

KIC 005645788

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})
005645788-01	OBS	No	0.522871	131.707364	50.3	1.489	11.6	11.1	2.16	7830	1.59	65521.64
005645788-02	OBS	No	0.871008	131.975897	35.7	5.474	8.6	7.0	2.16	7830	1.38	33180.35
005645788-03	OBS	No	0.959330	131.581071	131.9	3.733	11.3	10.8	2.16	7830	2.88	29171.14
005645788-04	OBS	No	14.263929	139.071411	162.2	3.500	8.6	-1.0	2.16	7830	2.79	797.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005645788-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005645788-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV
005645788-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005645788-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

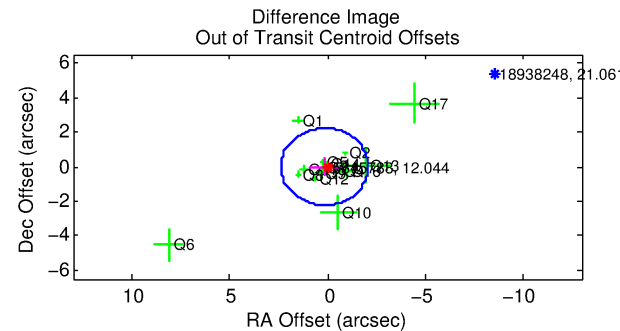
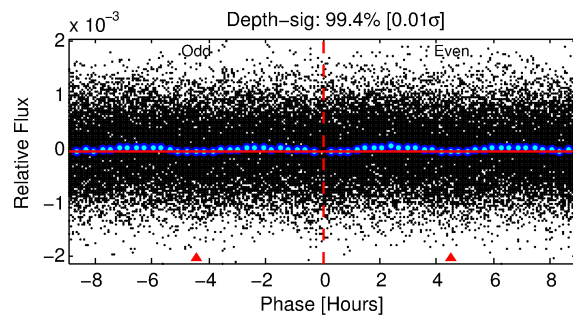
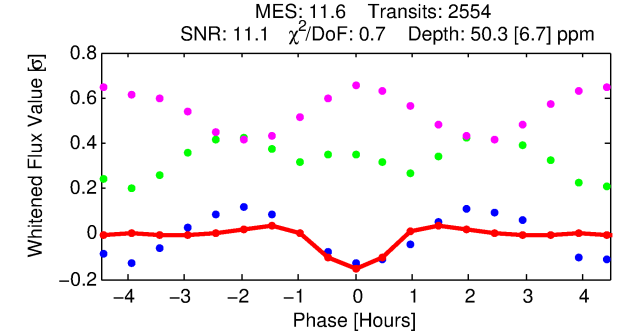
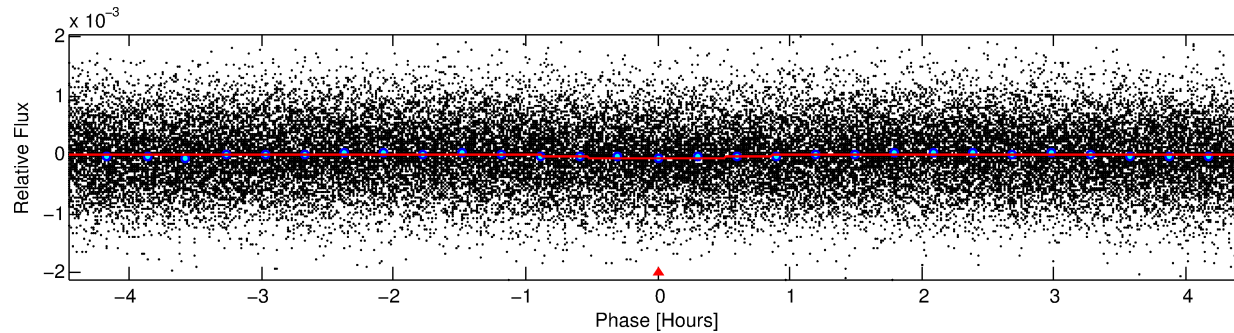
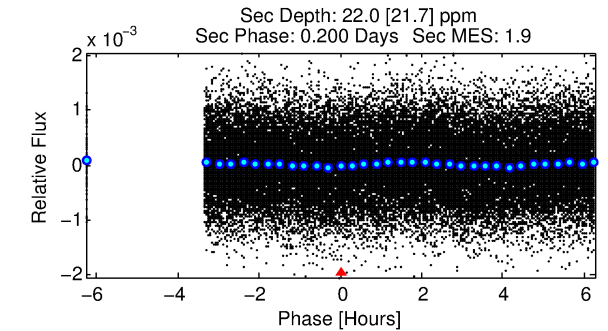
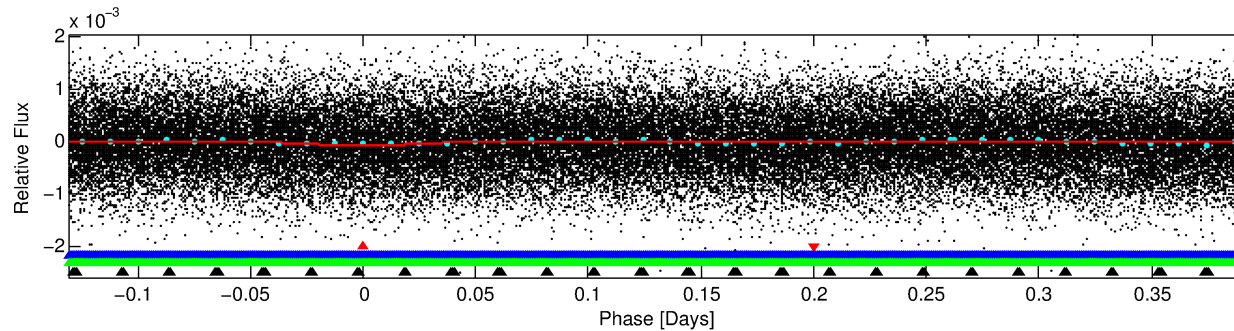
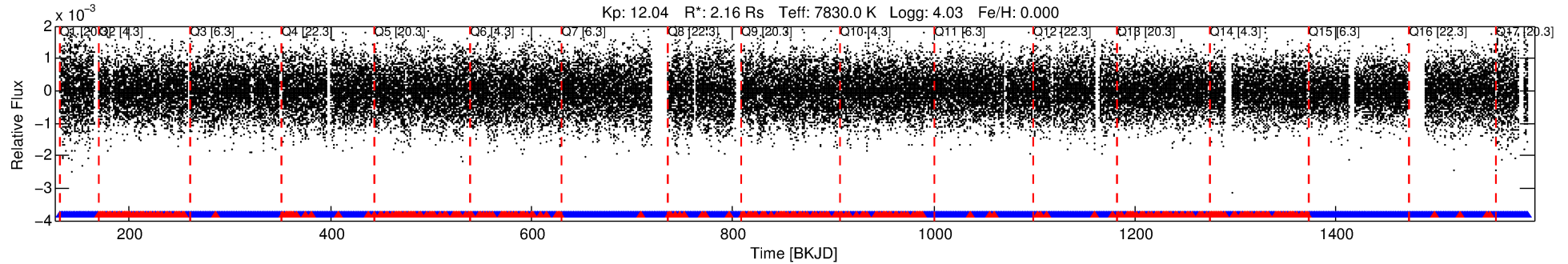
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005645788-01

No Significant Match Found

DV One-Page Summary

KIC: 5645788 Candidate: 1 of 4 Period: 0.523 d



DV Fit Results:

Period = 0.52287 [0.00001] d
Epoch = 131.7074 [0.0019] BKJD
Rp/R* = 0.0068 [0.0026]
a/R* = 2.45 [4.58]
b = 0.50 [3.39]
Seff = 65521.65 [24102.30]
Teq = 4080 [375] K
Rp = 1.60 [0.74] Re
a = 0.0155 [0.0035] AU
Ag = 1.14 [1.47] [0.10σ]
Teffp = 6519 [2041] K [1.18σ]

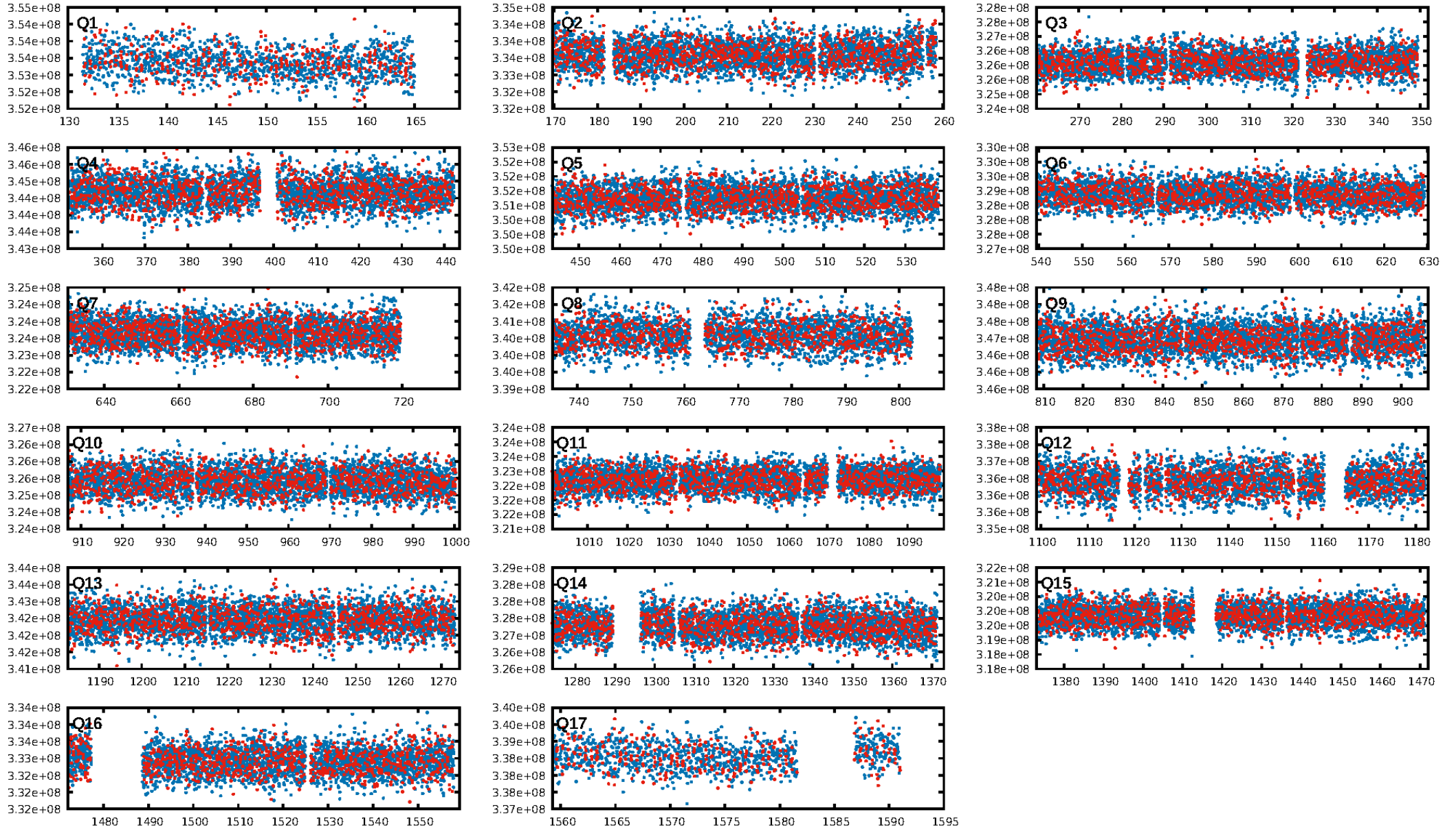
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 85.9% [1.47σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.86 [2109/2439]
GhostDiagnostic-chr: 1.22
Centroid-sig: 0.3%
Centroid-so: 0.242 arcsec [0.63σ]
OotOffset-rm: 0.155 arcsec [0.21σ]
OotOffset-st: 4/2/4/5 [15]
KicOffset-rm: 0.197 arcsec [0.30σ]
KicOffset-st: 4/2/4/5 [15]
DiffImageQuality-fgm: 0.67 [10/15]
DiffImageOverlap-fno: 1.00 [17/17]

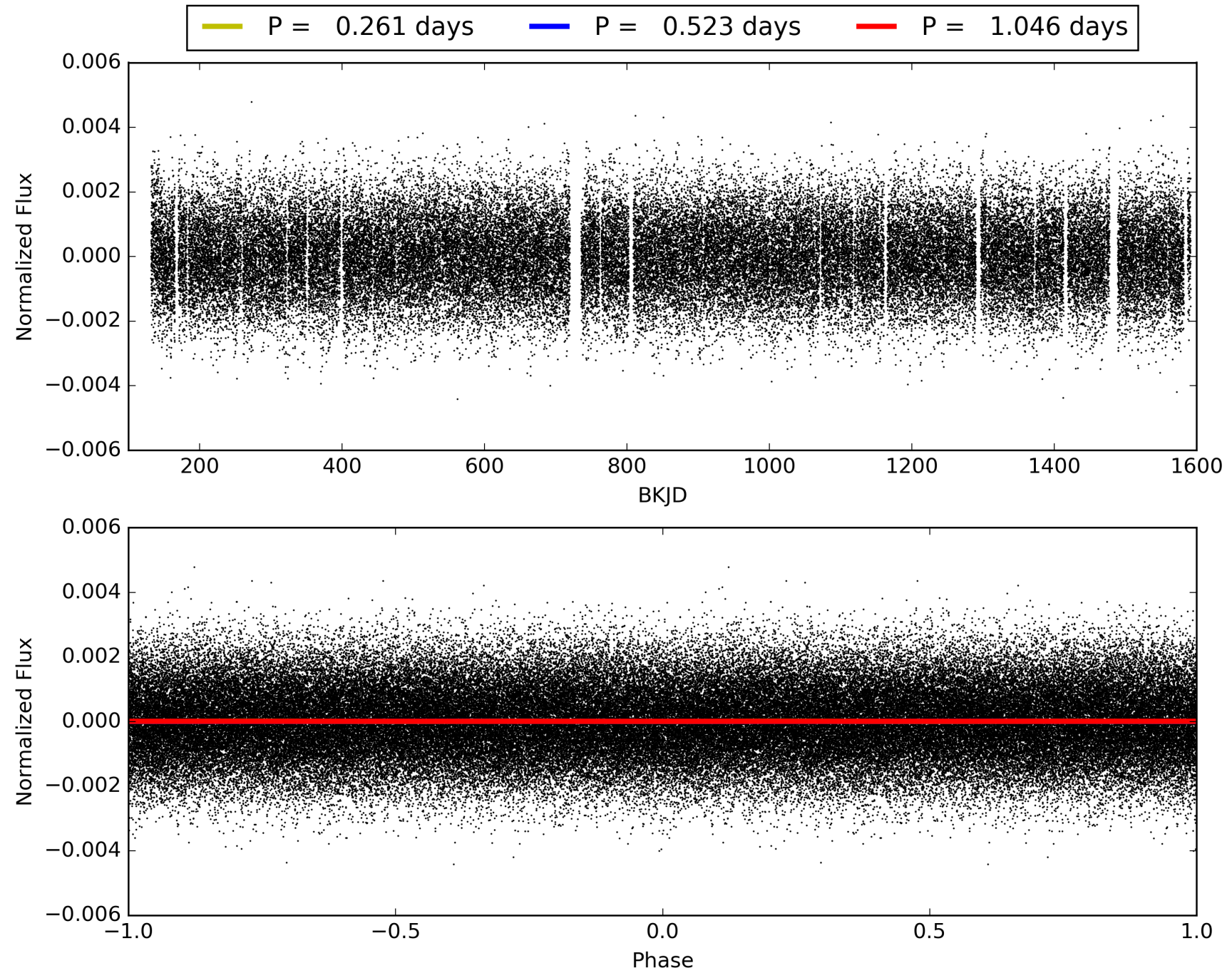
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005645788-01, PDC Light Curves

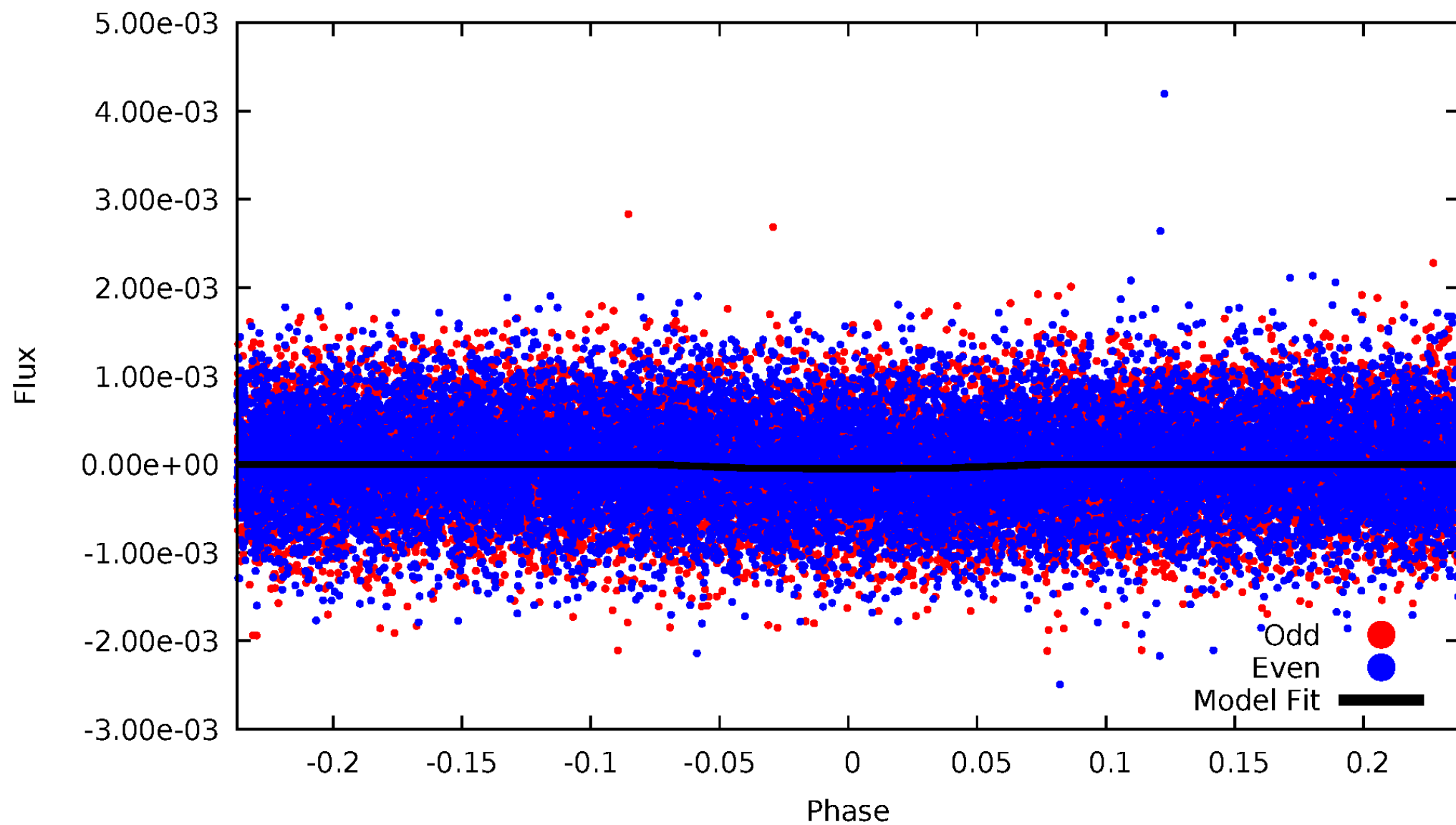


TCE 005645788-01



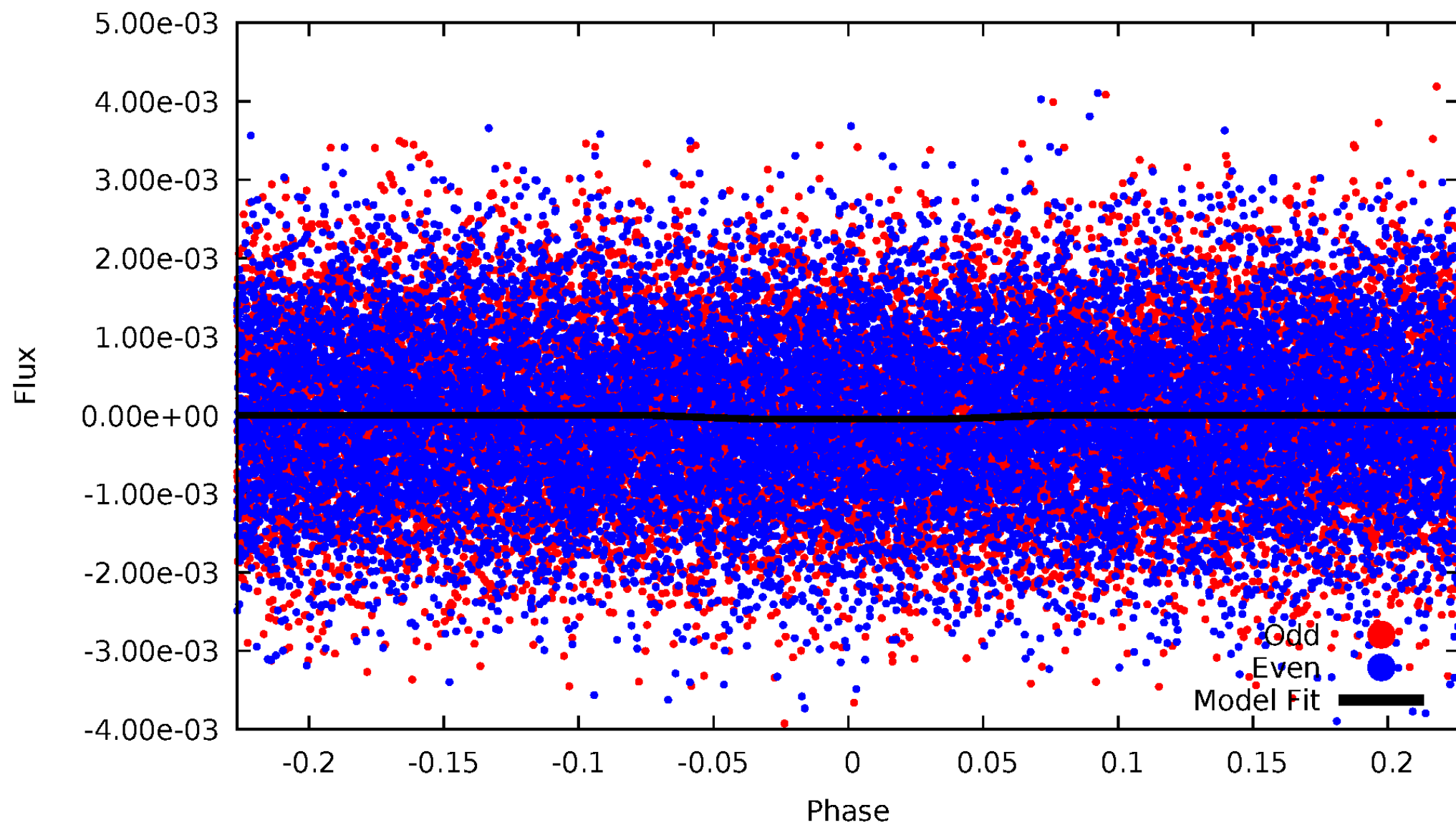
DV Odd/Even

TCE 005645788-01



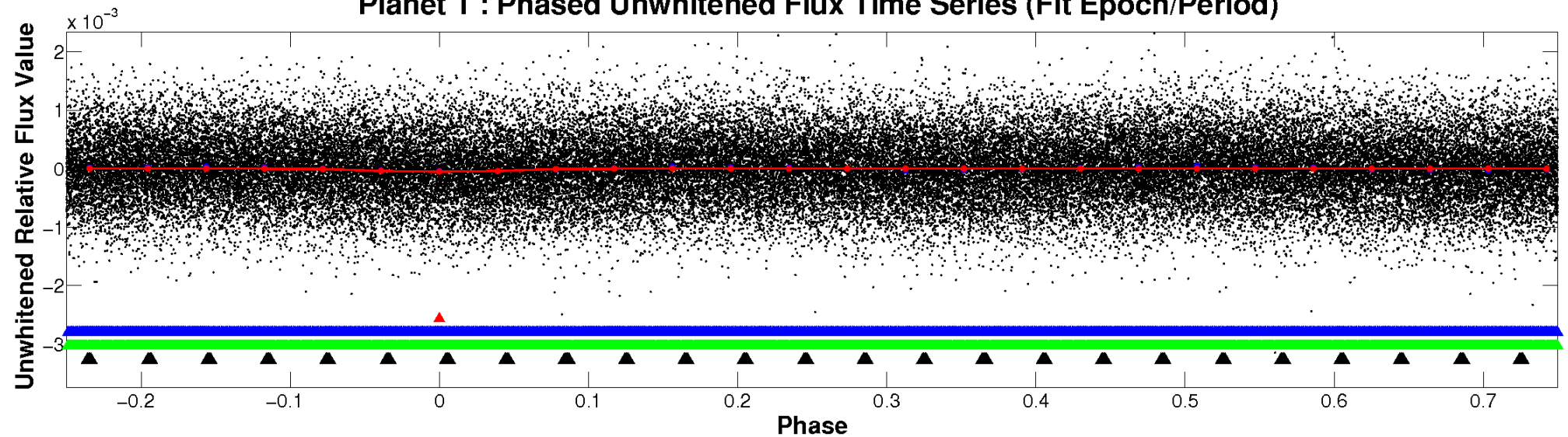
ALT Odd/Even

TCE 005645788-01

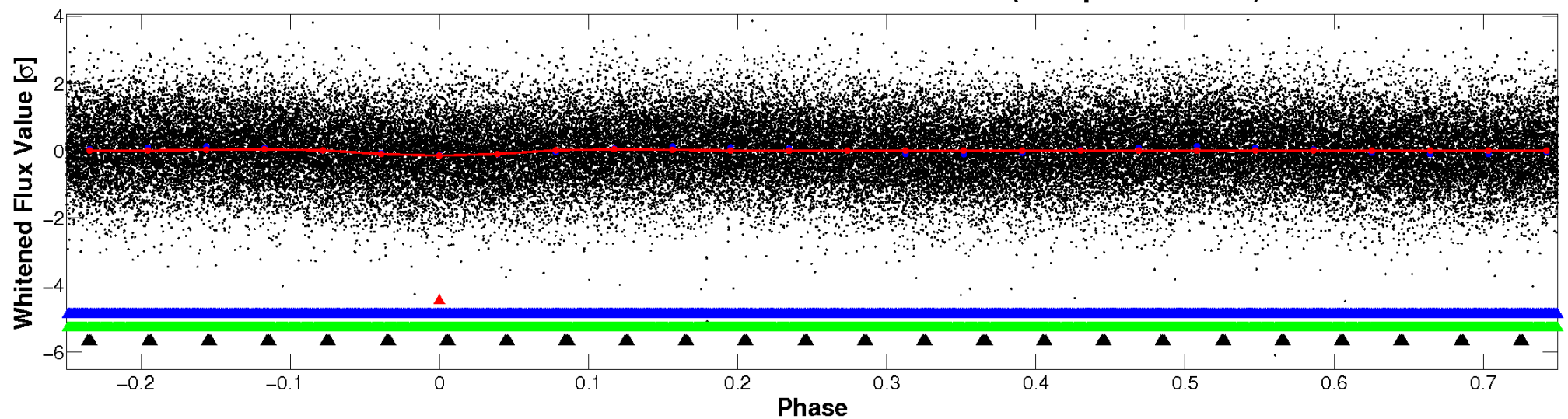


Non-Whitened Vs. Whitened Light Curve

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

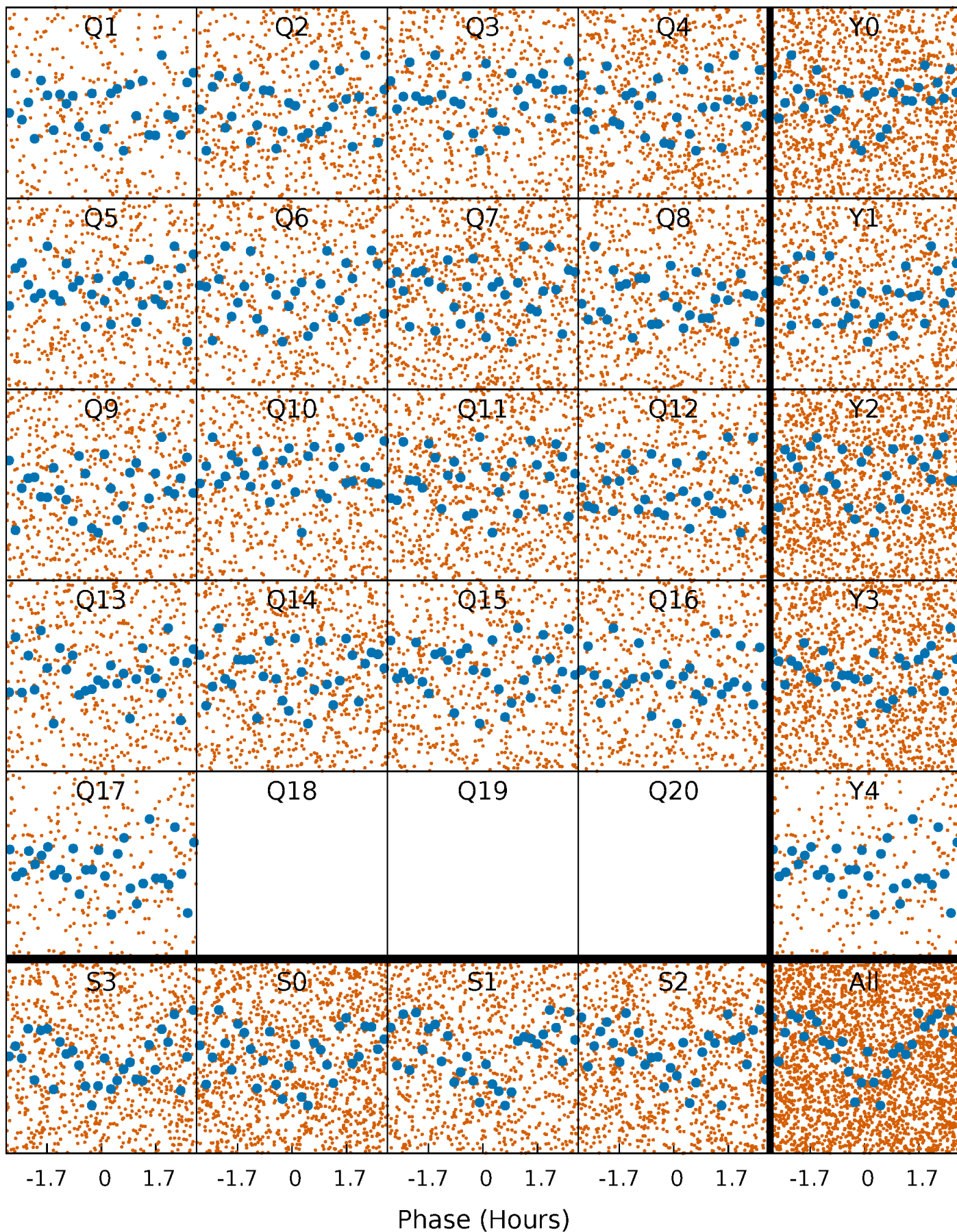


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



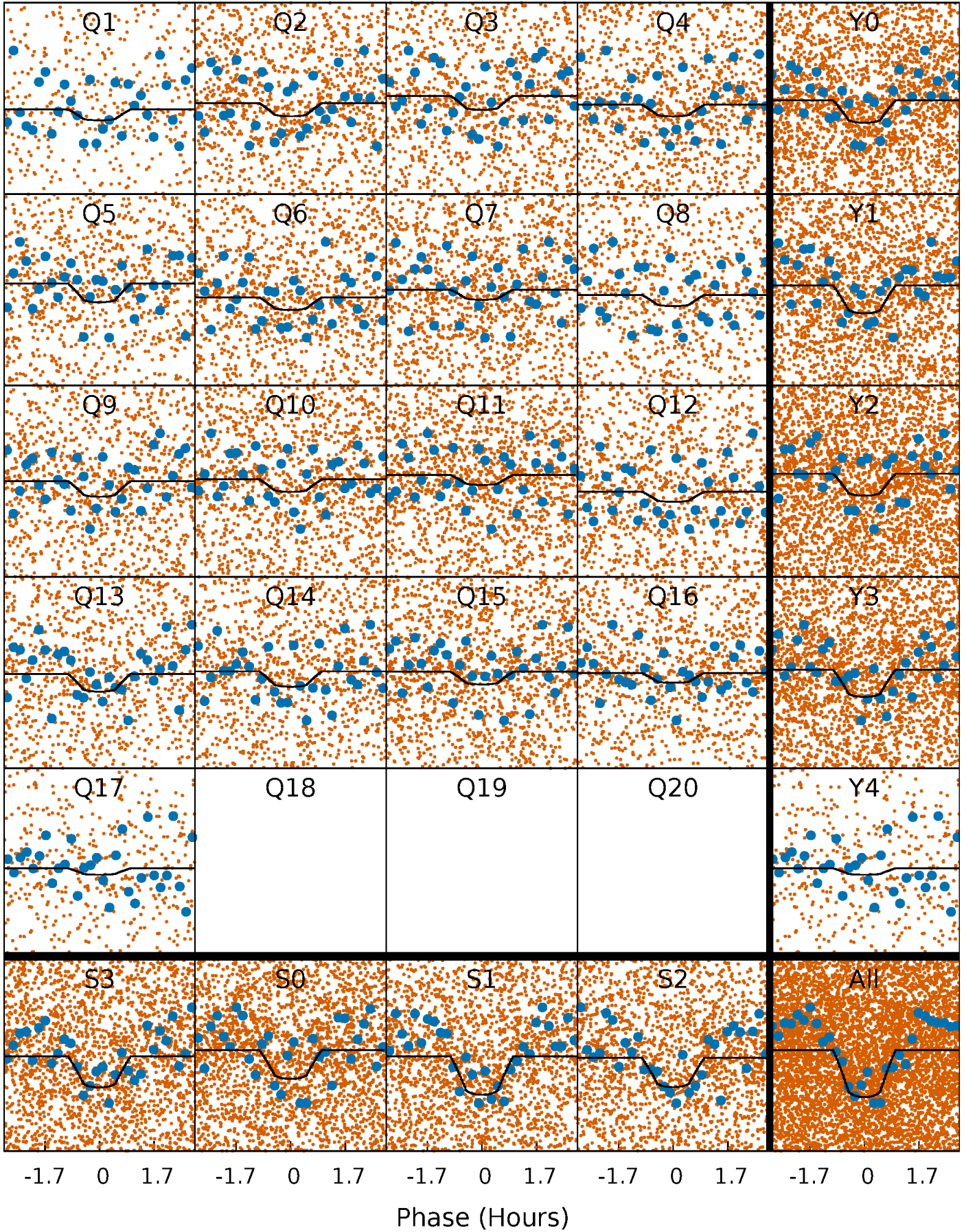
PDC Quarter-Phased Transit Curves

TCE 005645788-01 P= 0.522871 Days $T_0=131.707364$ (BKJD)



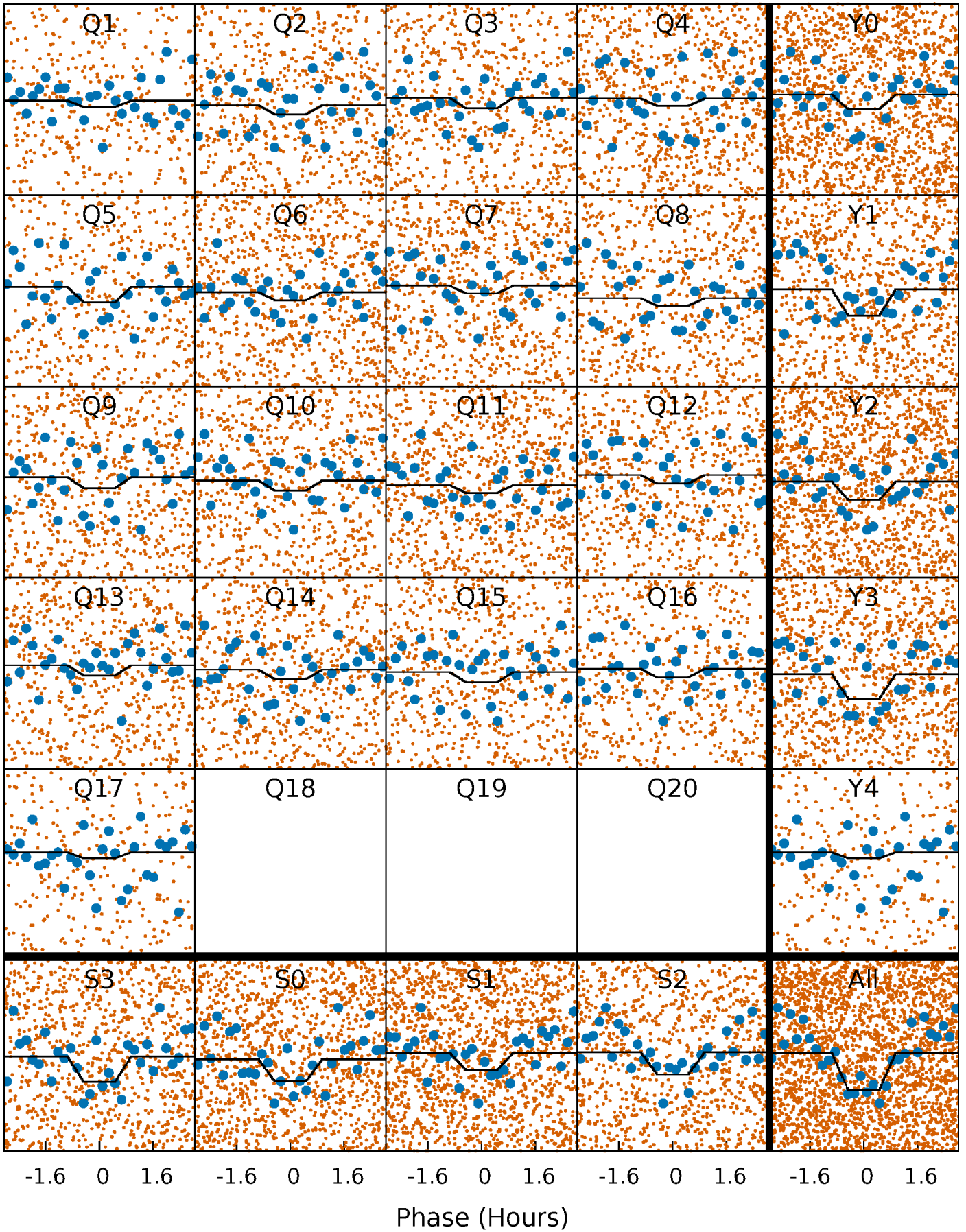
DV Quarter-Phased Transit Curves

TCE 005645788-01 P= 0.522871 Days $T_0=131.707364$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

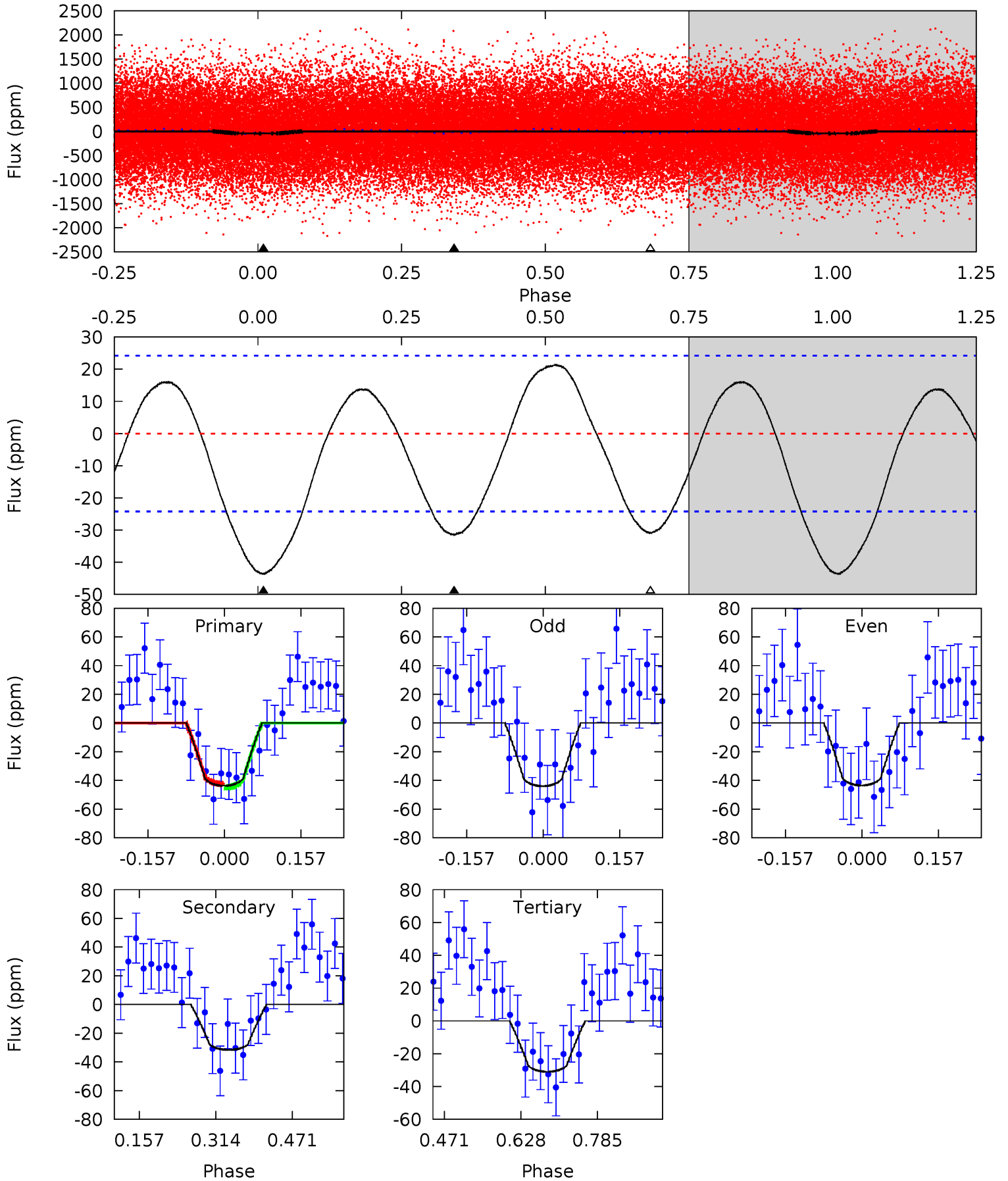
TCE 005645788-01 P= 0.522877 Days $T_0=131.705789$ (BKJD)



DV Model-Shift Uniqueness Test

005645788-01, P = 0.522871 Days, E = 131.184493 Days

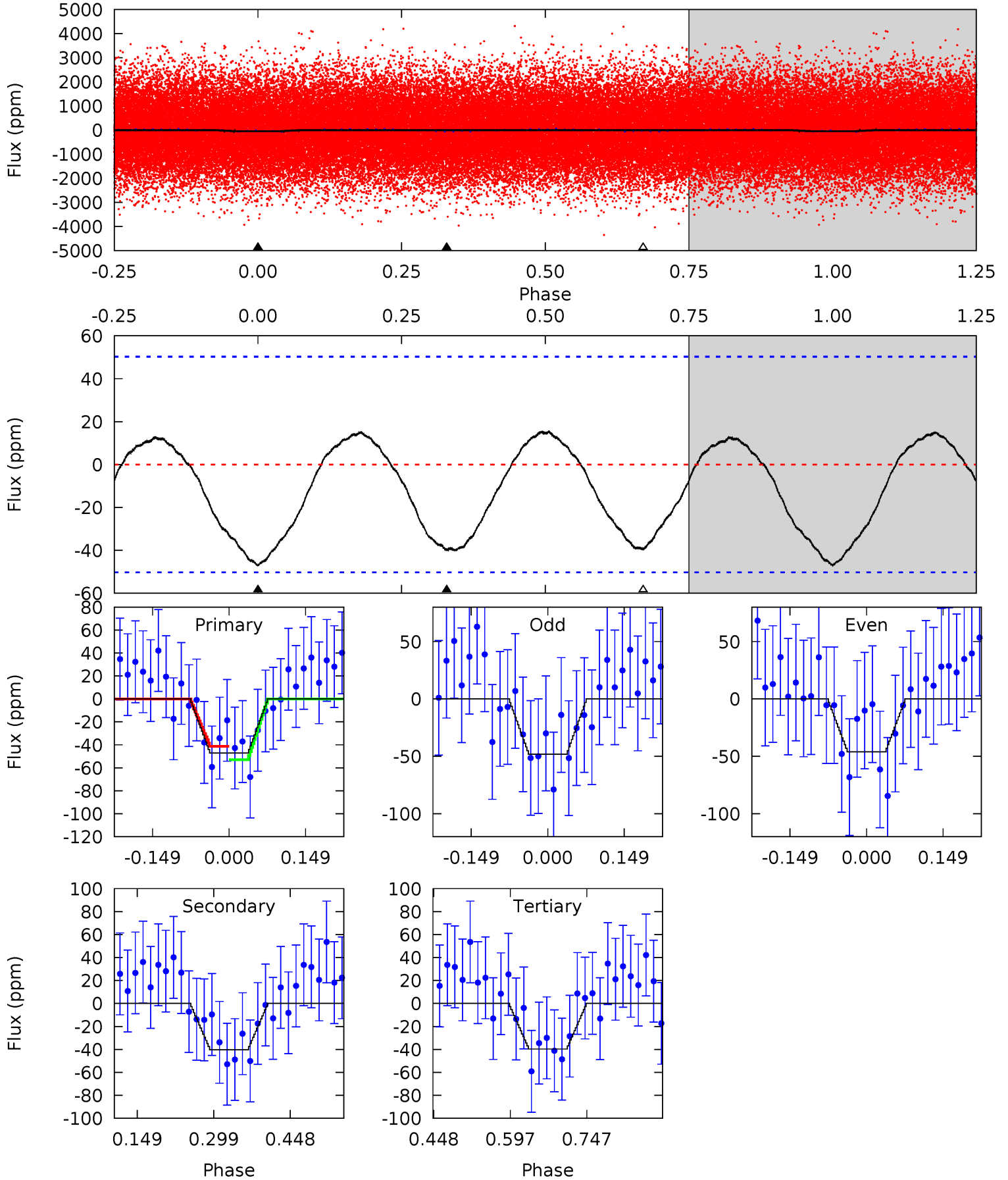
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.08	5.83	5.72	0	4.47	1.42	3.31	2.35	8.08	0.11	5.83	0.05	0.99	0.33	0.22



