

KIC 007816992

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})
007816992-01	OBS	No	0.795855	132.214839	4.5	5.406	8.2	3.0	1.44	6956	0.31	12094.68
007816992-02	OBS	No	21.708210	133.397023	69.8	7.026	11.2	6.8	1.44	6956	1.36	147.30
007816992-03	OBS	No	45.142788	134.057293	234.4	1.682	12.0	10.0	1.44	6956	2.25	55.49
007816992-04	OBS	No	30.851957	153.560834	235.5	2.146	10.3	10.3	1.44	6956	2.49	92.19
007816992-05	OBS	No	19.773249	144.267271	110.5	4.767	9.8	9.0	1.44	6956	1.74	166.83
007816992-06	OBS	No	37.027490	142.337681	222.5	3.133	10.2	11.7	1.44	6956	2.38	72.28
007816992-07	OBS	No	13.003061	143.580835	147.2	2.503	11.0	11.9	1.44	6956	1.99	291.73
007816992-08	OBS	No	37.761874	135.582068	221.4	2.152	10.2	9.5	1.44	6956	2.42	70.41
007816992-09	OBS	No	378.044986	294.097804	230.1	7.332	10.2	8.4	1.44	6956	2.54	3.26
007816992-10	OBS	No	83.224846	211.371629	352.3	2.000	10.5	-1.0	1.44	6956	2.73	24.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007816992-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_FEW_MEAS
007816992-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
007816992-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007816992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
007816992-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

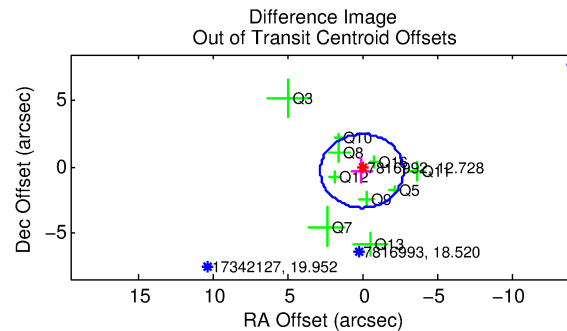
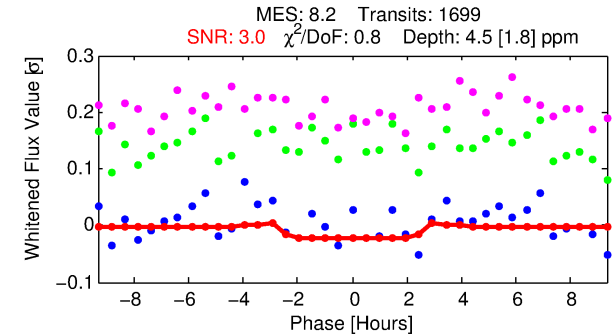
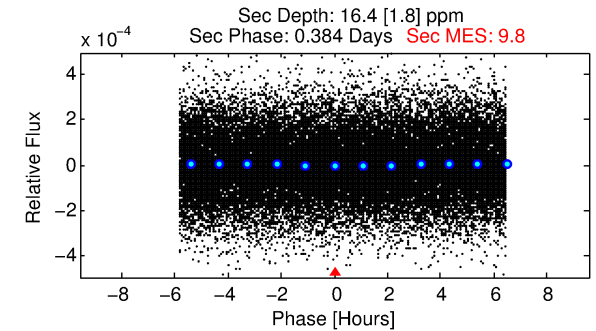
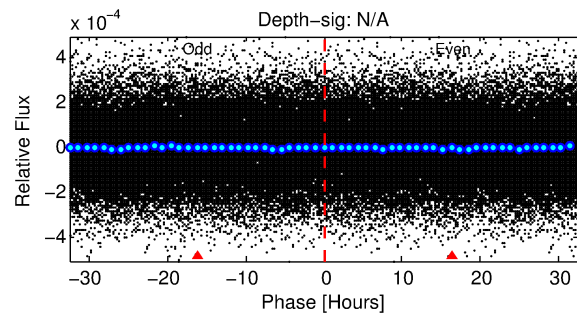
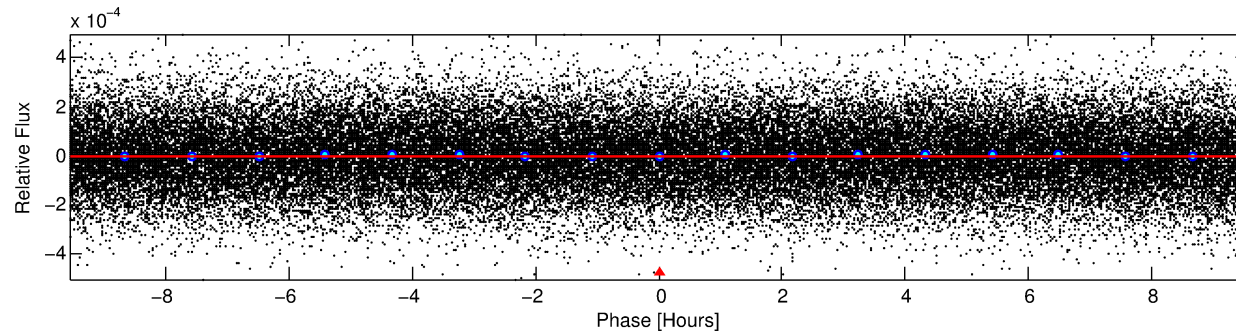
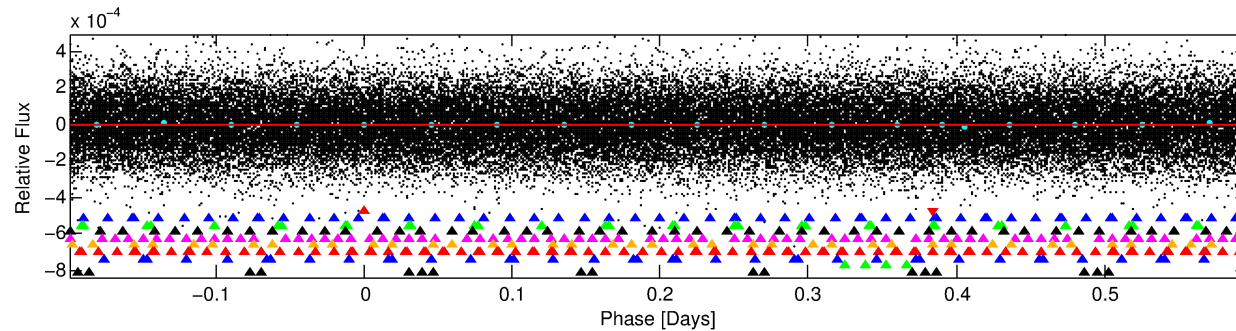
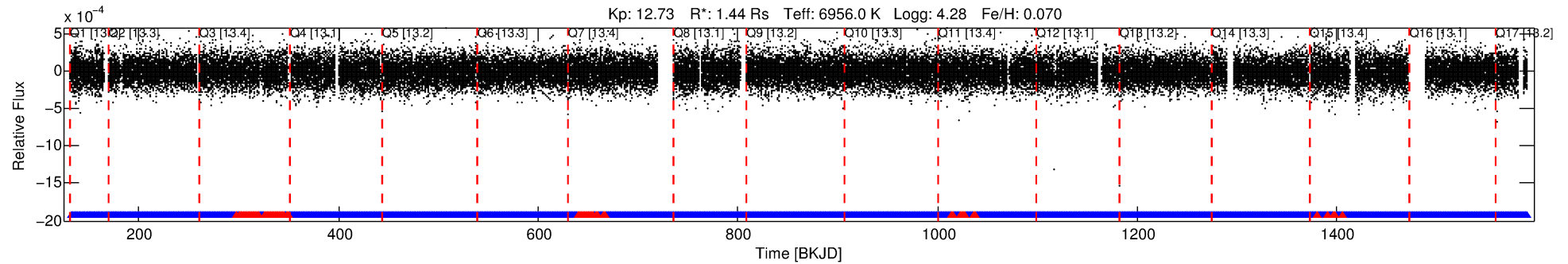
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007816992-01

No Significant Match Found

DV One-Page Summary

KIC: 7816992 Candidate: 1 of 10 Period: 0.796 d



DV Fit Results:

Period = 0.79586 [0.00004] d
Epoch = 132.2148 [0.0136] BKJD
Rp/R* = 0.0020 [0.0047]
a/R* = 1.28 [6.70]
b = 0.23 [55.51]
Seff = 12094.68 [5645.18]
Teff = 2674 [312] K
Rp = 0.31 [0.75] Re
a = 0.0190 [0.0057] AU
Ag = 33.44 [159.72] [0.20σ]
Teffp = 9942 [11835] K [0.61σ]

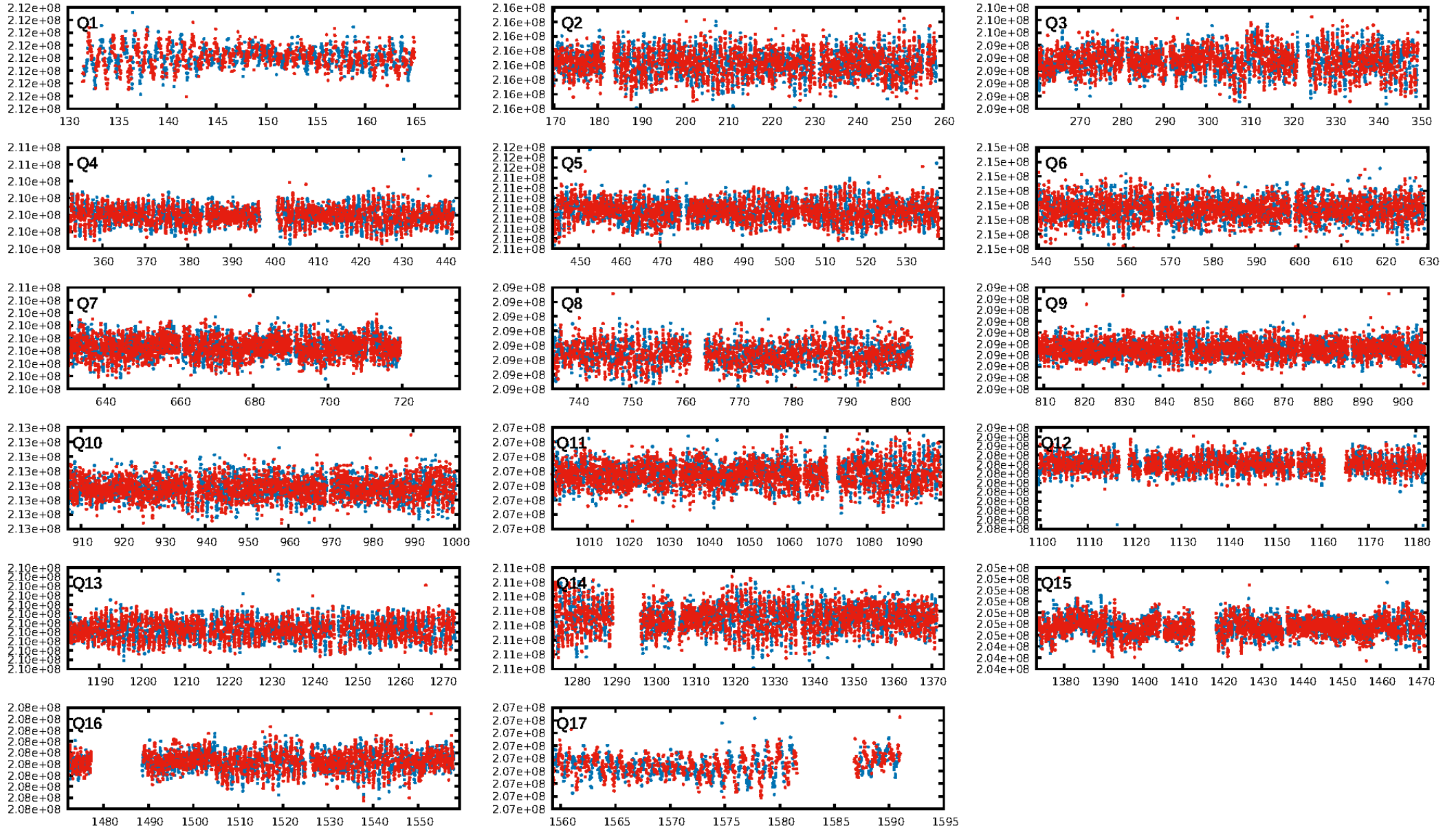
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [49.18σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.94 [1531/1621]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.336 arcsec [0.36σ]
KicOffset-rm: 0.274 arcsec [0.35σ]
OotOffset-st: 1/3/3/3 [10]
KicOffset-st: 1/3/3/3 [10]
DiffImageQuality-fgm: 0.20 [2/10]
DiffImageOverlap-fno: 1.00 [17/17]

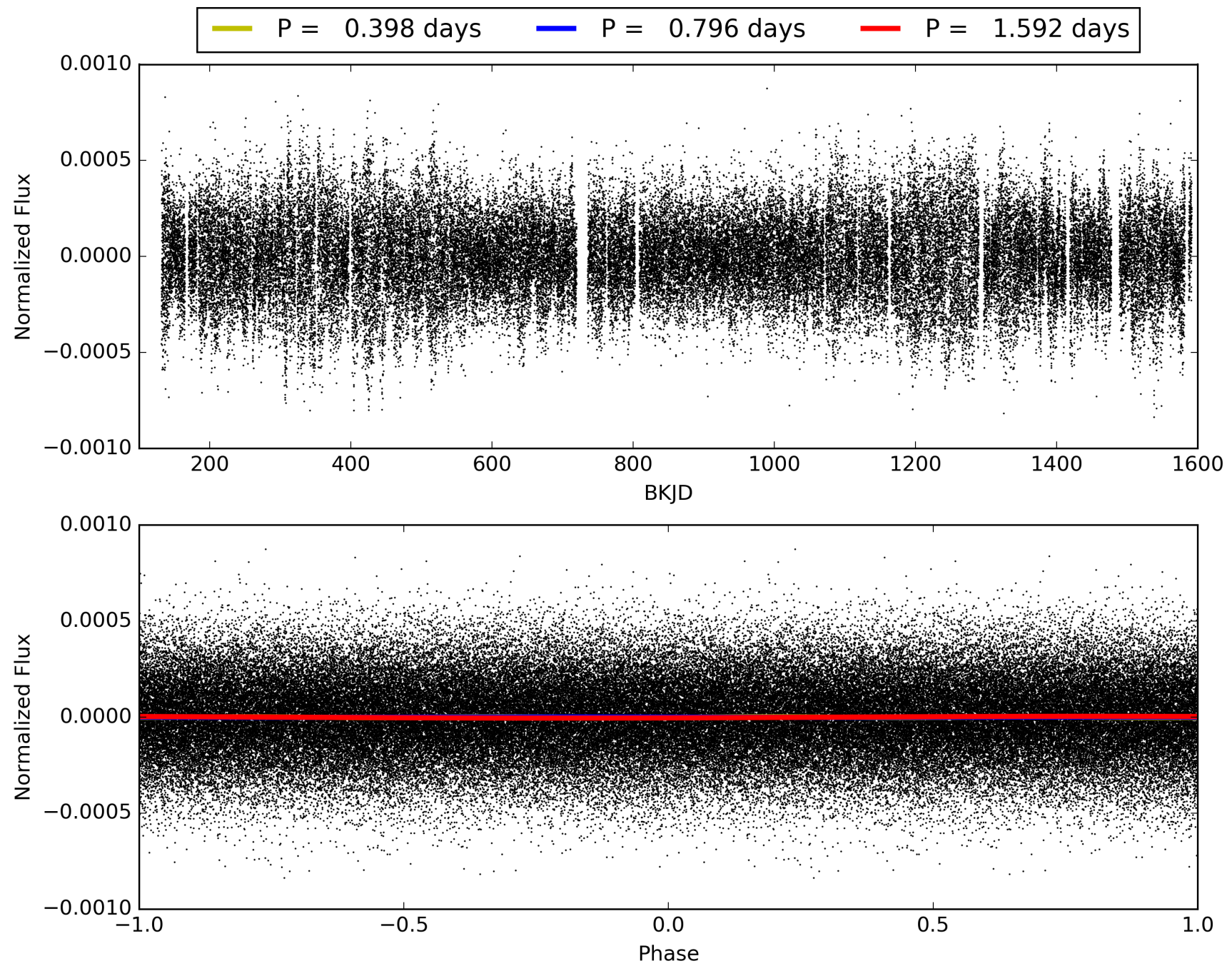
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:28:20 Z

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

TCE 007816992-01, PDC Light Curves

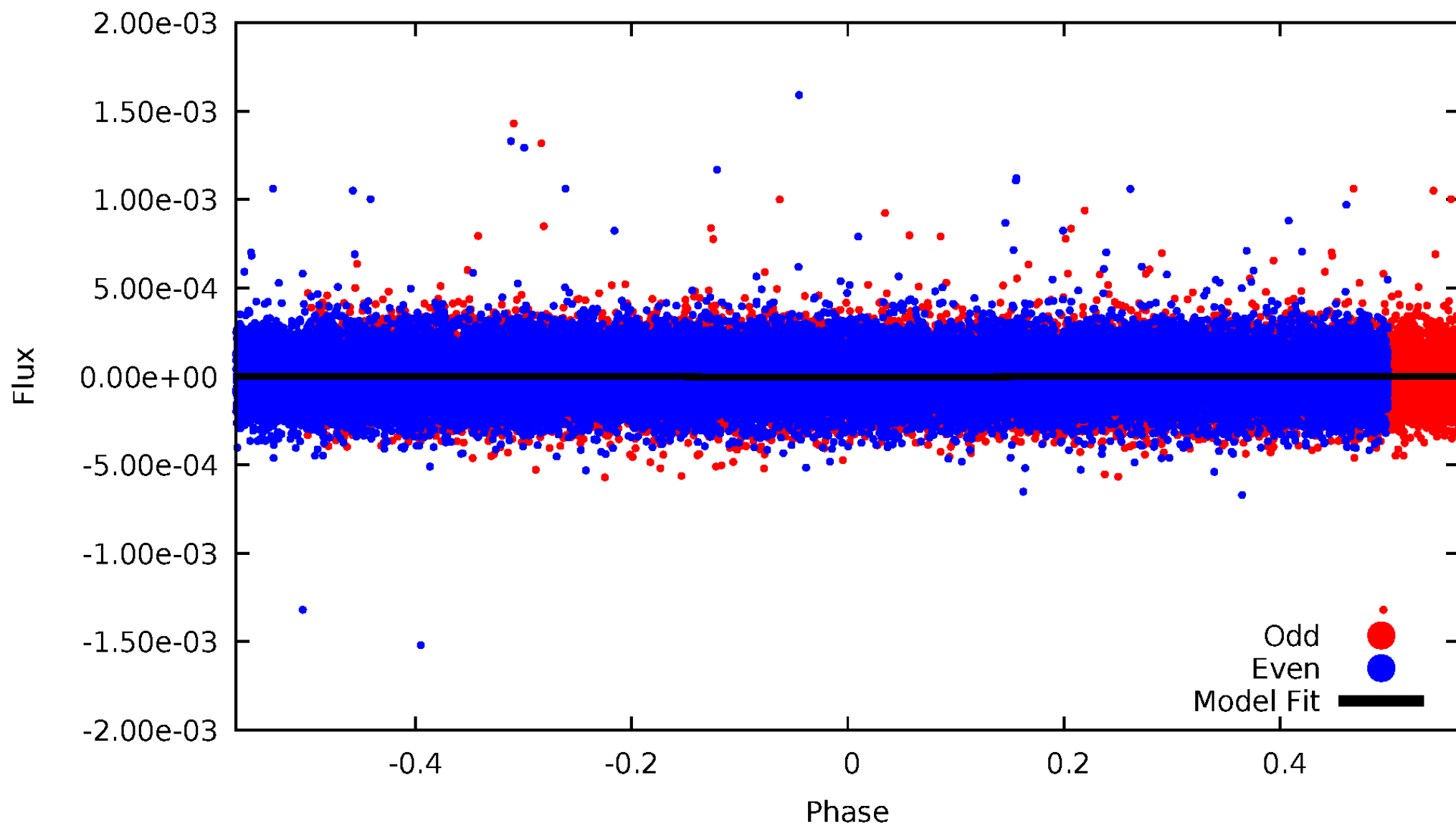


TCE 007816992-01



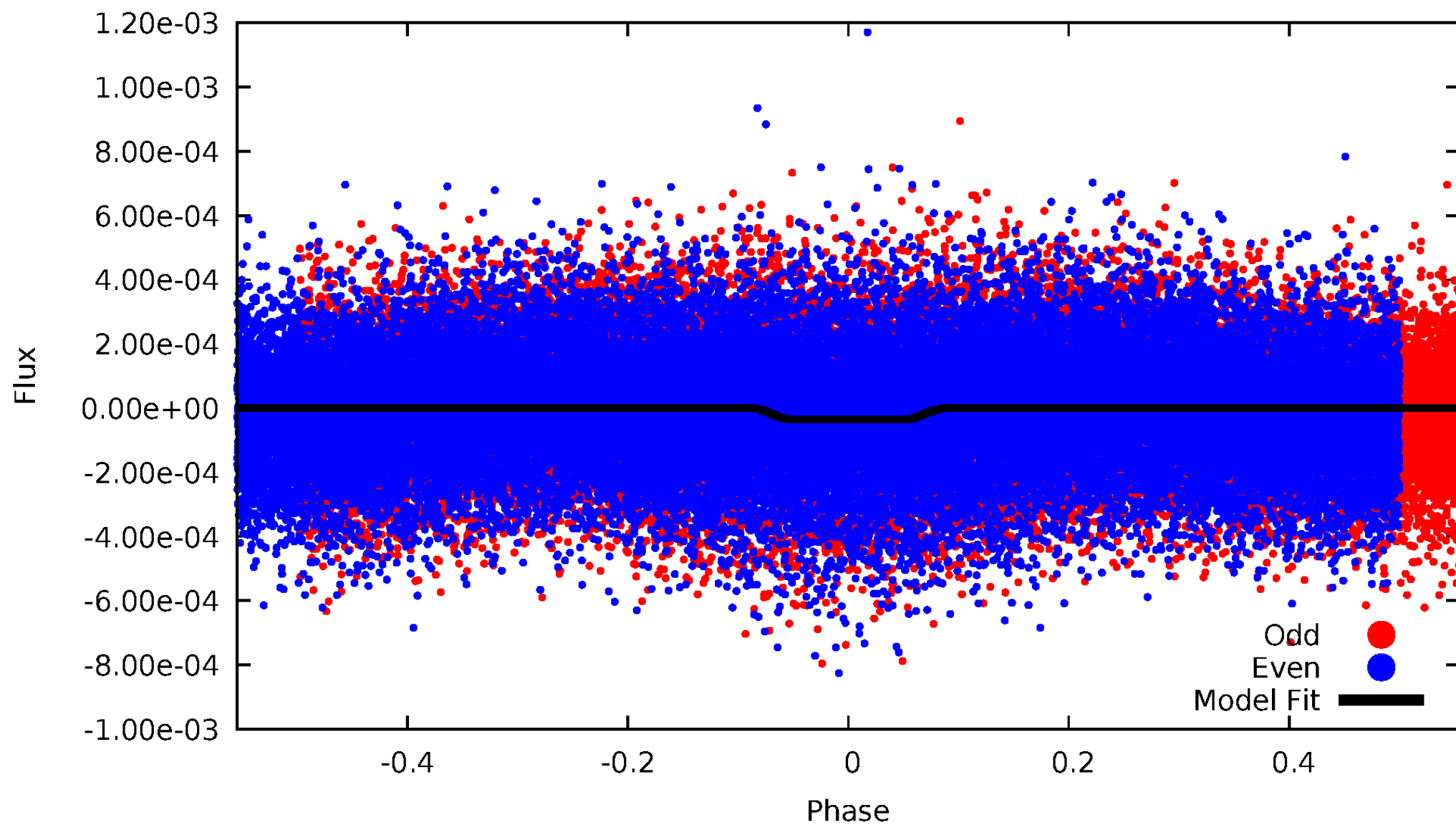
DV Odd/Even

TCE 007816992-01



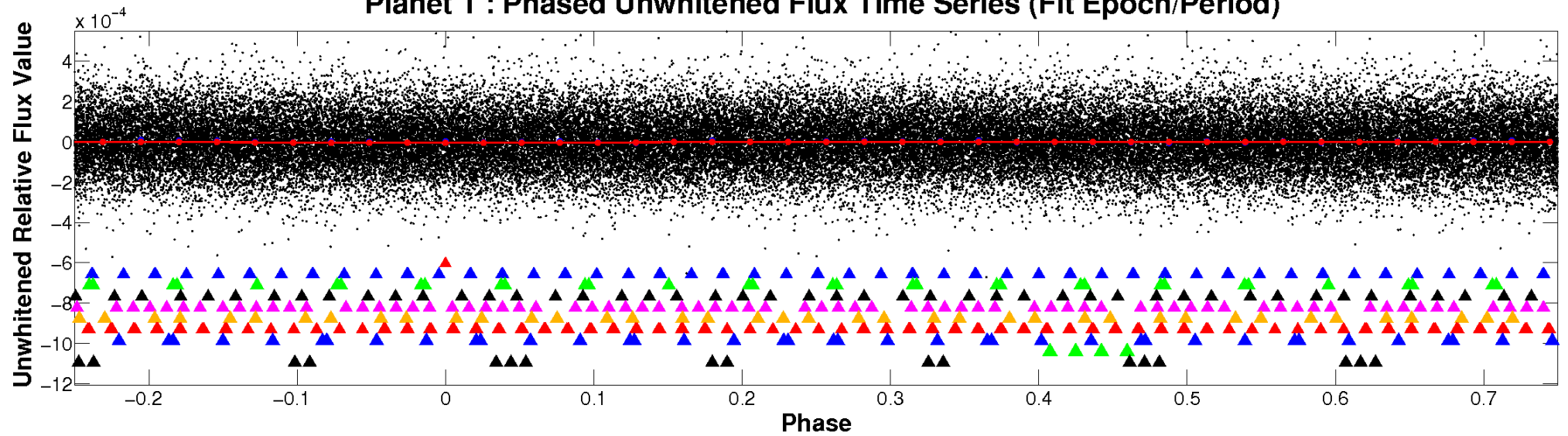
ALT Odd/Even

TCE 007816992-01

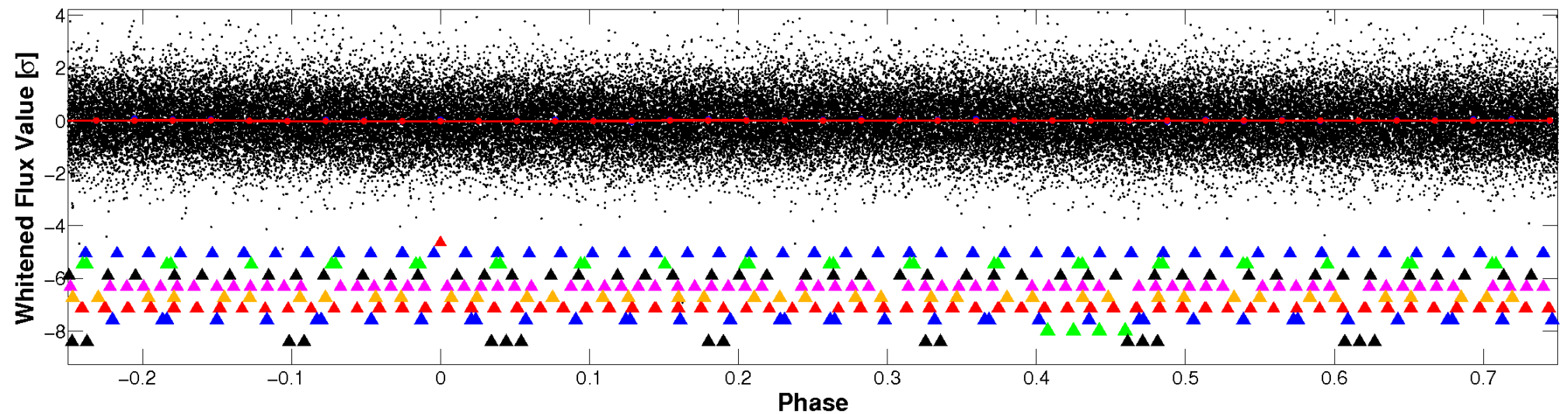


Non-Whitened Vs. Whitened Light Curve

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

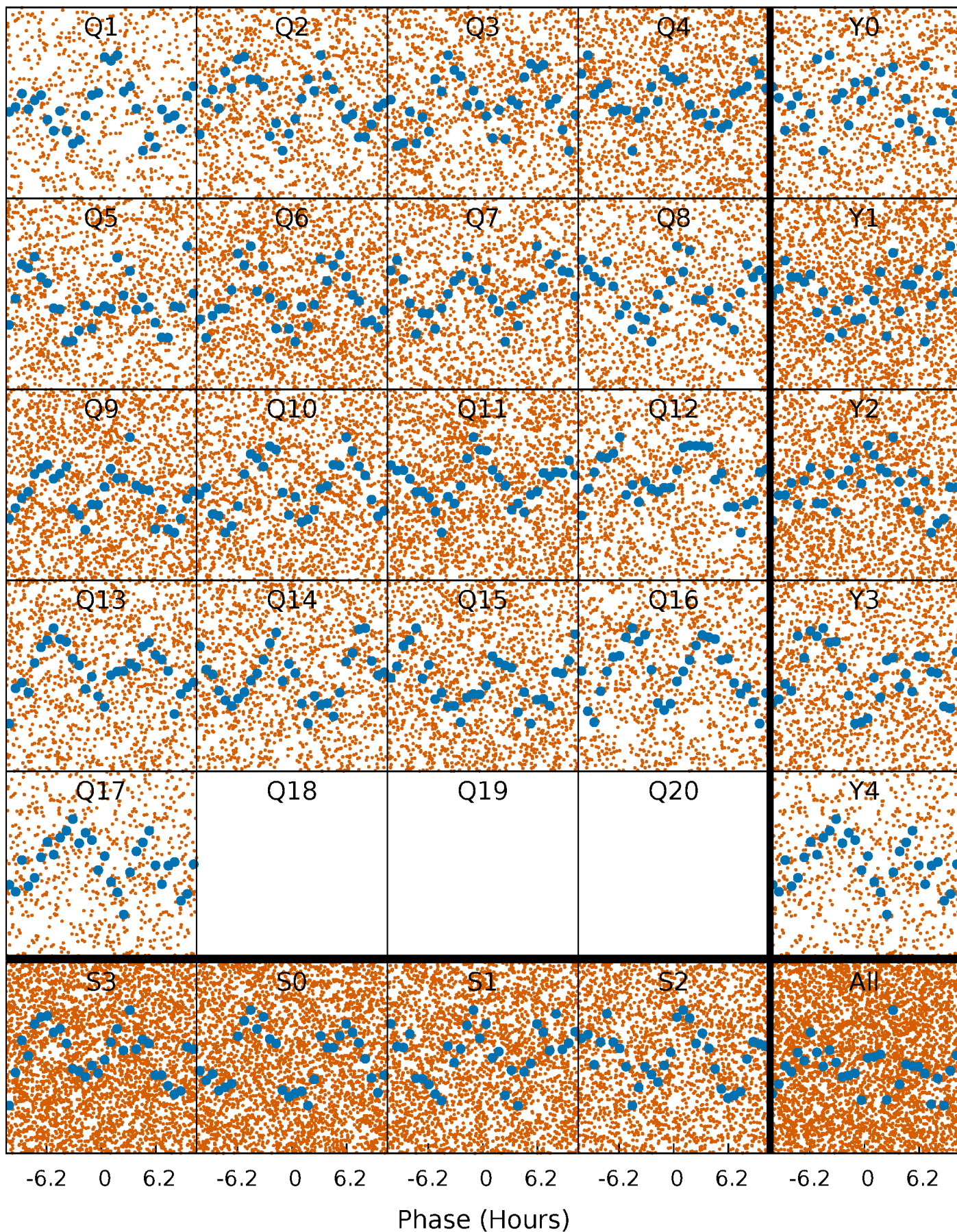


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



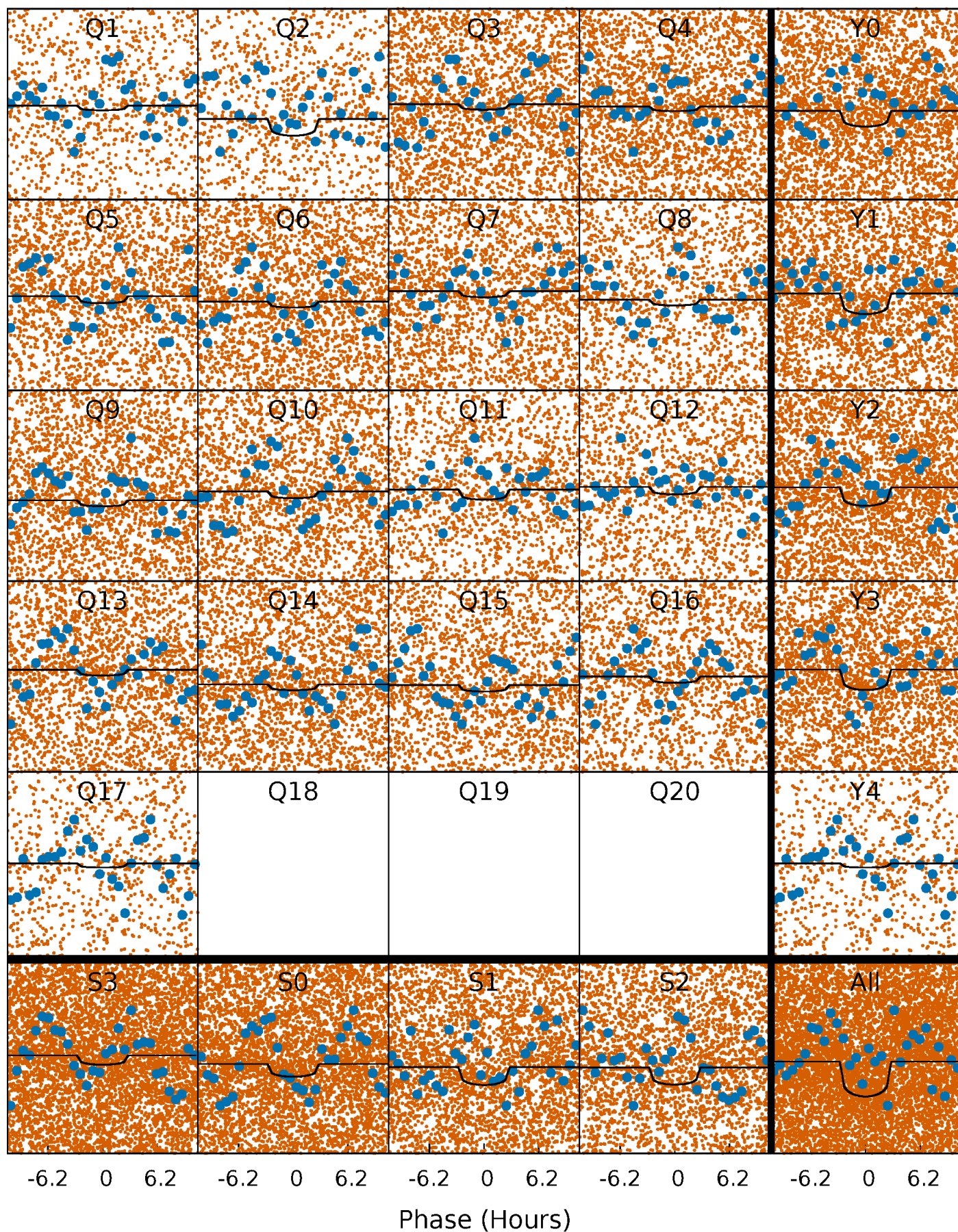
PDC Quarter-Phased Transit Curves

TCE 007816992-01 P= 0.795855 Days $T_0=132.214839$ (BKJD)



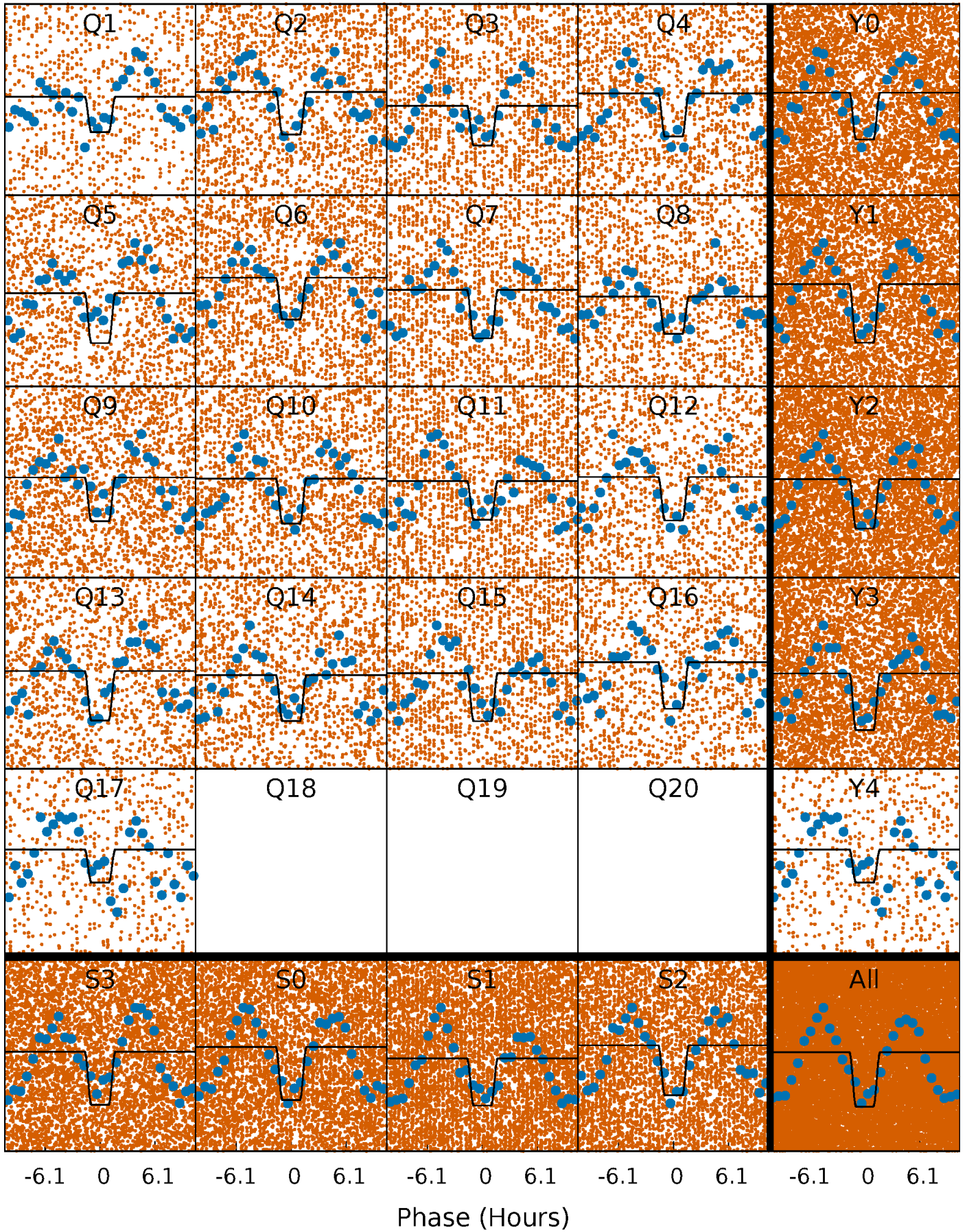
DV Quarter-Phased Transit Curves

TCE 007816992-01 P= 0.795855 Days $T_0=132.214839$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

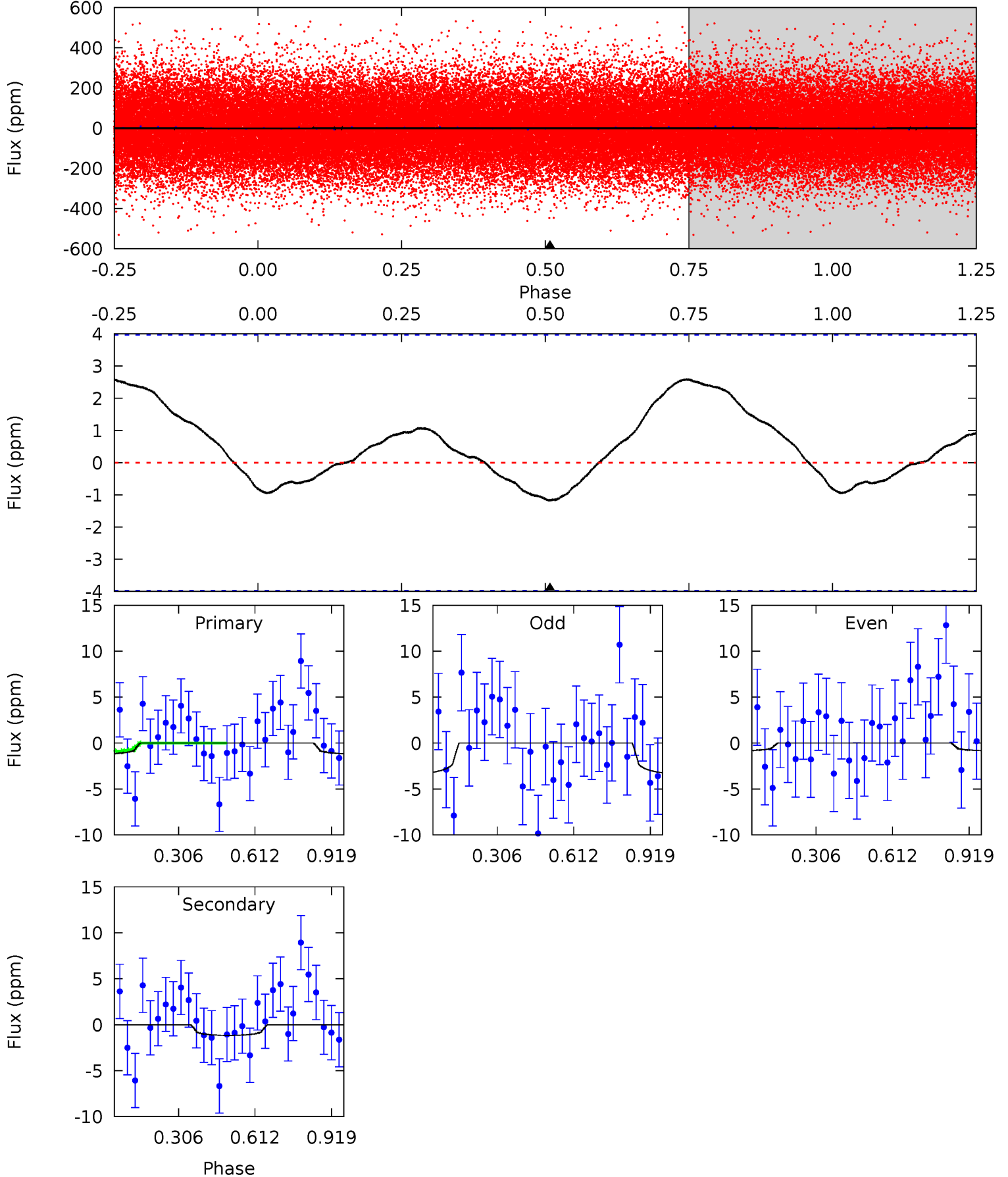
TCE 007816992-01 P= 0.796829 Days $T_0=132.072779$ (BKJD)



DV Model-Shift Uniqueness Test

007816992-01, P = 0.795855 Days, E = 131.418984 Days

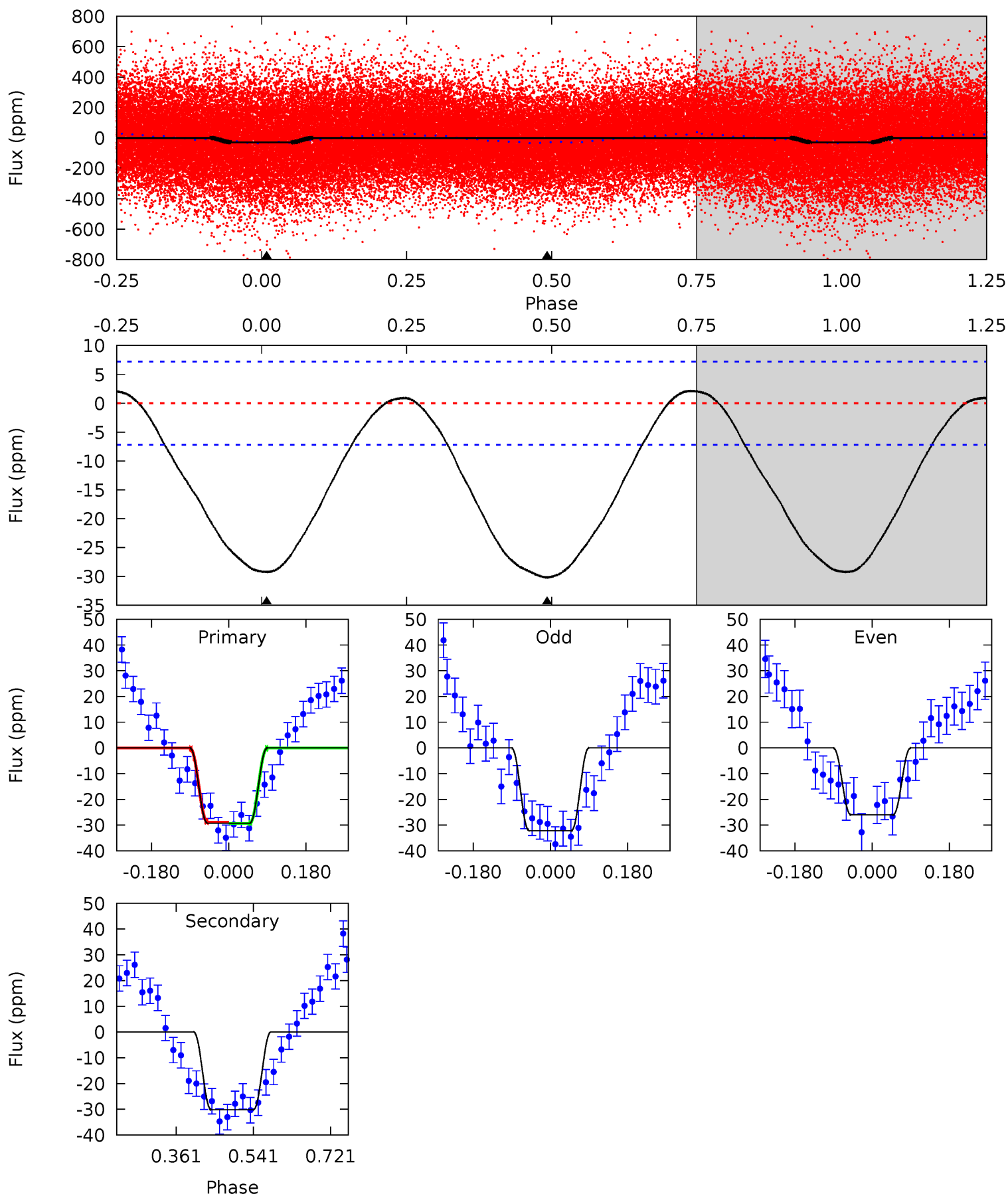
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.27	1.27	0	0	4.32	1.02	0.94	1.27	1.27	1.27	1.27	1.33	-0.74	0.69	0.38



Alt Model-Shift Uniqueness Test

007816992-01, P = 0.796829 Days, E = 131.275950 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.0	18.6	0	0	4.44	1.34	1.31	18.0	18.0	18.6	18.6	1.90	1.14	0.07	0.14



Stellar Parameters For KIC 007816992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6956^{+194}_{-333}	$4.278^{+0.075}_{-0.225}$	$0.070^{+0.200}_{-0.350}$	$1.439^{+0.537}_{-0.215}$	$1.431^{+0.222}_{-0.202}$	$0.676^{+0.226}_{-0.396}$
	+3%/-5%	+2%/-5%	+286%/-500%	+37%/-15%	+16%/-14%	+33%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007816992-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1 ± 1	$0.67^{+0.63}_{-0.43}$	3802^{+301}_{-219}	2991^{+2565}_{-6513}	$0.399^{+3.038}_{-0.356}$
Alt.	-30 ± 2	$1.09^{+0.75}_{-0.67}$	3783^{+326}_{-214}	6136^{+5692}_{-1372}	$4.947^{+30.122}_{-3.151}$

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 $A_{obs} \gg 1.0$

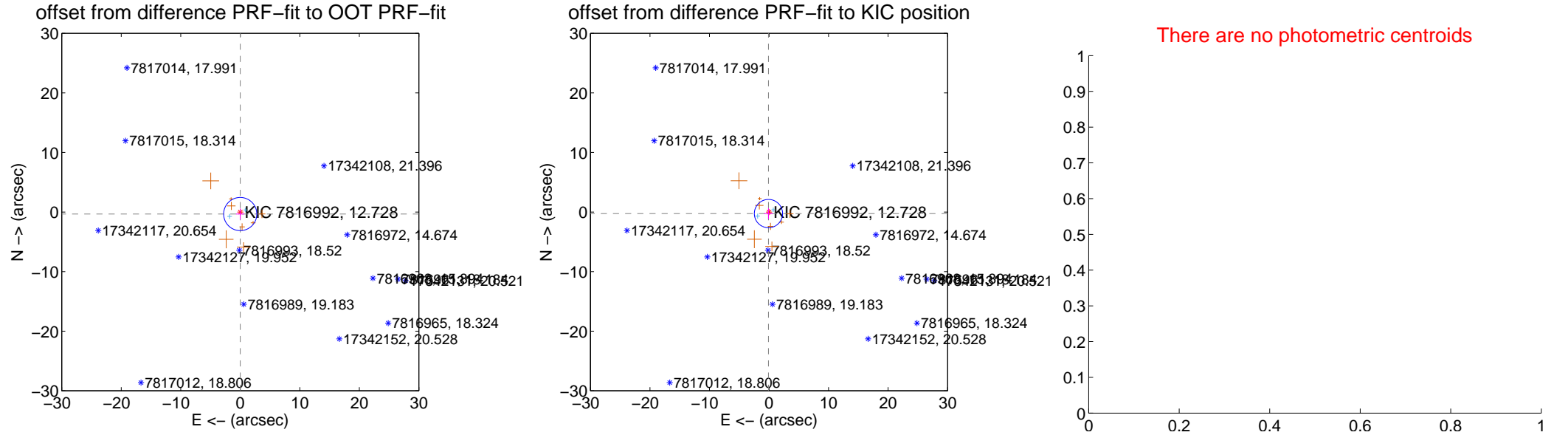
DV Centroid Data

Supplemental centroid analysis for 007816992-01. Kepler magnitude: 12.73. Transit SNR 3.03

There are 2 quarters with good PRF difference image offsets

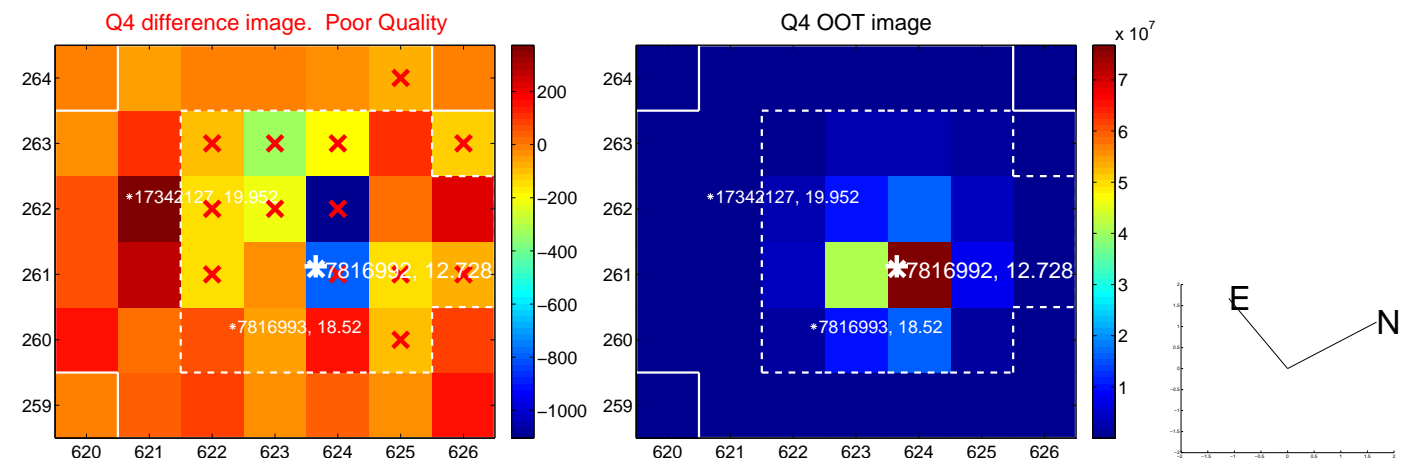
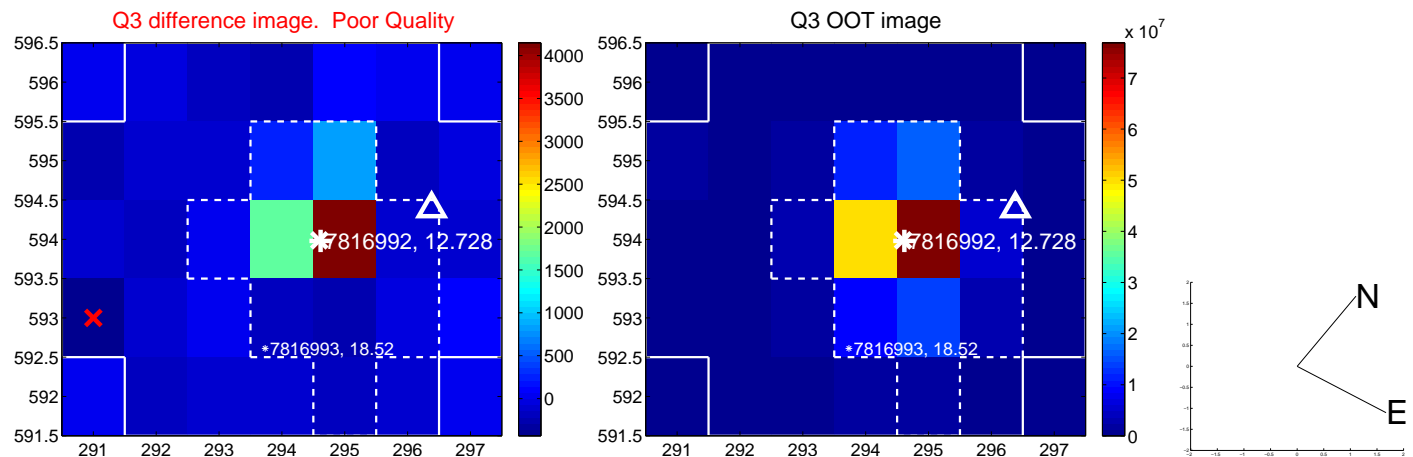
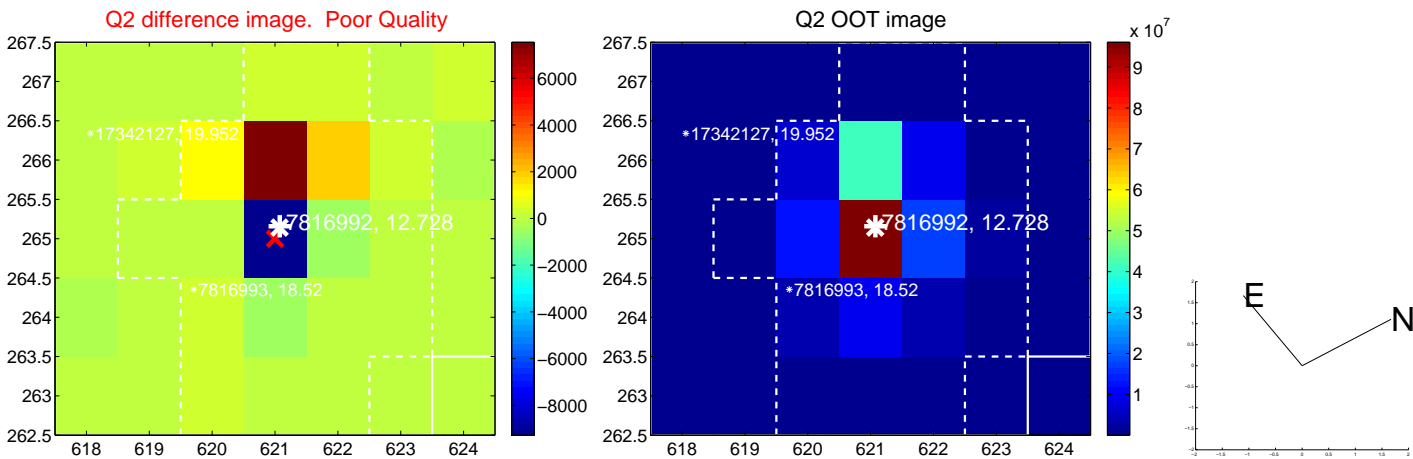
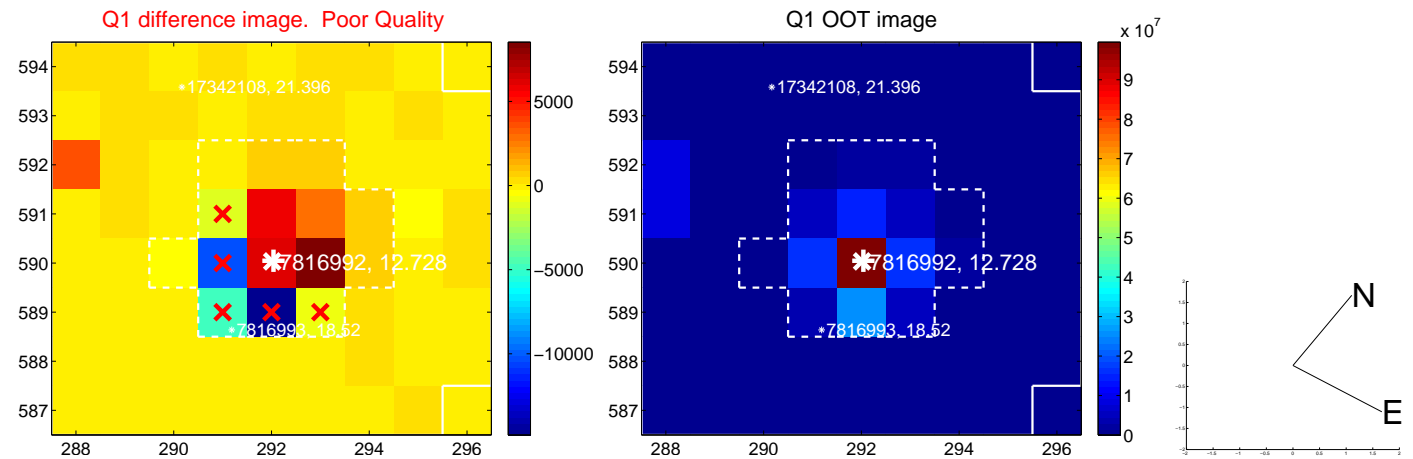
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.336 ± 0.928	0.36	0.011 ± 0.688	-0.336 ± 0.936
PRF-fit source offset from KIC position	0.274 ± 0.791	0.35	0.092 ± 0.723	-0.258 ± 0.921
photometric centroid source offset	—	—	—	—

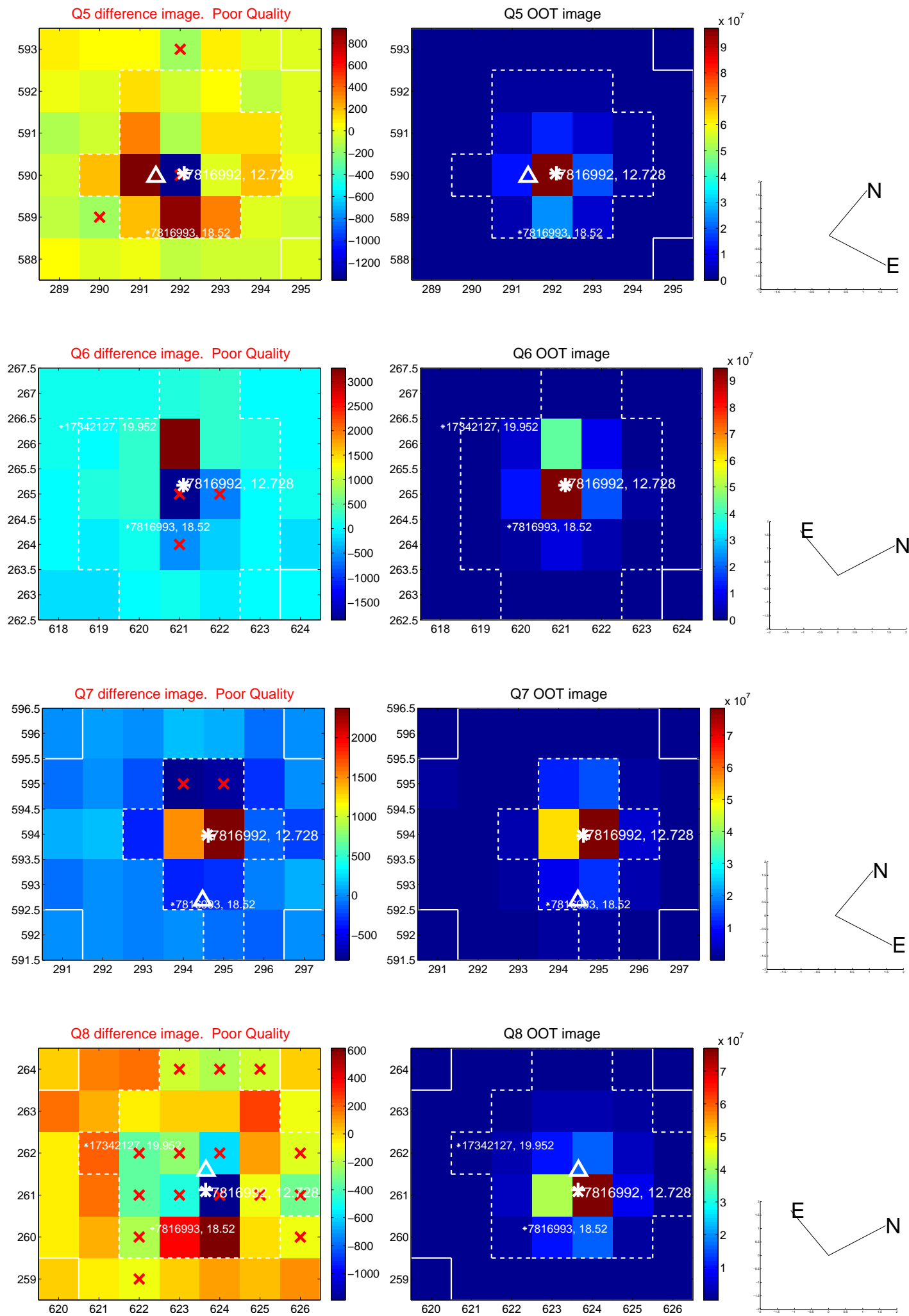


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

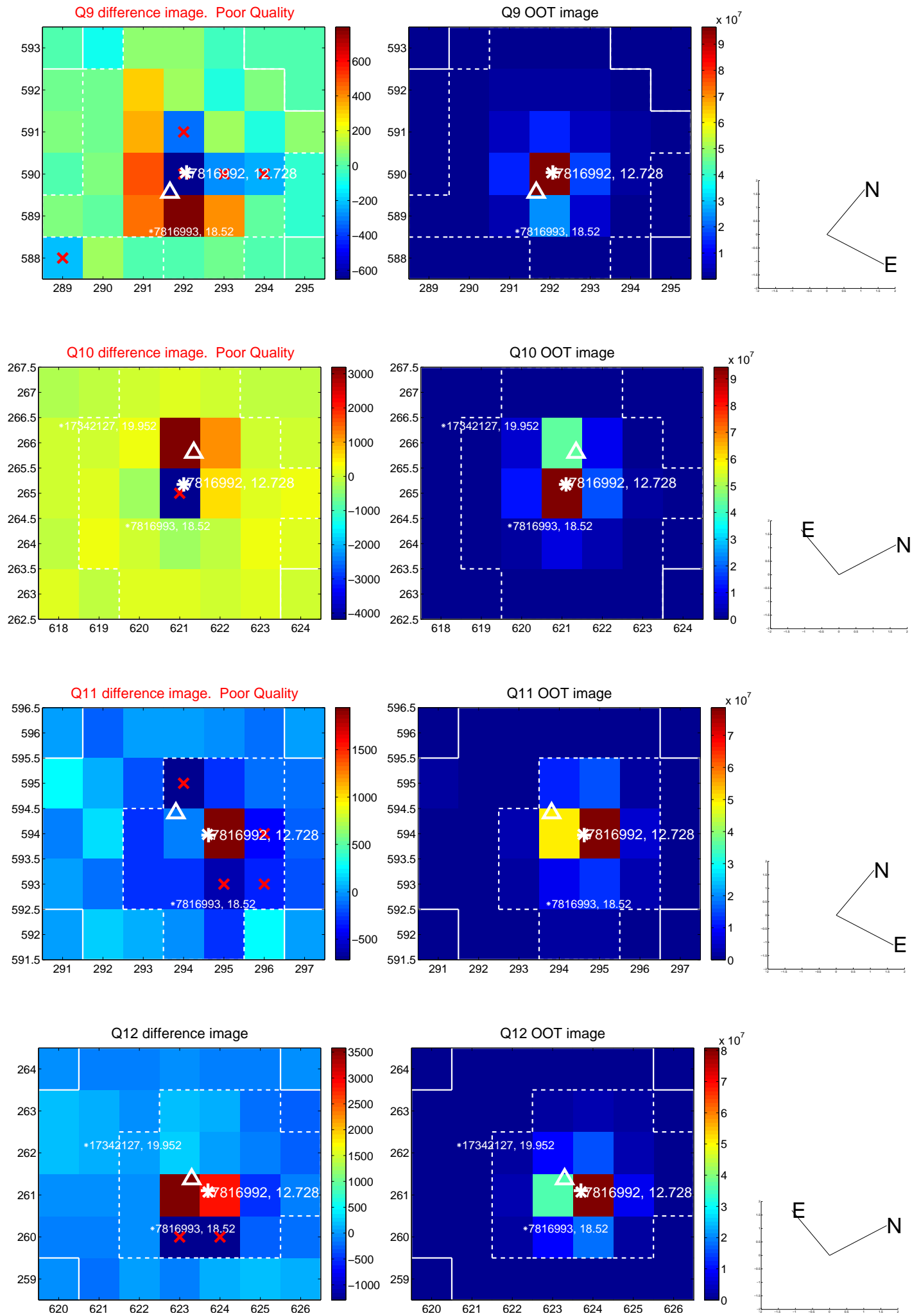
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



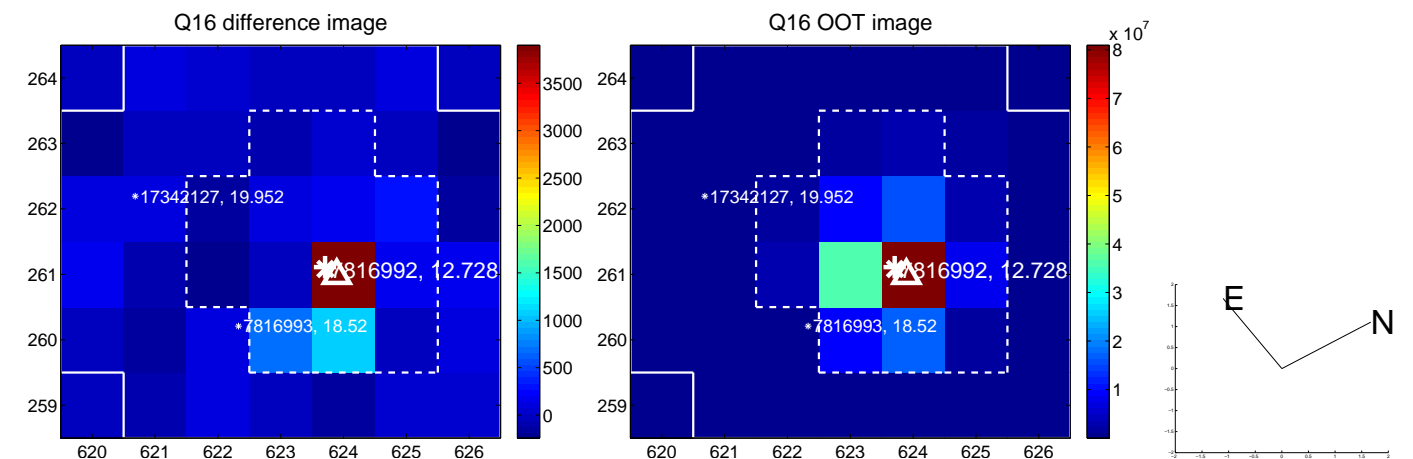
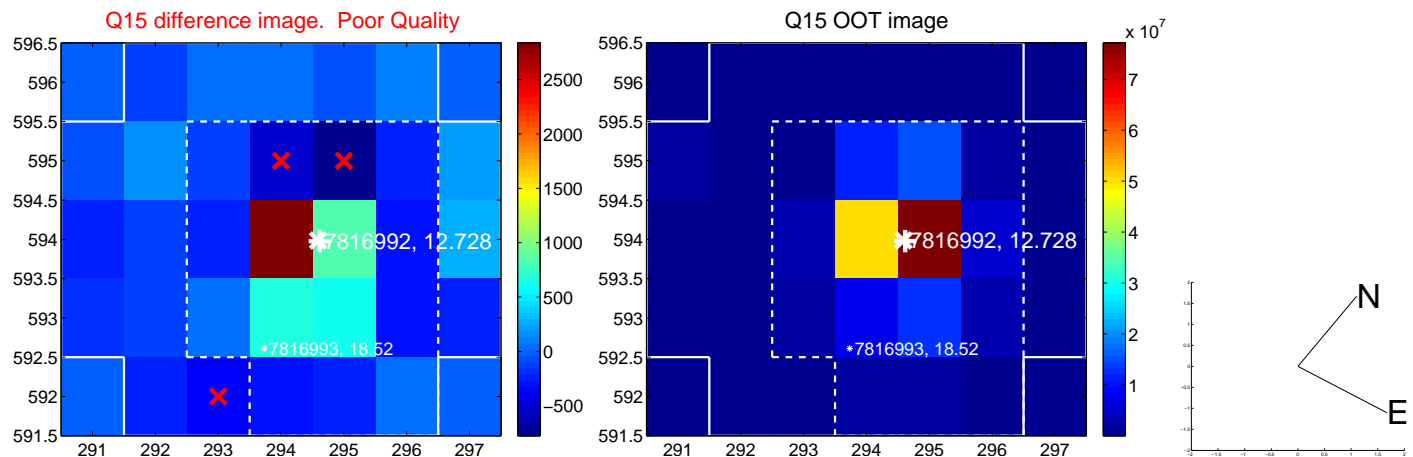
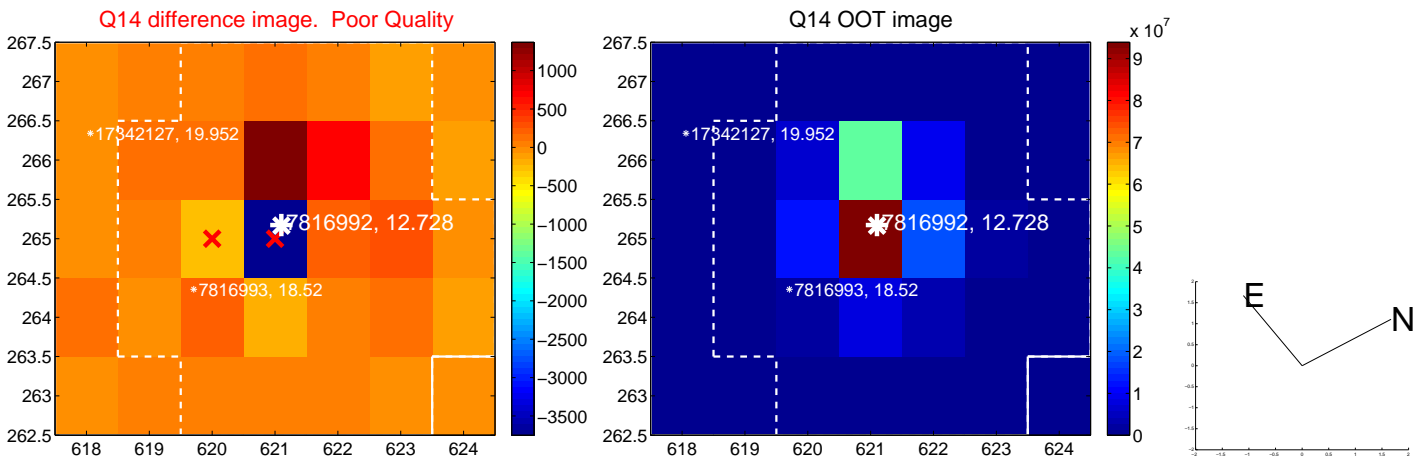
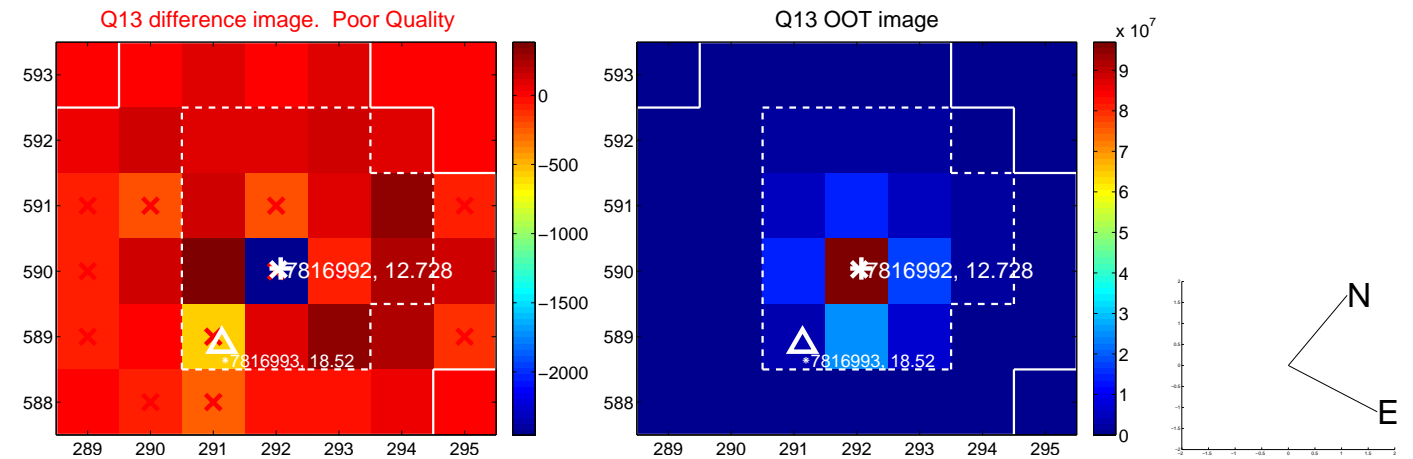
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



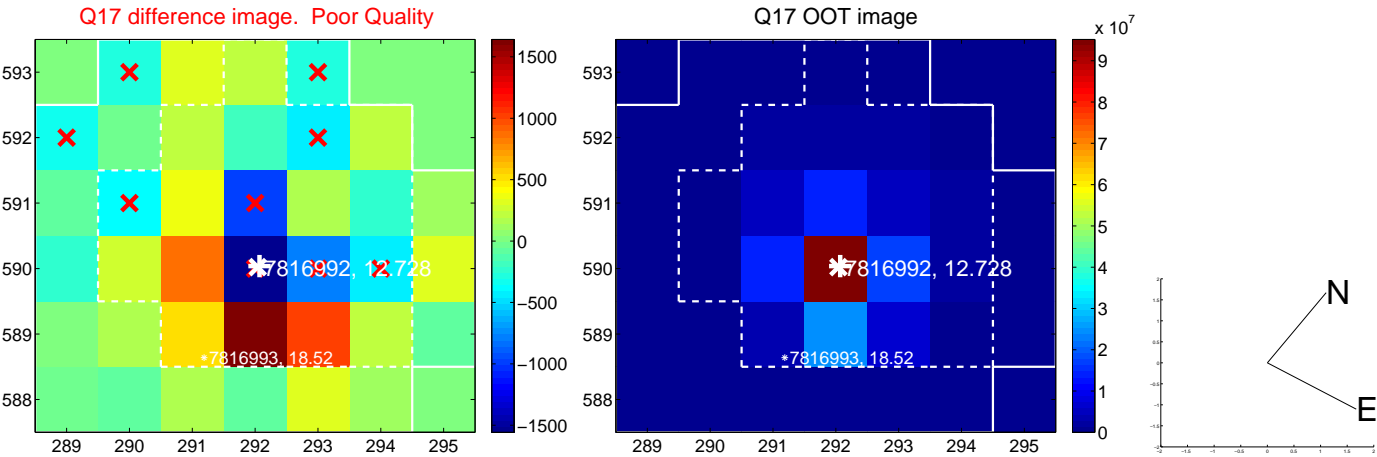
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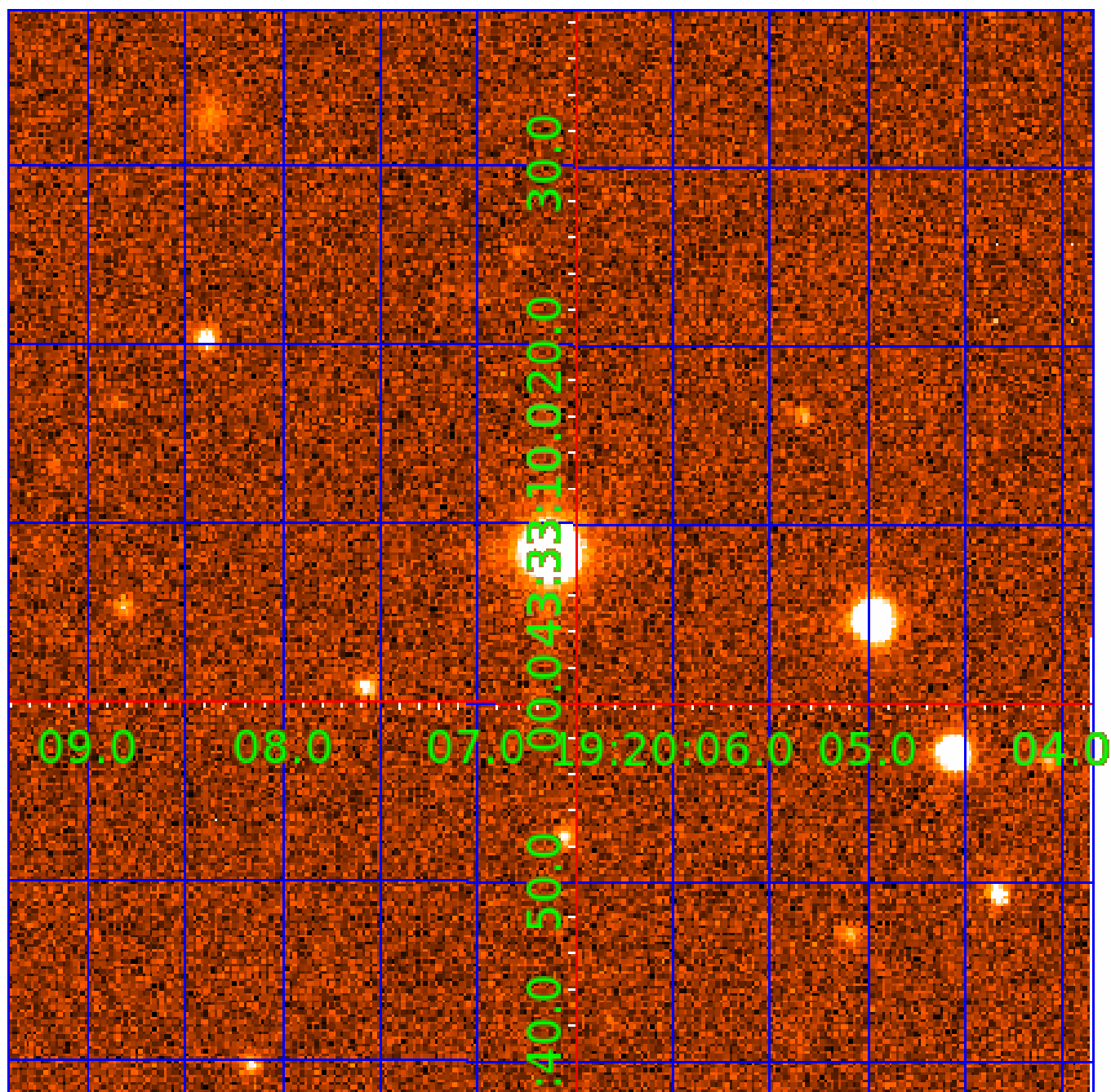
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 007816992

Q1-17 DR25 TCE Parameters

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007816992-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
007816992-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007816992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
007816992-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

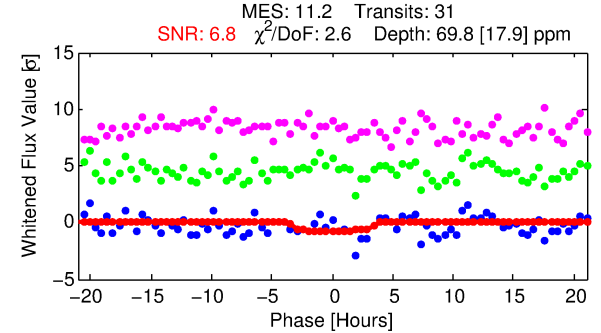
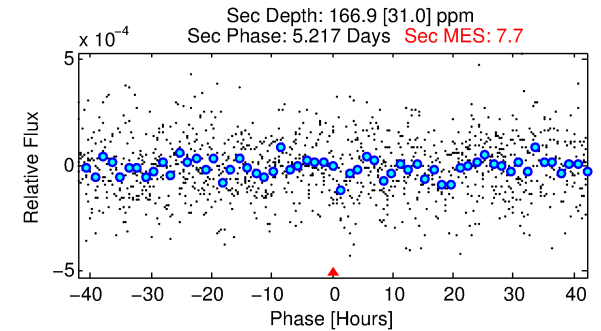
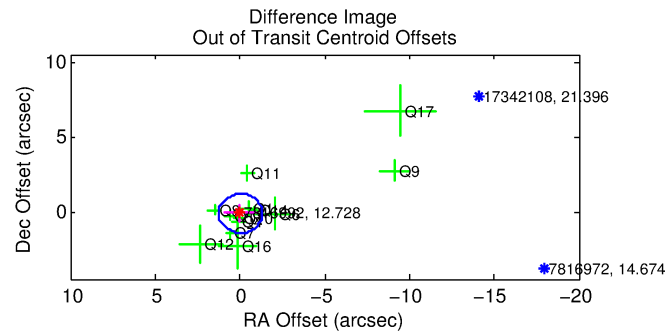
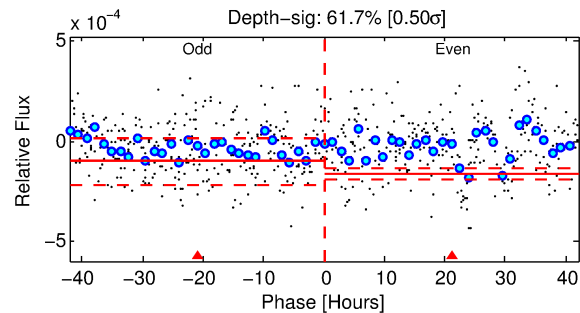
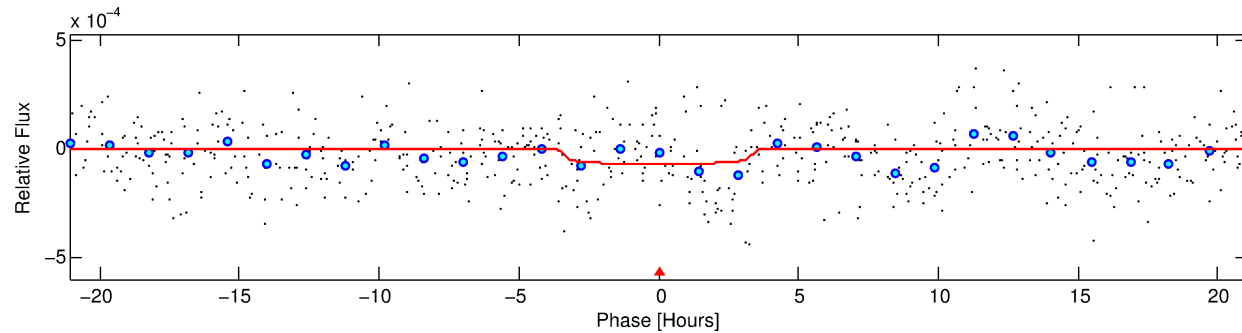
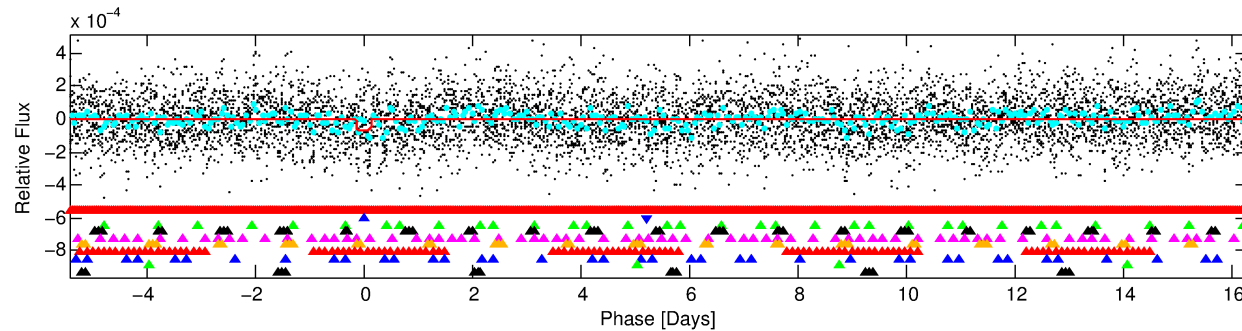
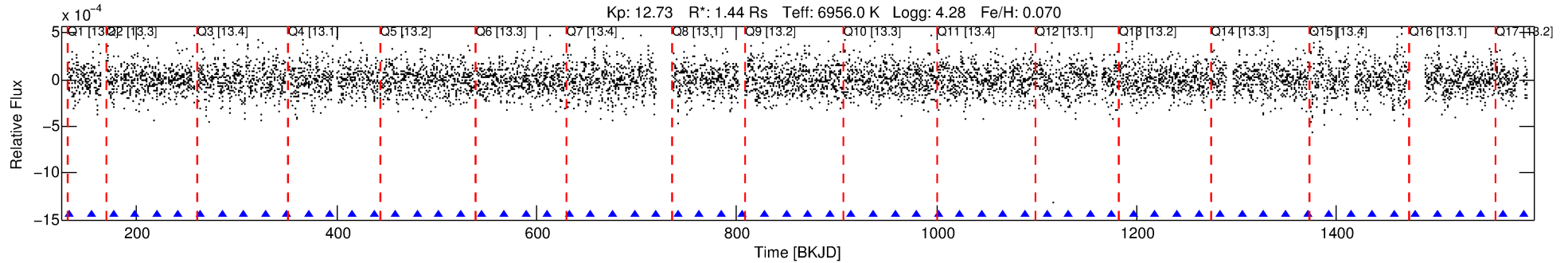
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007816992-02

No Significant Match Found

DV One-Page Summary

KIC: 7816992 Candidate: 2 of 10 Period: 21.708 d



DV Fit Results:

Period = 21.70821 [0.00085] d
Epoch = 133.3970 [0.0317] BKJD
Rp/R* = 0.0087 [0.0077]
a/R* = 12.42 [65.06]
b = 0.86 [1.59]
Seff = 147.30 [68.75]
Teff = 888 [104] K
Rp = 1.36 [1.31] Re
a = 0.1717 [0.0520] AU
Ag = 1456.16 [2673.56] [0.54 σ]
Teffp = 8484 [3810] K [1.99 σ]

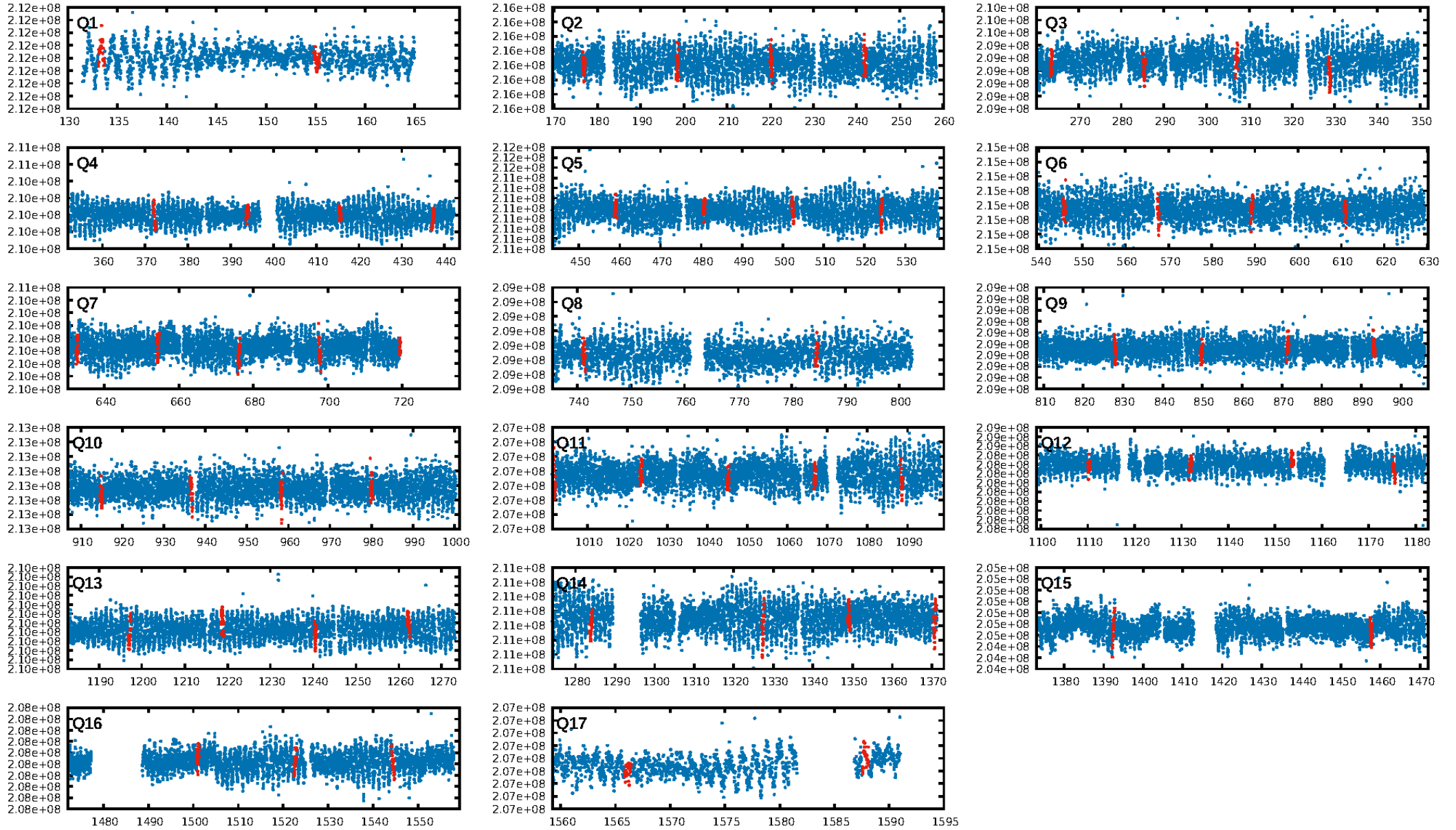
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.47 σ]
LongPeriod-sig: 100.0% [29.87 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [29/29]
GhostDiagnostic-chr: 0.8396
Centroid-sig: 37.1%
Centroid-so: 0.823 arcsec [0.99 σ]
OotOffset-rm: 0.128 arcsec [0.30 σ]
KicOffset-rm: 0.080 arcsec [0.08 σ]
OotOffset-st: 3/2/4/4 [13]
KicOffset-st: 3/2/4/4 [13]
DiffImageQuality-fgm: 0.31 [4/13]
DiffImageOverlap-fno: 0.00 [0/17]

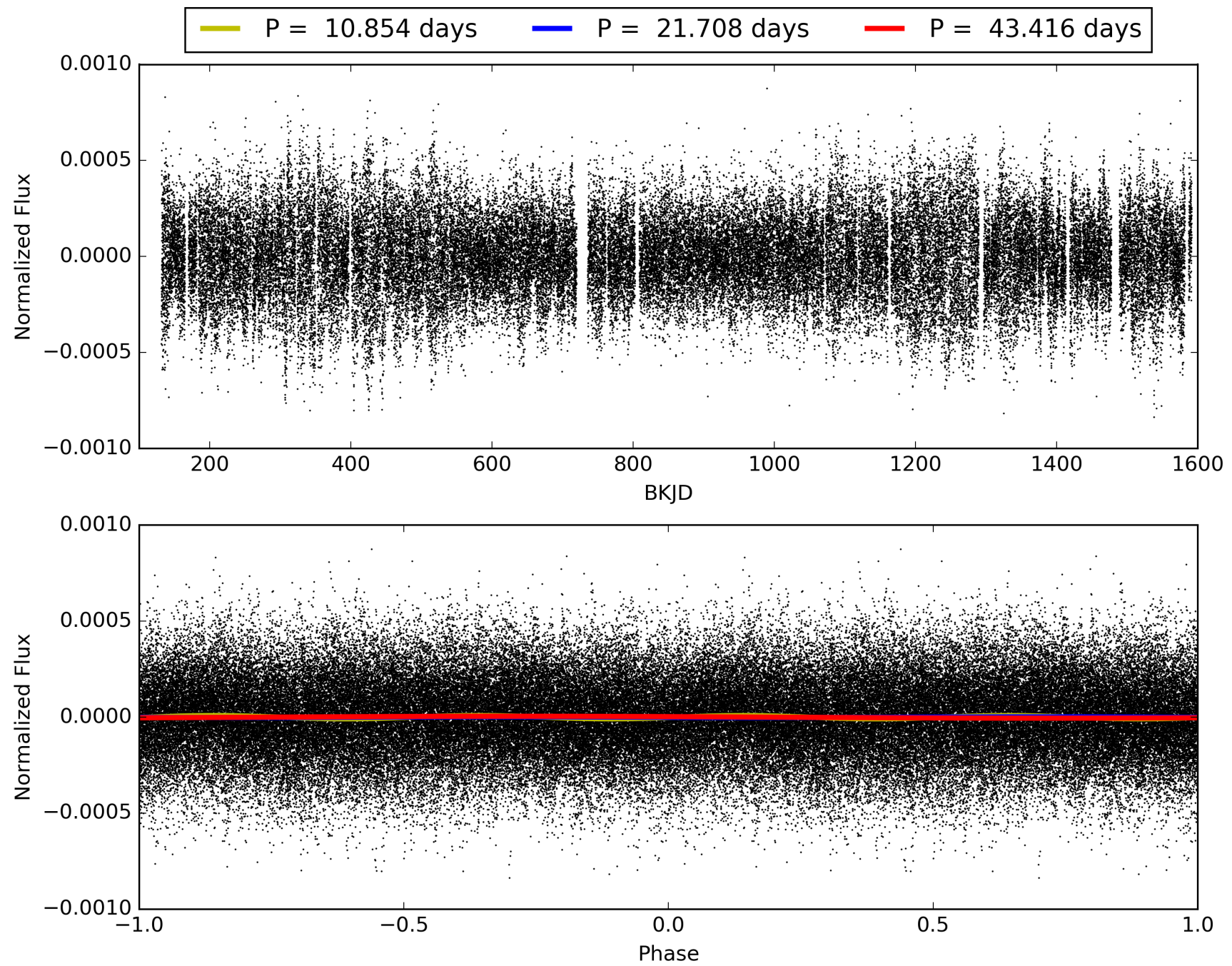
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:28:31 Z

