

KIC 006587458

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})
006587458-01	OBS	No	1.027580	131.660046	10.1	6.075	7.4	7.7	2.46	6672	0.80	19509.15
006587458-02	OBS	No	30.564120	161.580893	172.2	2.061	8.5	10.3	2.46	6672	3.69	211.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006587458-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
006587458-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

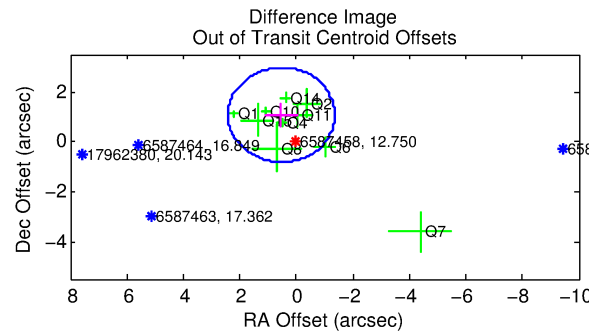
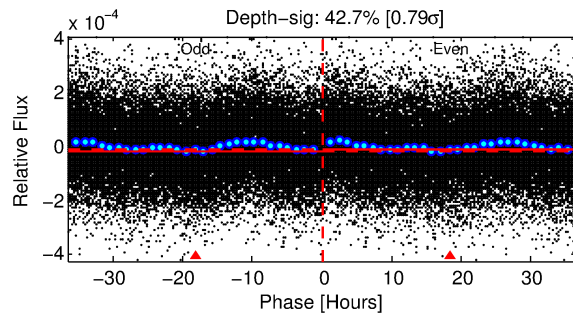
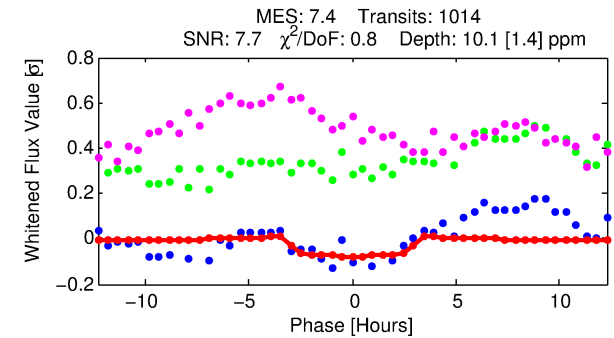
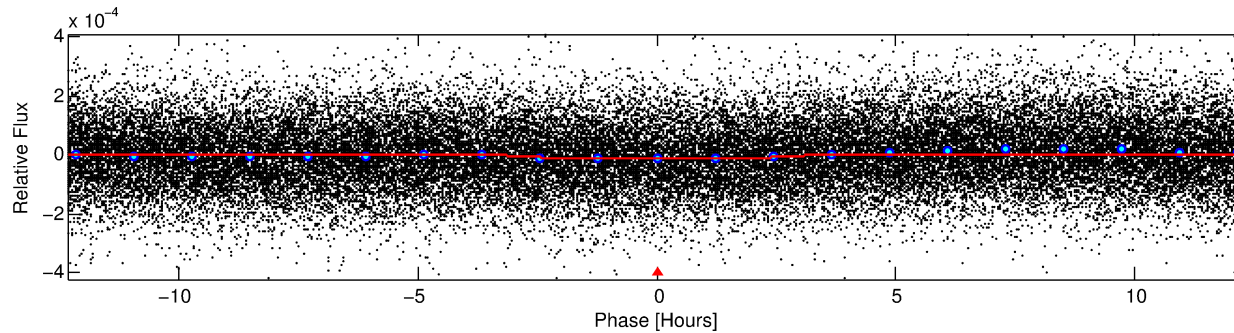
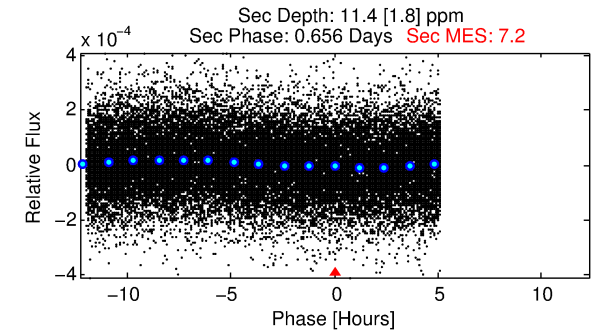
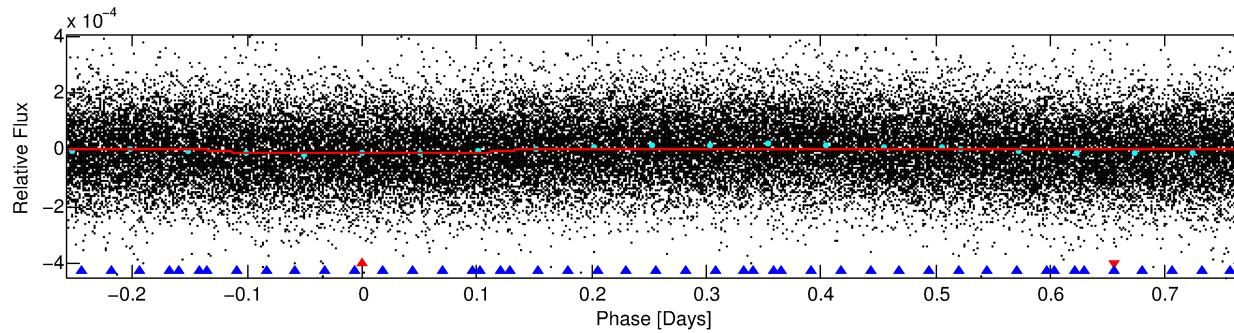
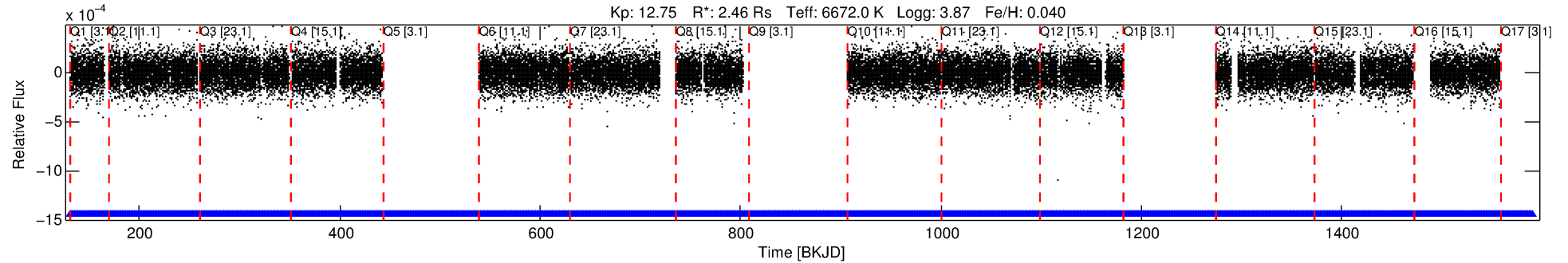
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006587458-01

No Significant Match Found

DV One-Page Summary

KIC: 6587458 Candidate: 1 of 2 Period: 1.028 d



DV Fit Results:

Period = 1.02758 [0.00002] d
Epoch = 131.6600 [0.0073] BKJD
Rp/R* = 0.0030 [0.0020]
a/R* = 1.38 [2.38]
b = 0.38 [8.20]
Seff = 19509.16 [13084.74]
Teq = 3014 [505] K
Rp = 0.80 [0.63] Re
a = 0.0235 [0.0096] AU
Ag = 5.42 [8.07] [0.55σ]
Teffp = 7108 [2397] K [1.67σ]

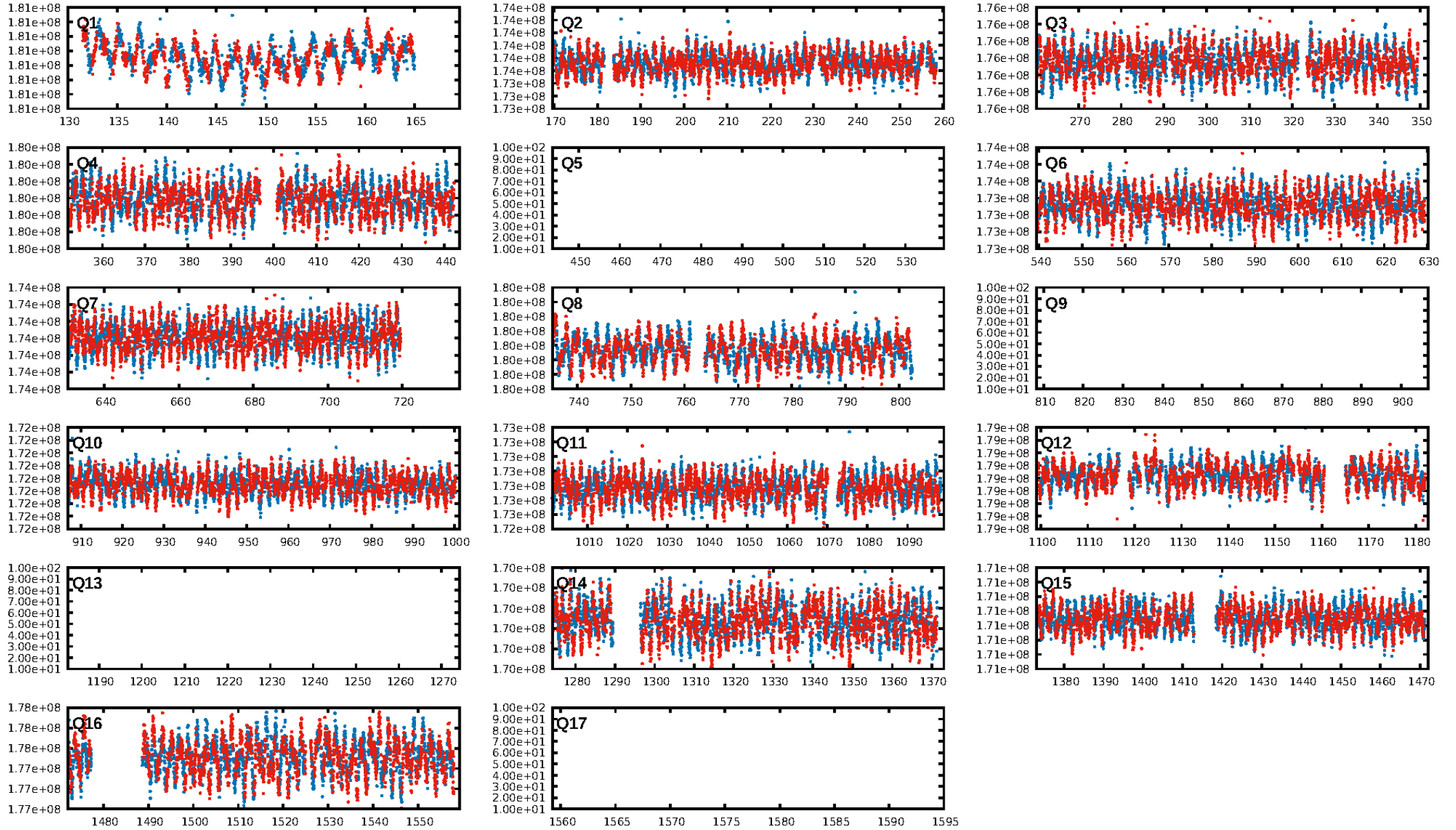
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [110.50σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.54e-11
RollingBand-fgt: 1.00 [981/981]
GhostDiagnostic-chr: 1.457
Centroid-sig: 42.5%
Centroid-so: 1.147 arcsec [0.79σ]
OotOffset-rm: 1.199 arcsec [1.90σ]
OotOffset-st: 4/3/2/1 [10]
KicOffset-rm: 1.288 arcsec [2.00σ]
KicOffset-st: 4/3/2/1 [10]
DiffImageQuality-fgm: 0.90 [9/10]
DiffImageOverlap-fno: 1.00 [13/13]

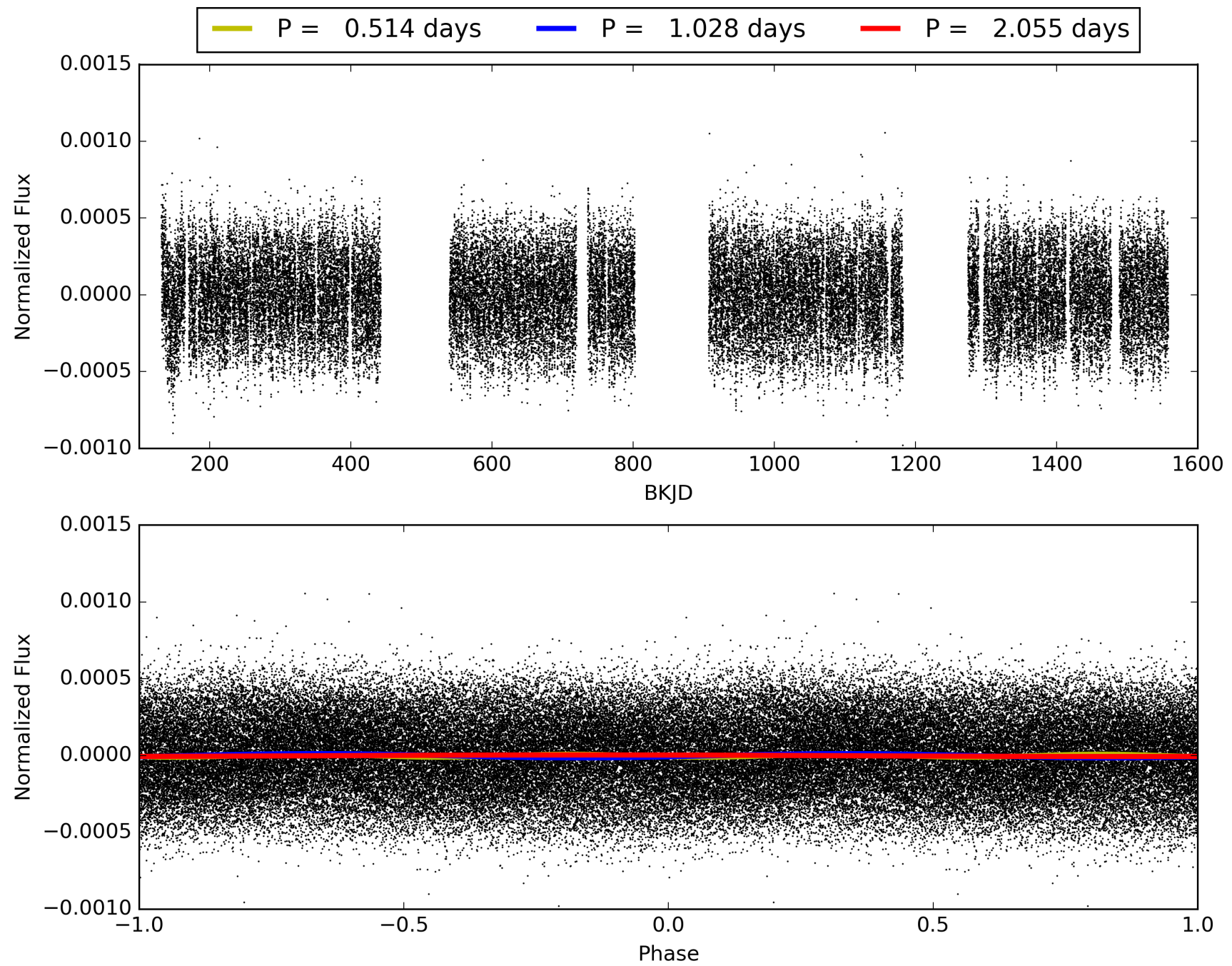
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 05:53:28 Z