Alt Model-Shift Uniqueness Test

005645788-01, P = 0.522877 Days, E = 131.182912 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.20	3.58	3.54	0	4.48	1.44	1.68	0.66	4.20	0.05	3.58	0.09	1.39	0.25	0.52



Stellar Parameters For KIC 005645788

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7830^{+214}_{-322}	$4.027^{+0.181}_{-0.148}$	$0.000^{+0.200}_{-0.350}$	$2.160^{+0.467}_{-0.571}$	$1.809^{+0.145}_{-0.339}$	$0.253^{+0.274}_{-0.097}$
	+3%/-4%	+4%/-4%	+inf%/-inf%	+22%/-26%	+8%/-19%	+108%/-38%
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 005645788-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-32 ± 5	$1.58^{+0.66}_{-0.59}$	5660^{+429}_{-396}	6494^{+2454}_{-1265}	$1.599^{+2.614}_{-0.832}$
Alt.	-40 ± 11	$1.60^{+0.64}_{-0.62}$	5676^{+385}_{-411}	7037^{+3235}_{-1498}	$2.002^{+3.842}_{-1.055}$

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 $A_{obs} \gg 1.0$

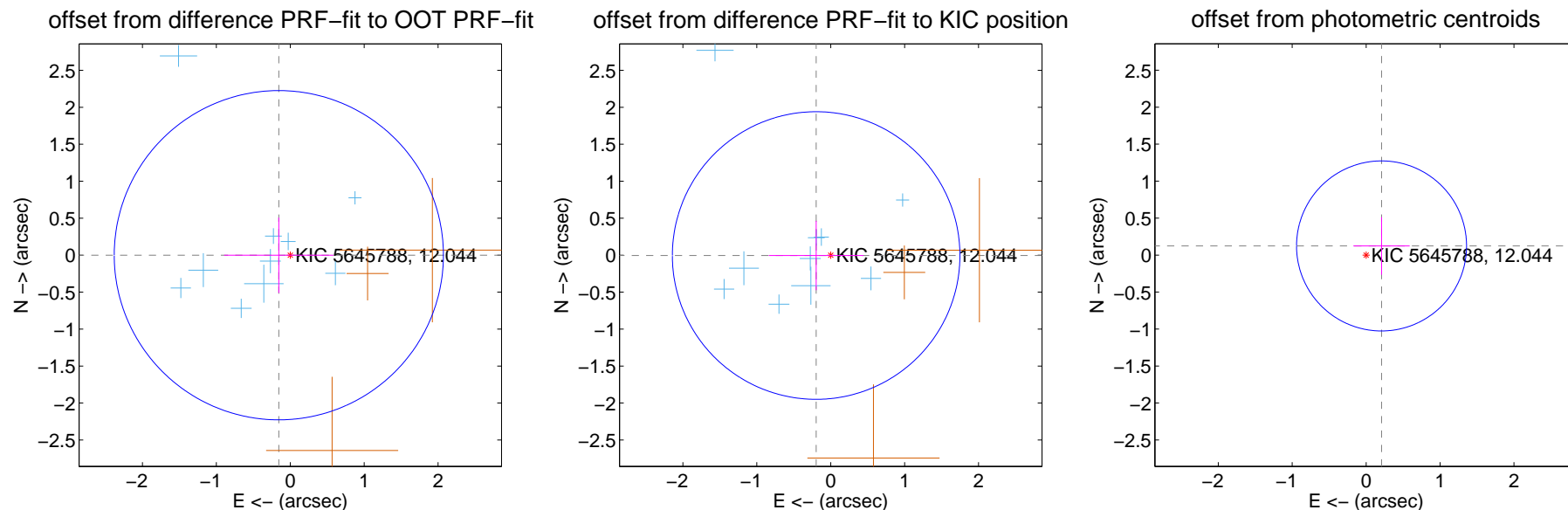
DV Centroid Data

Supplemental centroid analysis for 005645788-01. Kepler magnitude: 12.04. Transit SNR 11.14

There are 10 quarters with good PRF difference image offsets

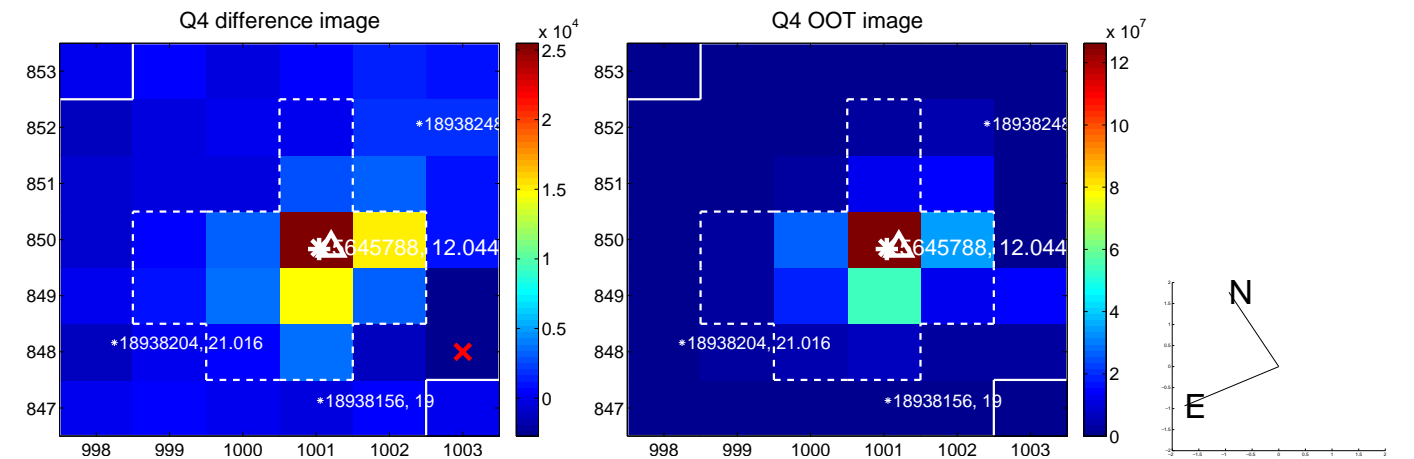
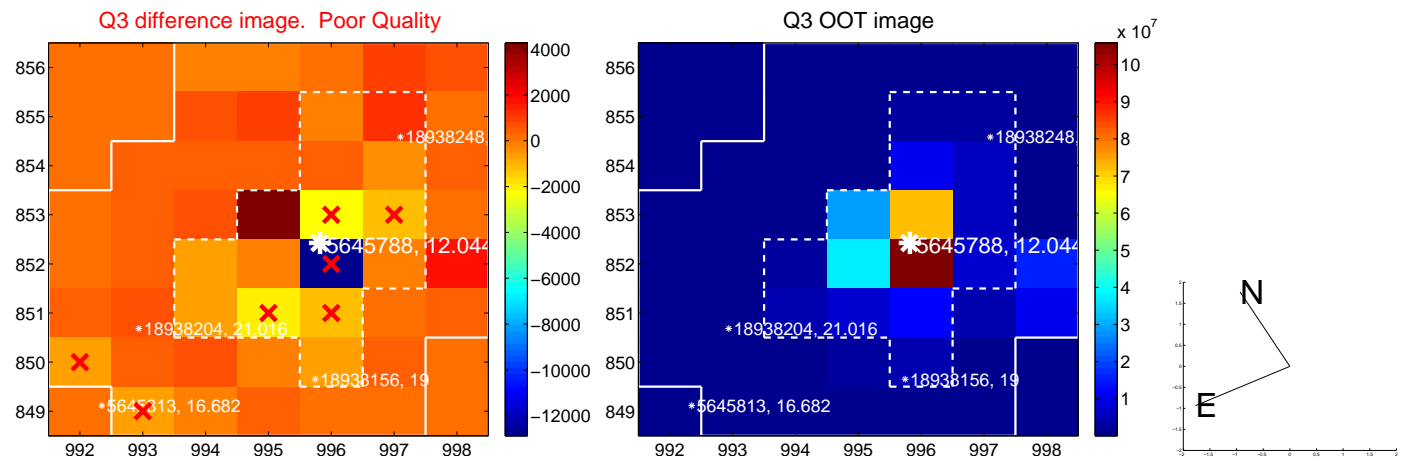
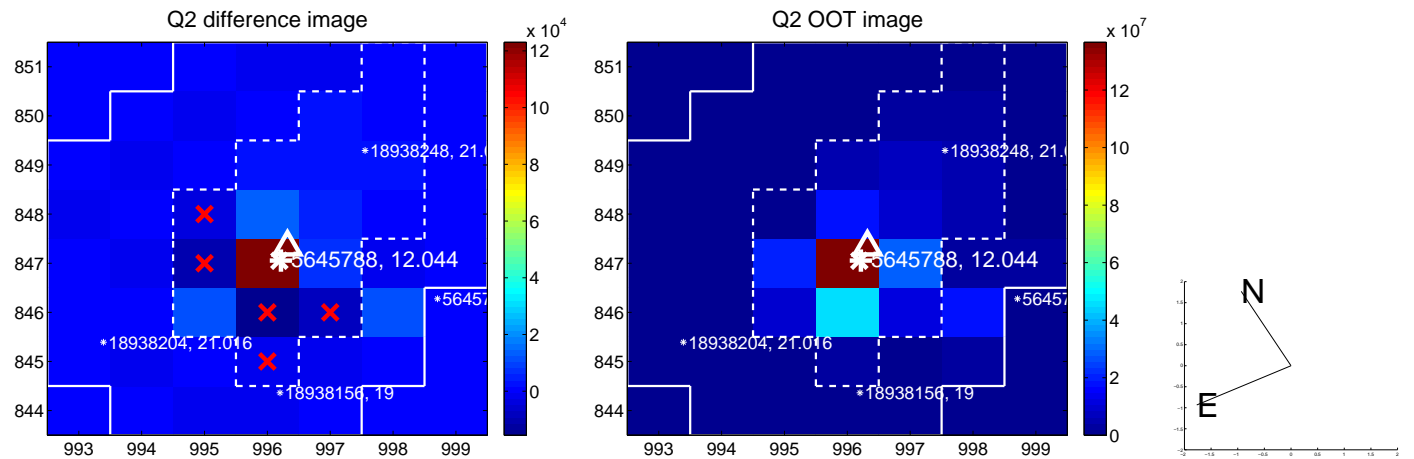
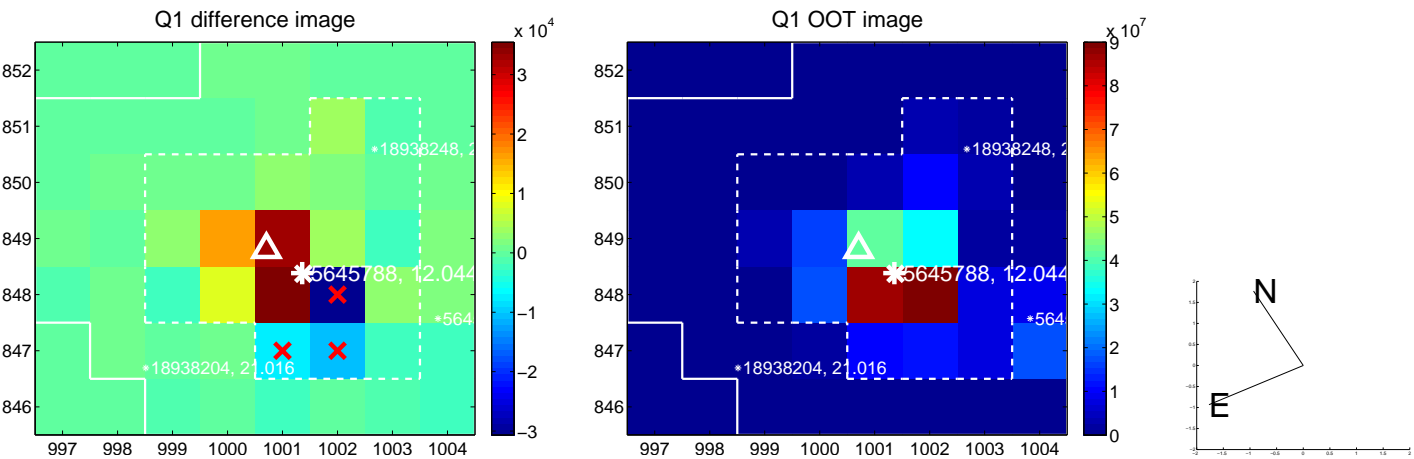
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.155 ± 0.742	0.21	0.155 ± 0.740	-0.001 ± 0.509
PRF-fit source offset from KIC position	0.197 ± 0.648	0.30	0.197 ± 0.641	-0.005 ± 0.469
photometric centroid source offset	0.24 ± 0.38	0.63	-0.21 ± 0.38	0.12 ± 0.39

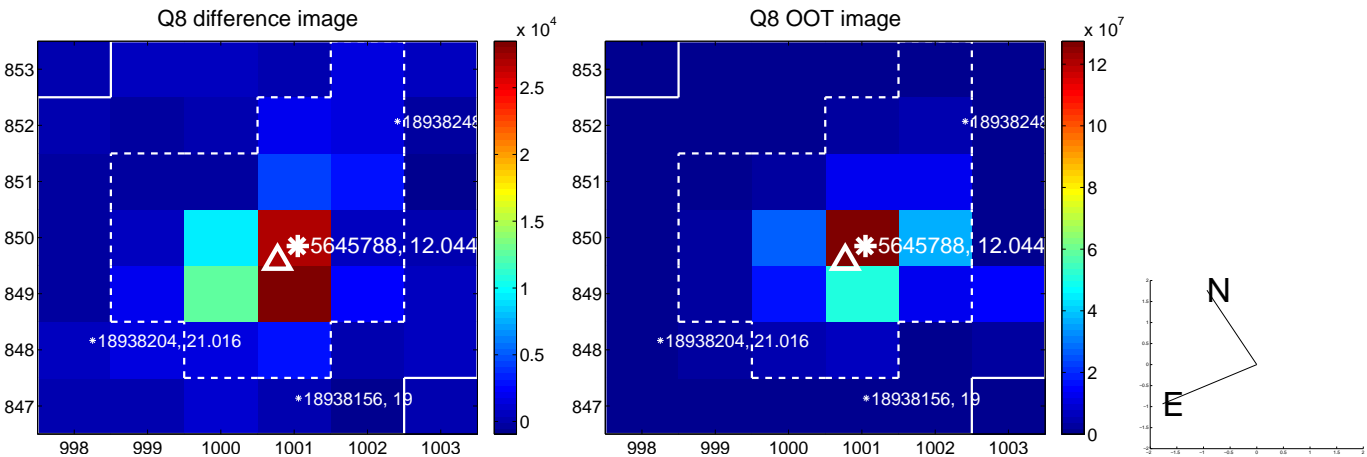
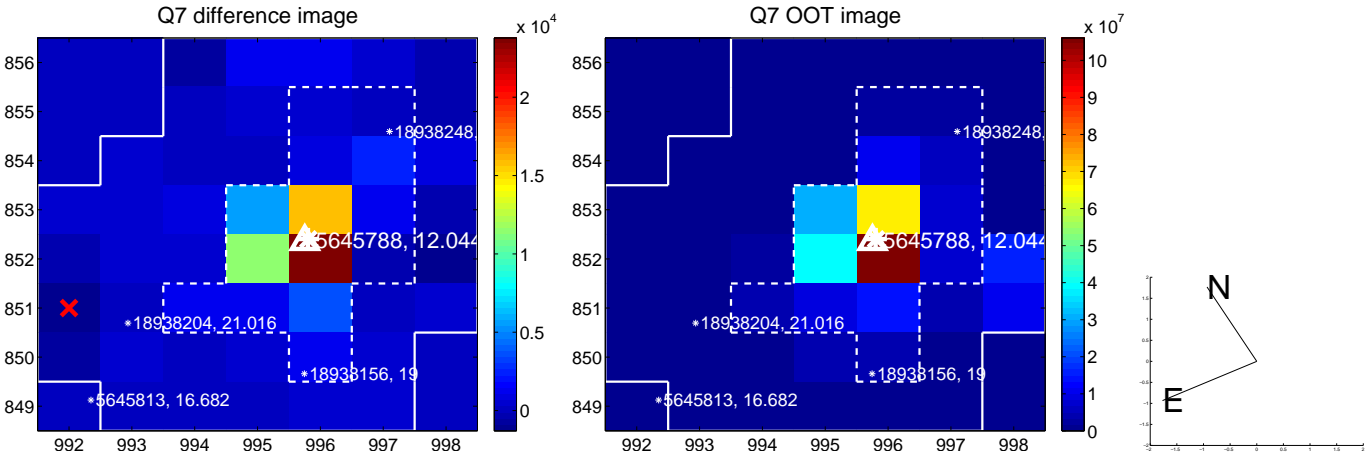
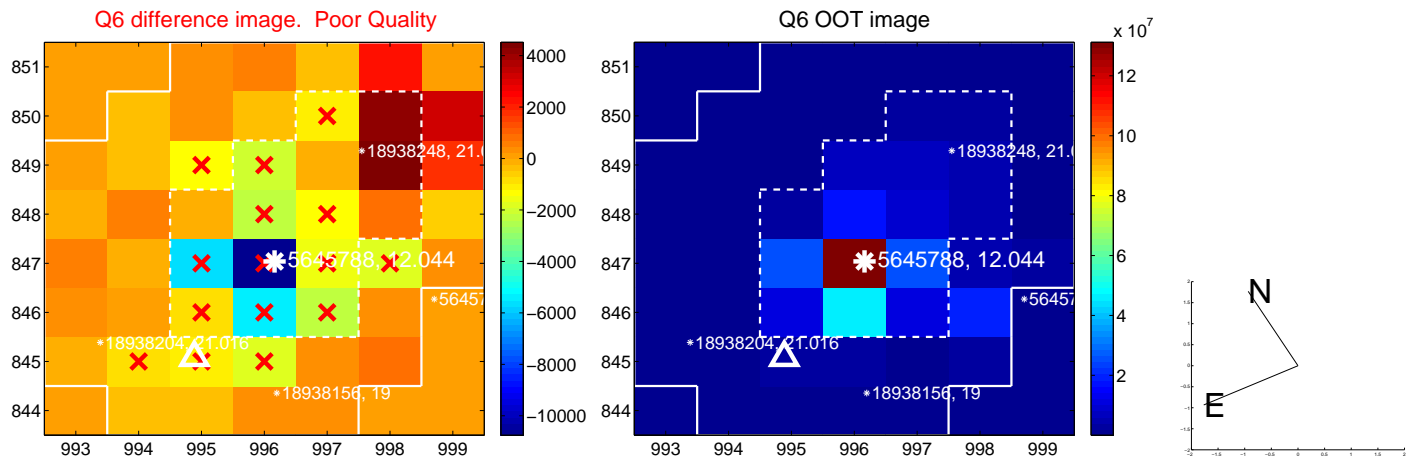
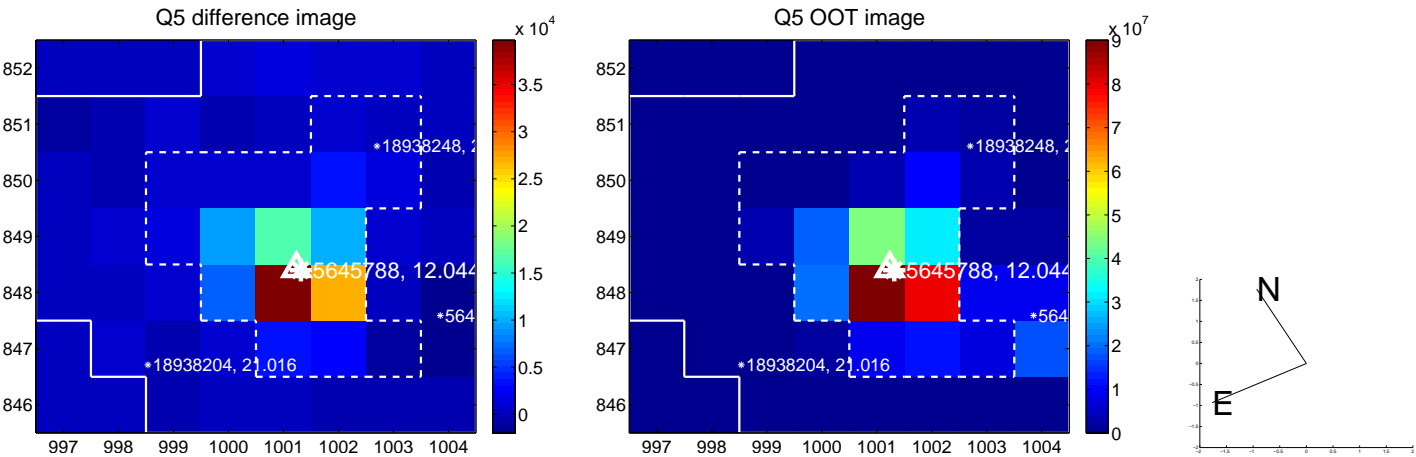


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

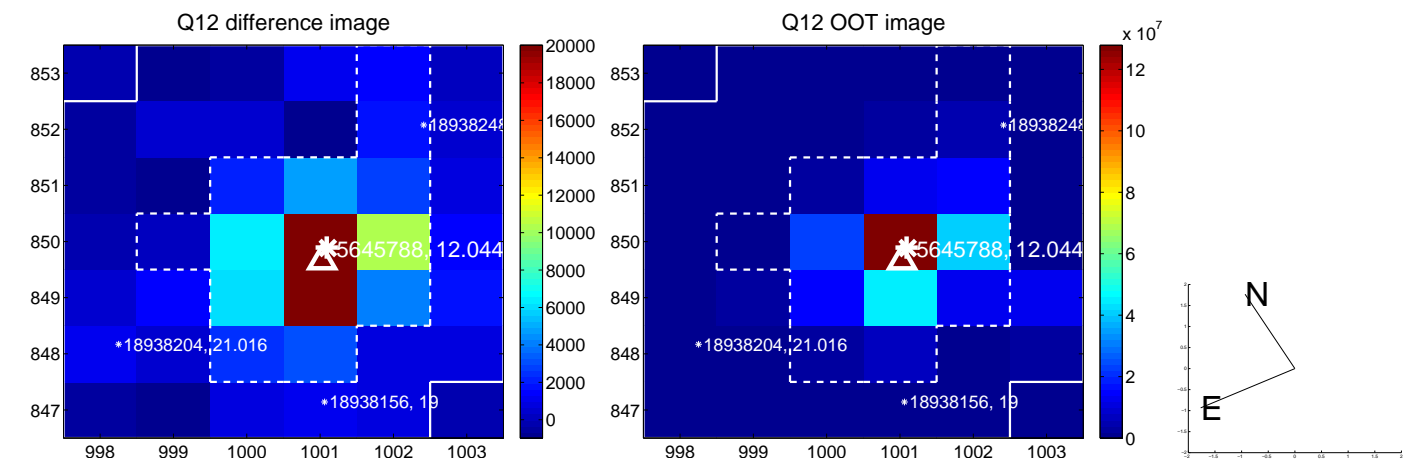
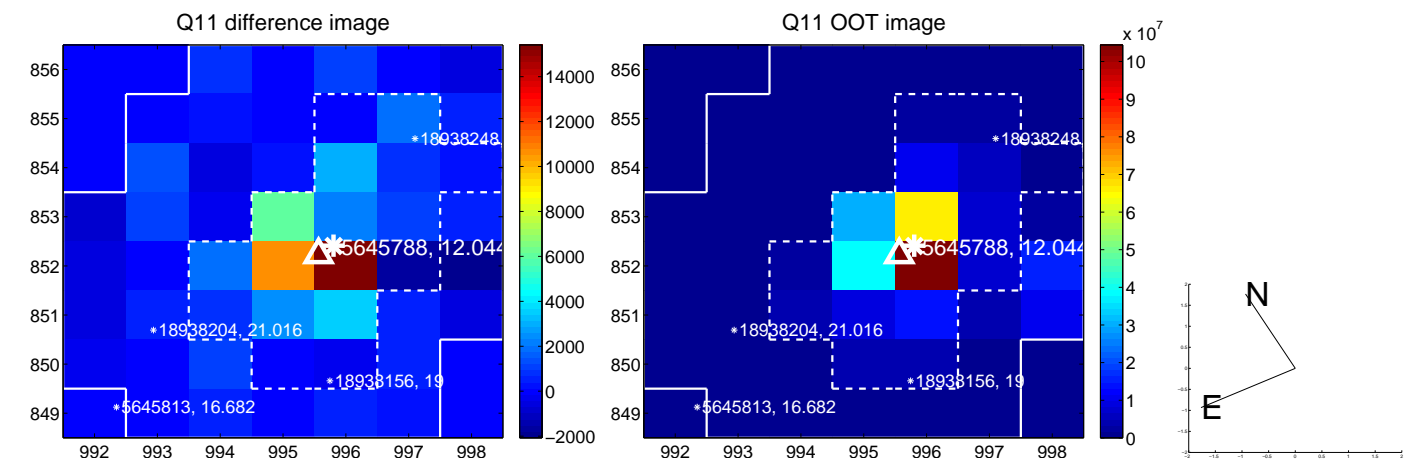
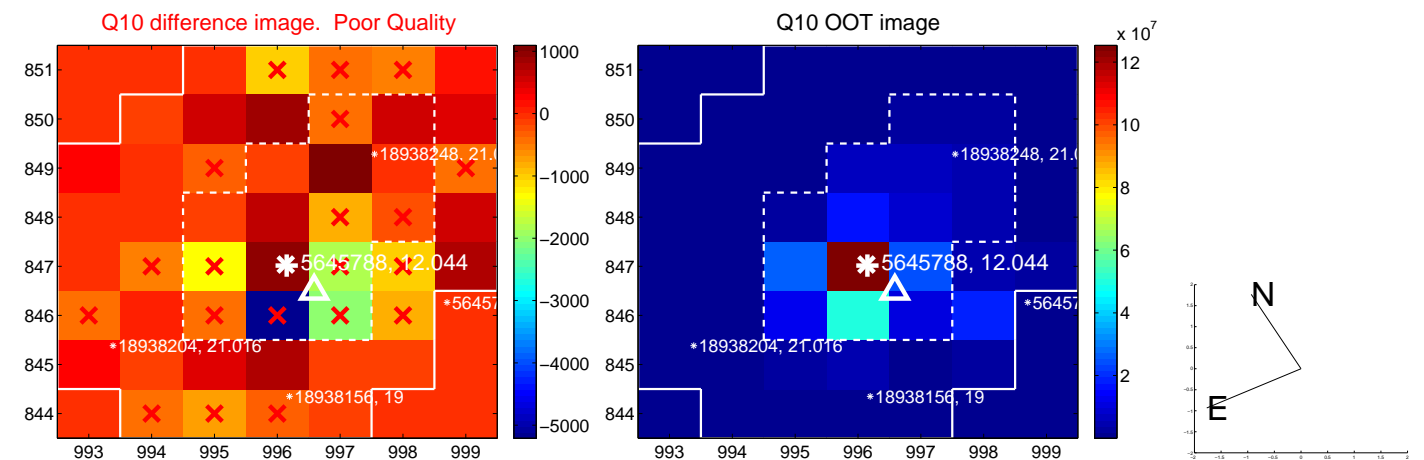
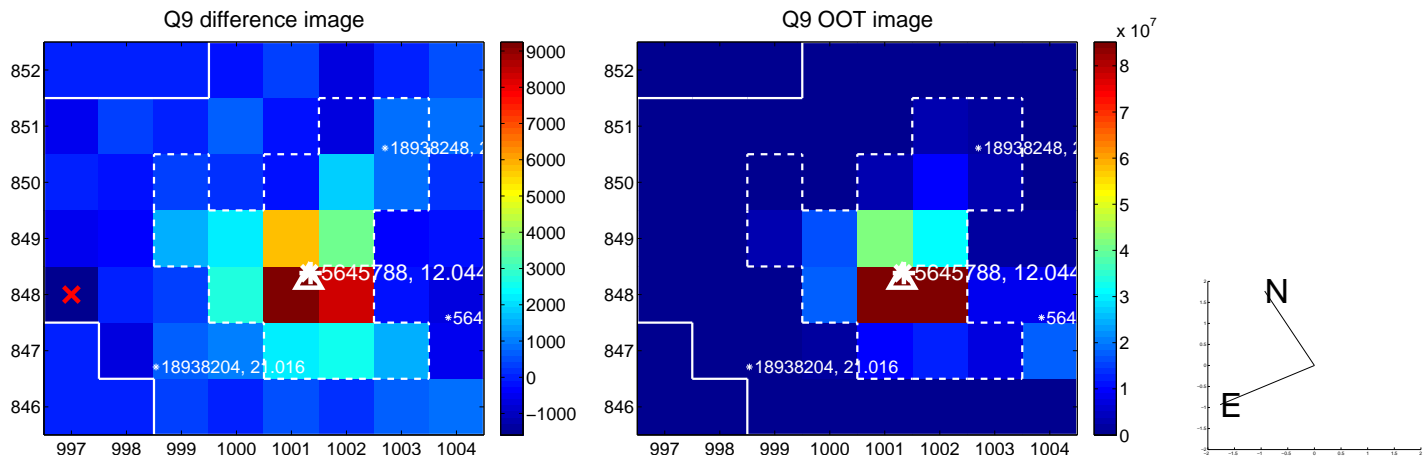
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



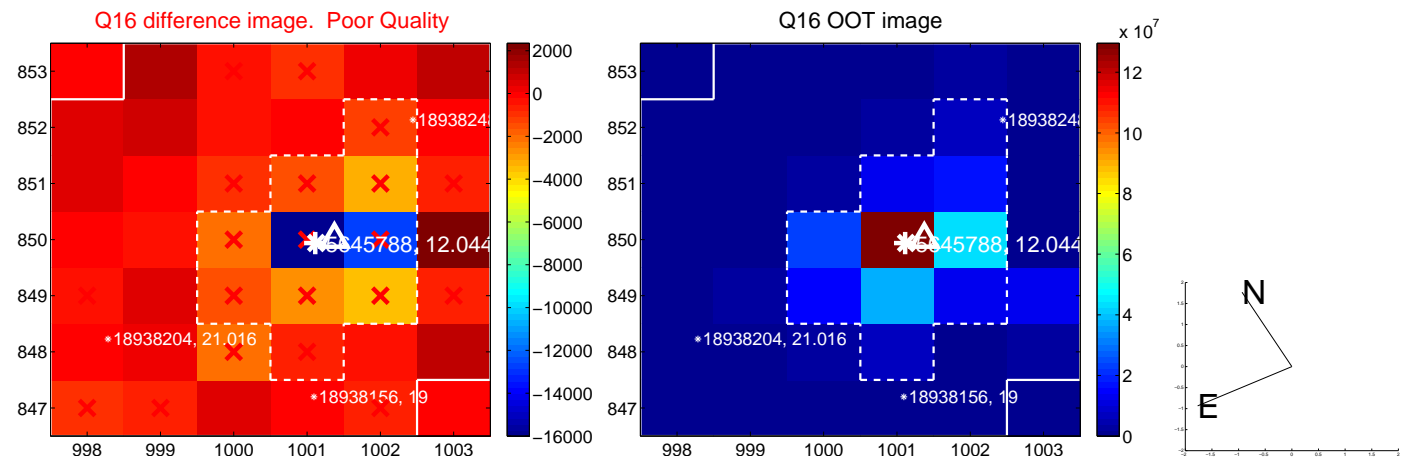
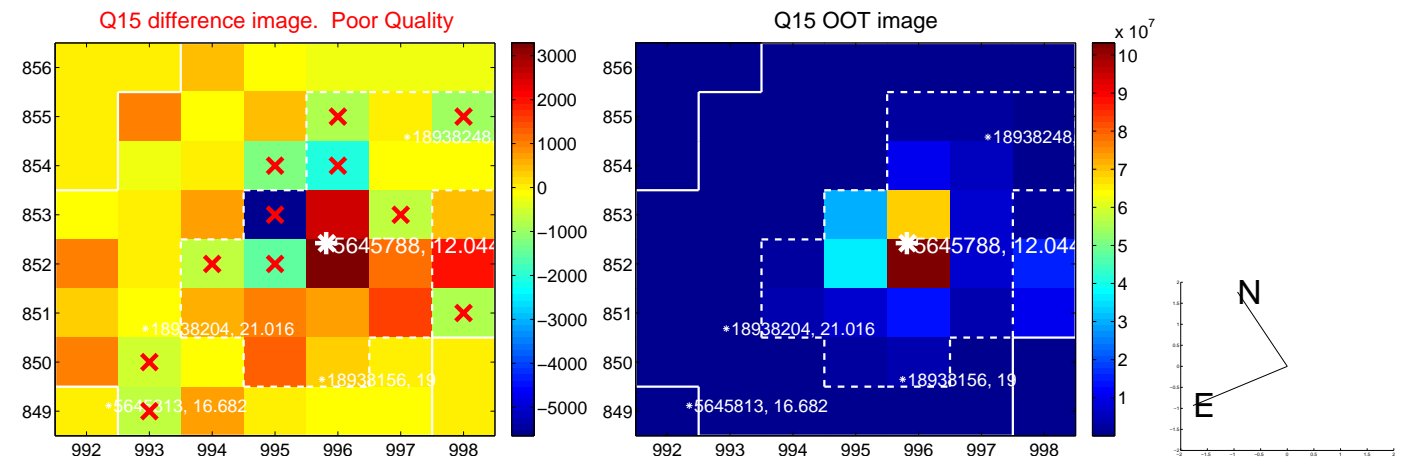
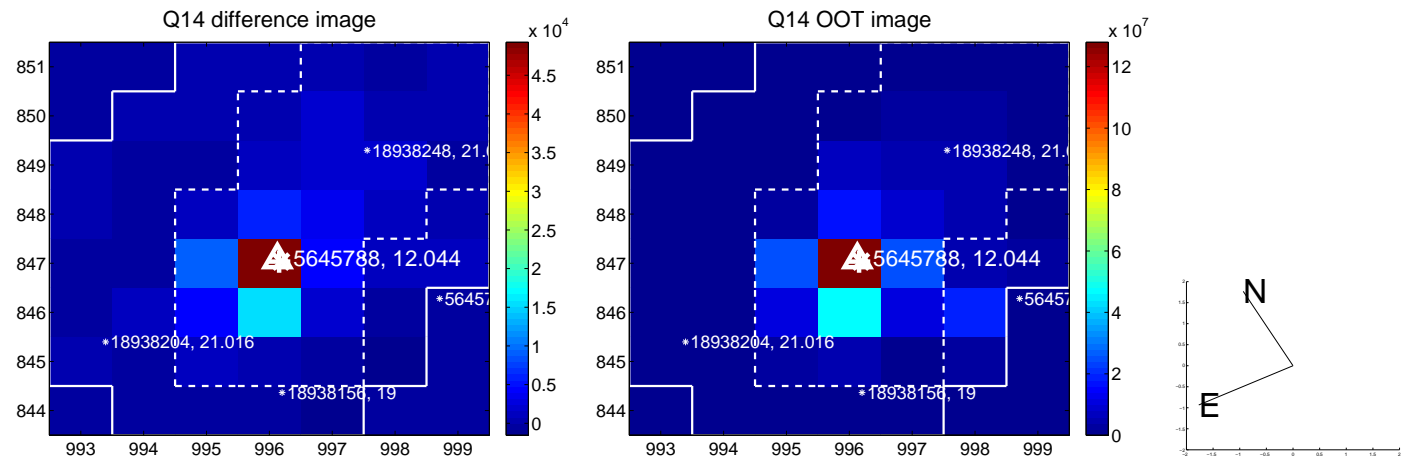
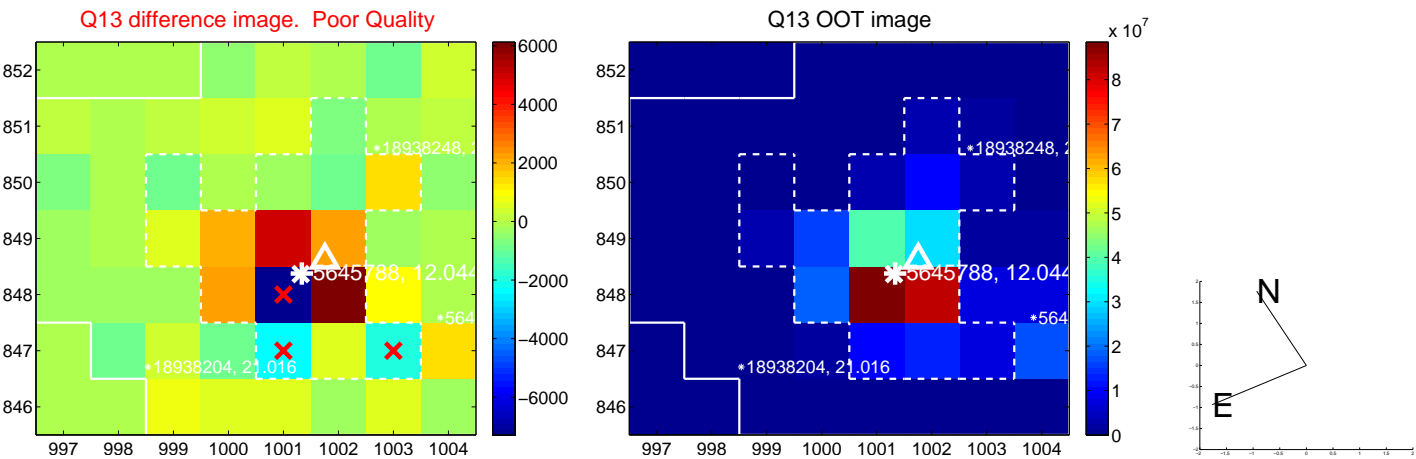
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



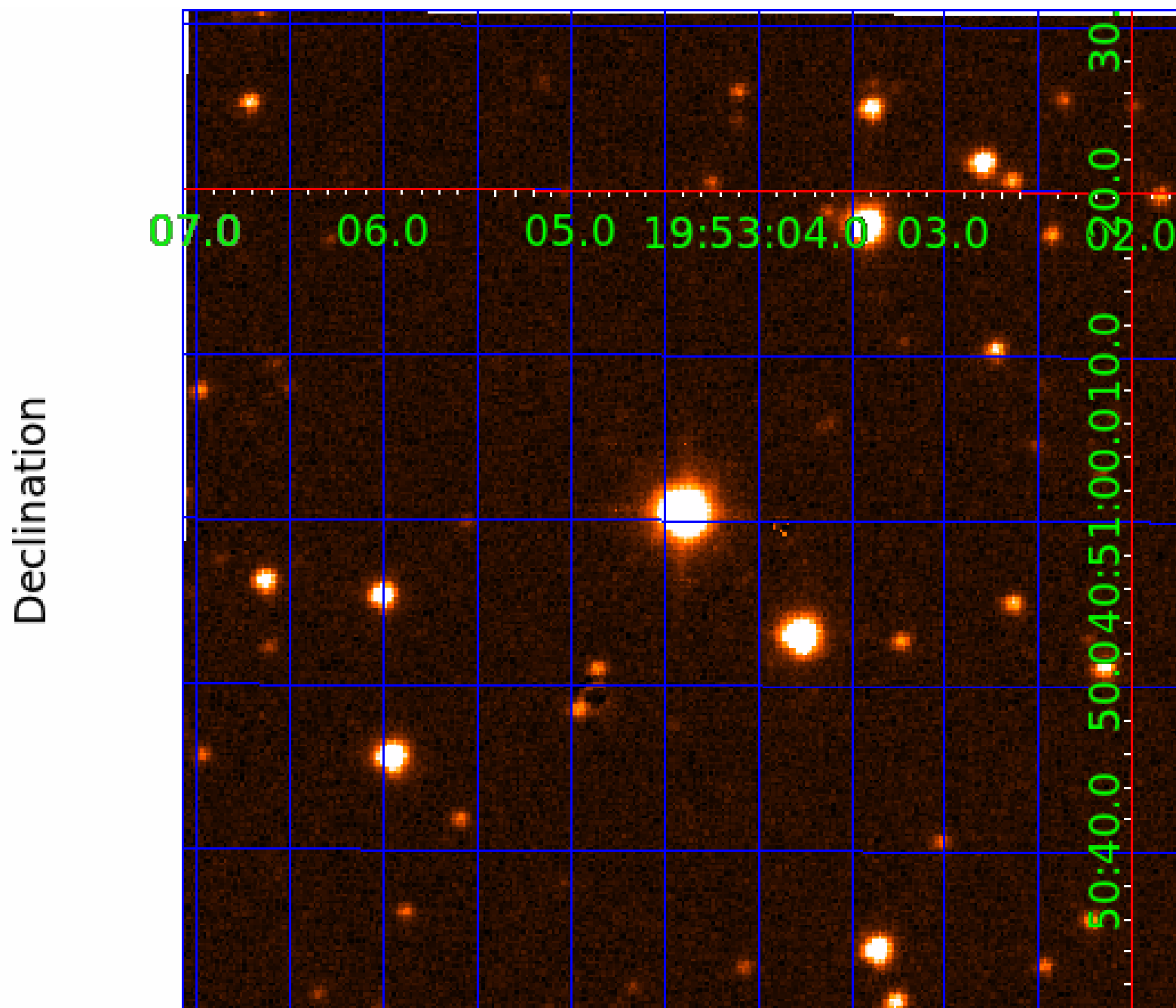
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005645788

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})
005645788-01	OBS	No	0.522871	131.707364	50.3	1.489	11.6	11.1	2.16	7830	1.59	65521.64
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005645788-03	OBS	No	0.959330	131.581071	131.9	3.733	11.3	10.8	2.16	7830	2.88	29171.14
005645788-04	OBS	No	14.263929	139.071411	162.2	3.500	8.6	-1.0	2.16	7830	2.79	797.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005645788-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005645788-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV
005645788-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005645788-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