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

TCE 007816992-02, PDC Light Curves

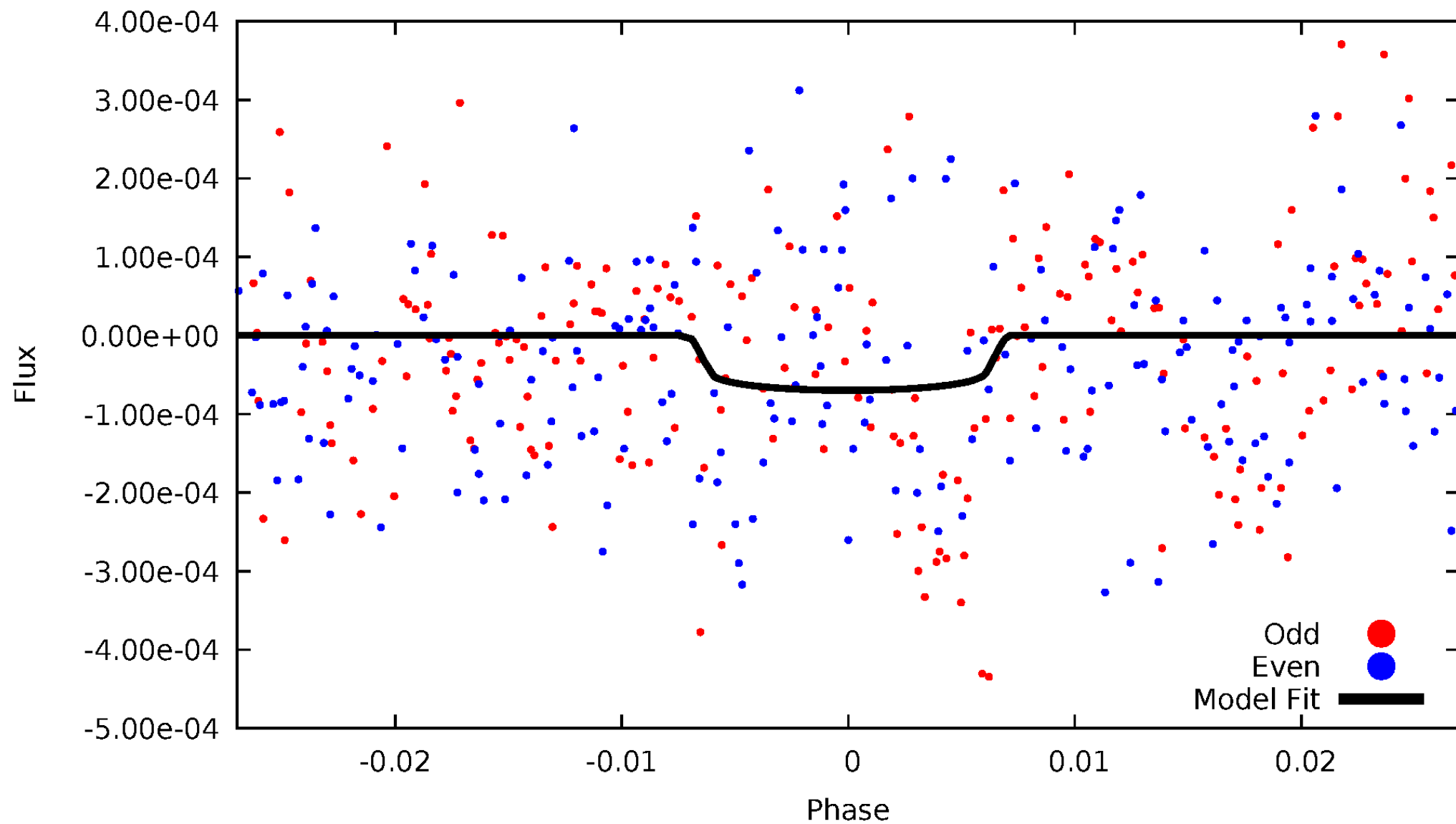


TCE 007816992-02



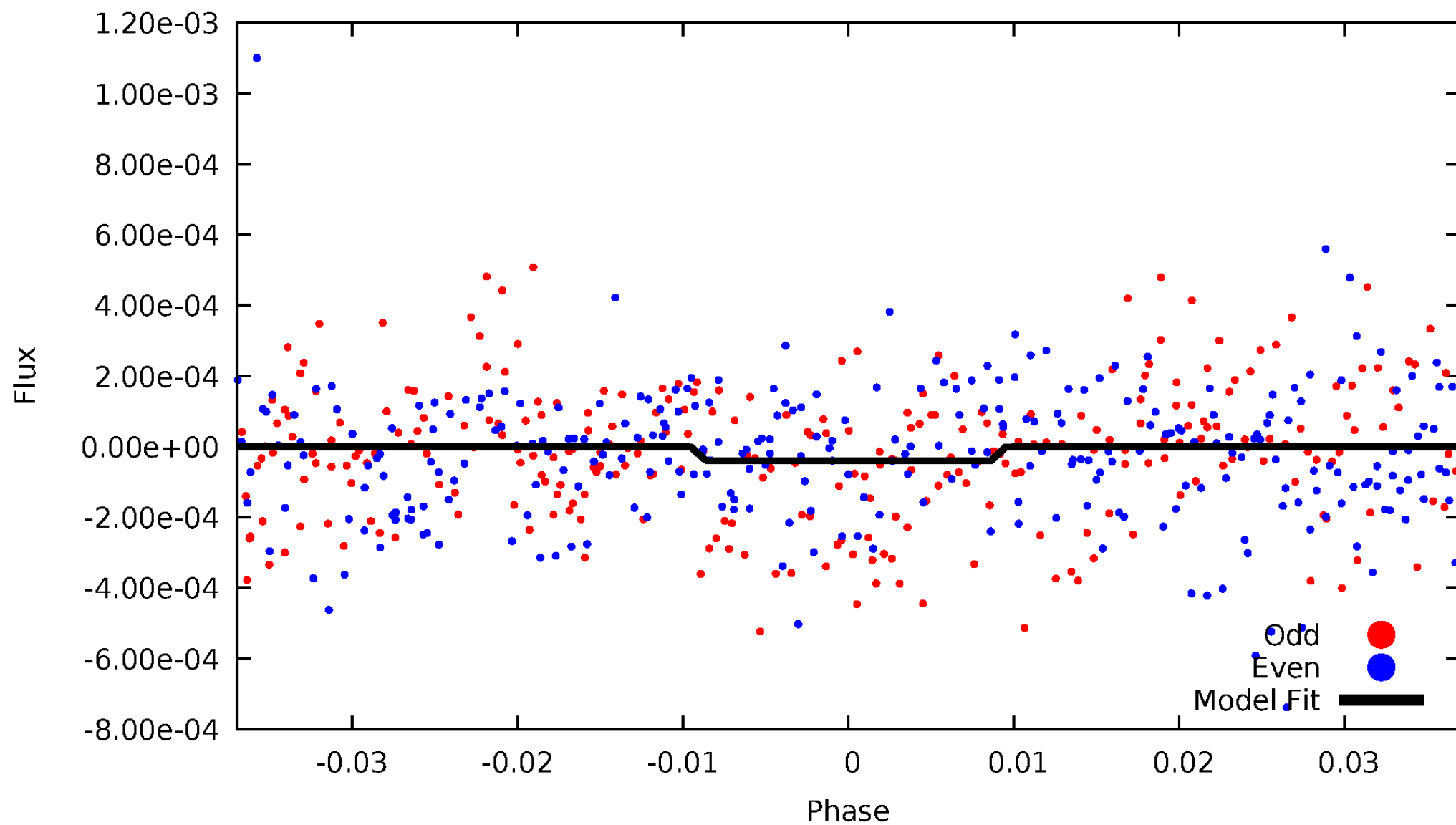
DV Odd/Even

TCE 007816992-02



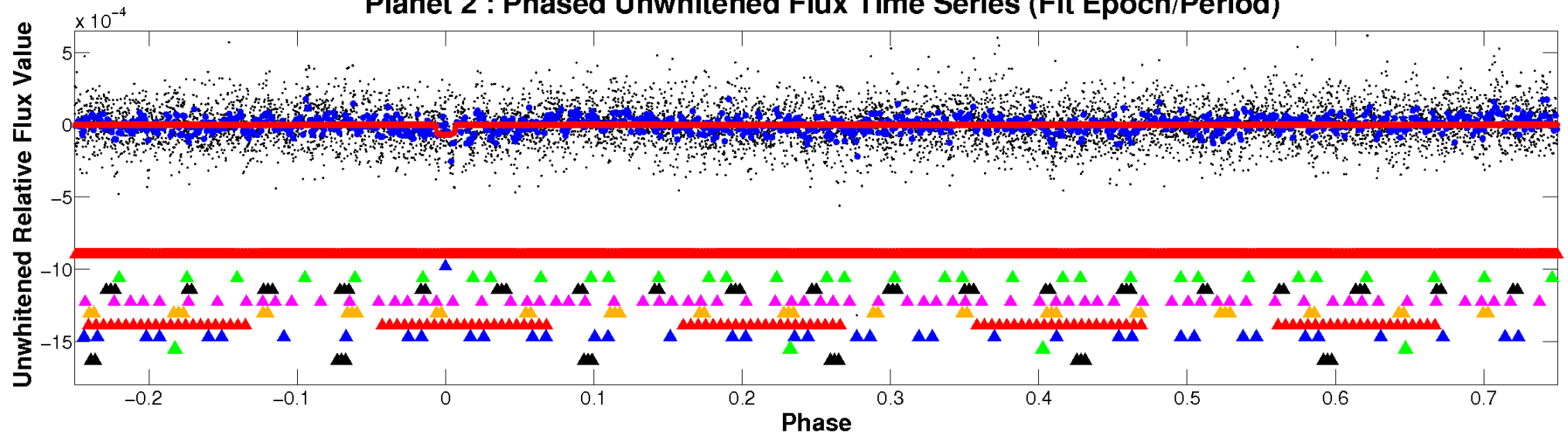
ALT Odd/Even

TCE 007816992-02

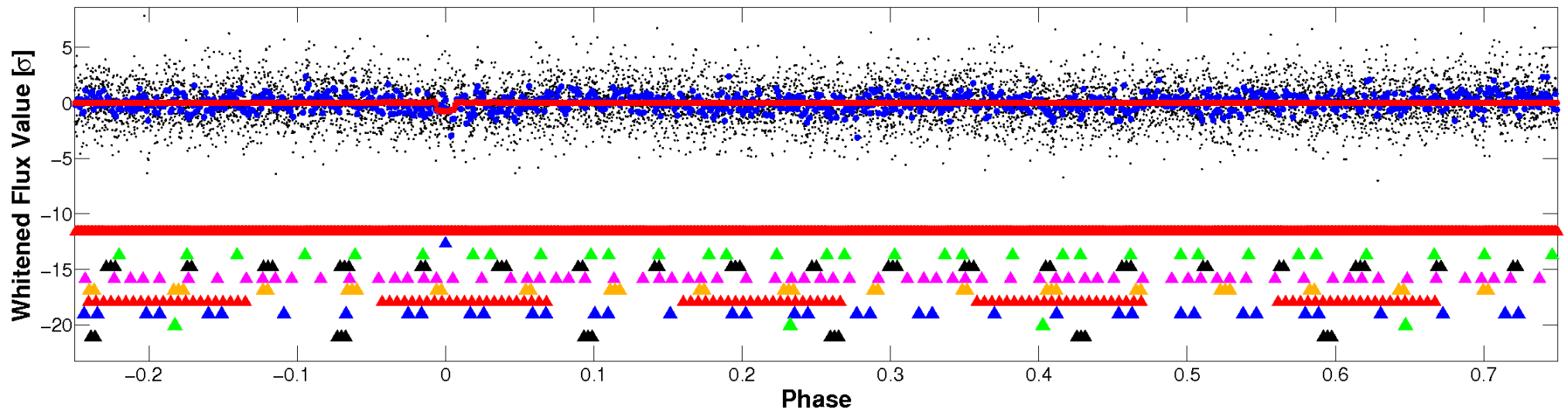


Non-Whitened Vs. Whitened Light Curve

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

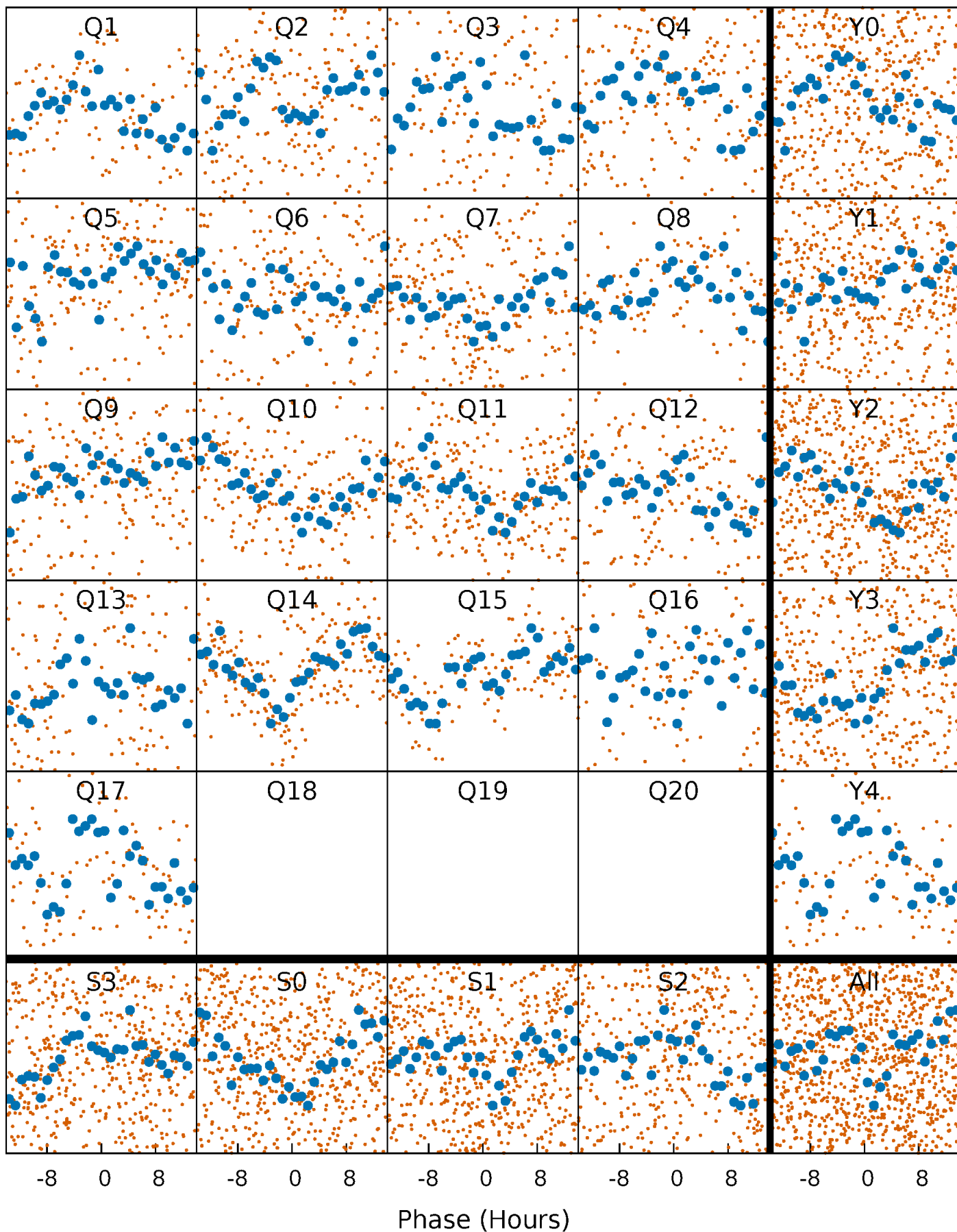


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



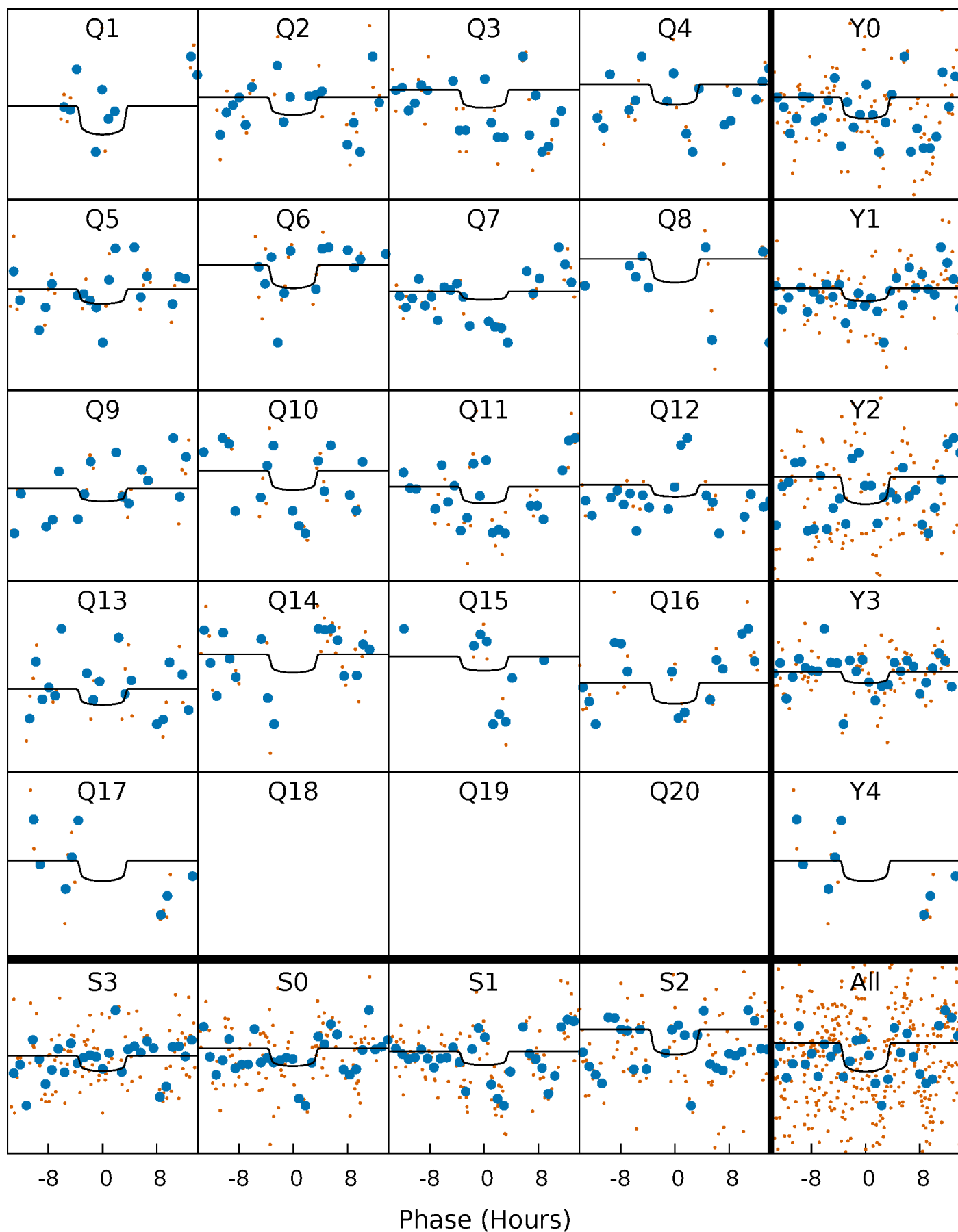
PDC Quarter-Phased Transit Curves

TCE 007816992-02 P= 21.708210 Days $T_0=133.397023$ (BKJD)



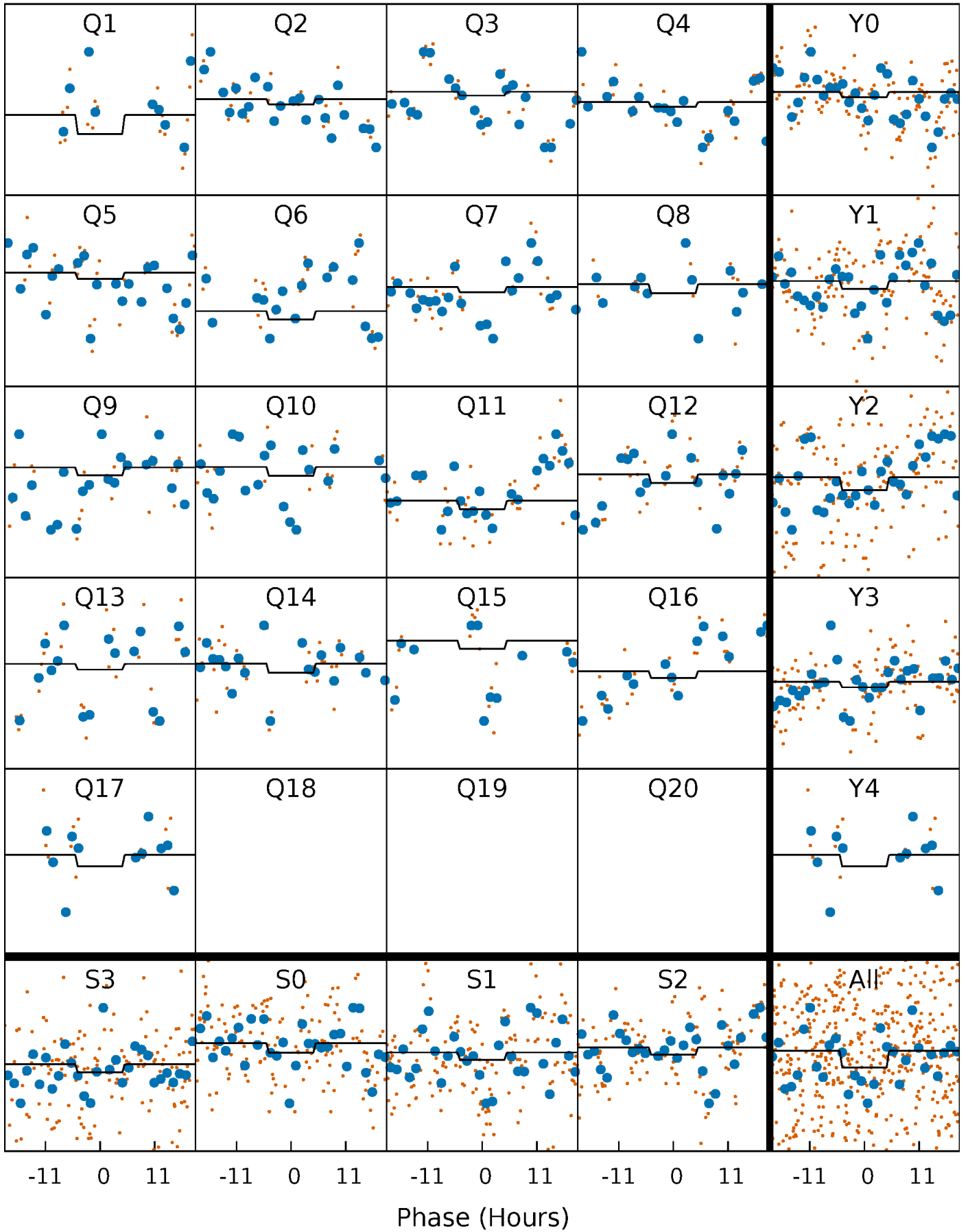
DV Quarter-Phased Transit Curves

TCE 007816992-02 P= 21.708210 Days $T_0=133.397023$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

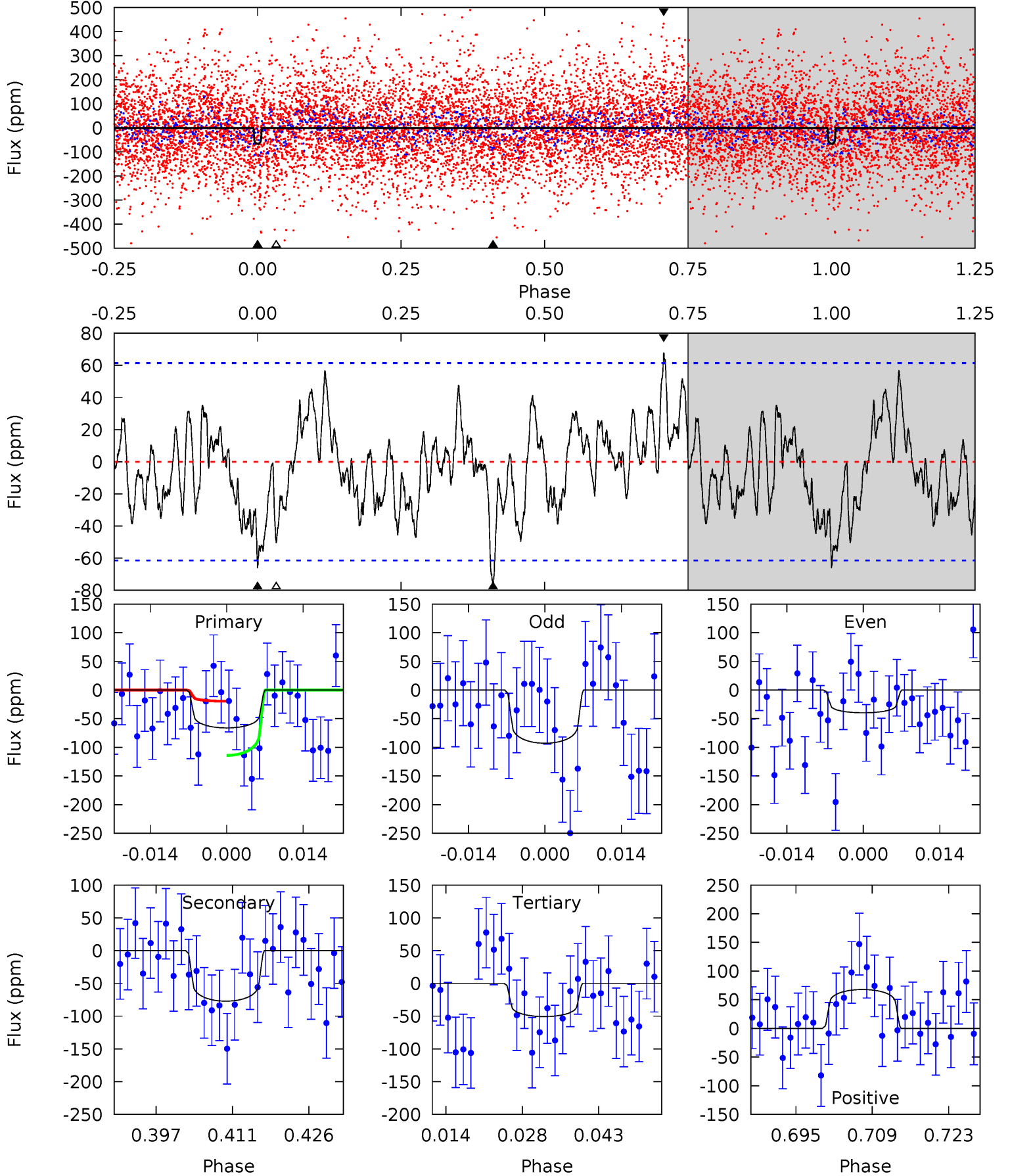
TCE 007816992-02 P= 21.707535 Days $T_0=133.474904$ (BKJD)



DV Model-Shift Uniqueness Test

007816992-02, $P = 21.708210$ Days, $E = 111.688813$ Days

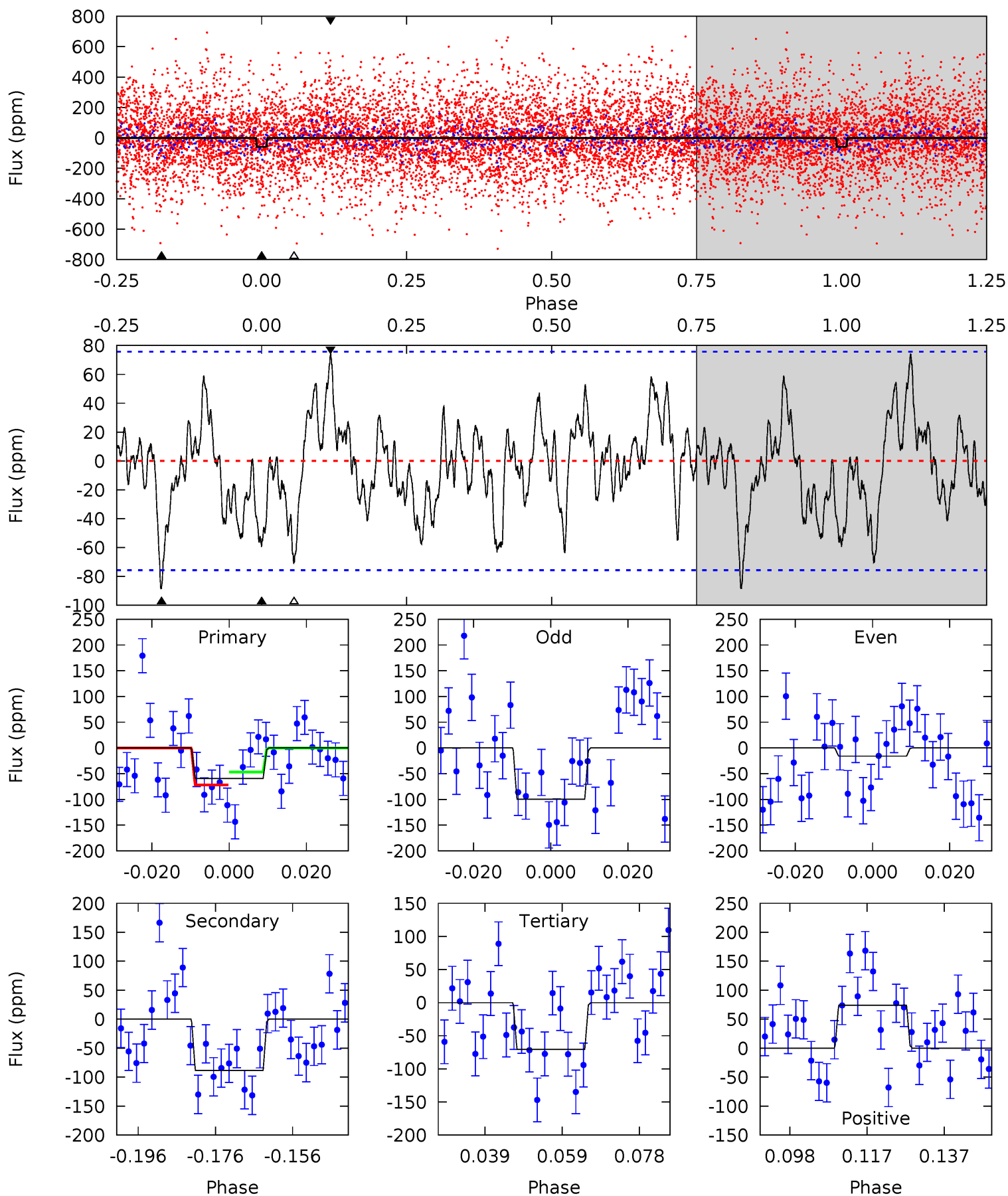
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.34	6.22	4.09	5.47	4.96	2.45	1.81	1.25	-0.14	2.14	0.75	2.15	1.97	0.47	3.83



Alt Model-Shift Uniqueness Test

007816992-02, P = 21.707535 Days, E = 111.767369 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.85	5.72	4.56	4.79	4.90	2.33	1.72	-0.71	-0.94	1.16	0.93	2.70	1.67	0.46	0.82



Stellar Parameters For KIC 007816992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6956^{+194}_{-333}	$4.278^{+0.075}_{-0.225}$	$0.070^{+0.200}_{-0.350}$	$1.439^{+0.537}_{-0.215}$	$1.431^{+0.222}_{-0.202}$	$0.676^{+0.226}_{-0.396}$
	+3%/-5%	+2%/-5%	+286%/-500%	+37%/-15%	+16%/-14%	+33%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007816992-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-77 ± 12	$1.64^{+1.31}_{-1.04}$	1266^{+103}_{-78}	6582^{+5831}_{-1575}	462^{+2928}_{-317}
Alt.	-88 ± 15	$1.39^{+1.14}_{-0.89}$	1263^{+97}_{-73}	7362^{+8311}_{-1976}	747^{+5019}_{-527}

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

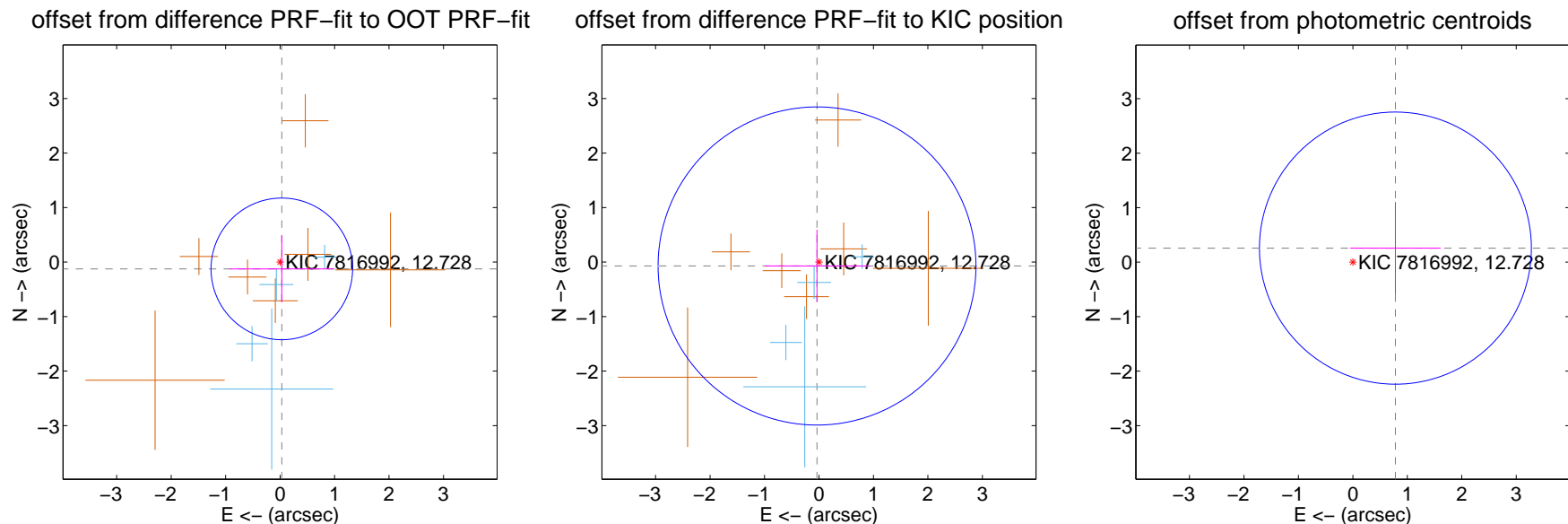
DV Centroid Data

Supplemental centroid analysis for 007816992-02. Kepler magnitude: 12.73. Transit SNR 6.81

There are 4 quarters with good PRF difference image offsets

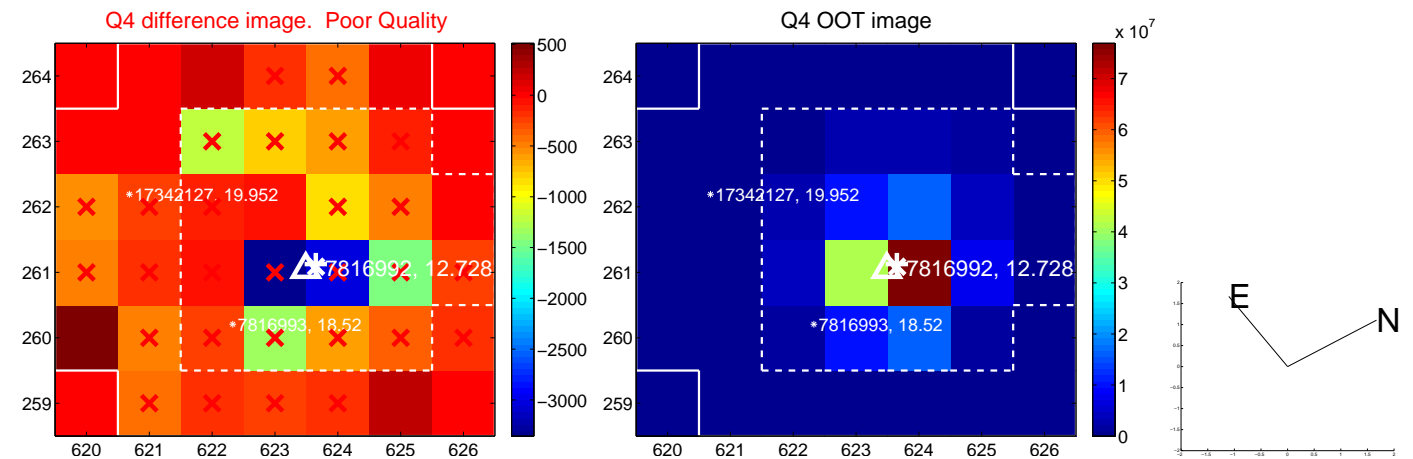
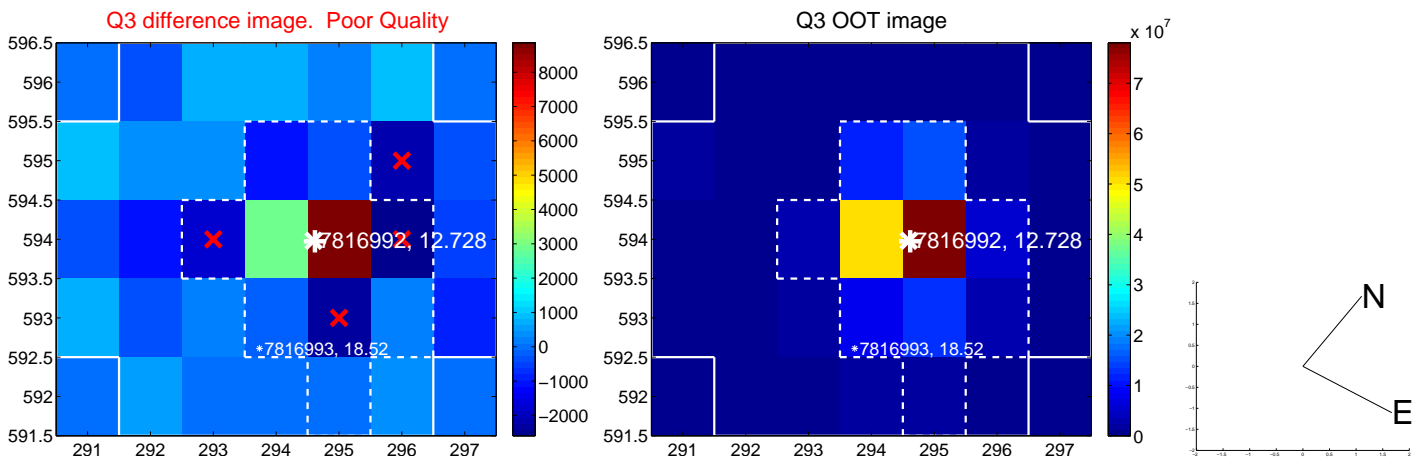
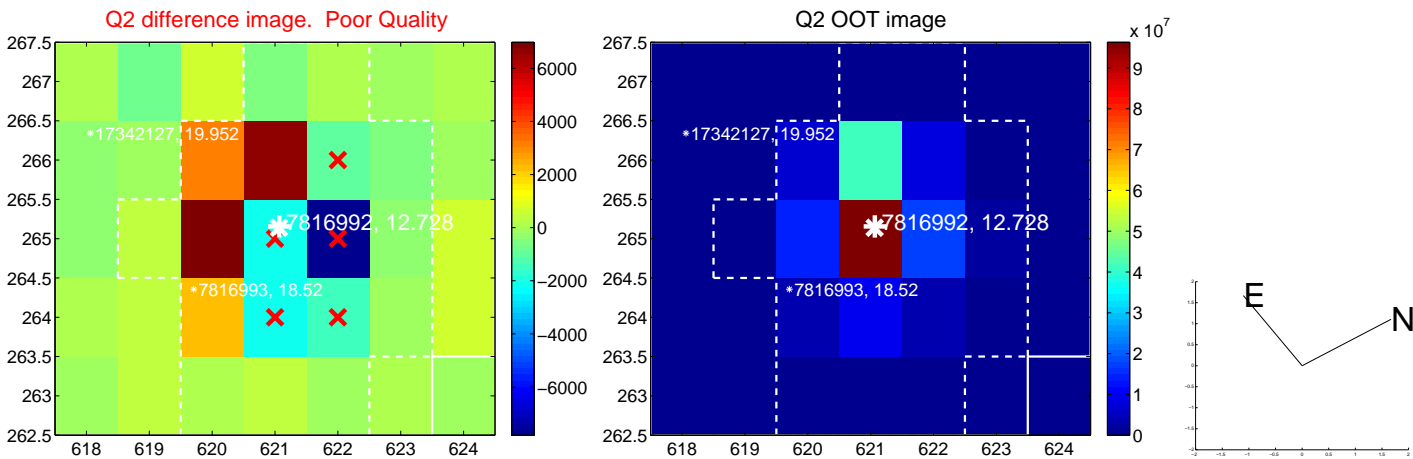
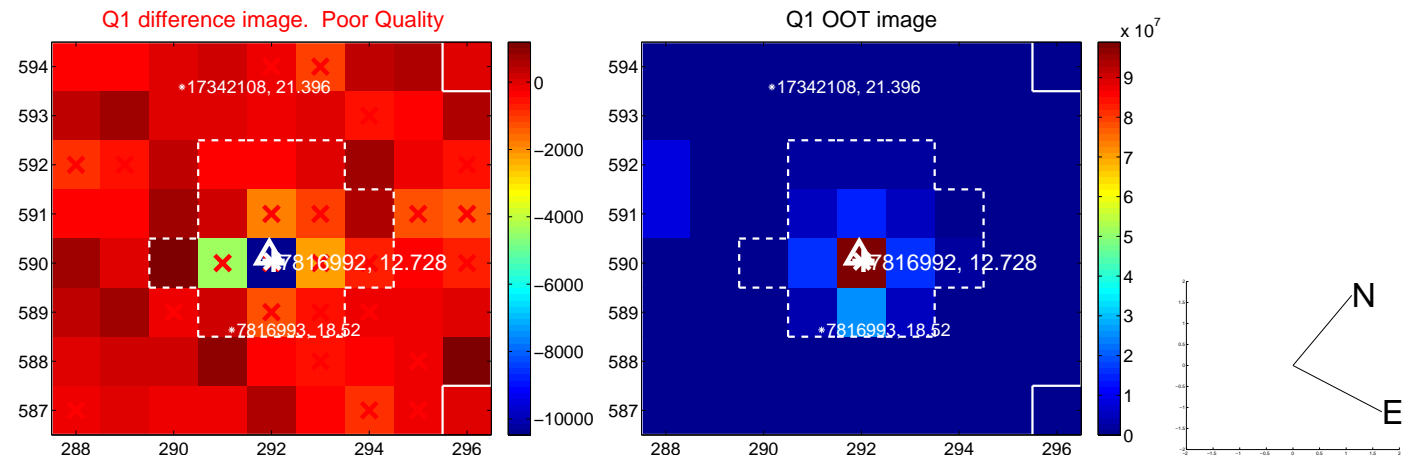
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.128 ± 0.433	0.30	-0.031 ± 0.955	-0.125 ± 0.613
PRF-fit source offset from KIC position	0.080 ± 0.973	0.08	0.036 ± 0.961	-0.071 ± 0.664
photometric centroid source offset	0.82 ± 0.83	0.99	-0.78 ± 0.83	0.26 ± 0.85

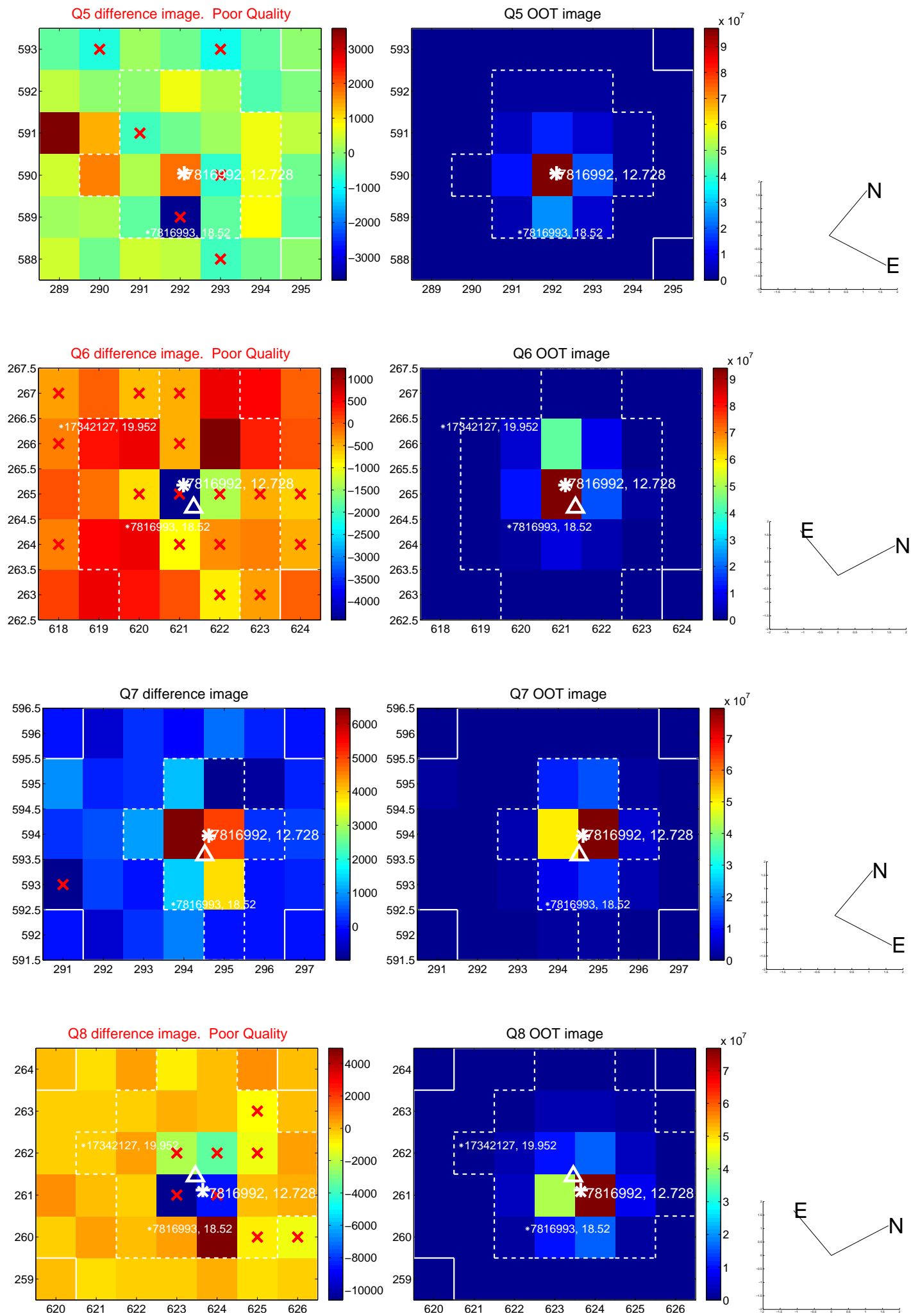


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

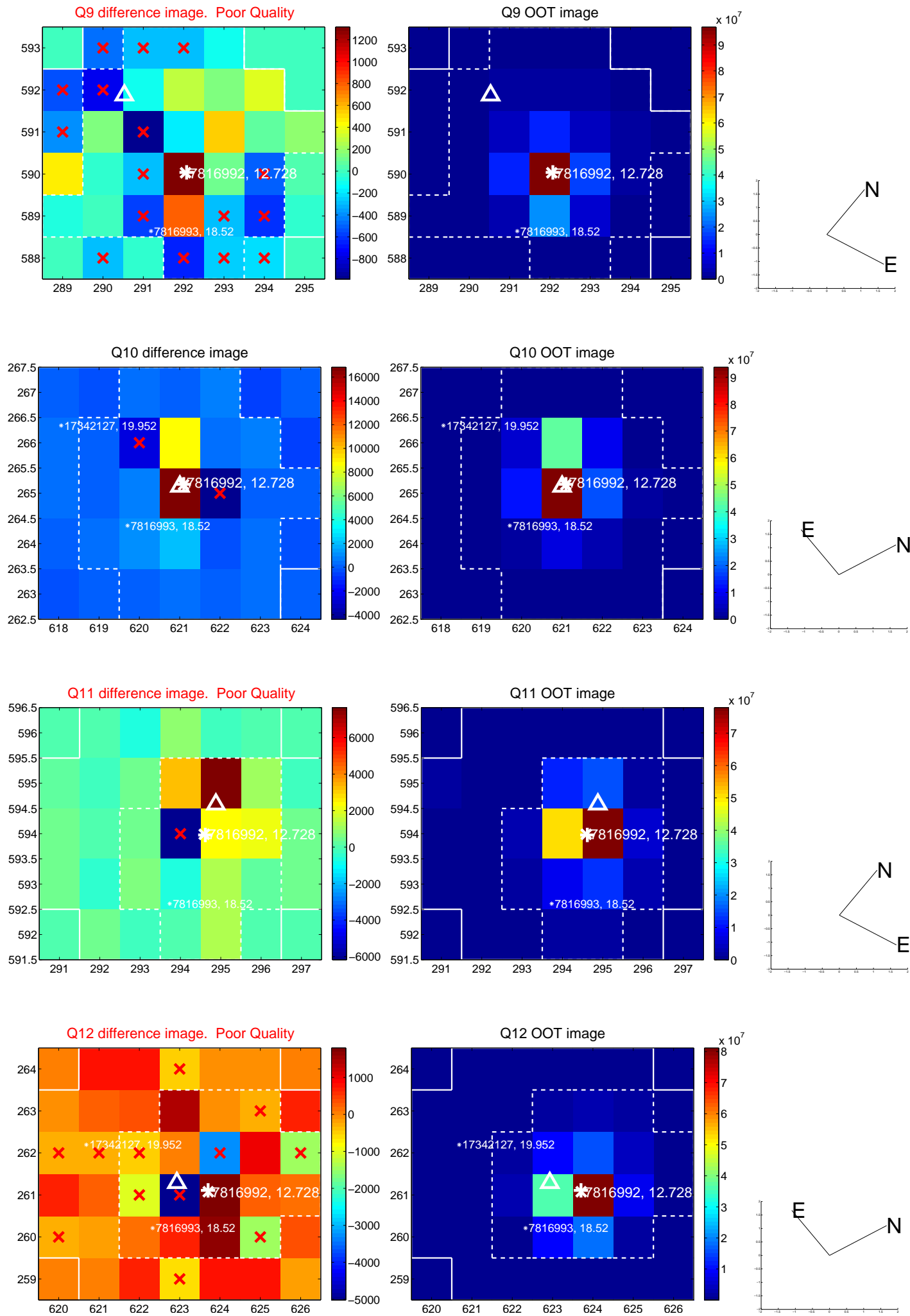
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



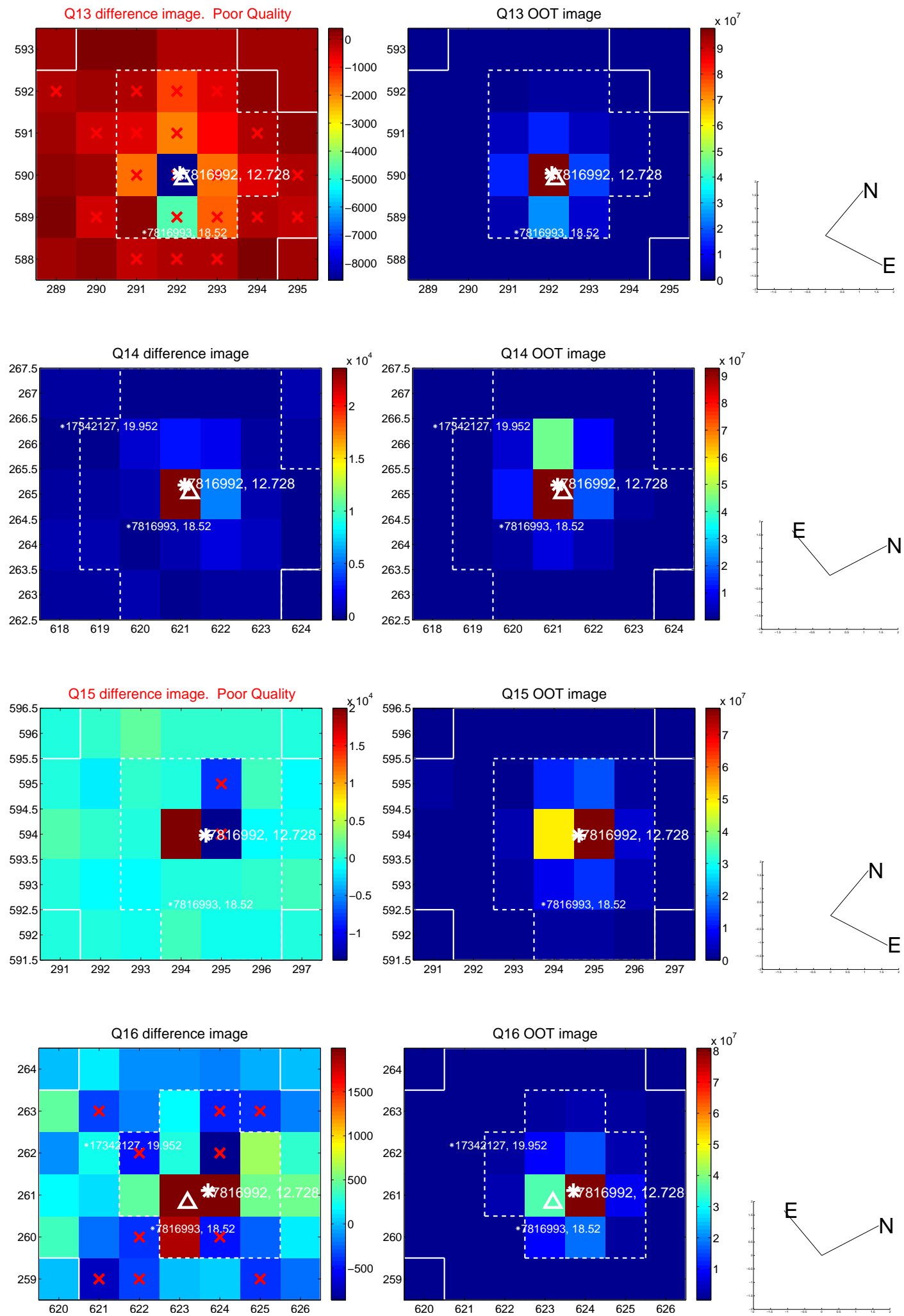
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

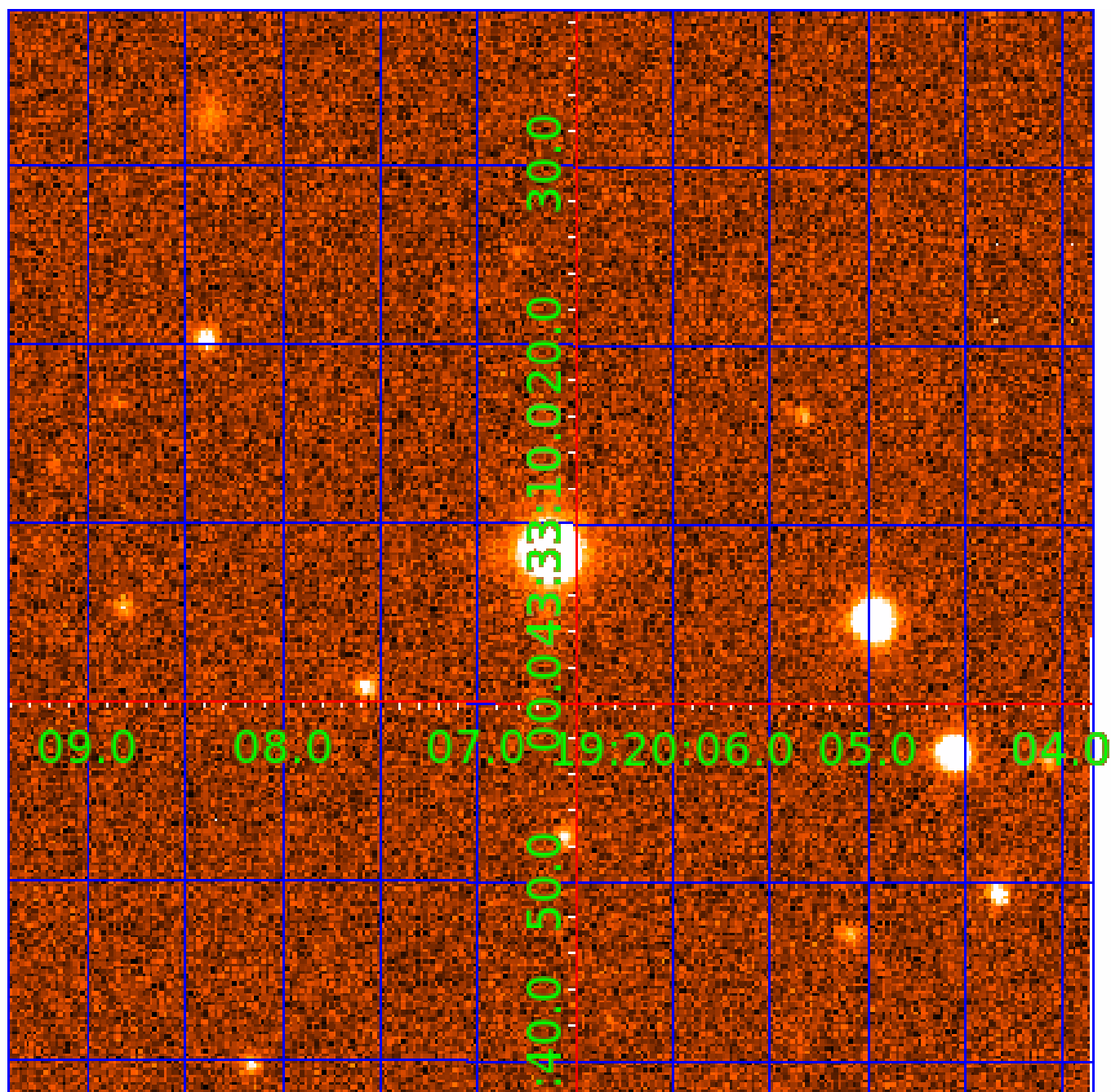


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007816992

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})
007816992-01	OBS	No	0.795855	132.214839	4.5	5.406	8.2	3.0	1.44	6956	0.31	12094.68
007816992-02	OBS	No	21.708210	133.397023	69.8	7.026	11.2	6.8	1.44	6956	1.36	147.30
007816992-03	OBS	No	45.142788	134.057293	234.4	1.682	12.0	10.0	1.44	6956	2.25	55.49
007816992-04	OBS	No	30.851957	153.560834	235.5	2.146	10.3	10.3	1.44	6956	2.49	92.19
007816992-05	OBS	No	19.773249	144.267271	110.5	4.767	9.8	9.0	1.44	6956	1.74	166.83
007816992-06	OBS	No	37.027490	142.337681	222.5	3.133	10.2	11.7	1.44	6956	2.38	72.28
007816992-07	OBS	No	13.003061	143.580835	147.2	2.503	11.0	11.9	1.44	6956	1.99	291.73
007816992-08	OBS	No	37.761874	135.582068	221.4	2.152	10.2	9.5	1.44	6956	2.42	70.41
007816992-09	OBS	No	378.044986	294.097804	230.1	7.332	10.2	8.4	1.44	6956	2.54	3.26
007816992-10	OBS	No	83.224846	211.371629	352.3	2.000	10.5	-1.0	1.44	6956	2.73	24.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007816992-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_FEW_MEAS
007816992-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
007816992-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007816992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
007816992-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

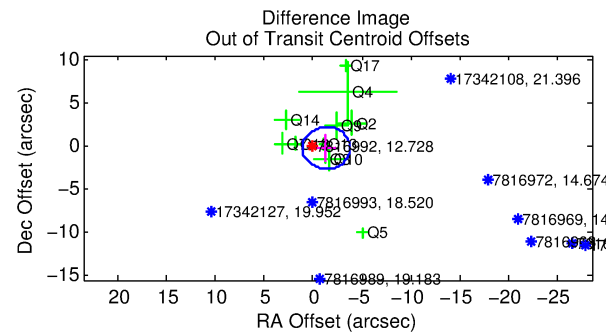
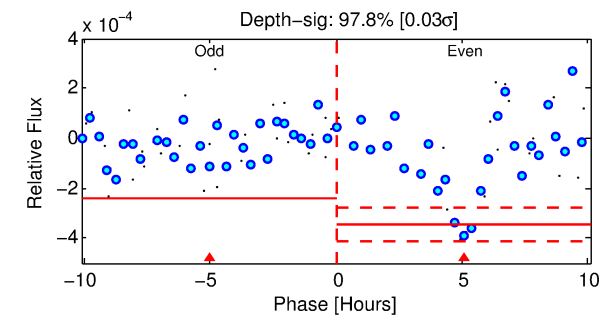
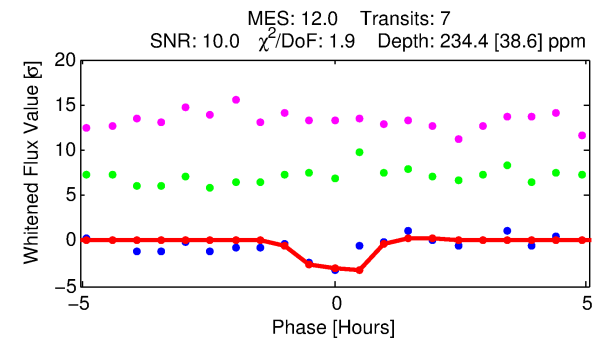
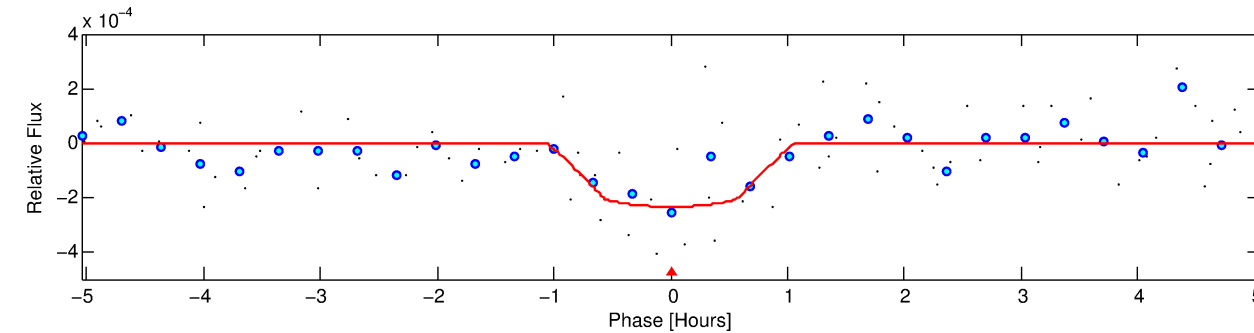
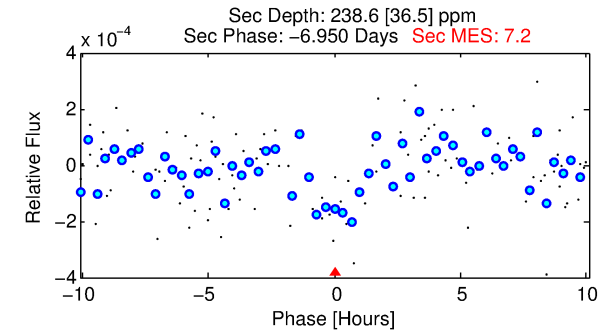
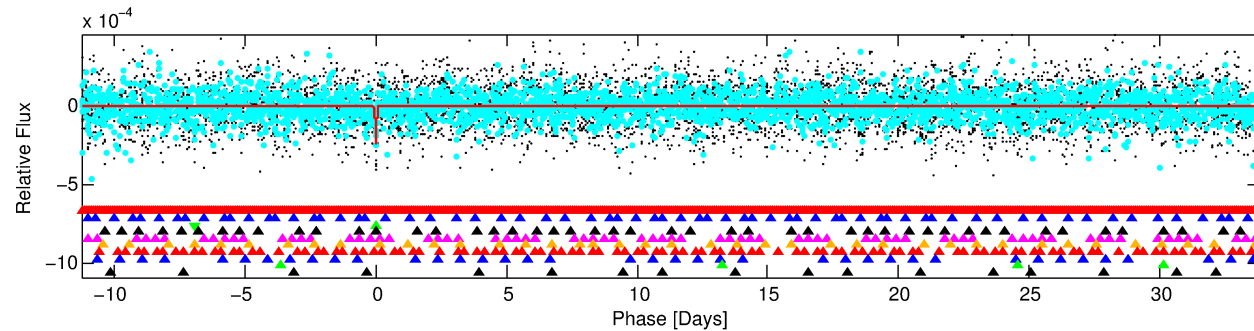
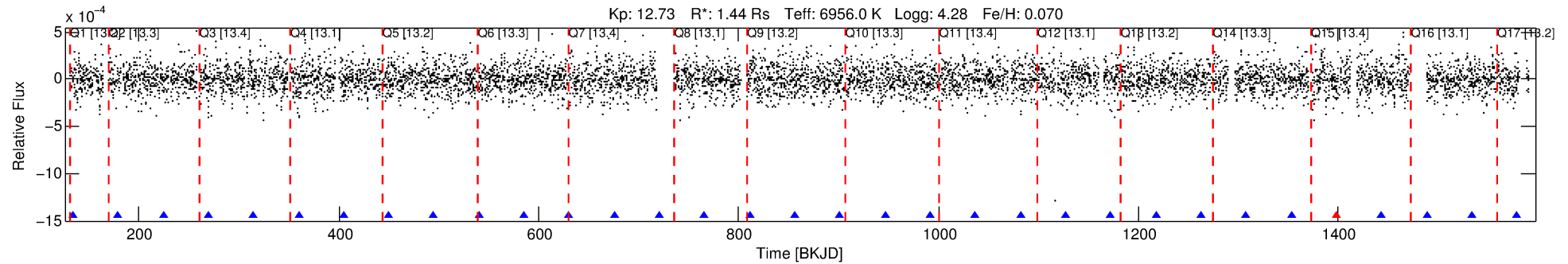
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007816992-03

No Significant Match Found

DV One-Page Summary

KIC: 7816992 Candidate: 3 of 10 Period: 45.143 d



DV Fit Results:

Period = 45.14279 [0.00040] d
Epoch = 134.0573 [0.0084] BKJD
Rp/R* = 0.0143 [0.0209]
a/R* = 197.92 [1621.82]
b = 0.31 [24.02]
Seff = 55.50 [25.90]
Teq = 696 [81] K
Rp = 2.25 [3.39] Re
a = 0.2798 [0.0847] AU
Ag = 2030.24 [5999.80] [0.34σ]
Teffp = 7223 [5292] K [1.23σ]

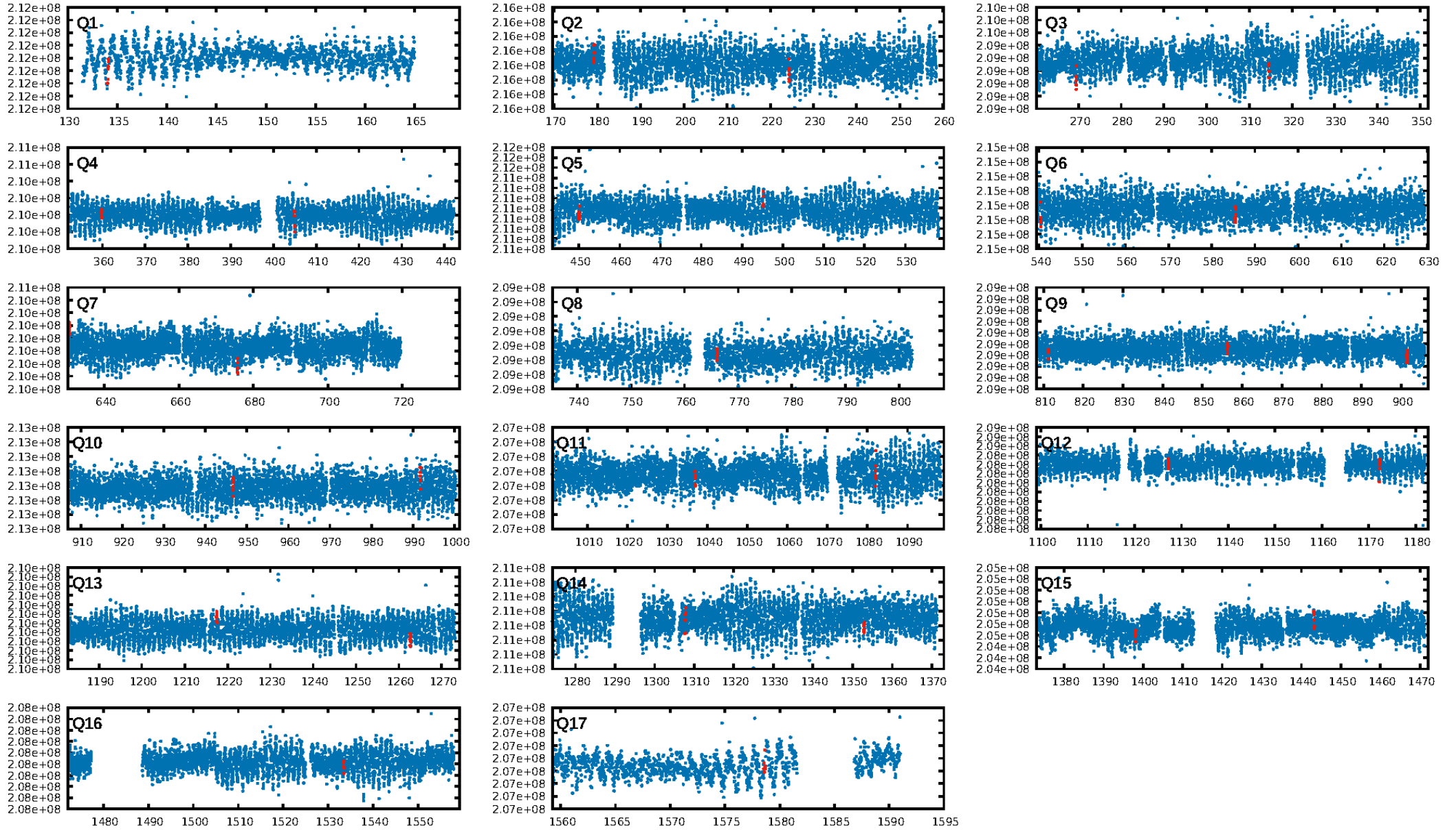
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [64.85σ]
LongPeriod-sig: 100.0% [349.73σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 85.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.83 [5/6]
GhostDiagnostic-chr: -2.724
Centroid-sig: 27.1%
Centroid-so: 0.807 arcsec [1.26σ]
OotOffset-rm: 1.361 arcsec [1.68σ]
KicOffset-rm: 1.271 arcsec [1.49σ]
OotOffset-st: 3/2/2/4 [11]
KicOffset-st: 3/2/2/4 [11]
DiffImageQuality-fgm: 0.18 [2/11]
DiffImageOverlap-fno: 0.19 [3/16]

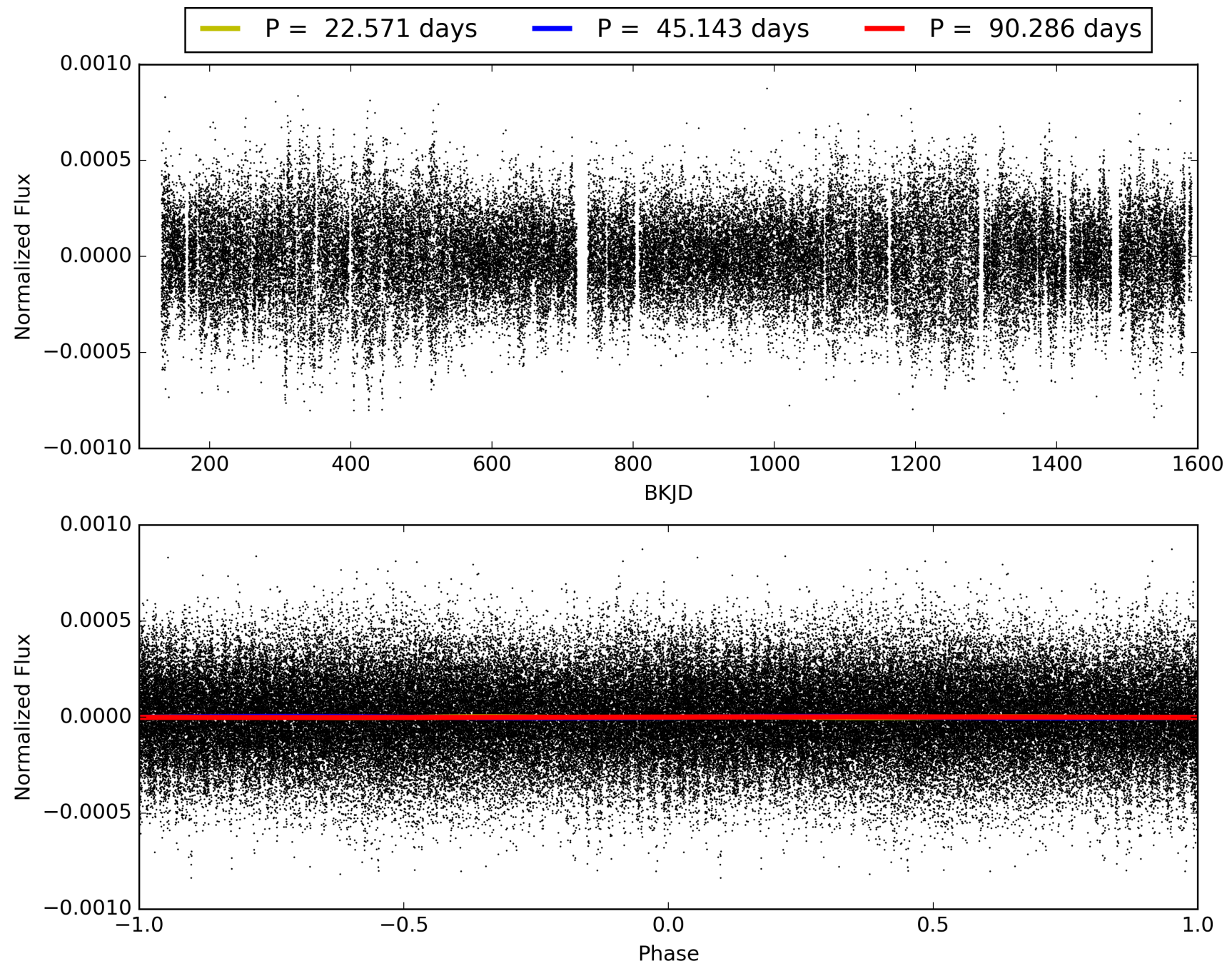
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:28:35 Z

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

TCE 007816992-03, PDC Light Curves

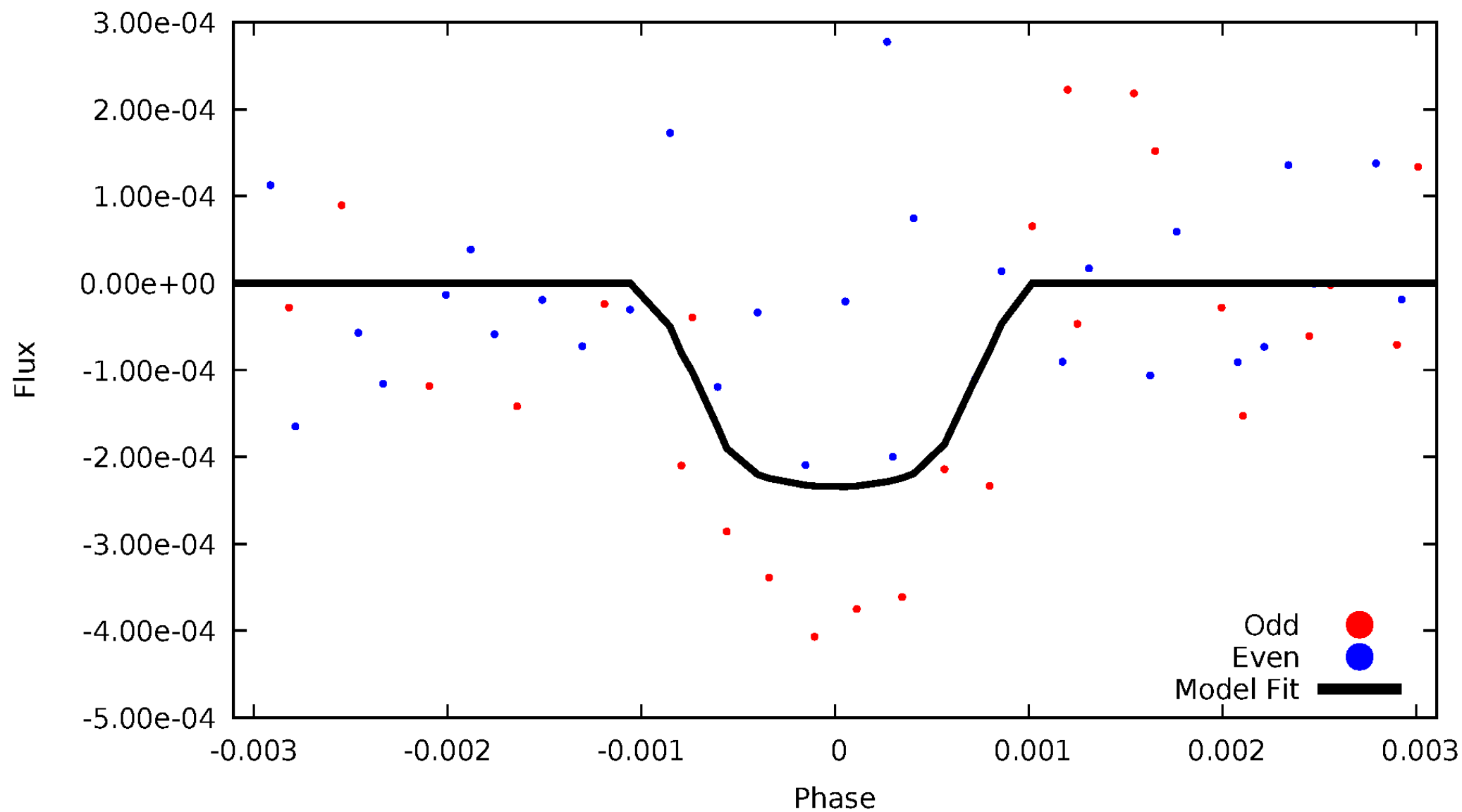


TCE 007816992-03



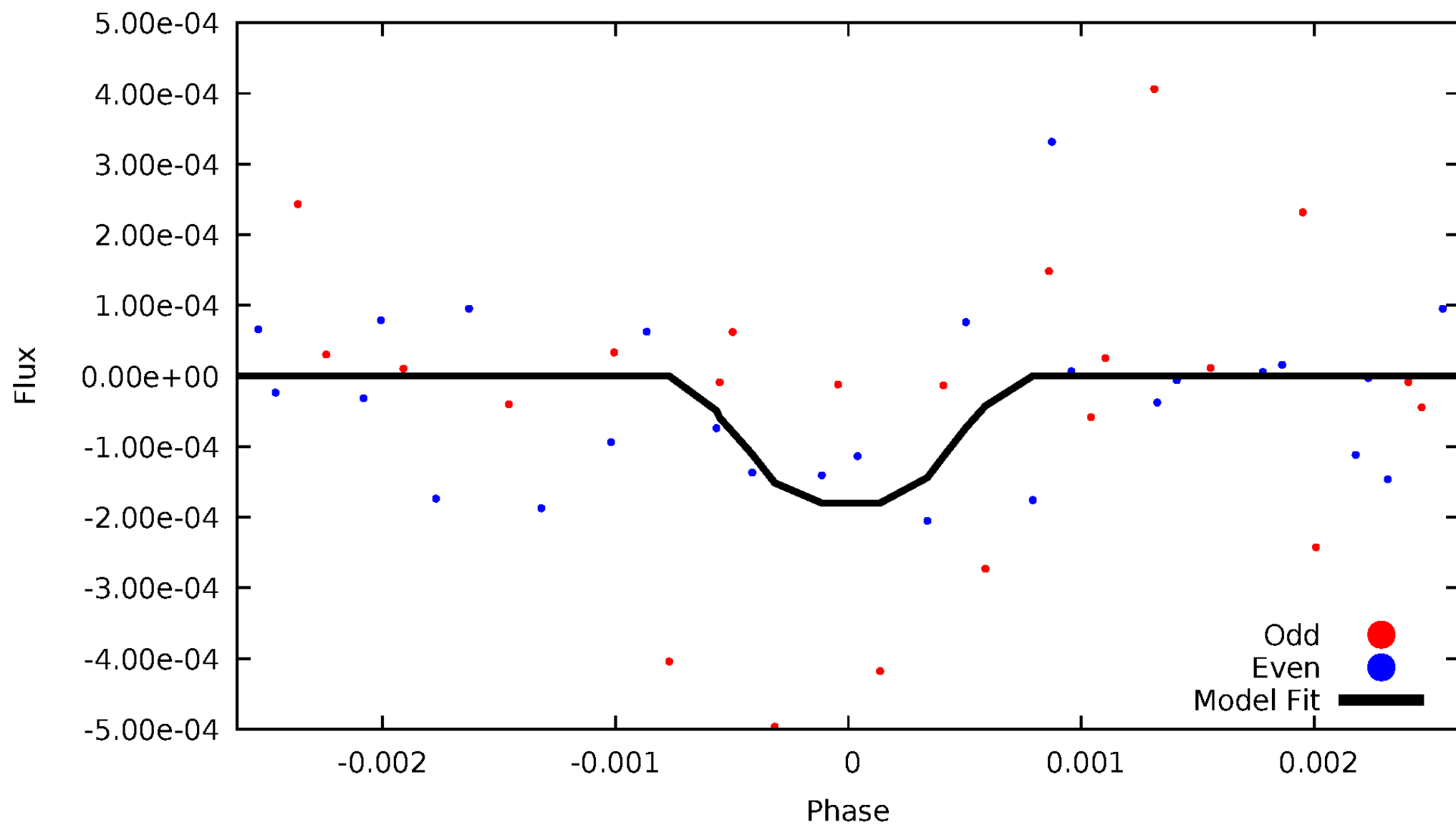
DV Odd/Even

TCE 007816992-03



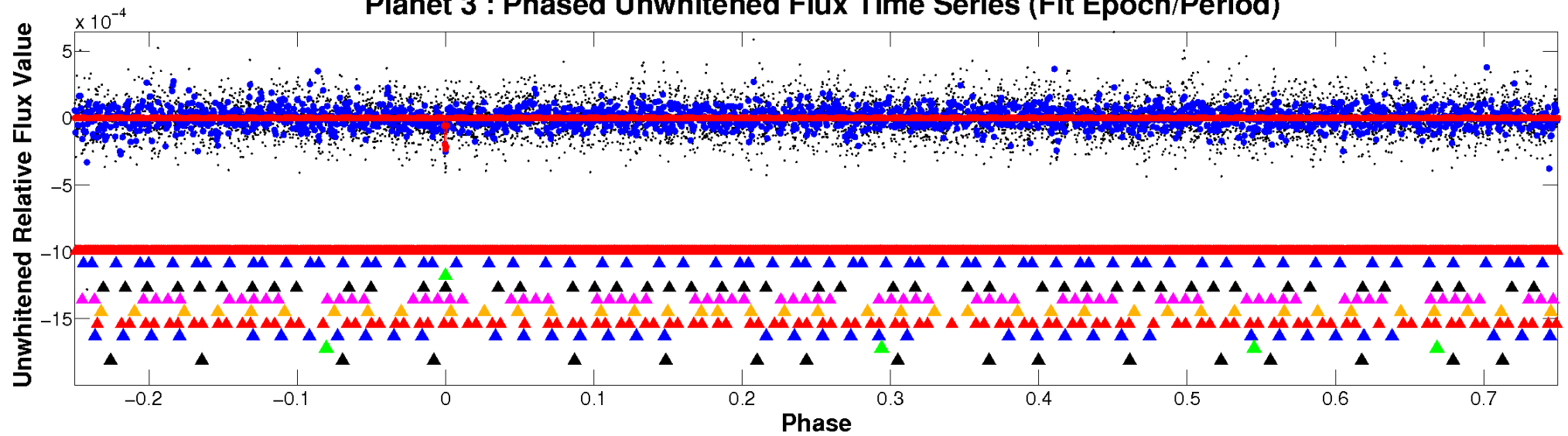
ALT Odd/Even

TCE 007816992-03

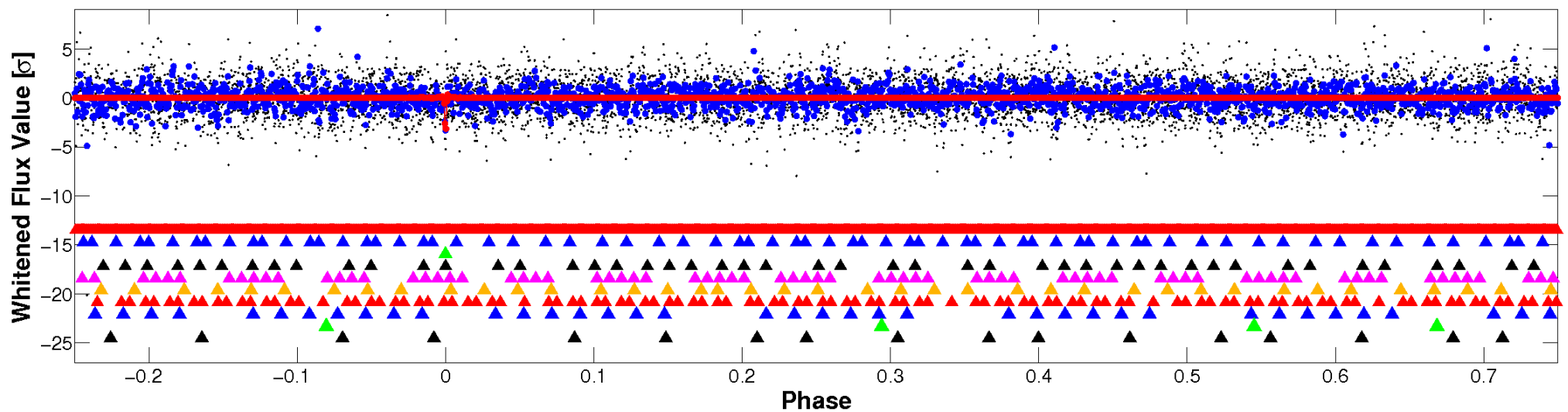


Non-Whitened Vs. Whitened Light Curve

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

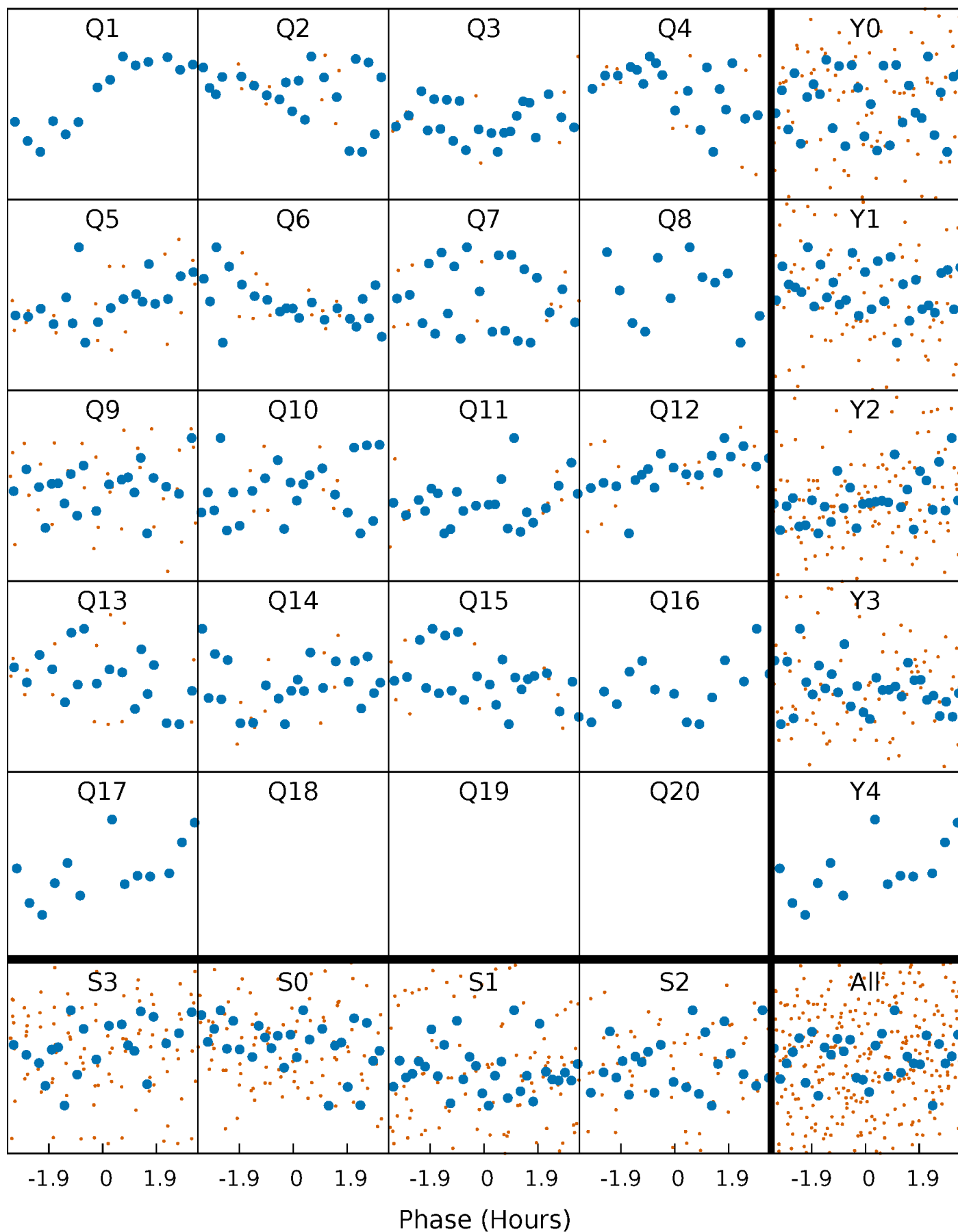


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



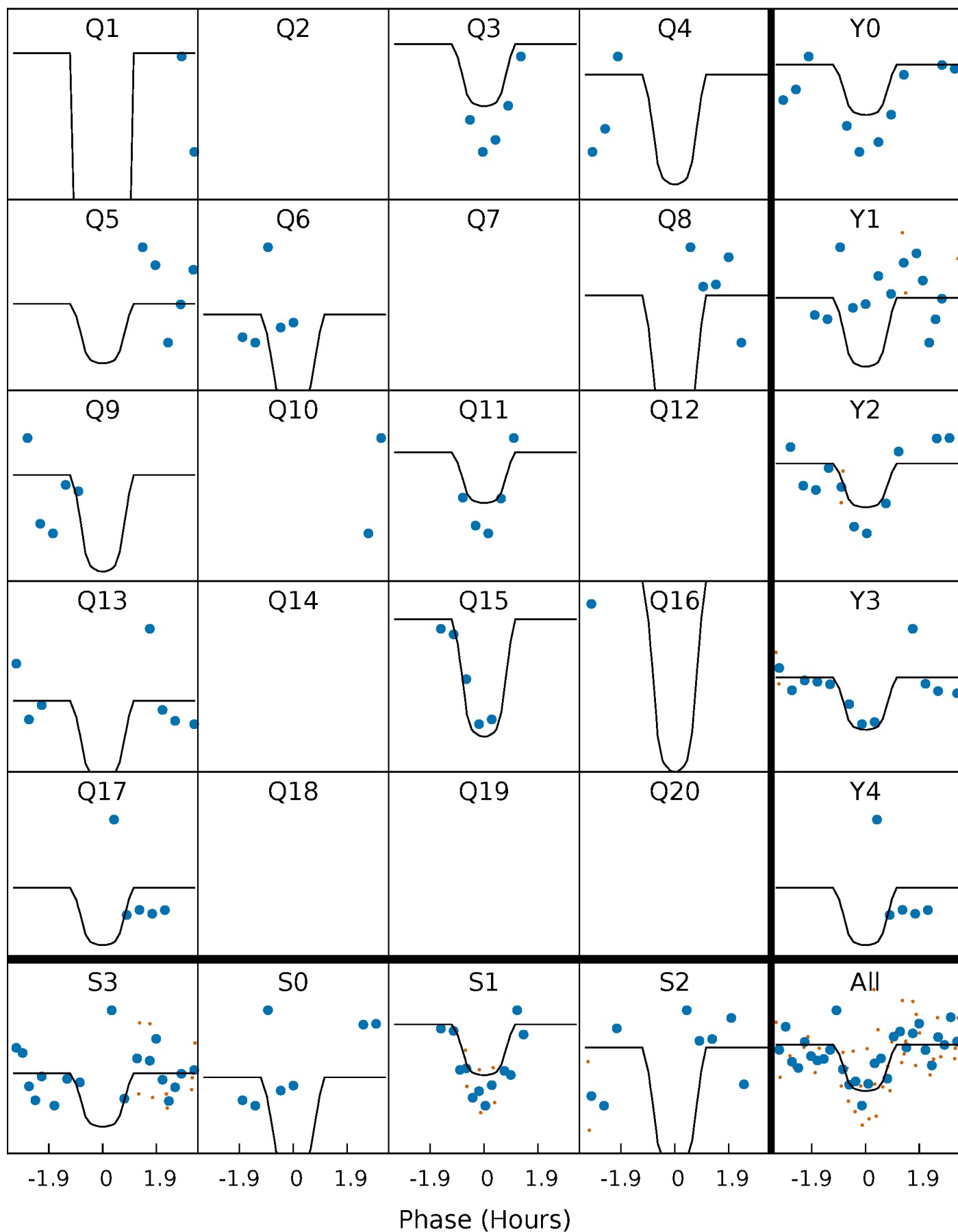
PDC Quarter-Phased Transit Curves

TCE 007816992-03 P= 45.142788 Days $T_0=134.057293$ (BKJD)



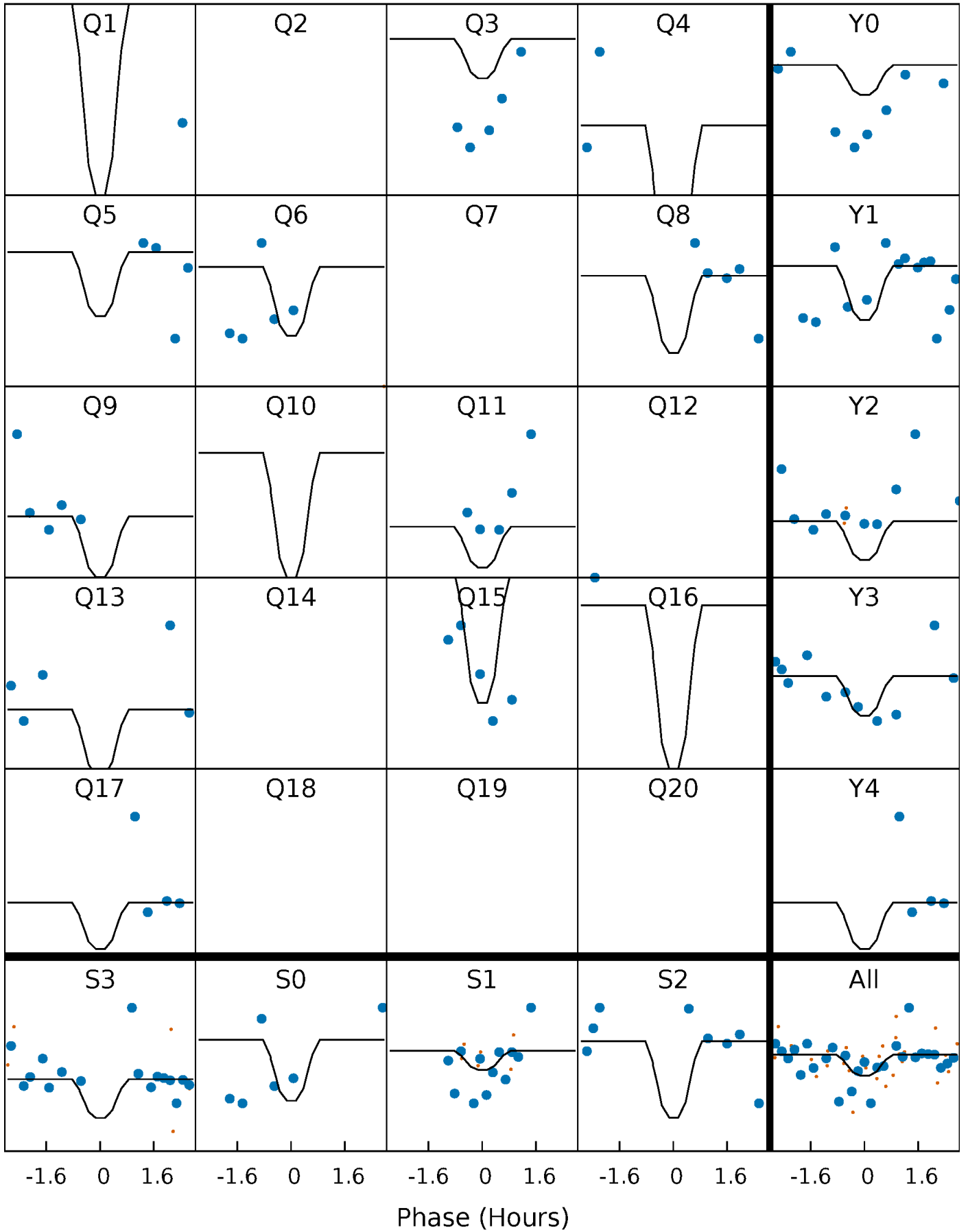
DV Quarter-Phased Transit Curves

TCE 007816992-03 P= 45.142788 Days $T_0=134.057293$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

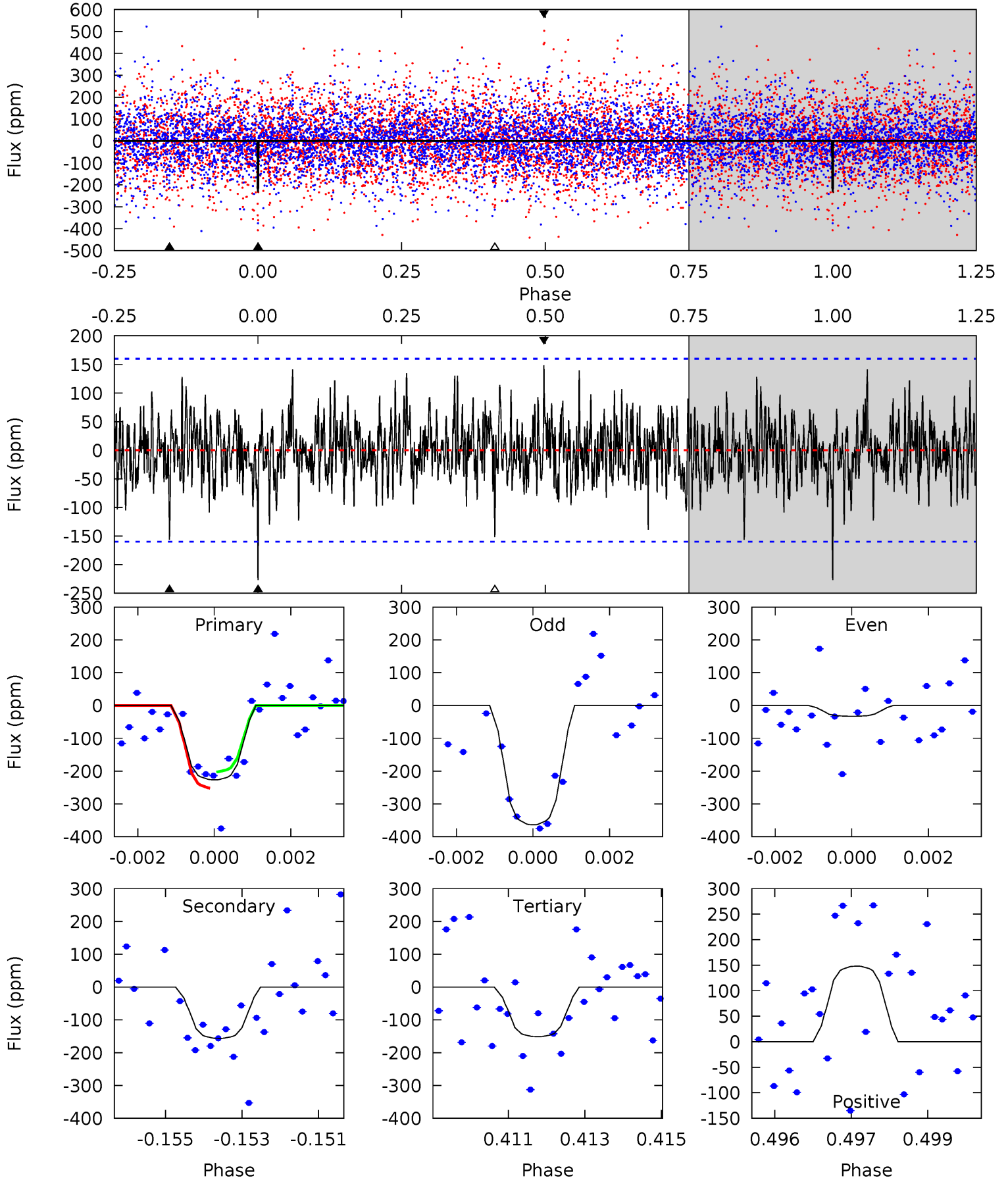
TCE 007816992-03 P= 45.141520 Days $T_0=134.070575$ (BKJD)



