

KIC 012208157

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})
012208157-01	OBS	No	1.443645	132.745369	114.6	2.500	10.2	-1.0	2.07	6666	2.23	10767.35
012208157-02	OBS	No	1.508045	132.206264	26.0	3.258	7.9	8.3	2.07	6666	1.27	10158.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012208157-01	OBS	FP	0.00	1	0	1	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST
012208157-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

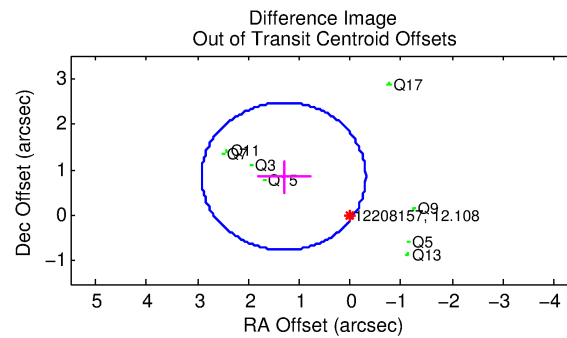
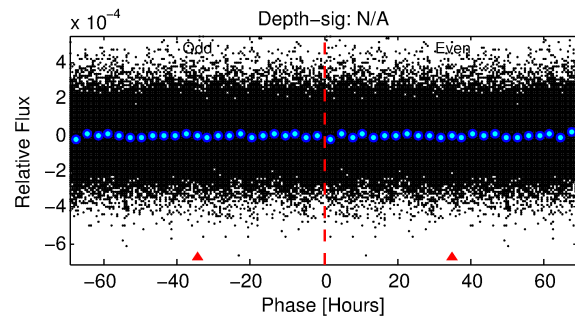
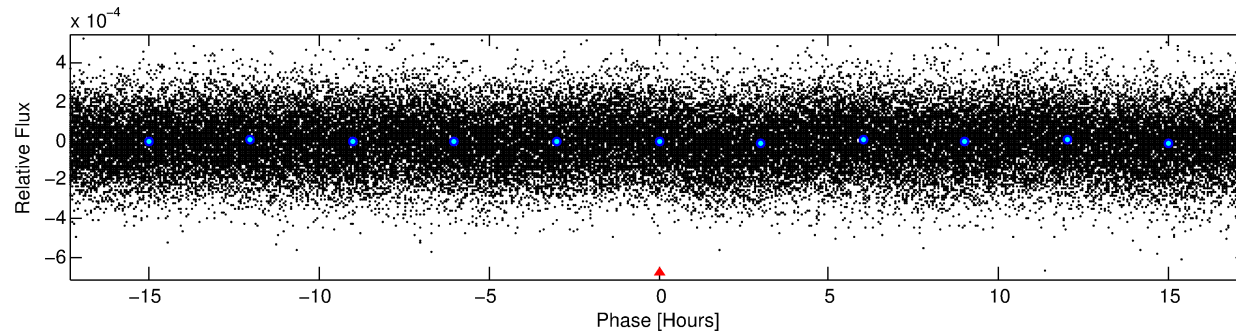
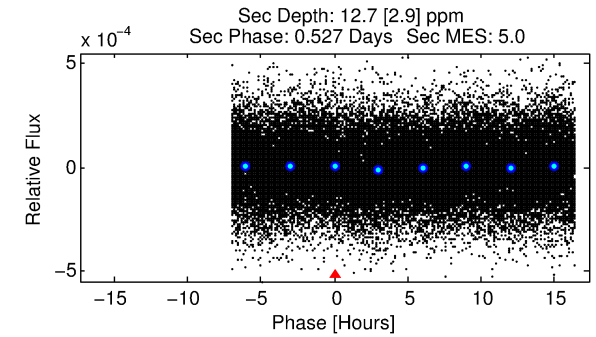
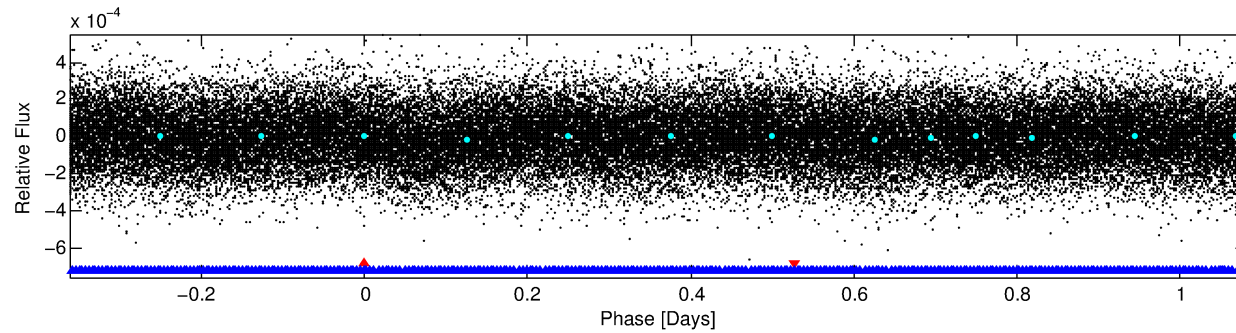
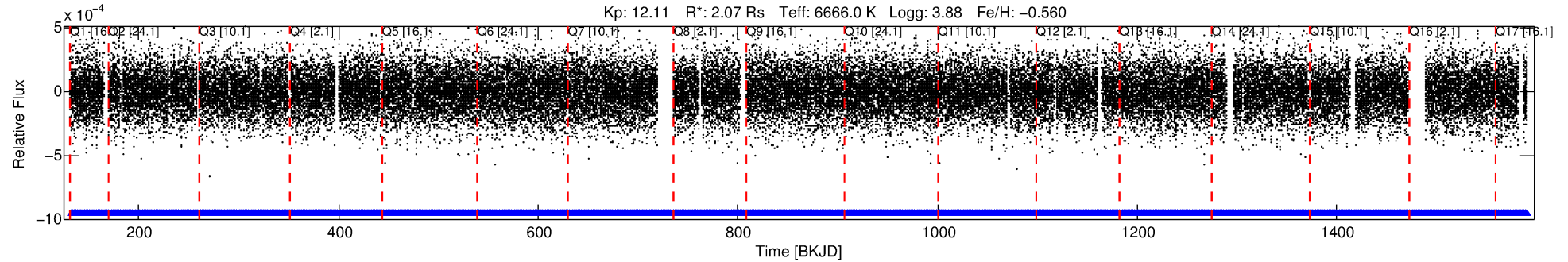
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012208157-01

No Significant Match Found

DV One-Page Summary

KIC: 12208157 Candidate: 1 of 2 Period: 1.444 d



TPS TCE Results:

Period = 1.44365 d
Epoch = 132.7454 BKJD

DV fit results are unavailable

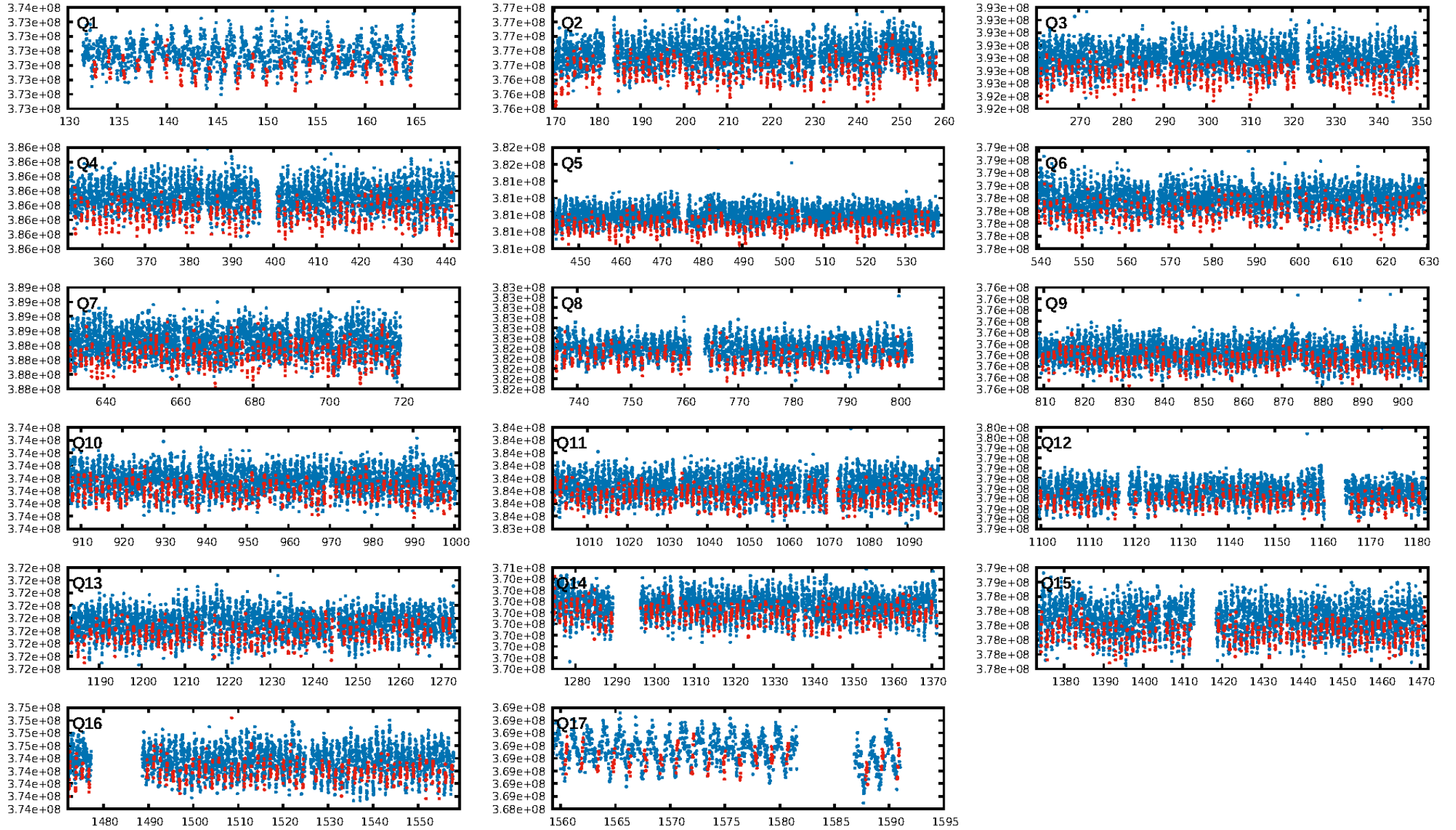
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 29.3% [0.38 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.20e-18
RollingBand-fgt: 1.00 [909/909]
GhostDiagnostic-chr: 0.1807
Centroid-sig: 60.9%
Centroid-so: 0.168 arcsec [2.04 σ]
OotOffset-rm: 1.560 arcsec [2.90 σ]
KicOffset-rm: 1.609 arcsec [2.70 σ]
OotOffset-st: 0/4/0/4 [8]
KicOffset-st: 0/4/0/4 [8]
DiffImageQuality-fgm: 0.88 [7/8]
DiffImageOverlap-fno: 0.00 [0/17]

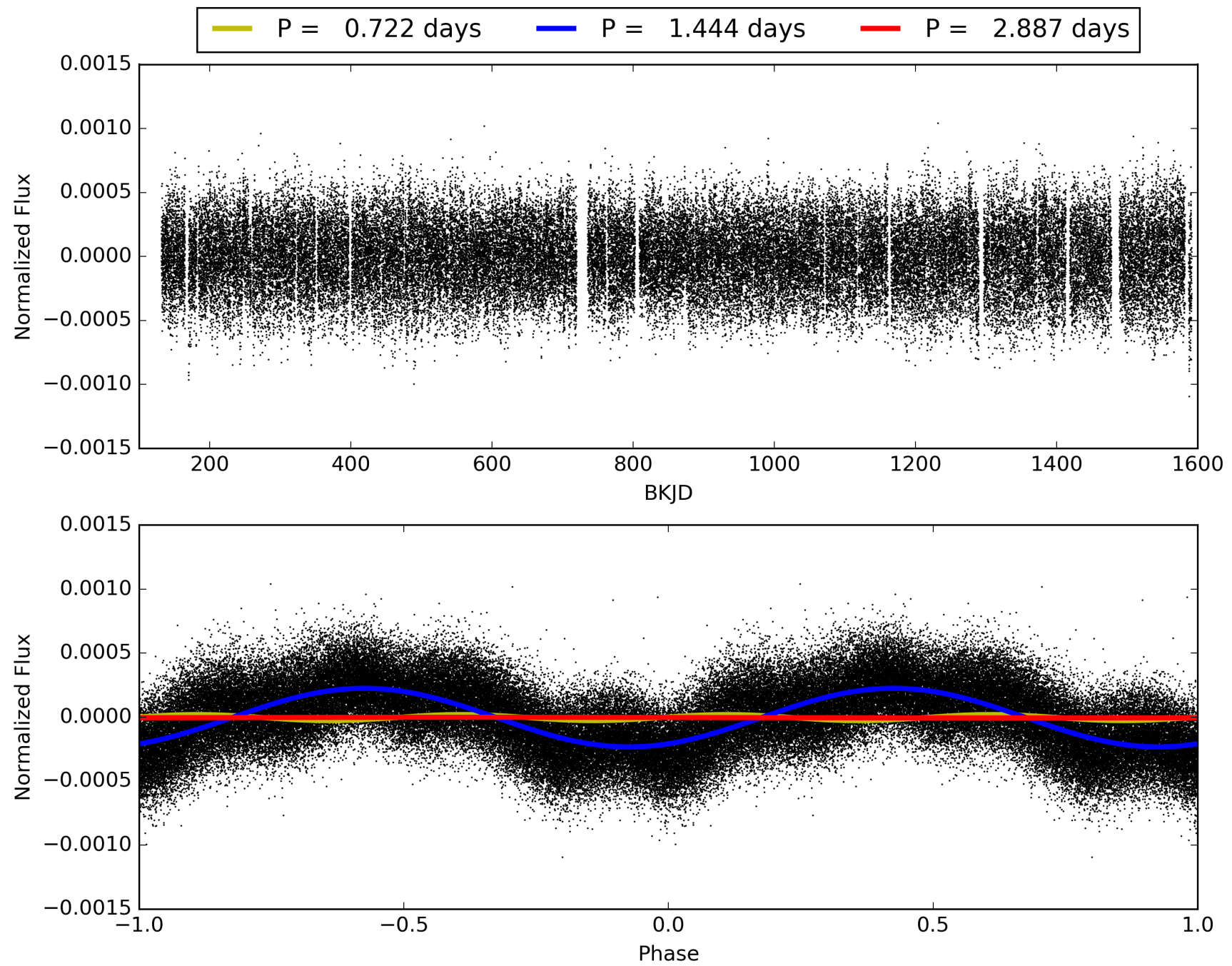
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:48:49 Z