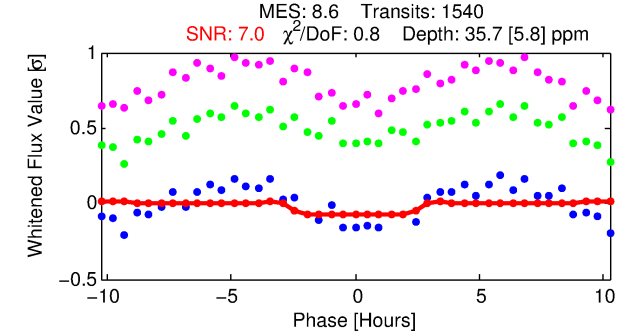
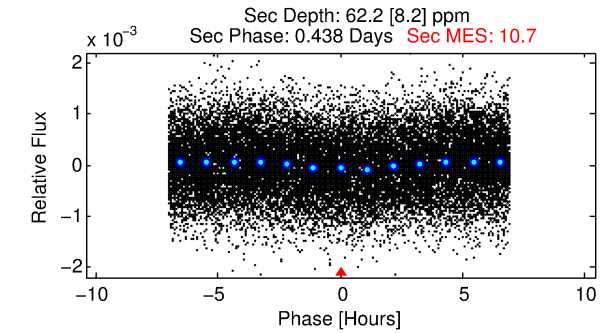
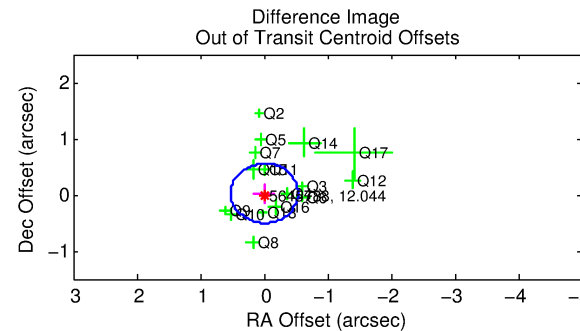
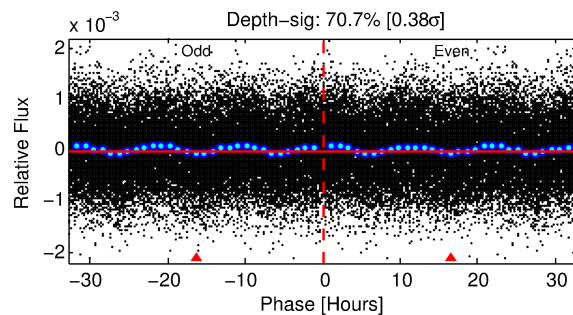
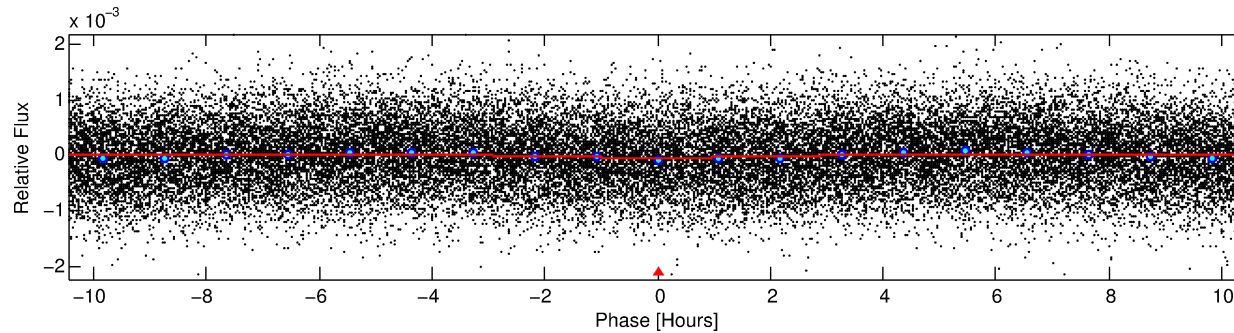
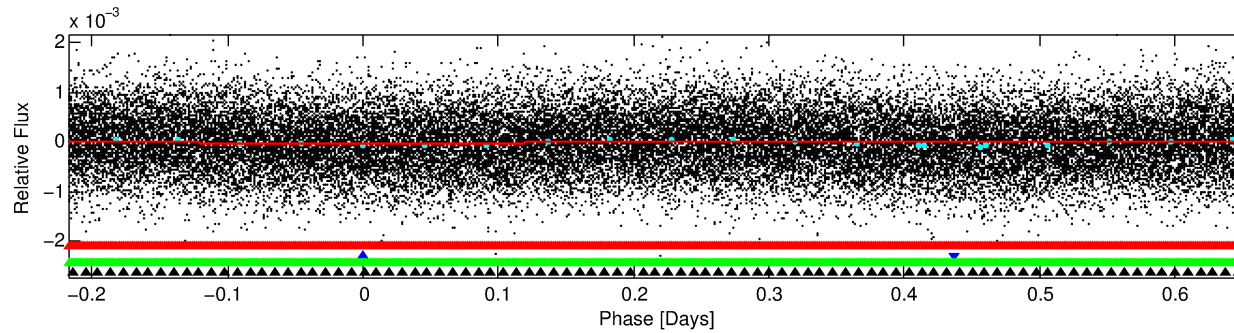
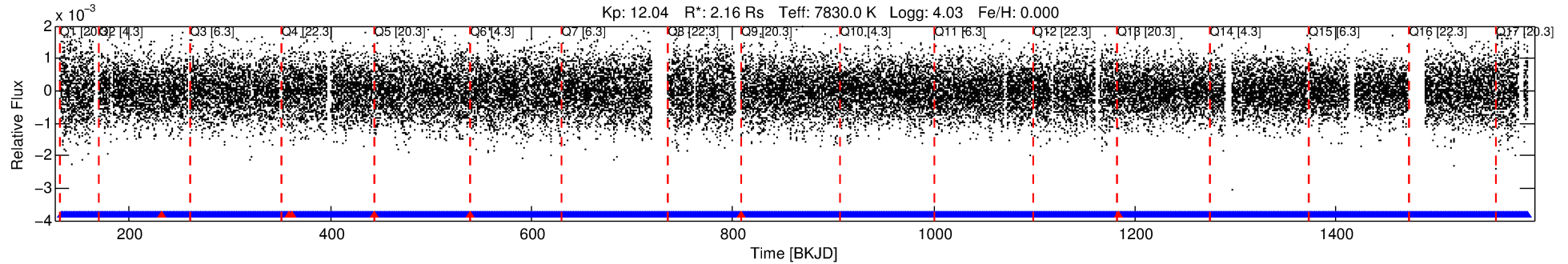
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005645788-02

No Significant Match Found

DV One-Page Summary

KIC: 5645788 Candidate: 2 of 4 Period: 0.871 d



DV Fit Results:

Period = 0.87101 [0.00002] d
Epoch = 131.9759 [0.0080] BKJD
Rp/R* = 0.0059 [0.0062]
a/R* = 1.21 [2.48]
b = 0.70 [4.80]
Seff = 33180.35 [12205.47]
Teff = 3441 [316] K
Rp = 1.38 [1.50] Re
a = 0.0218 [0.0049] AU
Ag = 8.46 [18.05] [0.41 σ]
Teffp = 9076 [4795] K [1.17 σ]

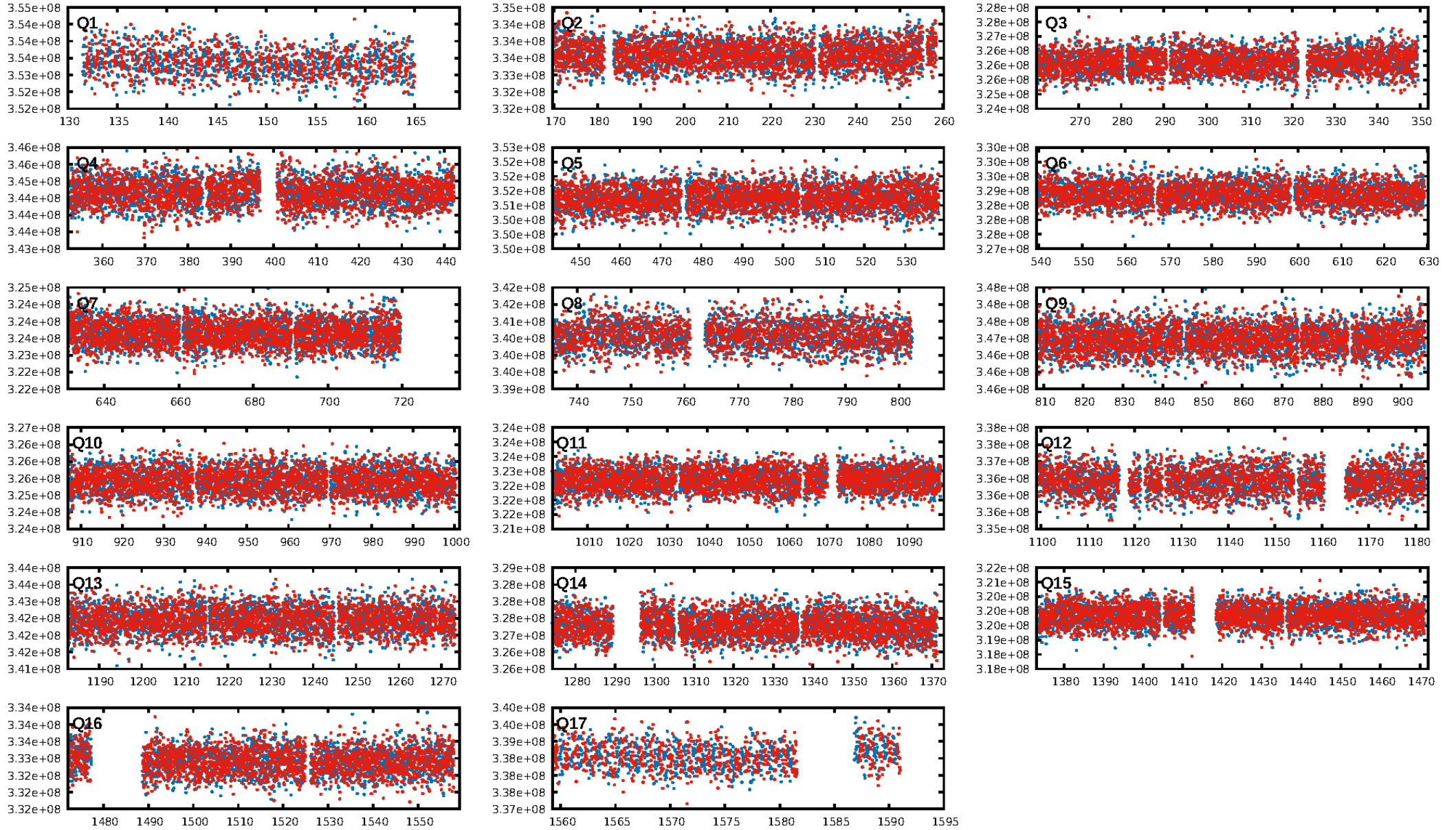
DV Diagnostic Results:

ShortPeriod-sig: 85.9% [1.47 σ]
LongPeriod-sig: 25.1% [0.32 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1463/1470]
GhostDiagnostic-chr: 3.035
Centroid-sig: 0.0%
Centroid-so: 1.192 arcsec [2.35 σ]
OotOffset-rm: 0.026 arcsec [0.15 σ]
KicOffset-rm: 0.066 arcsec [0.39 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 0.00 [0/17]

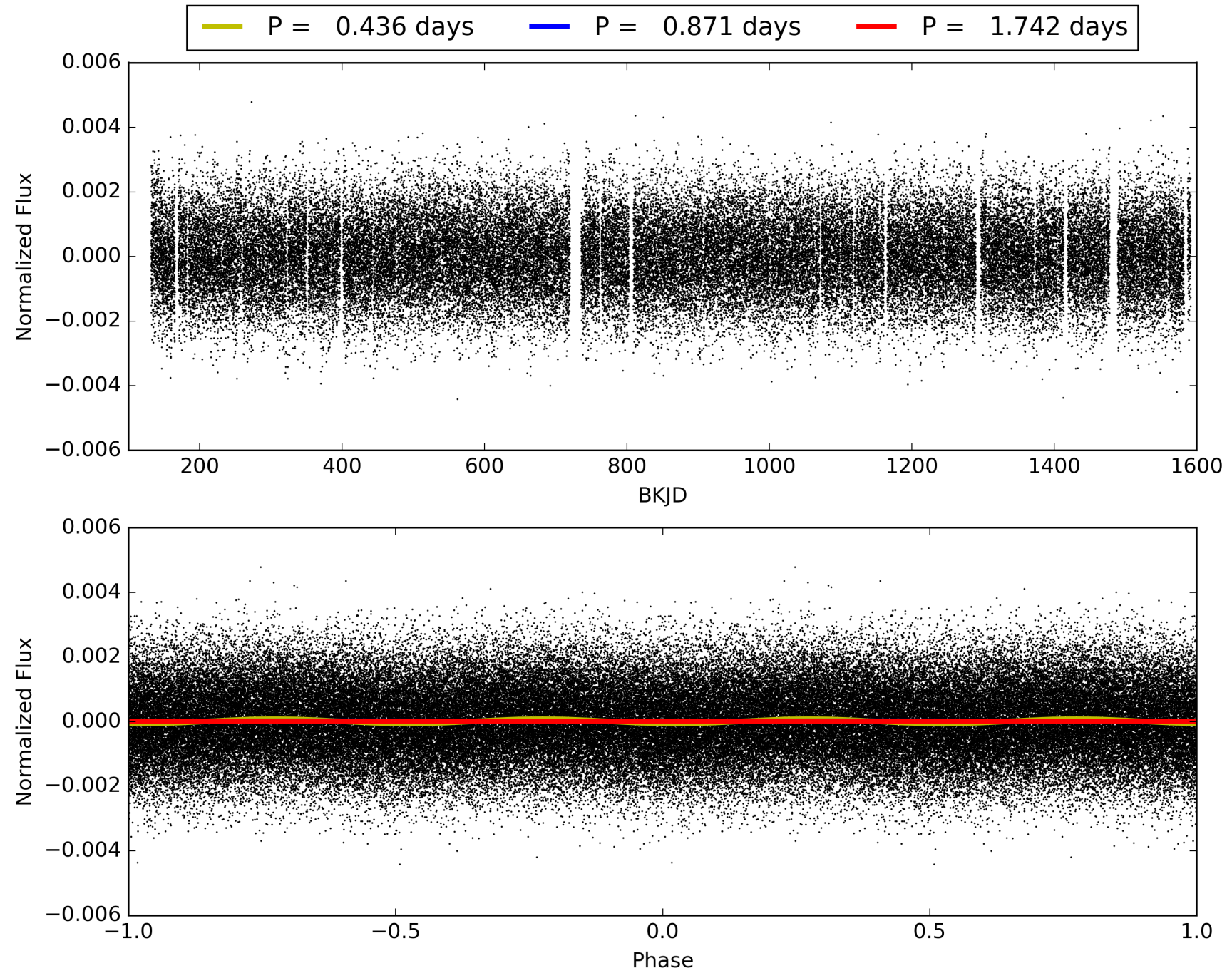
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:14:52 Z

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

TCE 005645788-02, PDC Light Curves

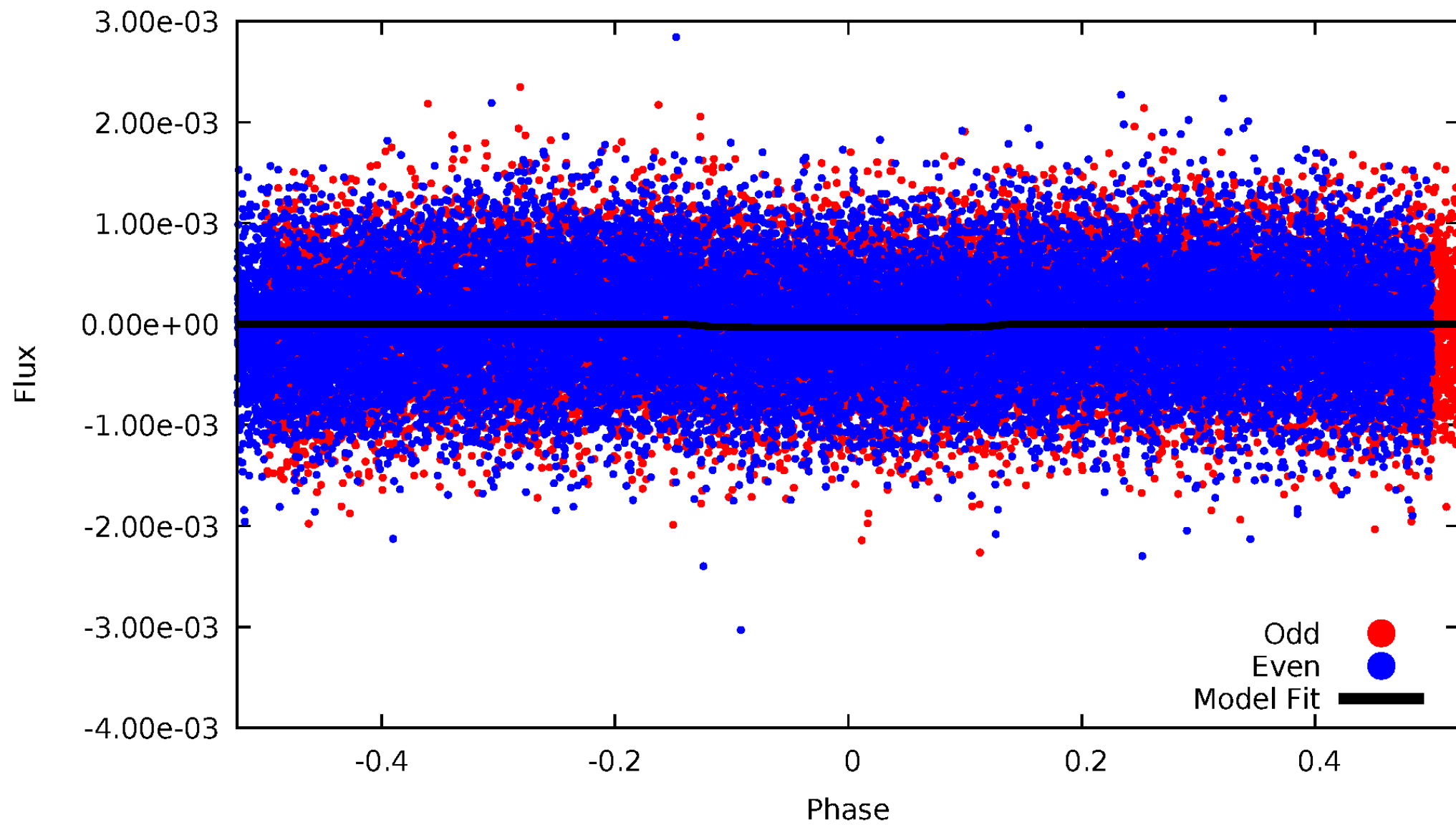


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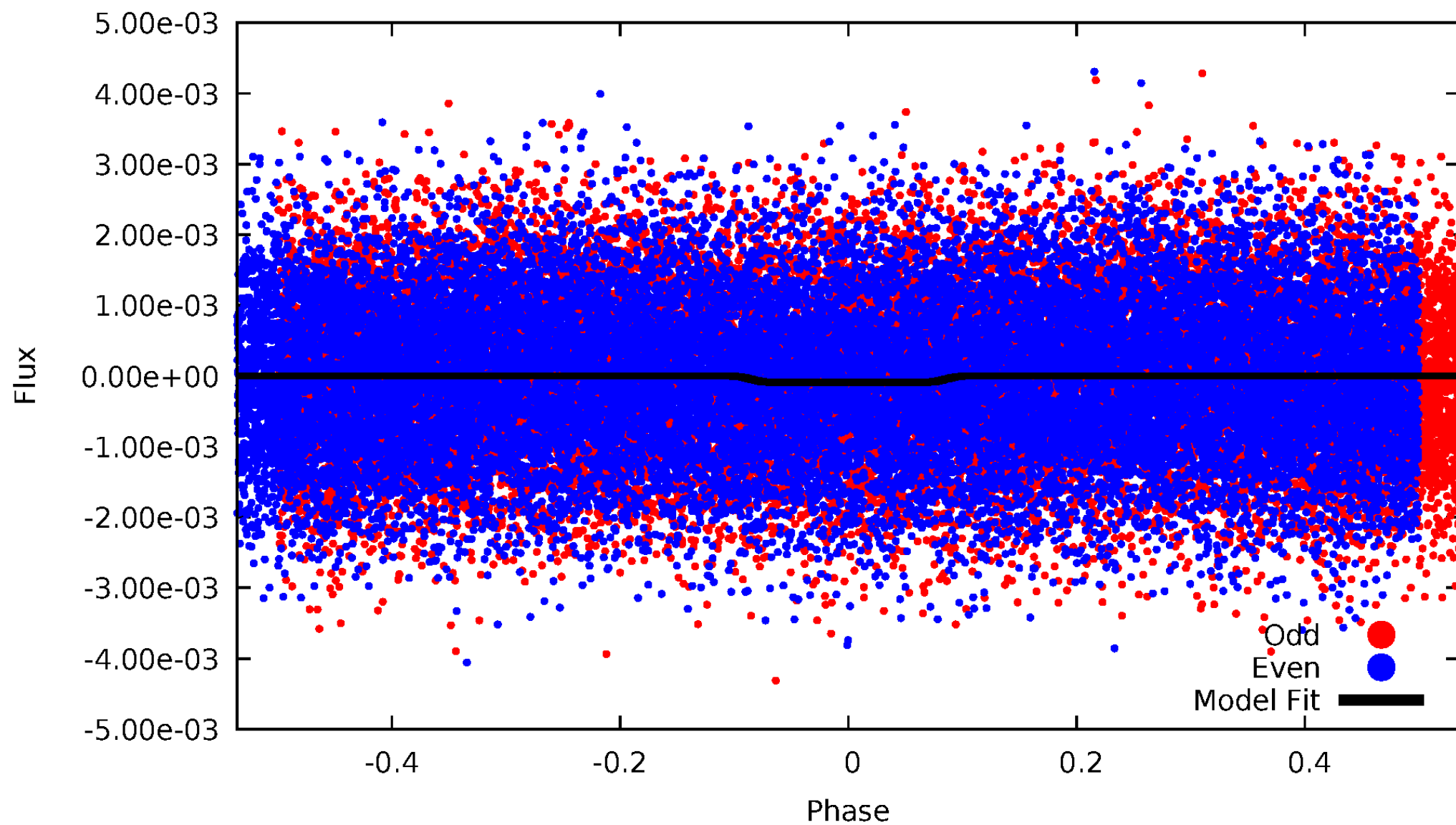
DV Odd/Even

TCE 005645788-02



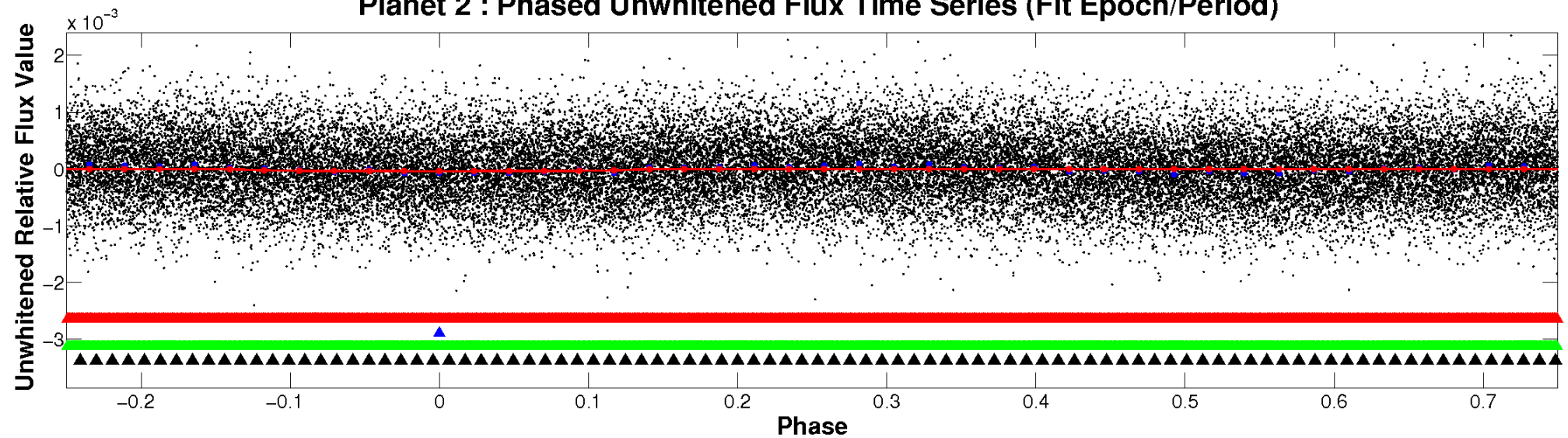
ALT Odd/Even

TCE 005645788-02

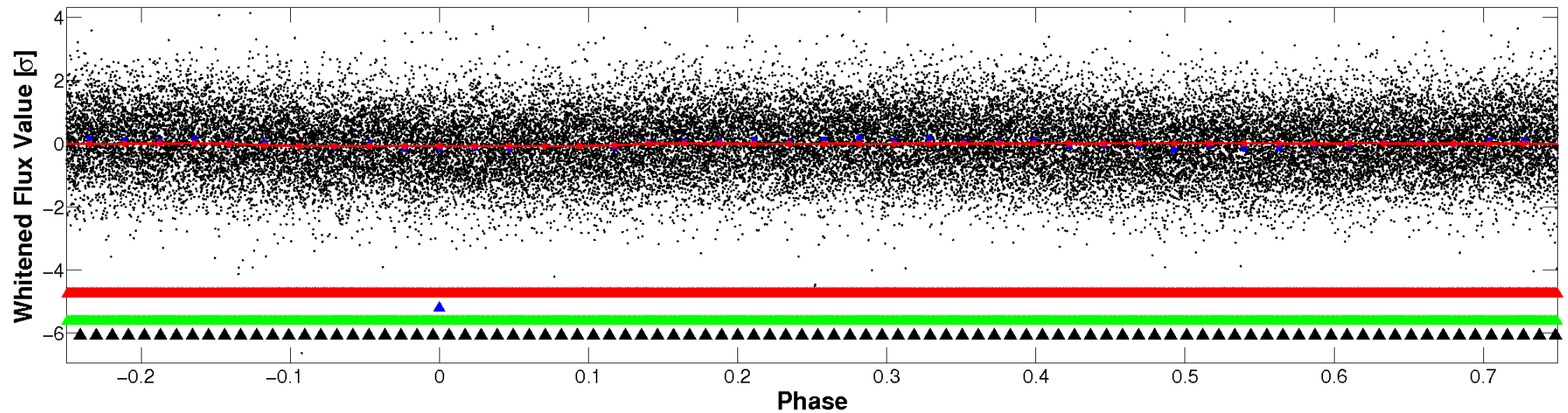


Non-Whitened Vs. Whitened Light Curve

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

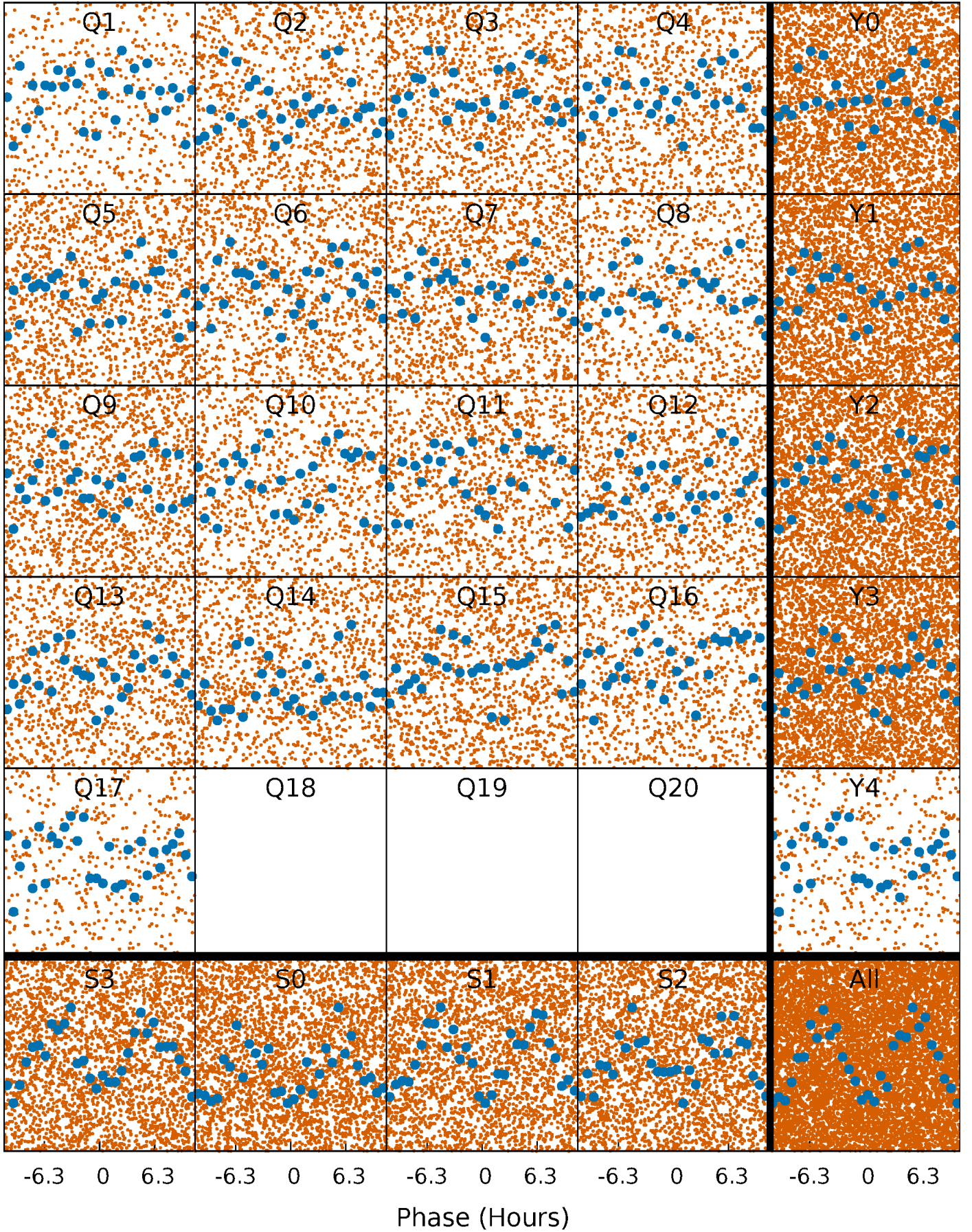


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



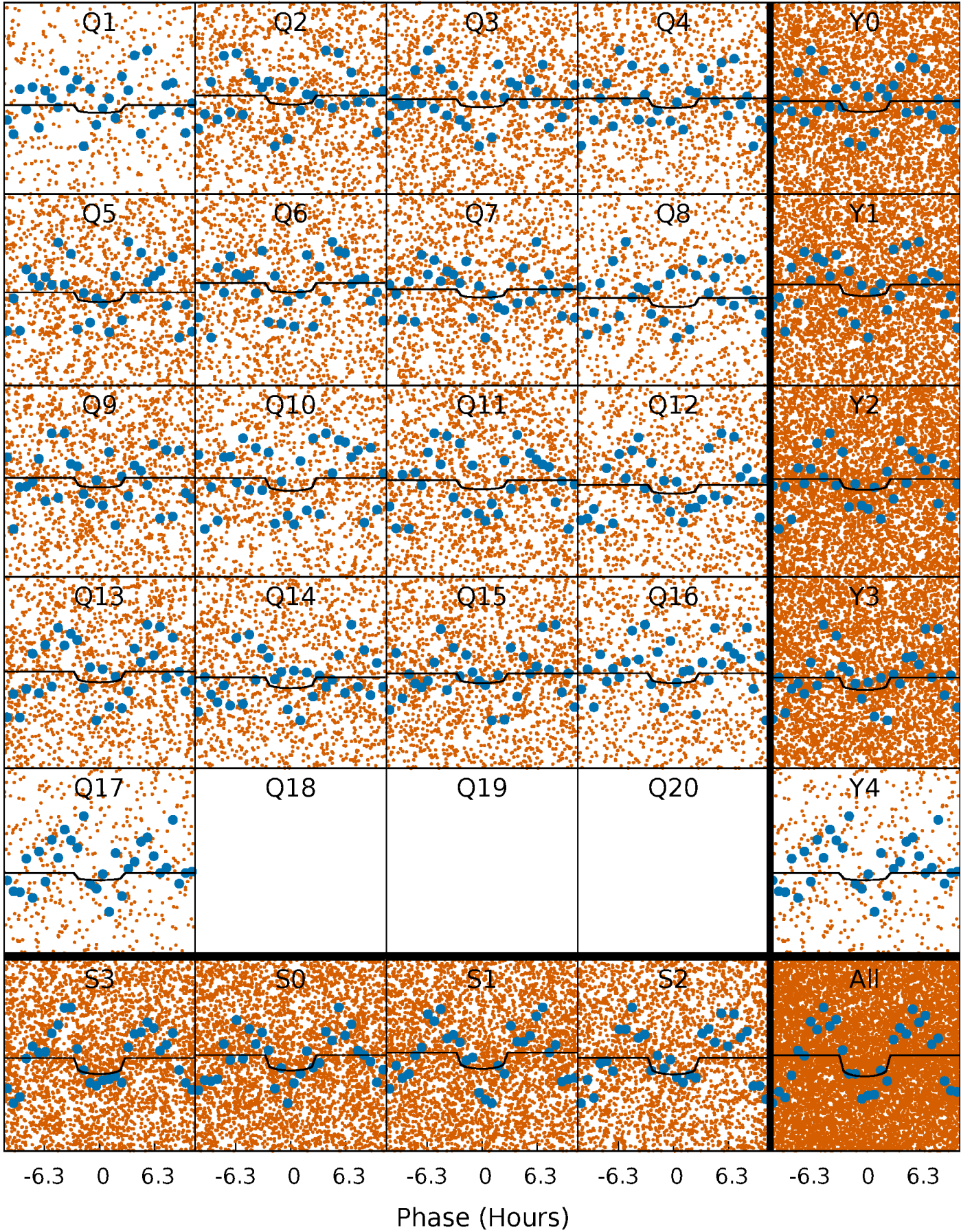
PDC Quarter-Phased Transit Curves

TCE 005645788-02 P= 0.871008 Days $T_0=131.975897$ (BKJD)



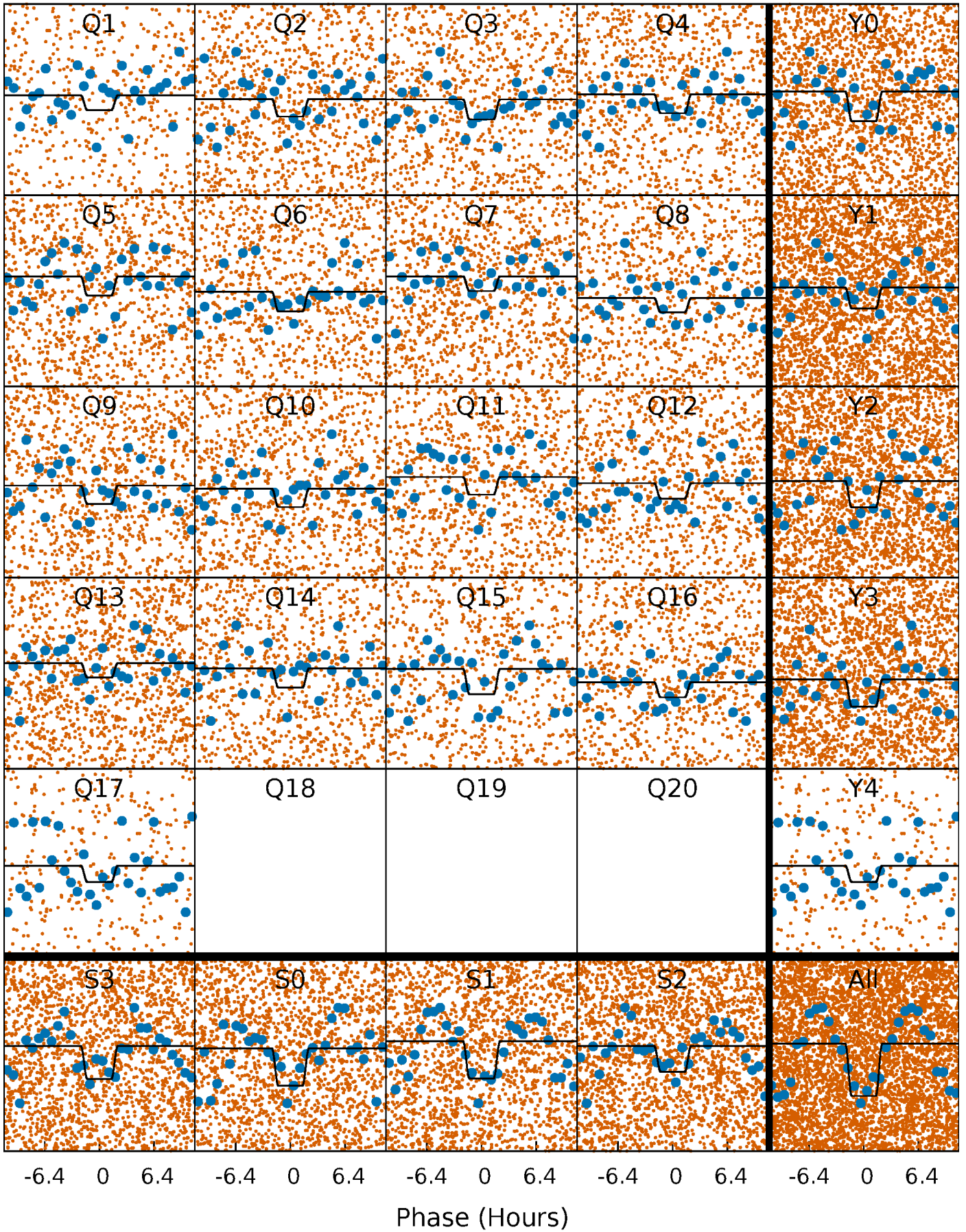
DV Quarter-Phased Transit Curves

TCE 005645788-02 P= 0.871008 Days $T_0=131.975897$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

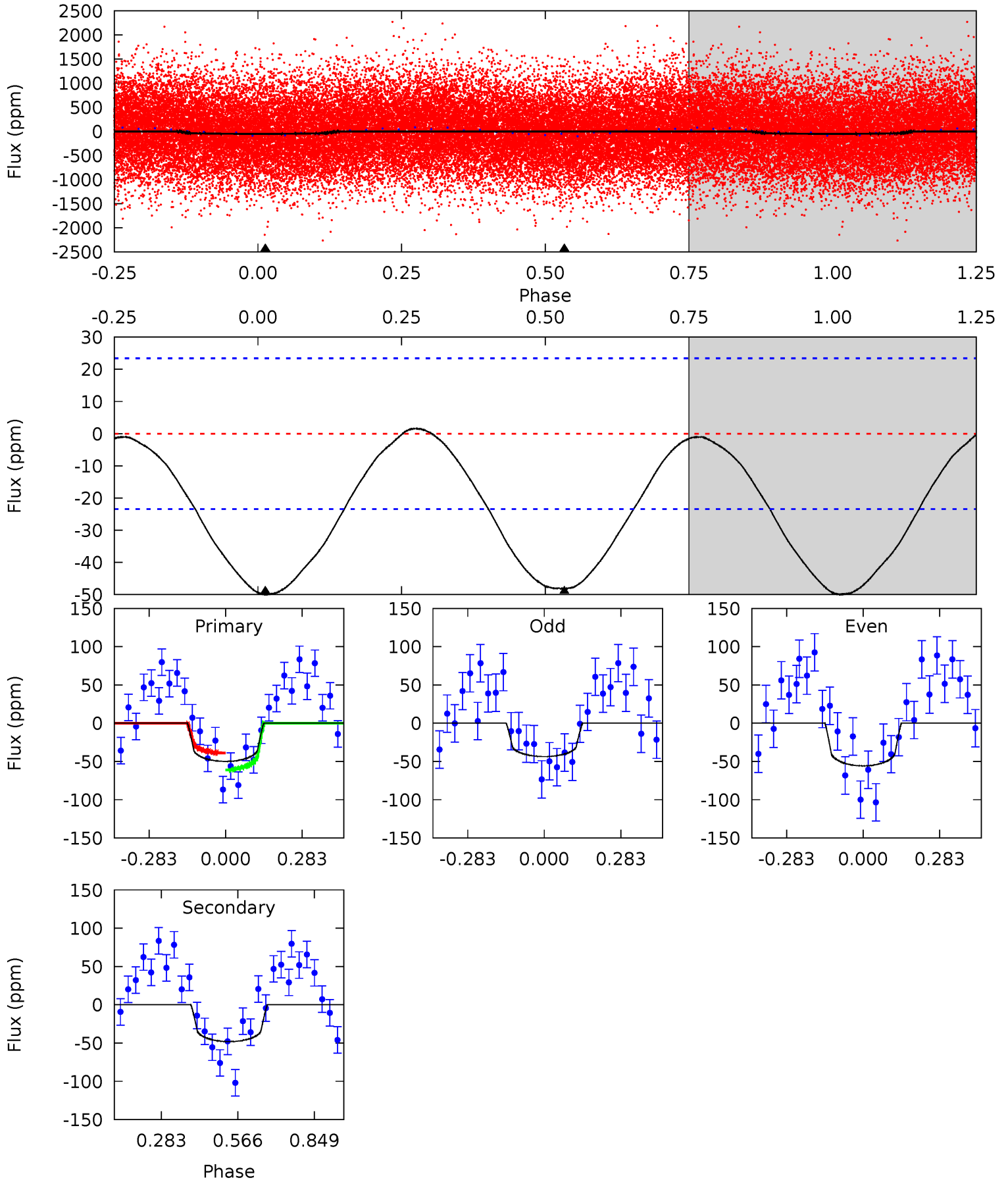
TCE 005645788-02 P= 0.871097 Days $T_0=131.915631$ (BKJD)



DV Model-Shift Uniqueness Test

005645788-02, P = 0.871008 Days, E = 131.104889 Days

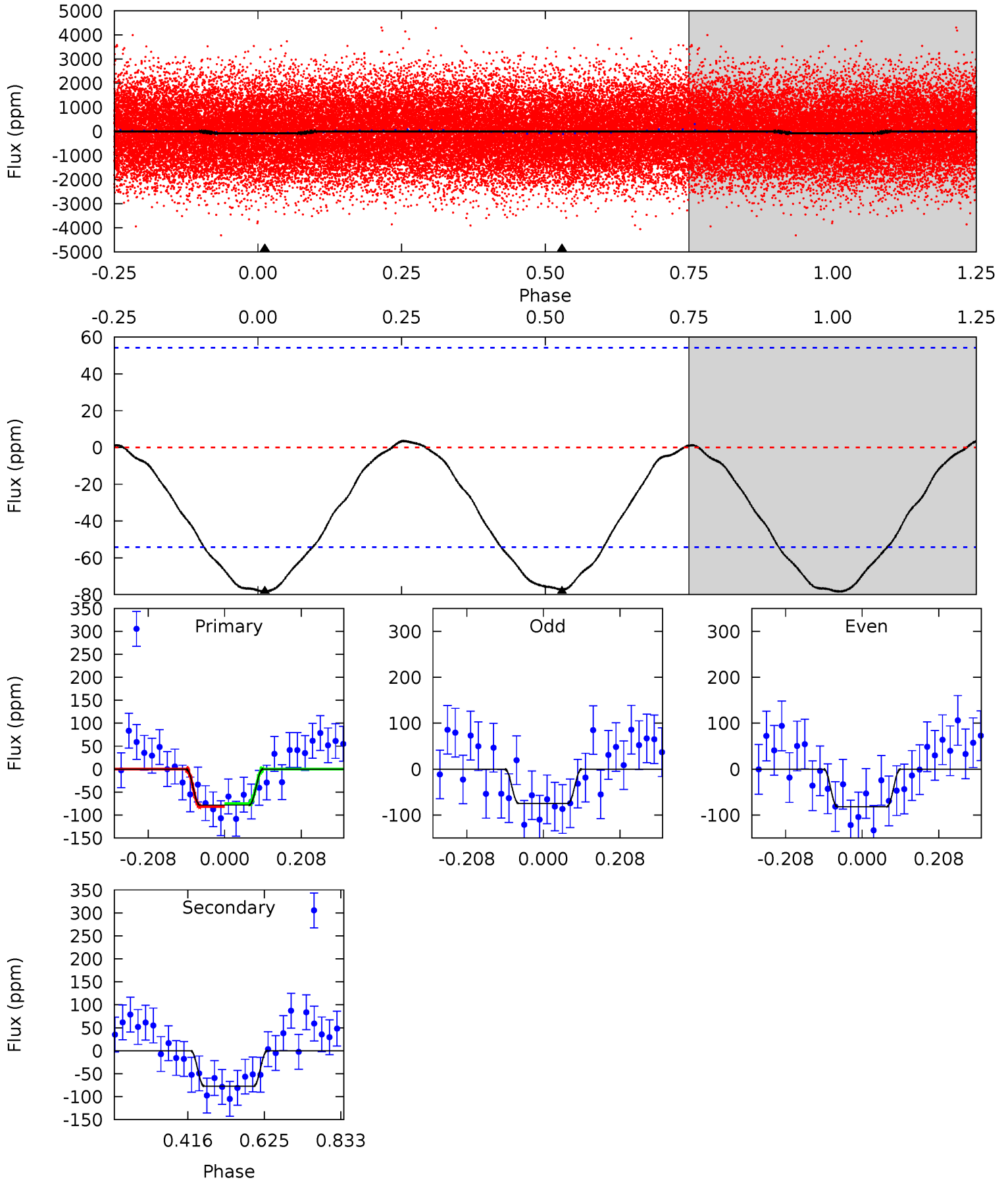
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.27	8.93	0	0	4.34	1.07	0.22	9.27	9.27	8.93	8.93	1.14	1.18	0.03	2.09



Alt Model-Shift Uniqueness Test

005645788-02, P = 0.871097 Days, E = 131.044534 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.38	6.29	0	0	4.41	1.26	0.26	6.38	6.38	6.29	6.29	0.30	1.08	0.04	0.23



Stellar Parameters For KIC 005645788

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7830^{+214}_{-322}	$4.027^{+0.181}_{-0.148}$	$0.000^{+0.200}_{-0.350}$	$2.160^{+0.467}_{-0.571}$	$1.809^{+0.145}_{-0.339}$	$0.253^{+0.274}_{-0.097}$
	+3%/-4%	+4%/-4%	+inf%/-inf%	+22%/-26%	+8%/-19%	+108%/-38%
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 005645788-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-48 ± 5	$1.62^{+1.38}_{-1.02}$	4763^{+336}_{-305}	7467^{+9192}_{-2127}	$4.504^{+30.324}_{-3.151}$
Alt.	-77 ± 12	$2.24^{+1.43}_{-1.13}$	4769^{+330}_{-323}	7035^{+4922}_{-1684}	$3.814^{+12.224}_{-2.392}$

