

KIC 009899630

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})
009899630-01	OBS	4439.01	1.332555	132.058523	107.2	5.445	13.1	13.0	0.95	6039	1.15	1884.93
009899630-02	OBS	No	423.244926	411.962750	14754.7	60.490	18.1	12.1	0.95	6039	20.38	0.87
009899630-03	OBS	No	126.489931	192.201024	838.1	11.758	10.4	6.2	0.95	6039	3.07	4.35
009899630-04	OBS	No	375.575272	256.863383	374.3	6.483	9.7	1.9	0.95	6039	2.18	1.02
009899630-05	OBS	No	397.708794	262.788603	1.8	8.859	8.9	0.0	0.95	6039	0.14	0.94
009899630-06	OBS	No	352.676434	271.484285	918.5	9.000	8.0	-1.0	0.95	6039	2.88	1.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009899630-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
009899630-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009899630-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009899630-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009899630-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009899630-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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.

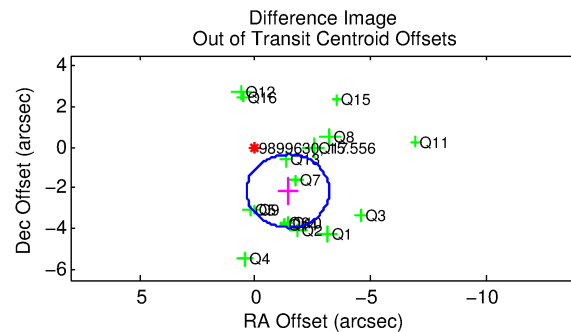
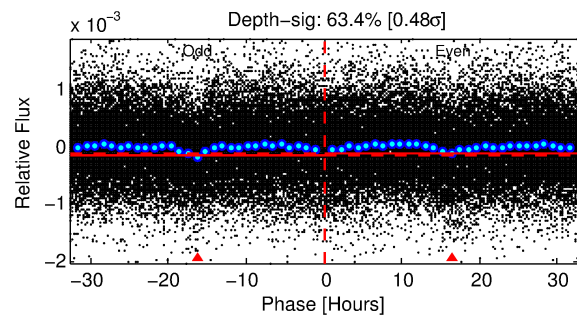
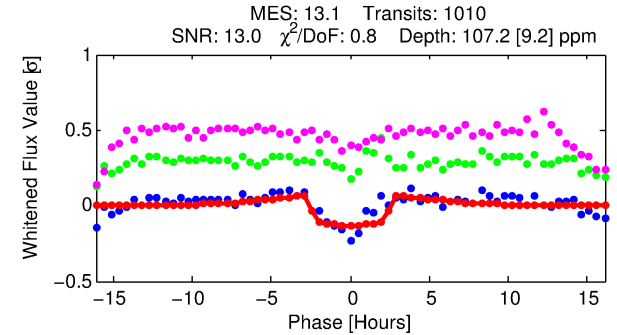
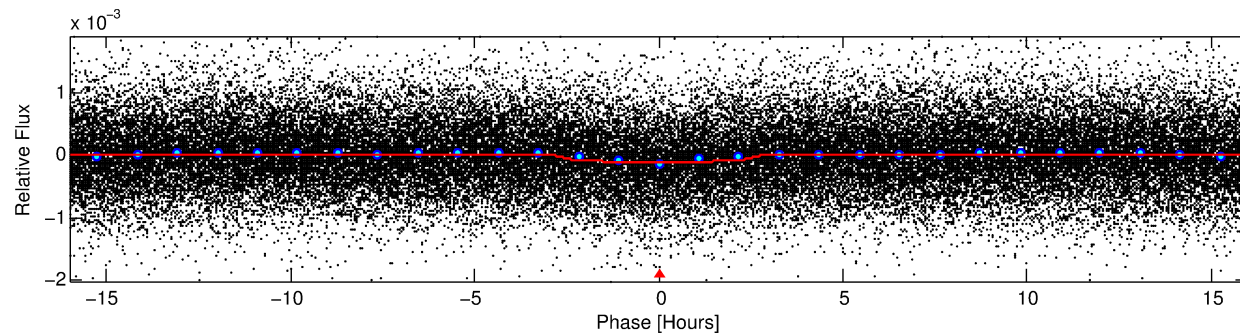
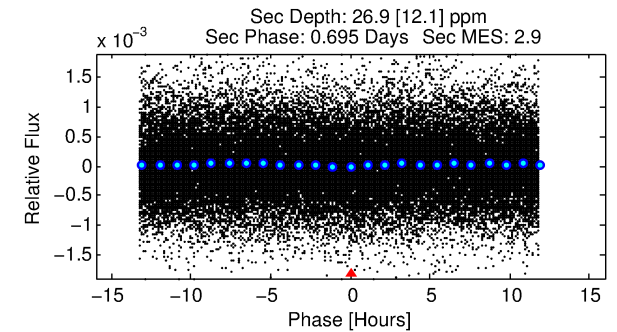
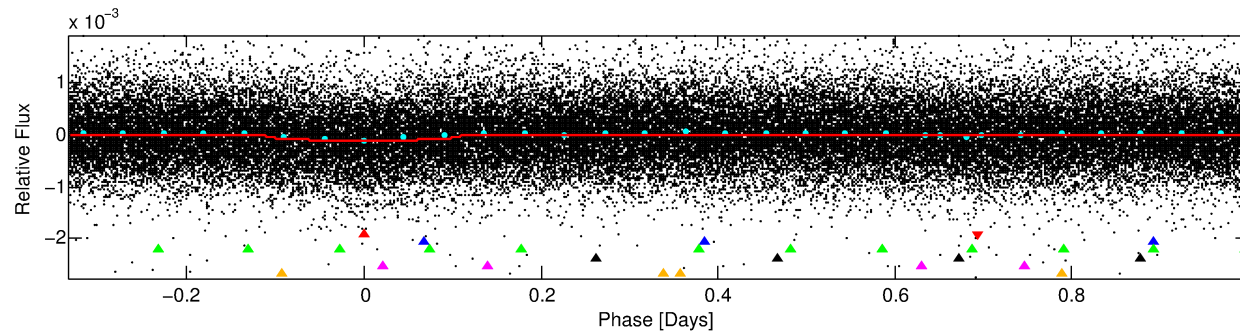
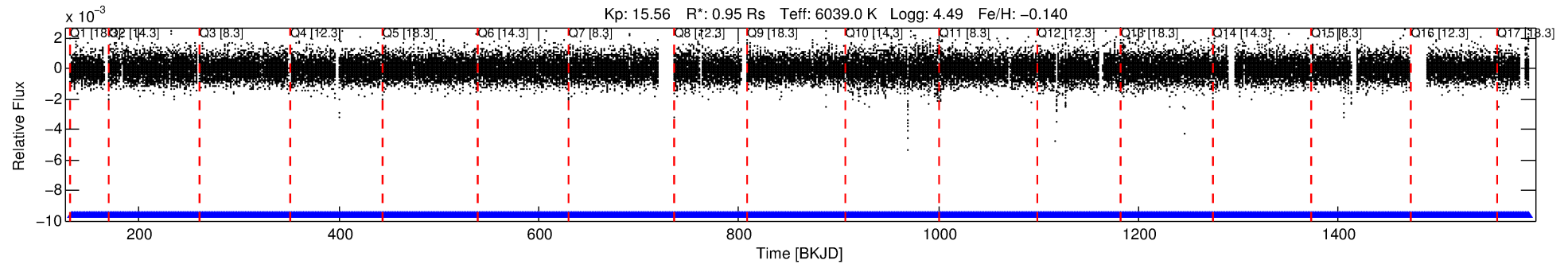
Ephemeris Match Information For 009899630-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
009899630-01	9899630	BR-Cyg-pri	9899416	1:1	189.7	-35	33	10.03	15.56	6251.10	Direct-PRF	0	0.56	0.60

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 9899630 Candidate: 1 of 6 Period: 1.333 d
KOI: K04439.01 Corr: 0.937



DV Fit Results:

Period = 1.33255 [0.00001] d
Epoch = 132.0585 [0.0033] BKJD
Rp/R* = 0.0111 [0.0025]
a/R* = 1.29 [0.58]
b = 0.89 [0.26]
Seff = 1884.93 [756.82]
Teq = 1680 [169] K
Rp = 1.15 [0.43] Re
a = 0.0239 [0.0061] AU
Ag = 6.36 [4.69] [1.14σ]
Teffp = 4126 [669] K [3.54σ]

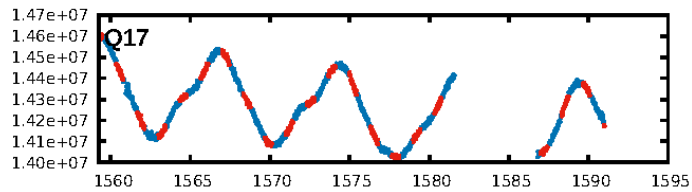
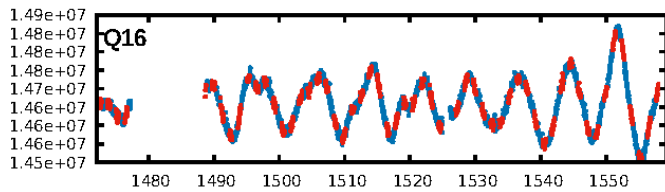
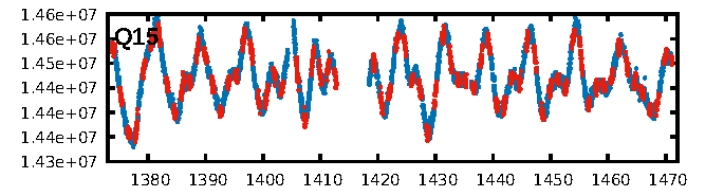
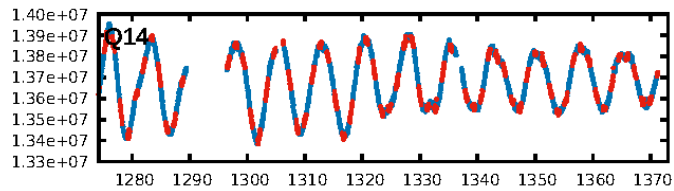
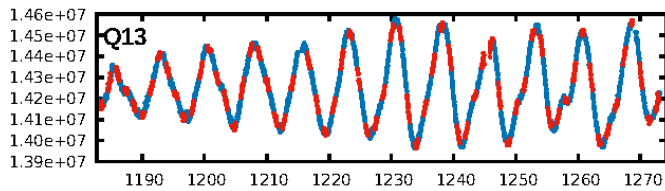
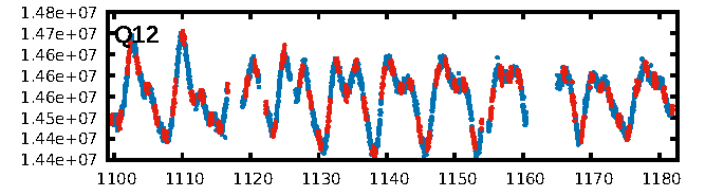
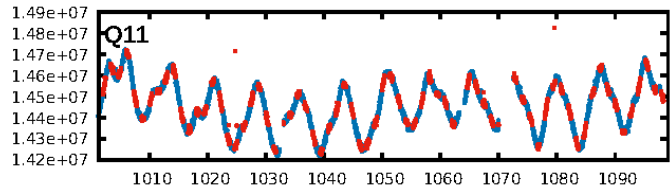
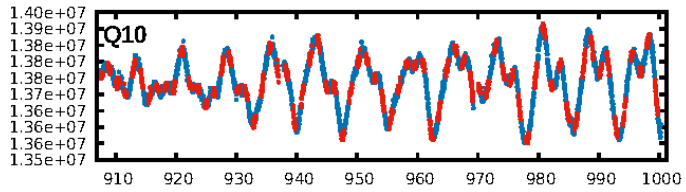
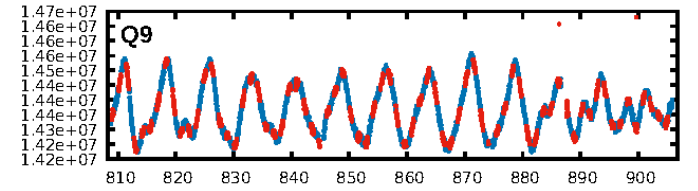
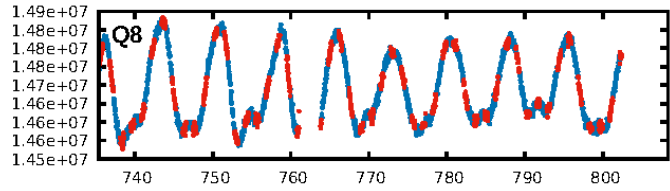
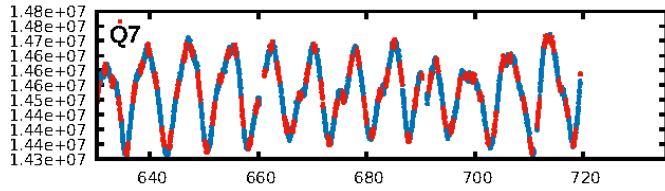
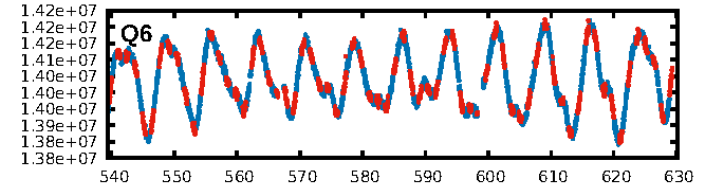
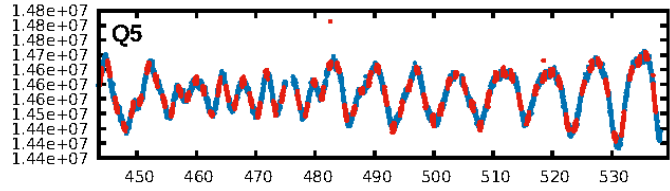
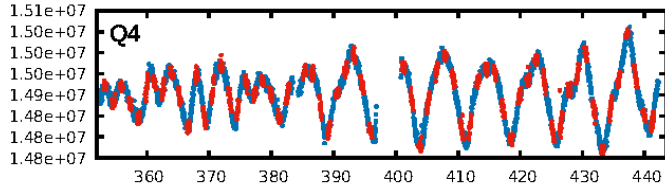
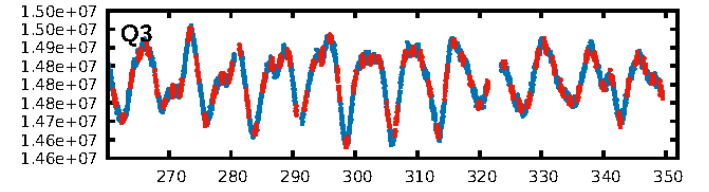
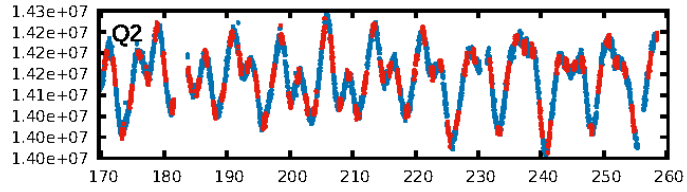
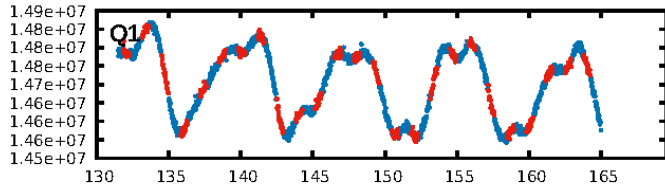
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [231.82σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.61e-34
RollingBand-fgt: 1.00 [965/965]
GhostDiagnostic-chr: 0.07335
Centroid-sig: 0.0%
Centroid-so: 4.675 arcsec [6.83σ]
OotOffset-rm: 2.566 arcsec [4.30σ]
KicOffset-rm: 2.630 arcsec [4.45σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.24 [4/17]
DiffImageOverlap-fno: 1.00 [17/17]

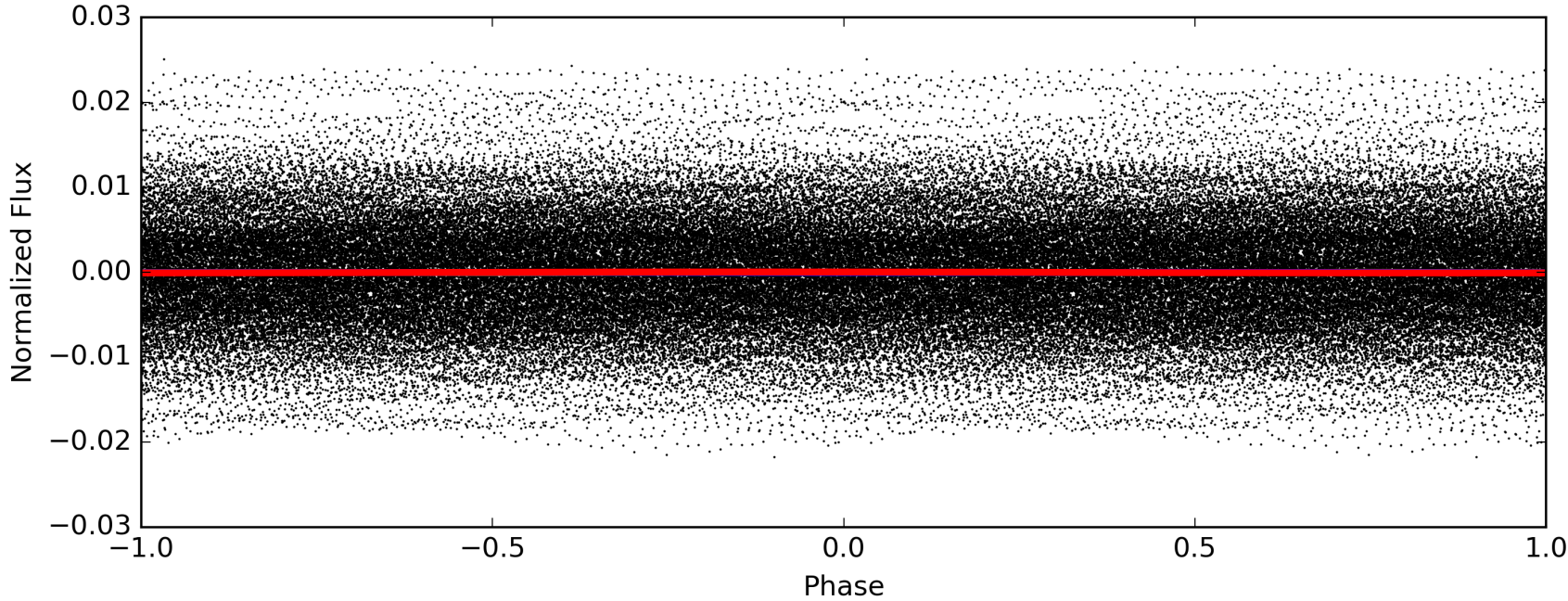
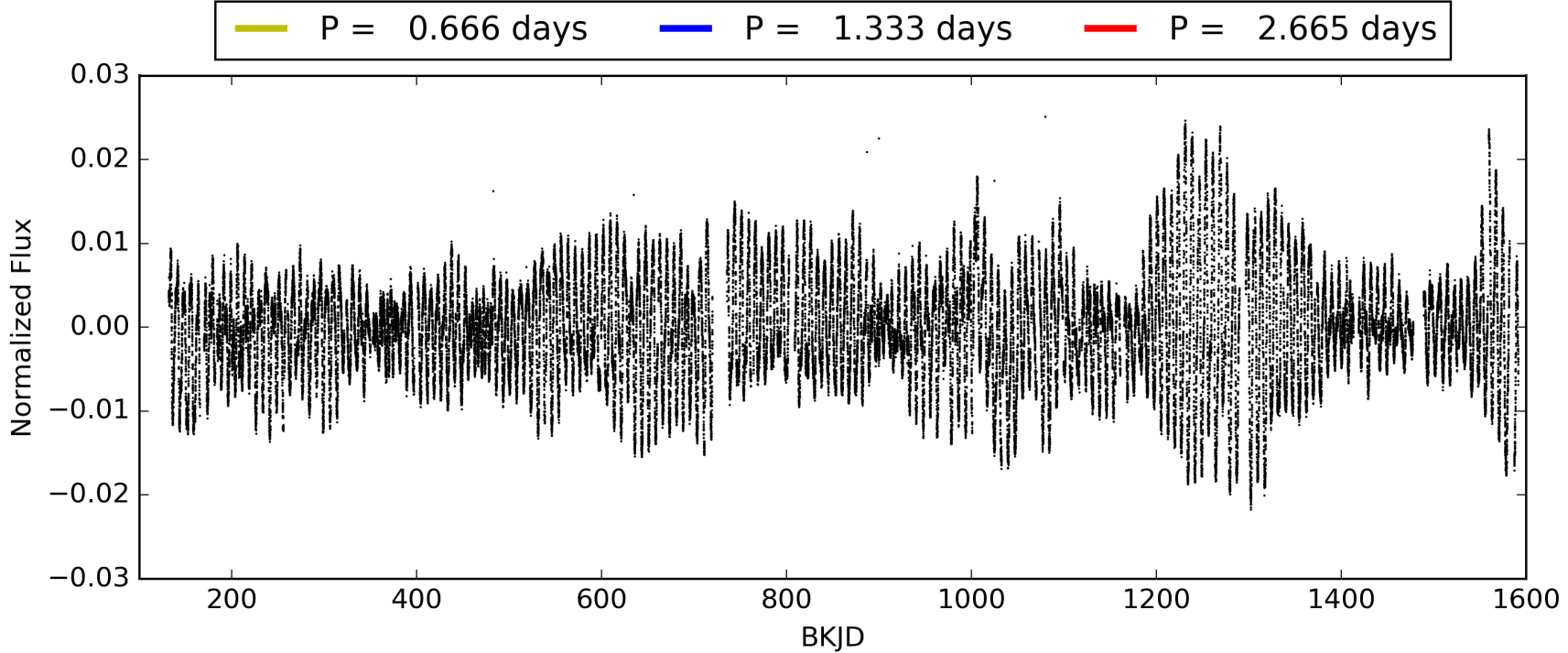
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009899630-01, PDC Light Curves

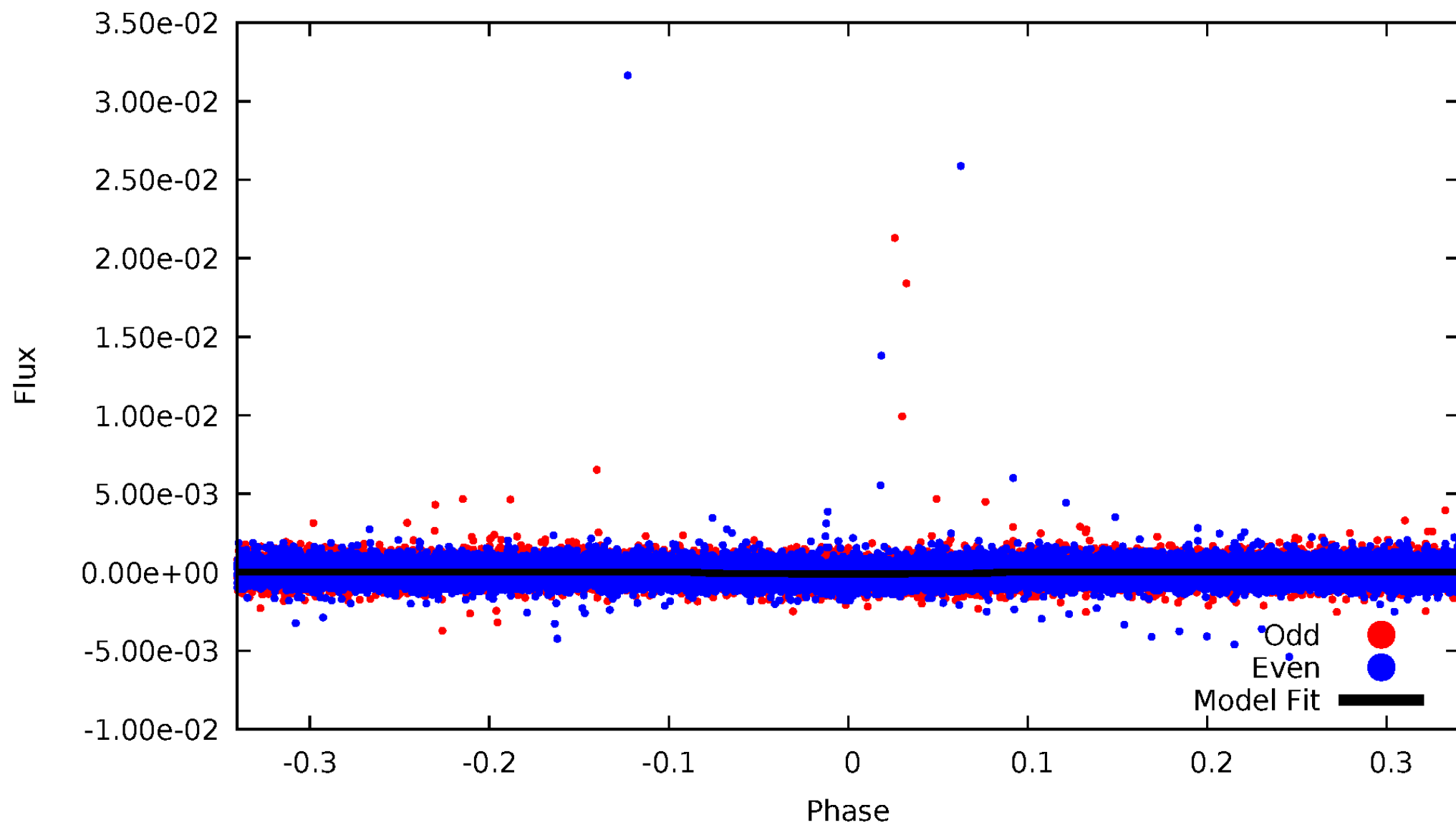


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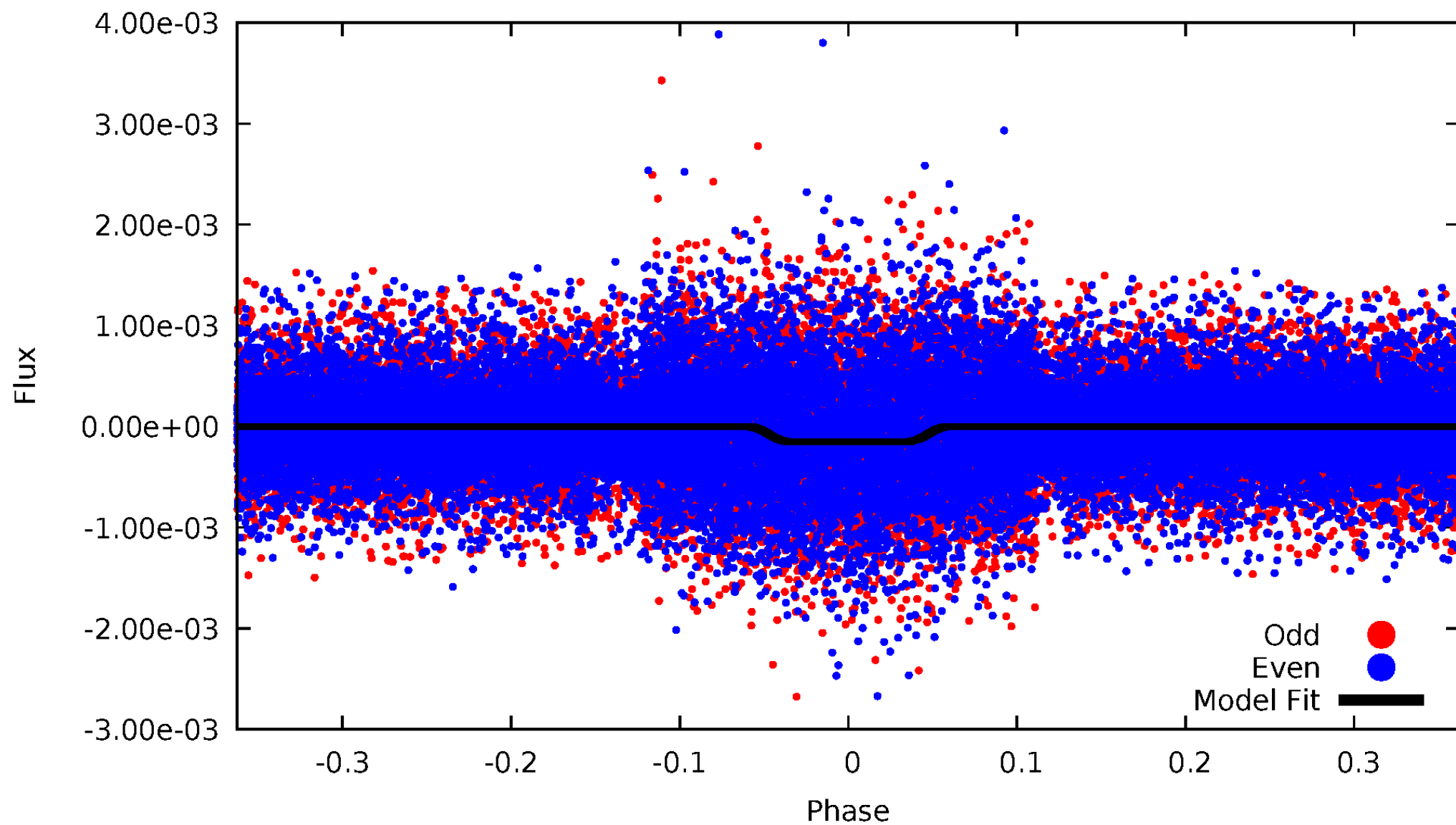
DV Odd/Even

TCE 009899630-01



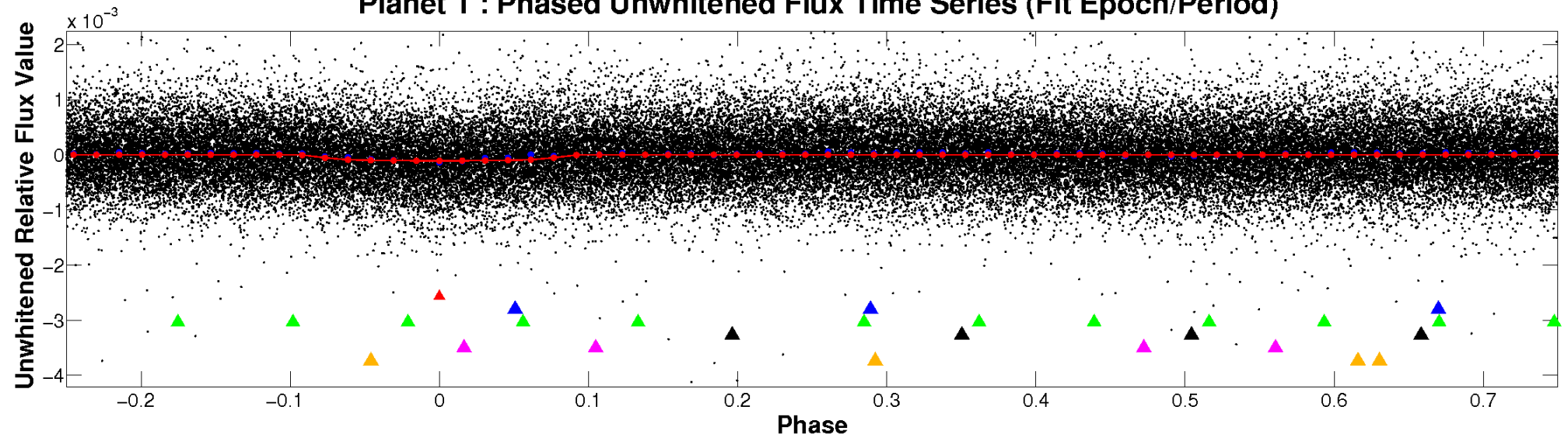
ALT Odd/Even

TCE 009899630-01

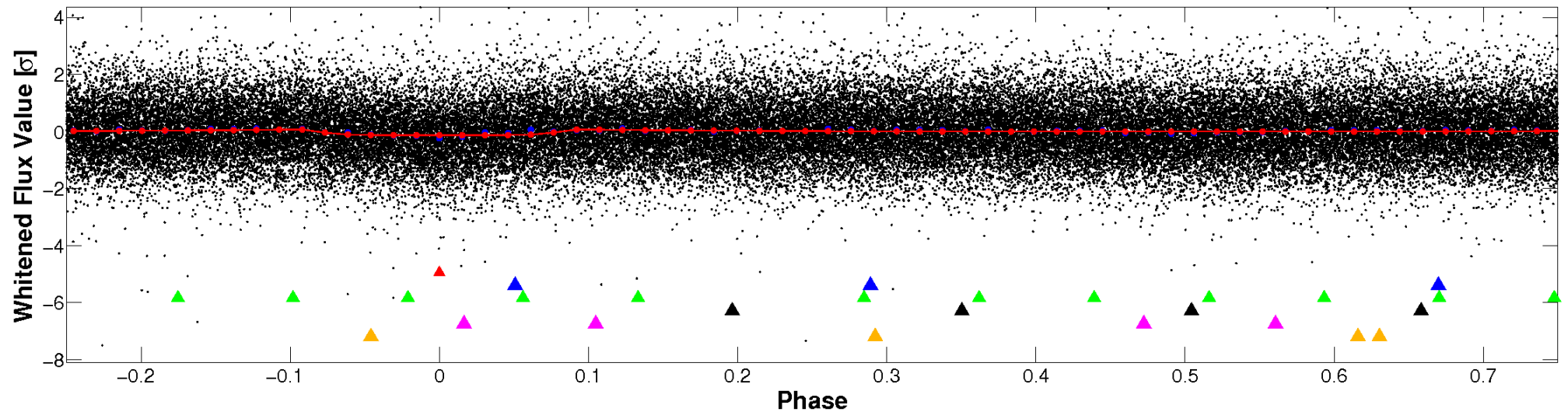


Non-Whitened Vs. Whitened Light Curve

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

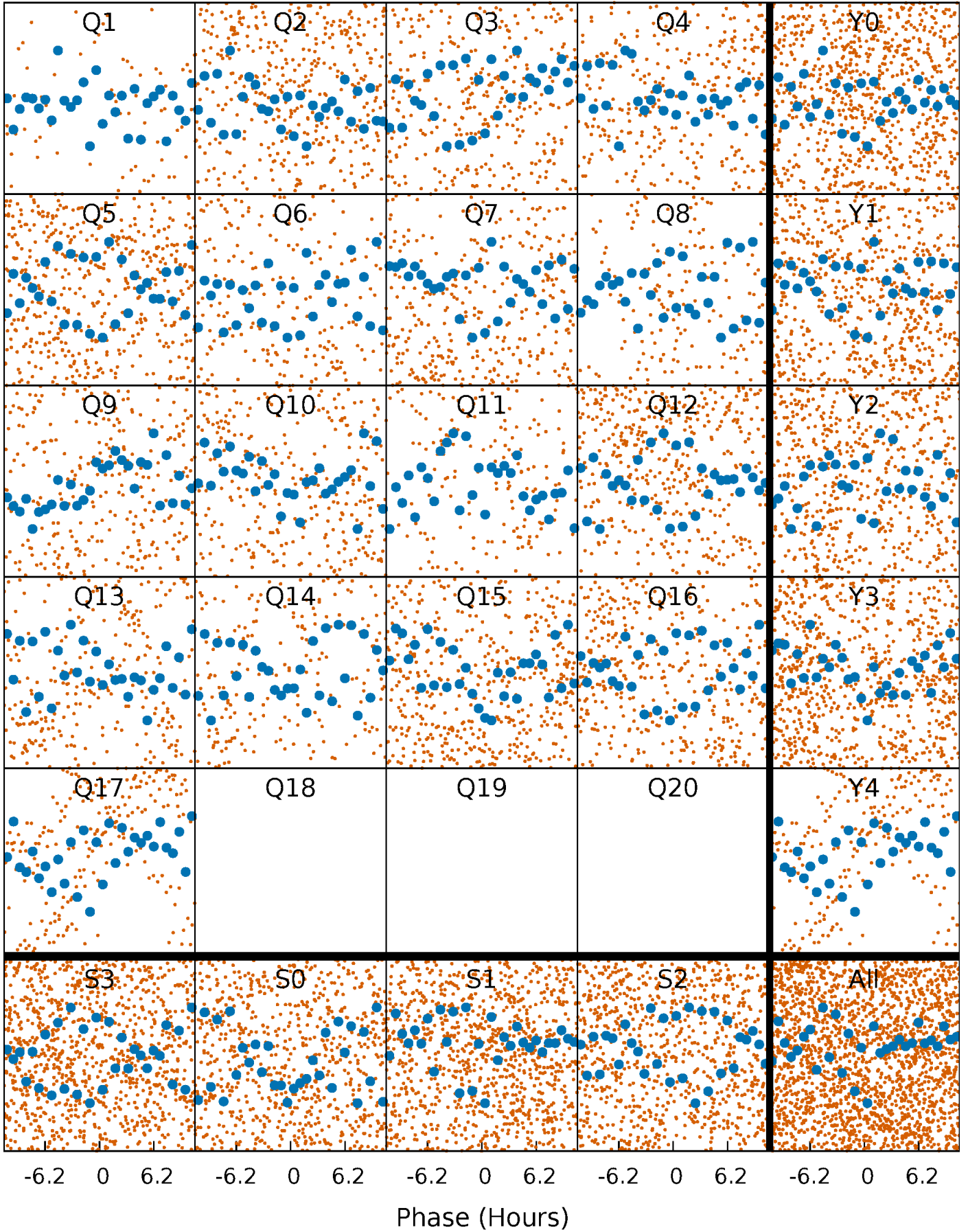


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



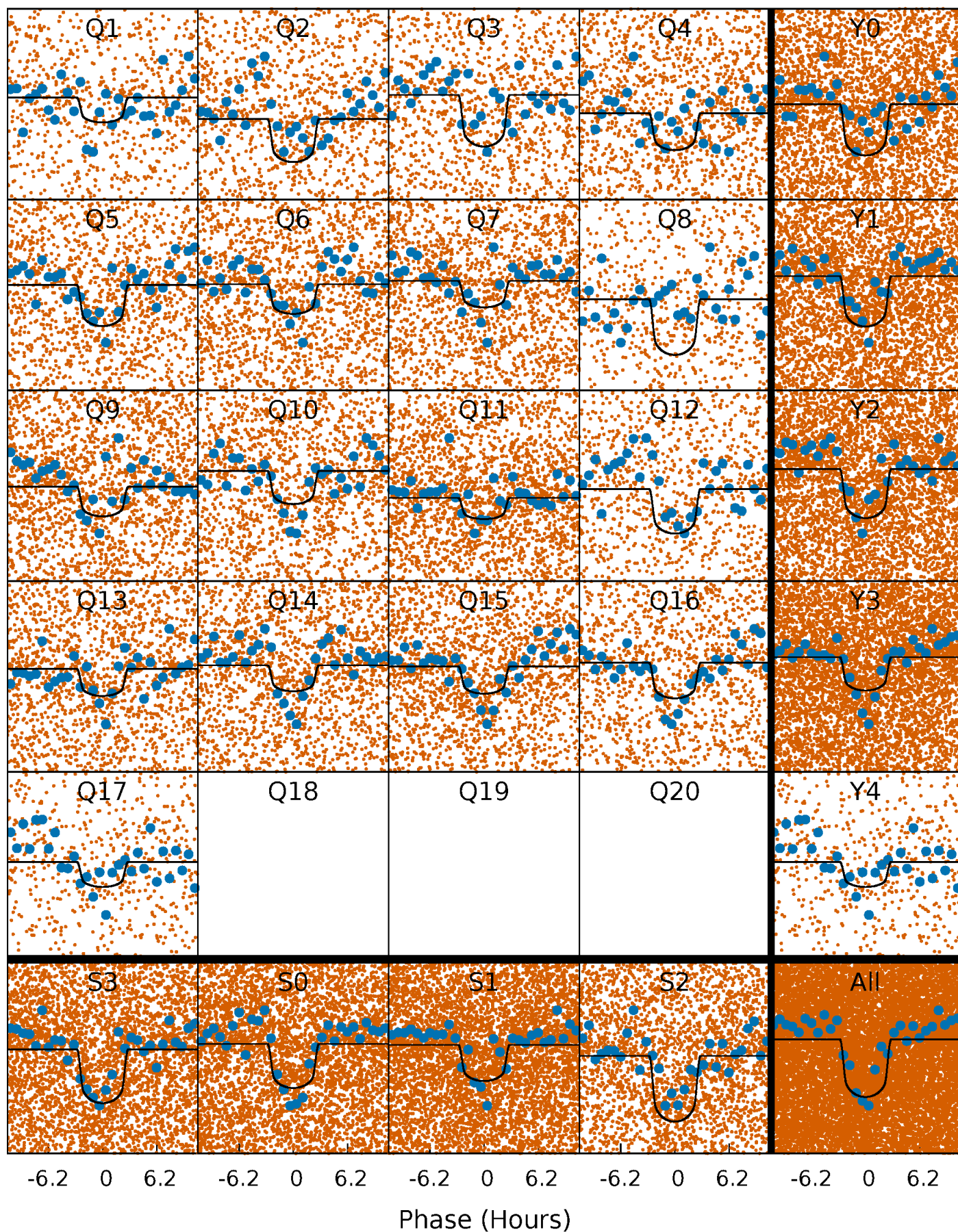
PDC Quarter-Phased Transit Curves

TCE 009899630-01 P= 1.332555 Days $T_0=132.058523$ (BKJD)



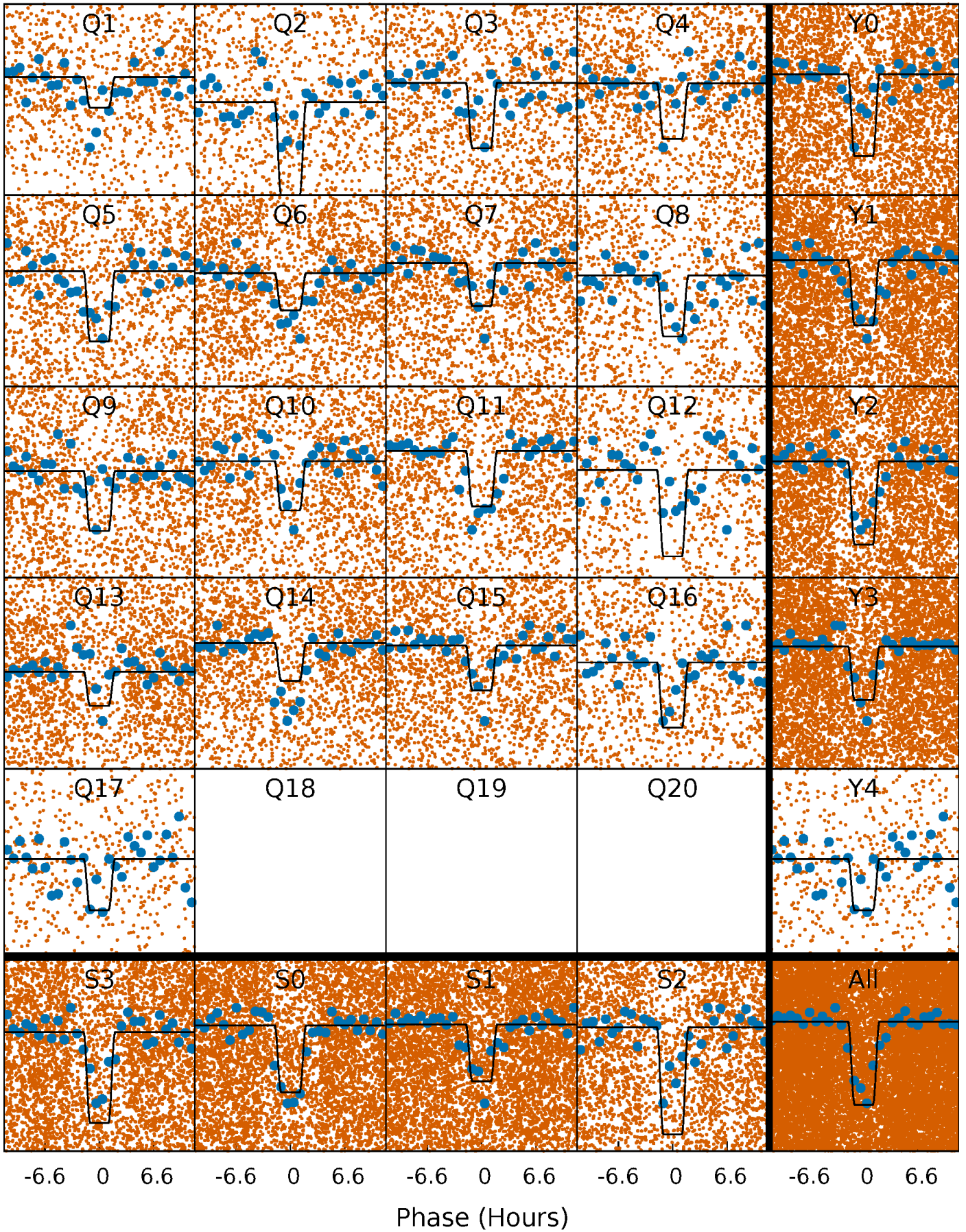
DV Quarter-Phased Transit Curves

TCE 009899630-01 P= 1.332555 Days $T_0=132.058523$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

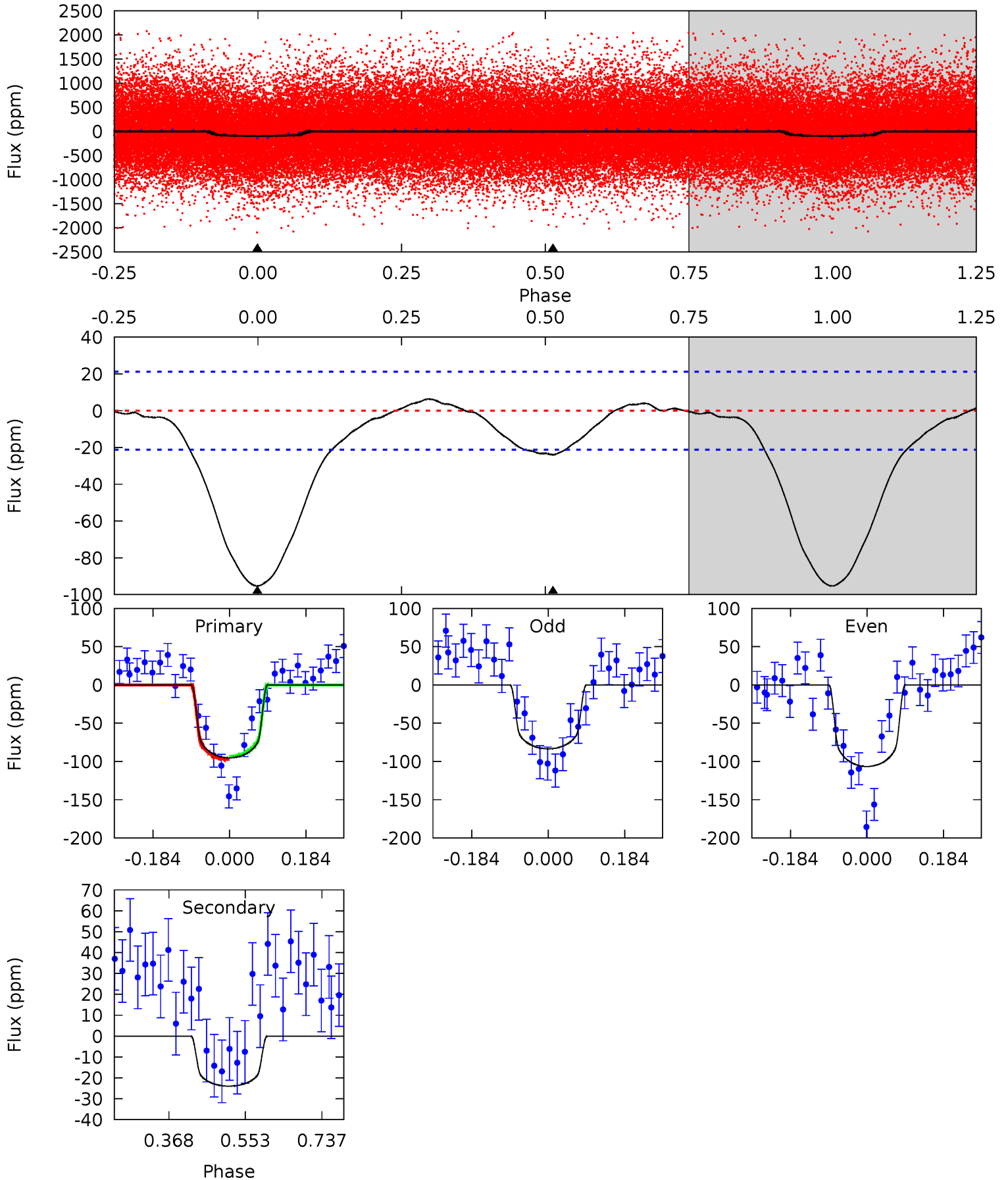
TCE 009899630-01 P= 1.332568 Days $T_0=132.051173$ (BKJD)



DV Model-Shift Uniqueness Test

009899630-01, P = 1.332555 Days, E = 130.725968 Days

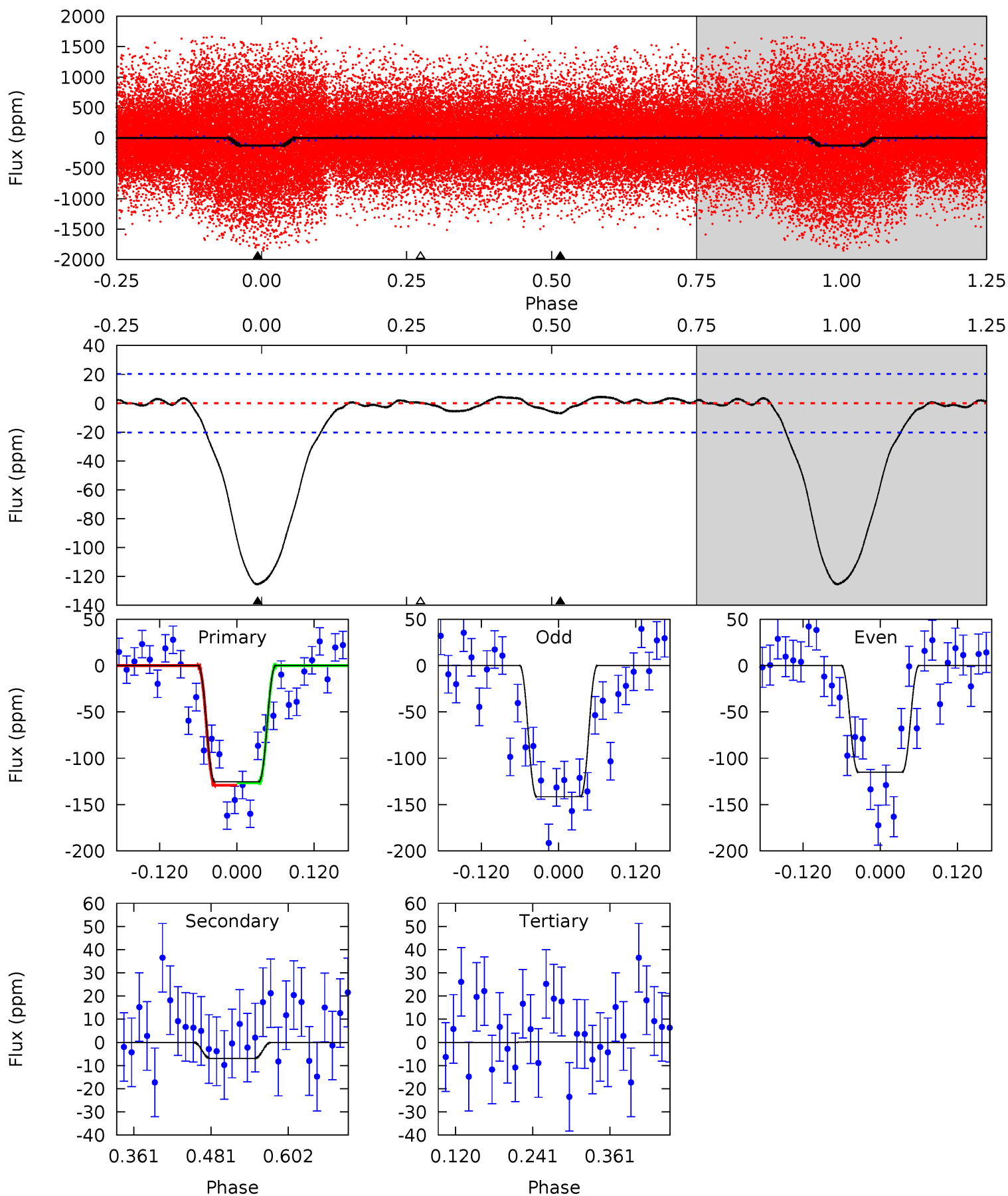
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.9	5.02	0	0	4.43	1.33	0.70	19.9	19.9	5.02	5.02	2.44	0.74	0.06	0.43



Alt Model-Shift Uniqueness Test

009899630-01, P = 1.332568 Days, E = 130.718605 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.0	1.55	-0.05	0	4.53	1.55	0.60	28.0	28.0	1.60	1.55	2.92	0.99	0.03	0.31



Stellar Parameters For KIC 009899630

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6039^{+168}_{-210}	$4.493^{+0.052}_{-0.208}$	$-0.140^{+0.250}_{-0.300}$	$0.951^{+0.285}_{-0.102}$	$1.027^{+0.127}_{-0.141}$	$1.685^{+0.465}_{-0.877}$
	+3%/-3%	+1%/-5%	+179%/-214%	+30%/-11%	+12%/-14%	+28%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009899630-01 / KOI 4439.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-24 ± 5	$1.21^{+0.31}_{-0.29}$	2404^{+157}_{-118}	4193^{+518}_{-363}	$4.985^{+3.713}_{-1.972}$
Alt.	-7 ± 4	$1.35^{+0.31}_{-0.28}$	2402^{+173}_{-120}	3145^{+466}_{-813}	$1.097^{+1.226}_{-0.713}$

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

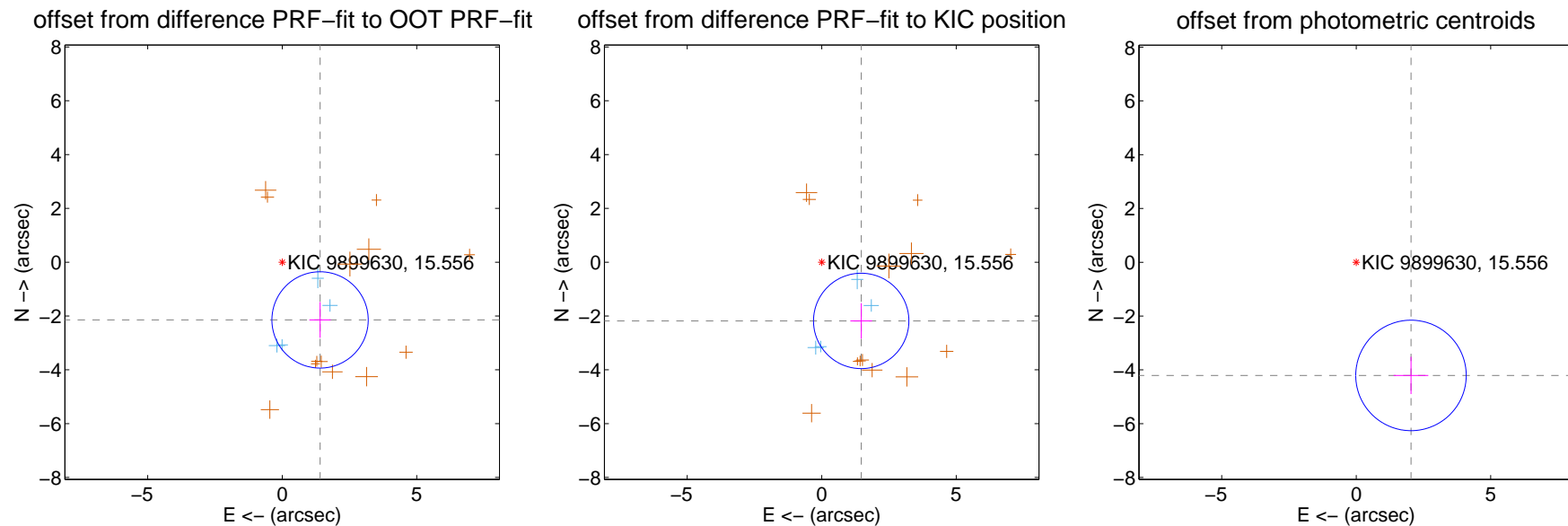
DV Centroid Data

Supplemental centroid analysis for 009899630-01. Kepler magnitude: 15.56. Transit SNR 12.98

