

KIC 006357958

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})
006357958-01	OBS	No	1.043358	132.060541	25.3	4.463	8.9	9.1	2.04	7187	1.05	17491.52
006357958-02	OBS	No	266.563633	388.261466	413.4	4.634	8.5	8.3	2.04	7187	4.55	10.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006357958-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
006357958-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

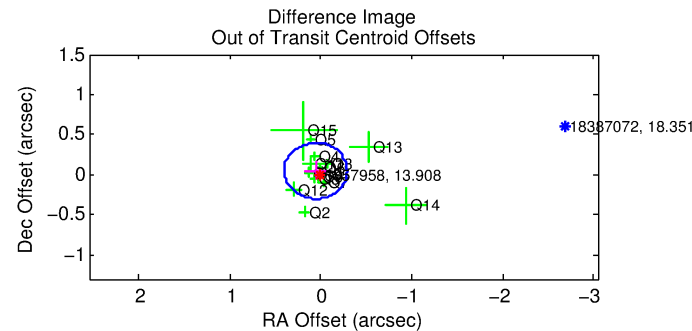
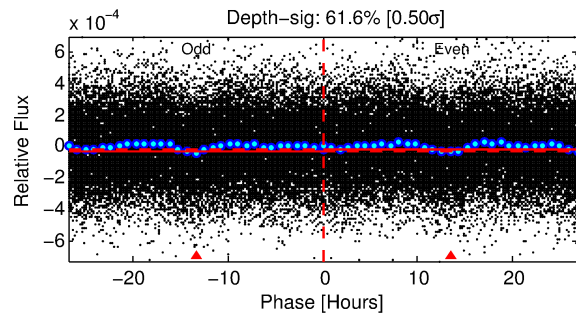
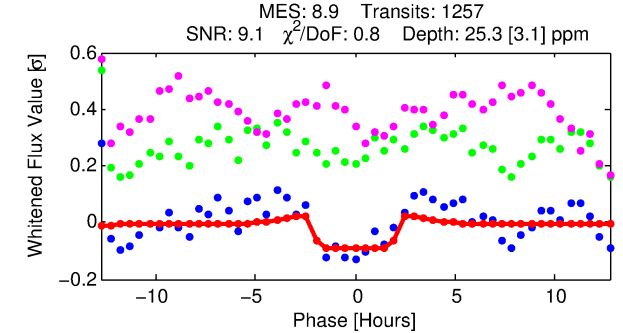
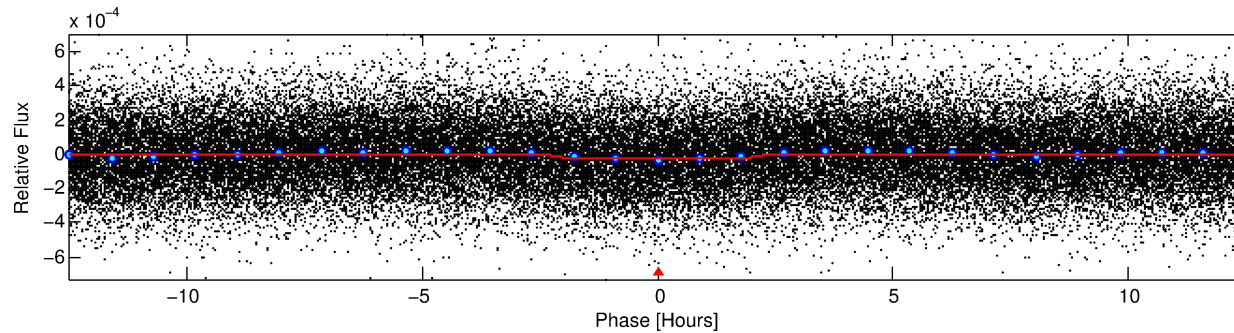
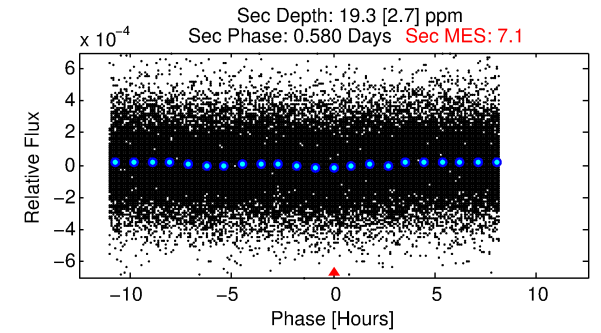
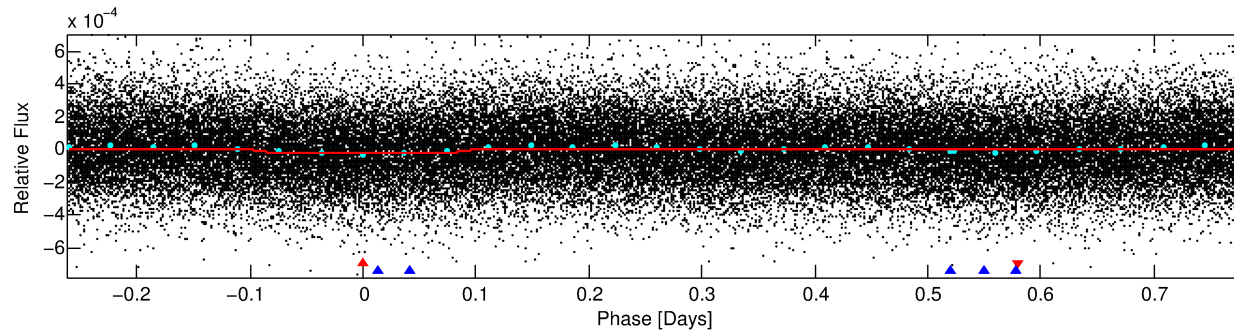
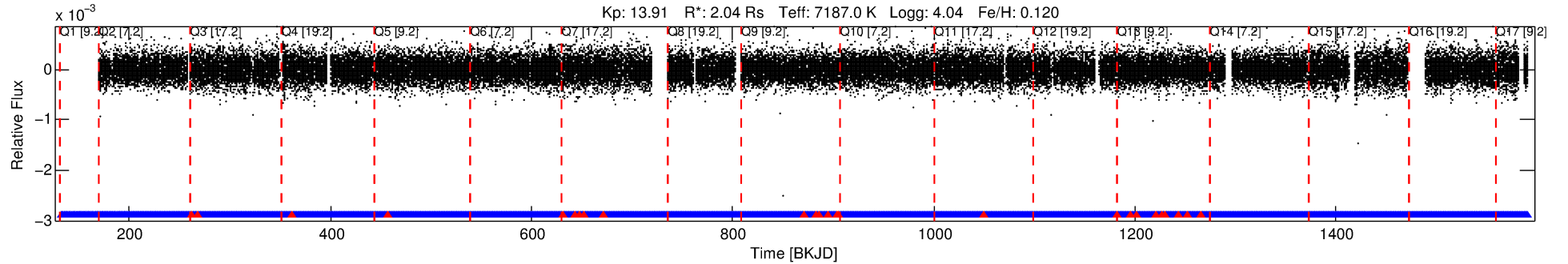
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006357958-01

No Significant Match Found

DV One-Page Summary

KIC: 6357958 Candidate: 1 of 2 Period: 1.043 d



DV Fit Results:

Period = 1.04336 [0.00001] d
Epoch = 132.0605 [0.0038] BKJD
Rp/R* = 0.0047 [0.0018]
a/R* = 1.79 [2.77]
b = 0.39 [5.01]
Seff = 17491.52 [6830.74]
Teq = 2932 [286] K
Rp = 1.05 [0.51] Re
a = 0.0239 [0.0058] AU
Ag = 5.45 [4.65] [0.96σ]
Teffp = 6926 [1394] K [2.81σ]

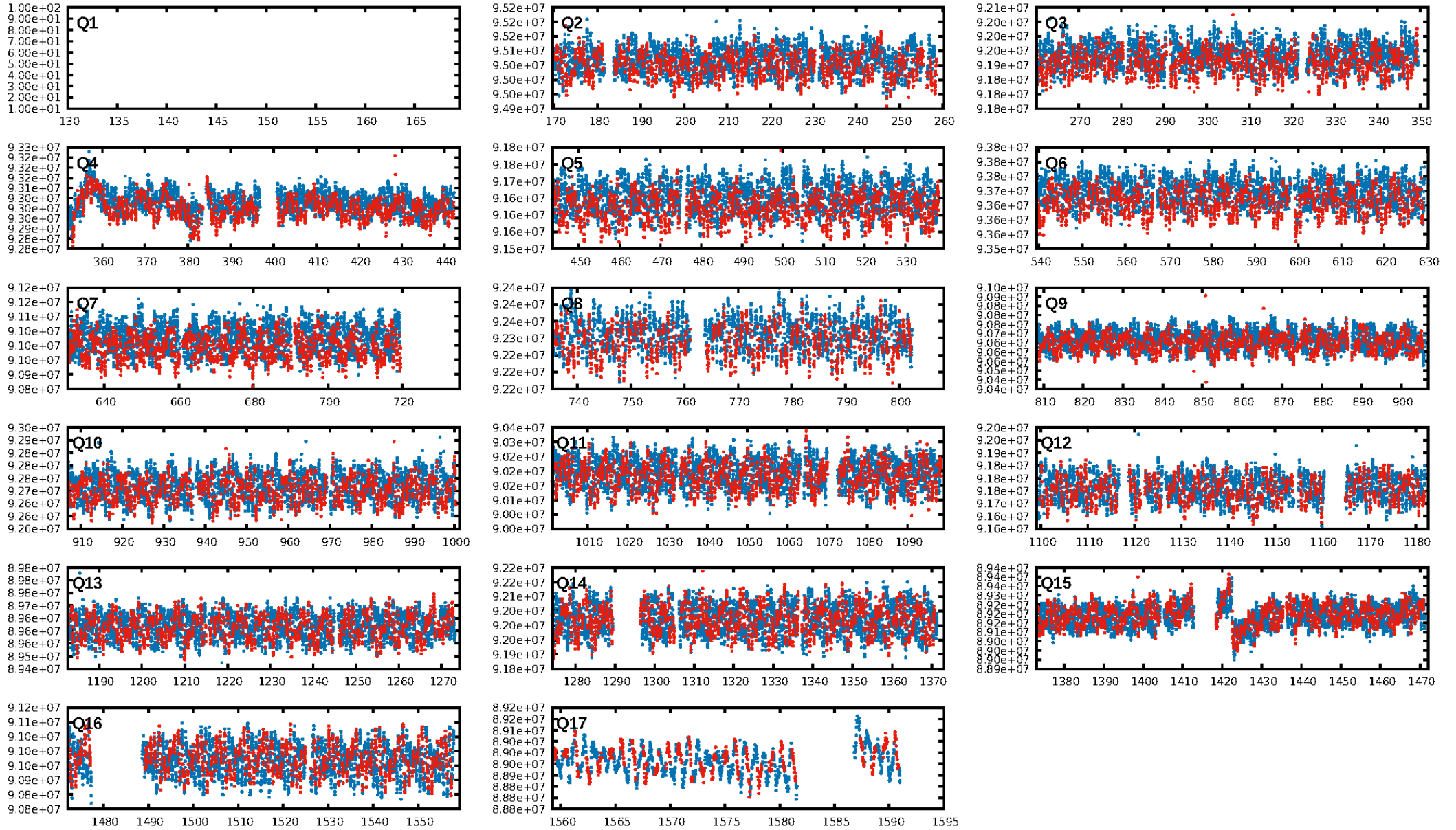
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [990.40σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.87e-14
RollingBand-fgt: 0.98 [1206/1231]
GhostDiagnostic-chr: 2.066
Centroid-sig: 84.2%
Centroid-so: 0.283 arcsec [0.34σ]
OotOffset-rm: 0.074 arcsec [0.64σ]
KicOffset-rm: 0.100 arcsec [1.00σ]
OotOffset-st: 4/4/3/3 [14]
KicOffset-st: 4/4/3/3 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [16/16]

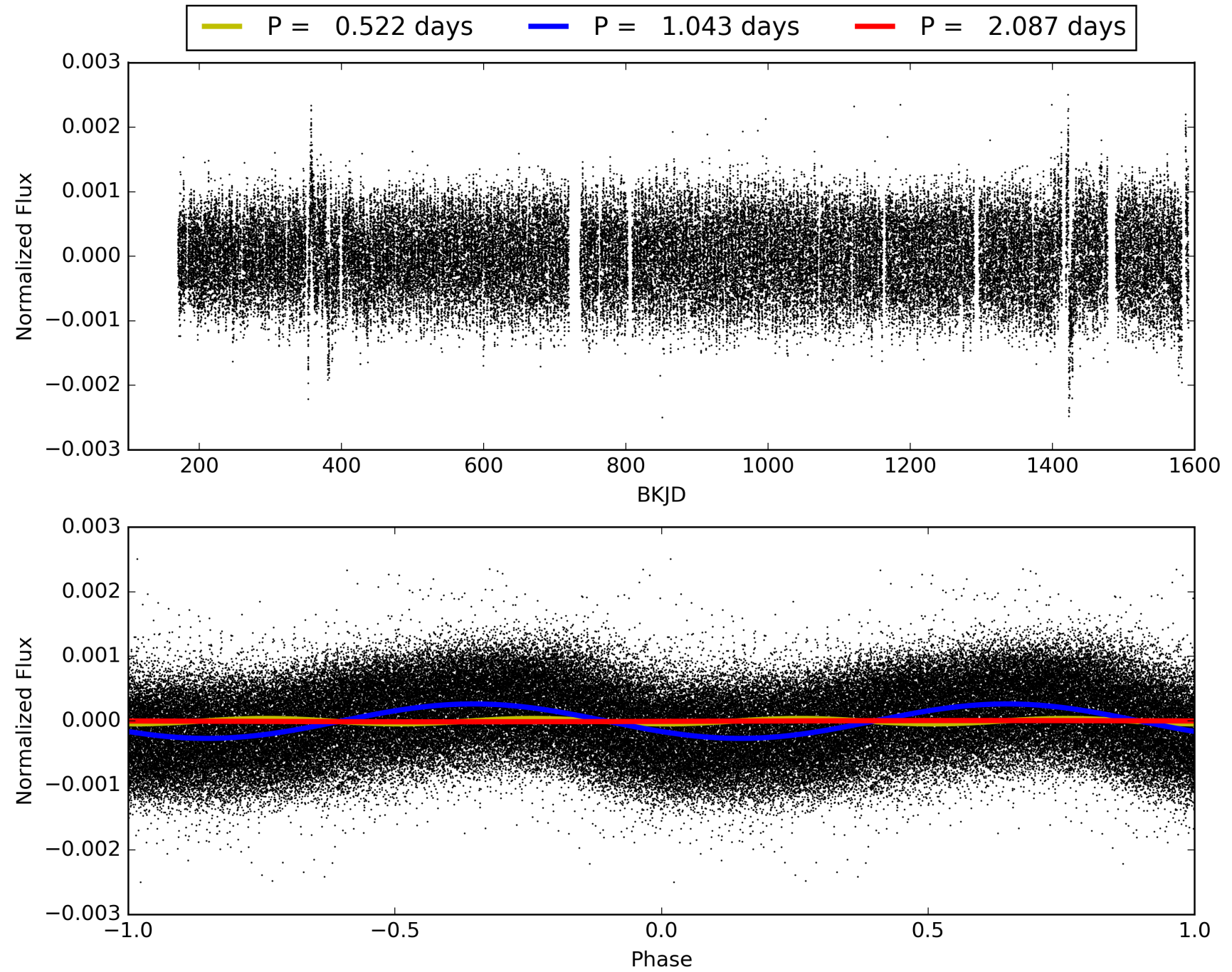
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:44:07 Z

