

KIC 011656492

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})
011656492-01	OBS	No	1.545978	131.751021	65.1	6.840	8.9	9.2	2.69	8552	2.49	29934.36
011656492-02	OBS	No	0.727870	131.721749	262.0	2.562	14.3	14.3	2.69	8552	5.05	81727.67
011656492-03	OBS	No	0.727915	132.207351	538.7	1.978	15.0	22.6	2.69	8552	7.25	81721.01
011656492-04	OBS	No	0.727907	131.954944	179.6	2.000	16.8	-1.0	2.69	8552	3.67	81722.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011656492-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT
011656492-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011656492-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
011656492-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS

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

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

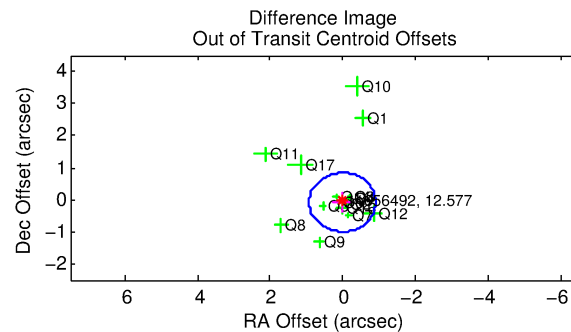
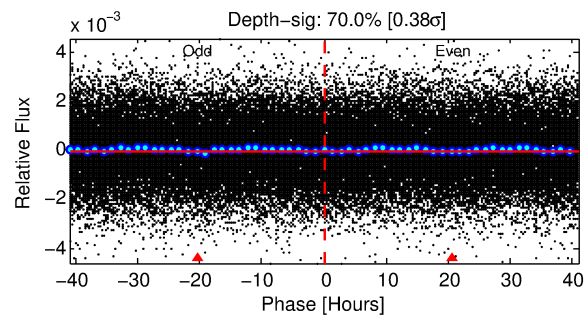
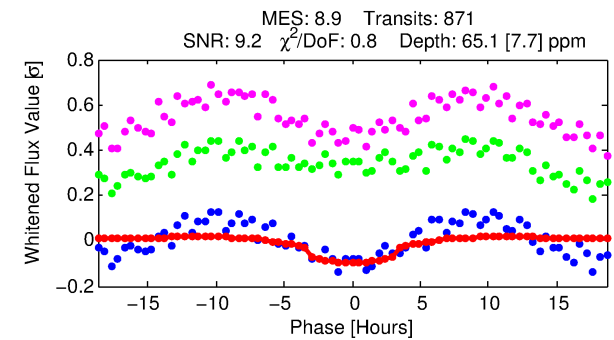
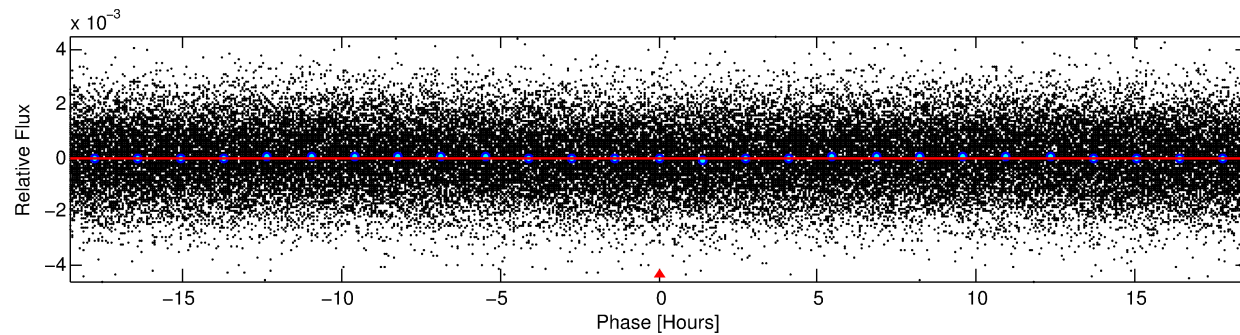
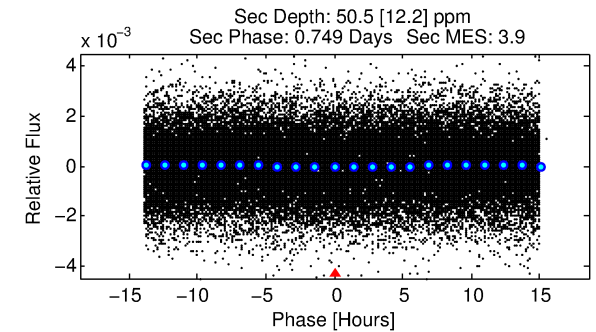
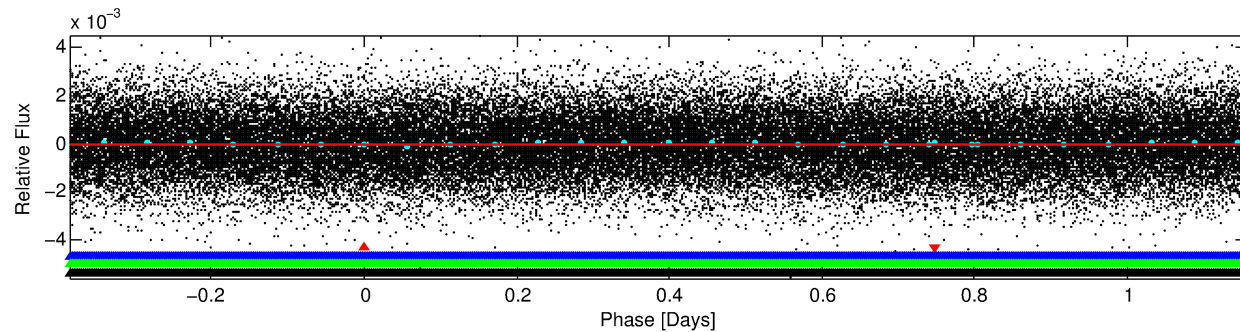
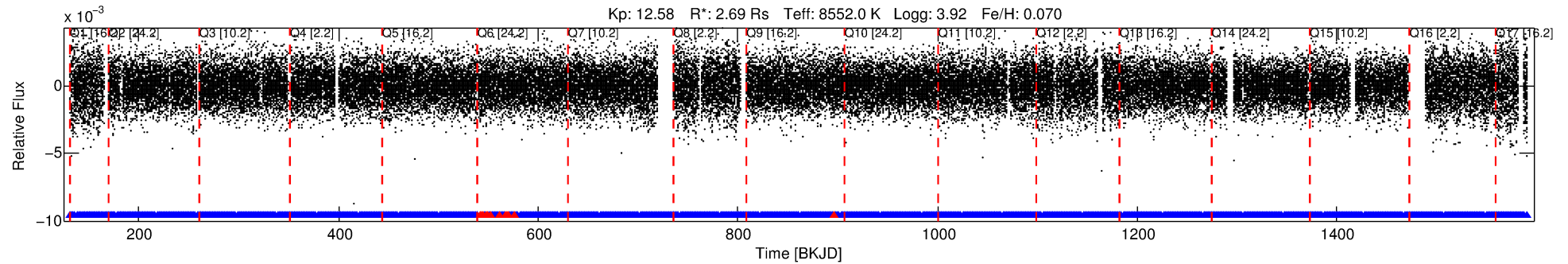
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011656492-01

No Significant Match Found

DV One-Page Summary

KIC: 11656492 Candidate: 1 of 4 Period: 1.546 d



DV Fit Results:

Period = 1.54598 [0.00003] d
Epoch = 131.7510 [0.0118] BKJD
Rp/R* = 0.0085 [0.0050]
a/R* = 1.26 [1.83]
b = 0.88 [1.02]
Seff = 29934.36 [15237.64]
Teq = 3354 [427] K
Rp = 2.49 [1.72] Re
a = 0.0340 [0.0107] AU
Ag = 5.21 [6.75] [0.62σ]
Teffp = 7836 [2391] K [1.85σ]

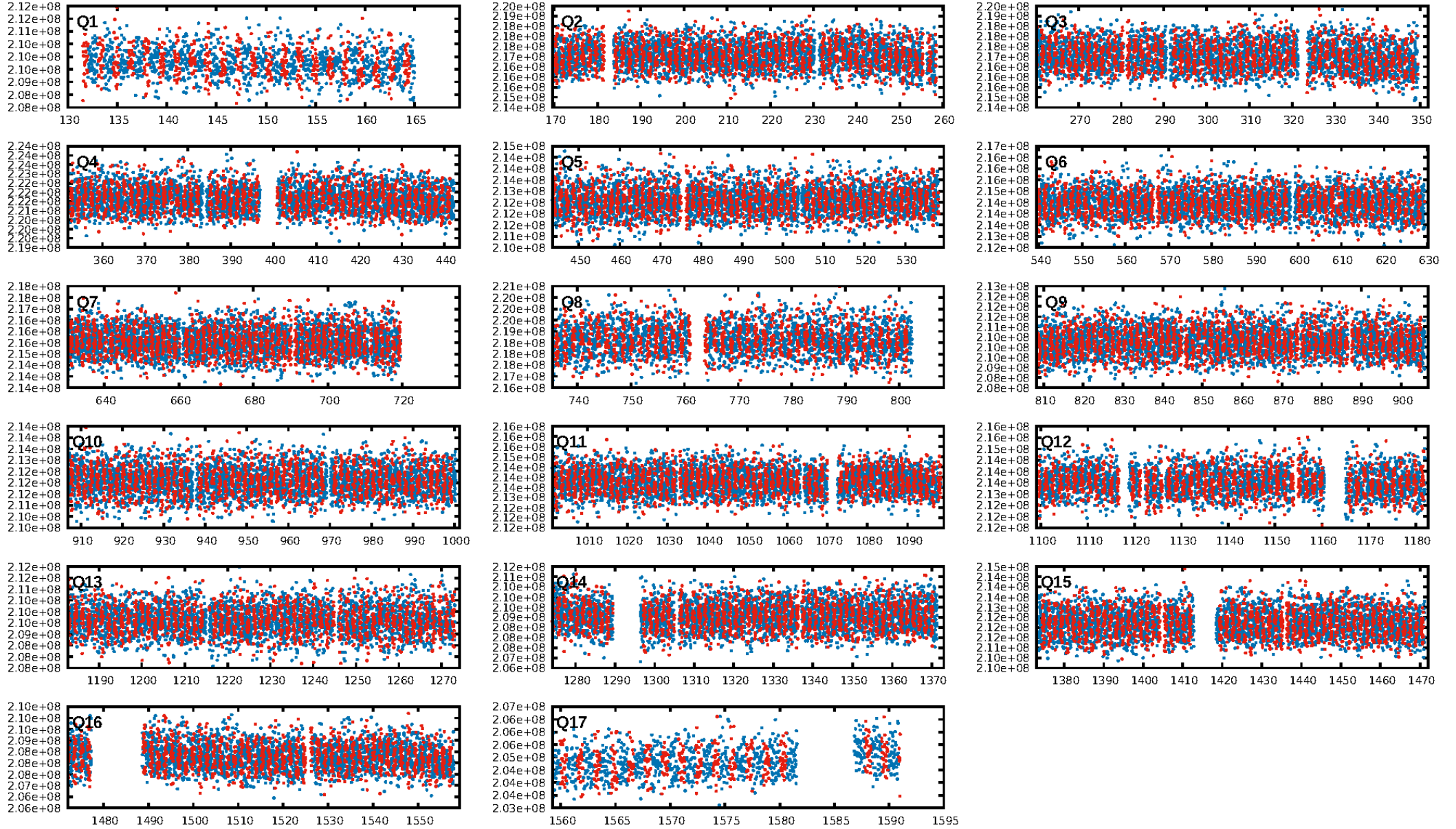
DV Diagnostic Results:

ShortPeriod-sig: 99.4% [2.76σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [820/832]
GhostDiagnostic-chr: 1.702
Centroid-sig: 0.0%
Centroid-so: 0.617 arcsec [2.27σ]
OotOffset-rm: 0.080 arcsec [0.26σ]
KicOffset-rm: 0.195 arcsec [0.65σ]
OotOffset-st: 4/3/4/4 [15]
KicOffset-st: 4/3/4/4 [15]
DiffImageQuality-fgm: 0.93 [14/15]
DiffImageOverlap-fno: 0.00 [0/17]

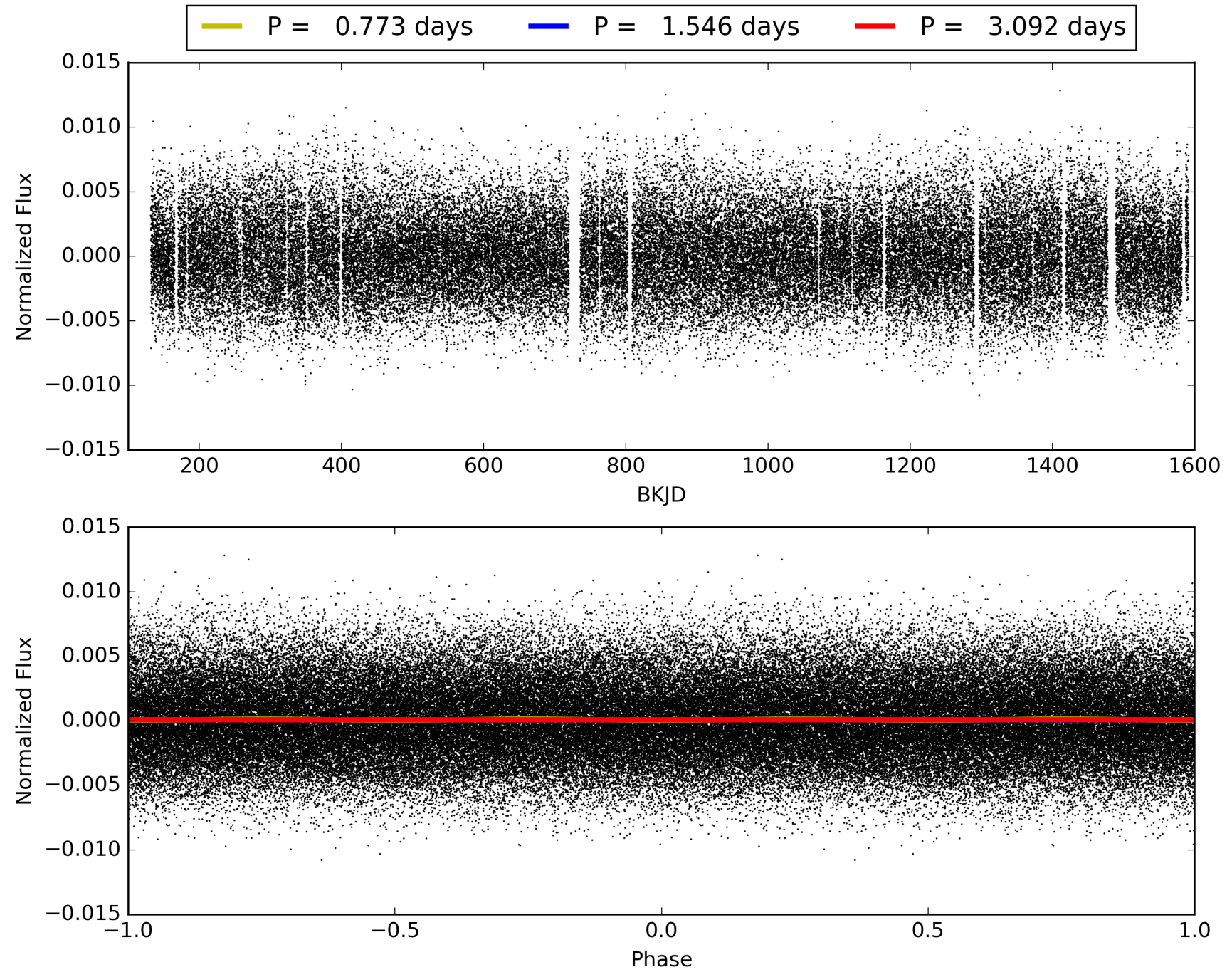
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:34:11 Z

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

TCE 011656492-01, PDC Light Curves

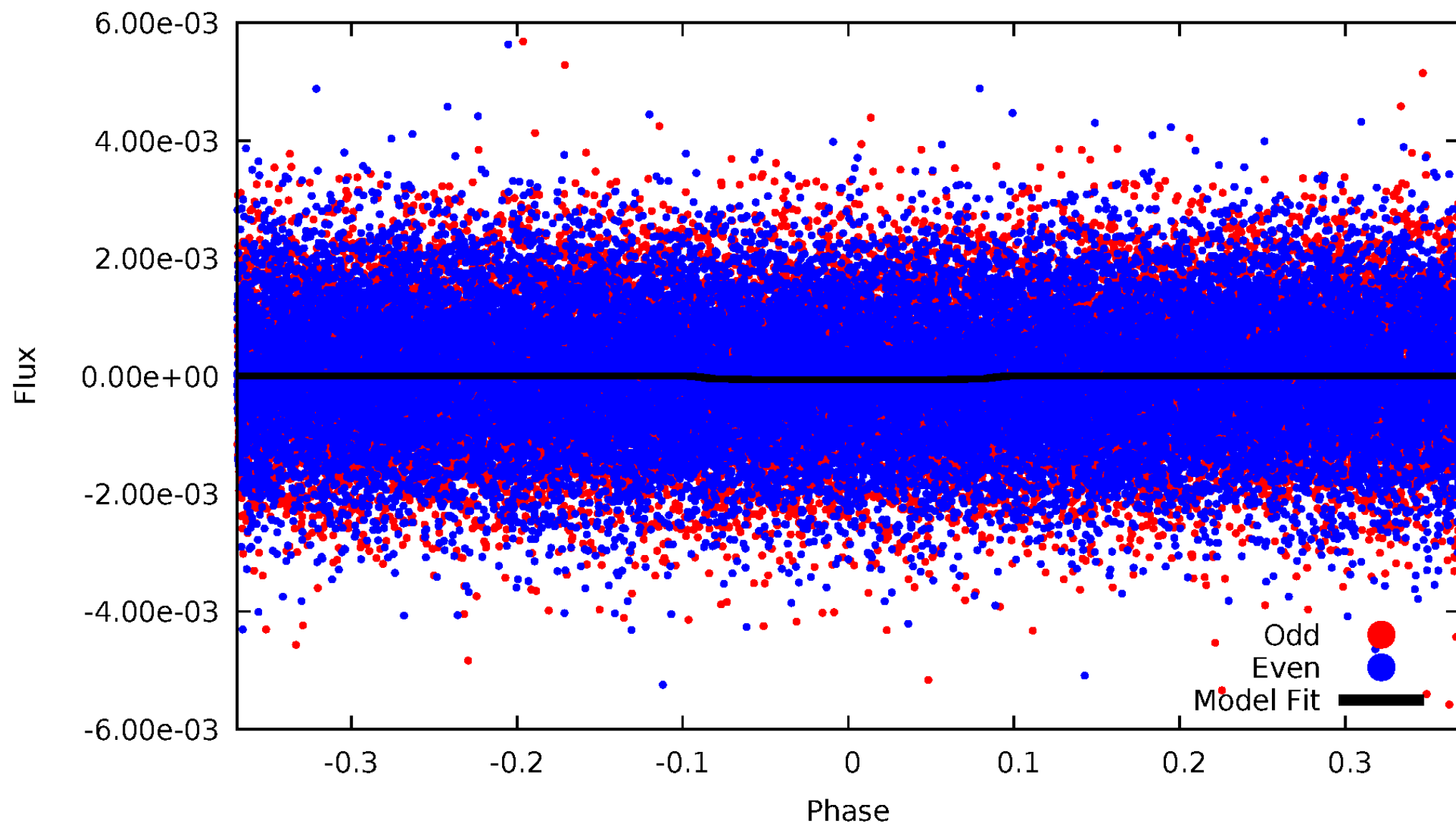


TCE 011656492-01



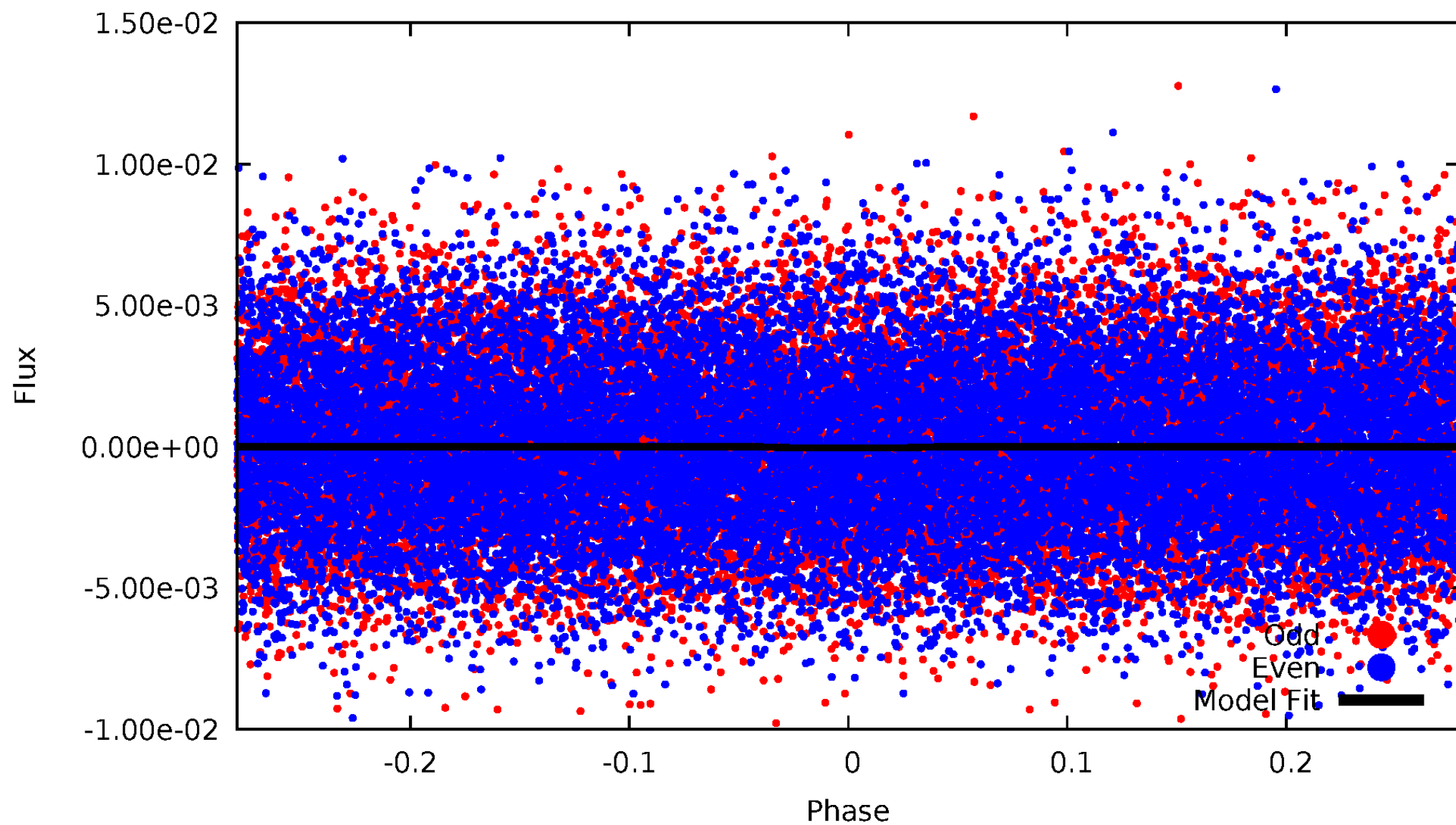
DV Odd/Even

TCE 011656492-01

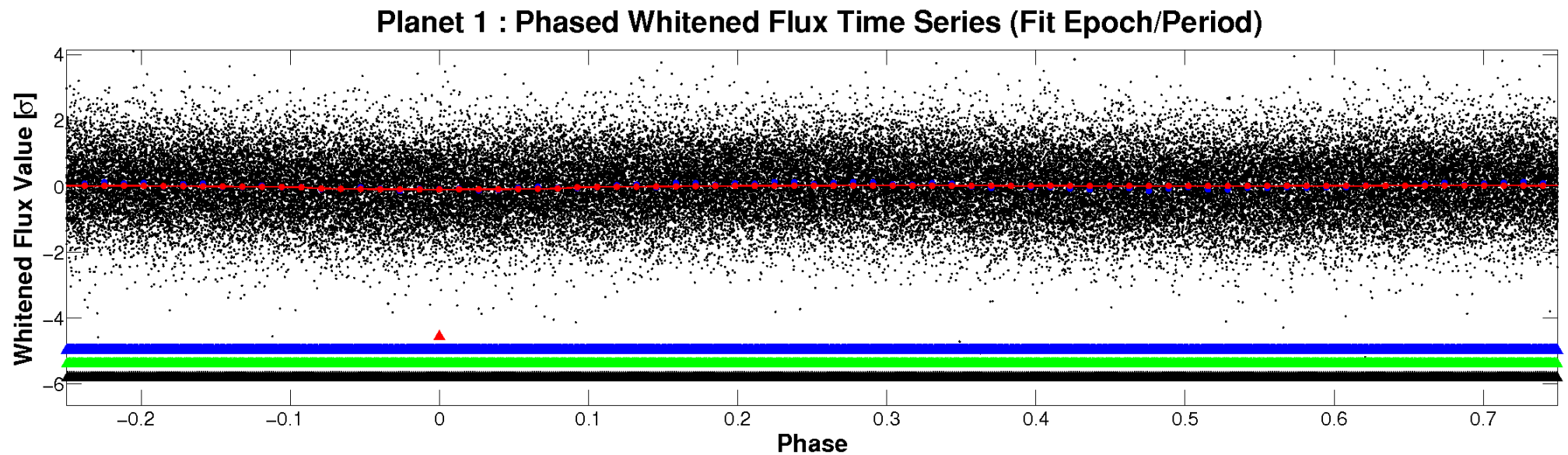
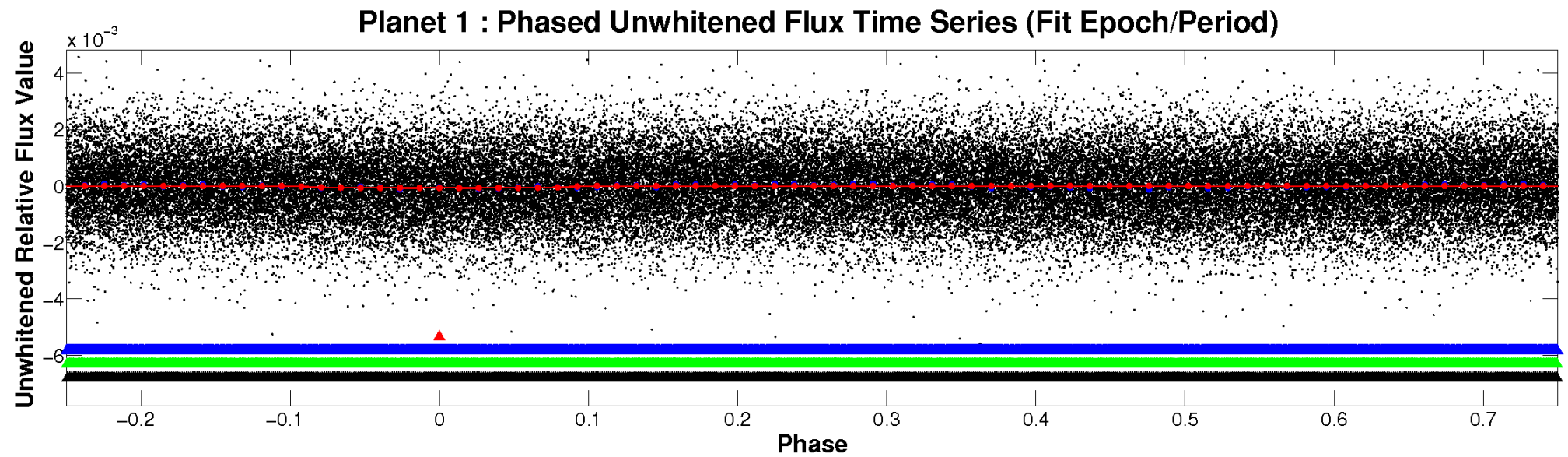


ALT Odd/Even

TCE 011656492-01

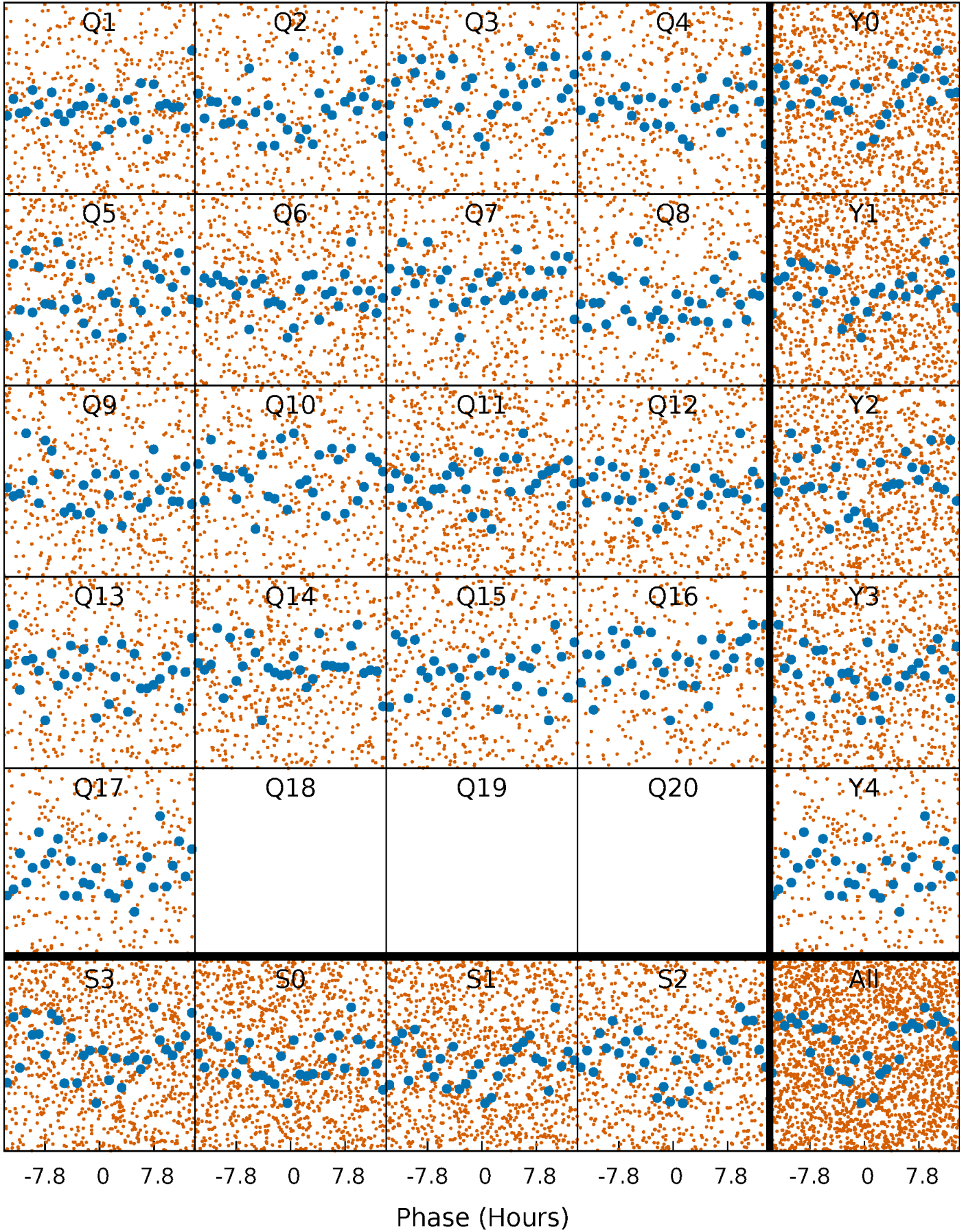


Non-Whitened Vs. Whitened Light Curve



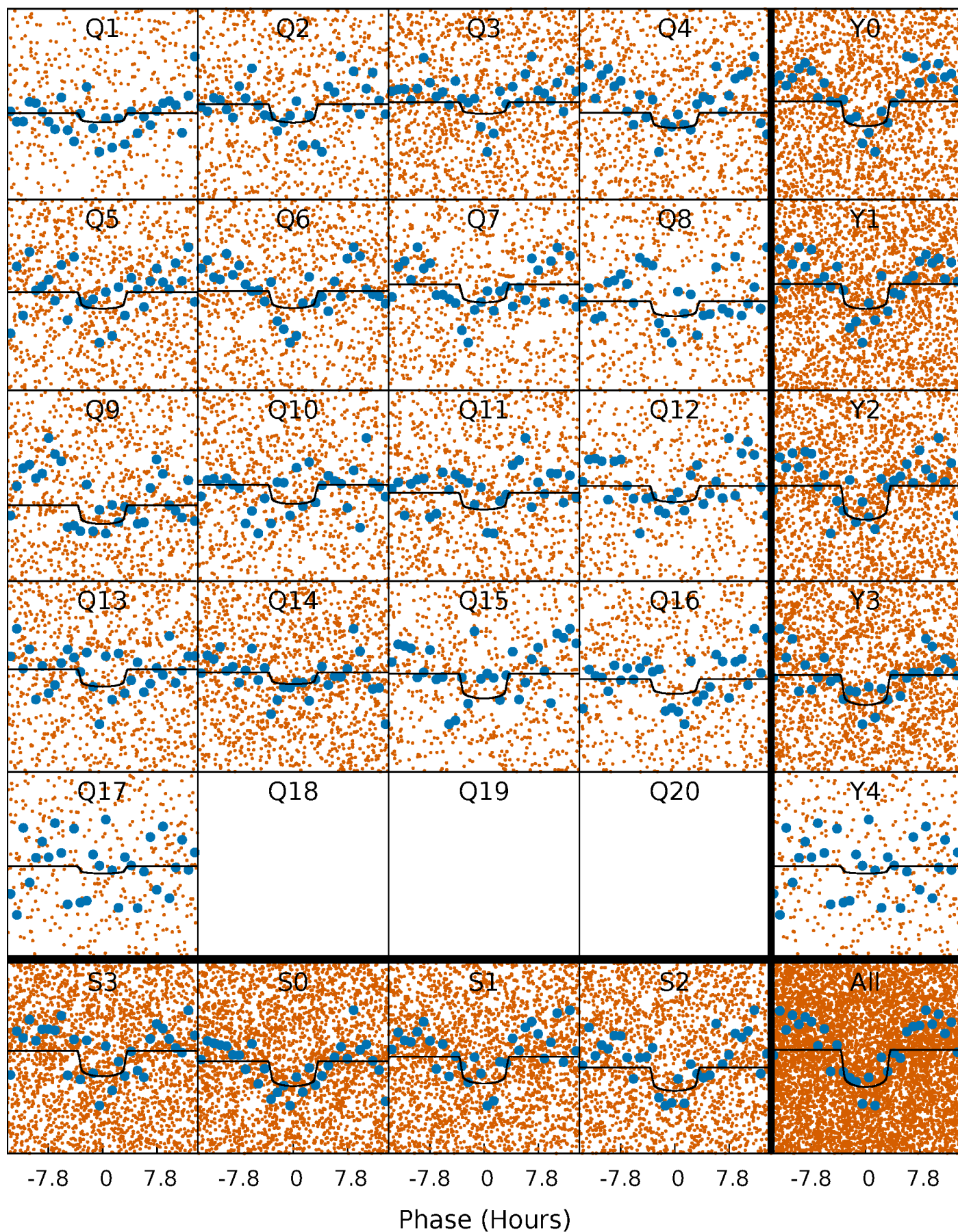
PDC Quarter-Phased Transit Curves

TCE 011656492-01 P= 1.545978 Days $T_0=131.751021$ (BKJD)



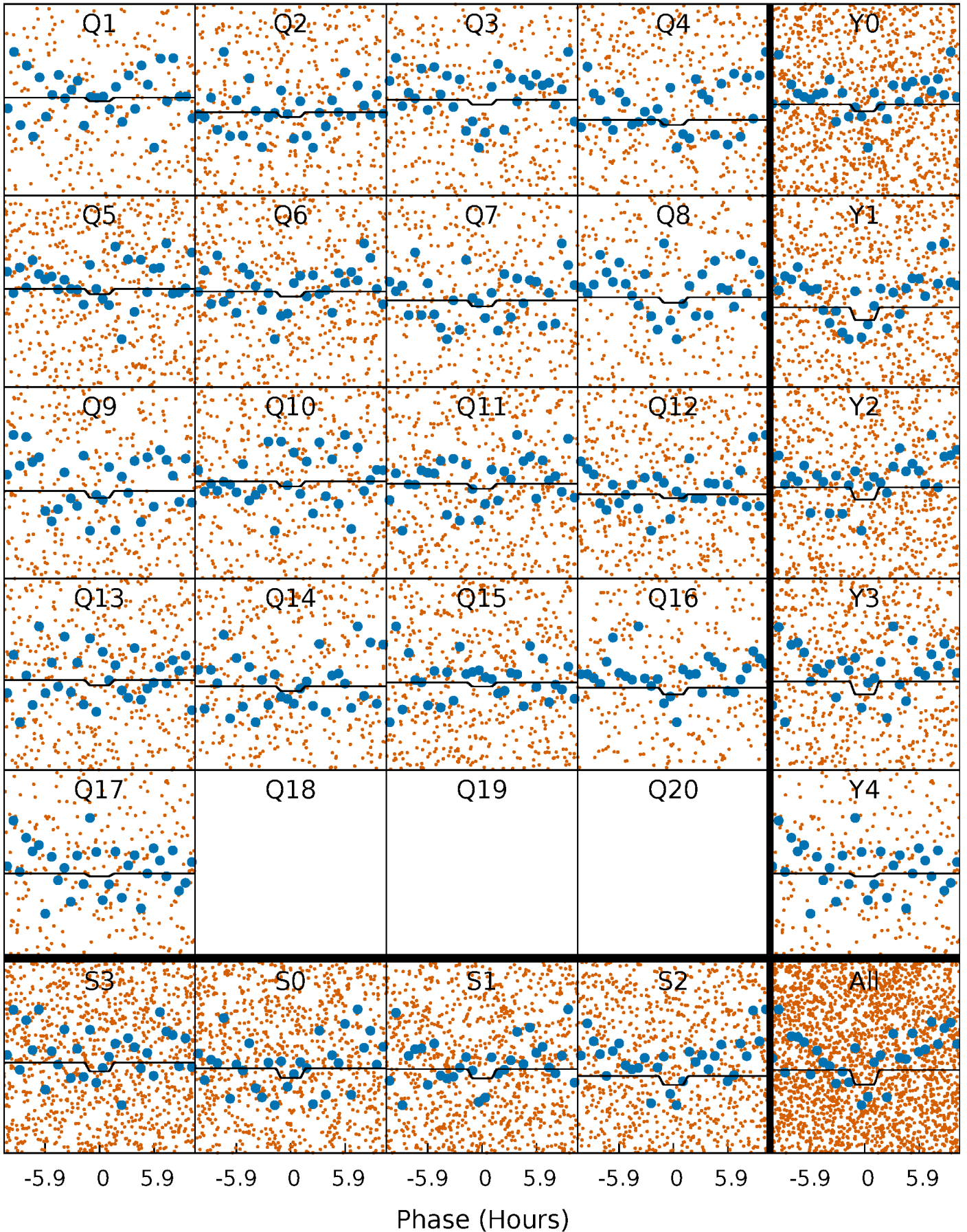
DV Quarter-Phased Transit Curves

TCE 011656492-01 P= 1.545978 Days $T_0=131.751021$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

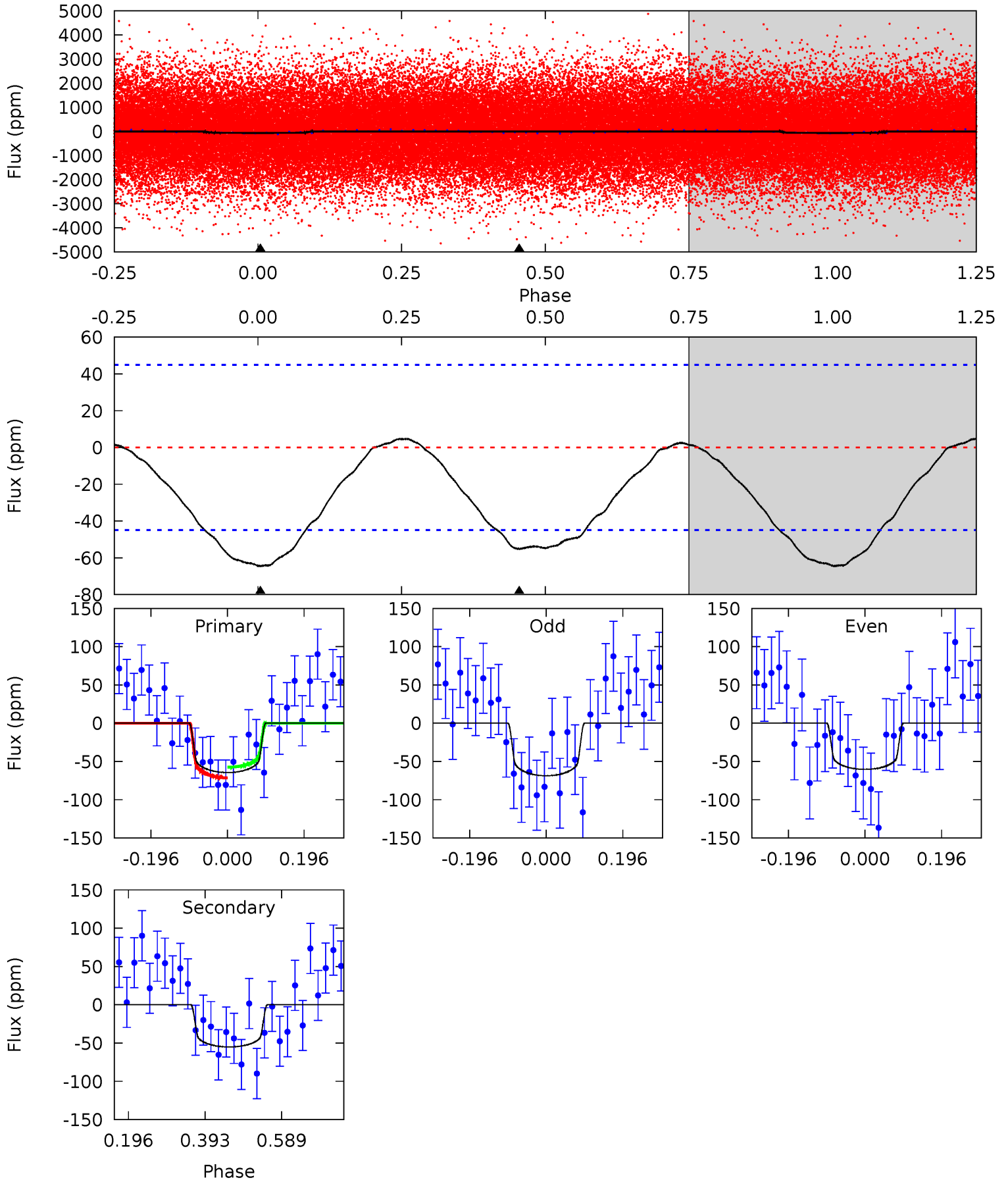
TCE 011656492-01 P= 1.545976 Days $T_0=131.798237$ (BKJD)