There are 4 quarters with good PRF difference image offsets

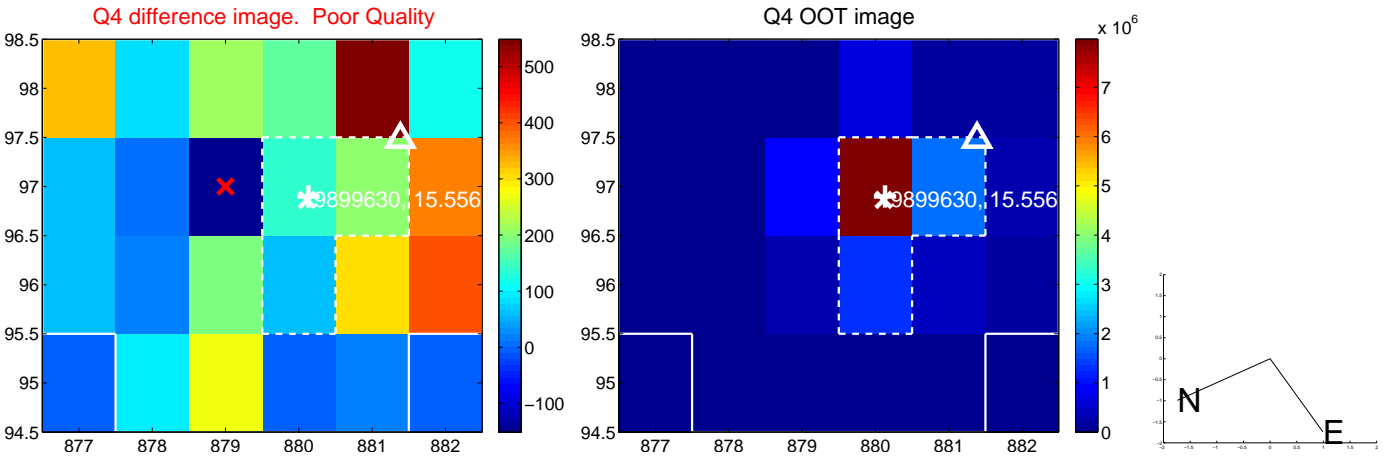
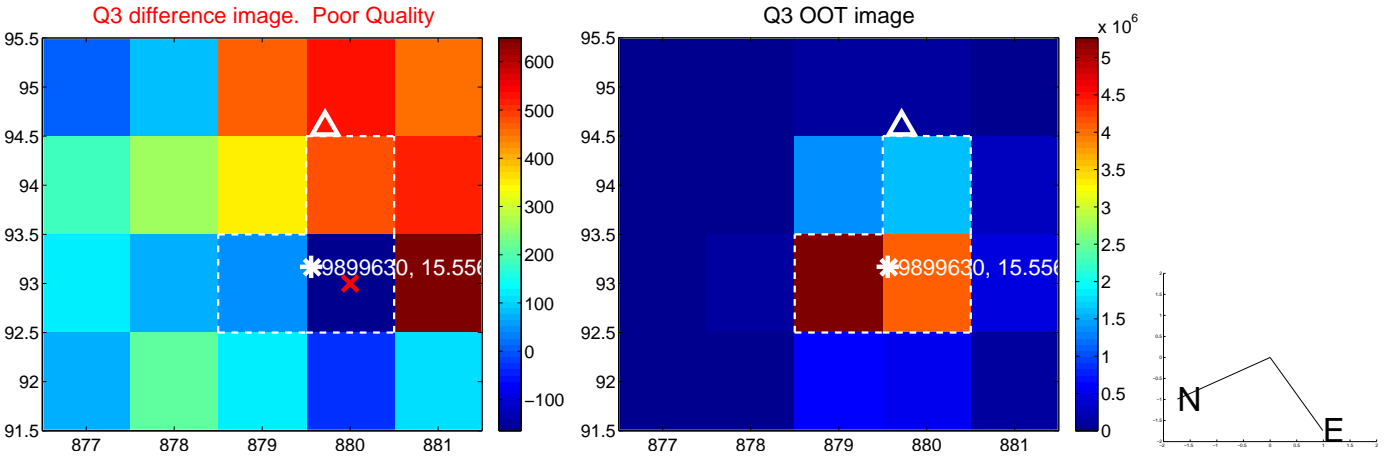
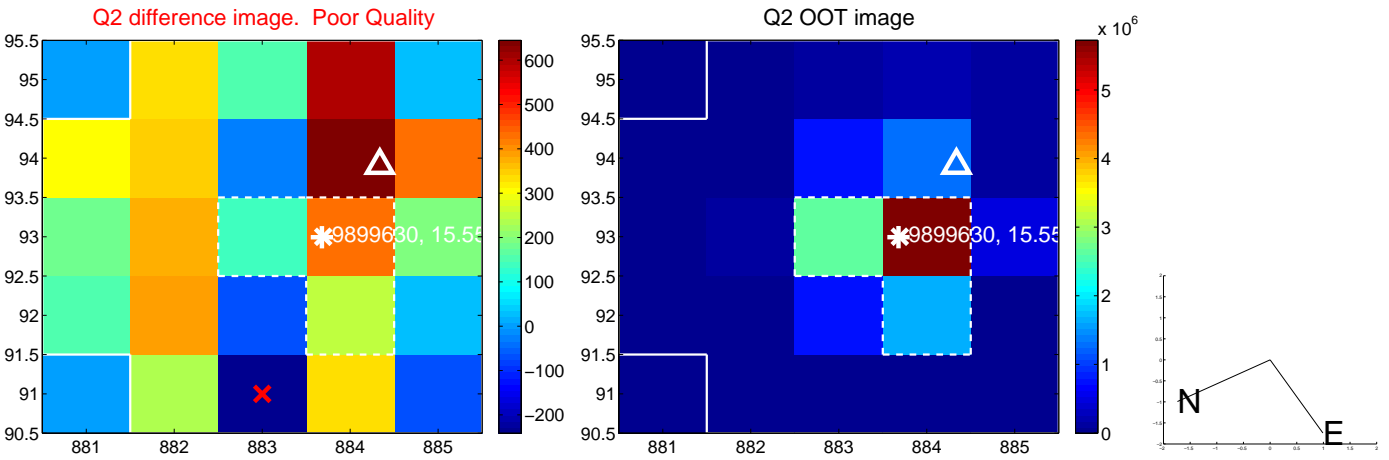
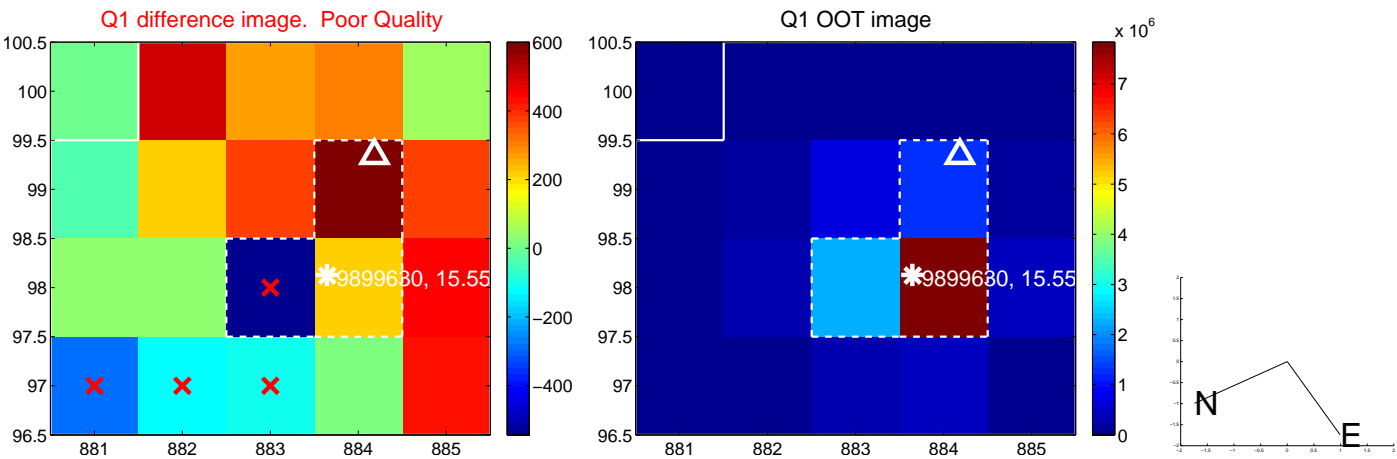
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.566 ± 0.597	4.30	-1.407 ± 0.400	-2.146 ± 0.664
PRF-fit source offset from KIC position	2.630 ± 0.591	4.45	-1.467 ± 0.402	-2.183 ± 0.659
photometric centroid source offset	4.67 ± 0.68	6.83	-2.04 ± 0.64	-4.21 ± 0.69

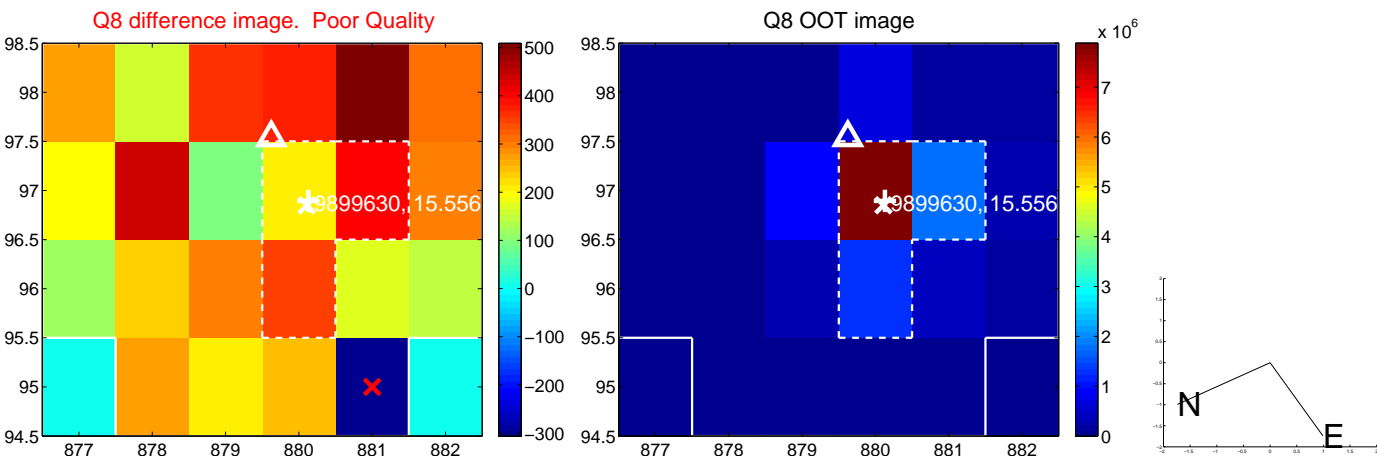
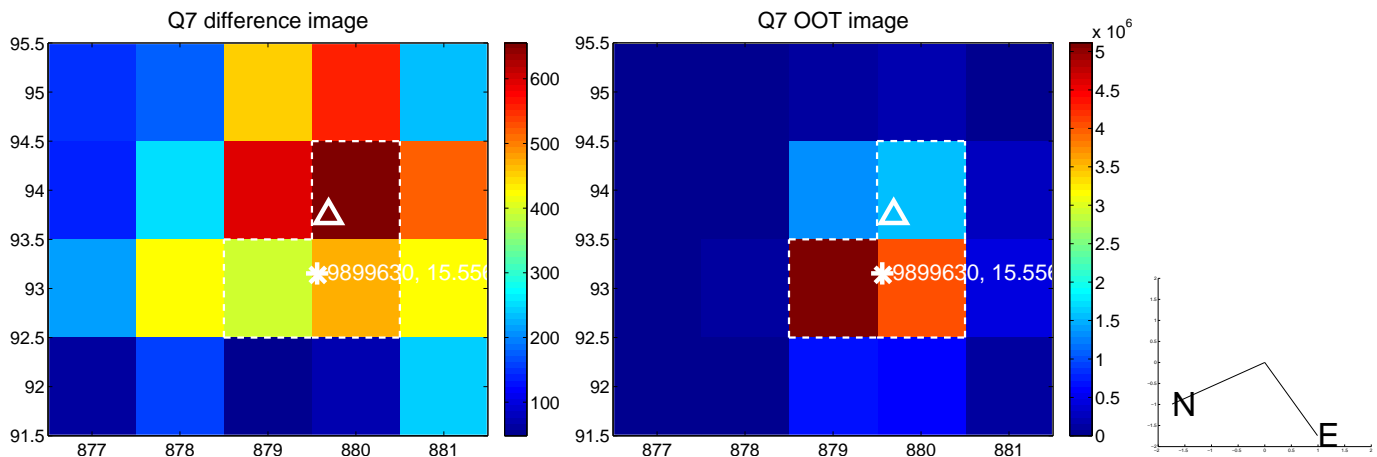
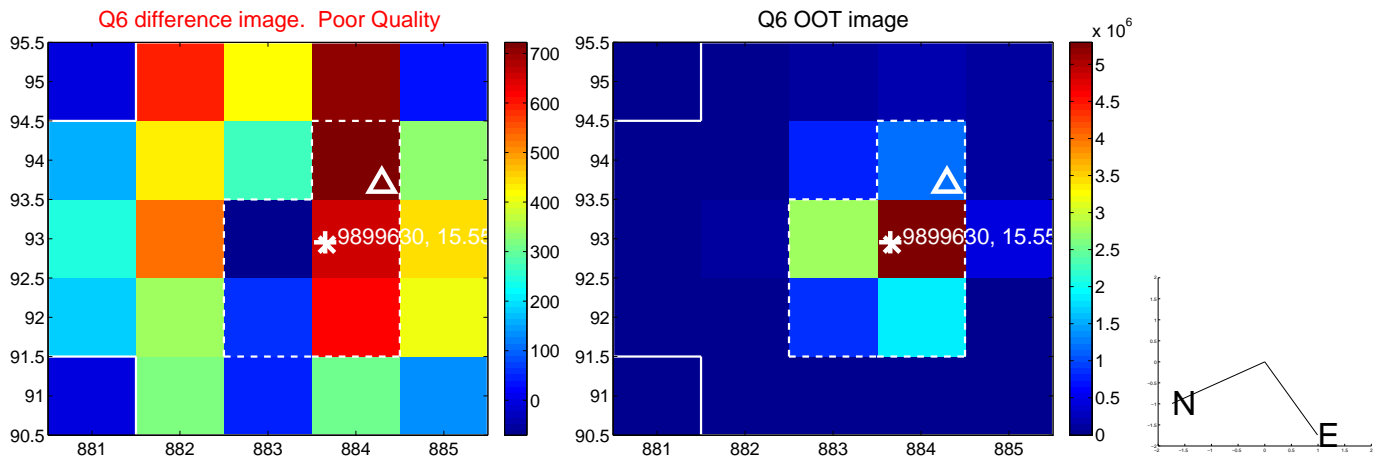
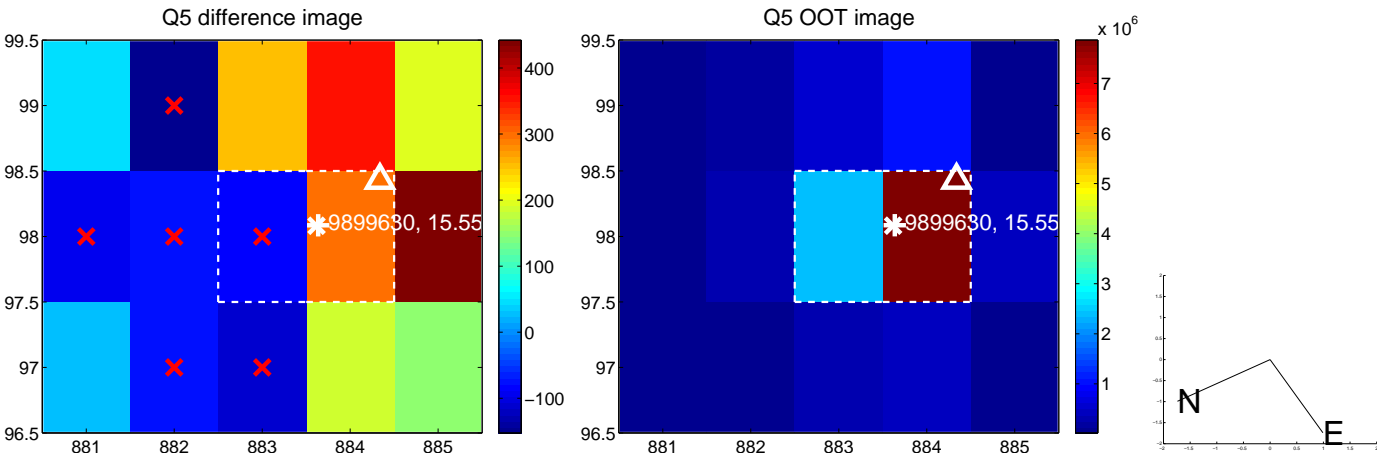


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

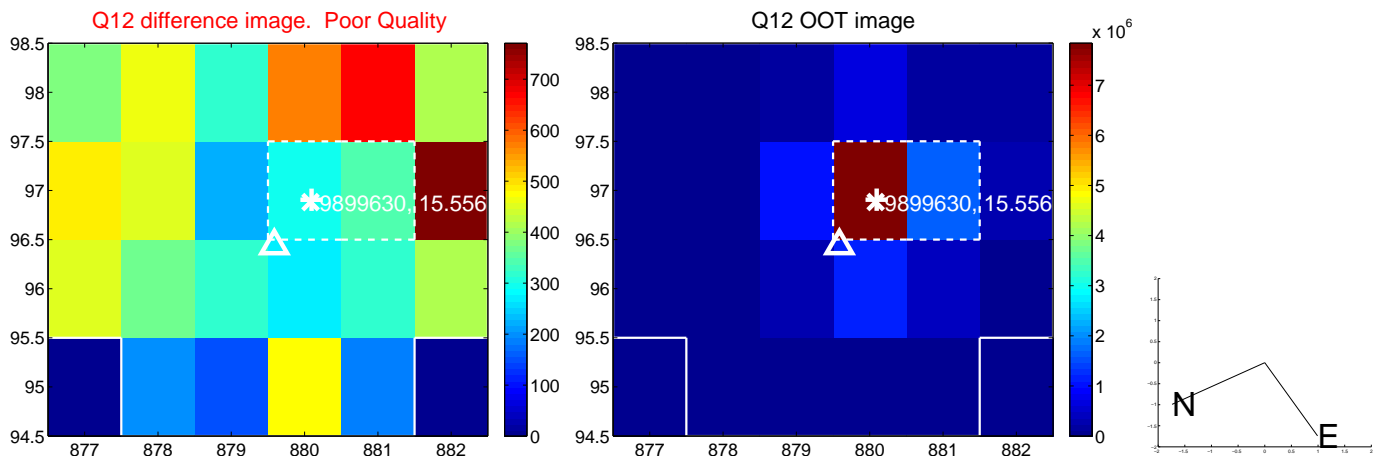
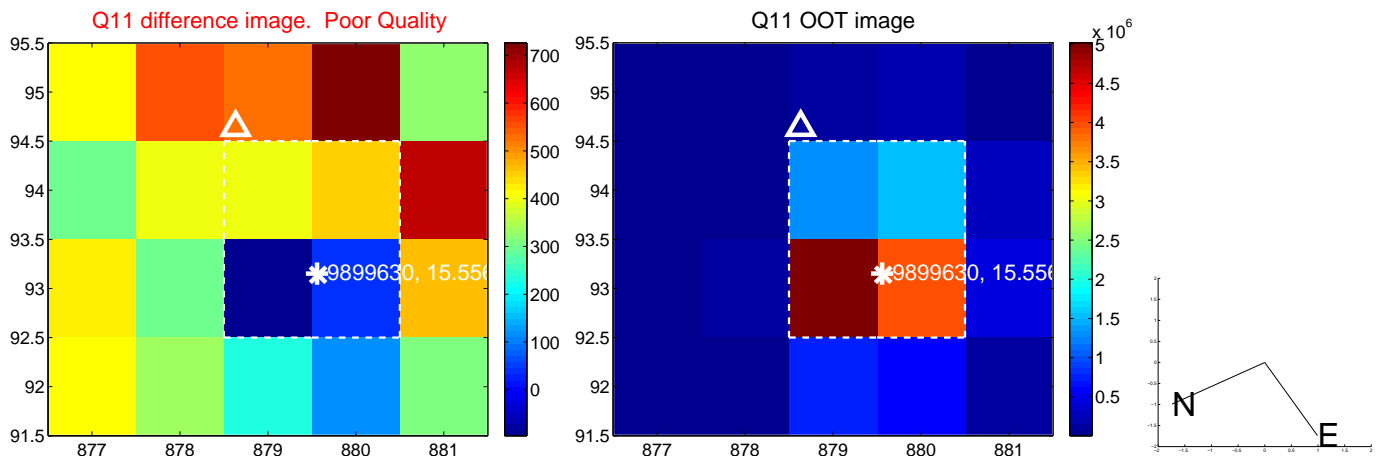
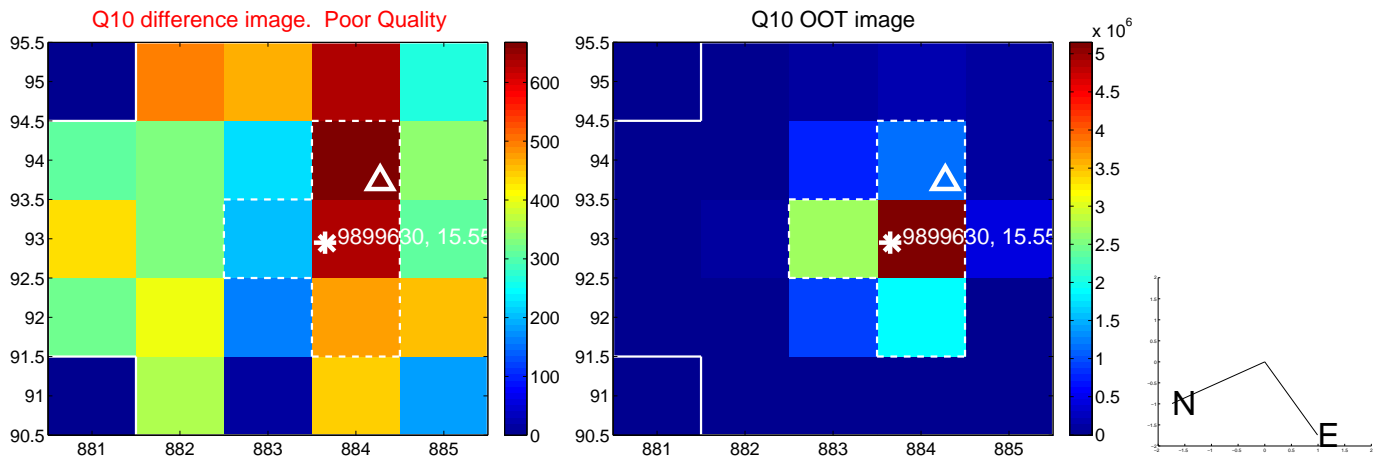
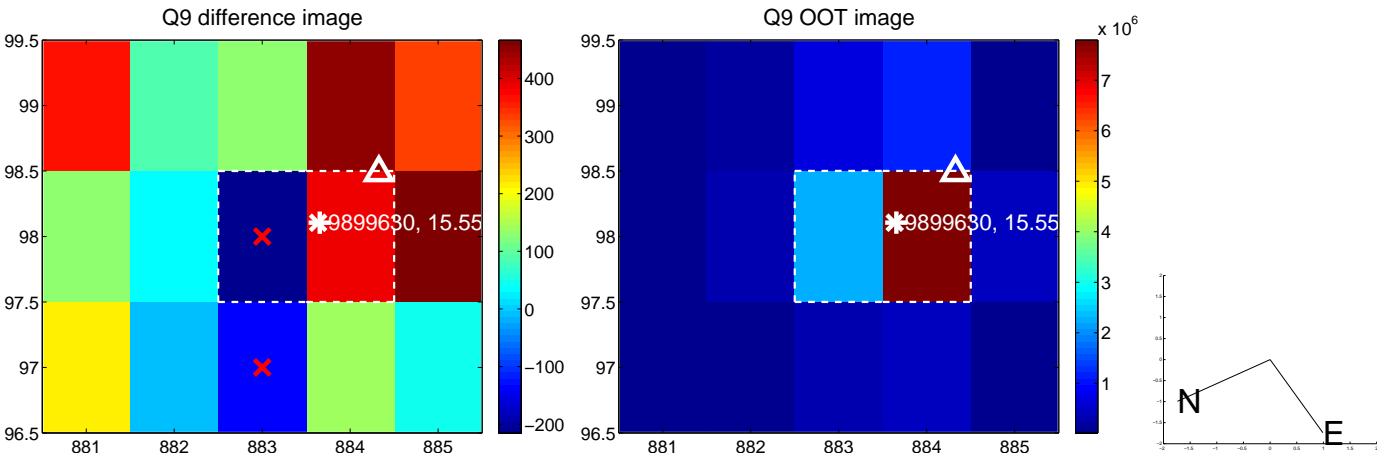
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



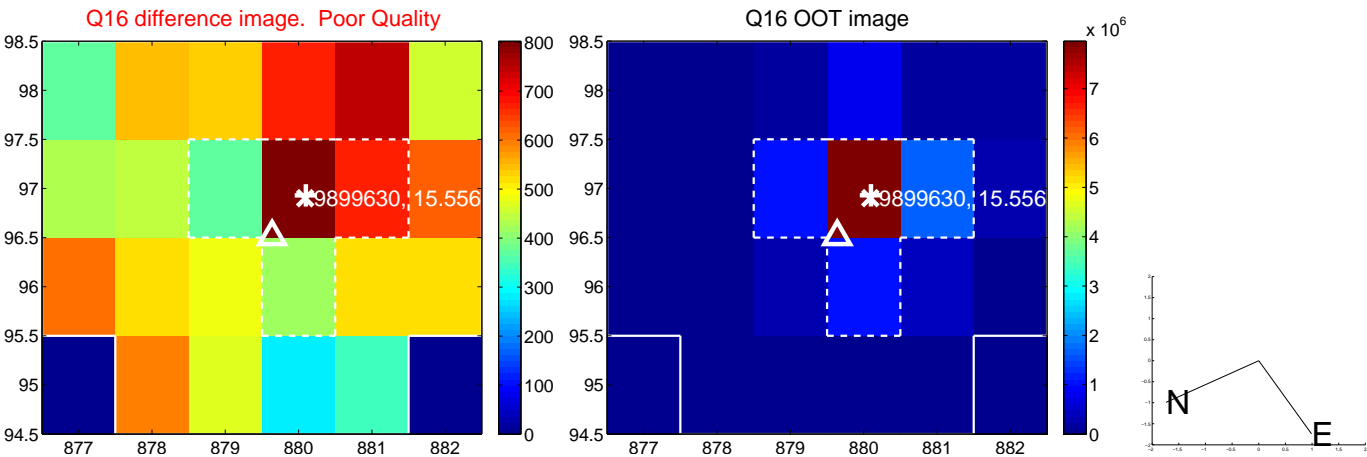
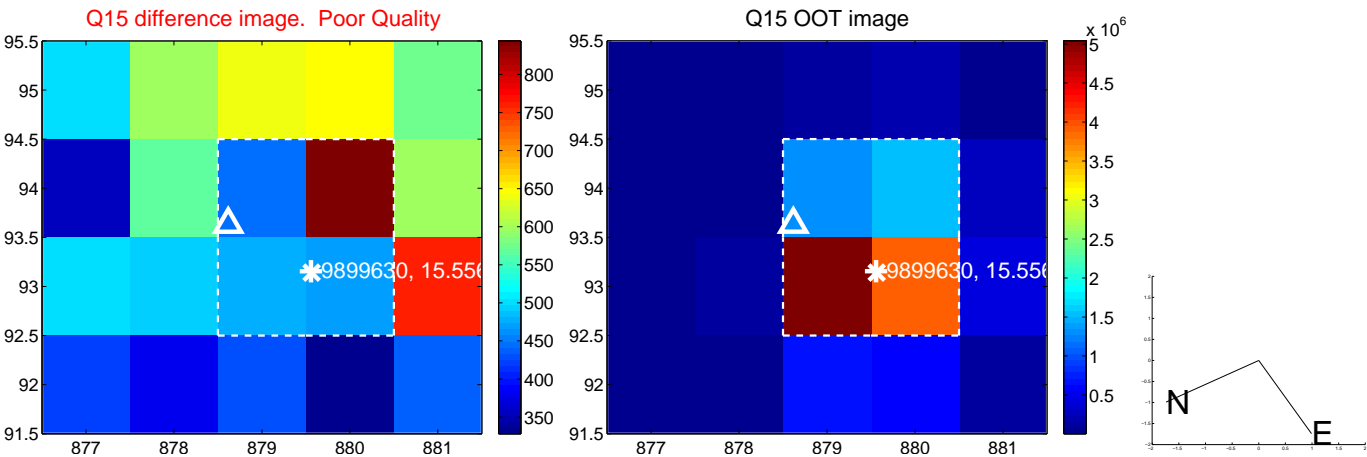
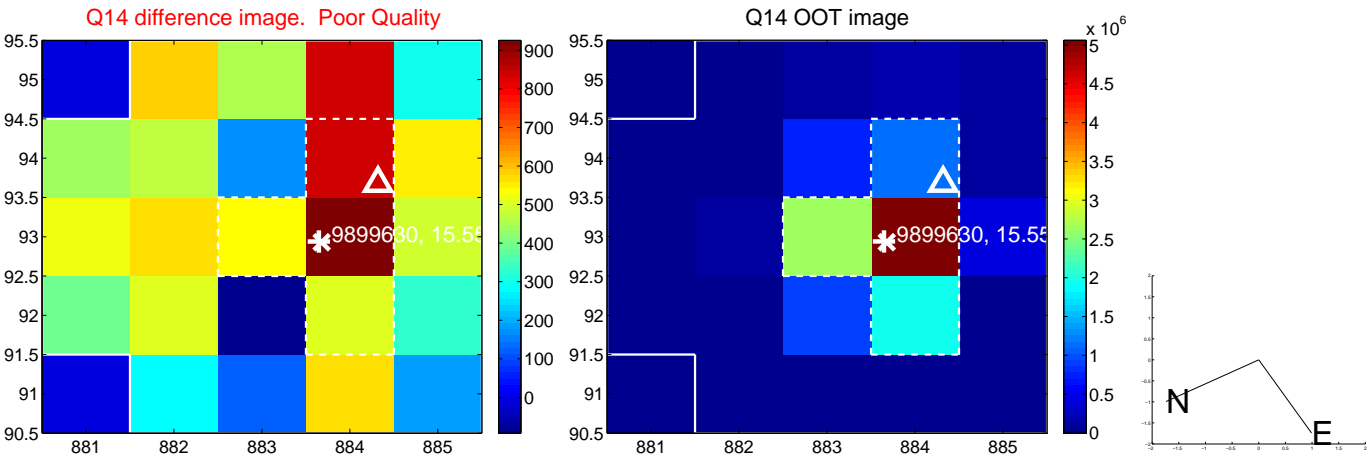
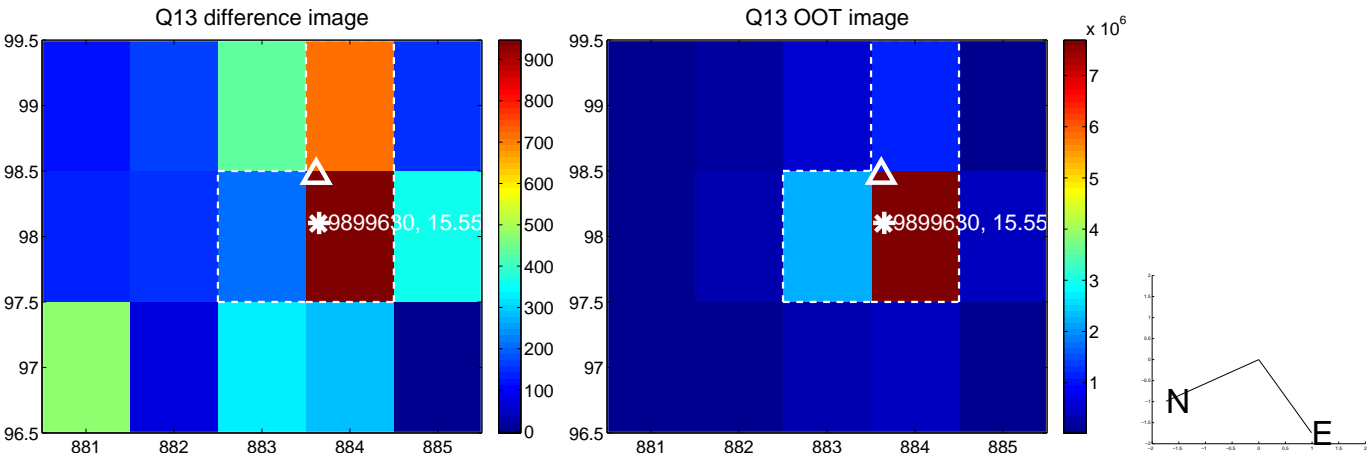
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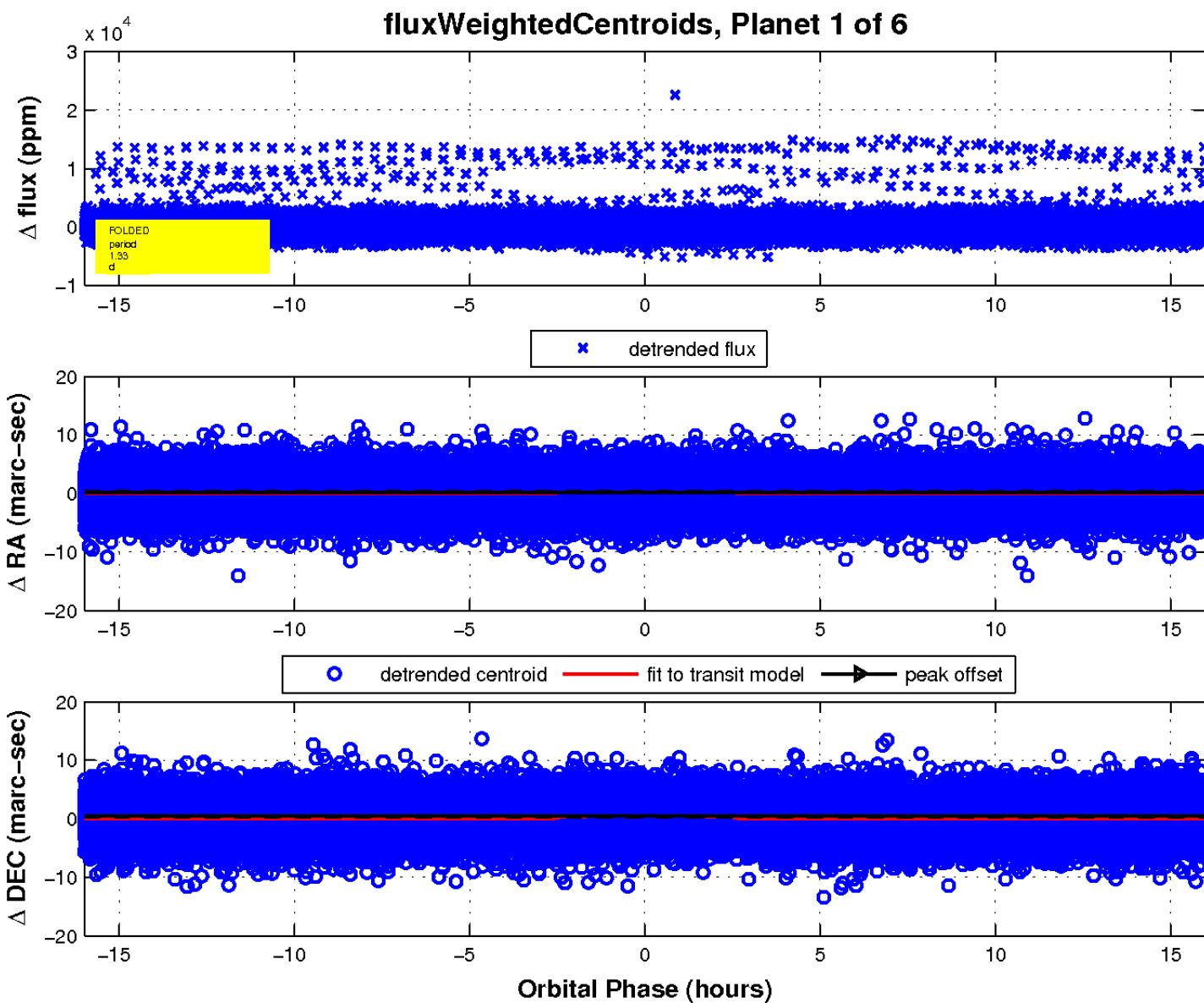
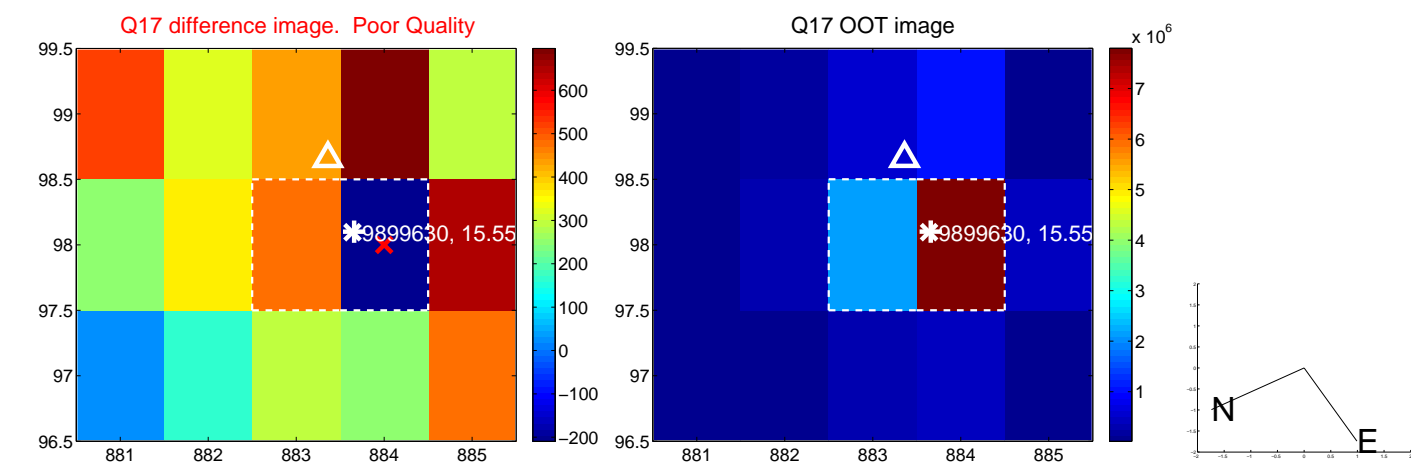
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

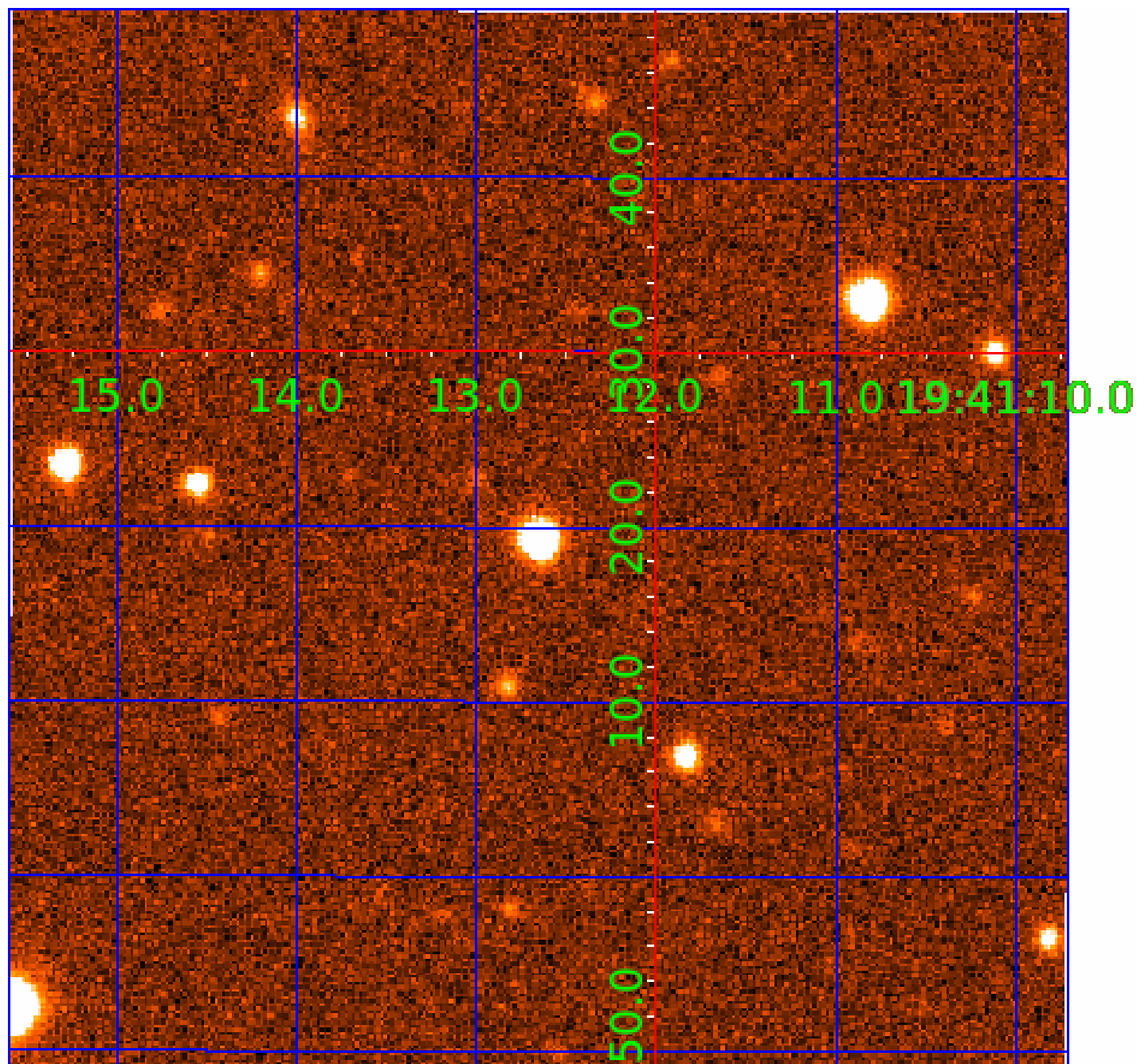


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009899630

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})
009899630-01	OBS	4439.01	1.332555	132.058523	107.2	5.445	13.1	13.0	0.95	6039	1.15	1884.93
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009899630-03	OBS	No	126.489931	192.201024	838.1	11.758	10.4	6.2	0.95	6039	3.07	4.35
009899630-04	OBS	No	375.575272	256.863383	374.3	6.483	9.7	1.9	0.95	6039	2.18	1.02
009899630-05	OBS	No	397.708794	262.788603	1.8	8.859	8.9	0.0	0.95	6039	0.14	0.94
009899630-06	OBS	No	352.676434	271.484285	918.5	9.000	8.0	-1.0	0.95	6039	2.88	1.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009899630-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
009899630-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009899630-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009899630-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009899630-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009899630-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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 009899630-02

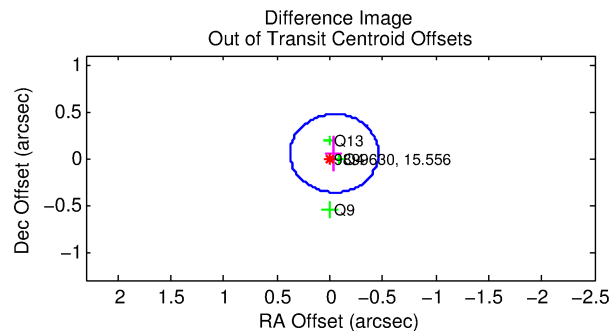
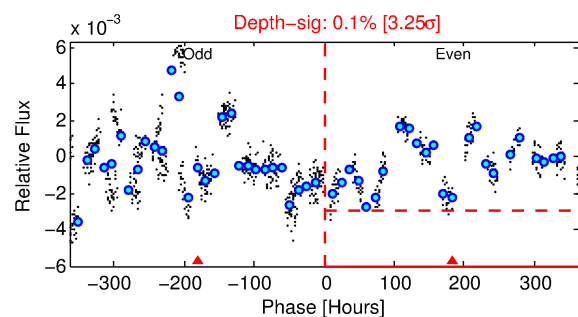
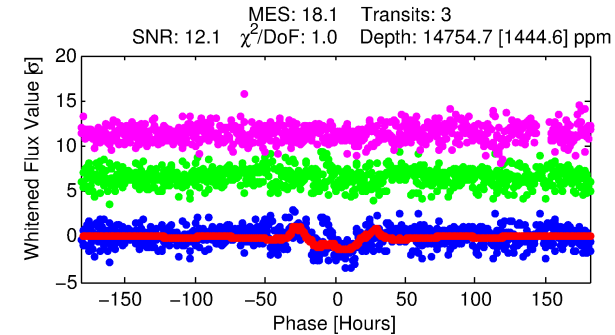
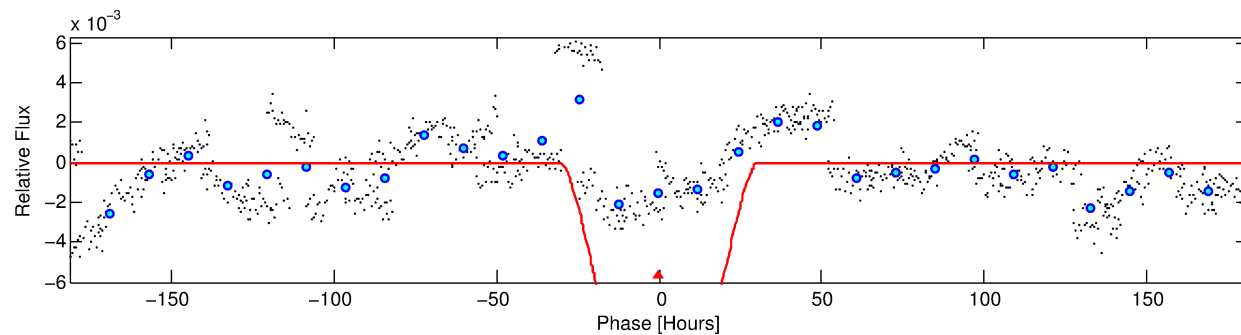
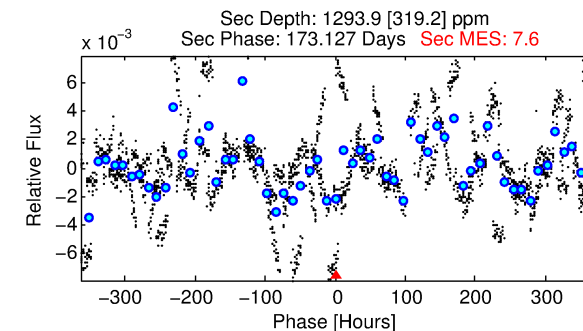
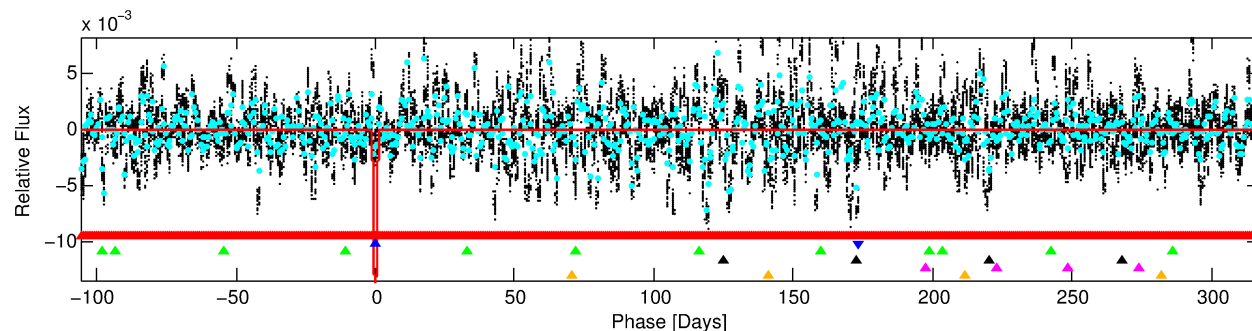
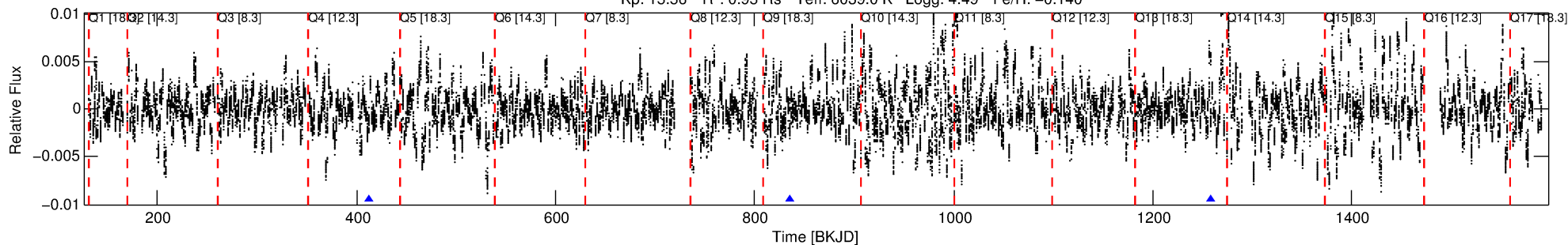
No Significant Match Found

DV One-Page Summary

KIC: 9899630 Candidate: 2 of 6 Period: 423.245 d

KOI: K04439 Corr: No Ephemeris Match

Kp: 15.56 R*: 0.95 Rs Teff: 6039.0 K Logg: 4.49 Fe/H: -0.140



DV Fit Results:

Period = 423.24493 [0.02517] d
Epoch = 411.9627 [0.0306] BKJD
Rp/R* = 0.1963 [0.1273]
a/R* = 35.13 [2.41]
b = 1.00 [0.18]
Seff = 0.87 [0.35]
Teq = 246 [25] K
Rp = 20.38 [14.55] Re
a = 1.1131 [0.2847] AU
Ag = 2124.45 [2915.65] [0.73σ]
Teff = 2585 [858] K [2.73σ]

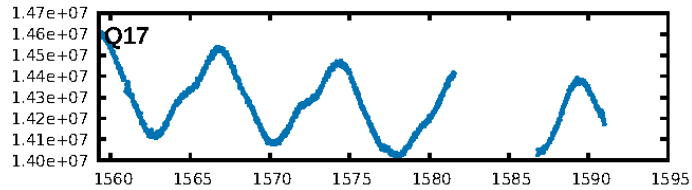
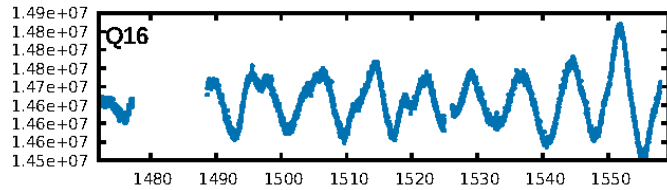
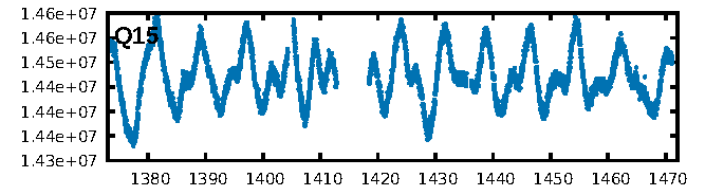
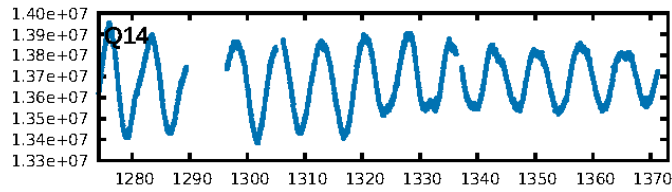
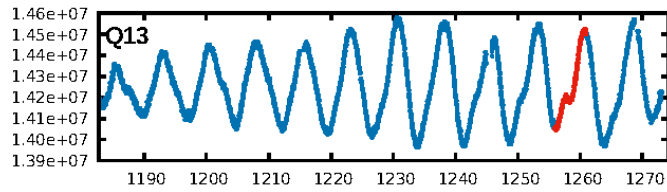
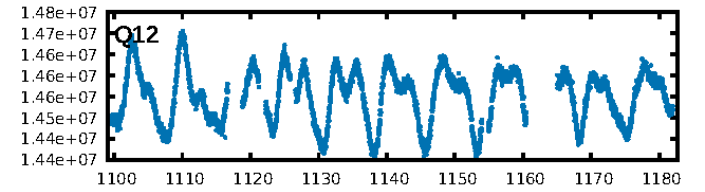
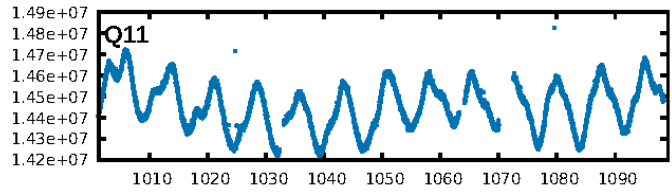
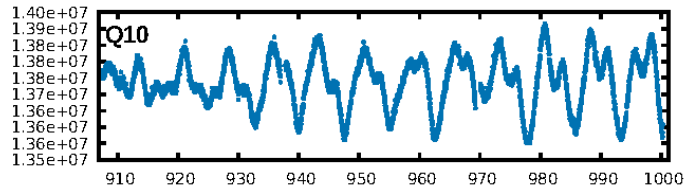
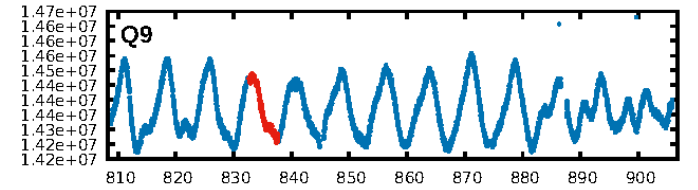
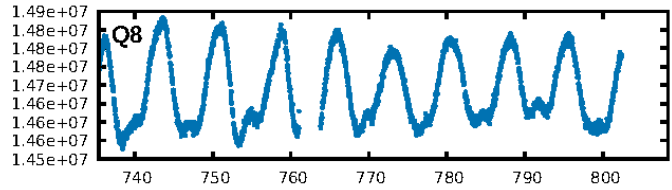
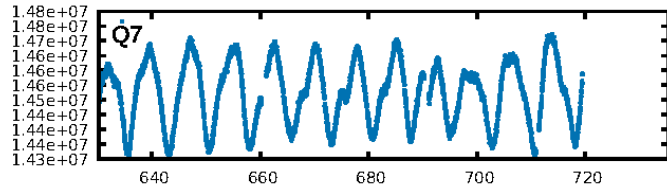
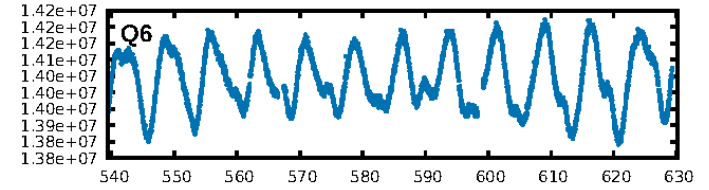
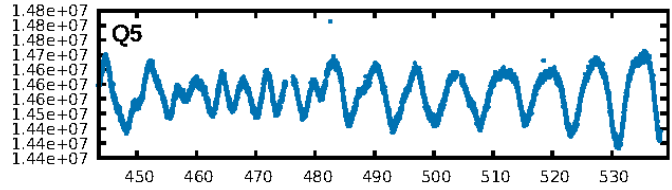
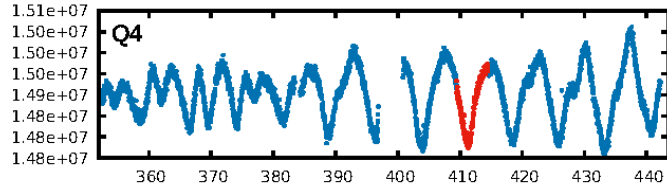
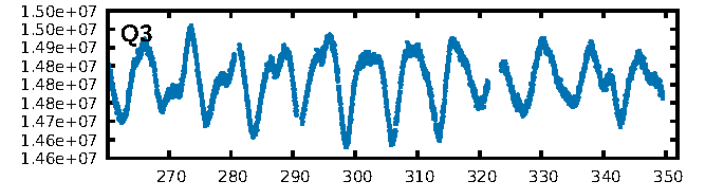
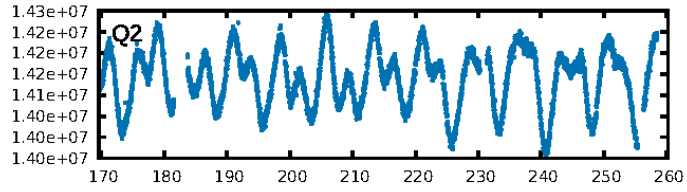
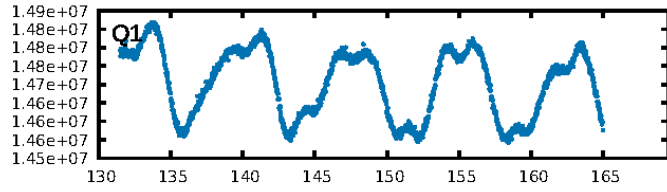
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.02σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.96e-24
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.276
Centroid-sig: 52.0%
Centroid-so: 0.176 arcsec [5.03σ]
OotOffset-rm: 0.069 arcsec [0.50σ]
KicOffset-rm: 0.078 arcsec [0.78σ]
OotOffset-st: 0/0/1/2 [3]
KicOffset-st: 0/0/1/2 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/3]

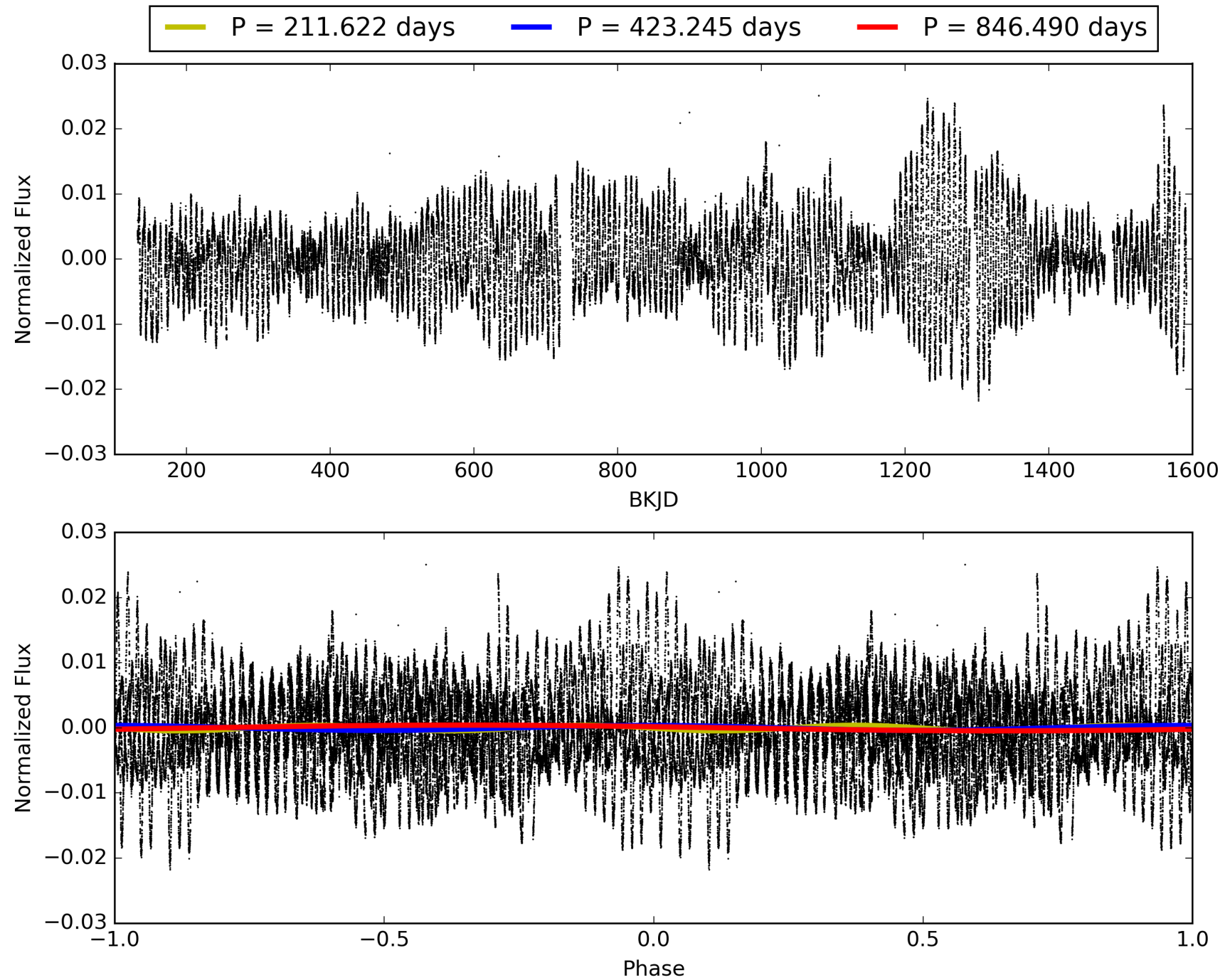
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:32:26 Z