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

TCE 012208157-01, PDC Light Curves

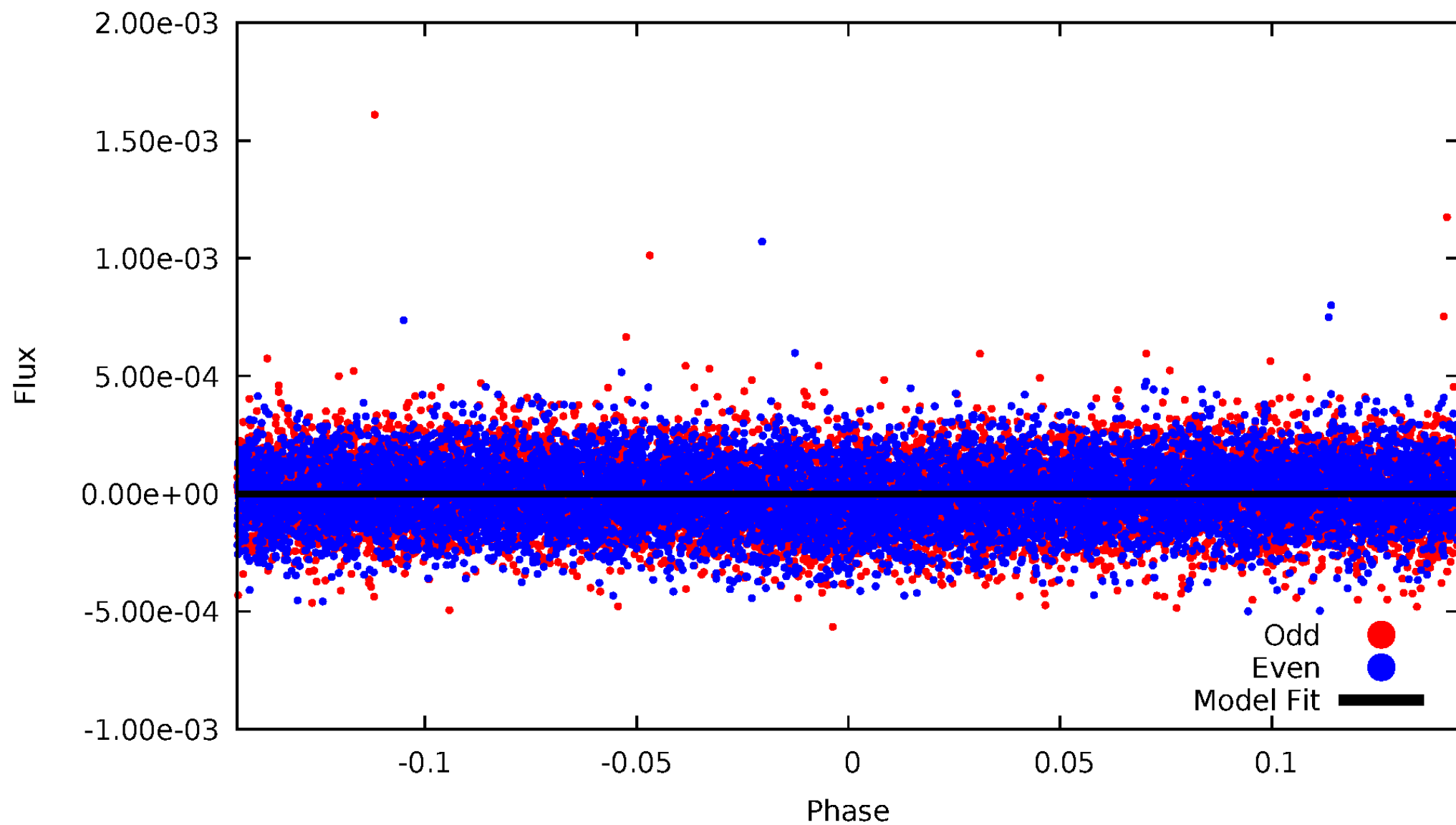


TCE 012208157-01



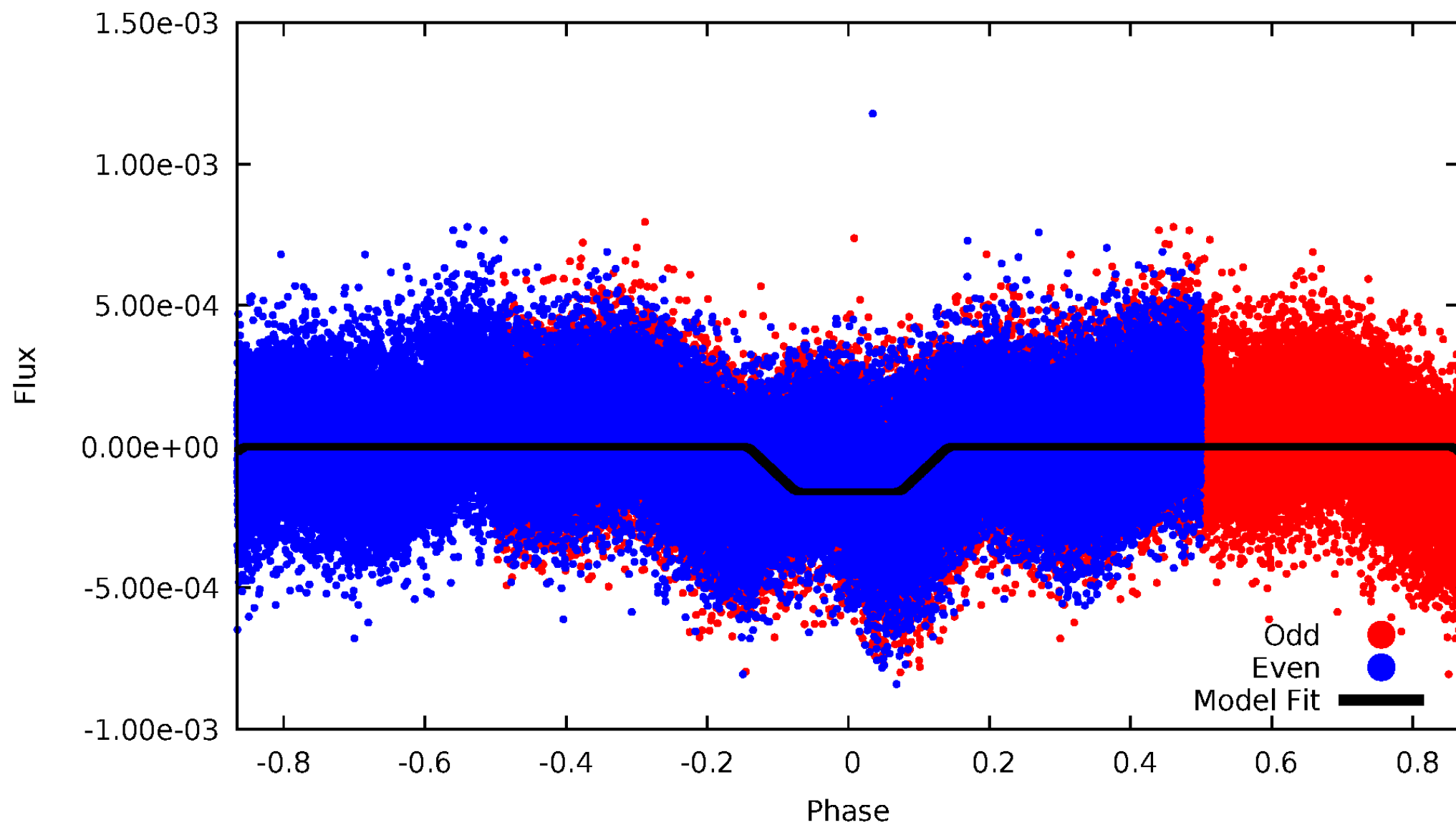
DV Odd/Even

TCE 012208157-01

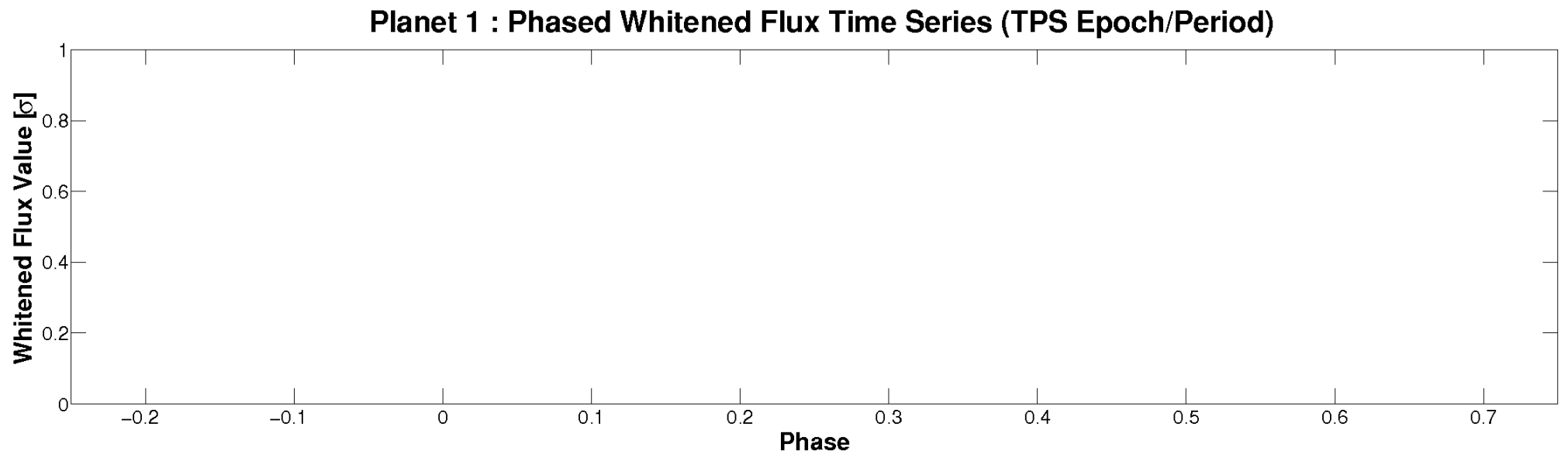
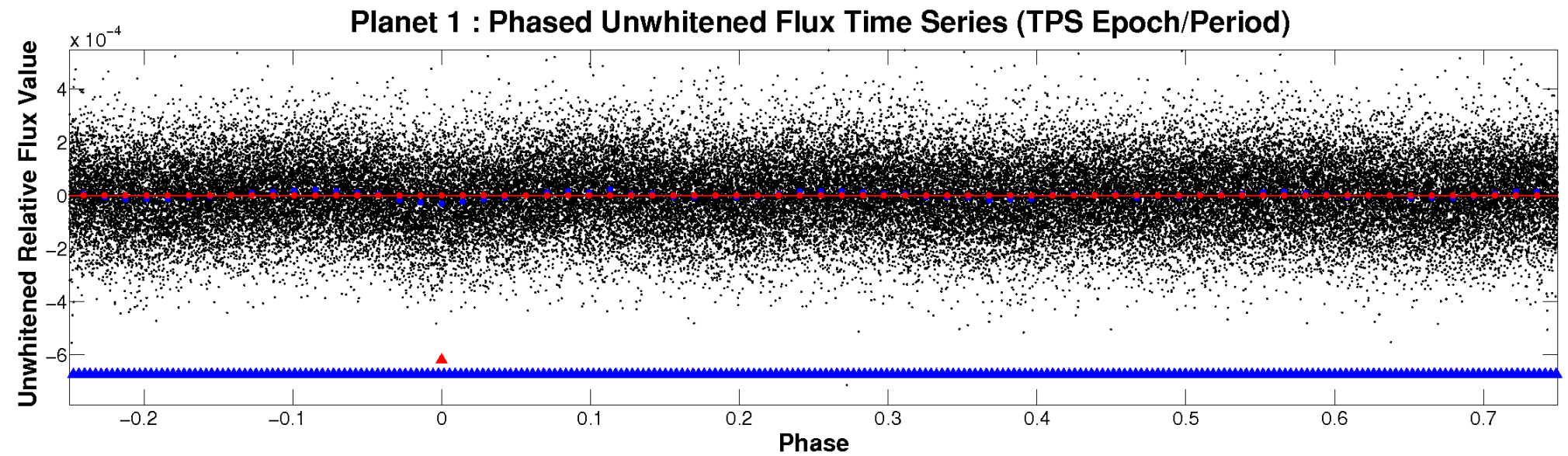


ALT Odd/Even

TCE 012208157-01

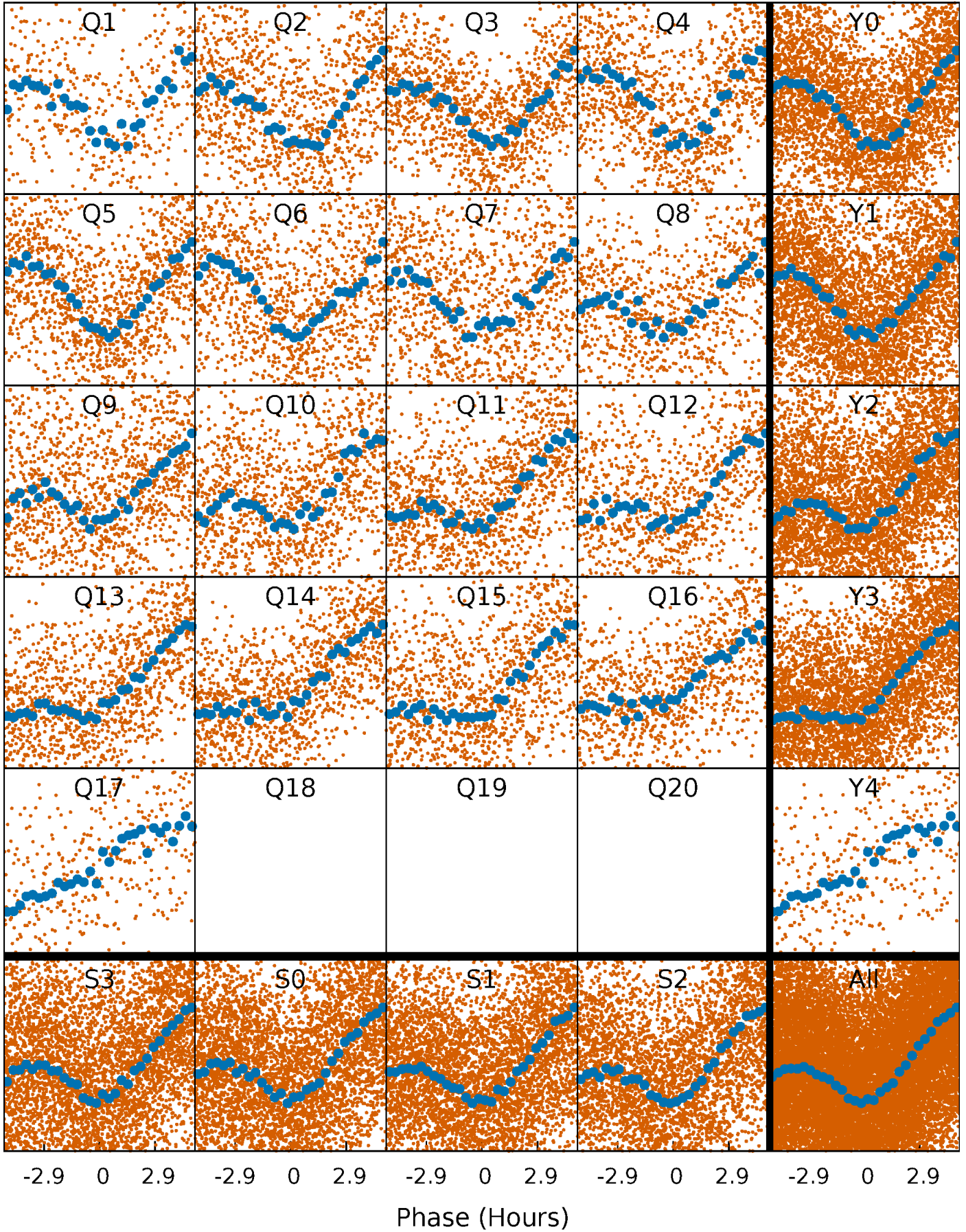


Non-Whitened Vs. Whitened Light Curve



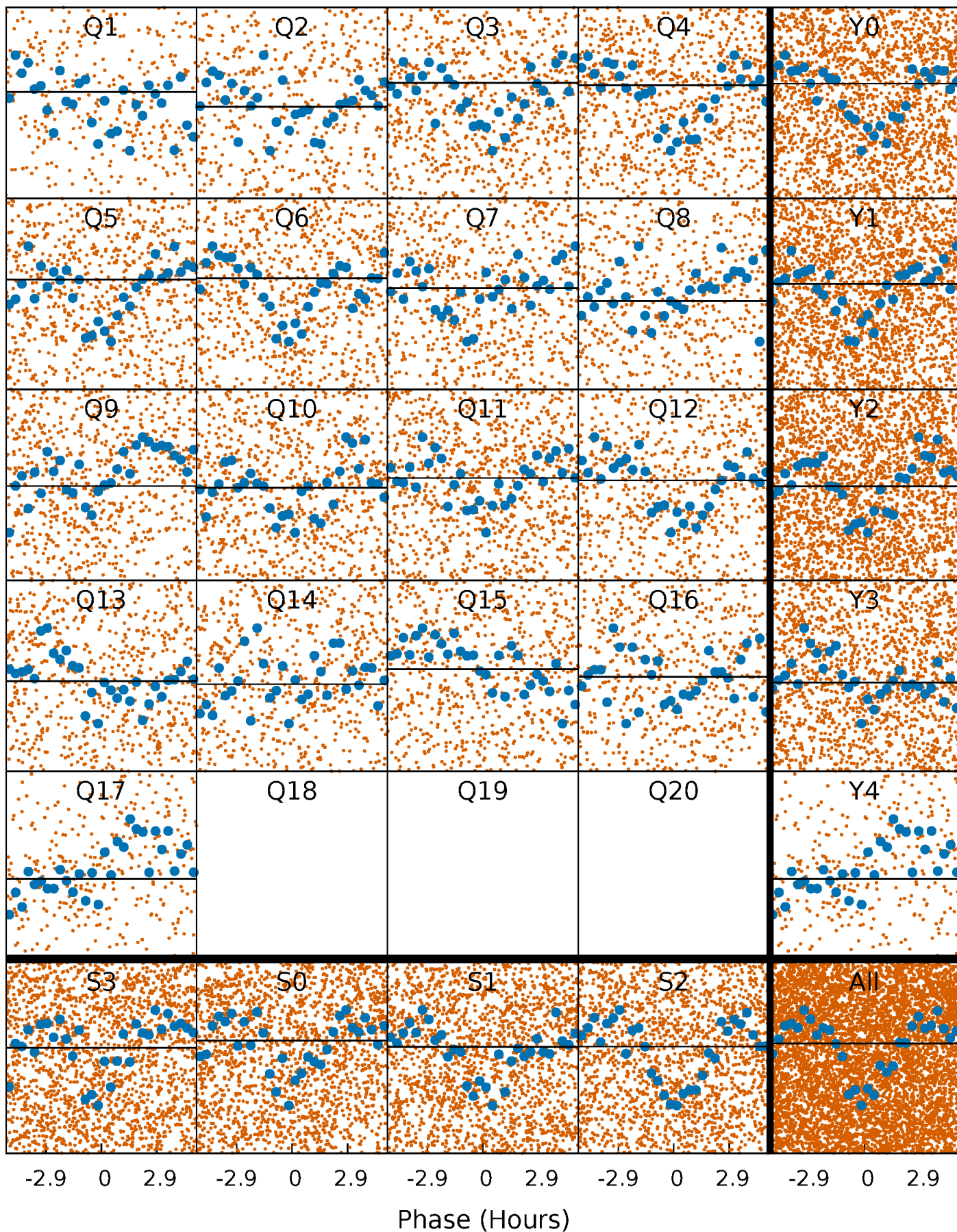
PDC Quarter-Phased Transit Curves

TCE 012208157-01 P= 1.443645 Days $T_0=132.745369$ (BKJD)



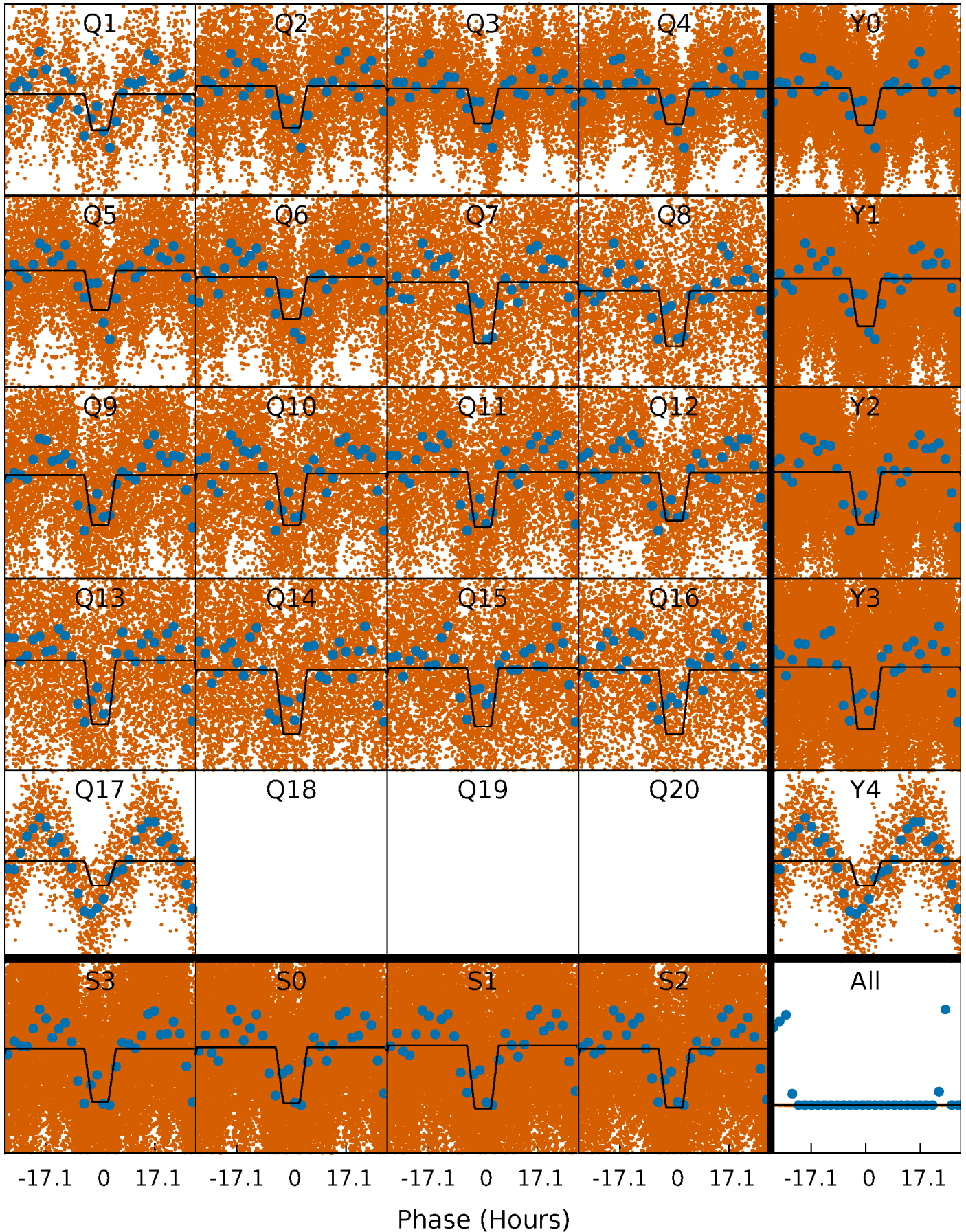
DV Quarter-Phased Transit Curves

TCE 012208157-01 P= 1.443645 Days $T_0=132.745369$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

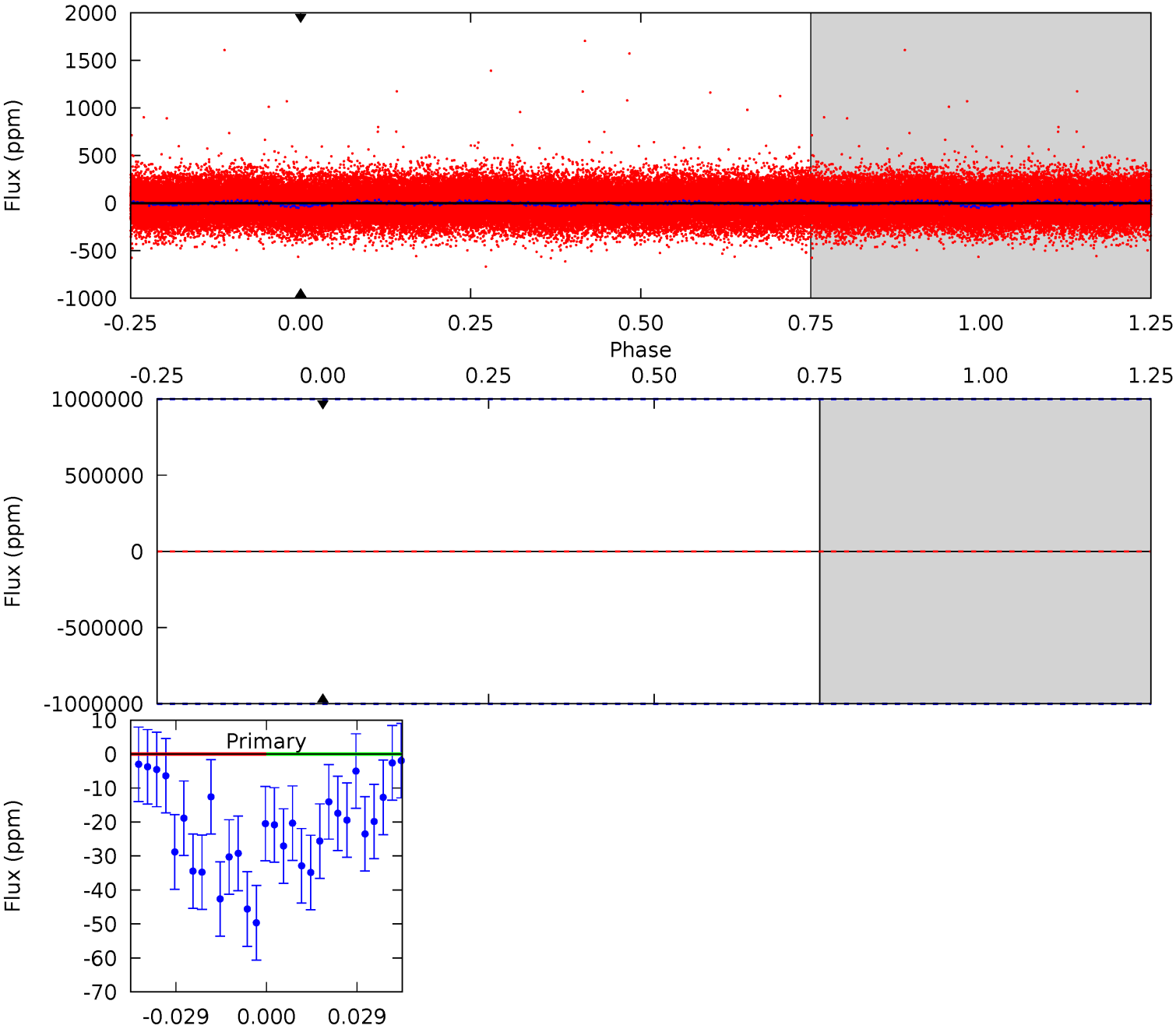
TCE 012208157-01 P= 1.443645 Days $T_0=132.665847$ (BKJD)