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 $A_{obs} \gg 1.0$

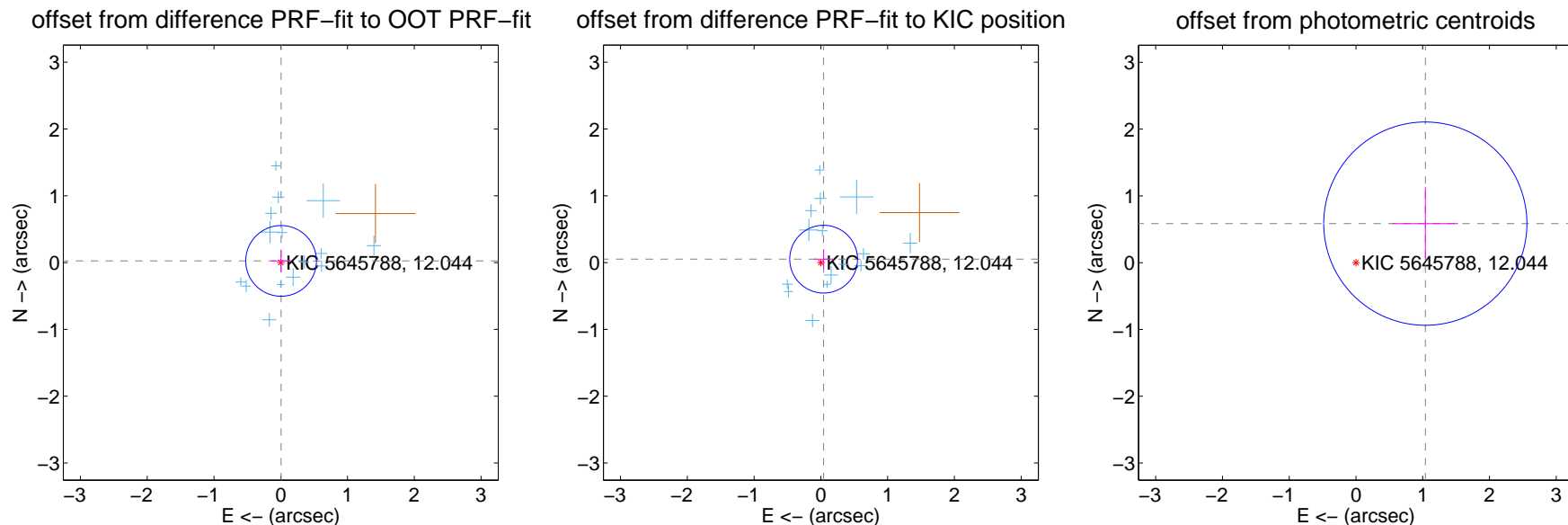
DV Centroid Data

Supplemental centroid analysis for 005645788-02. Kepler magnitude: 12.04. Transit SNR 7.00

There are 15 quarters with good PRF difference image offsets

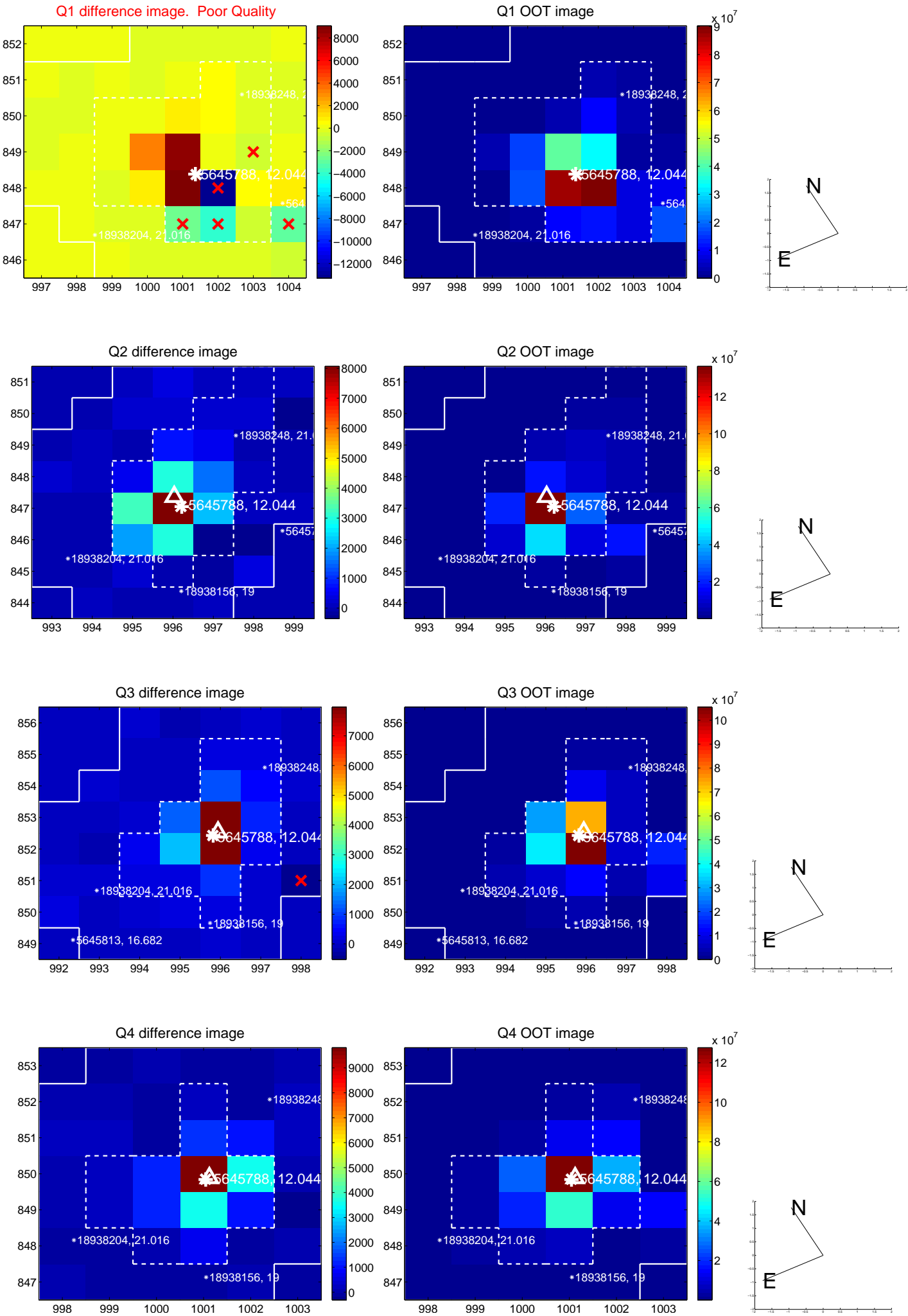
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.026 ± 0.176	0.15	-0.005 ± 0.154	0.025 ± 0.171
PRF-fit source offset from KIC position	0.066 ± 0.169	0.39	-0.041 ± 0.150	0.051 ± 0.150
photometric centroid source offset	1.19 ± 0.51	2.35	-1.04 ± 0.49	0.58 ± 0.55

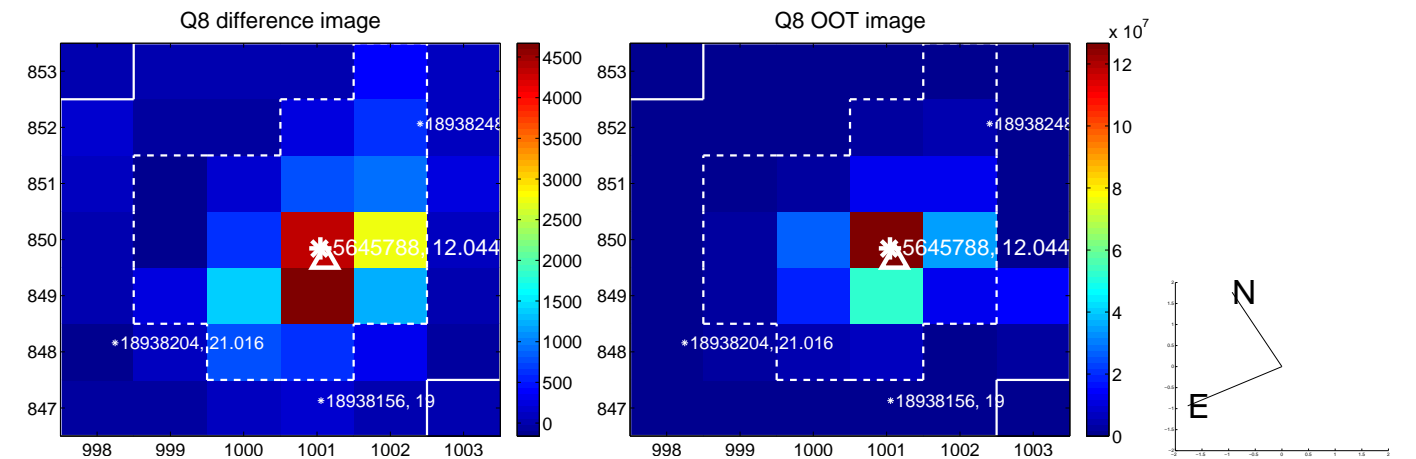
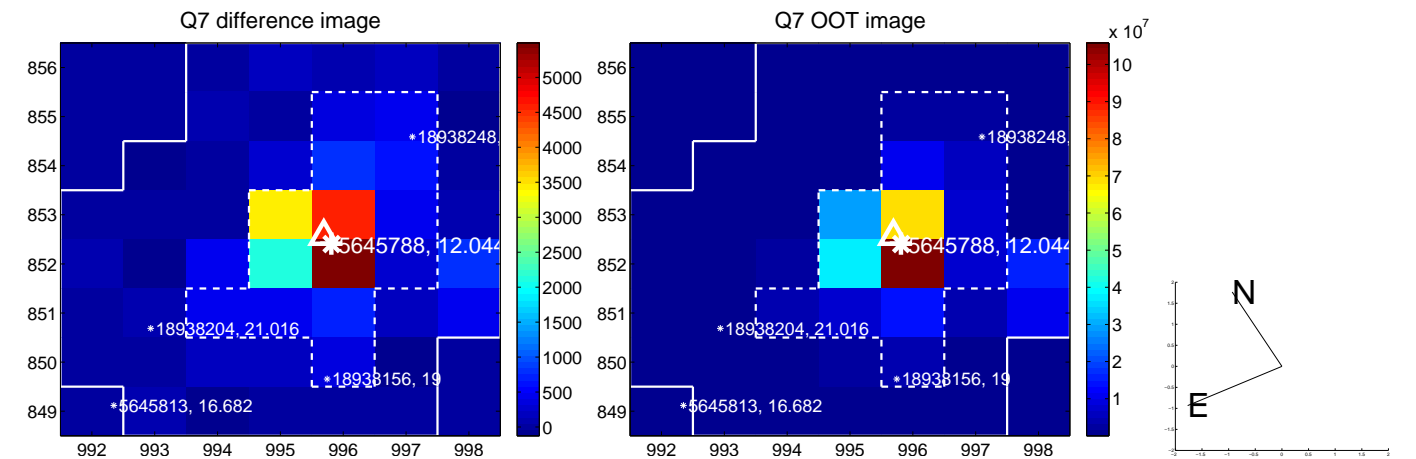
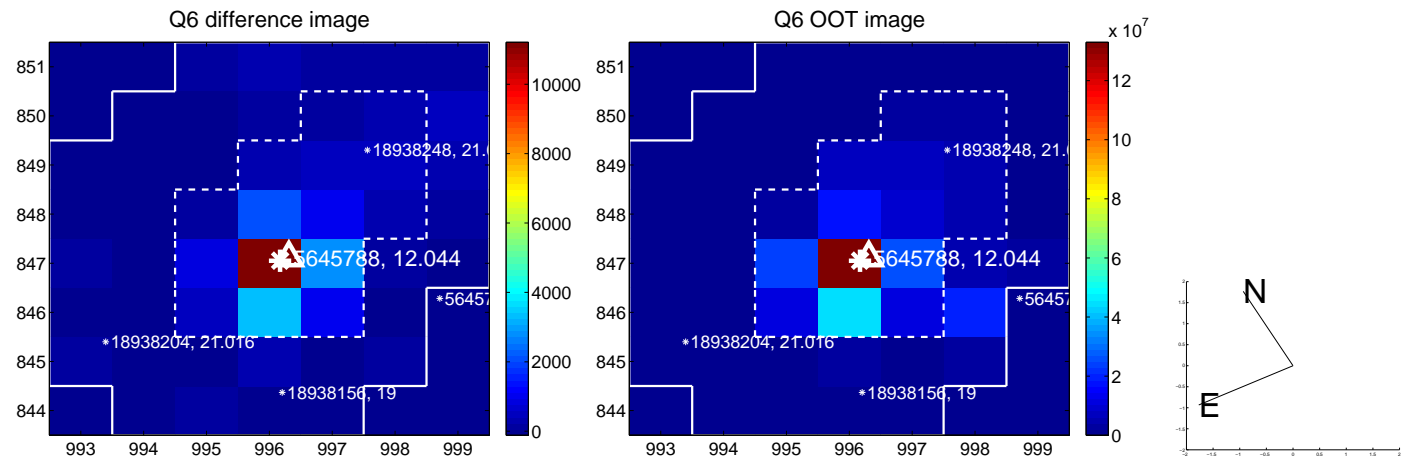
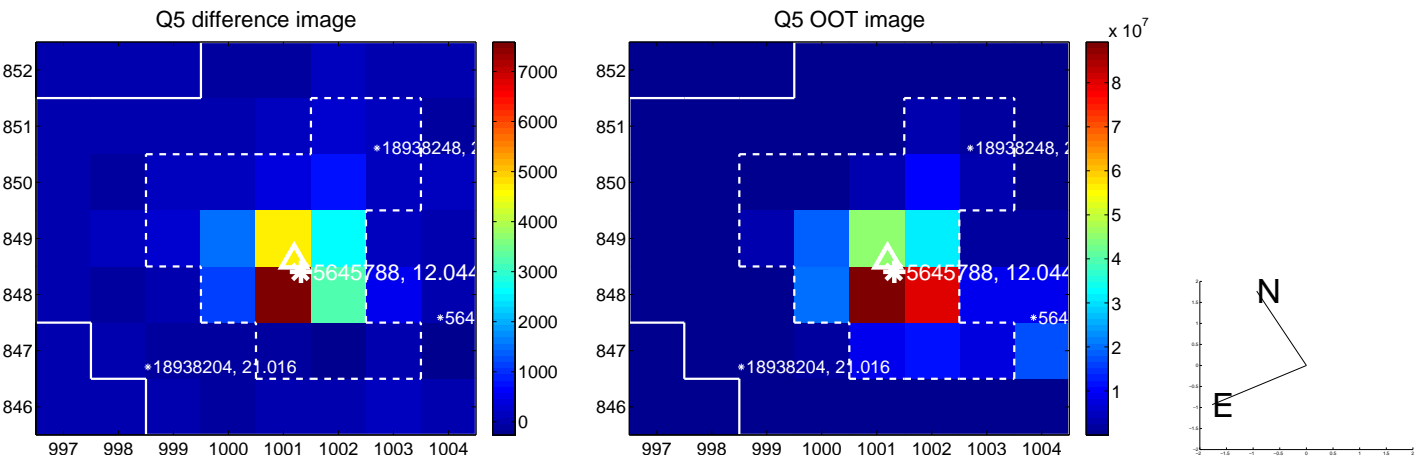


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

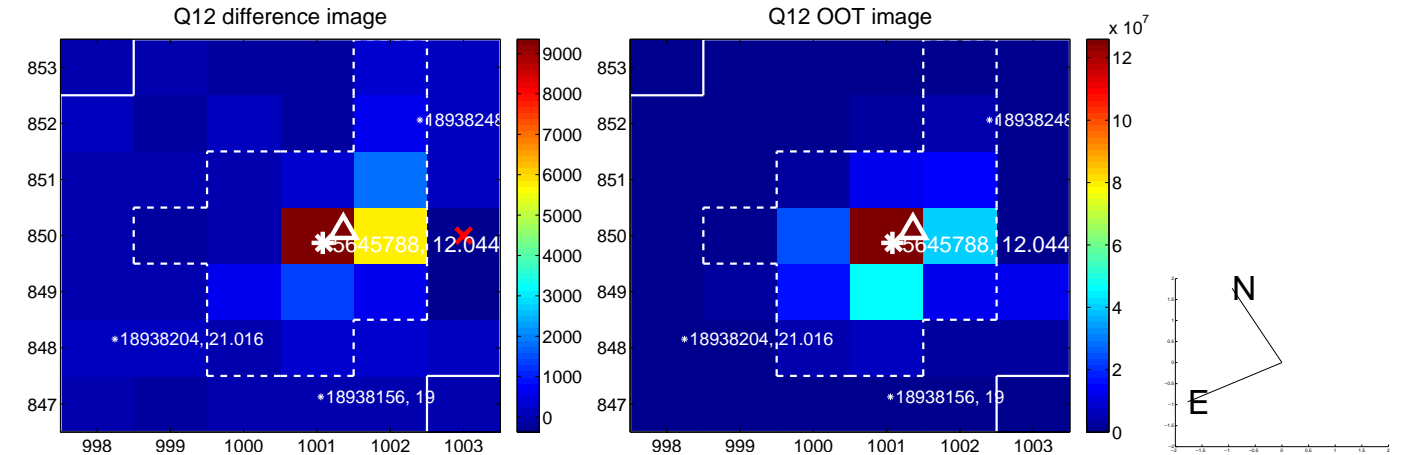
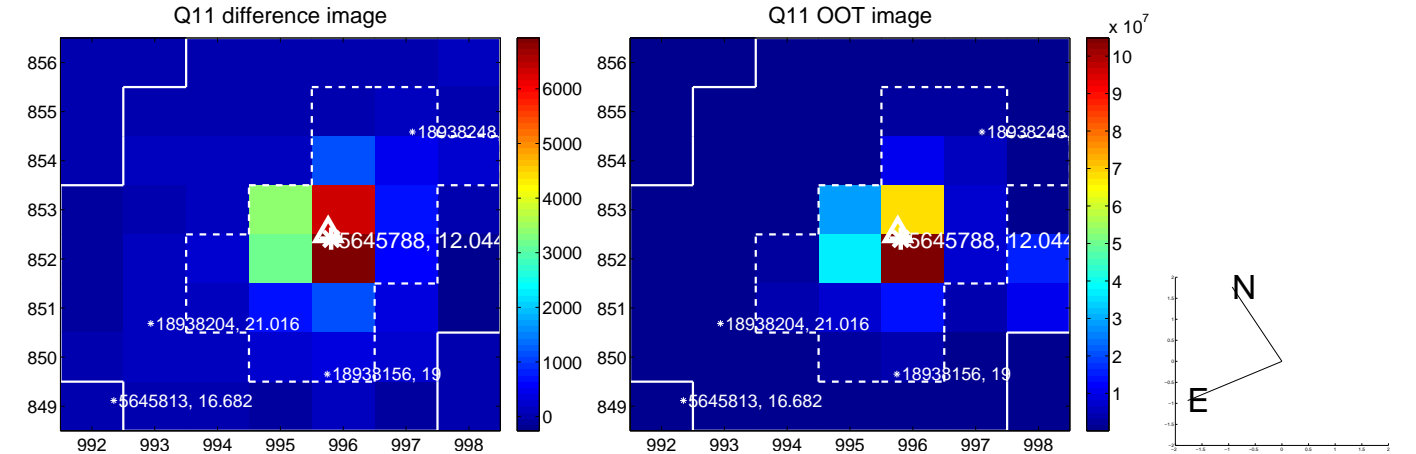
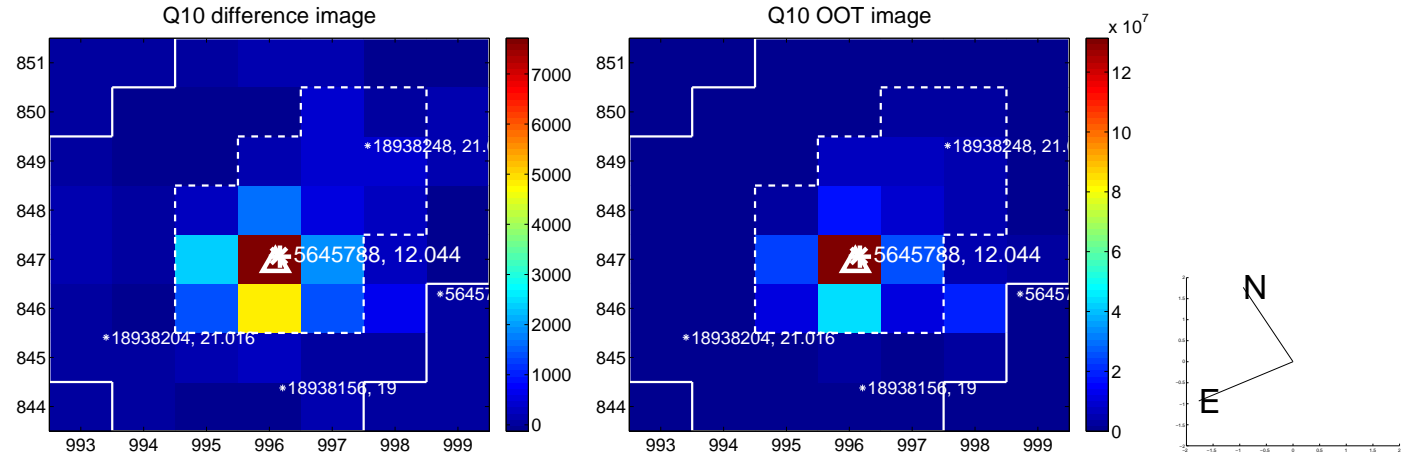
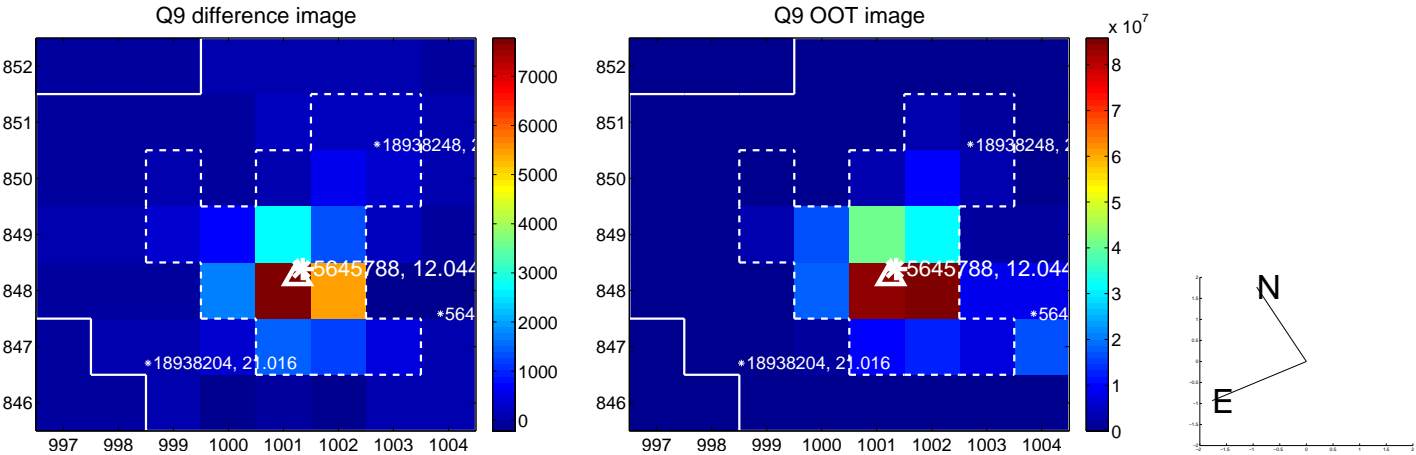
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



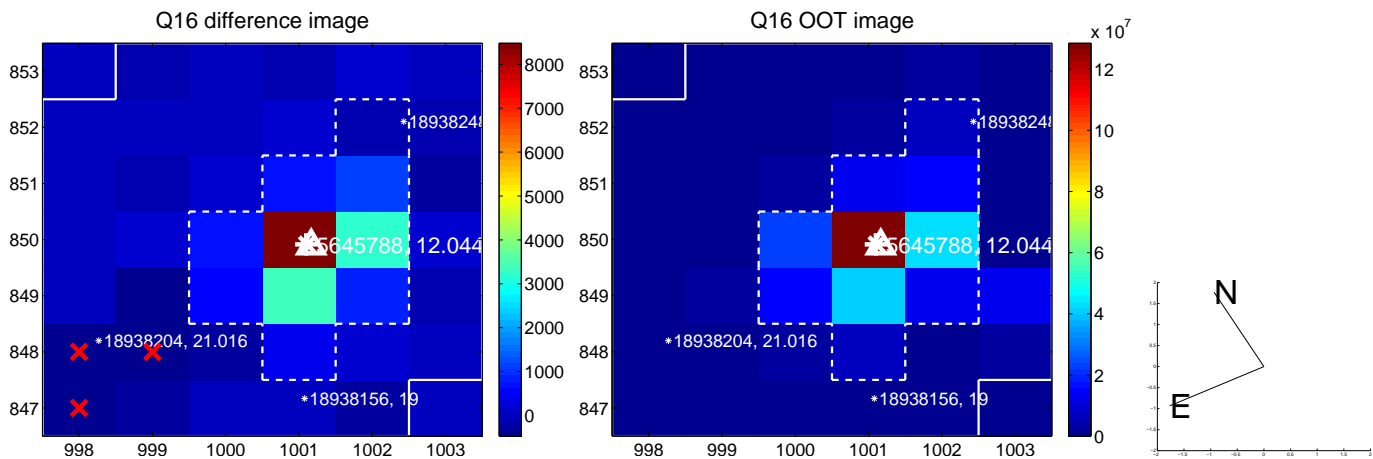
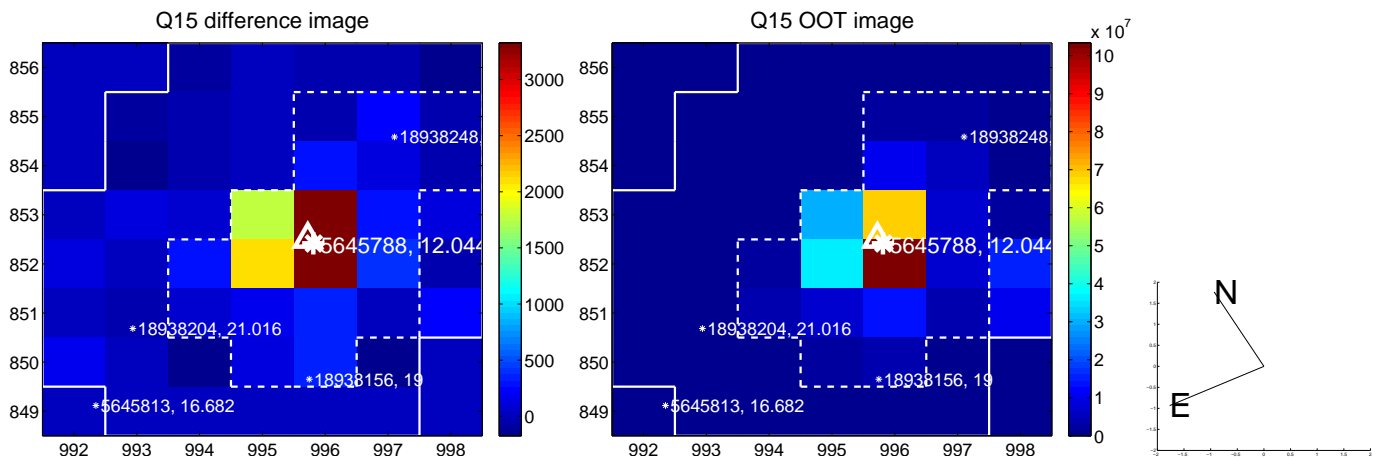
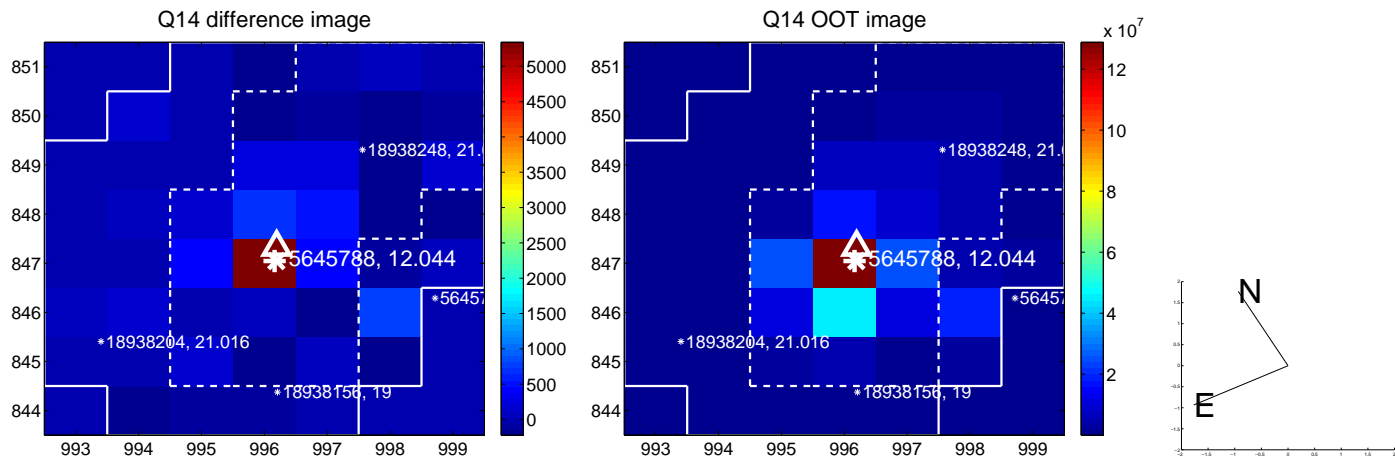
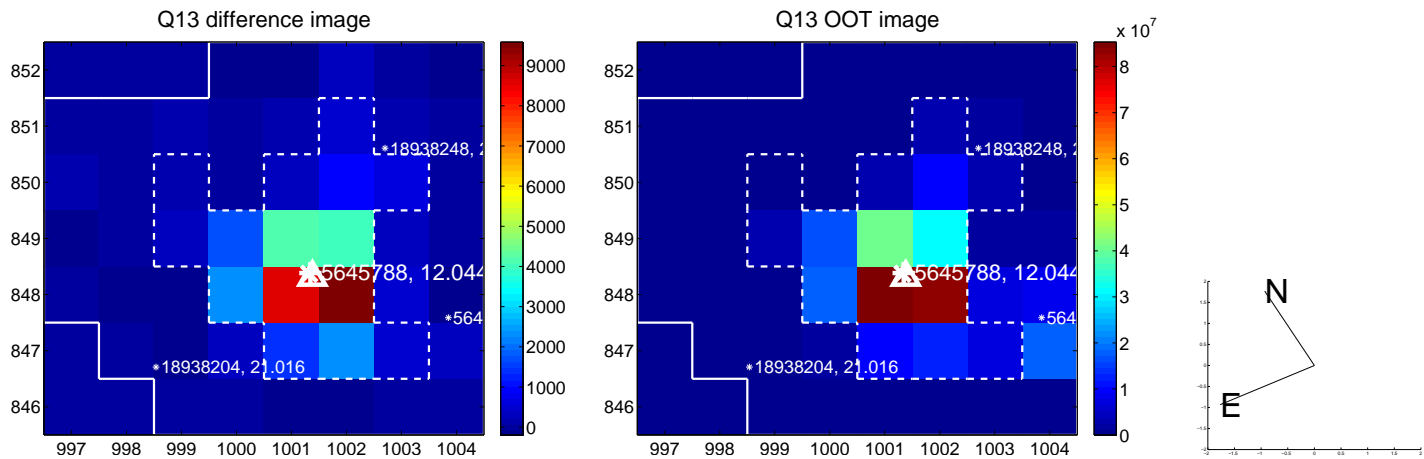
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



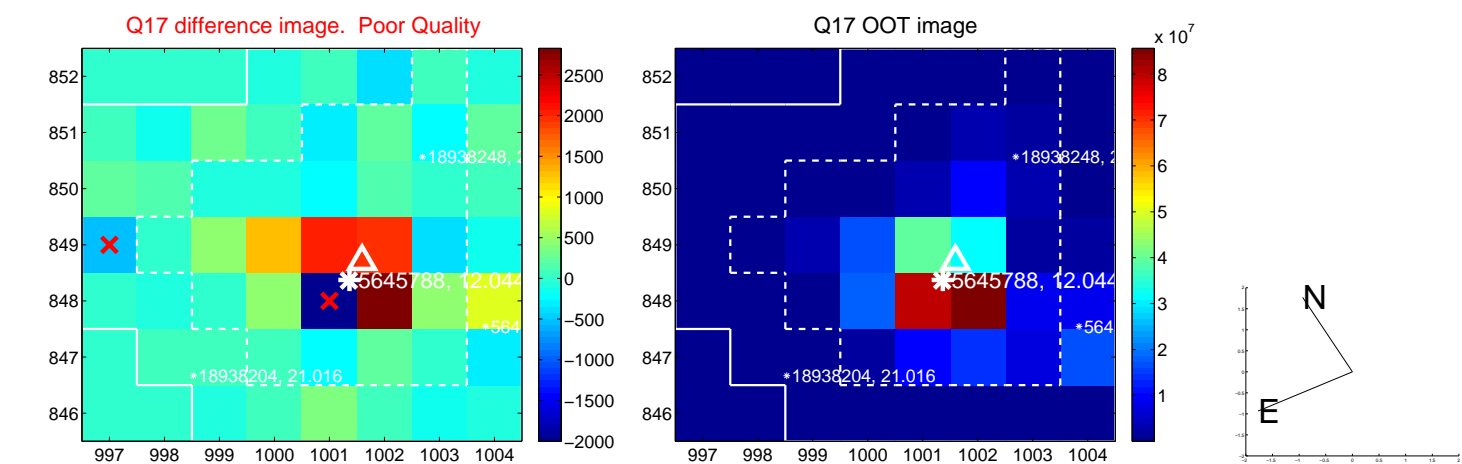
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



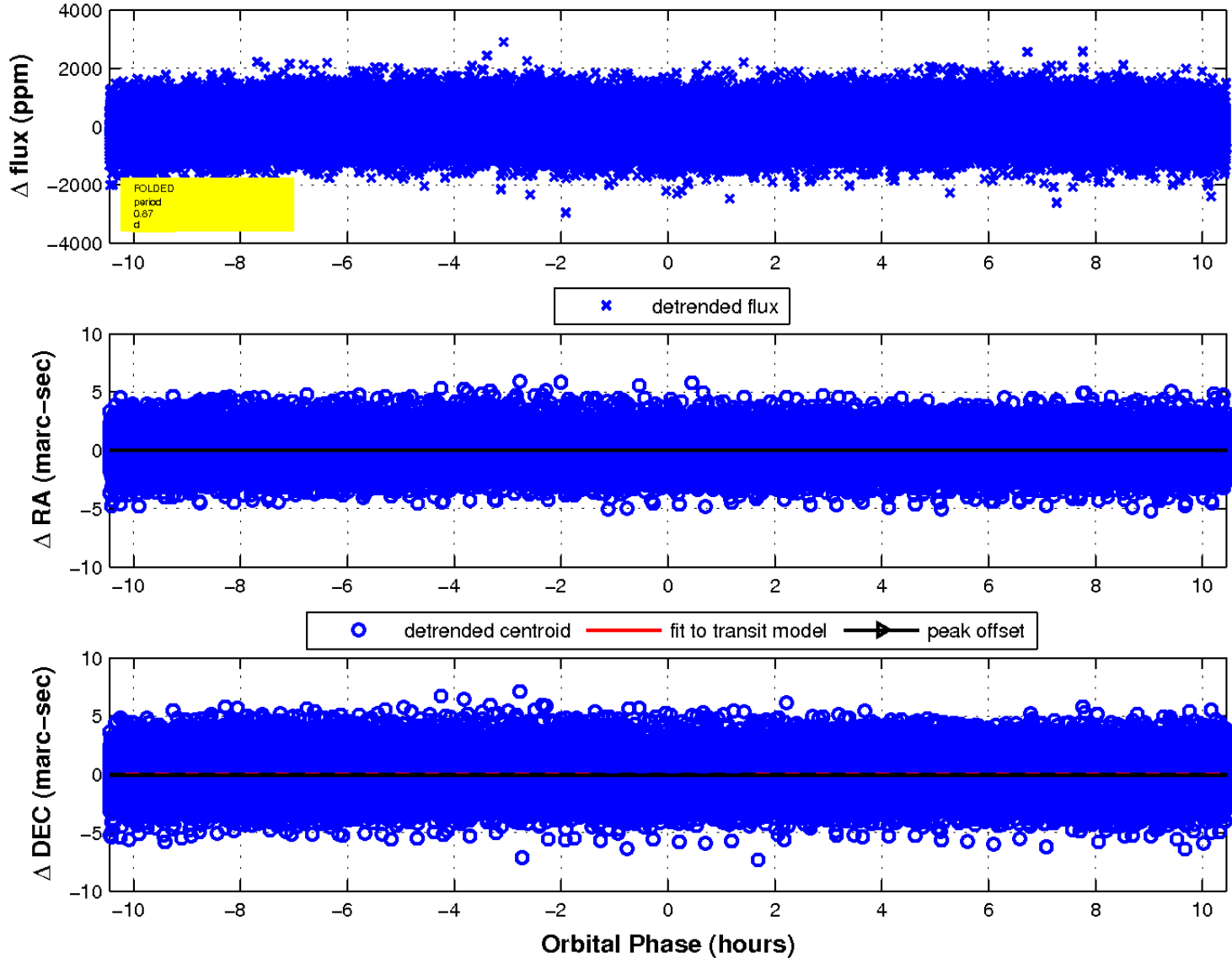
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



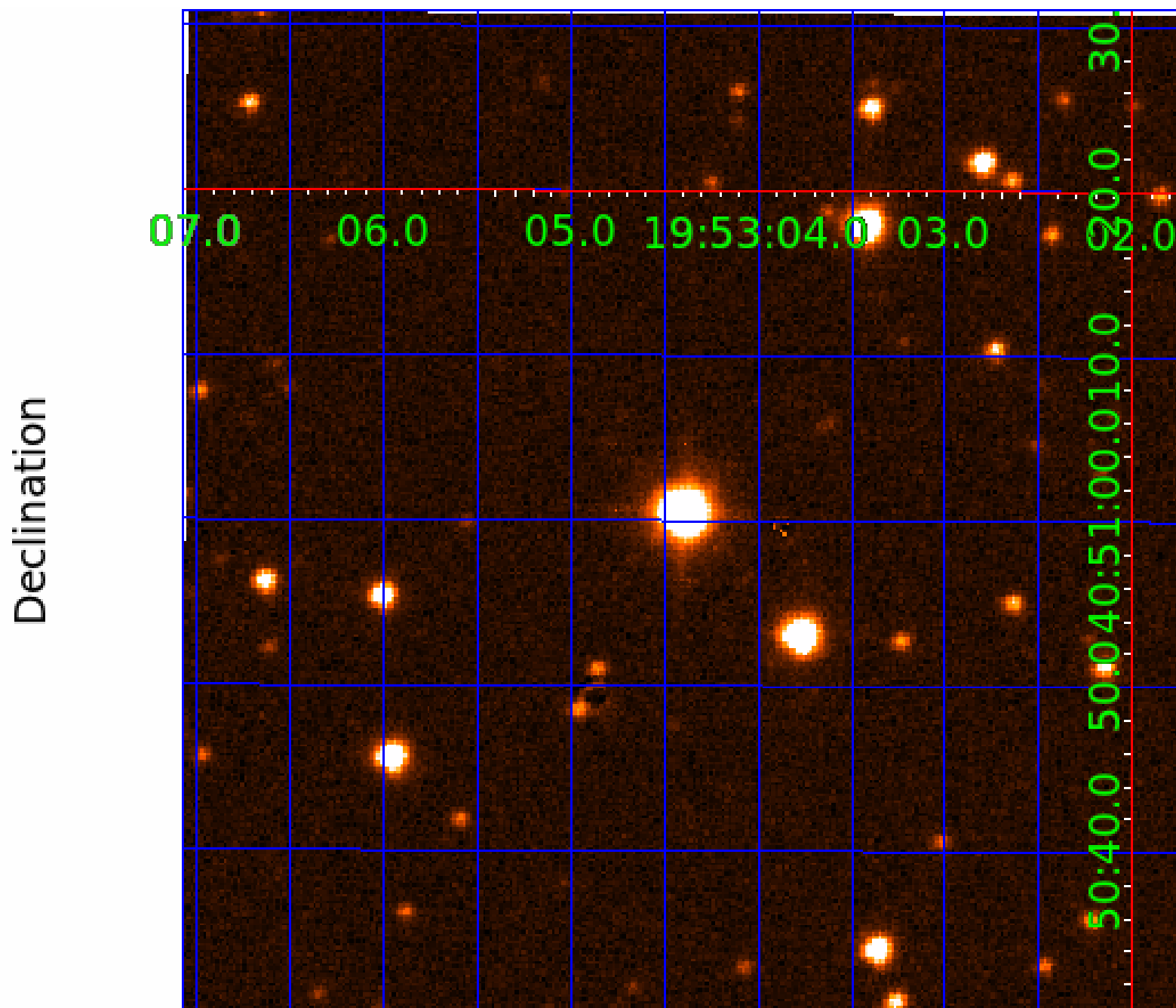
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 4



UKIRT Image



KIC 005645788

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})
005645788-01	OBS	No	0.522871	131.707364	50.3	1.489	11.6	11.1	2.16	7830	1.59	65521.64
005645788-02	OBS	No	0.871008	131.975897	35.7	5.474	8.6	7.0	2.16	7830	1.38	33180.35
005645788-03	OBS	No	0.959330	131.581071	131.9	3.733	11.3	10.8	2.16	7830	2.88	29171.14
005645788-04	OBS	No	14.263929	139.071411	162.2	3.500	8.6	-1.0	2.16	7830	2.79	797.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005645788-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005645788-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV
005645788-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005645788-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

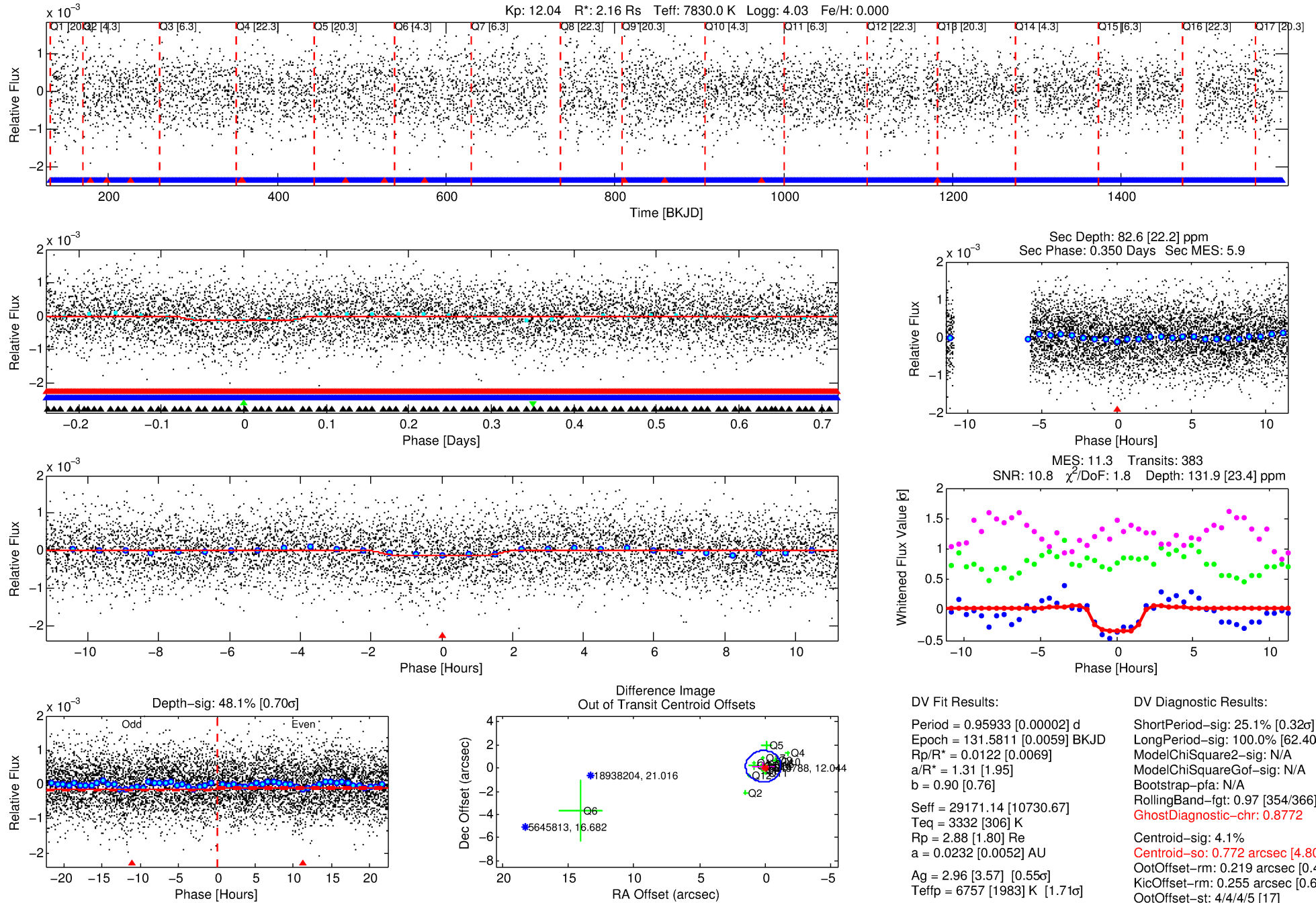
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005645788-03