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

TCE 009899630-02, PDC Light Curves

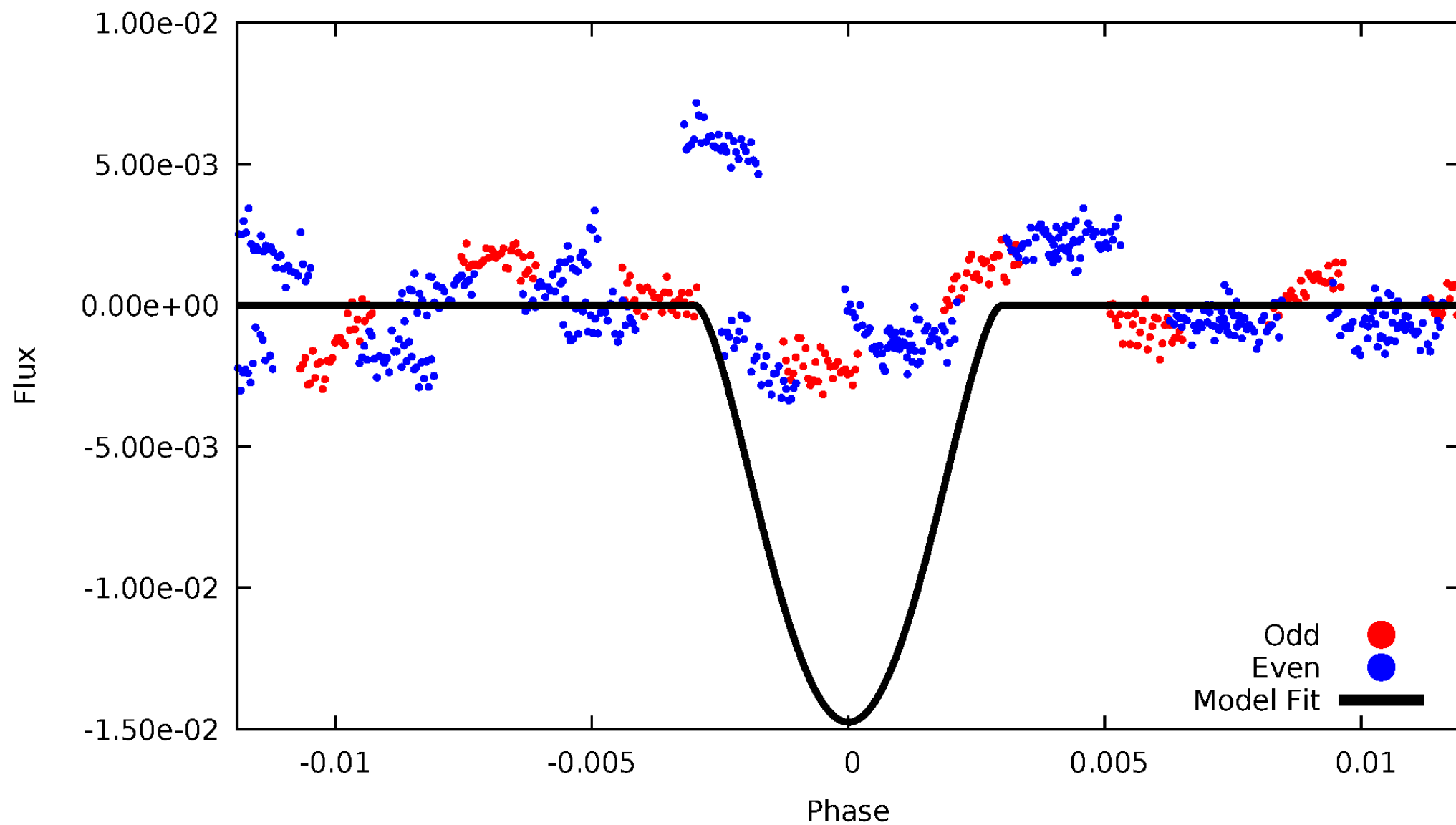


TCE 009899630-02



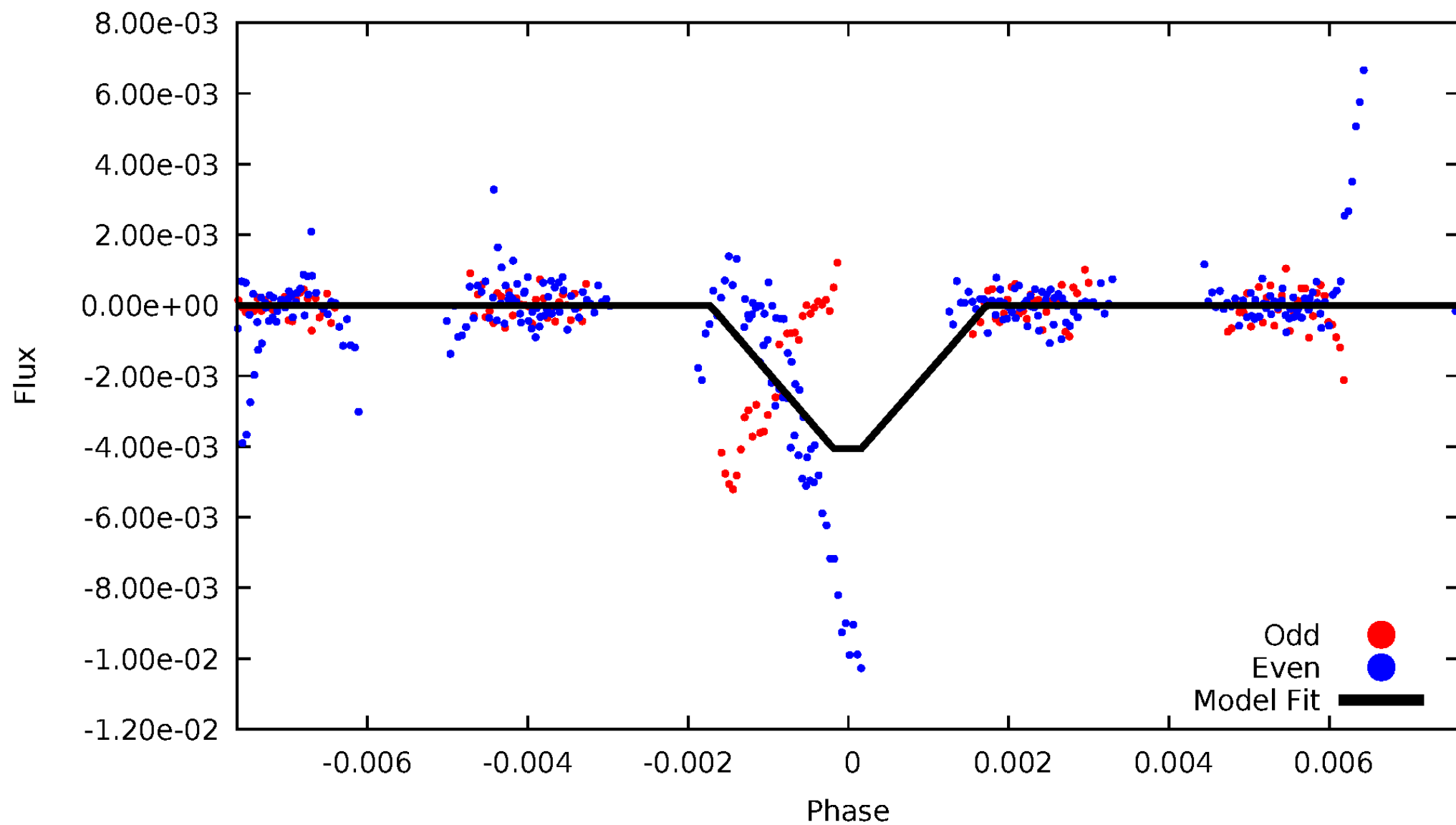
DV Odd/Even

TCE 009899630-02



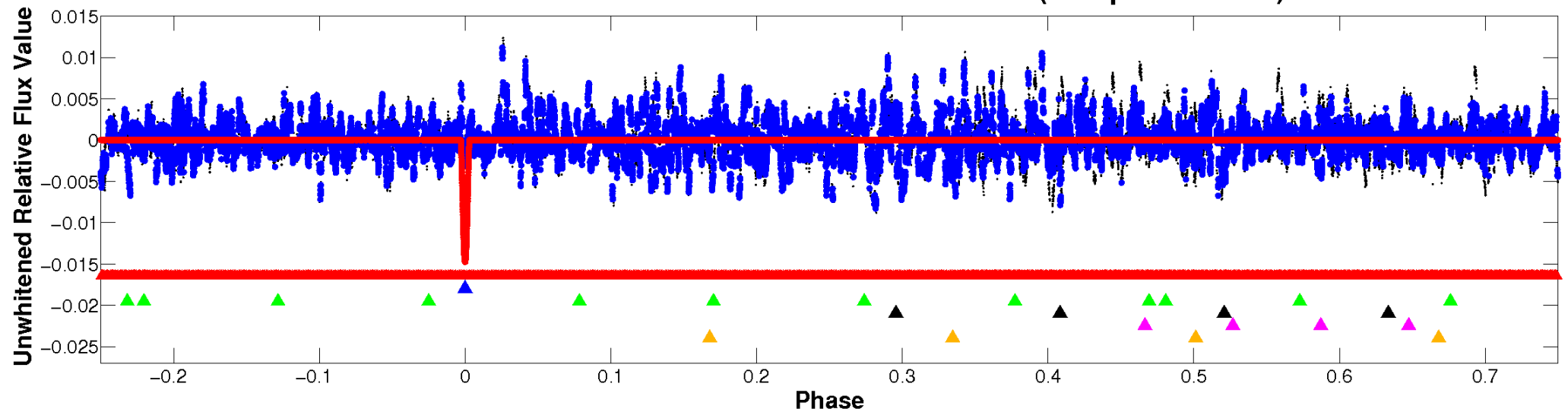
ALT Odd/Even

TCE 009899630-02

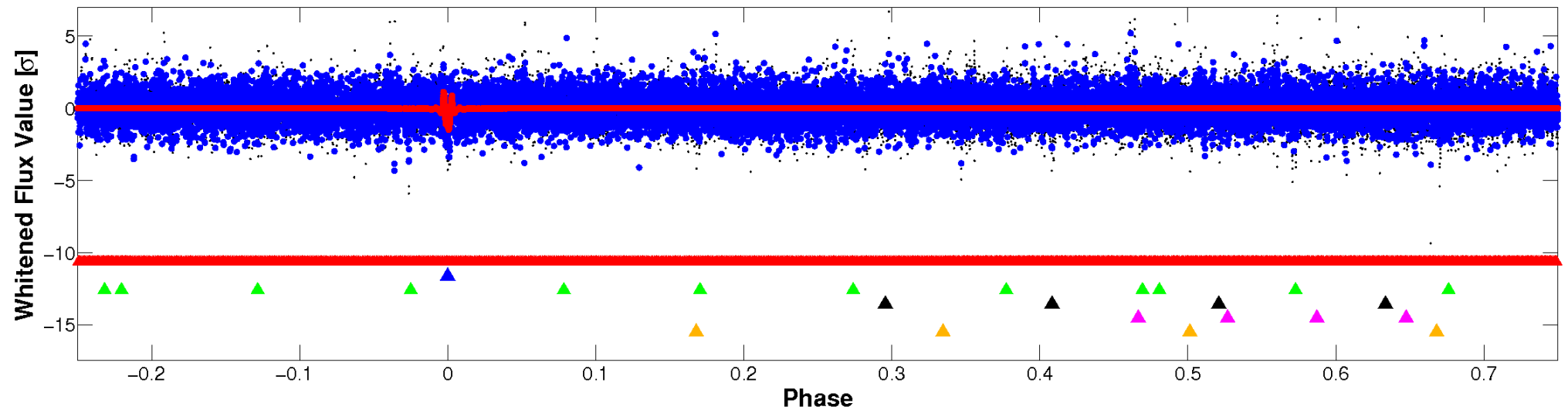


Non-Whitened Vs. Whitened Light Curve

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

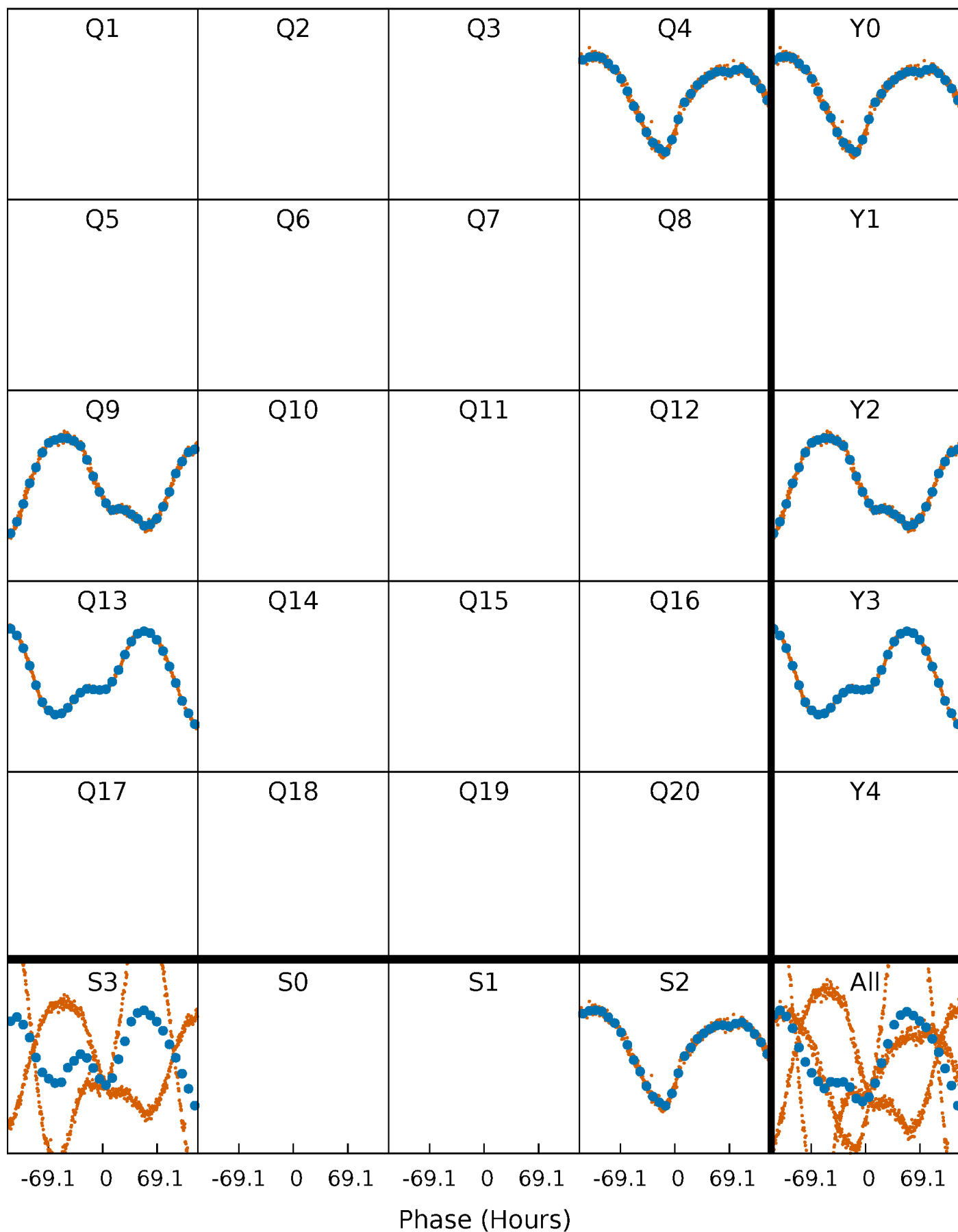


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



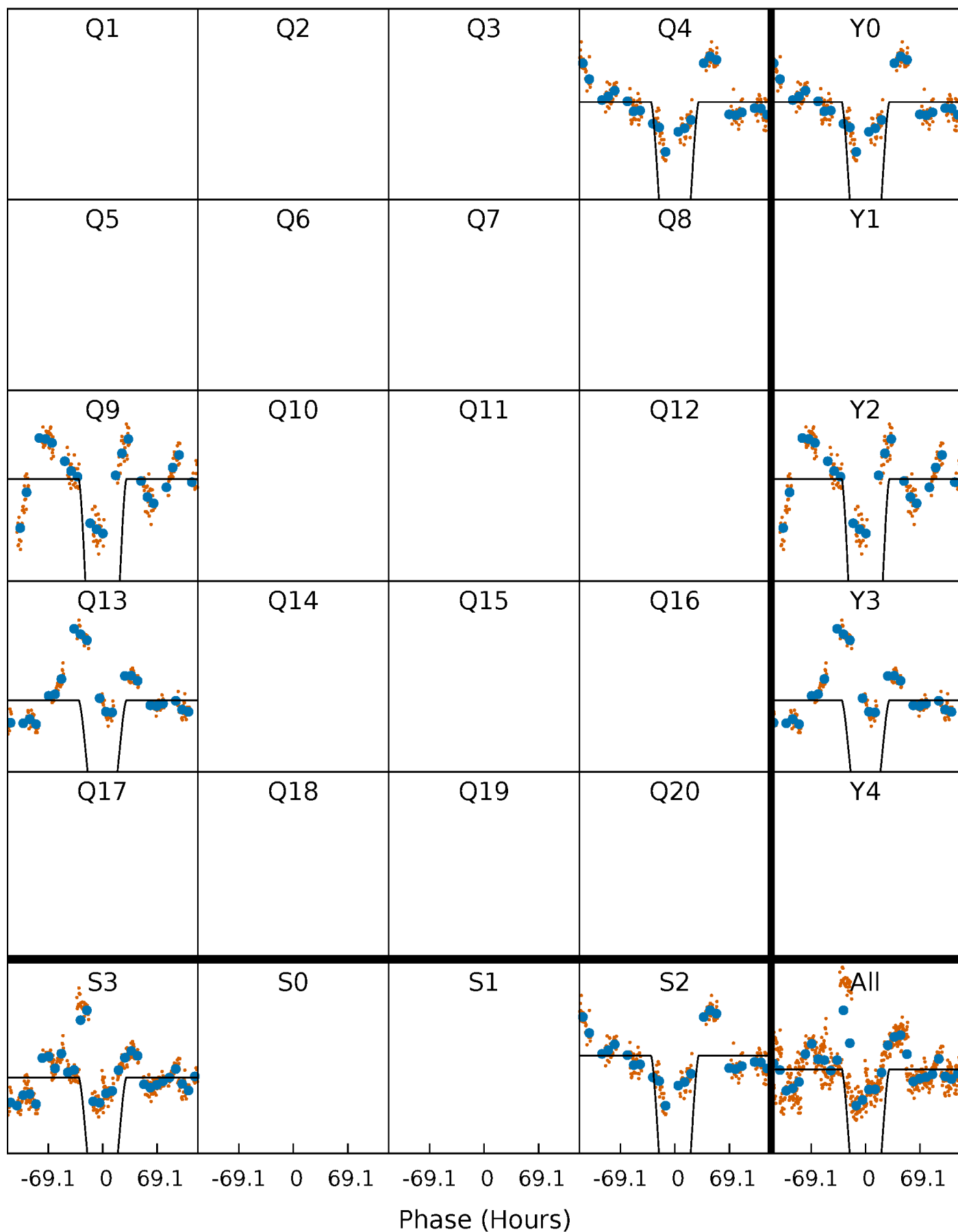
PDC Quarter-Phased Transit Curves

TCE 009899630-02 P=423.244926 Days $T_0=411.962750$ (BKJD)



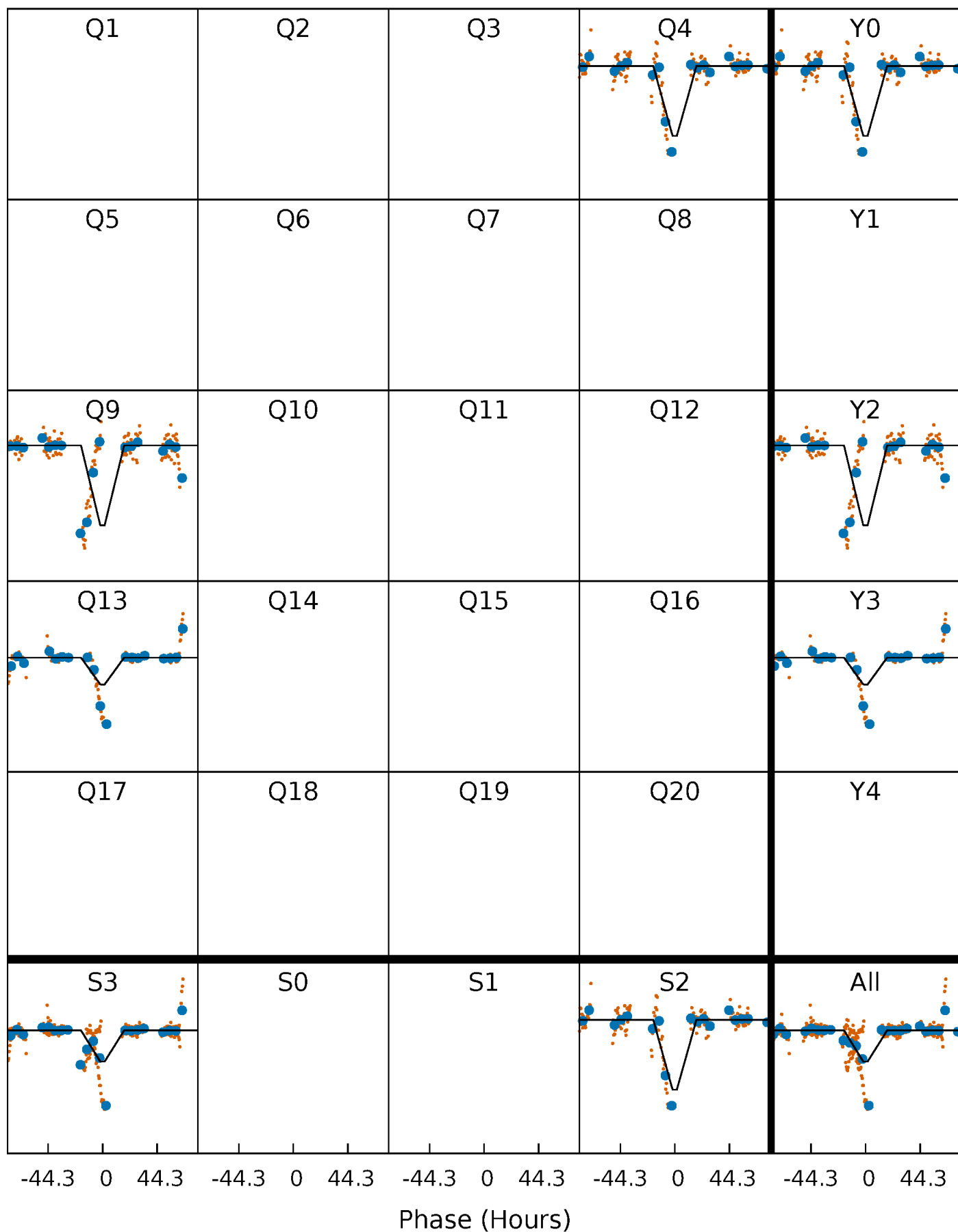
DV Quarter-Phased Transit Curves

TCE 009899630-02 $P=423.244926$ Days $T_0=411.962750$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

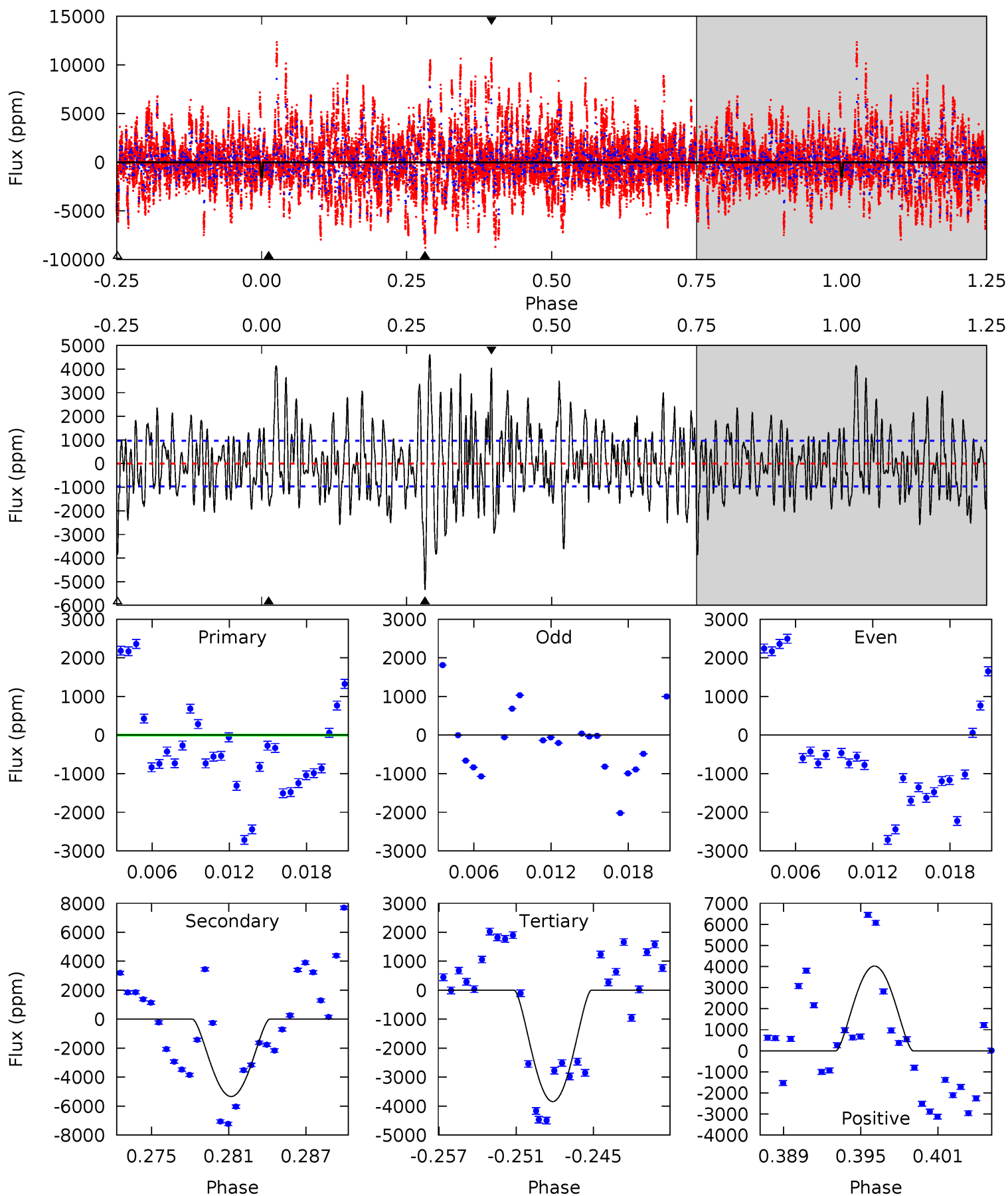
TCE 009899630-02 P=423.628566 Days $T_0=411.713488$ (BKJD)



DV Model-Shift Uniqueness Test

009899630-02, P = 423.244926 Days, E = 411.962750 Days

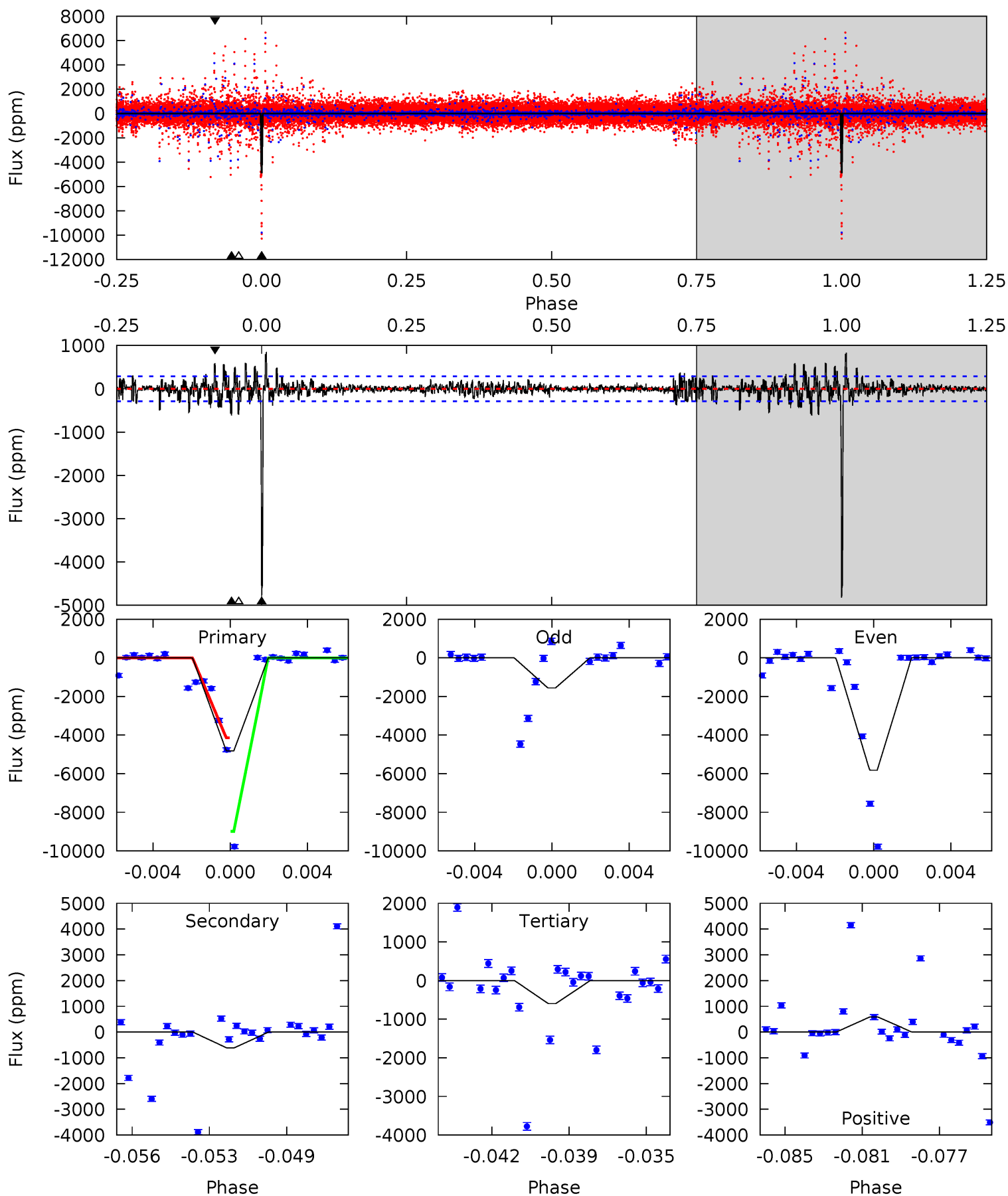
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.19	28.3	20.4	21.3	5.12	2.75	6.99	-12.2	-13.1	7.93	6.98	2.30	0.75	0.46	0.45



Alt Model-Shift Uniqueness Test

009899630-02, P = 423.628566 Days, E = 411.713488 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
86.8	11.1	10.7	10.6	5.22	2.92	1.71	76.1	76.2	0.31	0.43	39.3	0.89	0.15	37.6



Stellar Parameters For KIC 009899630

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6039^{+168}_{-210}	$4.493^{+0.052}_{-0.208}$	$-0.140^{+0.250}_{-0.300}$	$0.951^{+0.285}_{-0.102}$	$1.027^{+0.127}_{-0.141}$	$1.685^{+0.465}_{-0.877}$
	+3%/-3%	+1%/-5%	+179%/-214%	+30%/-11%	+12%/-14%	+28%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009899630-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-5339 ± 189	$22.54^{+14.21}_{-12.69}$	352^{+26}_{-18}	3934^{+1405}_{-564}	7192^{+28562}_{-4470}
Alt.	-614 ± 56	$12.55^{+11.68}_{-8.14}$	350^{+24}_{-18}	3327^{+1532}_{-572}	2538^{+18782}_{-1859}

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 $A_{obs} \gg 1.0$

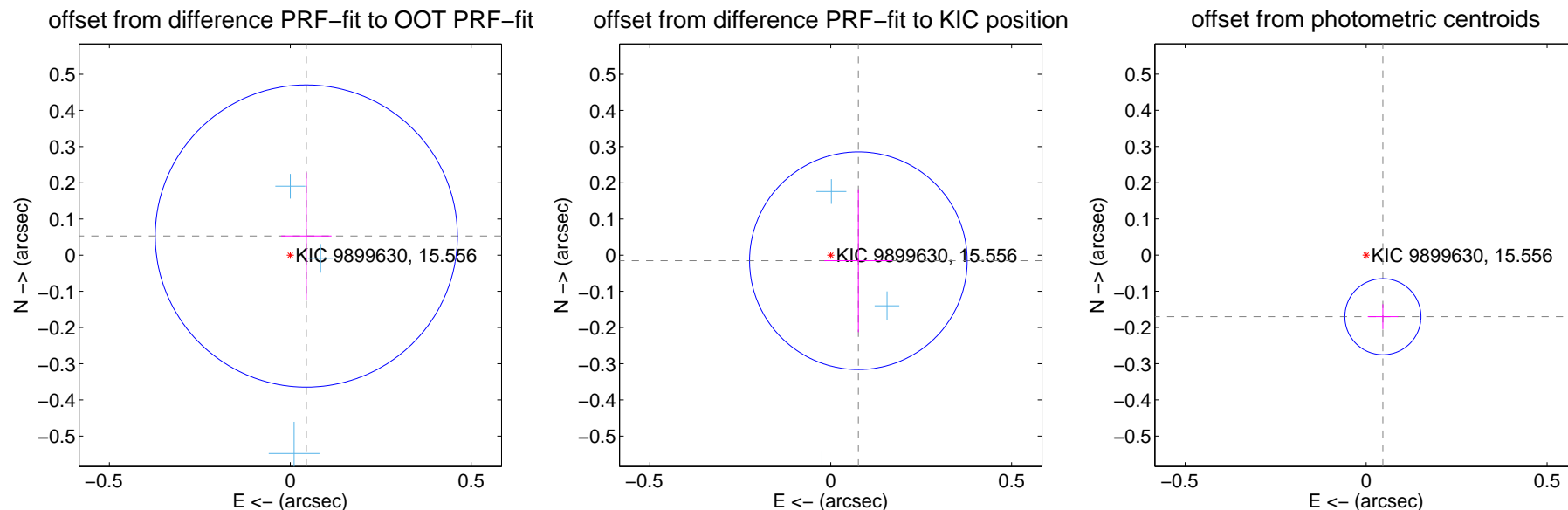
DV Centroid Data

Supplemental centroid analysis for 009899630-02. Kepler magnitude: 15.56. Transit SNR 12.07

There are 3 quarters with good PRF difference image offsets

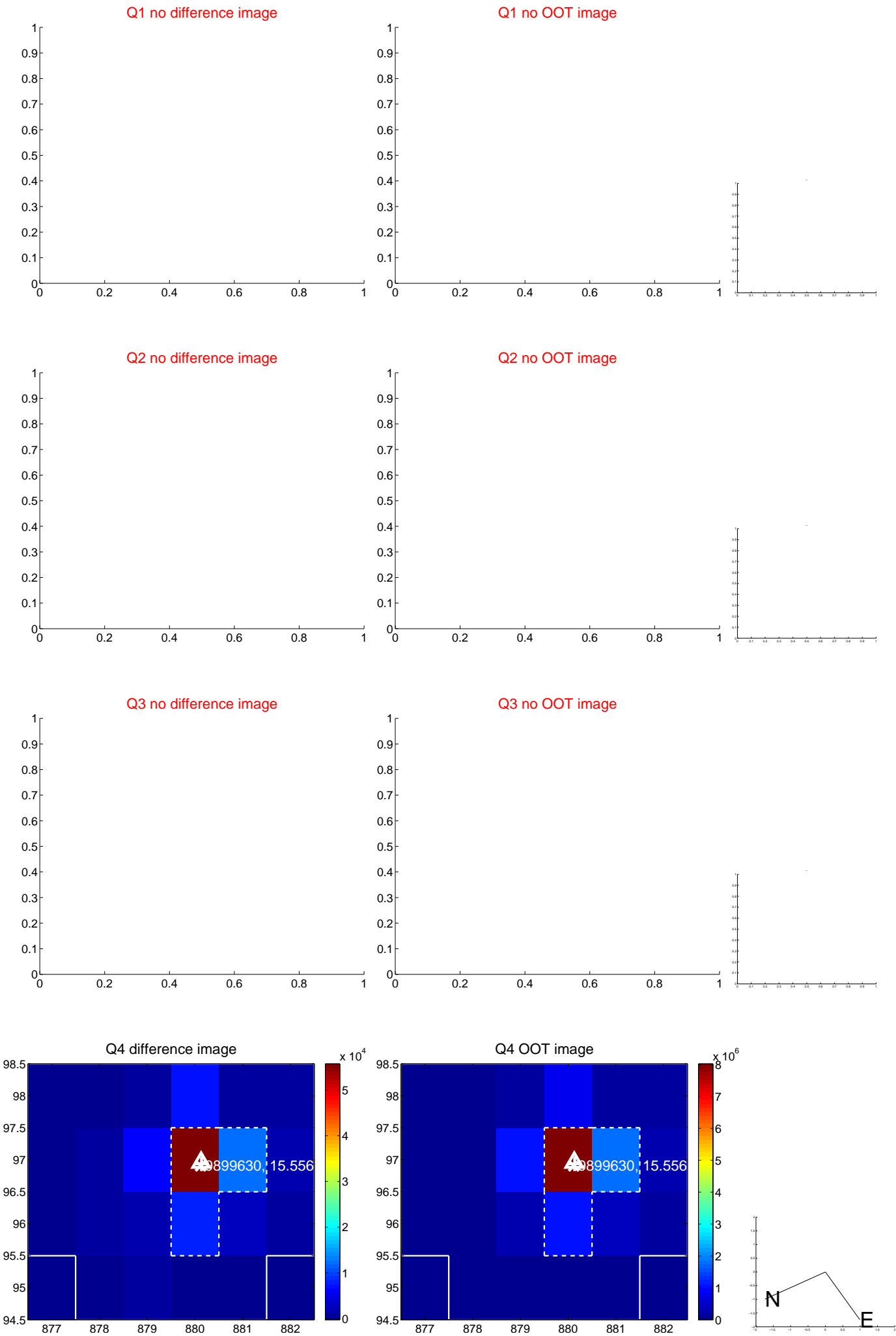
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.069 ± 0.139	0.50	-0.044 ± 0.069	0.053 ± 0.176
PRF-fit source offset from KIC position	0.078 ± 0.100	0.78	-0.076 ± 0.094	-0.015 ± 0.197
photometric centroid source offset	0.18 ± 0.04	5.03	-0.05 ± 0.04	-0.17 ± 0.03



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.

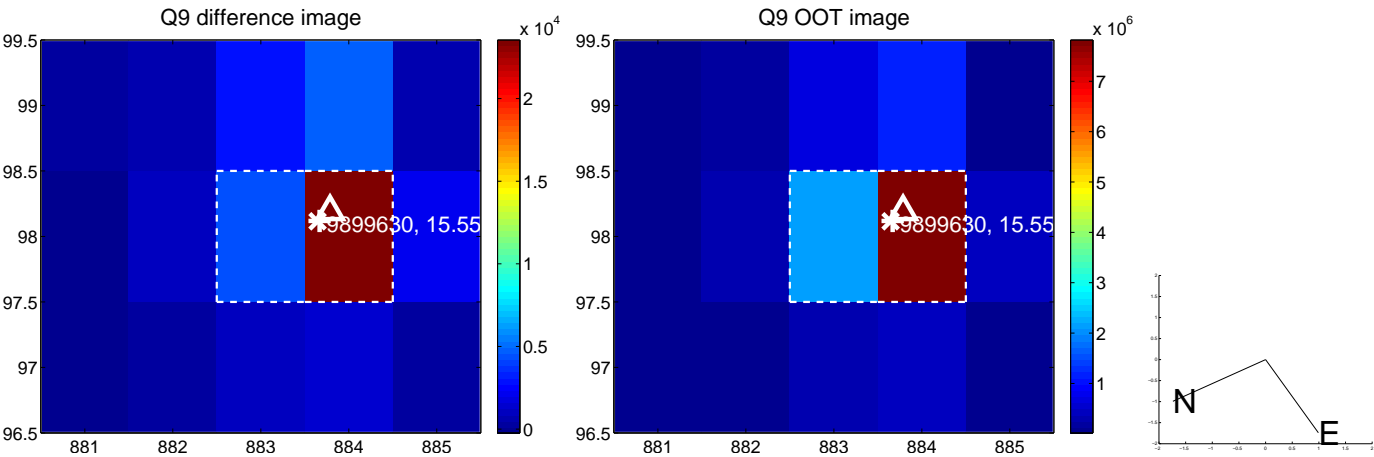
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



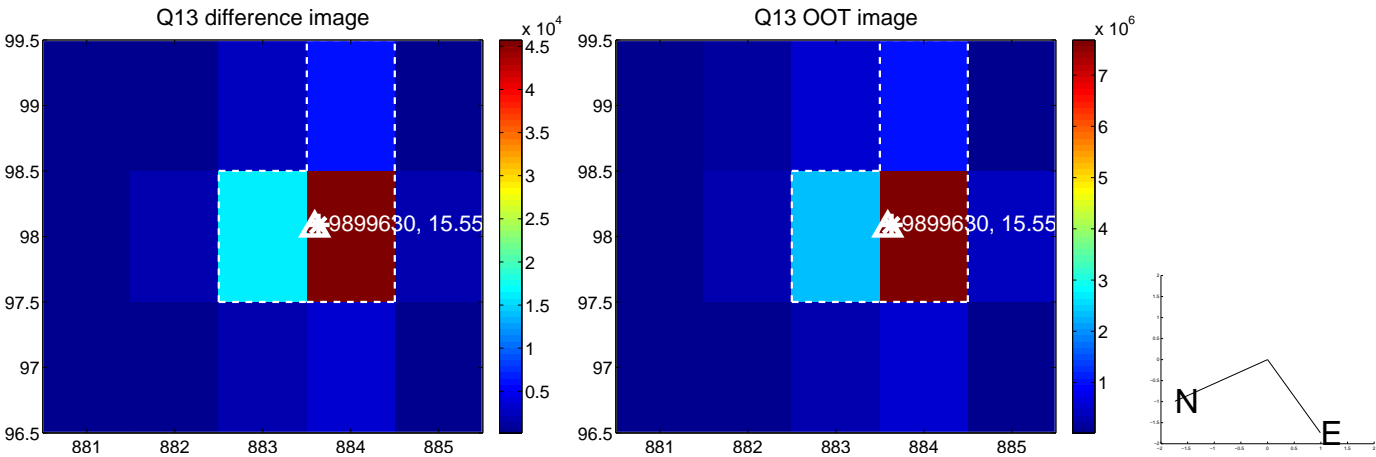
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



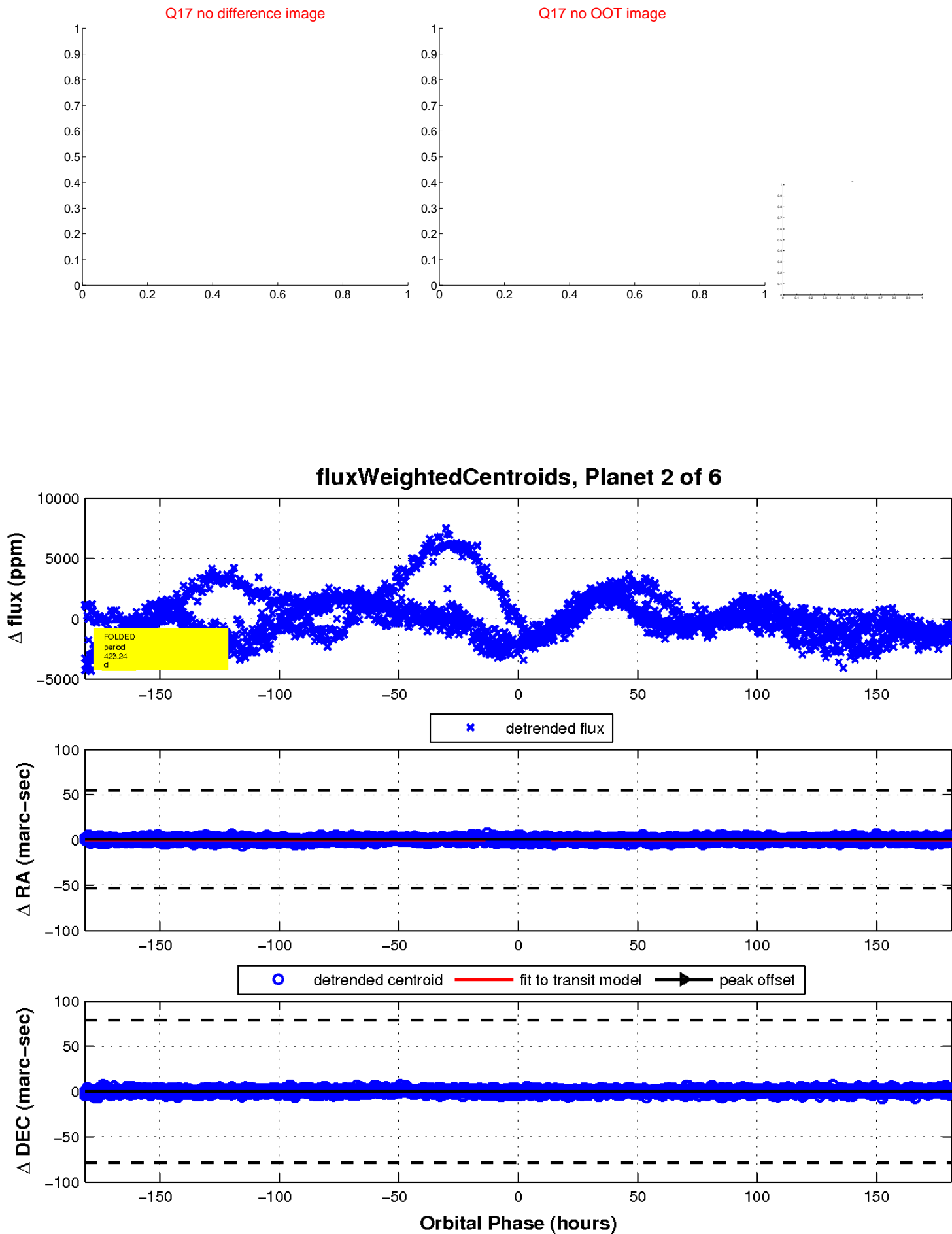
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

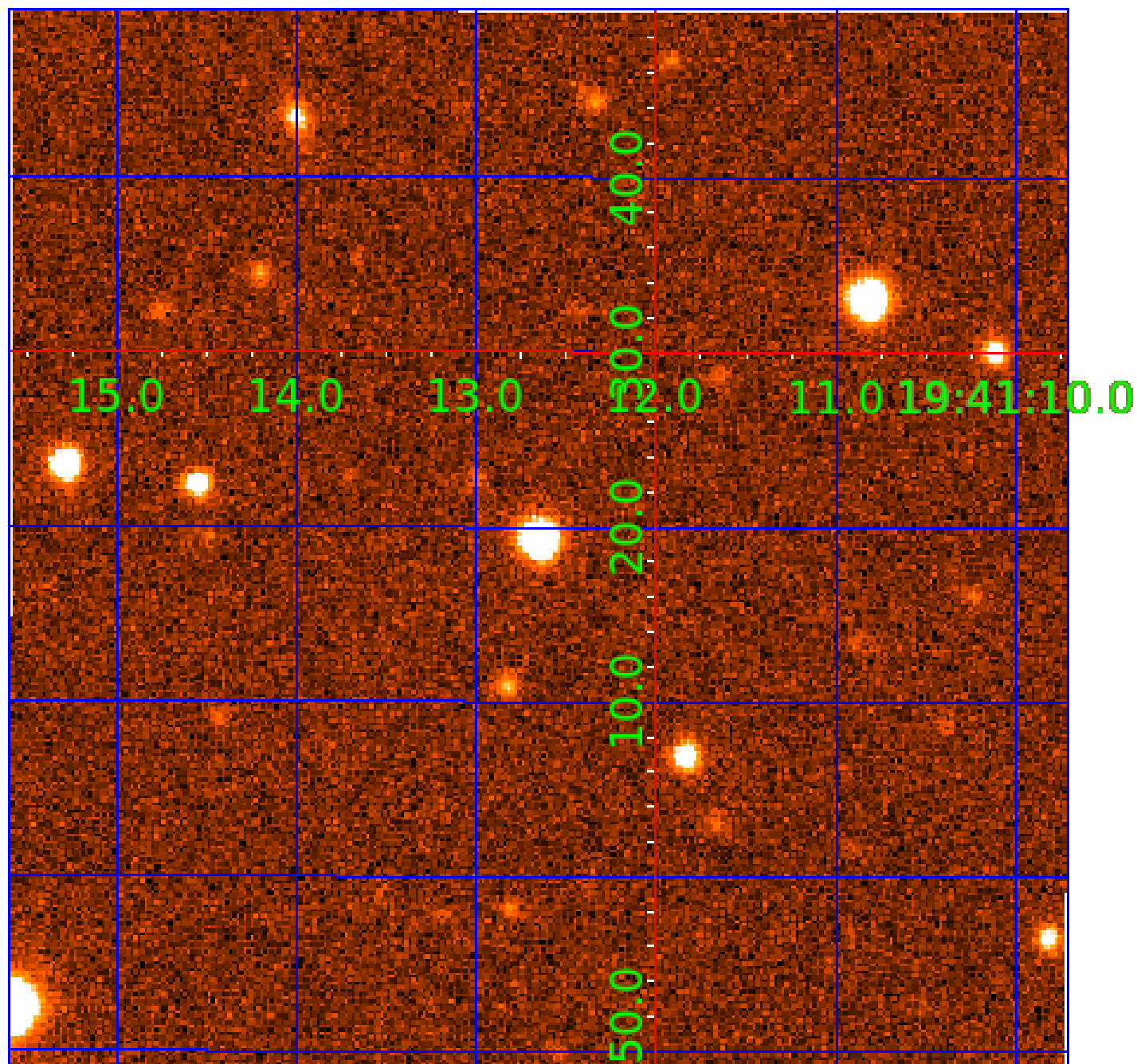


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009899630

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})
009899630-01	OBS	4439.01	1.332555	132.058523	107.2	5.445	13.1	13.0	0.95	6039	1.15	1884.93
009899630-02	OBS	No	423.244926	411.962750	14754.7	60.490	18.1	12.1	0.95	6039	20.38	0.87
009899630-03	OBS	No	126.489931	192.201024	838.1	11.758	10.4	6.2	0.95	6039	3.07	4.35
009899630-04	OBS	No	375.575272	256.863383	374.3	6.483	9.7	1.9	0.95	6039	2.18	1.02
009899630-05	OBS	No	397.708794	262.788603	1.8	8.859	8.9	0.0	0.95	6039	0.14	0.94
009899630-06	OBS	No	352.676434	271.484285	918.5	9.000	8.0	-1.0	0.95	6039	2.88	1.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009899630-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
009899630-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009899630-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009899630-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009899630-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009899630-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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.