DV Model-Shift Uniqueness Test

012208157-01, P = 1.443645 Days, E = 131.301724 Days

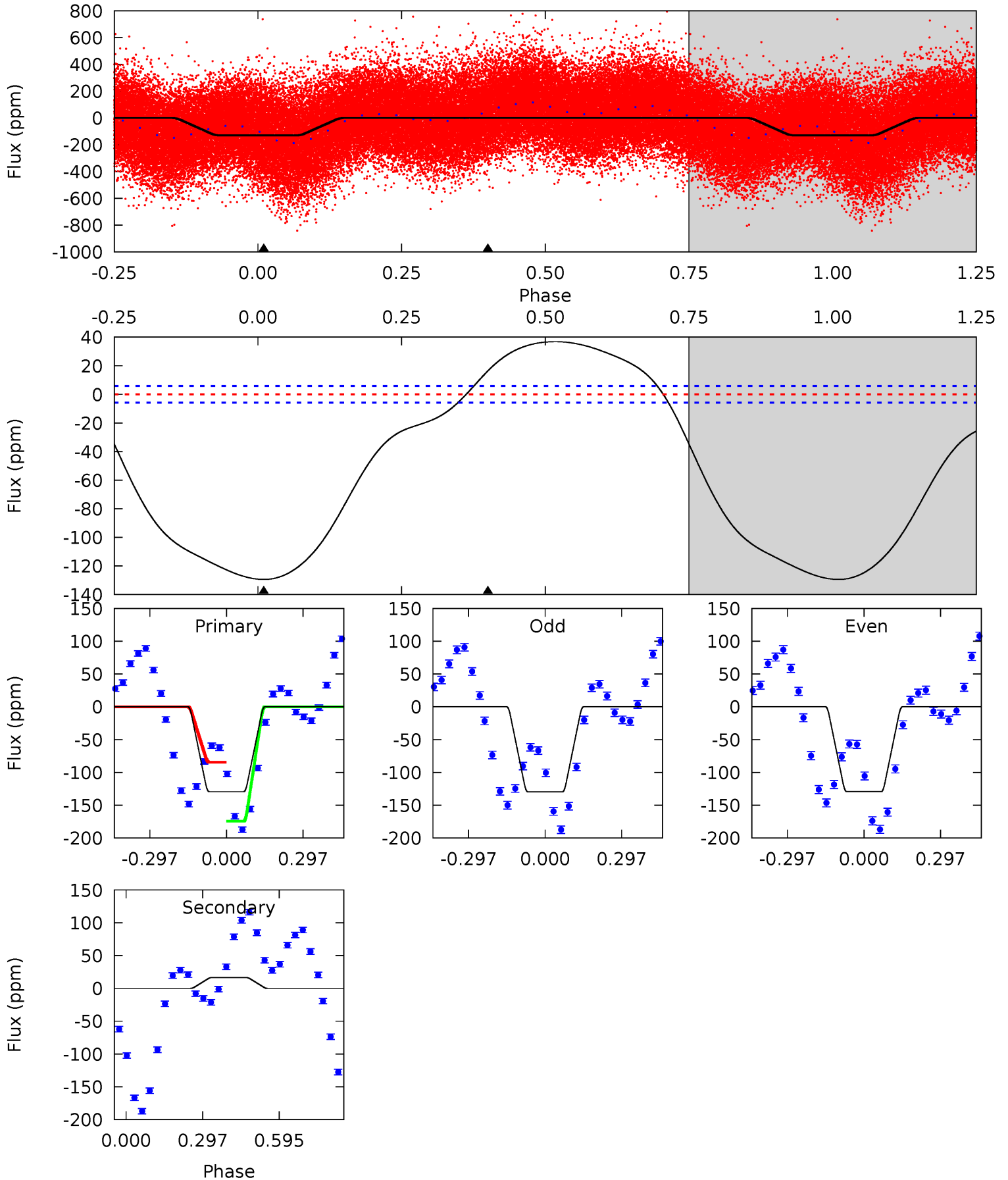
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

012208157-01, P = 1.443645 Days, E = 131.222202 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
96.0	-12.2	0	0	4.33	1.04	13.2	96.0	96.0	-12.2	-12.2	0.11	1.05	0.22	33.8



Stellar Parameters For KIC 012208157

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6666^{+190}_{-238}	$3.883^{+0.448}_{-0.112}$	$-0.560^{+0.300}_{-0.300}$	$2.068^{+0.487}_{-0.904}$	$1.192^{+0.182}_{-0.223}$	$0.190^{+0.773}_{-0.062}$
	+3%/-4%	+12%/-3%	+54%/-54%	+24%/-44%	+15%/-19%	+408%/-33%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012208157-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$13.51^{+15.43}_{-9.16}$	3492^{+279}_{-417}	-3941^{+35937}_{-26988}	$-0.757^{+352.521}_{-331.164}$
Alt.	16 ± 1	$14.49^{+16.49}_{-9.98}$	3525^{+244}_{-424}	-3506^{+232}_{-313}	$-0.029^{+0.023}_{-0.283}$

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

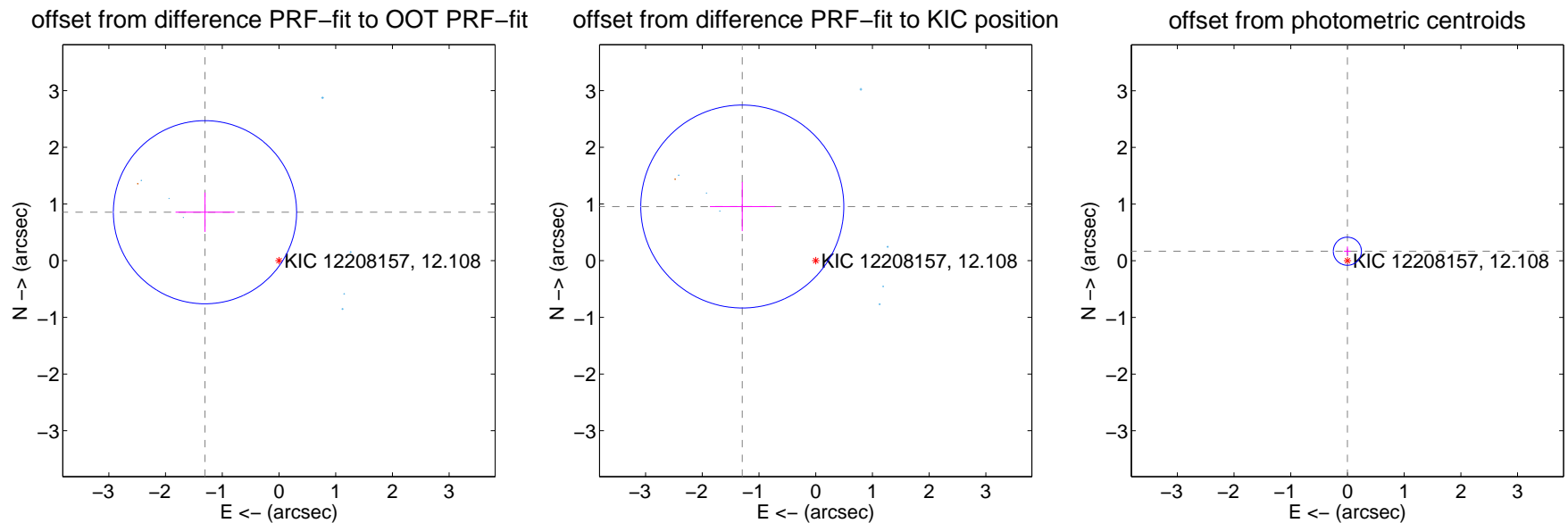
DV Centroid Data

Supplemental centroid analysis for 012208157-01. Kepler magnitude: 12.11. Transit SNR -1.00

There are 7 quarters with good PRF difference image offsets

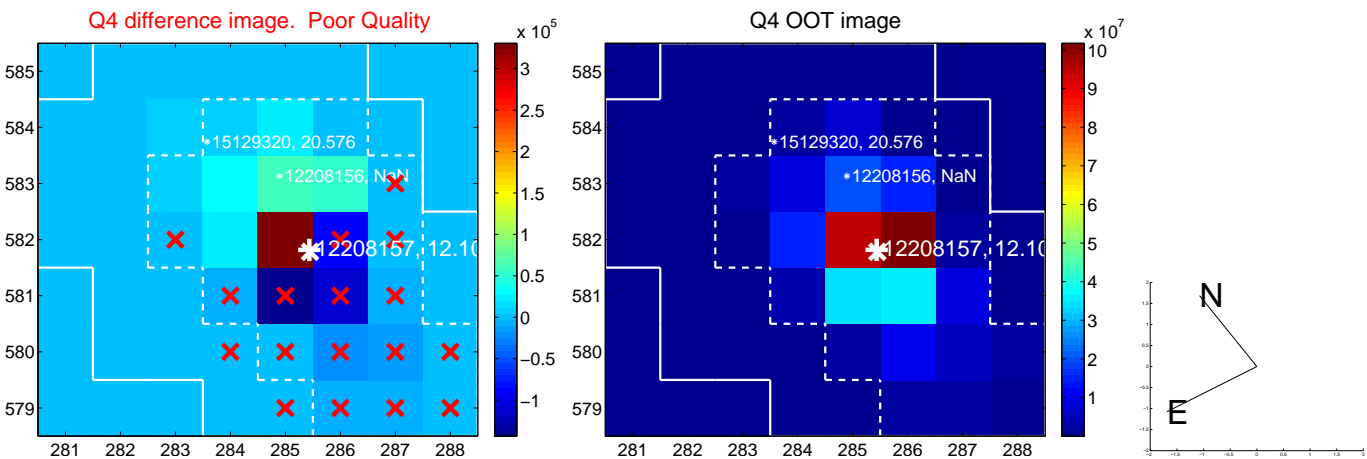
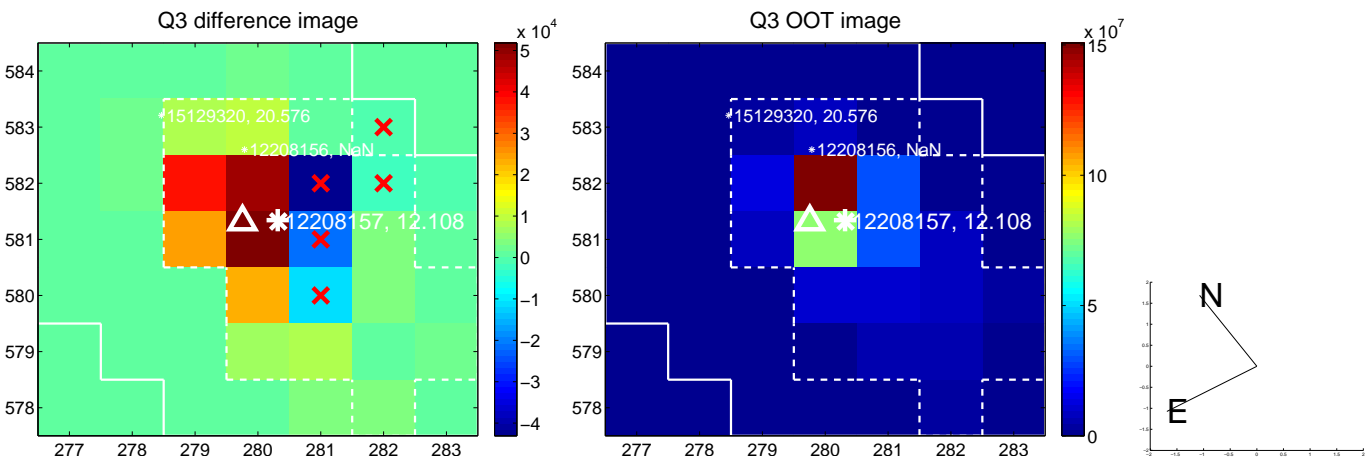
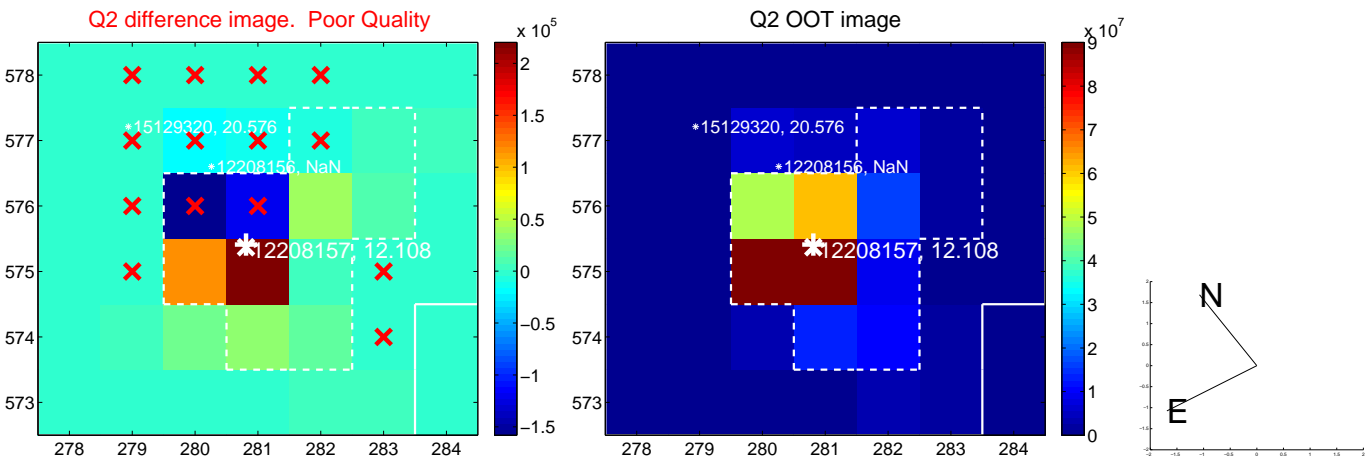
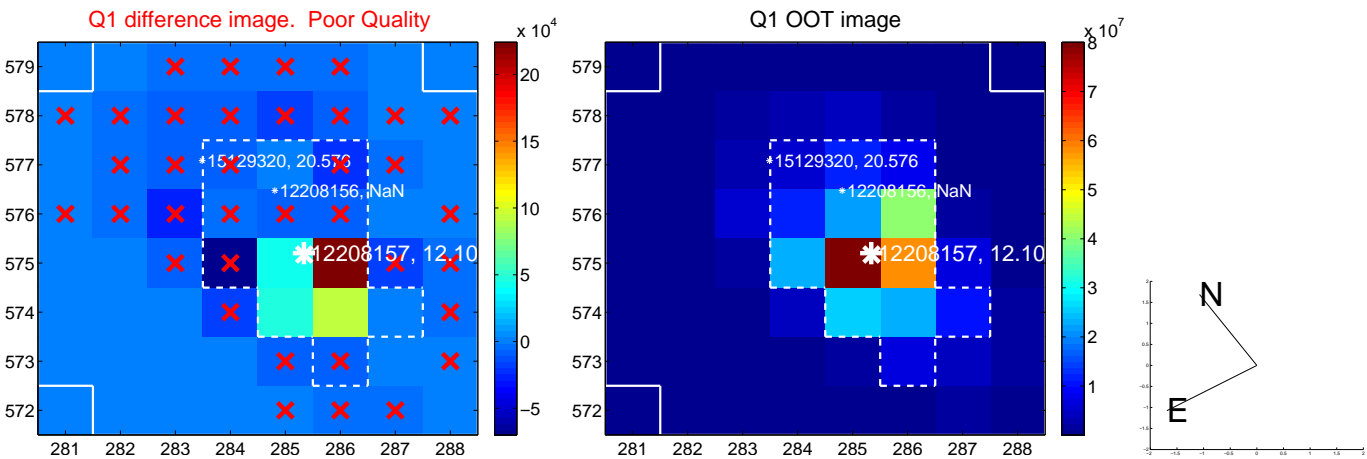
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.560 ± 0.538	2.90	1.305 ± 0.519	0.855 ± 0.347
PRF-fit source offset from KIC position	1.609 ± 0.597	2.70	1.295 ± 0.571	0.956 ± 0.434
photometric centroid source offset	0.17 ± 0.08	2.04	0.00 ± 0.06	0.17 ± 0.08

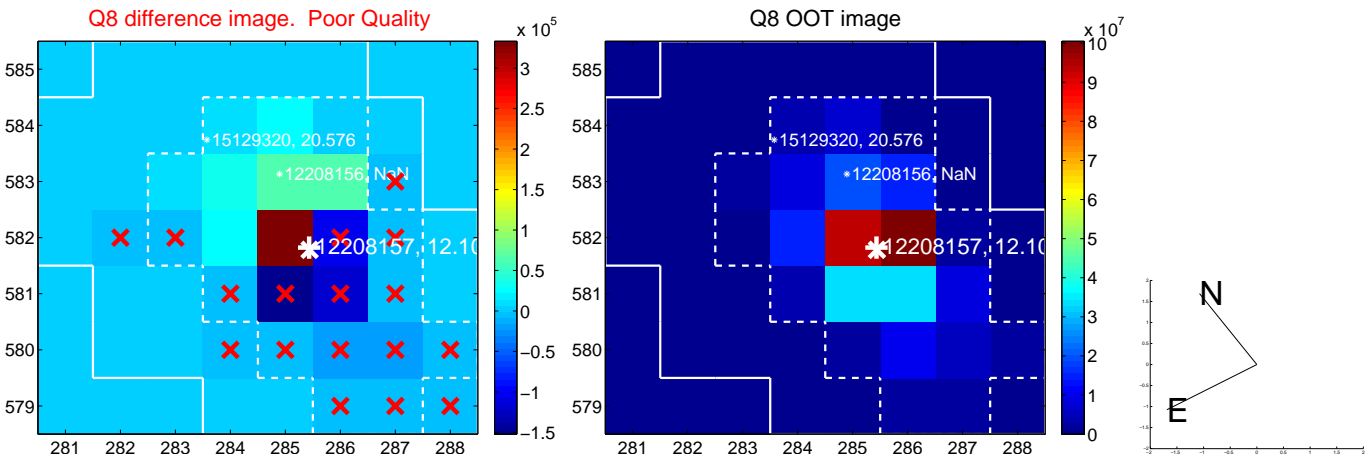
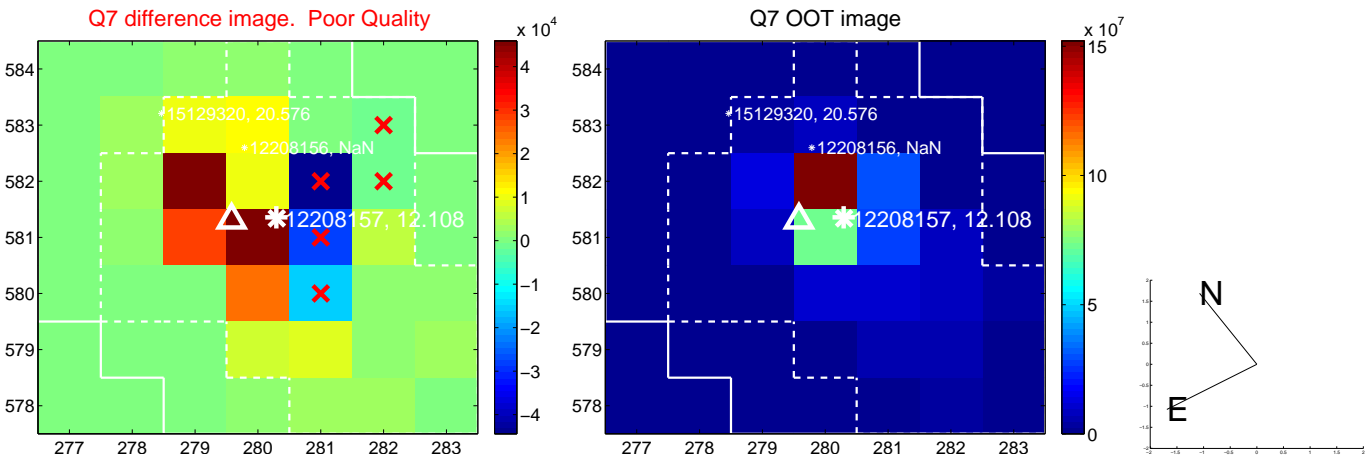
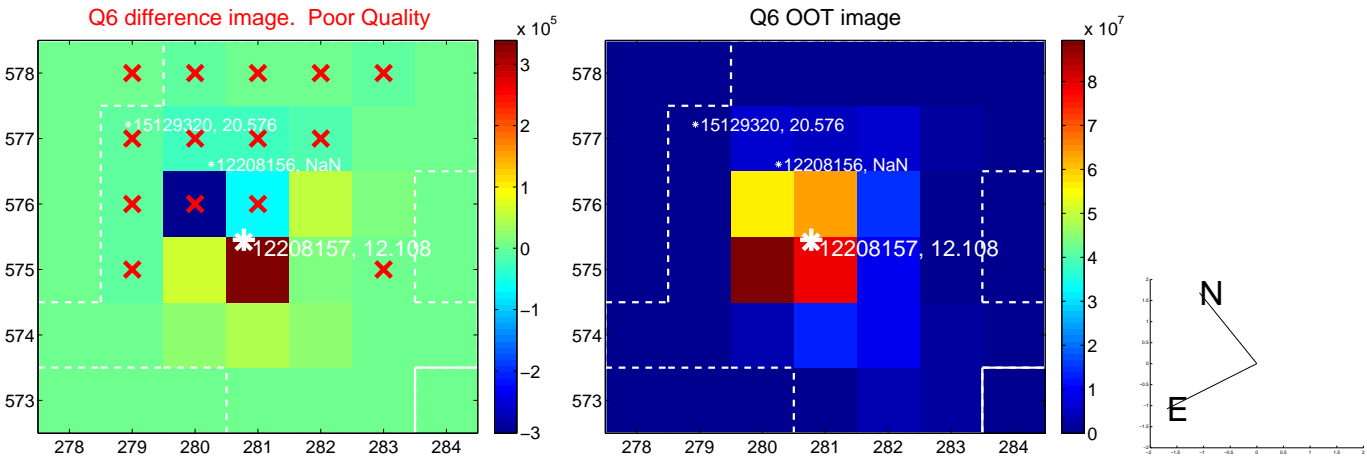
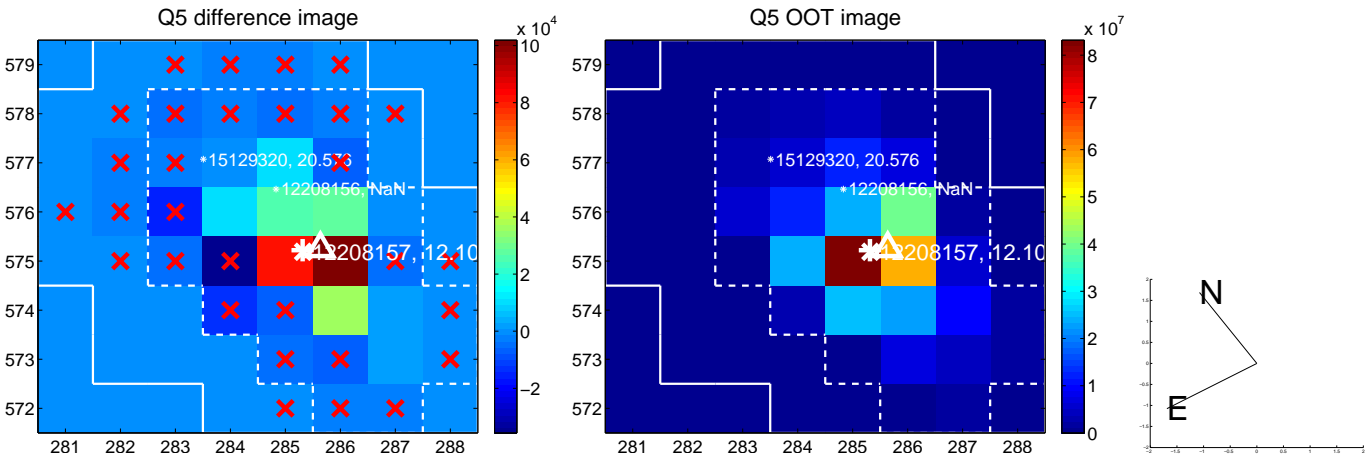


