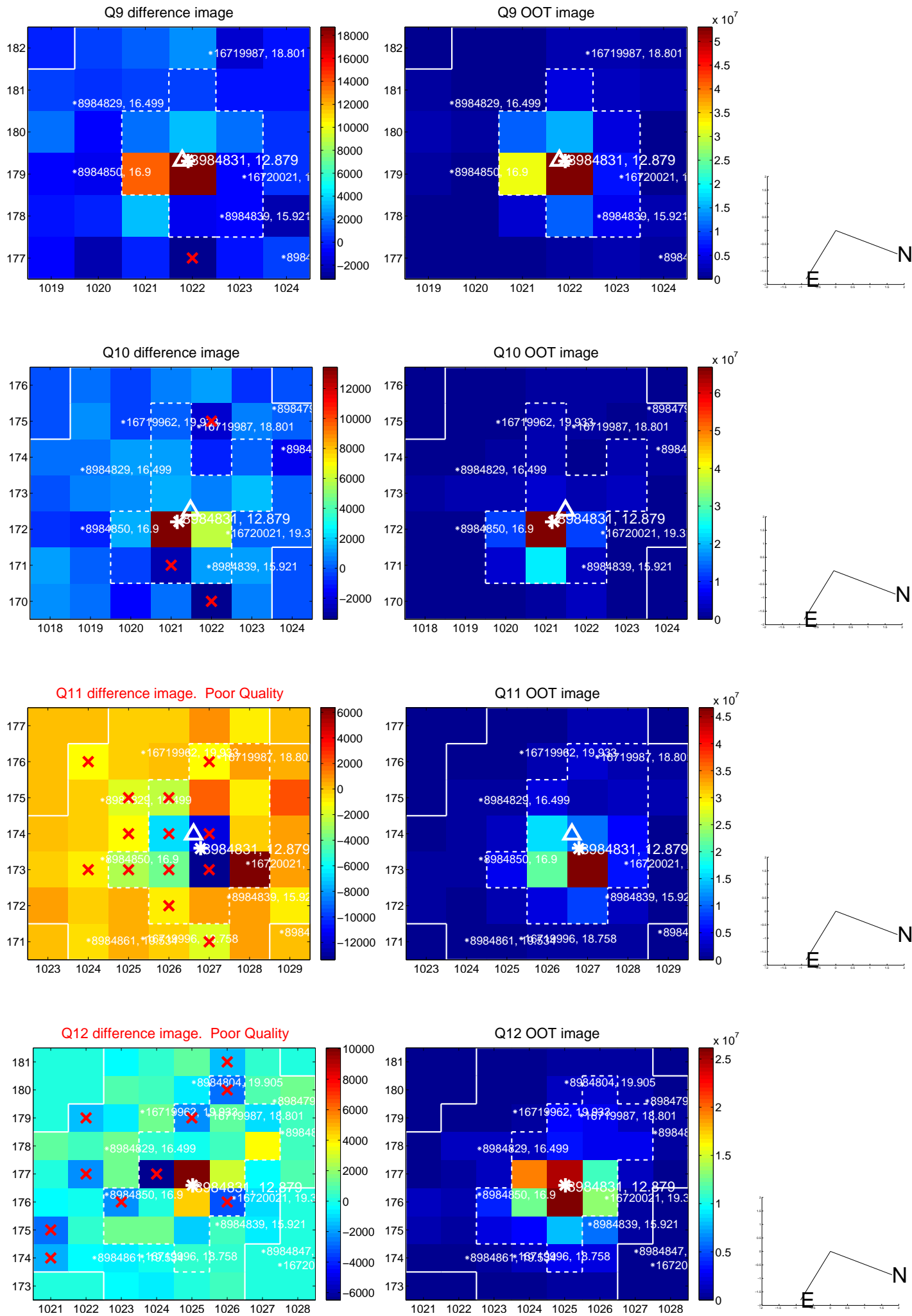
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



