

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})
004749989-01	OBS	No	0.732246	132.001787	13.0	4.721	11.2	9.5	1.88	6824	0.70	22521.01
004749989-02	OBS	No	43.201740	152.106101	15.0	1.035	13.2	1.1	1.88	6824	0.77	98.05
004749989-03	OBS	No	41.557803	136.205285	226.5	2.245	11.3	11.0	1.88	6824	3.33	103.26
004749989-04	OBS	No	153.116727	175.815026	50.7	1.959	10.3	1.4	1.88	6824	1.43	18.14
004749989-05	OBS	No	72.446819	177.224413	223.5	0.911	9.5	6.3	1.88	6824	3.31	49.22
004749989-06	OBS	No	467.163516	177.050588	64.6	3.500	10.6	-1.0	1.88	6824	1.53	4.10
004749989-07	OBS	No	250.427163	176.310022	171.3	3.985	9.8	9.7	1.88	6824	3.00	9.42
004749989-08	OBS	No	17.536486	142.663608	68.0	9.232	9.9	8.8	1.88	6824	1.70	326.24
004749989-09	OBS	No	49.714401	135.388278	59.6	3.000	10.6	-1.0	1.88	6824	1.47	81.31
004749989-10	OBS	No	71.221698	144.804494	188.7	2.602	10.1	8.3	1.88	6824	3.00	50.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004749989-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-03	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—CENT_SATURATED
004749989-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004749989-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-10	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—CENT_SATURATED

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

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

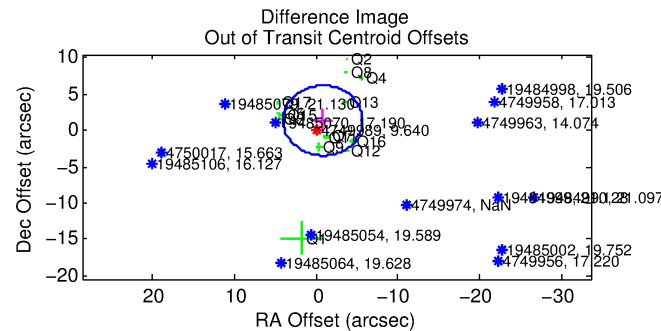
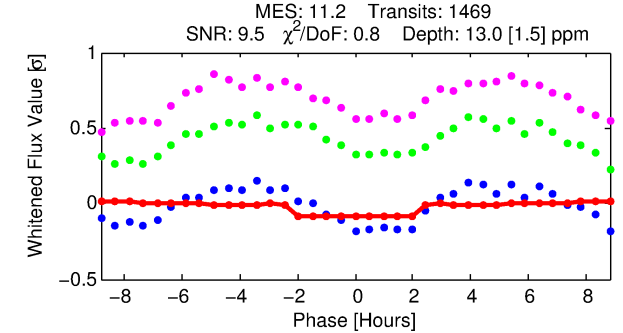
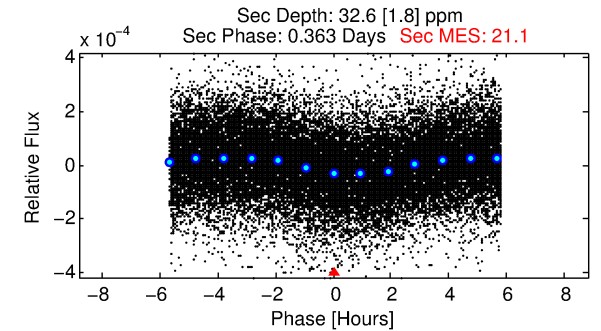
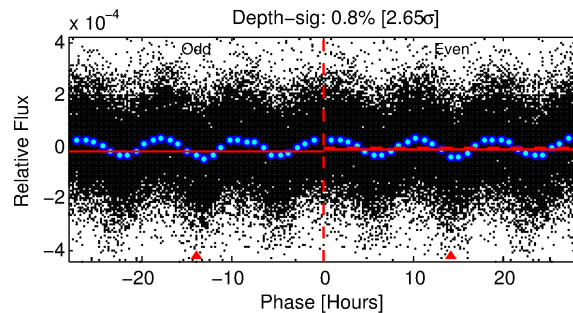
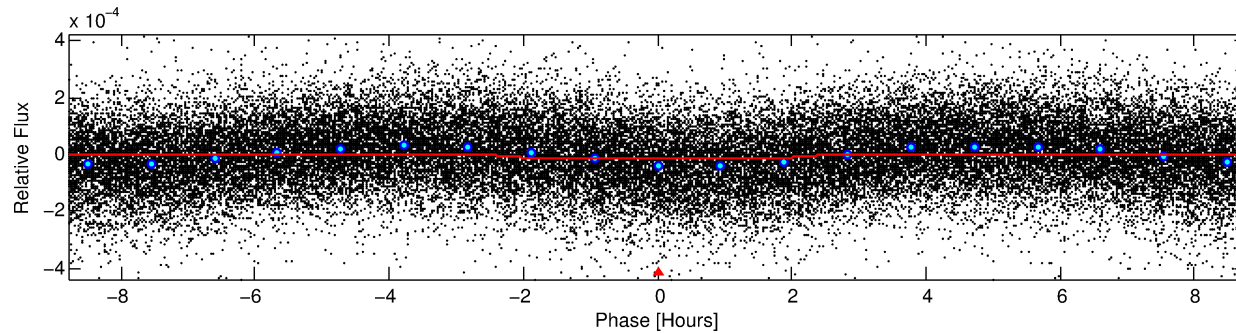
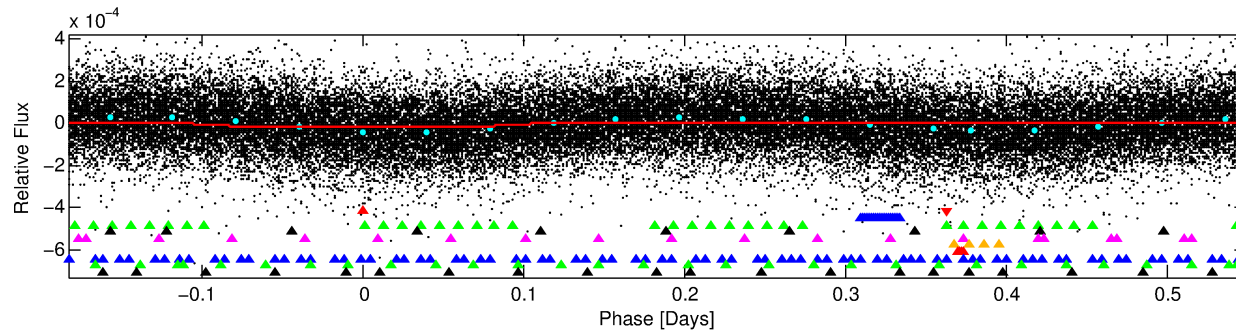
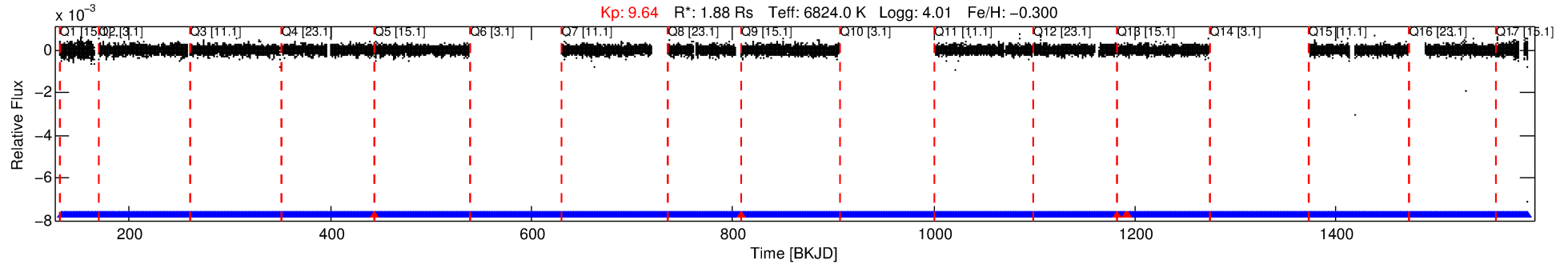
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004749989-01

No Significant Match Found

DV One-Page Summary

KIC: 4749989 Candidate: 1 of 10 Period: 0.732 d



DV Fit Results:

Period = 0.73225 [0.00001] d
Epoch = 132.0018 [0.0033] BKJD
Rp/R* = 0.0034 [0.0012]
a/R* = 1.27 [0.94]
b = 0.50 [2.97]
Seff = 22521.01 [11664.64]
Teq = 3124 [404] K
Rp = 0.70 [0.33] Re
a = 0.0175 [0.0054] AU
Ag = 11.08 [9.38] [1.07 σ]
Teffp = 8811 [1564] K [3.52 σ]

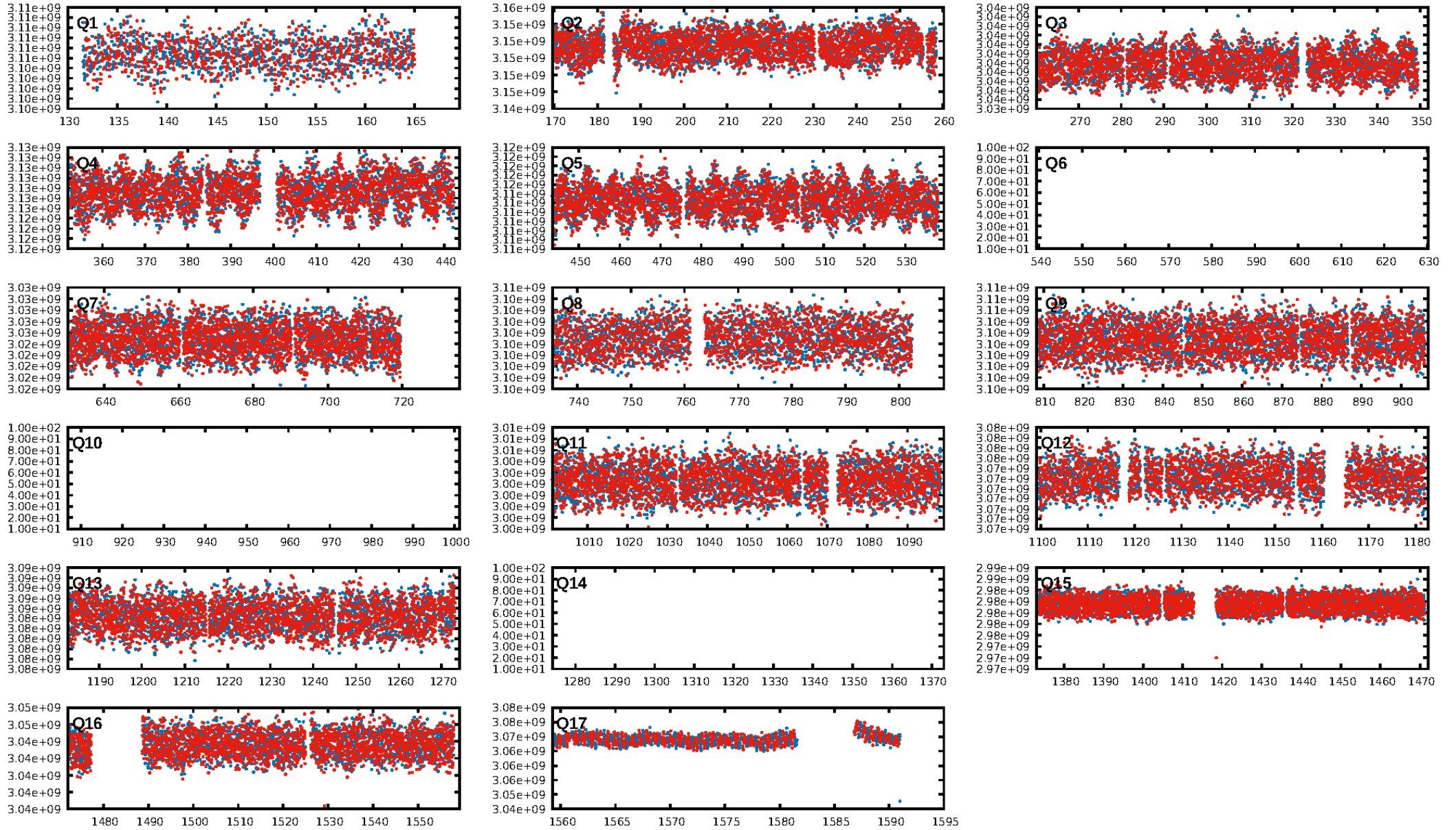
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [38.90 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1381/1386]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 2.002 arcsec [2.64 σ]
OotOffset-rm: 1.598 arcsec [0.99 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-rm: 1.960 arcsec [1.42 σ]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.07 [1/14]
DiffImageOverlap-fno: 1.00 [14/14]

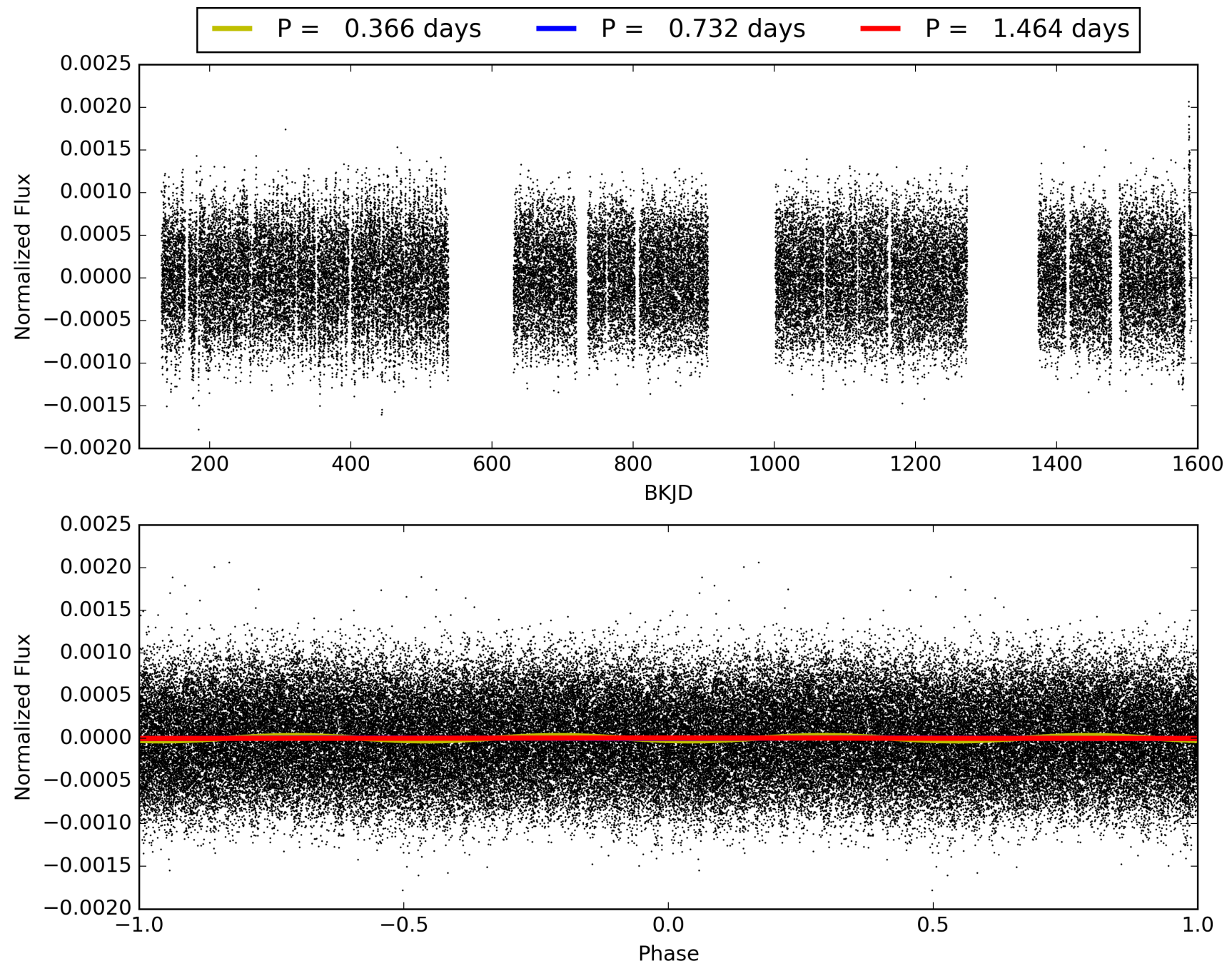
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:57:16 Z

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

TCE 004749989-01, PDC Light Curves

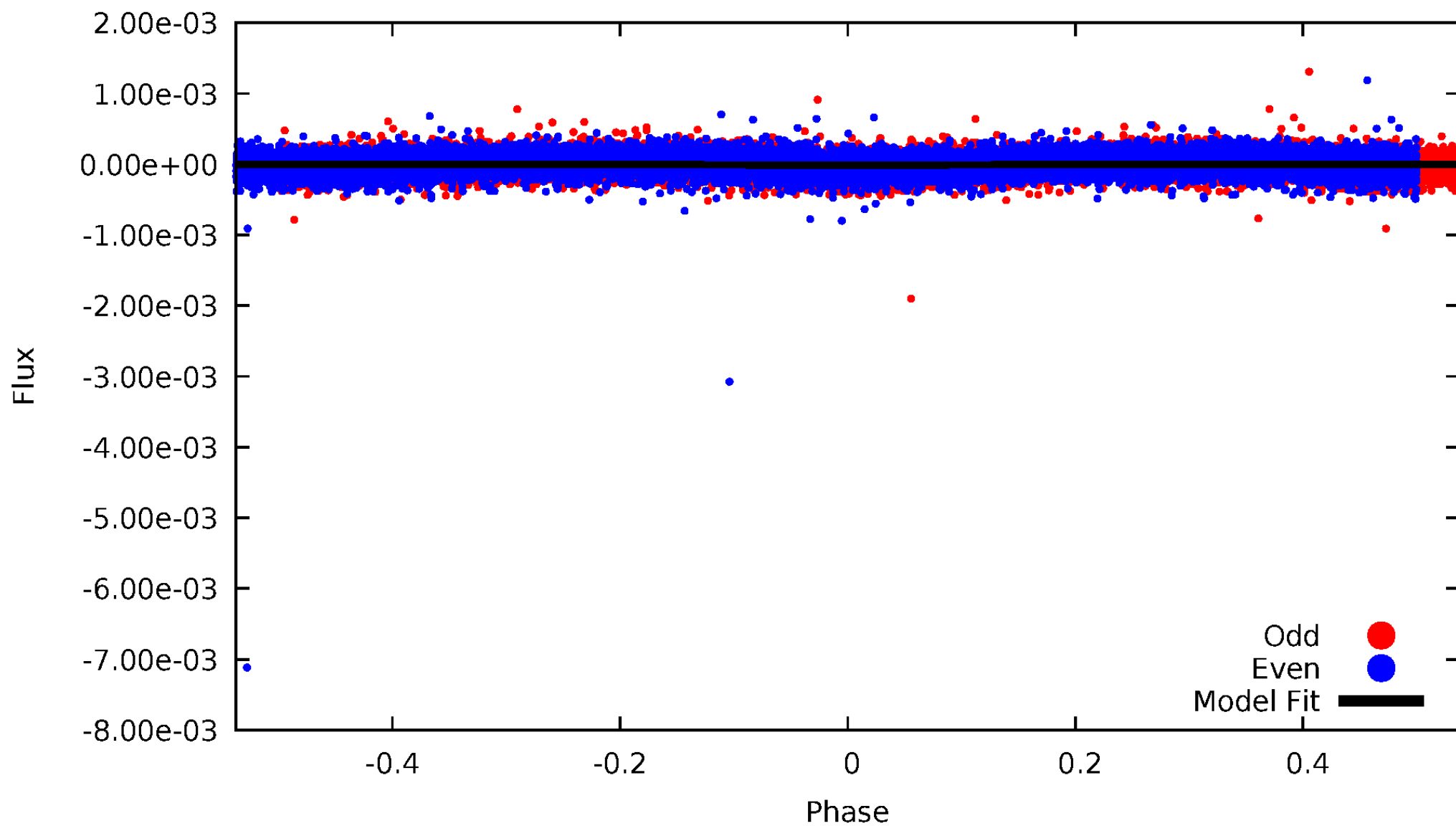


TCE 004749989-01



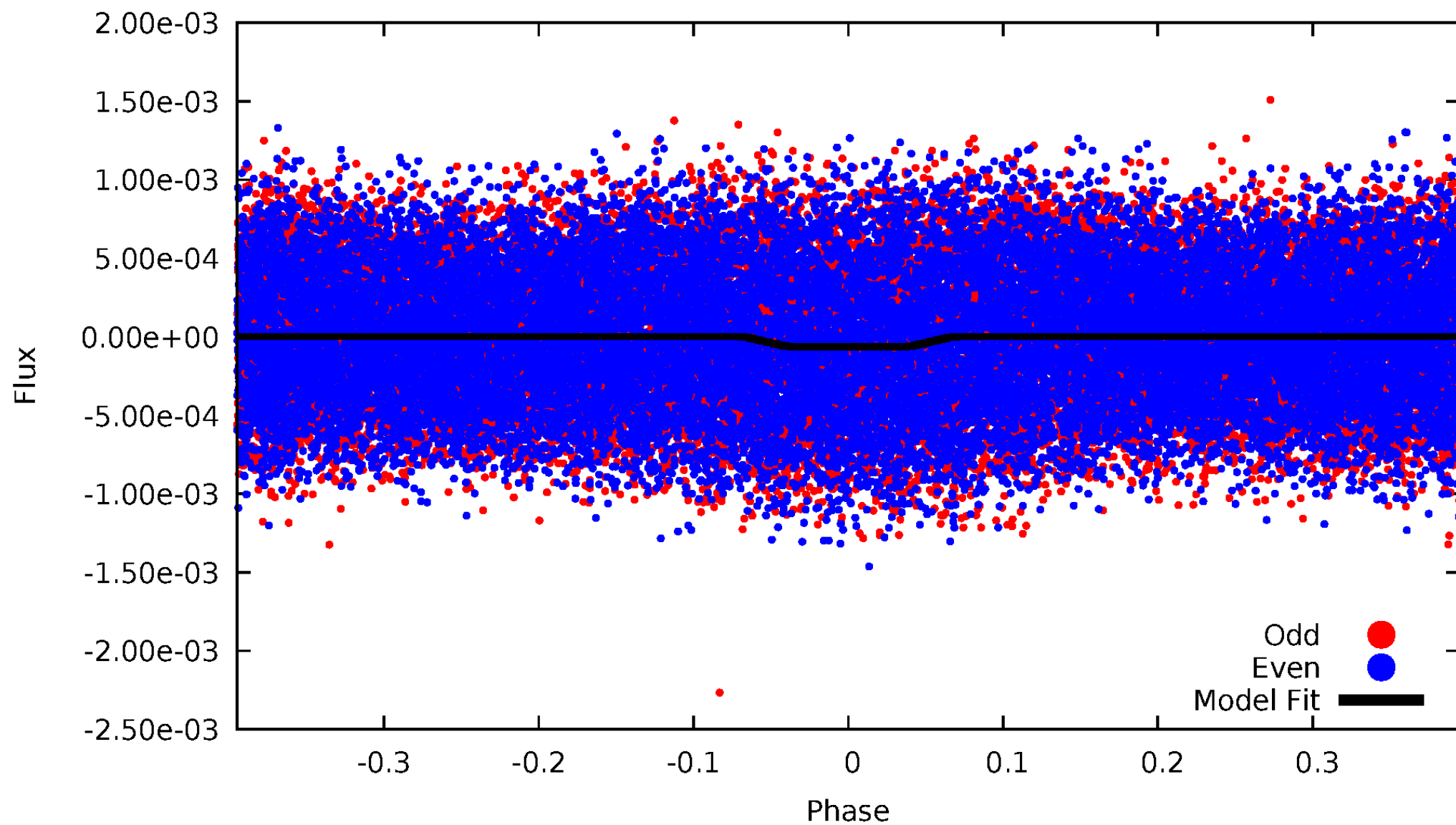
DV Odd/Even

TCE 004749989-01

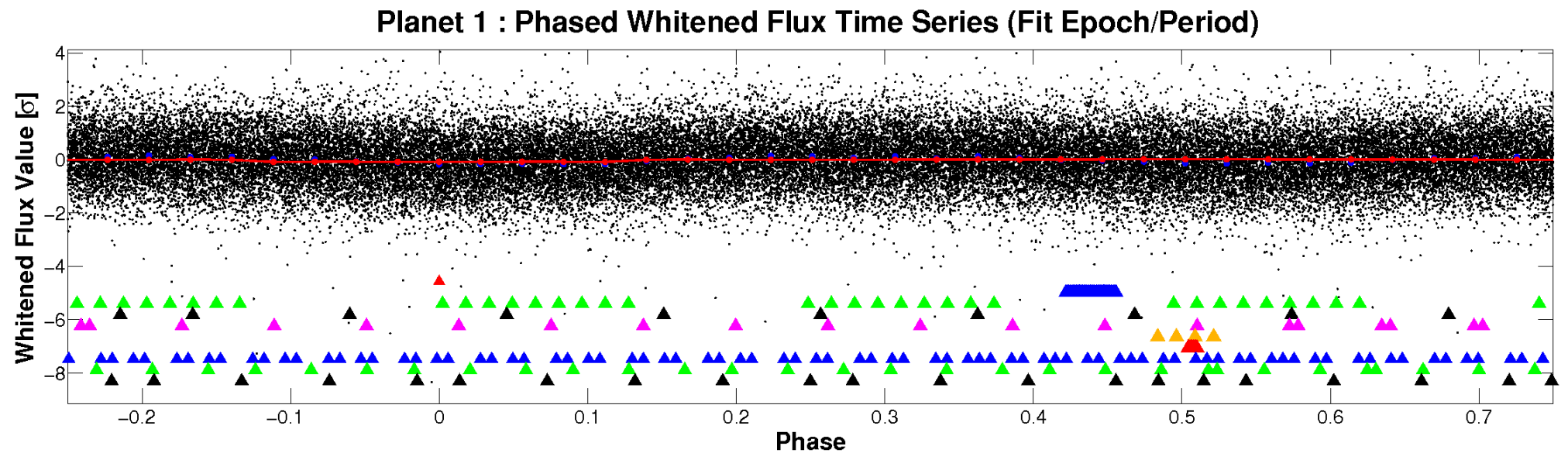
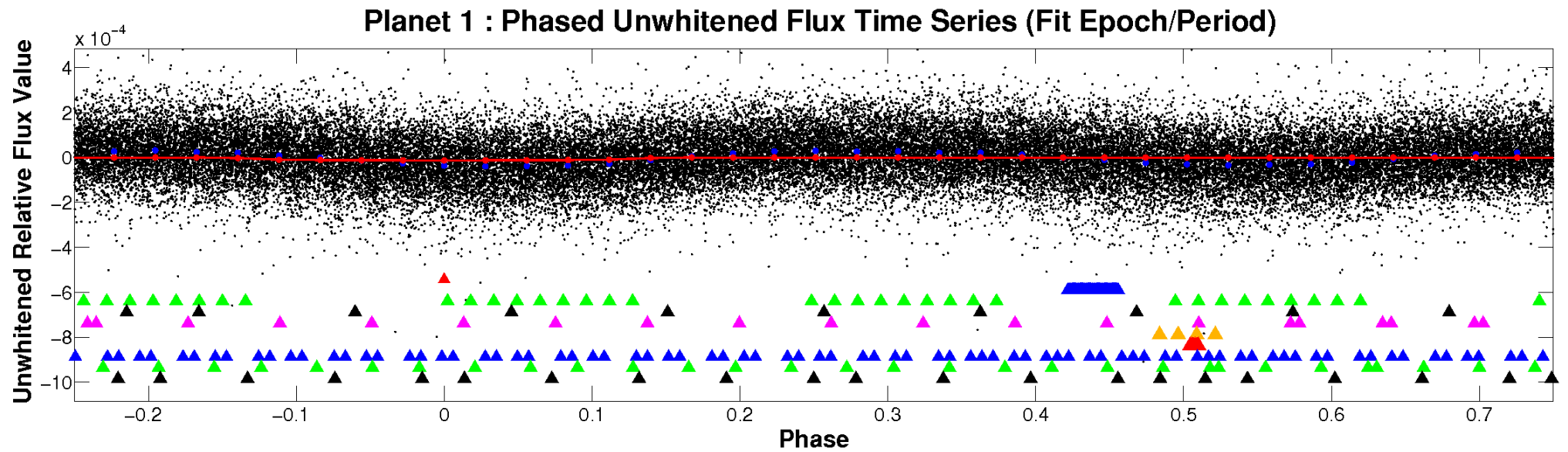


ALT Odd/Even

TCE 004749989-01

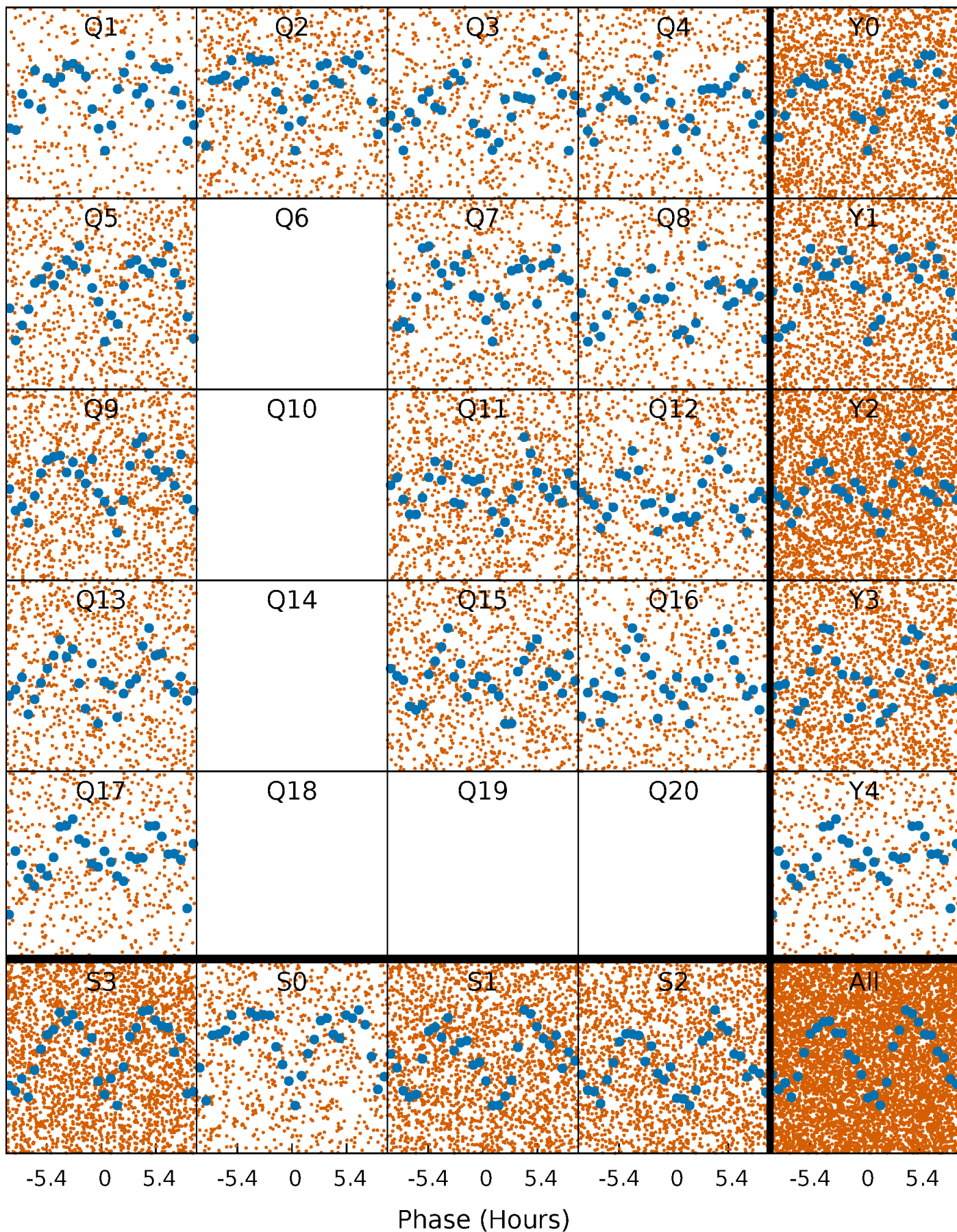


Non-Whitened Vs. Whitened Light Curve



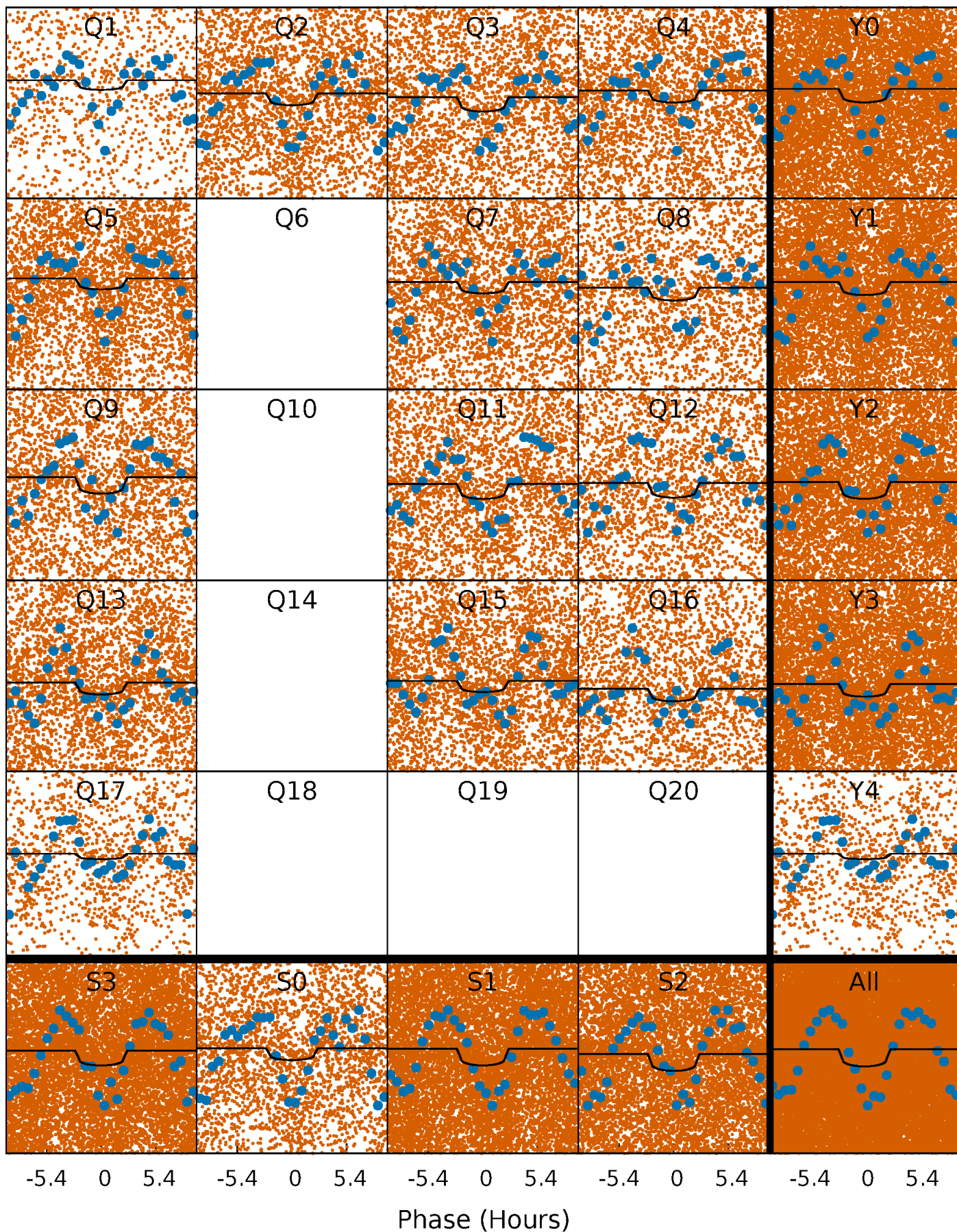
PDC Quarter-Phased Transit Curves

TCE 004749989-01 P= 0.732246 Days $T_0=132.001787$ (BKJD)



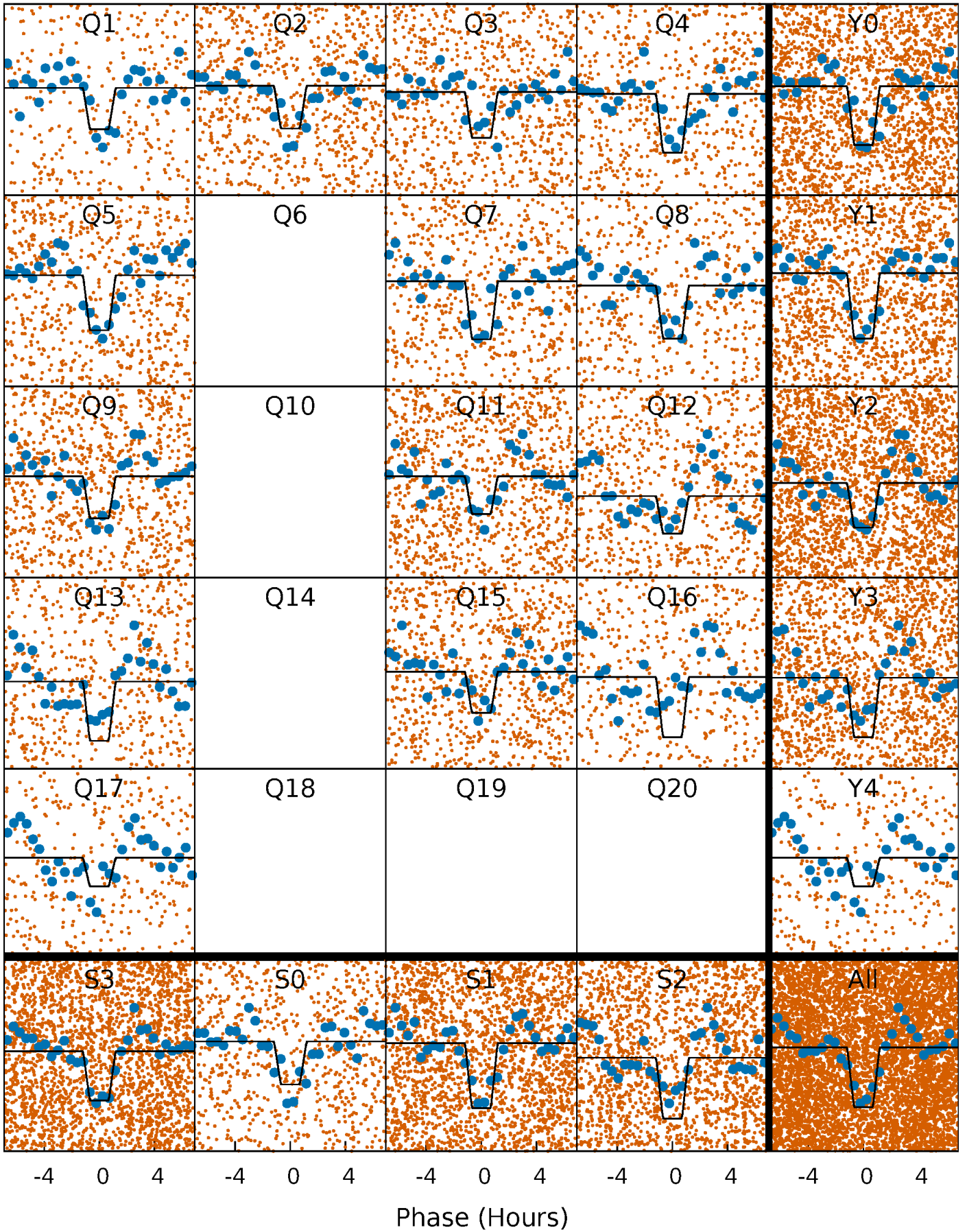
DV Quarter-Phased Transit Curves

TCE 004749989-01 P= 0.732246 Days $T_0=132.001787$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

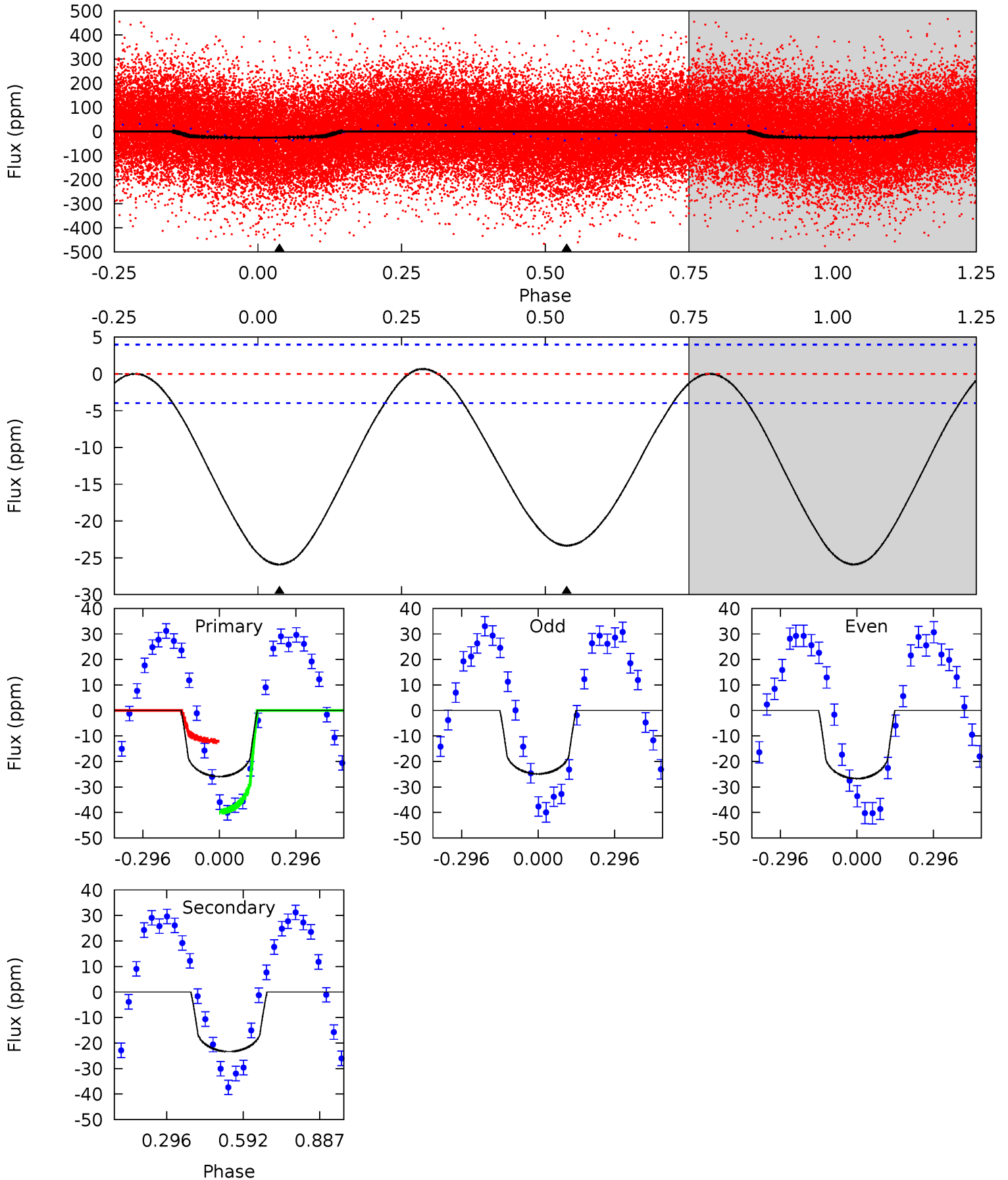
TCE 004749989-01 P= 0.732302 Days $T_0=131.995701$ (BKJD)



DV Model-Shift Uniqueness Test

004749989-01, P = 0.732246 Days, E = 131.269541 Days

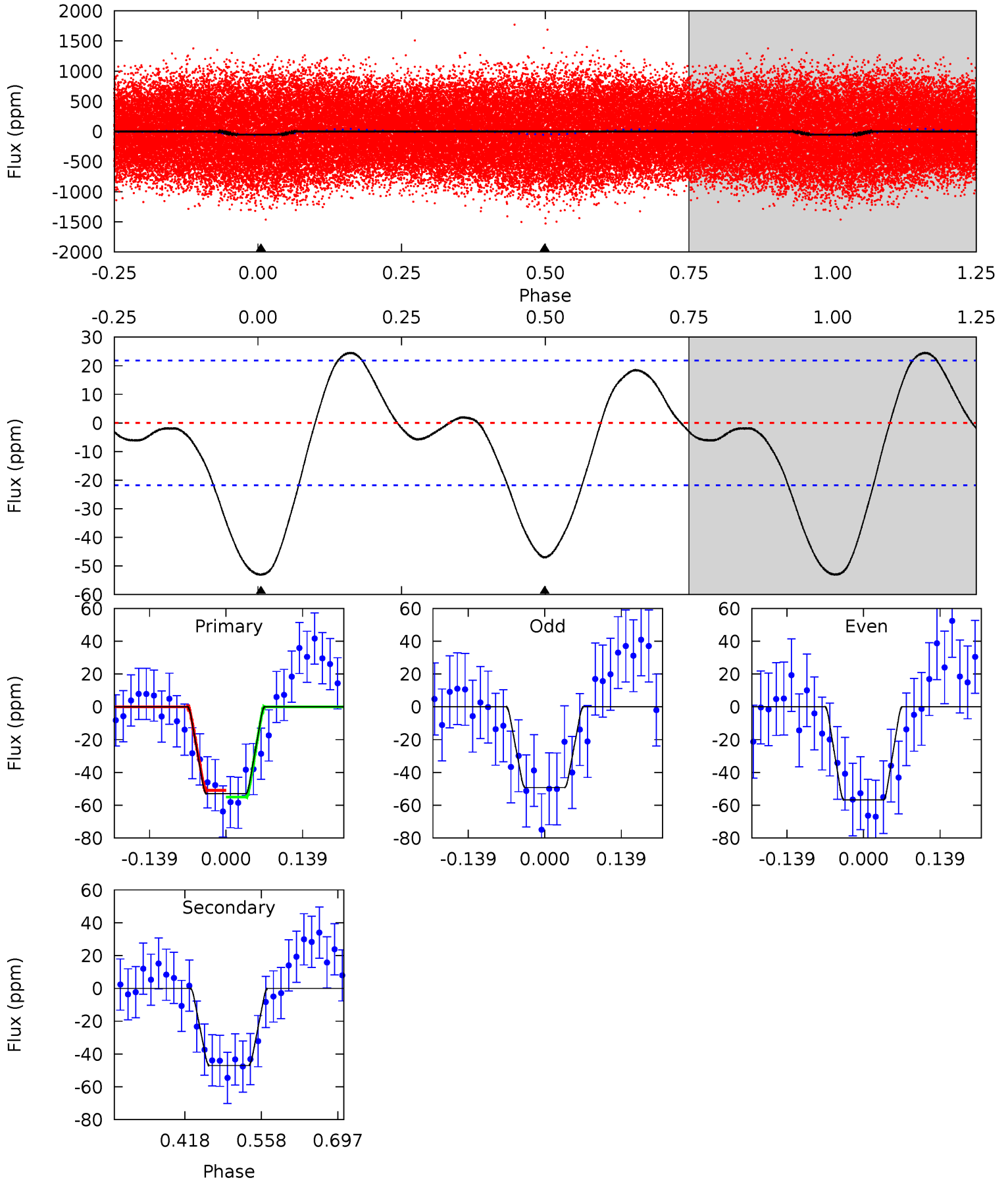
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.2	25.5	0	0	4.33	1.05	0.41	28.2	28.2	25.5	25.5	1.00	1.14	0.03	15.3



Alt Model-Shift Uniqueness Test

004749989-01, P = 0.732302 Days, E = 131.263399 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	9.70	0	0	4.49	1.48	2.04	10.9	10.9	9.70	9.70	0.78	0.97	0.32	0.42



Stellar Parameters For KIC 004749989

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6824^{+214}_{-285}	$4.012^{+0.286}_{-0.154}$	$-0.300^{+0.300}_{-0.300}$	$1.882^{+0.504}_{-0.616}$	$1.332^{+0.195}_{-0.238}$	$0.281^{+0.569}_{-0.128}$
	+3%/-4%	+7%/-4%	+100%/-100%	+27%/-33%	+15%/-18%	+202%/-45%
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 004749989-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-23 ± 1	$0.67^{+0.28}_{-0.25}$	4307^{+346}_{-406}	8190^{+2959}_{-1387}	$8.555^{+12.500}_{-4.222}$
Alt.	-47 ± 5	$1.57^{+0.37}_{-0.36}$	4285^{+381}_{-407}	6143^{+658}_{-545}	$3.228^{+2.132}_{-1.123}$

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

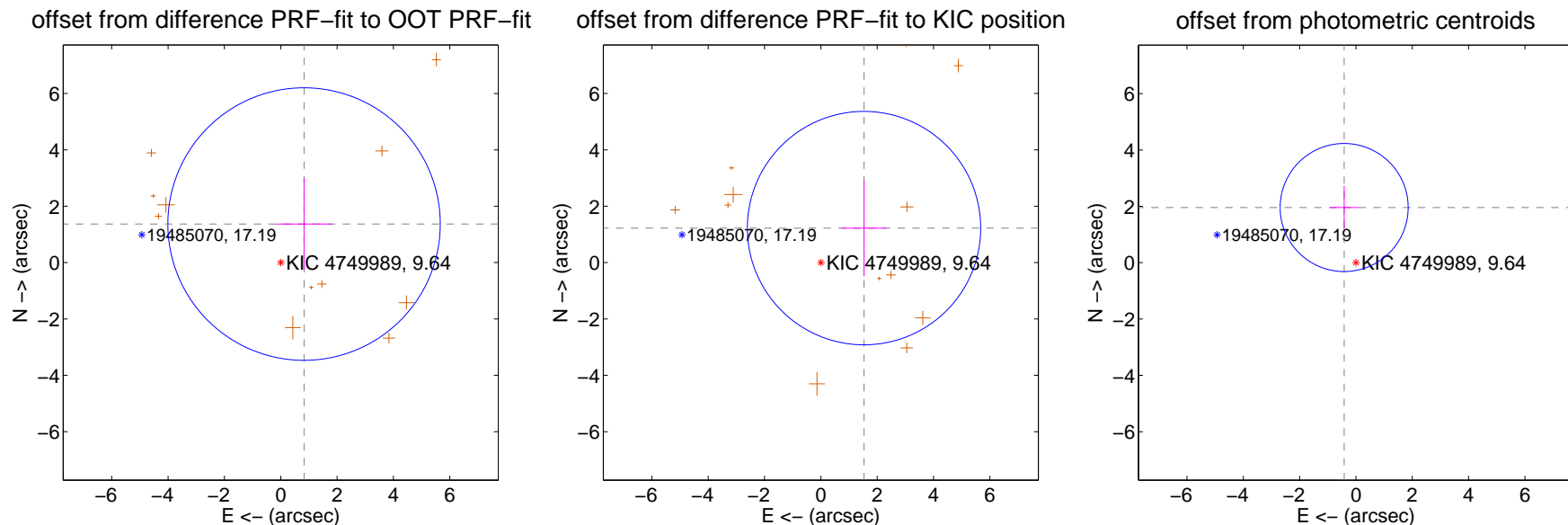
DV Centroid Data

Supplemental centroid analysis for 004749989-01. **Kepler magnitude: 9.64.** Transit SNR 9.46

There are 1 quarters with good PRF difference image offsets

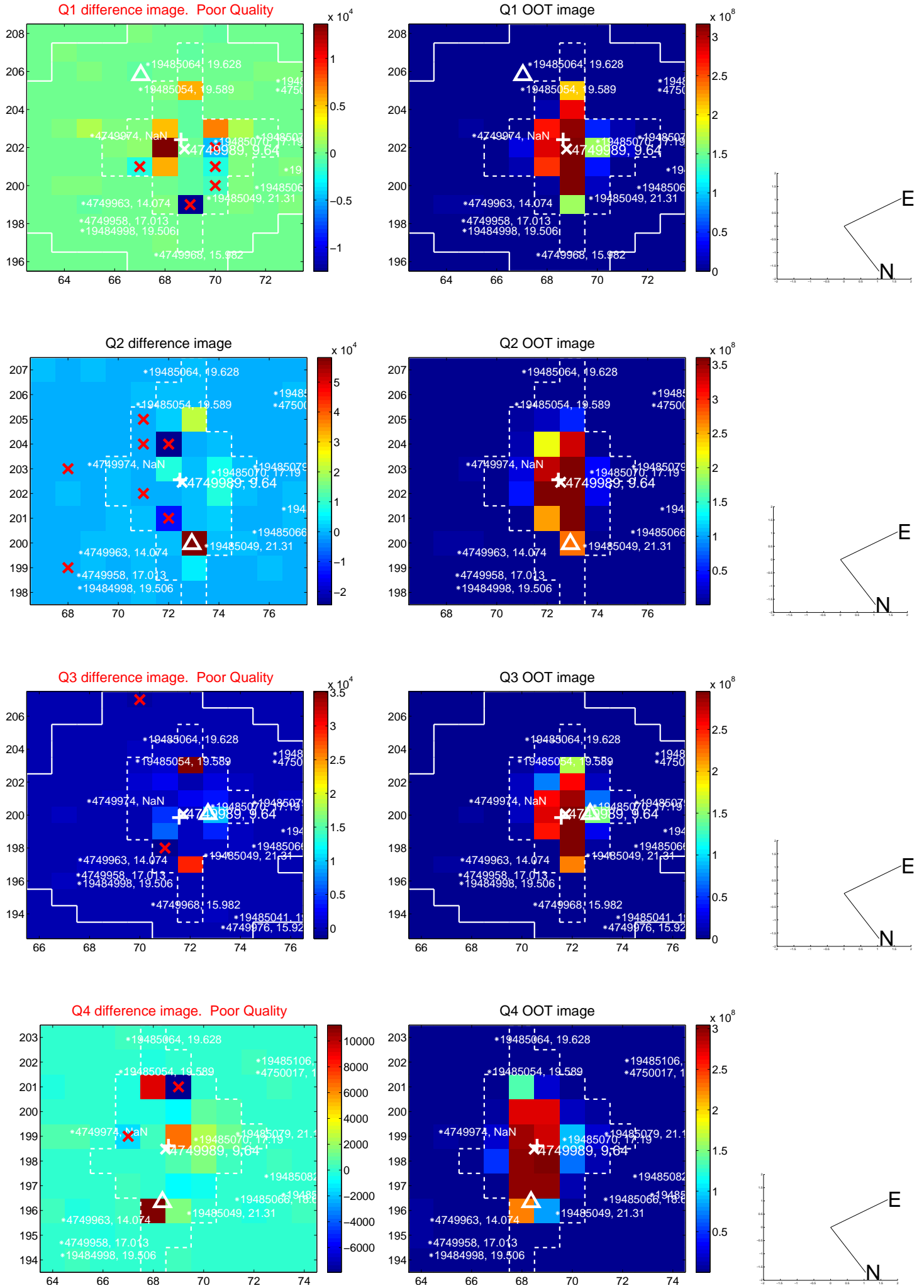
The OOT PRF centroid is offset from the target star catalog position by about 2.11 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.598 ± 1.612	0.99	-0.827 ± 0.990	1.367 ± 1.630
PRF-fit source offset from KIC position	1.960 ± 1.381	1.42	-1.532 ± 0.799	1.223 ± 1.709
photometric centroid source offset	2.00 ± 0.76	2.64	0.42 ± 0.51	1.96 ± 0.77

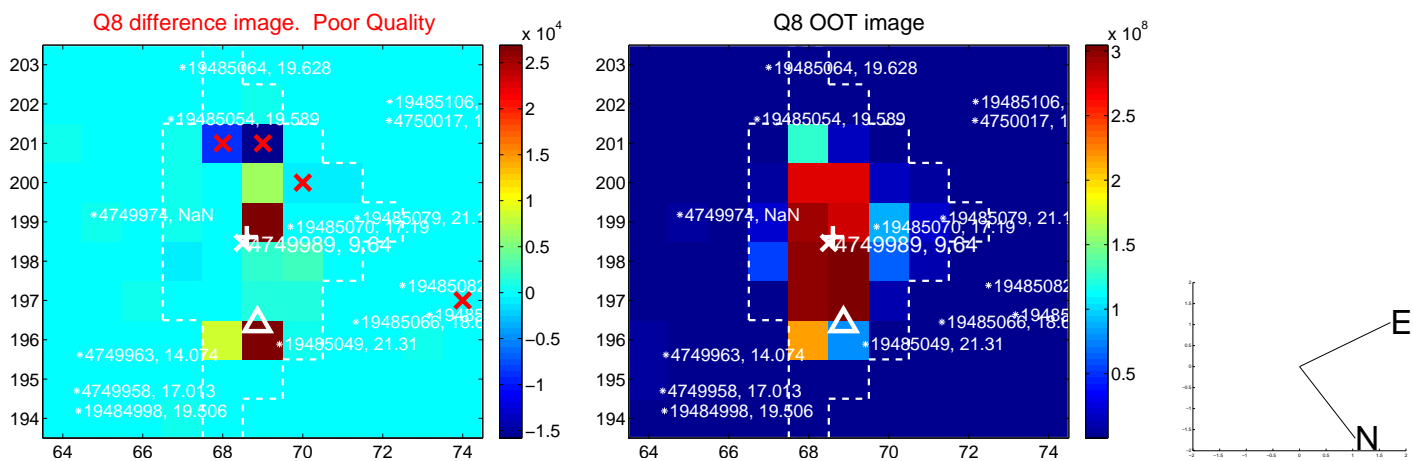
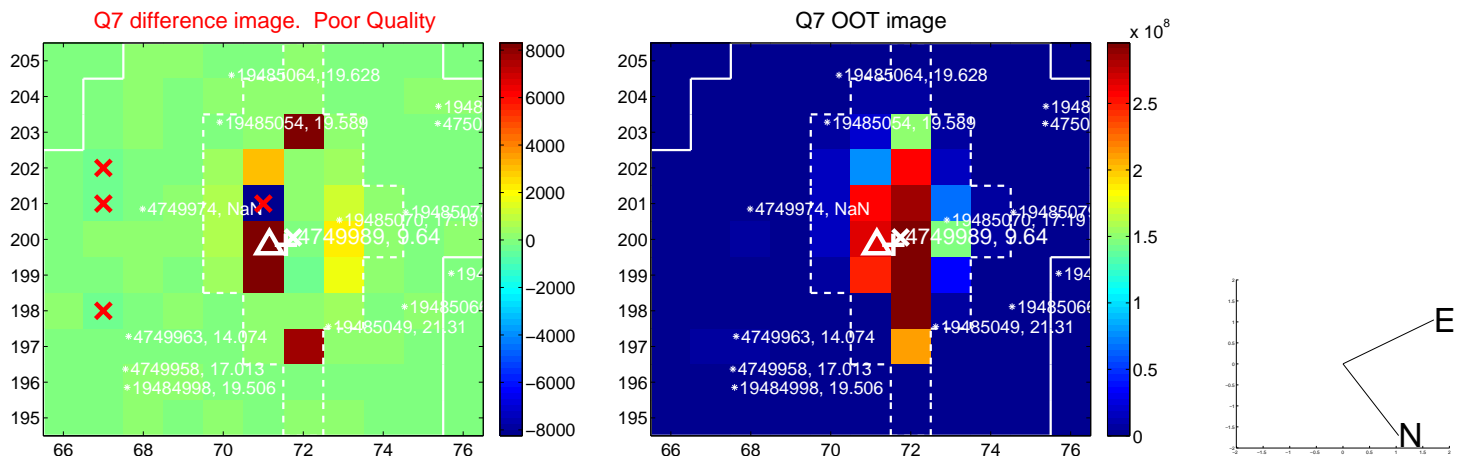
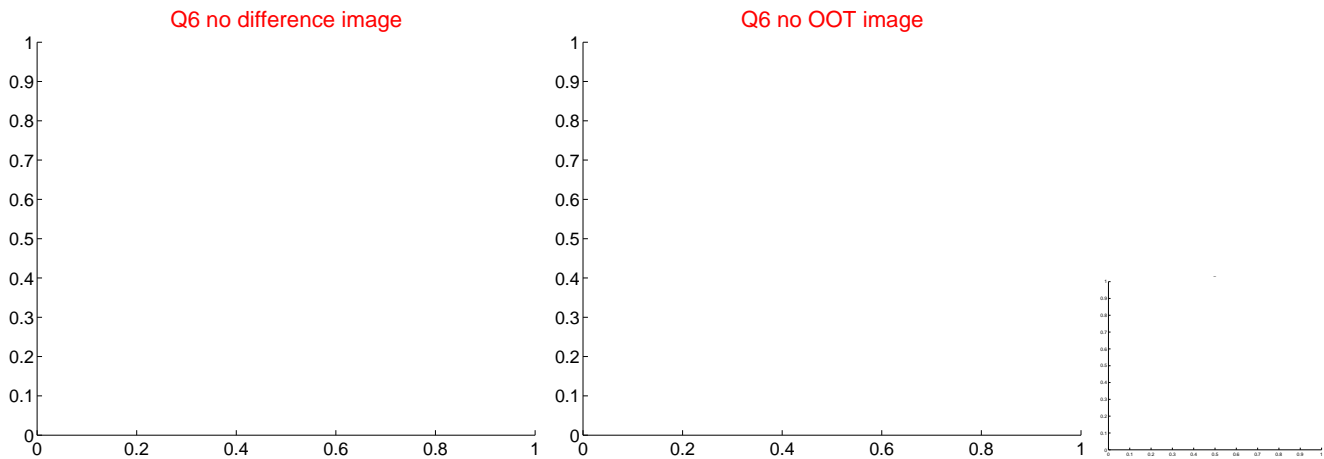
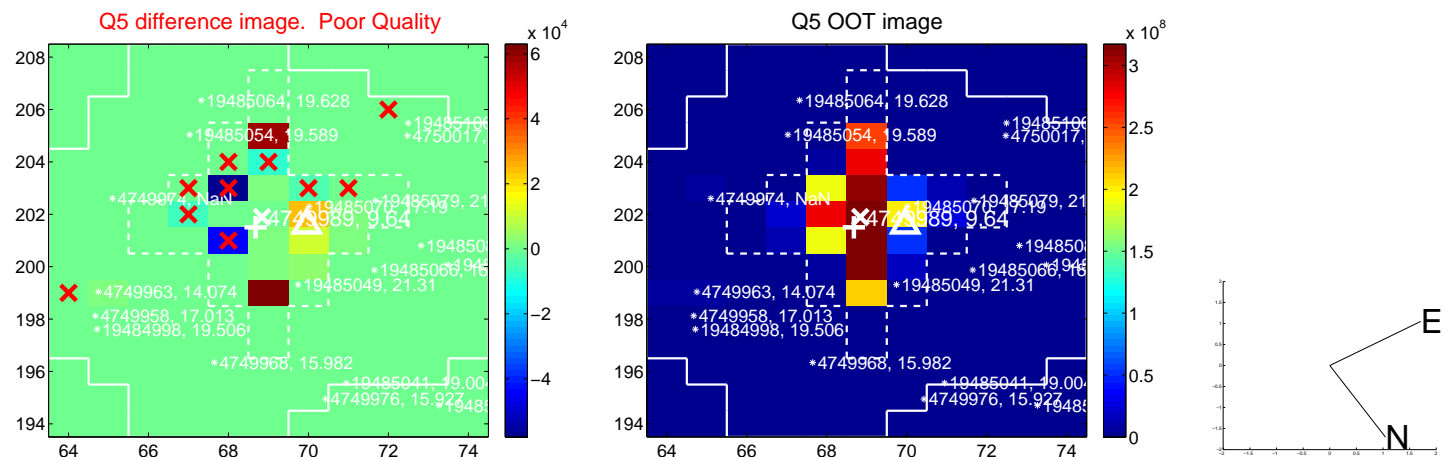


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

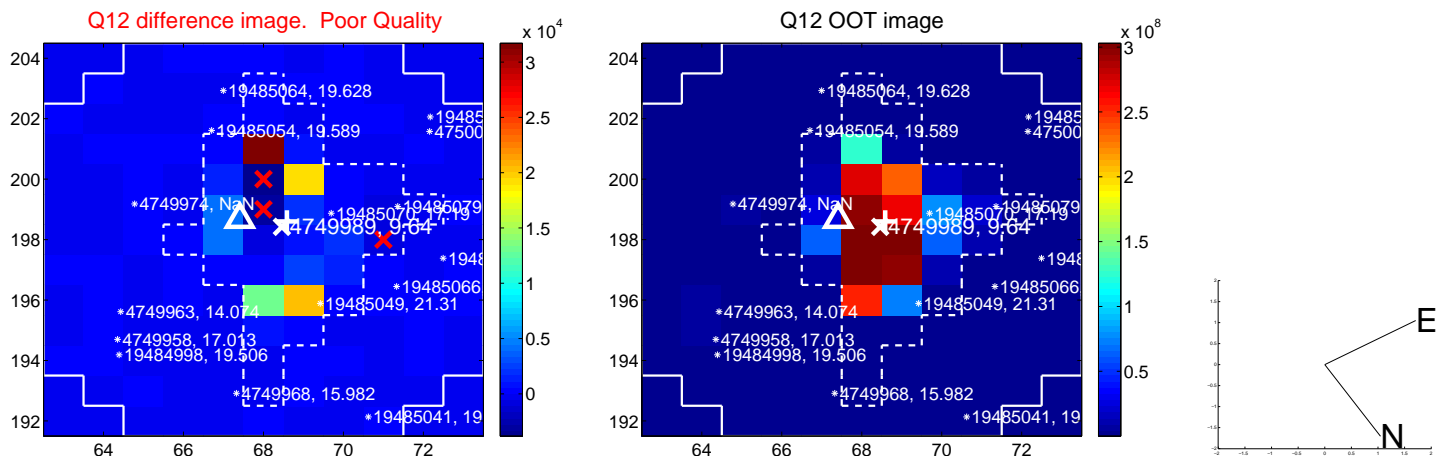
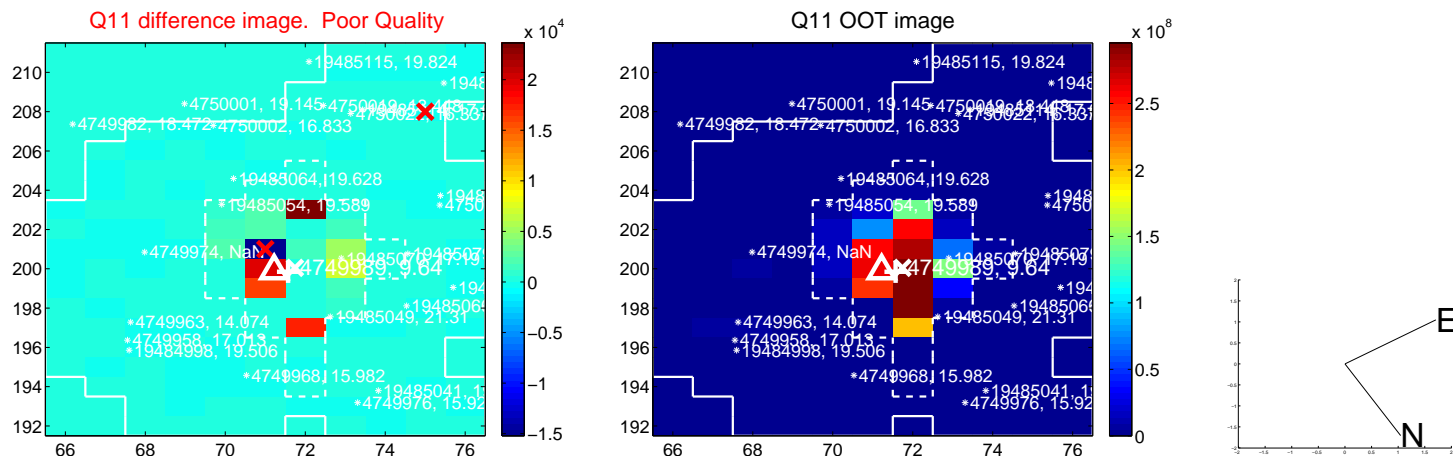
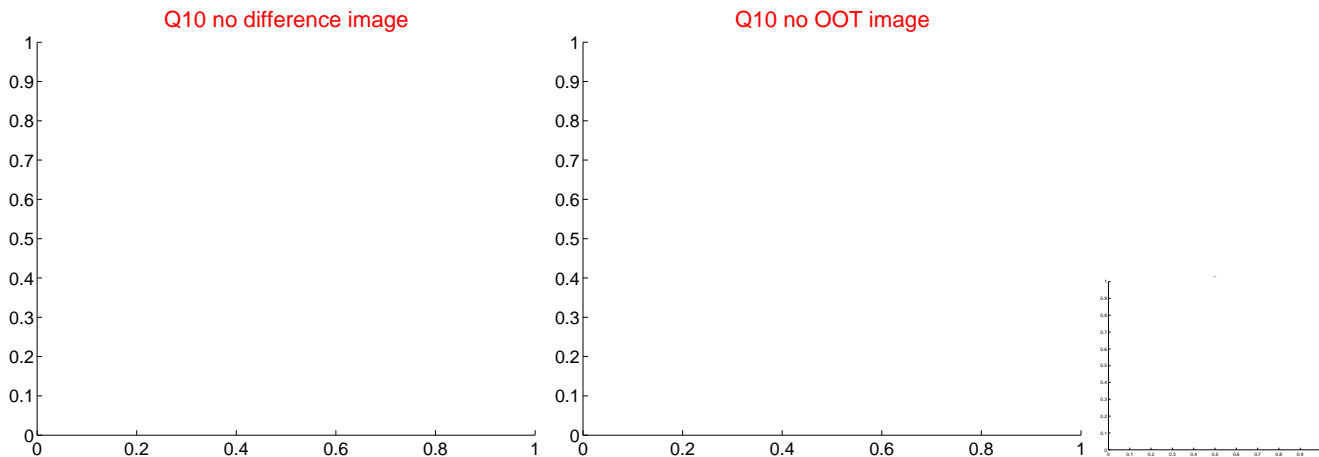
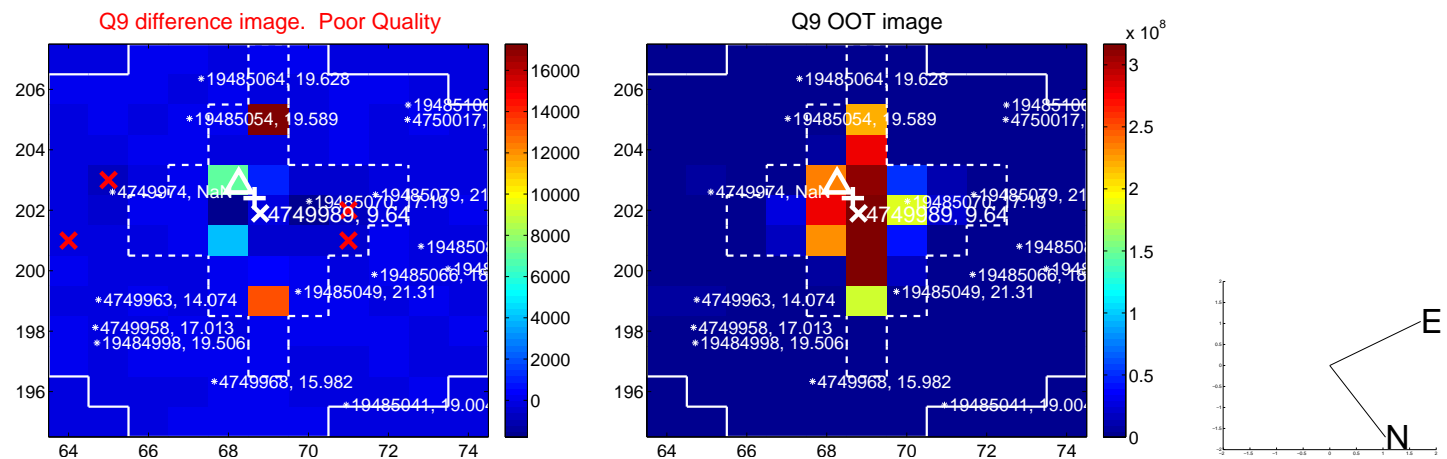
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



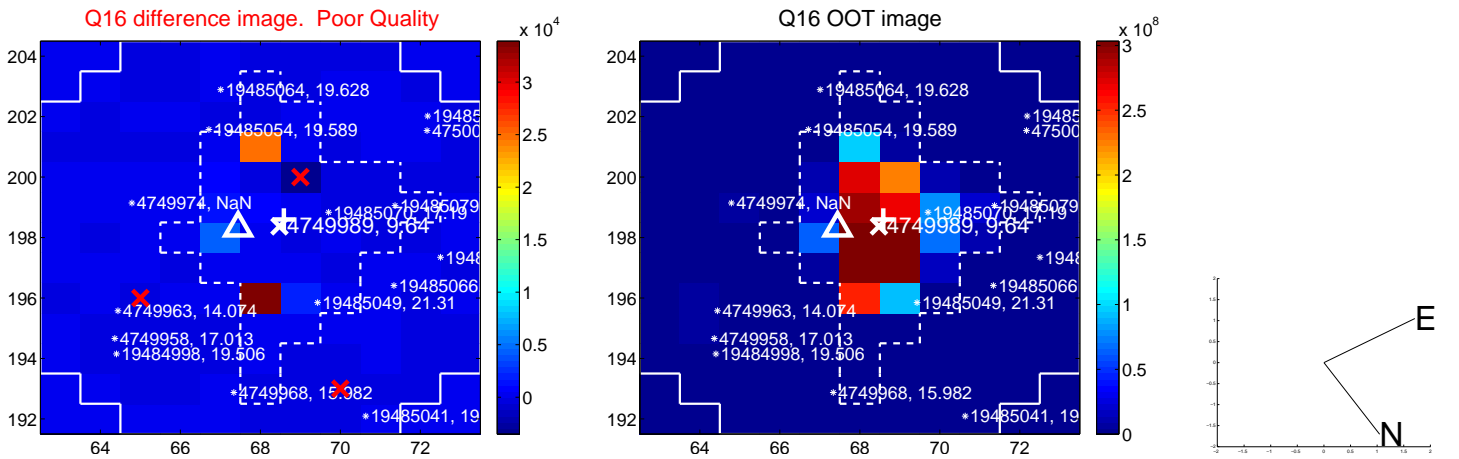
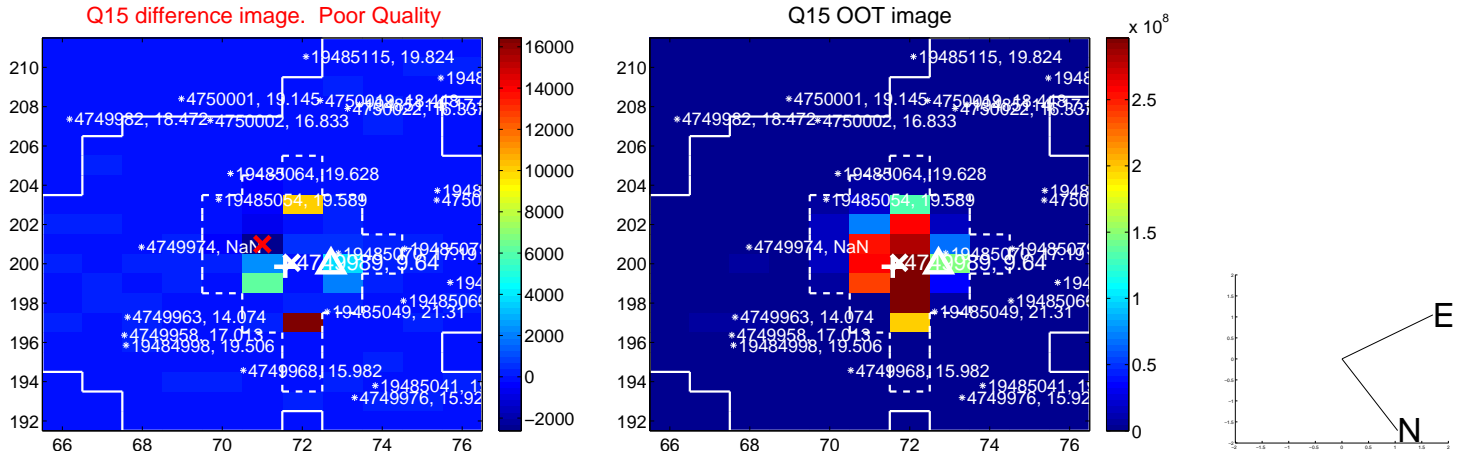
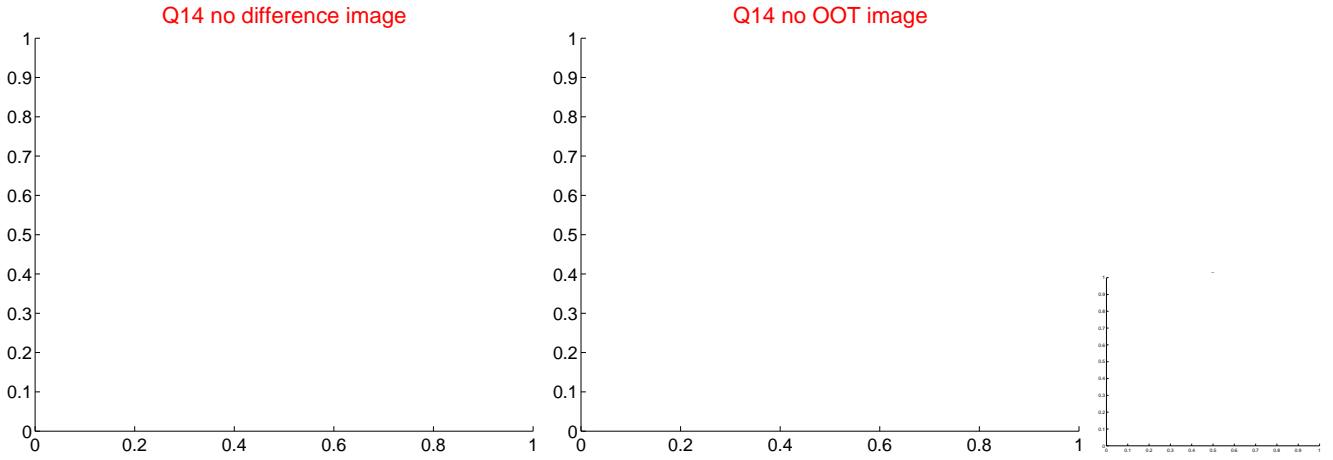
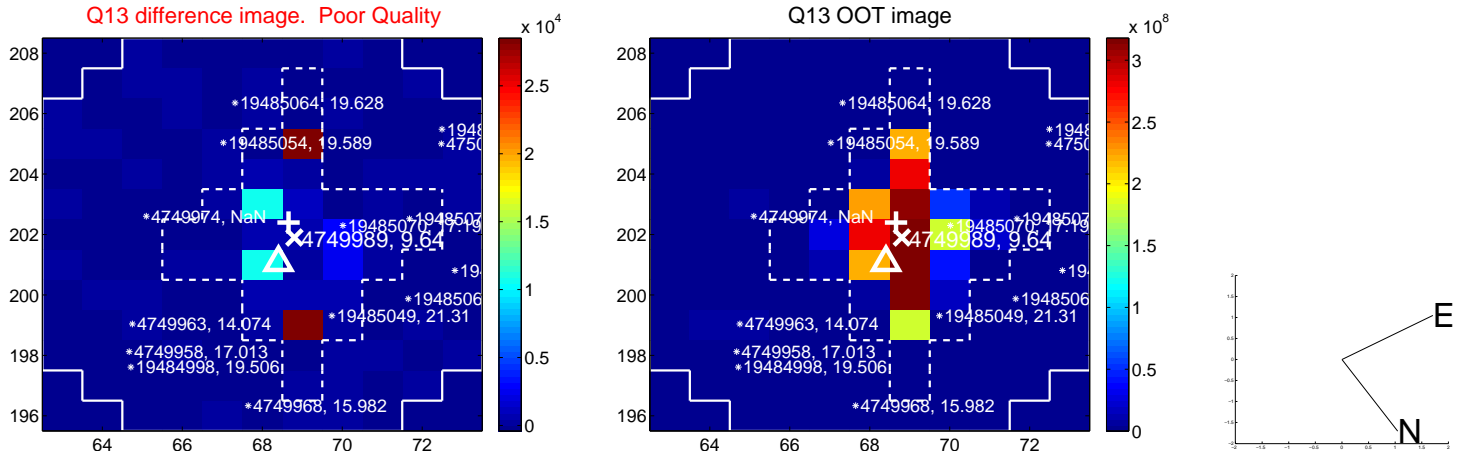
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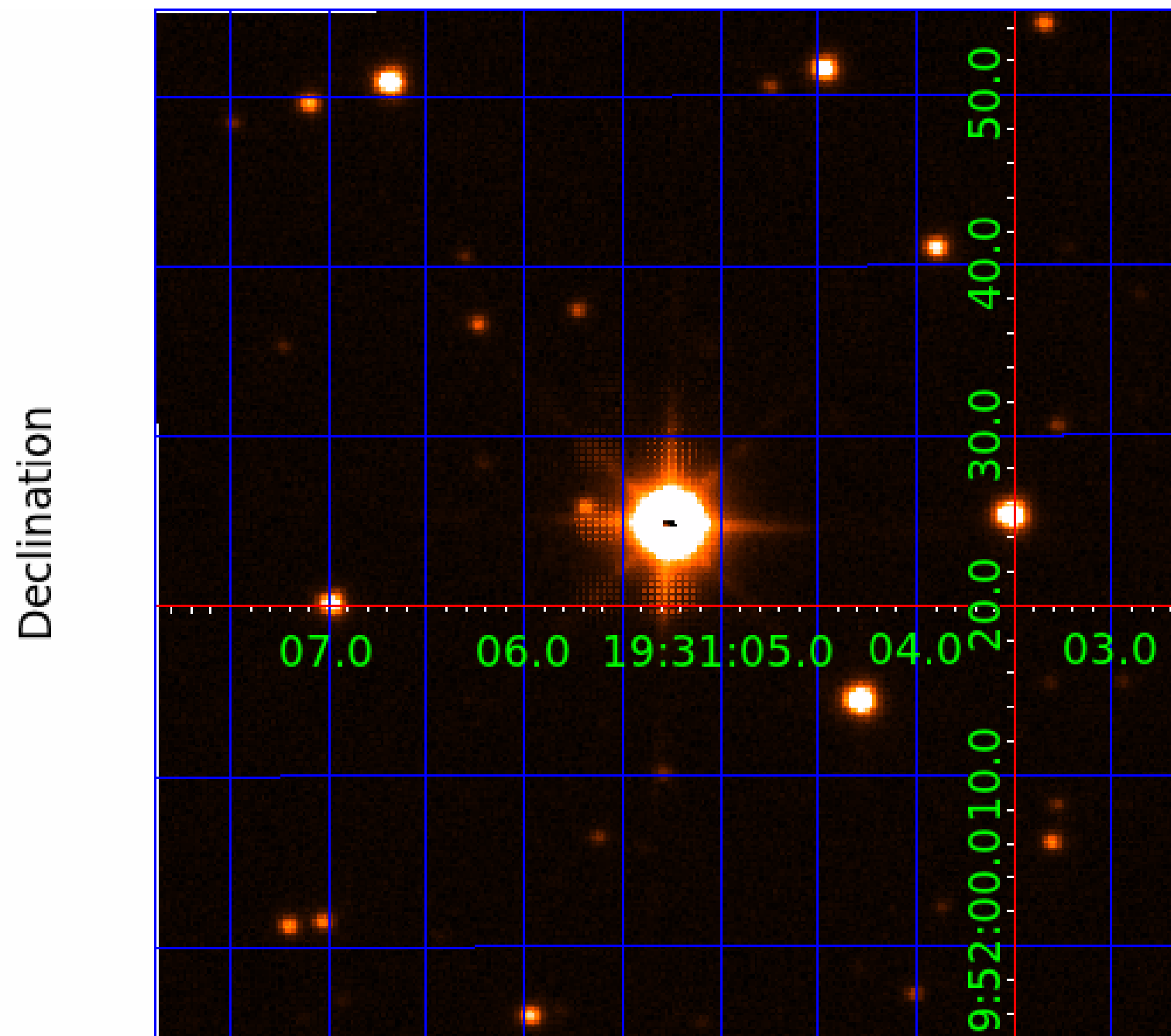
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UKIRT Image



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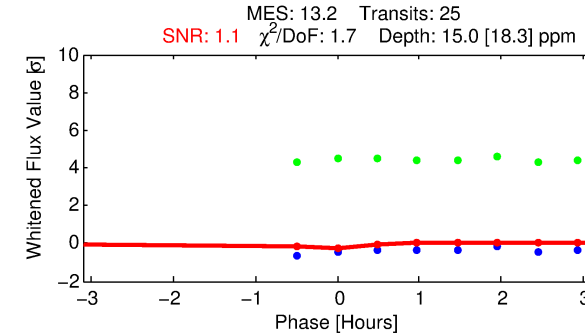
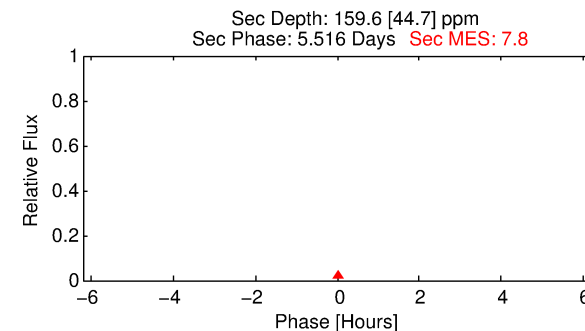
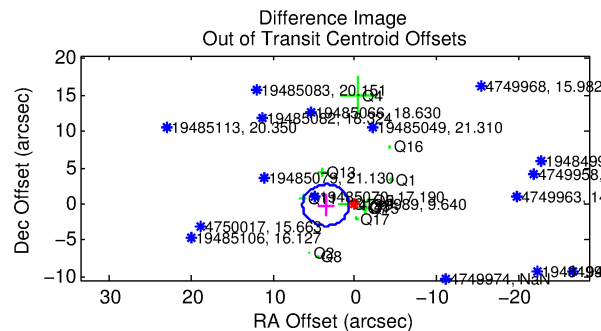
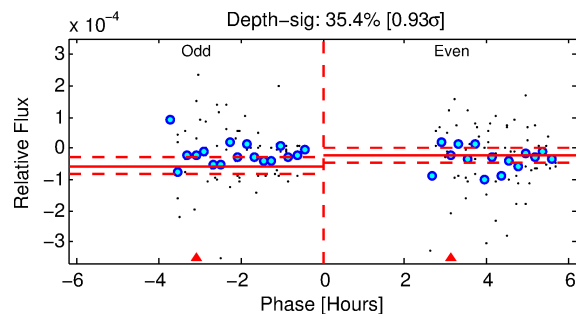
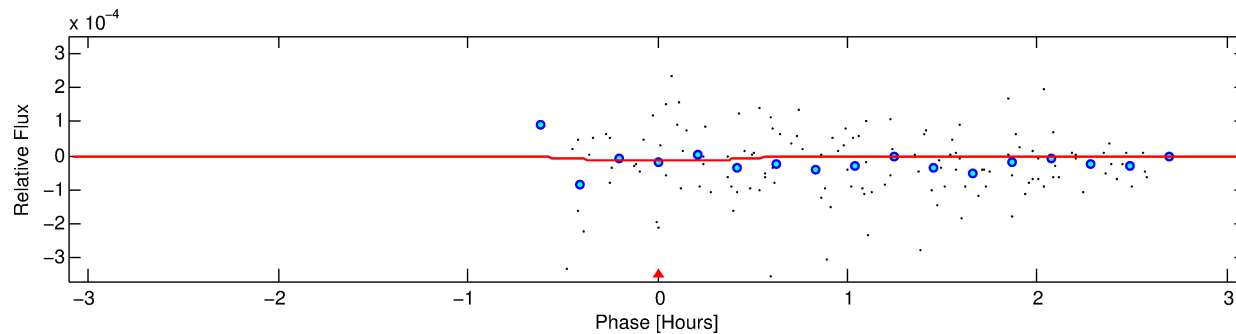
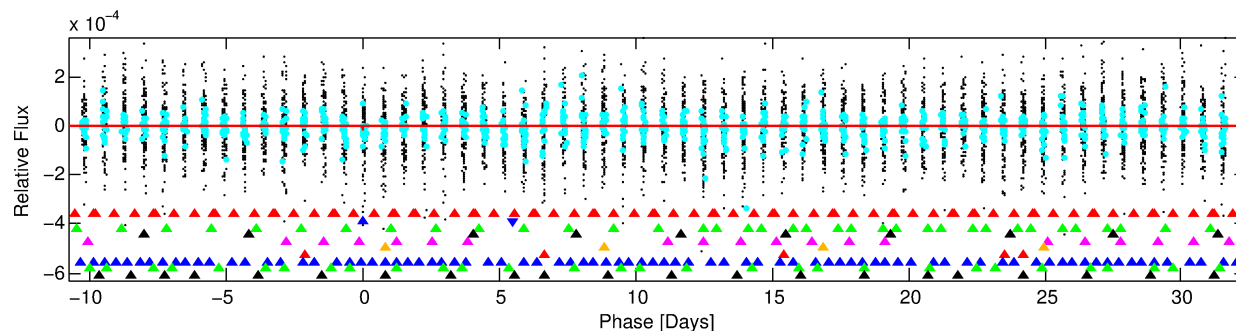
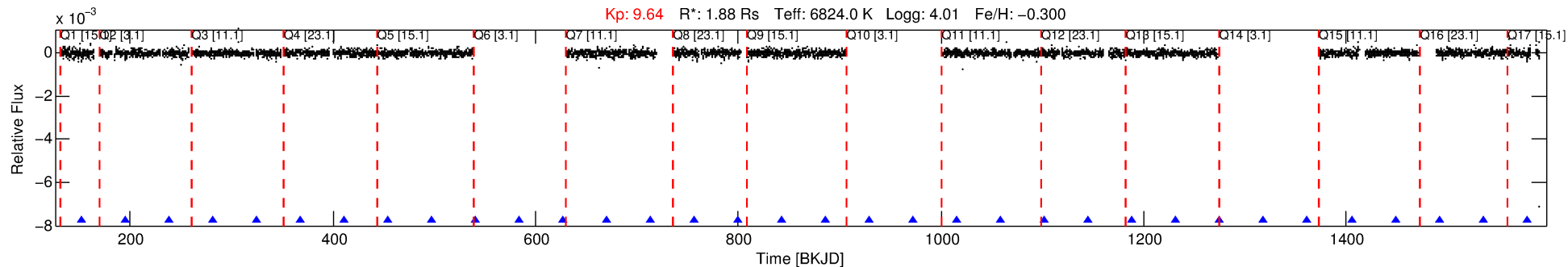
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004749989-02

No Significant Match Found

DV One-Page Summary

KIC: 4749989 Candidate: 2 of 10 Period: 43.202 d



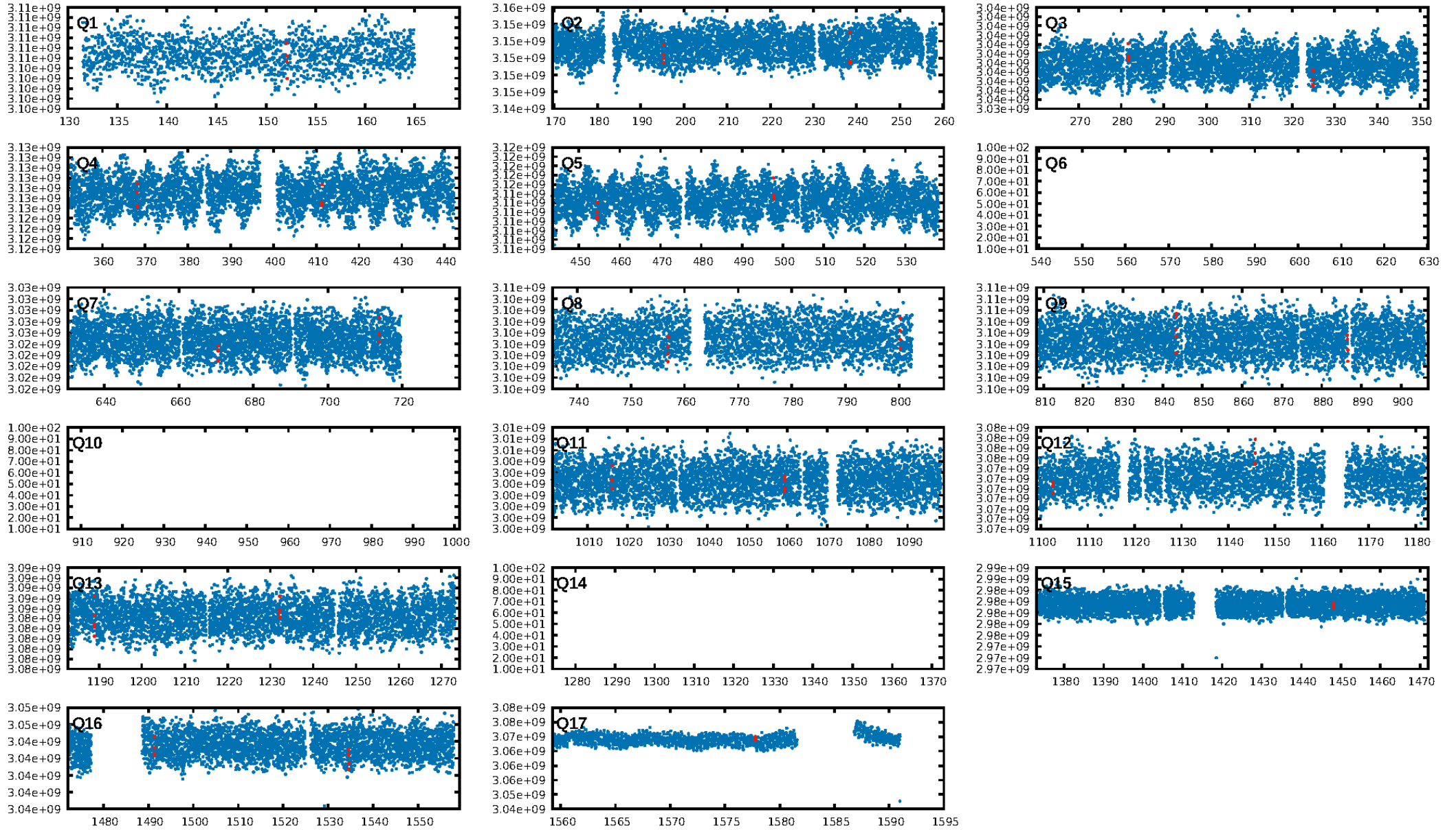
DV Fit Results:

Period = 43.20174 [0.00184] d
Epoch = 152.1061 [0.0331] BKJD
 $R_p/R^* = 0.0038$ [0.0116]
 $a/R^* = 253.62$ [4907.26]
 $b = 0.61$ [18.41]
 $\text{Seff} = 98.05$ [50.79]
 $T_{\text{eq}} = 802$ [104] K
 $R_p = 0.77$ [2.40] R_e
 $a = 0.2649$ [0.0820] AU
 $\text{Ag} = 10365.89$ [64520.20] [0.16 σ]
 $T_{\text{eff}} = 12518$ [19425] K [0.60 σ]

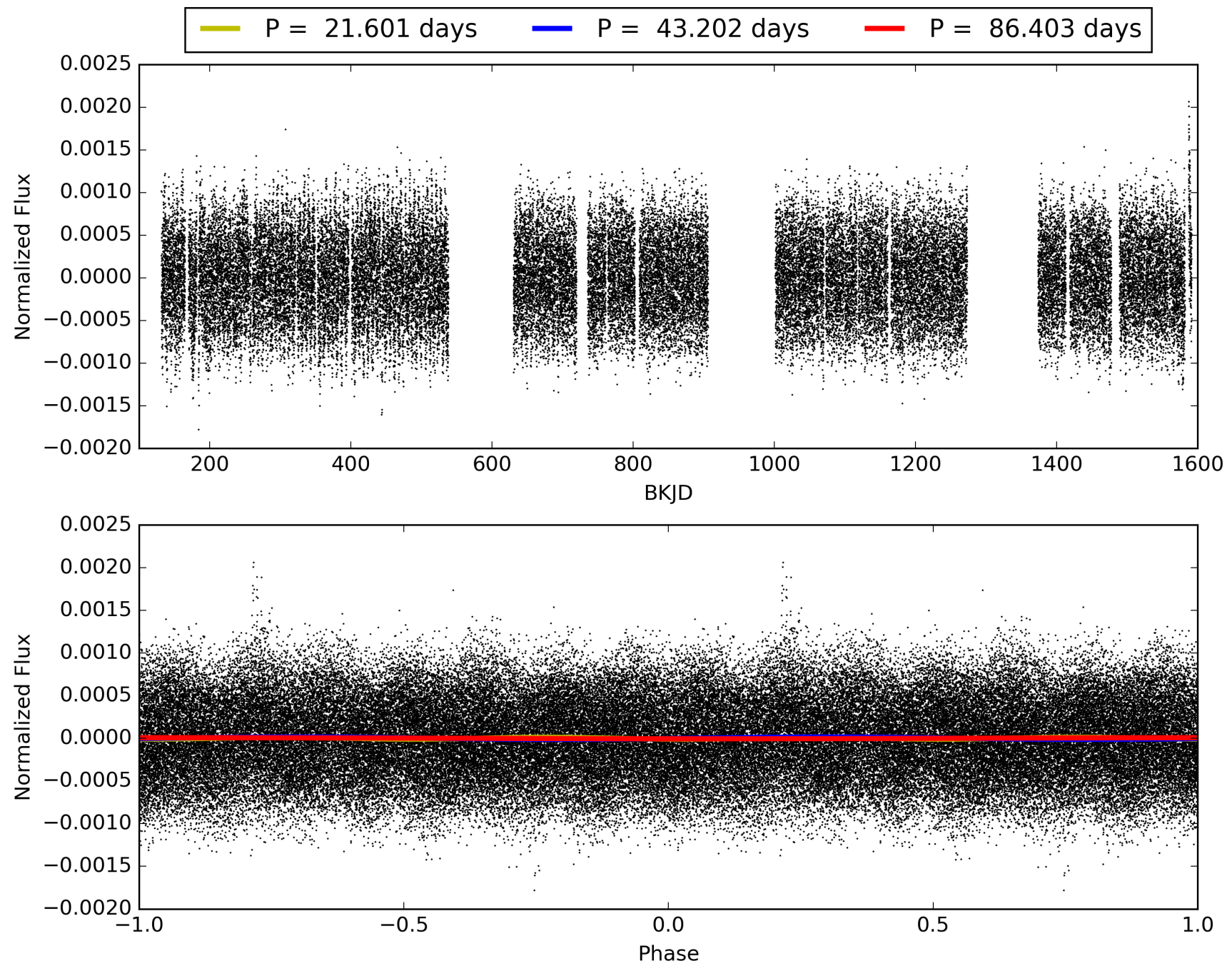
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.96 σ]
LongPeriod-sig: 100.0% [49.25 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 42.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [23/23]
GhostDiagnostic-chr: N/A
Centroid-sig: 12.8%
Centroid-so: 7.898 arcsec [1.00 σ]
OotOffset-rm: 3.565 arcsec [3.75 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-rm: 2.731 arcsec [2.50 σ]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 0.50 [7/14]

