

KIC 004936644

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})
004936644-01	OBS	No	1.399320	131.886176	32.5	10.505	7.6	5.3	1.00	6198	0.57	2125.47
004936644-02	OBS	No	42.006619	150.409880	909.5	1.438	15.8	13.8	1.00	6198	3.21	22.78
004936644-03	OBS	No	26.966232	144.032223	768.6	1.564	10.9	11.4	1.00	6198	3.20	41.14
004936644-04	OBS	No	15.055275	132.003318	896.7	1.032	11.9	13.5	1.00	6198	3.04	89.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004936644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
004936644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
004936644-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
004936644-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

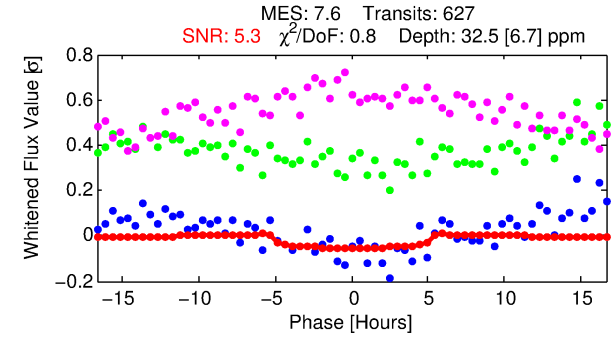
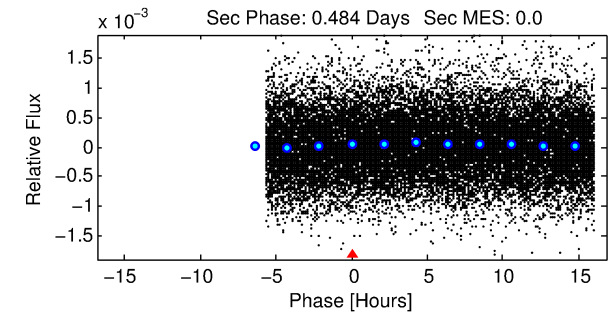
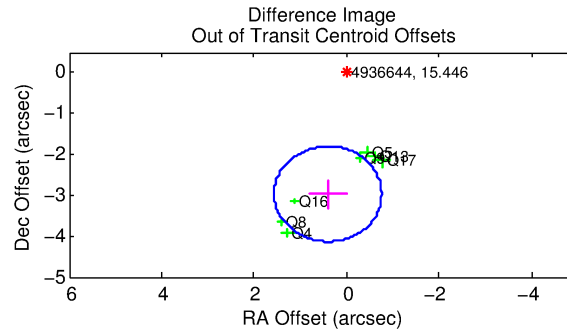
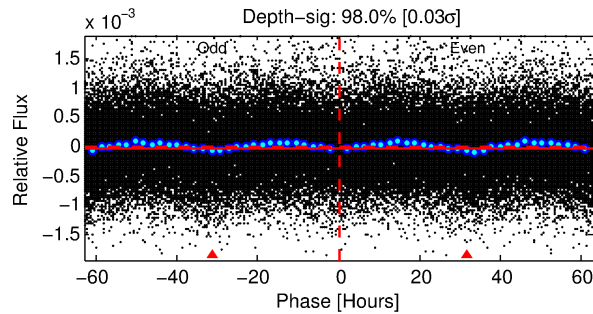
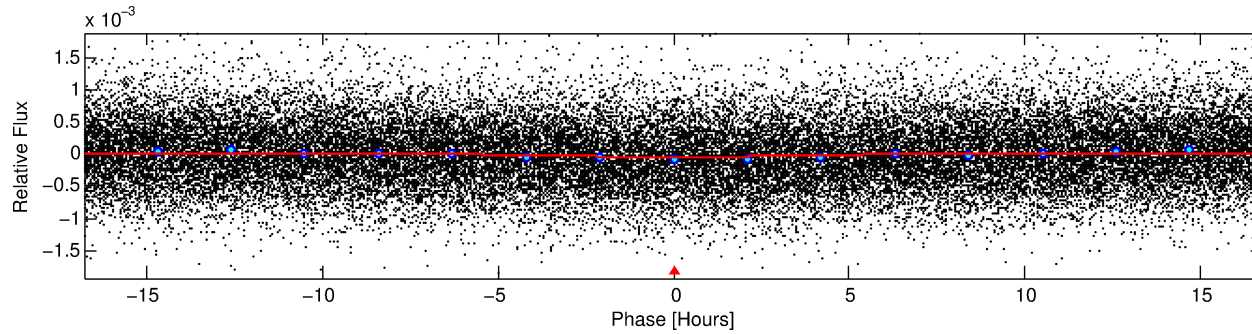
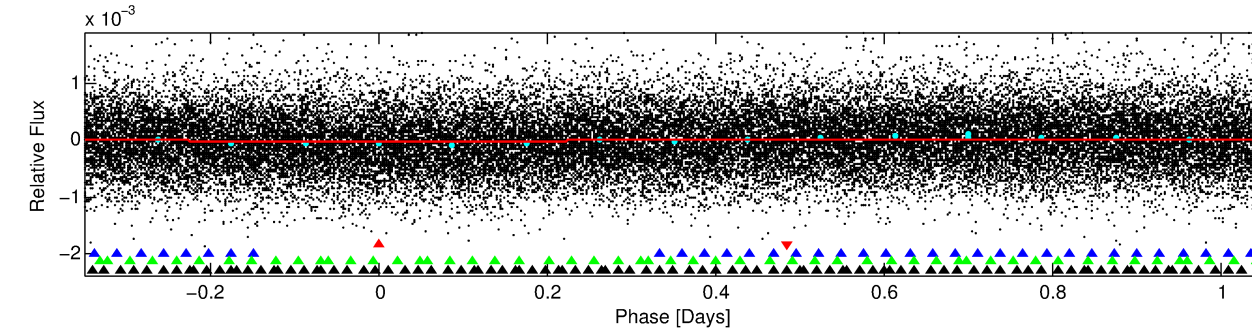
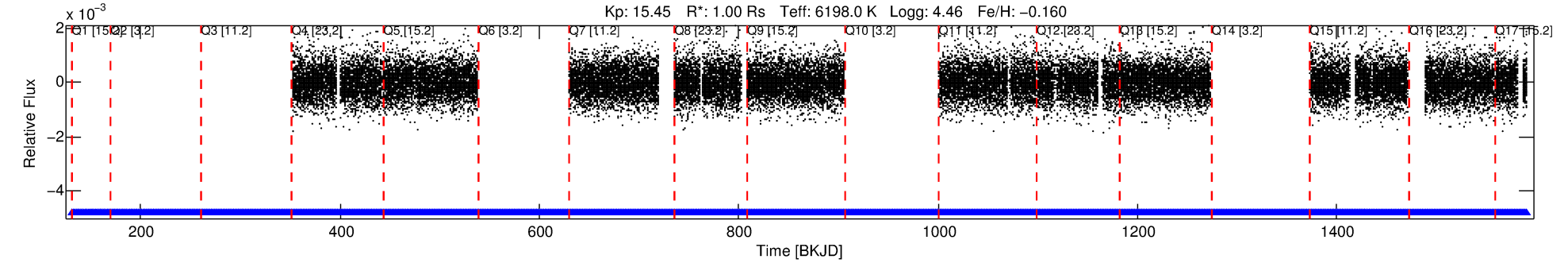
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004936644-01

No Significant Match Found

DV One-Page Summary

KIC: 4936644 Candidate: 1 of 4 Period: 1.399 d



DV Fit Results:

Period = 1.39932 [0.00005] d
Epoch = 131.8862 [0.0167] BKJD
Rp/R* = 0.0052 [0.0135]
a/R* = 1.21 [4.92]
b = 0.01 [896.59]
Seff = 2125.47 [894.95]
Teq = 1731 [182] K
Rp = 0.57 [1.50] Re
a = 0.0251 [0.0069] AU
Ag = N/A
Teffp = N/A

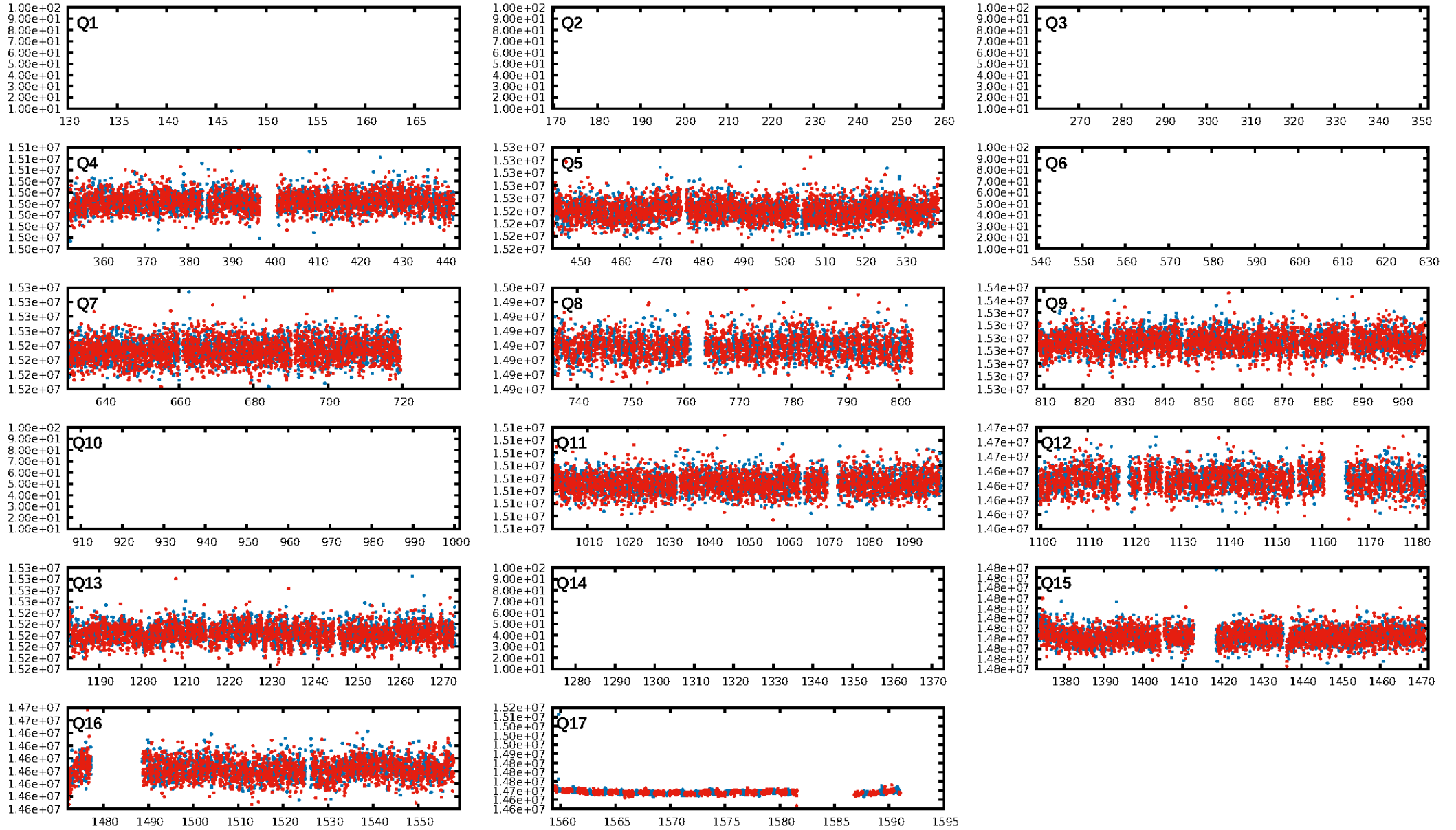
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [31.05σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.30e-63
RollingBand-fgt: 1.00 [607/607]
GhostDiagnostic-chr: -1.975
Centroid-sig: 0.0%
Centroid-so: 7.794 arcsec [4.68σ]
OotOffset-rm: 2.996 arcsec [7.72σ]
KicOffset-rm: 6.421 arcsec [32.05σ]
OotOffset-st: 0/0/3/4 [7]
KicOffset-st: 0/0/3/4 [7]
DiffImageQuality-fgm: 1.00 [7/7]
DiffImageOverlap-fno: 1.00 [11/11]

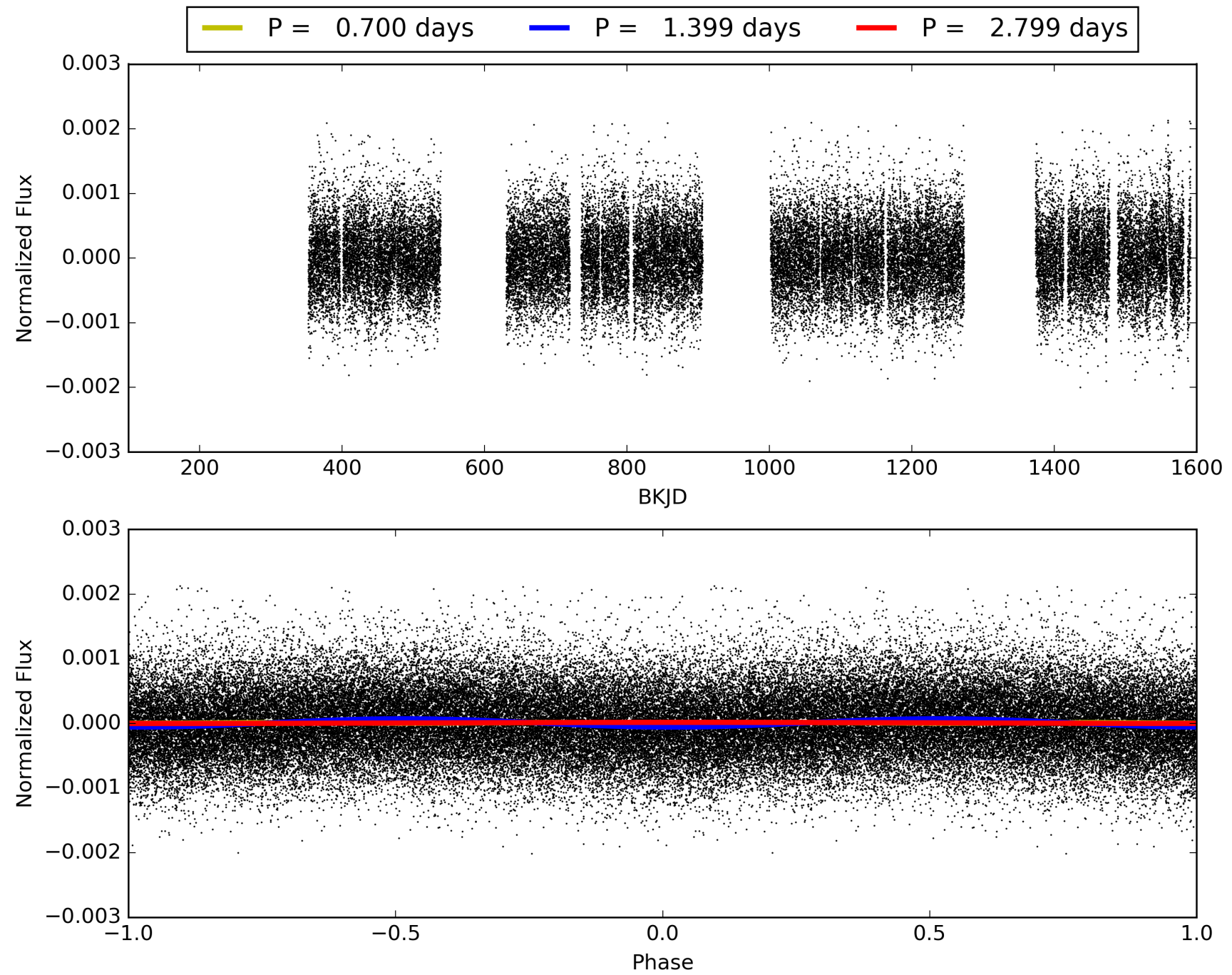
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:23:12 Z

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

TCE 004936644-01, PDC Light Curves

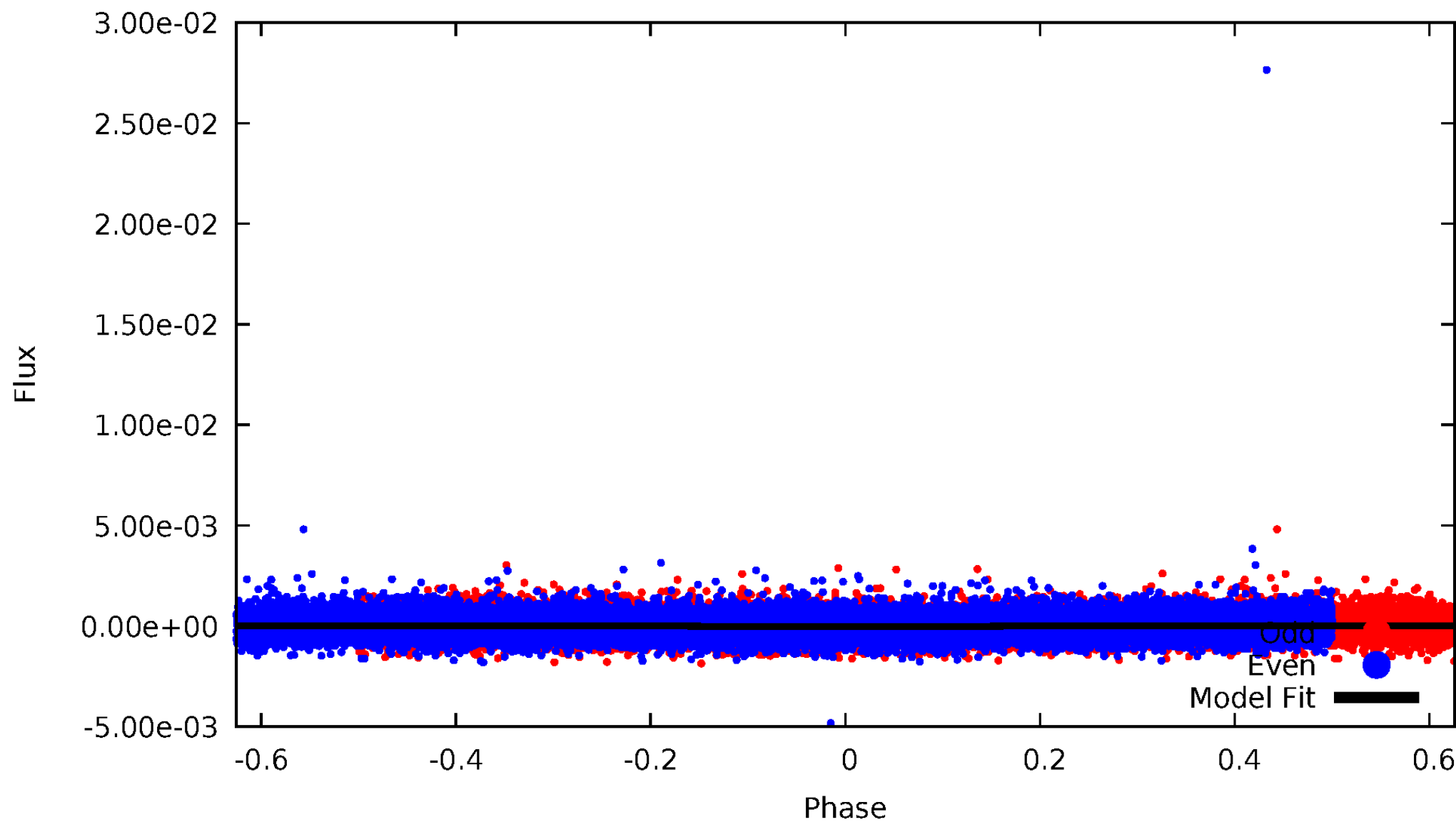


TCE 004936644-01



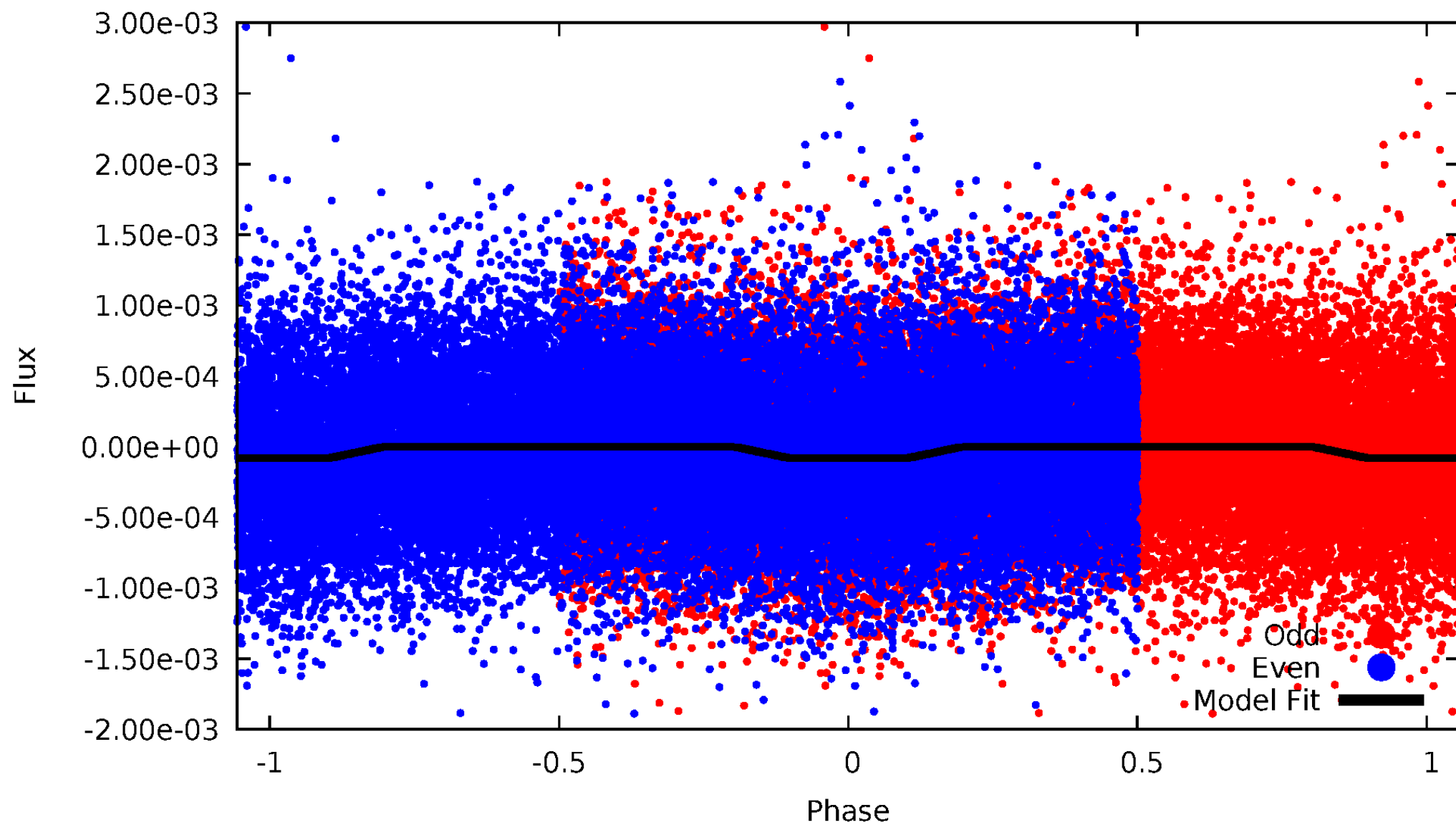
DV Odd/Even

TCE 004936644-01

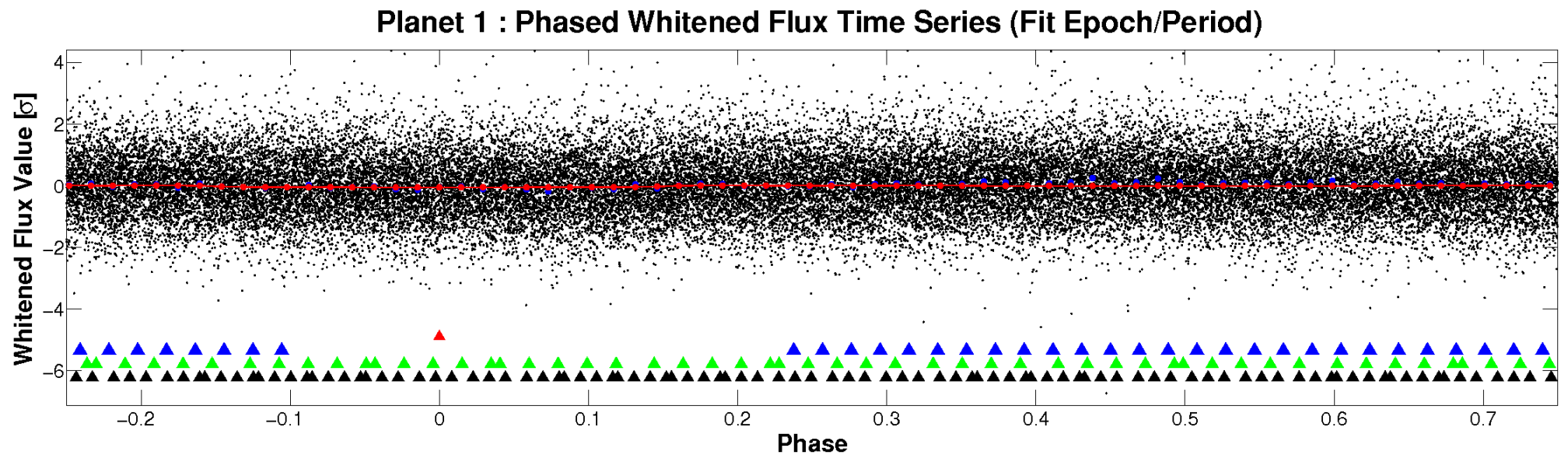
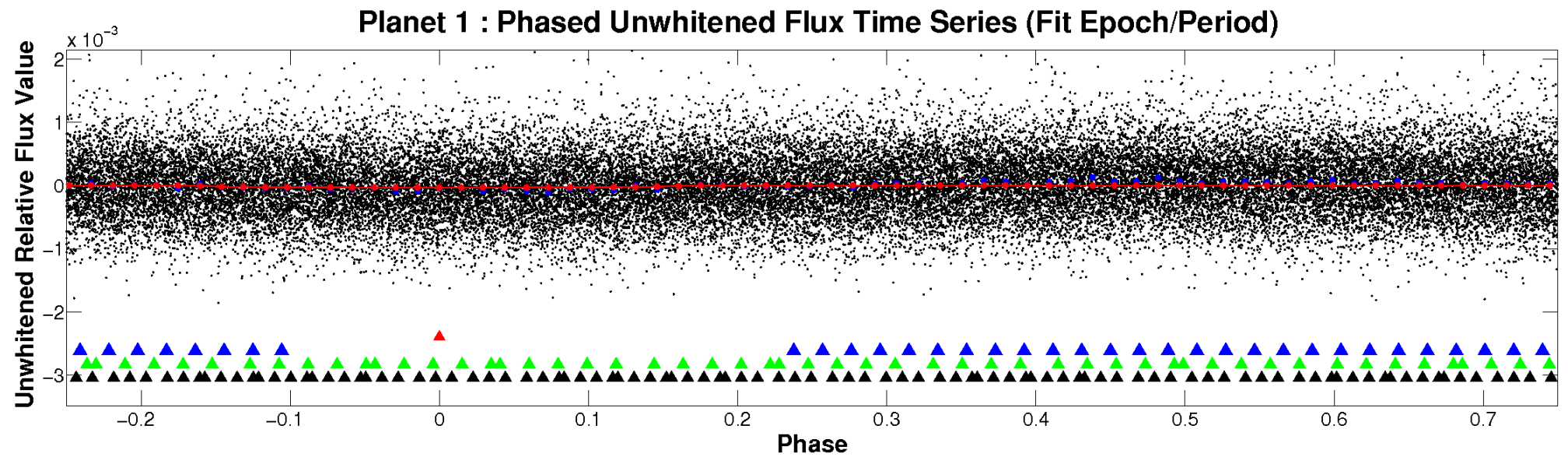


ALT Odd/Even

TCE 004936644-01

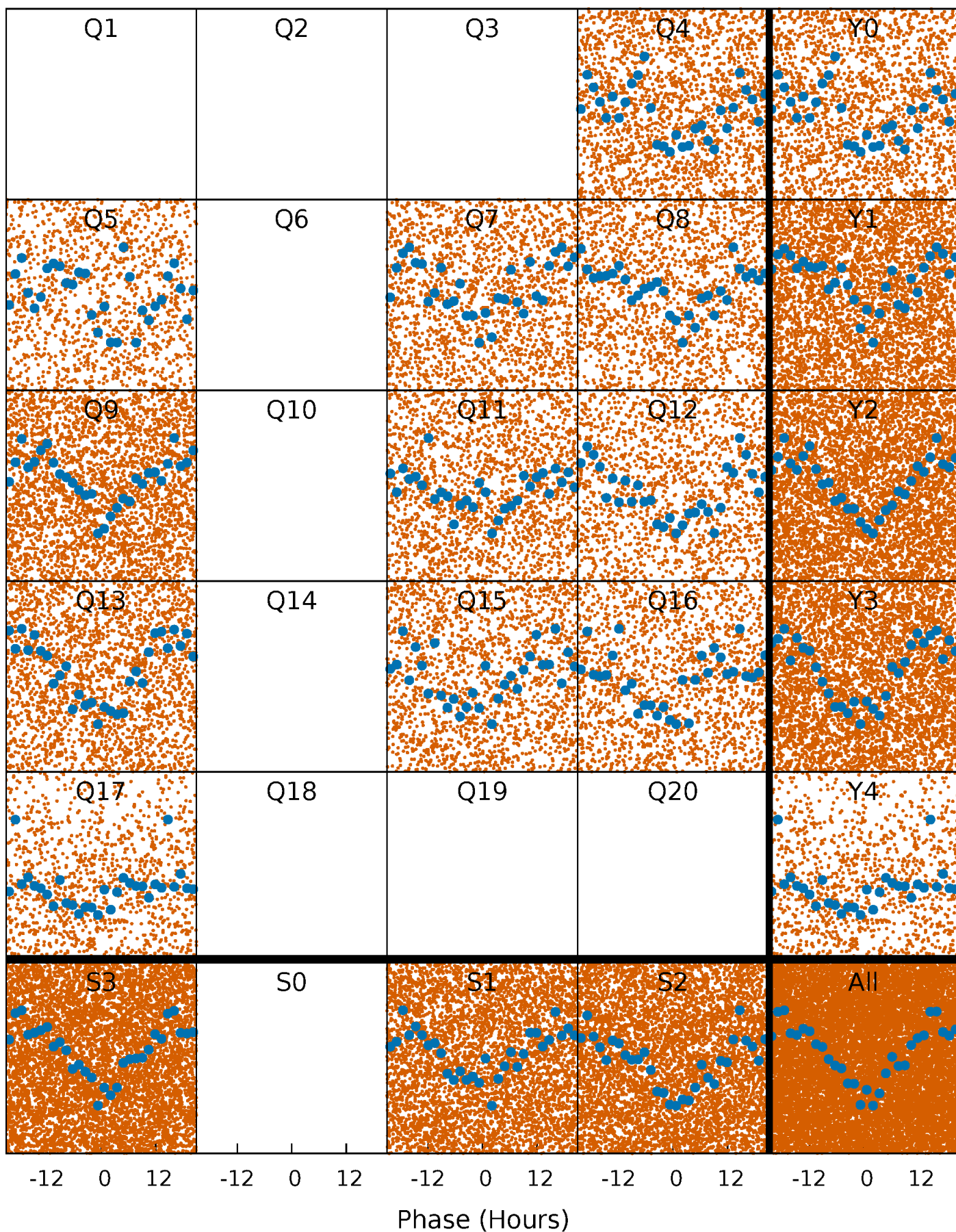


Non-Whitened Vs. Whitened Light Curve



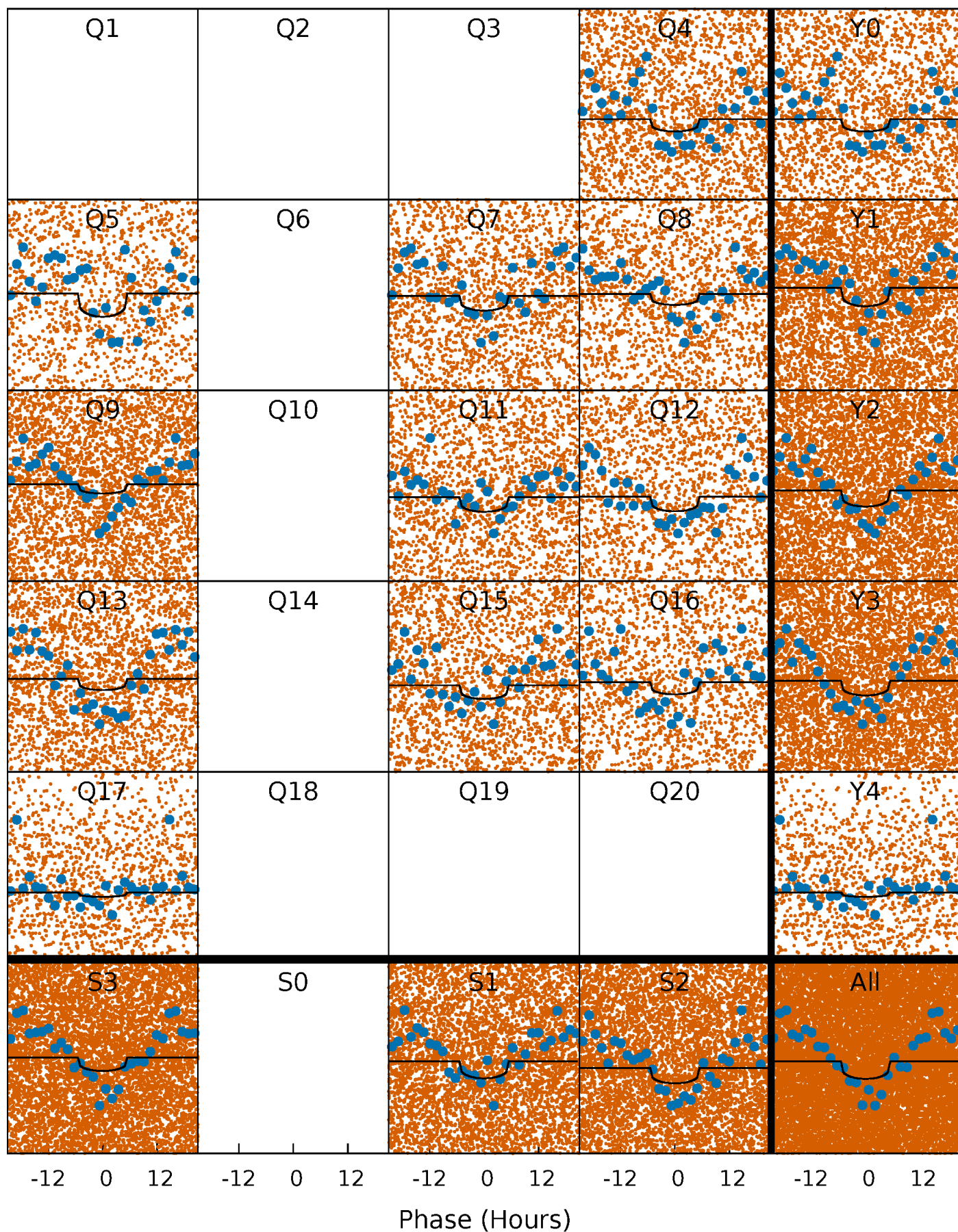
PDC Quarter-Phased Transit Curves

TCE 004936644-01 P= 1.399320 Days $T_0=131.886176$ (BKJD)



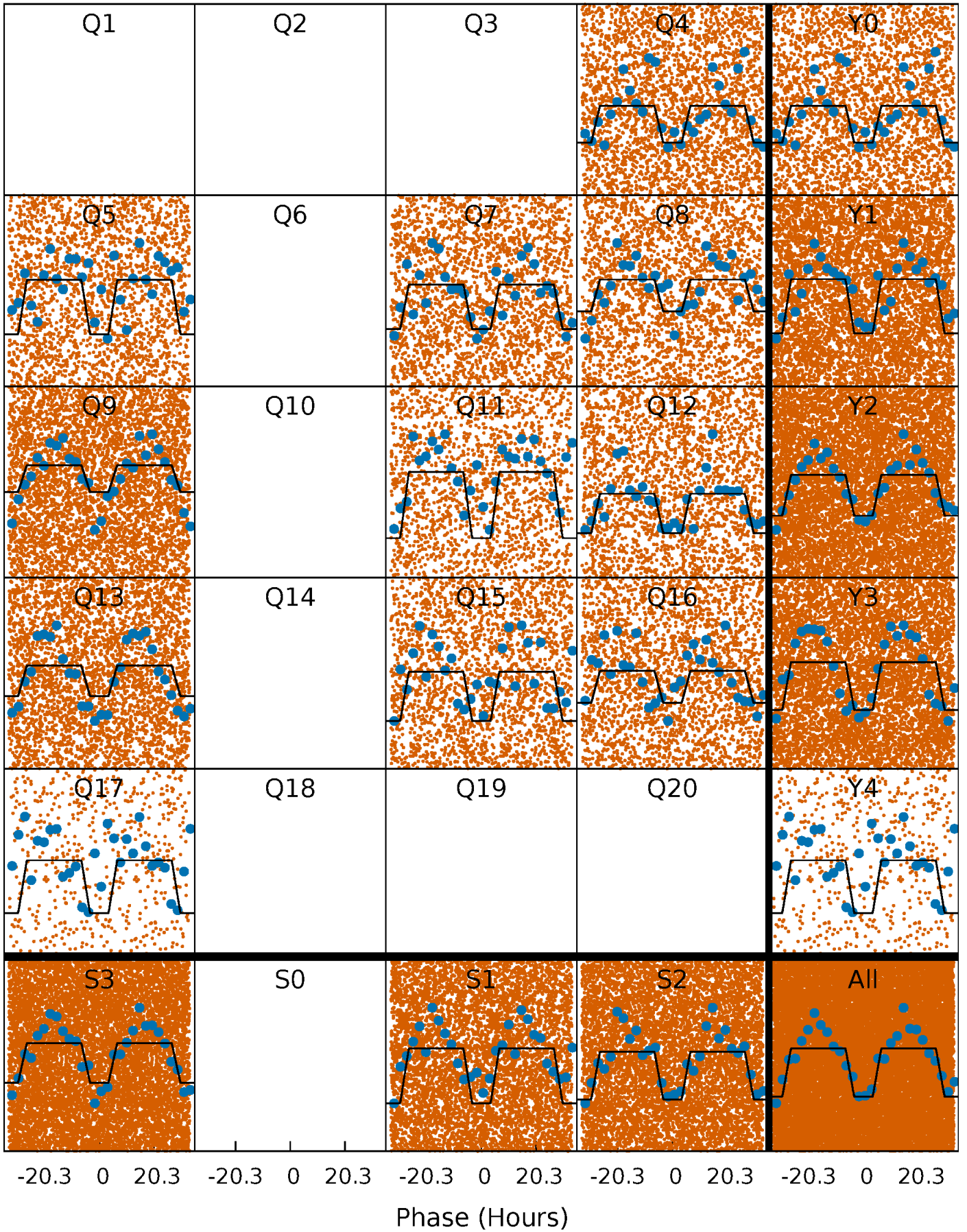
DV Quarter-Phased Transit Curves

TCE 004936644-01 P= 1.399320 Days $T_0=131.886176$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