DV Model-Shift Uniqueness Test

007816992-03, P = 45.142788 Days, E = 88.914505 Days

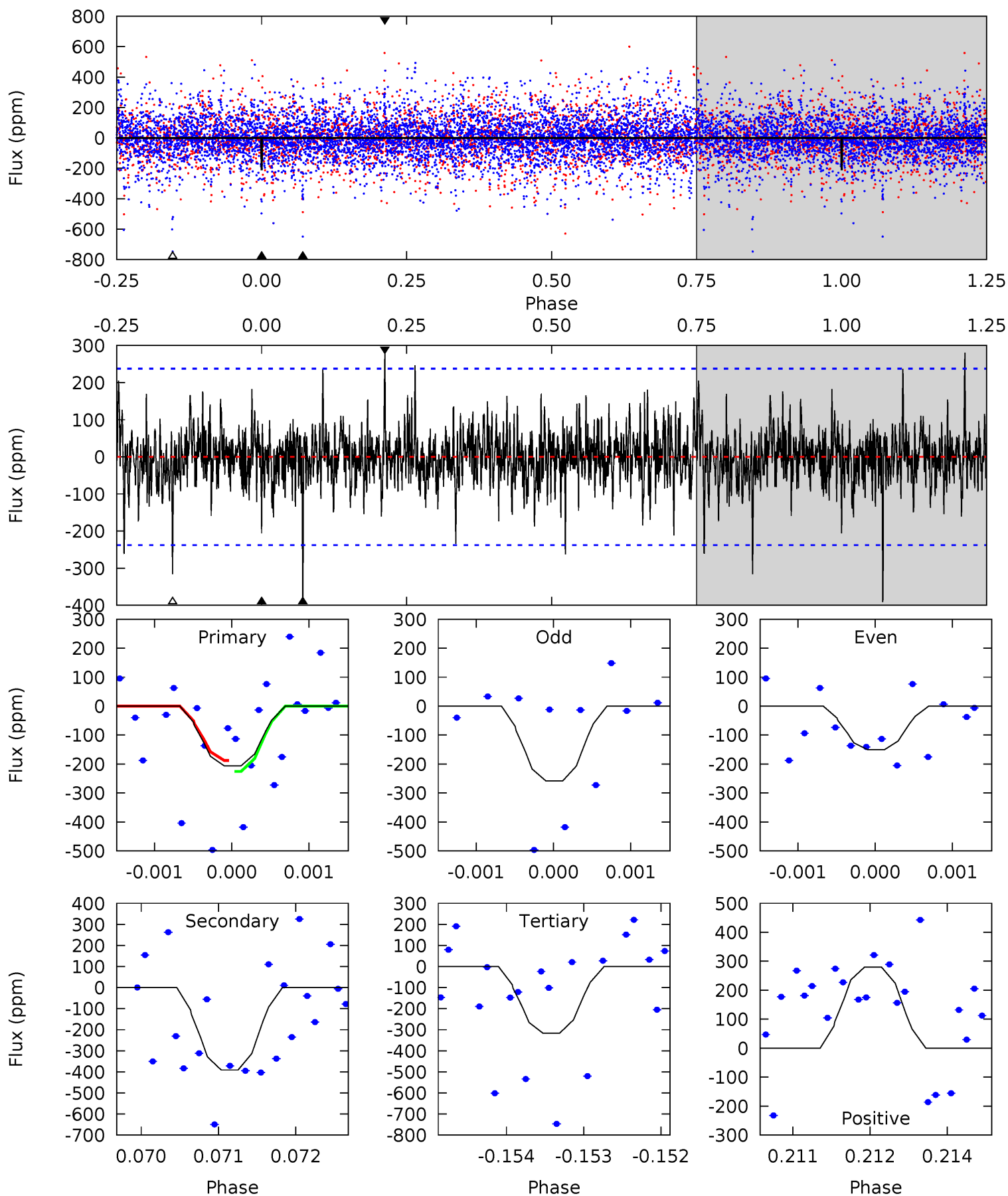
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.58	5.23	5.05	4.95	5.34	3.11	1.43	2.52	2.62	0.17	0.28	5.71	1.11	0.40	0.83



Alt Model-Shift Uniqueness Test

007816992-03, P = 45.141520 Days, E = 88.929055 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.70	8.93	7.22	6.39	5.43	3.25	1.41	-2.51	-1.69	1.71	2.54	1.21	1.26	0.42	0.44



Stellar Parameters For KIC 007816992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6956^{+194}_{-333}	$4.278^{+0.075}_{-0.225}$	$0.070^{+0.200}_{-0.350}$	$1.439^{+0.537}_{-0.215}$	$1.431^{+0.222}_{-0.202}$	$0.676^{+0.226}_{-0.396}$
	+3%/-5%	+2%/-5%	+286%/-500%	+37%/-15%	+16%/-14%	+33%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007816992-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-157 ± 30	$3.46^{+3.13}_{-2.16}$	985^{+85}_{-61}	5295^{+3832}_{-1174}	545^{+3299}_{-390}
Alt.	-391 ± 44	$3.37^{+3.14}_{-2.23}$	984^{+86}_{-58}	6743^{+8245}_{-1812}	1483^{+11054}_{-1097}

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 $A_{obs} \gg 1.0$

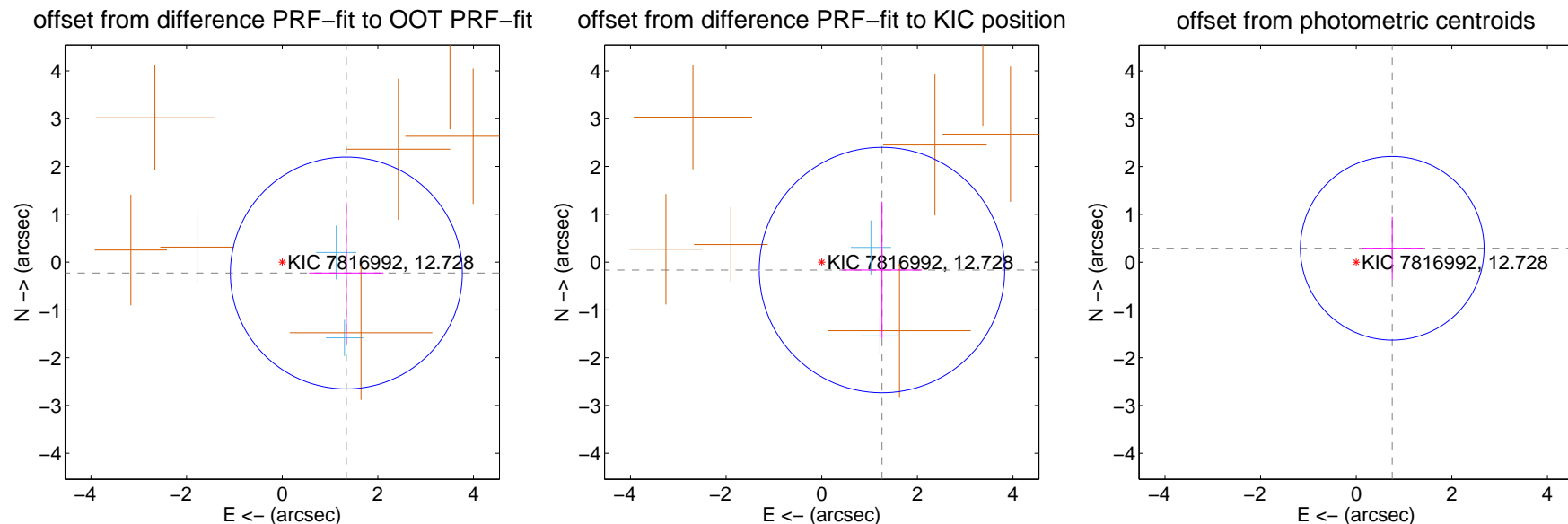
DV Centroid Data

Supplemental centroid analysis for 007816992-03. Kepler magnitude: 12.73. Transit SNR 9.96

There are 2 quarters with good PRF difference image offsets

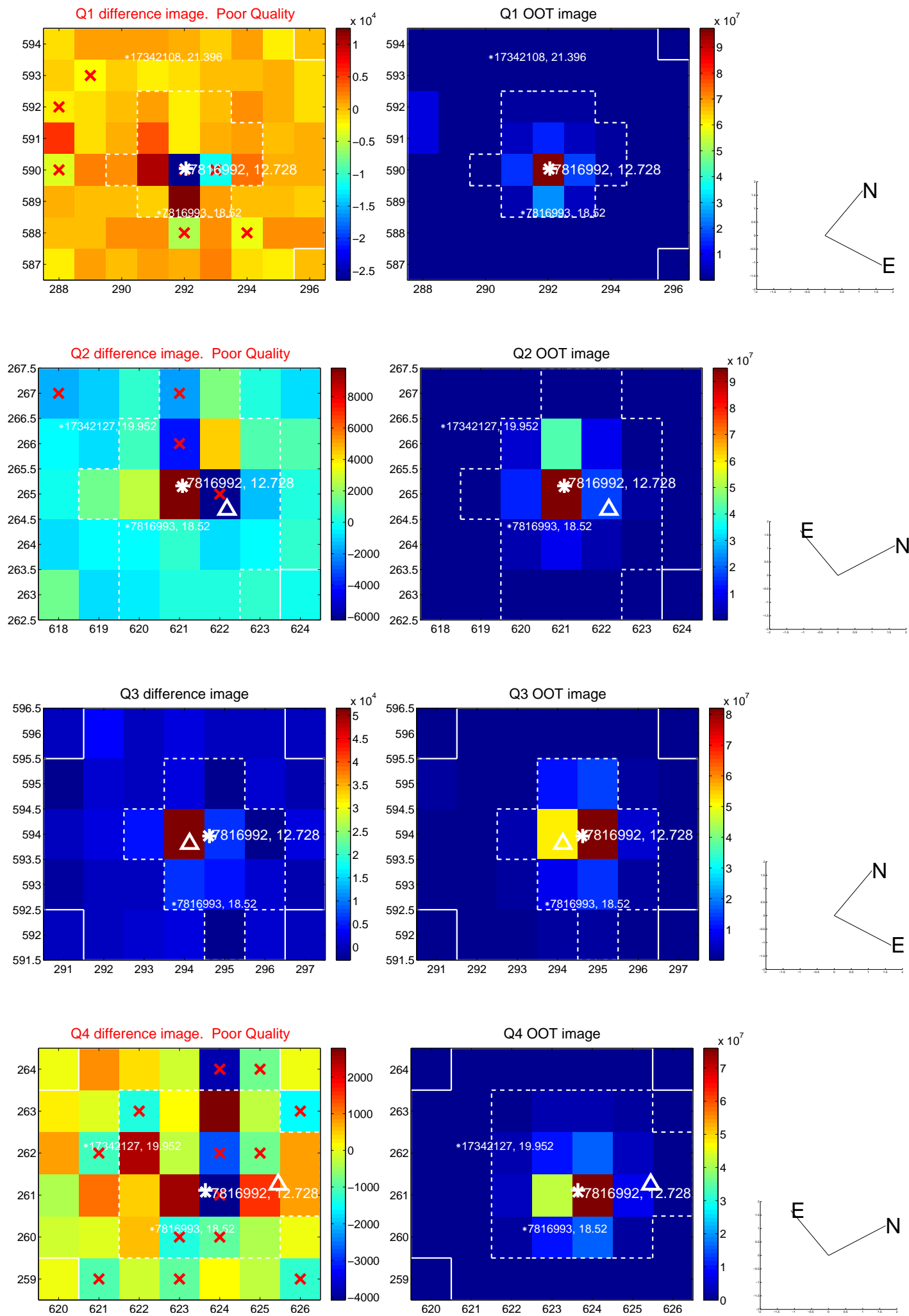
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.361 ± 0.809	1.68	-1.342 ± 0.776	-0.228 ± 1.482
PRF-fit source offset from KIC position	1.271 ± 0.856	1.49	-1.260 ± 0.832	-0.166 ± 1.432
photometric centroid source offset	0.81 ± 0.64	1.26	-0.75 ± 0.64	0.29 ± 0.65

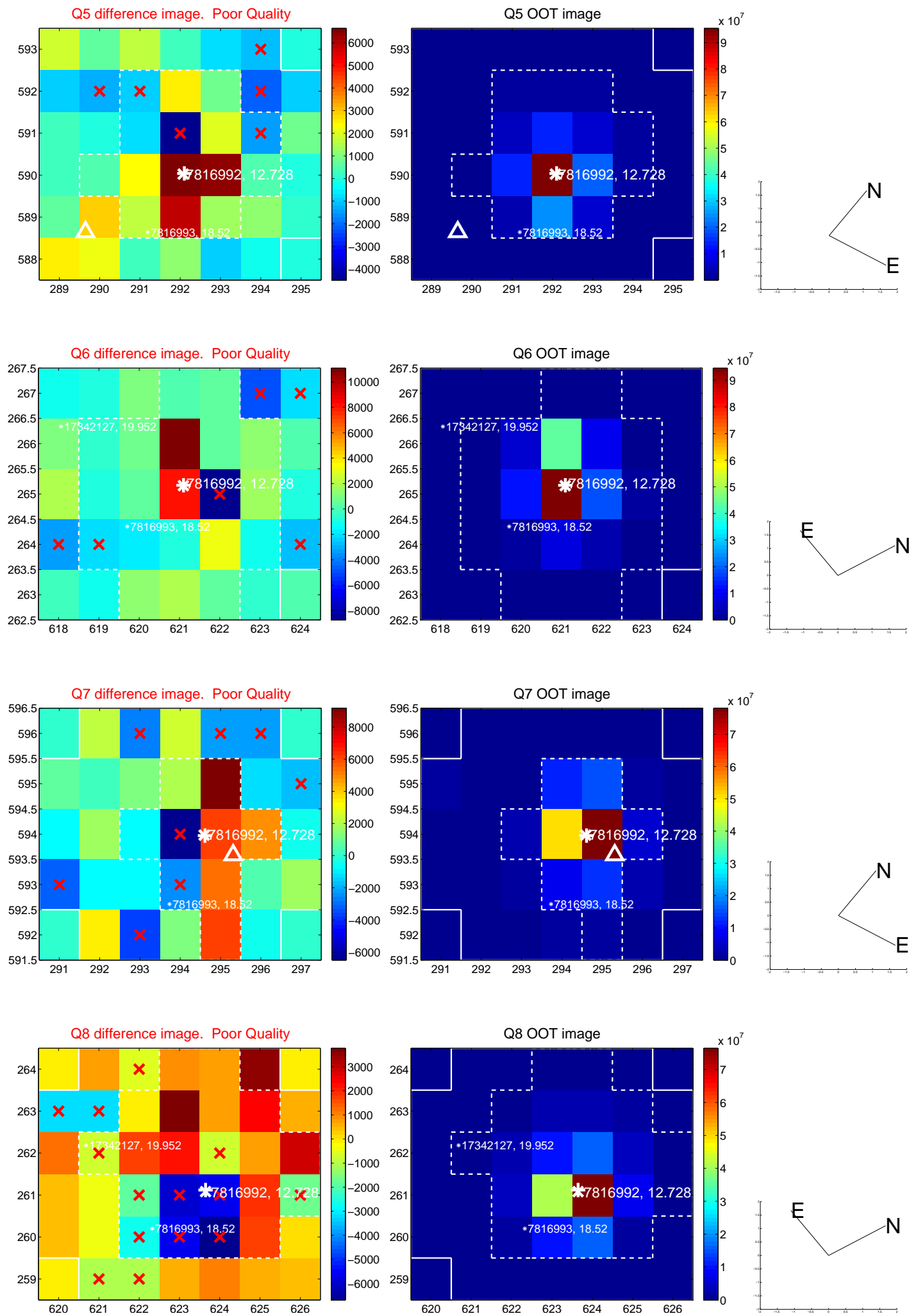


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

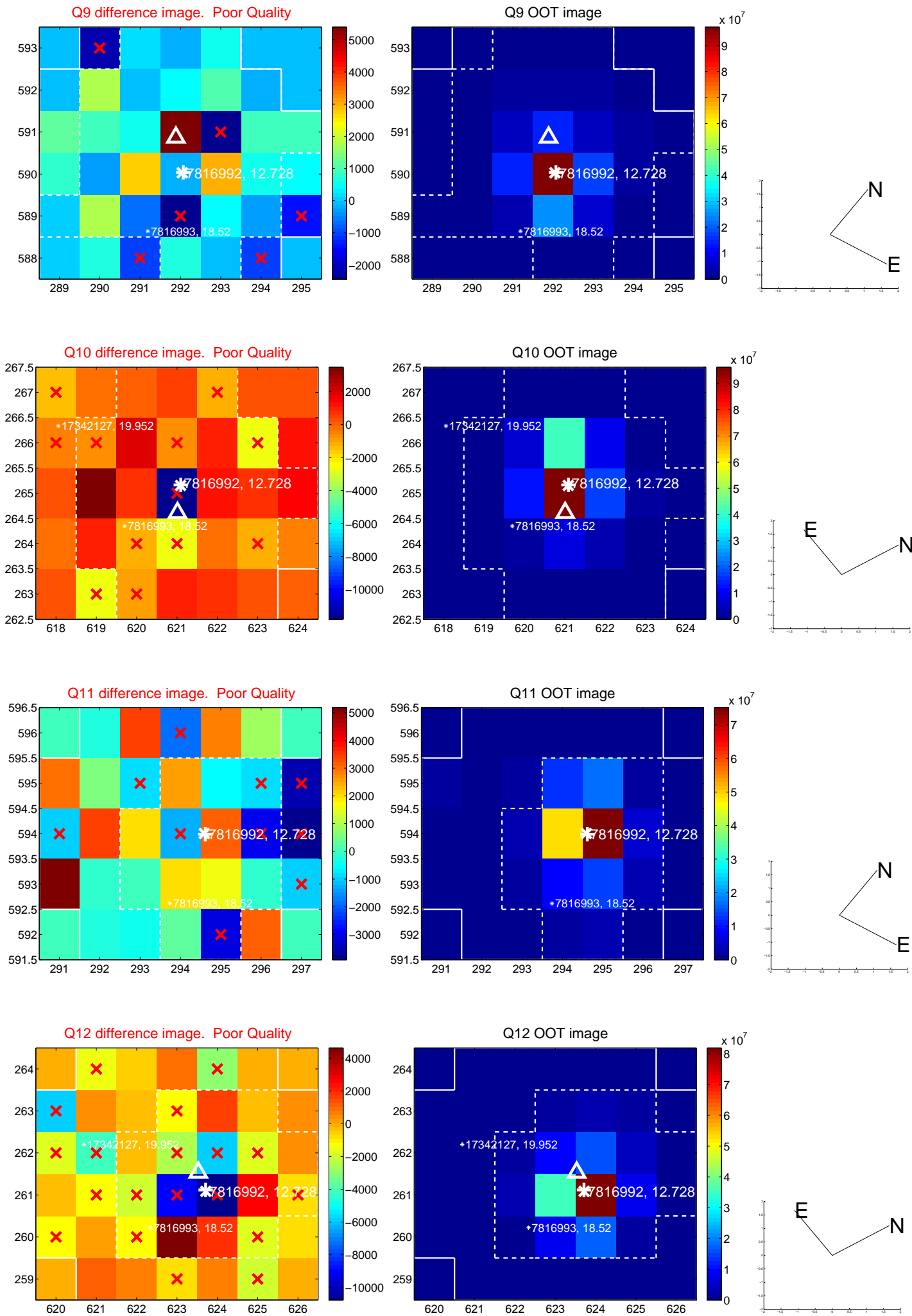
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



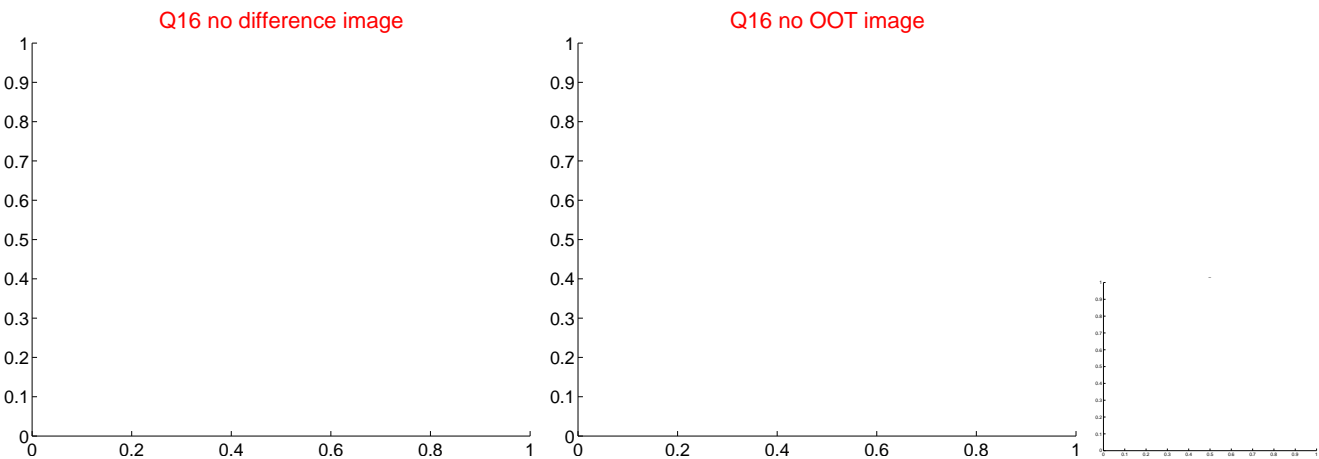
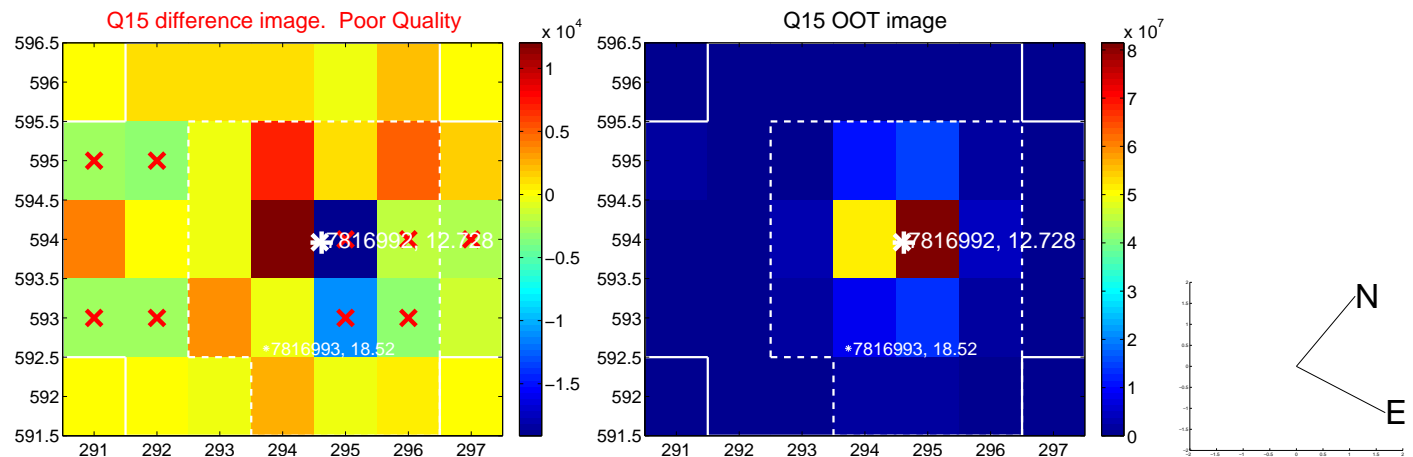
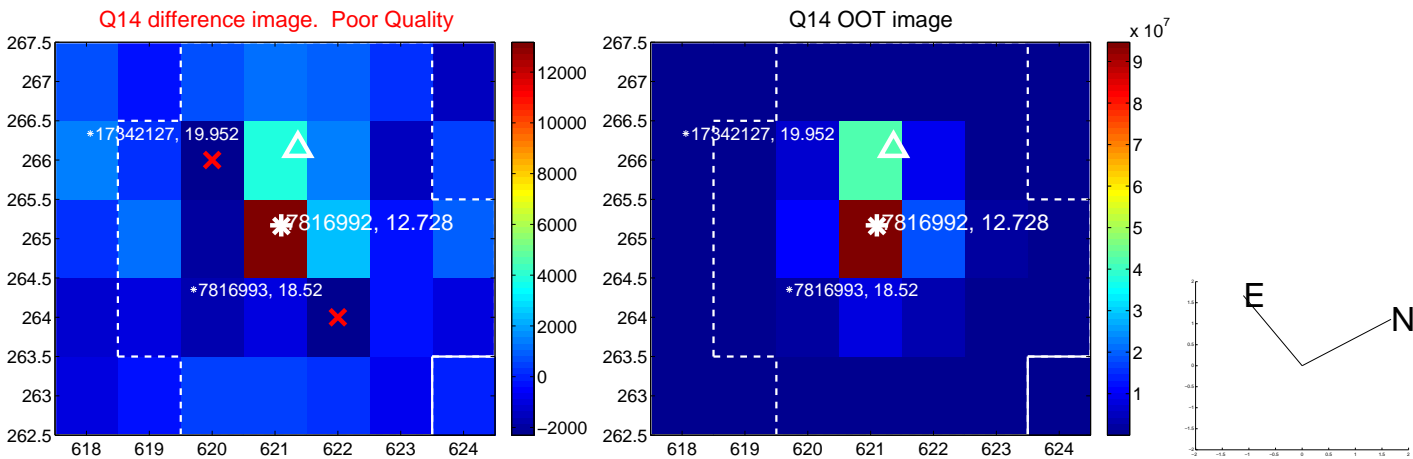
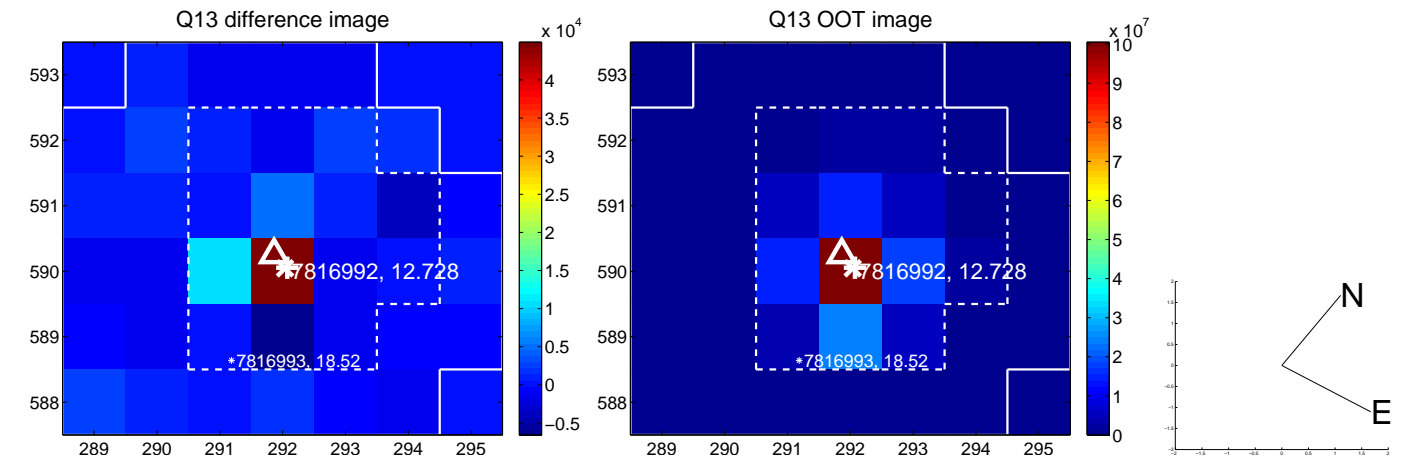
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



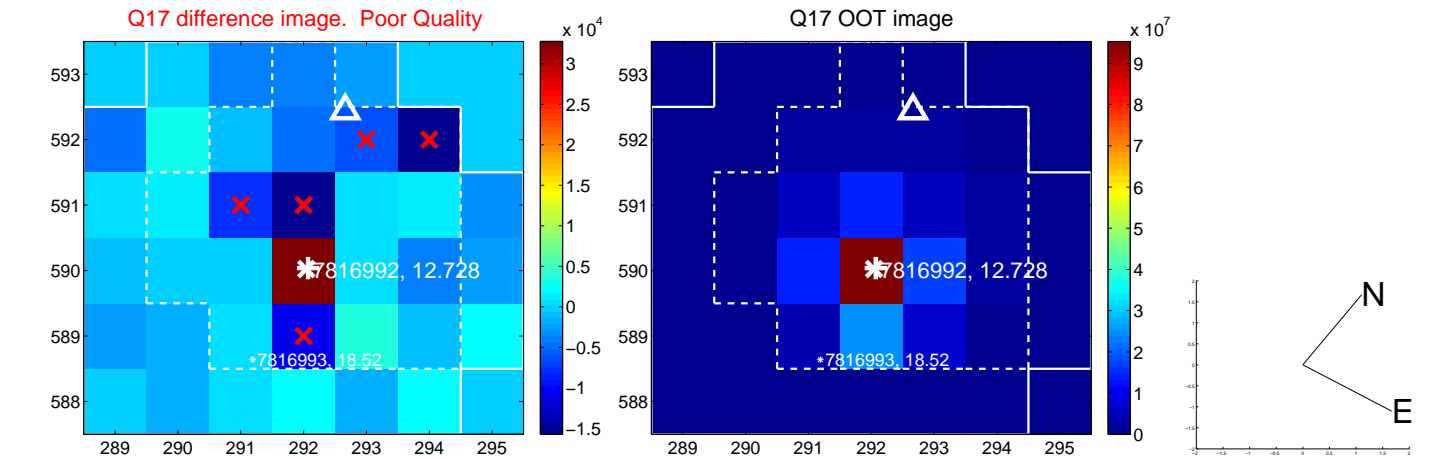
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



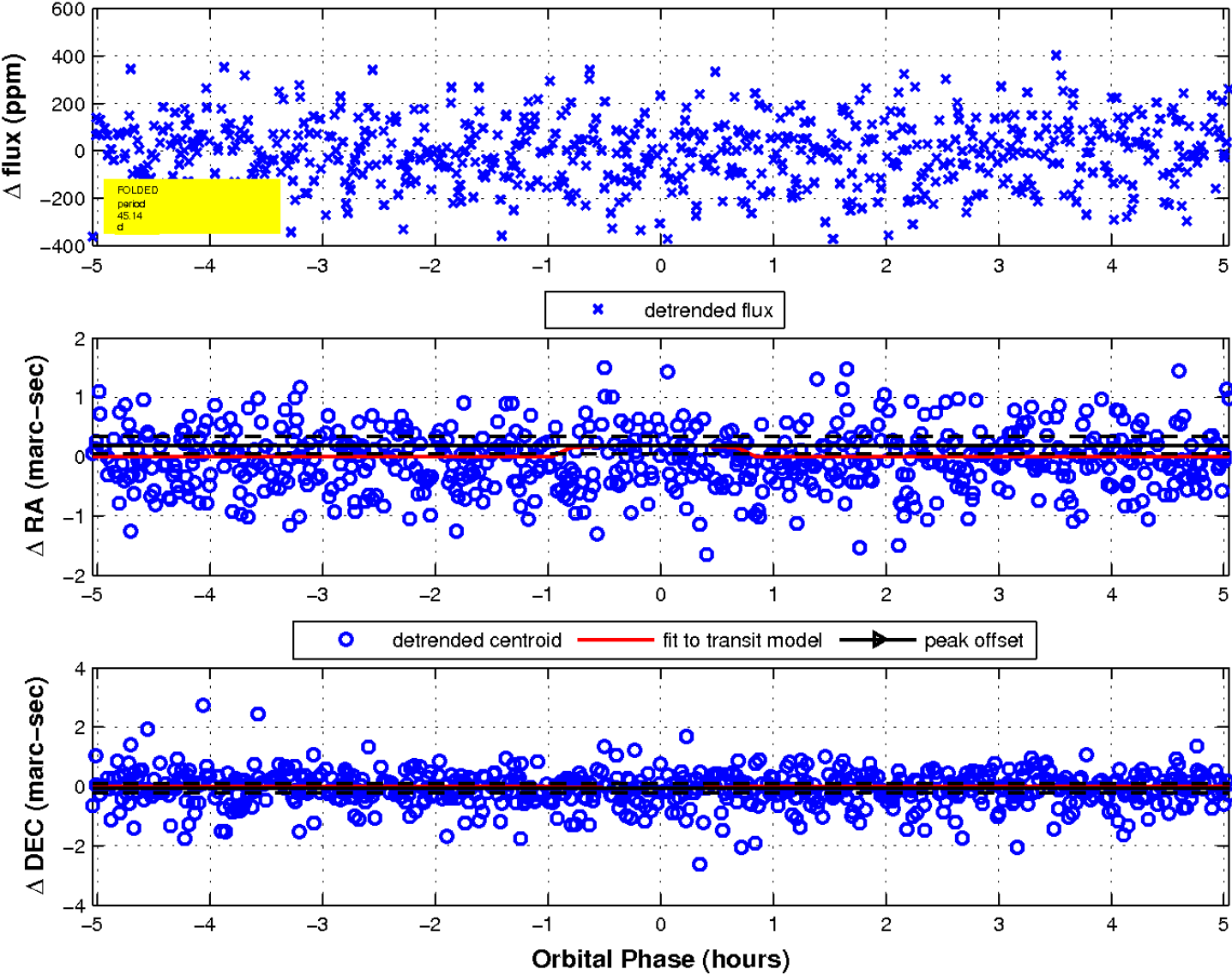
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

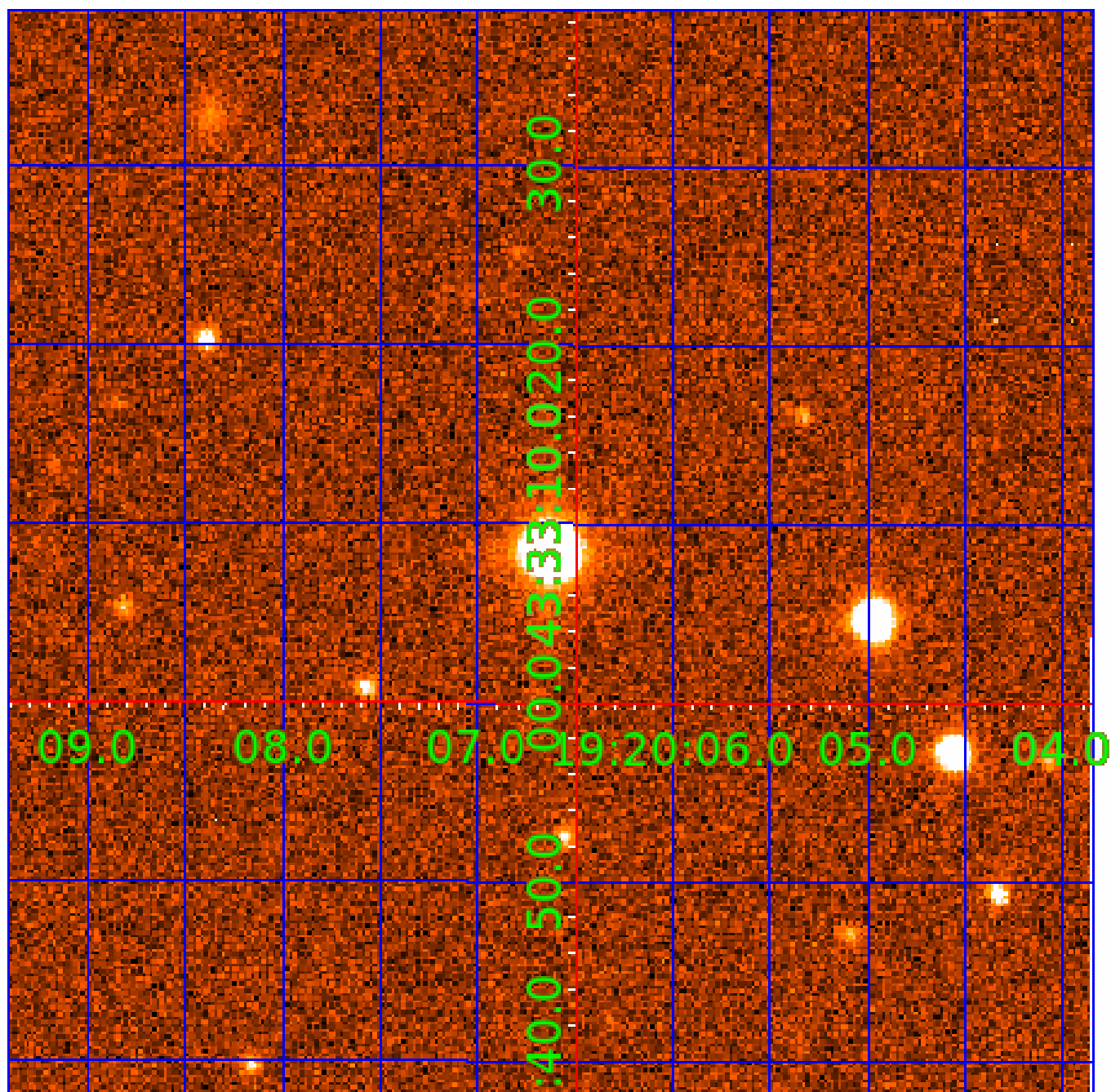


fluxWeightedCentroids, Planet 3 of 10



UKIRT Image

Declination



KIC 007816992

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})
007816992-01	OBS	No	0.795855	132.214839	4.5	5.406	8.2	3.0	1.44	6956	0.31	12094.68
007816992-02	OBS	No	21.708210	133.397023	69.8	7.026	11.2	6.8	1.44	6956	1.36	147.30
007816992-03	OBS	No	45.142788	134.057293	234.4	1.682	12.0	10.0	1.44	6956	2.25	55.49
007816992-04	OBS	No	30.851957	153.560834	235.5	2.146	10.3	10.3	1.44	6956	2.49	92.19
007816992-05	OBS	No	19.773249	144.267271	110.5	4.767	9.8	9.0	1.44	6956	1.74	166.83
007816992-06	OBS	No	37.027490	142.337681	222.5	3.133	10.2	11.7	1.44	6956	2.38	72.28
007816992-07	OBS	No	13.003061	143.580835	147.2	2.503	11.0	11.9	1.44	6956	1.99	291.73
007816992-08	OBS	No	37.761874	135.582068	221.4	2.152	10.2	9.5	1.44	6956	2.42	70.41
007816992-09	OBS	No	378.044986	294.097804	230.1	7.332	10.2	8.4	1.44	6956	2.54	3.26
007816992-10	OBS	No	83.224846	211.371629	352.3	2.000	10.5	-1.0	1.44	6956	2.73	24.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007816992-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_FEW_MEAS
007816992-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
007816992-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007816992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
007816992-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

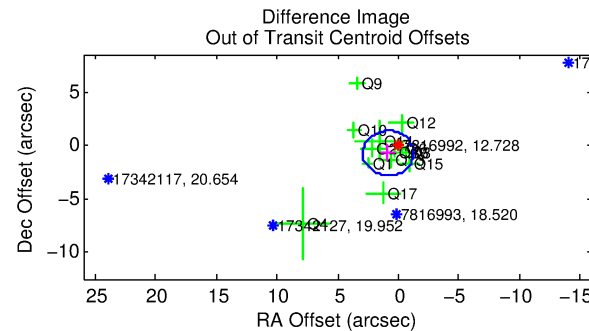
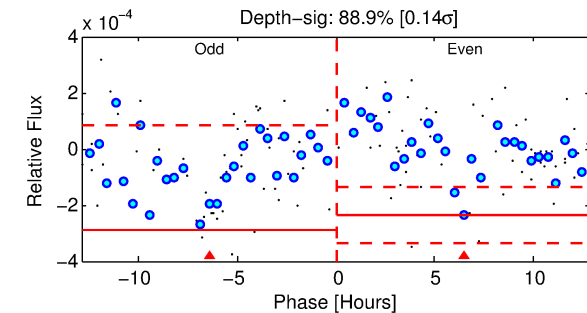
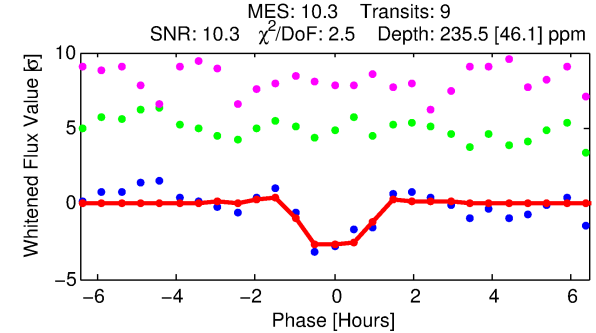
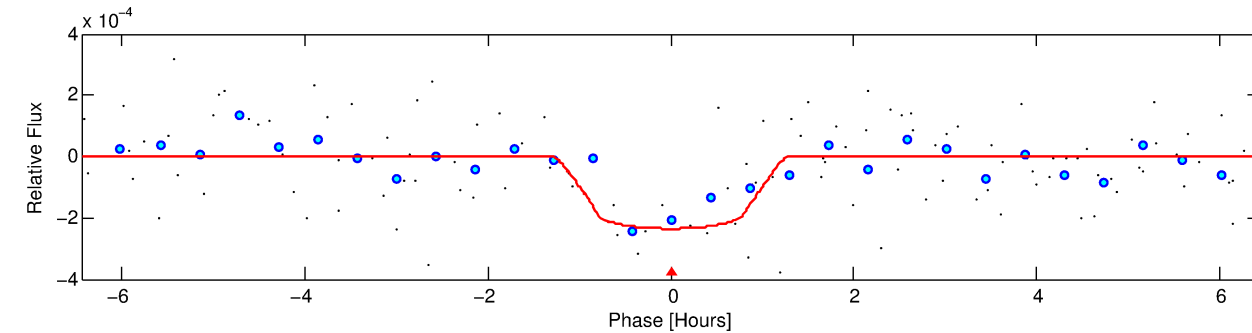
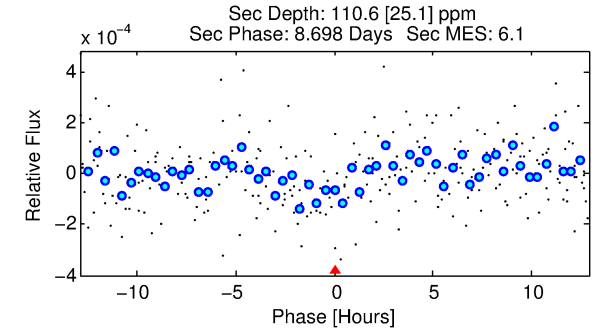
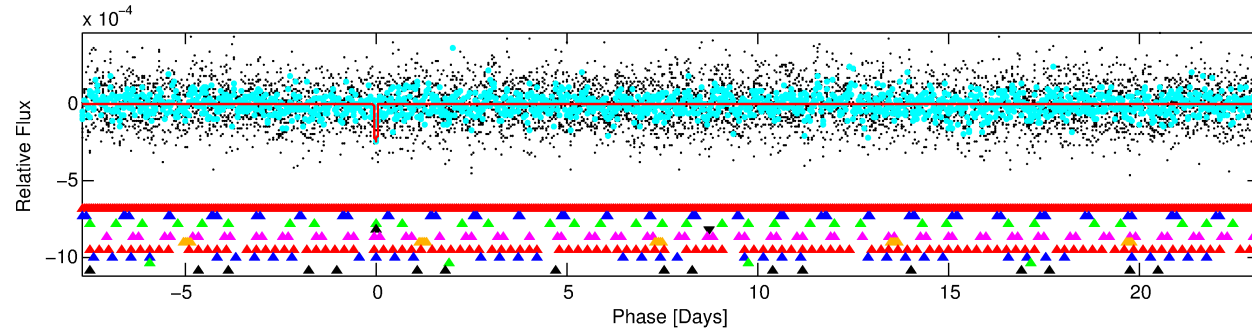
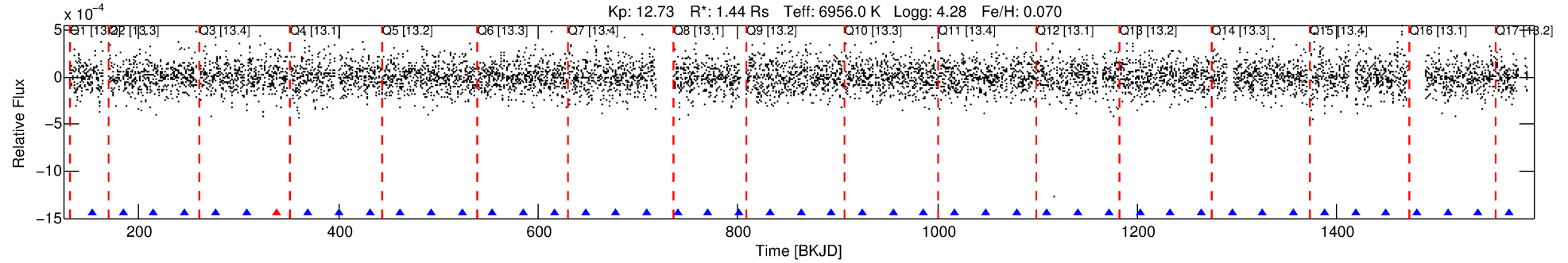
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007816992-04

No Significant Match Found

DV One-Page Summary

KIC: 7816992 Candidate: 4 of 10 Period: 30.852 d



DV Fit Results:

Period = 30.85196 [0.00035] d
Epoch = 153.5608 [0.0083] BKJD
Rp/R* = 0.0159 [0.0508]
a/R* = 61.49 [1181.56]
b = 0.85 [6.45]
Seff = 92.19 [43.03]
Teq = 790 [92] K
Rp = 2.49 [8.02] Re
a = 0.2171 [0.0657] AU
Ag = 462.59 [2969.82] [0.16 σ]
Teffp = 5665 [9077] K [0.54 σ]

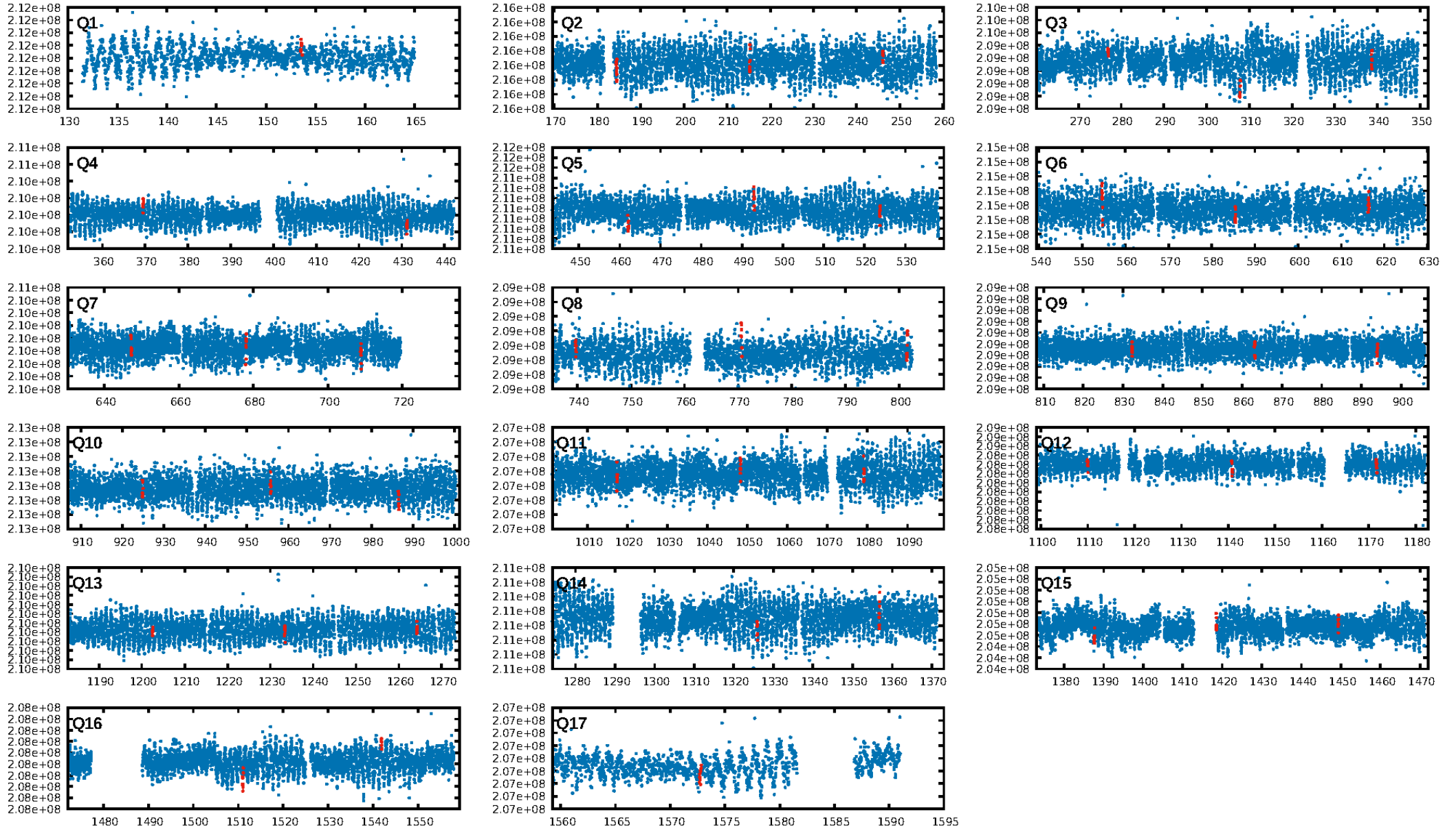
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [29.87 σ]
LongPeriod-sig: 100.0% [39.03 σ]
ModelChiSquare2-sig: 0.7%
ModelChiSquareGof-sig: 93.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.89 [8/9]
GhostDiagnostic-chr: -1.784
Centroid-sig: 7.7%
Centroid-so: 0.850 arcsec [1.75 σ]
OotOffset-rm: 1.122 arcsec [1.61 σ]
KicOffset-rm: 1.159 arcsec [1.58 σ]
OotOffset-st: 4/2/4/4 [14]
KicOffset-st: 4/2/4/4 [14]
DiffImageQuality-fgm: 0.21 [3/14]
DiffImageOverlap-fno: 0.12 [2/17]

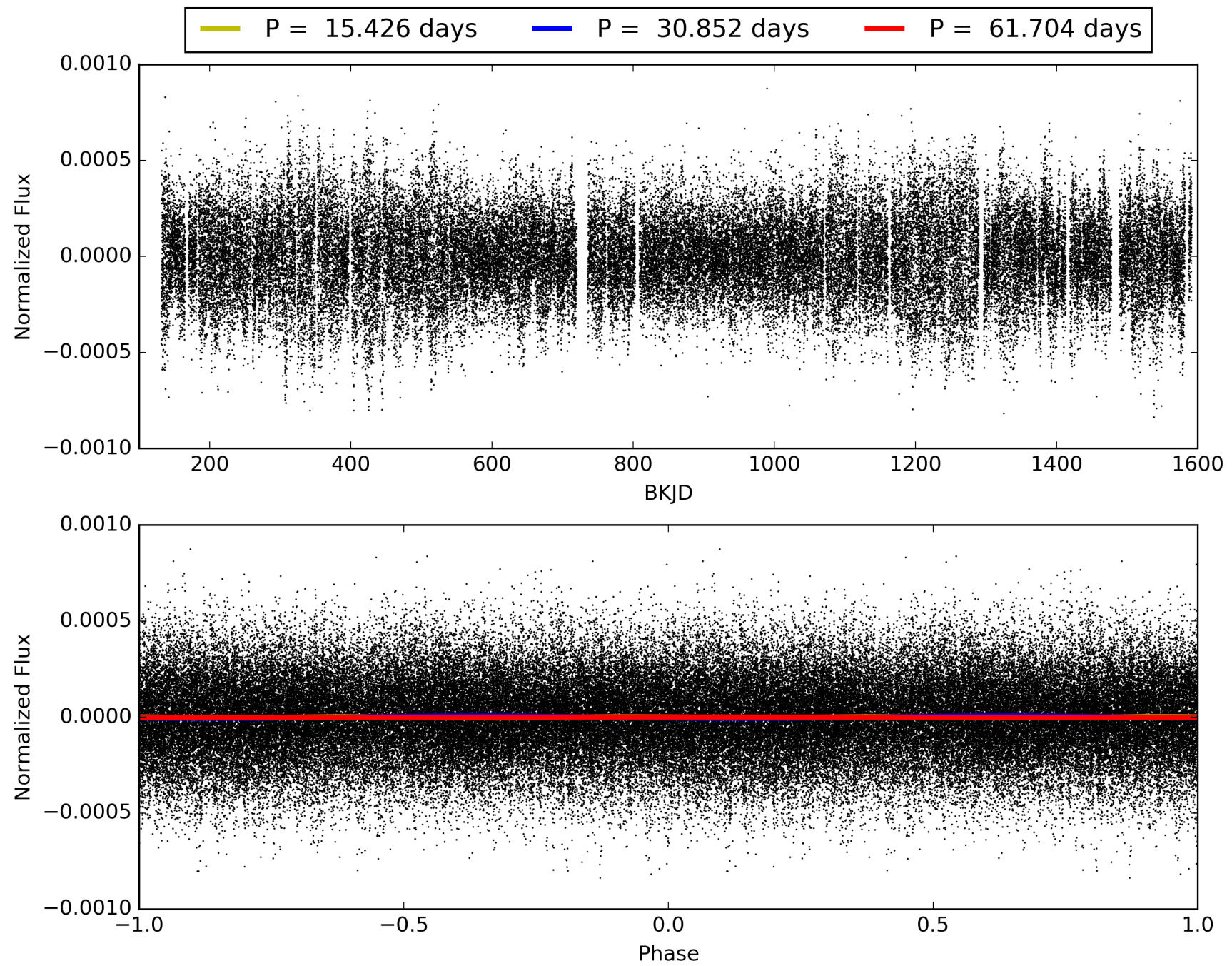
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:28:39 Z

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

TCE 007816992-04, PDC Light Curves

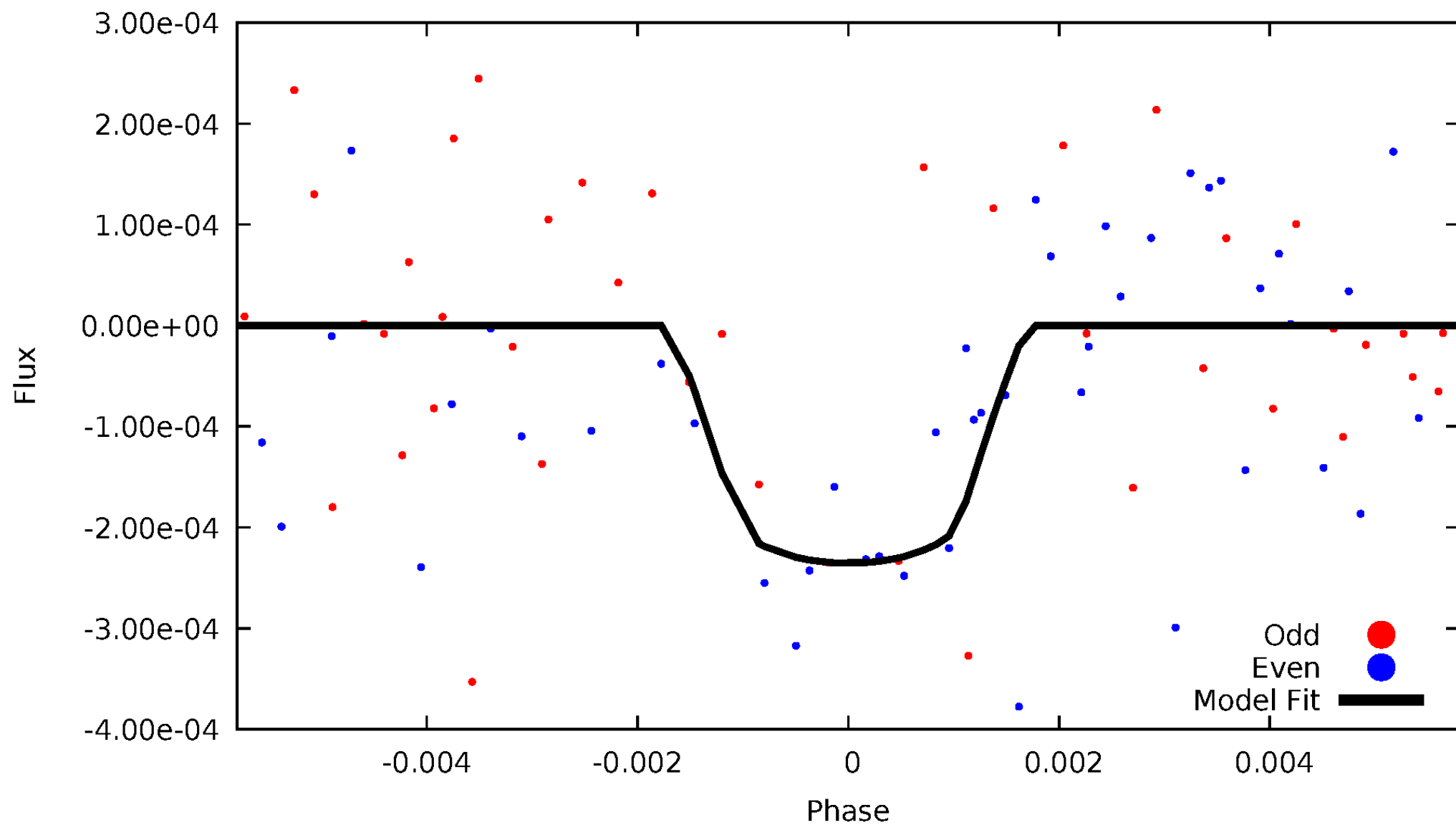


TCE 007816992-04



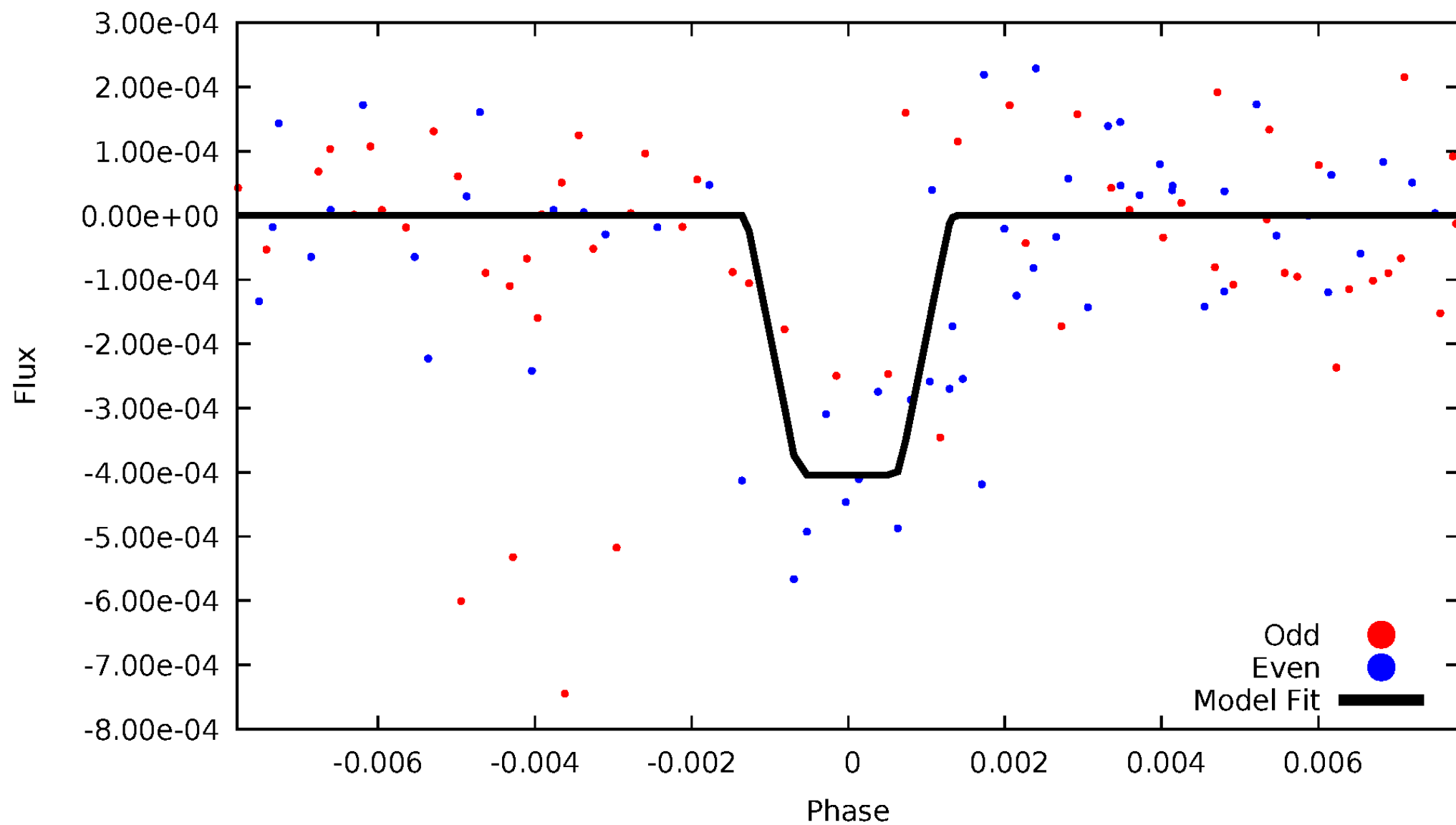
DV Odd/Even

TCE 007816992-04



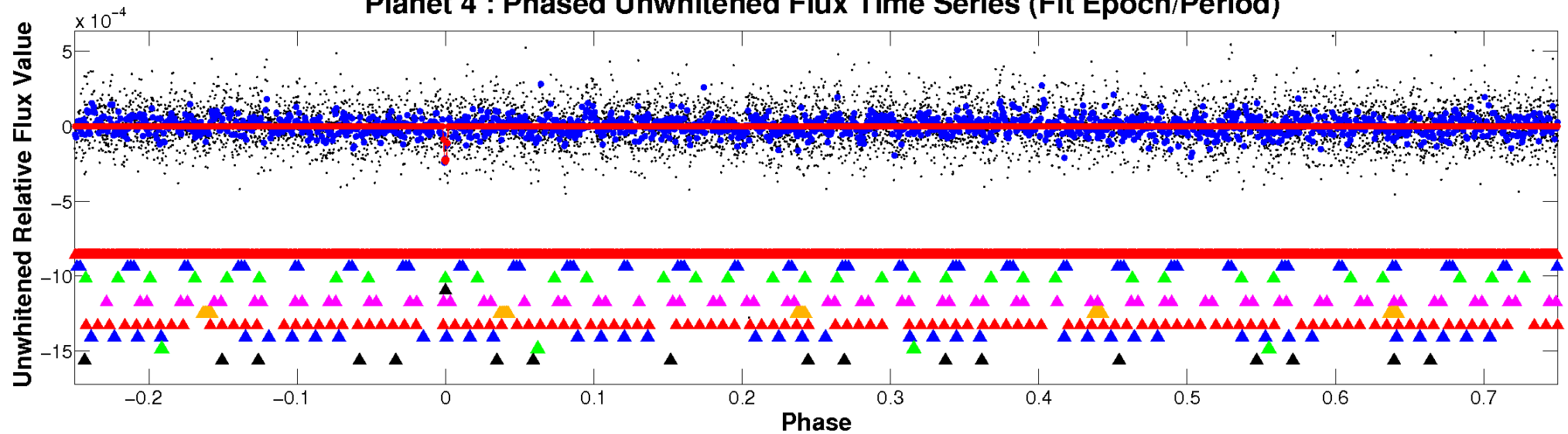
ALT Odd/Even

TCE 007816992-04

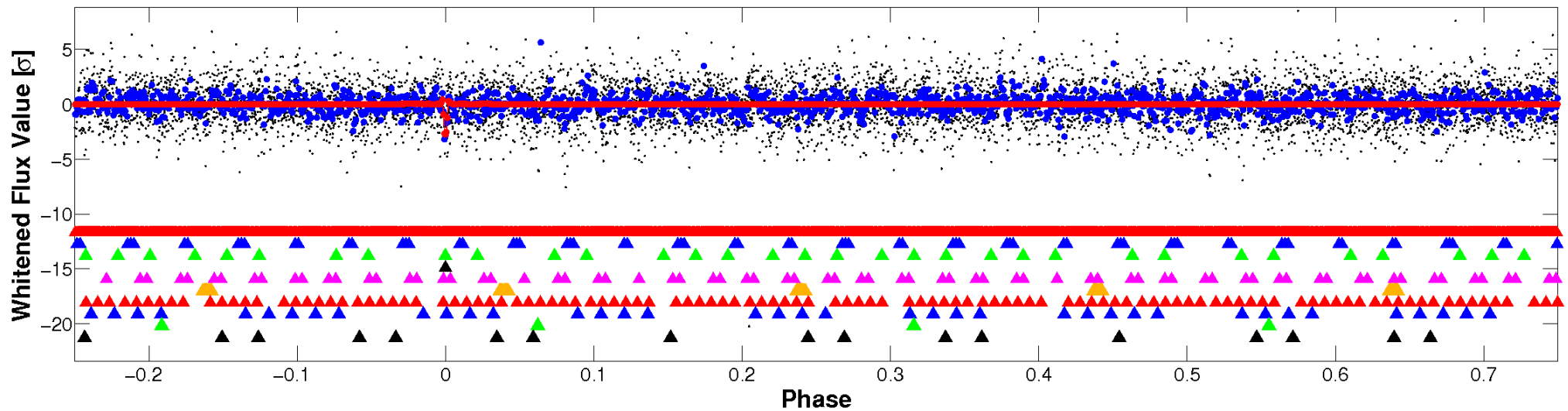


Non-Whitened Vs. Whitened Light Curve

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

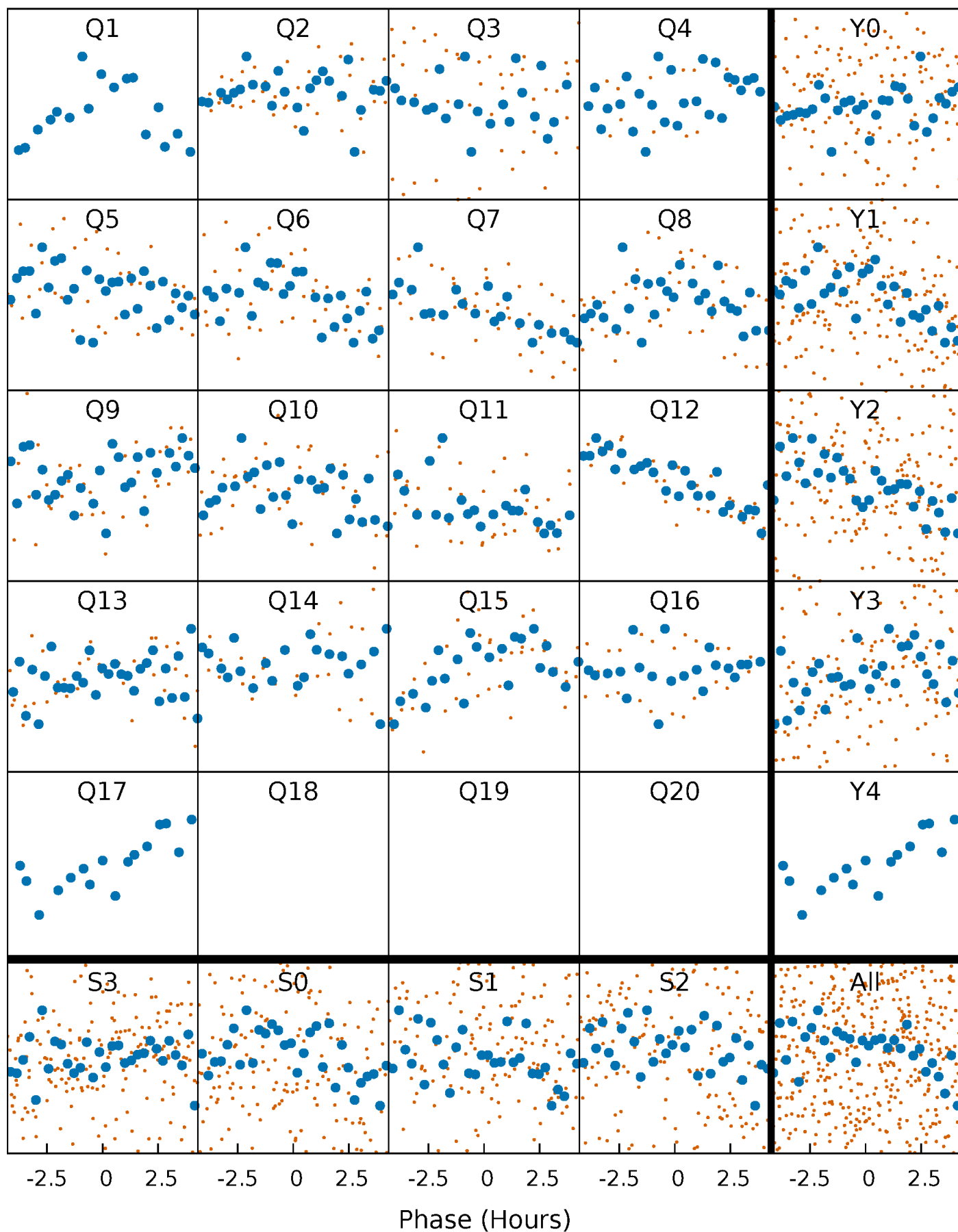


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



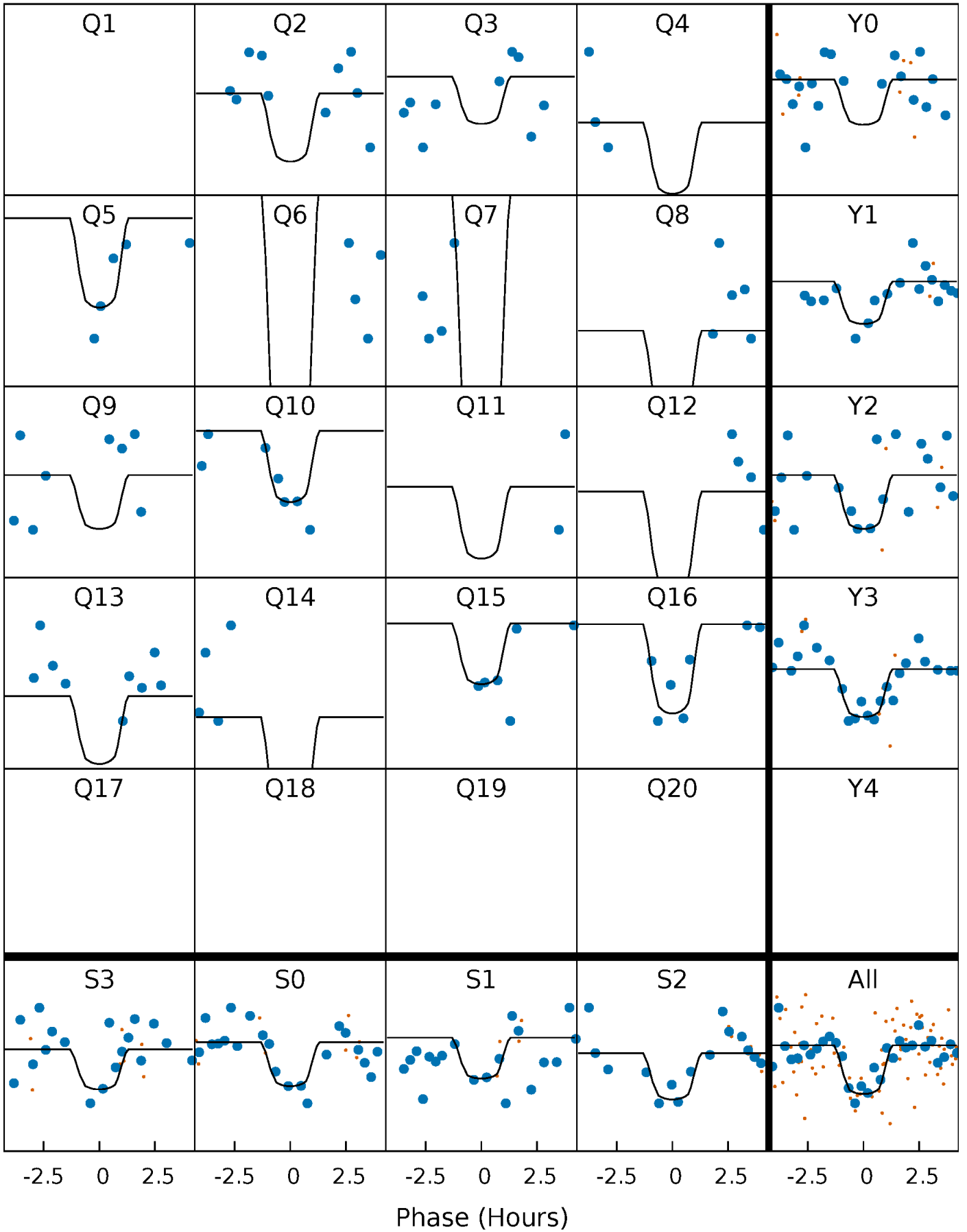
PDC Quarter-Phased Transit Curves

TCE 007816992-04 P= 30.851957 Days $T_0=153.560834$ (BKJD)



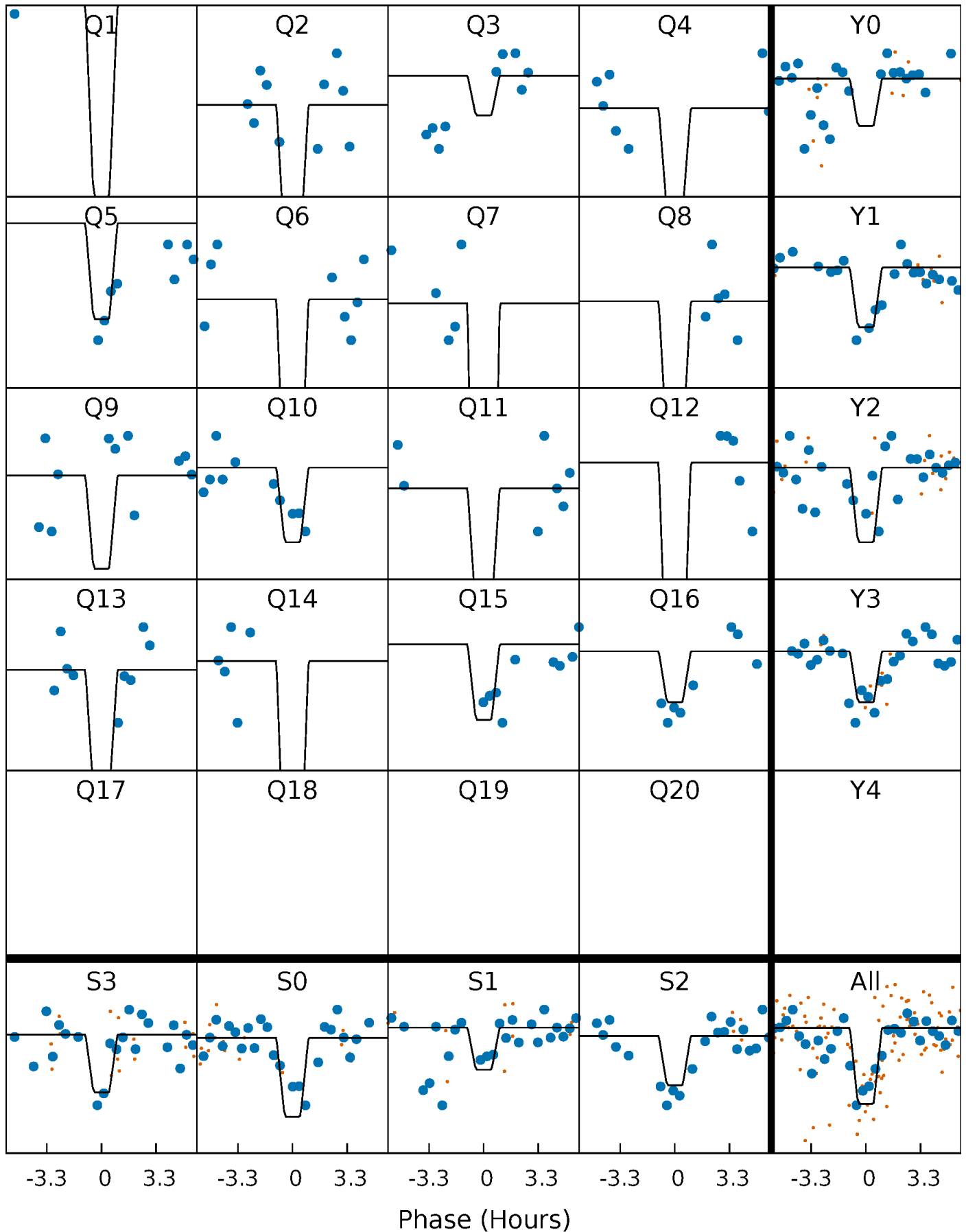
DV Quarter-Phased Transit Curves

TCE 007816992-04 P= 30.851957 Days $T_0=153.560834$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

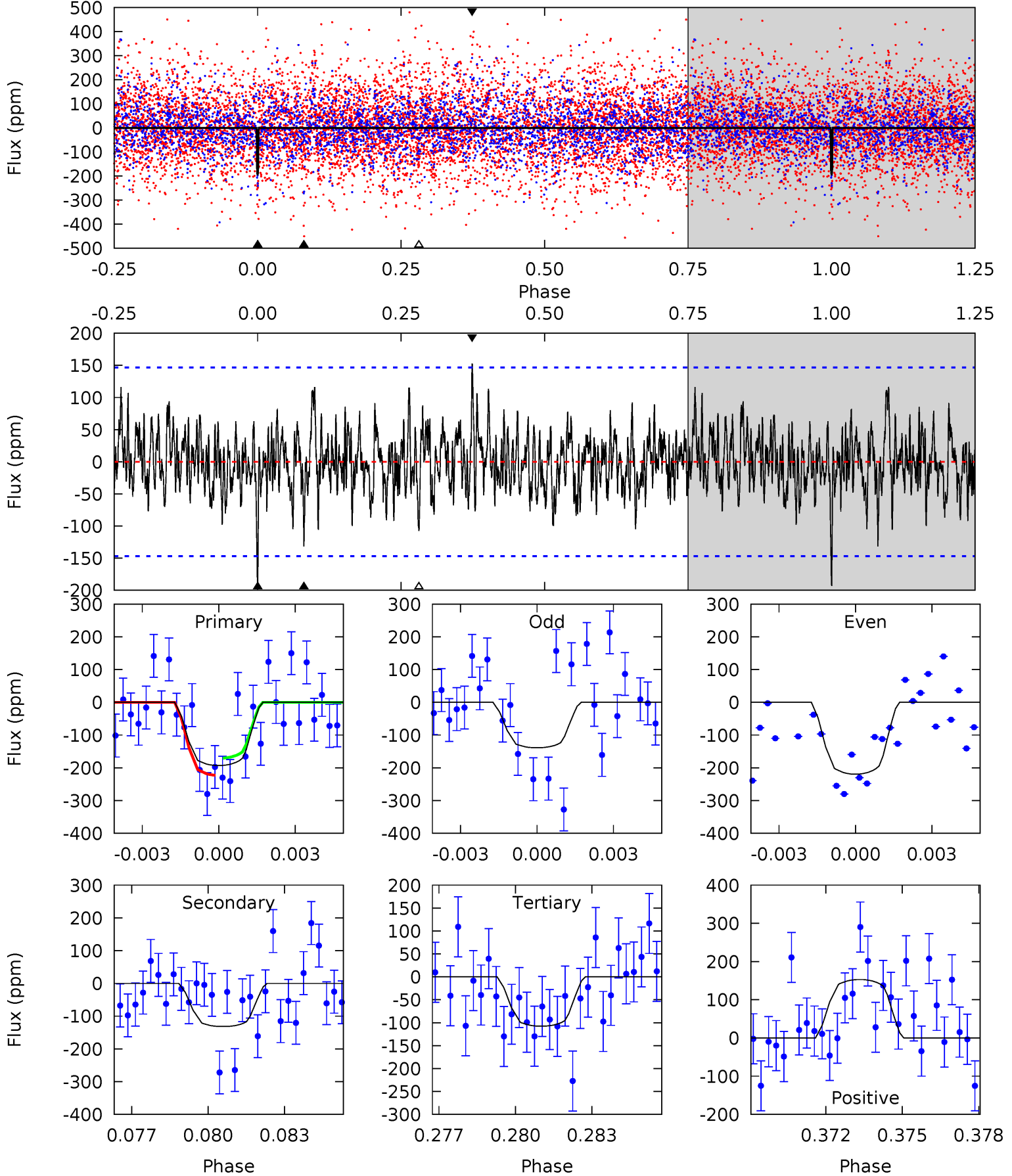
TCE 007816992-04 P= 30.851835 Days $T_0=153.563048$ (BKJD)



DV Model-Shift Uniqueness Test

007816992-04, P = 30.851957 Days, E = 122.708877 Days

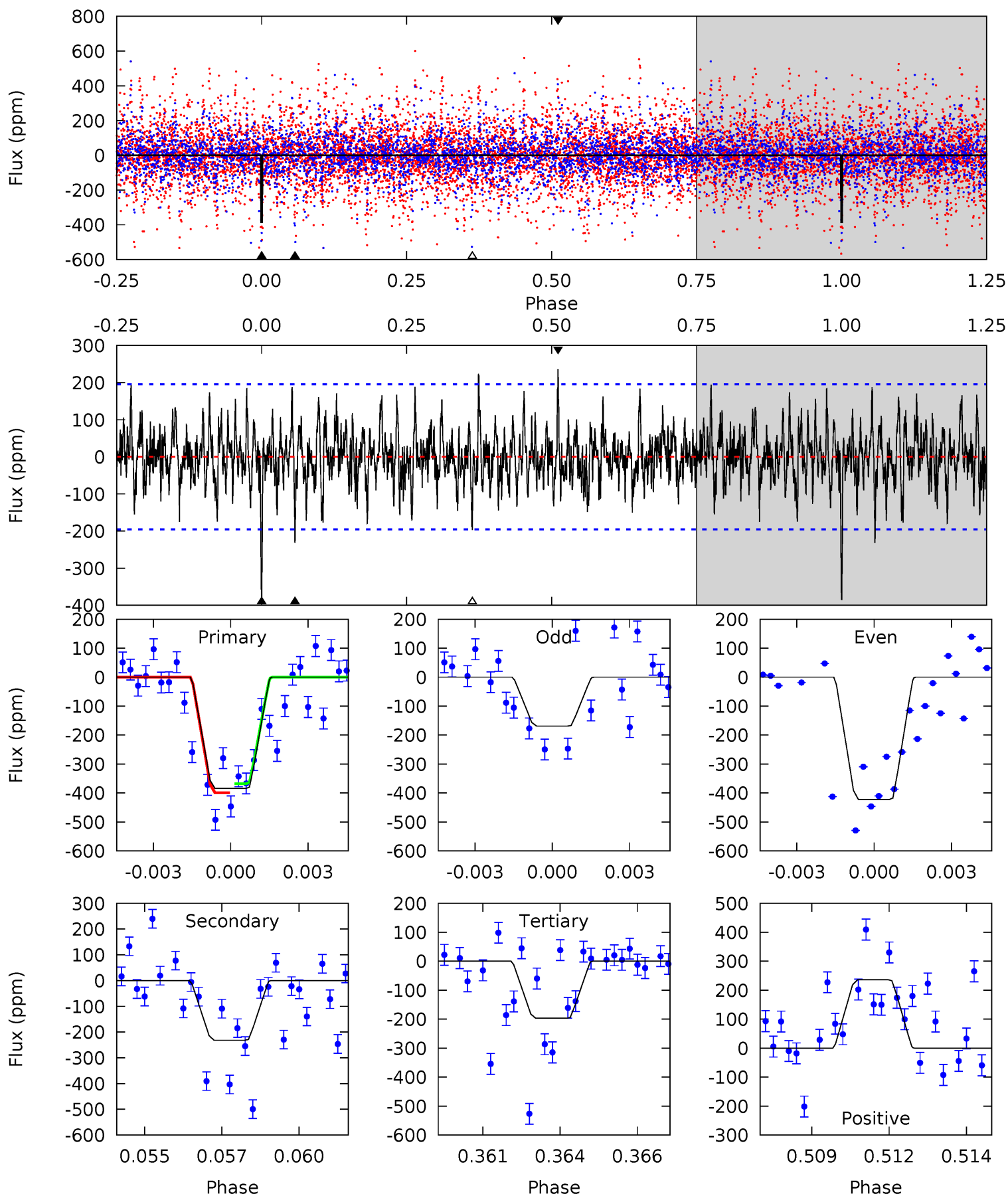
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.89	4.71	3.84	5.46	5.25	2.96	1.41	3.05	1.43	0.86	-0.75	1.37	0.67	0.44	0.90



Alt Model-Shift Uniqueness Test

007816992-04, P = 30.851835 Days, E = 122.711213 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	6.25	5.32	6.37	5.28	3.01	1.65	5.07	4.02	0.93	-0.12	3.31	1.02	0.38	0.42



Stellar Parameters For KIC 007816992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6956^{+194}_{-333}	$4.278^{+0.075}_{-0.225}$	$0.070^{+0.200}_{-0.350}$	$1.439^{+0.537}_{-0.215}$	$1.431^{+0.222}_{-0.202}$	$0.676^{+0.226}_{-0.396}$
	+3%/-5%	+2%/-5%	+286%/-500%	+37%/-15%	+16%/-14%	+33%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007816992-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-132 ± 28	$6.67^{+6.65}_{-4.62}$	1123^{+91}_{-73}	3975^{+2567}_{-818}	77^{+692}_{-58}
Alt.	-232 ± 37	$6.93^{+7.11}_{-4.71}$	1123^{+96}_{-73}	4373^{+2943}_{-935}	127^{+1063}_{-97}

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

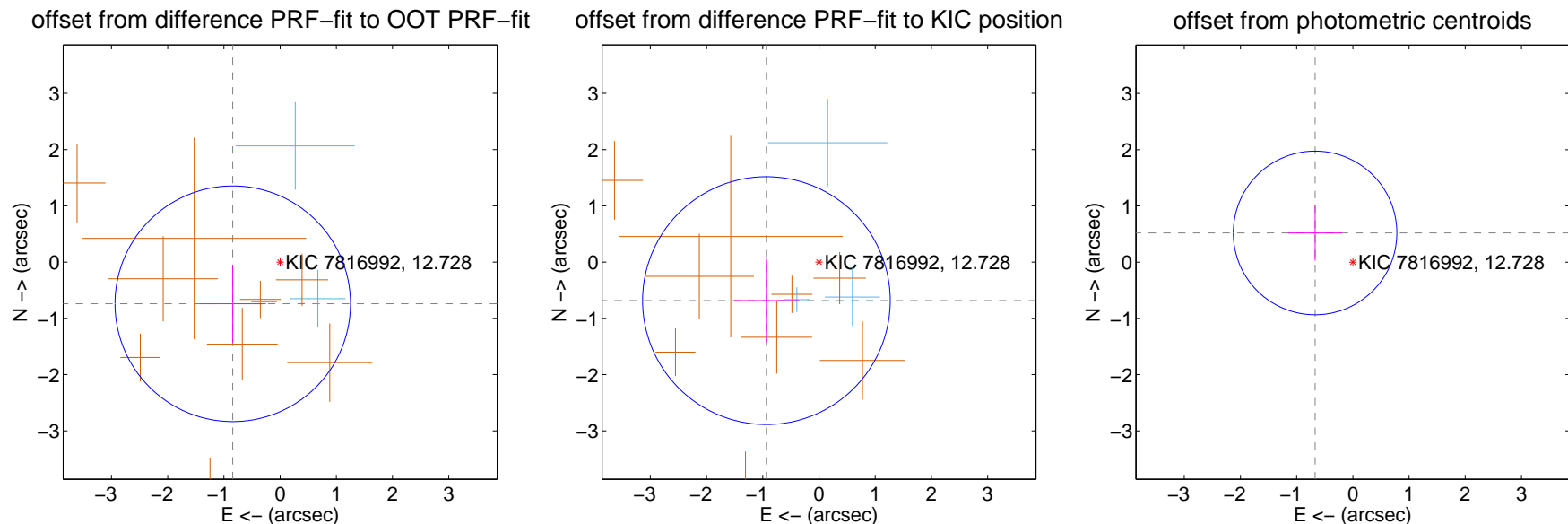
DV Centroid Data

Supplemental centroid analysis for 007816992-04. Kepler magnitude: 12.73. Transit SNR 10.28

There are 3 quarters with good PRF difference image offsets

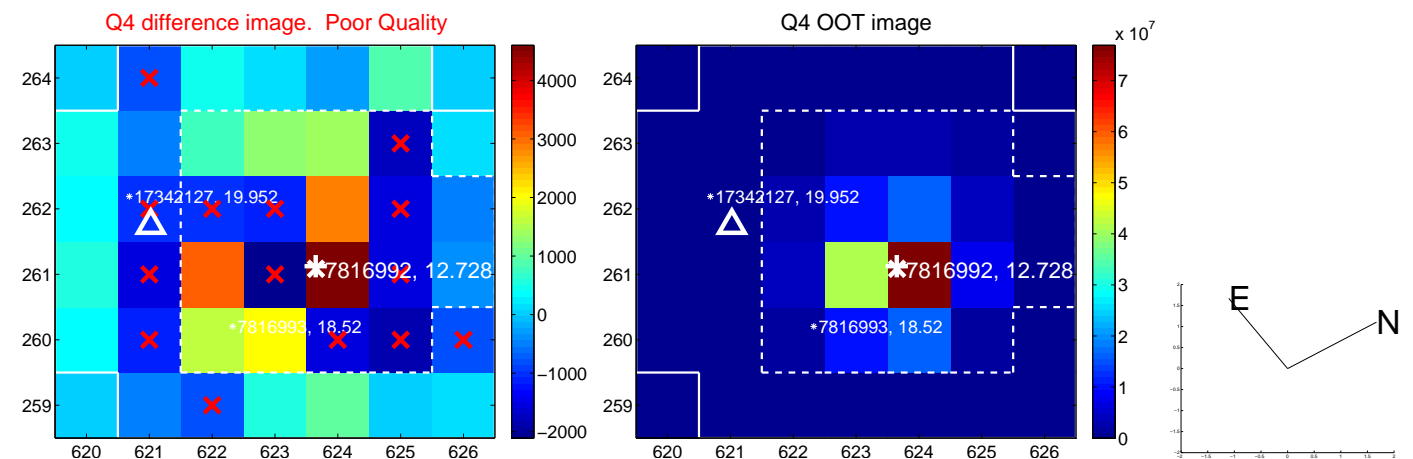
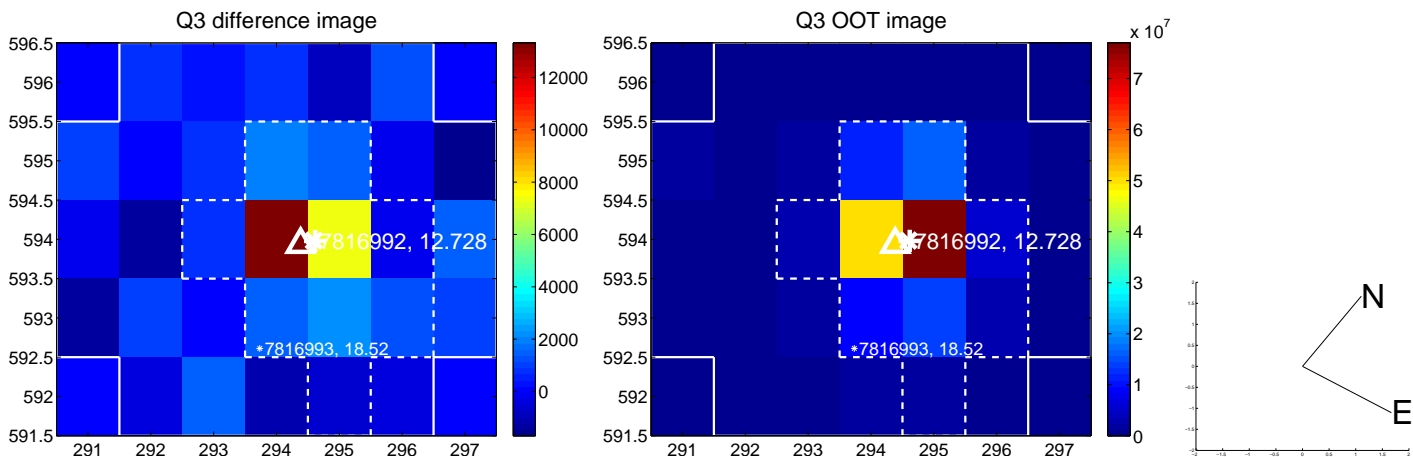
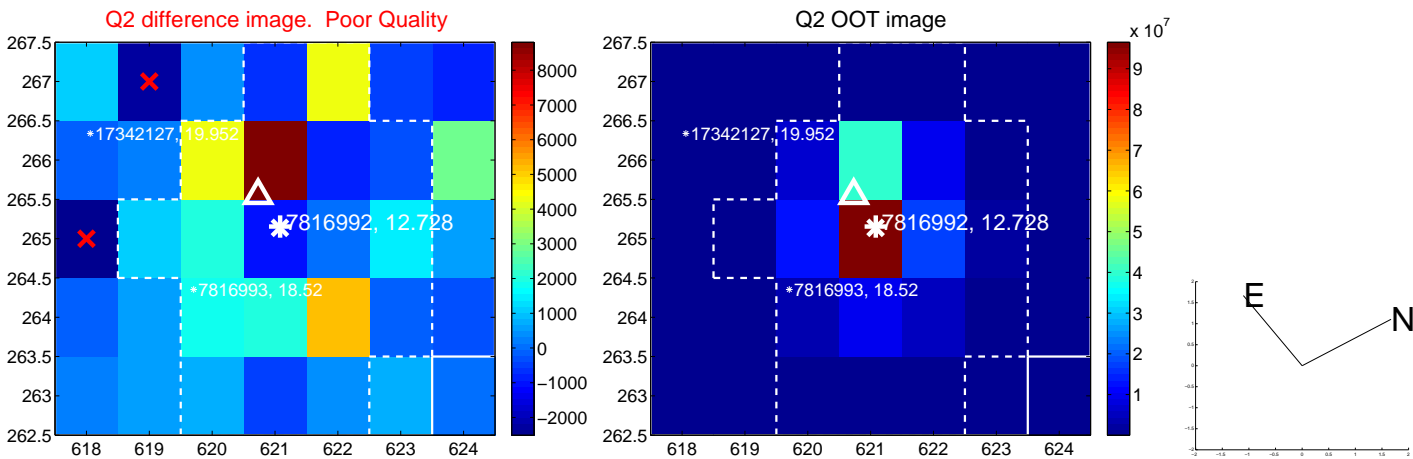
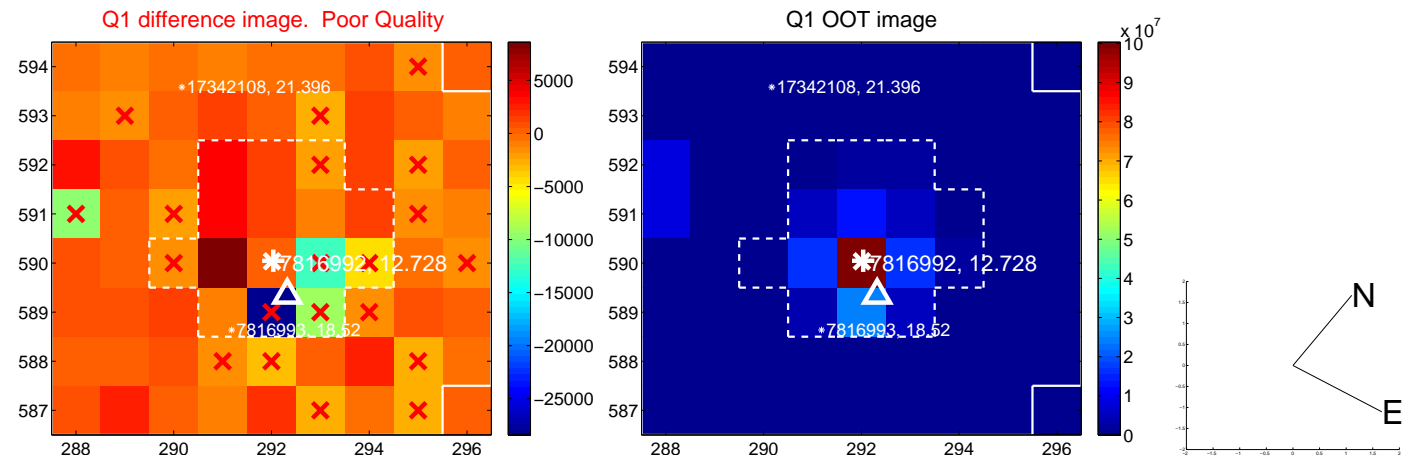
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.122 ± 0.698	1.61	0.843 ± 0.589	-0.741 ± 0.690
PRF-fit source offset from KIC position	1.159 ± 0.734	1.58	0.935 ± 0.579	-0.685 ± 0.738
photometric centroid source offset	0.85 ± 0.48	1.75	0.67 ± 0.48	0.52 ± 0.49

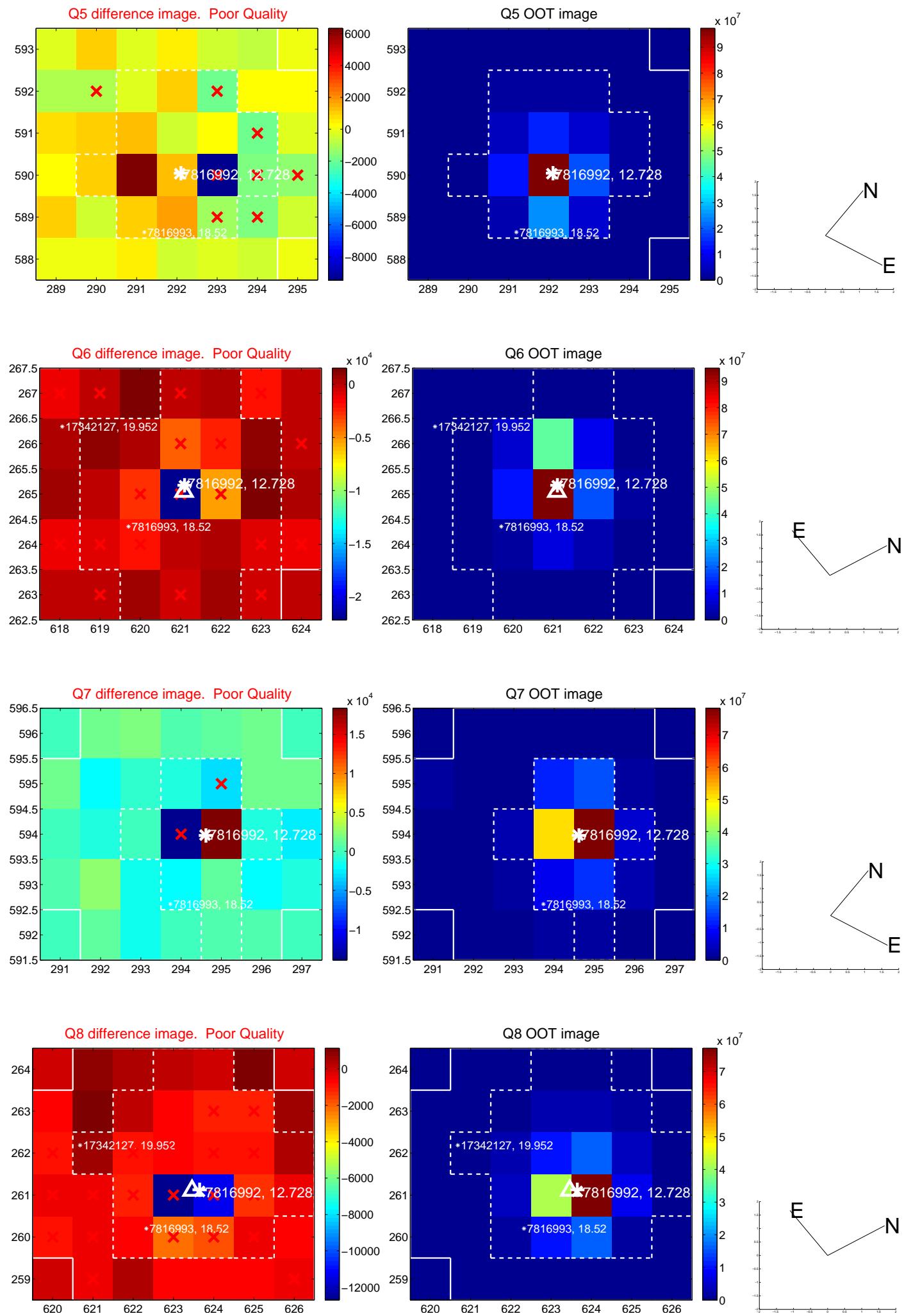


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

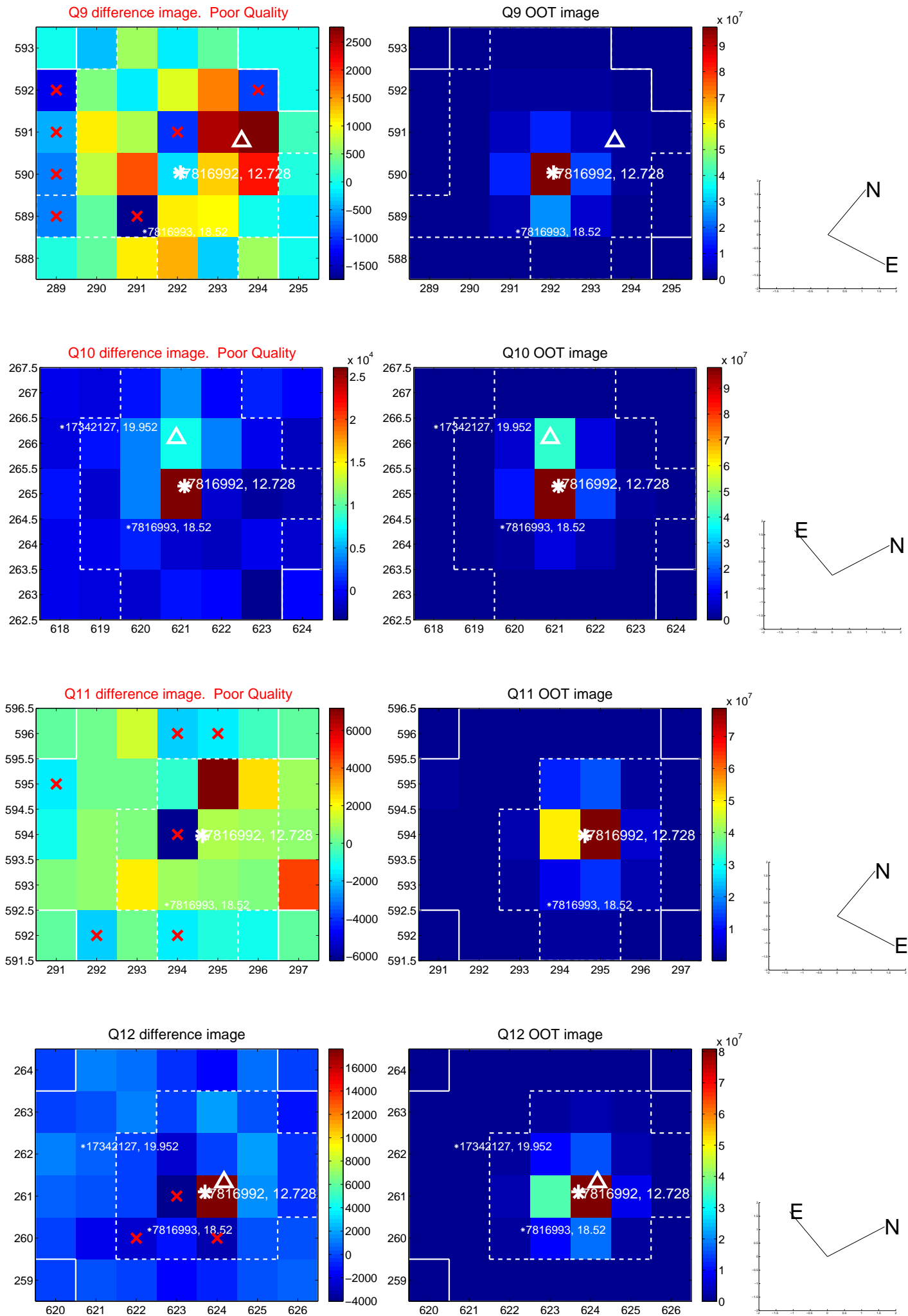
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