TCE 004749989-02, PDC Light Curves

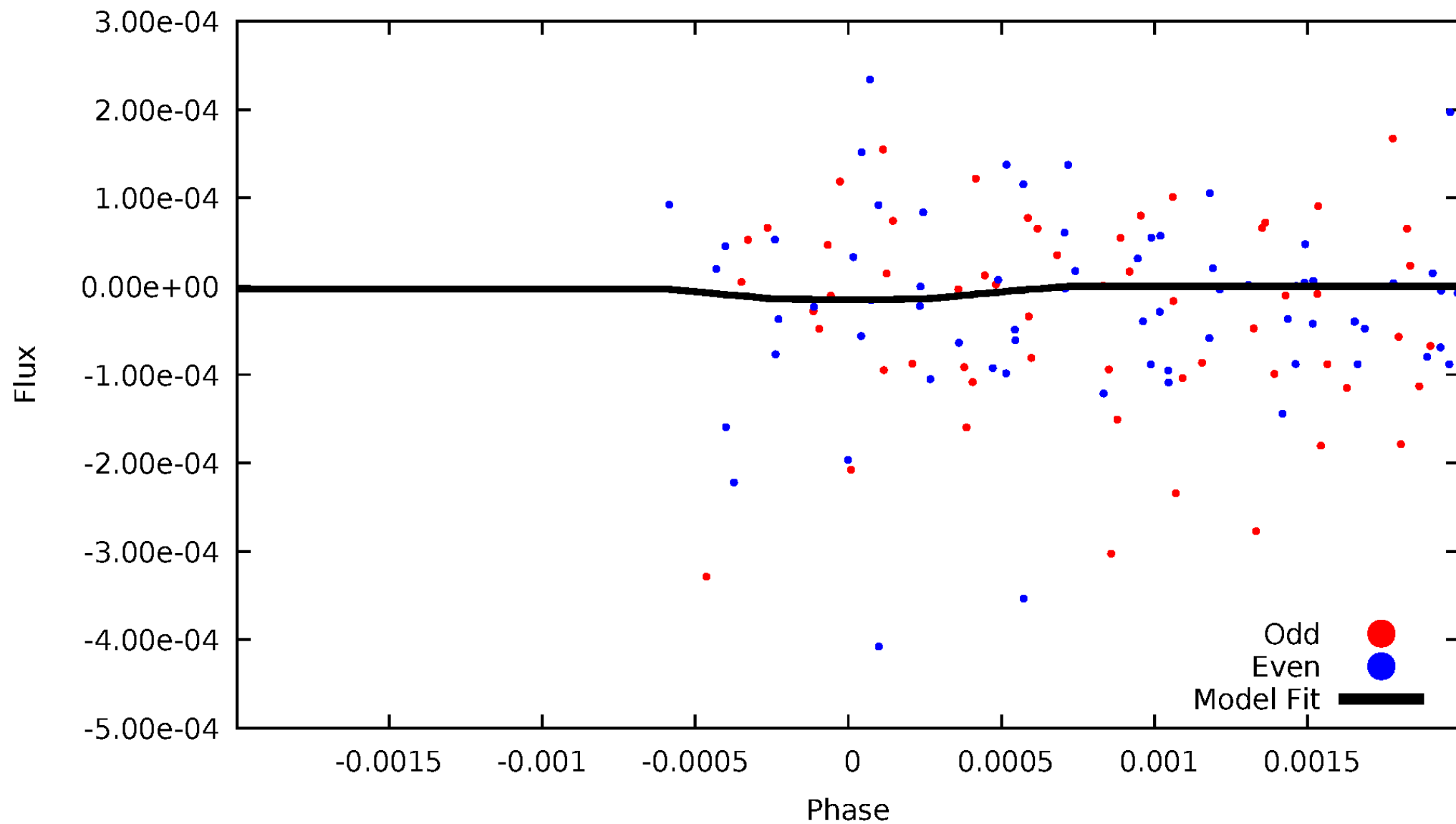


TCE 004749989-02



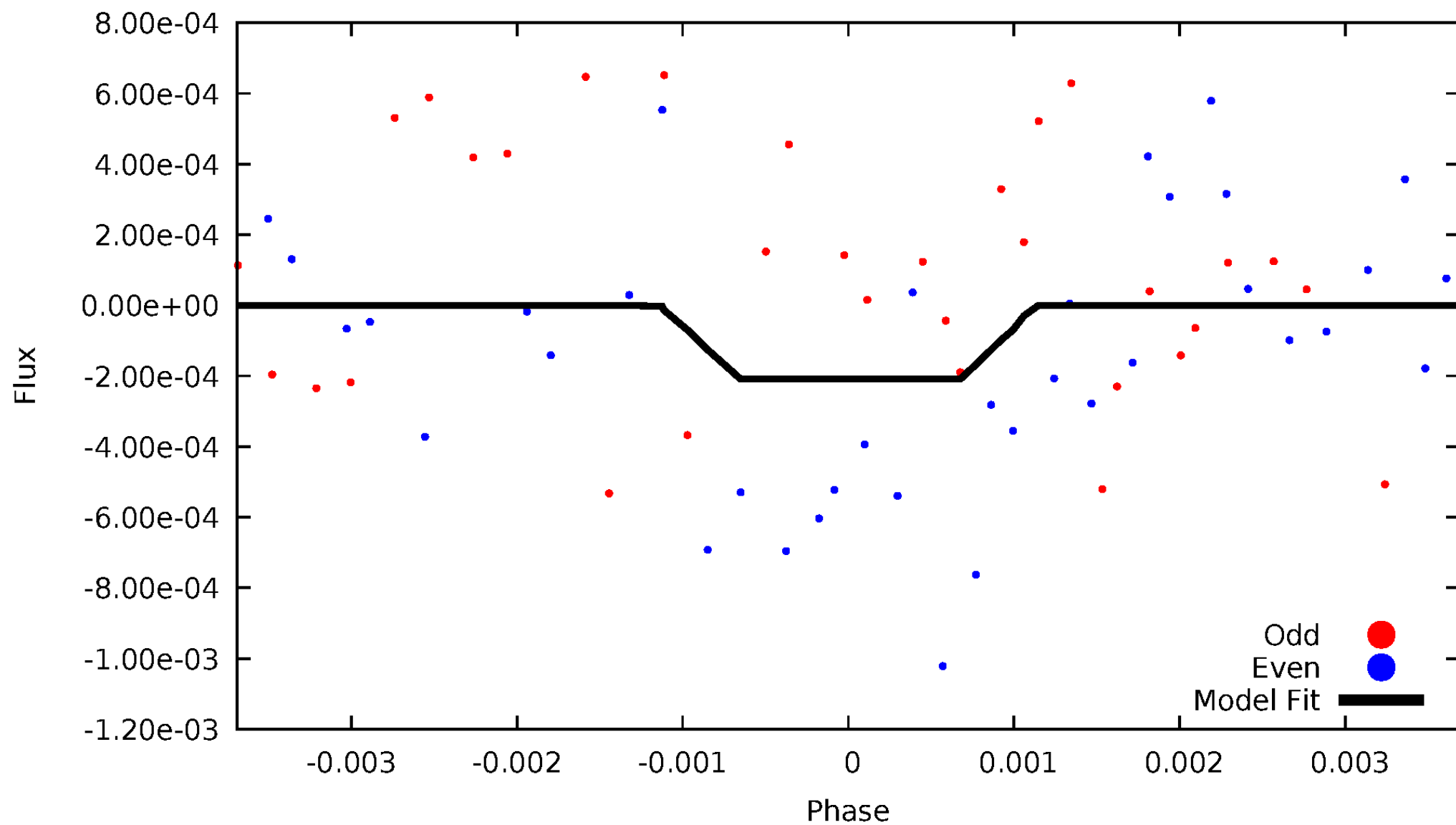
DV Odd/Even

TCE 004749989-02



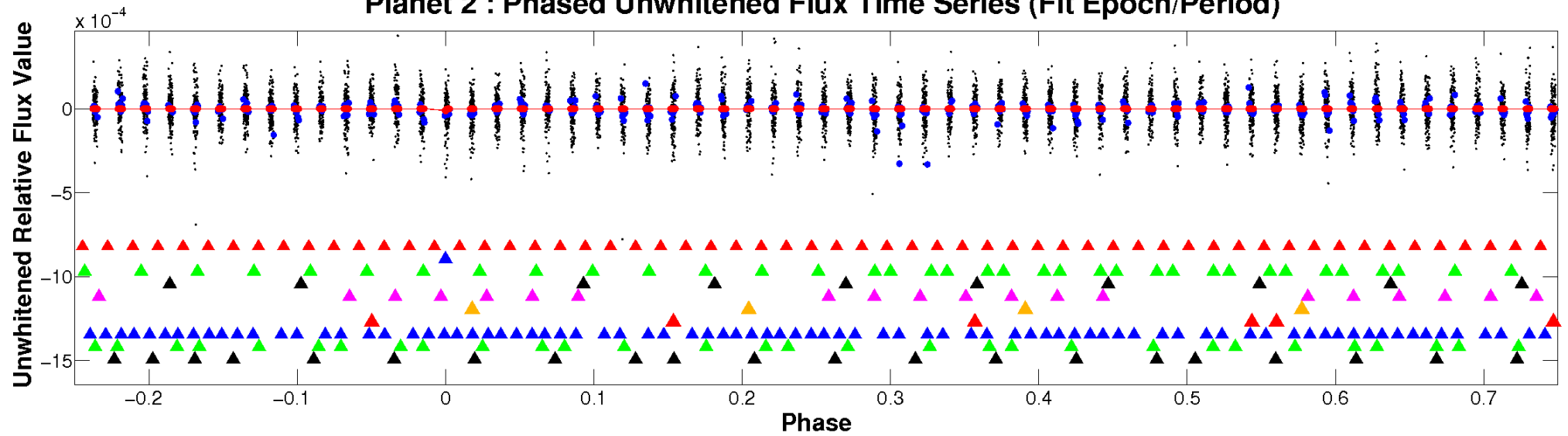
ALT Odd/Even

TCE 004749989-02

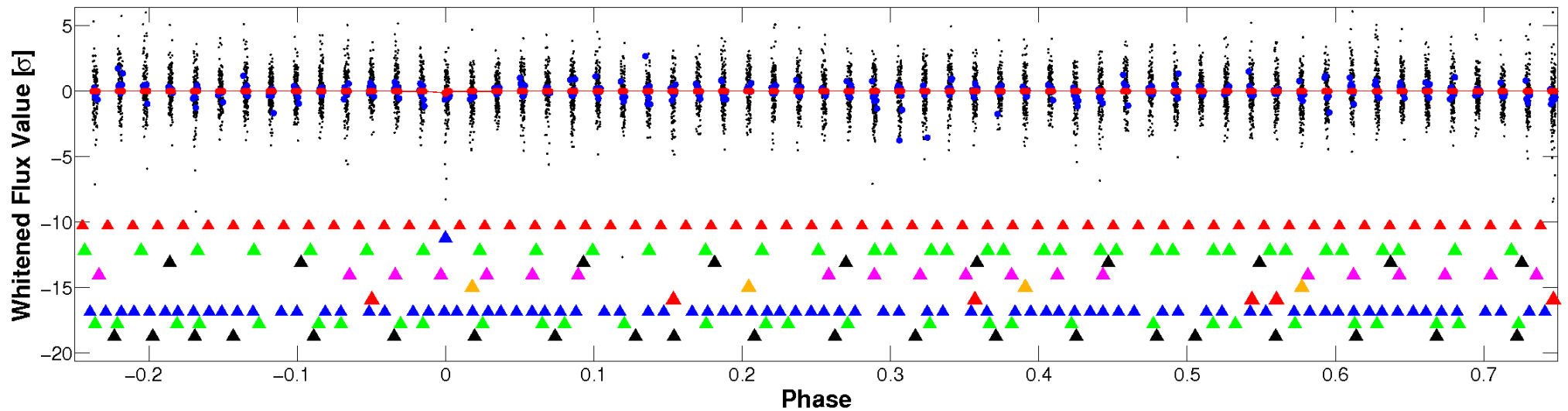


Non-Whitened Vs. Whitened Light Curve

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

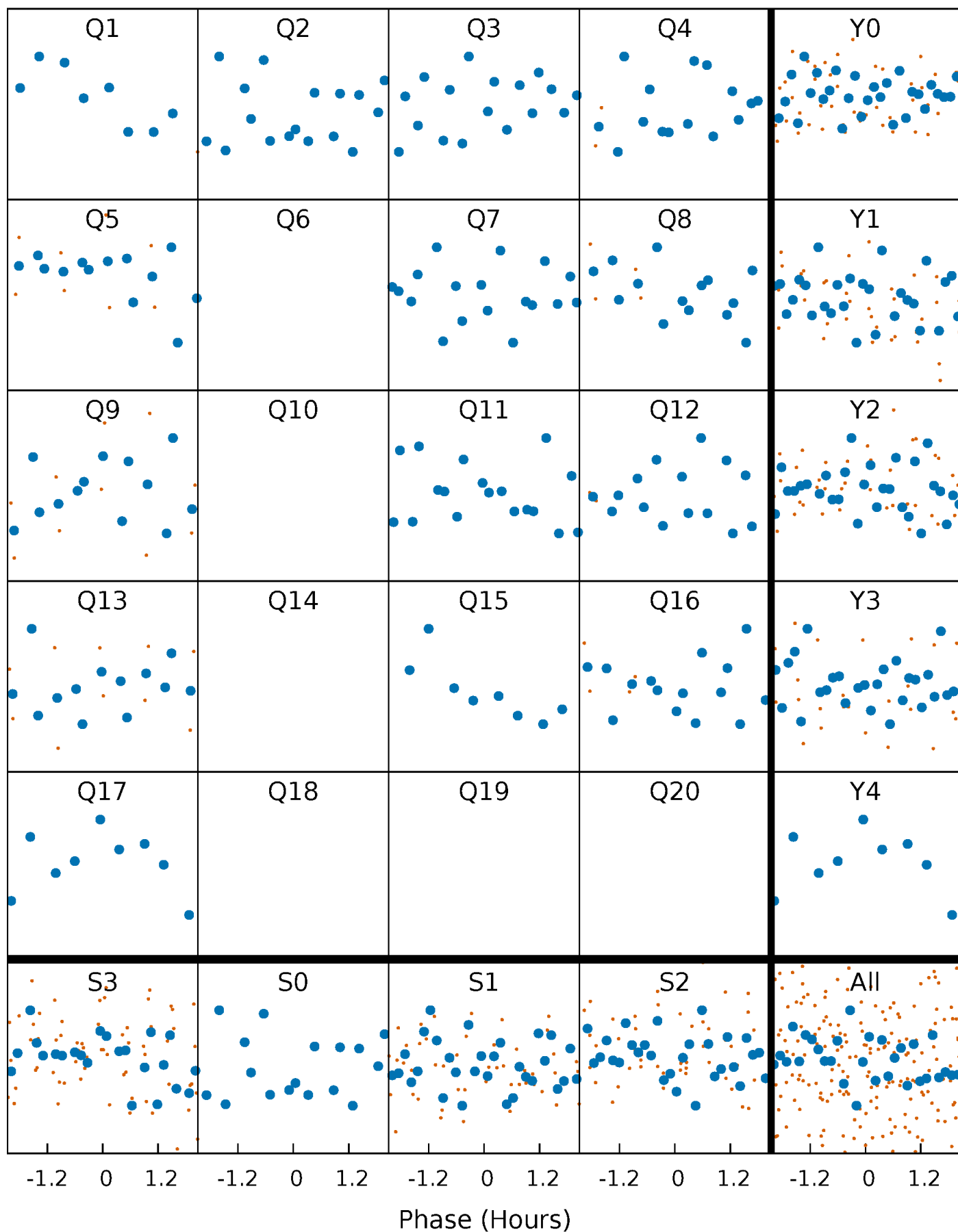


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



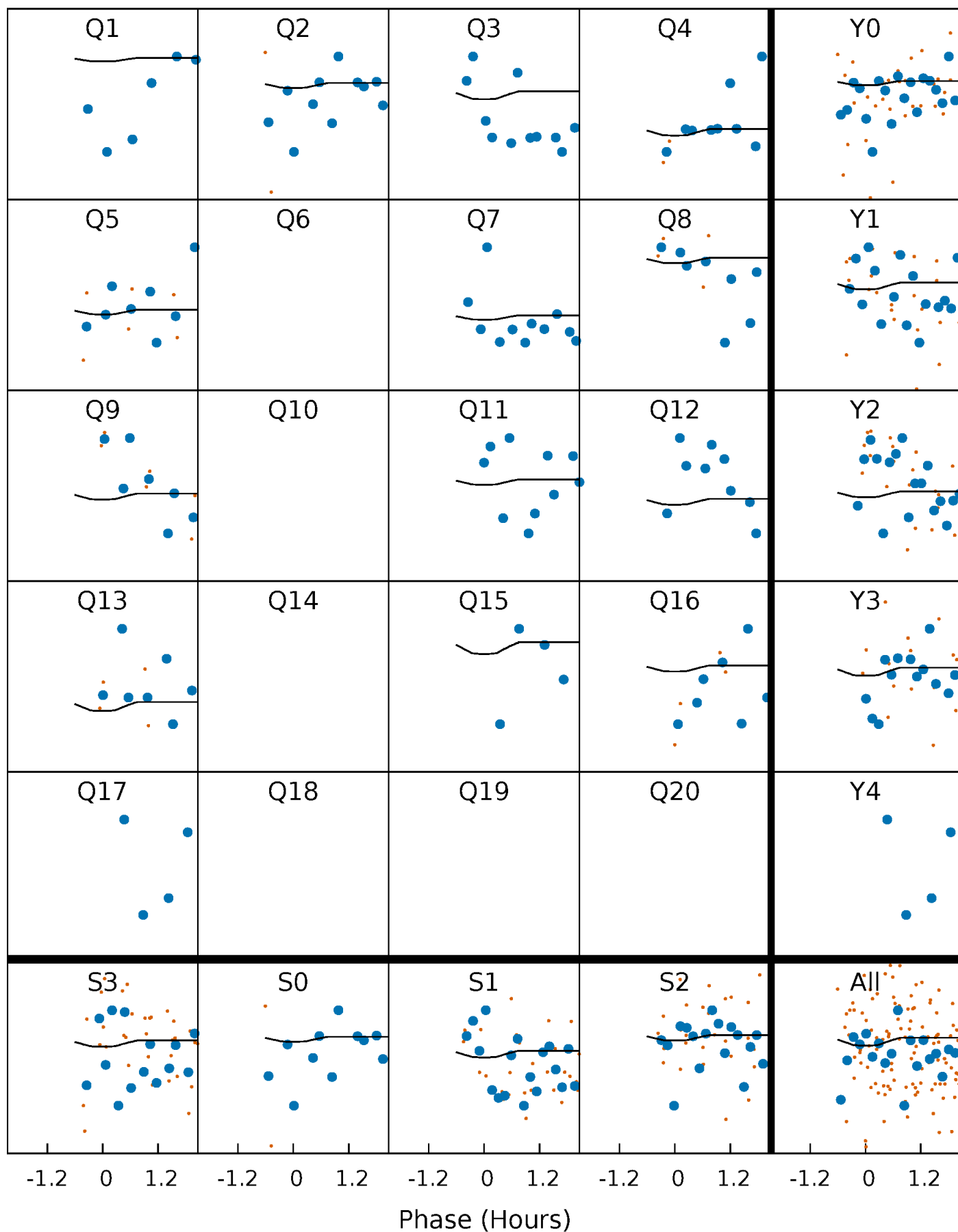
PDC Quarter-Phased Transit Curves

TCE 004749989-02 P= 43.201740 Days $T_0=152.106101$ (BKJD)



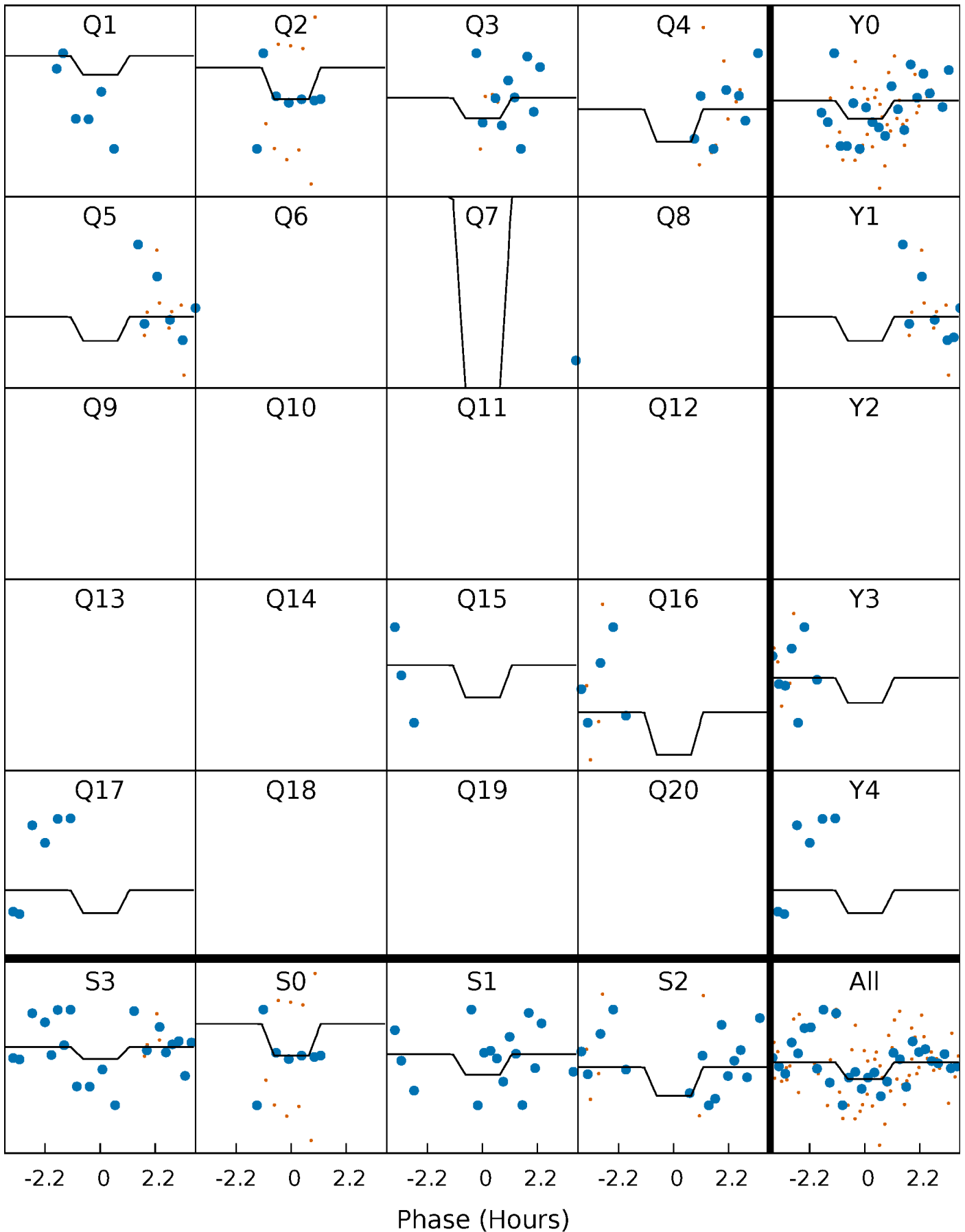
DV Quarter-Phased Transit Curves

TCE 004749989-02 $P = 43.201740$ Days $T_0 = 152.106101$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

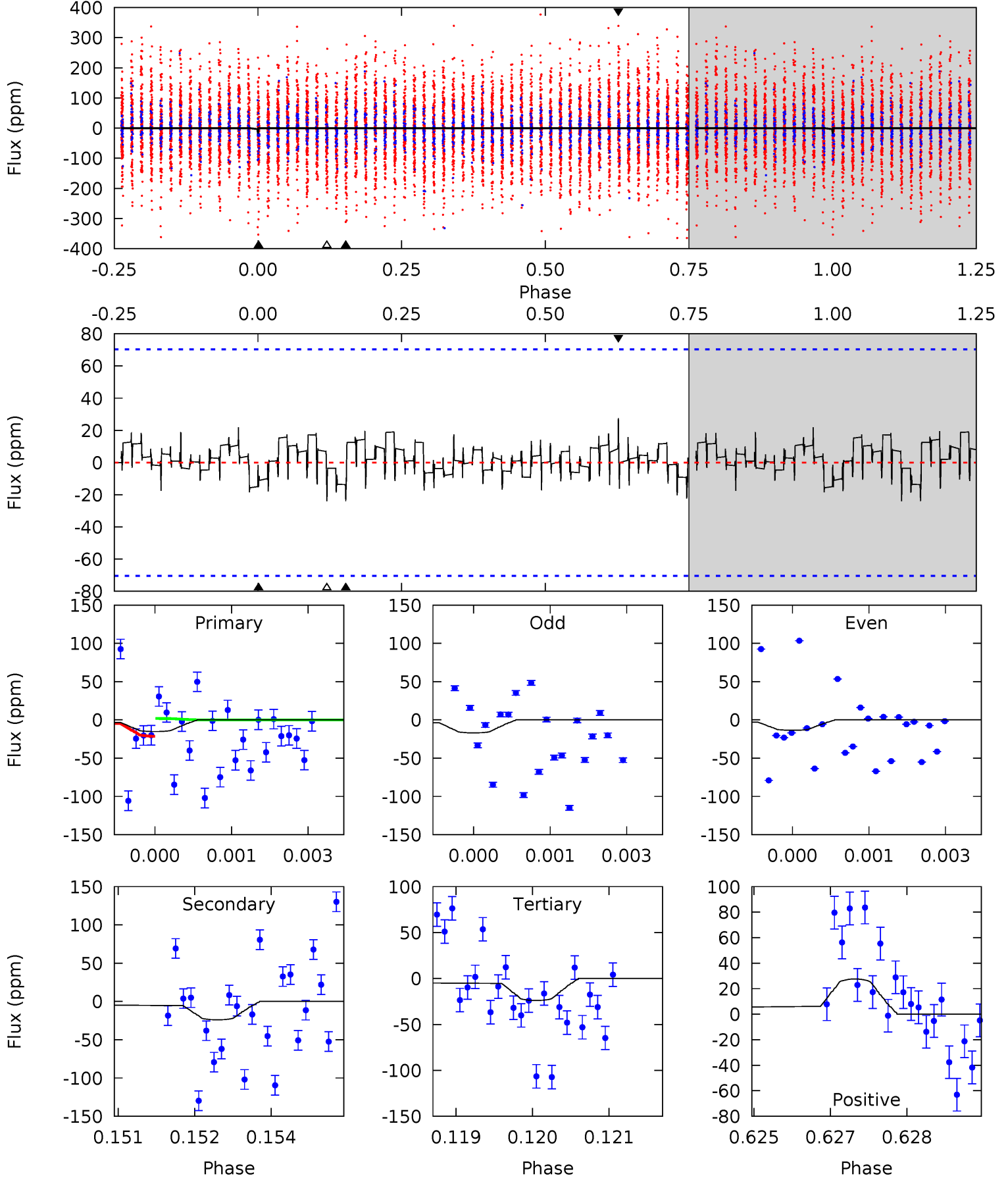
TCE 004749989-02 P= 43.182642 Days $T_0=152.167517$ (BKJD)



DV Model-Shift Uniqueness Test

004749989-02, P = 43.201740 Days, E = 108.904361 Days

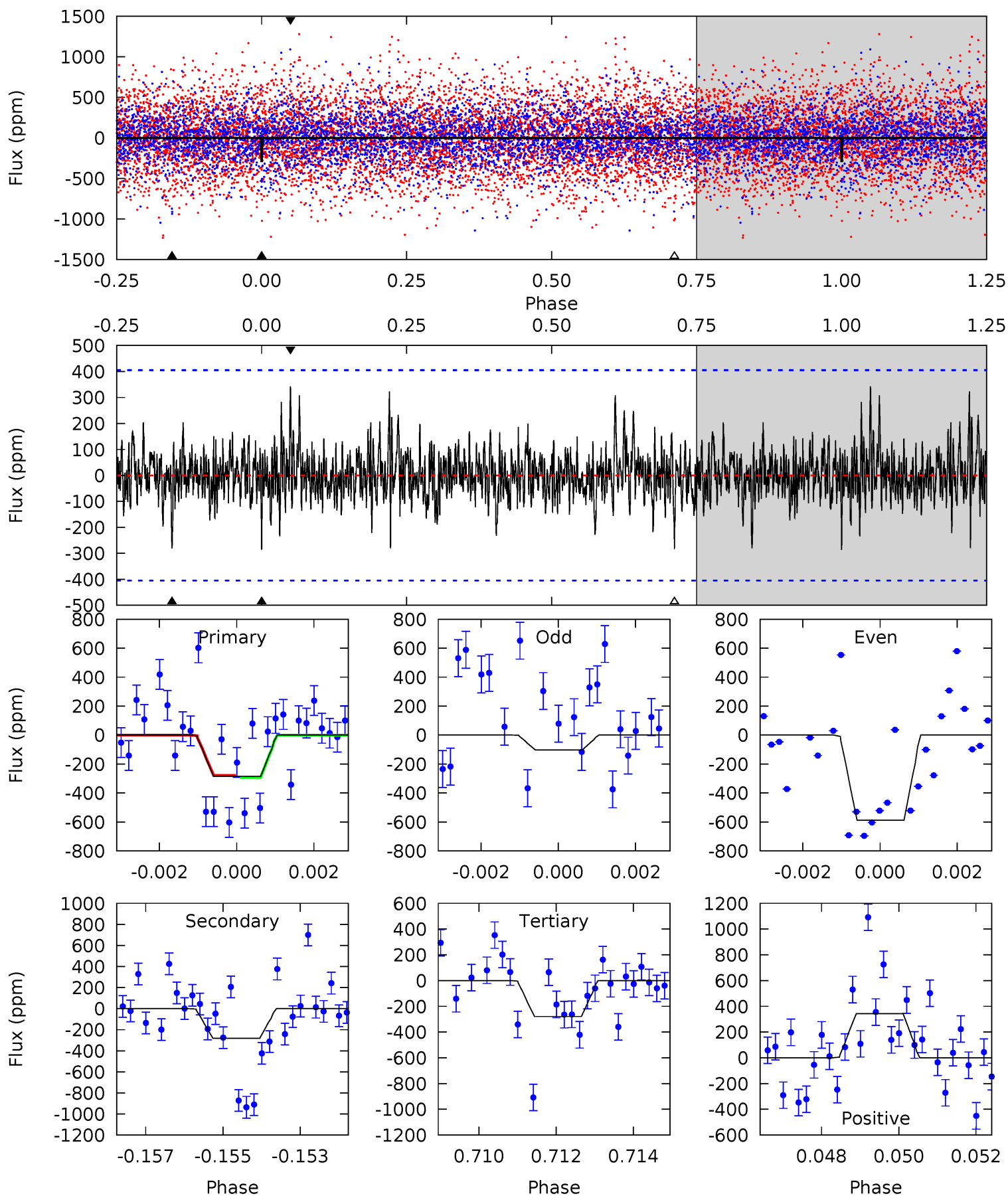
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.17	1.84	1.84	2.12	5.40	3.22	0.62	-0.67	-0.95	0.00	-0.28	0.13	1.49	0.53	0.68



Alt Model-Shift Uniqueness Test

004749989-02, $P = 43.182642$ Days, $E = 108.984875$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.75	3.67	3.66	4.48	5.31	3.06	1.01	0.09	-0.73	0.01	-0.81	3.17	0.99	0.54	0.08



Stellar Parameters For KIC 004749989

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6824^{+214}_{-285}	$4.012^{+0.286}_{-0.154}$	$-0.300^{+0.300}_{-0.300}$	$1.882^{+0.504}_{-0.616}$	$1.332^{+0.195}_{-0.238}$	$0.281^{+0.569}_{-0.128}$
	+3%/-4%	+7%/-4%	+100%/-100%	+27%/-33%	+15%/-18%	+202%/-45%
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 004749989-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-24 ± 13	$1.77^{+2.02}_{-1.23}$	1103^{+87}_{-100}	4948^{+4143}_{-1344}	261^{+2637}_{-217}
Alt.	-280 ± 76	$3.21^{+2.25}_{-2.02}$	1096^{+94}_{-98}	6886^{+6519}_{-1581}	1015^{+5996}_{-663}

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

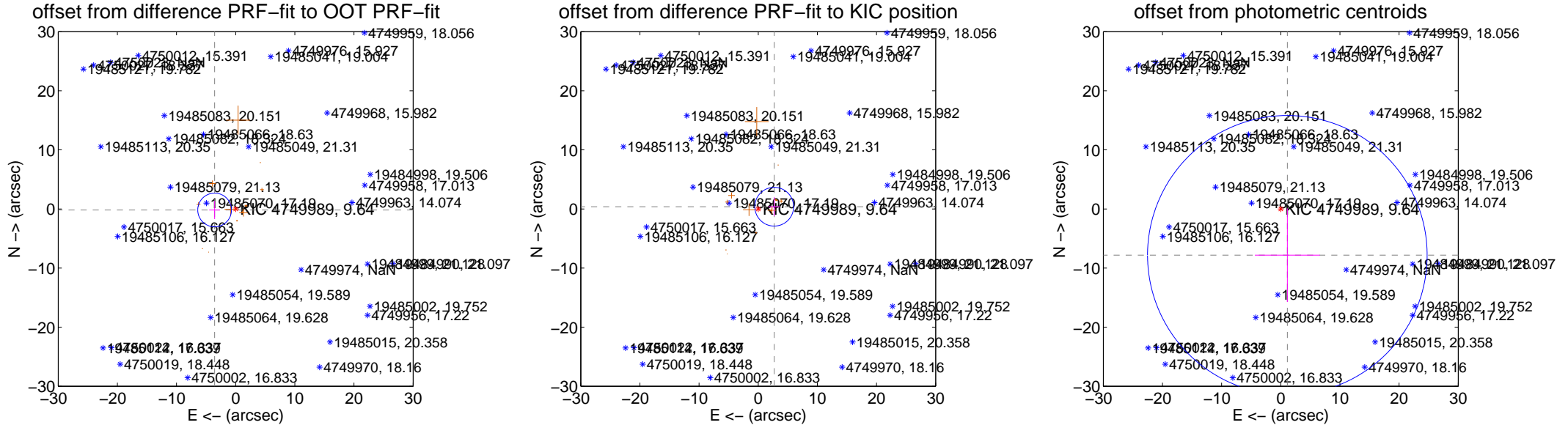
DV Centroid Data

Supplemental centroid analysis for 004749989-02. **Kepler magnitude: 9.64.** Transit SNR 1.14

There are 0 quarters with good PRF difference image offsets

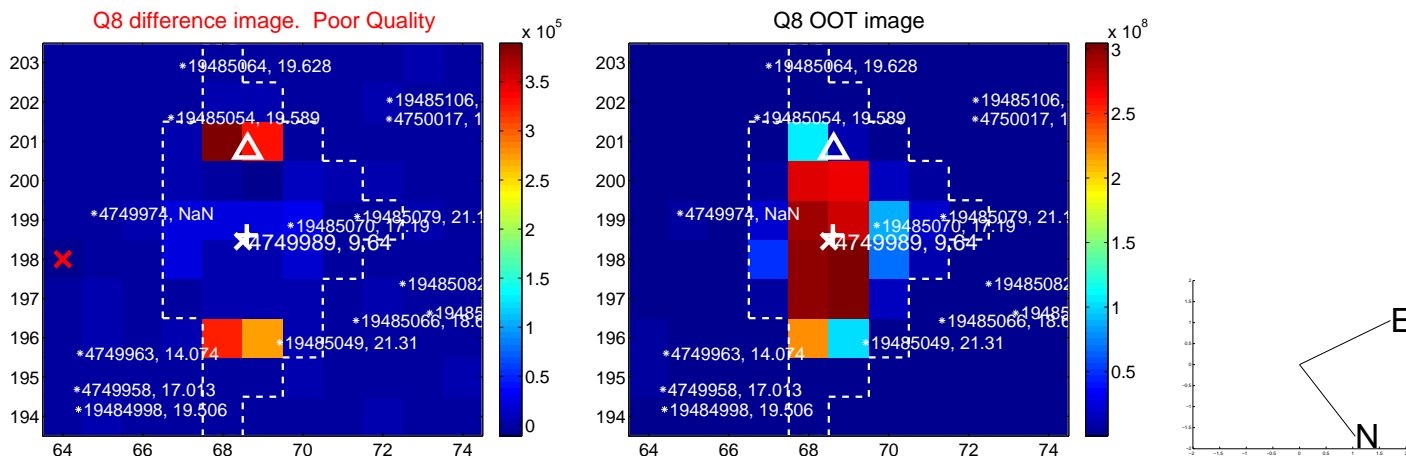
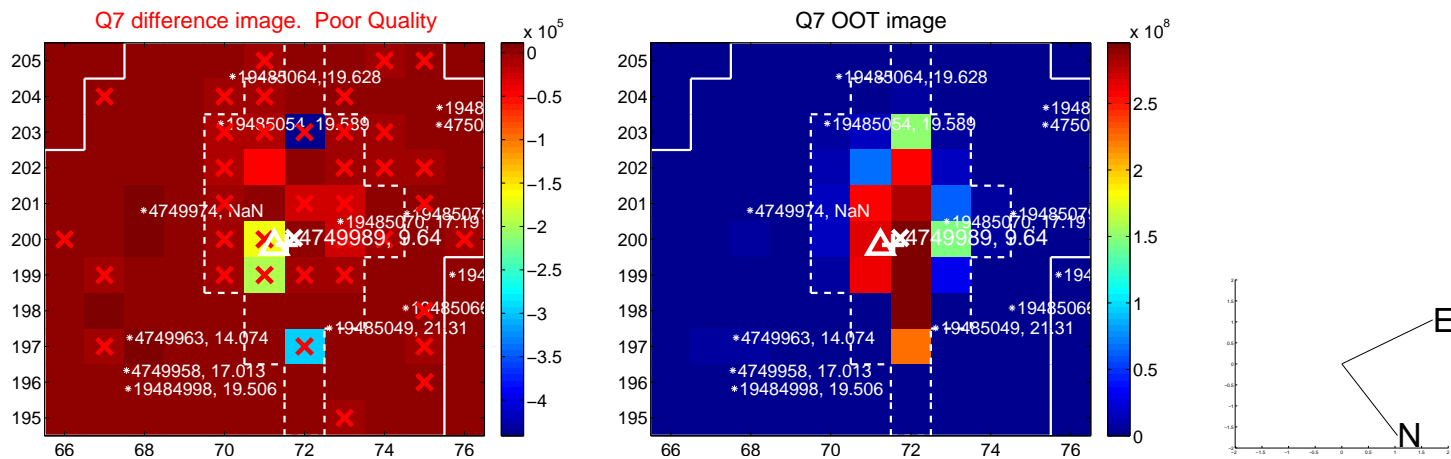
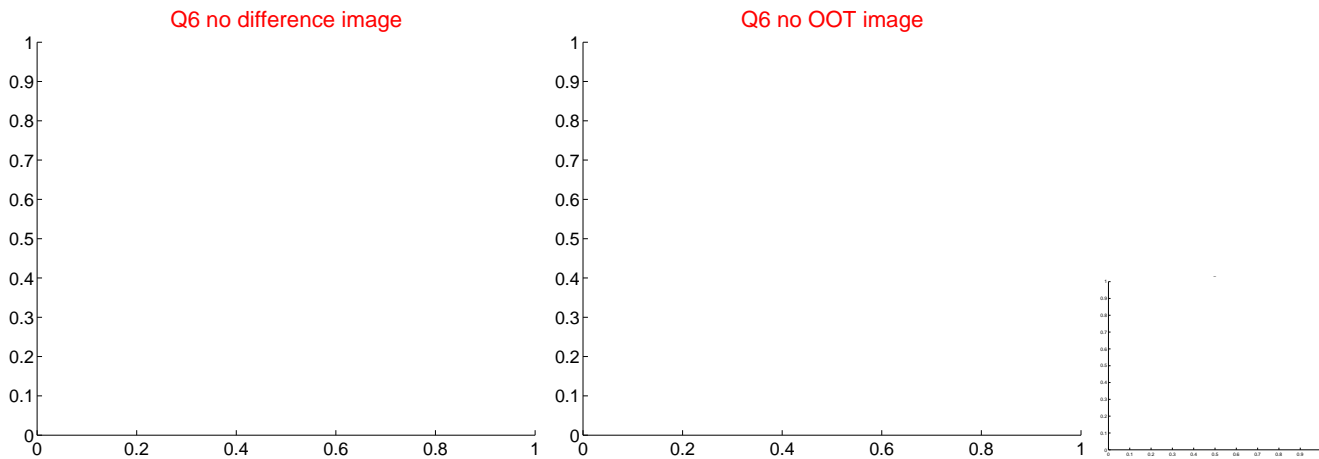
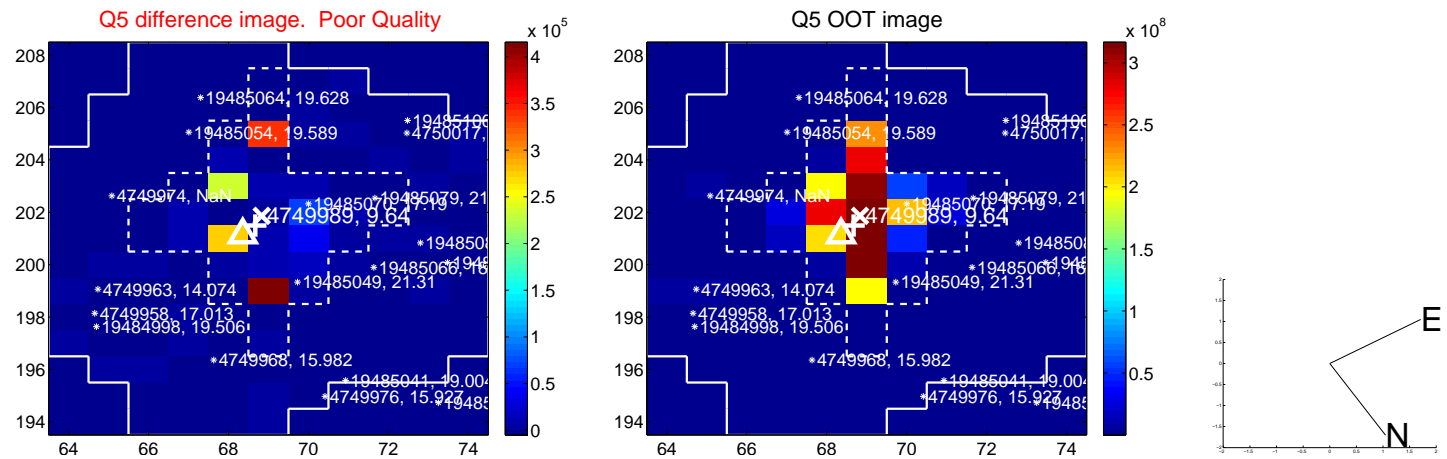
The OOT PRF centroid is offset from the target star catalog position by about 2.12 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.565 \pm 0.951	3.75	3.561 \pm 0.911	-0.173 \pm 1.542
PRF-fit source offset from KIC position	2.731 \pm 1.093	2.50	-2.704 \pm 0.984	0.381 \pm 1.601
photometric centroid source offset	7.90 \pm 7.88	1.00	-1.11 \pm 5.49	-7.82 \pm 7.92

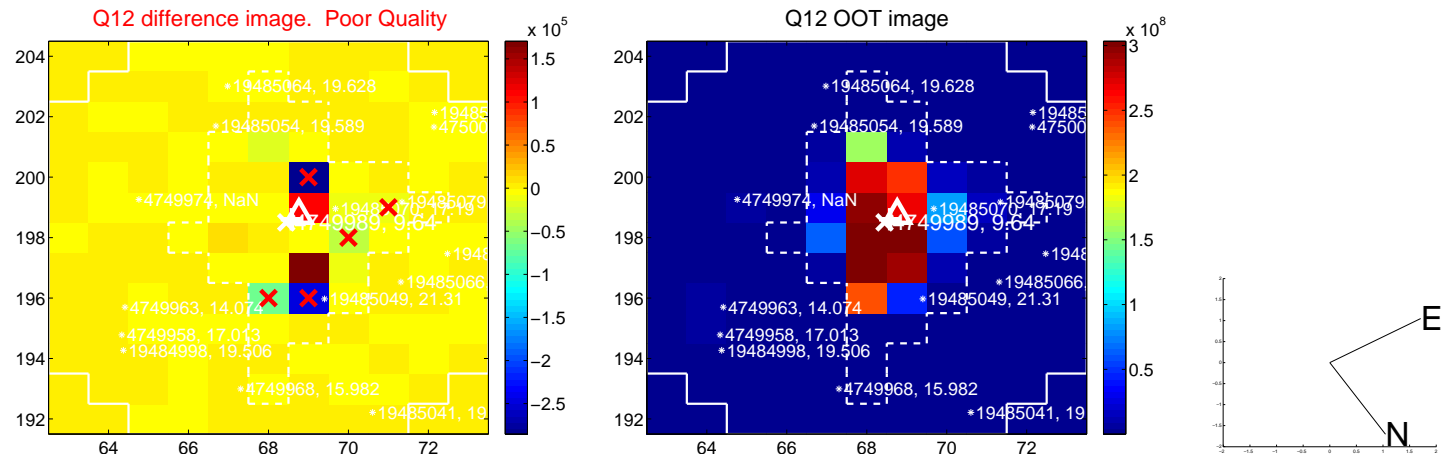
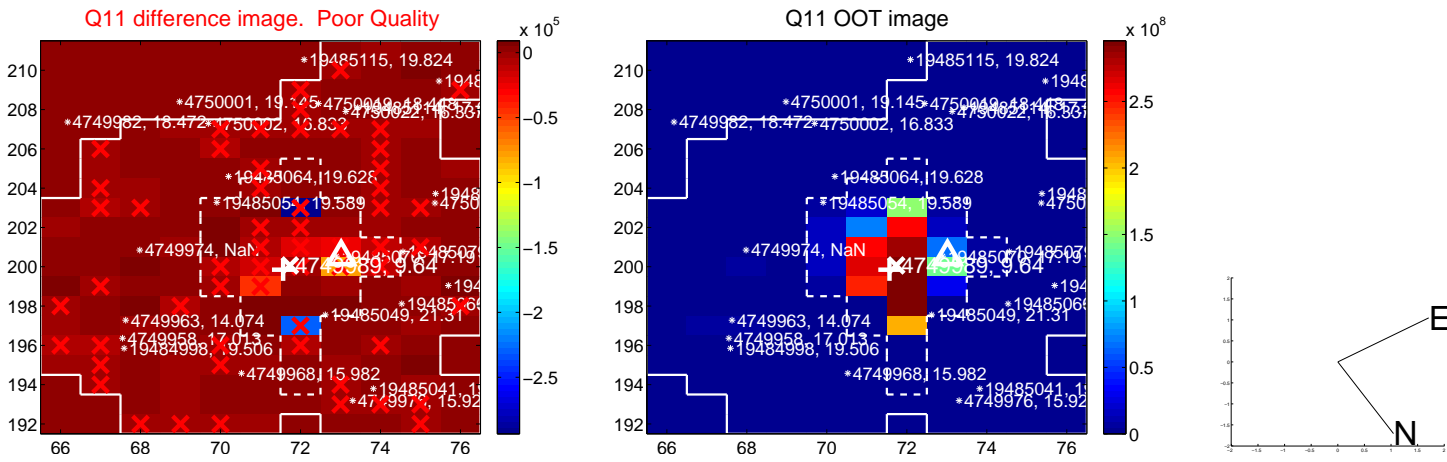
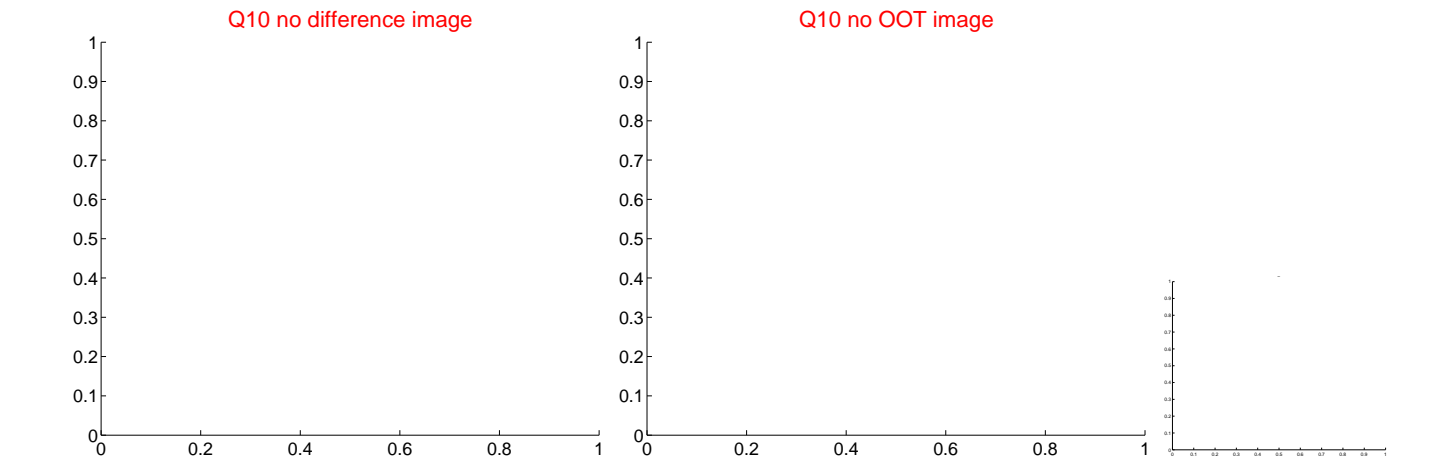
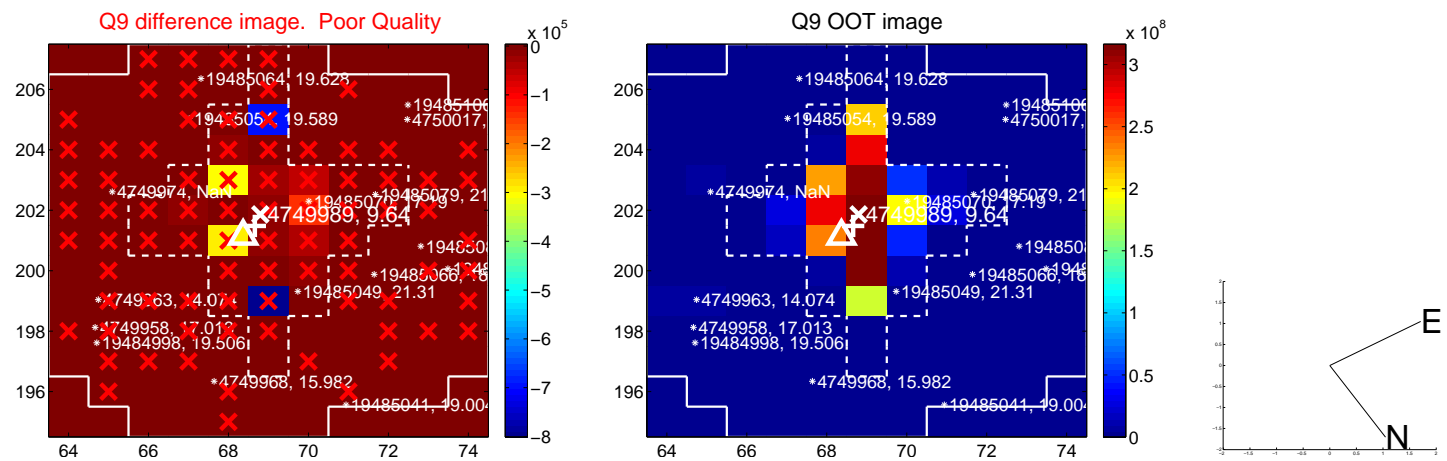


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

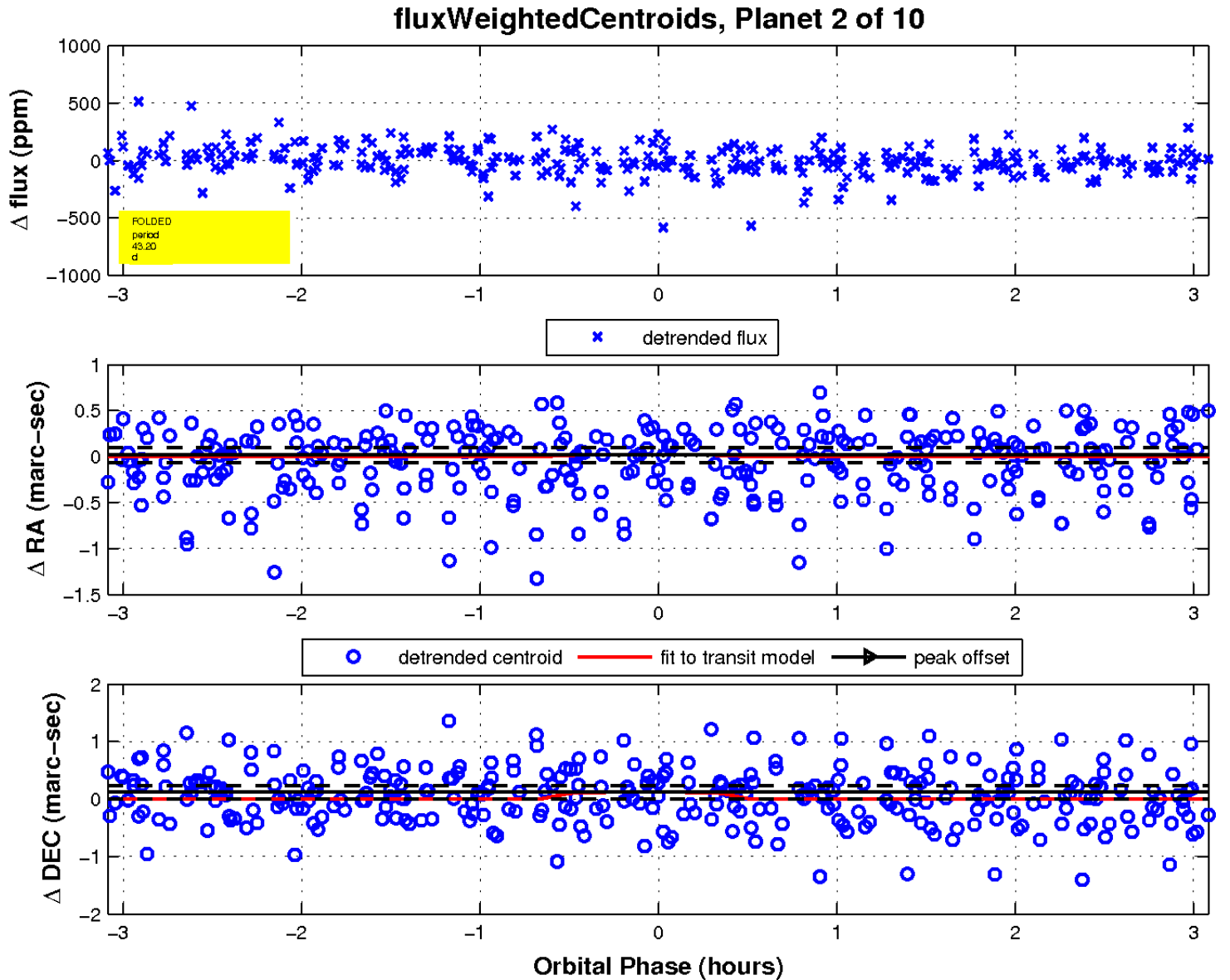
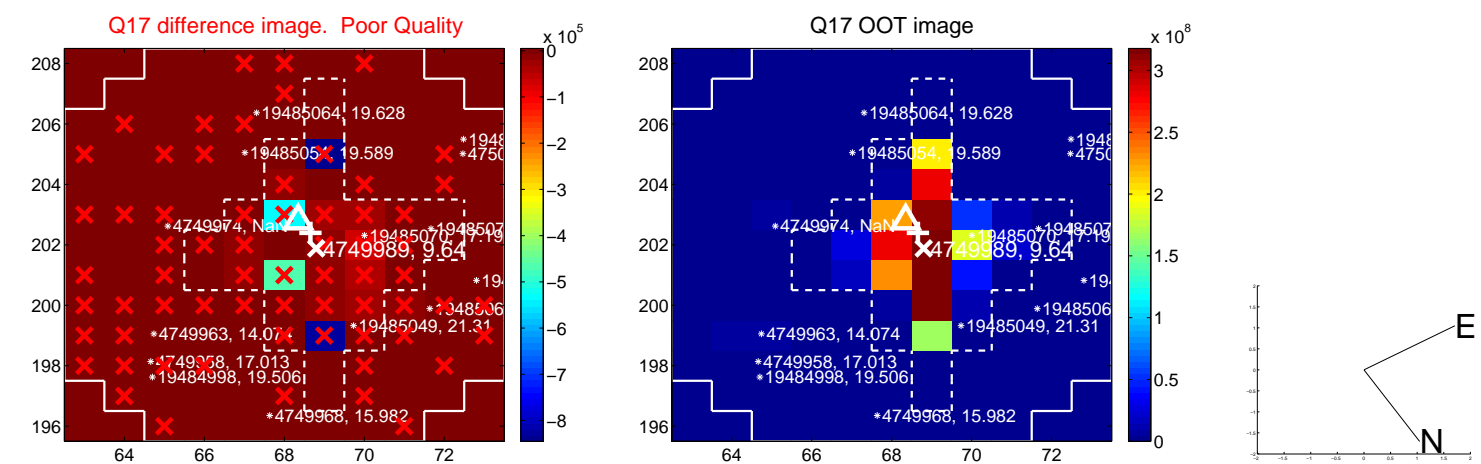
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



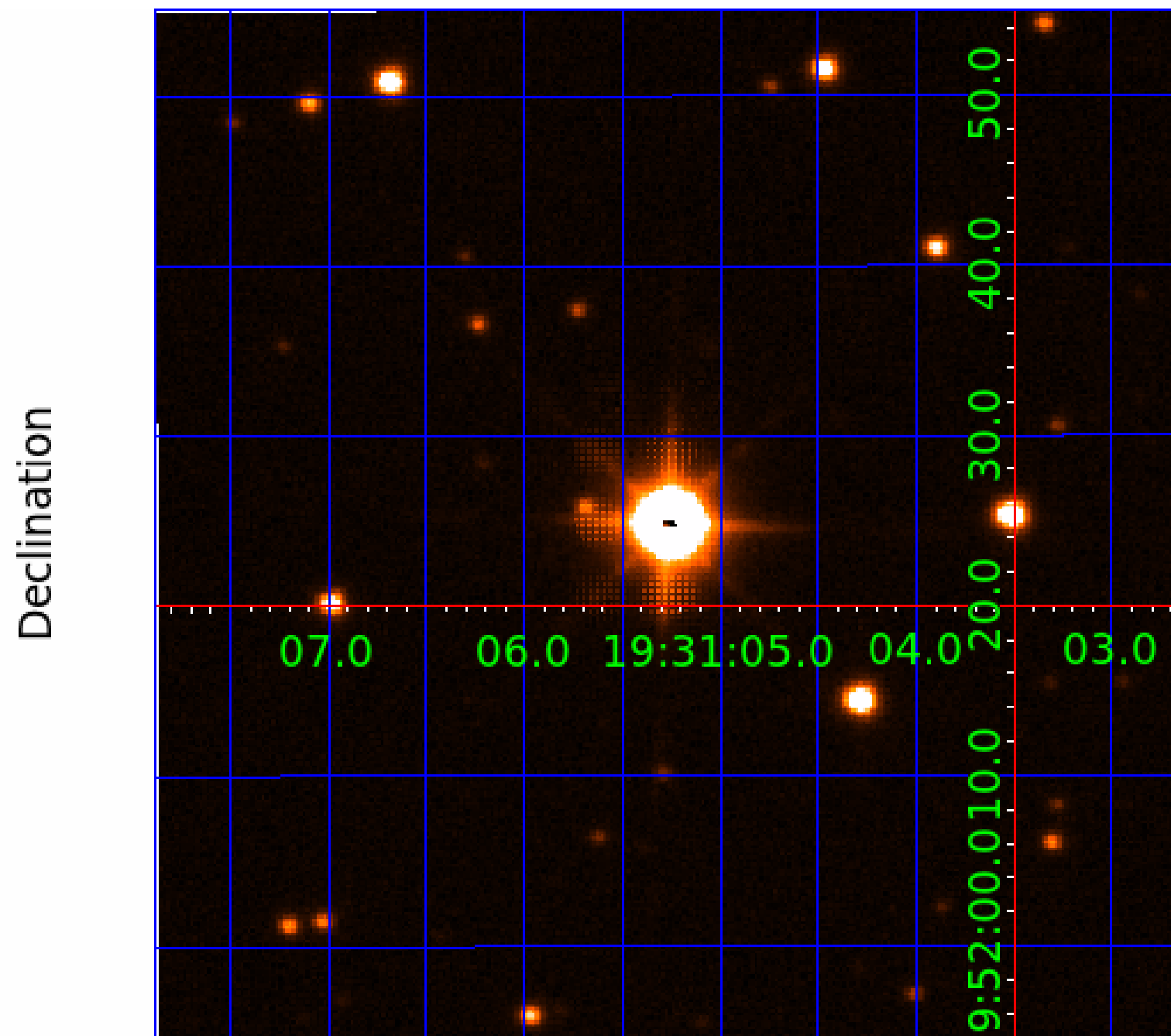
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



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})
004749989-01	OBS	No	0.732246	132.001787	13.0	4.721	11.2	9.5	1.88	6824	0.70	22521.01
004749989-02	OBS	No	43.201740	152.106101	15.0	1.035	13.2	1.1	1.88	6824	0.77	98.05
004749989-03	OBS	No	41.557803	136.205285	226.5	2.245	11.3	11.0	1.88	6824	3.33	103.26
004749989-04	OBS	No	153.116727	175.815026	50.7	1.959	10.3	1.4	1.88	6824	1.43	18.14
004749989-05	OBS	No	72.446819	177.224413	223.5	0.911	9.5	6.3	1.88	6824	3.31	49.22
004749989-06	OBS	No	467.163516	177.050588	64.6	3.500	10.6	-1.0	1.88	6824	1.53	4.10
004749989-07	OBS	No	250.427163	176.310022	171.3	3.985	9.8	9.7	1.88	6824	3.00	9.42
004749989-08	OBS	No	17.536486	142.663608	68.0	9.232	9.9	8.8	1.88	6824	1.70	326.24
004749989-09	OBS	No	49.714401	135.388278	59.6	3.000	10.6	-1.0	1.88	6824	1.47	81.31
004749989-10	OBS	No	71.221698	144.804494	188.7	2.602	10.1	8.3	1.88	6824	3.00	50.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004749989-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-03	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—CENT_SATURATED
004749989-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004749989-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-10	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—CENT_SATURATED

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

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

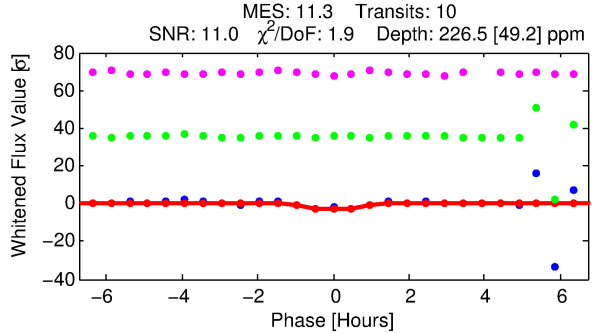
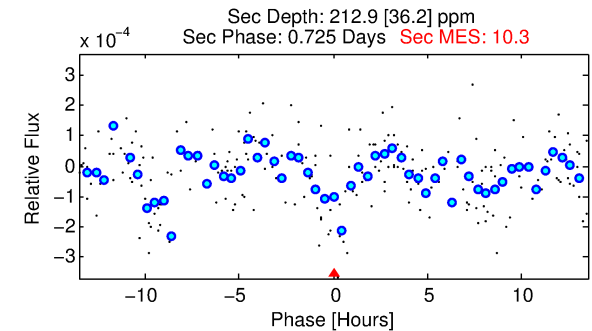
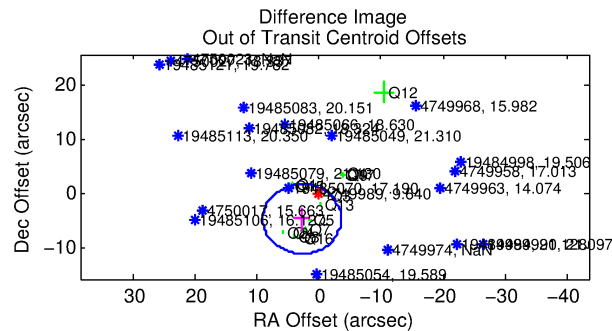
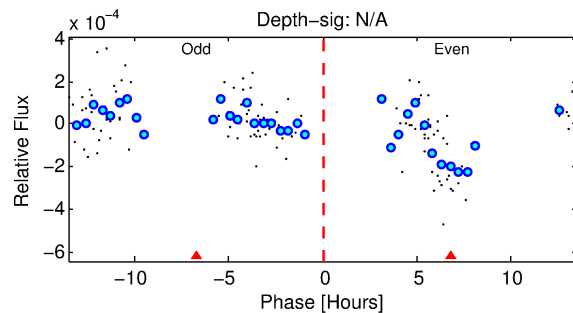
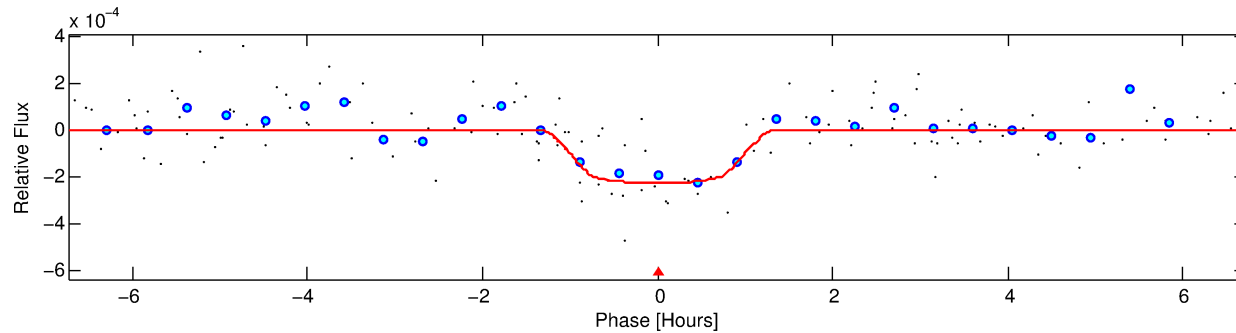
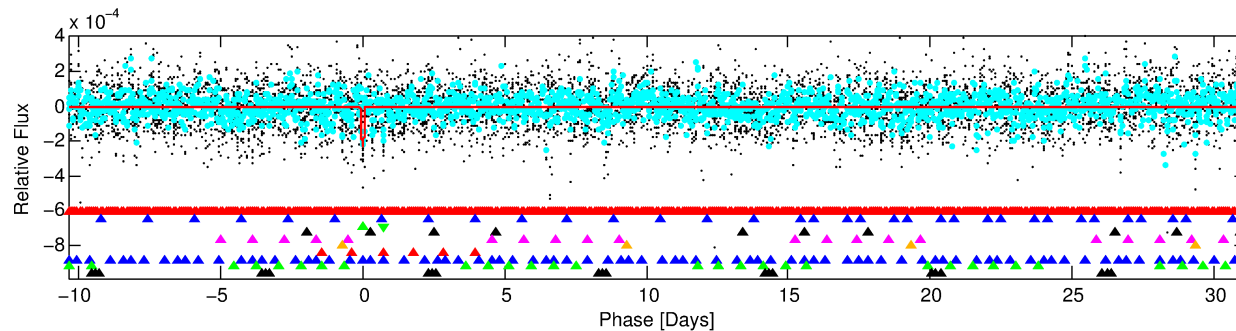
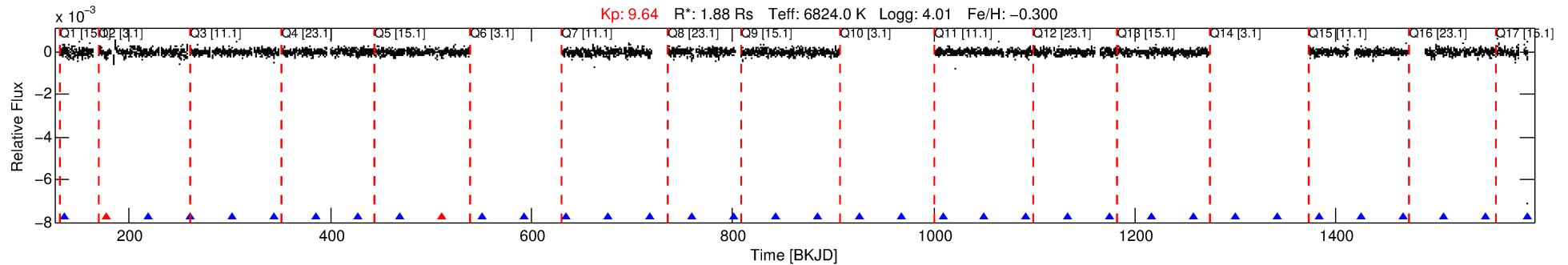
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004749989-03

No Significant Match Found

DV One-Page Summary

KIC: 4749989 Candidate: 3 of 10 Period: 41.558 d



DV Fit Results:

Period = 41.55780 [0.00044] d
Epoch = 136.2053 [0.0093] BKJD
Rp/R* = 0.0162 [0.0151]
a/R* = 63.95 [360.76]
b = 0.91 [1.08]
Seff = 103.26 [53.48]
Teq = 813 [105] K
Rp = 3.33 [3.29] Re
a = 0.2582 [0.0799] AU
Ag = 705.73 [1369.37] [0.51σ]
Teffp = 6478 [3052] K [1.85σ]

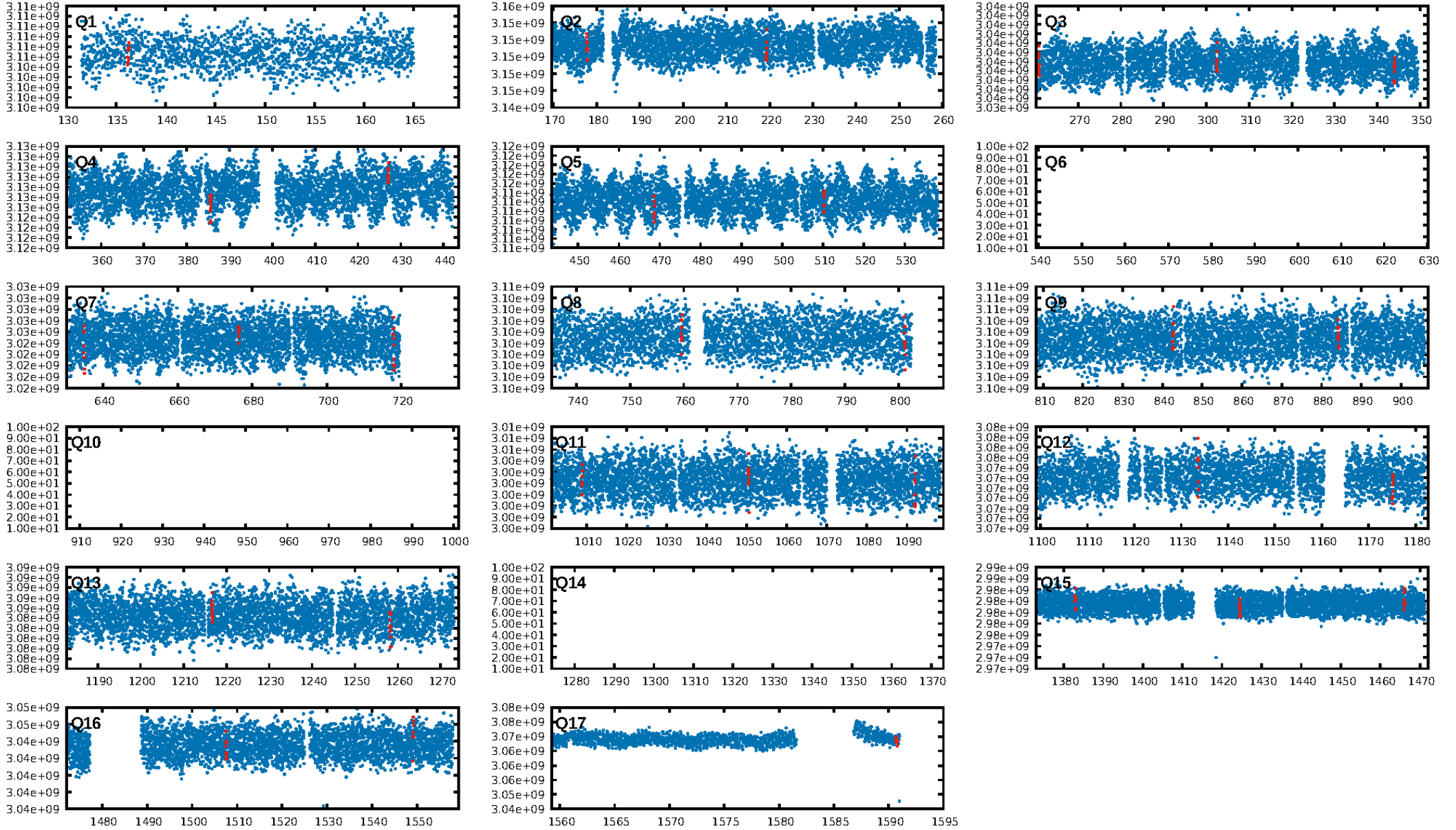
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [60.68σ]
LongPeriod-sig: 100.0% [15.96σ]
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 87.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.80 [8/10]
GhostDiagnostic-chr: N/A
Centroid-sig: 1.0%
Centroid-so: 0.674 arcsec [1.80σ]
OotOffset-rm: 5.320 arcsec [2.53σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-rm: 5.744 arcsec [2.76σ]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 0.00 [0/14]

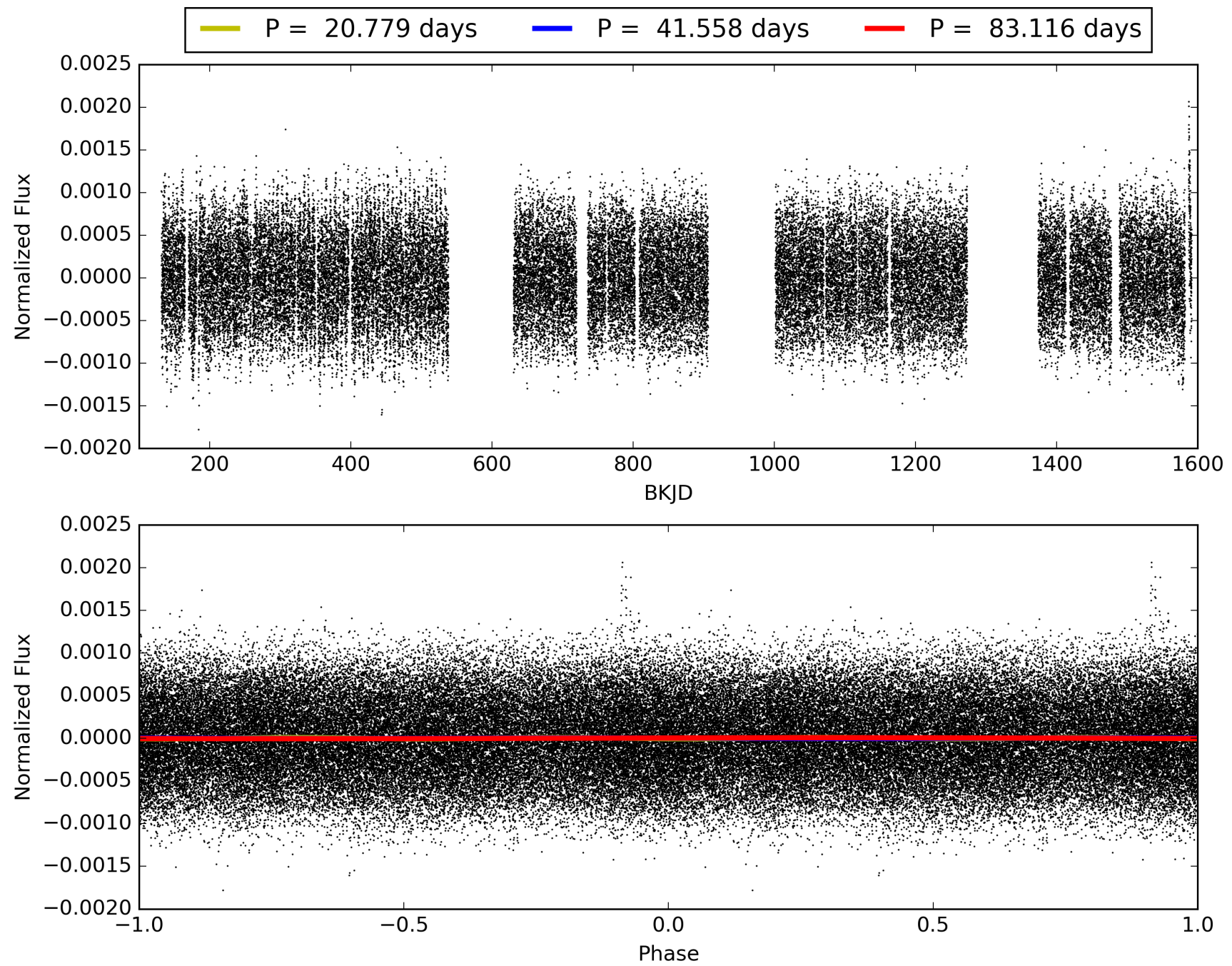
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:57:30 Z

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

TCE 004749989-03, PDC Light Curves

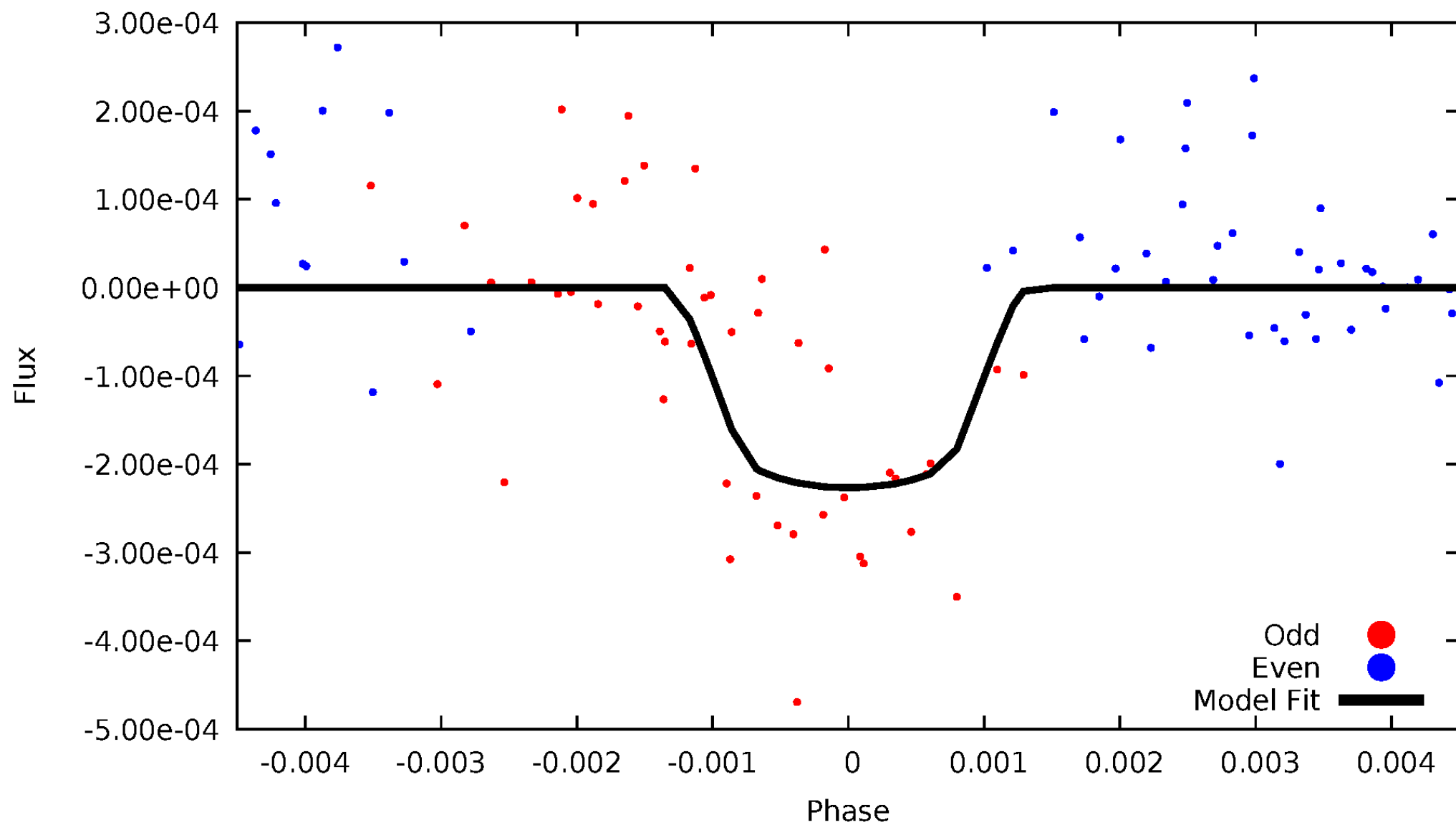


TCE 004749989-03



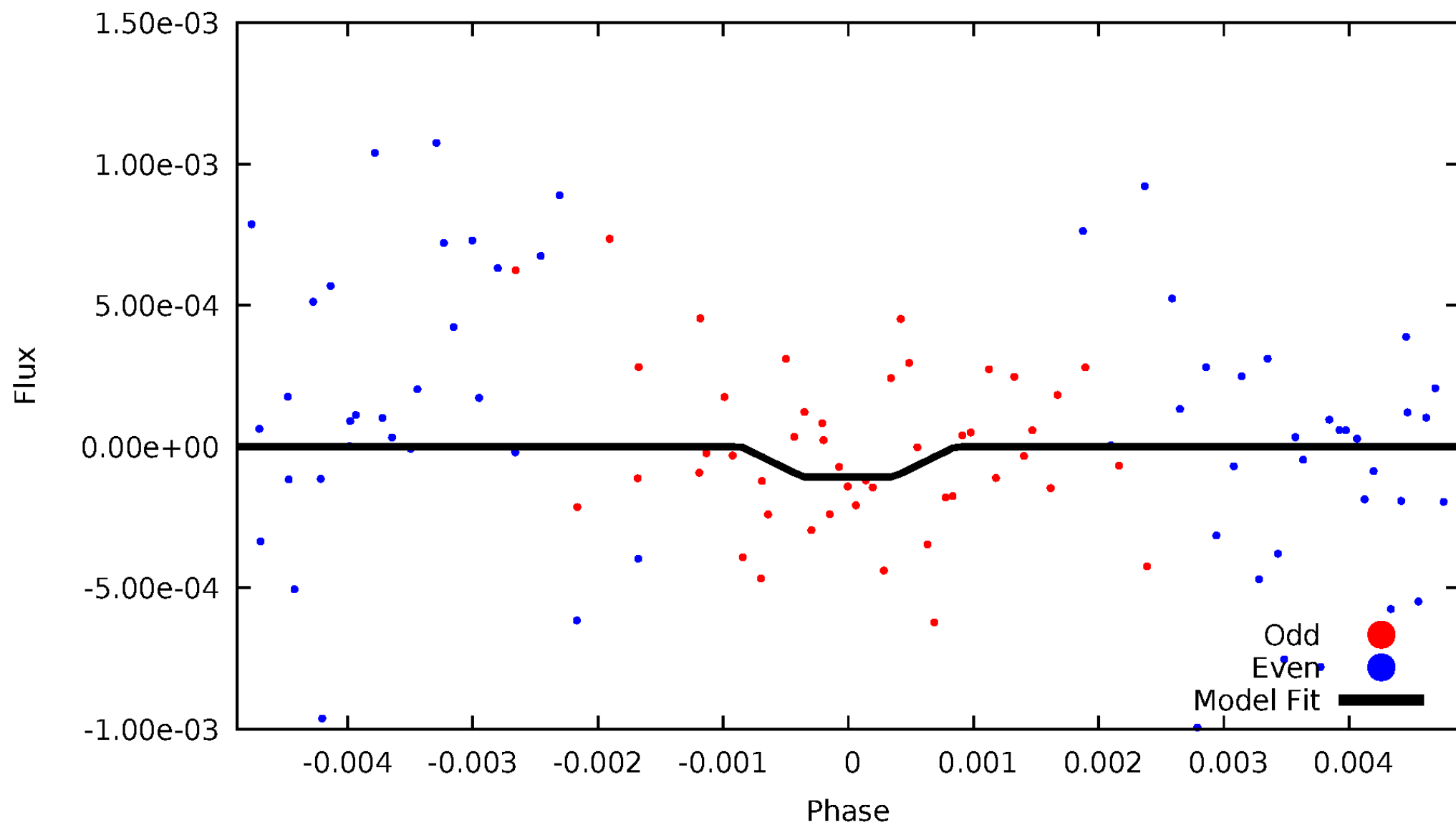
DV Odd/Even

TCE 004749989-03



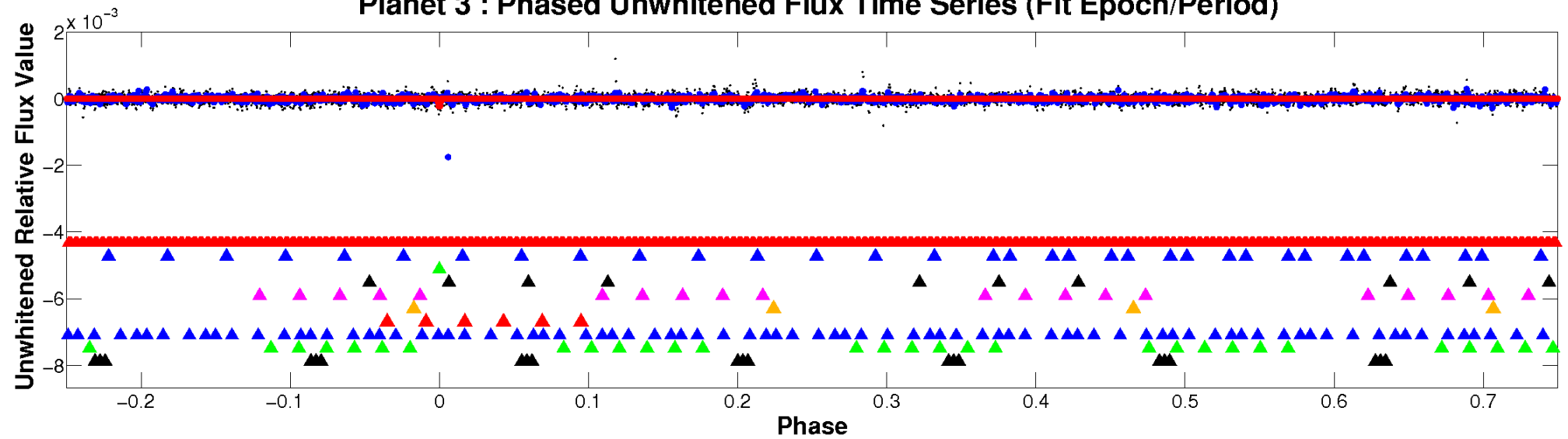
ALT Odd/Even

TCE 004749989-03

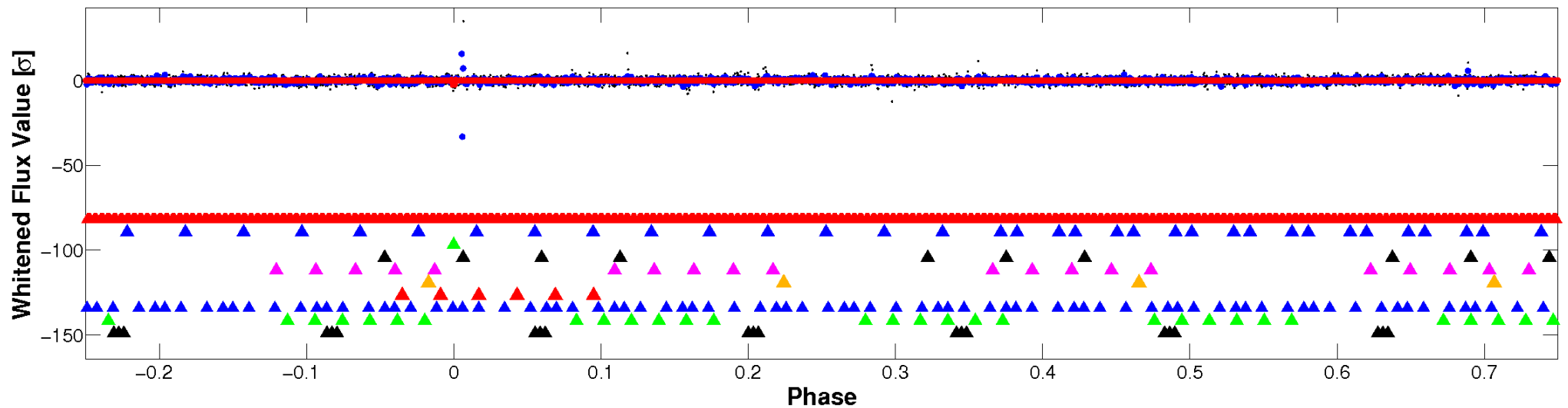


Non-Whitened Vs. Whitened Light Curve

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

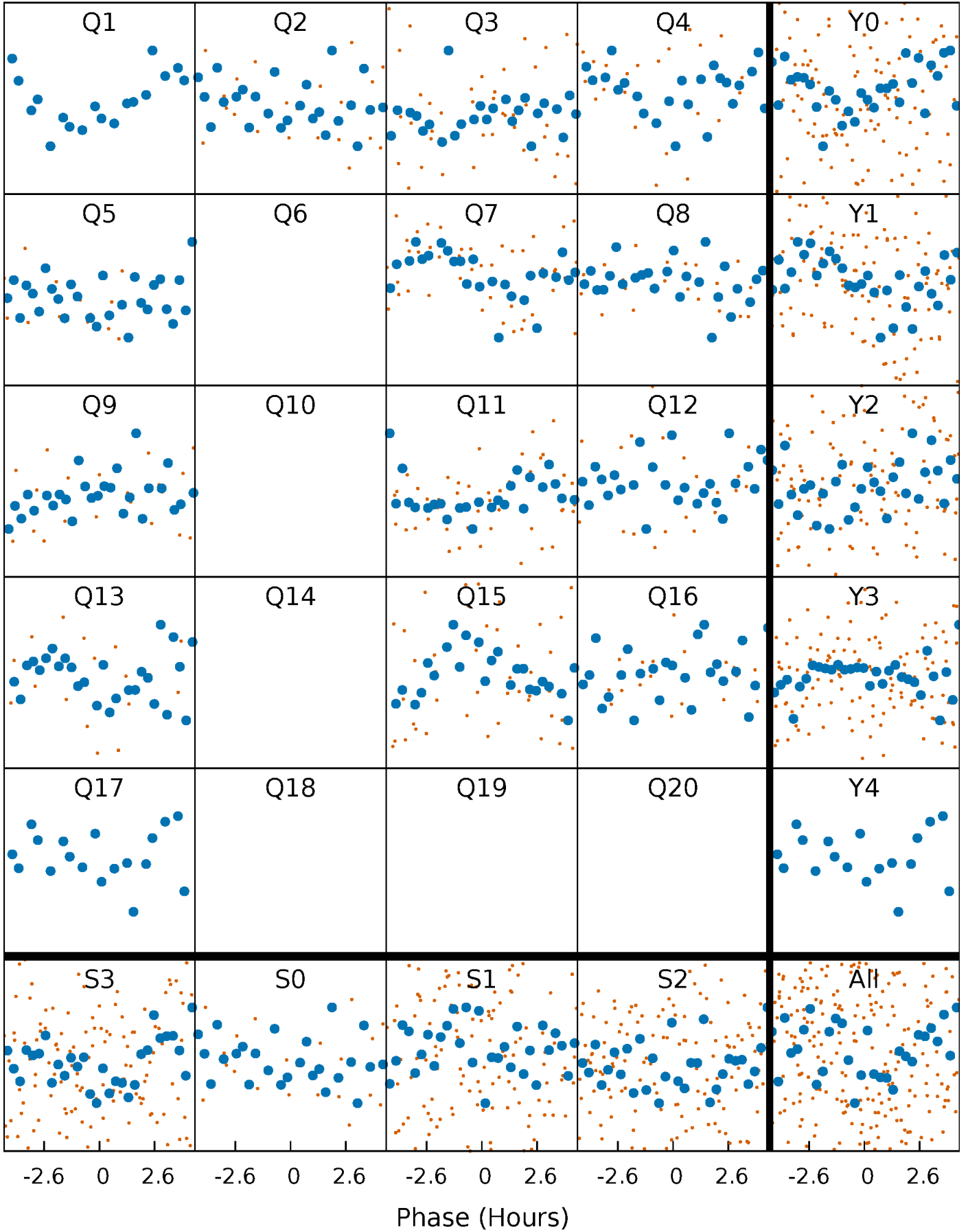


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



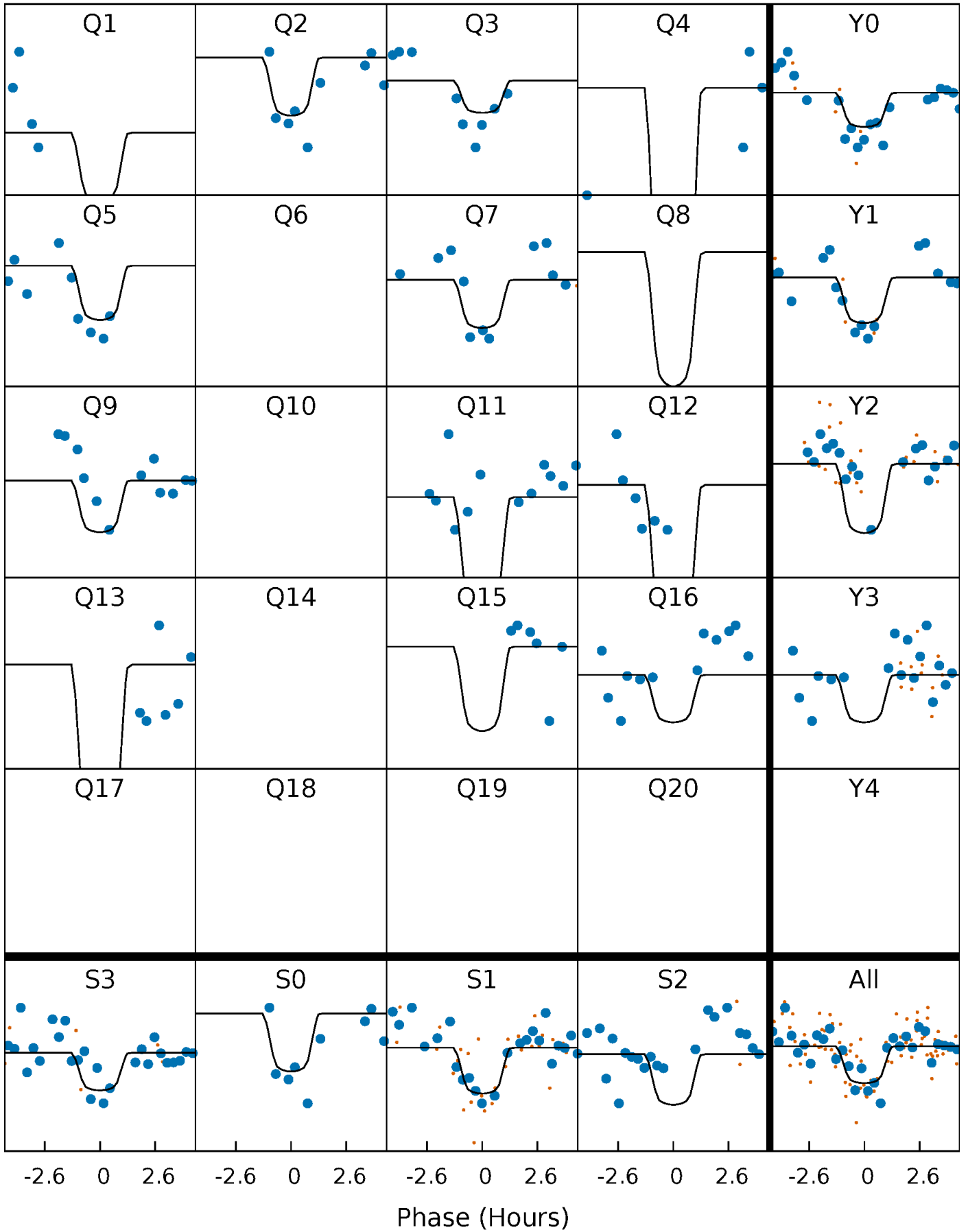
PDC Quarter-Phased Transit Curves

TCE 004749989-03 P= 41.557803 Days $T_0=136.205285$ (BKJD)



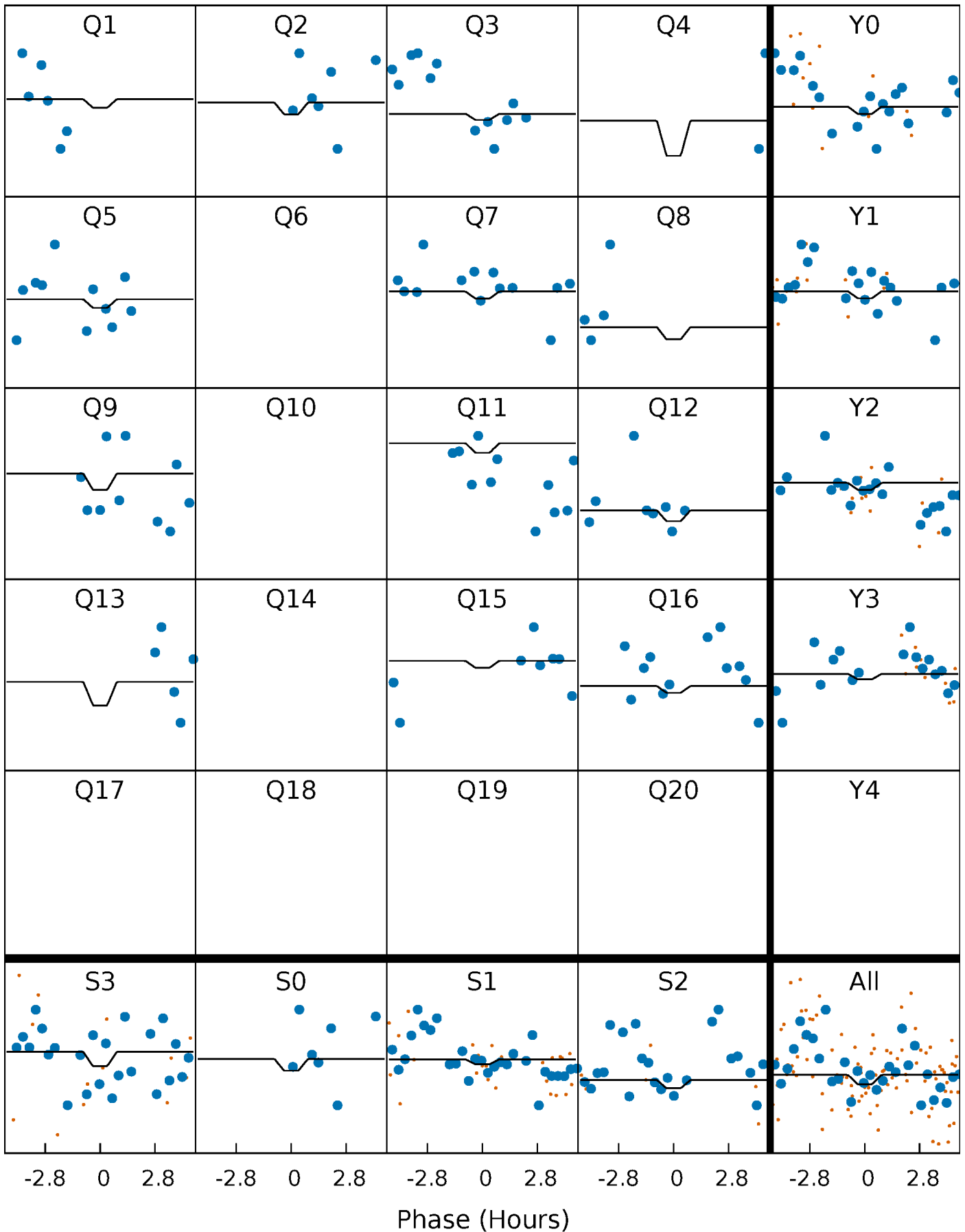
DV Quarter-Phased Transit Curves

TCE 004749989-03 P= 41.557803 Days $T_0=136.205285$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

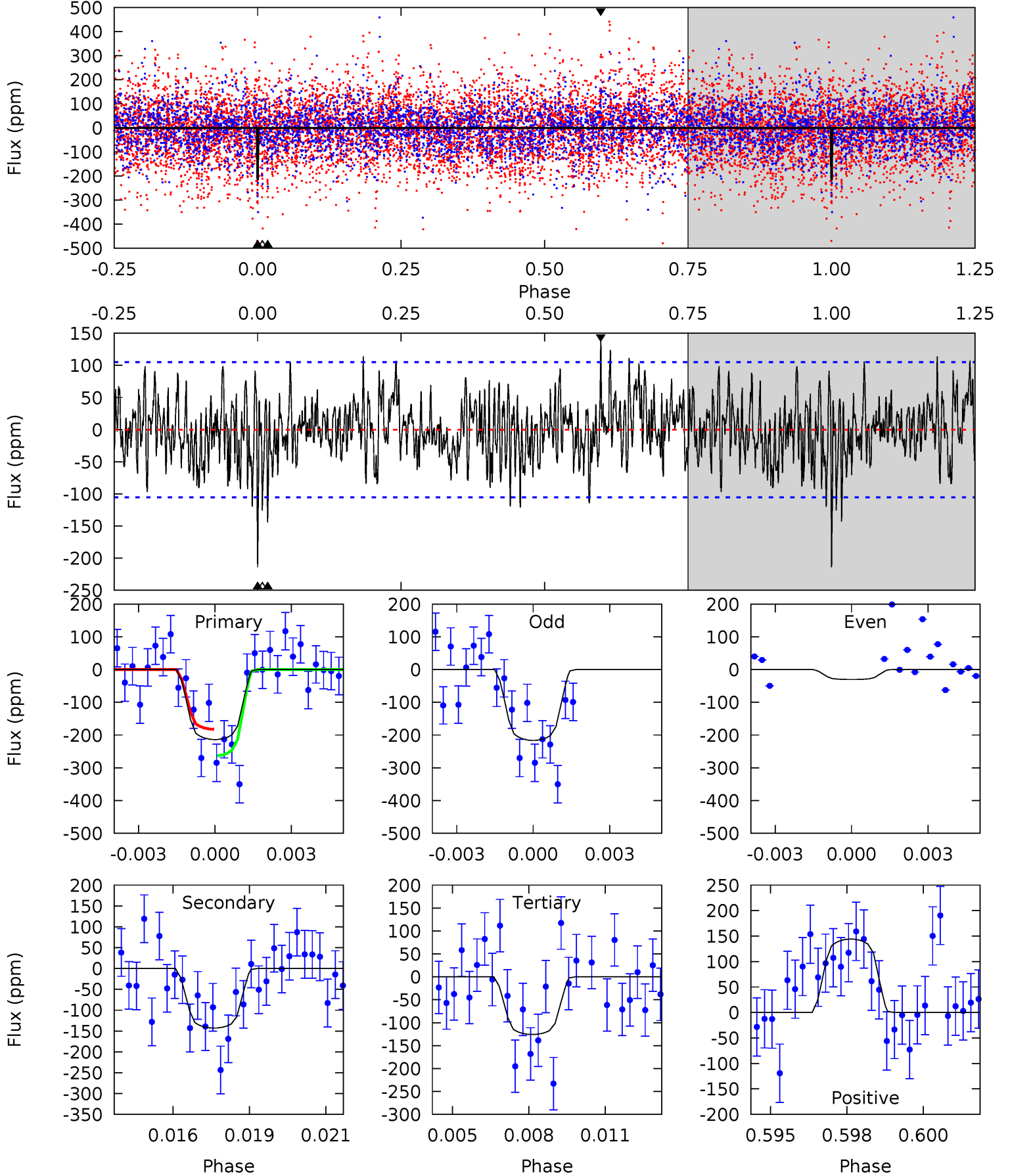
TCE 004749989-03 P= 41.558106 Days $T_0=136.159485$ (BKJD)