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

TCE 006357958-01, PDC Light Curves

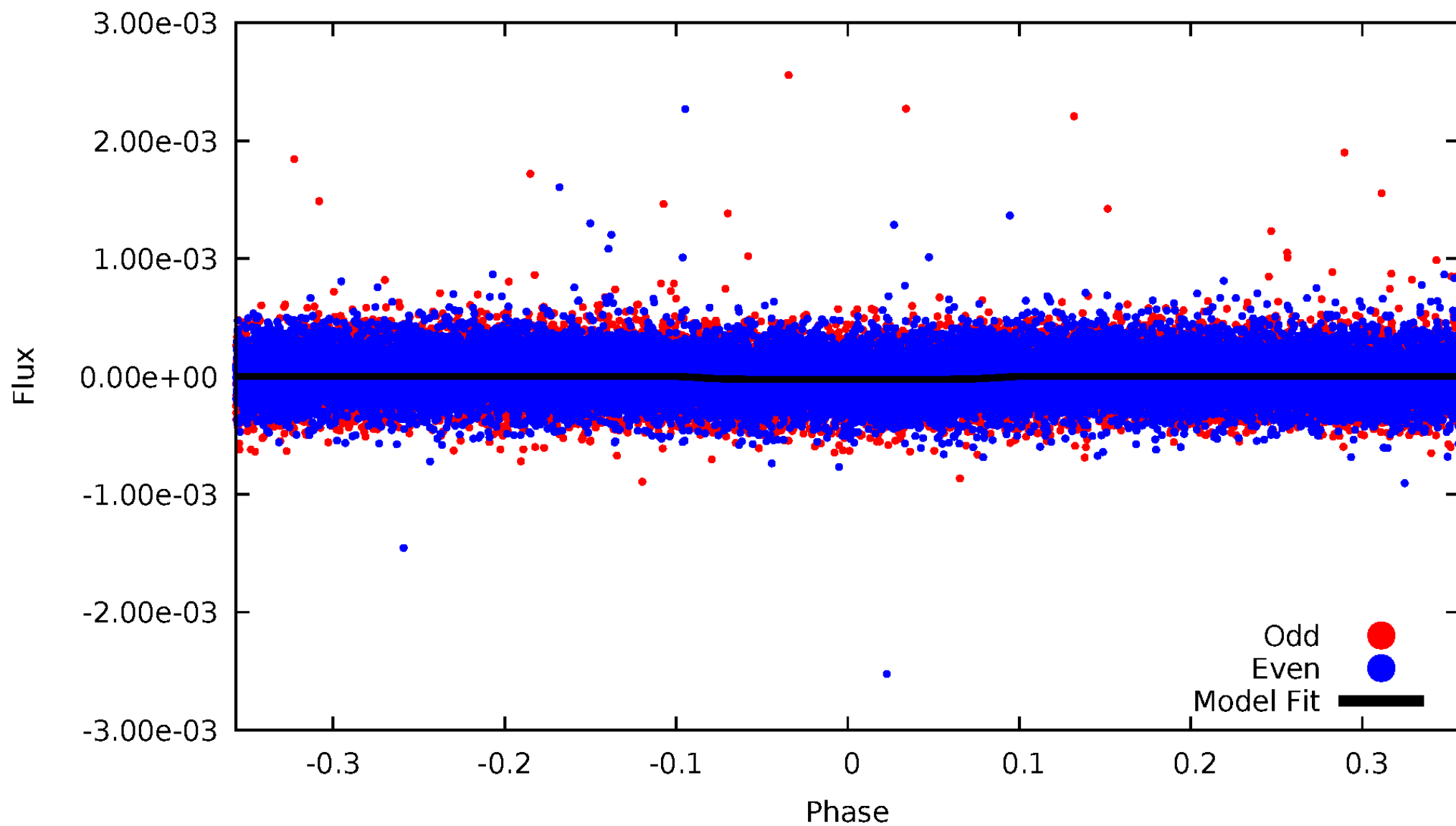


TCE 006357958-01



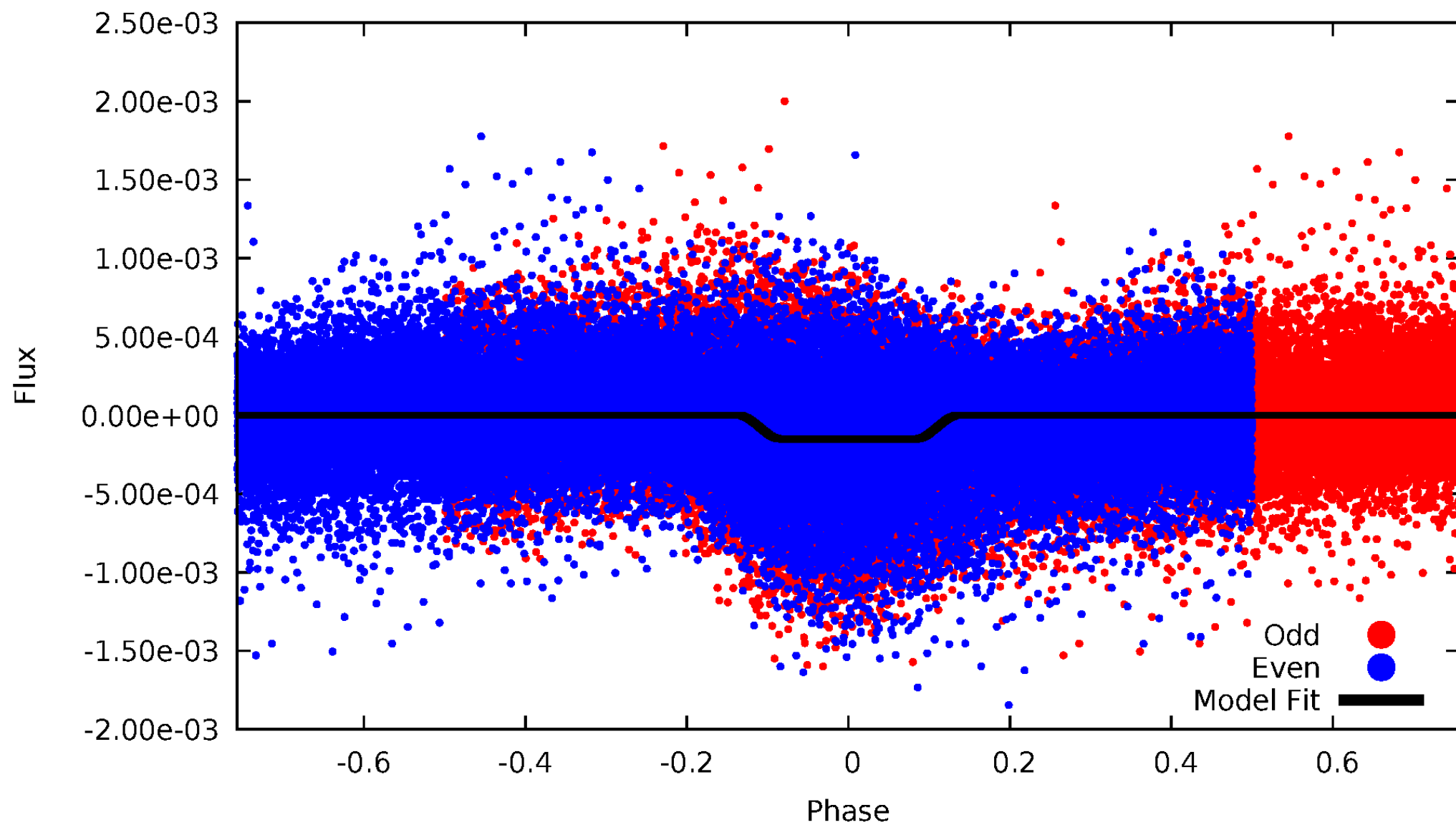
DV Odd/Even

TCE 006357958-01



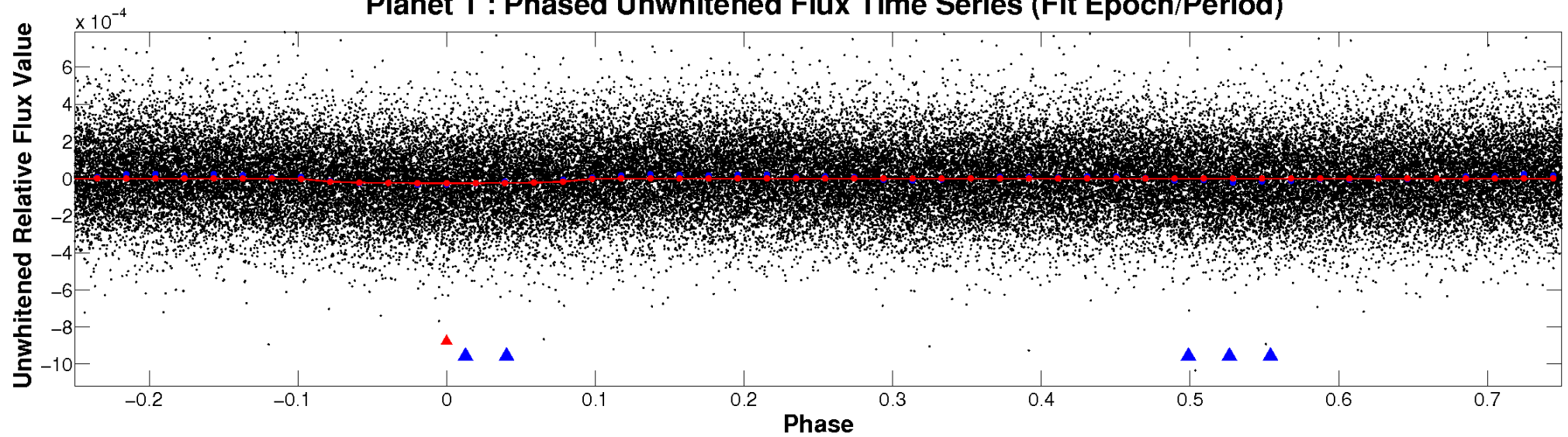
ALT Odd/Even

TCE 006357958-01

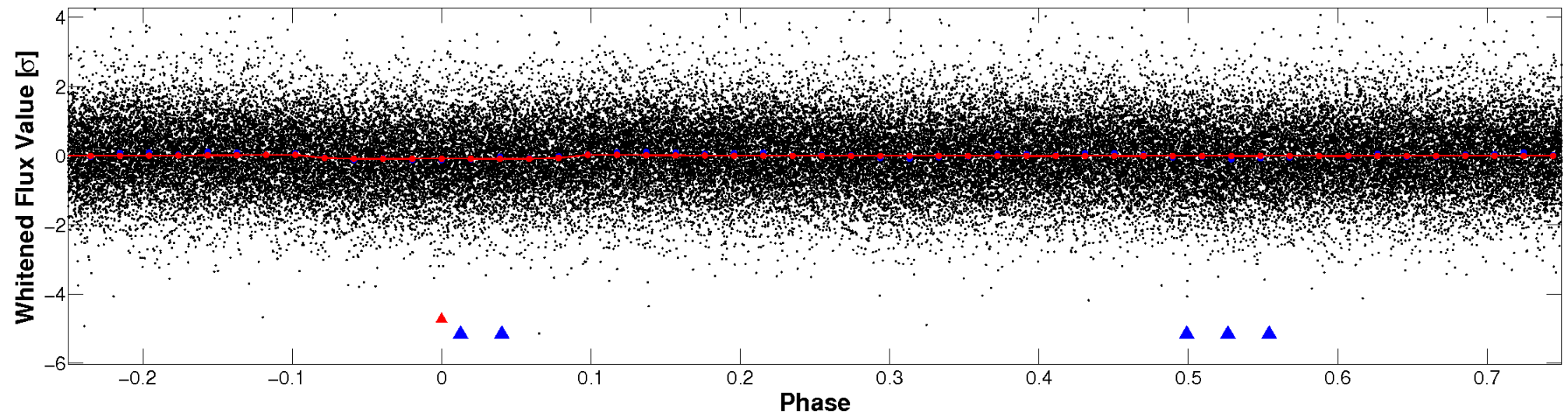


Non-Whitened Vs. Whitened Light Curve

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

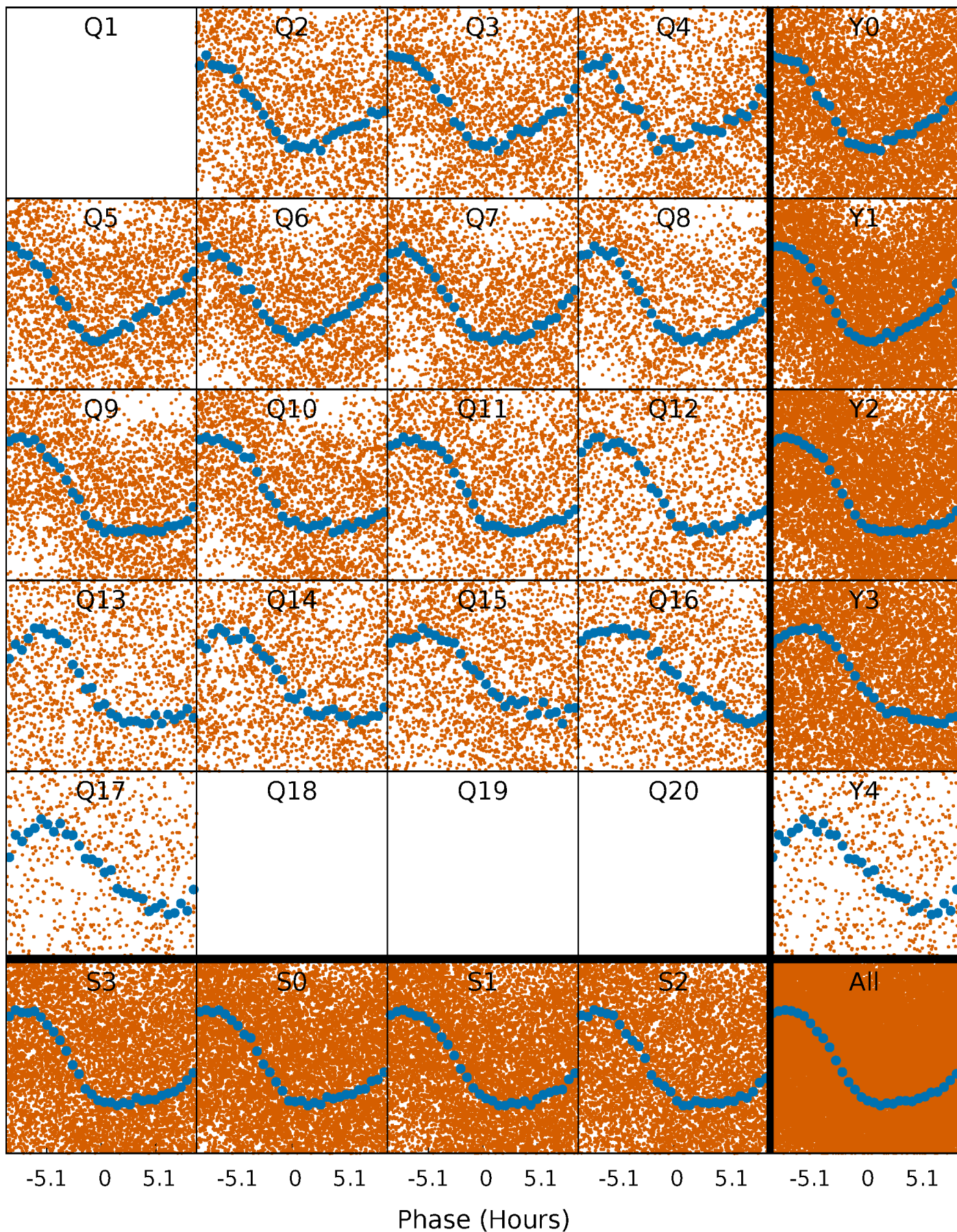


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



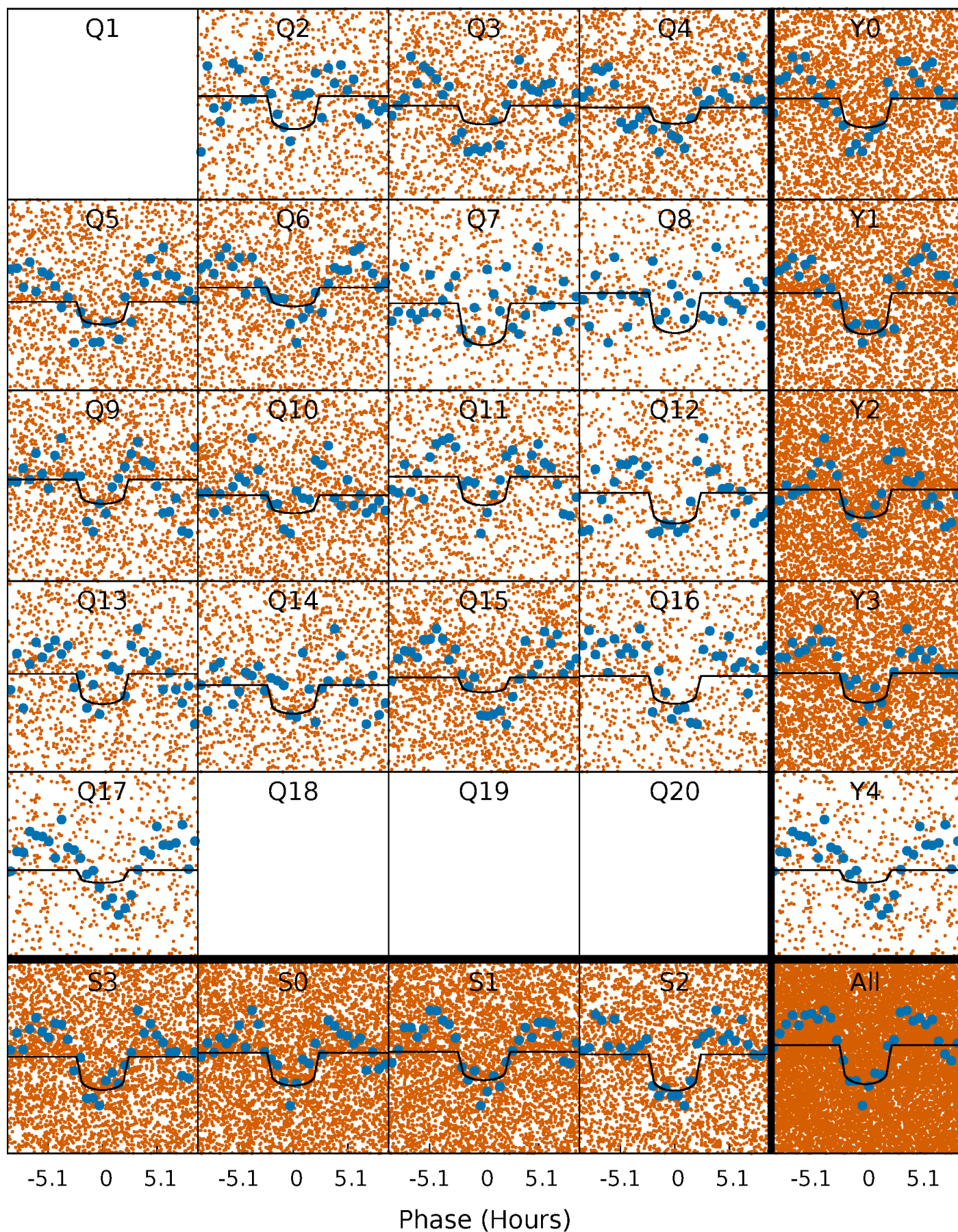
PDC Quarter-Phased Transit Curves

TCE 006357958-01 P= 1.043358 Days $T_0=132.060541$ (BKJD)