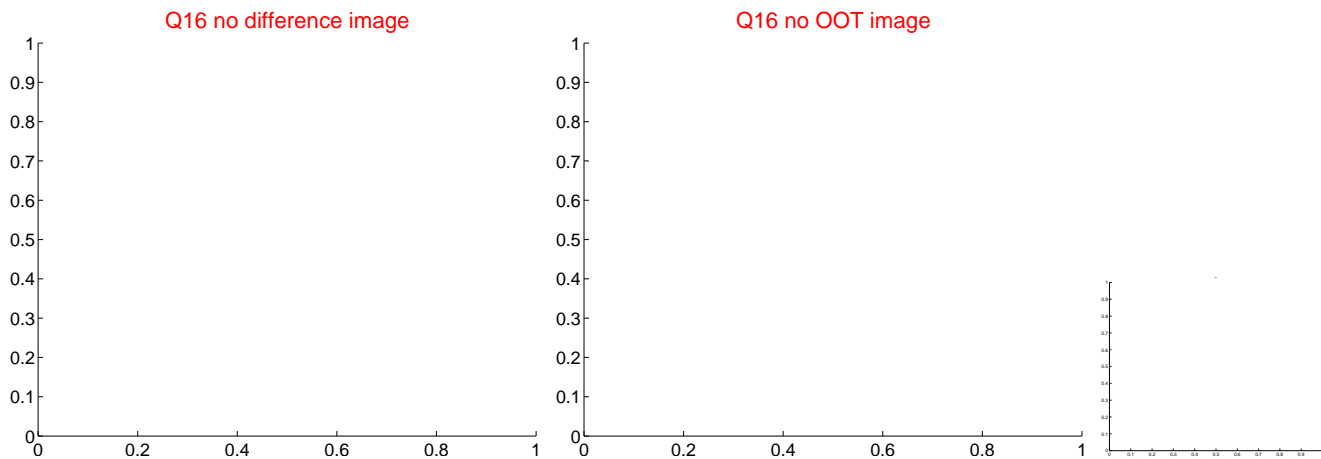
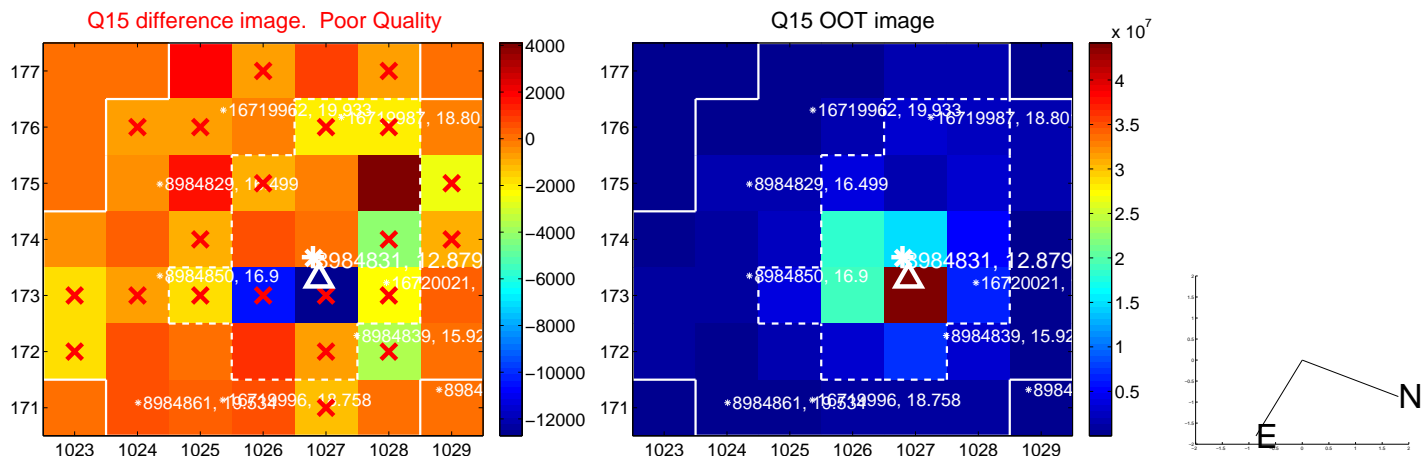
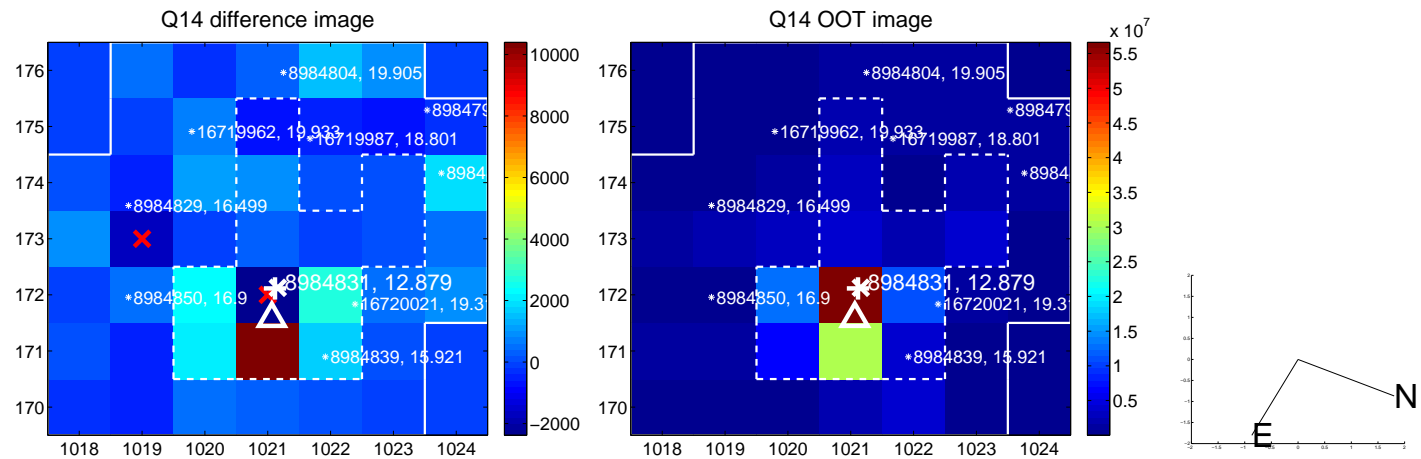