DV Model-Shift Uniqueness Test

004749989-03, P = 41.557803 Days, E = 94.647482 Days

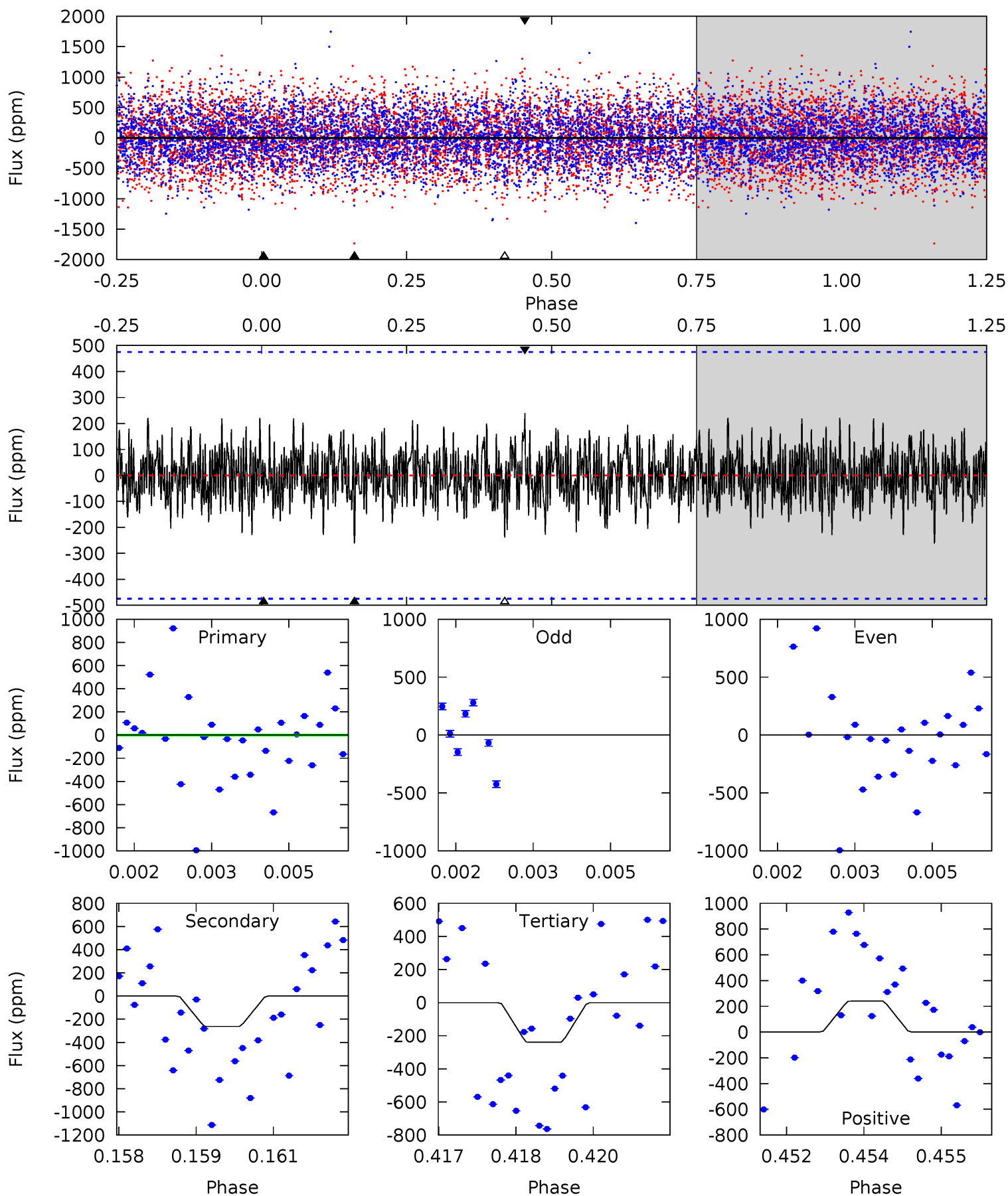
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	7.17	6.31	7.23	5.27	3.00	2.03	4.41	3.49	0.86	-0.06	2.42	0.75	0.40	2.01



Alt Model-Shift Uniqueness Test

004749989-03, P = 41.558106 Days, E = 94.601379 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.73	2.97	2.70	2.72	5.37	3.17	0.96	-1.97	-1.99	0.27	0.25	0	0.91	0.48	0.01



Stellar Parameters For KIC 004749989

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6824^{+214}_{-285}	$4.012^{+0.286}_{-0.154}$	$-0.300^{+0.300}_{-0.300}$	$1.882^{+0.504}_{-0.616}$	$1.332^{+0.195}_{-0.238}$	$0.281^{+0.569}_{-0.128}$
	+3%/-4%	+7%/-4%	+100%/-100%	+27%/-33%	+15%/-18%	+202%/-45%
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 004749989-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-143 ± 20	$3.68^{+2.90}_{-2.36}$	1117^{+91}_{-90}	5428^{+4245}_{-1083}	385^{+2656}_{-265}
Alt.	-262 ± 88	$2.82^{+2.71}_{-1.96}$	1115^{+88}_{-98}	7164^{+11648}_{-2113}	1145^{+12829}_{-881}

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

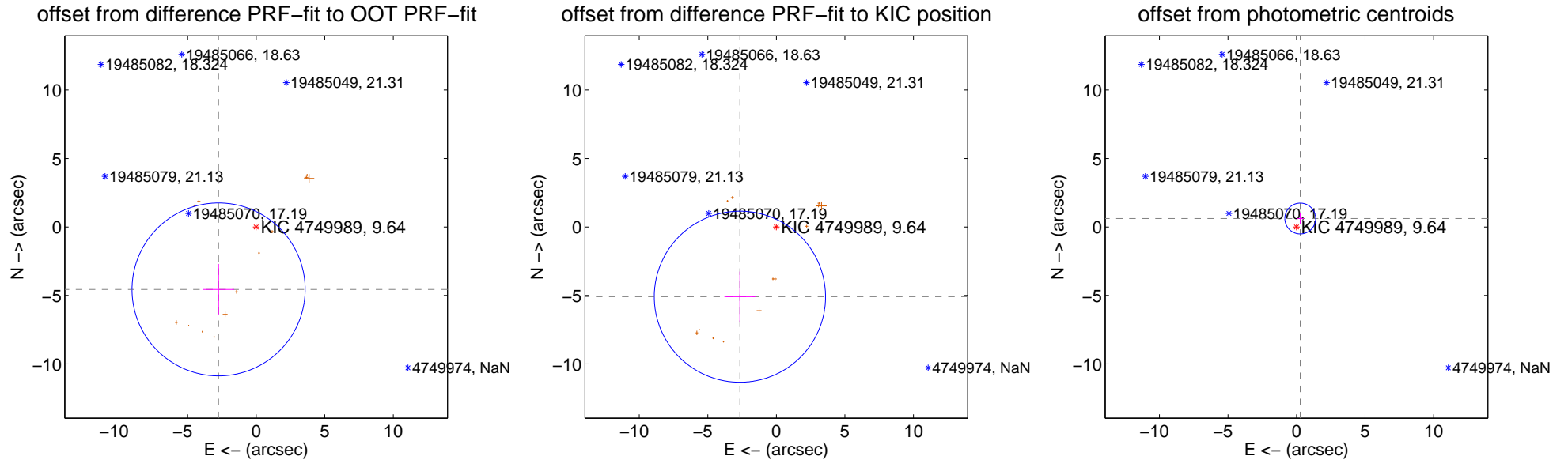
DV Centroid Data

Supplemental centroid analysis for 004749989-03. **Kepler magnitude: 9.64.** Transit SNR 11.04

There are 0 quarters with good PRF difference image offsets

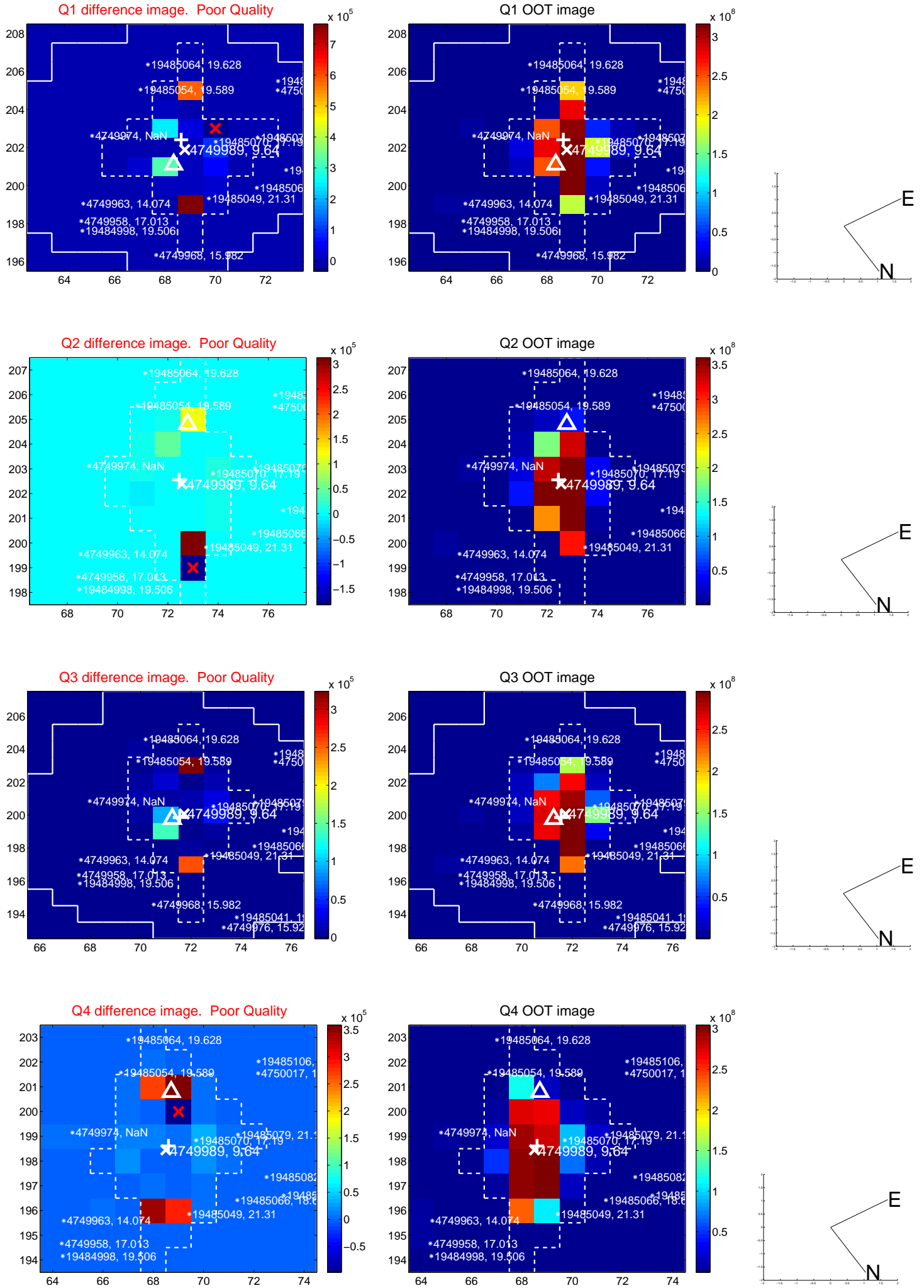
The OOT PRF centroid is offset from the target star catalog position by about 2.16 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.320 ± 2.104	2.53	2.742 ± 1.127	-4.559 ± 1.857
PRF-fit source offset from KIC position	5.744 ± 2.082	2.76	2.659 ± 1.128	-5.091 ± 1.837
photometric centroid source offset	0.67 ± 0.37	1.80	-0.27 ± 0.26	0.62 ± 0.39

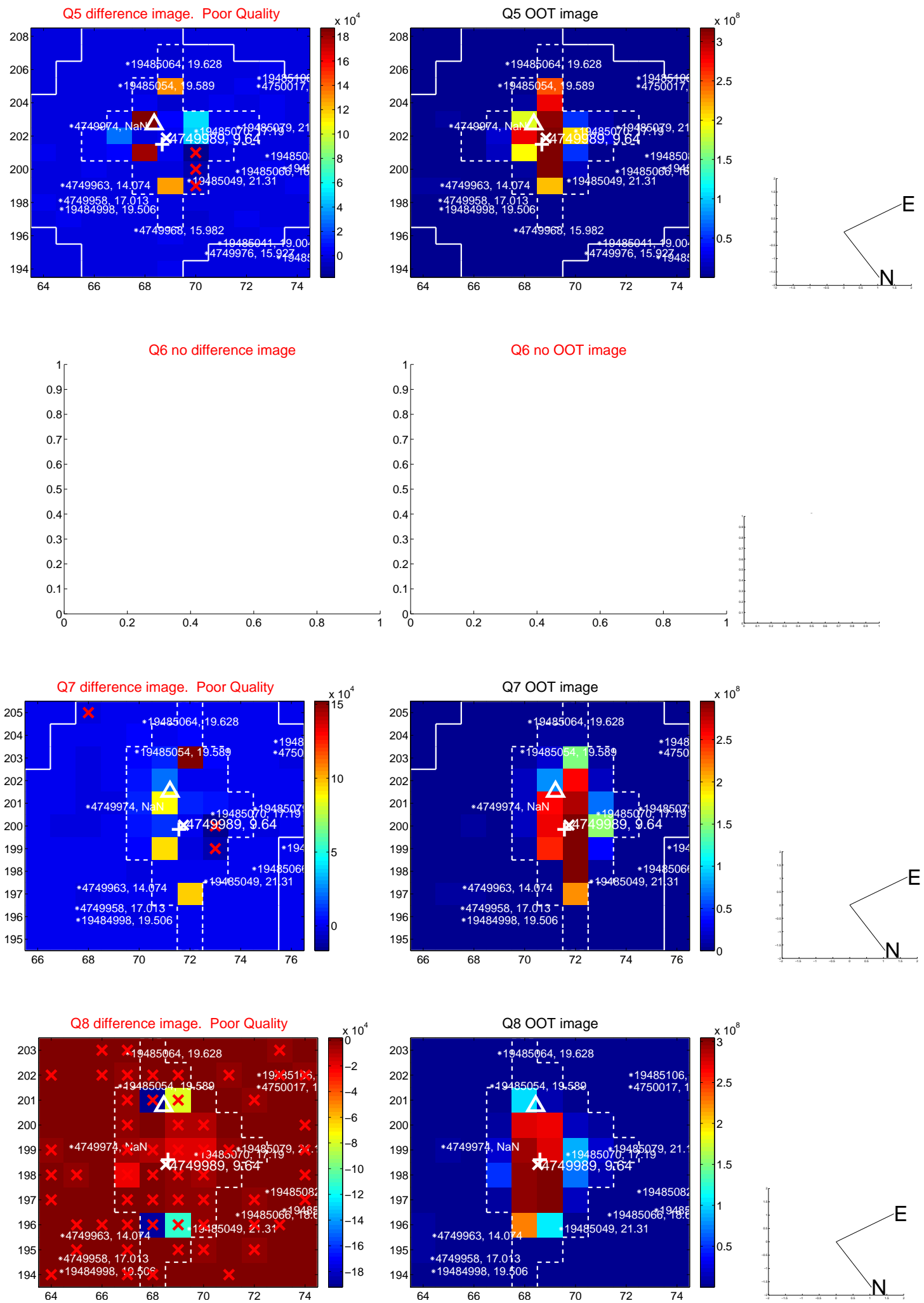


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

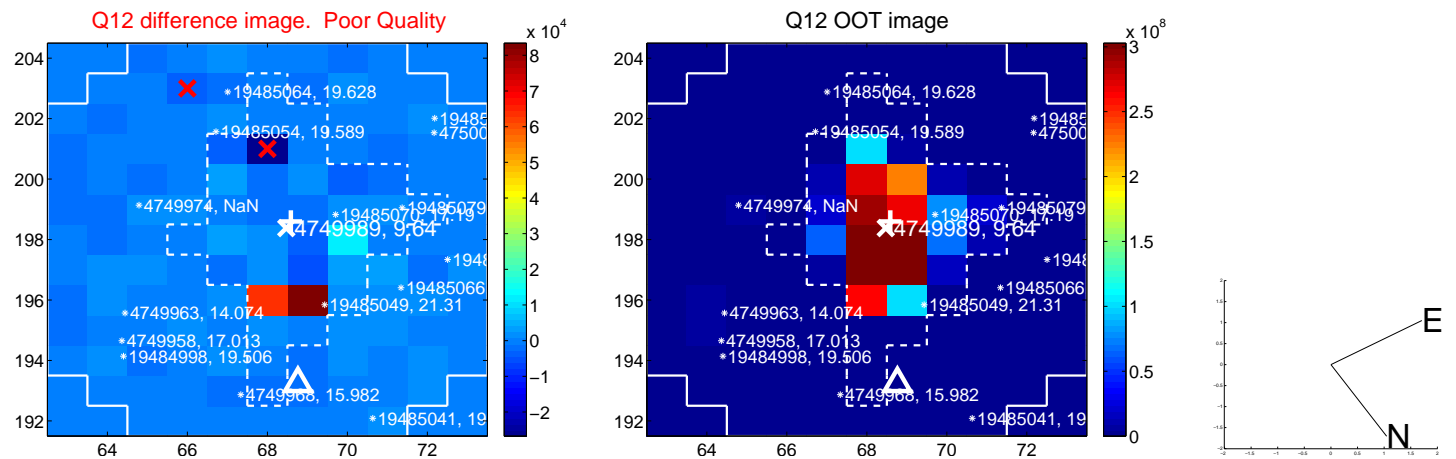
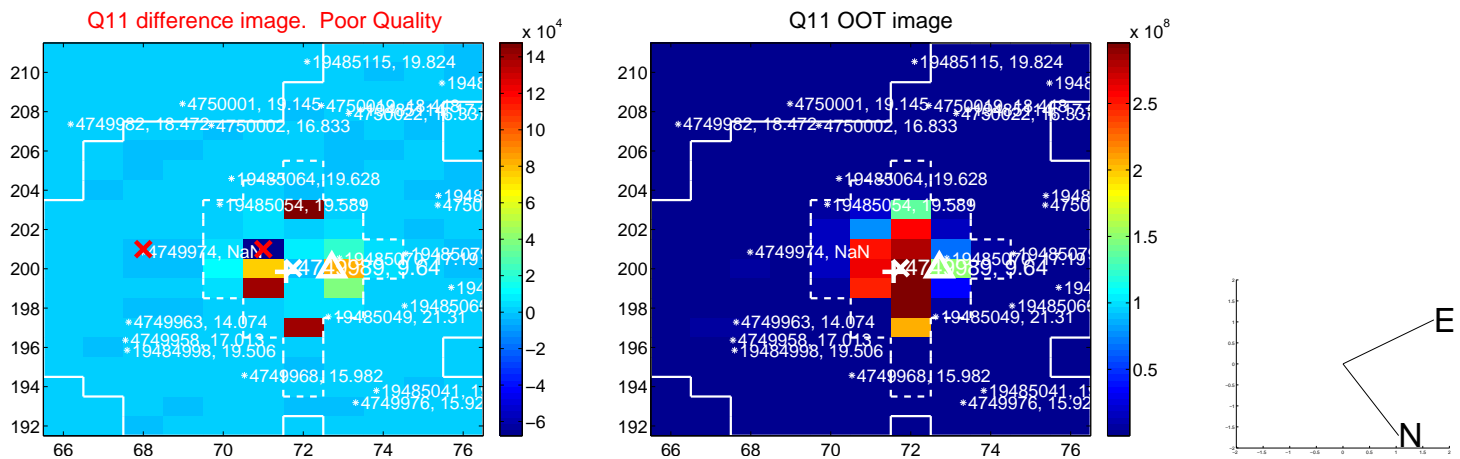
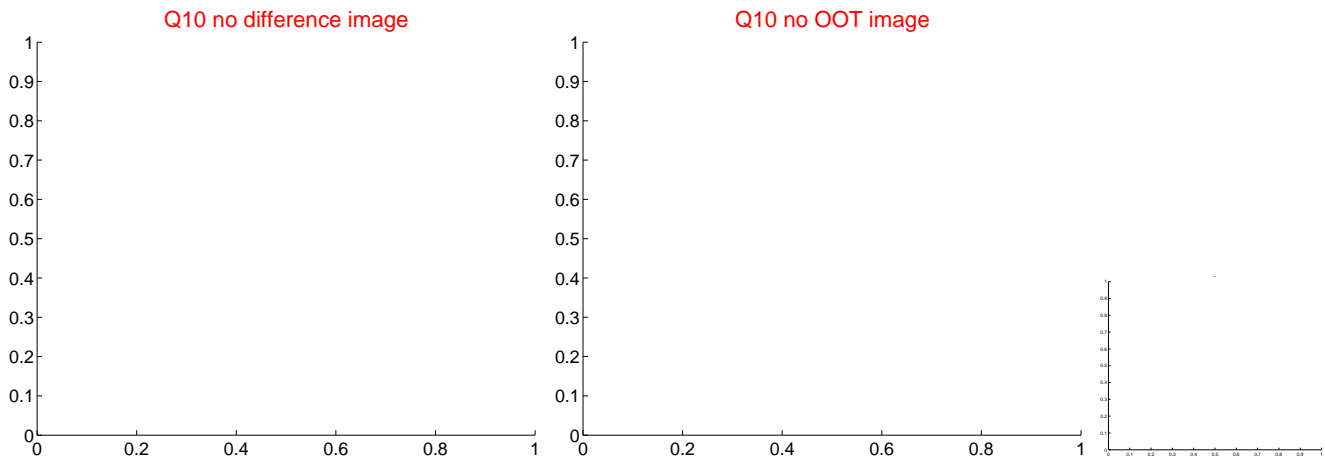
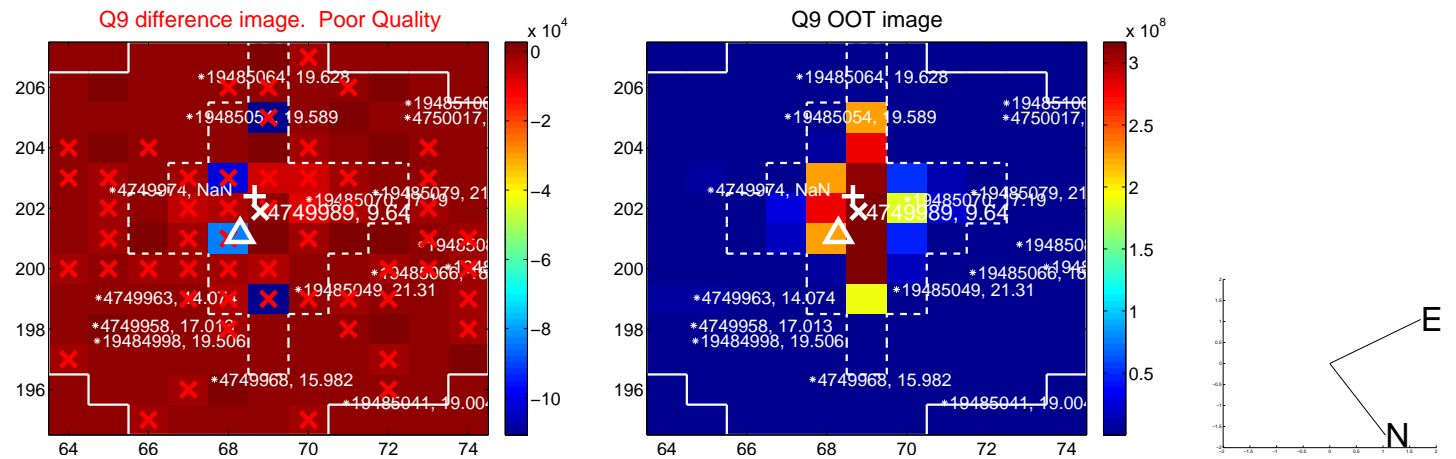
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



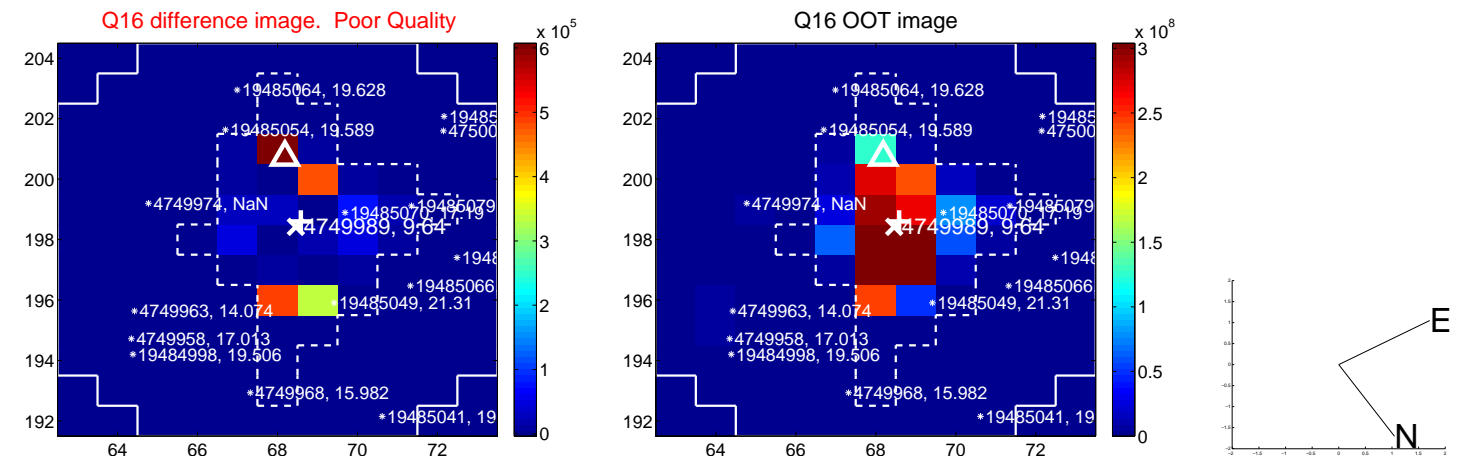
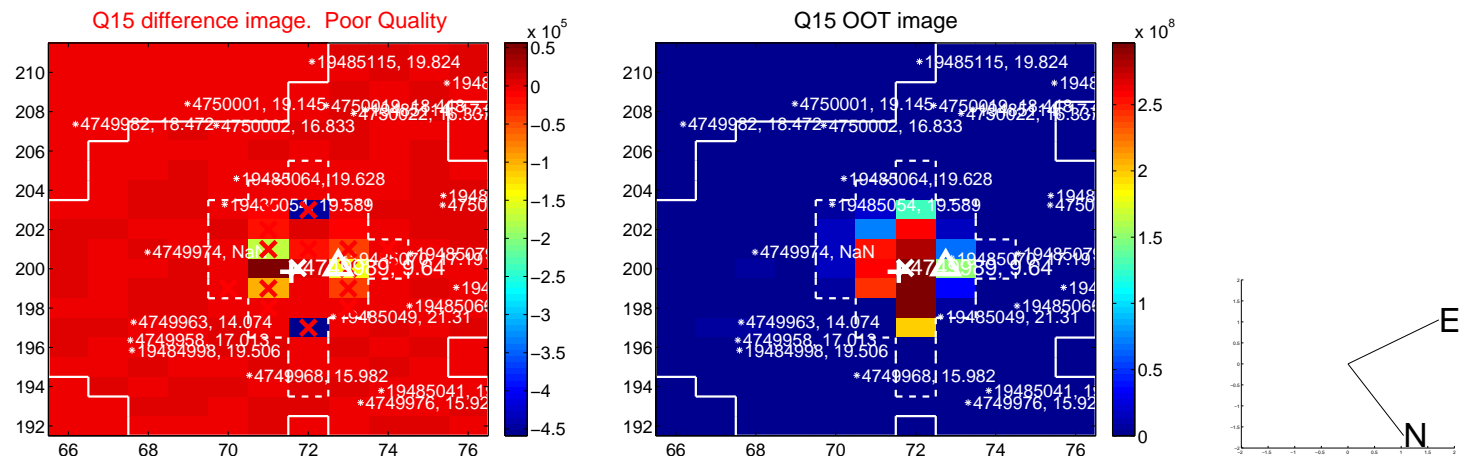
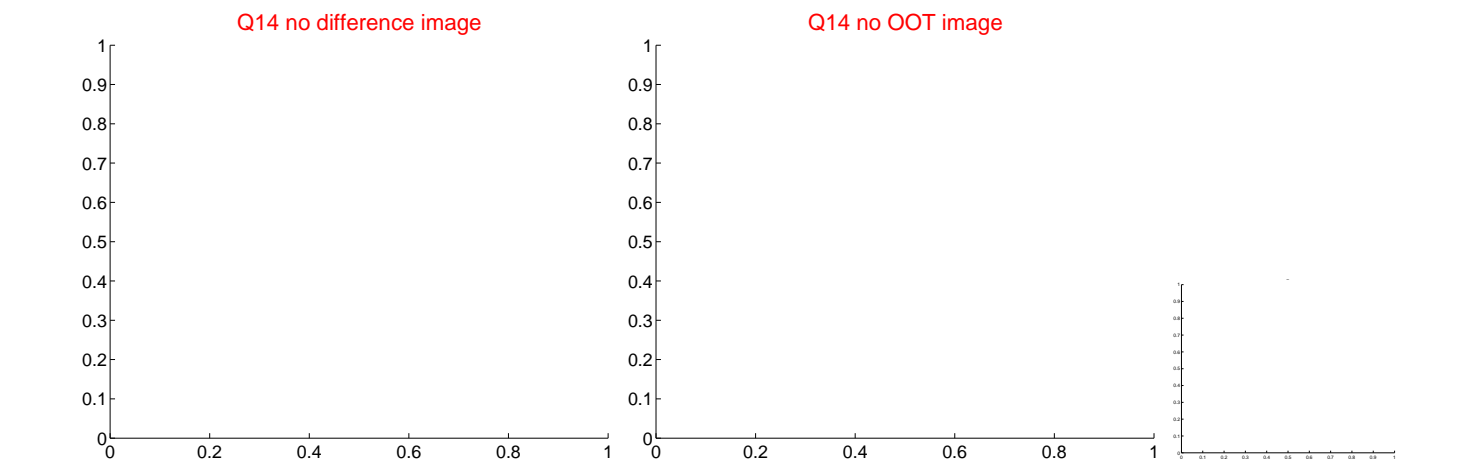
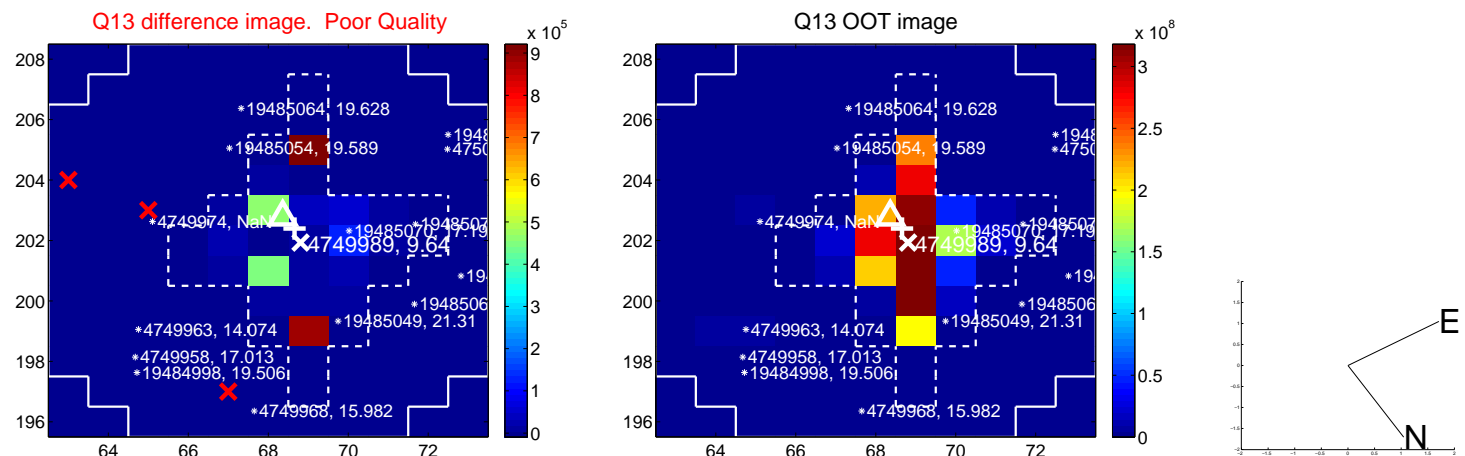
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



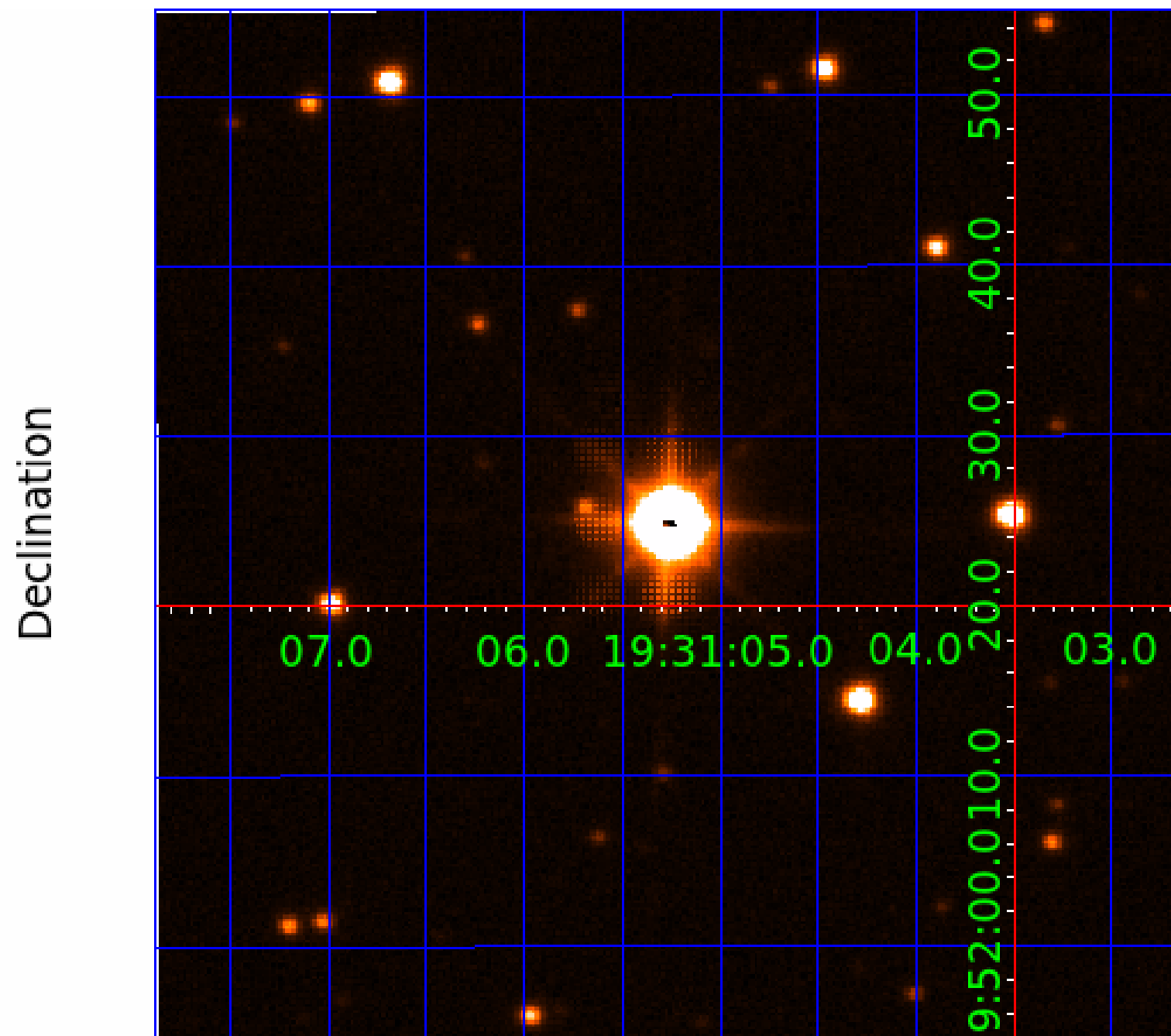
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



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})
004749989-01	OBS	No	0.732246	132.001787	13.0	4.721	11.2	9.5	1.88	6824	0.70	22521.01
004749989-02	OBS	No	43.201740	152.106101	15.0	1.035	13.2	1.1	1.88	6824	0.77	98.05
004749989-03	OBS	No	41.557803	136.205285	226.5	2.245	11.3	11.0	1.88	6824	3.33	103.26
004749989-04	OBS	No	153.116727	175.815026	50.7	1.959	10.3	1.4	1.88	6824	1.43	18.14
004749989-05	OBS	No	72.446819	177.224413	223.5	0.911	9.5	6.3	1.88	6824	3.31	49.22
004749989-06	OBS	No	467.163516	177.050588	64.6	3.500	10.6	-1.0	1.88	6824	1.53	4.10
004749989-07	OBS	No	250.427163	176.310022	171.3	3.985	9.8	9.7	1.88	6824	3.00	9.42
004749989-08	OBS	No	17.536486	142.663608	68.0	9.232	9.9	8.8	1.88	6824	1.70	326.24
004749989-09	OBS	No	49.714401	135.388278	59.6	3.000	10.6	-1.0	1.88	6824	1.47	81.31
004749989-10	OBS	No	71.221698	144.804494	188.7	2.602	10.1	8.3	1.88	6824	3.00	50.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004749989-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-03	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—CENT_SATURATED
004749989-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004749989-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-10	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—CENT_SATURATED

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

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

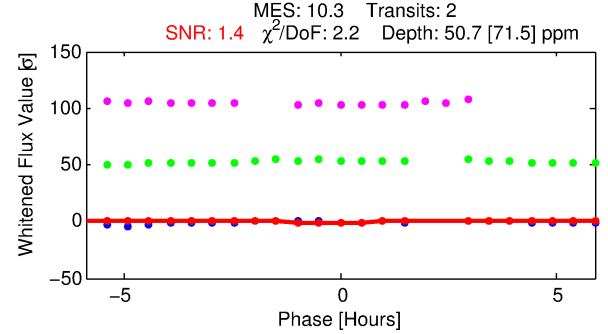
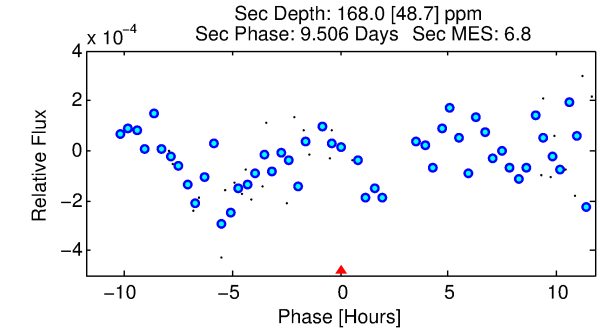
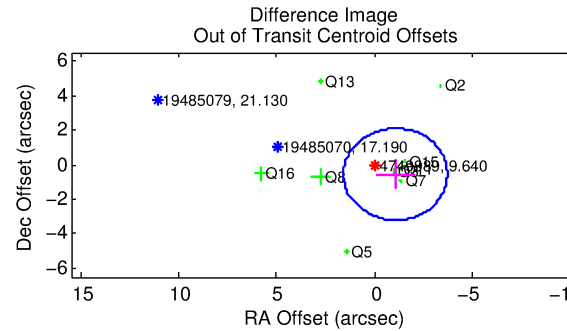
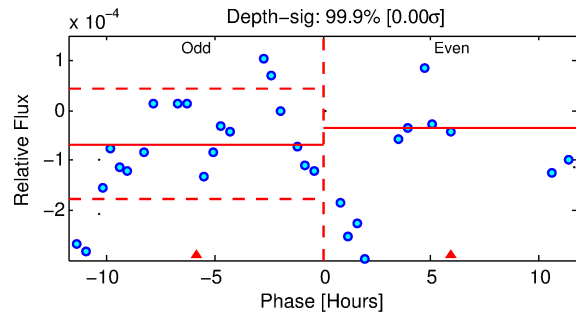
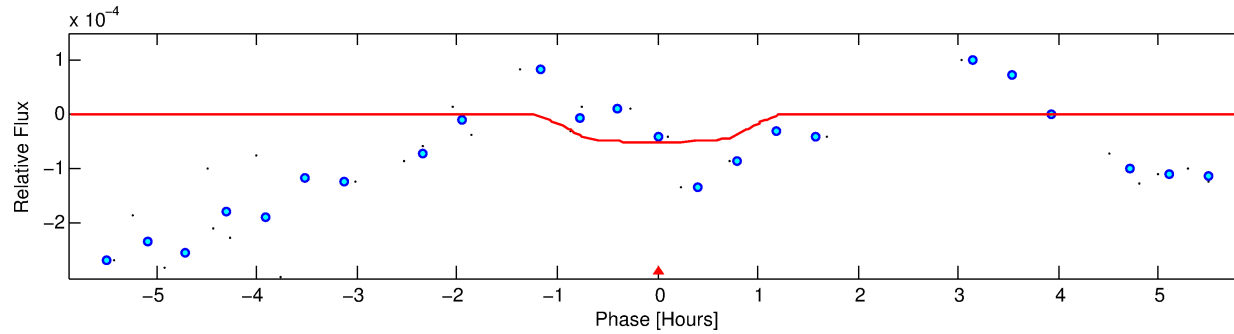
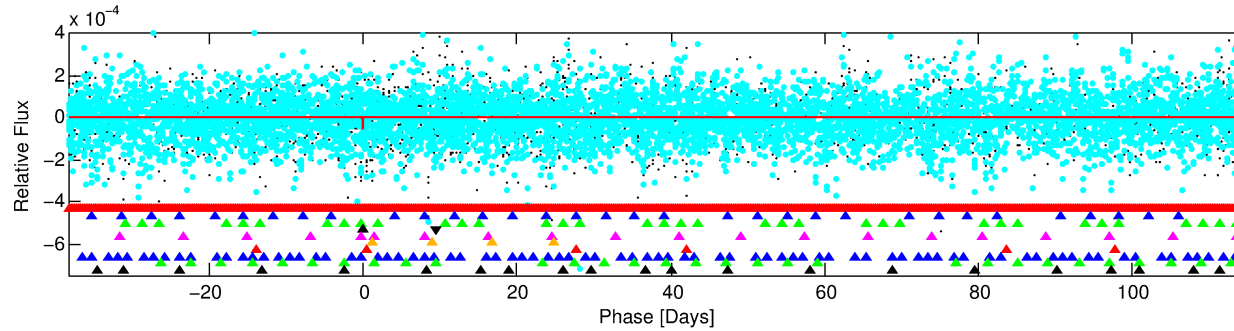
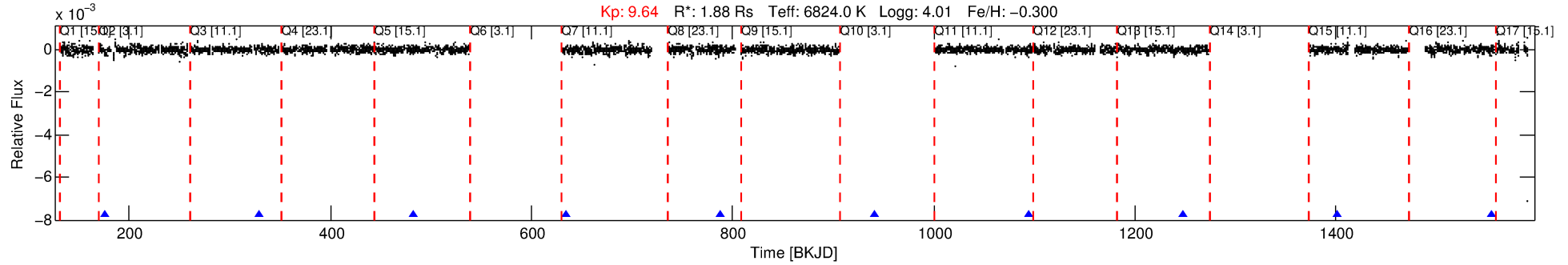
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004749989-04

No Significant Match Found

DV One-Page Summary

KIC: 4749989 Candidate: 4 of 10 Period: 153.117 d



DV Fit Results:

Period = 153.11673 [0.03607] d
Epoch = 175.8150 [0.2220] BKJD
 $R_p/R^* = 0.0070$ [0.0730]
 $a/R^* = 448.29$ [25928.08]
 $b = 0.67$ [48.81]
 $\text{Seff} = 18.15$ [9.40]
 $T_{\text{eq}} = 526$ [68] K
 $R_p = 1.43$ [15.01] R_e
 $a = 0.6158$ [0.1906] AU
 $A_g = 17186.42$ [361213.46] [0.05 σ]
 $T_{\text{eff}} = 9317$ [48940] K [0.18 σ]

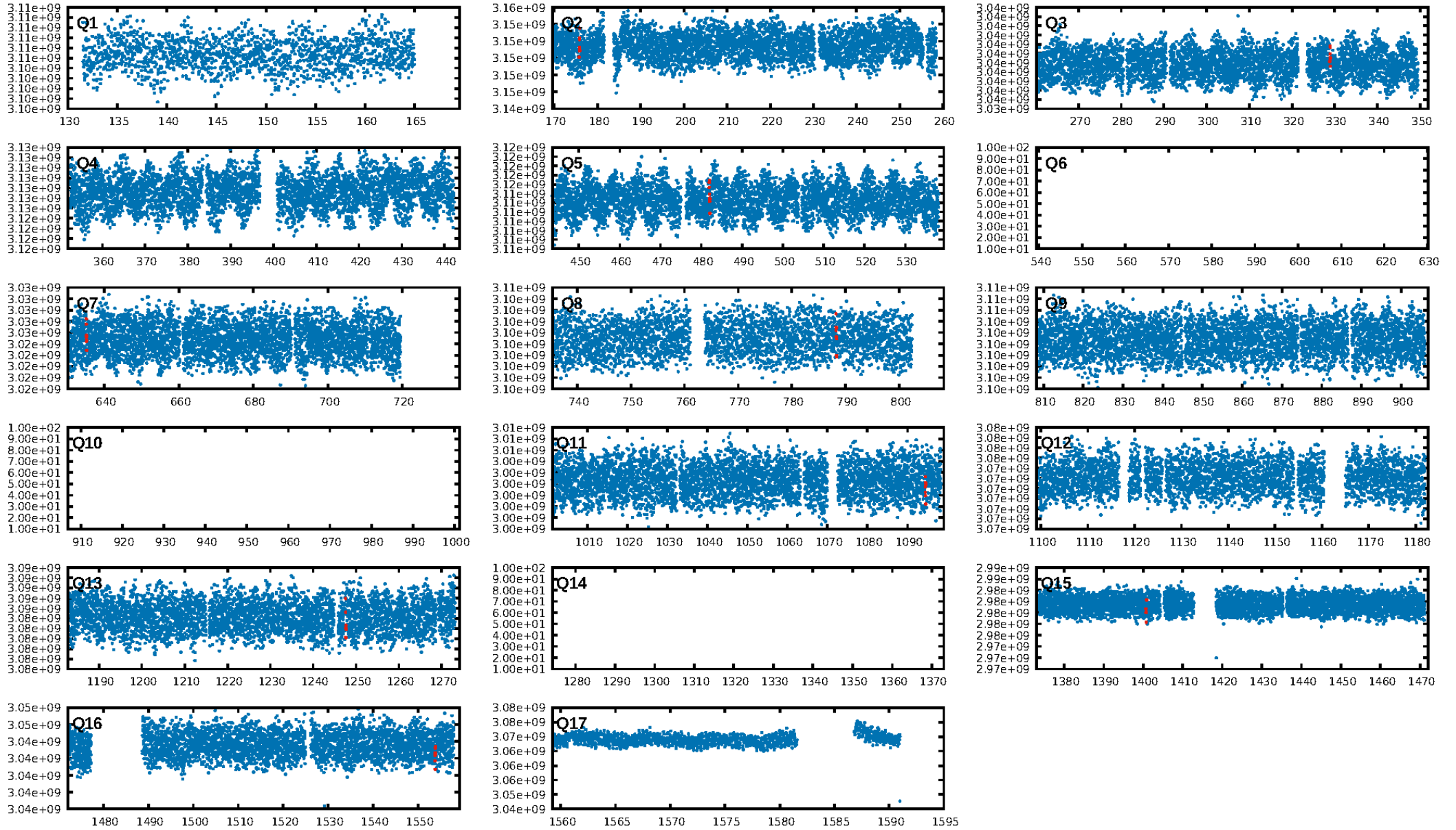
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [895.98 σ]
LongPeriod-sig: 100.0% [525.97 σ]
ModelChiSquare2-sig: 69.1%
ModelChiSquareGof-sig: 88.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: N/A
Centroid-sig: 28.2%
Centroid-so: 3.274 arcsec [0.96 σ]
OotOffset-rm: 1.208 arcsec [1.37 σ]
OotOffset-st: 1/4/2/2 [9]
KicOffset-rm: 2.285 arcsec [2.19 σ]
KicOffset-st: 1/4/2/2 [9]
DiffImageQuality-fgm: 0.00 [0/9]
DiffImageOverlap-fno: 0.00 [0/9]

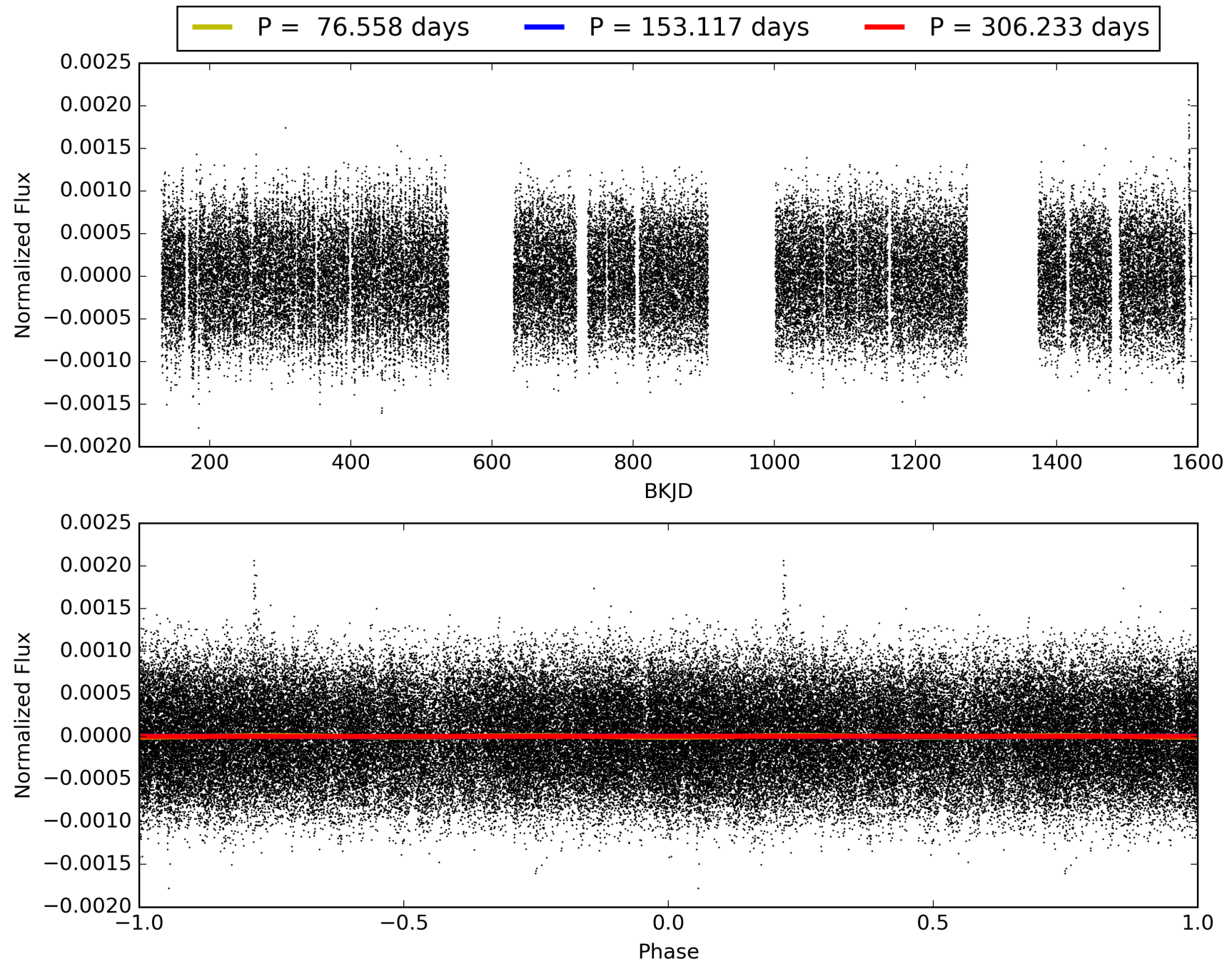
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:57:34 Z

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

TCE 004749989-04, PDC Light Curves

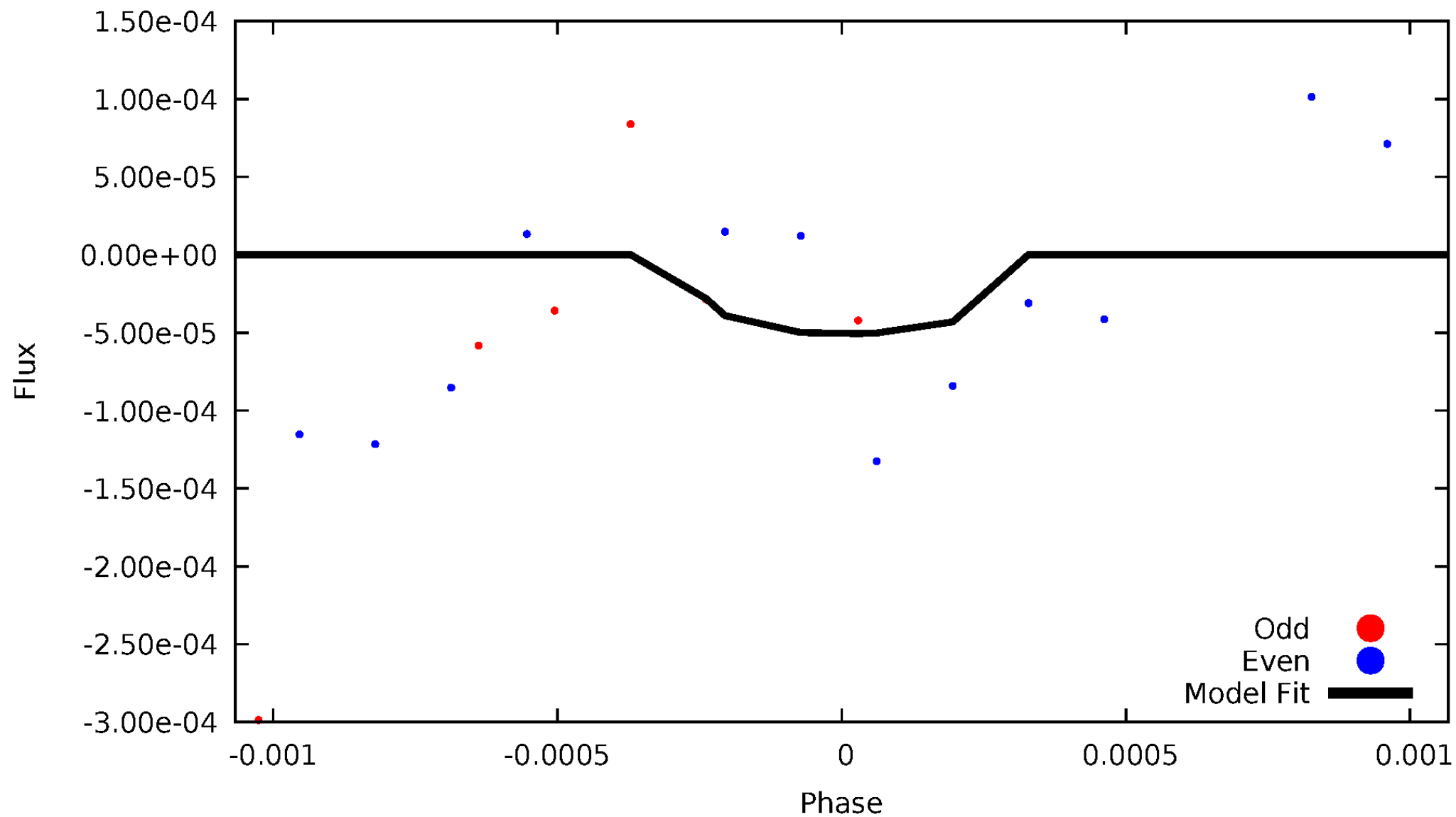


TCE 004749989-04



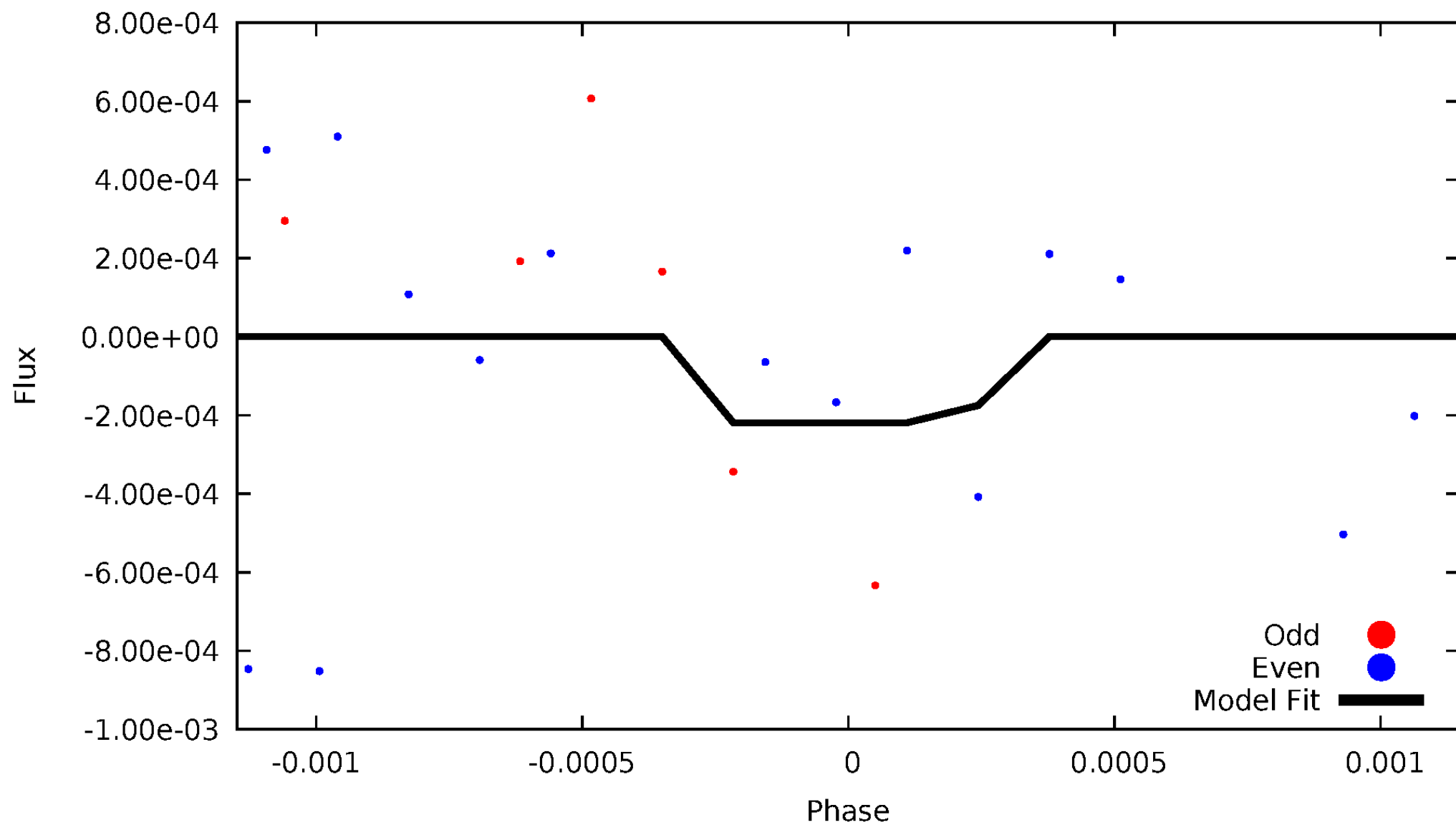
DV Odd/Even

TCE 004749989-04



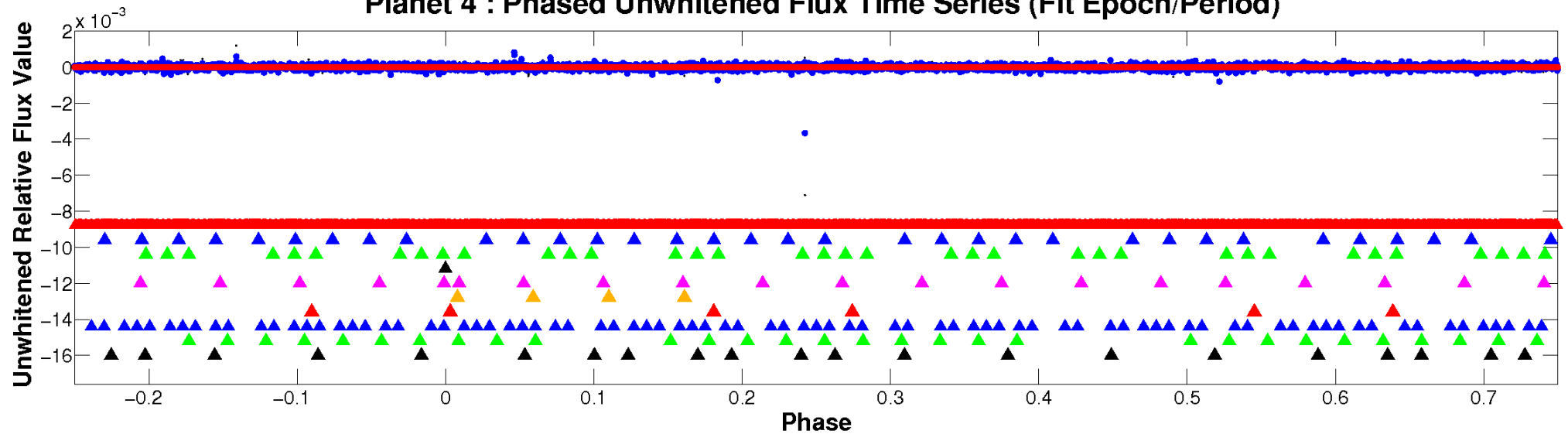
ALT Odd/Even

TCE 004749989-04

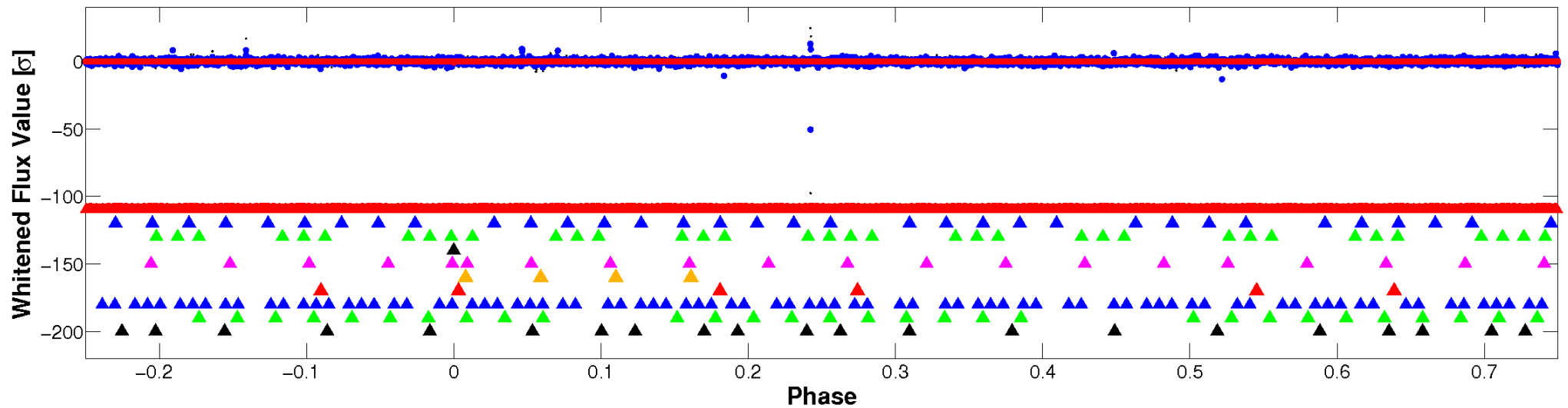


Non-Whitened Vs. Whitened Light Curve

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

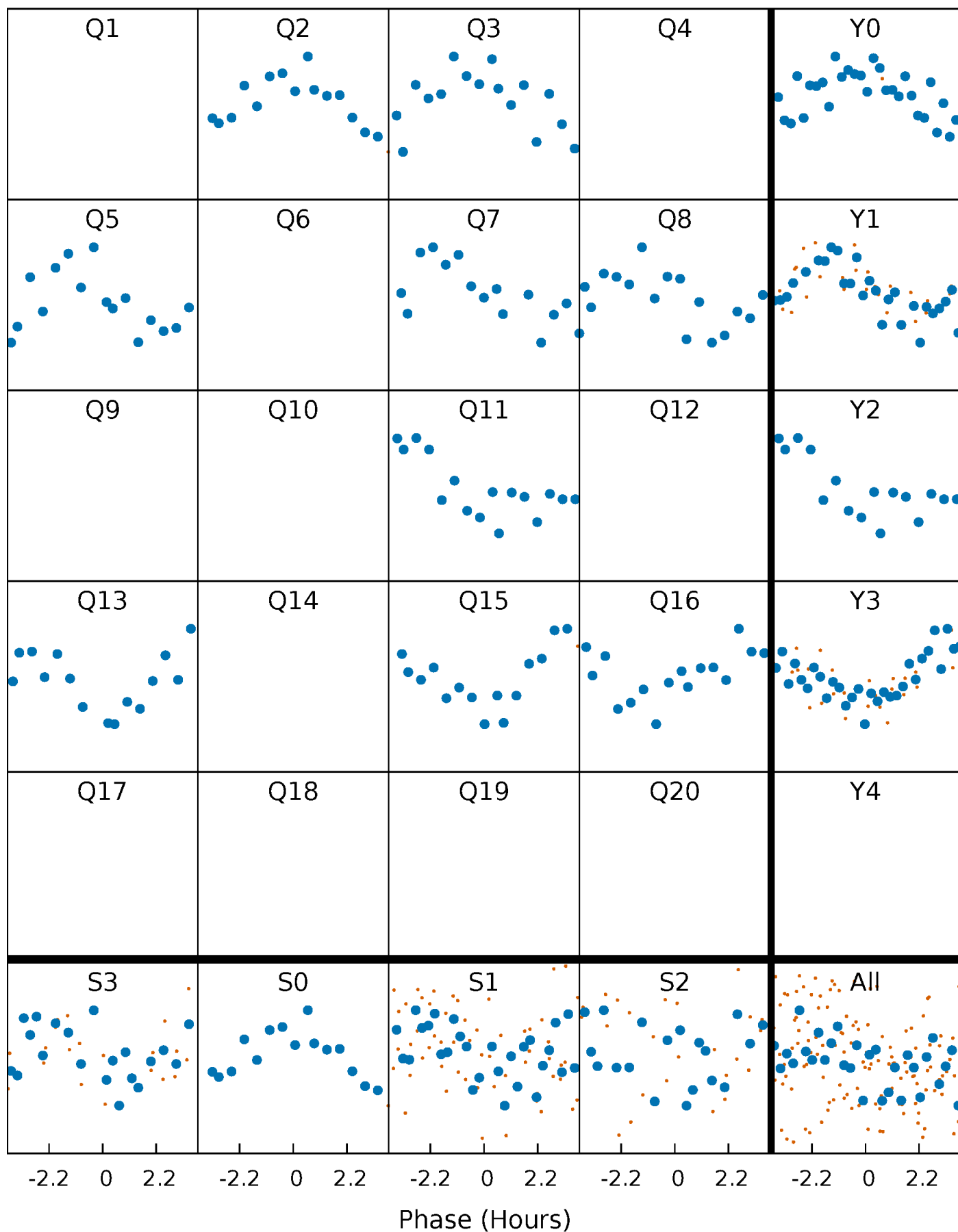


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



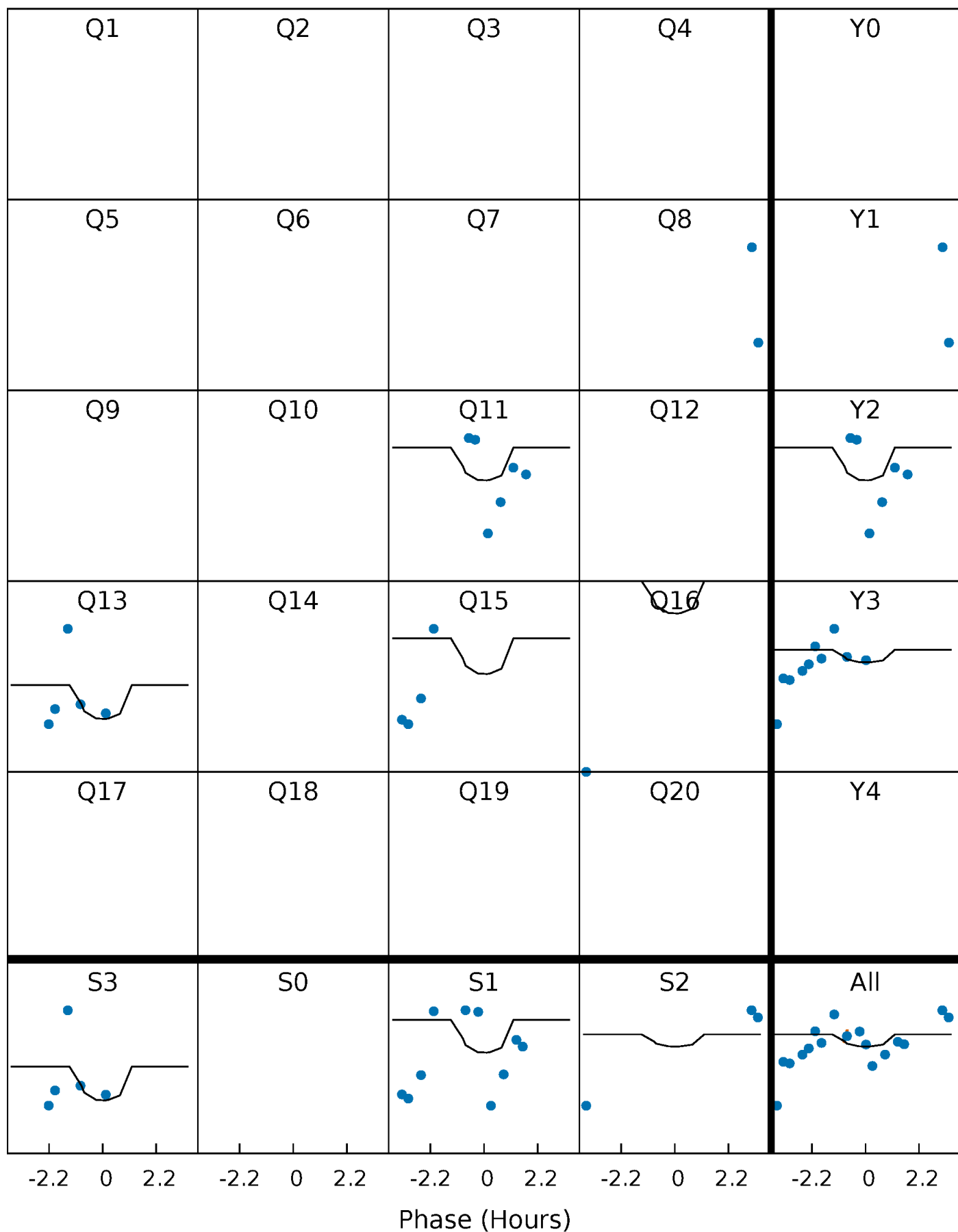
PDC Quarter-Phased Transit Curves

TCE 004749989-04 P=153.116727 Days $T_0=175.815026$ (BKJD)



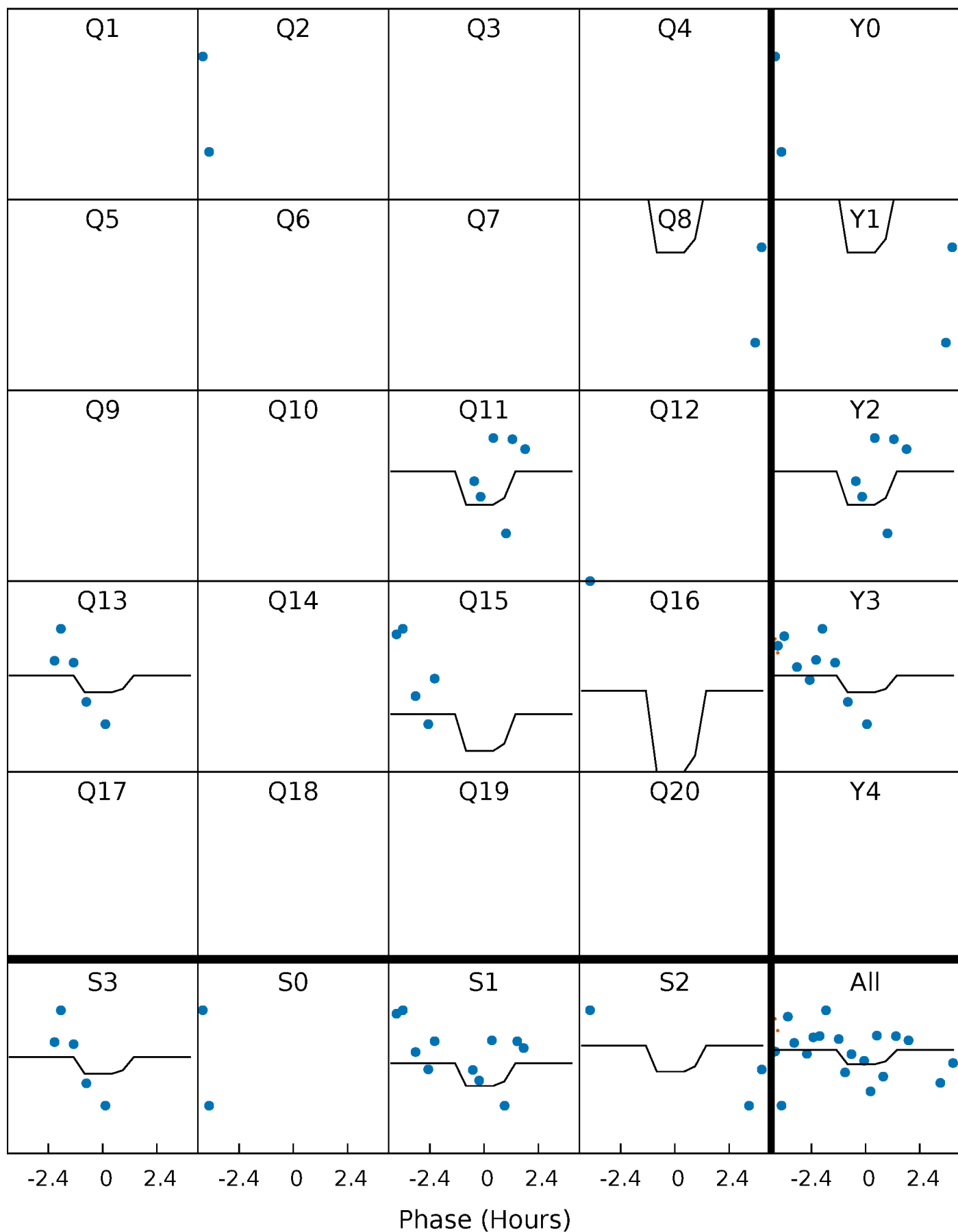
DV Quarter-Phased Transit Curves

TCE 004749989-04 P=153.116727 Days $T_0=175.815026$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

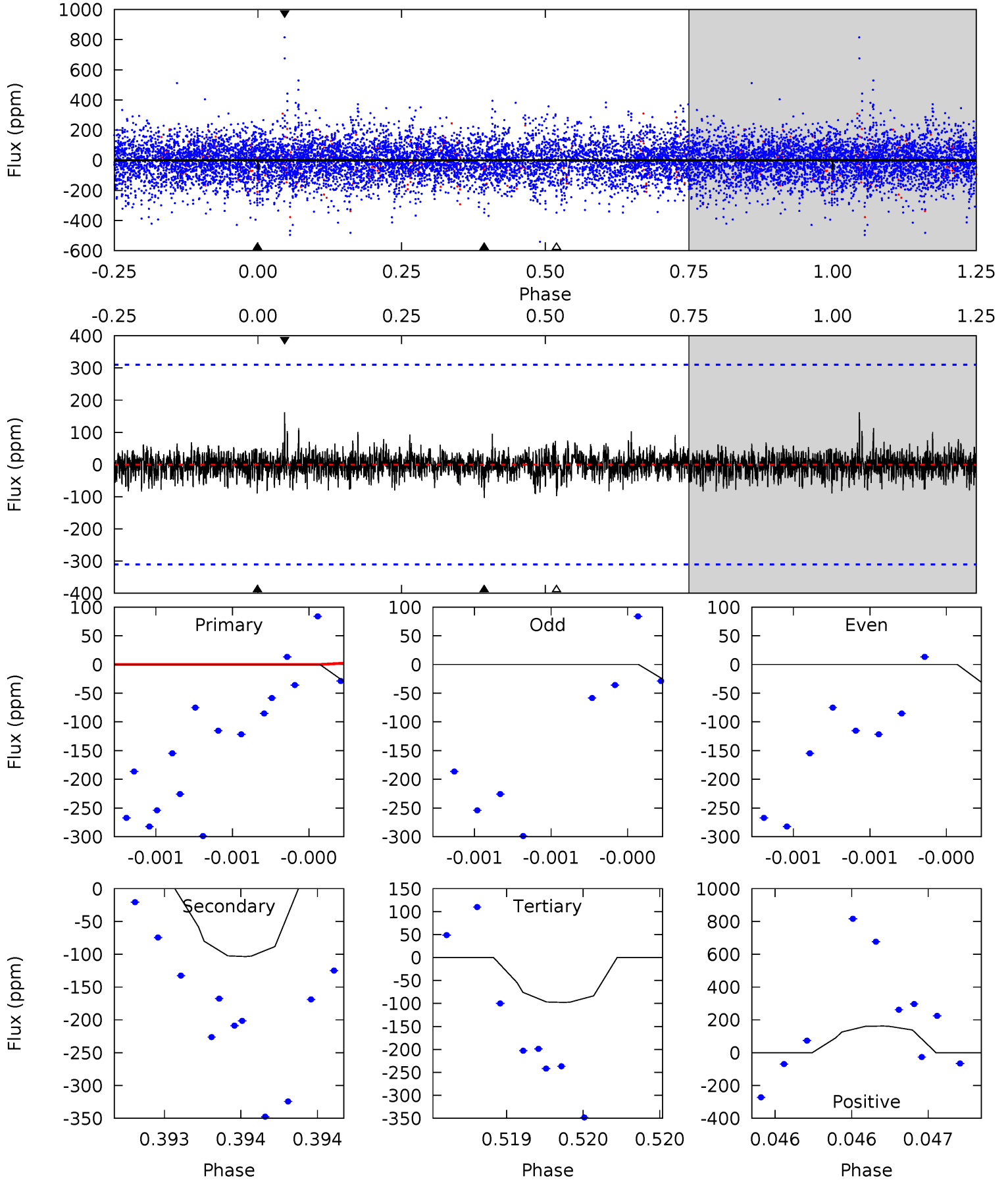
TCE 004749989-04 P=153.120914 Days $T_0=175.782393$ (BKJD)



DV Model-Shift Uniqueness Test

004749989-04, $P = 153.116727$ Days, $E = 22.698299$ Days

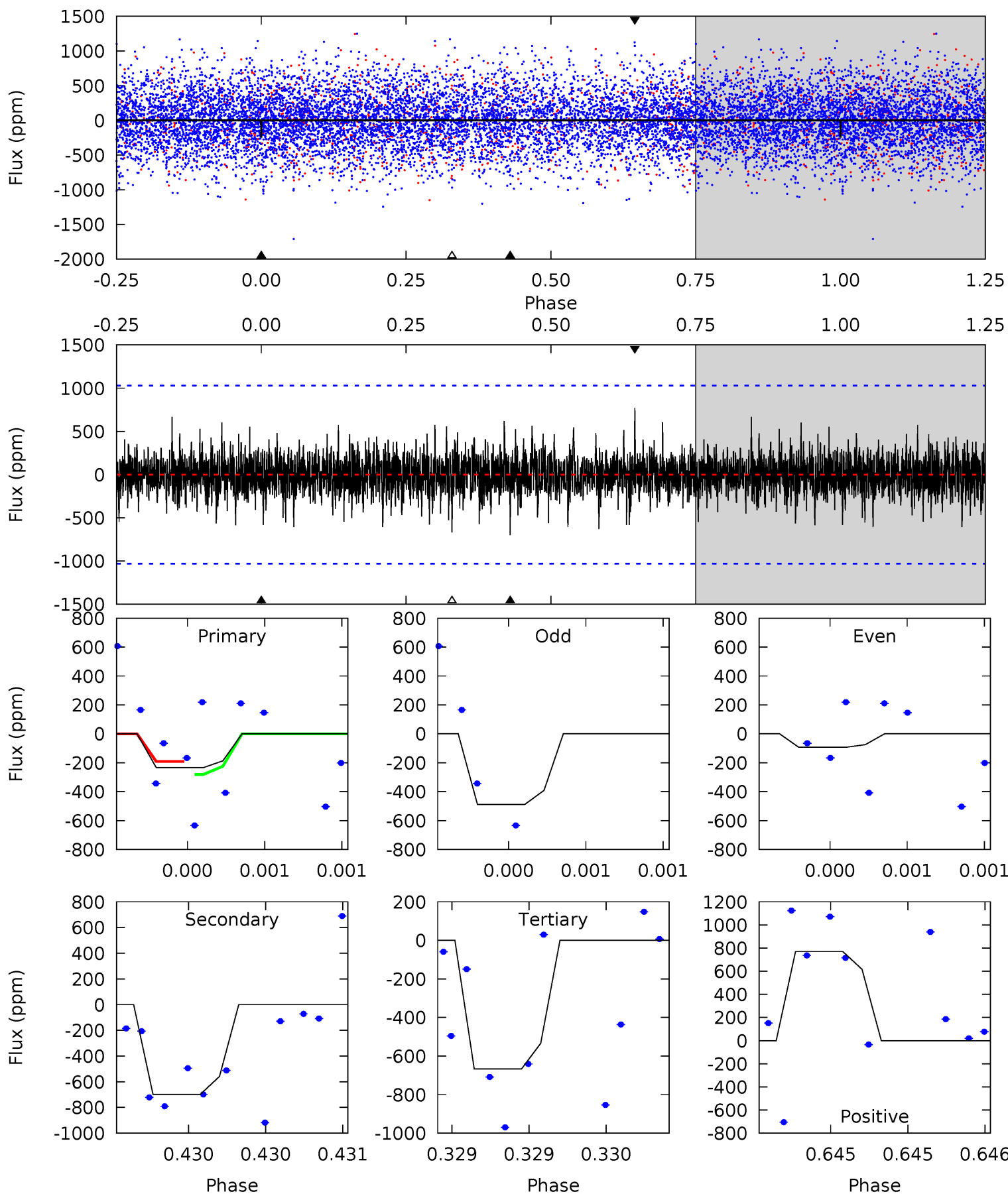
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.93	1.87	1.77	2.93	5.60	3.52	0.48	-0.83	-2.00	0.10	-1.06	0.08	1.00	0.61	0.78



Alt Model-Shift Uniqueness Test

004749989-04, P = 153.120914 Days, E = 22.661479 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.26	3.78	3.60	4.16	5.56	3.46	0.95	-2.34	-2.90	0.17	-0.38	0.98	1.00	0.52	0.21



Stellar Parameters For KIC 004749989

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6824^{+214}_{-285}	$4.012^{+0.286}_{-0.154}$	$-0.300^{+0.300}_{-0.300}$	$1.882^{+0.504}_{-0.616}$	$1.332^{+0.195}_{-0.238}$	$0.281^{+0.569}_{-0.128}$
	+3%/-4%	+7%/-4%	+100%/-100%	+27%/-33%	+15%/-18%	+202%/-45%
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 004749989-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-104 ± 55	$10.21^{+11.41}_{-7.14}$	720^{+59}_{-61}	3413^{+1998}_{-753}	196^{+2137}_{-167}
Alt.	-699 ± 185	$10.72^{+10.53}_{-7.17}$	725^{+58}_{-63}	4776^{+3798}_{-1029}	1223^{+10461}_{-906}

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 $A_{obs} \gg 1.0$

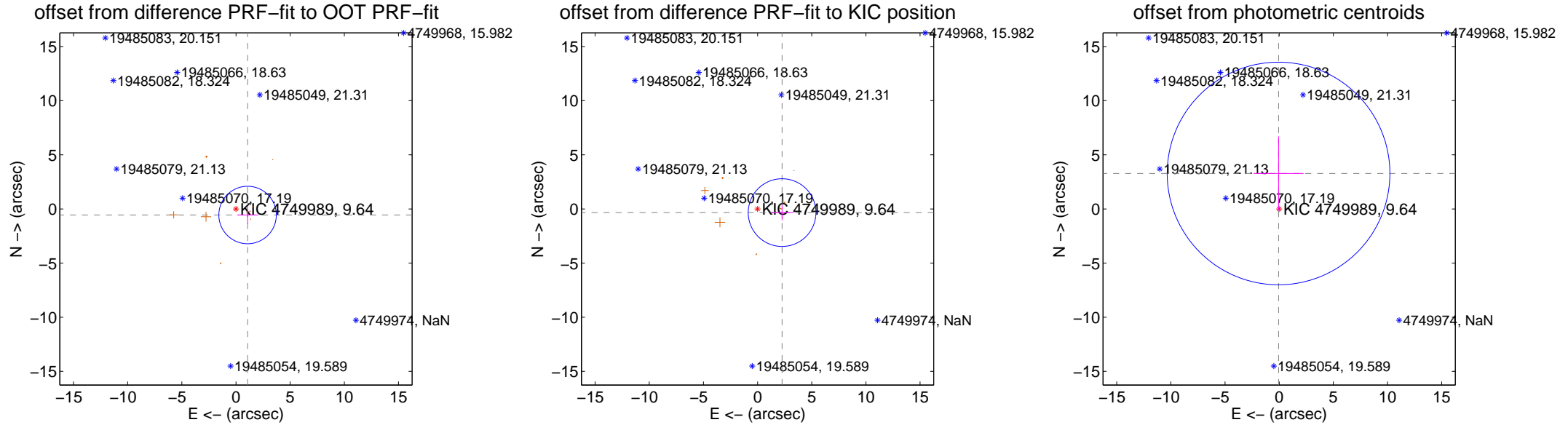
DV Centroid Data

Supplemental centroid analysis for 004749989-04. **Kepler magnitude: 9.64.** Transit SNR 1.40

There are 0 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 2.41 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.208 ± 0.884	1.37	-1.070 ± 0.971	-0.560 ± 0.822
PRF-fit source offset from KIC position	2.285 ± 1.042	2.19	-2.260 ± 1.056	-0.338 ± 0.708
photometric centroid source offset	3.27 ± 3.43	0.96	0.06 ± 2.31	3.27 ± 3.43



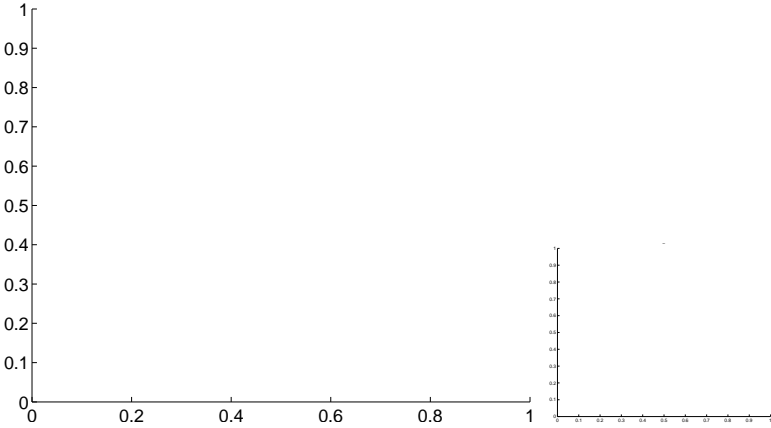
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

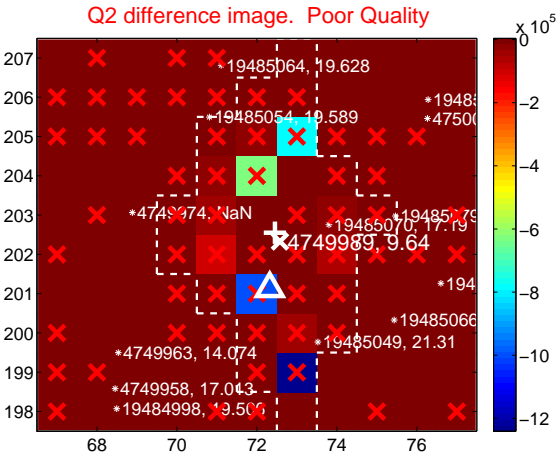
Q1 no difference image



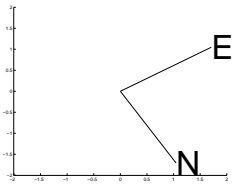
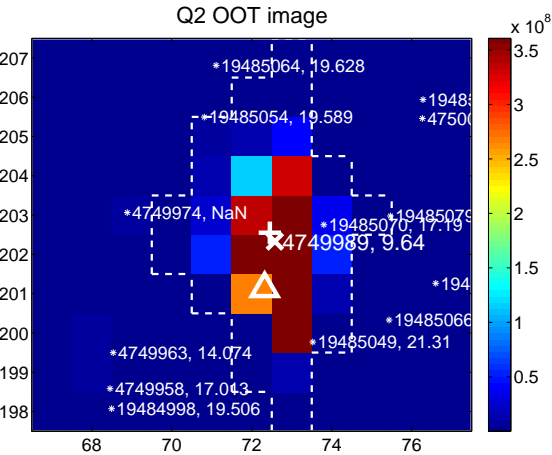
Q1 no OOT image



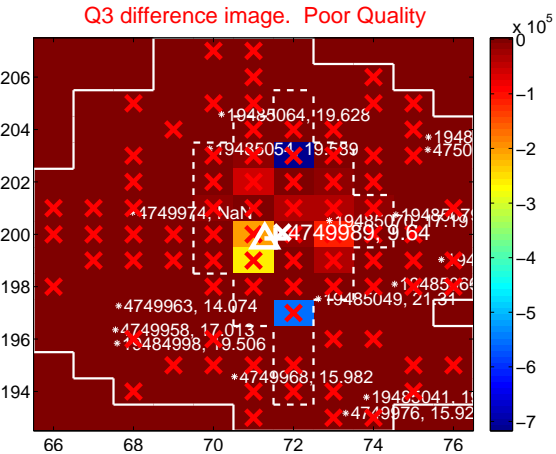
Q2 difference image. Poor Quality



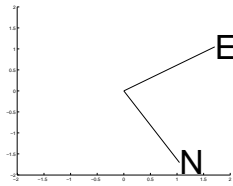
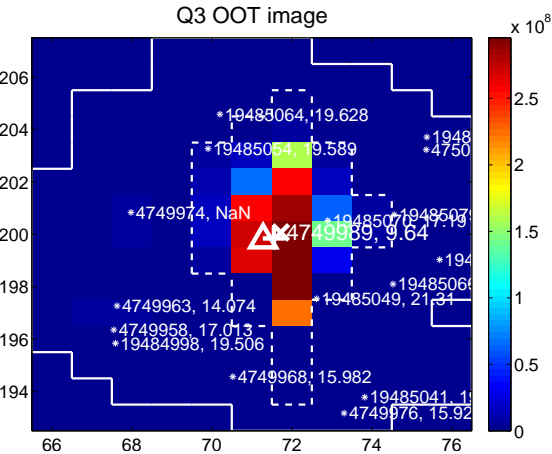
Q2 OOT image



Q3 difference image. Poor Quality



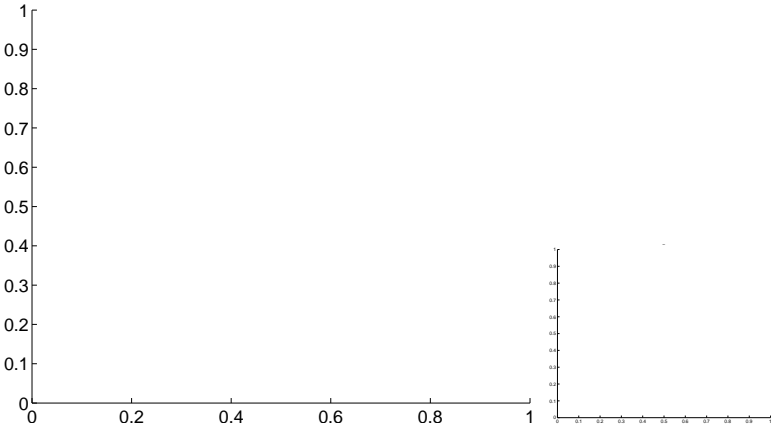
Q3 OOT image



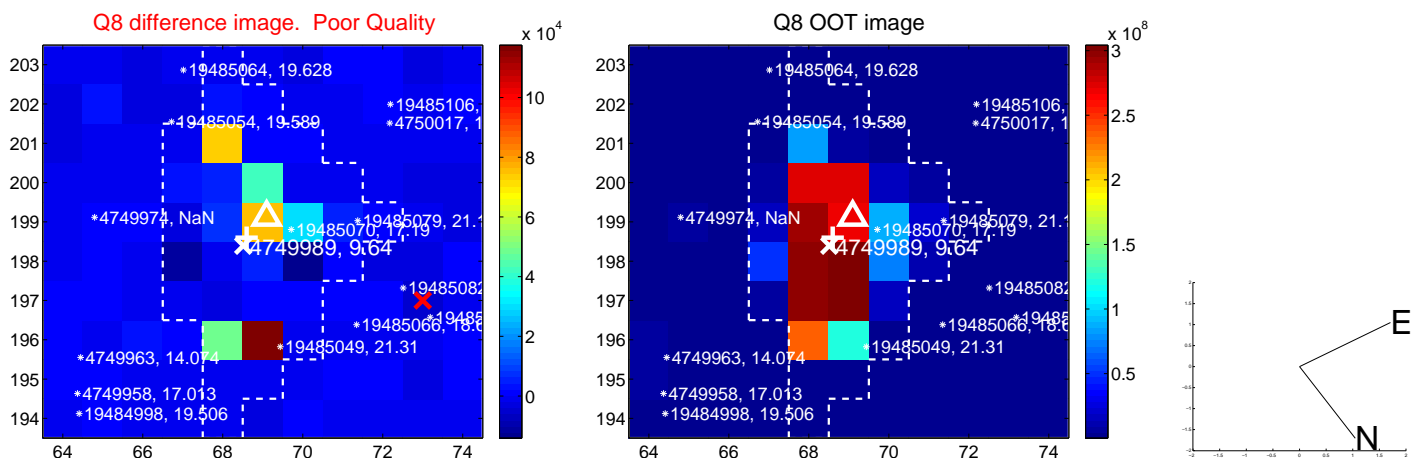
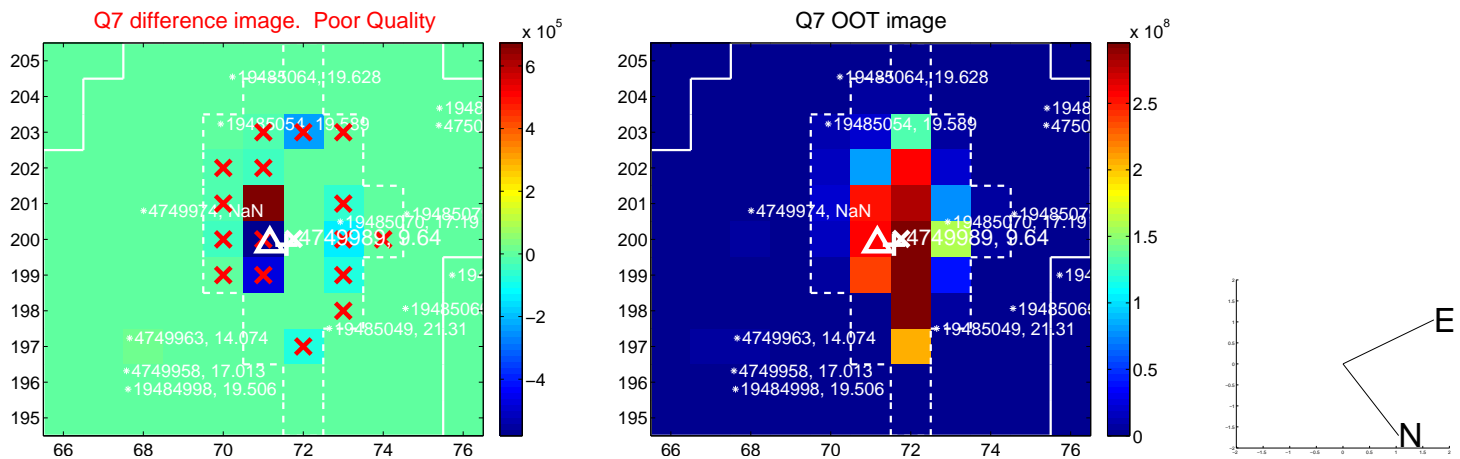
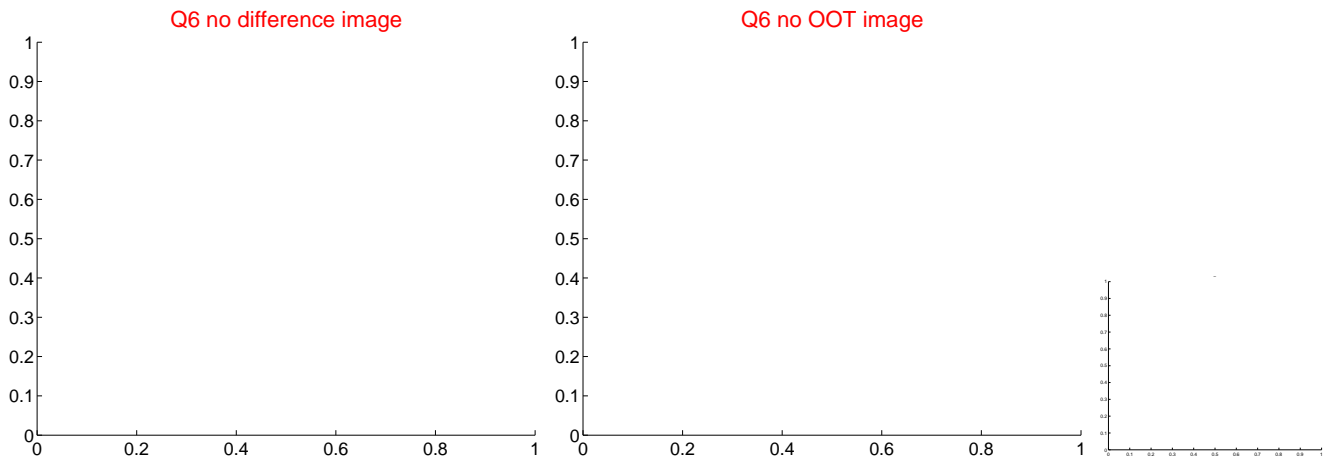
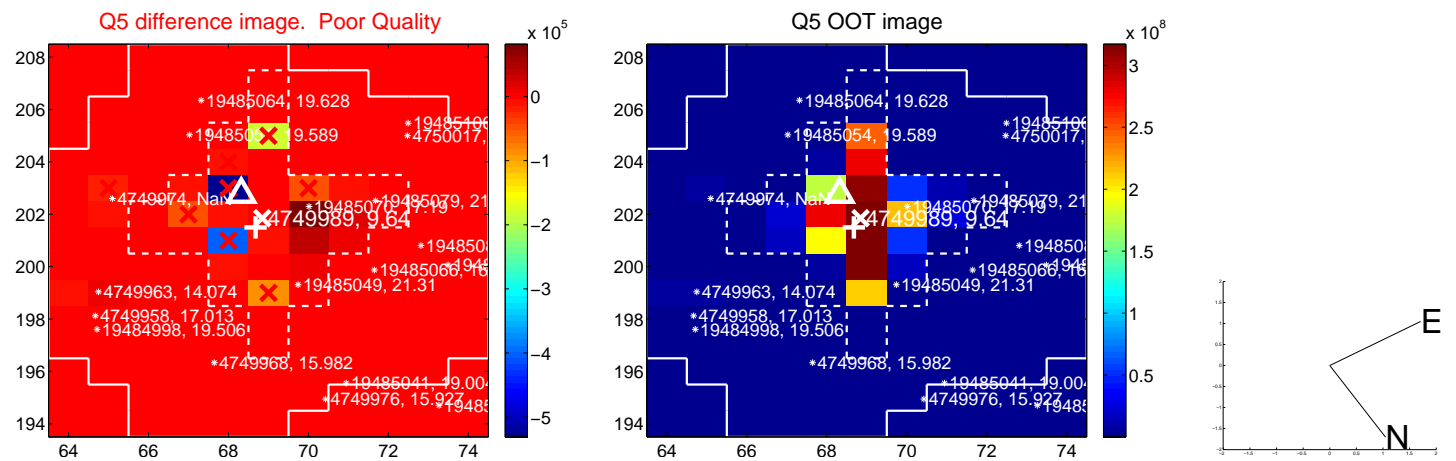
Q4 no difference image