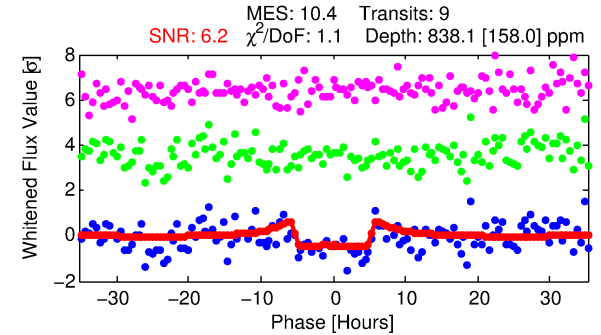
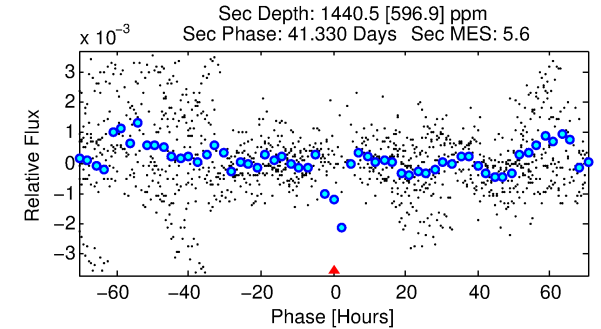
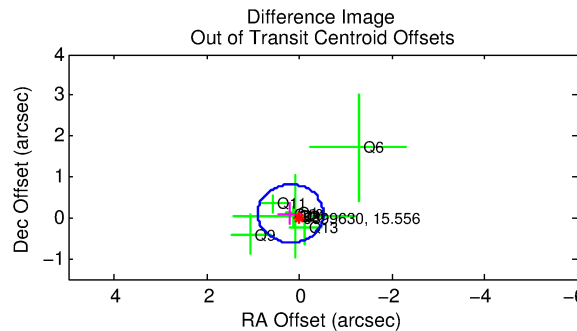
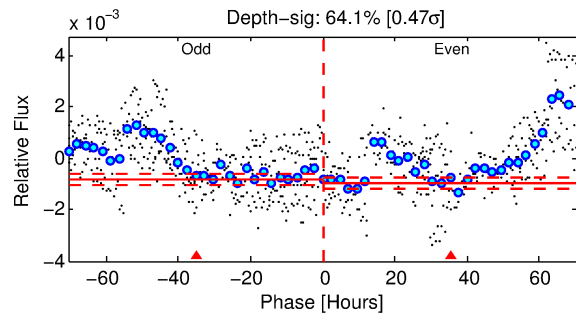
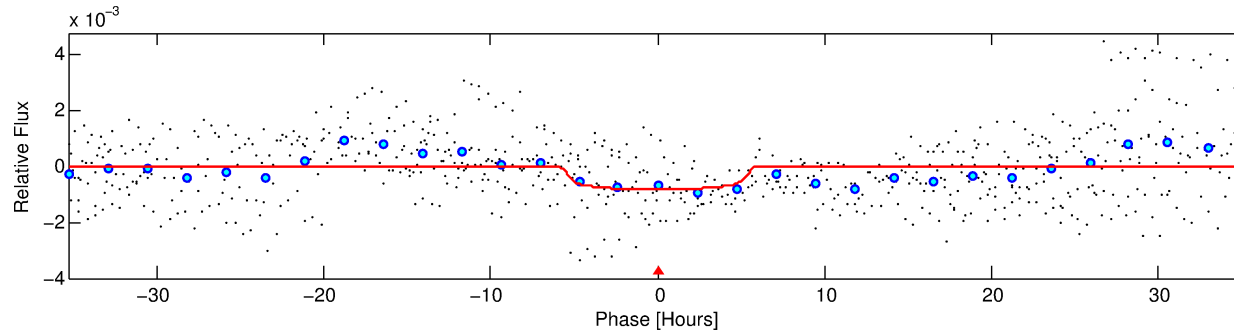
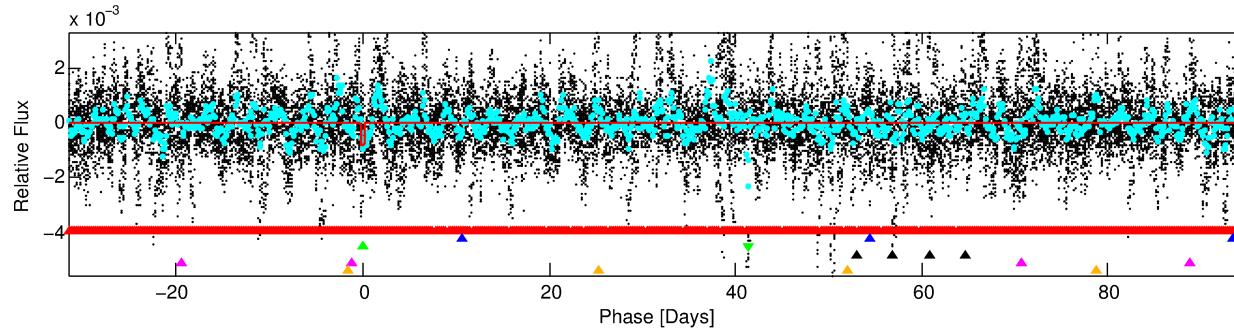
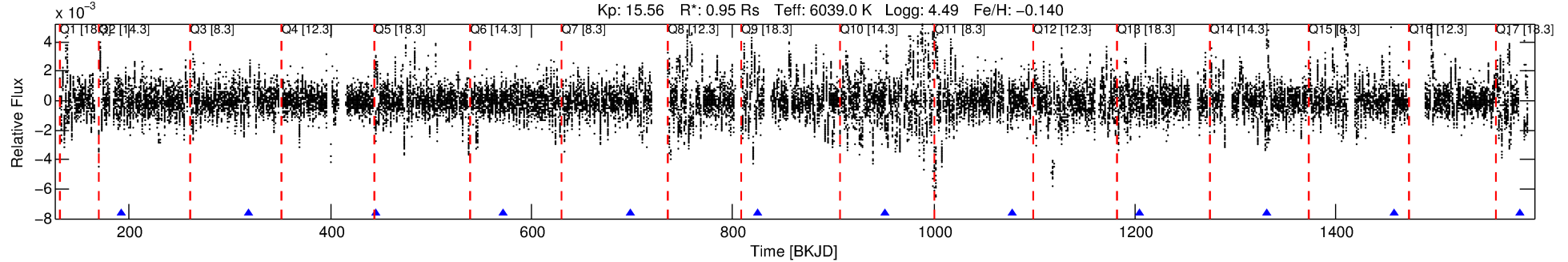
Ephemeris Match Information For 009899630-03

No Significant Match Found

DV One-Page Summary

KIC: 9899630 Candidate: 3 of 6 Period: 126.490 d
KOI: K04439 Corr: No Ephemeris Match

Kp: 15.56 R*: 0.95 Rs Teff: 6039.0 K Logg: 4.49 Fe/H: -0.140



DV Fit Results:

Period = 126.48993 [0.00324] d
Epoch = 192.2010 [0.0225] BKJD
Rp/R* = 0.0296 [0.0049]
a/R* = 51.86 [31.19]
b = 0.81 [0.25]
Seff = 4.35 [1.75]
Teq = 368 [37] K
Rp = 3.07 [1.05] Re
a = 0.4976 [0.1272] AU
Ag = 20857.24 [13582.14] [1.54σ]
Teffp = 6844 [939] K [6.89σ]

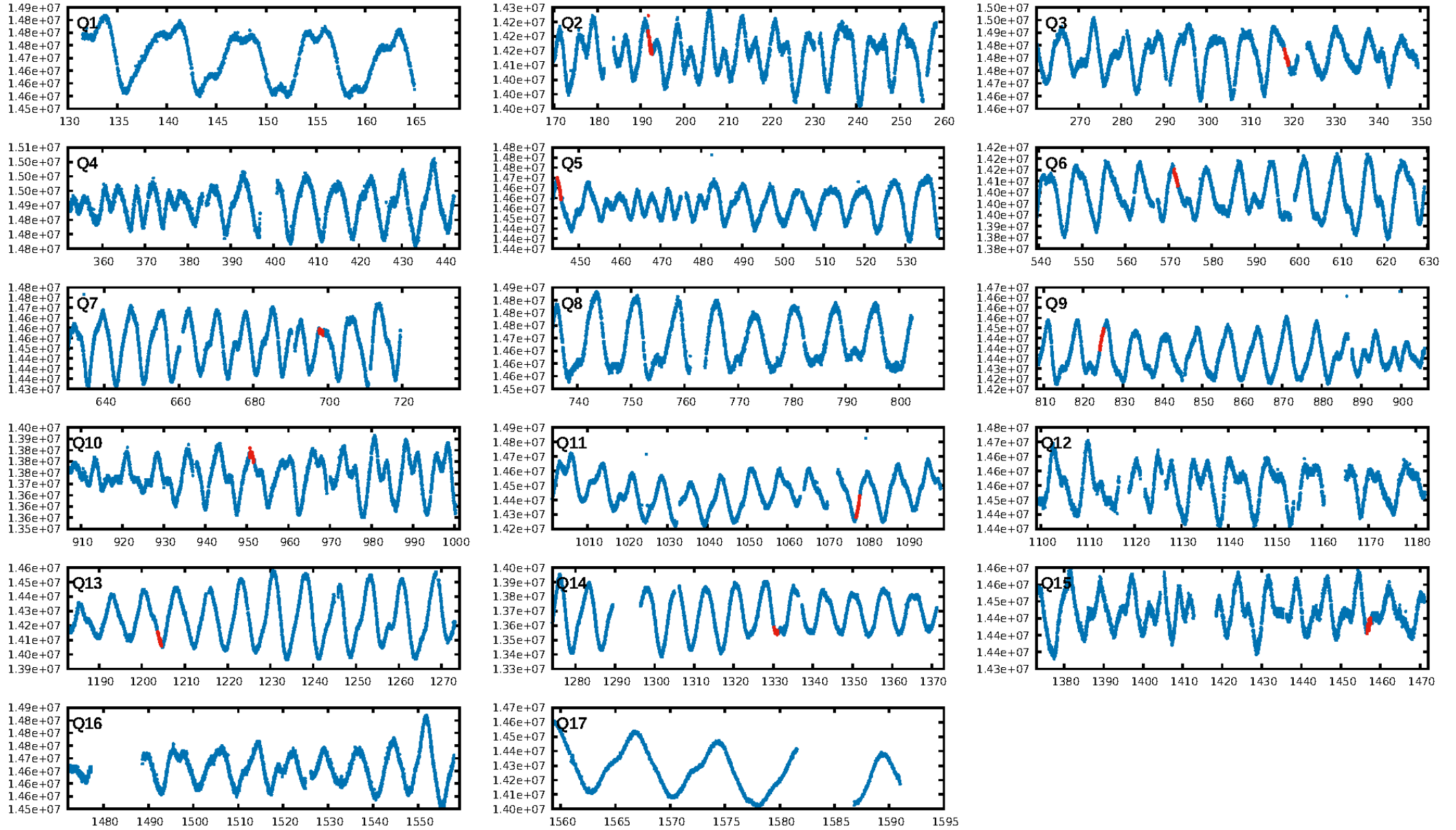
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [231.82σ]
LongPeriod-sig: 100.0% [366.61σ]
ModelChiSquare2-sig: 2.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.31e-16
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 3.655
Centroid-sig: 0.4%
Centroid-so: 1.190 arcsec [2.04σ]
OotOffset-rm: 0.219 arcsec [0.92σ]
OotOffset-st: 4/2/0/2 [8]
KicOffset-rm: 0.209 arcsec [0.88σ]
KicOffset-st: 4/2/0/2 [8]
DiffImageQuality-fgm: 0.50 [4/8]
DiffImageOverlap-fno: 0.00 [0/10]

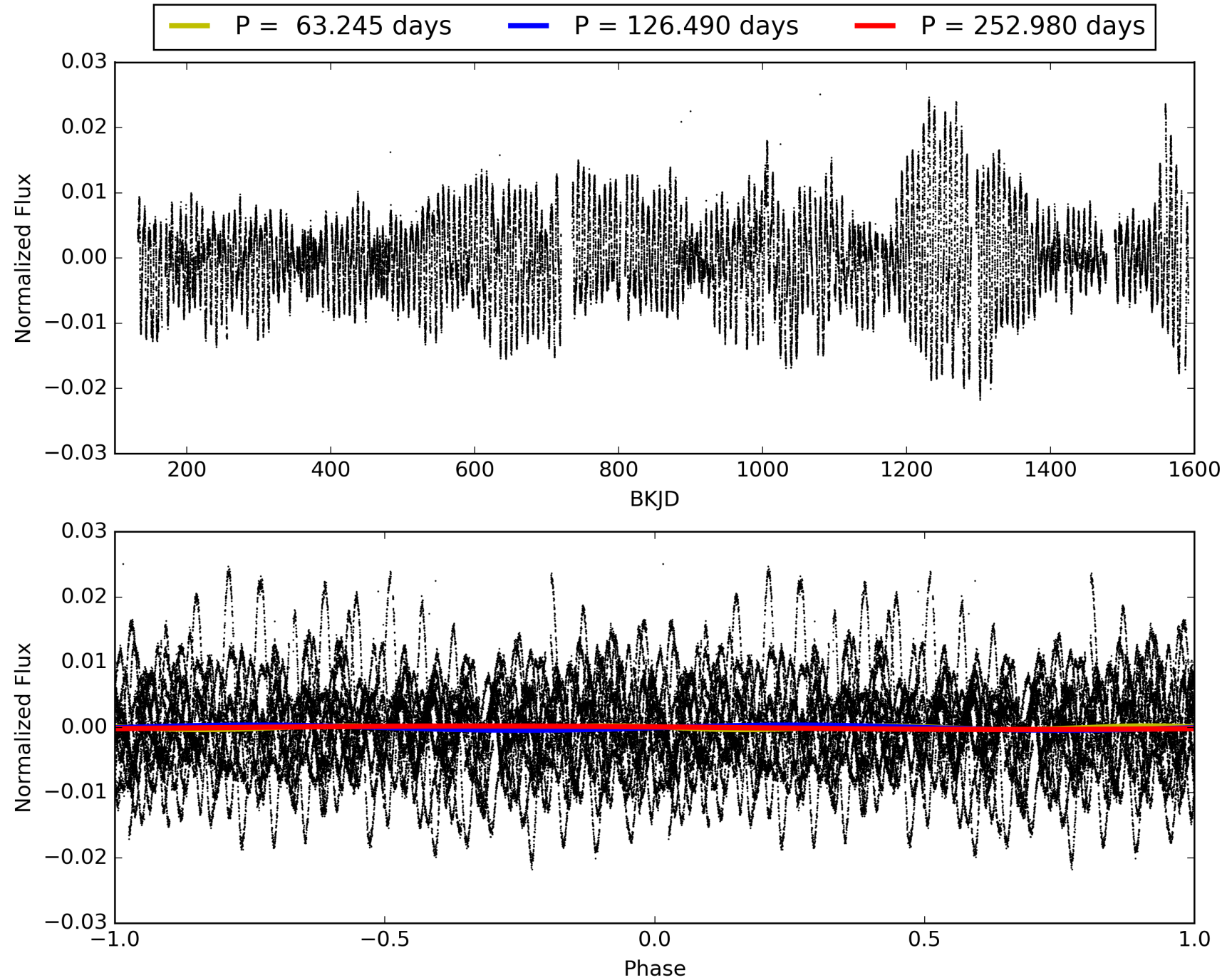
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:32:31 Z

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

TCE 009899630-03, PDC Light Curves

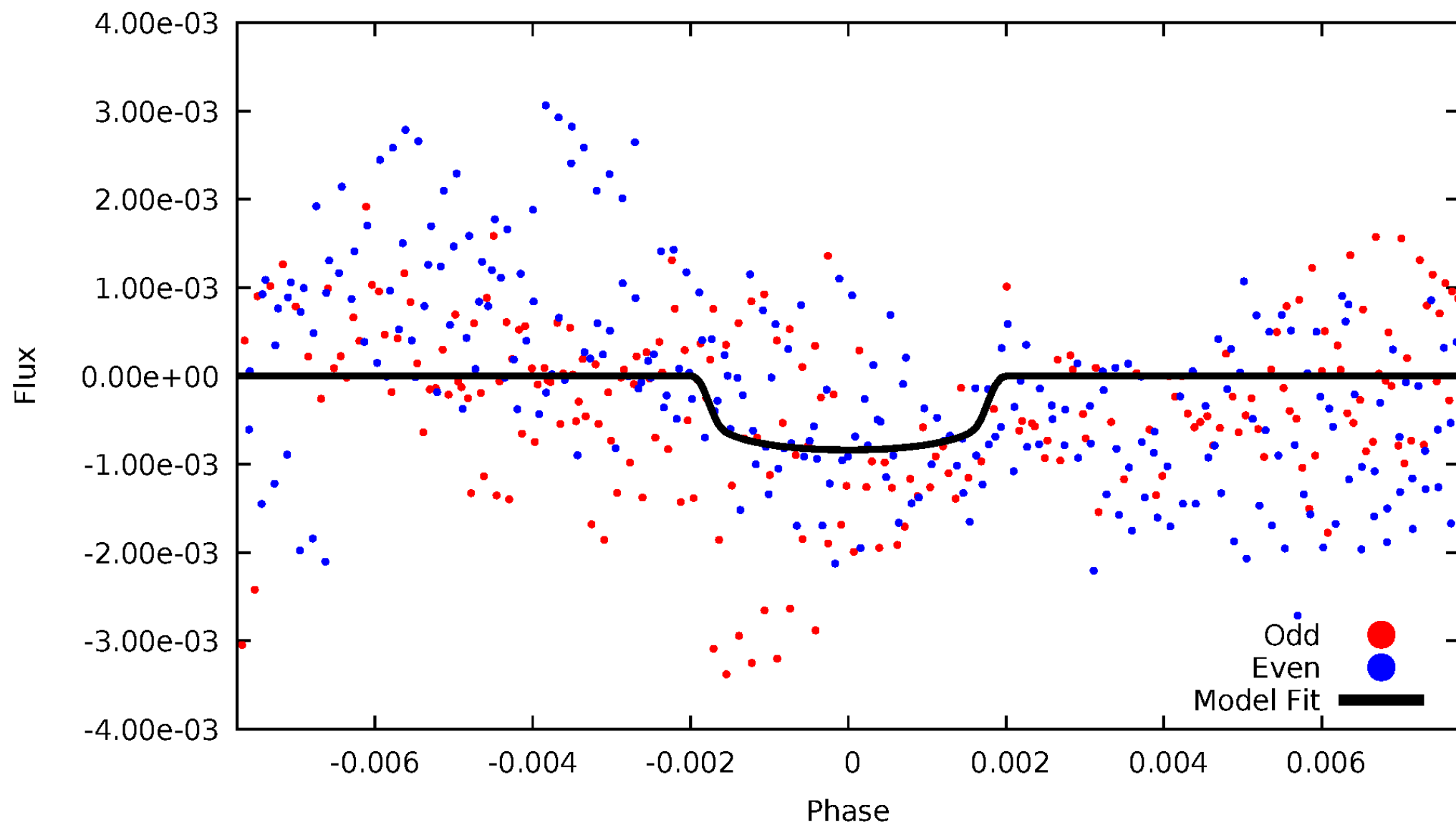


TCE 009899630-03



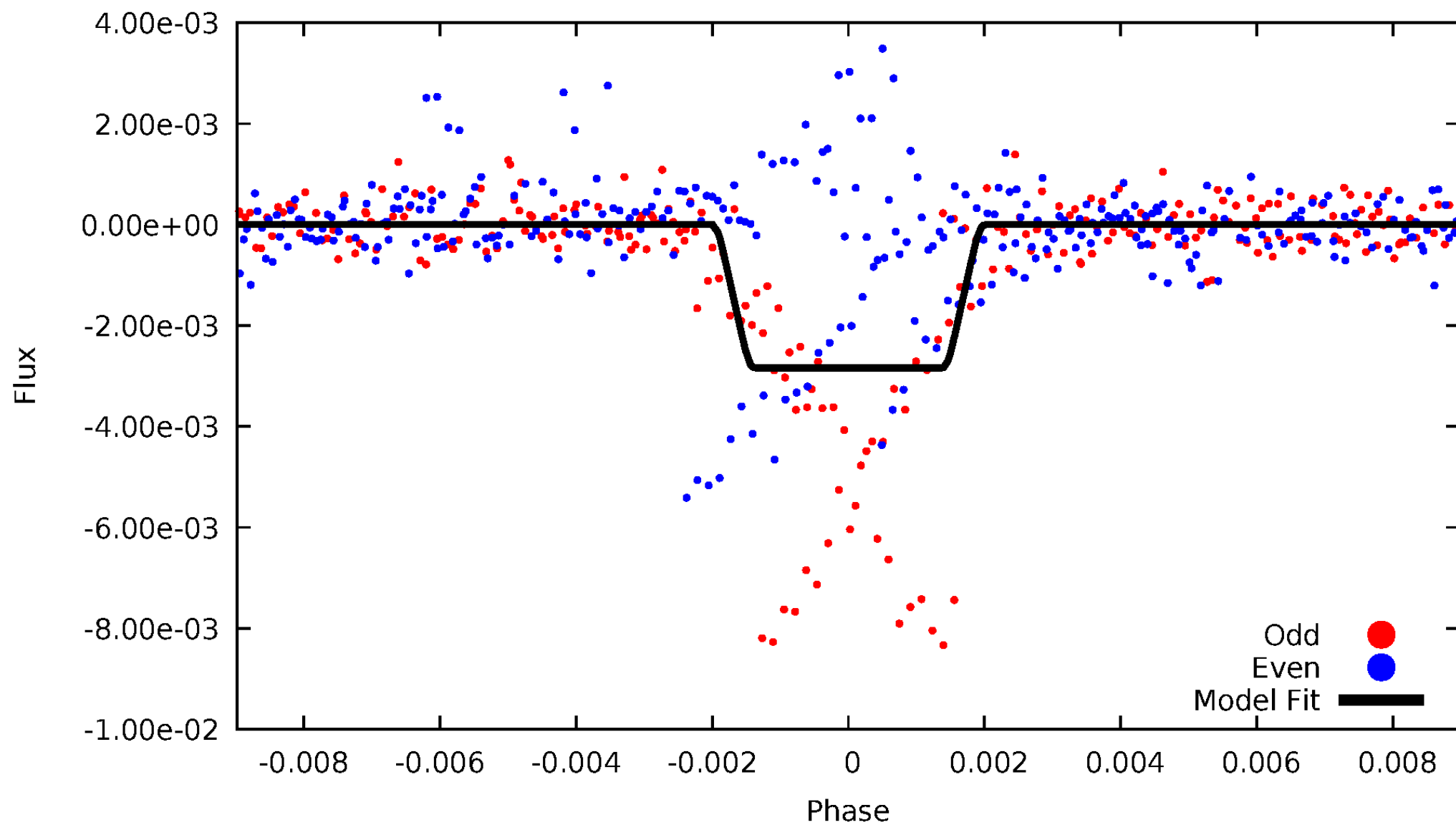
DV Odd/Even

TCE 009899630-03



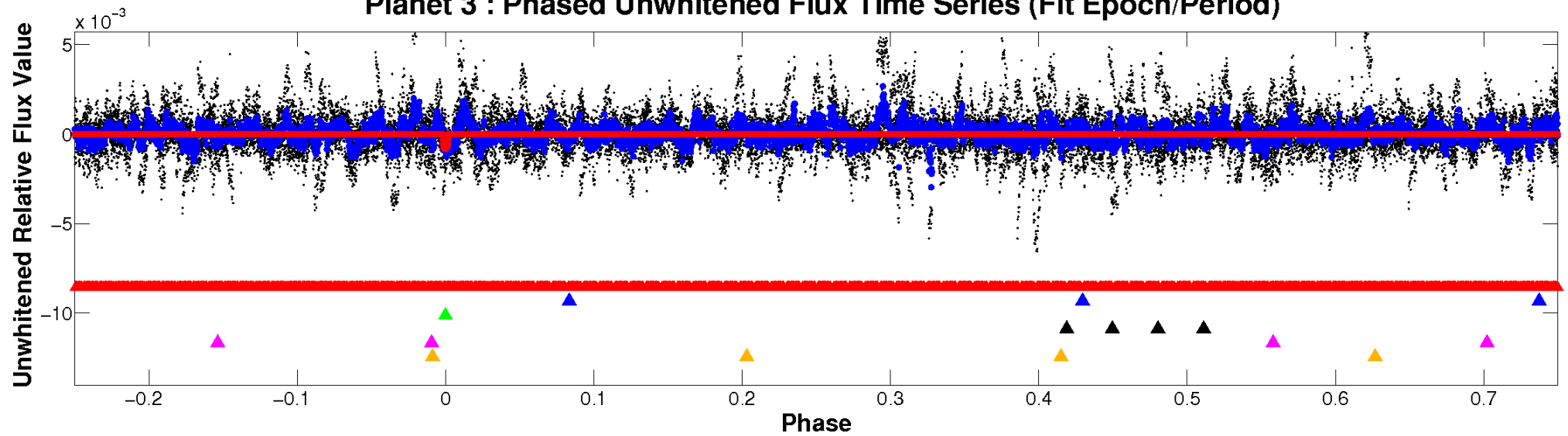
ALT Odd/Even

TCE 009899630-03

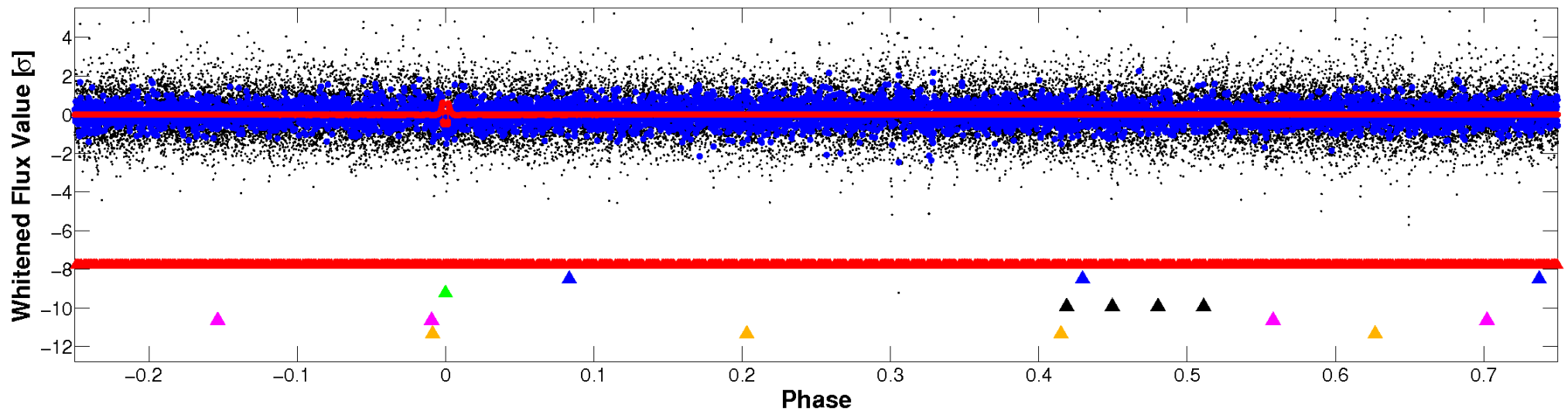


Non-Whitened Vs. Whitened Light Curve

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

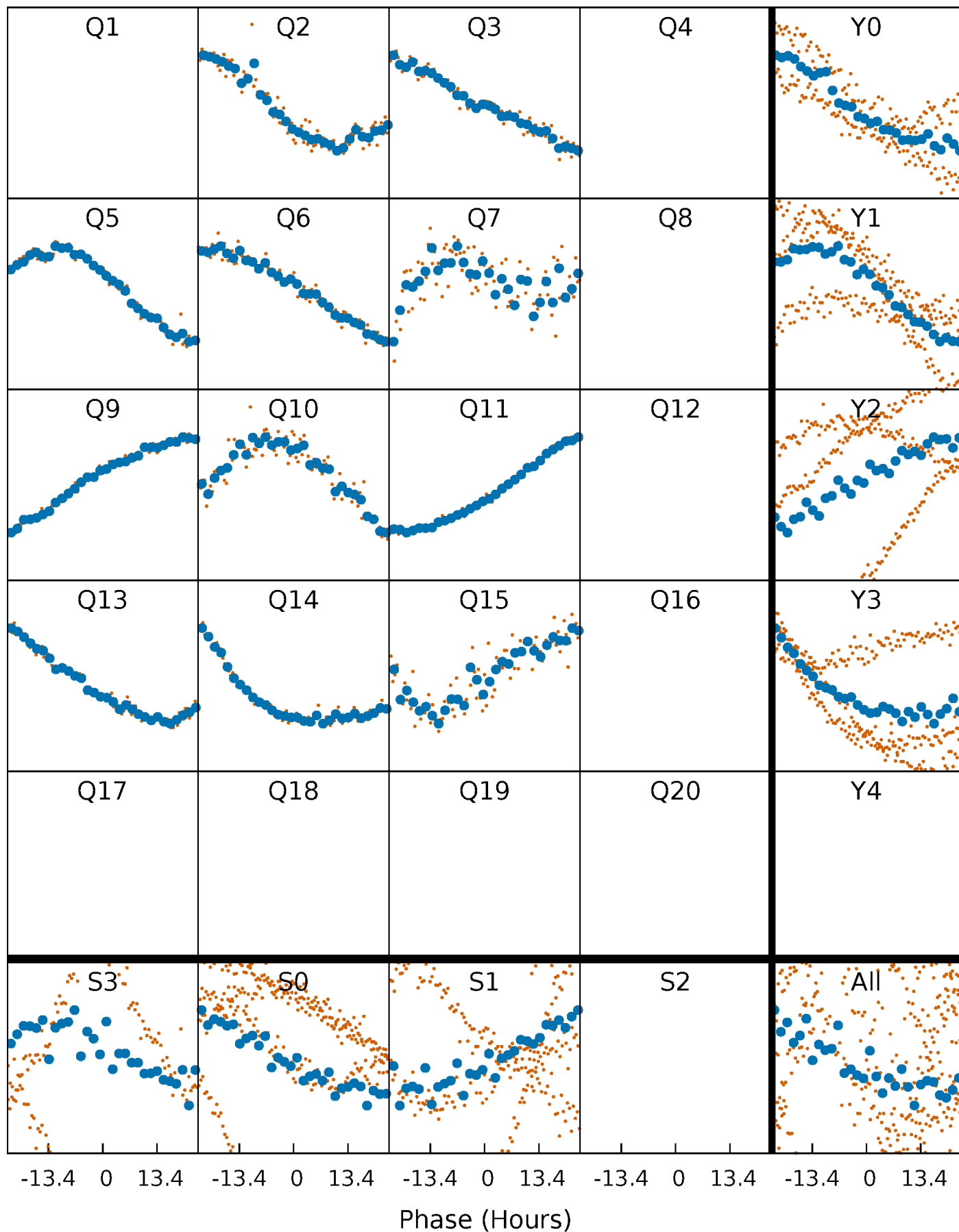


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



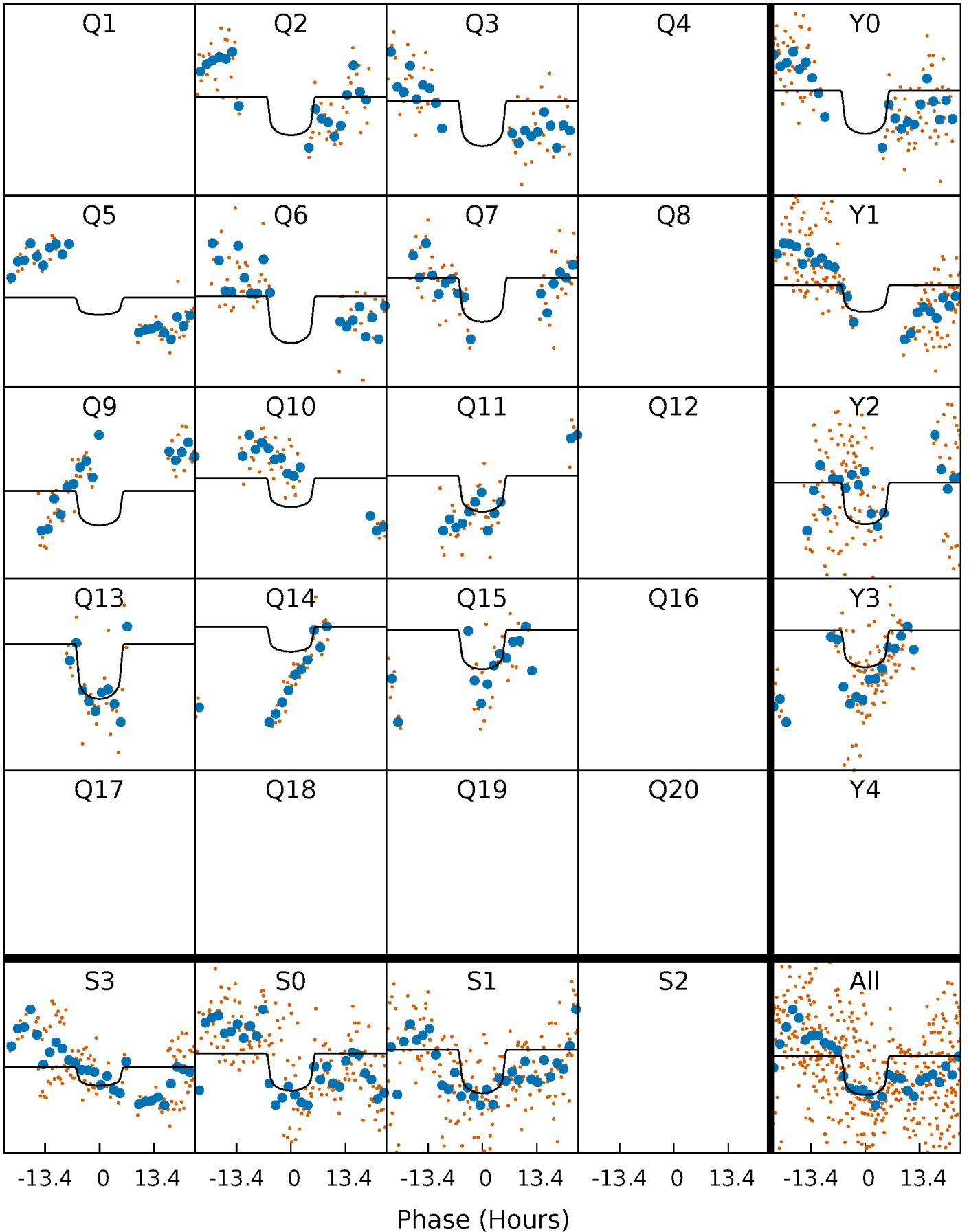
PDC Quarter-Phased Transit Curves

TCE 009899630-03 P=126.489931 Days $T_0=192.201024$ (BKJD)



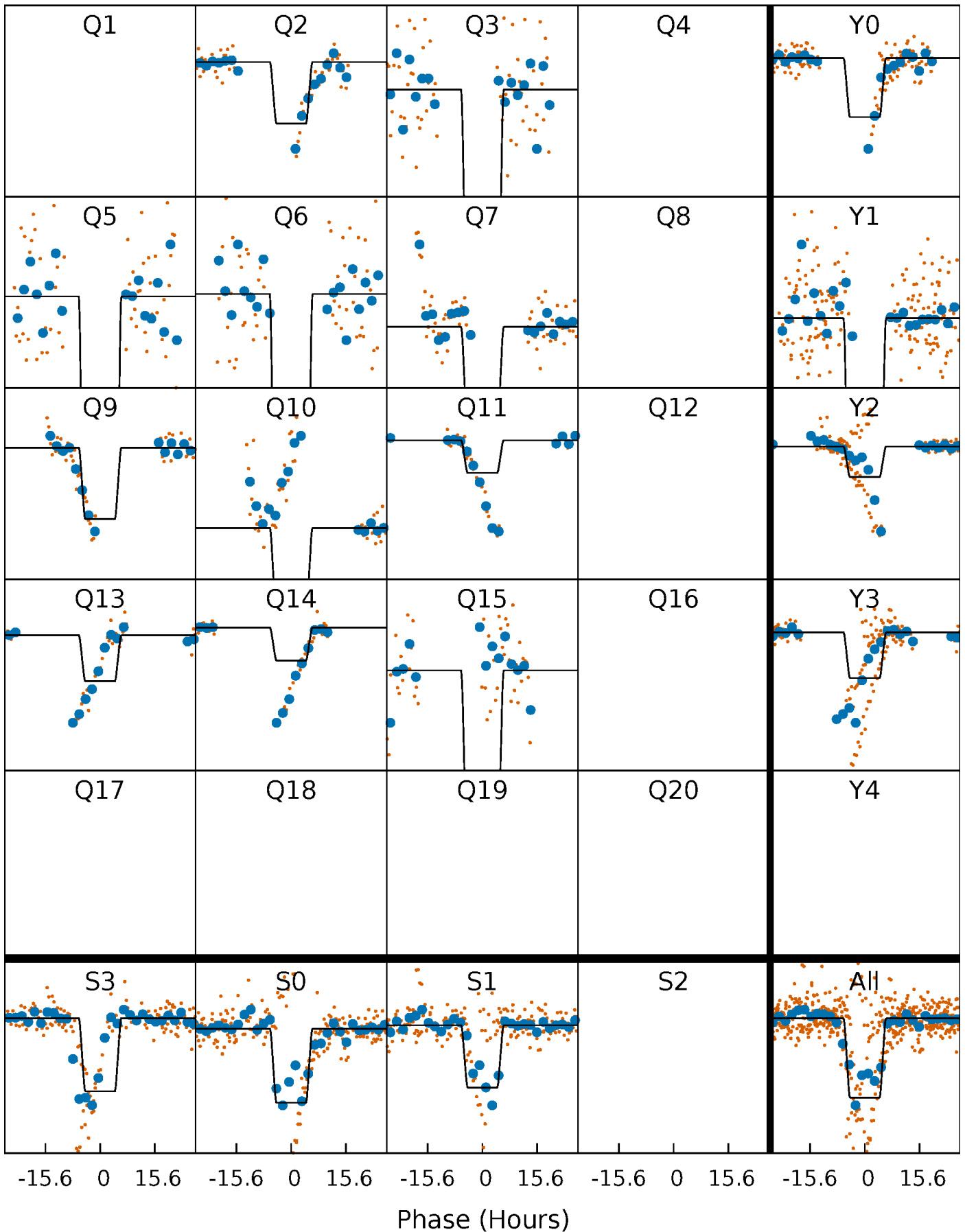
DV Quarter-Phased Transit Curves

TCE 009899630-03 P=126.489931 Days $T_0=192.201024$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

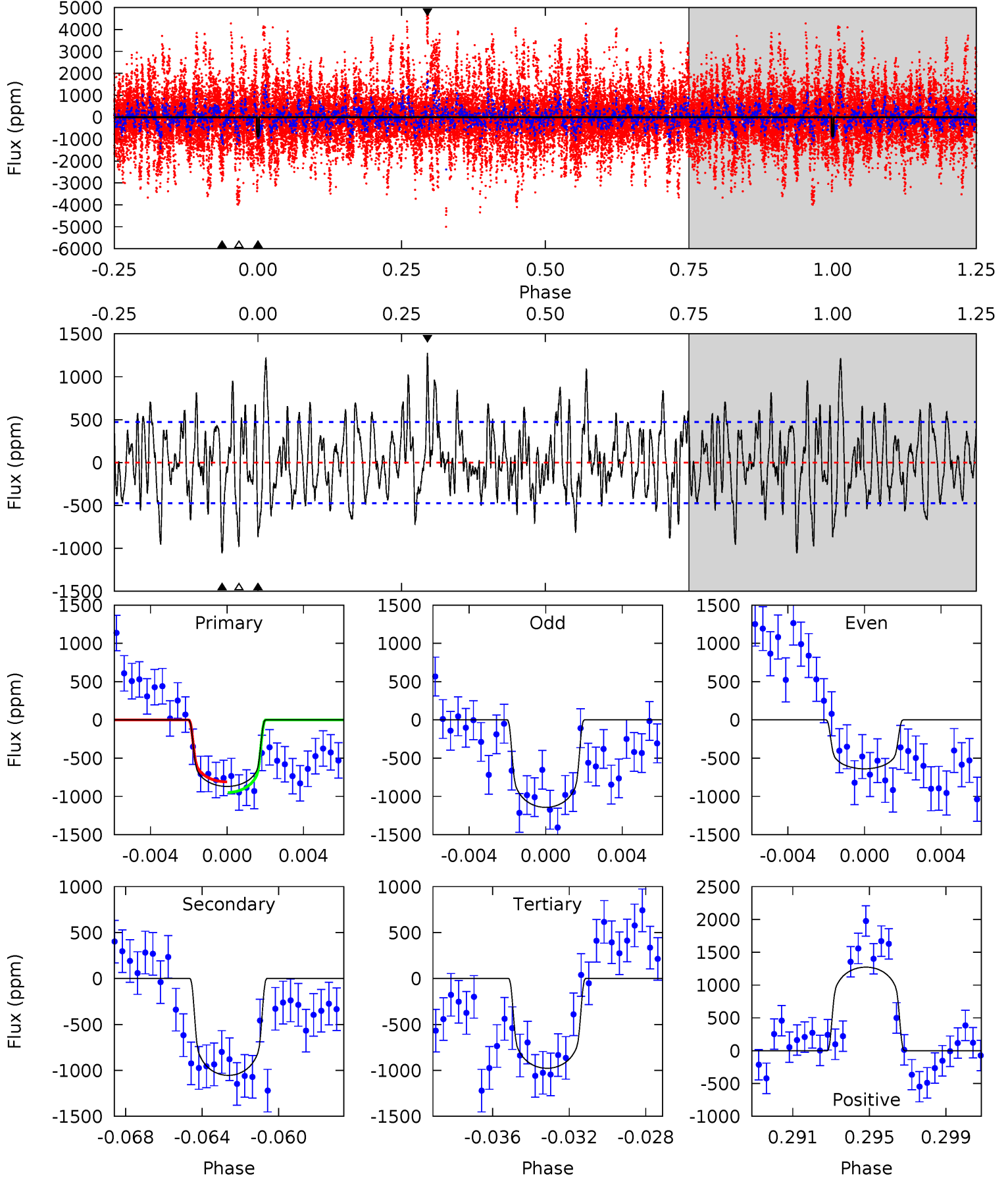
TCE 009899630-03 P=126.470114 Days $T_0=192.323509$ (BKJD)



DV Model-Shift Uniqueness Test

009899630-03, P = 126.489931 Days, E = 65.711093 Days

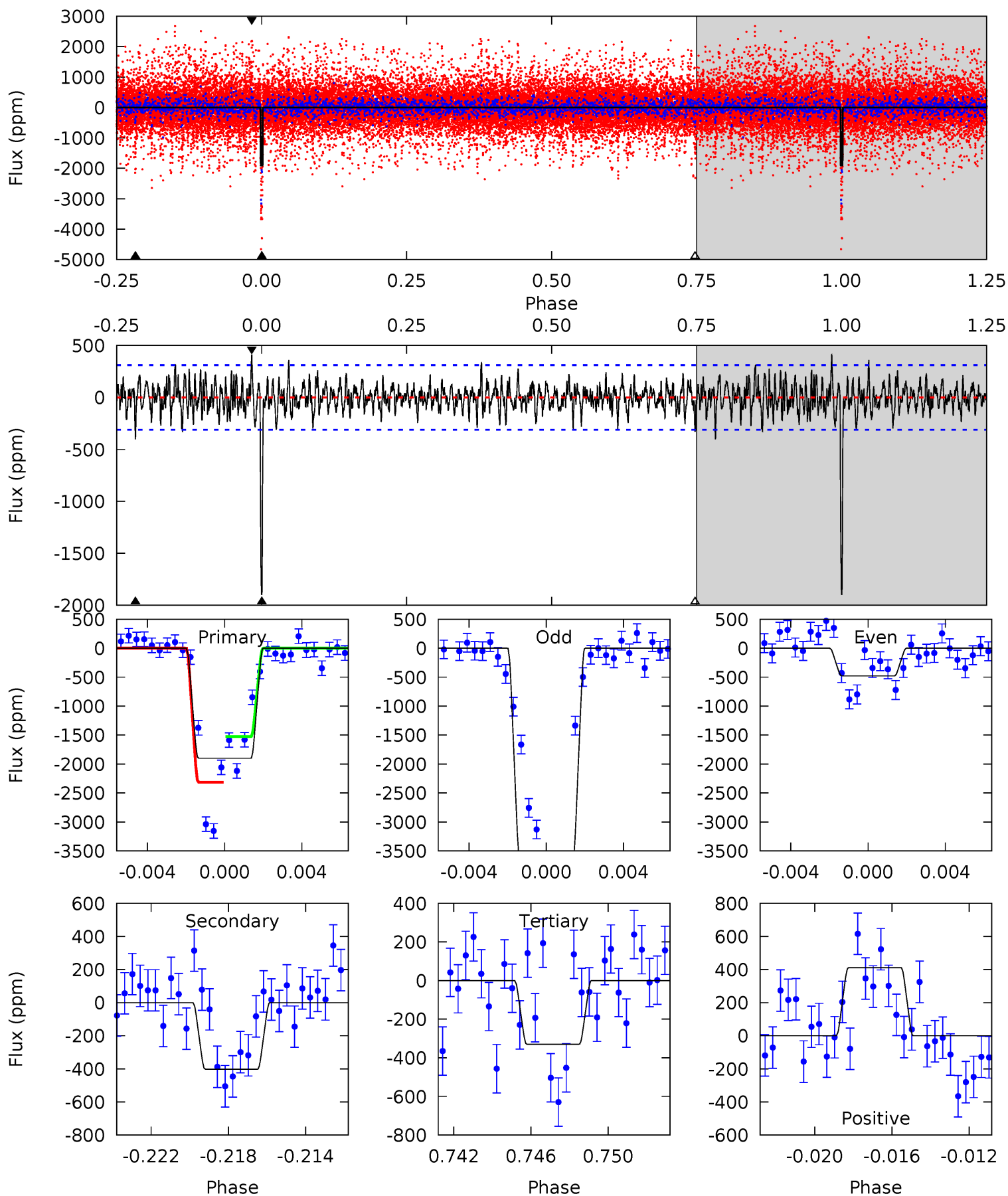
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.56	11.6	10.7	14.0	5.20	2.88	3.94	-1.19	-4.44	0.85	-2.40	2.69	0.75	0.55	0.76



Alt Model-Shift Uniqueness Test

009899630-03, P = 126.470114 Days, E = 65.853395 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.7	6.70	5.49	6.86	5.20	2.88	1.77	26.2	24.8	1.21	-0.16	28.5	0.86	0.18	6.60



Stellar Parameters For KIC 009899630

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6039^{+168}_{-210}	$4.493^{+0.052}_{-0.208}$	$-0.140^{+0.250}_{-0.300}$	$0.951^{+0.285}_{-0.102}$	$1.027^{+0.127}_{-0.141}$	$1.685^{+0.465}_{-0.877}$
	+3%/-3%	+1%/-5%	+179%/-214%	+30%/-11%	+12%/-14%	+28%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009899630-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1055 ± 91	$3.20^{+0.68}_{-0.57}$	526^{+38}_{-25}	6310^{+663}_{-495}	13741^{+6464}_{-4332}
Alt.	-402 ± 60	$5.76^{+0.96}_{-0.70}$	525^{+38}_{-25}	4002^{+206}_{-194}	1575^{+563}_{-432}

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 $A_{obs} \gg 1.0$

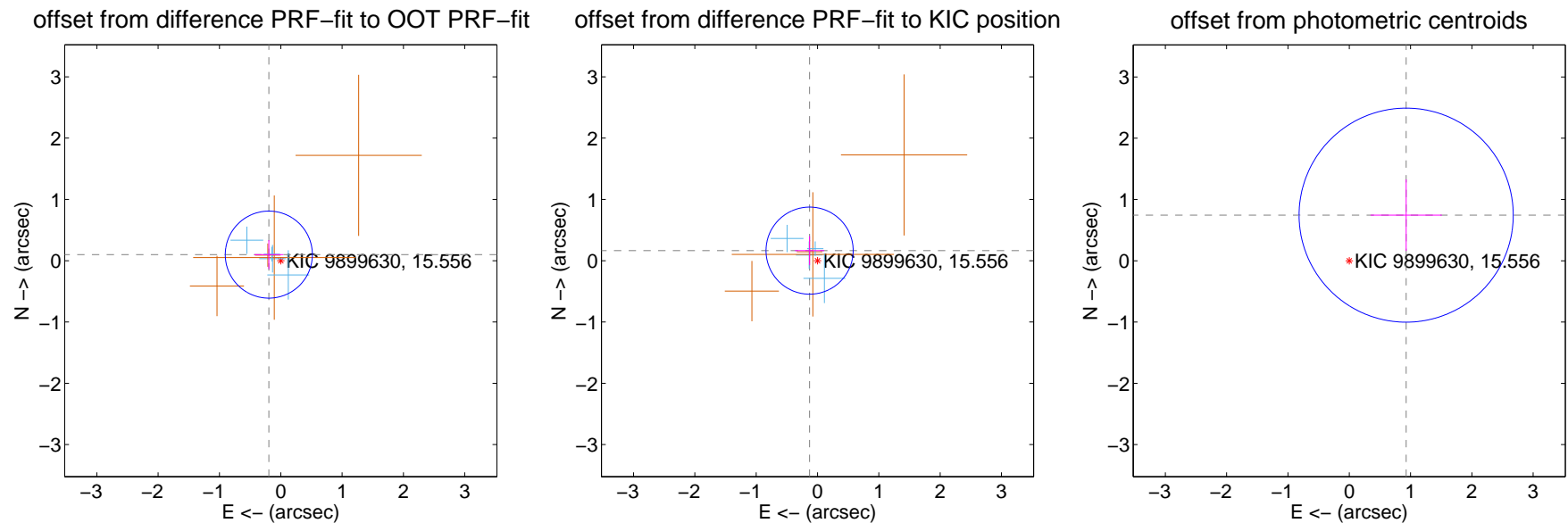
DV Centroid Data

Supplemental centroid analysis for 009899630-03. Kepler magnitude: 15.56. Transit SNR 6.17

There are 4 quarters with good PRF difference image offsets

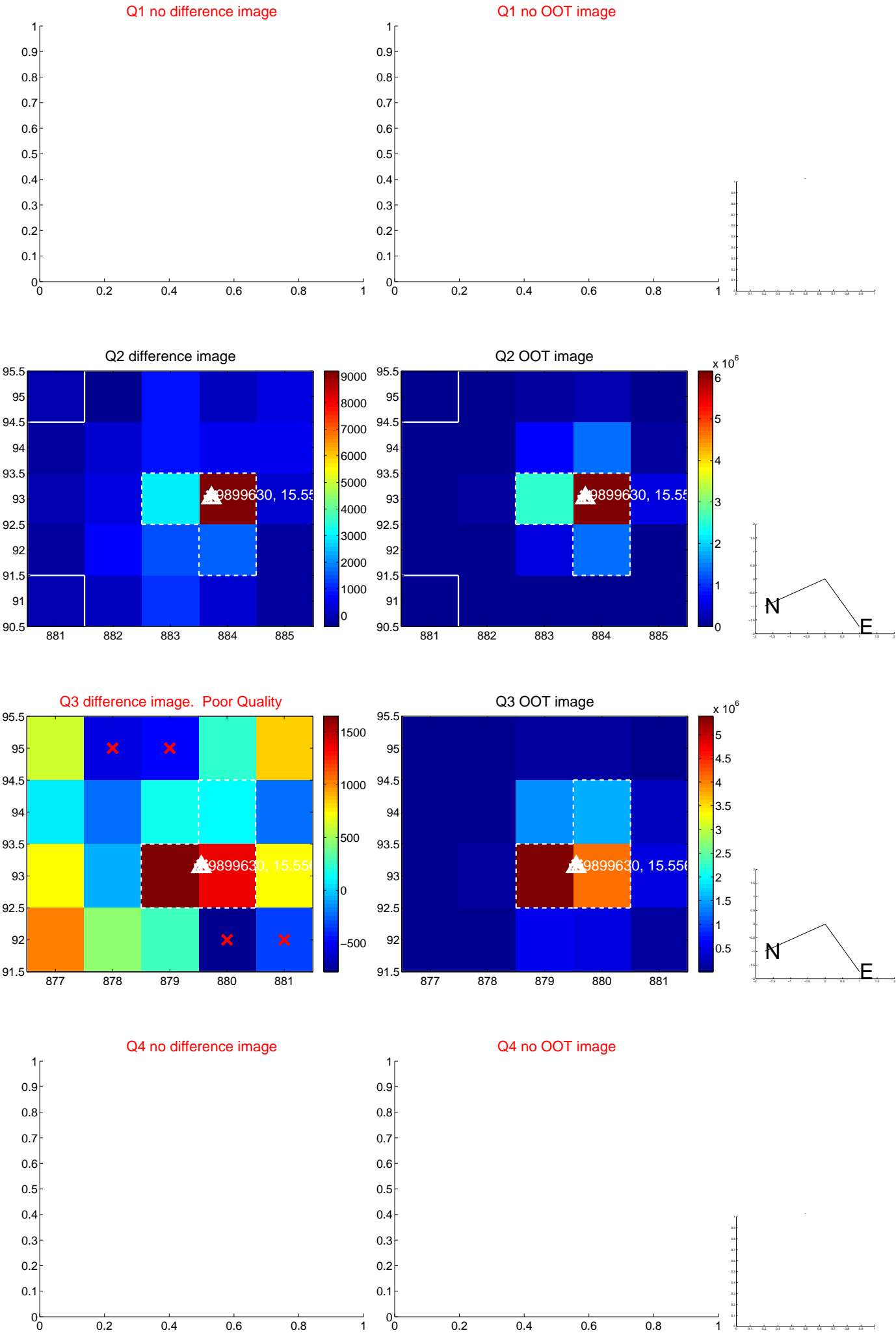
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.219 ± 0.237	0.92	0.195 ± 0.237	0.099 ± 0.237
PRF-fit source offset from KIC position	0.209 ± 0.237	0.88	0.129 ± 0.237	0.164 ± 0.237
photometric centroid source offset	1.19 ± 0.58	2.04	-0.93 ± 0.58	0.74 ± 0.58



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.

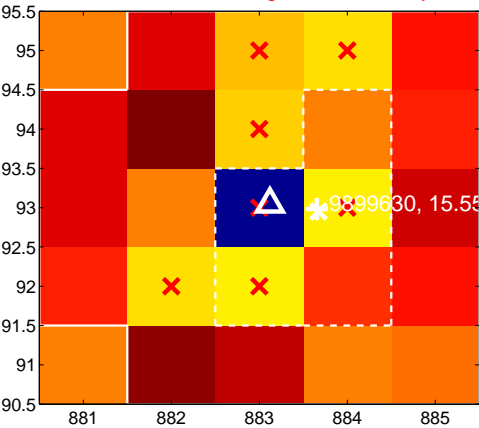
Q5 no difference image



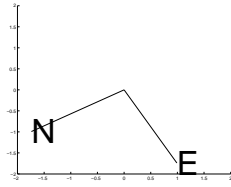
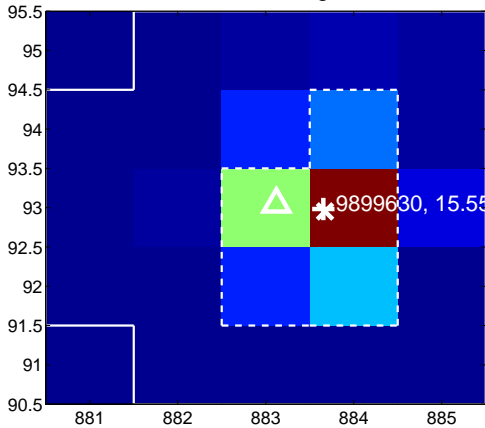
Q5 no OOT image



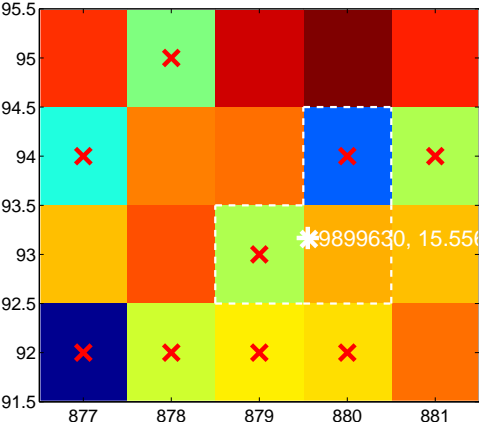
Q6 difference image. Poor Quality



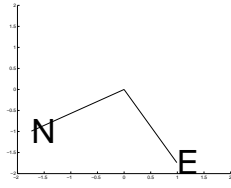
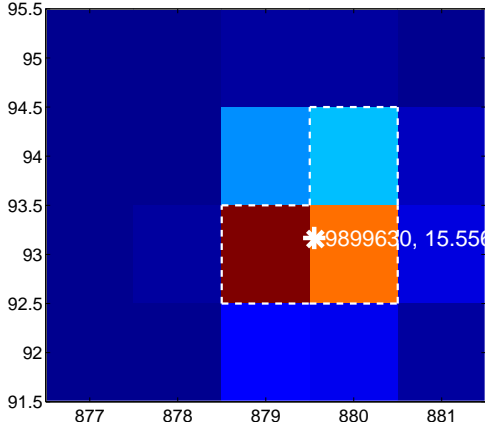
Q6 OOT image



Q7 difference image. Poor Quality



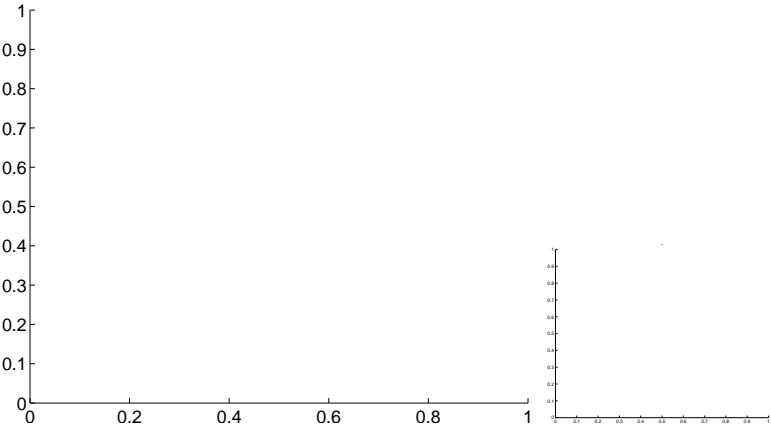
Q7 OOT image



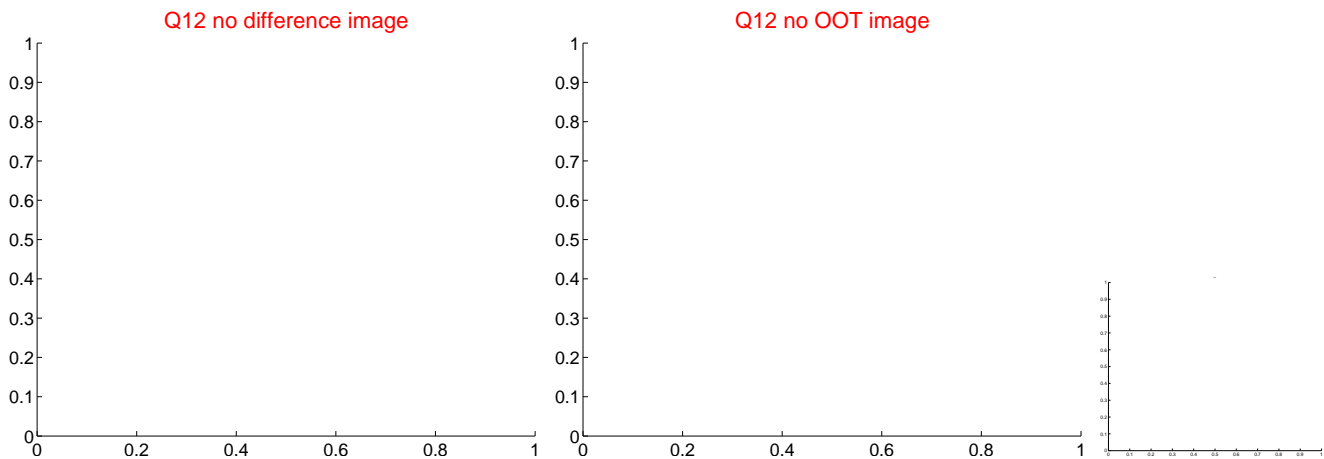
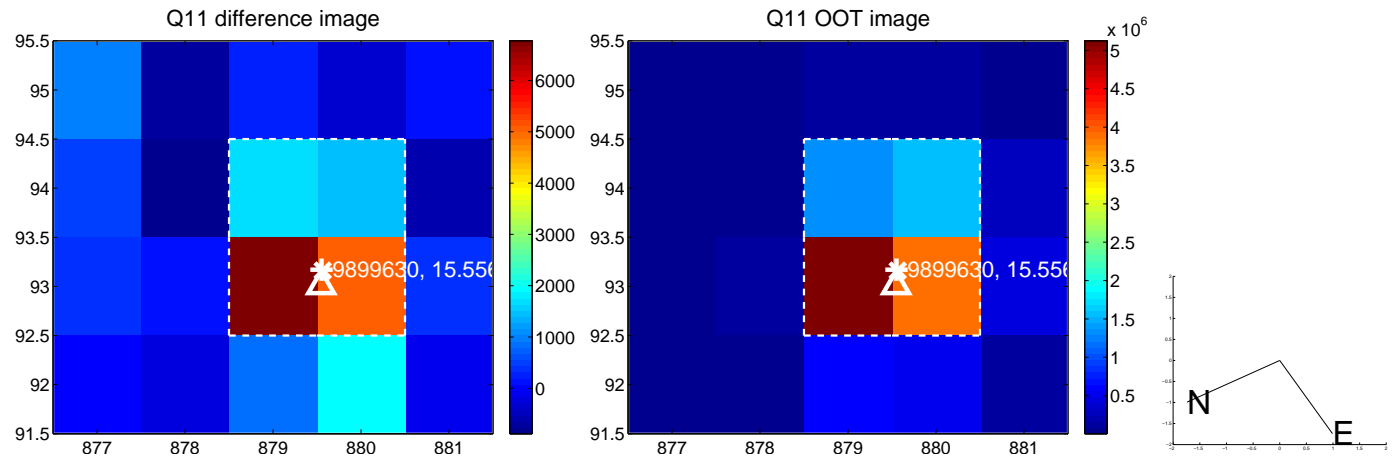
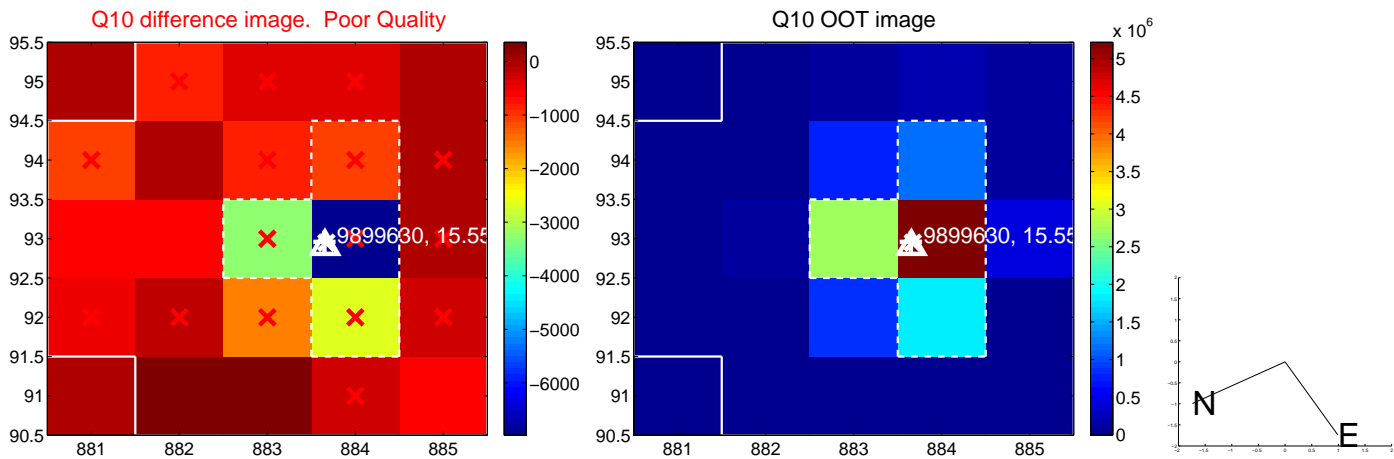
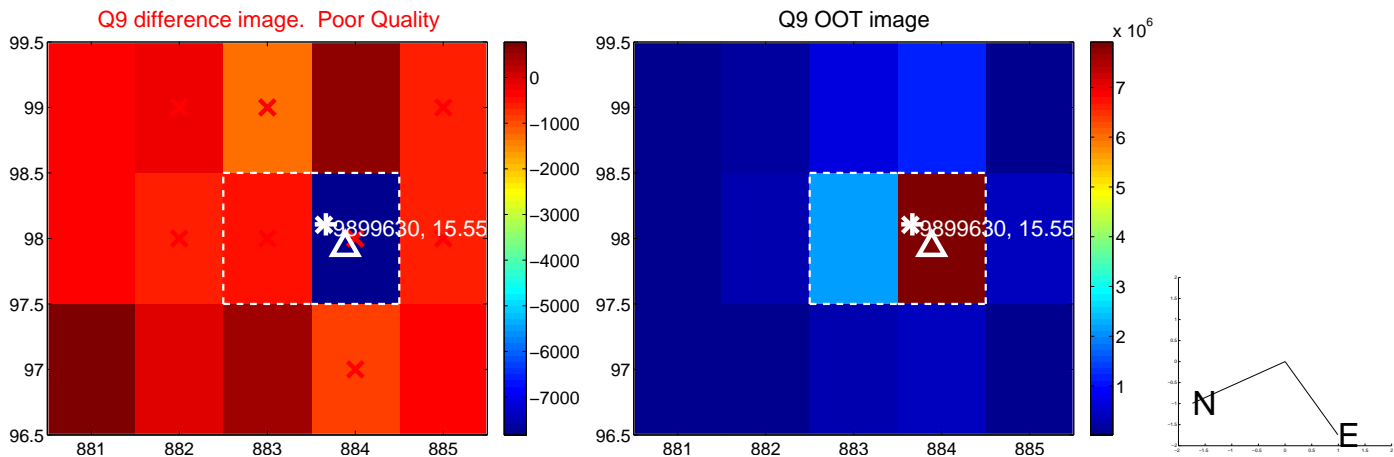
Q8 no difference image