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

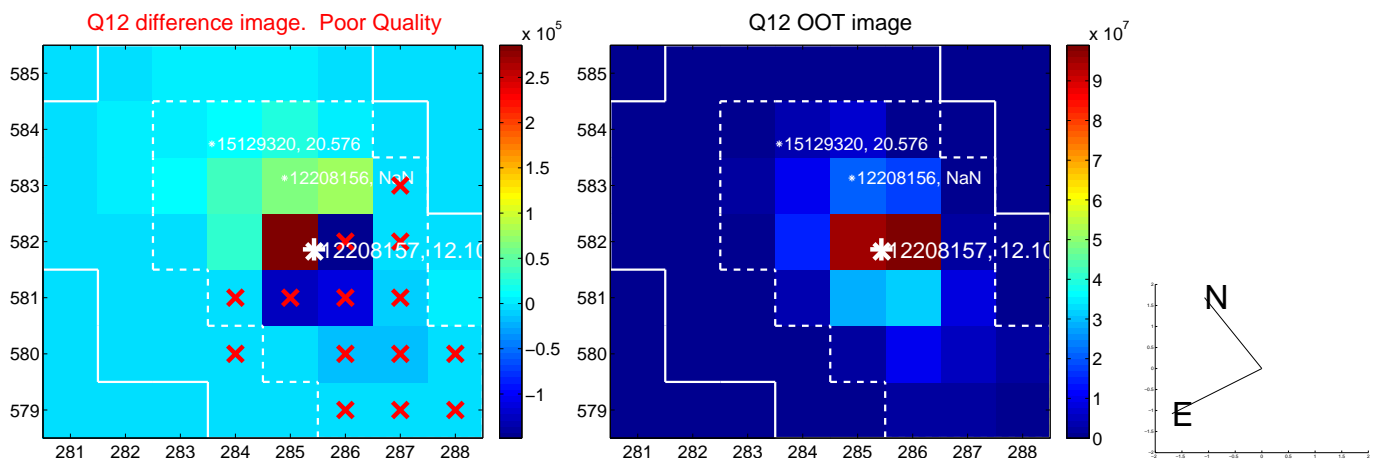
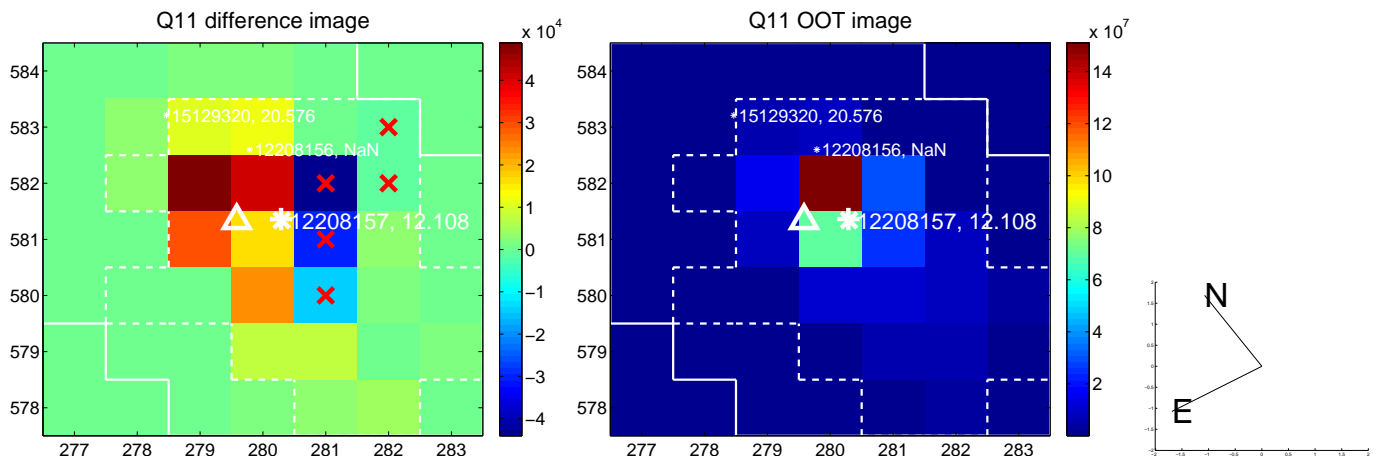
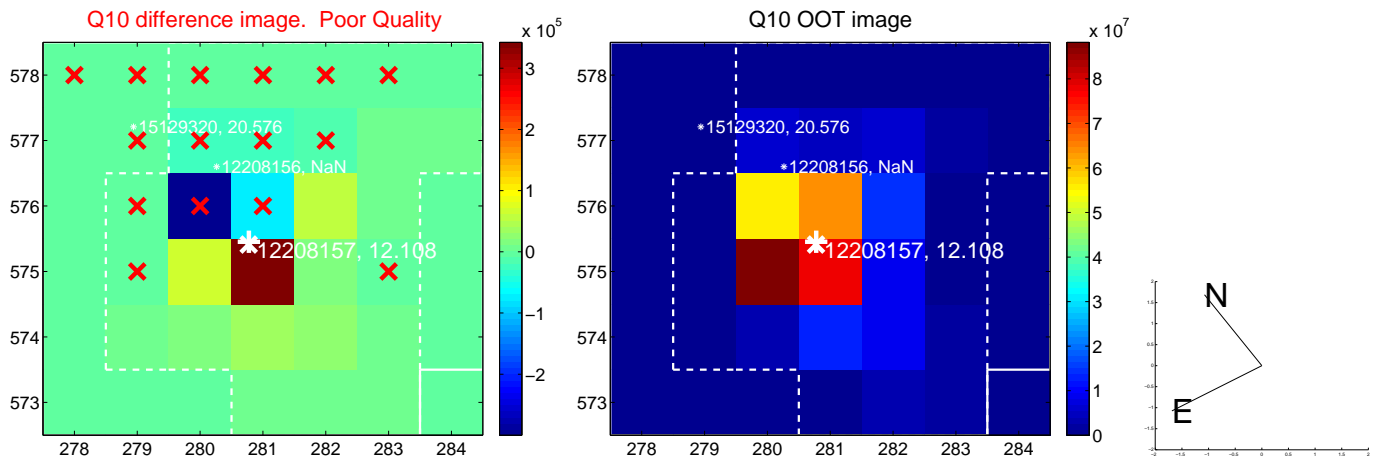
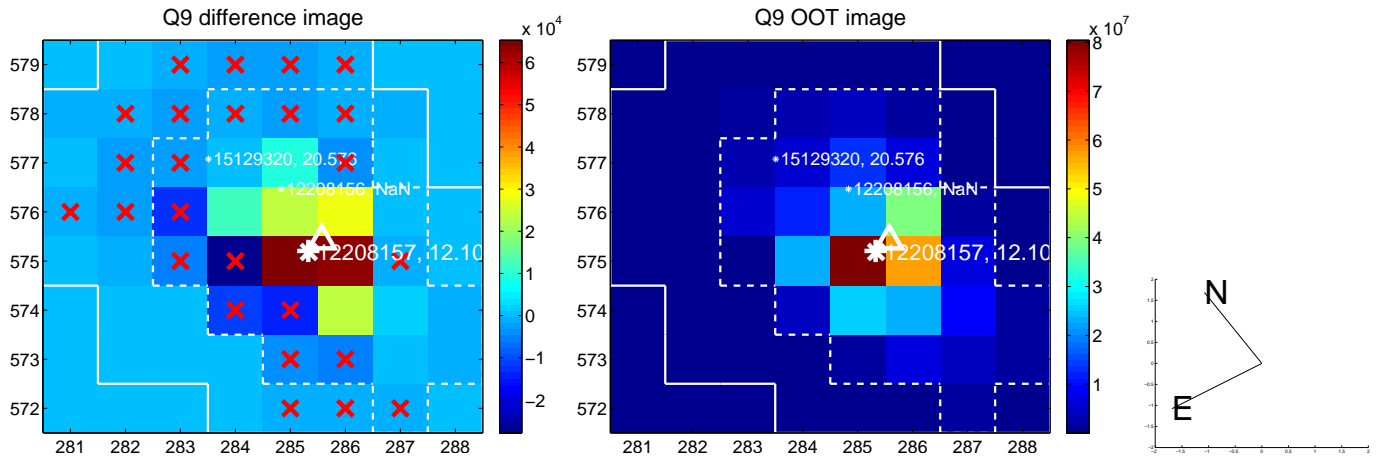
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



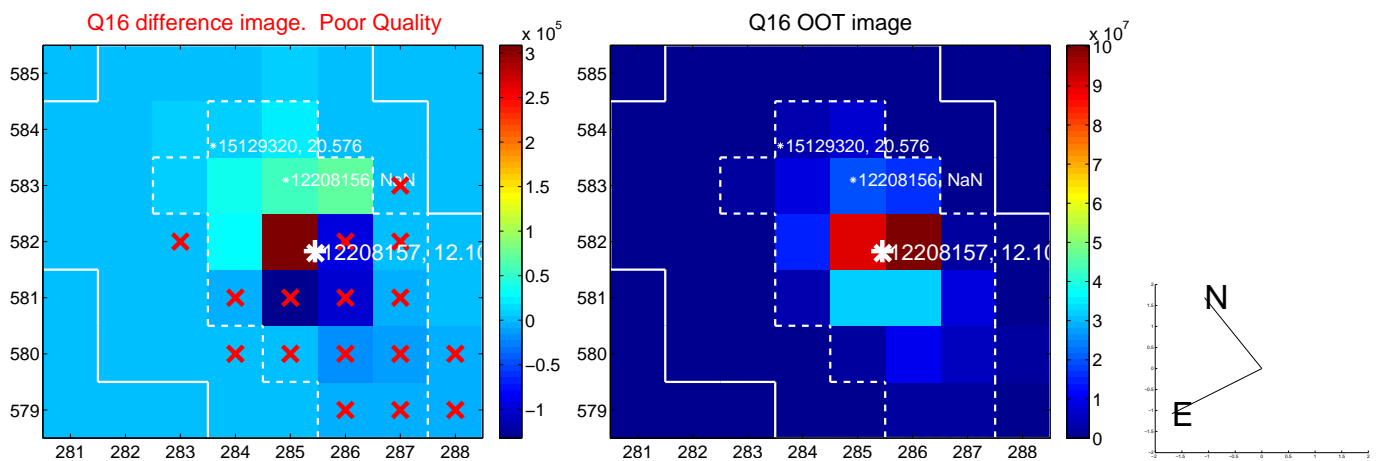
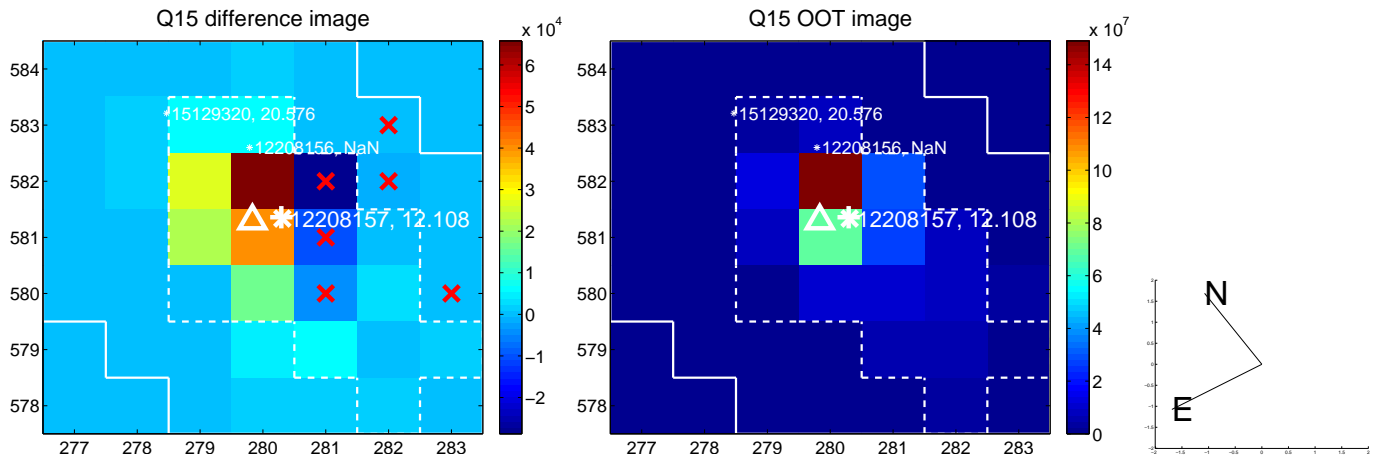
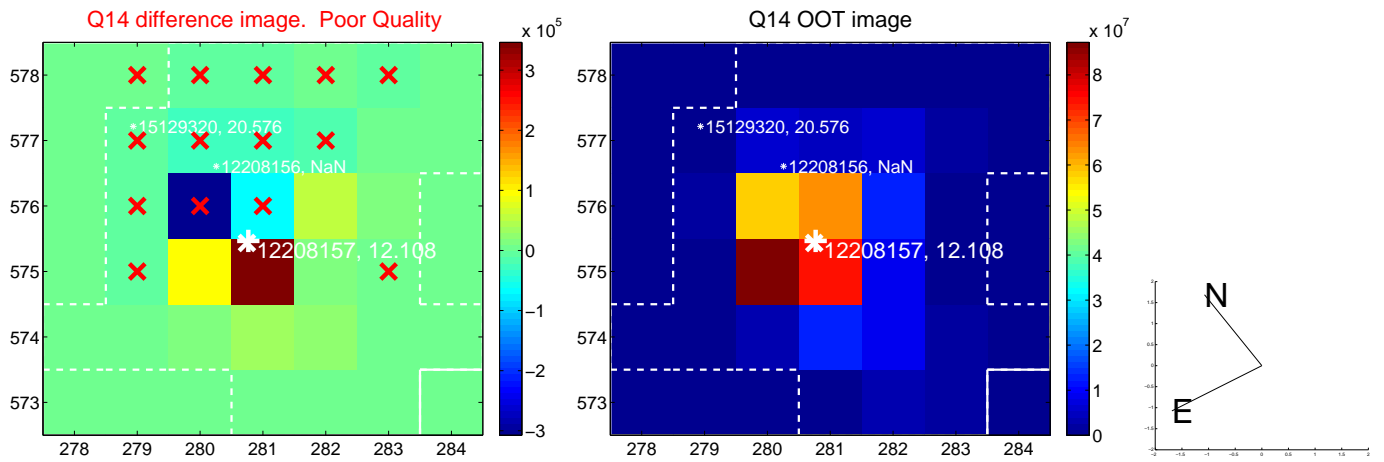
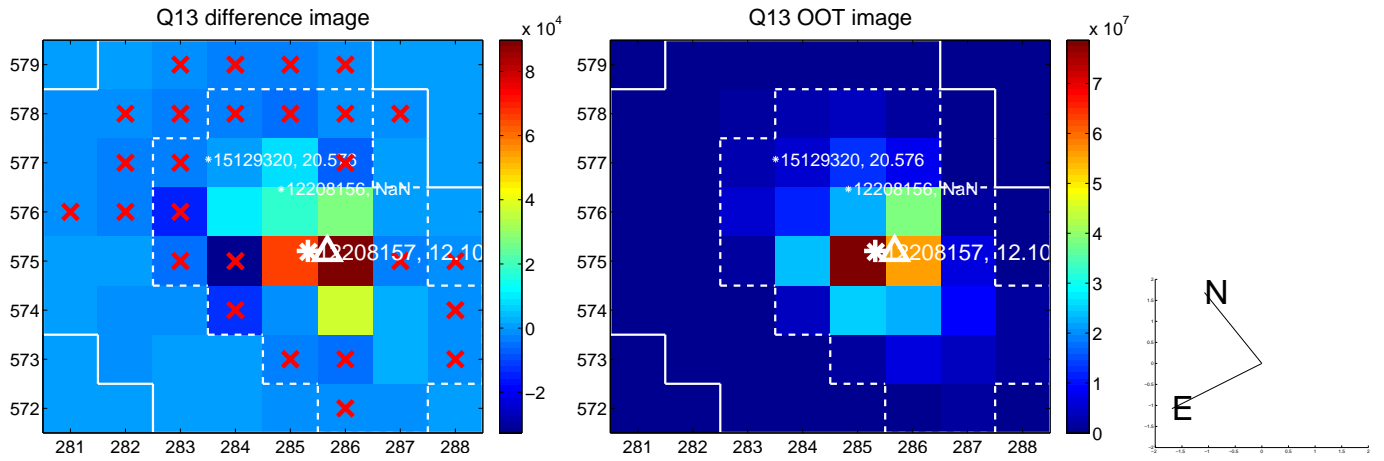
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



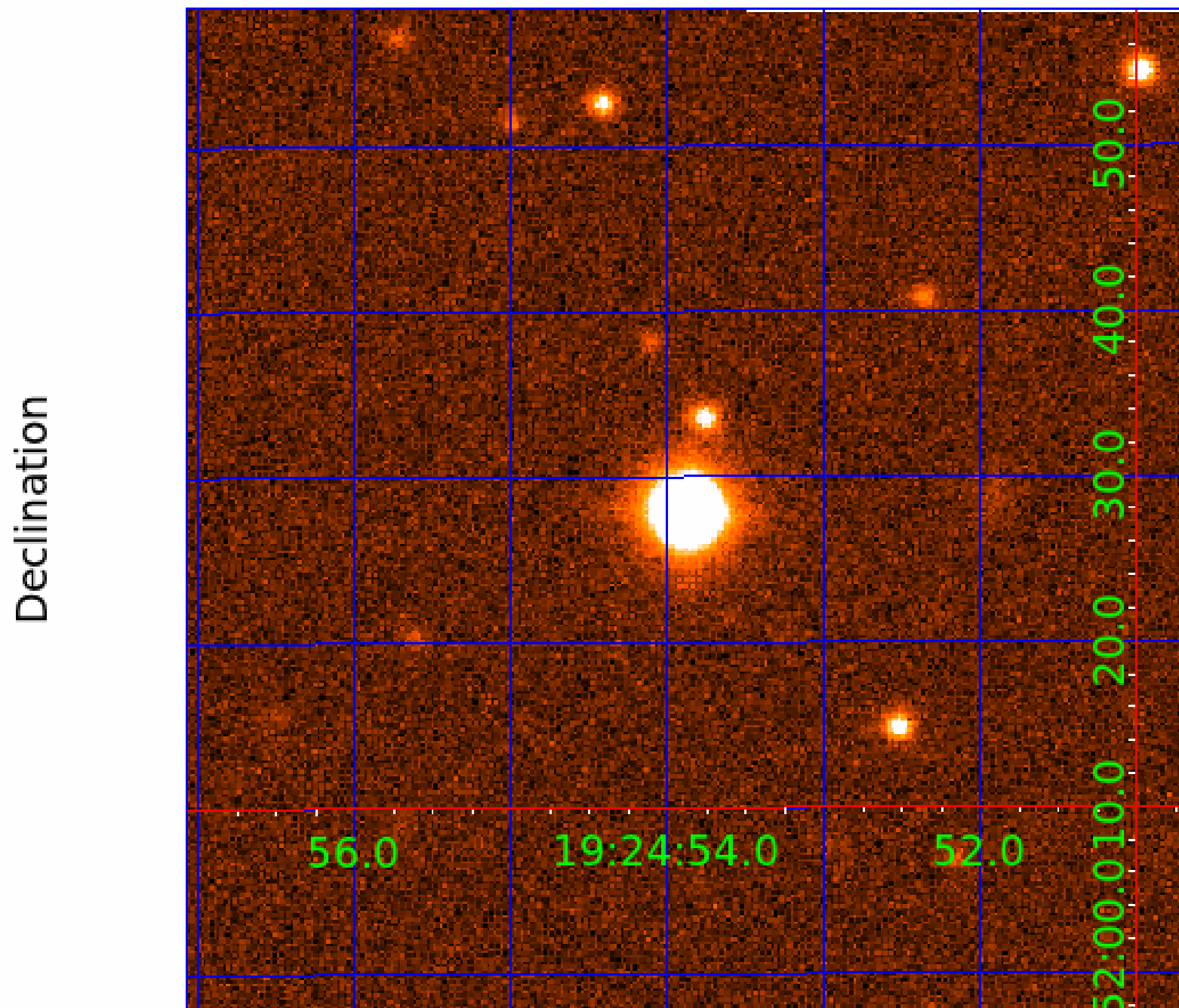
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 012208157

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})
012208157-01	OBS	No	1.443645	132.745369	114.6	2.500	10.2	-1.0	2.07	6666	2.23	10767.35
012208157-02	OBS	No	1.508045	132.206264	26.0	3.258	7.9	8.3	2.07	6666	1.27	10158.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012208157-01	OBS	FP	0.00	1	0	1	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS—HALO_GHOST
012208157-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