Q4 no OOT image



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



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

Q9 no difference image



Q9 no OOT image



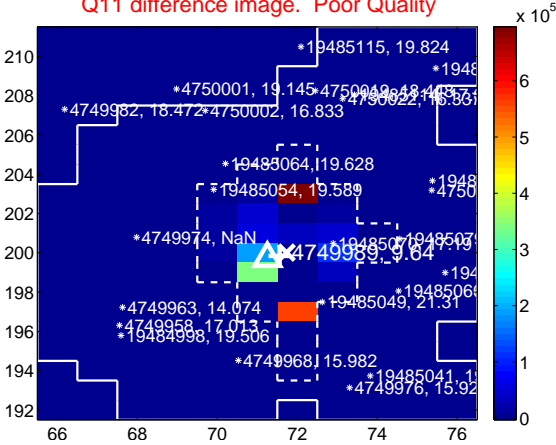
Q10 no difference image



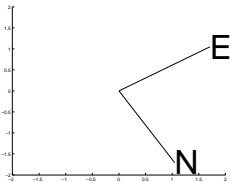
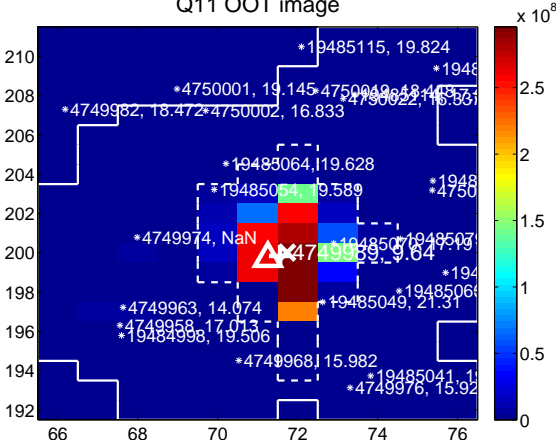
Q10 no OOT image



Q11 difference image. Poor Quality



Q11 OOT image



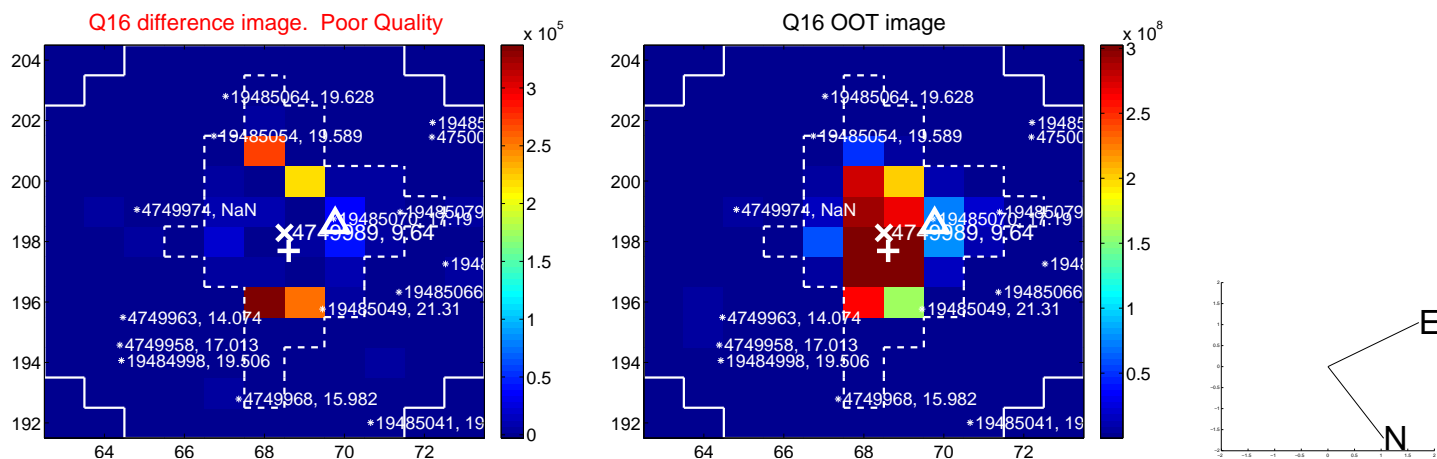
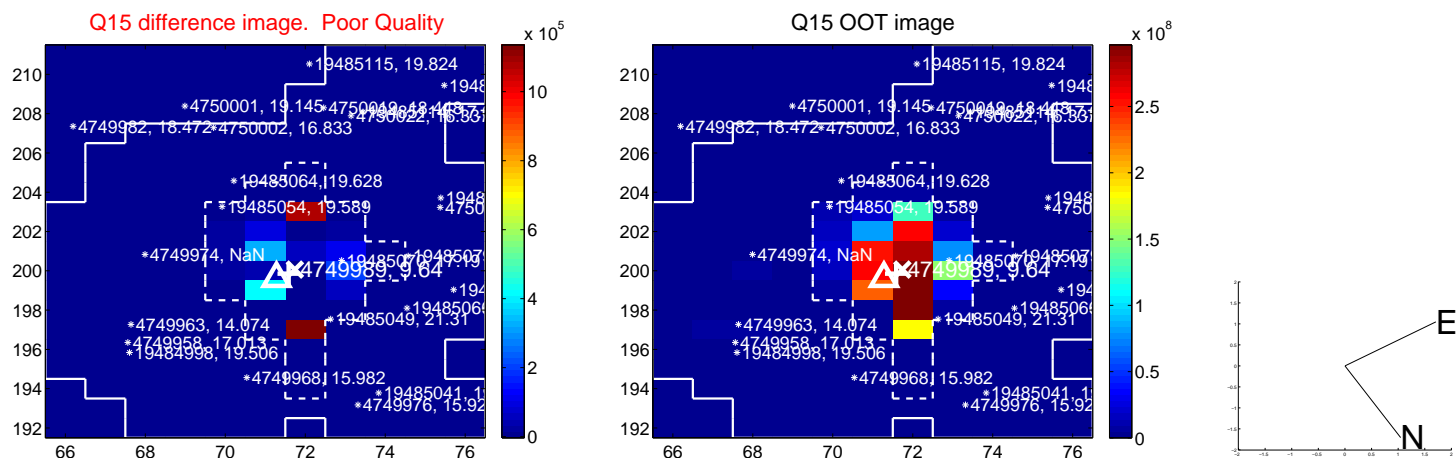
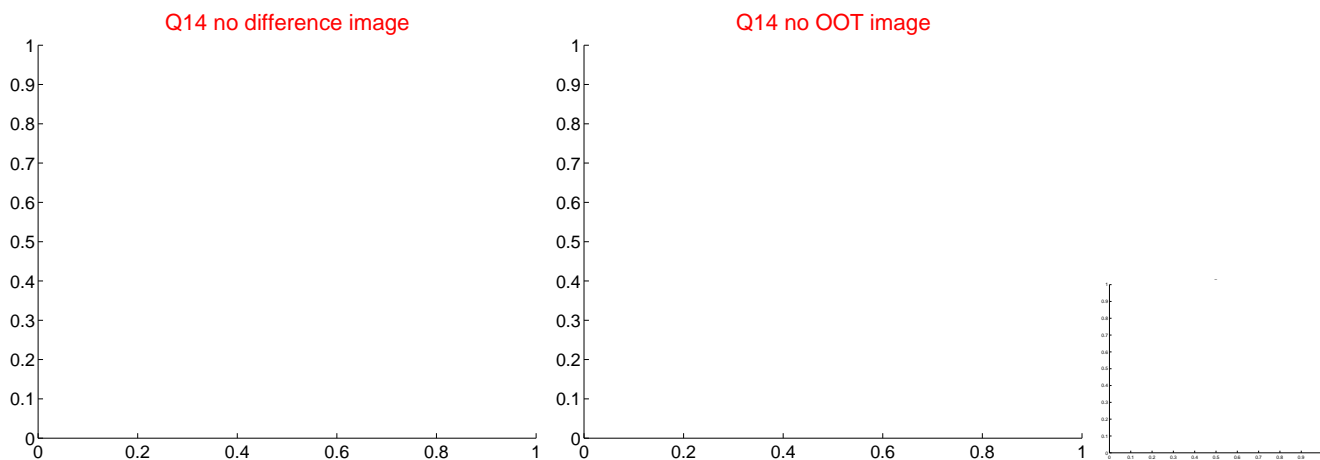
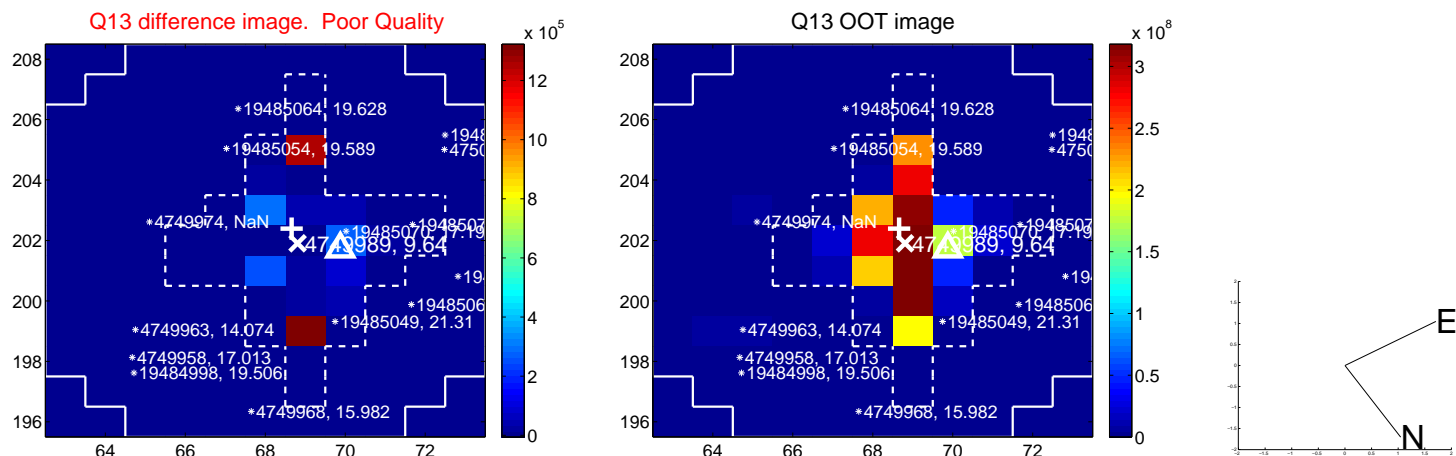
Q12 no difference image



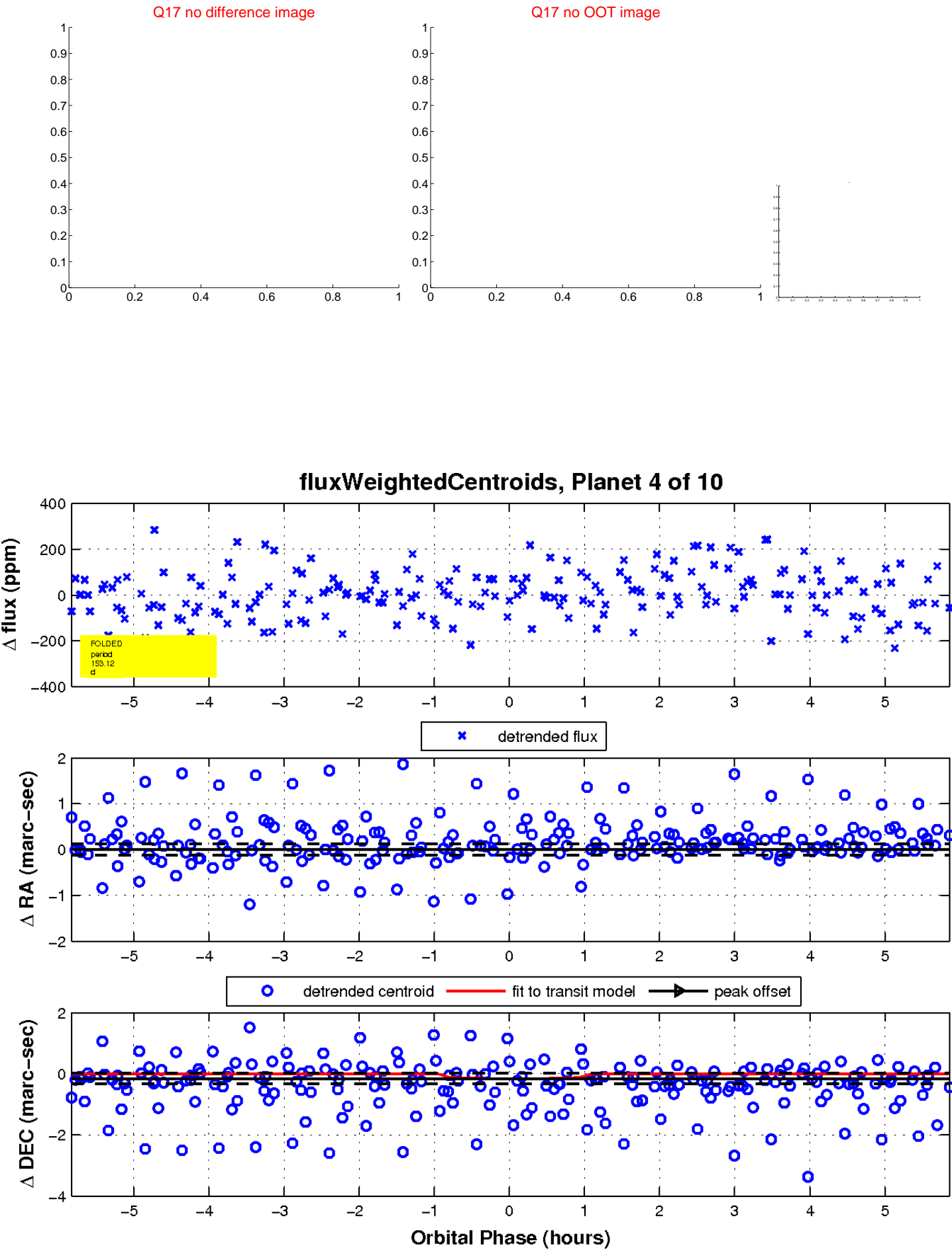
Q12 no OOT image



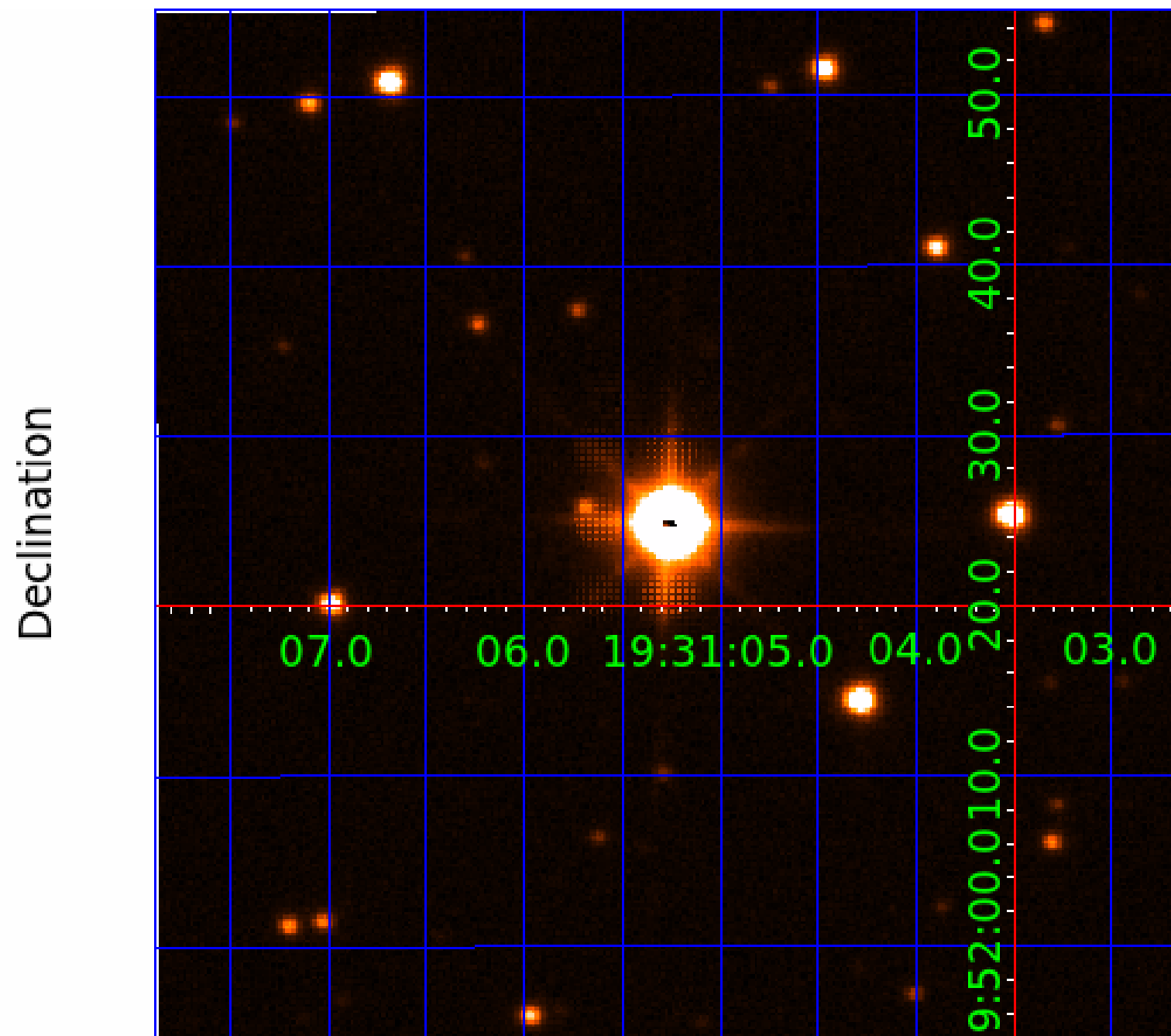
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



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})
004749989-01	OBS	No	0.732246	132.001787	13.0	4.721	11.2	9.5	1.88	6824	0.70	22521.01
004749989-02	OBS	No	43.201740	152.106101	15.0	1.035	13.2	1.1	1.88	6824	0.77	98.05
004749989-03	OBS	No	41.557803	136.205285	226.5	2.245	11.3	11.0	1.88	6824	3.33	103.26
004749989-04	OBS	No	153.116727	175.815026	50.7	1.959	10.3	1.4	1.88	6824	1.43	18.14
004749989-05	OBS	No	72.446819	177.224413	223.5	0.911	9.5	6.3	1.88	6824	3.31	49.22
004749989-06	OBS	No	467.163516	177.050588	64.6	3.500	10.6	-1.0	1.88	6824	1.53	4.10
004749989-07	OBS	No	250.427163	176.310022	171.3	3.985	9.8	9.7	1.88	6824	3.00	9.42
004749989-08	OBS	No	17.536486	142.663608	68.0	9.232	9.9	8.8	1.88	6824	1.70	326.24
004749989-09	OBS	No	49.714401	135.388278	59.6	3.000	10.6	-1.0	1.88	6824	1.47	81.31
004749989-10	OBS	No	71.221698	144.804494	188.7	2.602	10.1	8.3	1.88	6824	3.00	50.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004749989-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-03	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—CENT_SATURATED
004749989-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004749989-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-10	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—CENT_SATURATED

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

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

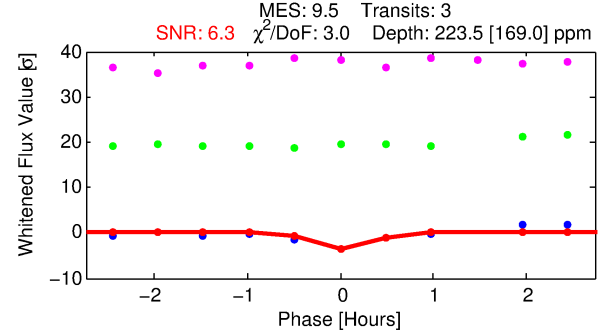
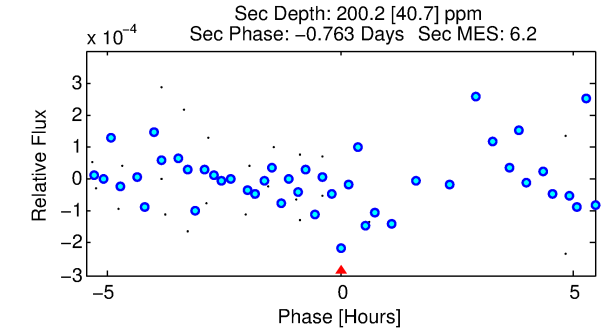
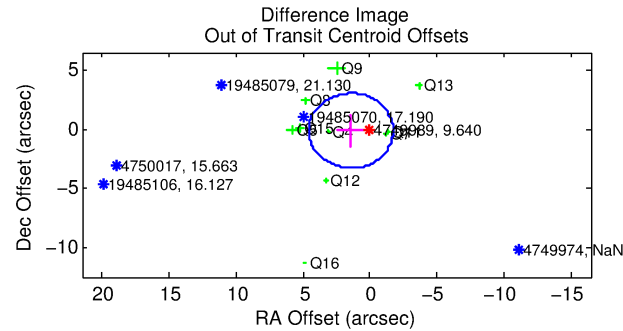
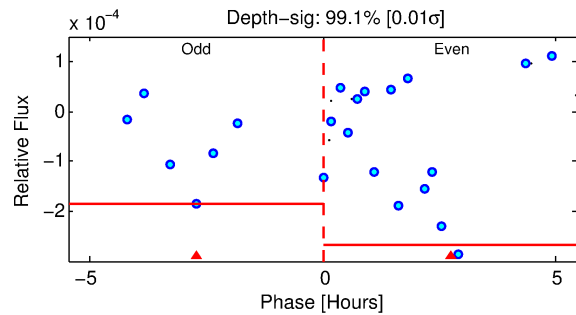
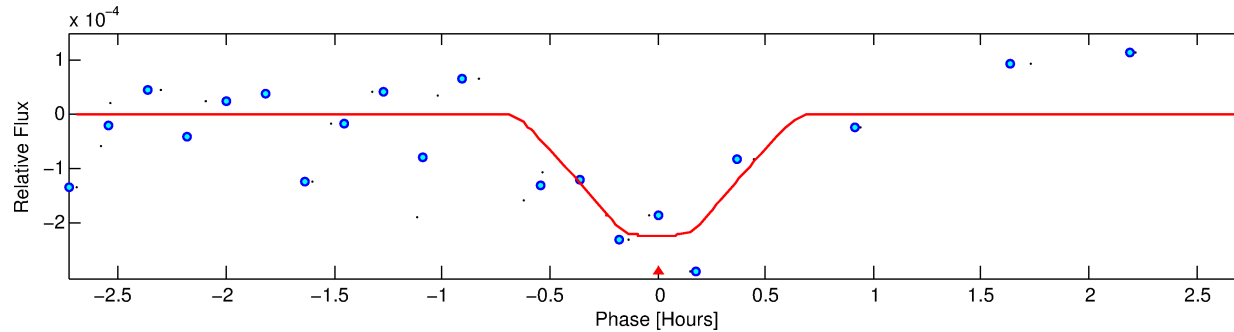
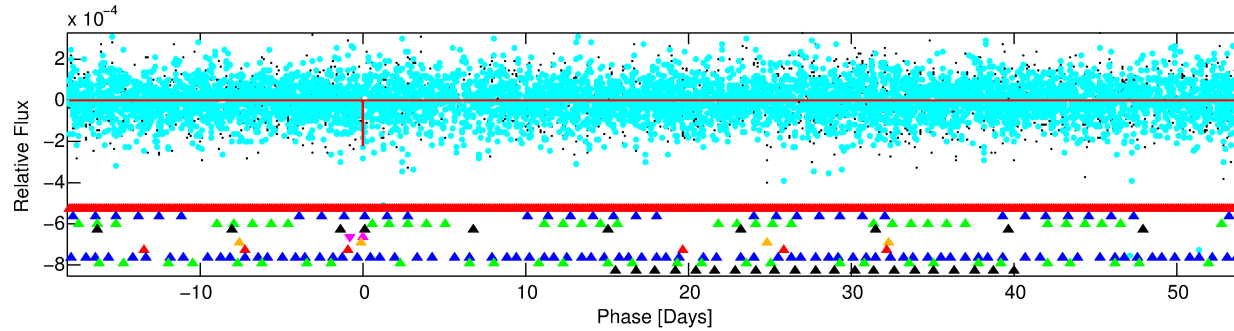
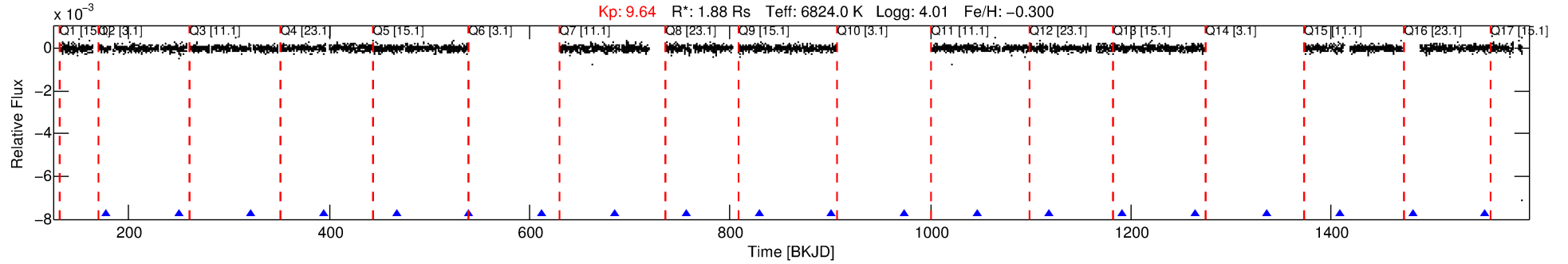
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004749989-05

No Significant Match Found

DV One-Page Summary

KIC: 4749989 Candidate: 5 of 10 Period: 72.447 d



DV Fit Results:

Period = 72.44682 [0.00113] d
Epoch = 177.2244 [0.0166] BKJD
 $R_p/R^* = 0.0161$ [0.1402]
 $a/R^* = 283.37$ [15087.26]
 $b = 0.90$ [11.10]
 $\text{Seff} = 49.22$ [25.49]
 $T_{\text{eq}} = 675$ [87] K
 $R_p = 3.31$ [28.82] R_e
 $a = 0.3739$ [0.1157] AU
 $A_g = 1404.20$ [24436.20] [0.06 σ]
 $T_{\text{effp}} = 6392$ [27800] K [0.2 σ]

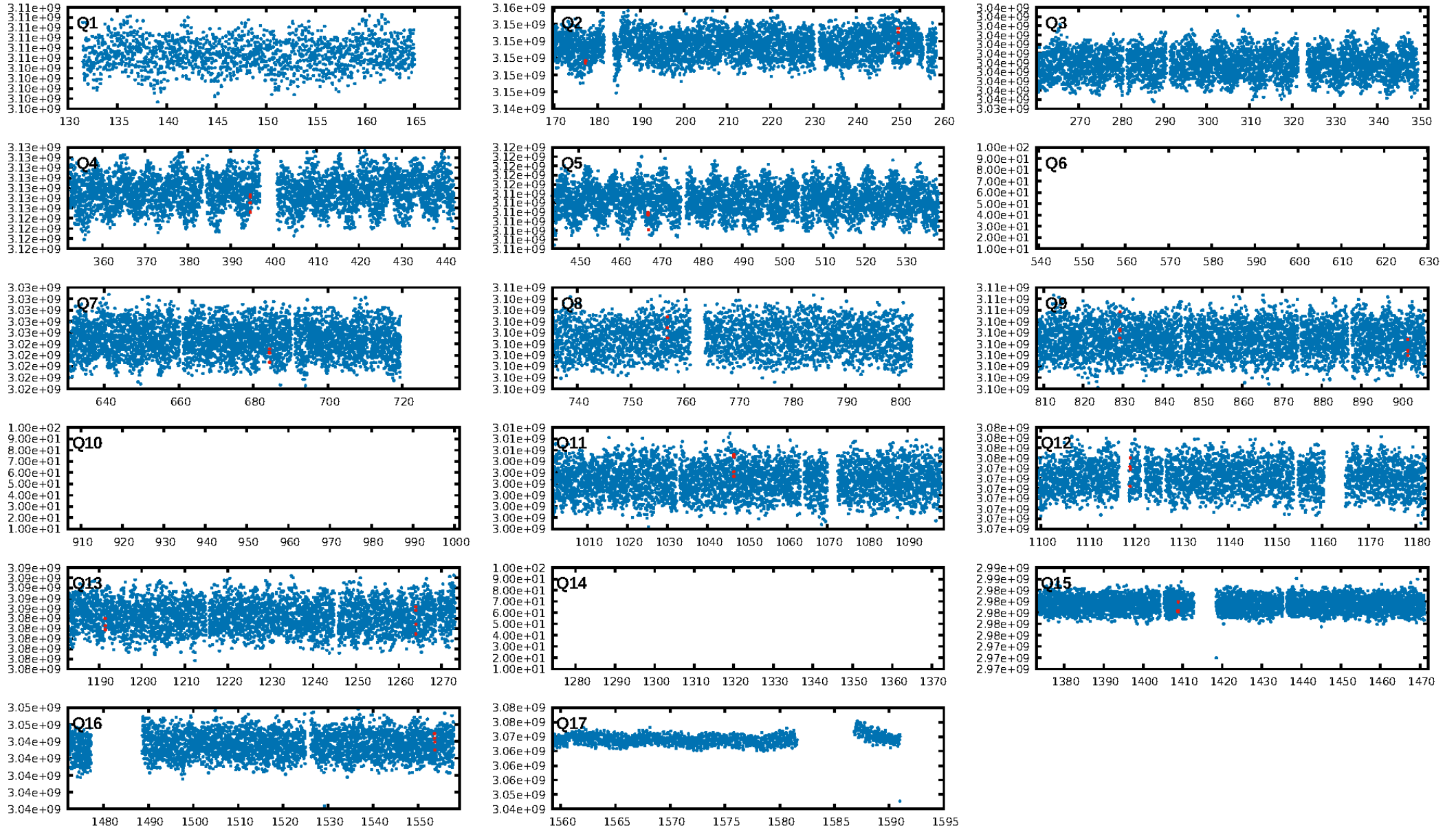
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.67 σ]
LongPeriod-sig: 100.0% [895.98 σ]
ModelChiSquare2-sig: 58.7%
ModelChiSquareGof-sig: 98.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 9.8%
Centroid-so: 0.939 arcsec [1.26 σ]
OotOffset-rm: 1.438 arcsec [1.36 σ]
OotOffset-st: 0/3/4/3 [10]
KicOffset-rm: 3.954 arcsec [3.89 σ]
KicOffset-st: 0/3/4/3 [10]
DiffImageQuality-fgm: 0.00 [0/10]
DiffImageOverlap-fno: 0.09 [1/11]

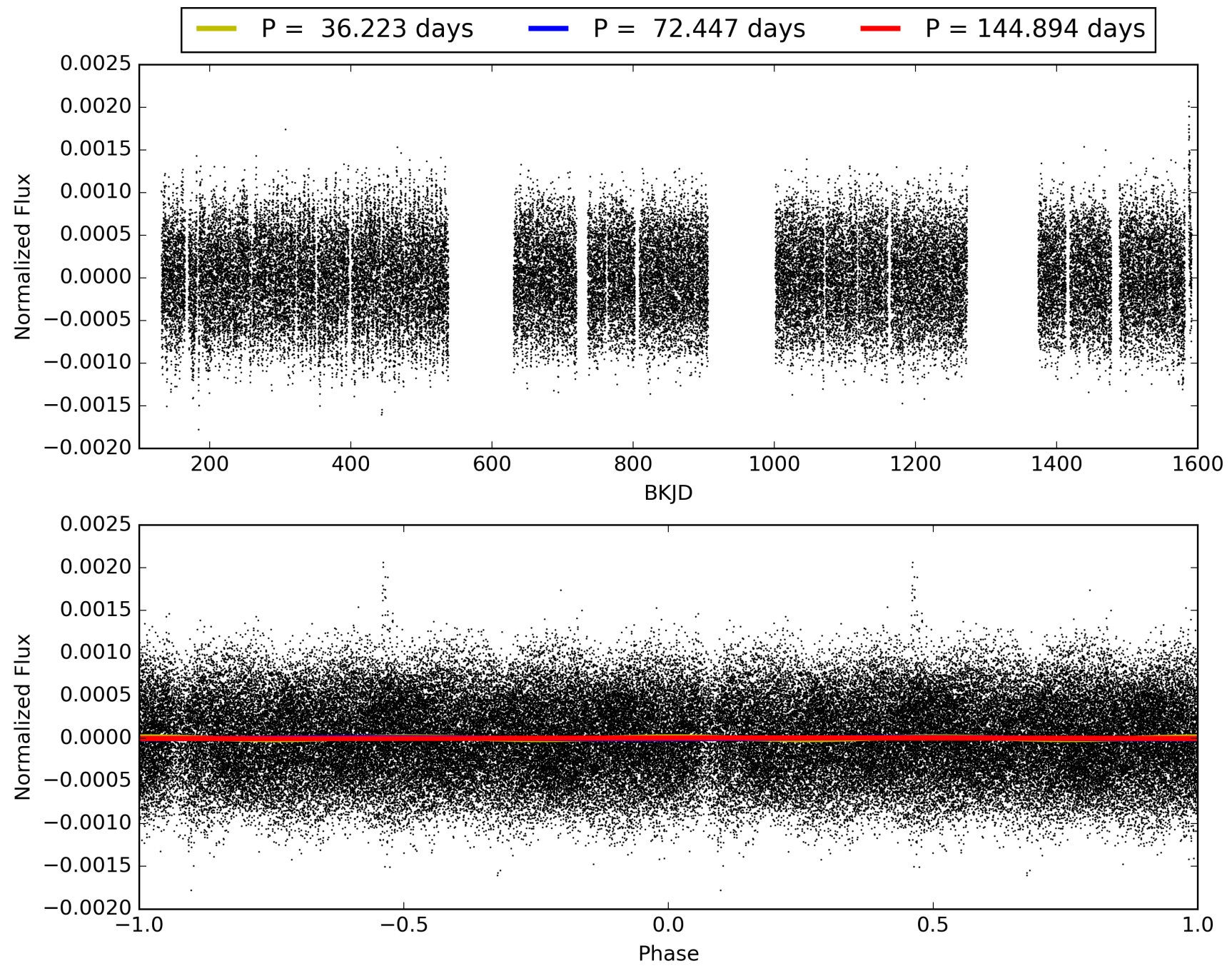
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:57:39 Z

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

TCE 004749989-05, PDC Light Curves

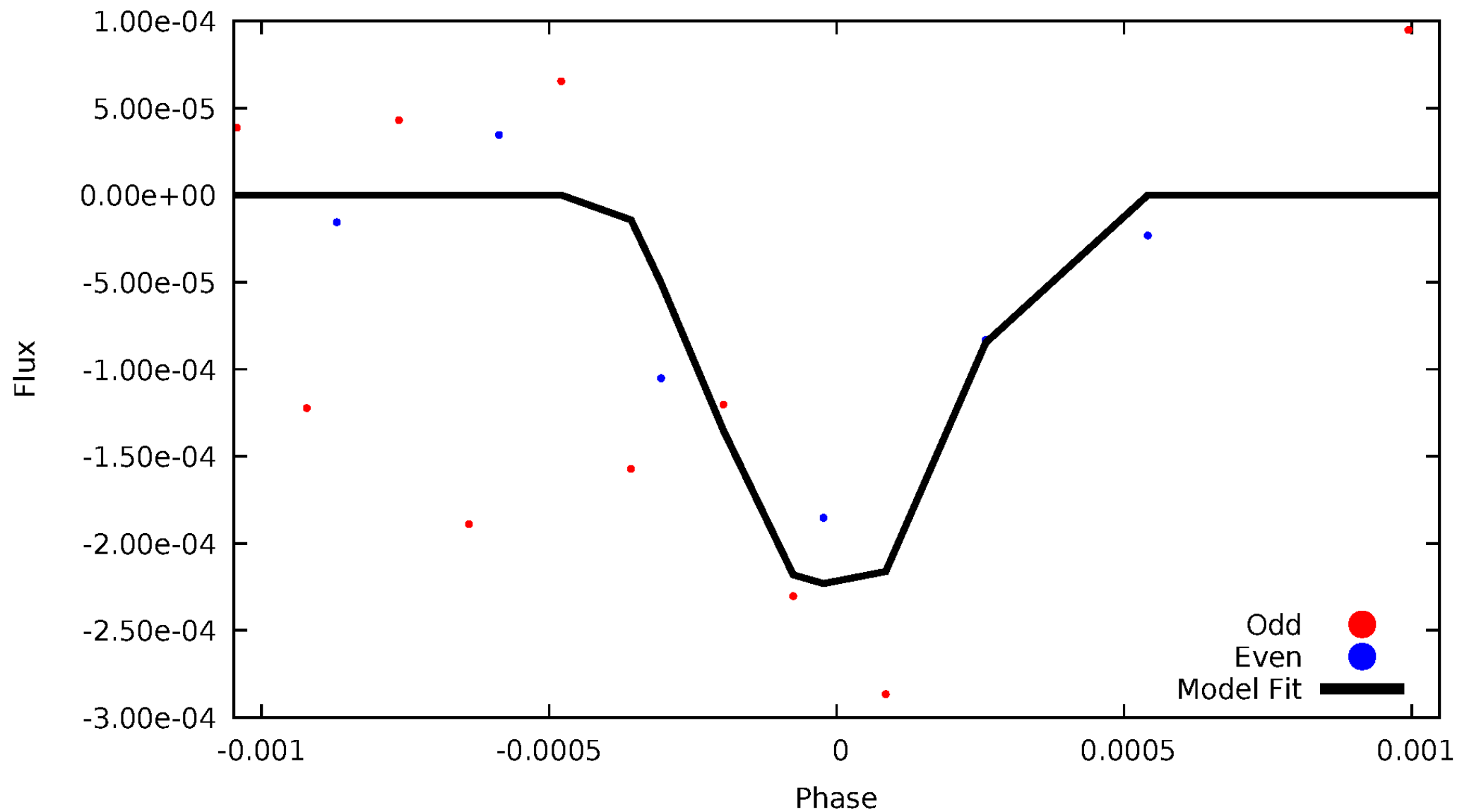


TCE 004749989-05



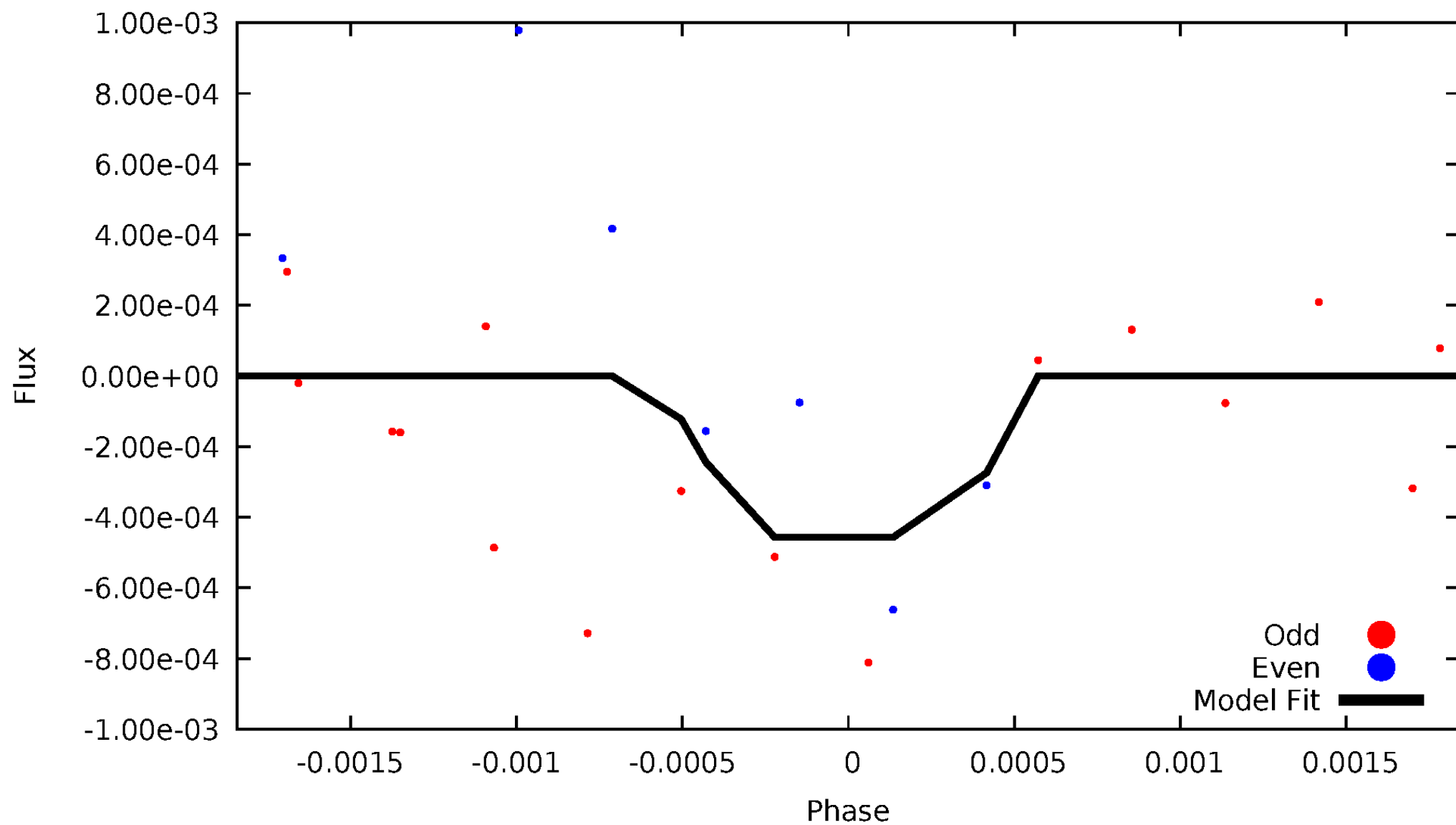
DV Odd/Even

TCE 004749989-05



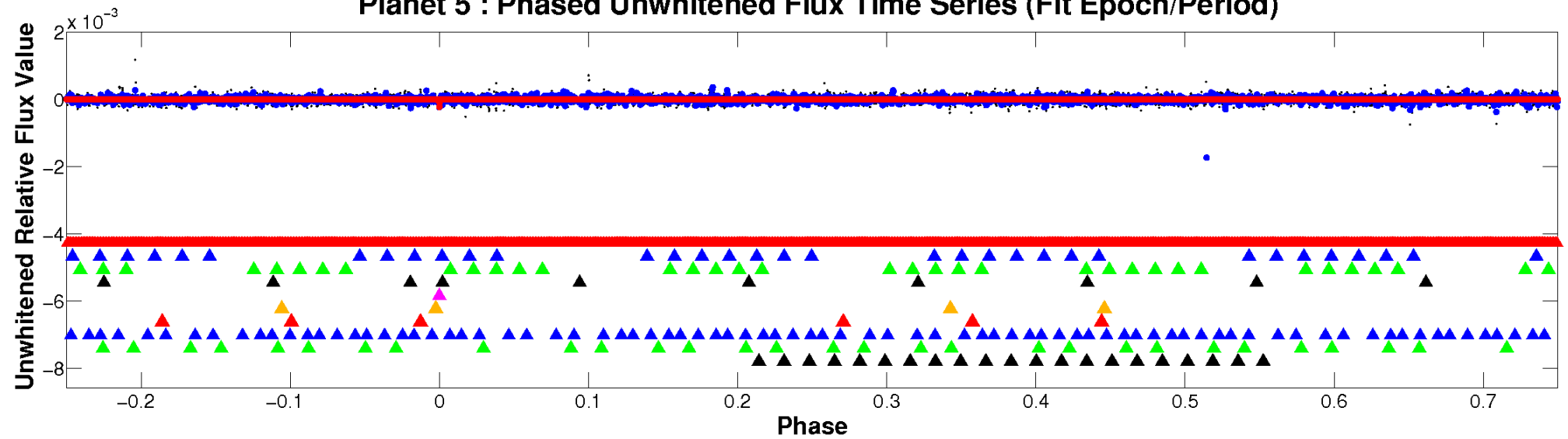
ALT Odd/Even

TCE 004749989-05

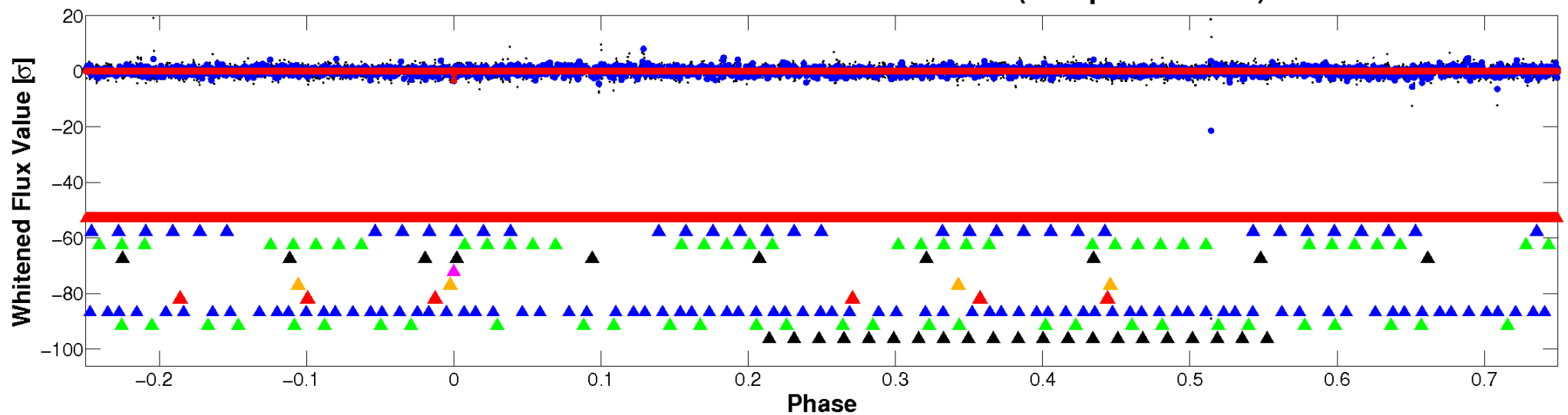


Non-Whitened Vs. Whitened Light Curve

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

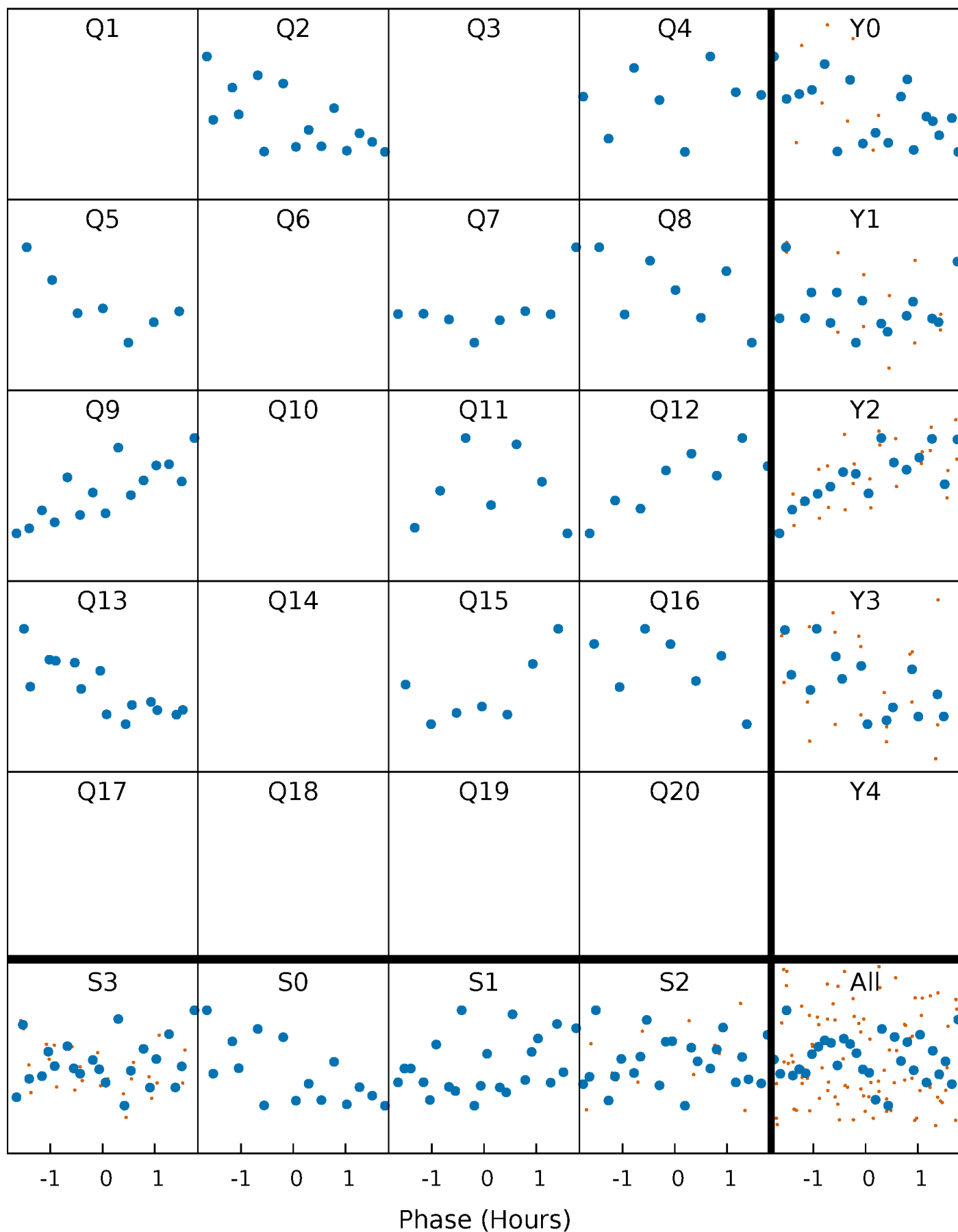


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



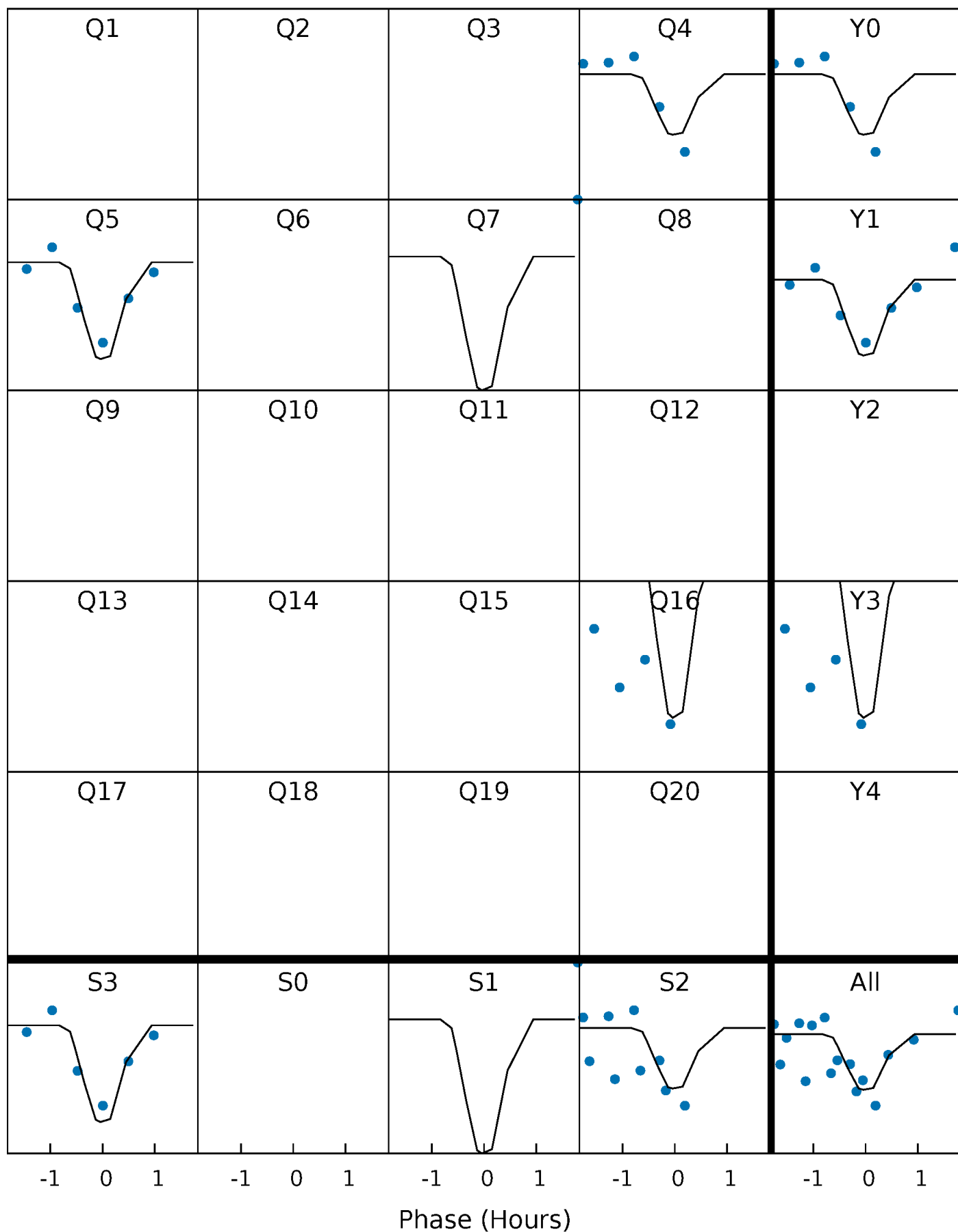
PDC Quarter-Phased Transit Curves

TCE 004749989-05 P= 72.446819 Days $T_0=177.224413$ (BKJD)



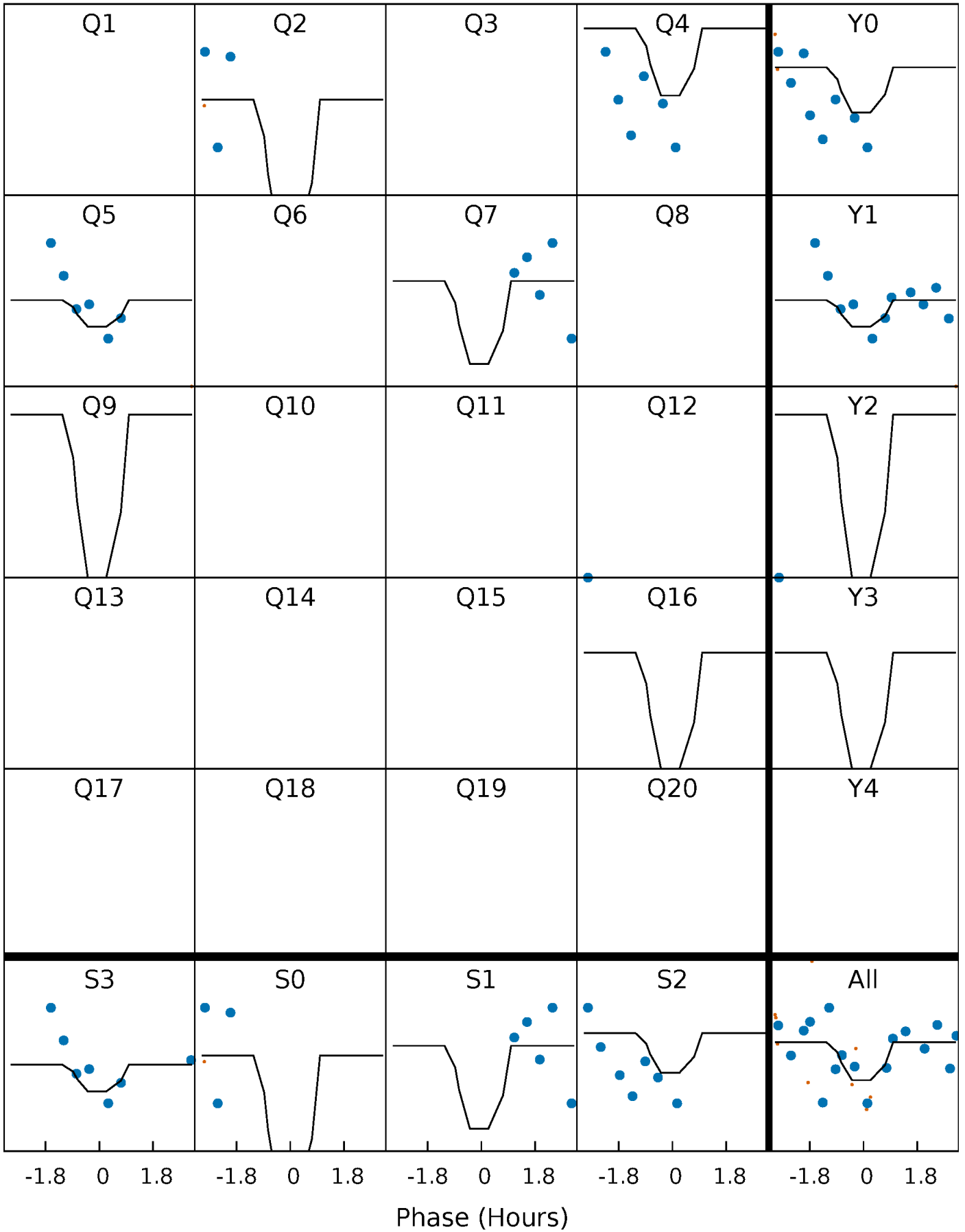
DV Quarter-Phased Transit Curves

TCE 004749989-05 P= 72.446819 Days $T_0=177.224413$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

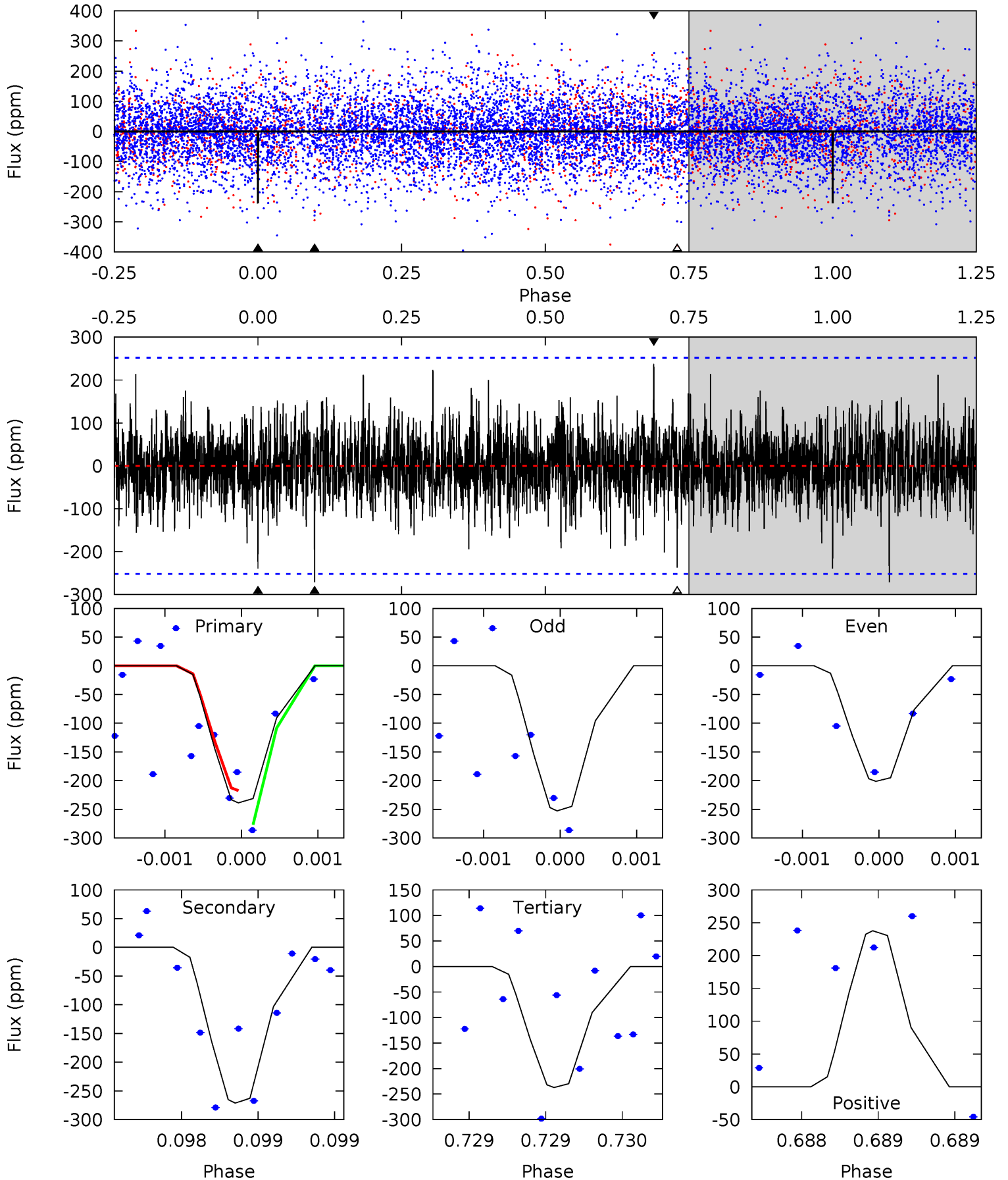
TCE 004749989-05 P= 72.454022 Days $T_0=177.204615$ (BKJD)



DV Model-Shift Uniqueness Test

004749989-05, P = 72.446819 Days, E = 104.777594 Days

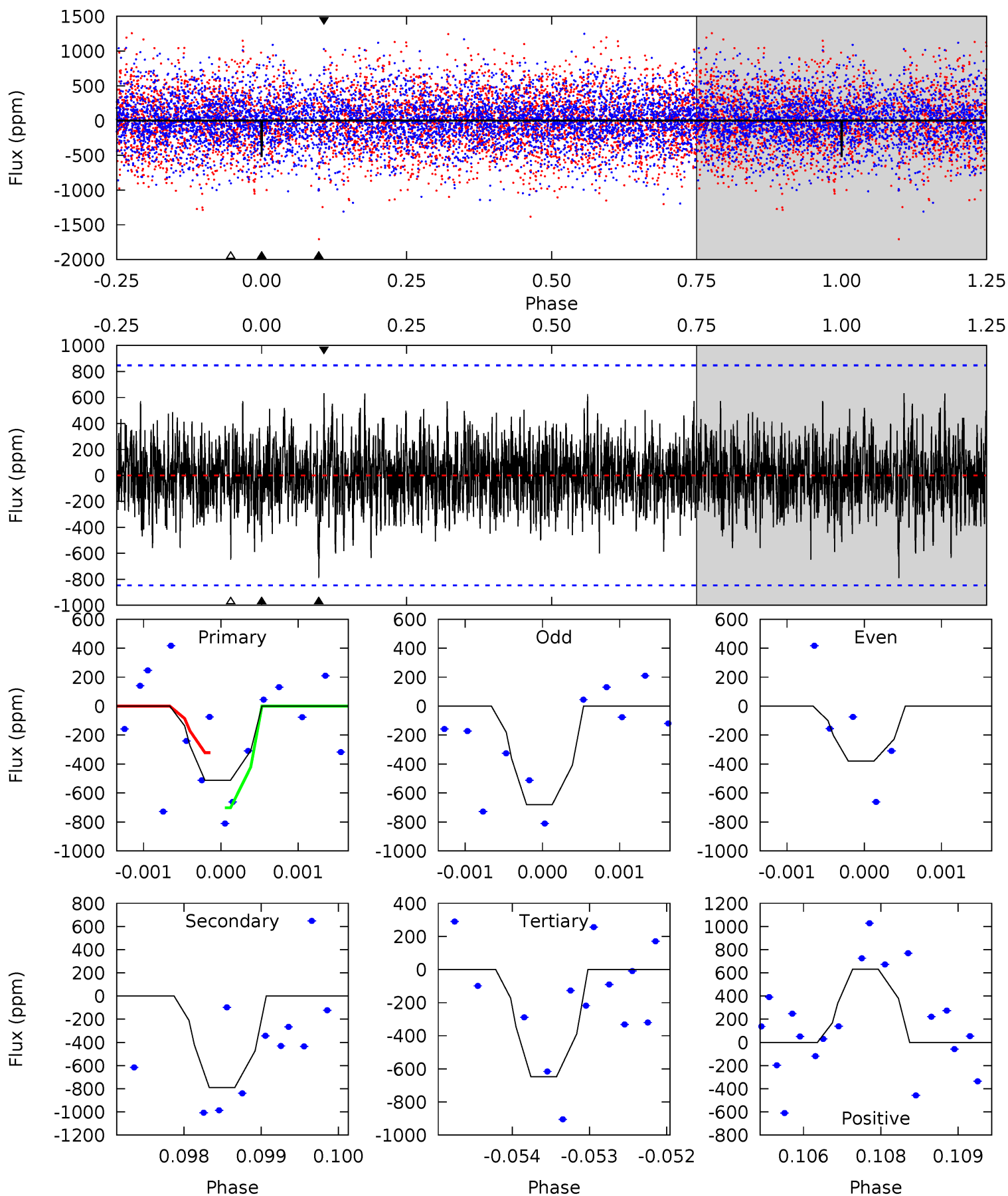
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.26	5.98	5.23	5.24	5.55	3.45	1.24	0.04	0.02	0.75	0.74	0.49	0.97	0.47	0.56



Alt Model-Shift Uniqueness Test

004749989-05, P = 72.454022 Days, E = 104.750593 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.29	5.07	4.16	4.06	5.44	3.27	1.17	-0.87	-0.77	0.91	1.01	0.91	1.00	0.44	1.23



Stellar Parameters For KIC 004749989

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6824^{+214}_{-285}	$4.012^{+0.286}_{-0.154}$	$-0.300^{+0.300}_{-0.300}$	$1.882^{+0.504}_{-0.616}$	$1.332^{+0.195}_{-0.238}$	$0.281^{+0.569}_{-0.128}$
	+3%/-4%	+7%/-4%	+100%/-100%	+27%/-33%	+15%/-18%	+202%/-45%
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 004749989-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-271 ± 45	$19.12^{+20.89}_{-12.91}$	923^{+80}_{-87}	3345^{+1638}_{-647}	56^{+462}_{-44}
Alt.	-789 ± 156	$20.01^{+22.36}_{-14.75}$	929^{+76}_{-86}	3898^{+2831}_{-824}	154^{+1778}_{-121}

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

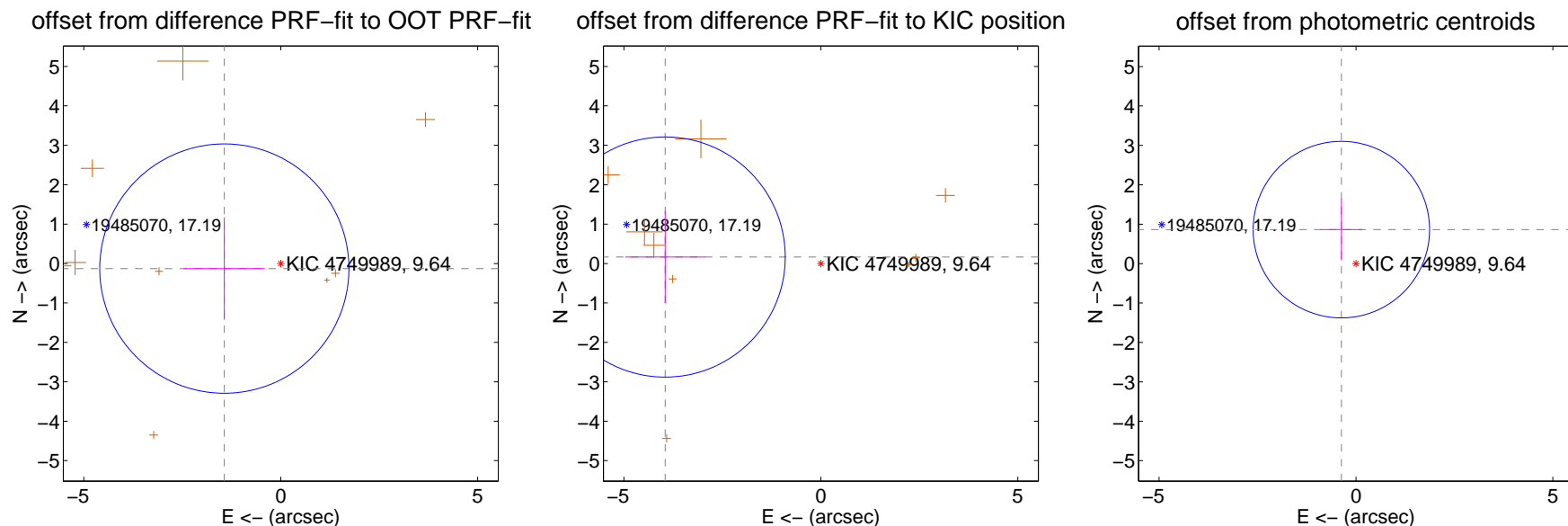
DV Centroid Data

Supplemental centroid analysis for 004749989-05. **Kepler magnitude: 9.64.** Transit SNR 6.25

There are 0 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 2.41 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.438 ± 1.054	1.36	1.432 ± 1.030	-0.128 ± 1.296
PRF-fit source offset from KIC position	3.954 ± 1.015	3.89	3.951 ± 1.018	0.165 ± 1.167
photometric centroid source offset	0.94 ± 0.75	1.26	0.37 ± 0.53	0.86 ± 0.78



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.

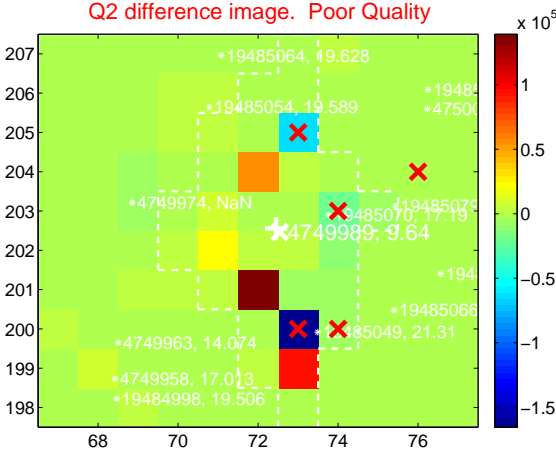
Q1 no difference image



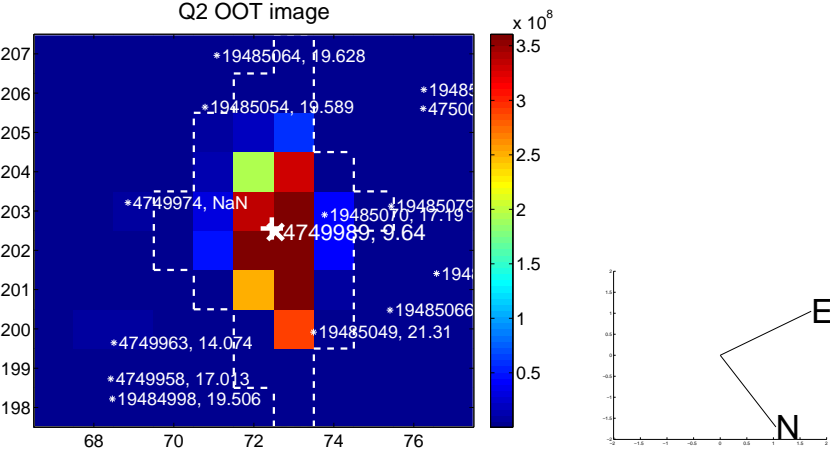
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



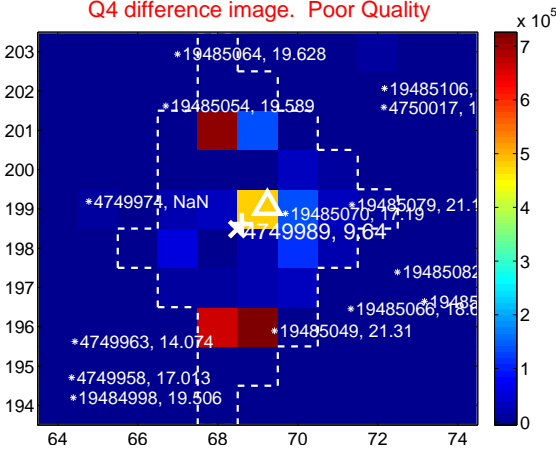
Q3 no difference image



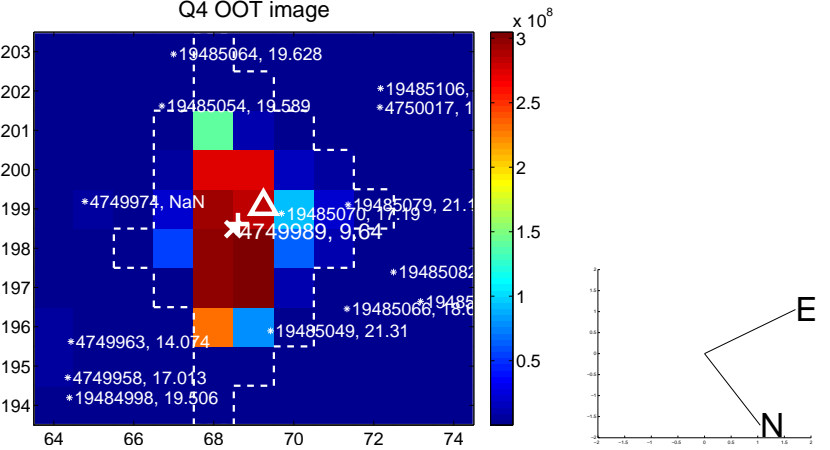
Q3 no OOT image



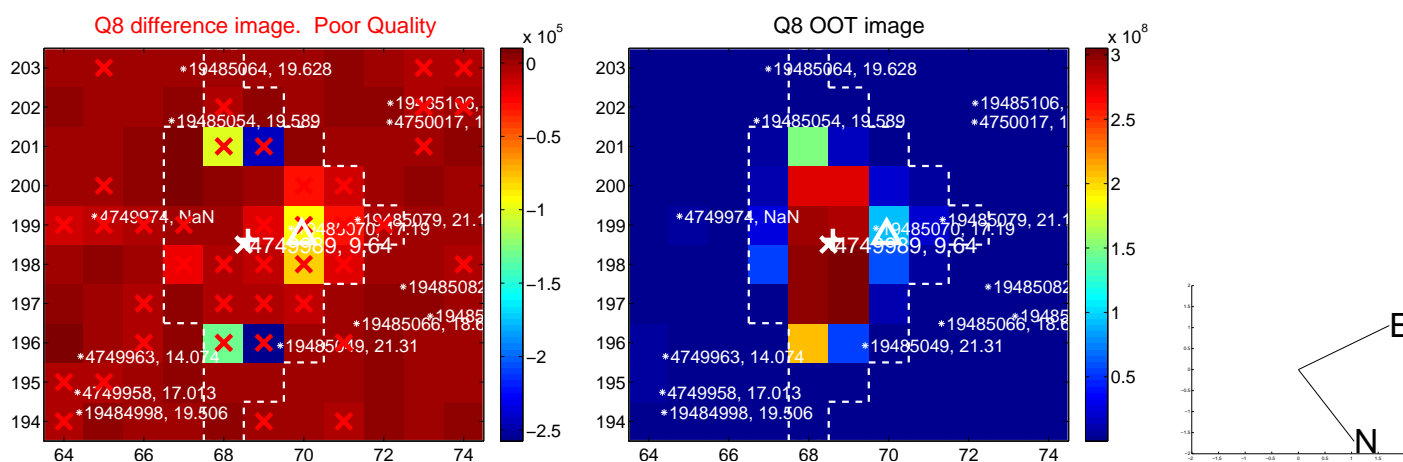
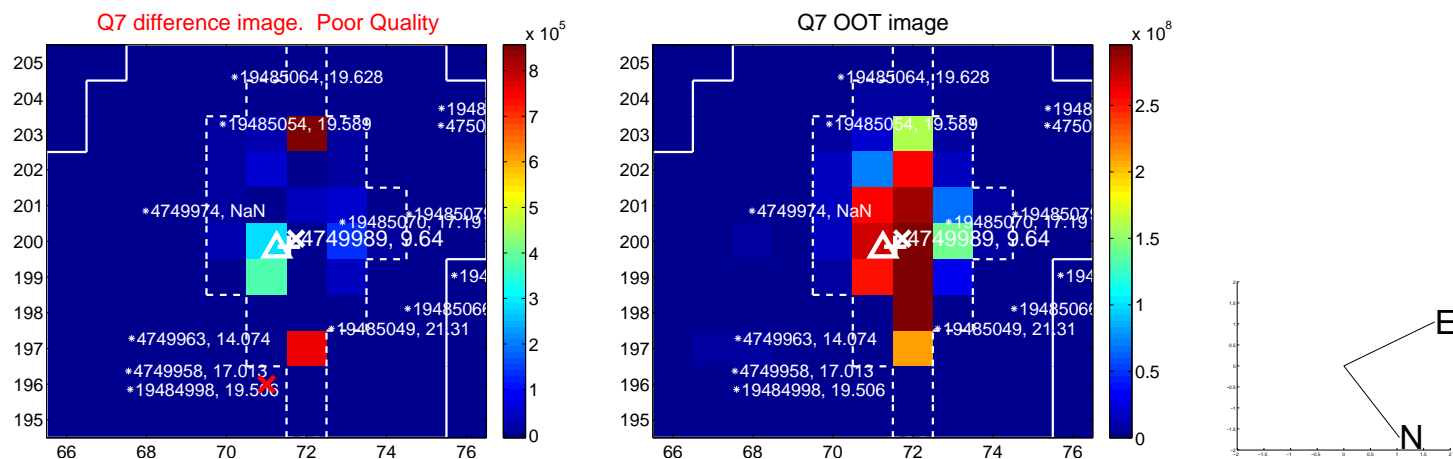
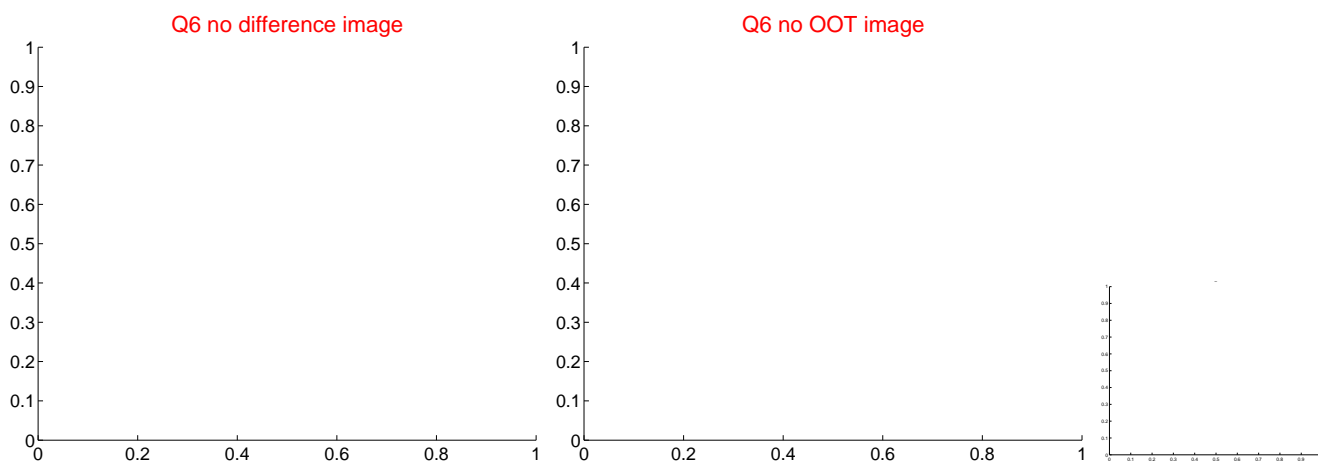
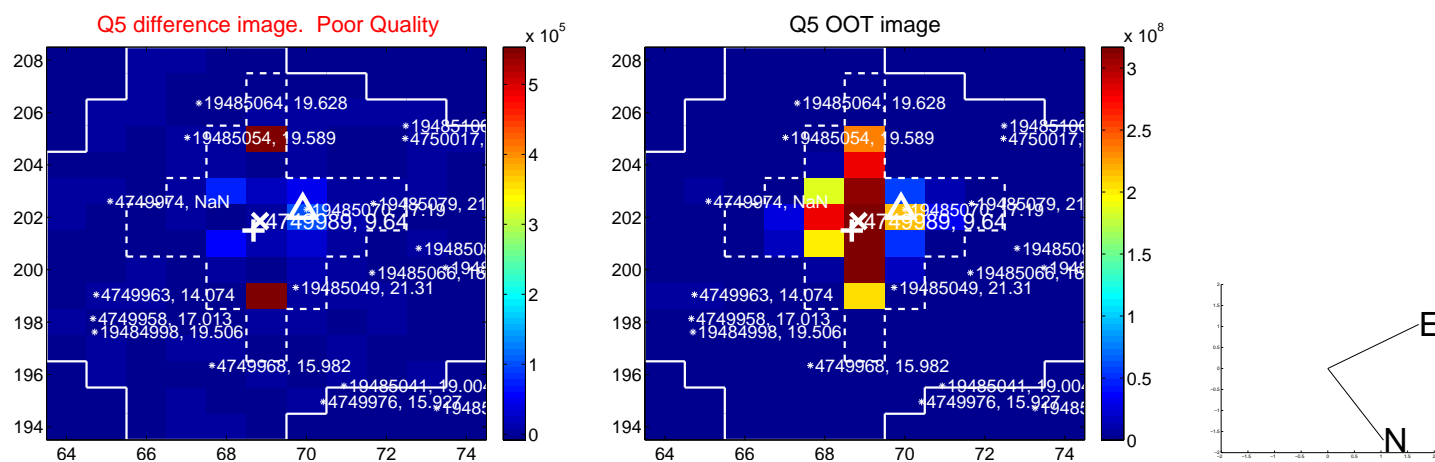
Q4 difference image. Poor Quality



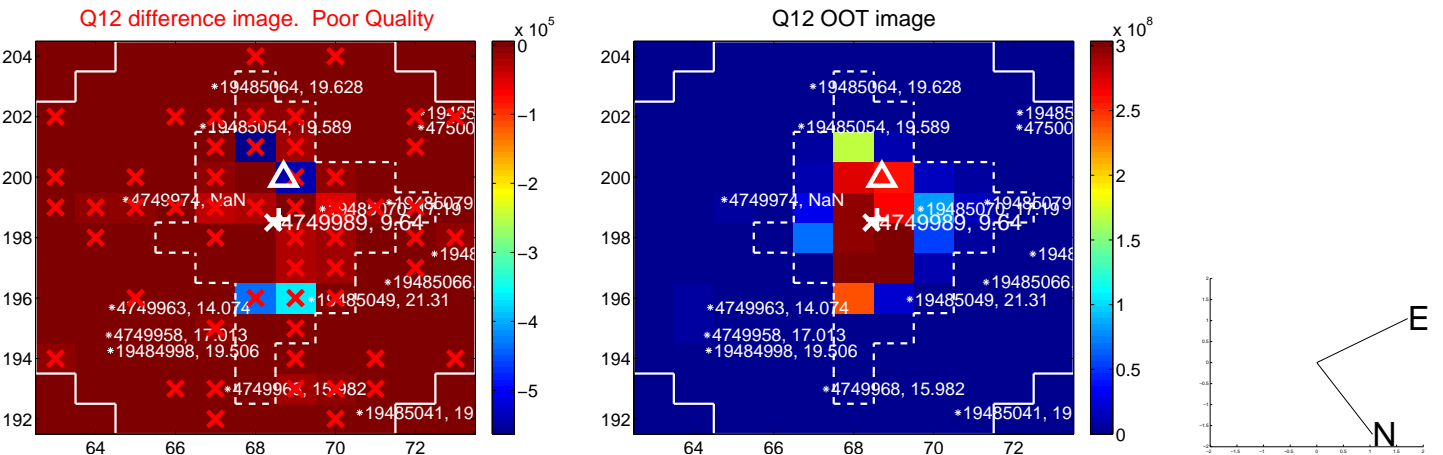
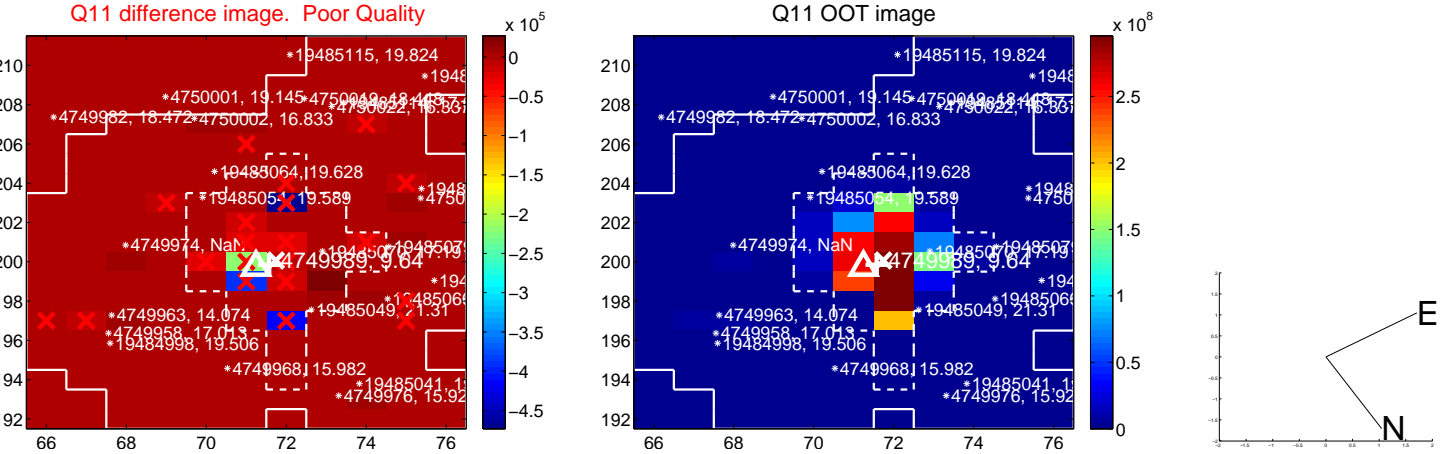
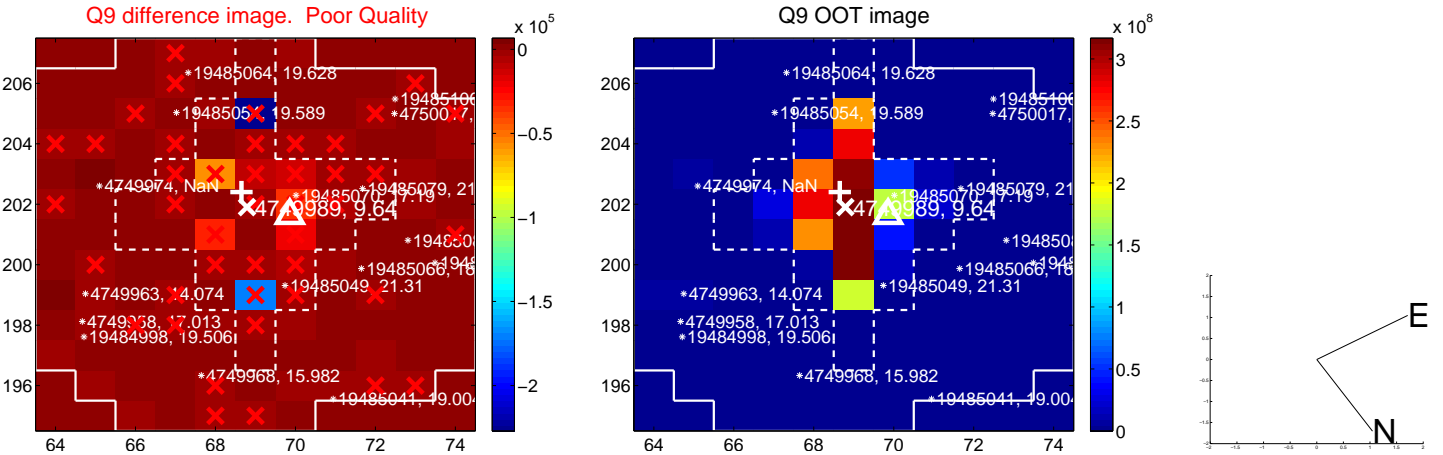
Q4 OOT image



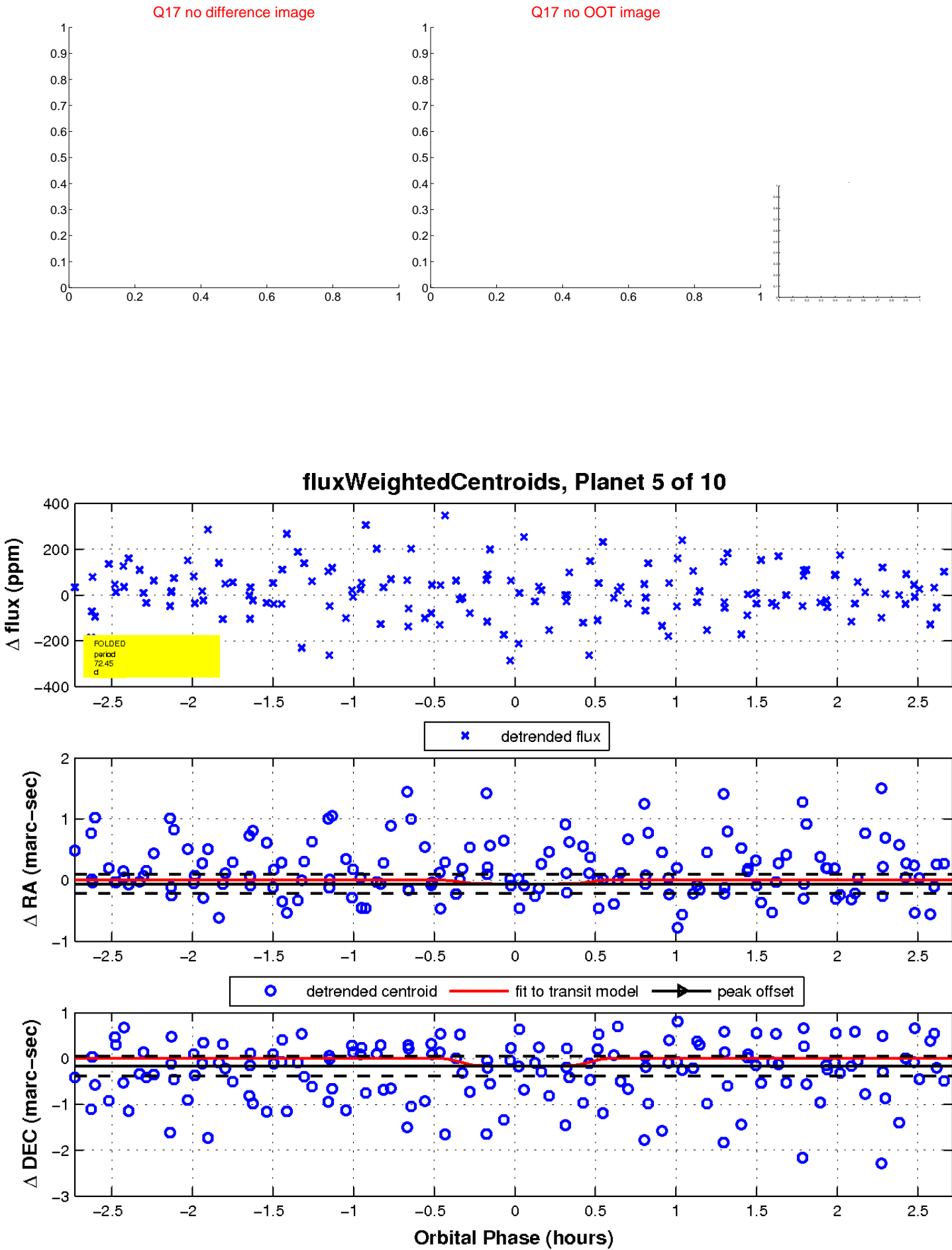
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



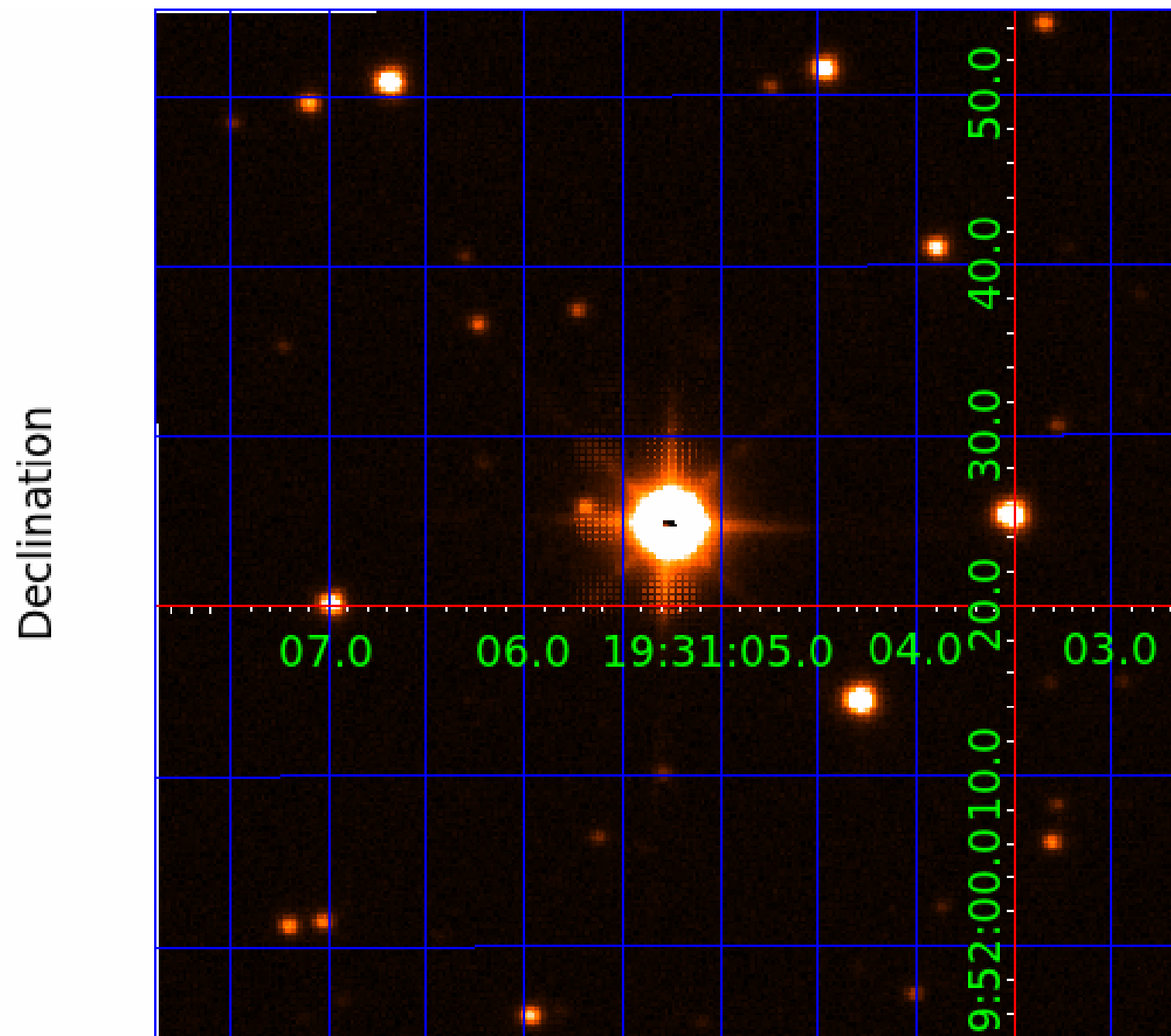
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



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})
004749989-01	OBS	No	0.732246	132.001787	13.0	4.721	11.2	9.5	1.88	6824	0.70	22521.01
004749989-02	OBS	No	43.201740	152.106101	15.0	1.035	13.2	1.1	1.88	6824	0.77	98.05
004749989-03	OBS	No	41.557803	136.205285	226.5	2.245	11.3	11.0	1.88	6824	3.33	103.26
004749989-04	OBS	No	153.116727	175.815026	50.7	1.959	10.3	1.4	1.88	6824	1.43	18.14
004749989-05	OBS	No	72.446819	177.224413	223.5	0.911	9.5	6.3	1.88	6824	3.31	49.22
004749989-06	OBS	No	467.163516	177.050588	64.6	3.500	10.6	-1.0	1.88	6824	1.53	4.10
004749989-07	OBS	No	250.427163	176.310022	171.3	3.985	9.8	9.7	1.88	6824	3.00	9.42
004749989-08	OBS	No	17.536486	142.663608	68.0	9.232	9.9	8.8	1.88	6824	1.70	326.24
004749989-09	OBS	No	49.714401	135.388278	59.6	3.000	10.6	-1.0	1.88	6824	1.47	81.31
004749989-10	OBS	No	71.221698	144.804494	188.7	2.602	10.1	8.3	1.88	6824	3.00	50.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004749989-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-03	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—CENT_SATURATED
004749989-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004749989-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-10	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—CENT_SATURATED

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

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

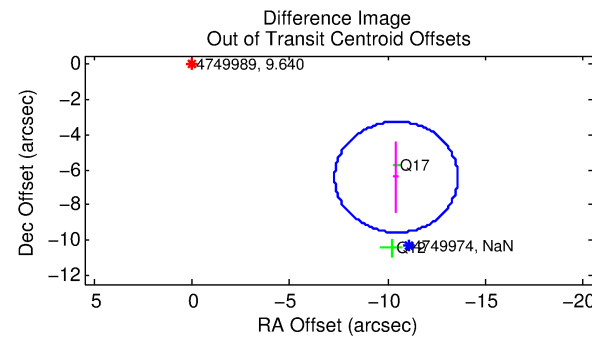
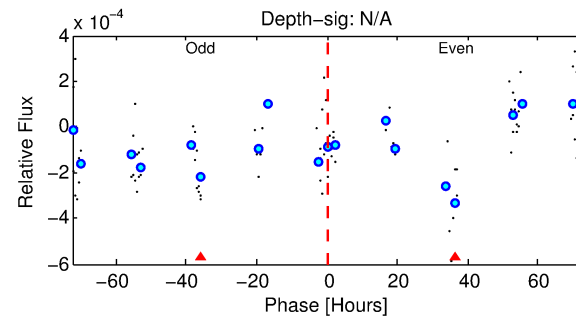
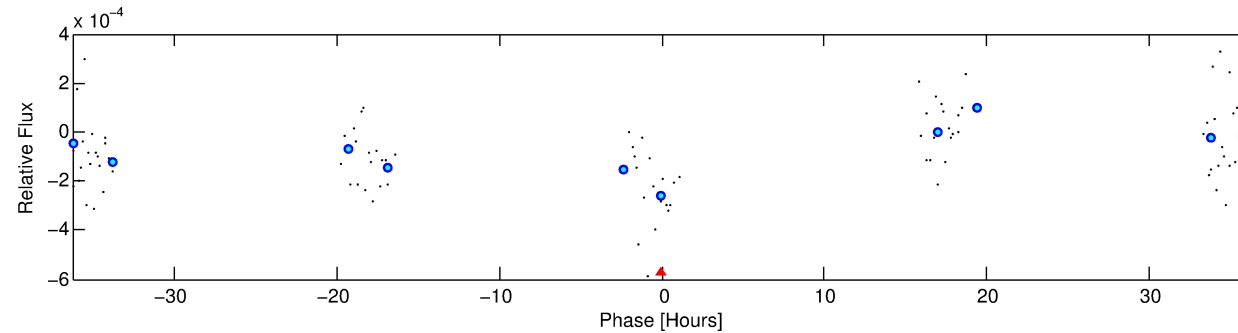
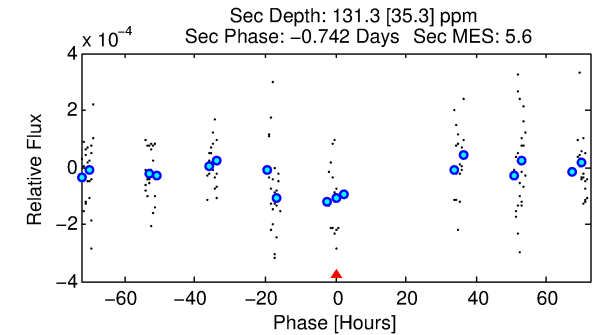
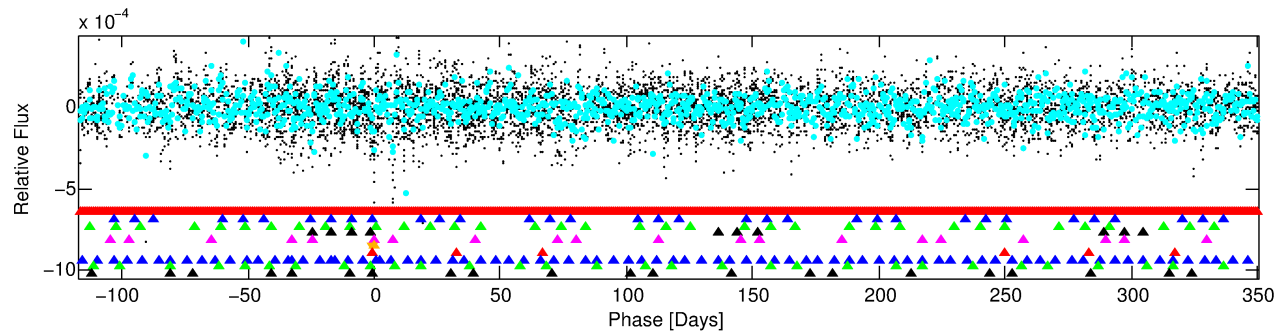
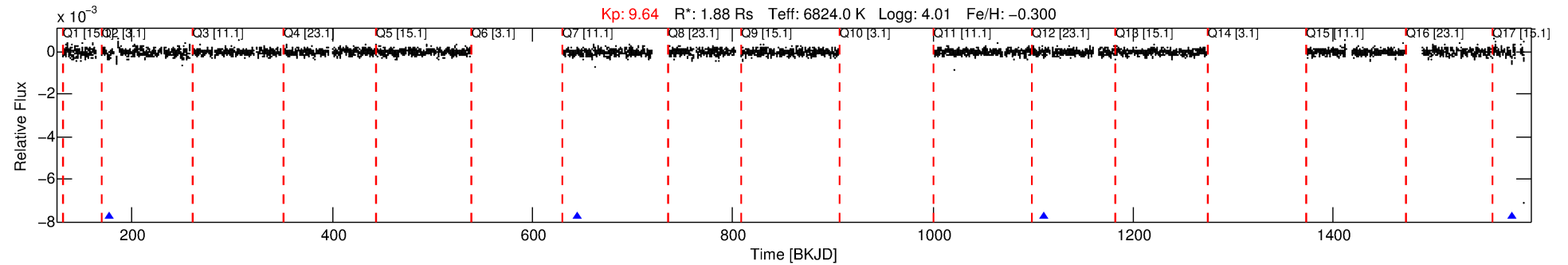
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004749989-06