DV Model-Shift Uniqueness Test

011656492-01, P = 1.545978 Days, E = 130.205043 Days

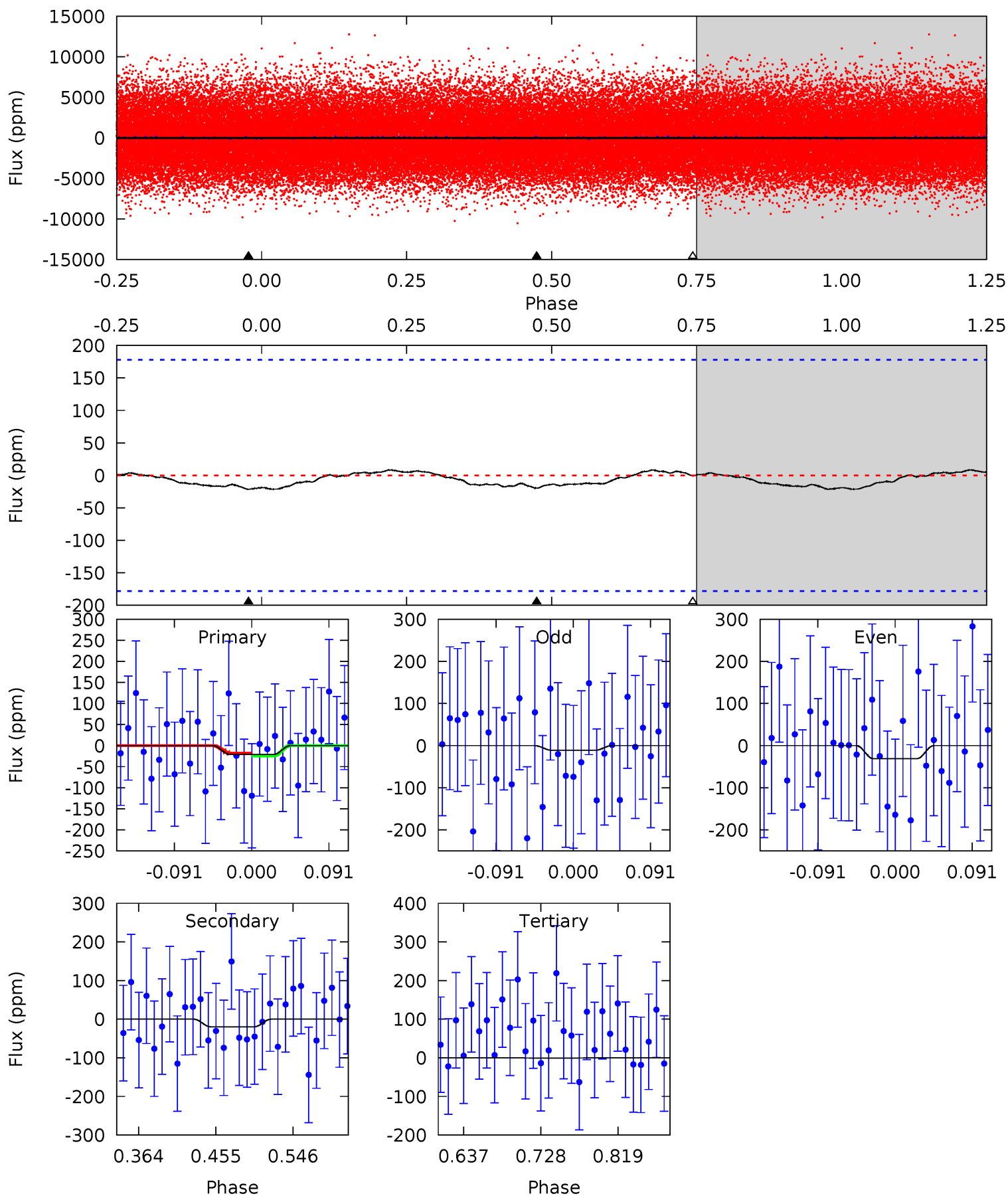
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.34	5.42	0	0	4.42	1.29	0.53	6.34	6.34	5.42	5.42	0.41	1.01	0.07	0.69



Alt Model-Shift Uniqueness Test

011656492-01, P = 1.545976 Days, E = 130.252261 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.55	0.51	0.02	0	4.58	1.69	0.17	0.53	0.55	0.49	0.51	0.26	0.71	0.28	0.09



Stellar Parameters For KIC 011656492

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8552^{+235}_{-404}	$3.921^{+0.266}_{-0.143}$	$0.070^{+0.200}_{-0.550}$	$2.691^{+0.786}_{-0.961}$	$2.201^{+0.326}_{-0.605}$	$0.159^{+0.291}_{-0.067}$
	+3%/-5%	+7%/-4%	+286%/-786%	+29%/-36%	+15%/-27%	+183%/-42%
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 011656492-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-55 ± 10	$2.40^{+1.52}_{-1.35}$	4607^{+392}_{-427}	7622^{+6083}_{-1782}	$5.912^{+25.625}_{-3.645}$
Alt.	-20 ± 39	$1.84^{+1.45}_{-1.13}$	4569^{+366}_{-398}	6108^{+6743}_{-12521}	$2.763^{+23.201}_{-5.625}$

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

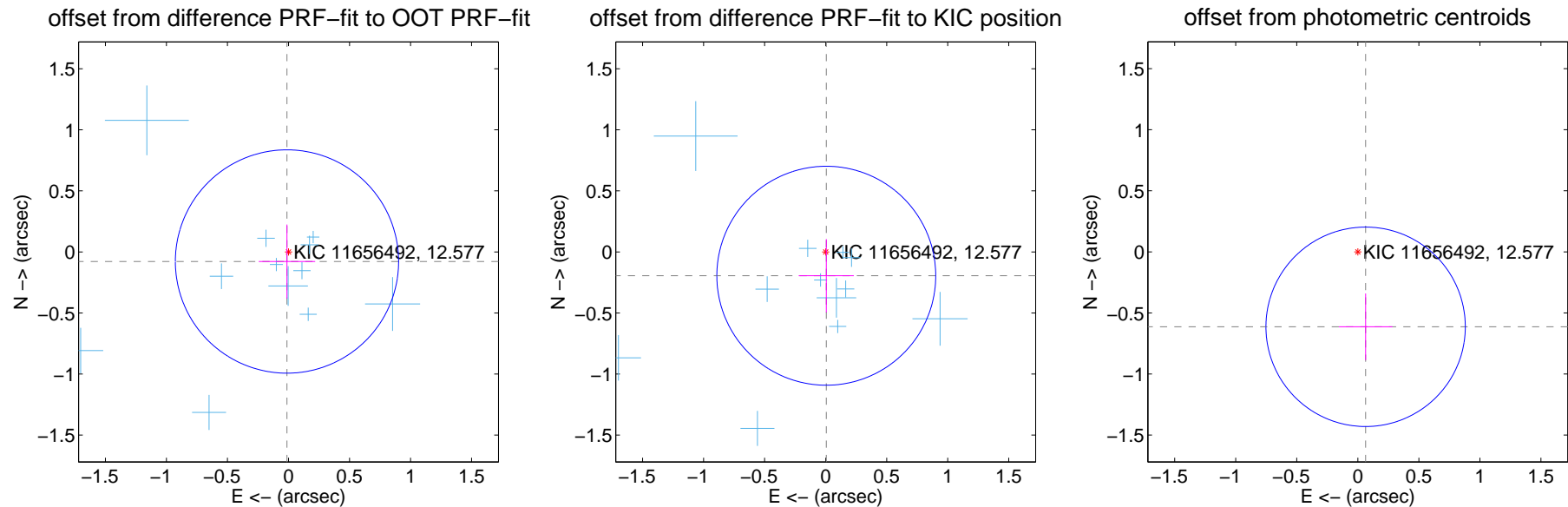
DV Centroid Data

Supplemental centroid analysis for 011656492-01. Kepler magnitude: 12.58. Transit SNR 9.18

There are 14 quarters with good PRF difference image offsets

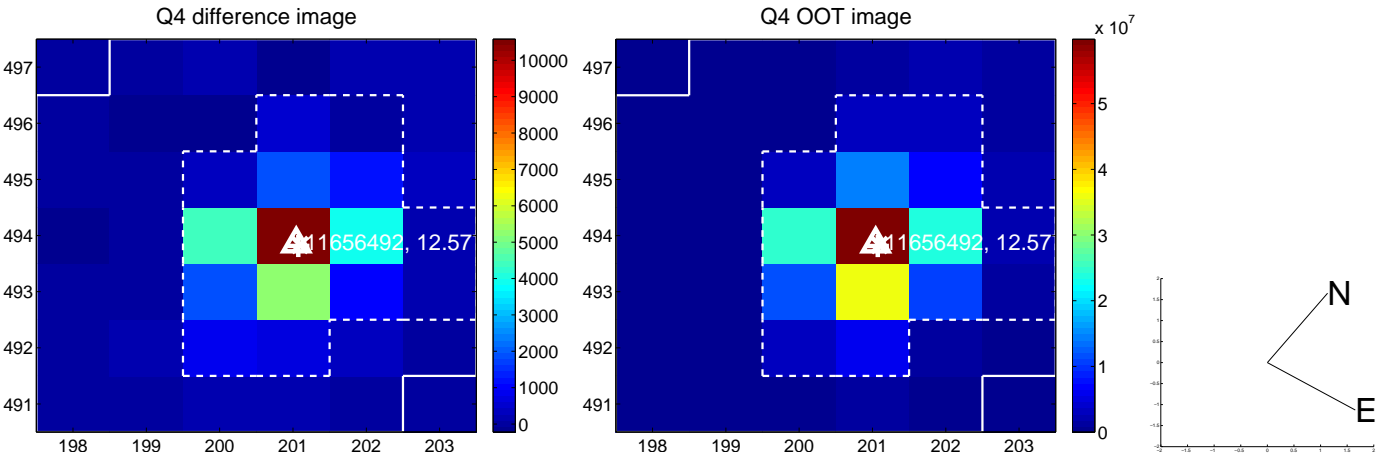
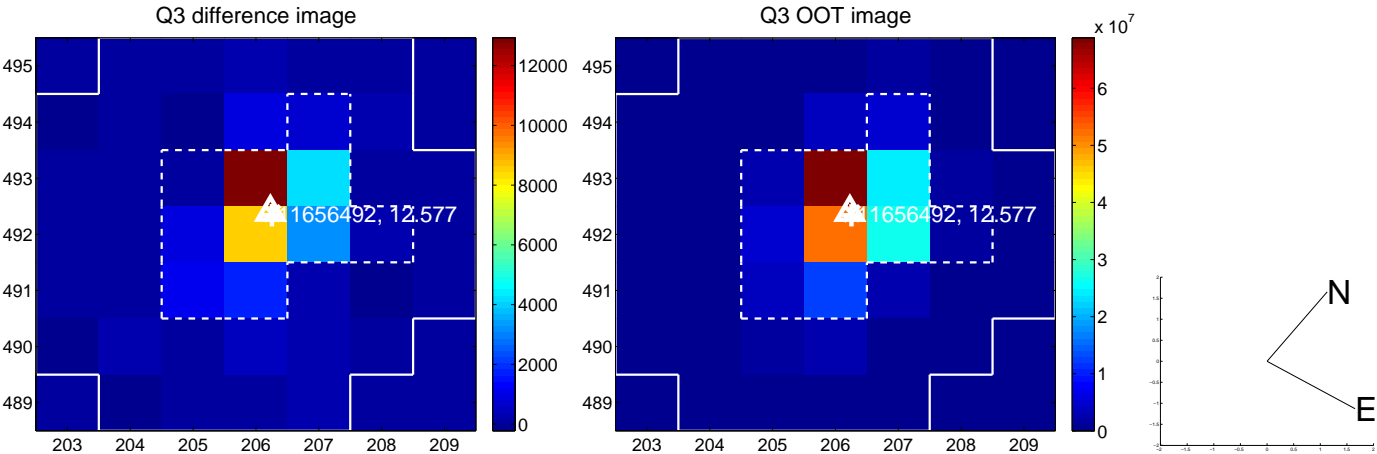
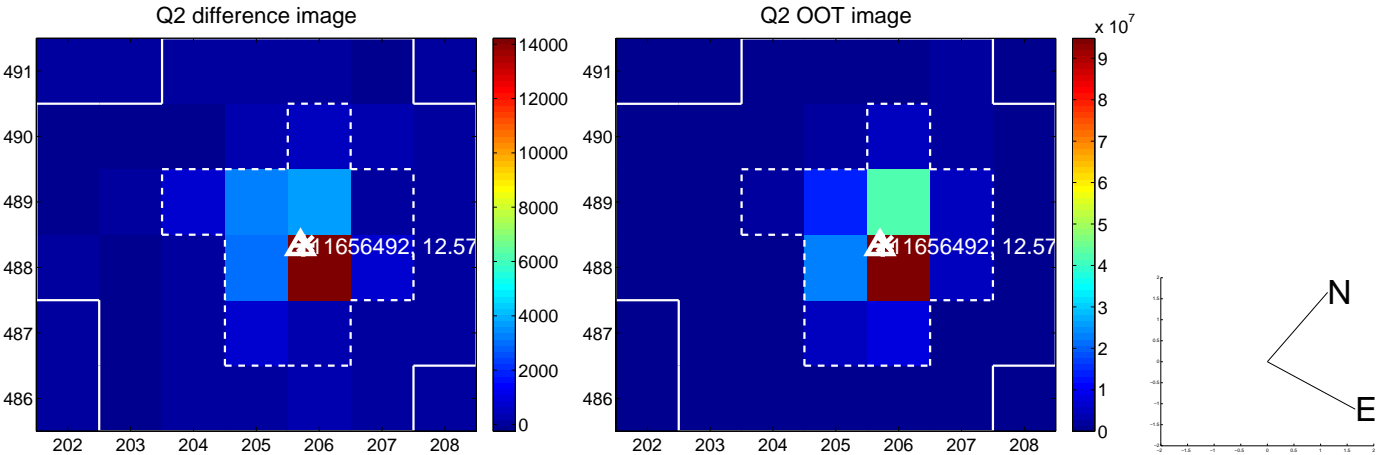
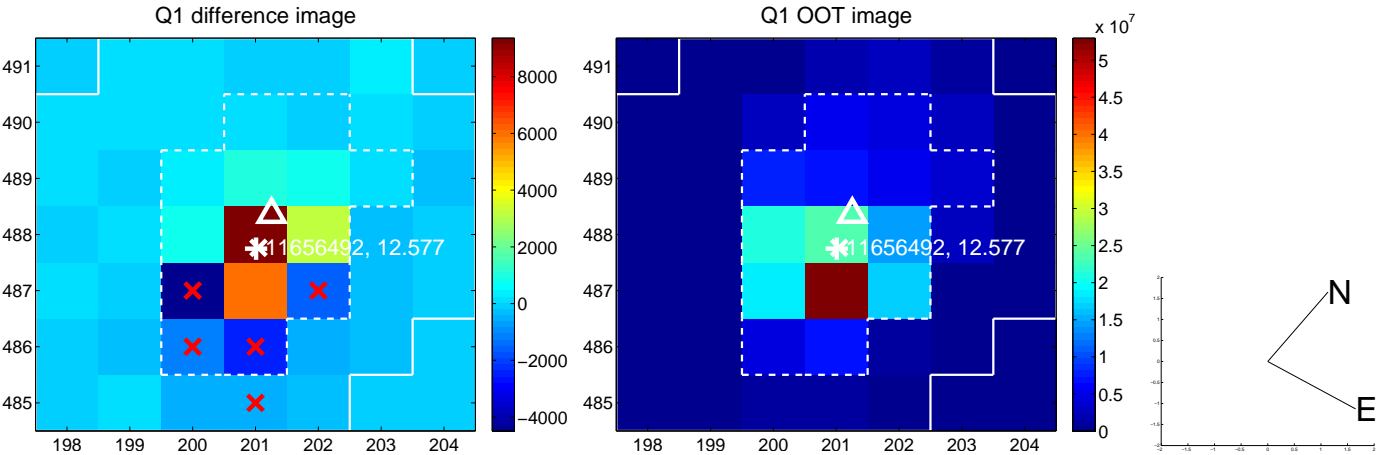
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.080 ± 0.305	0.26	0.012 ± 0.231	-0.079 ± 0.303
PRF-fit source offset from KIC position	0.195 ± 0.299	0.65	-0.005 ± 0.226	-0.195 ± 0.300
photometric centroid source offset	0.62 ± 0.27	2.27	-0.06 ± 0.22	-0.61 ± 0.27

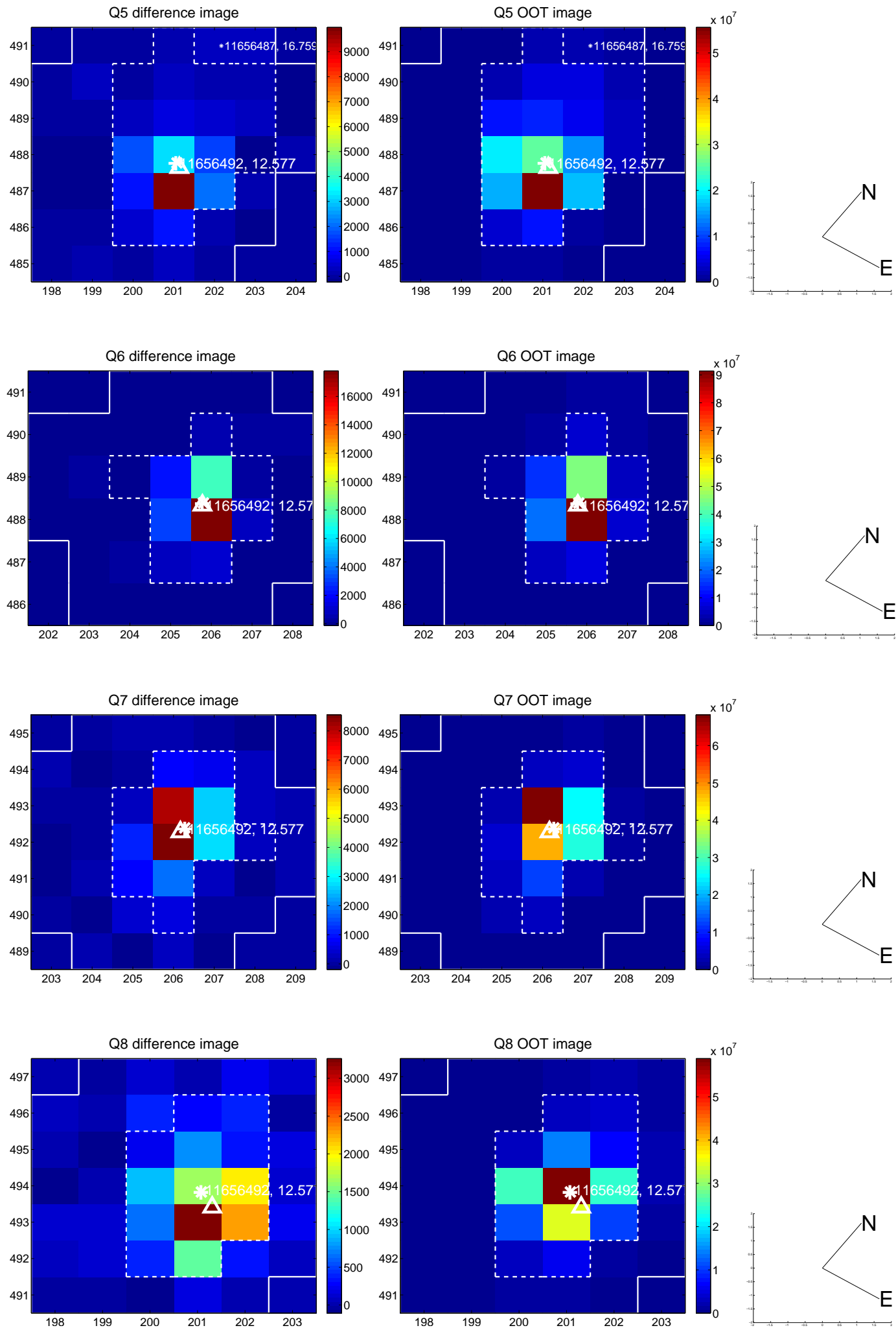


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

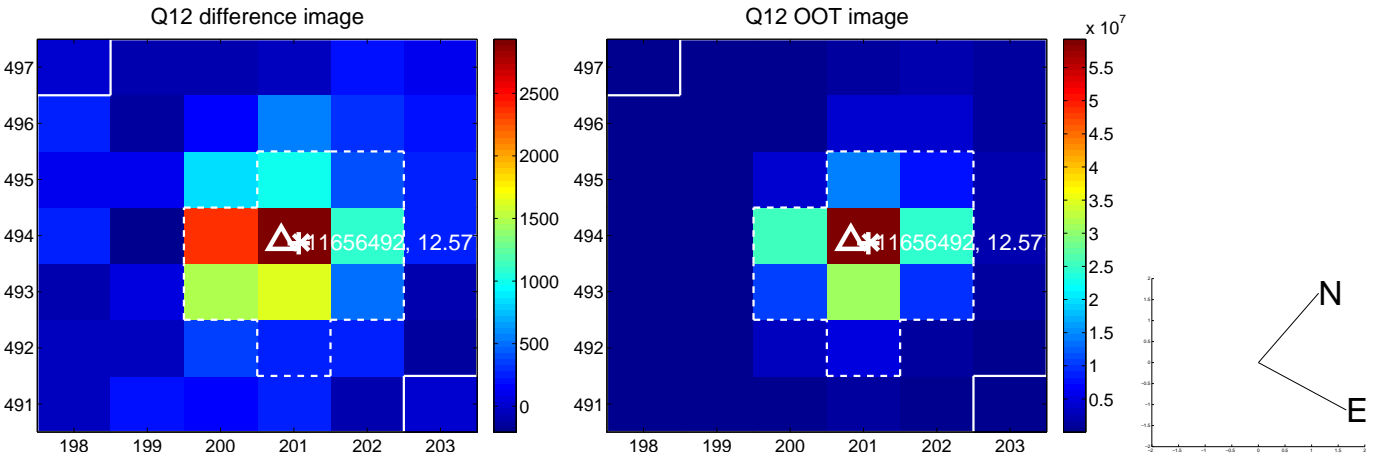
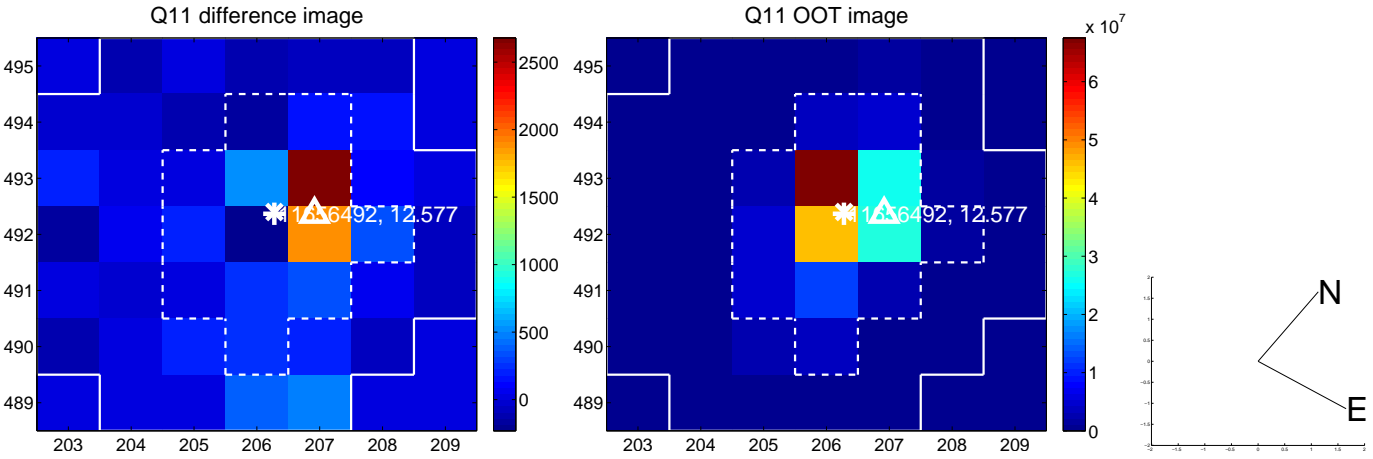
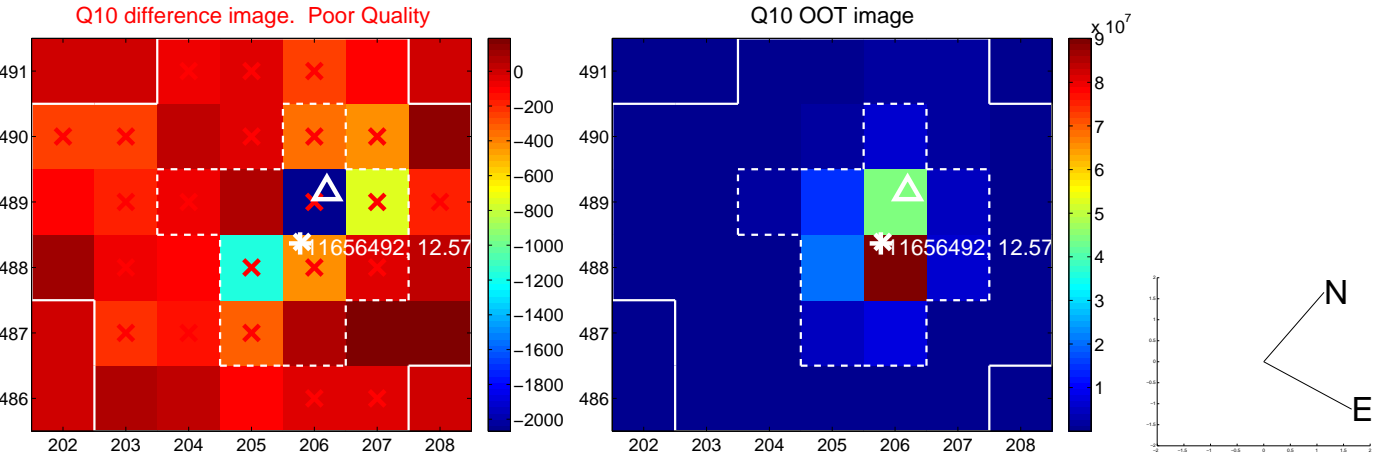
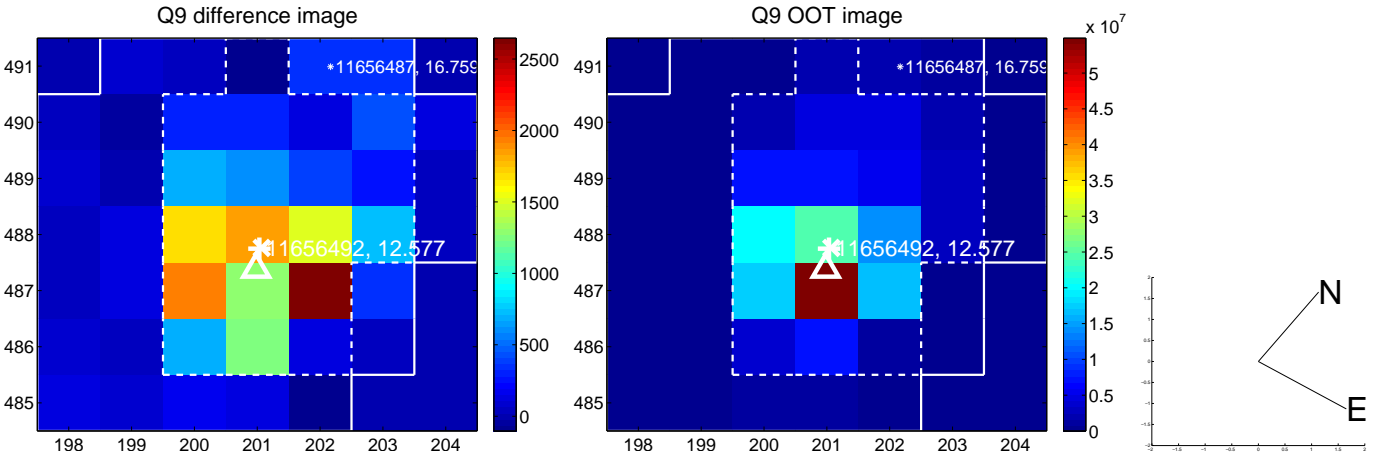
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



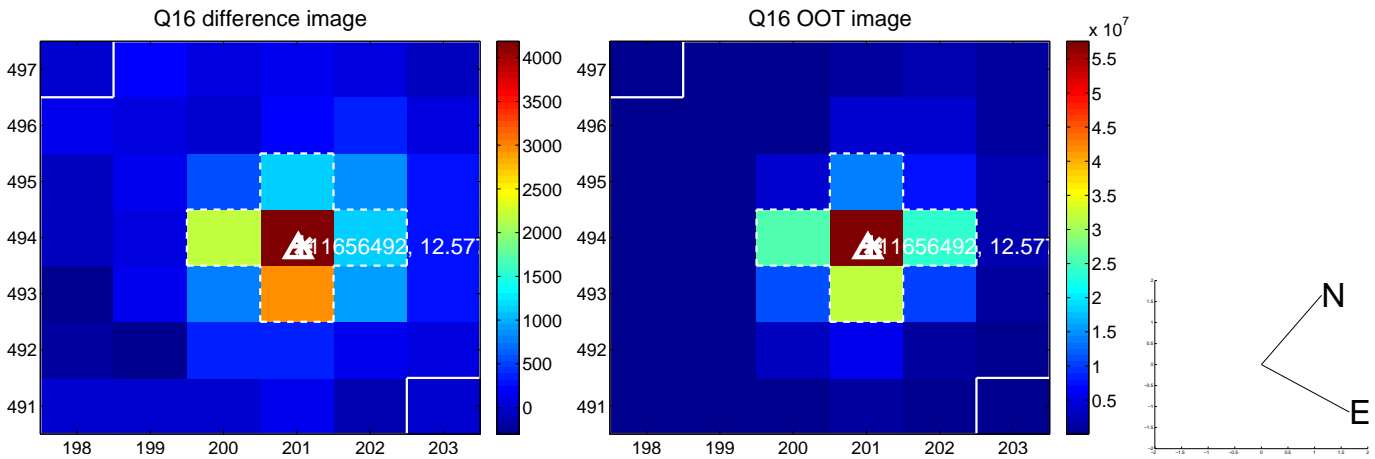
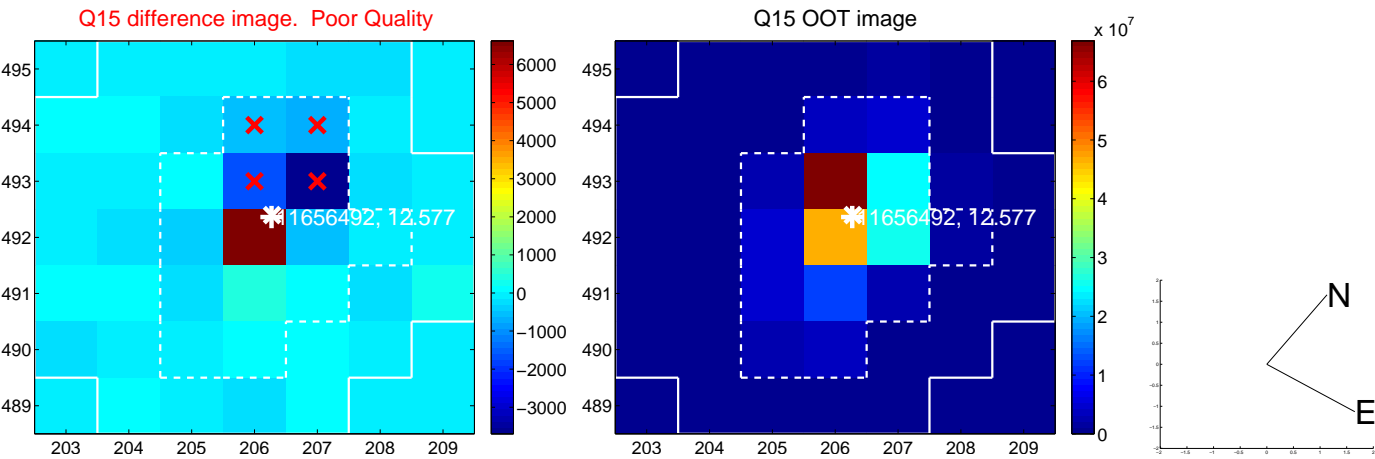
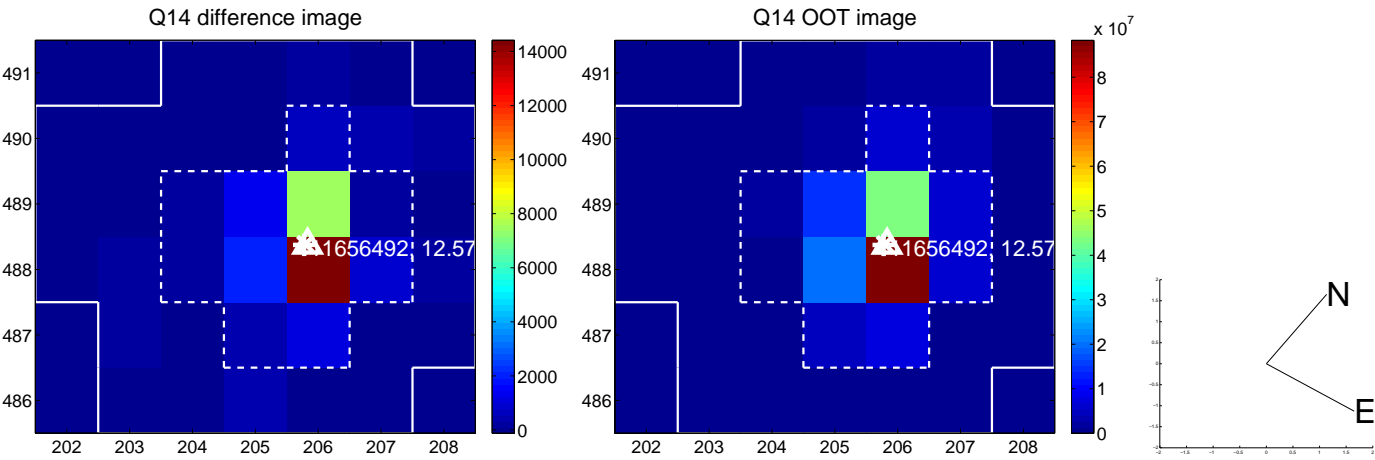
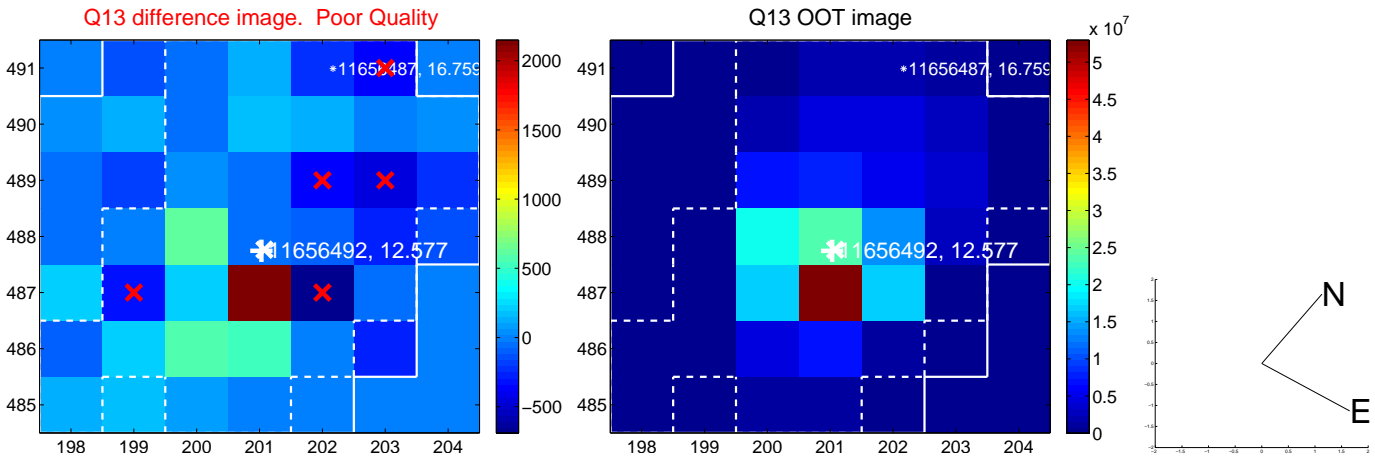
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



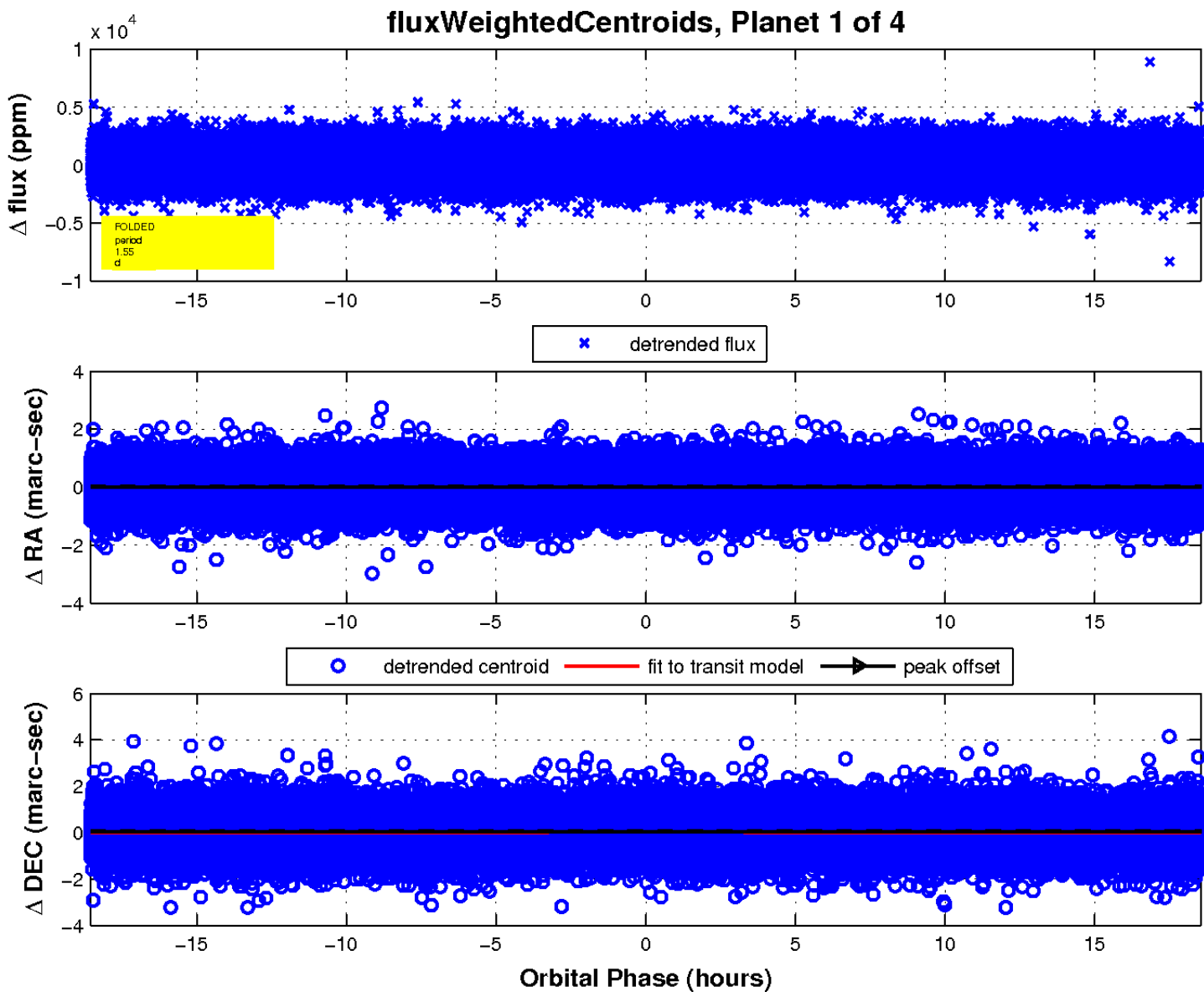
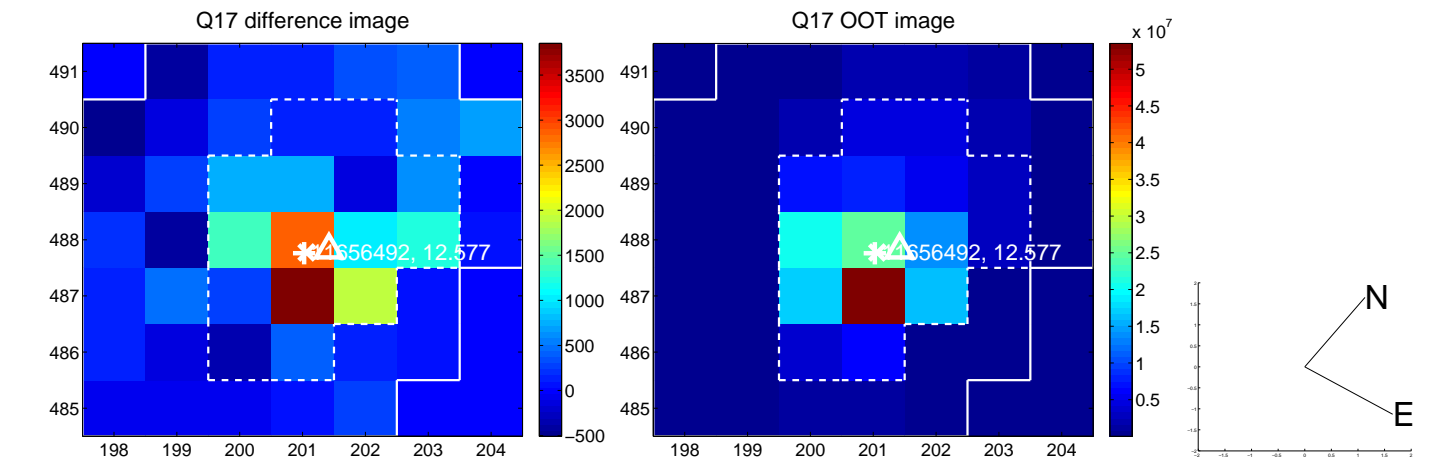
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