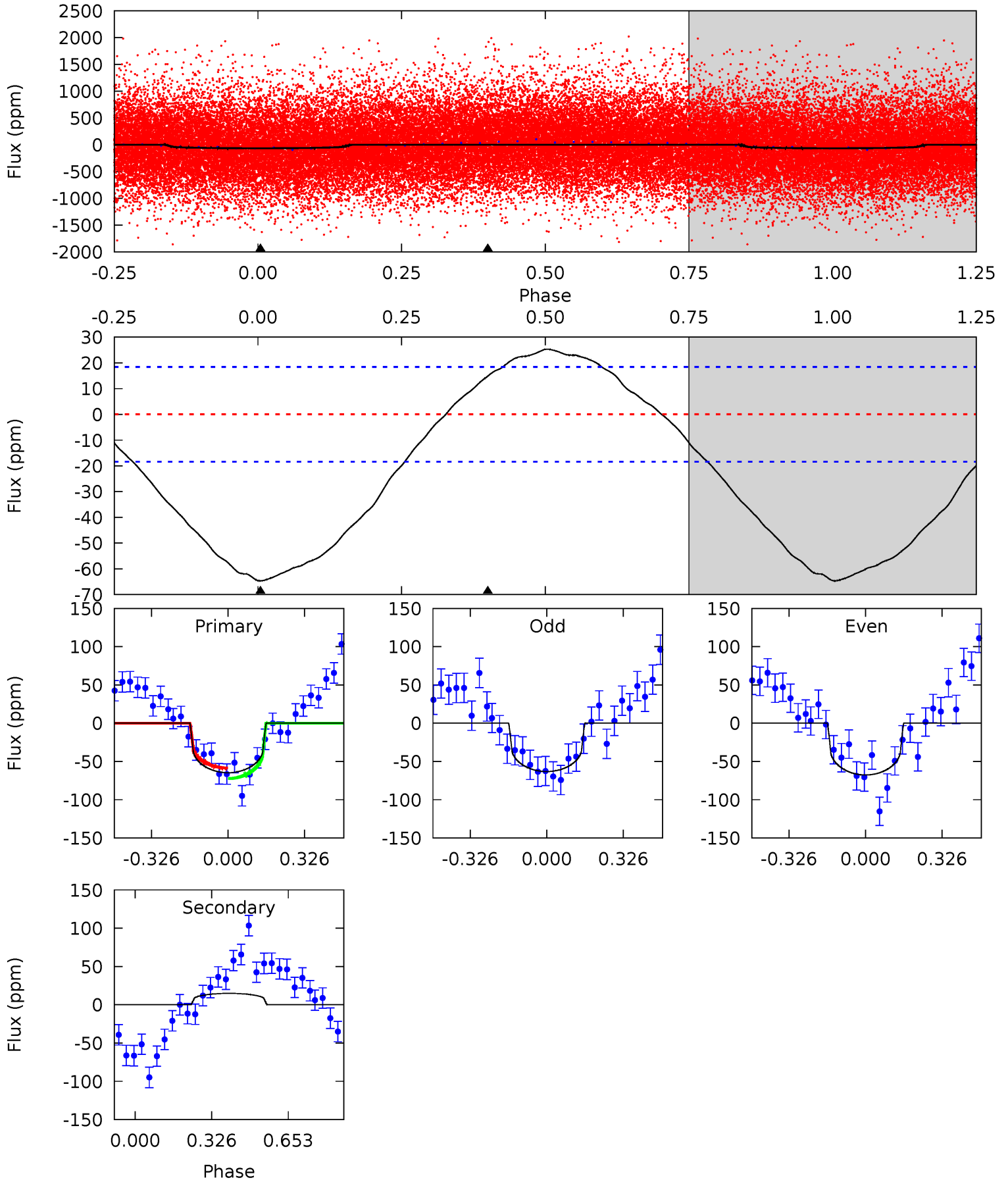
TCE 004936644-01 P= 1.399401 Days $T_0=131.870895$ (BKJD)



DV Model-Shift Uniqueness Test

004936644-01, P = 1.399320 Days, E = 131.886176 Days

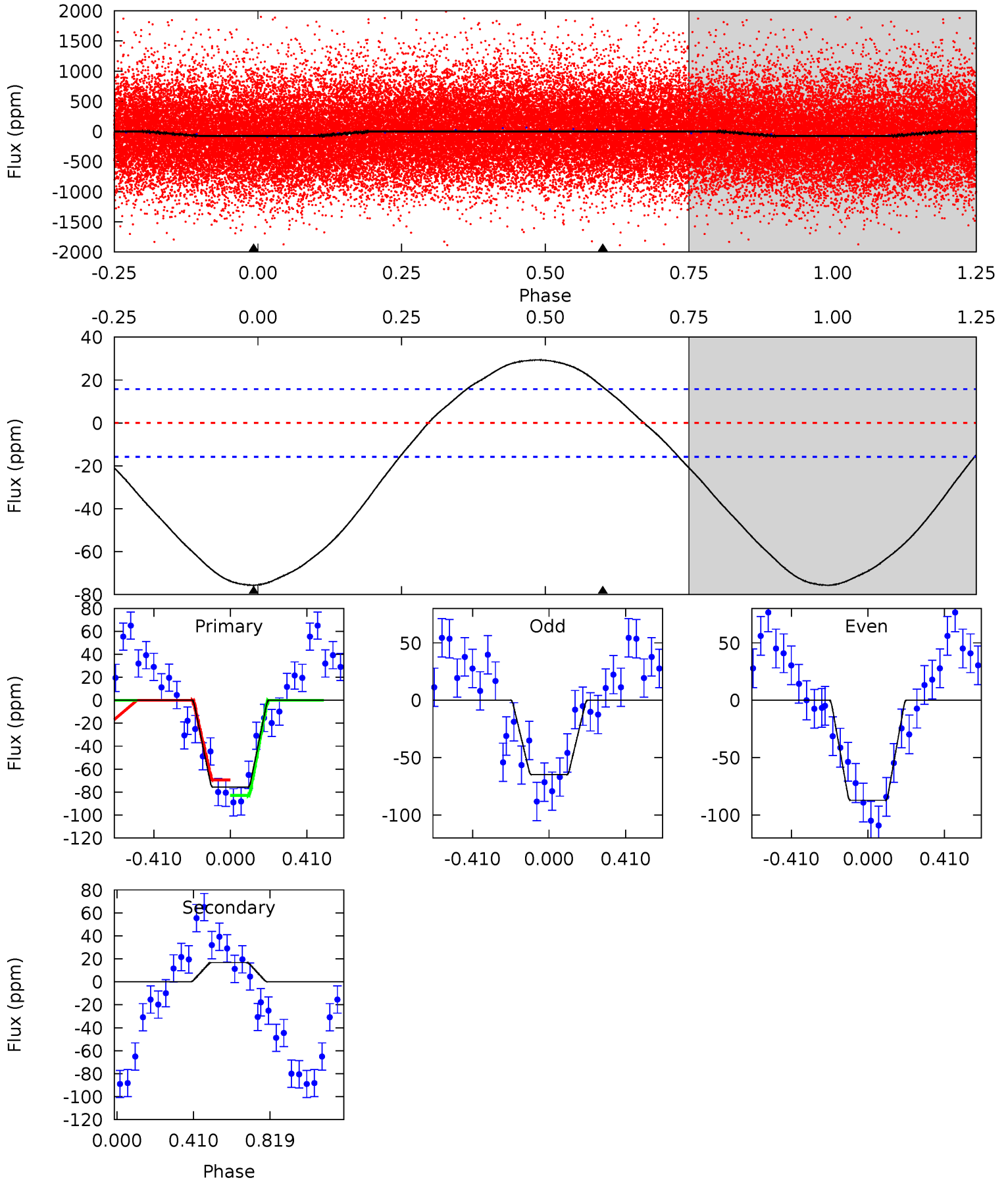
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	-3.48	0	0	4.31	0.98	1.35	15.2	15.2	-3.48	-3.48	0.52	1.03	0.28	1.63



Alt Model-Shift Uniqueness Test

004936644-01, P = 1.399401 Days, E = 131.870895 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.4	-4.53	0	0	4.26	0.82	2.18	20.4	20.4	-4.53	-4.53	3.00	1.10	0.28	1.79



Stellar Parameters For KIC 004936644

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6198^{+197}_{-240}	$4.464^{+0.056}_{-0.210}$	$-0.160^{+0.250}_{-0.300}$	$1.005^{+0.335}_{-0.112}$	$1.072^{+0.144}_{-0.159}$	$1.489^{+0.430}_{-0.785}$
	+3%/-4%	+1%/-5%	+156%/-188%	+33%/-11%	+13%/-15%	+29%/-53%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004936644-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	15 ± 4	$1.26^{+1.30}_{-0.81}$	2471^{+187}_{-141}	-4030^{+717}_{-1980}	$-2.903^{+2.197}_{-20.490}$
Alt.	17 ± 4	$1.51^{+1.40}_{-0.99}$	2473^{+189}_{-145}	-3881^{+588}_{-1923}	$-2.420^{+1.812}_{-17.862}$

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

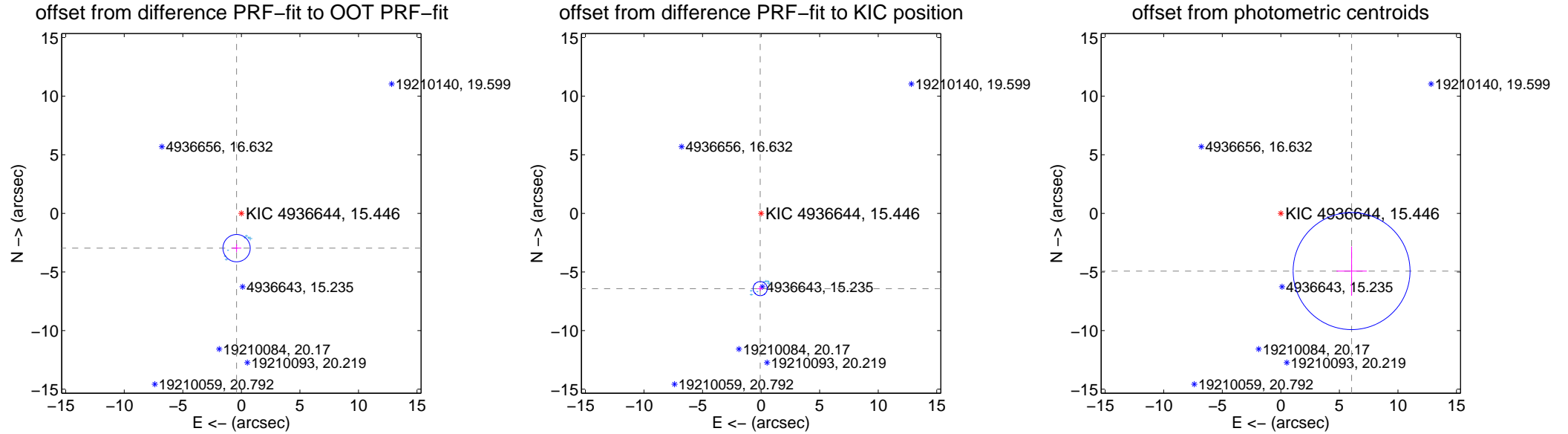
DV Centroid Data

Supplemental centroid analysis for 004936644-01. Kepler magnitude: 15.45. Transit SNR 5.28

There are 7 quarters with good PRF difference image offsets

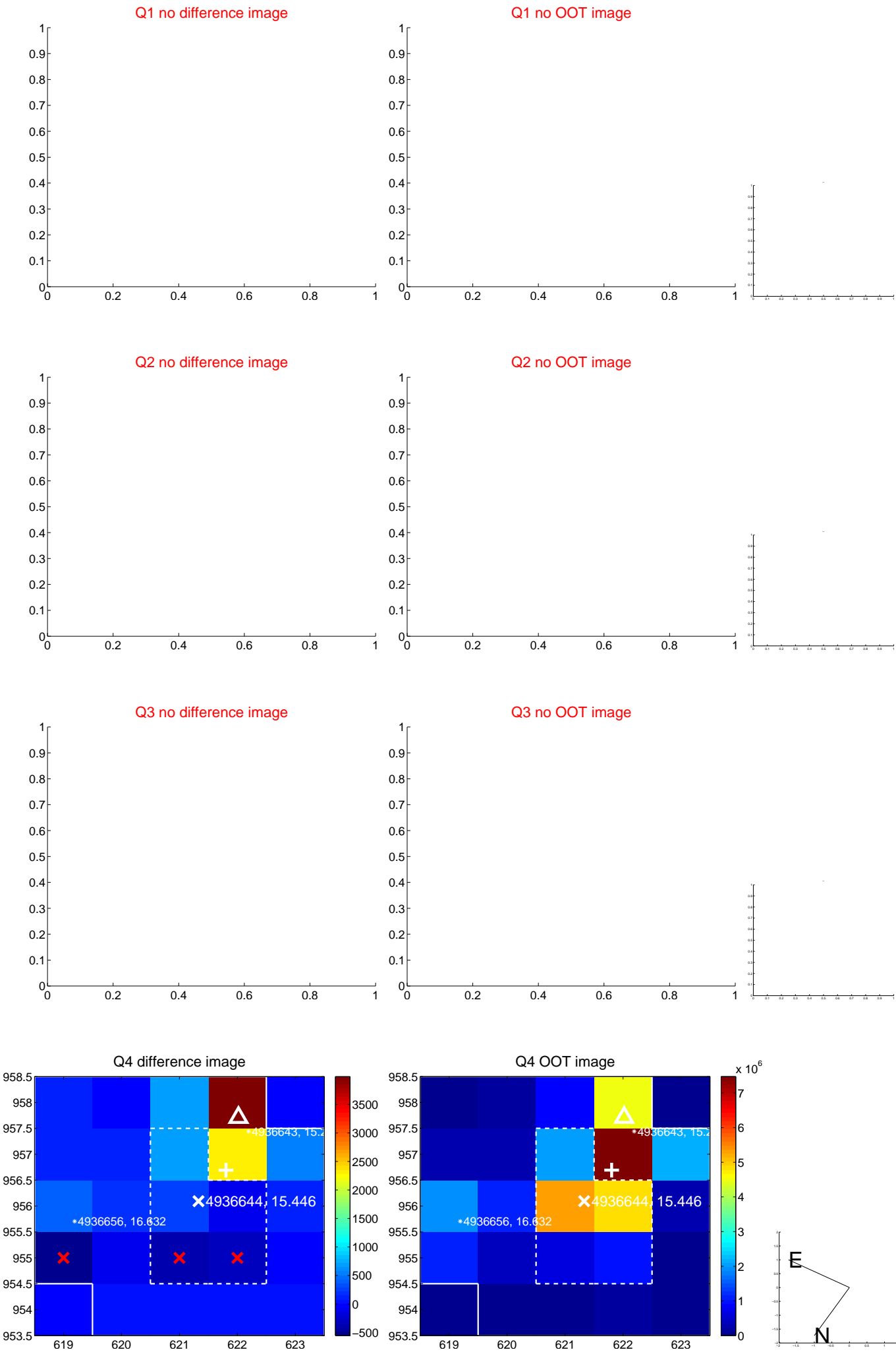
The OOT PRF centroid is offset from the target star catalog position by about 3.82 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.996 ± 0.388	7.72	0.409 ± 0.402	-2.968 ± 0.340
PRF-fit source offset from KIC position	6.421 ± 0.200	32.05	0.077 ± 0.239	-6.421 ± 0.198
photometric centroid source offset	7.79 ± 1.66	4.68	-6.04 ± 1.30	-4.92 ± 2.10

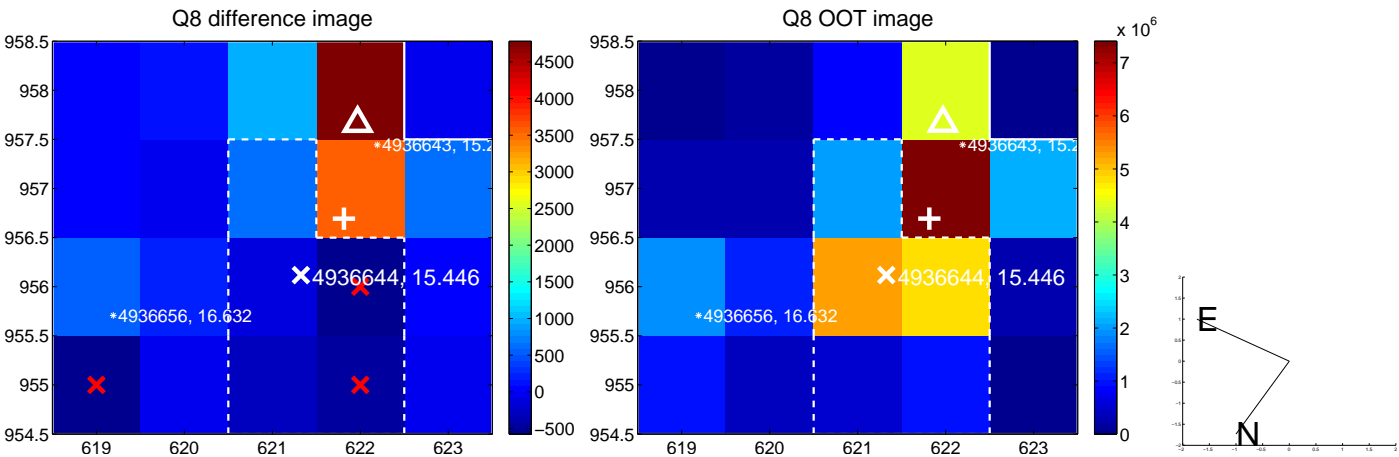
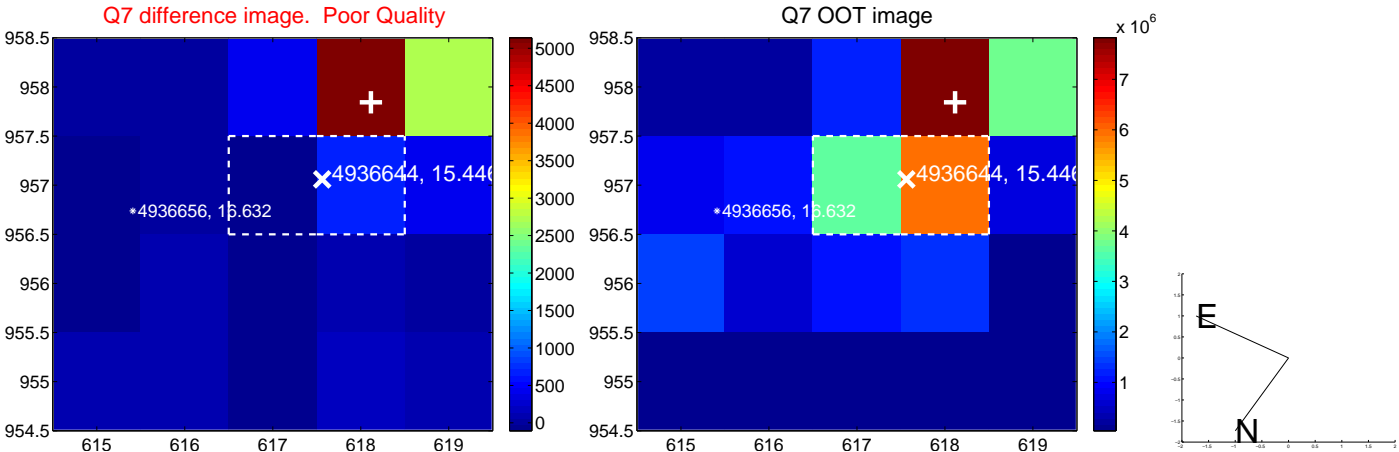
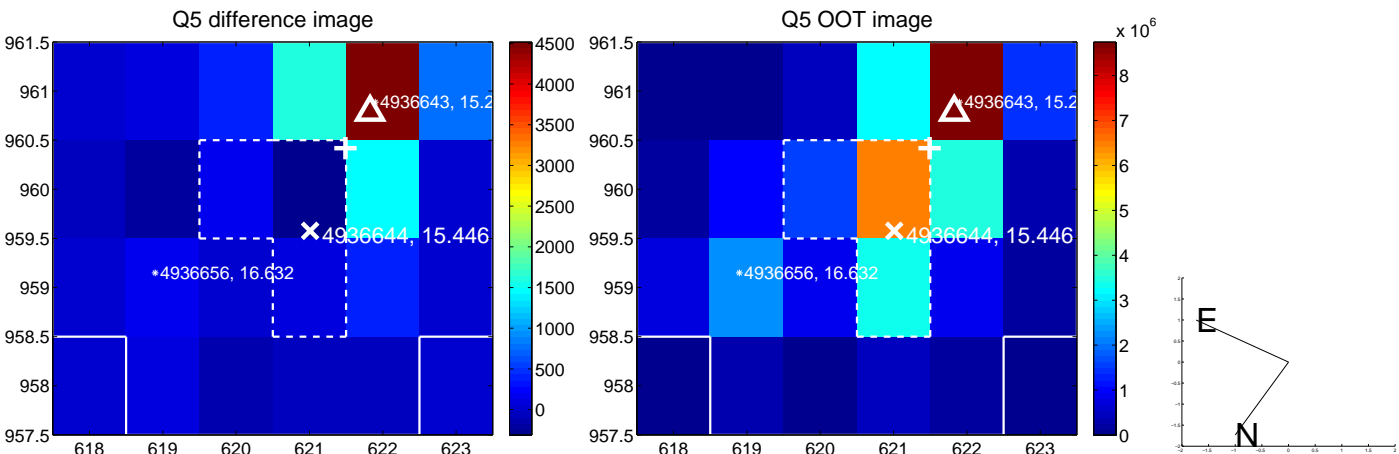


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

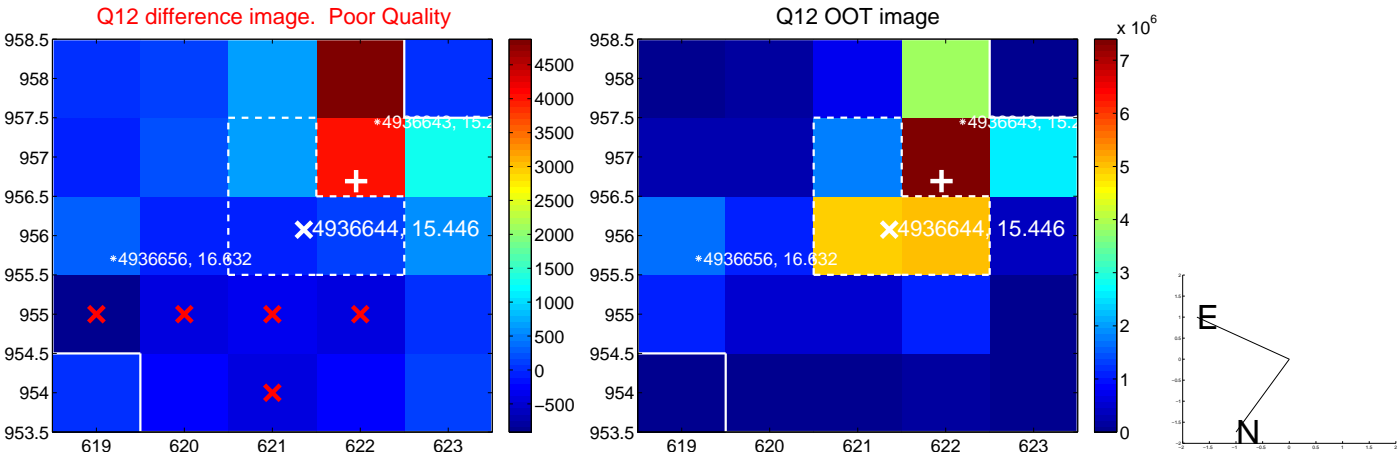
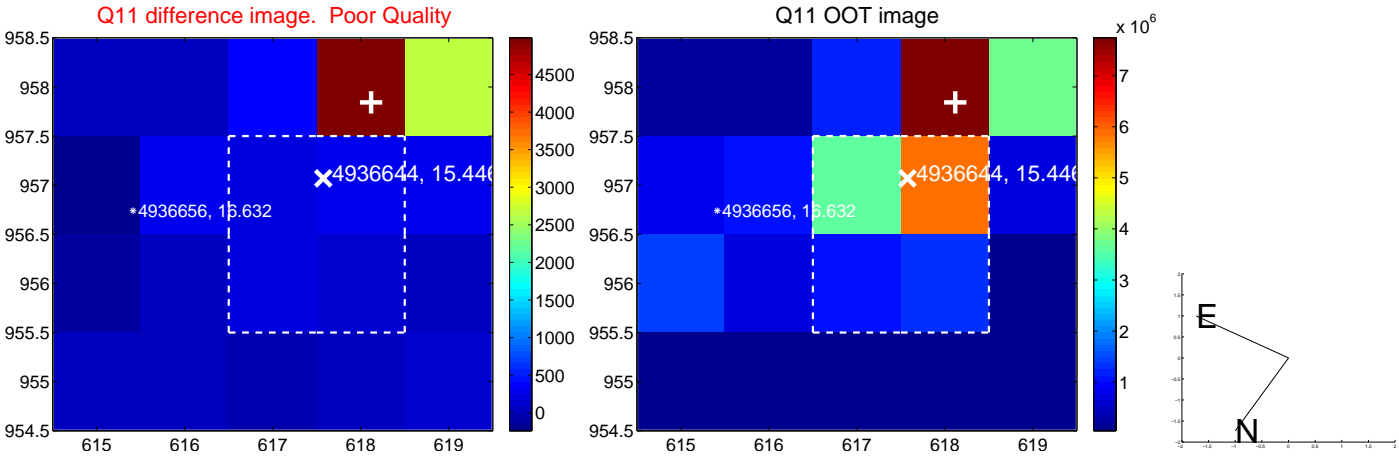
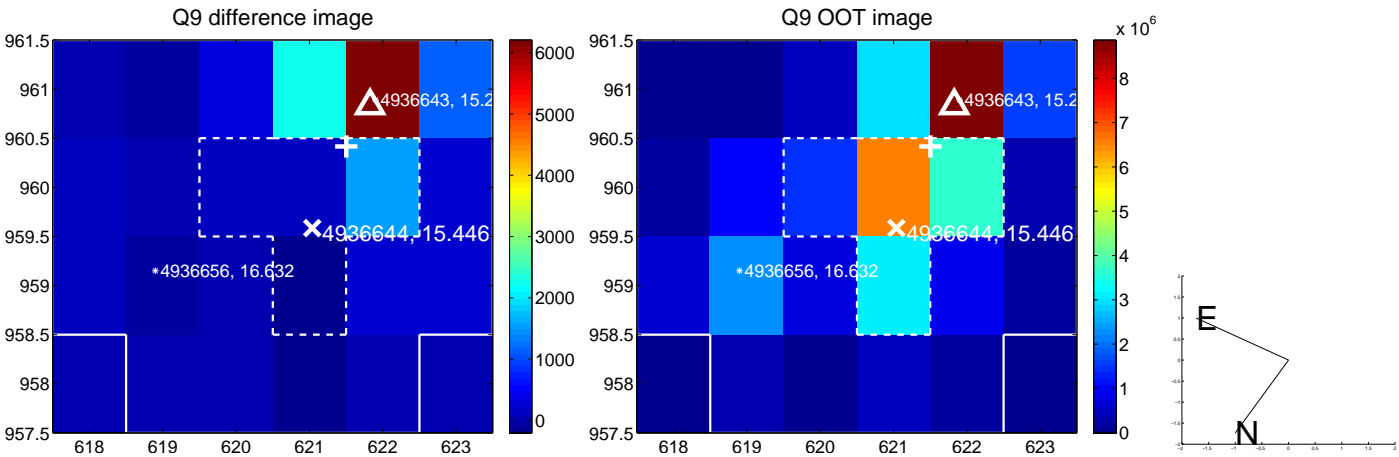
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



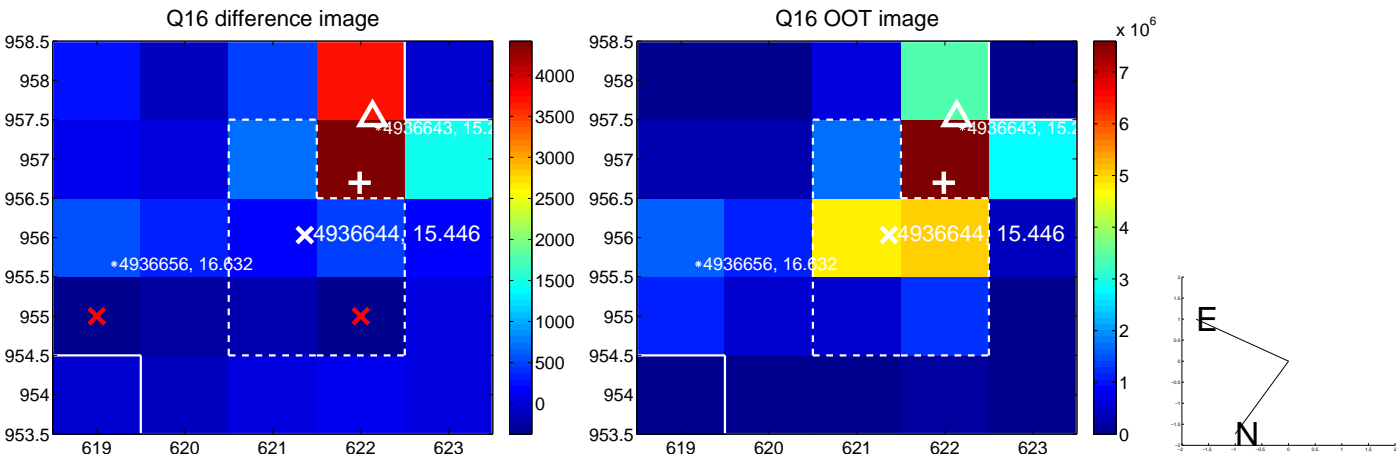
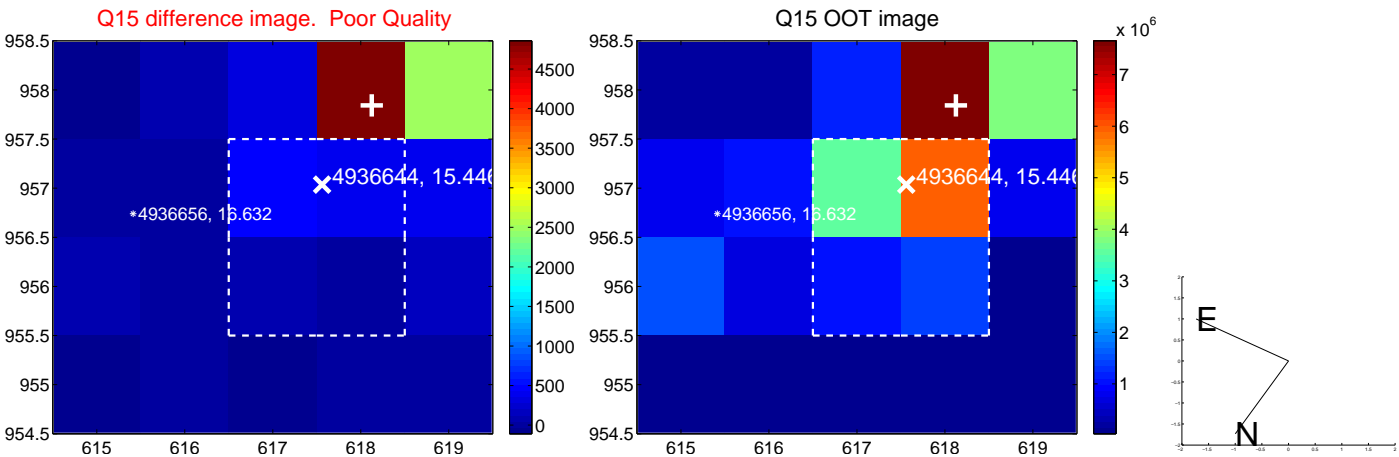
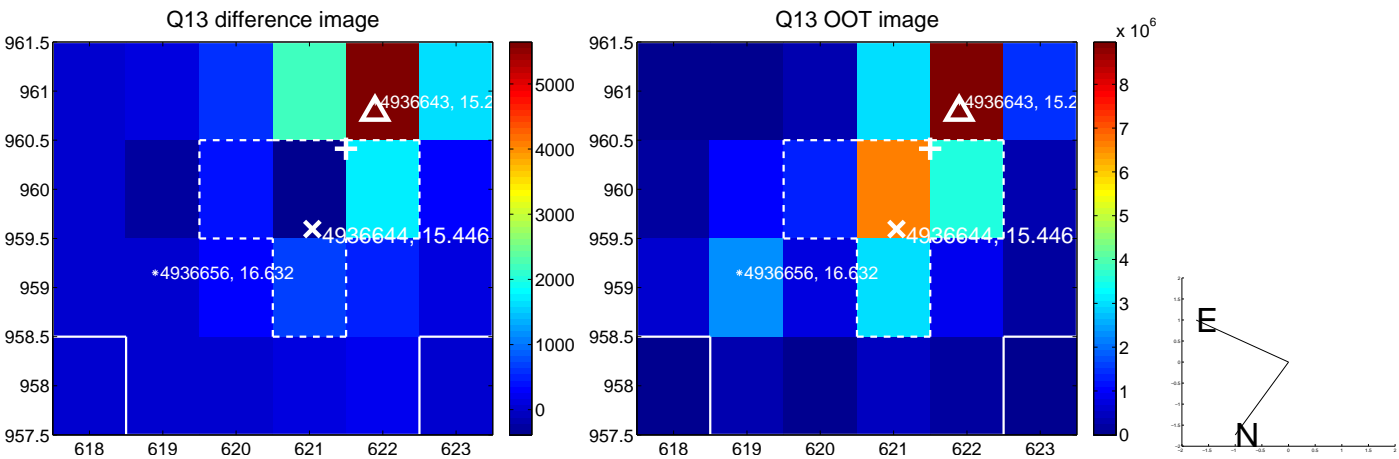
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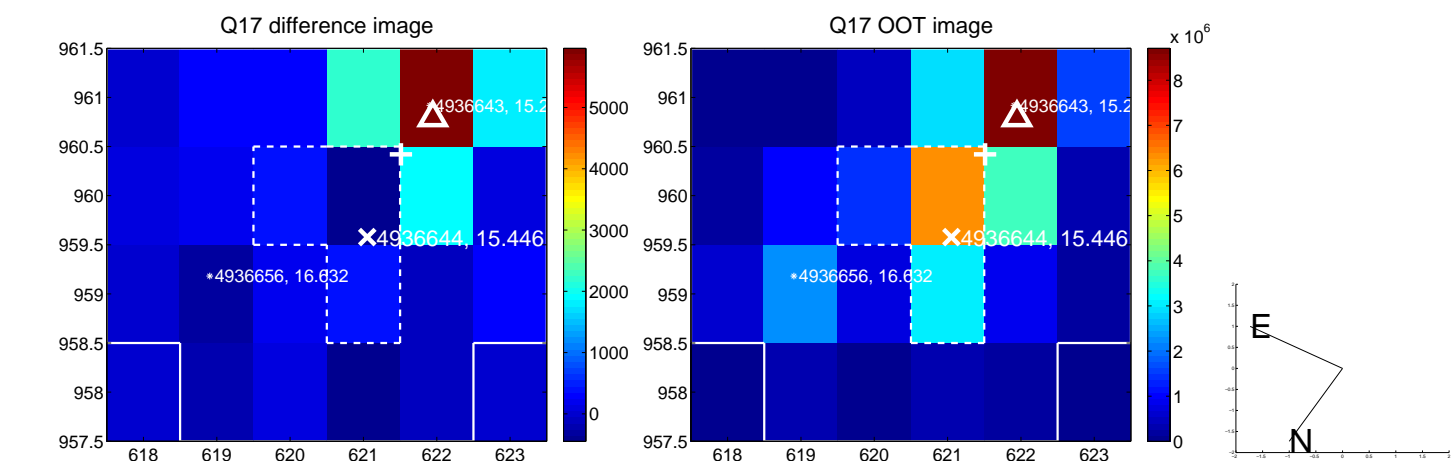
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