No Significant Match Found

DV One-Page Summary

KIC: 4749989 Candidate: 6 of 10 Period: 467.164 d



TPS TCE Results:

Period = 467.16352 d
Epoch = 177.0506 BKJD

DV fit results are unavailable

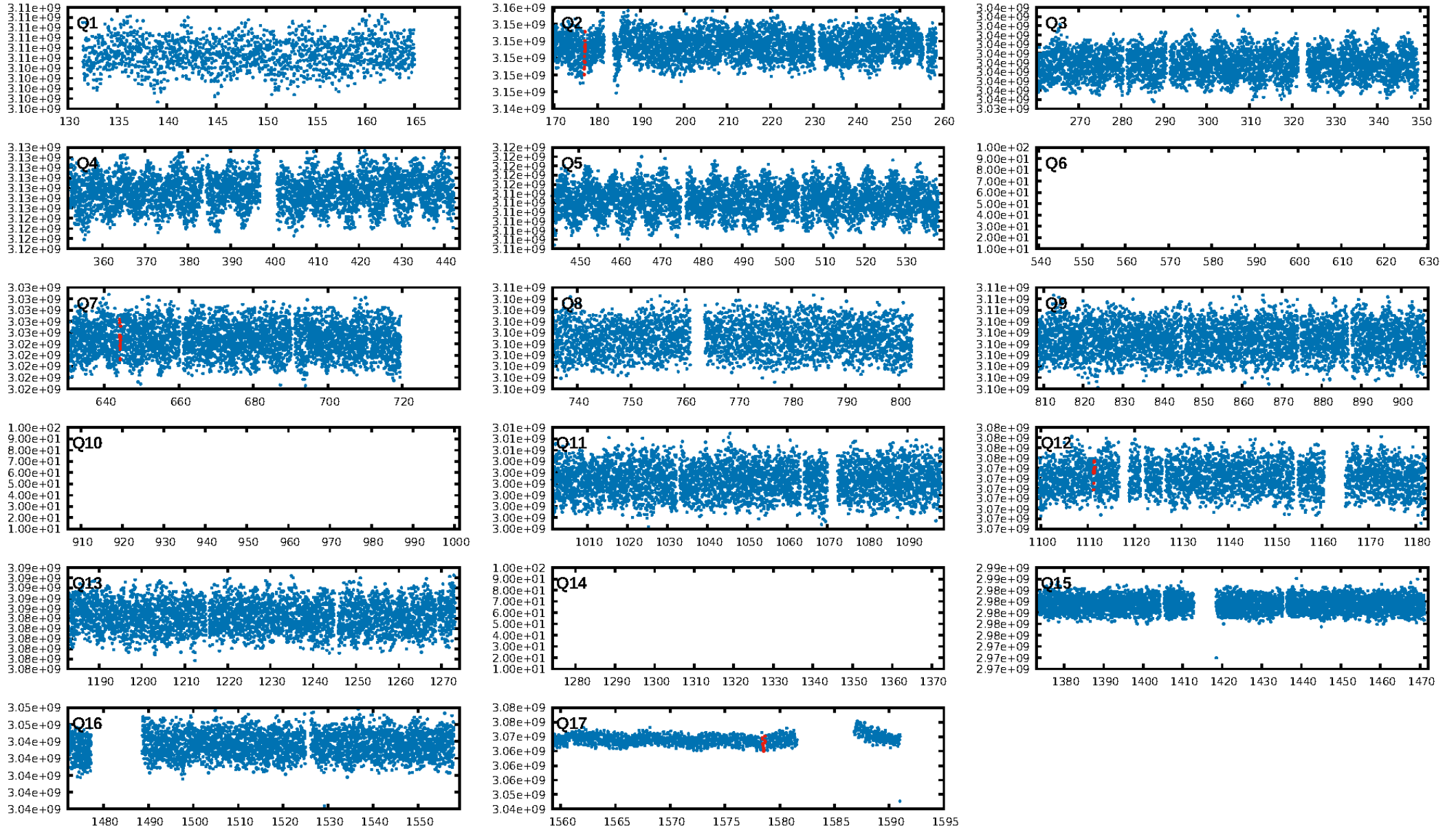
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [980.80 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 1.661 arcsec [2.57 σ]
OotOffset-rm: 12.252 arcsec [11.67 σ]
KicOffset-rm: 12.785 arcsec [17.37 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/3]

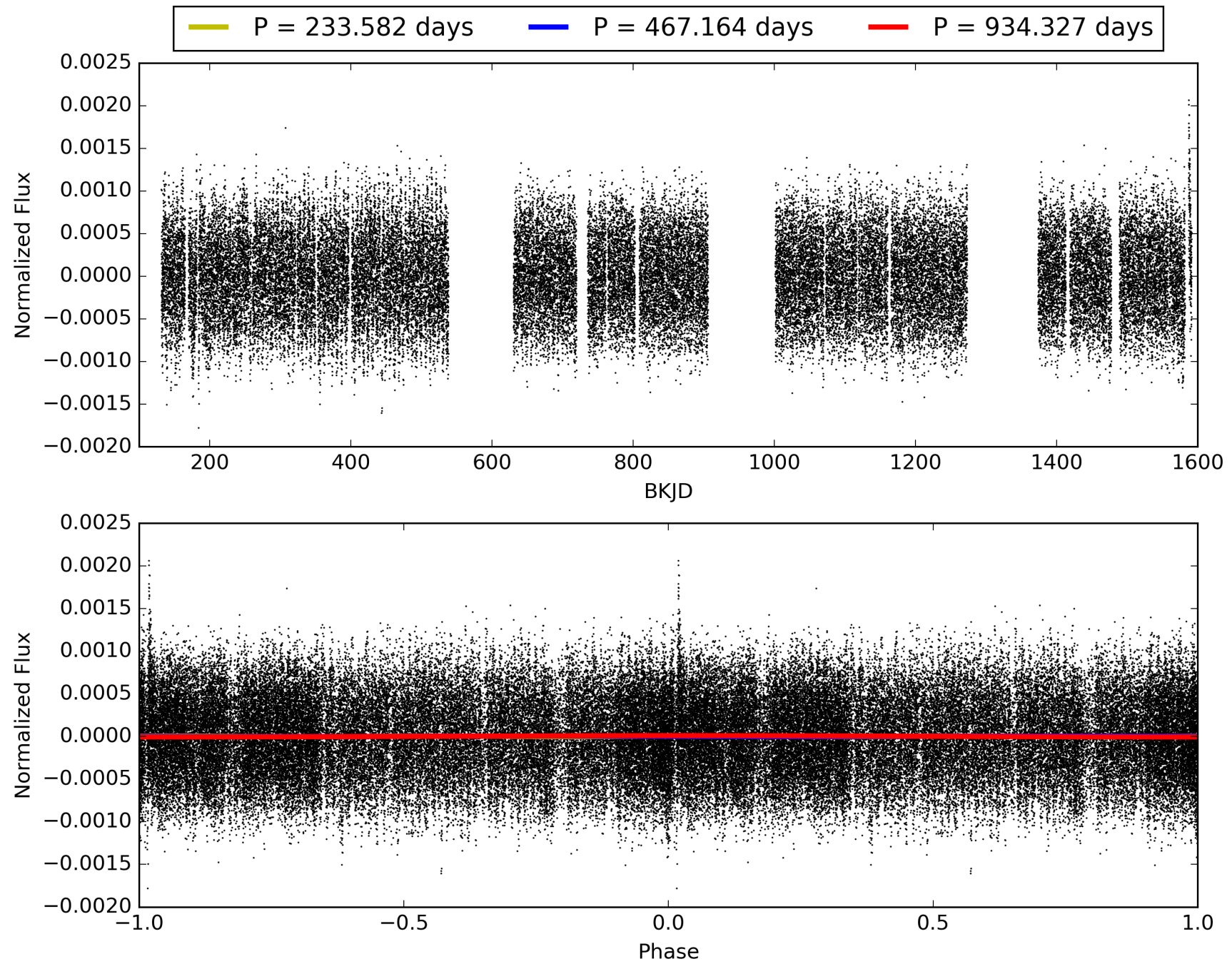
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:57:43 Z

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

TCE 004749989-06, PDC Light Curves

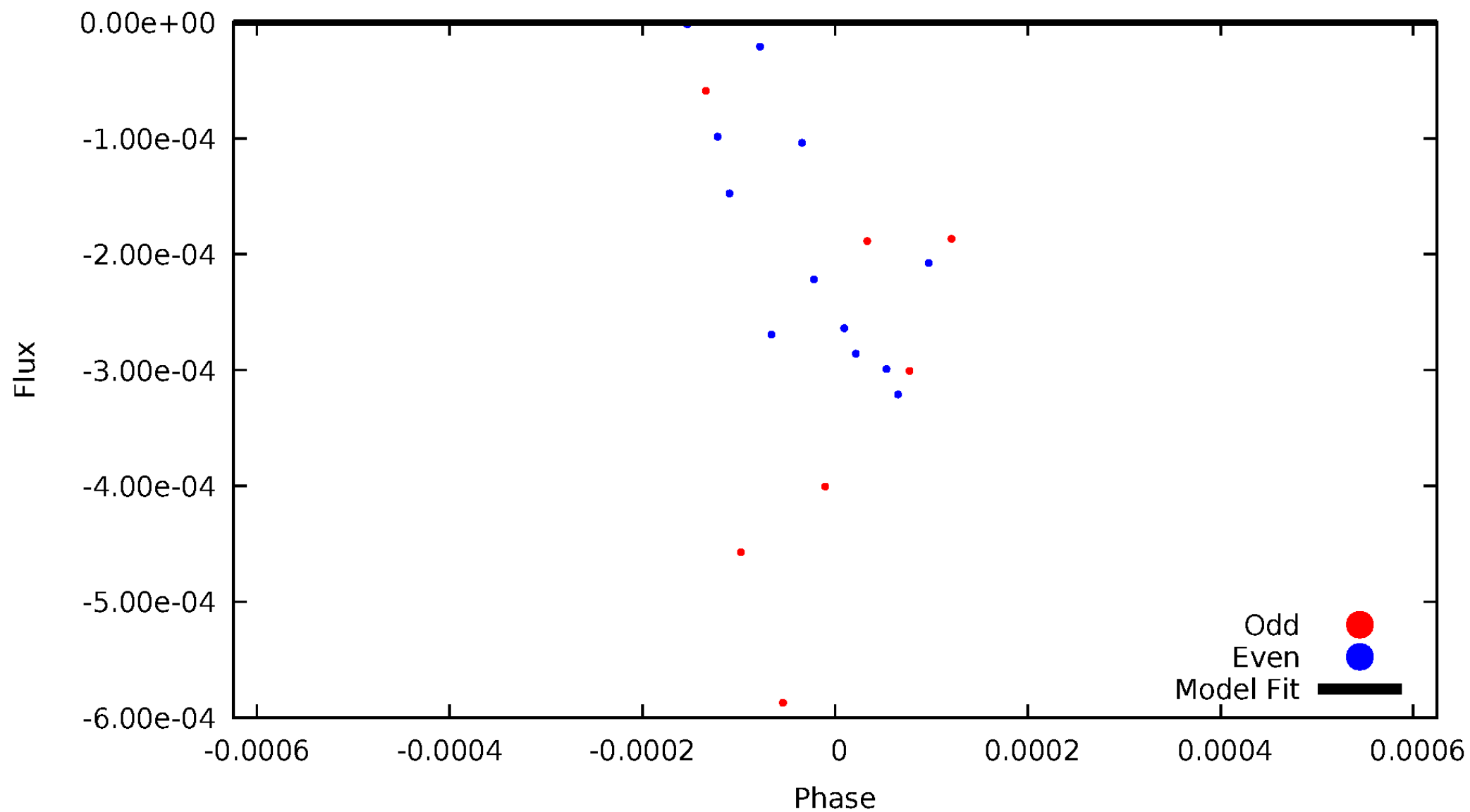


TCE 004749989-06



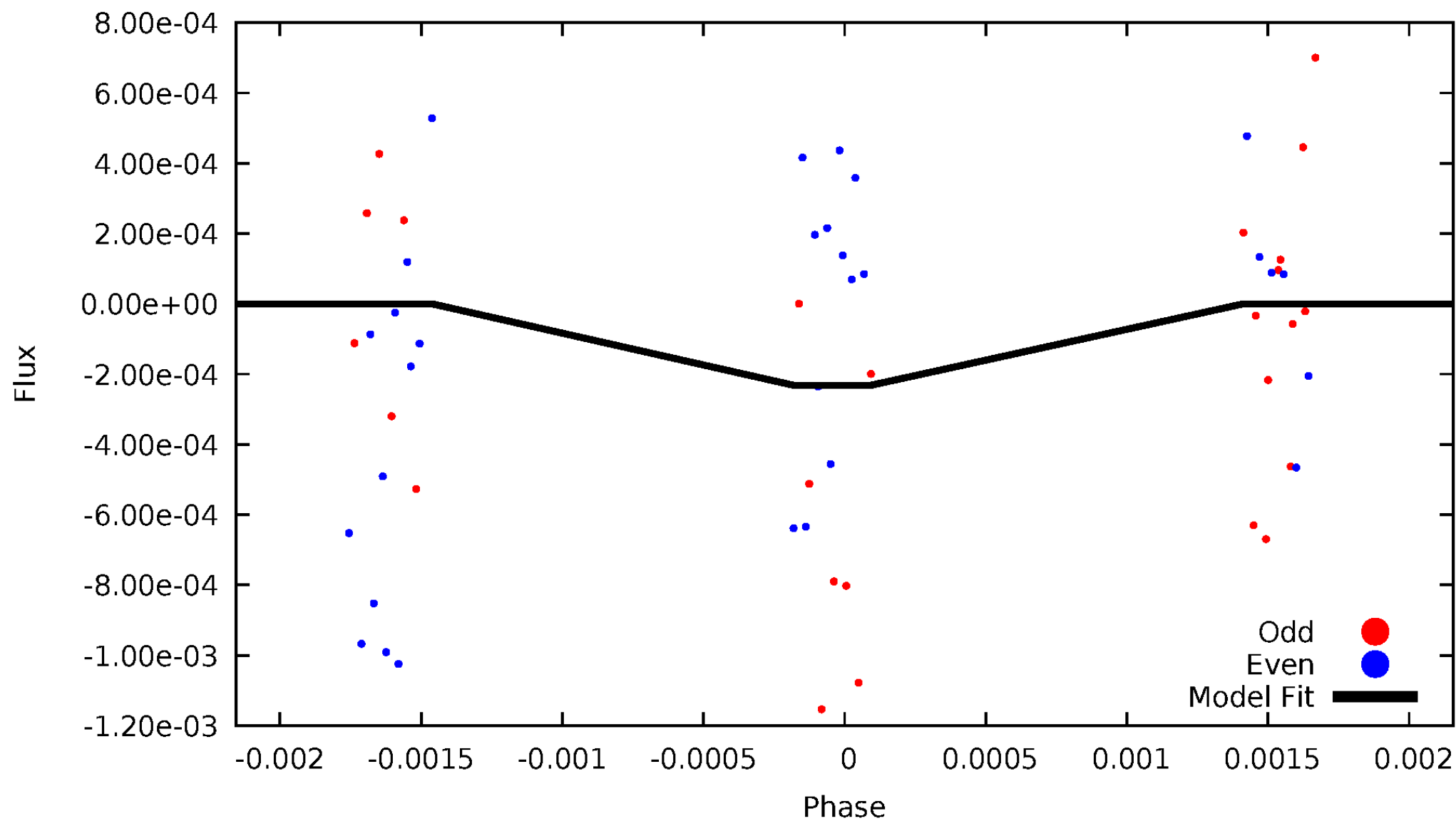
DV Odd/Even

TCE 004749989-06



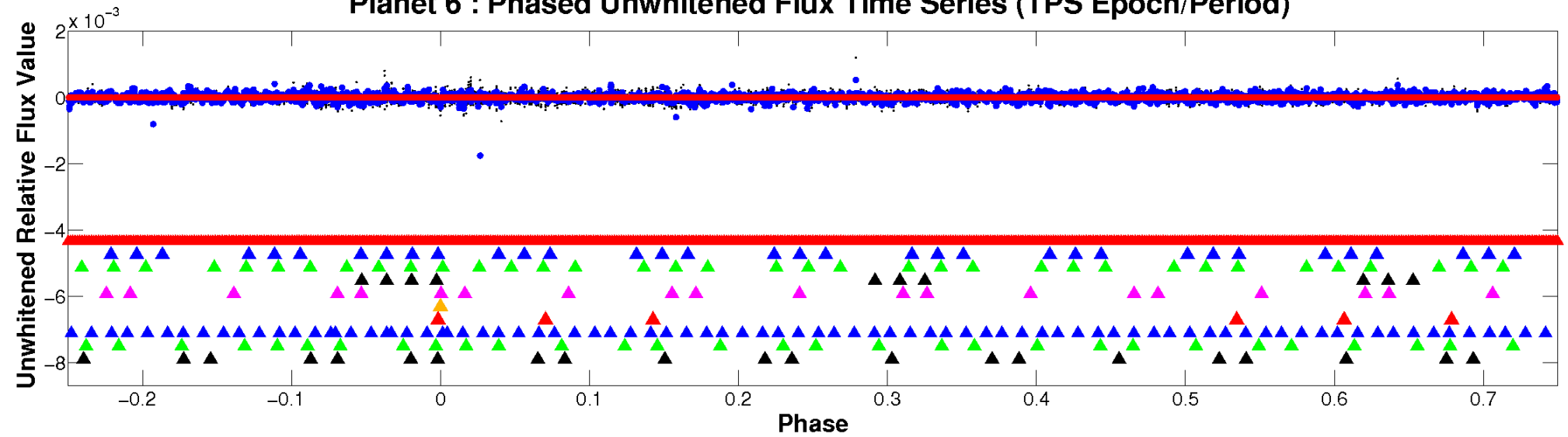
ALT Odd/Even

TCE 004749989-06



Non-Whitened Vs. Whitened Light Curve

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

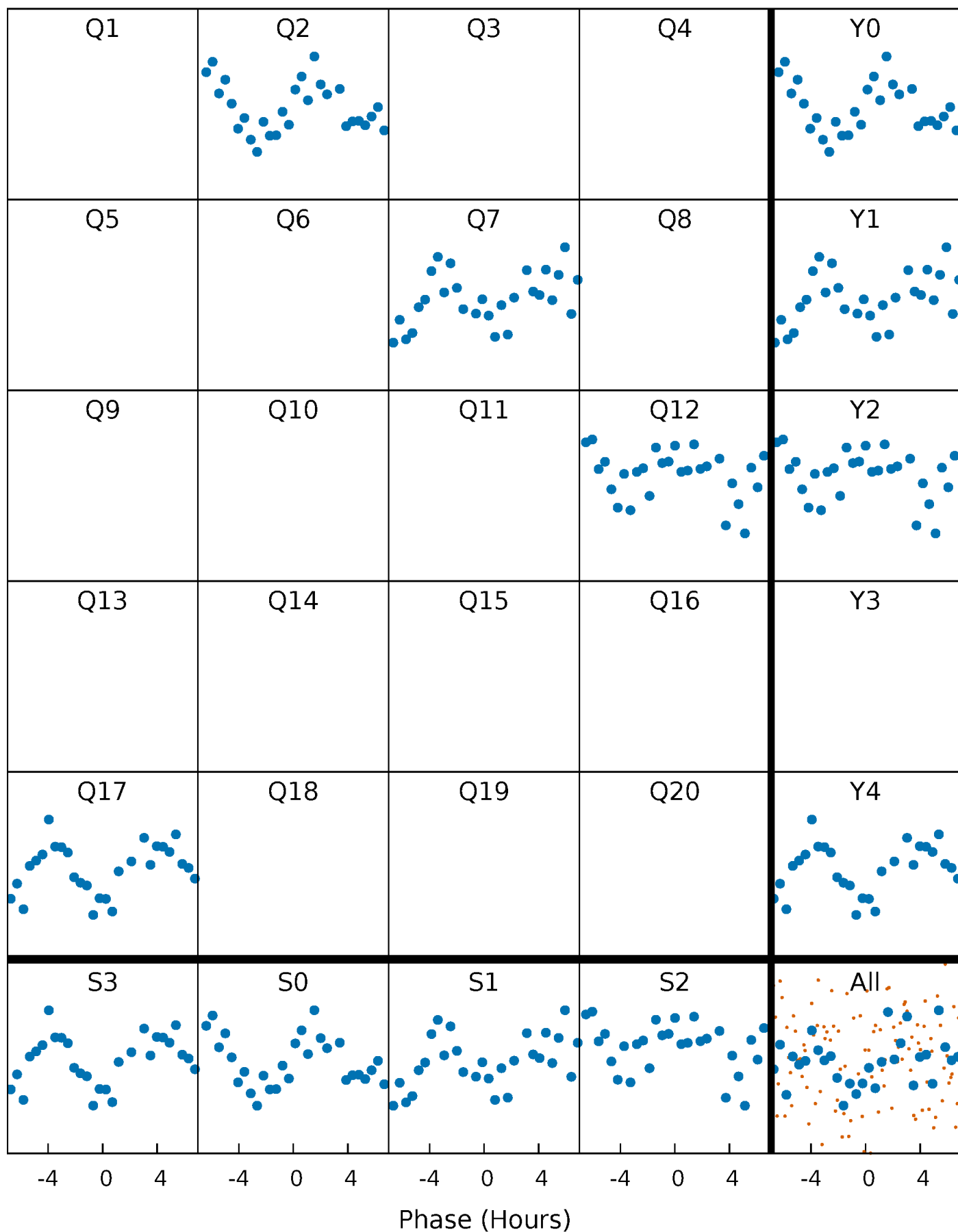


Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)



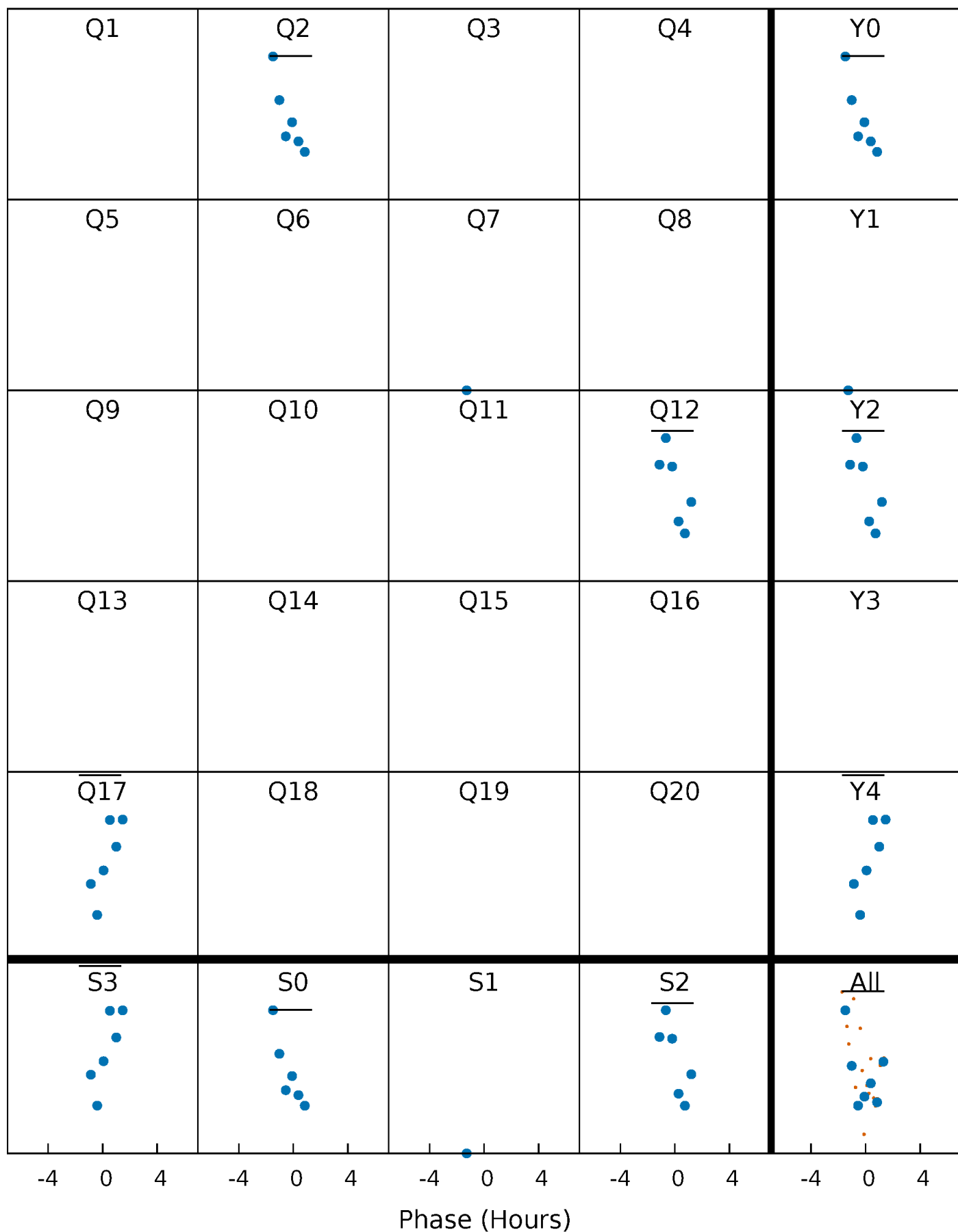
PDC Quarter-Phased Transit Curves

TCE 004749989-06 P=467.163516 Days $T_0=177.050588$ (BKJD)



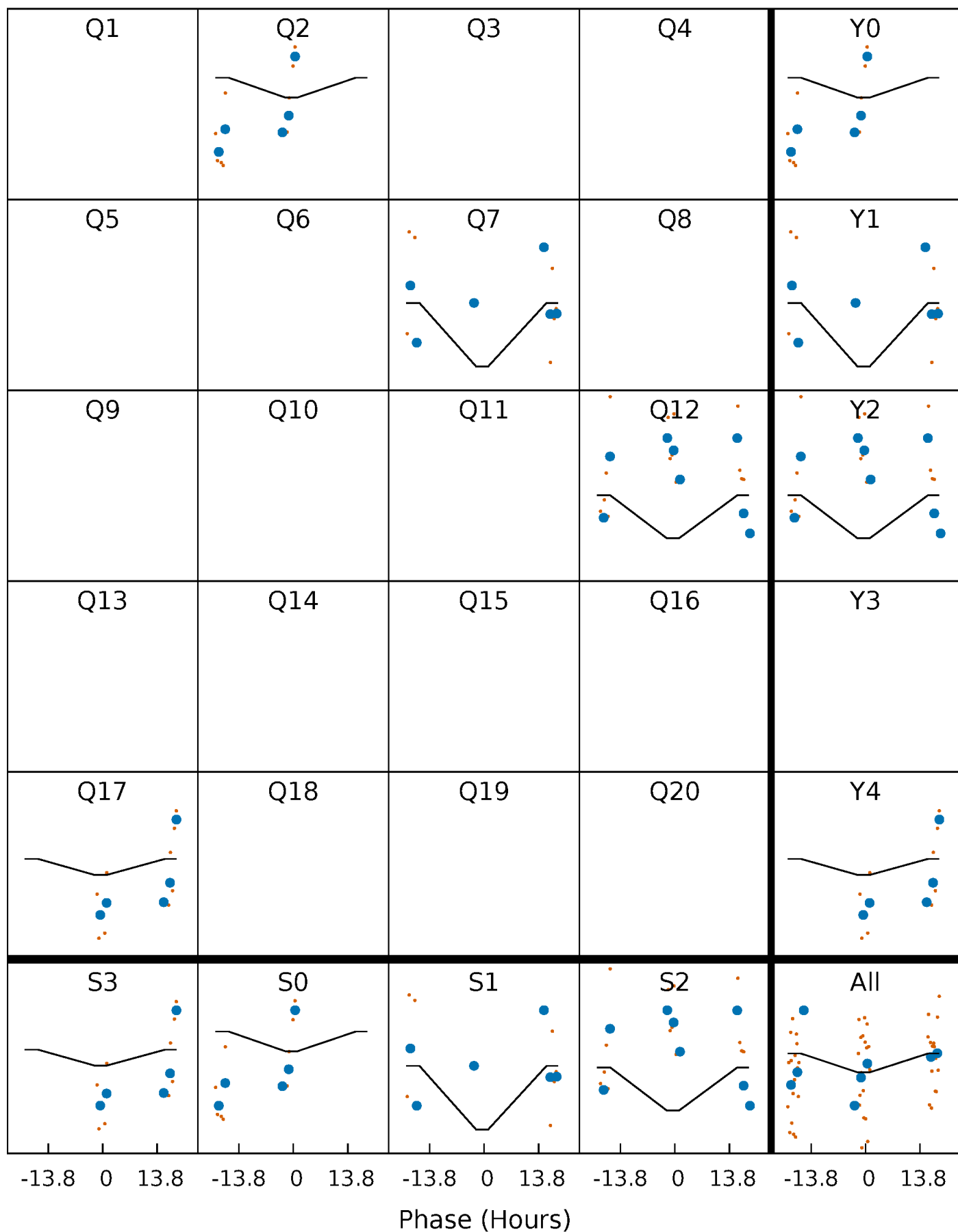
DV Quarter-Phased Transit Curves

TCE 004749989-06 P=467.163516 Days $T_0=177.050588$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

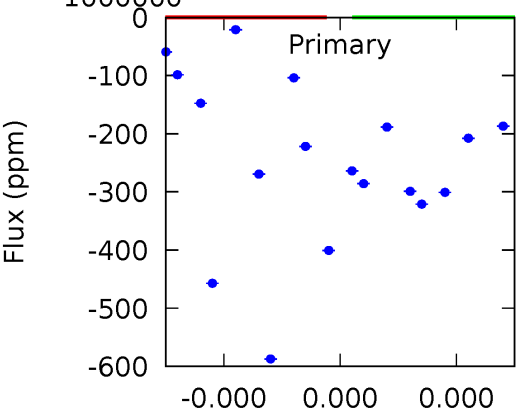
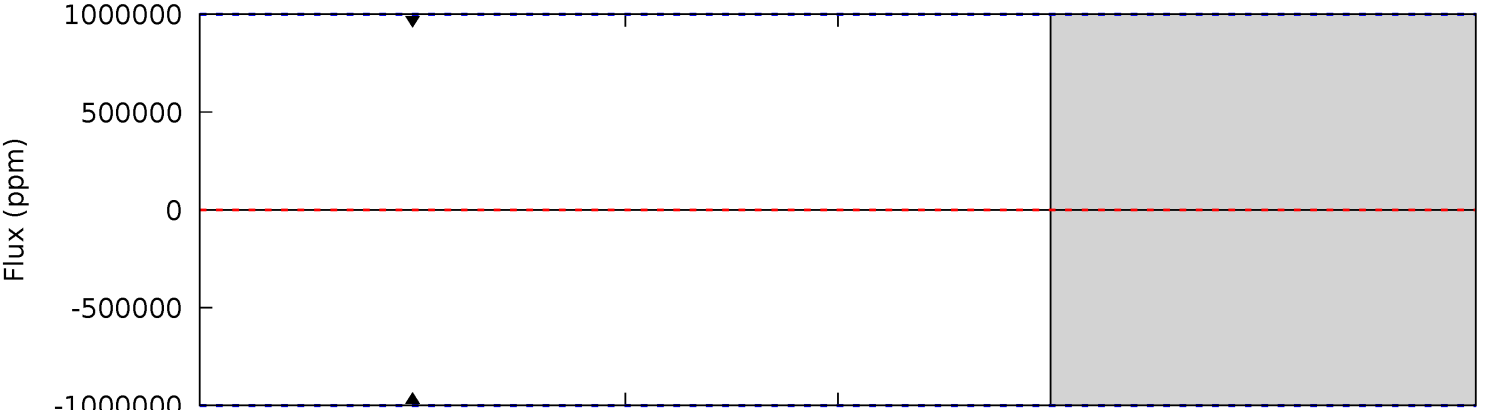
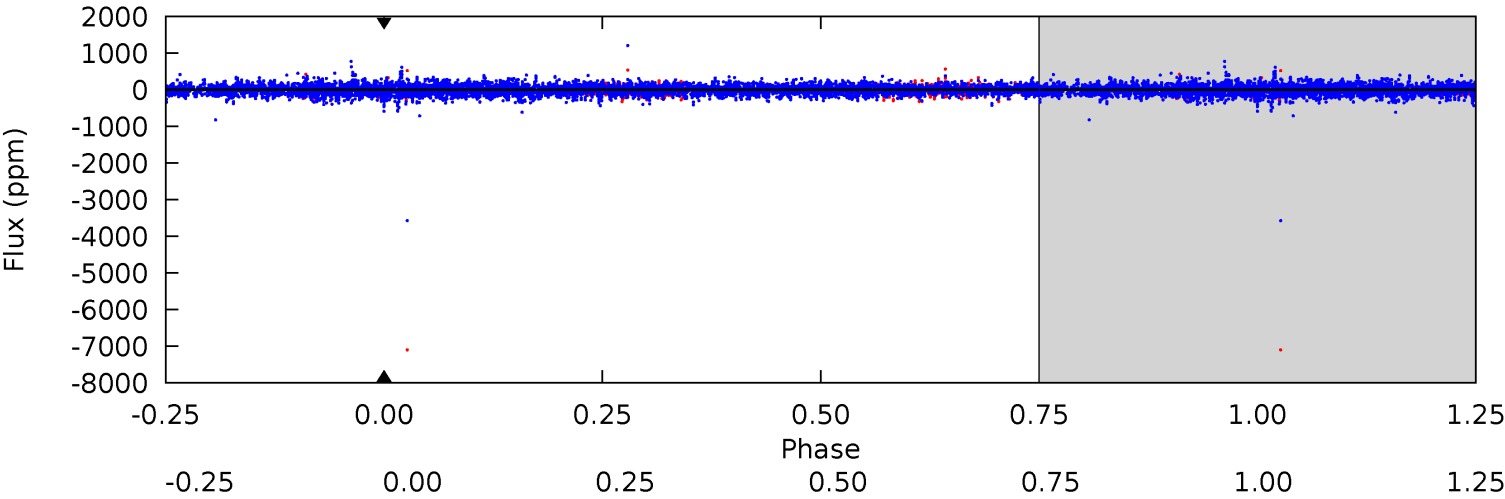
TCE 004749989-06 P=467.163516 Days $T_0=177.063493$ (BKJD)



DV Model-Shift Uniqueness Test

004749989-06, P = 467.163516 Days, E = 177.050588 Days

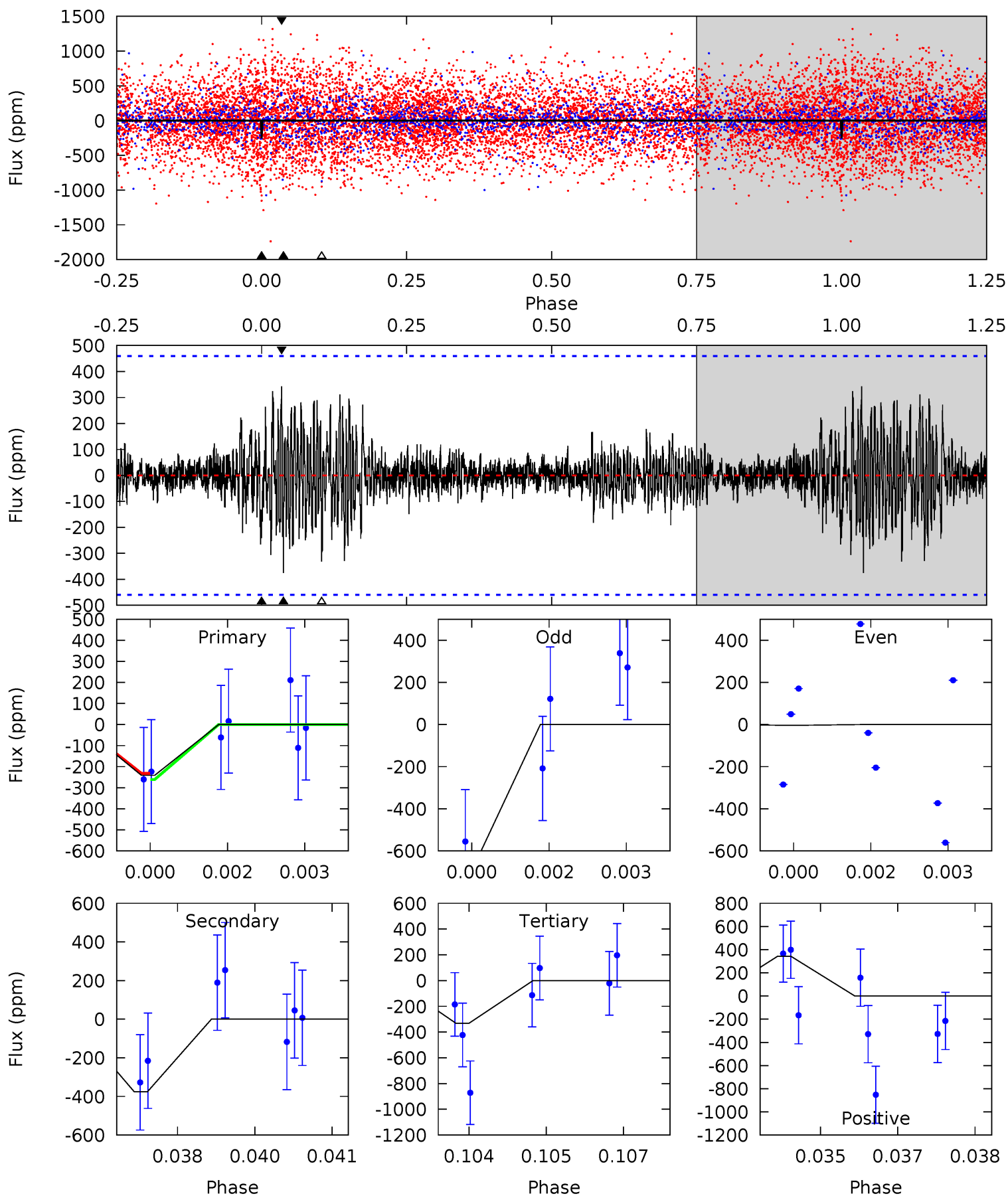
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004749989-06, P = 467.163516 Days, E = 177.063493 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.82	4.38	3.87	4.01	5.37	3.16	0.95	-1.05	-1.19	0.51	0.38	3.71	1.04	0.48	0.16



Stellar Parameters For KIC 004749989

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6824^{+214}_{-285}	$4.012^{+0.286}_{-0.154}$	$-0.300^{+0.300}_{-0.300}$	$1.882^{+0.504}_{-0.616}$	$1.332^{+0.195}_{-0.238}$	$0.281^{+0.569}_{-0.128}$
	+3%/-4%	+7%/-4%	+100%/-100%	+27%/-33%	+15%/-18%	+202%/-45%
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 004749989-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$12.73^{+15.00}_{-8.95}$	496^{+41}_{-45}	-5710^{+45619}_{-35255}	$-12505.759^{+1127400.717}_{-1106185.219}$
Alt.	-375 ± 86	$14.56^{+17.55}_{-10.30}$	501^{+41}_{-46}	3836^{+2390}_{-824}	1644^{+17125}_{-1319}

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

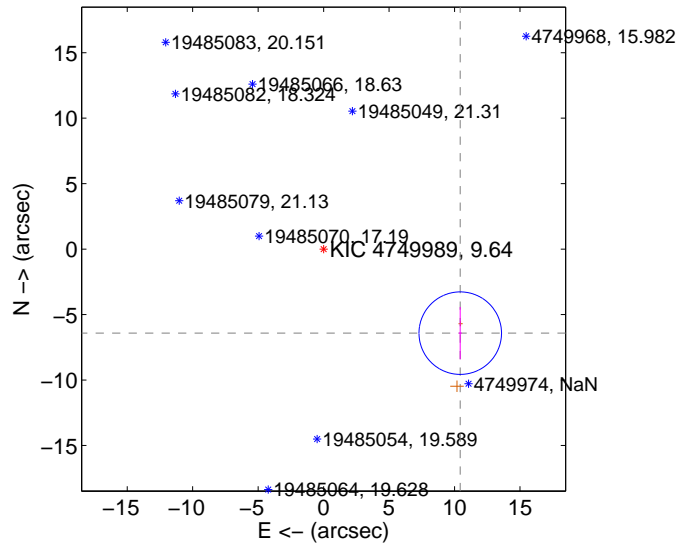
Supplemental centroid analysis for 004749989-06. **Kepler magnitude: 9.64.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

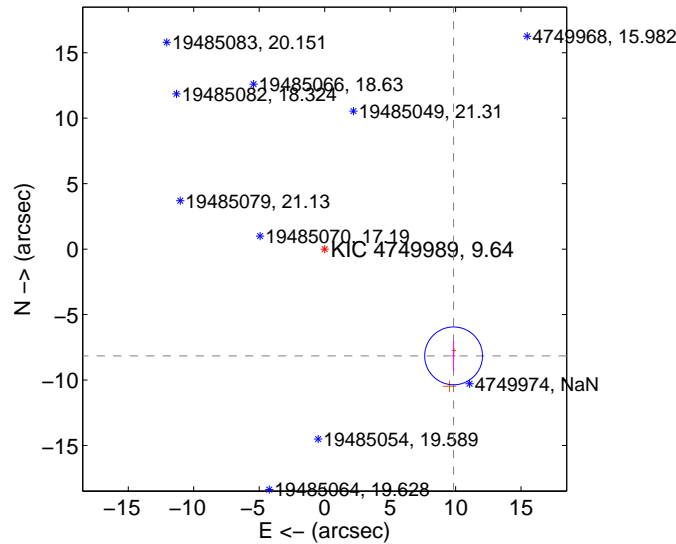
The OOT PRF centroid is offset from the target star catalog position by about 2.12 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	12.252 ± 1.050	11.67	-10.435 ± 0.114	-6.419 ± 1.996
PRF-fit source offset from KIC position	12.785 ± 0.736	17.37	-9.847 ± 0.135	-8.155 ± 1.143
photometric centroid source offset	1.66 ± 0.65	2.57	-1.26 ± 0.71	1.09 ± 0.55

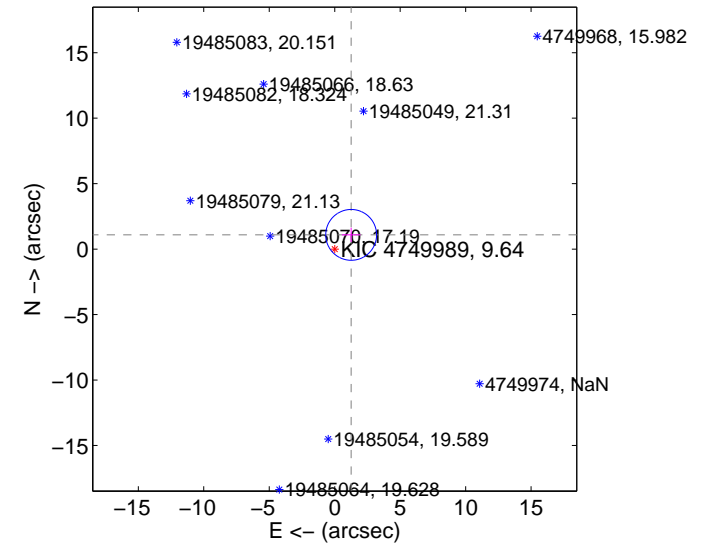
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

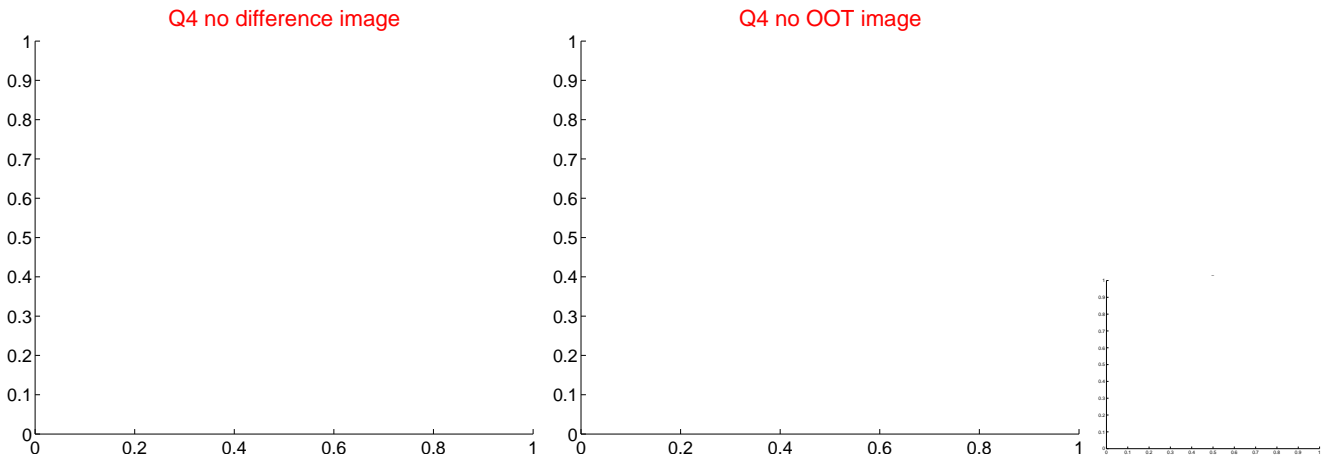
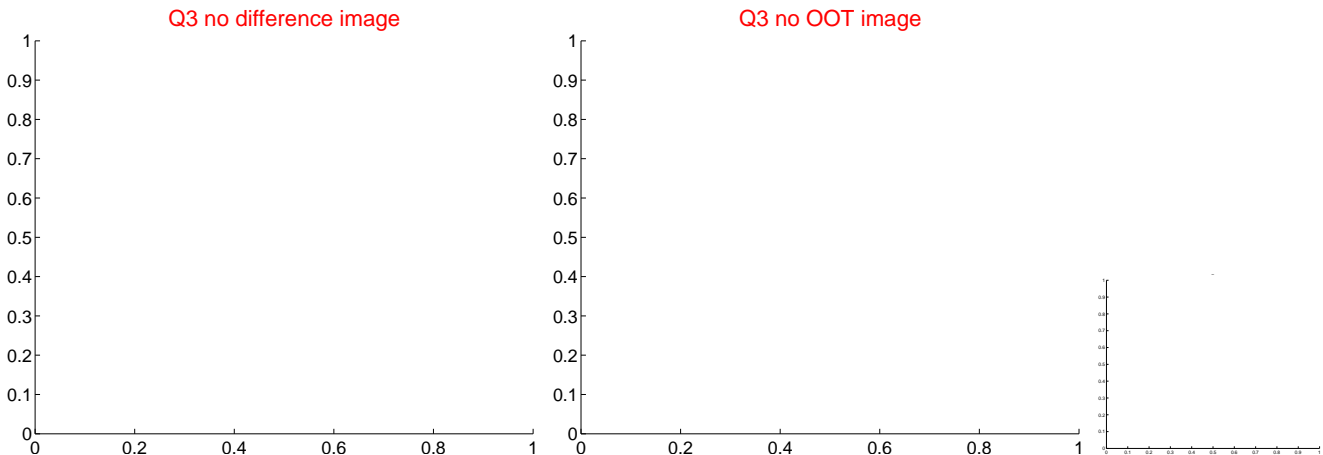
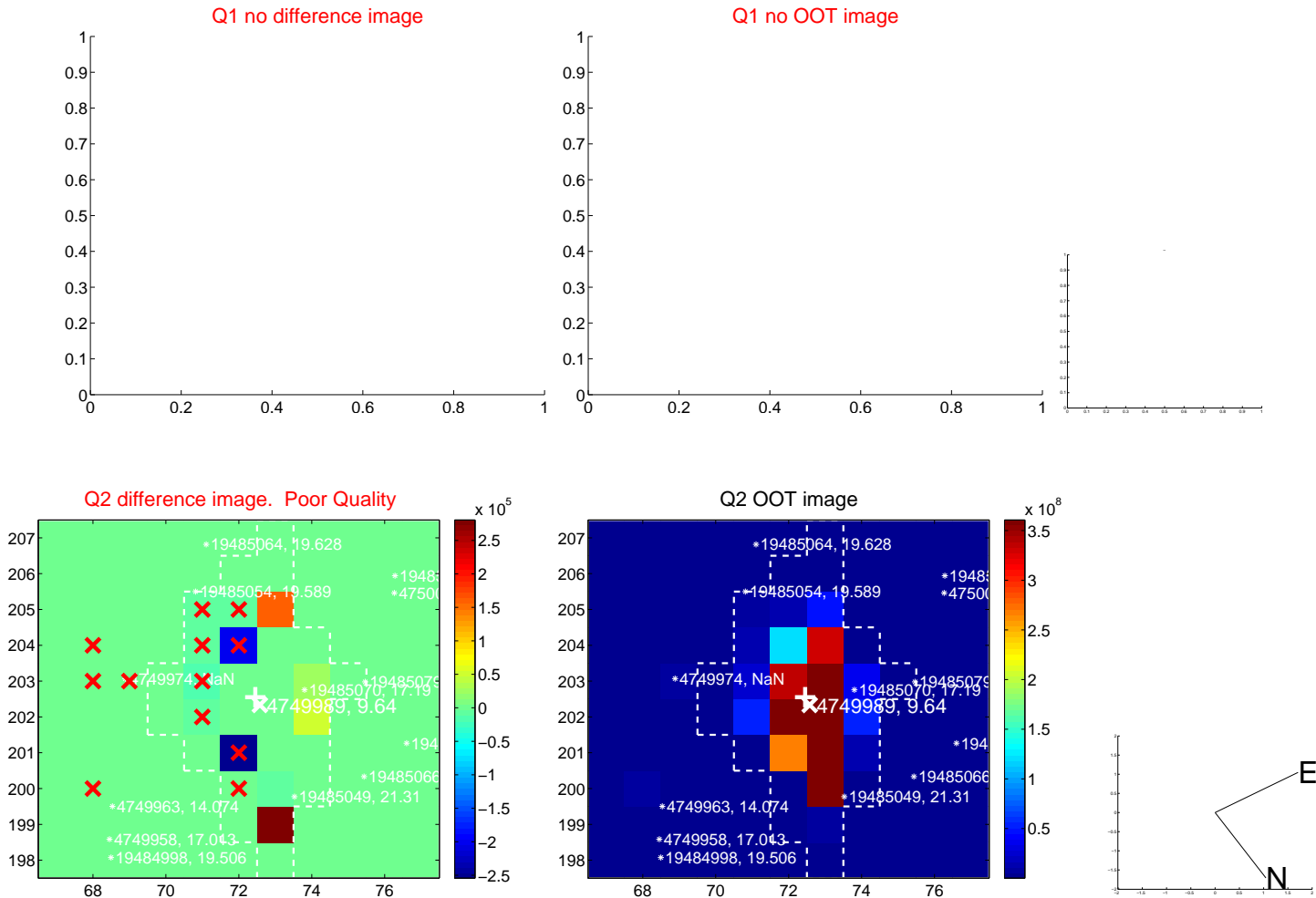


offset from photometric centroids



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.

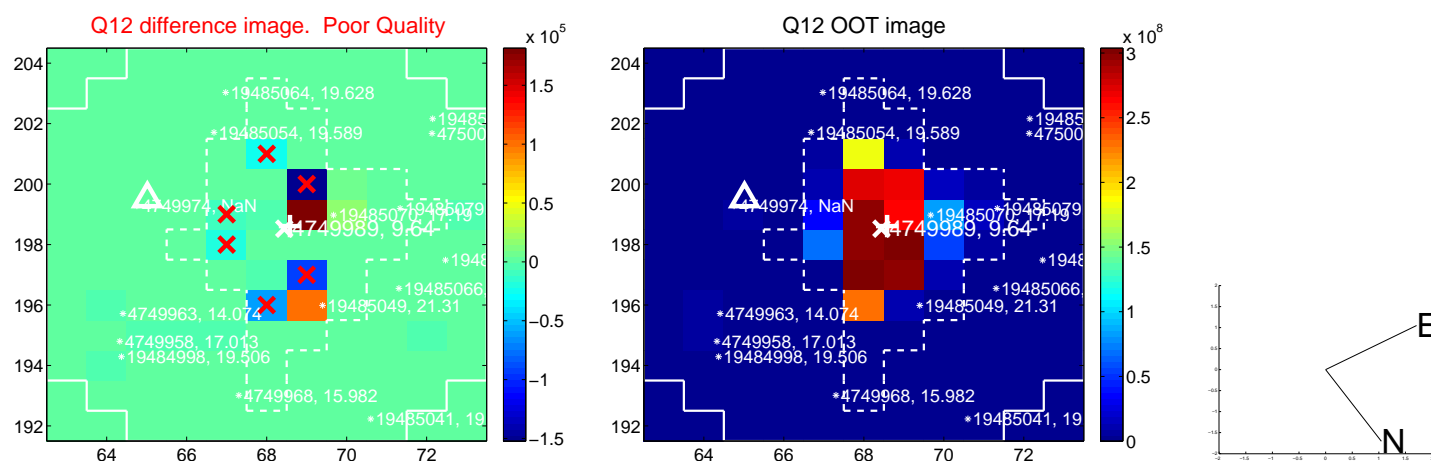
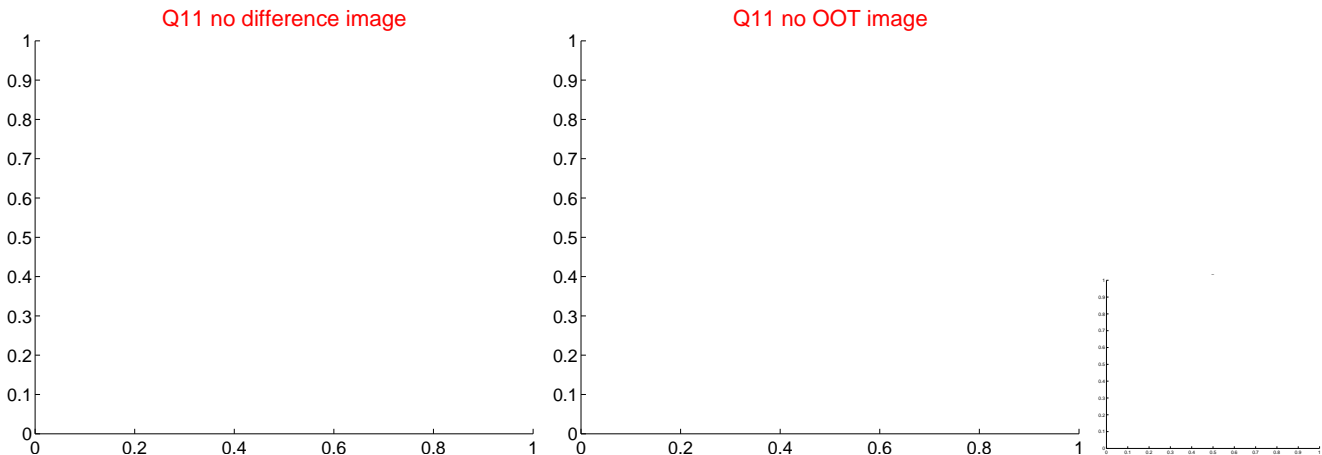
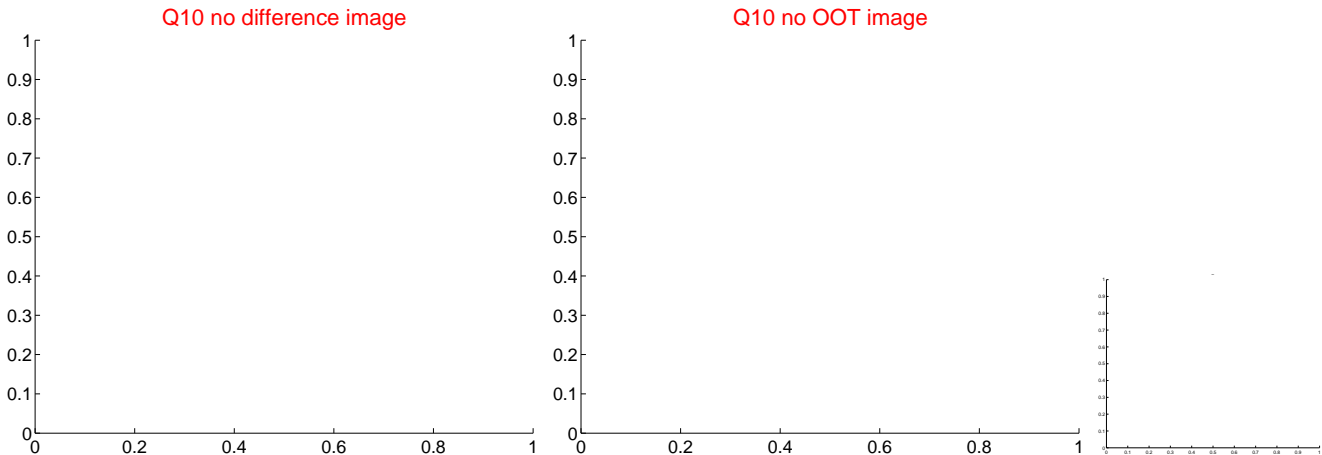
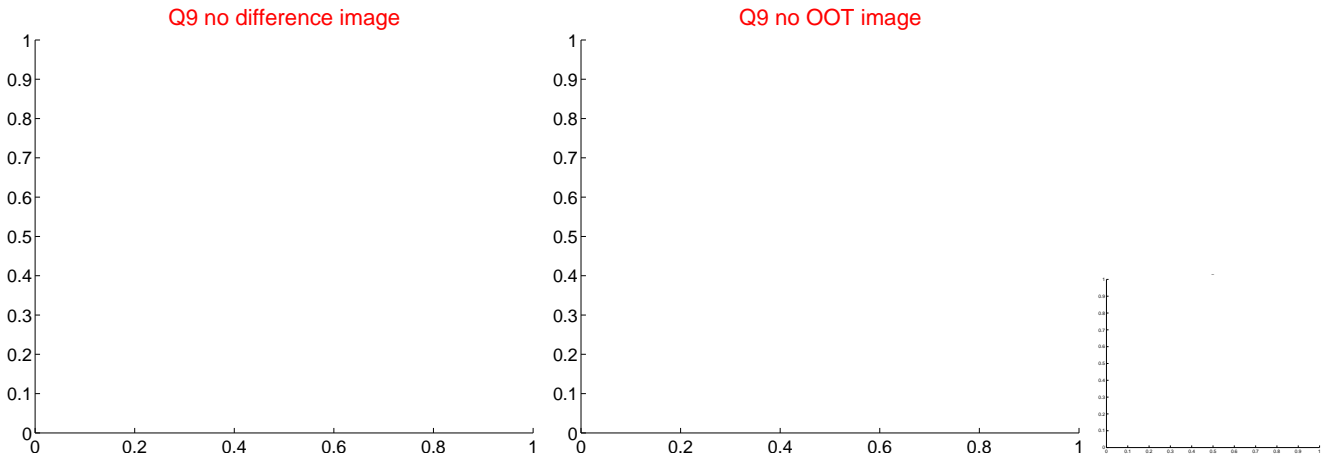
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



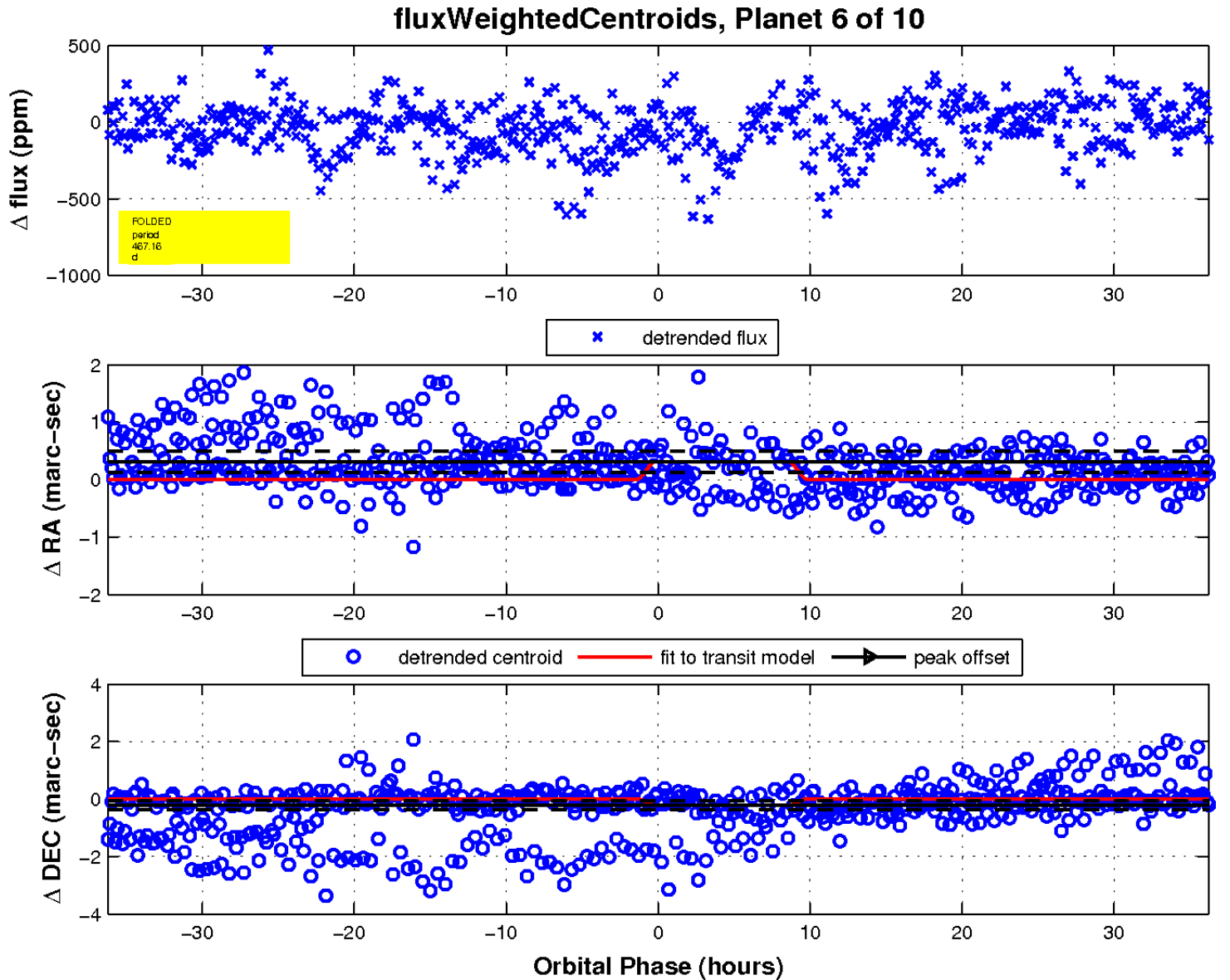
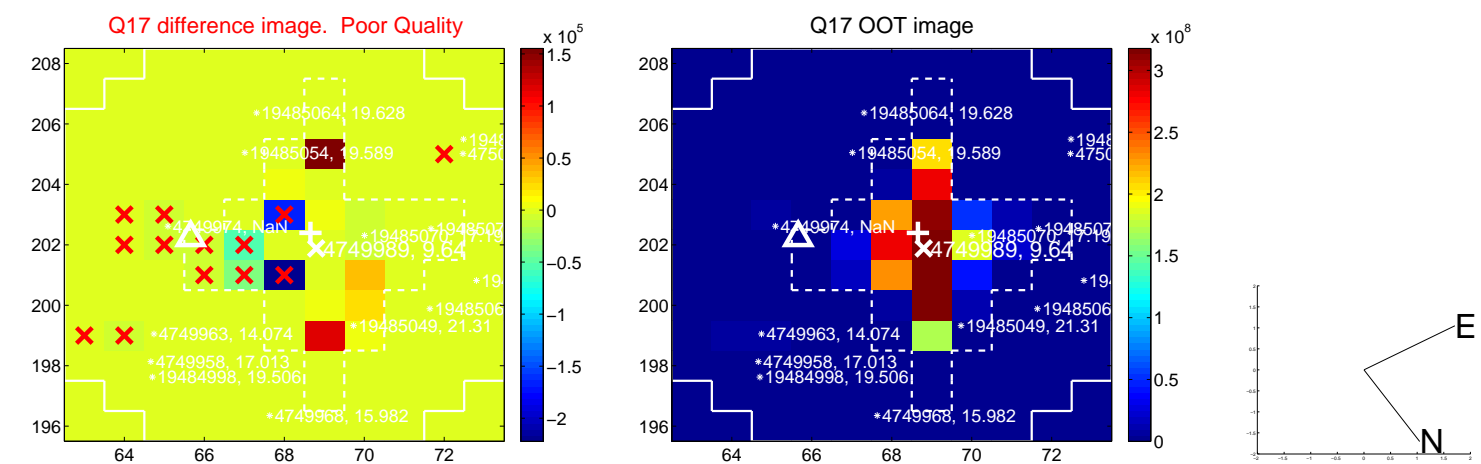
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



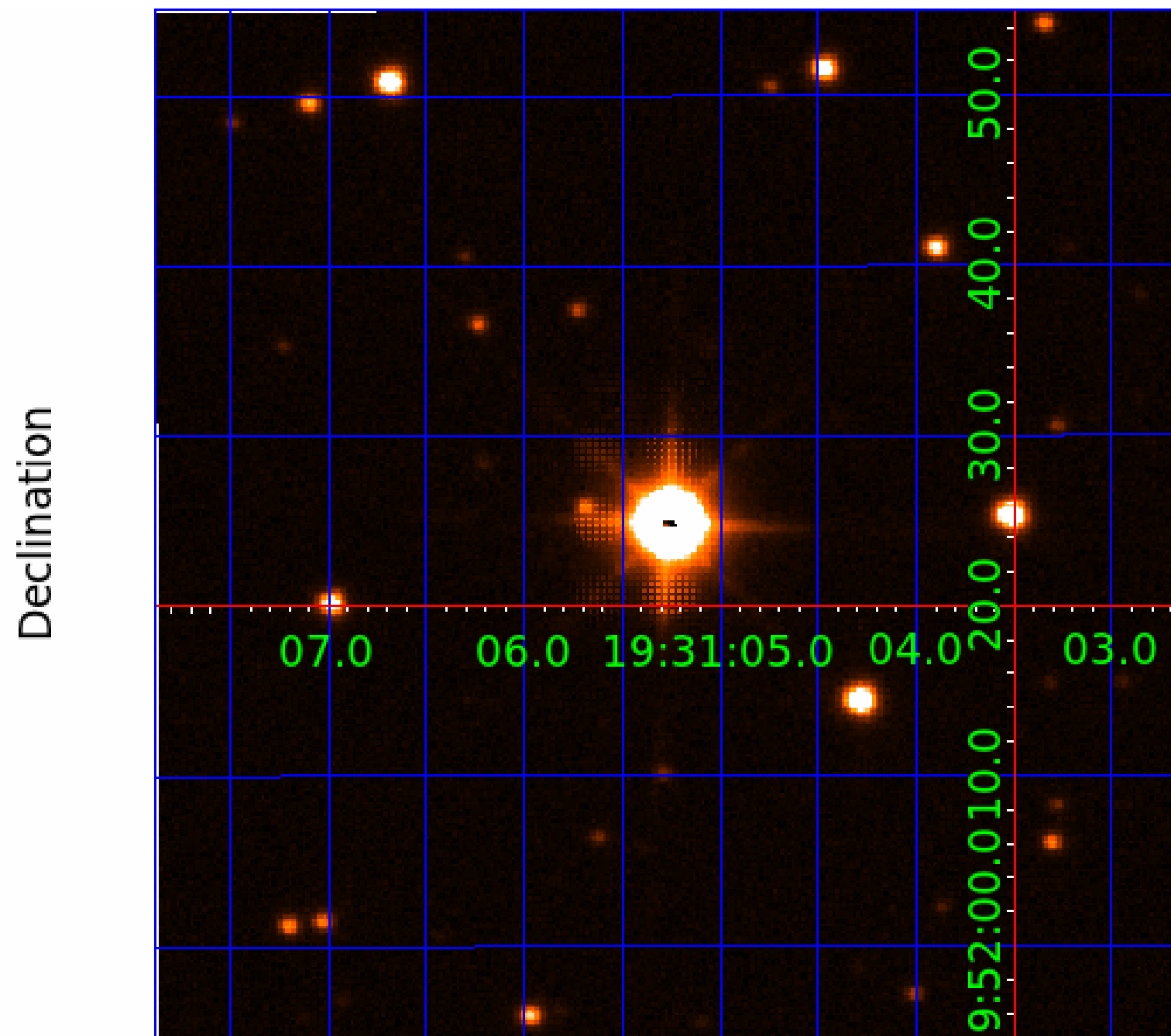
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image



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})
004749989-01	OBS	No	0.732246	132.001787	13.0	4.721	11.2	9.5	1.88	6824	0.70	22521.01
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Robovetter Results

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004749989-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-03	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—CENT_SATURATED
004749989-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004749989-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-10	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—CENT_SATURATED

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

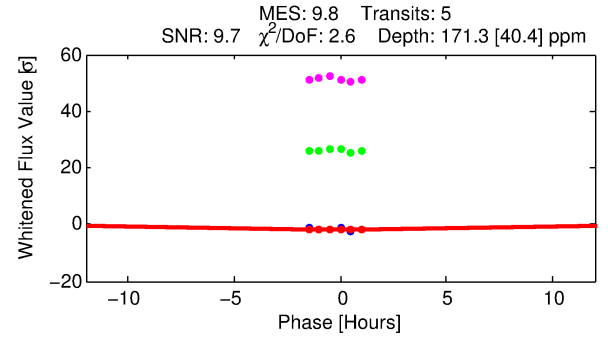
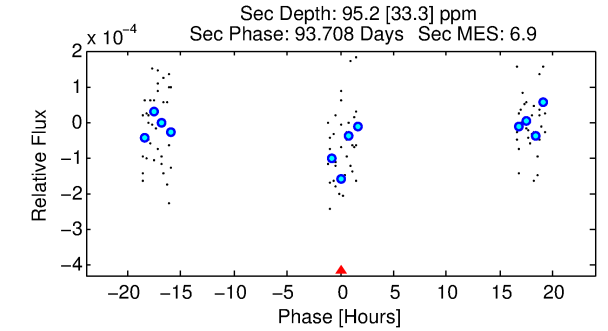
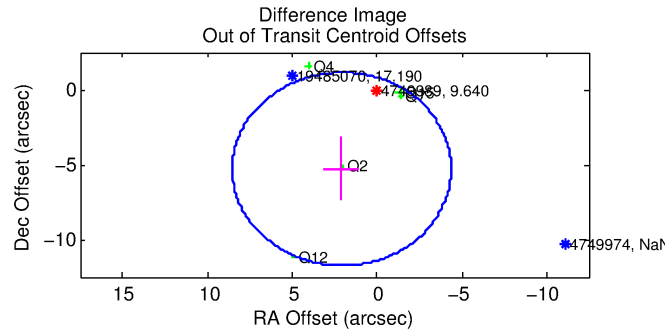
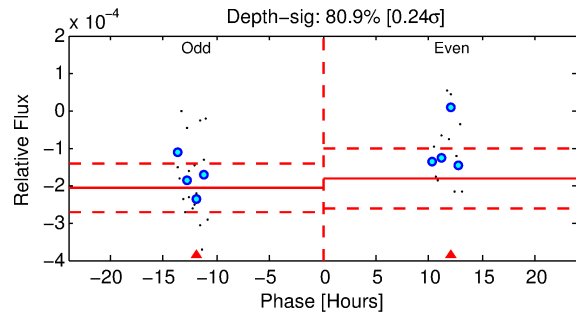
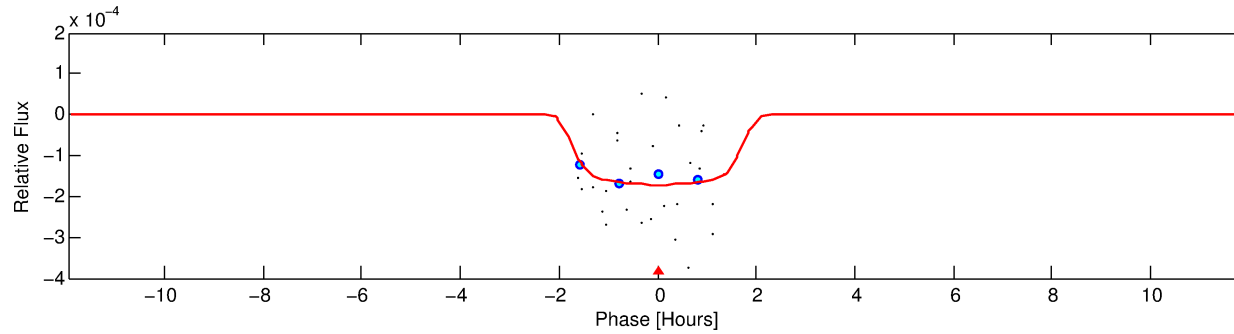
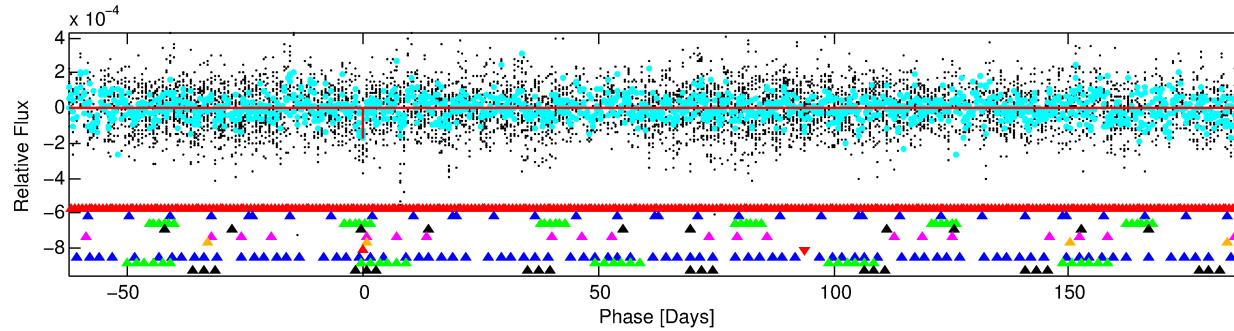
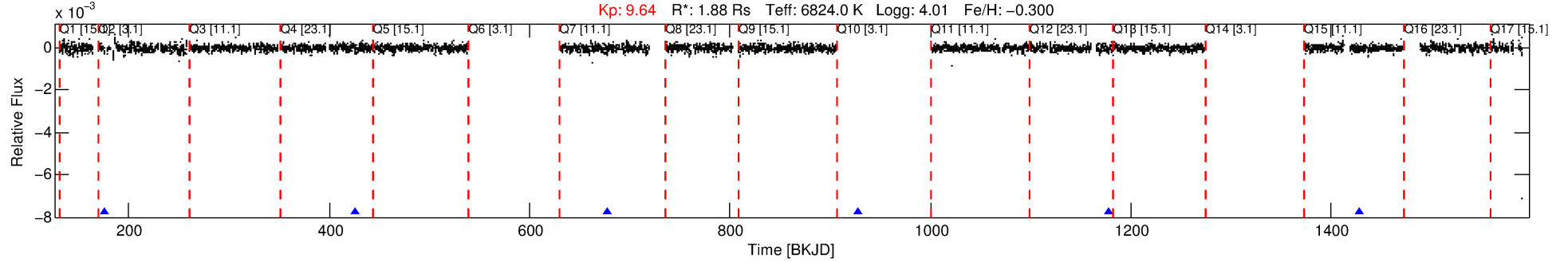
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004749989-07

No Significant Match Found

DV One-Page Summary

KIC: 4749989 Candidate: 7 of 10 Period: 250.427 d



DV Fit Results:

Period = 250.42716 [0.01108] d
Epoch = 176.3100 [0.0512] BKJD
 R_p/R^* = 0.0146 [0.0165]
 a/R^* = 178.15 [1394.24]
 b = 0.94 [0.83]
 Seff = 9.42 [4.88]
 T_{eq} = 447 [58] K
 R_p = 3.00 [3.53] R_e
 a = 0.8549 [0.2646] AU
 A_g = 4261.97 [9972.13] [0.43 σ]
 T_{eff} = 5580 [3200] K [1.60 σ]

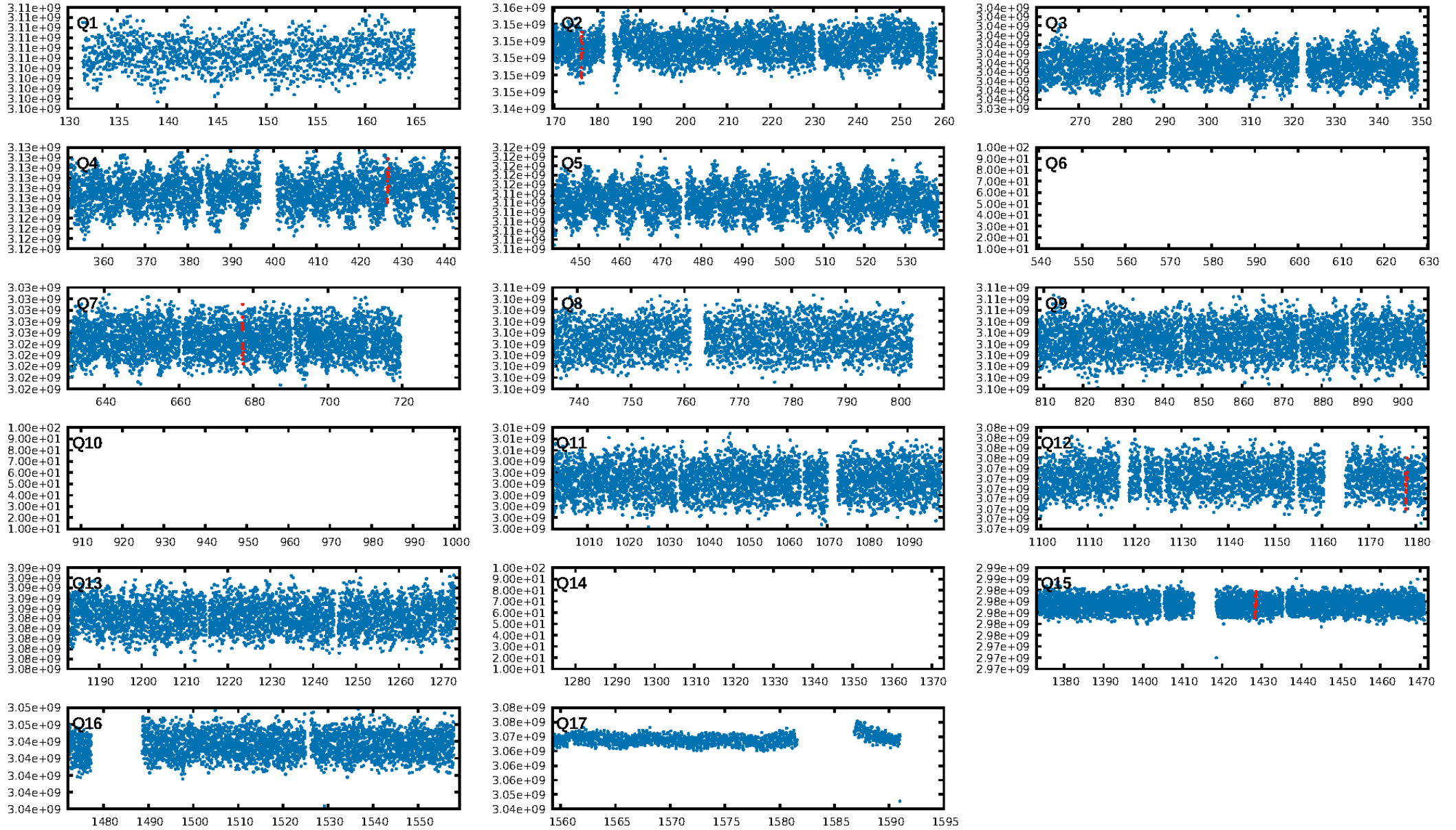
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [525.97 σ]
LongPeriod-sig: 100.0% [980.80 σ]
ModelChiSquare2-sig: 14.2%
ModelChiSquareGof-sig: 40.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: N/A
Centroid-sig: 71.6%
Centroid-so: 0.437 arcsec [0.59 σ]
OotOffset-rm: 5.685 arcsec [2.64 σ]
OotOffset-st: 1/2/2/0 [5]
KicOffset-rm: 6.175 arcsec [3.73 σ]
KicOffset-st: 1/2/2/0 [5]
DiffImageQuality-fgm: 0.00 [0/5]
DiffImageOverlap-fno: 0.00 [0/5]

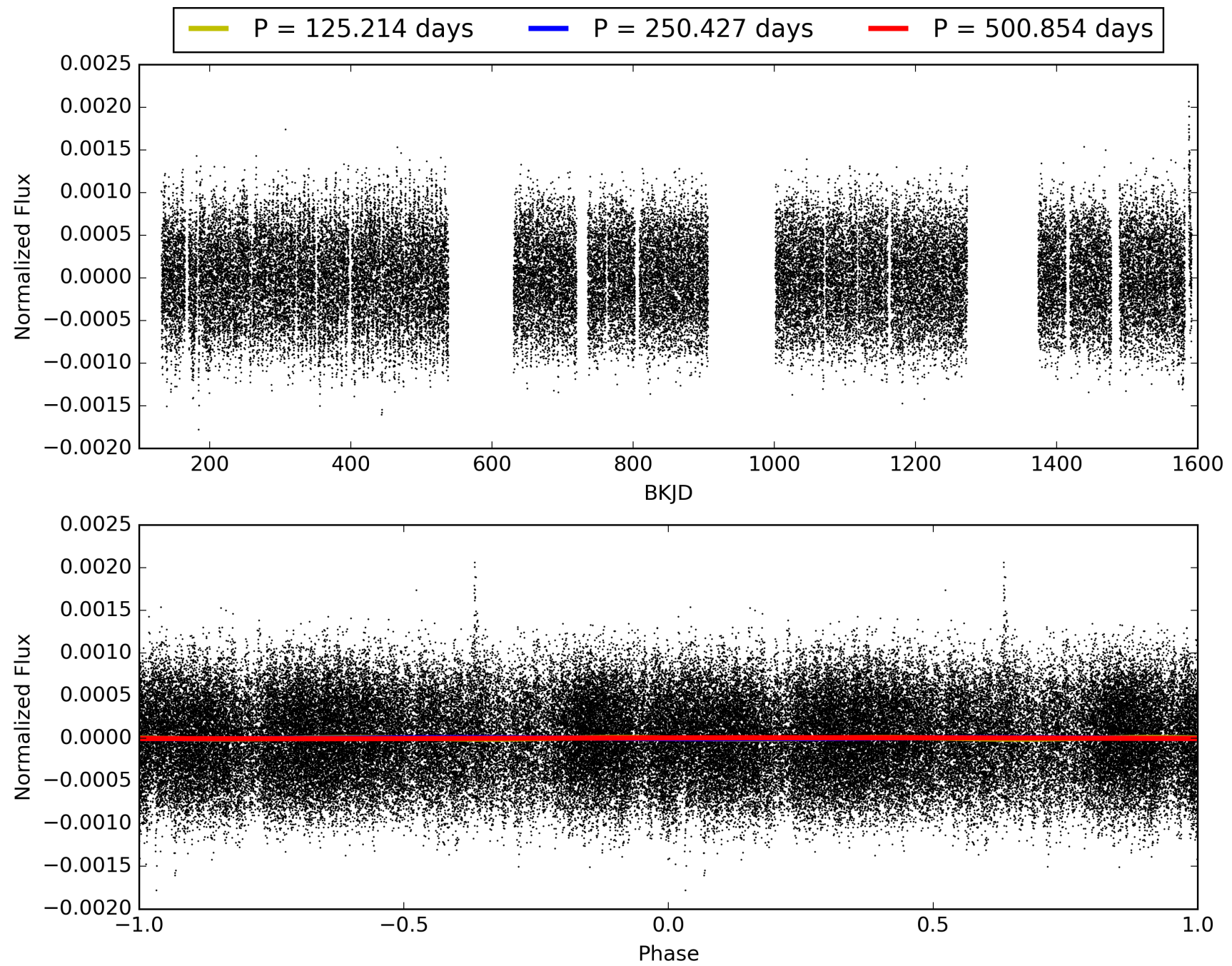
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:57:46 Z

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

TCE 004749989-07, PDC Light Curves

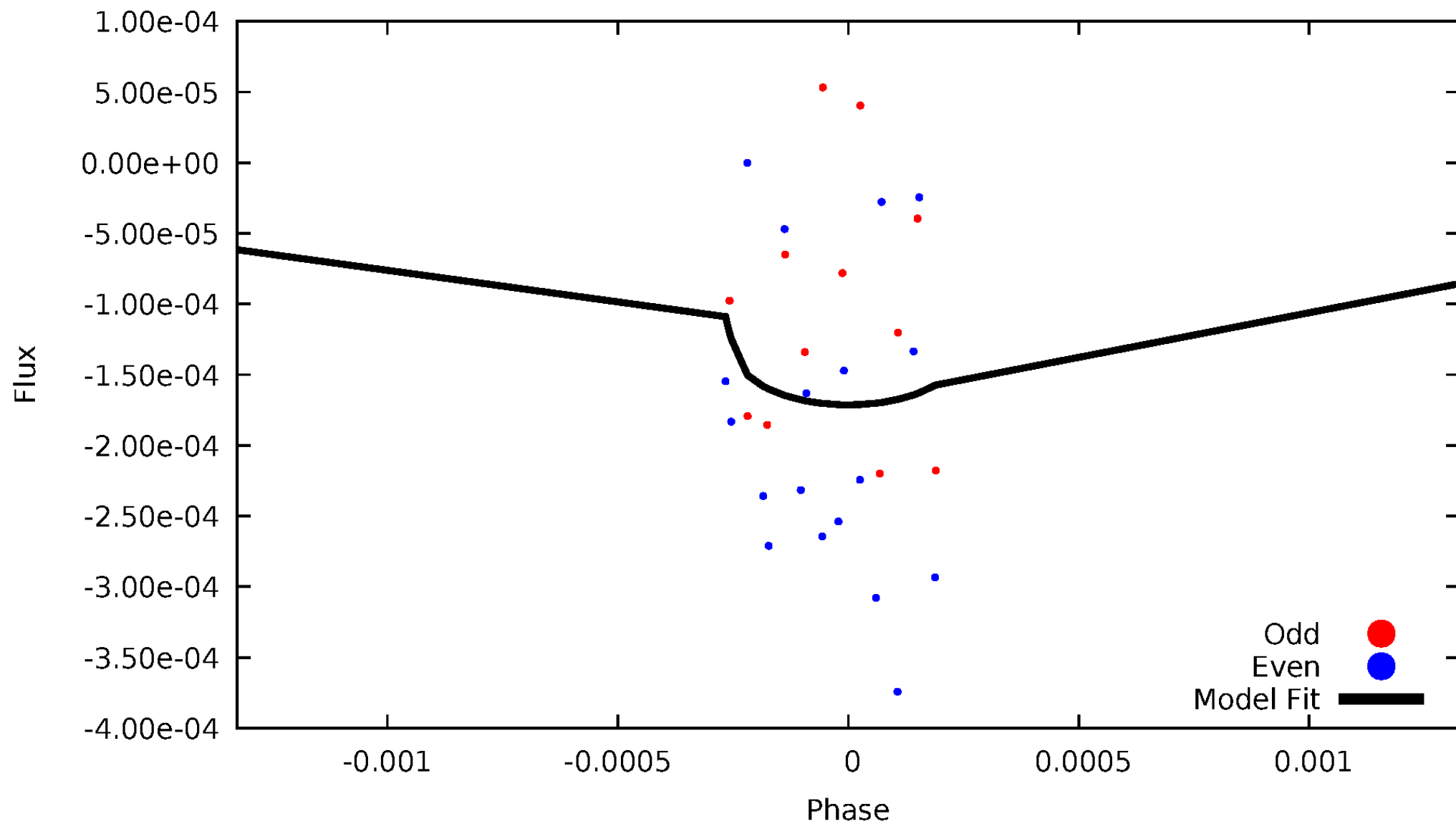


TCE 004749989-07



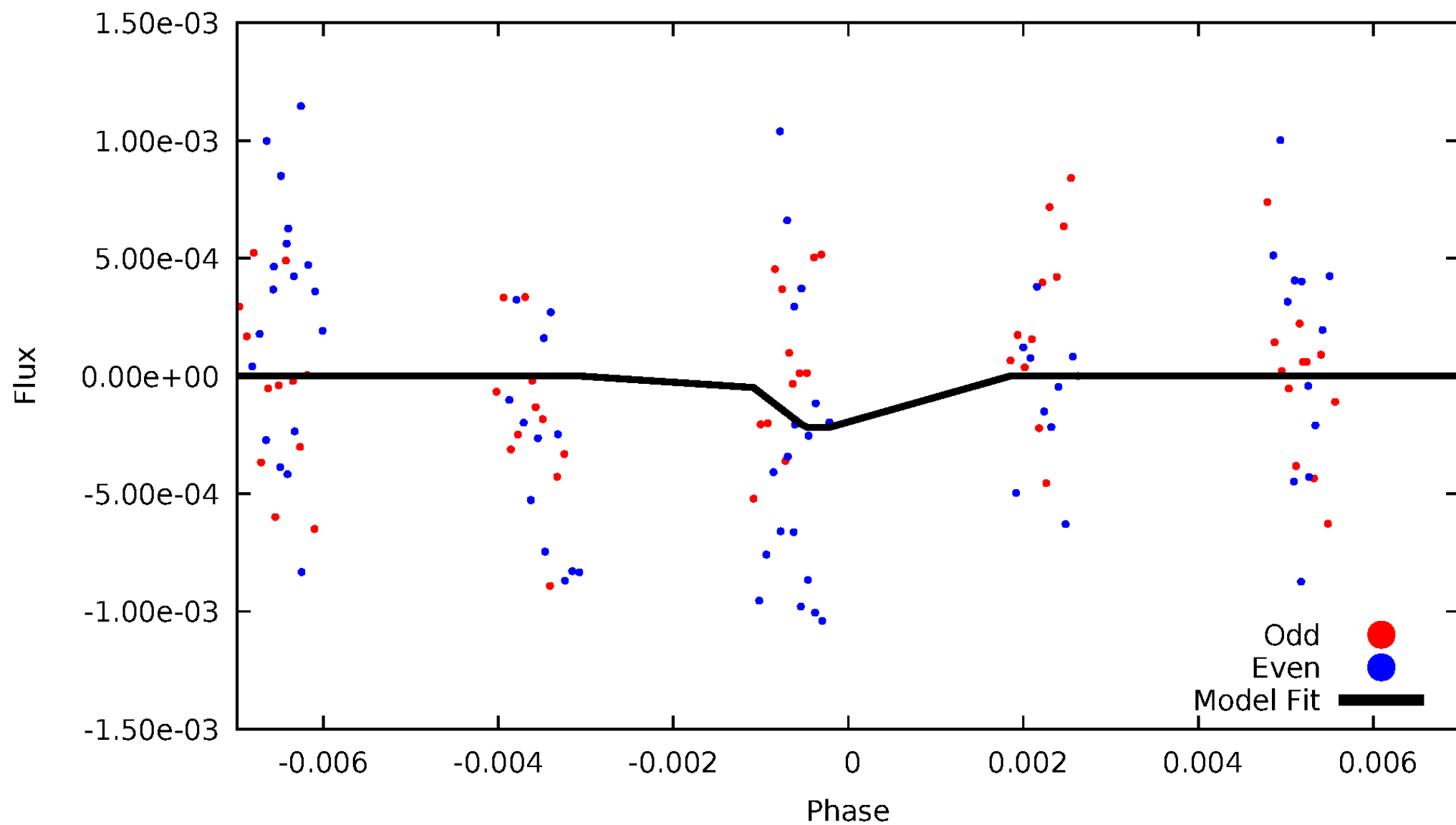
DV Odd/Even

TCE 004749989-07



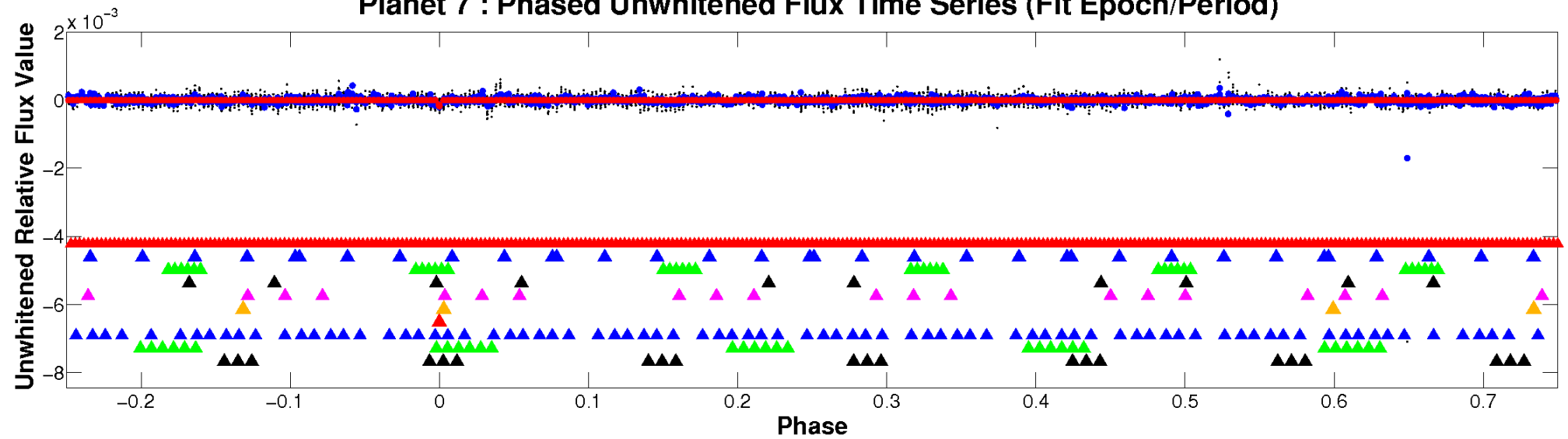
ALT Odd/Even

TCE 004749989-07

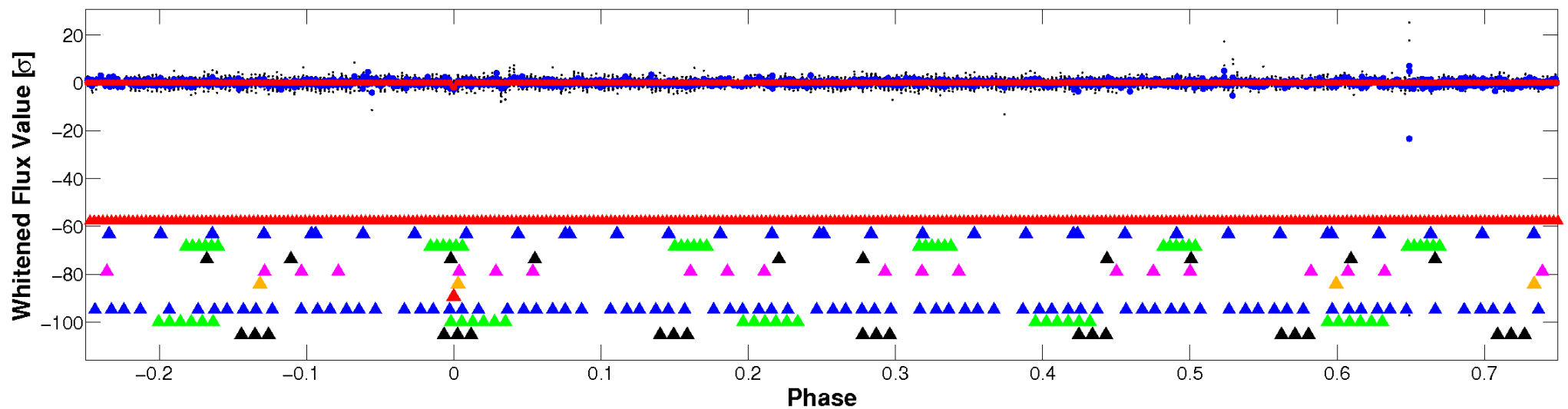


Non-Whitened Vs. Whitened Light Curve

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

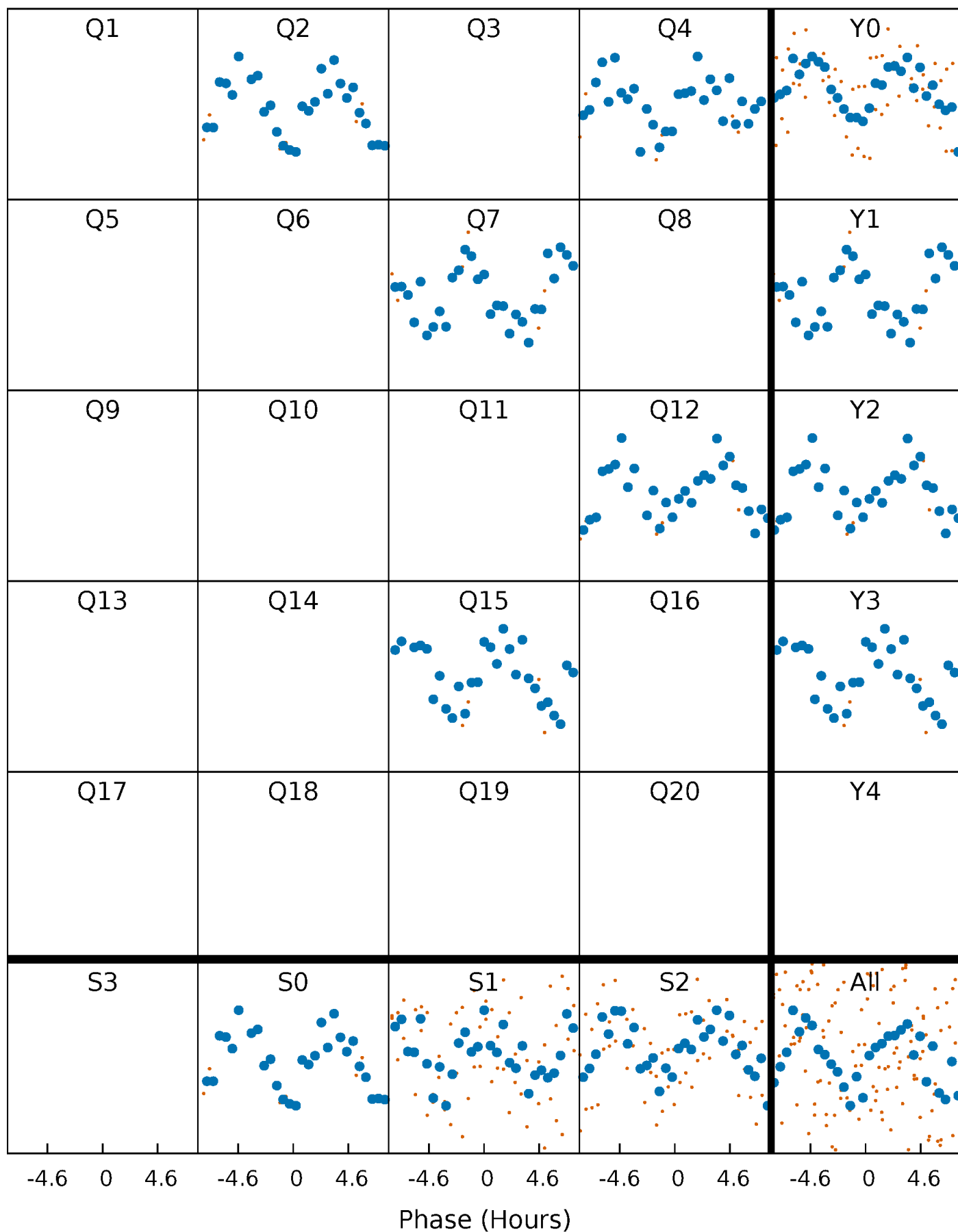


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



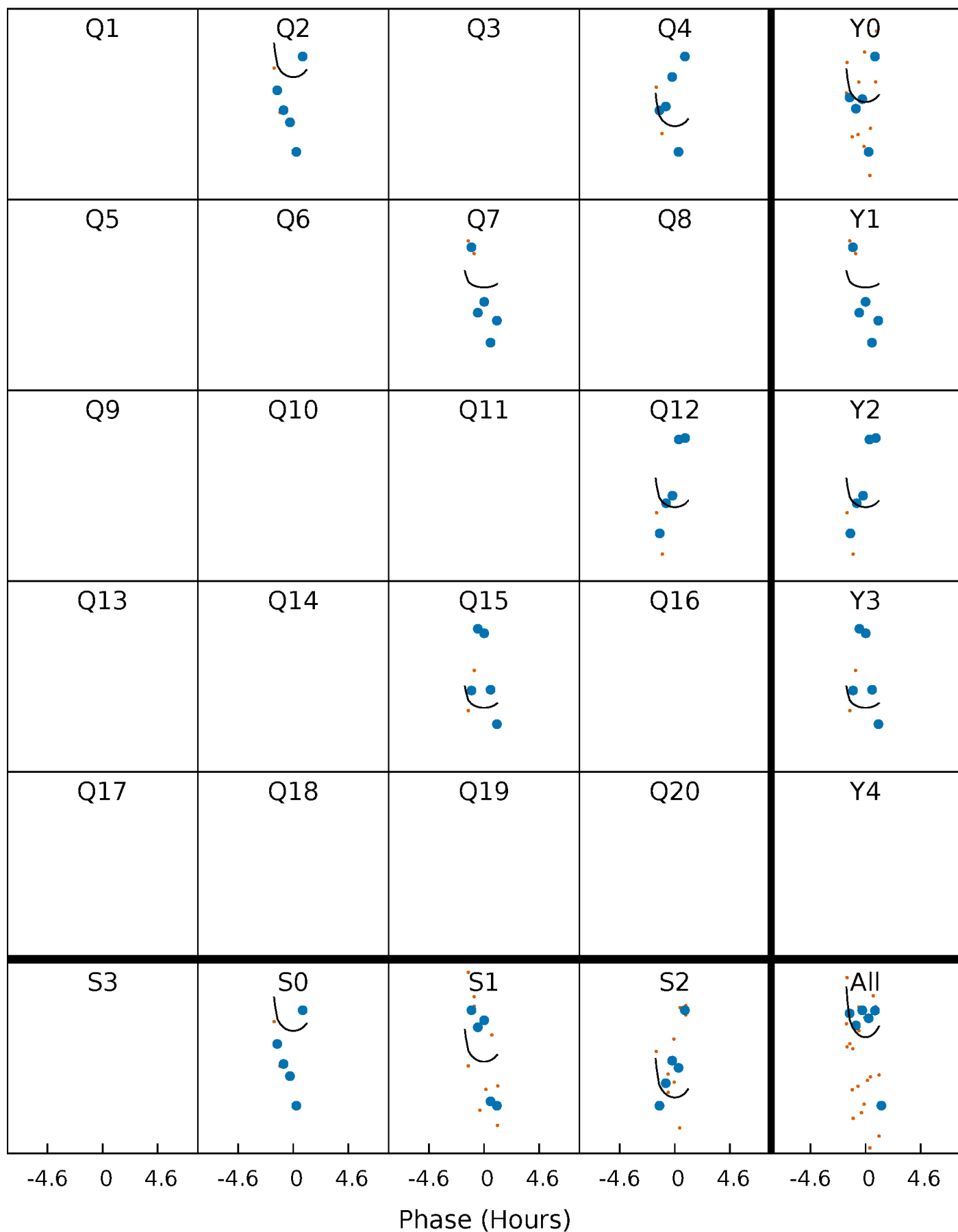
PDC Quarter-Phased Transit Curves

TCE 004749989-07 P=250.427163 Days $T_0=176.310022$ (BKJD)