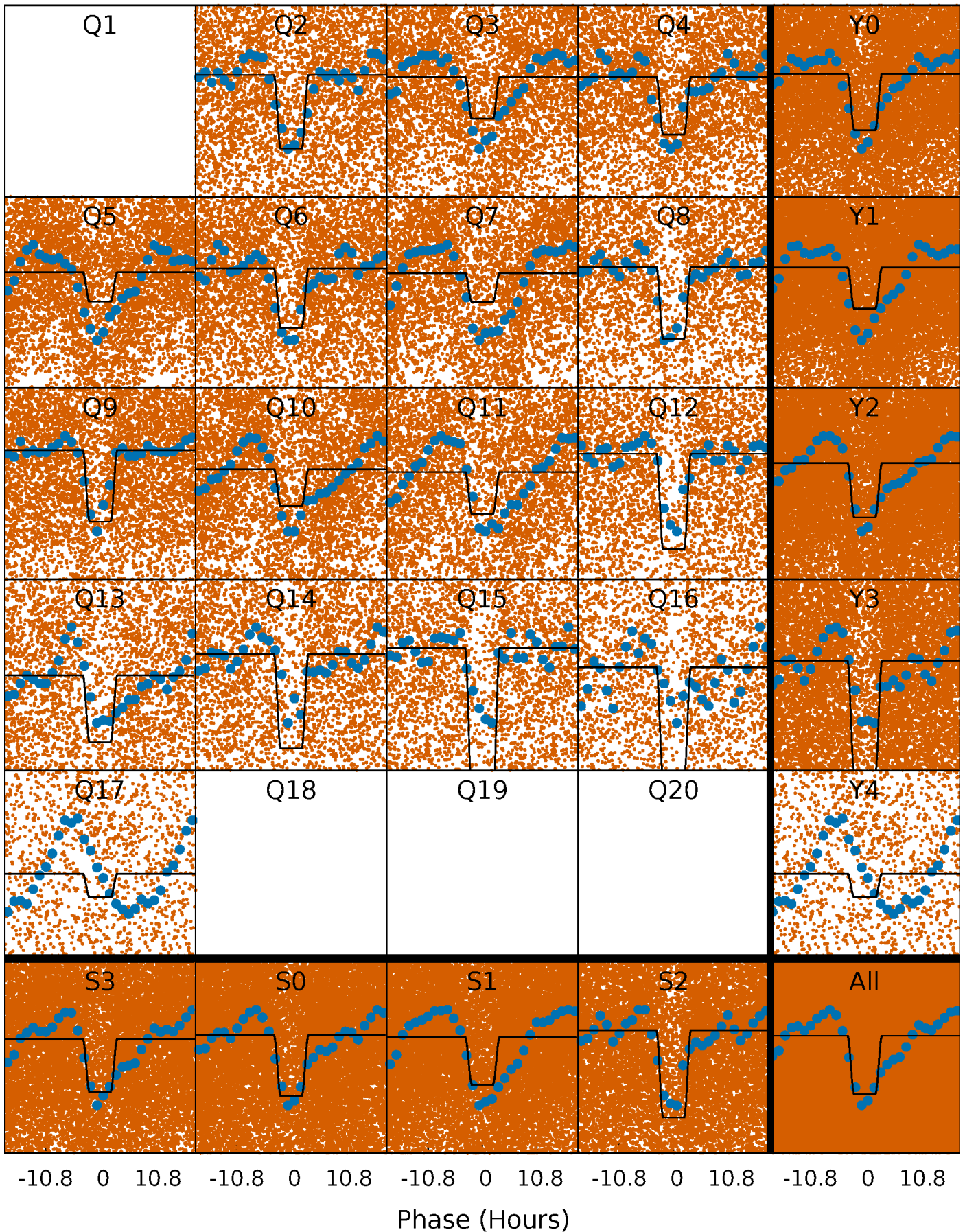
DV Quarter-Phased Transit Curves

TCE 006357958-01 P= 1.043358 Days $T_0=132.060541$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

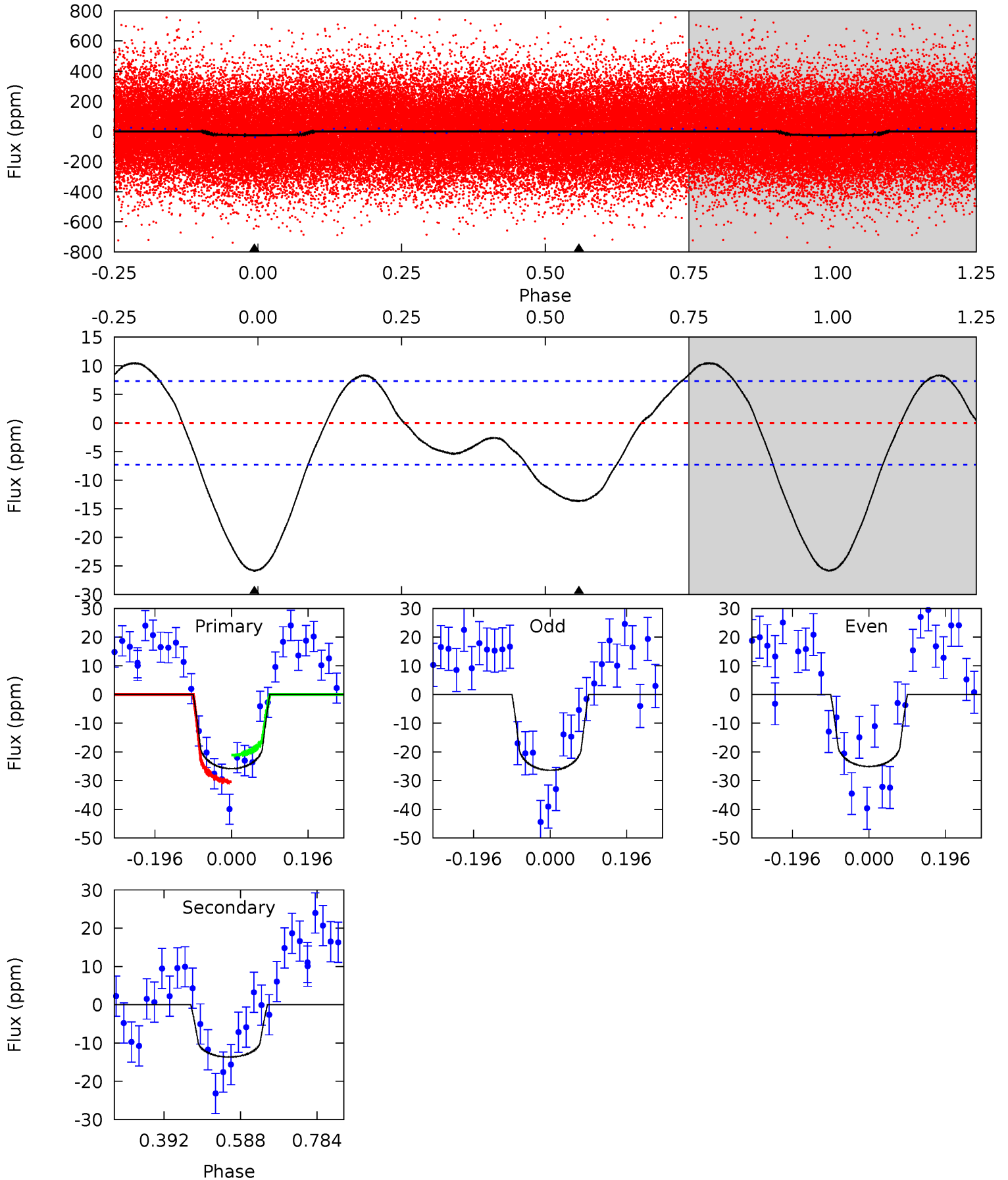
TCE 006357958-01 P= 1.043390 Days $T_0=132.043749$ (BKJD)



DV Model-Shift Uniqueness Test

006357958-01, P = 1.043358 Days, E = 132.060541 Days

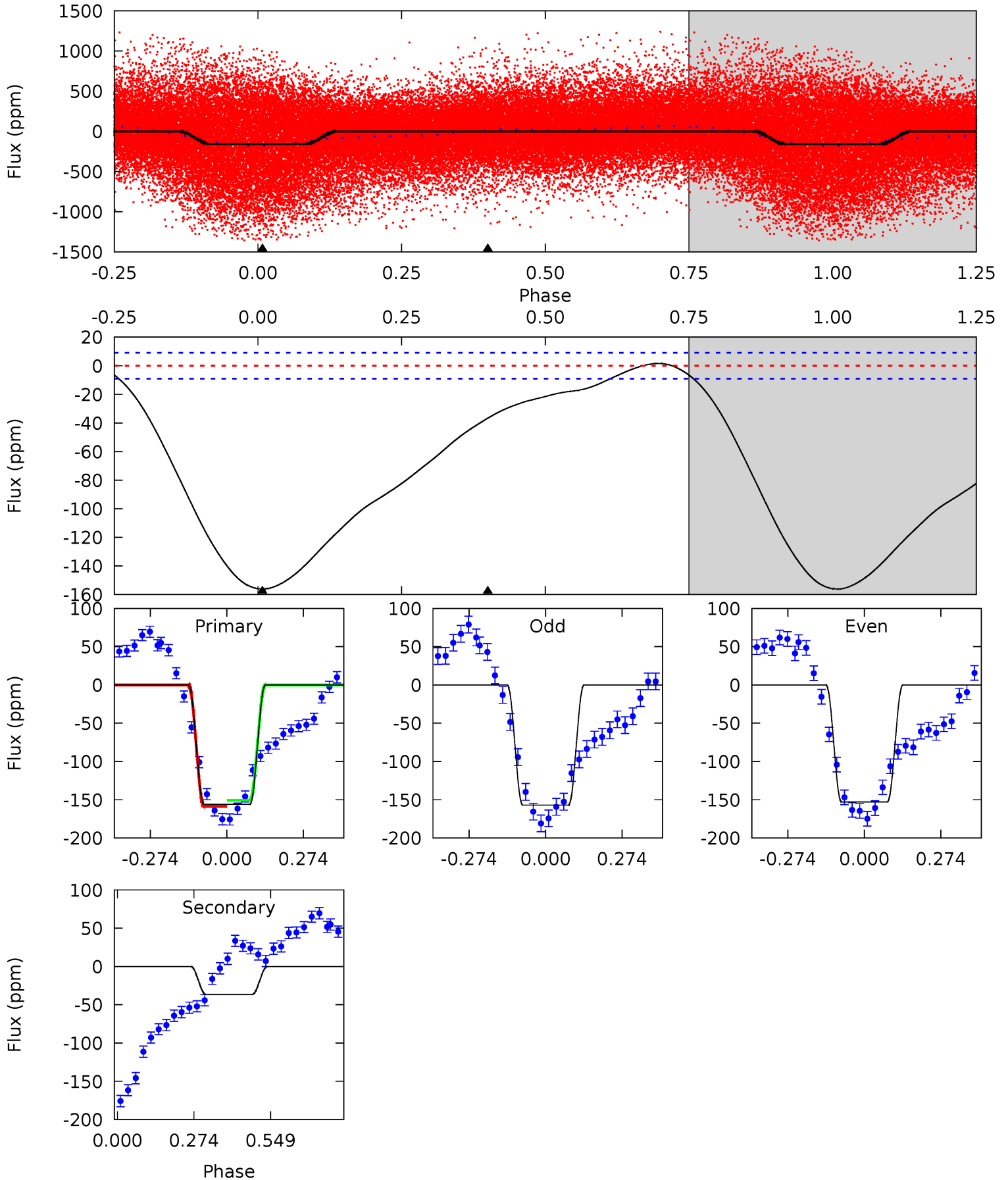
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.6	8.27	0	0	4.42	1.29	3.61	15.6	15.6	8.27	8.27	0.40	1.10	0.29	2.83



Alt Model-Shift Uniqueness Test

006357958-01, P = 1.043390 Days, E = 132.043749 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
75.2	17.6	0	0	4.35	1.09	1.18	75.2	75.2	17.6	17.6	1.01	1.24	0.01	1.96



Stellar Parameters For KIC 006357958

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7187^{+200}_{-343}	$4.040^{+0.180}_{-0.180}$	$0.120^{+0.200}_{-0.350}$	$2.044^{+0.611}_{-0.500}$	$1.668^{+0.193}_{-0.290}$	$0.275^{+0.271}_{-0.137}$
	+3%/-5%	+4%/-4%	+167%/-292%	+30%/-24%	+12%/-17%	+98%/-50%
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 006357958-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-14 ± 2	$1.06^{+0.45}_{-0.41}$	4074^{+347}_{-312}	6051^{+1974}_{-967}	$3.762^{+6.492}_{-1.899}$
Alt.	-37 ± 2	$2.71^{+0.65}_{-0.50}$	4072^{+339}_{-287}	4806^{+456}_{-372}	$1.523^{+0.767}_{-0.527}$

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 $A_{obs} \gg 1.0$

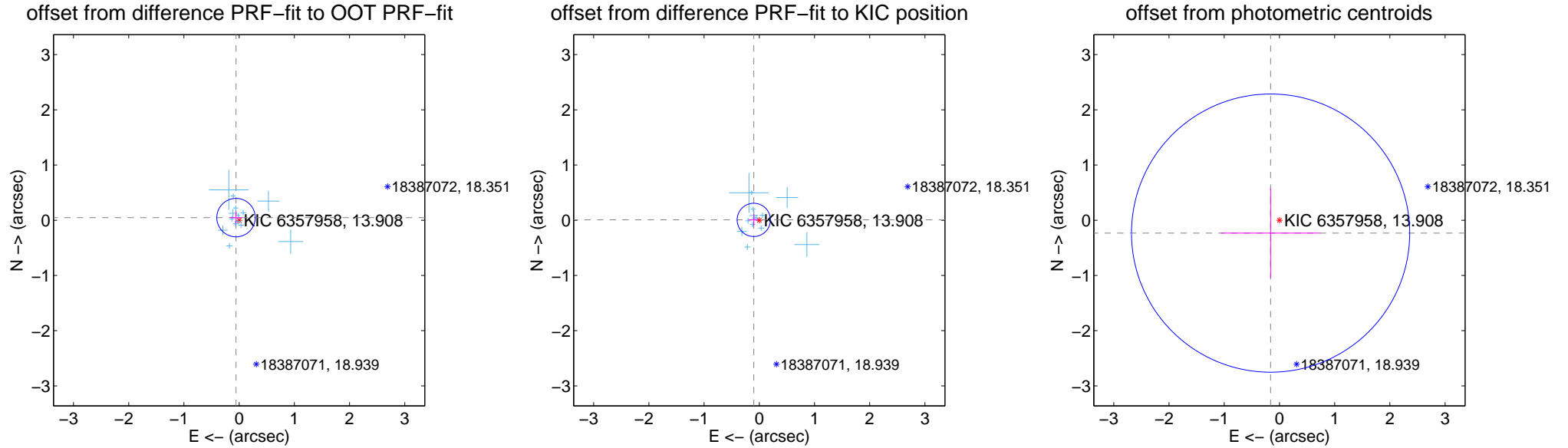
DV Centroid Data

Supplemental centroid analysis for 006357958-01. Kepler magnitude: 13.91. Transit SNR 9.11