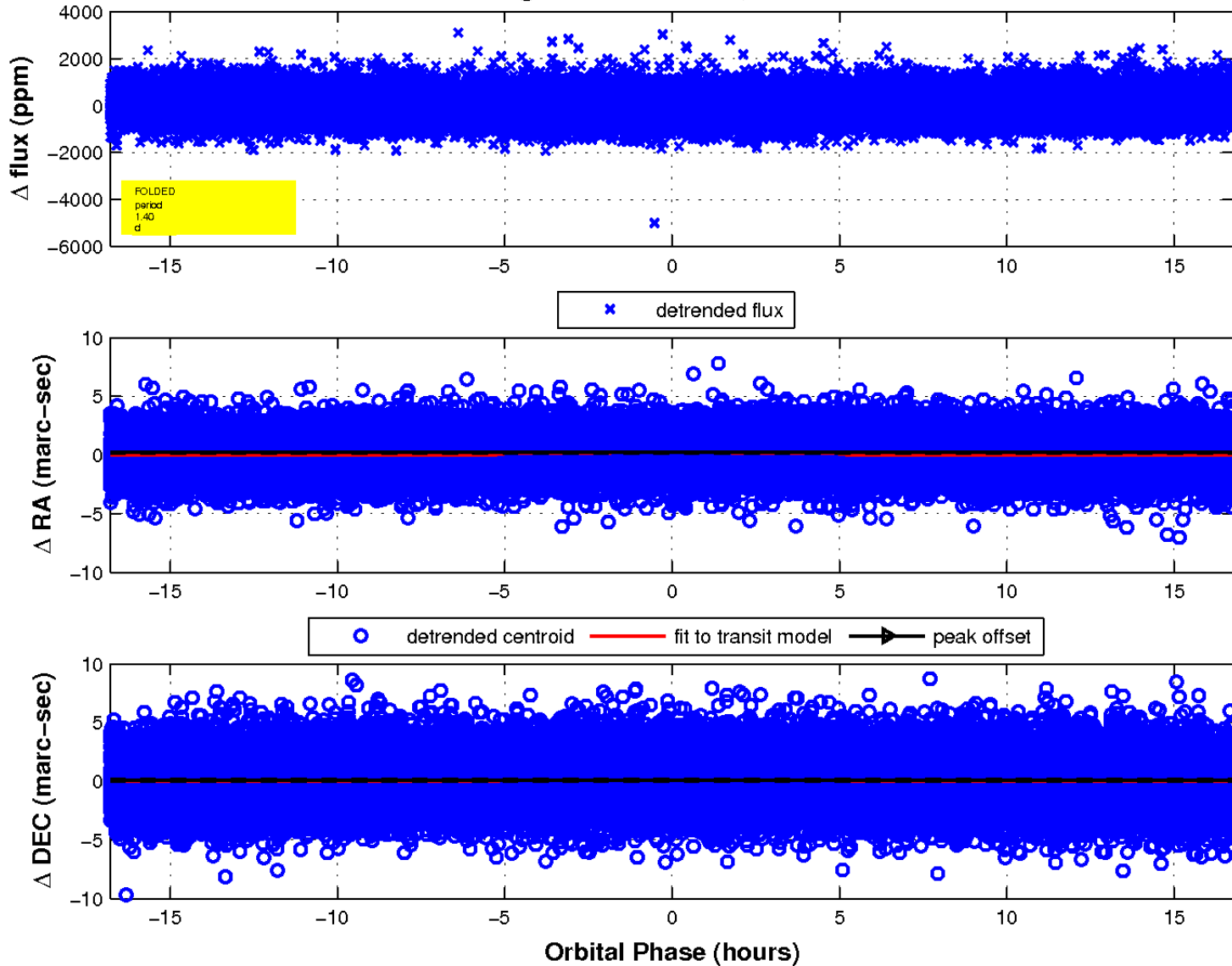
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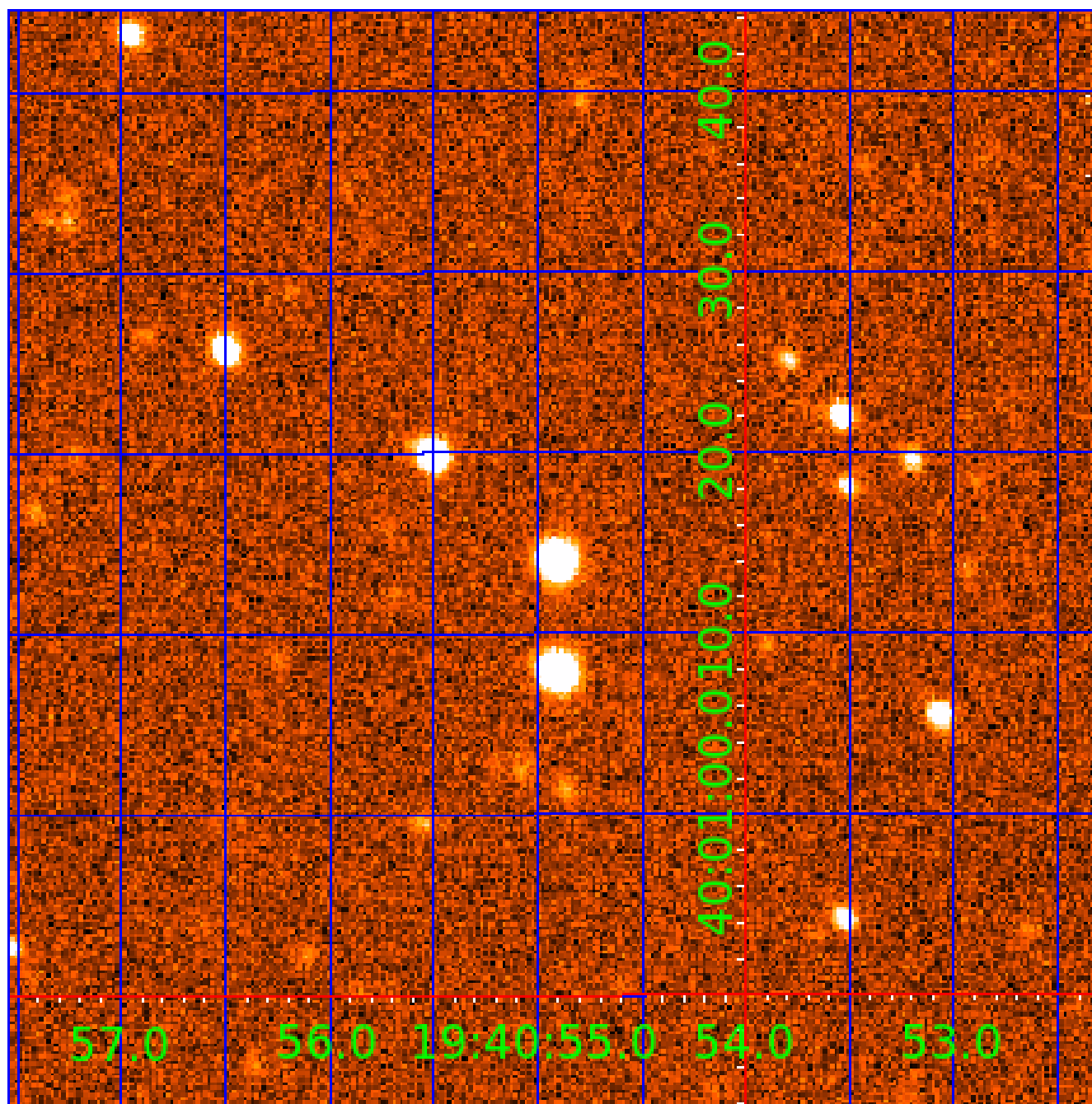


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination



KIC 004936644

Q1-17 DR25 TCE Parameters

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

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004936644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
004936644-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
004936644-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

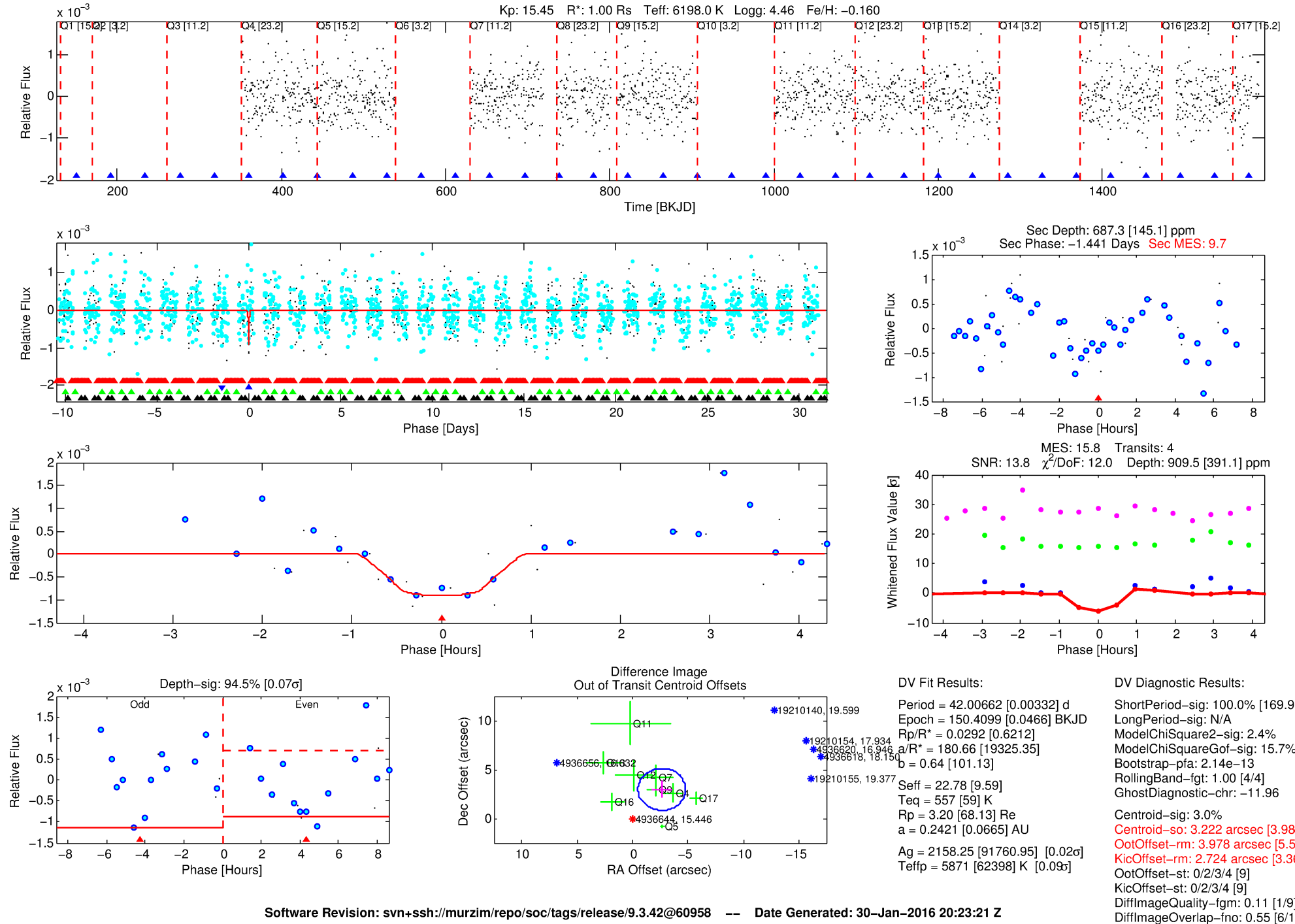
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004936644-02

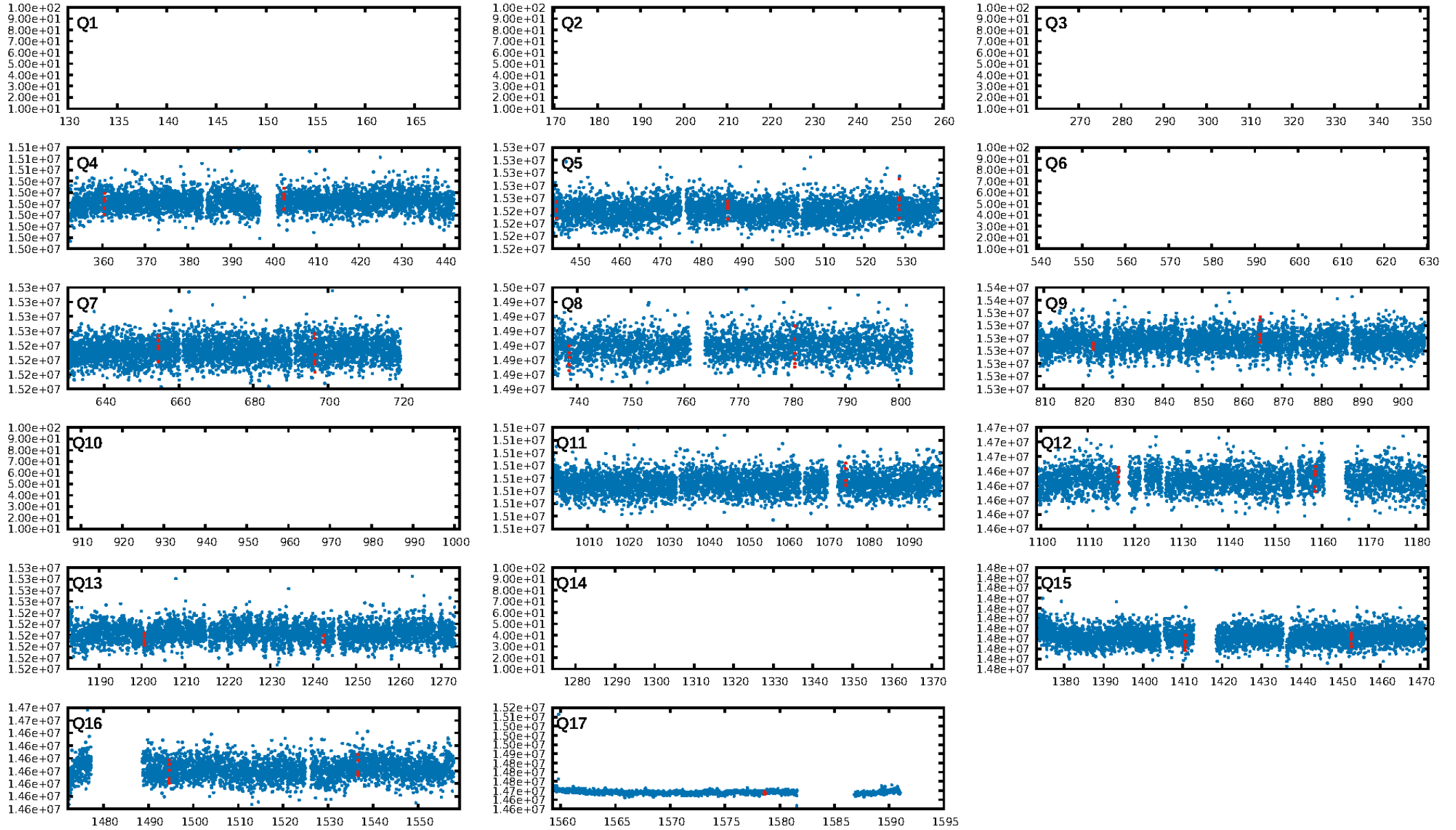
No Significant Match Found

DV One-Page Summary

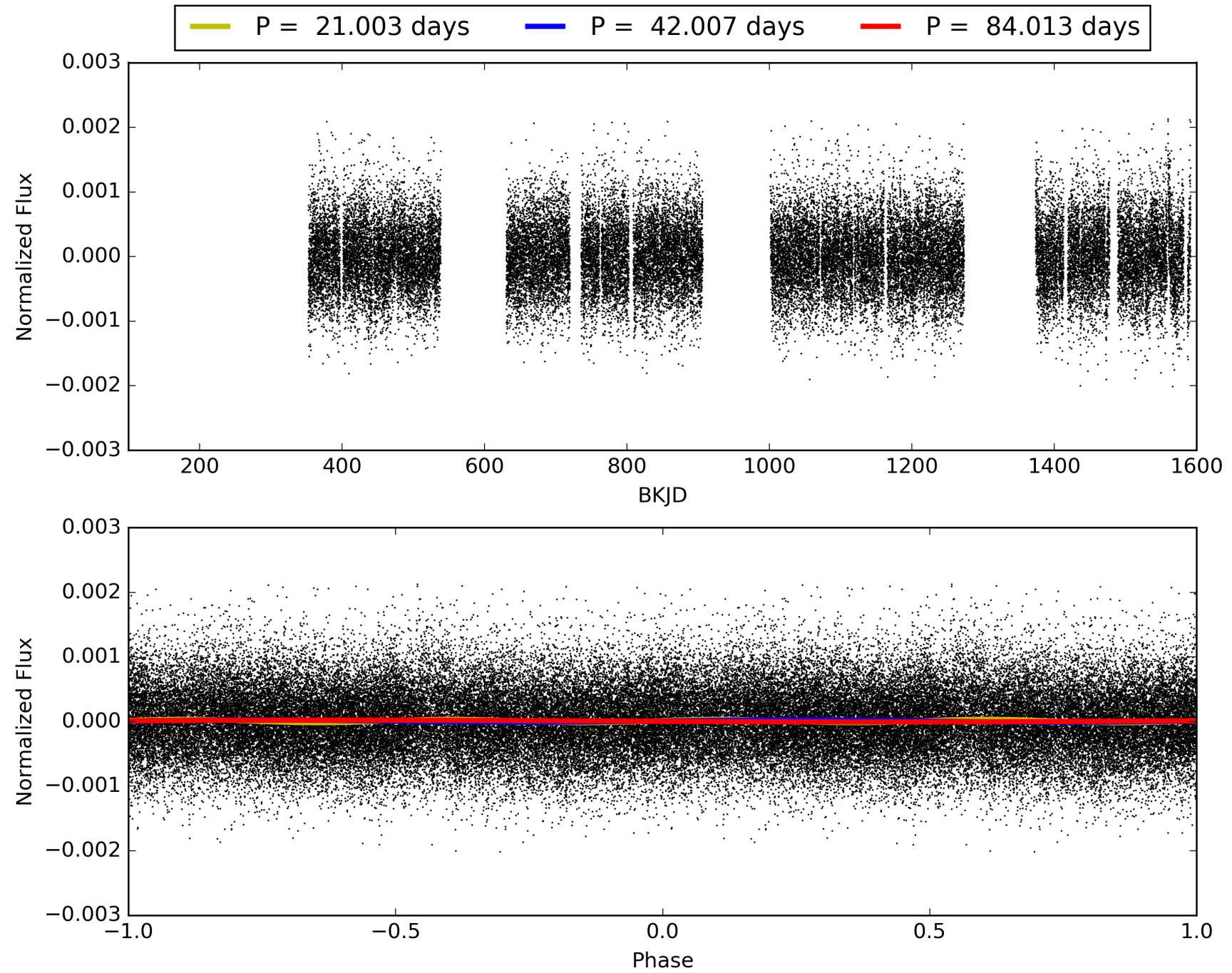
KIC: 4936644 Candidate: 2 of 4 Period: 42.007 d



TCE 004936644-02, PDC Light Curves

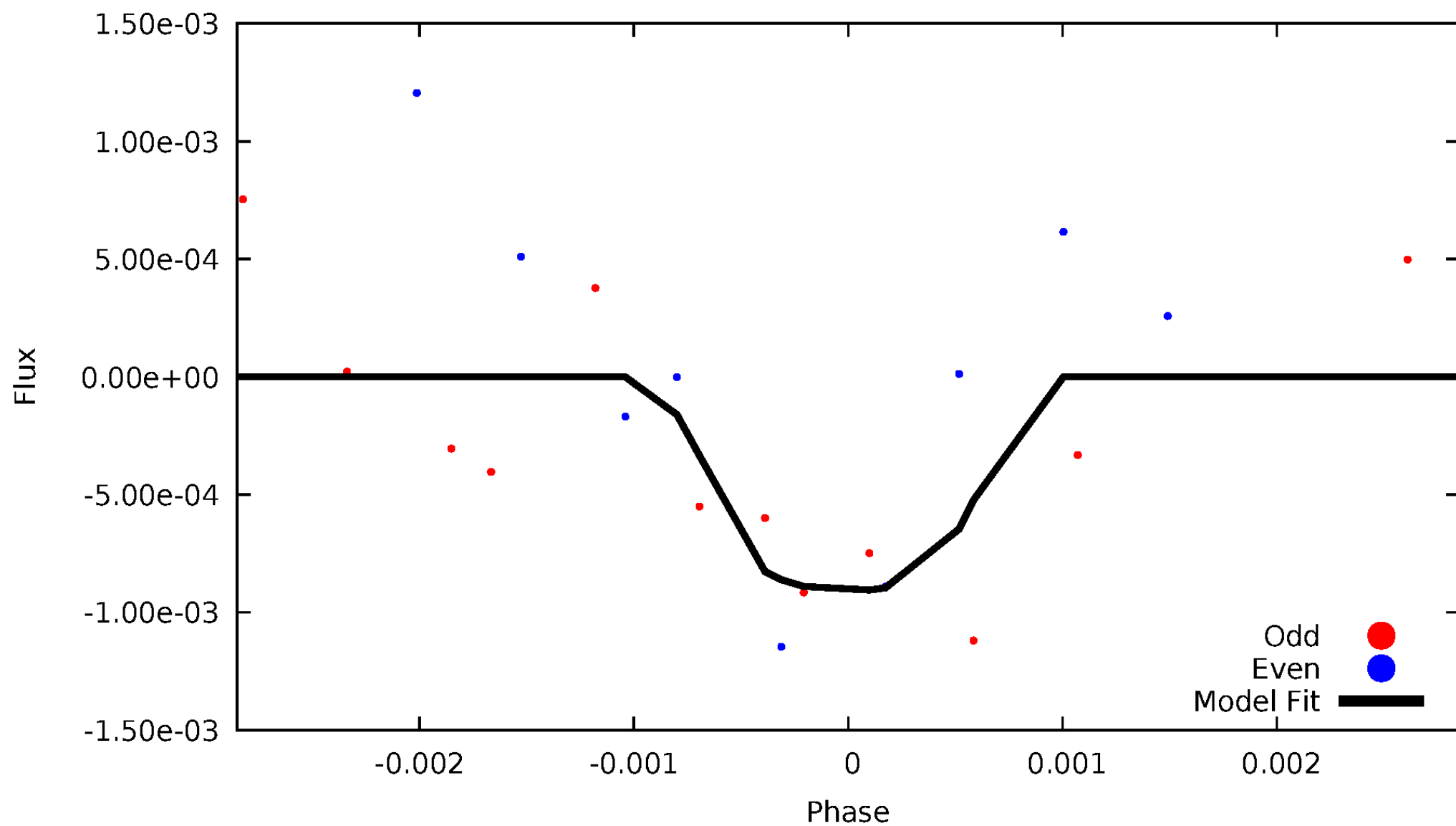


TCE 004936644-02



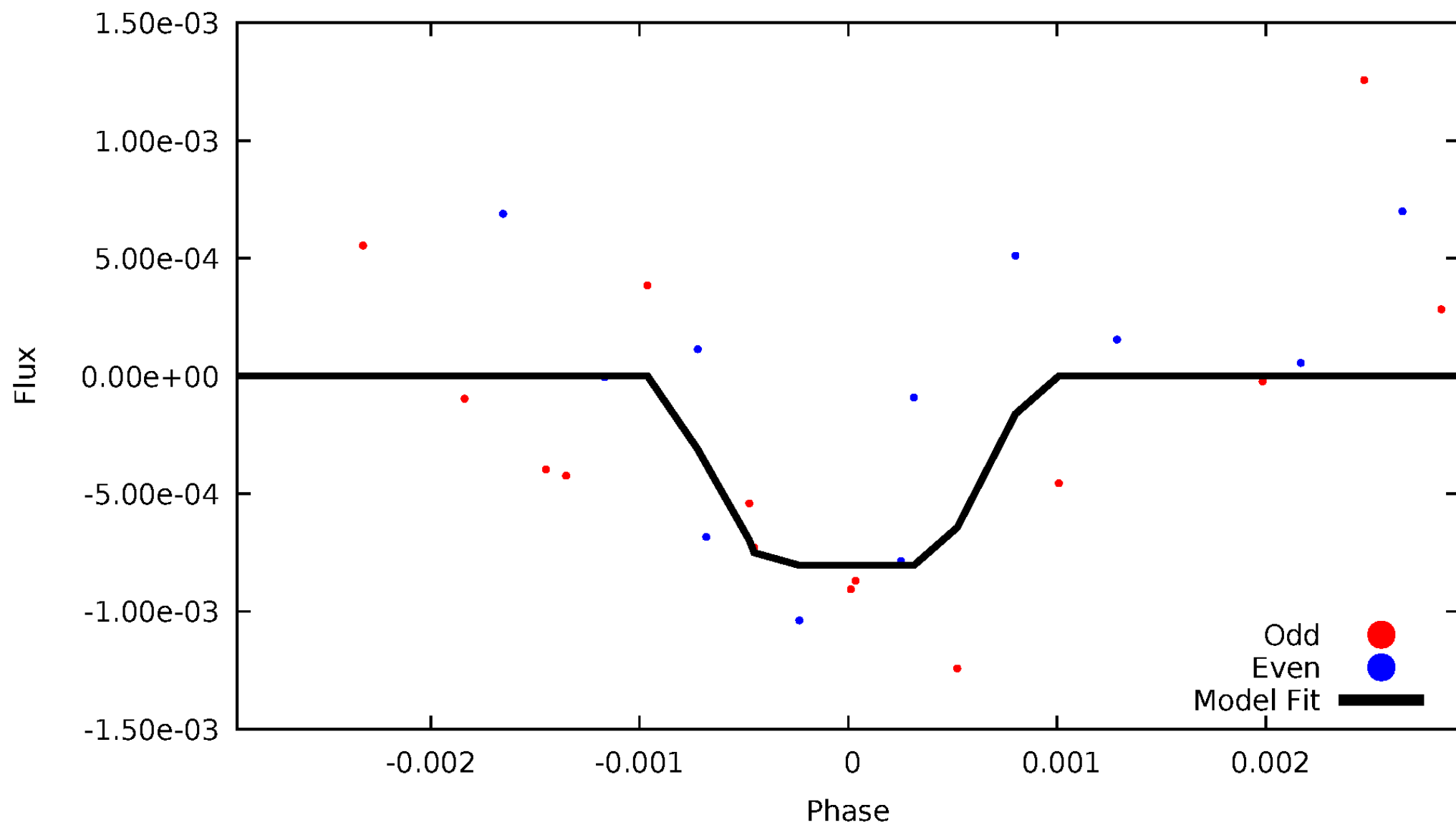
DV Odd/Even

TCE 004936644-02



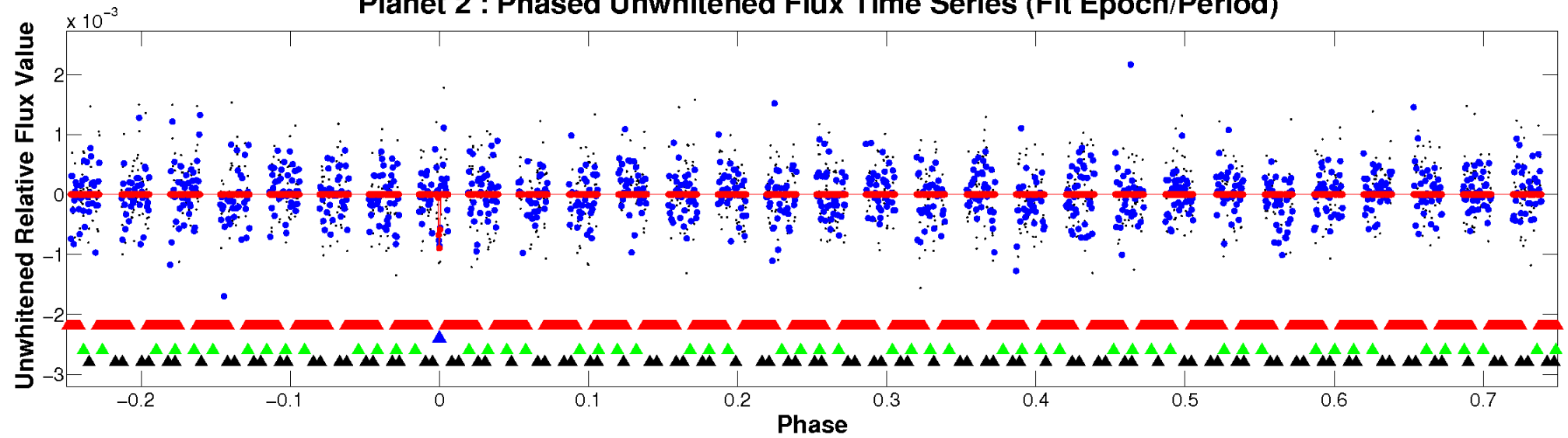
ALT Odd/Even

TCE 004936644-02

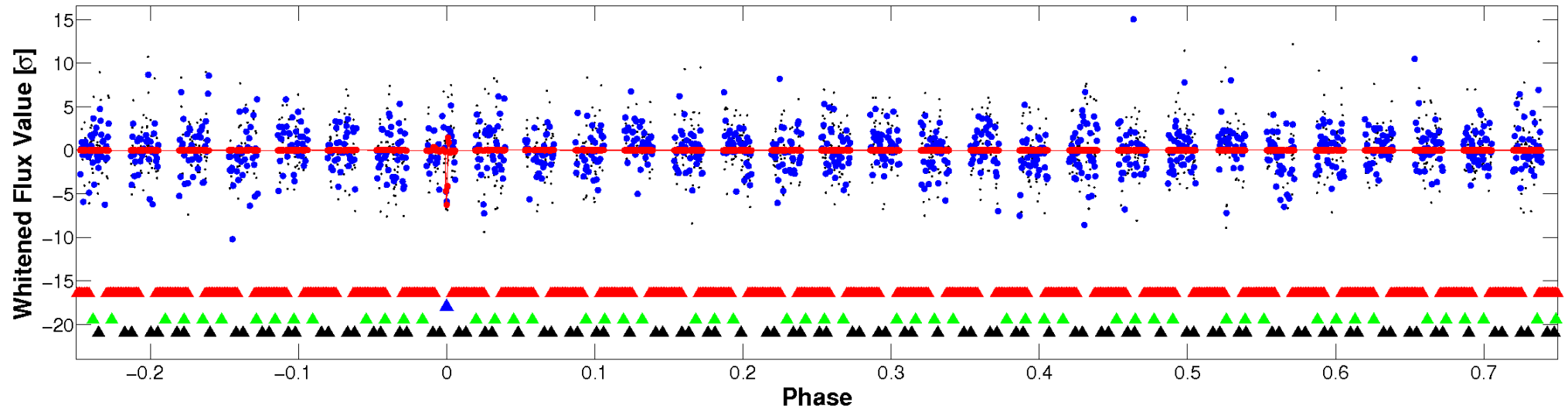


Non-Whitened Vs. Whitened Light Curve

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

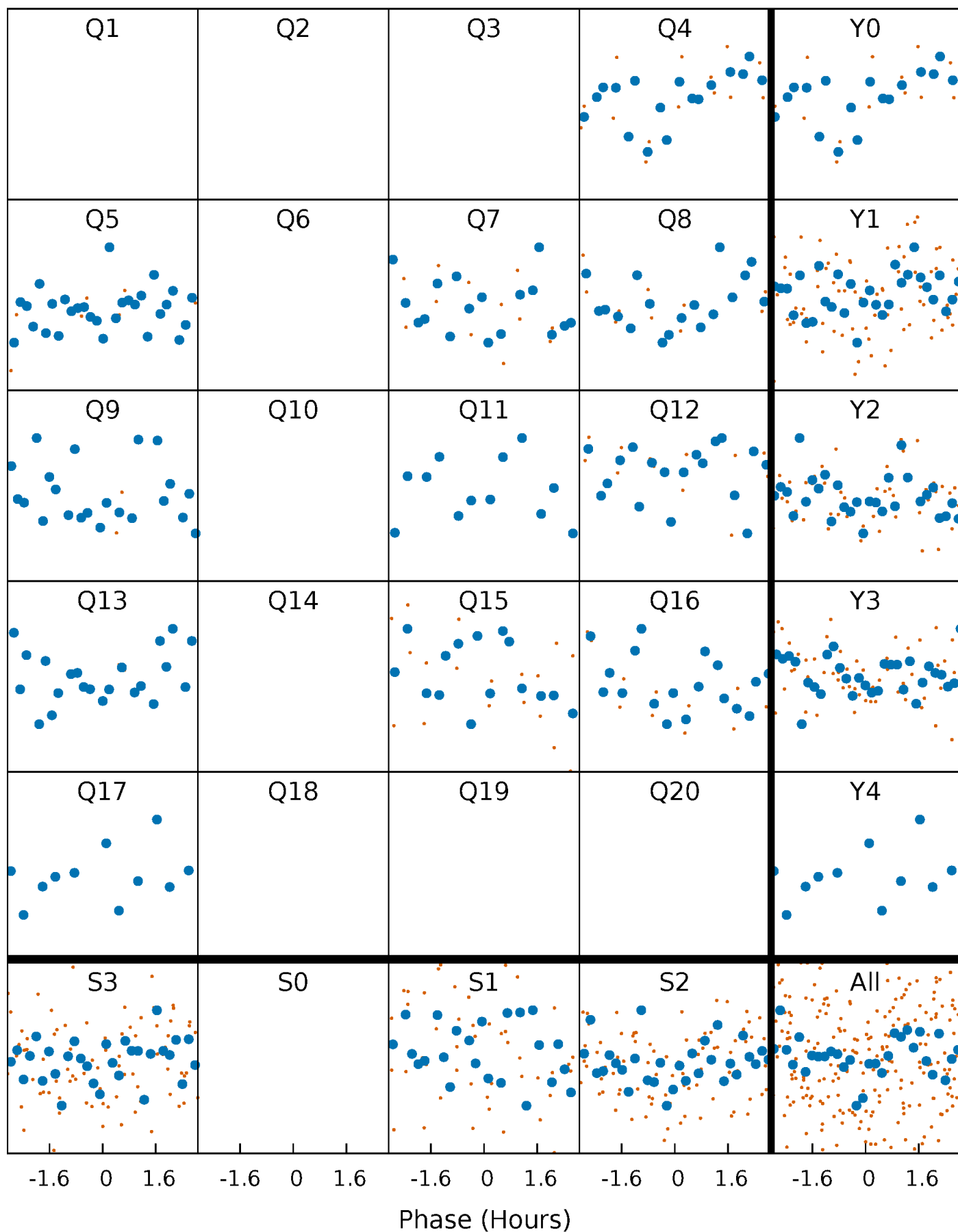


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



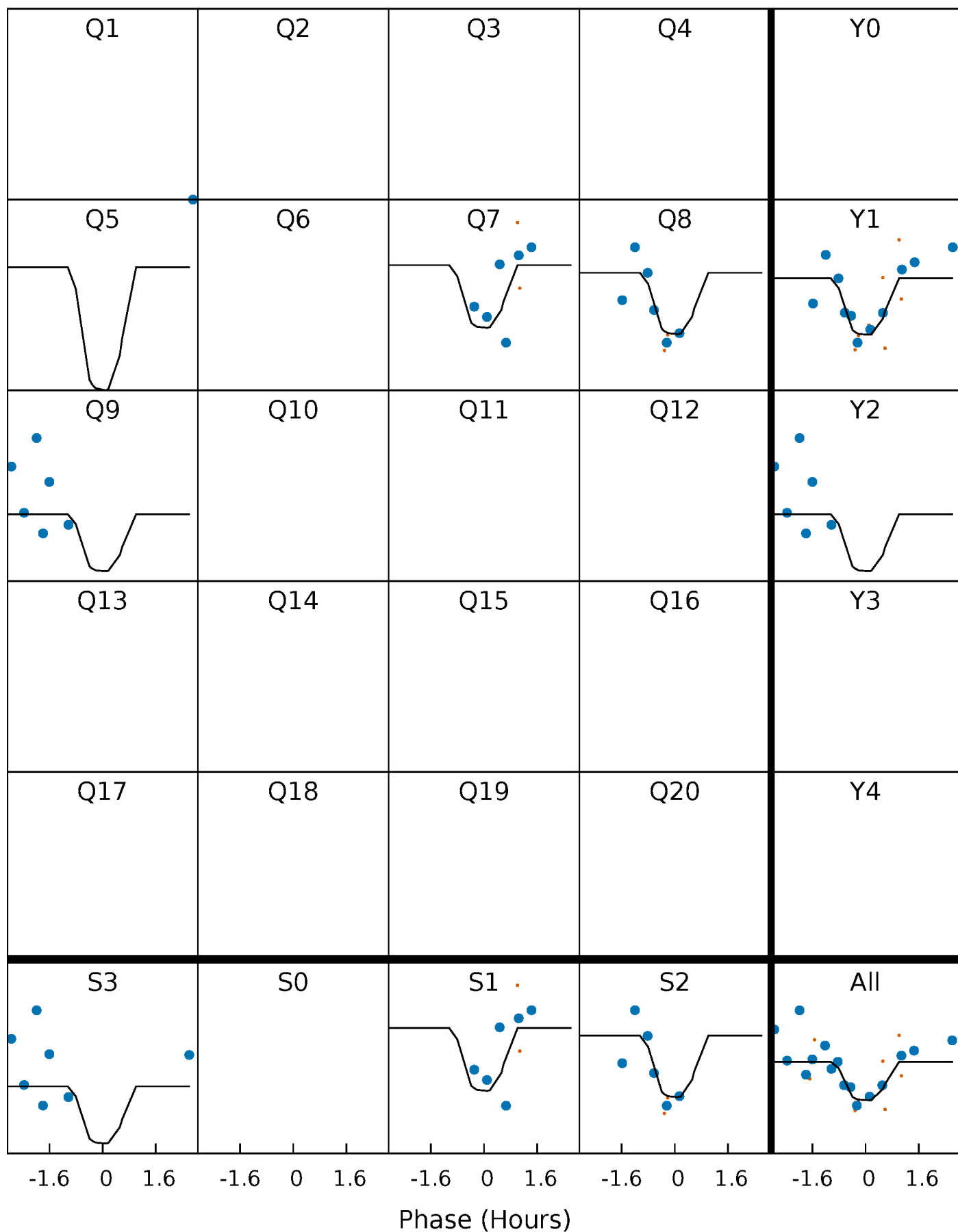
PDC Quarter-Phased Transit Curves

TCE 004936644-02 P= 42.006619 Days $T_0=150.409880$ (BKJD)



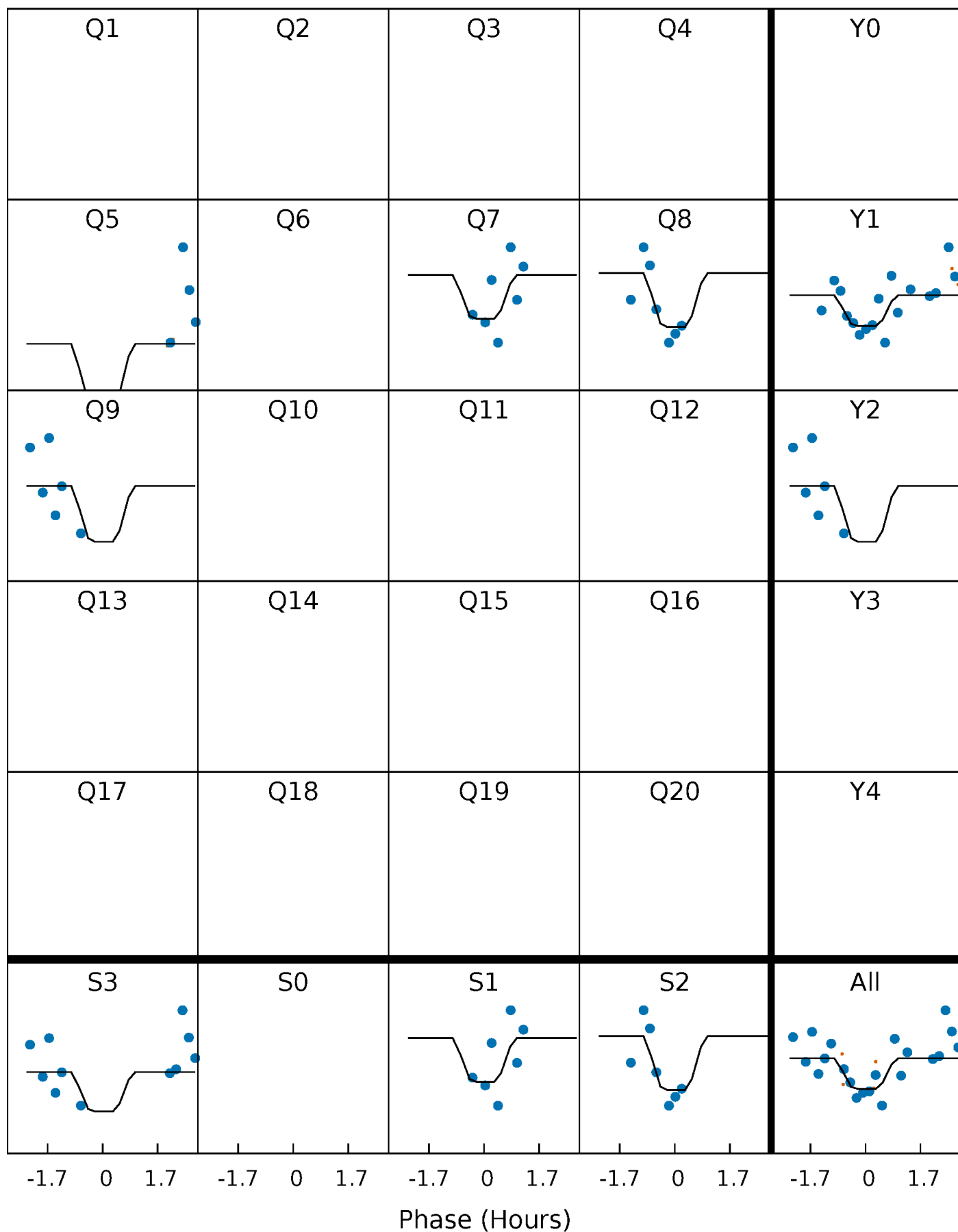
DV Quarter-Phased Transit Curves

TCE 004936644-02 $P = 42.006619$ Days $T_0 = 150.409880$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