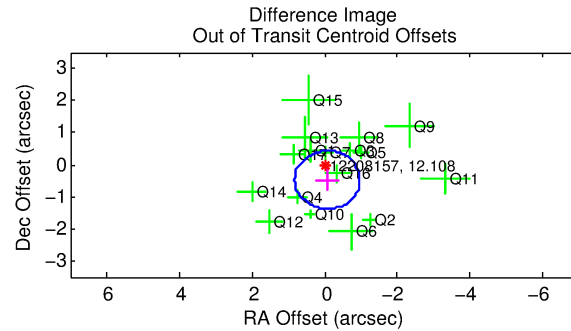
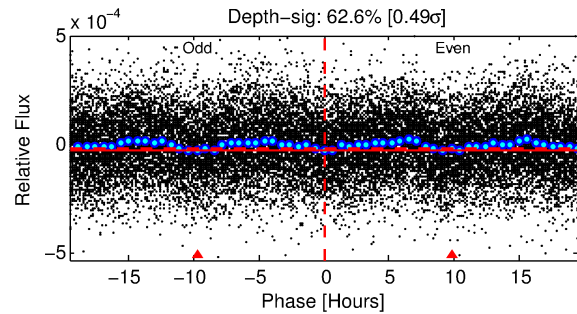
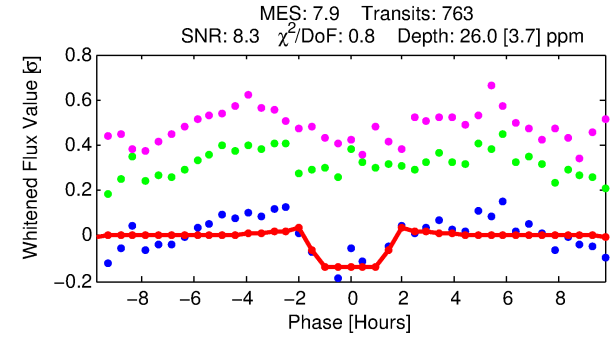
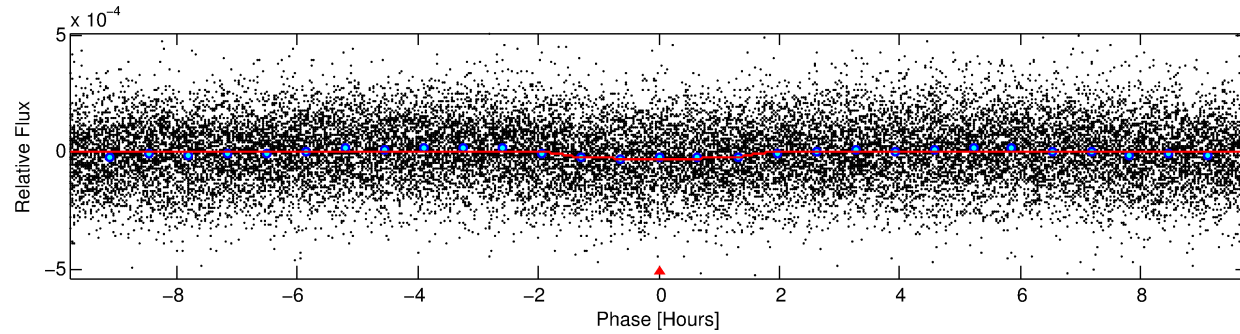
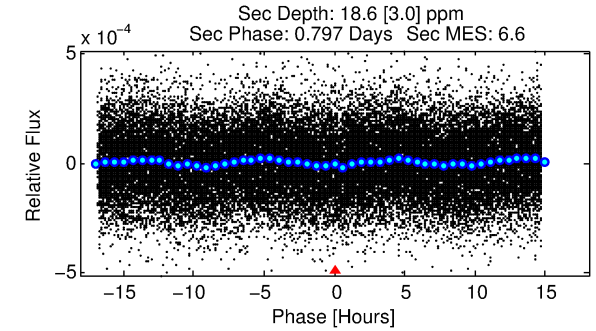
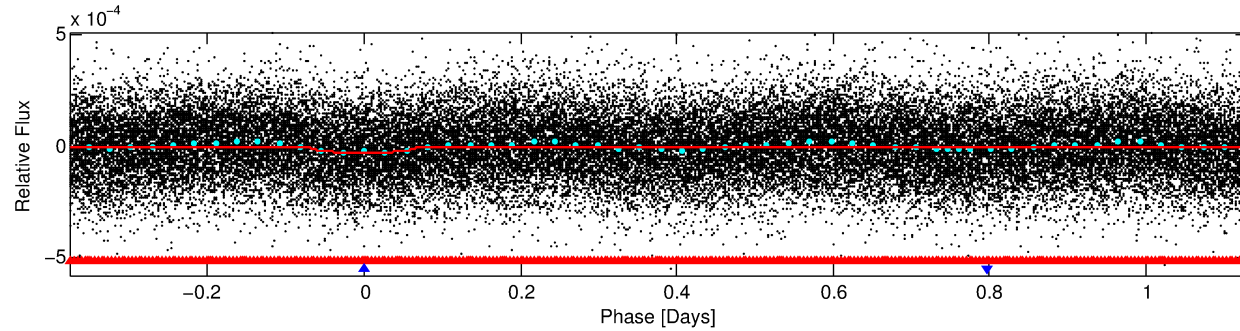
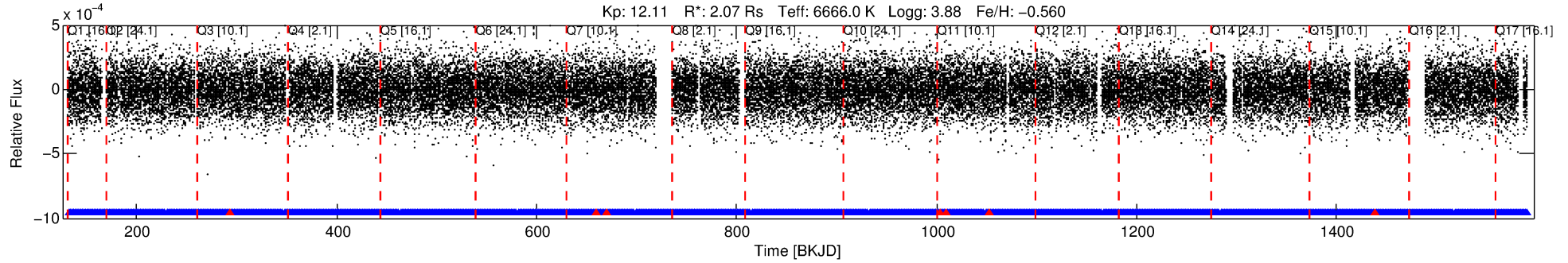
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012208157-02

No Significant Match Found

DV One-Page Summary

KIC: 12208157 Candidate: 2 of 2 Period: 1.508 d



DV Fit Results:

Period = 1.50804 [0.00001] d
Epoch = 132.2063 [0.0036] BKJD
Rp/R* = 0.0056 [0.0019]
a/R* = 1.61 [2.06]
b = 0.94 [0.28]
Seff = 10158.67 [7725.02]
Teq = 2560 [487] K
Rp = 1.27 [0.71] Re
a = 0.0273 [0.0123] AU
Ag = 4.70 [4.82] [0.77σ]
Teffp = 5829 [1044] K [2.84σ]

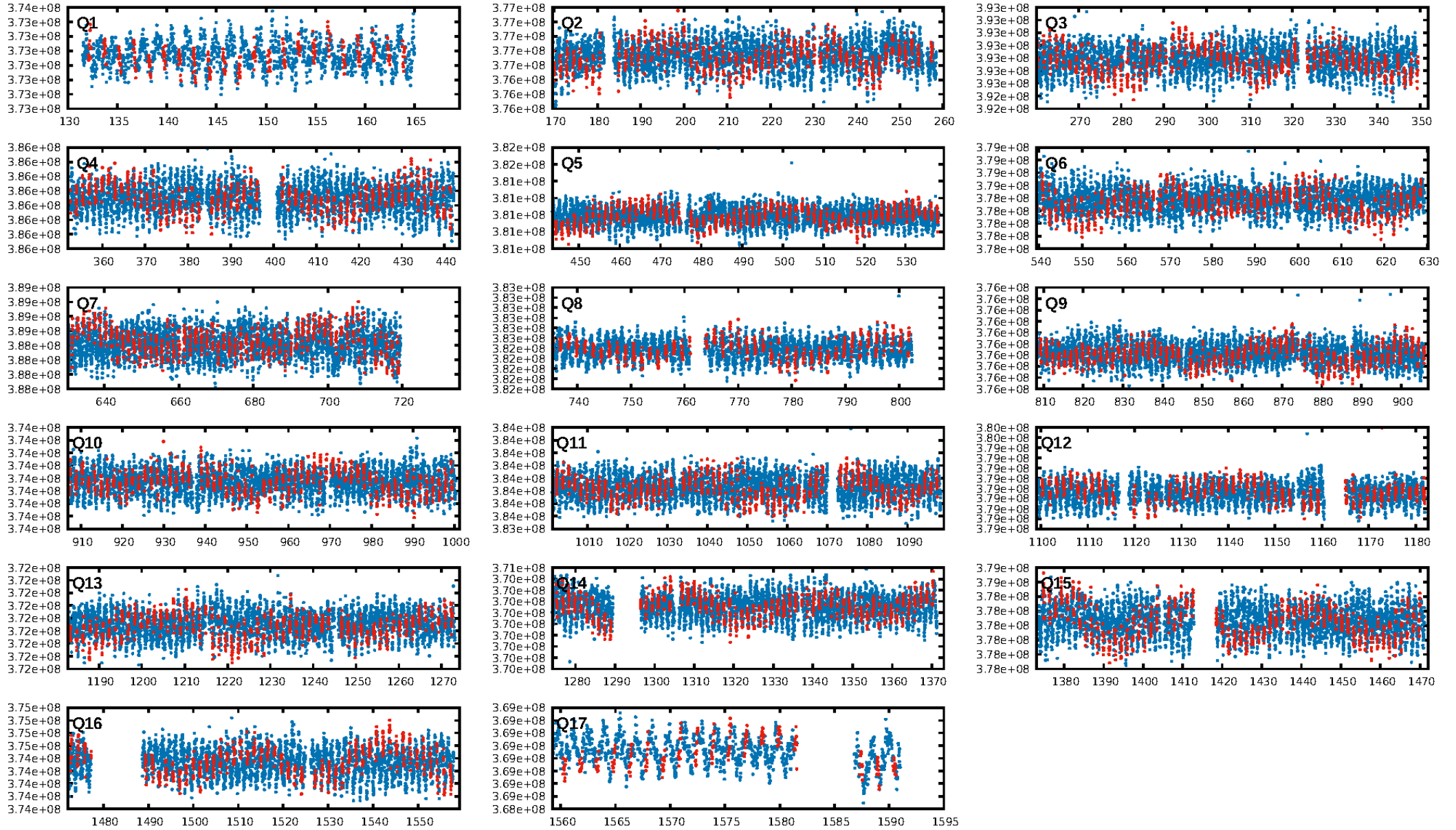
DV Diagnostic Results:

ShortPeriod-sig: 29.3% [0.38σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.18e-11
RollingBand-fgt: 0.99 [722/729]
GhostDiagnostic-chr: 1.764
Centroid-sig: 3.1%
Centroid-so: 0.983 arcsec [1.52σ]
OotOffset-rm: 0.478 arcsec [1.59σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.386 arcsec [1.41σ]
KicOffset-st: 4/4/4/5 [17]
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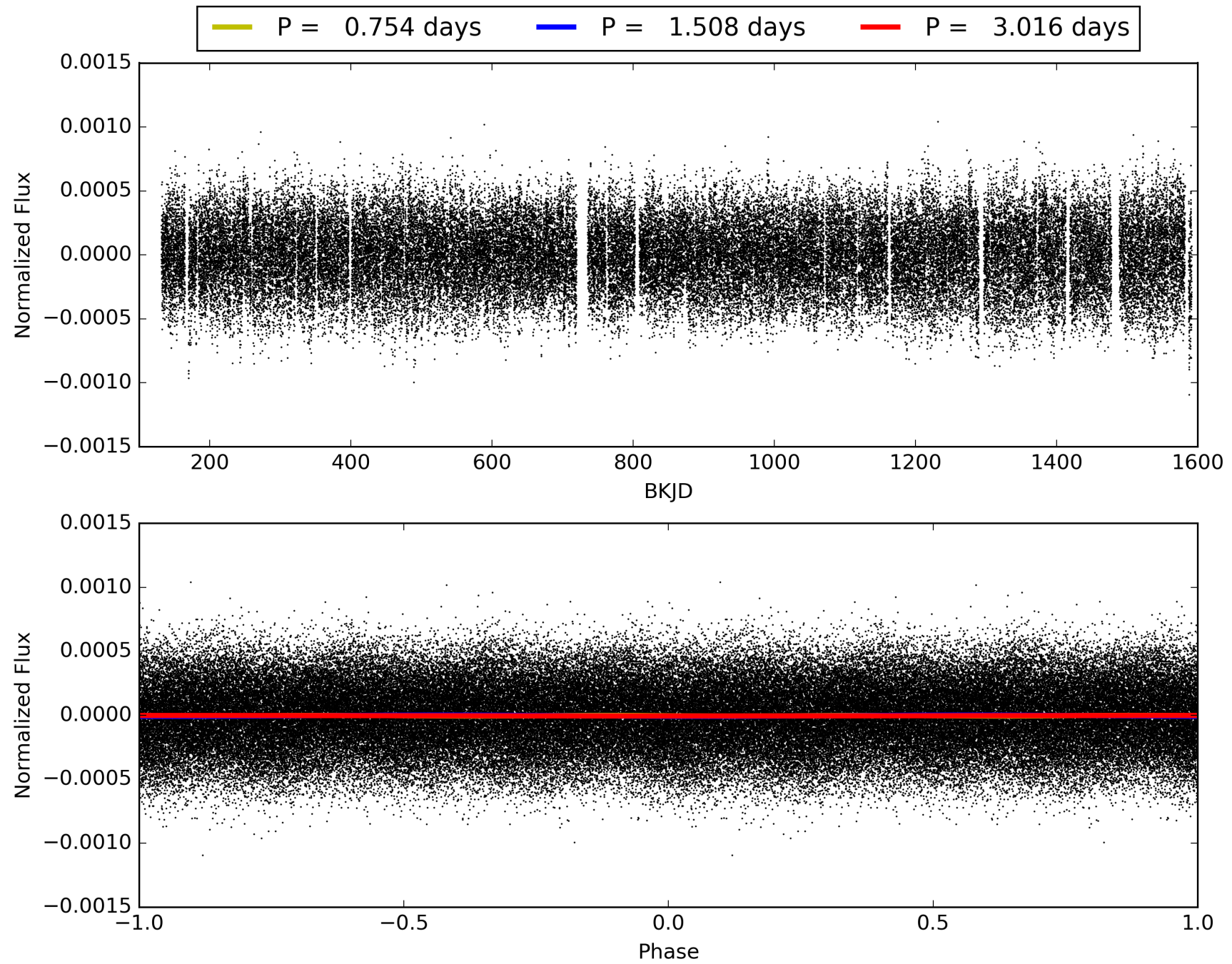
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:49:01 Z