There are 14 quarters with good PRF difference image offsets

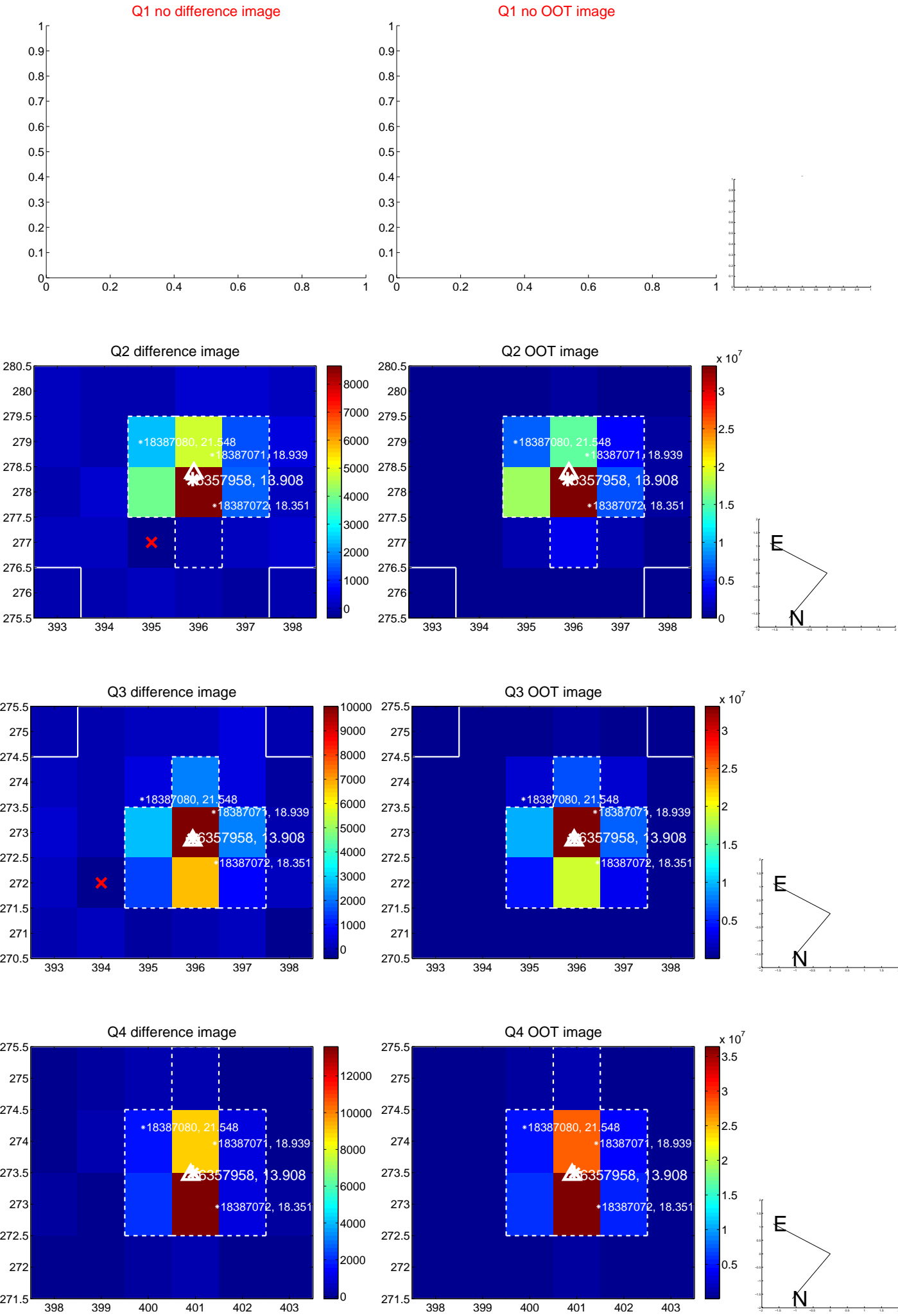
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.074 ± 0.116	0.64	0.056 ± 0.108	0.048 ± 0.105
PRF-fit source offset from KIC position	0.100 ± 0.100	1.00	0.100 ± 0.099	0.006 ± 0.104
photometric centroid source offset	0.28 ± 0.84	0.34	0.16 ± 0.90	-0.23 ± 0.81

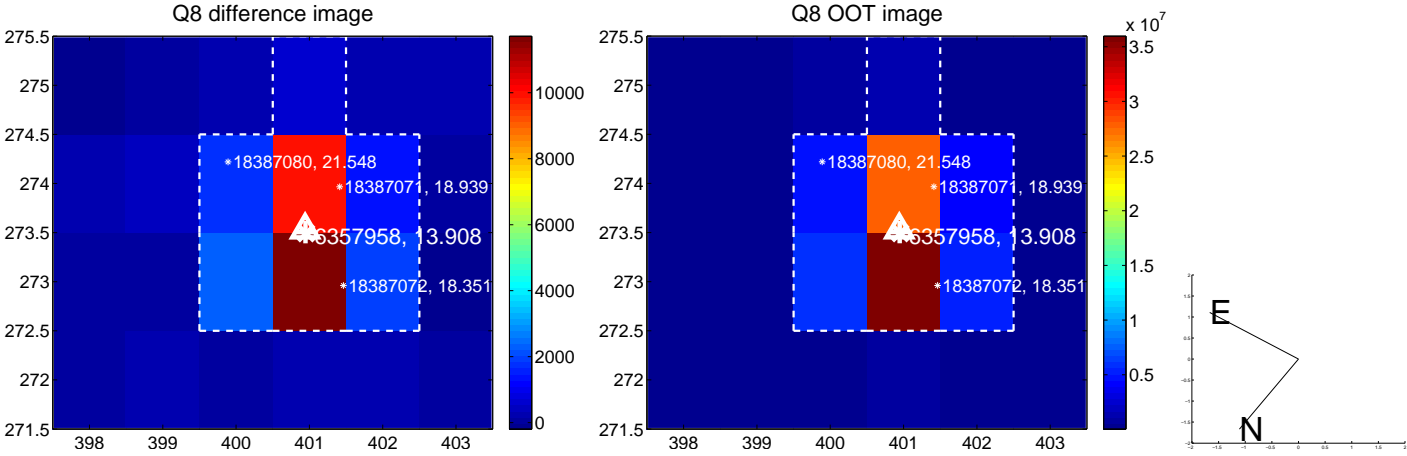
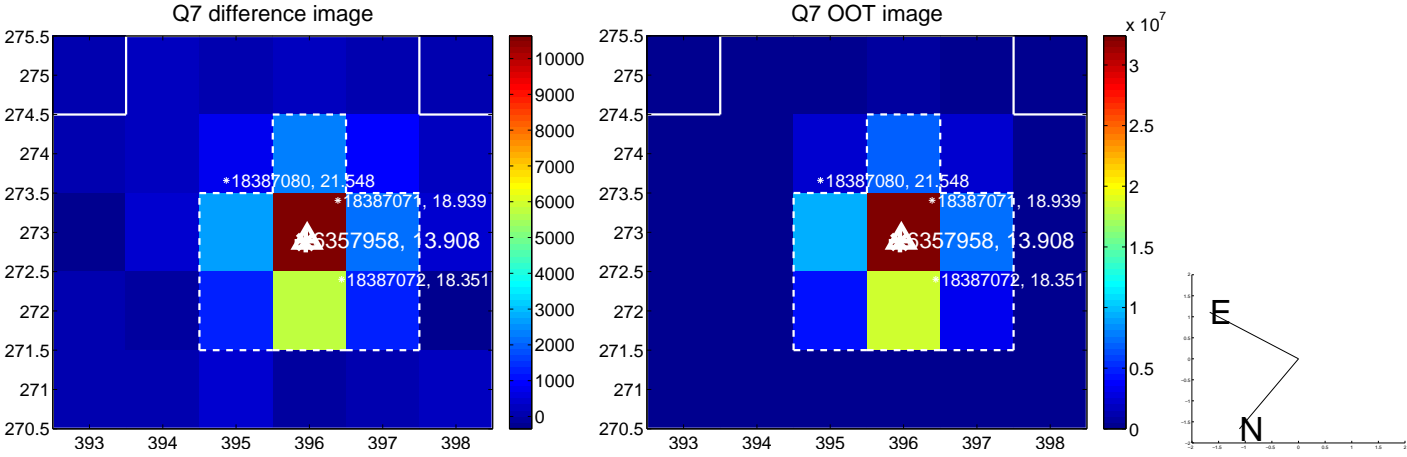
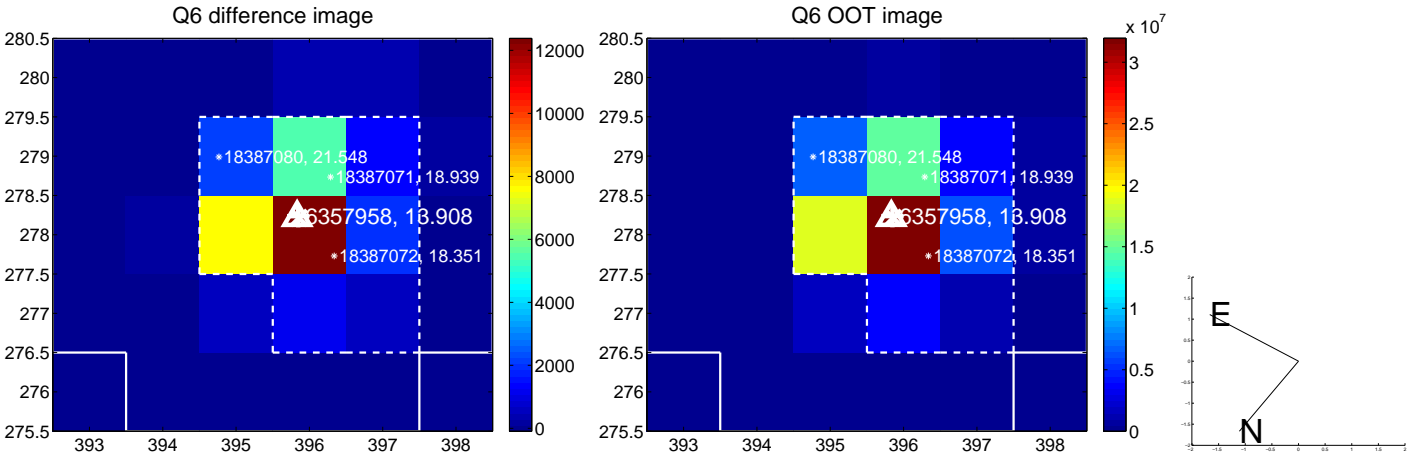
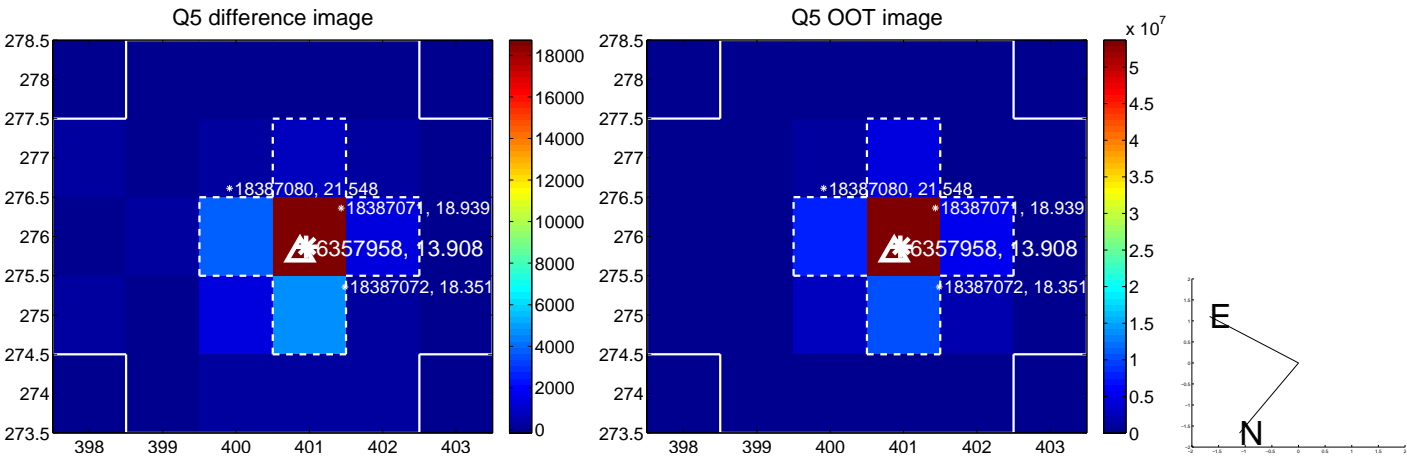