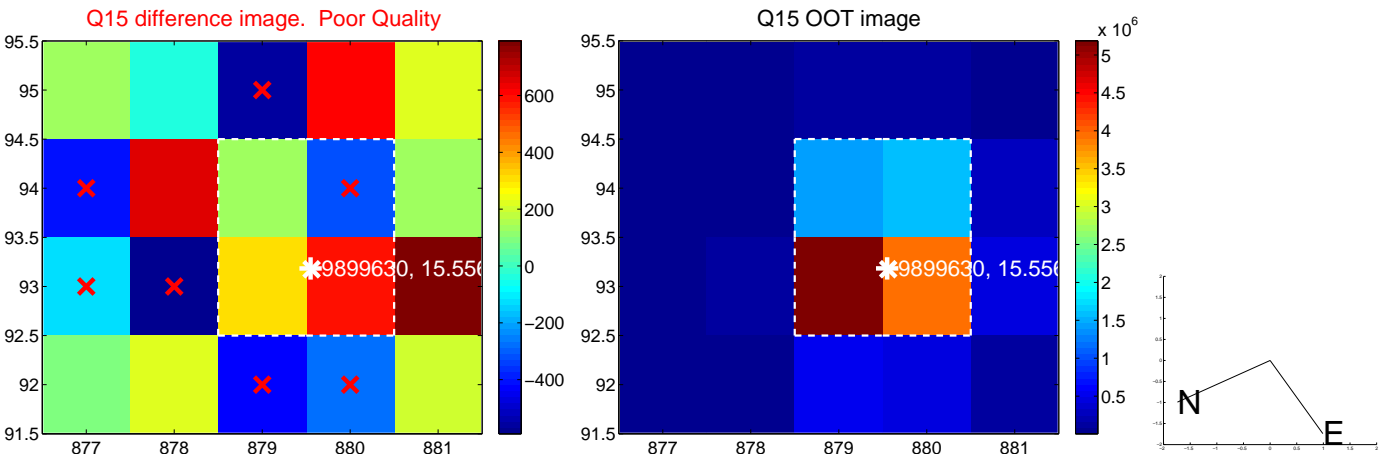
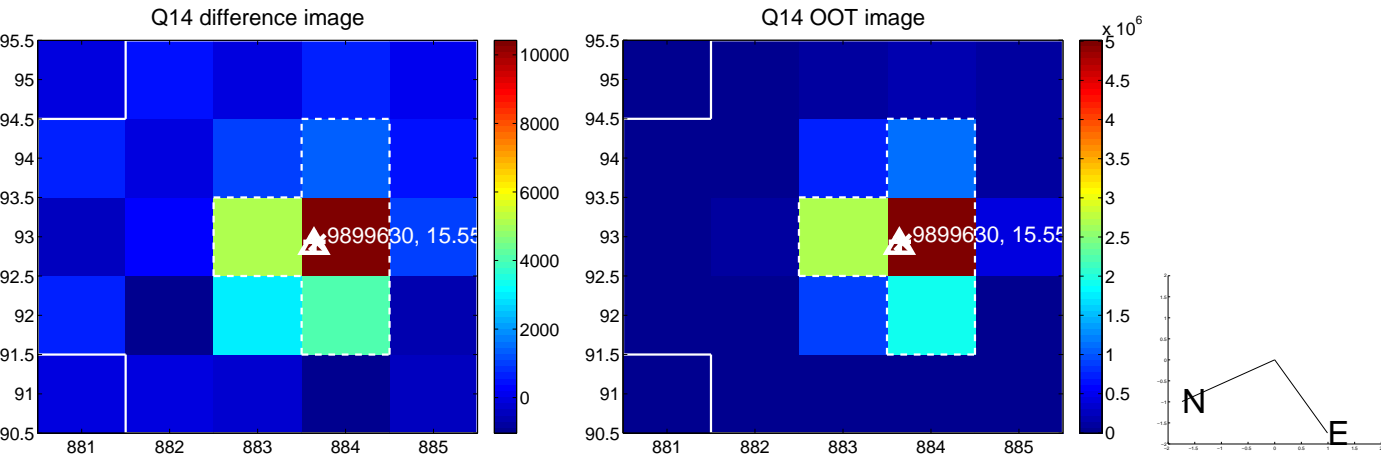
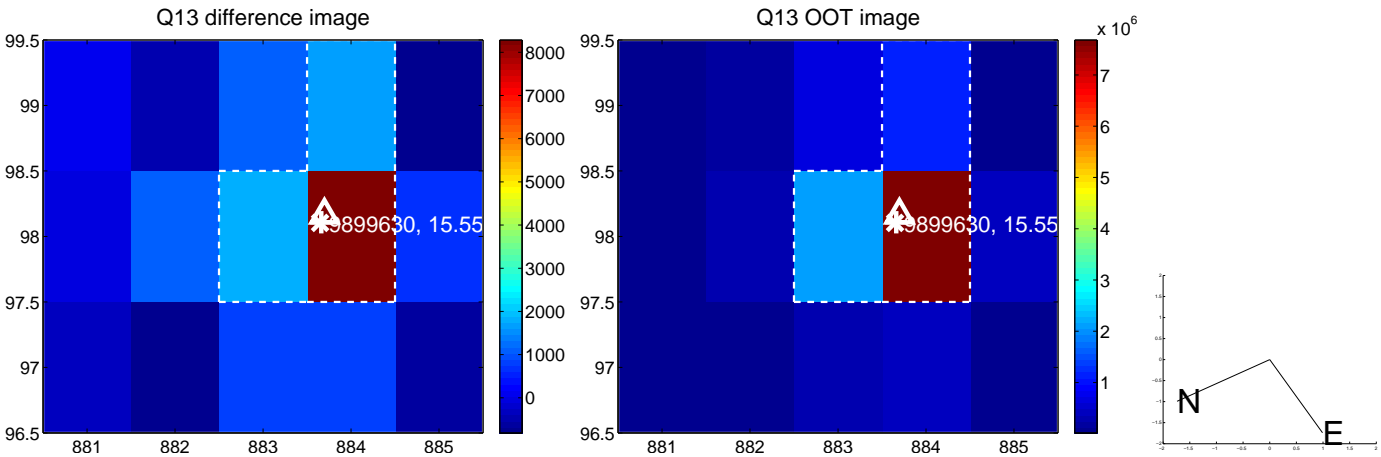
Q8 no OOT image



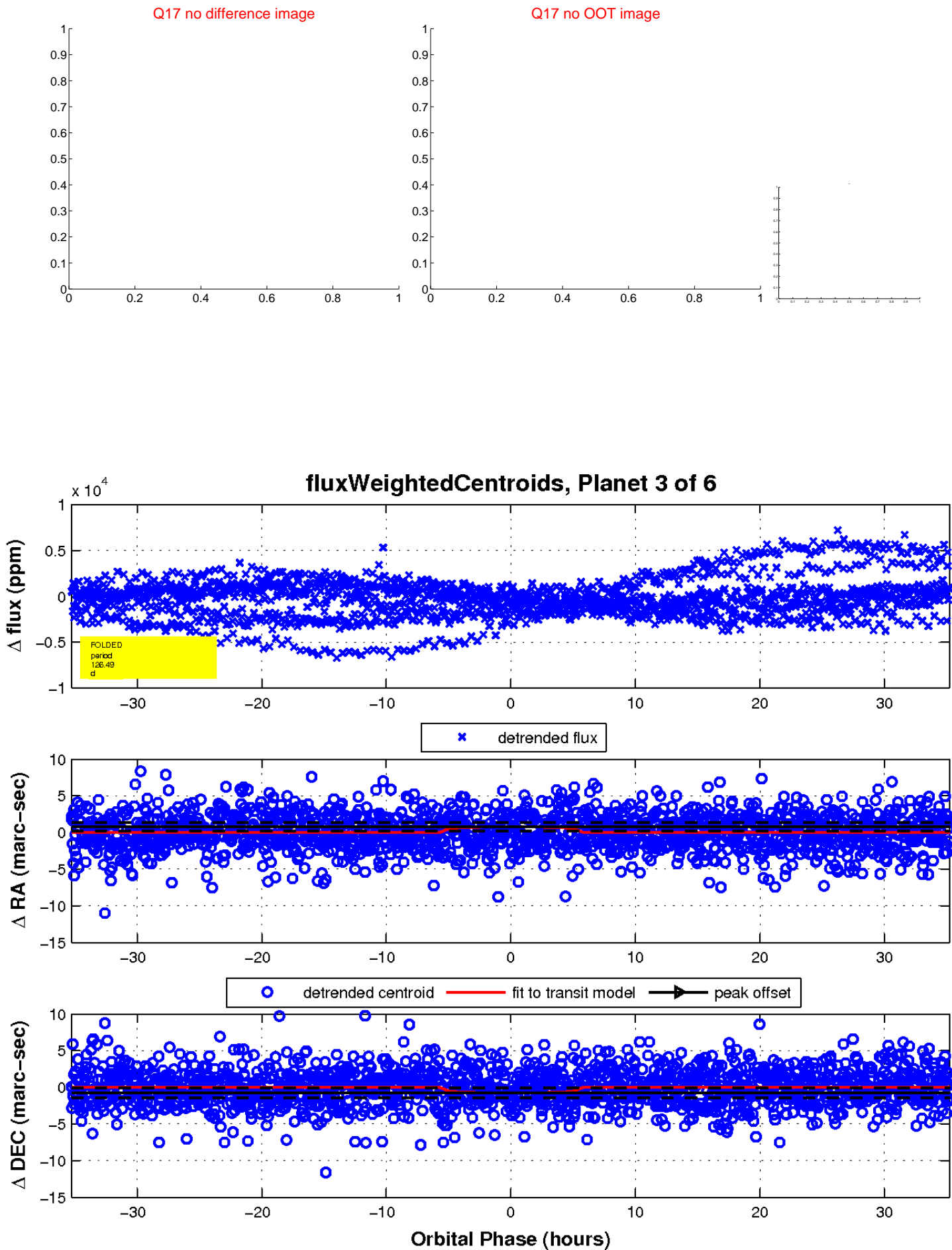
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

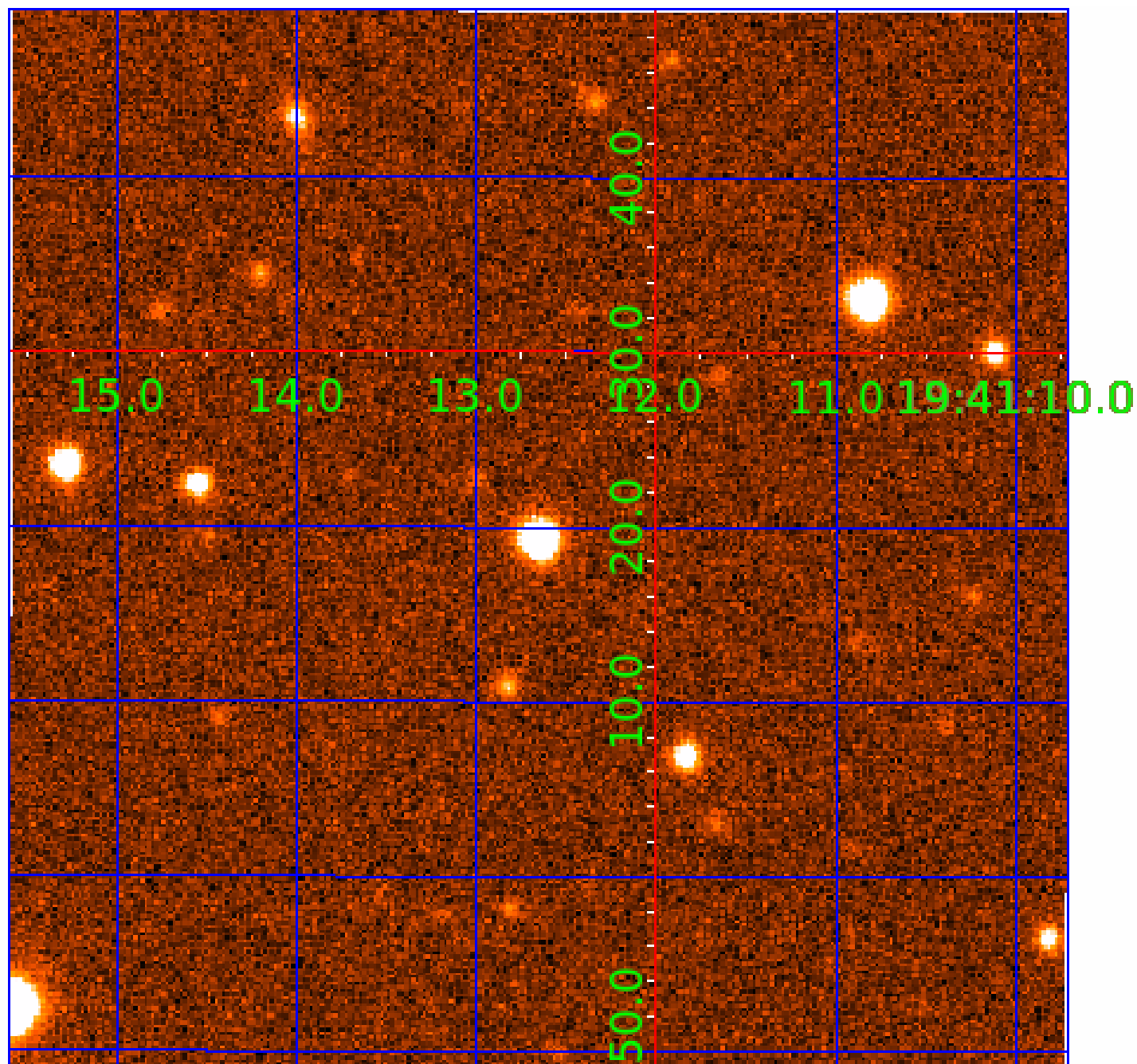


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009899630

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})
009899630-01	OBS	4439.01	1.332555	132.058523	107.2	5.445	13.1	13.0	0.95	6039	1.15	1884.93
009899630-02	OBS	No	423.244926	411.962750	14754.7	60.490	18.1	12.1	0.95	6039	20.38	0.87
009899630-03	OBS	No	126.489931	192.201024	838.1	11.758	10.4	6.2	0.95	6039	3.07	4.35
009899630-04	OBS	No	375.575272	256.863383	374.3	6.483	9.7	1.9	0.95	6039	2.18	1.02
009899630-05	OBS	No	397.708794	262.788603	1.8	8.859	8.9	0.0	0.95	6039	0.14	0.94
009899630-06	OBS	No	352.676434	271.484285	918.5	9.000	8.0	-1.0	0.95	6039	2.88	1.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009899630-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
009899630-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009899630-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009899630-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009899630-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009899630-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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 009899630-04

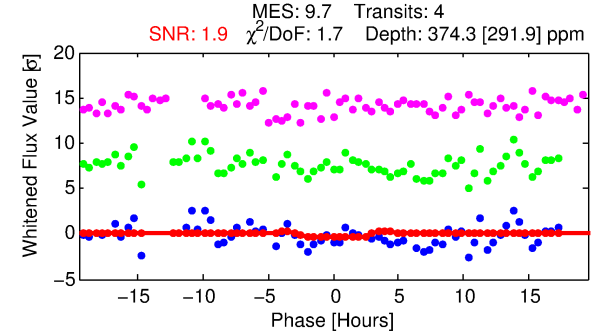
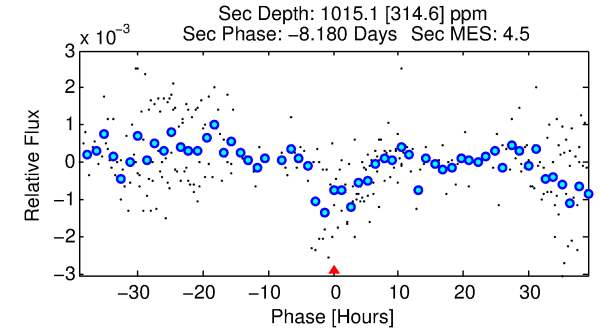
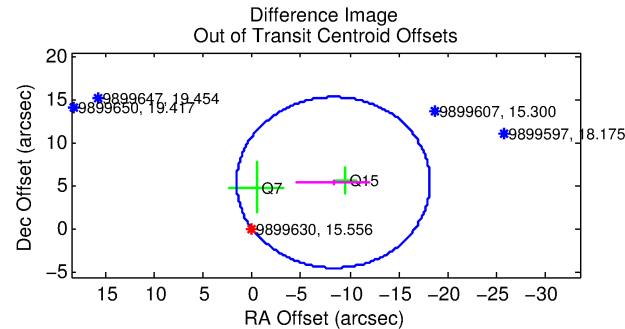
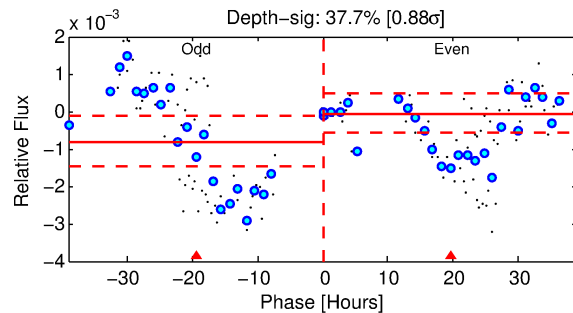
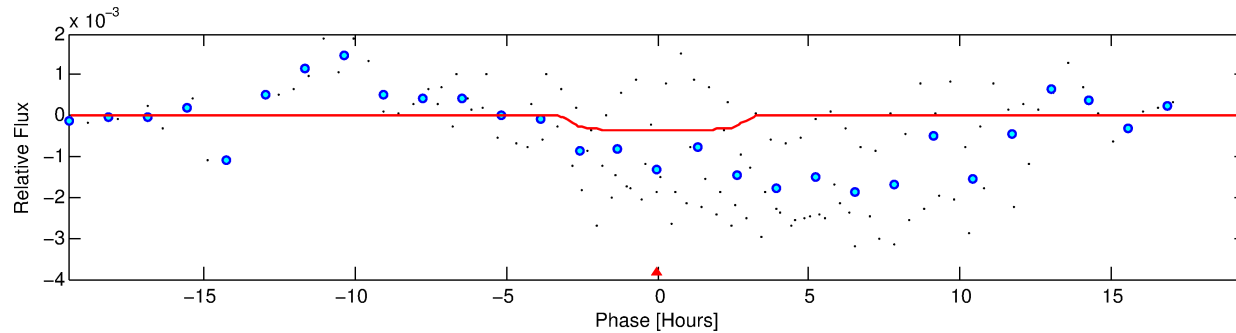
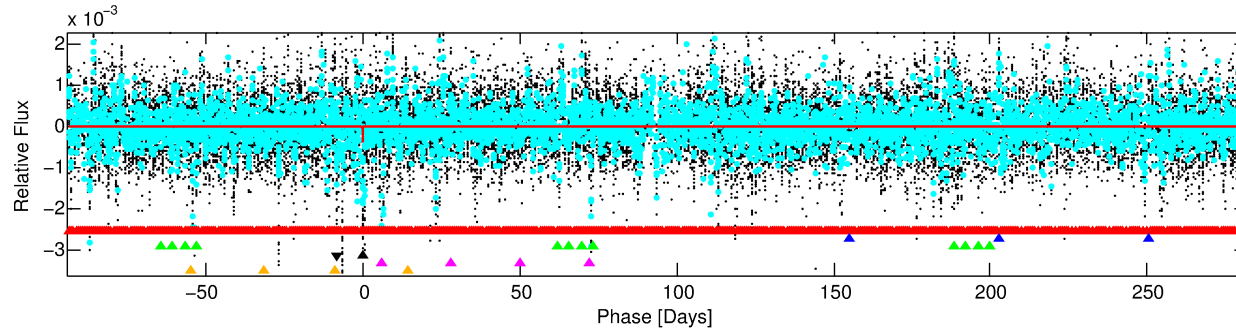
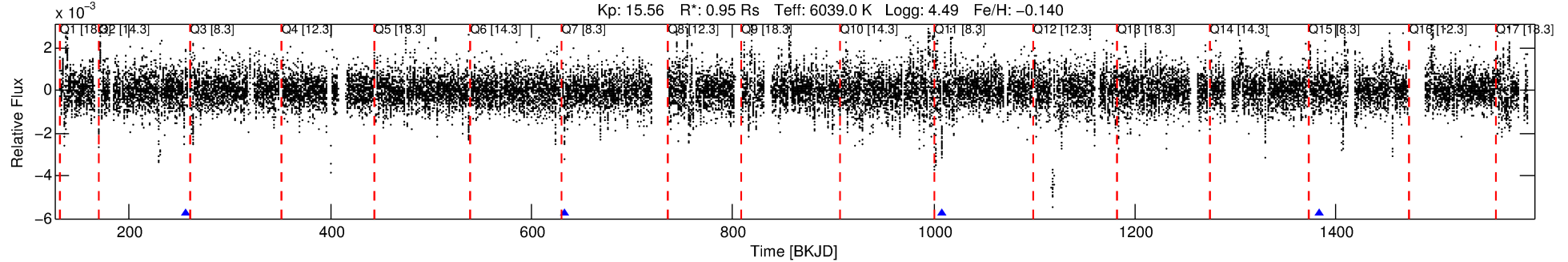
No Significant Match Found

DV One-Page Summary

KIC: 9899630 Candidate: 4 of 6 Period: 375.575 d

KOI: K04439 Corr: No Ephemeris Match

Kp: 15.56 R*: 0.95 Rs Teff: 6039.0 K Logg: 4.49 Fe/H: -0.140



DV Fit Results:

Period = 375.57527 [0.04239] d
Epoch = 256.8634 [0.0696] BKJD
Rp/R* = 0.0210 [0.0184]
a/R* = 207.52 [774.35]
b = 0.91 [0.74]
Seff = 1.02 [0.41]
Teq = 256 [26] K
Rp = 2.18 [2.02] Re
a = 1.0279 [0.2629] AU
Ag = 123861.22 [225536.43] [0.55σ]
Teffp = 7433 [3321] K [2.16σ]

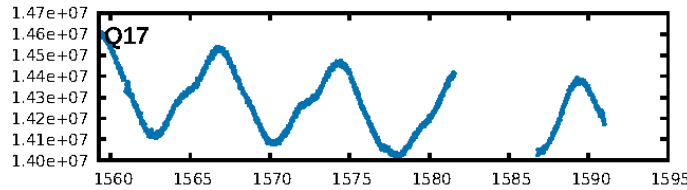
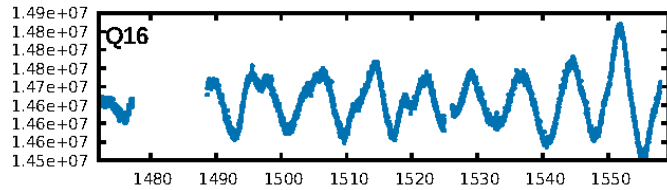
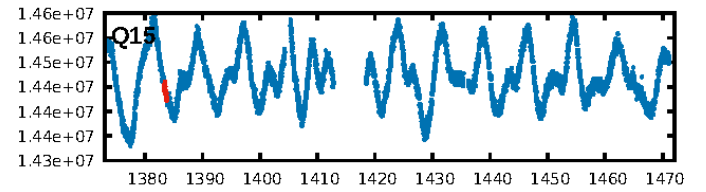
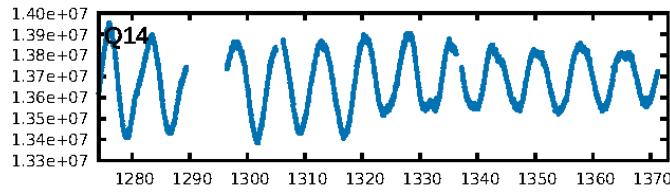
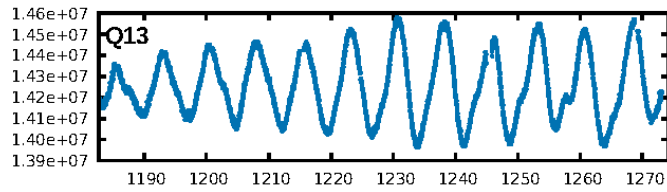
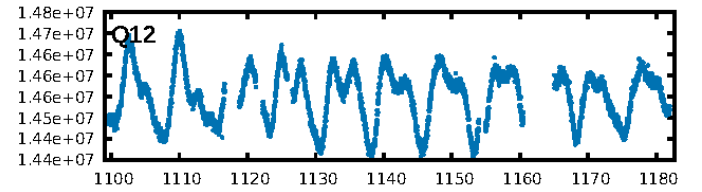
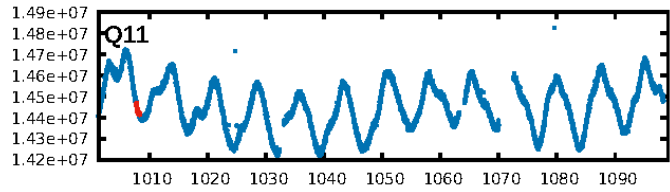
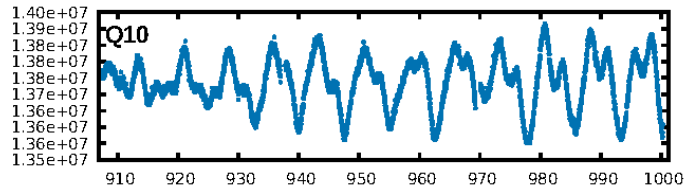
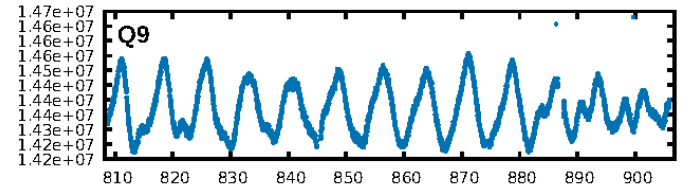
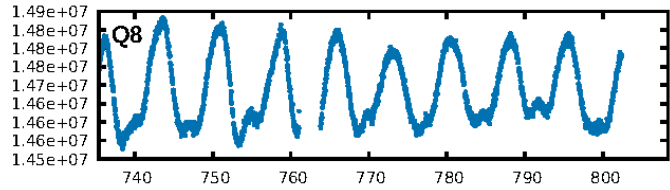
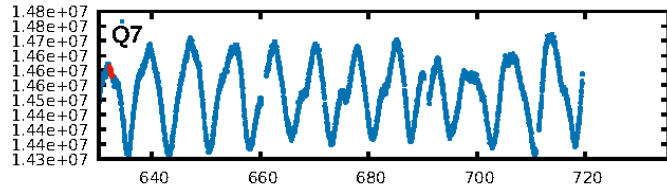
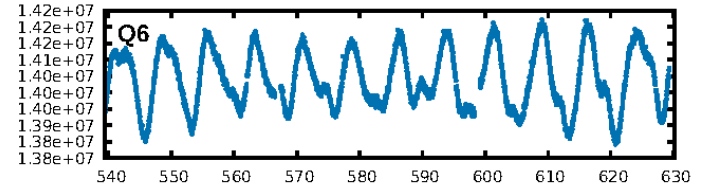
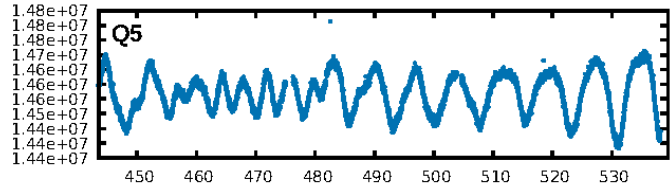
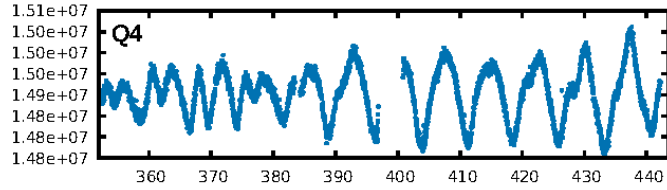
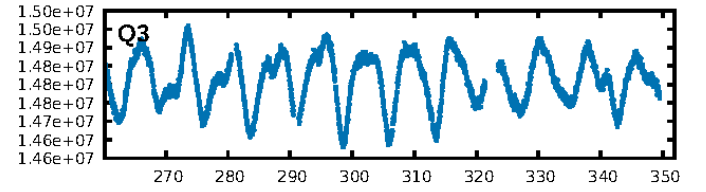
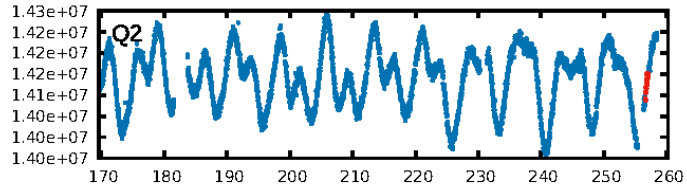
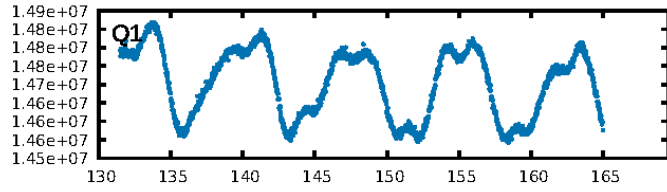
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [49.55σ]
LongPeriod-sig: 100.0% [48.39σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 81.6%
Bootstrap-pfa: 2.75e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.4015
Centroid-sig: 50.9%
Centroid-so: 2.070 arcsec [0.70σ]
OotOffset-rm: 9.930 arcsec [3.01σ]
KicOffset-rm: 9.967 arcsec [3.21σ]
OotOffset-st: 0/2/0/0 [2]
KicOffset-st: 0/2/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.33 [1/3]

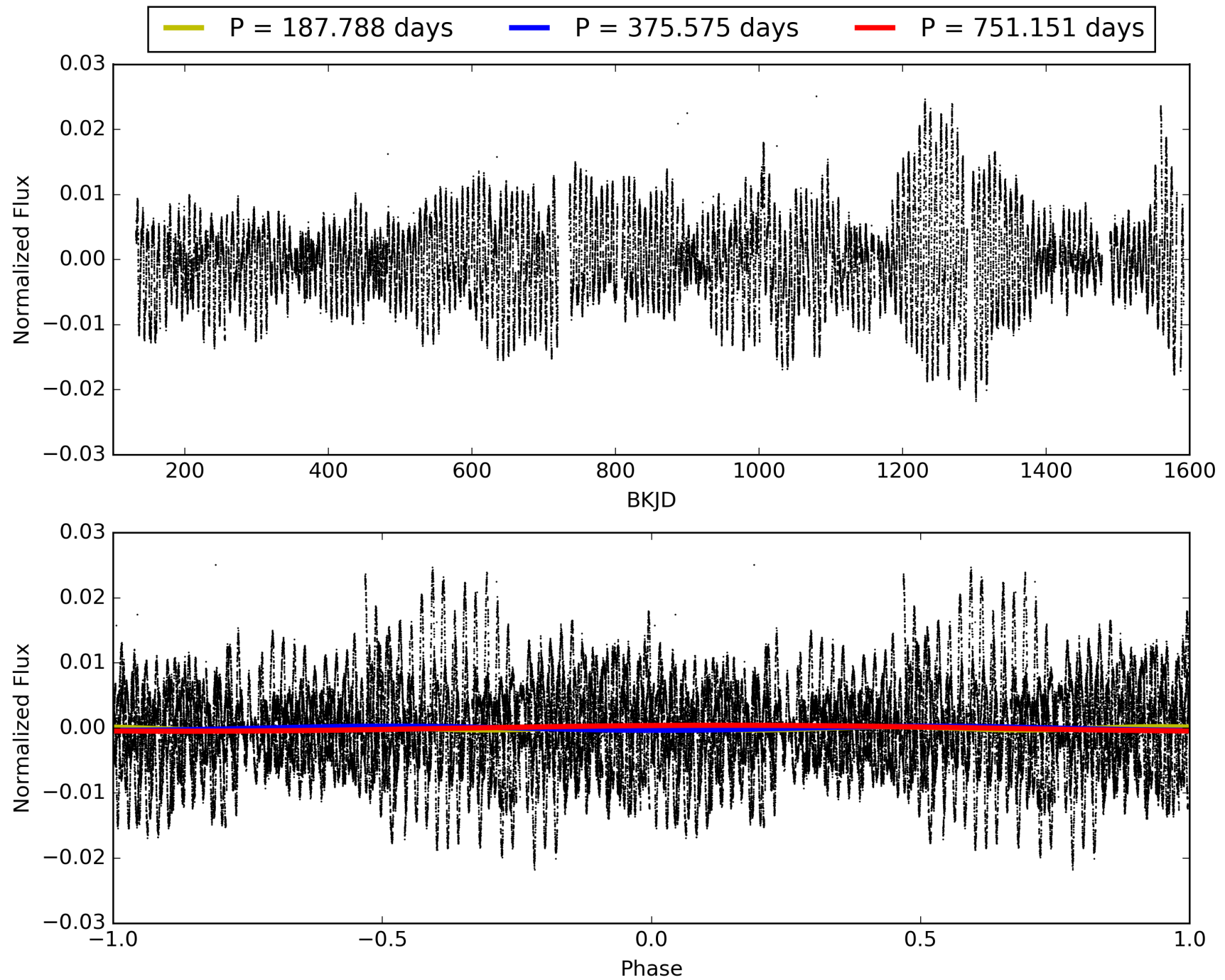
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:32:38 Z

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

TCE 009899630-04, PDC Light Curves

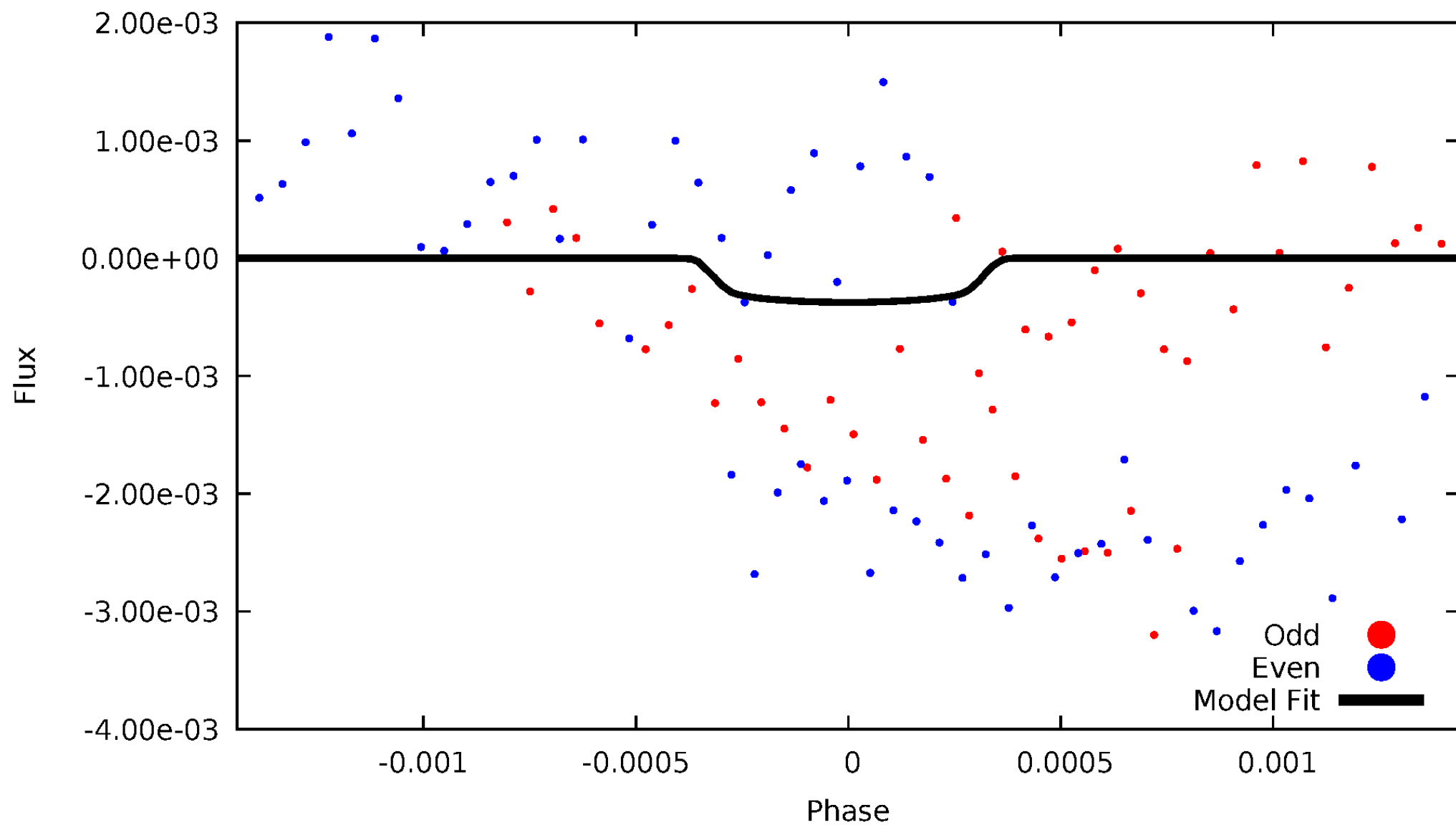


TCE 009899630-04



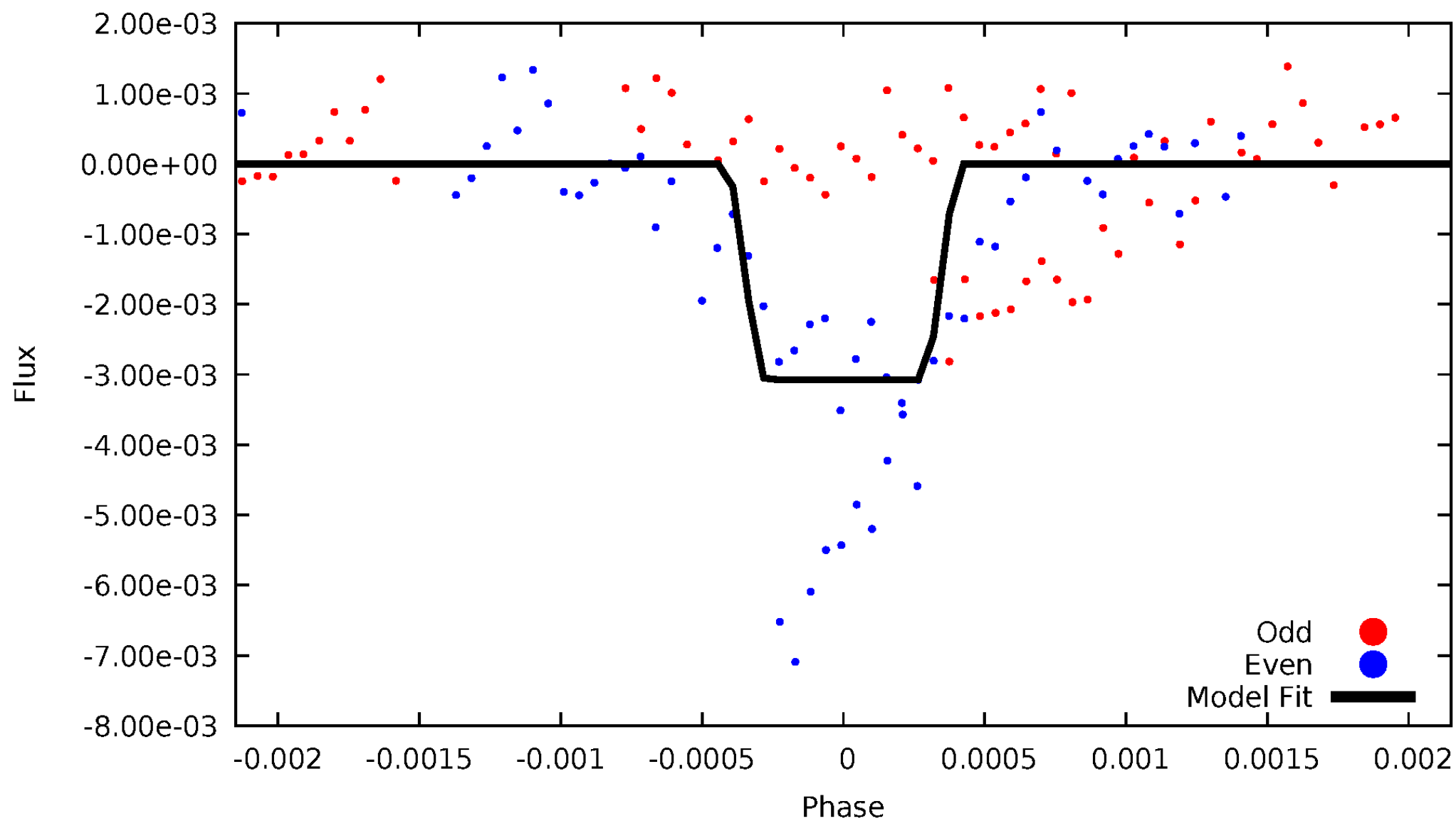
DV Odd/Even

TCE 009899630-04



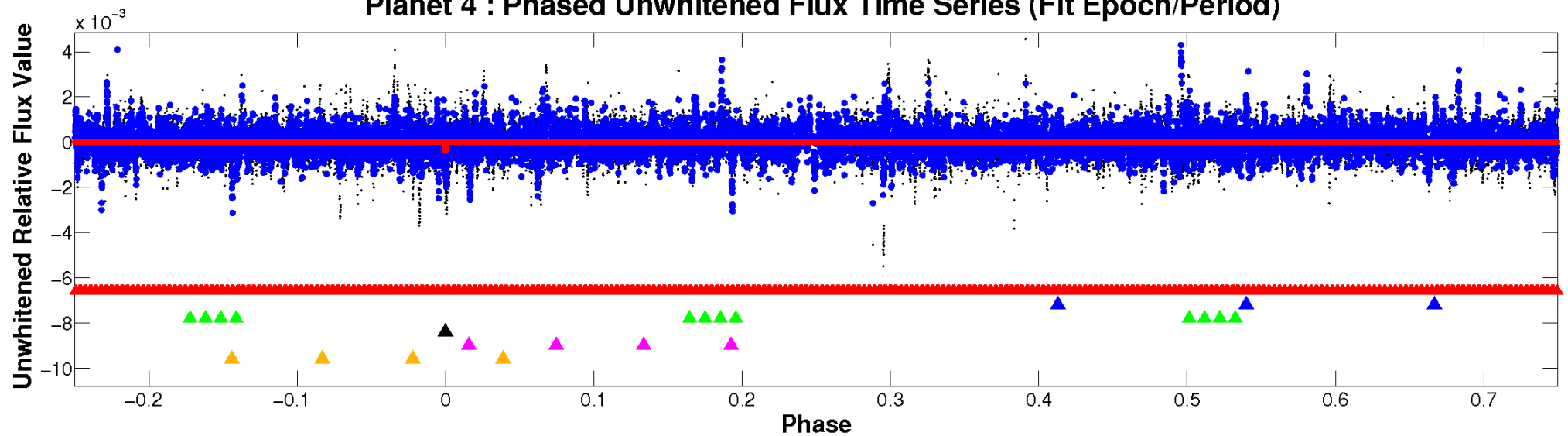
ALT Odd/Even

TCE 009899630-04

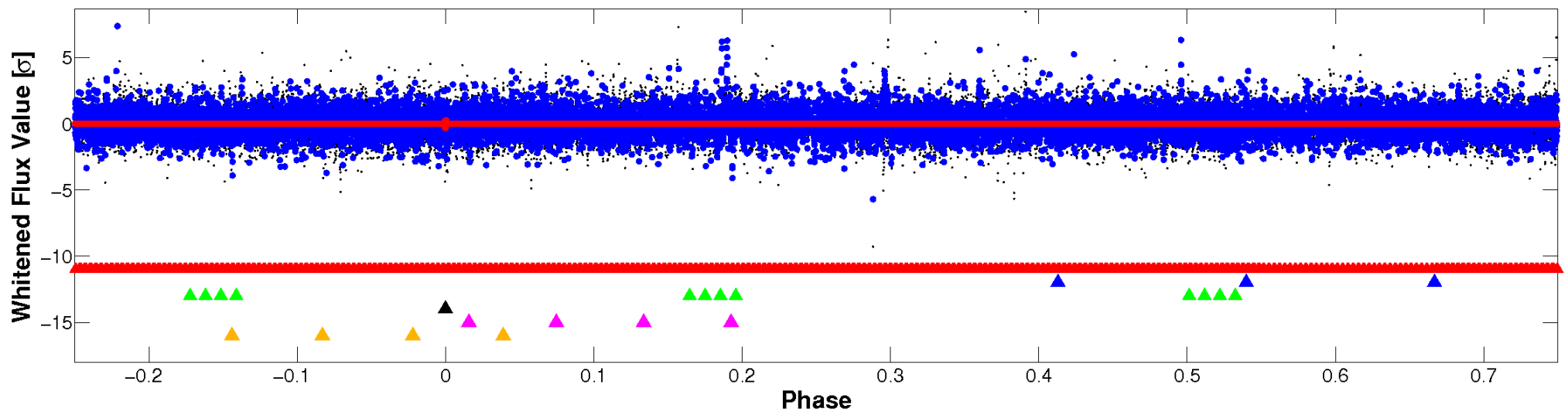


Non-Whitened Vs. Whitened Light Curve

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

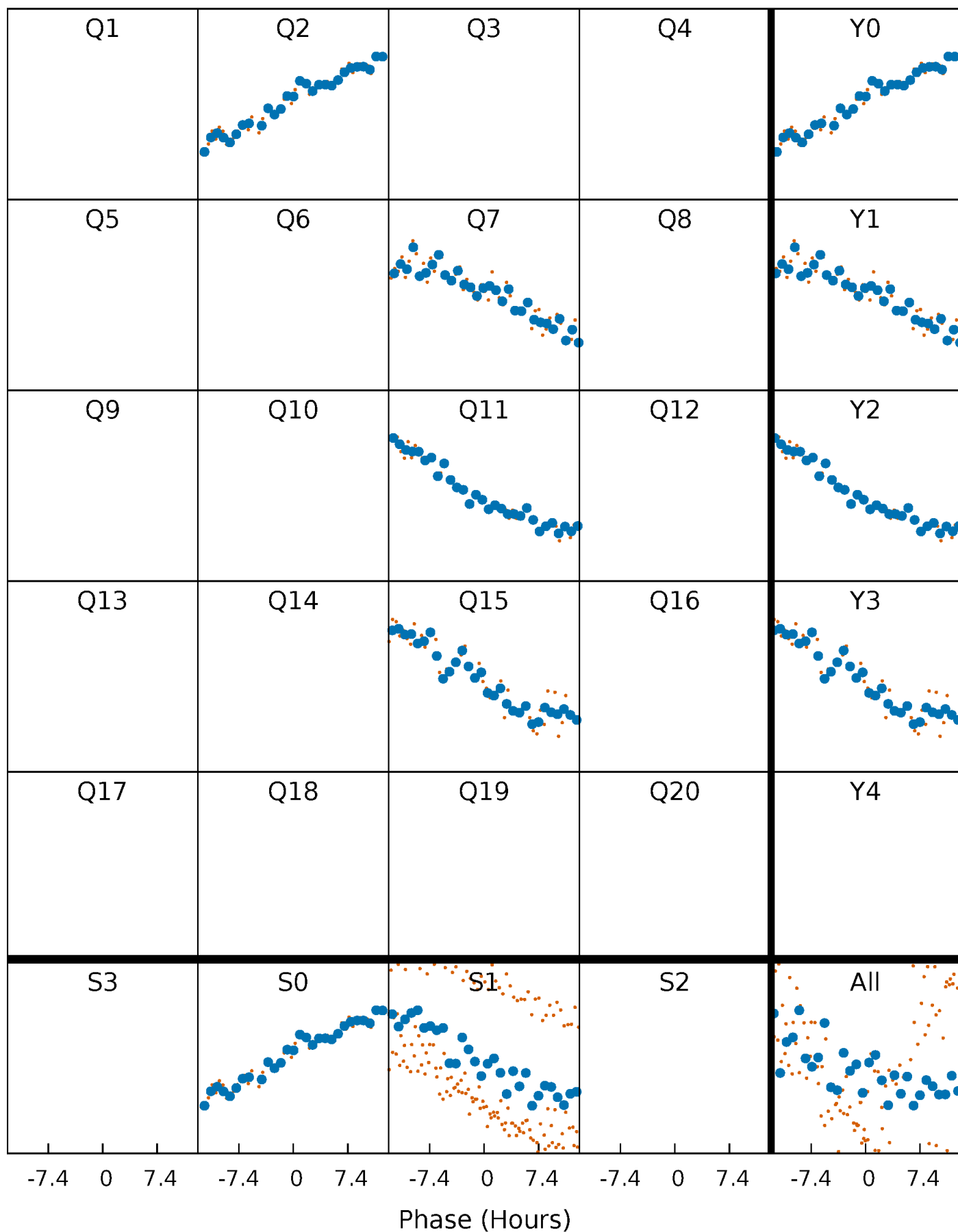


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



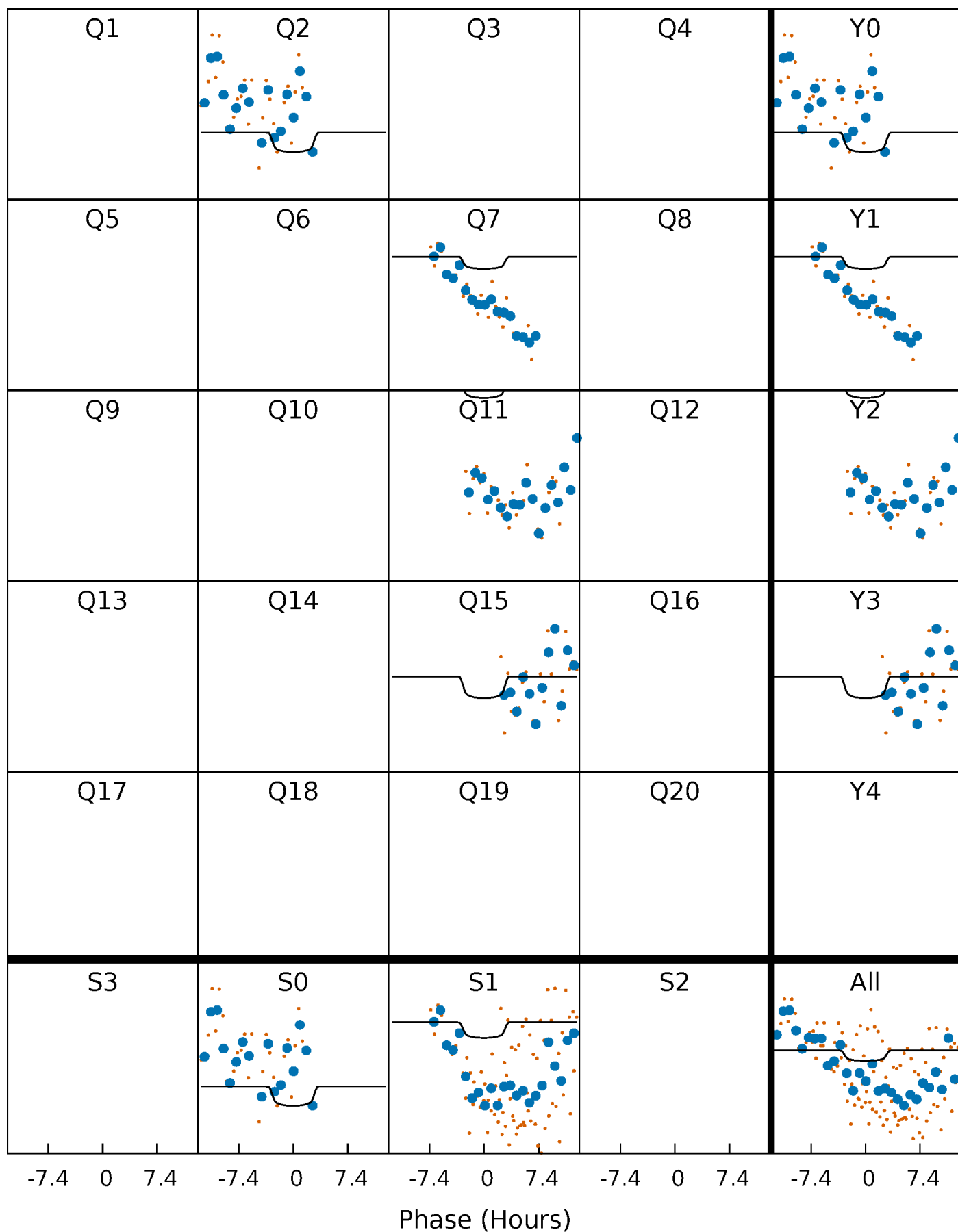
PDC Quarter-Phased Transit Curves

TCE 009899630-04 $P=375.575272$ Days $T_0=256.863383$ (BKJD)



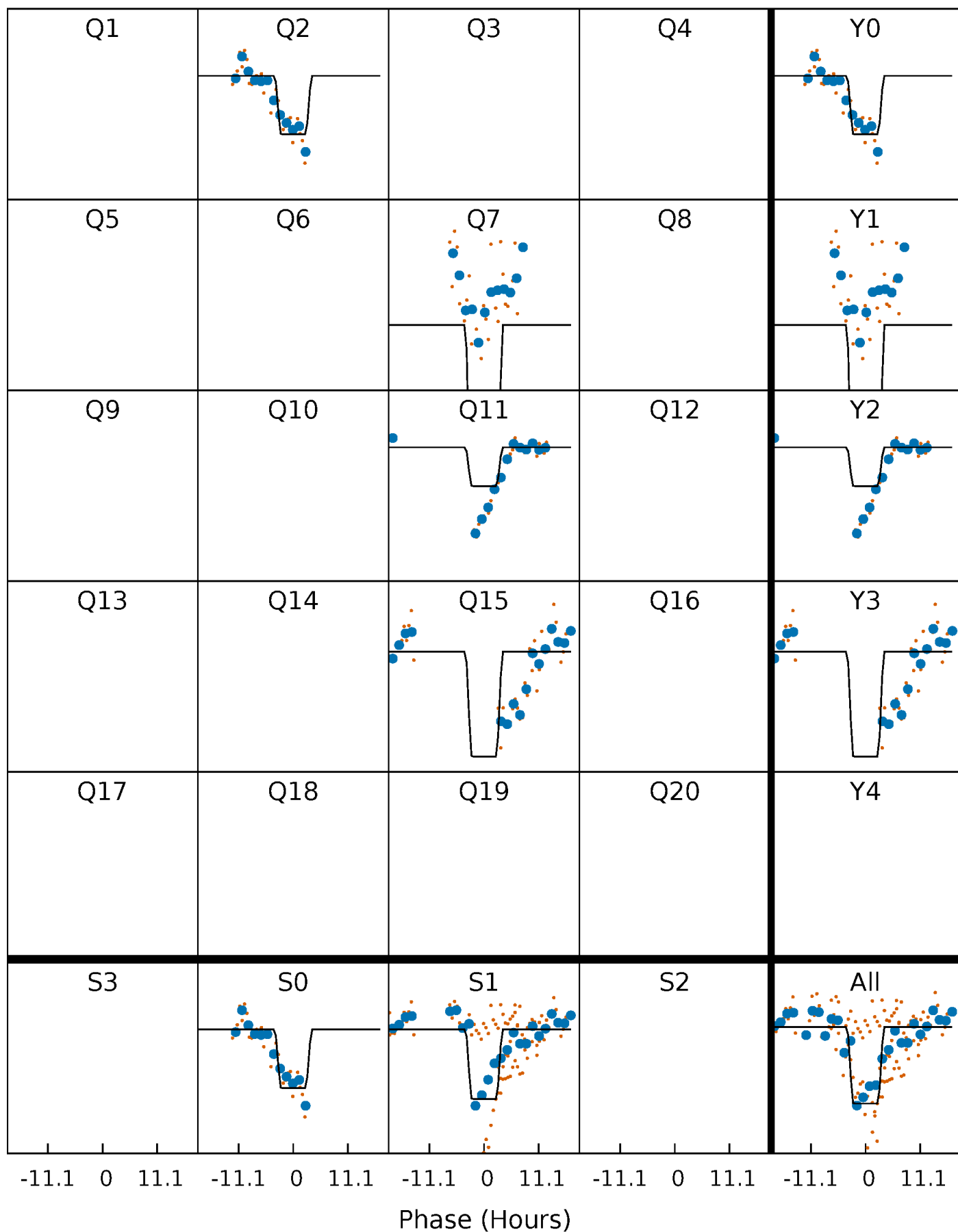
DV Quarter-Phased Transit Curves

TCE 009899630-04 P=375.575272 Days $T_0=256.863383$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