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

TCE 012208157-02, PDC Light Curves

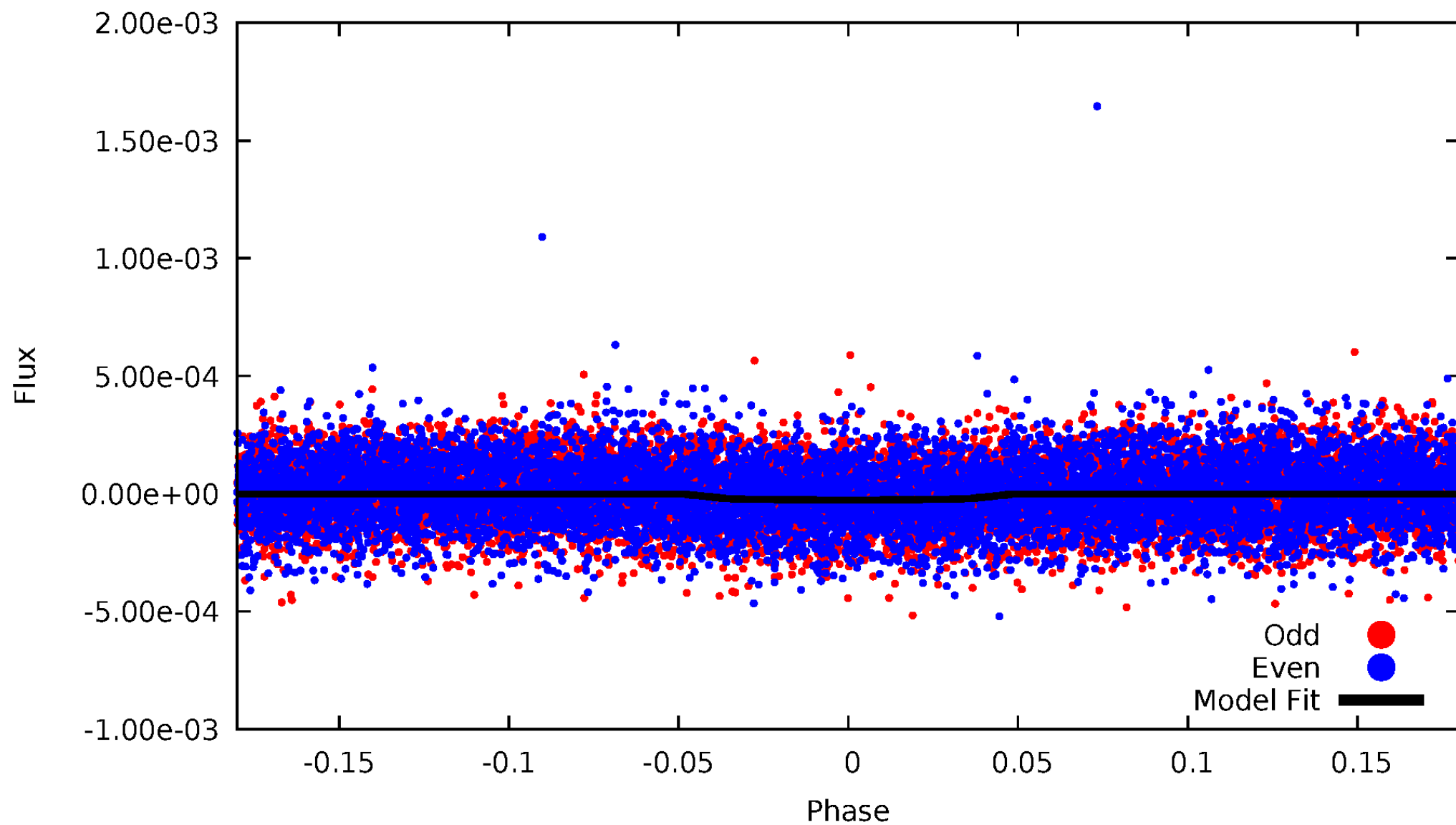


TCE 012208157-02



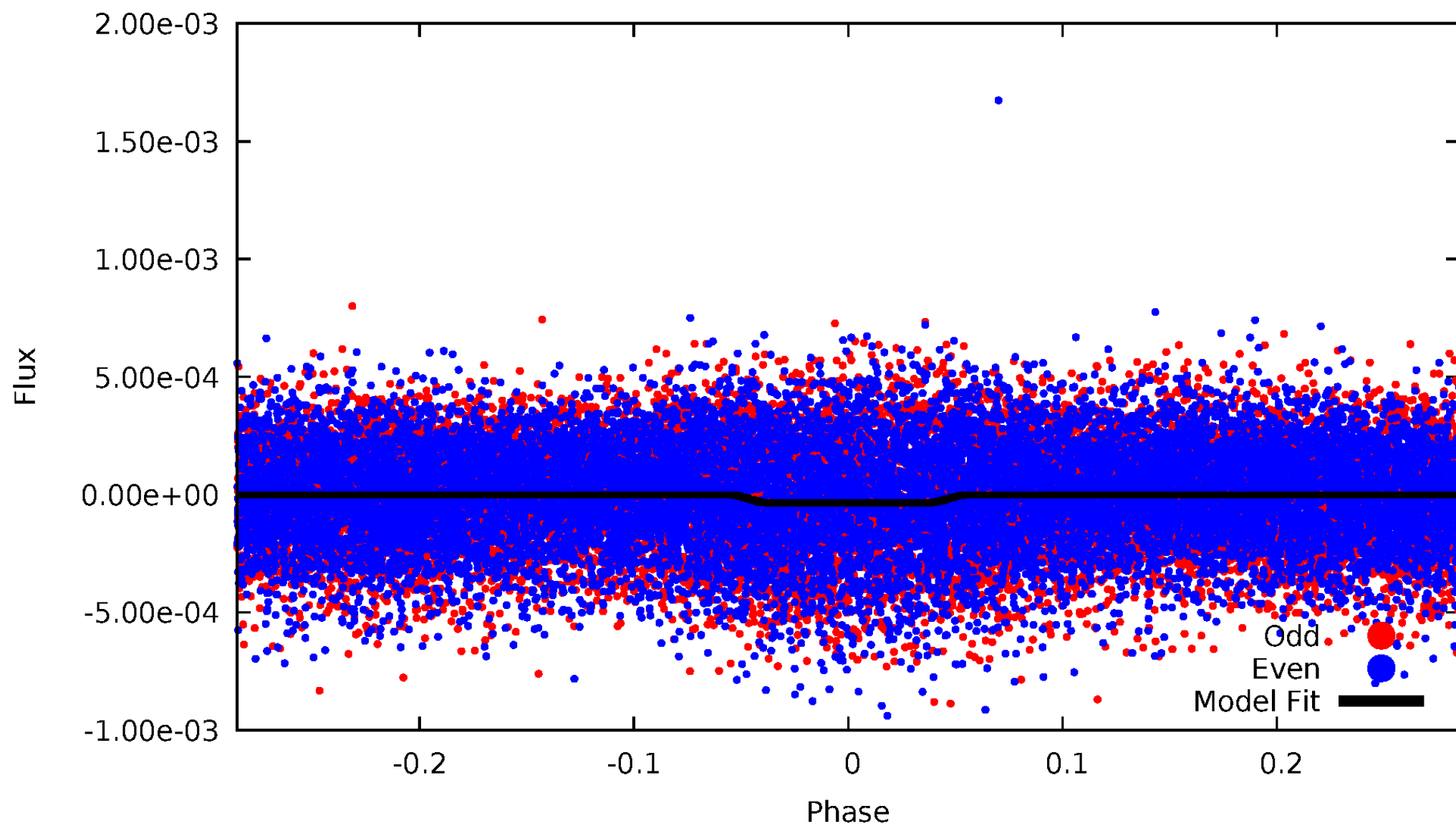
DV Odd/Even

TCE 012208157-02



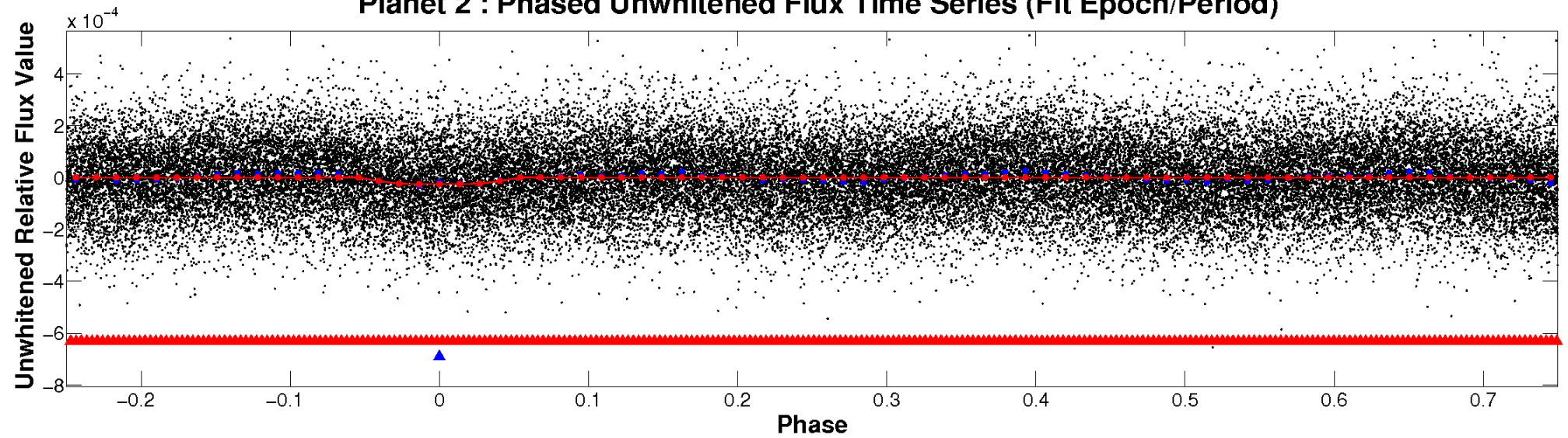
ALT Odd/Even

TCE 012208157-02

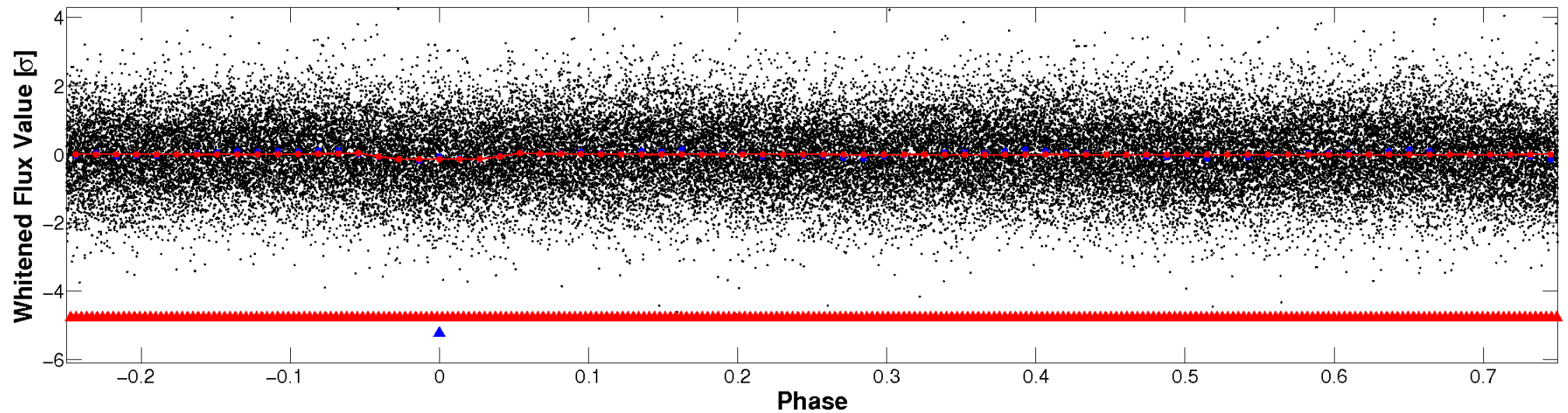


Non-Whitened Vs. Whitened Light Curve

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

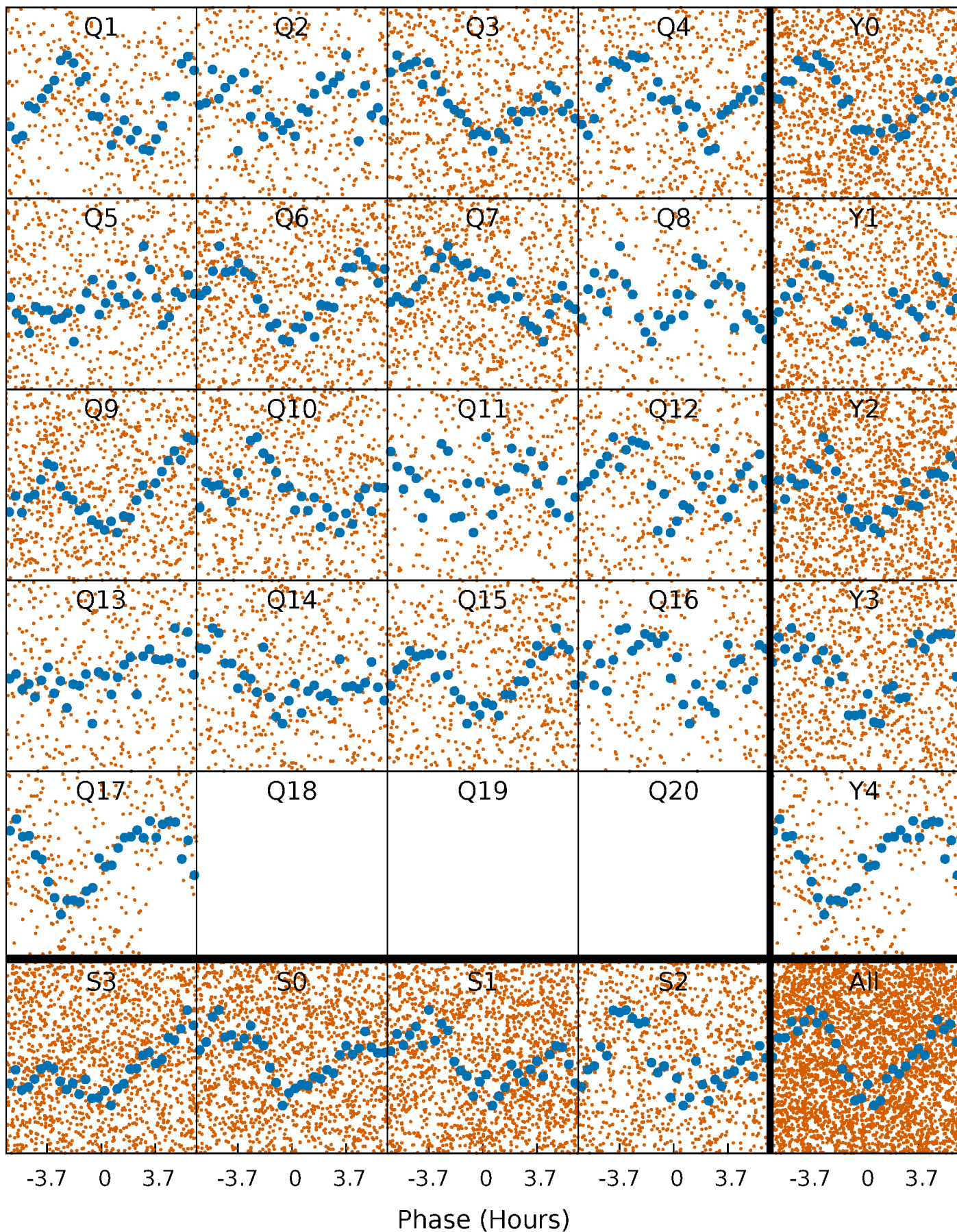


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



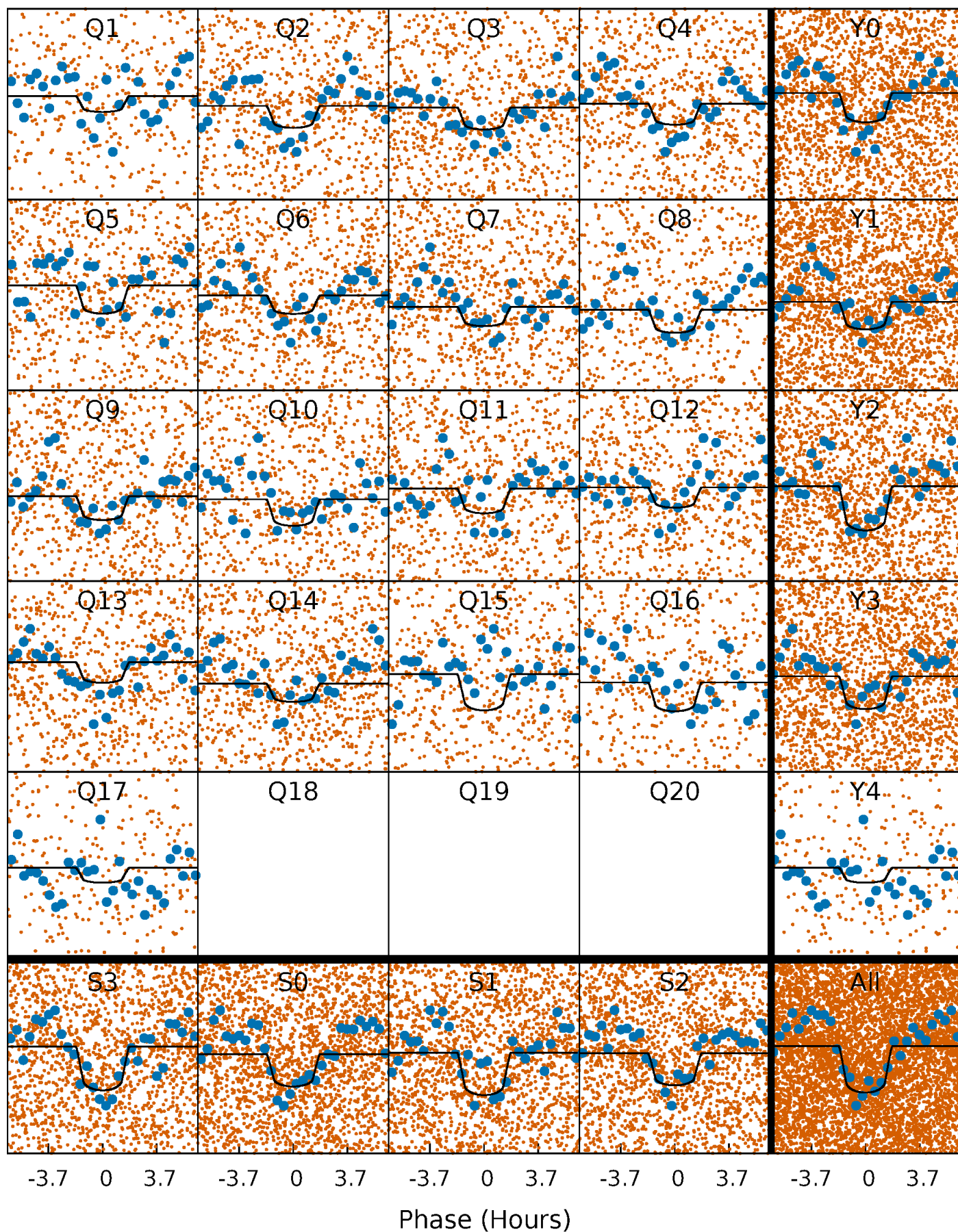
PDC Quarter-Phased Transit Curves

TCE 012208157-02 P= 1.508045 Days $T_0=132.206264$ (BKJD)



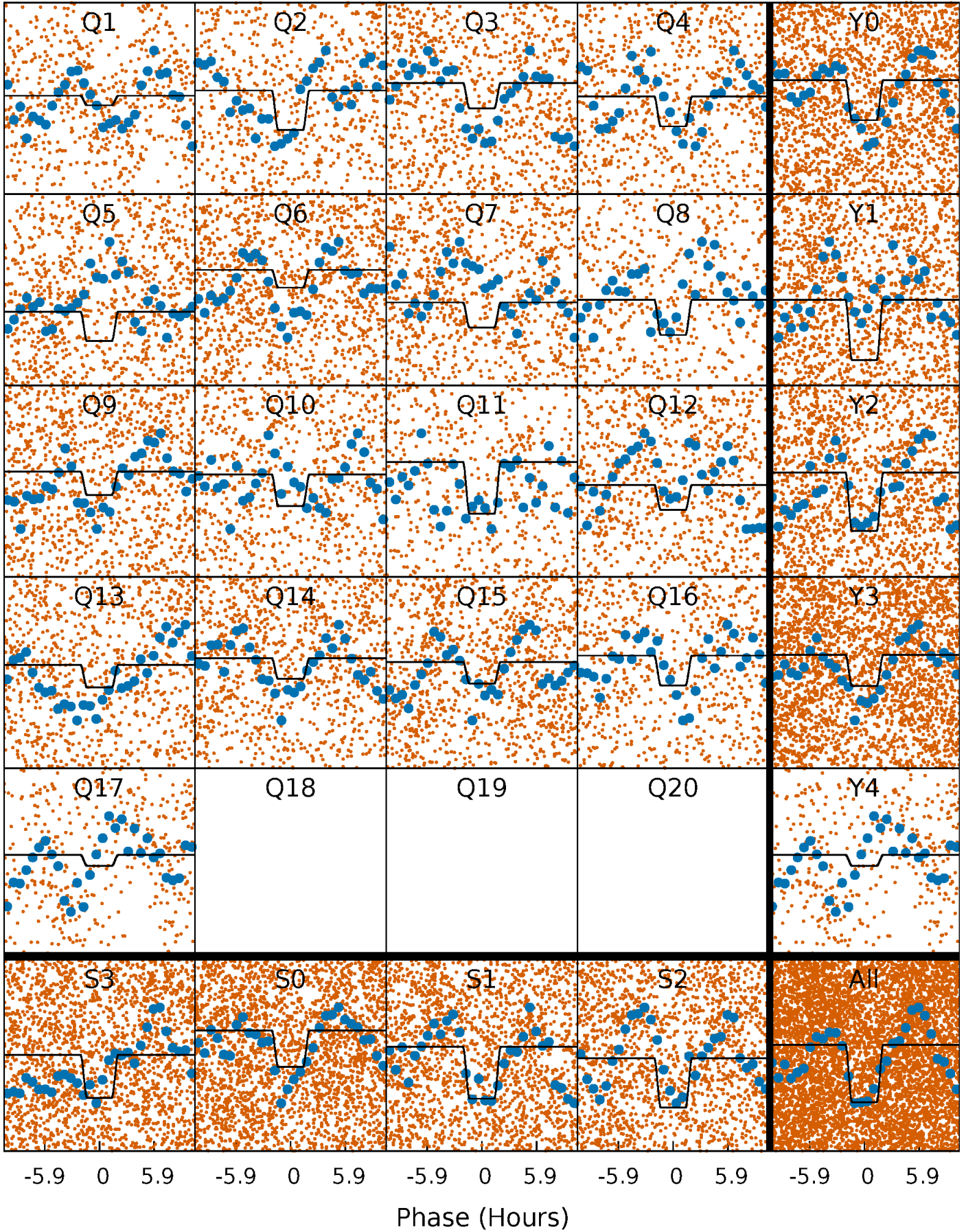
DV Quarter-Phased Transit Curves

TCE 012208157-02 P= 1.508045 Days $T_0=132.206264$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

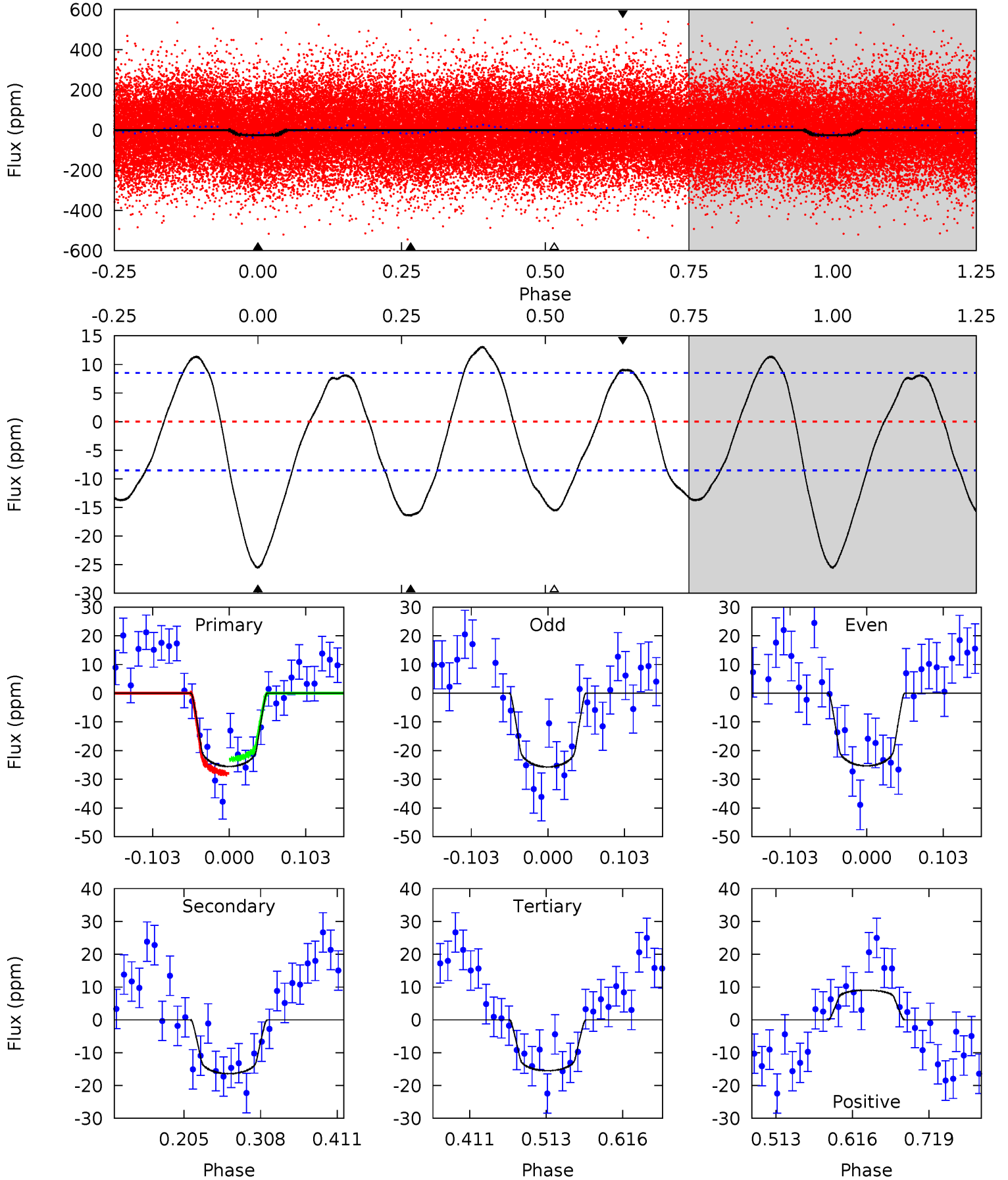
TCE 012208157-02 P= 1.508047 Days $T_0=132.209308$ (BKJD)



DV Model-Shift Uniqueness Test

012208157-02, P = 1.508045 Days, E = 130.698219 Days

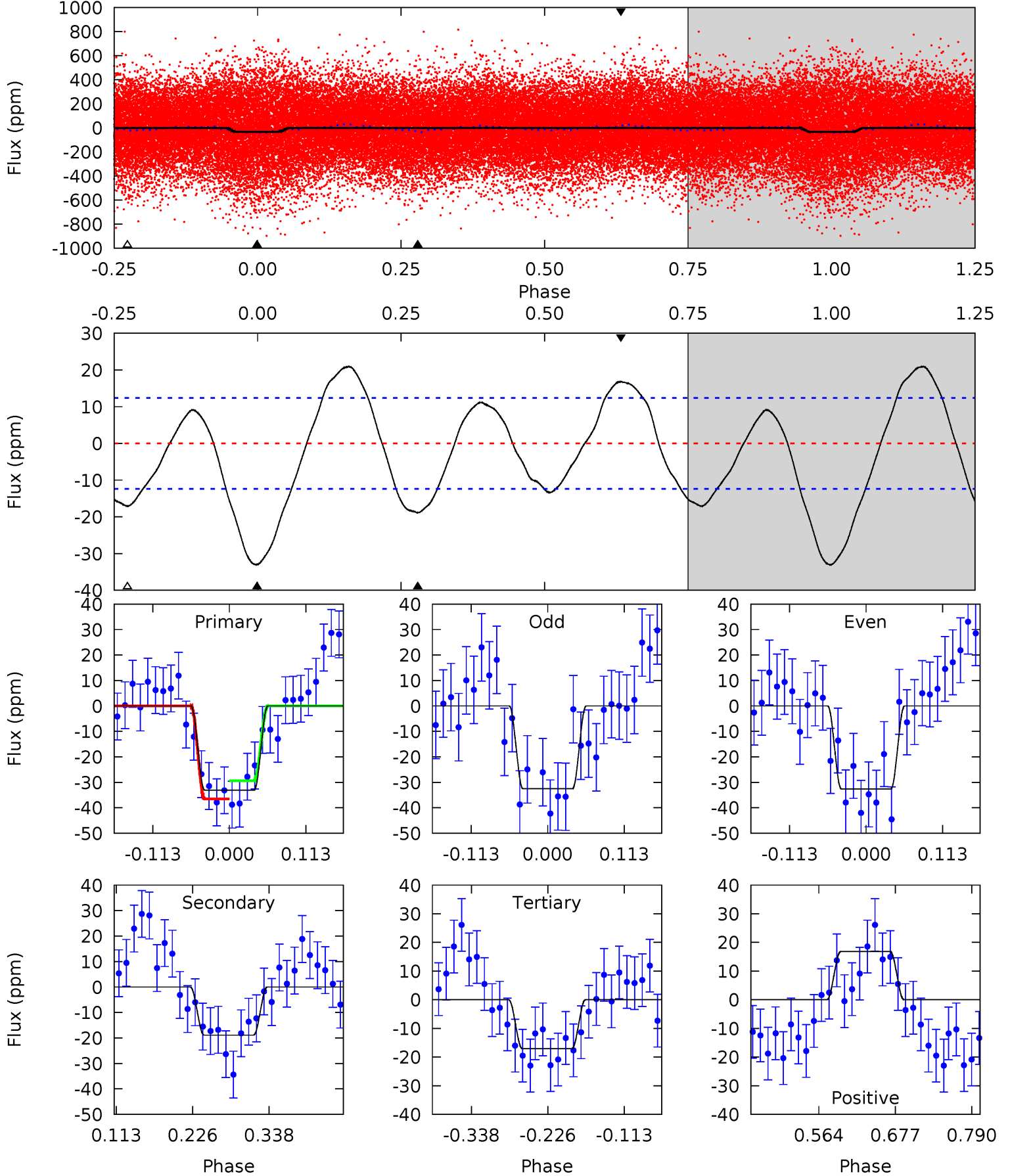
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	8.77	8.29	4.84	4.56	1.63	4.88	5.36	8.81	0.48	3.93	0.10	0.84	0.34	1.34