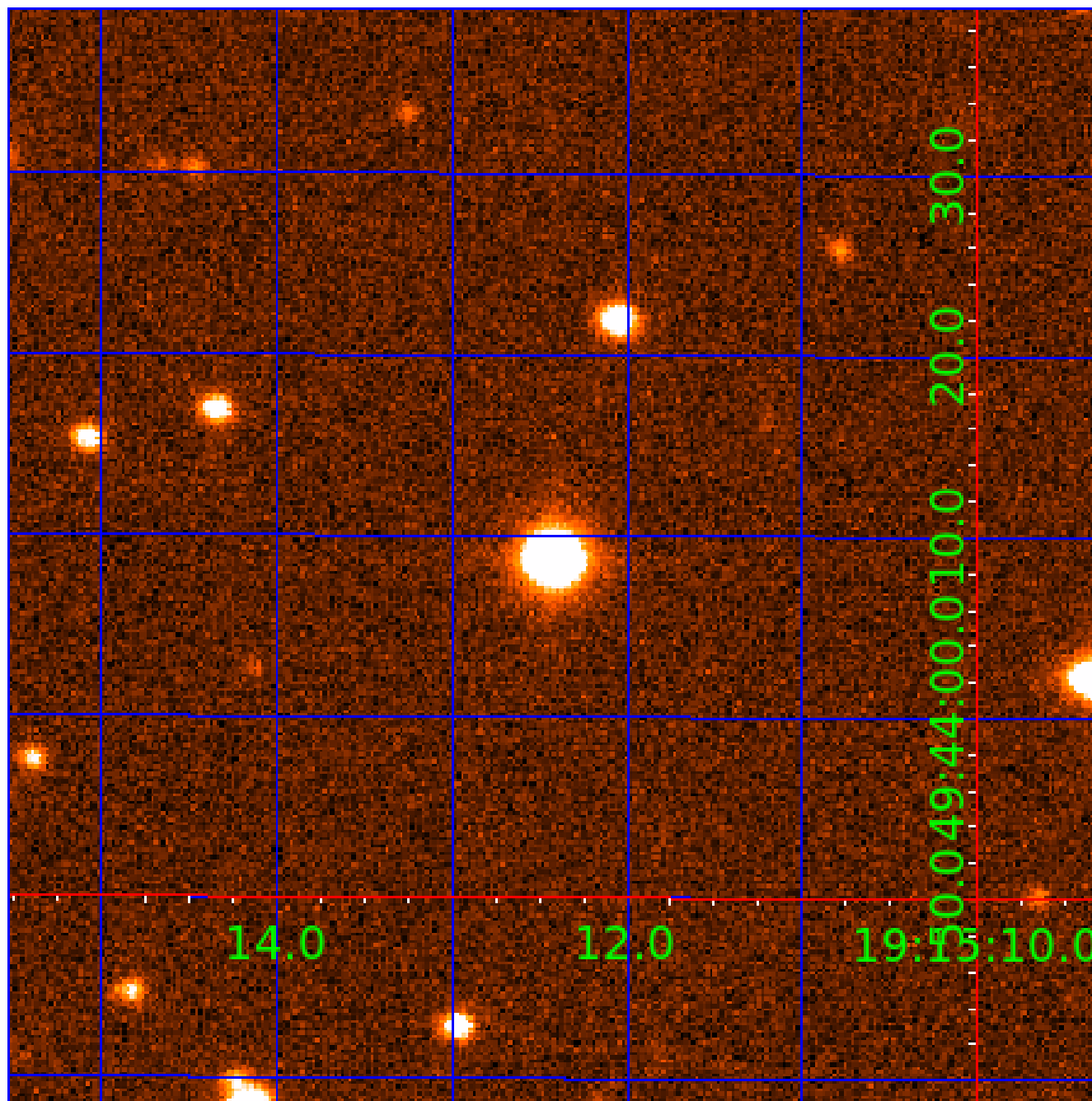


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011656492

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})
011656492-01	OBS	No	1.545978	131.751021	65.1	6.840	8.9	9.2	2.69	8552	2.49	29934.36
011656492-02	OBS	No	0.727870	131.721749	262.0	2.562	14.3	14.3	2.69	8552	5.05	81727.67
011656492-03	OBS	No	0.727915	132.207351	538.7	1.978	15.0	22.6	2.69	8552	7.25	81721.01
011656492-04	OBS	No	0.727907	131.954944	179.6	2.000	16.8	-1.0	2.69	8552	3.67	81722.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011656492-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT
011656492-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011656492-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
011656492-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS

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

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

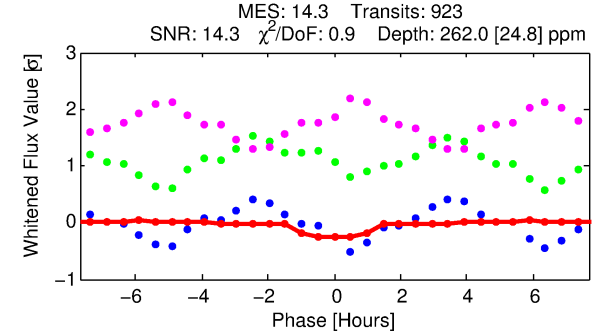
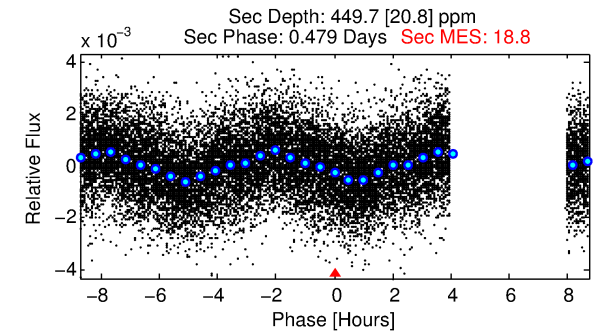
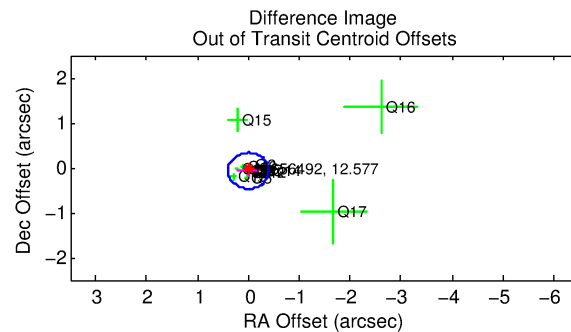
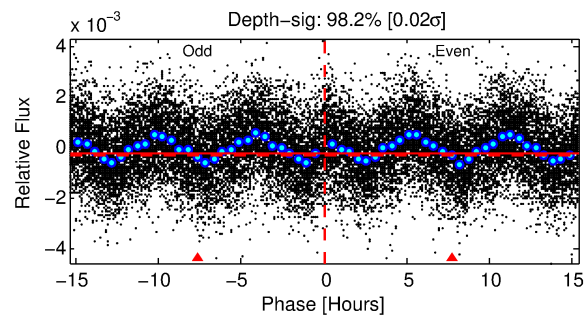
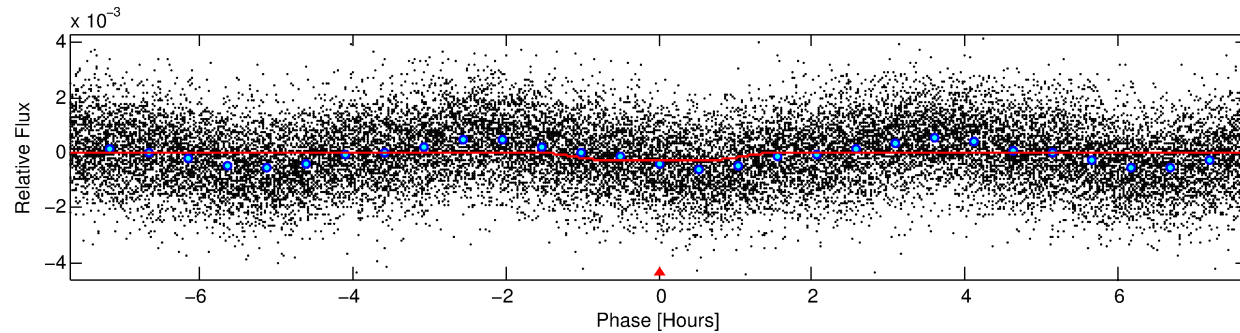
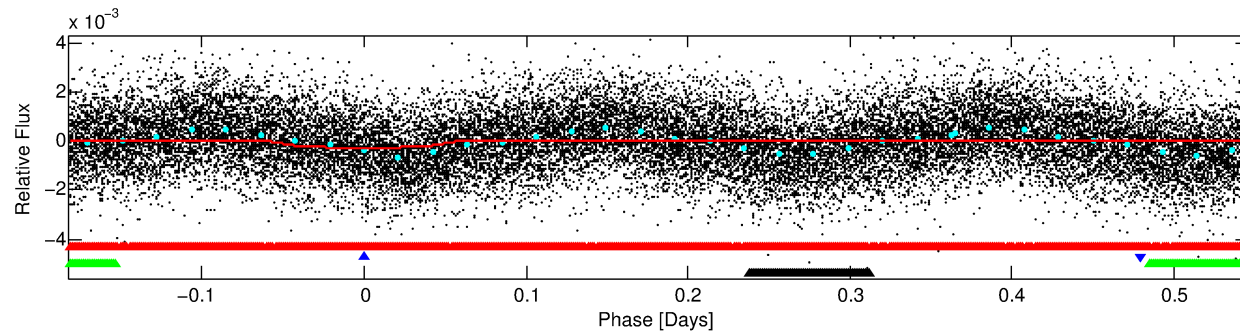
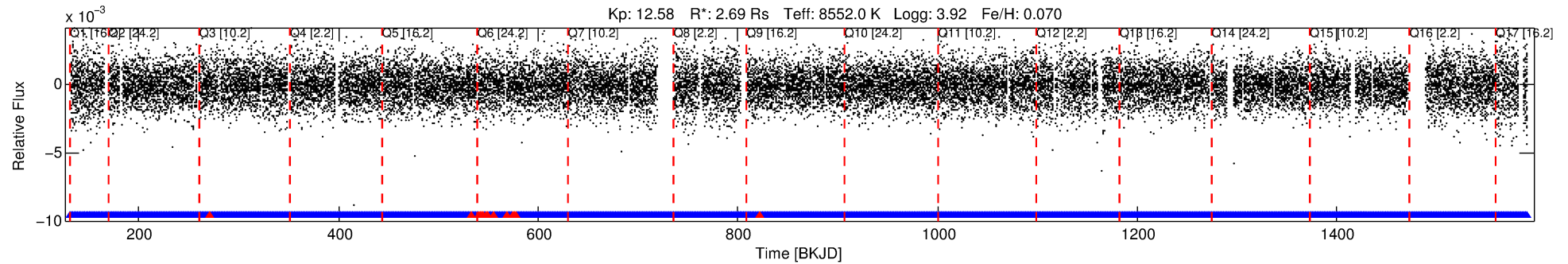
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011656492-02

No Significant Match Found

DV One-Page Summary

KIC: 11656492 Candidate: 2 of 4 Period: 0.728 d



DV Fit Results:

Period = 0.72787 [0.00001] d
Epoch = 131.7217 [0.0026] BKJD
Rp/R* = 0.0172 [0.0047]
a/R* = 1.39 [1.19]
b = 0.90 [0.37]
Seff = 81727.67 [41602.26]
Teq = 4311 [549] K
Rp = 5.05 [2.27] Re
a = 0.0206 [0.0065] AU
Ag = 4.11 [2.97] [1.05σ]
Teffp = 9493 [1370] K [3.51σ]

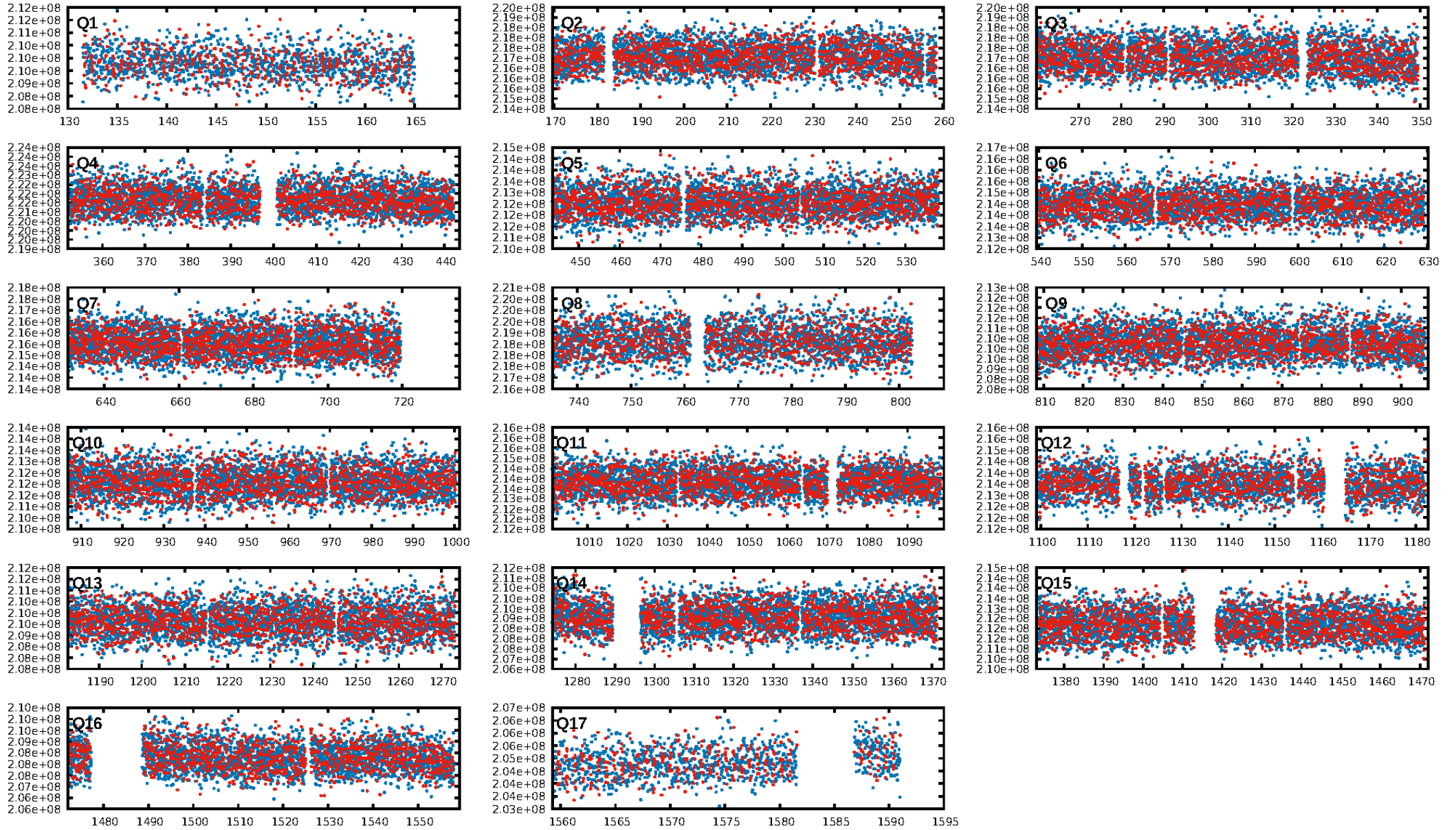
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [868/882]
GhostDiagnostic-chr: 5.049
Centroid-sig: 0.0%
Centroid-so: 0.152 arcsec [2.08σ]
OotOffset-rm: 0.067 arcsec [0.50σ]
KicOffset-rm: 0.180 arcsec [1.32σ]
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]

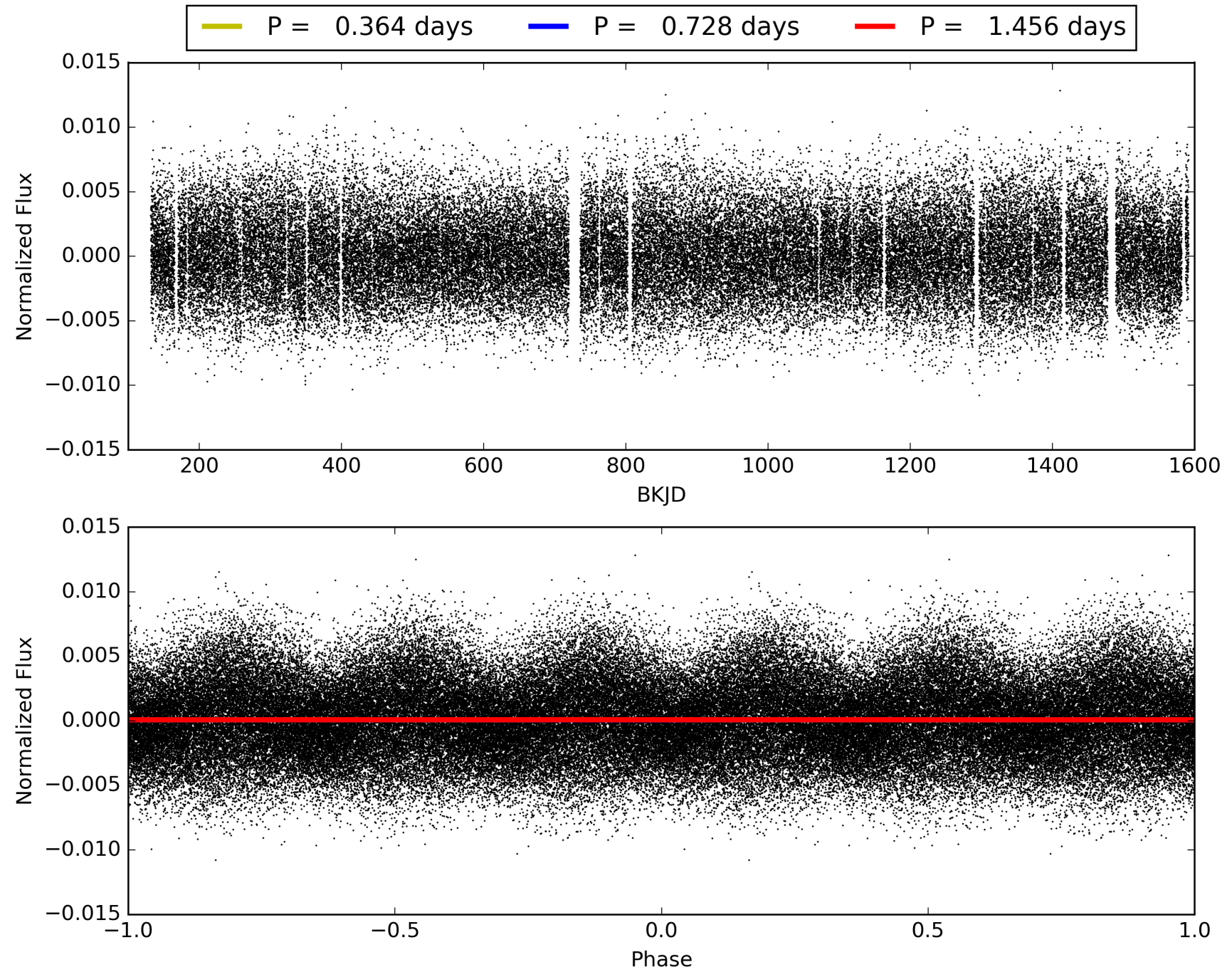
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:34:24 Z

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

TCE 011656492-02, PDC Light Curves

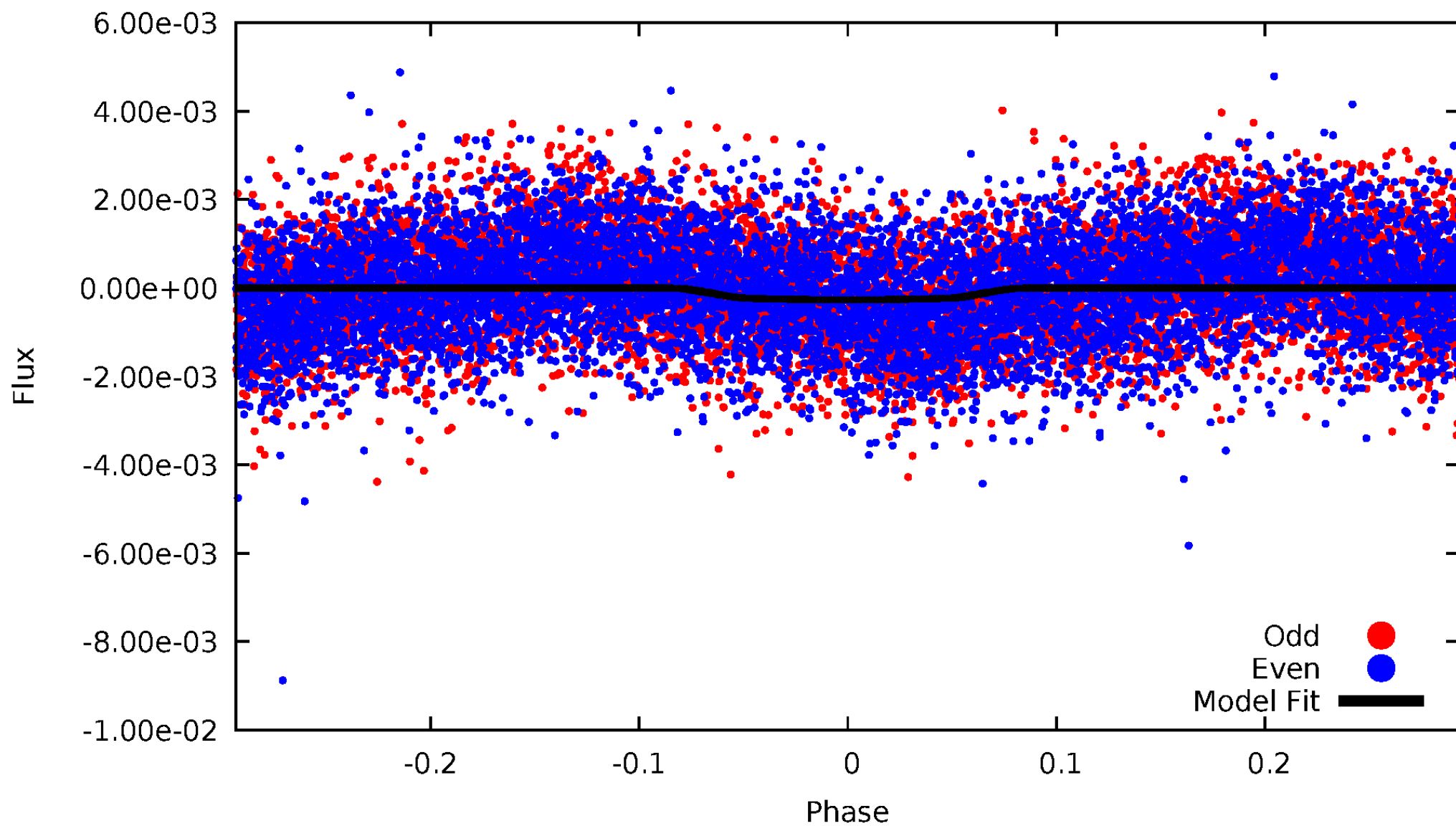


TCE 011656492-02



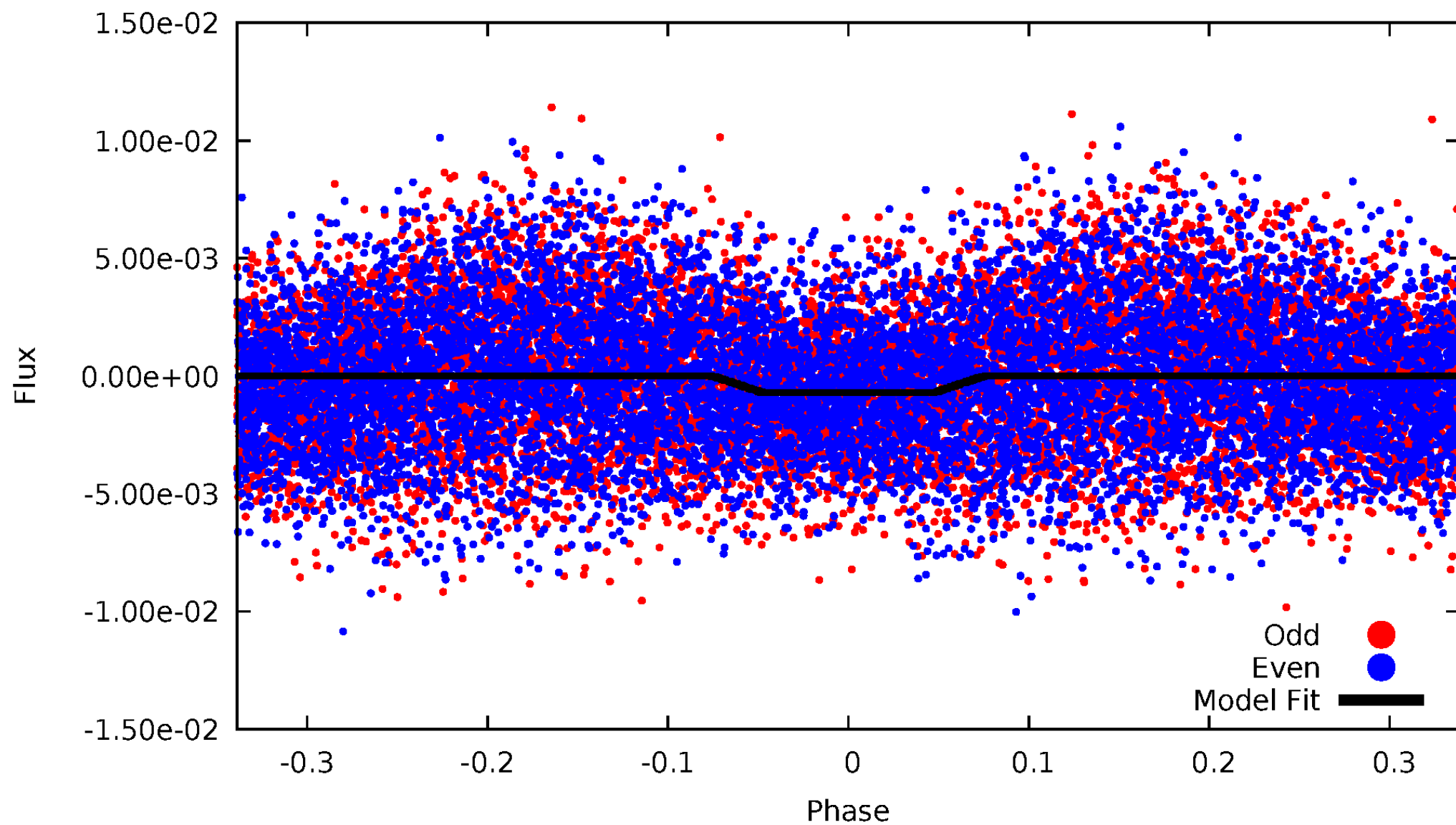
DV Odd/Even

TCE 011656492-02



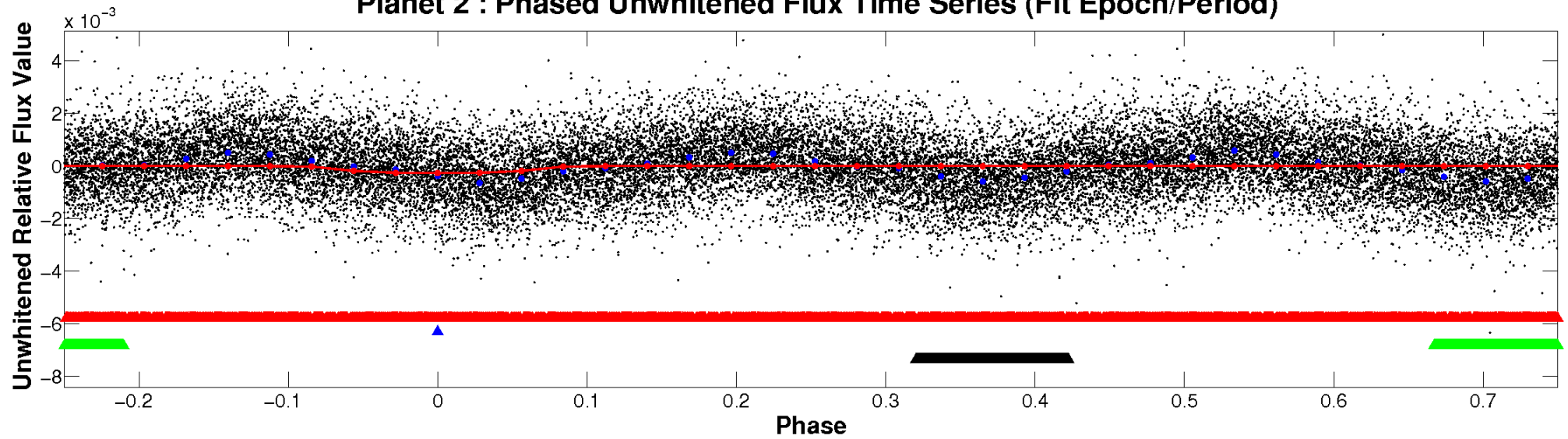
ALT Odd/Even

TCE 011656492-02

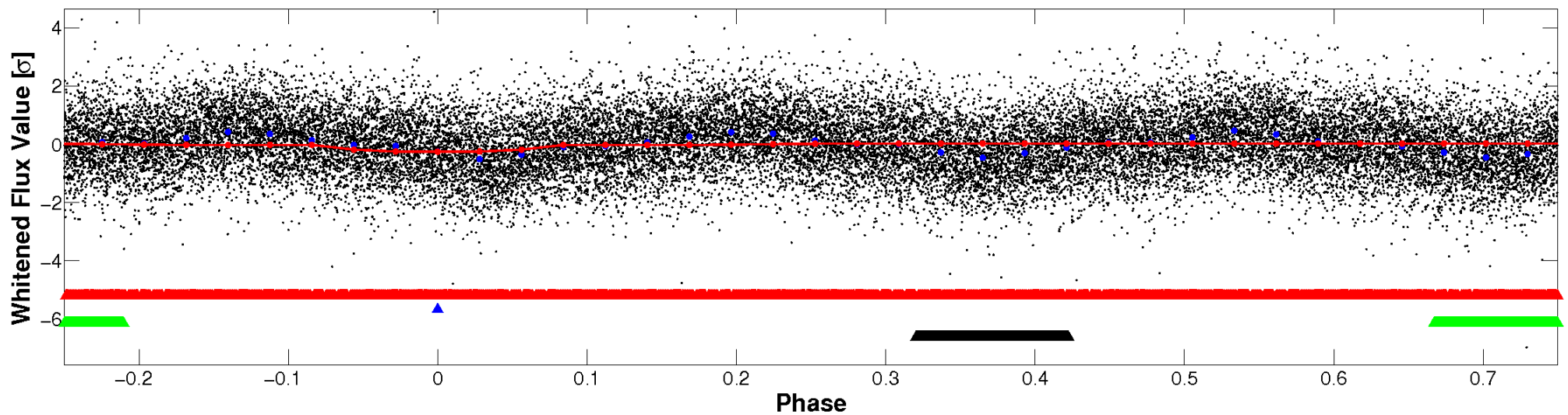


Non-Whitened Vs. Whitened Light Curve

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

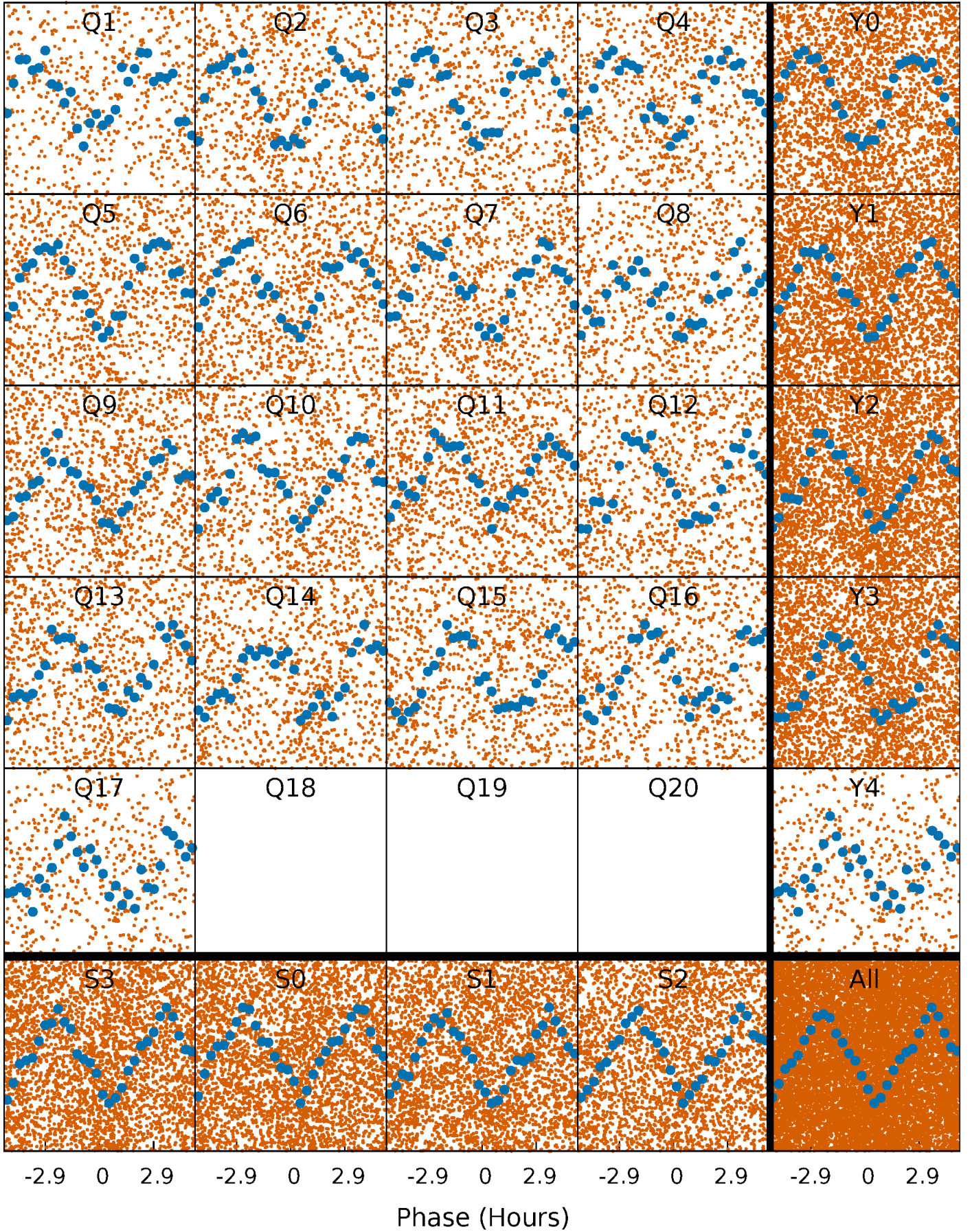


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



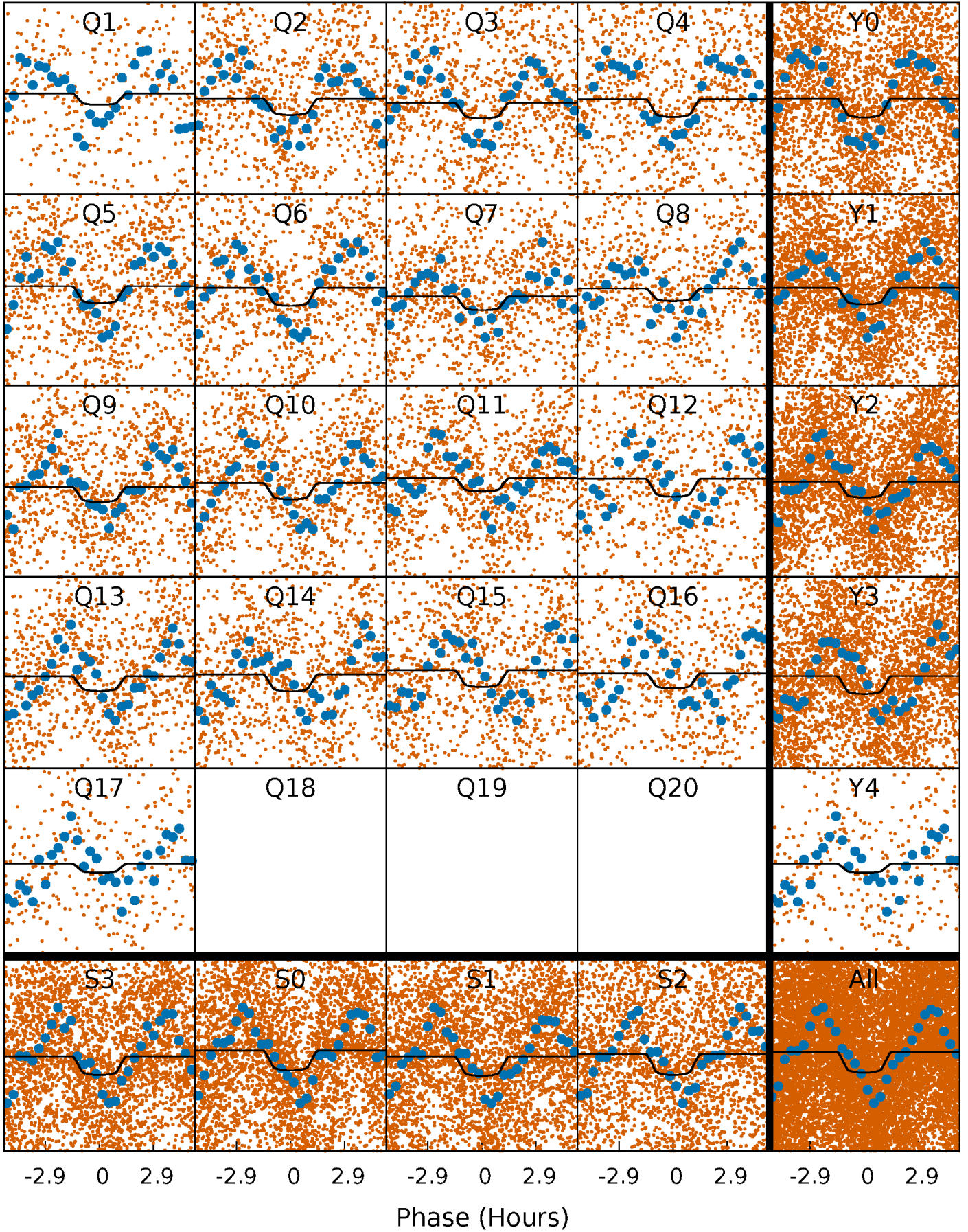
PDC Quarter-Phased Transit Curves

TCE 011656492-02 P= 0.727870 Days $T_0=131.721749$ (BKJD)