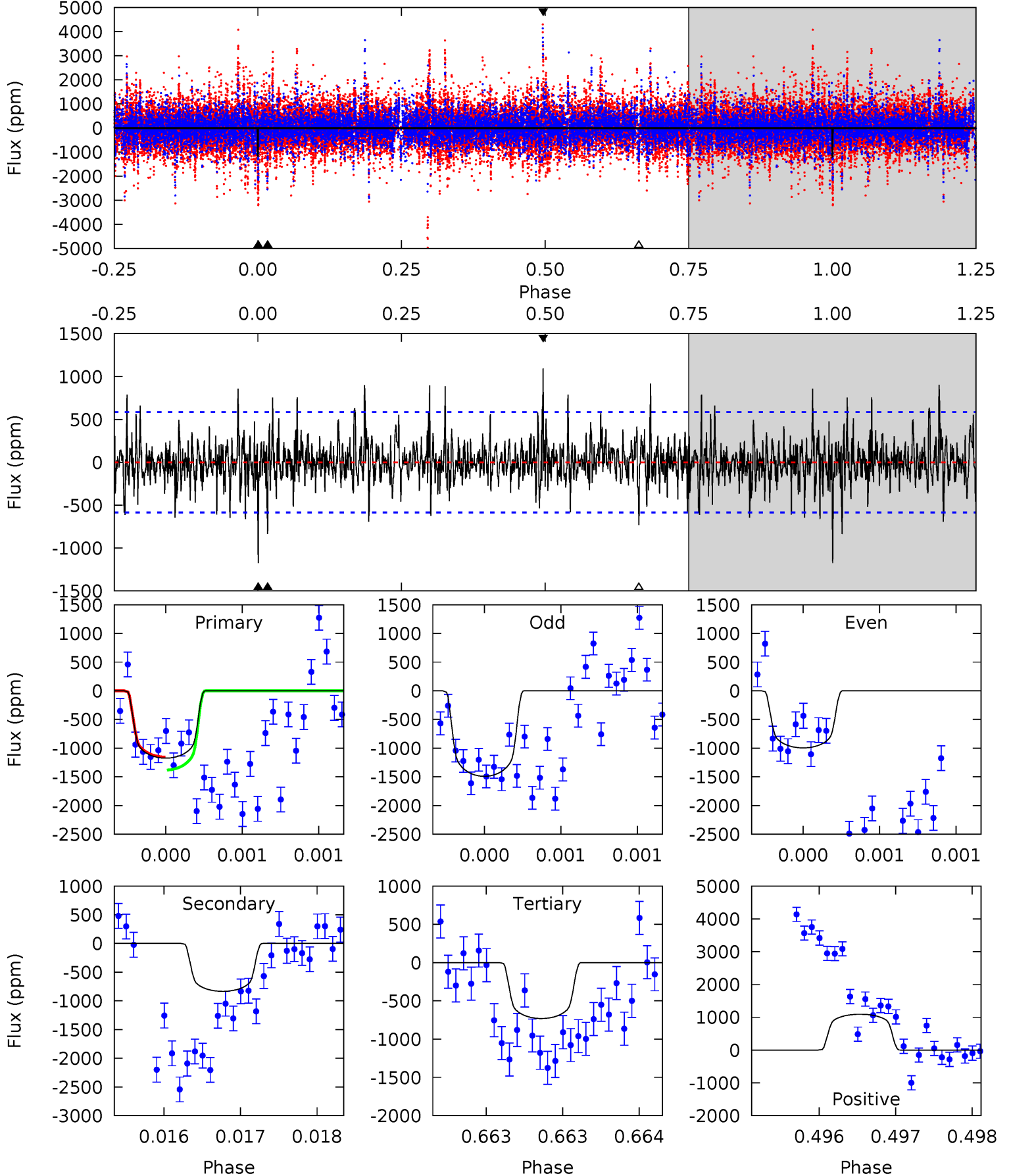
TCE 009899630-04 P=375.568833 Days $T_0=256.857404$ (BKJD)



DV Model-Shift Uniqueness Test

009899630-04, P = 375.575272 Days, E = 256.863383 Days

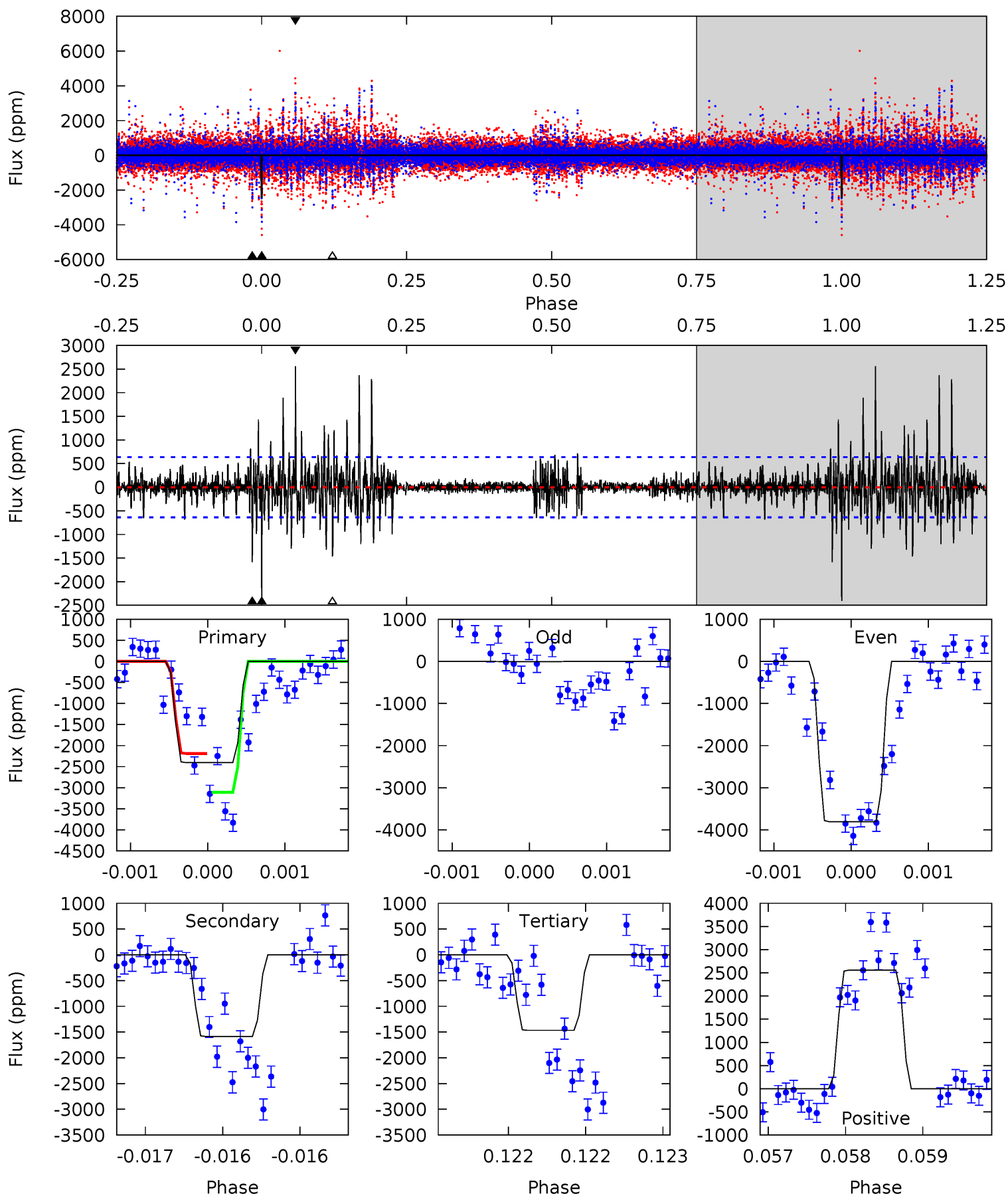
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	7.83	6.86	10.3	5.50	3.37	1.81	4.16	0.77	0.97	-2.42	2.27	1.03	0.48	1.05



Alt Model-Shift Uniqueness Test

009899630-04, P = 375.568833 Days, E = 256.857404 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.7	13.7	12.6	22.0	5.49	3.35	2.14	8.08	-1.32	1.02	-8.38	18.9	0.93	0.52	4.01



Stellar Parameters For KIC 009899630

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6039^{+168}_{-210}	$4.493^{+0.052}_{-0.208}$	$-0.140^{+0.250}_{-0.300}$	$0.951^{+0.285}_{-0.102}$	$1.027^{+0.127}_{-0.141}$	$1.685^{+0.465}_{-0.877}$
	+3%/-3%	+1%/-5%	+179%/-214%	+30%/-11%	+12%/-14%	+28%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009899630-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-834 ± 106	$2.53^{+1.93}_{-1.48}$	364^{+26}_{-18}	6700^{+5106}_{-1603}	$73877^{+352288}_{-50598}$
Alt.	-1585 ± 116	$6.09^{+2.01}_{-2.09}$	366^{+29}_{-18}	5154^{+1119}_{-572}	24748^{+30568}_{-11188}

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

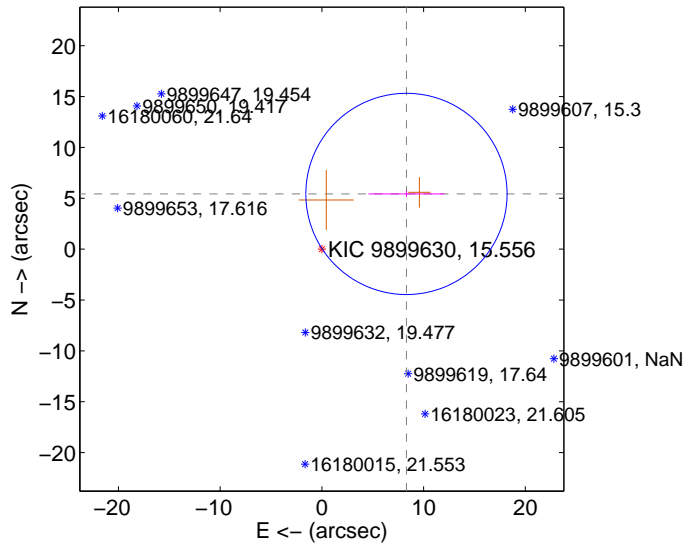
Supplemental centroid analysis for 009899630-04. Kepler magnitude: 15.56. Transit SNR 1.93

There are 0 quarters with good PRF difference image offsets

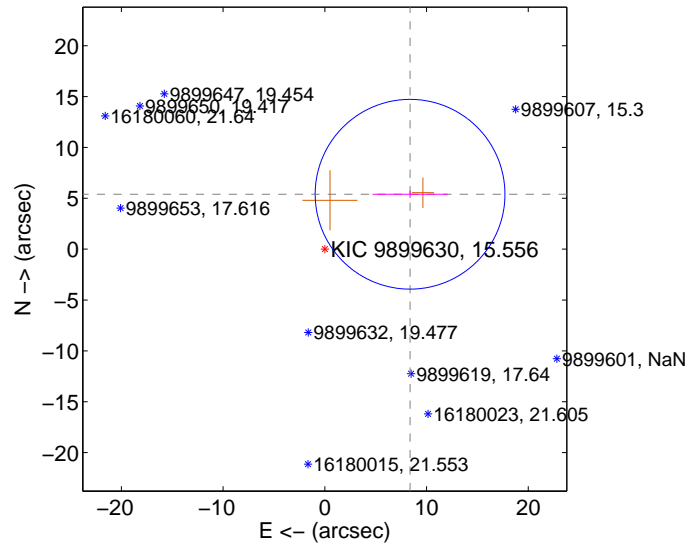
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	9.930 ± 3.297	3.01	-8.313 ± 3.738	5.430 ± 0.313
PRF-fit source offset from KIC position	9.967 ± 3.109	3.21	-8.379 ± 3.691	5.398 ± 0.360
photometric centroid source offset	2.07 ± 2.95	0.70	-1.17 ± 3.00	1.71 ± 2.93

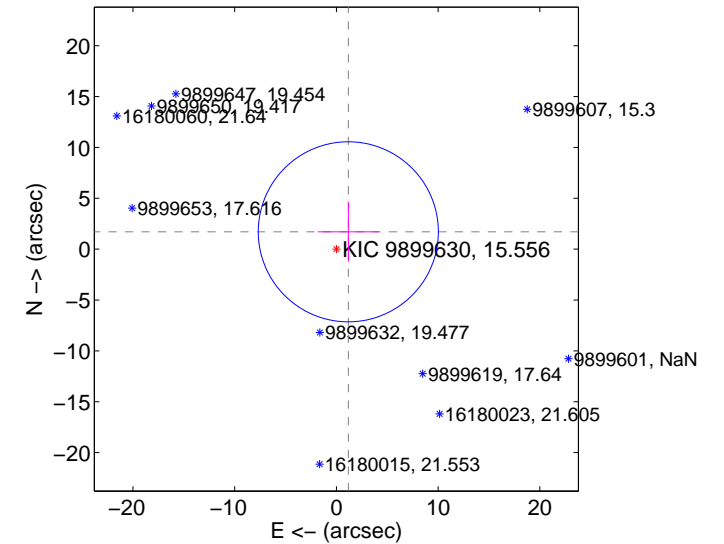
offset from difference PRF-fit to OOT PRF-fit



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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

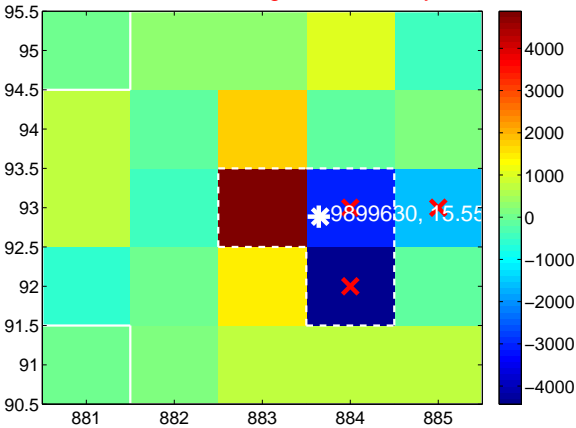
Q1 no difference image



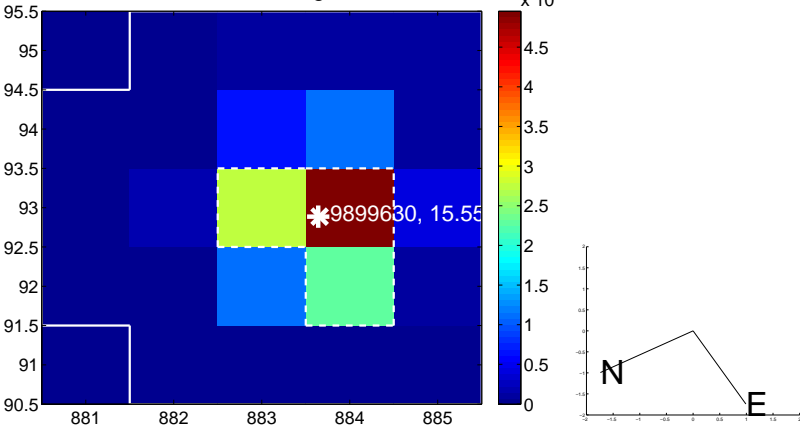
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



Q3 no difference image



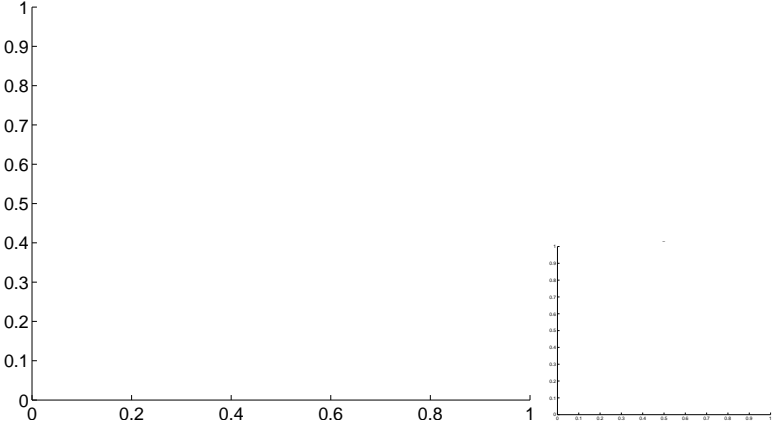
Q3 no OOT image



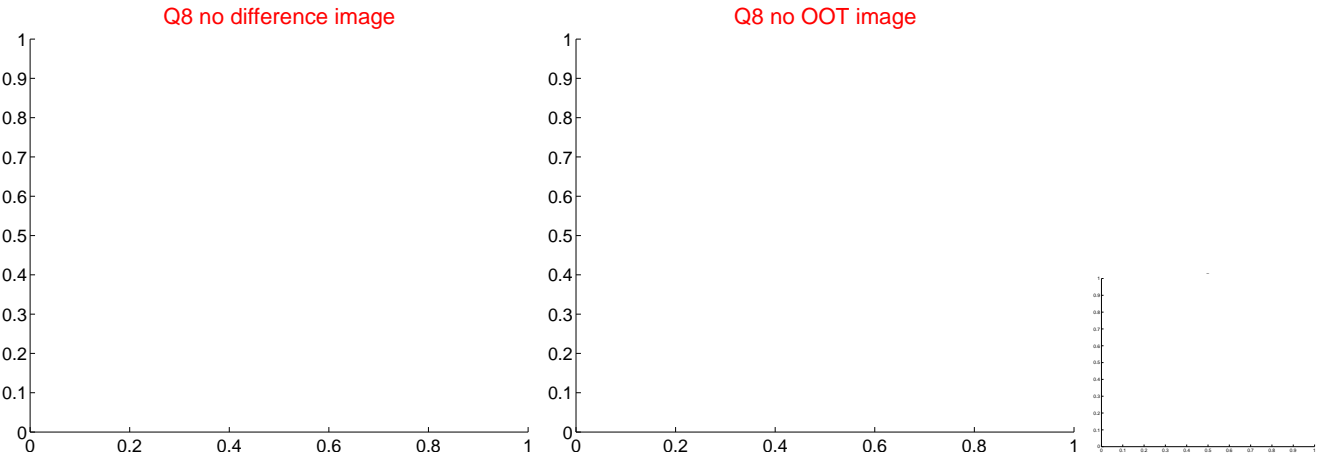
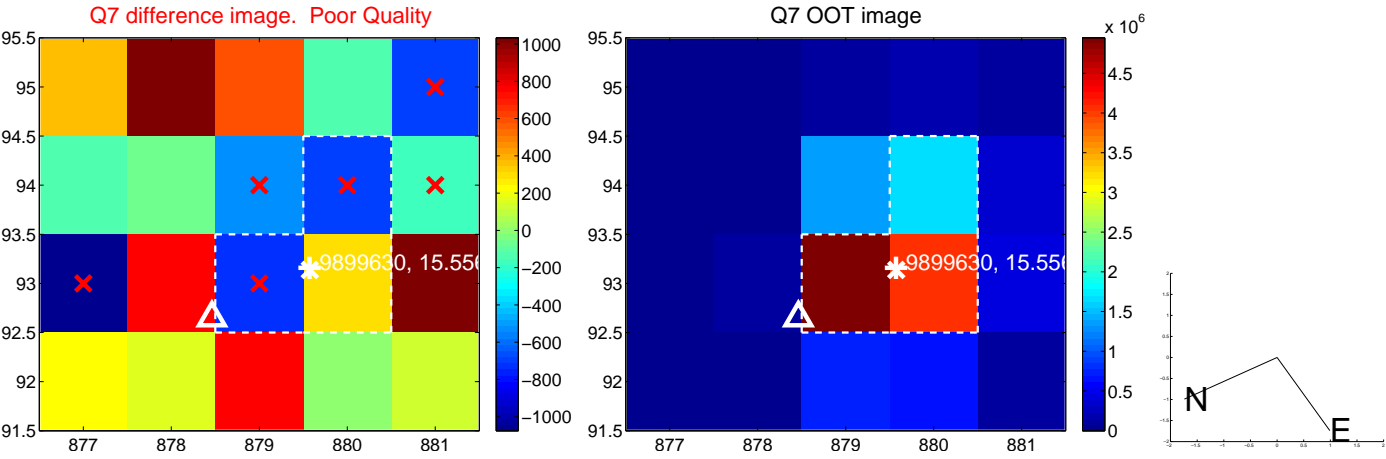
Q4 no difference image



Q4 no OOT image



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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

Q13 no difference image



Q13 no OOT image



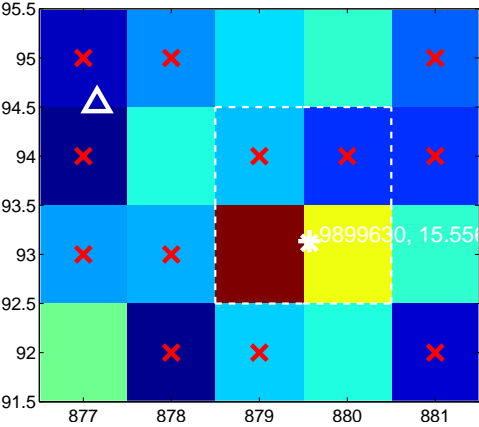
Q14 no difference image



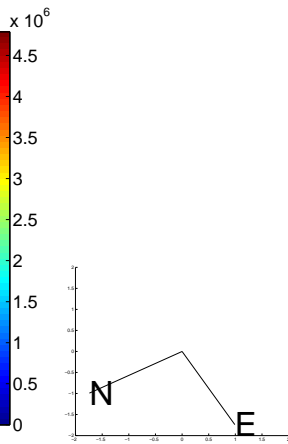
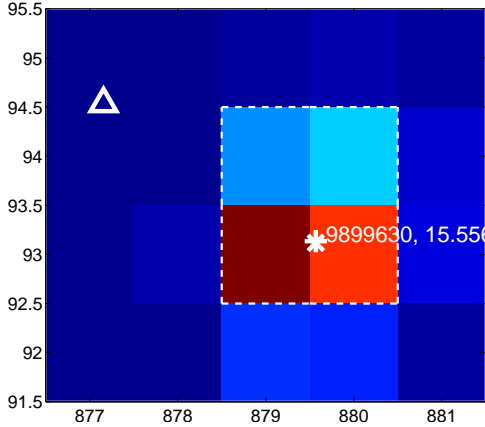
Q14 no OOT image



Q15 difference image. Poor Quality



Q15 OOT image



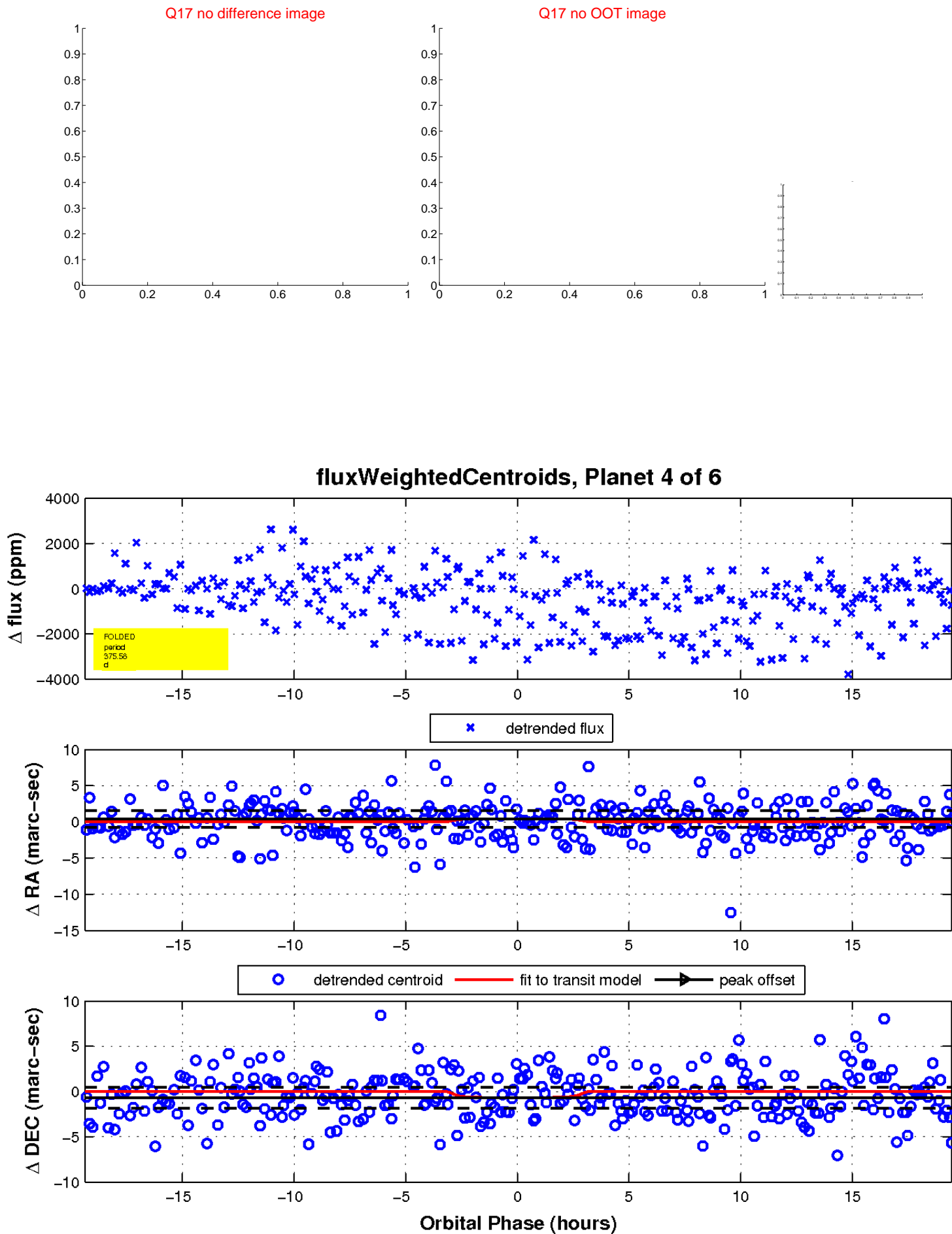
Q16 no difference image



Q16 no OOT image

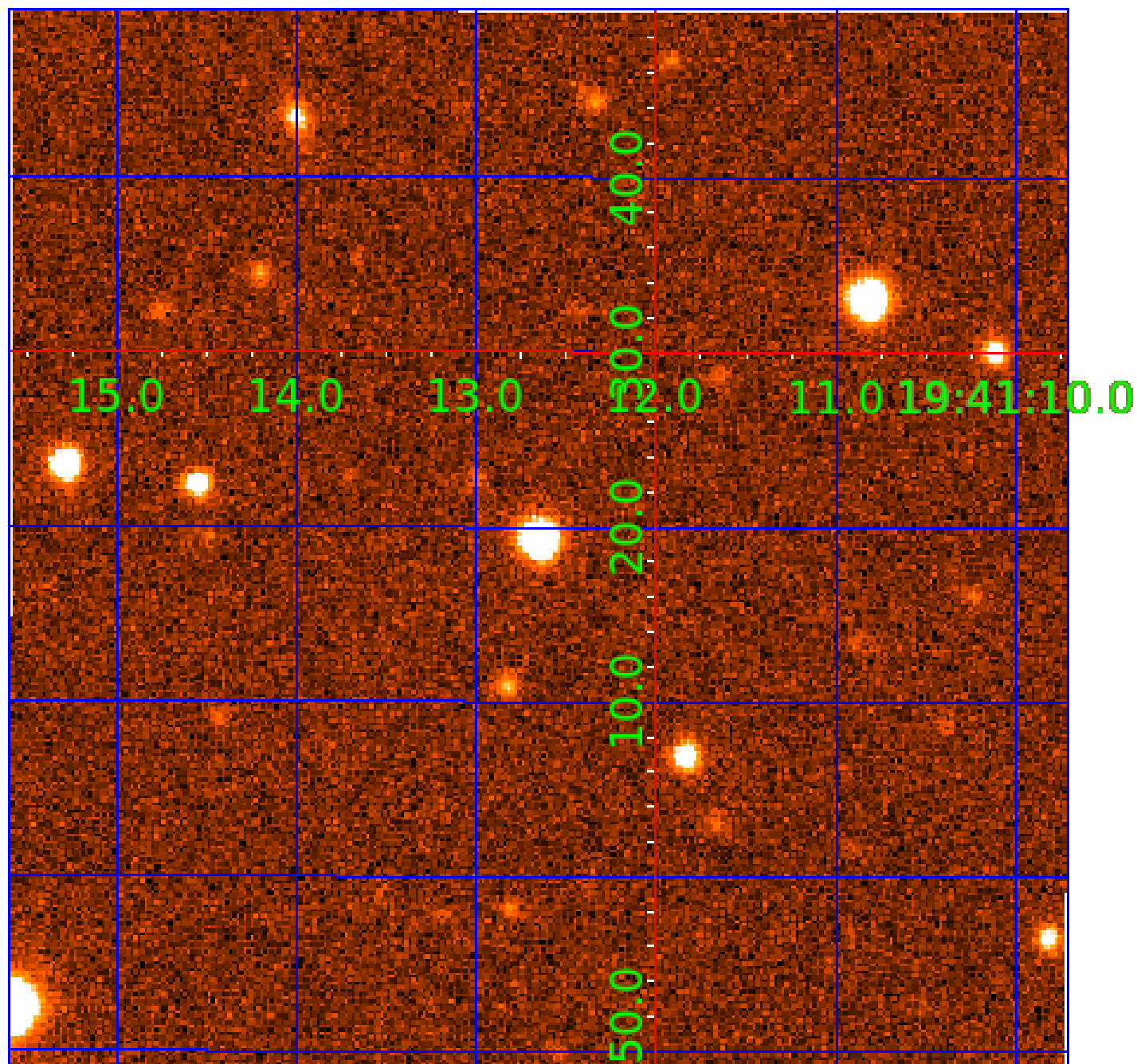


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009899630

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})
009899630-01	OBS	4439.01	1.332555	132.058523	107.2	5.445	13.1	13.0	0.95	6039	1.15	1884.93
009899630-02	OBS	No	423.244926	411.962750	14754.7	60.490	18.1	12.1	0.95	6039	20.38	0.87
009899630-03	OBS	No	126.489931	192.201024	838.1	11.758	10.4	6.2	0.95	6039	3.07	4.35
009899630-04	OBS	No	375.575272	256.863383	374.3	6.483	9.7	1.9	0.95	6039	2.18	1.02
009899630-05	OBS	No	397.708794	262.788603	1.8	8.859	8.9	0.0	0.95	6039	0.14	0.94
009899630-06	OBS	No	352.676434	271.484285	918.5	9.000	8.0	-1.0	0.95	6039	2.88	1.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009899630-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
009899630-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009899630-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009899630-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009899630-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009899630-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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.

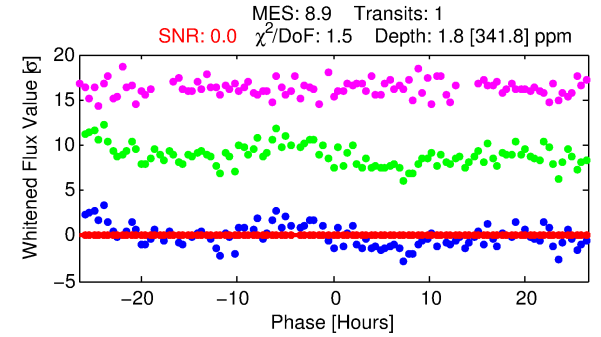
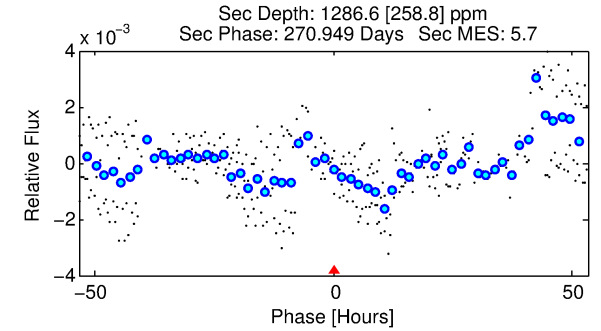
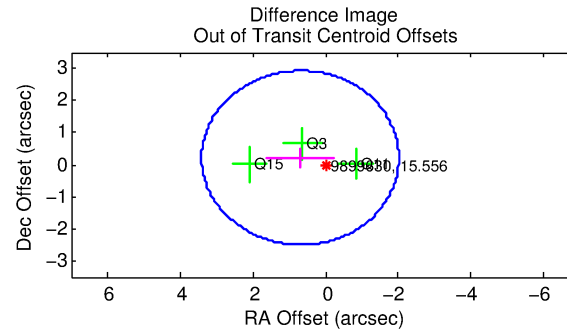
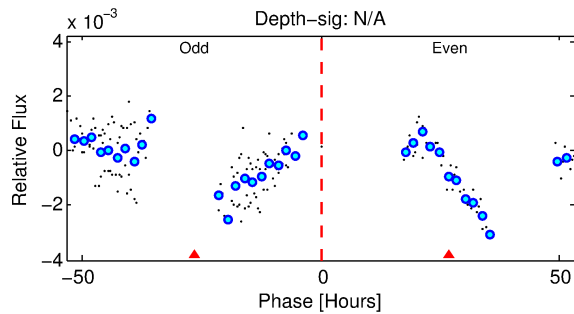
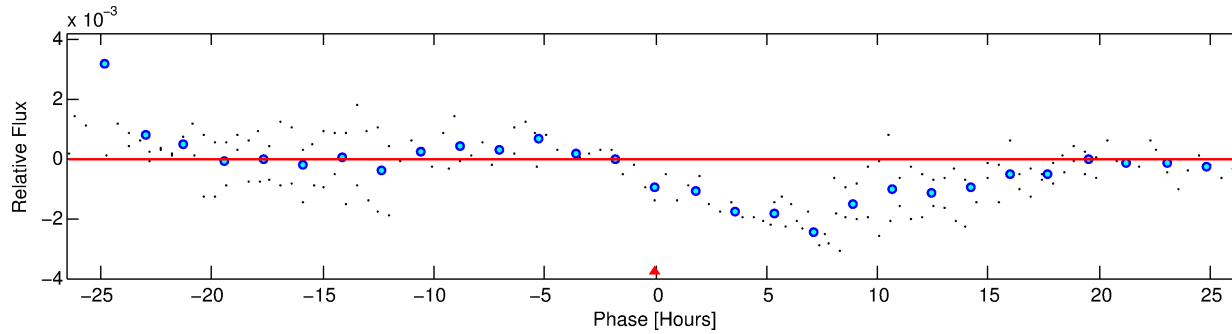
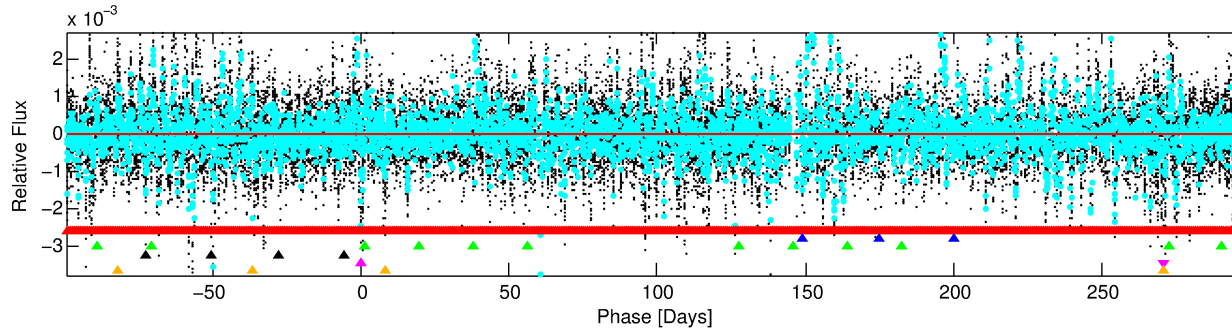
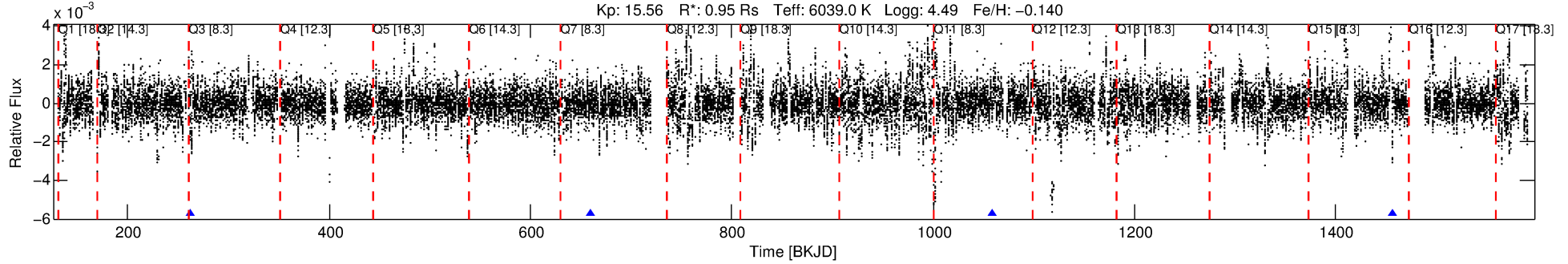
Ephemeris Match Information For 009899630-05

No Significant Match Found

DV One-Page Summary

KIC: 9899630 Candidate: 5 of 6 Period: 397.709 d
KOI: K04439 Corr: No Ephemeris Match

Kp: 15.56 R*: 0.95 Rs Teff: 6039.0 K Logg: 4.49 Fe/H: -0.140



DV Fit Results:

Period = 397.70879 [27.17635] d
Epoch = 262.7886 [58.0869] BKJD
Rp/R* = 0.0014 [0.2118]
a/R* = 209.83 [103373.31]
b = 0.79 [257.01]
Seff = 0.95 [0.39]
Teq = 251 [26] K
Rp = 0.14 [21.98] Re
a = 1.0679 [0.2774] AU
Ag = 40639505.85 [12675535386.77] [0.005]
Teffp = 31036 [2420084] K [0.01σ]

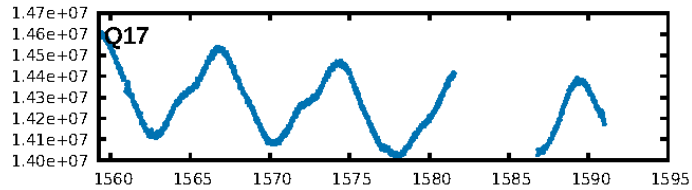
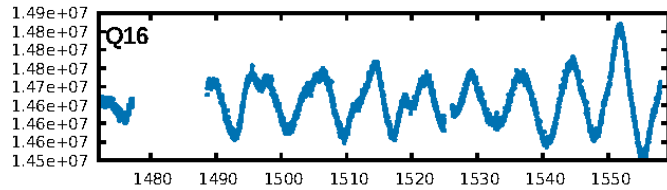
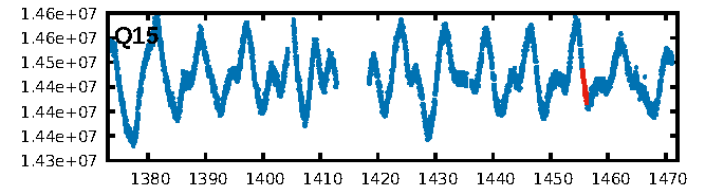
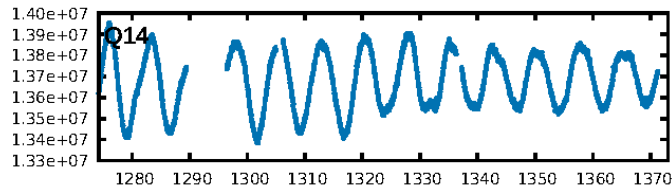
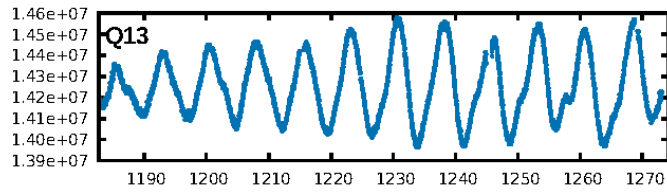
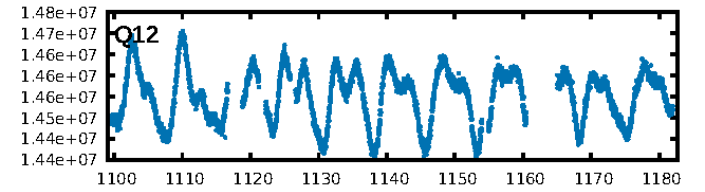
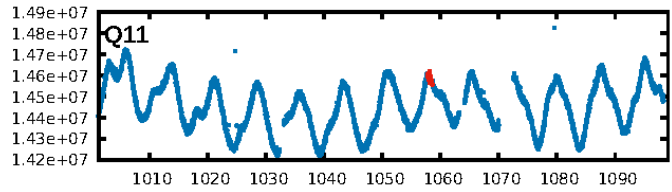
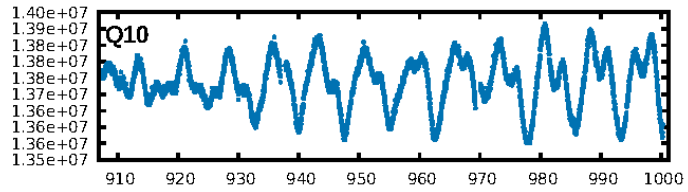
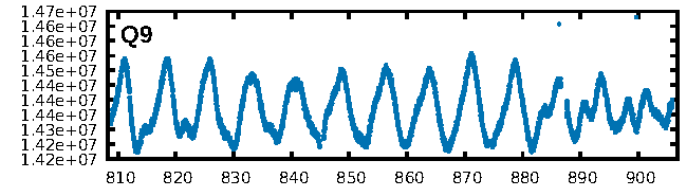
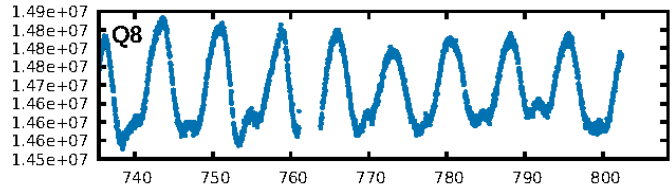
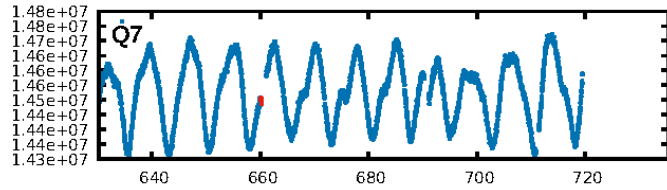
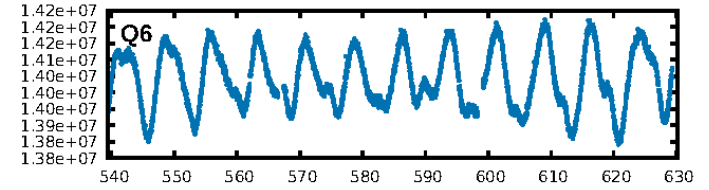
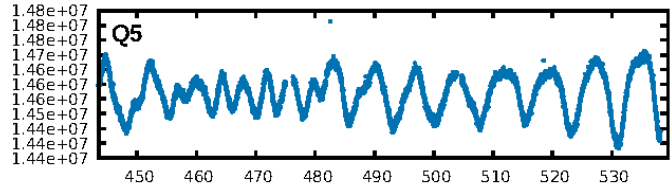
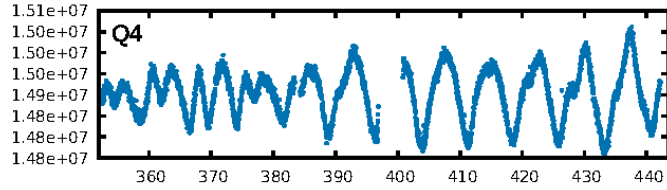
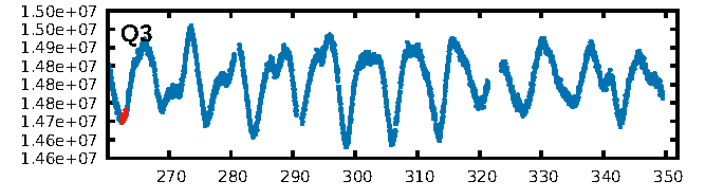
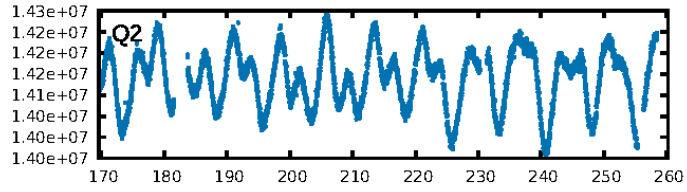
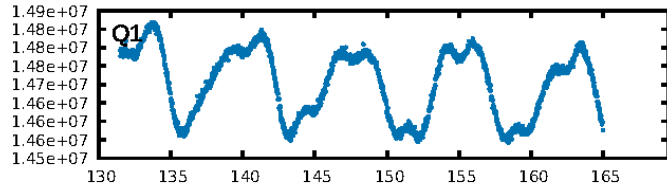
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [48.39σ]
LongPeriod-sig: 100.0% [10.02σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 48.6%
Bootstrap-pfa: 6.78e-11
RollingBand-fgt: 1.00 [1/1]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.724 arcsec [0.80σ]
KicOffset-rm: 0.678 arcsec [0.76σ]
OotOffset-st: 0/3/0/0 [3]
KicOffset-st: 0/3/0/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/3]

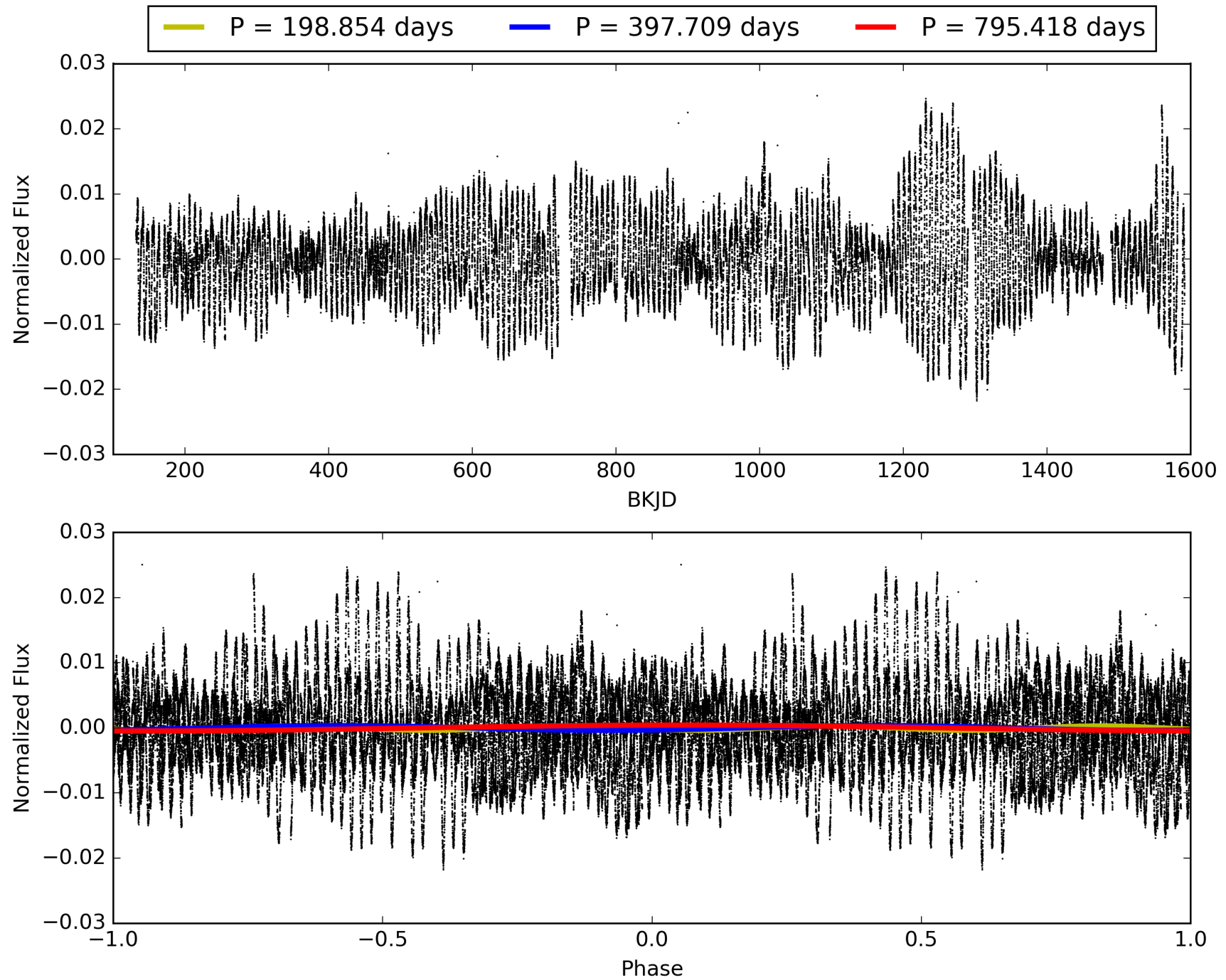
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:32:45 Z