Alt Model-Shift Uniqueness Test

012208157-02, P = 1.508047 Days, E = 130.701261 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	6.93	6.27	6.18	4.54	1.59	4.20	5.86	5.95	0.67	0.76	0.01	1.57	0.39	1.30



Stellar Parameters For KIC 012208157

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6666^{+190}_{-238}	$3.883^{+0.448}_{-0.112}$	$-0.560^{+0.300}_{-0.300}$	$2.068^{+0.487}_{-0.904}$	$1.192^{+0.182}_{-0.223}$	$0.190^{+0.773}_{-0.062}$
	+3%/-4%	+12%/-3%	+54%/-54%	+24%/-44%	+15%/-19%	+408%/-33%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012208157-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-16 ± 2	$1.12^{+0.51}_{-0.43}$	3470^{+270}_{-397}	5607^{+1394}_{-783}	$5.539^{+8.402}_{-2.900}$
Alt.	-19 ± 3	$1.22^{+0.50}_{-0.47}$	3461^{+251}_{-401}	5575^{+1401}_{-695}	$5.246^{+8.895}_{-2.538}$

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 $A_{obs} \gg 1.0$

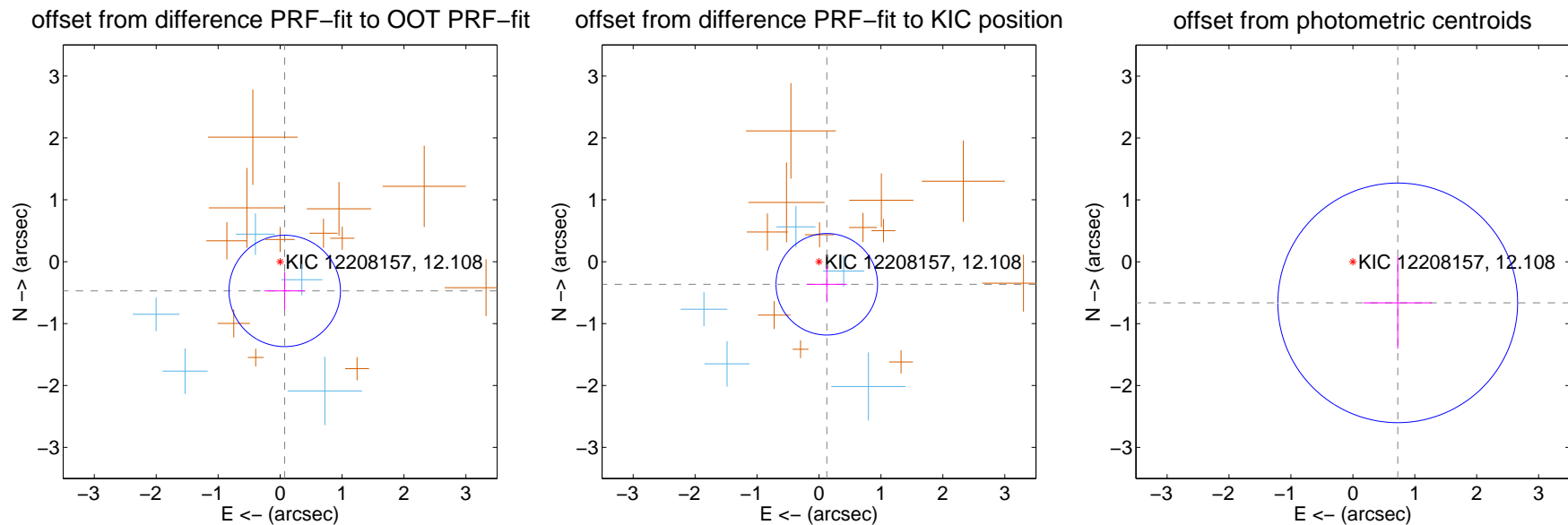
DV Centroid Data

Supplemental centroid analysis for 012208157-02. Kepler magnitude: 12.11. Transit SNR 8.29

There are 5 quarters with good PRF difference image offsets

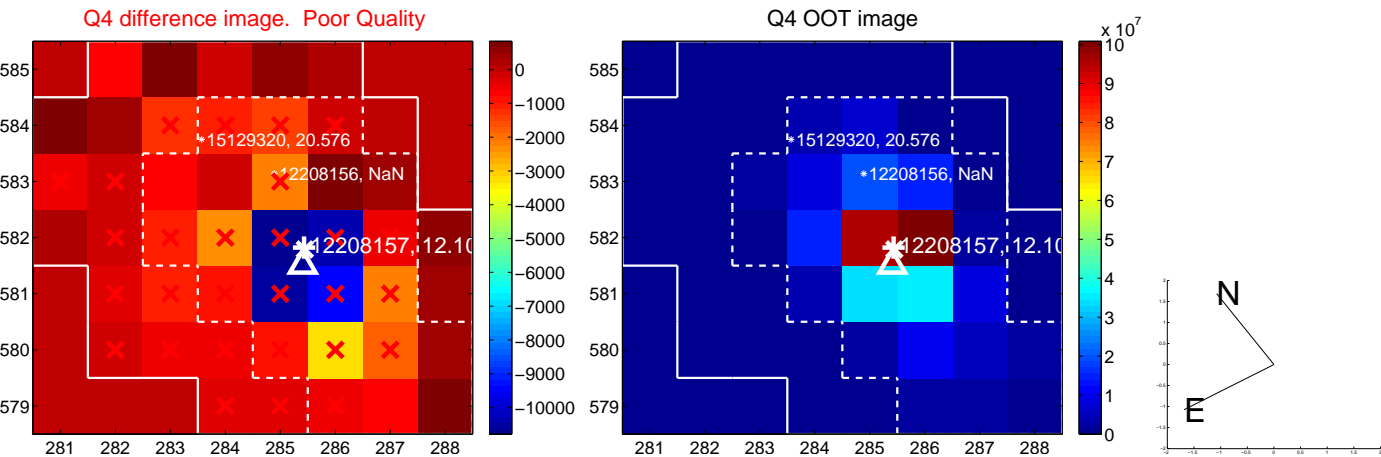
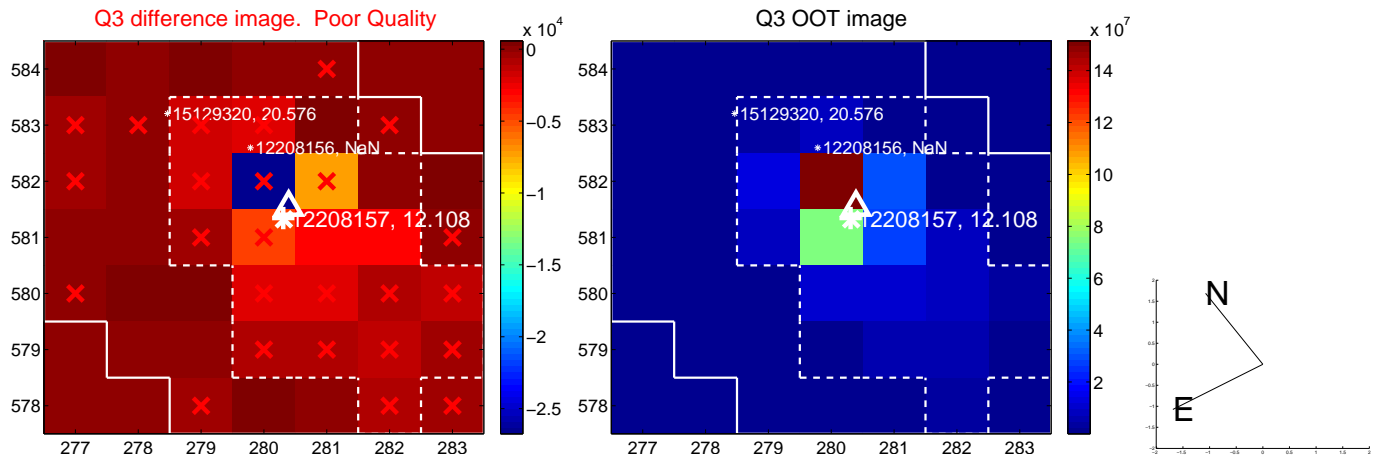
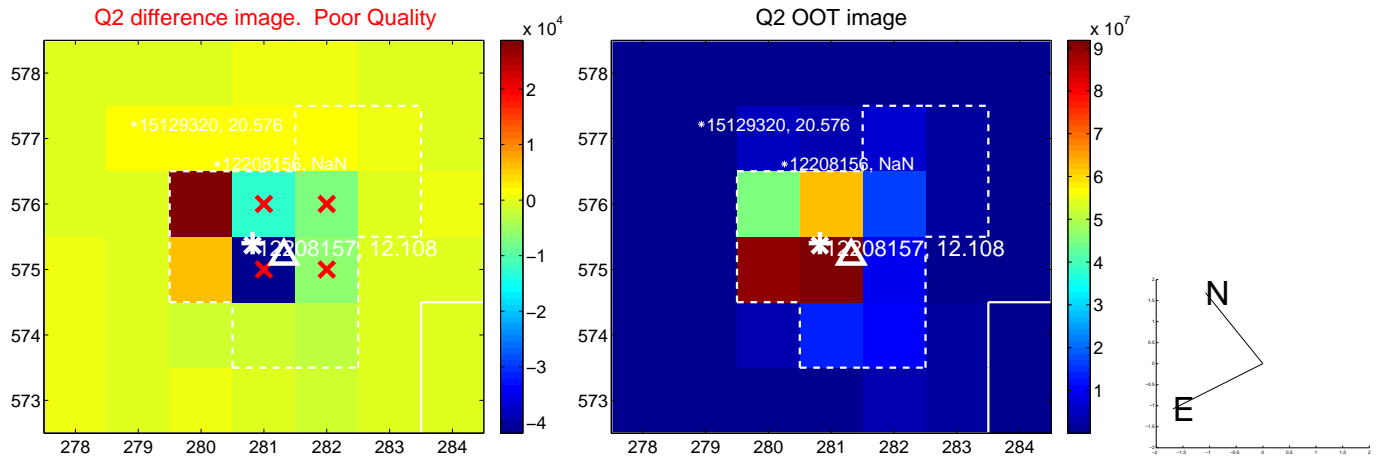
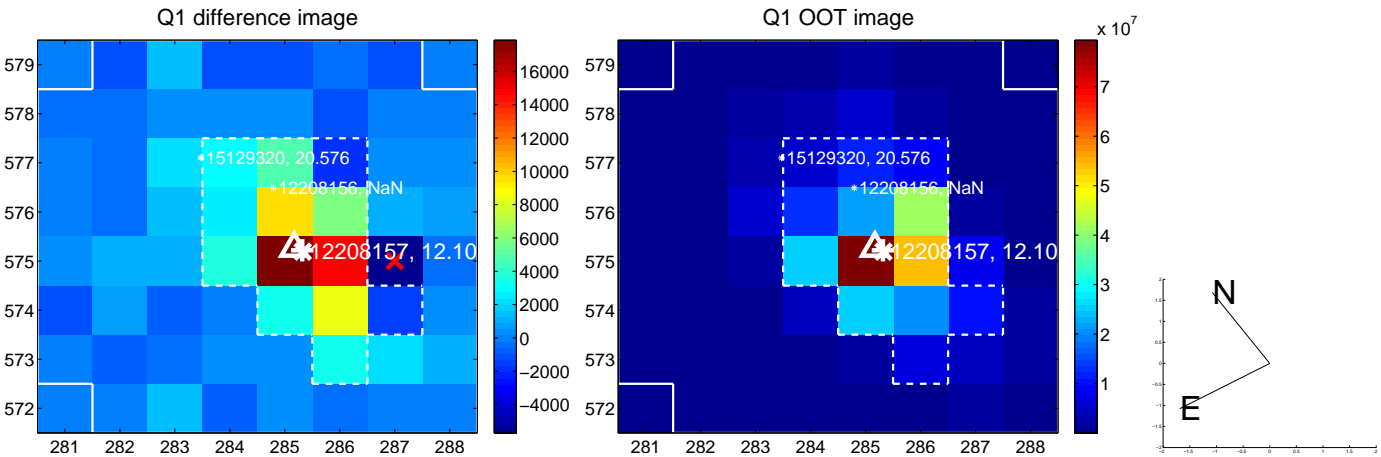
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.478 ± 0.300	1.59	-0.074 ± 0.329	-0.472 ± 0.305
PRF-fit source offset from KIC position	0.386 ± 0.273	1.41	-0.126 ± 0.324	-0.365 ± 0.291
photometric centroid source offset	0.98 ± 0.65	1.52	-0.72 ± 0.55	-0.66 ± 0.74

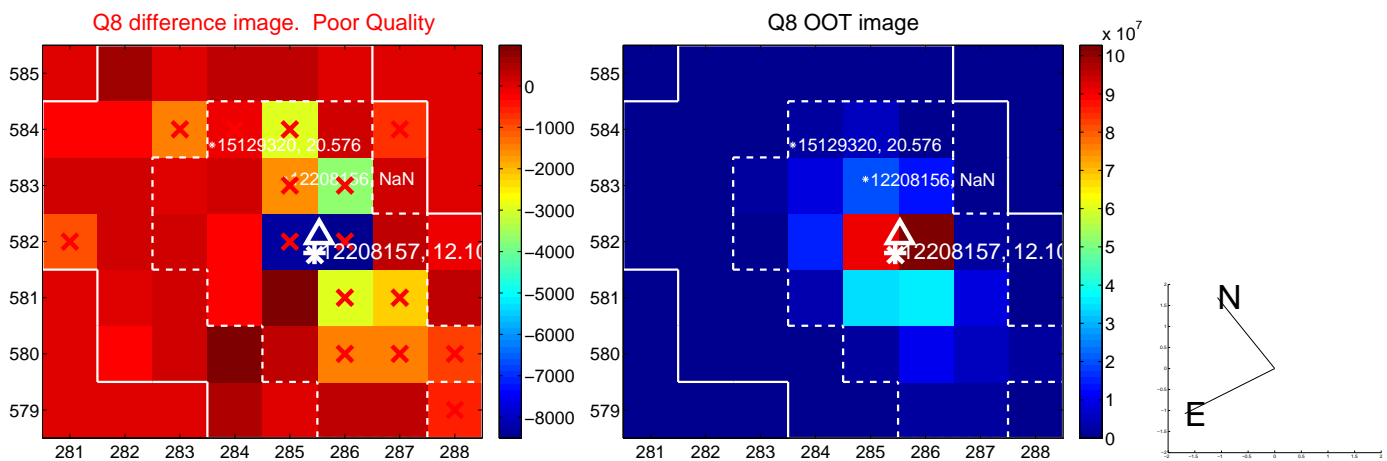
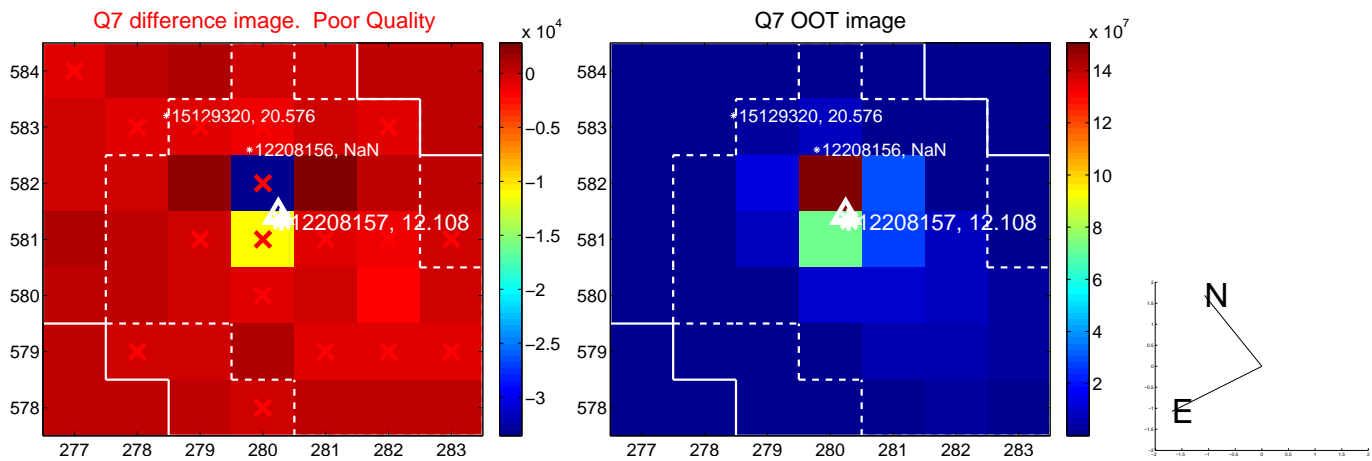
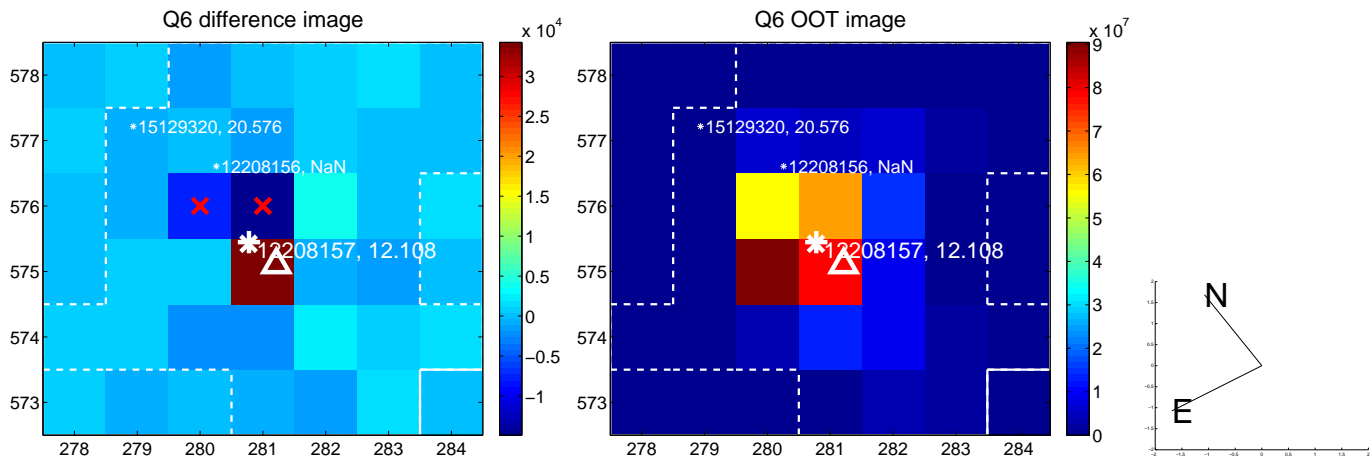
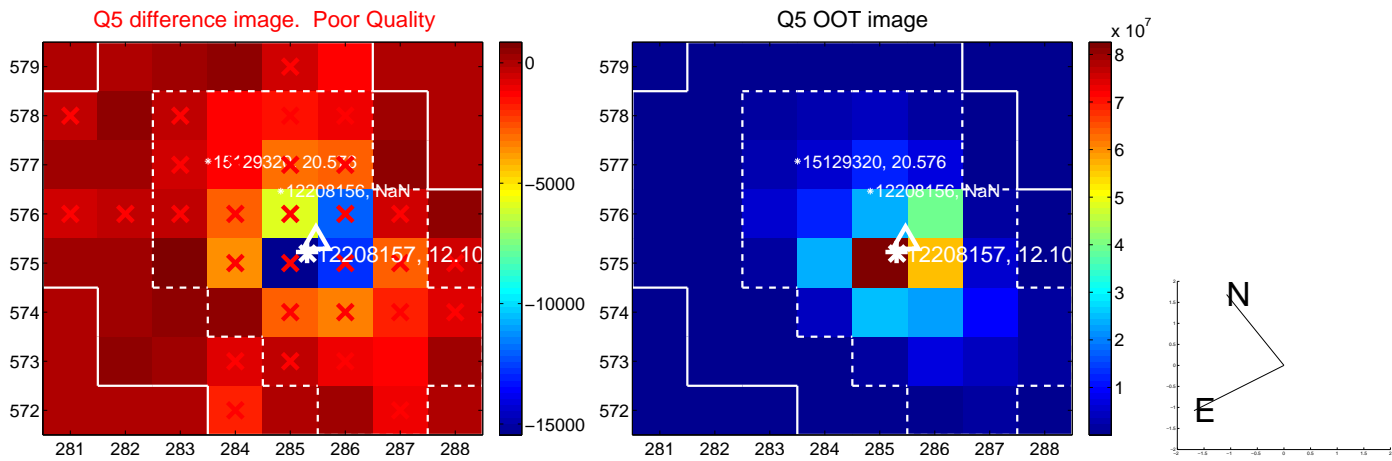