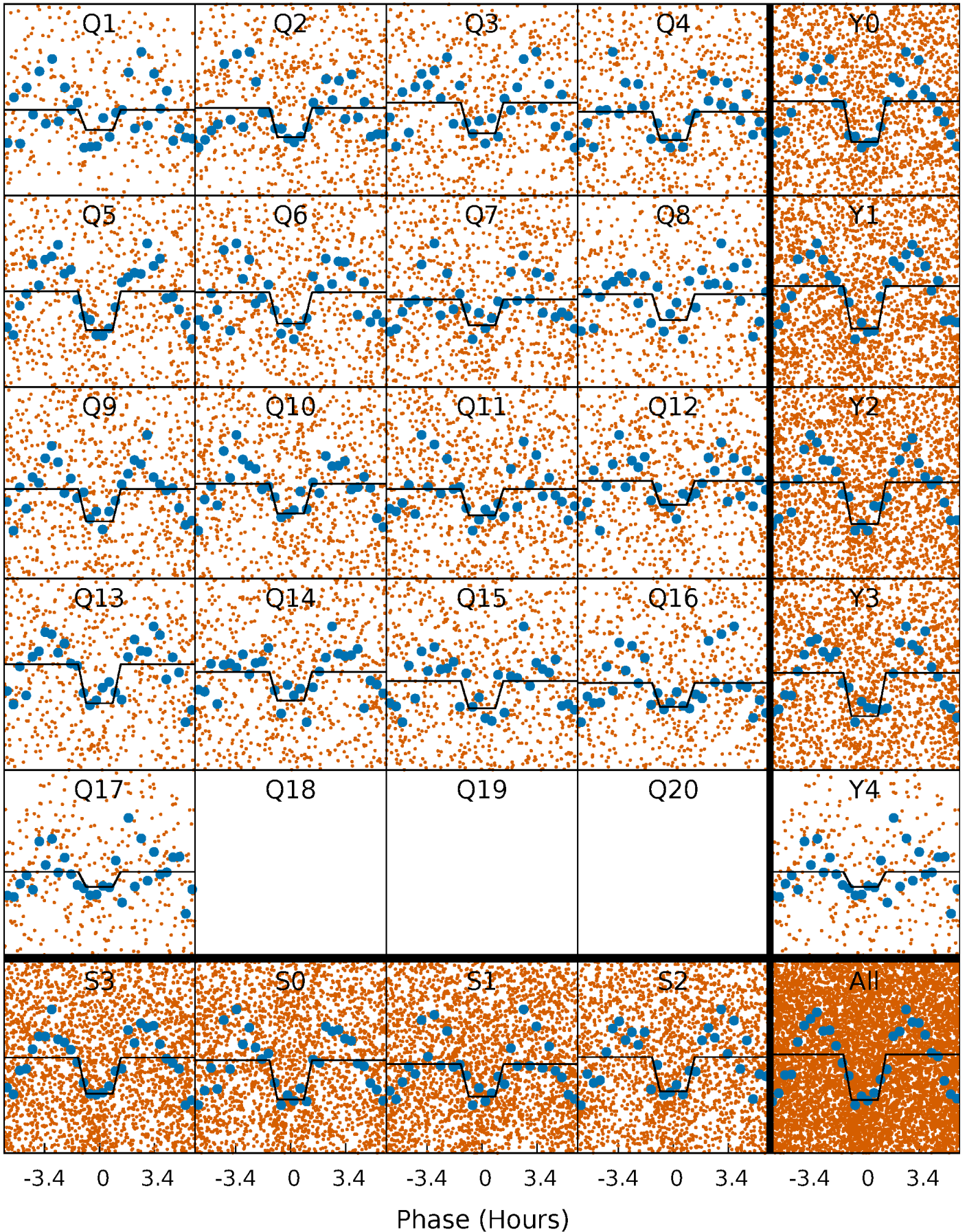
DV Quarter-Phased Transit Curves

TCE 011656492-02 P= 0.727870 Days $T_0=131.721749$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

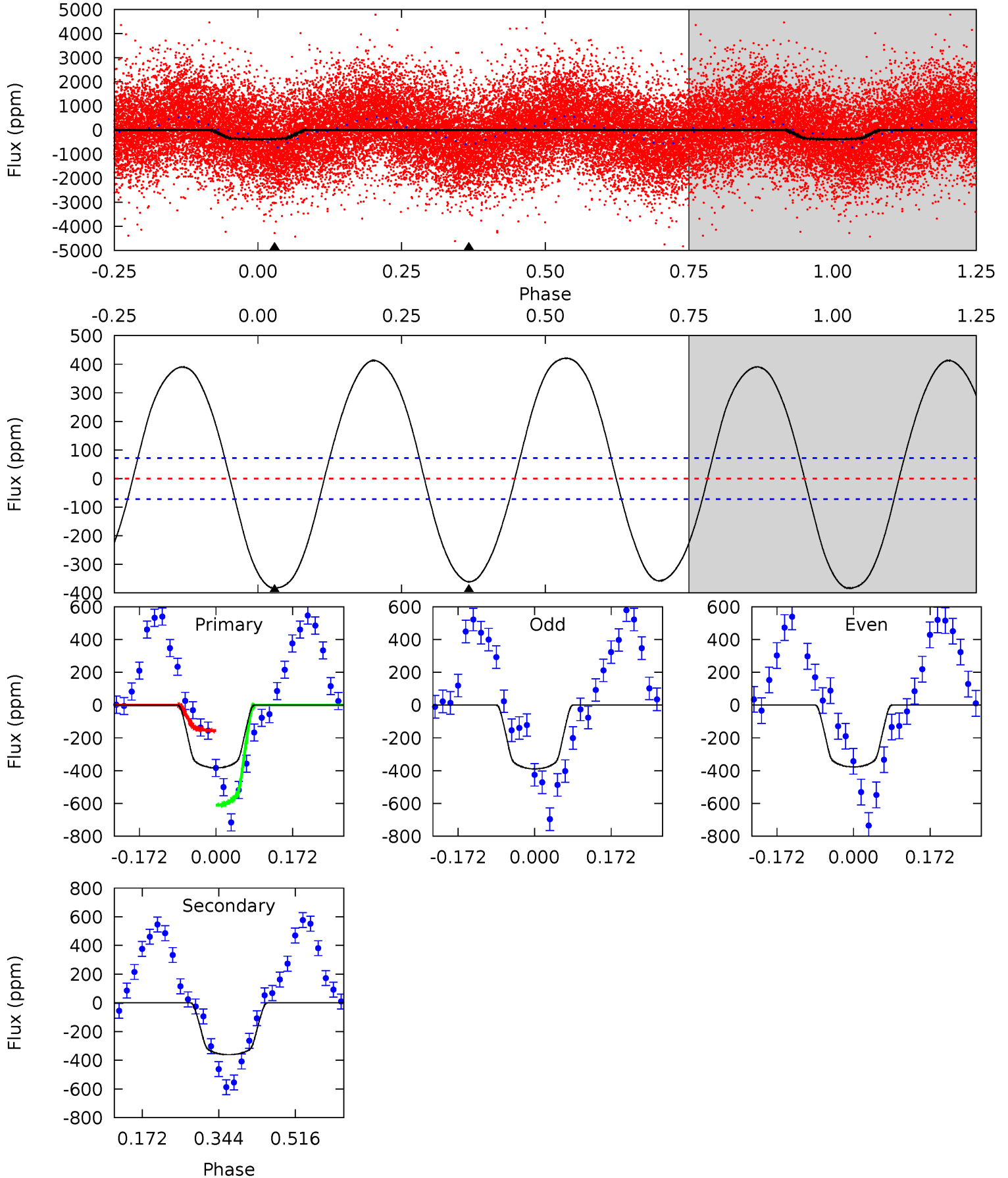
TCE 011656492-02 P= 0.727907 Days $T_0=131.713863$ (BKJD)



DV Model-Shift Uniqueness Test

011656492-02, P = 0.727870 Days, E = 131.721749 Days

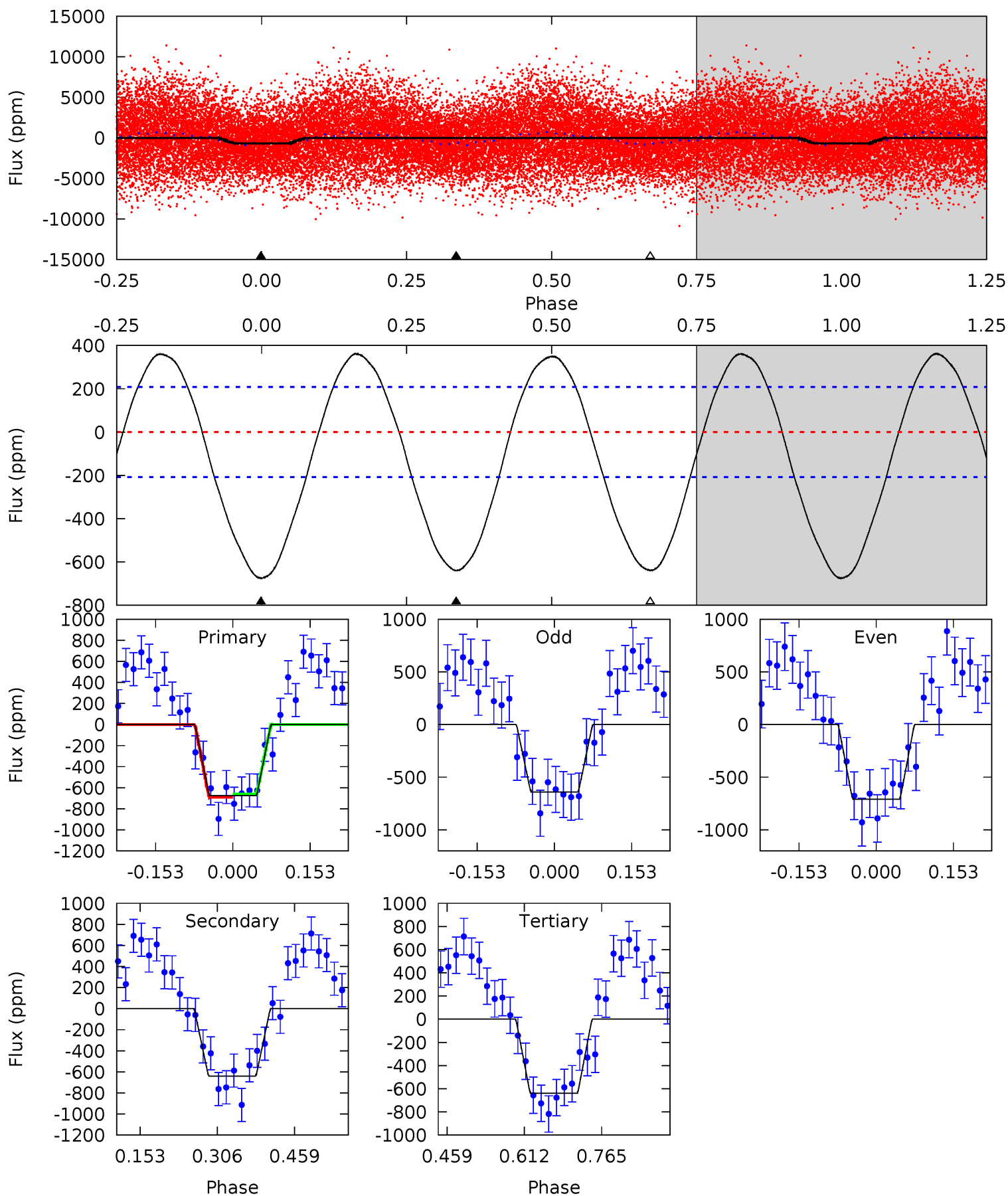
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.8	22.4	0	0	4.45	1.37	17.0	23.8	23.8	22.4	22.4	0.37	1.01	0.52	14.5



Alt Model-Shift Uniqueness Test

011656492-02, P = 0.727907 Days, E = 131.713863 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	13.8	13.7	0	4.47	1.43	7.91	0.77	14.5	0.02	13.8	0.72	0.99	0.35	0.35



Stellar Parameters For KIC 011656492

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8552^{+235}_{-404}	$3.921^{+0.266}_{-0.143}$	$0.070^{+0.200}_{-0.550}$	$2.691^{+0.786}_{-0.961}$	$2.201^{+0.326}_{-0.605}$	$0.159^{+0.291}_{-0.067}$
	+3%/-5%	+7%/-4%	+286%/-786%	+29%/-36%	+15%/-27%	+183%/-42%
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 011656492-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-361 ± 16	$4.80^{+1.77}_{-1.50}$	5883^{+484}_{-525}	8708^{+2775}_{-1361}	$3.552^{+4.080}_{-1.585}$
Alt.	-640 ± 47	$7.45^{+1.80}_{-1.69}$	5895^{+452}_{-533}	7848^{+1160}_{-862}	$2.658^{+1.658}_{-0.944}$

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

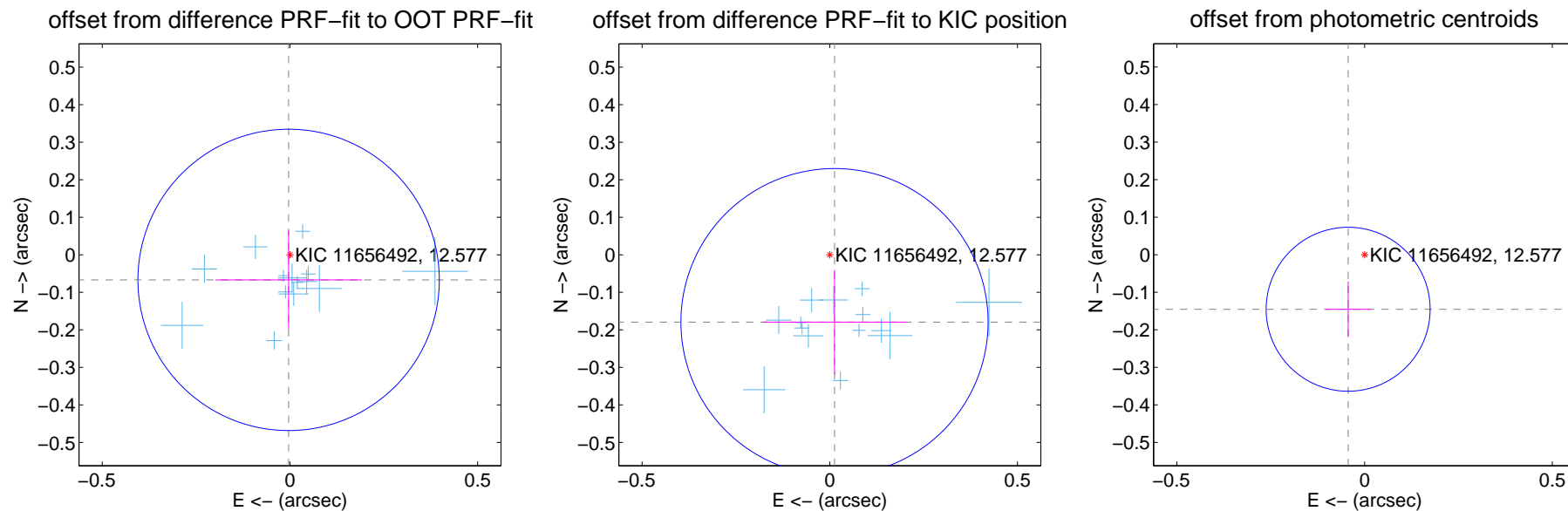
DV Centroid Data

Supplemental centroid analysis for 011656492-02. Kepler magnitude: 12.58. Transit SNR 14.35

There are 15 quarters with good PRF difference image offsets

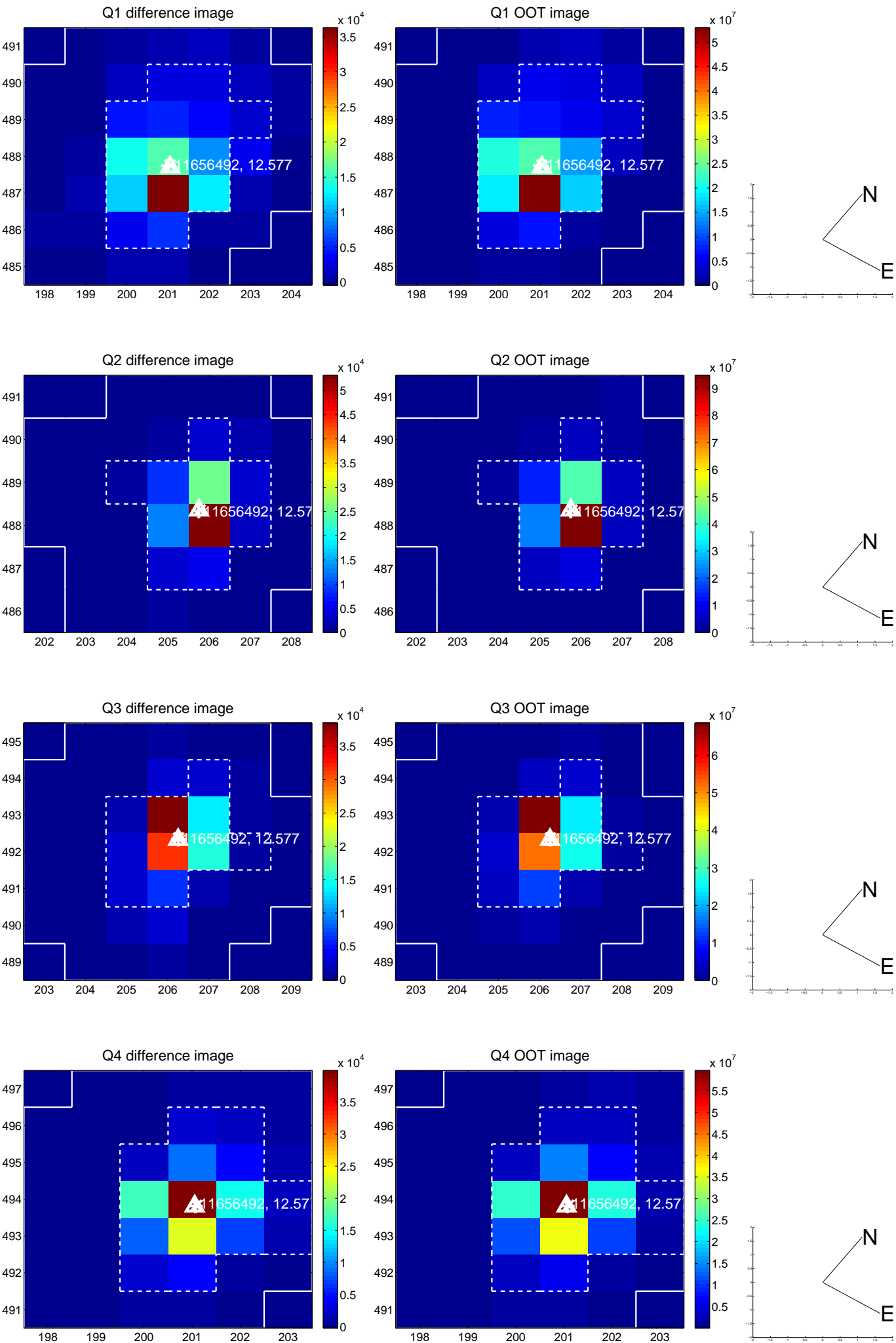
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.067 ± 0.134	0.50	0.004 ± 0.195	-0.067 ± 0.131
PRF-fit source offset from KIC position	0.180 ± 0.136	1.32	-0.013 ± 0.191	-0.179 ± 0.139
photometric centroid source offset	0.15 ± 0.07	2.08	0.04 ± 0.06	-0.15 ± 0.07

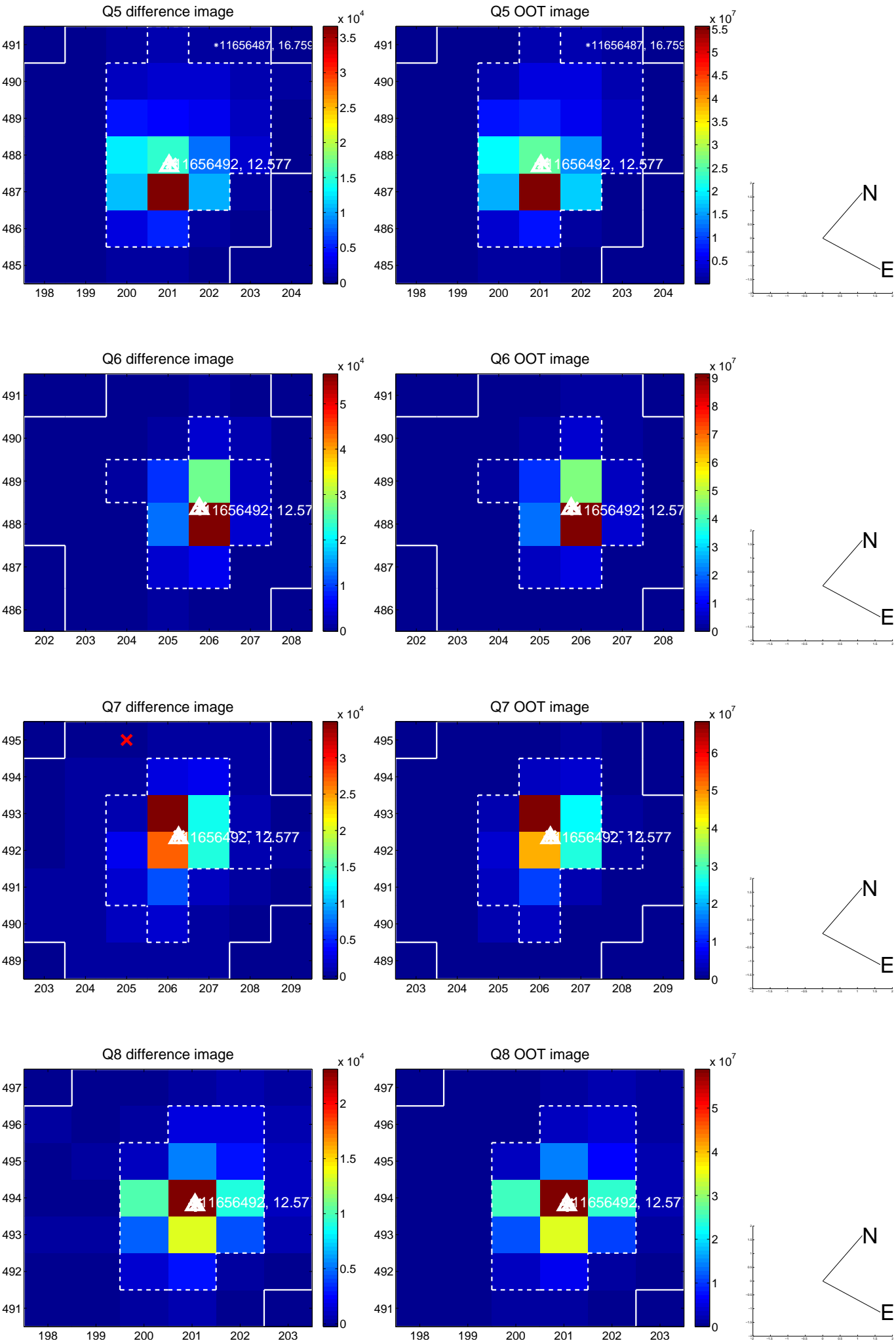


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

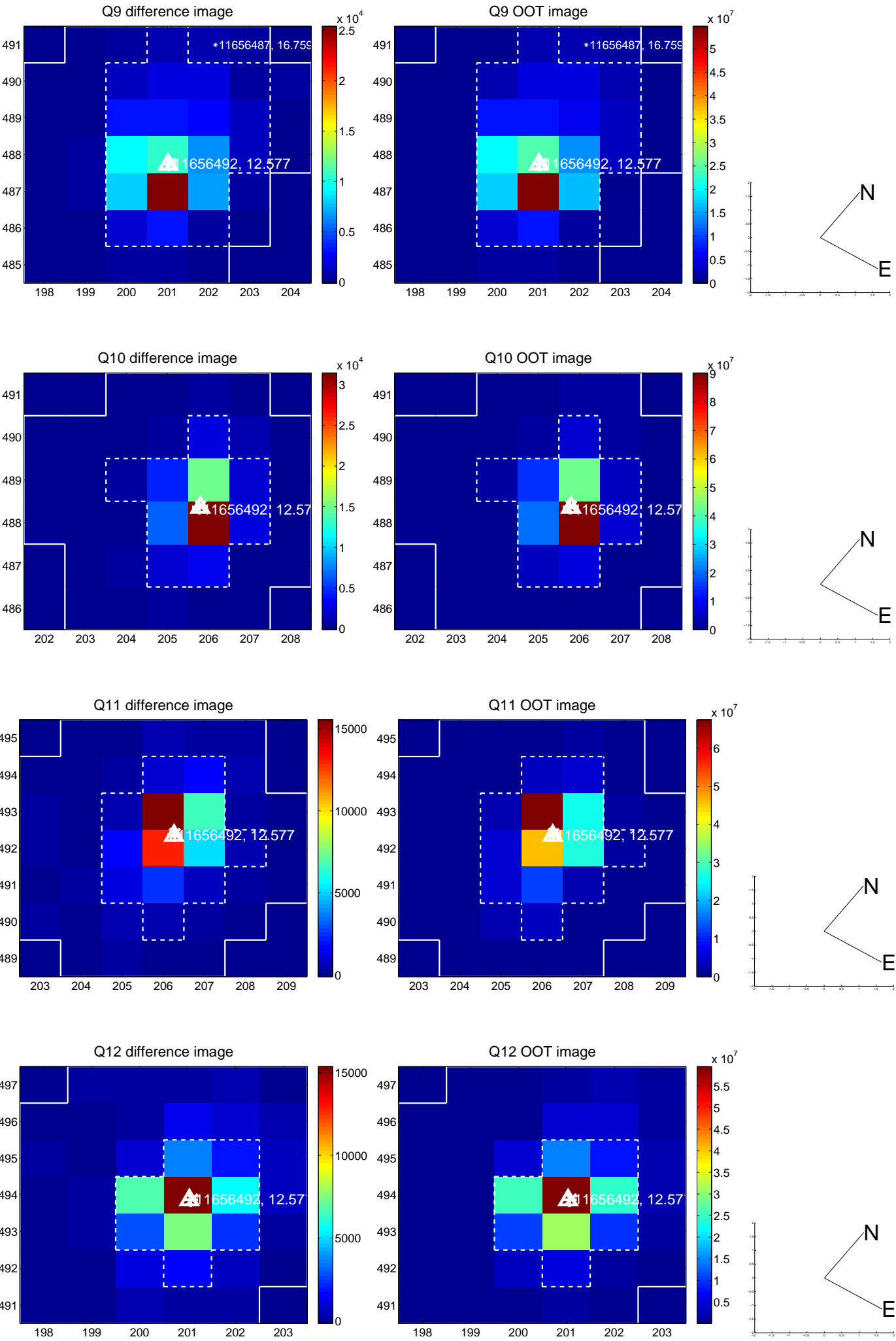
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



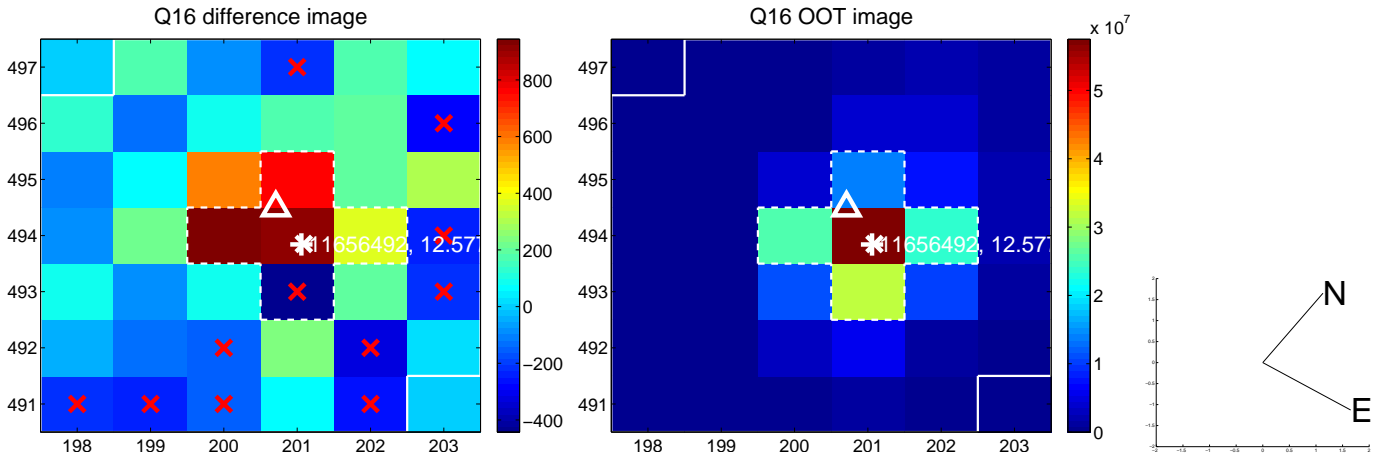
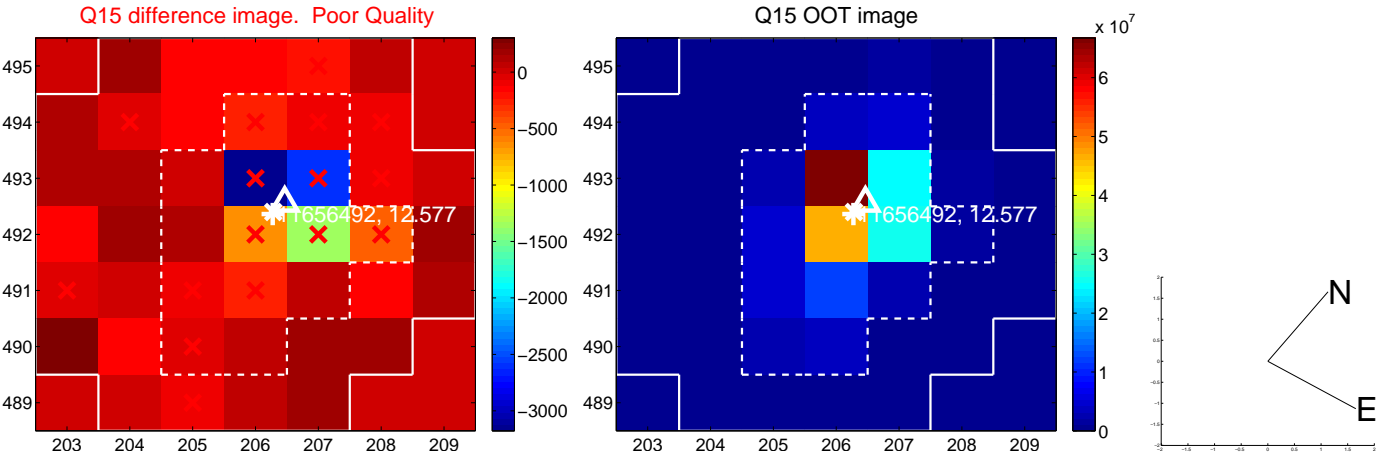
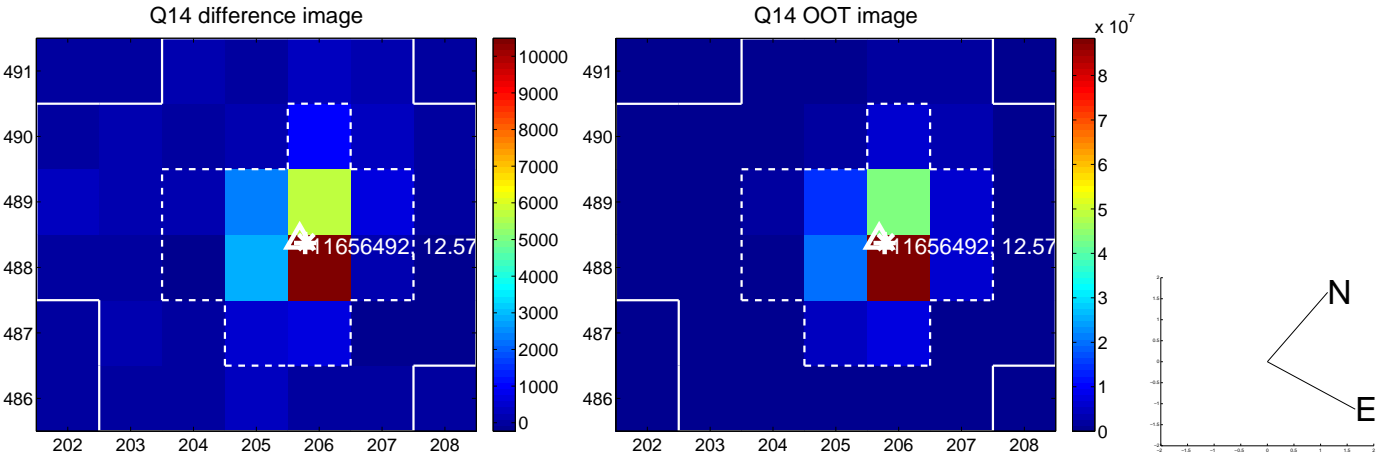
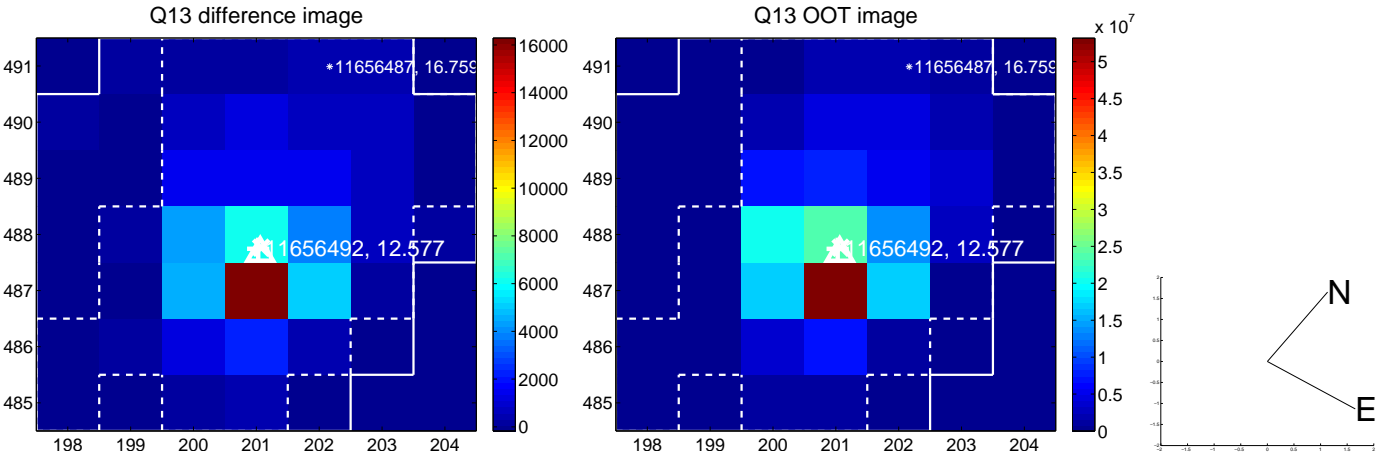
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



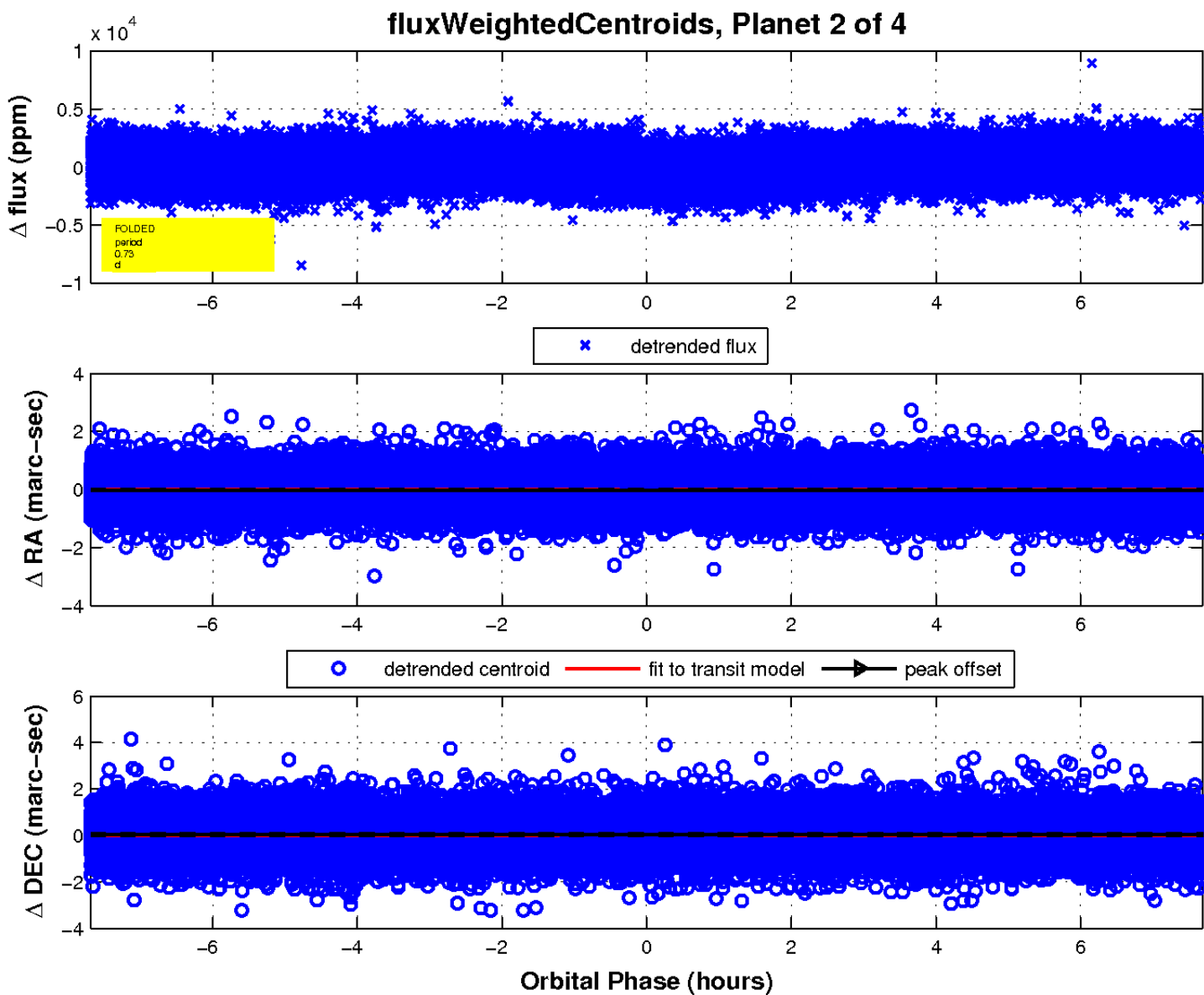
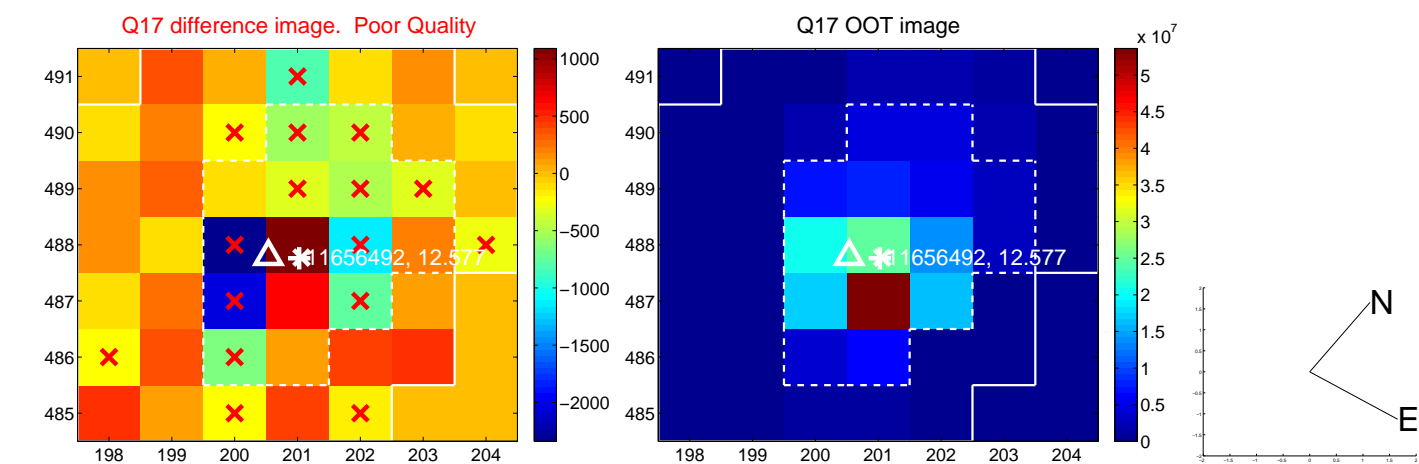
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