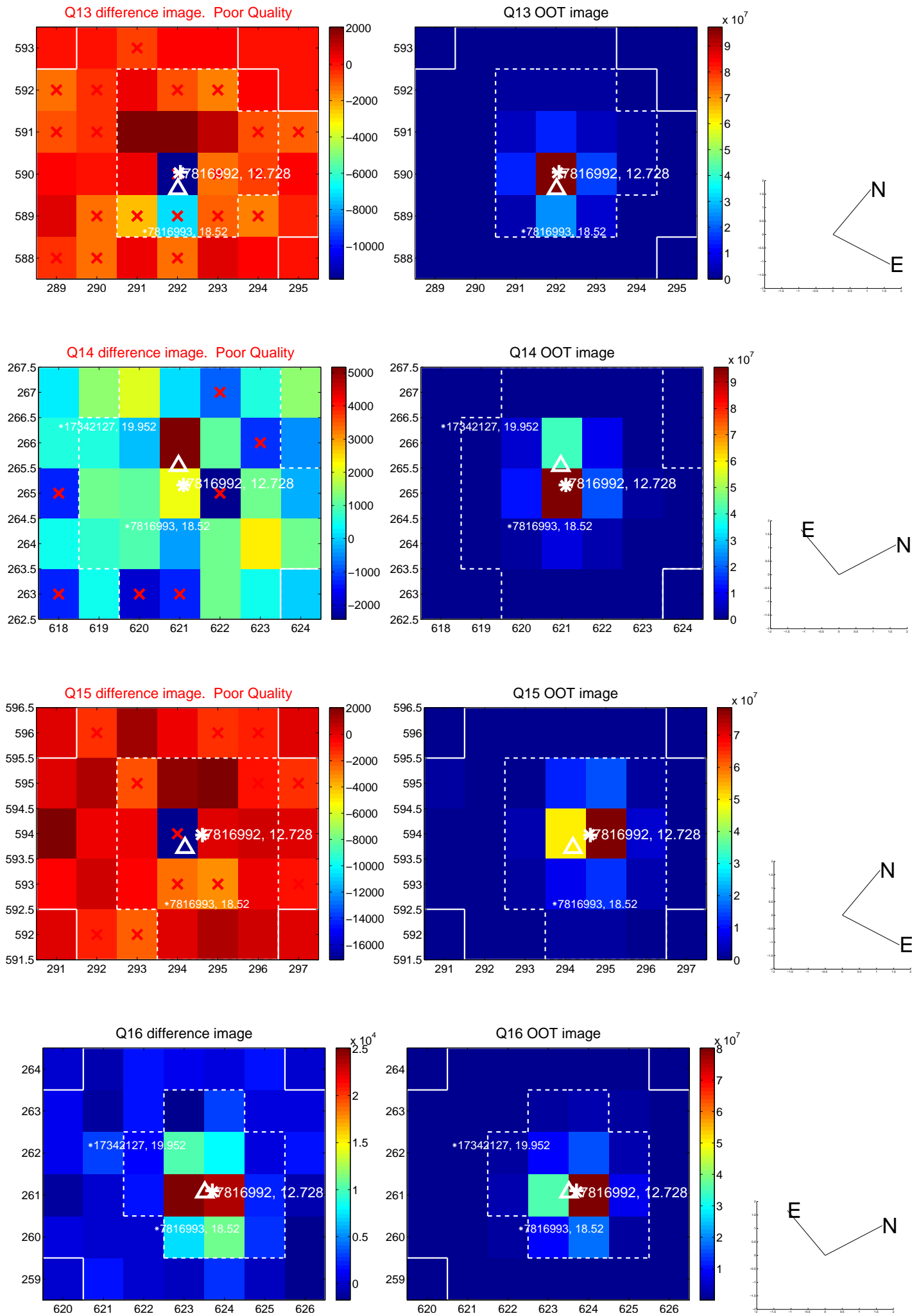
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



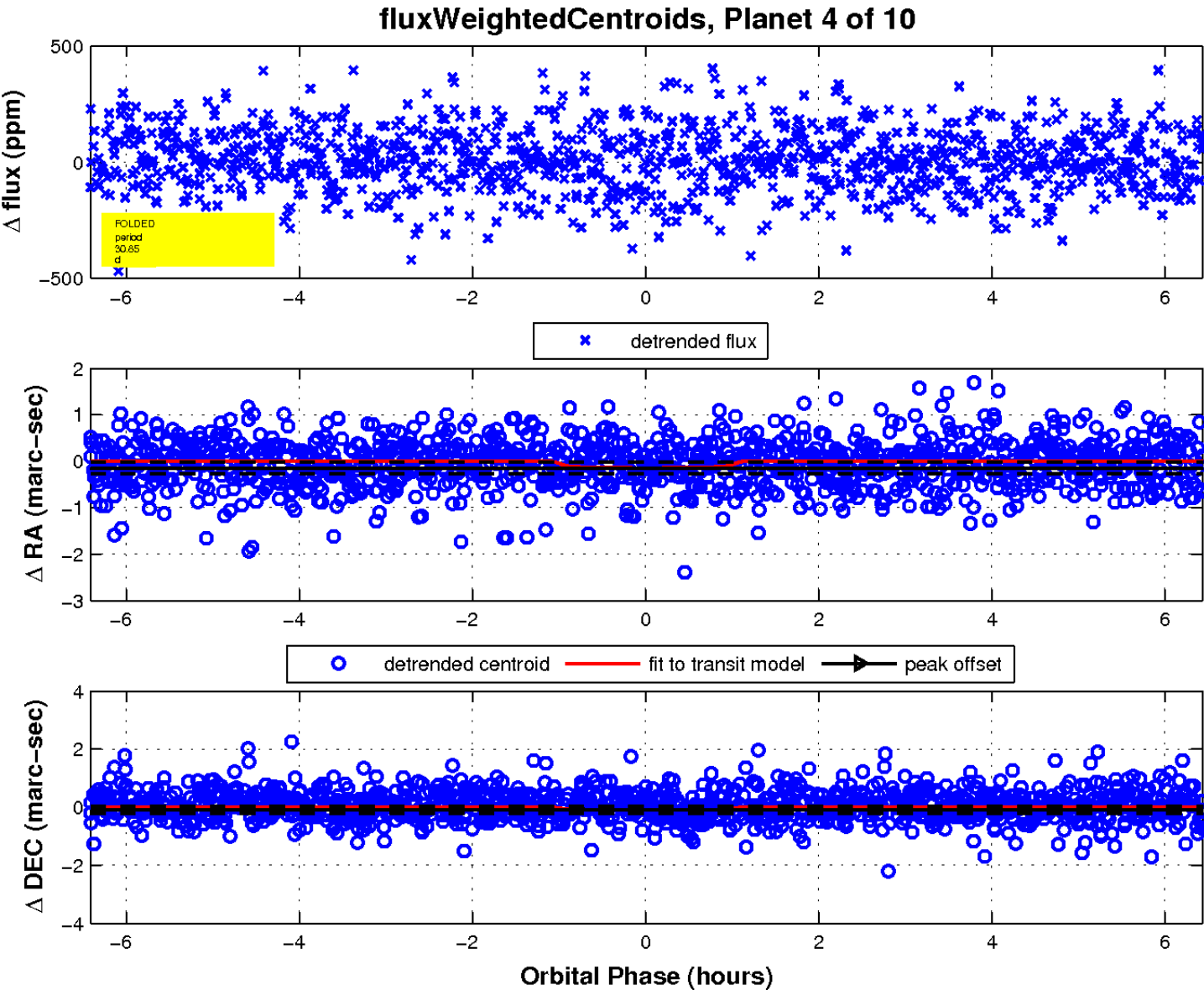
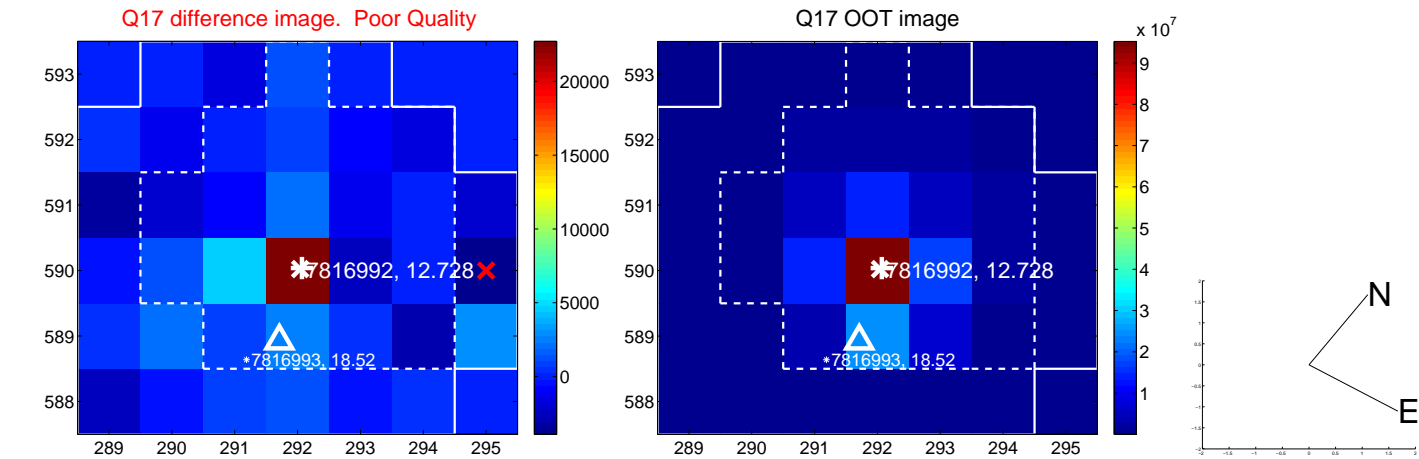
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

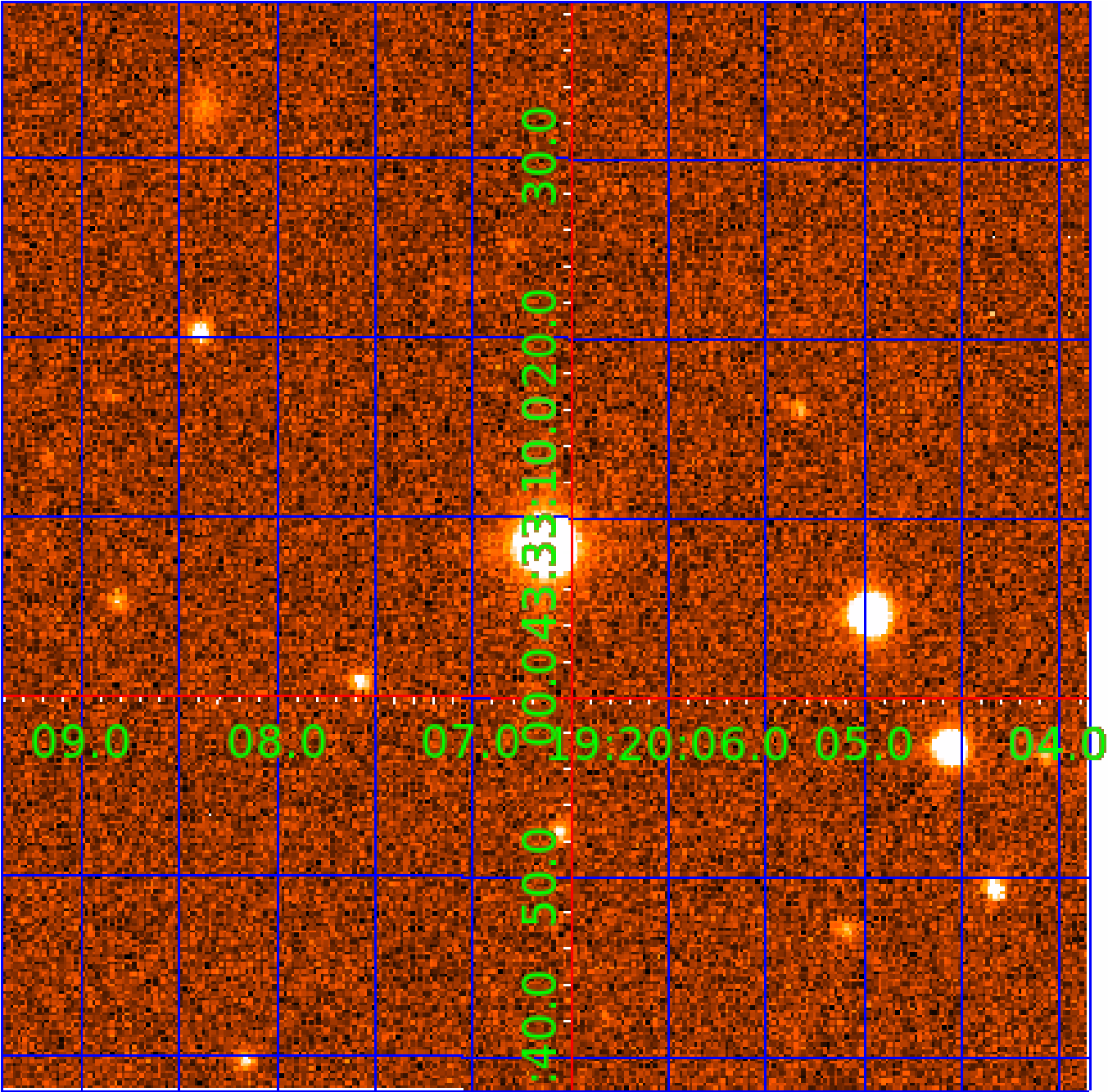


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007816992

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})
007816992-01	OBS	No	0.795855	132.214839	4.5	5.406	8.2	3.0	1.44	6956	0.31	12094.68
007816992-02	OBS	No	21.708210	133.397023	69.8	7.026	11.2	6.8	1.44	6956	1.36	147.30
007816992-03	OBS	No	45.142788	134.057293	234.4	1.682	12.0	10.0	1.44	6956	2.25	55.49
007816992-04	OBS	No	30.851957	153.560834	235.5	2.146	10.3	10.3	1.44	6956	2.49	92.19
007816992-05	OBS	No	19.773249	144.267271	110.5	4.767	9.8	9.0	1.44	6956	1.74	166.83
007816992-06	OBS	No	37.027490	142.337681	222.5	3.133	10.2	11.7	1.44	6956	2.38	72.28
007816992-07	OBS	No	13.003061	143.580835	147.2	2.503	11.0	11.9	1.44	6956	1.99	291.73
007816992-08	OBS	No	37.761874	135.582068	221.4	2.152	10.2	9.5	1.44	6956	2.42	70.41
007816992-09	OBS	No	378.044986	294.097804	230.1	7.332	10.2	8.4	1.44	6956	2.54	3.26
007816992-10	OBS	No	83.224846	211.371629	352.3	2.000	10.5	-1.0	1.44	6956	2.73	24.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007816992-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_FEW_MEAS
007816992-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
007816992-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007816992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
007816992-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

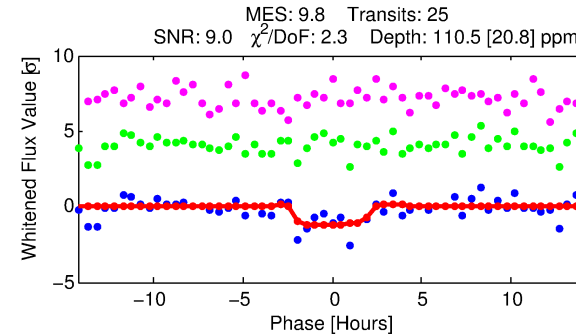
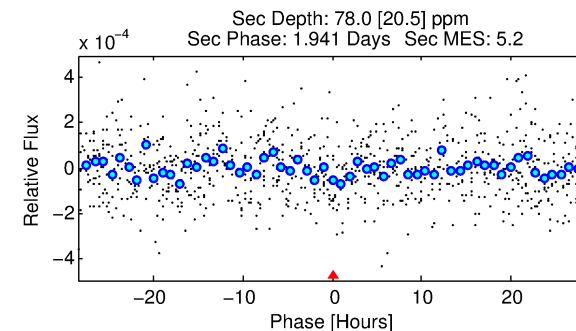
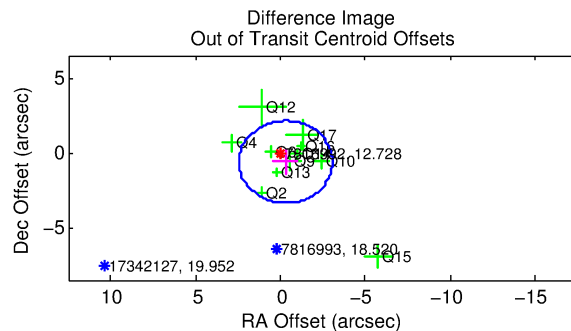
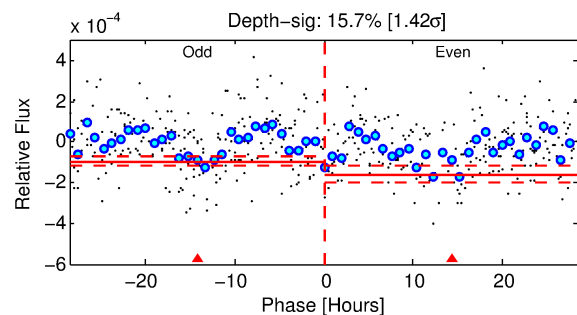
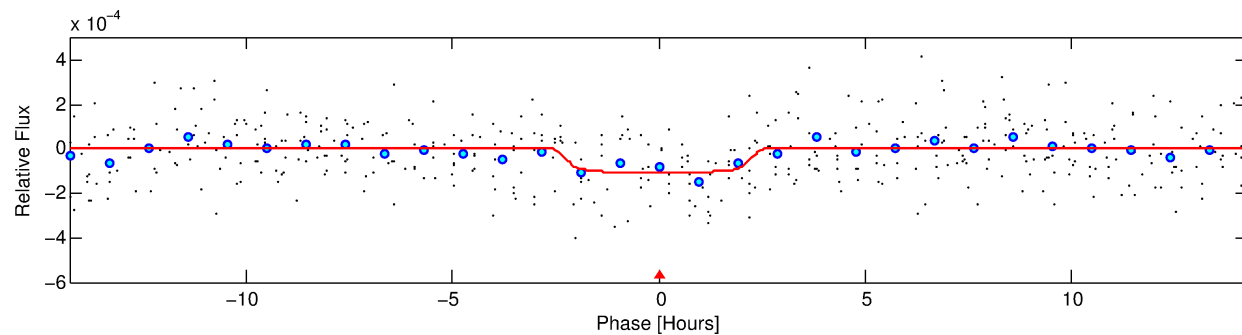
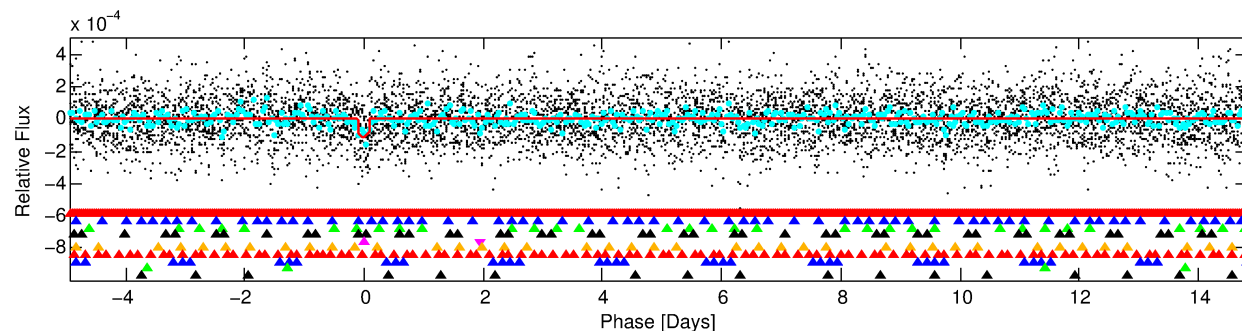
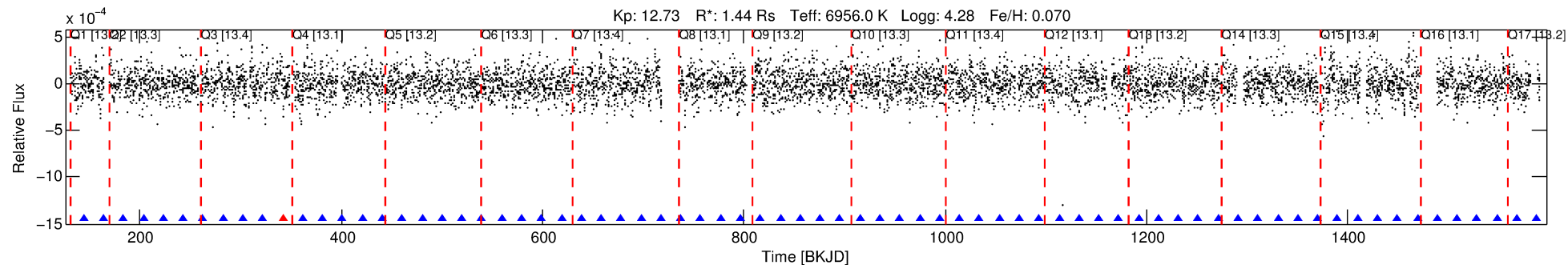
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007816992-05

No Significant Match Found

DV One-Page Summary

KIC: 7816992 Candidate: 5 of 10 Period: 19.773 d



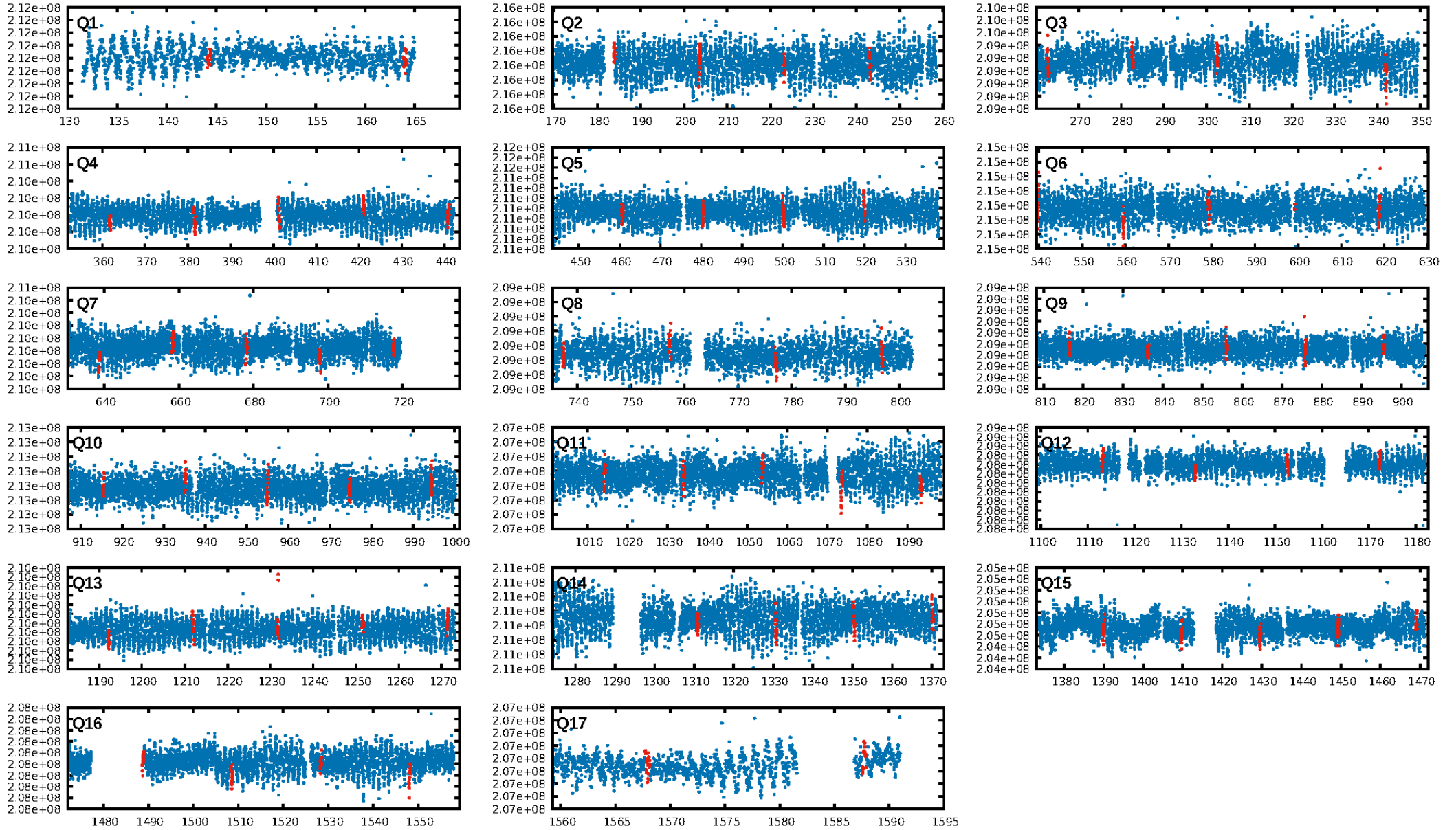
DV Fit Results:

Period = 19.77325 [0.00037] d
Epoch = 144.2673 [0.0158] BKJD
Rp/R* = 0.0111 [0.0068]
a/R* = 15.70 [57.16]
b = 0.88 [0.93]
Seff = 166.83 [77.87]
Teff = 916 [107] K
Rp = 1.74 [1.25] Re
a = 0.1614 [0.0489] AU
Ag = 370.16 [490.59] [0.75 σ]
Teffp = 6215 [1973] K [2.68 σ]

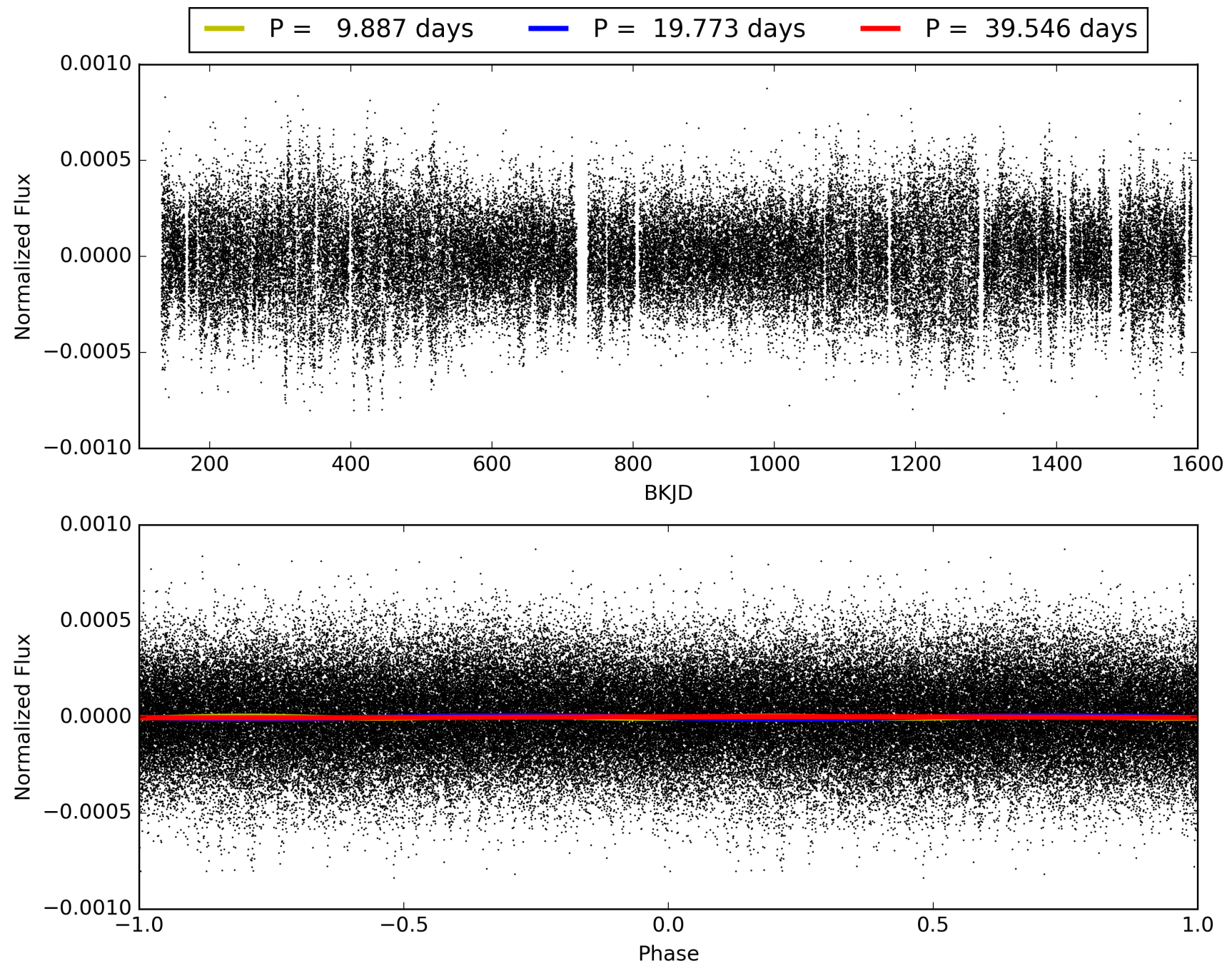
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [30.18 σ]
LongPeriod-sig: 100.0% [5.47 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.96 [24/25]
GhostDiagnostic-chr: 0.1411
Centroid-sig: 0.0%
Centroid-so: 1.842 arcsec [3.19 σ]
OotOffset-rm: 0.696 arcsec [0.76 σ]
KicOffset-rm: 0.625 arcsec [0.70 σ]
OotOffset-st: 4/1/3/3 [11]
KicOffset-st: 4/1/3/3 [11]
DiffImageQuality-fgm: 0.55 [6/11]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 007816992-05, PDC Light Curves

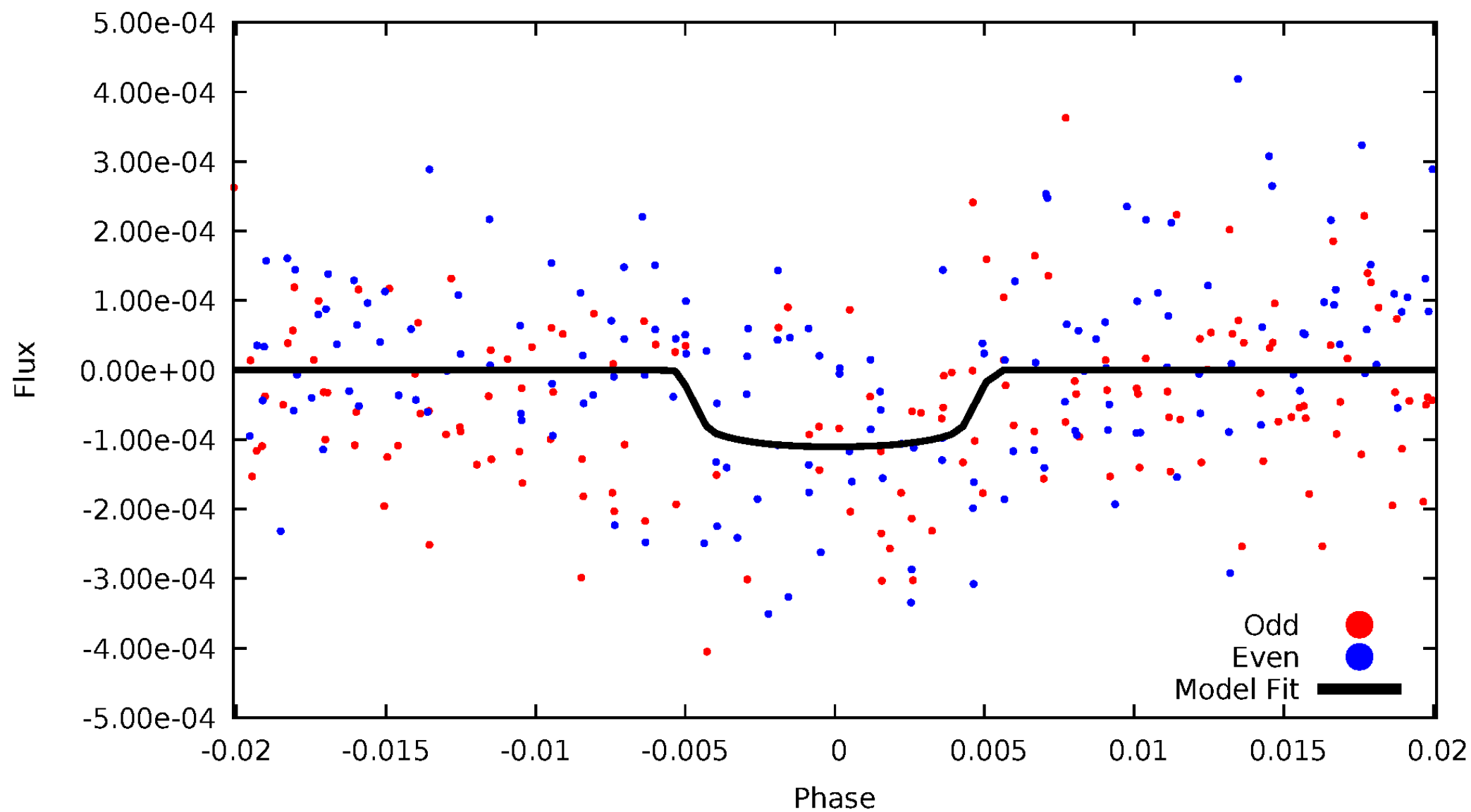


TCE 007816992-05



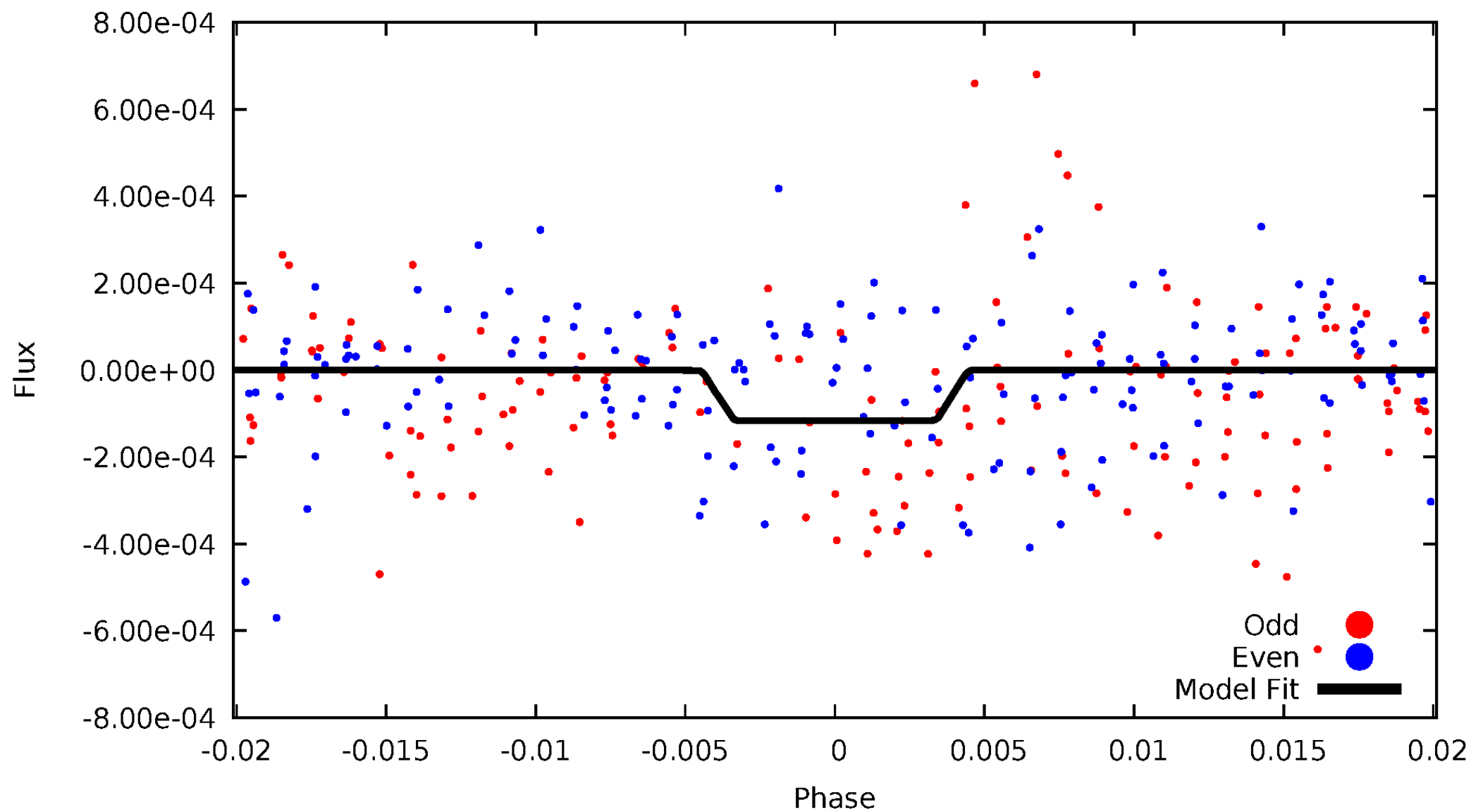
DV Odd/Even

TCE 007816992-05

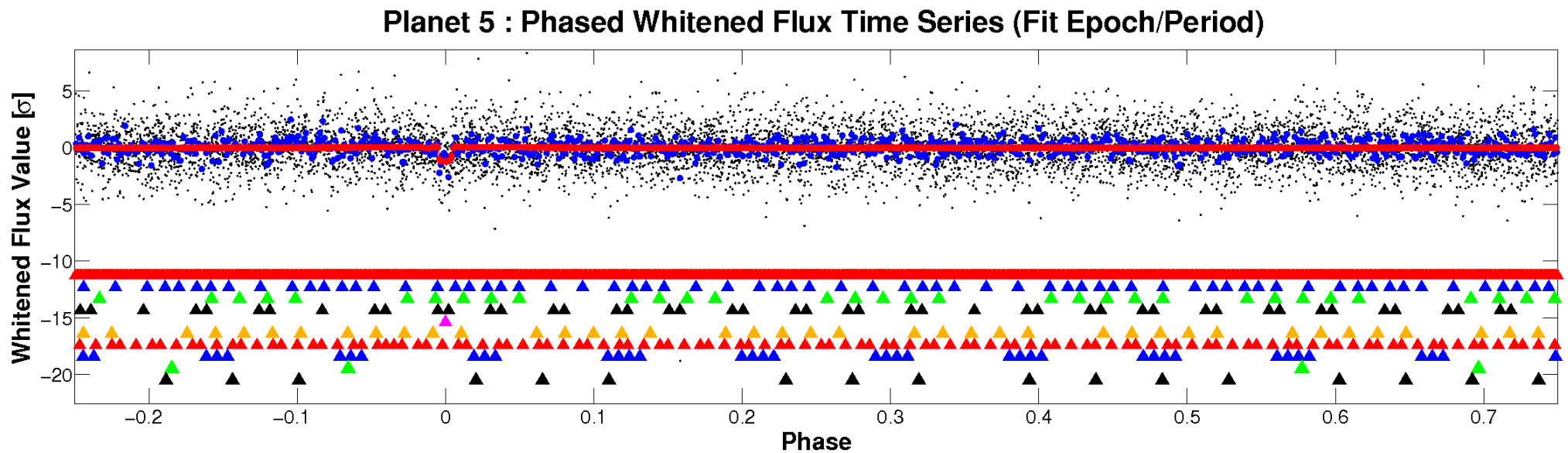
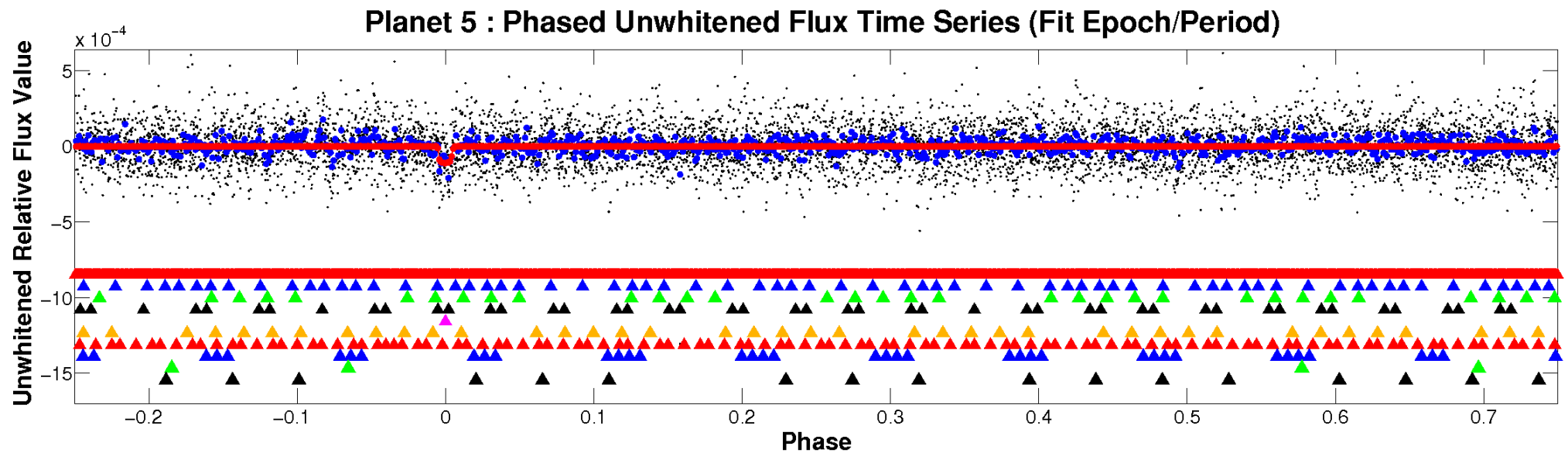


ALT Odd/Even

TCE 007816992-05

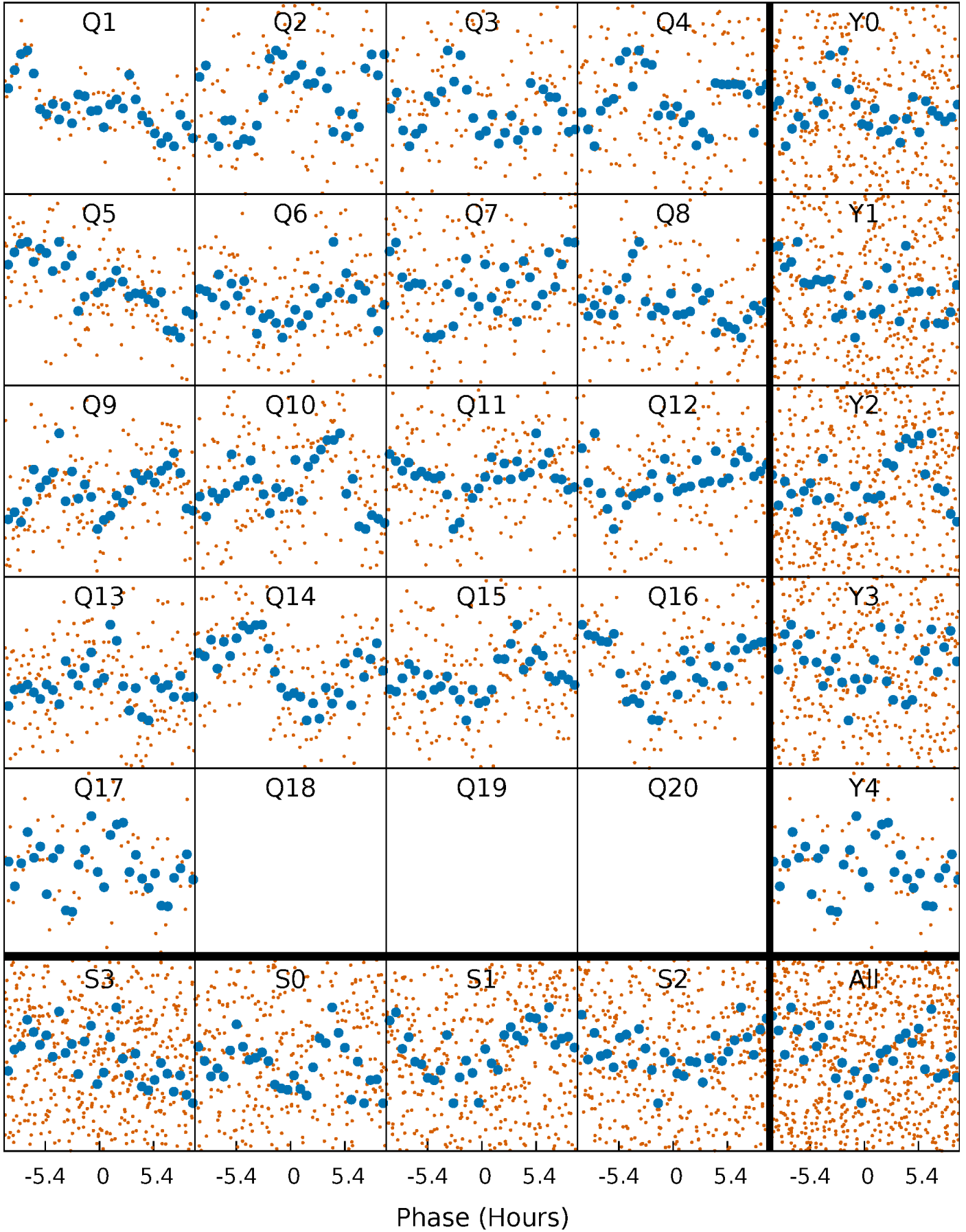


Non-Whitened Vs. Whitened Light Curve



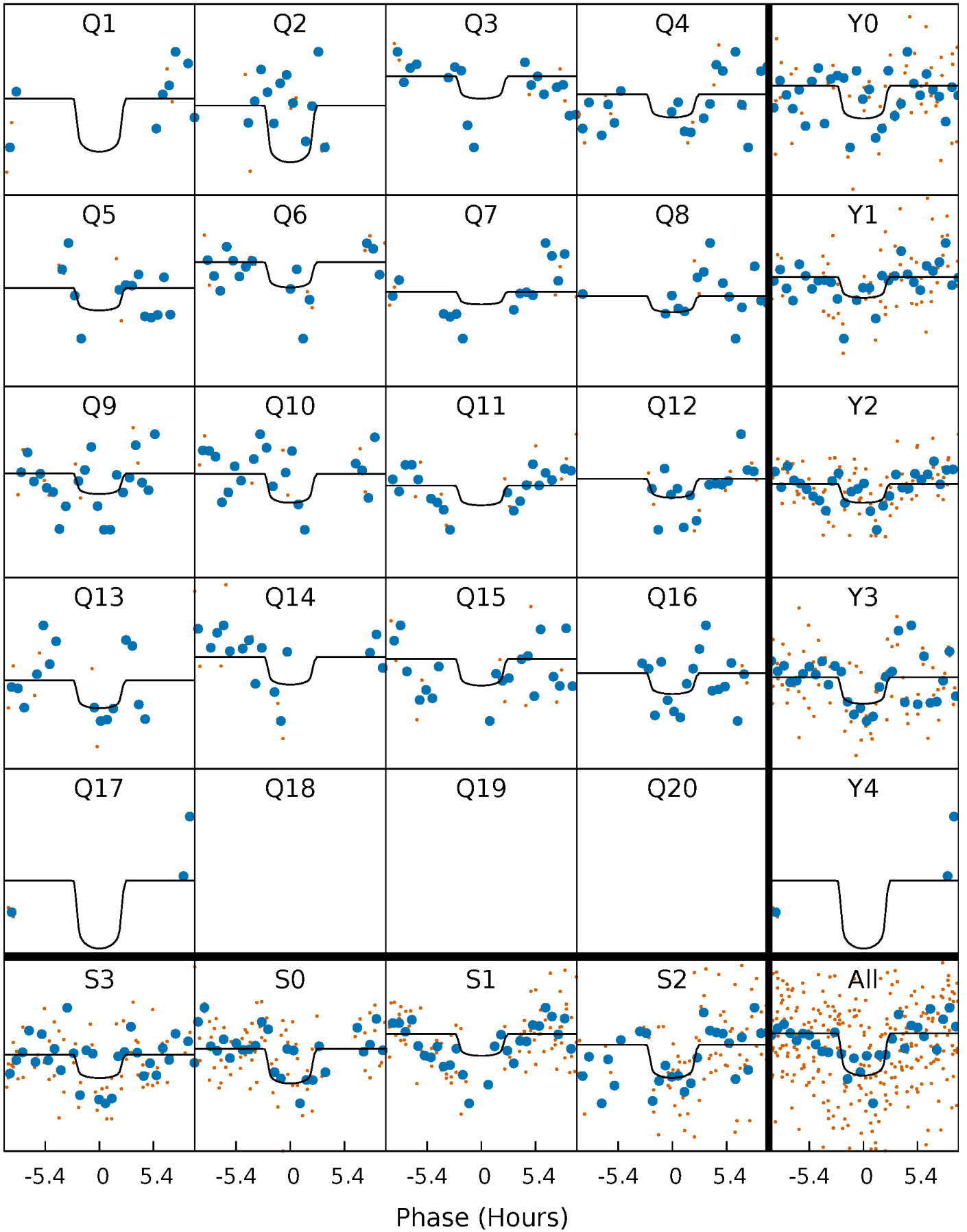
PDC Quarter-Phased Transit Curves

TCE 007816992-05 $P = 19.773249$ Days $T_0 = 144.267271$ (BKJD)



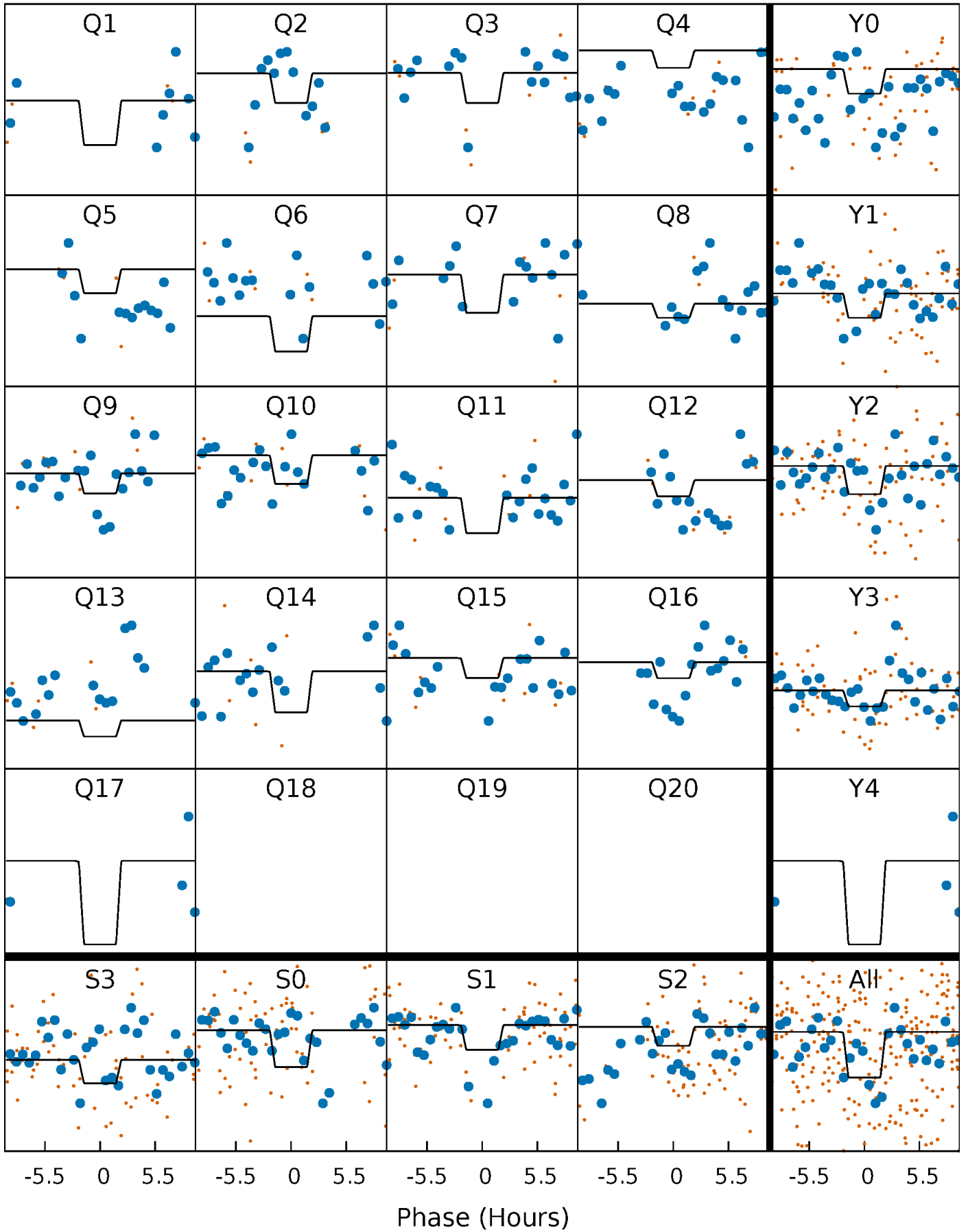
DV Quarter-Phased Transit Curves

TCE 007816992-05 P= 19.773249 Days $T_0=144.267271$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

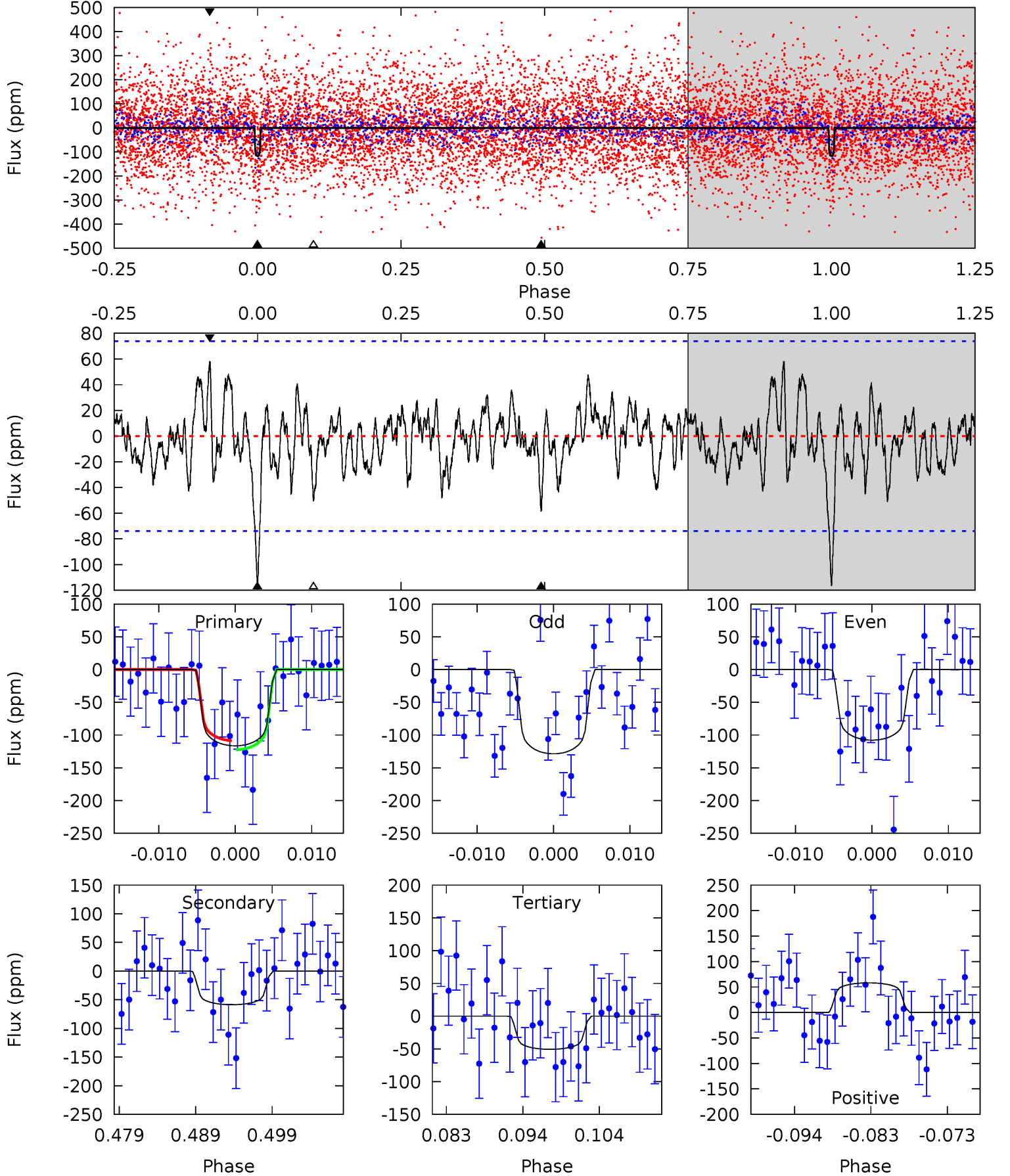
TCE 007816992-05 $P = 19.773358$ Days $T_0 = 144.268723$ (BKJD)



DV Model-Shift Uniqueness Test

007816992-05, $P = 19.773249$ Days, $E = 124.494022$ Days

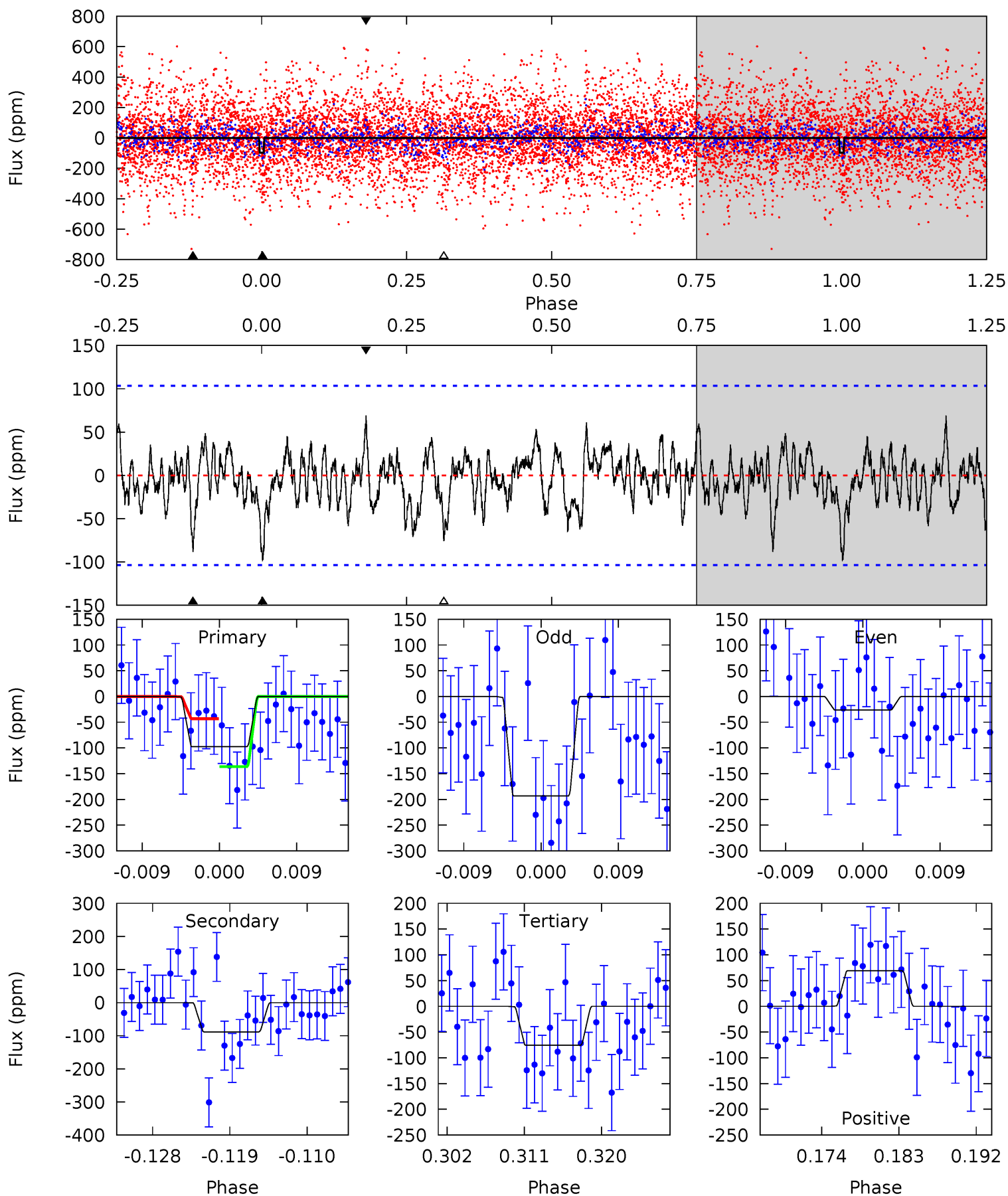
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.91	3.99	3.44	3.96	5.02	2.56	1.26	4.47	3.96	0.54	0.03	0.70	1.07	0.33	0.47



Alt Model-Shift Uniqueness Test

007816992-05, P = 19.773358 Days, E = 124.495365 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.75	4.29	3.68	3.36	5.04	2.61	1.19	1.07	1.39	0.61	0.94	3.99	1.86	0.41	2.23



Stellar Parameters For KIC 007816992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6956^{+194}_{-333}	$4.278^{+0.075}_{-0.225}$	$0.070^{+0.200}_{-0.350}$	$1.439^{+0.537}_{-0.215}$	$1.431^{+0.222}_{-0.202}$	$0.676^{+0.226}_{-0.396}$
	+3%/-5%	+2%/-5%	+286%/-500%	+37%/-15%	+16%/-14%	+33%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007816992-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-59 ± 15	$1.95^{+1.08}_{-1.06}$	1302^{+109}_{-75}	5565^{+2861}_{-1008}	224^{+769}_{-138}
Alt.	-88 ± 21	$1.86^{+1.17}_{-0.97}$	1309^{+112}_{-84}	6185^{+3769}_{-1172}	351^{+1201}_{-221}

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

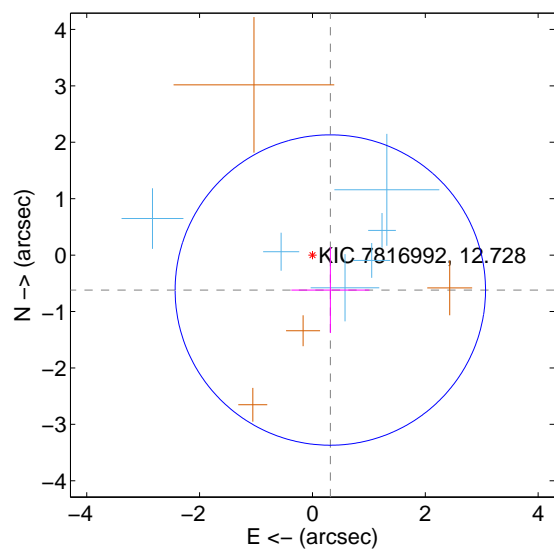
Supplemental centroid analysis for 007816992-05. Kepler magnitude: 12.73. Transit SNR 9.00

There are 6 quarters with good PRF difference image offsets

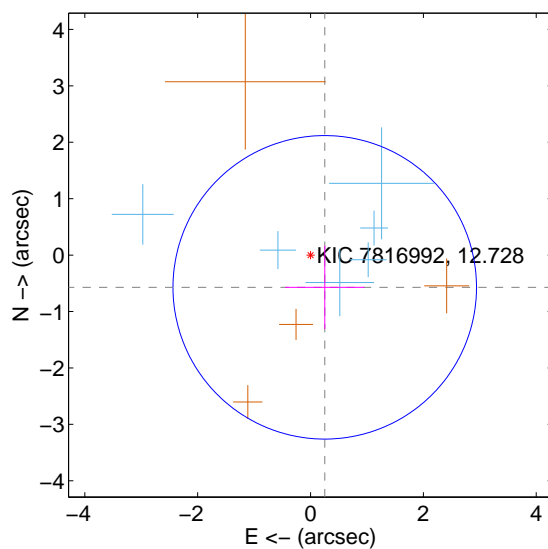
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.696 ± 0.917	0.76	-0.317 ± 0.692	-0.620 ± 0.763
PRF-fit source offset from KIC position	0.625 ± 0.897	0.70	-0.252 ± 0.701	-0.572 ± 0.740
photometric centroid source offset	1.84 ± 0.58	3.19	-0.90 ± 0.57	1.61 ± 0.58

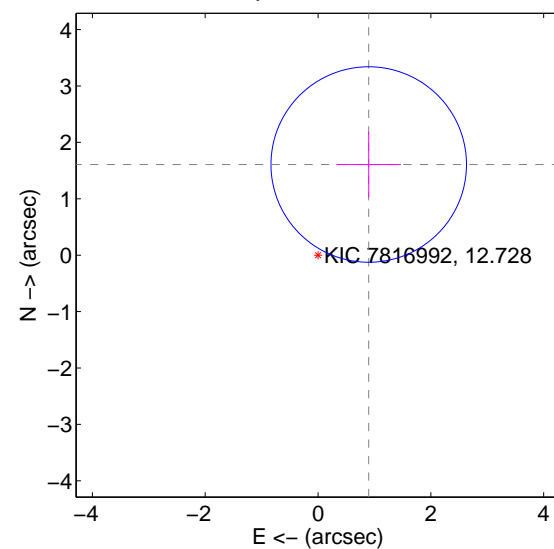
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

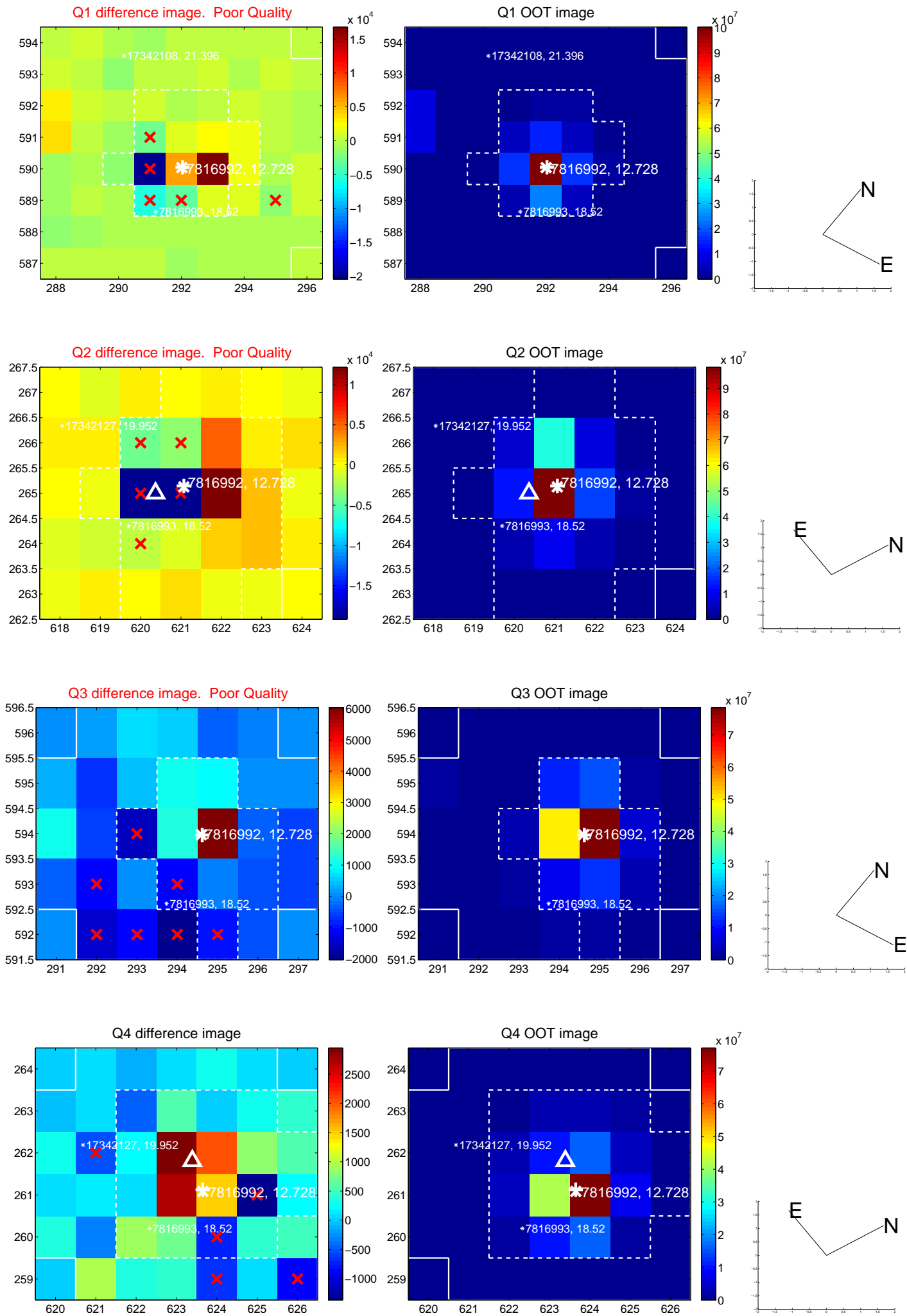


offset from photometric centroids

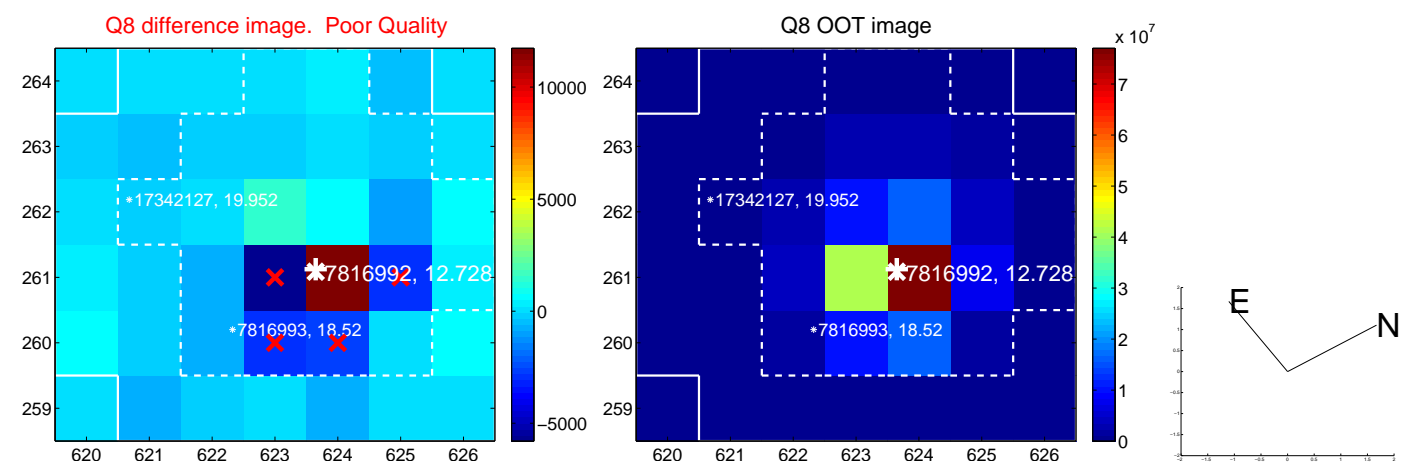
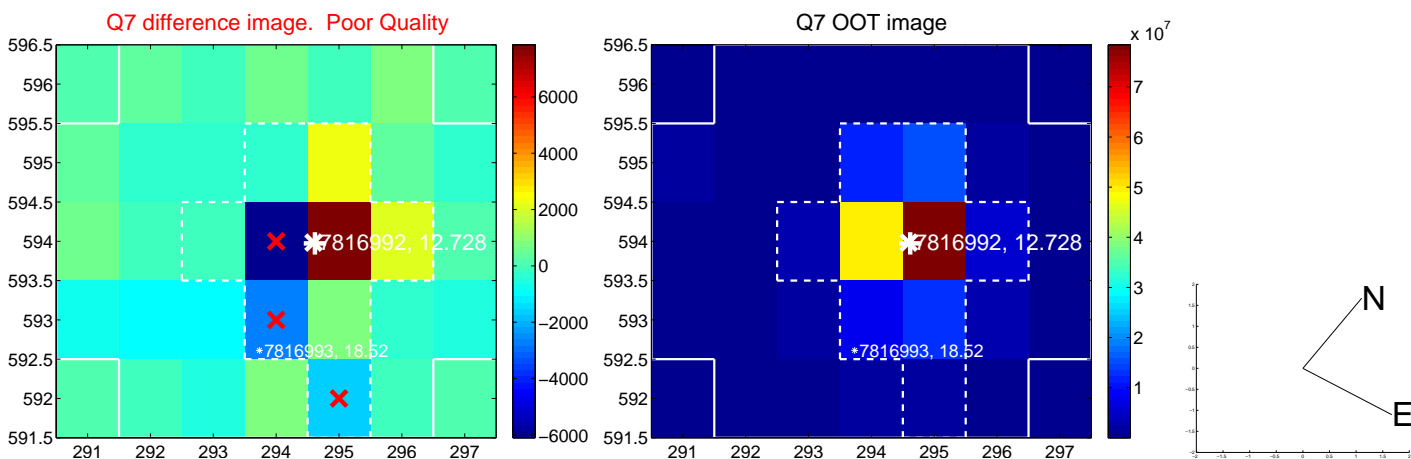
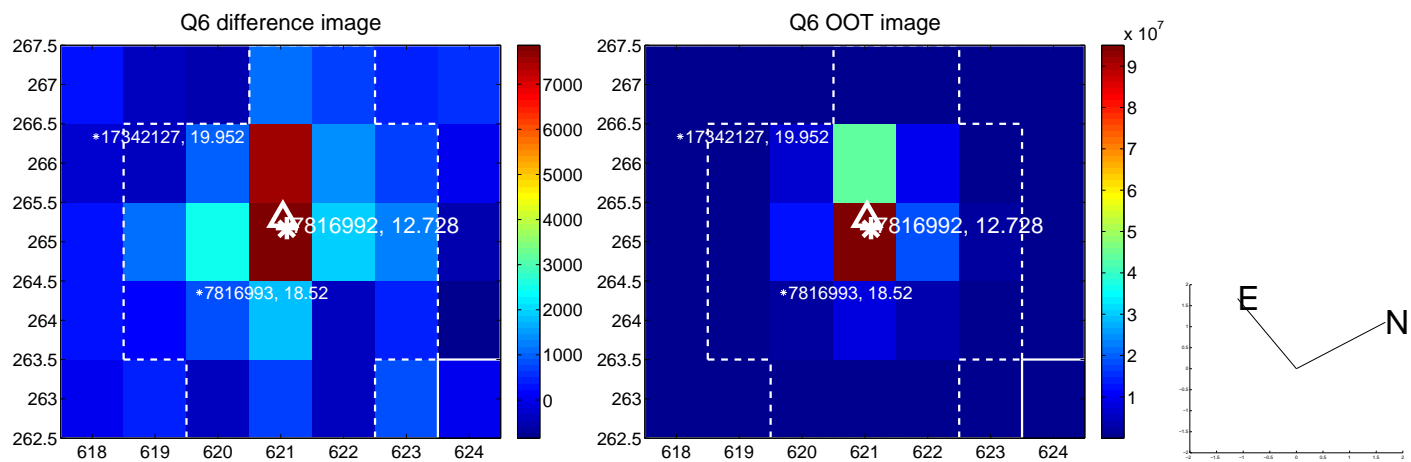
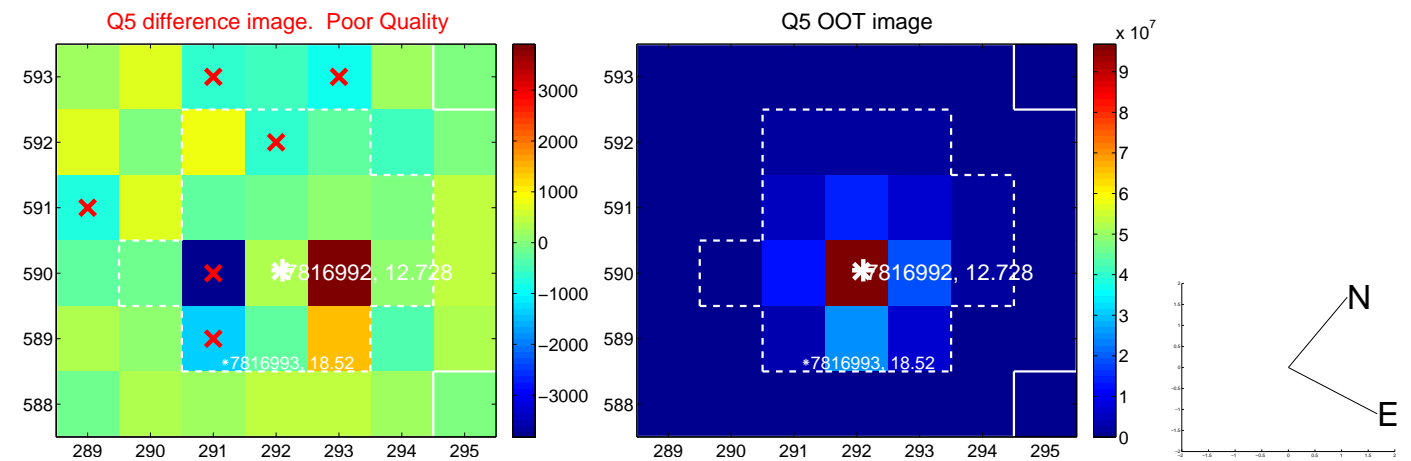


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

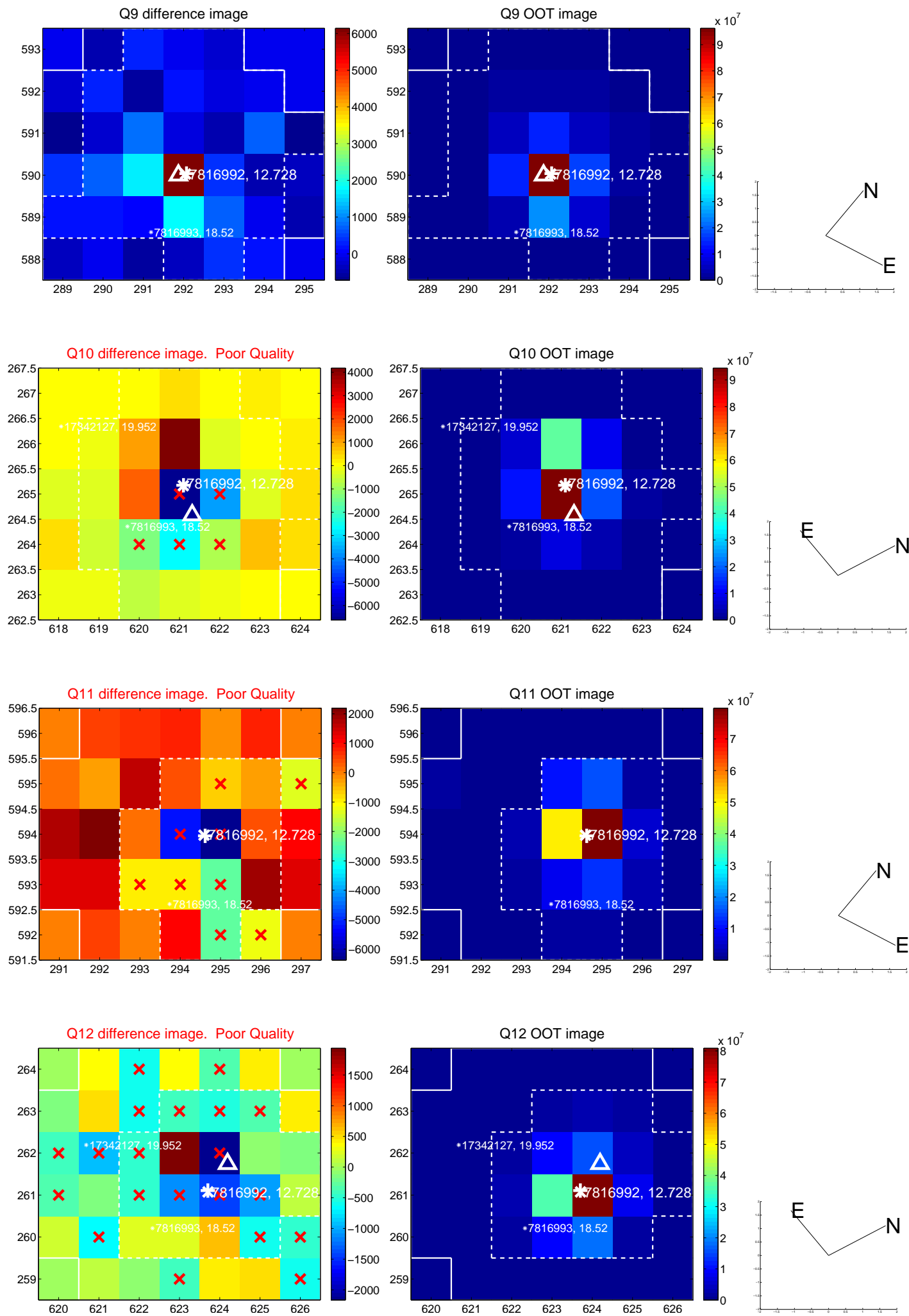
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



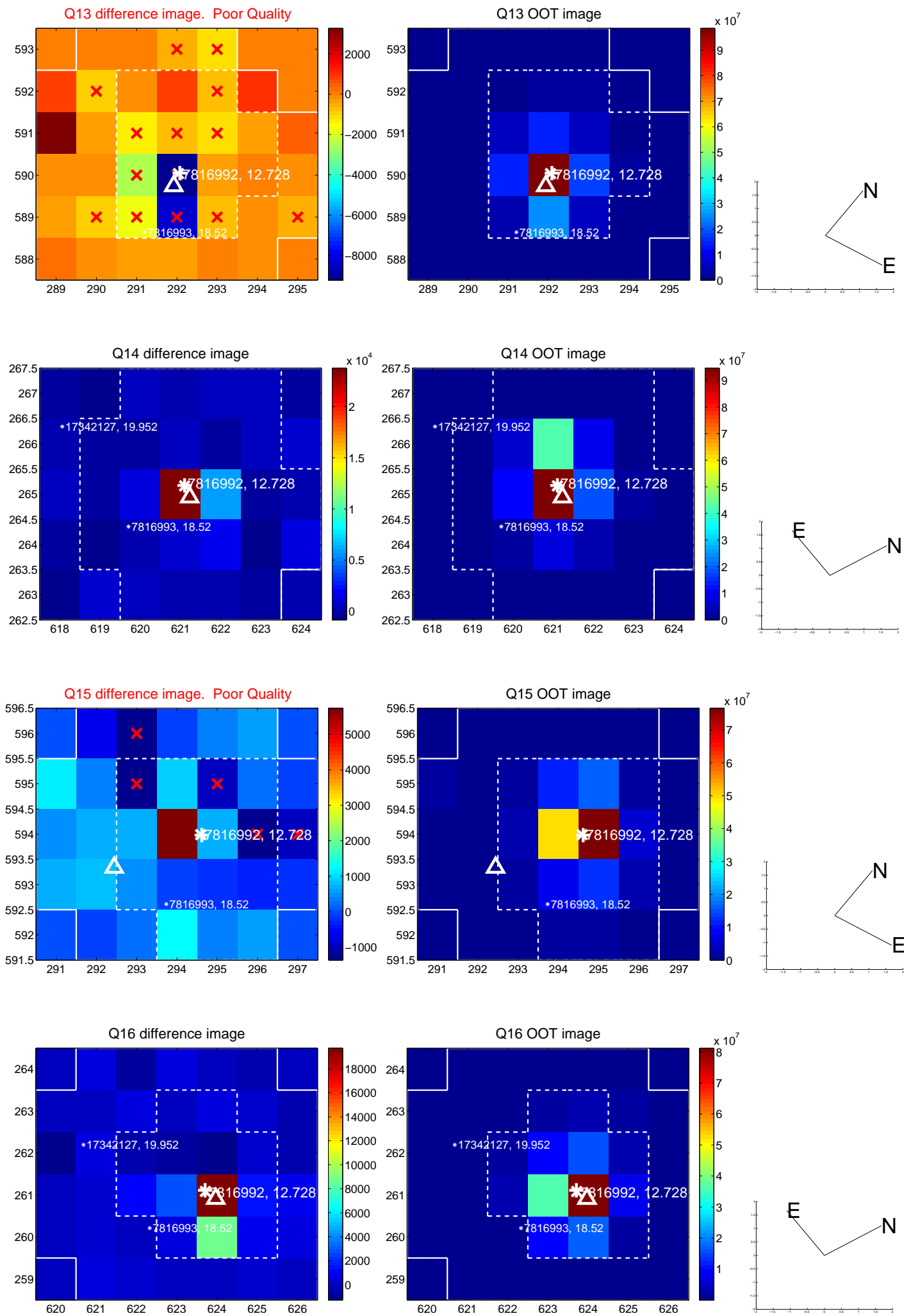
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



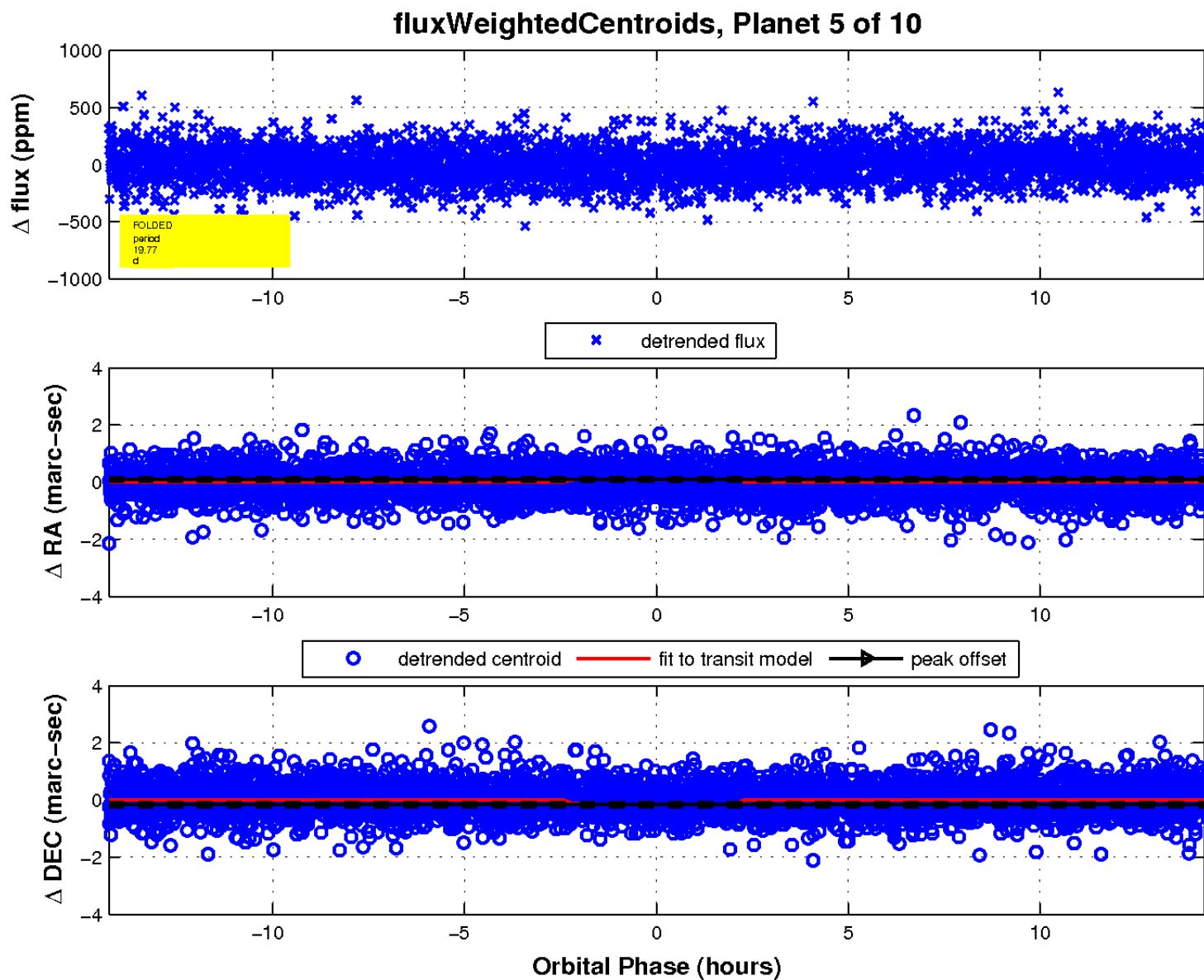
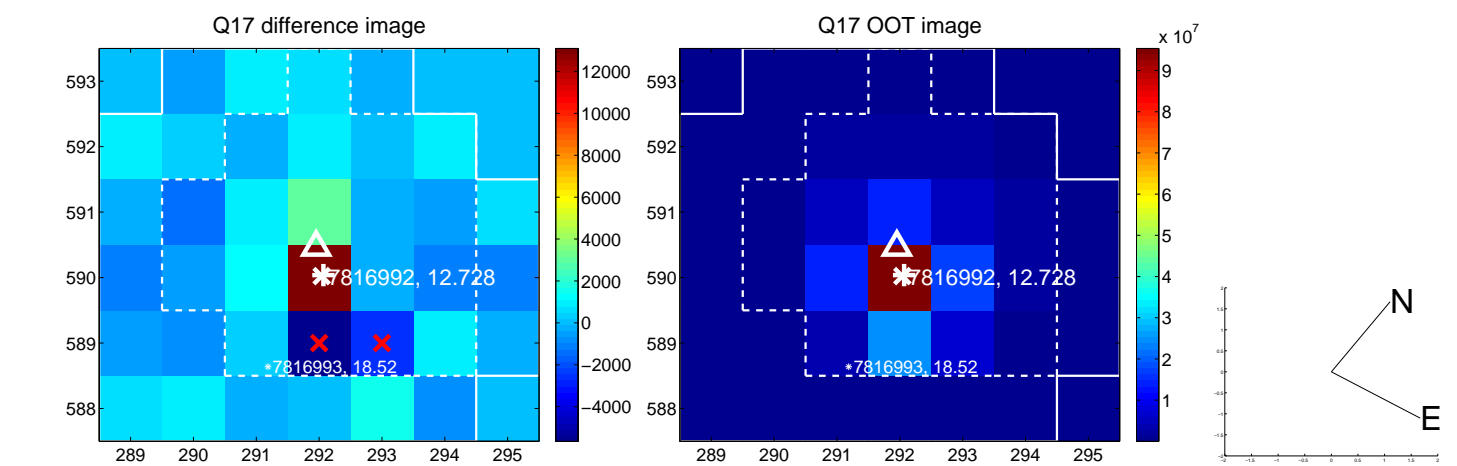
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

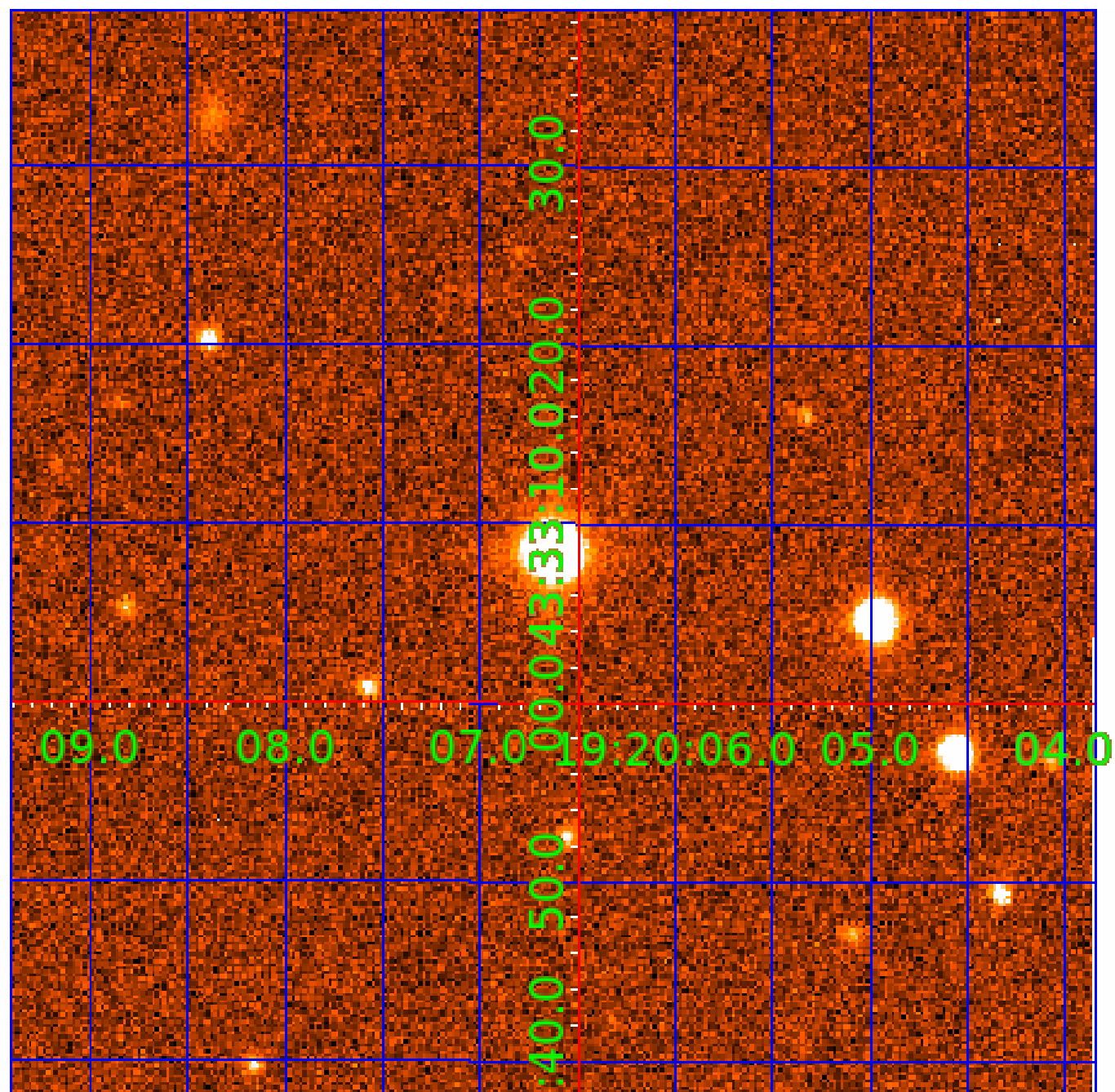


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007816992

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})
007816992-01	OBS	No	0.795855	132.214839	4.5	5.406	8.2	3.0	1.44	6956	0.31	12094.68
007816992-02	OBS	No	21.708210	133.397023	69.8	7.026	11.2	6.8	1.44	6956	1.36	147.30
007816992-03	OBS	No	45.142788	134.057293	234.4	1.682	12.0	10.0	1.44	6956	2.25	55.49
007816992-04	OBS	No	30.851957	153.560834	235.5	2.146	10.3	10.3	1.44	6956	2.49	92.19
007816992-05	OBS	No	19.773249	144.267271	110.5	4.767	9.8	9.0	1.44	6956	1.74	166.83
007816992-06	OBS	No	37.027490	142.337681	222.5	3.133	10.2	11.7	1.44	6956	2.38	72.28
007816992-07	OBS	No	13.003061	143.580835	147.2	2.503	11.0	11.9	1.44	6956	1.99	291.73
007816992-08	OBS	No	37.761874	135.582068	221.4	2.152	10.2	9.5	1.44	6956	2.42	70.41
007816992-09	OBS	No	378.044986	294.097804	230.1	7.332	10.2	8.4	1.44	6956	2.54	3.26
007816992-10	OBS	No	83.224846	211.371629	352.3	2.000	10.5	-1.0	1.44	6956	2.73	24.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007816992-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_FEW_MEAS
007816992-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
007816992-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007816992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
007816992-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