No Significant Match Found

DV One-Page Summary

KIC: 5645788 Candidate: 3 of 4 Period: 0.959 d



DV Fit Results:

Period = 0.95933 [0.00002] d
 Epoch = 131.5811 [0.0059] BKJD
 Rp/R* = 0.0122 [0.0069]
 a/R* = 1.31 [1.95]
 b = 0.90 [0.76]
 Seff = 29171.14 [10730.67]
 Teq = 3332 [306] K
 Rp = 2.88 [1.80] Re
 a = 0.0232 [0.0052] AU
 Ag = 2.96 [3.57] [0.55 σ]
 Teffp = 6757 [1983] K [1.71 σ]

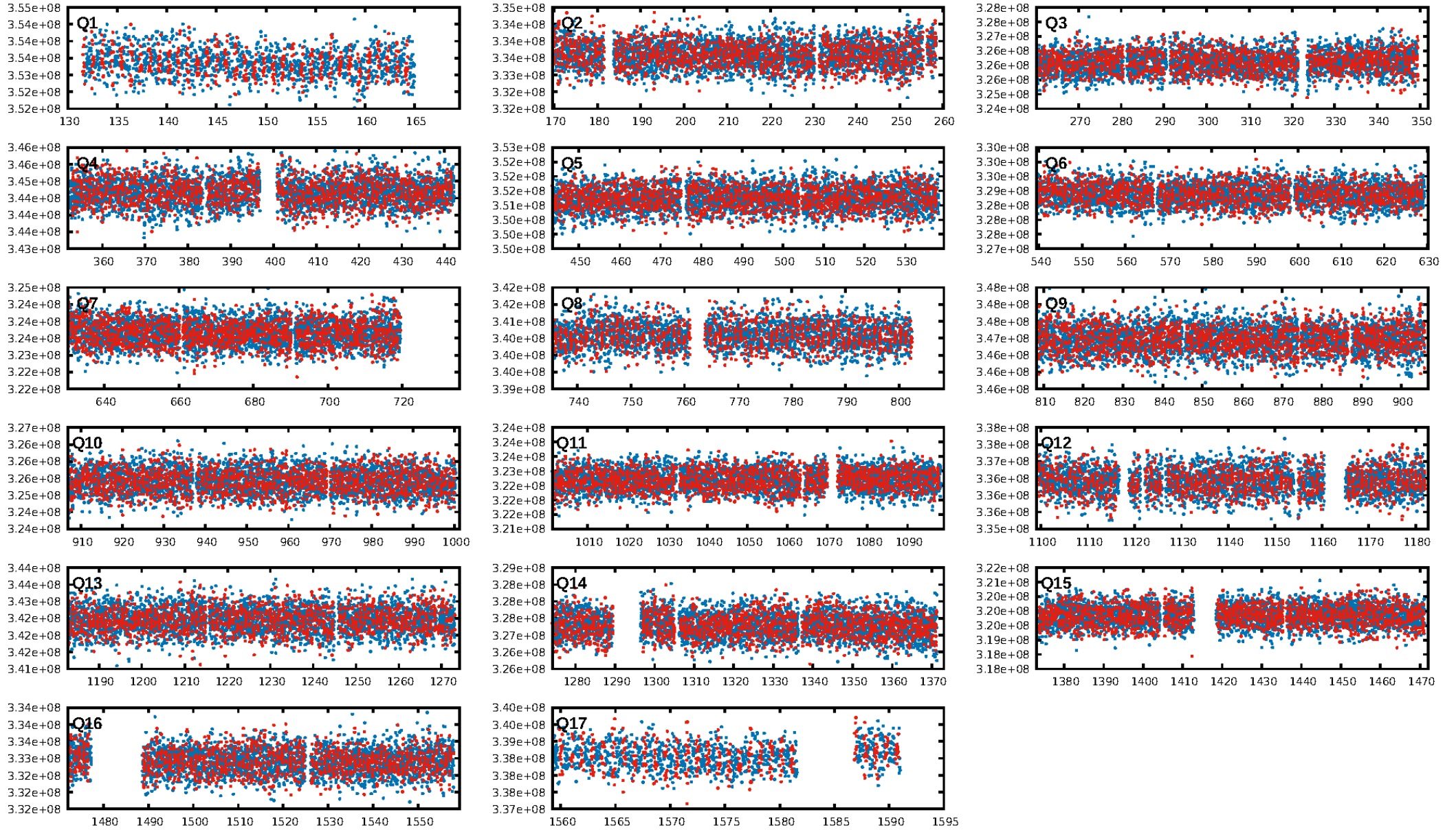
DV Diagnostic Results:

ShortPeriod-sig: 25.1% [0.32 σ]
 LongPeriod-sig: 100.0% [62.40 σ]
 ModelChiSquare2-sig: N/A
 ModelChiSquareGof-sig: N/A
 Bootstrap-pfa: N/A
 RollingBand-fgt: 0.97 [354/366]
 GhostDiagnostic-chr: 0.8772
 Centroid-sig: 4.1%
 Centroid-so: 0.772 arcsec [4.80 σ]
 OotOffset-rm: 0.219 arcsec [0.49 σ]
 KicOffset-rm: 0.255 arcsec [0.68 σ]
 OotOffset-st: 4/4/4/5 [17]
 KicOffset-st: 4/4/4/5 [17]
 DiffImageQuality-fgm: 0.88 [15/17]
 DiffImageOverlap-fno: 0.00 [0/17]

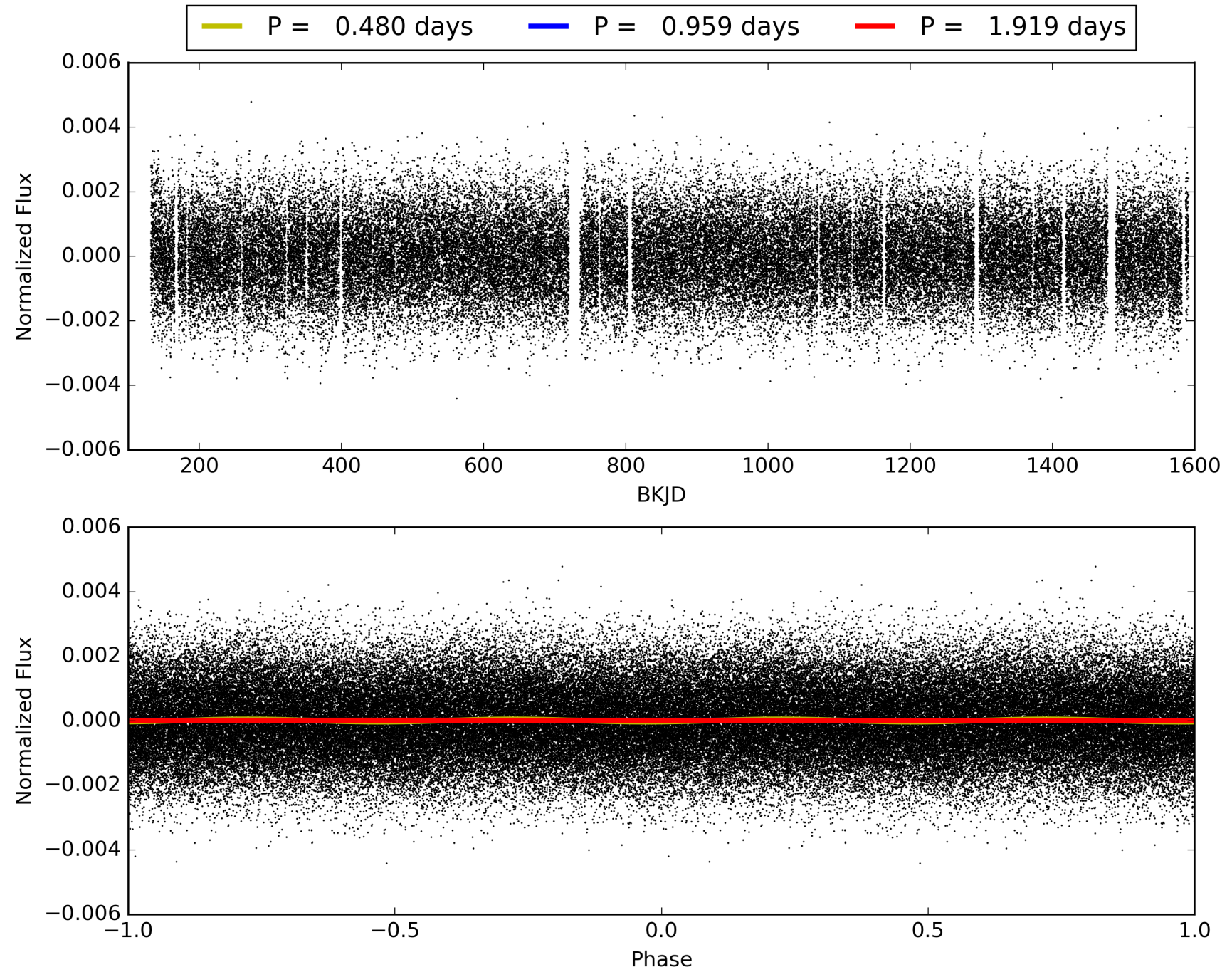
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:15:03 Z

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

TCE 005645788-03, PDC Light Curves

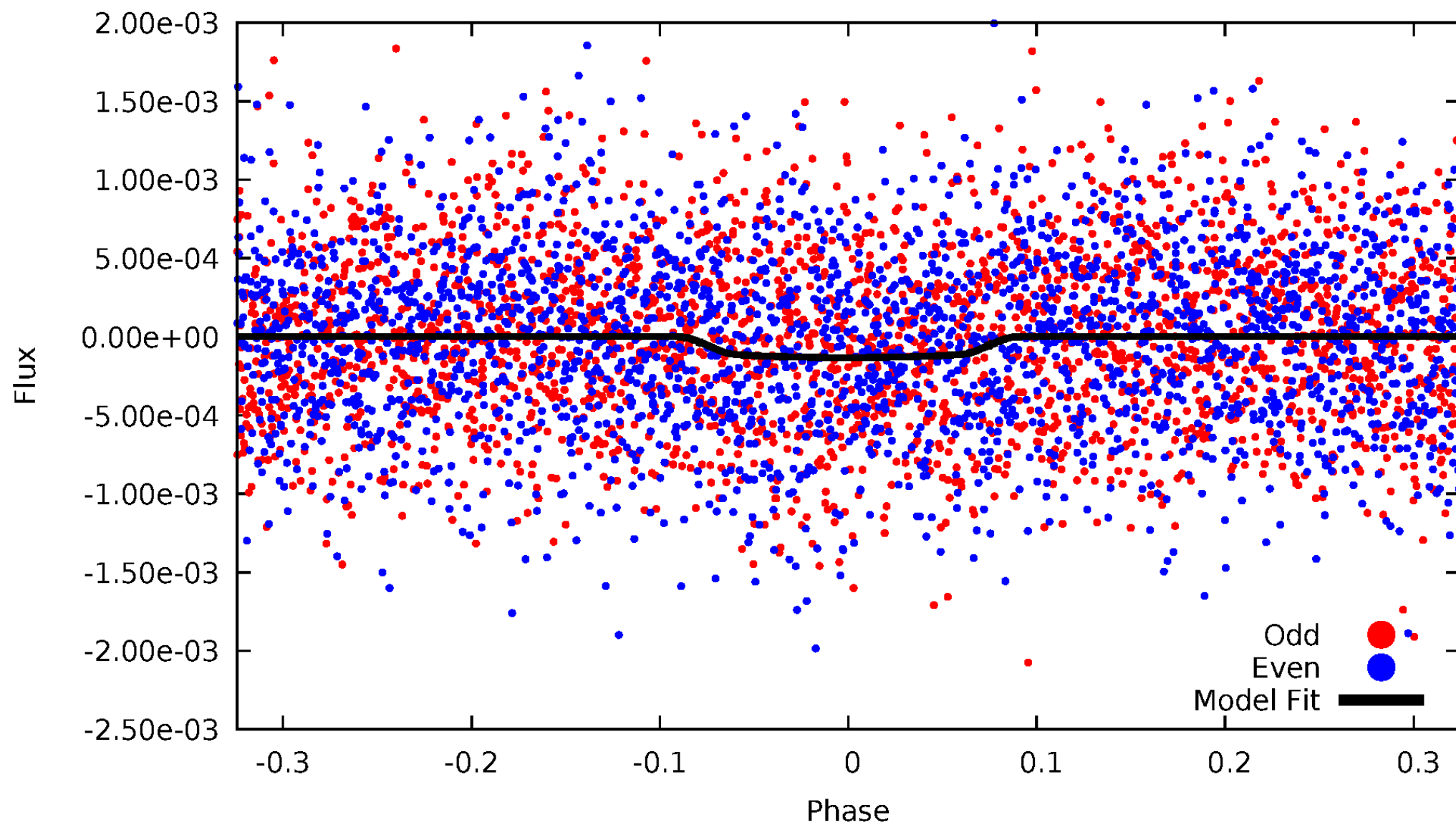


TCE 005645788-03



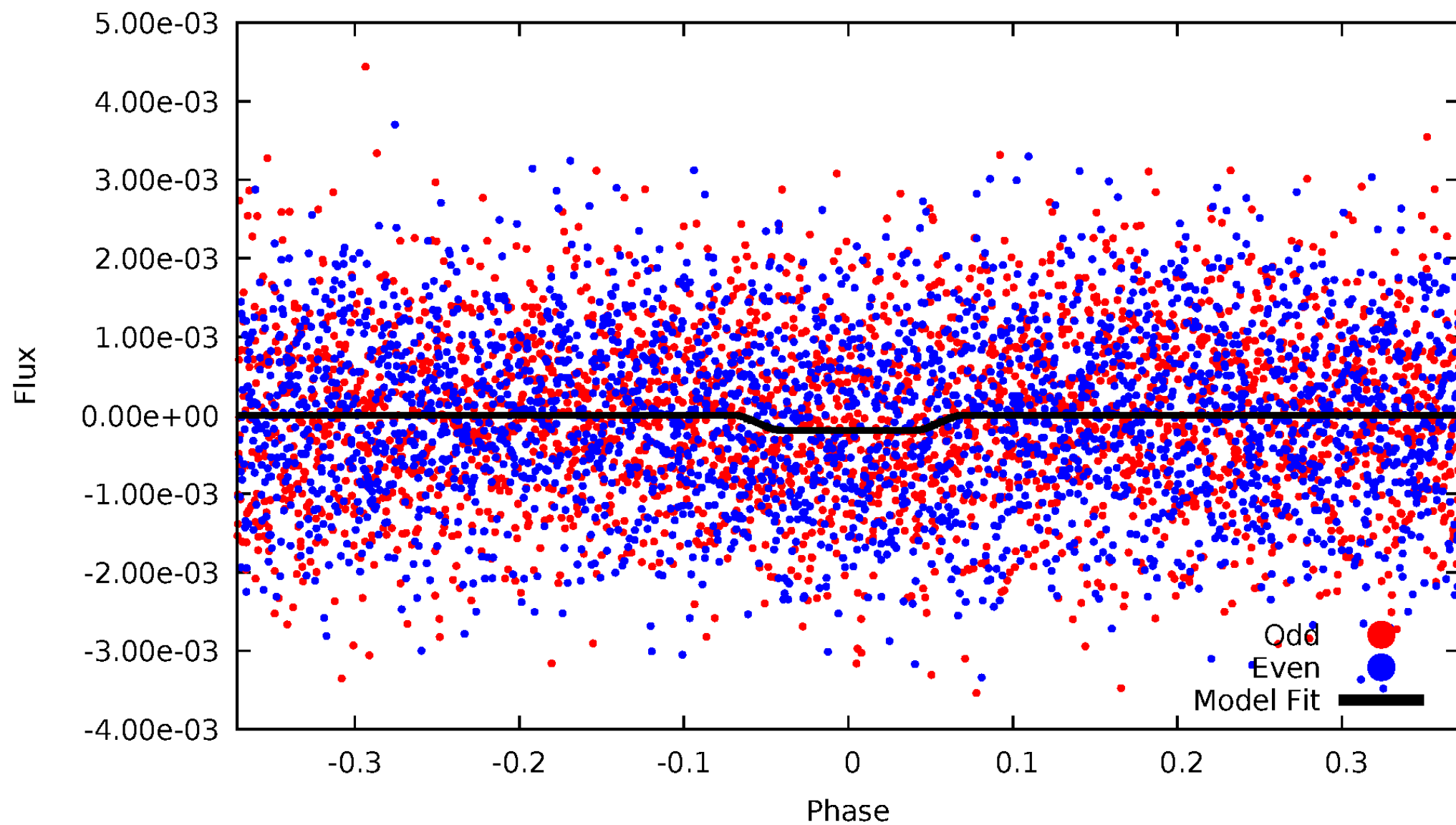
DV Odd/Even

TCE 005645788-03



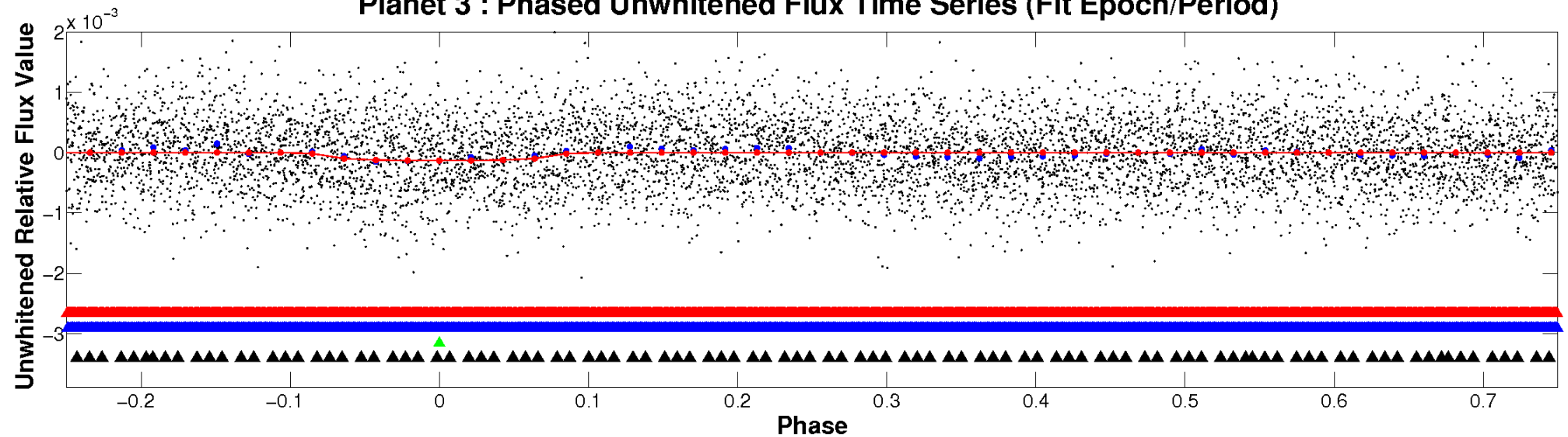
ALT Odd/Even

TCE 005645788-03

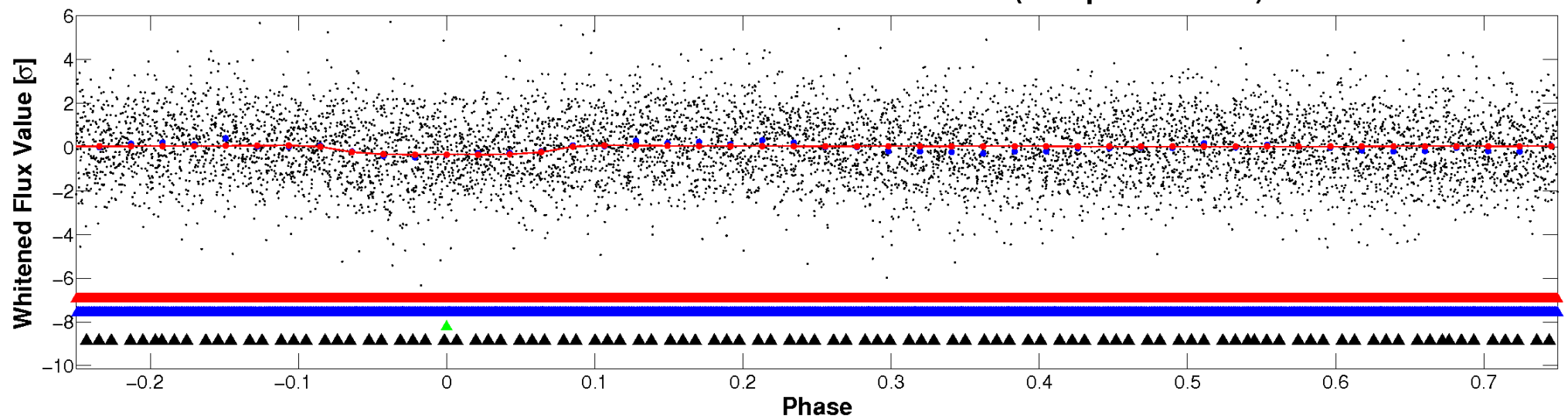


Non-Whitened Vs. Whitened Light Curve

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

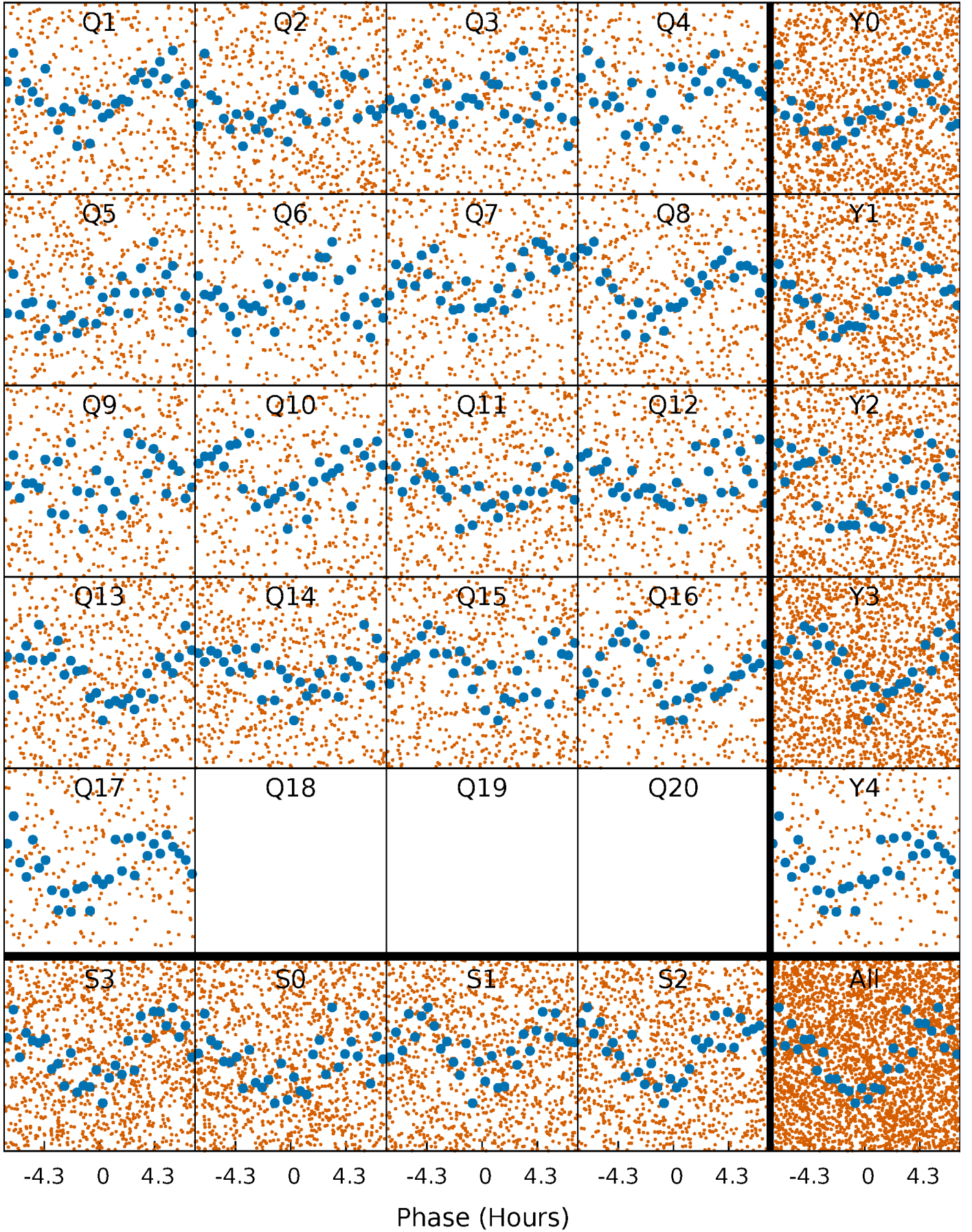


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



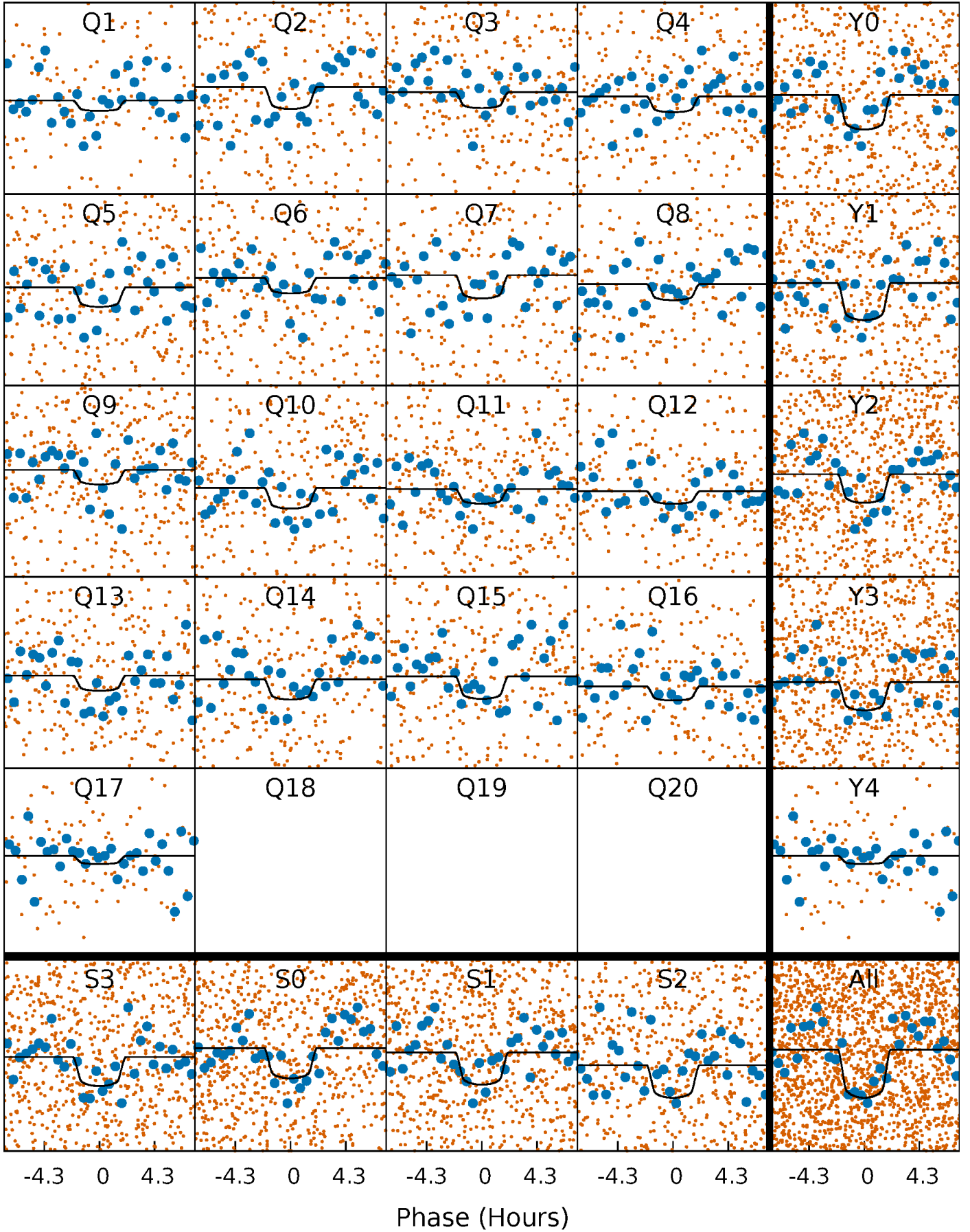
PDC Quarter-Phased Transit Curves

TCE 005645788-03 P= 0.959330 Days $T_0=131.581071$ (BKJD)



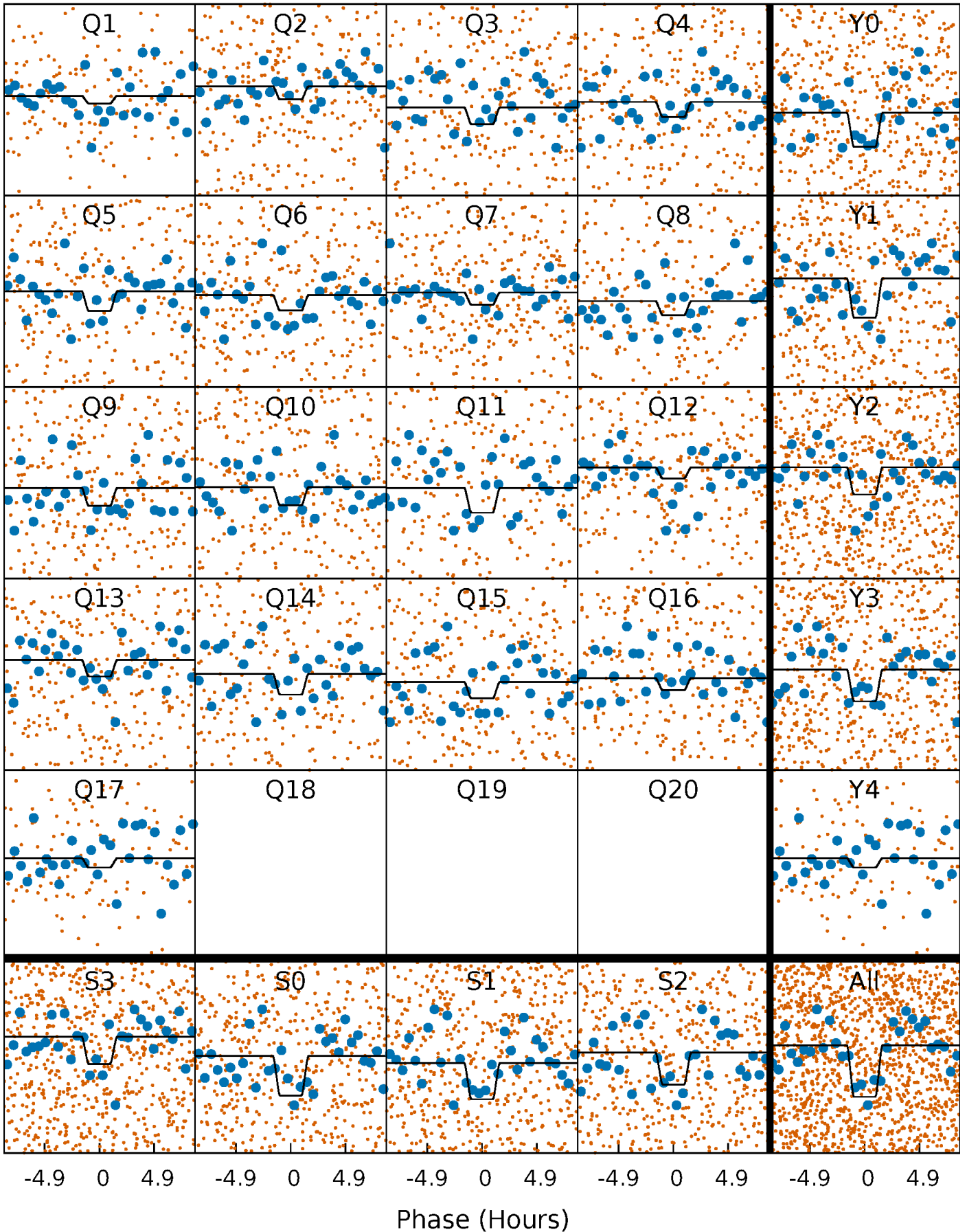
DV Quarter-Phased Transit Curves

TCE 005645788-03 P= 0.959330 Days $T_0=131.581071$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

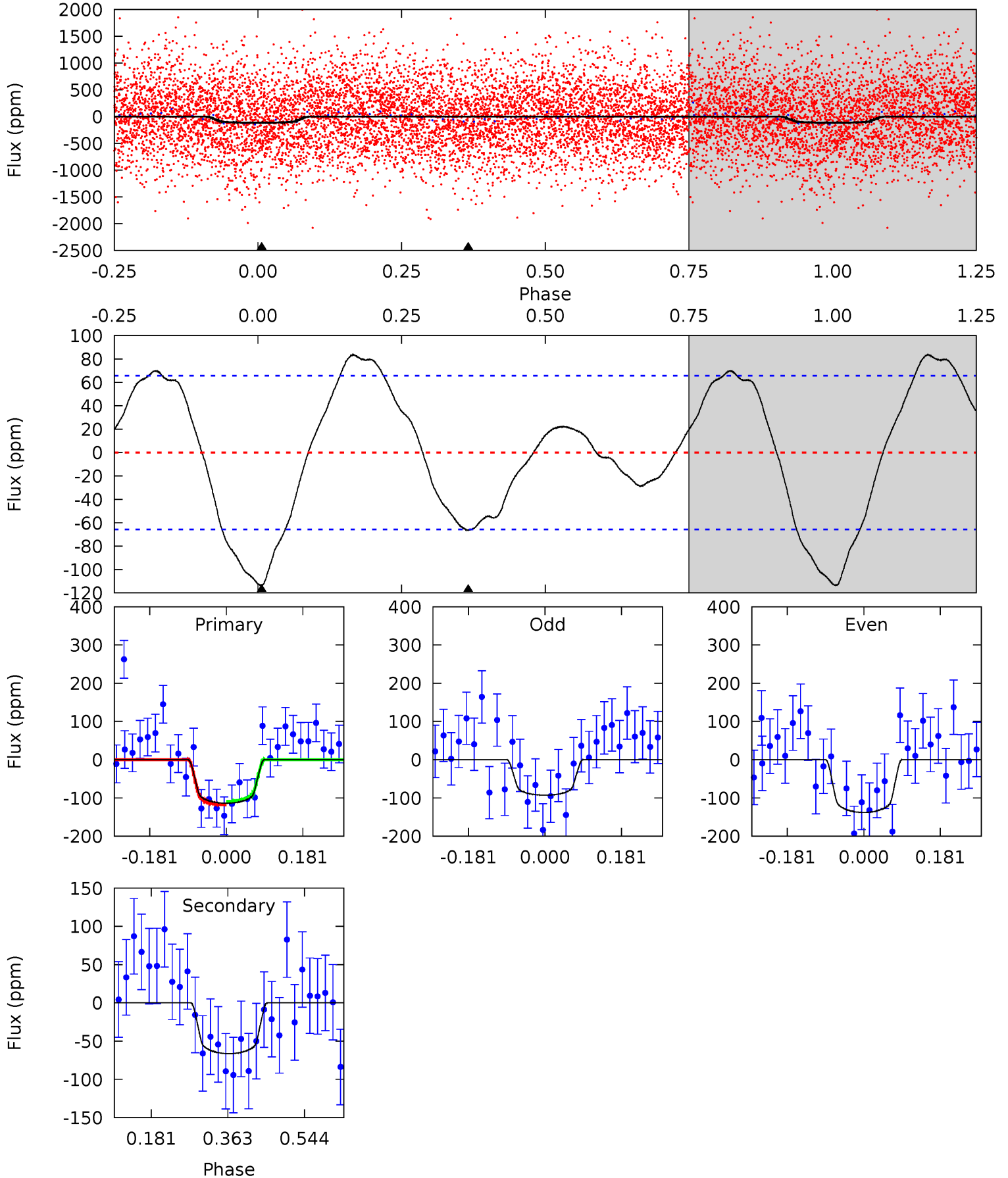
TCE 005645788-03 P= 0.959355 Days $T_0=131.550110$ (BKJD)



DV Model-Shift Uniqueness Test

005645788-03, P = 0.959330 Days, E = 130.621741 Days

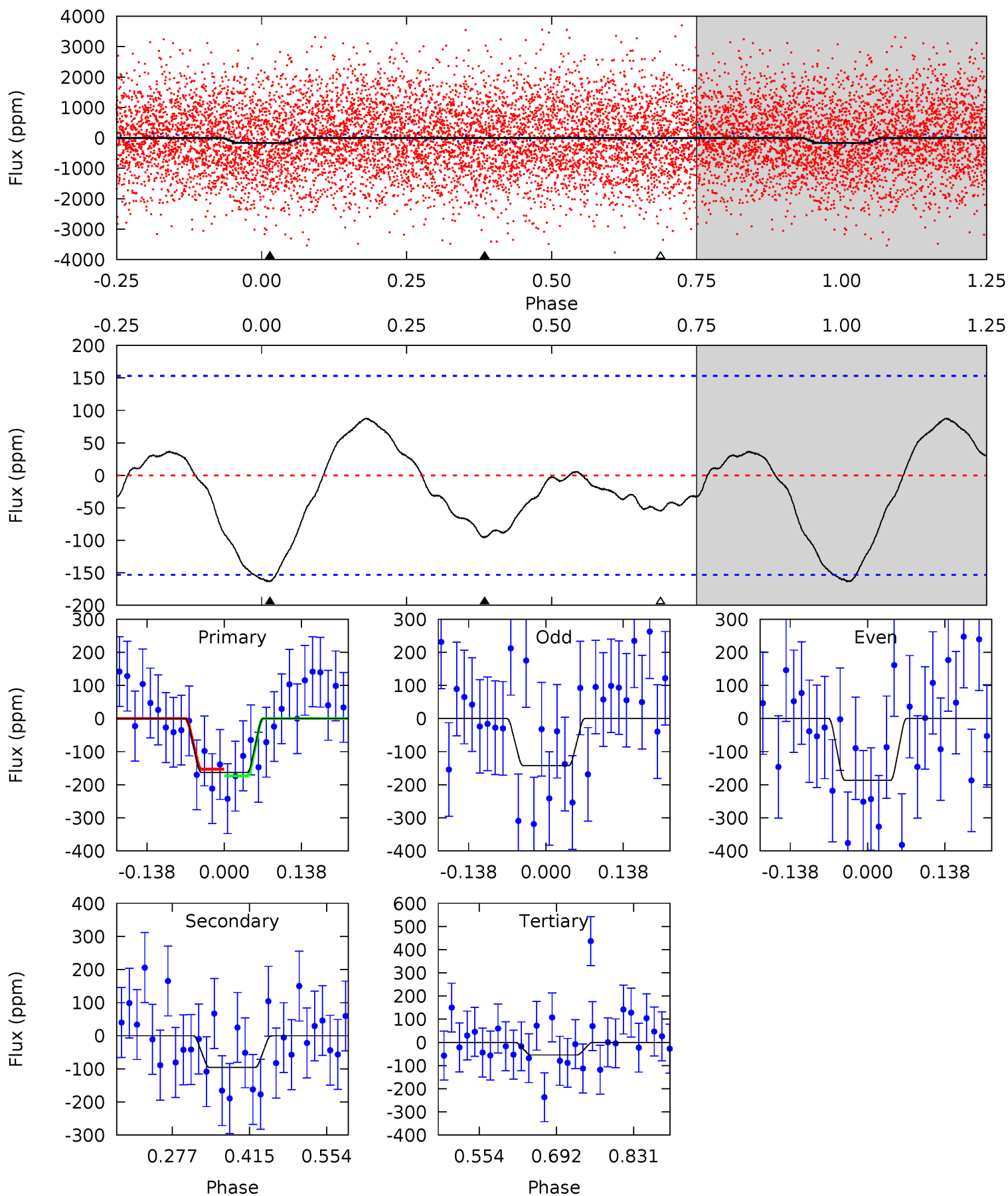
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.68	4.48	0	0	4.44	1.34	2.02	7.68	7.68	4.48	4.48	1.53	0.79	0.42	0.32



Alt Model-Shift Uniqueness Test

005645788-03, P = 0.959355 Days, E = 130.590755 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.79	2.81	1.60	0	4.50	1.48	1.25	3.19	4.79	1.21	2.81	0.65	0.76	0.35	0.30



Stellar Parameters For KIC 005645788

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7830^{+214}_{-322}	$4.027^{+0.181}_{-0.148}$	$0.000^{+0.200}_{-0.350}$	$2.160^{+0.467}_{-0.571}$	$1.809^{+0.145}_{-0.339}$	$0.253^{+0.274}_{-0.097}$
	+3%/-4%	+4%/-4%	+inf%/-inf%	+22%/-26%	+8%/-19%	+108%/-38%
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 005645788-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-66 ± 15	$2.97^{+1.66}_{-1.54}$	4630^{+331}_{-330}	5862^{+3155}_{-1406}	$2.134^{+7.358}_{-1.315}$
Alt.	-96 ± 34	$3.20^{+1.65}_{-1.55}$	4636^{+308}_{-338}	6033^{+3245}_{-1270}	$2.529^{+7.247}_{-1.505}$

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 $A_{obs} \gg 1.0$

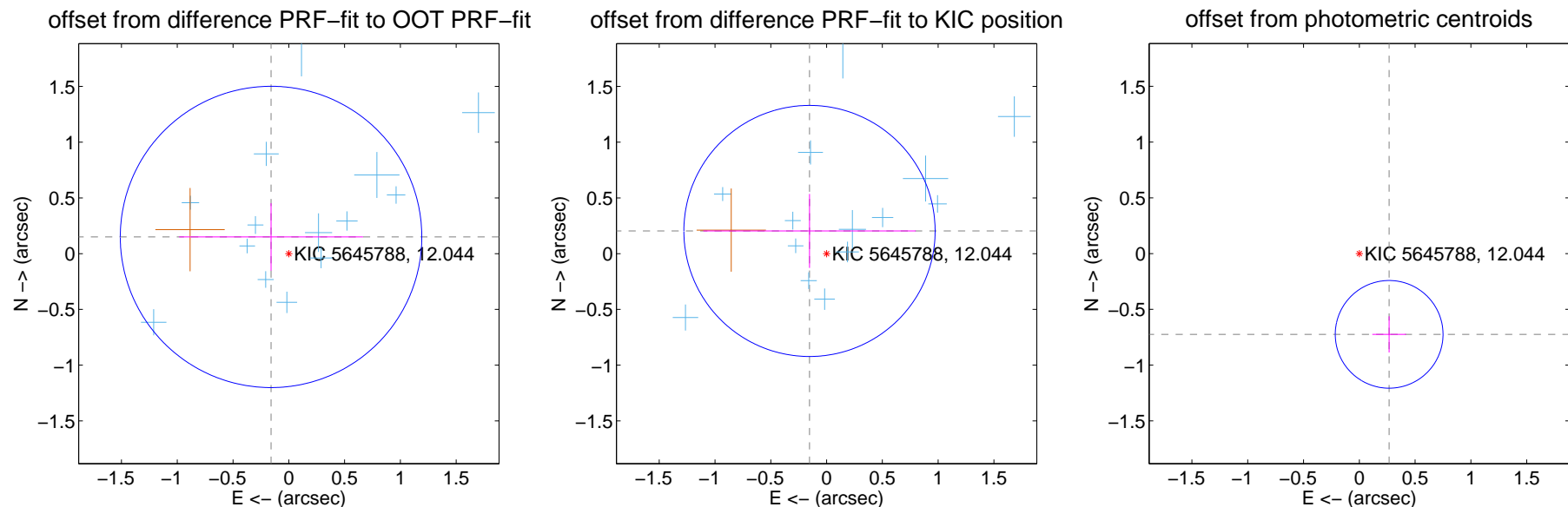
DV Centroid Data

Supplemental centroid analysis for 005645788-03. Kepler magnitude: 12.04. Transit SNR 10.78