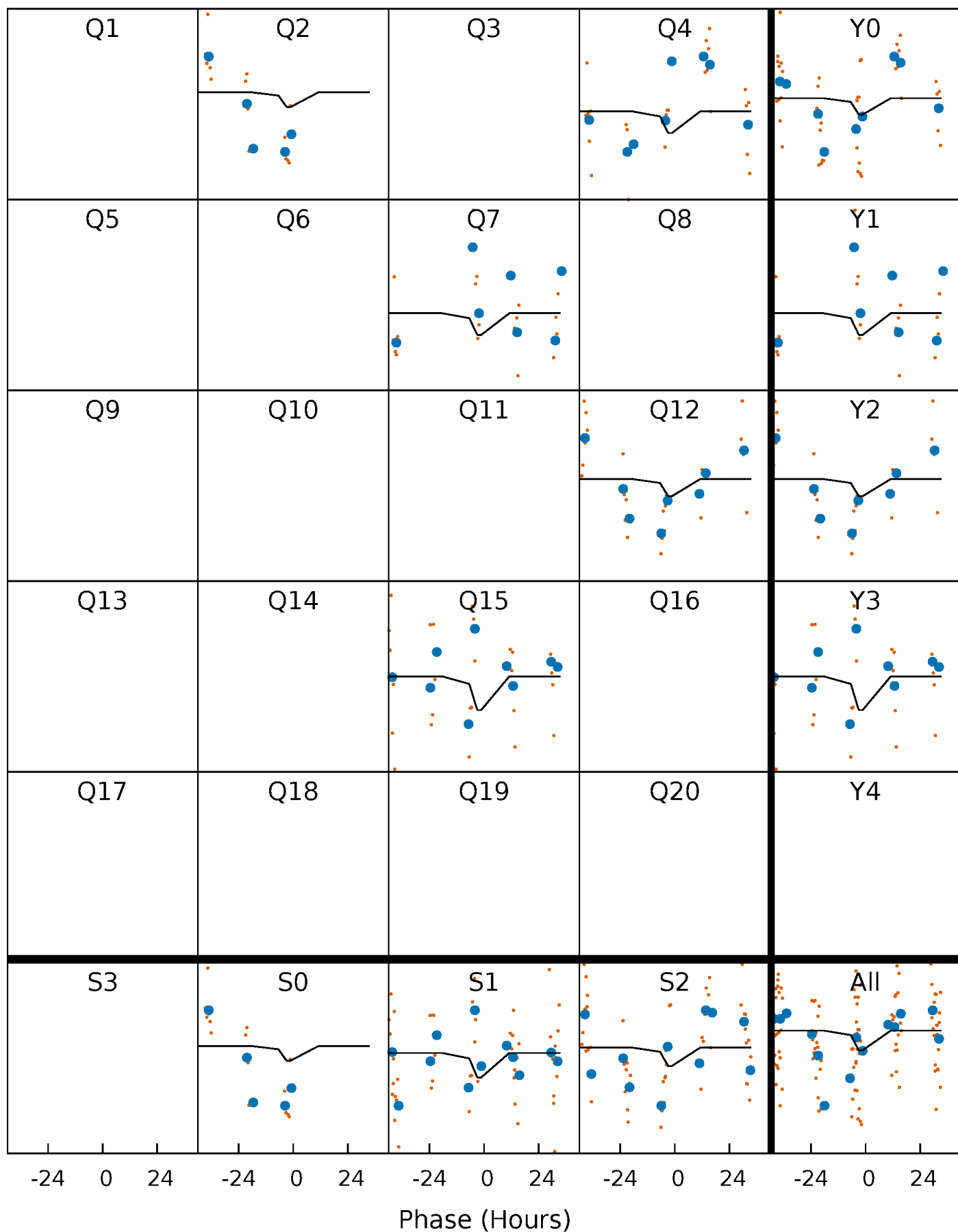
DV Quarter-Phased Transit Curves

TCE 004749989-07 P=250.427163 Days $T_0=176.310022$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

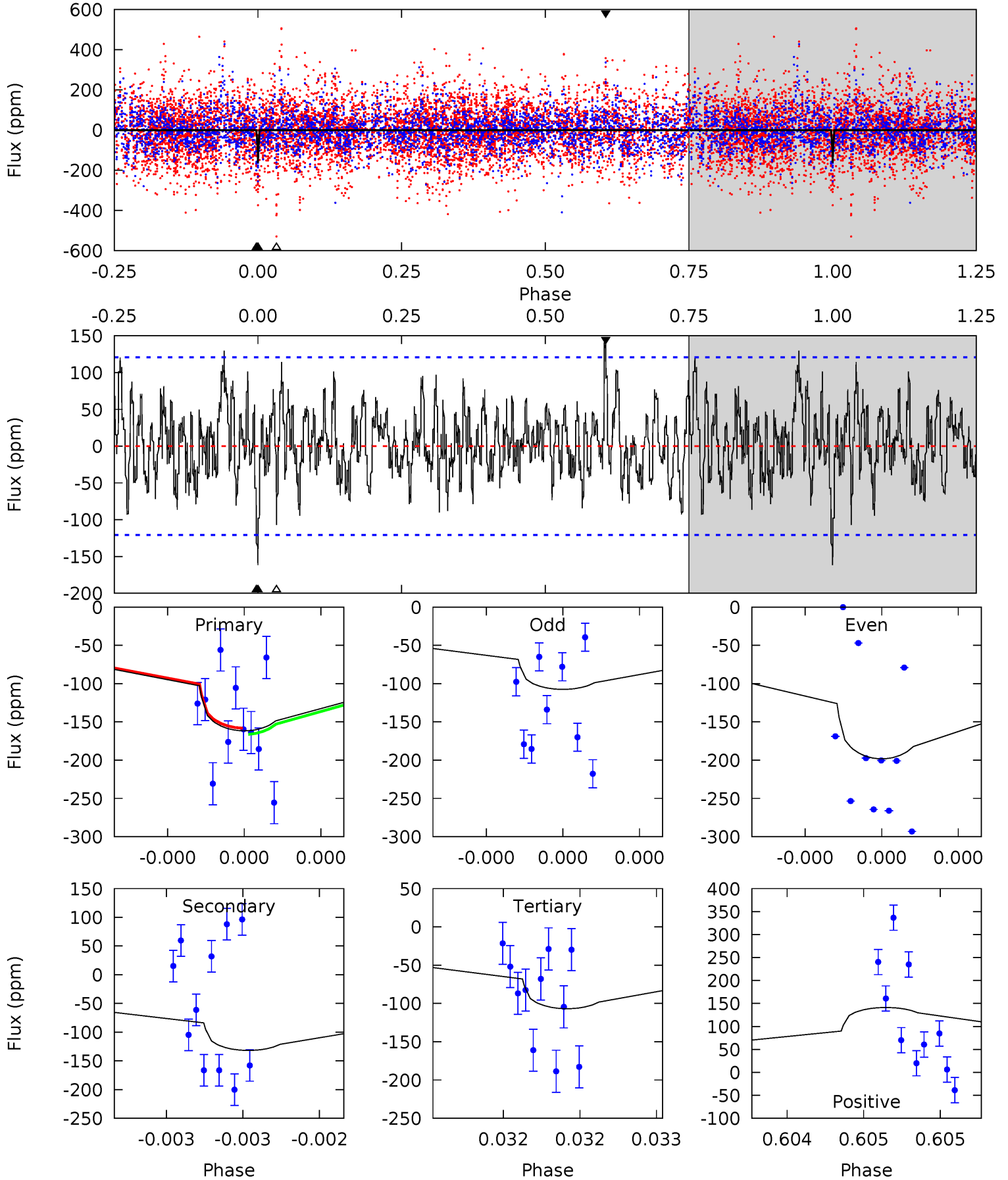
TCE 004749989-07 P=250.452525 Days $T_0=176.399926$ (BKJD)



DV Model-Shift Uniqueness Test

004749989-07, P = 250.427163 Days, E = 176.310022 Days

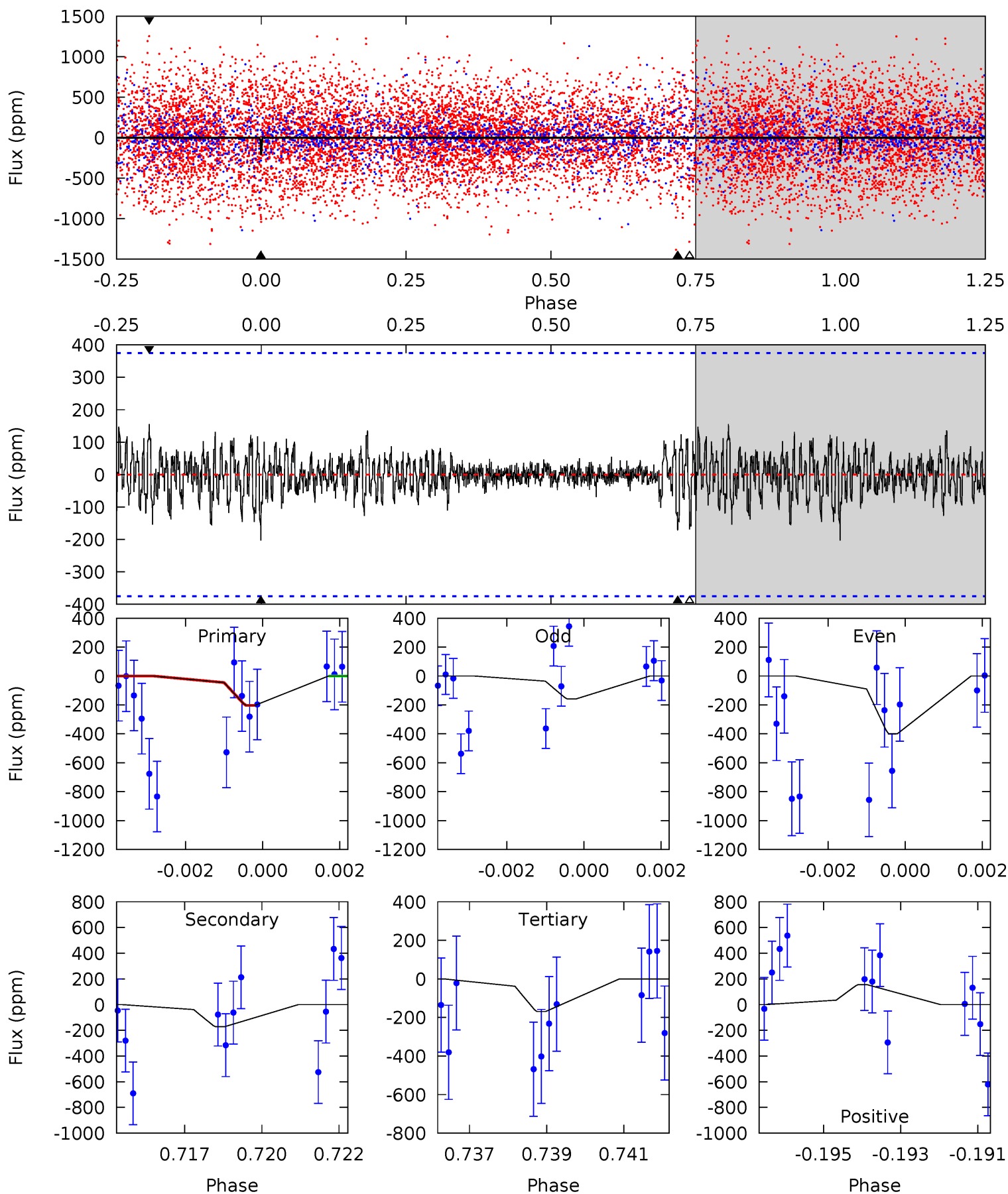
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.48	6.10	4.94	6.54	5.59	3.51	1.80	2.54	0.95	1.16	-0.44	2.08	1.15	0.47	0.18



Alt Model-Shift Uniqueness Test

004749989-07, P = 250.452525 Days, E = 176.399926 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.88	2.44	2.39	2.20	5.31	3.07	0.62	0.49	0.67	0.05	0.24	1.67	0	0.43	0



Stellar Parameters For KIC 004749989

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6824^{+214}_{-285}	$4.012^{+0.286}_{-0.154}$	$-0.300^{+0.300}_{-0.300}$	$1.882^{+0.504}_{-0.616}$	$1.332^{+0.195}_{-0.238}$	$0.281^{+0.569}_{-0.128}$
	+3%/-4%	+7%/-4%	+100%/-100%	+27%/-33%	+15%/-18%	+202%/-45%
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 004749989-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-132 ± 22	$3.80^{+3.12}_{-2.51}$	613^{+54}_{-55}	5245^{+3984}_{-1068}	3654^{+27322}_{-2538}
Alt.	-172 ± 71	$3.84^{+3.10}_{-2.43}$	611^{+54}_{-56}	5495^{+4092}_{-1175}	4460^{+29484}_{-3169}

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

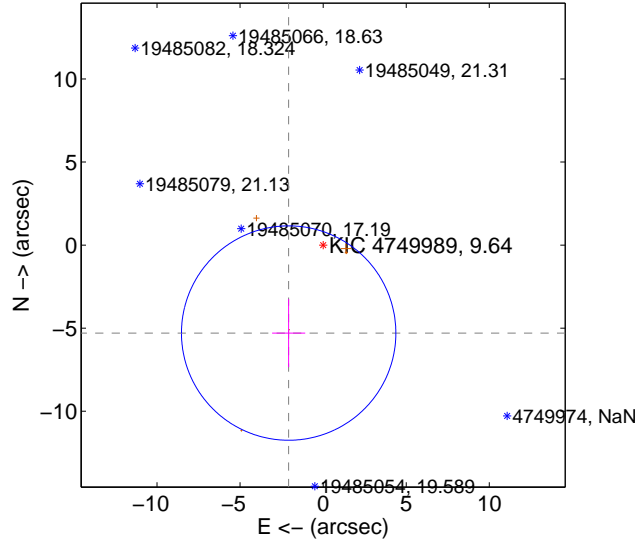
Supplemental centroid analysis for 004749989-07. **Kepler magnitude: 9.64.** Transit SNR 9.65

There are 0 quarters with good PRF difference image offsets

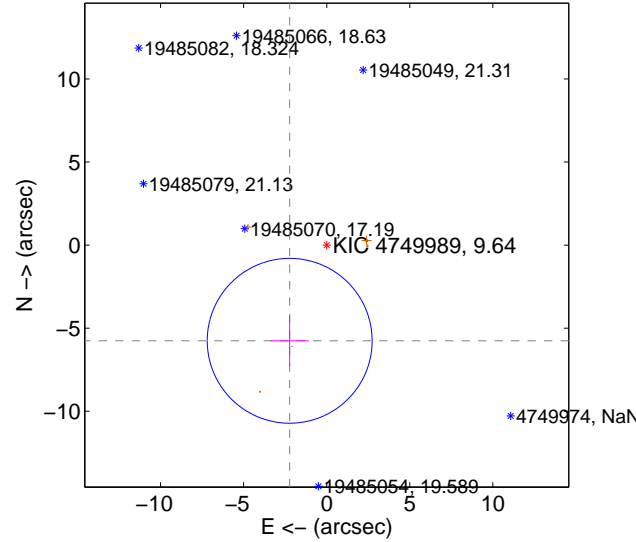
The direct PRF centroid is offset from the target star catalog position by about 1.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.685 ± 2.150	2.64	2.075 ± 0.994	-5.293 ± 2.047
PRF-fit source offset from KIC position	6.175 ± 1.653	3.73	2.229 ± 1.150	-5.758 ± 1.516
photometric centroid source offset	0.44 ± 0.73	0.59	0.42 ± 0.70	-0.11 ± 1.12

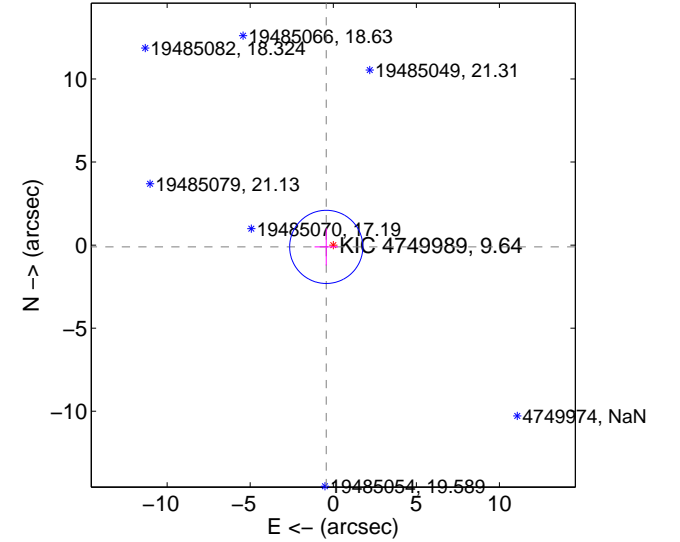
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



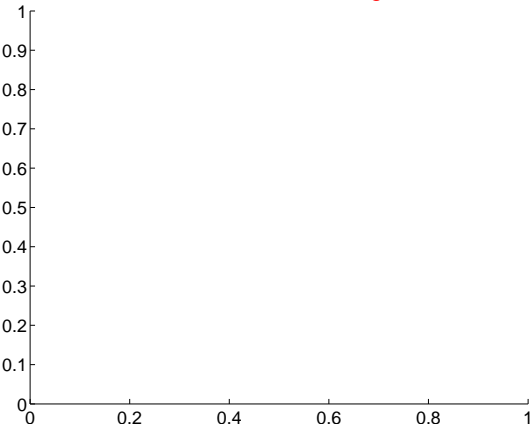
offset from photometric centroids



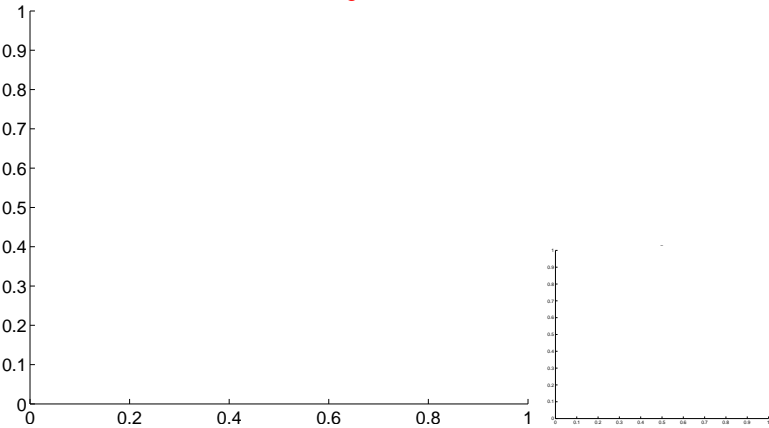
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

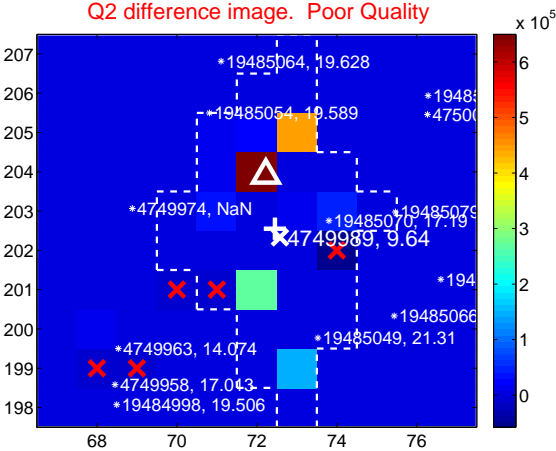
Q1 no difference image



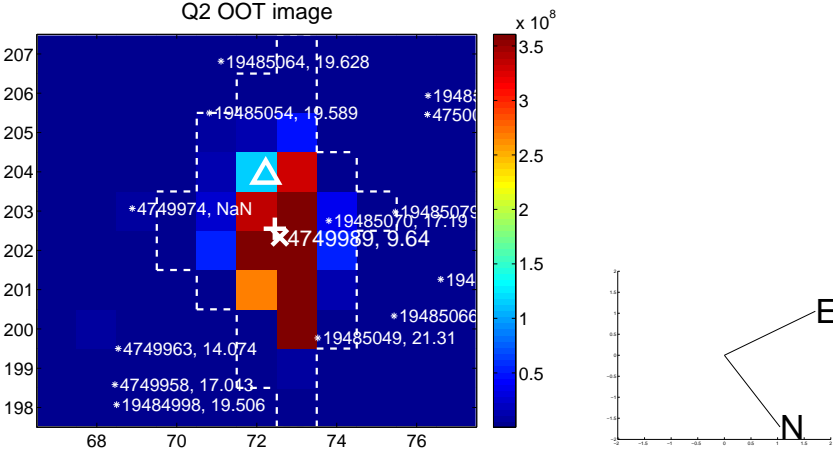
Q1 no OOT image



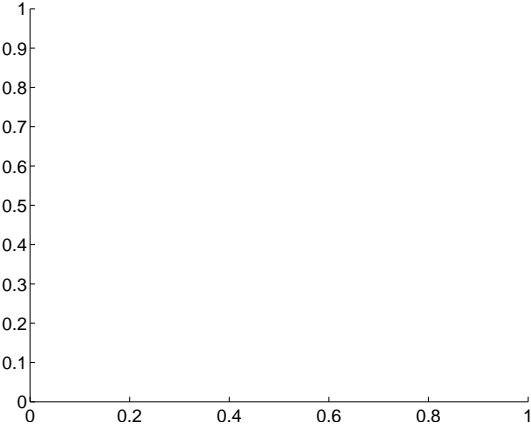
Q2 difference image. Poor Quality



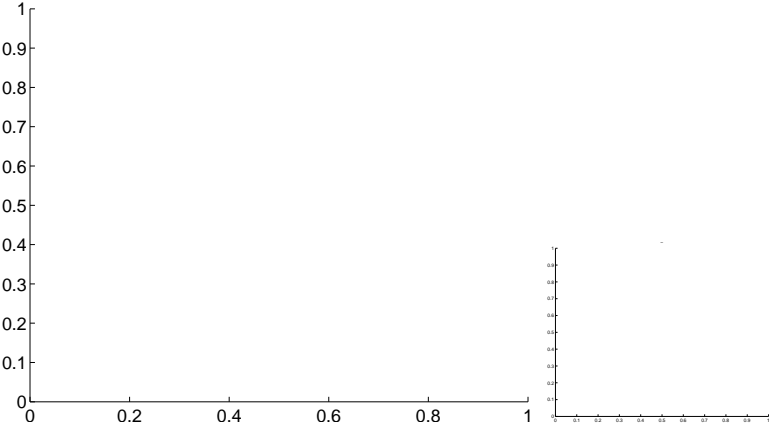
Q2 OOT image



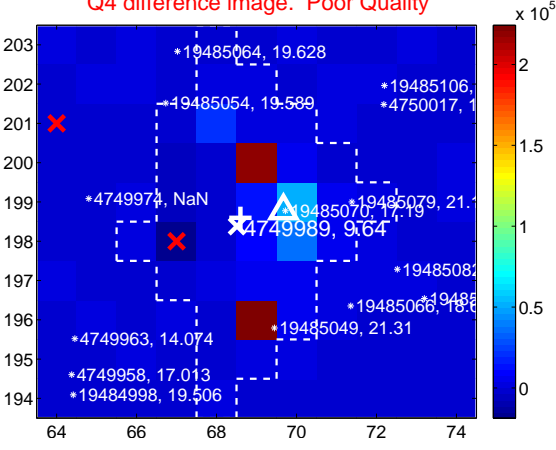
Q3 no difference image



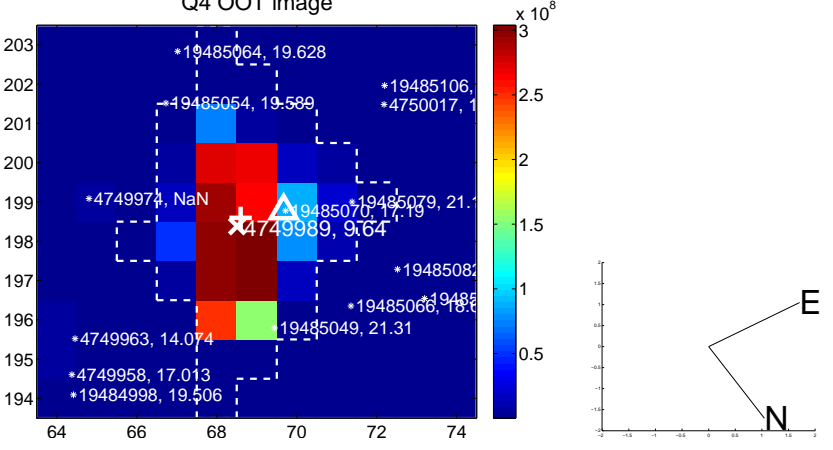
Q3 no OOT image



Q4 difference image. Poor Quality



Q4 OOT image



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

Q5 no difference image



Q5 no OOT image



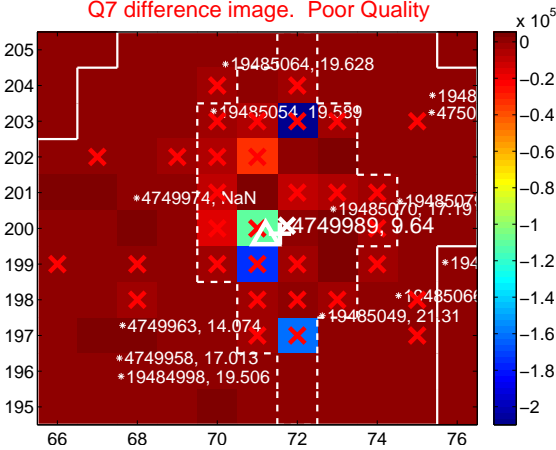
Q6 no difference image



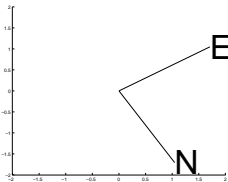
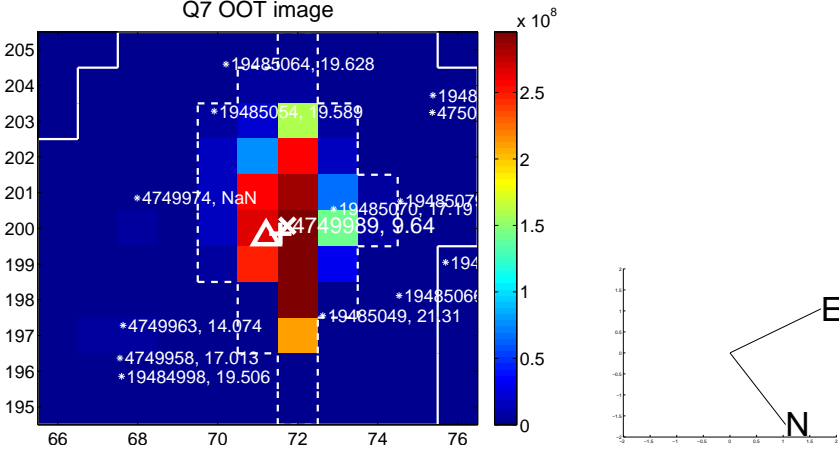
Q6 no OOT image



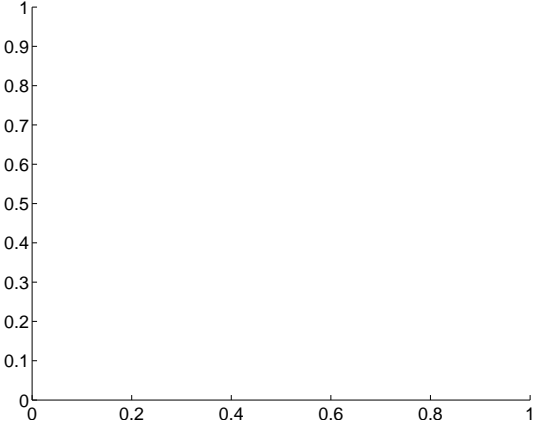
Q7 difference image. Poor Quality



Q7 OOT image



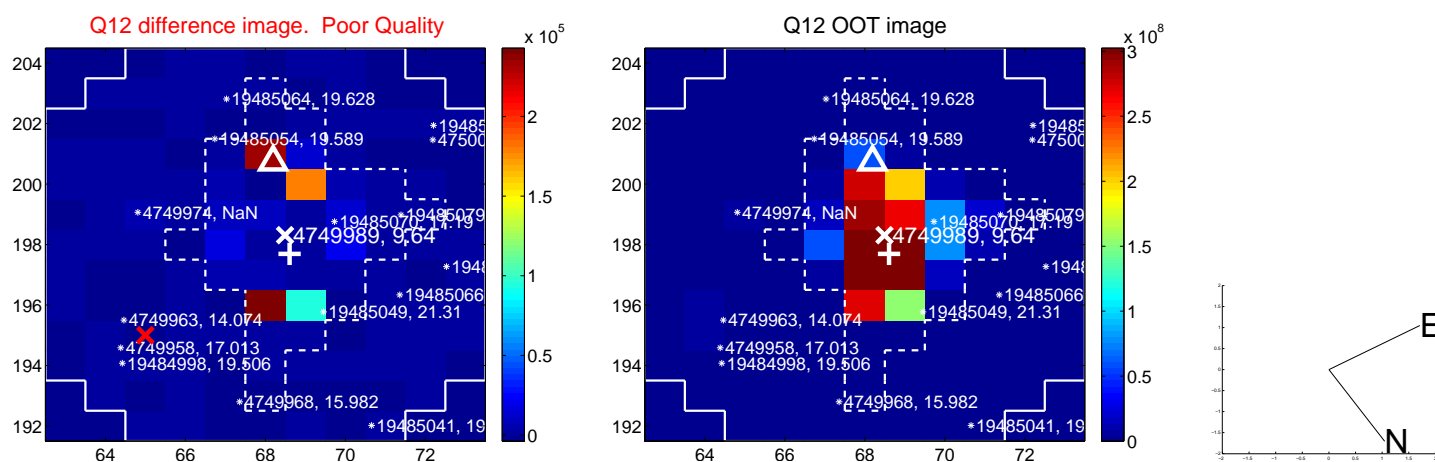
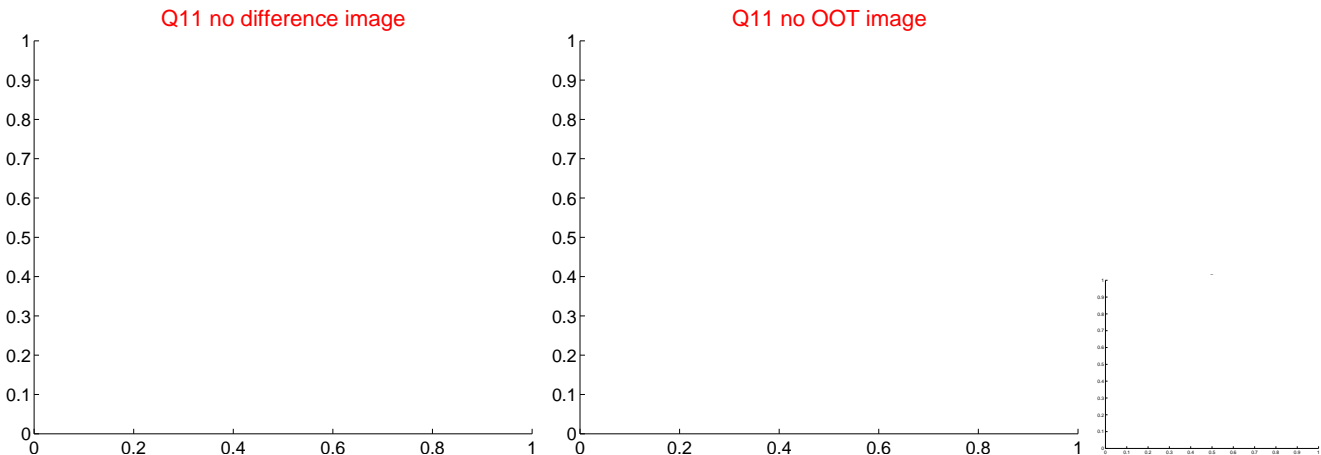
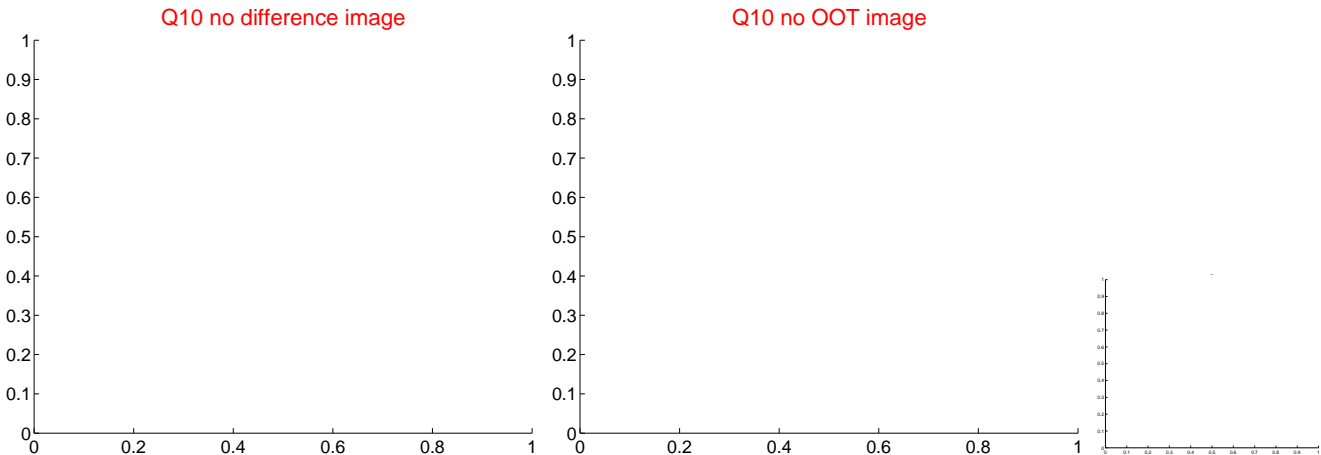
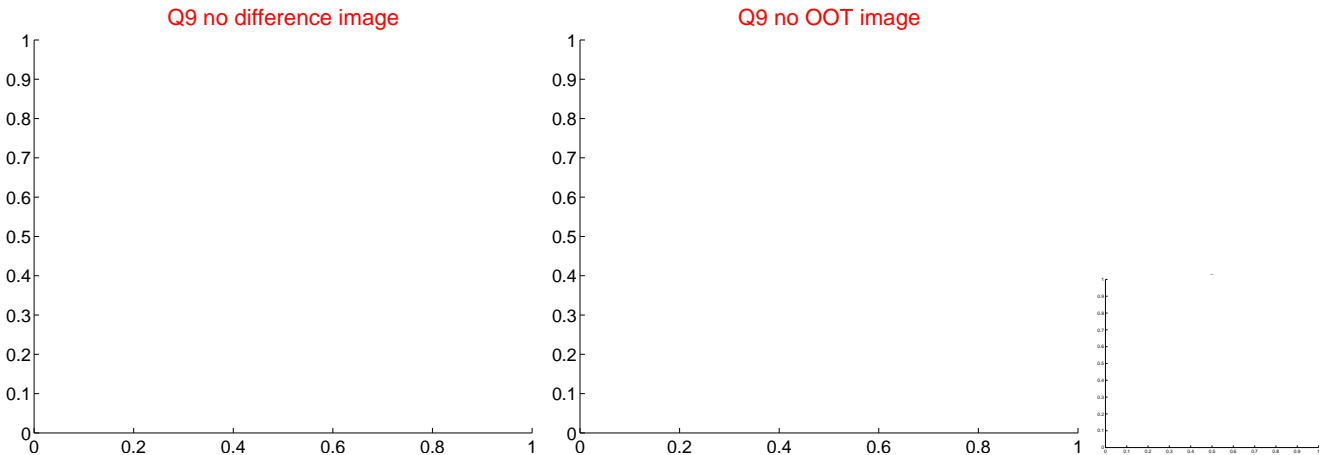
Q8 no difference image



Q8 no OOT image

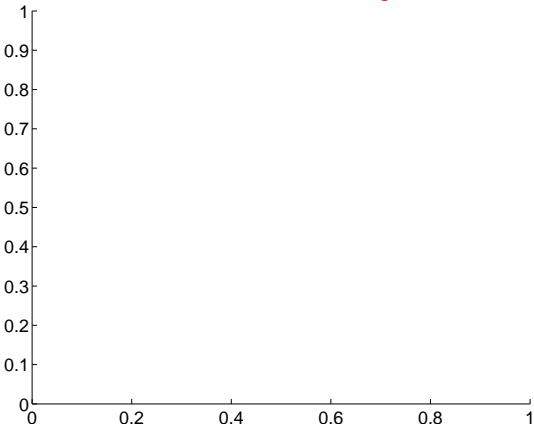


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value

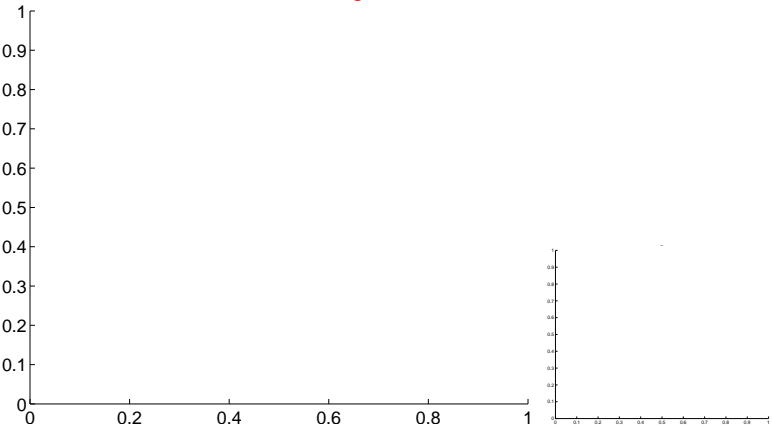


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q13 no difference image



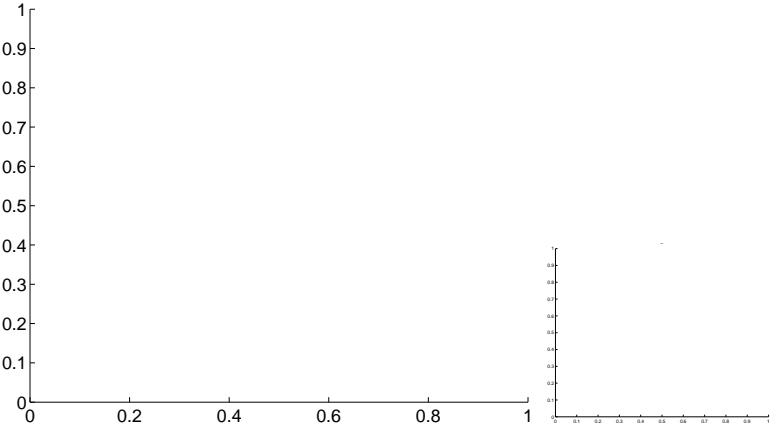
Q13 no OOT image



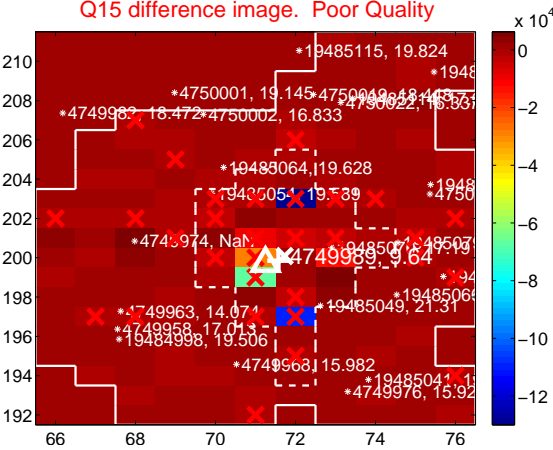
Q14 no difference image



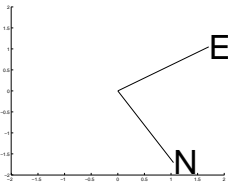
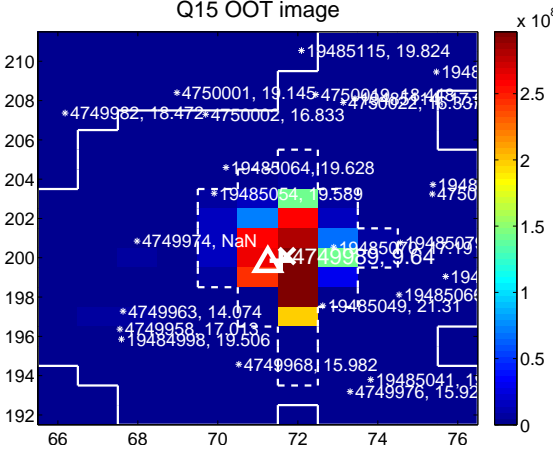
Q14 no OOT image



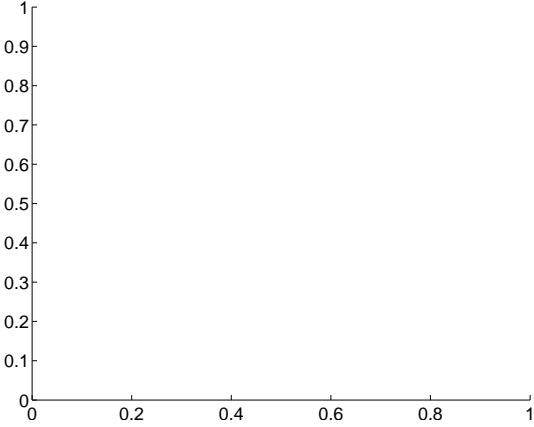
Q15 difference image. Poor Quality



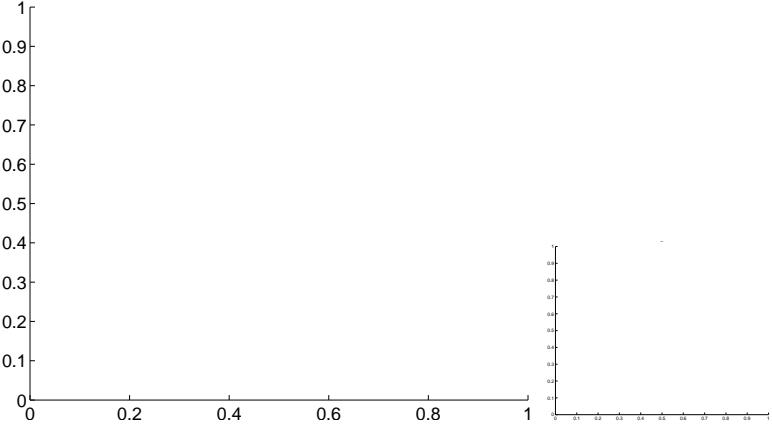
Q15 OOT image



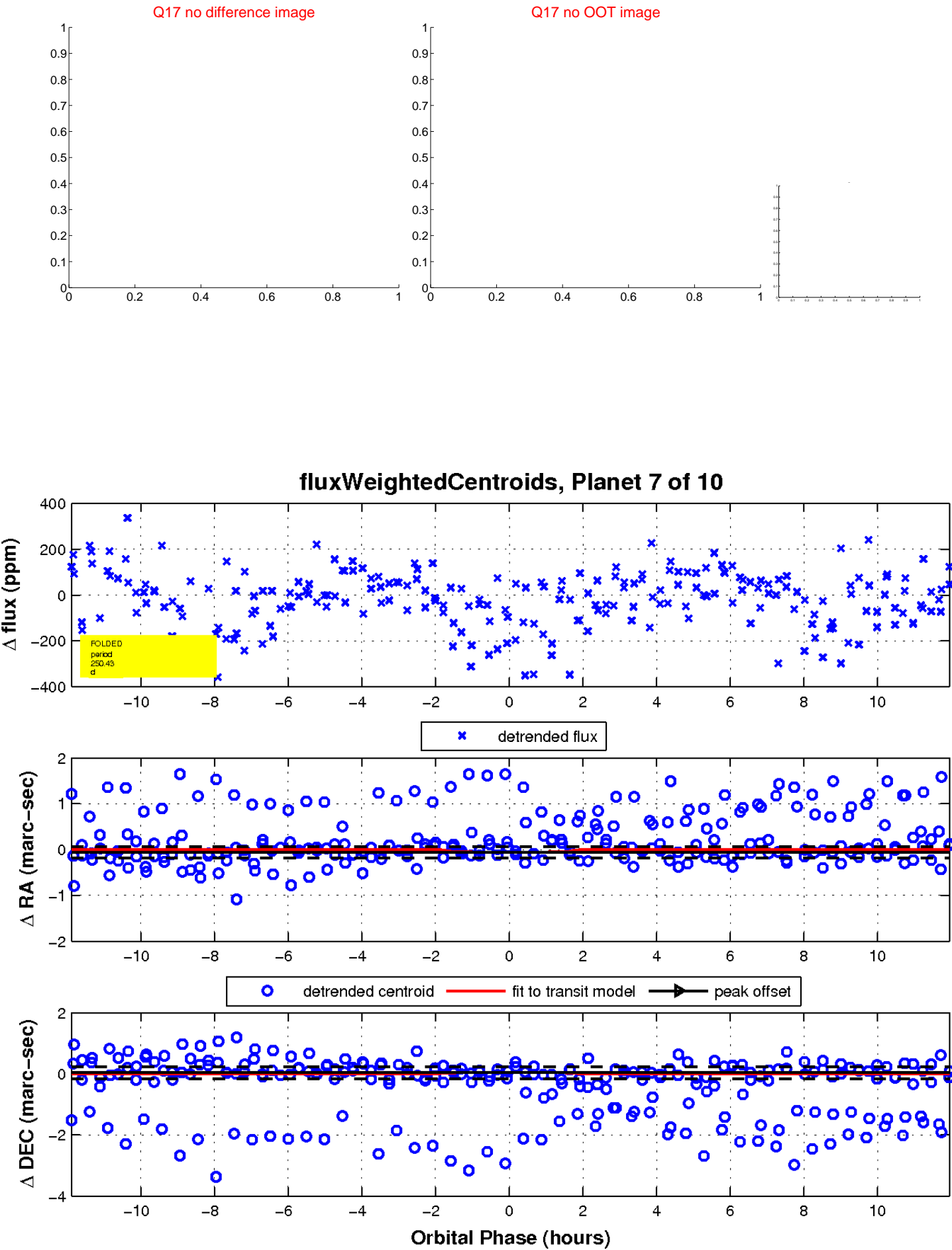
Q16 no difference image



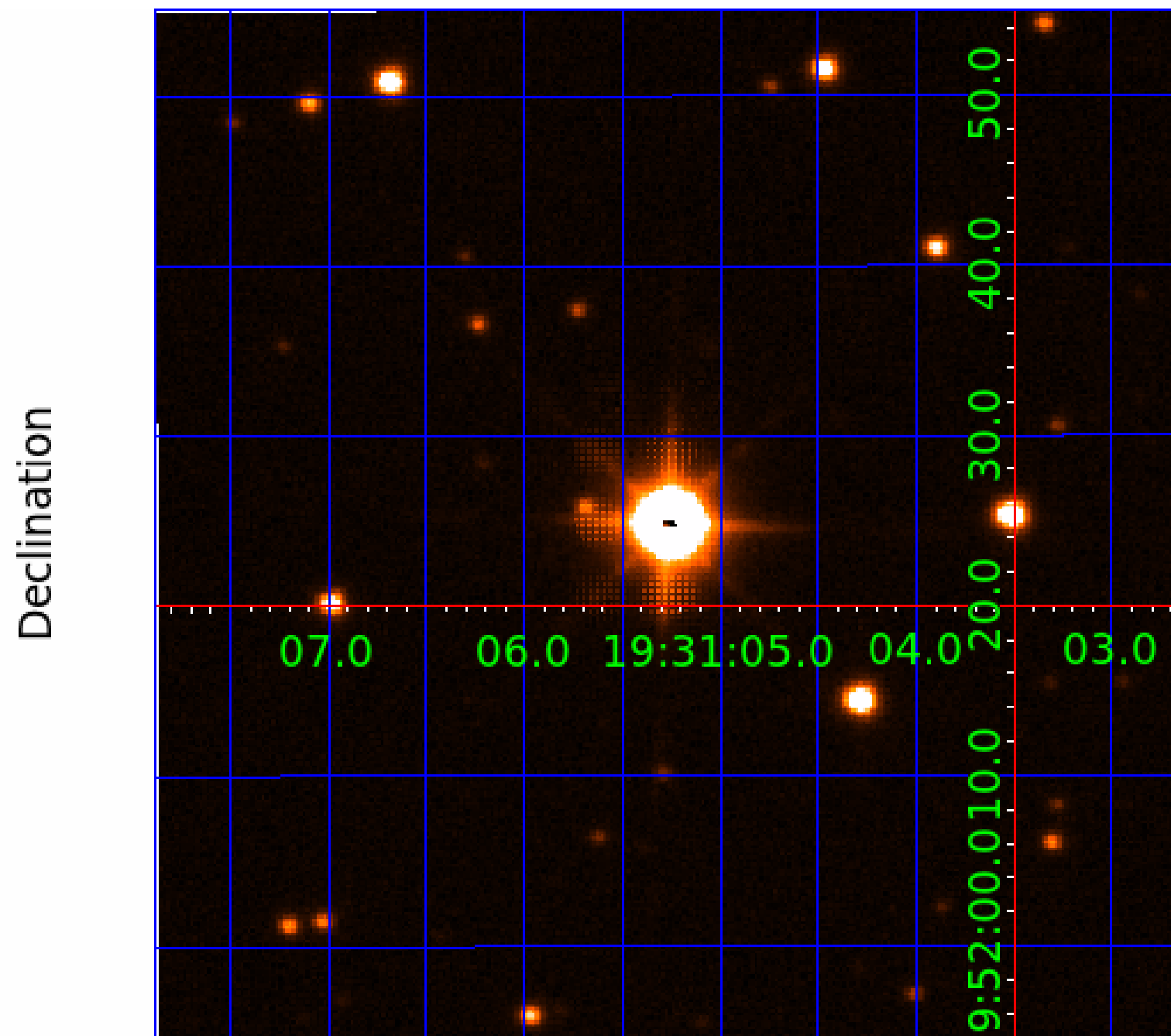
Q16 no OOT image



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



UKIRT Image



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})
004749989-01	OBS	No	0.732246	132.001787	13.0	4.721	11.2	9.5	1.88	6824	0.70	22521.01
004749989-02	OBS	No	43.201740	152.106101	15.0	1.035	13.2	1.1	1.88	6824	0.77	98.05
004749989-03	OBS	No	41.557803	136.205285	226.5	2.245	11.3	11.0	1.88	6824	3.33	103.26
004749989-04	OBS	No	153.116727	175.815026	50.7	1.959	10.3	1.4	1.88	6824	1.43	18.14
004749989-05	OBS	No	72.446819	177.224413	223.5	0.911	9.5	6.3	1.88	6824	3.31	49.22
004749989-06	OBS	No	467.163516	177.050588	64.6	3.500	10.6	-1.0	1.88	6824	1.53	4.10
004749989-07	OBS	No	250.427163	176.310022	171.3	3.985	9.8	9.7	1.88	6824	3.00	9.42
004749989-08	OBS	No	17.536486	142.663608	68.0	9.232	9.9	8.8	1.88	6824	1.70	326.24
004749989-09	OBS	No	49.714401	135.388278	59.6	3.000	10.6	-1.0	1.88	6824	1.47	81.31
004749989-10	OBS	No	71.221698	144.804494	188.7	2.602	10.1	8.3	1.88	6824	3.00	50.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004749989-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-03	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—CENT_SATURATED
004749989-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004749989-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-10	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—CENT_SATURATED

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

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

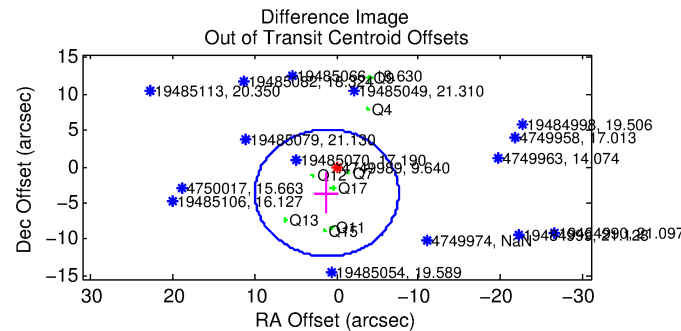
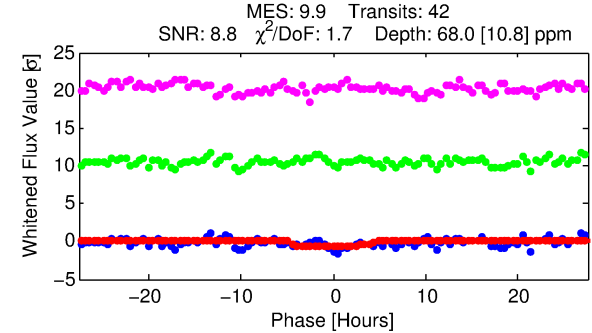
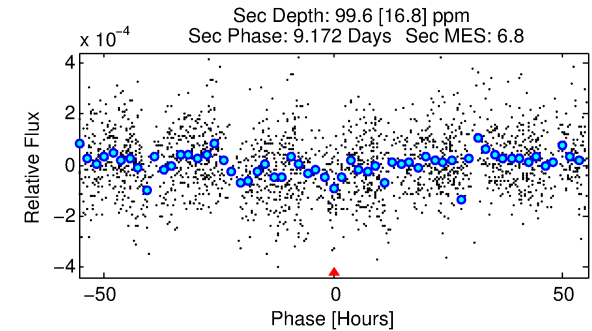
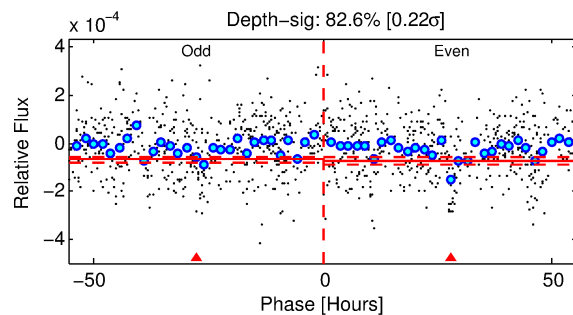
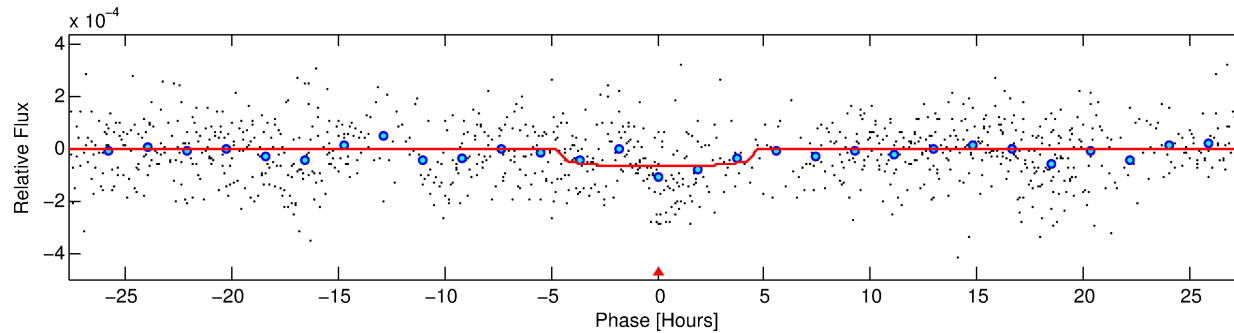
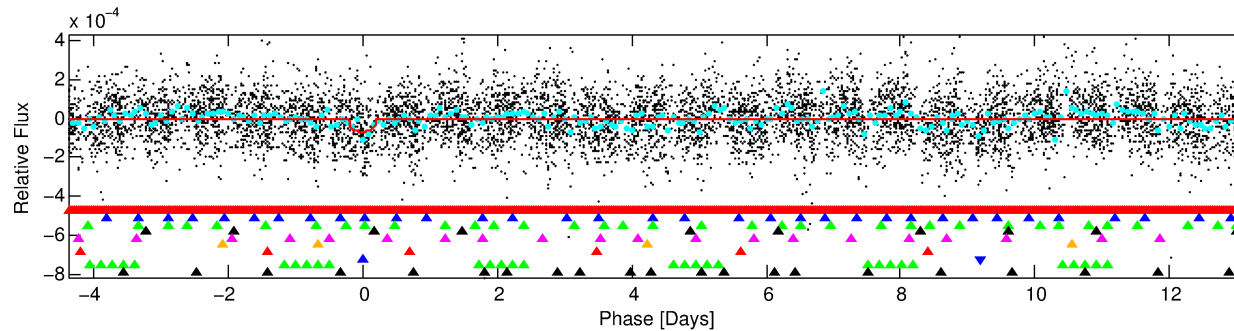
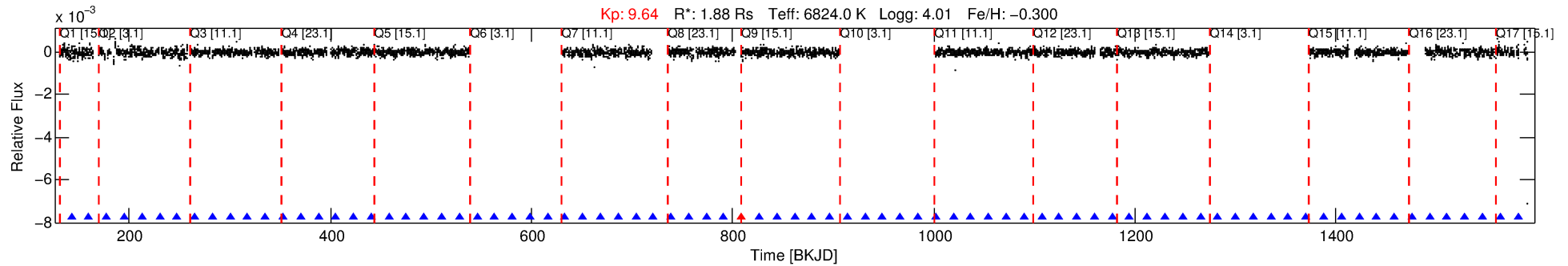
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004749989-08

No Significant Match Found

DV One-Page Summary

KIC: 4749989 Candidate: 8 of 10 Period: 17.536 d



DV Fit Results:

Period = 17.53649 [0.00048] d
Epoch = 142.6636 [0.0221] BKJD
 $R_p/R^* = 0.0083$ [0.0044]
 $a/R^* = 9.26$ [28.60]
 $b = 0.78$ [1.56]
 $\text{Seff} = 326.24$ [168.98]
 $T_{\text{eq}} = 1084$ [140] K
 $R_p = 1.70$ [1.07] R_{eq}
 $a = 0.1452$ [0.0450] AU
 $A_g = 399.46$ [475.57] [0.84 σ]
 $T_{\text{eff}} = 7491$ [2056] K [3.11 σ]

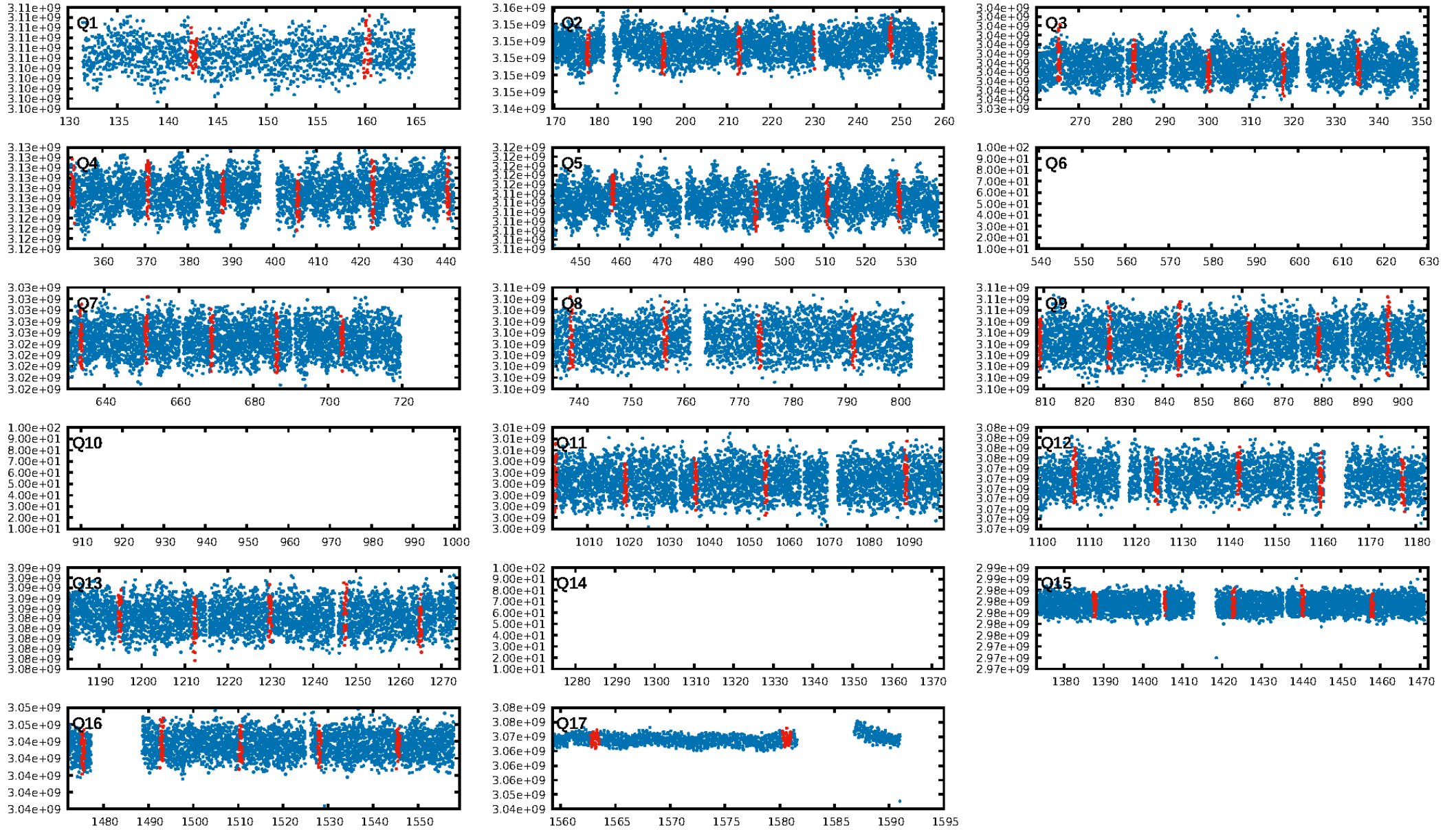
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [38.90 σ]
LongPeriod-sig: 100.0% [60.68 σ]
ModelChiSquare2-sig: 0.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.97 [37/38]
GhostDiagnostic-chr: N/A
Centroid-sig: 69.8%
Centroid-so: 0.224 arcsec [0.39 σ]
OotOffset-rm: 3.813 arcsec [1.31 σ]
KicOffset-rm: 3.956 arcsec [1.37 σ]
OotOffset-st: 0/3/2/3 [8]
KicOffset-st: 0/3/2/3 [8]
DiffImageQuality-fgm: 0.25 [2/8]
DiffImageOverlap-fno: 0.00 [0/14]

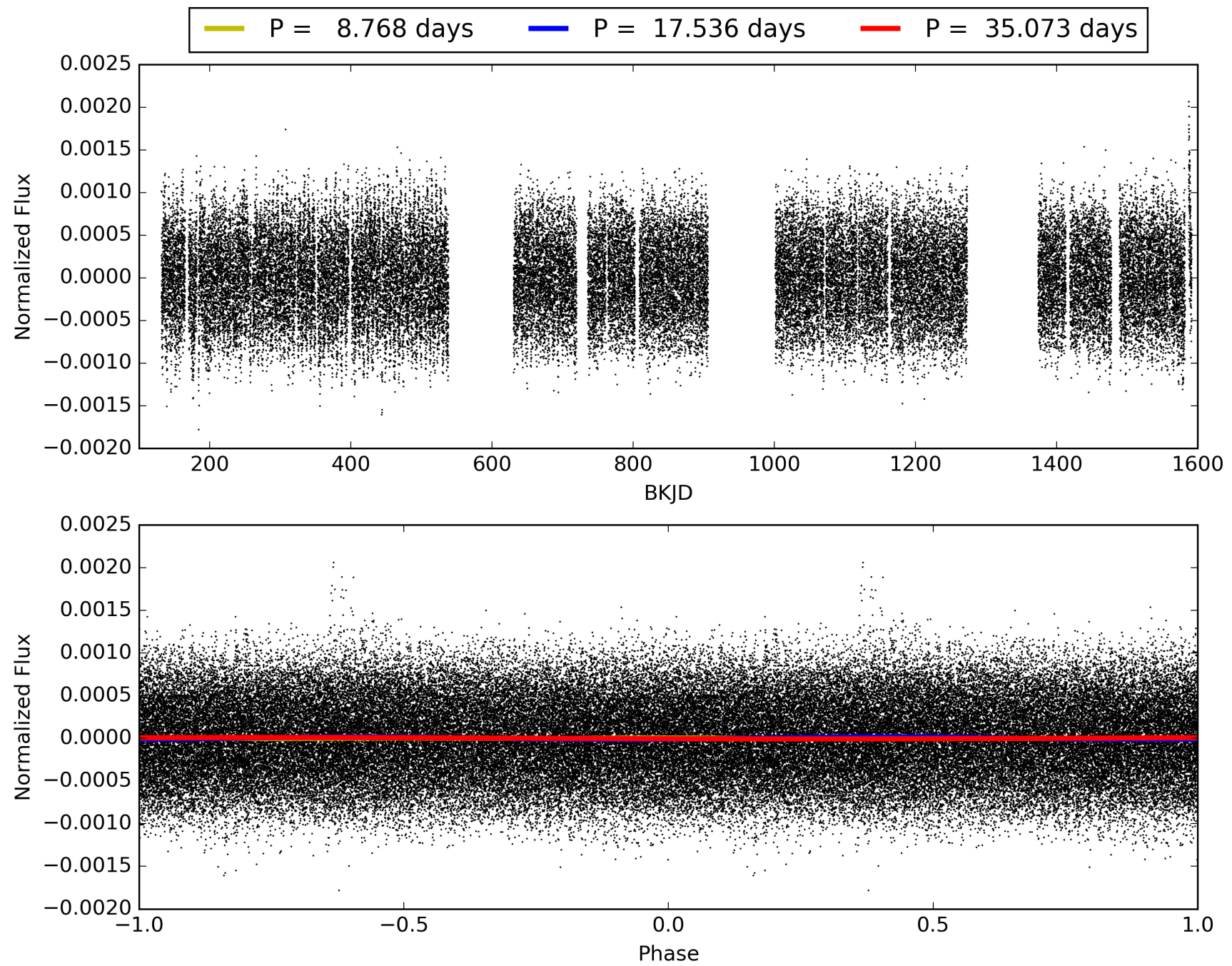
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:57:50 Z

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

TCE 004749989-08, PDC Light Curves

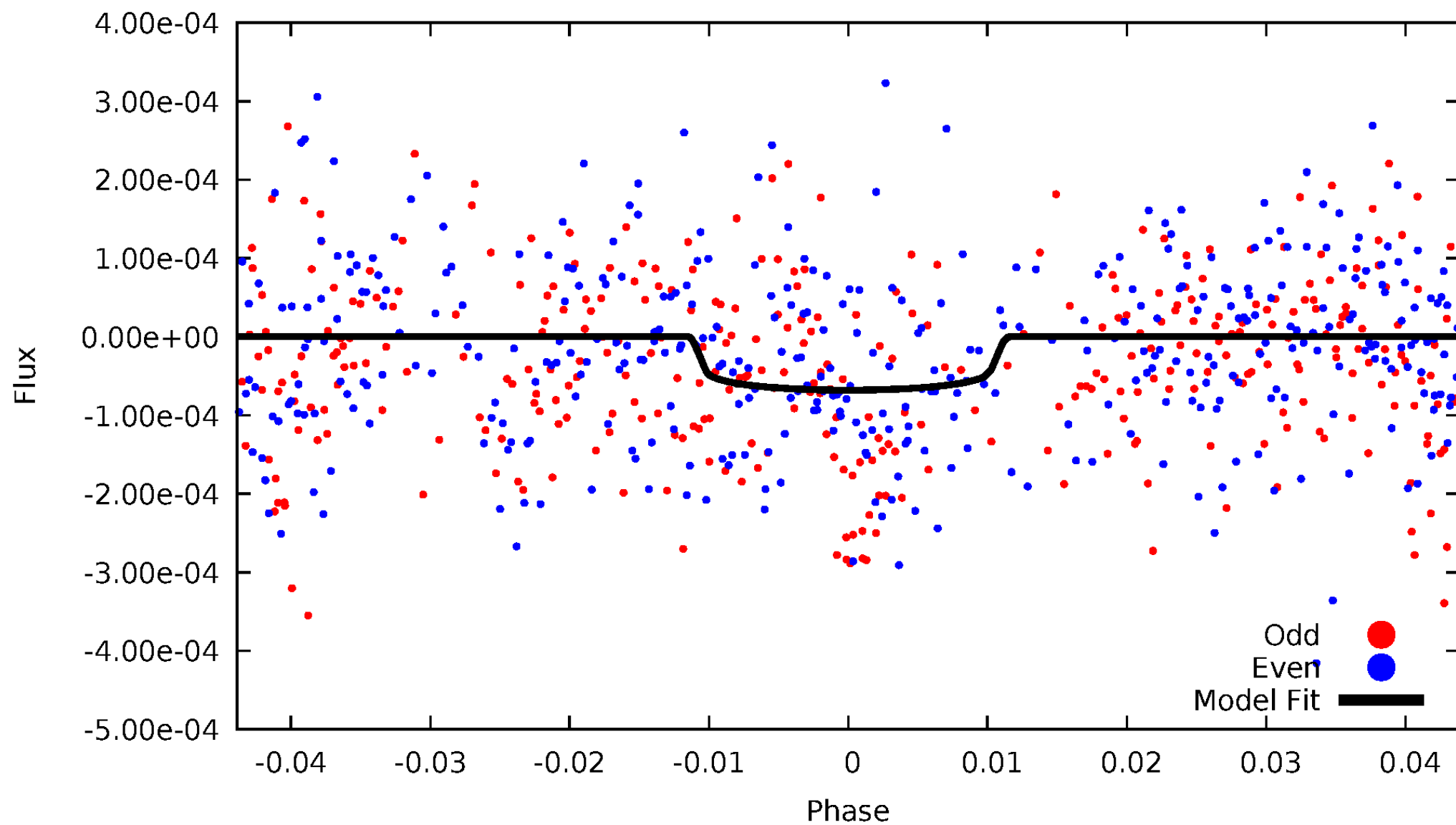


TCE 004749989-08



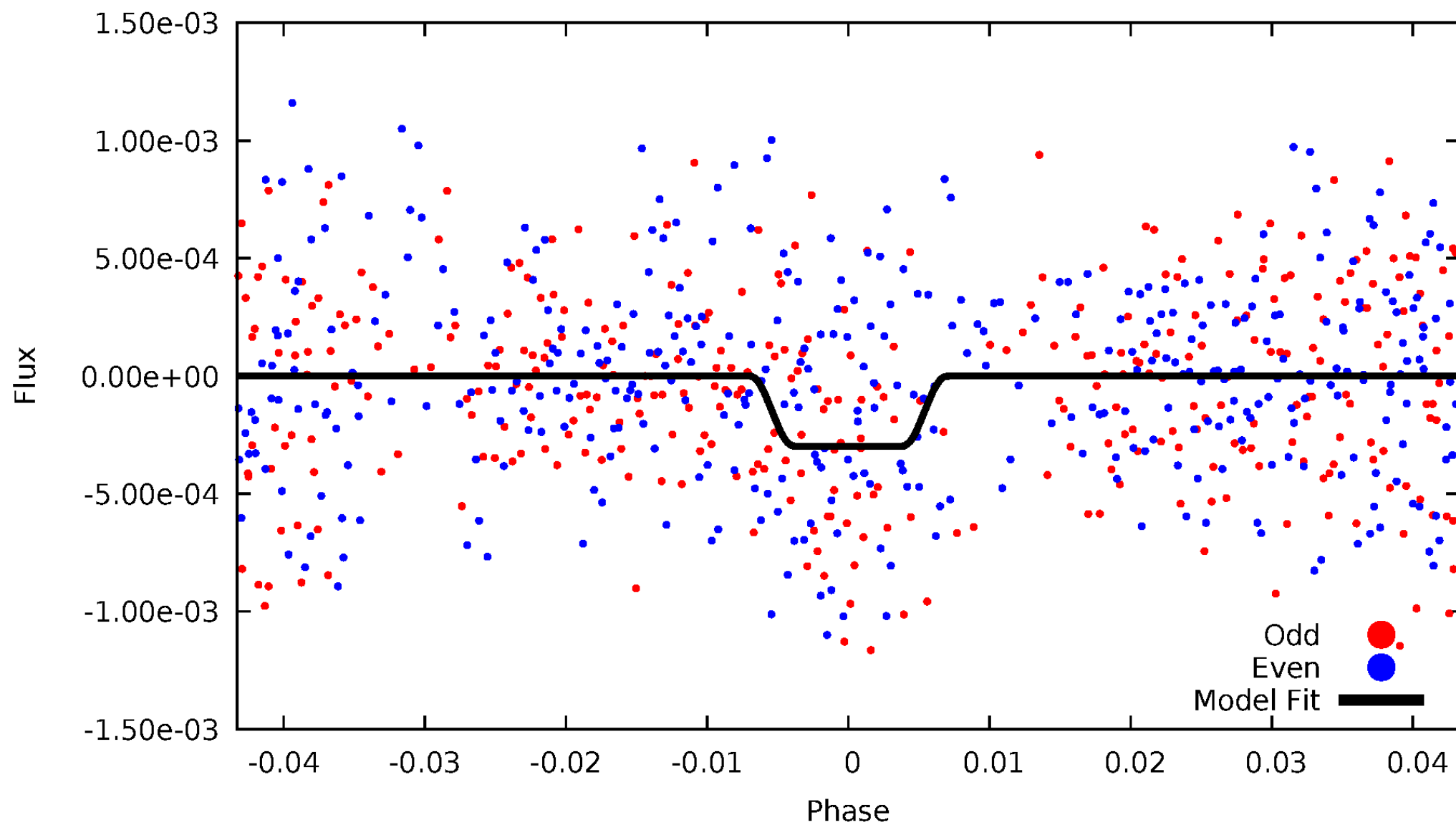
DV Odd/Even

TCE 004749989-08



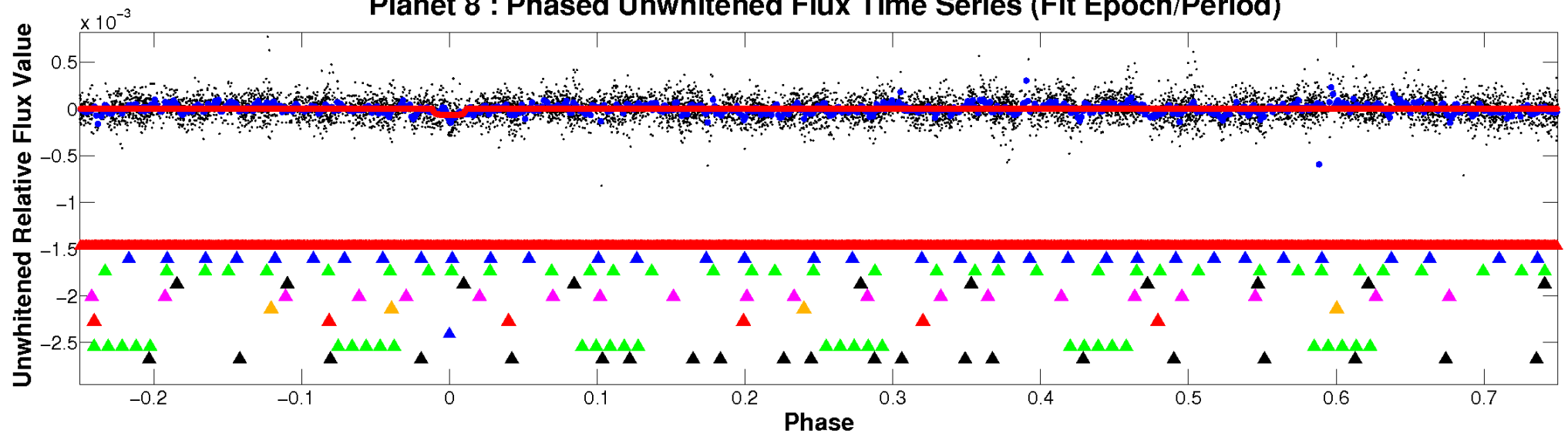
ALT Odd/Even

TCE 004749989-08

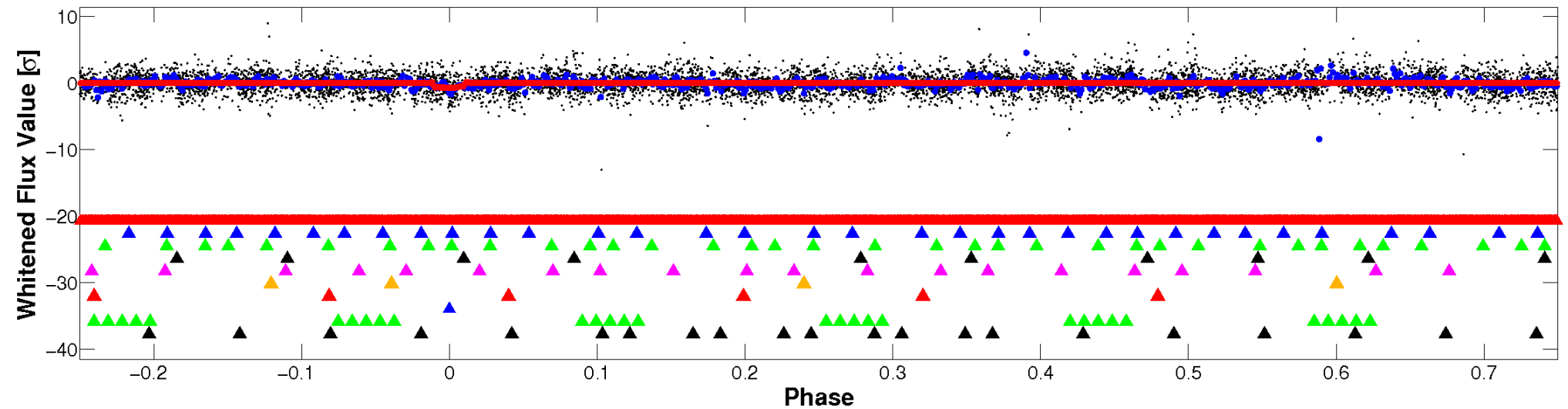


Non-Whitened Vs. Whitened Light Curve

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

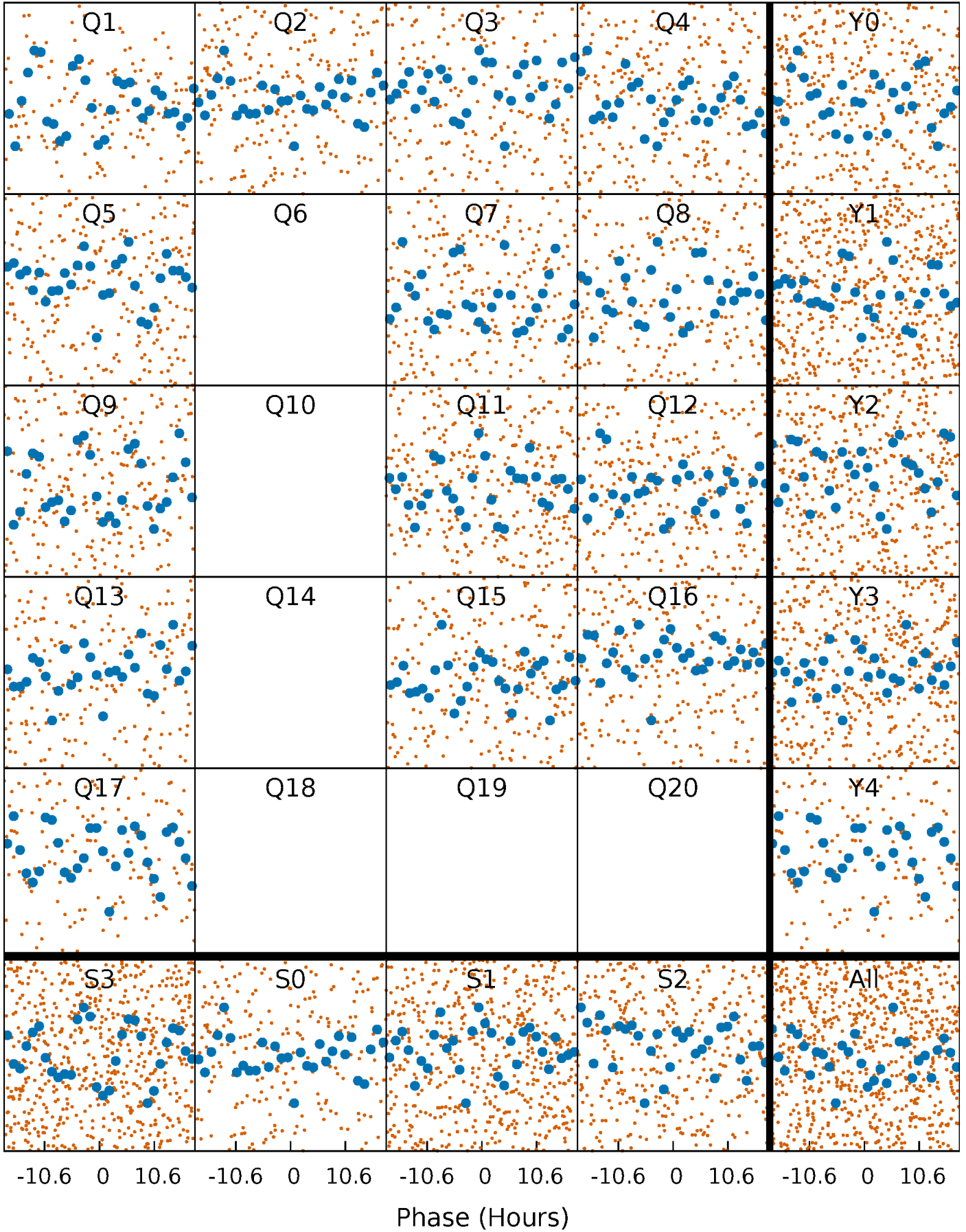


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



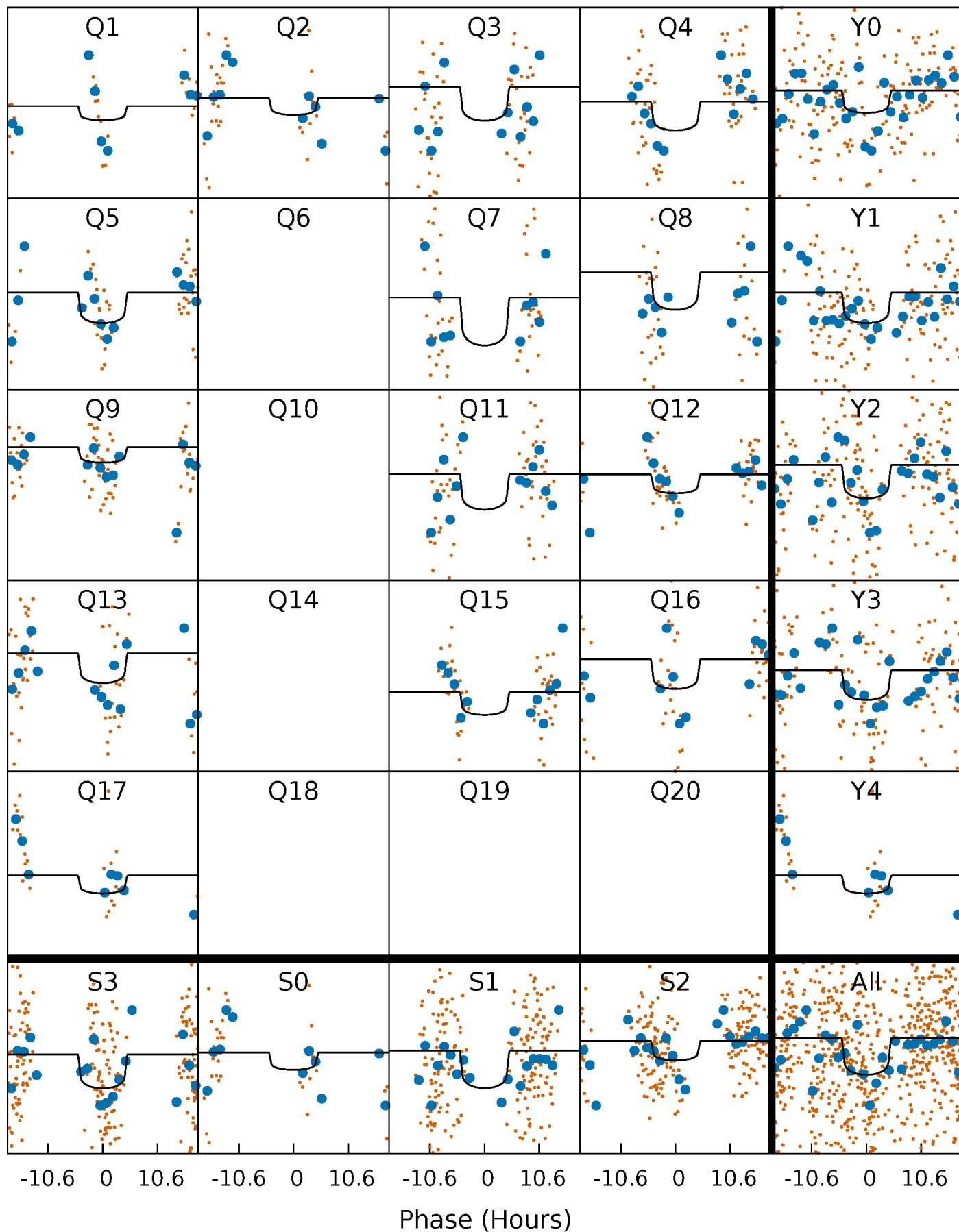
PDC Quarter-Phased Transit Curves

TCE 004749989-08 P= 17.536486 Days $T_0=142.663608$ (BKJD)



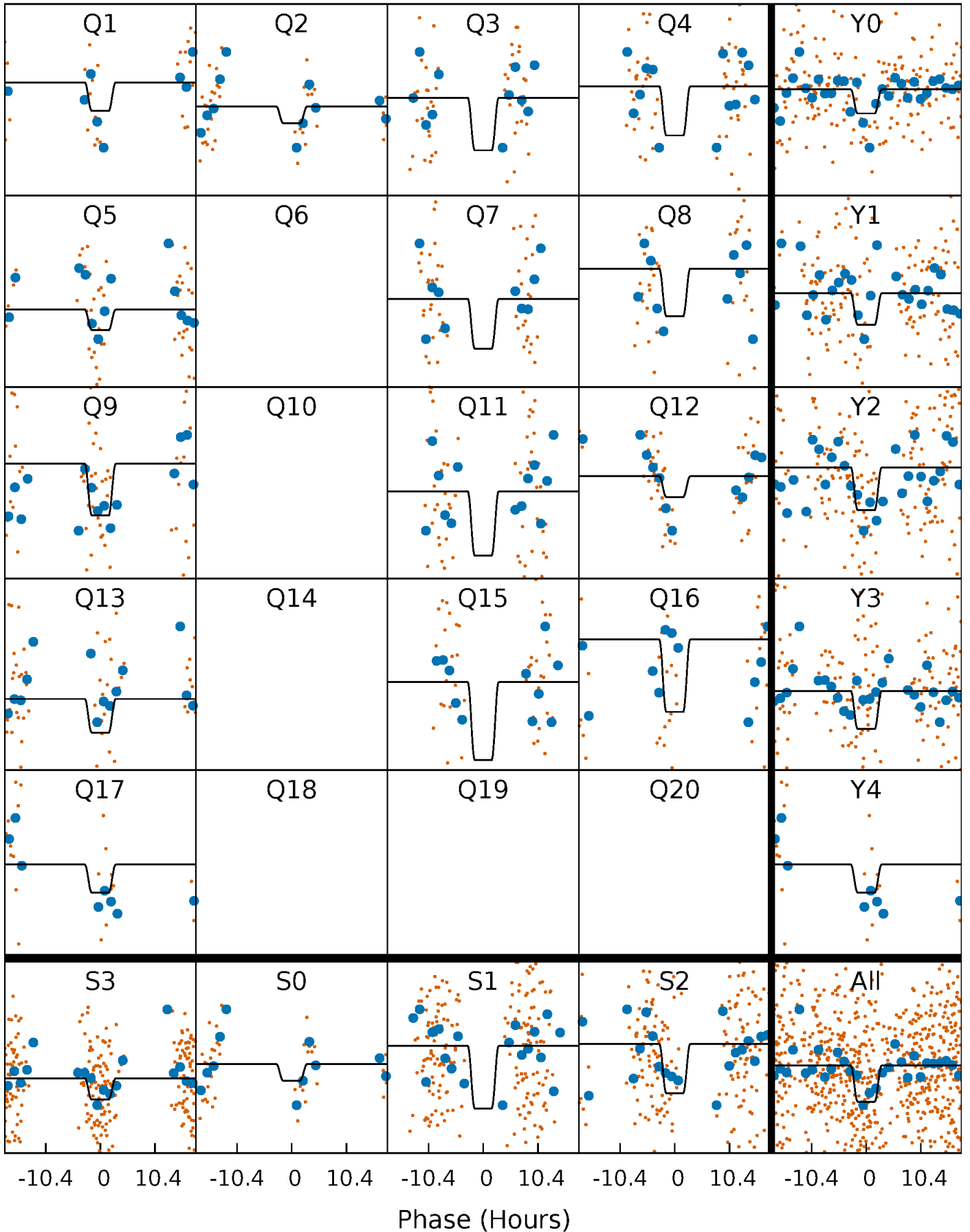
DV Quarter-Phased Transit Curves

TCE 004749989-08 P= 17.536486 Days $T_0=142.663608$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

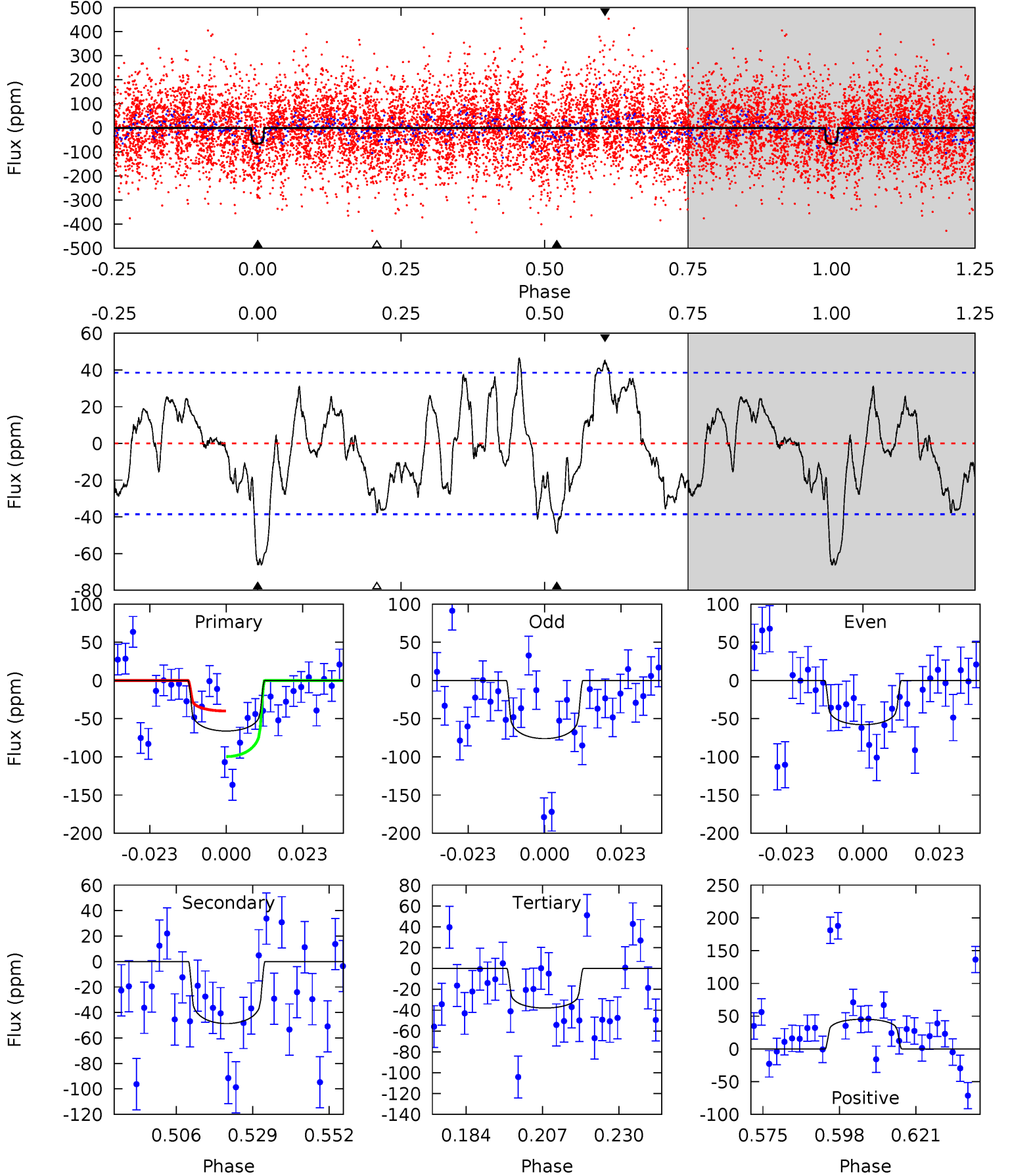
TCE 004749989-08 P= 17.536462 Days $T_0=142.688128$ (BKJD)



DV Model-Shift Uniqueness Test

004749989-08, P = 17.536486 Days, E = 125.127122 Days

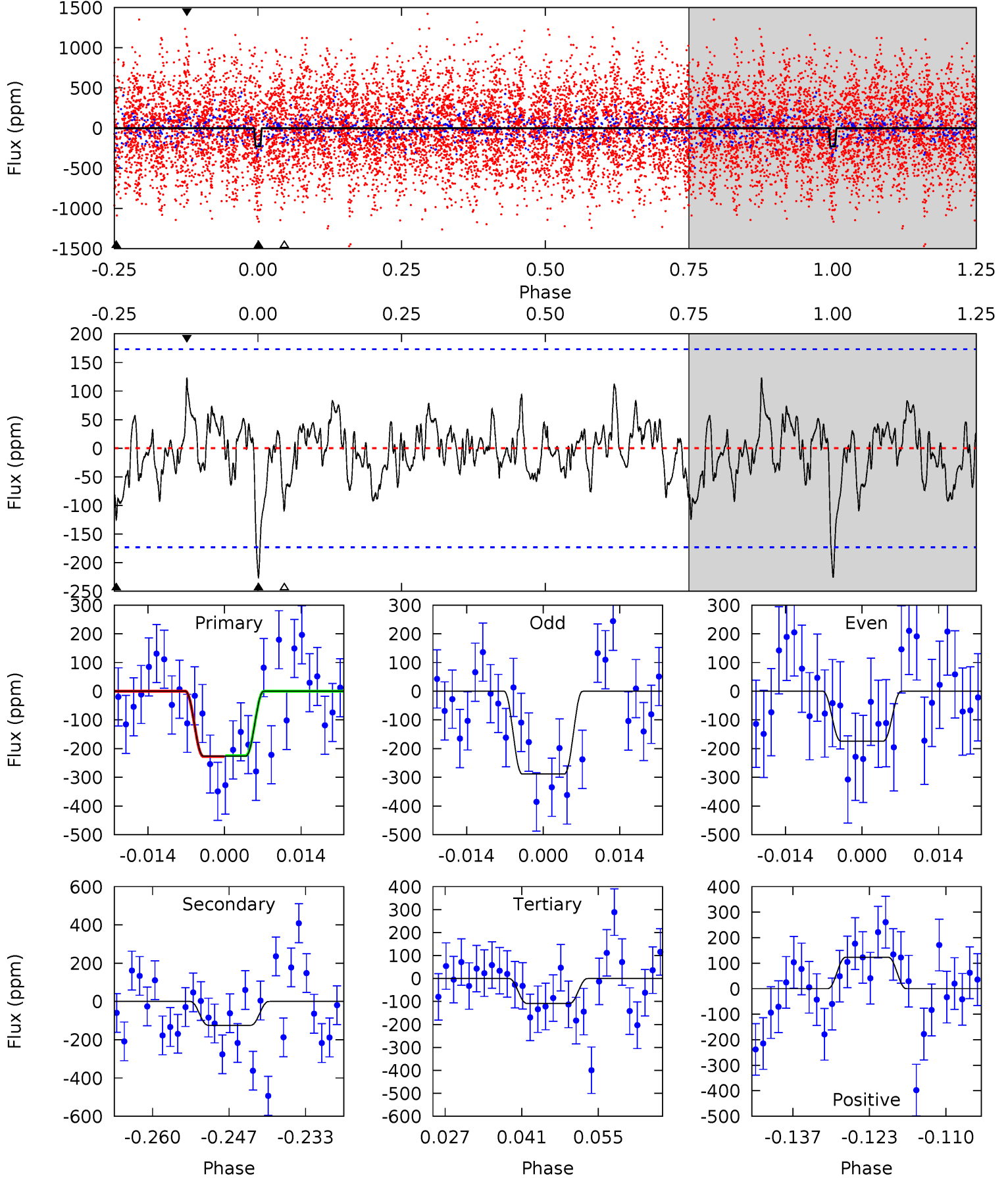
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.35	6.15	4.79	5.72	4.86	2.27	2.51	3.56	2.63	1.36	0.43	1.15	0.85	0.41	3.73