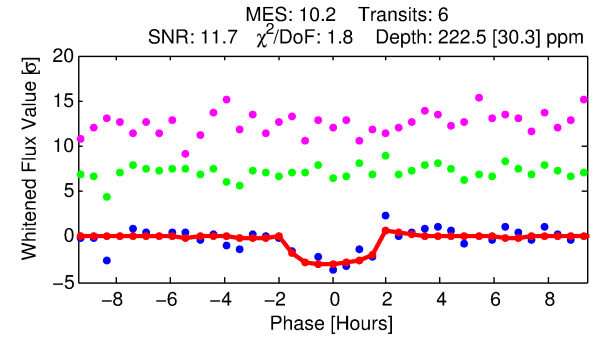
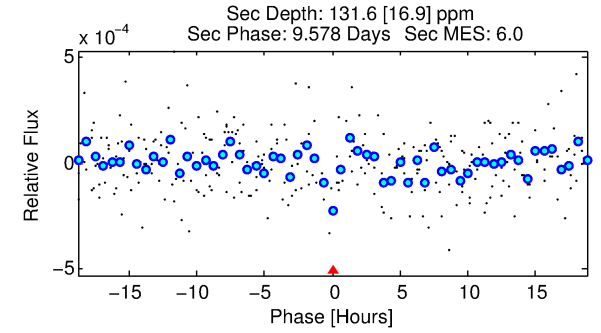
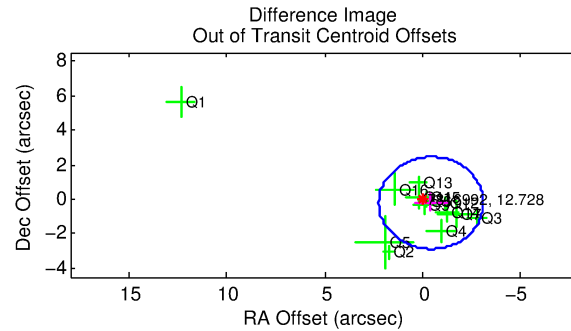
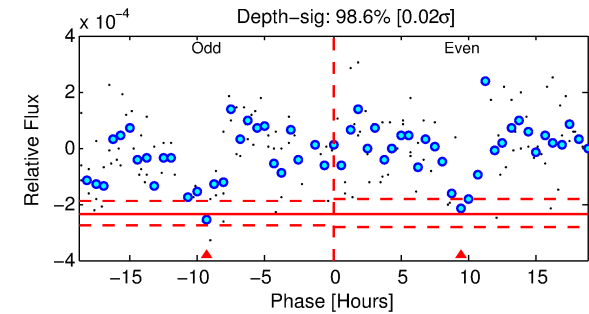
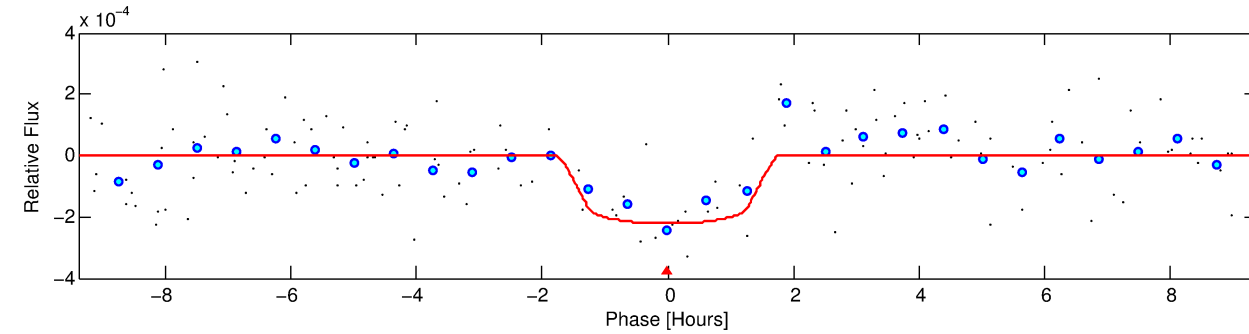
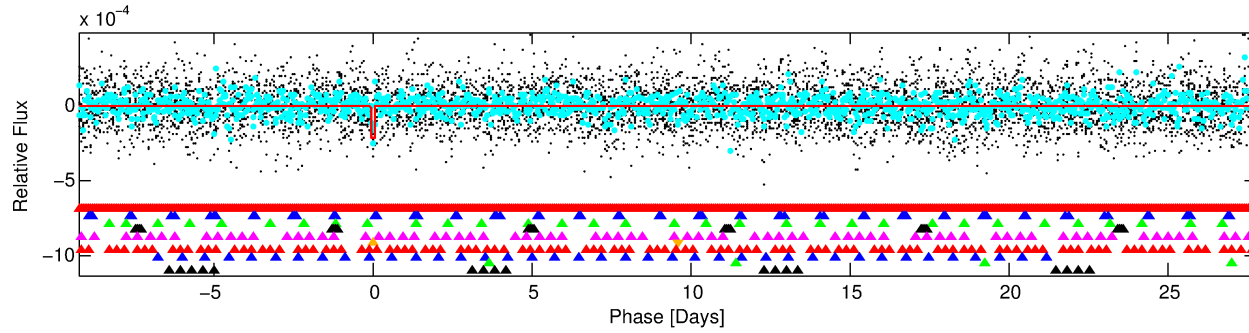
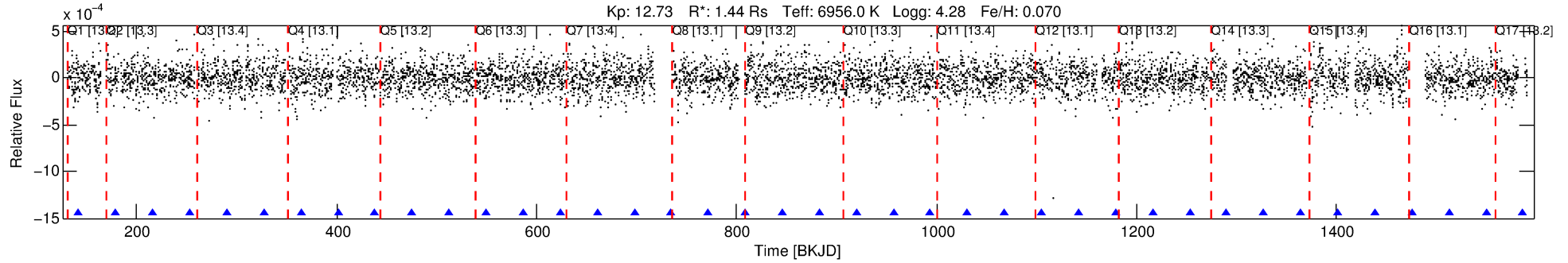
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007816992-06

No Significant Match Found

DV One-Page Summary

KIC: 7816992 Candidate: 6 of 10 Period: 37.027 d



DV Fit Results:

Period = 37.02749 [0.00067] d
Epoch = 142.3377 [0.0169] BKJD
Rp/R* = 0.0152 [0.0141]
a/R* = 54.64 [301.42]
b = 0.82 [2.28]
Seff = 72.28 [33.74]
Teq = 743 [87] K
Rp = 2.38 [2.39] Re
a = 0.2451 [0.0742] AU
Ag = 766.31 [1466.05] [0.52σ]
Teffp = 6048 [2835] K [1.87σ]

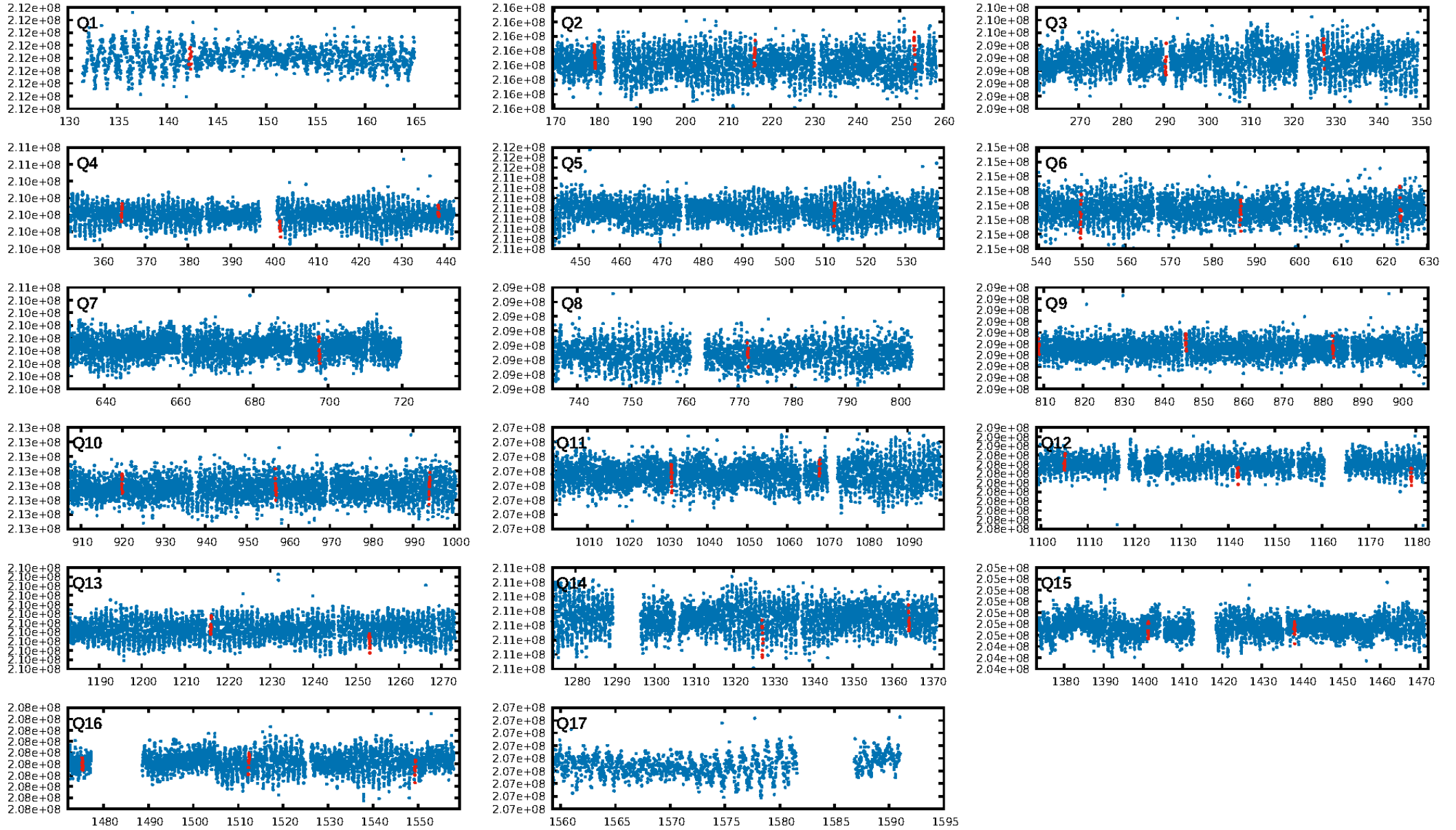
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [39.03σ]
LongPeriod-sig: 100.0% [4.64σ]
ModelChiSquare2-sig: 26.3%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.5932
Centroid-sig: 2.2%
Centroid-so: 0.771 arcsec [1.60σ]
OotOffset-rm: 0.483 arcsec [0.54σ]
OotOffset-st: 3/4/3/4 [14]
KicOffset-rm: 0.381 arcsec [0.38σ]
KicOffset-st: 3/4/3/4 [14]
DiffImageQuality-fgm: 0.50 [7/14]
DiffImageOverlap-fno: 0.00 [0/16]

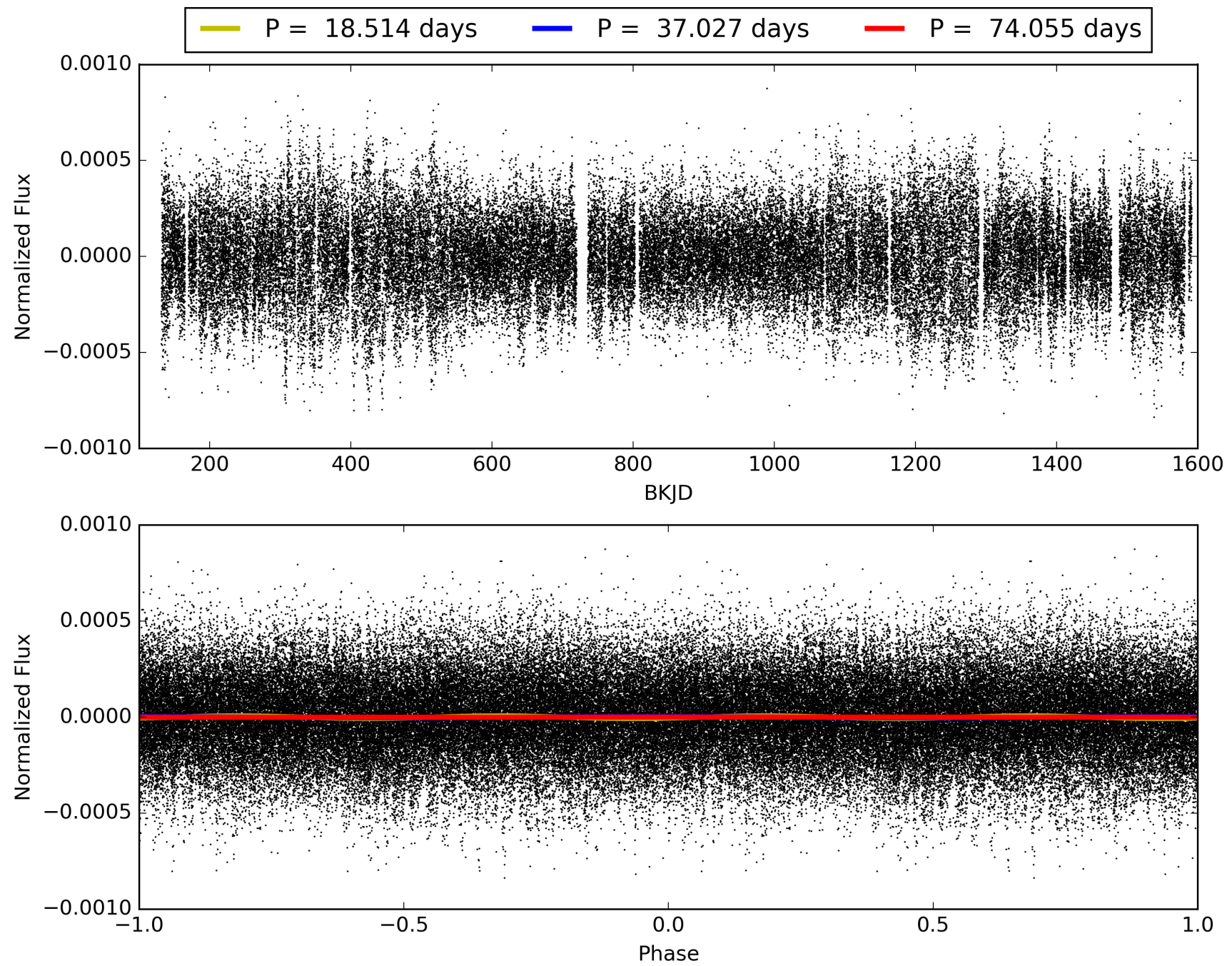
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:28:45 Z

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

TCE 007816992-06, PDC Light Curves

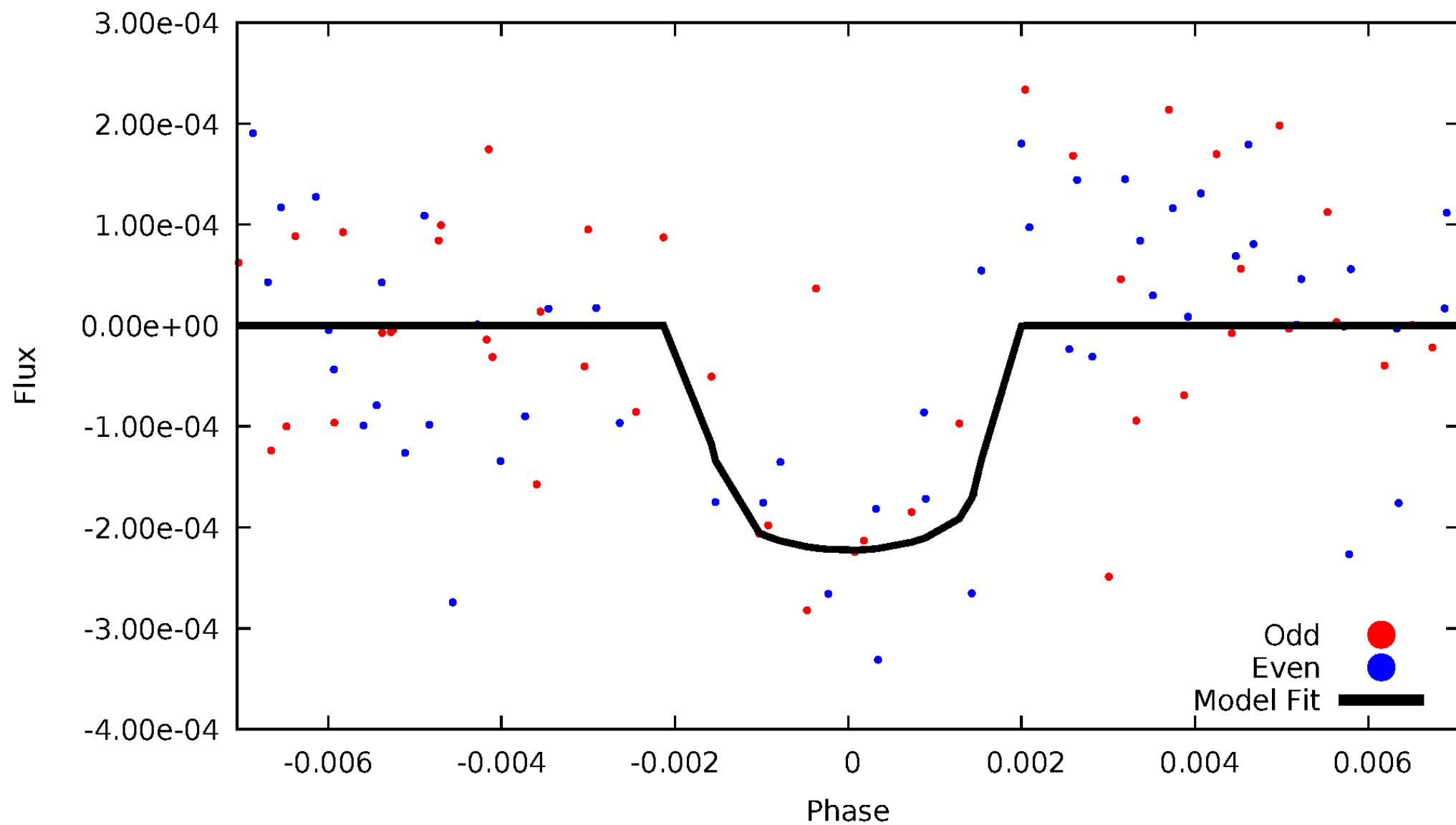


TCE 007816992-06



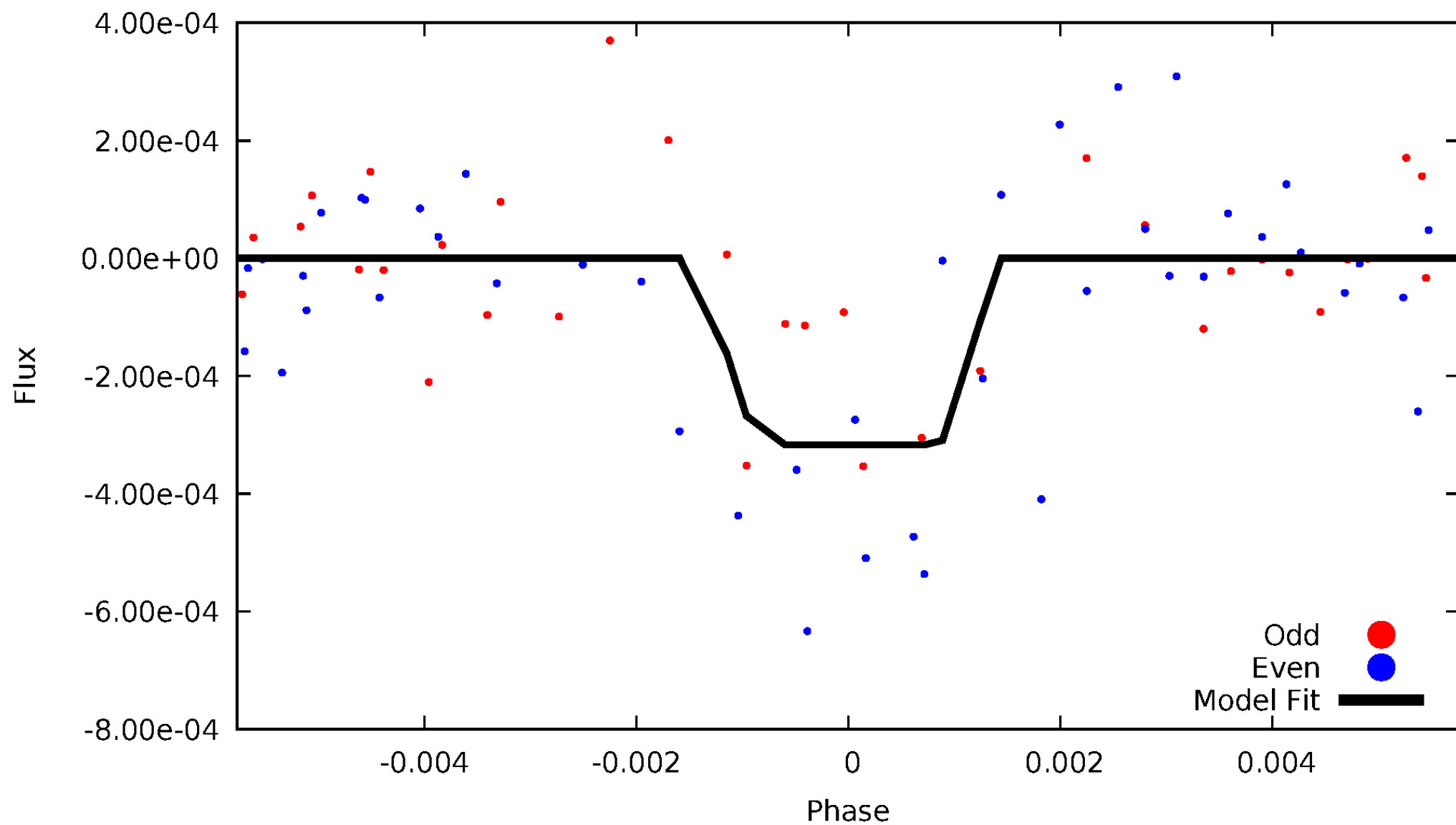
DV Odd/Even

TCE 007816992-06



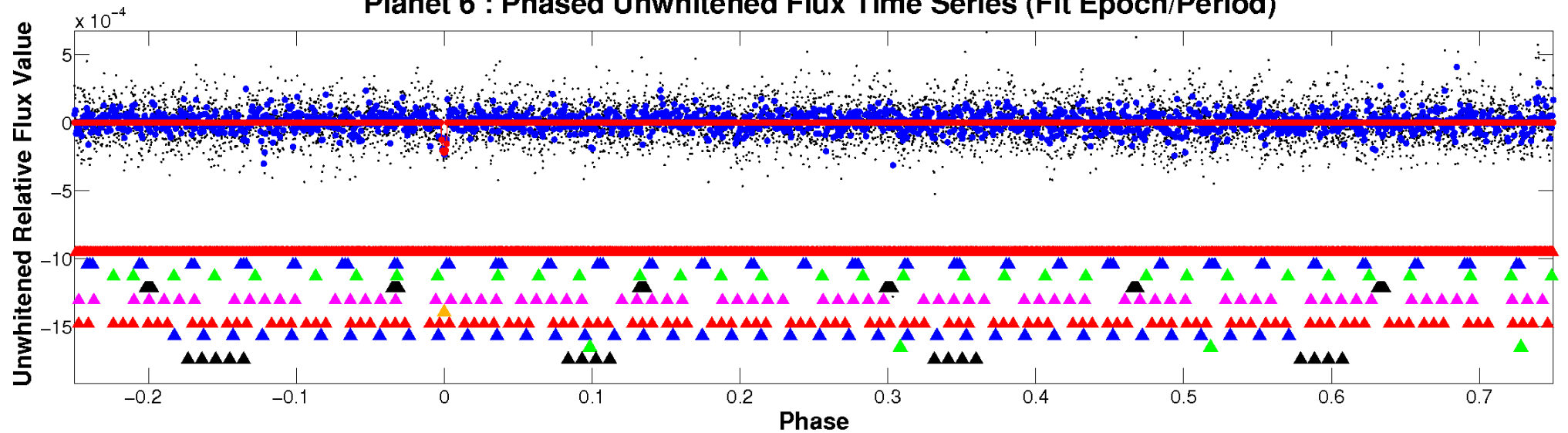
ALT Odd/Even

TCE 007816992-06

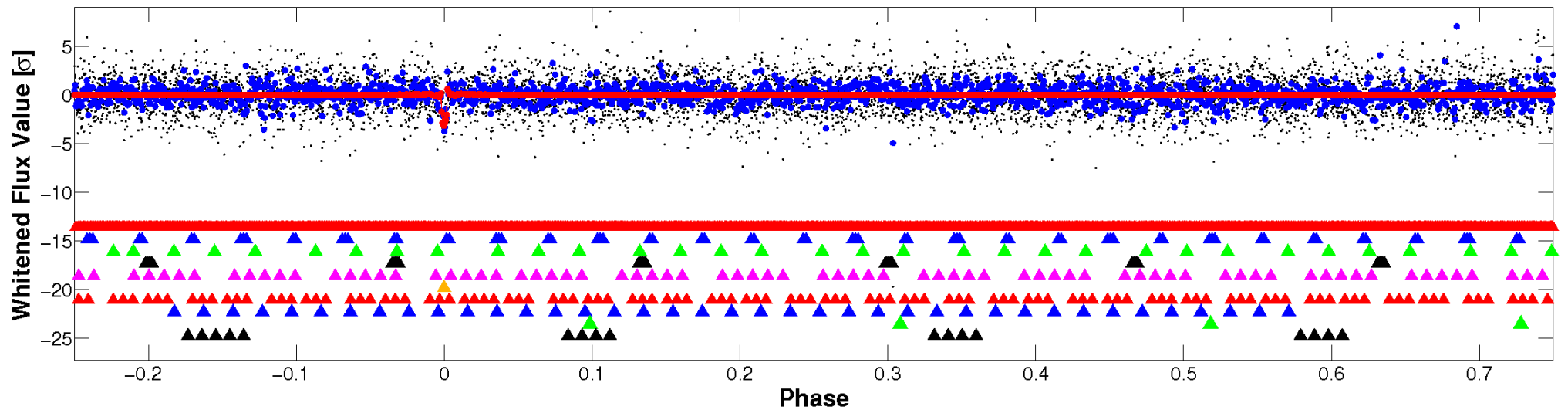


Non-Whitened Vs. Whitened Light Curve

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

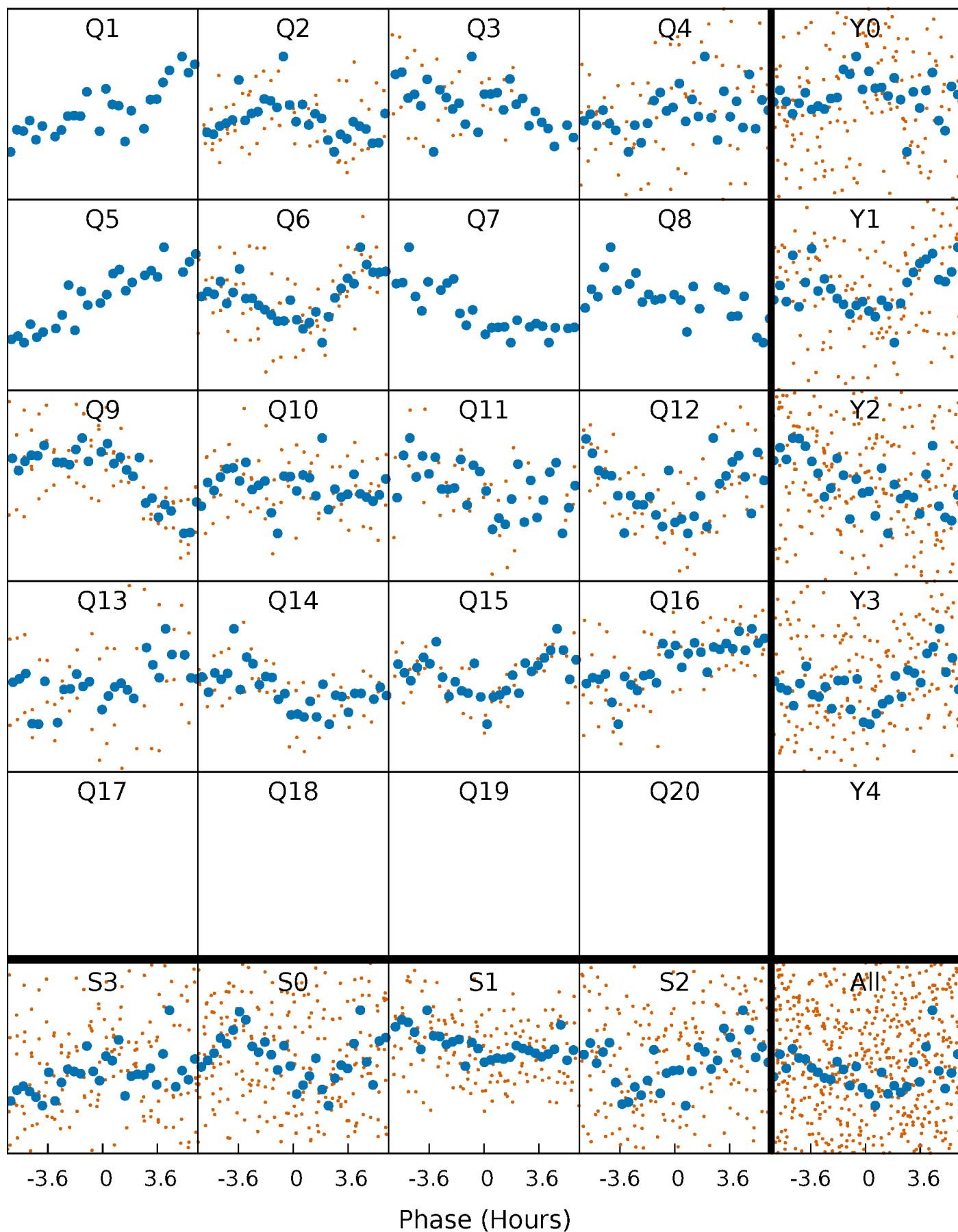


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



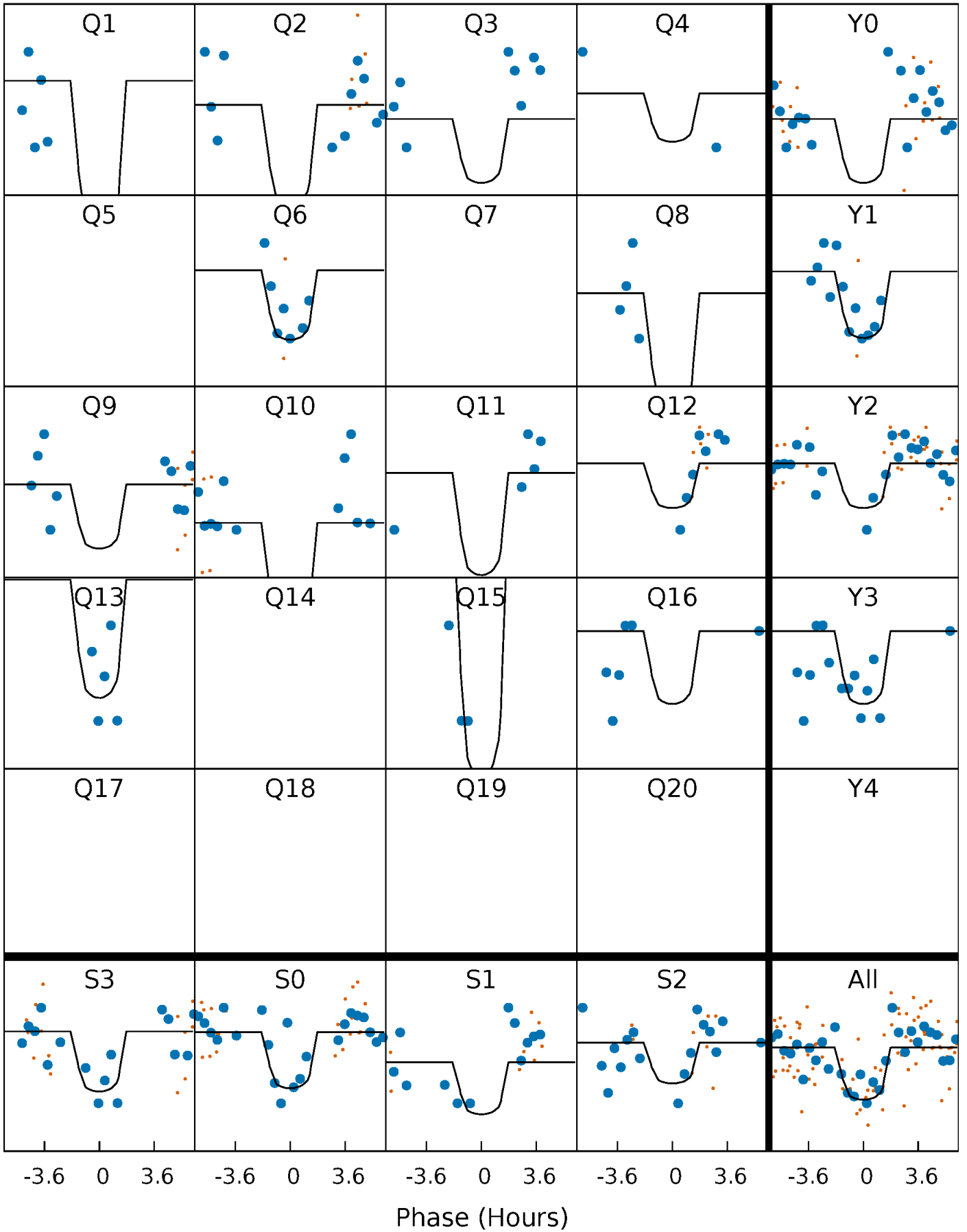
PDC Quarter-Phased Transit Curves

TCE 007816992-06 P= 37.027490 Days $T_0=142.337681$ (BKJD)



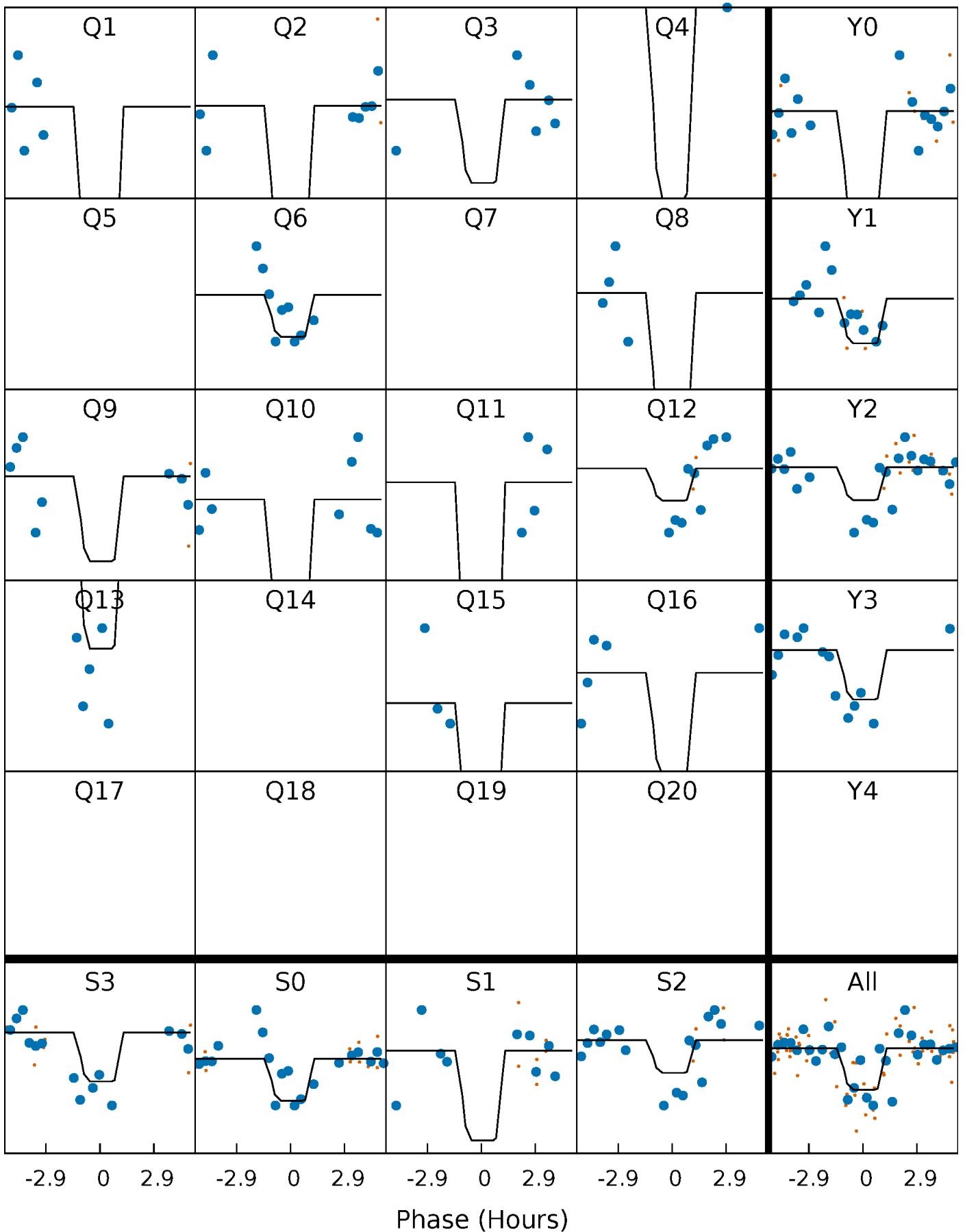
DV Quarter-Phased Transit Curves

TCE 007816992-06 P= 37.027490 Days $T_0=142.337681$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

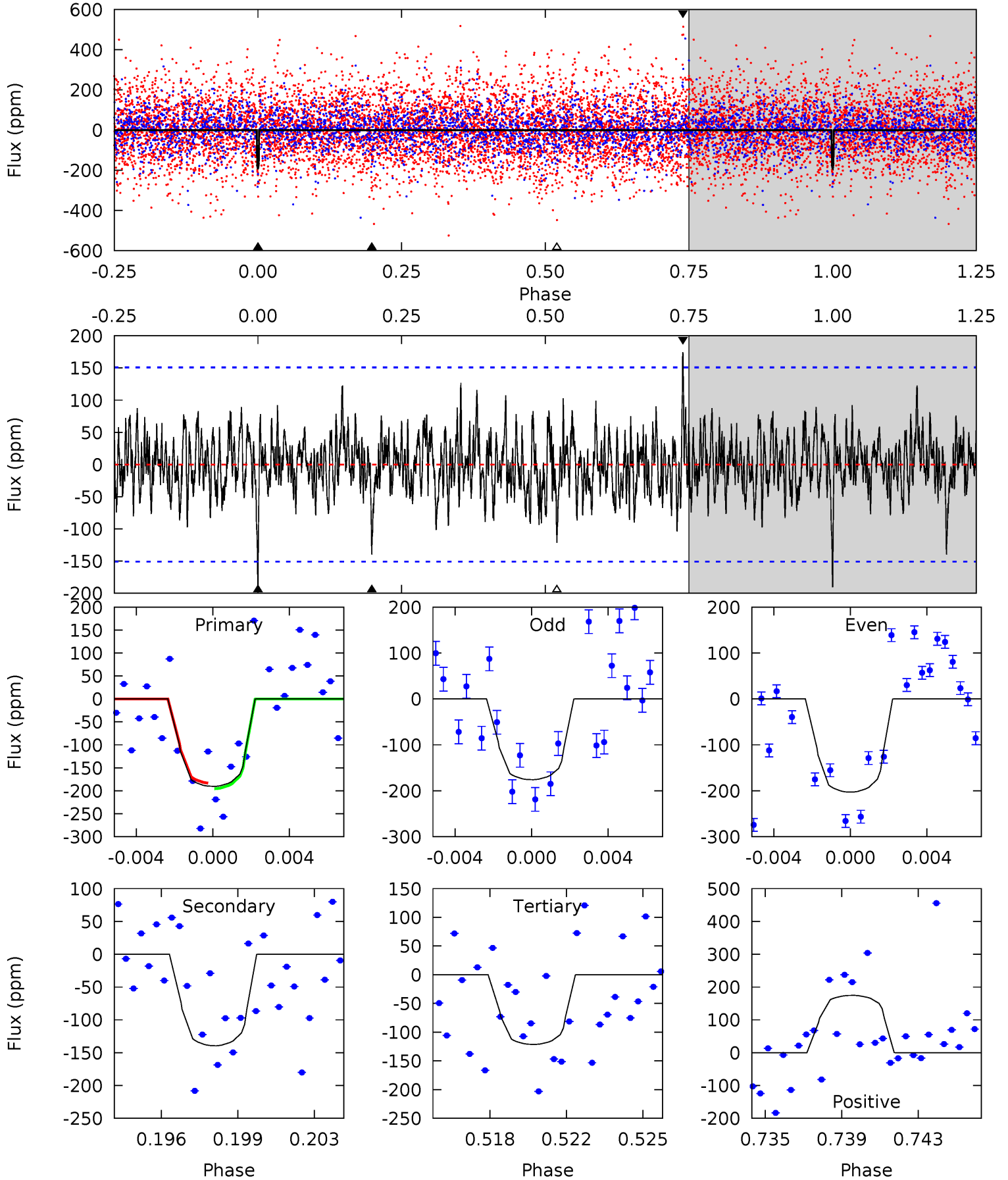
TCE 007816992-06 P= 37.028995 Days $T_0=142.322511$ (BKJD)



DV Model-Shift Uniqueness Test

007816992-06, P = 37.027490 Days, E = 105.310191 Days

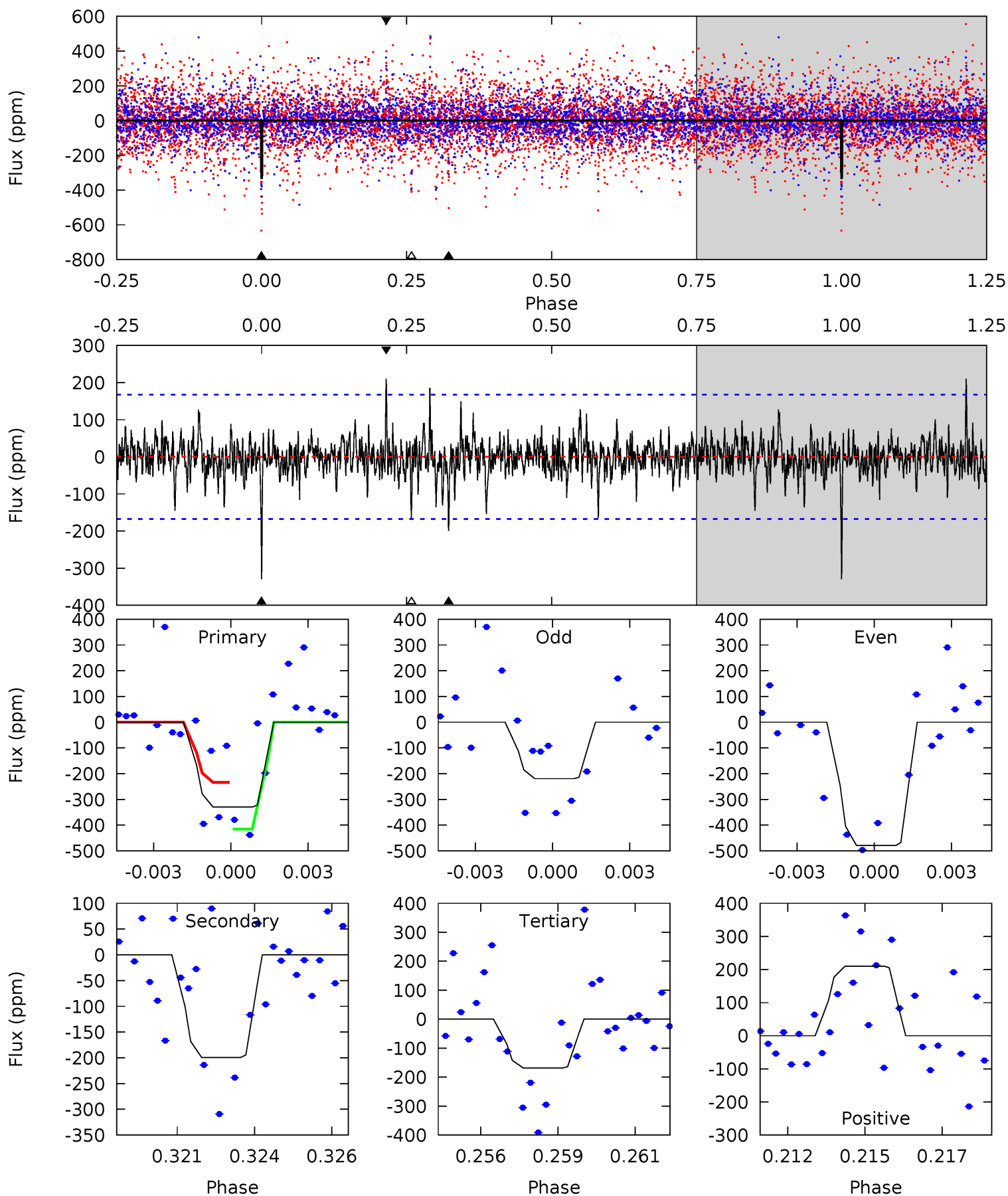
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.59	4.83	4.20	6.05	5.22	2.91	1.33	2.39	0.54	0.63	-1.22	0.46	0.95	0.48	0.21



Alt Model-Shift Uniqueness Test

007816992-06, P = 37.028995 Days, E = 105.293516 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	6.29	5.32	6.63	5.28	3.01	1.22	5.09	3.78	0.97	-0.35	4.01	0.96	0.39	2.67



Stellar Parameters For KIC 007816992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6956^{+194}_{-333}	$4.278^{+0.075}_{-0.225}$	$0.070^{+0.200}_{-0.350}$	$1.439^{+0.537}_{-0.215}$	$1.431^{+0.222}_{-0.202}$	$0.676^{+0.226}_{-0.396}$
	+3%/-5%	+2%/-5%	+286%/-500%	+37%/-15%	+16%/-14%	+33%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007816992-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-139 ± 29	$2.92^{+2.31}_{-1.94}$	1061^{+82}_{-69}	5610^{+5202}_{-1194}	538^{+4282}_{-379}
Alt.	-199 ± 32	$3.15^{+2.28}_{-1.89}$	1051^{+94}_{-65}	5887^{+4357}_{-1311}	658^{+3345}_{-436}

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

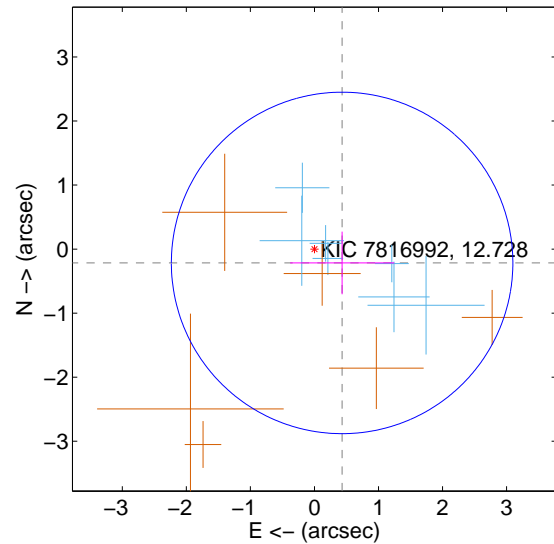
Supplemental centroid analysis for 007816992-06. Kepler magnitude: 12.73. Transit SNR 11.69

There are 7 quarters with good PRF difference image offsets

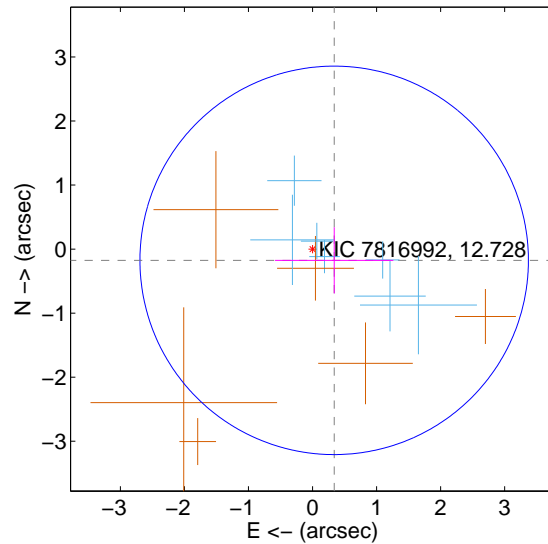
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.483 ± 0.889	0.54	-0.432 ± 0.813	-0.216 ± 0.489
PRF-fit source offset from KIC position	0.381 ± 1.011	0.38	-0.338 ± 0.925	-0.176 ± 0.518
photometric centroid source offset	0.77 ± 0.48	1.60	0.53 ± 0.47	-0.56 ± 0.49

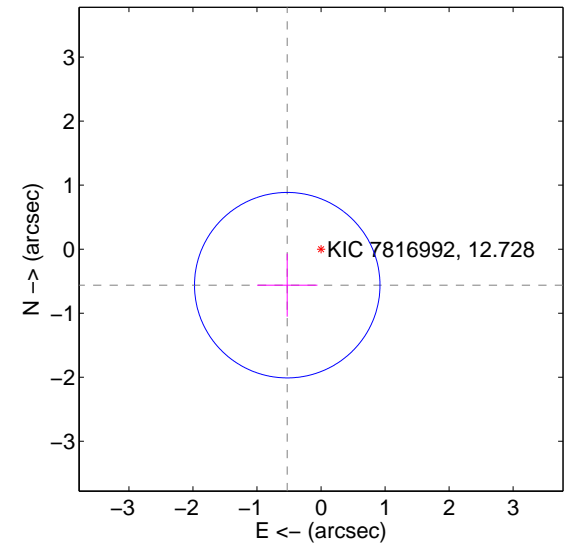
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

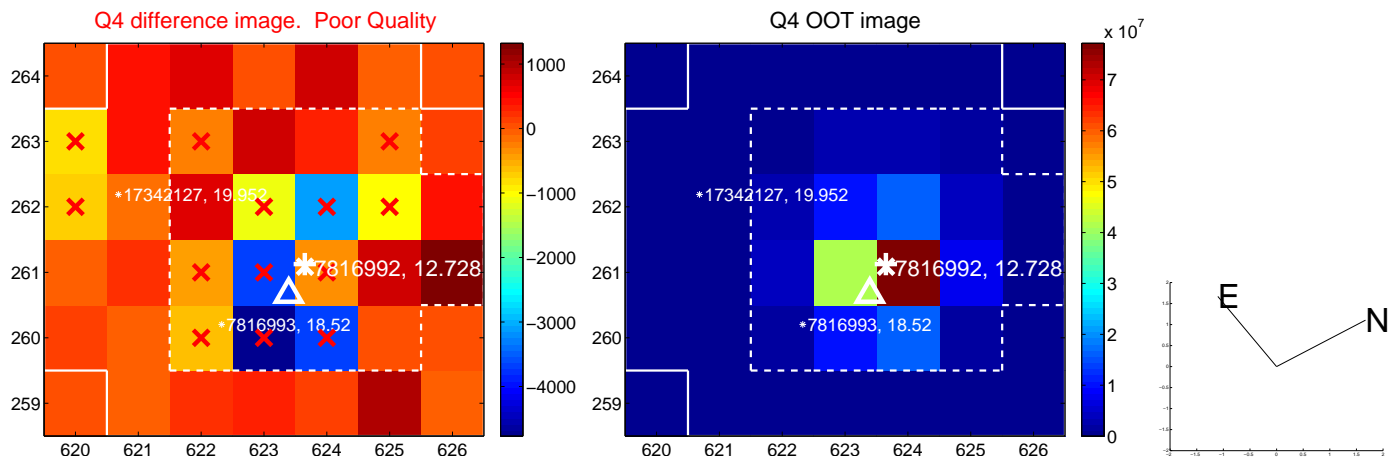
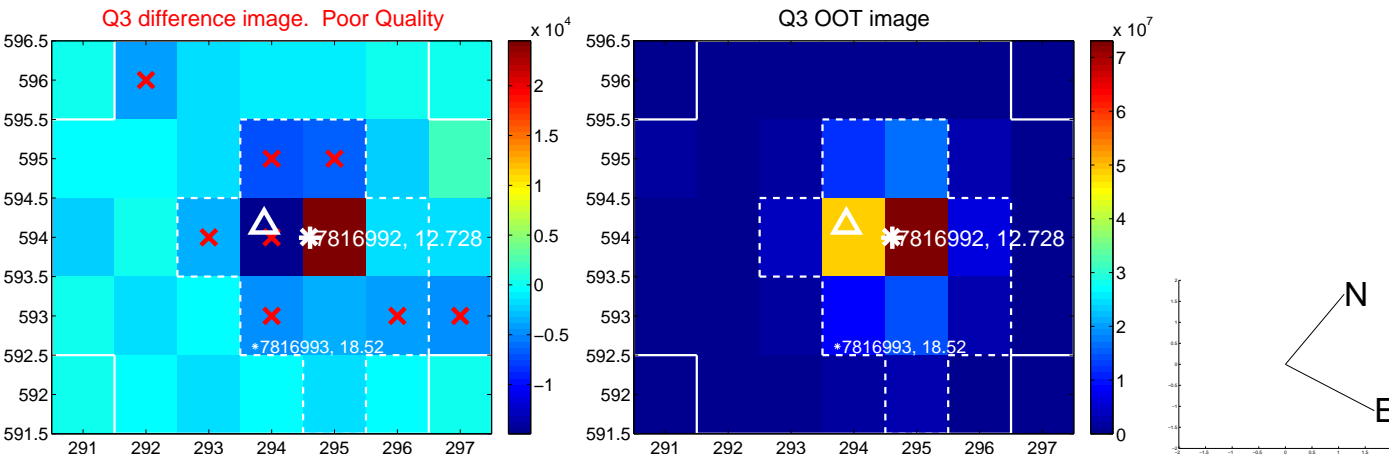
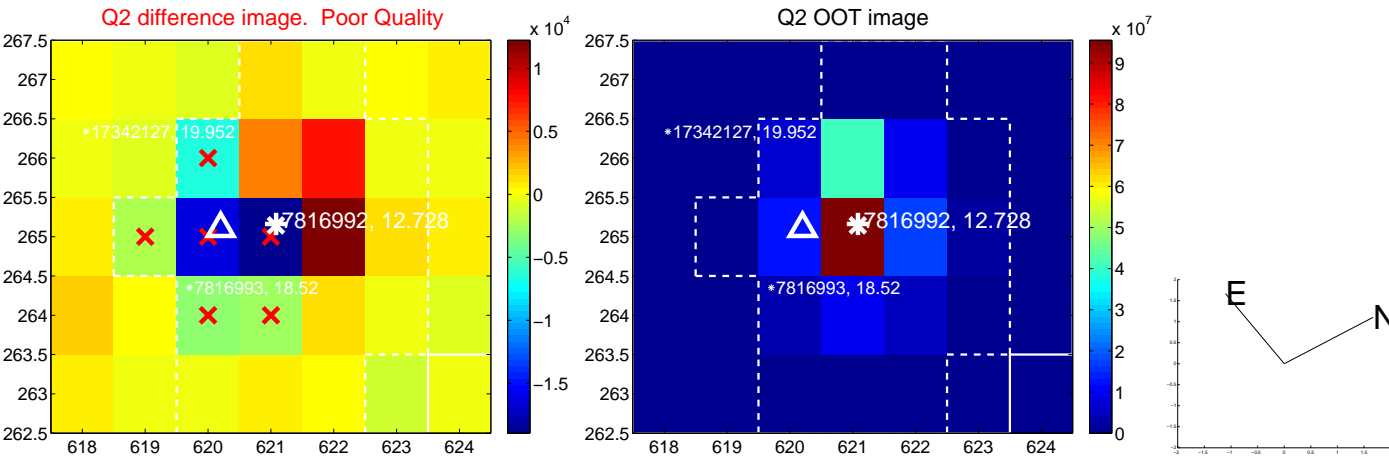
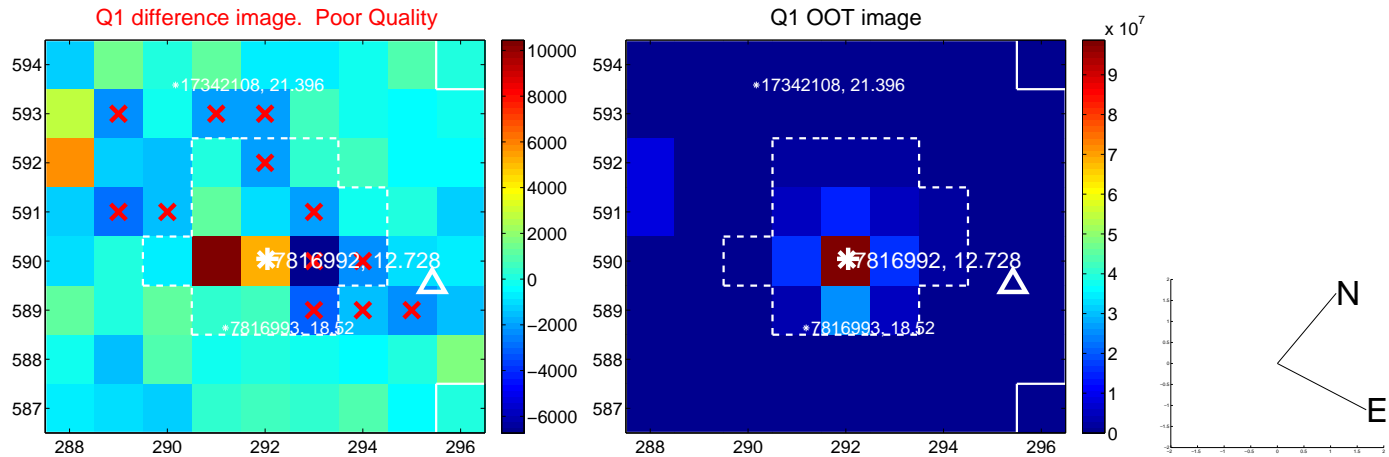


offset from photometric centroids

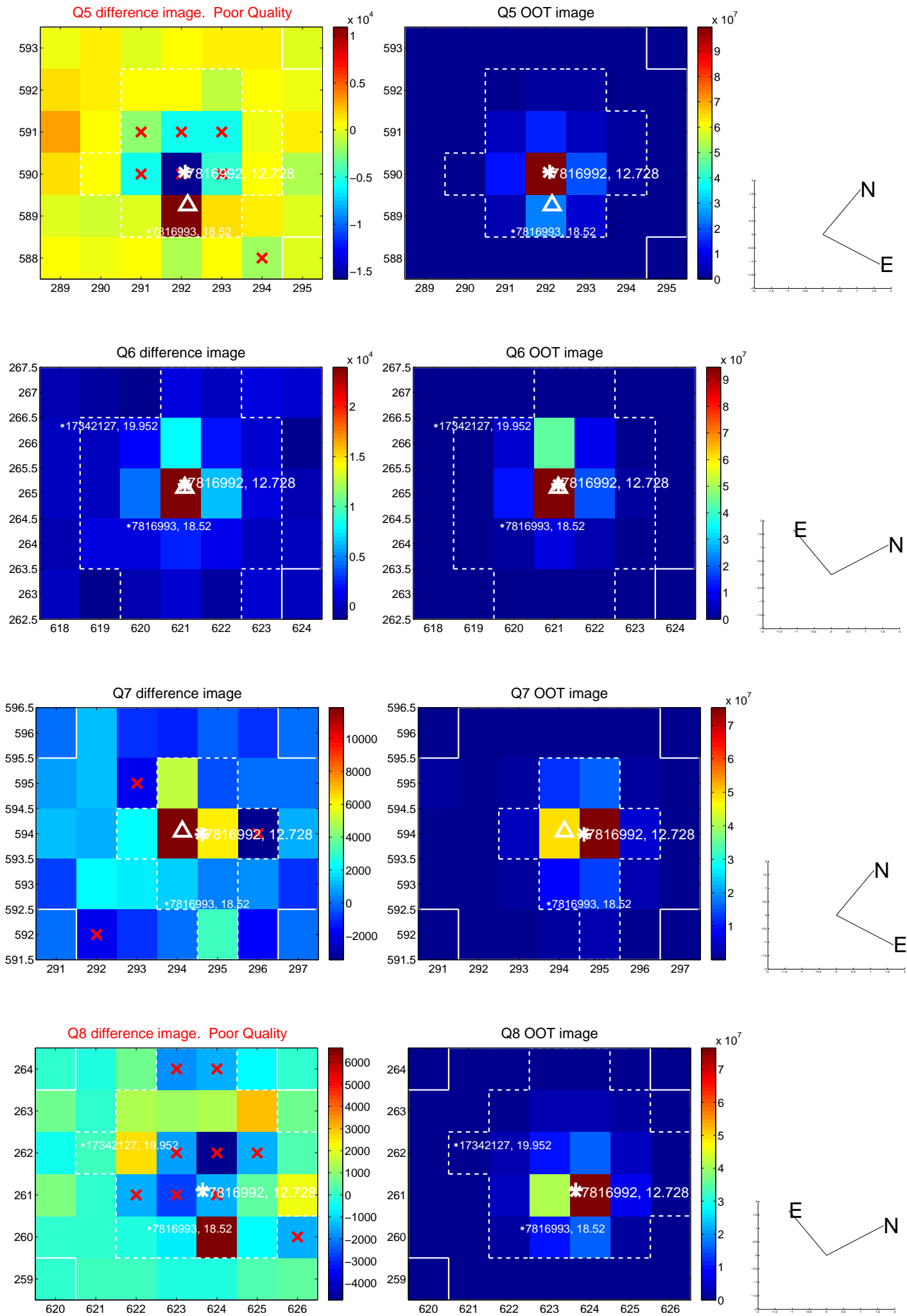


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

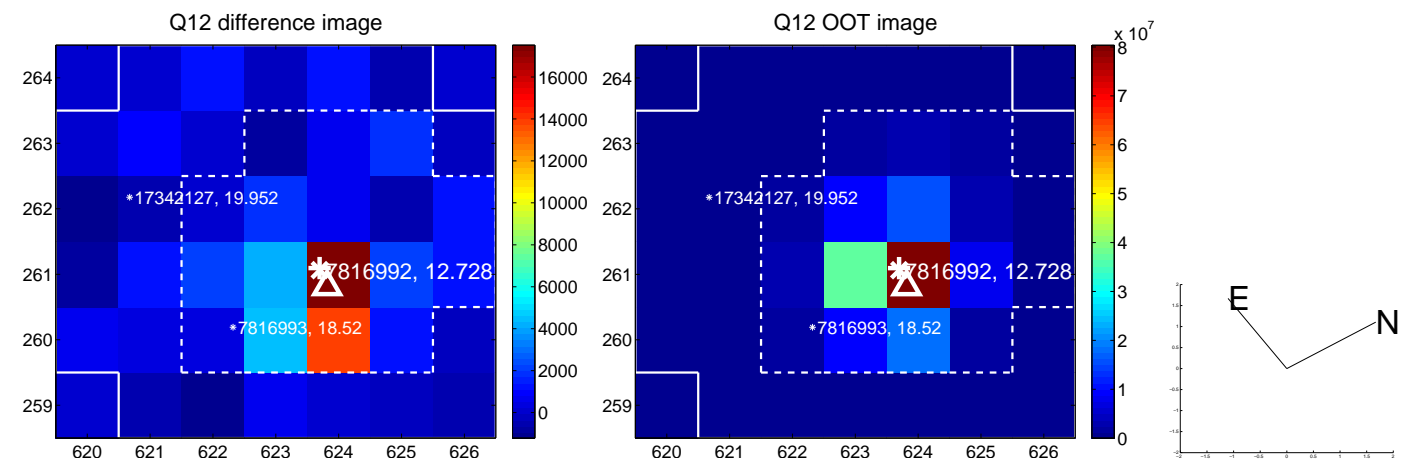
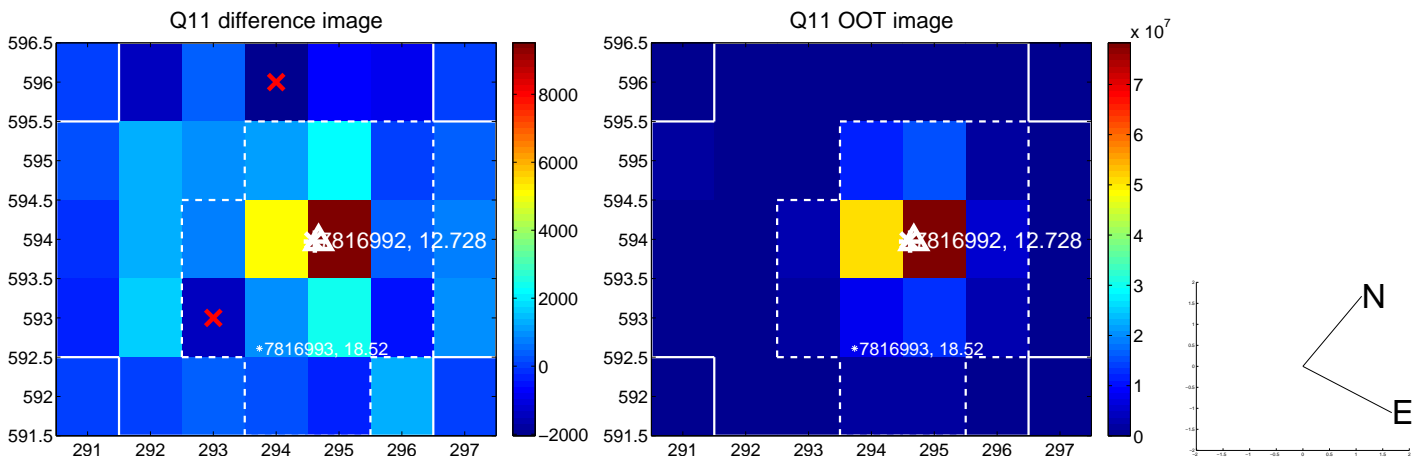
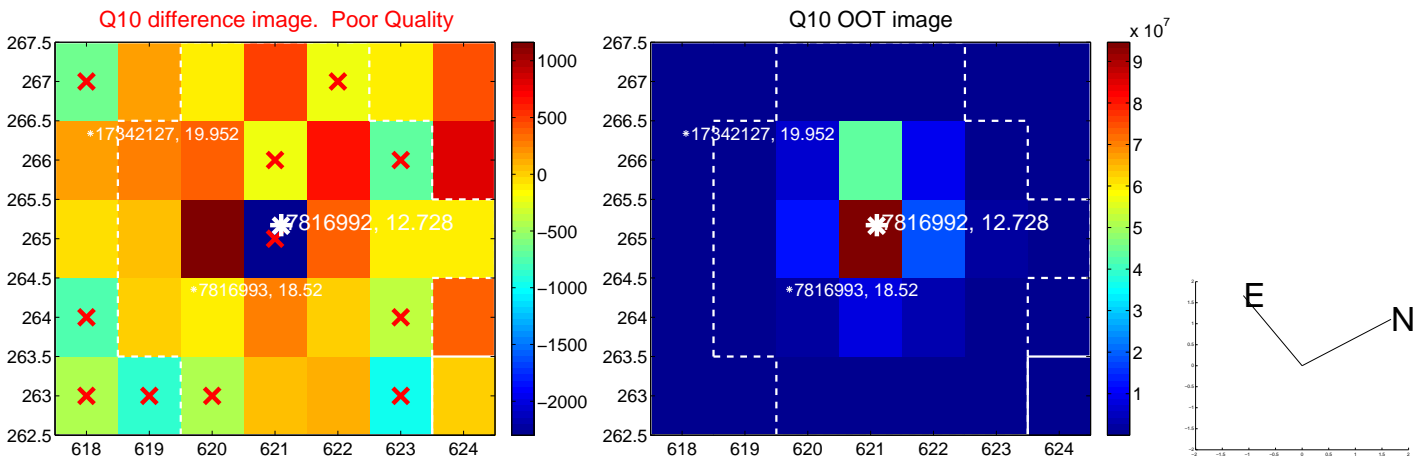
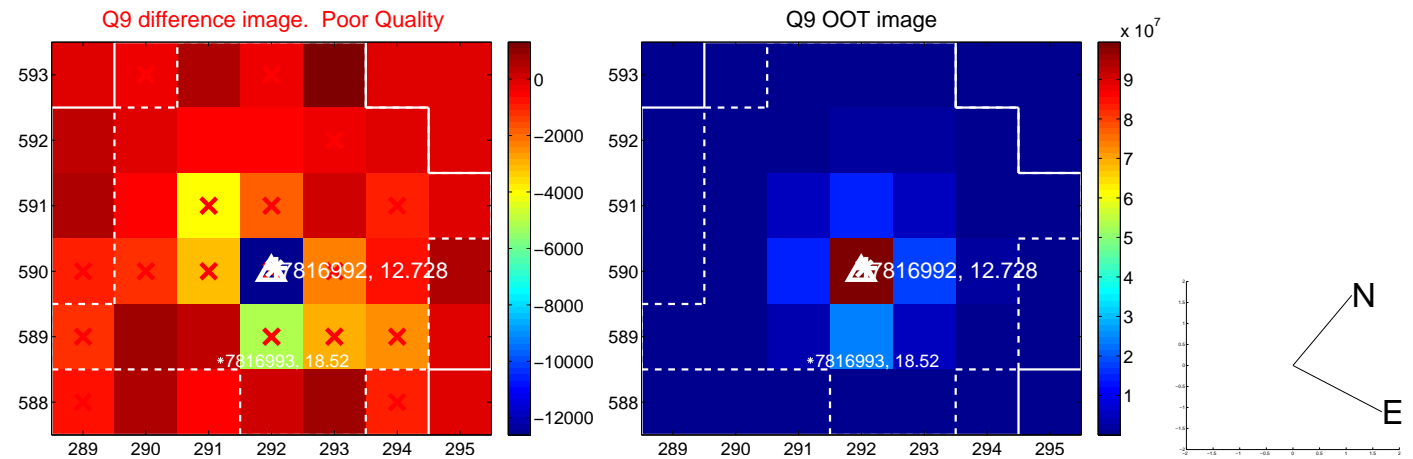
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



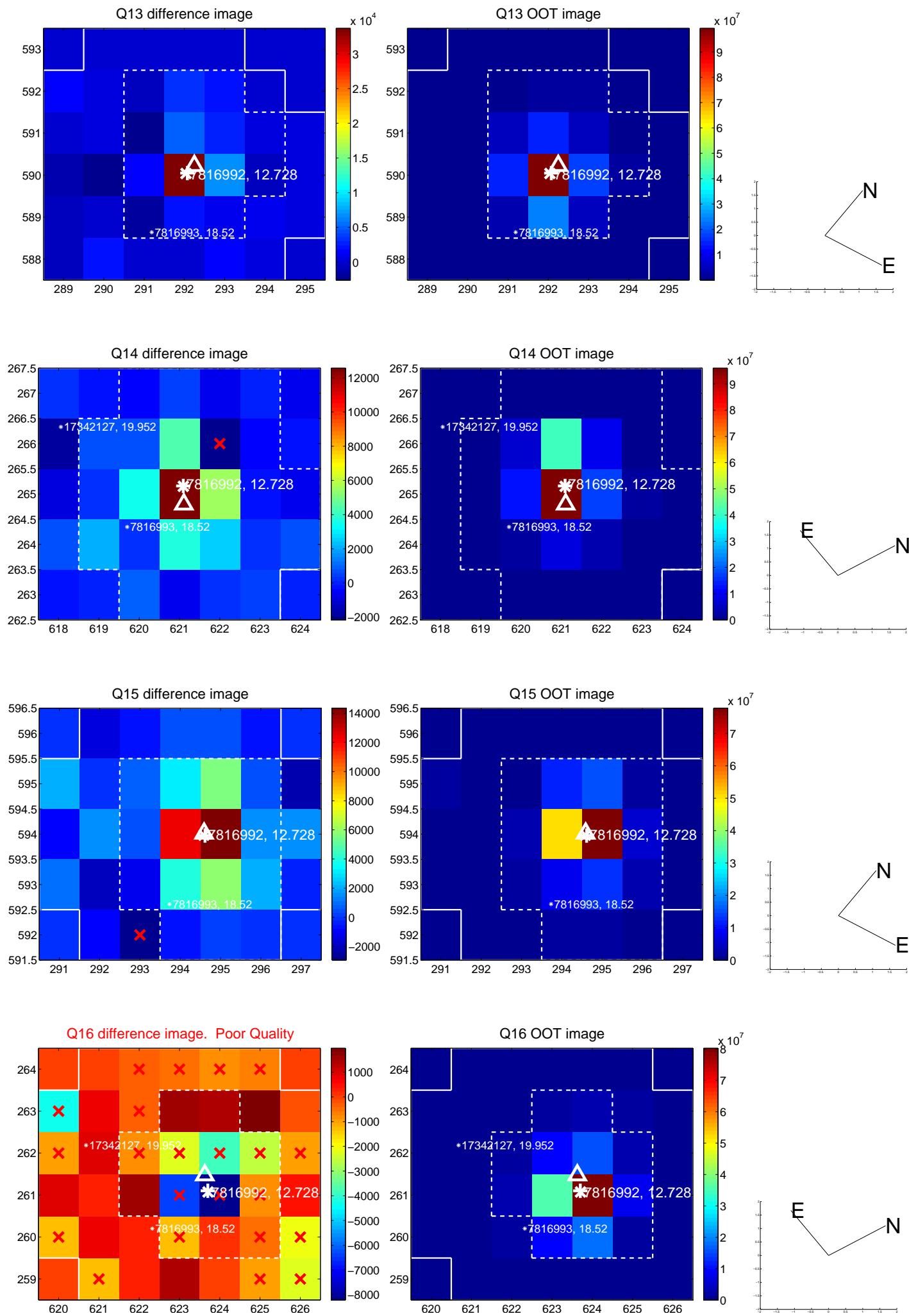
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



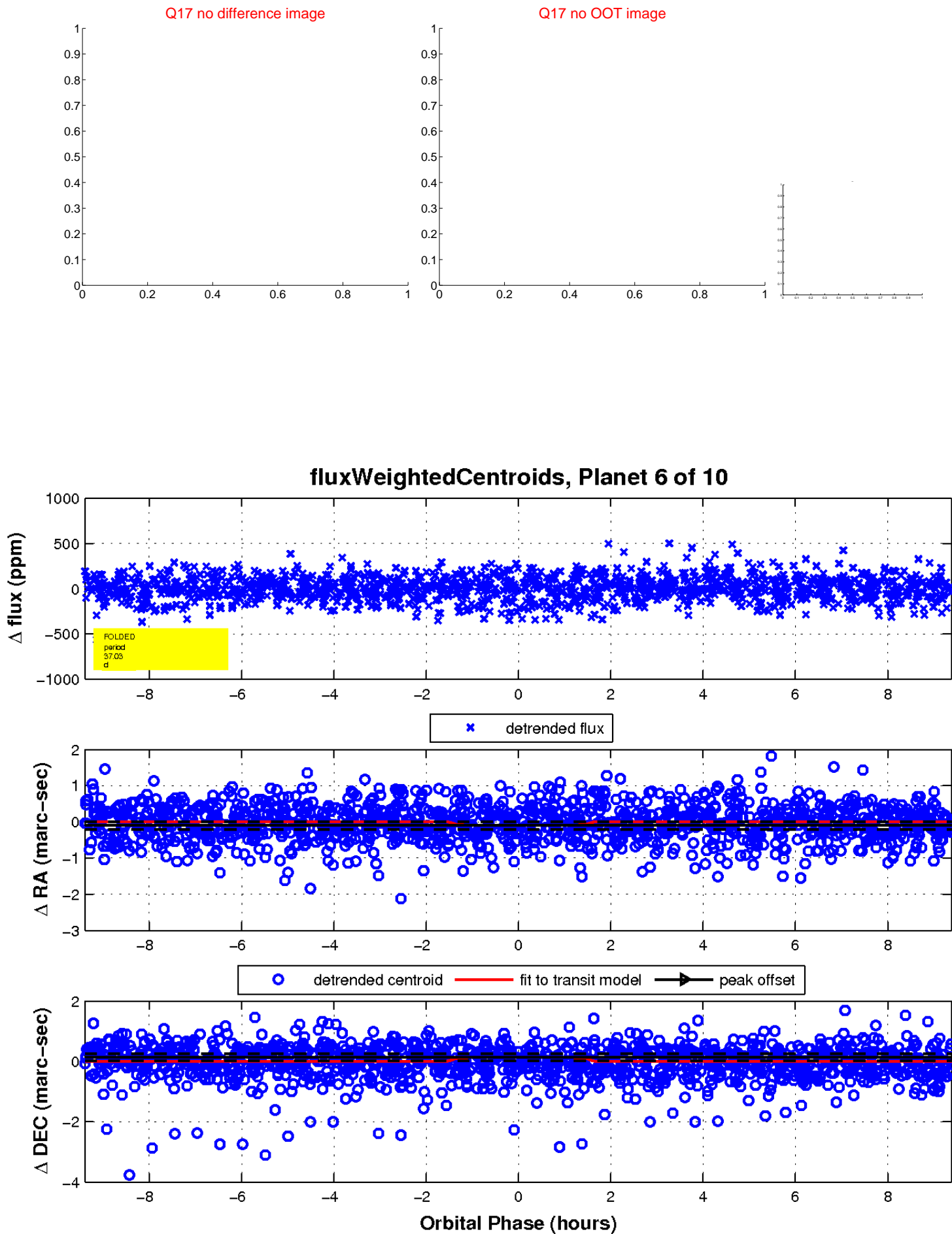
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

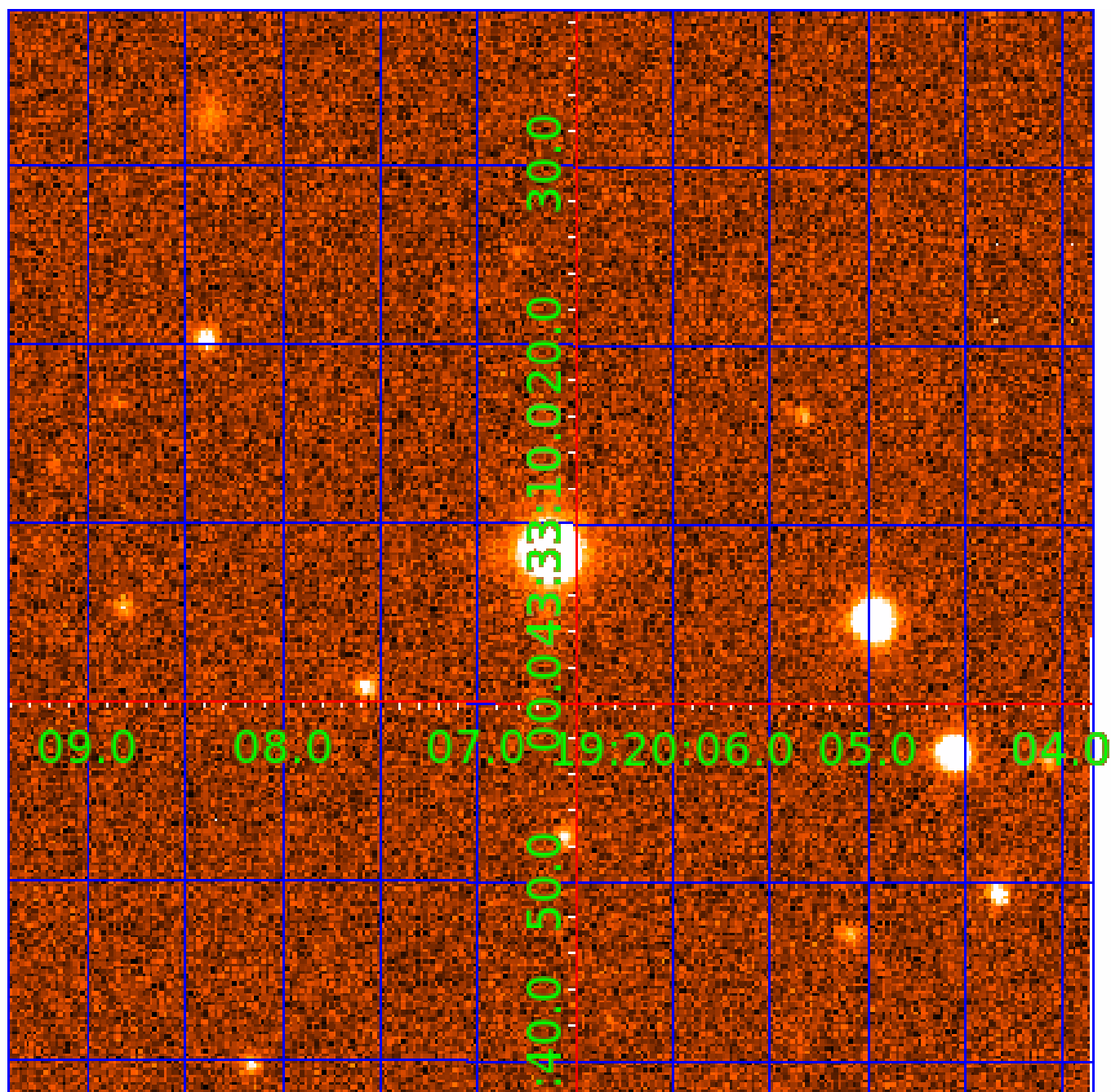


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007816992

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})
007816992-01	OBS	No	0.795855	132.214839	4.5	5.406	8.2	3.0	1.44	6956	0.31	12094.68
007816992-02	OBS	No	21.708210	133.397023	69.8	7.026	11.2	6.8	1.44	6956	1.36	147.30
007816992-03	OBS	No	45.142788	134.057293	234.4	1.682	12.0	10.0	1.44	6956	2.25	55.49
007816992-04	OBS	No	30.851957	153.560834	235.5	2.146	10.3	10.3	1.44	6956	2.49	92.19
007816992-05	OBS	No	19.773249	144.267271	110.5	4.767	9.8	9.0	1.44	6956	1.74	166.83
007816992-06	OBS	No	37.027490	142.337681	222.5	3.133	10.2	11.7	1.44	6956	2.38	72.28
007816992-07	OBS	No	13.003061	143.580835	147.2	2.503	11.0	11.9	1.44	6956	1.99	291.73
007816992-08	OBS	No	37.761874	135.582068	221.4	2.152	10.2	9.5	1.44	6956	2.42	70.41
007816992-09	OBS	No	378.044986	294.097804	230.1	7.332	10.2	8.4	1.44	6956	2.54	3.26
007816992-10	OBS	No	83.224846	211.371629	352.3	2.000	10.5	-1.0	1.44	6956	2.73	24.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007816992-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_FEW_MEAS
007816992-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
007816992-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007816992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
007816992-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

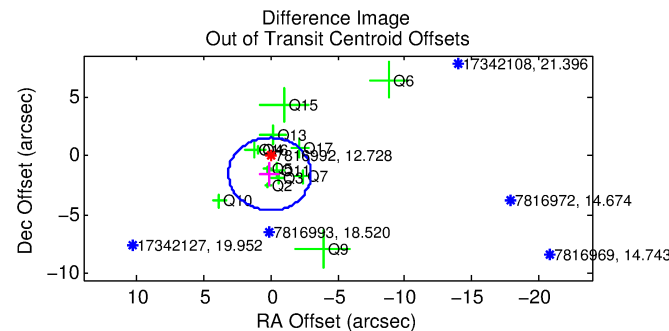
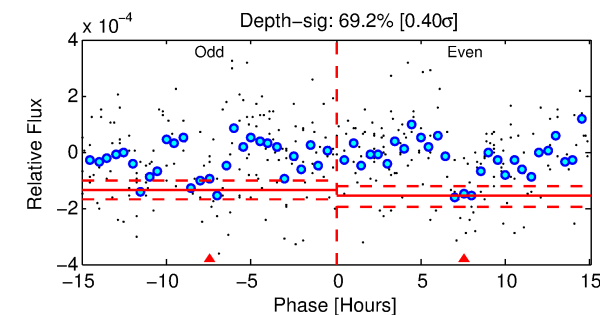
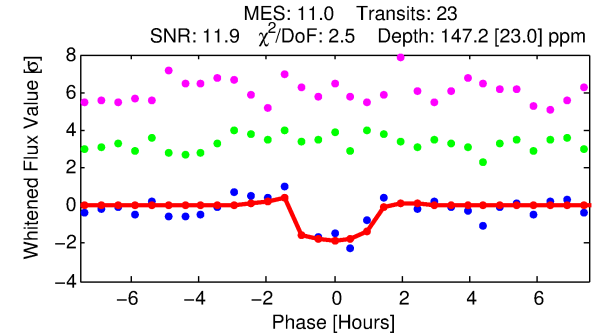
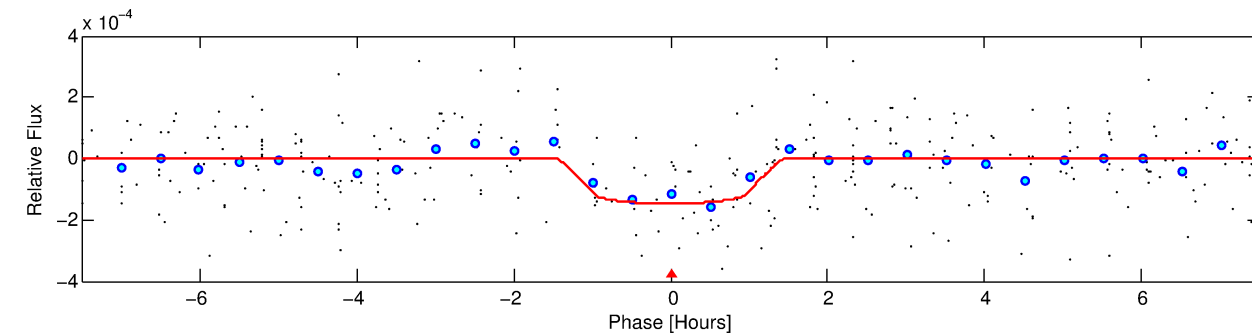
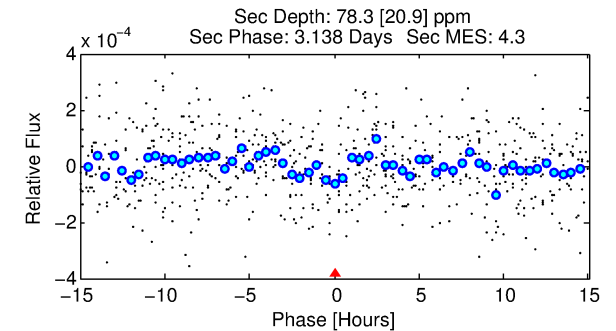
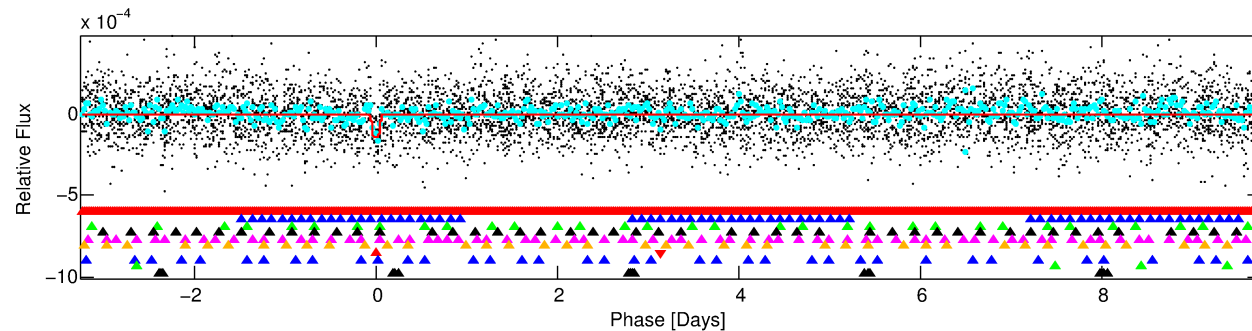
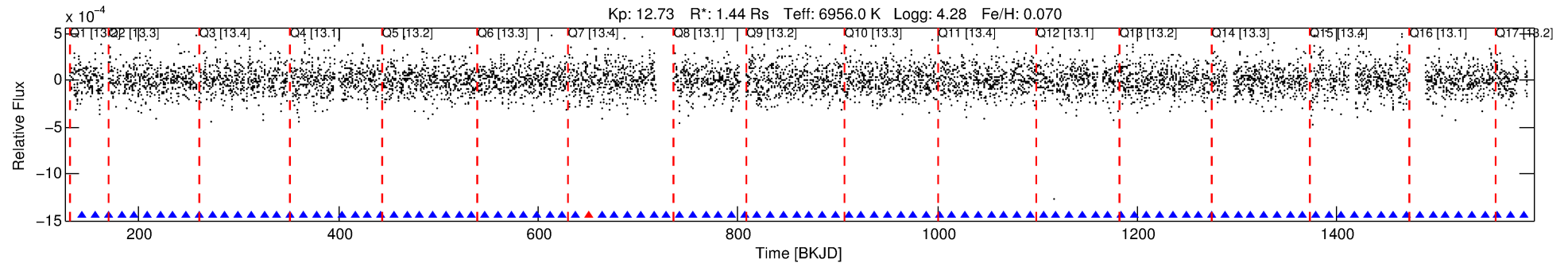
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007816992-07

No Significant Match Found

DV One-Page Summary

KIC: 7816992 Candidate: 7 of 10 Period: 13.003 d



DV Fit Results:

Period = 13.00306 [0.00015] d
Epoch = 143.5808 [0.0108] BKJD
Rp/R* = 0.0127 [0.0087]
a/R* = 20.67 [85.06]
b = 0.87 [1.17]
Seff = 291.73 [136.16]
Teq = 1054 [123] K
Rp = 1.99 [1.56] Re
a = 0.1220 [0.0370] AU
Ag = 161.87 [237.51] [0.68σ]
Teffp = 5812 [2059] K [2.31σ]

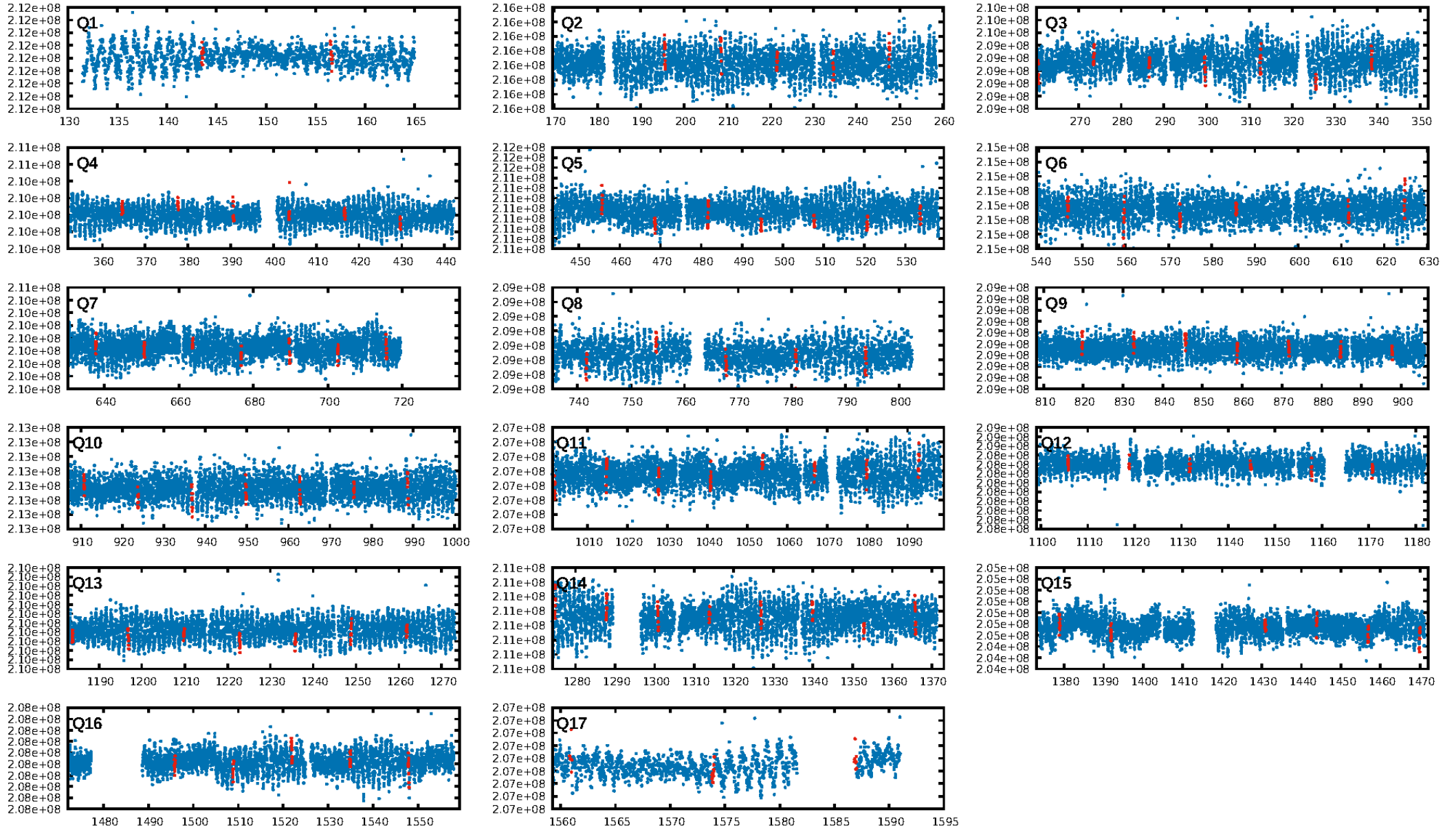
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [49.18σ]
LongPeriod-sig: 100.0% [30.18σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.95 [20/21]
GhostDiagnostic-chr: -1.199
Centroid-sig: 17.9%
Centroid-so: 0.443 arcsec [0.93σ]
OotOffset-rm: 1.546 arcsec [1.51σ]
KicOffset-rm: 1.489 arcsec [1.52σ]
OotOffset-st: 3/4/2/4 [13]
KicOffset-st: 3/4/2/4 [13]
DiffImageQuality-fgm: 0.46 [6/13]
DiffImageOverlap-fno: 0.00 [0/17]

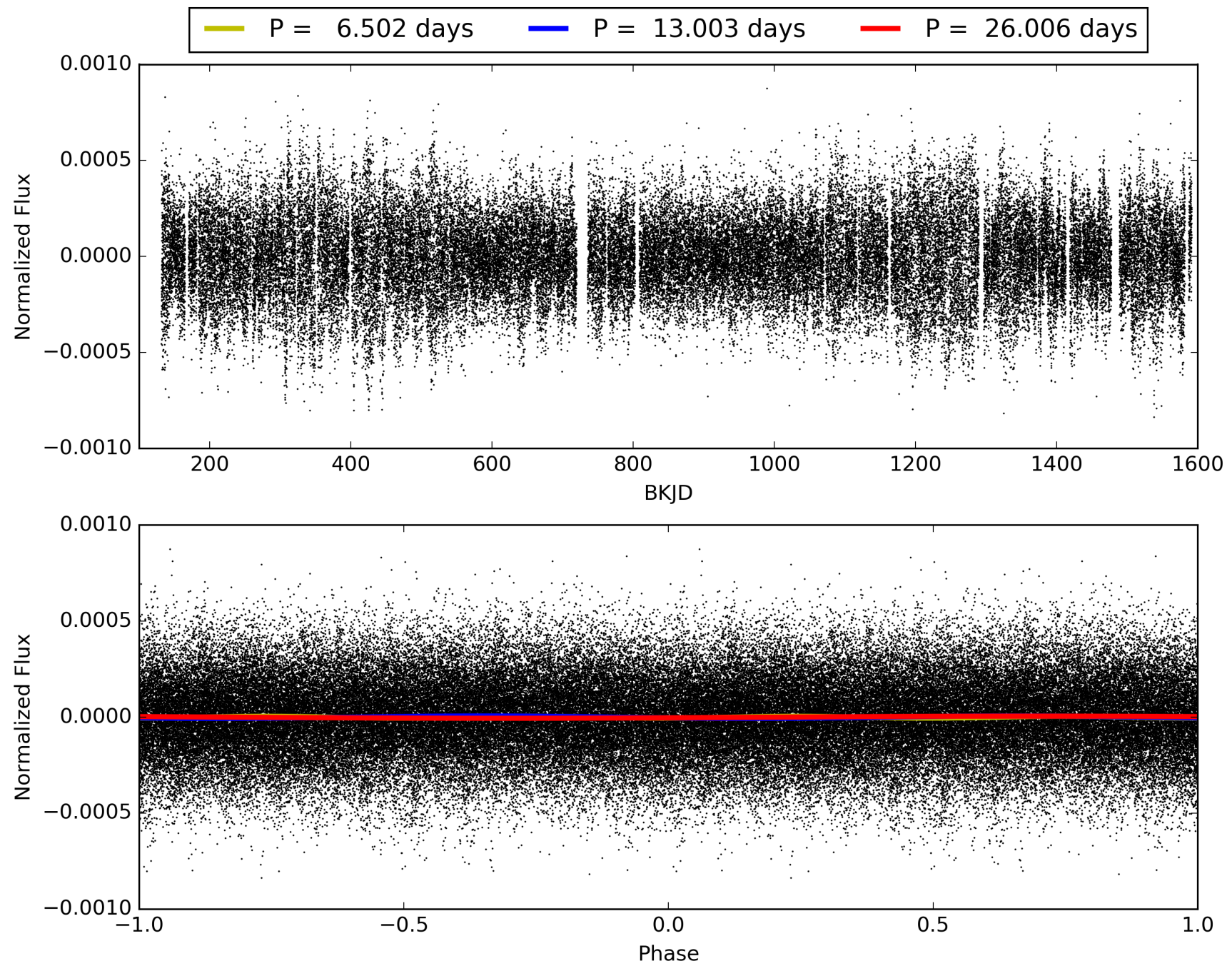
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:28:49 Z