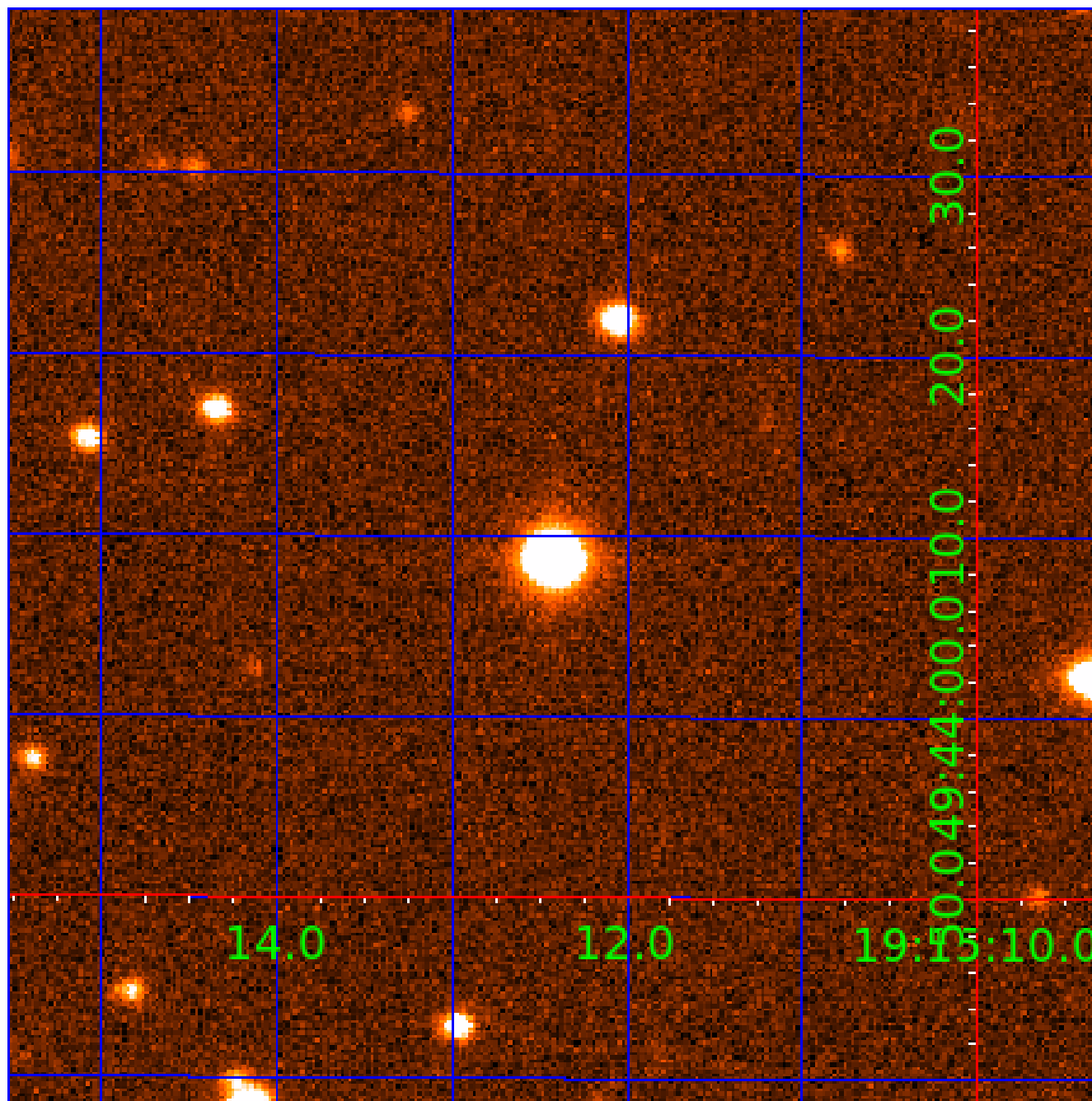


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011656492

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})
011656492-01	OBS	No	1.545978	131.751021	65.1	6.840	8.9	9.2	2.69	8552	2.49	29934.36
011656492-02	OBS	No	0.727870	131.721749	262.0	2.562	14.3	14.3	2.69	8552	5.05	81727.67
011656492-03	OBS	No	0.727915	132.207351	538.7	1.978	15.0	22.6	2.69	8552	7.25	81721.01
011656492-04	OBS	No	0.727907	131.954944	179.6	2.000	16.8	-1.0	2.69	8552	3.67	81722.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011656492-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT
011656492-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011656492-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
011656492-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS

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

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

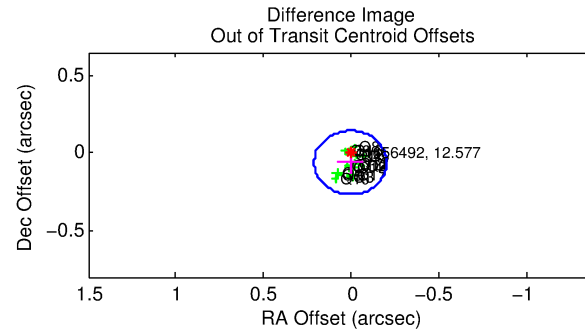
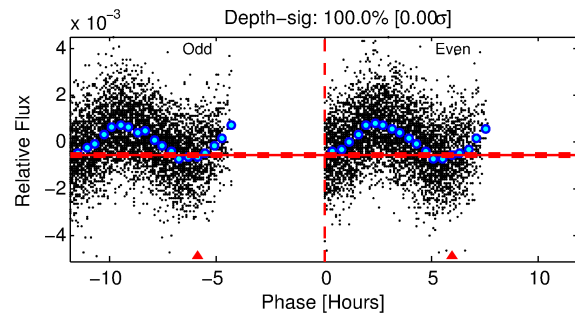
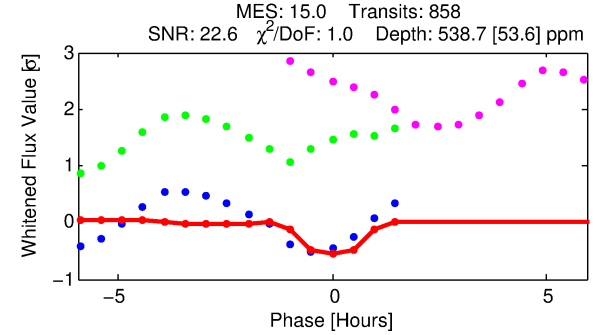
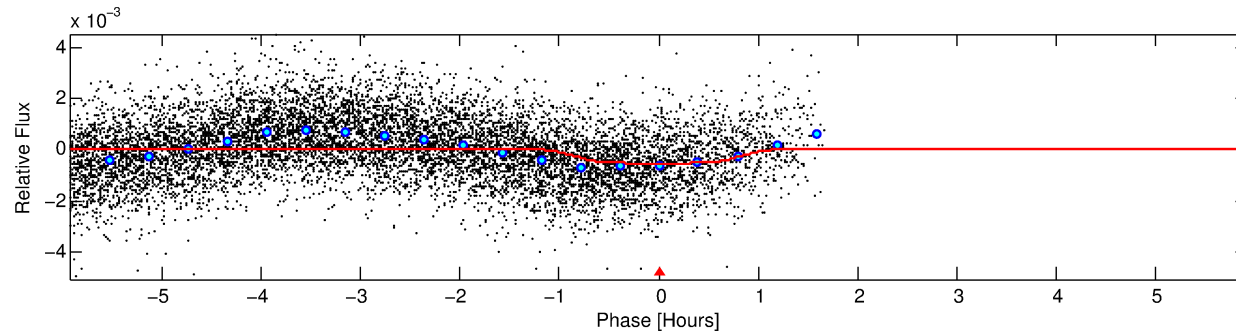
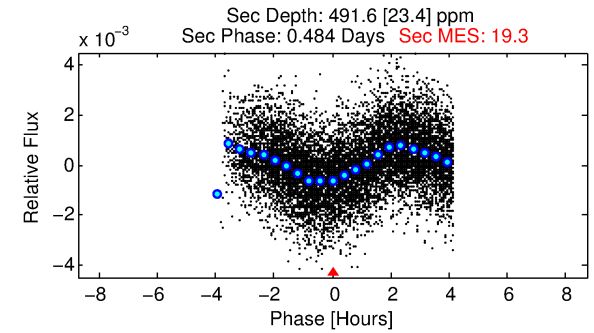
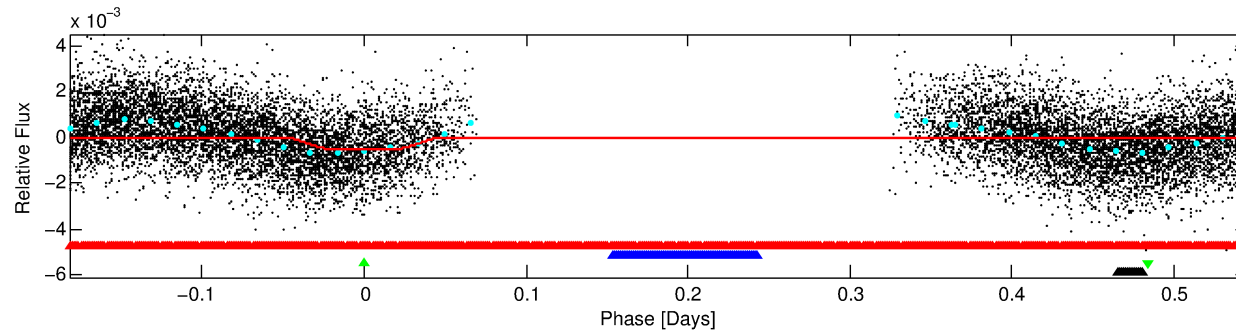
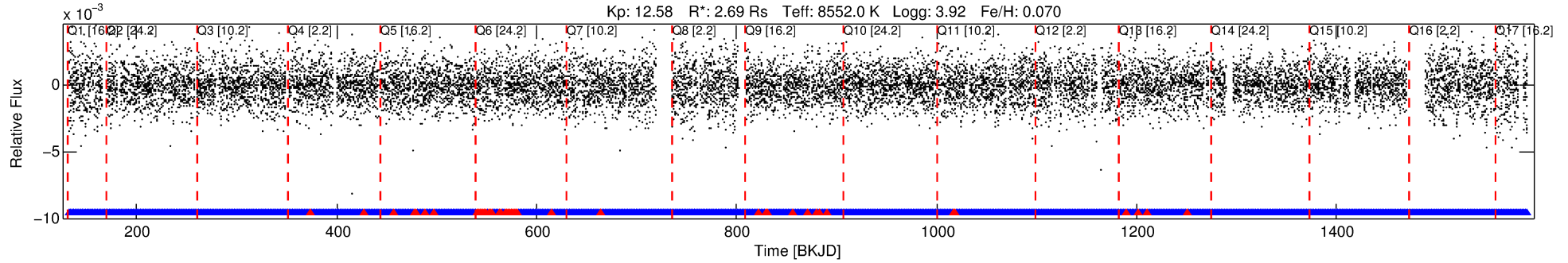
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011656492-03

No Significant Match Found

DV One-Page Summary

KIC: 11656492 Candidate: 3 of 4 Period: 0.728 d



DV Fit Results:

Period = 0.72791 [0.00001] d
Epoch = 132.2074 [0.0018] BKJD
Rp/R* = 0.0247 [0.0041]
a/R* = 1.67 [1.07]
b = 0.90 [0.21]
Seff = 81721.00 [41598.87]
Teff = 4311 [549] K
Rp = 7.25 [2.85] Re
a = 0.0206 [0.0065] AU
Ag = 2.18 [1.26] [0.94σ]
Teffp = 8103 [775] K [3.99σ]

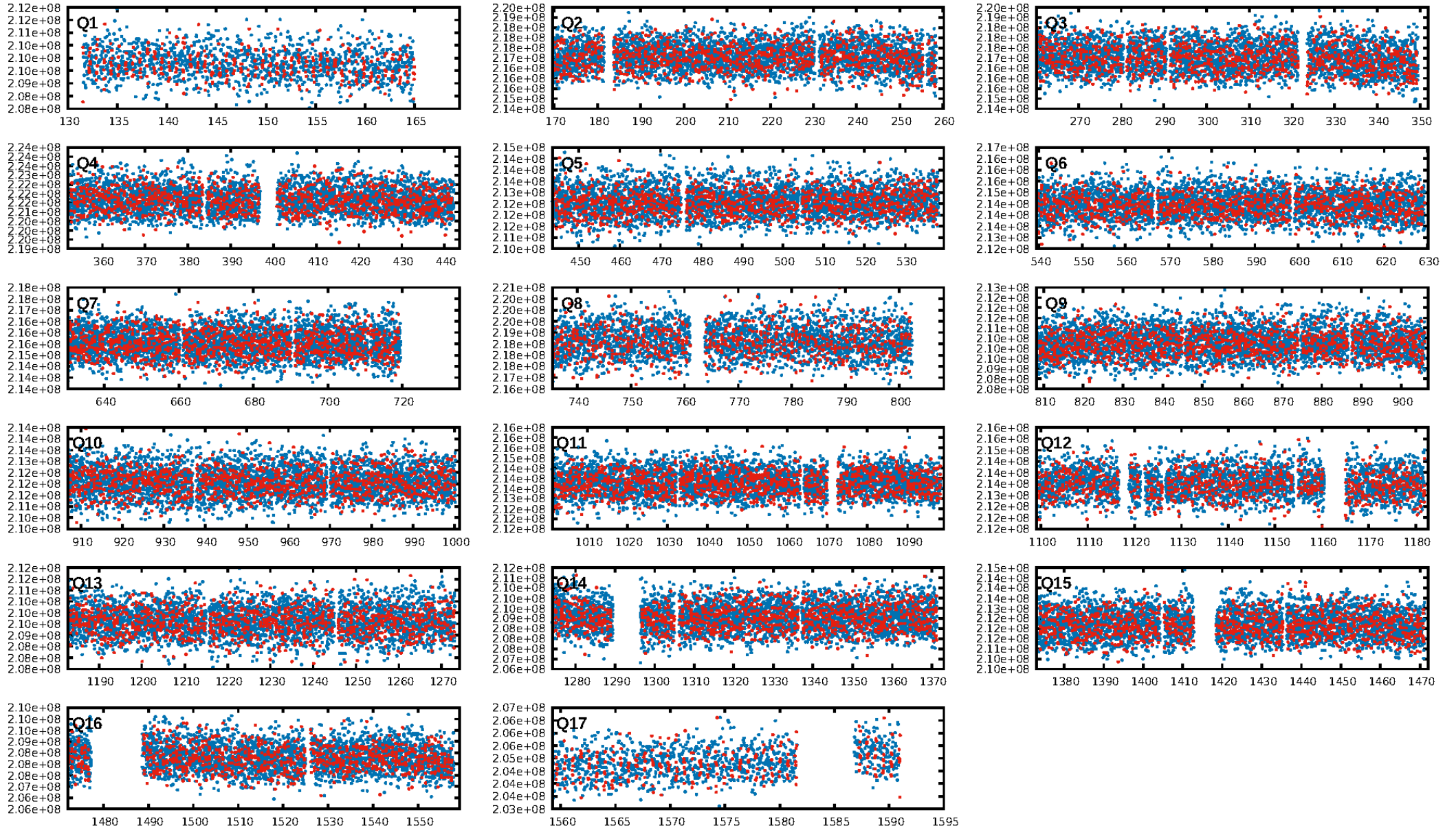
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 99.4% [2.76σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.95 [774/819]
GhostDiagnostic-chr: 4.544
Centroid-sig: 0.0%
Centroid-so: 0.129 arcsec [3.12σ]
OotOffset-rm: 0.062 arcsec [0.91σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.185 arcsec [2.67σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

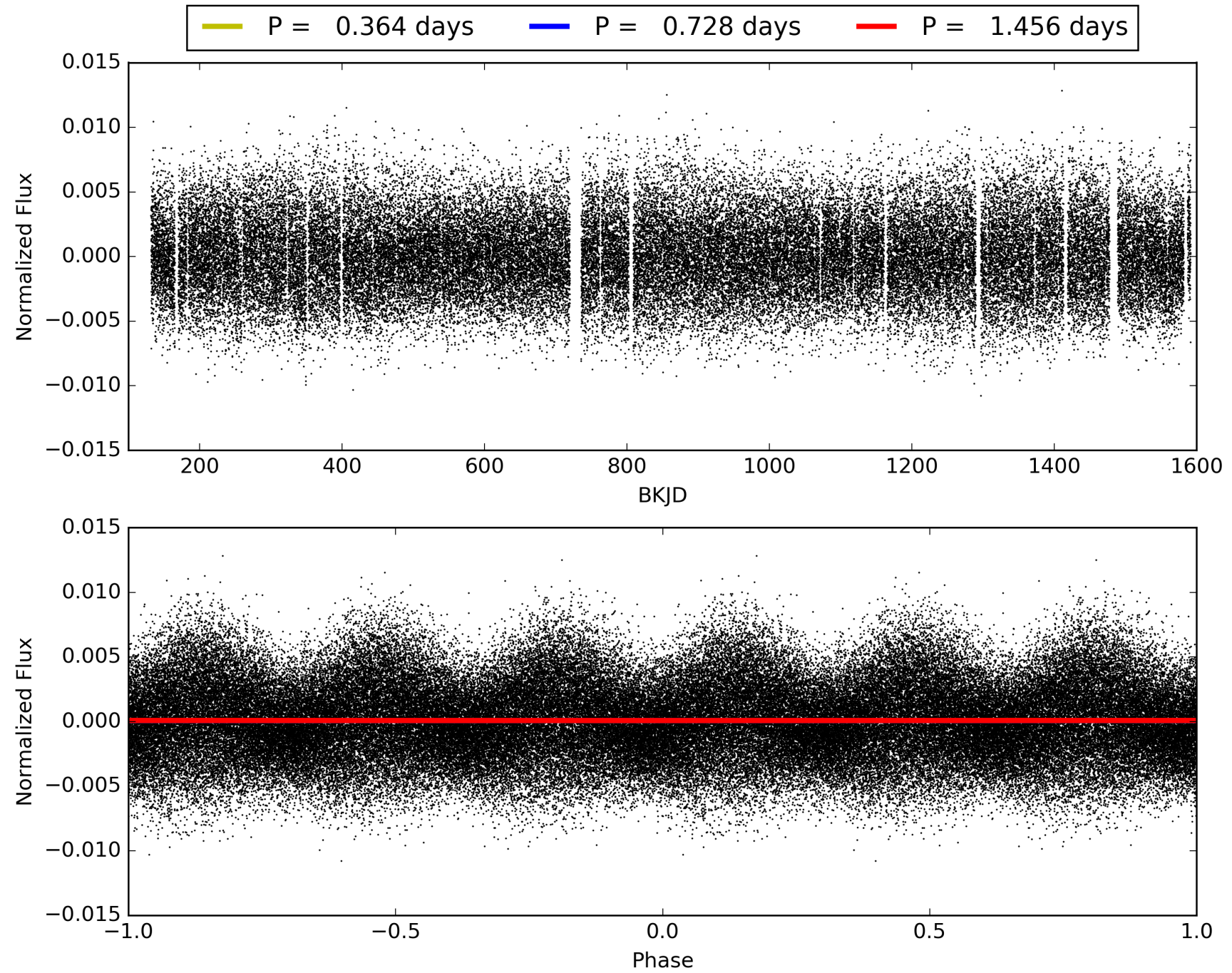
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:34:32 Z

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

TCE 011656492-03, PDC Light Curves

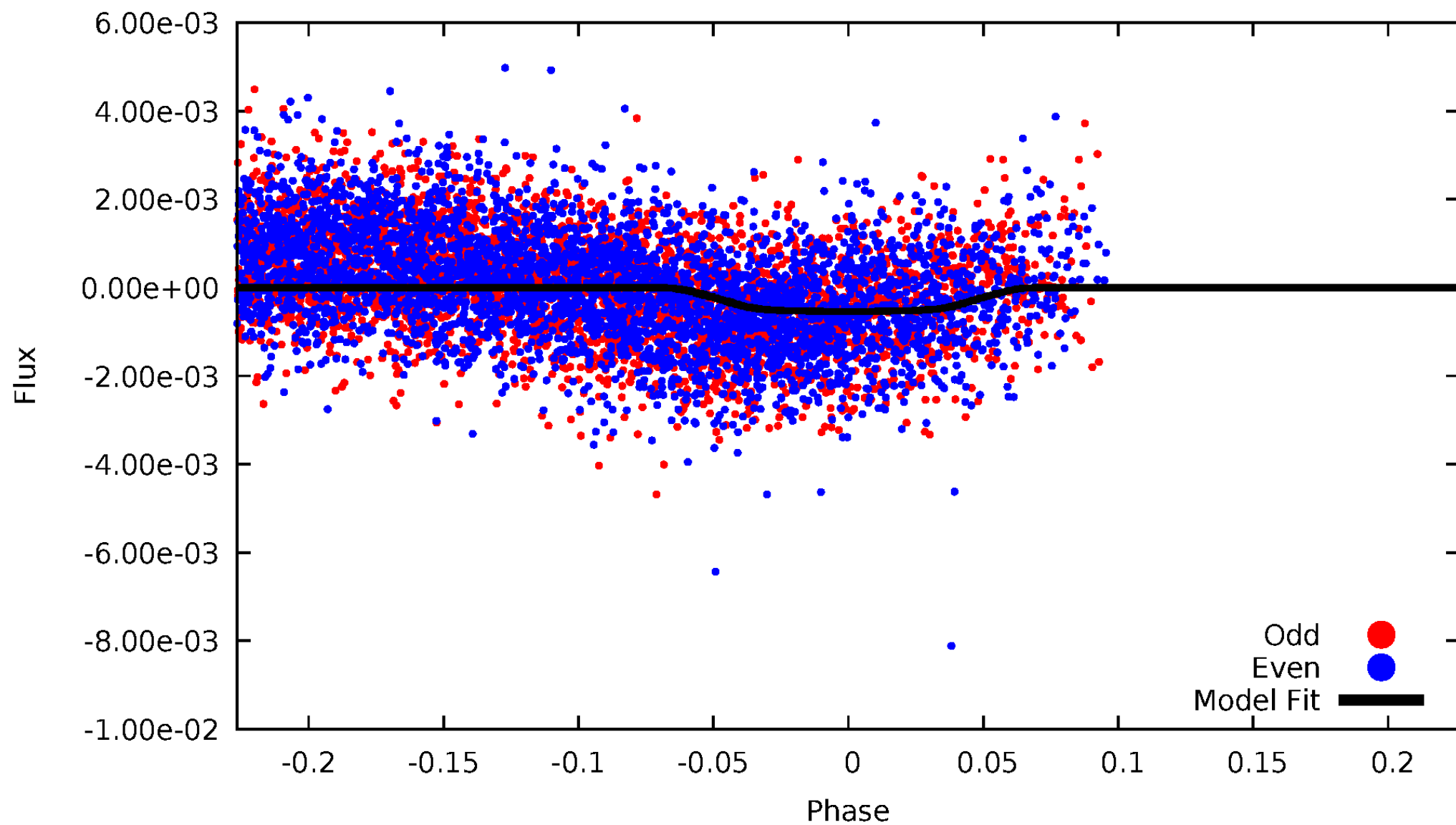


TCE 011656492-03



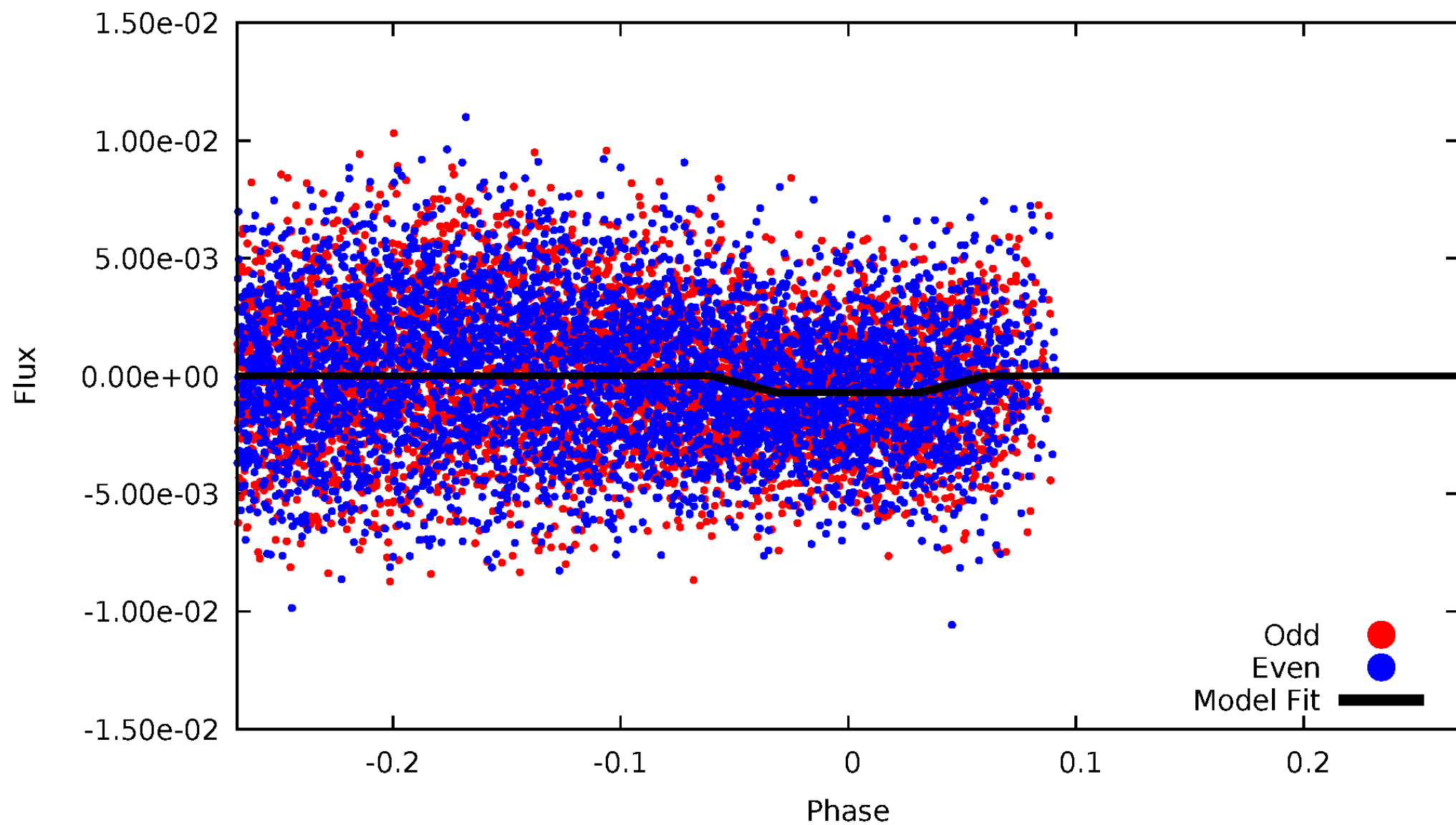
DV Odd/Even

TCE 011656492-03



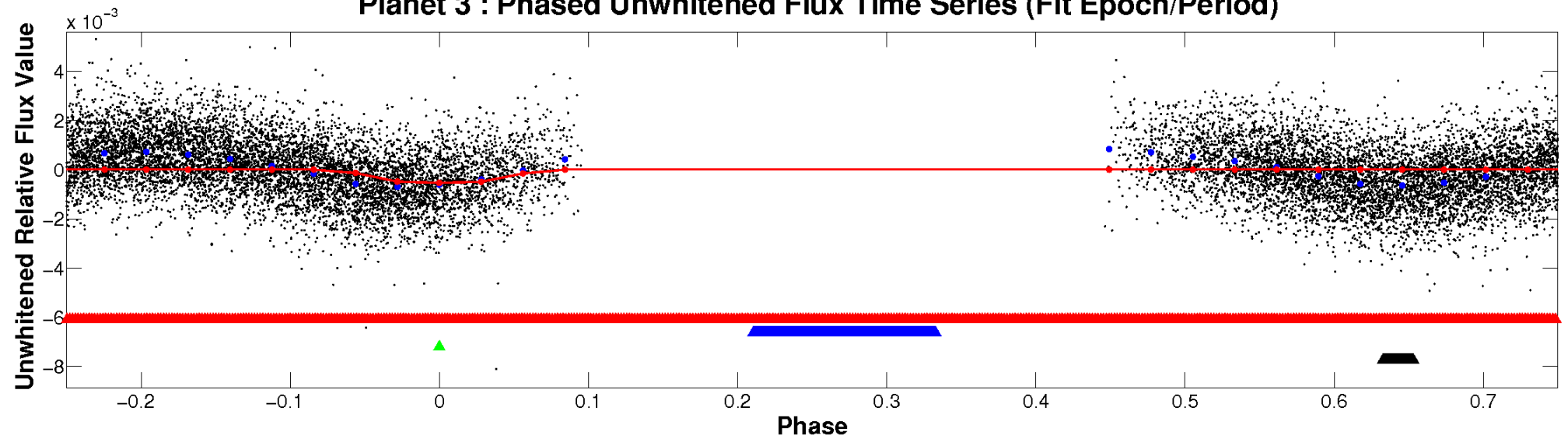
ALT Odd/Even

TCE 011656492-03

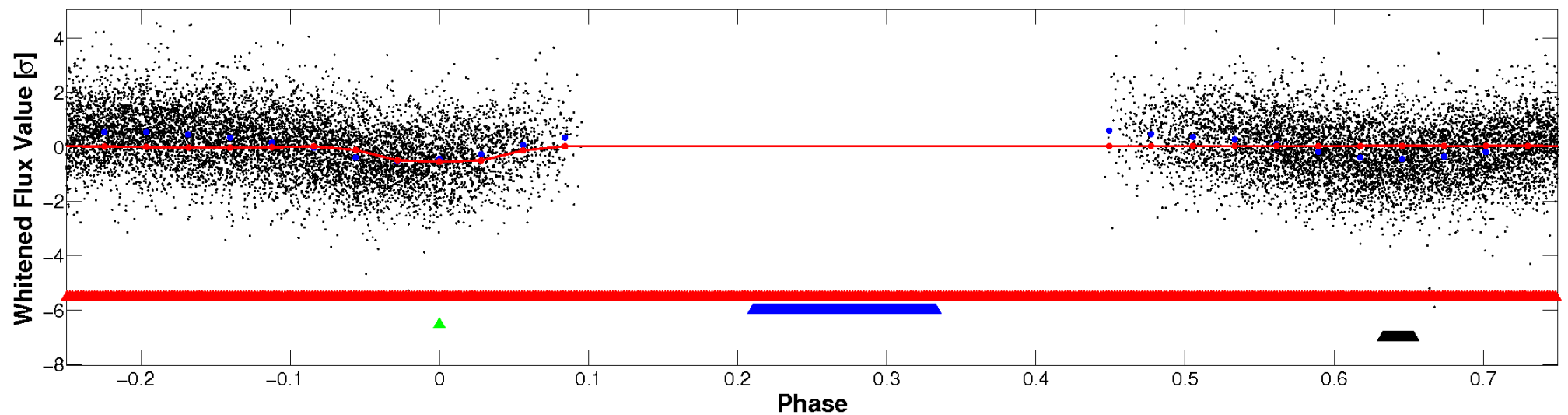


Non-Whitened Vs. Whitened Light Curve

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

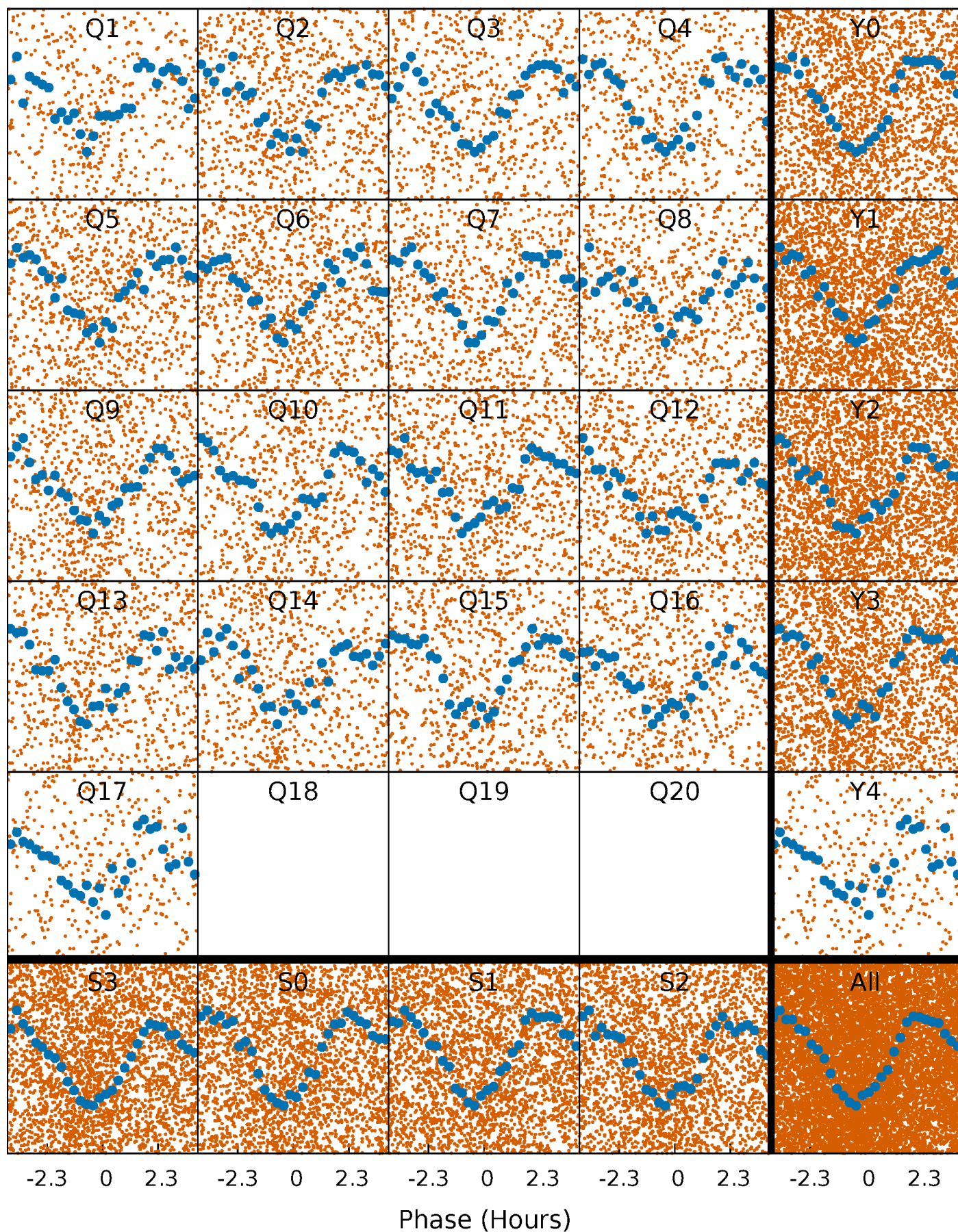


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



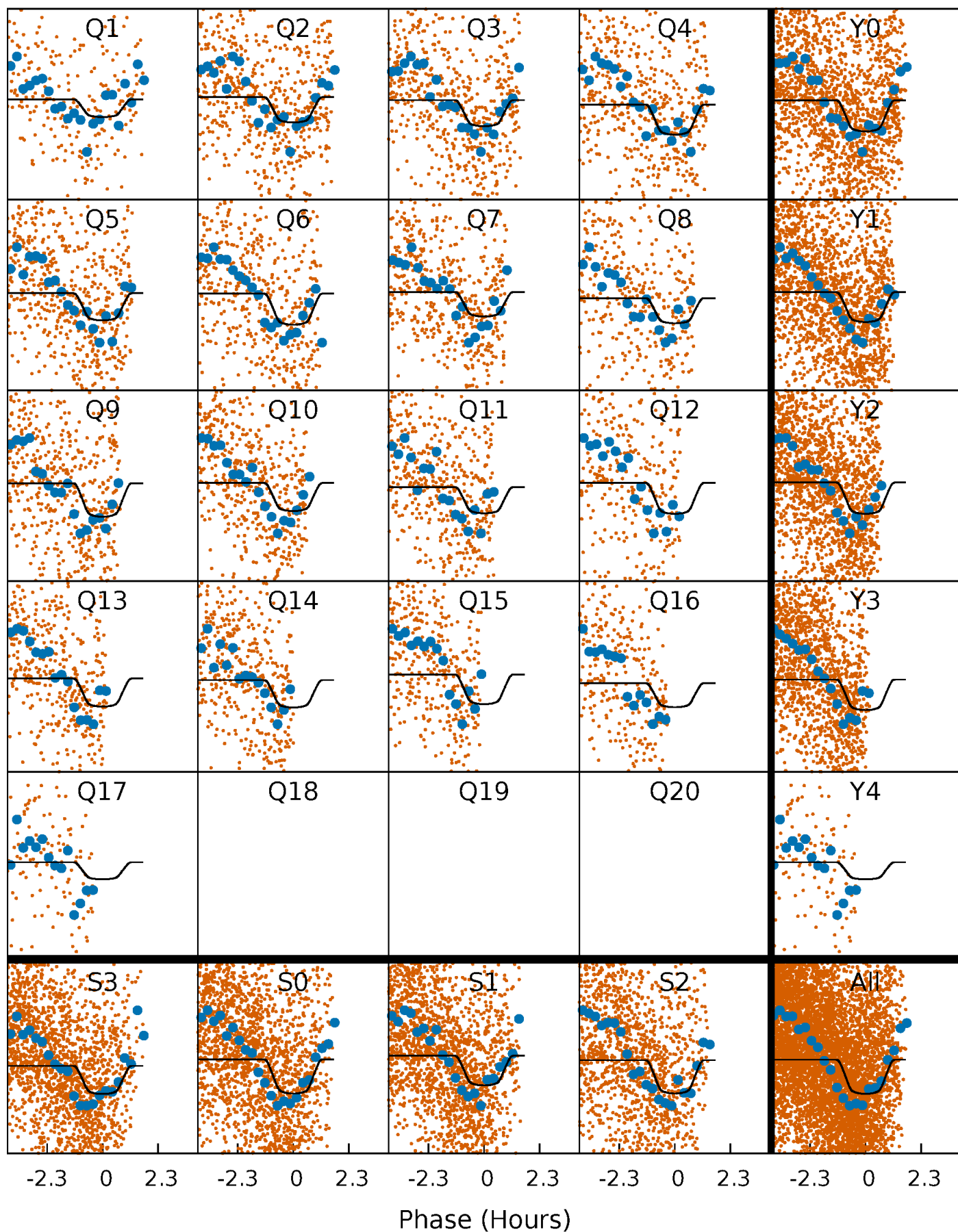
PDC Quarter-Phased Transit Curves

TCE 011656492-03 P= 0.727915 Days $T_0=132.207351$ (BKJD)



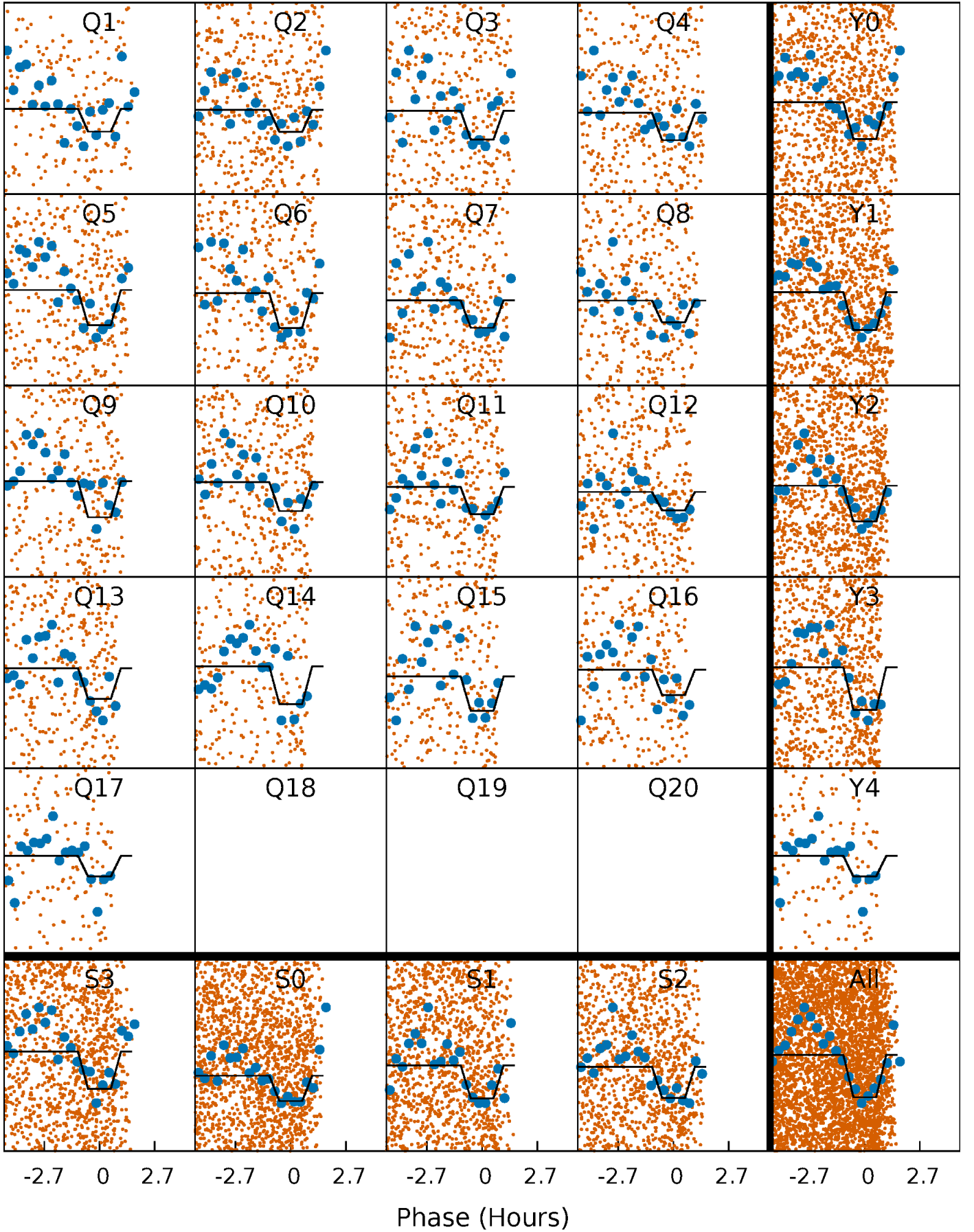
DV Quarter-Phased Transit Curves

TCE 011656492-03 P= 0.727915 Days $T_0=132.207351$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