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

TCE 006587458-01, PDC Light Curves

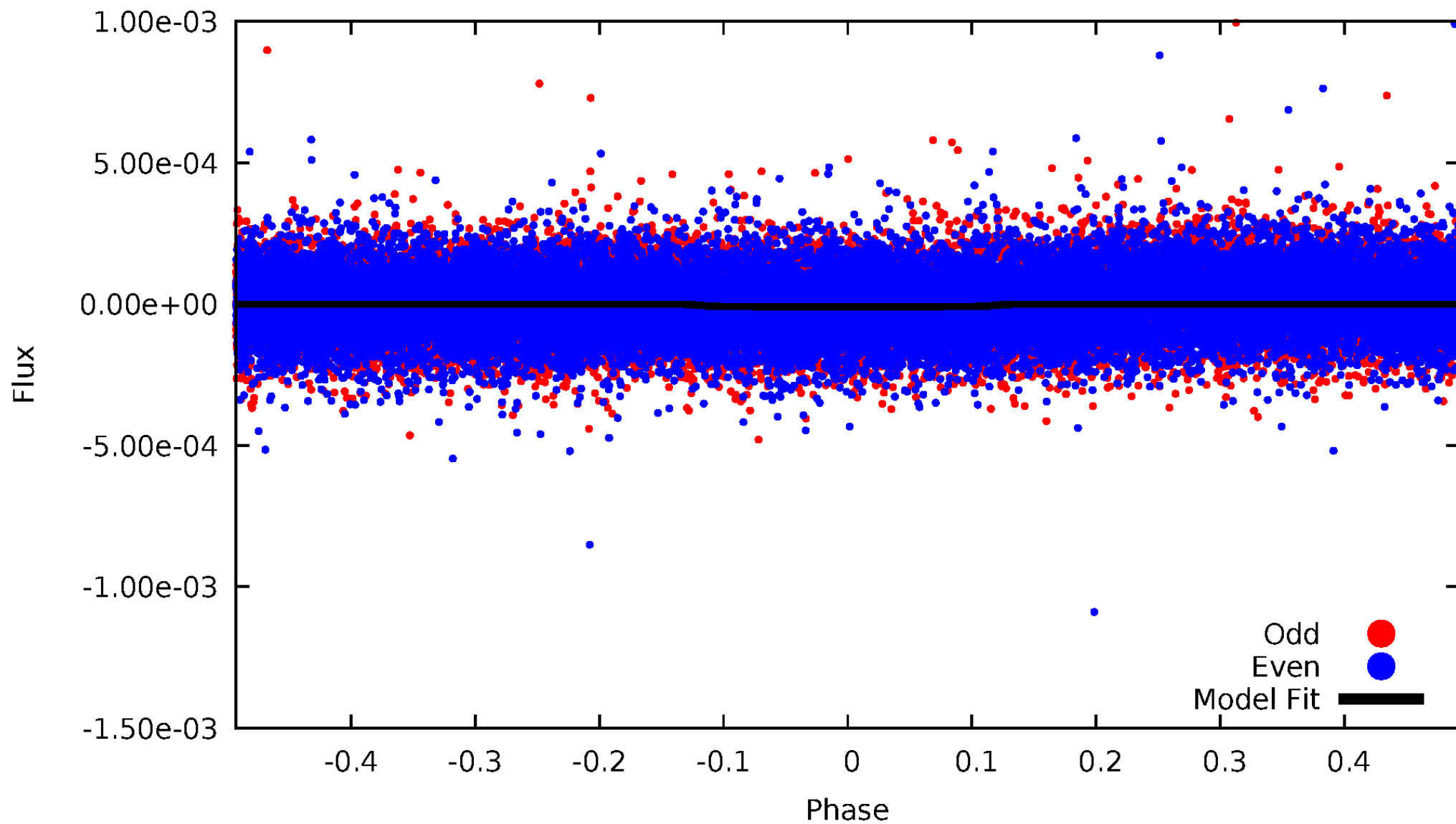


TCE 006587458-01



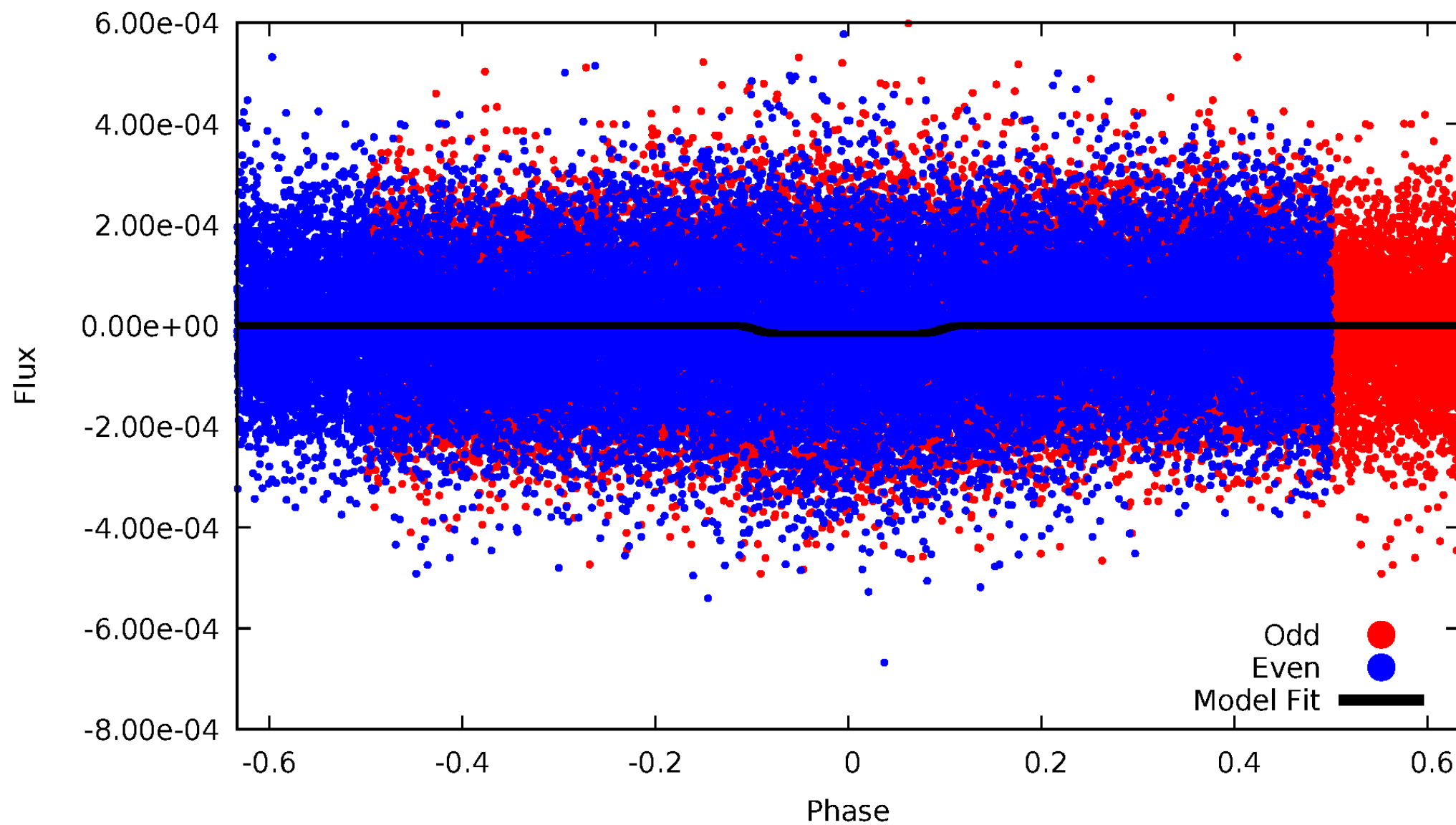
DV Odd/Even

TCE 006587458-01



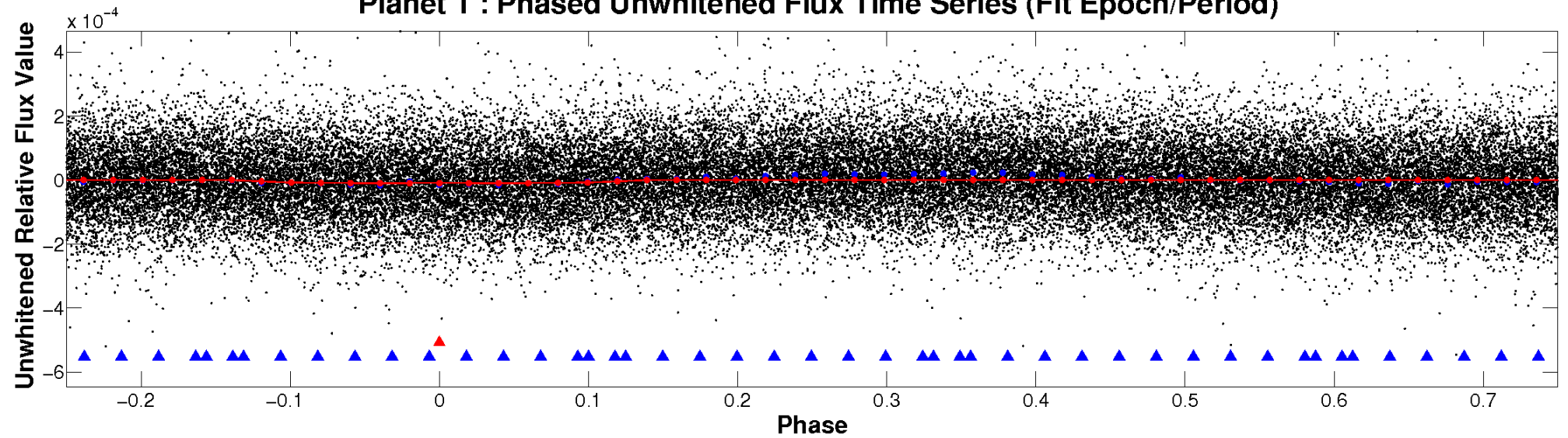
ALT Odd/Even

TCE 006587458-01

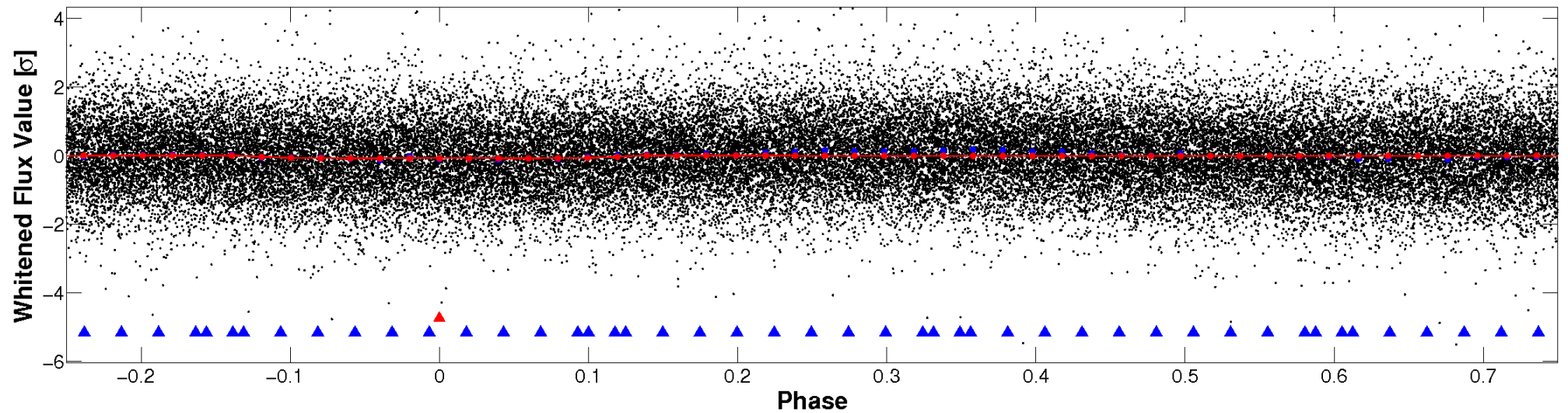


Non-Whitened Vs. Whitened Light Curve

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

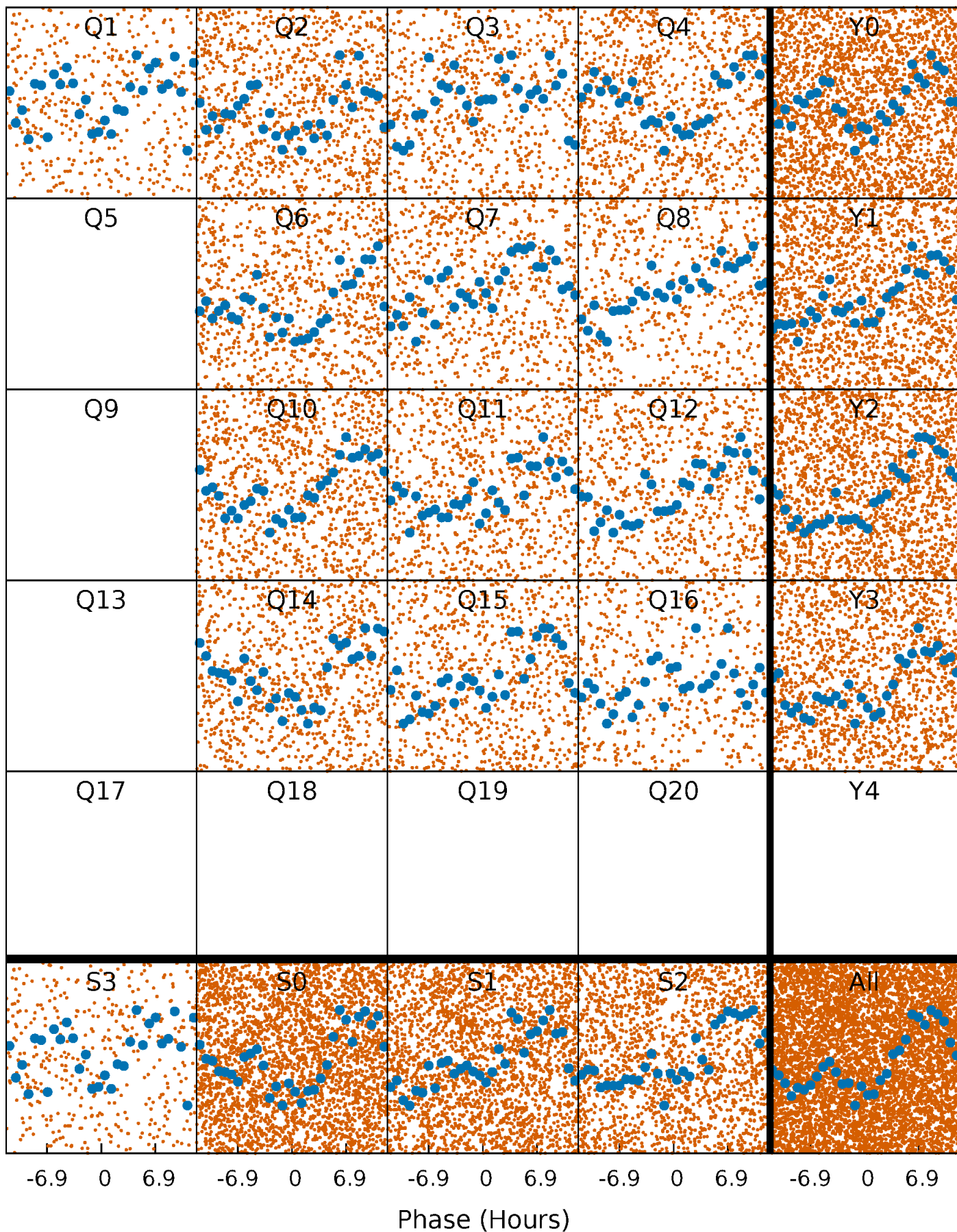


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



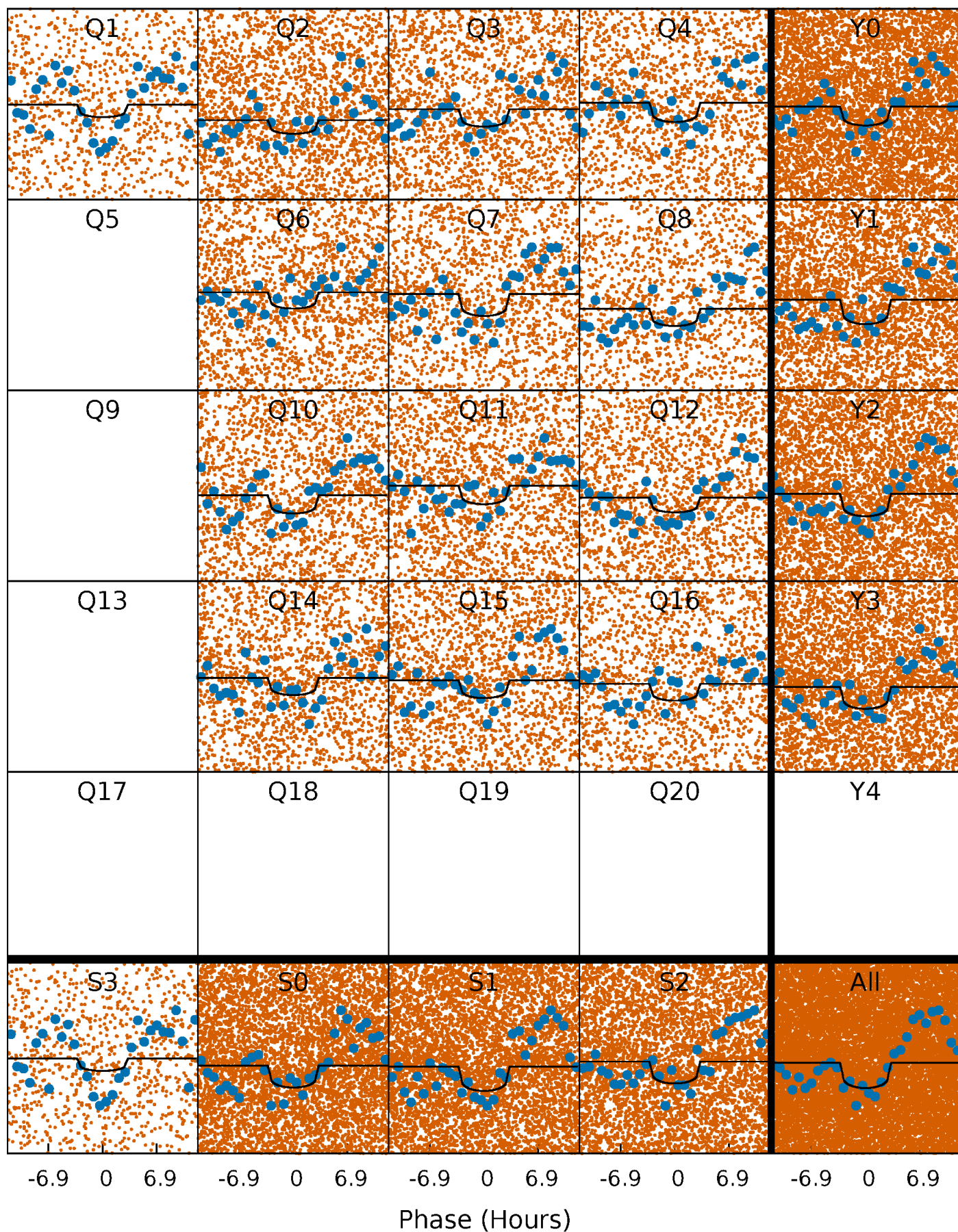
PDC Quarter-Phased Transit Curves

TCE 006587458-01 P= 1.027580 Days $T_0=131.660046$ (BKJD)