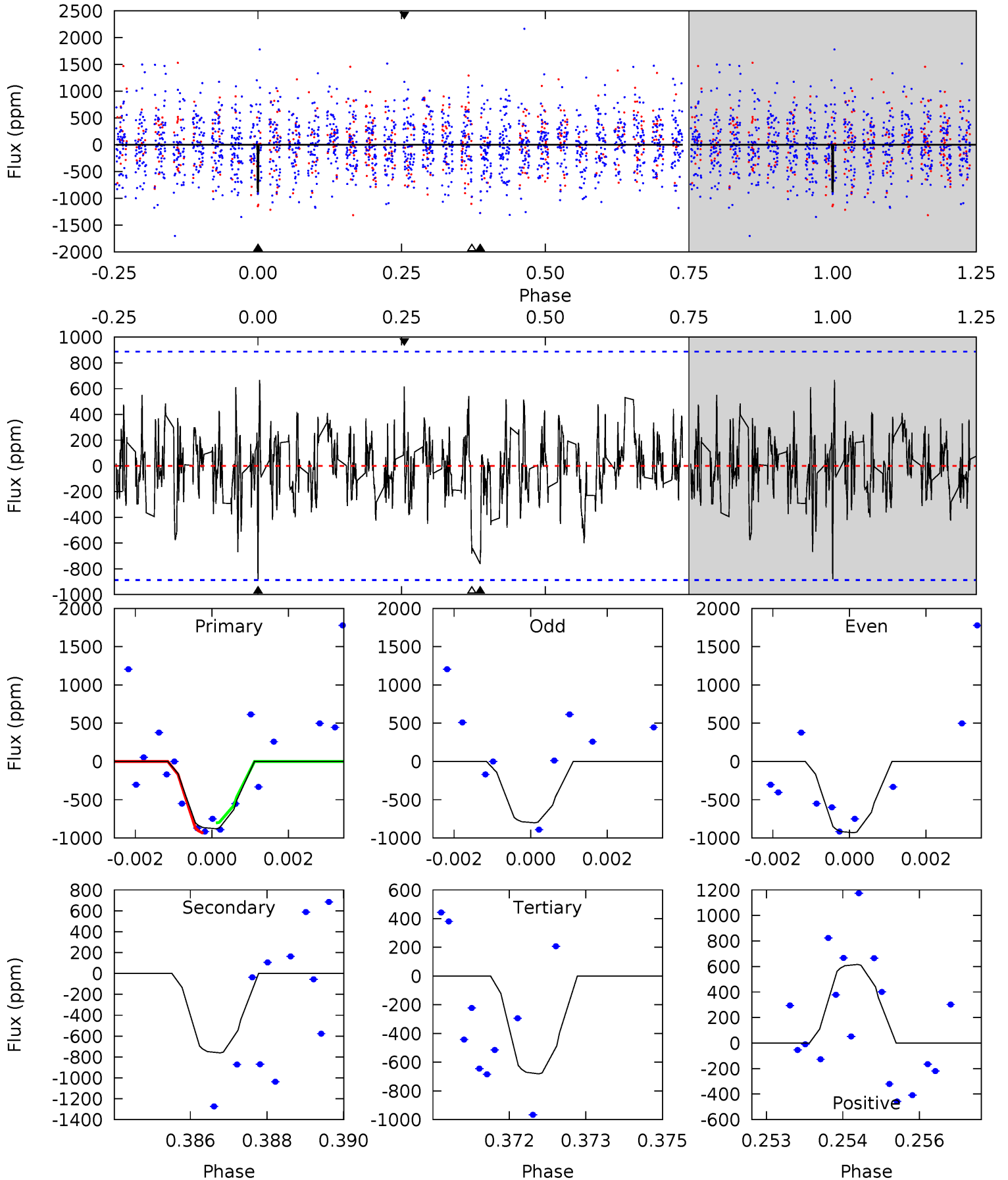
TCE 004936644-02 P= 42.000688 Days $T_0=150.489613$ (BKJD)



DV Model-Shift Uniqueness Test

004936644-02, P = 42.006619 Days, E = 150.409880 Days

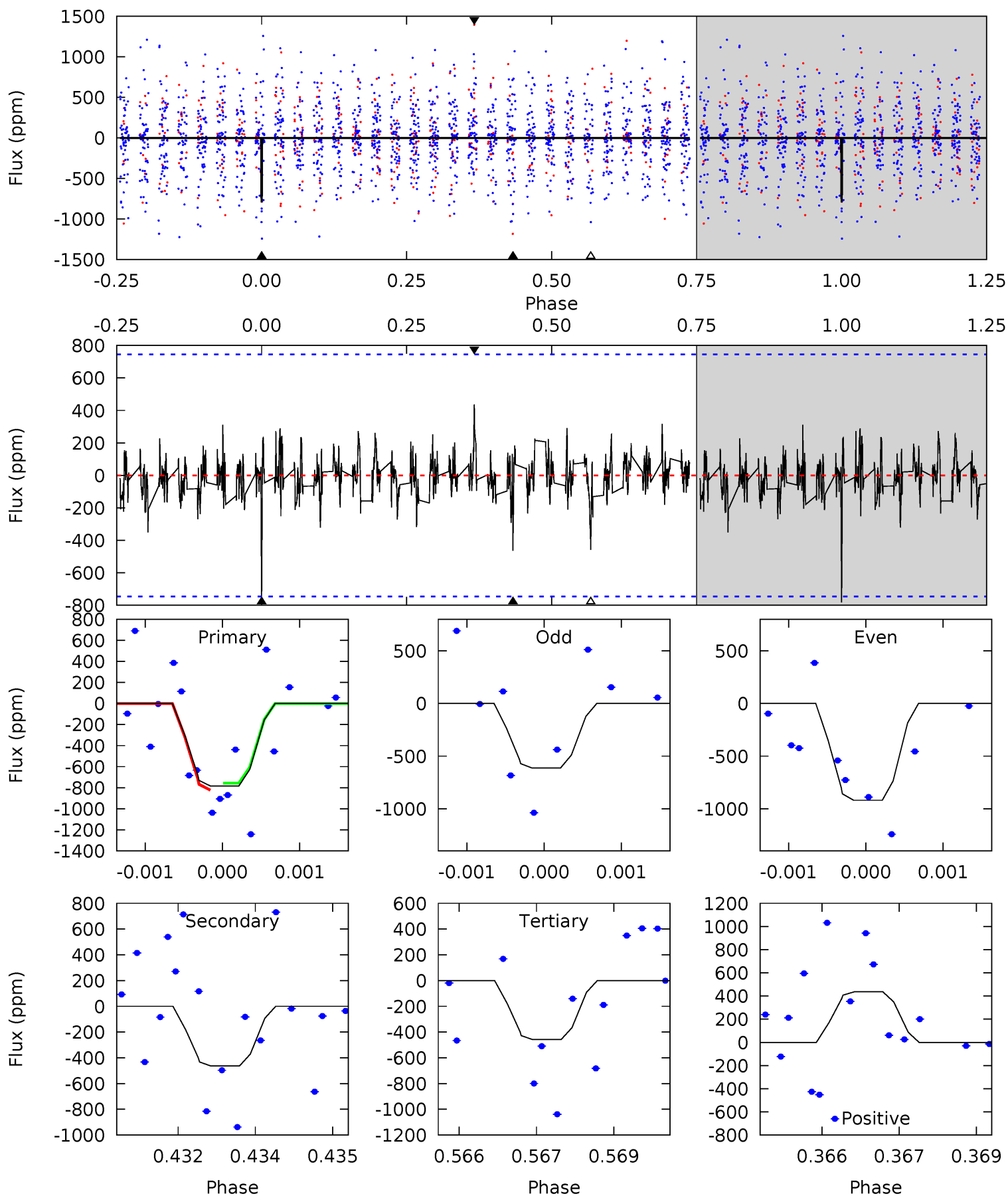
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.30	4.59	4.11	3.72	5.35	3.12	1.24	1.19	1.59	0.48	0.87	0.39	0.97	0.43	0.40



Alt Model-Shift Uniqueness Test

004936644-02, P = 42.000688 Days, E = 150.489613 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.65	3.34	3.31	3.15	5.38	3.18	0.77	2.35	2.50	0.04	0.19	1.08	0.81	0.36	0.23



Stellar Parameters For KIC 004936644

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6198^{+197}_{-240}	$4.464^{+0.056}_{-0.210}$	$-0.160^{+0.250}_{-0.300}$	$1.005^{+0.335}_{-0.112}$	$1.072^{+0.144}_{-0.159}$	$1.489^{+0.430}_{-0.785}$
	+3%/-4%	+1%/-5%	+156%/-188%	+33%/-11%	+13%/-15%	+29%/-53%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004936644-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-761 ± 166	$55.52^{+53.03}_{-39.11}$	795^{+64}_{-41}	2370^{+930}_{-356}	$7.892^{+88.912}_{-5.974}$
Alt.	-463 ± 139	$46.58^{+55.61}_{-33.30}$	792^{+57}_{-41}	2298^{+938}_{-399}	$6.467^{+82.665}_{-5.177}$

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

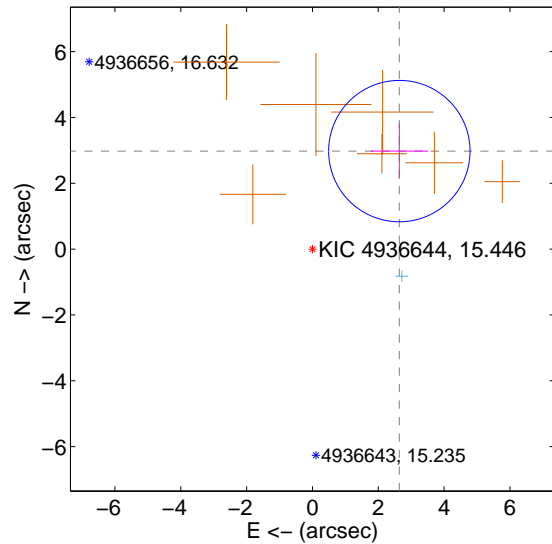
Supplemental centroid analysis for 004936644-02. Kepler magnitude: 15.45. Transit SNR 13.84

There are 1 quarters with good PRF difference image offsets

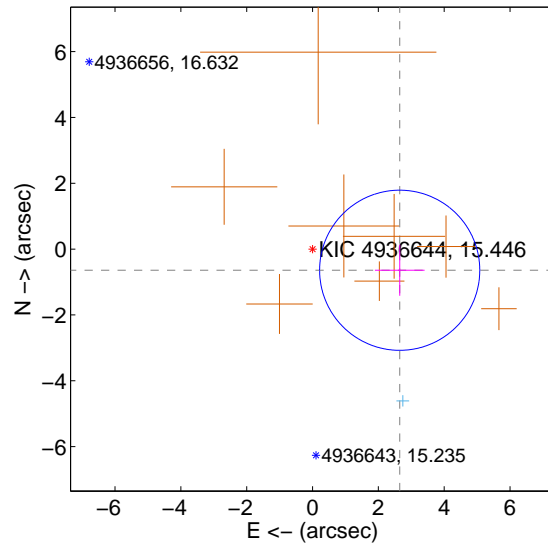
The OOT PRF centroid is offset from the target star catalog position by about 3.86 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.978 ± 0.716	5.56	-2.639 ± 0.877	2.977 ± 0.835
PRF-fit source offset from KIC position	2.724 ± 0.811	3.36	-2.647 ± 0.755	-0.643 ± 0.776
photometric centroid source offset	3.22 ± 0.81	3.98	-0.47 ± 0.63	-3.19 ± 0.81

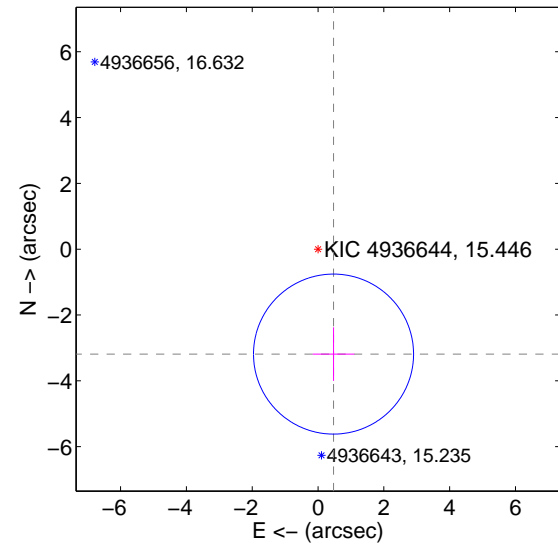
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

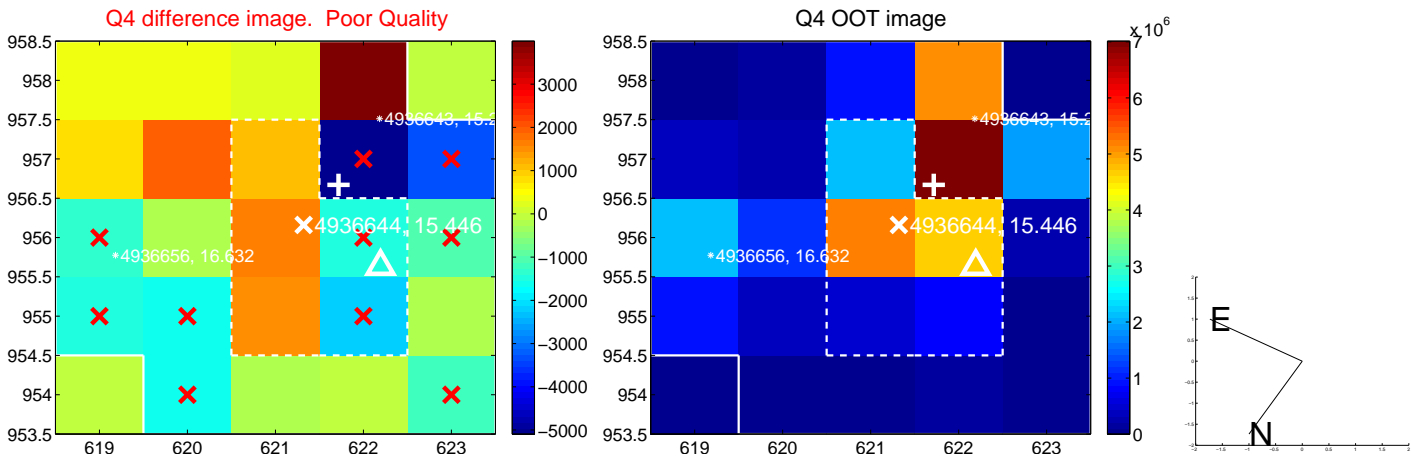
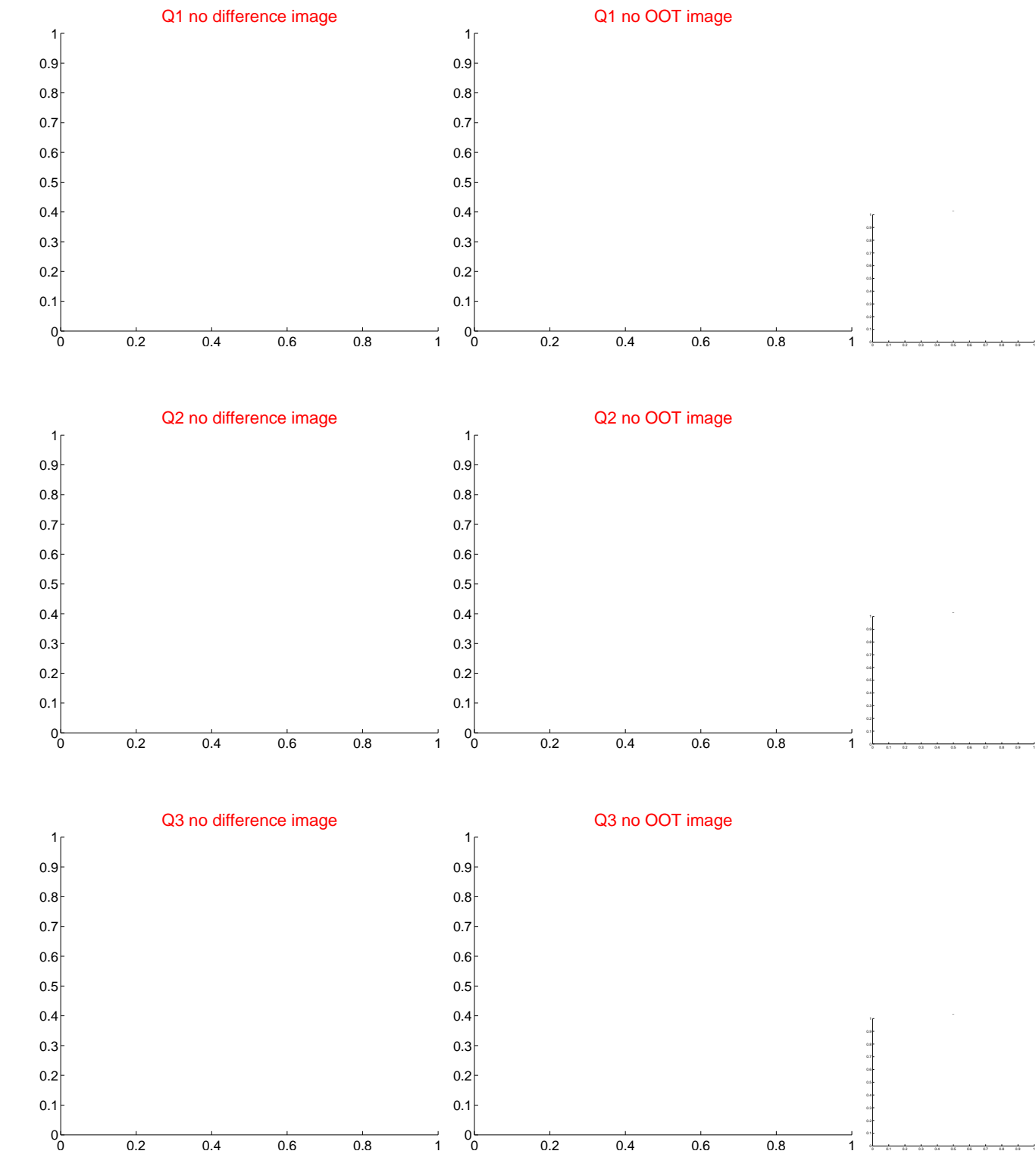


offset from photometric centroids

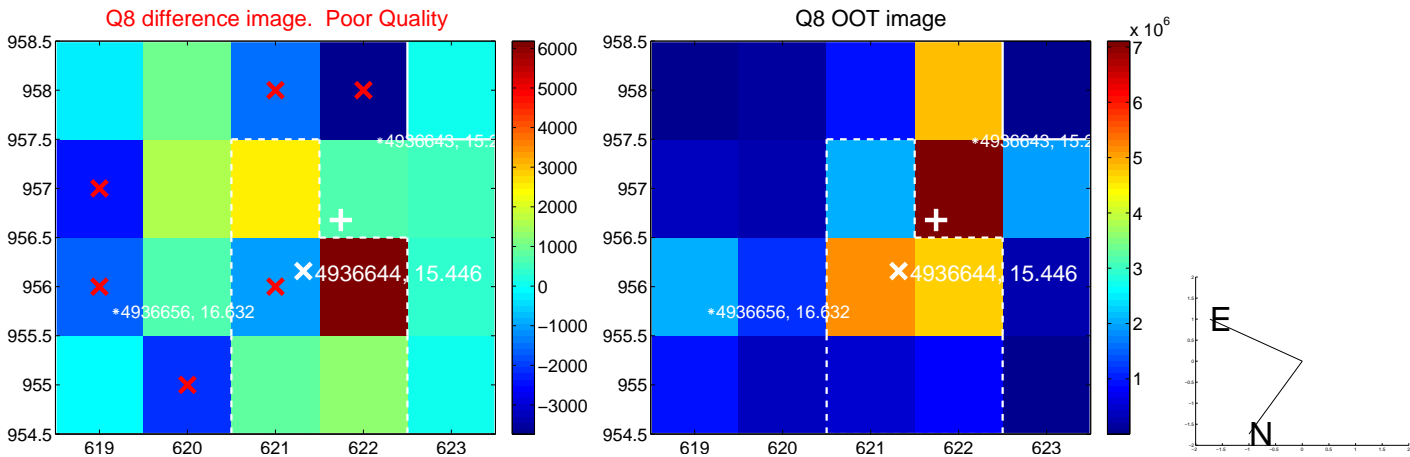
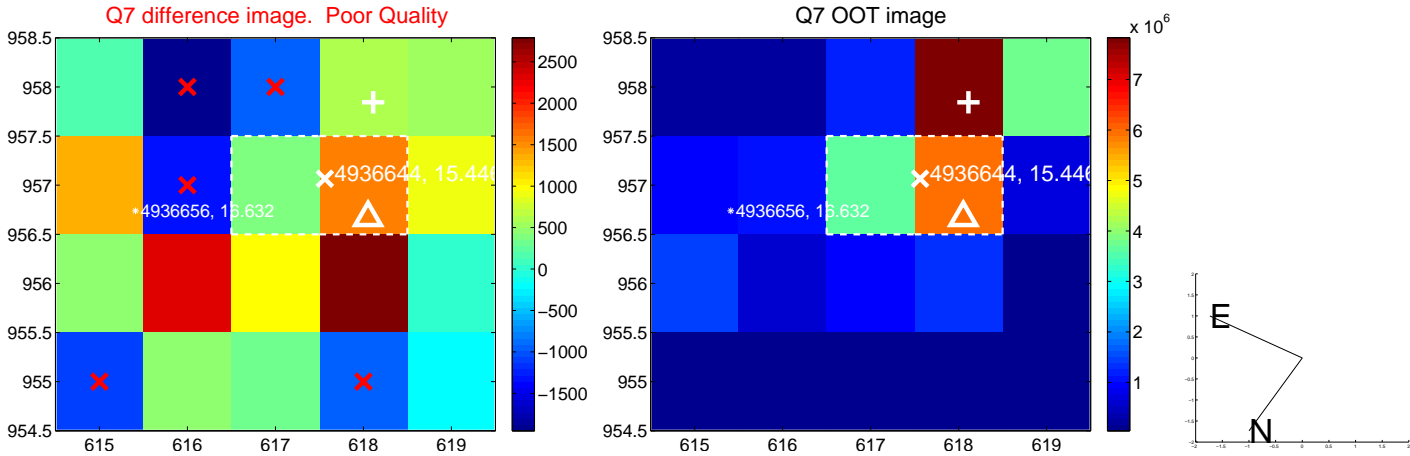
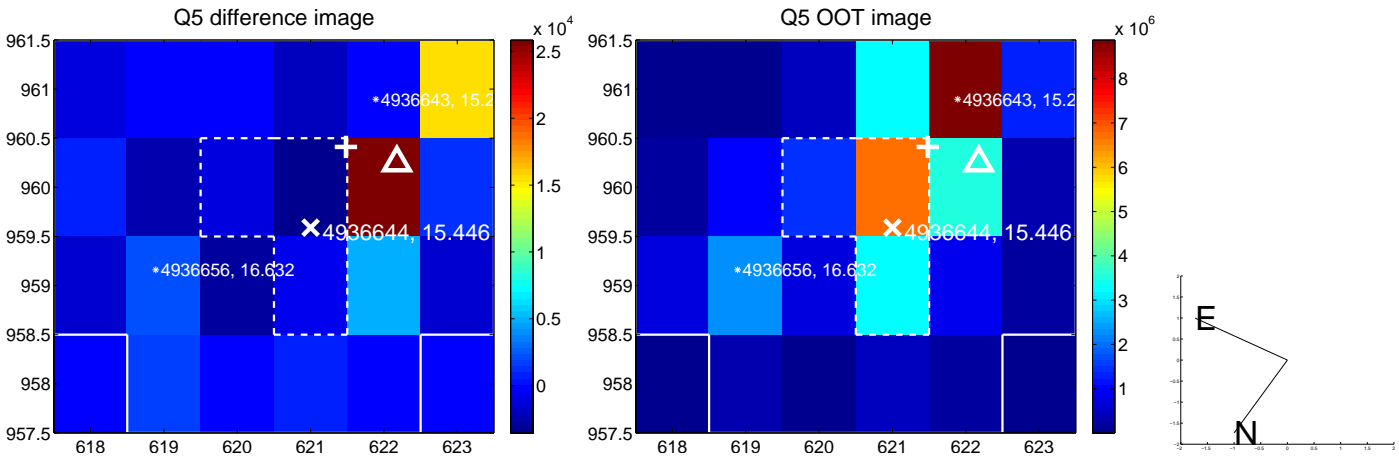


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

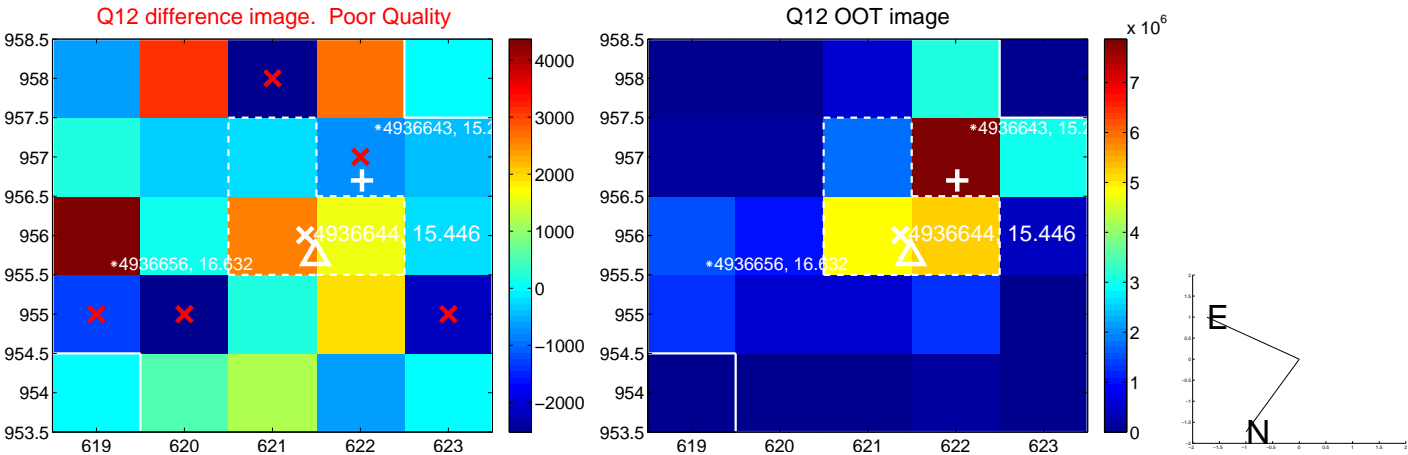
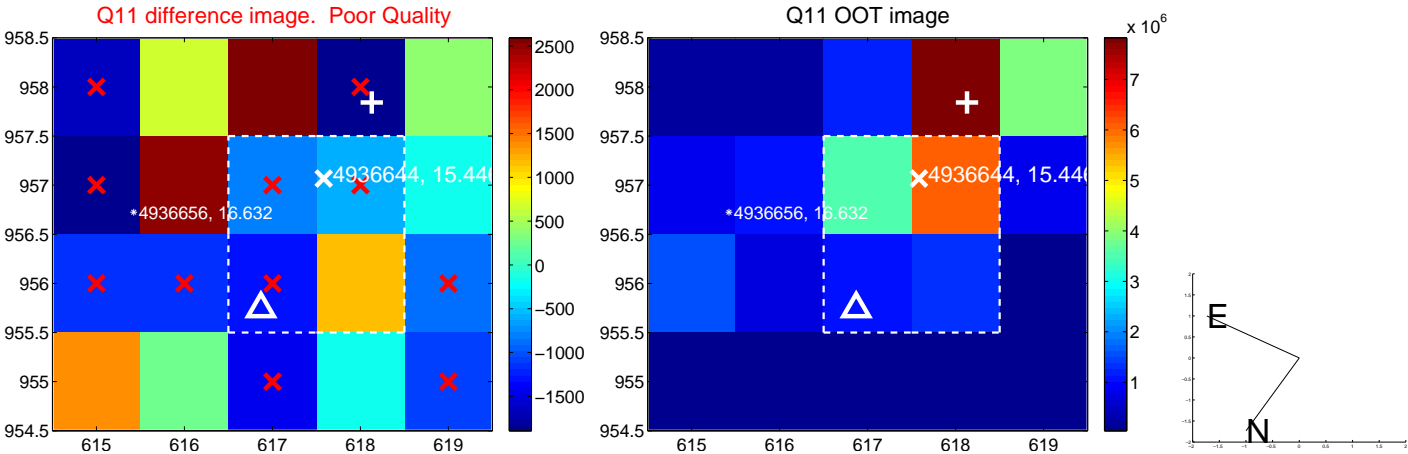
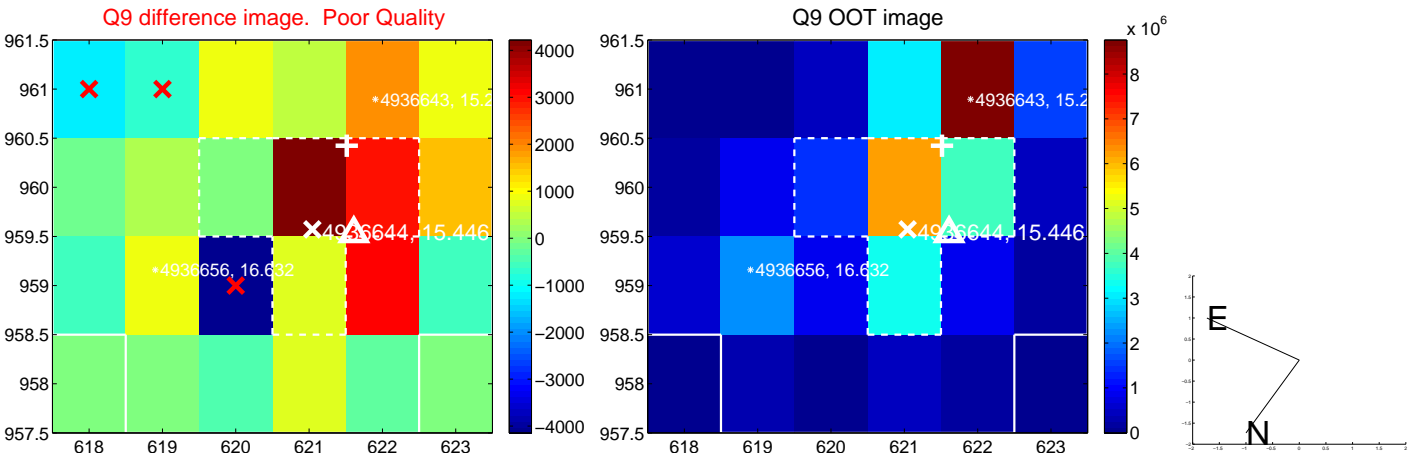
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



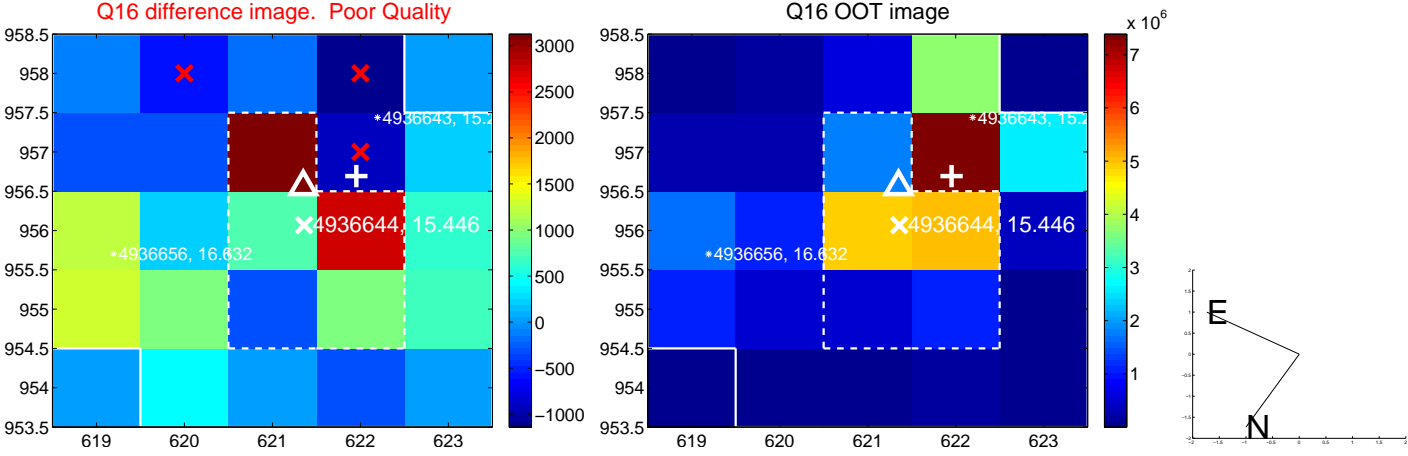
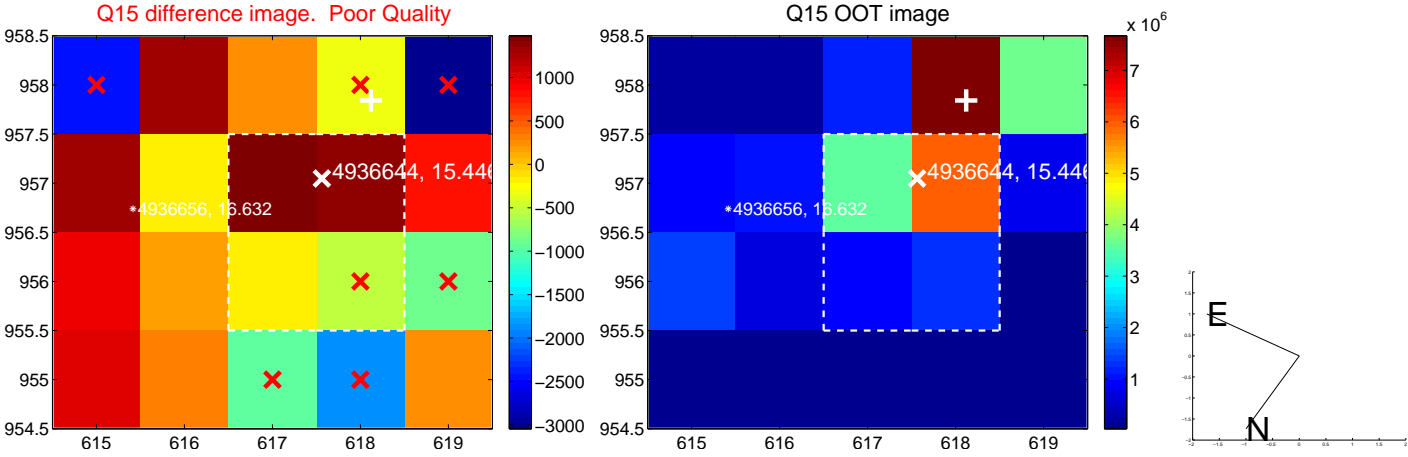
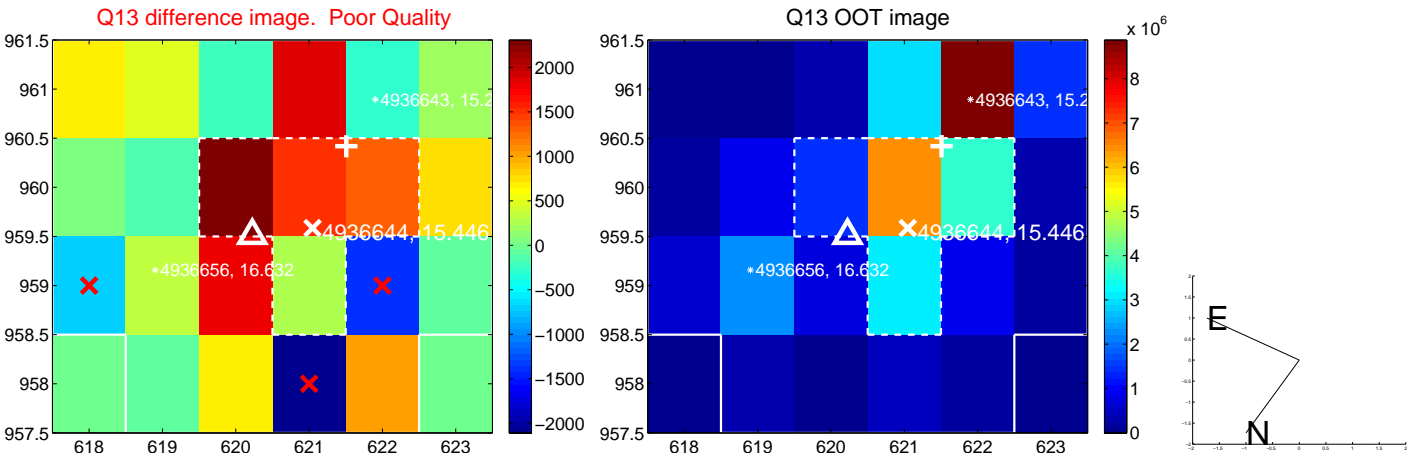
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