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

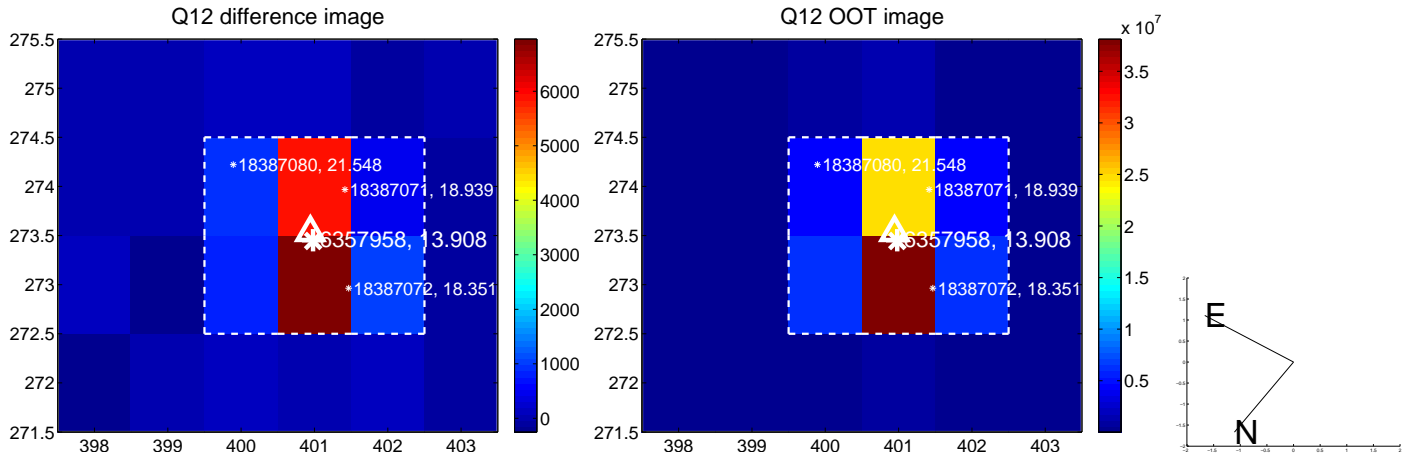
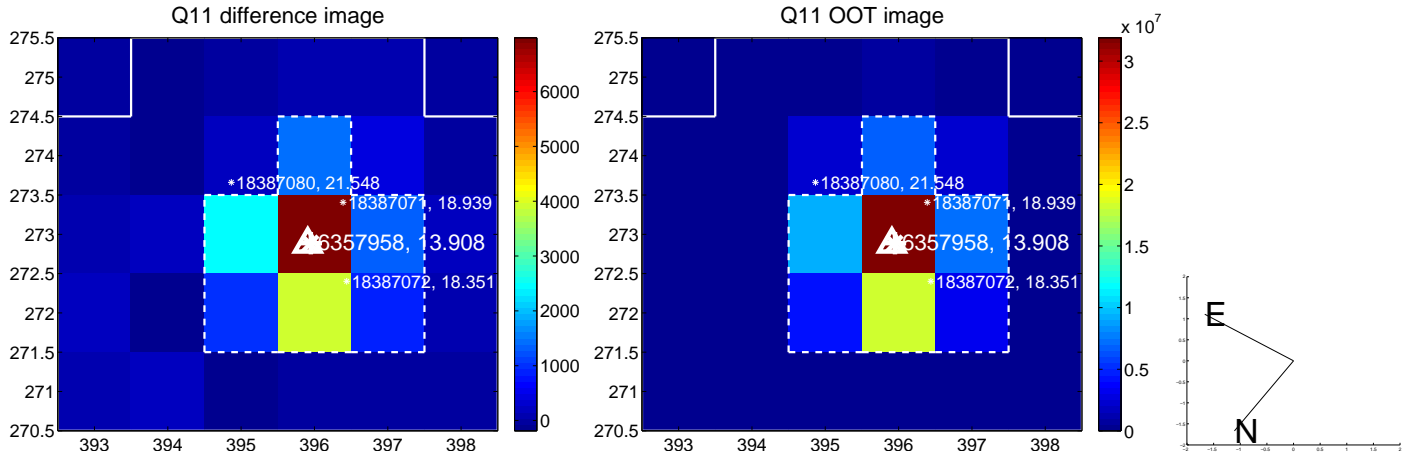
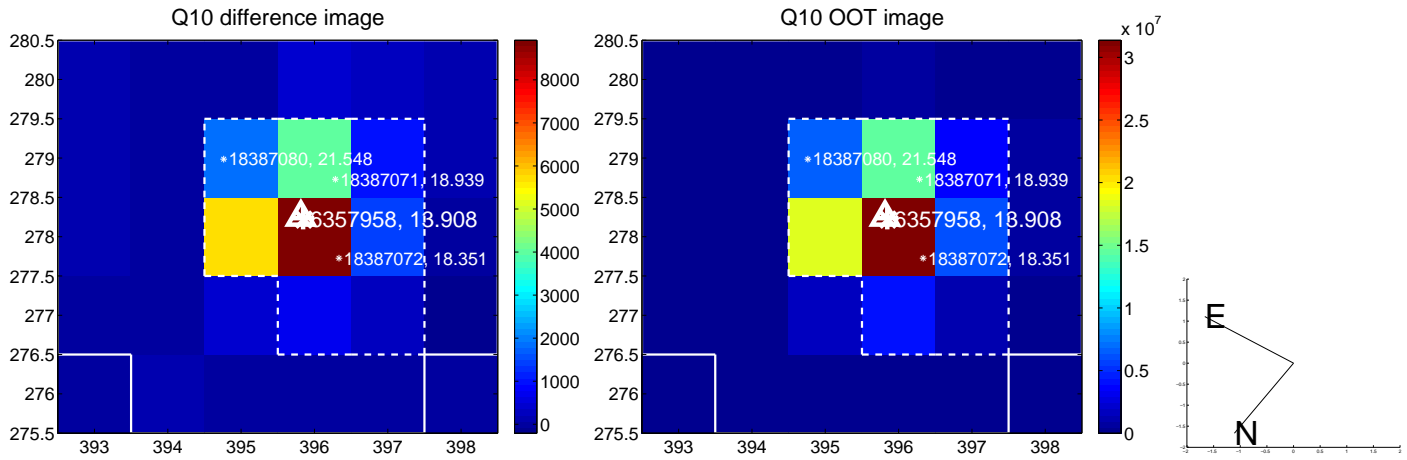
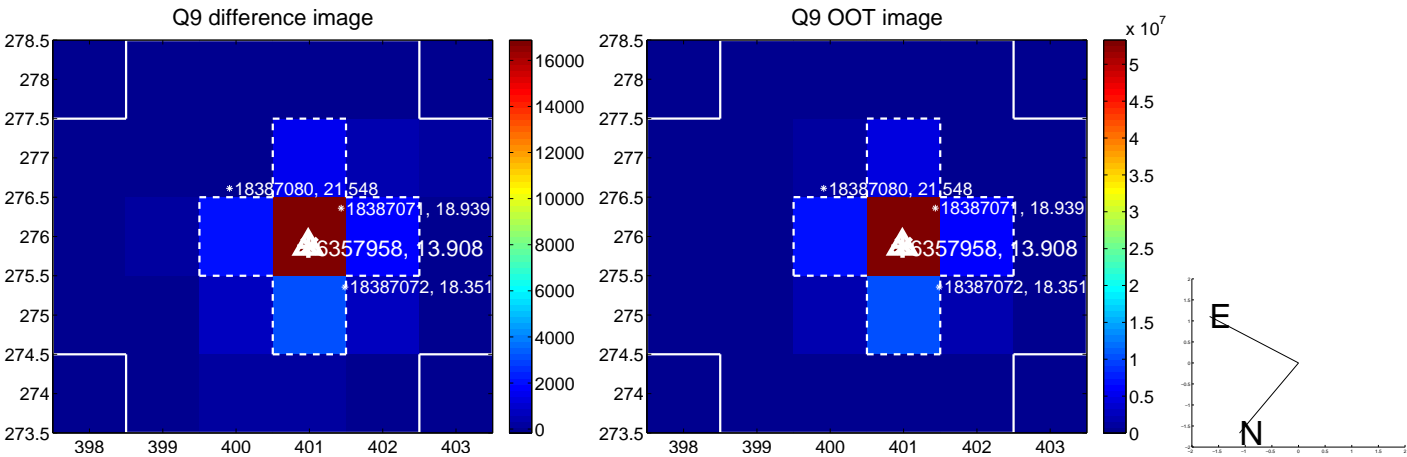
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



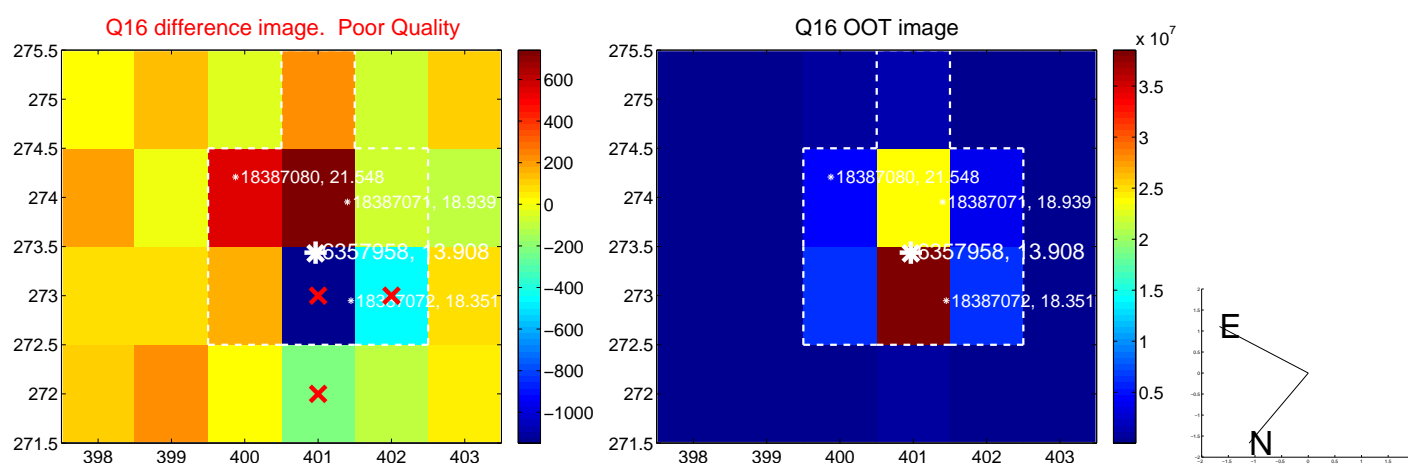
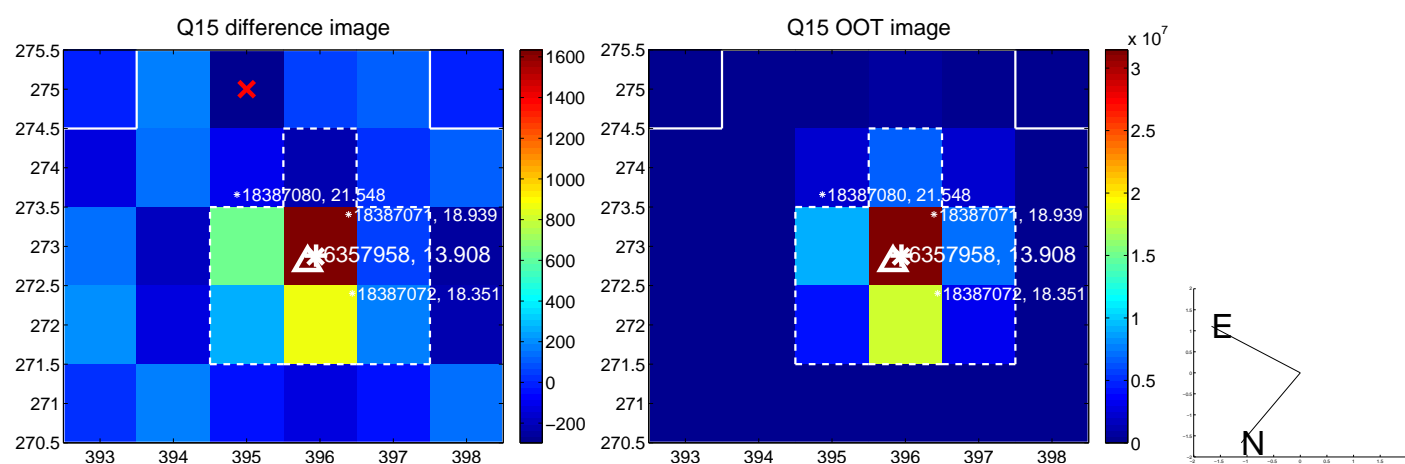
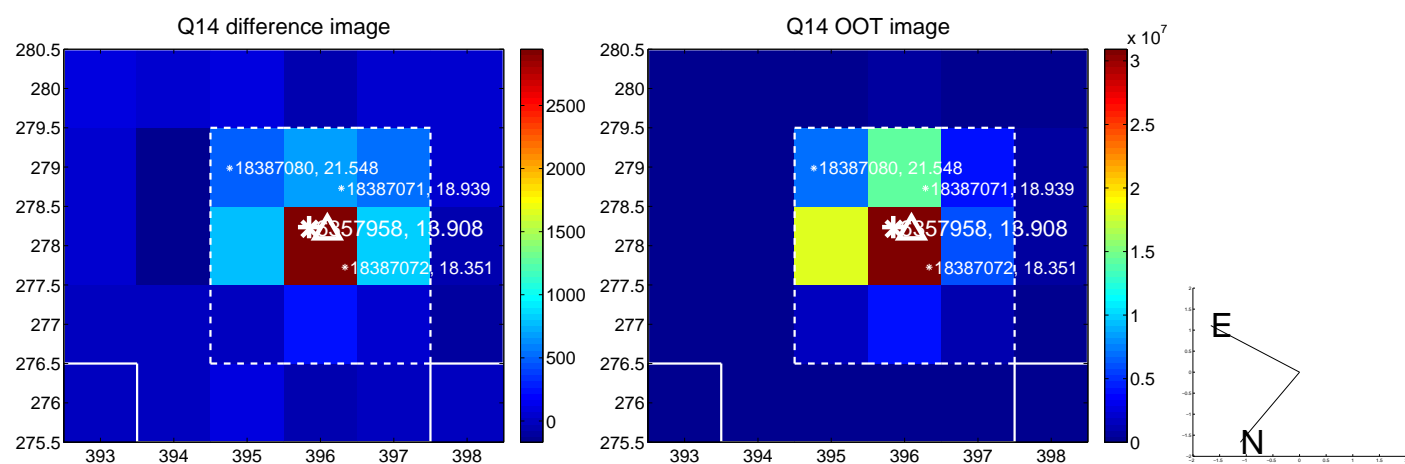
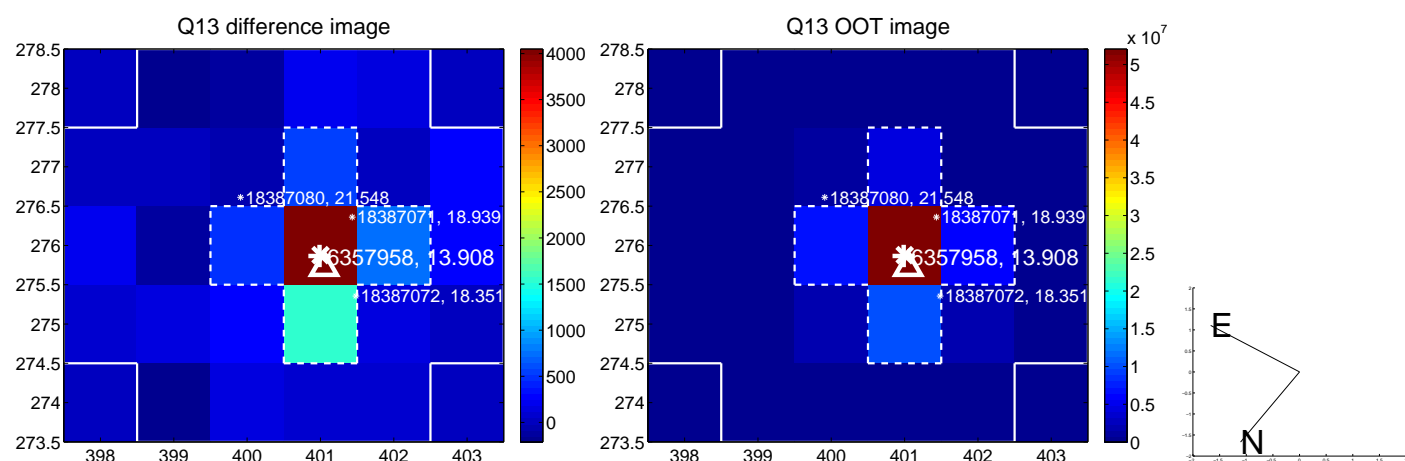
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



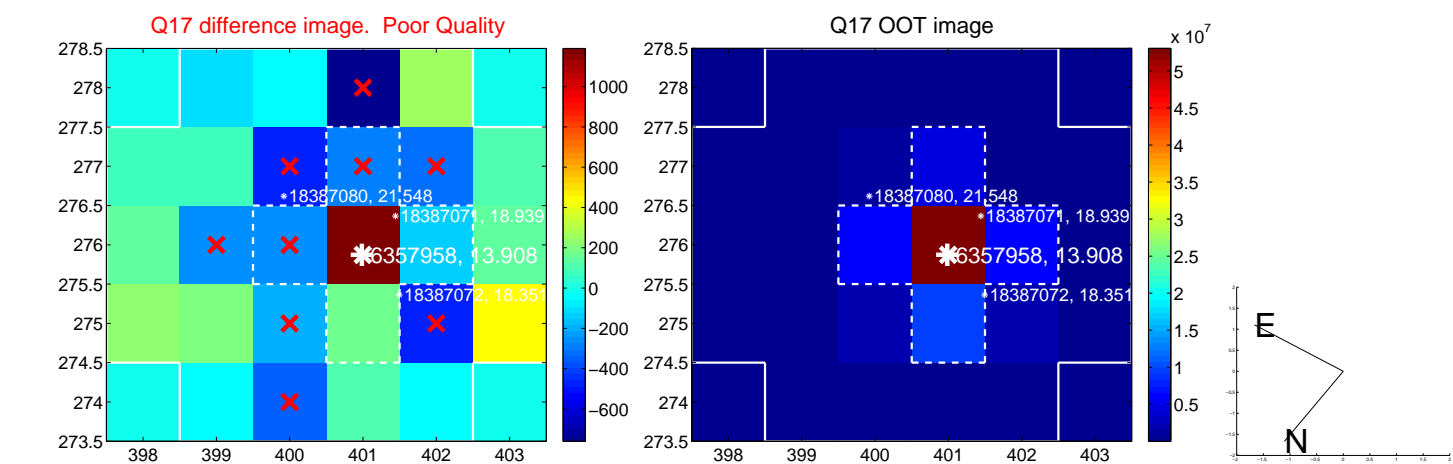
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