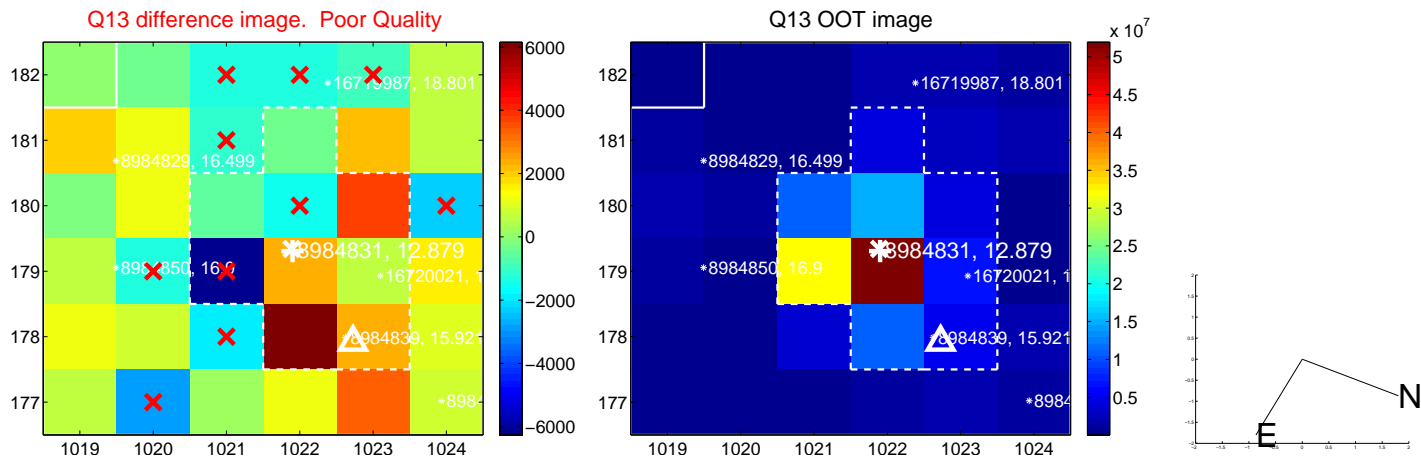
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