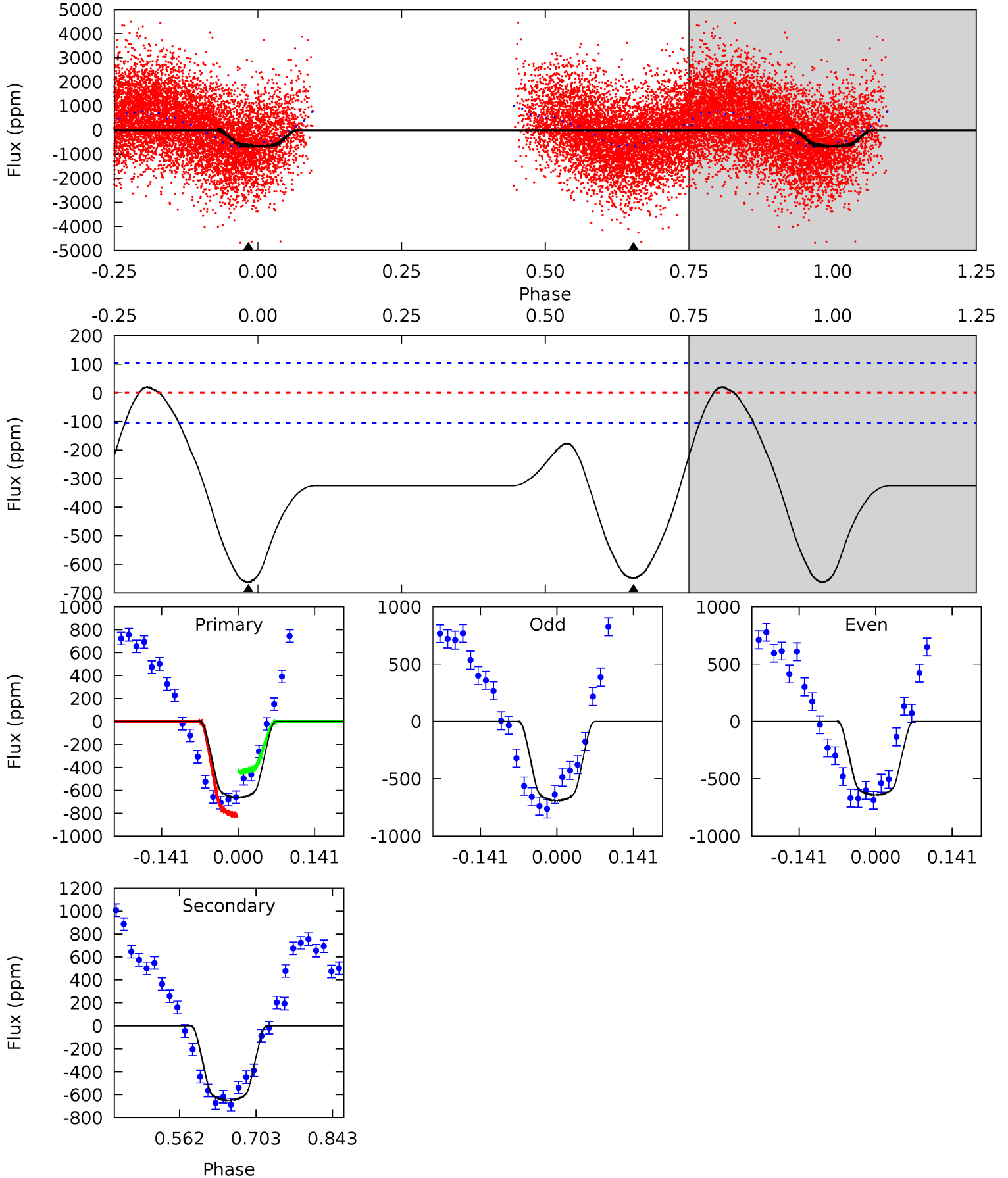
TCE 011656492-03 P= 0.727891 Days $T_0=132.211052$ (BKJD)



DV Model-Shift Uniqueness Test

011656492-03, P = 0.727915 Days, E = 131.479436 Days

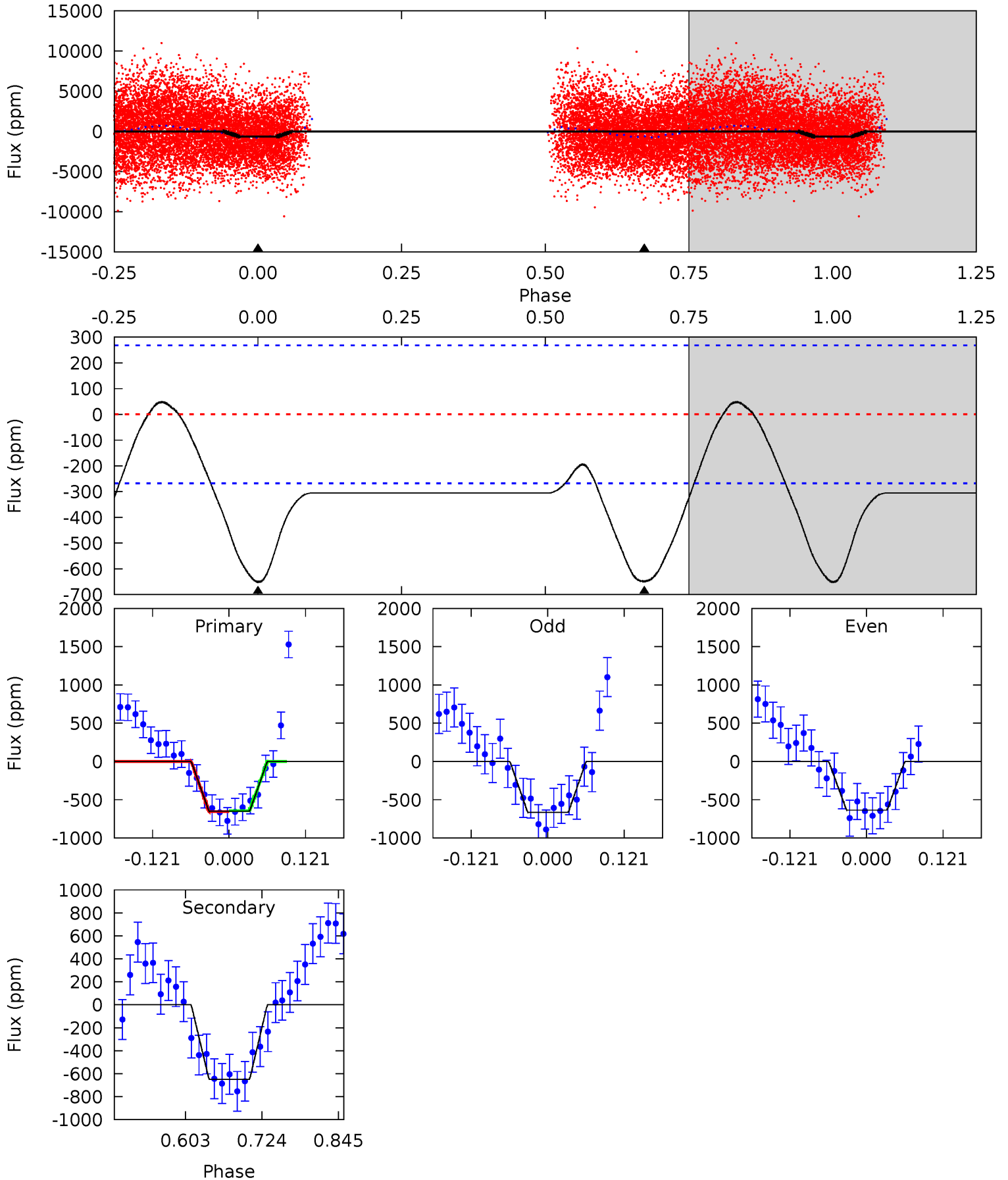
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.5	27.9	0	0	4.49	1.47	5.28	28.5	28.5	27.9	27.9	1.06	1.03	0.03	8.44



Alt Model-Shift Uniqueness Test

011656492-03, P = 0.727891 Days, E = 131.483161 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	11.0	0	0	4.53	1.55	1.82	11.0	11.0	11.0	11.0	0.26	0.94	0.07	0.11



Stellar Parameters For KIC 011656492

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8552^{+235}_{-404}	$3.921^{+0.266}_{-0.143}$	$0.070^{+0.200}_{-0.550}$	$2.691^{+0.786}_{-0.961}$	$2.201^{+0.326}_{-0.605}$	$0.159^{+0.291}_{-0.067}$
	+3%/-5%	+7%/-4%	+286%/-786%	+29%/-36%	+15%/-27%	+183%/-42%
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 011656492-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-649 ± 23	$6.95^{+1.74}_{-1.61}$	5938^{+461}_{-531}	8420^{+1224}_{-948}	$3.090^{+1.909}_{-1.039}$
Alt.	-649 ± 59	$7.38^{+1.90}_{-1.59}$	5892^{+497}_{-527}	7958^{+1081}_{-763}	$2.718^{+1.564}_{-0.949}$

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 $A_{obs} \gg 1.0$

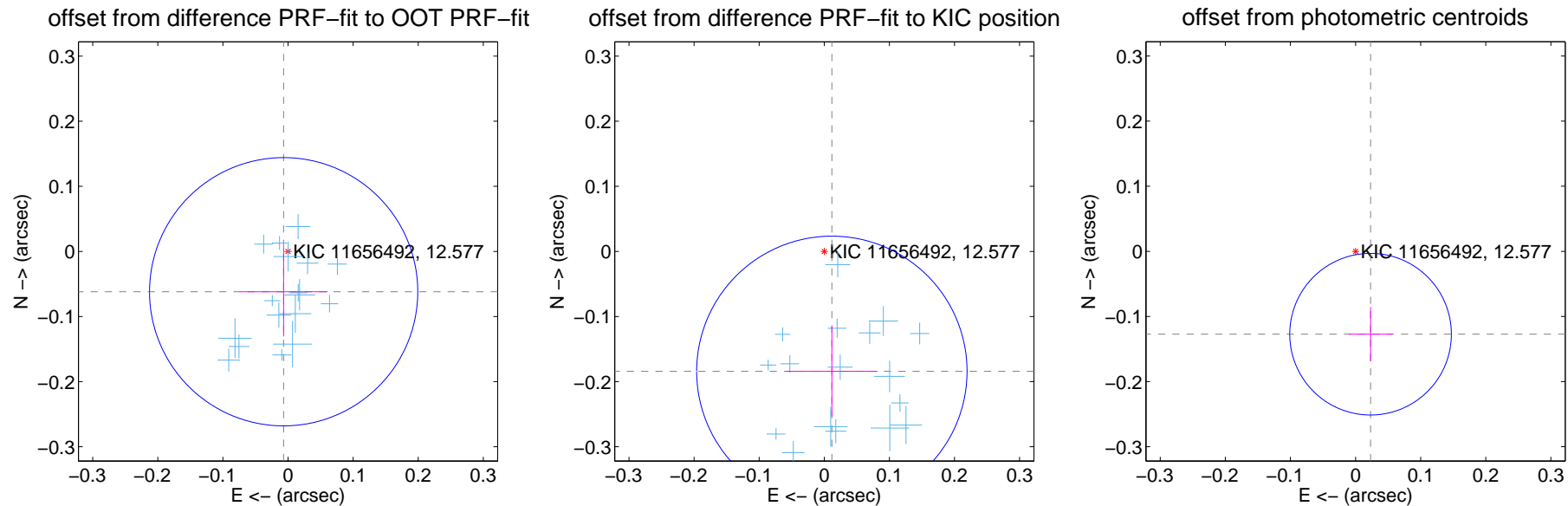
DV Centroid Data

Supplemental centroid analysis for 011656492-03. Kepler magnitude: 12.58. Transit SNR 22.57

There are 17 quarters with good PRF difference image offsets

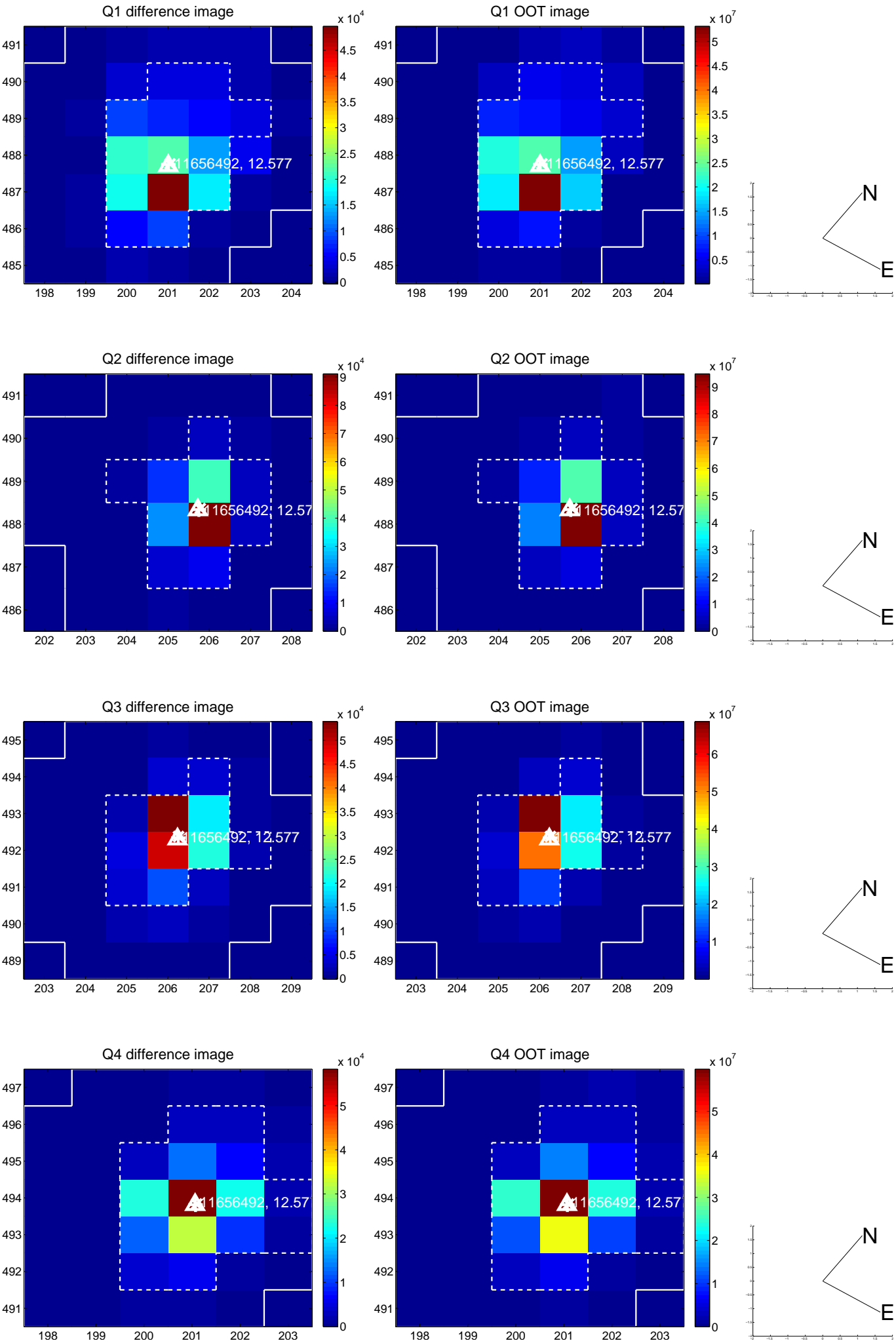
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.062 ± 0.069	0.91	0.007 ± 0.068	-0.062 ± 0.069
PRF-fit source offset from KIC position	0.185 ± 0.069	2.67	-0.012 ± 0.070	-0.184 ± 0.069
photometric centroid source offset	0.13 ± 0.04	3.12	-0.02 ± 0.03	-0.13 ± 0.04

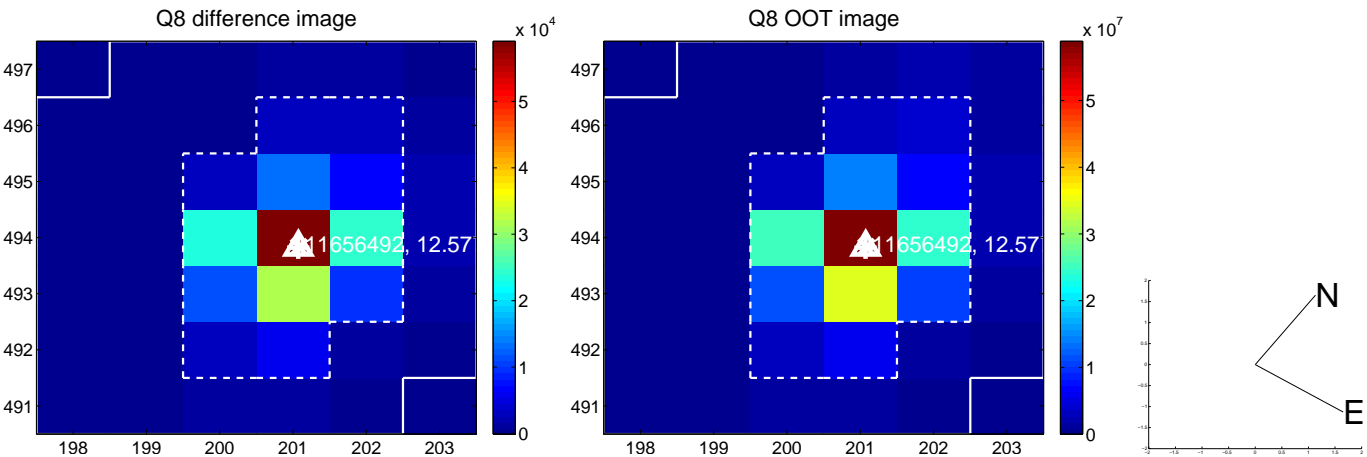
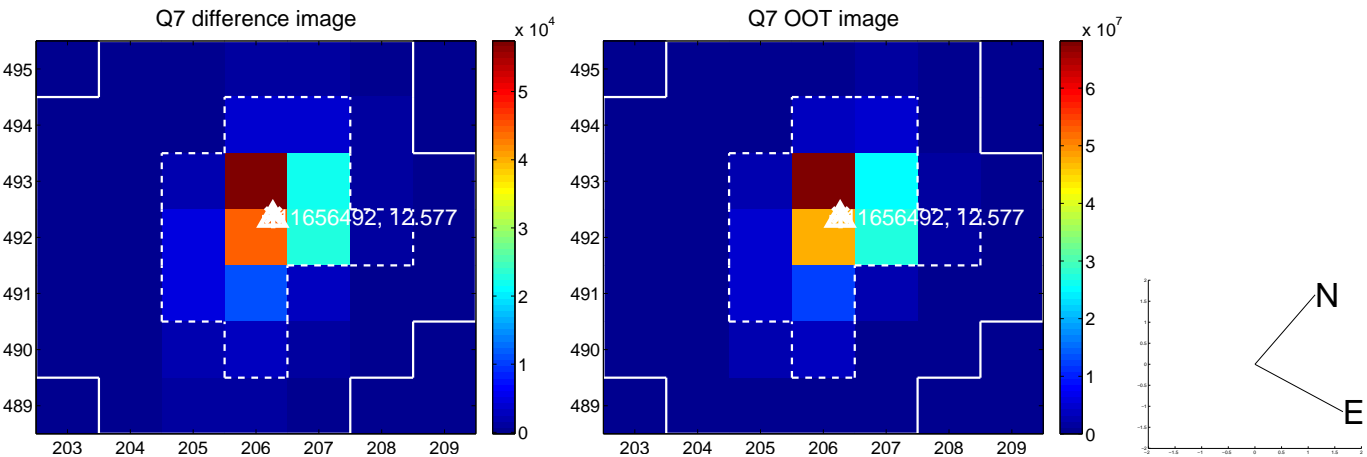
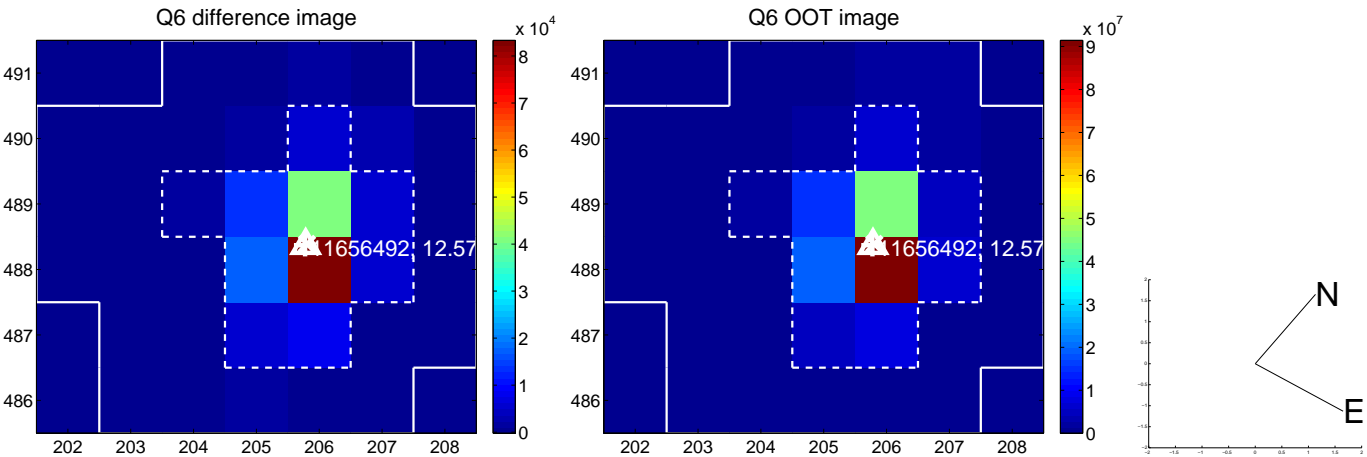
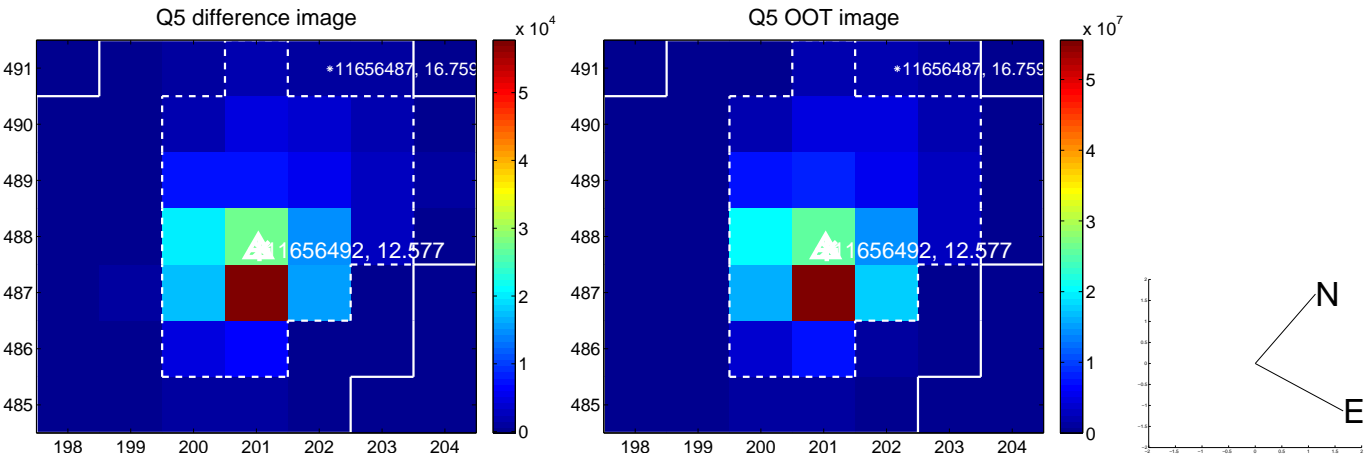


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

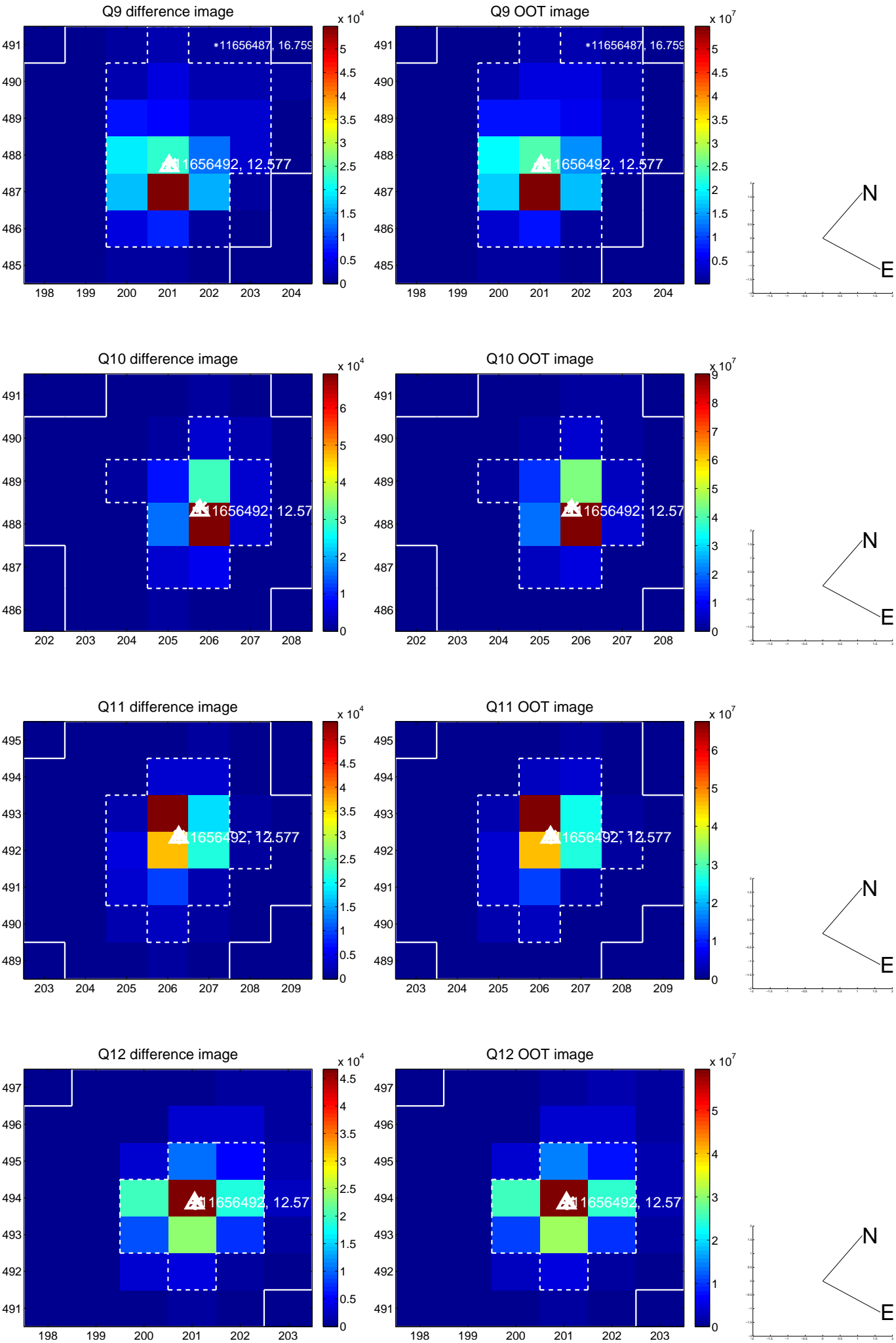
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



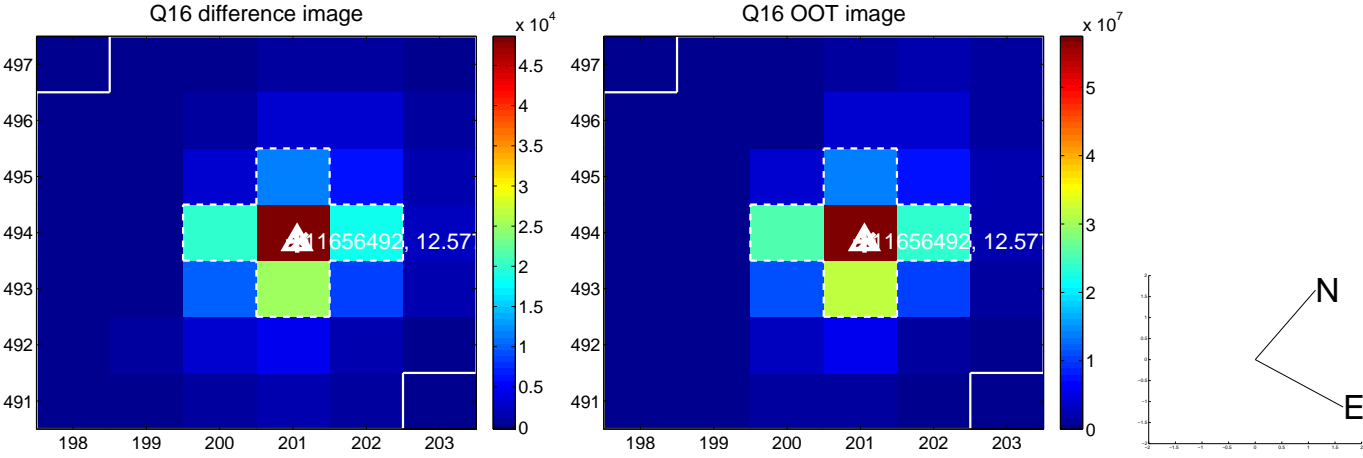
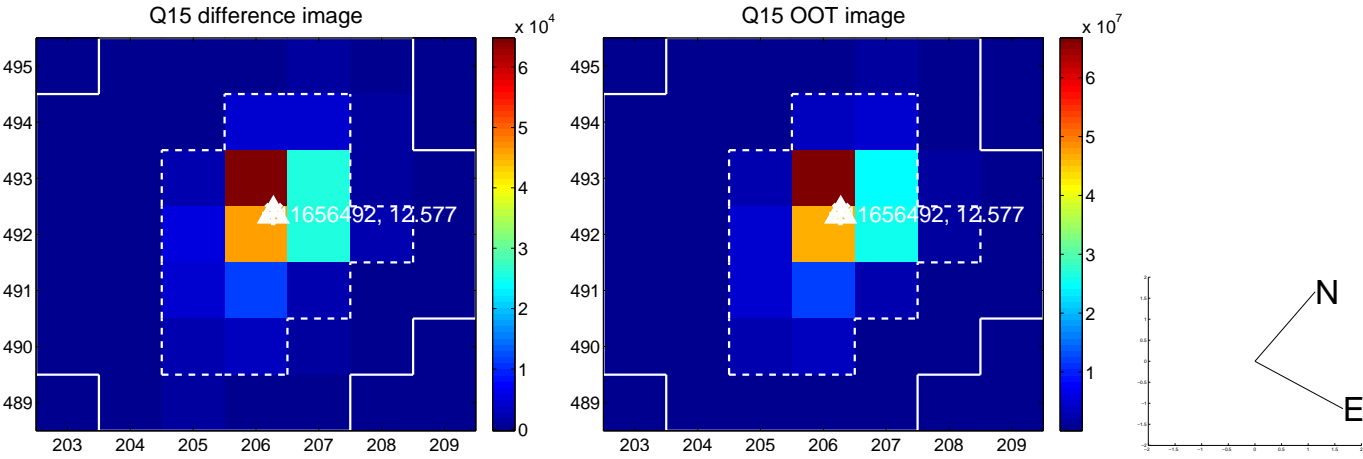
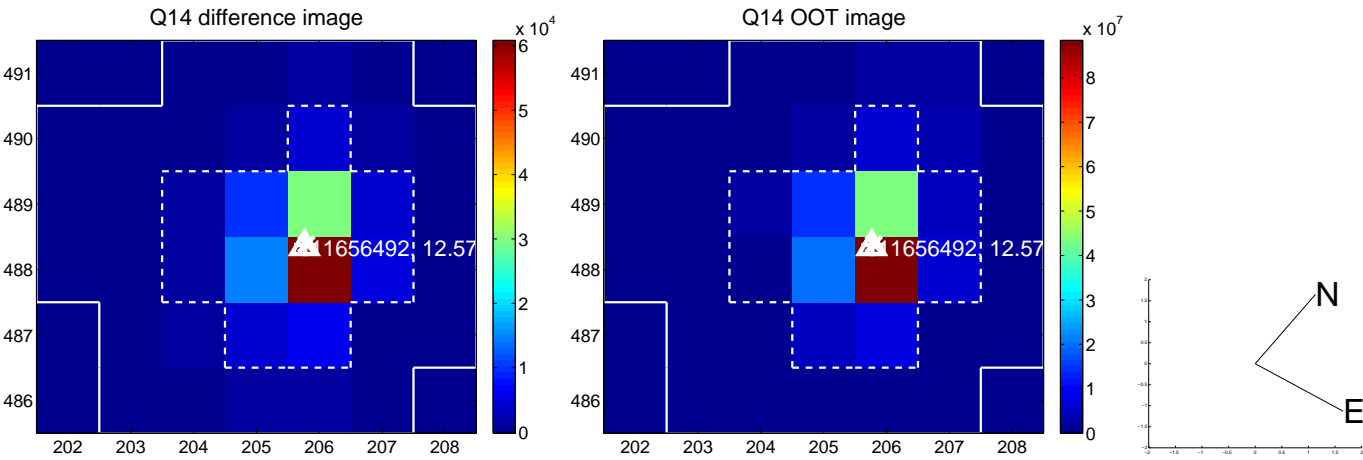
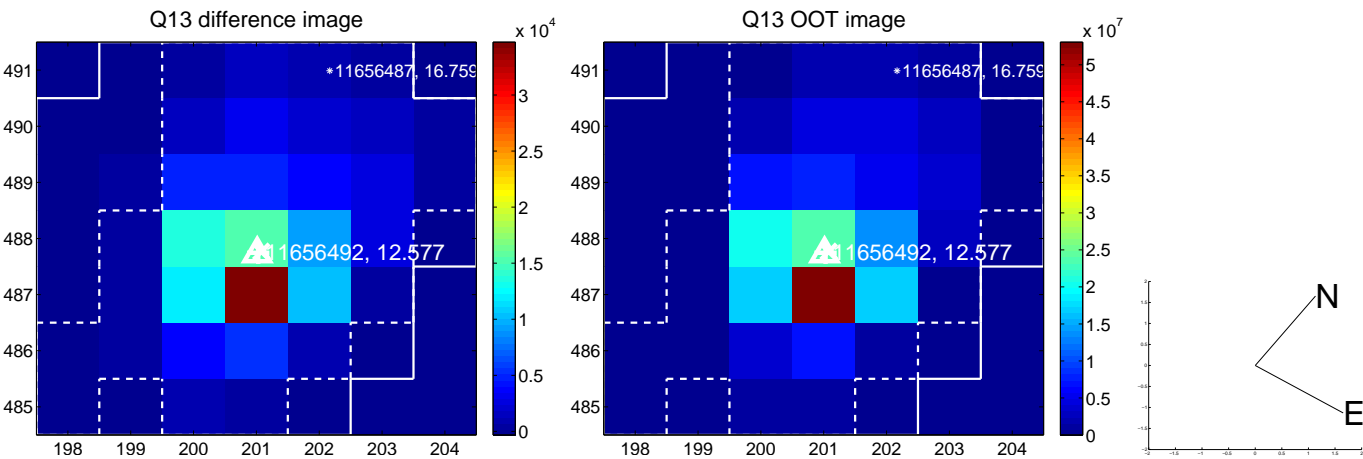
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



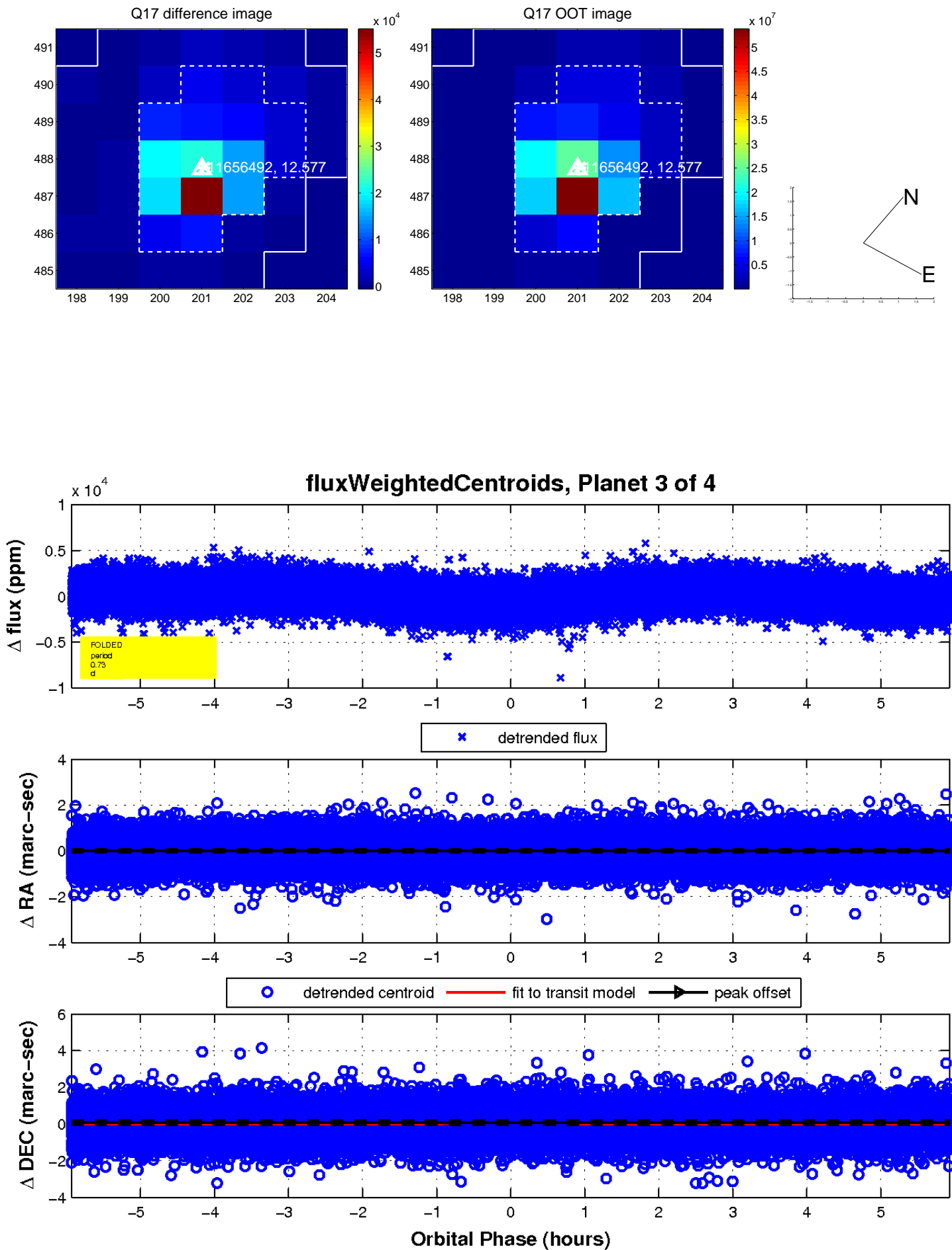
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

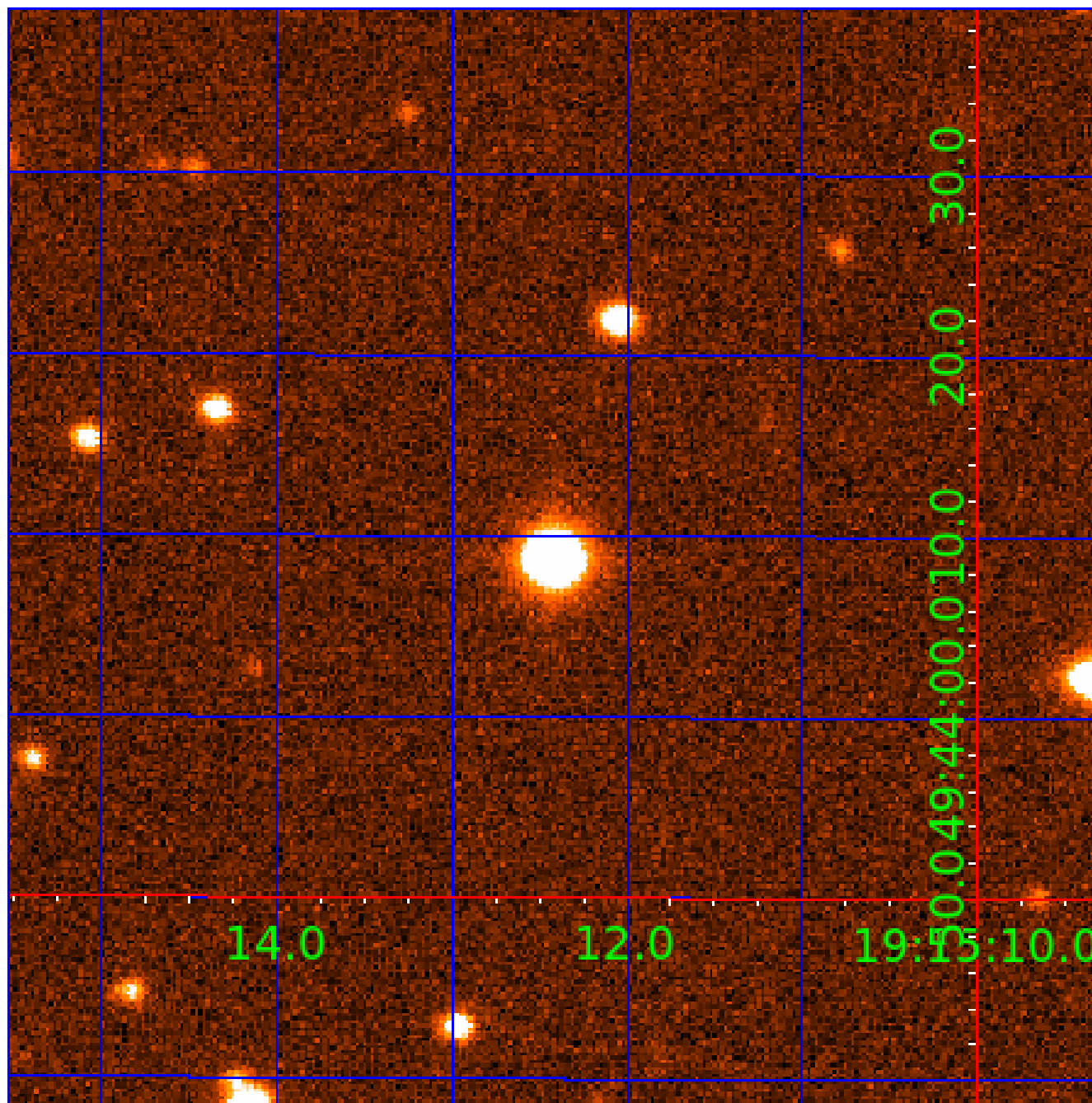


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011656492

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})
011656492-01	OBS	No	1.545978	131.751021	65.1	6.840	8.9	9.2	2.69	8552	2.49	29934.36
011656492-02	OBS	No	0.727870	131.721749	262.0	2.562	14.3	14.3	2.69	8552	5.05	81727.67
011656492-03	OBS	No	0.727915	132.207351	538.7	1.978	15.0	22.6	2.69	8552	7.25	81721.01
011656492-04	OBS	No	0.727907	131.954944	179.6	2.000	16.8	-1.0	2.69	8552	3.67	81722.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011656492-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT
011656492-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011656492-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
011656492-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS