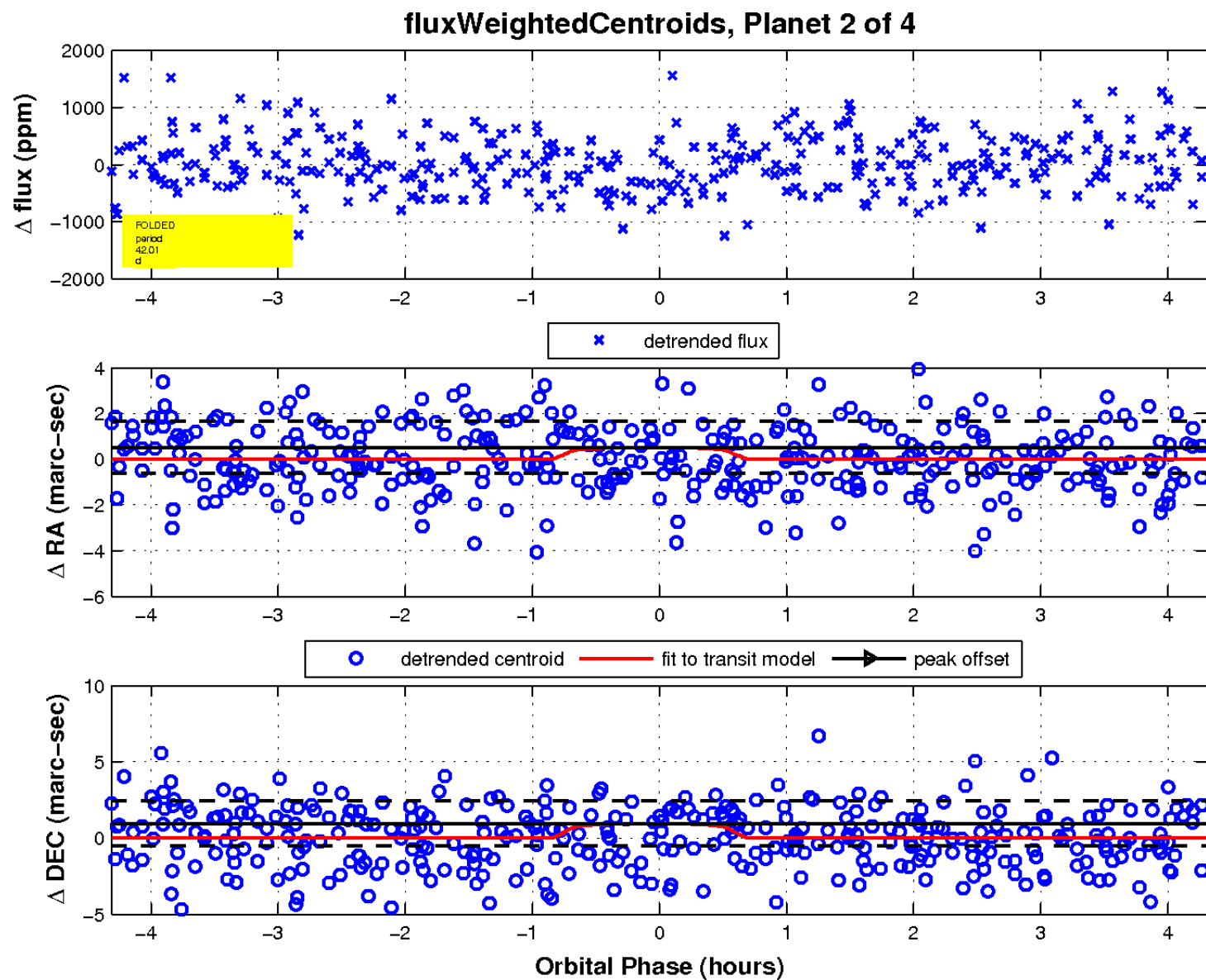
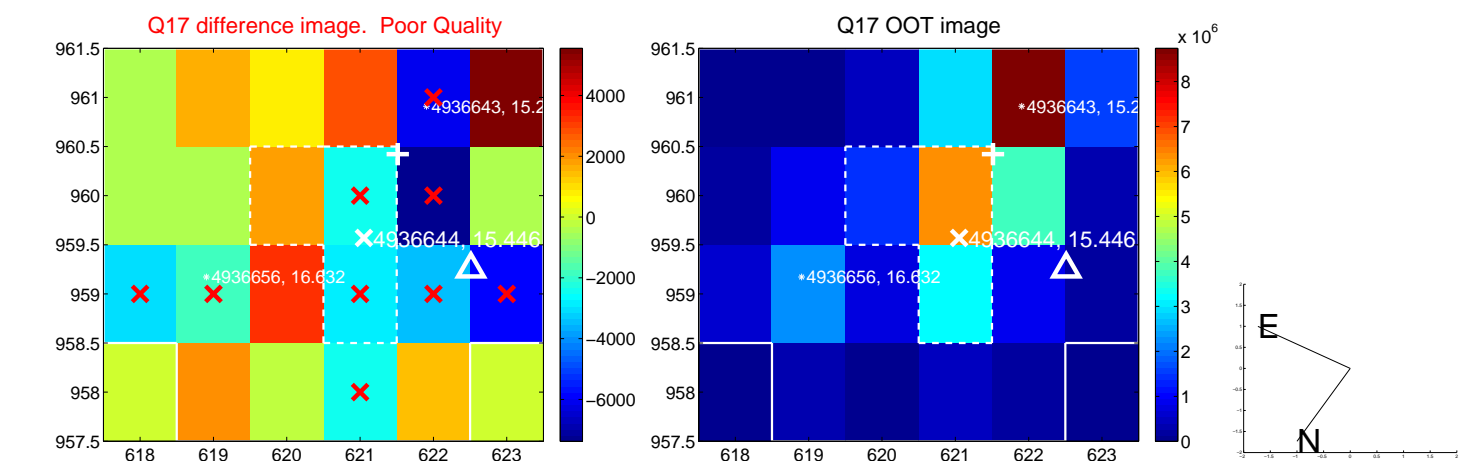
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

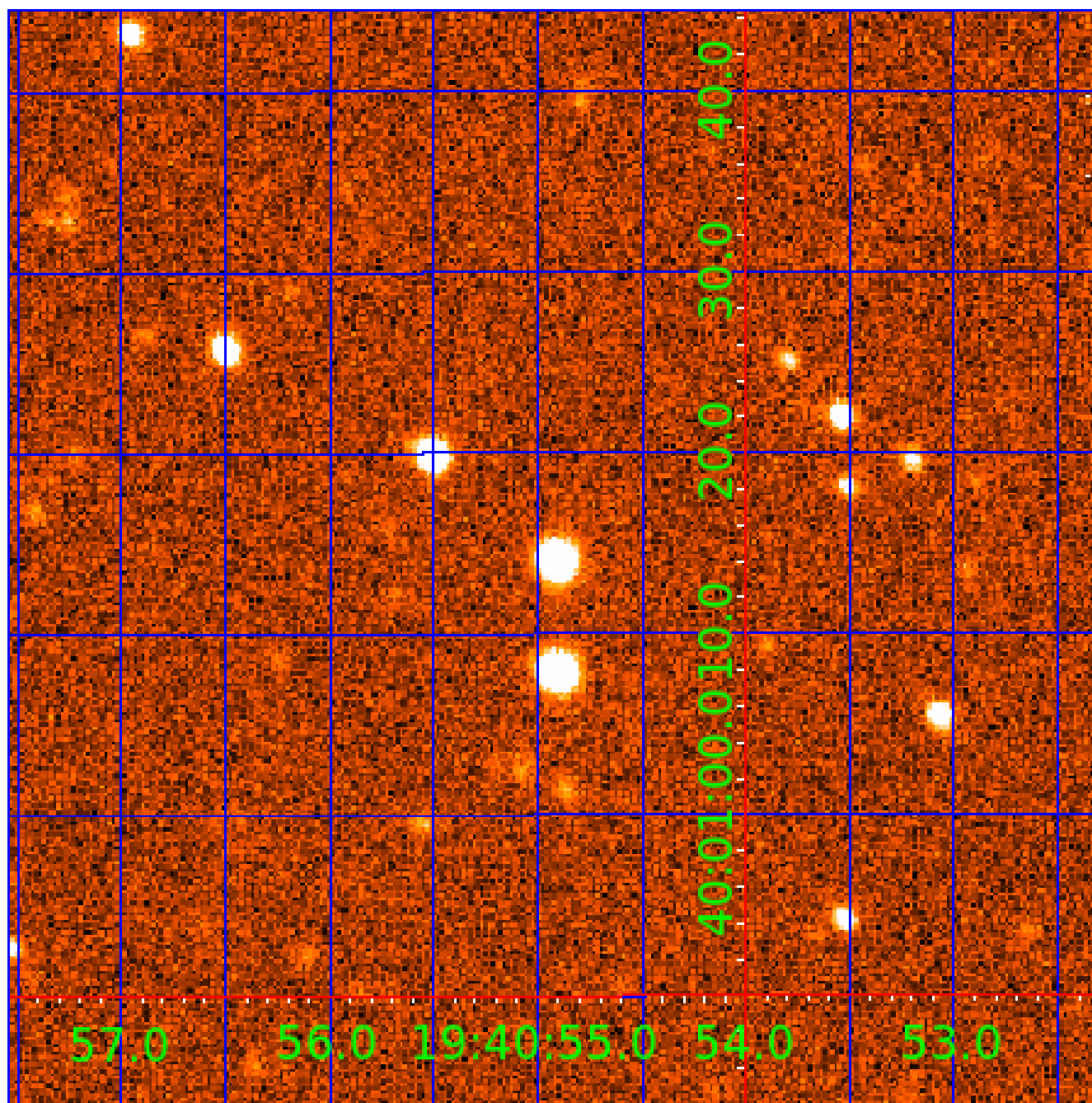


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004936644

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})
004936644-01	OBS	No	1.399320	131.886176	32.5	10.505	7.6	5.3	1.00	6198	0.57	2125.47
004936644-02	OBS	No	42.006619	150.409880	909.5	1.438	15.8	13.8	1.00	6198	3.21	22.78
004936644-03	OBS	No	26.966232	144.032223	768.6	1.564	10.9	11.4	1.00	6198	3.20	41.14
004936644-04	OBS	No	15.055275	132.003318	896.7	1.032	11.9	13.5	1.00	6198	3.04	89.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004936644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
004936644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
004936644-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
004936644-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

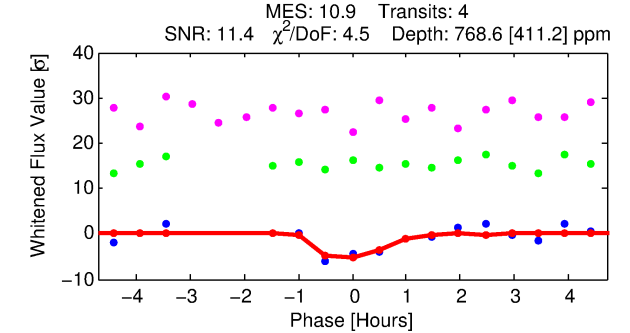
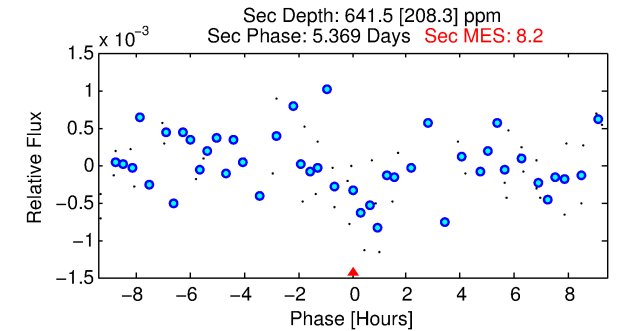
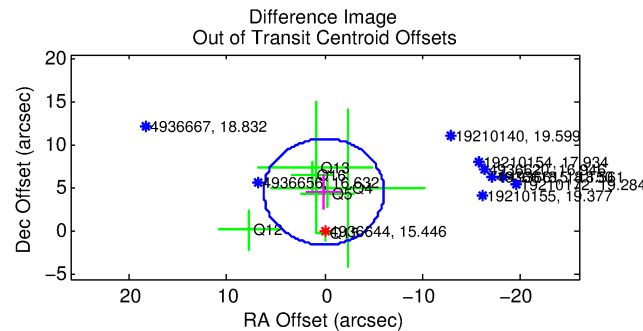
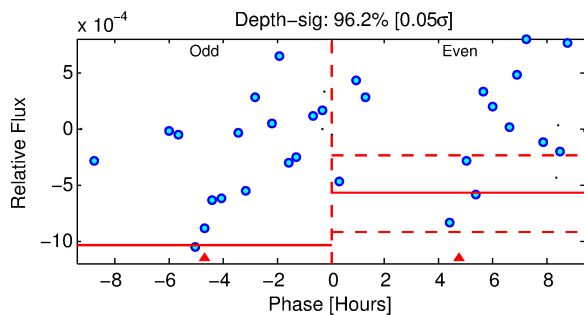
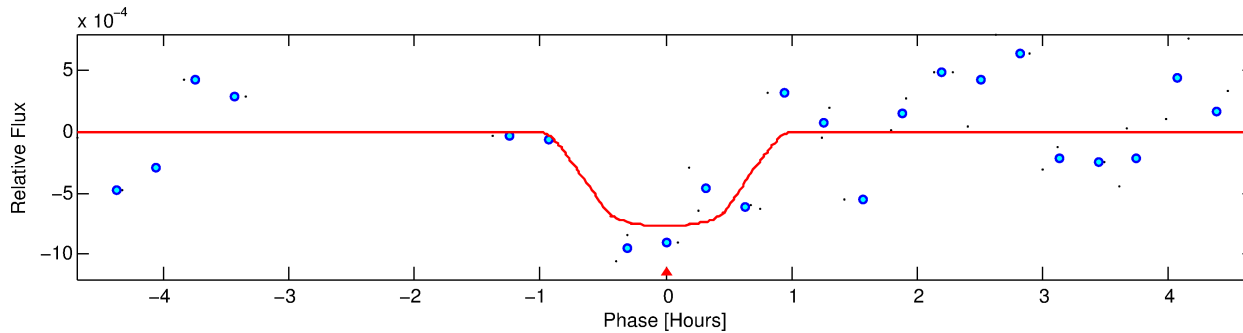
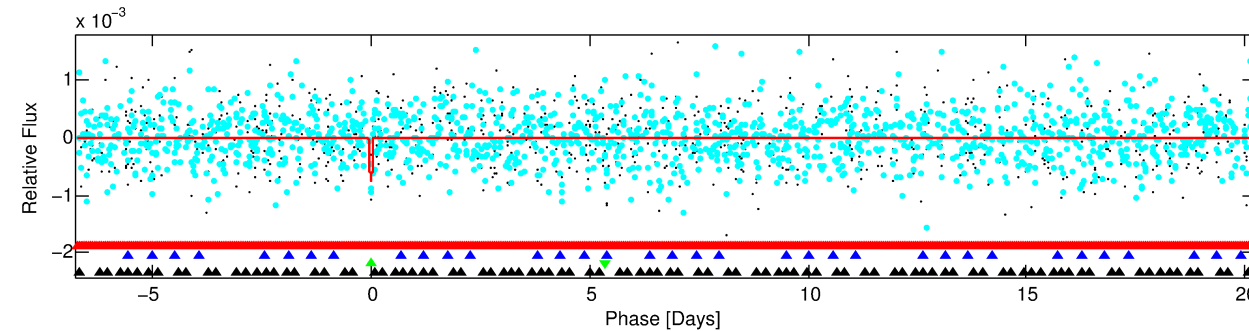
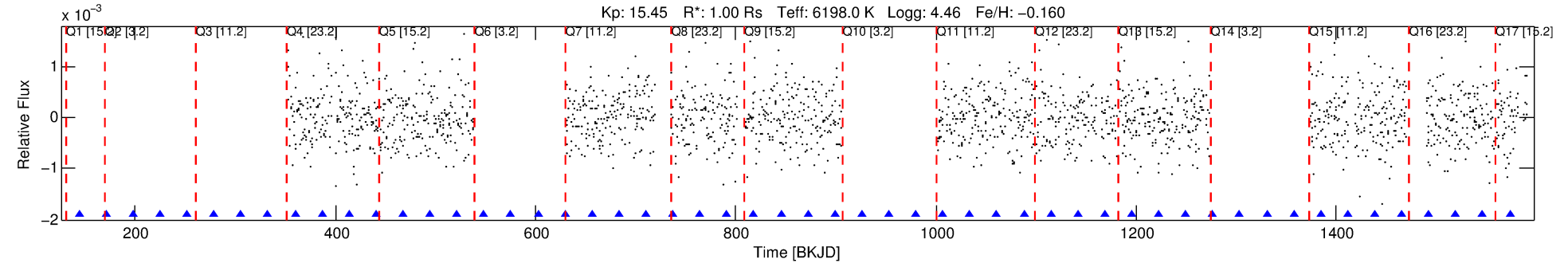
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004936644-03

No Significant Match Found

DV One-Page Summary

KIC: 4936644 Candidate: 3 of 4 Period: 26.966 d



DV Fit Results:

Period = 26.96623 [0.00043] d
Epoch = 144.0322 [0.0186] BKJD
Rp/R* = 0.0292 [0.2799]
a/R* = 73.17 [3641.72]
b = 0.87 [14.63]
Seff = 41.14 [17.32]
Teq = 646 [68] K
Rp = 3.20 [30.72] Re
a = 0.1802 [0.0495] AU
Ag = 1116.22 [21400.01] [0.05 σ]
Teffp = 5771 [27656] K [0.19 σ]

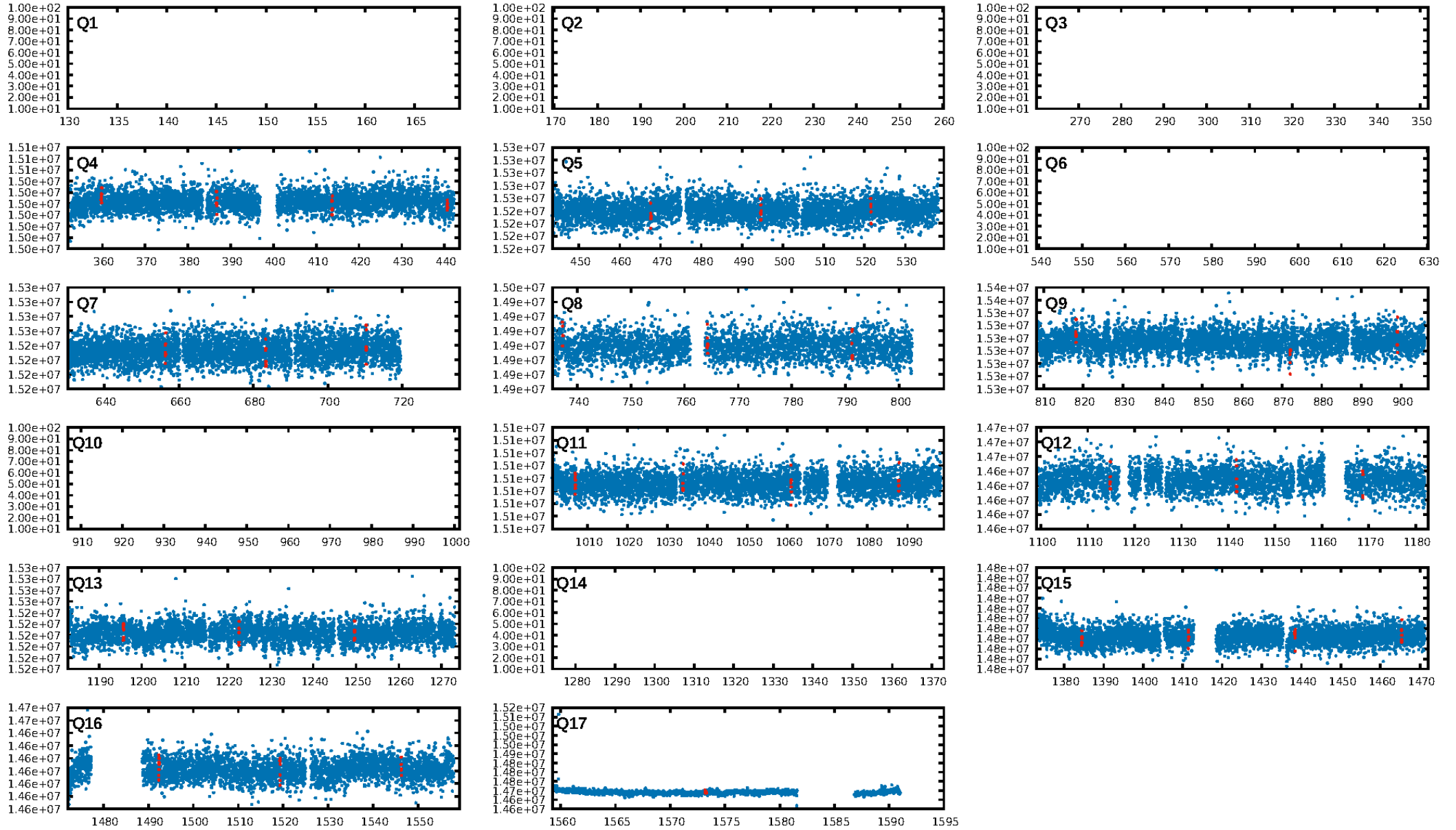
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [152.58 σ]
LongPeriod-sig: 100.0% [169.93 σ]
ModelChiSquare2-sig: 2.9%
ModelChiSquareGof-sig: 46.1%
Bootstrap-pfa: 1.30e-07
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.303
Centroid-sig: 26.6%
Centroid-so: 1.497 arcsec [1.99 σ]
OotOffset-rm: 4.582 arcsec [2.24 σ]
OotOffset-st: 0/1/3/2 [6]
KicOffset-rm: 1.179 arcsec [0.58 σ]
KicOffset-st: 0/1/3/2 [6]
DiffImageQuality-fgm: 0.00 [0/6]
DiffImageOverlap-fno: 0.91 [10/11]

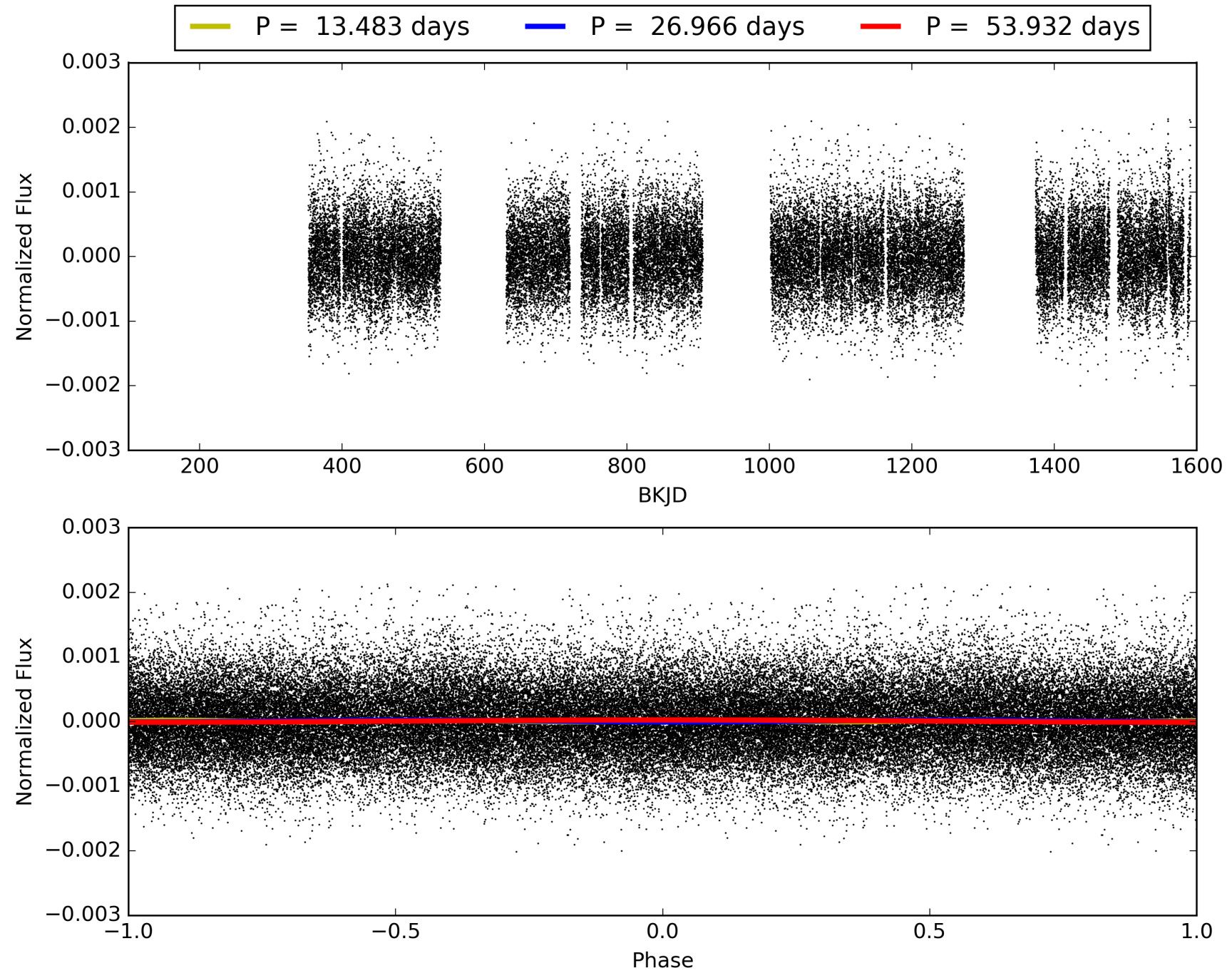
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:23:24 Z

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

TCE 004936644-03, PDC Light Curves

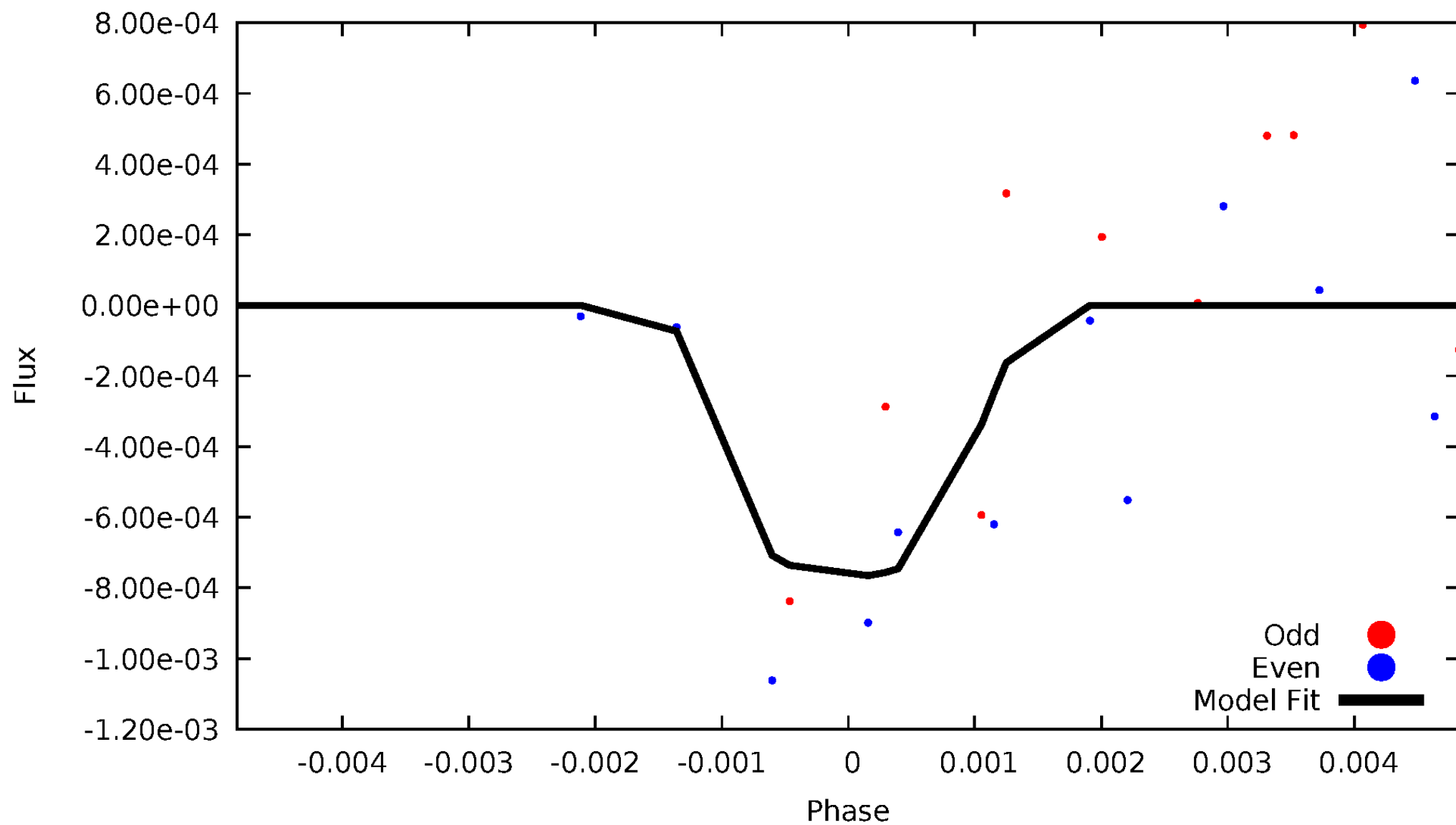


TCE 004936644-03



DV Odd/Even

TCE 004936644-03

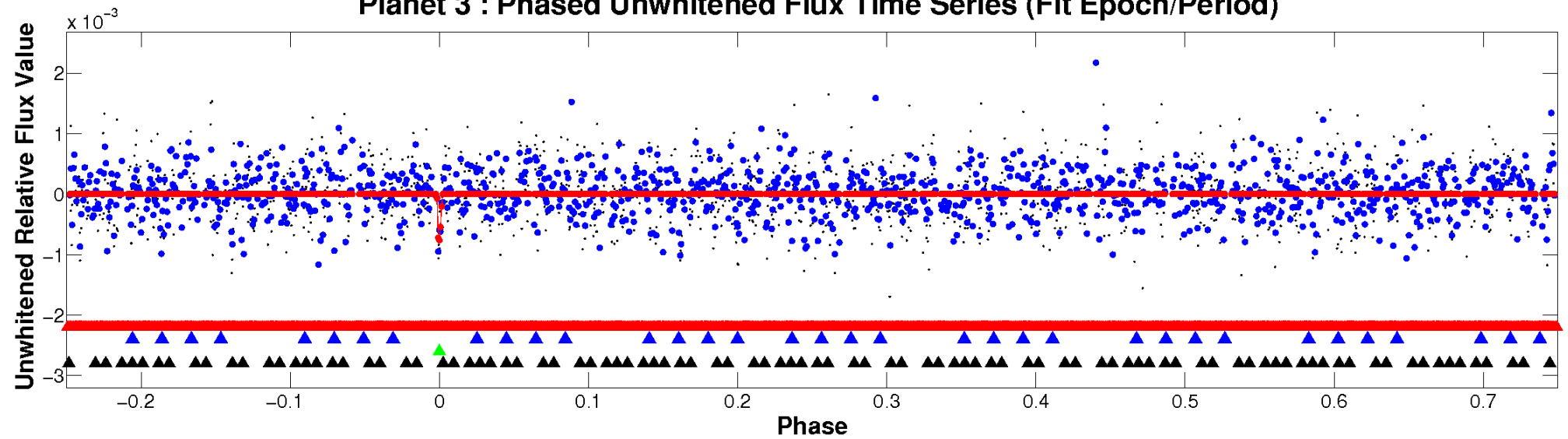


ALT Odd/Even

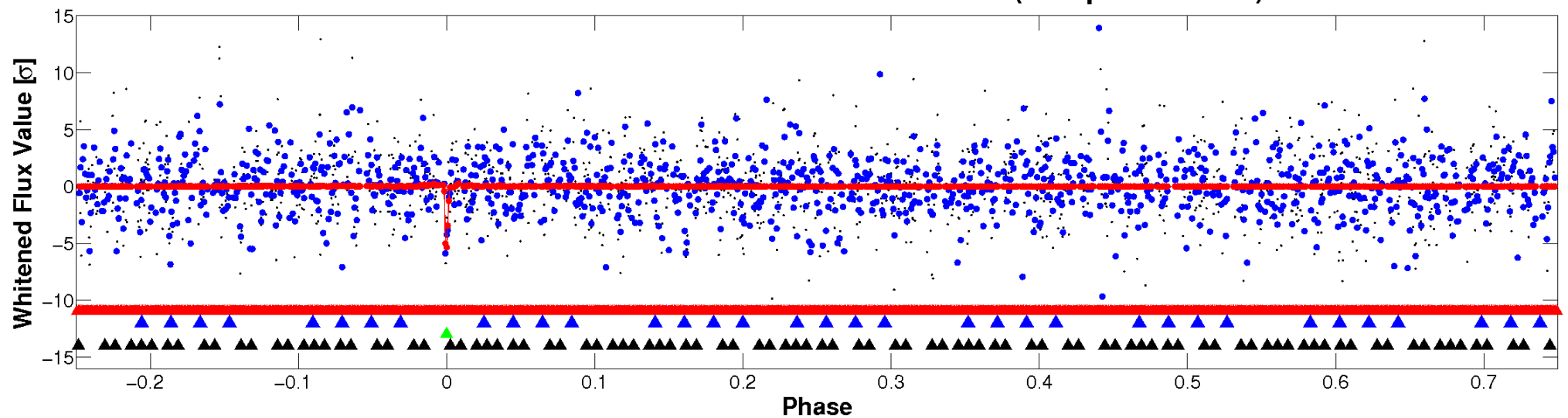
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

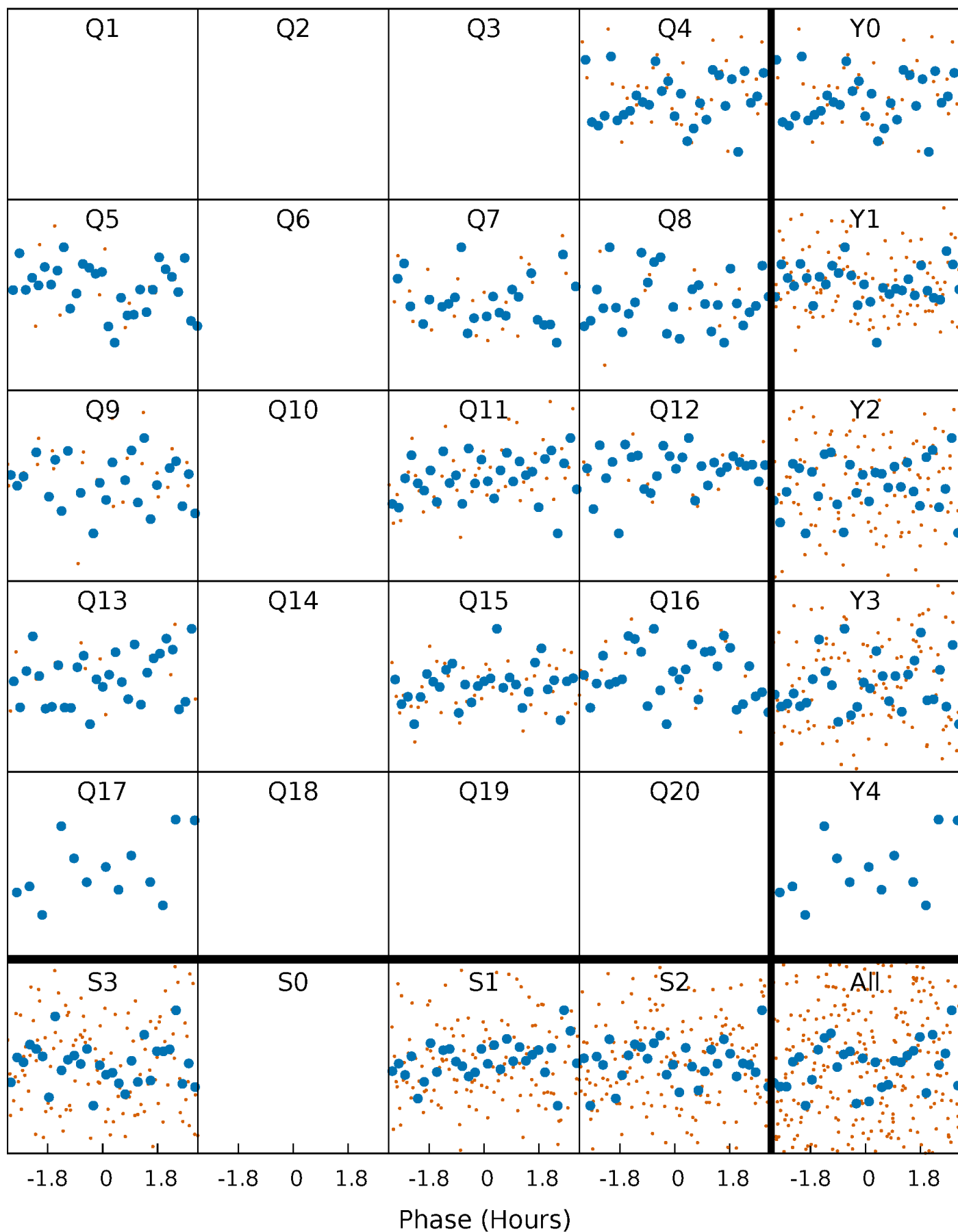


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



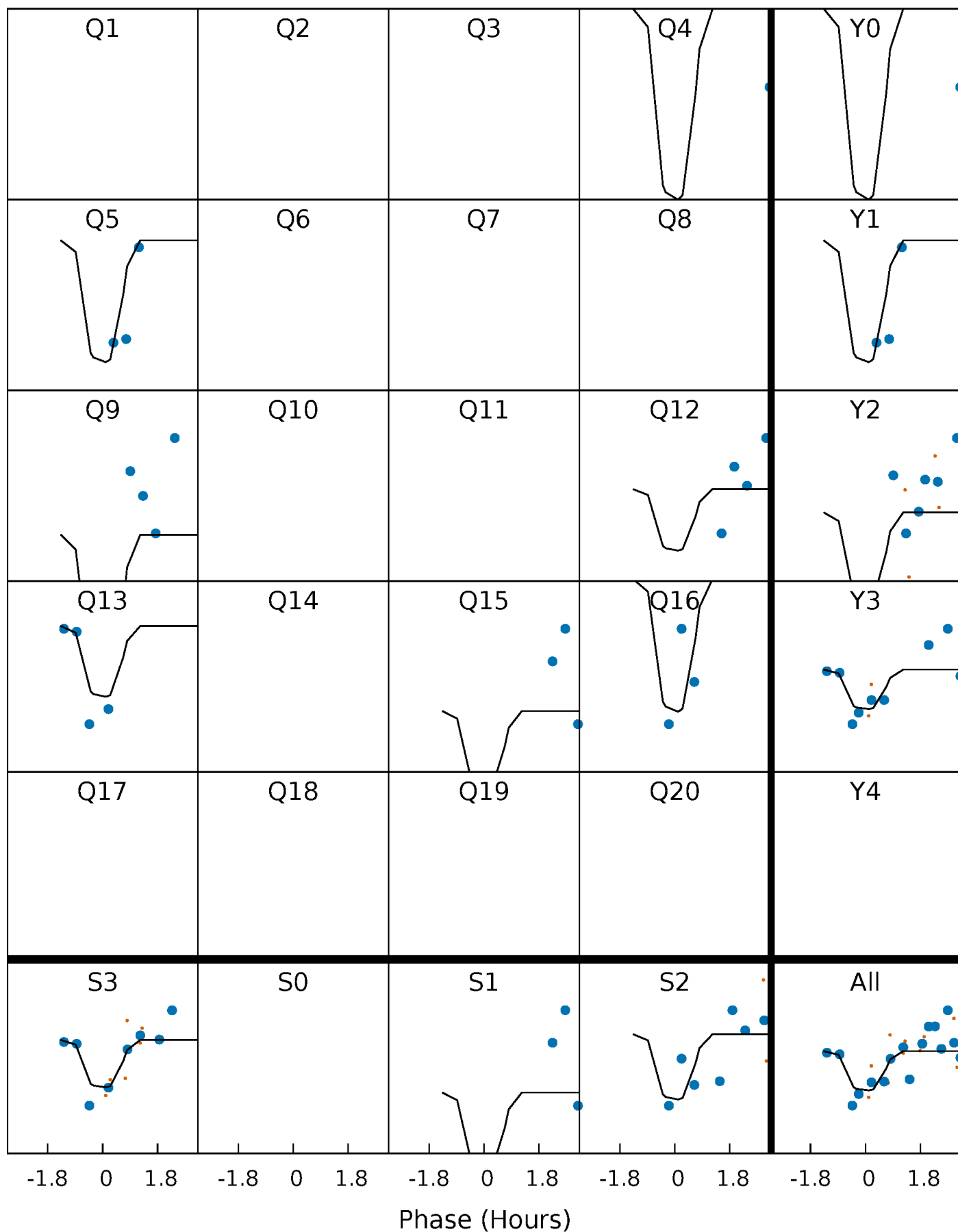
PDC Quarter-Phased Transit Curves

TCE 004936644-03 P= 26.966232 Days $T_0=144.032223$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 004936644-03 P= 26.966232 Days $T_0=144.032223$ (BKJD)