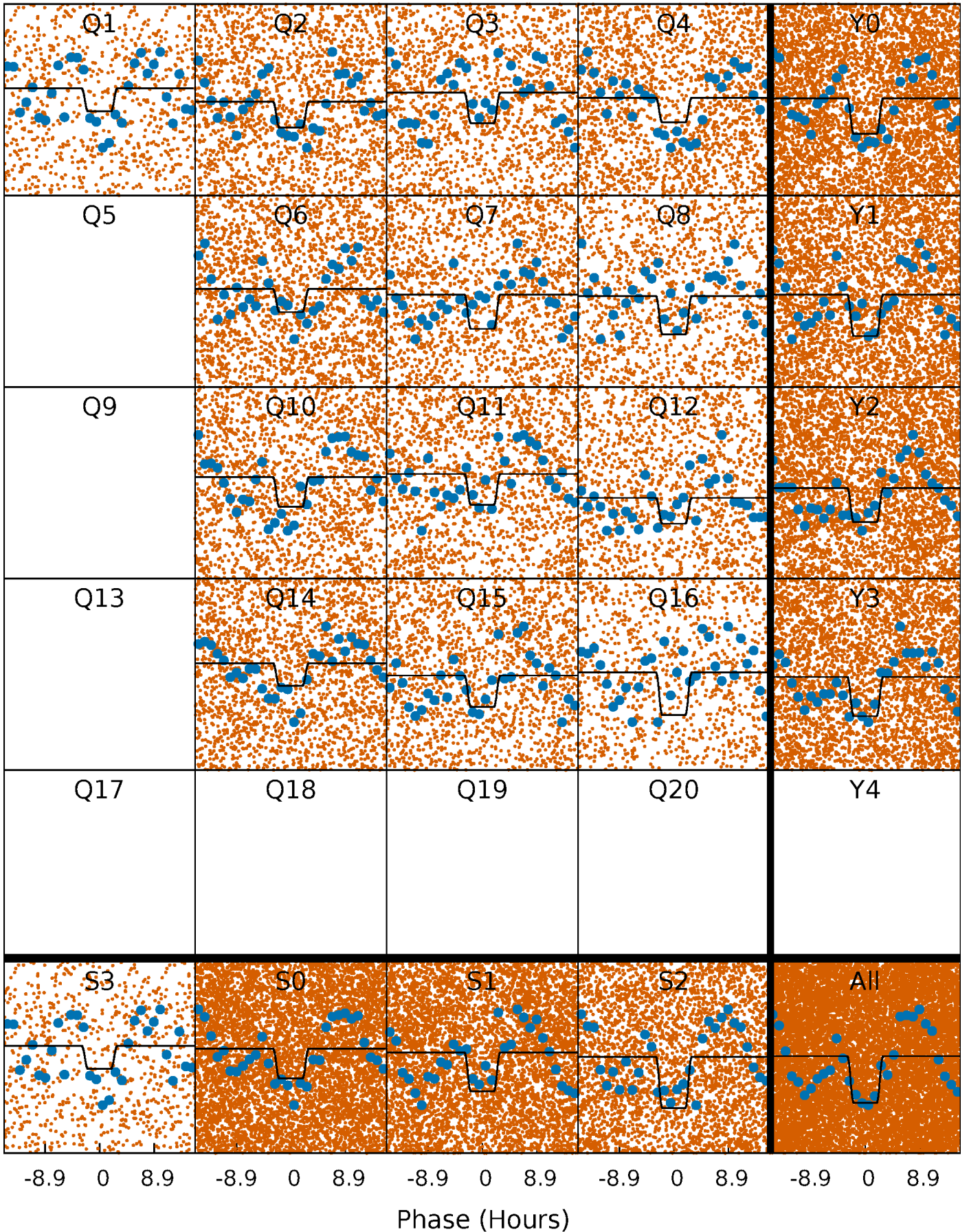
DV Quarter-Phased Transit Curves

TCE 006587458-01 P= 1.027580 Days $T_0=131.660046$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

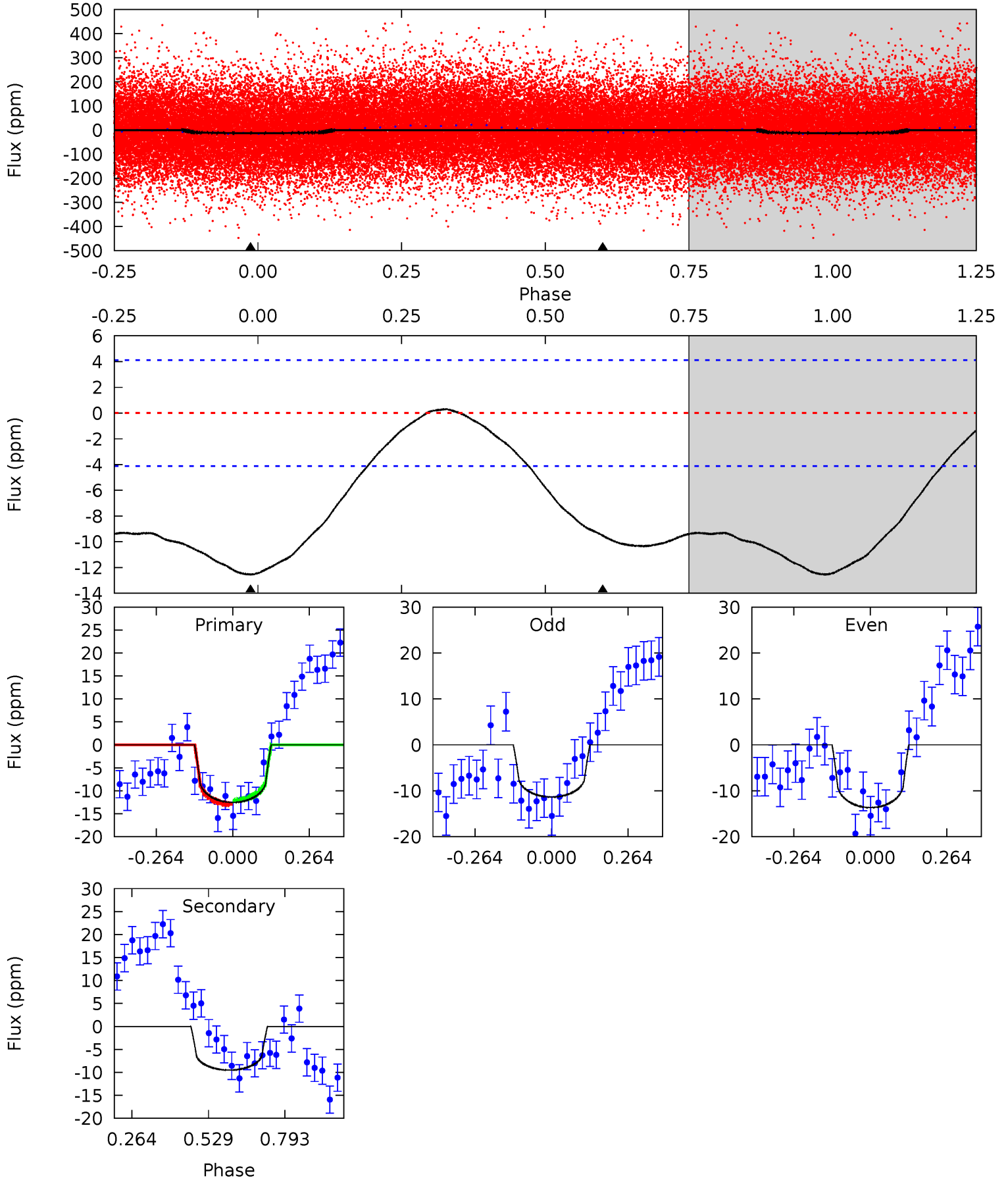
TCE 006587458-01 P= 1.027665 Days $T_0=131.617213$ (BKJD)



DV Model-Shift Uniqueness Test

006587458-01, P = 1.027580 Days, E = 130.632466 Days

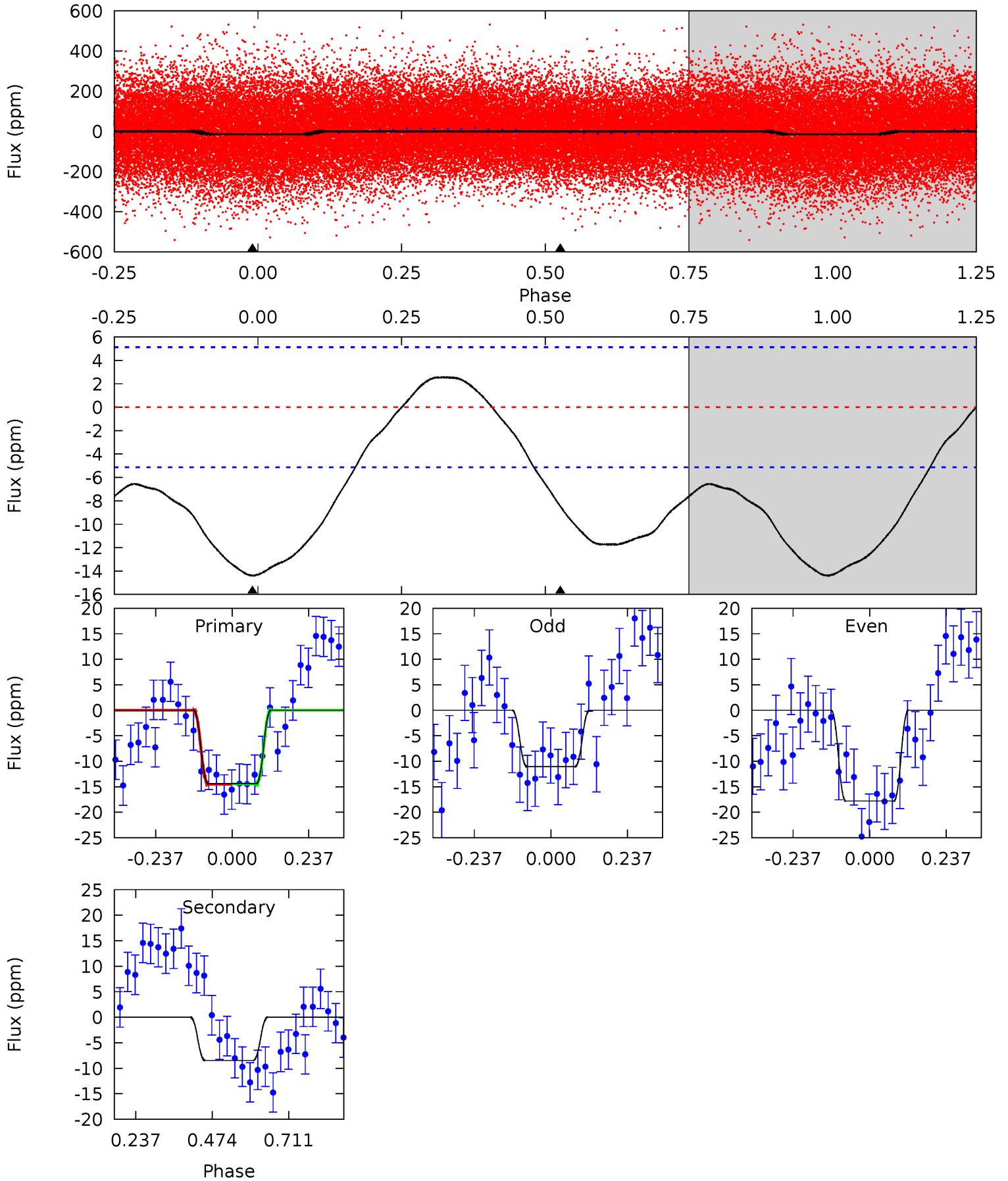
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	10.1	0	0	4.36	1.12	0.62	13.3	13.3	10.1	10.1	1.22	0.94	0.02	0.48



Alt Model-Shift Uniqueness Test

006587458-01, P = 1.027665 Days, E = 130.589548 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	7.23	0	0	4.38	1.18	2.62	12.3	12.3	7.23	7.23	2.88	1.07	0.15	0.01



Stellar Parameters For KIC 006587458

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6672^{+186}_{-255}	$3.869^{+0.382}_{-0.127}$	$0.040^{+0.250}_{-0.300}$	$2.461^{+0.572}_{-1.061}$	$1.633^{+0.180}_{-0.419}$	$0.154^{+0.481}_{-0.057}$
	+3%/-4%	+10%/-3%	+625%/-750%	+23%/-43%	+11%/-26%	+312%/-37%
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 006587458-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-10 ± 1	$0.77^{+0.55}_{-0.46}$	4111^{+299}_{-424}	6390^{+4961}_{-1379}	$4.710^{+24.015}_{-3.052}$
Alt.	-8 ± 1	$0.98^{+0.57}_{-0.51}$	4115^{+324}_{-438}	5548^{+2483}_{-1084}	$2.602^{+8.026}_{-1.536}$

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

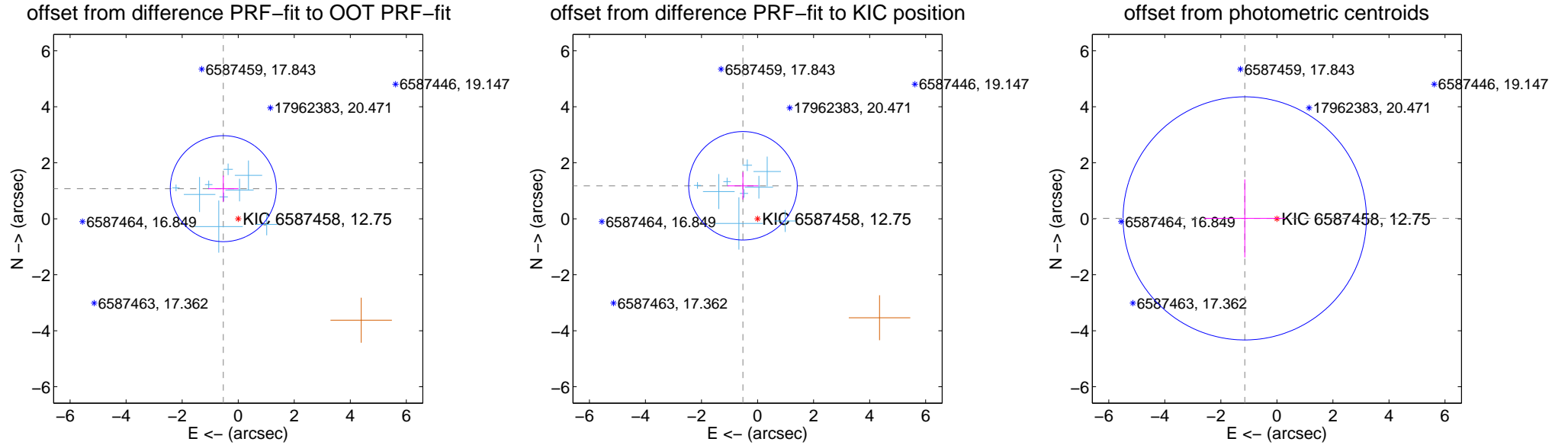
DV Centroid Data

Supplemental centroid analysis for 006587458-01. Kepler magnitude: 12.75. Transit SNR 7.67

There are 9 quarters with good PRF difference image offsets

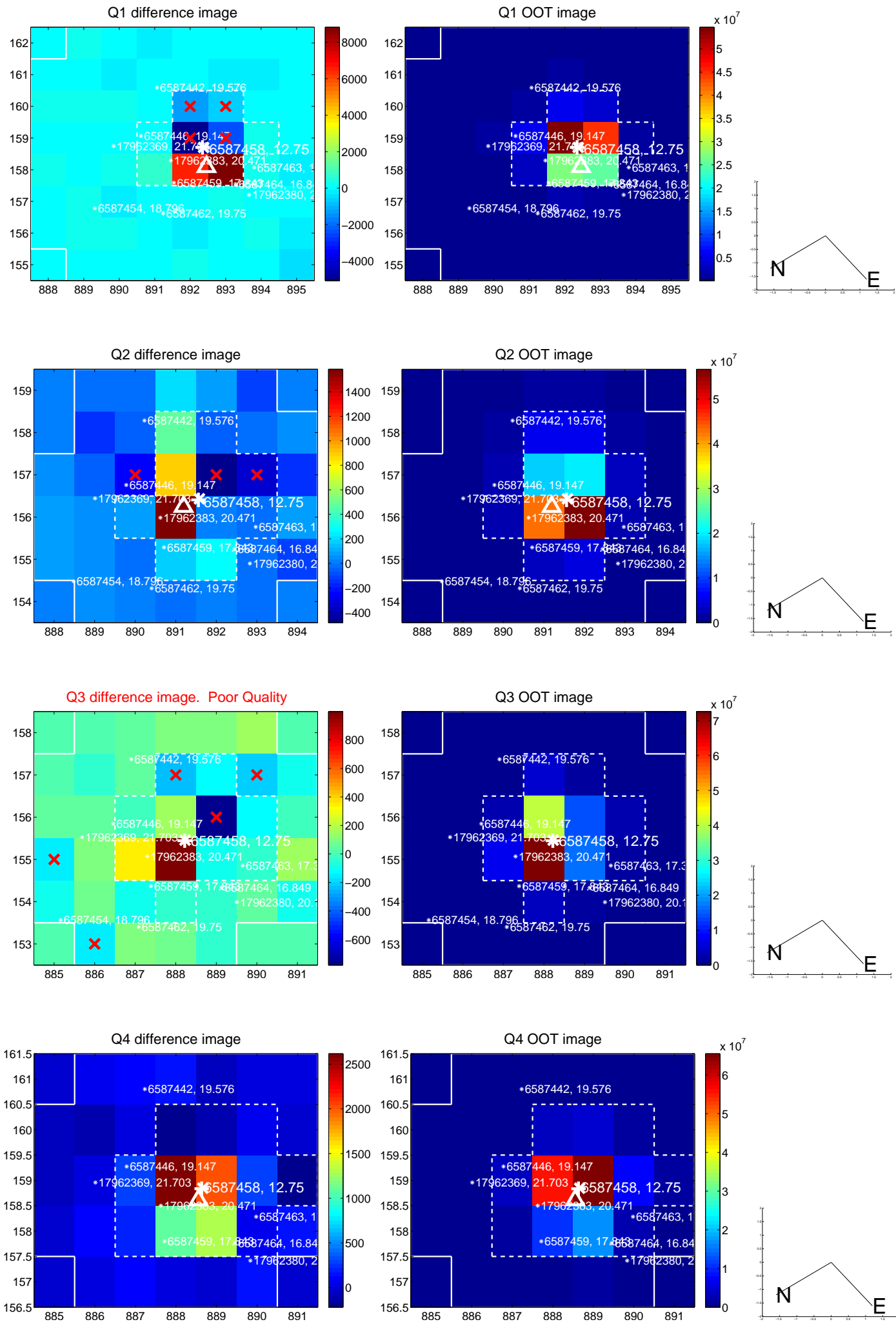
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.199 ± 0.631	1.90	0.531 ± 0.542	1.075 ± 0.466
PRF-fit source offset from KIC position	1.288 ± 0.646	2.00	0.521 ± 0.554	1.178 ± 0.487
photometric centroid source offset	1.15 ± 1.45	0.79	1.15 ± 1.45	0.01 ± 1.39