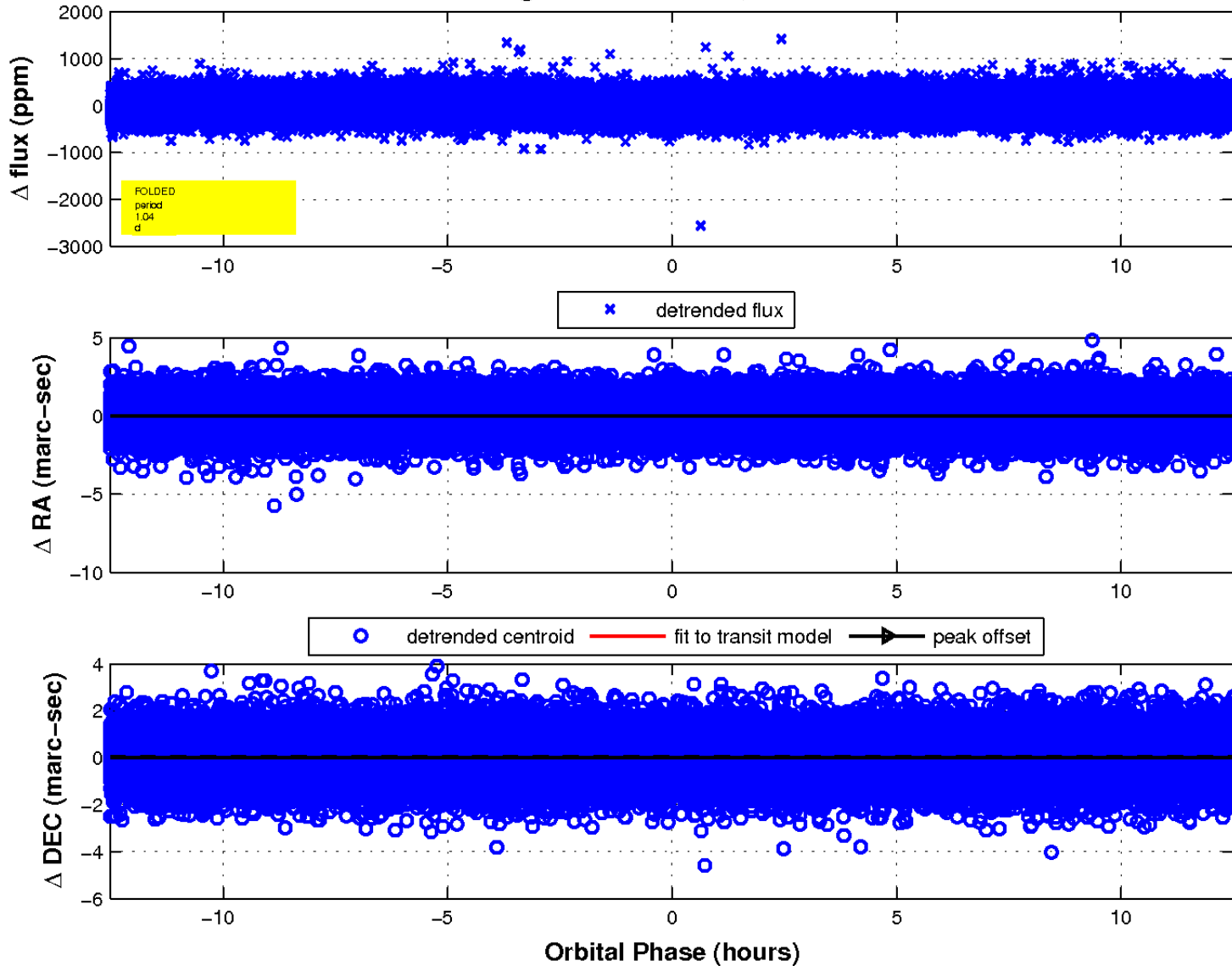
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

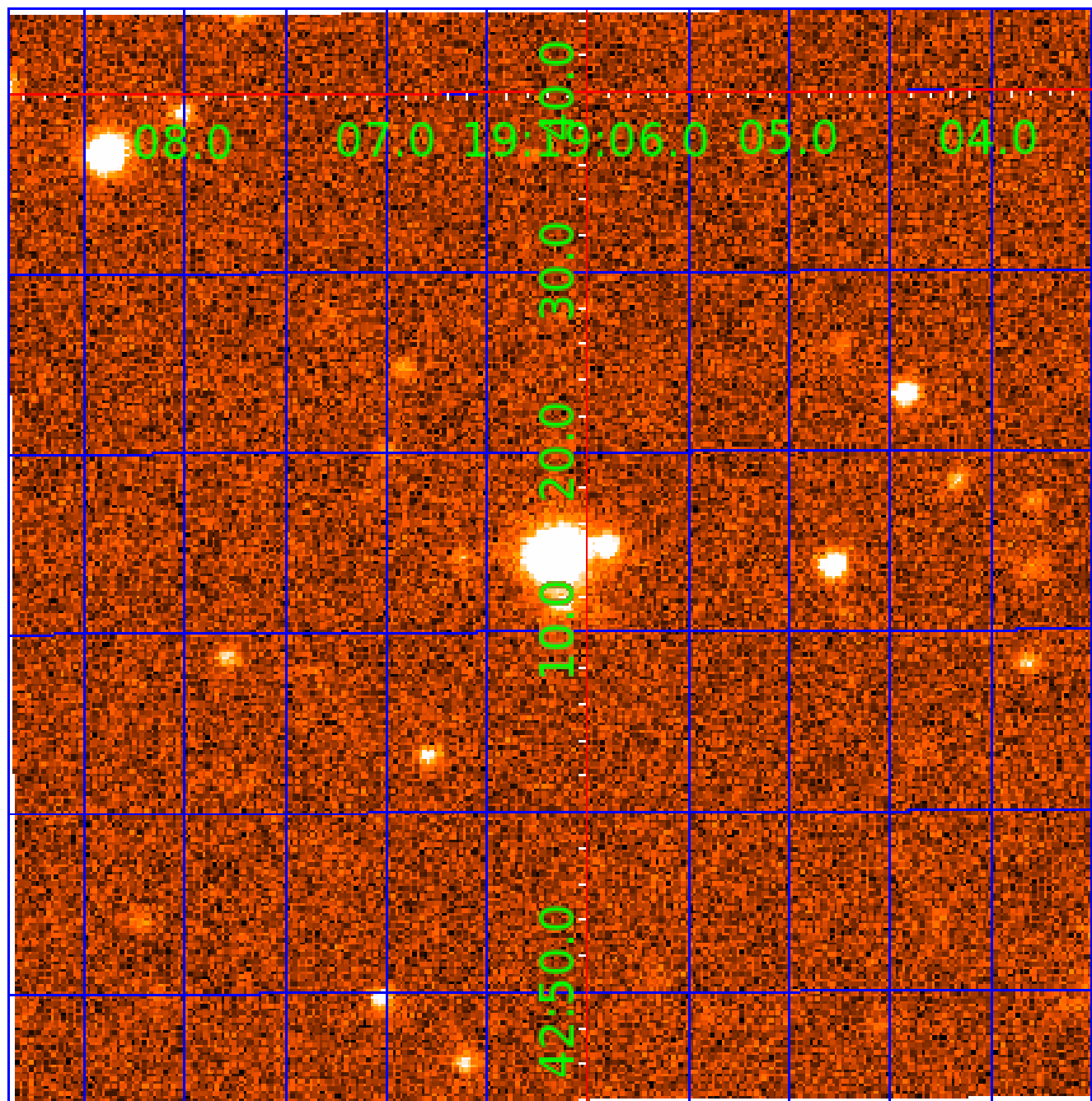


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 006357958

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})
006357958-01	OBS	No	1.043358	132.060541	25.3	4.463	8.9	9.1	2.04	7187	1.05	17491.52
006357958-02	OBS	No	266.563633	388.261466	413.4	4.634	8.5	8.3	2.04	7187	4.55	10.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006357958-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
006357958-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

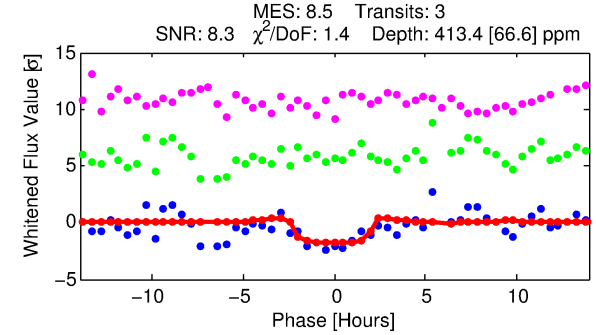
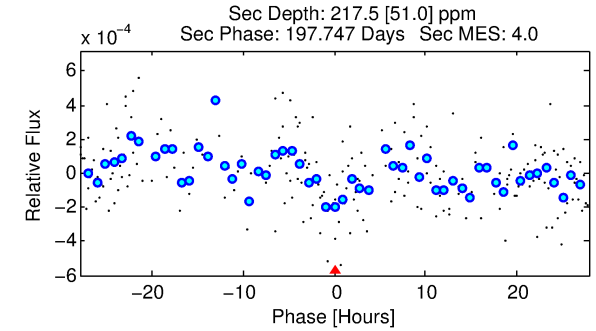
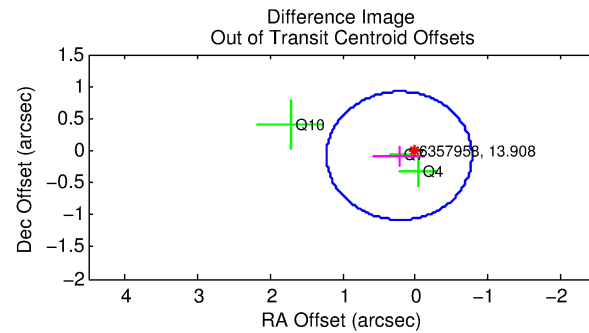
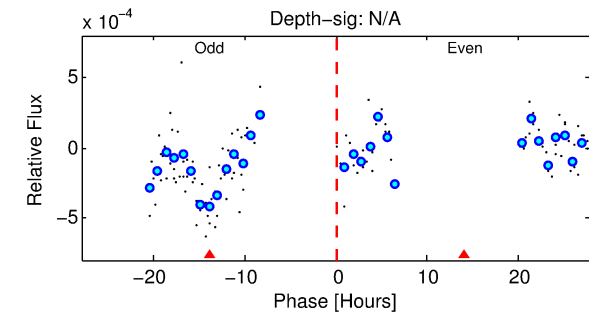
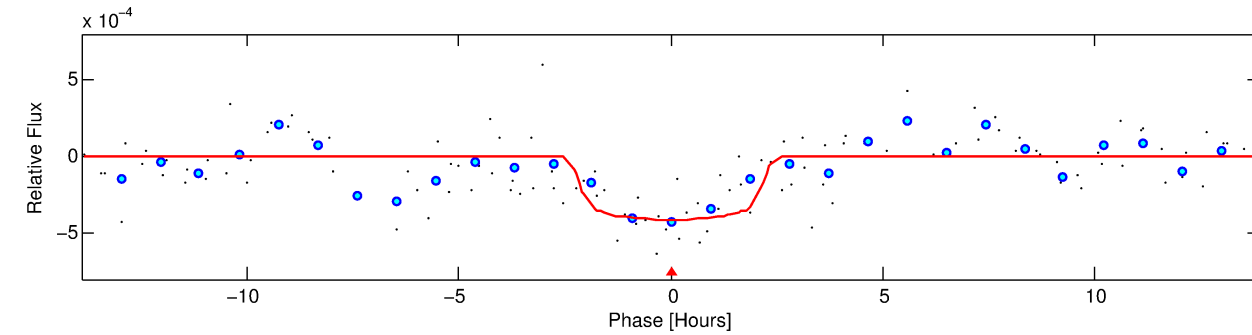
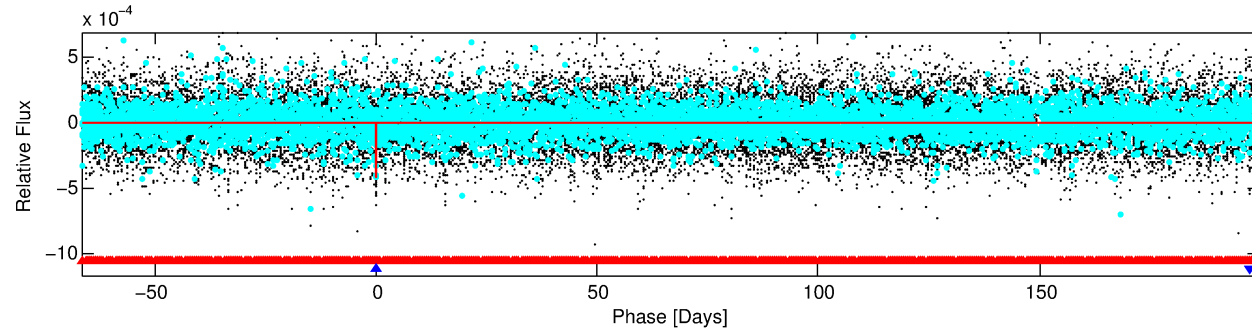
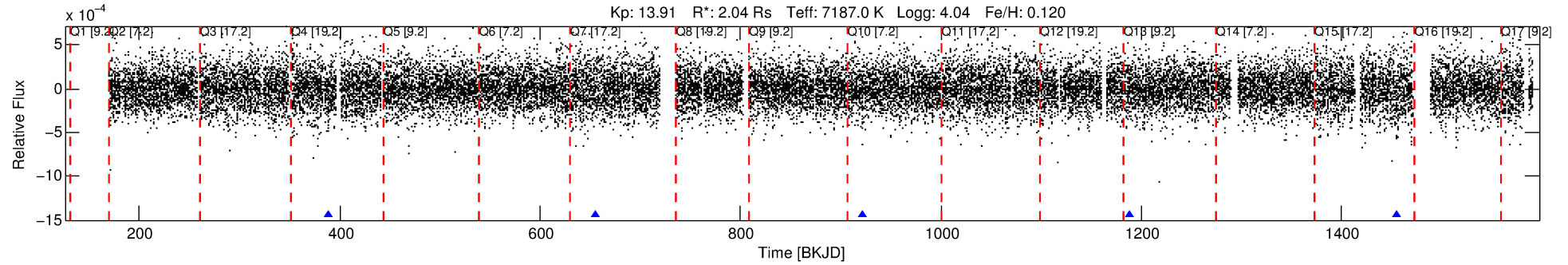
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006357958-02

No Significant Match Found

DV One-Page Summary

KIC: 6357958 Candidate: 2 of 2 Period: 266.564 d



DV Fit Results:

Period = 266.56363 [0.00427] d
Epoch = 388.2615 [0.0145] BKJD
Rp/R* = 0.0204 [0.0852]
a/R* = 289.03 [7354.98]
b = 0.78 [12.90]
Seff = 10.79 [4.21]
Teq = 462 [45] K
Rp = 4.55 [19.06] Re
a = 0.9621 [0.2333] AU
Ag = 5347.23 [44717.90] [0.12σ]
Teffp = 6110 [12767] K [0.44σ]

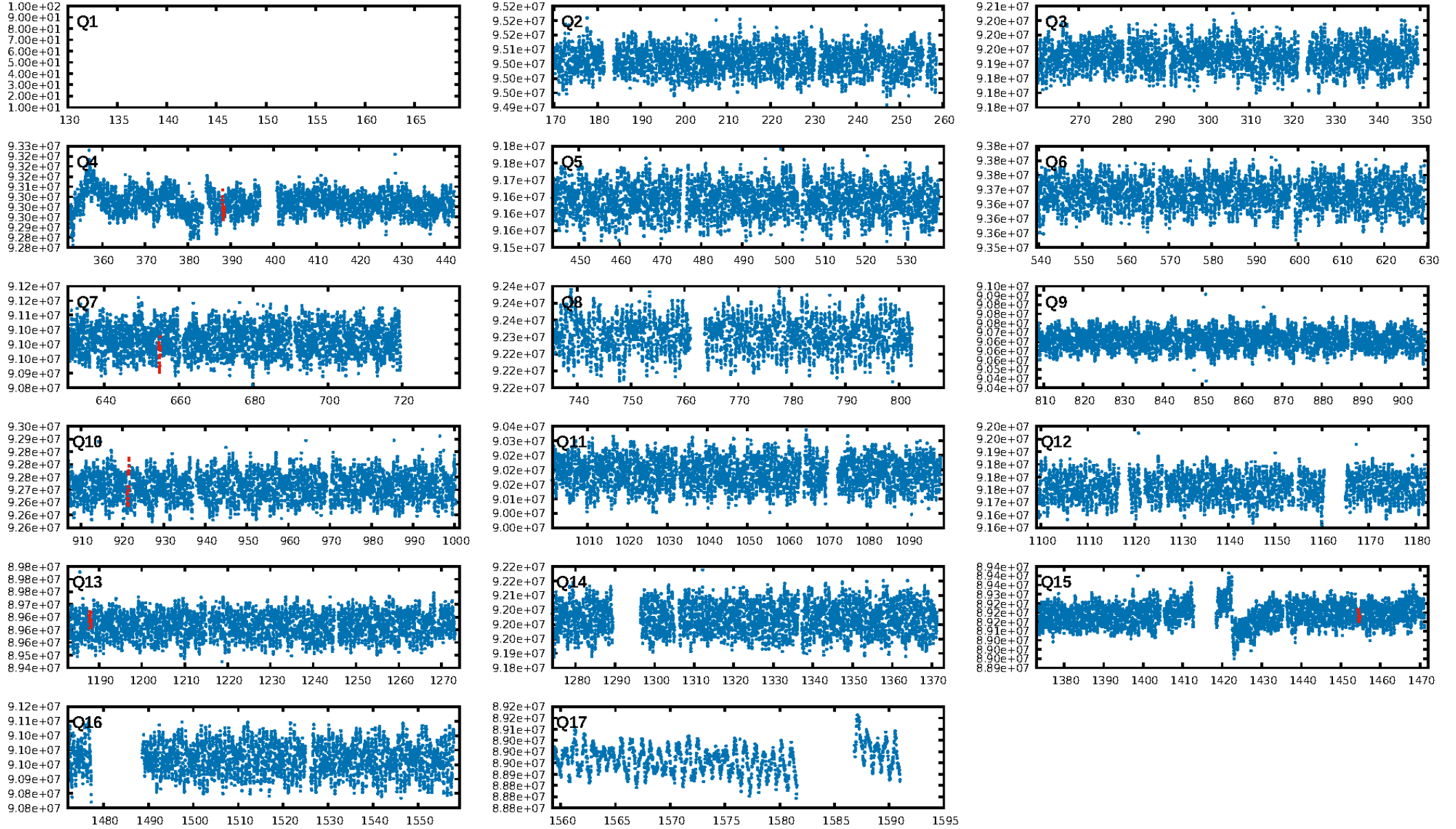
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [990.40σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.0%
ModelChiSquareGof-sig: 67.7%
Bootstrap-pfa: 1.46e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -8.437
Centroid-sig: 50.6%
Centroid-so: 0.520 arcsec [0.61σ]
OotOffset-rm: 0.234 arcsec [0.70σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-rm: 0.247 arcsec [0.72σ]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/4]