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

TCE 009899630-05, PDC Light Curves

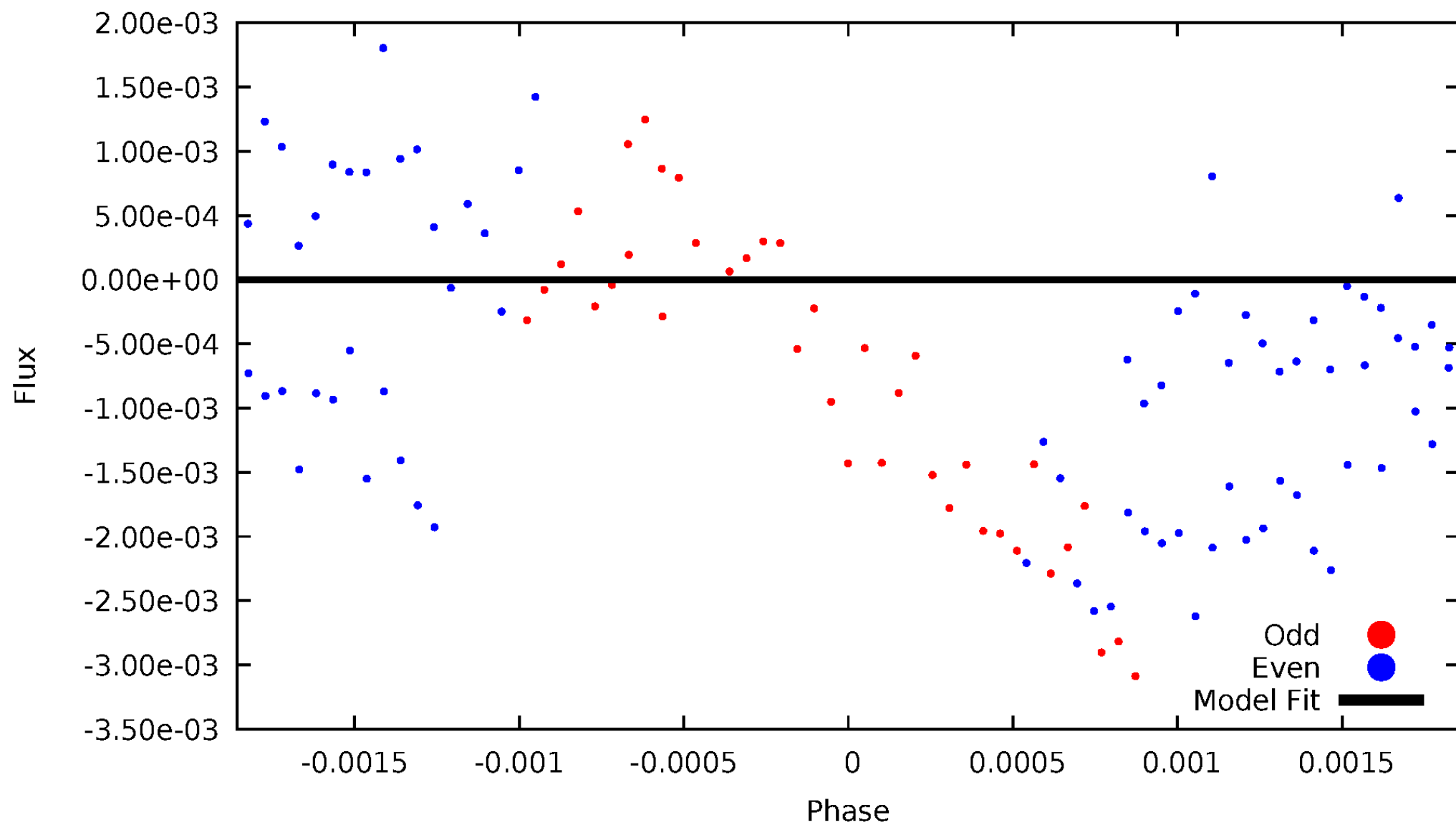


TCE 009899630-05



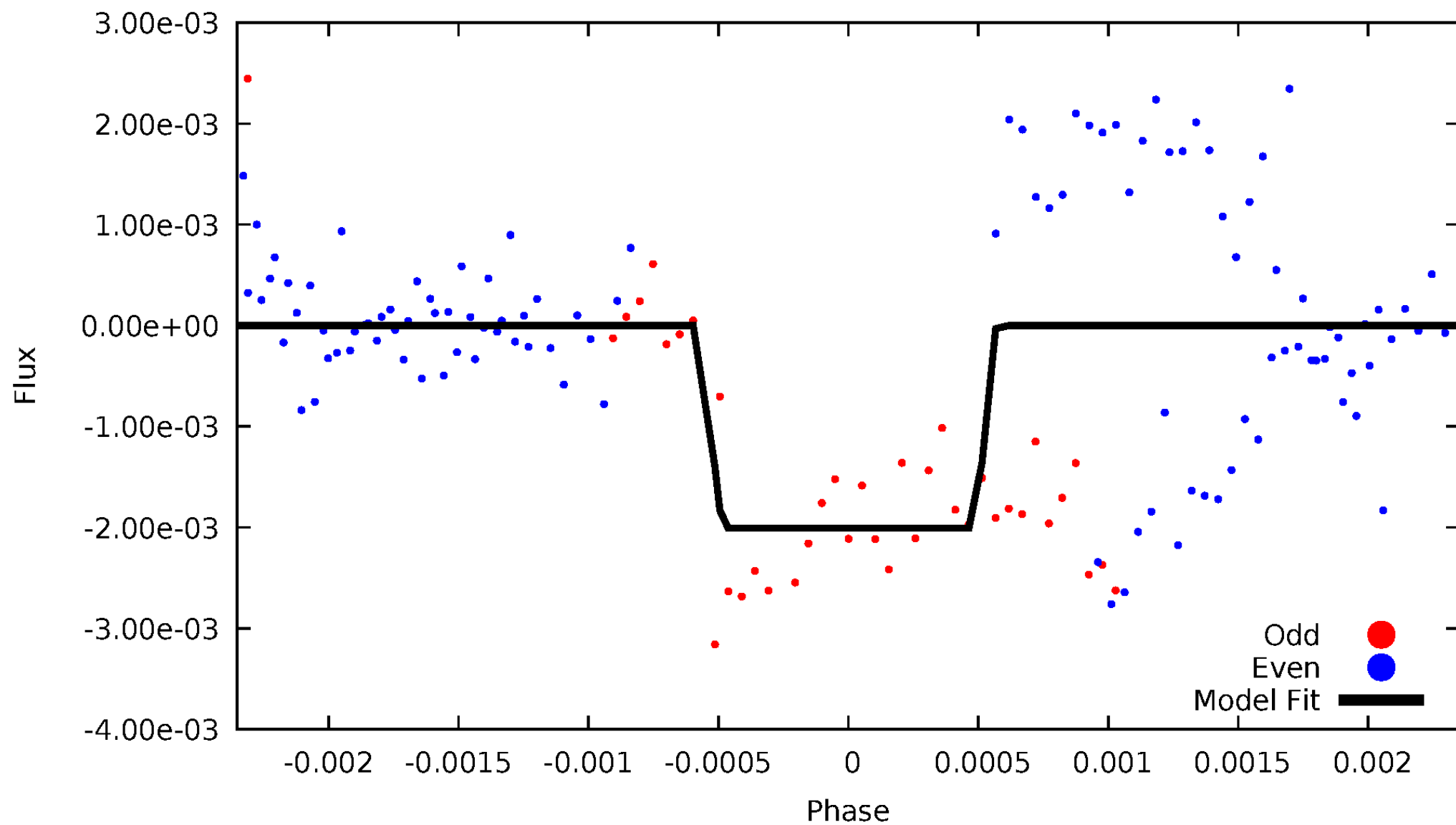
DV Odd/Even

TCE 009899630-05



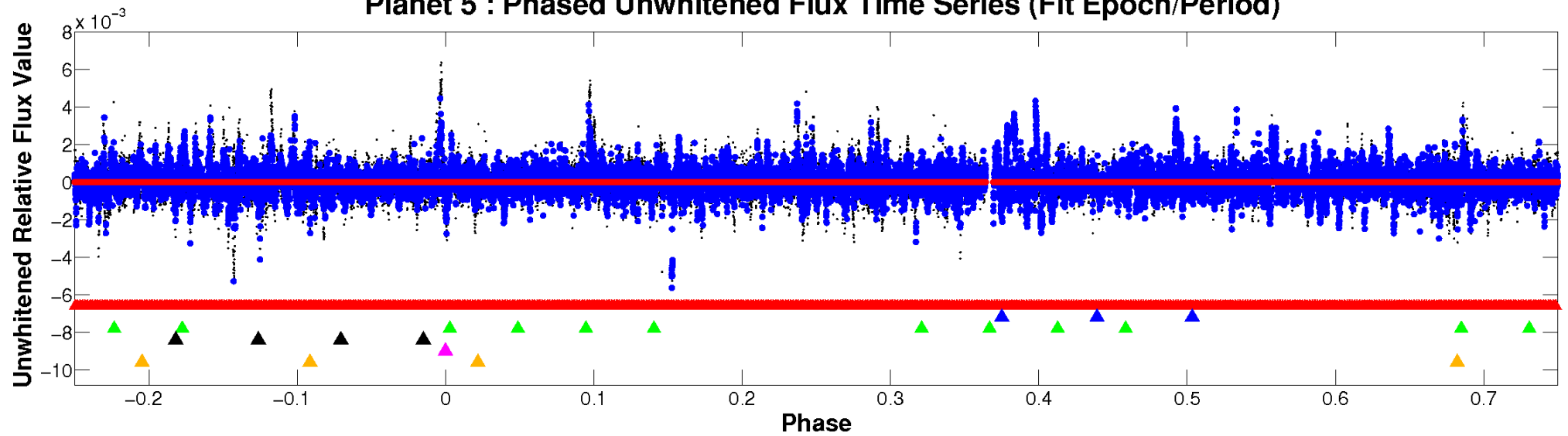
ALT Odd/Even

TCE 009899630-05

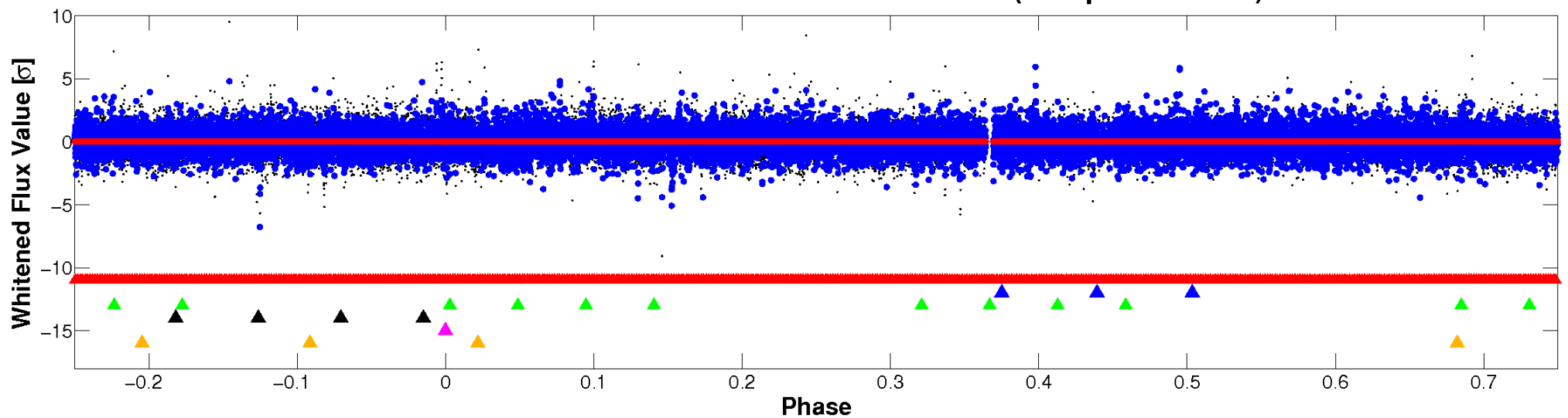


Non-Whitened Vs. Whitened Light Curve

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

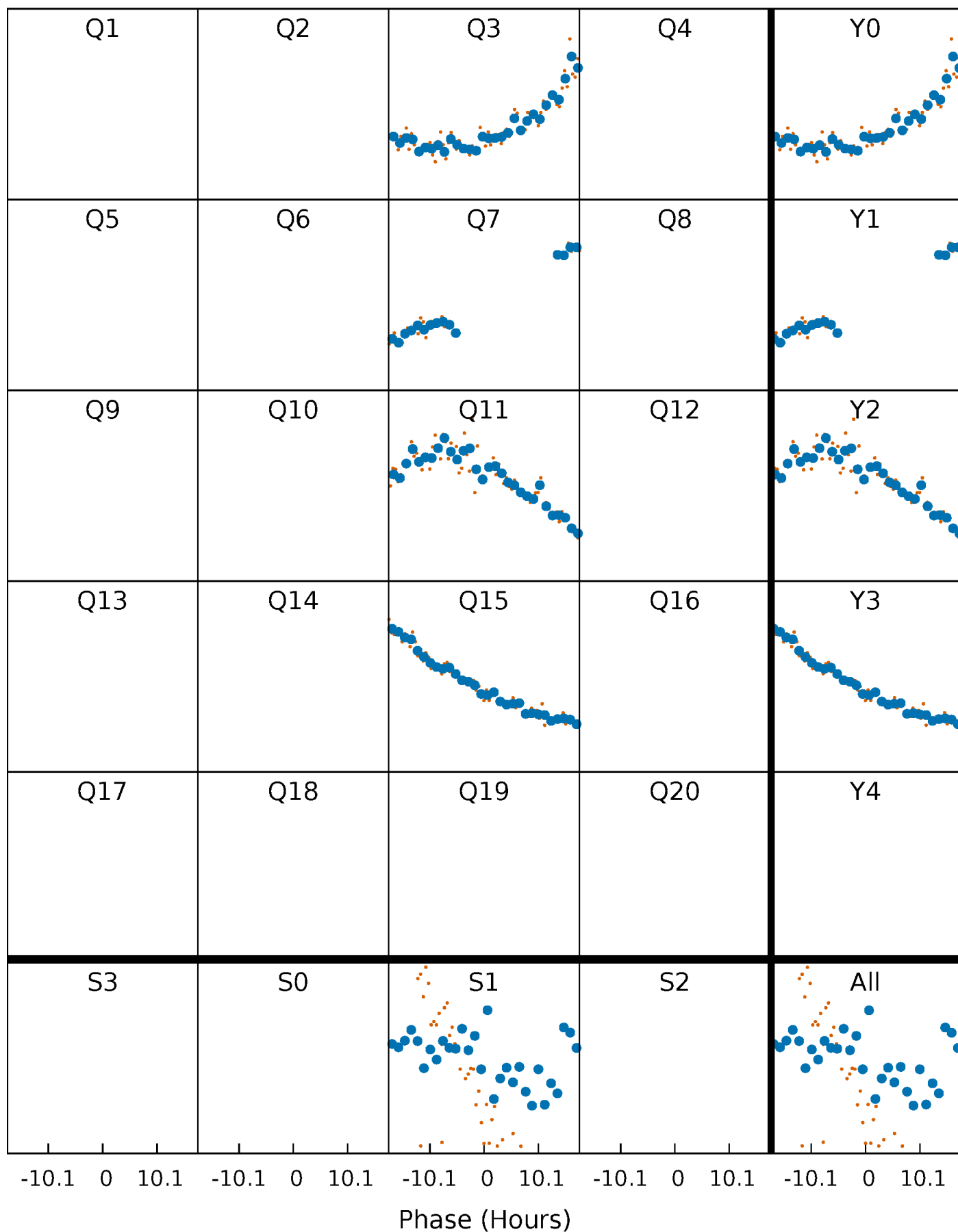


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



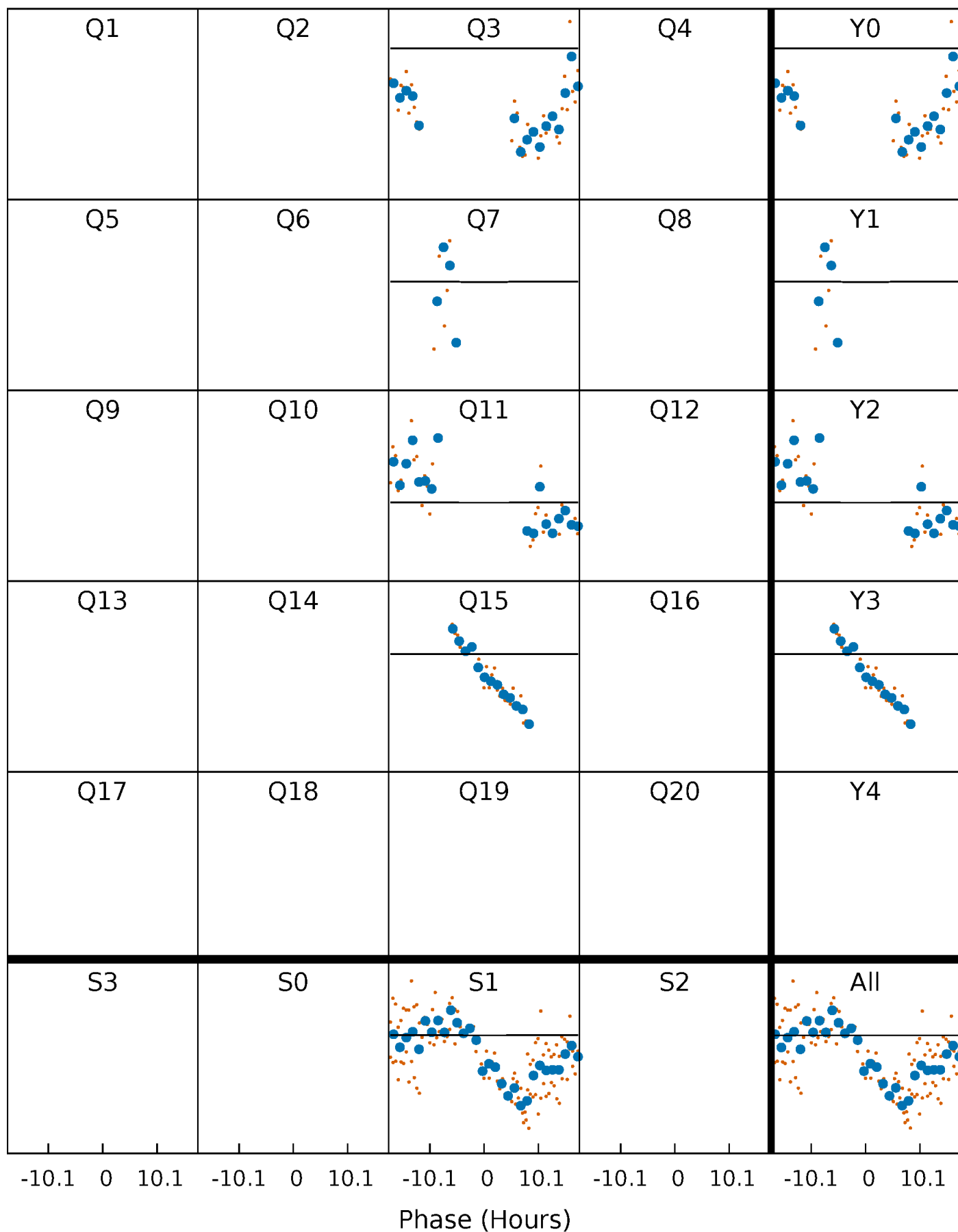
PDC Quarter-Phased Transit Curves

TCE 009899630-05 $P=397.708794$ Days $T_0=262.788603$ (BKJD)



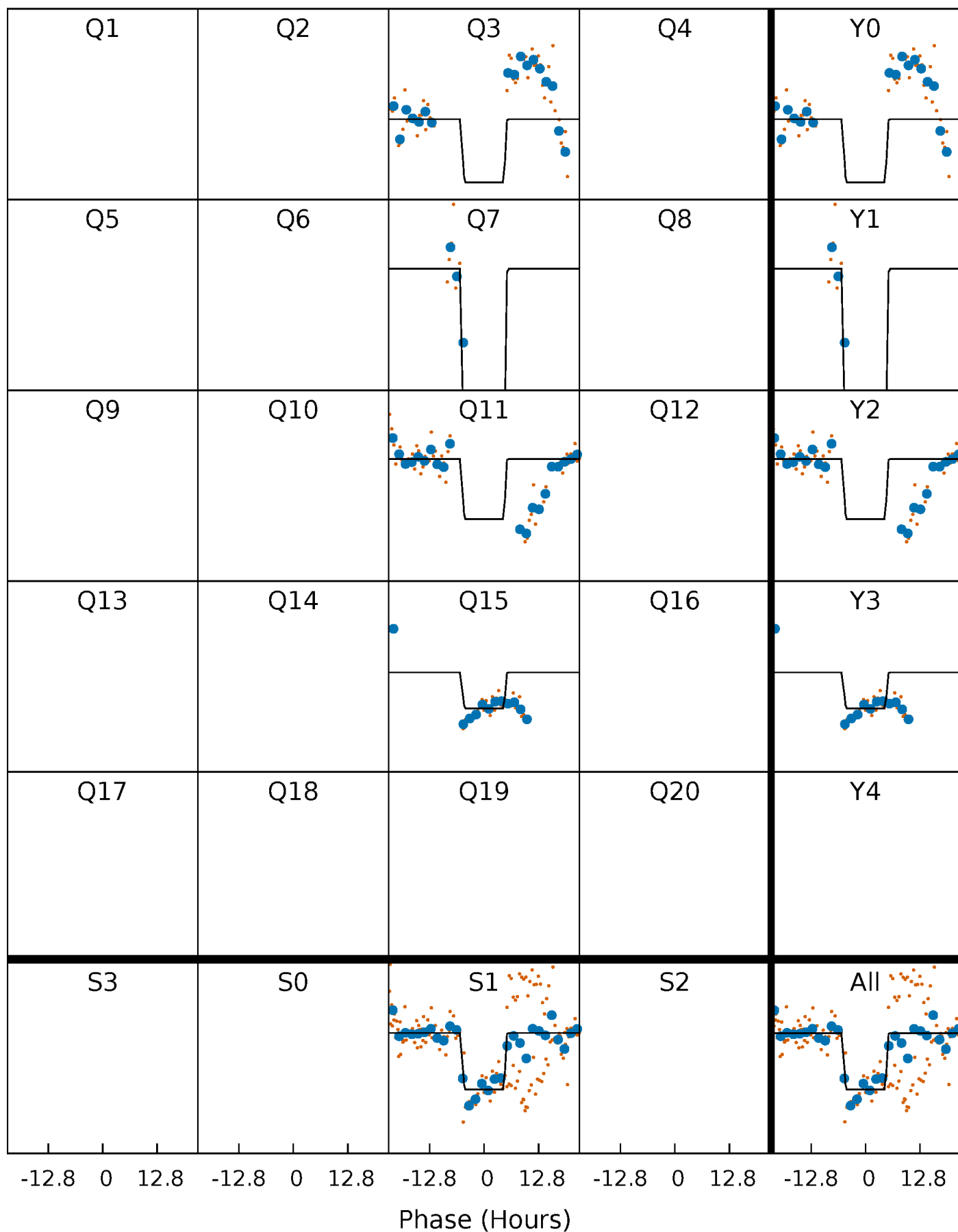
DV Quarter-Phased Transit Curves

TCE 009899630-05 $P=397.708794$ Days $T_0=262.788603$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

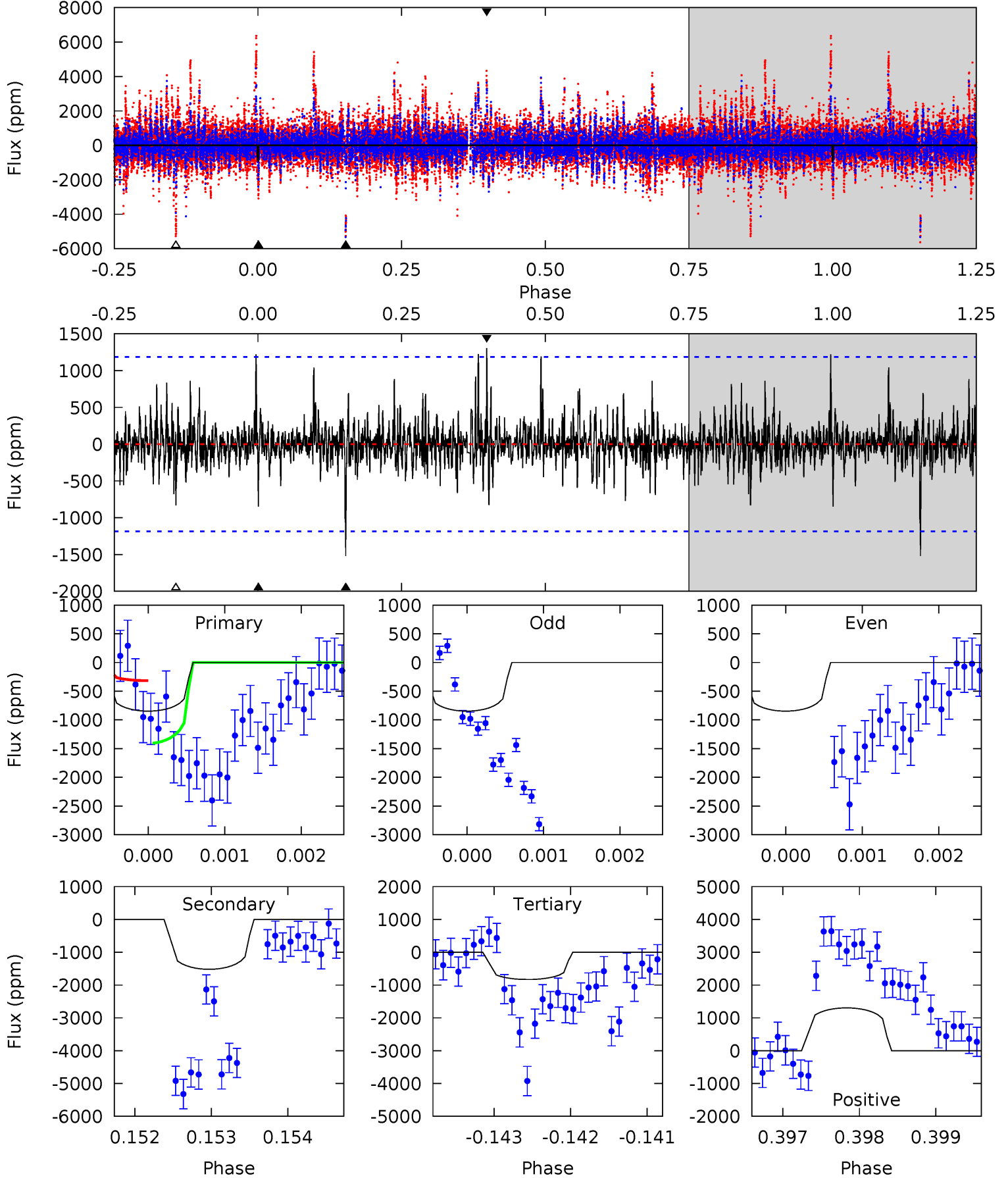
TCE 009899630-05 $P=397.691567$ Days $T_0=262.778147$ (BKJD)



DV Model-Shift Uniqueness Test

009899630-05, $P = 397.708794$ Days, $E = 262.788603$ Days

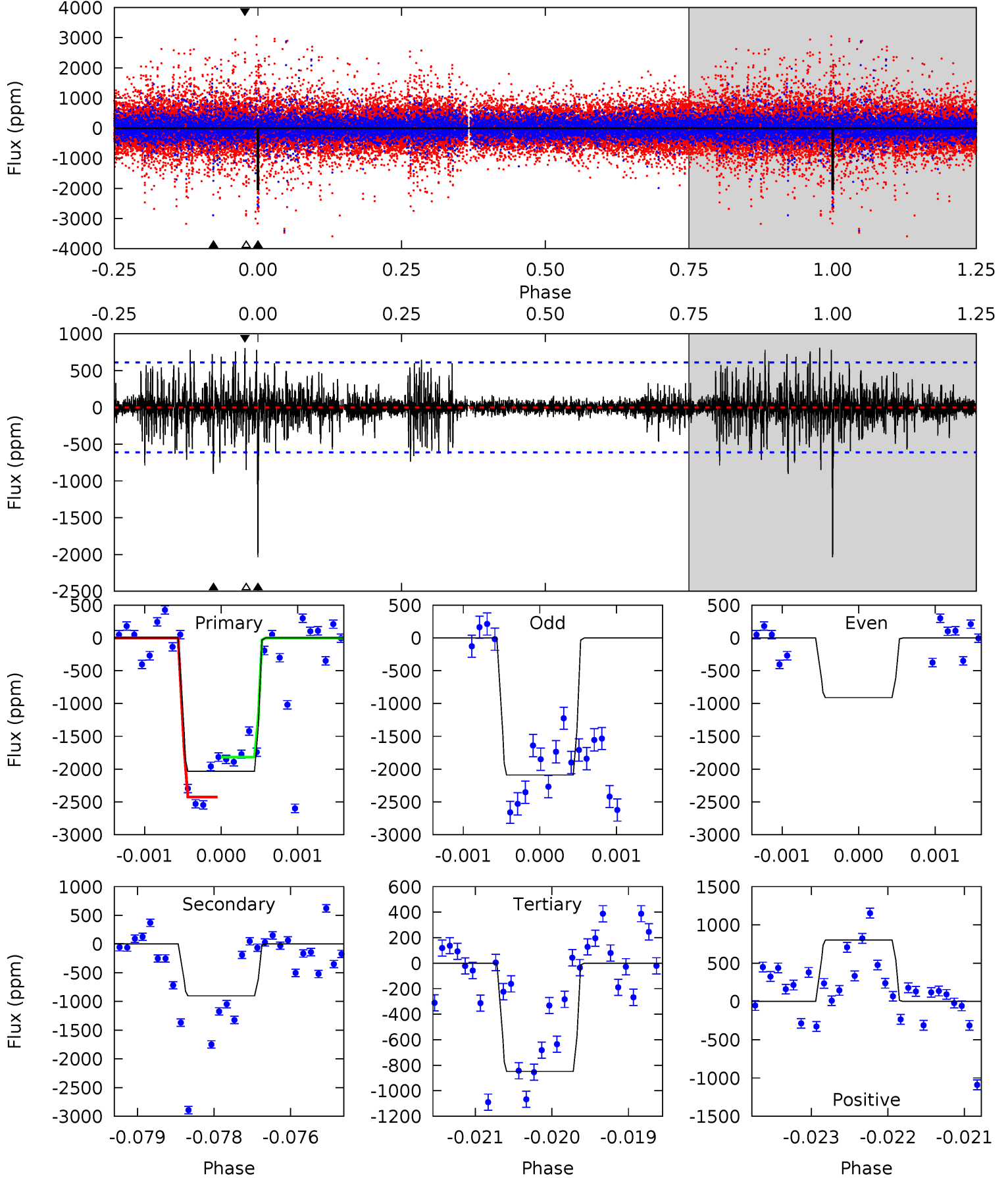
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.92	7.03	3.84	6.03	5.48	3.33	0.97	0.08	-2.11	3.19	1.00	0	1.00	0.46	2.52



Alt Model-Shift Uniqueness Test

009899630-05, P = 397.691567 Days, E = 262.778147 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	8.04	7.56	7.16	5.44	3.27	1.29	10.6	11.0	0.48	0.88	7.29	1.00	0.28	2.65



Stellar Parameters For KIC 009899630

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6039^{+168}_{-210}	$4.493^{+0.052}_{-0.208}$	$-0.140^{+0.250}_{-0.300}$	$0.951^{+0.285}_{-0.102}$	$1.027^{+0.127}_{-0.141}$	$1.685^{+0.465}_{-0.877}$
	+3%/-3%	+1%/-5%	+179%/-214%	+30%/-11%	+12%/-14%	+28%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009899630-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1521 ± 216	$14.93^{+17.07}_{-10.15}$	358^{+26}_{-19}	3653^{+1938}_{-772}	4125^{+35680}_{-3252}
Alt.	-902 ± 112	$16.96^{+19.92}_{-11.96}$	361^{+27}_{-20}	3245^{+1853}_{-620}	1962^{+19471}_{-1544}

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 $A_{obs} \gg 1.0$

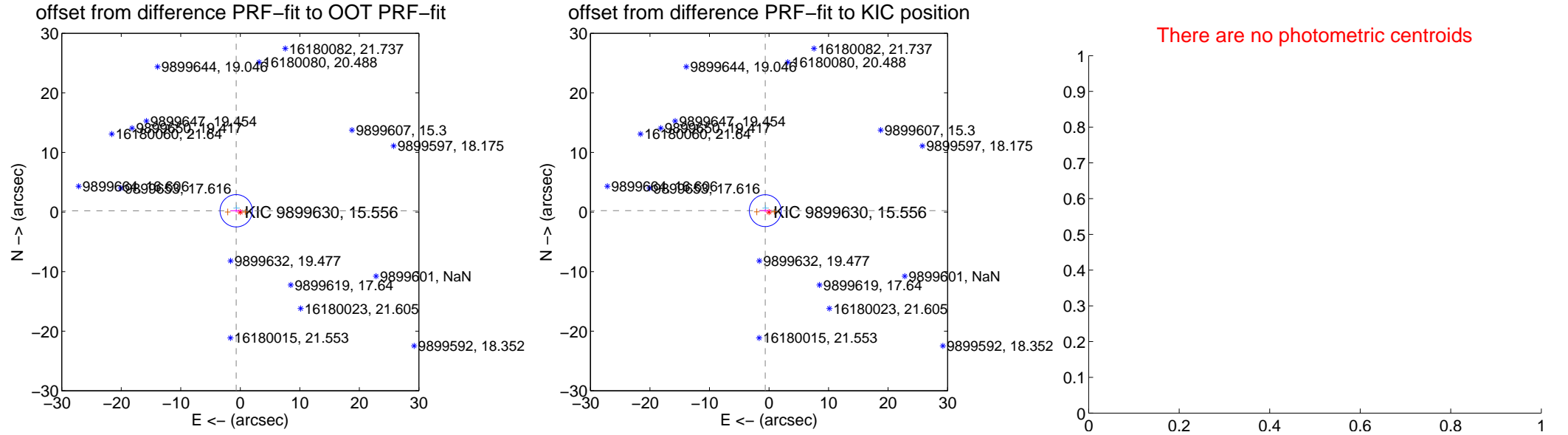
DV Centroid Data

Supplemental centroid analysis for 009899630-05. Kepler magnitude: 15.56. Transit SNR 0.01

There are 1 quarters with good PRF difference image offsets

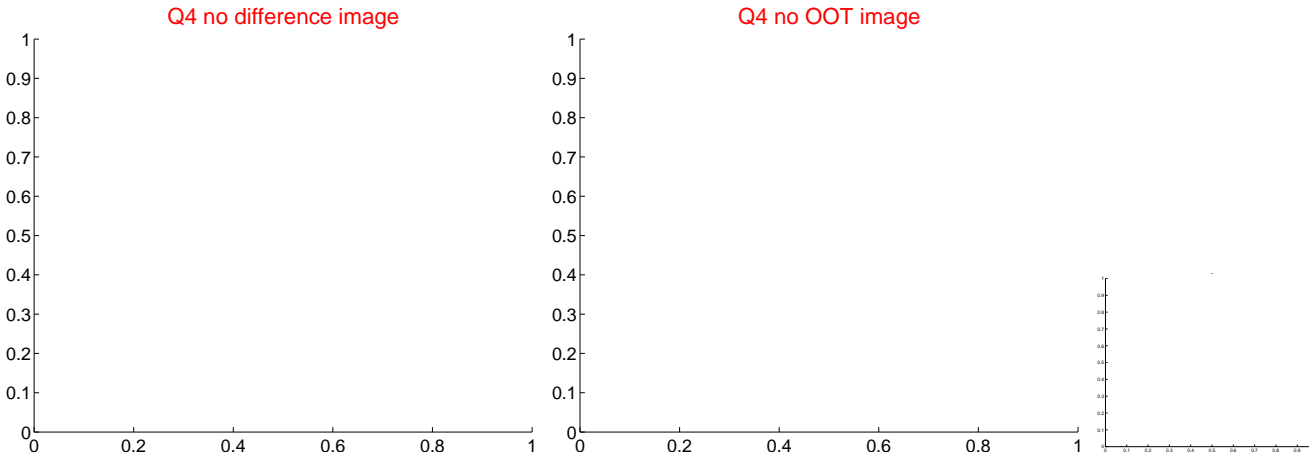
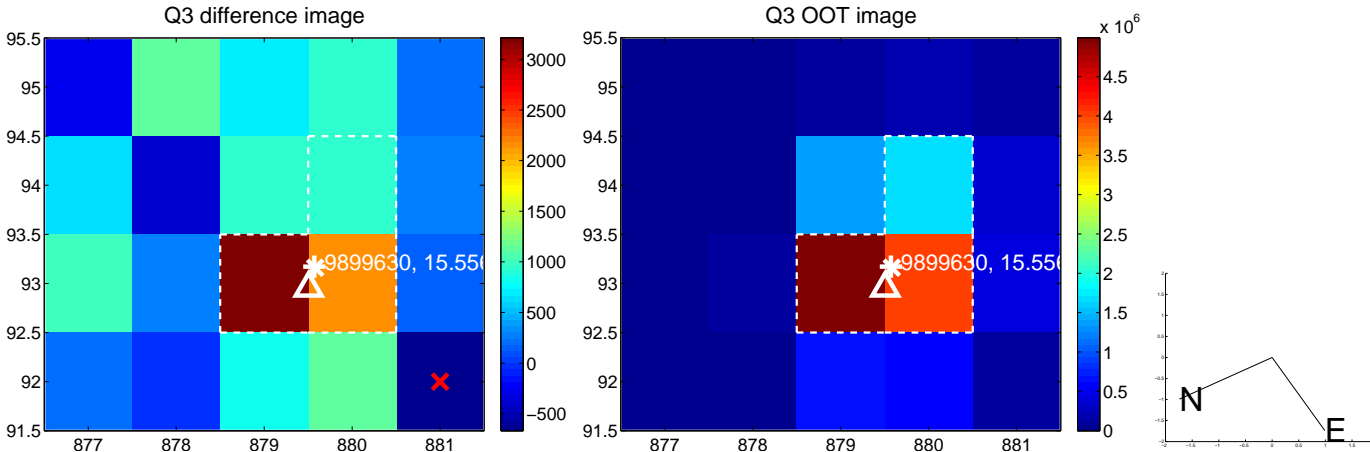
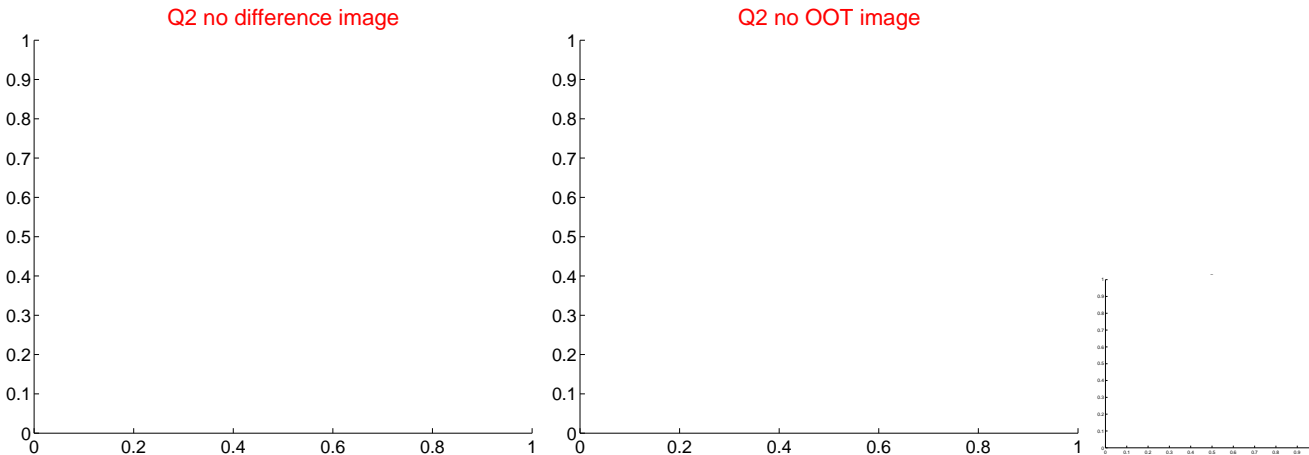
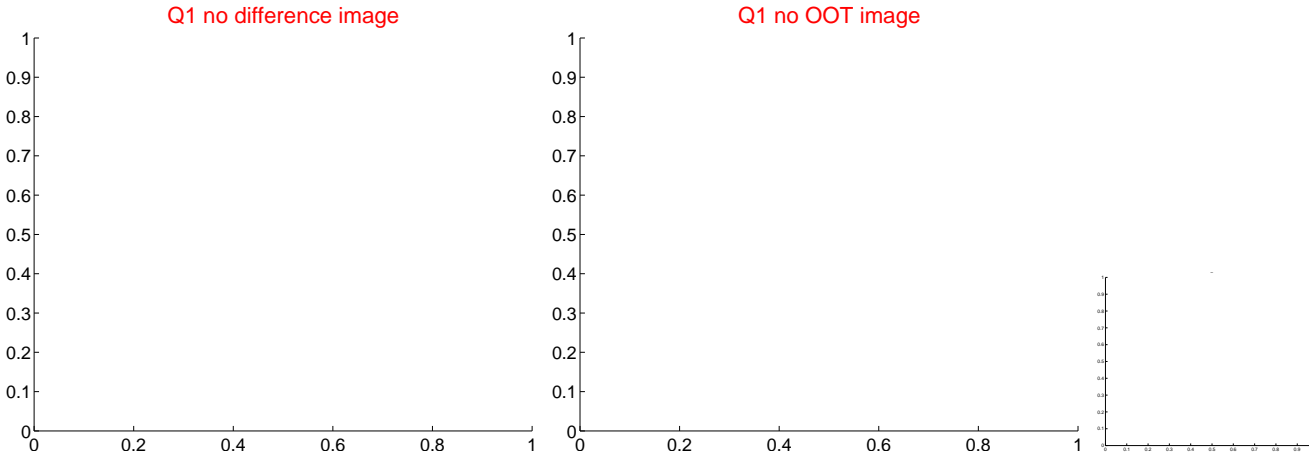
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.724 ± 0.904	0.80	0.692 ± 0.942	0.213 ± 0.274
PRF-fit source offset from KIC position	0.678 ± 0.891	0.76	0.636 ± 0.943	0.232 ± 0.269
photometric centroid source offset	—	—	—	—



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.

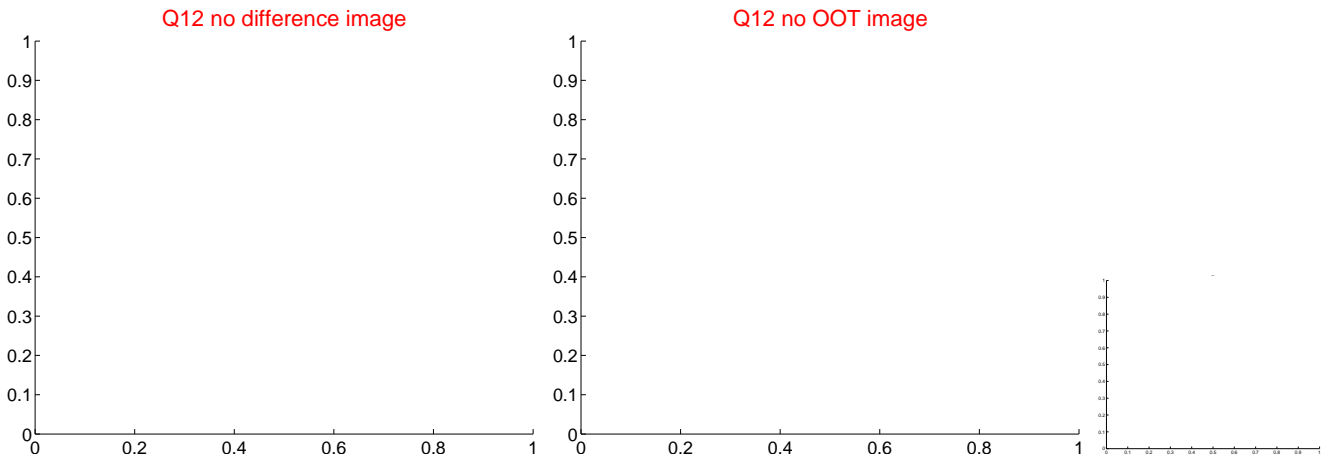
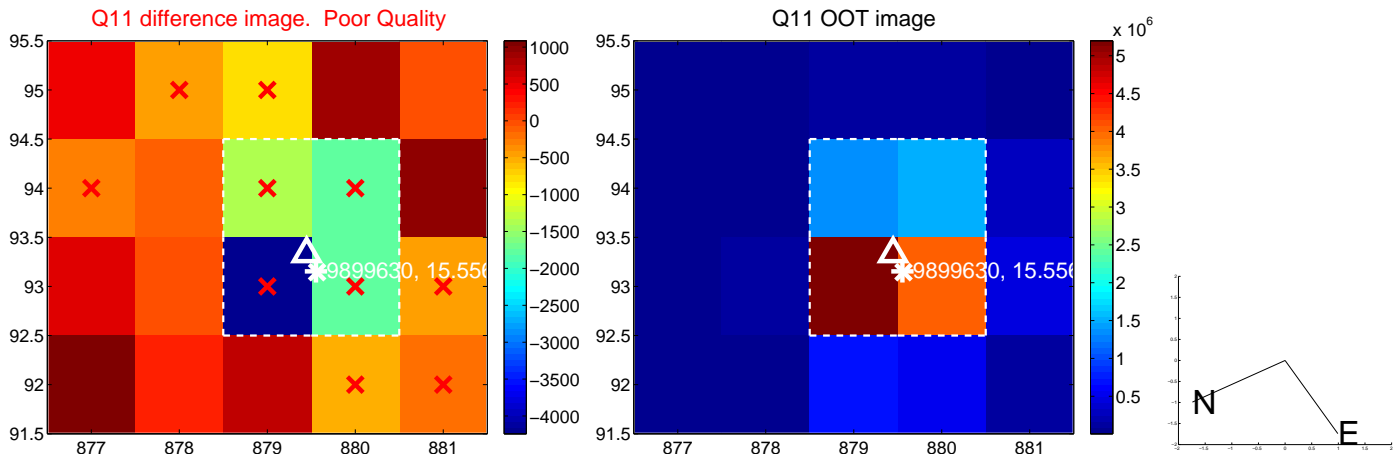
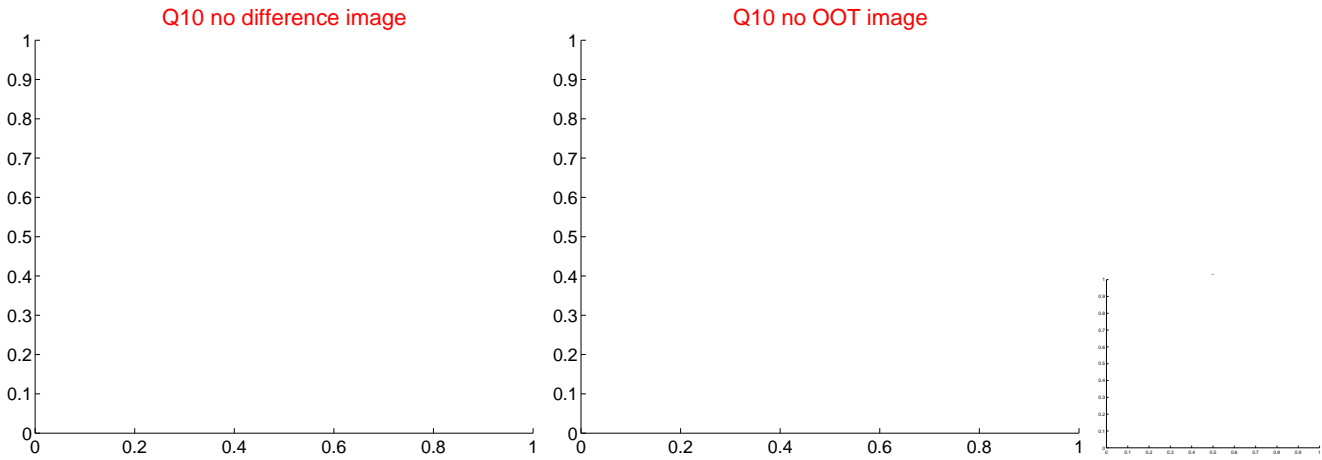
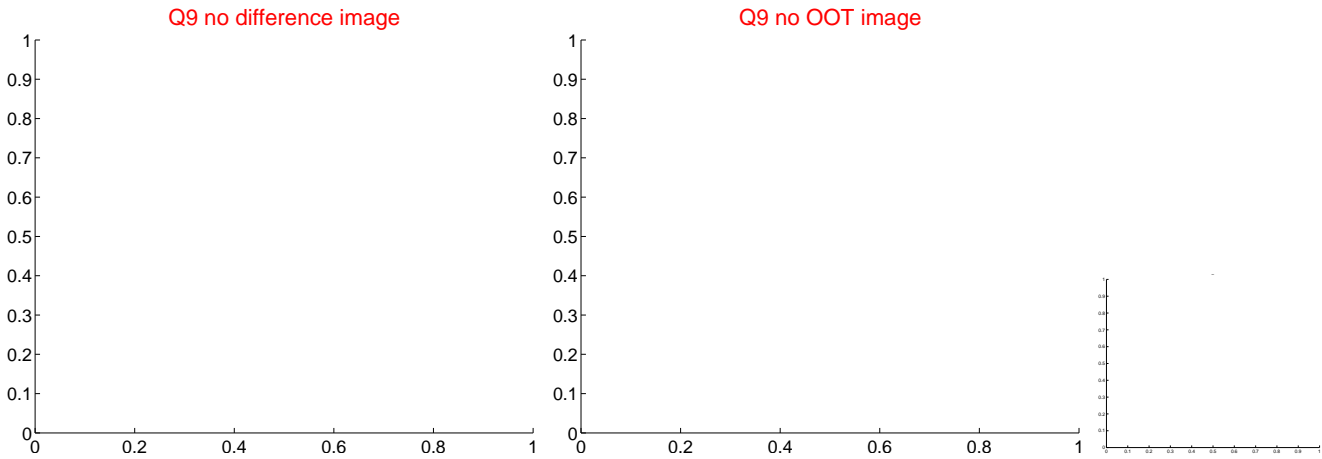
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



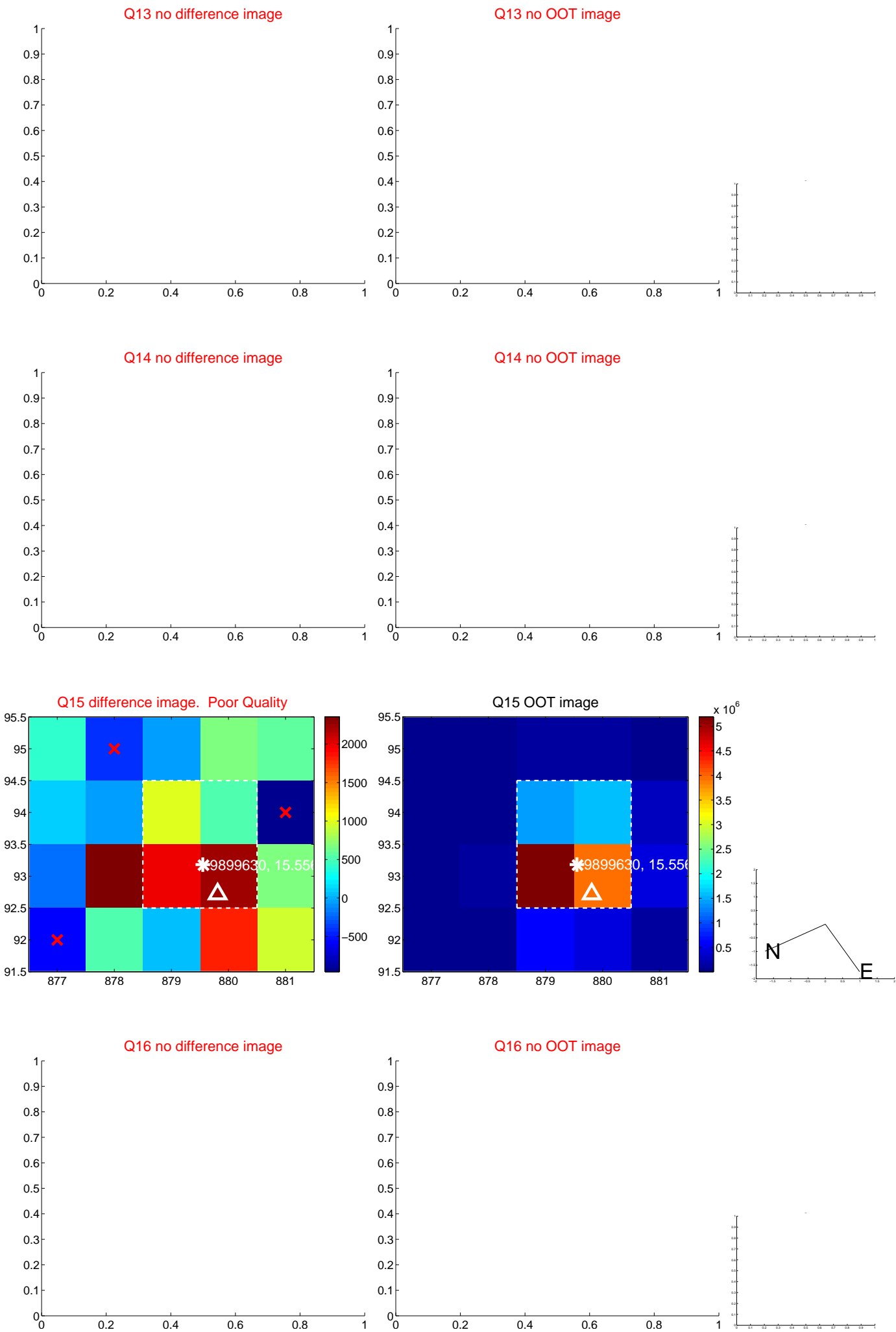
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



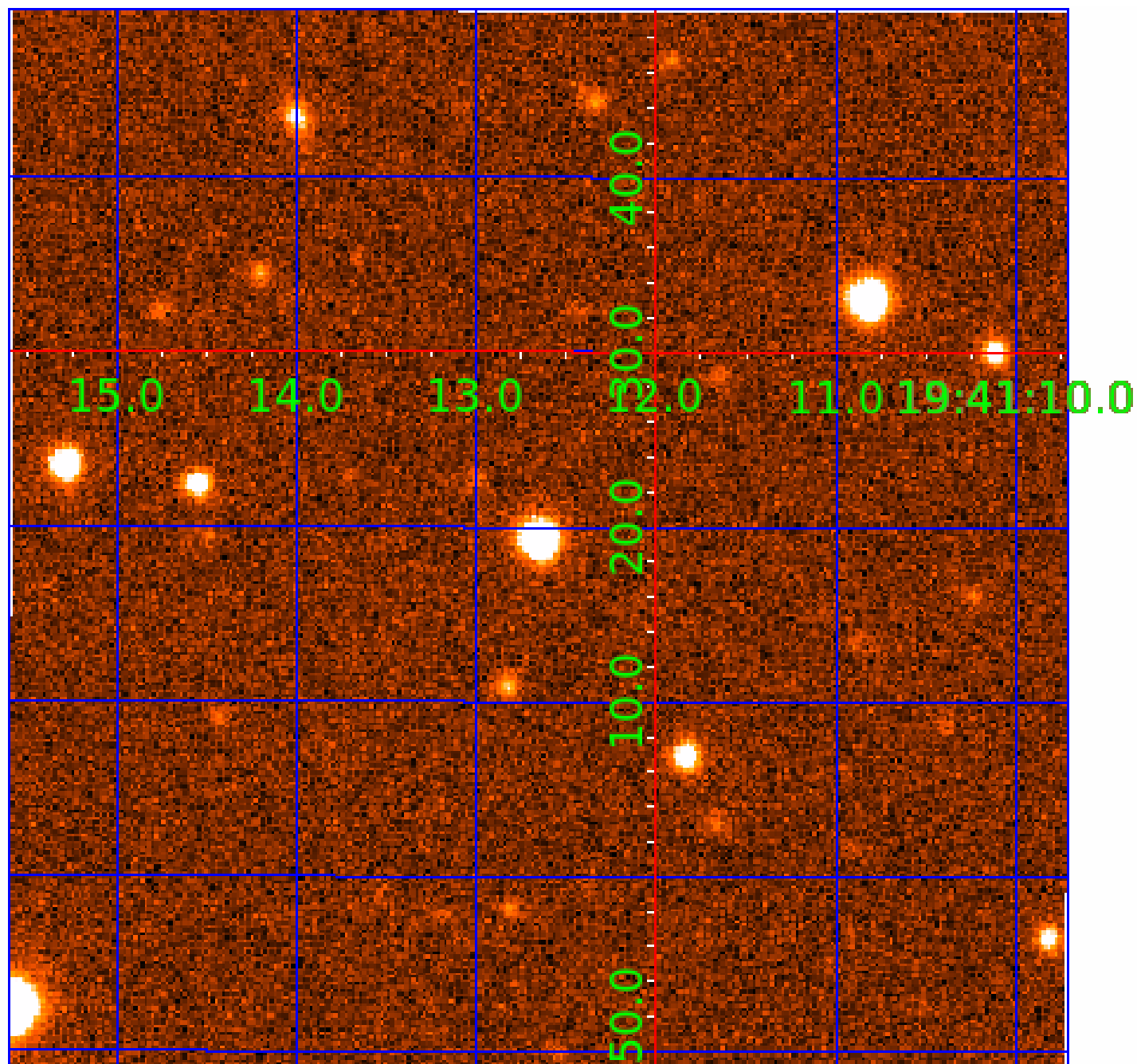
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 009899630

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})
009899630-01	OBS	4439.01	1.332555	132.058523	107.2	5.445	13.1	13.0	0.95	6039	1.15	1884.93
009899630-02	OBS	No	423.244926	411.962750	14754.7	60.490	18.1	12.1	0.95	6039	20.38	0.87
009899630-03	OBS	No	126.489931	192.201024	838.1	11.758	10.4	6.2	0.95	6039	3.07	4.35
009899630-04	OBS	No	375.575272	256.863383	374.3	6.483	9.7	1.9	0.95	6039	2.18	1.02
009899630-05	OBS	No	397.708794	262.788603	1.8	8.859	8.9	0.0	0.95	6039	0.14	0.94
009899630-06	OBS	No	352.676434	271.484285	918.5	9.000	8.0	-1.0	0.95	6039	2.88	1.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009899630-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
009899630-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009899630-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009899630-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009899630-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009899630-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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 009899630-06

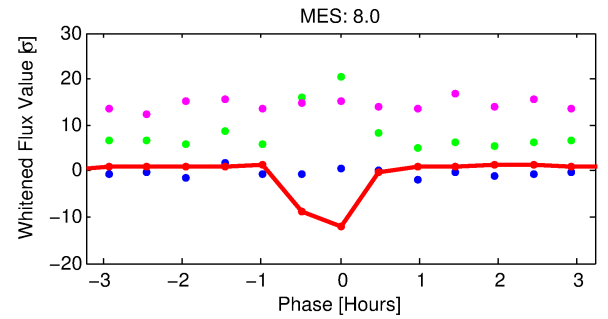
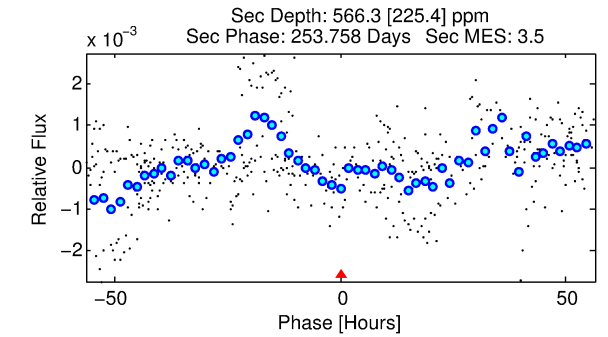
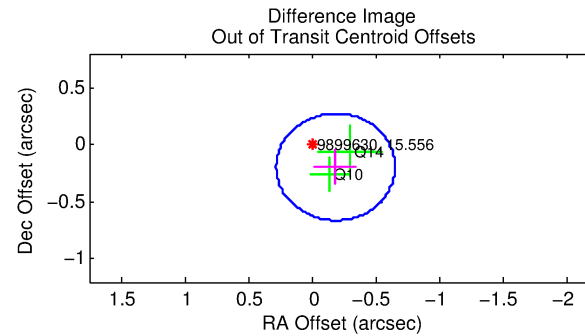
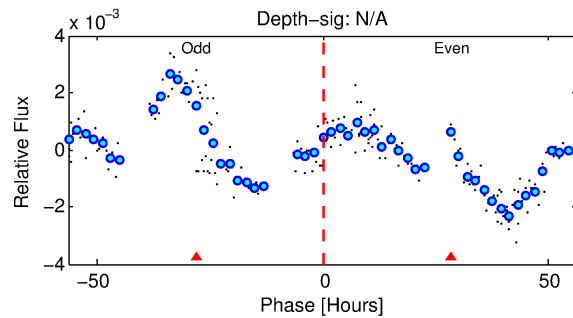
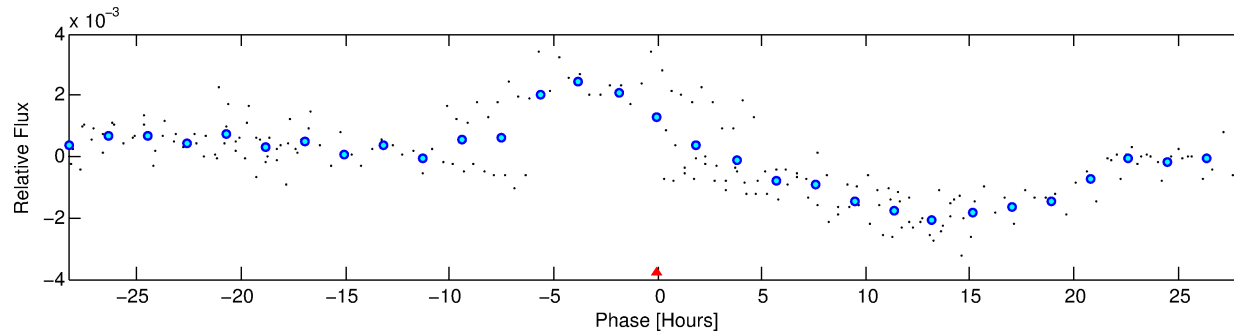
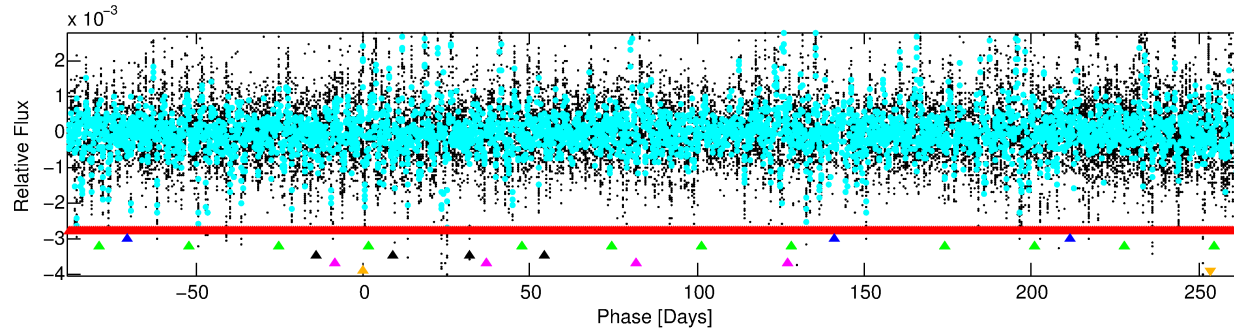
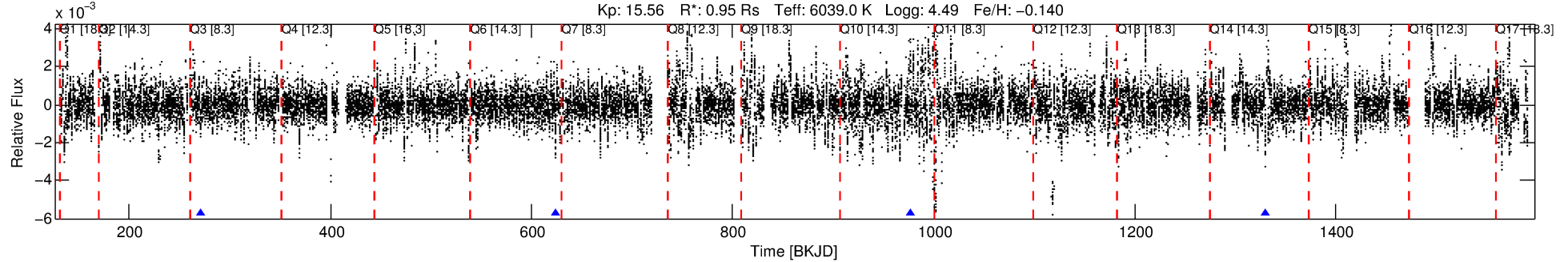
No Significant Match Found

DV One-Page Summary

KIC: 9899630 Candidate: 6 of 6 Period: 352.676 d

KOI: K04439 Corr: No Ephemeris Match

Kp: 15.56 R*: 0.95 Rs Teff: 6039.0 K Logg: 4.49 Fe/H: -0.140



TPS TCE Results:

Period = 352.67643 d
Epoch = 271.4843 BKJD

DV fit results are unavailable

DV Diagnostic Results:

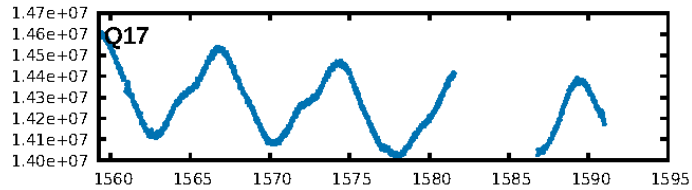
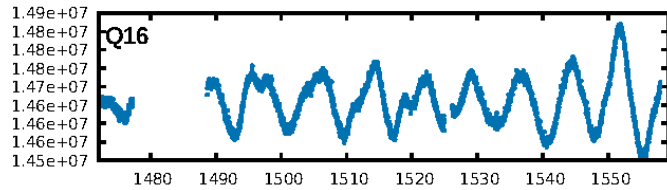
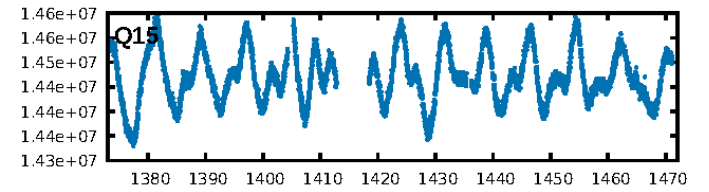
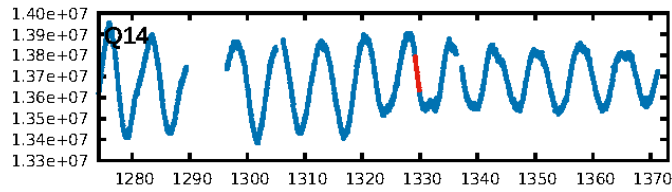
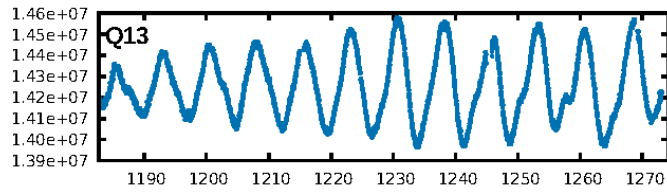
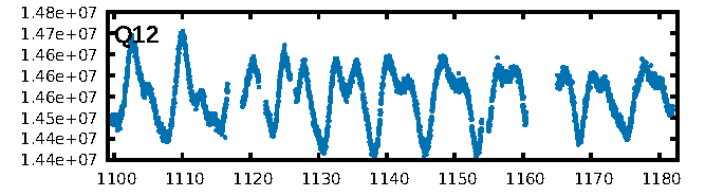
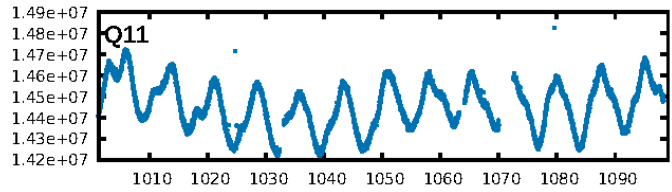
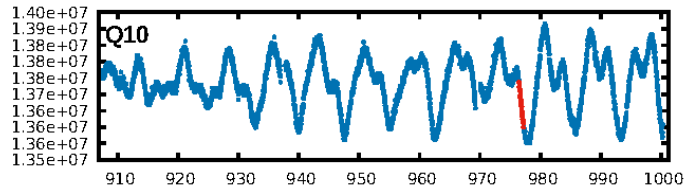
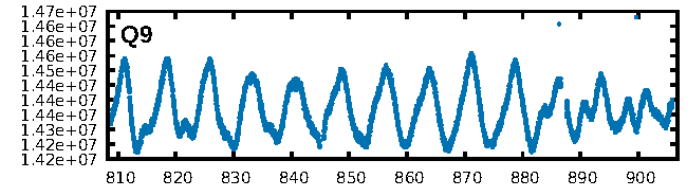
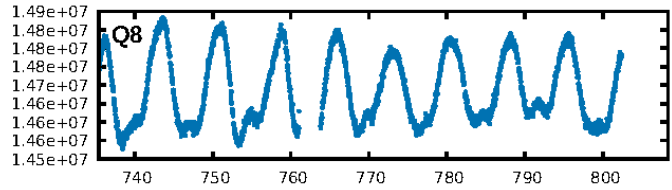
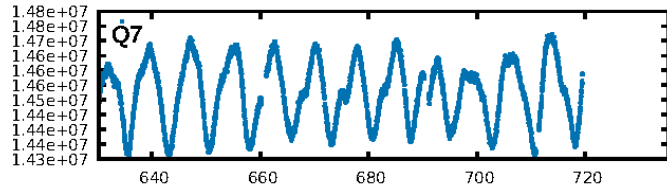
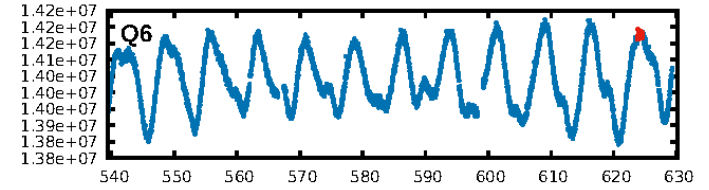
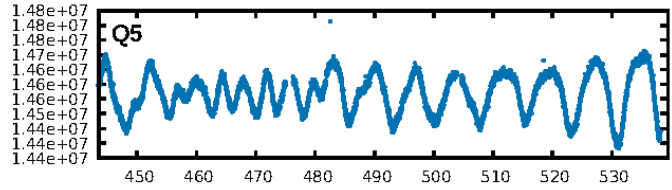
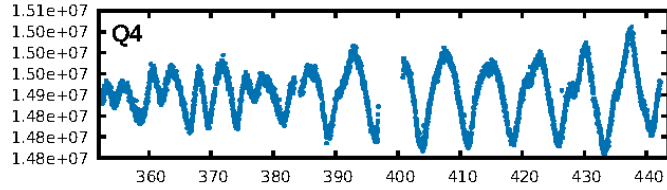
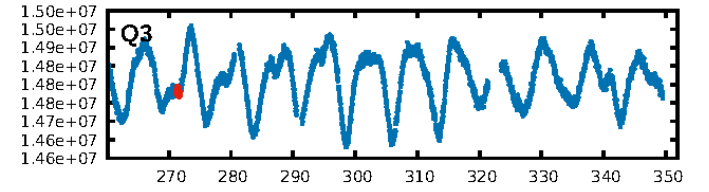
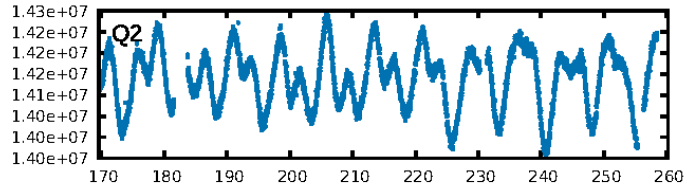
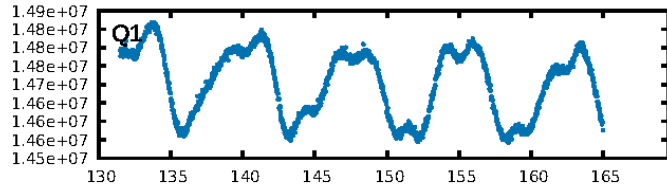
ShortPeriod-sig: 100.0% [366.61σ]
LongPeriod-sig: 100.0% [49.55σ]
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ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.64e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 5.322

Centroid-sig: 62.4%
Centroid-so: 8.915 arcsec [0.73σ]
OotOffset-rm: 0.269 arcsec [1.73σ]
KicOffset-rm: 0.299 arcsec [1.88σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
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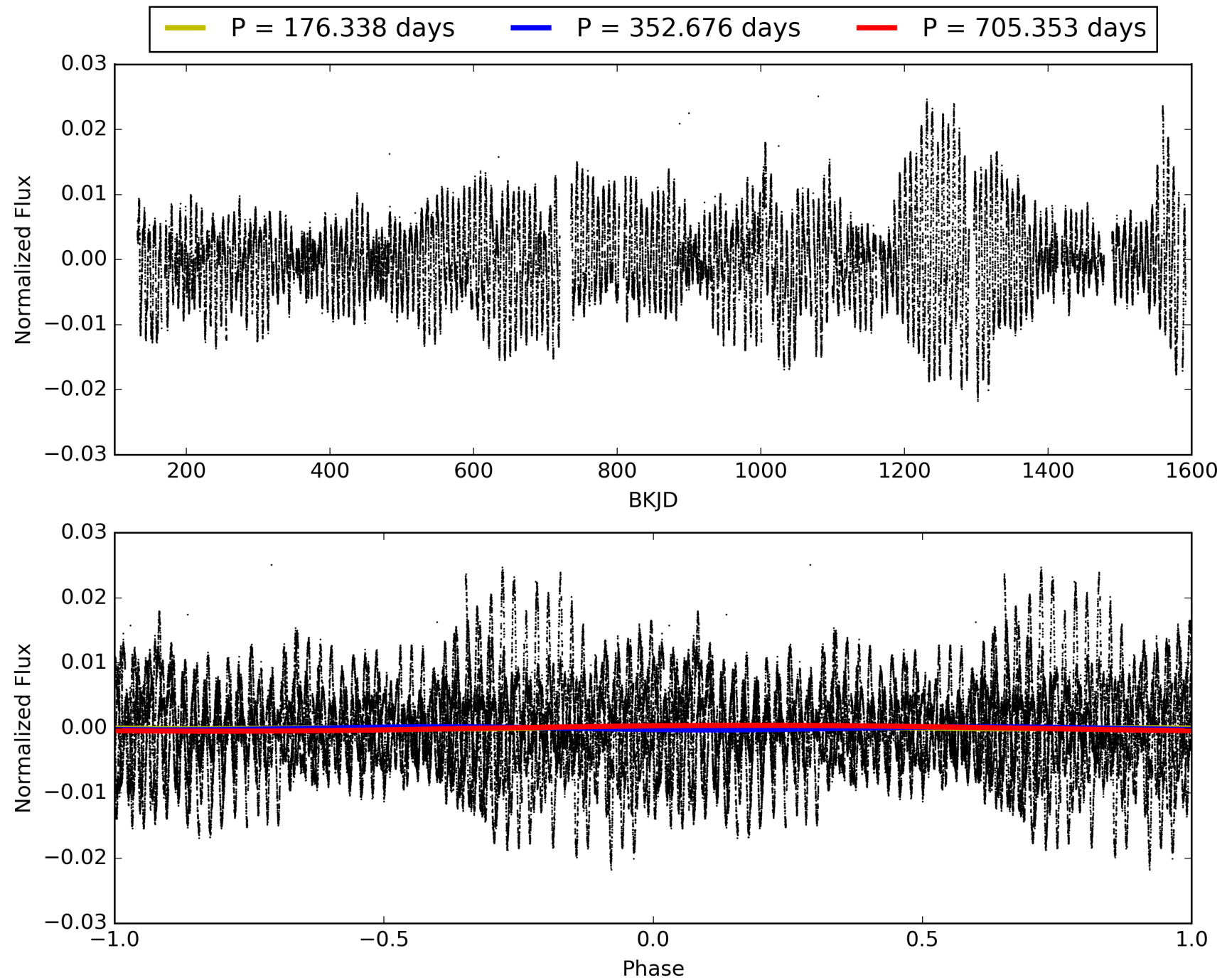
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:32:51 Z

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

TCE 009899630-06, PDC Light Curves

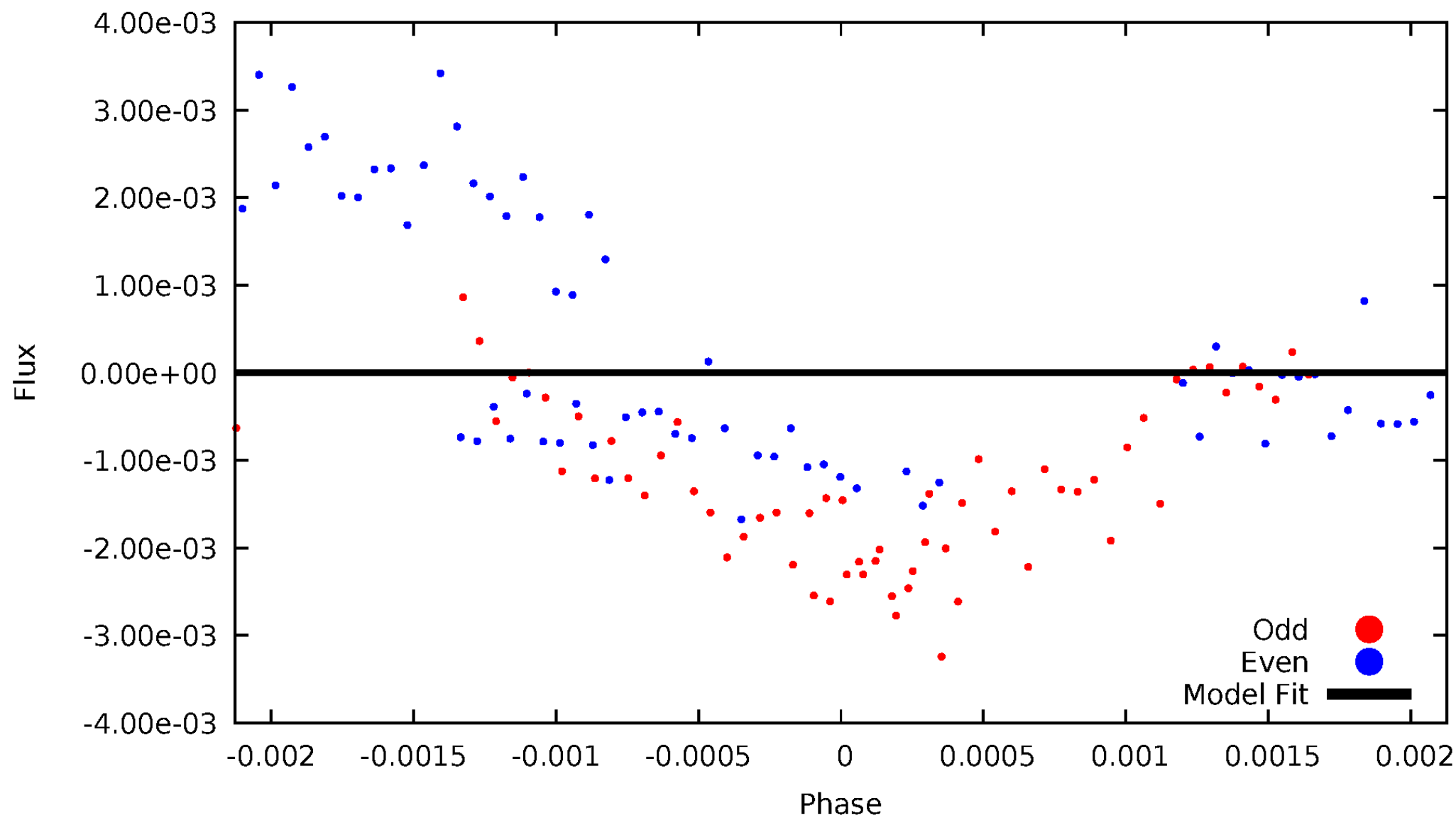


TCE 009899630-06



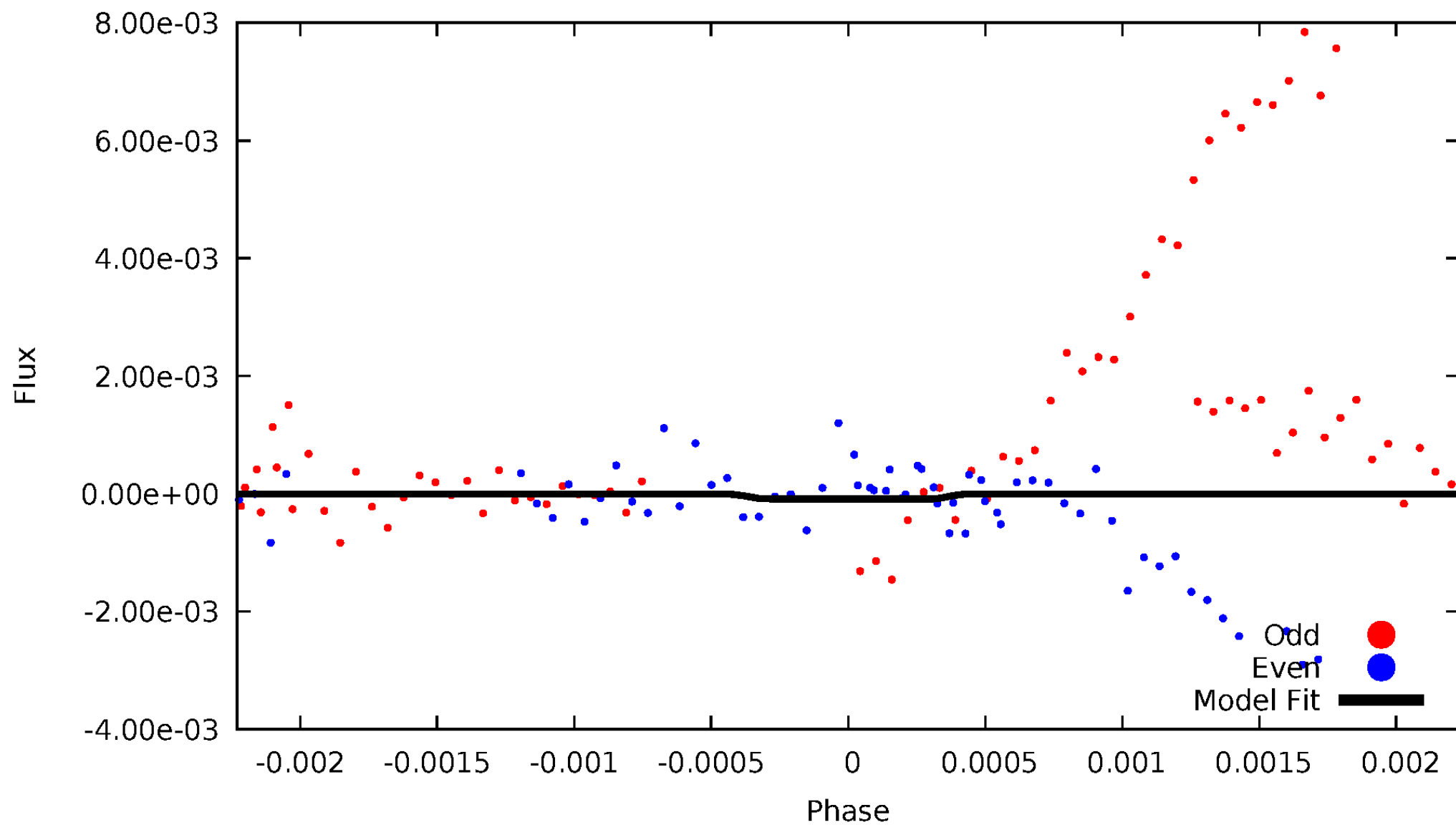
DV Odd/Even

TCE 009899630-06



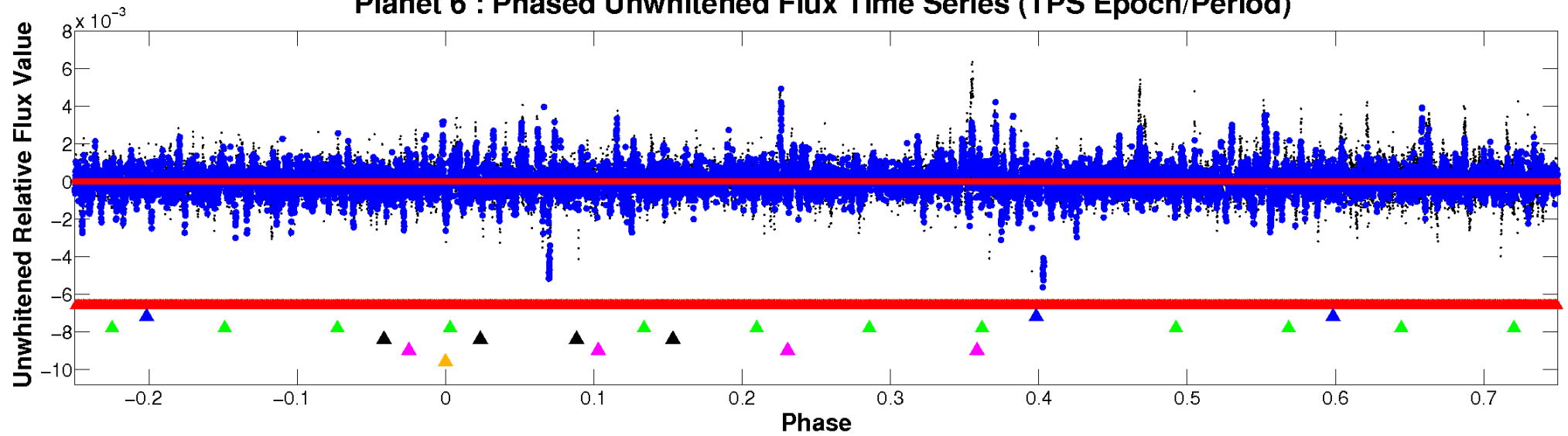
ALT Odd/Even

TCE 009899630-06

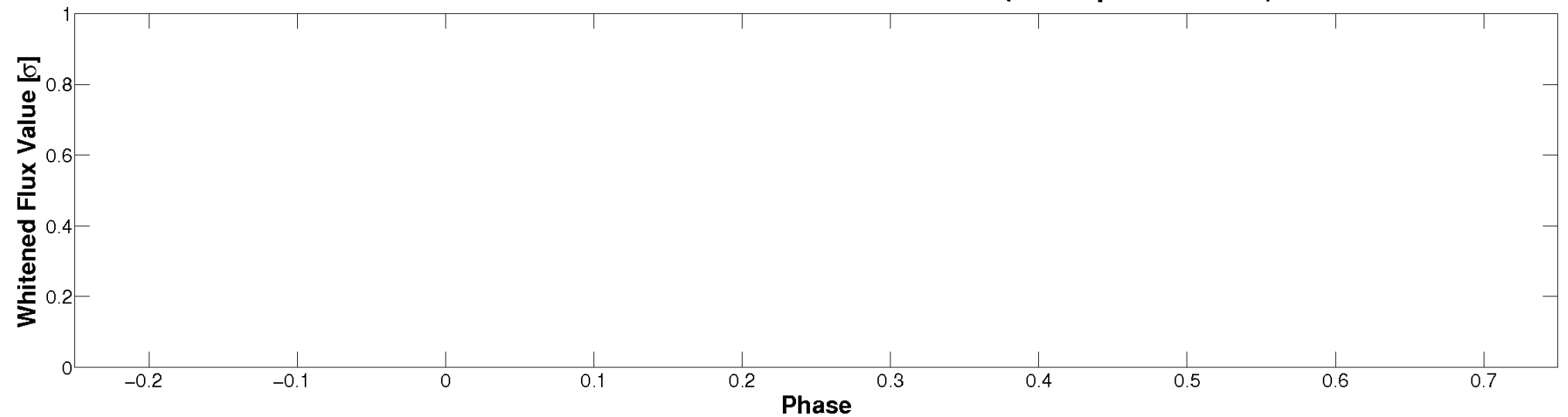


Non-Whitened Vs. Whitened Light Curve

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

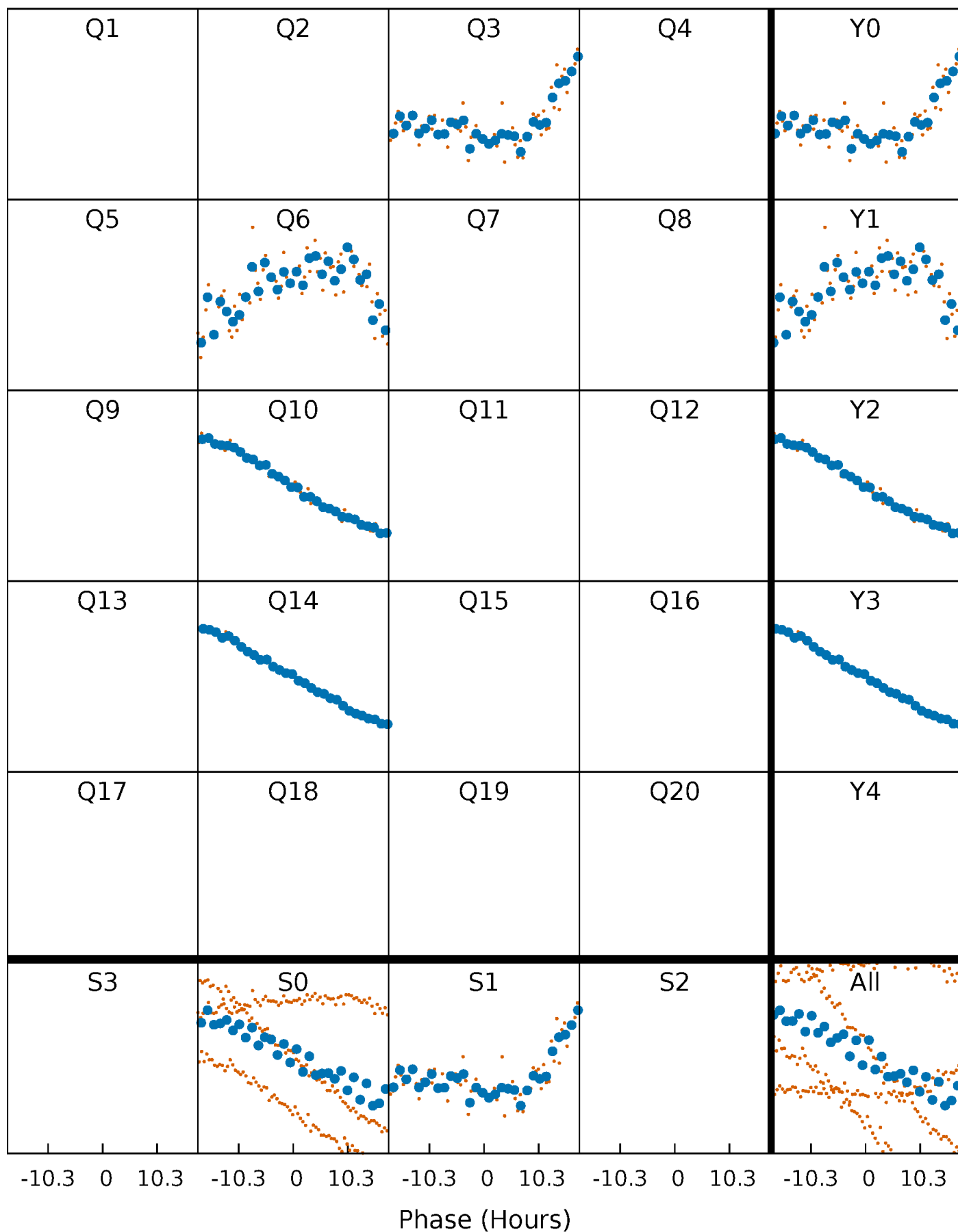


Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)



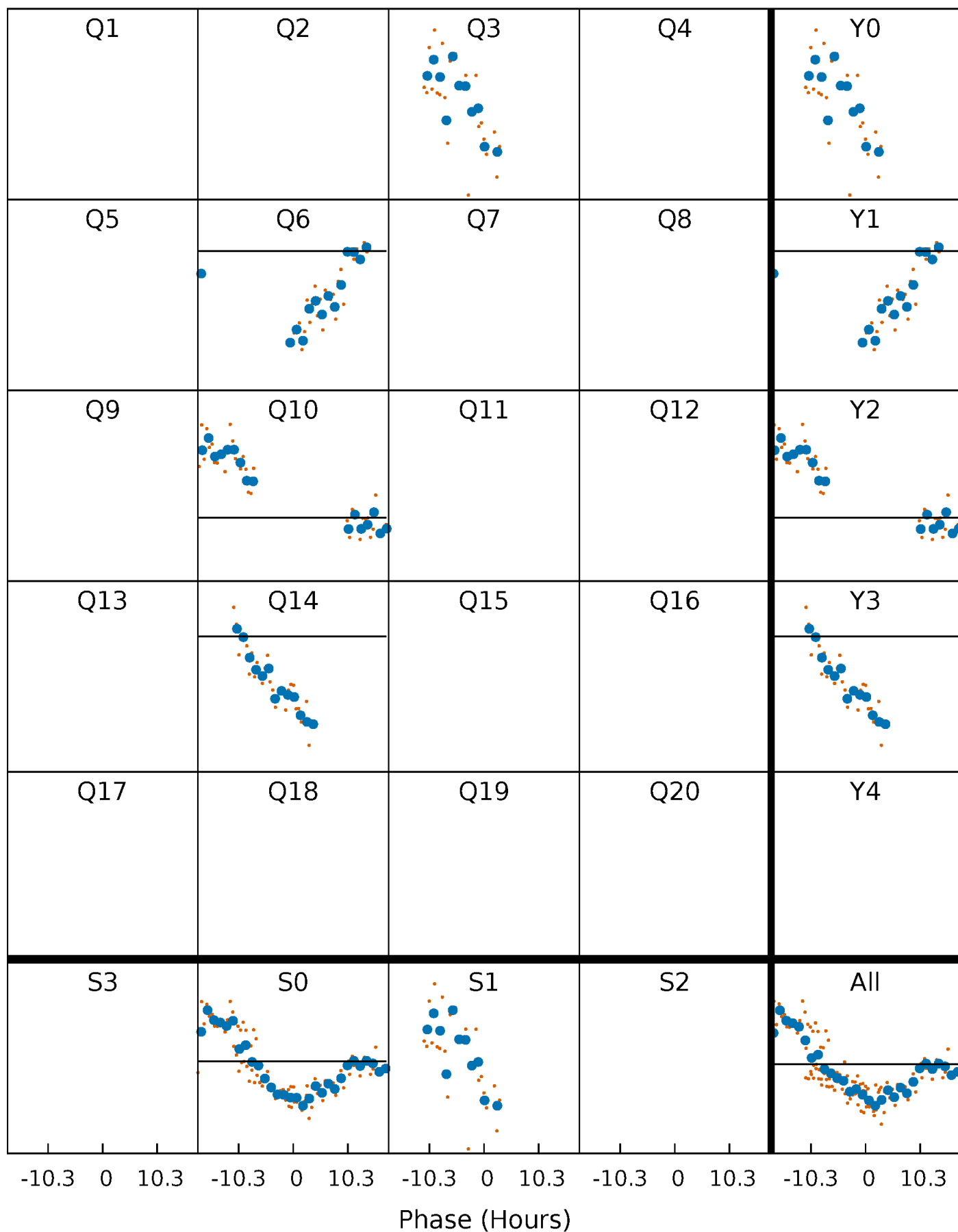
PDC Quarter-Phased Transit Curves

TCE 009899630-06 $P=352.676434$ Days $T_0=271.484285$ (BKJD)



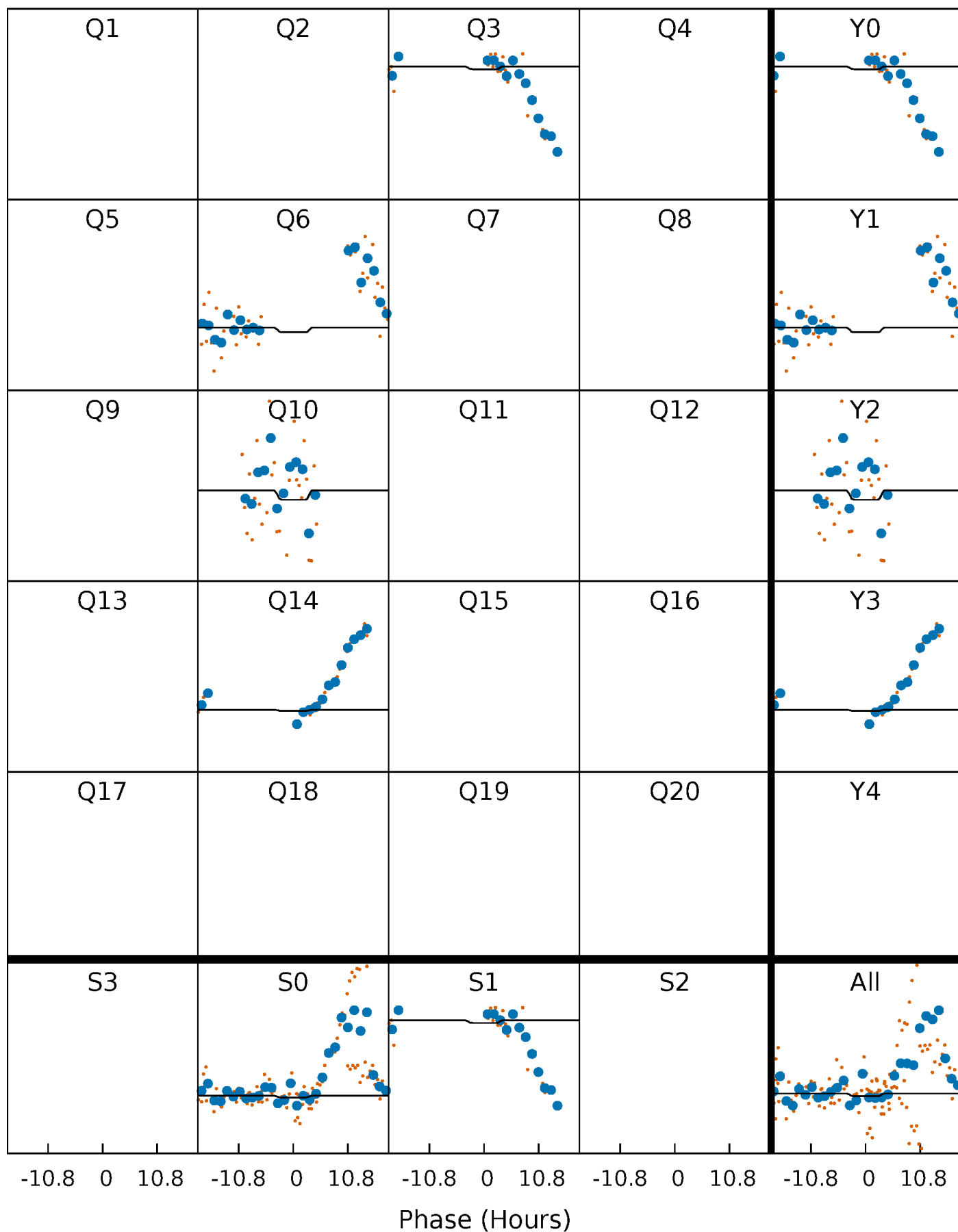
DV Quarter-Phased Transit Curves

TCE 009899630-06 $P=352.676434$ Days $T_0=271.484285$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

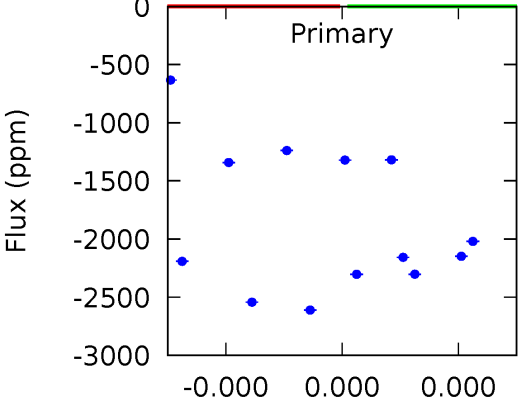
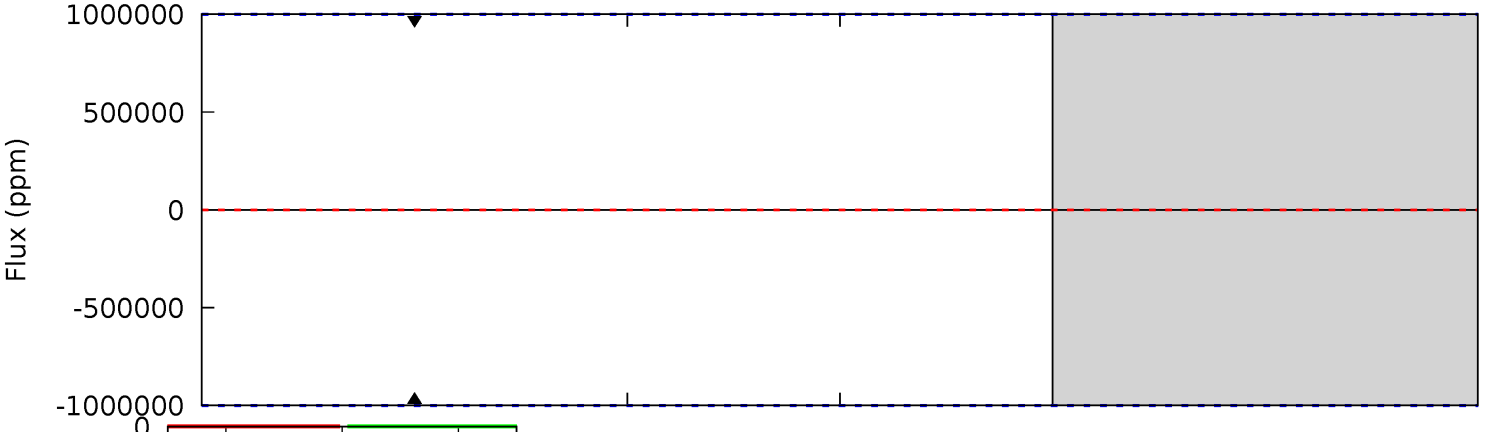
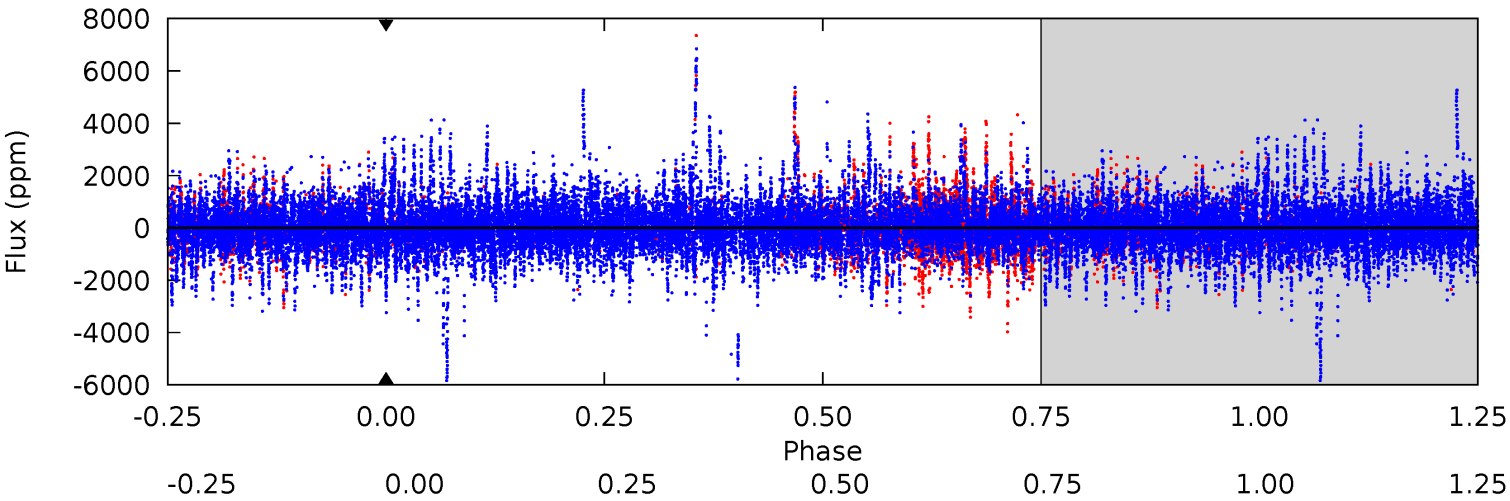
TCE 009899630-06 P=352.676434 Days $T_0=271.001137$ (BKJD)



DV Model-Shift Uniqueness Test

009899630-06, P = 352.676434 Days, E = 271.484285 Days

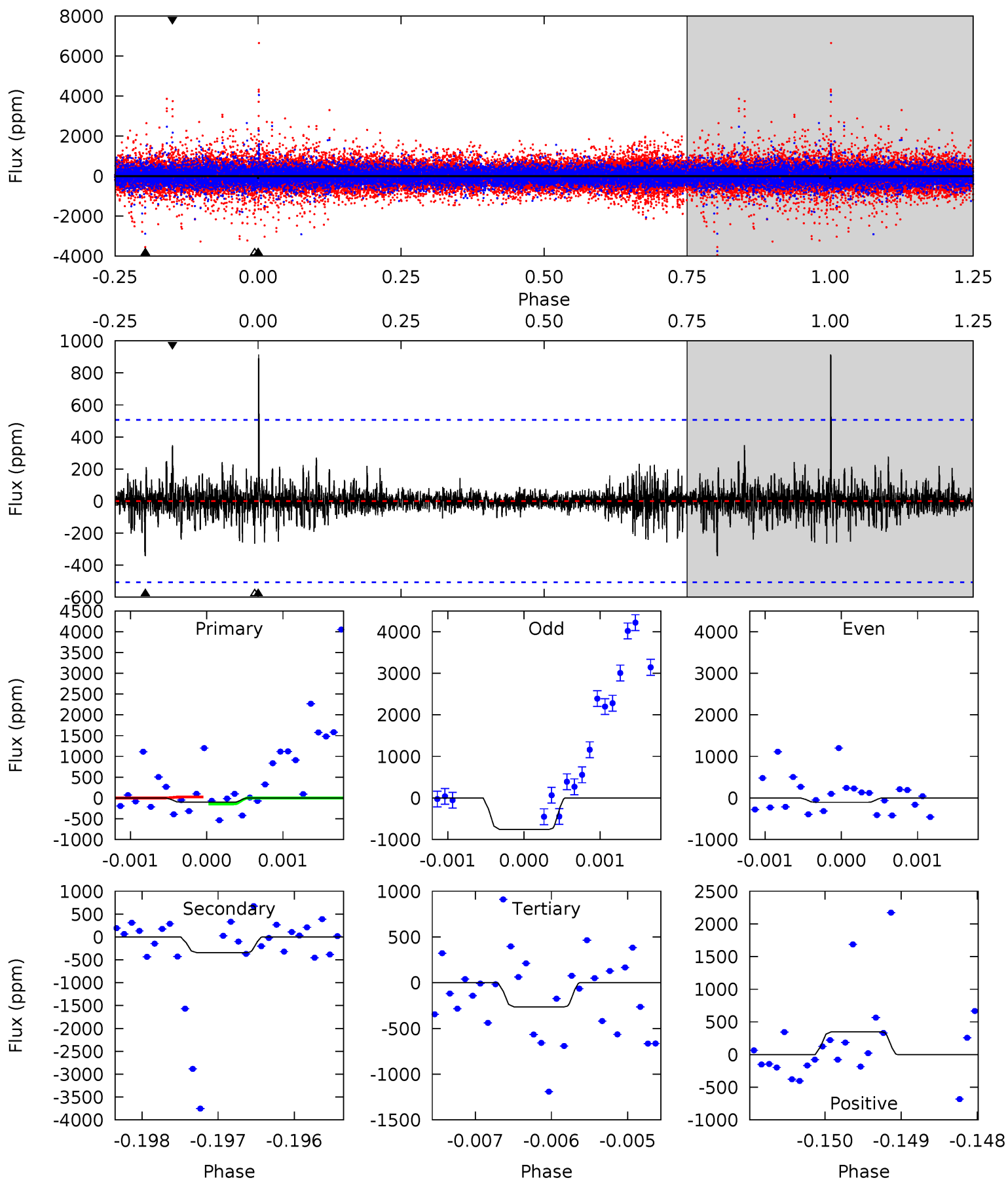
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009899630-06, P = 352.676434 Days, E = 271.001137 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.12	3.71	2.87	3.77	5.49	3.34	0.66	-1.74	-2.65	0.84	-0.07	2.70	-1.96	0.73	0.54



Stellar Parameters For KIC 009899630

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6039^{+168}_{-210}	$4.493^{+0.052}_{-0.208}$	$-0.140^{+0.250}_{-0.300}$	$0.951^{+0.285}_{-0.102}$	$1.027^{+0.127}_{-0.141}$	$1.685^{+0.465}_{-0.877}$
	+3%/-3%	+1%/-5%	+179%/-214%	+30%/-11%	+12%/-14%	+28%/-52%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009899630-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$8.17^{+9.36}_{-5.37}$	374^{+26}_{-21}	-5174^{+26649}_{-17708}	$-23706.802^{+1282552.416}_{-1386772.354}$
Alt.	-342 ± 92	$7.68^{+9.25}_{-5.36}$	373^{+26}_{-18}	3540^{+2084}_{-716}	3084^{+29703}_{-2465}

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 $A_{obs} \gg 1.0$

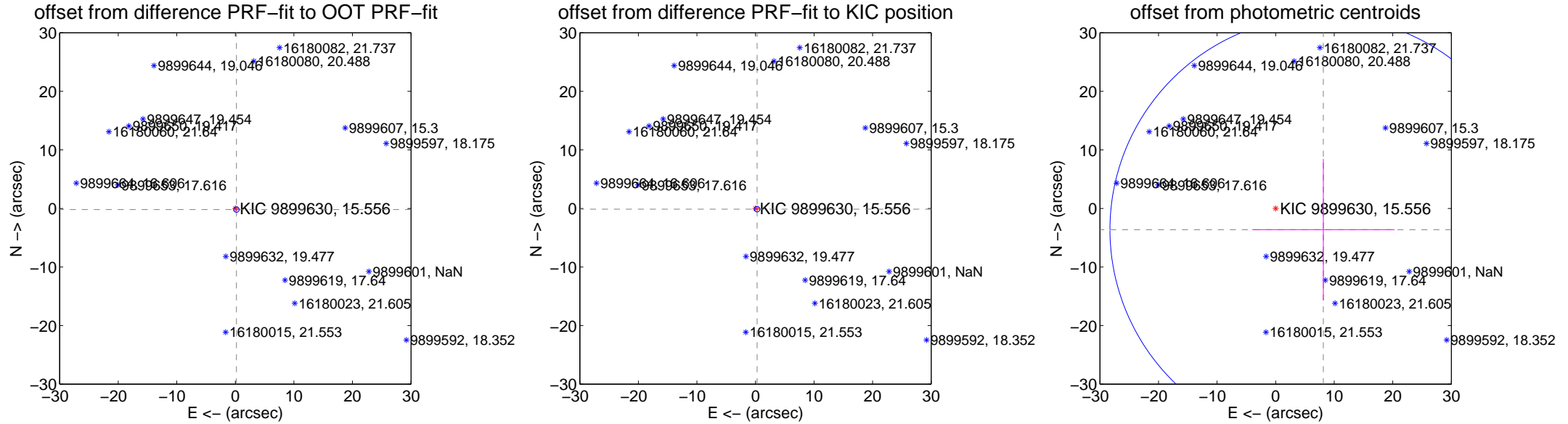
DV Centroid Data

Supplemental centroid analysis for 009899630-06. Kepler magnitude: 15.56. 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 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.269 ± 0.156	1.73	-0.188 ± 0.161	-0.193 ± 0.151
PRF-fit source offset from KIC position	0.299 ± 0.159	1.88	-0.274 ± 0.161	-0.119 ± 0.151
photometric centroid source offset	8.91 ± 12.15	0.73	-8.14 ± 12.16	-3.62 ± 12.07



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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

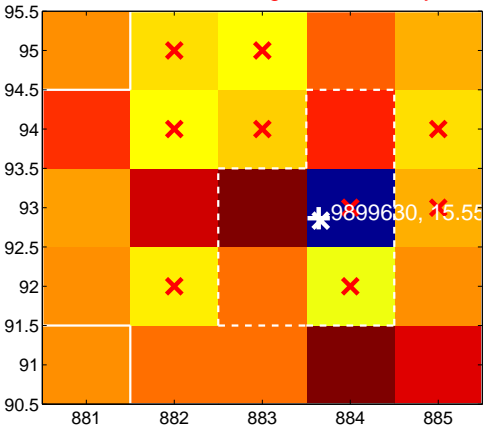
Q5 no difference image



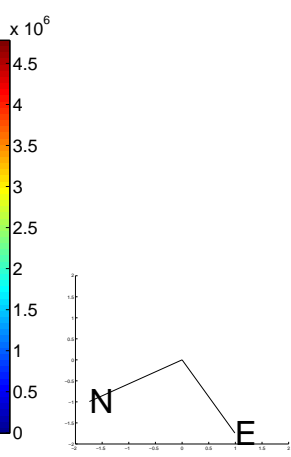
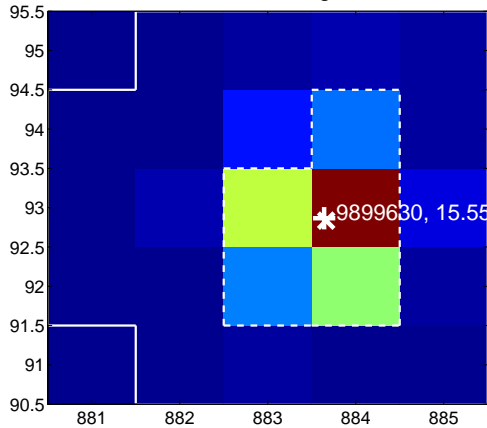
Q5 no OOT image



Q6 difference image. Poor Quality



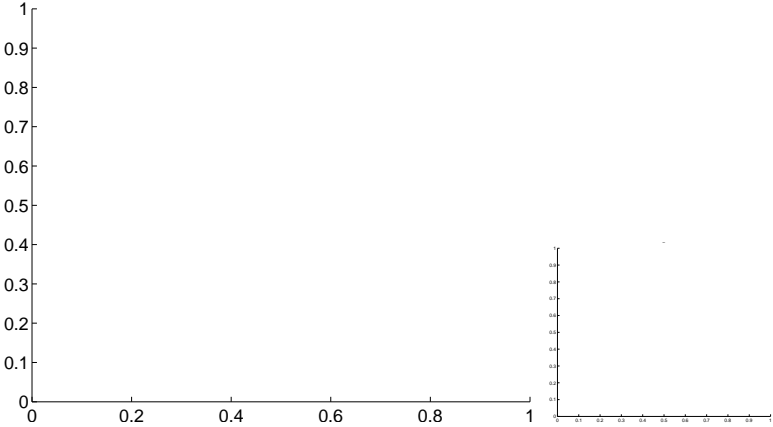
Q6 OOT image



Q7 no difference image



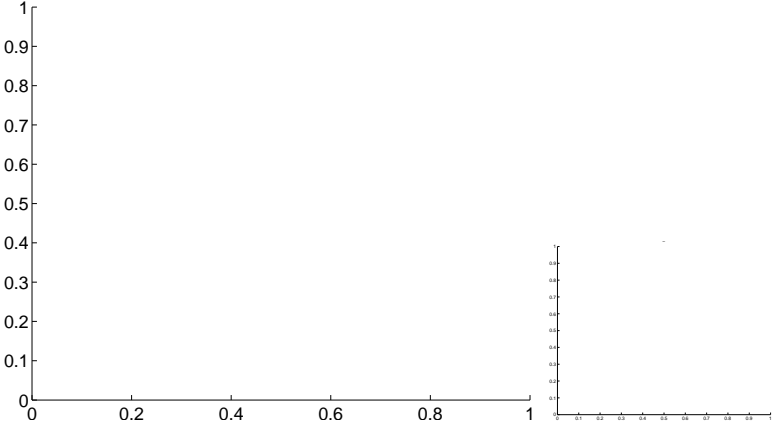
Q7 no OOT image



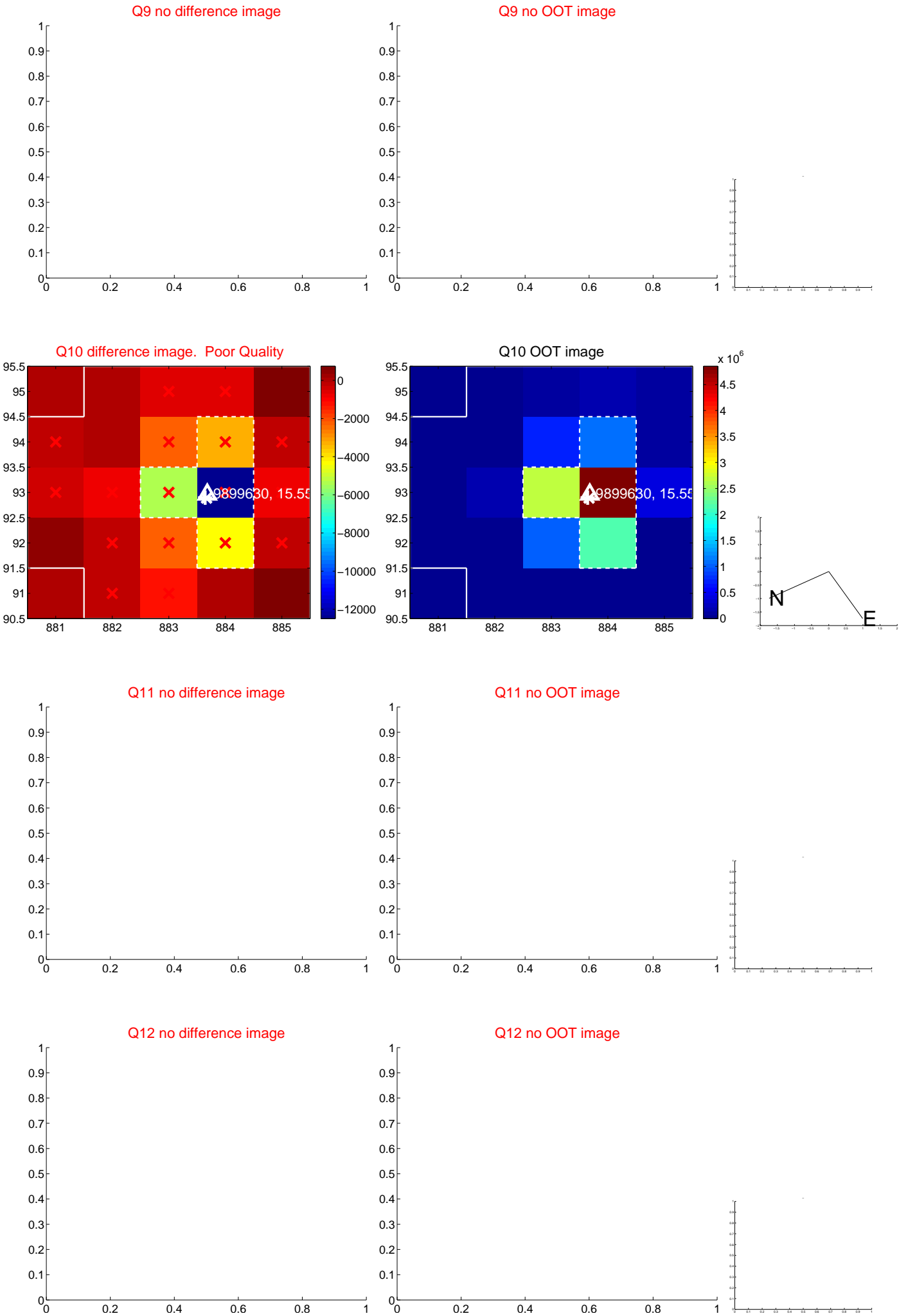
Q8 no difference image



Q8 no OOT image



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



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

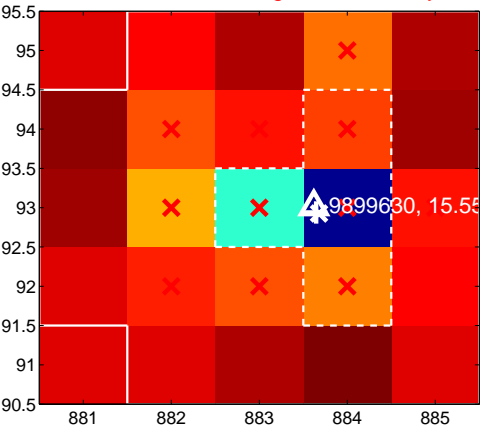
Q13 no difference image



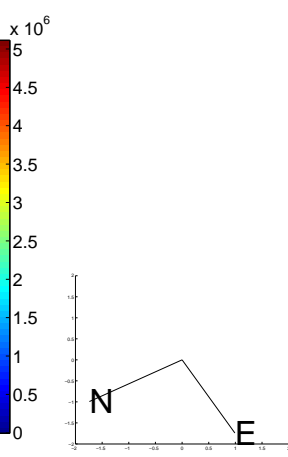
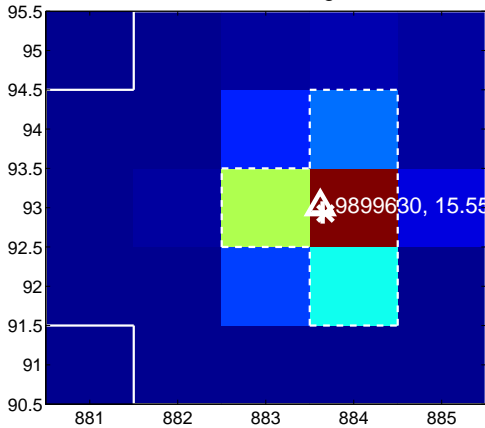
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



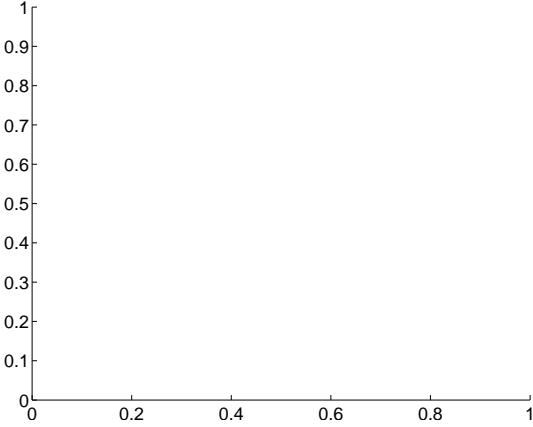
Q15 no difference image



Q15 no OOT image



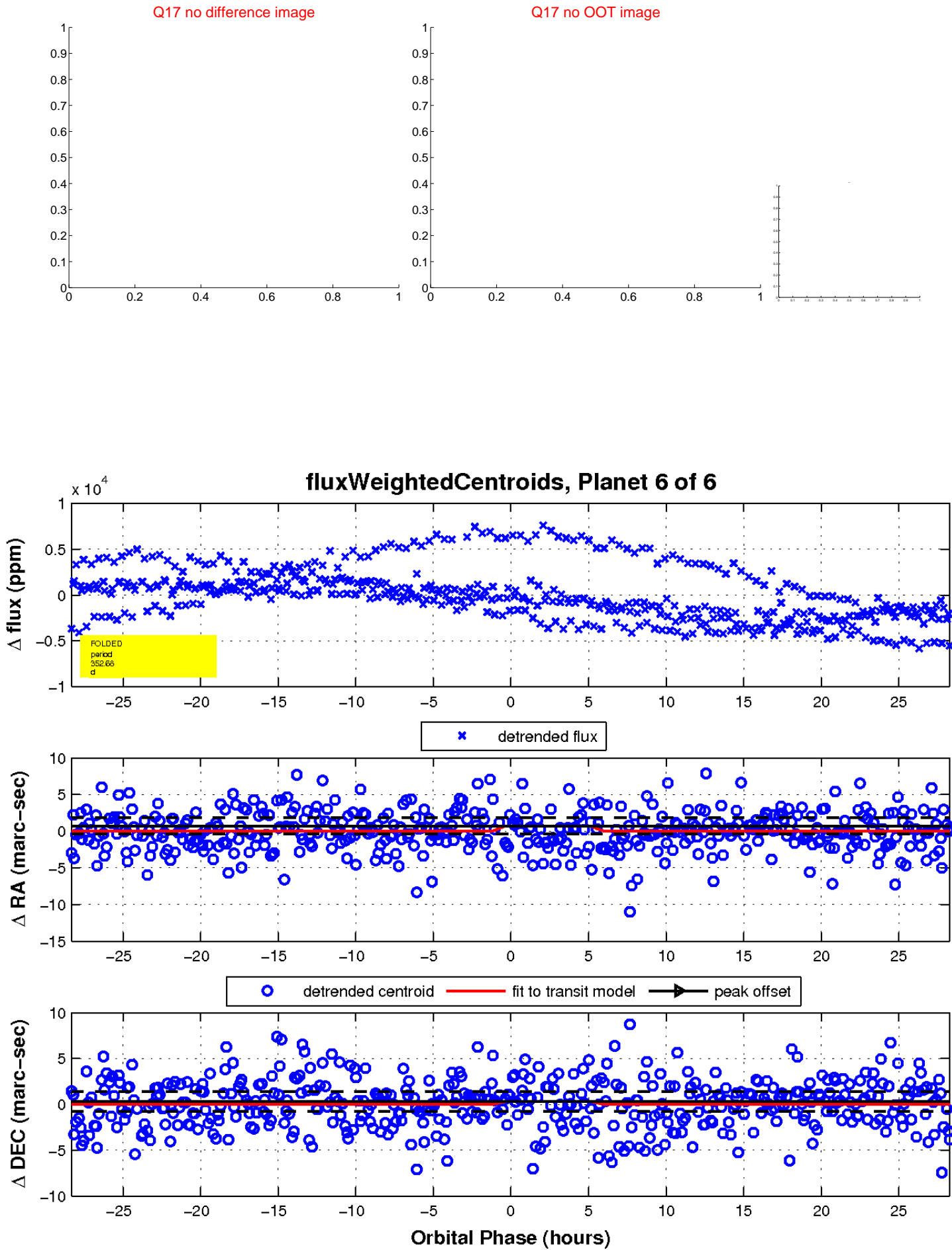
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