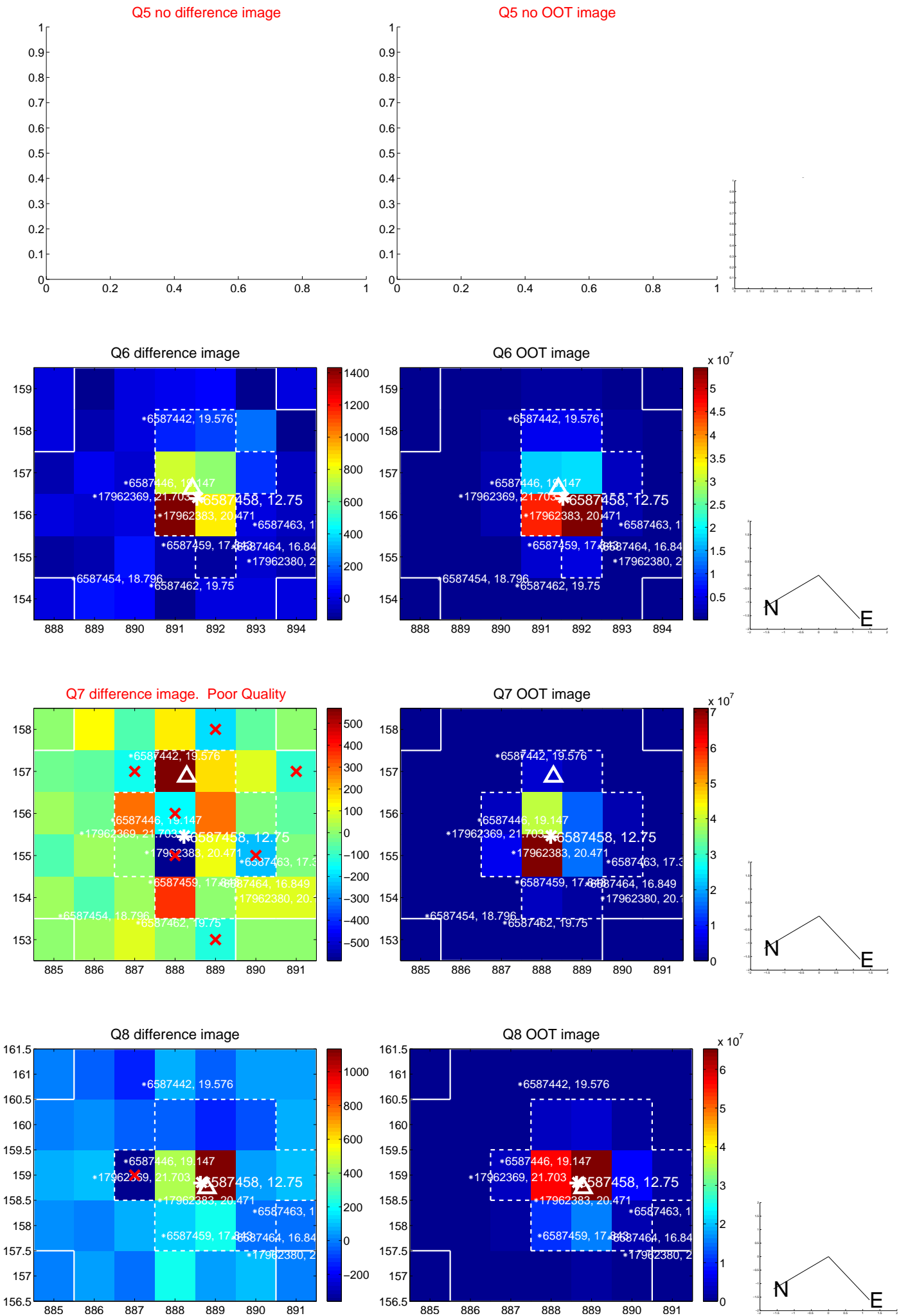


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

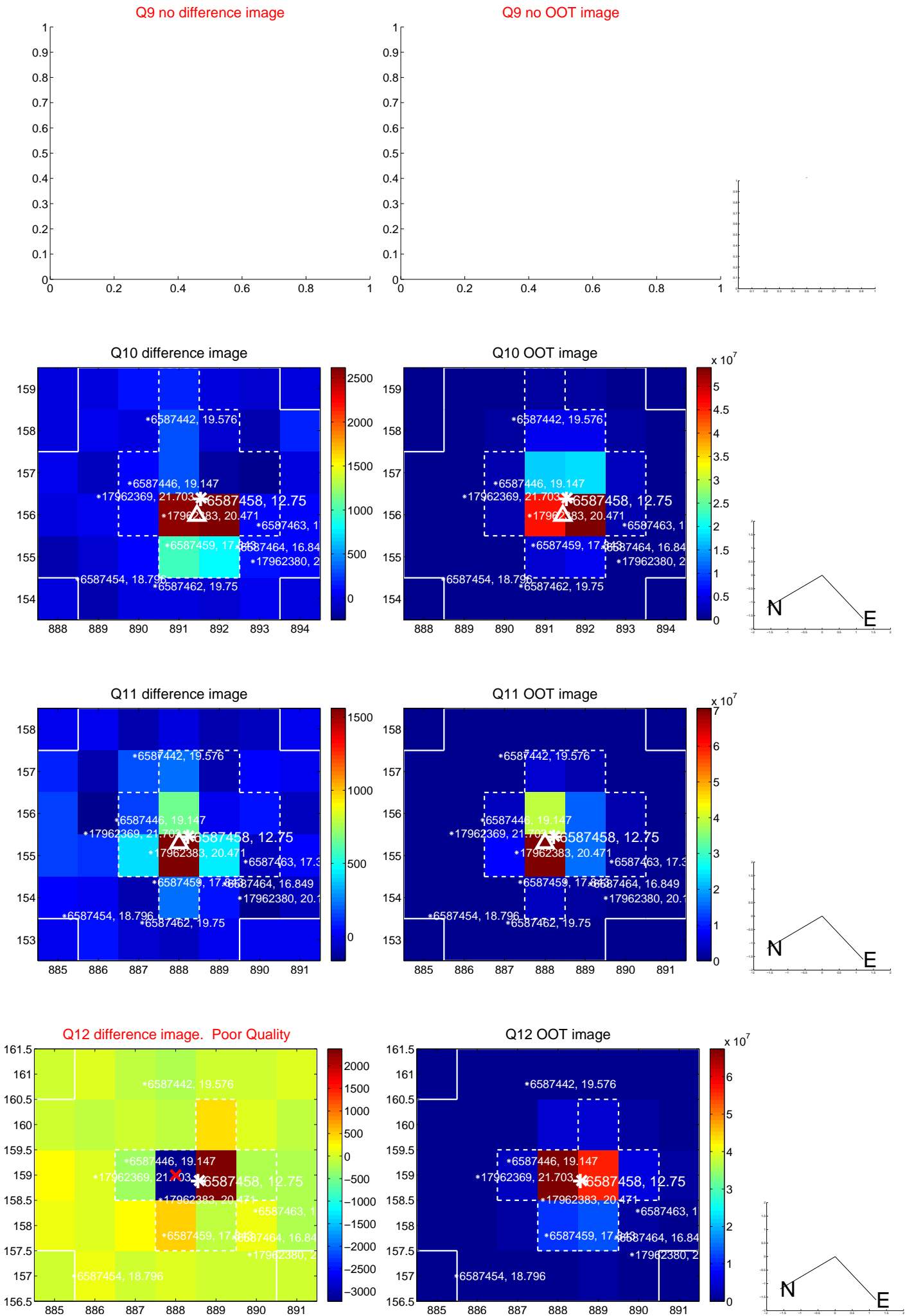
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



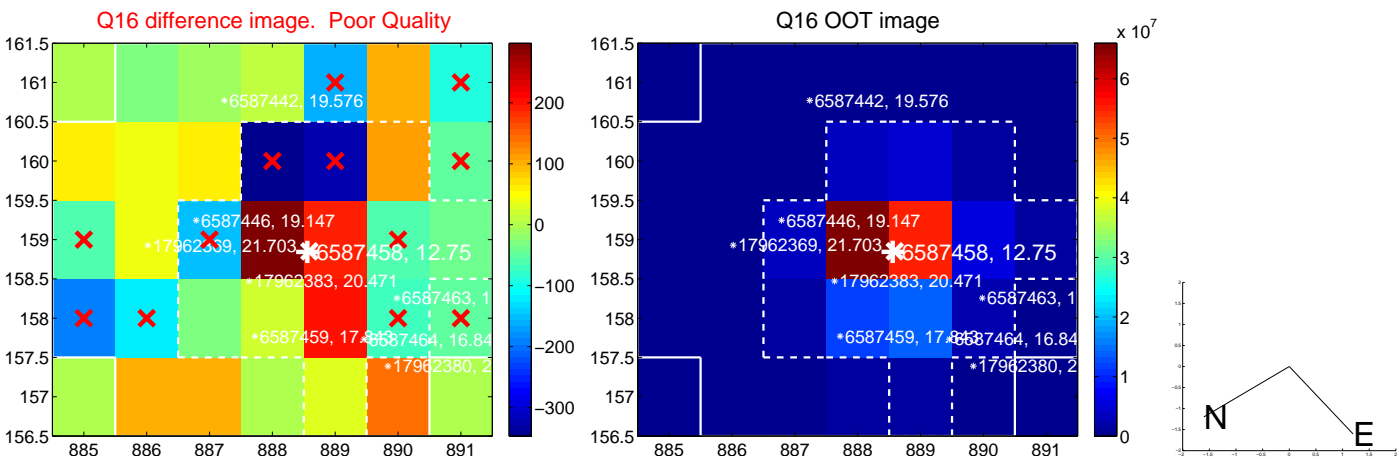
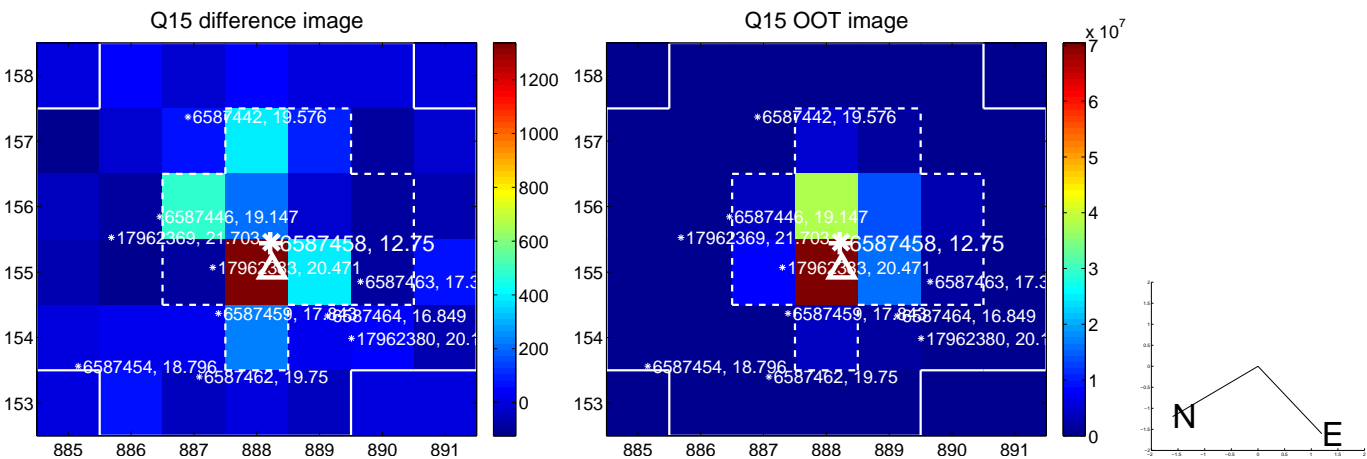
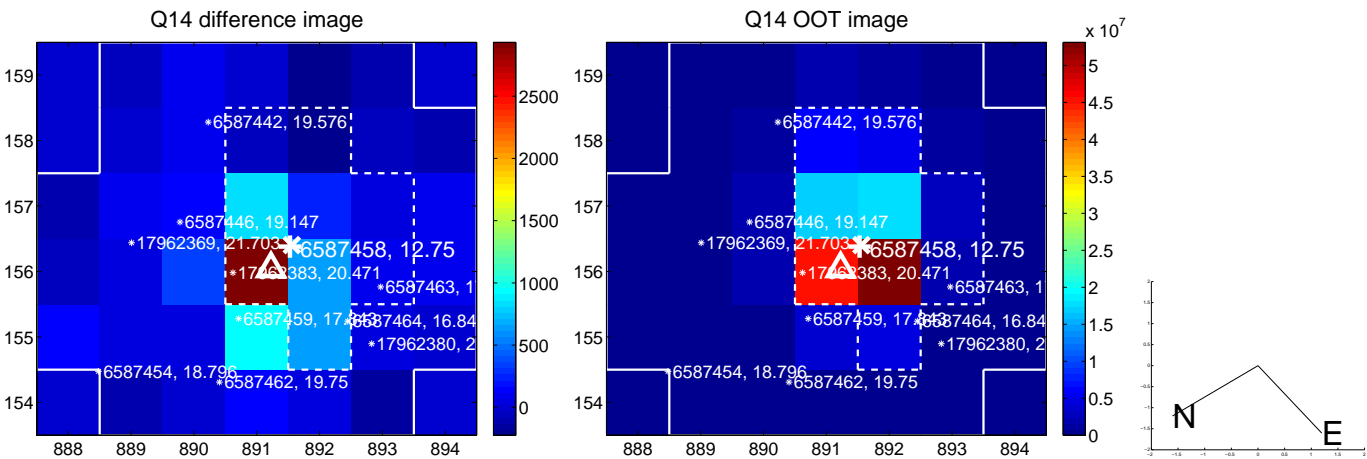
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



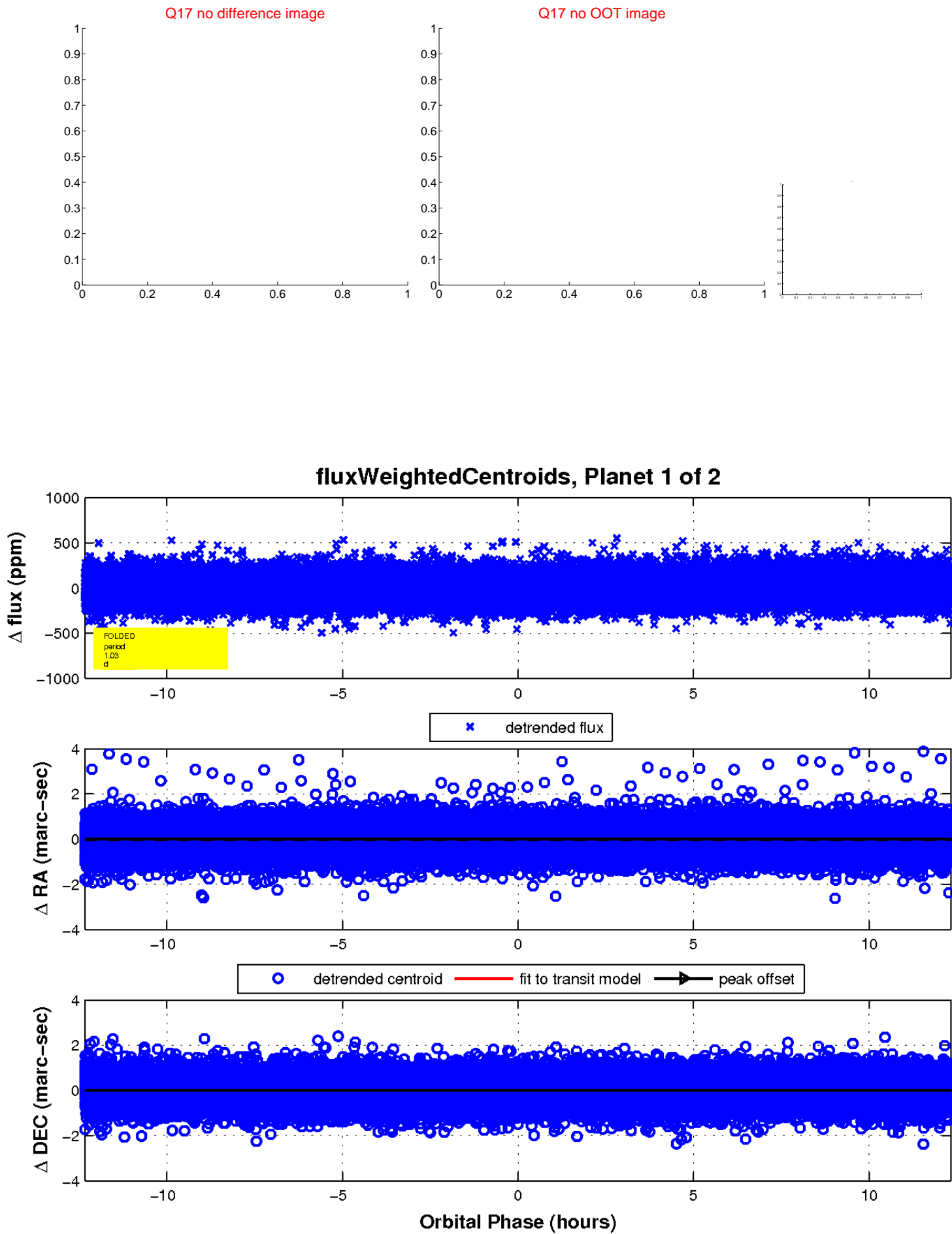
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