Alt Model-Shift Uniqueness Test

004749989-08, P = 17.536462 Days, E = 125.151666 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.49	3.58	3.12	3.54	4.97	2.46	1.14	3.37	2.95	0.45	0.04	1.63	1.24	0.35	0.04



Stellar Parameters For KIC 004749989

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6824^{+214}_{-285}	$4.012^{+0.286}_{-0.154}$	$-0.300^{+0.300}_{-0.300}$	$1.882^{+0.504}_{-0.616}$	$1.332^{+0.195}_{-0.238}$	$0.281^{+0.569}_{-0.128}$
	+3%/-4%	+7%/-4%	+100%/-100%	+27%/-33%	+15%/-18%	+202%/-45%
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 004749989-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-49 ± 8	$1.61^{+0.94}_{-0.86}$	1494^{+119}_{-129}	6262^{+3858}_{-1163}	218^{+869}_{-138}
Alt.	-125 ± 35	$3.37^{+1.20}_{-1.03}$	1486^{+123}_{-132}	5429^{+975}_{-624}	122^{+144}_{-60}

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

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

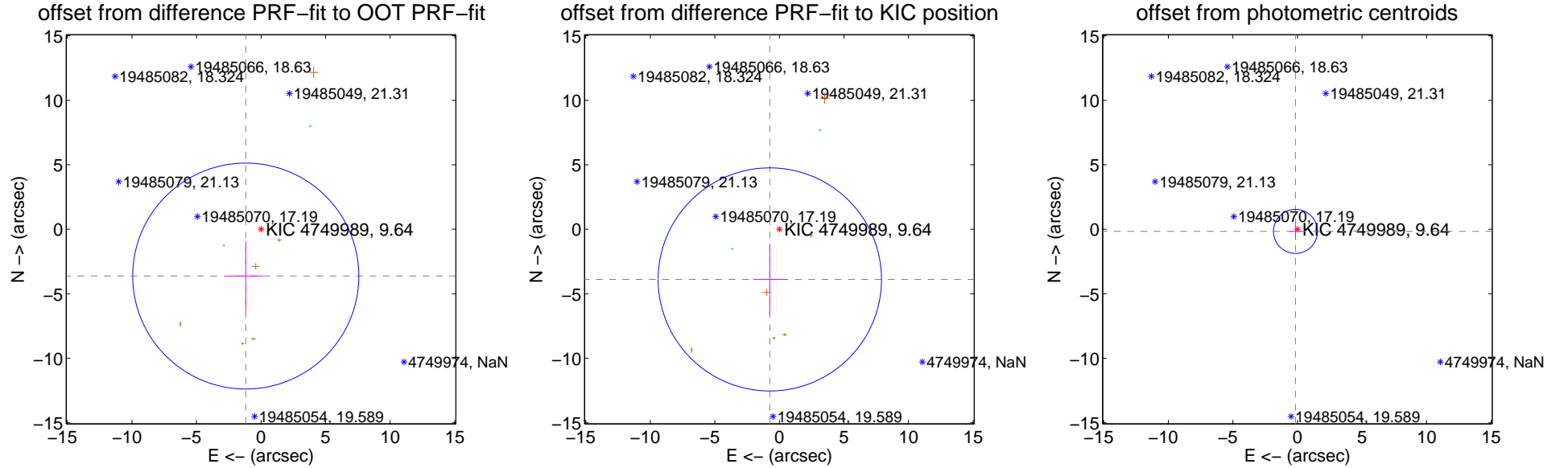
DV Centroid Data

Supplemental centroid analysis for 004749989-08. **Kepler magnitude: 9.64.** Transit SNR 8.79

There are 2 quarters with good PRF difference image offsets

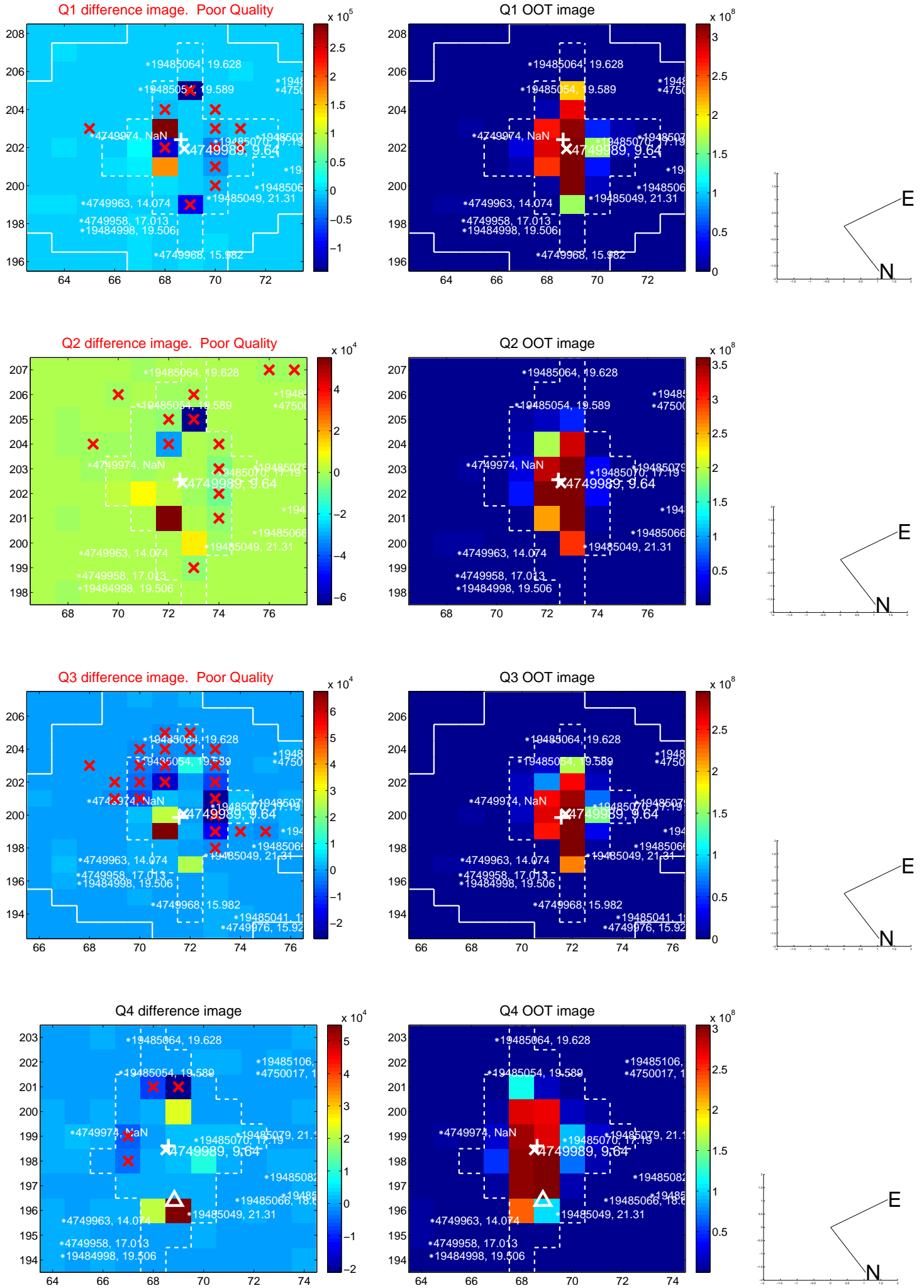
The OOT PRF centroid is offset from the target star catalog position by about 2.10 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.813 ± 2.919	1.31	1.185 ± 1.349	-3.624 ± 2.704
PRF-fit source offset from KIC position	3.956 ± 2.883	1.37	0.743 ± 1.271	-3.886 ± 2.737
photometric centroid source offset	0.22 ± 0.57	0.39	0.15 ± 0.45	-0.16 ± 0.66

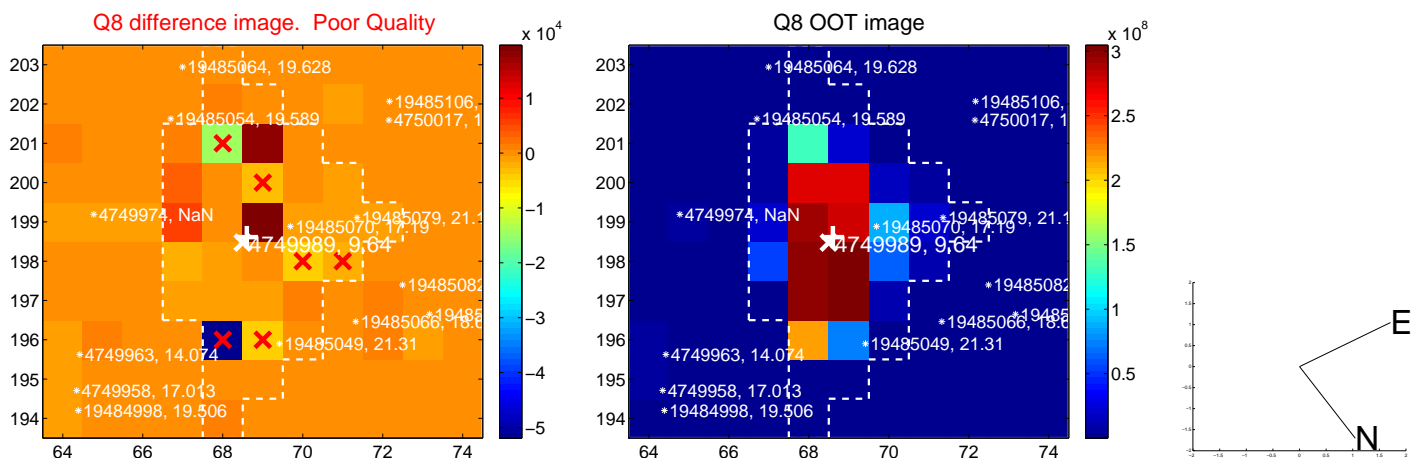
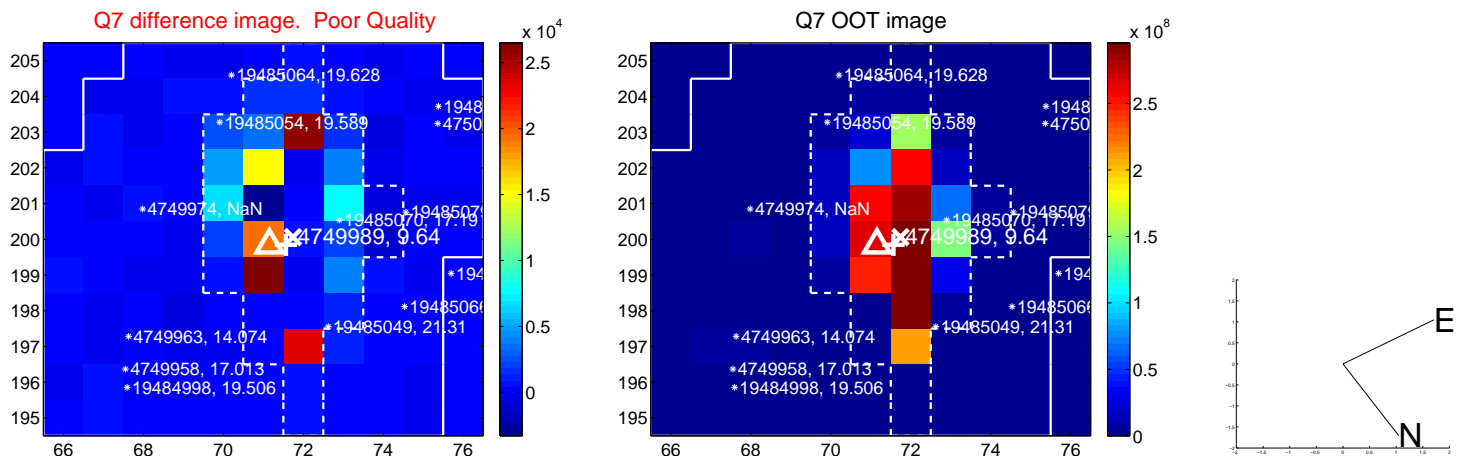
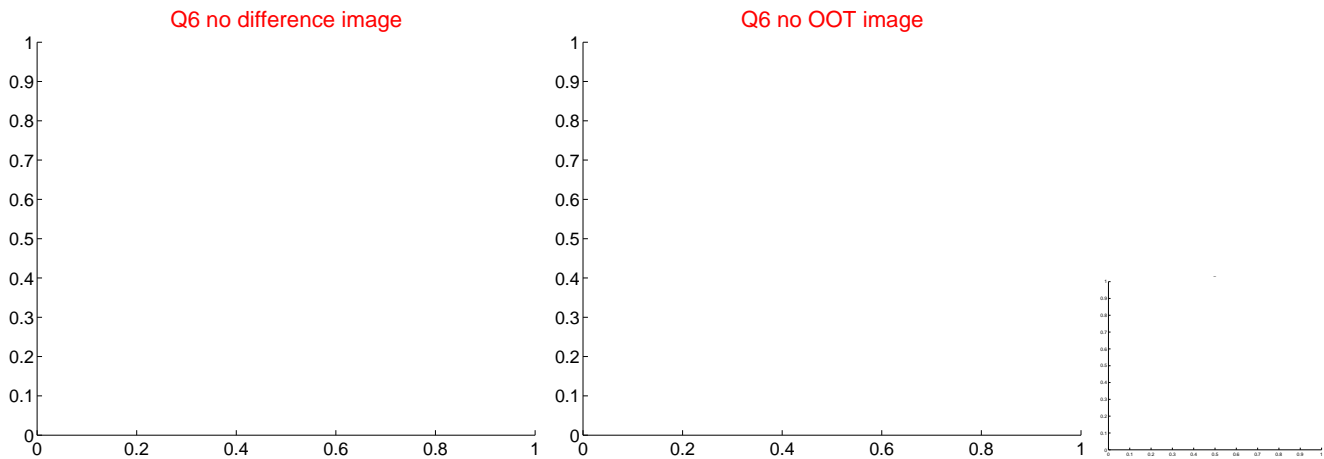
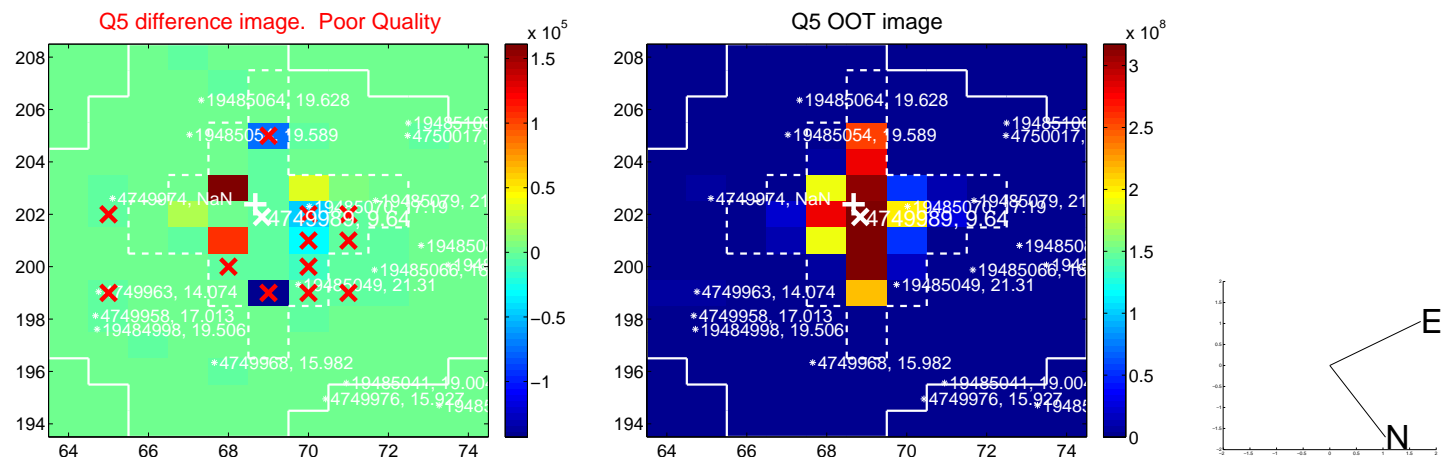


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

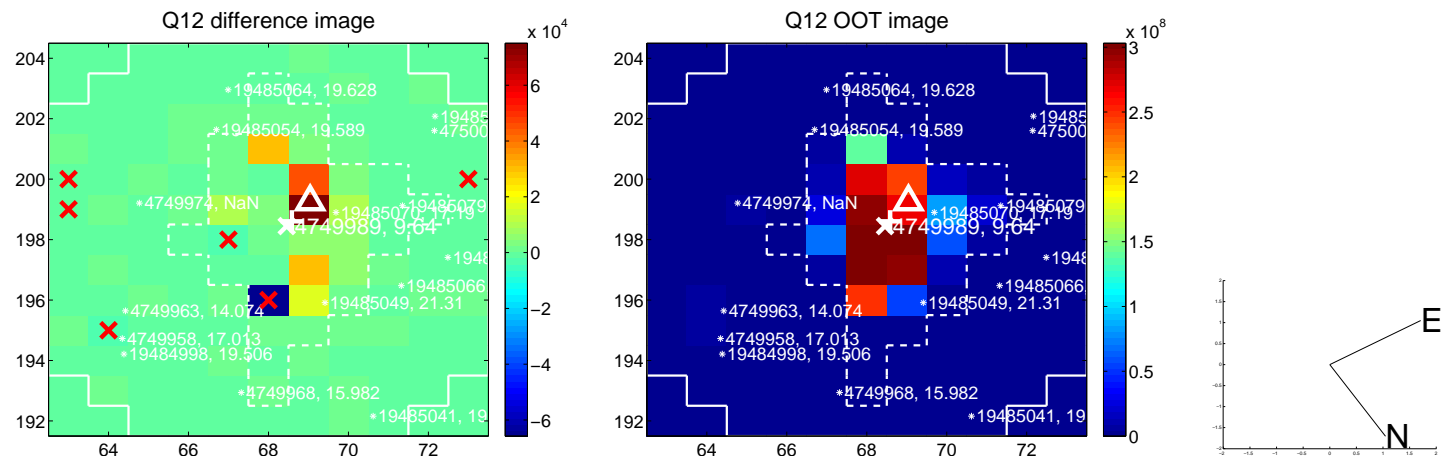
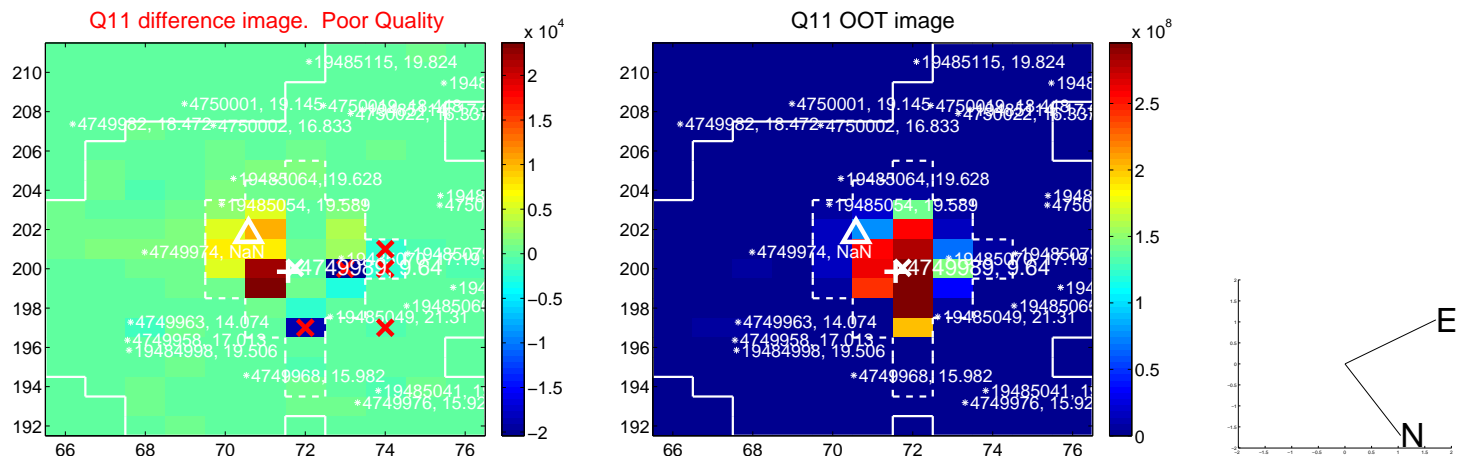
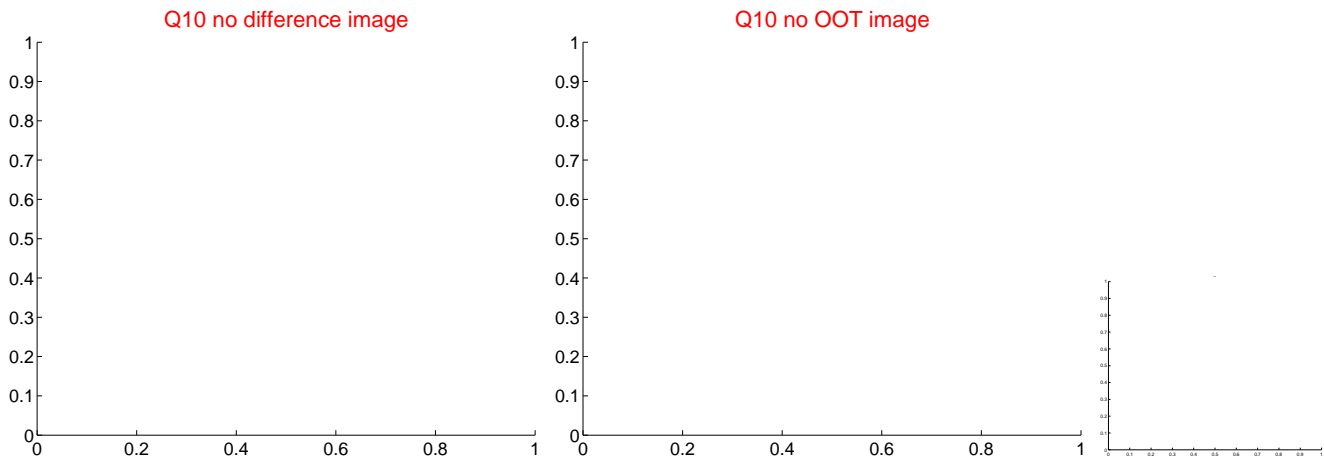
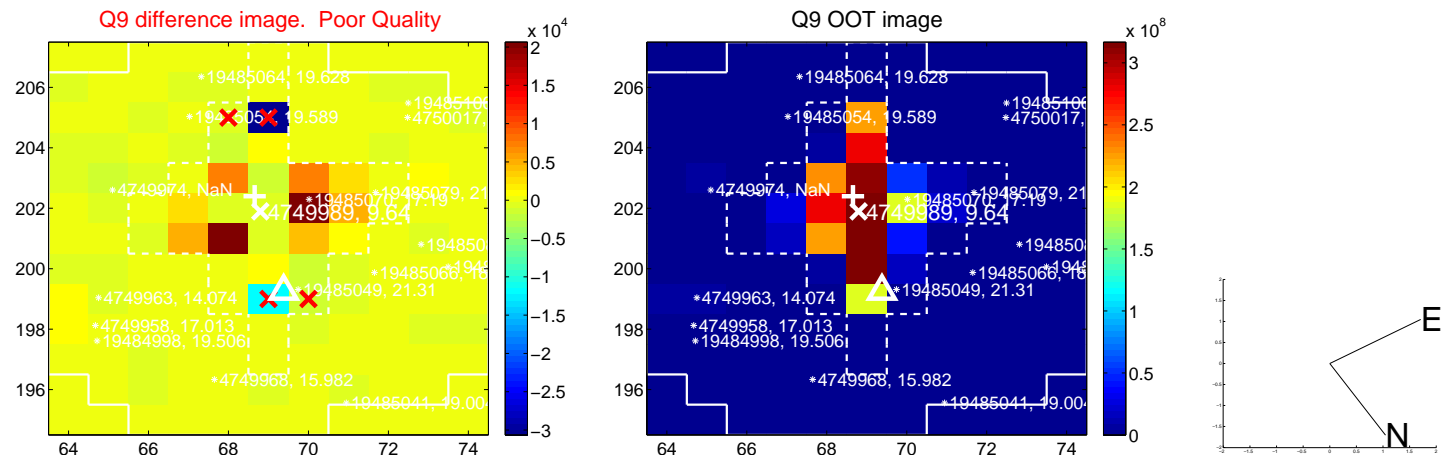
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



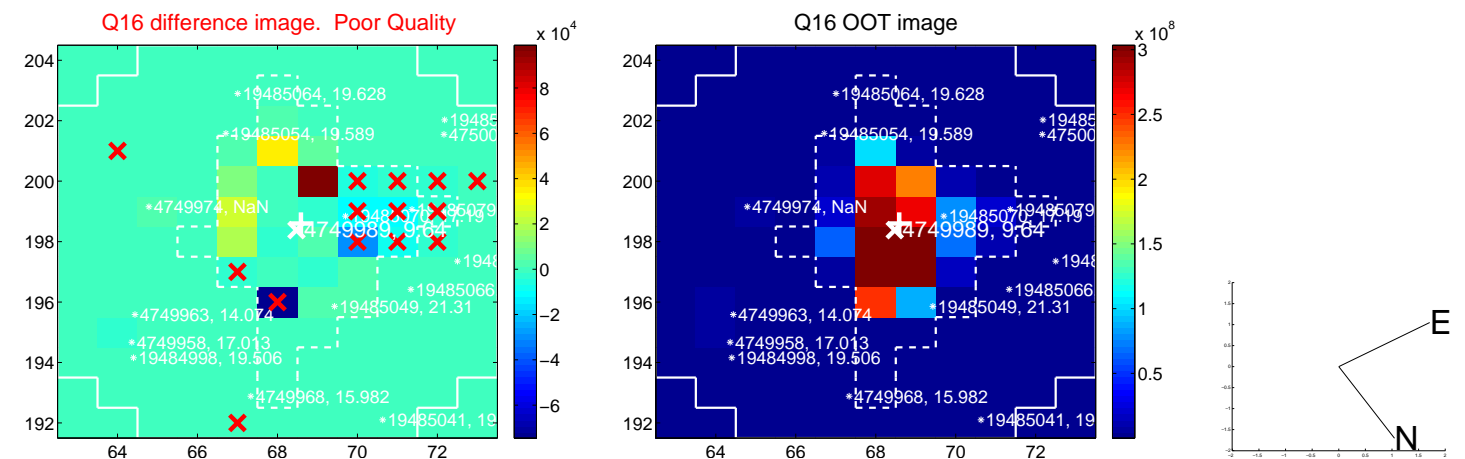
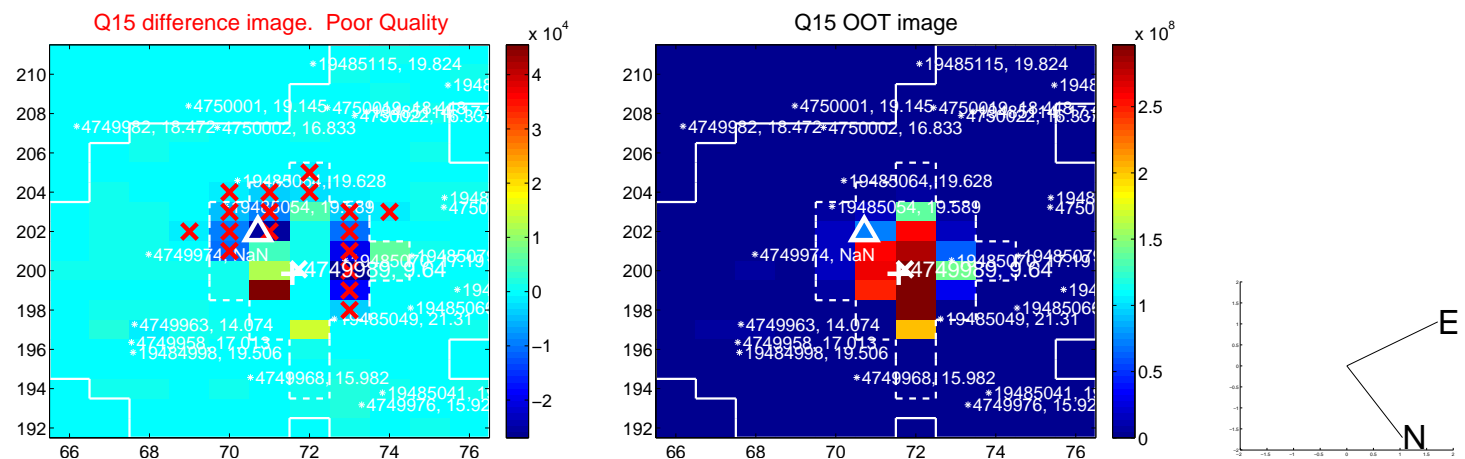
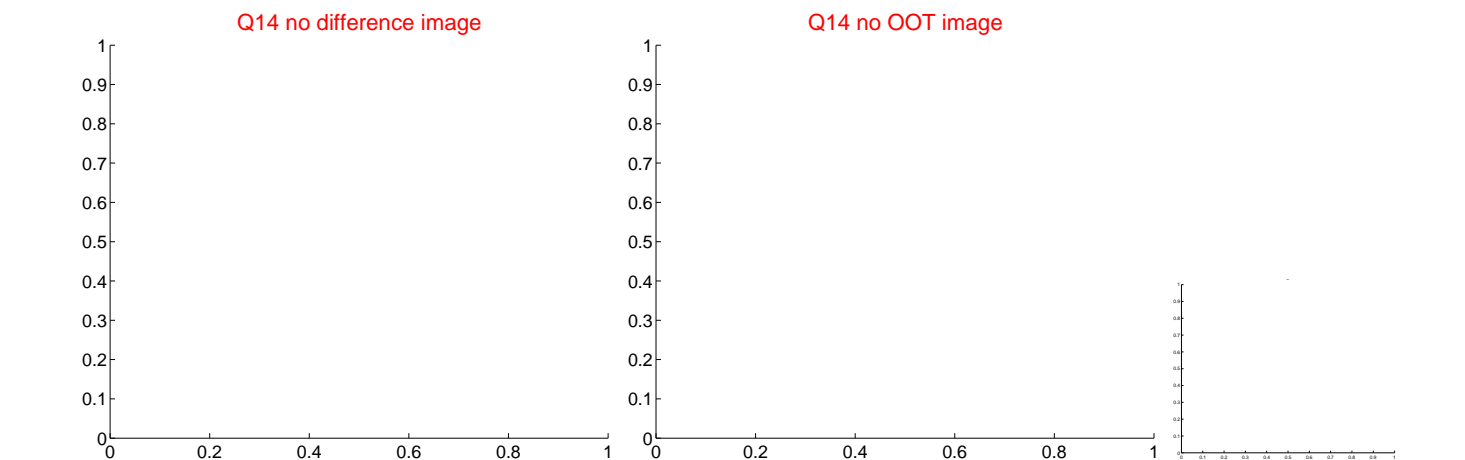
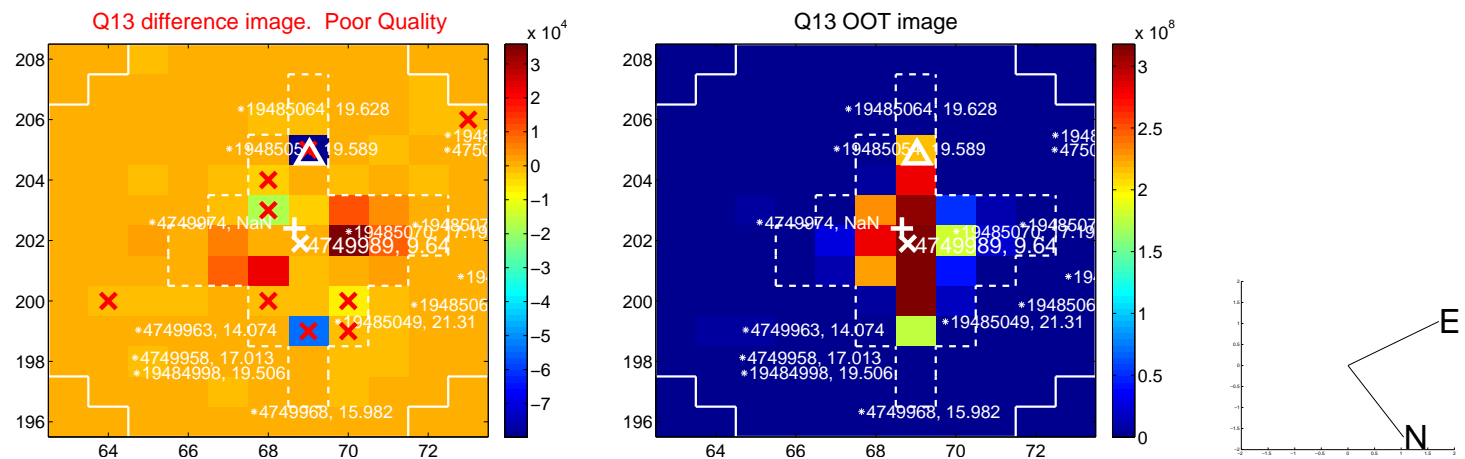
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



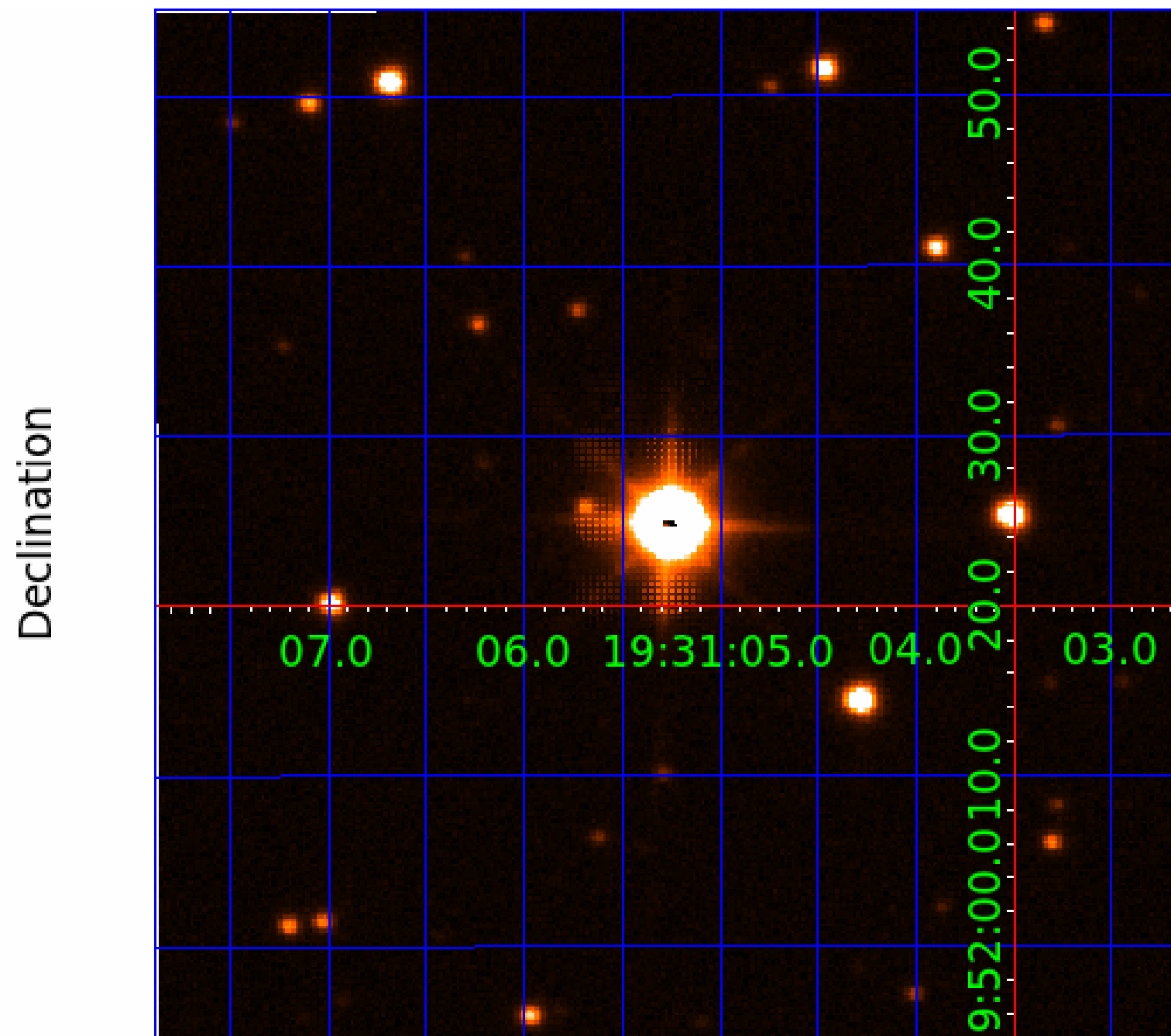
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



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})
004749989-01	OBS	No	0.732246	132.001787	13.0	4.721	11.2	9.5	1.88	6824	0.70	22521.01
004749989-02	OBS	No	43.201740	152.106101	15.0	1.035	13.2	1.1	1.88	6824	0.77	98.05
004749989-03	OBS	No	41.557803	136.205285	226.5	2.245	11.3	11.0	1.88	6824	3.33	103.26
004749989-04	OBS	No	153.116727	175.815026	50.7	1.959	10.3	1.4	1.88	6824	1.43	18.14
004749989-05	OBS	No	72.446819	177.224413	223.5	0.911	9.5	6.3	1.88	6824	3.31	49.22
004749989-06	OBS	No	467.163516	177.050588	64.6	3.500	10.6	-1.0	1.88	6824	1.53	4.10
004749989-07	OBS	No	250.427163	176.310022	171.3	3.985	9.8	9.7	1.88	6824	3.00	9.42
004749989-08	OBS	No	17.536486	142.663608	68.0	9.232	9.9	8.8	1.88	6824	1.70	326.24
004749989-09	OBS	No	49.714401	135.388278	59.6	3.000	10.6	-1.0	1.88	6824	1.47	81.31
004749989-10	OBS	No	71.221698	144.804494	188.7	2.602	10.1	8.3	1.88	6824	3.00	50.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004749989-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-03	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—CENT_SATURATED
004749989-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004749989-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-10	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—CENT_SATURATED

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

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

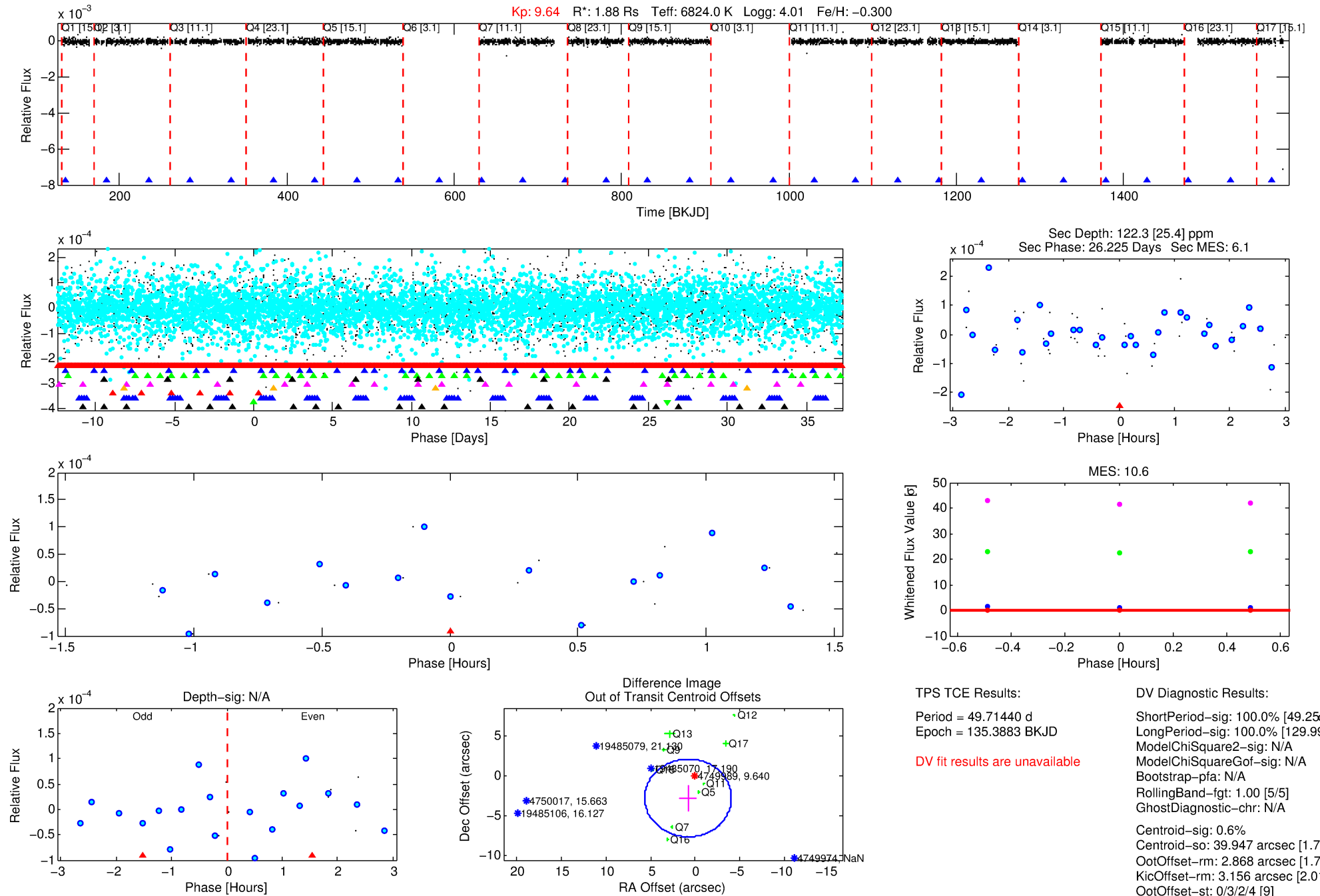
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004749989-09

No Significant Match Found

DV One-Page Summary

KIC: 4749989 Candidate: 9 of 10 Period: 49.714 d



TPS TCE Results:

Period = 49.71440 d
Epoch = 135.3883 BKJD

DV fit results are unavailable

DV Diagnostic Results:

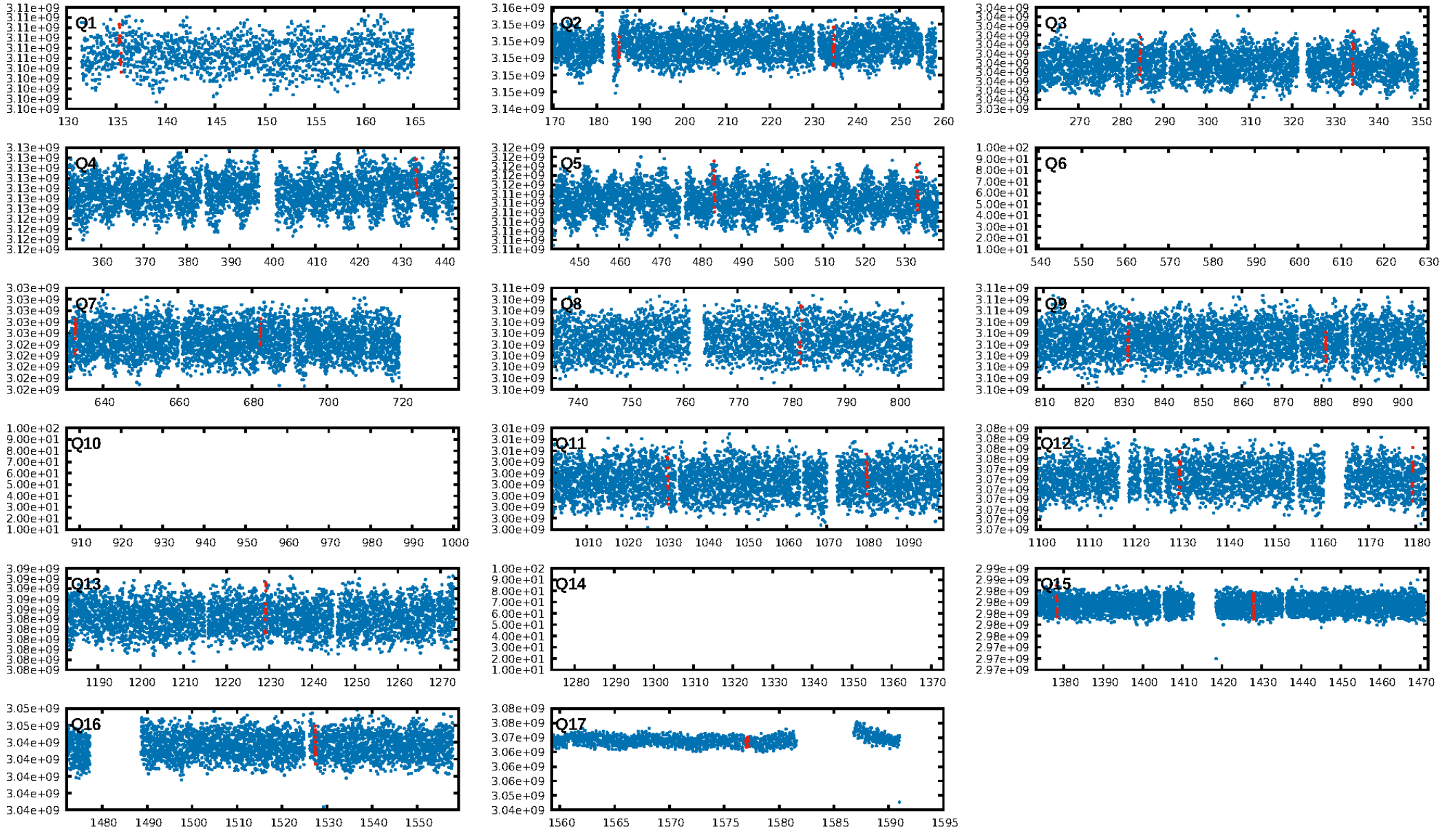
ShortPeriod-sig: 100.0% [49.25 σ]
LongPeriod-sig: 100.0% [129.99 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: N/A

Centroid-sig: 0.6%
Centroid-so: 39.947 arcsec [1.77 σ]
OotOffset-rm: 2.868 arcsec [1.77 σ]
KicOffset-rm: 3.156 arcsec [2.01 σ]
OotOffset-st: 0/3/2/4 [9]
KicOffset-st: 0/3/2/4 [9]
DiffImageQuality-fgm: 0.00 [0/9]
DiffImageOverlap-fno: 0.11 [1/9]

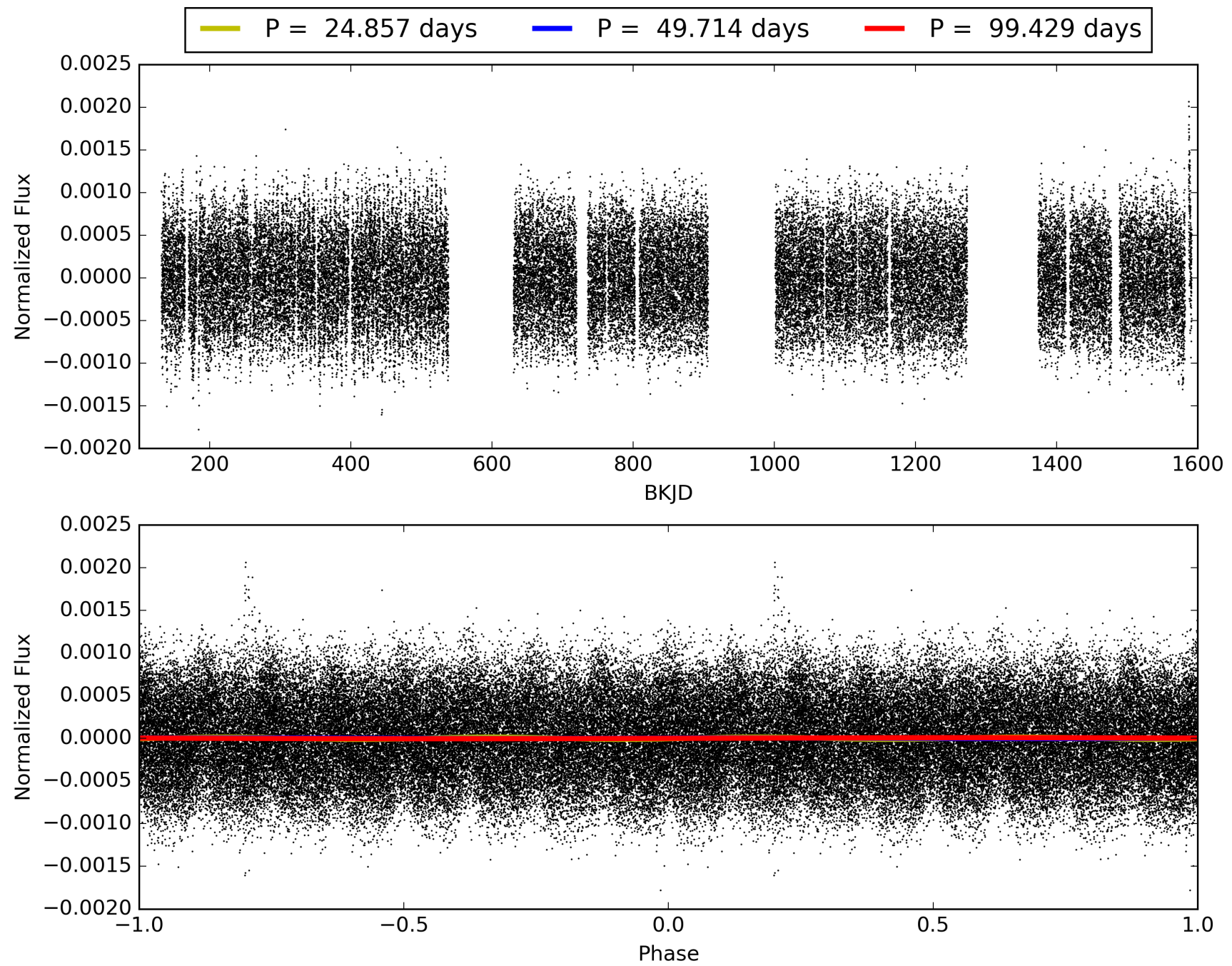
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:57:55 Z

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

TCE 004749989-09, PDC Light Curves

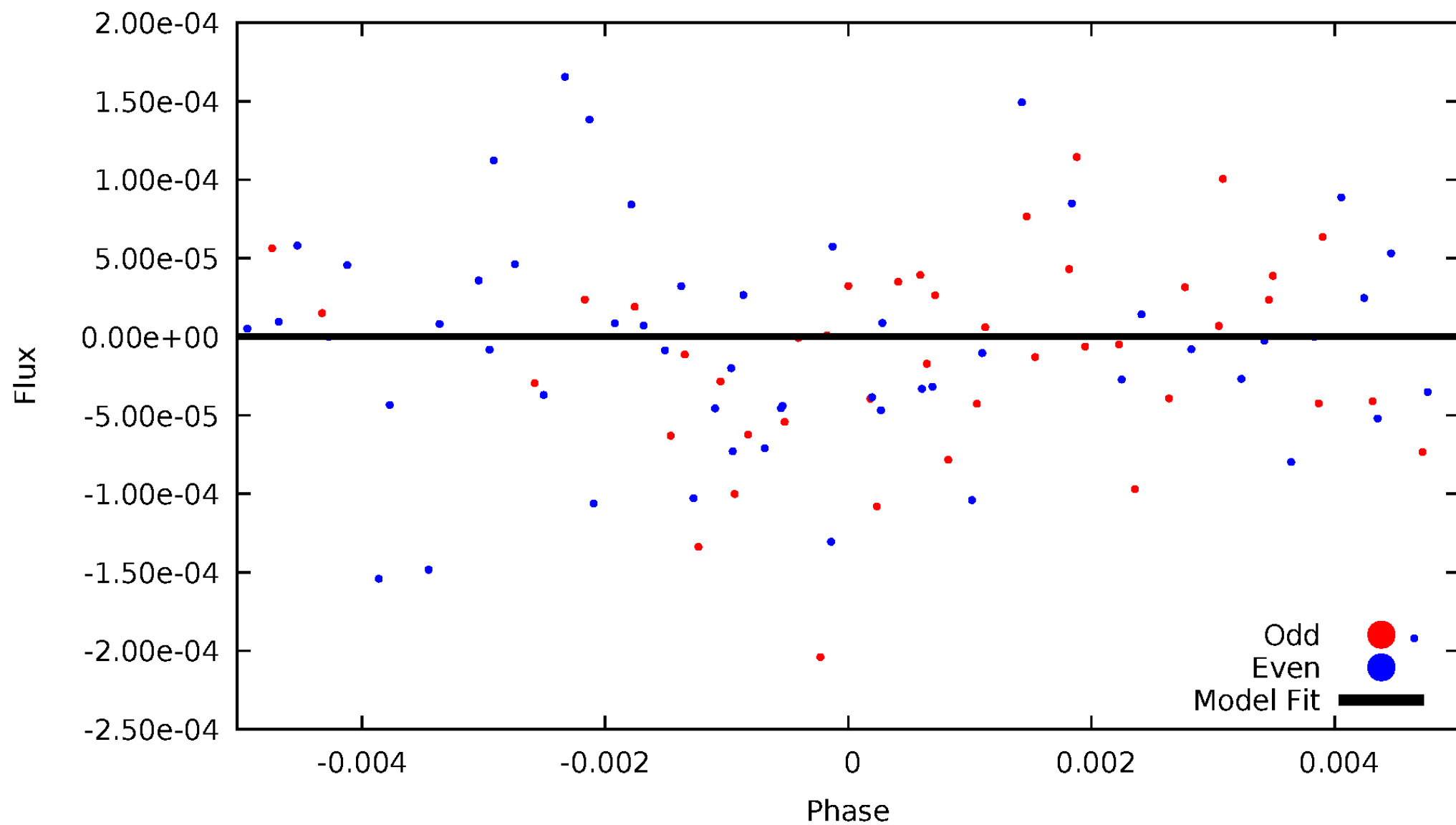


TCE 004749989-09



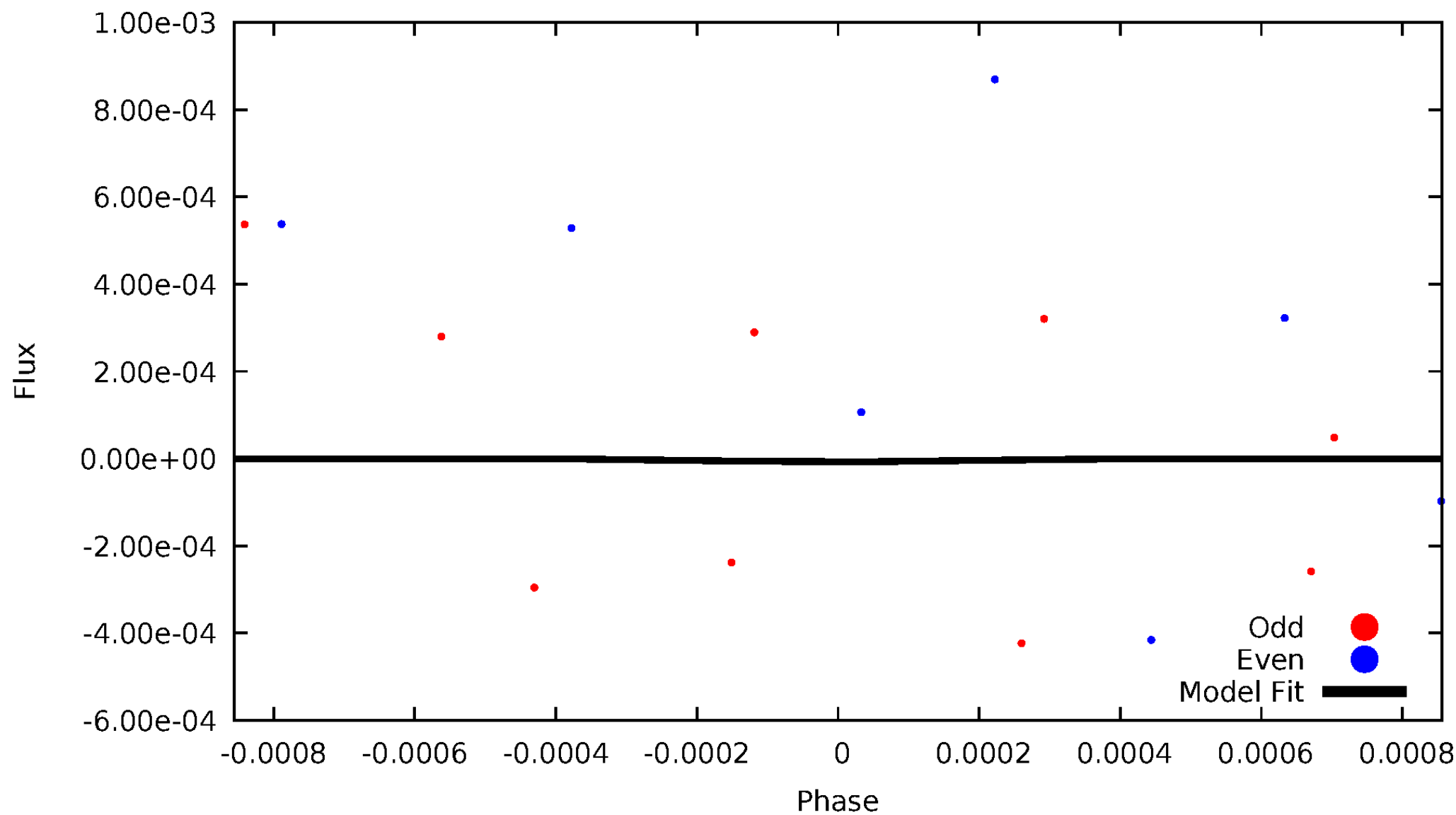
DV Odd/Even

TCE 004749989-09



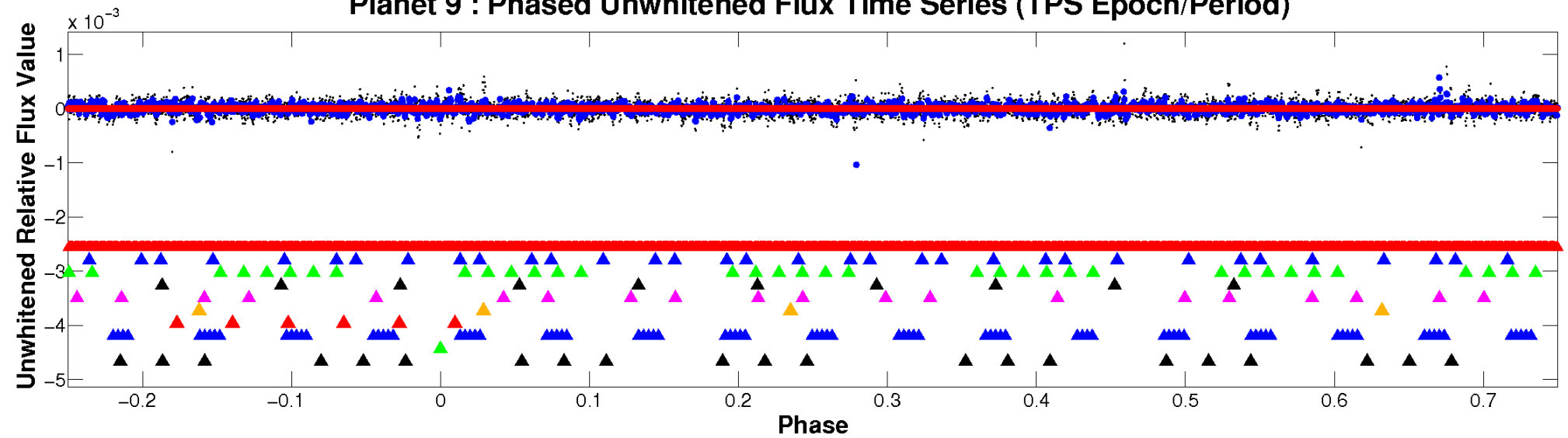
ALT Odd/Even

TCE 004749989-09

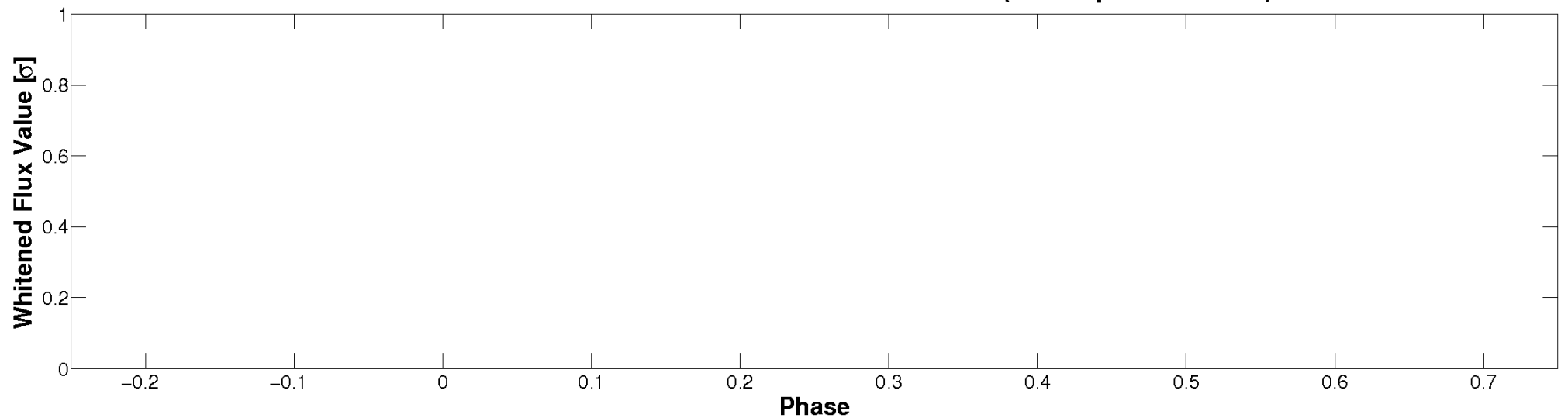


Non-Whitened Vs. Whitened Light Curve

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

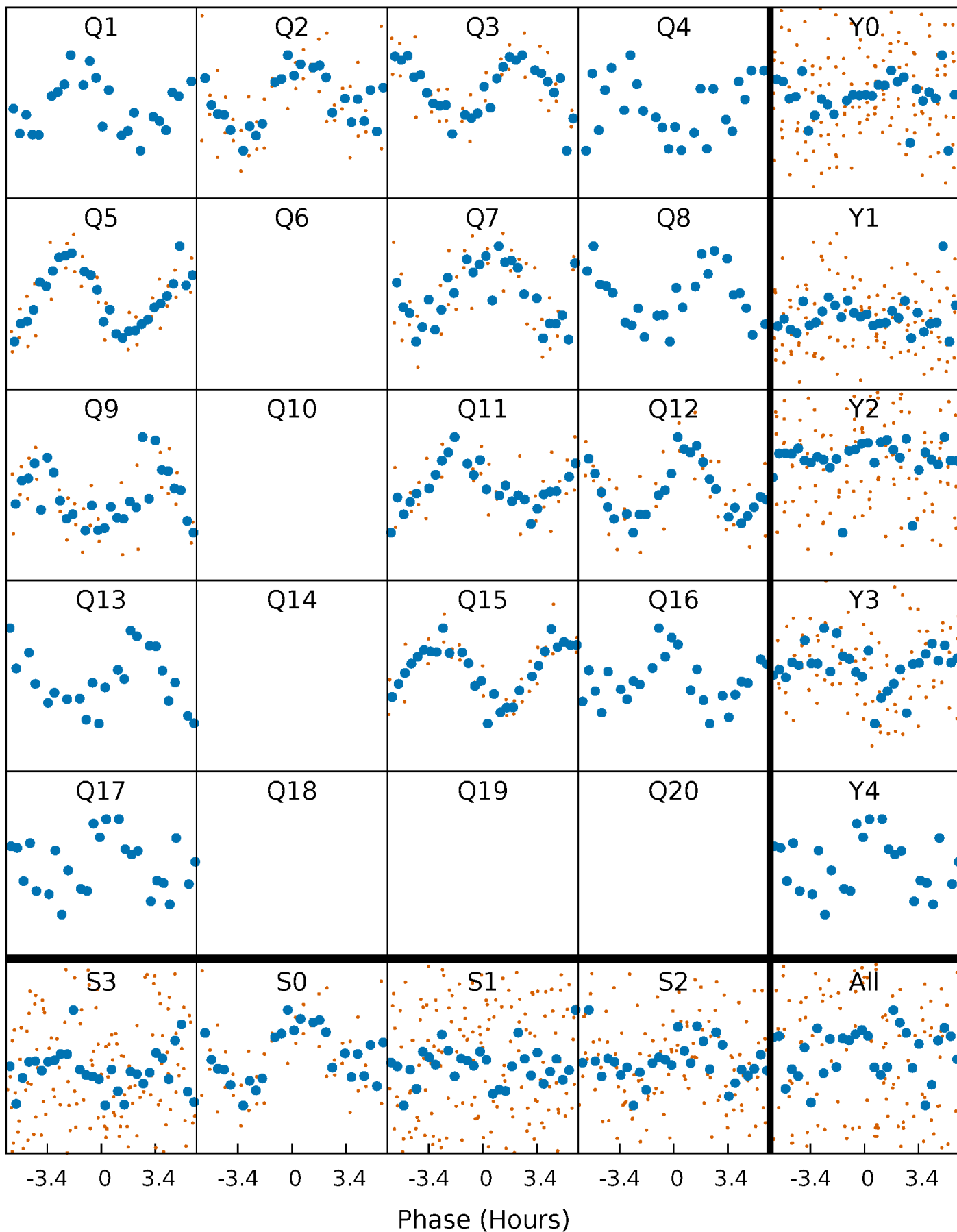


Planet 9 : Phased Whitened Flux Time Series (TPS Epoch/Period)



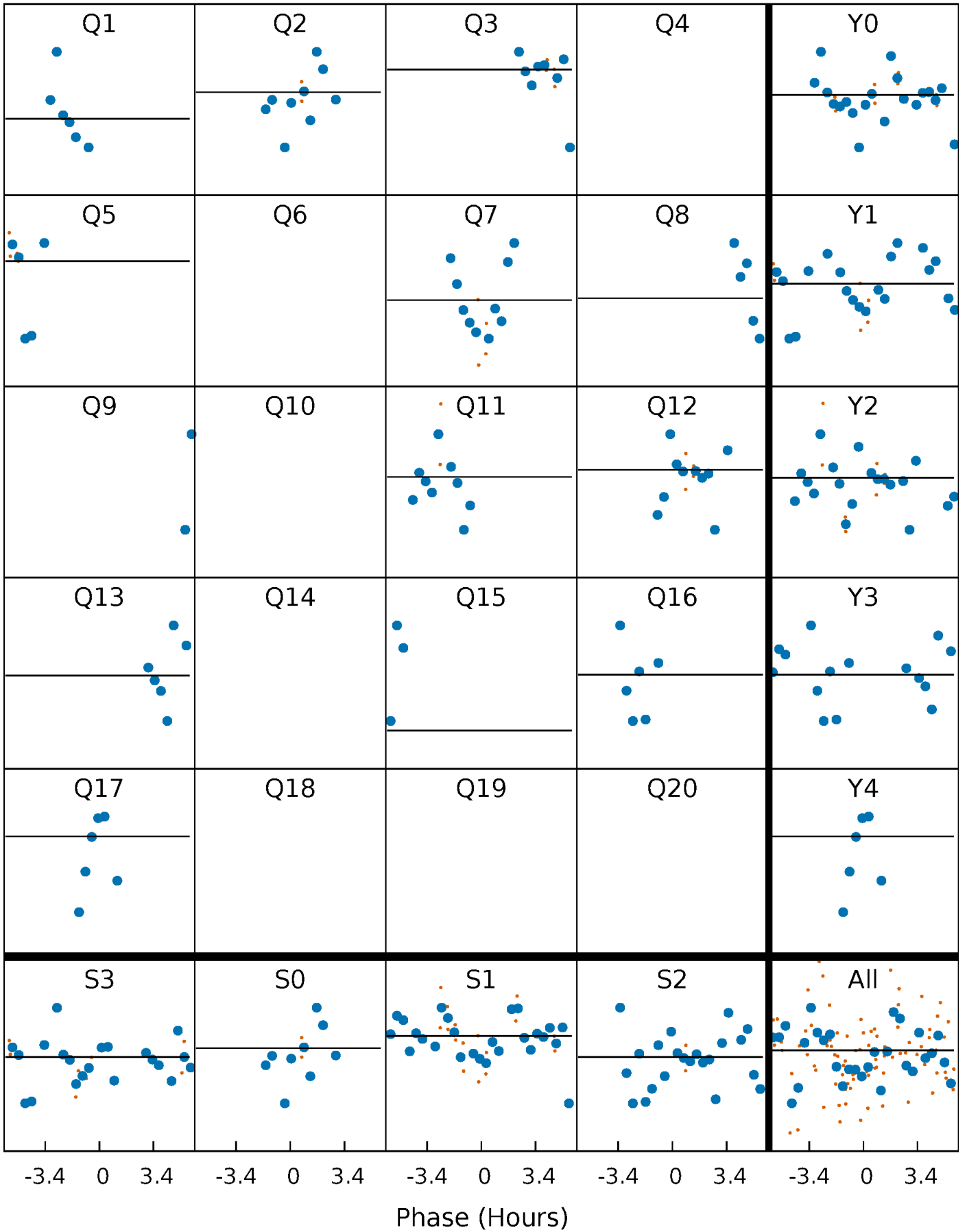
PDC Quarter-Phased Transit Curves

TCE 004749989-09 P= 49.714401 Days $T_0=135.388278$ (BKJD)



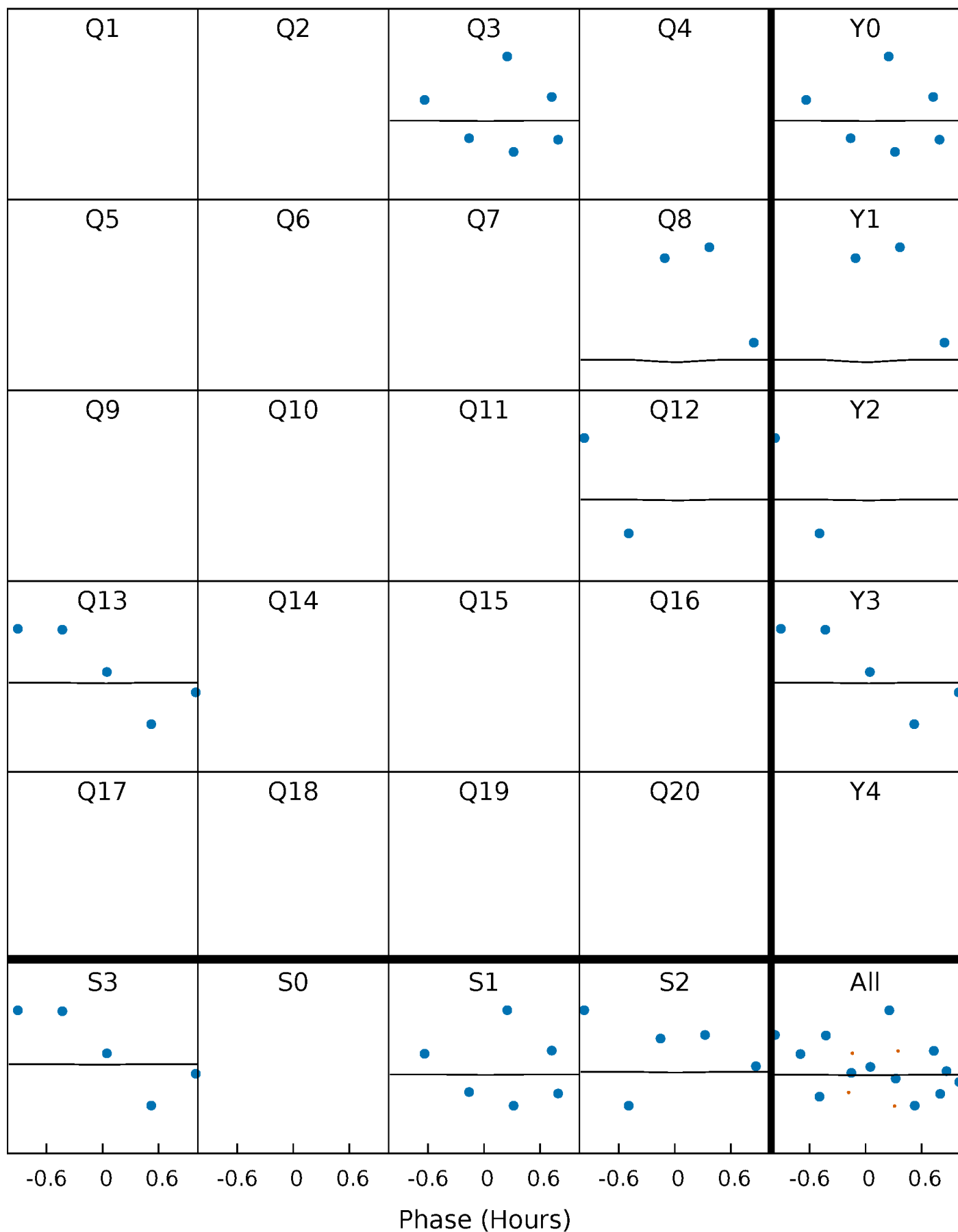
DV Quarter-Phased Transit Curves

TCE 004749989-09 $P = 49.714401$ Days $T_0 = 135.388278$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

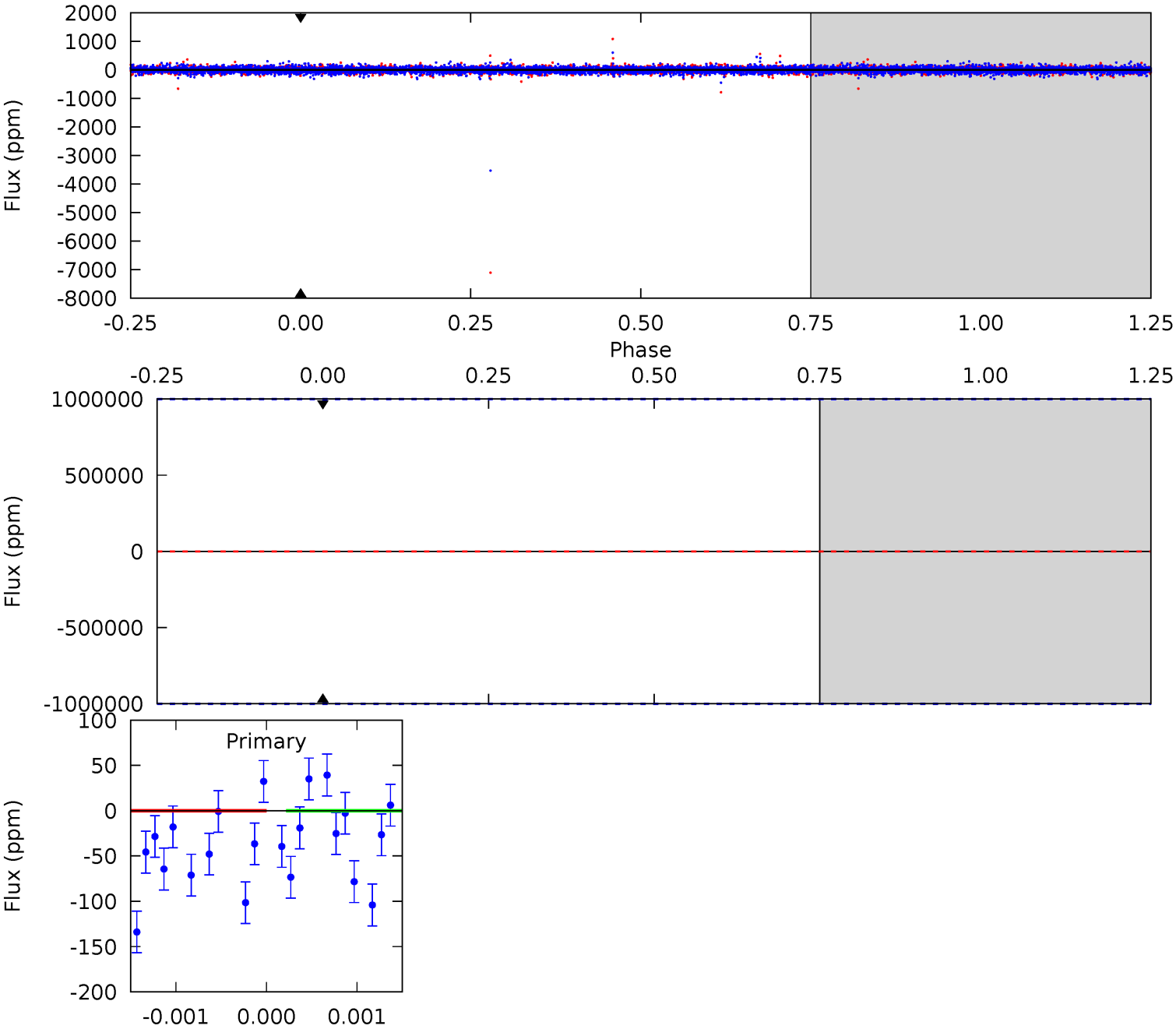
TCE 004749989-09 P= 49.714401 Days $T_0=135.547405$ (BKJD)



DV Model-Shift Uniqueness Test

004749989-09, P = 49.714401 Days, E = 85.673877 Days

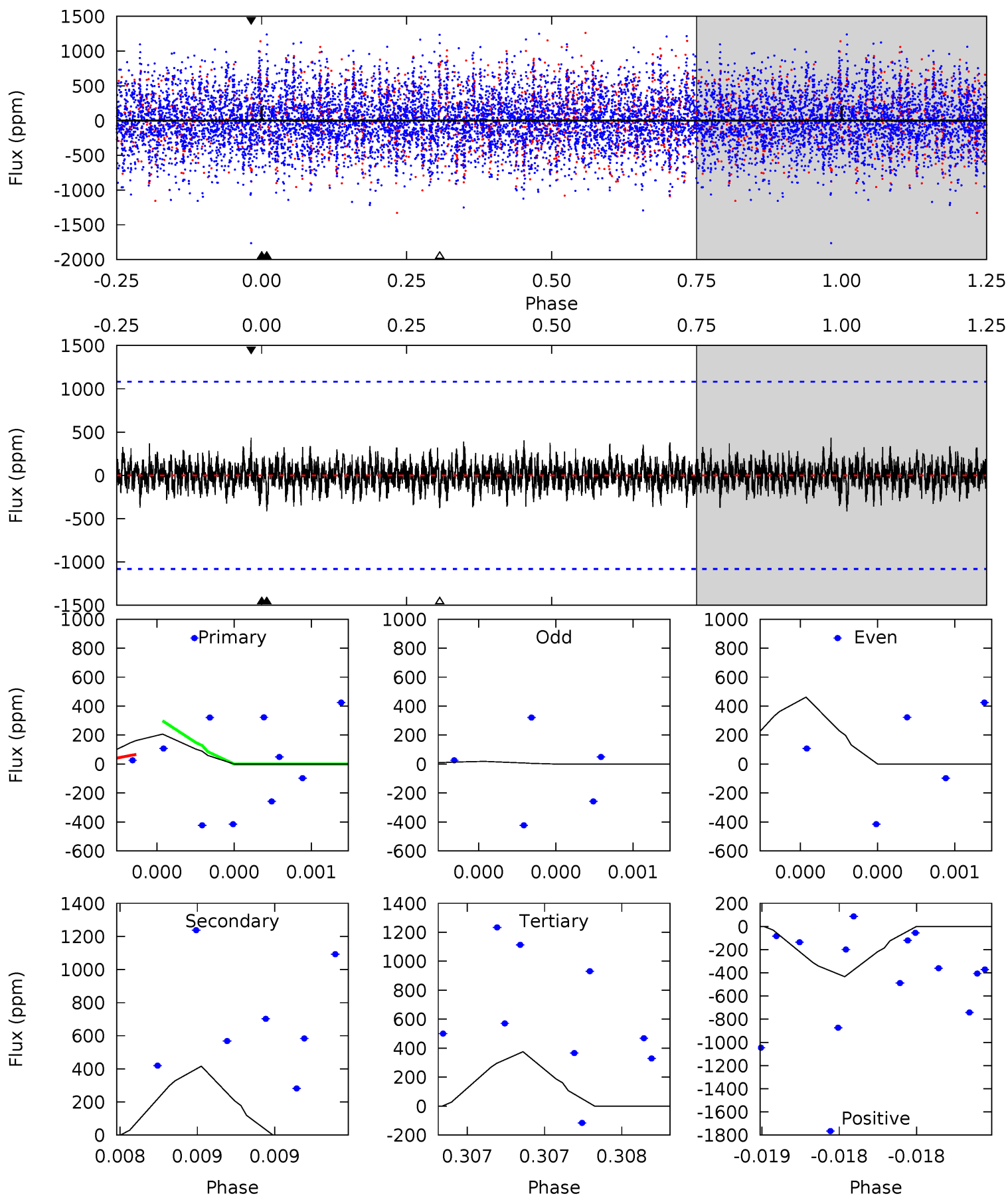
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004749989-09, P = 49.714401 Days, E = 85.833004 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.07	2.15	1.94	2.24	5.59	3.51	0.62	-0.87	-1.18	0.21	-0.09	1.15	0.22	0.51	0.52



Stellar Parameters For KIC 004749989

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6824^{+214}_{-285}	$4.012^{+0.286}_{-0.154}$	$-0.300^{+0.300}_{-0.300}$	$1.882^{+0.504}_{-0.616}$	$1.332^{+0.195}_{-0.238}$	$0.281^{+0.569}_{-0.128}$
	+3%/-4%	+7%/-4%	+100%/-100%	+27%/-33%	+15%/-18%	+202%/-45%
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 004749989-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$14.16^{+14.99}_{-9.67}$	1050^{+89}_{-94}	6391^{+33082}_{-31145}	934^{+51016}_{-30759}
Alt.	-416 ± 193	$14.09^{+14.70}_{-9.91}$	1061^{+81}_{-94}	3927^{+2491}_{-879}	92^{+914}_{-73}

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 $A_{obs} \gg 1.0$

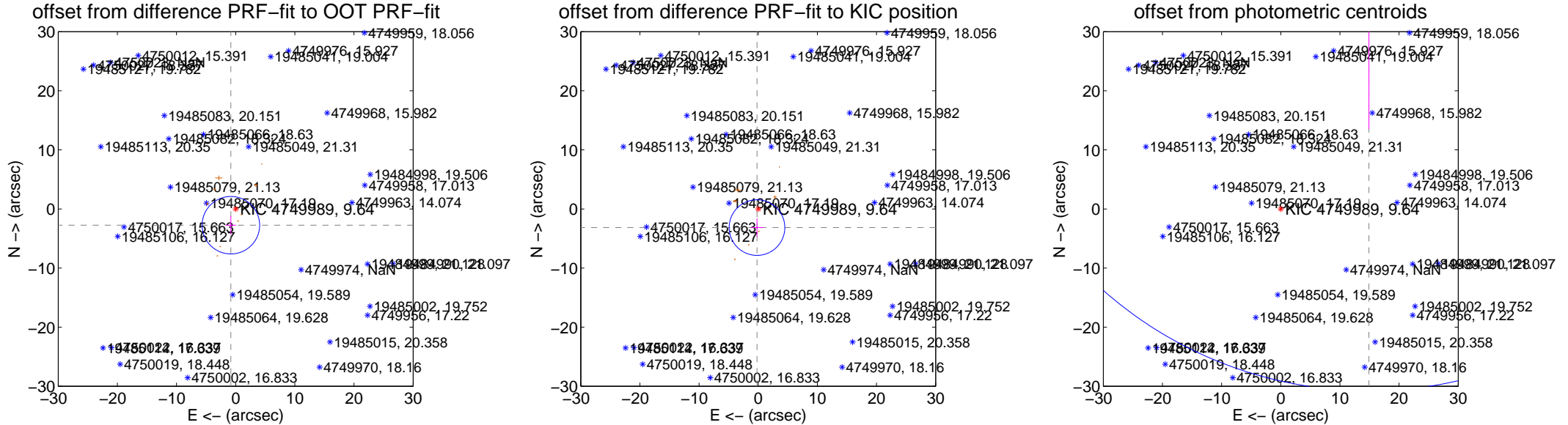
DV Centroid Data

Supplemental centroid analysis for 004749989-09. **Kepler magnitude: 9.64.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 2.12 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.868 ± 1.621	1.77	0.812 ± 0.893	-2.750 ± 1.566
PRF-fit source offset from KIC position	3.156 ± 1.568	2.01	0.210 ± 1.076	-3.149 ± 1.545
photometric centroid source offset	39.95 ± 22.61	1.77	-14.90 ± 15.76	37.06 ± 23.53

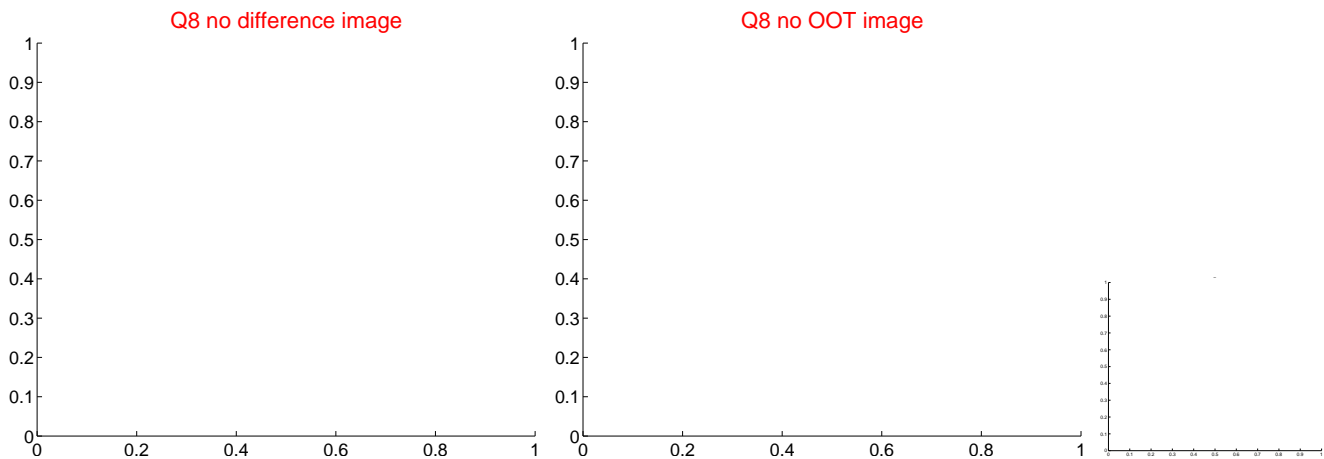
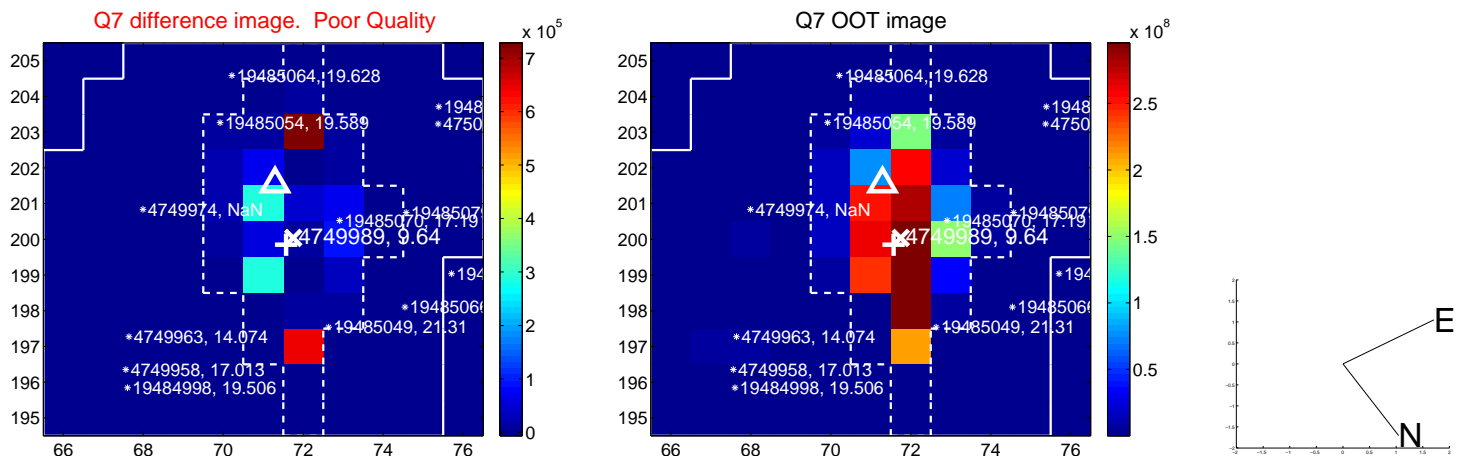
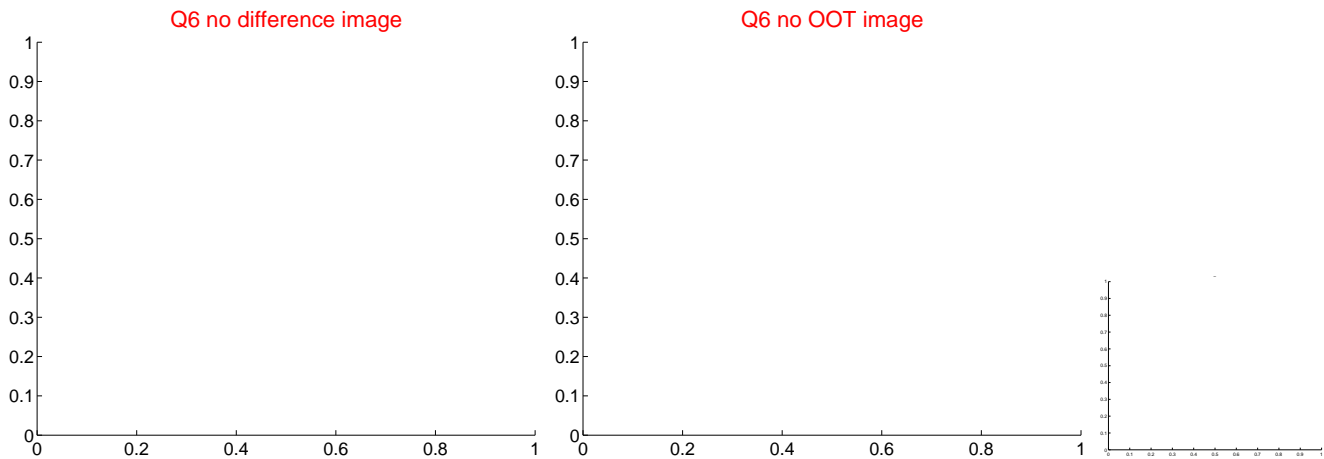
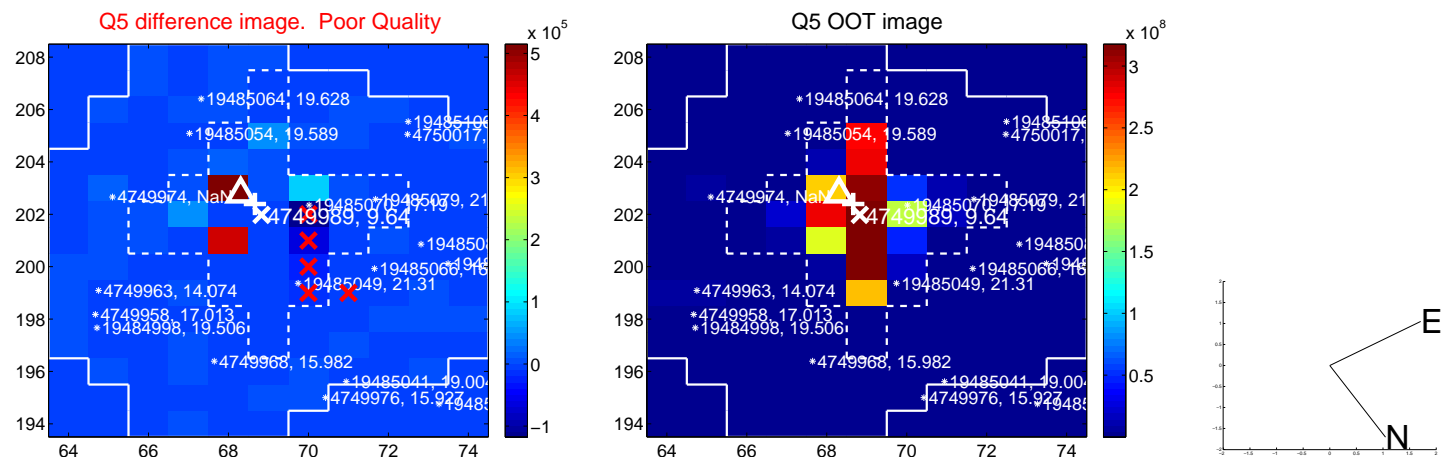


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

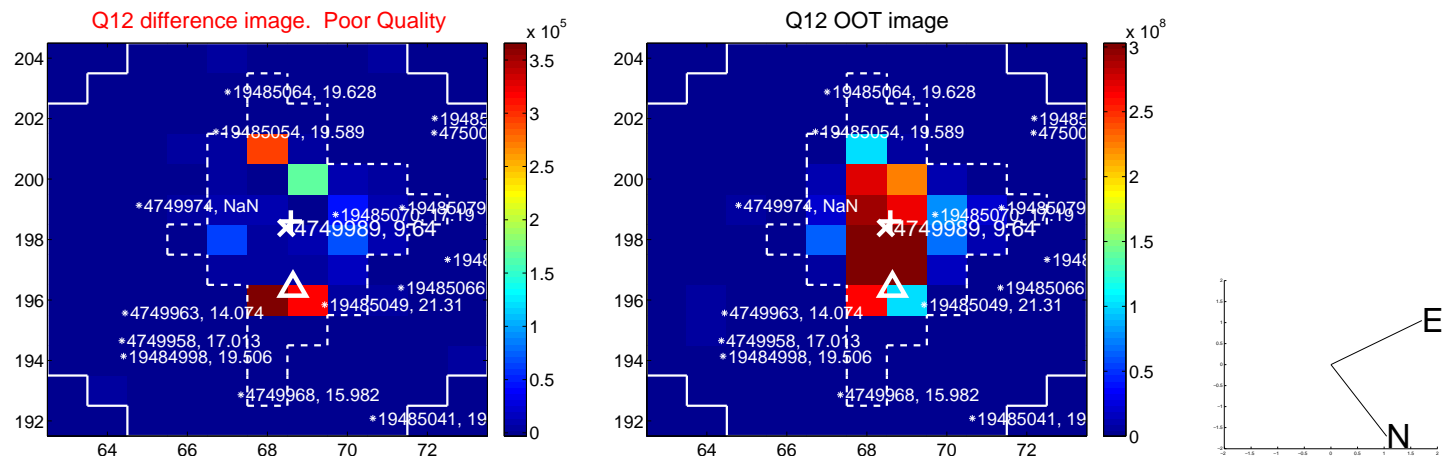
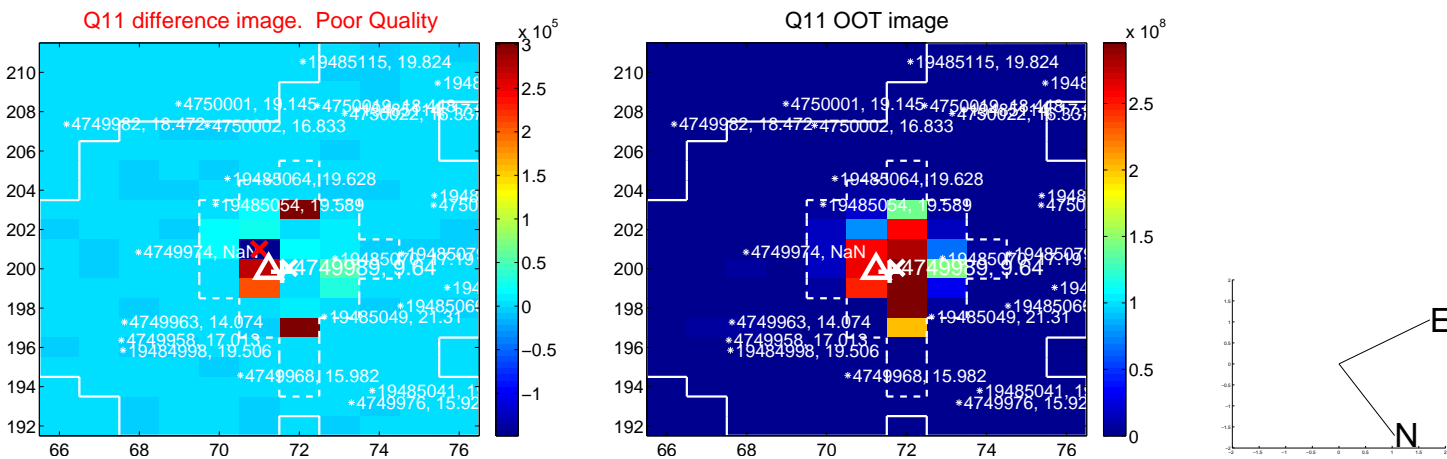
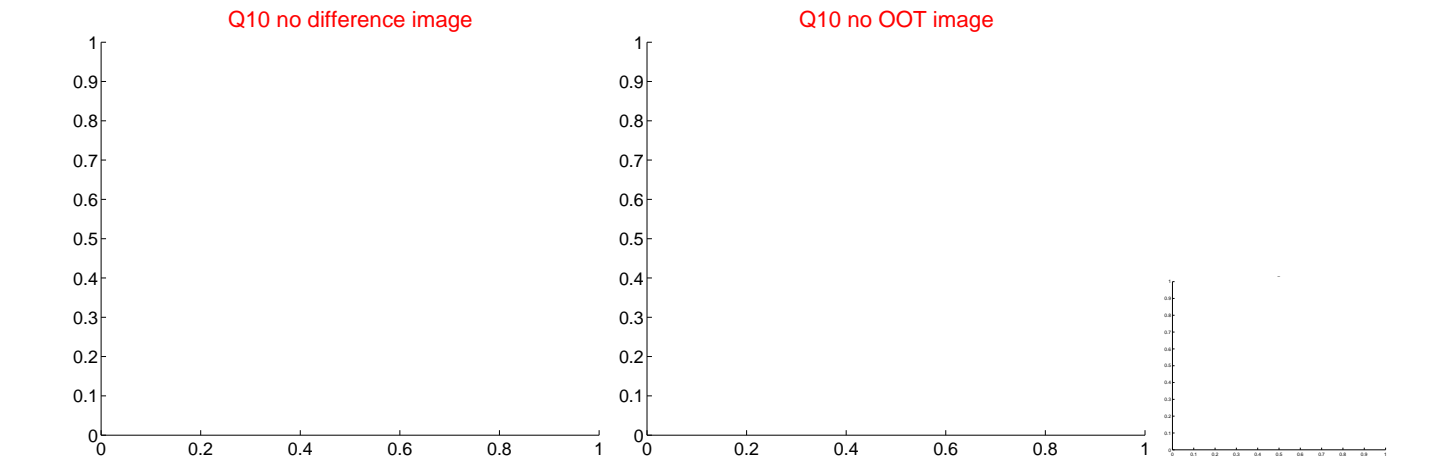
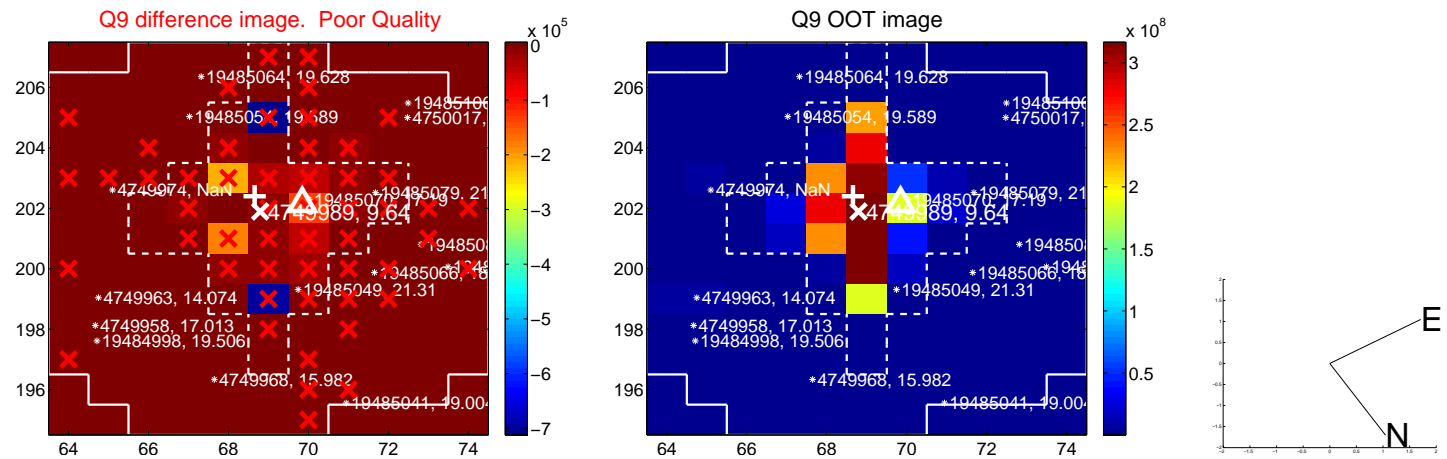
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