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

TCE 007816992-07, PDC Light Curves

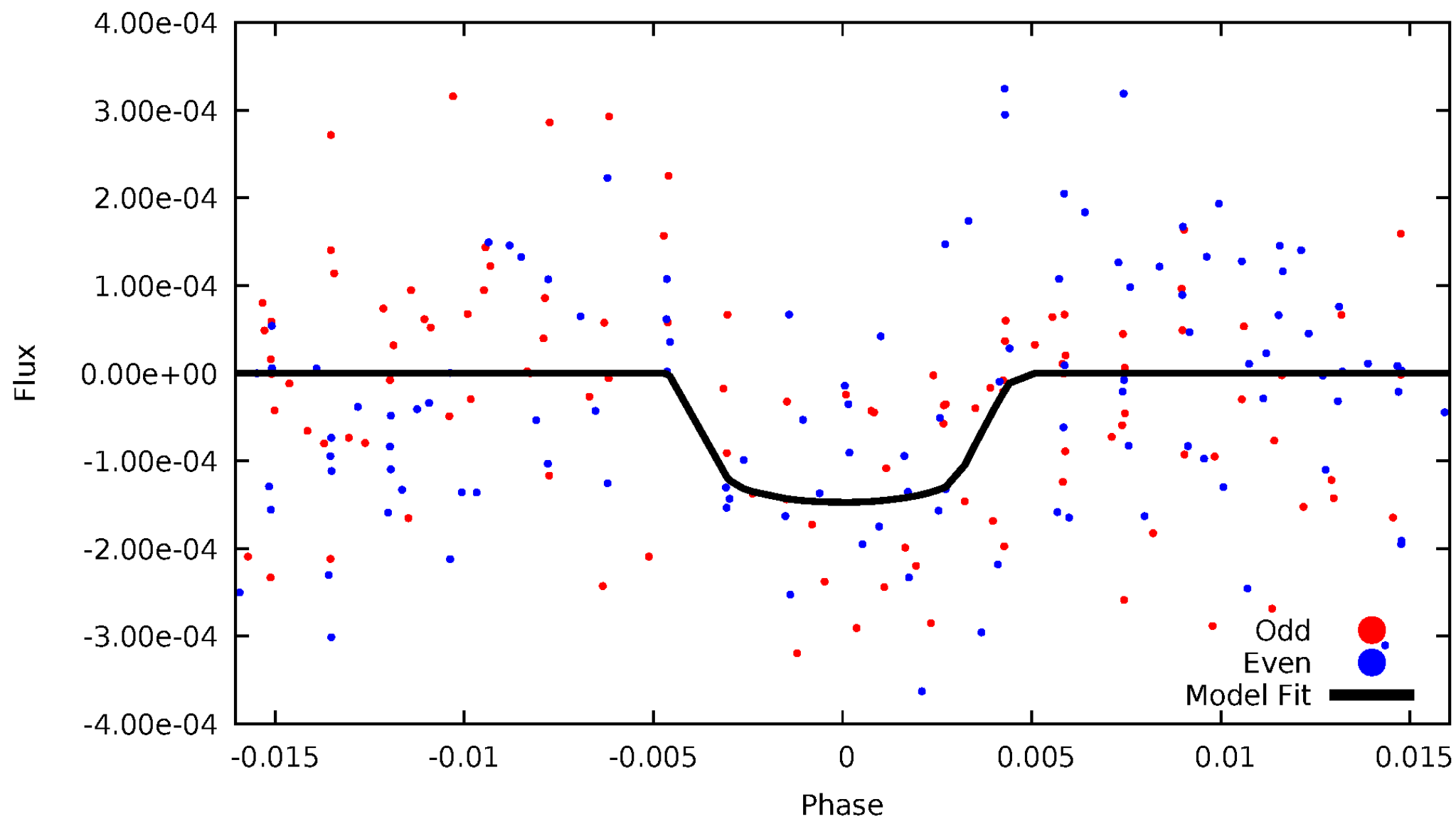


TCE 007816992-07



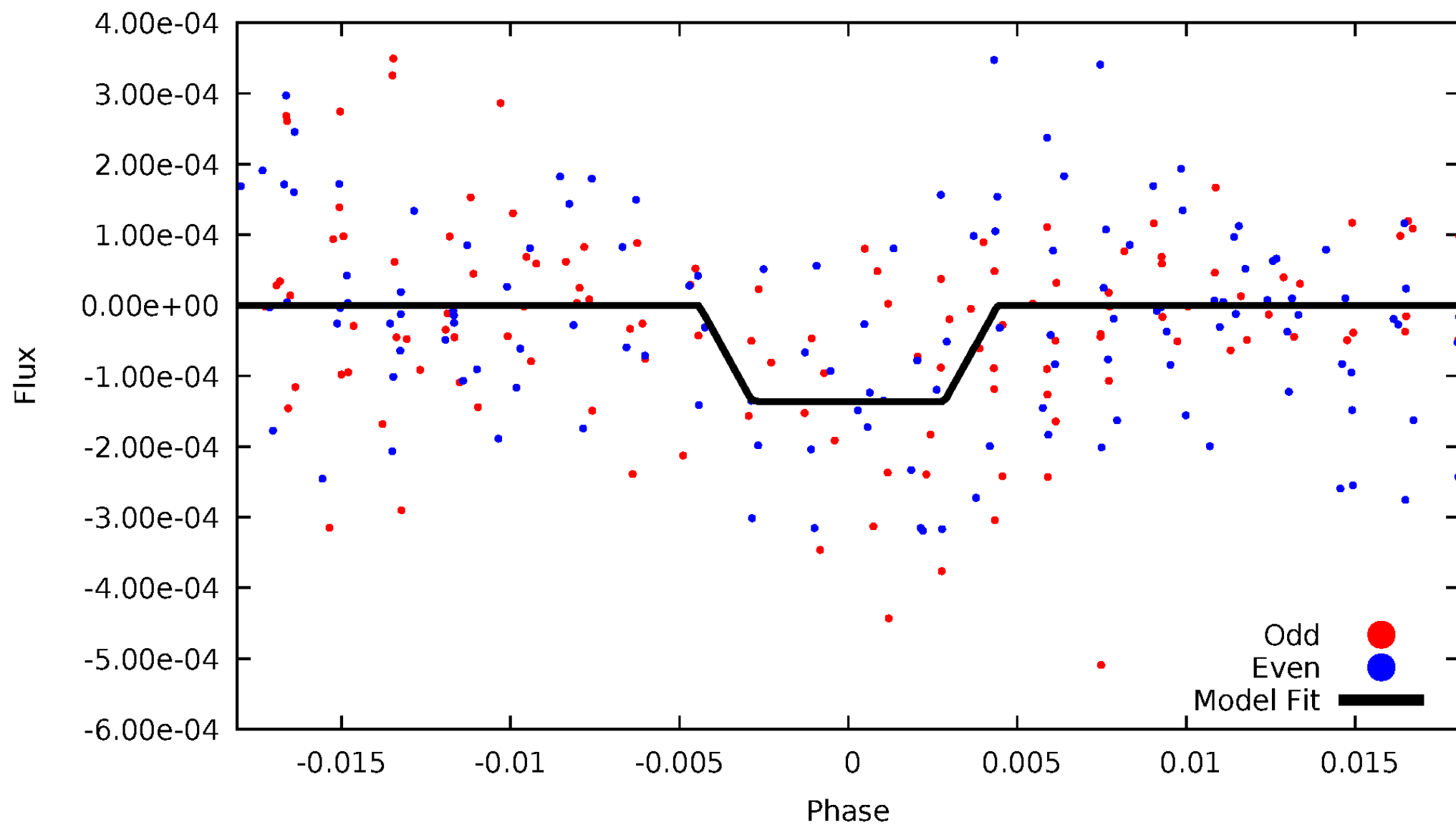
DV Odd/Even

TCE 007816992-07



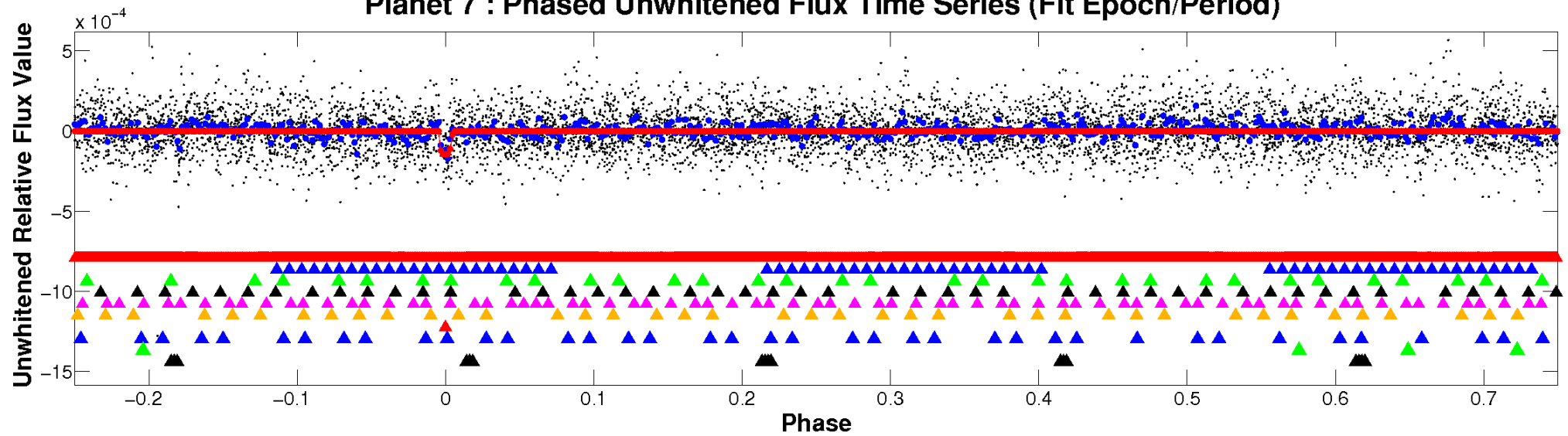
ALT Odd/Even

TCE 007816992-07

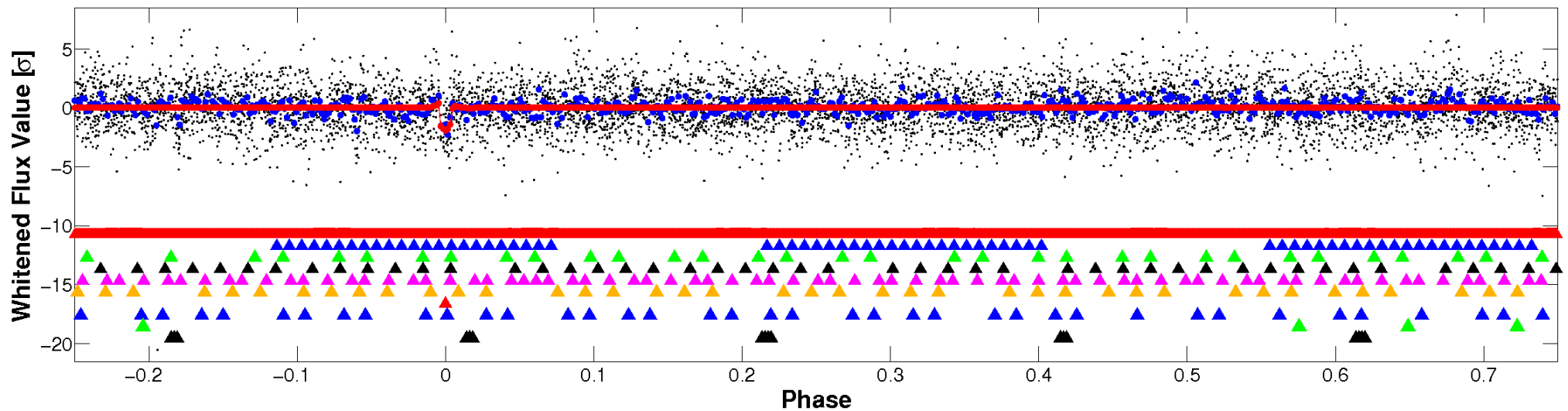


Non-Whitened Vs. Whitened Light Curve

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

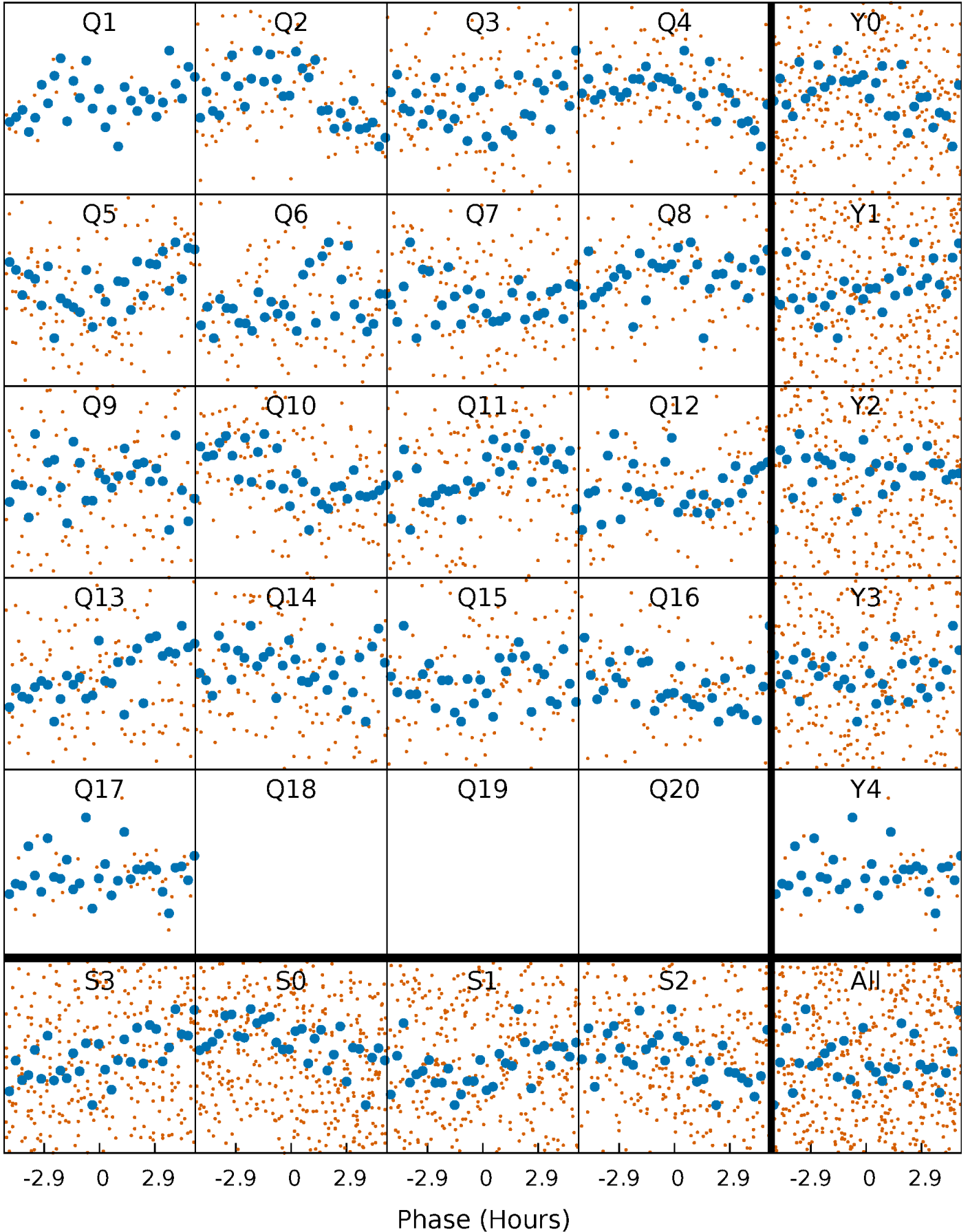


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



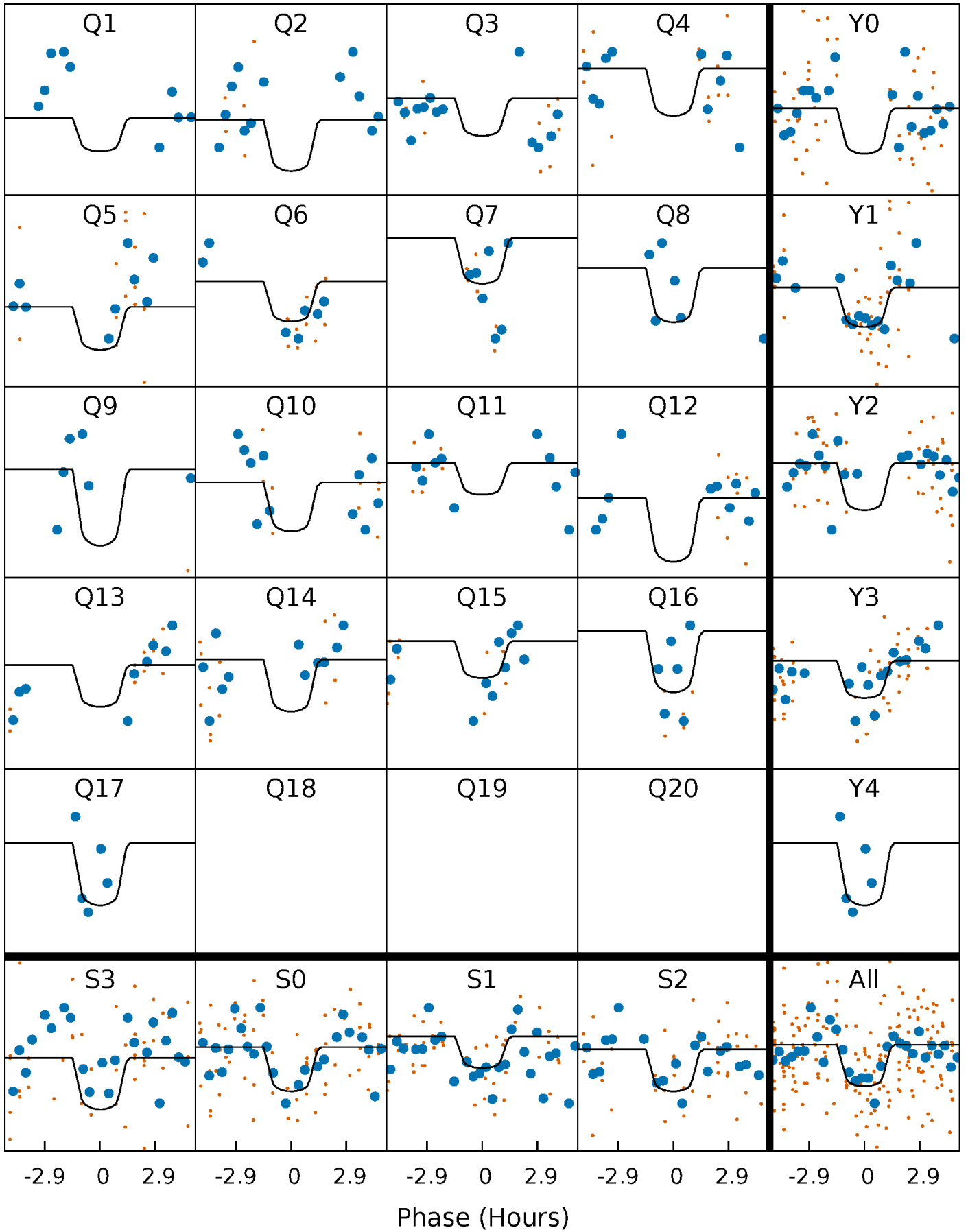
PDC Quarter-Phased Transit Curves

TCE 007816992-07 P= 13.003061 Days $T_0=143.580835$ (BKJD)



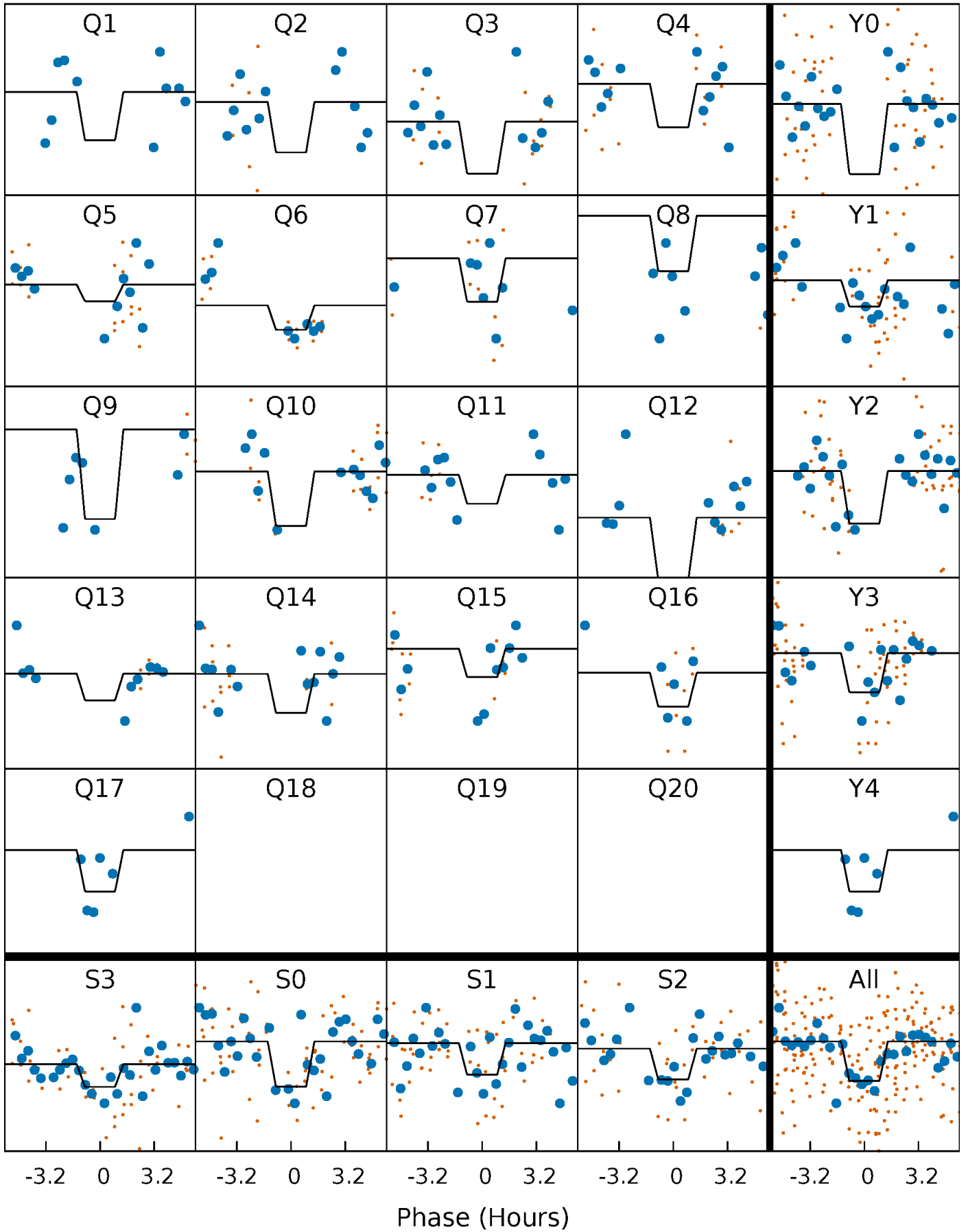
DV Quarter-Phased Transit Curves

TCE 007816992-07 P= 13.003061 Days $T_0=143.580835$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

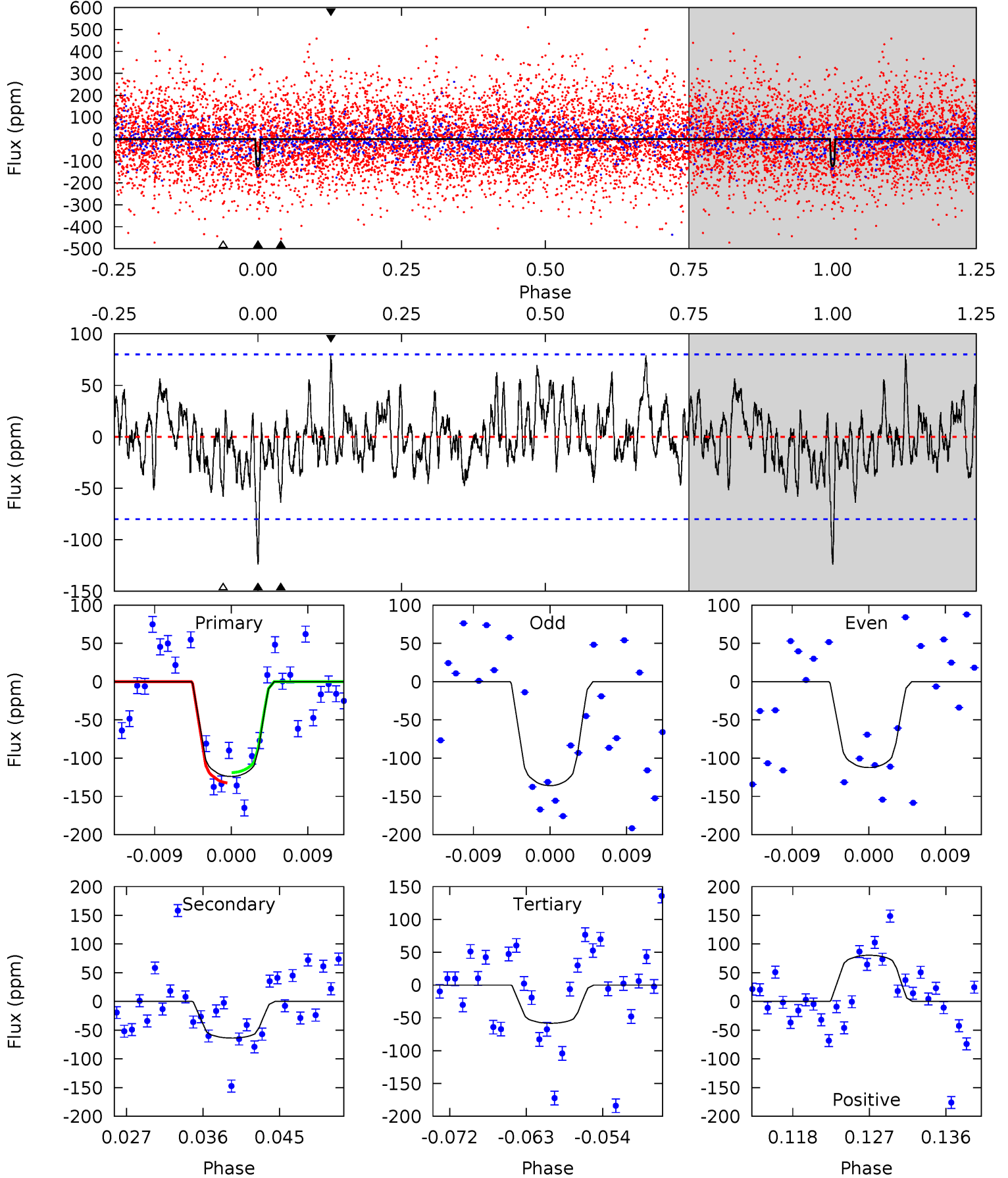
TCE 007816992-07 P= 13.003003 Days $T_0=143.581881$ (BKJD)



DV Model-Shift Uniqueness Test

007816992-07, P = 13.003061 Days, E = 130.577774 Days

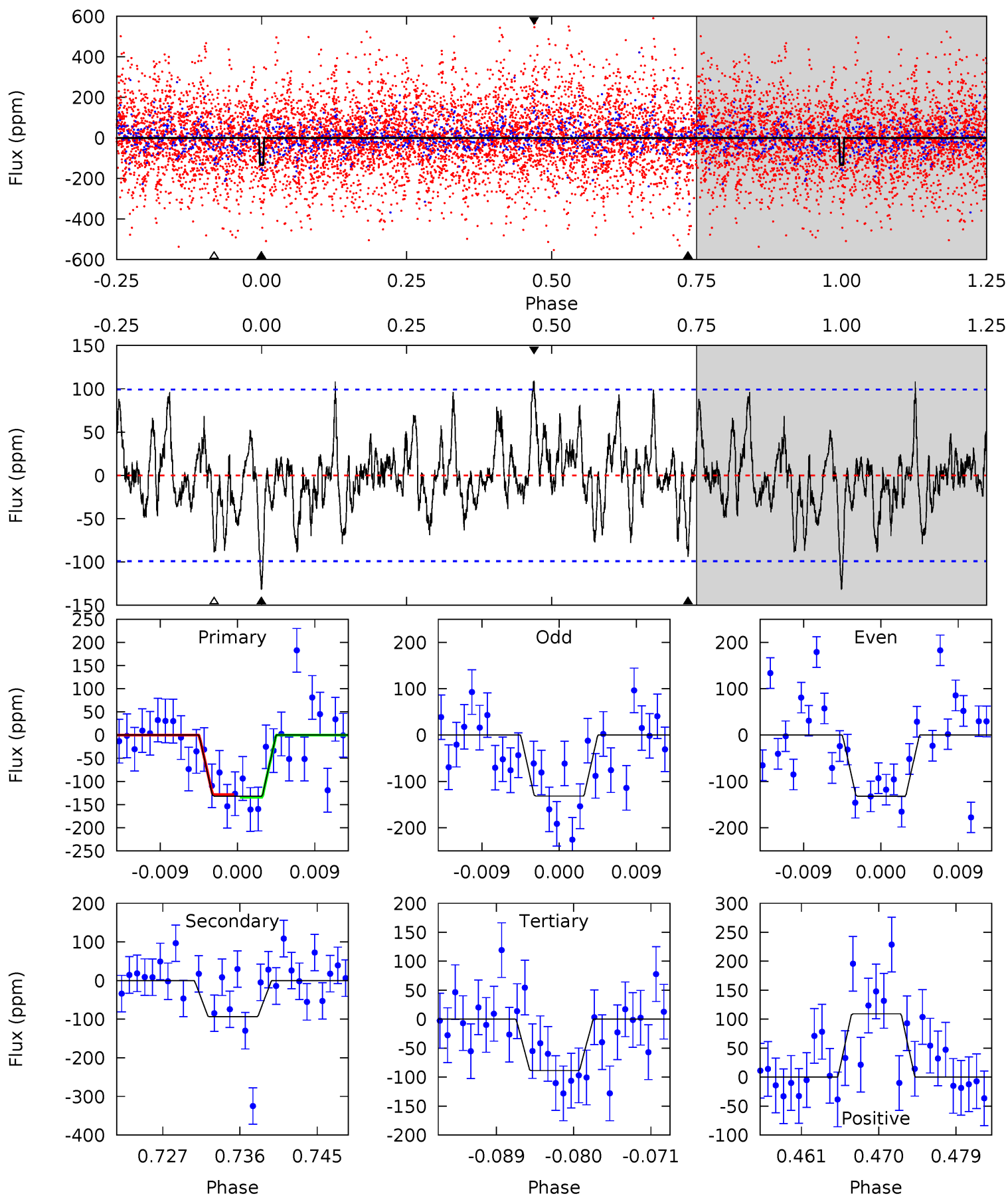
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.81	4.02	3.67	5.08	5.05	2.61	1.54	4.14	2.73	0.35	-1.06	0.76	0.94	0.39	0.40



Alt Model-Shift Uniqueness Test

007816992-07, P = 13.003003 Days, E = 130.578878 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.72	4.78	4.52	5.56	5.05	2.62	1.72	2.20	1.16	0.26	-0.78	0.01	1.04	0.45	0.12



Stellar Parameters For KIC 007816992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6956^{+194}_{-333}	$4.278^{+0.075}_{-0.225}$	$0.070^{+0.200}_{-0.350}$	$1.439^{+0.537}_{-0.215}$	$1.431^{+0.222}_{-0.202}$	$0.676^{+0.226}_{-0.396}$
	+3%/-5%	+2%/-5%	+286%/-500%	+37%/-15%	+16%/-14%	+33%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007816992-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-64 ± 16	$2.14^{+1.59}_{-1.21}$	1499^{+127}_{-93}	5366^{+3047}_{-1049}	110^{+513}_{-75}
Alt.	-94 ± 20	$2.05^{+1.44}_{-1.12}$	1500^{+127}_{-88}	6079^{+3394}_{-1299}	183^{+695}_{-122}

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 $A_{obs} \gg 1.0$

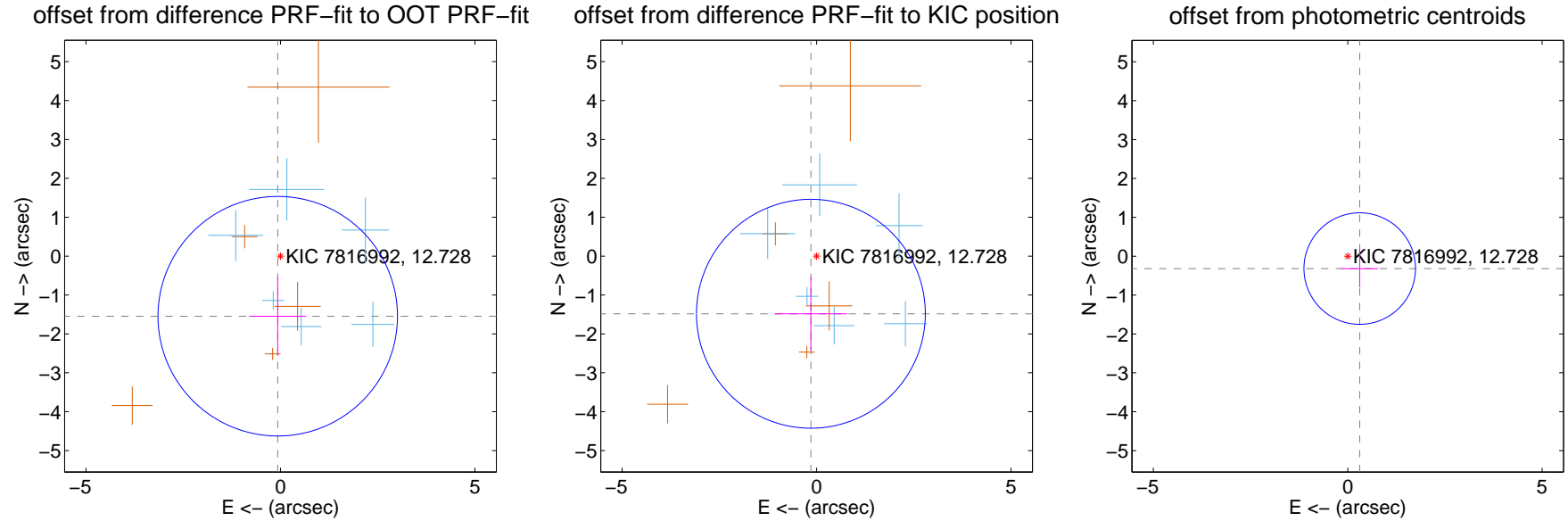
DV Centroid Data

Supplemental centroid analysis for 007816992-07. Kepler magnitude: 12.73. Transit SNR 11.90

There are 6 quarters with good PRF difference image offsets

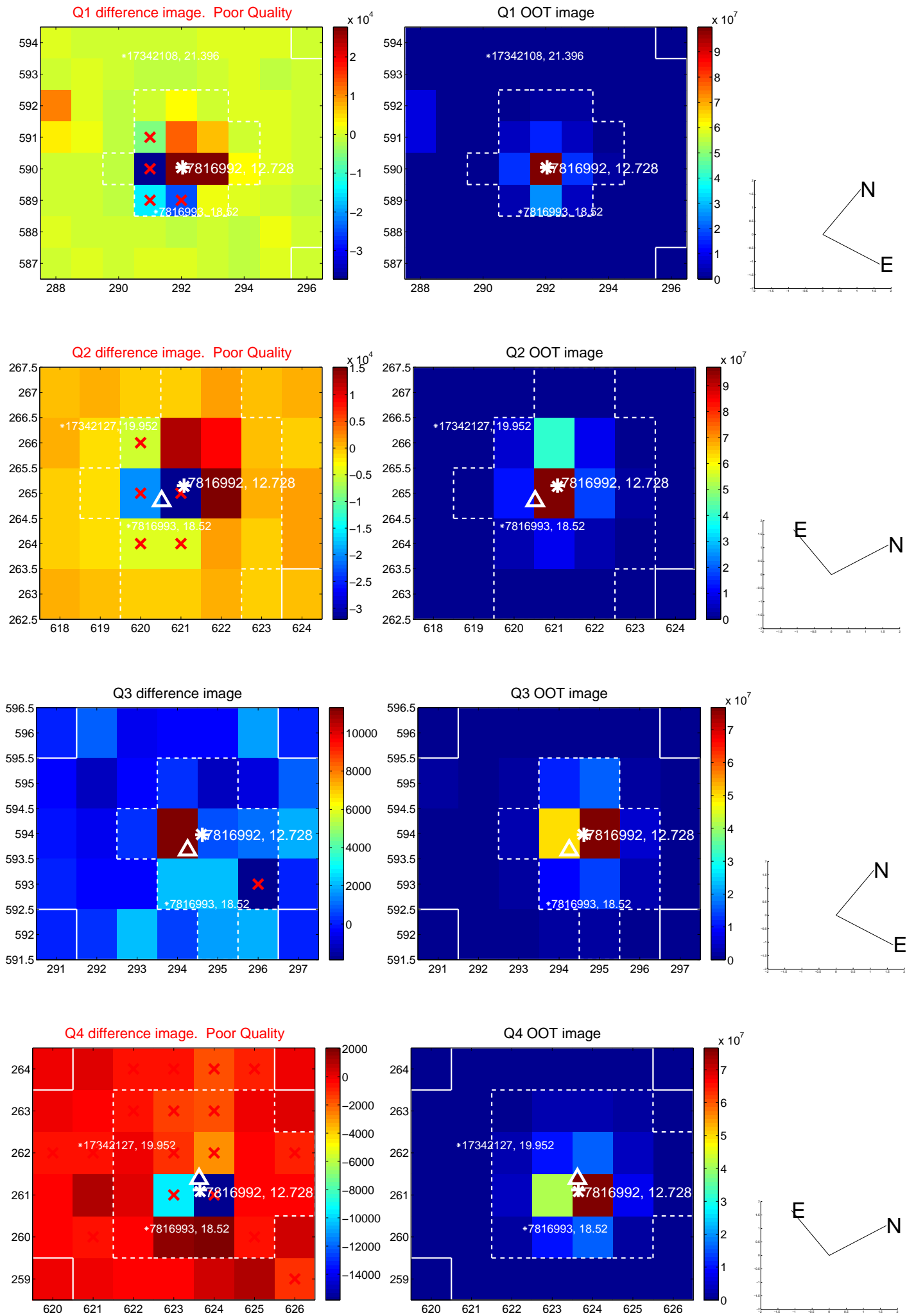
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.546 ± 1.026	1.51	0.070 ± 0.734	-1.545 ± 1.017
PRF-fit source offset from KIC position	1.489 ± 0.981	1.52	0.146 ± 0.934	-1.482 ± 0.942
photometric centroid source offset	0.44 ± 0.48	0.93	-0.31 ± 0.47	-0.32 ± 0.48

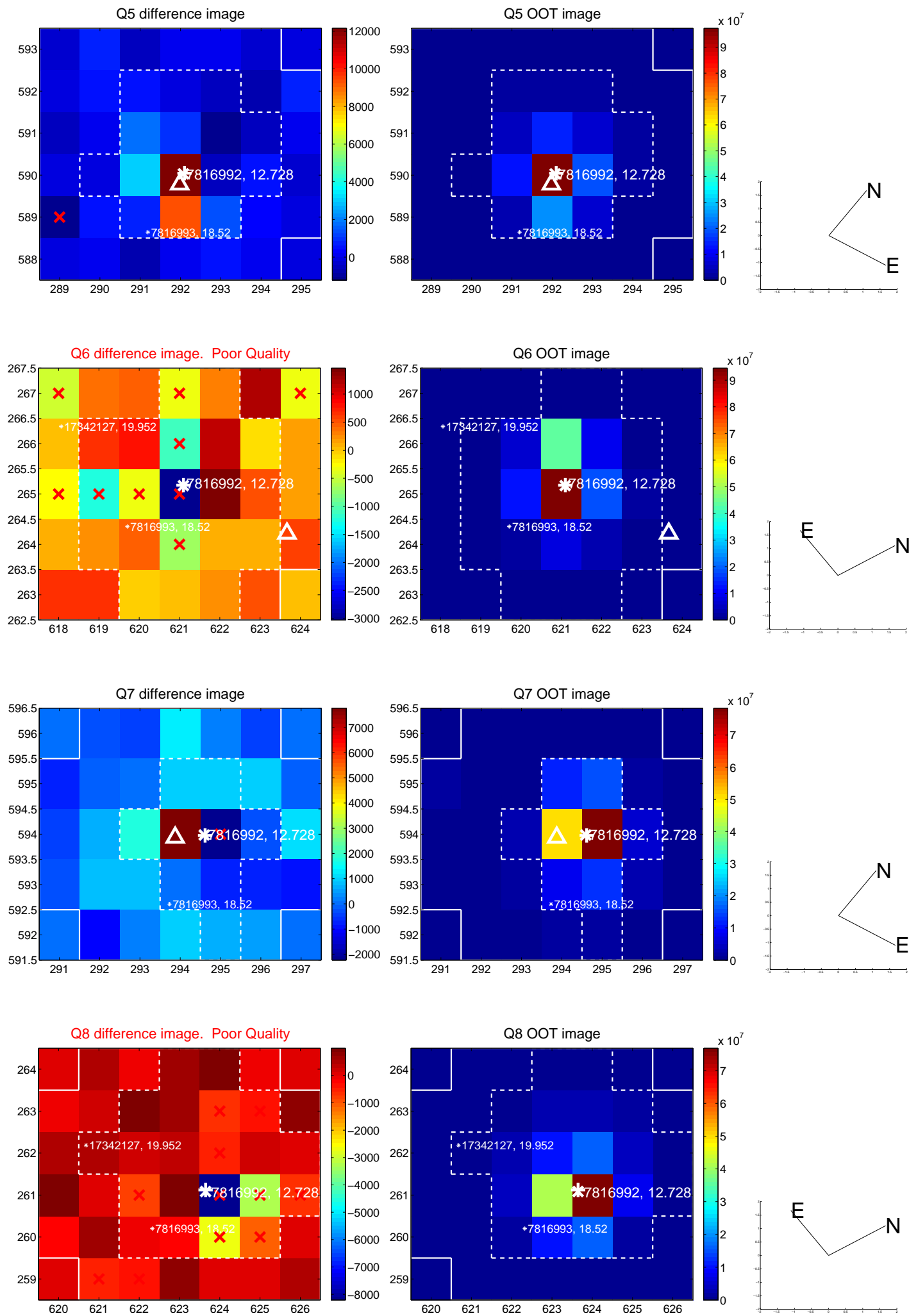


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

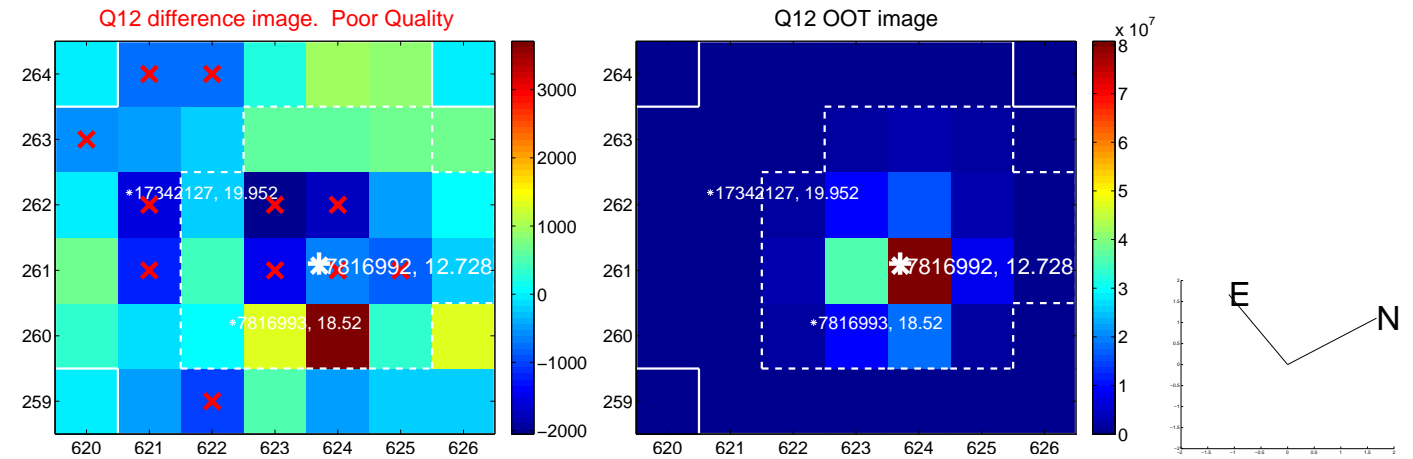
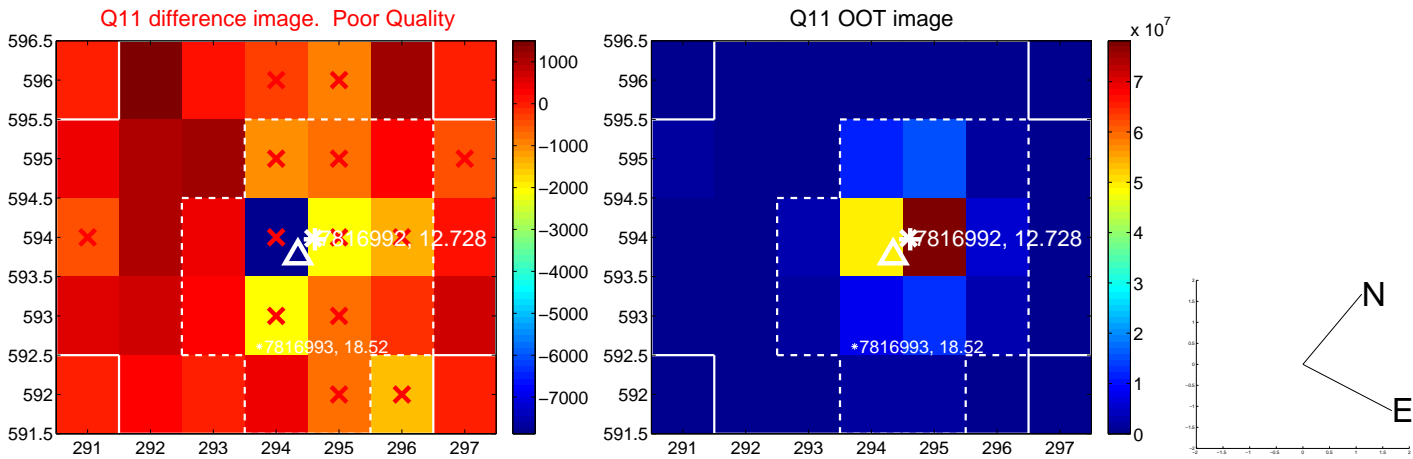
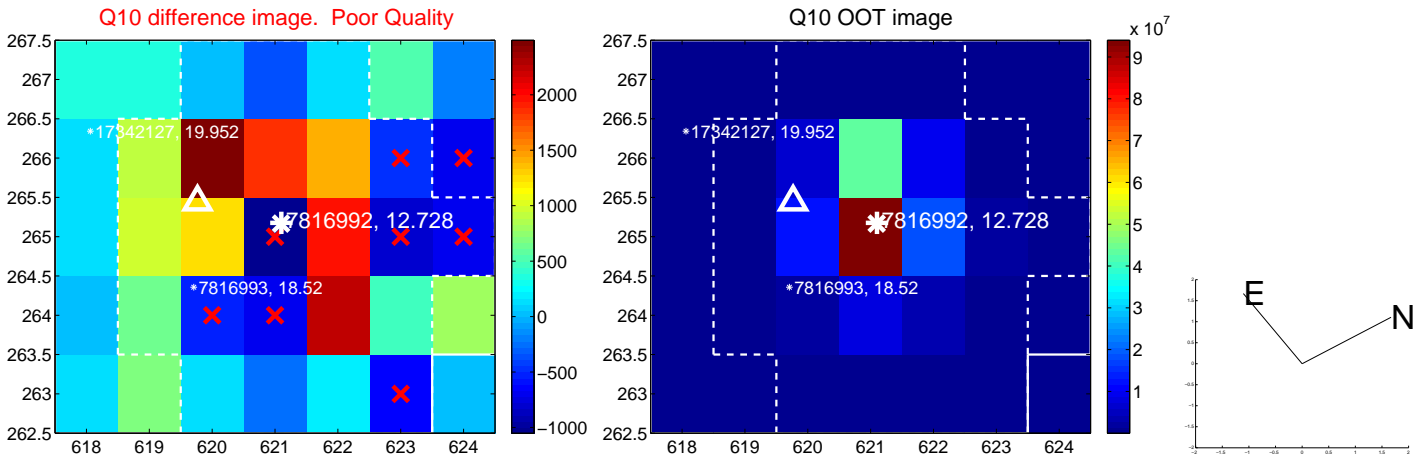
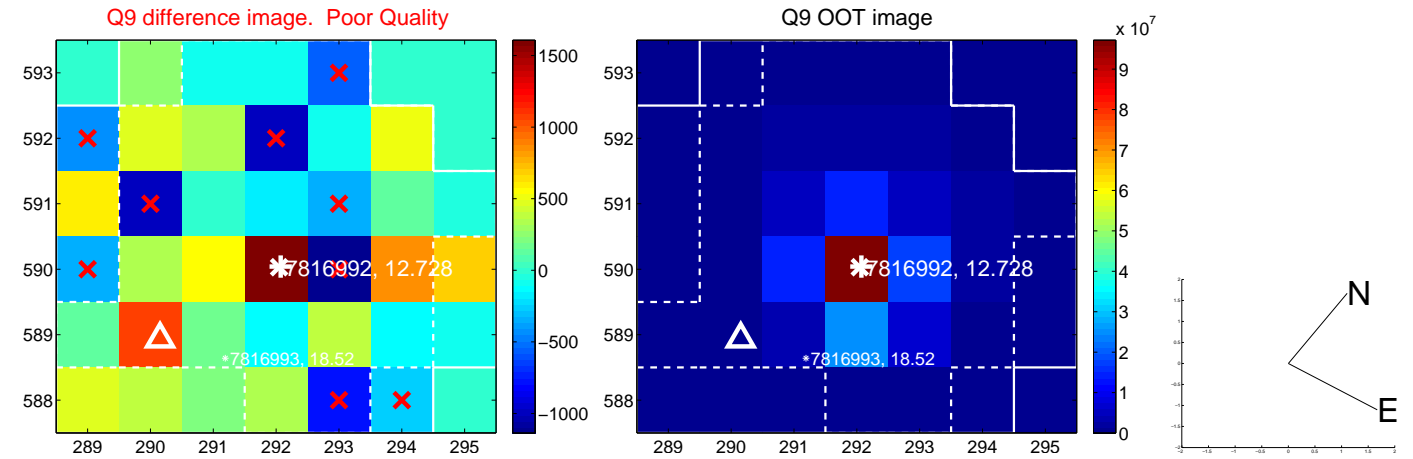
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



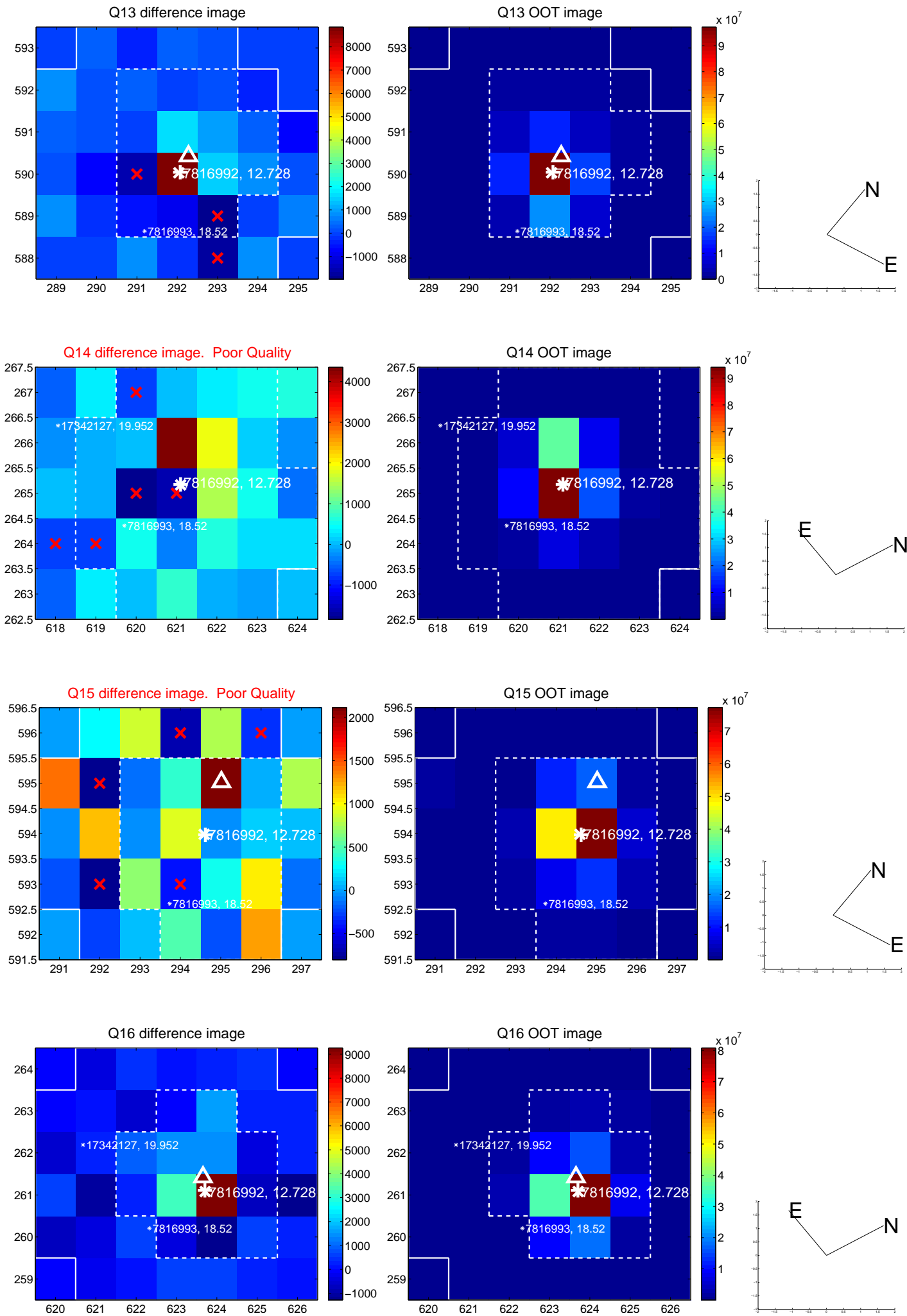
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



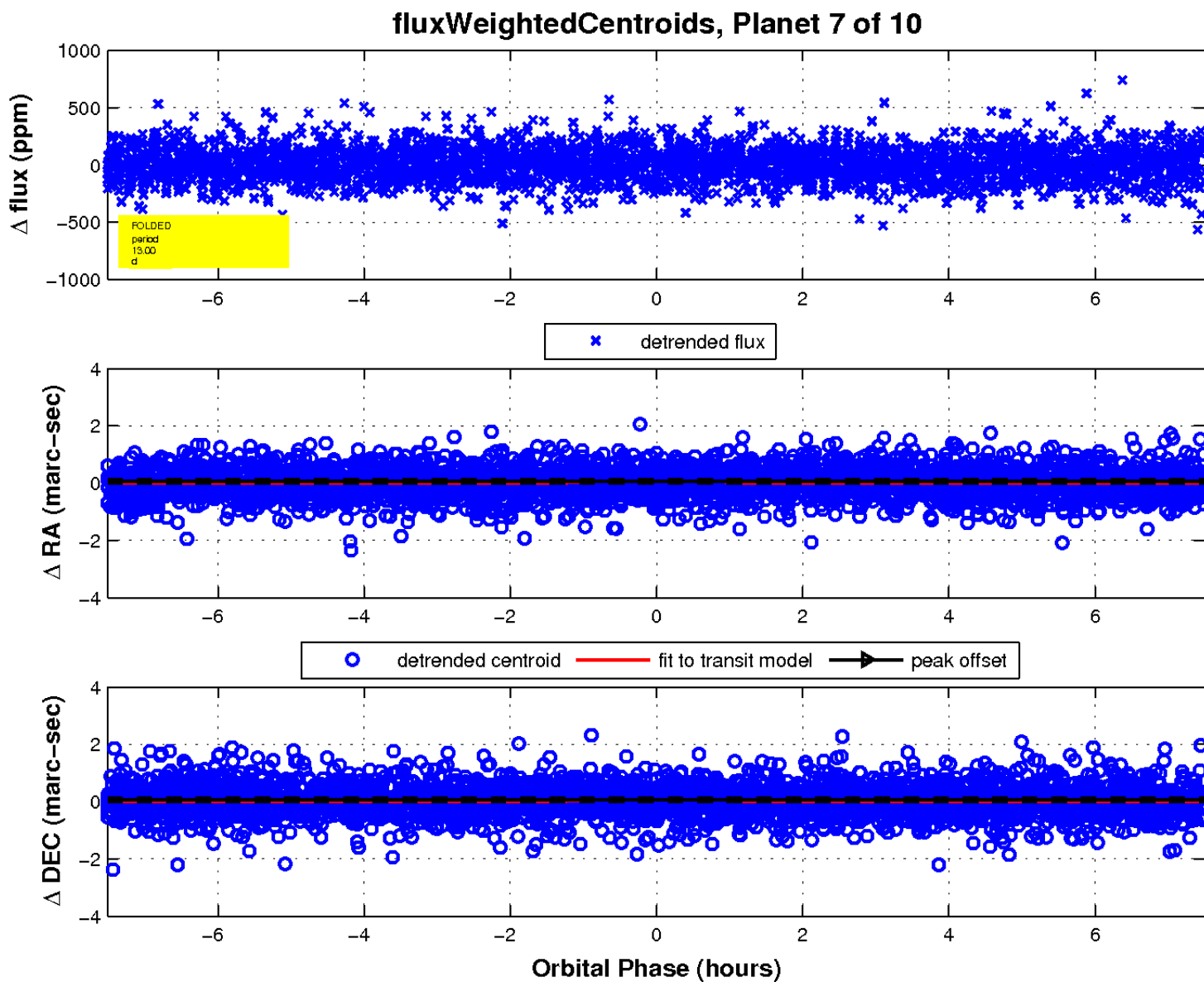
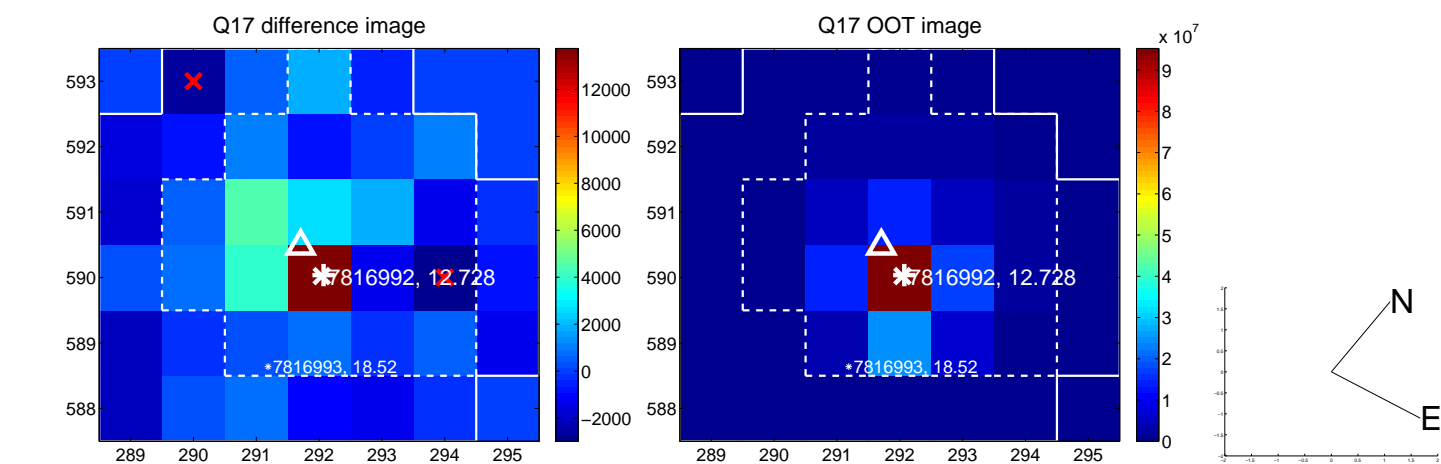
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

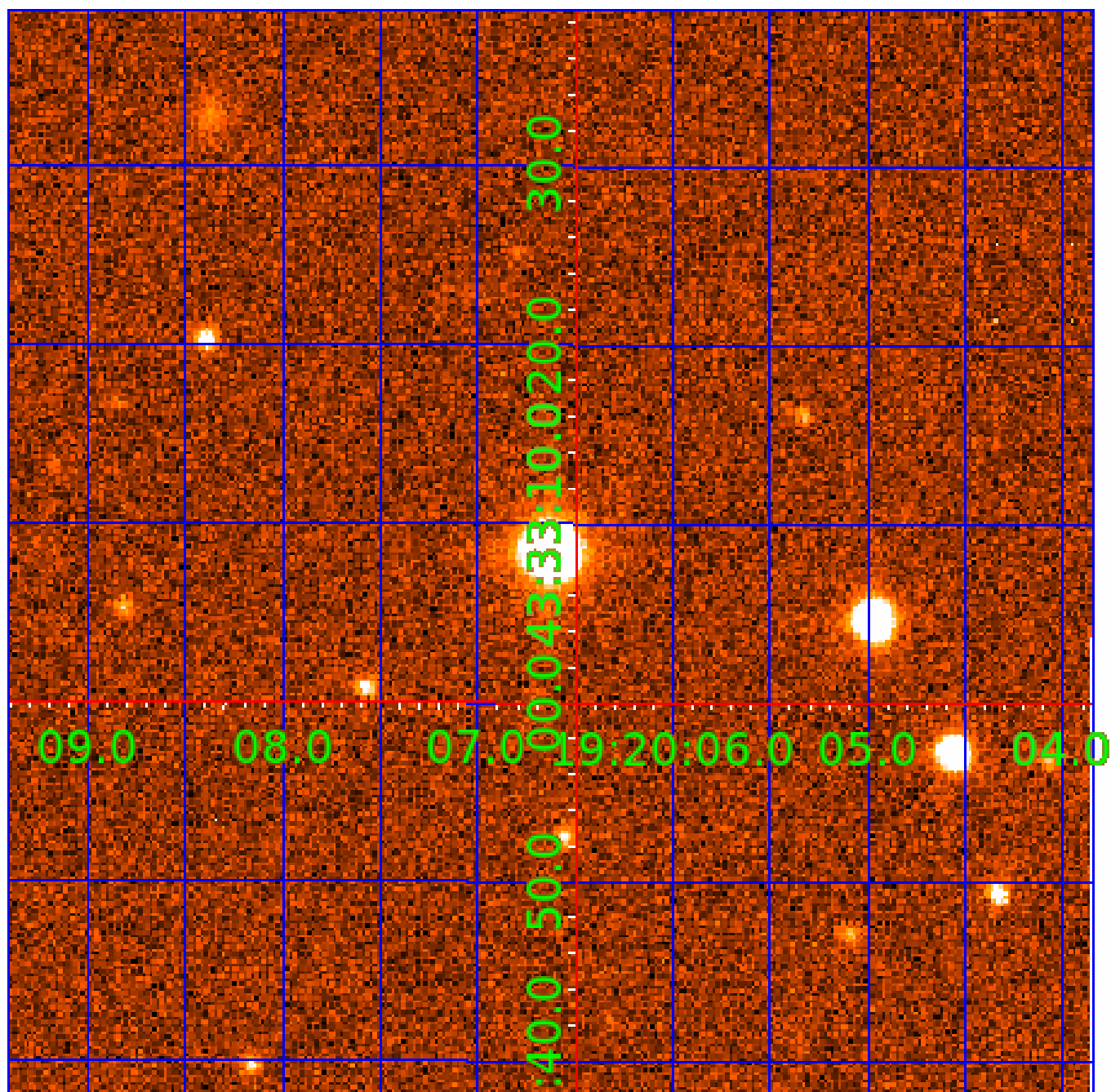


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007816992

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})
007816992-01	OBS	No	0.795855	132.214839	4.5	5.406	8.2	3.0	1.44	6956	0.31	12094.68
007816992-02	OBS	No	21.708210	133.397023	69.8	7.026	11.2	6.8	1.44	6956	1.36	147.30
007816992-03	OBS	No	45.142788	134.057293	234.4	1.682	12.0	10.0	1.44	6956	2.25	55.49
007816992-04	OBS	No	30.851957	153.560834	235.5	2.146	10.3	10.3	1.44	6956	2.49	92.19
007816992-05	OBS	No	19.773249	144.267271	110.5	4.767	9.8	9.0	1.44	6956	1.74	166.83
007816992-06	OBS	No	37.027490	142.337681	222.5	3.133	10.2	11.7	1.44	6956	2.38	72.28
007816992-07	OBS	No	13.003061	143.580835	147.2	2.503	11.0	11.9	1.44	6956	1.99	291.73
007816992-08	OBS	No	37.761874	135.582068	221.4	2.152	10.2	9.5	1.44	6956	2.42	70.41
007816992-09	OBS	No	378.044986	294.097804	230.1	7.332	10.2	8.4	1.44	6956	2.54	3.26
007816992-10	OBS	No	83.224846	211.371629	352.3	2.000	10.5	-1.0	1.44	6956	2.73	24.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007816992-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_FEW_MEAS
007816992-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
007816992-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007816992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
007816992-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

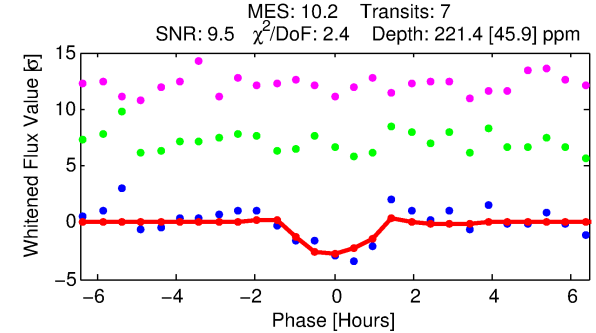
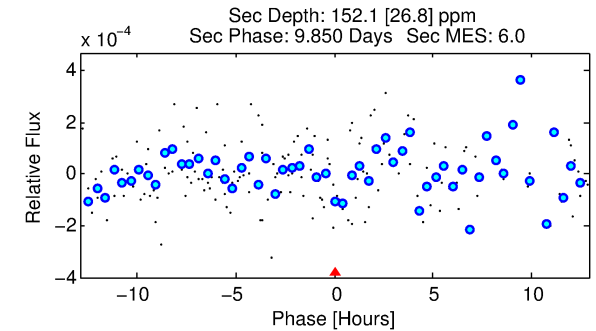
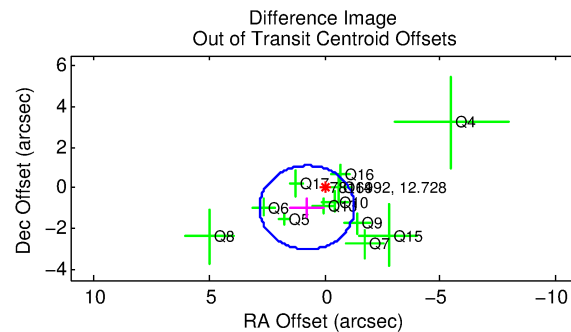
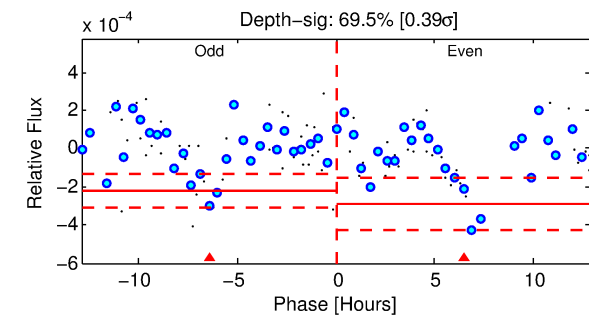
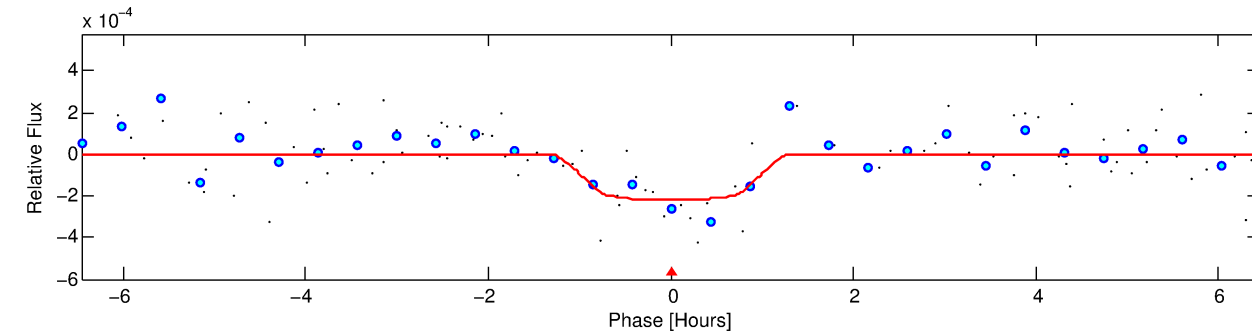
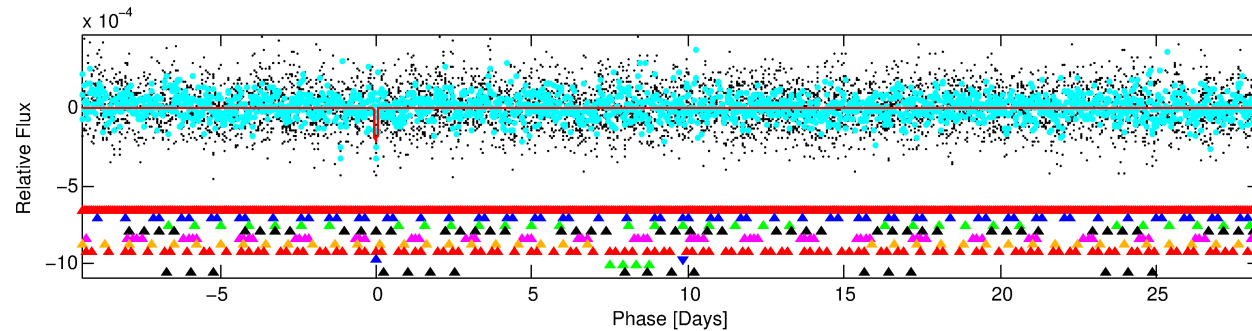
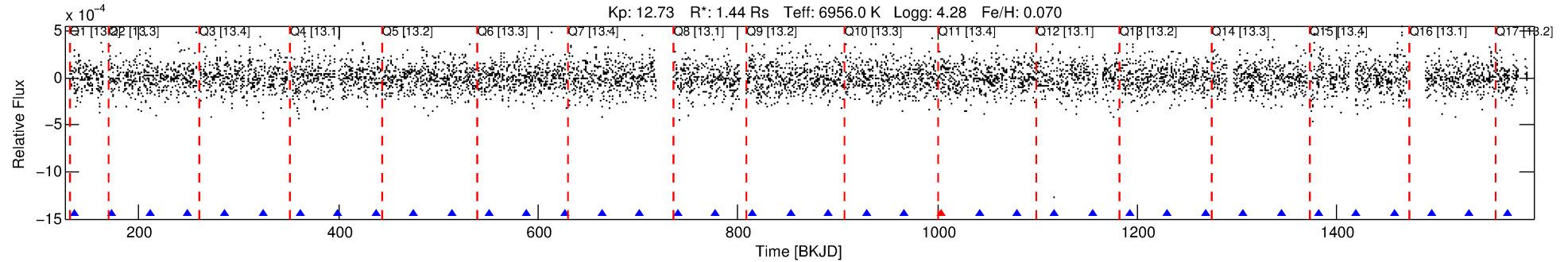
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007816992-08

No Significant Match Found

DV One-Page Summary

KIC: 7816992 Candidate: 8 of 10 Period: 37.762 d



DV Fit Results:

Period = 37.76187 [0.00055] d
Epoch = 135.5821 [0.0137] BKJD
Rp/R* = 0.0154 [0.0238]
a/R* = 74.19 [689.10]
b = 0.85 [3.01]
Seff = 70.41 [32.86]
Teq = 739 [86] K
Rp = 2.42 [3.85] Re
a = 0.2484 [0.0752] AU
Ag = 882.26 [2762.00] [0.32 σ]
Teffp = 6224 [4835] K [1.13 σ]

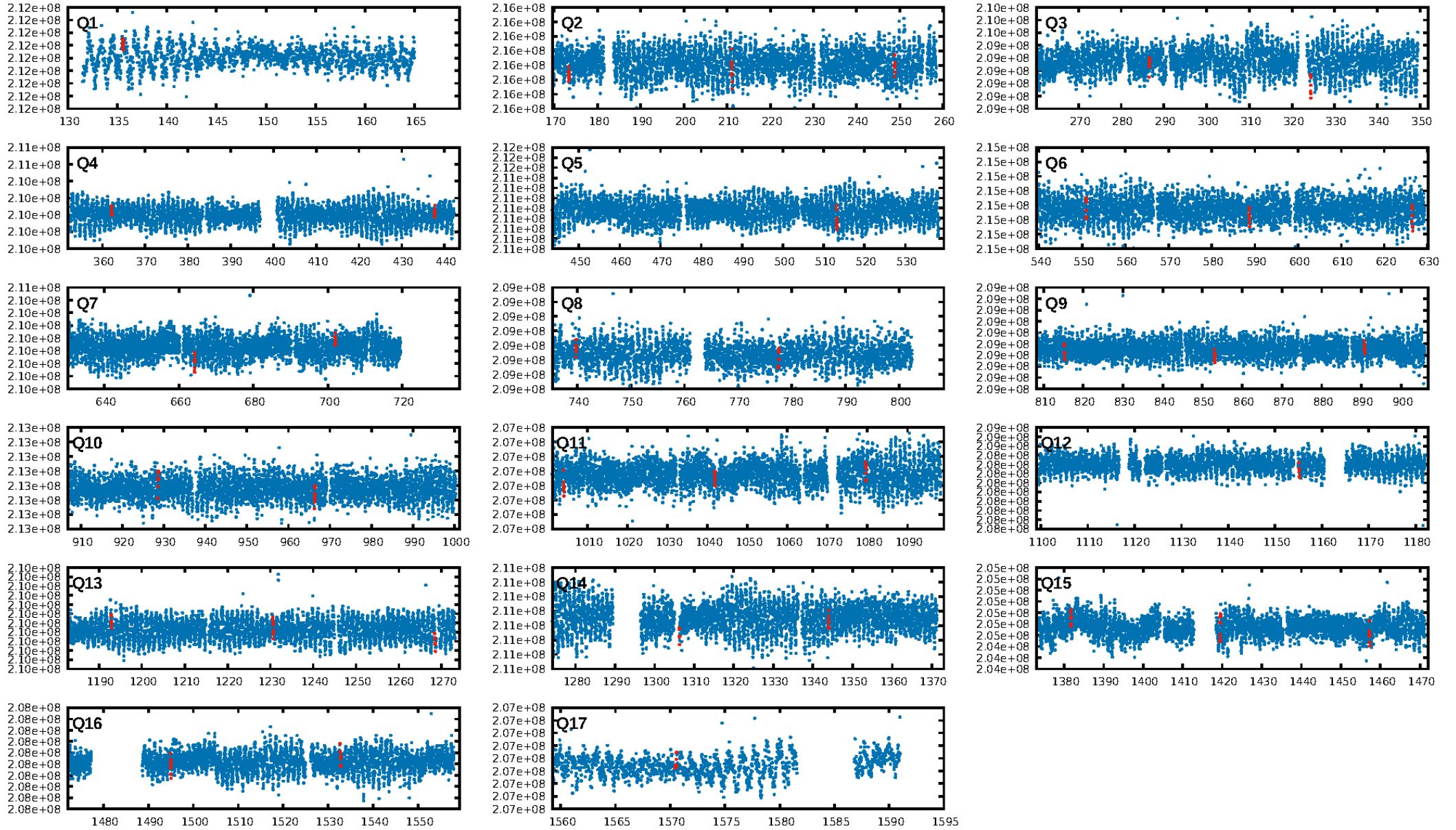
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.64 σ]
LongPeriod-sig: 100.0% [64.85 σ]
ModelChiSquare2-sig: 12.2%
ModelChiSquareGof-sig: 99.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.86 [6/7]
GhostDiagnostic-chr: -0.6529
Centroid-sig: 57.5%
Centroid-so: 0.469 arcsec [0.82 σ]
OotOffset-rm: 1.223 arcsec [1.79 σ]
KicOffset-rm: 1.212 arcsec [1.63 σ]
OotOffset-st: 3/2/3/4 [12]
KicOffset-st: 3/2/3/4 [12]
DiffImageQuality-fgm: 0.50 [6/12]
DiffImageOverlap-fno: 0.06 [1/16]

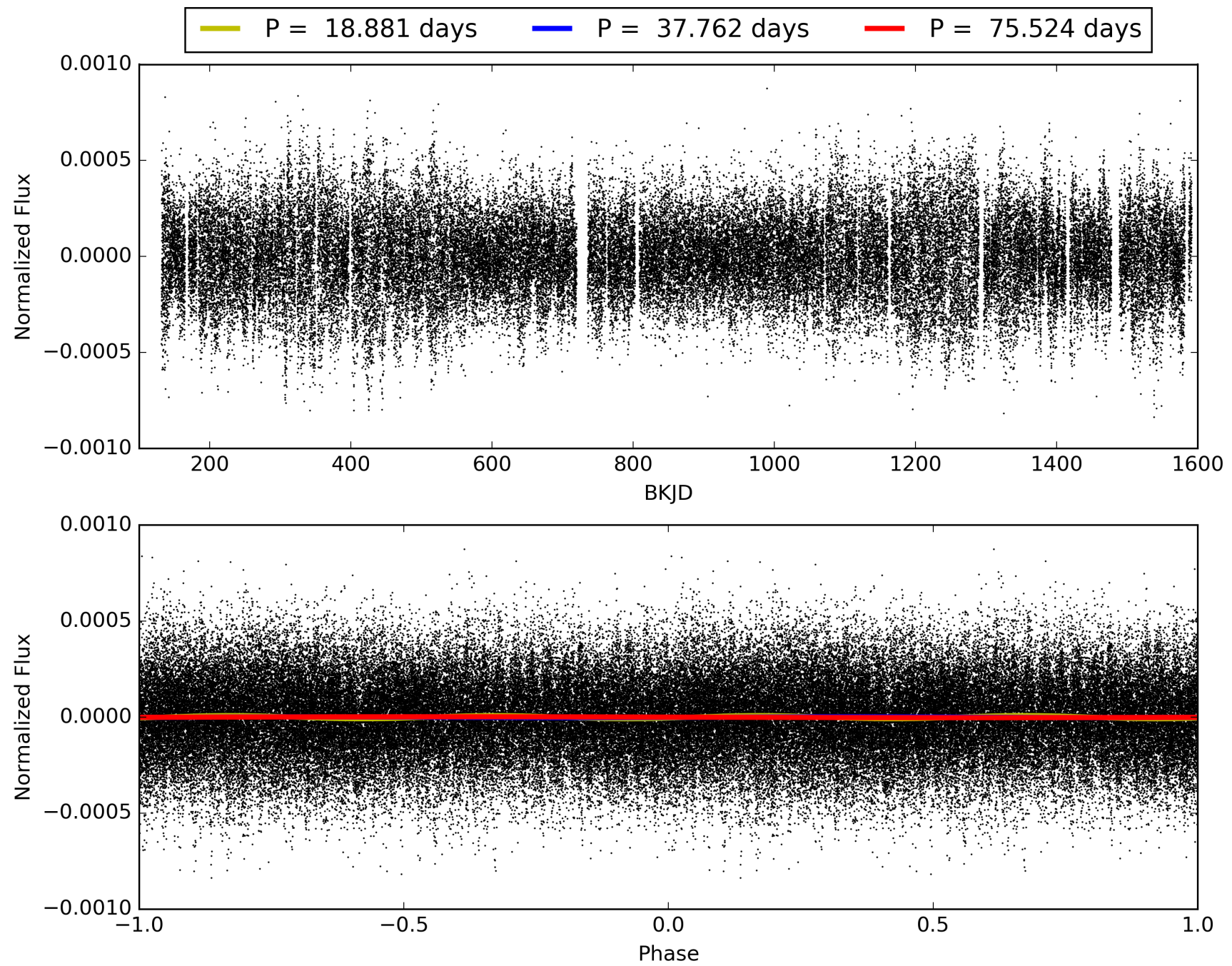
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:28:52 Z

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

TCE 007816992-08, PDC Light Curves

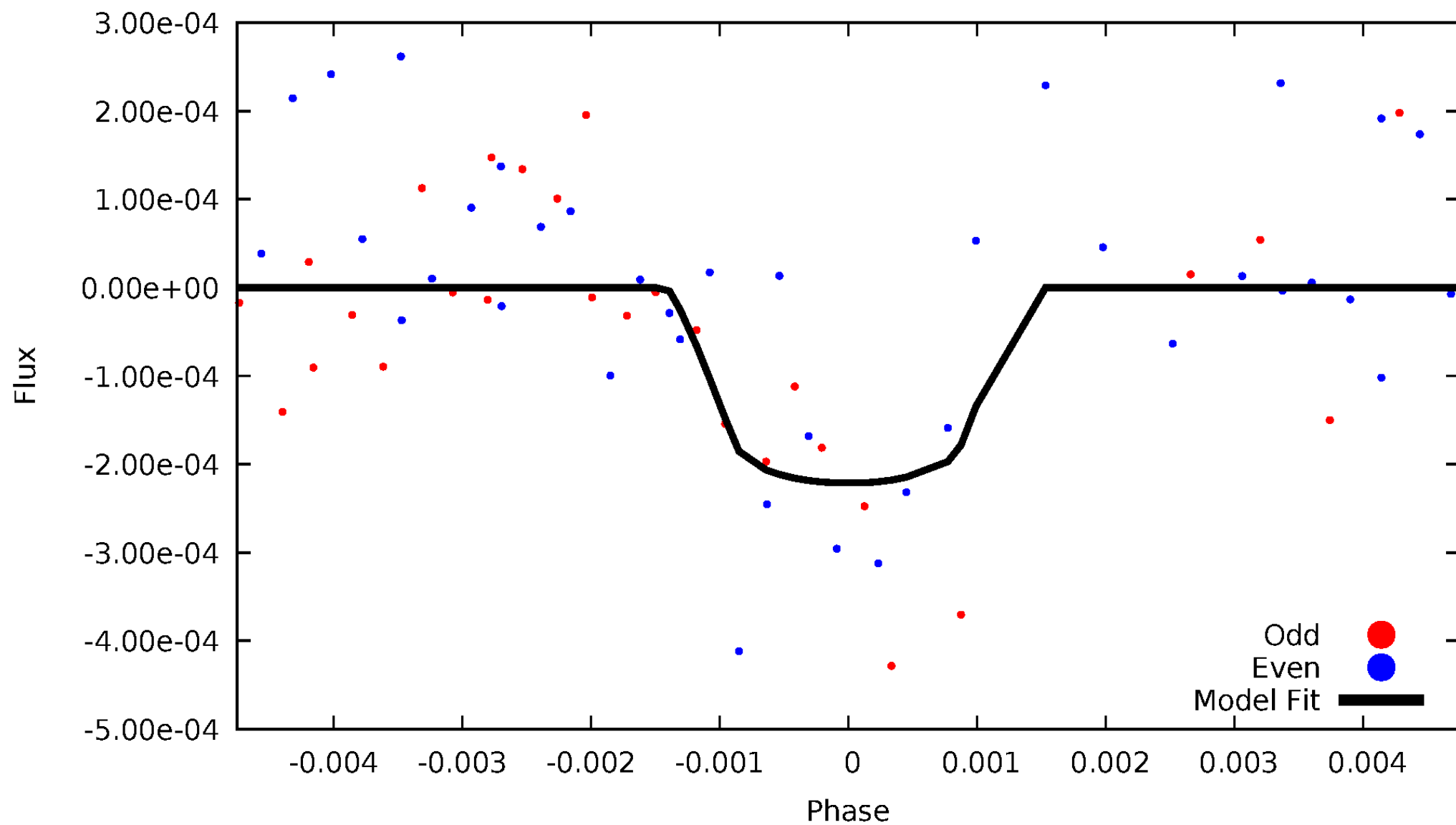


TCE 007816992-08



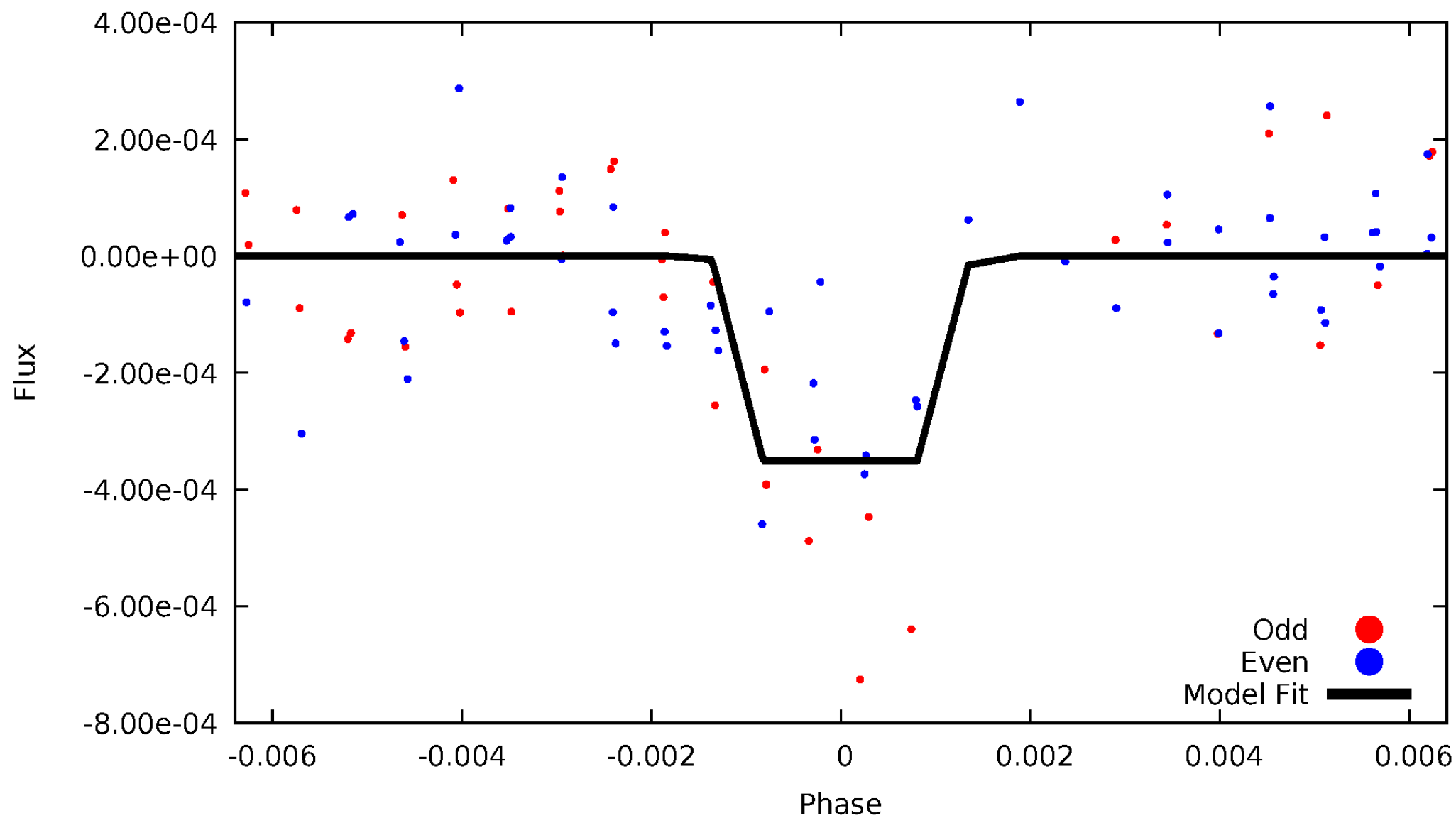
DV Odd/Even

TCE 007816992-08



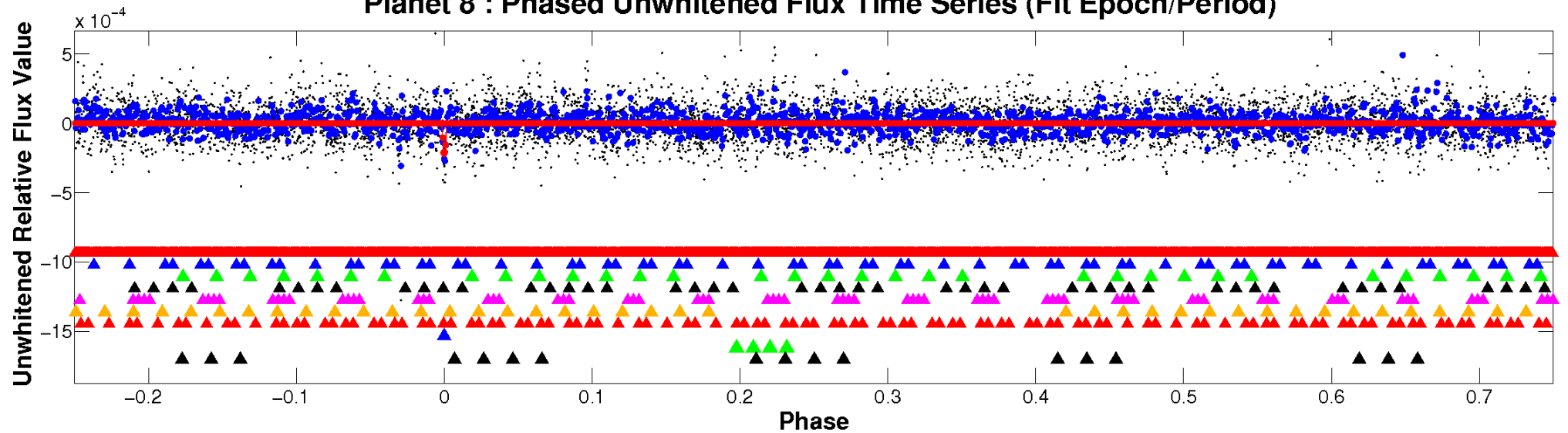
ALT Odd/Even

TCE 007816992-08

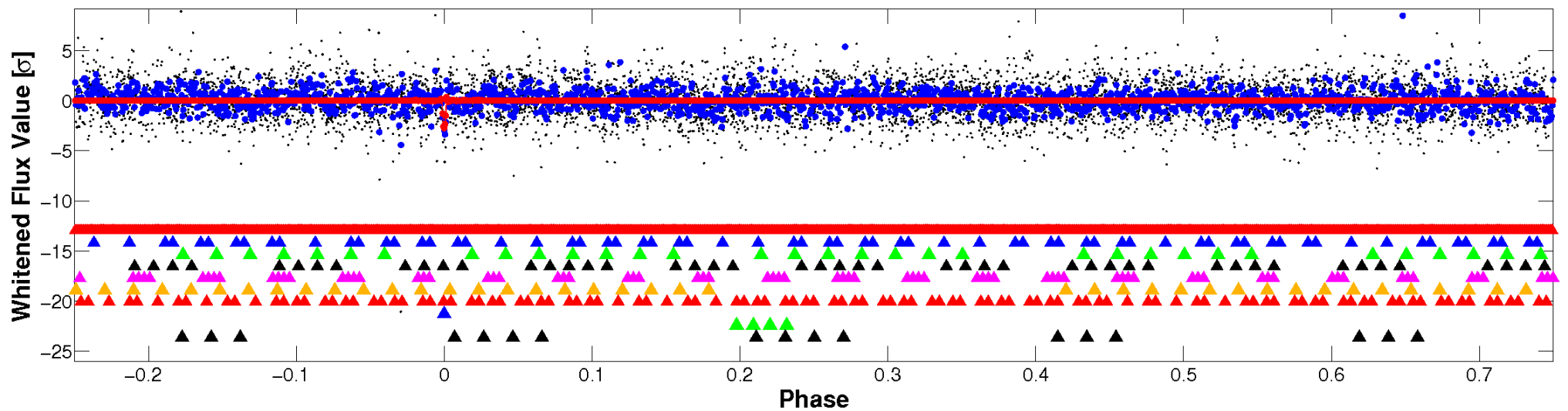


Non-Whitened Vs. Whitened Light Curve

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

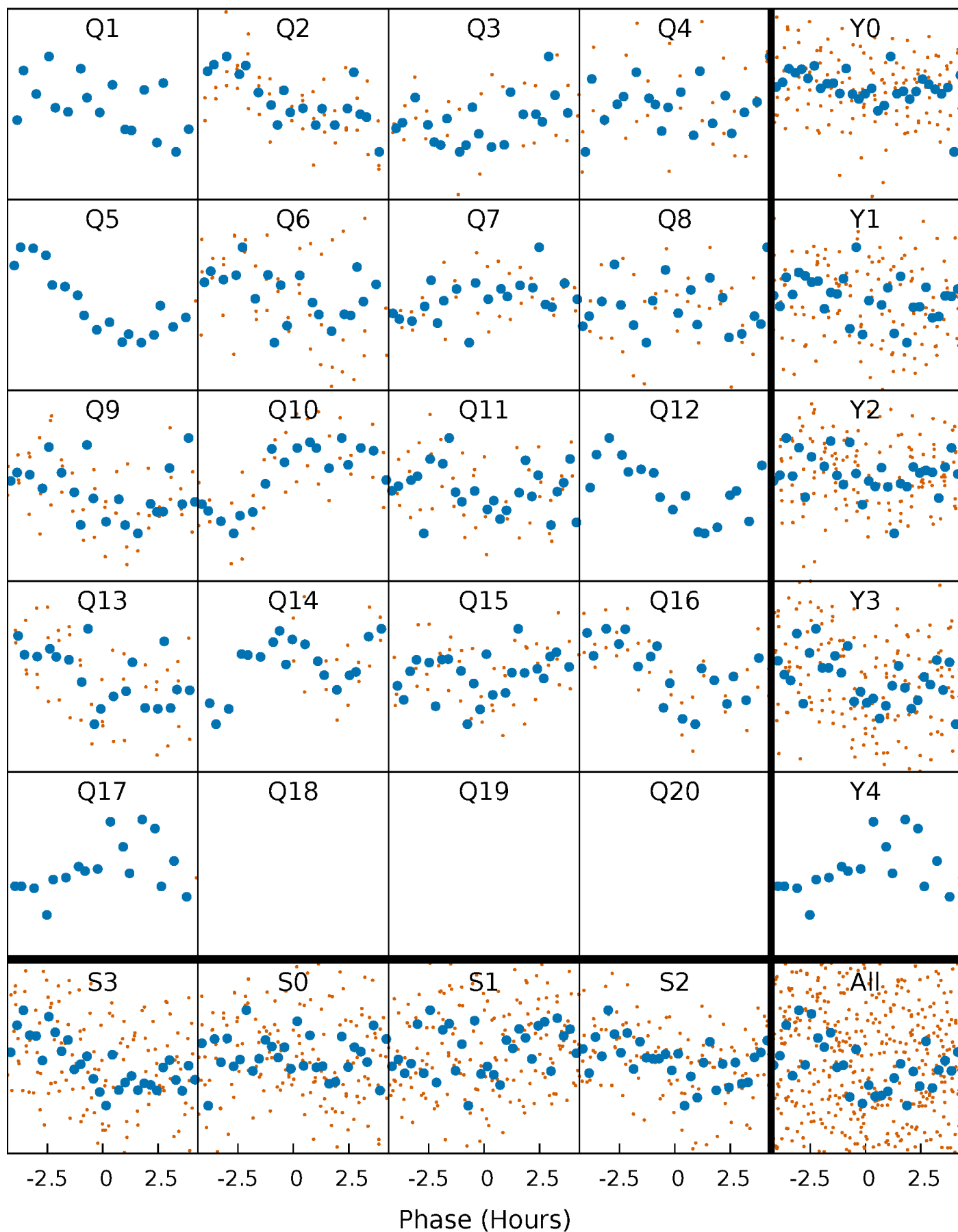


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



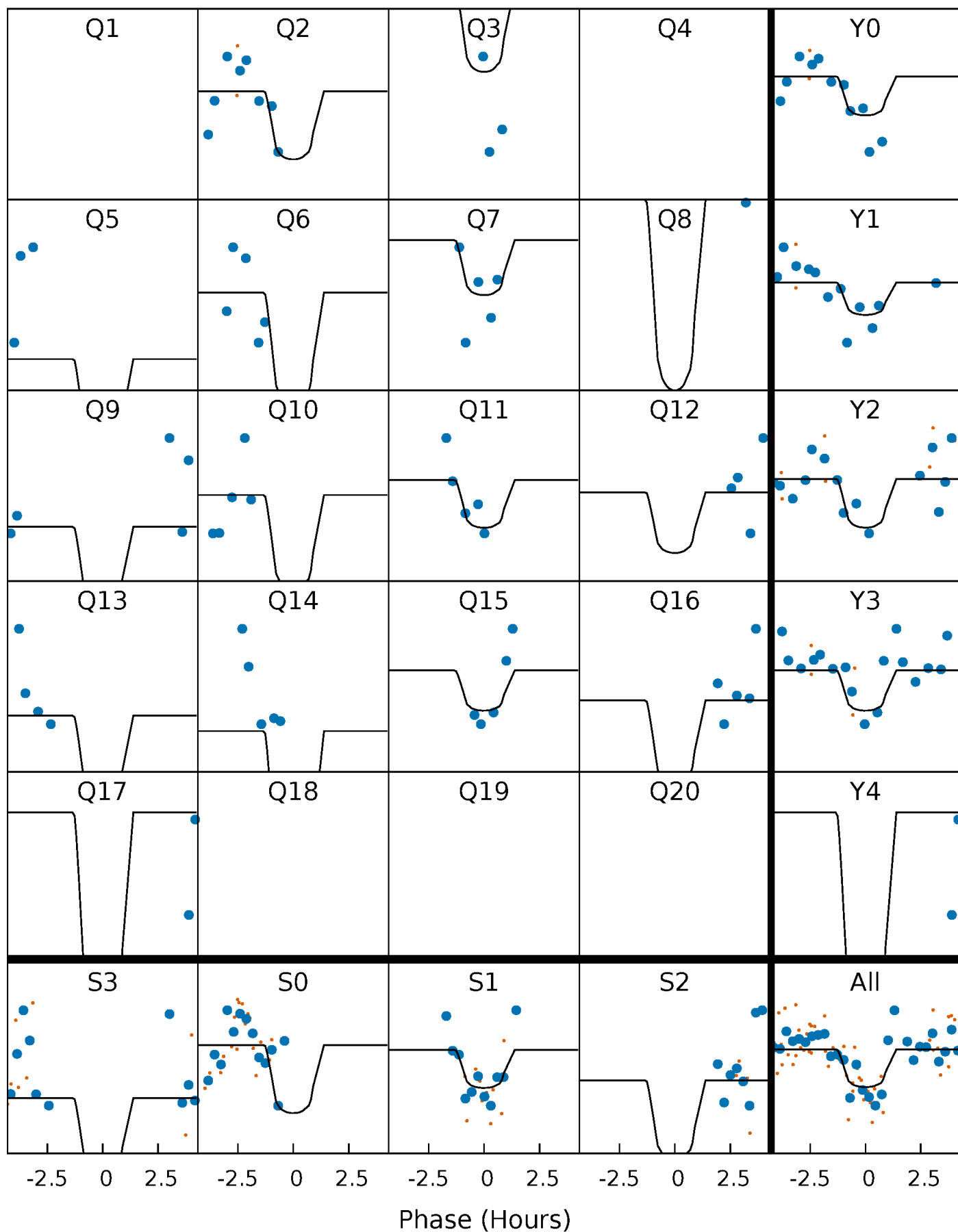
PDC Quarter-Phased Transit Curves

TCE 007816992-08 P= 37.761874 Days $T_0=135.582068$ (BKJD)



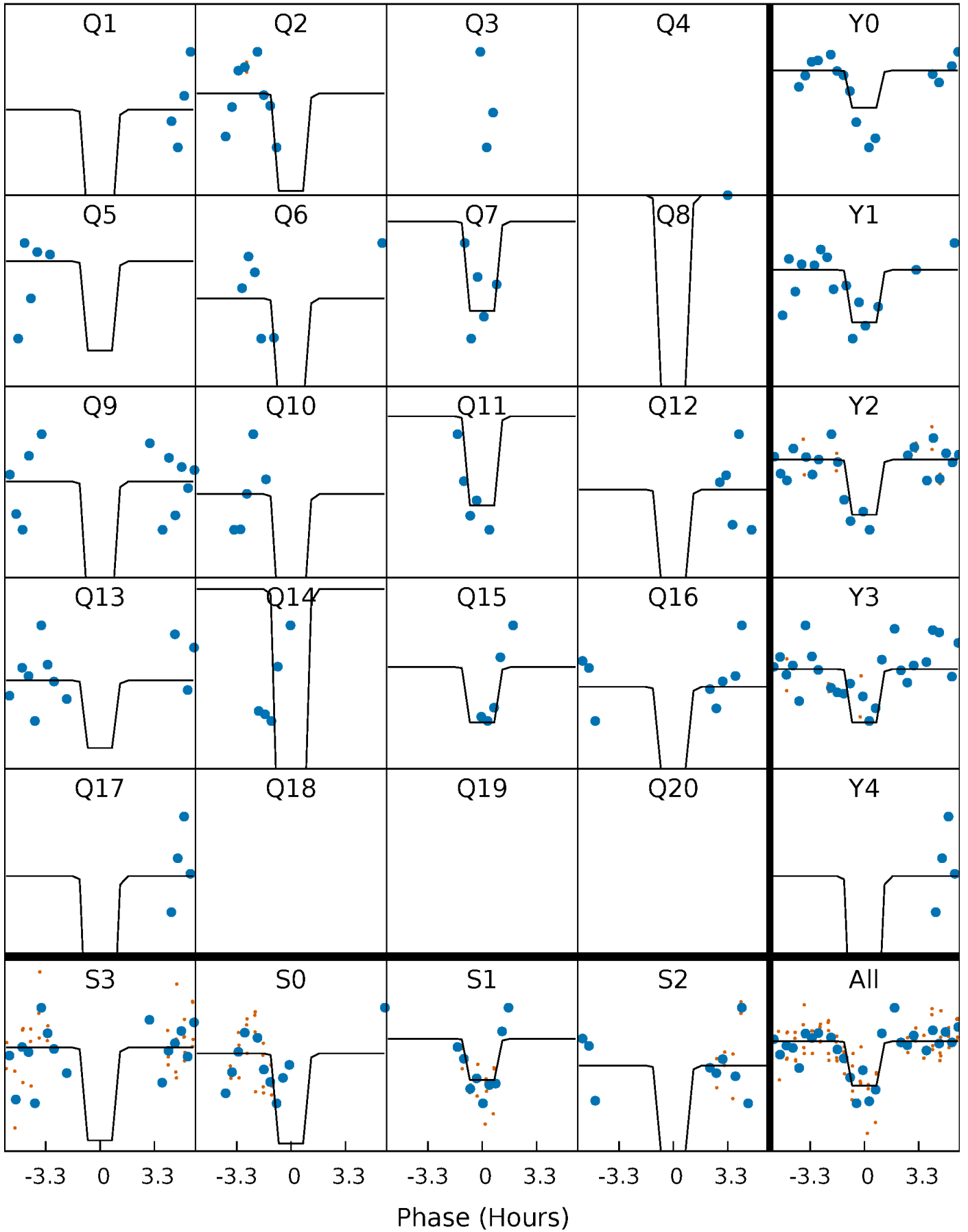
DV Quarter-Phased Transit Curves

TCE 007816992-08 P= 37.761874 Days $T_0=135.582068$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