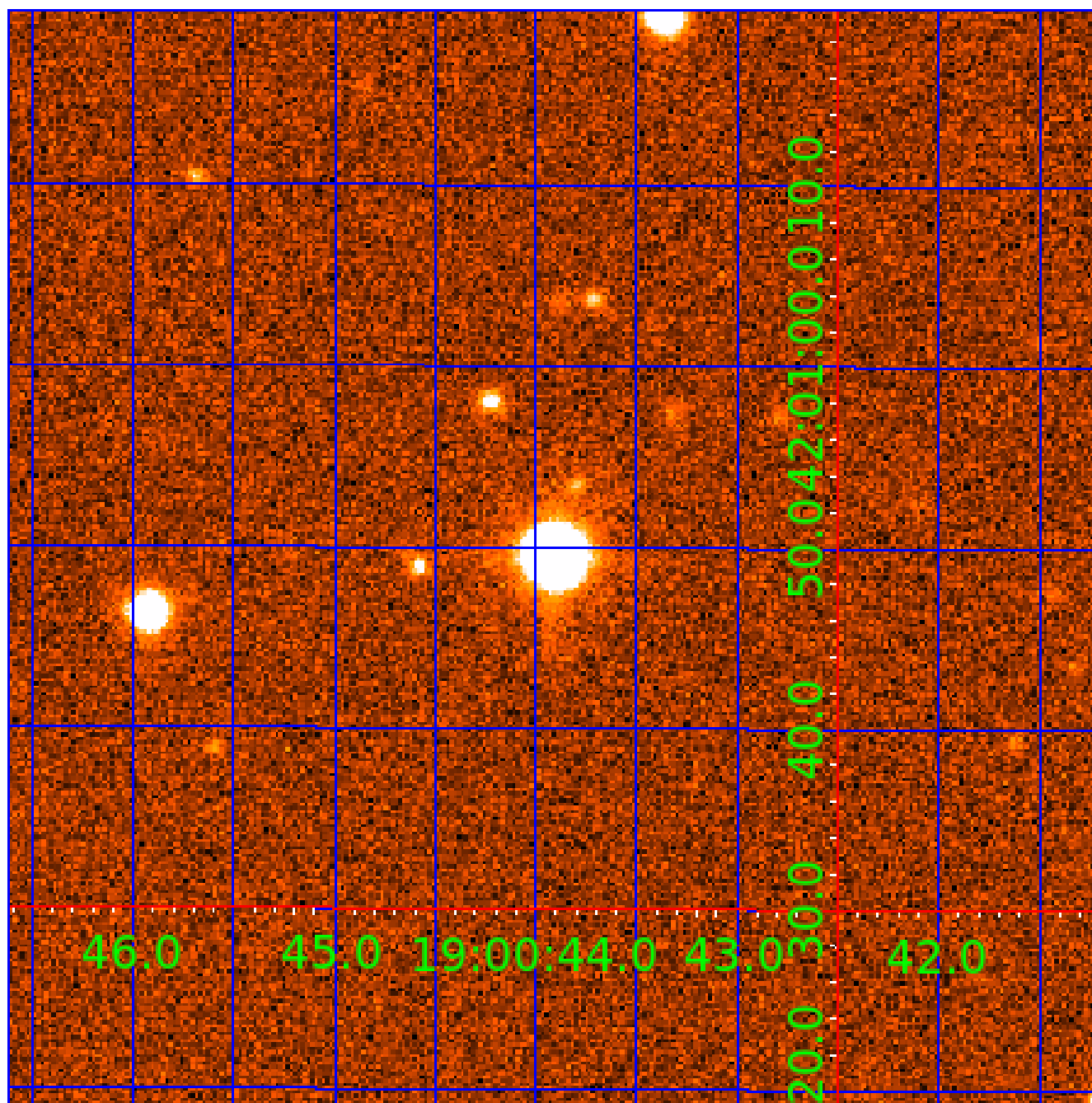


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006587458

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})
006587458-01	OBS	No	1.027580	131.660046	10.1	6.075	7.4	7.7	2.46	6672	0.80	19509.15
006587458-02	OBS	No	30.564120	161.580893	172.2	2.061	8.5	10.3	2.46	6672	3.69	211.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006587458-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
006587458-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

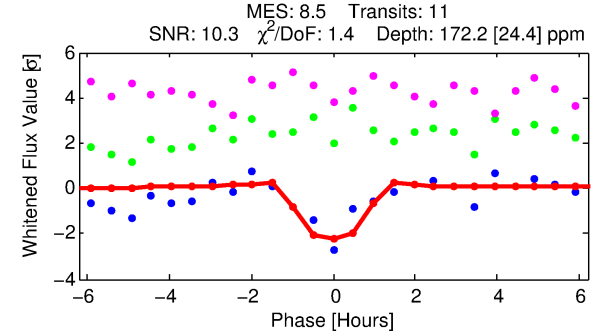
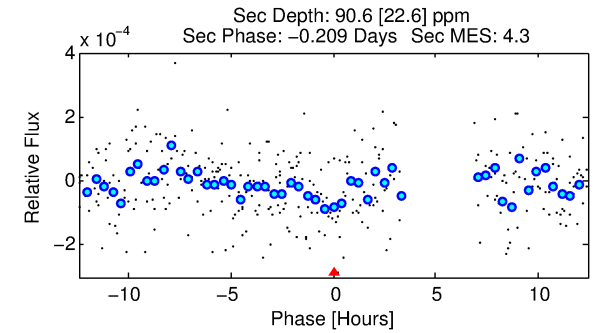
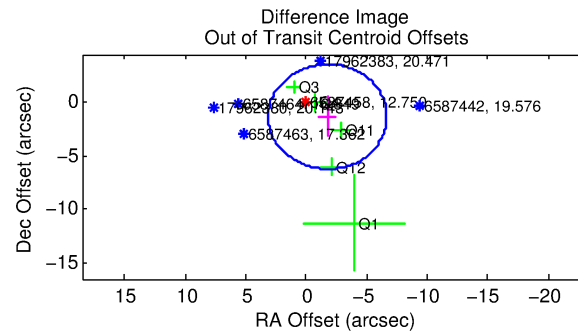
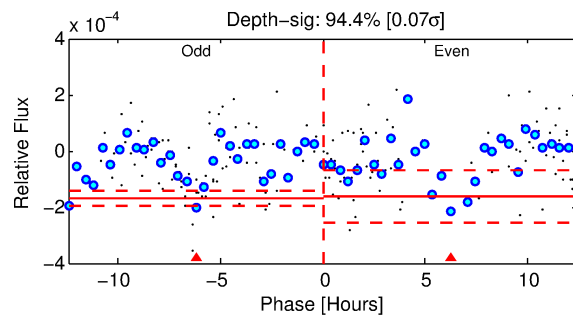
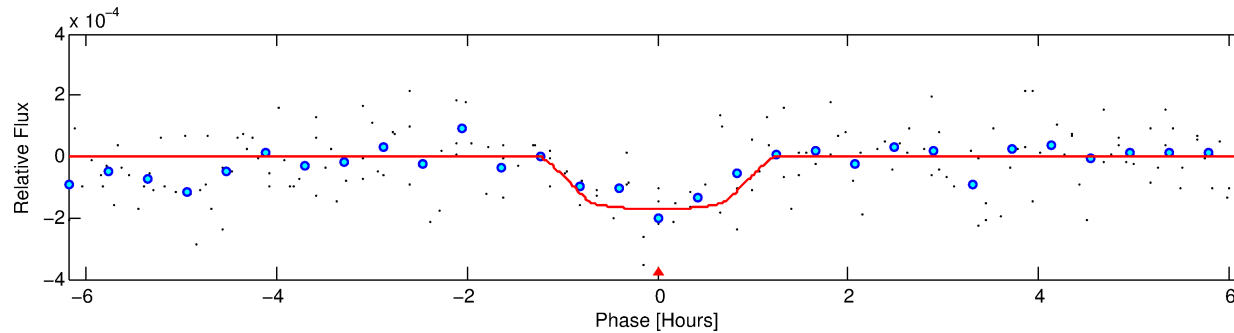
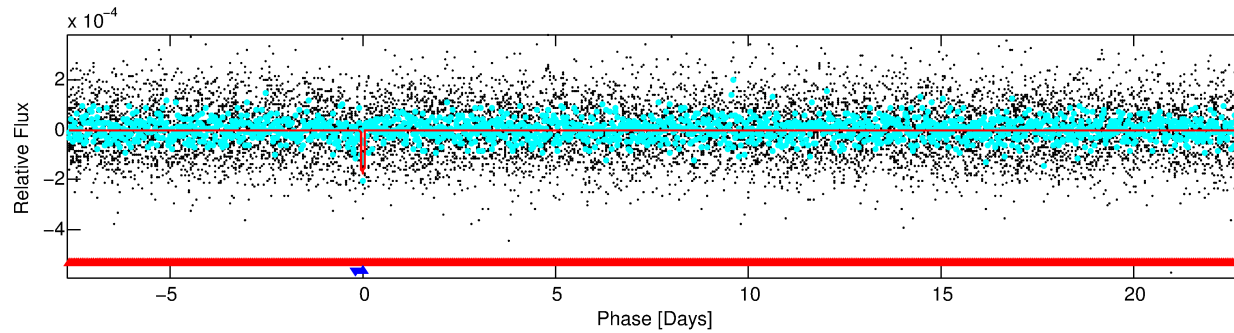
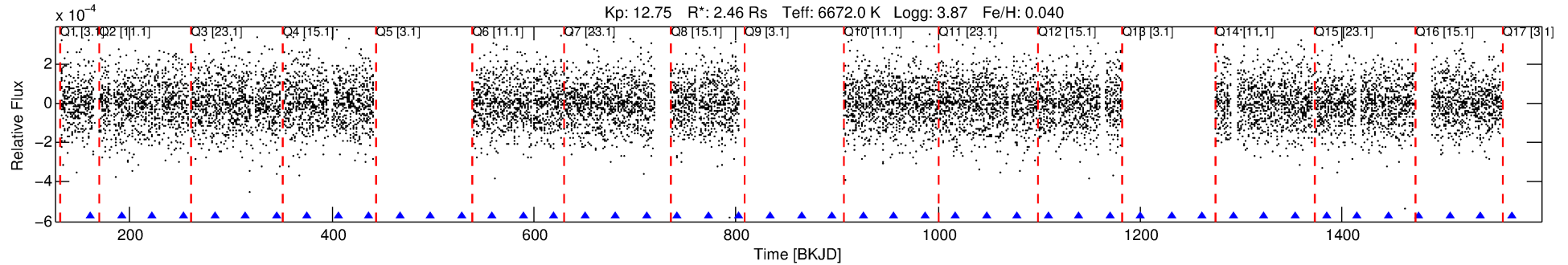
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006587458-02

No Significant Match Found

DV One-Page Summary

KIC: 6587458 Candidate: 2 of 2 Period: 30.564 d



DV Fit Results:

Period = 30.56412 [0.00025] d
Epoch = 161.5809 [0.0067] BKJD
Rp/R* = 0.0137 [0.0241]
a/R* = 59.35 [604.44]
b = 0.87 [2.94]
Seff = 211.69 [141.98]
Teq = 973 [163] K
Rp = 3.69 [6.66] Re
a = 0.2254 [0.0925] AU
Ag = 185.92 [664.56] [0.28 σ]
Teffp = 5553 [4883] K [0.94 σ]

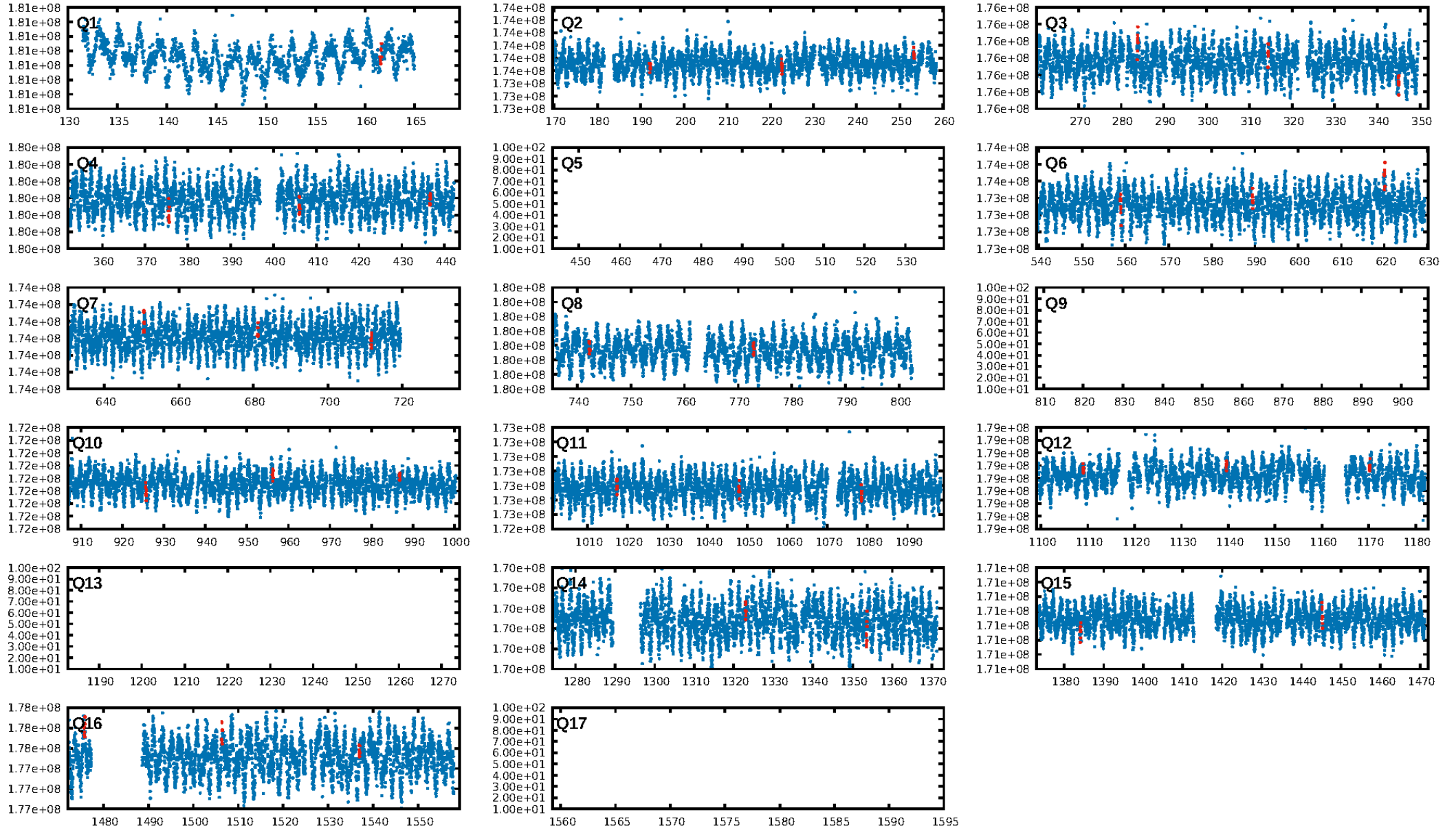
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [110.50 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 44.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.80e-10
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: 0.5353
Centroid-sig: 81.9%
Centroid-so: 0.347 arcsec [0.45 σ]
OotOffset-rm: 2.203 arcsec [1.35 σ]
OotOffset-st: 0/2/2/1 [5]
KicOffset-rm: 2.219 arcsec [1.59 σ]
KicOffset-st: 0/2/2/1 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.62 [8/13]

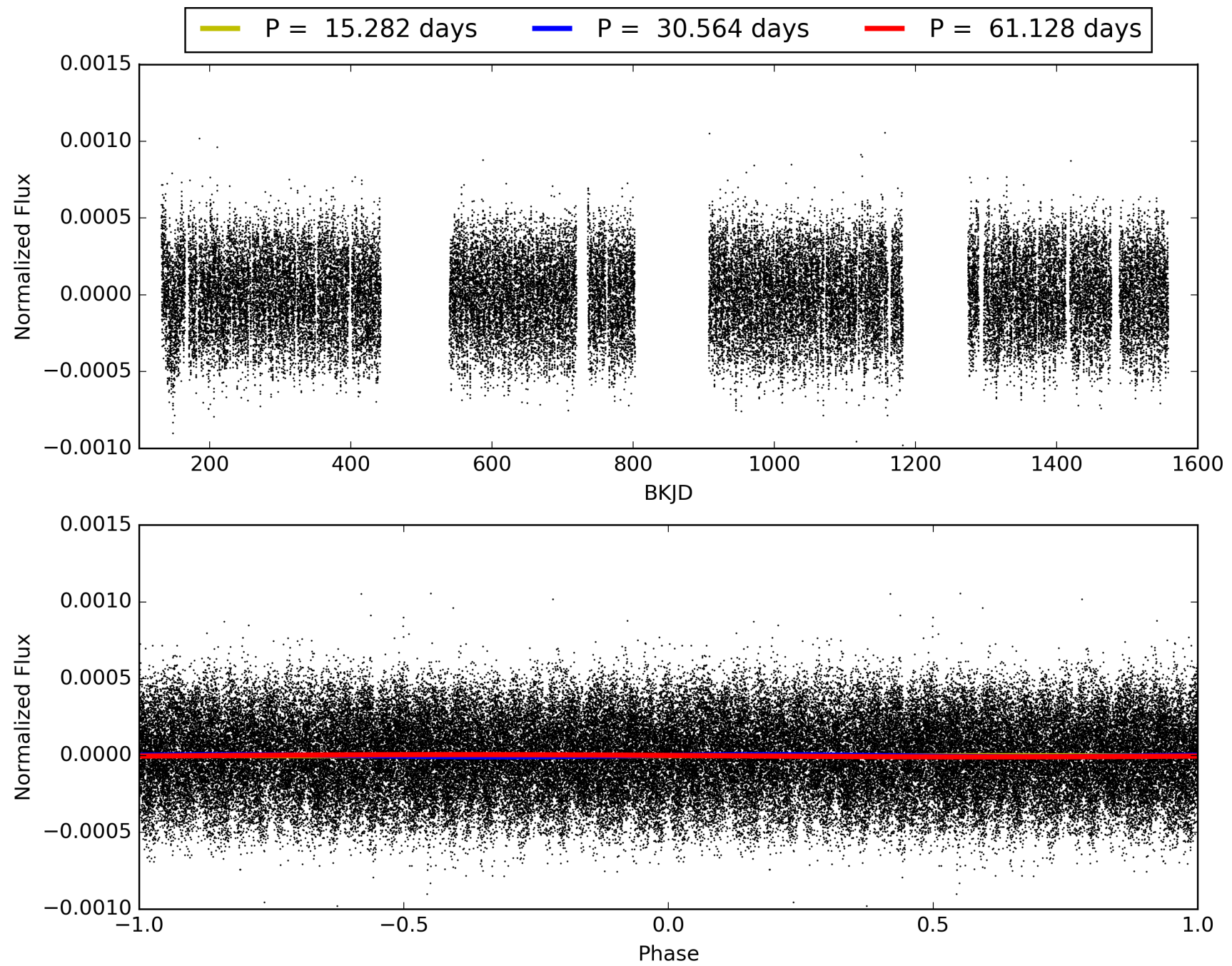
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 05:53:39 Z