There are 15 quarters with good PRF difference image offsets

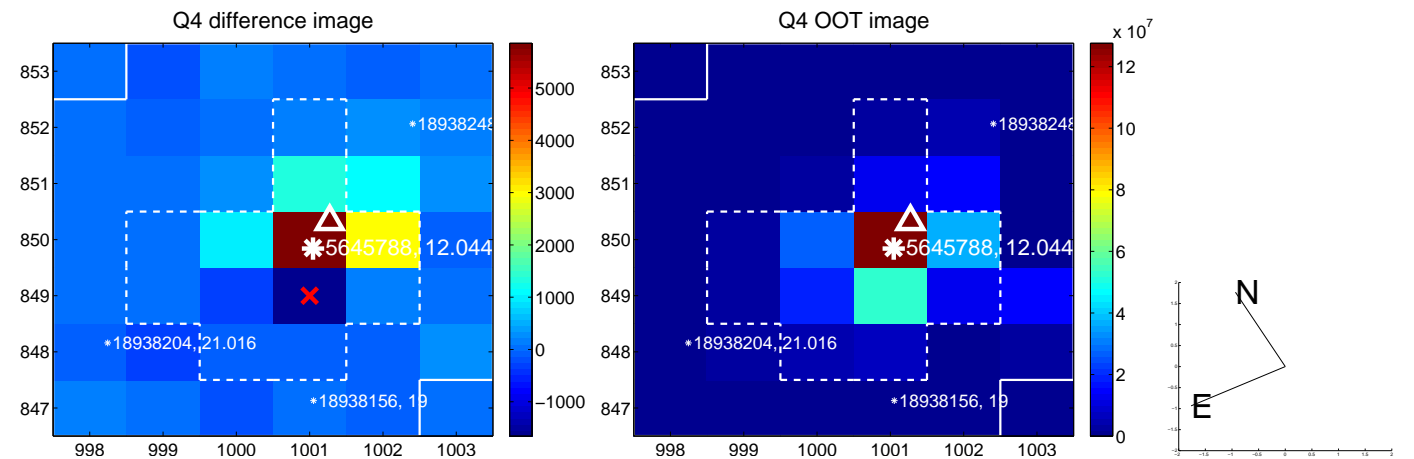
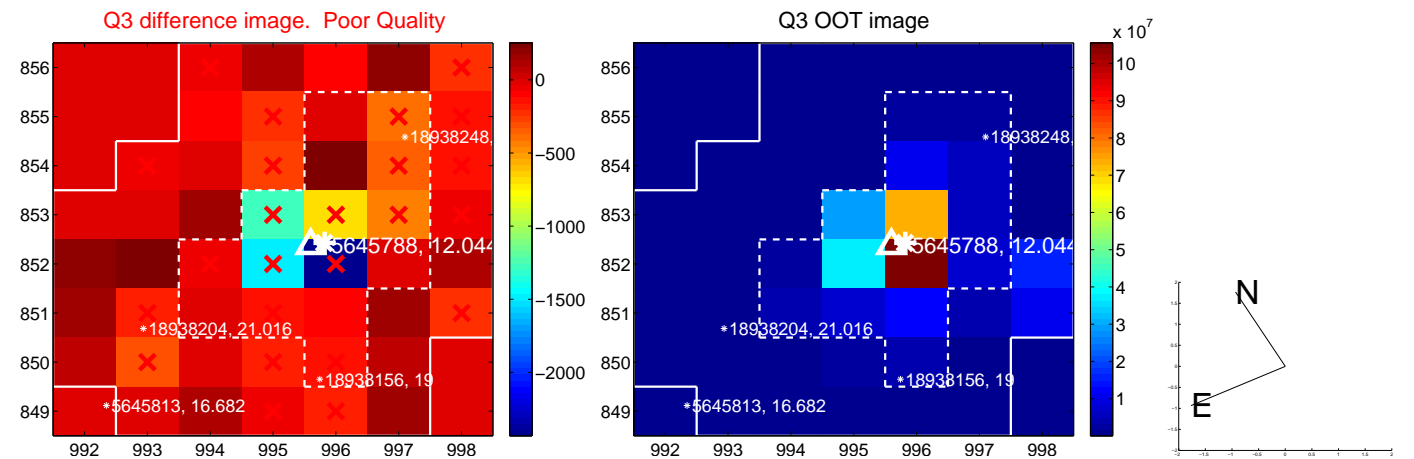
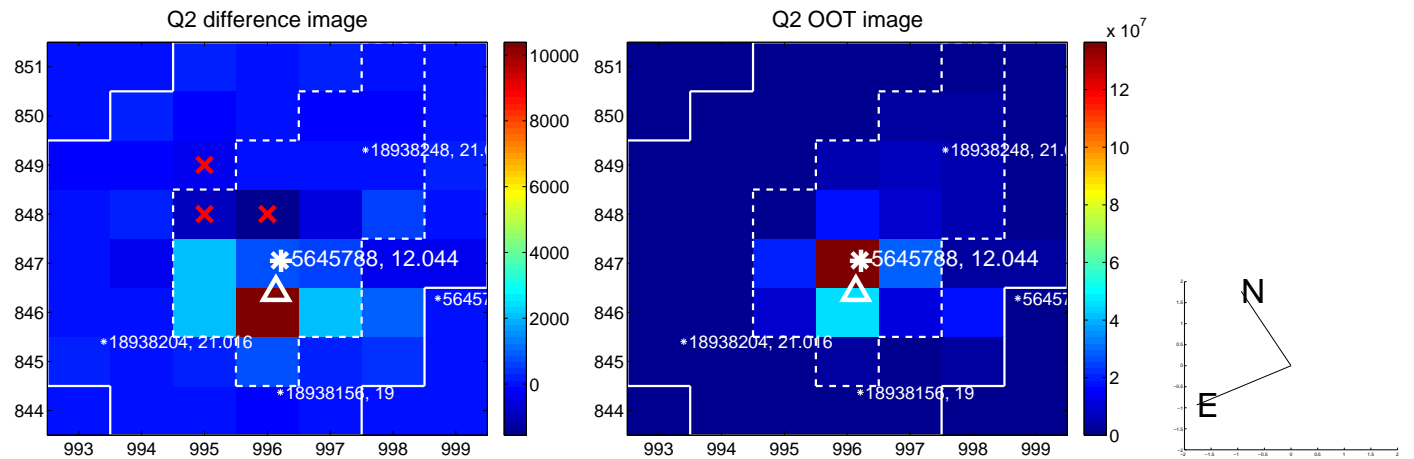
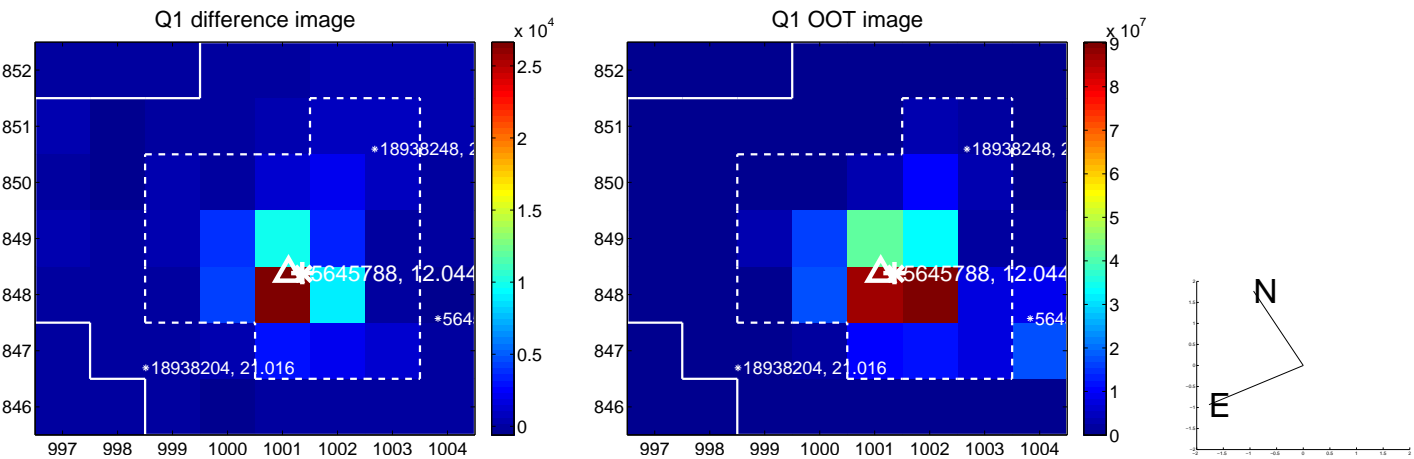
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.219 ± 0.450	0.49	0.159 ± 0.824	0.150 ± 0.303
PRF-fit source offset from KIC position	0.255 ± 0.375	0.68	0.153 ± 0.952	0.204 ± 0.331
photometric centroid source offset	0.77 ± 0.16	4.80	-0.27 ± 0.15	-0.72 ± 0.16

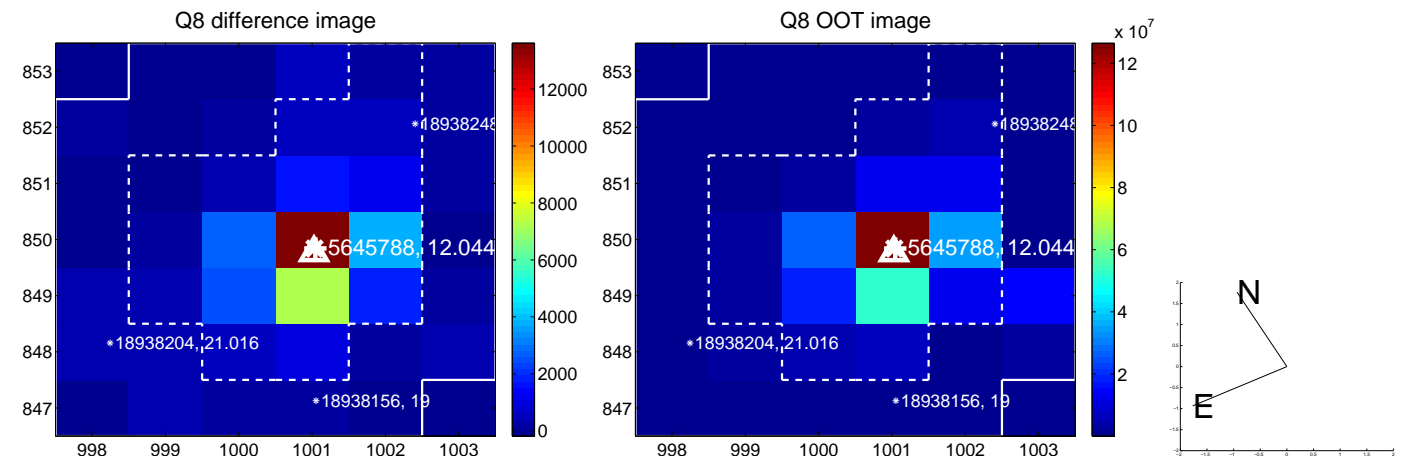
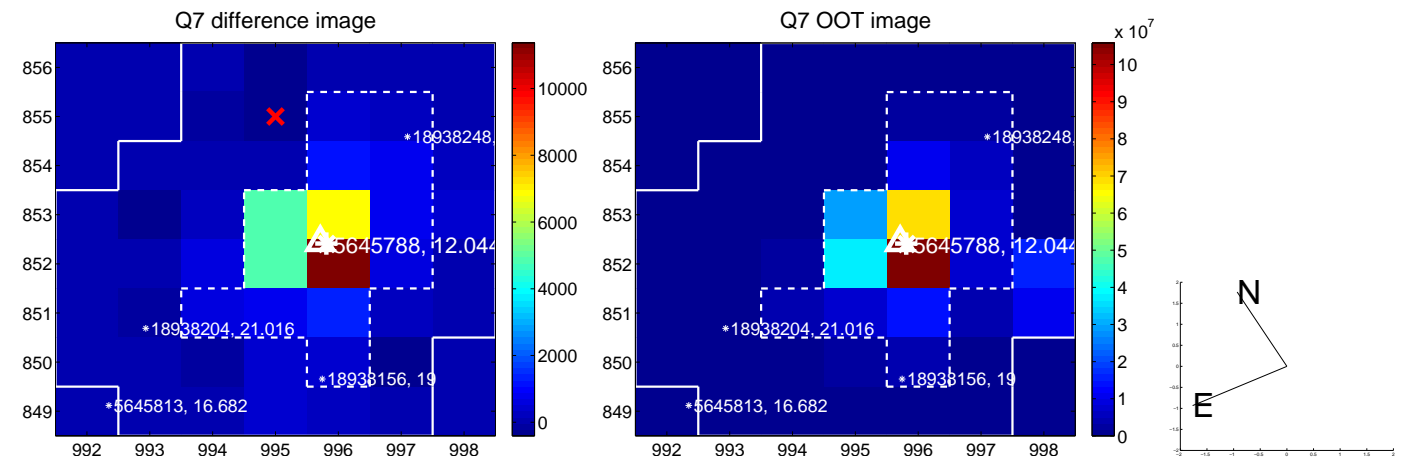
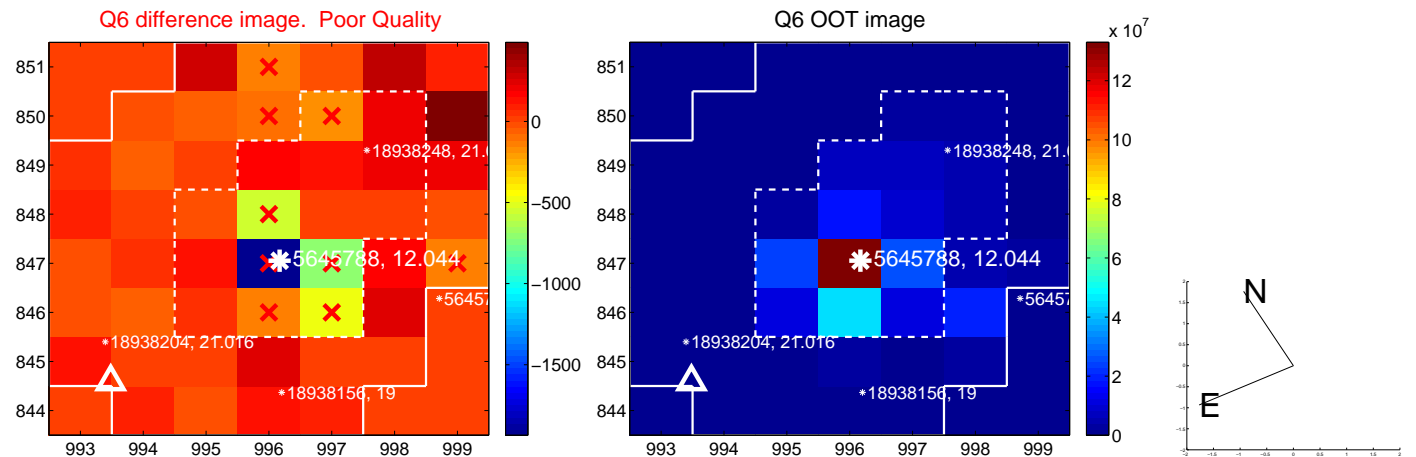
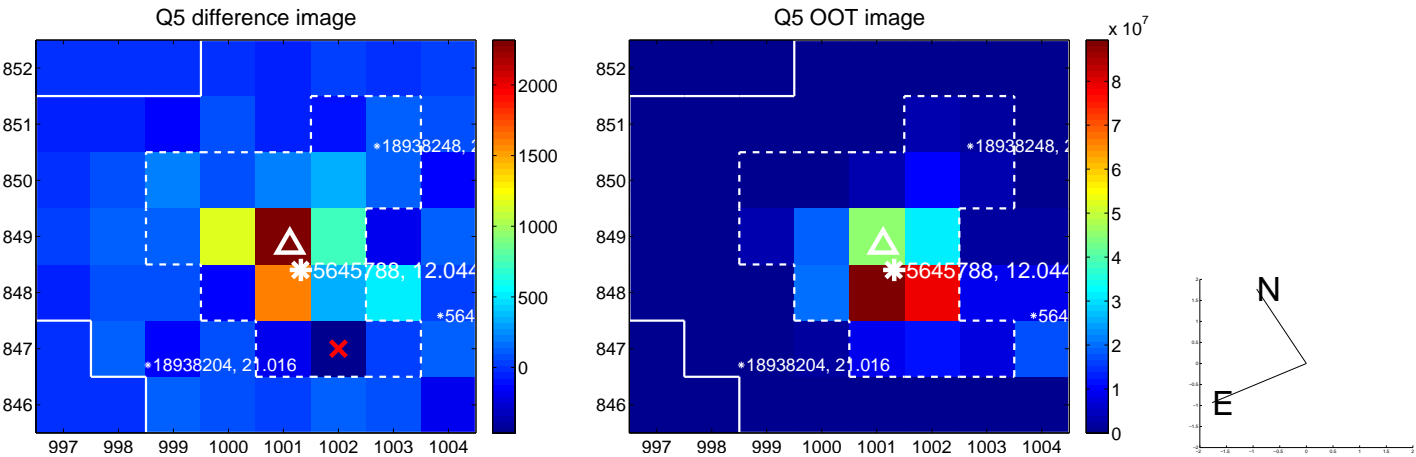


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

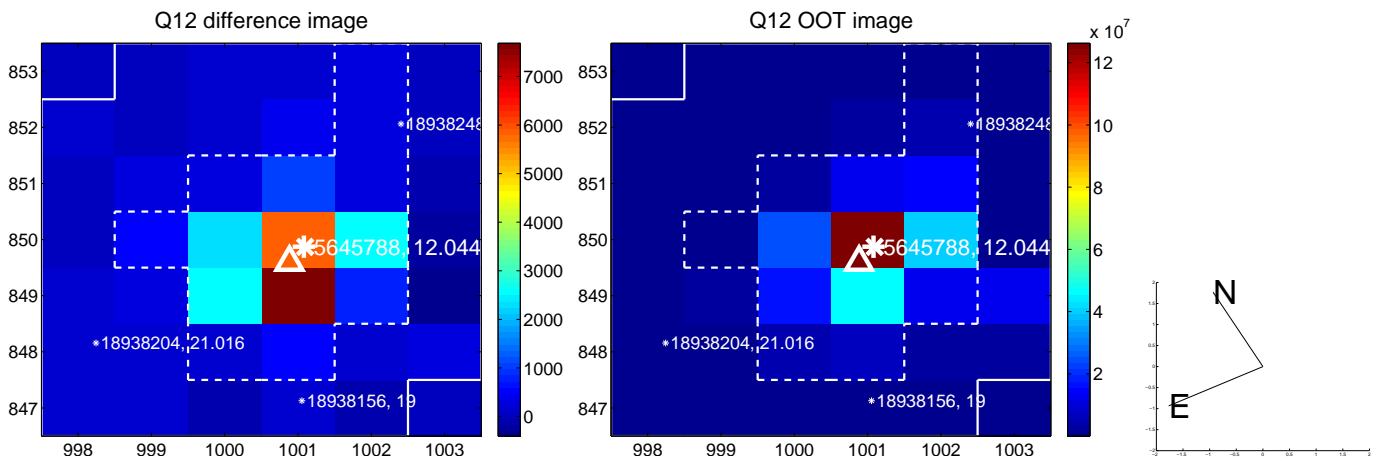
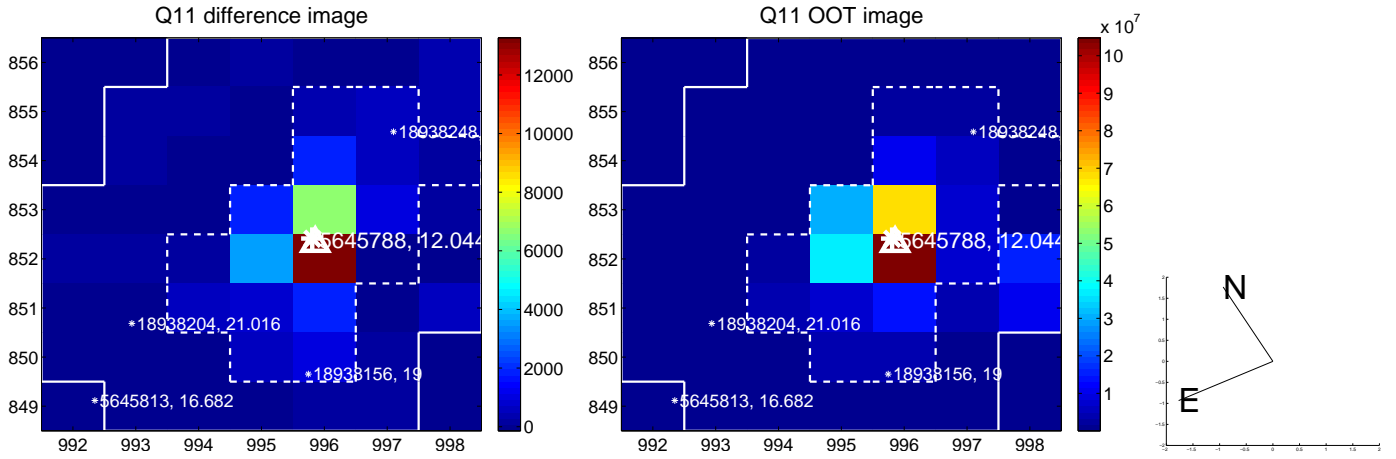
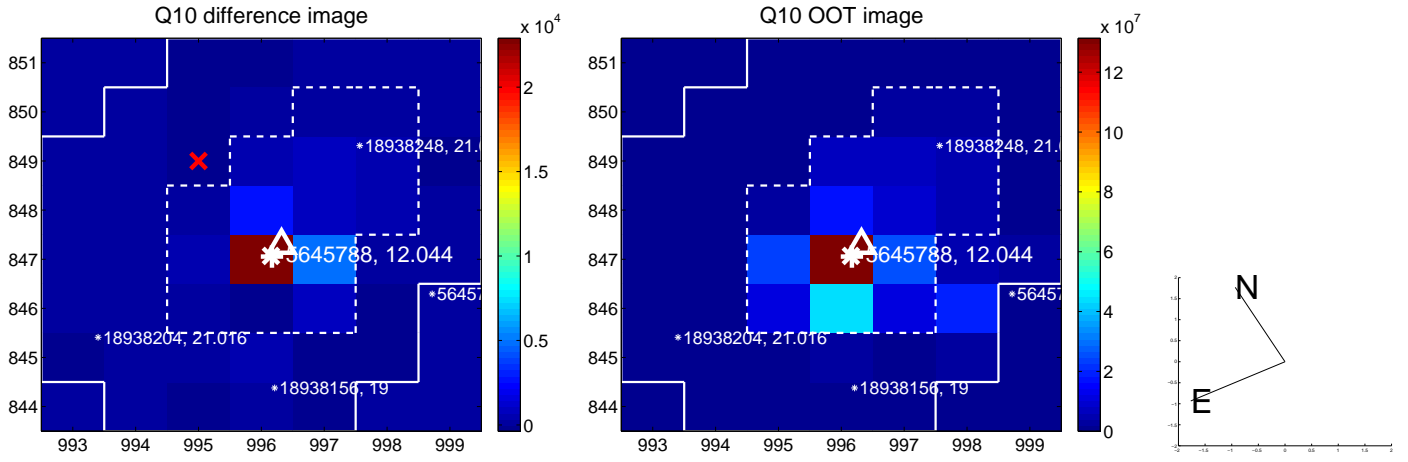
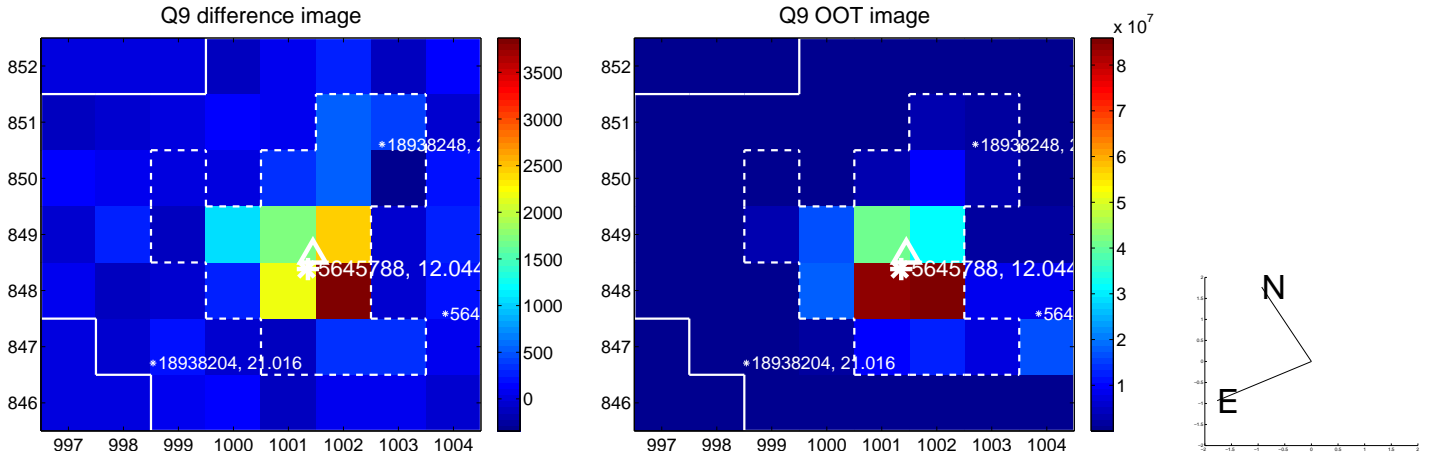
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



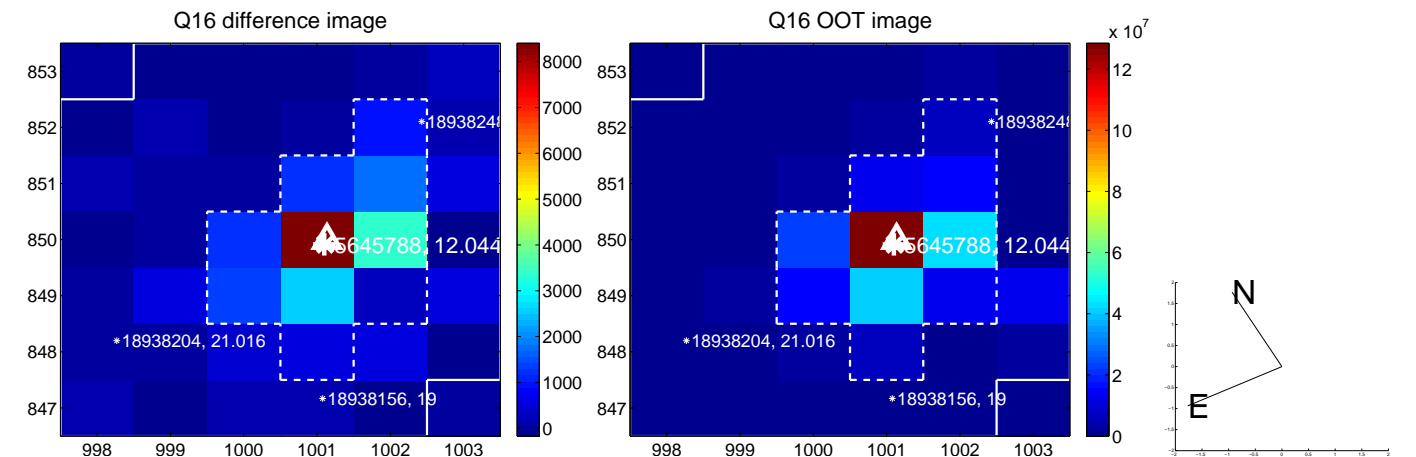
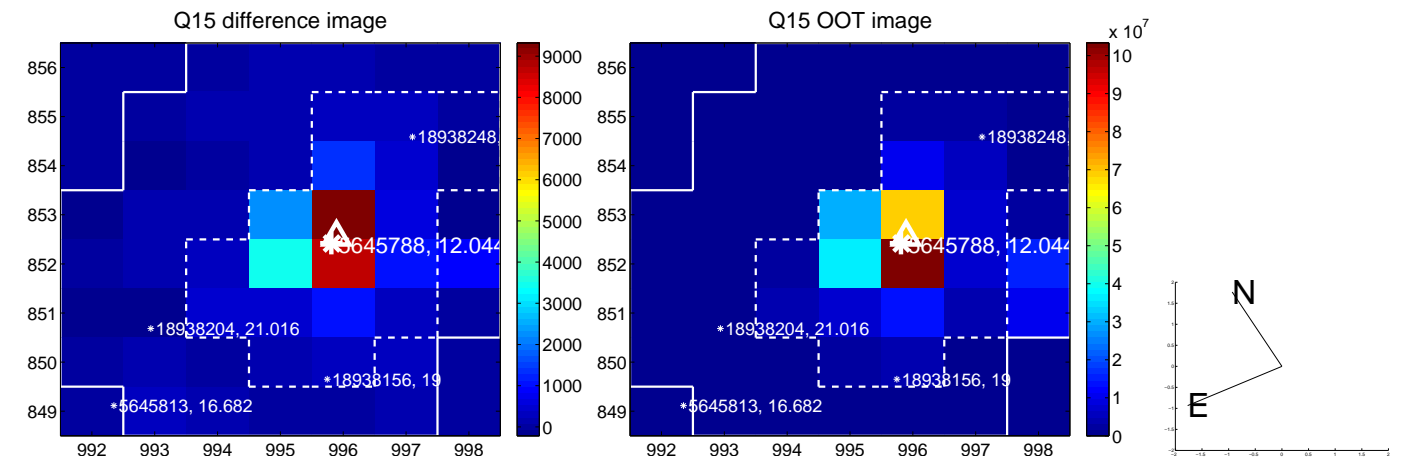
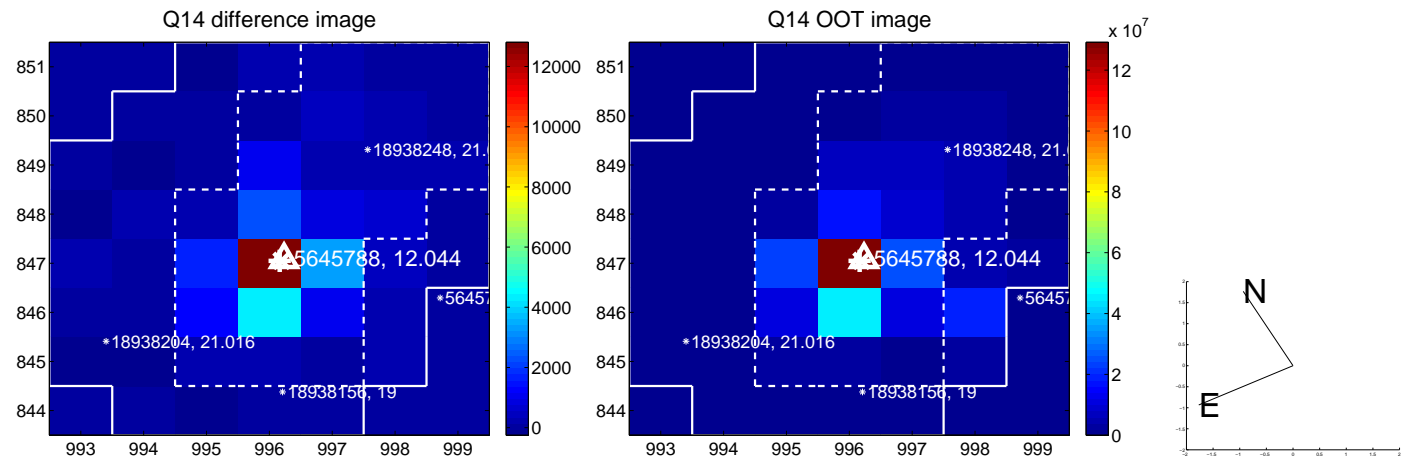
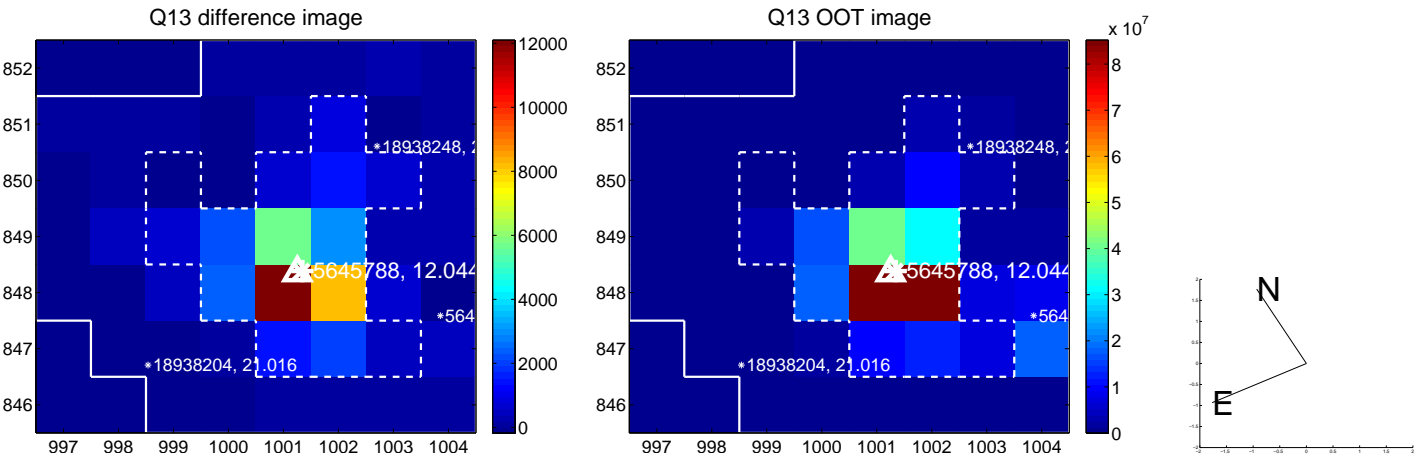
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



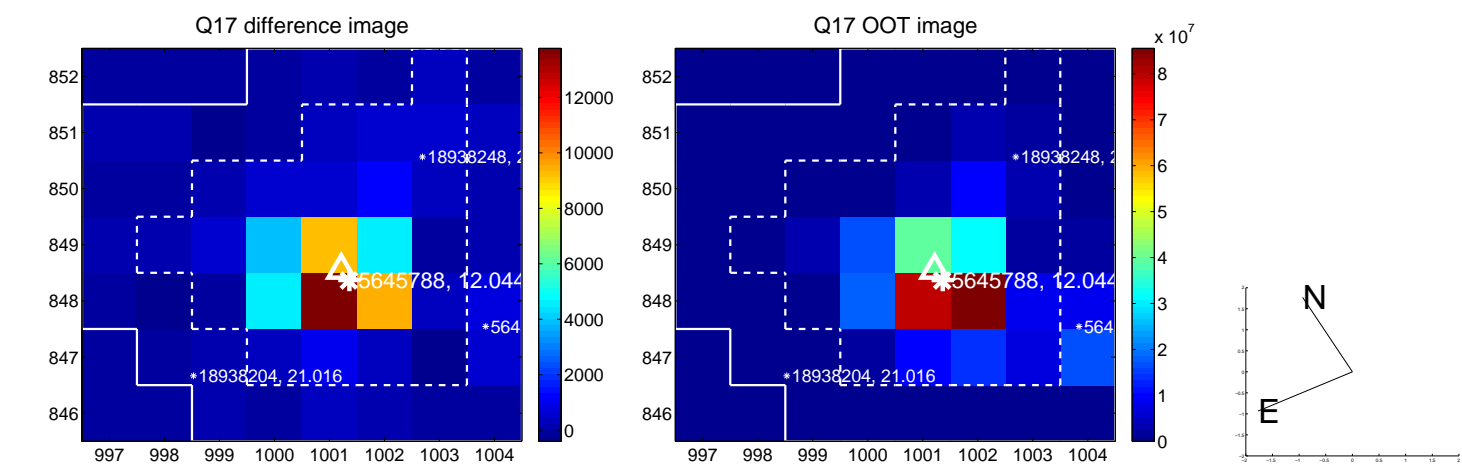
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



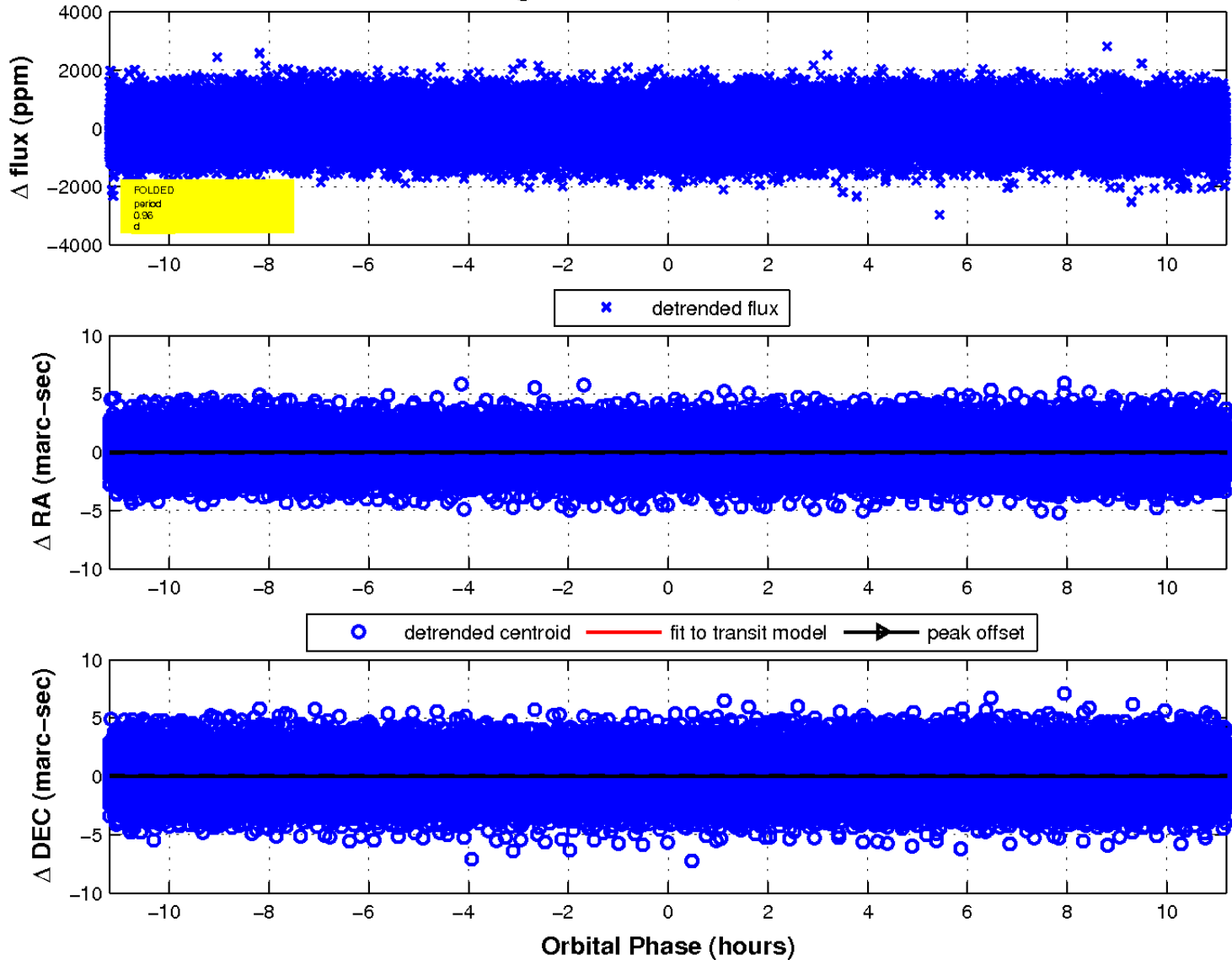
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



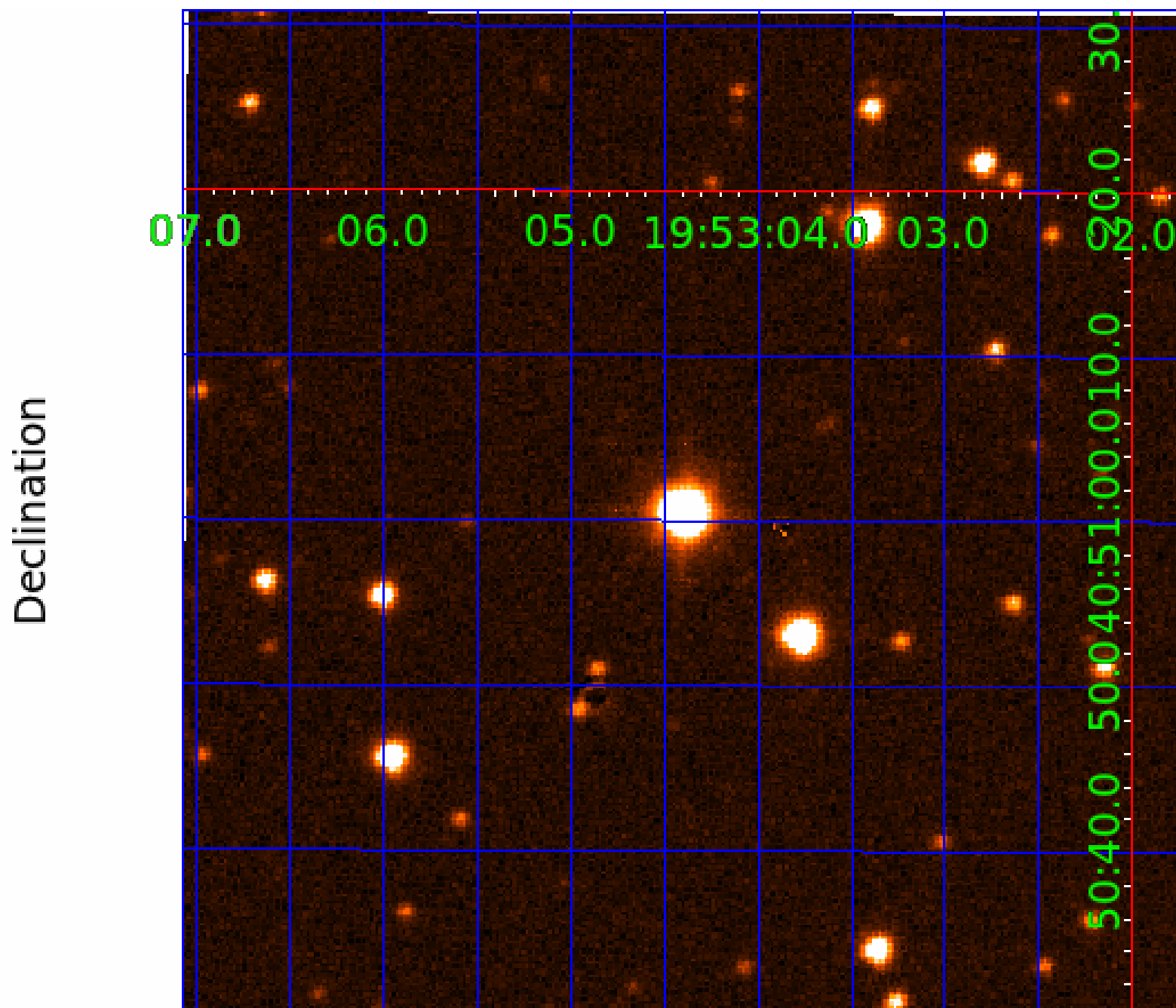
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 4



UKIRT Image



KIC 005645788

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})
005645788-01	OBS	No	0.522871	131.707364	50.3	1.489	11.6	11.1	2.16	7830	1.59	65521.64
005645788-02	OBS	No	0.871008	131.975897	35.7	5.474	8.6	7.0	2.16	7830	1.38	33180.35
005645788-03	OBS	No	0.959330	131.581071	131.9	3.733	11.3	10.8	2.16	7830	2.88	29171.14
005645788-04	OBS	No	14.263929	139.071411	162.2	3.500	8.6	-1.0	2.16	7830	2.79	797.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005645788-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005645788-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV
005645788-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005645788-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