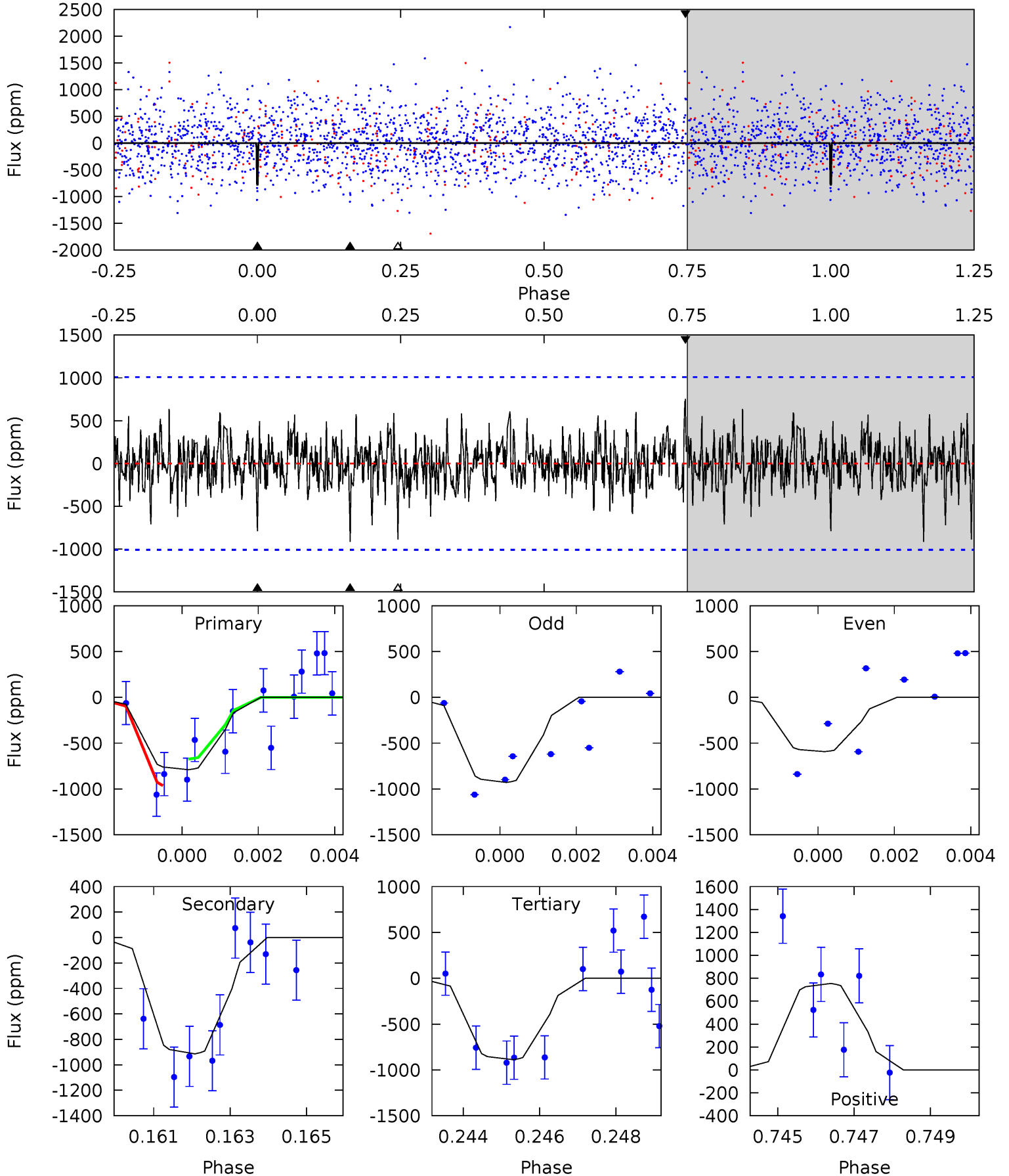


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

004936644-03, P = 26.966232 Days, E = 144.032223 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.18	4.84	4.70	4.00	5.34	3.11	1.16	-0.52	0.19	0.14	0.85	0.89	1.04	0.45	0.58



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 004936644

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6198^{+197}_{-240}	$4.464^{+0.056}_{-0.210}$	$-0.160^{+0.250}_{-0.300}$	$1.005^{+0.335}_{-0.112}$	$1.072^{+0.144}_{-0.159}$	$1.489^{+0.430}_{-0.785}$
	+3%/-4%	+1%/-5%	+156%/-188%	+33%/-11%	+13%/-15%	+29%/-53%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004936644-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-914±189	$22.62^{+25.18}_{-16.36}$	922^{+68}_{-48}	3083^{+1654}_{-588}	31^{+390}_{-24}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

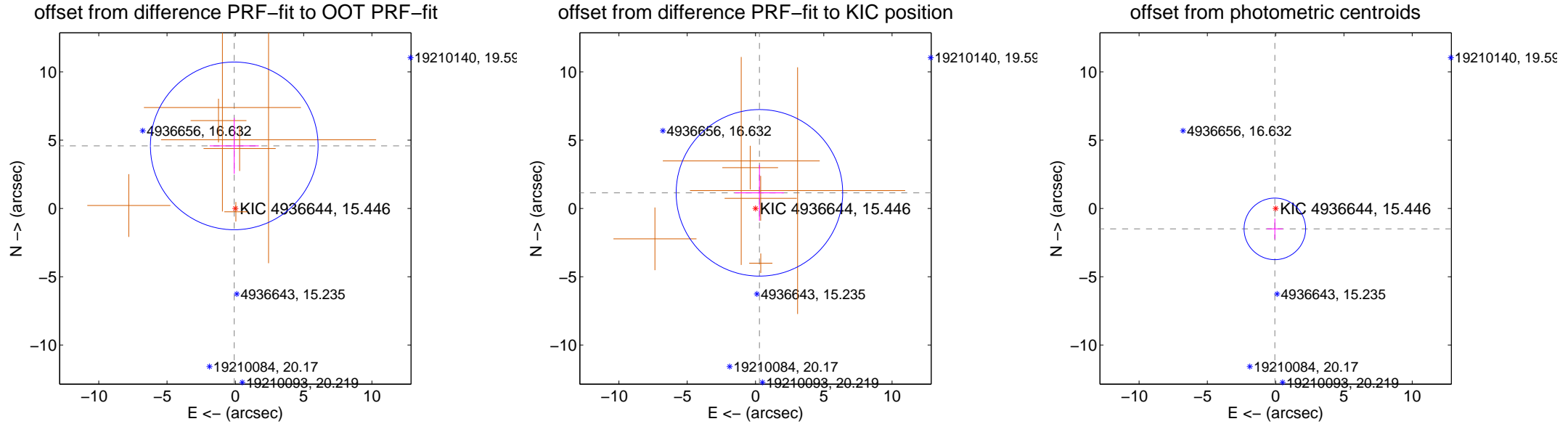
DV Centroid Data

Supplemental centroid analysis for 004936644-03. Kepler magnitude: 15.45. Transit SNR 11.42

There are 0 quarters with good PRF difference image offsets

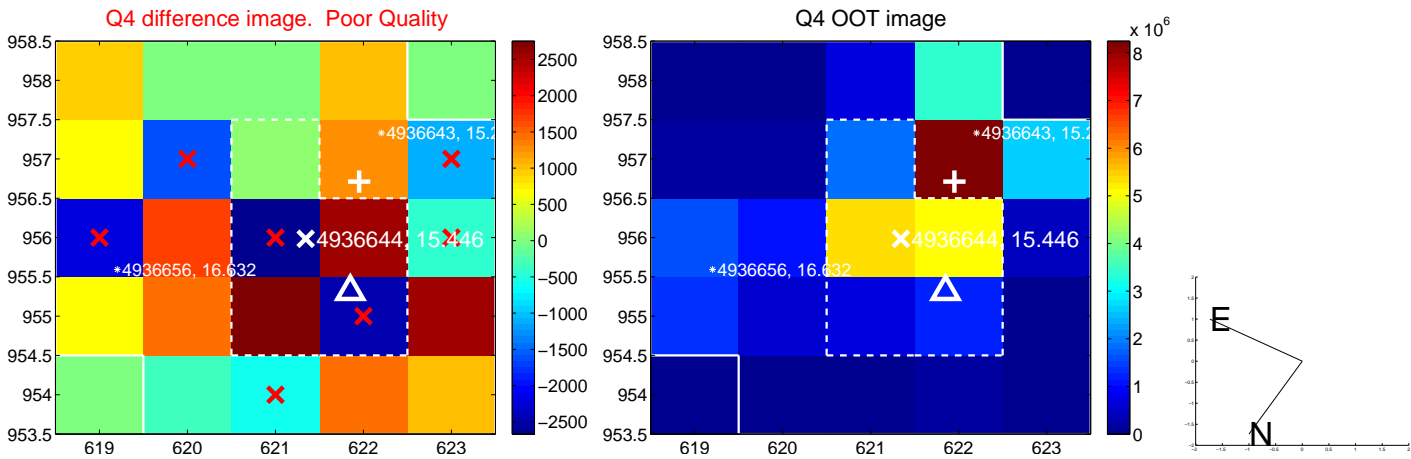
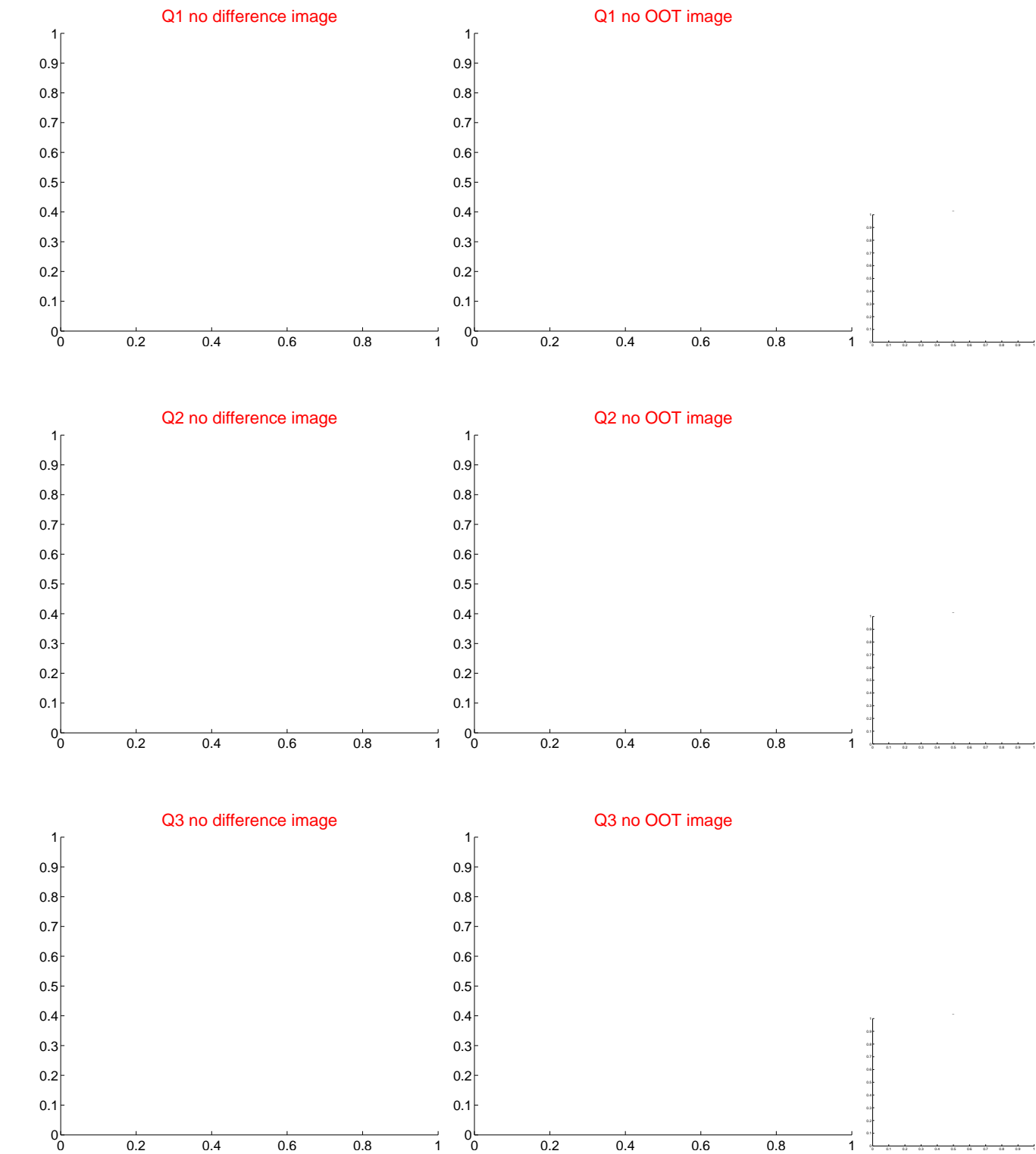
The OOT PRF centroid is offset from the target star catalog position by about 3.55 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.582 ± 2.046	2.24	0.080 ± 1.798	4.581 ± 2.046
PRF-fit source offset from KIC position	1.179 ± 2.032	0.58	-0.289 ± 1.798	1.143 ± 2.046
photometric centroid source offset	1.50 ± 0.75	1.99	0.06 ± 0.59	-1.50 ± 0.75

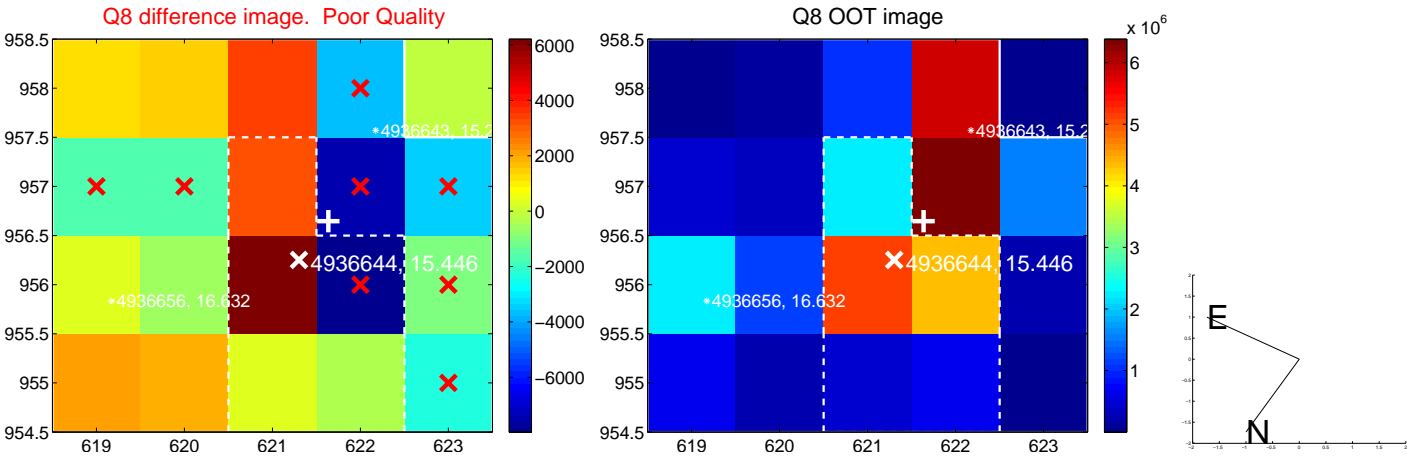
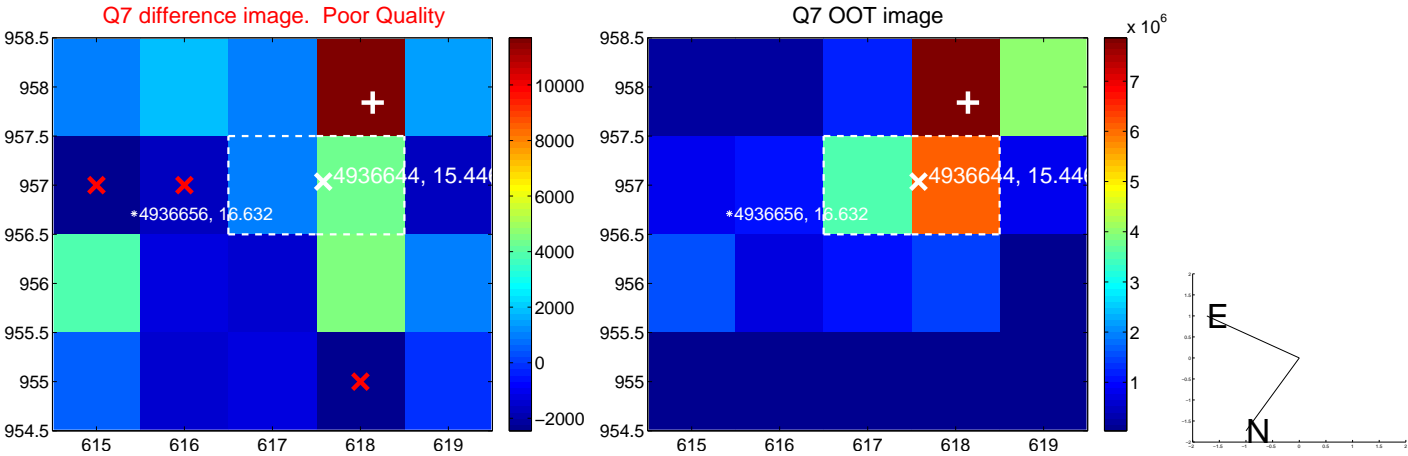
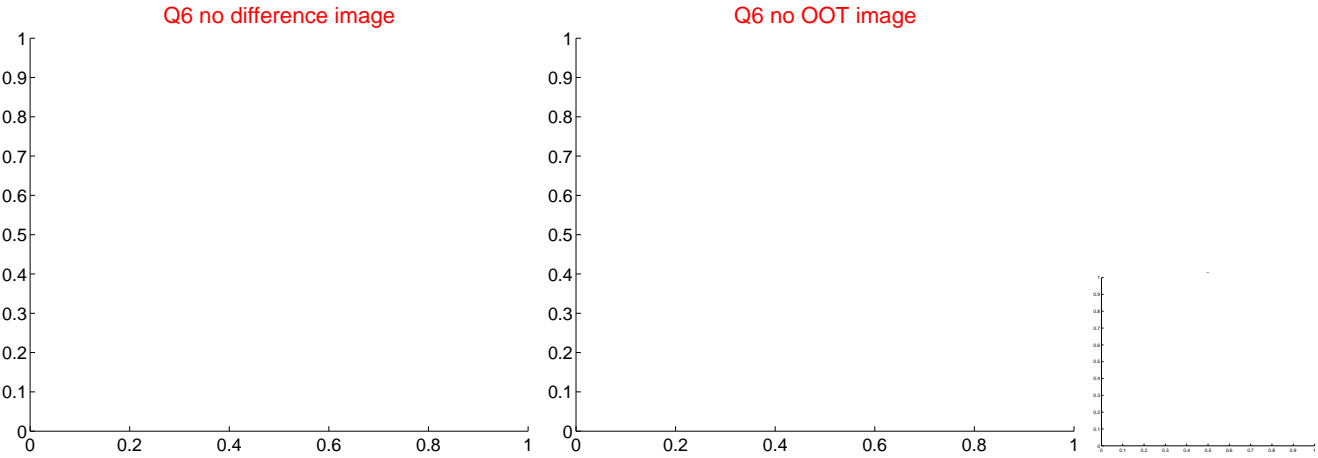
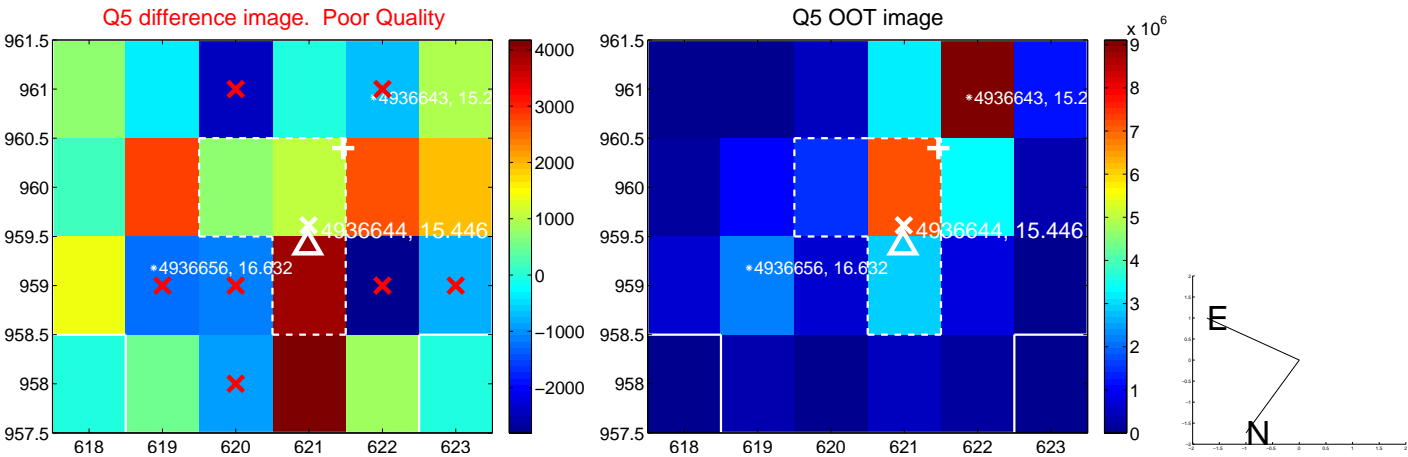


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

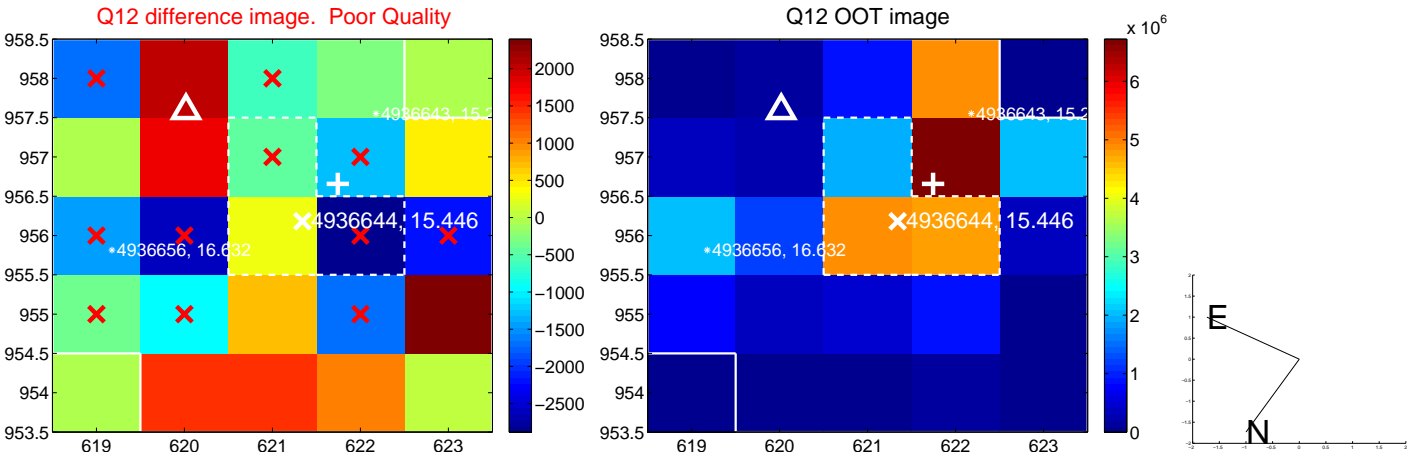
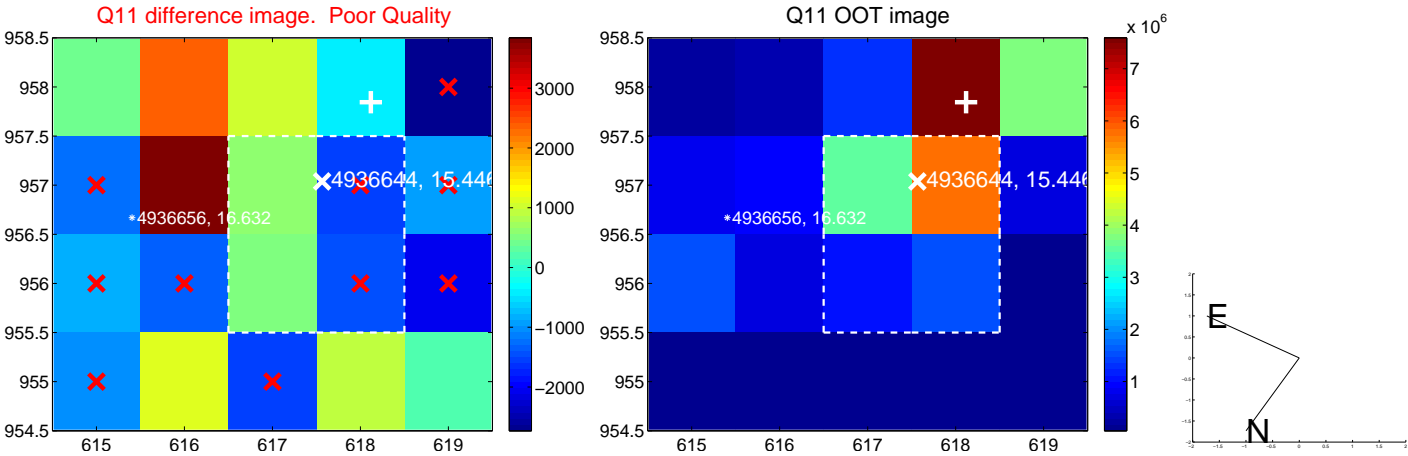
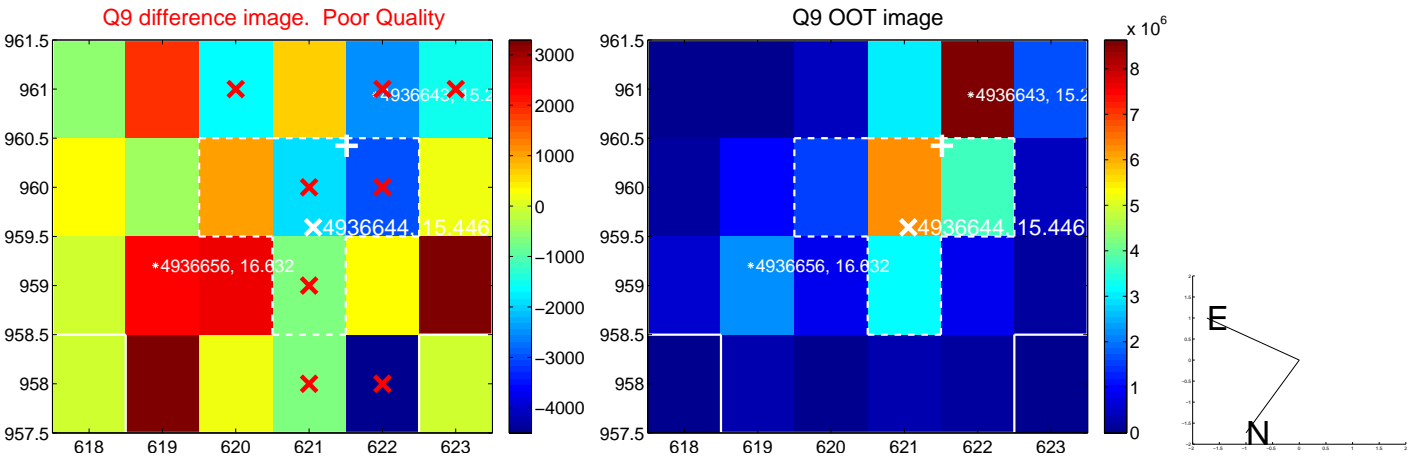
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



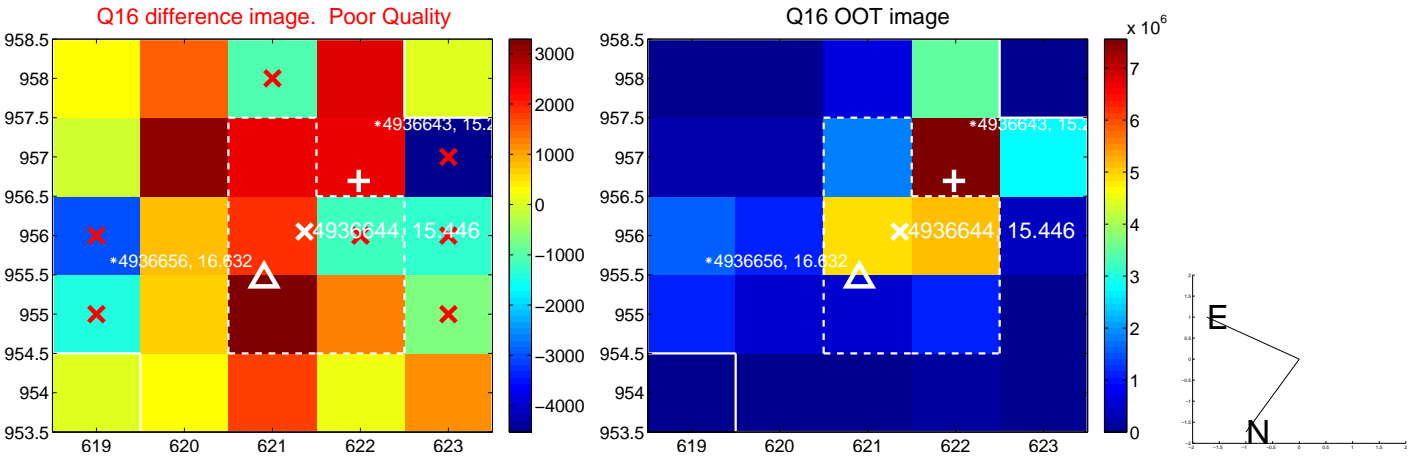
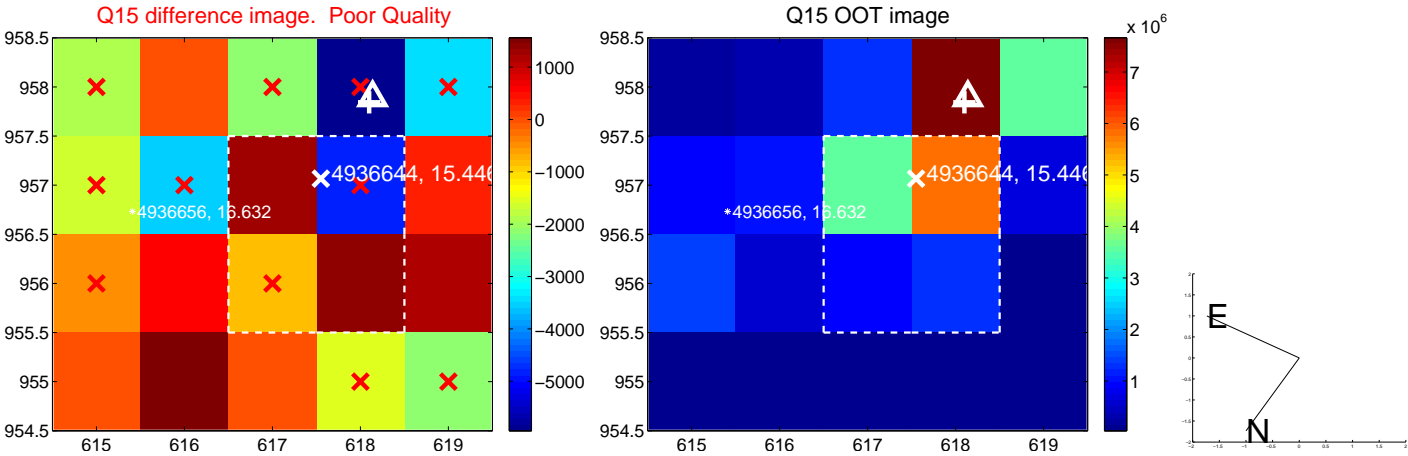
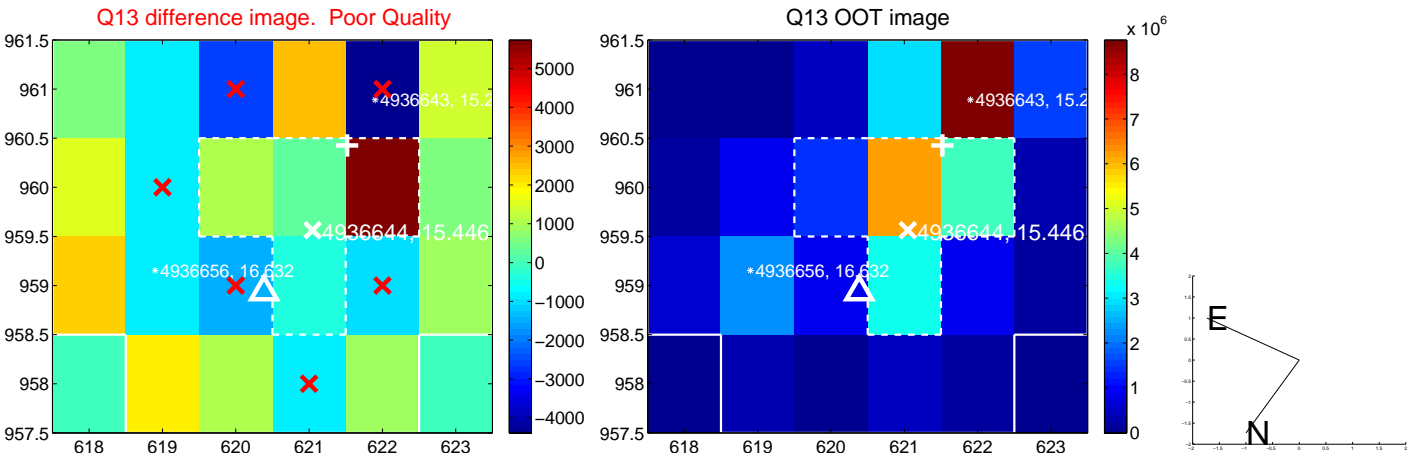
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



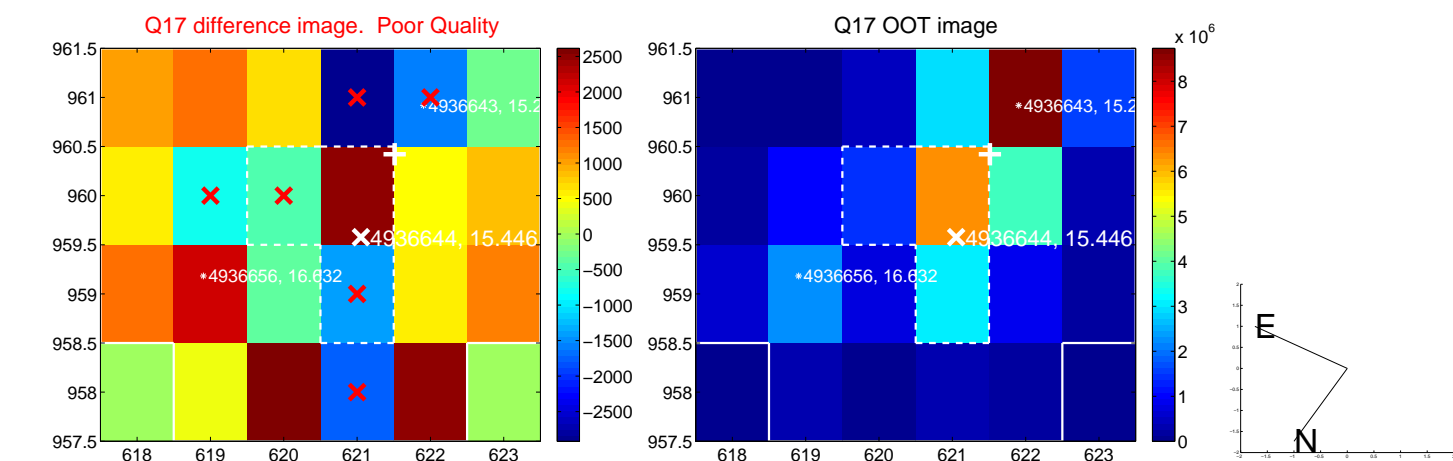
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



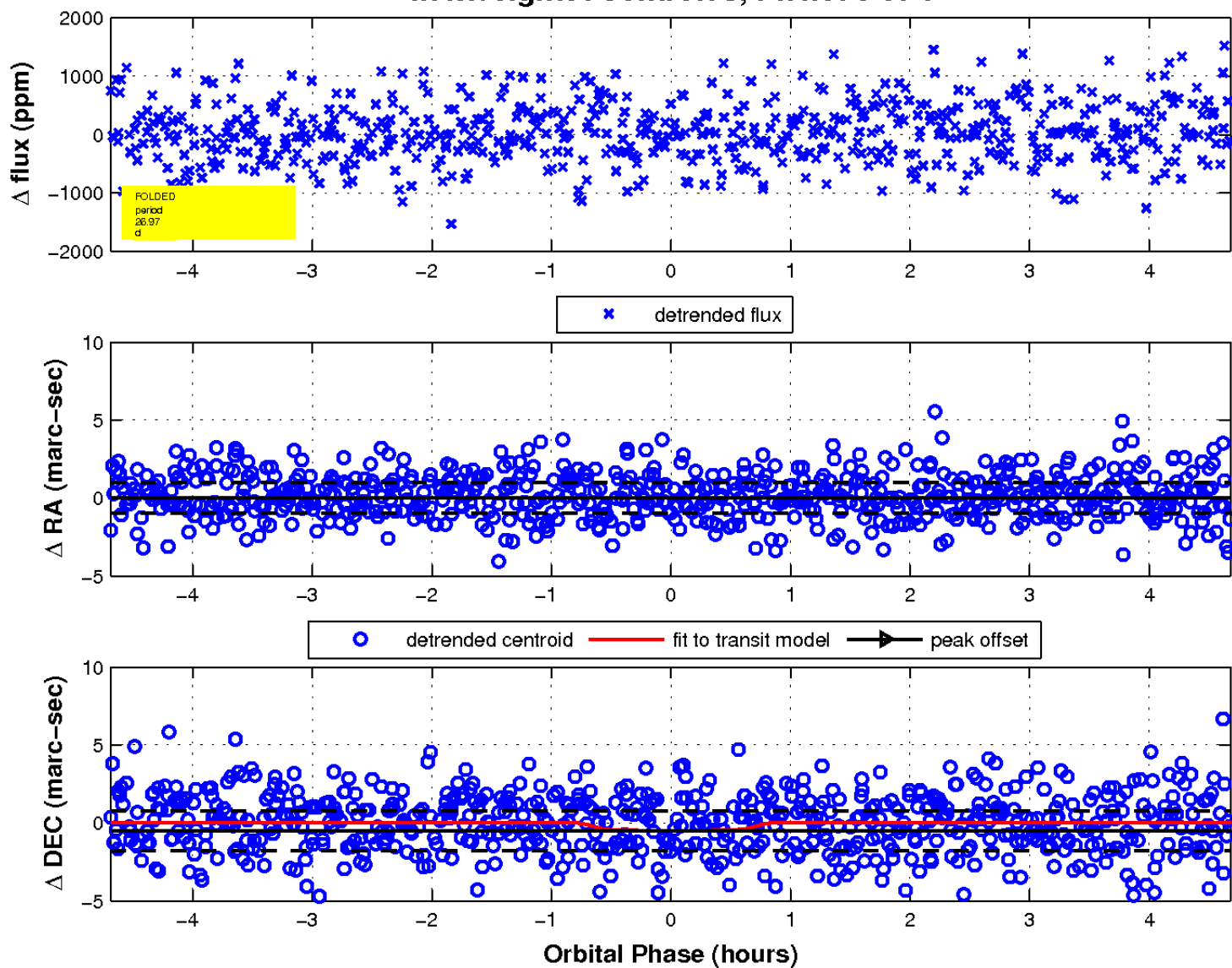
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