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

TCE 006587458-02, PDC Light Curves

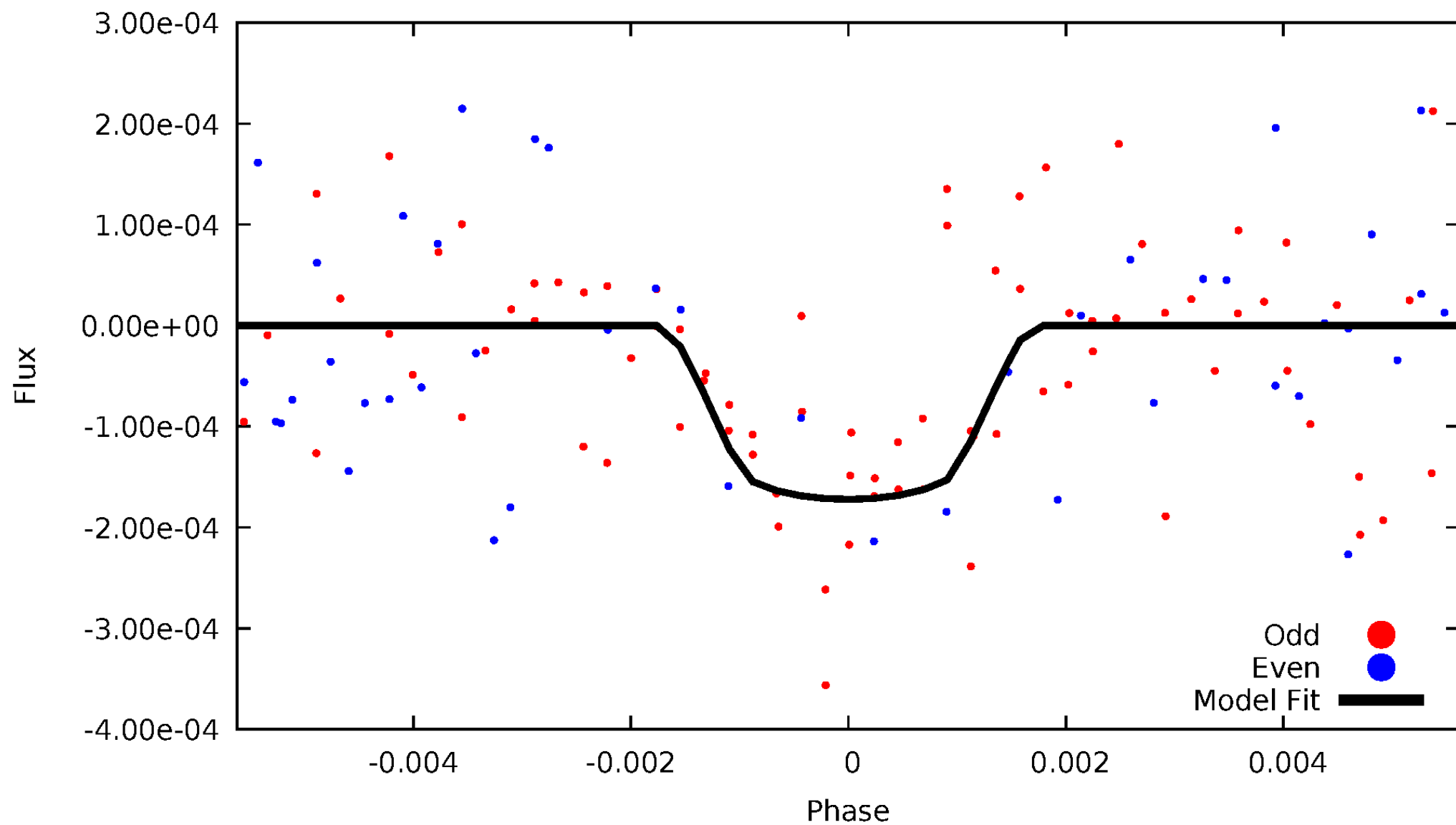


TCE 006587458-02



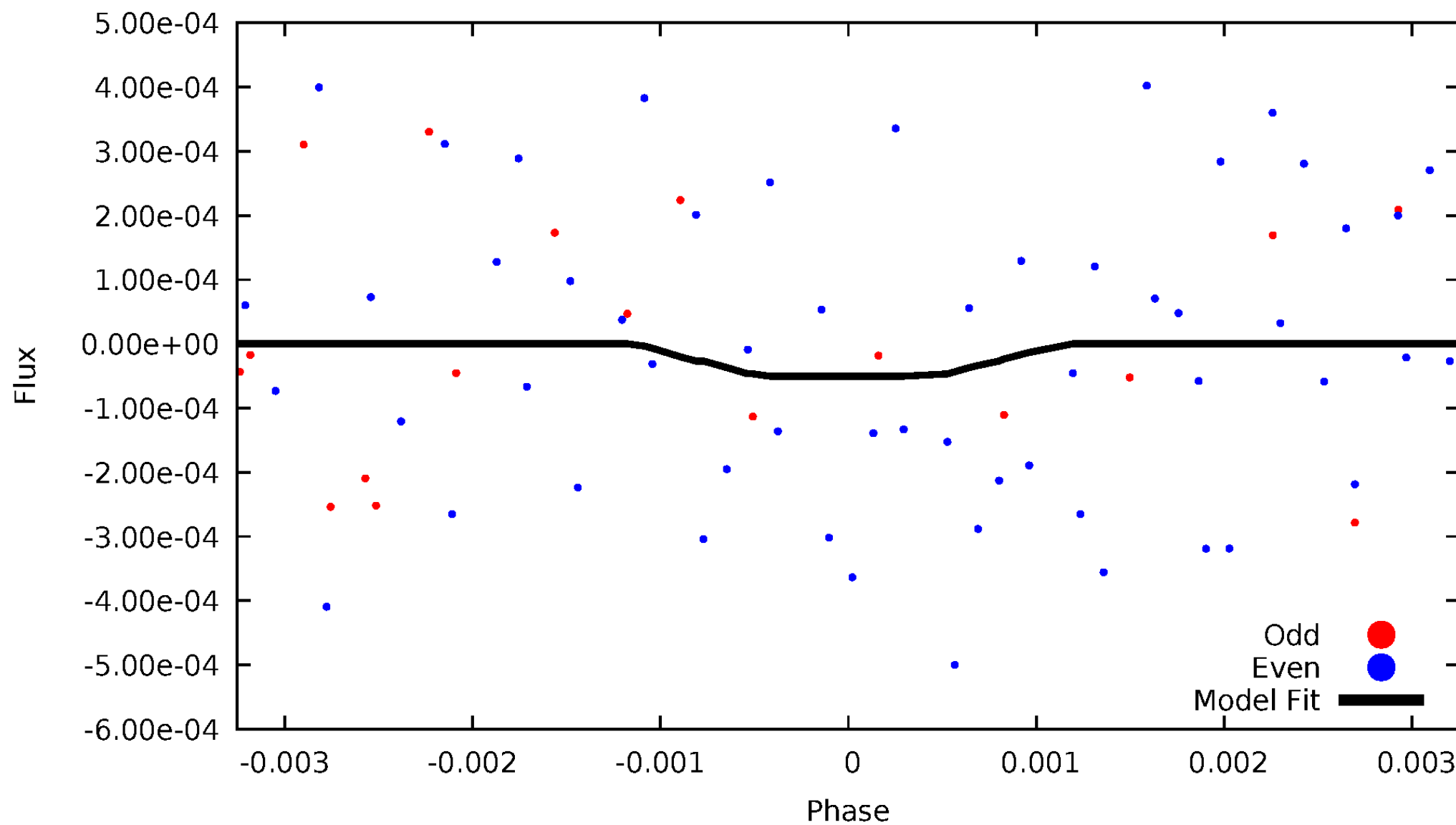
DV Odd/Even

TCE 006587458-02



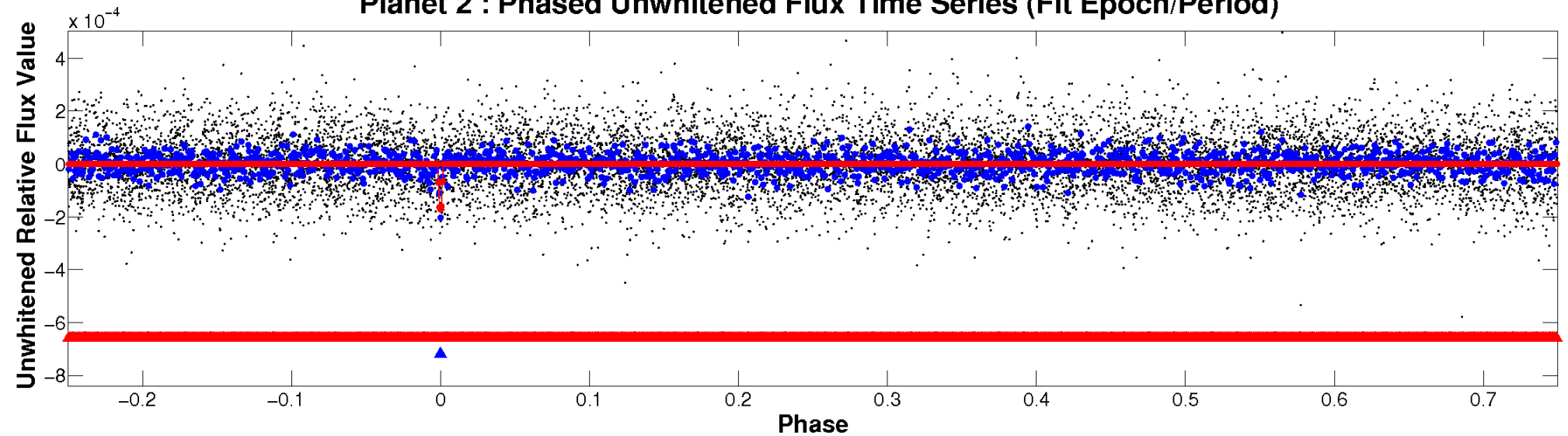
ALT Odd/Even

TCE 006587458-02

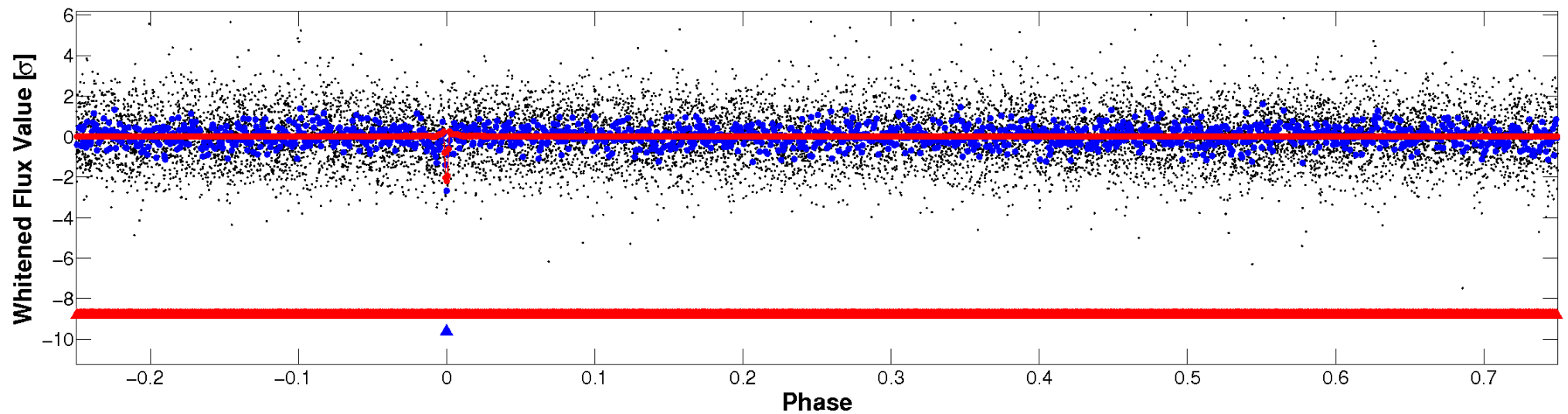


Non-Whitened Vs. Whitened Light Curve

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

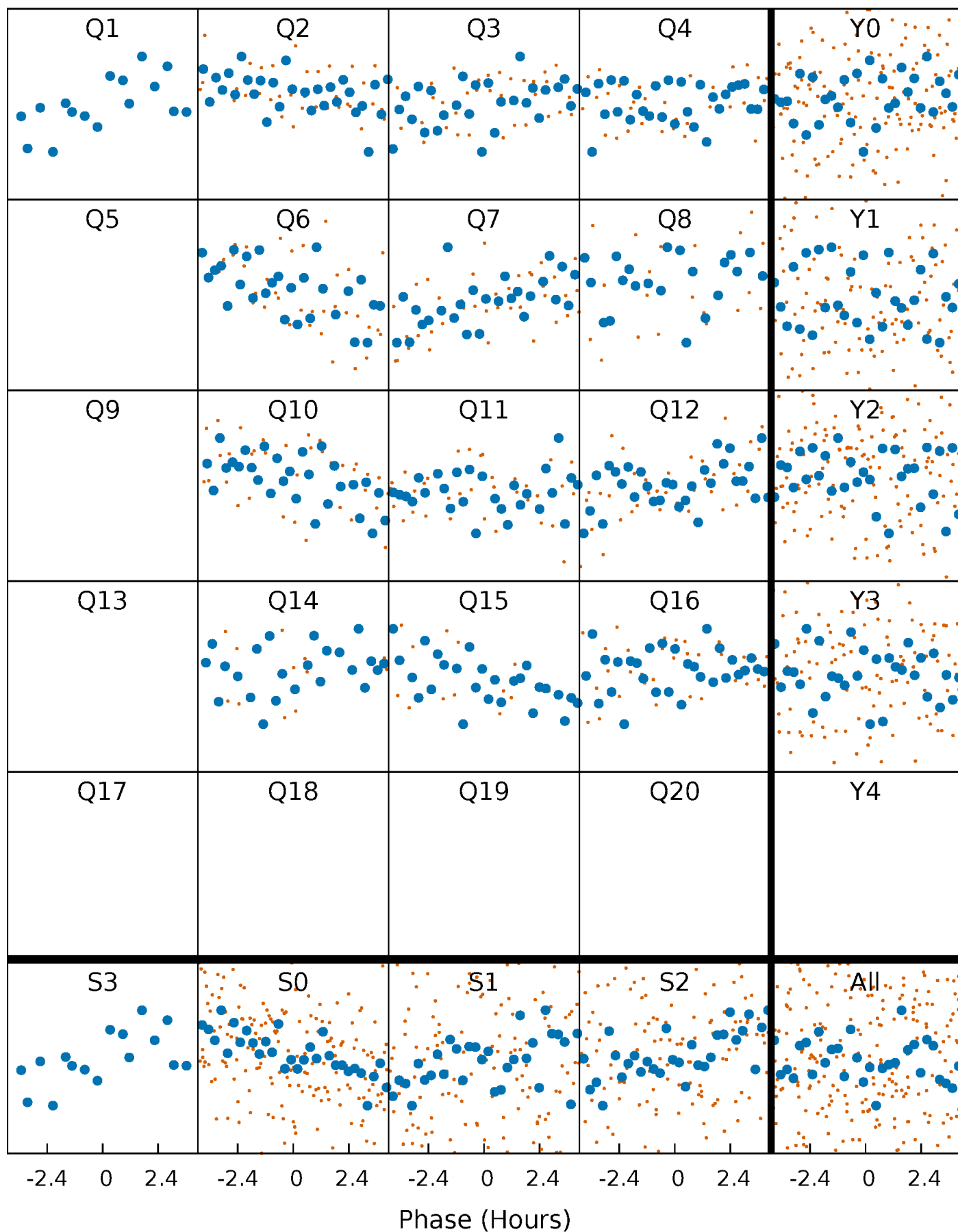


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



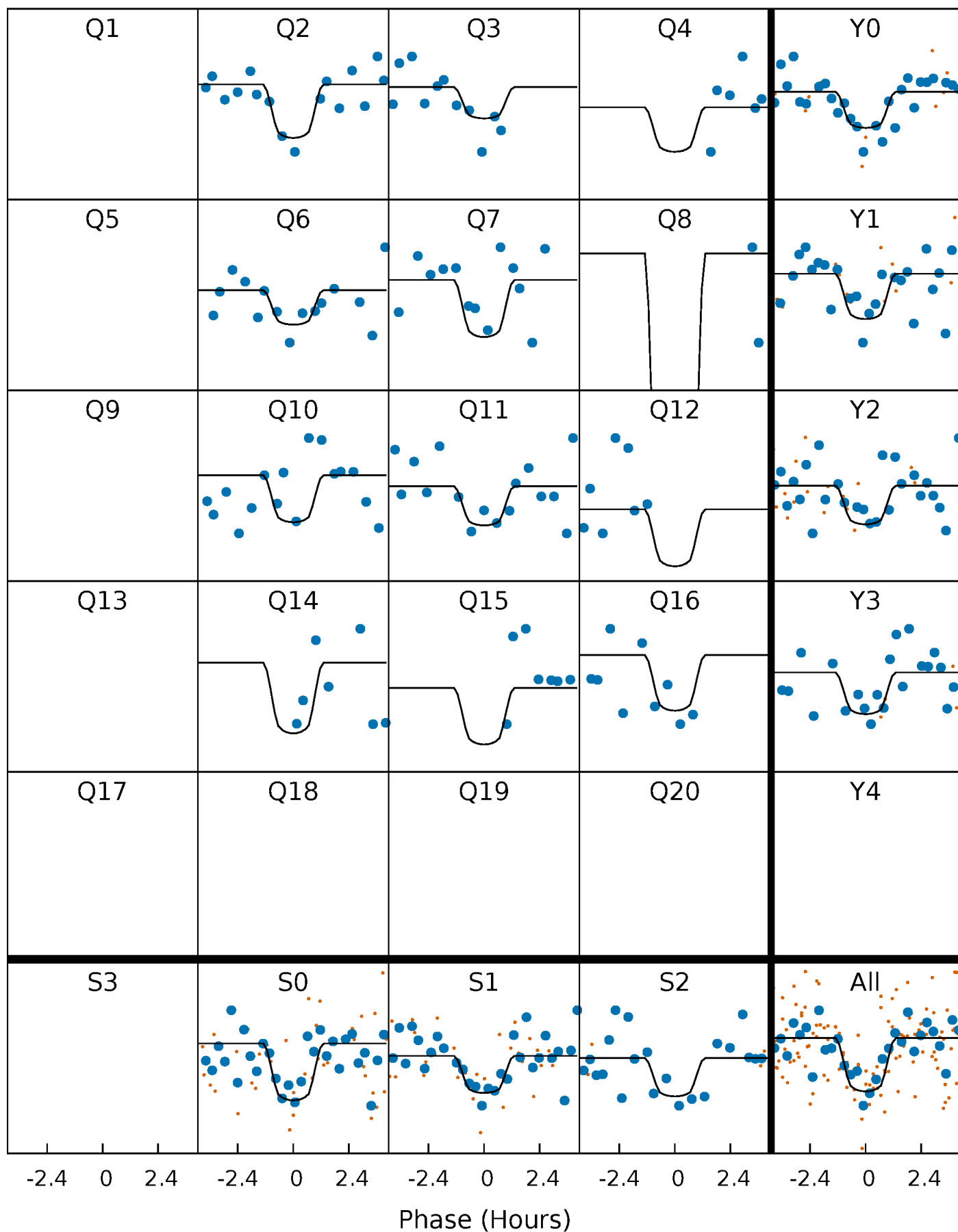
PDC Quarter-Phased Transit Curves

TCE 006587458-02 P= 30.564120 Days $T_0=161.580893$ (BKJD)