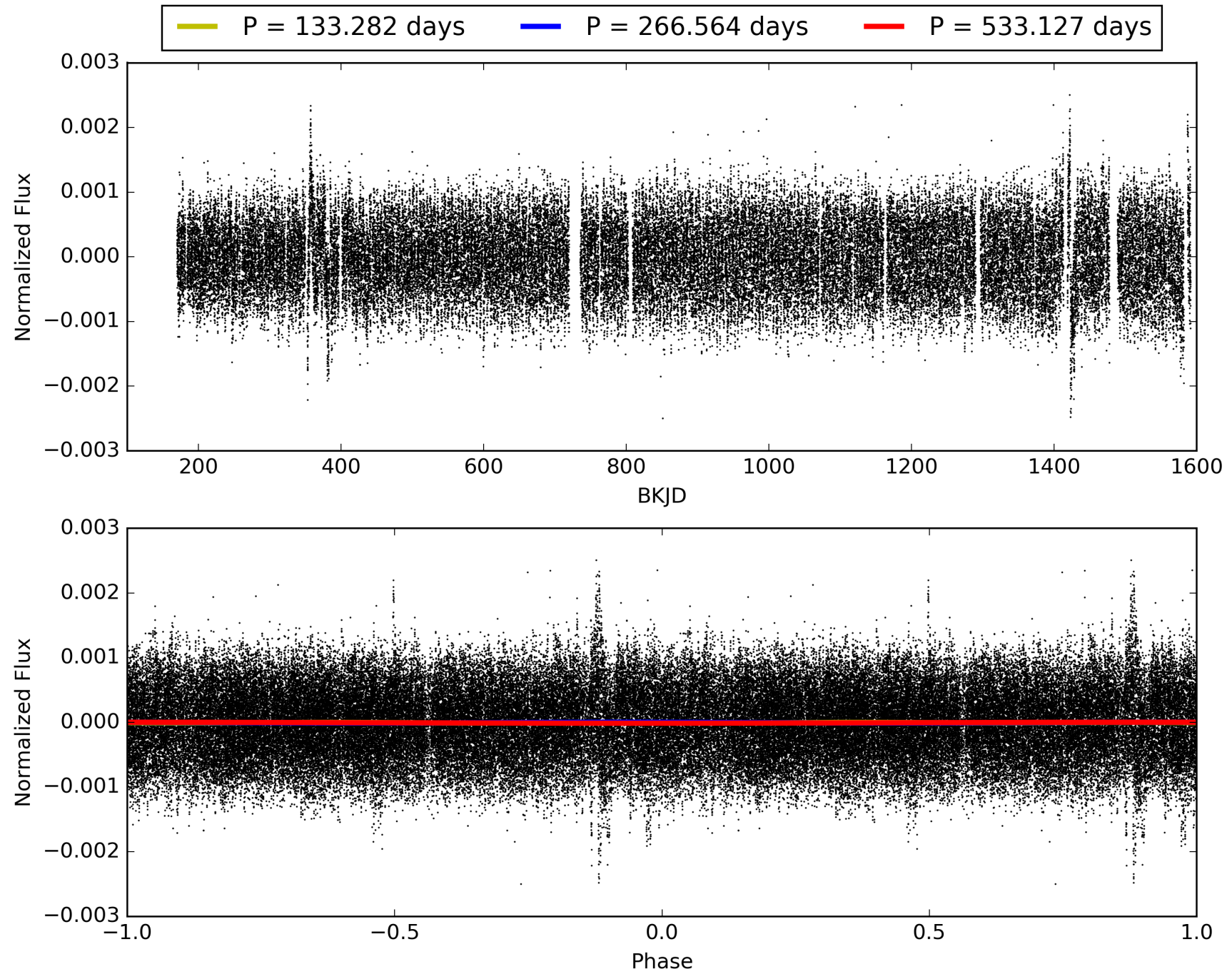
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:44:19 Z

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TCE 006357958-02, PDC Light Curves