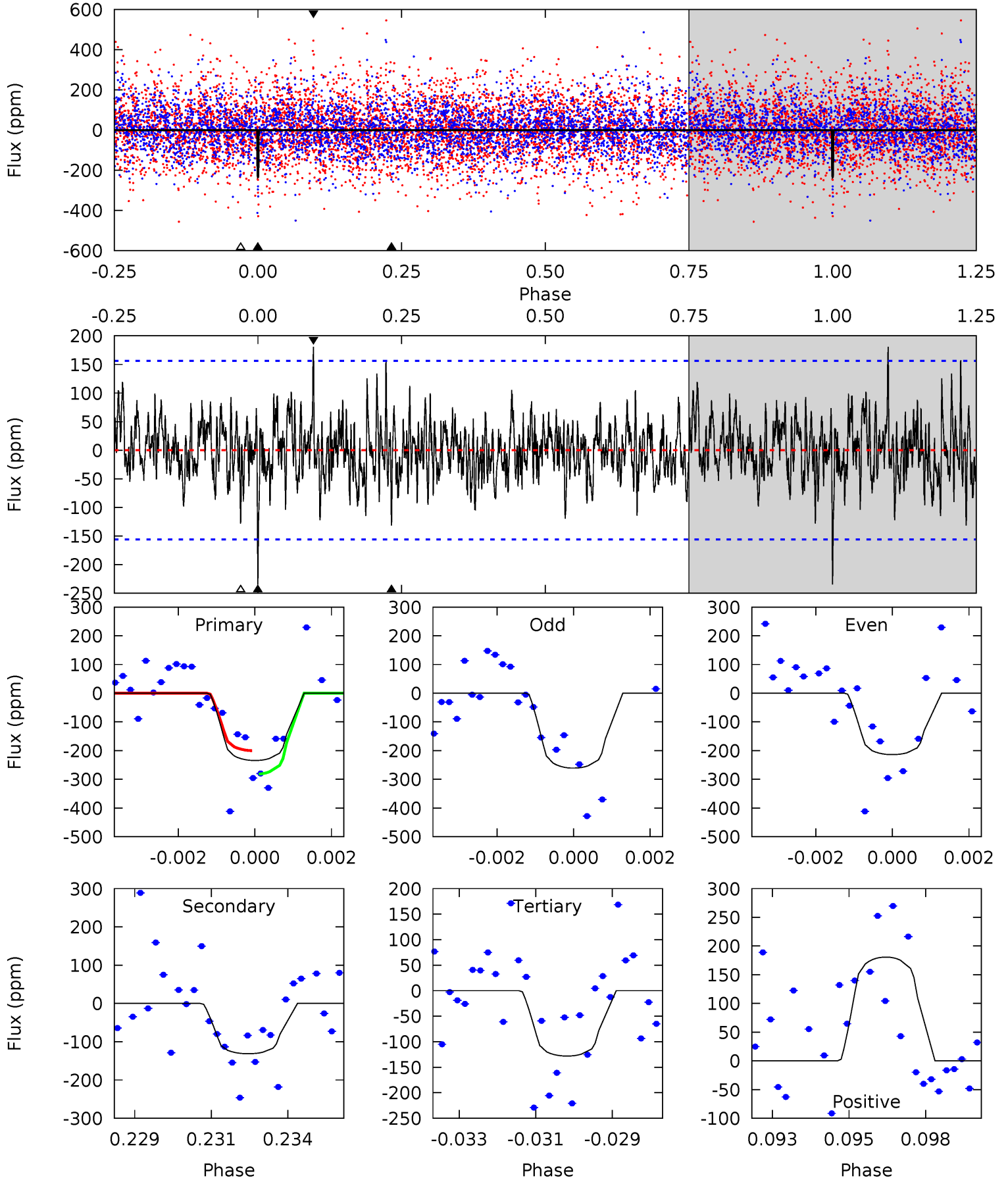
TCE 007816992-08 P= 37.761240 Days $T_0=135.590231$ (BKJD)



DV Model-Shift Uniqueness Test

007816992-08, P = 37.761874 Days, E = 97.820194 Days

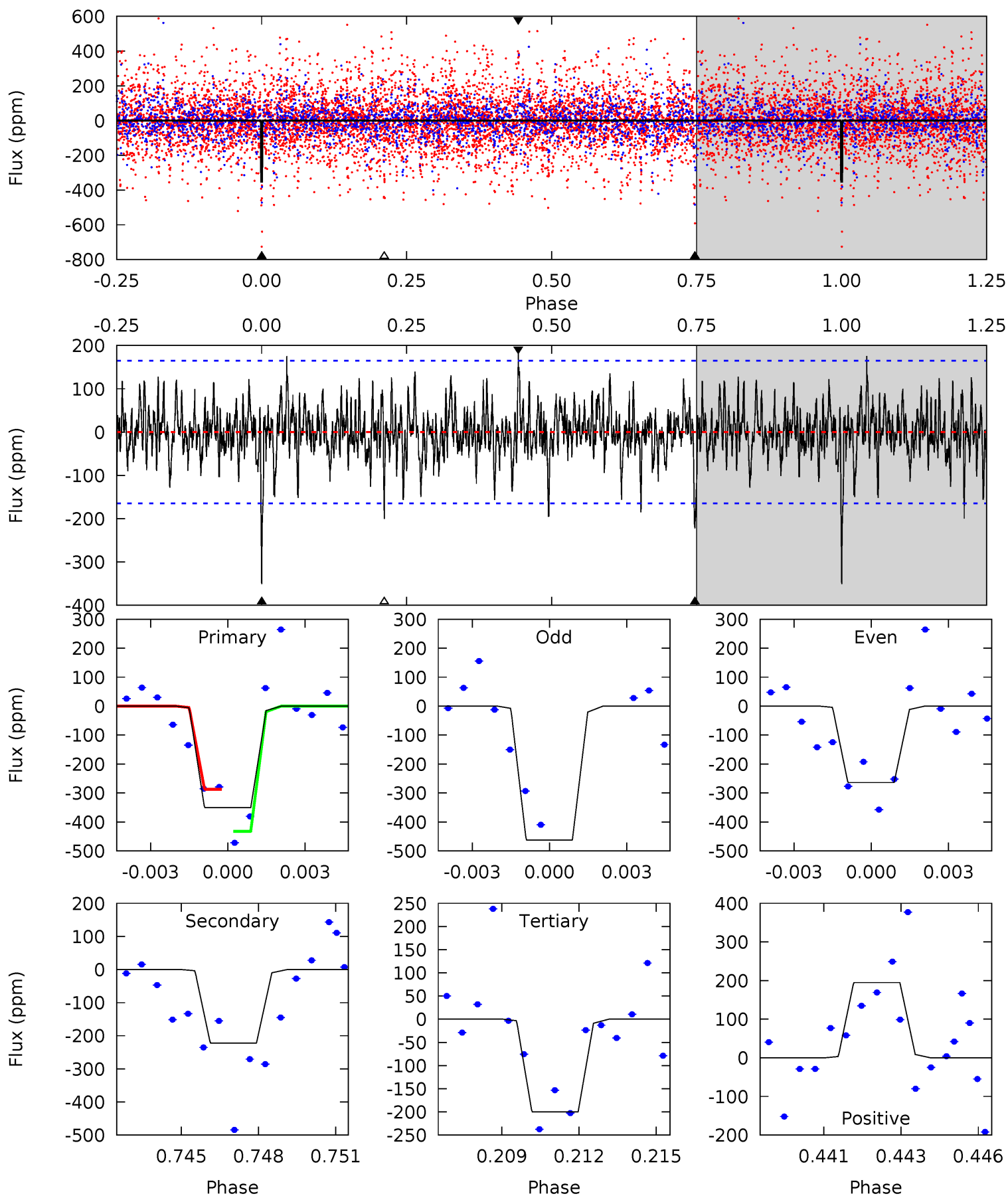
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.96	4.45	4.35	6.13	5.29	3.04	1.41	3.61	1.83	0.11	-1.68	0.81	0.95	0.44	1.30



Alt Model-Shift Uniqueness Test

007816992-08, P = 37.761240 Days, E = 97.828991 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	7.10	6.40	6.23	5.27	3.00	1.55	4.82	4.99	0.70	0.87	3.15	1.02	0.36	2.22



Stellar Parameters For KIC 007816992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6956^{+194}_{-333}	$4.278^{+0.075}_{-0.225}$	$0.070^{+0.200}_{-0.350}$	$1.439^{+0.537}_{-0.215}$	$1.431^{+0.222}_{-0.202}$	$0.676^{+0.226}_{-0.396}$
	+3%/-5%	+2%/-5%	+286%/-500%	+37%/-15%	+16%/-14%	+33%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007816992-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-131 ± 29	$3.65^{+3.57}_{-2.42}$	1044^{+96}_{-60}	5002^{+3931}_{-1137}	335^{+2424}_{-257}
Alt.	-222 ± 31	$4.18^{+3.87}_{-2.70}$	1045^{+92}_{-63}	5319^{+4197}_{-1200}	423^{+3068}_{-306}

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 $A_{obs} \gg 1.0$

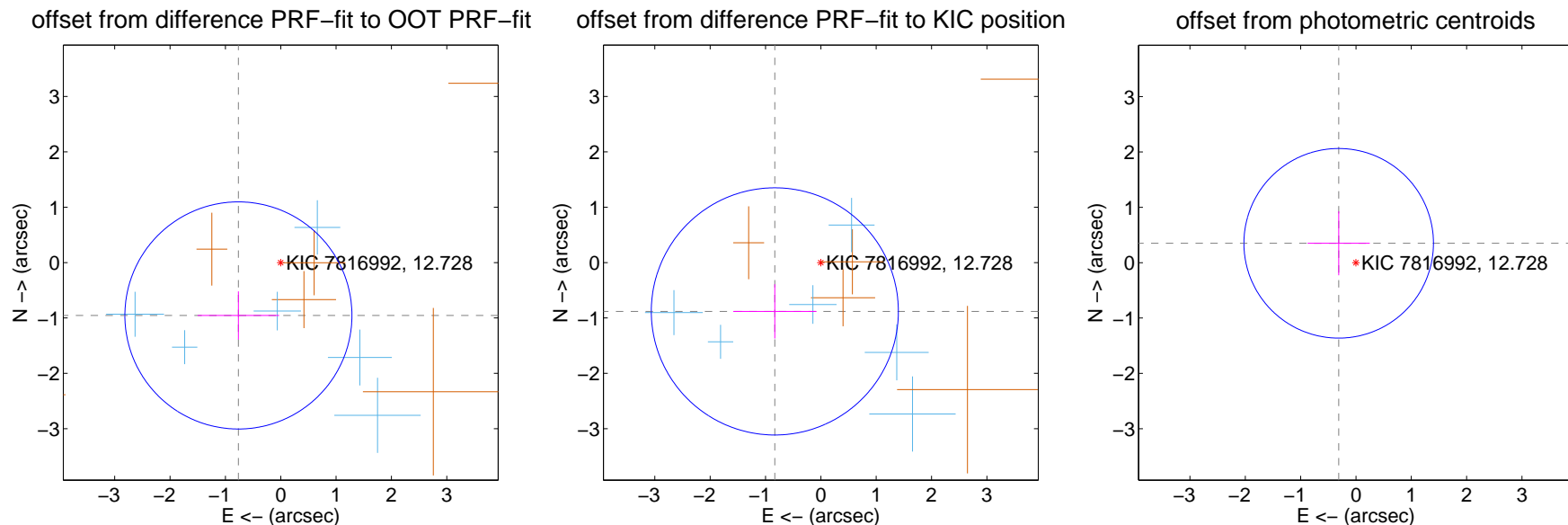
DV Centroid Data

Supplemental centroid analysis for 007816992-08. Kepler magnitude: 12.73. Transit SNR 9.45

There are 6 quarters with good PRF difference image offsets

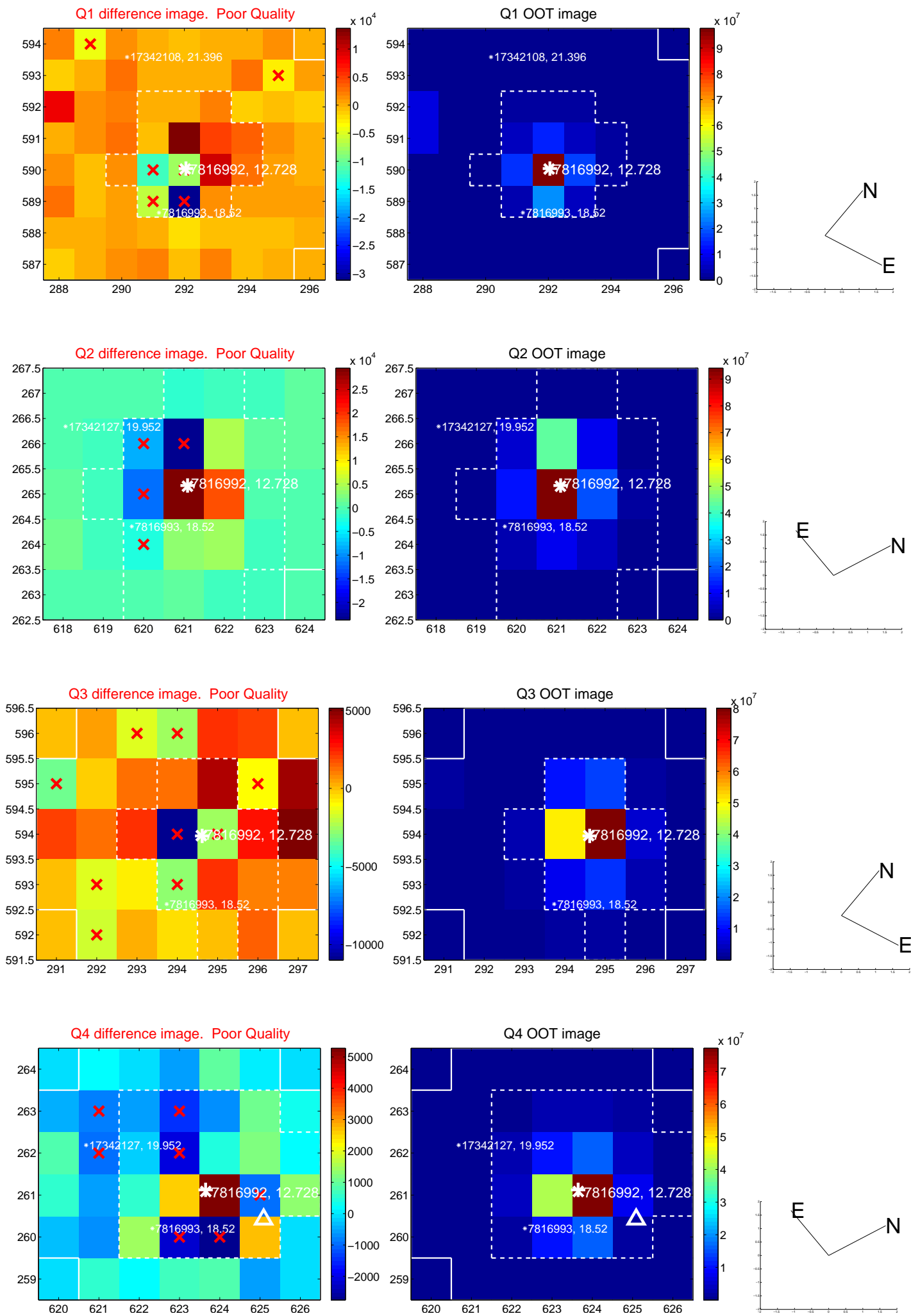
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.223 ± 0.683	1.79	0.765 ± 0.737	-0.954 ± 0.435
PRF-fit source offset from KIC position	1.212 ± 0.744	1.63	0.832 ± 0.752	-0.881 ± 0.490
photometric centroid source offset	0.47 ± 0.57	0.82	0.31 ± 0.56	0.35 ± 0.58

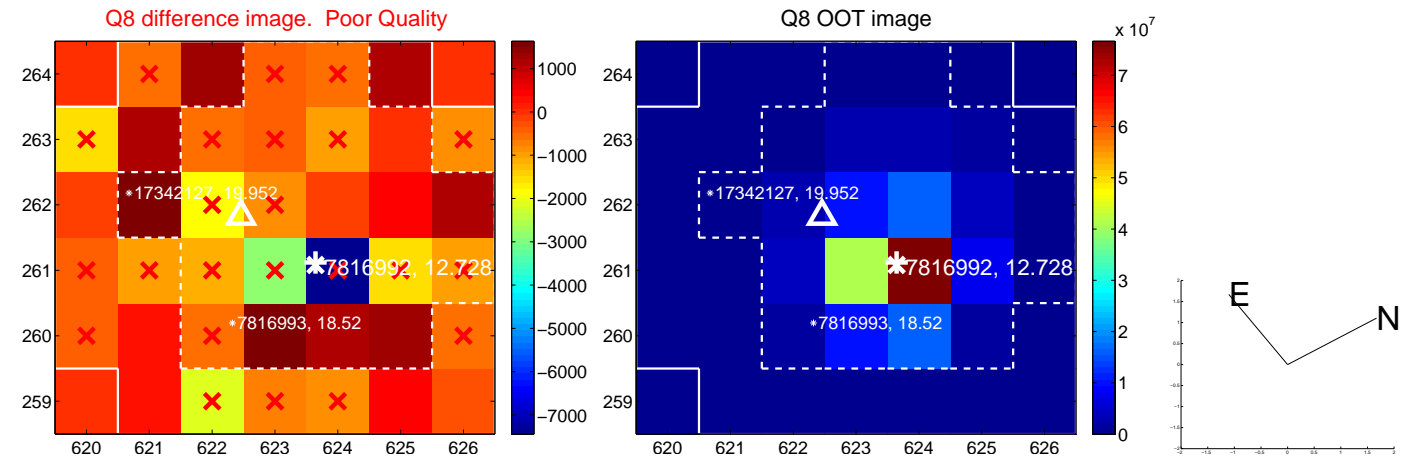
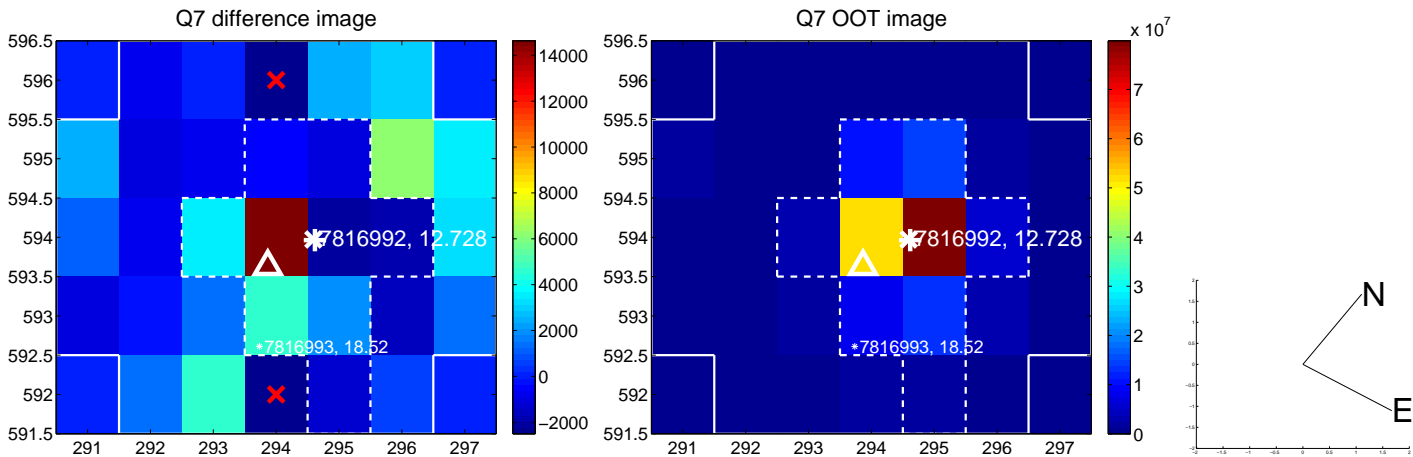
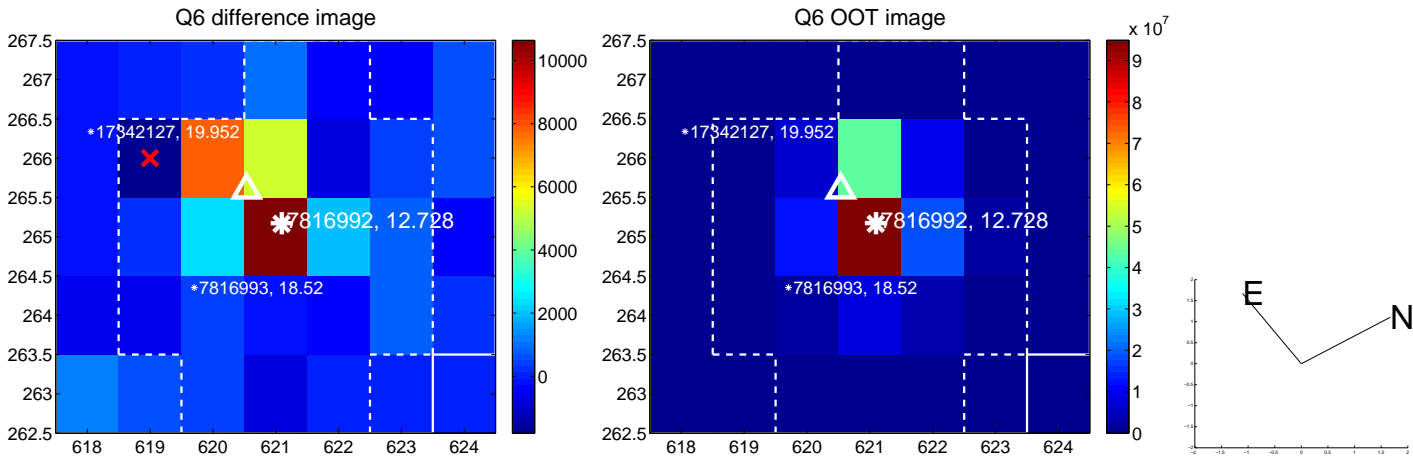
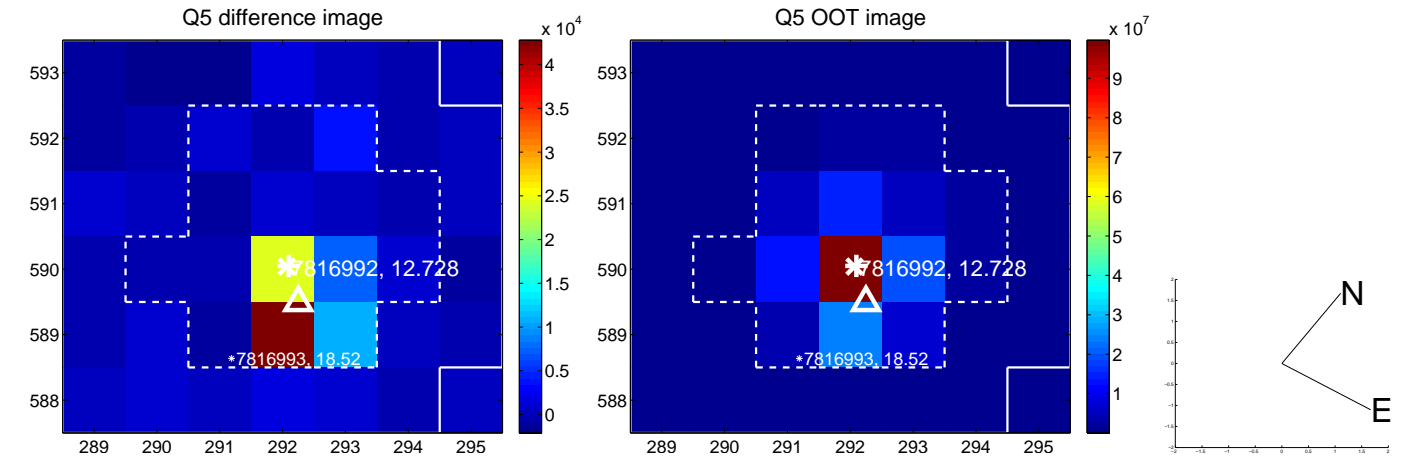


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

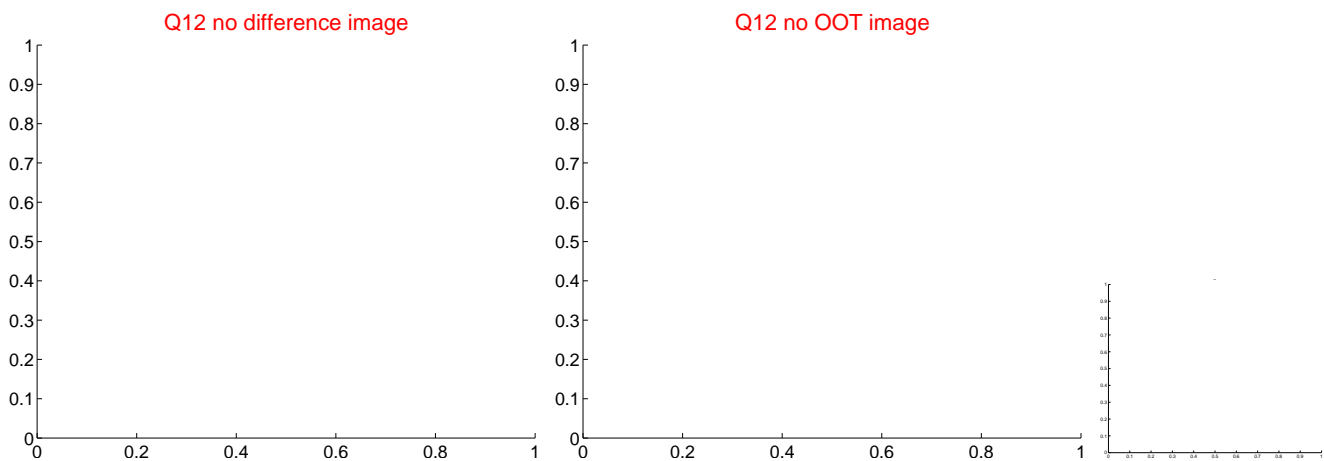
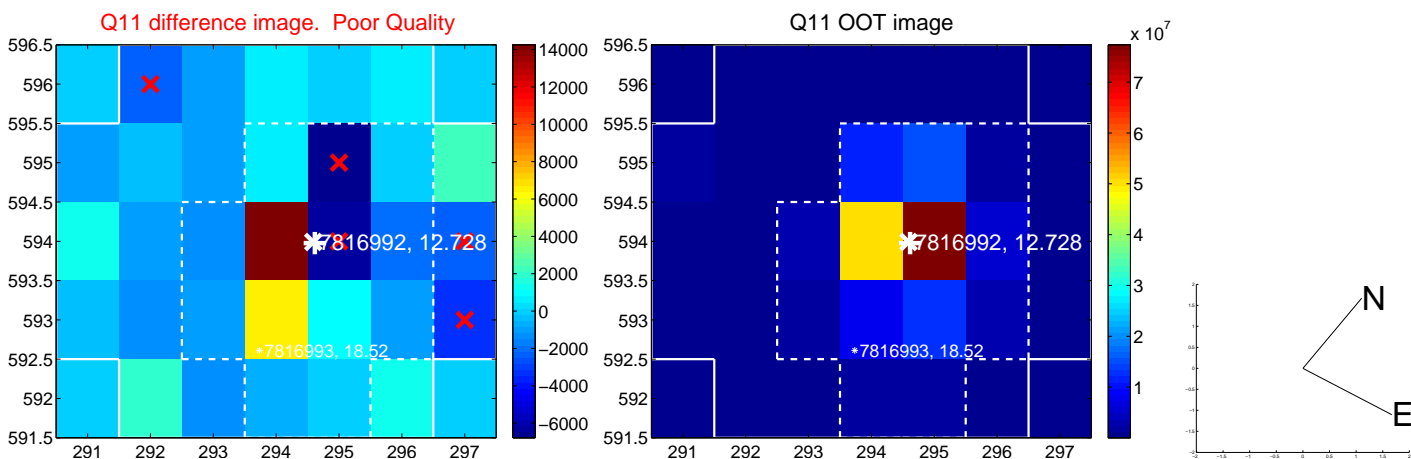
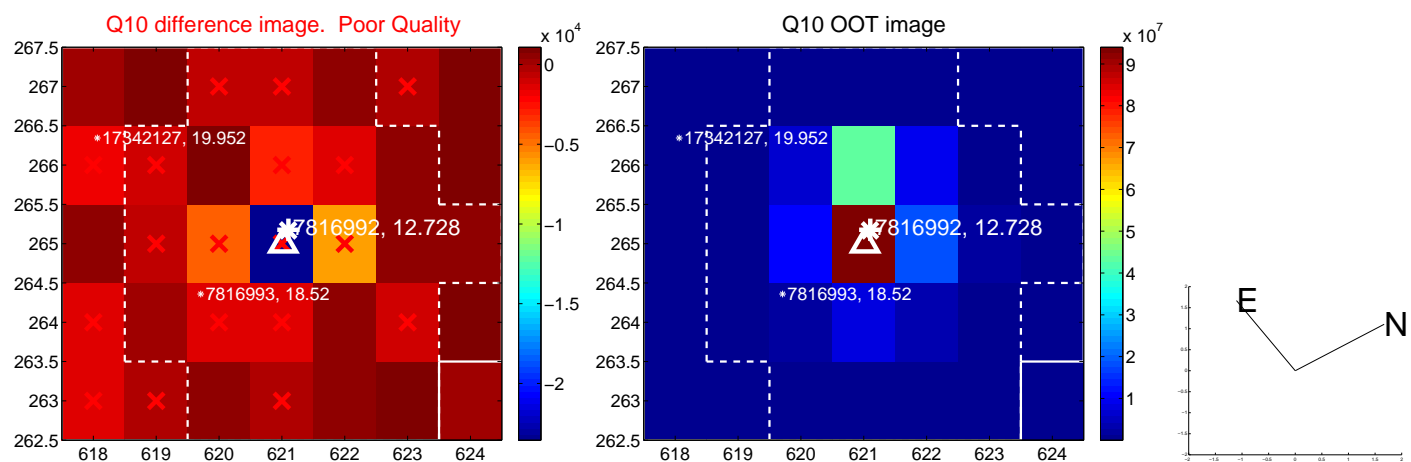
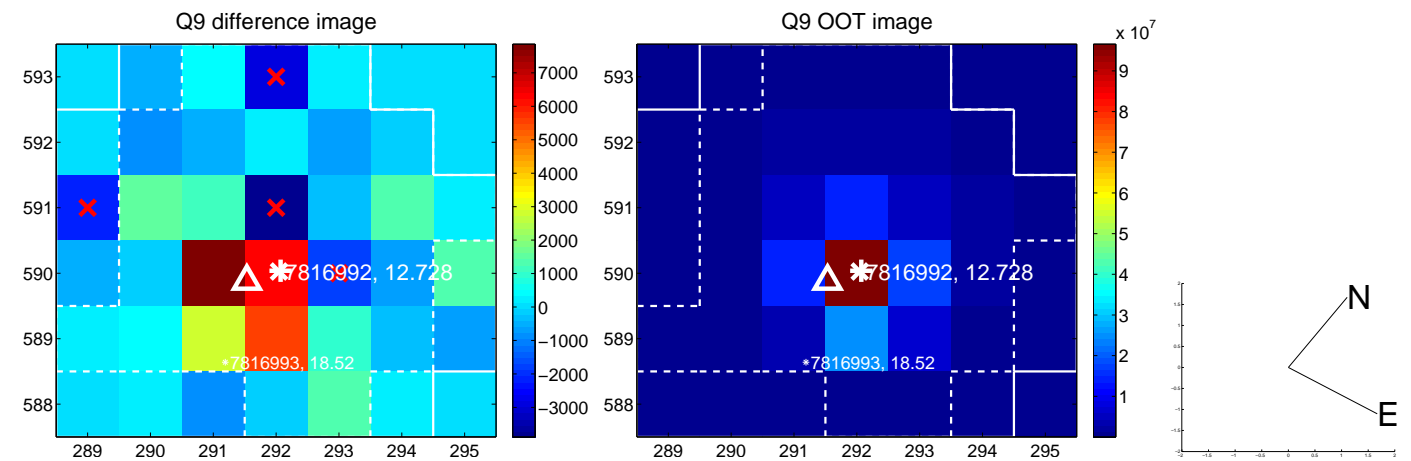
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



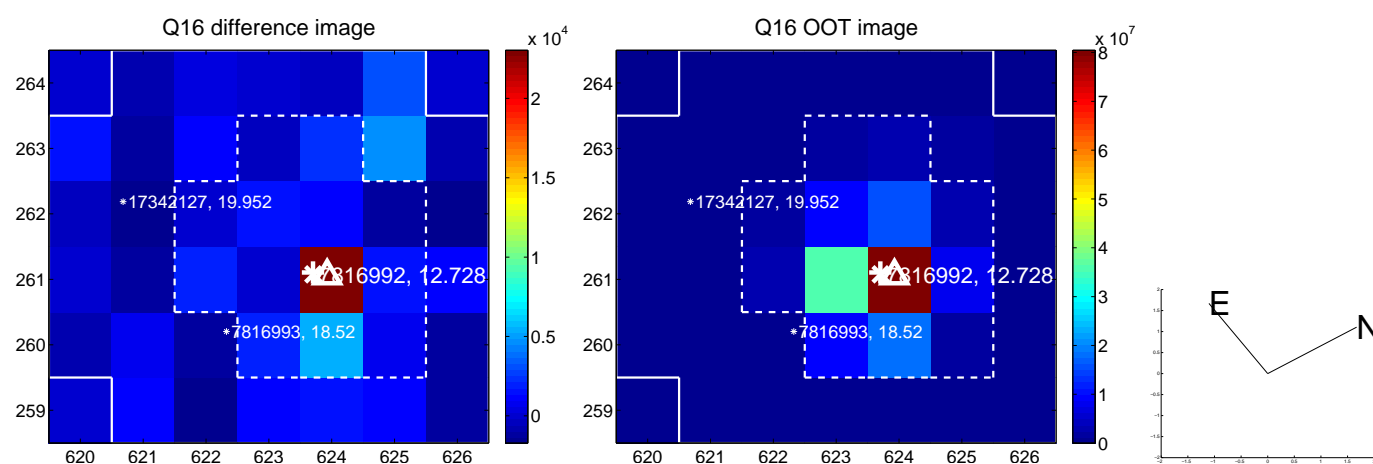
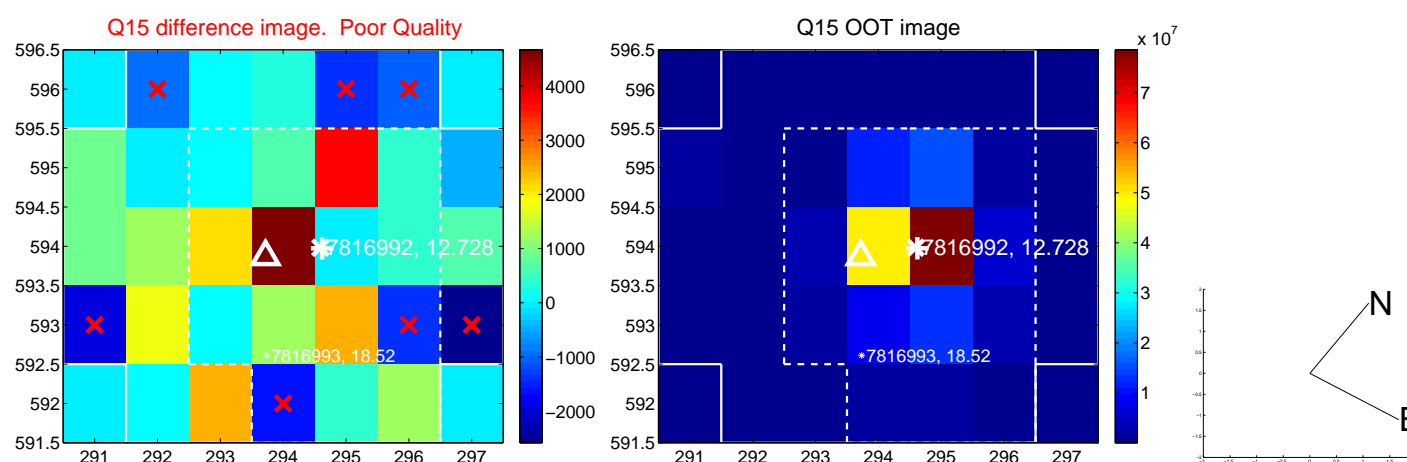
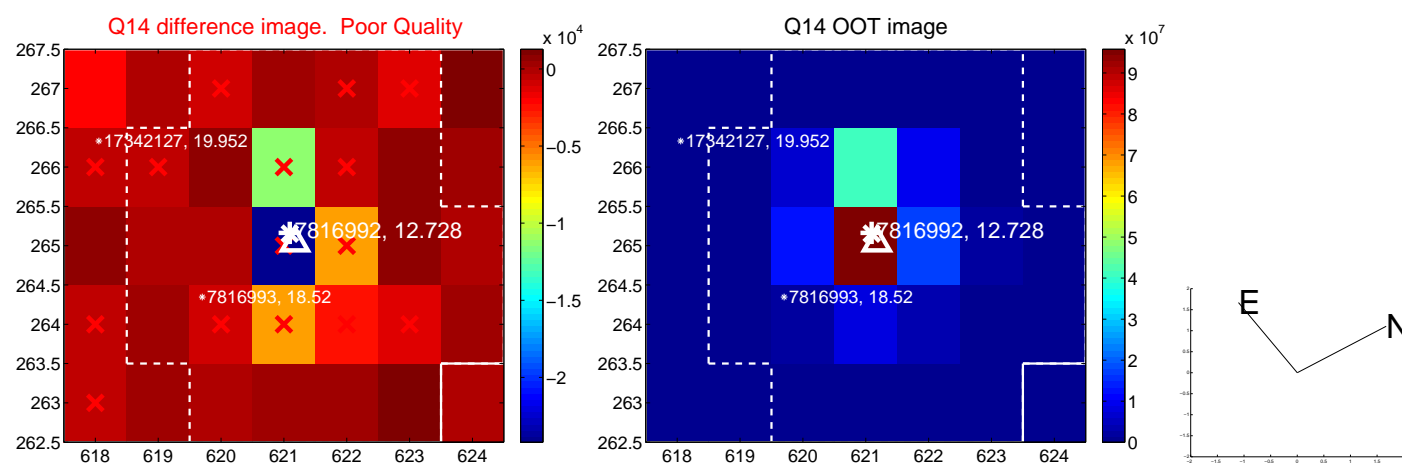
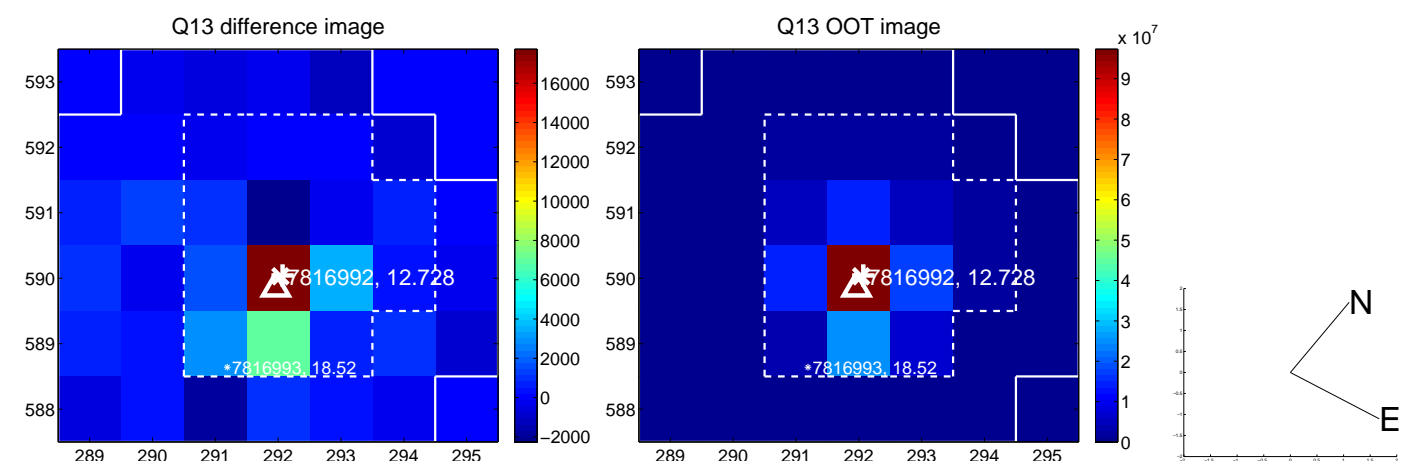
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



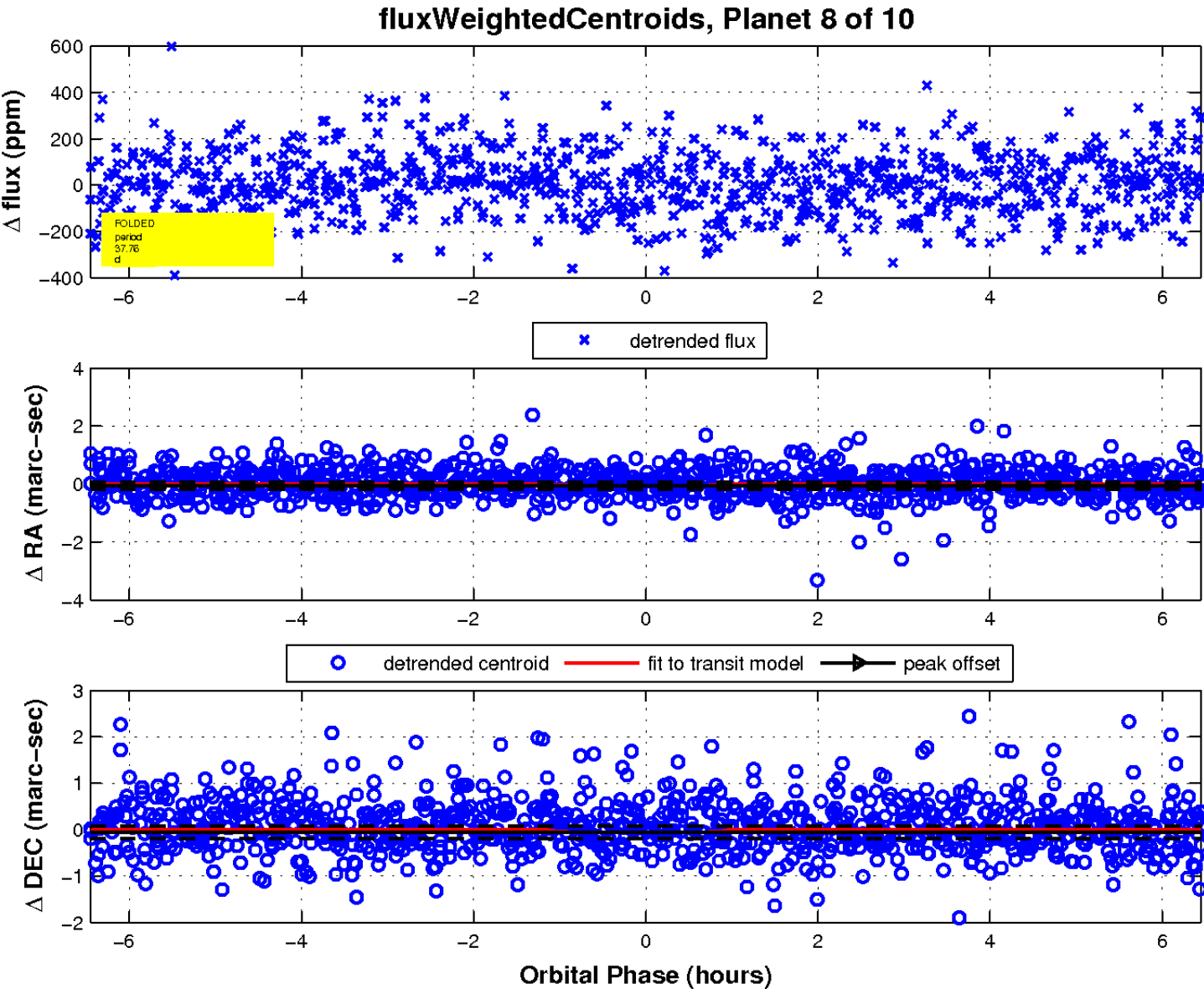
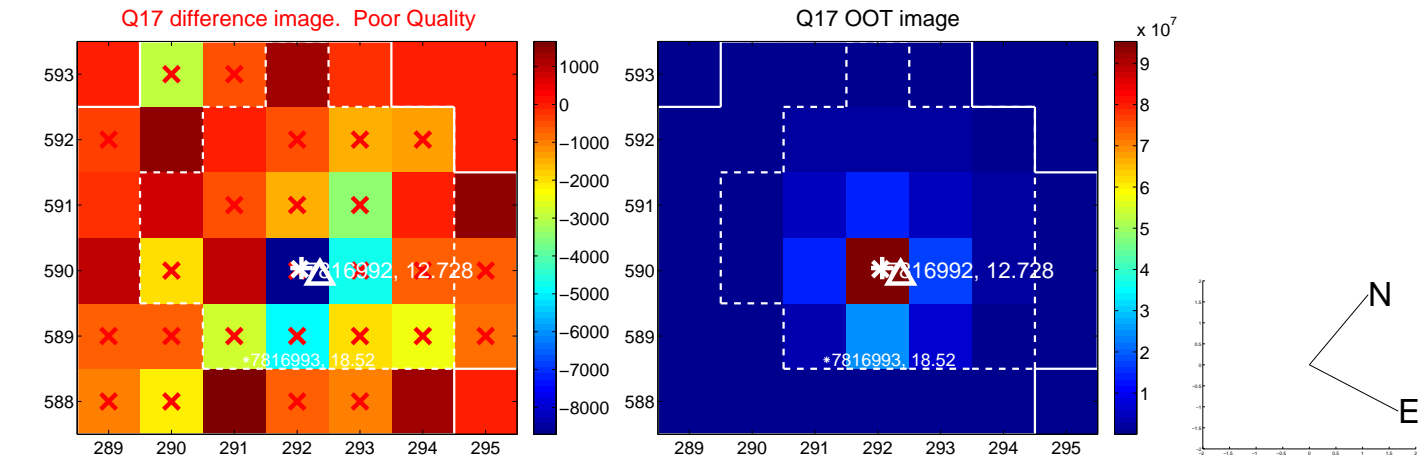
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

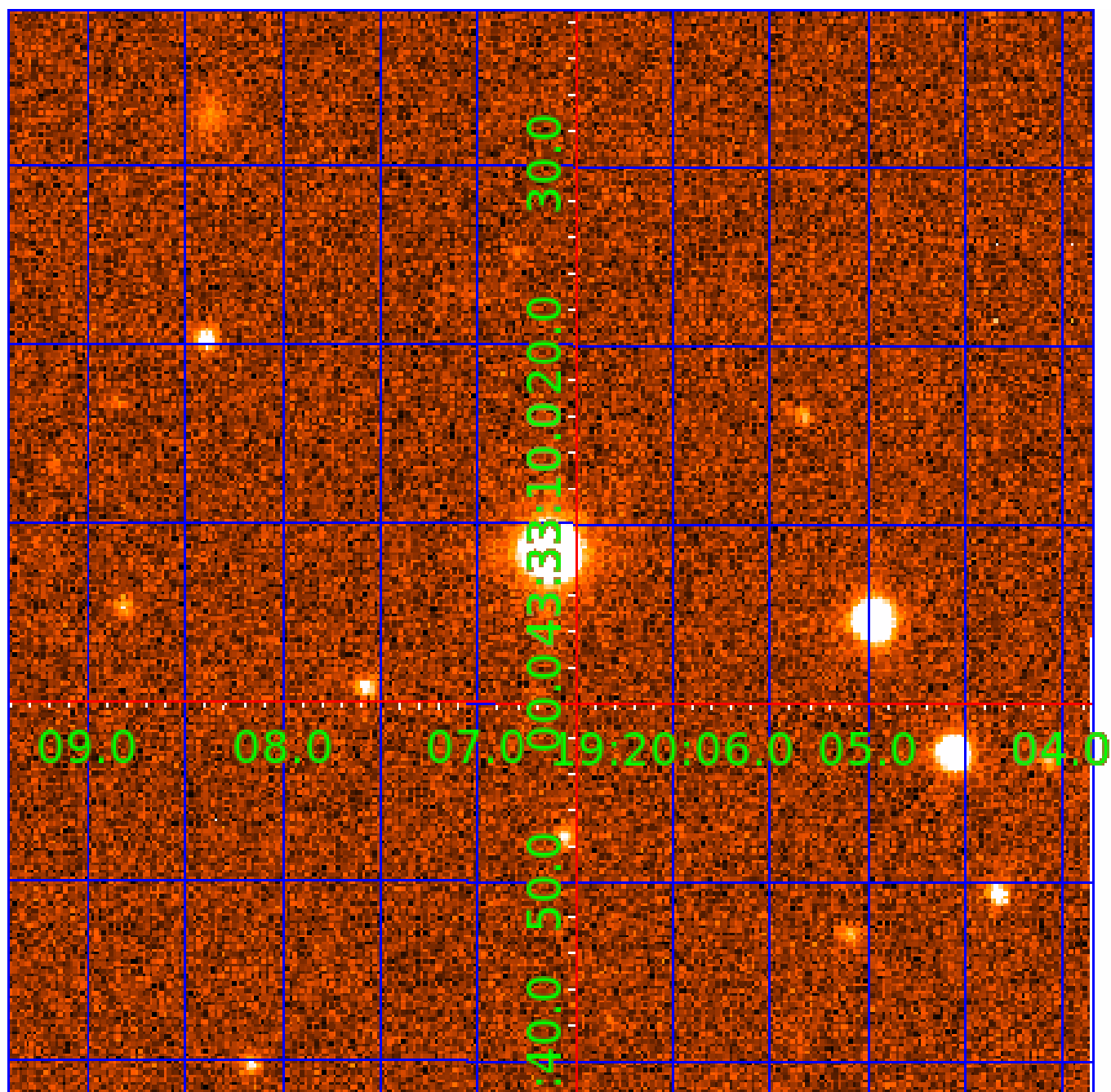


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007816992

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})
007816992-01	OBS	No	0.795855	132.214839	4.5	5.406	8.2	3.0	1.44	6956	0.31	12094.68
007816992-02	OBS	No	21.708210	133.397023	69.8	7.026	11.2	6.8	1.44	6956	1.36	147.30
007816992-03	OBS	No	45.142788	134.057293	234.4	1.682	12.0	10.0	1.44	6956	2.25	55.49
007816992-04	OBS	No	30.851957	153.560834	235.5	2.146	10.3	10.3	1.44	6956	2.49	92.19
007816992-05	OBS	No	19.773249	144.267271	110.5	4.767	9.8	9.0	1.44	6956	1.74	166.83
007816992-06	OBS	No	37.027490	142.337681	222.5	3.133	10.2	11.7	1.44	6956	2.38	72.28
007816992-07	OBS	No	13.003061	143.580835	147.2	2.503	11.0	11.9	1.44	6956	1.99	291.73
007816992-08	OBS	No	37.761874	135.582068	221.4	2.152	10.2	9.5	1.44	6956	2.42	70.41
007816992-09	OBS	No	378.044986	294.097804	230.1	7.332	10.2	8.4	1.44	6956	2.54	3.26
007816992-10	OBS	No	83.224846	211.371629	352.3	2.000	10.5	-1.0	1.44	6956	2.73	24.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007816992-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_FEW_MEAS
007816992-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
007816992-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007816992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
007816992-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

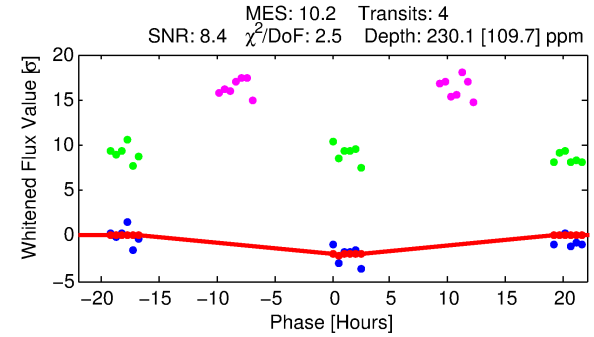
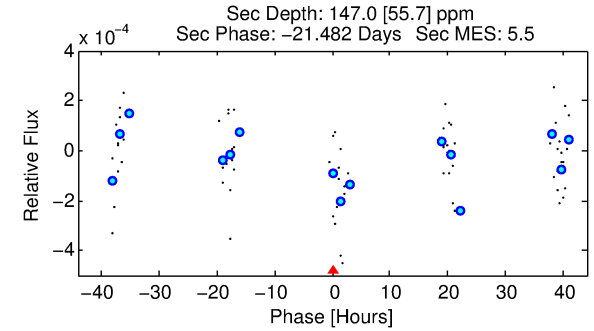
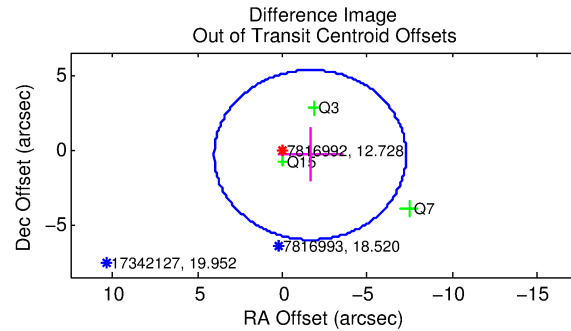
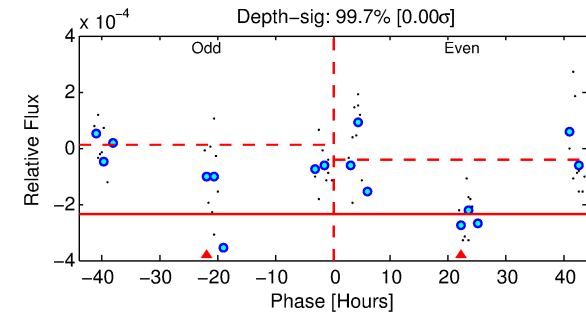
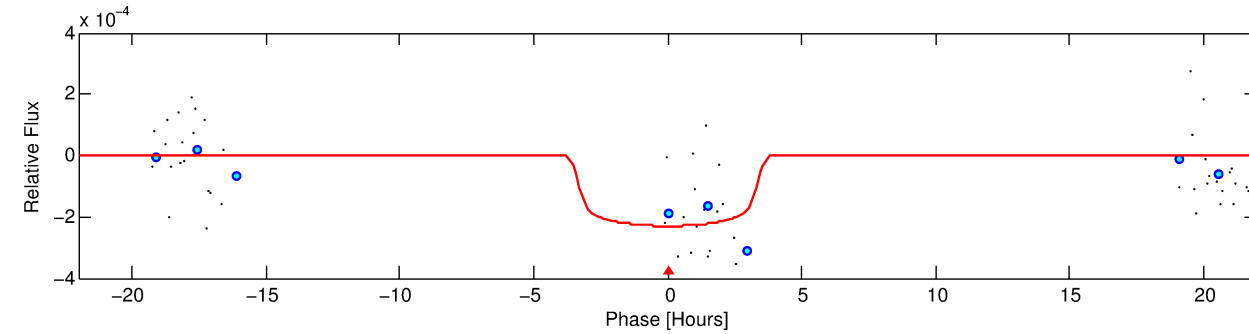
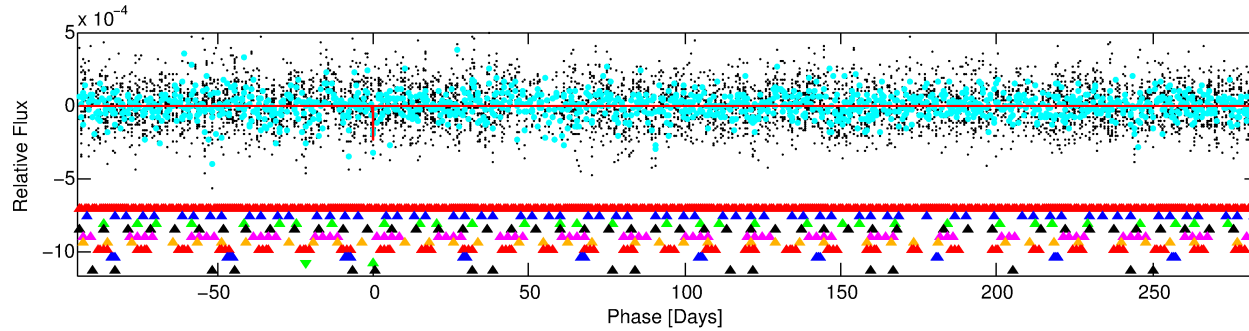
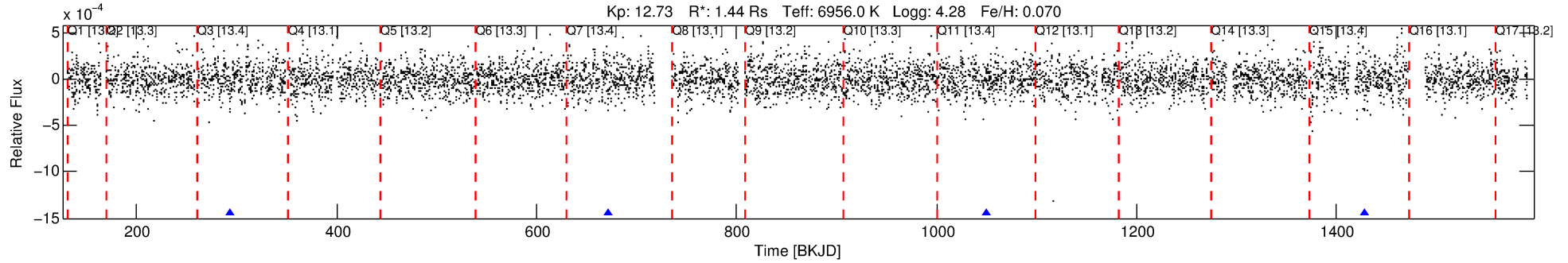
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007816992-09

No Significant Match Found

DV One-Page Summary

KIC: 7816992 Candidate: 9 of 10 Period: 378.045 d



DV Fit Results:

Period = 378.04499 [0.09402] d
Epoch = 294.0978 [0.3003] BKJD
Rp/R* = 0.0162 [0.0656]
a/R* = 186.70 [4720.97]
b = 0.90 [5.31]
Seff = 3.26 [1.52]
Teq = 343 [40] K
Rp = 2.54 [10.35] Re
a = 1.1537 [0.3494] AU
Ag = 16736.23 [136355.64] [0.12σ]
Teffp = 6027 [12262] K [0.46σ]

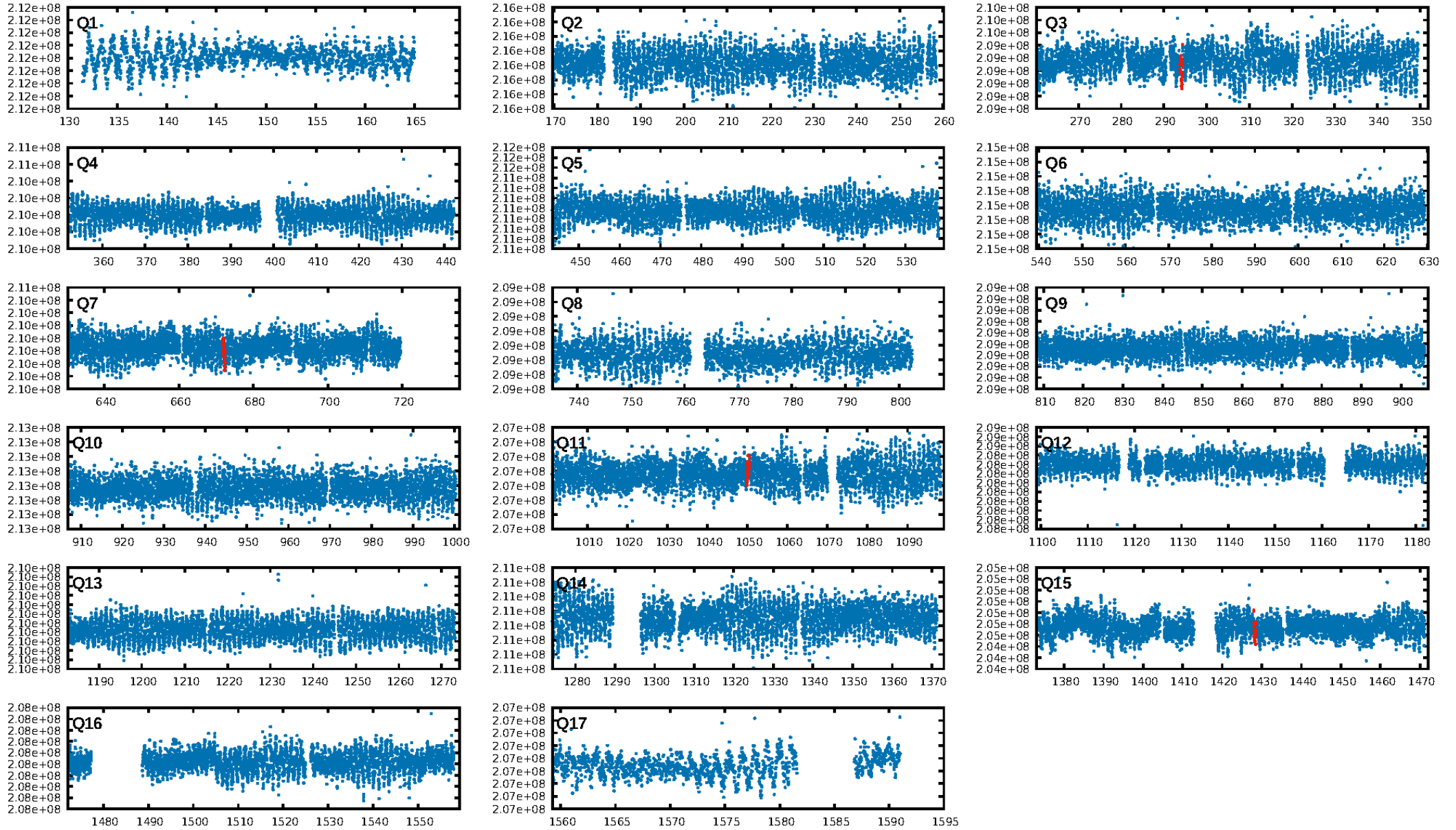
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [931.01σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 3.056
Centroid-sig: 24.3%
Centroid-so: 1.221 arcsec [0.95σ]
OotOffset-rm: 1.688 arcsec [0.89σ]
OotOffset-st: 0/3/0/0 [3]
KicOffset-rm: 1.589 arcsec [0.84σ]
KicOffset-st: 0/3/0/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/4]

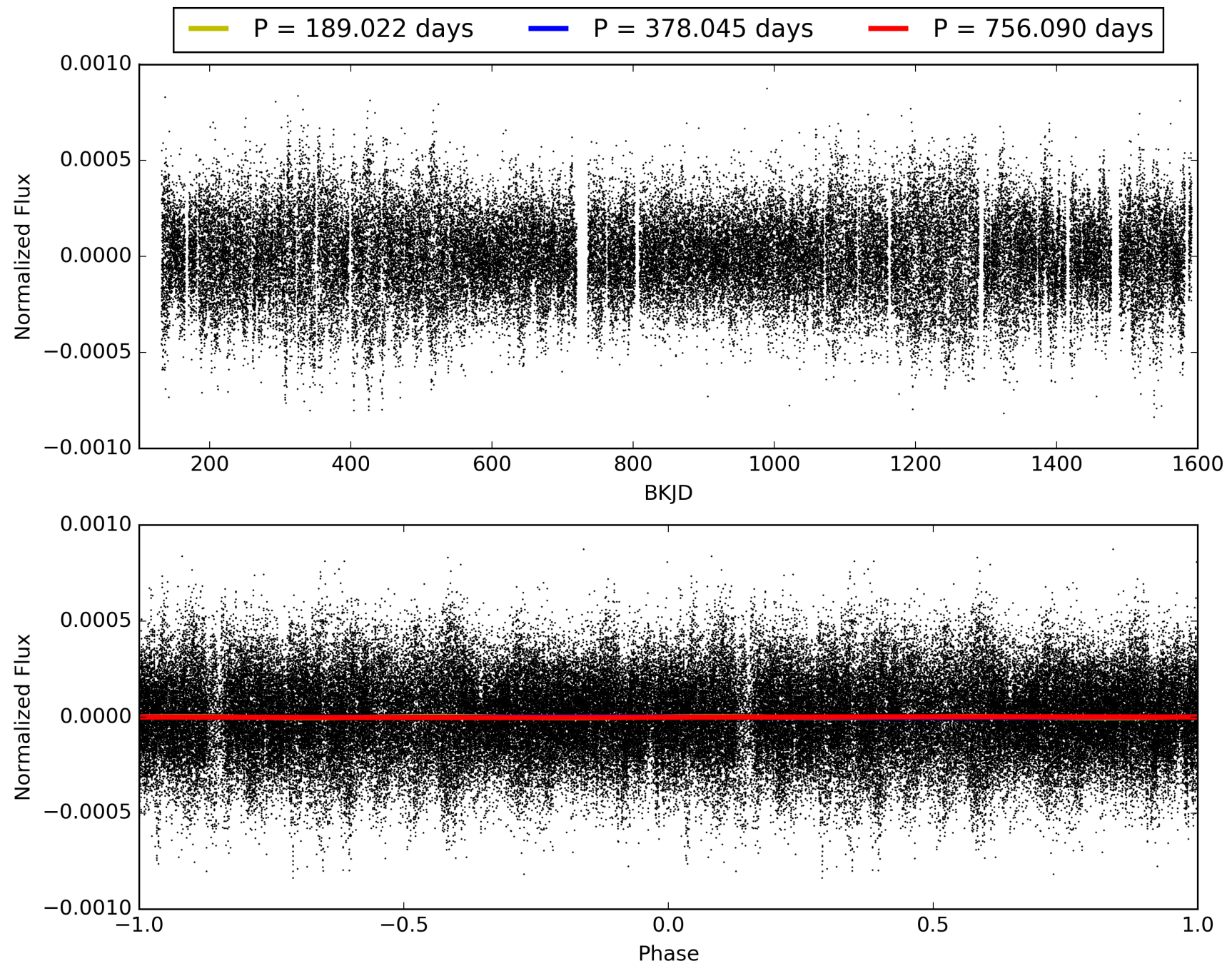
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:28:56 Z

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

TCE 007816992-09, PDC Light Curves

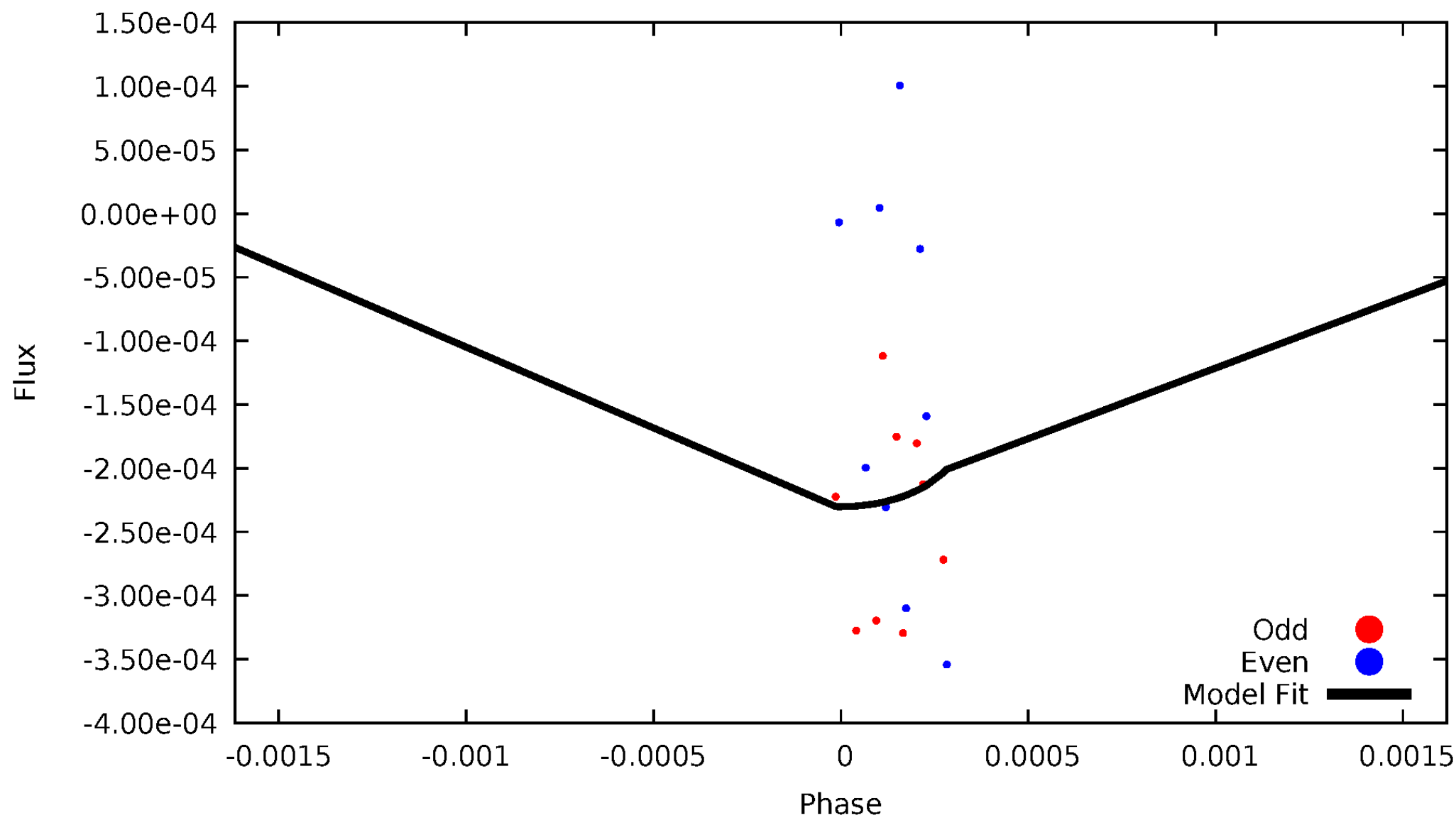


TCE 007816992-09



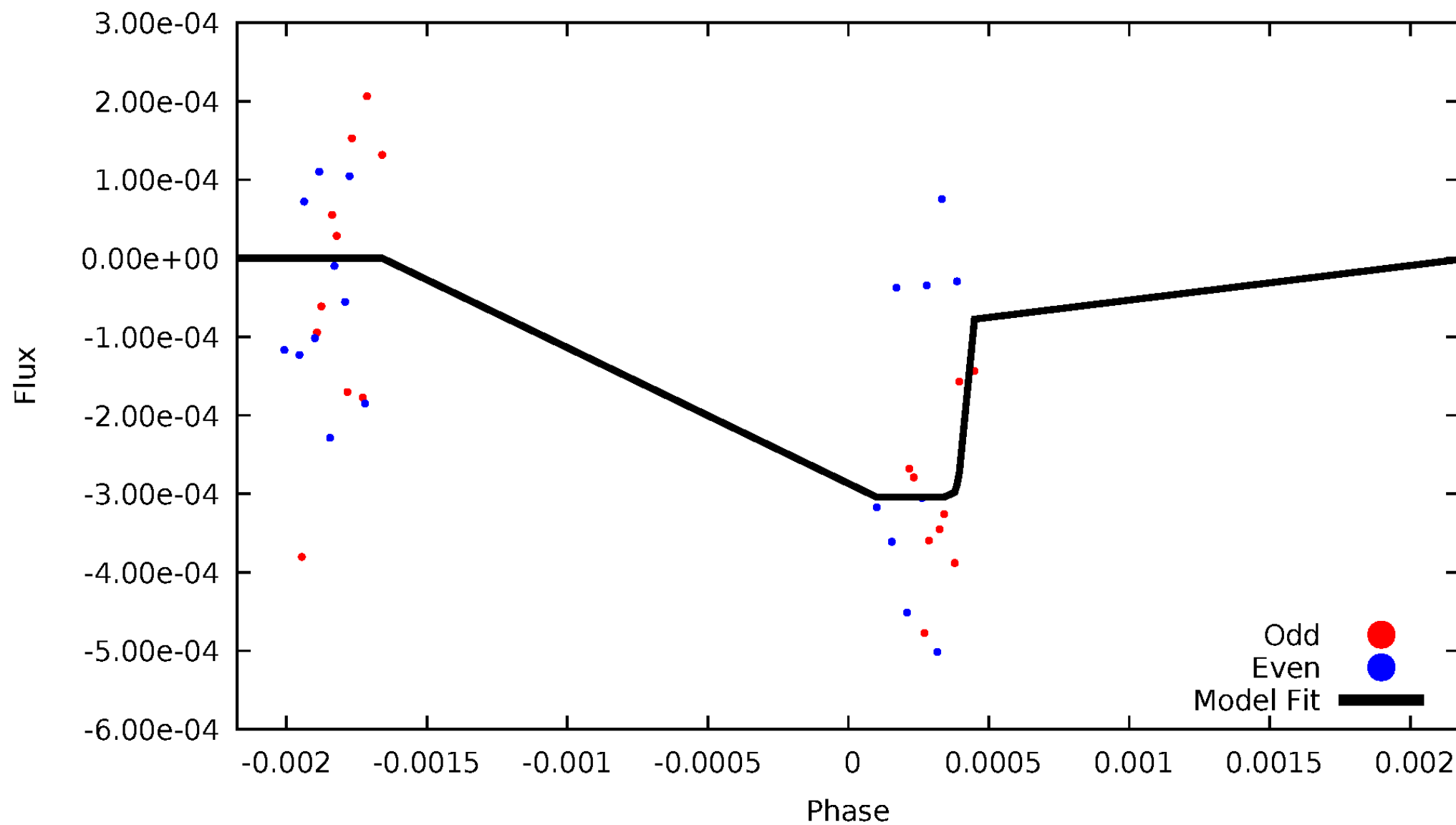
DV Odd/Even

TCE 007816992-09



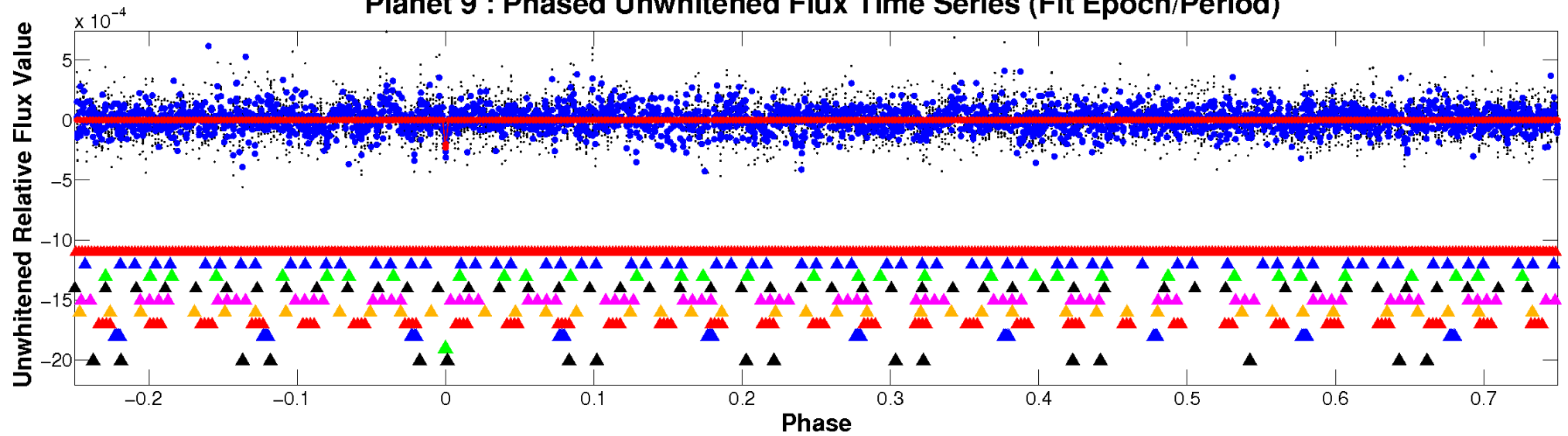
ALT Odd/Even

TCE 007816992-09

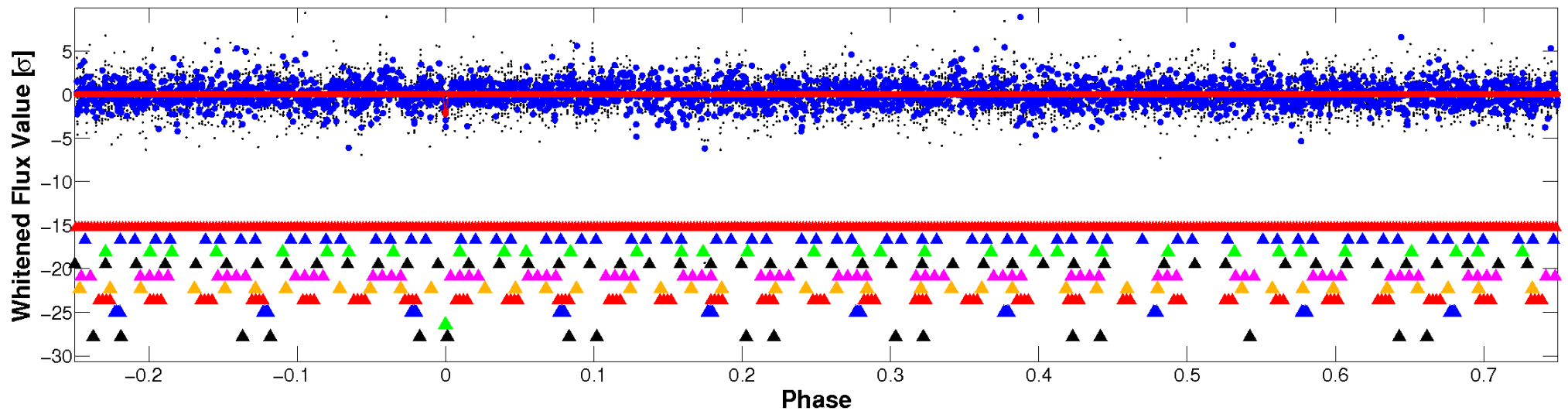


Non-Whitened Vs. Whitened Light Curve

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

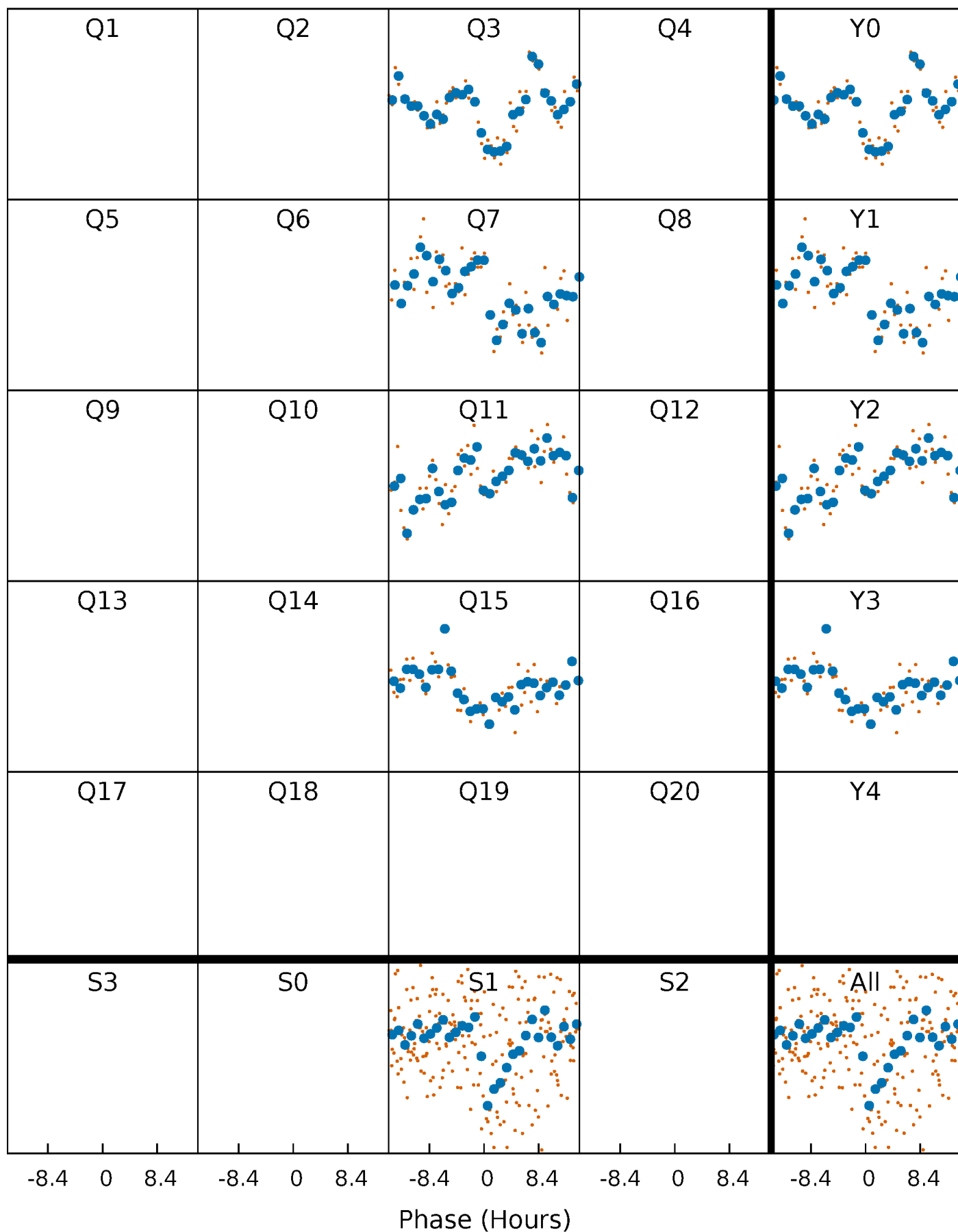


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



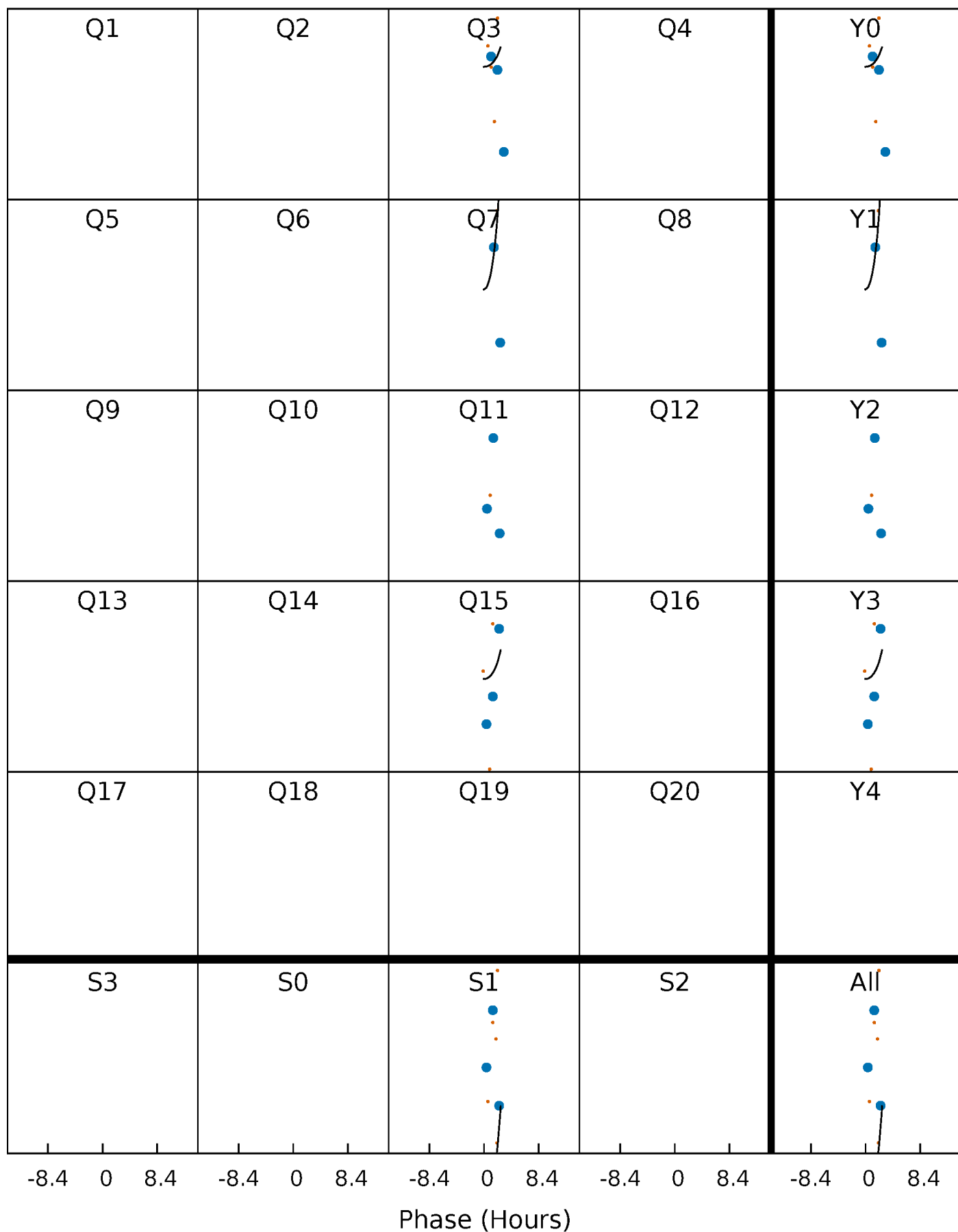
PDC Quarter-Phased Transit Curves

TCE 007816992-09 $P=378.044986$ Days $T_0=294.097804$ (BKJD)



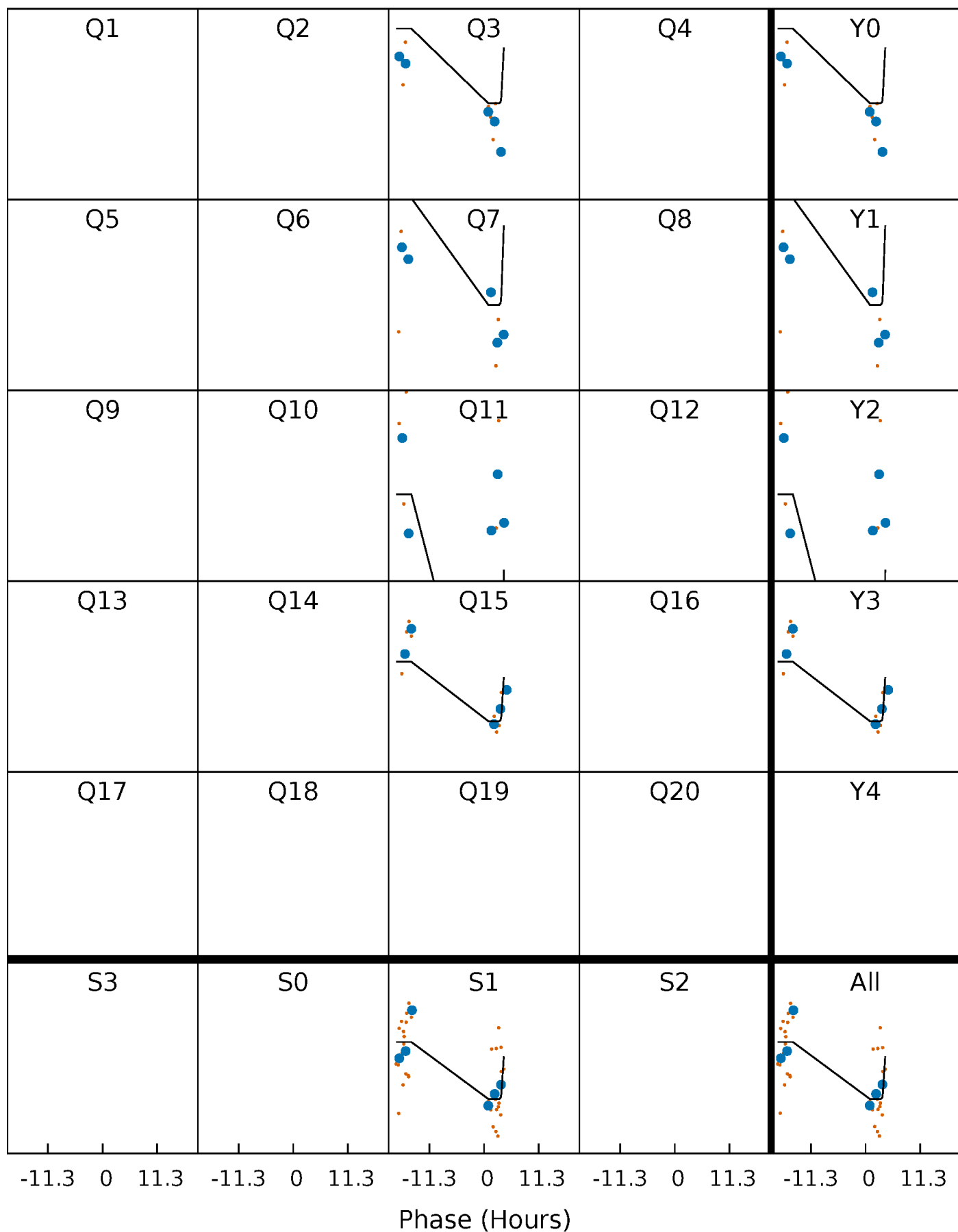
DV Quarter-Phased Transit Curves

TCE 007816992-09 $P=378.044986$ Days $T_0=294.097804$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

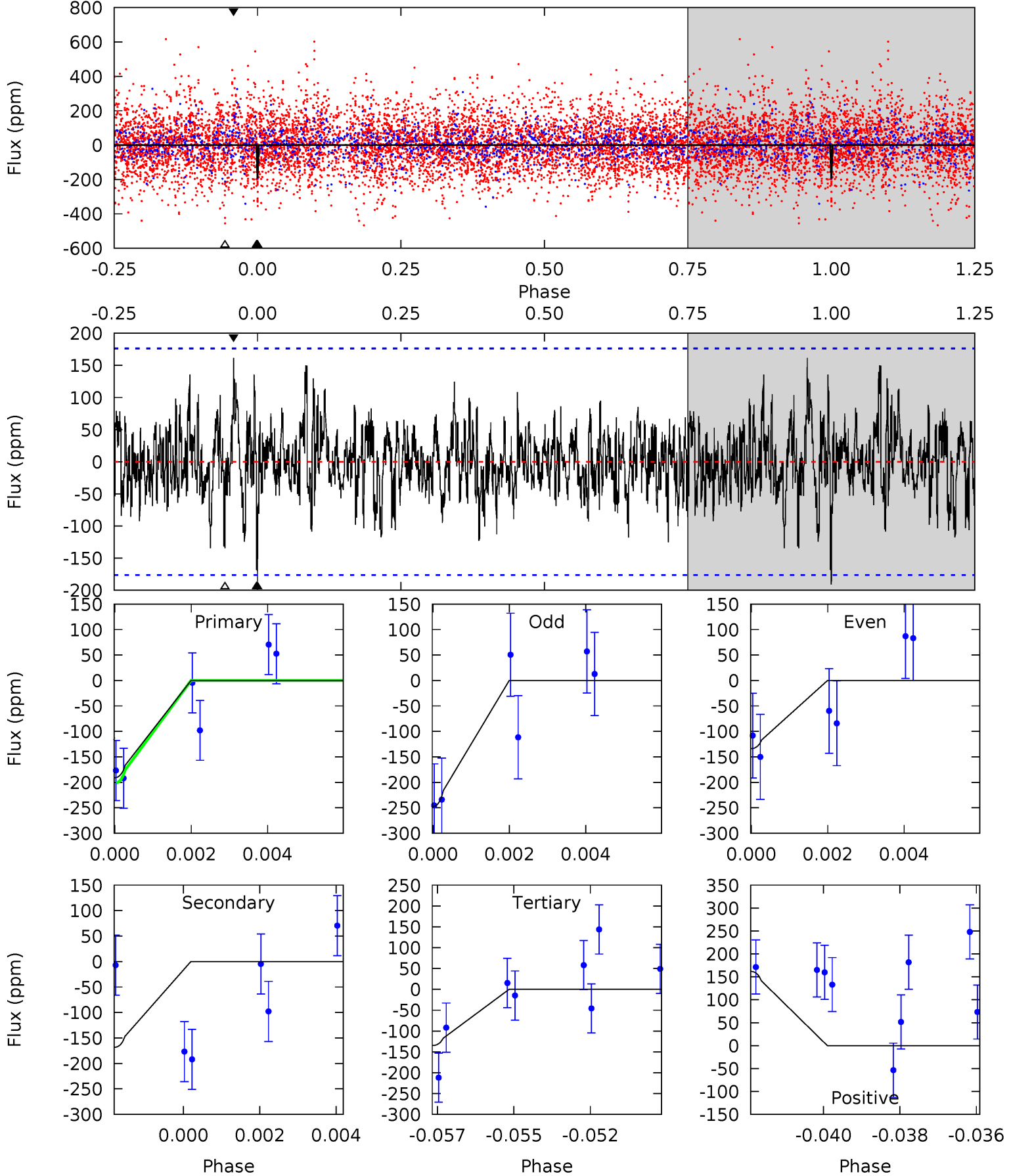
TCE 007816992-09 P=378.018314 Days $T_0=294.084652$ (BKJD)



DV Model-Shift Uniqueness Test

007816992-09, P = 378.044986 Days, E = 294.097804 Days

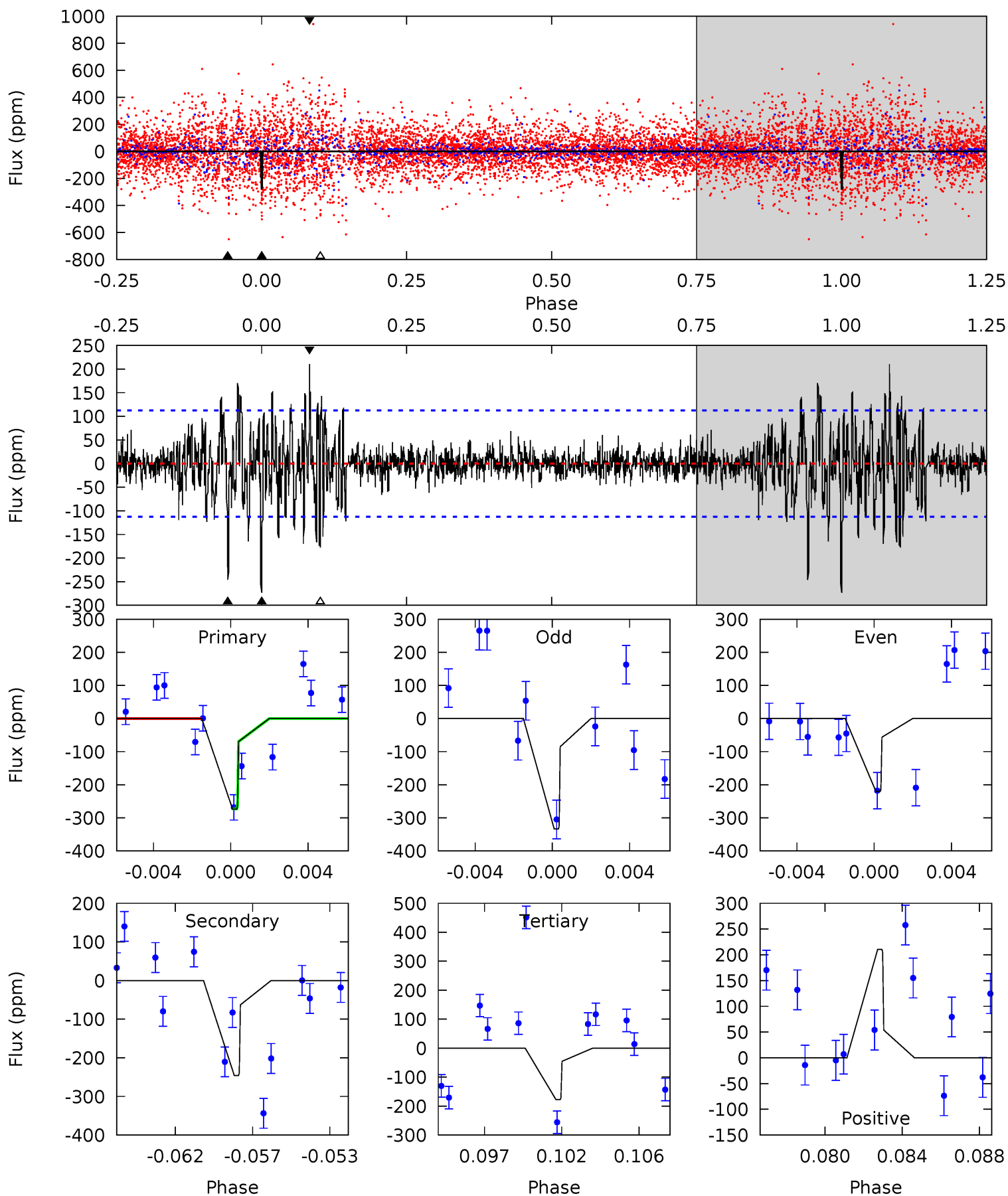
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.76	5.07	4.06	4.87	5.32	3.08	1.27	1.70	0.88	1.01	0.20	1.69	0.75	0.46	0.00



Alt Model-Shift Uniqueness Test

007816992-09, P = 378.018314 Days, E = 294.084652 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	11.3	8.18	9.70	5.18	2.85	1.69	4.41	2.89	3.15	1.62	2.62	0.80	0.44	0



Stellar Parameters For KIC 007816992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6956^{+194}_{-333}	$4.278^{+0.075}_{-0.225}$	$0.070^{+0.200}_{-0.350}$	$1.439^{+0.537}_{-0.215}$	$1.431^{+0.222}_{-0.202}$	$0.676^{+0.226}_{-0.396}$
	+3%/-5%	+2%/-5%	+286%/-500%	+37%/-15%	+16%/-14%	+33%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007816992-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-168 ± 33	$8.51^{+8.52}_{-6.08}$	487^{+41}_{-31}	3805^{+2565}_{-738}	1686^{+18971}_{-1298}
Alt.	-246 ± 22	$8.50^{+8.46}_{-5.52}$	485^{+40}_{-28}	4089^{+2437}_{-820}	2597^{+18177}_{-1977}

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

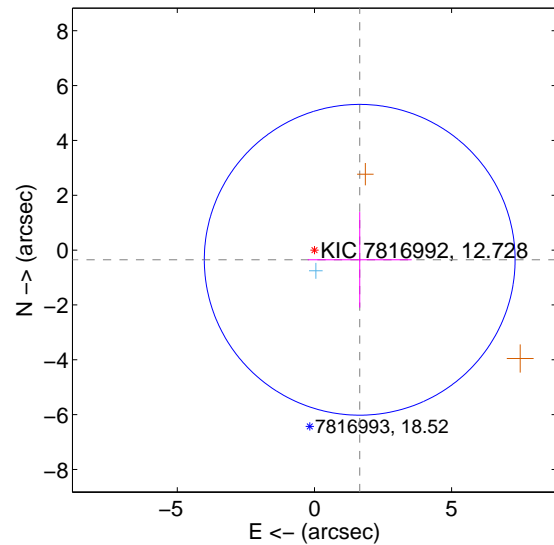
Supplemental centroid analysis for 007816992-09. Kepler magnitude: 12.73. Transit SNR 8.38