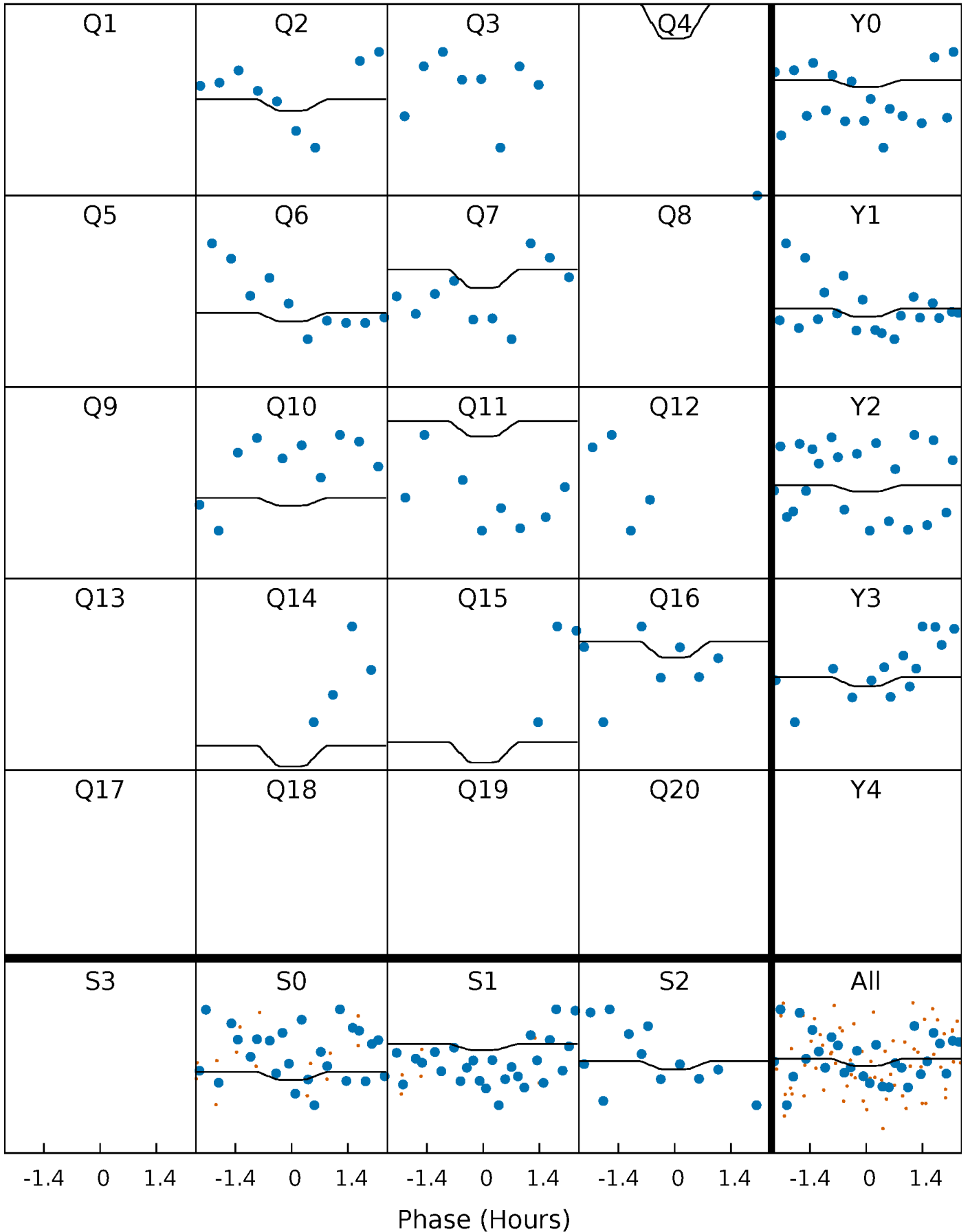
DV Quarter-Phased Transit Curves

TCE 006587458-02 P= 30.564120 Days $T_0=161.580893$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

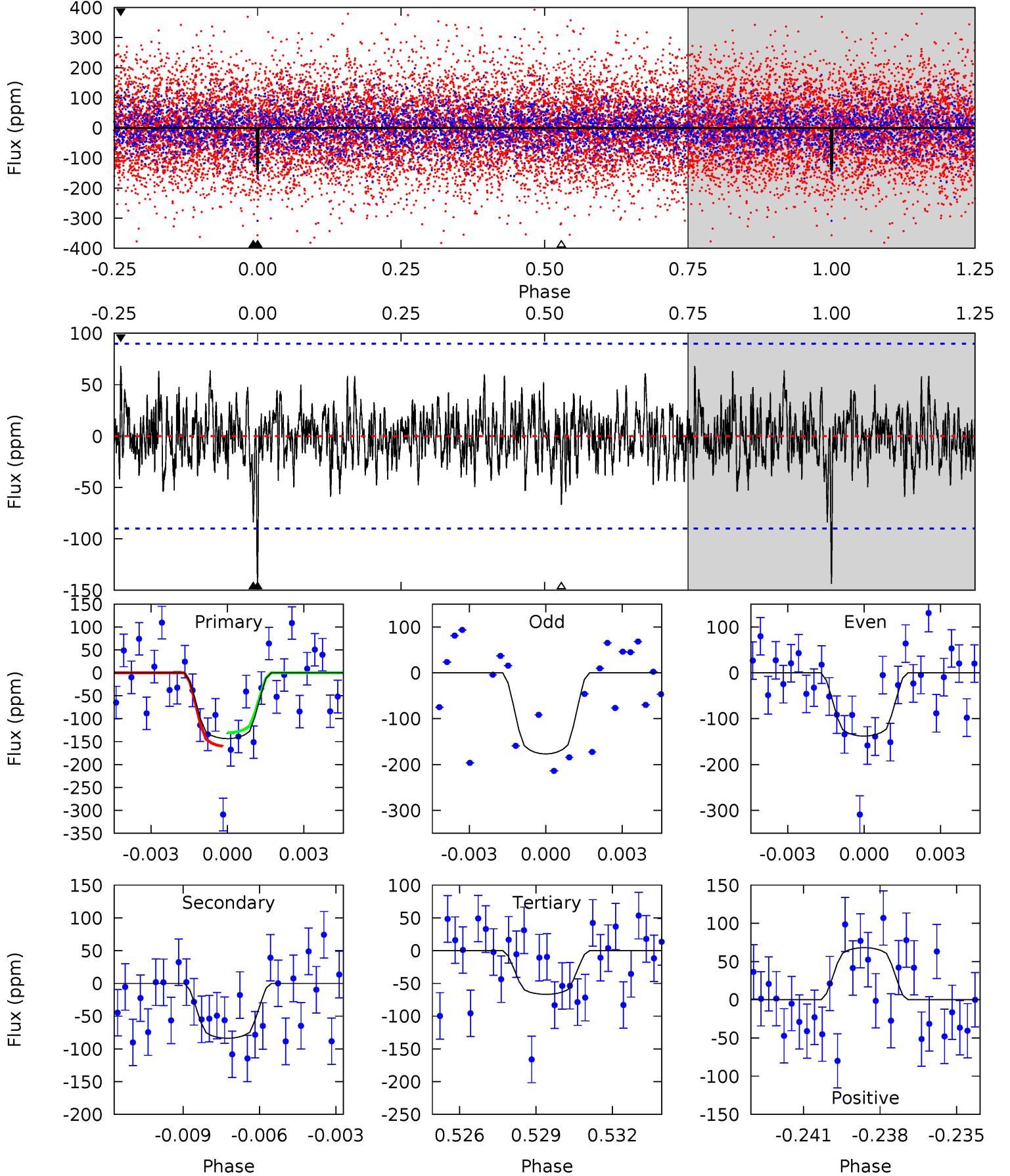
TCE 006587458-02 P= 30.564262 Days $T_0=161.556342$ (BKJD)



DV Model-Shift Uniqueness Test

006587458-02, P = 30.564120 Days, E = 131.016773 Days

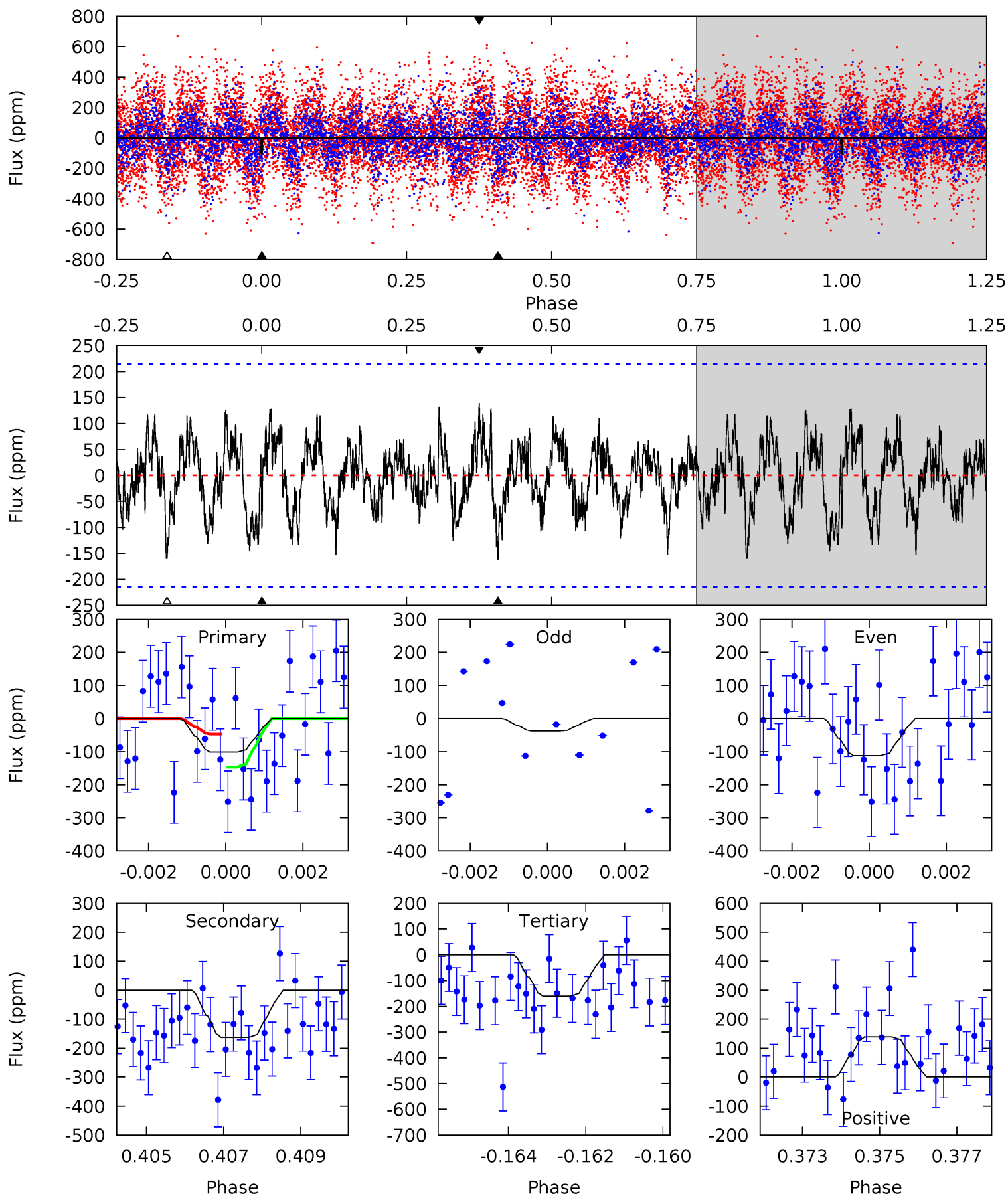
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.39	4.90	3.90	3.98	5.24	2.95	1.22	4.49	4.40	1.00	0.91	0.85	0.87	0.32	0.85



Alt Model-Shift Uniqueness Test

006587458-02, P = 30.564262 Days, E = 130.992080 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.51	4.05	3.99	3.45	5.33	3.09	1.37	-1.48	-0.94	0.06	0.60	0.71	0.98	0.46	1.23



Stellar Parameters For KIC 006587458

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6672^{+186}_{-255}	$3.869^{+0.382}_{-0.127}$	$0.040^{+0.250}_{-0.300}$	$2.461^{+0.572}_{-1.061}$	$1.633^{+0.180}_{-0.419}$	$0.154^{+0.481}_{-0.057}$
	+3%/-4%	+10%/-3%	+625%/-750%	+23%/-43%	+11%/-26%	+312%/-37%
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 006587458-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-84 ± 17	$5.21^{+4.69}_{-3.37}$	1328^{+101}_{-146}	4487^{+2923}_{-961}	81^{+555}_{-59}
Alt.	-163 ± 40	$4.54^{+5.17}_{-3.02}$	1334^{+94}_{-153}	5491^{+4677}_{-1390}	203^{+1713}_{-154}

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

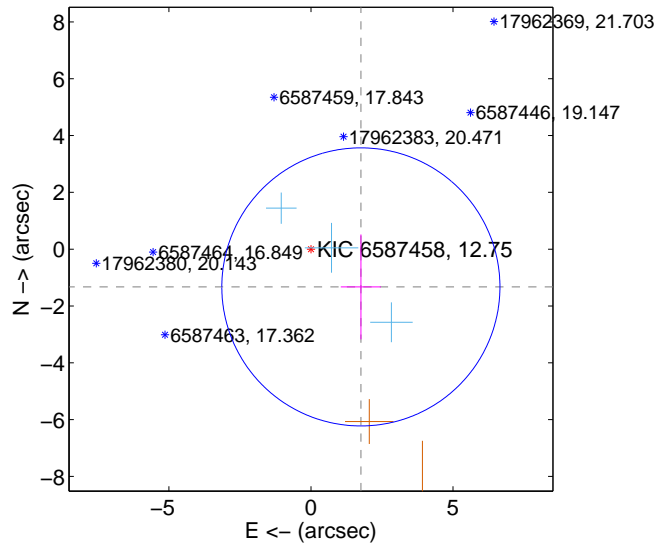
Supplemental centroid analysis for 006587458-02. Kepler magnitude: 12.75. Transit SNR 10.29

There are 3 quarters with good PRF difference image offsets

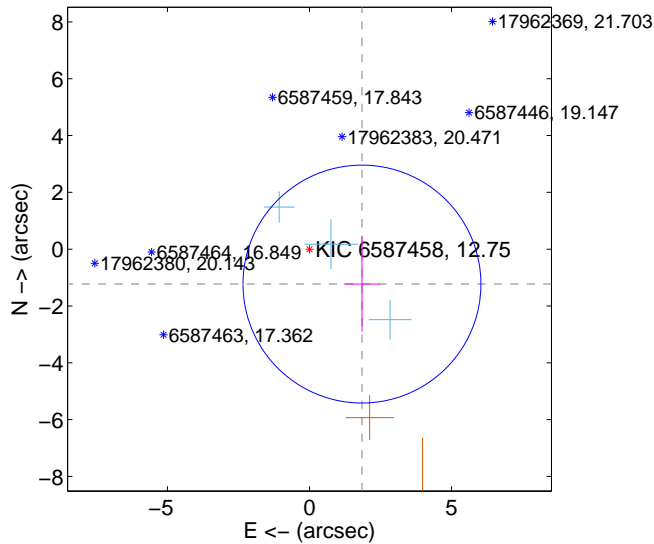
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.203 ± 1.632	1.35	-1.758 ± 0.708	-1.329 ± 1.848
PRF-fit source offset from KIC position	2.219 ± 1.396	1.59	-1.848 ± 0.635	-1.229 ± 1.674
photometric centroid source offset	0.35 ± 0.78	0.45	0.12 ± 0.79	0.32 ± 0.78

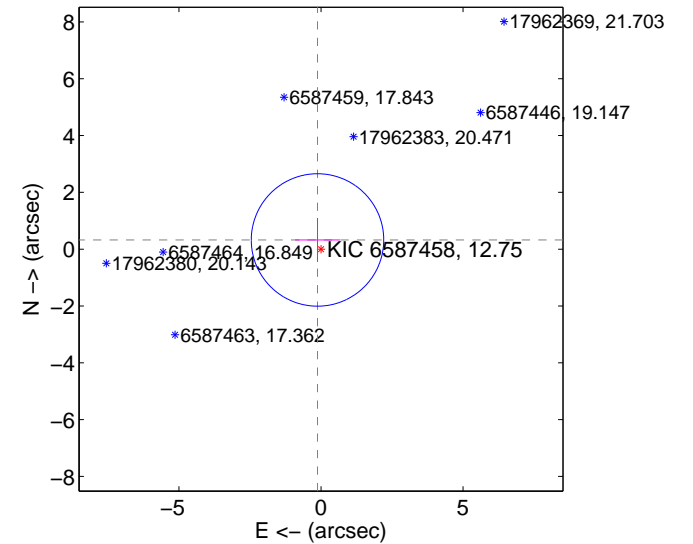
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