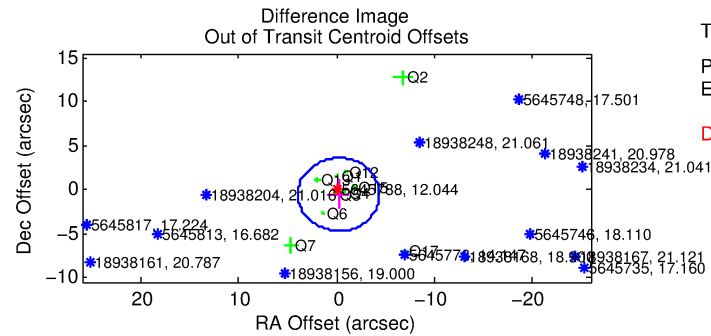
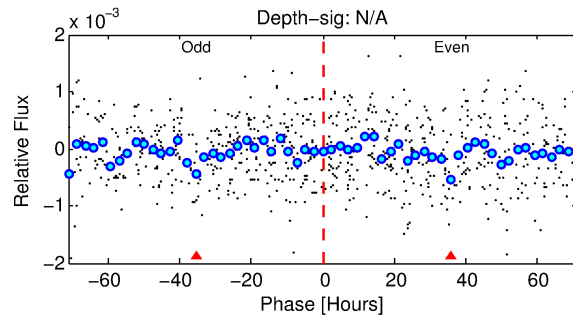
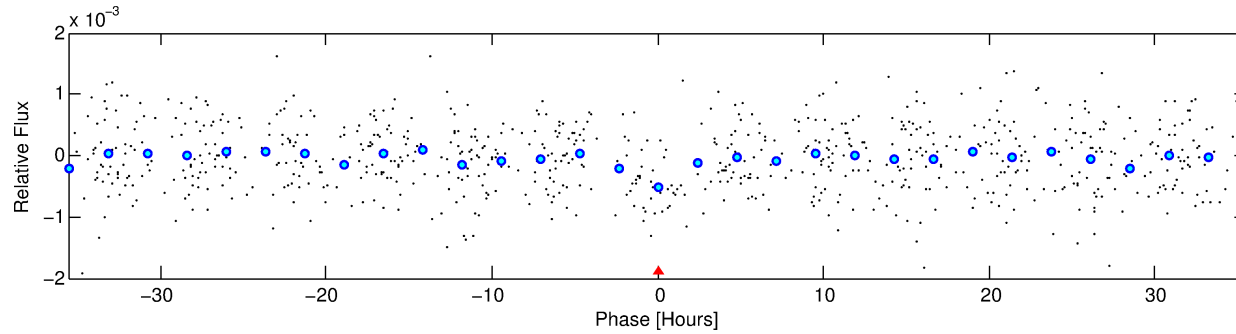
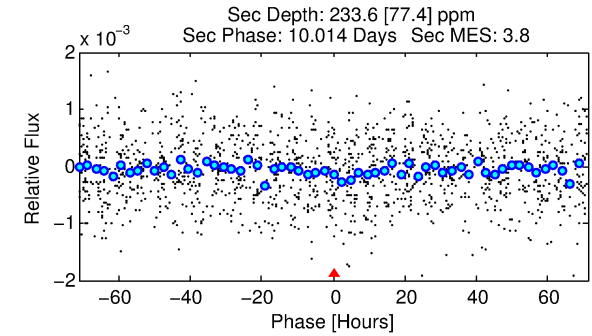
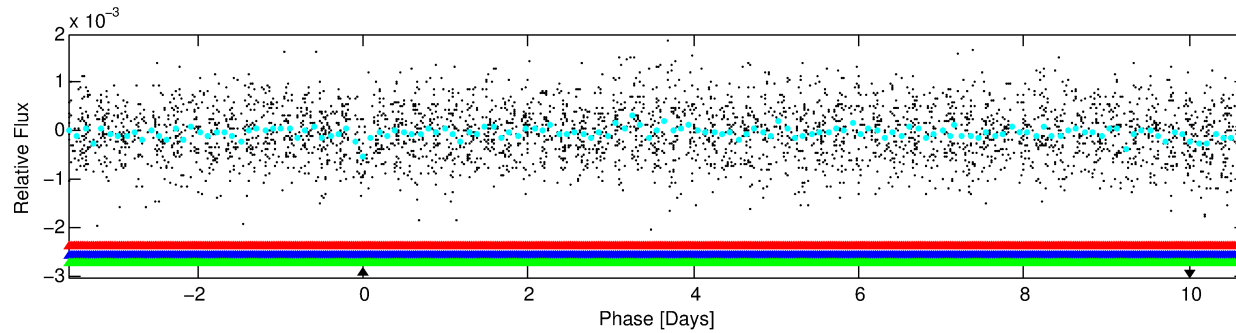
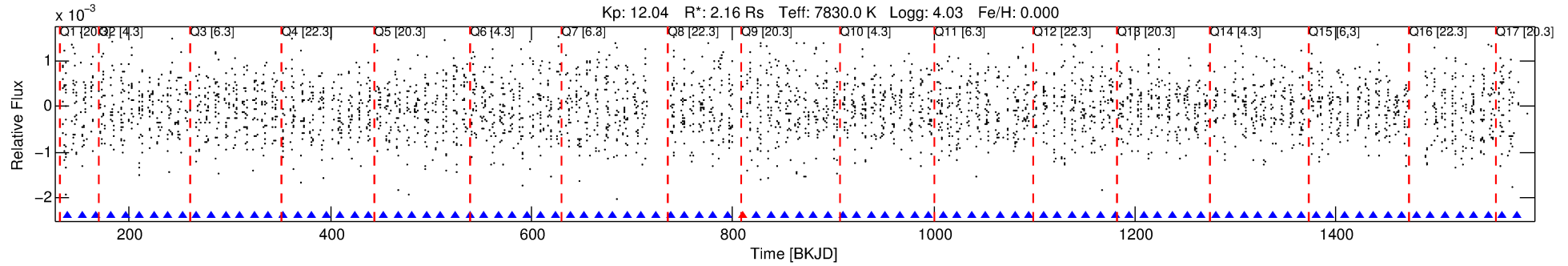
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005645788-04

No Significant Match Found

DV One-Page Summary

KIC: 5645788 Candidate: 4 of 4 Period: 14.264 d



TPS TCE Results:

Period = 14.26393 d
Epoch = 139.0714 BKJD

DV fit results are unavailable

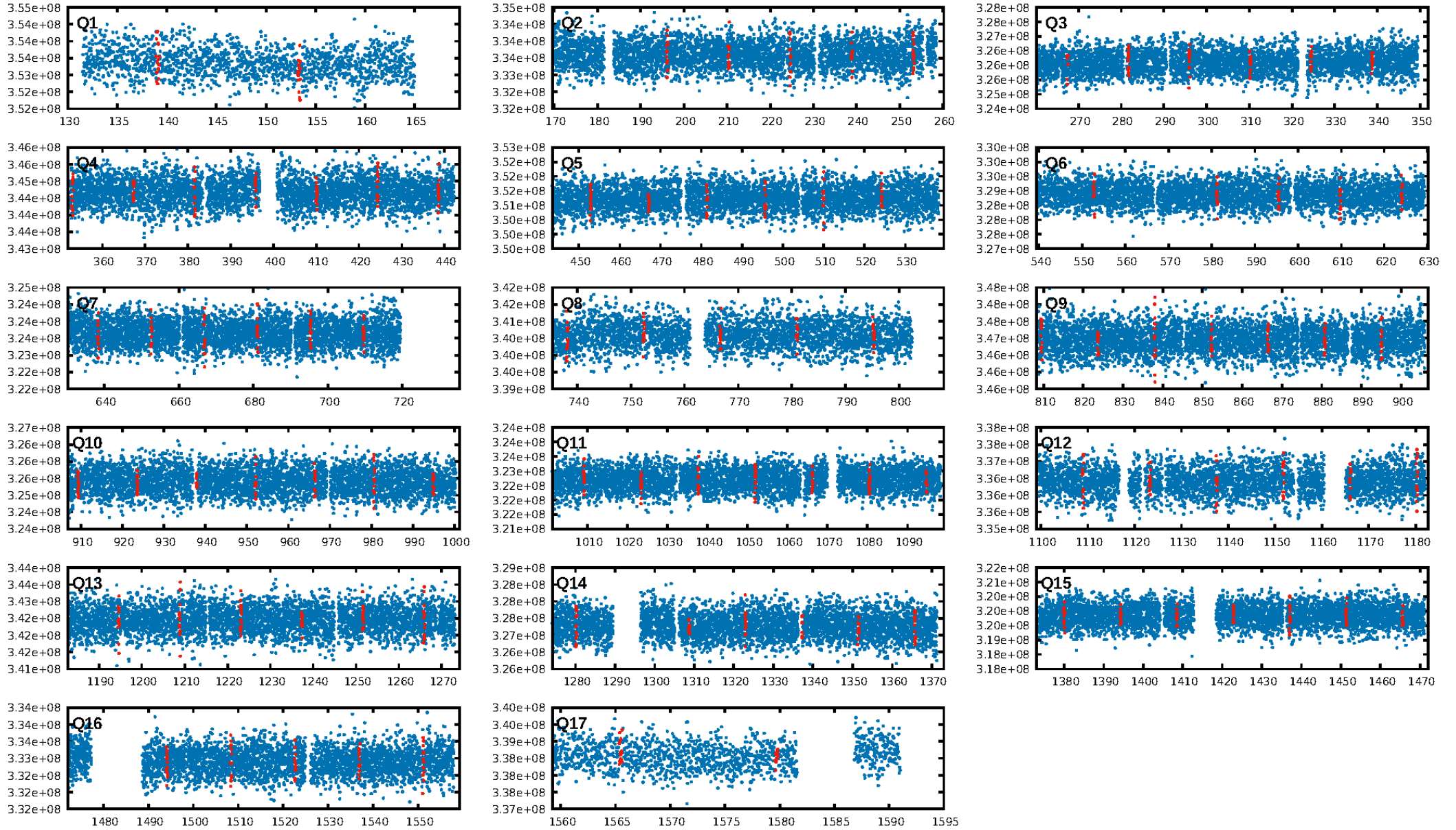
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [62.40σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.96 [27/28]
GhostDiagnostic-chr: 1.102
Centroid-sig: 0.0%
Centroid-so: 1.007 arcsec [5.29σ]
OotOffset-rm: 0.578 arcsec [0.42σ]
OotOffset-st: 2/2/2/4 [10]
KicOffset-rm: 0.558 arcsec [0.42σ]
KicOffset-st: 2/2/2/4 [10]
DiffImageQuality-fgm: 0.30 [3/10]
DiffImageOverlap-fno: 0.00 [0/17]

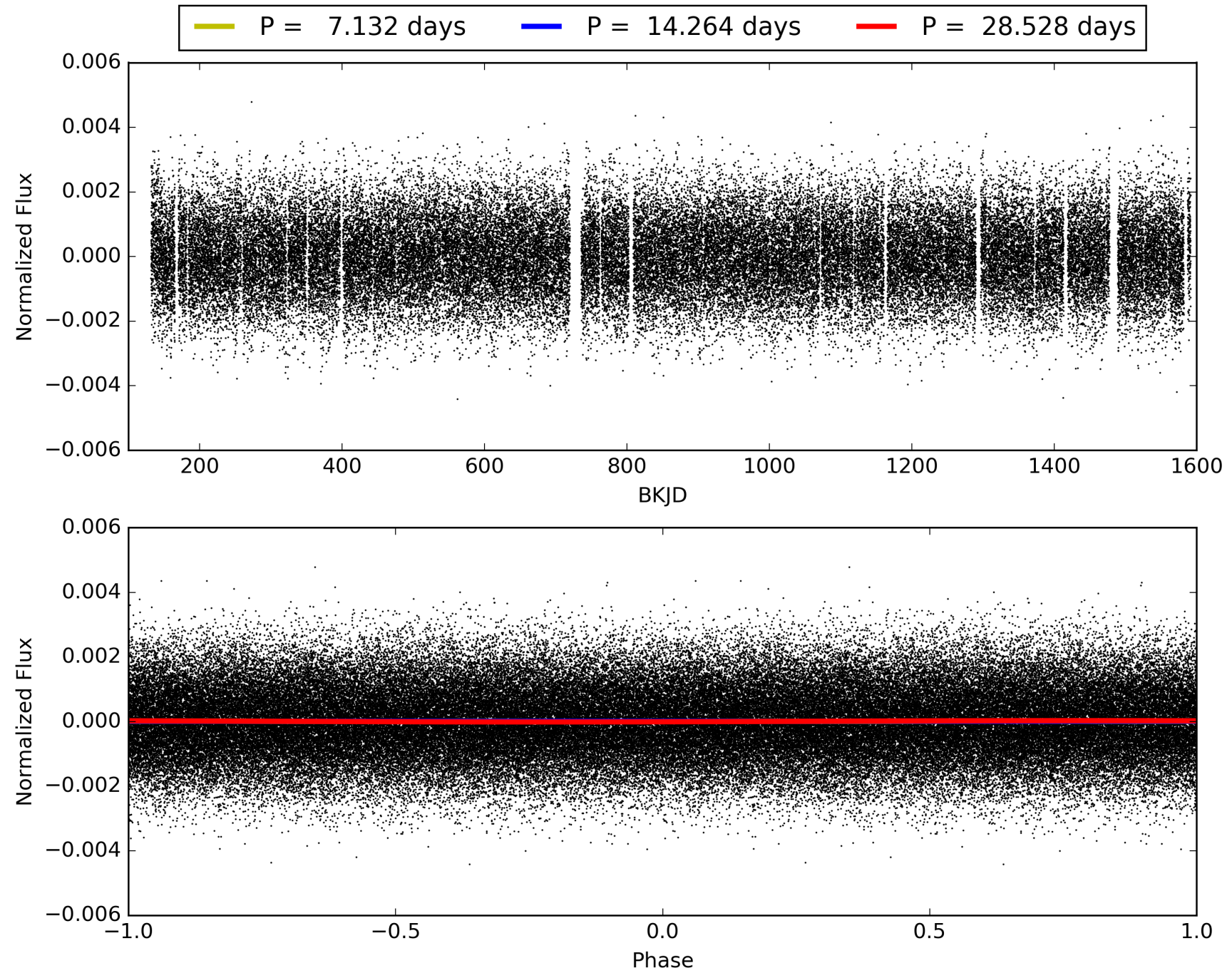
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:15:08 Z

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

TCE 005645788-04, PDC Light Curves

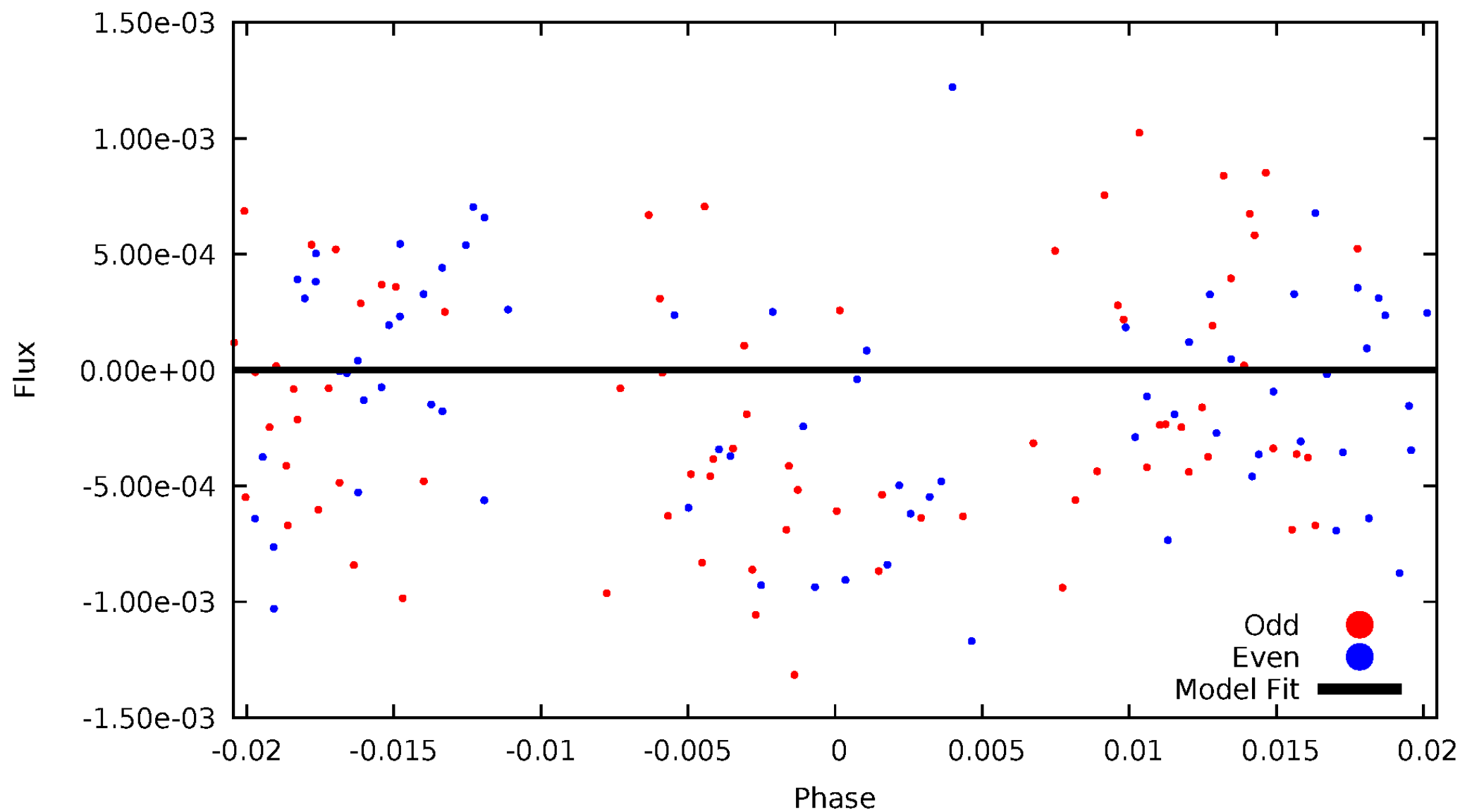


TCE 005645788-04



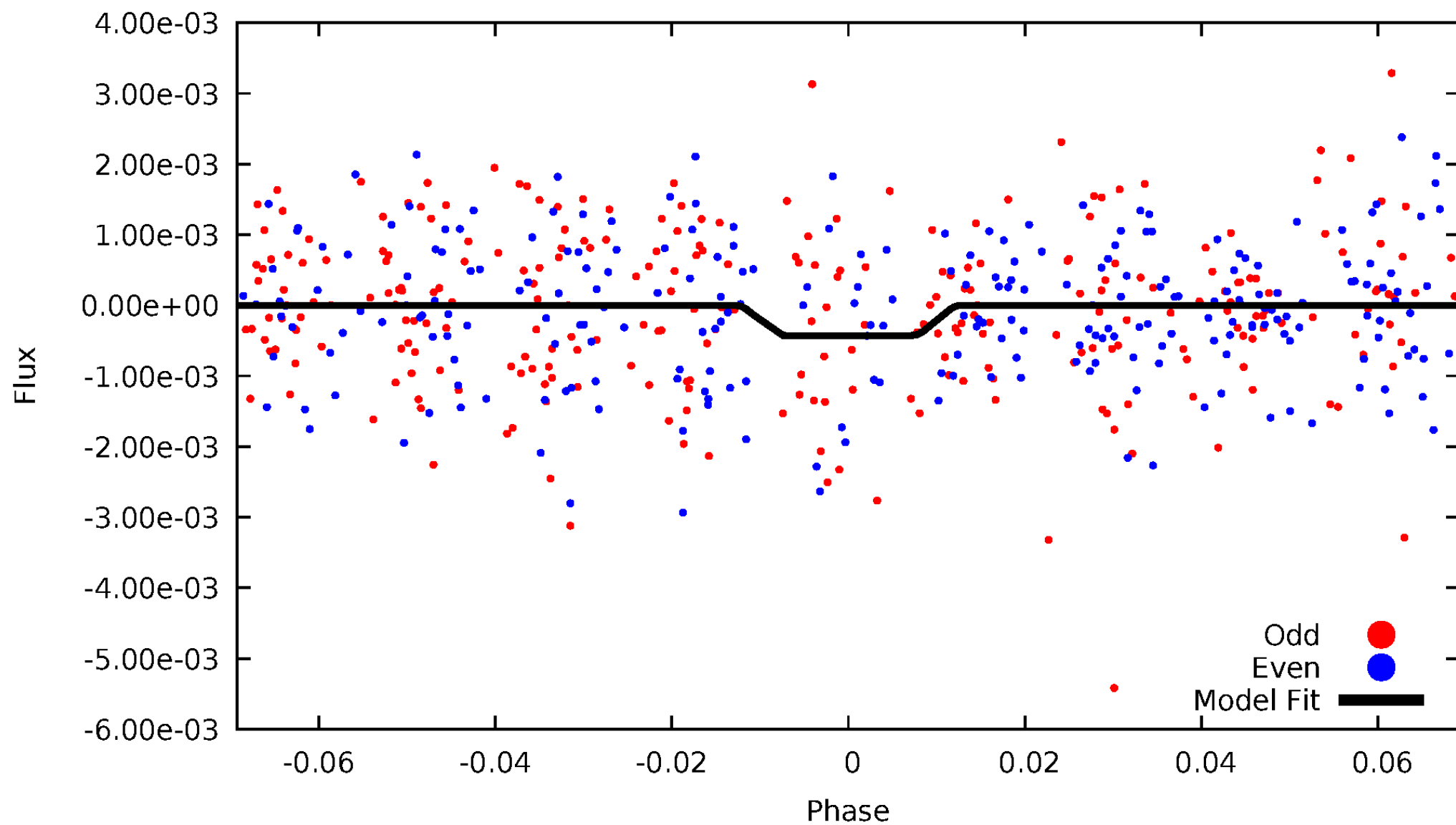
DV Odd/Even

TCE 005645788-04



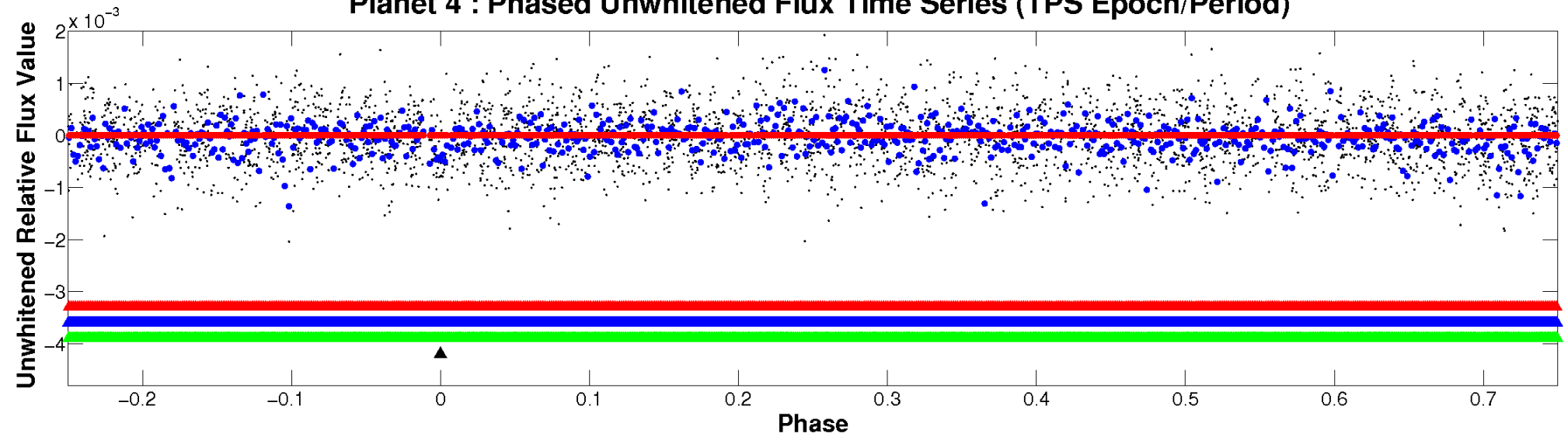
ALT Odd/Even

TCE 005645788-04

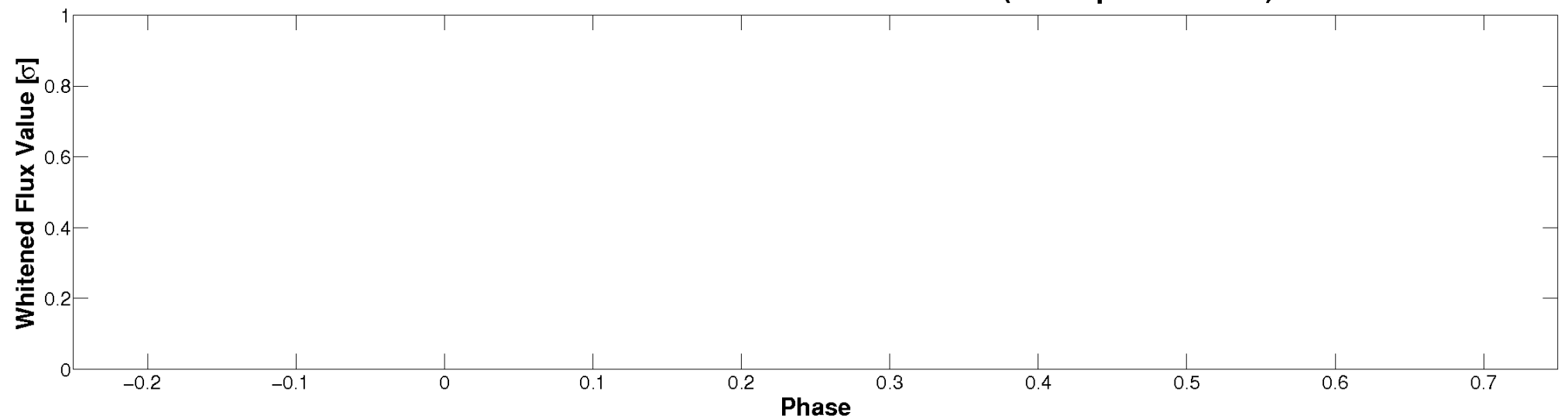


Non-Whitened Vs. Whitened Light Curve

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

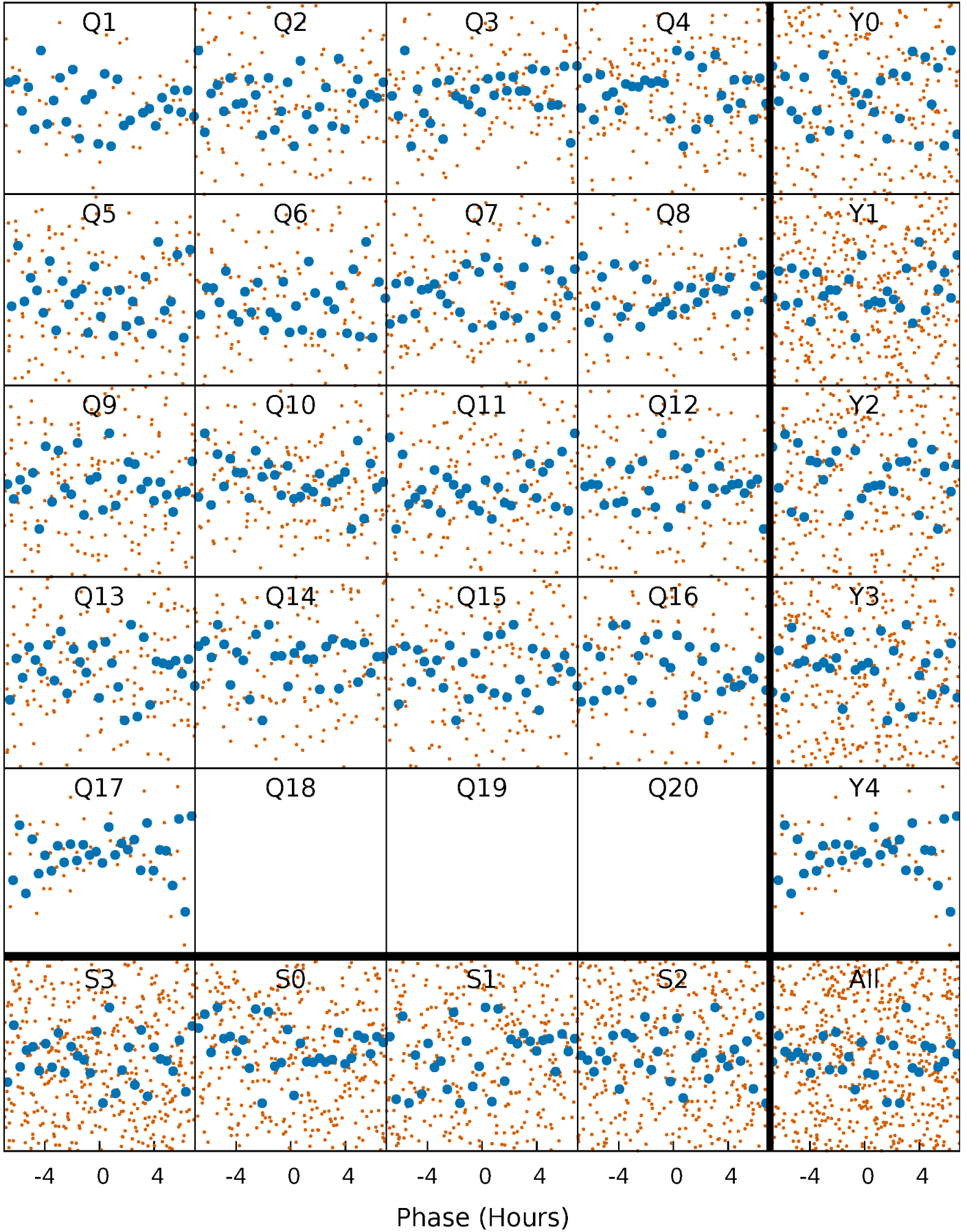


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



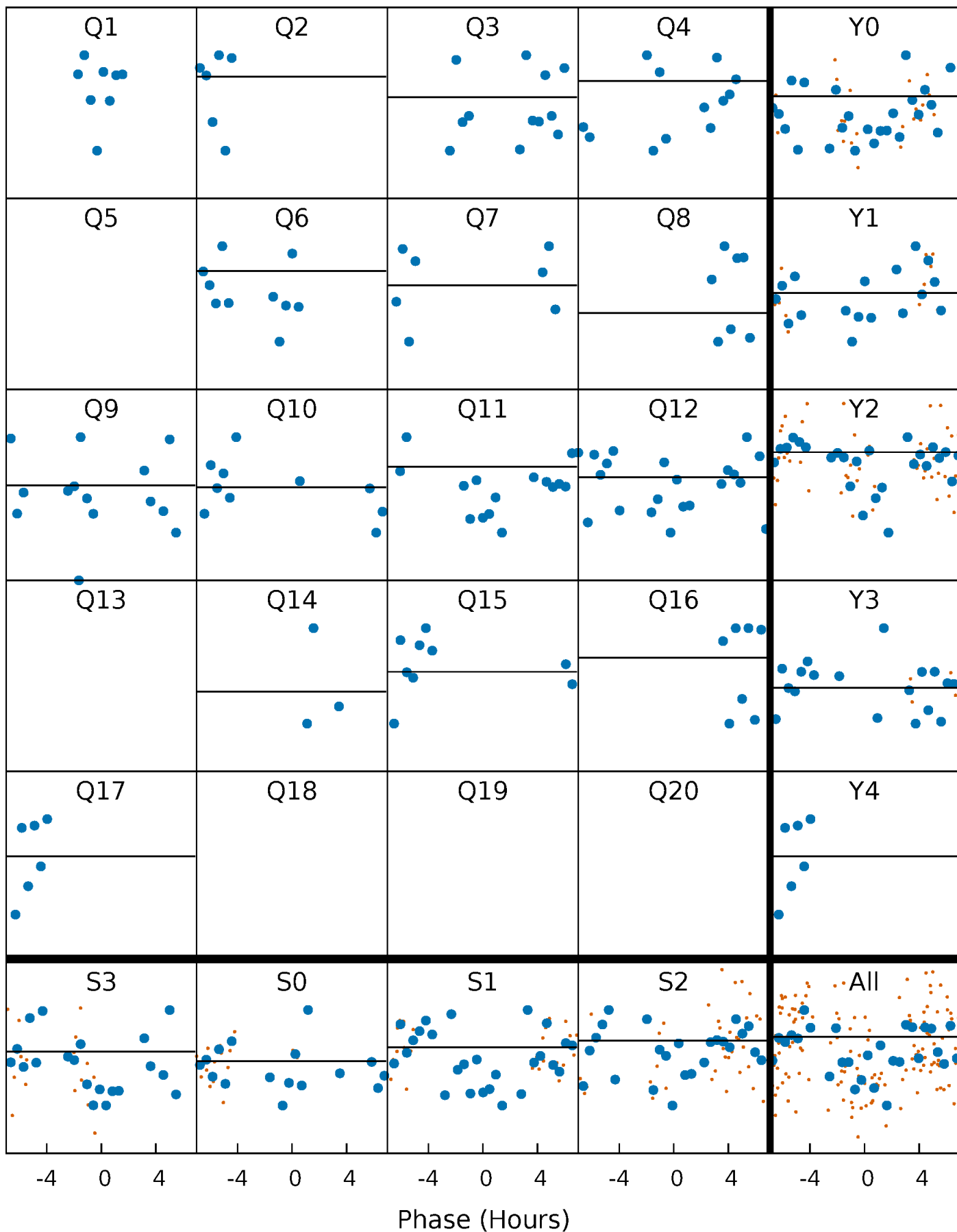
PDC Quarter-Phased Transit Curves

TCE 005645788-04 P= 14.263929 Days $T_0=139.071411$ (BKJD)



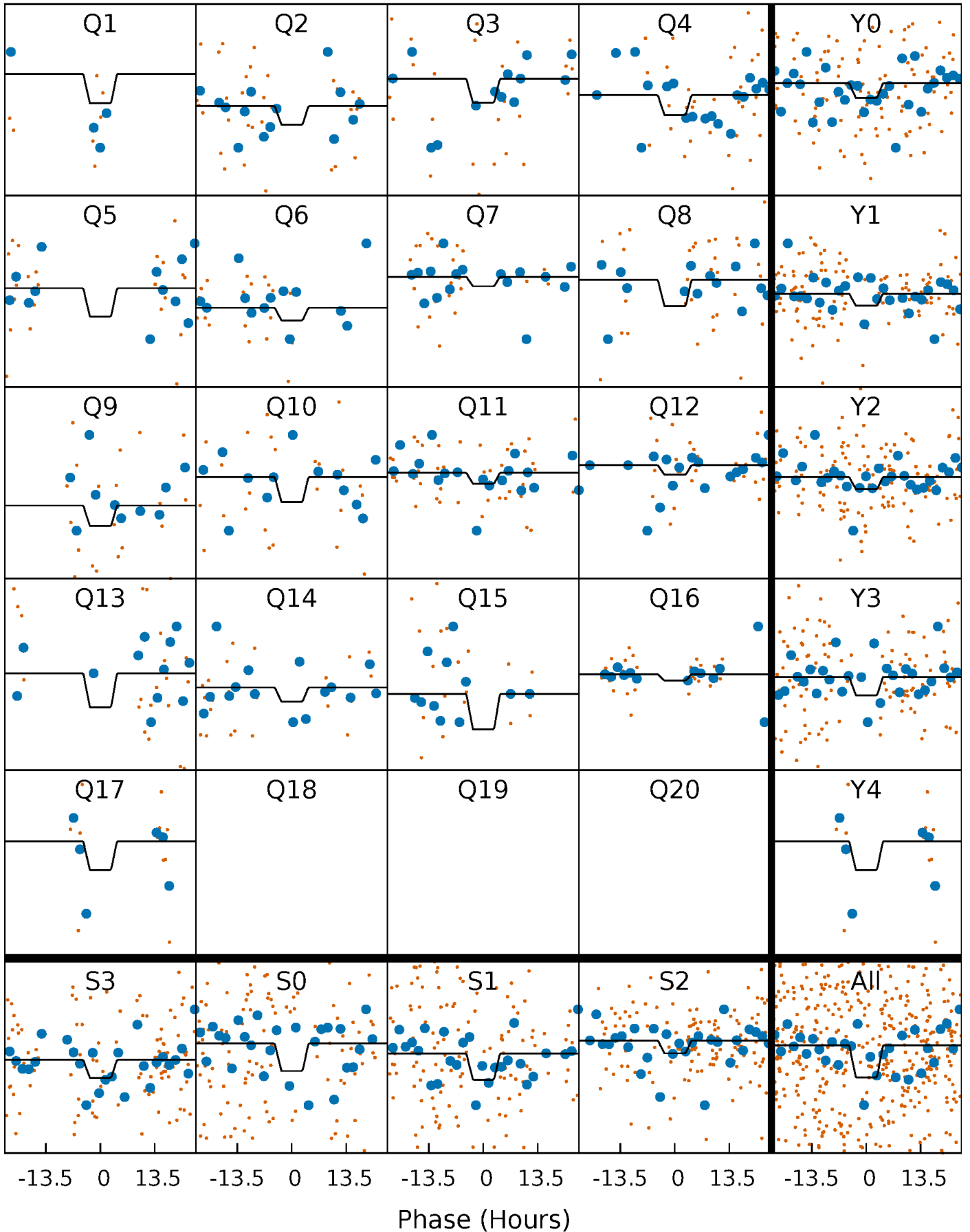
DV Quarter-Phased Transit Curves

TCE 005645788-04 P= 14.263929 Days $T_0=139.071411$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

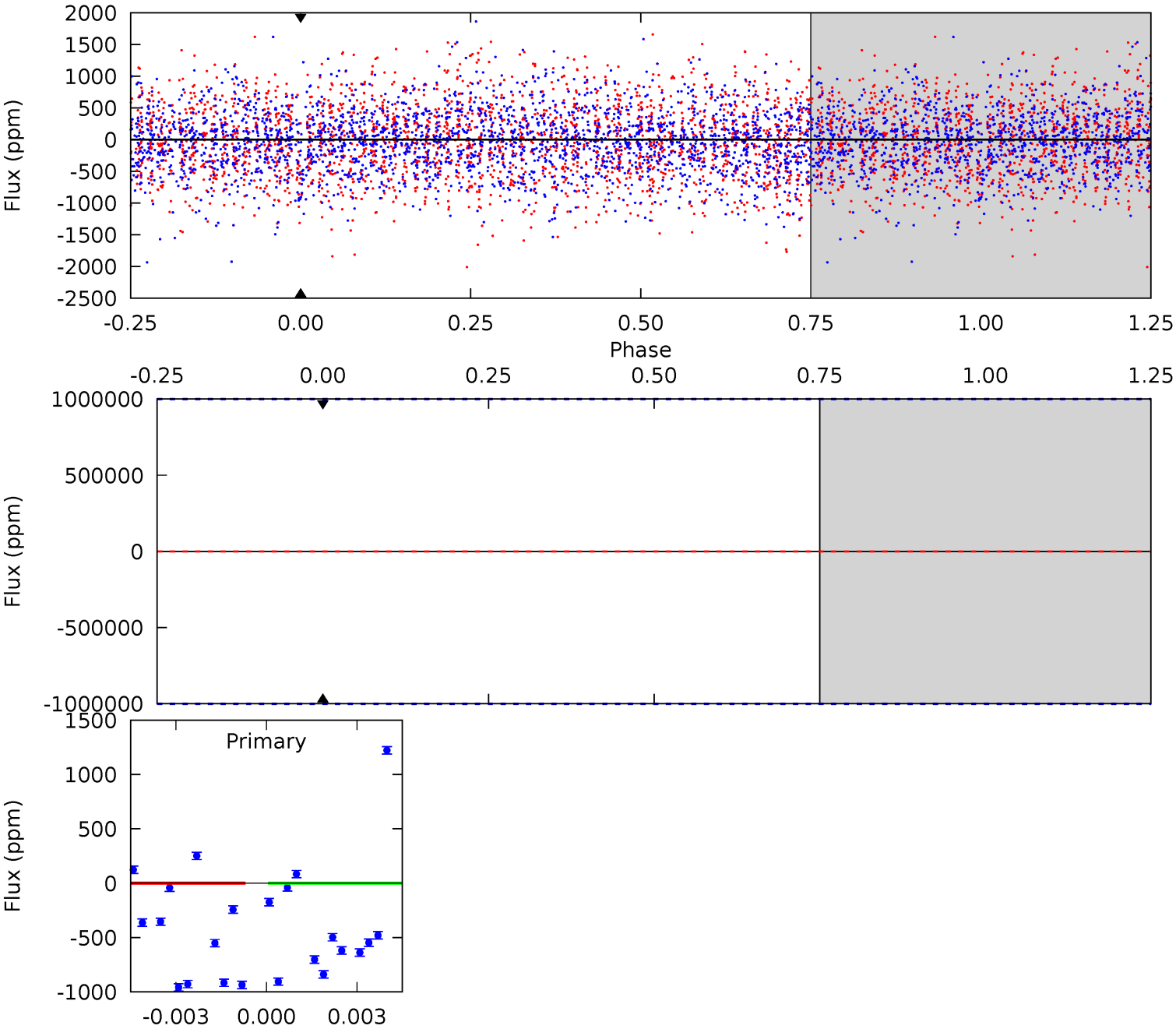
TCE 005645788-04 P= 14.263929 Days $T_0=139.066477$ (BKJD)



DV Model-Shift Uniqueness Test

005645788-04, P = 14.263929 Days, E = 124.807482 Days

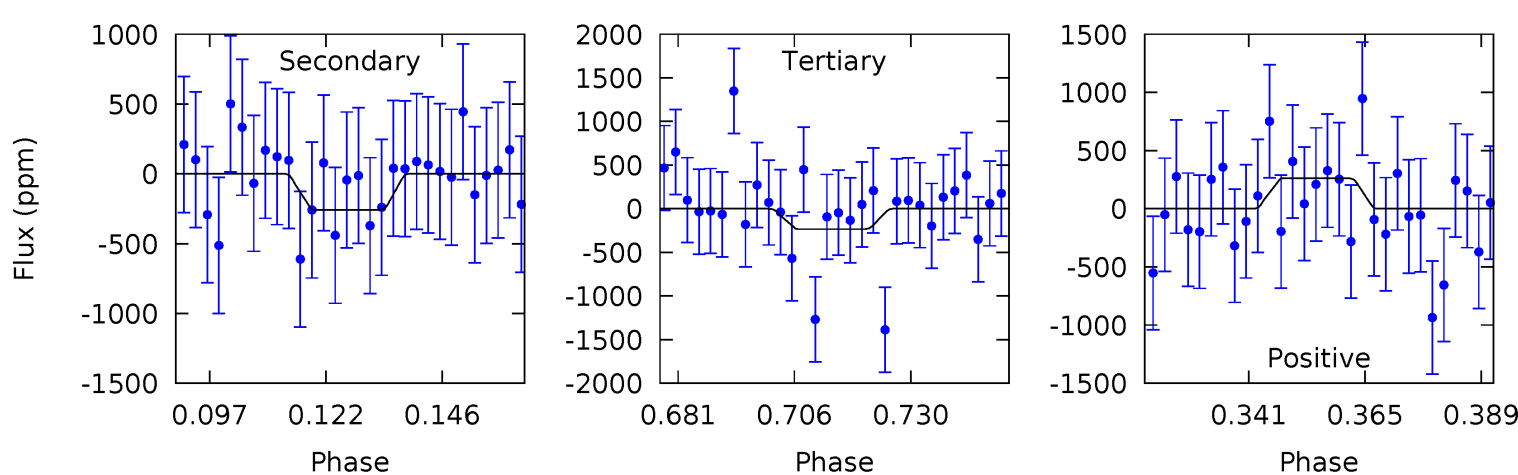
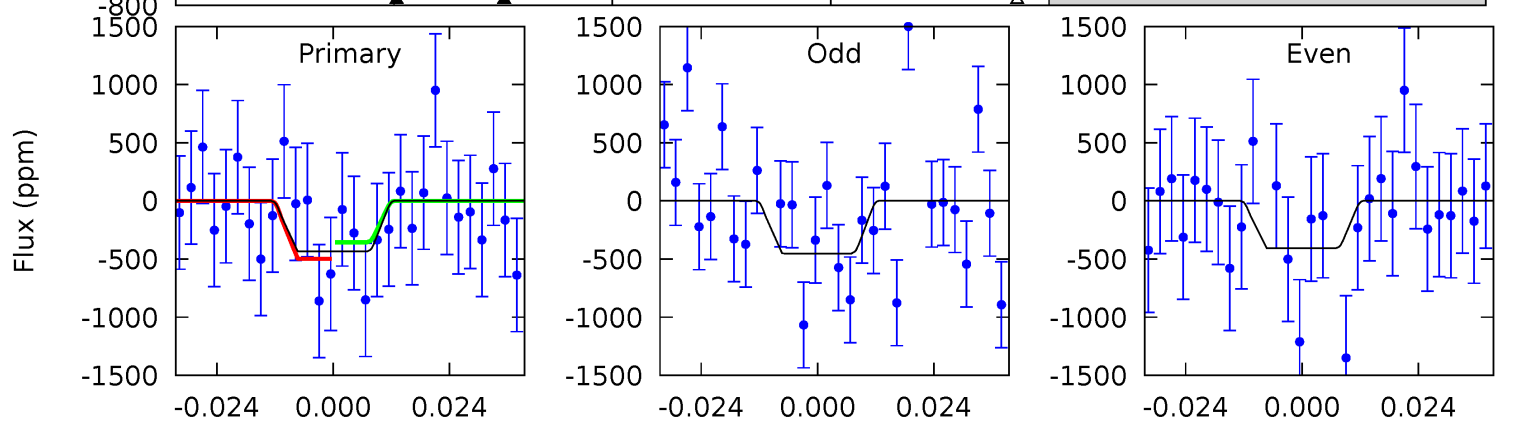
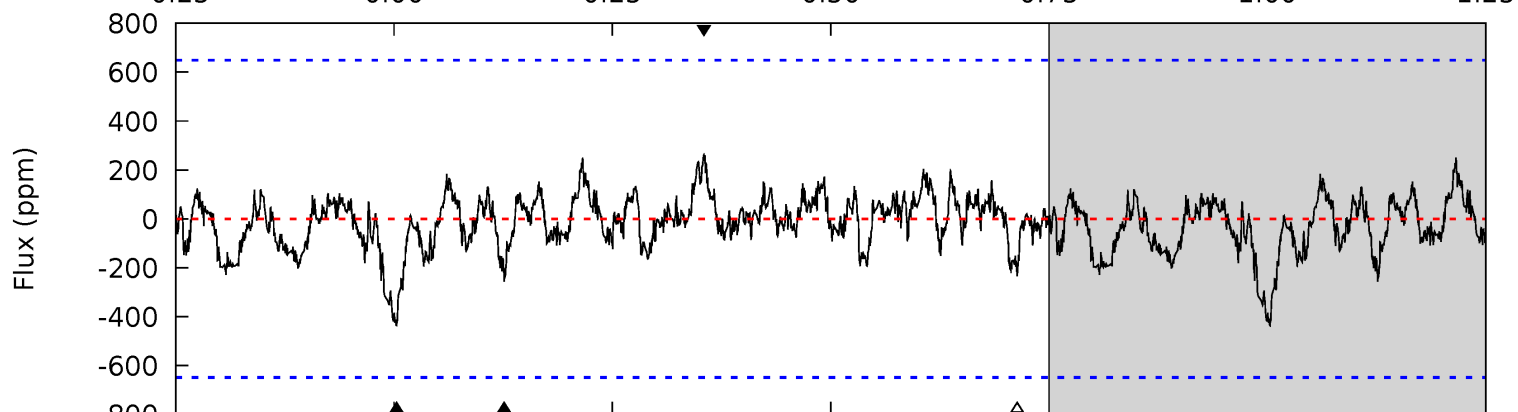
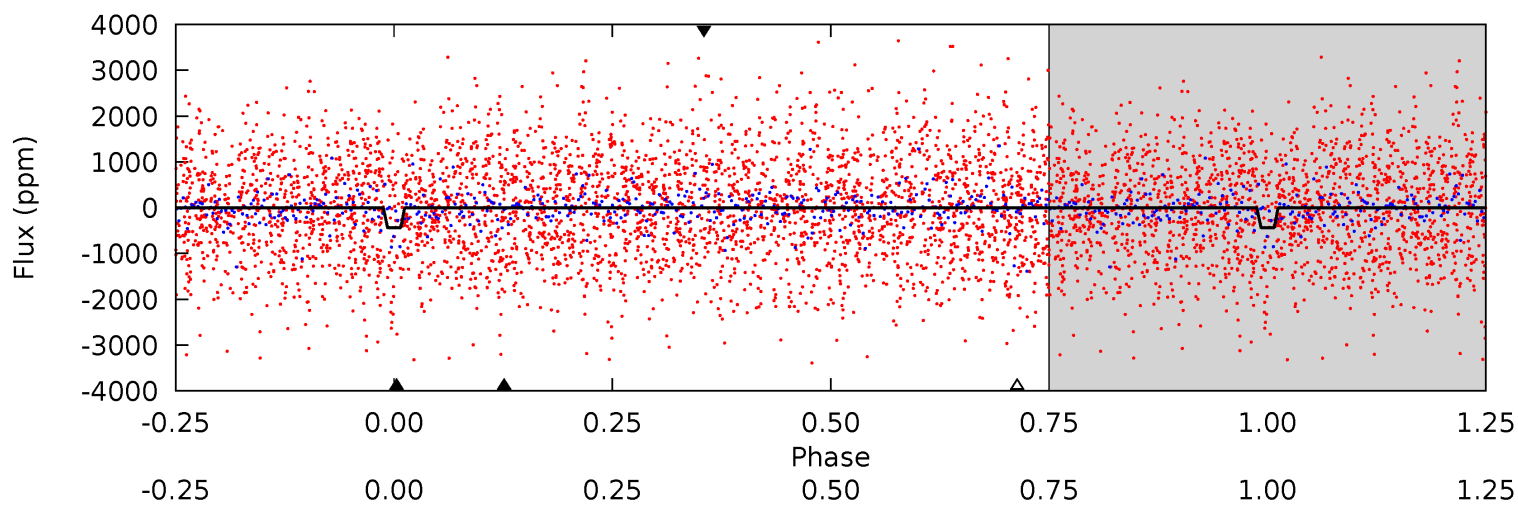
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005645788-04, P = 14.263929 Days, E = 124.802548 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.25	1.92	1.74	1.96	4.85	2.25	0.65	1.51	1.29	0.18	-0.04	0.17	0.29	0.38	0.53