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

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

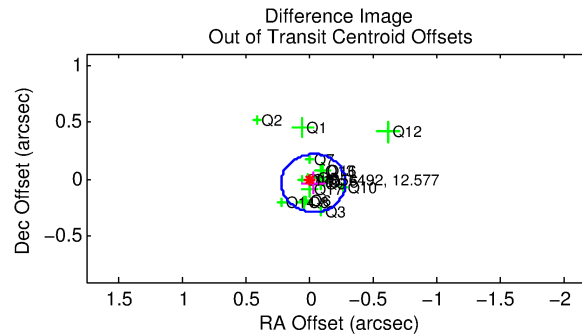
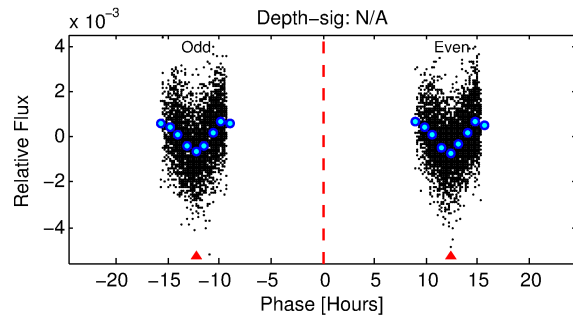
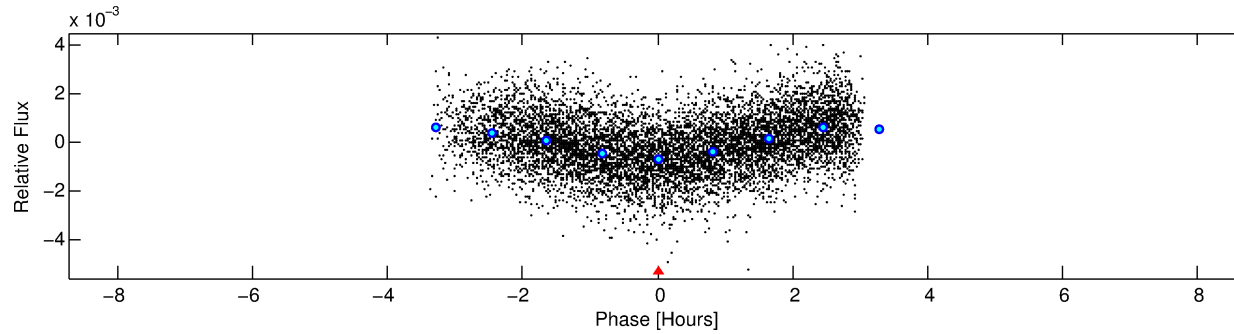
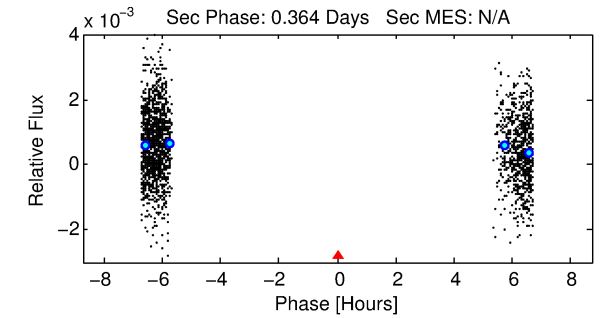
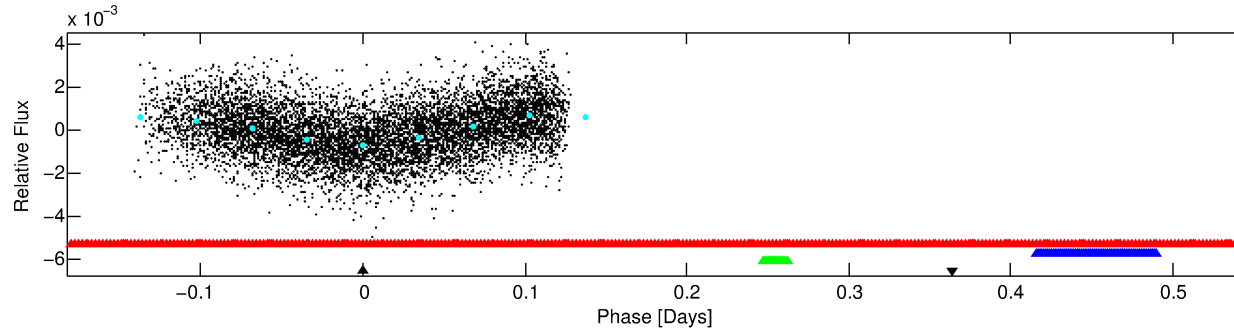
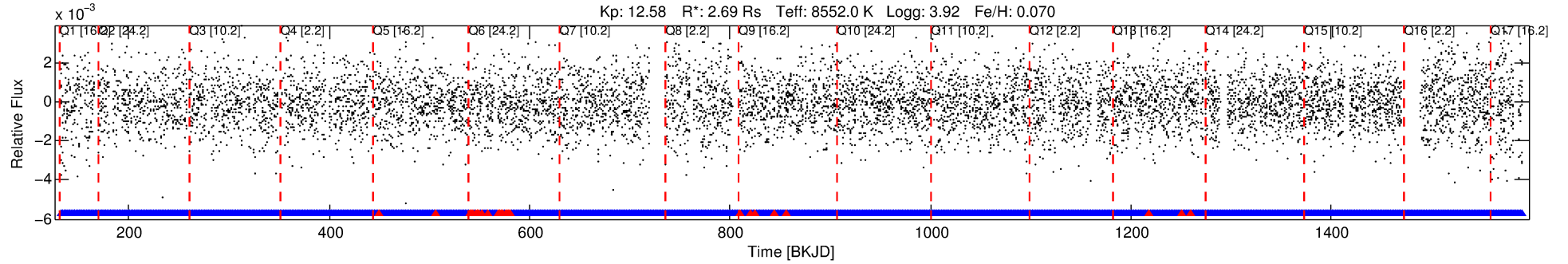
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011656492-04

No Significant Match Found

DV One-Page Summary

KIC: 11656492 Candidate: 4 of 4 Period: 0.728 d



TPS TCE Results:

Period = 0.72791 d
Epoch = 131.9549 BKJD

DV fit results are unavailable

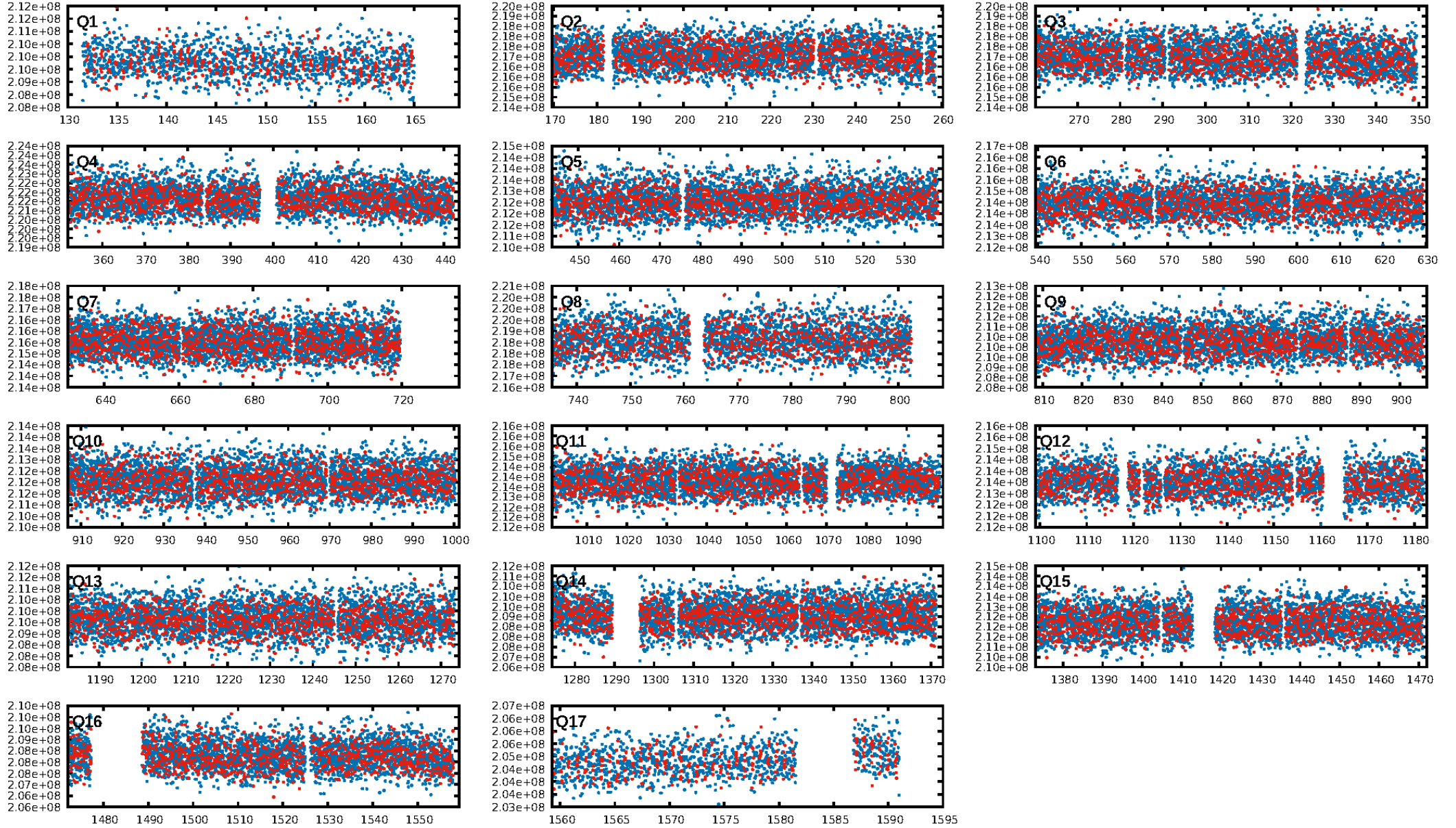
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.97 [927/954]
GhostDiagnostic-chr: 5.285
Centroid-sig: 0.0%
Centroid-so: 0.030 arcsec [1.85 σ]
OotOffset-rm: 0.051 arcsec [0.60 σ]
KicOffset-rm: 0.160 arcsec [1.86 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

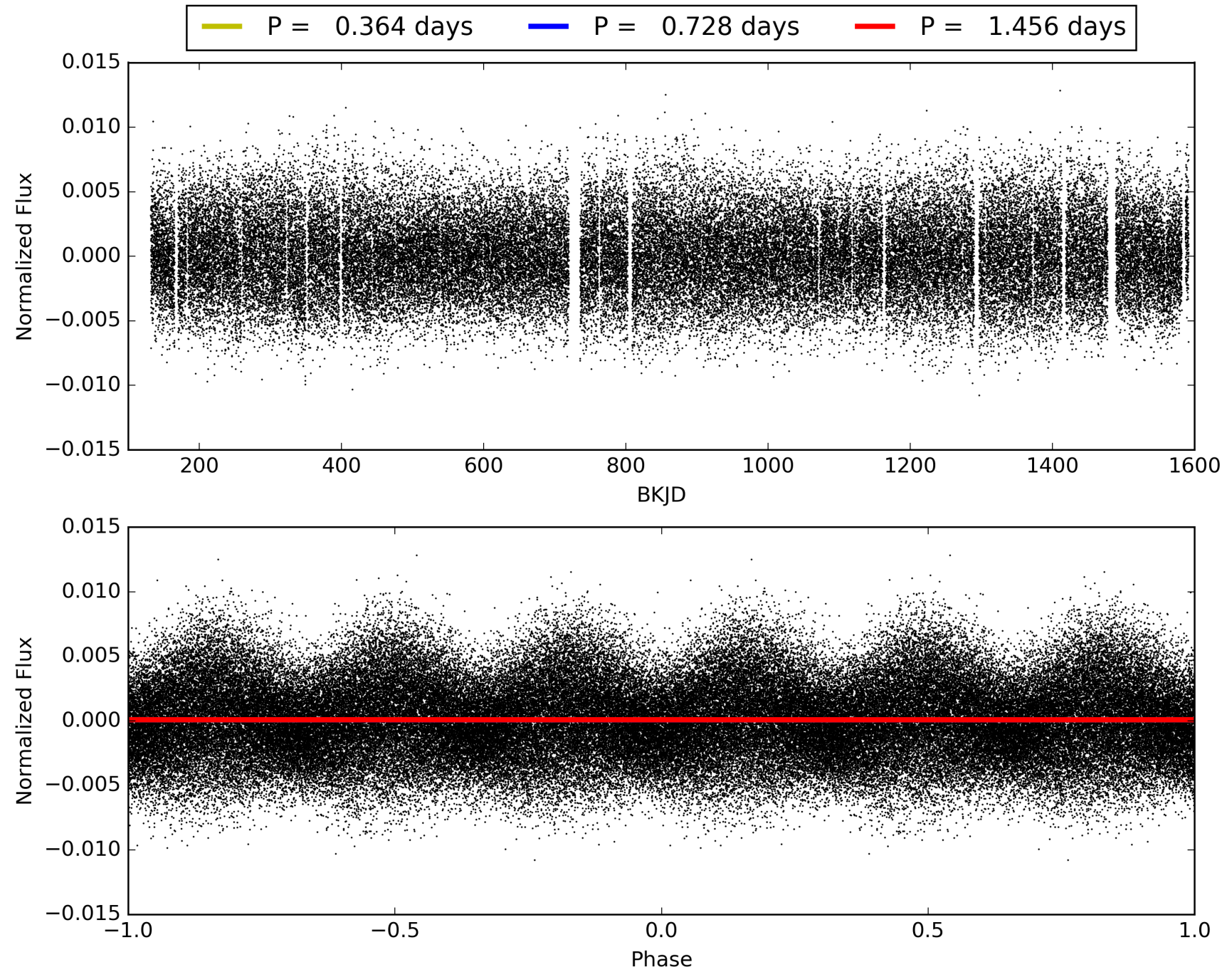
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:34:39 Z

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

TCE 011656492-04, PDC Light Curves

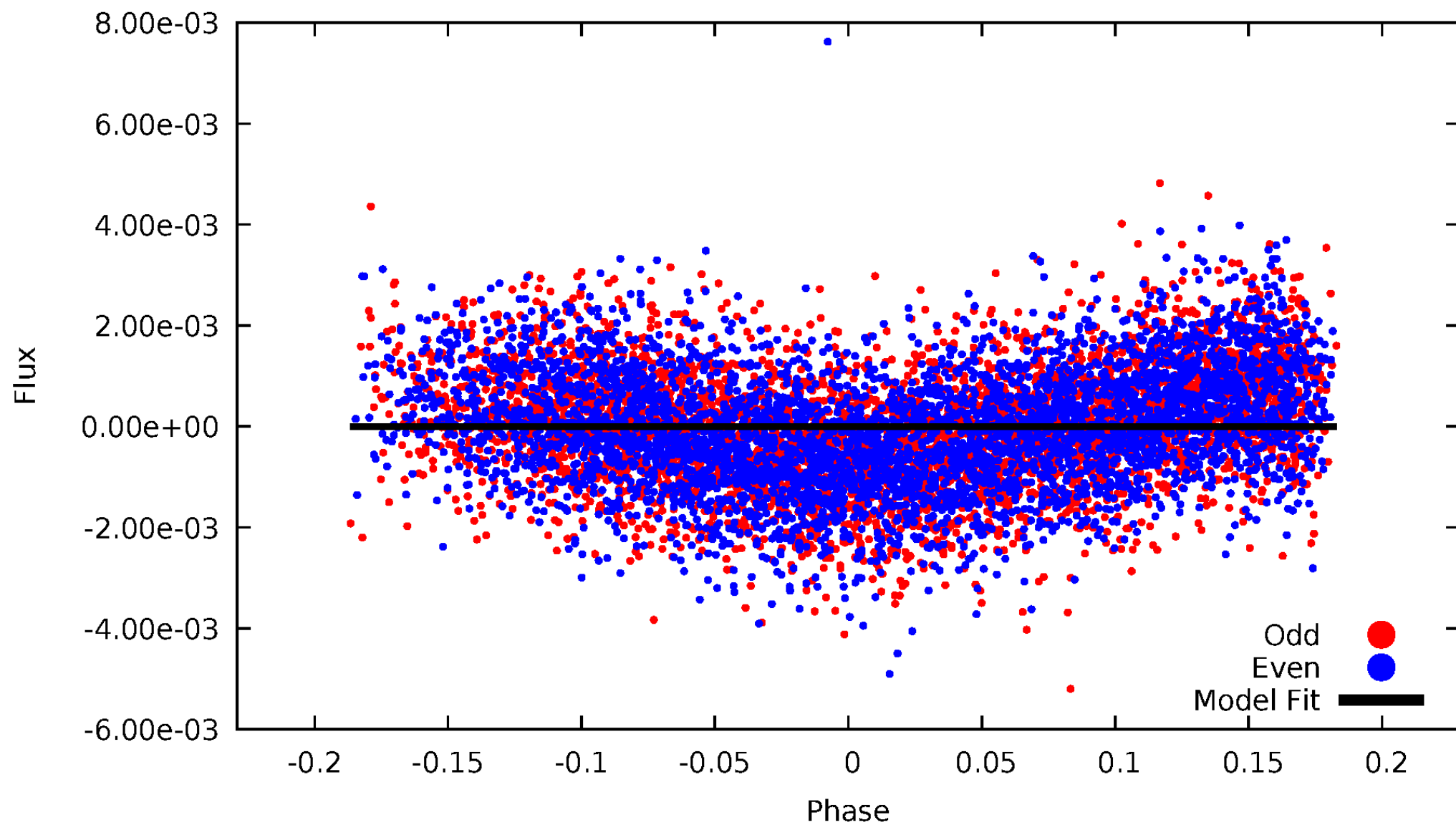


TCE 011656492-04



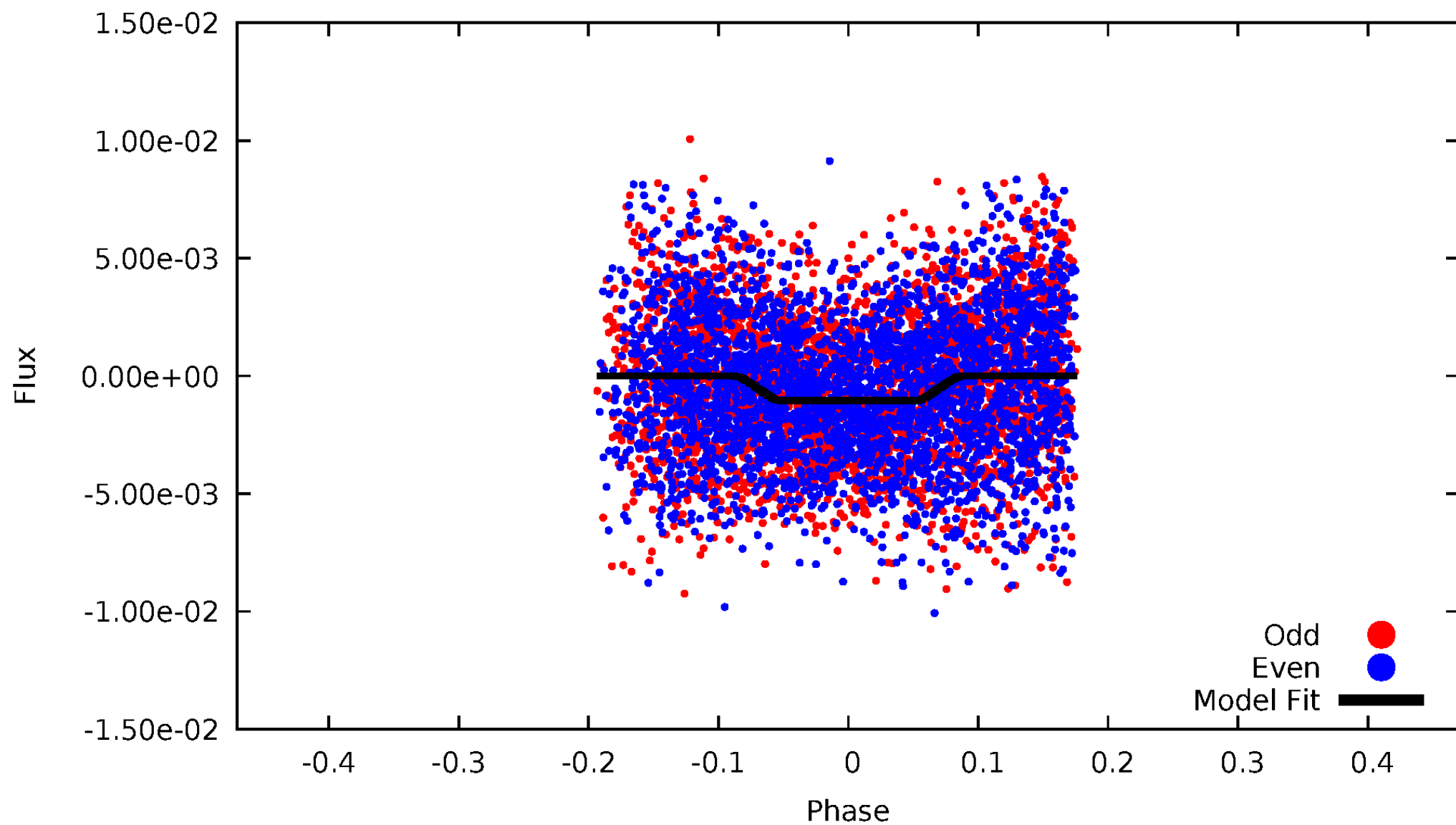
DV Odd/Even

TCE 011656492-04



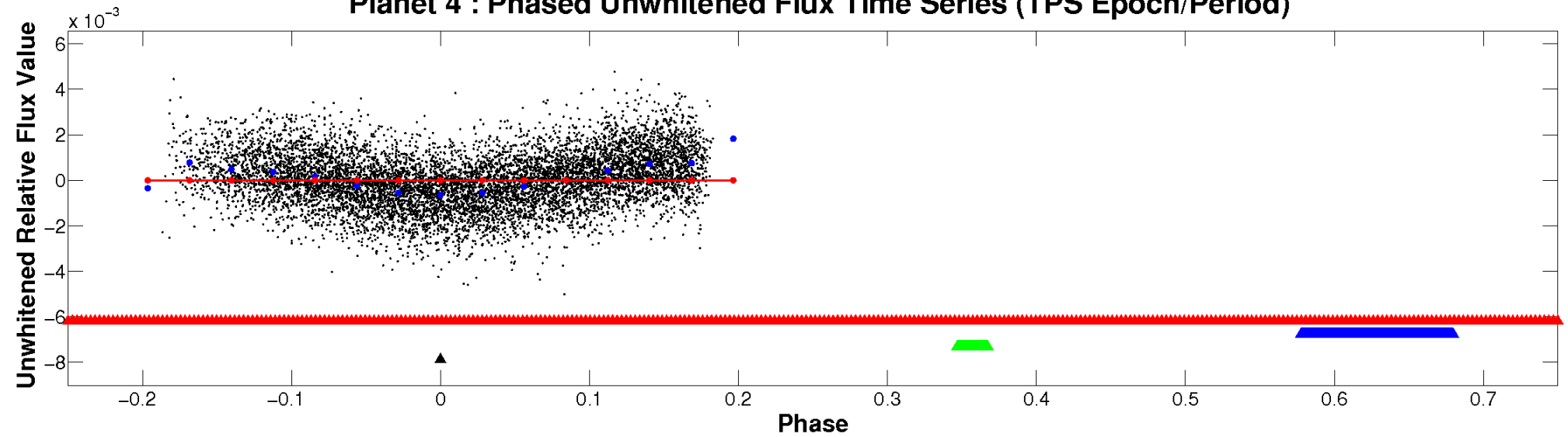
ALT Odd/Even

TCE 011656492-04

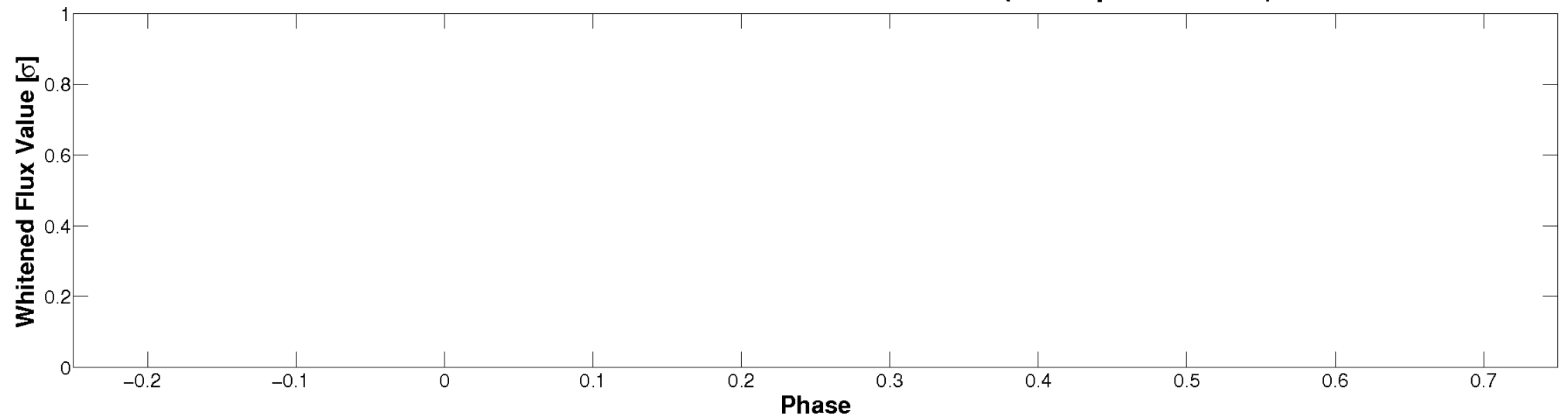


Non-Whitened Vs. Whitened Light Curve

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

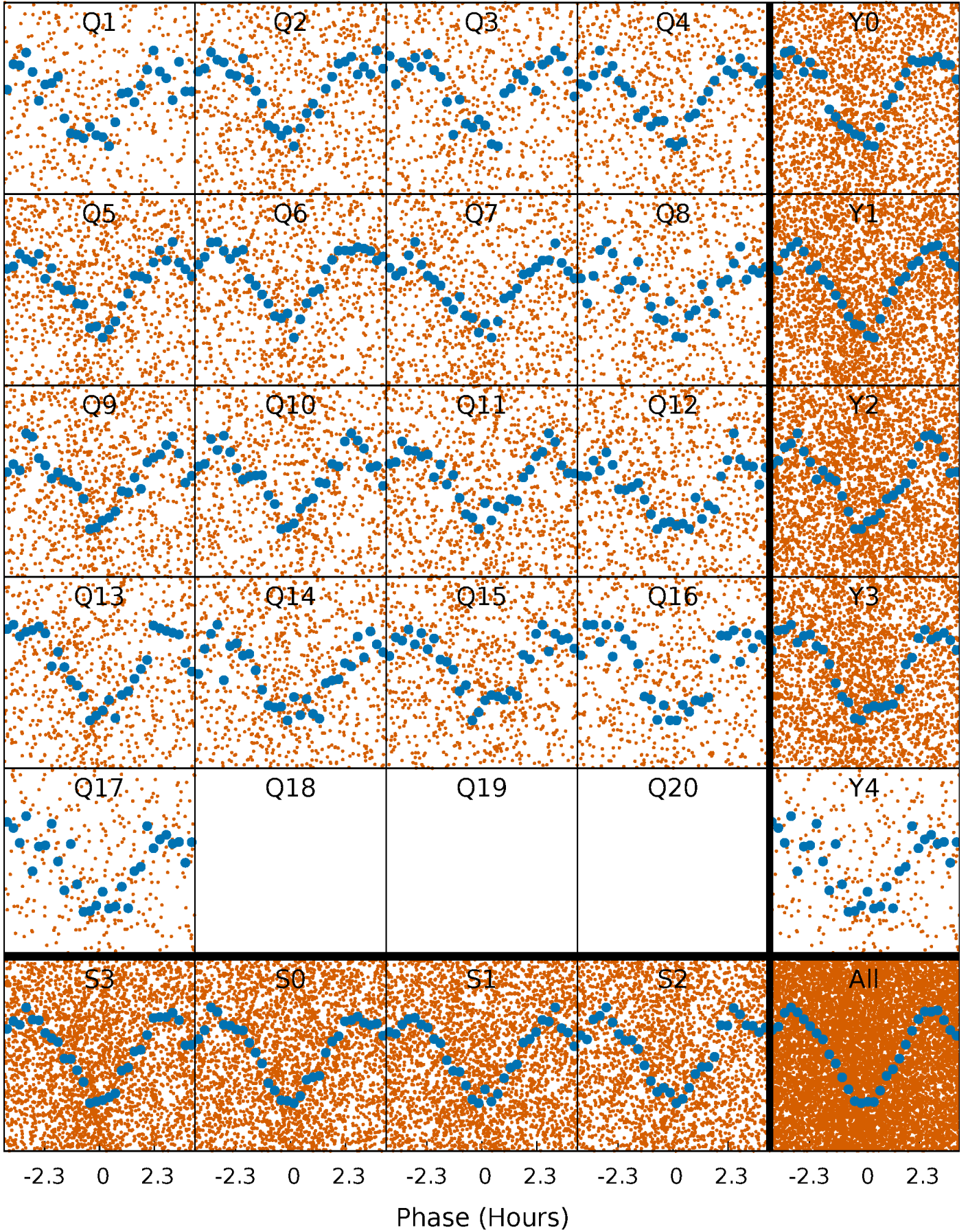


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



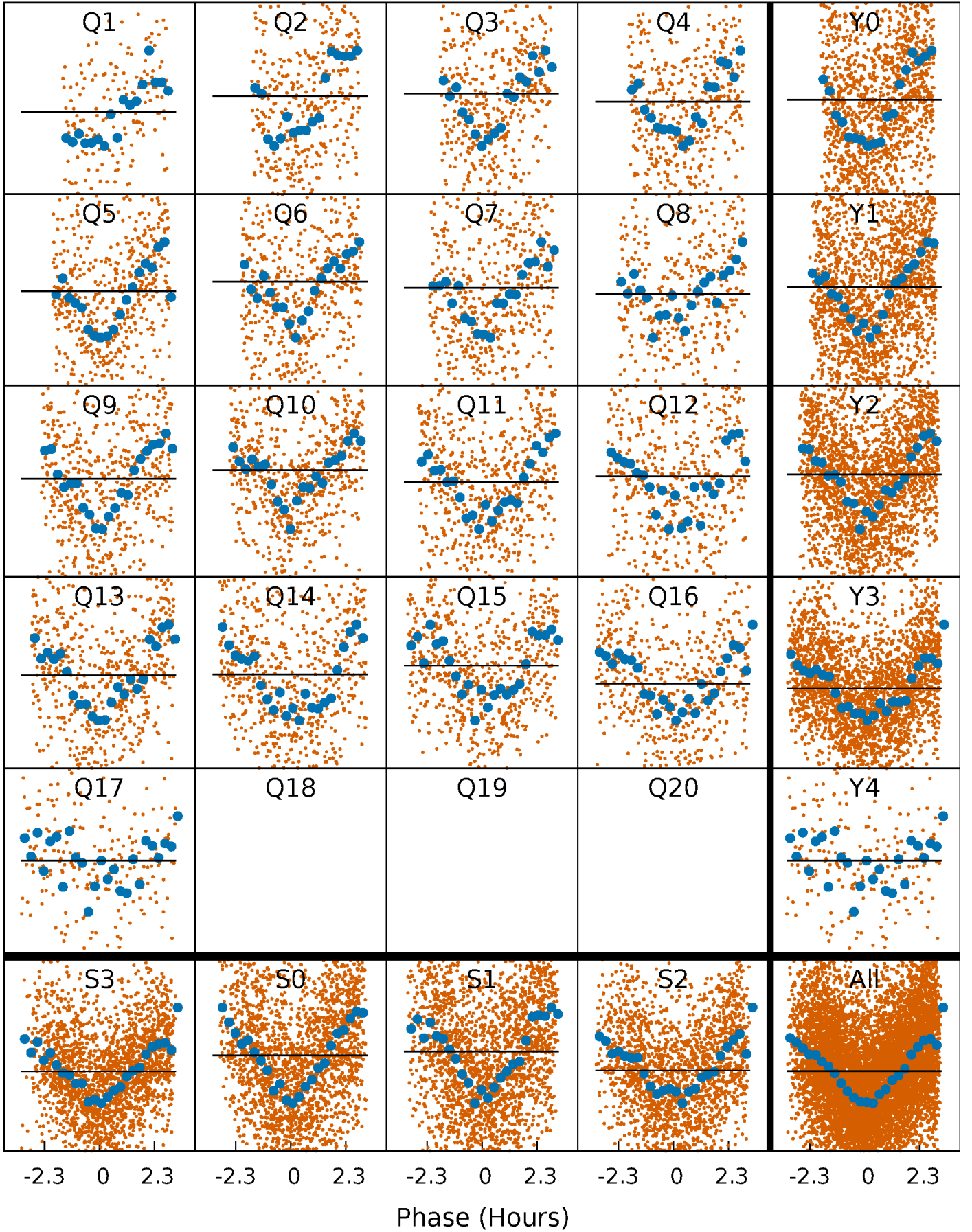
PDC Quarter-Phased Transit Curves

TCE 011656492-04 $P = 0.727907$ Days $T_0 = 131.954944$ (BKJD)



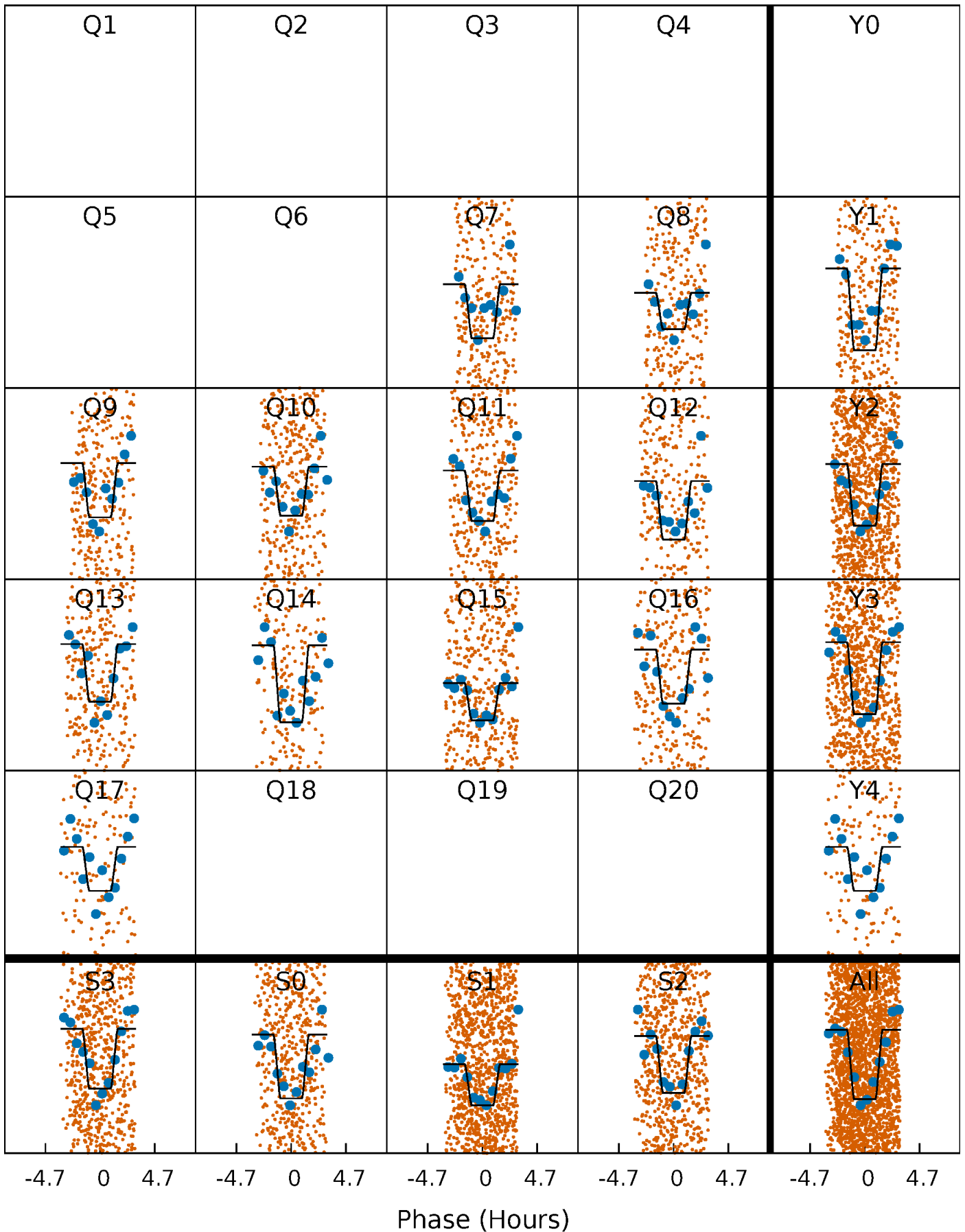
DV Quarter-Phased Transit Curves

TCE 011656492-04 P= 0.727907 Days $T_0=131.954944$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

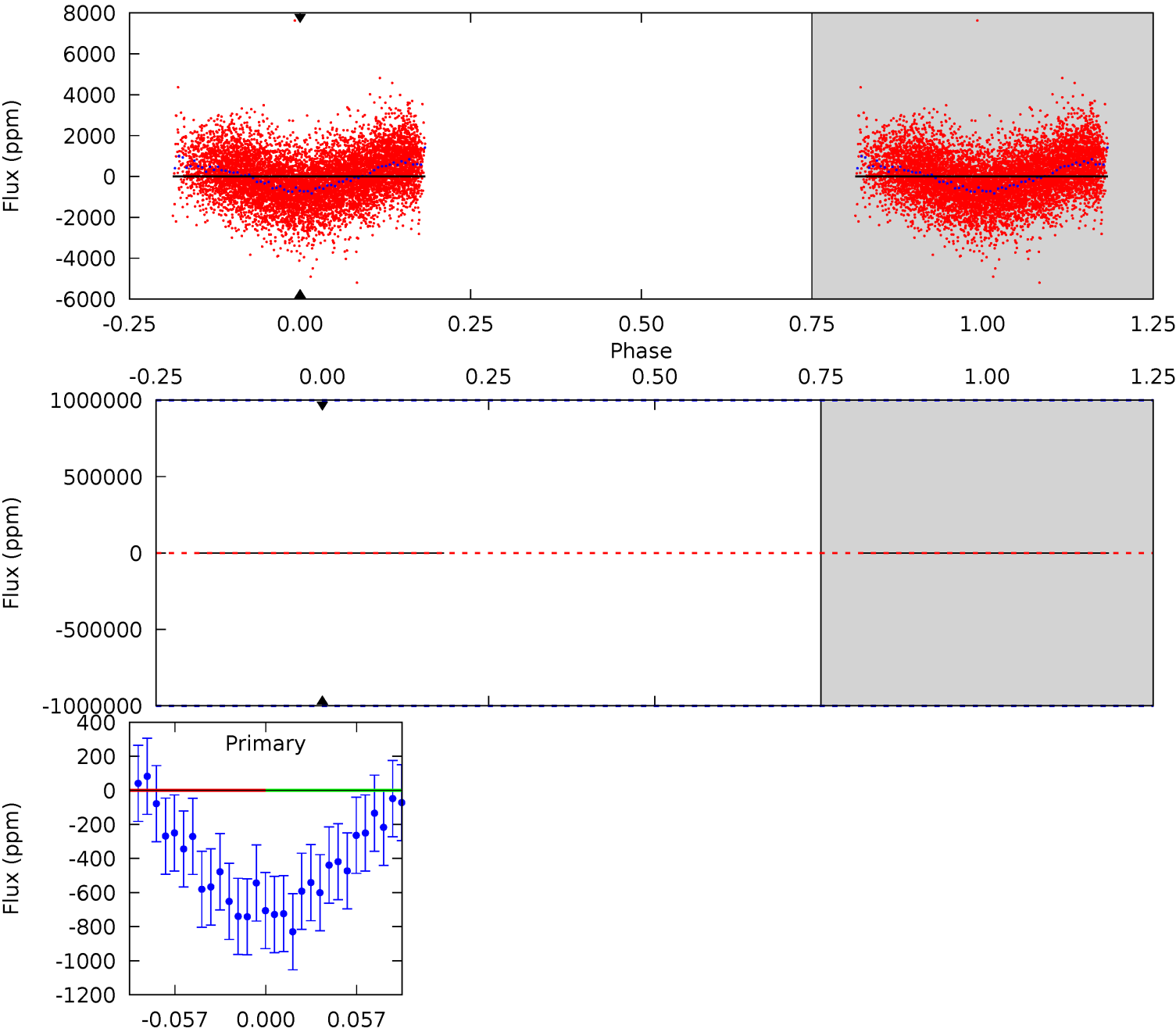
TCE 011656492-04 $P = 0.727907$ Days $T_0 = 131.959859$ (BKJD)