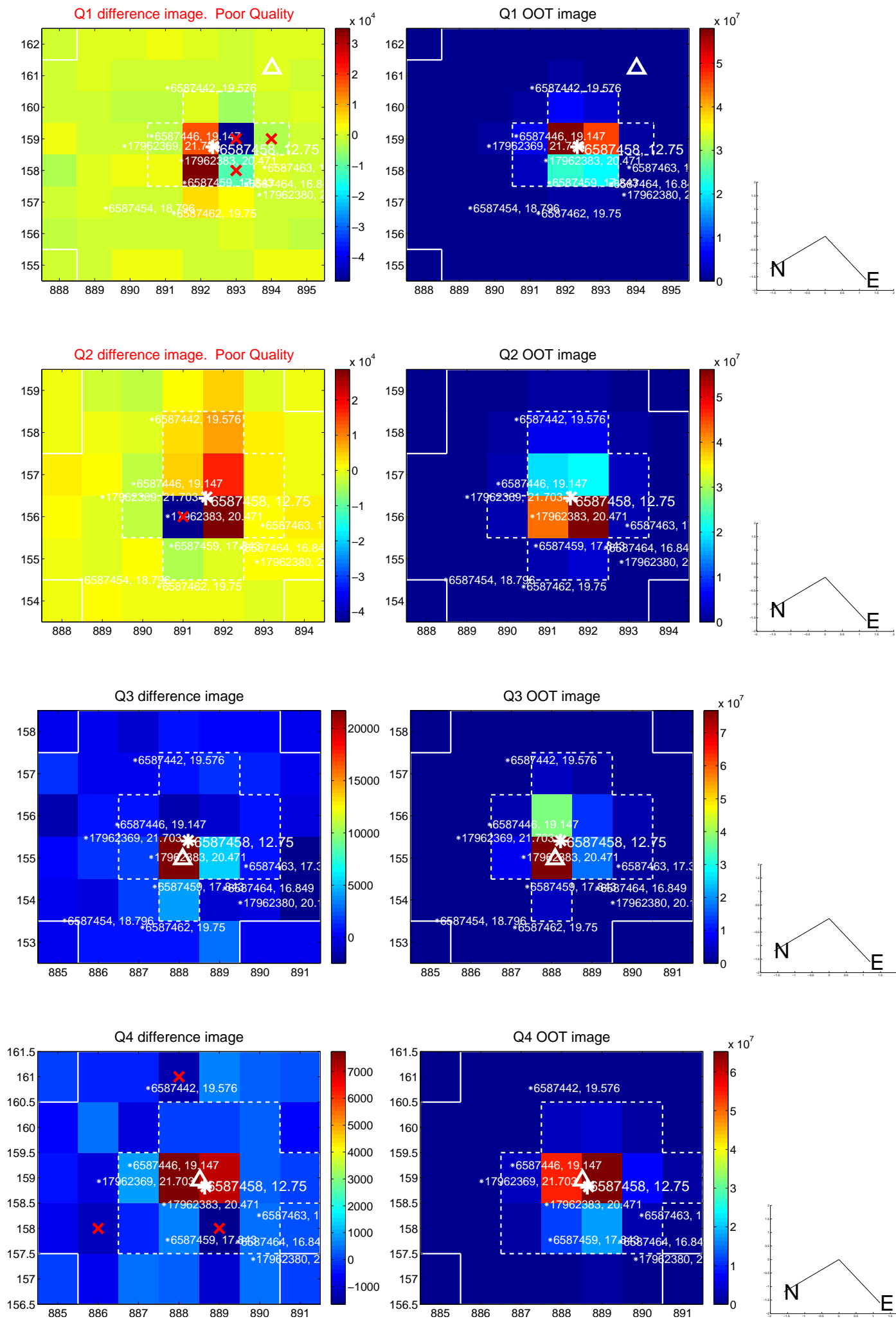


offset from photometric centroids

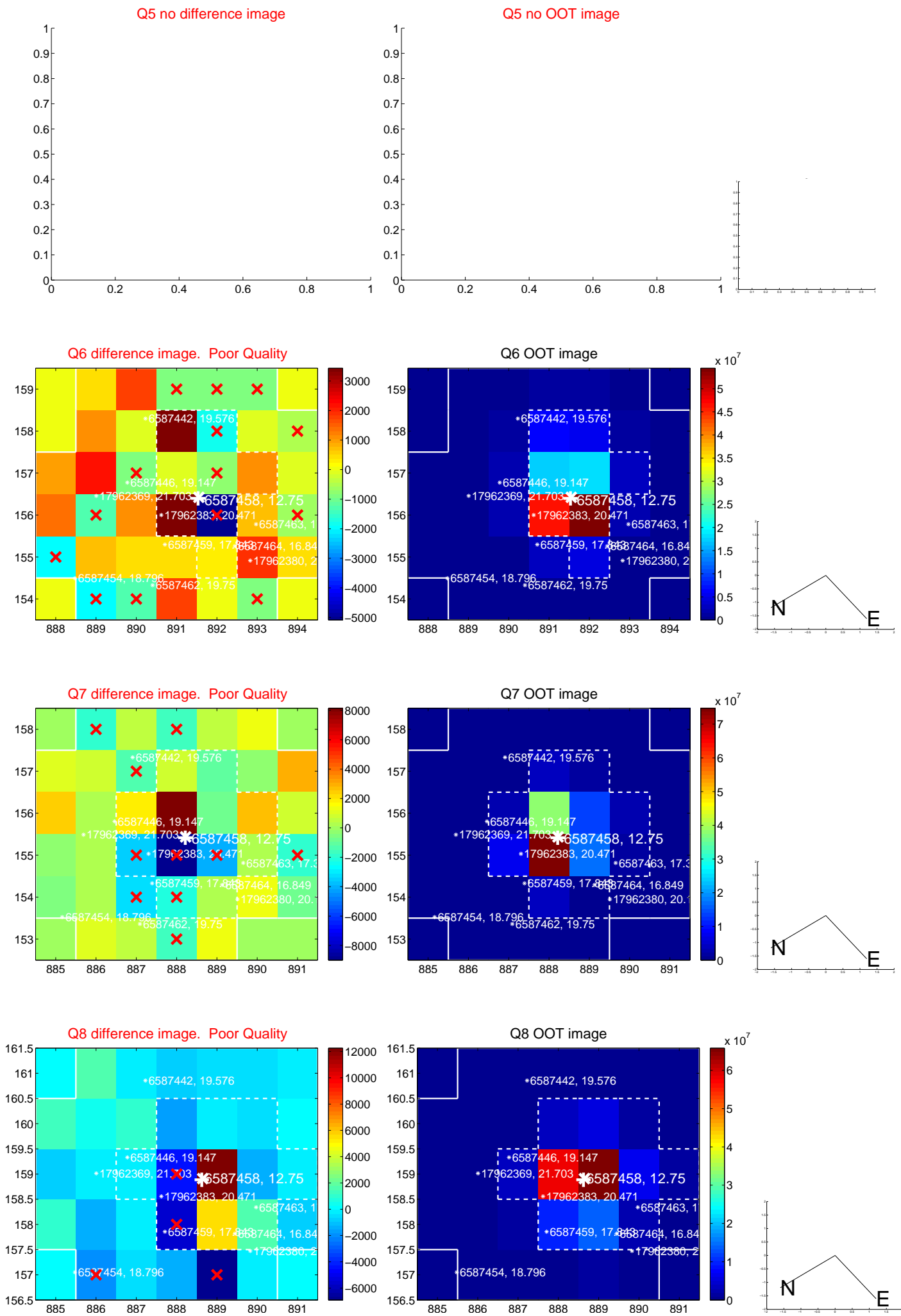


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

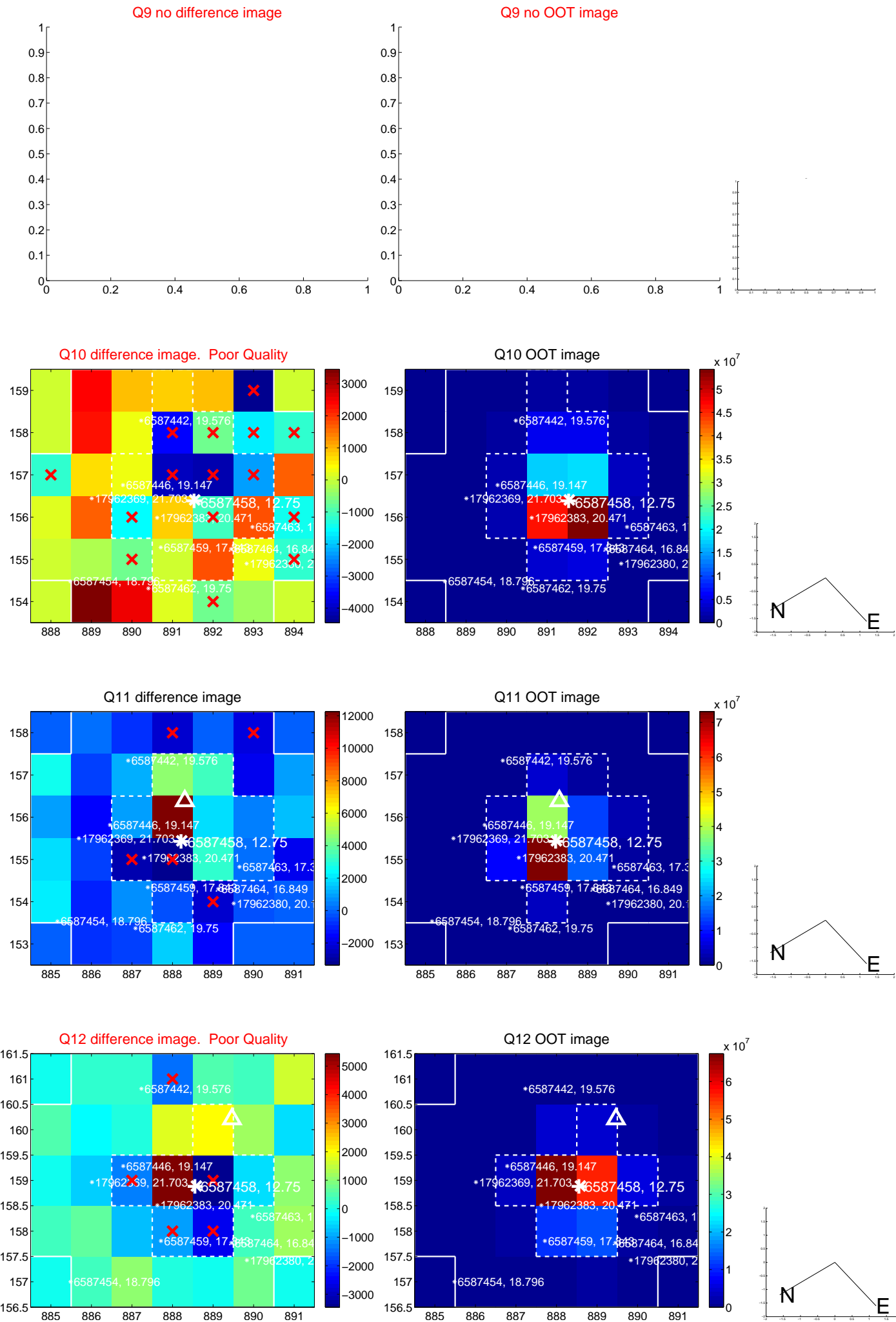
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



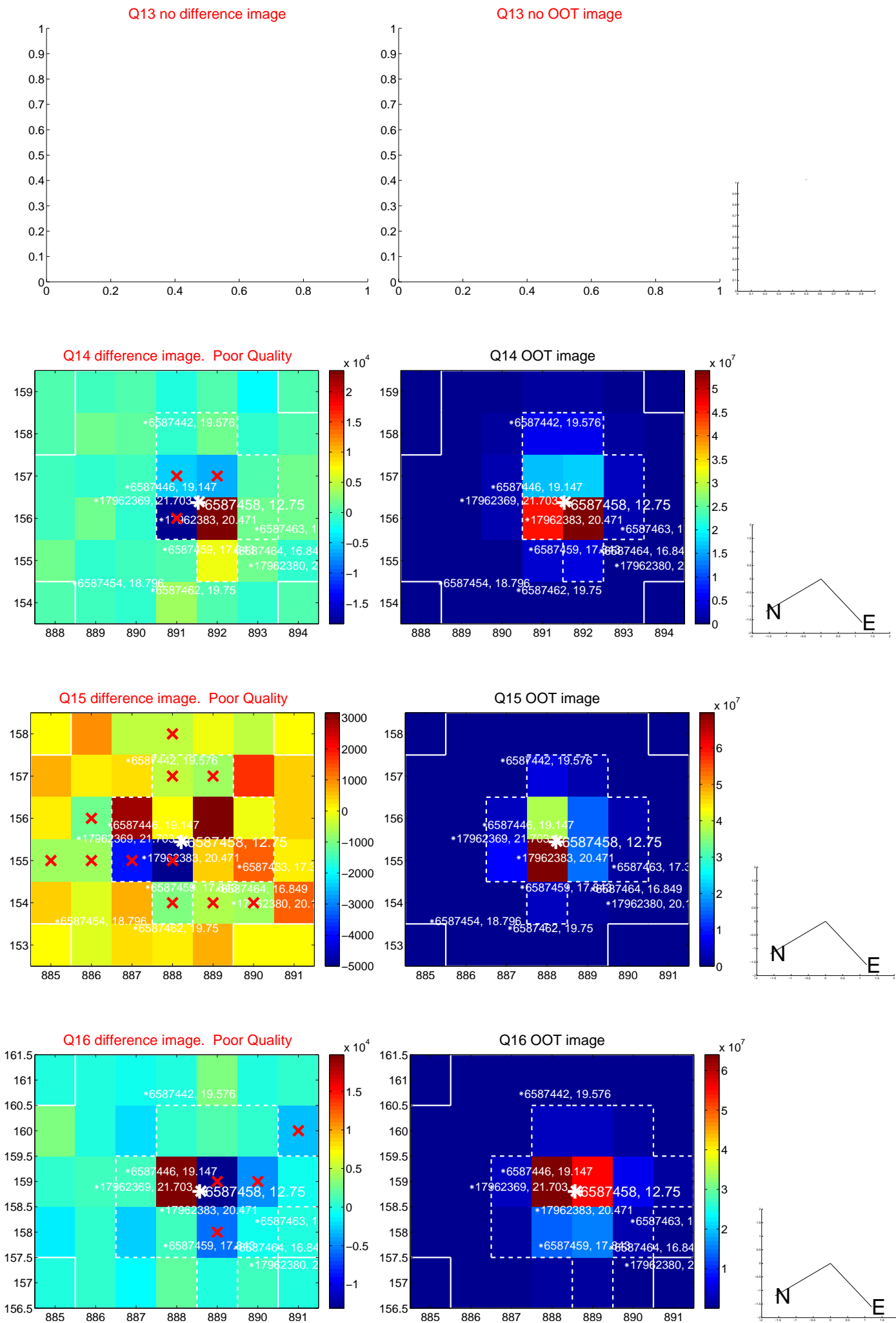
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



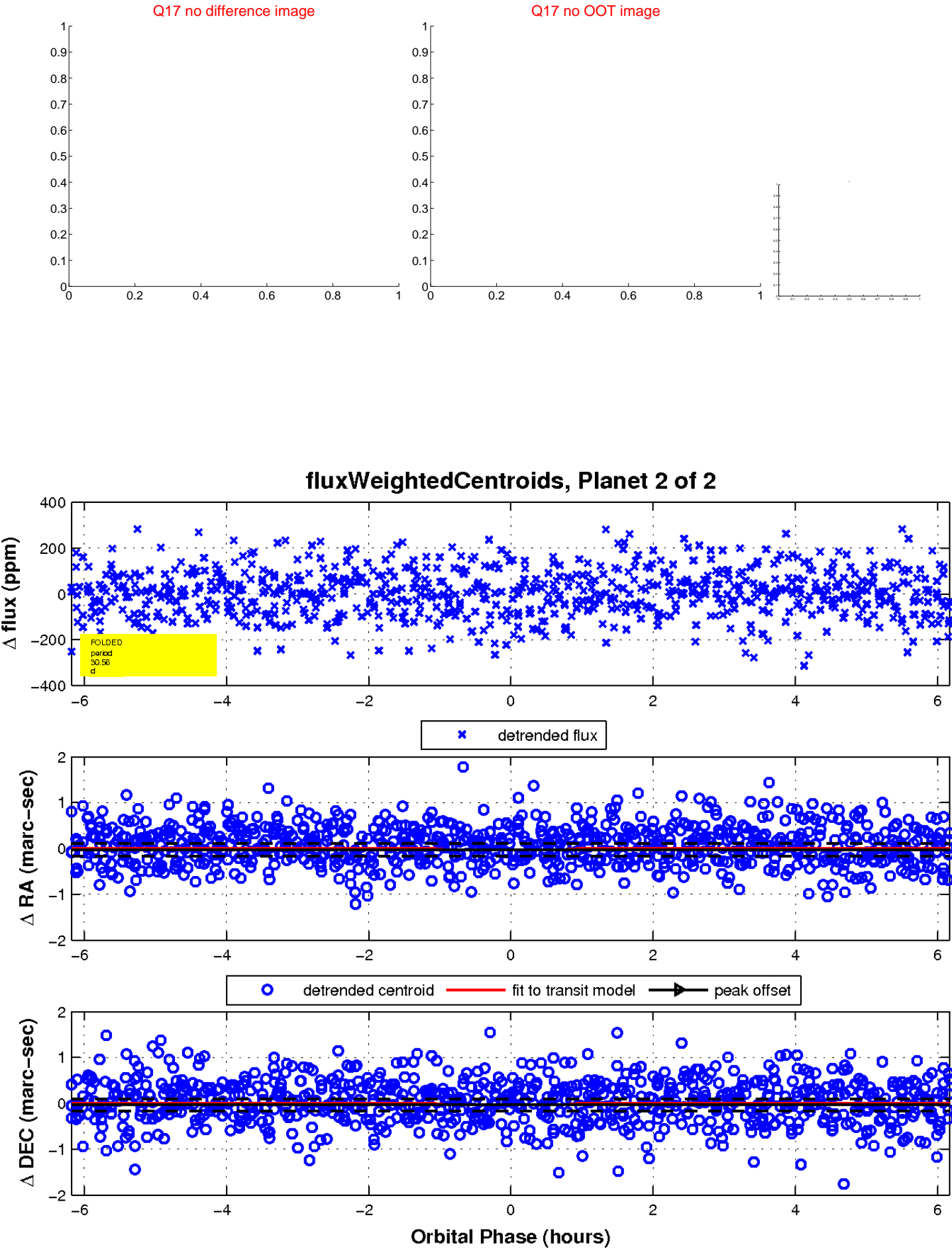
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