Stellar Parameters For KIC 005645788

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	7830^{+214}_{-322}	$4.027^{+0.181}_{-0.148}$	$0.000^{+0.200}_{-0.350}$	$2.160^{+0.467}_{-0.571}$	$1.809^{+0.145}_{-0.339}$	$0.253^{+0.274}_{-0.097}$
	+3%/-4%	+4%/-4%	+inf%/-inf%	+22%/-26%	+8%/-19%	+108%/-38%
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 005645788-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$16.96^{+20.45}_{-11.83}$	1877^{+126}_{-135}	-5809^{+49473}_{-40099}	$-74.551^{+6742.642}_{-7174.157}$
Alt.	-257 ± 134	$17.58^{+16.65}_{-12.42}$	1888^{+134}_{-152}	3756^{+2444}_{-908}	$7.694^{+83.226}_{-6.153}$

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 $A_{obs} \gg 1.0$

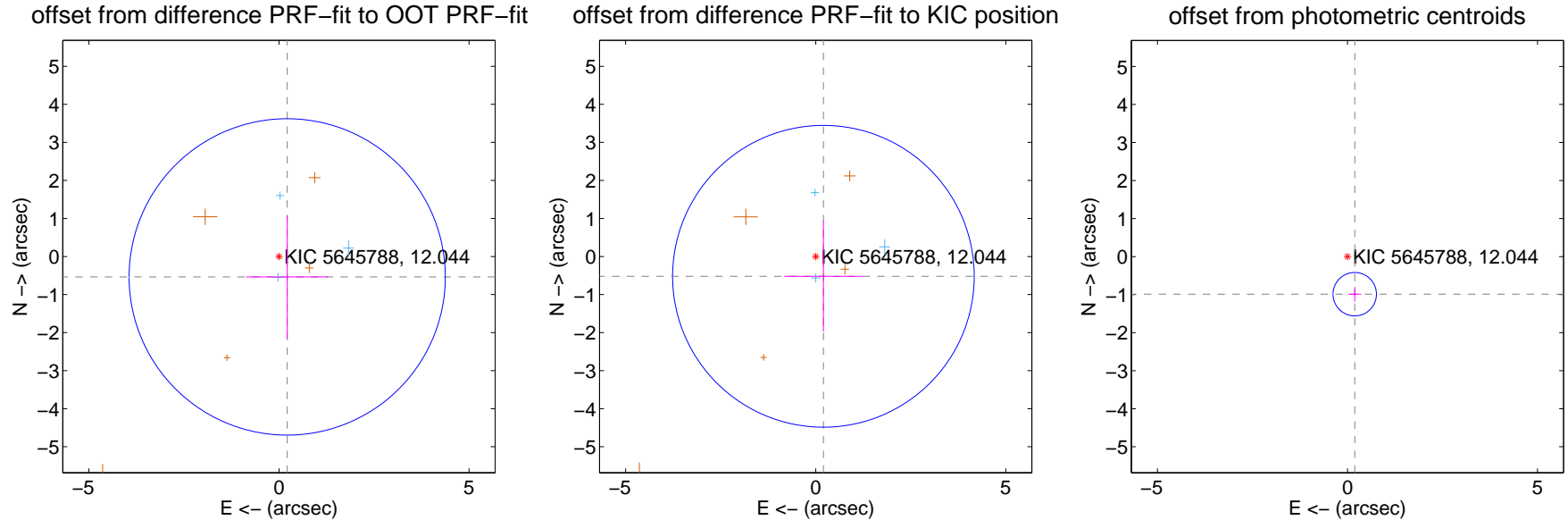
DV Centroid Data

Supplemental centroid analysis for 005645788-04. Kepler magnitude: 12.04. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

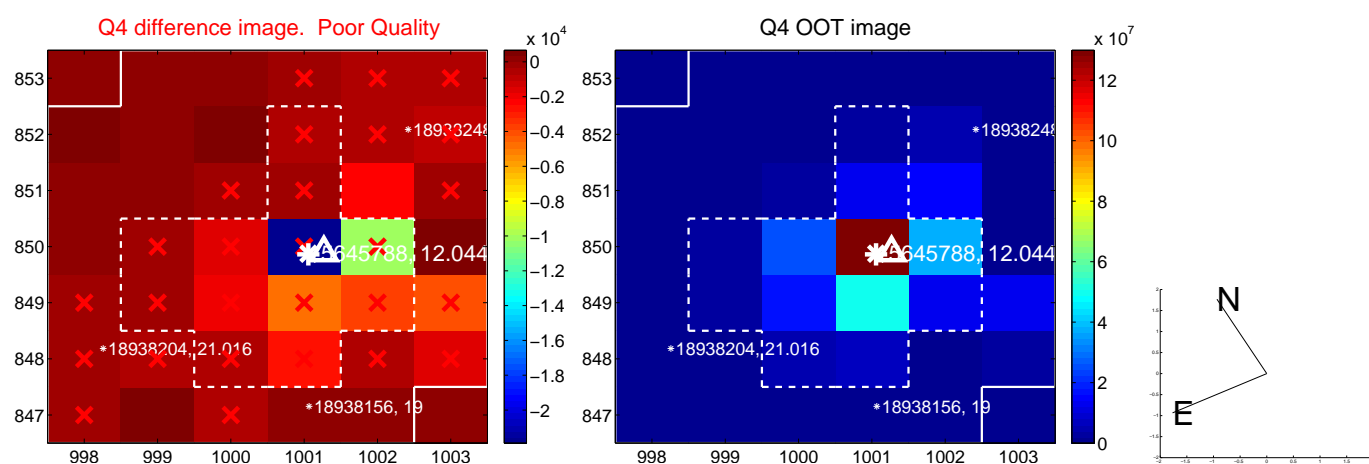
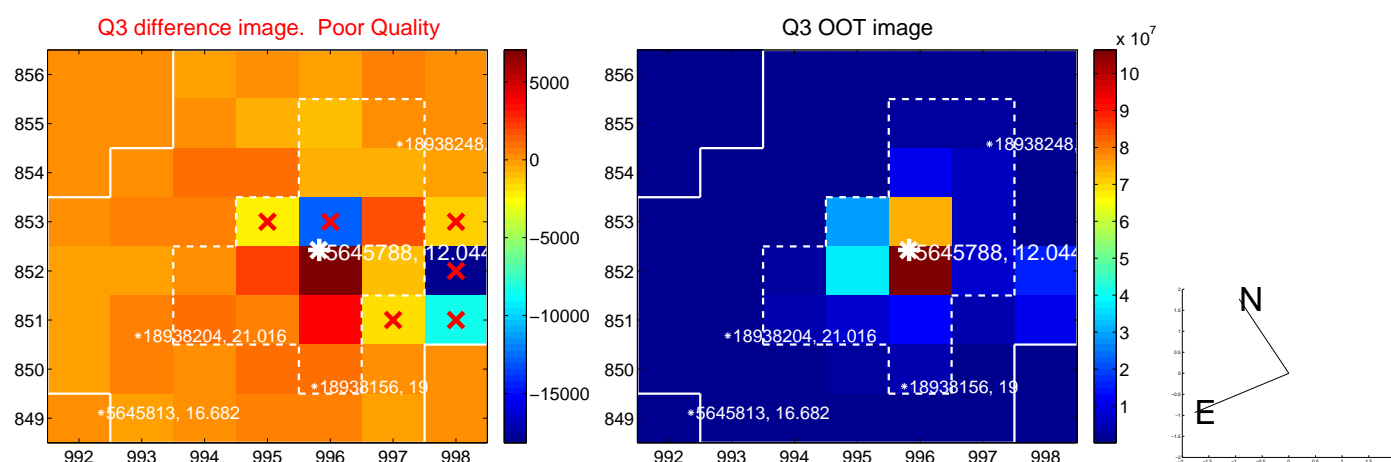
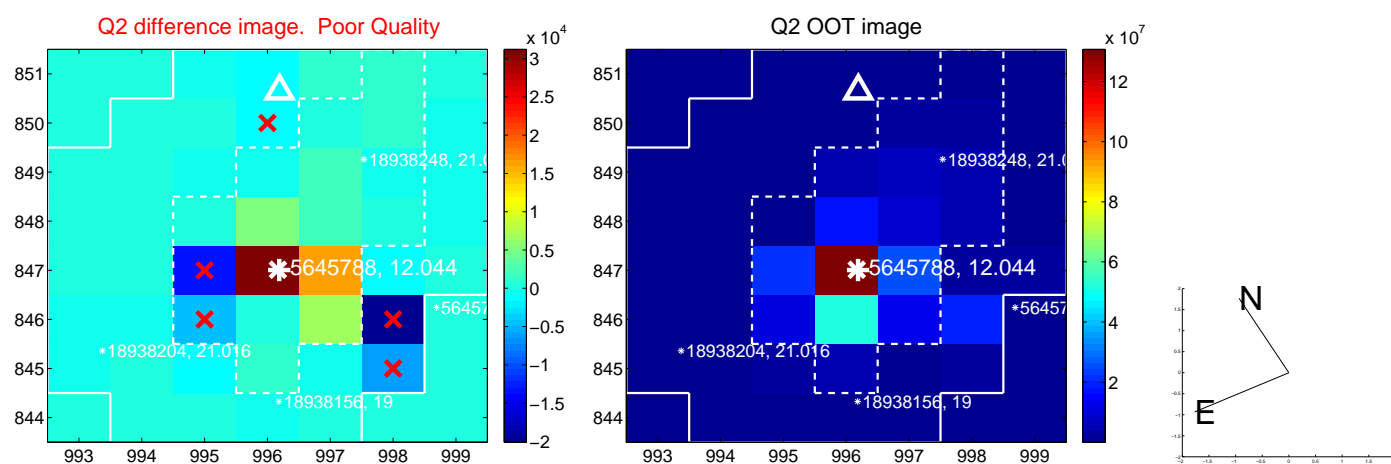
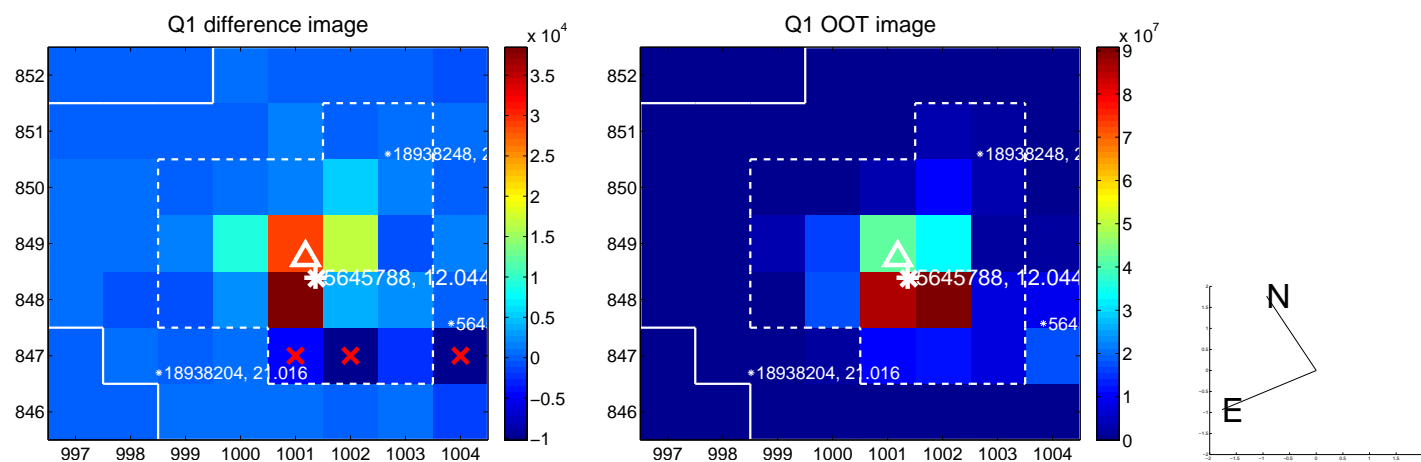
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.578 ± 1.386	0.42	-0.216 ± 1.078	-0.536 ± 1.620
PRF-fit source offset from KIC position	0.558 ± 1.322	0.42	-0.203 ± 1.036	-0.520 ± 1.452
photometric centroid source offset	1.01 ± 0.19	5.29	-0.19 ± 0.17	-0.99 ± 0.19

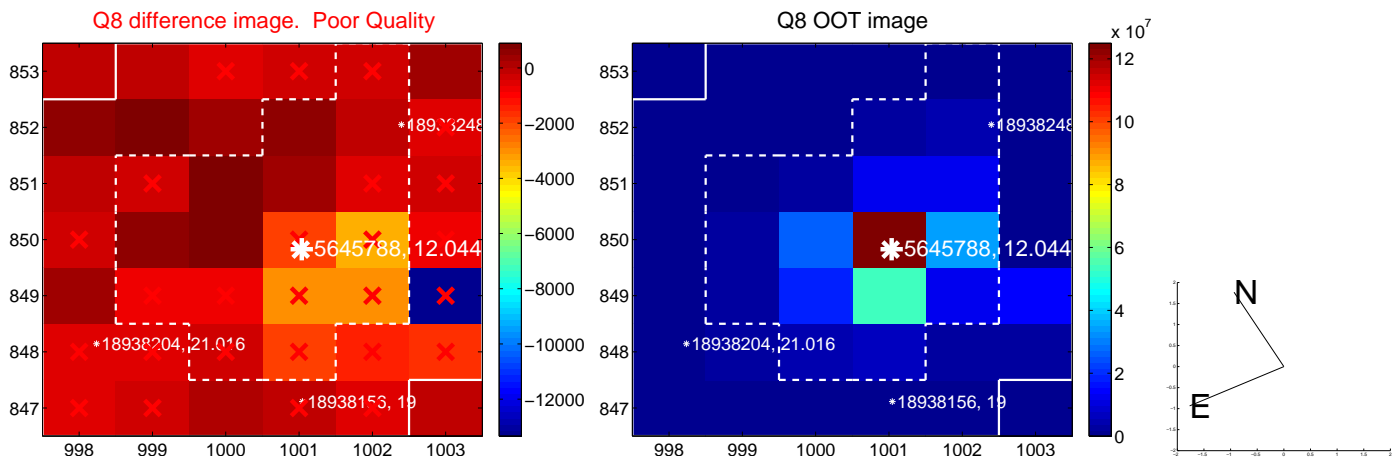
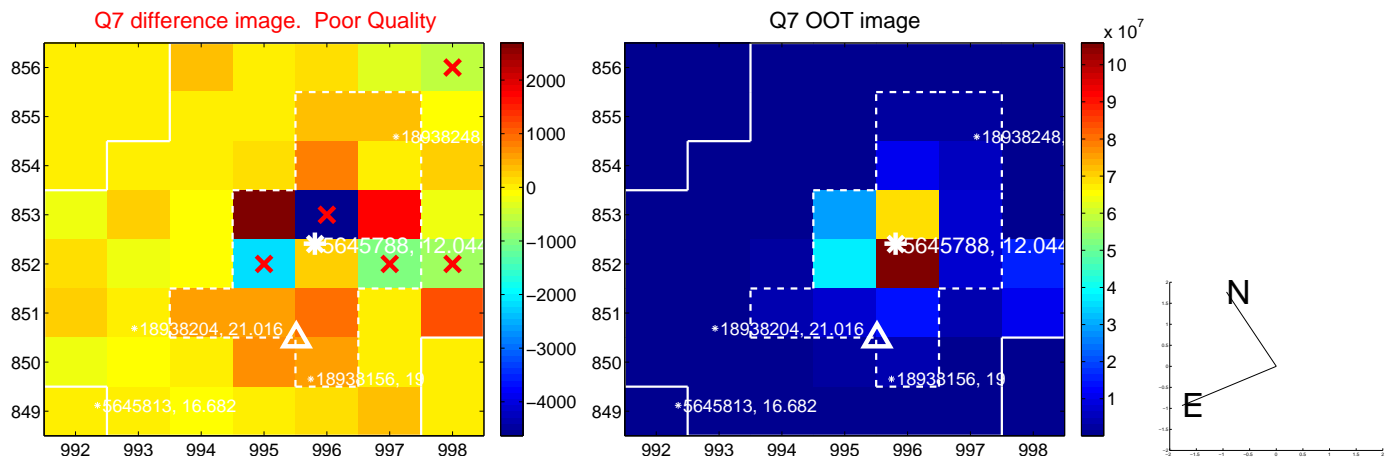
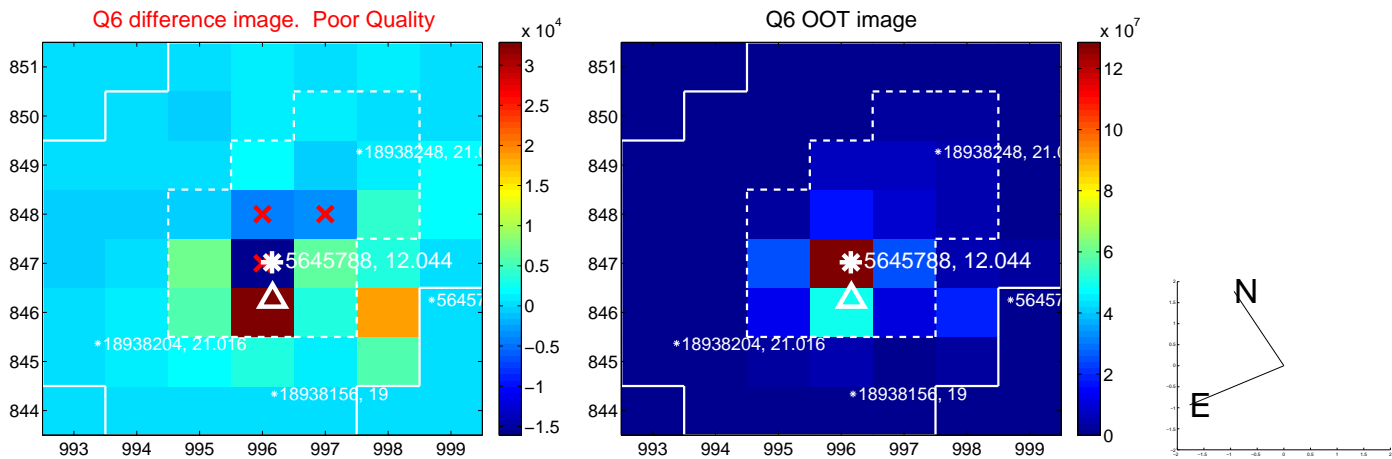
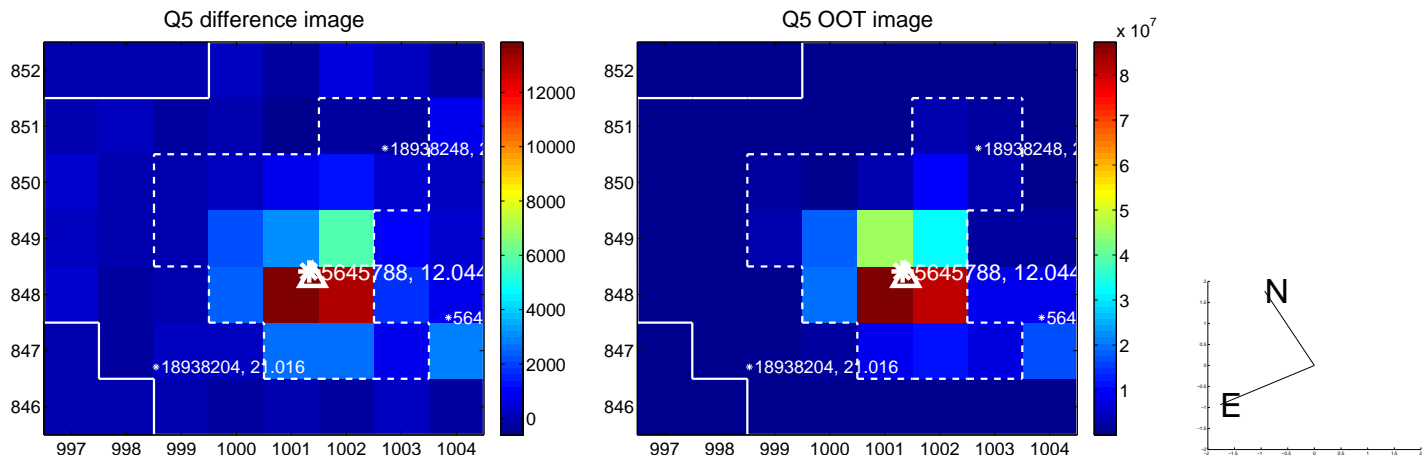


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

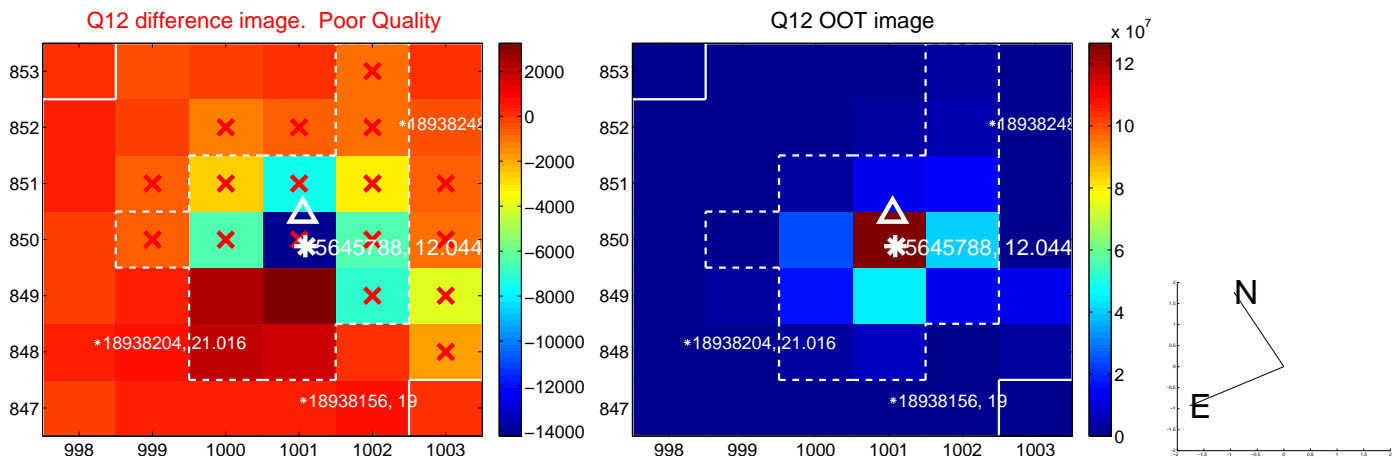
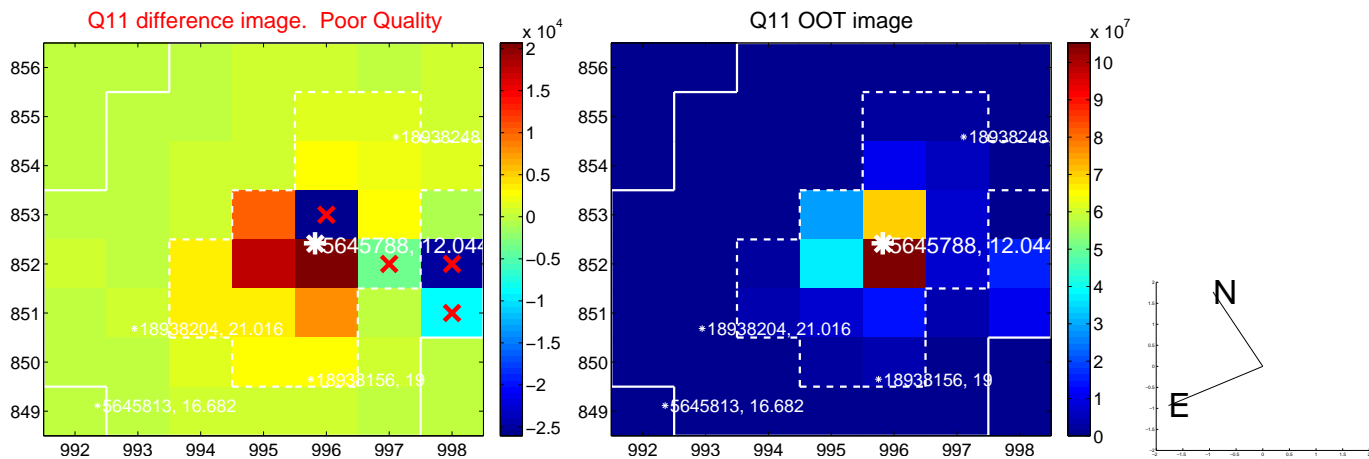
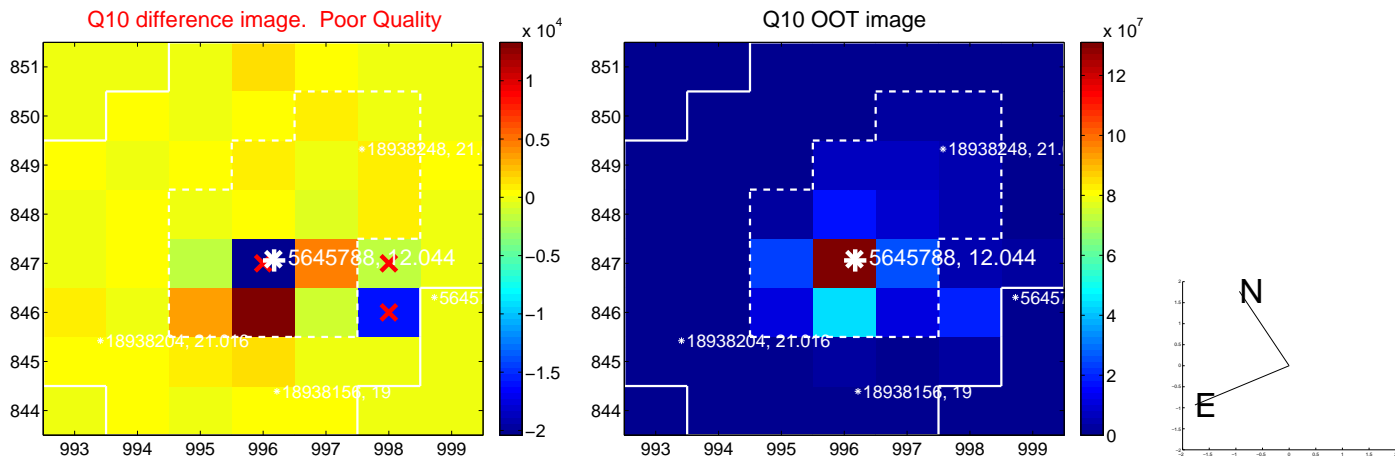
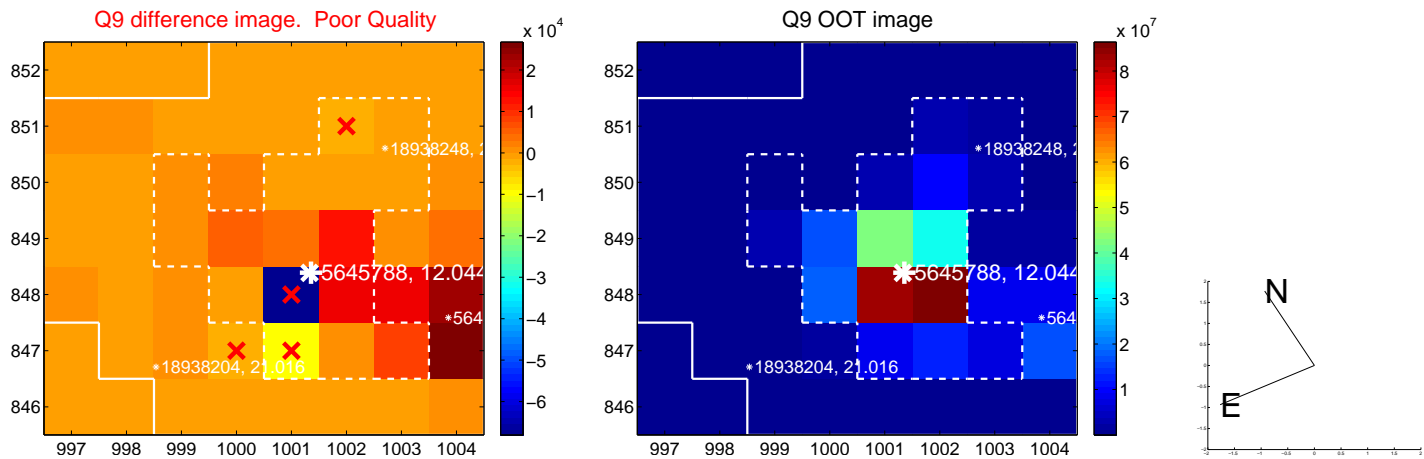
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



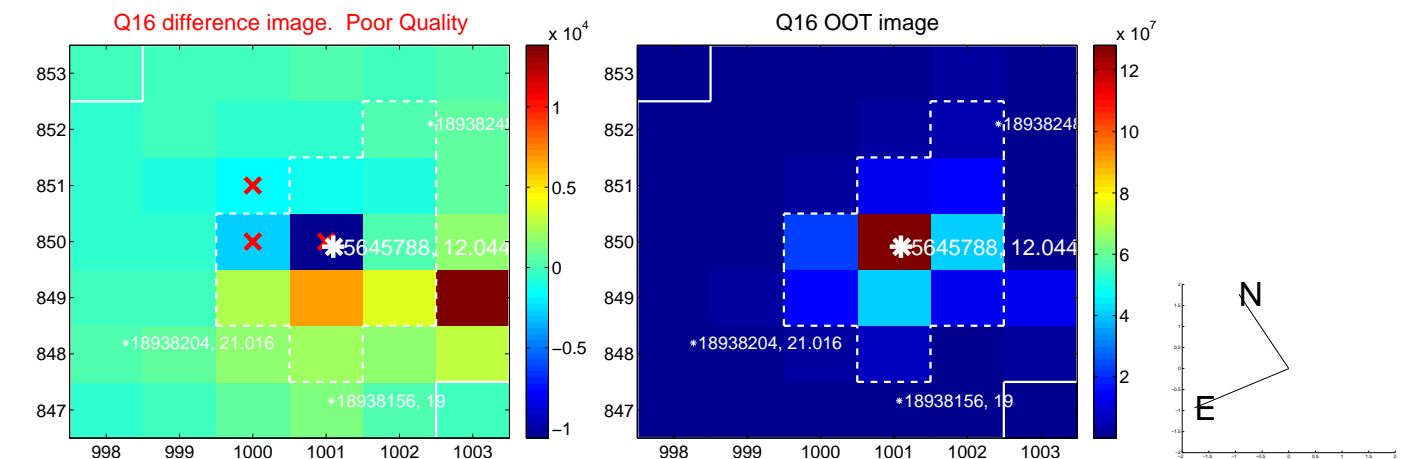
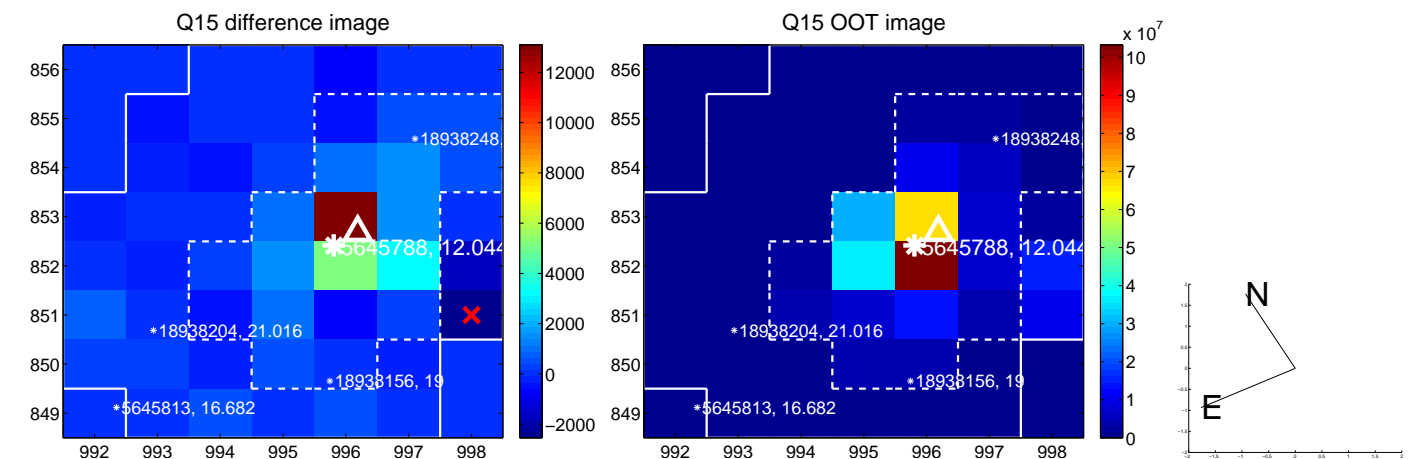
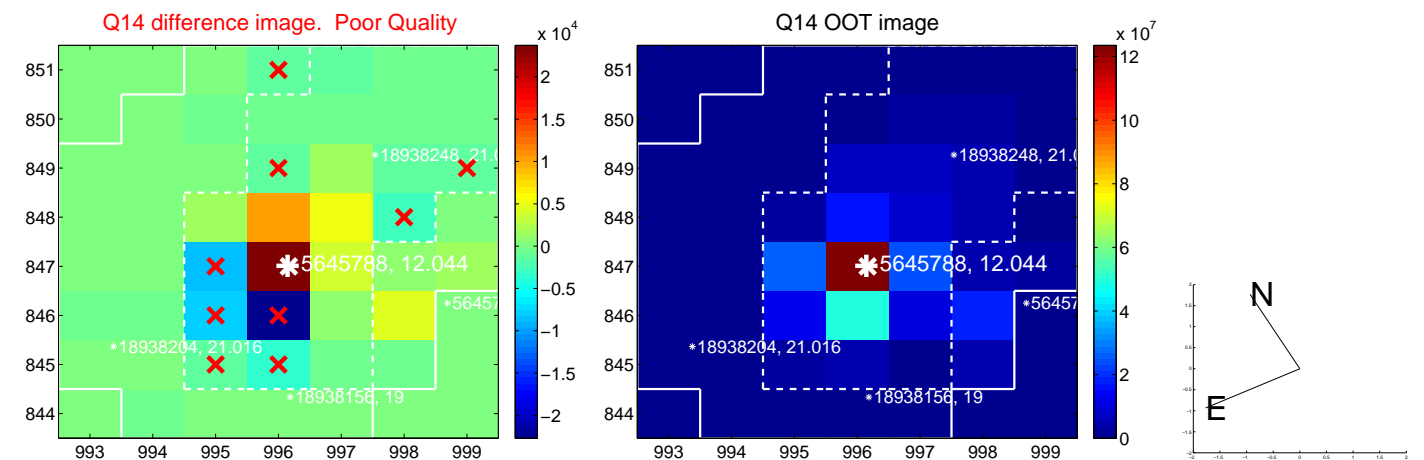
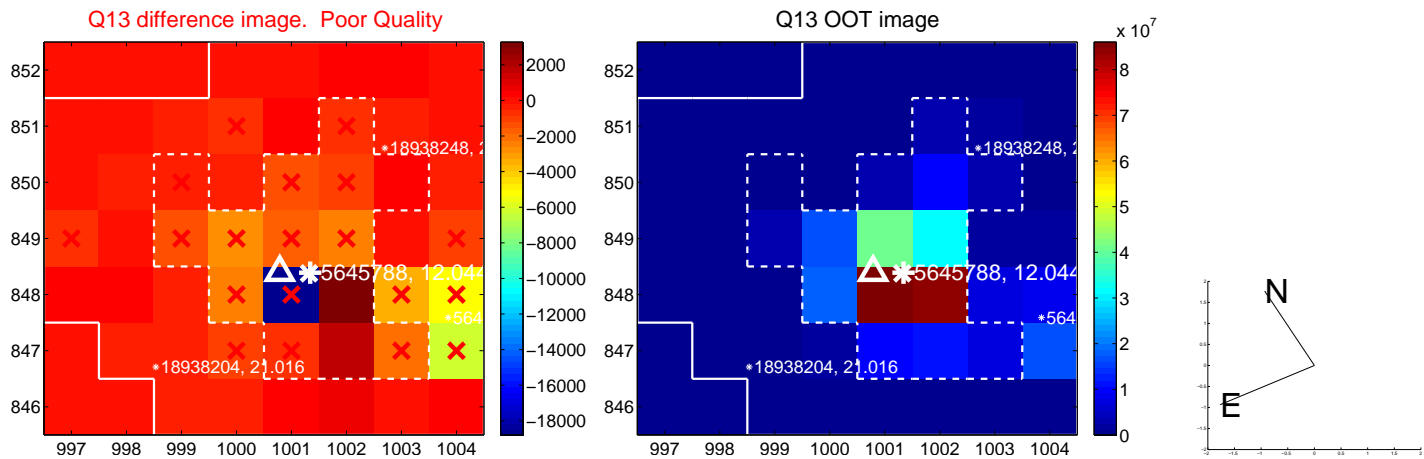
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



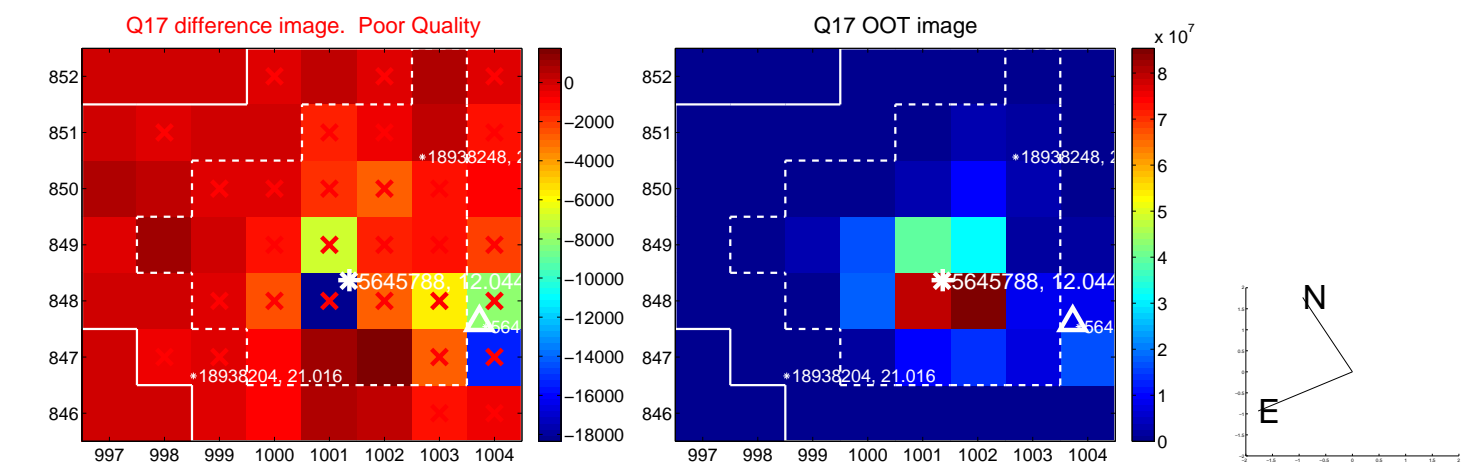
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



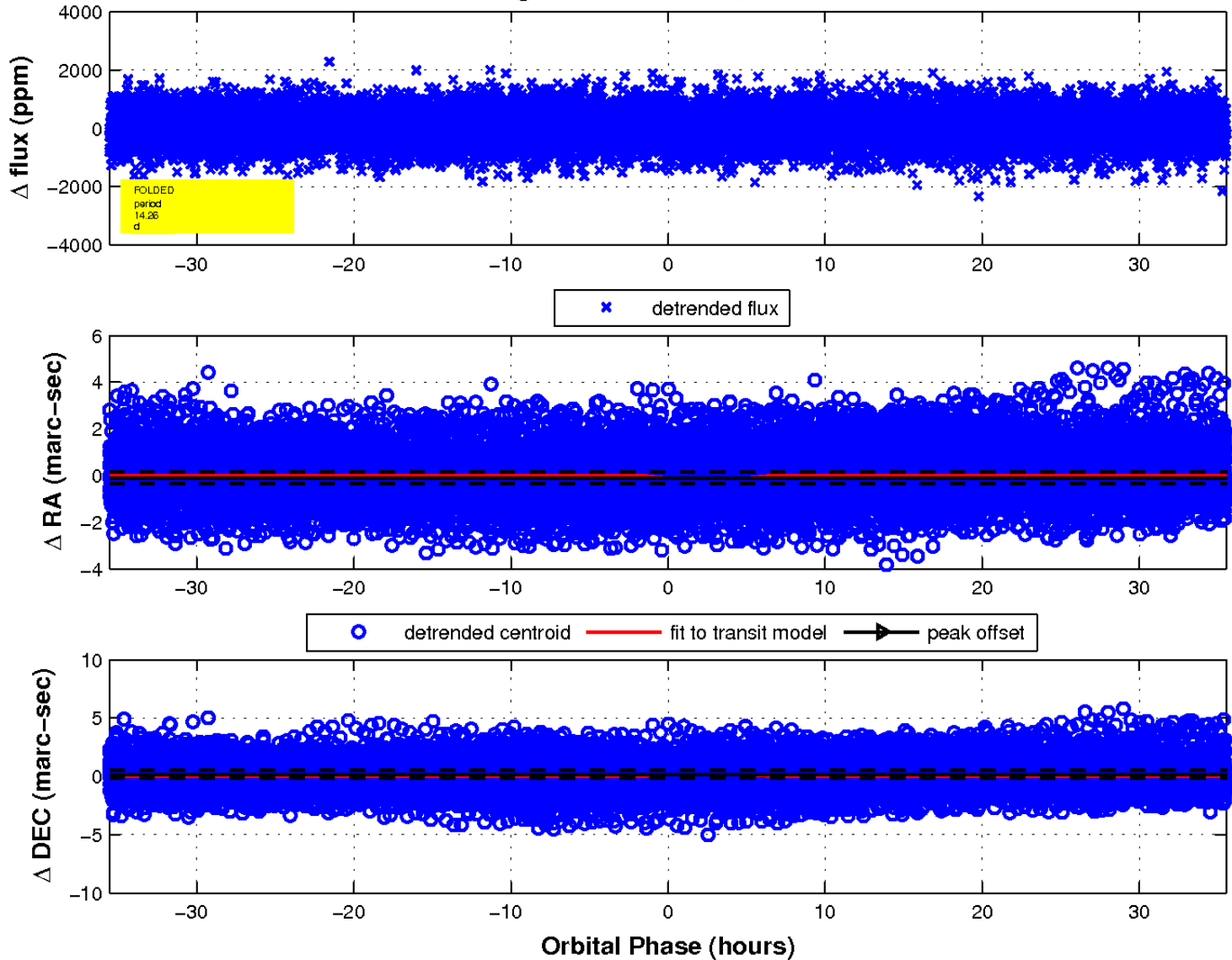
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