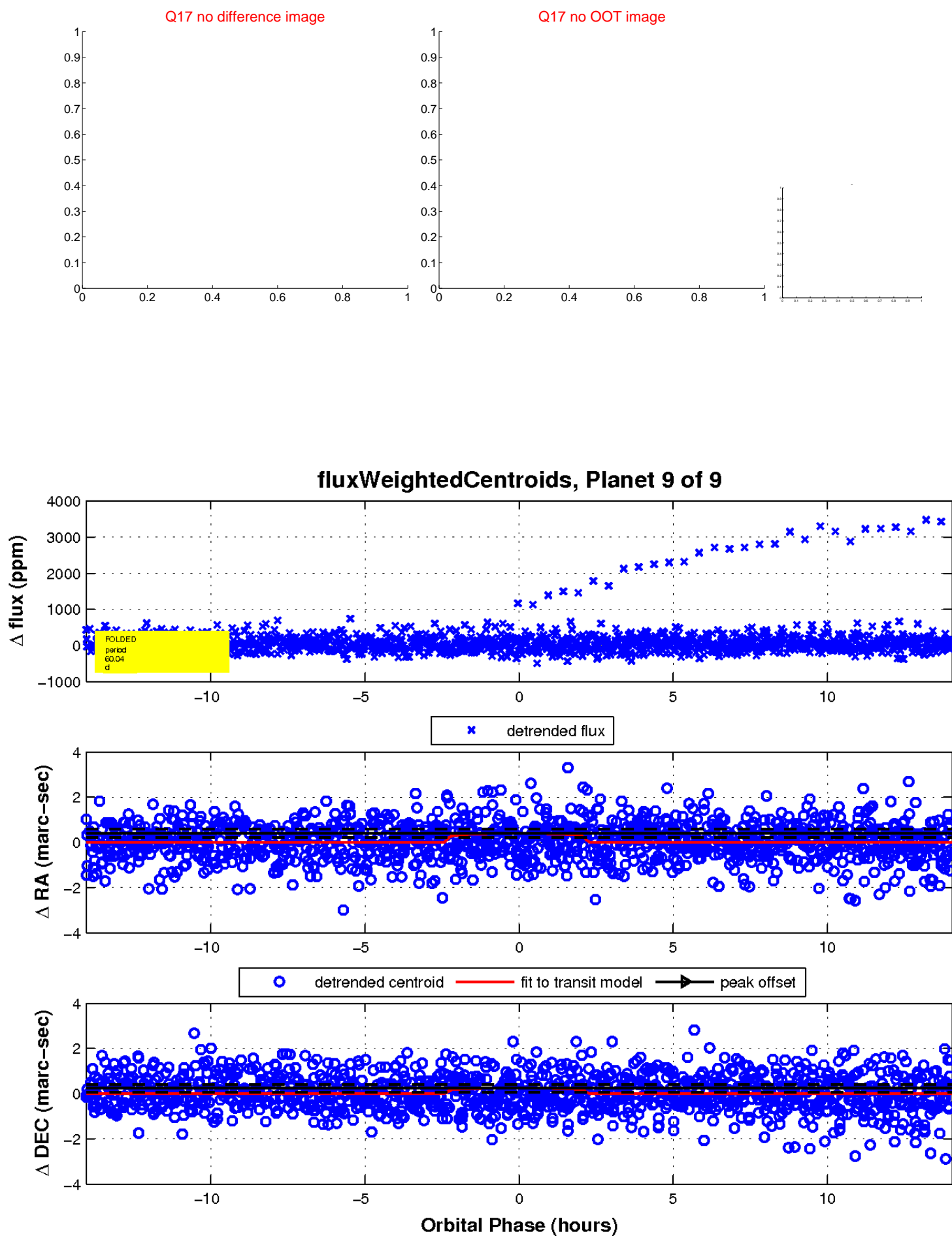
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