2

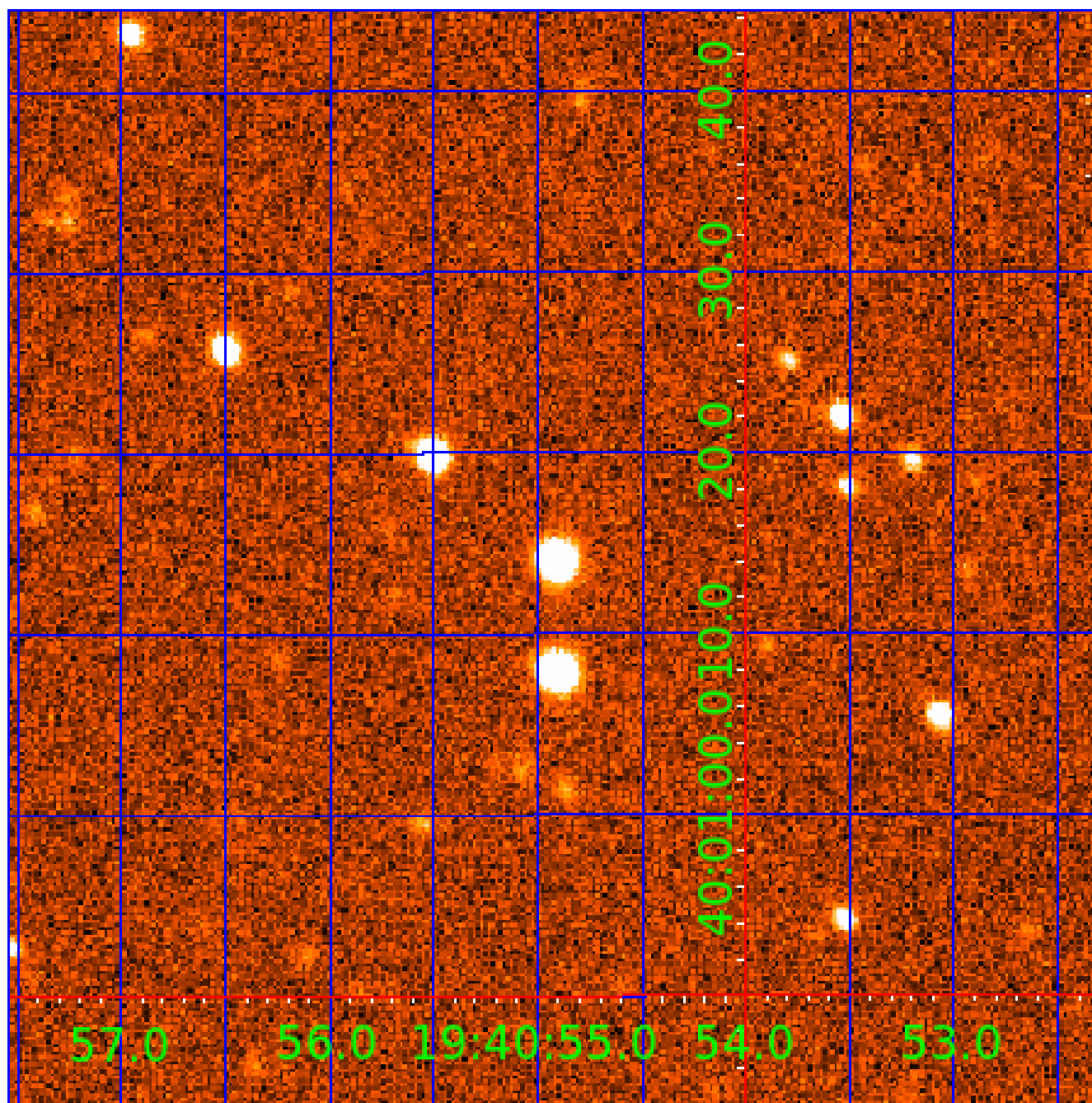


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 004936644

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})
004936644-01	OBS	No	1.399320	131.886176	32.5	10.505	7.6	5.3	1.00	6198	0.57	2125.47
004936644-02	OBS	No	42.006619	150.409880	909.5	1.438	15.8	13.8	1.00	6198	3.21	22.78
004936644-03	OBS	No	26.966232	144.032223	768.6	1.564	10.9	11.4	1.00	6198	3.20	41.14
004936644-04	OBS	No	15.055275	132.003318	896.7	1.032	11.9	13.5	1.00	6198	3.04	89.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004936644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
004936644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
004936644-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
004936644-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

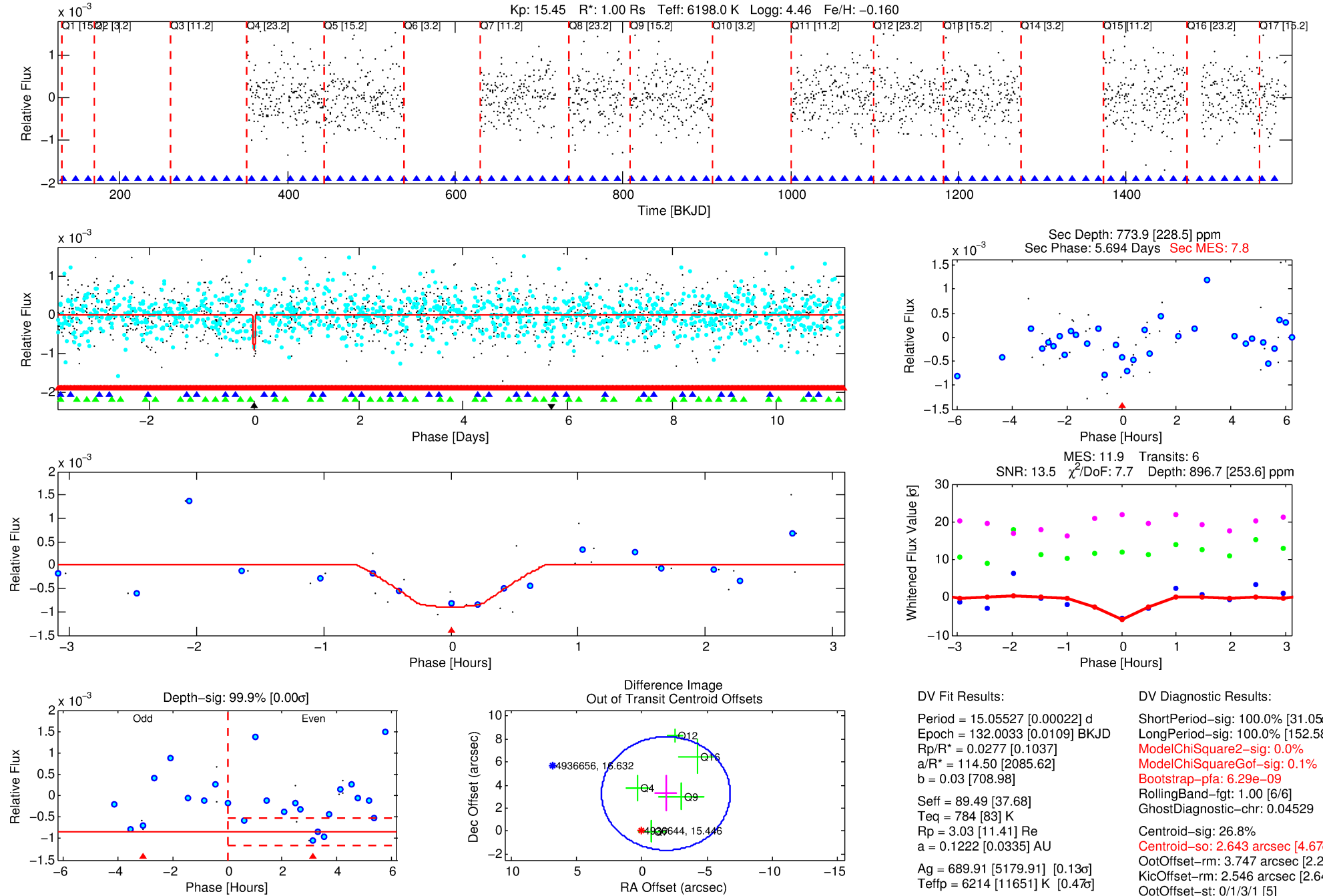
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004936644-04

No Significant Match Found

DV One-Page Summary

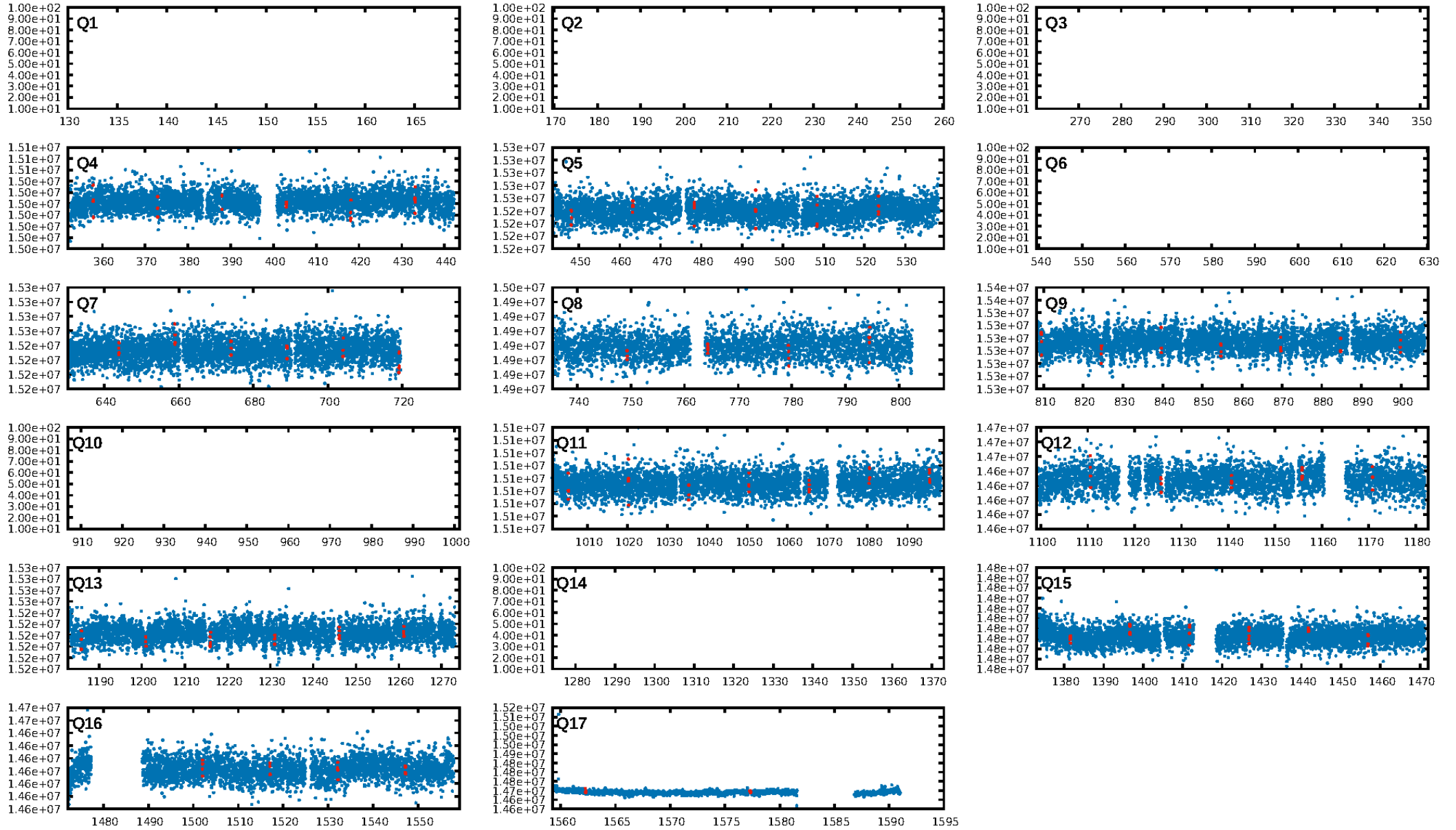
KIC: 4936644 Candidate: 4 of 4 Period: 15.055 d



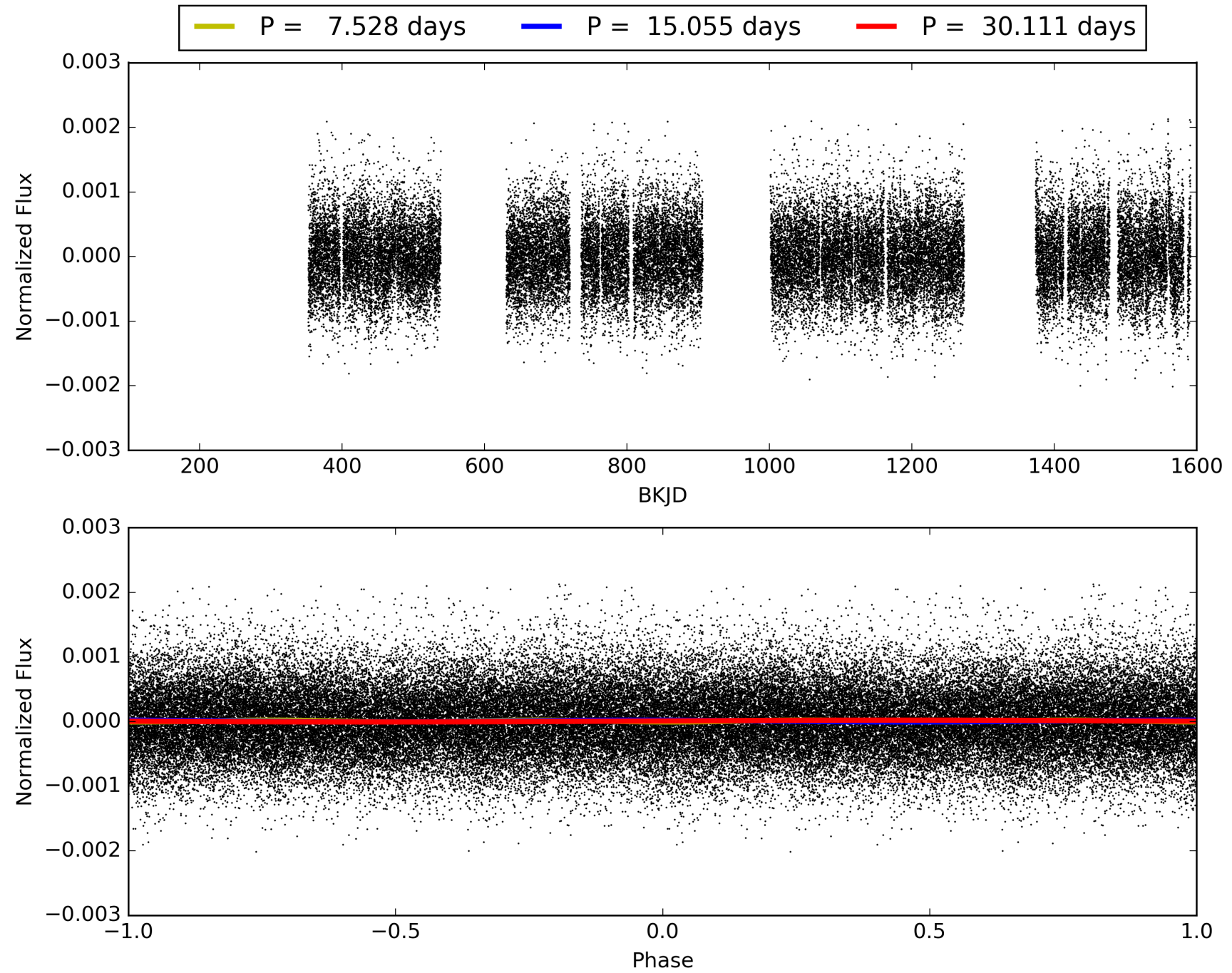
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:23:26 Z

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

TCE 004936644-04, PDC Light Curves

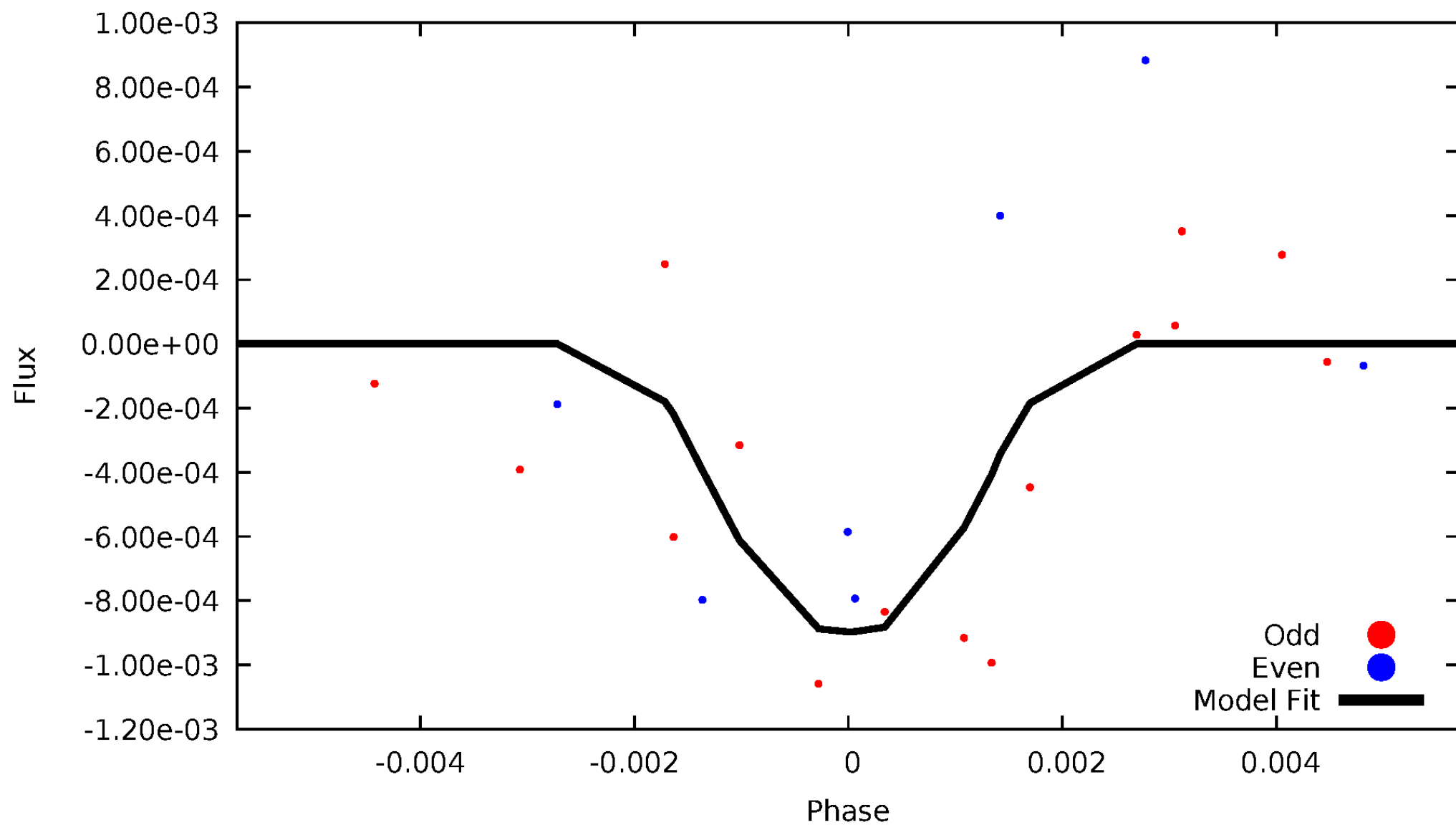


TCE 004936644-04



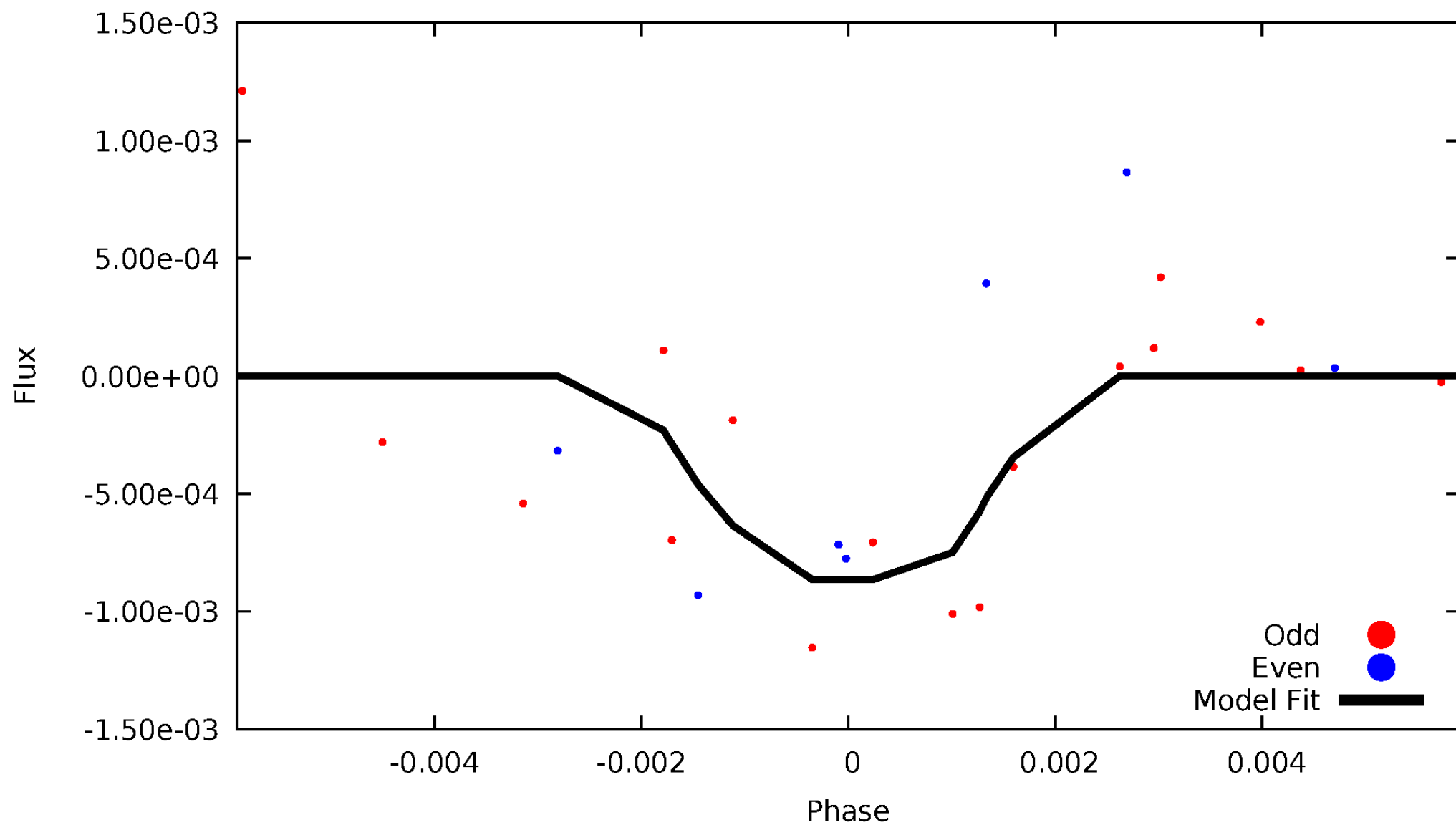
DV Odd/Even

TCE 004936644-04



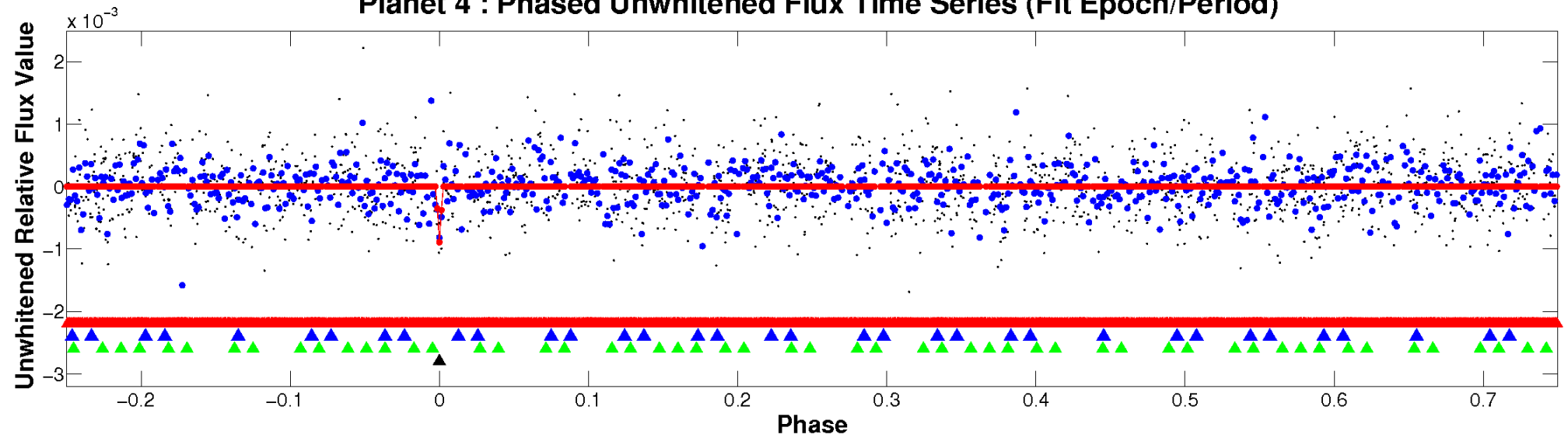
ALT Odd/Even

TCE 004936644-04

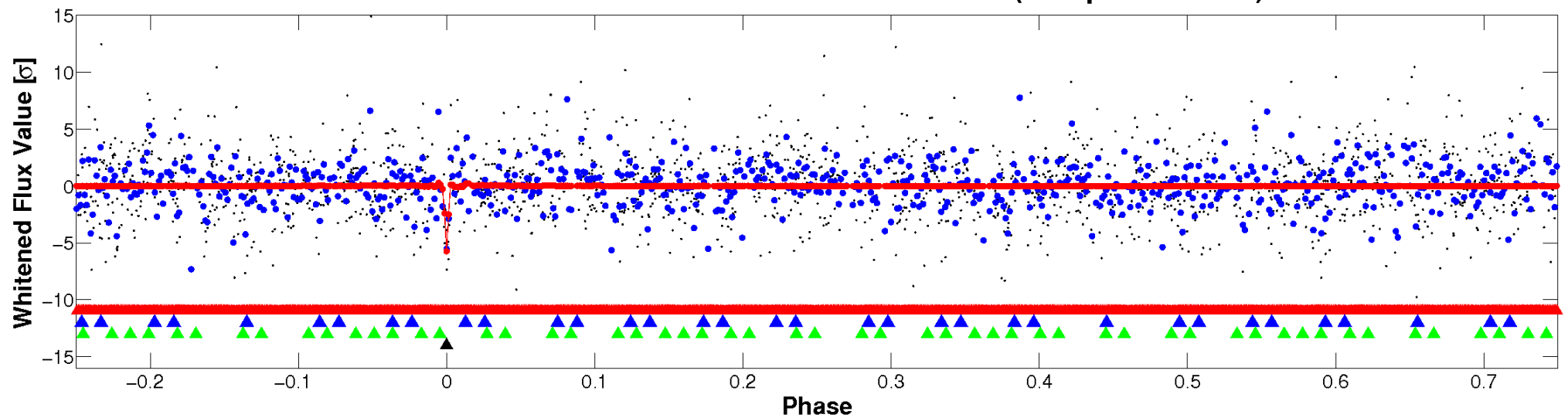


Non-Whitened Vs. Whitened Light Curve

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

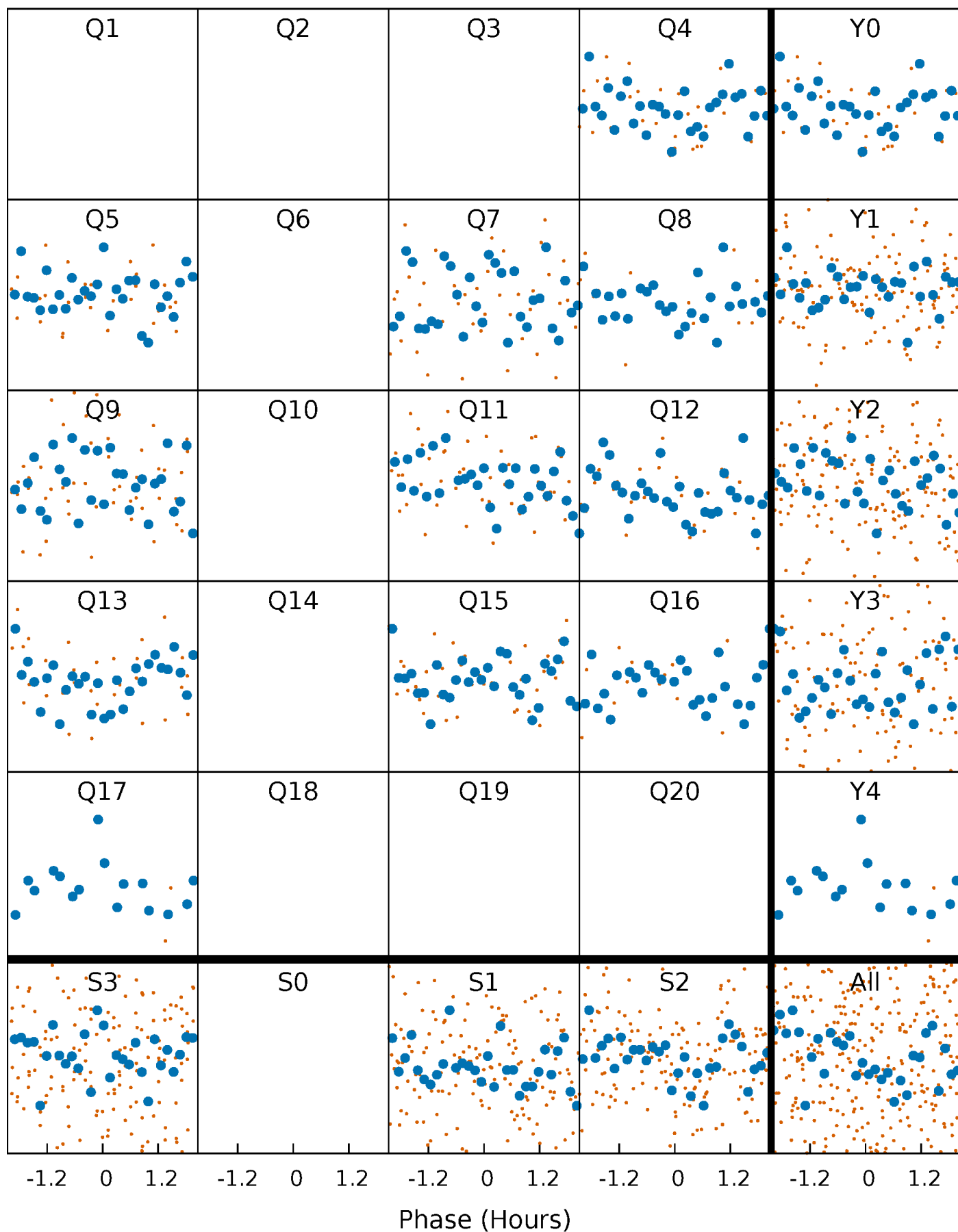


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



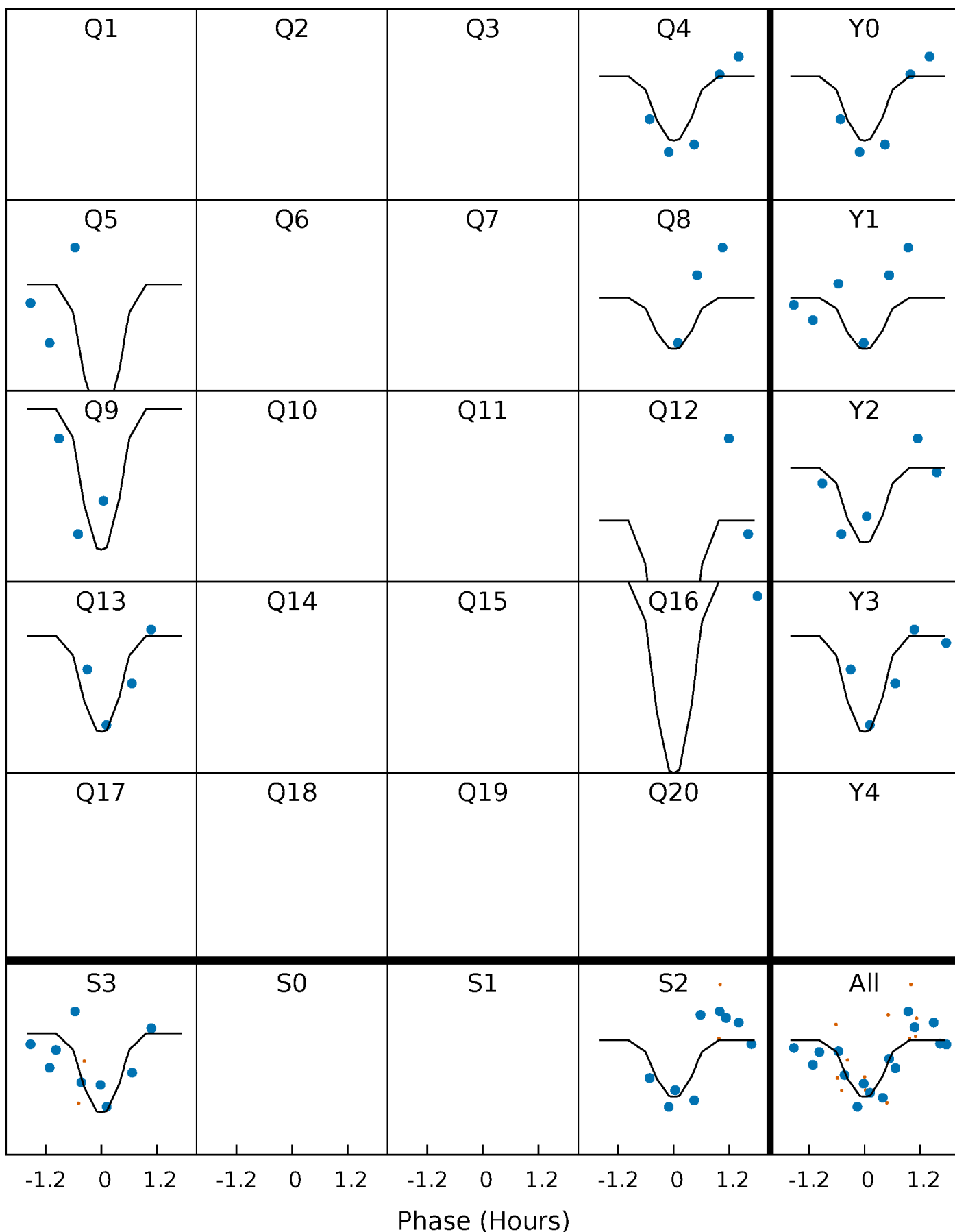
PDC Quarter-Phased Transit Curves

TCE 004936644-04 $P = 15.055275$ Days $T_0 = 132.003318$ (BKJD)



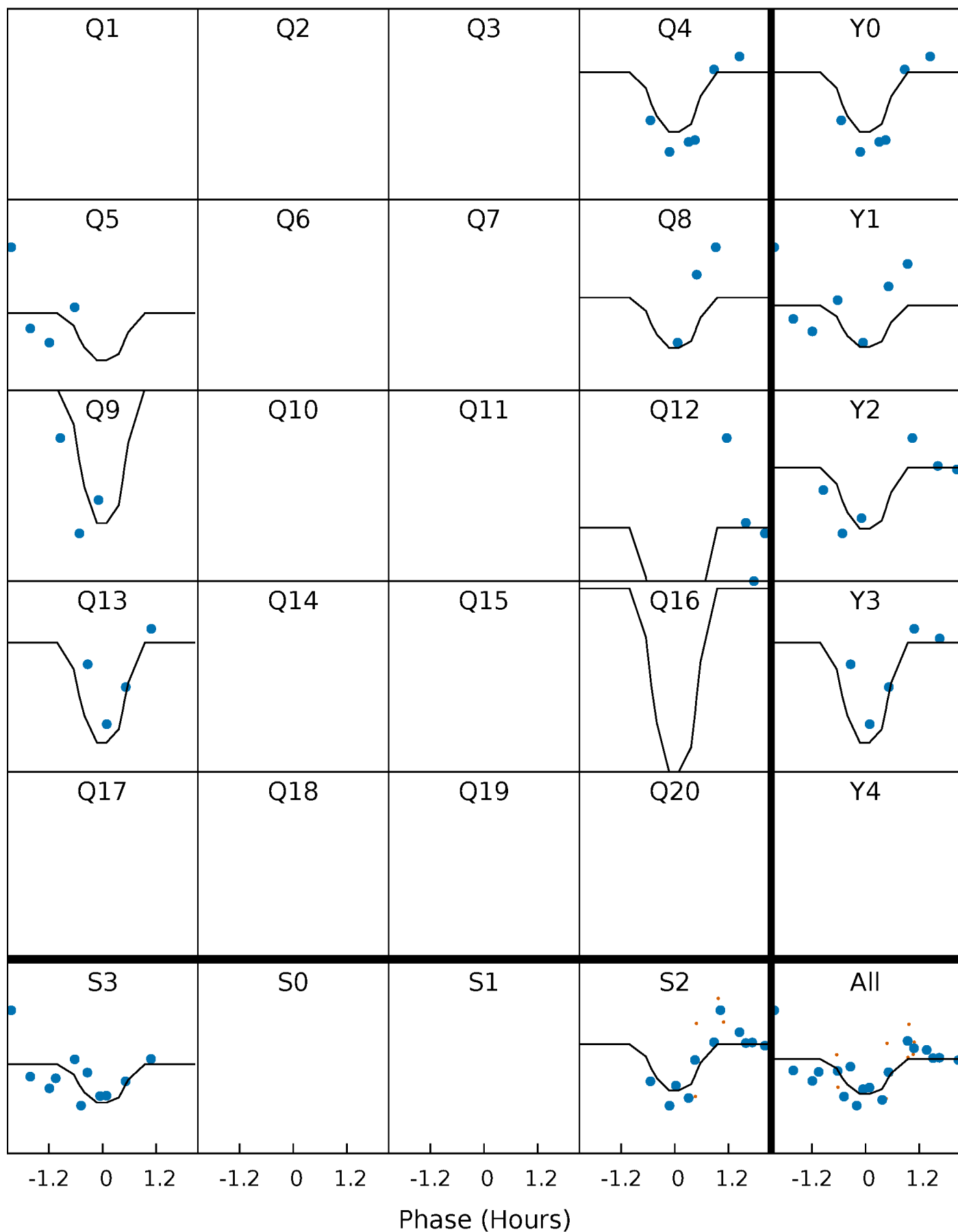
DV Quarter-Phased Transit Curves

TCE 004936644-04 P= 15.055275 Days $T_0=132.003318$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