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

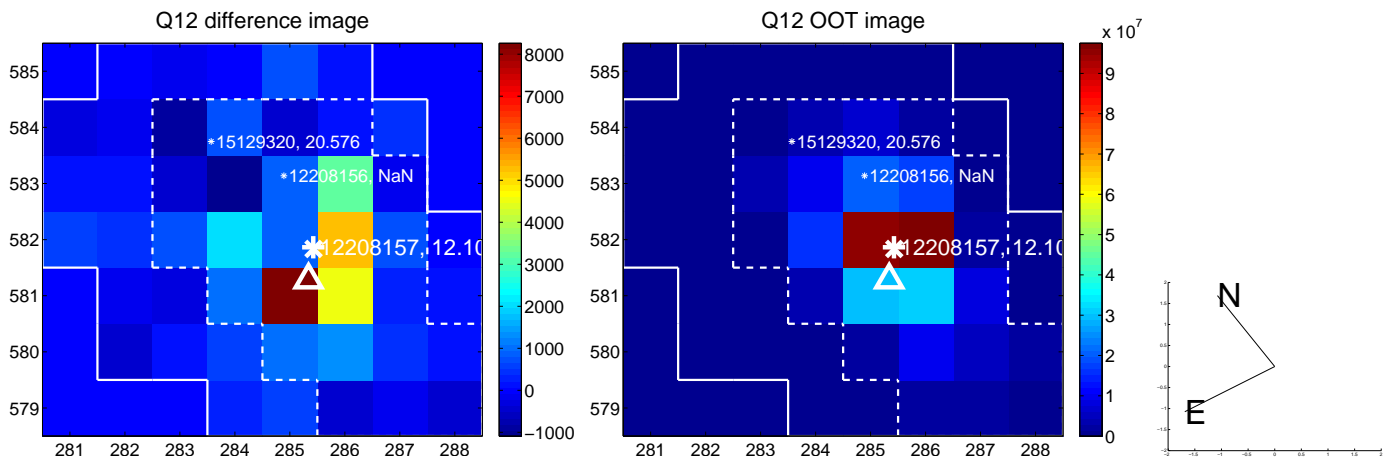
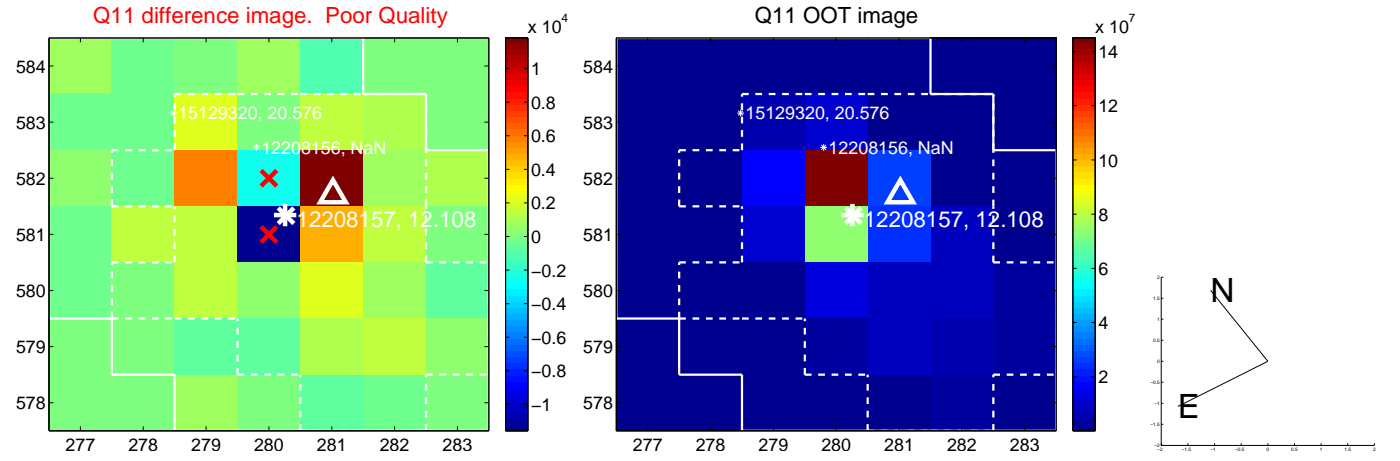
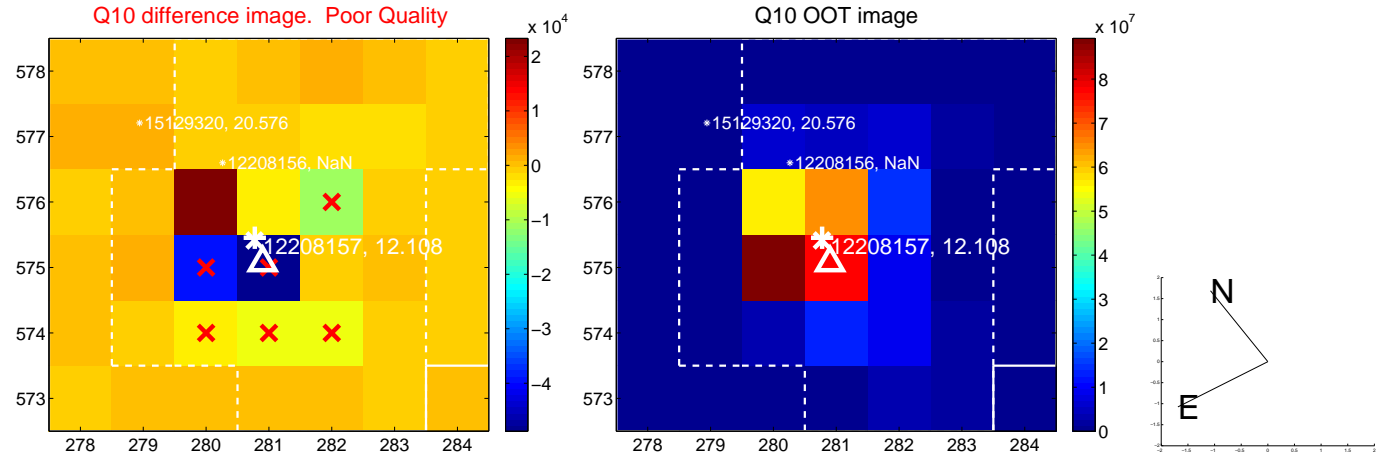
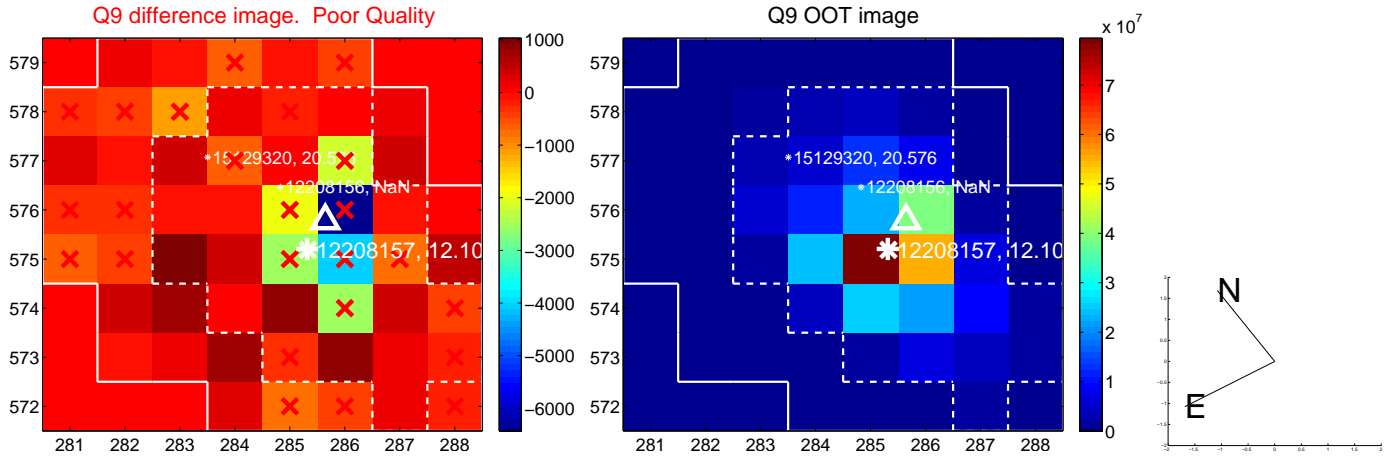
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



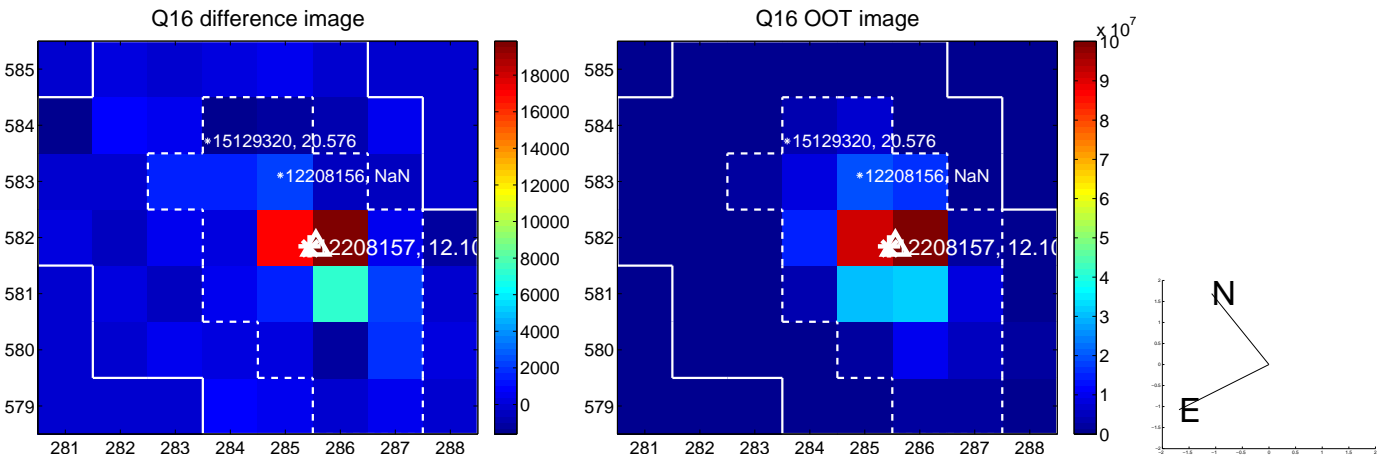
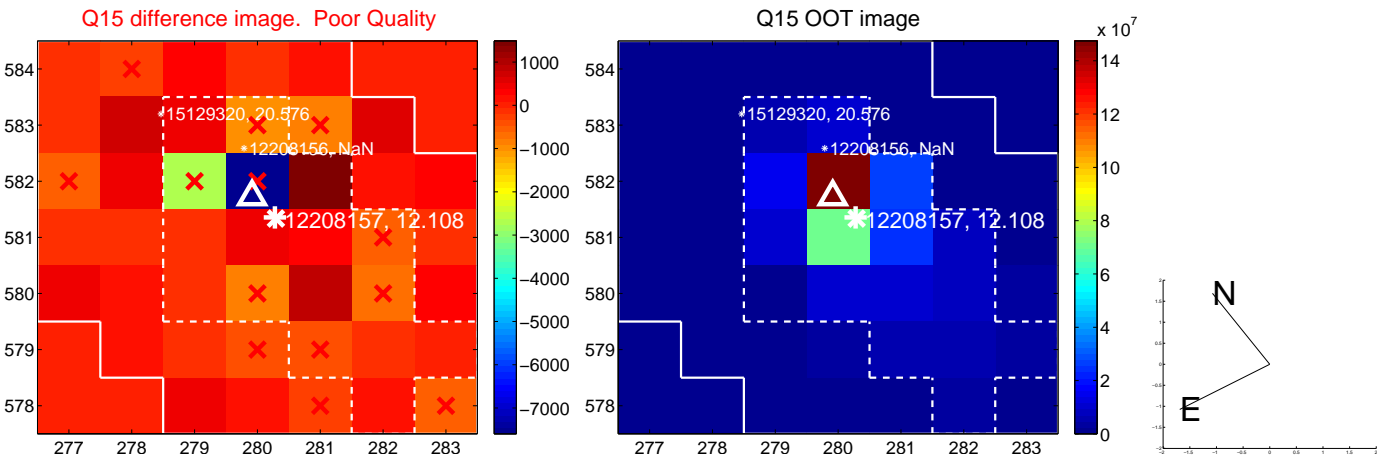
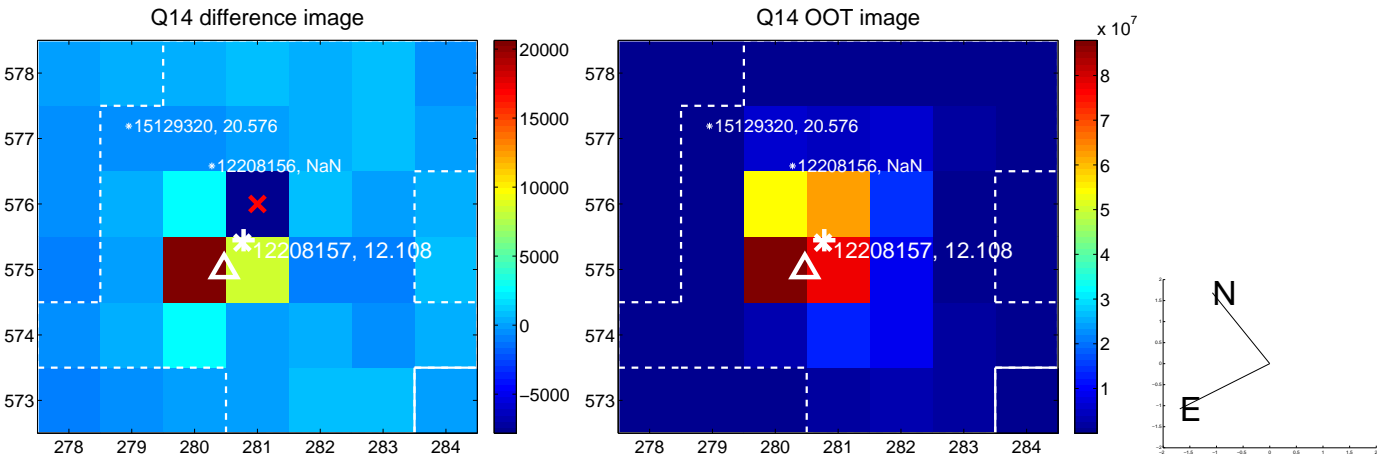
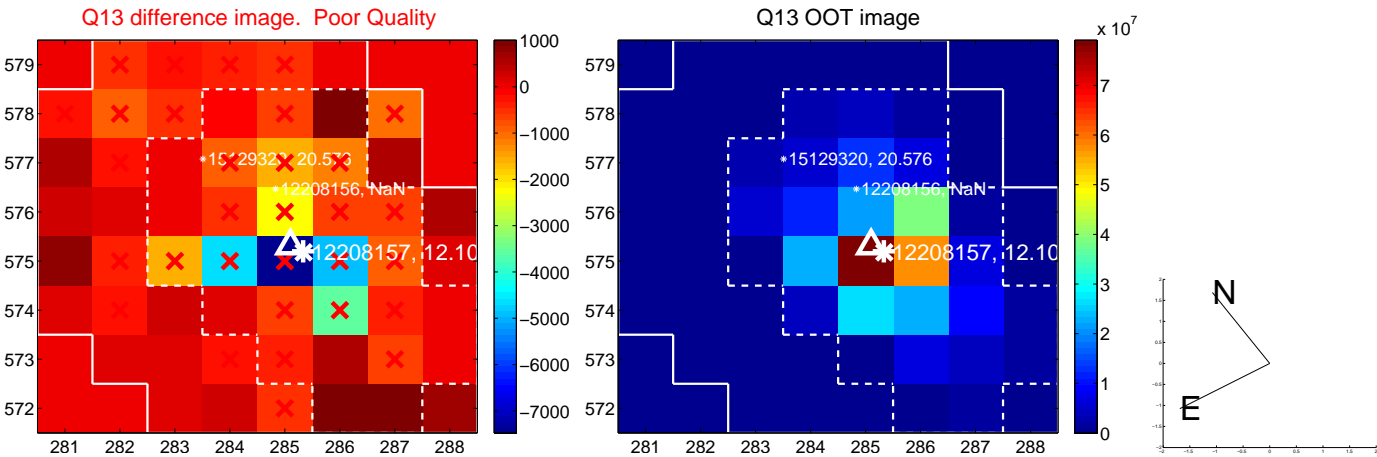
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



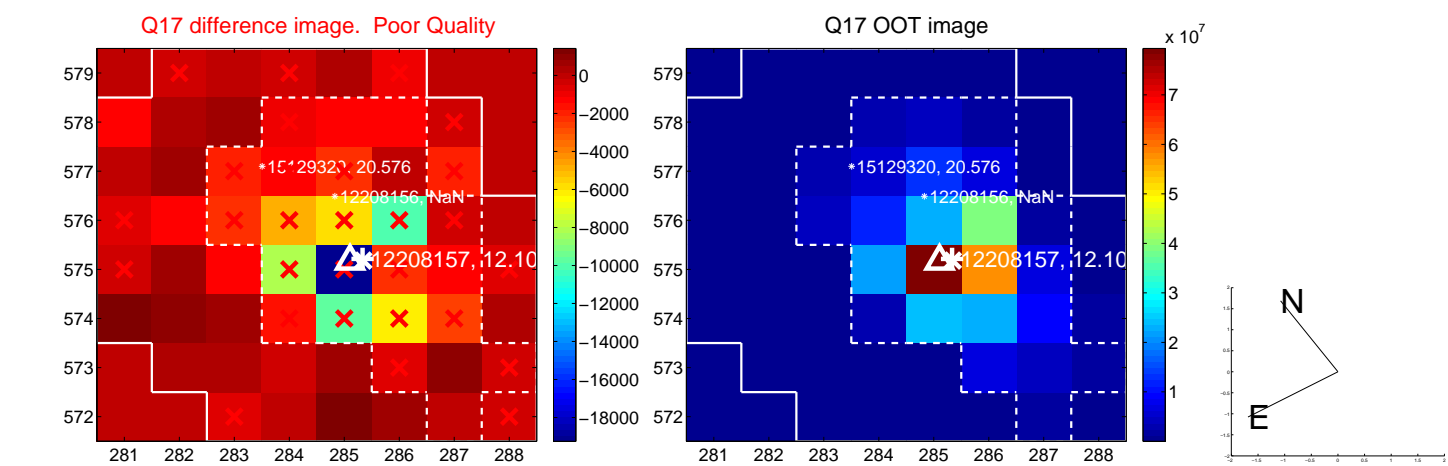
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



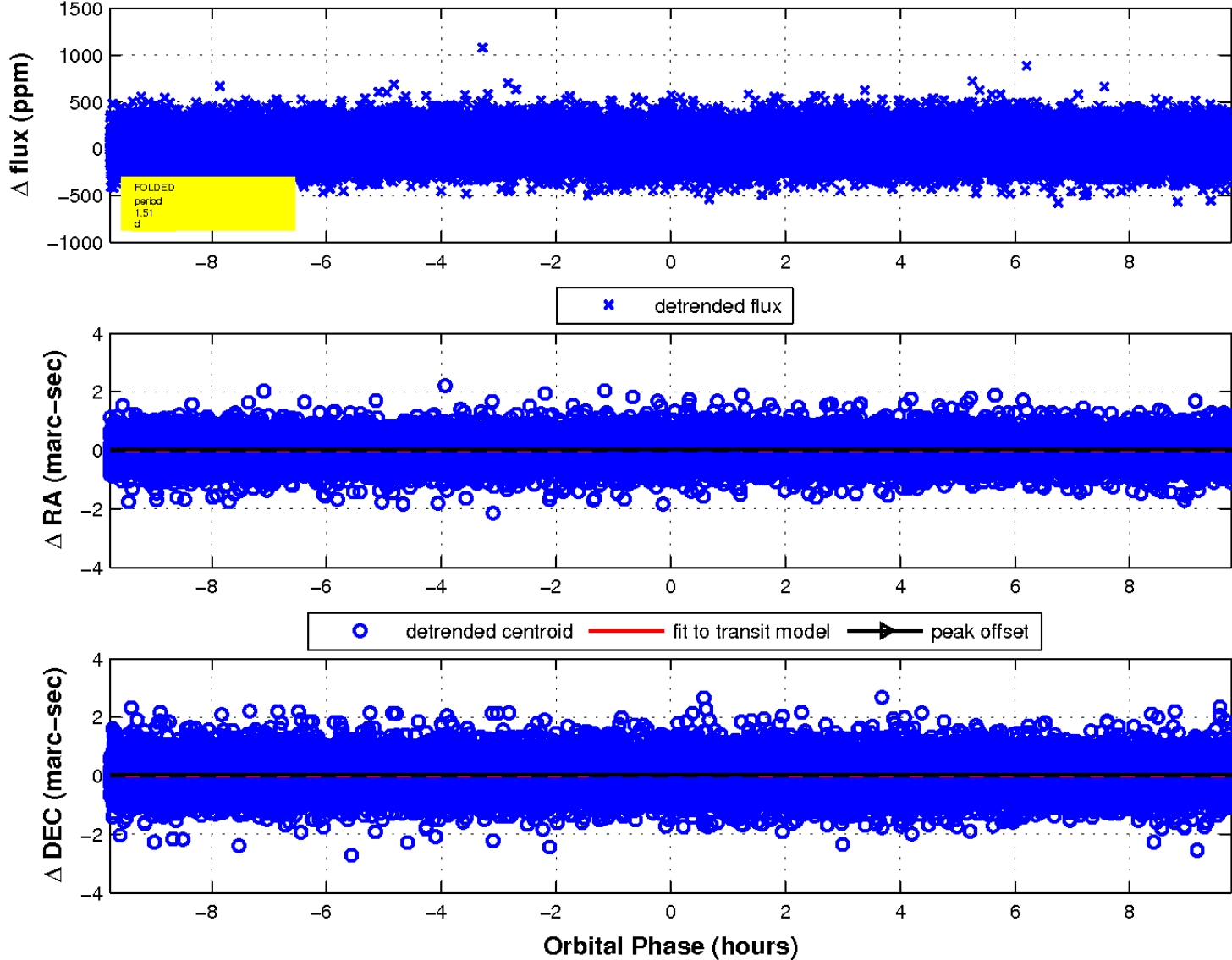
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