There are 1 quarters with good PRF difference image offsets

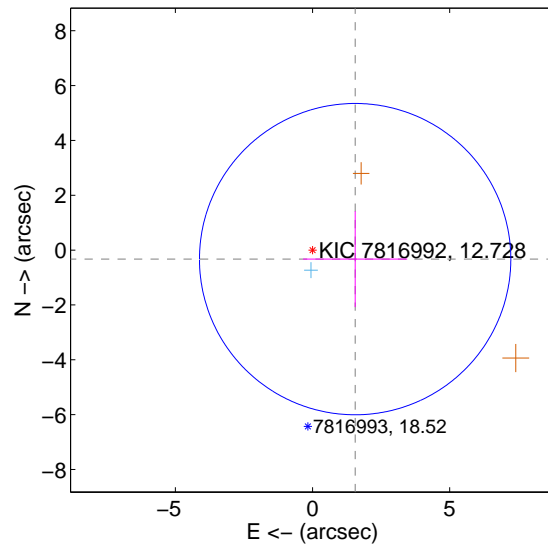
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.688 ± 1.889	0.89	-1.650 ± 1.895	-0.353 ± 1.744
PRF-fit source offset from KIC position	1.589 ± 1.892	0.84	-1.554 ± 1.898	-0.329 ± 1.747
photometric centroid source offset	1.22 ± 1.29	0.95	-0.84 ± 1.15	-0.88 ± 1.41

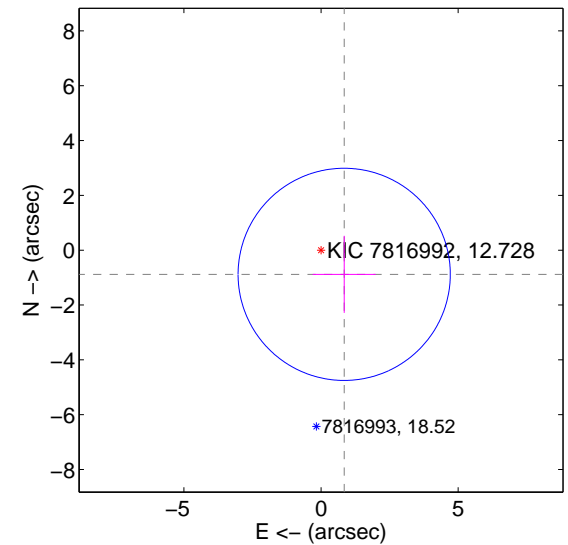
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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

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

Q1 no difference image



Q1 no OOT image



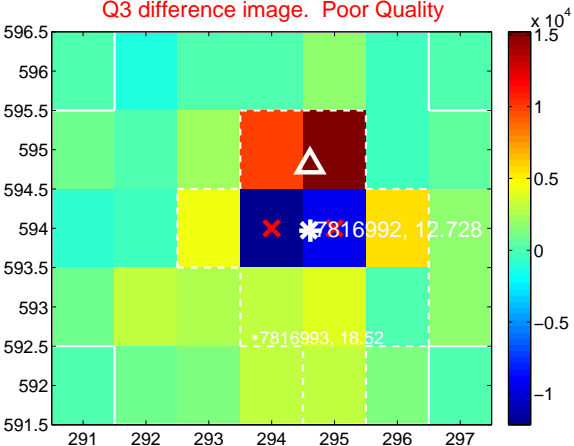
Q2 no difference image



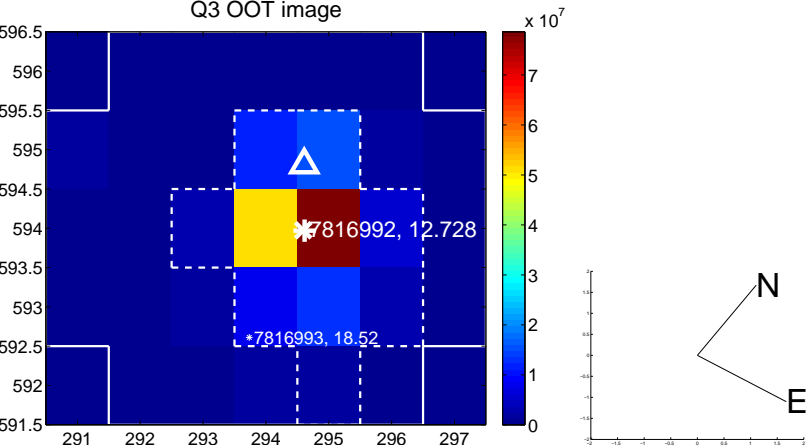
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



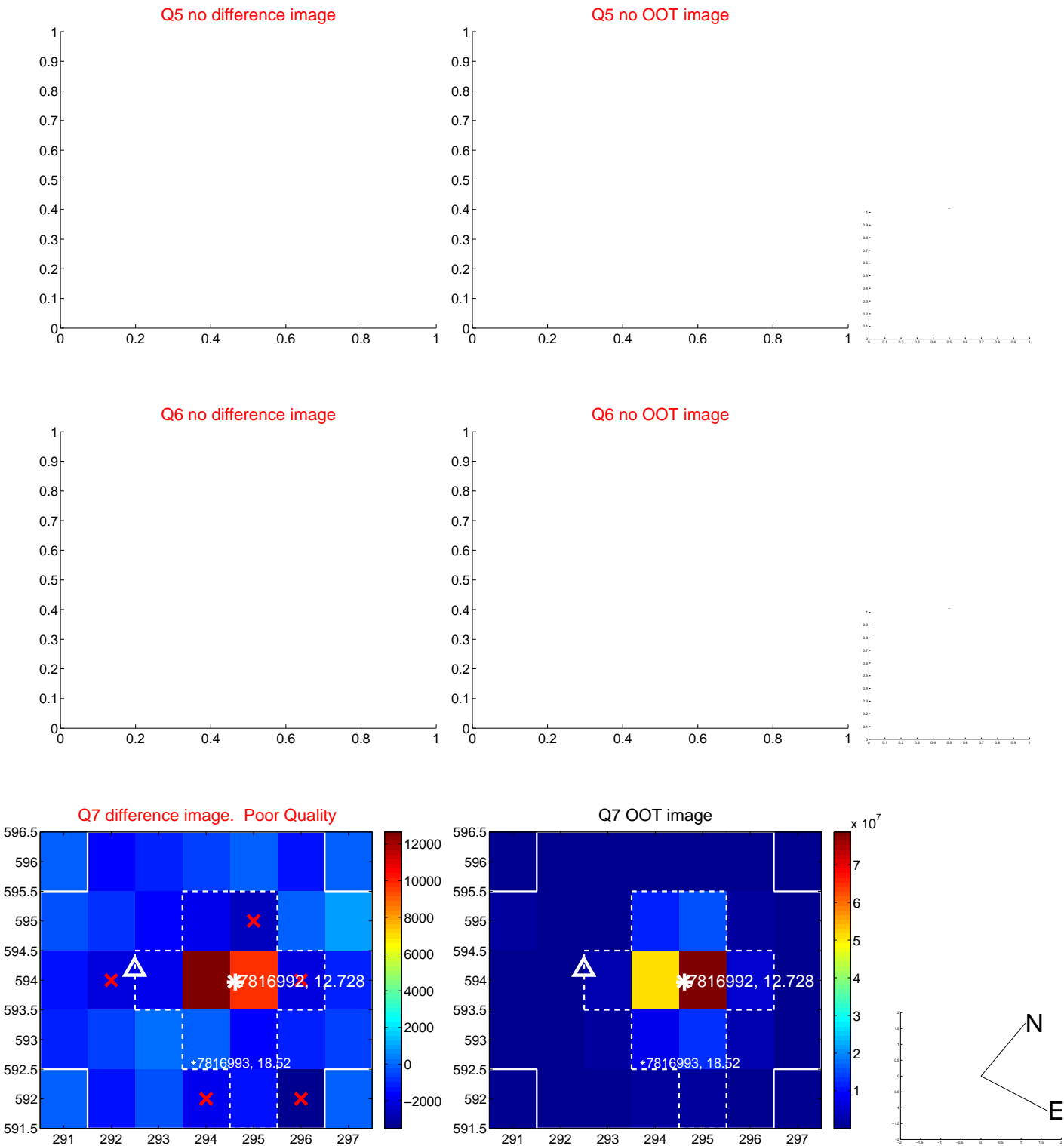
Q4 no difference image



Q4 no OOT image



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



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

Q9 no difference image



Q9 no OOT image



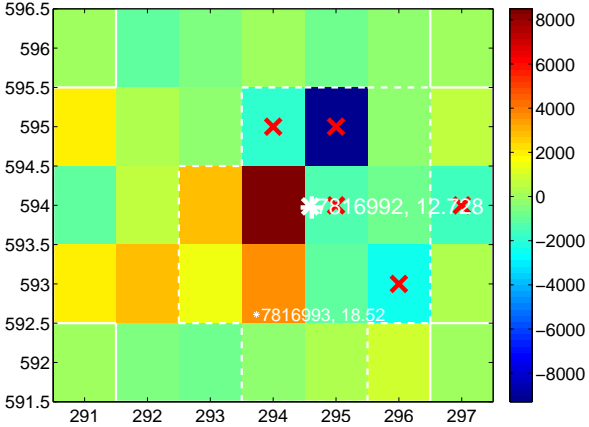
Q10 no difference image



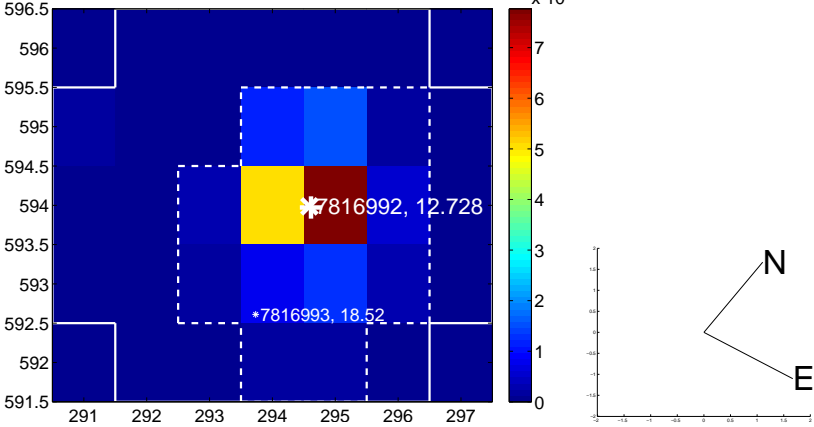
Q10 no OOT image



Q11 difference image. Poor Quality



Q11 OOT image



Q12 no difference image



Q12 no OOT image

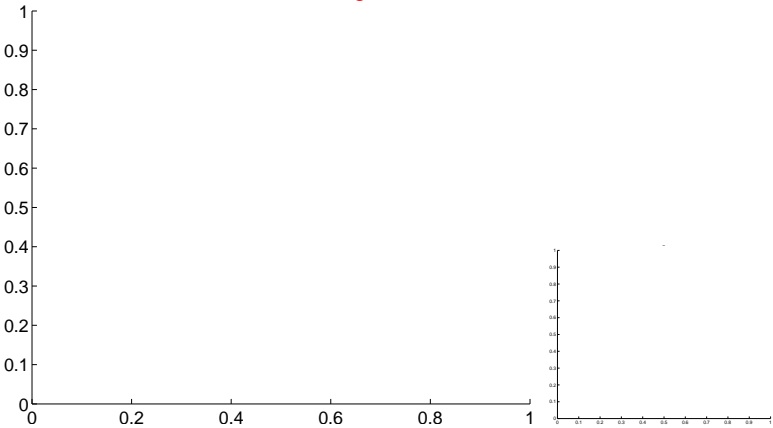


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q13 no difference image



Q13 no OOT image



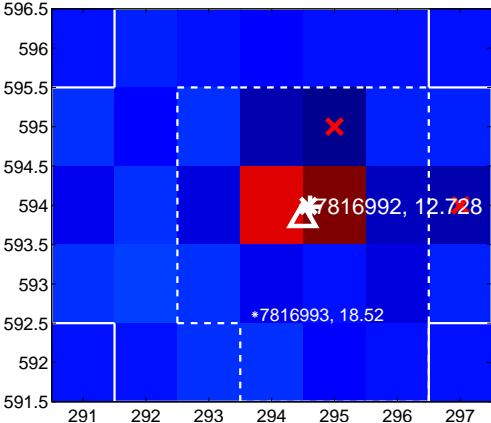
Q14 no difference image



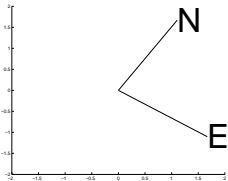
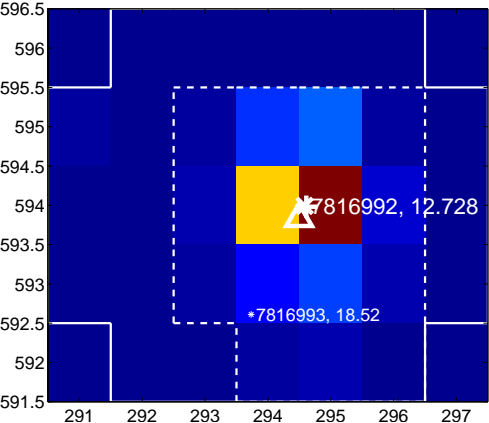
Q14 no OOT image



Q15 difference image



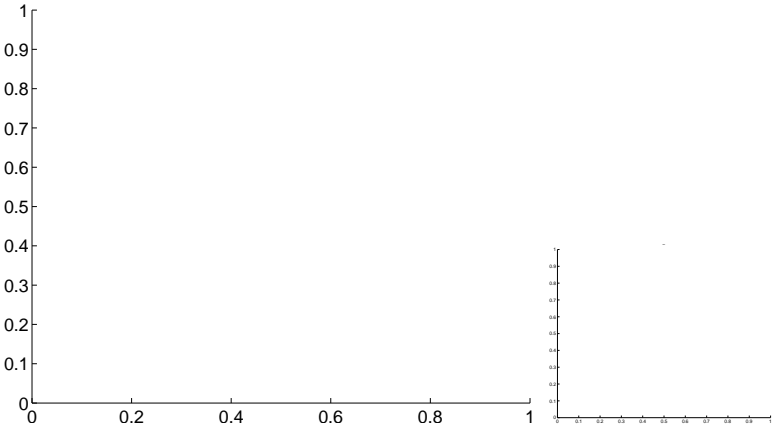
Q15 OOT image



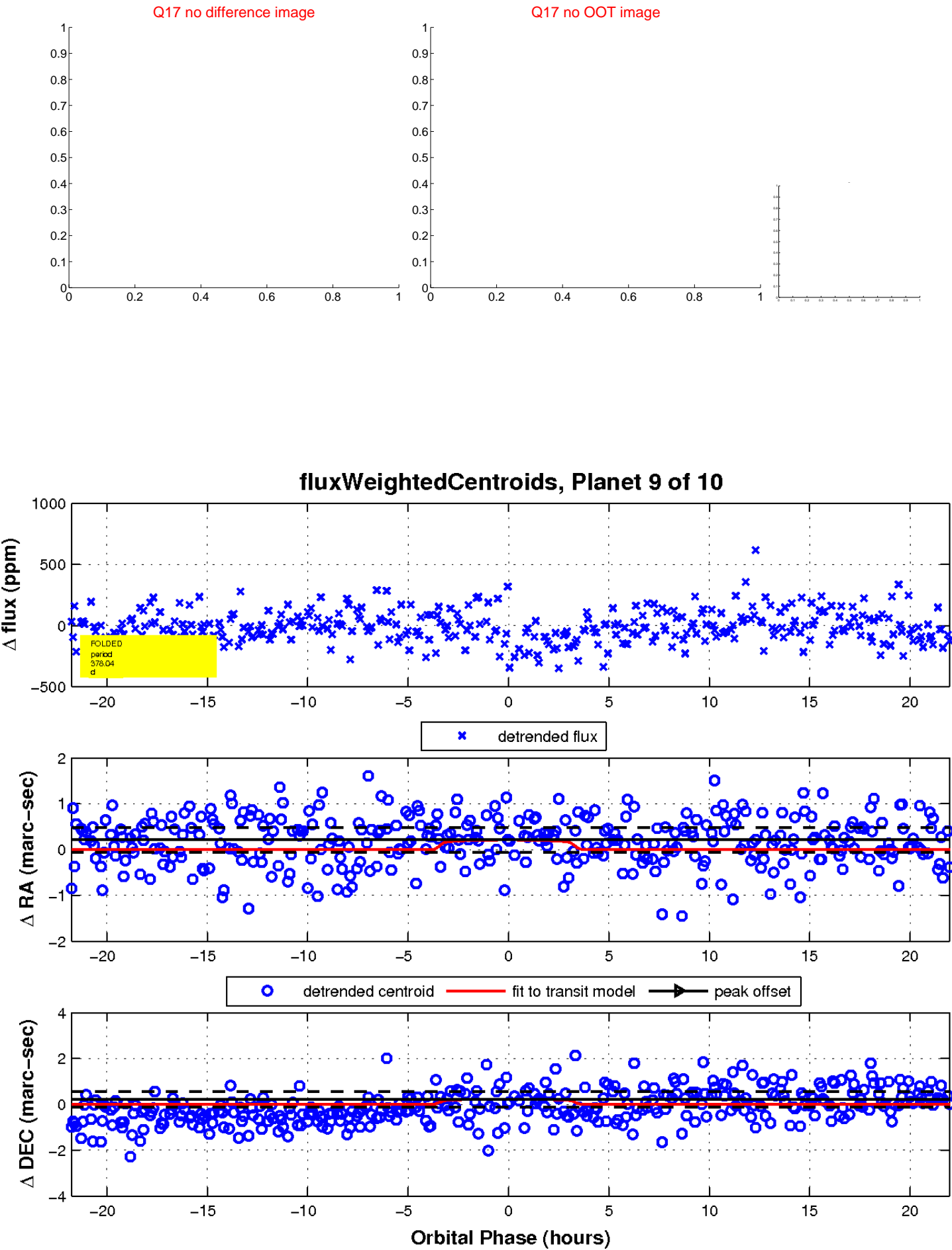
Q16 no difference image



Q16 no OOT image

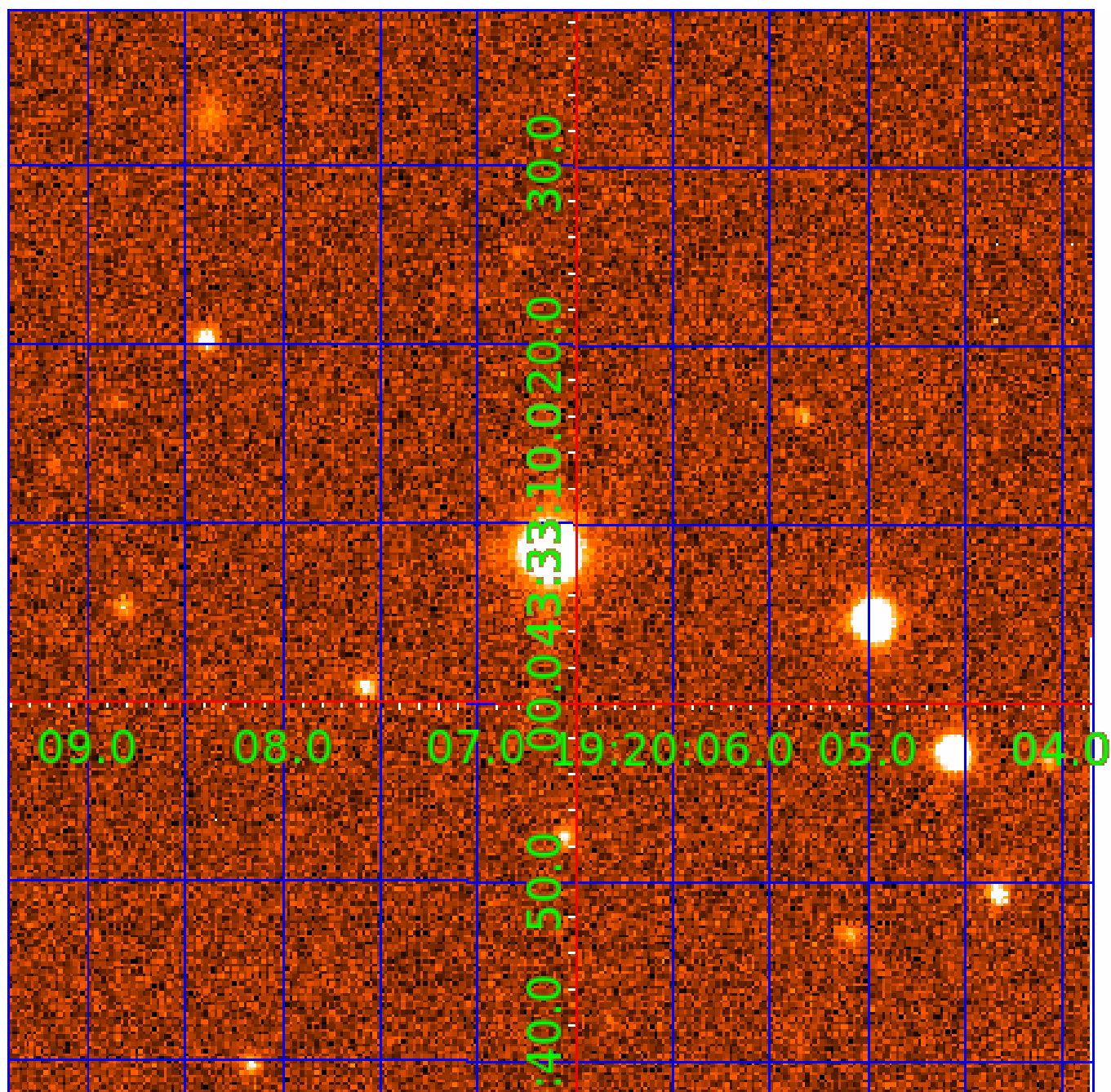


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007816992

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})
007816992-01	OBS	No	0.795855	132.214839	4.5	5.406	8.2	3.0	1.44	6956	0.31	12094.68
007816992-02	OBS	No	21.708210	133.397023	69.8	7.026	11.2	6.8	1.44	6956	1.36	147.30
007816992-03	OBS	No	45.142788	134.057293	234.4	1.682	12.0	10.0	1.44	6956	2.25	55.49
007816992-04	OBS	No	30.851957	153.560834	235.5	2.146	10.3	10.3	1.44	6956	2.49	92.19
007816992-05	OBS	No	19.773249	144.267271	110.5	4.767	9.8	9.0	1.44	6956	1.74	166.83
007816992-06	OBS	No	37.027490	142.337681	222.5	3.133	10.2	11.7	1.44	6956	2.38	72.28
007816992-07	OBS	No	13.003061	143.580835	147.2	2.503	11.0	11.9	1.44	6956	1.99	291.73
007816992-08	OBS	No	37.761874	135.582068	221.4	2.152	10.2	9.5	1.44	6956	2.42	70.41
007816992-09	OBS	No	378.044986	294.097804	230.1	7.332	10.2	8.4	1.44	6956	2.54	3.26
007816992-10	OBS	No	83.224846	211.371629	352.3	2.000	10.5	-1.0	1.44	6956	2.73	24.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007816992-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_FEW_MEAS
007816992-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007816992-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
007816992-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
007816992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007816992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
007816992-10	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST

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

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

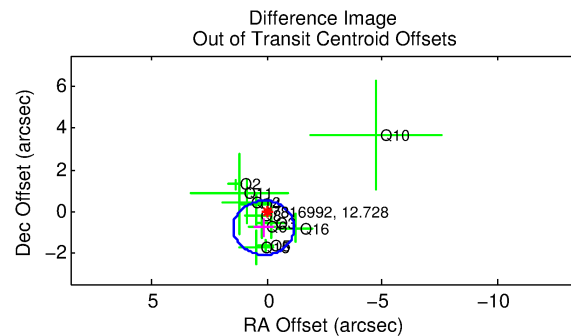
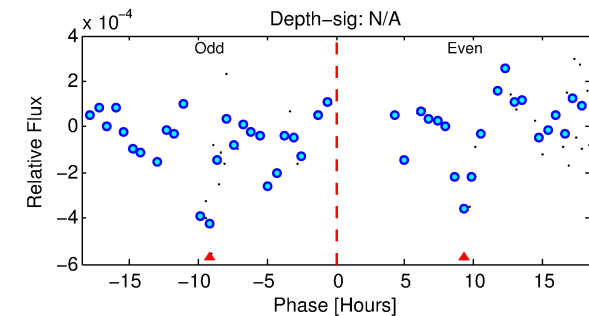
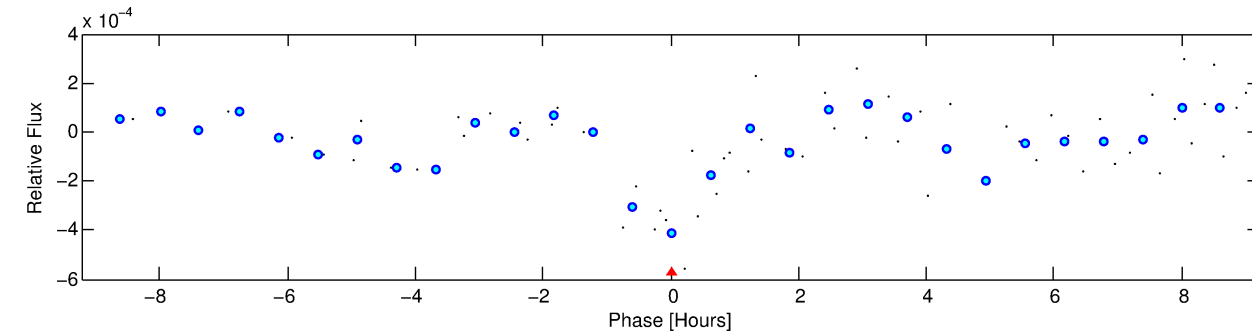
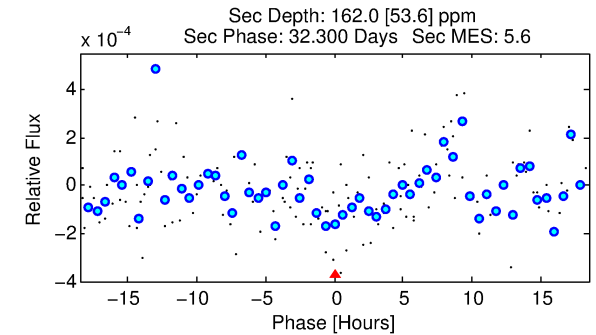
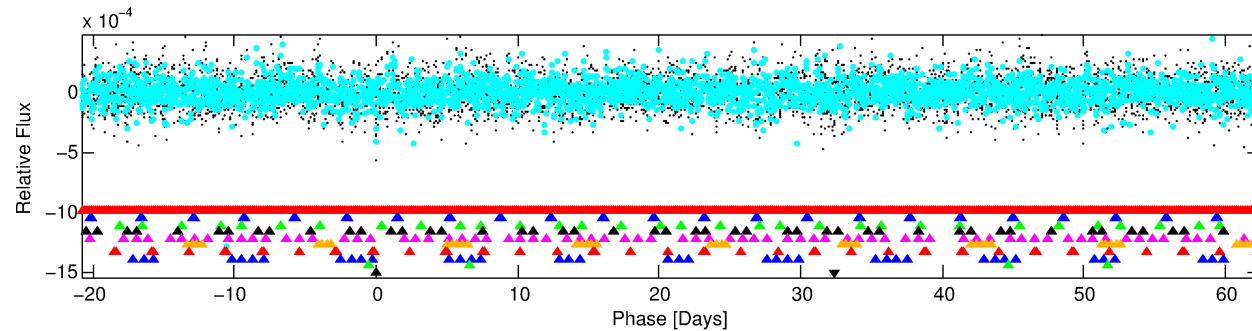
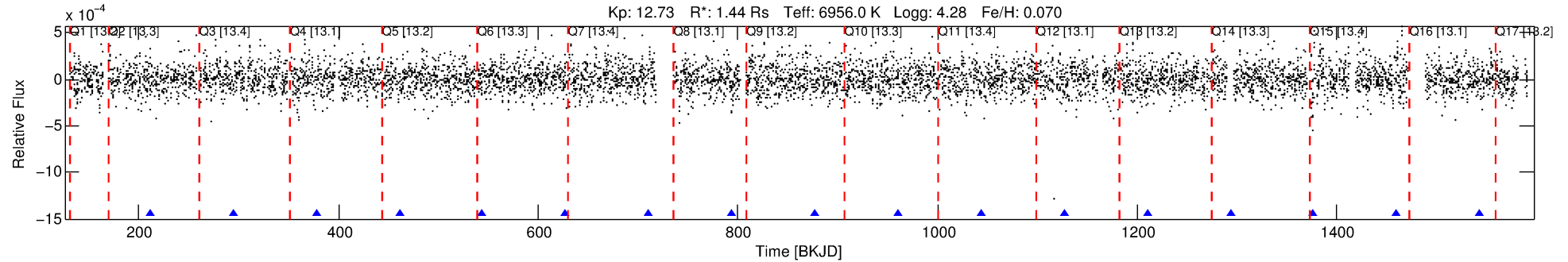
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007816992-10

No Significant Match Found

DV One-Page Summary

KIC: 7816992 Candidate: 10 of 10 Period: 83.225 d



TPS TCE Results:

Period = 83.22485 d
Epoch = 211.3716 BKJD

DV fit results are unavailable

DV Diagnostic Results:

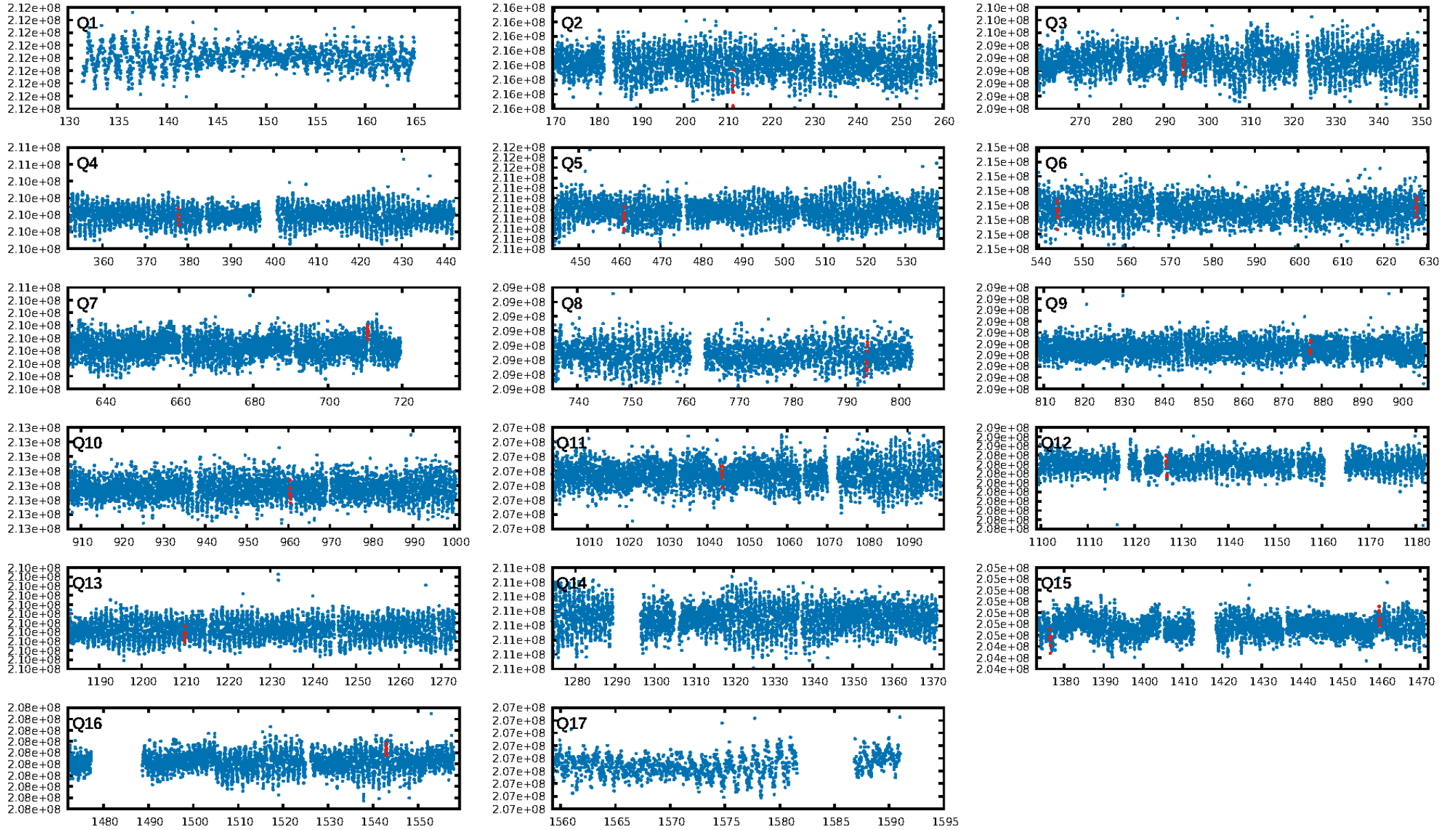
ShortPeriod-sig: 100.0% [349.73σ]
LongPeriod-sig: 100.0% [931.01σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.03375

Centroid-sig: 3.1%
Centroid-so: 0.445 arcsec [1.18σ]
OotOffset-rm: 0.807 arcsec [1.86σ]
KicOffset-rm: 0.760 arcsec [1.59σ]
OotOffset-st: 3/3/3/2 [11]
KicOffset-st: 3/3/3/2 [11]
DiffImageQuality-fgm: 0.82 [9/11]
DiffImageOverlap-fno: 0.00 [0/12]

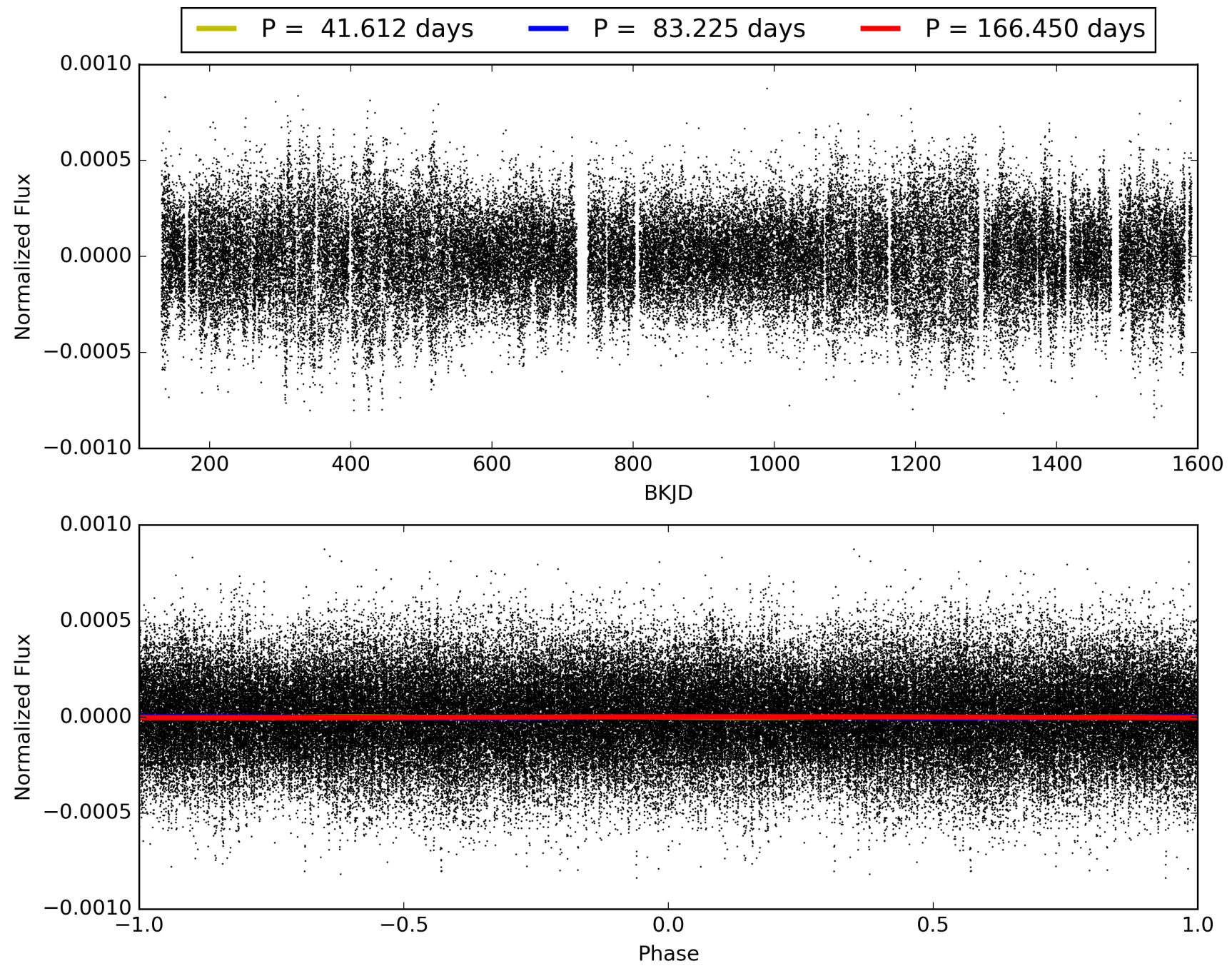
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:28:59 Z

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

TCE 007816992-10, PDC Light Curves

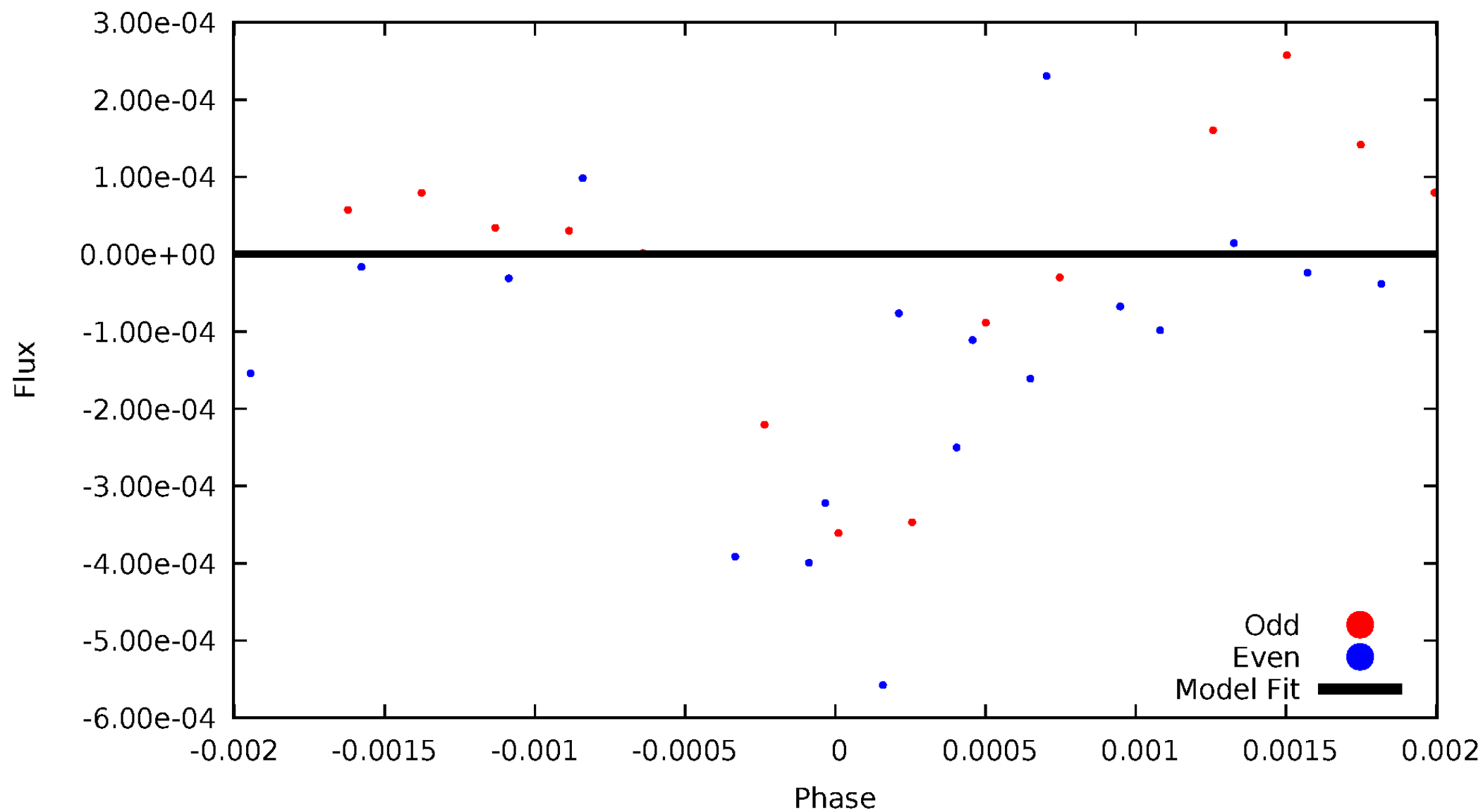


TCE 007816992-10



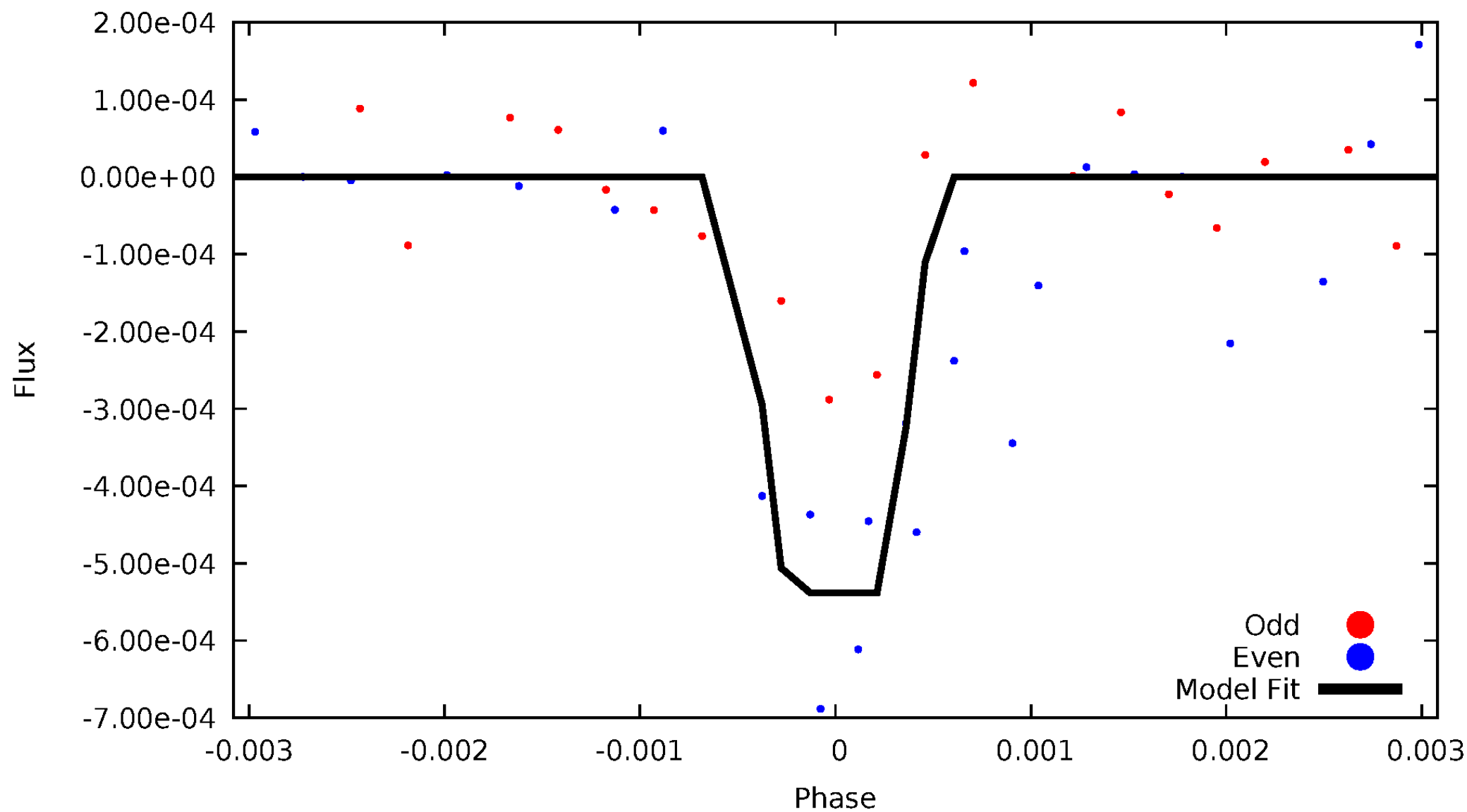
DV Odd/Even

TCE 007816992-10



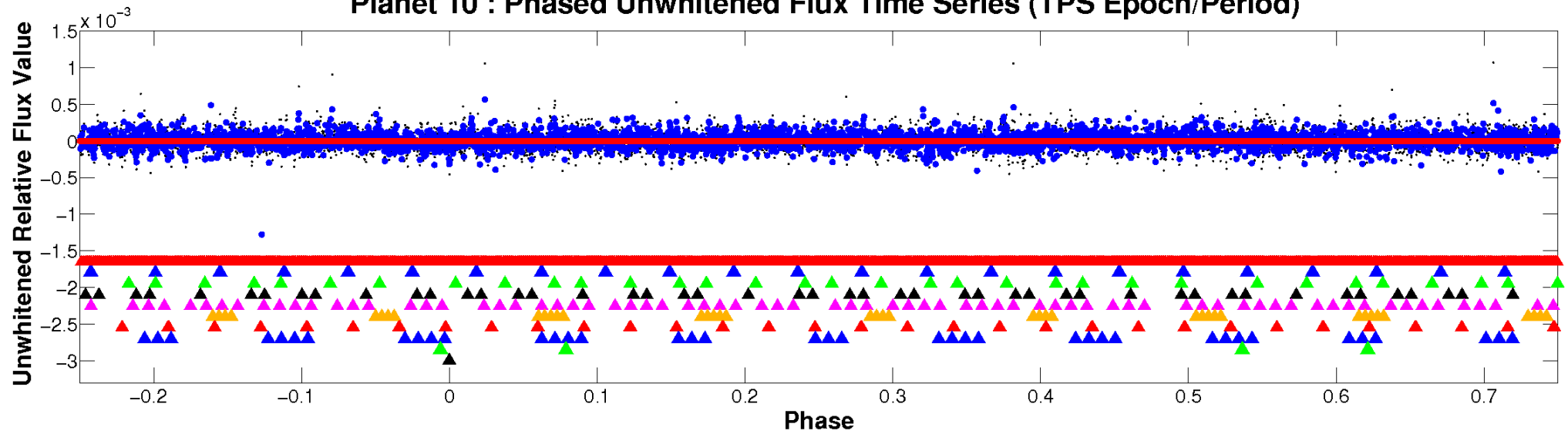
ALT Odd/Even

TCE 007816992-10

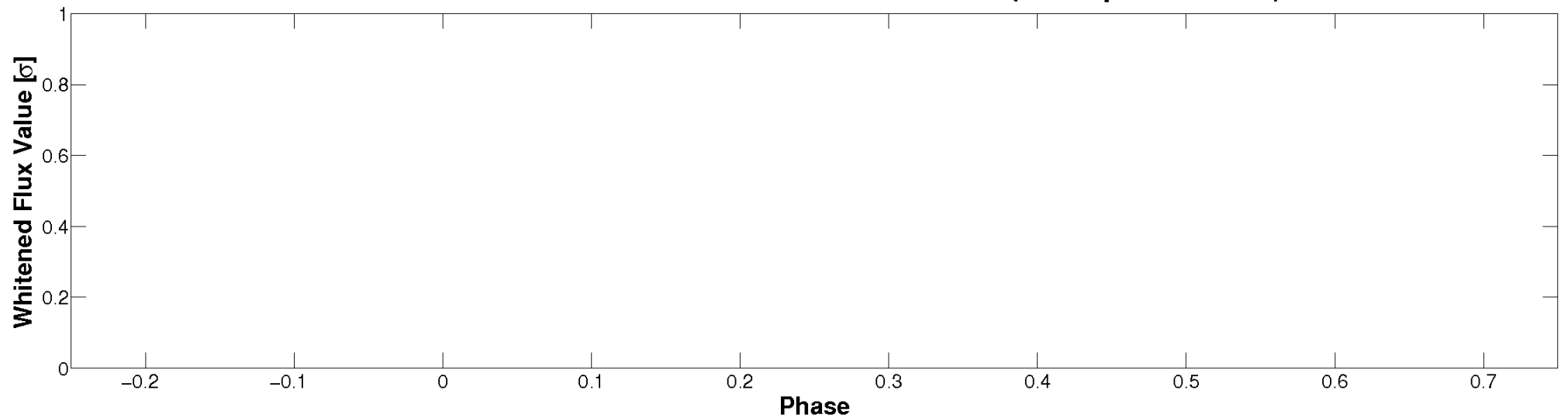


Non-Whitened Vs. Whitened Light Curve

Planet 10 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

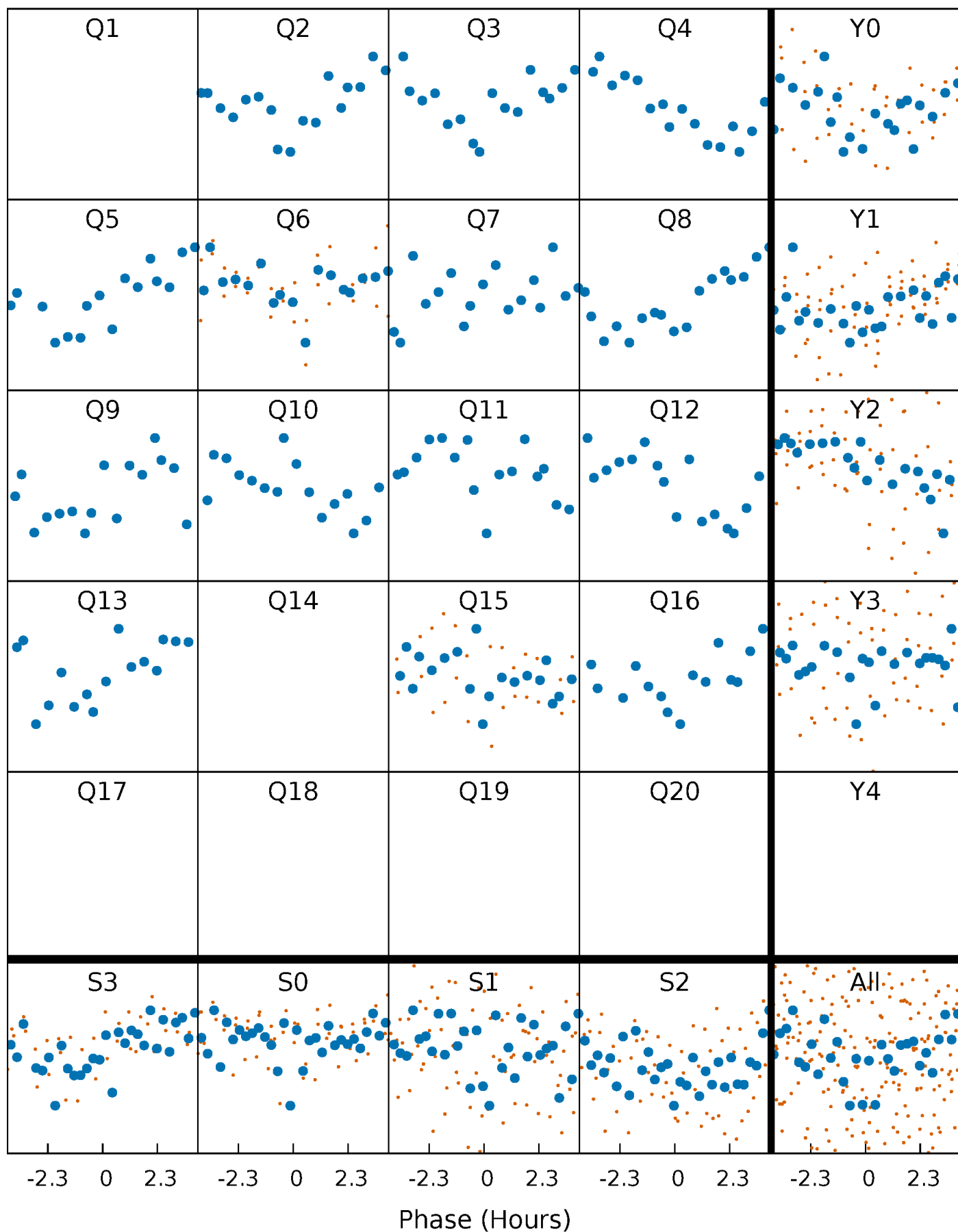


Planet 10 : Phased Whitened Flux Time Series (TPS Epoch/Period)



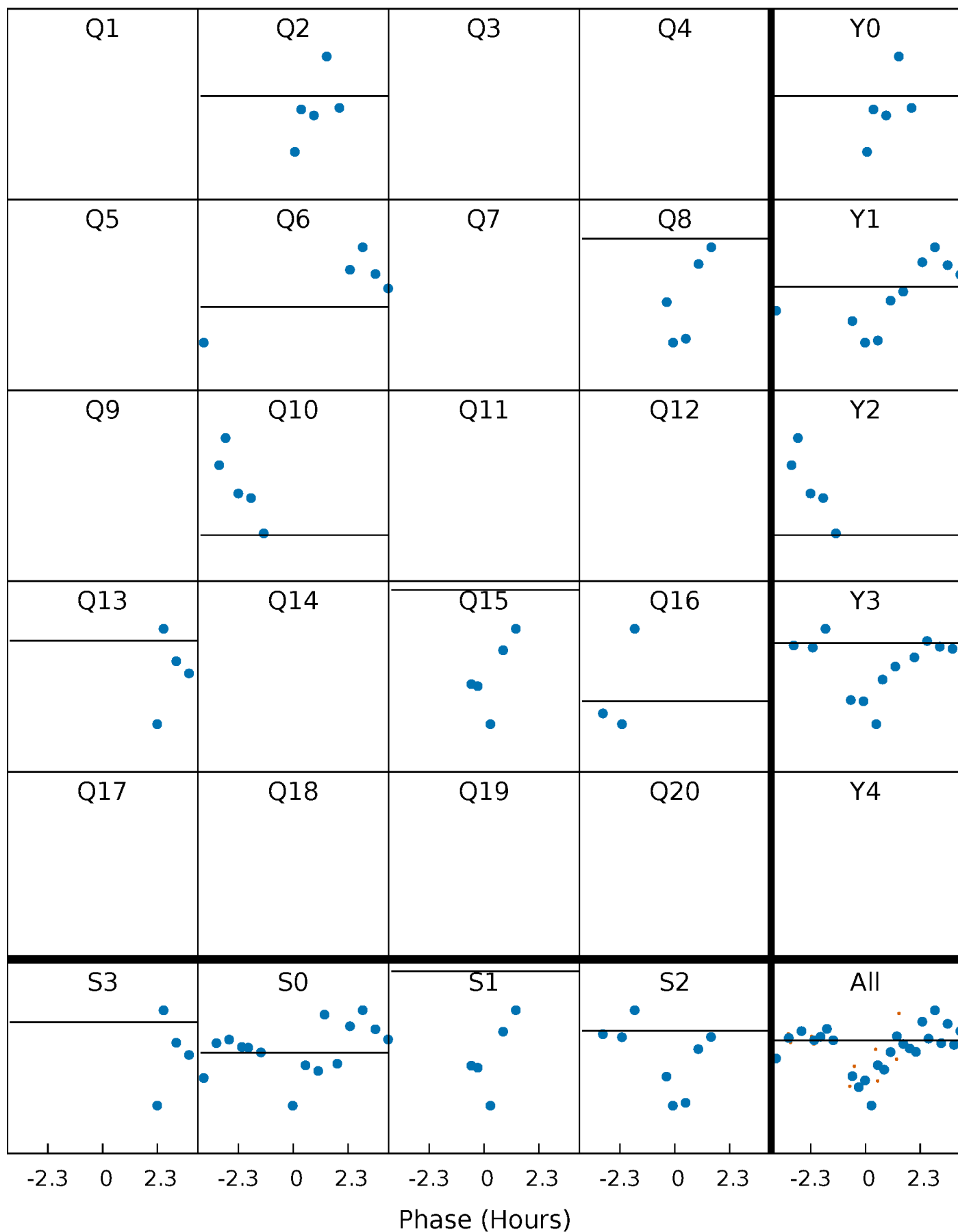
PDC Quarter-Phased Transit Curves

TCE 007816992-10 P= 83.224846 Days $T_0=211.371629$ (BKJD)



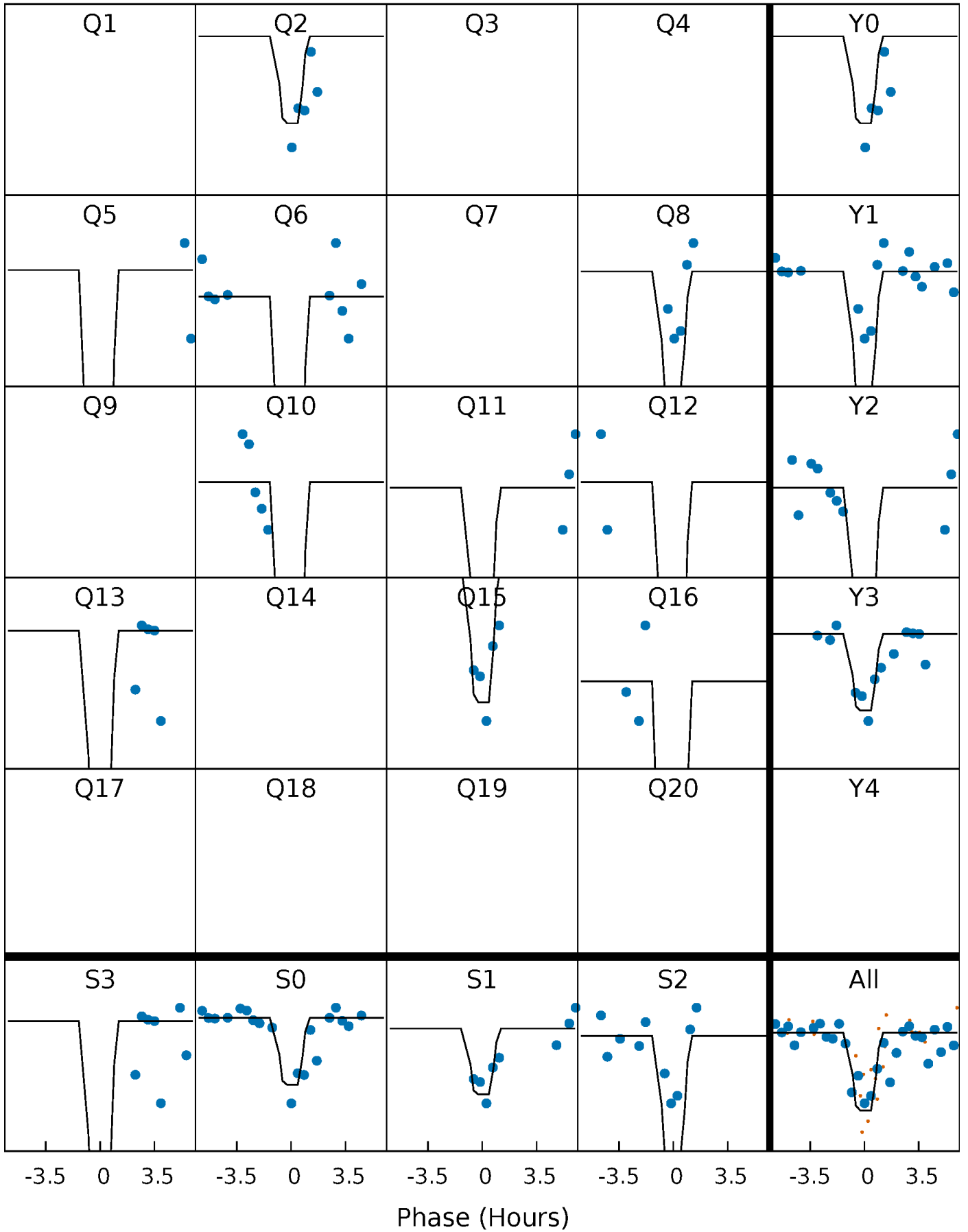
DV Quarter-Phased Transit Curves

TCE 007816992-10 P= 83.224846 Days $T_0=211.371629$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

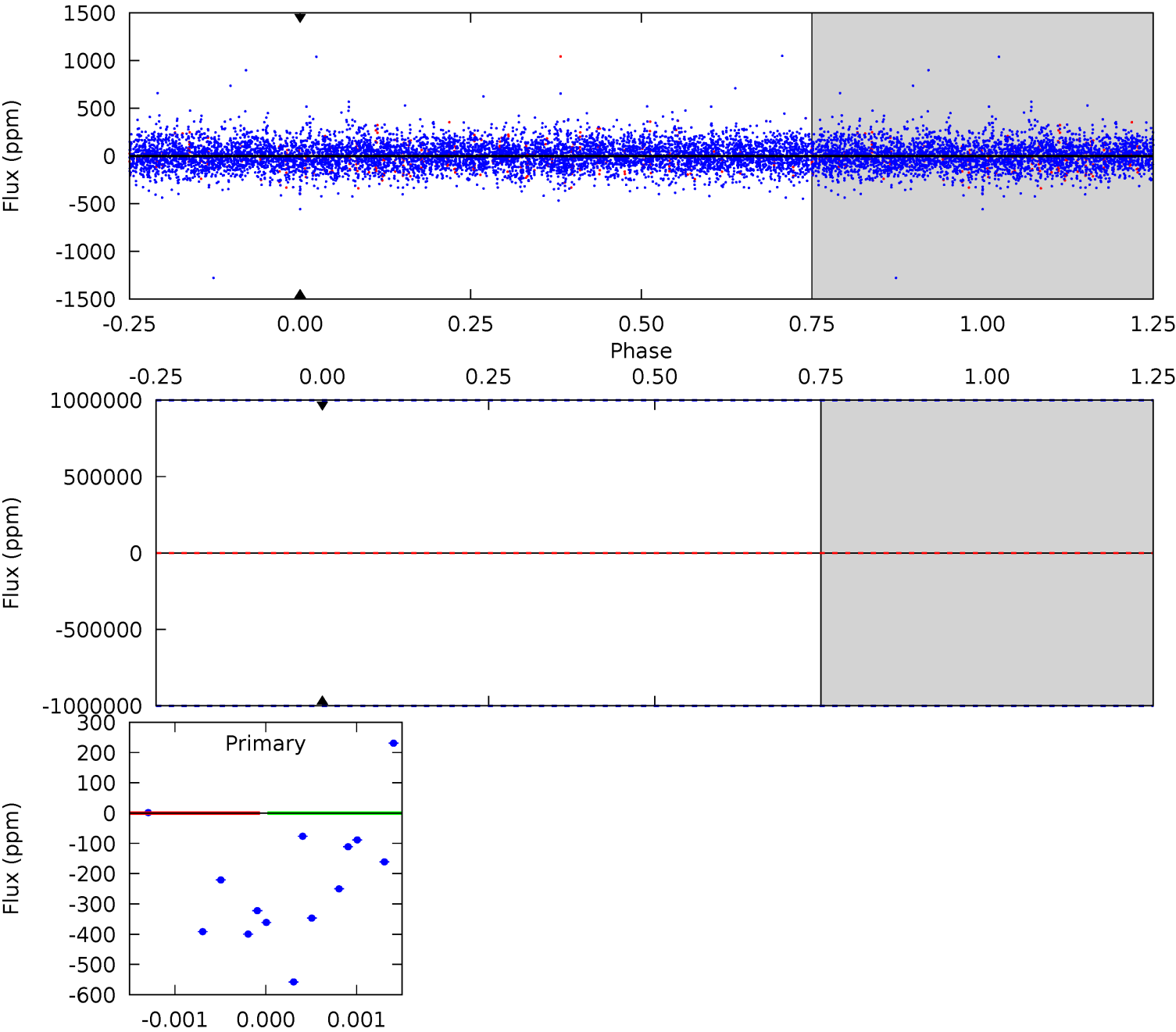
TCE 007816992-10 P= 83.224846 Days $T_0=211.375146$ (BKJD)



DV Model-Shift Uniqueness Test

007816992-10, P = 83.224846 Days, E = 128.146783 Days

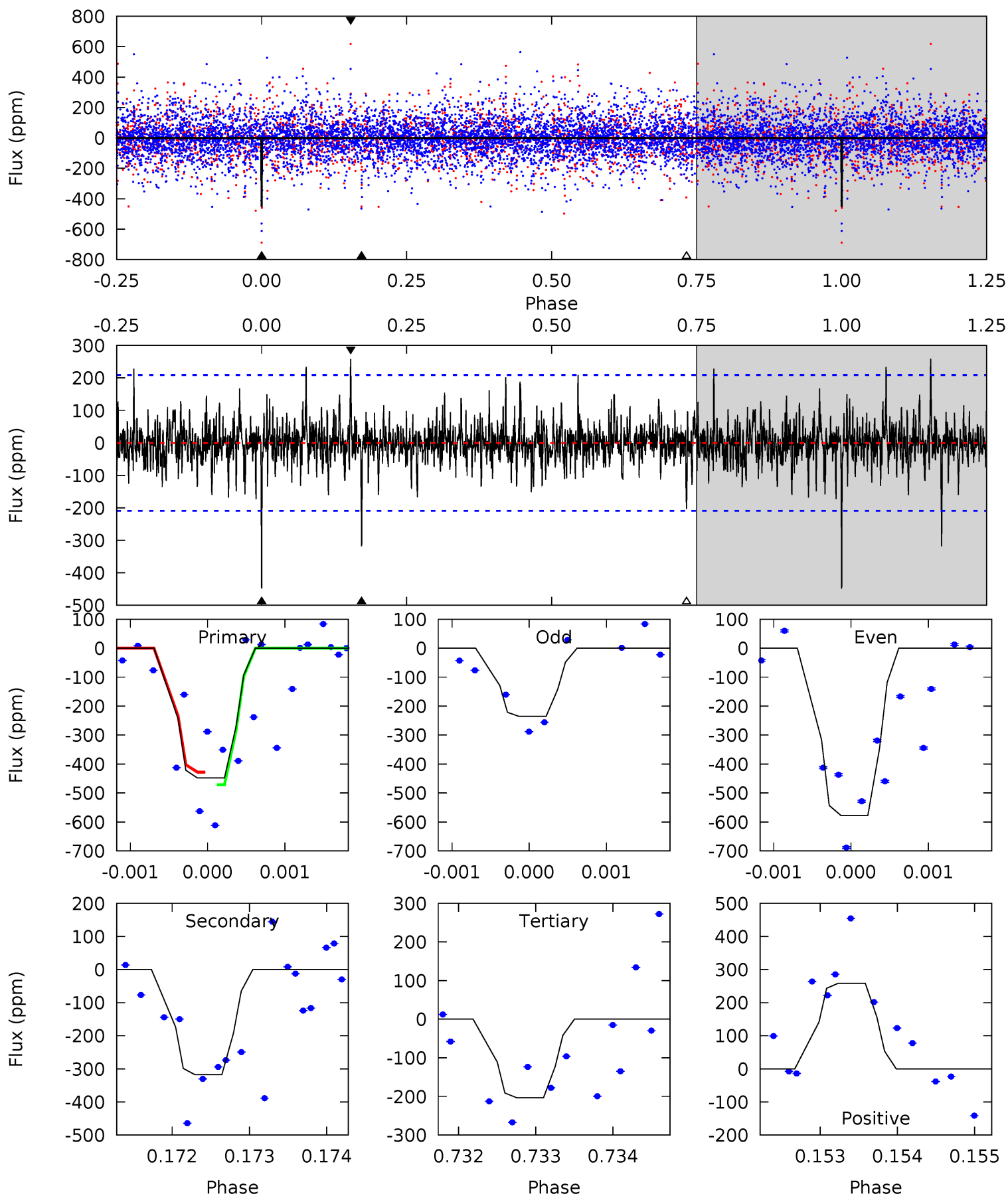
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

007816992-10, P = 83.224846 Days, E = 128.150300 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	8.27	5.29	6.74	5.45	3.30	1.31	6.38	4.94	2.98	1.53	4.50	0.85	0.37	0.56



Stellar Parameters For KIC 007816992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6956^{+194}_{-333}	$4.278^{+0.075}_{-0.225}$	$0.070^{+0.200}_{-0.350}$	$1.439^{+0.537}_{-0.215}$	$1.431^{+0.222}_{-0.202}$	$0.676^{+0.226}_{-0.396}$
	+3%/-5%	+2%/-5%	+286%/-500%	+37%/-15%	+16%/-14%	+33%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007816992-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$13.23^{+13.03}_{-9.20}$	806^{+64}_{-50}	-5176^{+34379}_{-23357}	$-957.214^{+103530.923}_{-85373.766}$
Alt.	-318 ± 38	$13.27^{+13.08}_{-9.15}$	806^{+71}_{-47}	3667^{+2133}_{-682}	169^{+1681}_{-127}

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 $A_{obs} \gg 1.0$

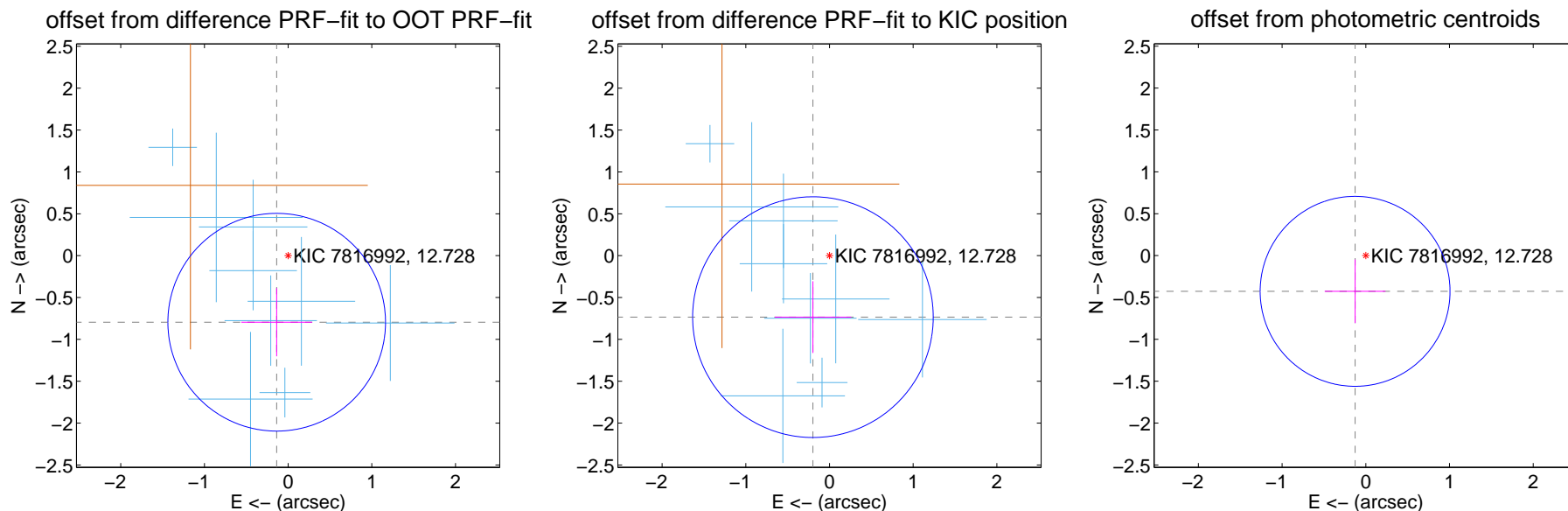
DV Centroid Data

Supplemental centroid analysis for 007816992-10. Kepler magnitude: 12.73. Transit SNR -1.00

There are 9 quarters with good PRF difference image offsets

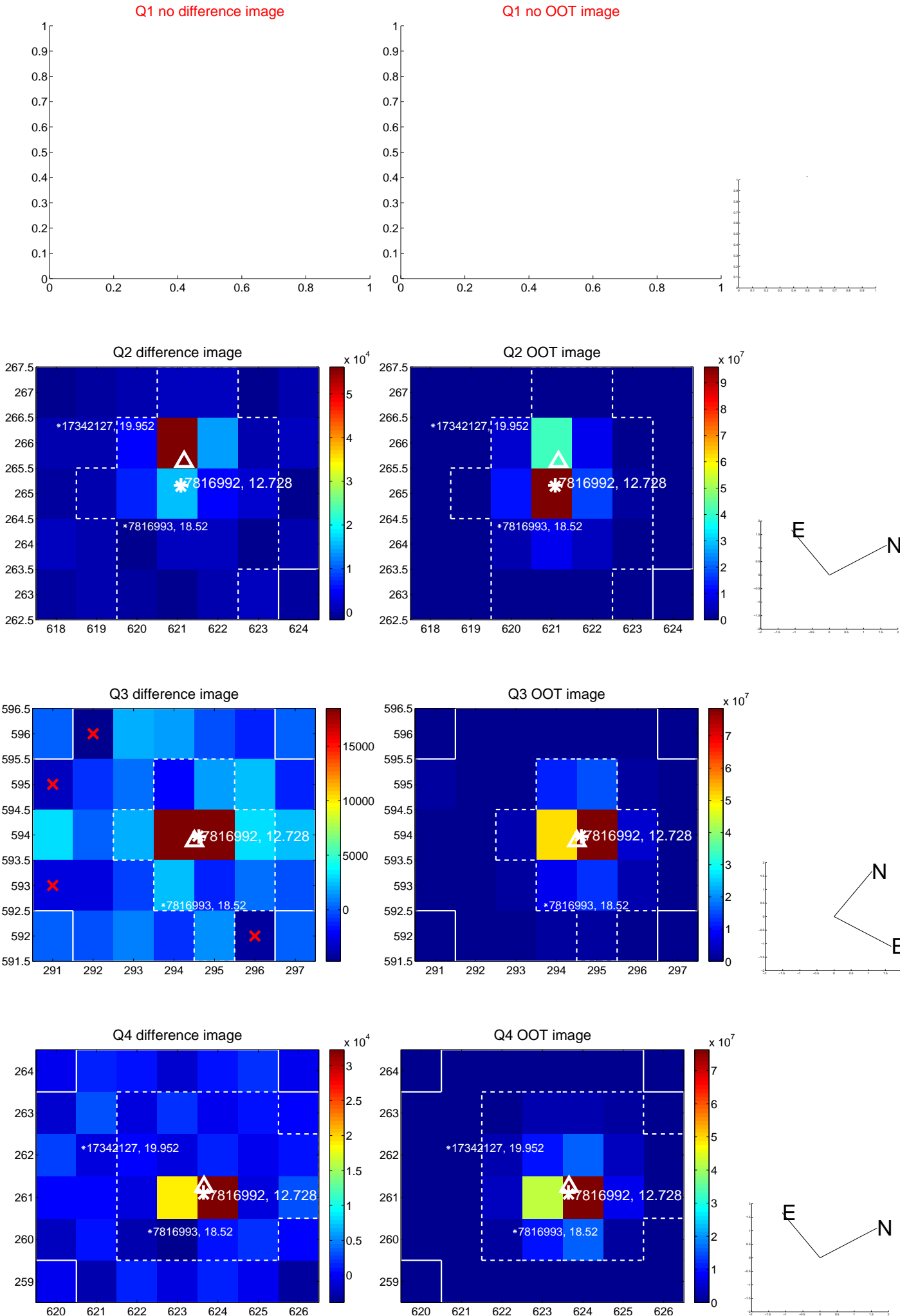
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.807 ± 0.433	1.86	0.137 ± 0.423	-0.795 ± 0.407
PRF-fit source offset from KIC position	0.760 ± 0.479	1.59	0.198 ± 0.456	-0.734 ± 0.428
photometric centroid source offset	0.45 ± 0.38	1.18	0.13 ± 0.36	-0.43 ± 0.38

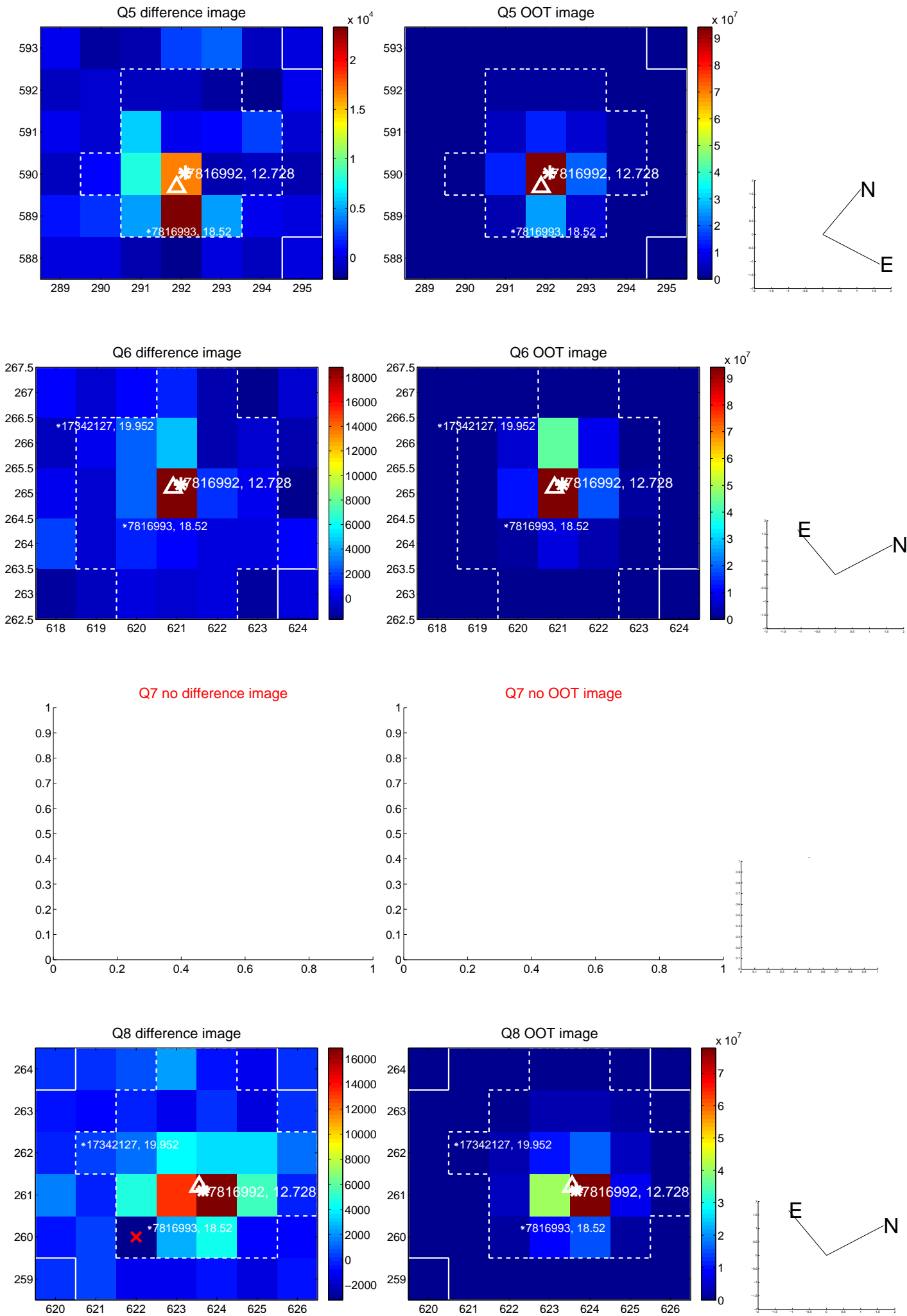


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

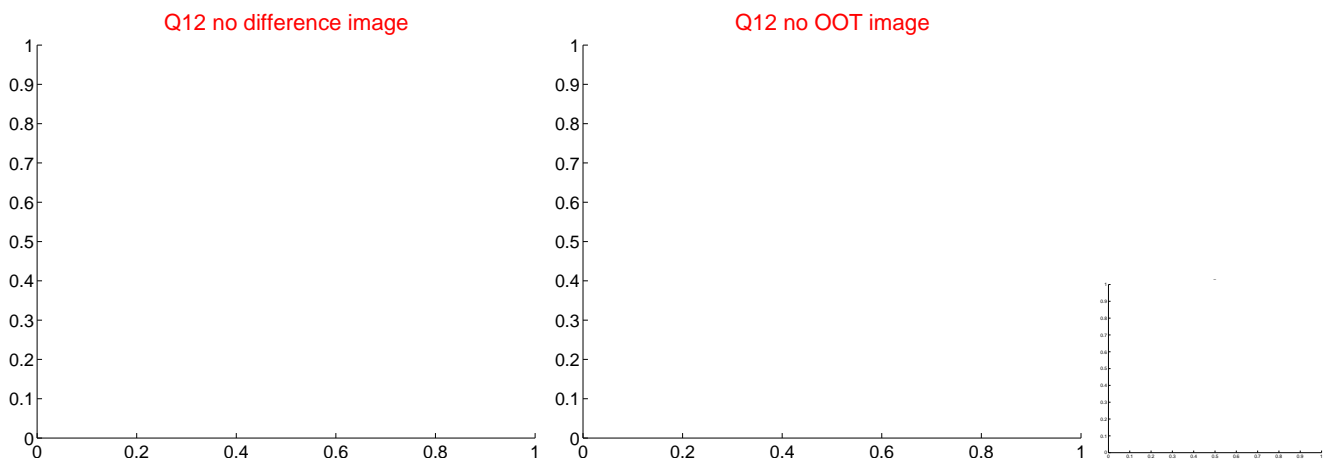
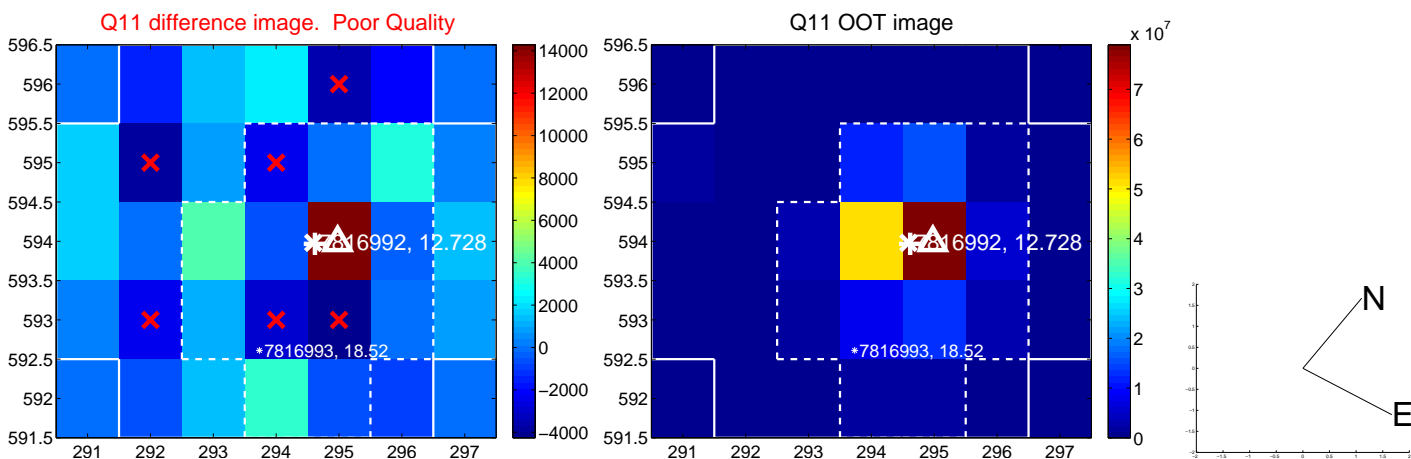
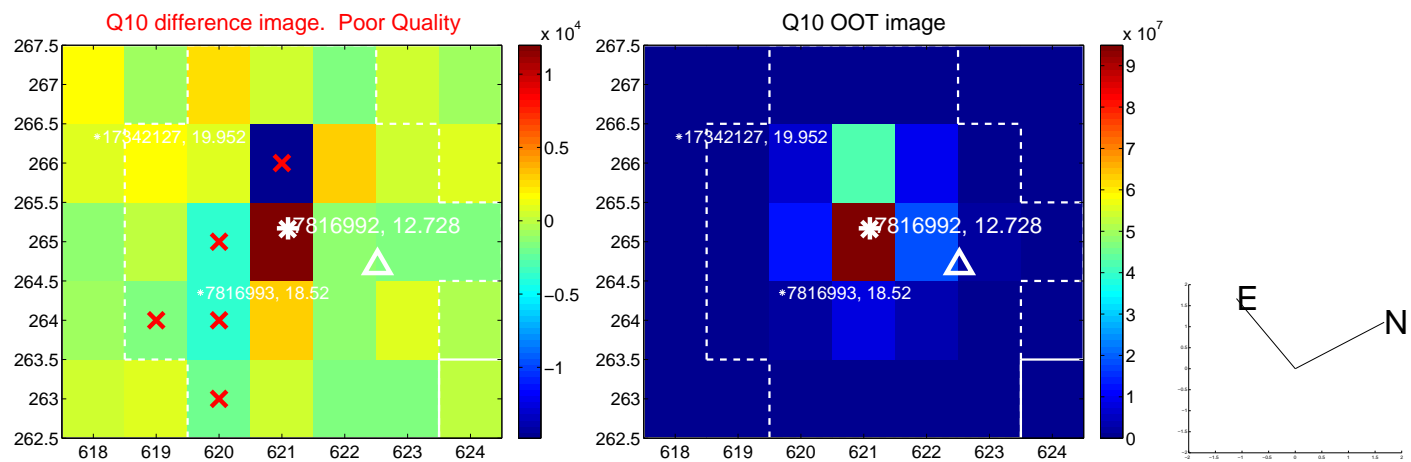
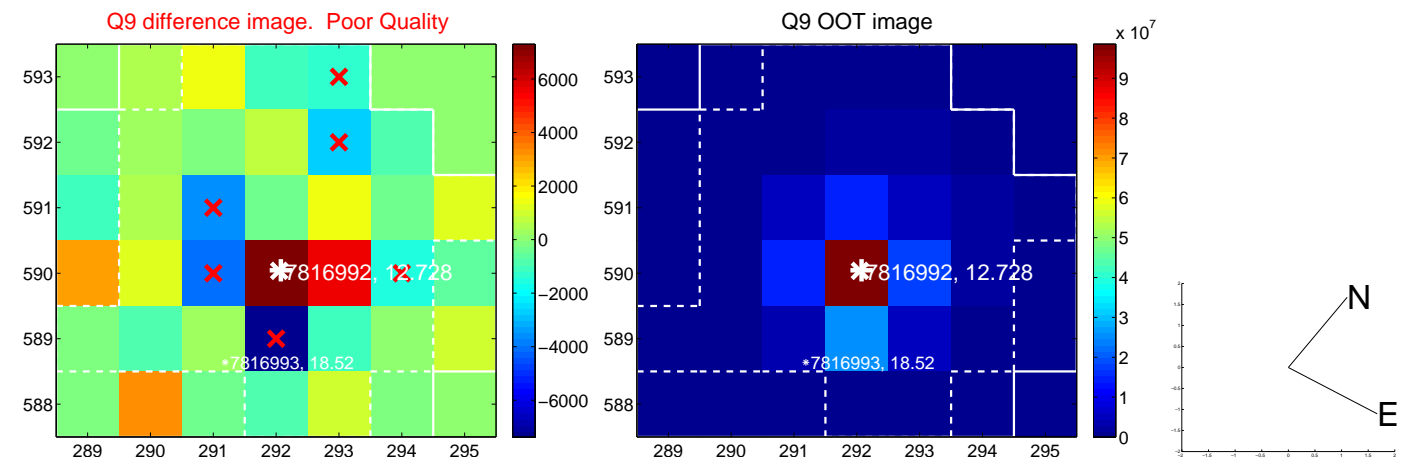
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



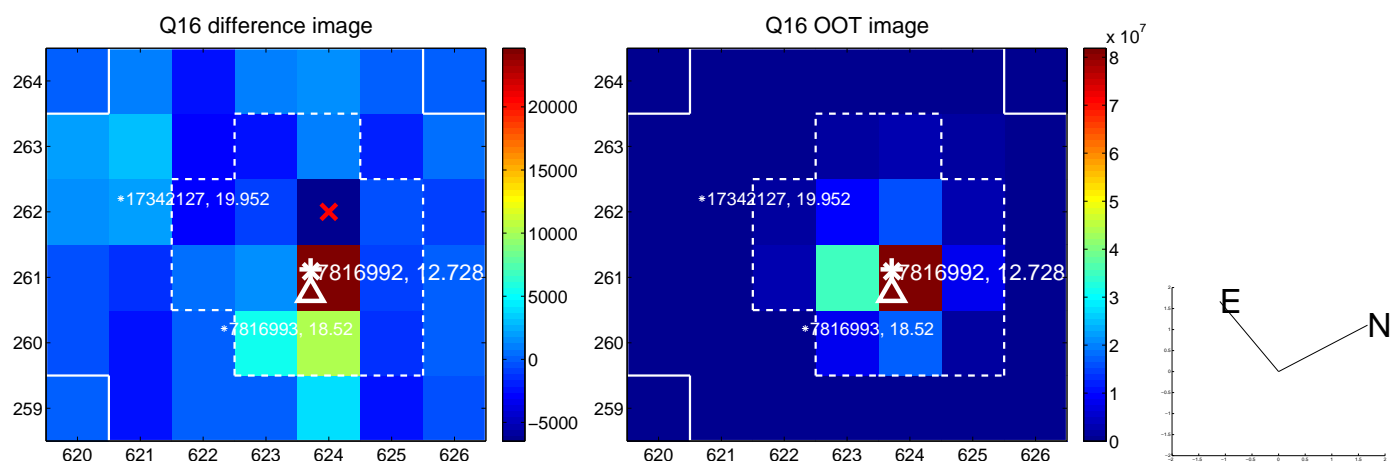
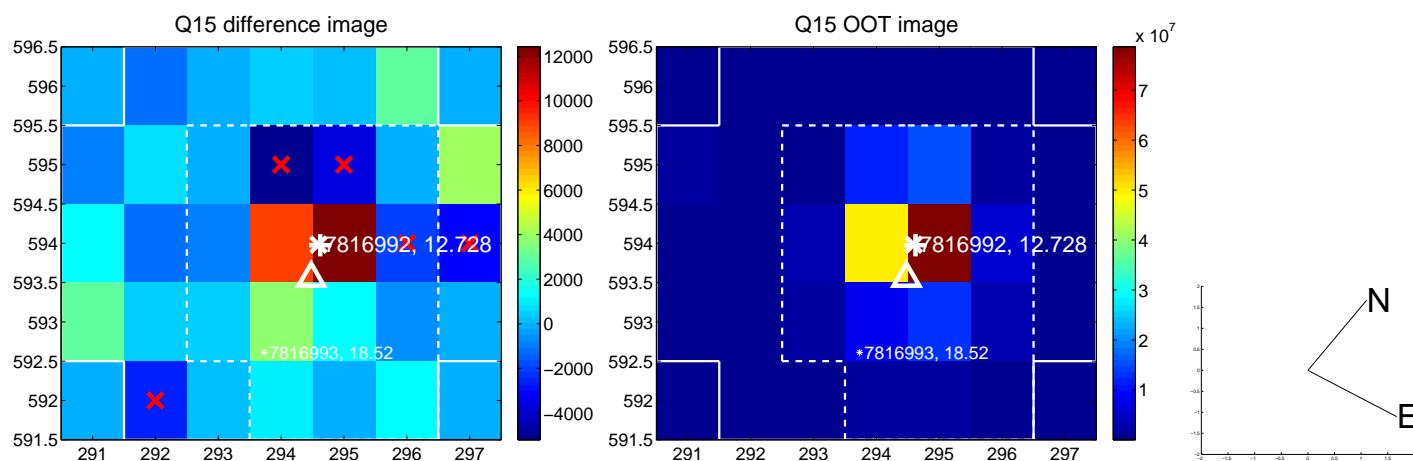
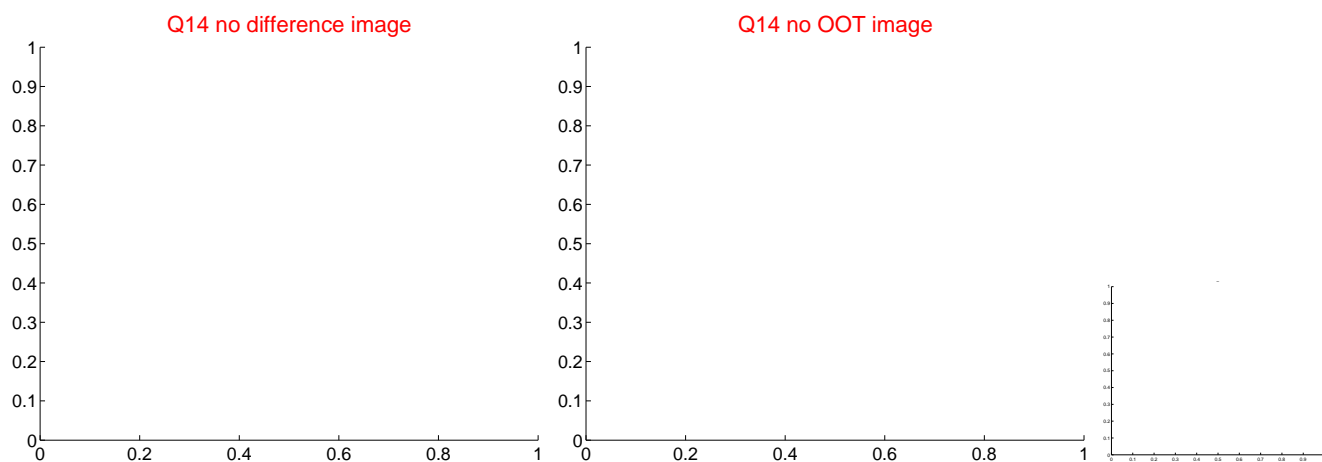
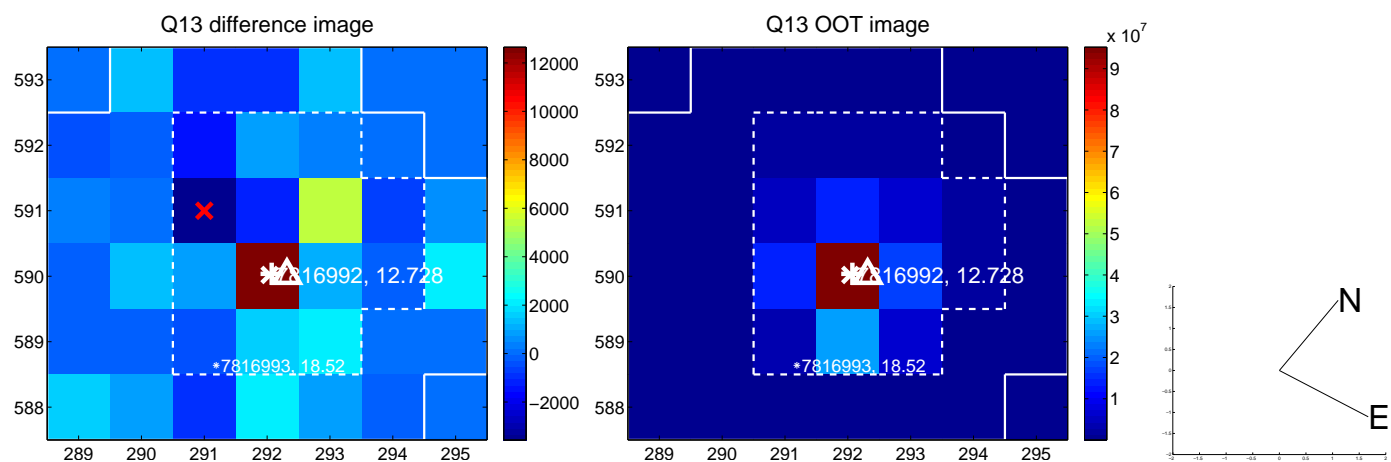
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



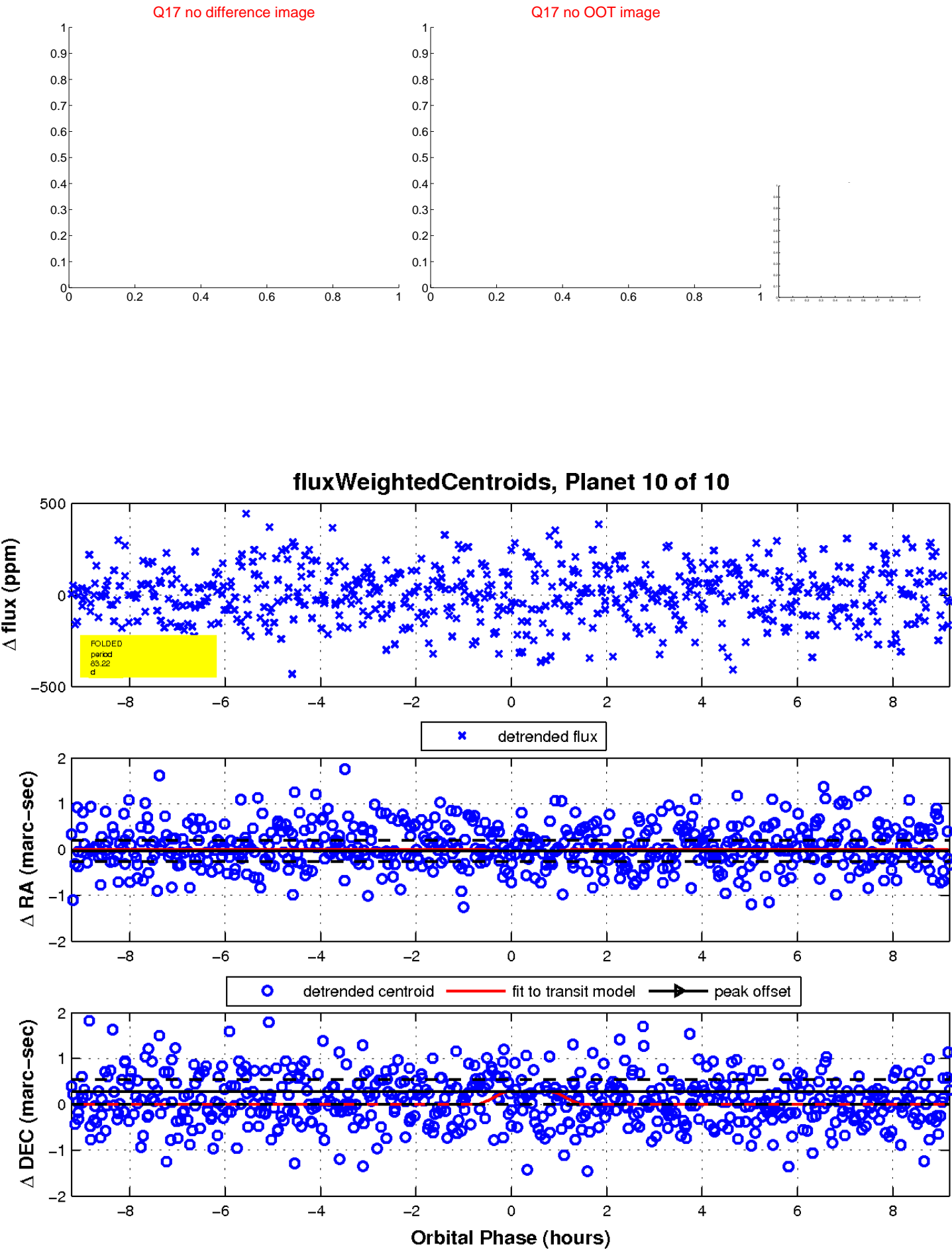
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