DV Model-Shift Uniqueness Test

011656492-04, P = 0.727907 Days, E = 131.954944 Days

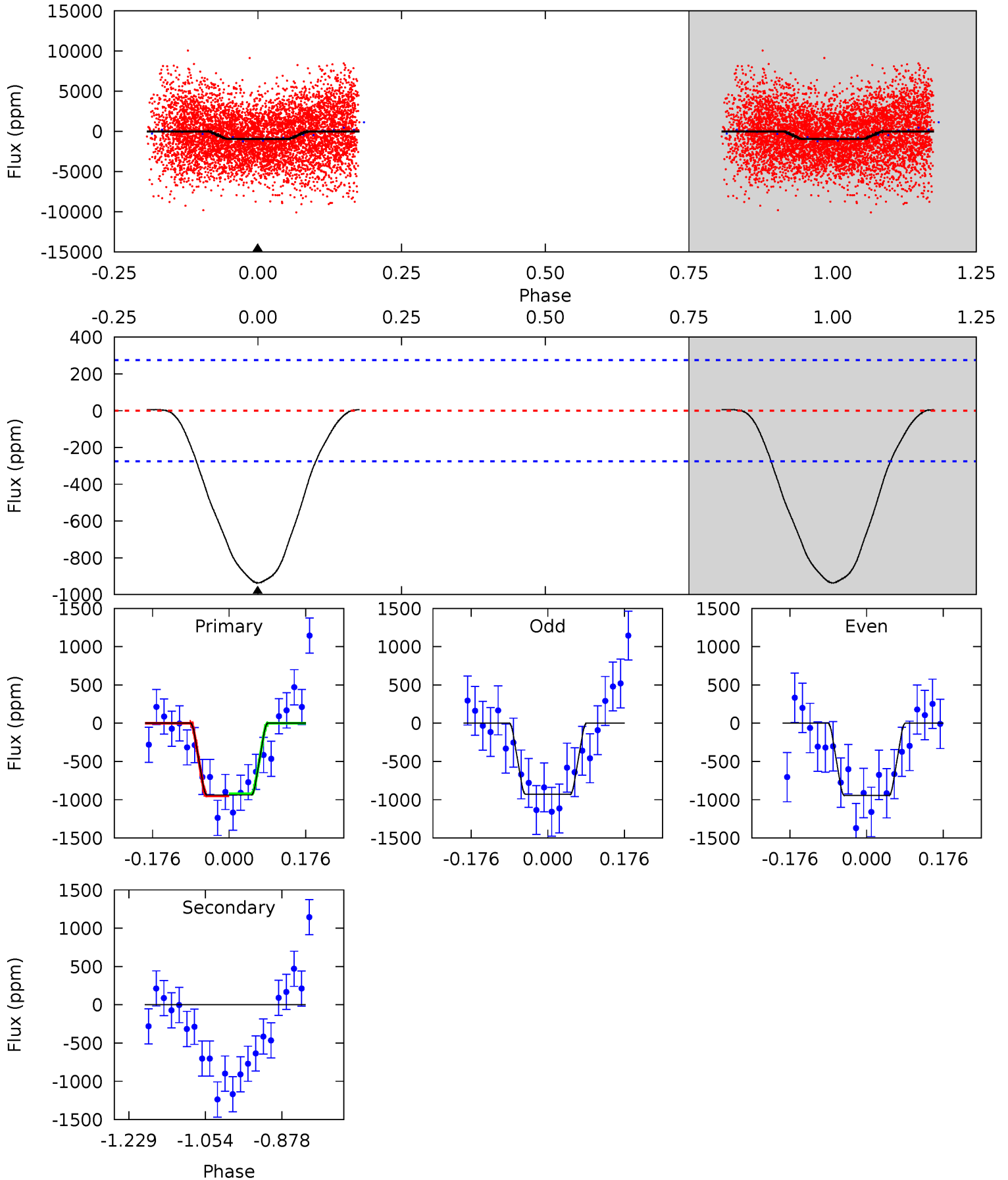
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

011656492-04, P = 0.727907 Days, E = 131.959859 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	0	0	0	4.45	1.35	0.13	15.1	15.1	0	0	0.13	1.02	0.01	0.21



Stellar Parameters For KIC 011656492

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8552^{+235}_{-404}	$3.921^{+0.266}_{-0.143}$	$0.070^{+0.200}_{-0.550}$	$2.691^{+0.786}_{-0.961}$	$2.201^{+0.326}_{-0.605}$	$0.159^{+0.291}_{-0.067}$
	+3%/-5%	+7%/-4%	+286%/-786%	+29%/-36%	+15%/-27%	+183%/-42%
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 011656492-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$18.98^{+22.75}_{-13.47}$	5914^{+436}_{-539}	-6201^{+84540}_{-48708}	$-0.591^{+154.807}_{-97.232}$
Alt.	0 ± 62	$23.83^{+23.06}_{-17.06}$	5895^{+494}_{-552}	-4767^{+489}_{-405}	$0.000^{+0.054}_{-0.037}$

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

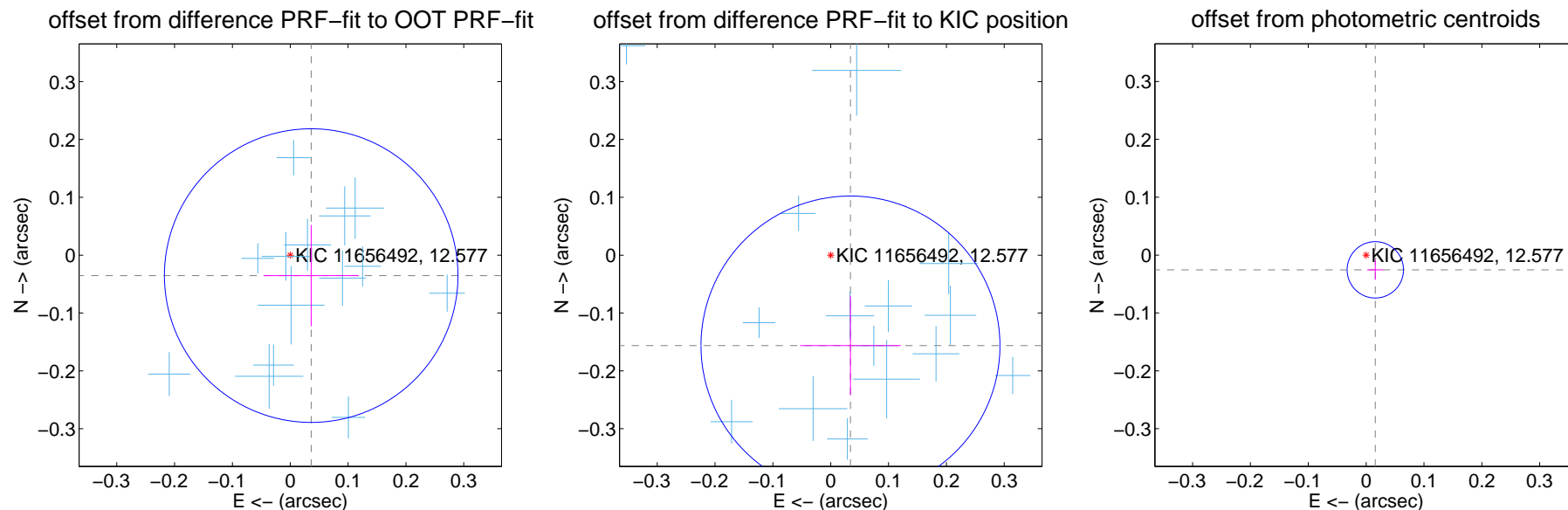
DV Centroid Data

Supplemental centroid analysis for 011656492-04. Kepler magnitude: 12.58. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

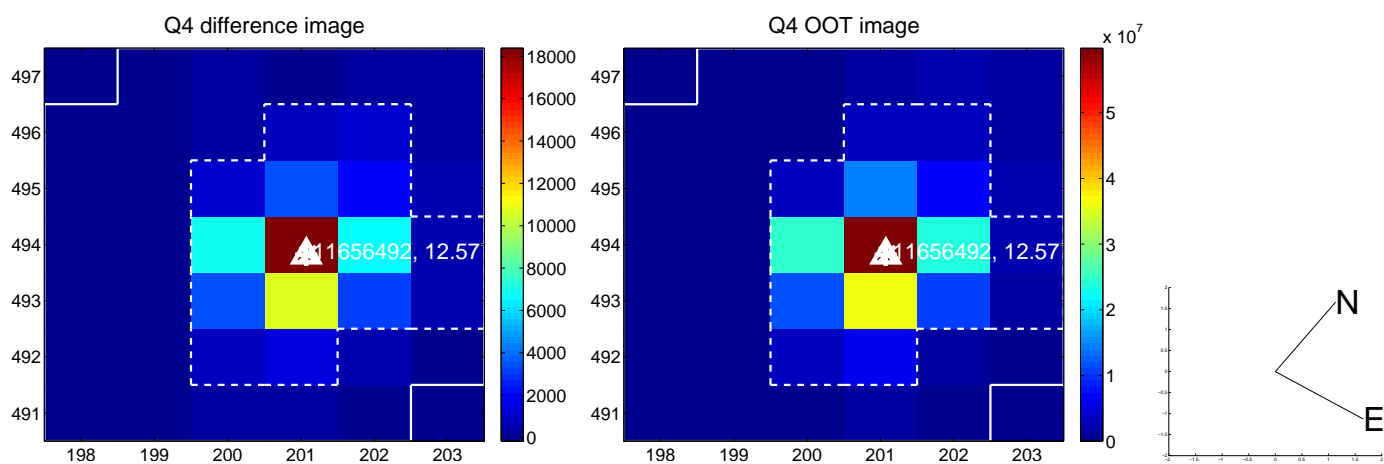
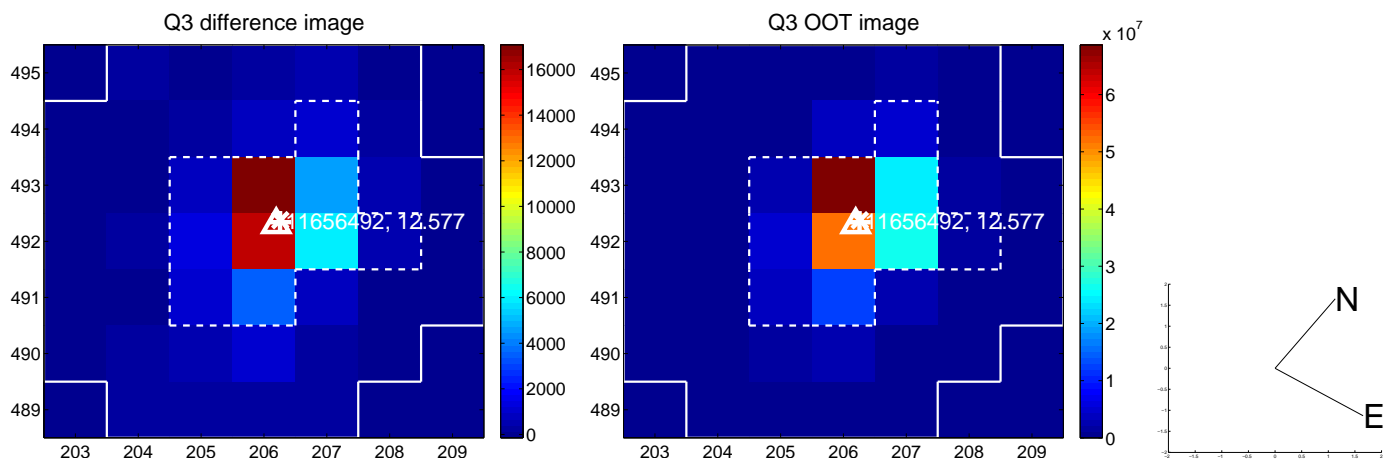
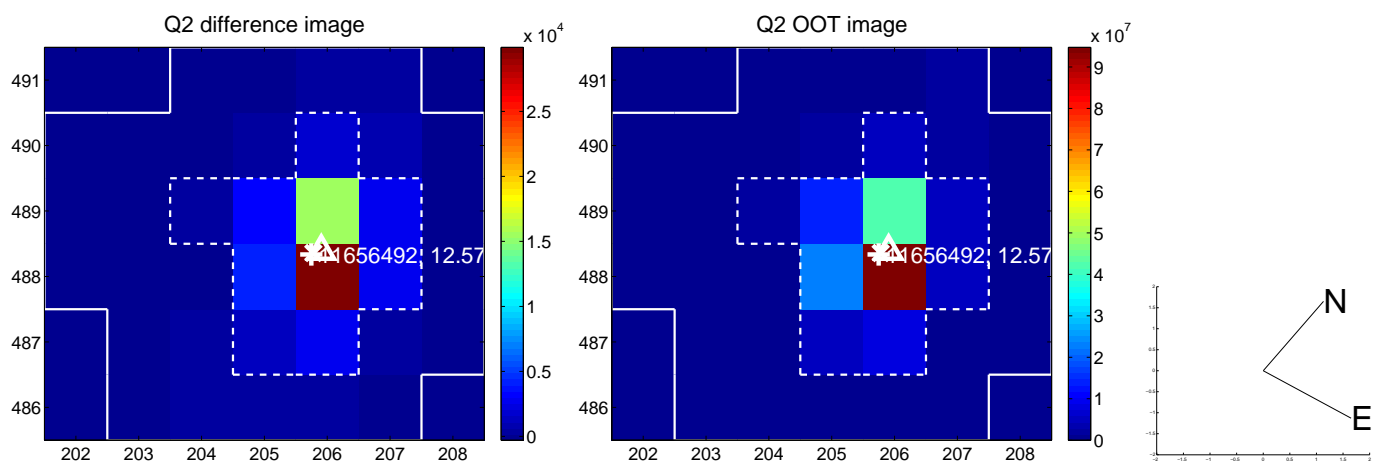
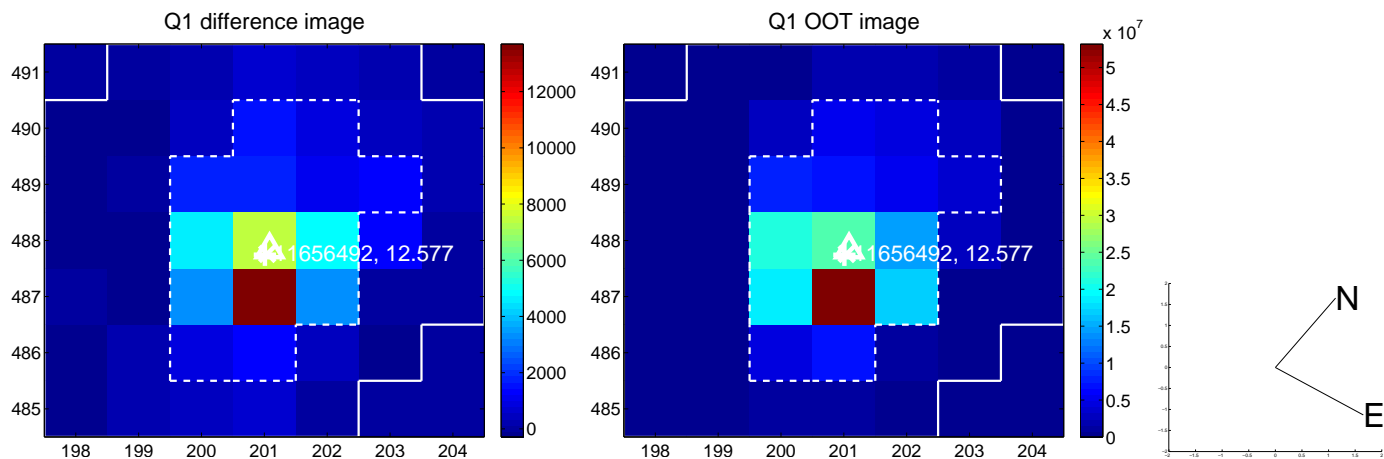
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.051 ± 0.085	0.60	-0.036 ± 0.082	-0.035 ± 0.088
PRF-fit source offset from KIC position	0.160 ± 0.086	1.86	-0.034 ± 0.087	-0.156 ± 0.086
photometric centroid source offset	0.03 ± 0.02	1.85	-0.02 ± 0.01	-0.03 ± 0.02

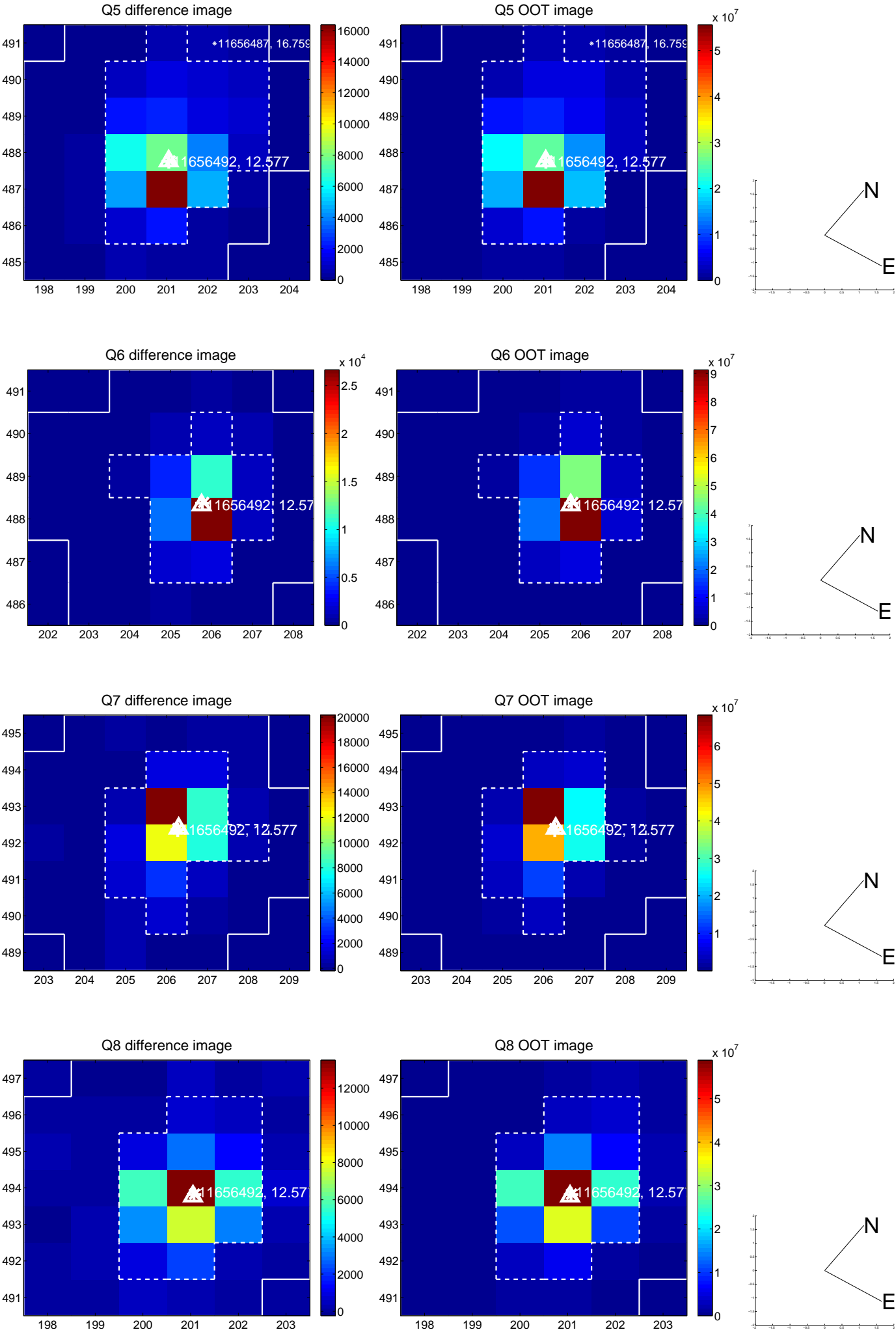


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

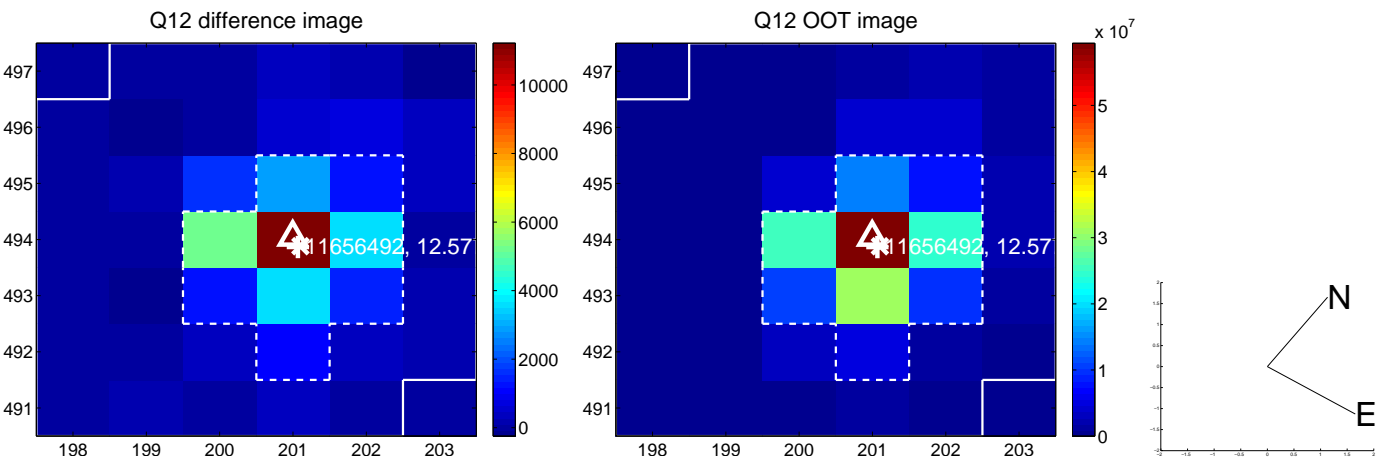
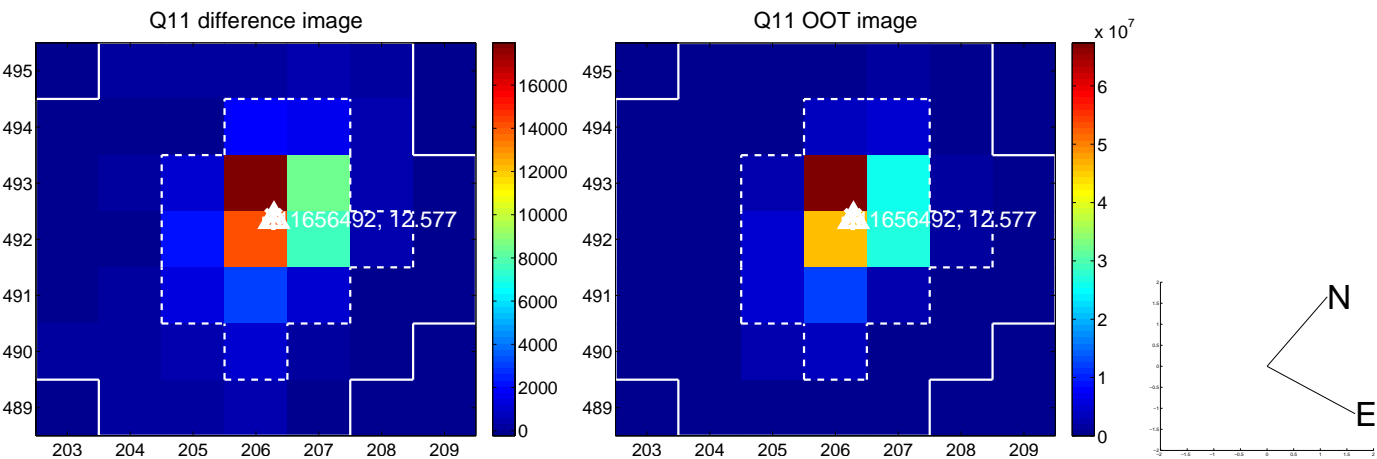
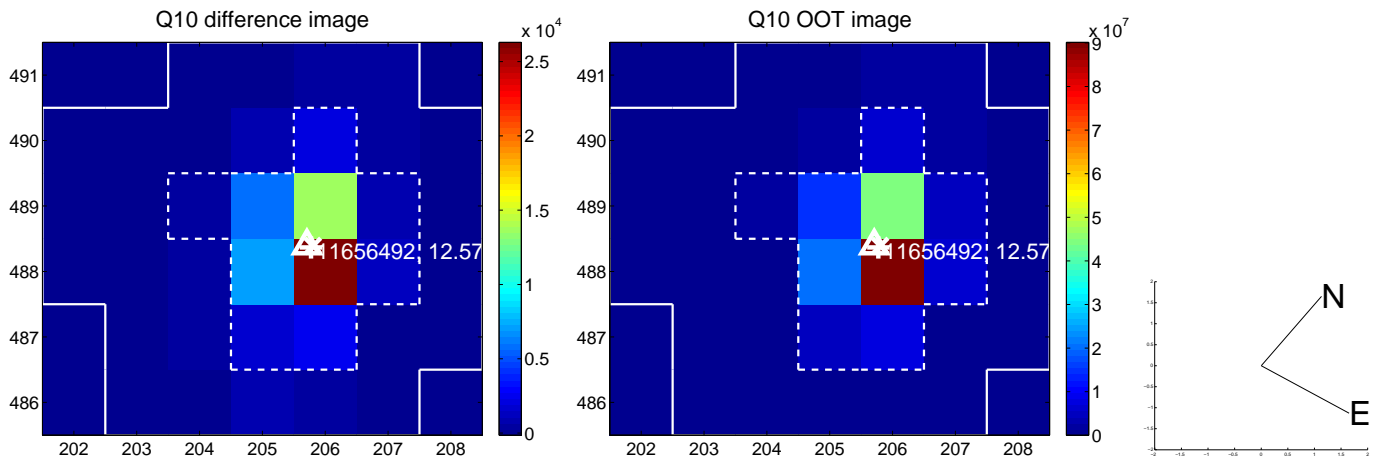
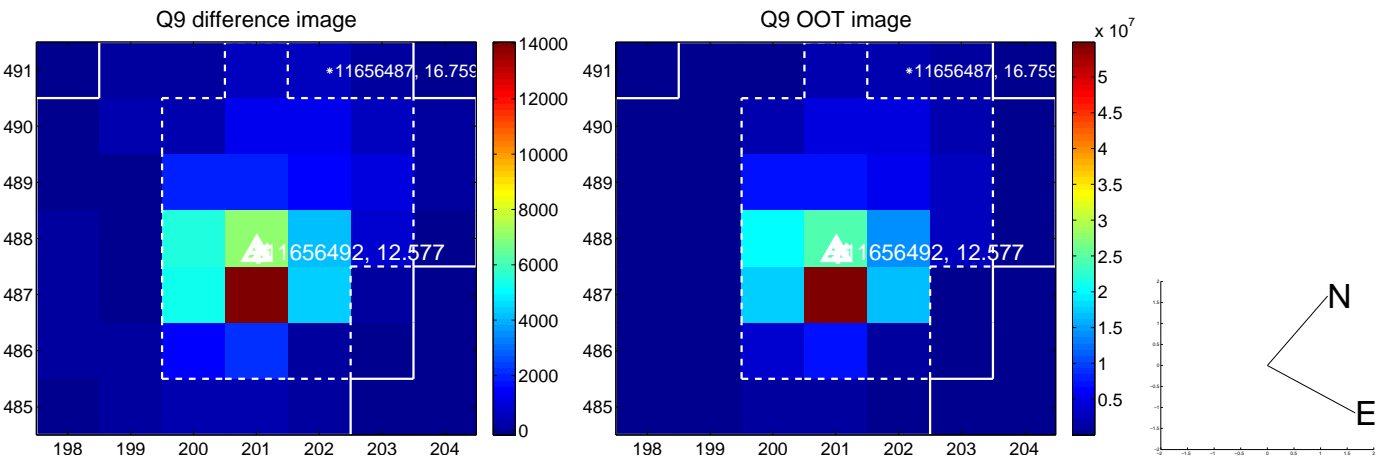
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



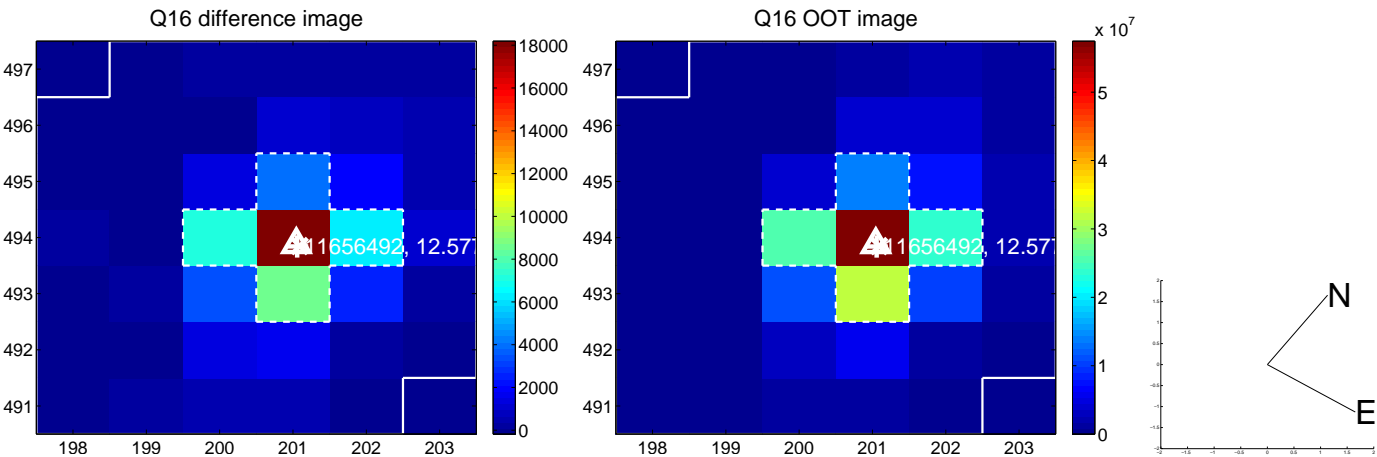
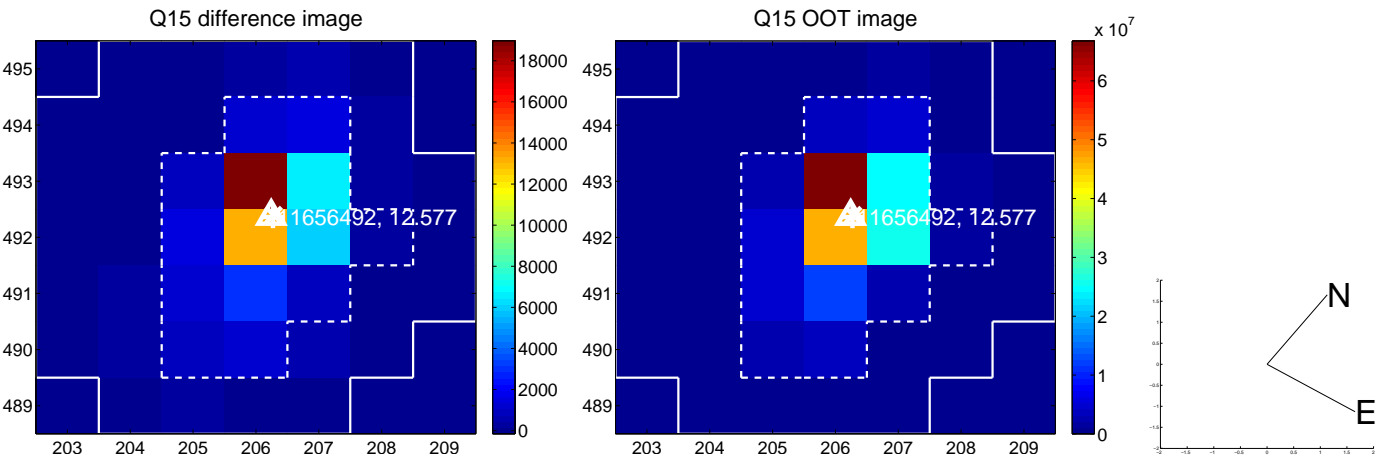
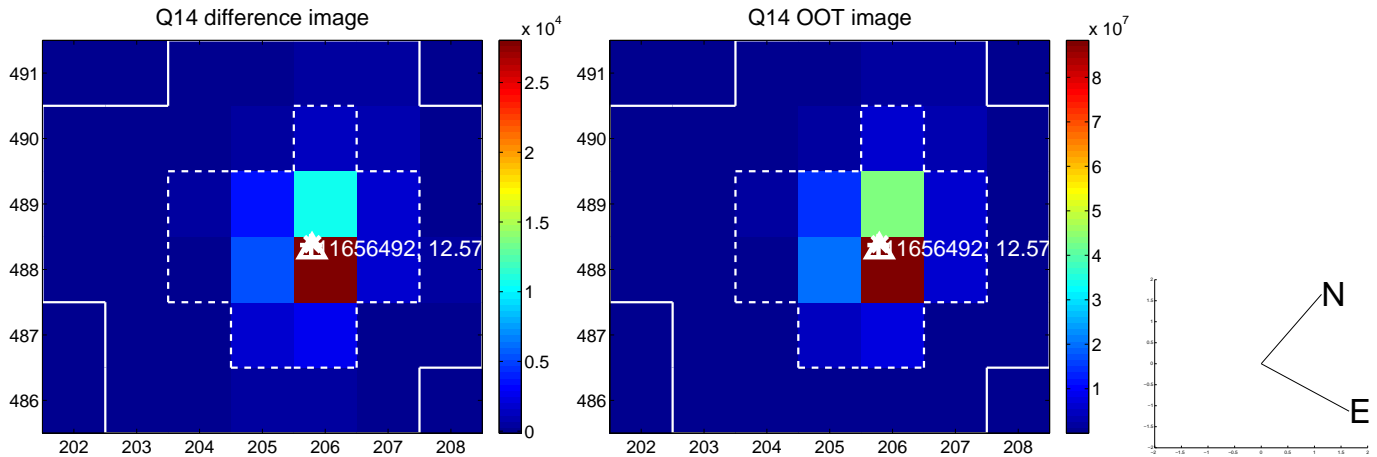
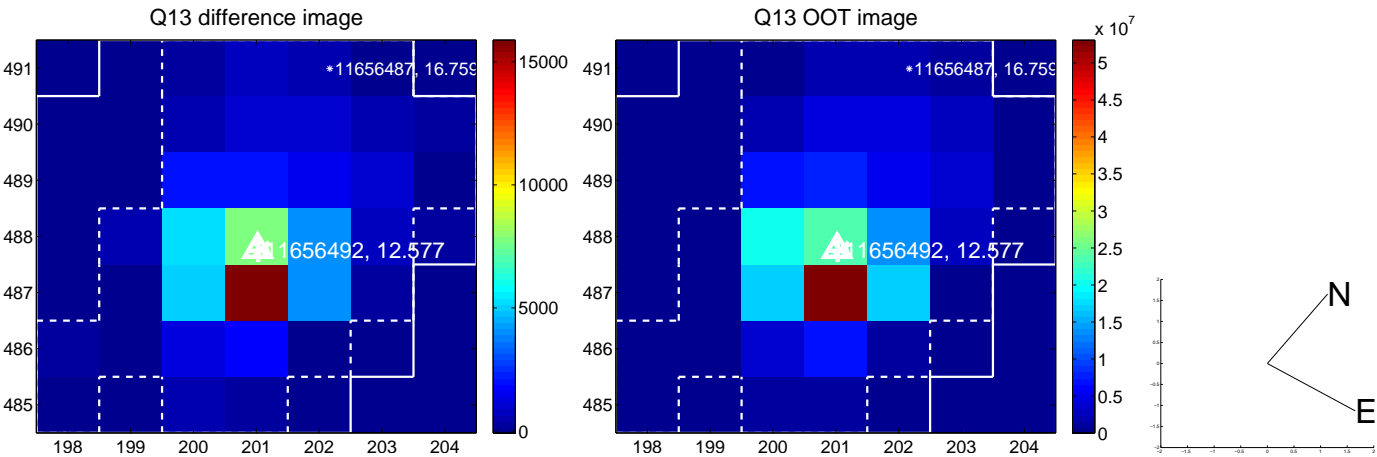
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



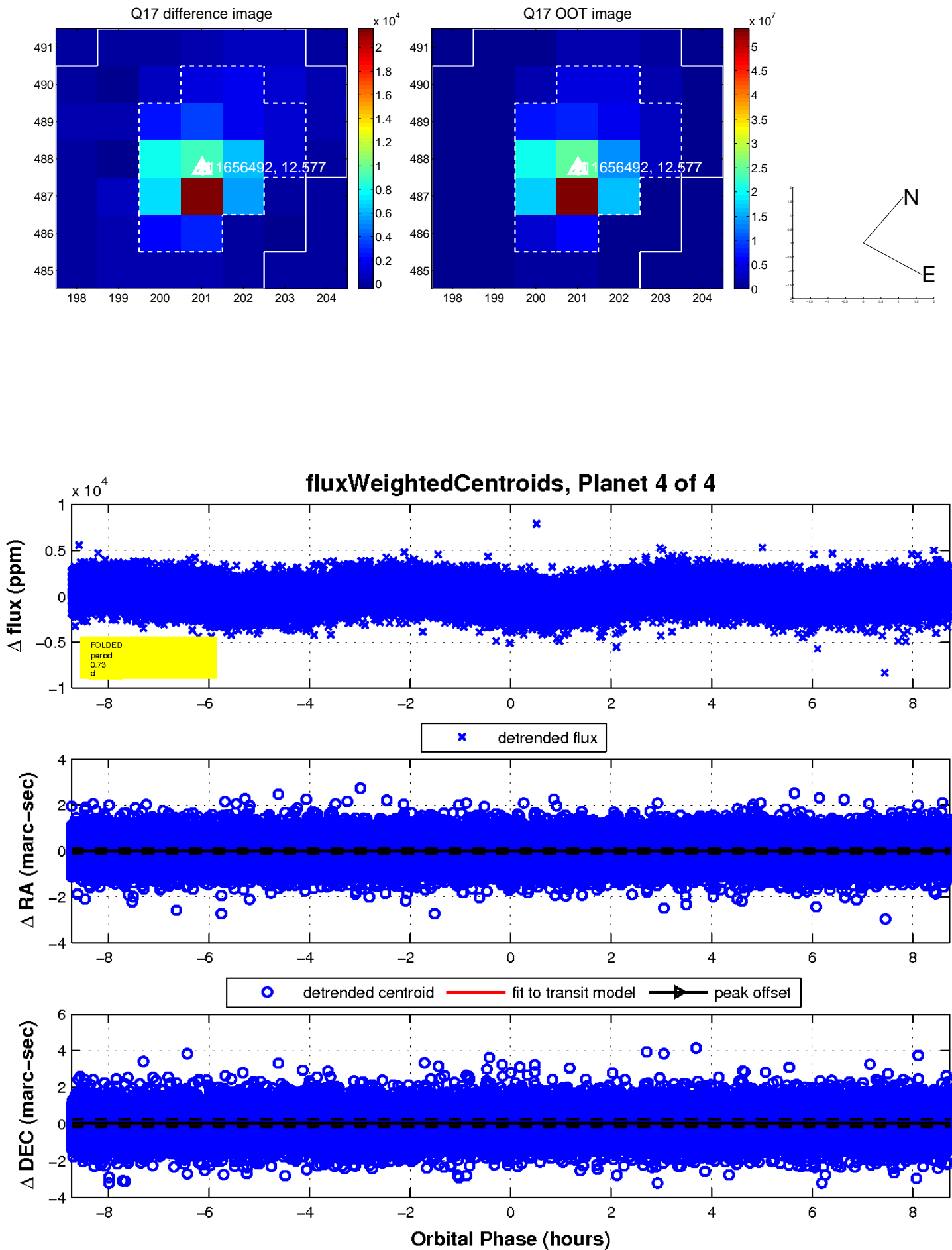
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