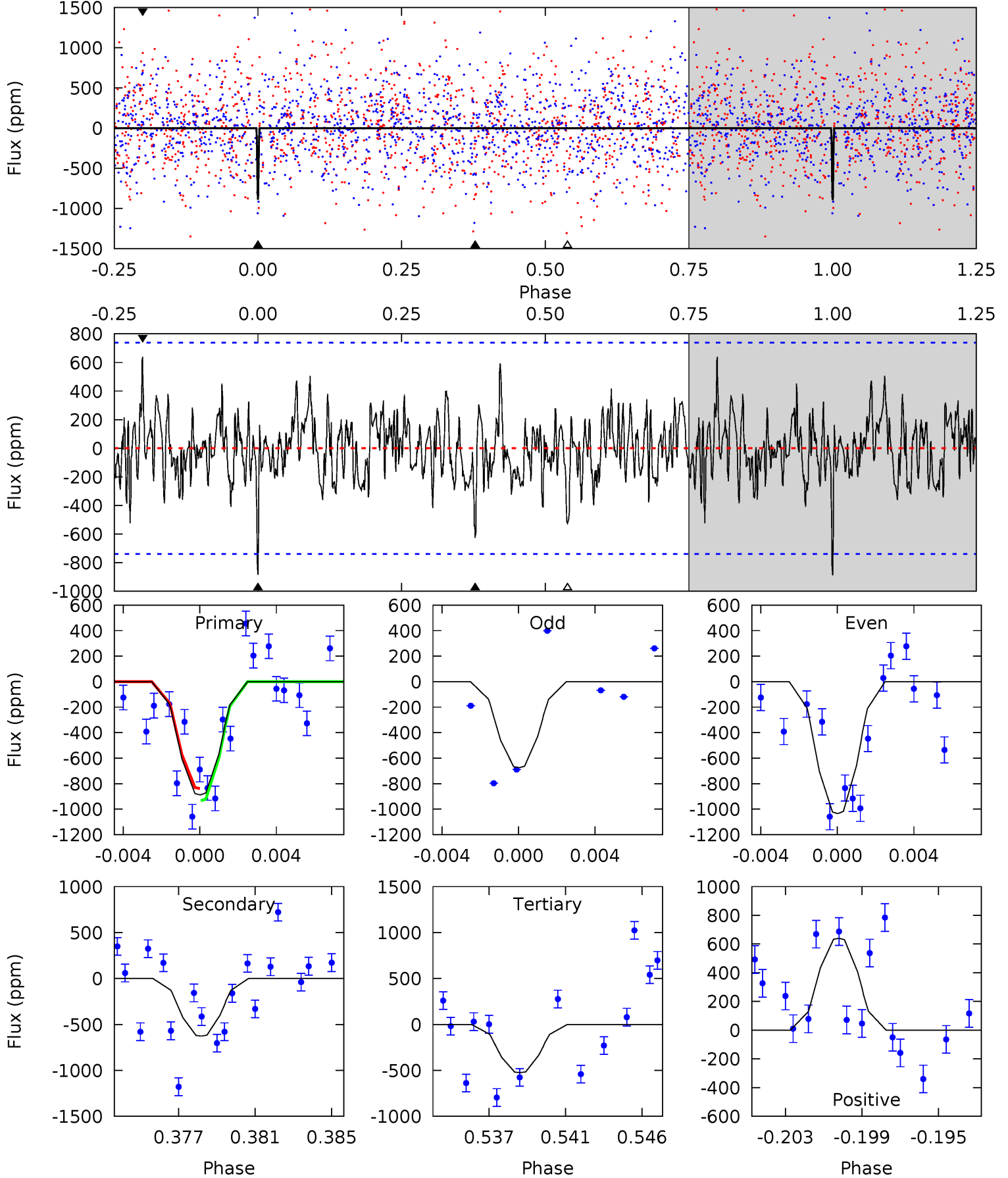
TCE 004936644-04 P= 15.055283 Days $T_0=132.004251$ (BKJD)



DV Model-Shift Uniqueness Test

004936644-04, P = 15.055275 Days, E = 132.003318 Days

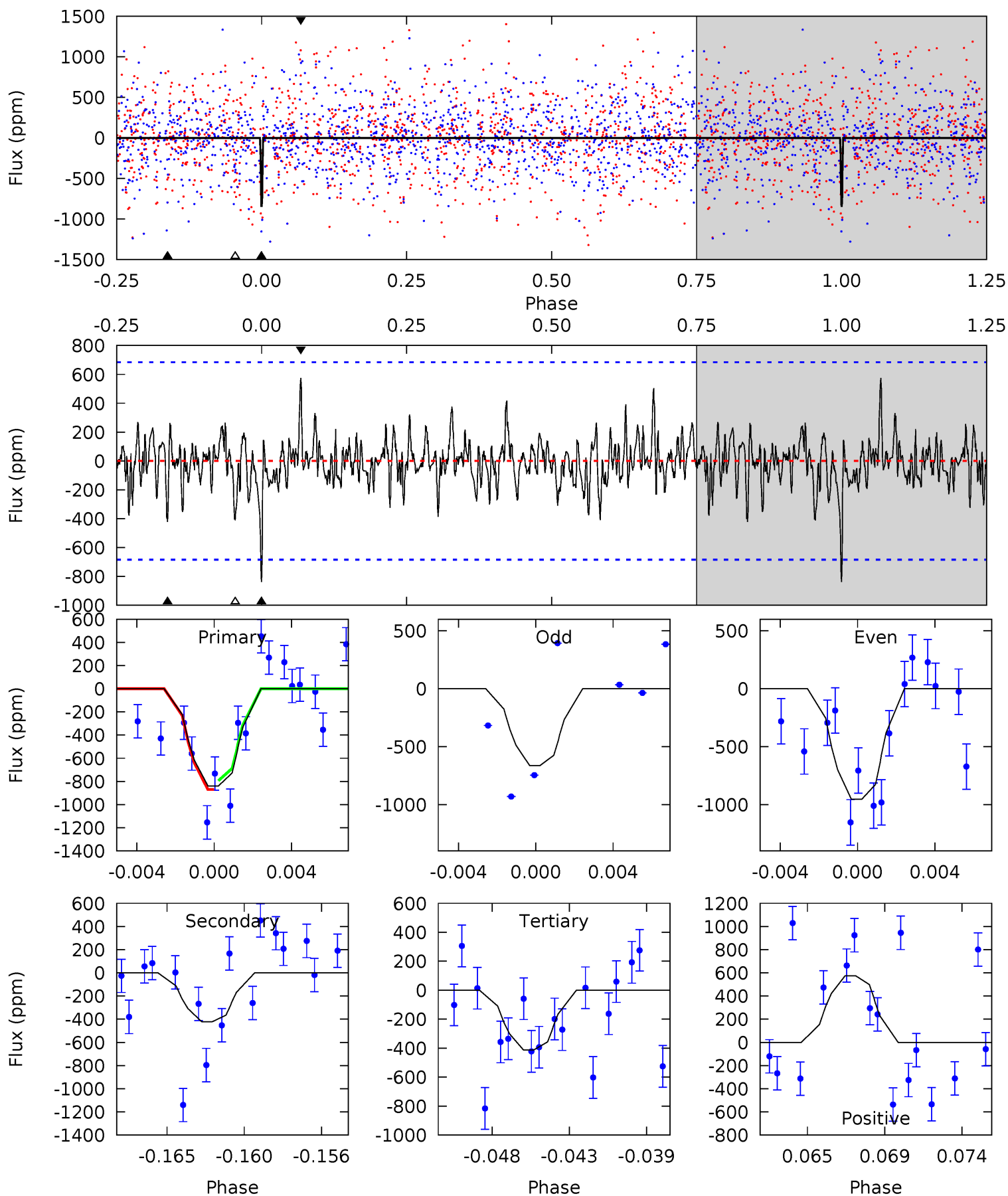
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.23	4.40	3.68	4.49	5.18	2.85	1.28	2.54	1.73	0.71	-0.09	1.30	1.08	0.42	0.33



Alt Model-Shift Uniqueness Test

004936644-04, P = 15.055283 Days, E = 132.004251 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.36	3.20	3.12	4.36	5.18	2.85	1.06	3.24	2.00	0.08	-1.16	1.10	1.03	0.41	0.29



Stellar Parameters For KIC 004936644

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6198^{+197}_{-240}	$4.464^{+0.056}_{-0.210}$	$-0.160^{+0.250}_{-0.300}$	$1.005^{+0.335}_{-0.112}$	$1.072^{+0.144}_{-0.159}$	$1.489^{+0.430}_{-0.785}$
	+3%/-4%	+1%/-5%	+156%/-188%	+33%/-11%	+13%/-15%	+29%/-53%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004936644-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-626 ± 142	$9.53^{+9.86}_{-6.57}$	1120^{+90}_{-59}	3804^{+2331}_{-757}	56^{+540}_{-43}
Alt.	-422 ± 132	$9.61^{+8.79}_{-6.62}$	1117^{+92}_{-56}	3574^{+1925}_{-737}	39^{+340}_{-30}

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

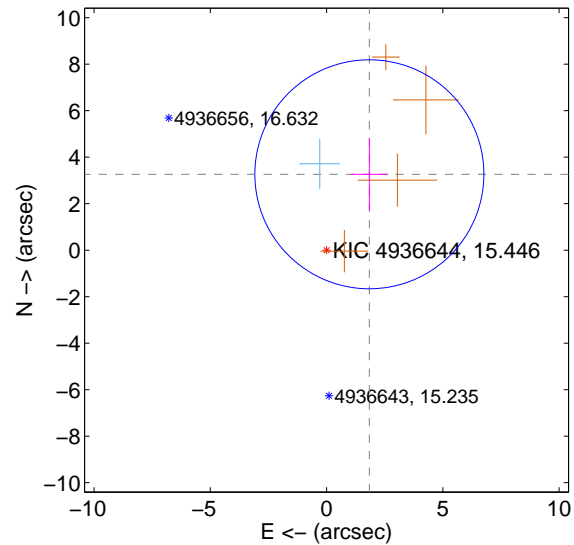
Supplemental centroid analysis for 004936644-04. Kepler magnitude: 15.45. Transit SNR 13.48

There are 1 quarters with good PRF difference image offsets

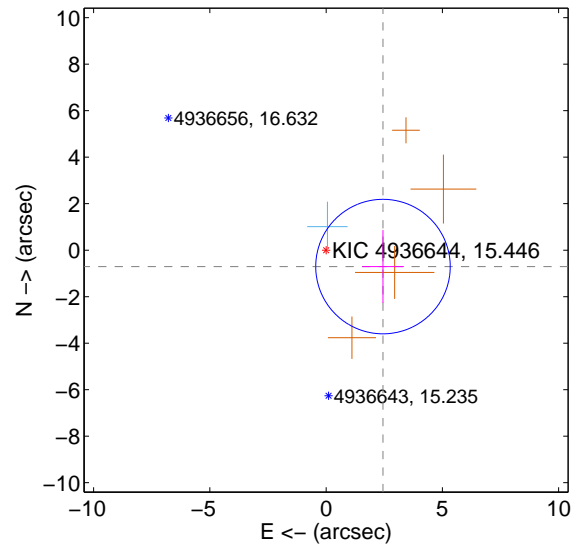
The OOT PRF centroid is offset from the target star catalog position by about 3.92 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.747 ± 1.642	2.28	-1.841 ± 0.800	3.264 ± 1.538
PRF-fit source offset from KIC position	2.546 ± 0.964	2.64	-2.446 ± 0.896	-0.706 ± 1.569
photometric centroid source offset	2.64 ± 0.57	4.67	0.26 ± 0.45	-2.63 ± 0.57

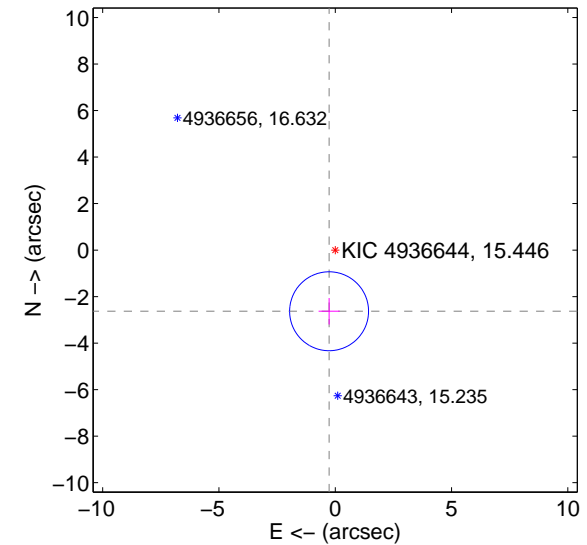
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

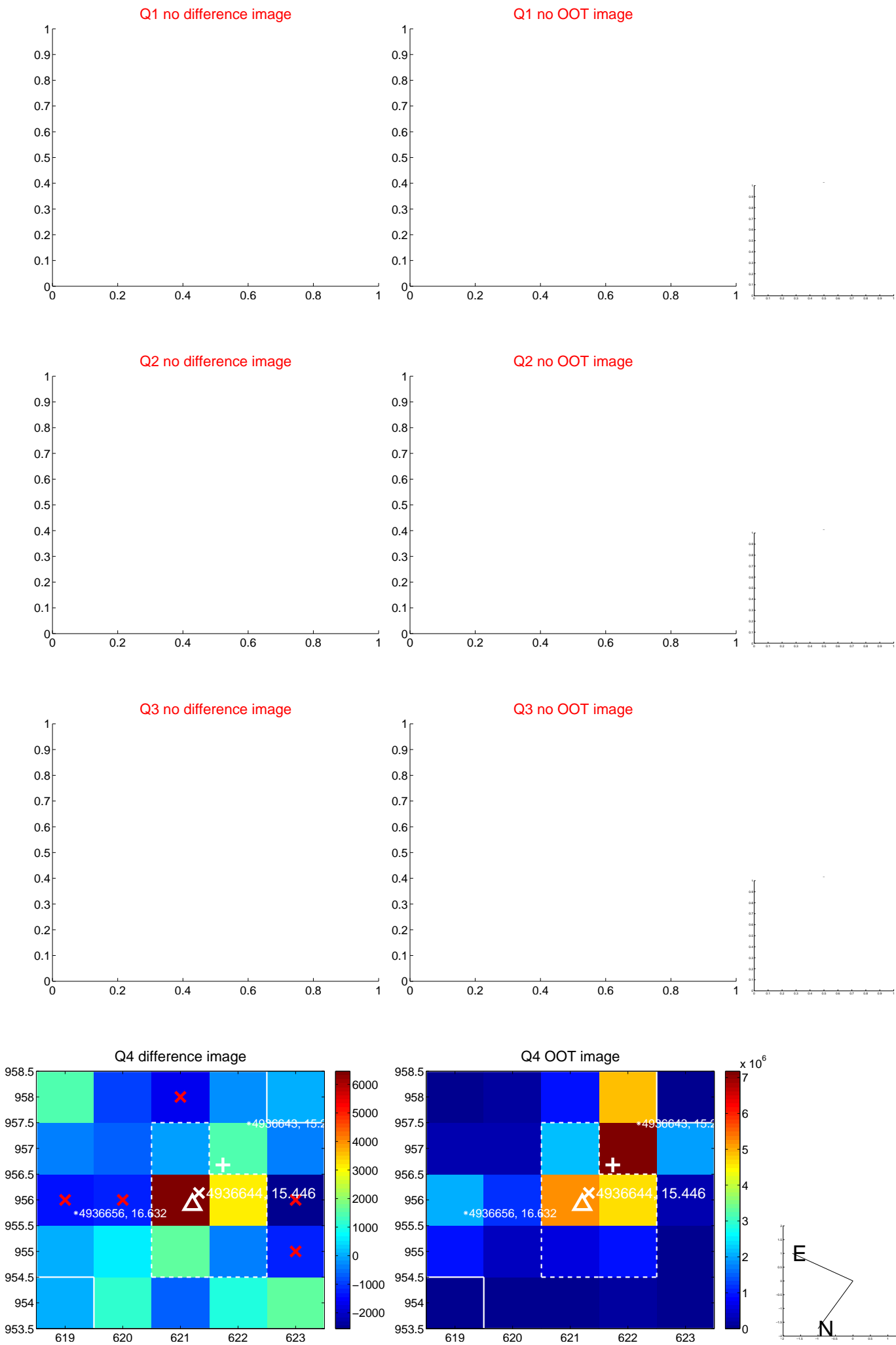


offset from photometric centroids

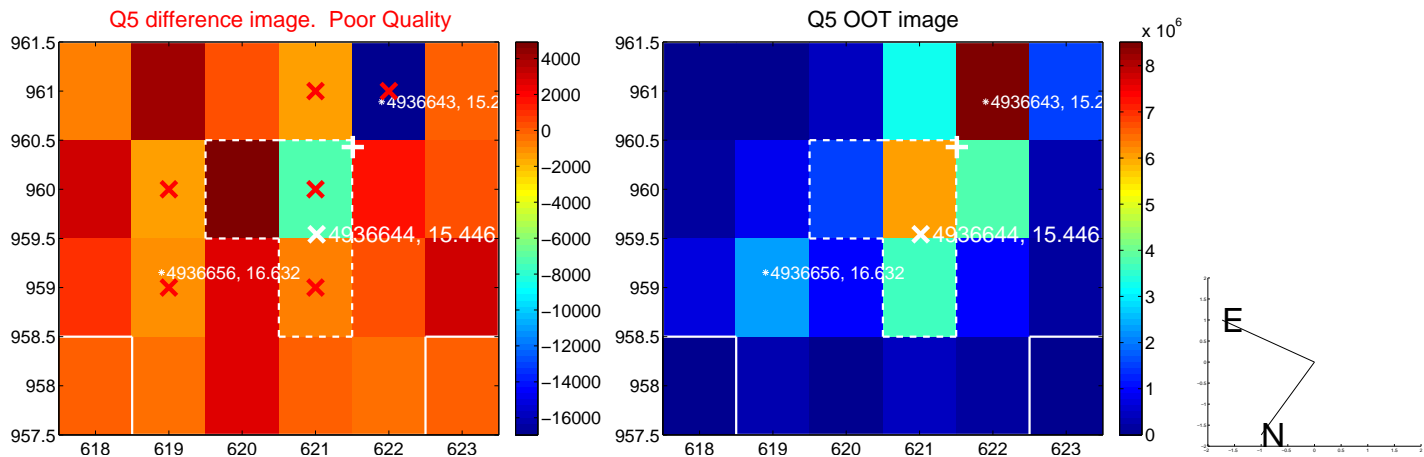


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

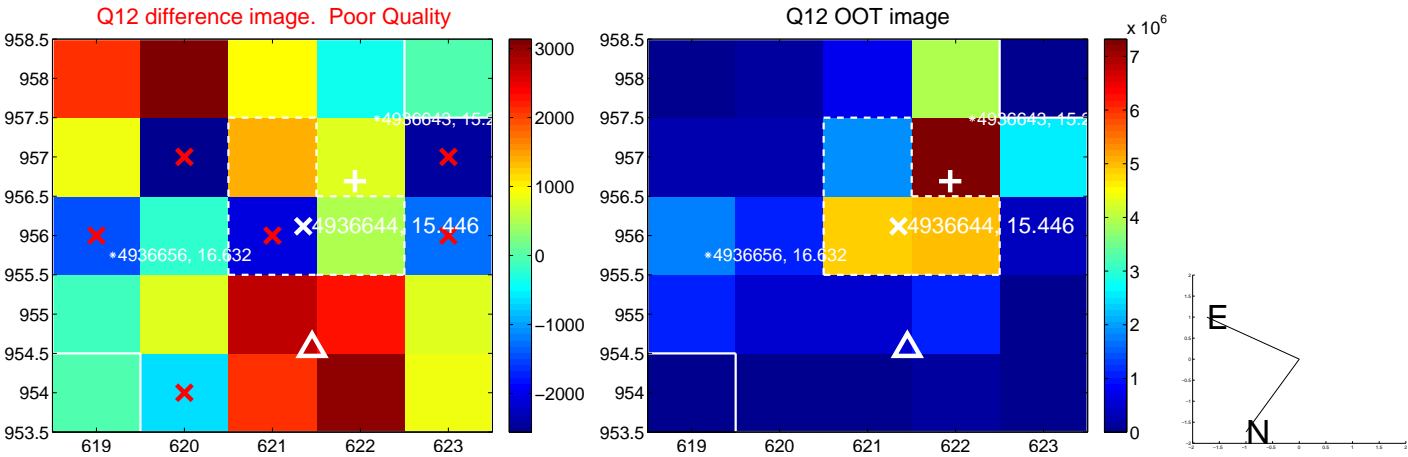
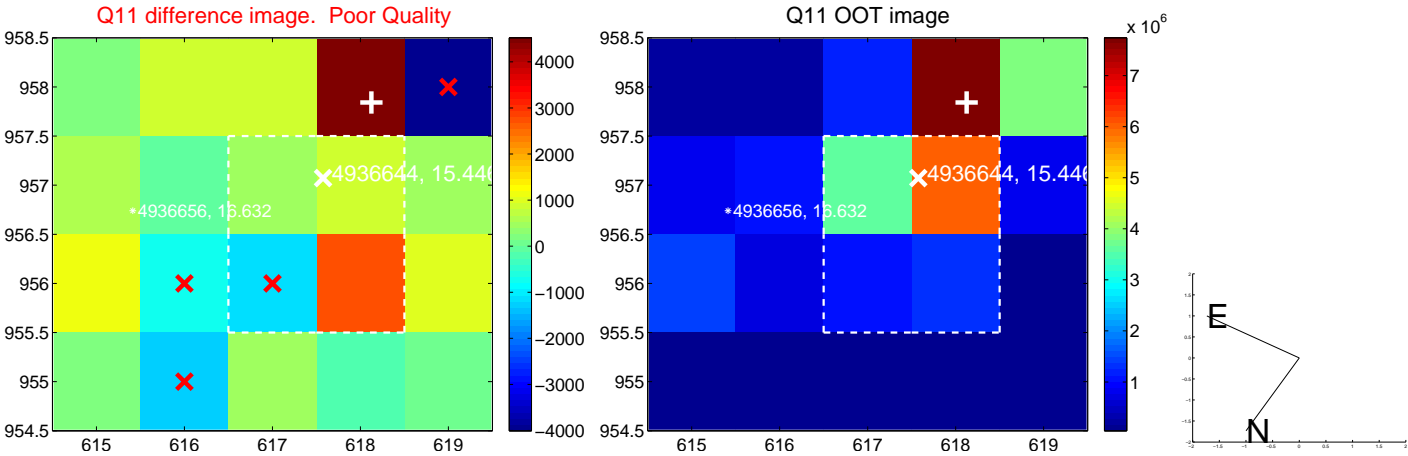
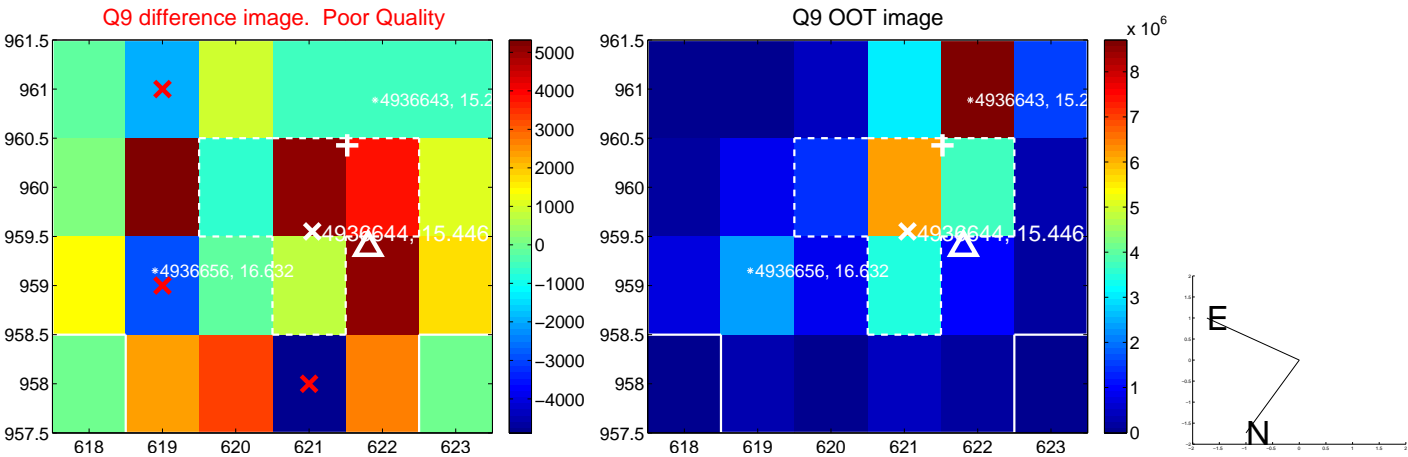
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



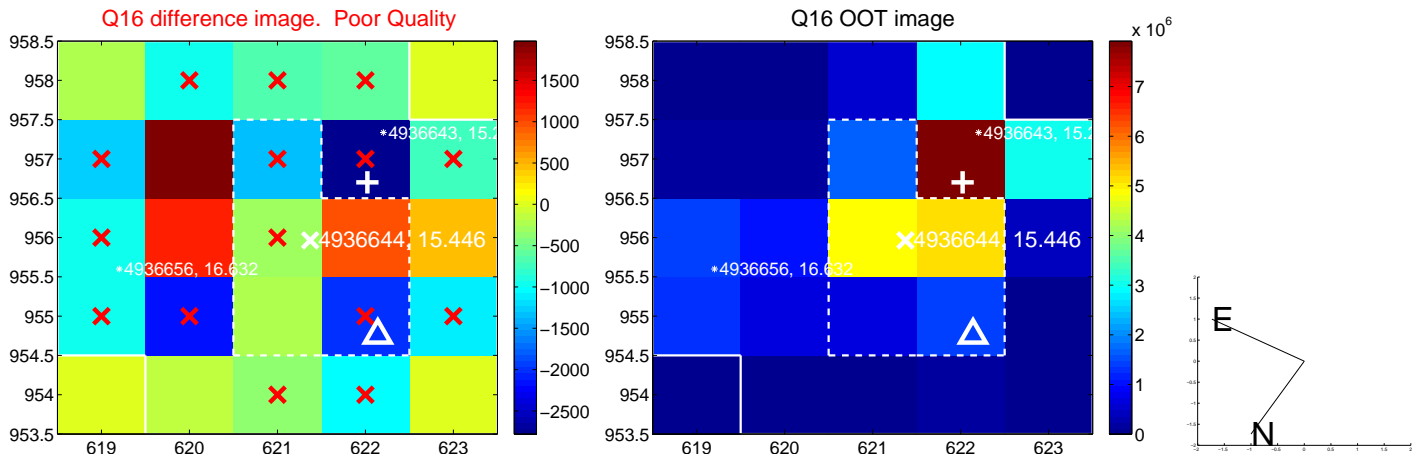
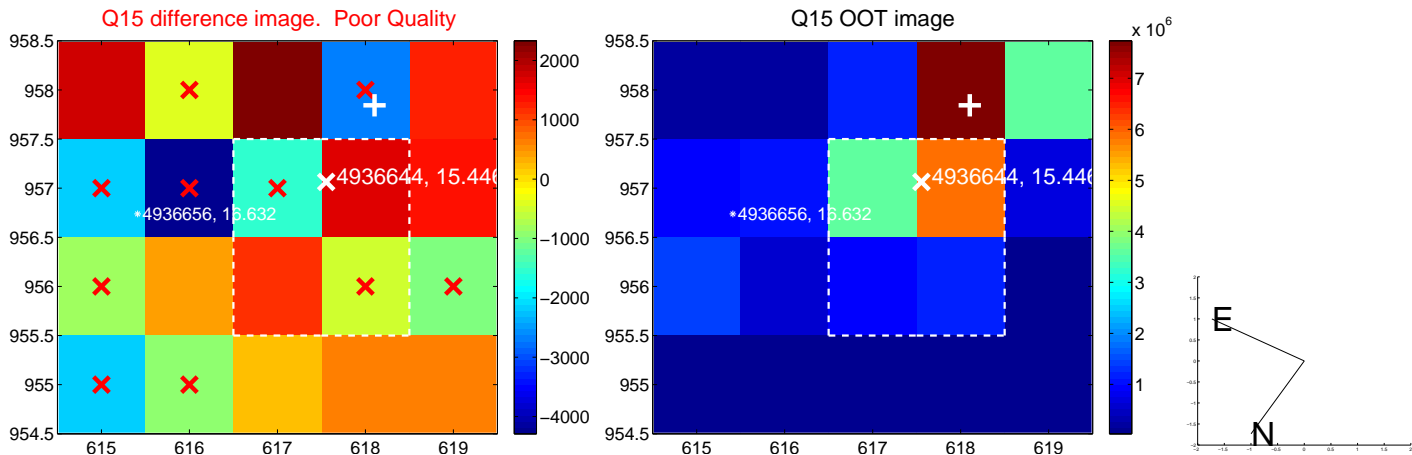
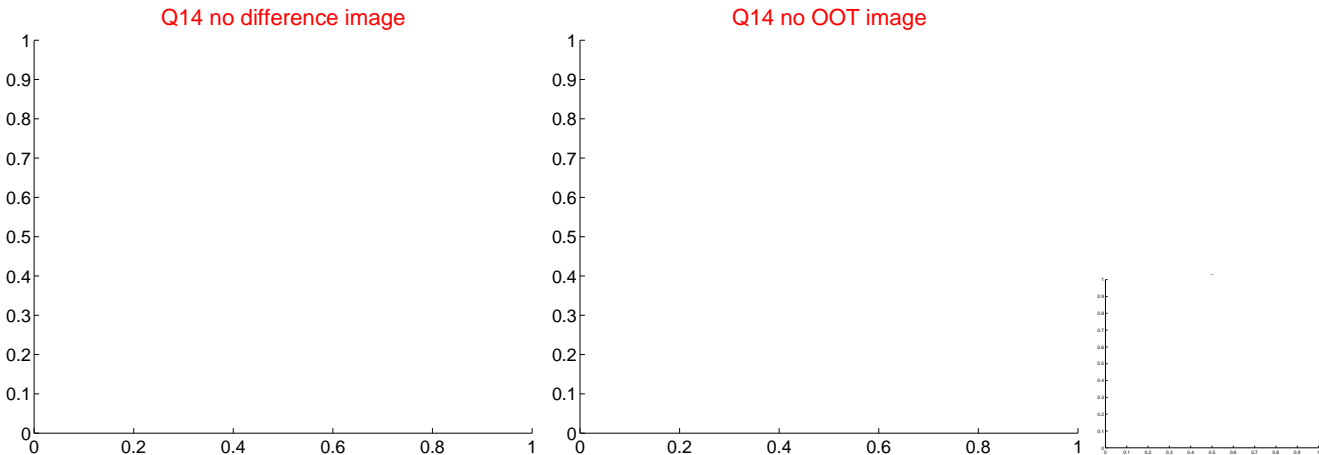
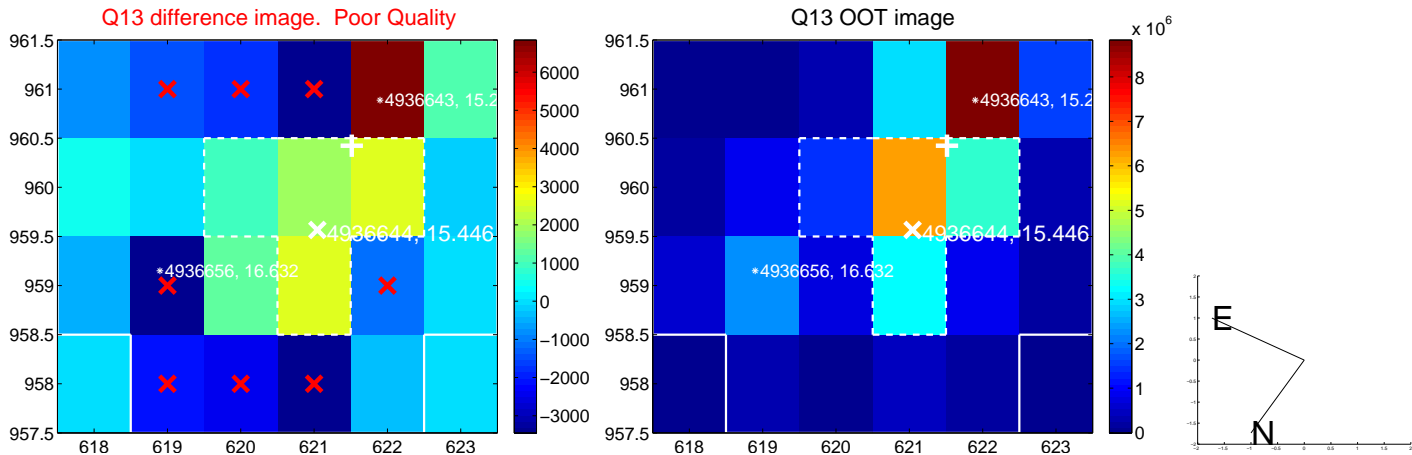
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



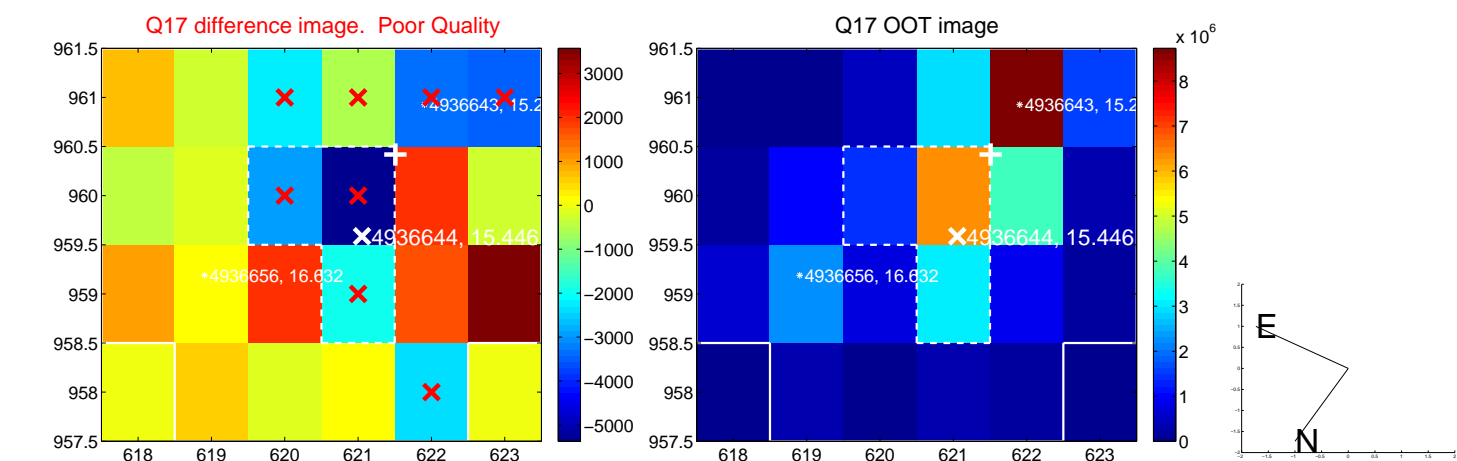
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



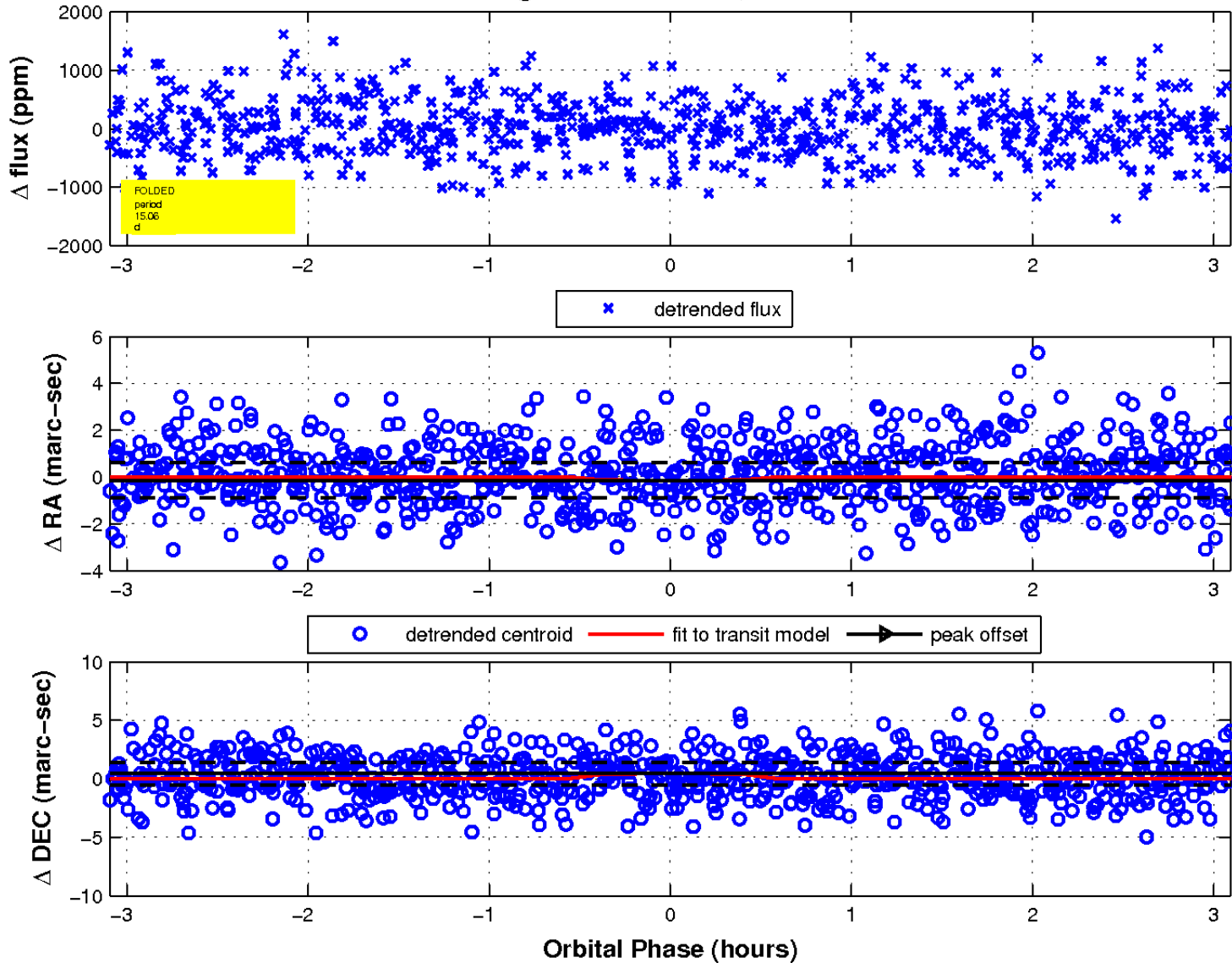
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

Declination