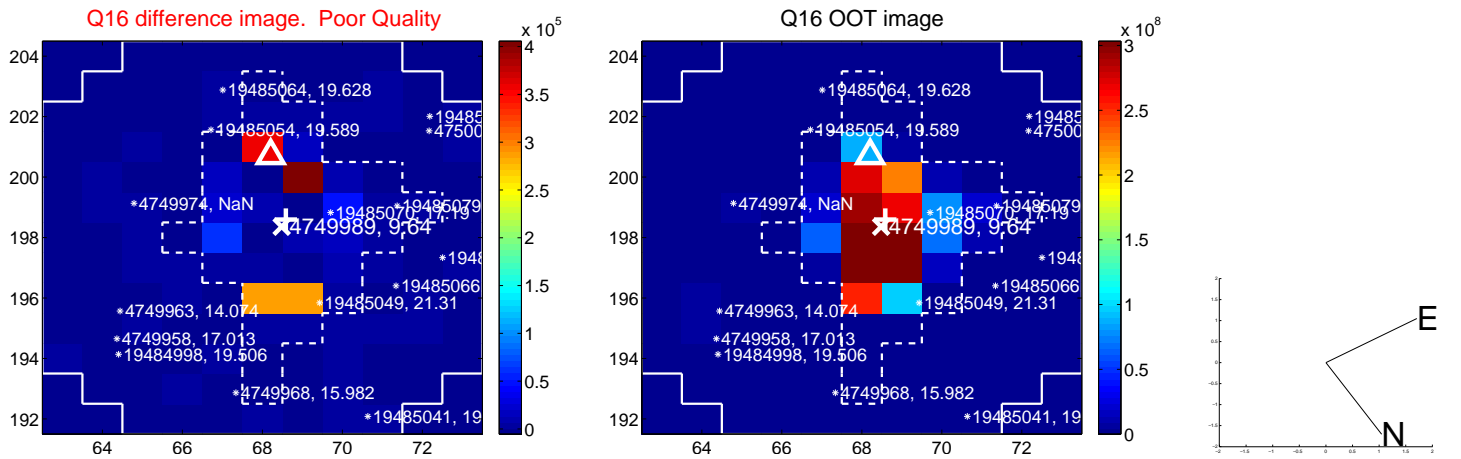
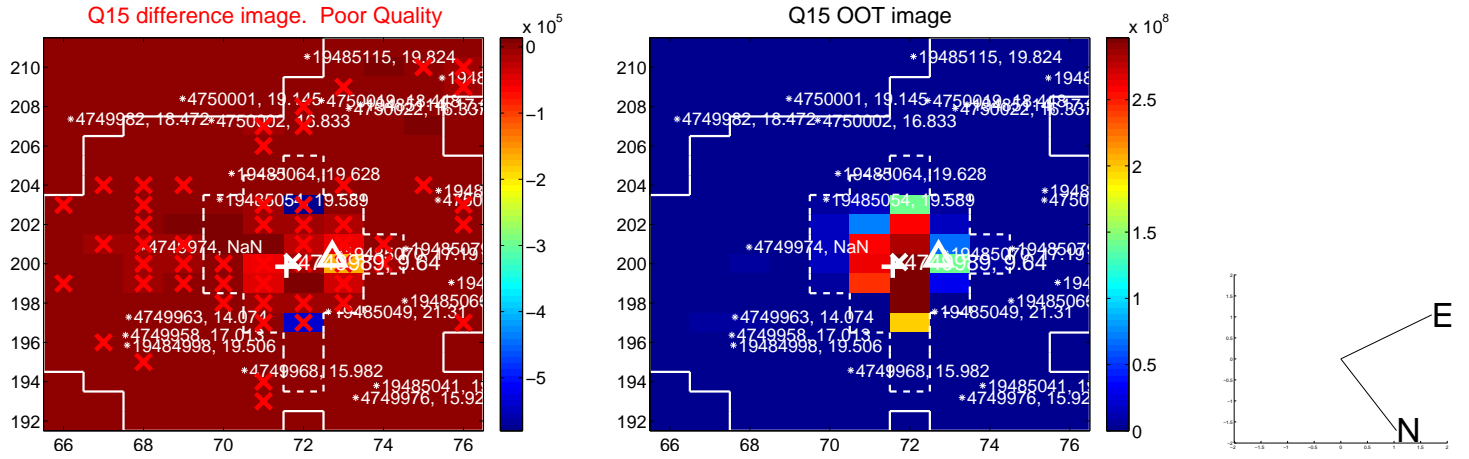
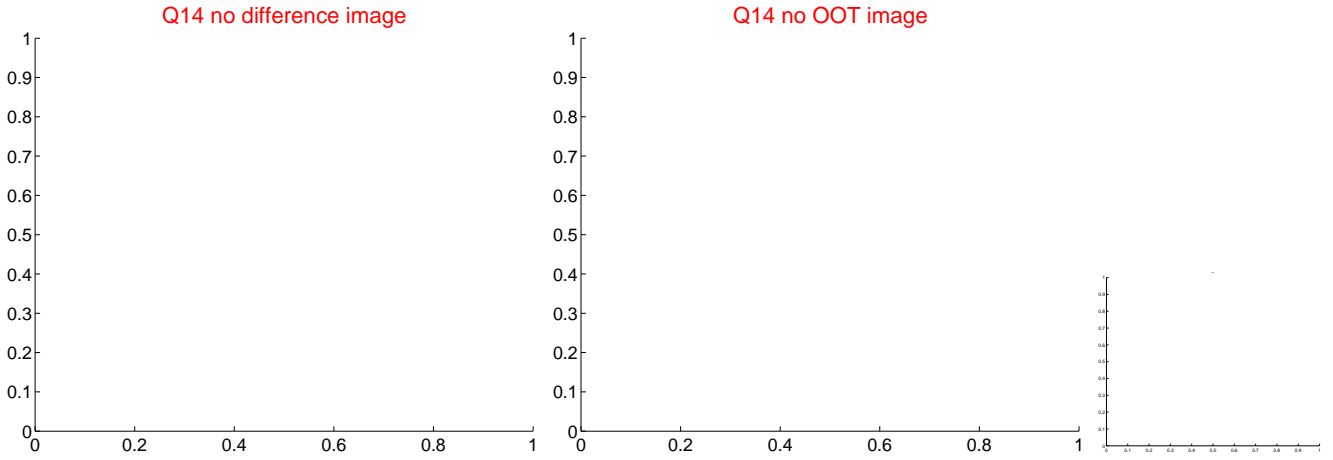
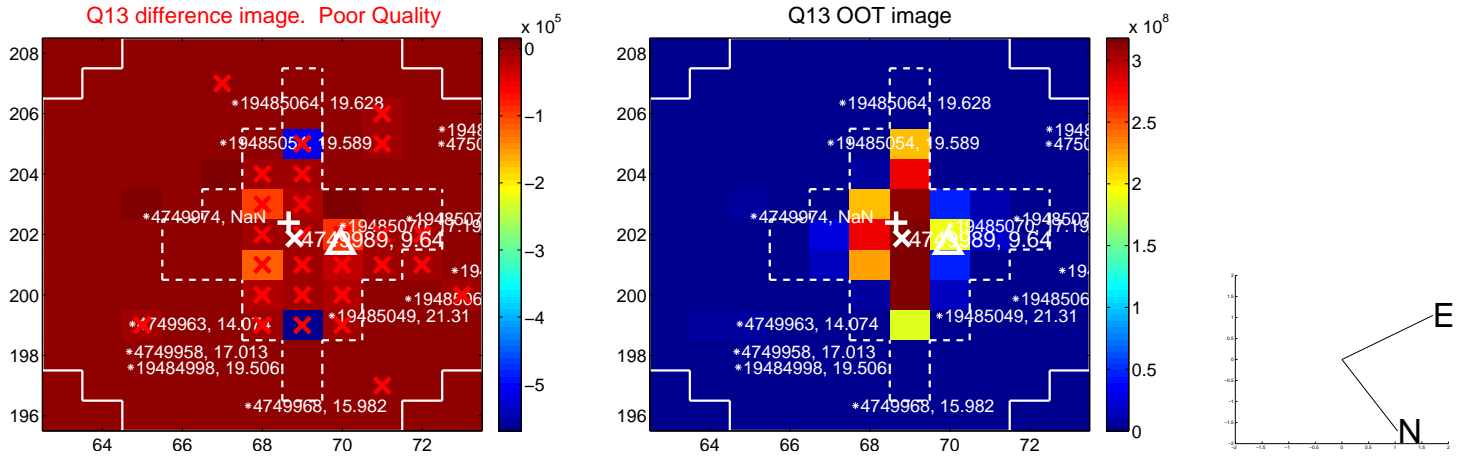
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



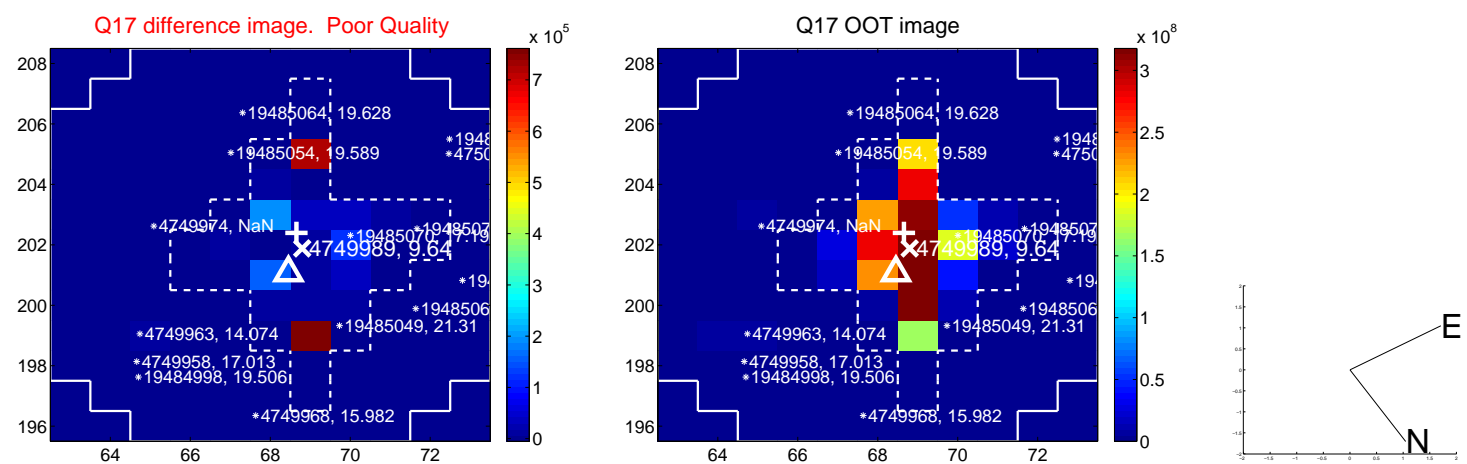
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



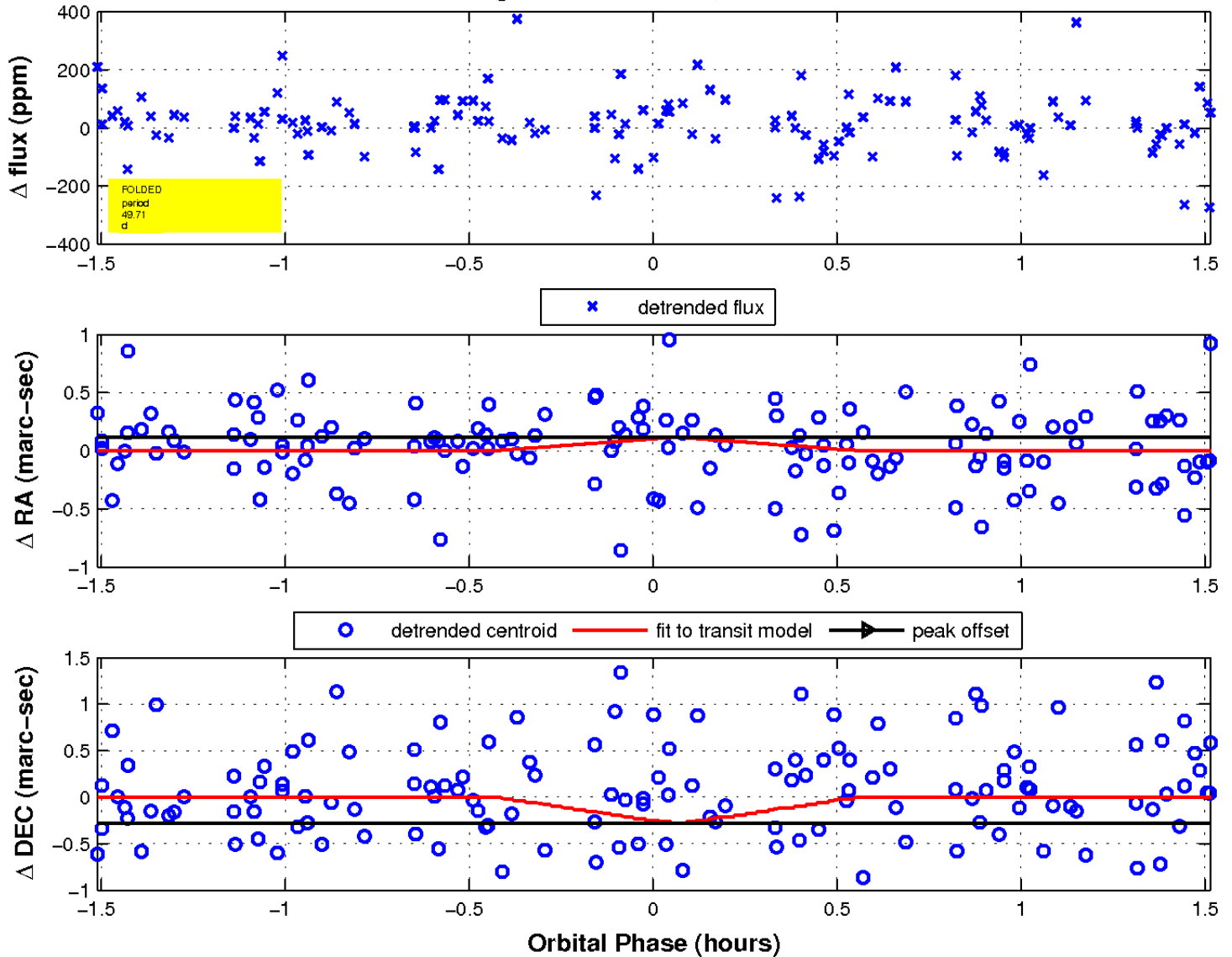
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



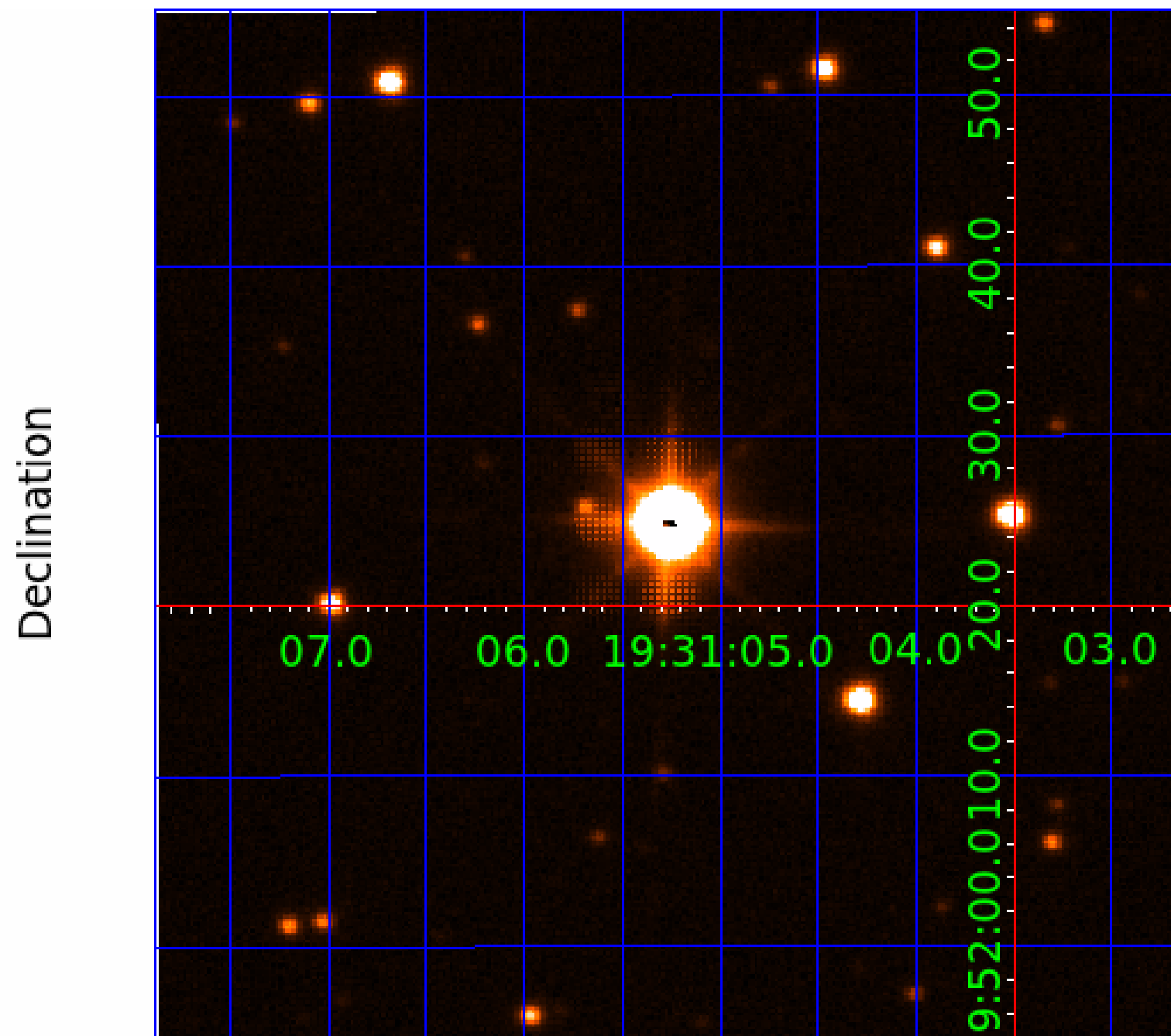
white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 9 of 10



UKIRT Image



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})
004749989-01	OBS	No	0.732246	132.001787	13.0	4.721	11.2	9.5	1.88	6824	0.70	22521.01
004749989-02	OBS	No	43.201740	152.106101	15.0	1.035	13.2	1.1	1.88	6824	0.77	98.05
004749989-03	OBS	No	41.557803	136.205285	226.5	2.245	11.3	11.0	1.88	6824	3.33	103.26
004749989-04	OBS	No	153.116727	175.815026	50.7	1.959	10.3	1.4	1.88	6824	1.43	18.14
004749989-05	OBS	No	72.446819	177.224413	223.5	0.911	9.5	6.3	1.88	6824	3.31	49.22
004749989-06	OBS	No	467.163516	177.050588	64.6	3.500	10.6	-1.0	1.88	6824	1.53	4.10
004749989-07	OBS	No	250.427163	176.310022	171.3	3.985	9.8	9.7	1.88	6824	3.00	9.42
004749989-08	OBS	No	17.536486	142.663608	68.0	9.232	9.9	8.8	1.88	6824	1.70	326.24
004749989-09	OBS	No	49.714401	135.388278	59.6	3.000	10.6	-1.0	1.88	6824	1.47	81.31
004749989-10	OBS	No	71.221698	144.804494	188.7	2.602	10.1	8.3	1.88	6824	3.00	50.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004749989-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-03	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—CENT_SATURATED
004749989-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004749989-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004749989-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004749989-10	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—CENT_SATURATED

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

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

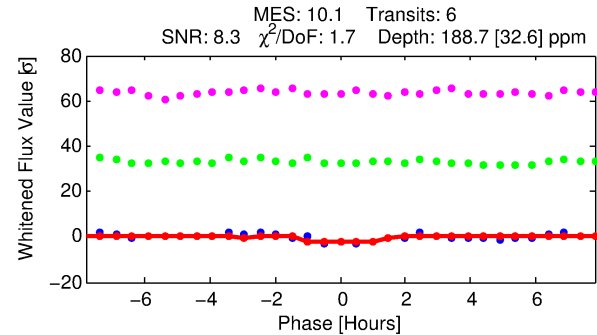
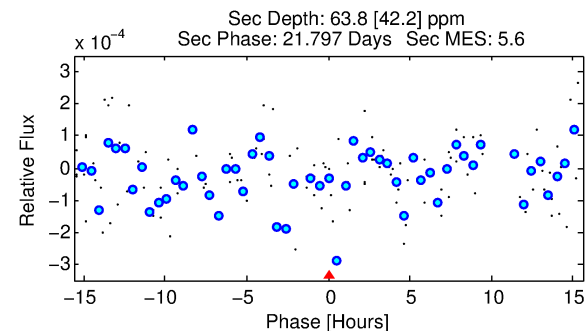
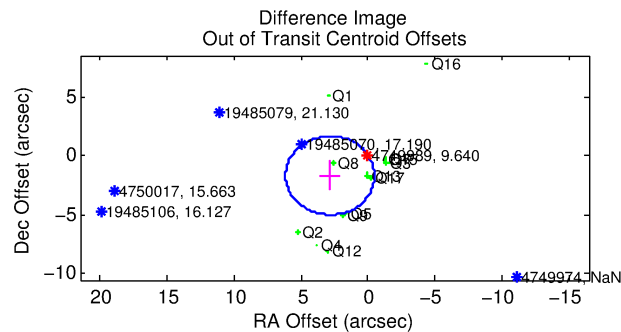
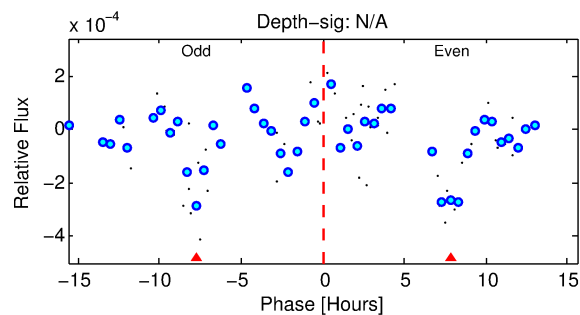
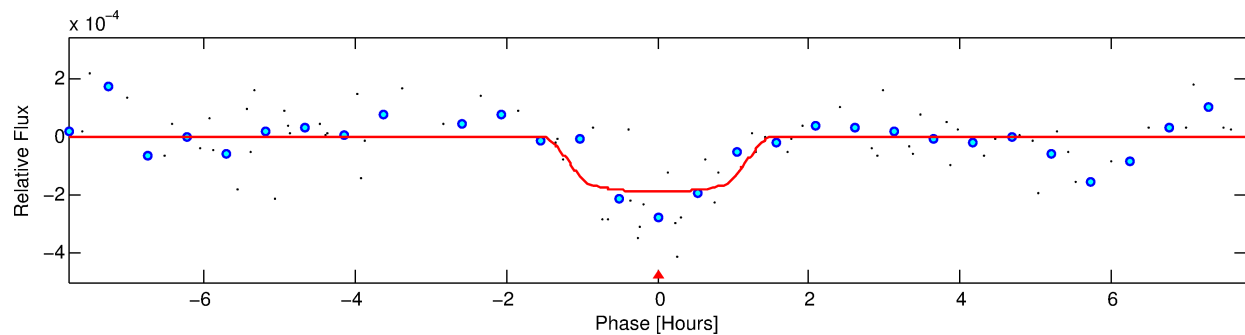
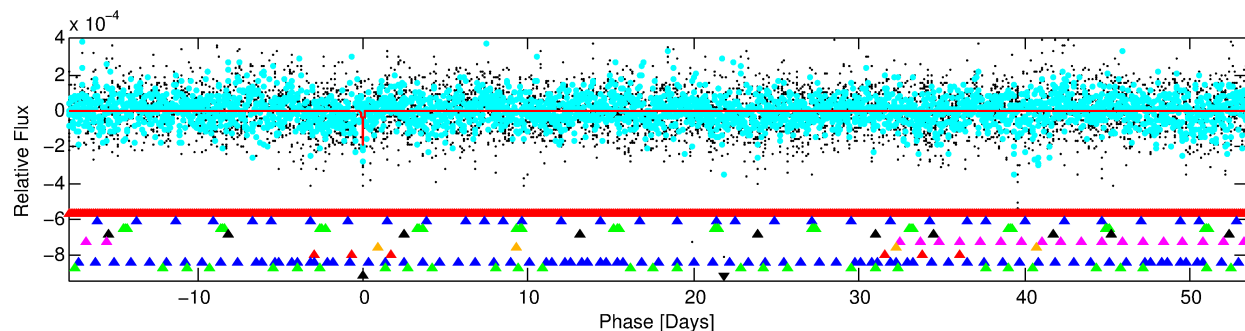
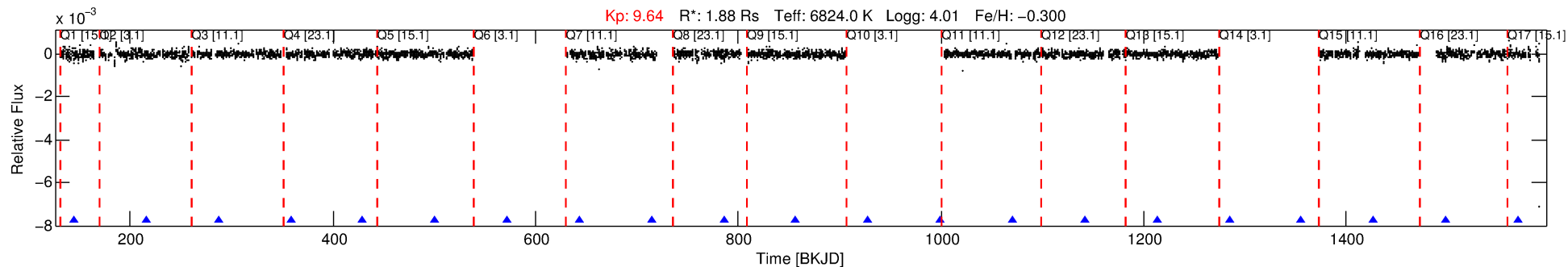
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004749989-10

No Significant Match Found

DV One-Page Summary

KIC: 4749989 Candidate: 10 of 10 Period: 71.222 d



DV Fit Results:

Period = 71.22170 [0.00086] d
Epoch = 144.8045 [0.0099] BKJD
 $R_p/R^* = 0.0146$ [0.0174]
 $a/R^* = 100.13$ [719.97]
 $b = 0.89$ [1.64]
 $\text{Seff} = 50.35$ [26.08]
 $T_{\text{eq}} = 679$ [88] K
 $R_p = 3.00$ [3.71] Re
 $a = 0.3697$ [0.1144] AU
 $A_g = 534.04$ [1347.31] [0.40σ]
 $T_{\text{eff}} = 5048$ [3131] K [1.40σ]

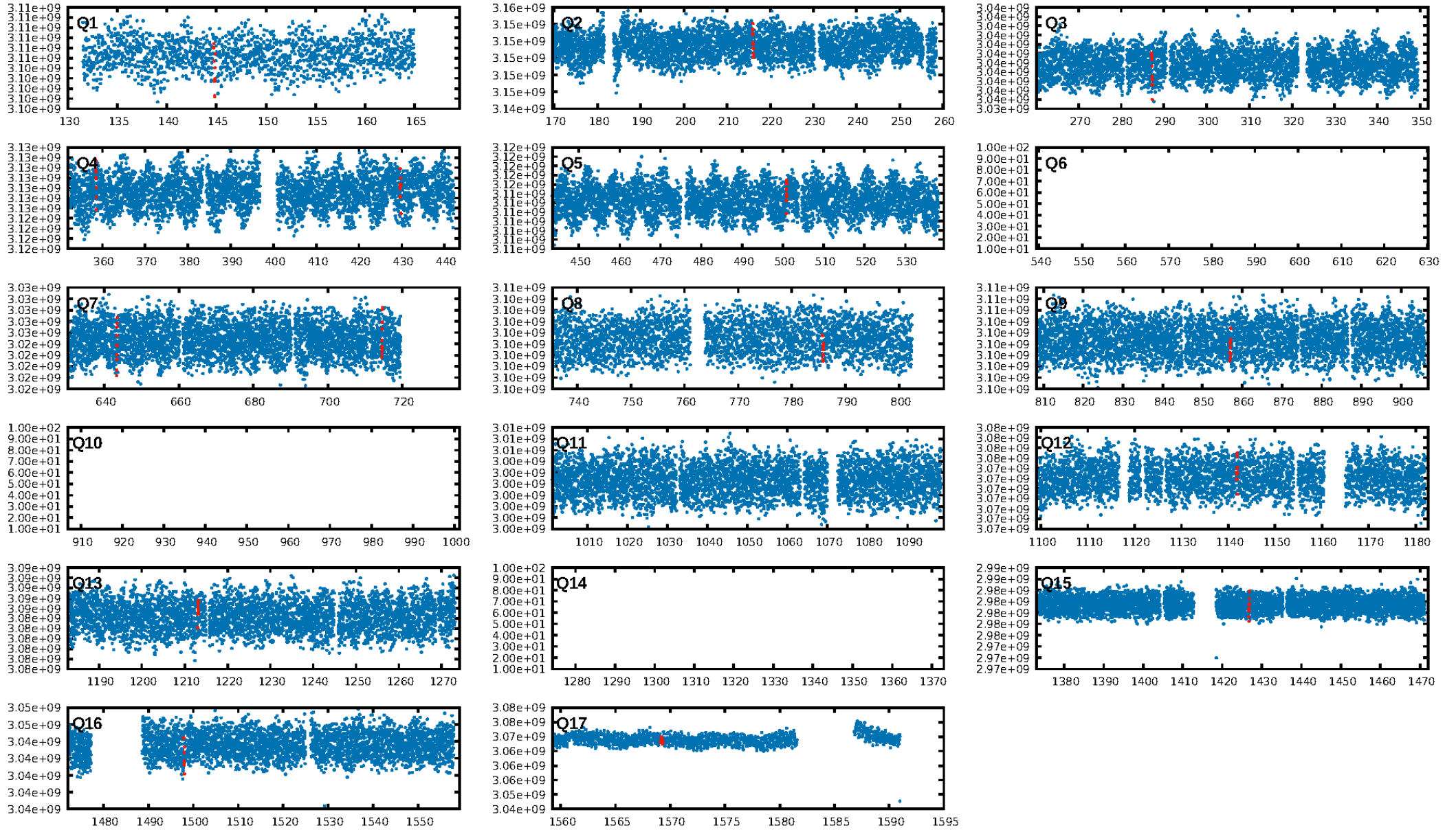
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [129.99σ]
LongPeriod-sig: 100.0% [10.67σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 67.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: N/A
Centroid-sig: 40.1%
Centroid-so: 0.393 arcsec [0.74σ]
OotOffset-rm: 3.296 arcsec [2.98σ]
OotOffset-st: 1/3/4/5 [13]
KicOffset-rm: 3.256 arcsec [4.73σ]
KicOffset-st: 1/3/4/5 [13]
DiffImageQuality-fgm: 0.00 [0/13]
DiffImageOverlap-fno: 0.00 [0/13]

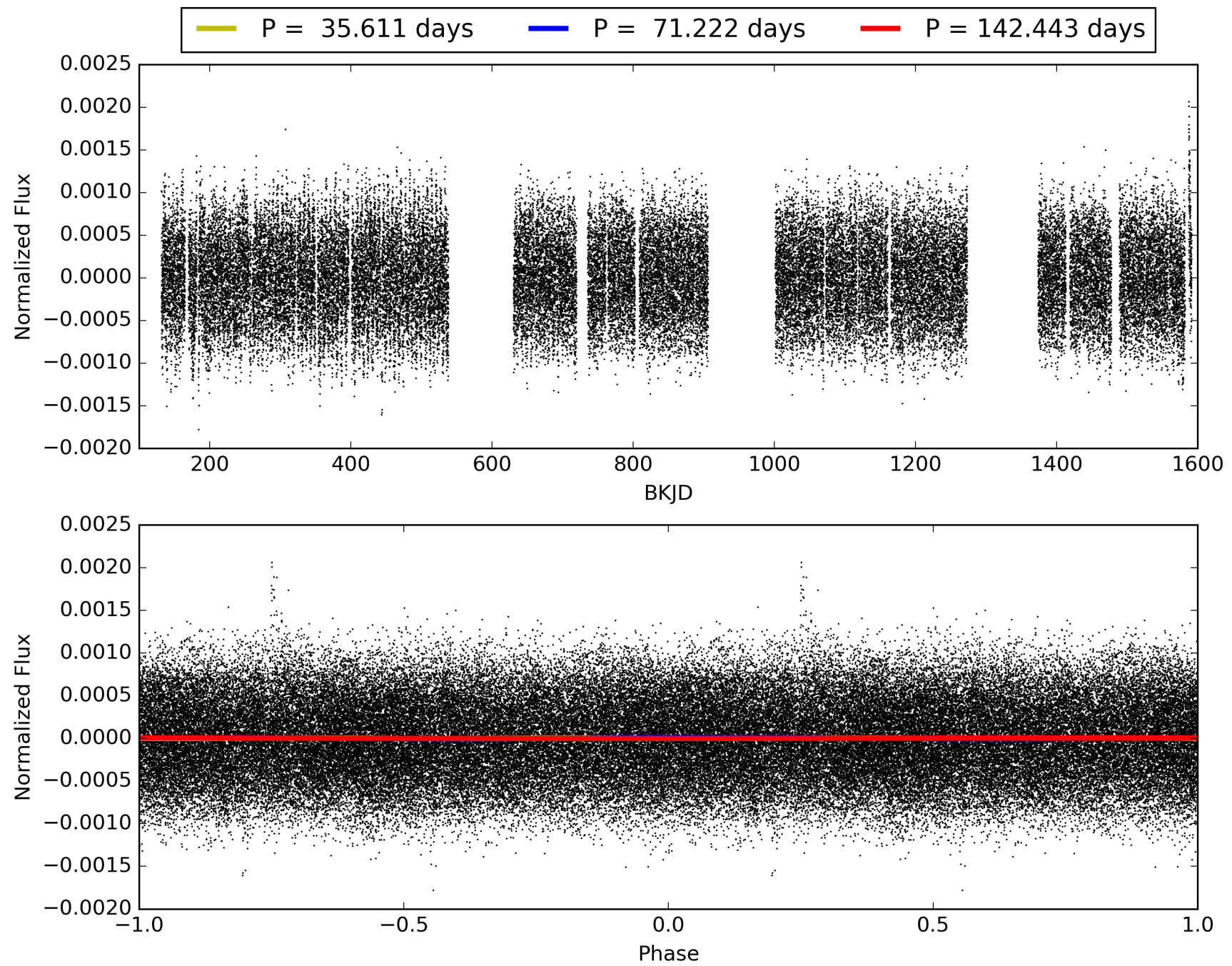
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:57:58 Z

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

TCE 004749989-10, PDC Light Curves

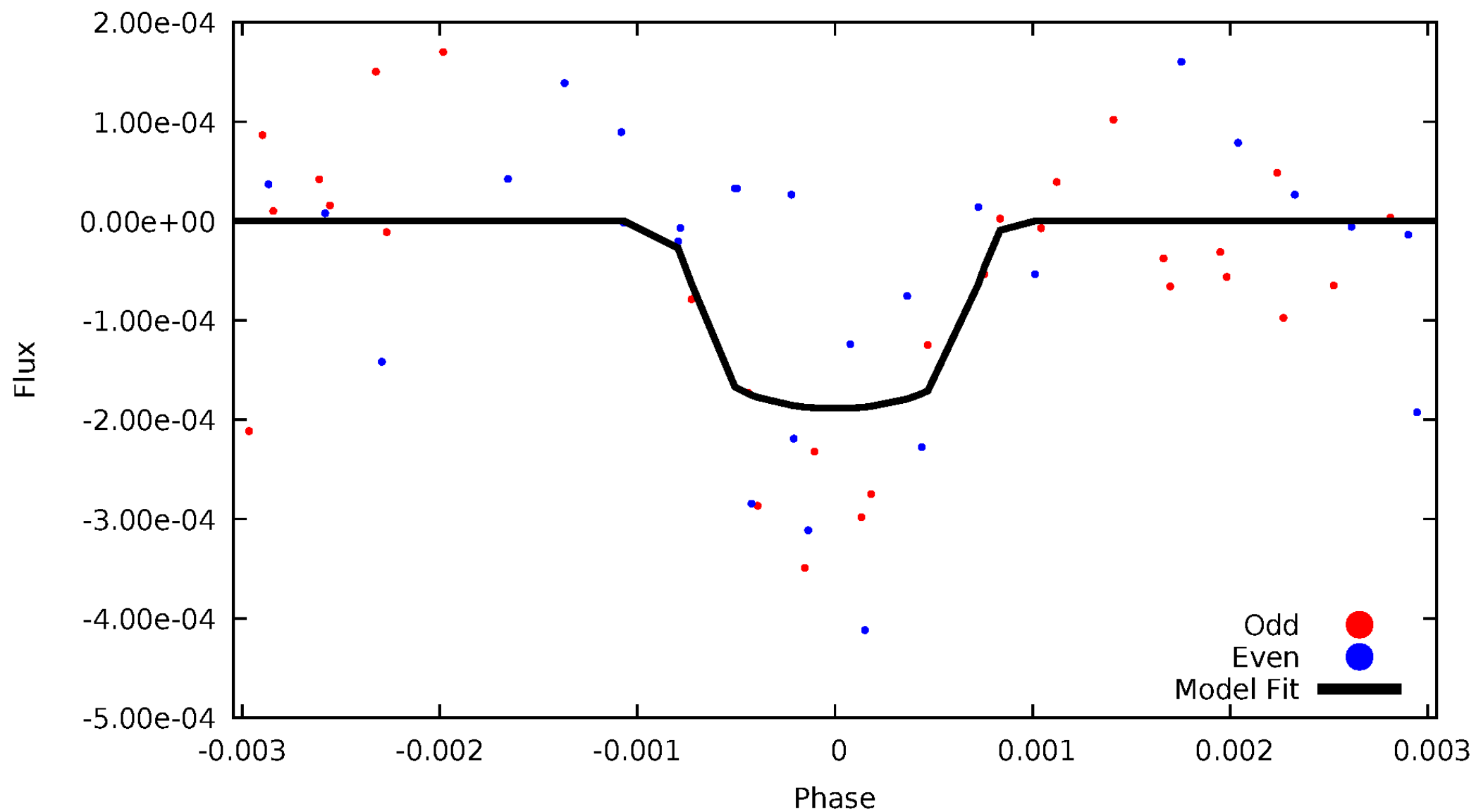


TCE 004749989-10



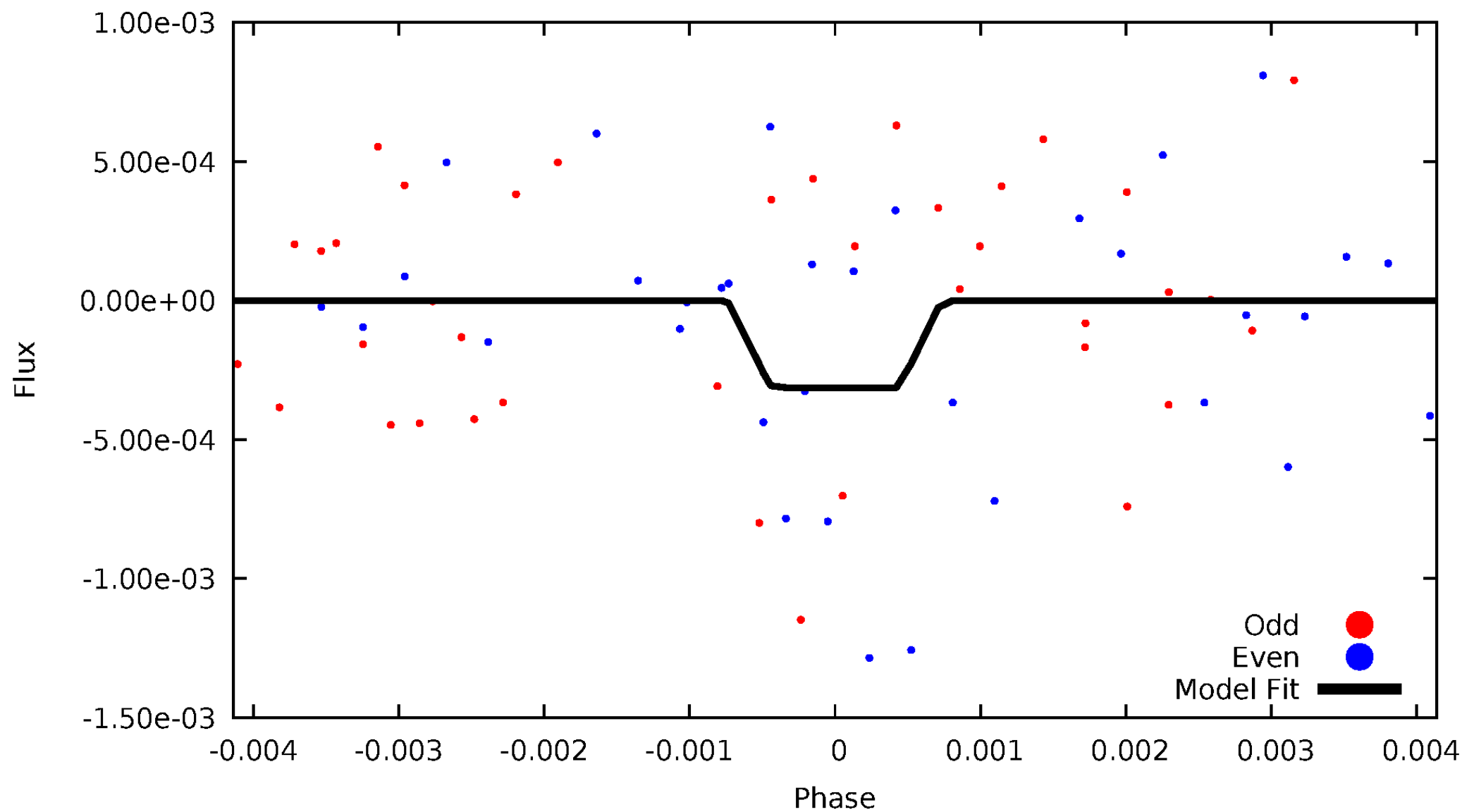
DV Odd/Even

TCE 004749989-10



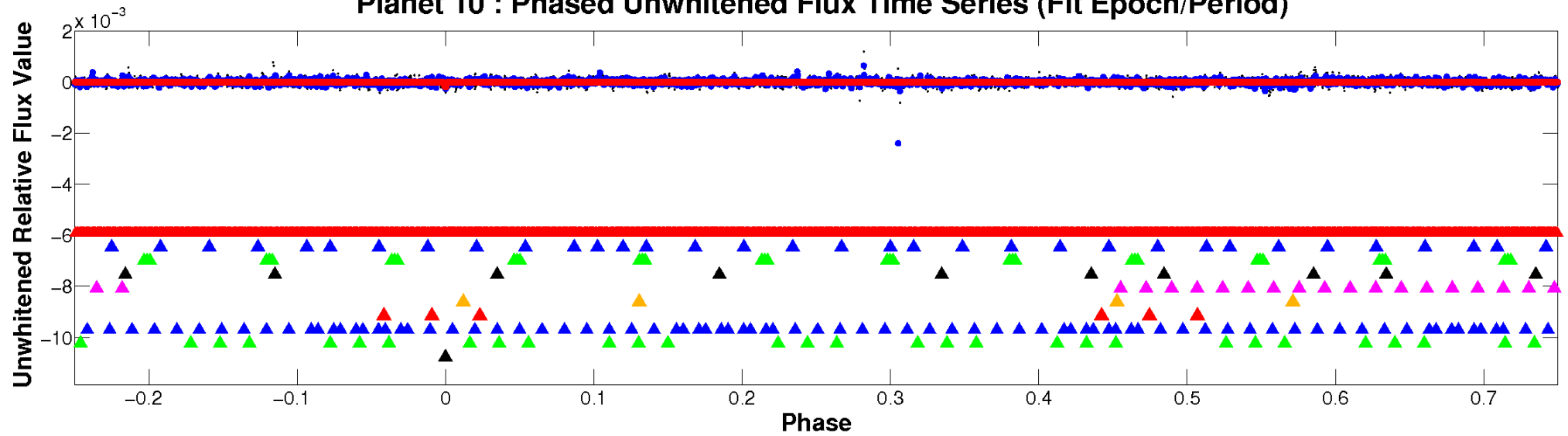
ALT Odd/Even

TCE 004749989-10

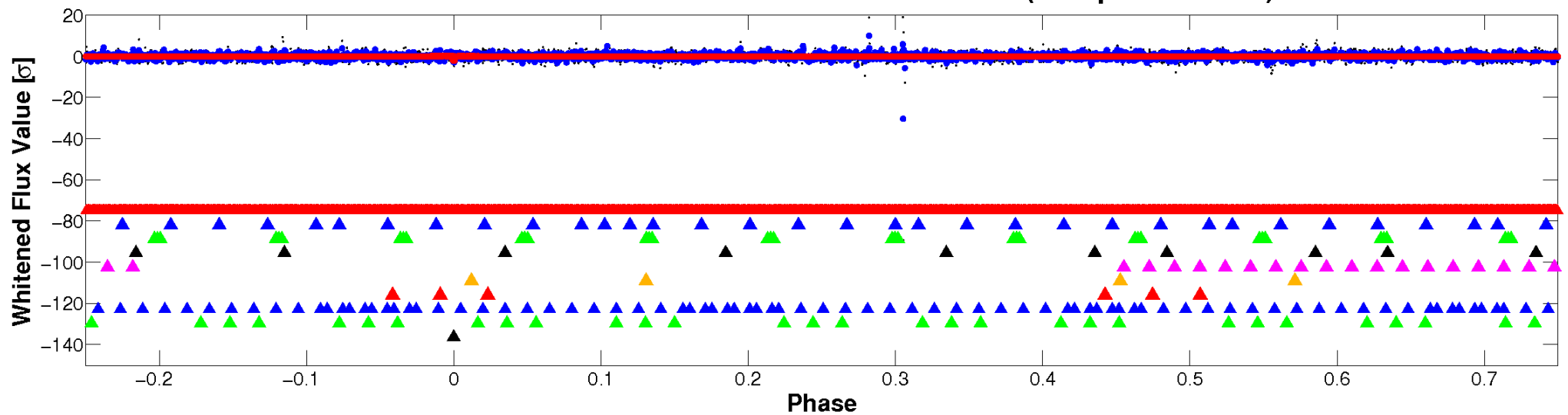


Non-Whitened Vs. Whitened Light Curve

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

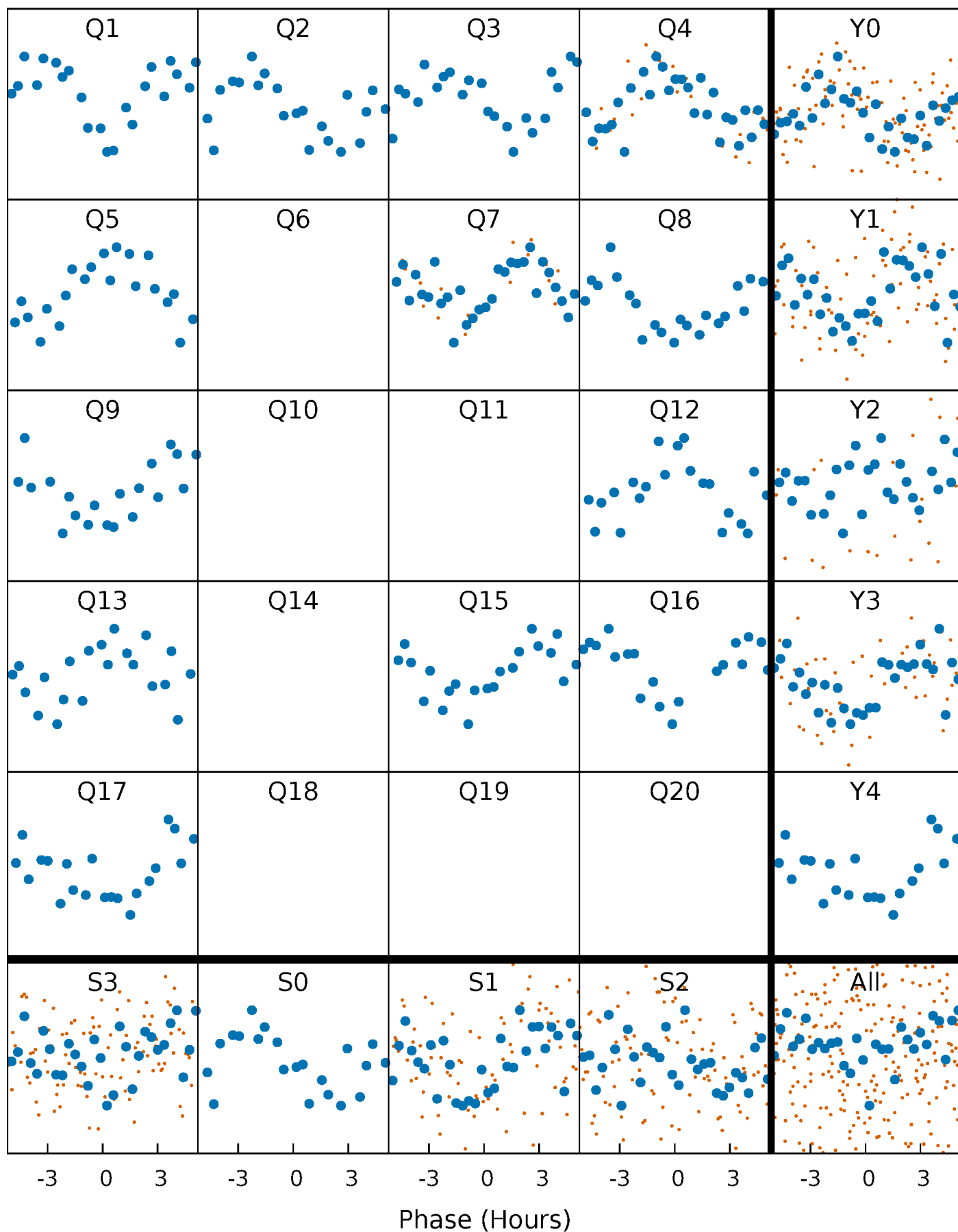


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



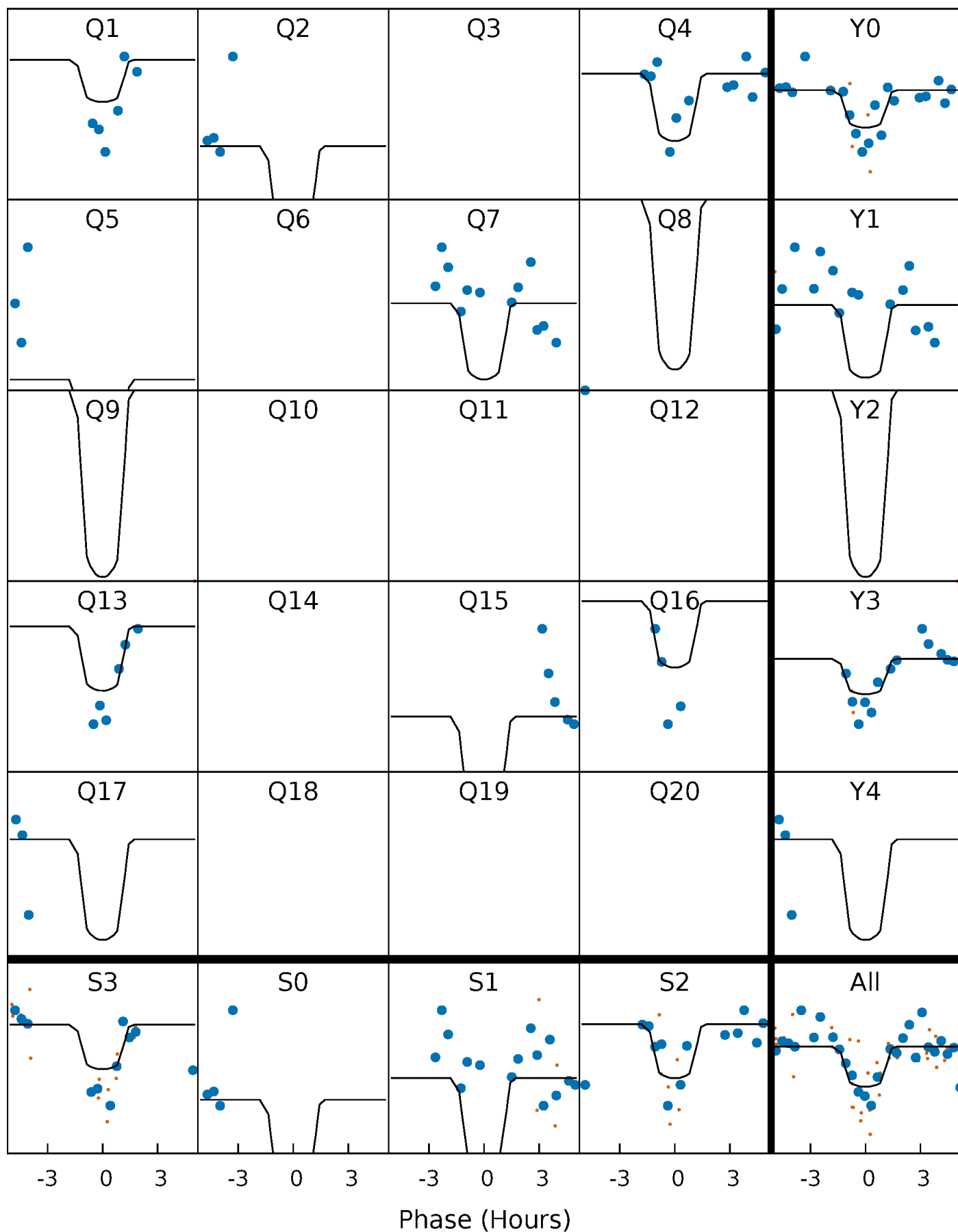
PDC Quarter-Phased Transit Curves

TCE 004749989-10 P= 71.221698 Days $T_0=144.804495$ (BKJD)



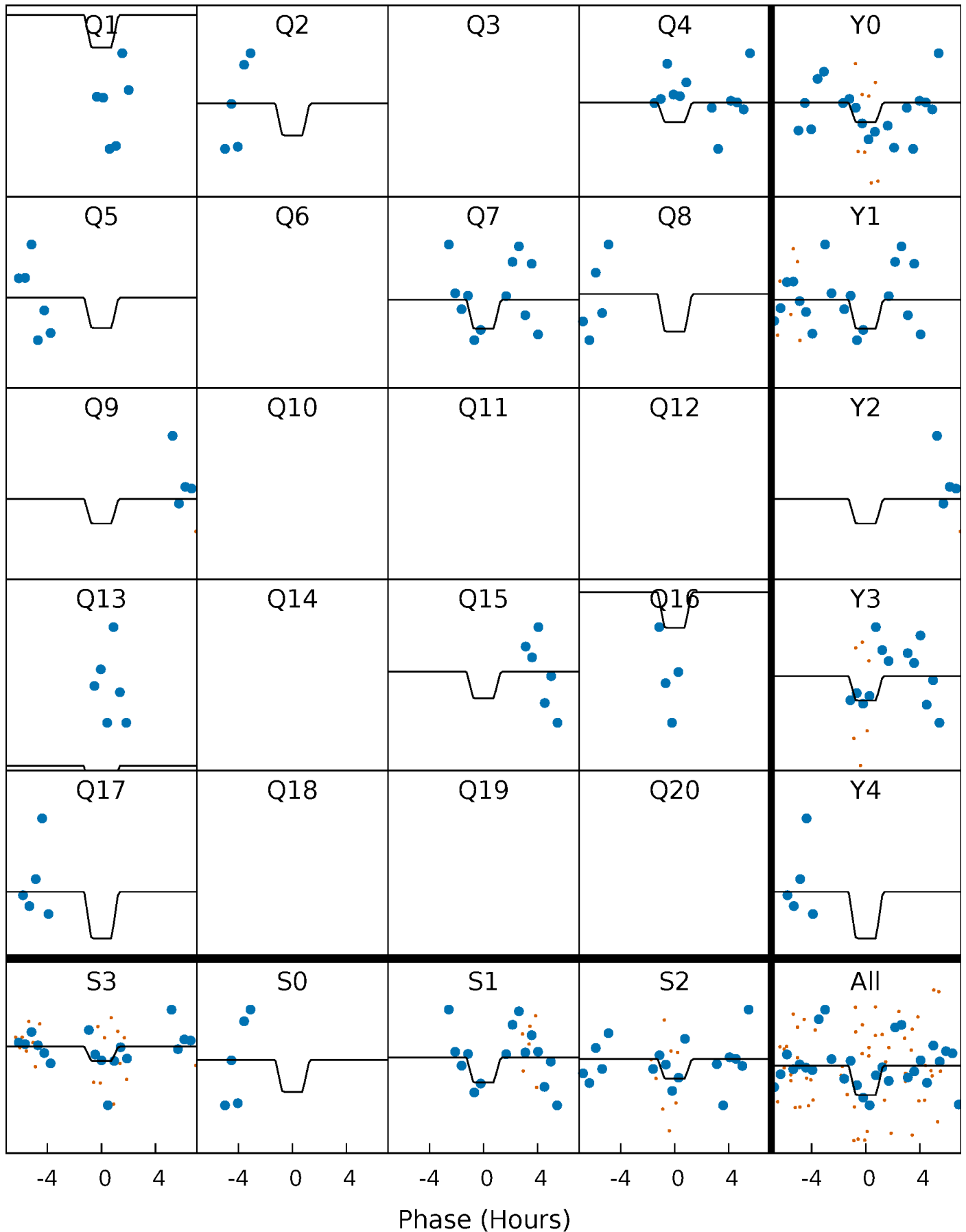
DV Quarter-Phased Transit Curves

TCE 004749989-10 P= 71.221698 Days $T_0=144.804495$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

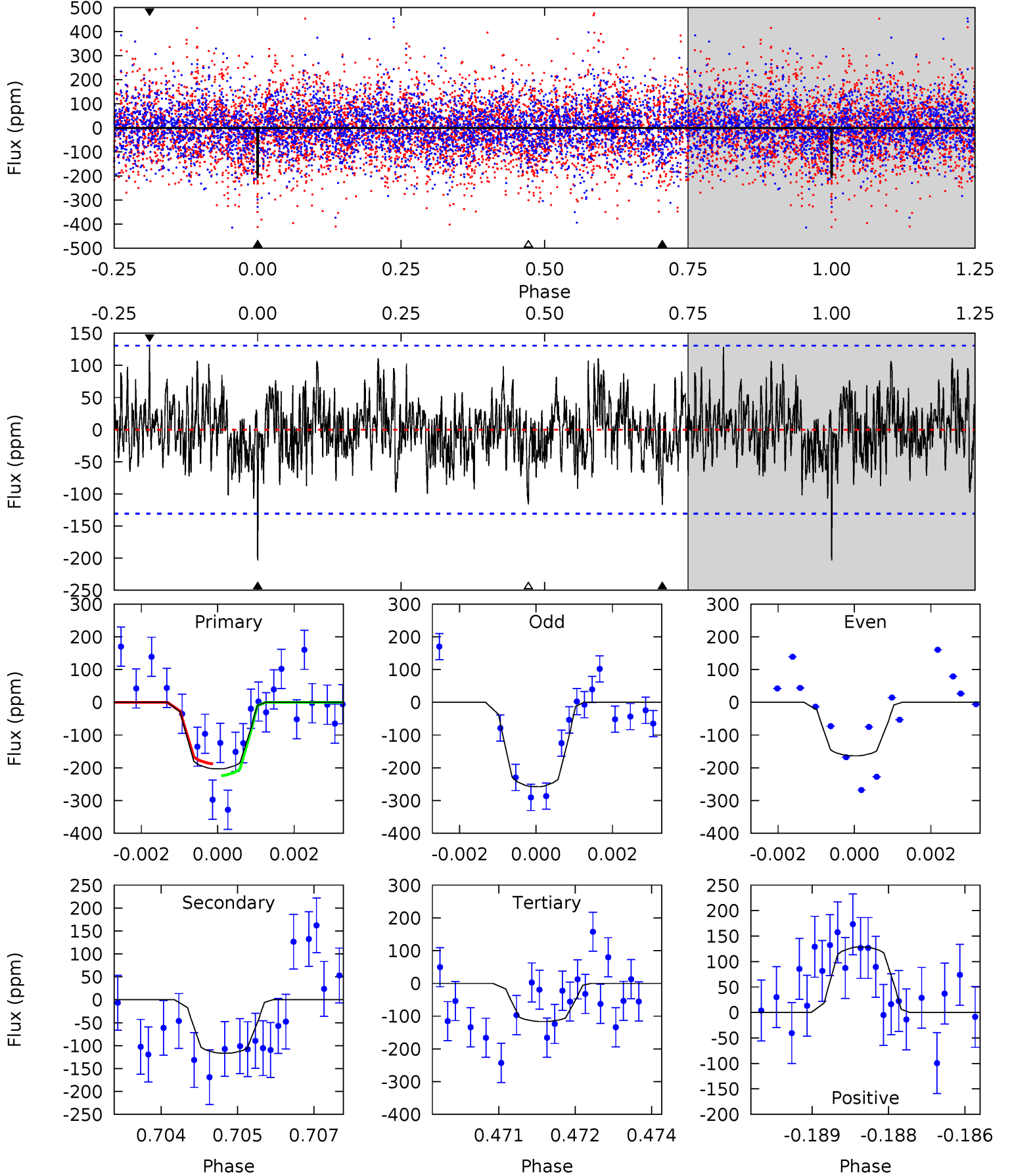
TCE 004749989-10 P= 71.222323 Days $T_0=144.798448$ (BKJD)



DV Model-Shift Uniqueness Test

004749989-10, P = 71.221698 Days, E = 73.582797 Days

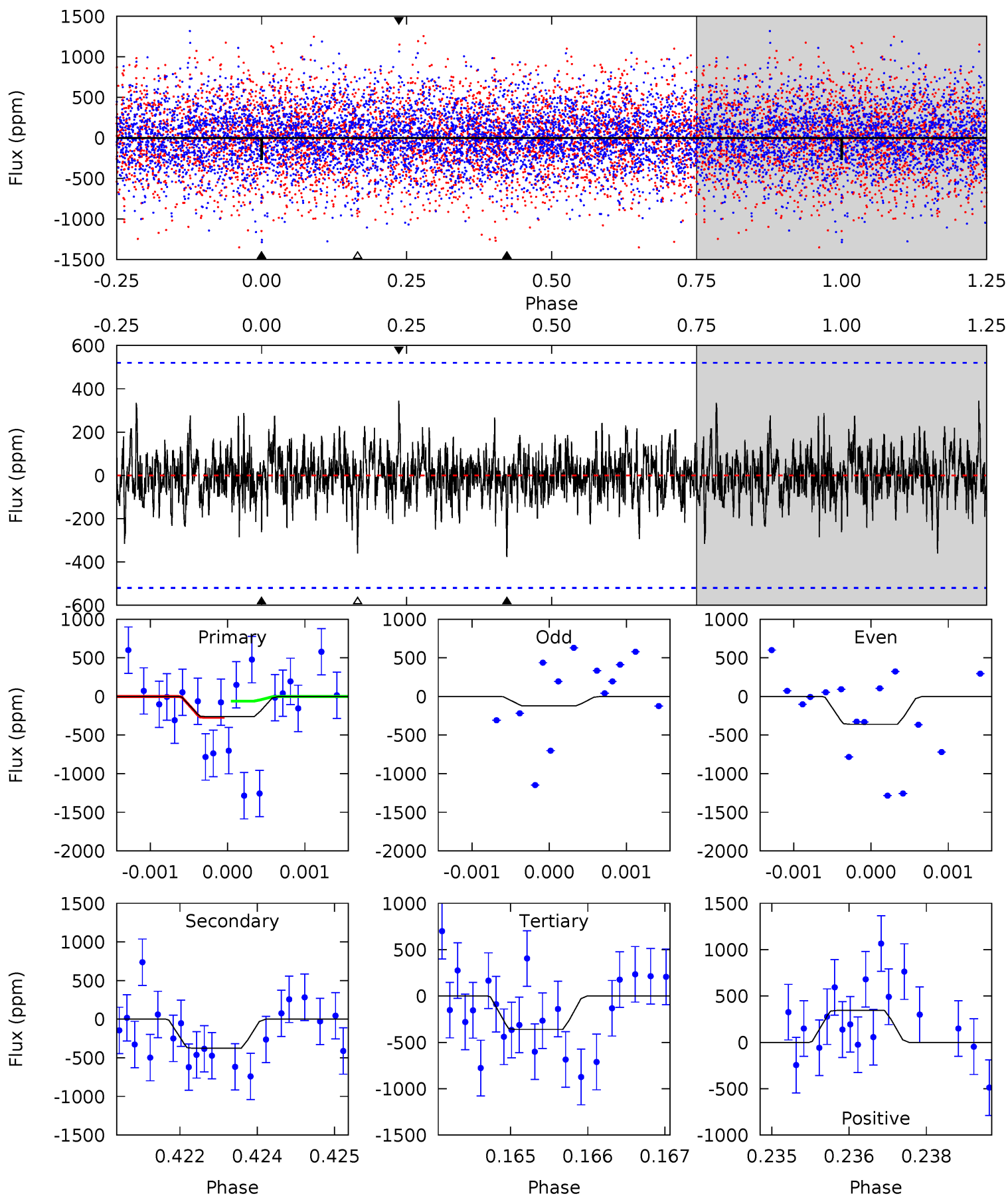
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.34	4.79	4.78	5.28	5.37	3.15	1.53	3.57	3.06	0.01	-0.49	1.91	0.76	0.39	0.74



Alt Model-Shift Uniqueness Test

004749989-10, P = 71.222323 Days, E = 73.576125 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.73	3.93	3.75	3.59	5.41	3.23	0.91	-1.03	-0.86	0.17	0.34	1.20	0.85	0.48	1.04



Stellar Parameters For KIC 004749989

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6824^{+214}_{-285}	$4.012^{+0.286}_{-0.154}$	$-0.300^{+0.300}_{-0.300}$	$1.882^{+0.504}_{-0.616}$	$1.332^{+0.195}_{-0.238}$	$0.281^{+0.569}_{-0.128}$
	+3%/-4%	+7%/-4%	+100%/-100%	+27%/-33%	+15%/-18%	+202%/-45%
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 004749989-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-117 ± 24	$3.83^{+3.02}_{-2.29}$	936^{+73}_{-85}	5066^{+2945}_{-1015}	584^{+2961}_{-409}
Alt.	-377 ± 96	$4.26^{+3.17}_{-2.65}$	935^{+76}_{-86}	6384^{+5789}_{-1427}	1503^{+9901}_{-990}

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

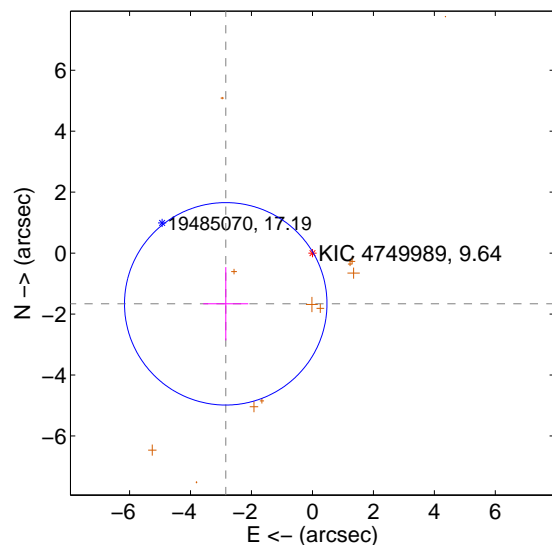
Supplemental centroid analysis for 004749989-10. **Kepler magnitude: 9.64.** Transit SNR 8.30

There are 0 quarters with good PRF difference image offsets

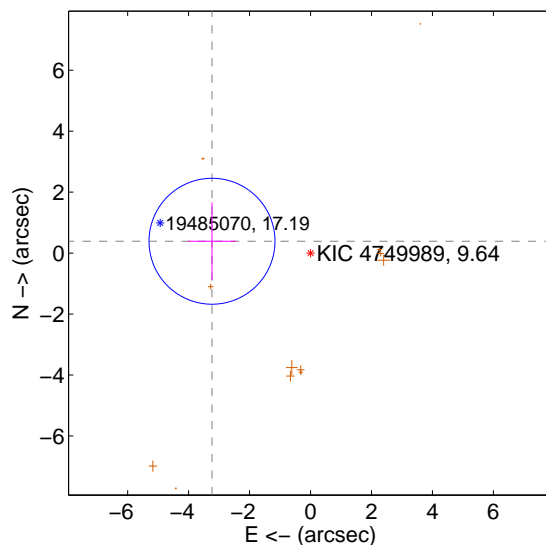
The OOT PRF centroid is offset from the target star catalog position by about 2.10 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.296 ± 1.107	2.98	2.845 ± 0.737	-1.665 ± 1.203
PRF-fit source offset from KIC position	3.256 ± 0.689	4.73	3.233 ± 0.790	0.389 ± 1.275
photometric centroid source offset	0.39 ± 0.53	0.74	-0.25 ± 0.42	0.30 ± 0.60

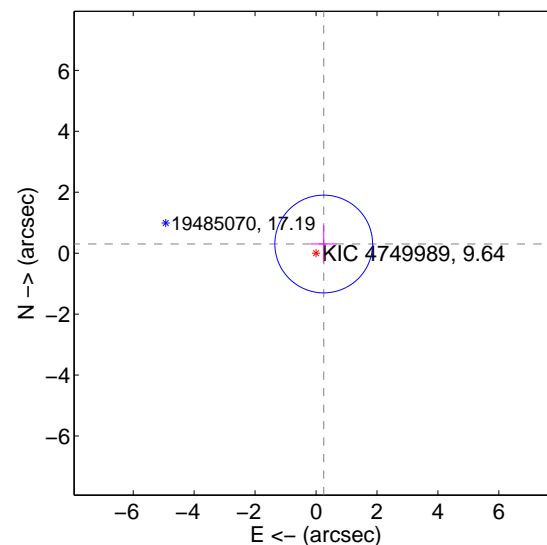
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

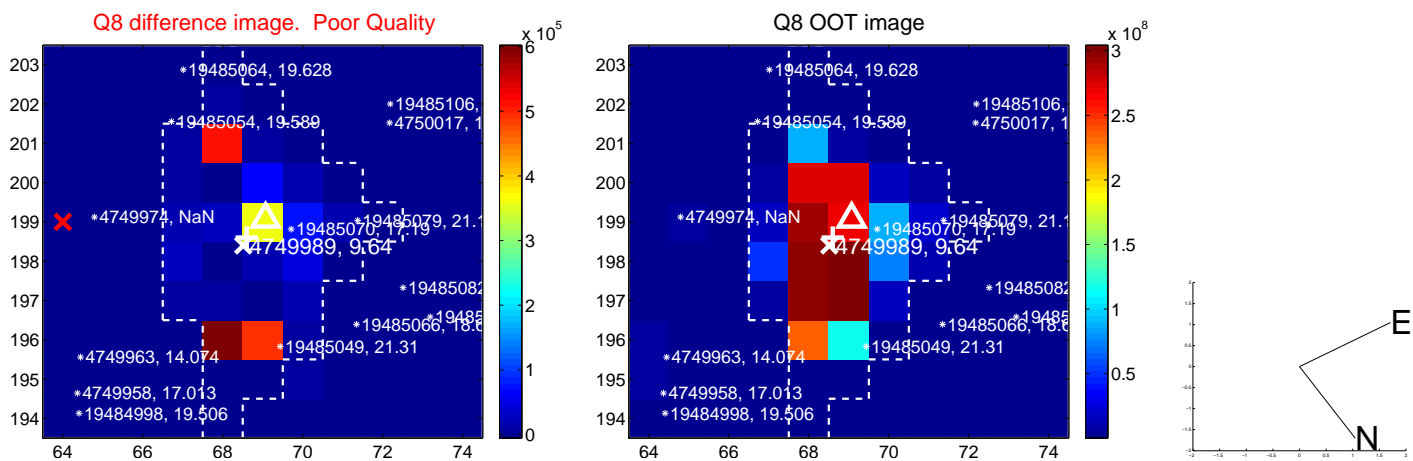
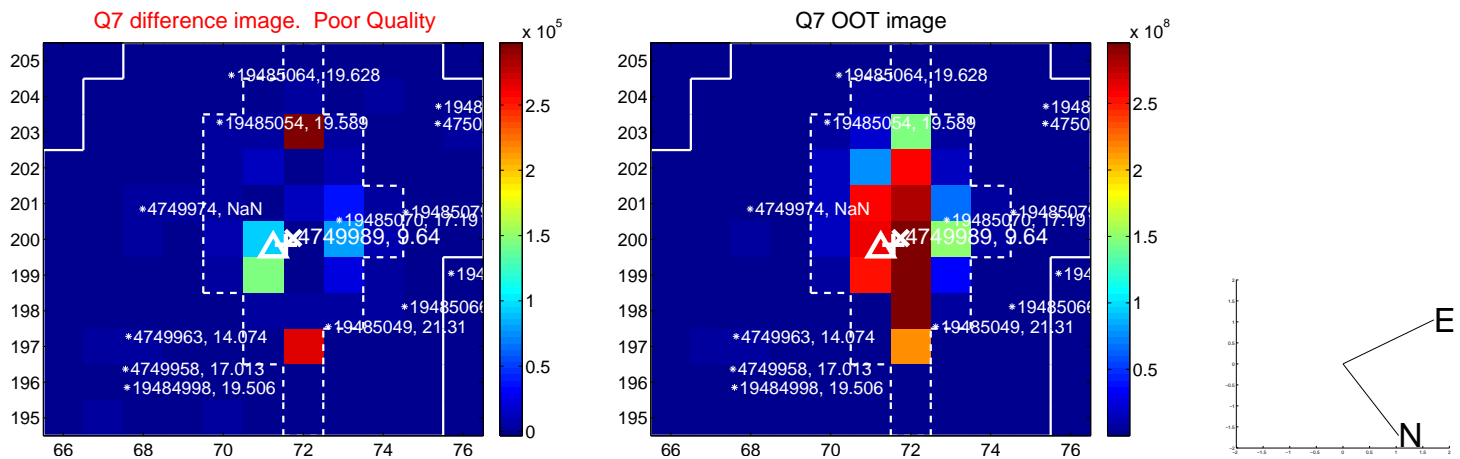
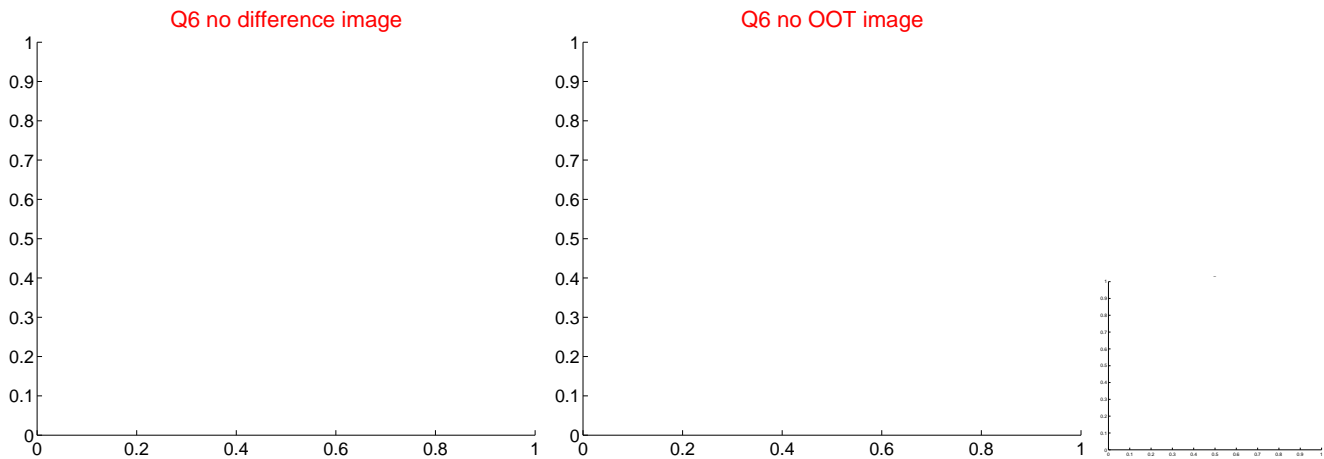
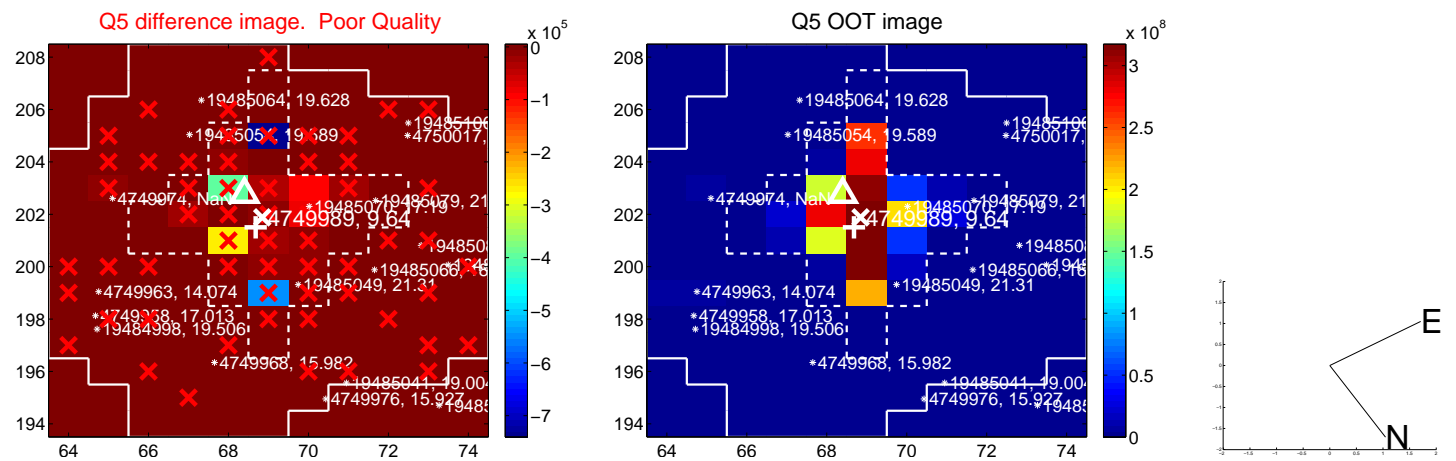


offset from photometric centroids

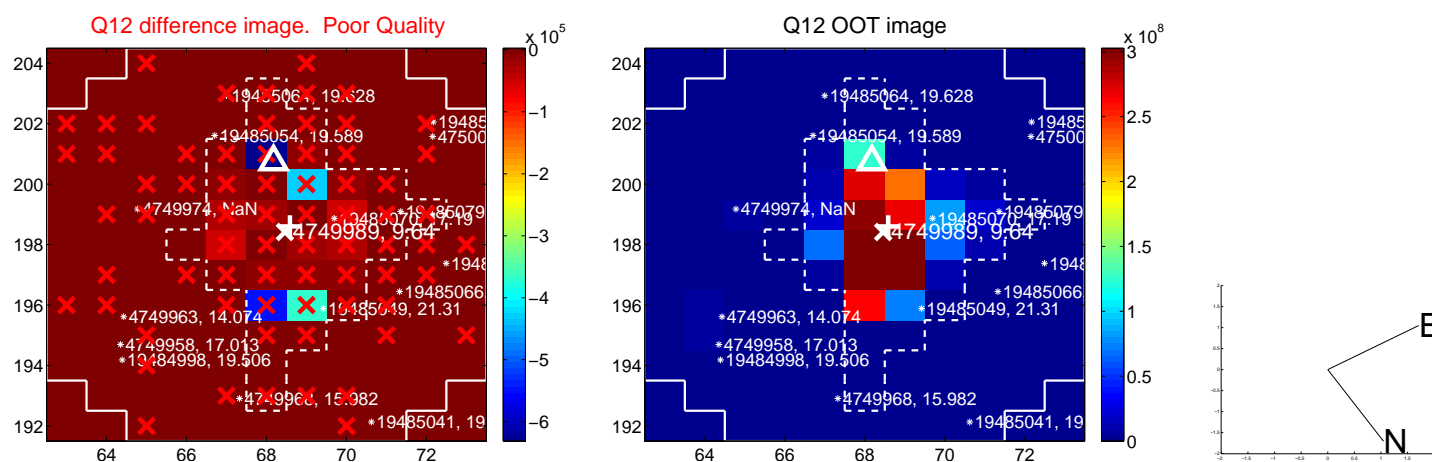
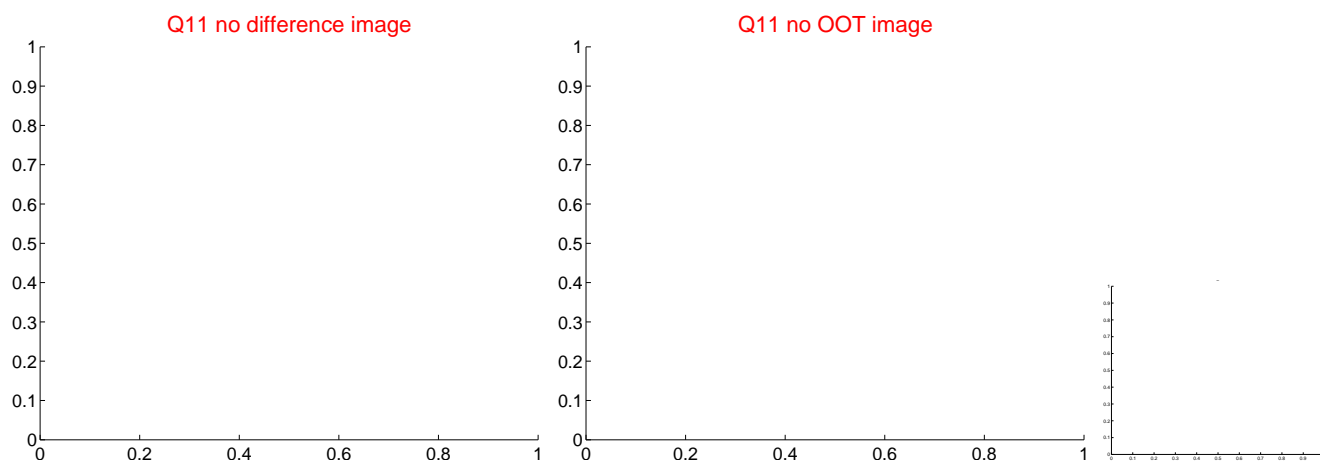
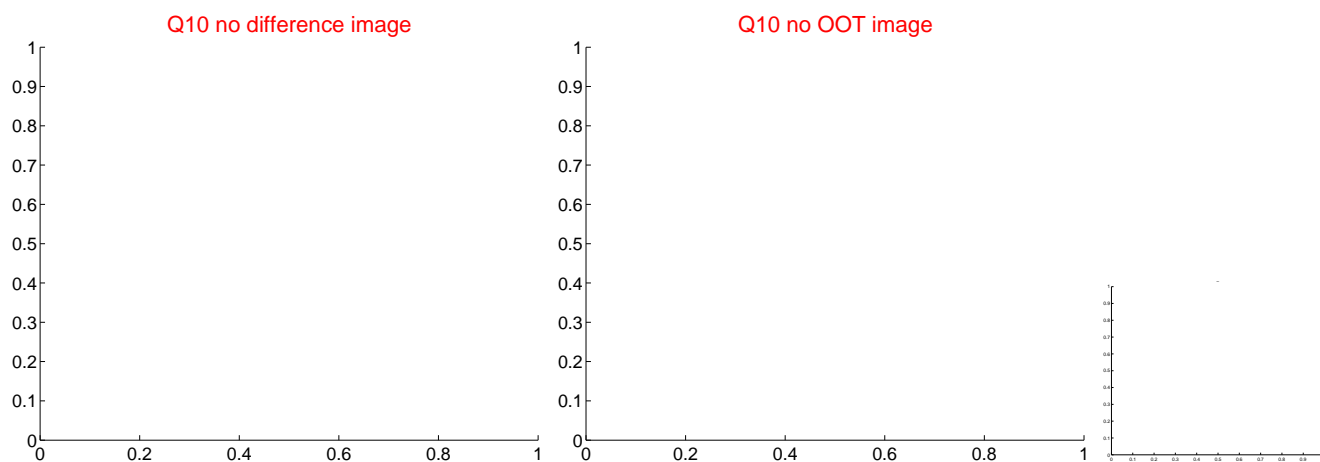
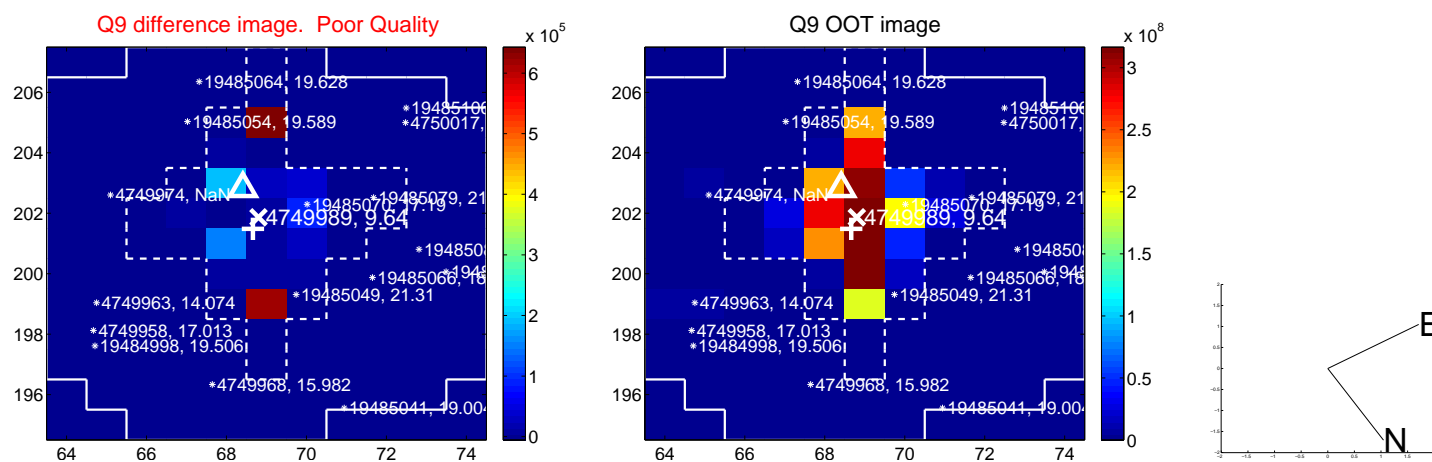


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

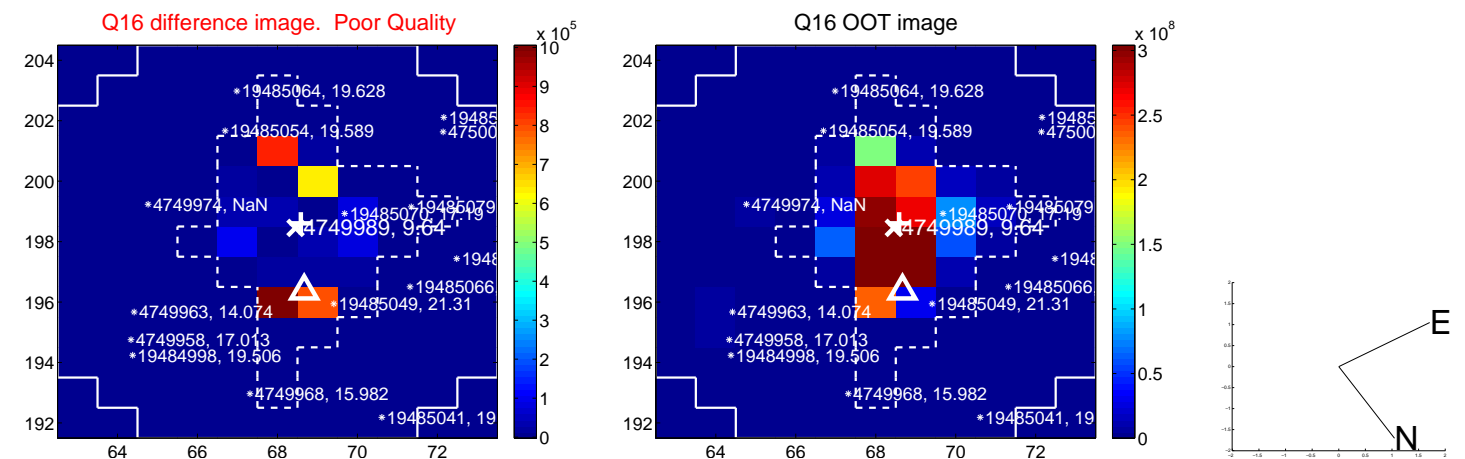
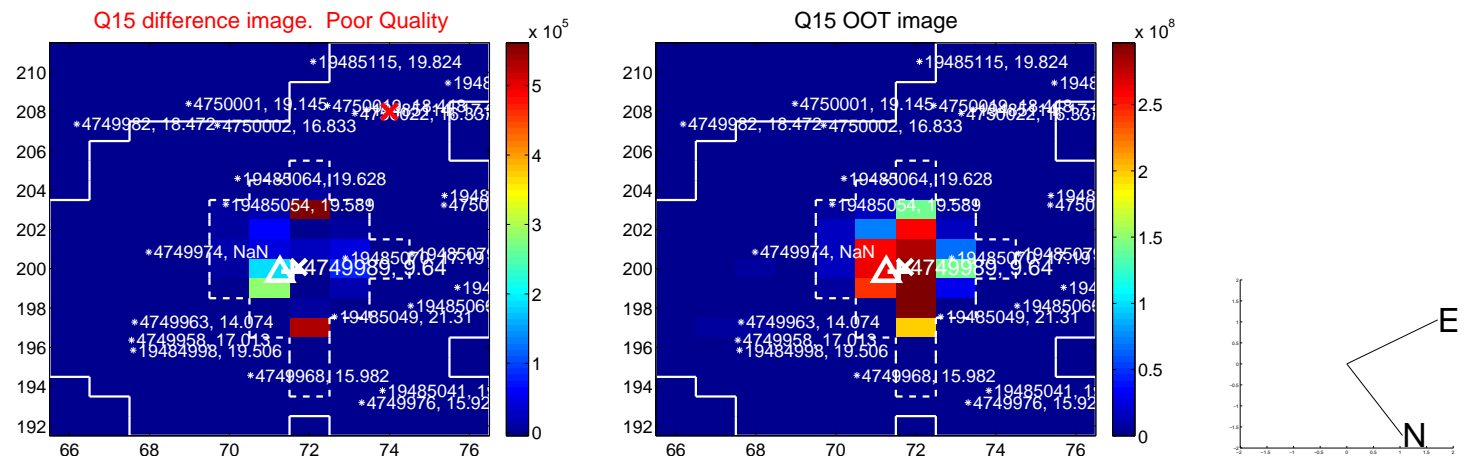
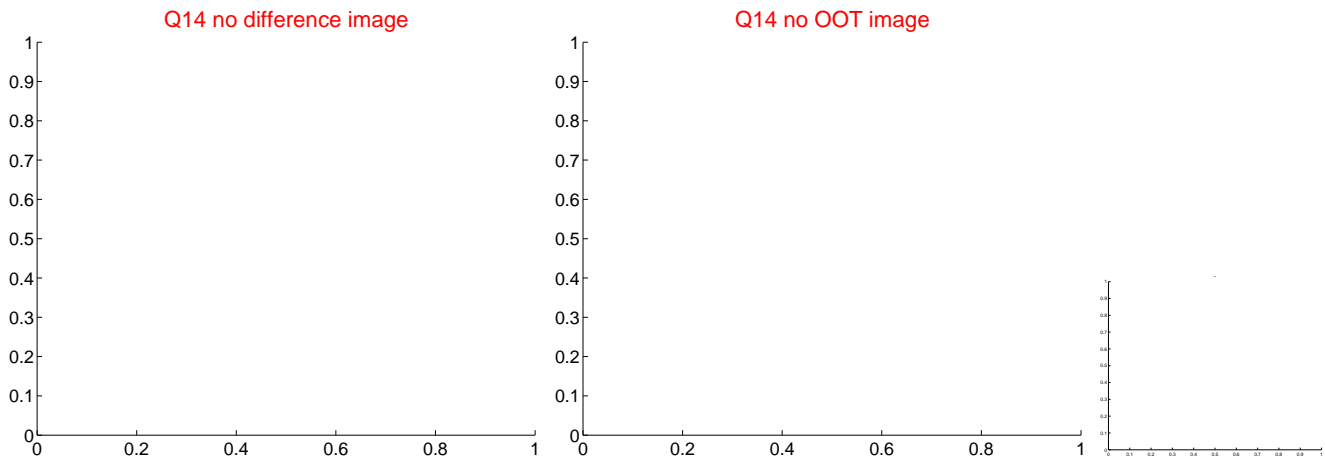
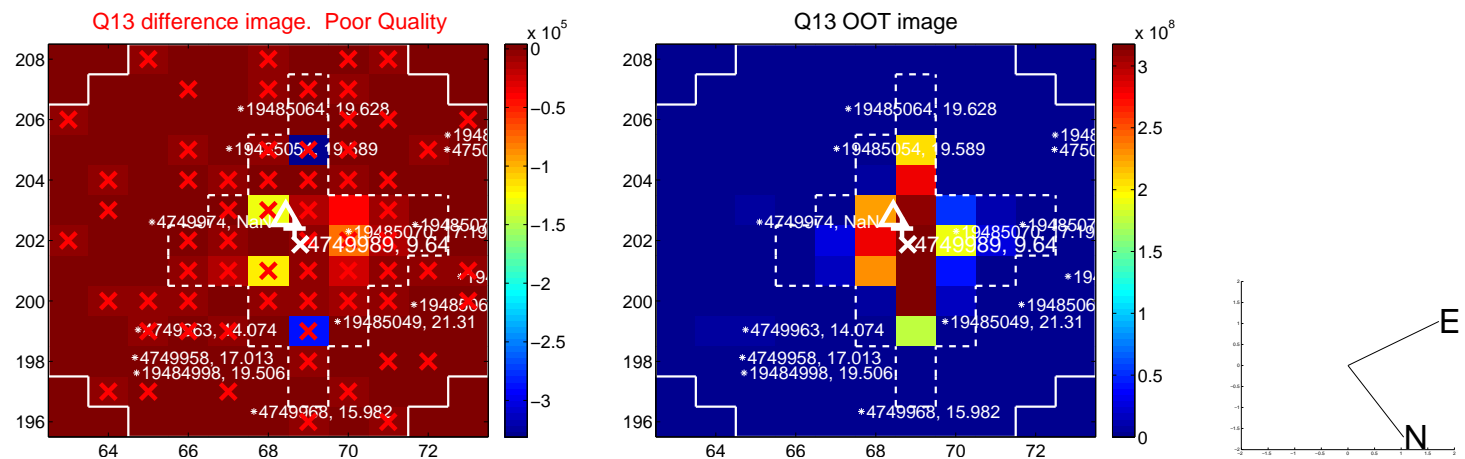
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



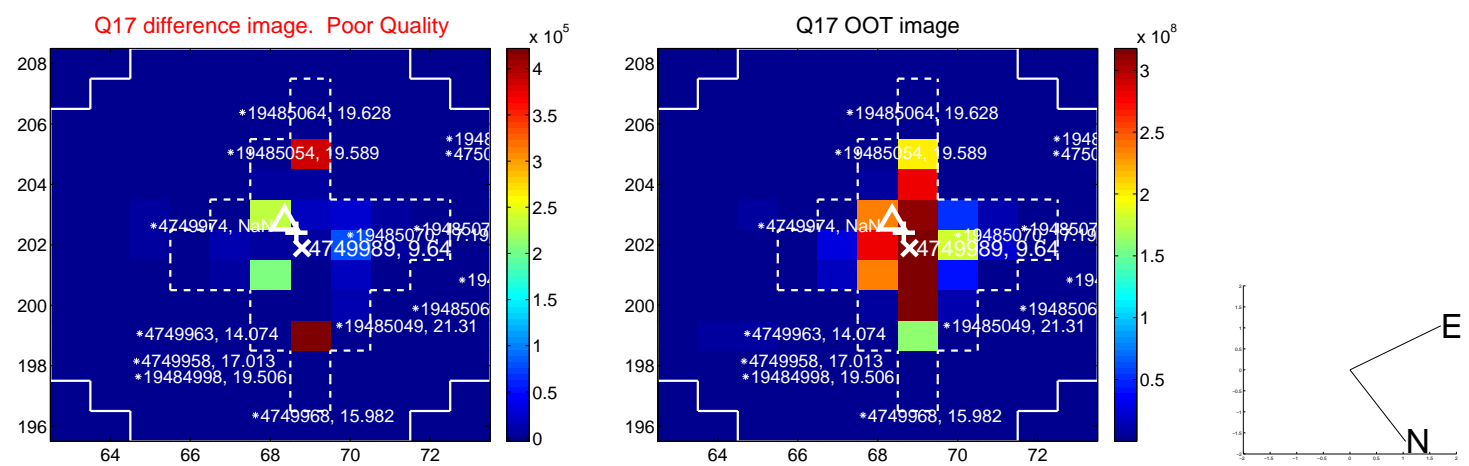
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



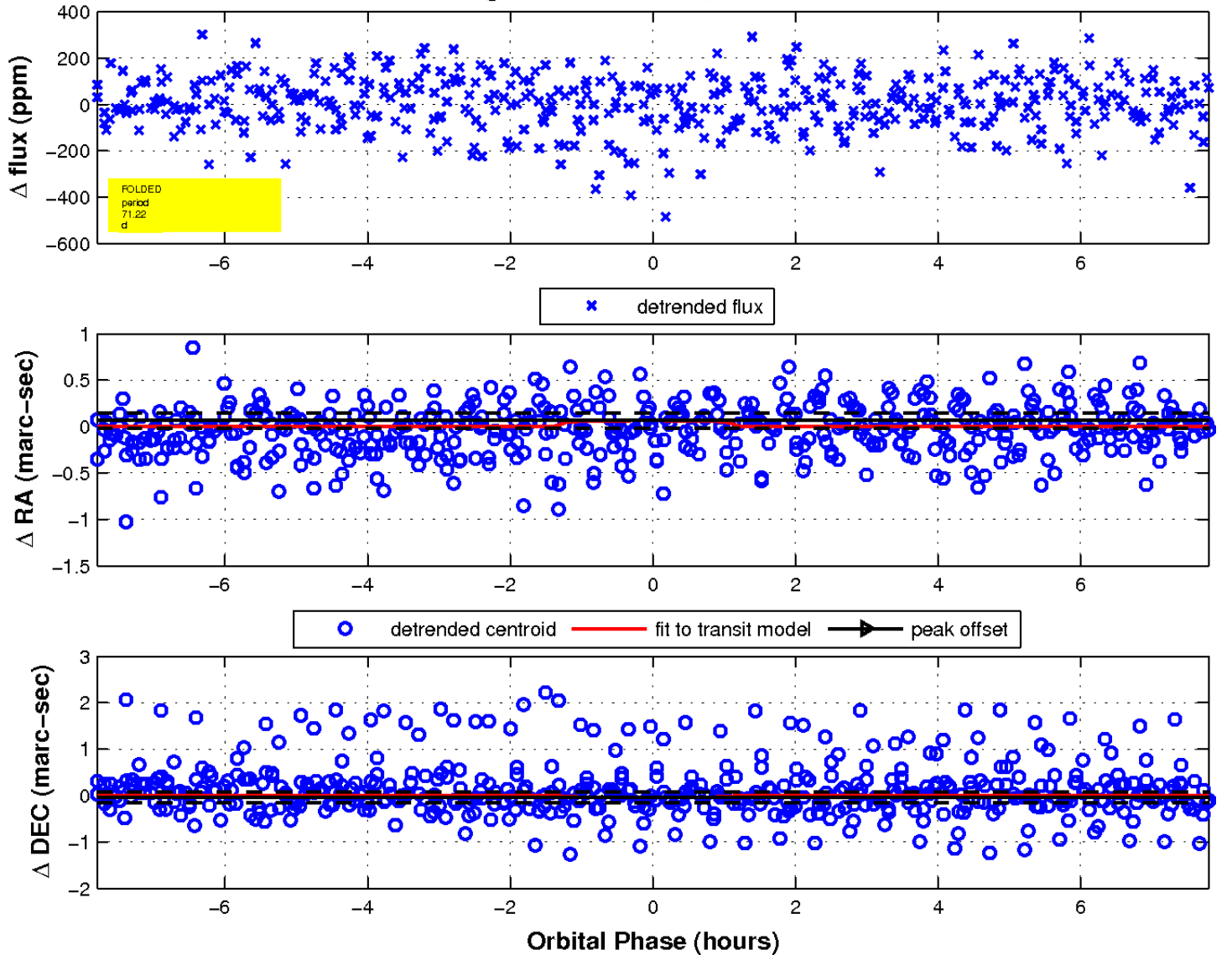
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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UKIRT Image