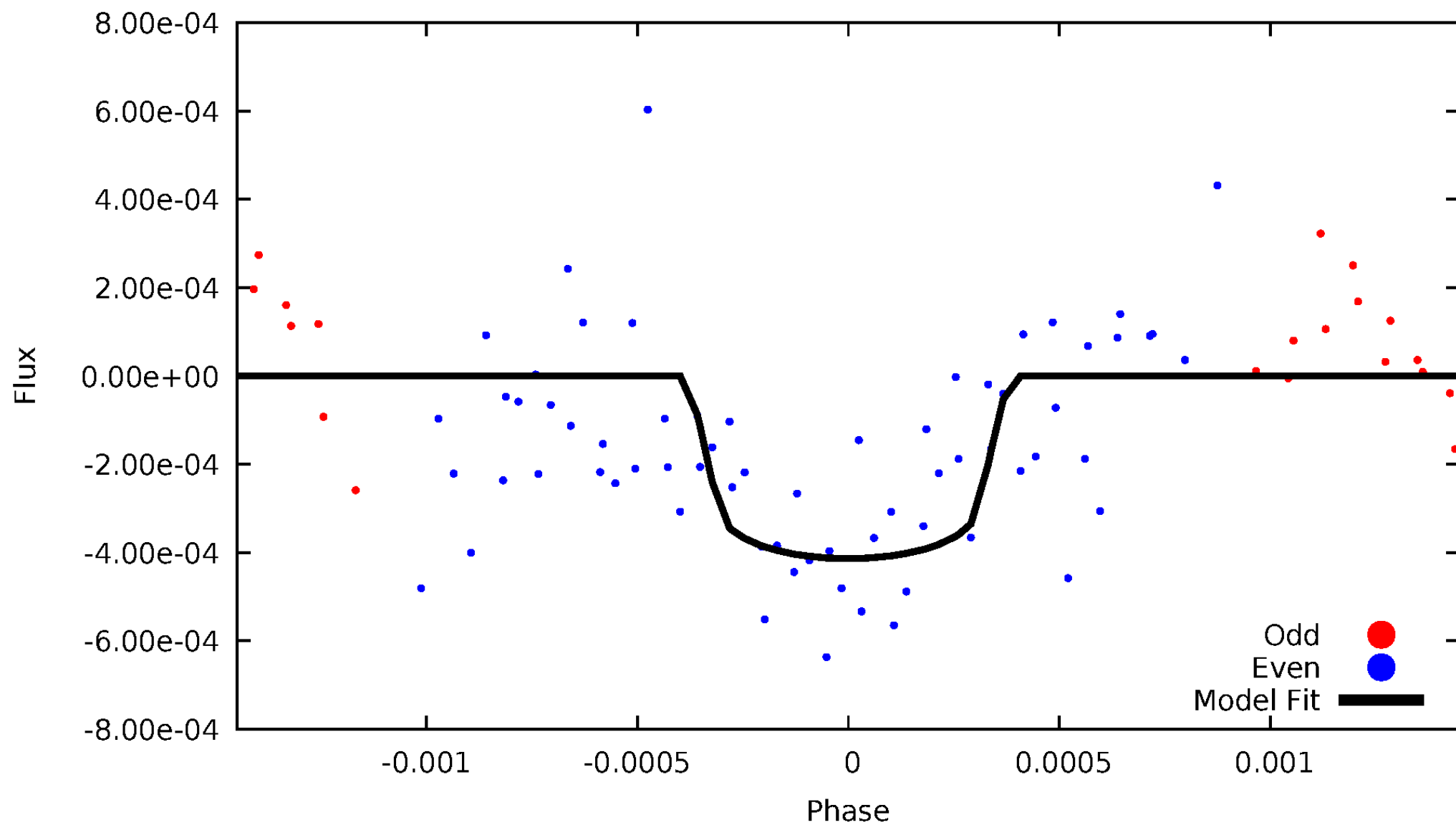


TCE 006357958-02



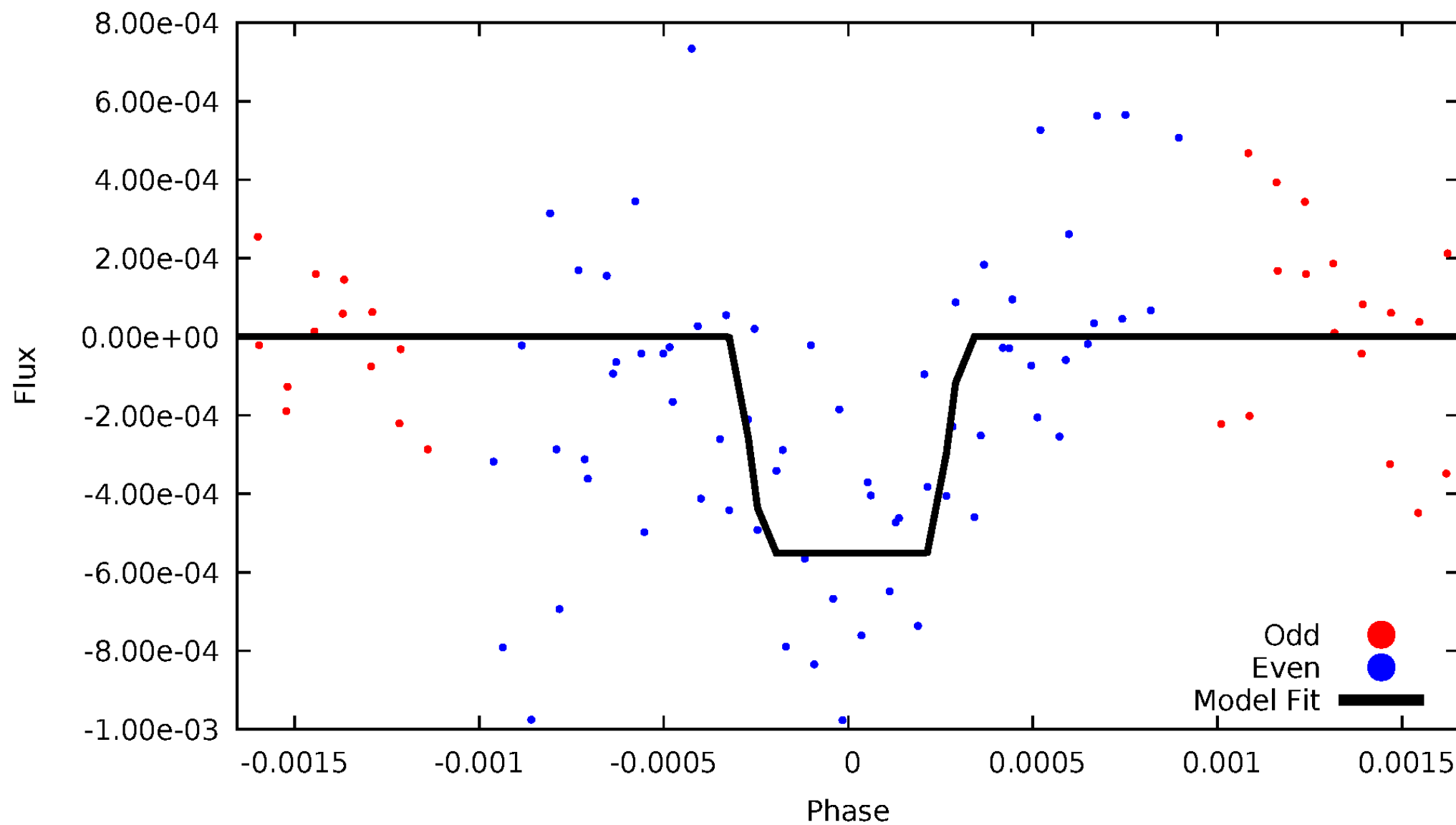
DV Odd/Even

TCE 006357958-02



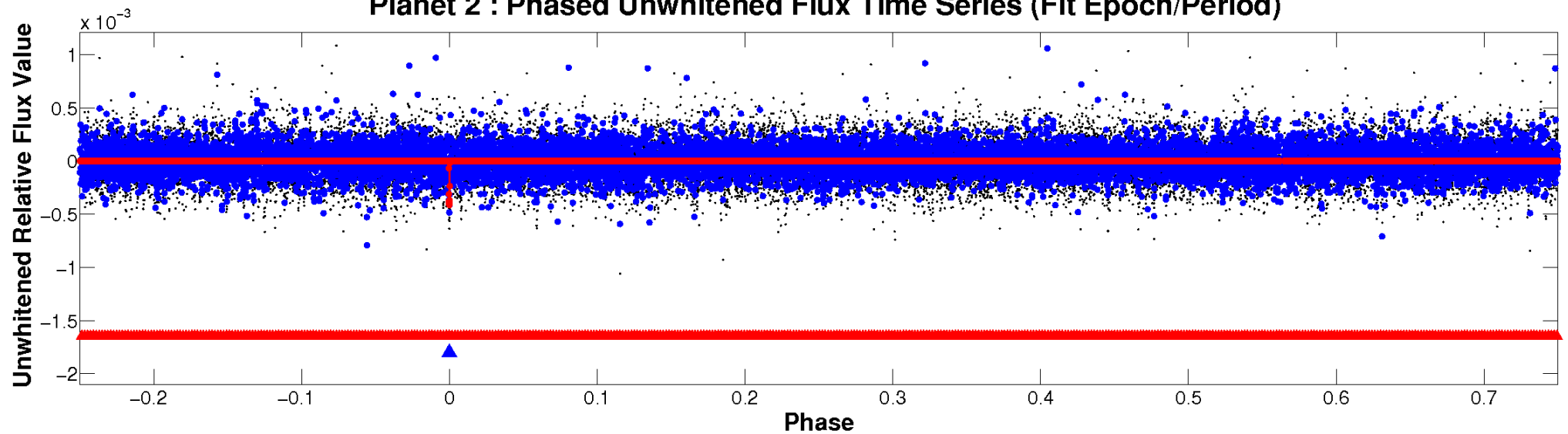
ALT Odd/Even

TCE 006357958-02

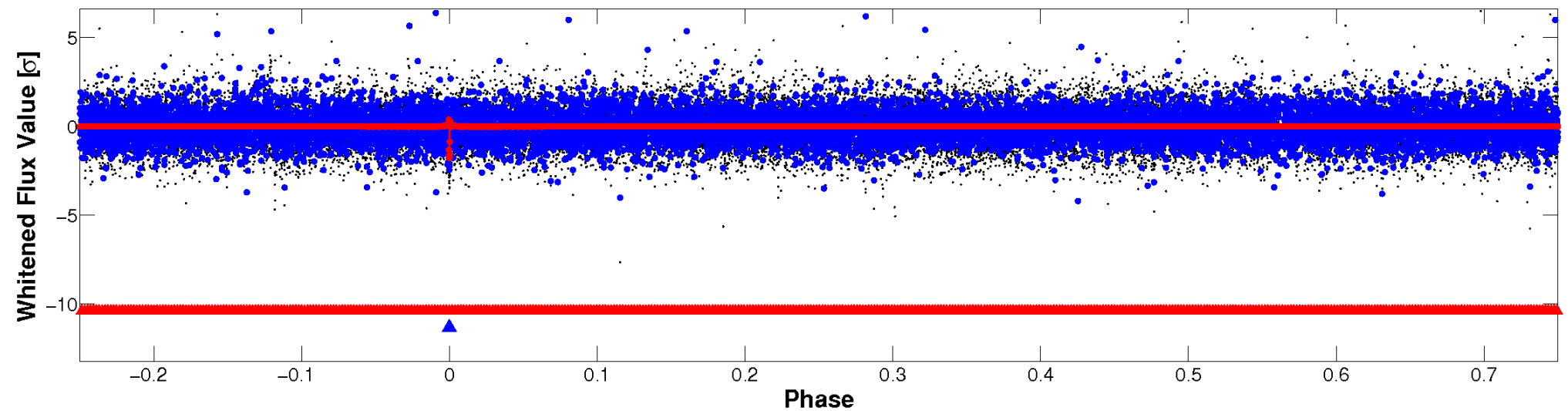


Non-Whitened Vs. Whitened Light Curve

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

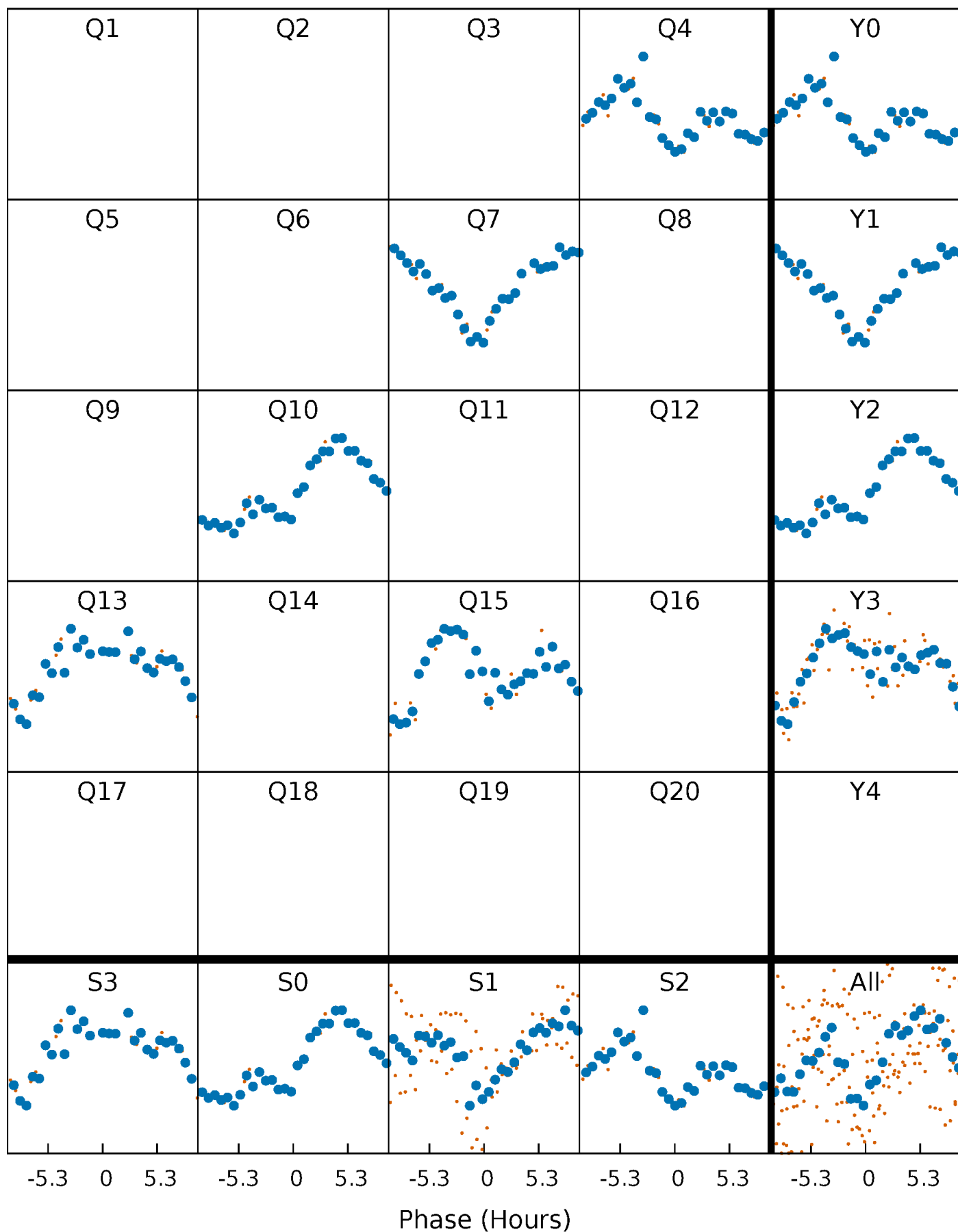


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



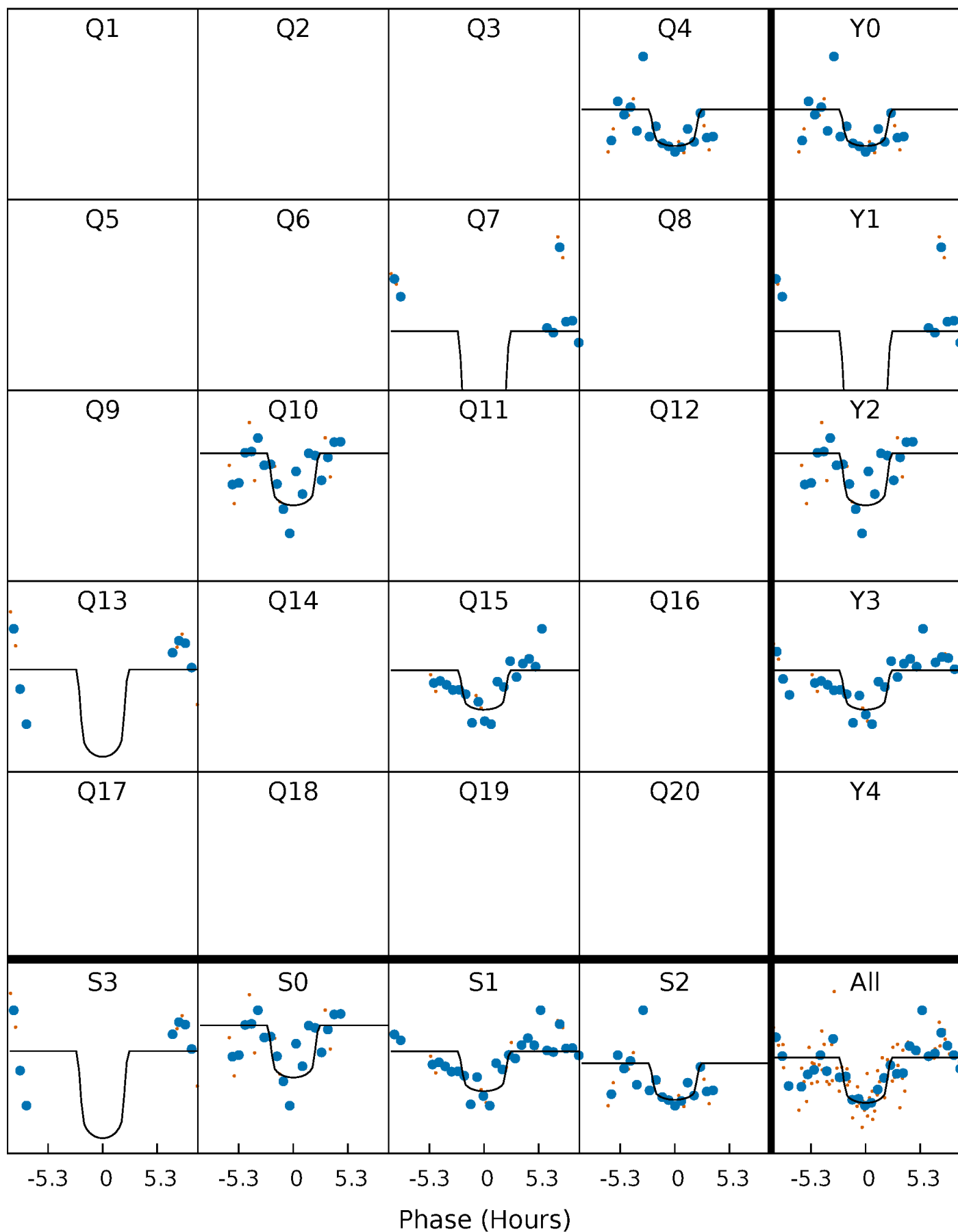
PDC Quarter-Phased Transit Curves

TCE 006357958-02 P=266.563633 Days $T_0=388.261466$ (BKJD)



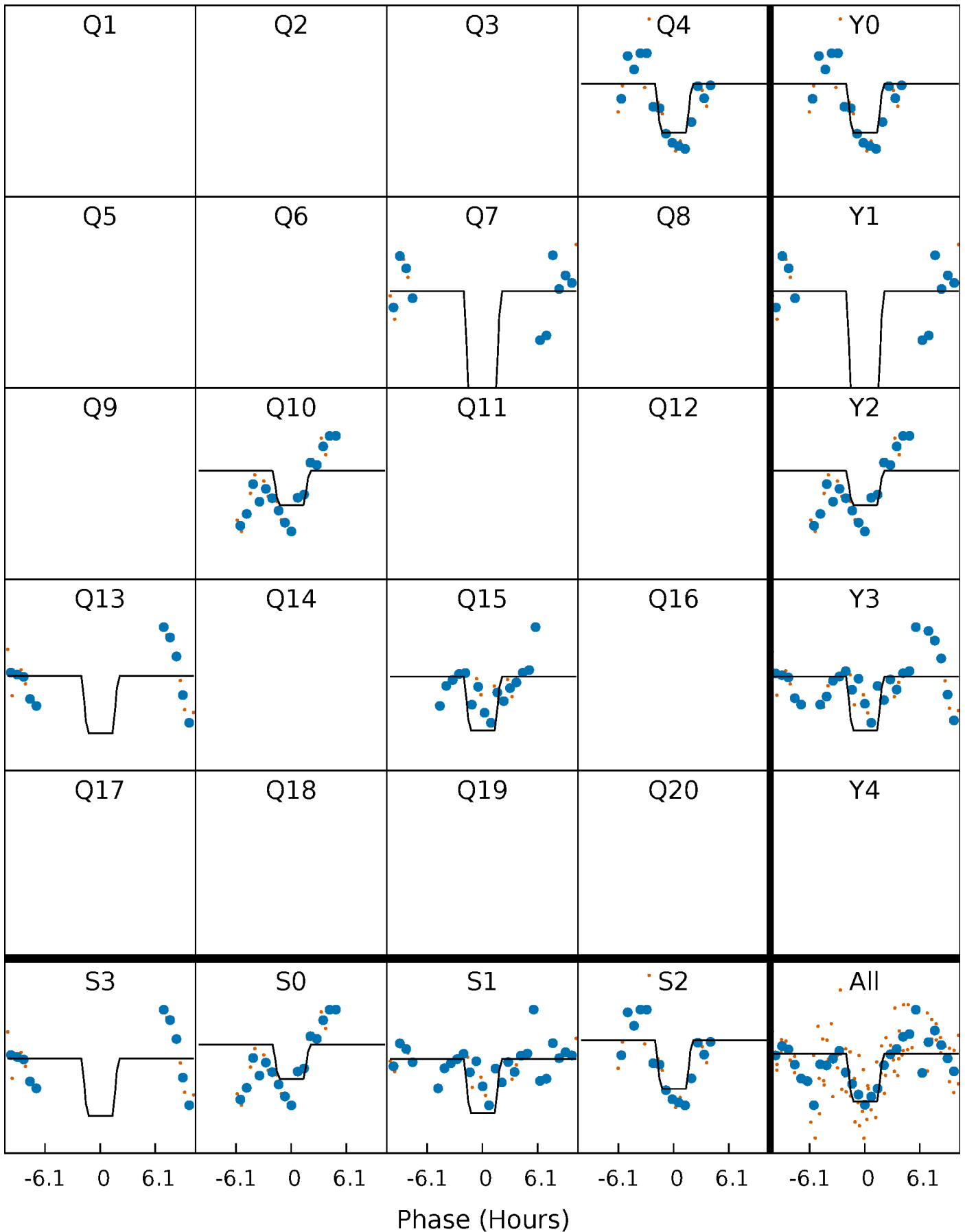
DV Quarter-Phased Transit Curves

TCE 006357958-02 $P=266.563633$ Days $T_0=388.261466$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

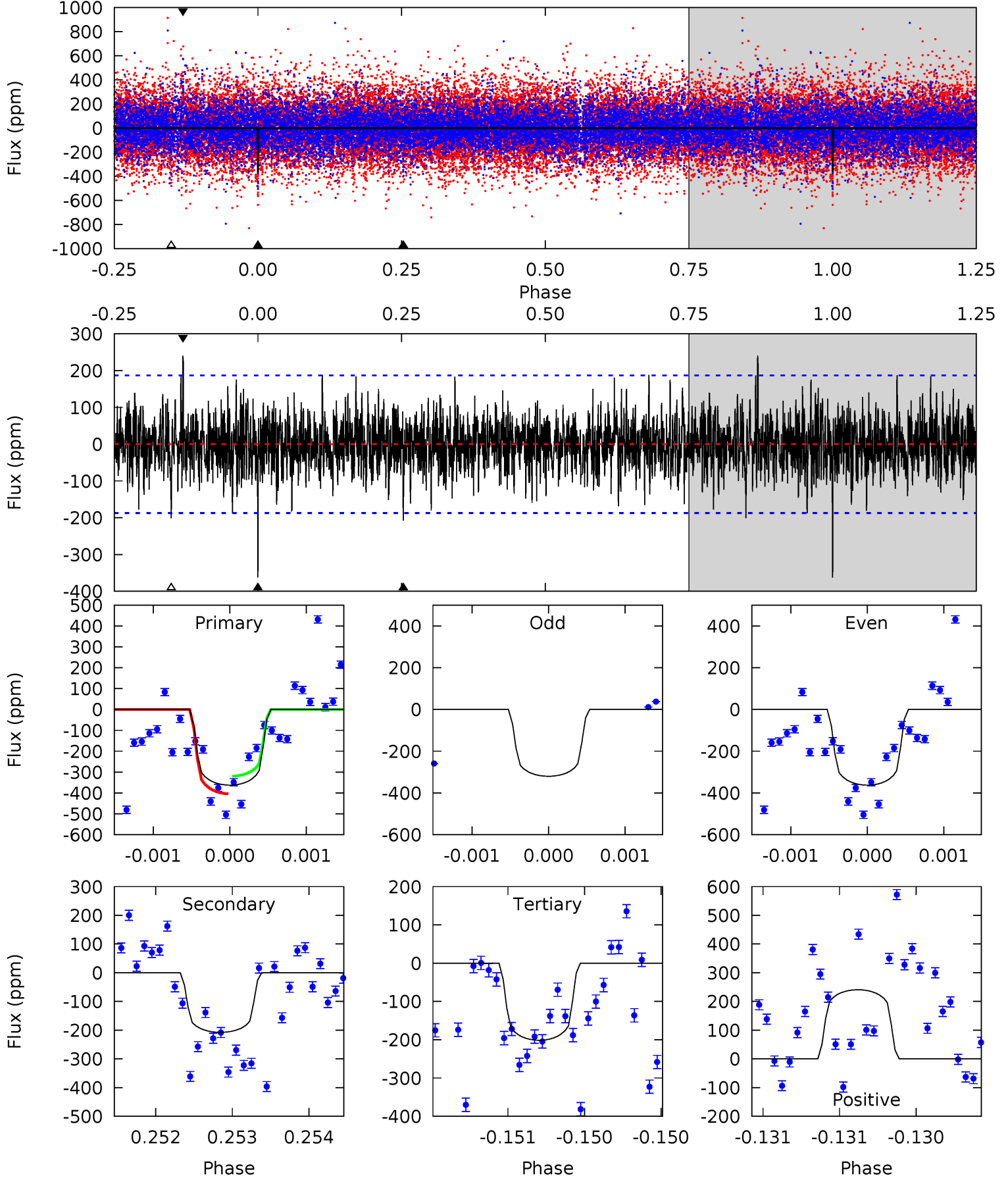
TCE 006357958-02 $P=266.565663$ Days $T_0=388.247820$ (BKJD)



DV Model-Shift Uniqueness Test

006357958-02, P = 266.563633 Days, E = 121.697833 Days

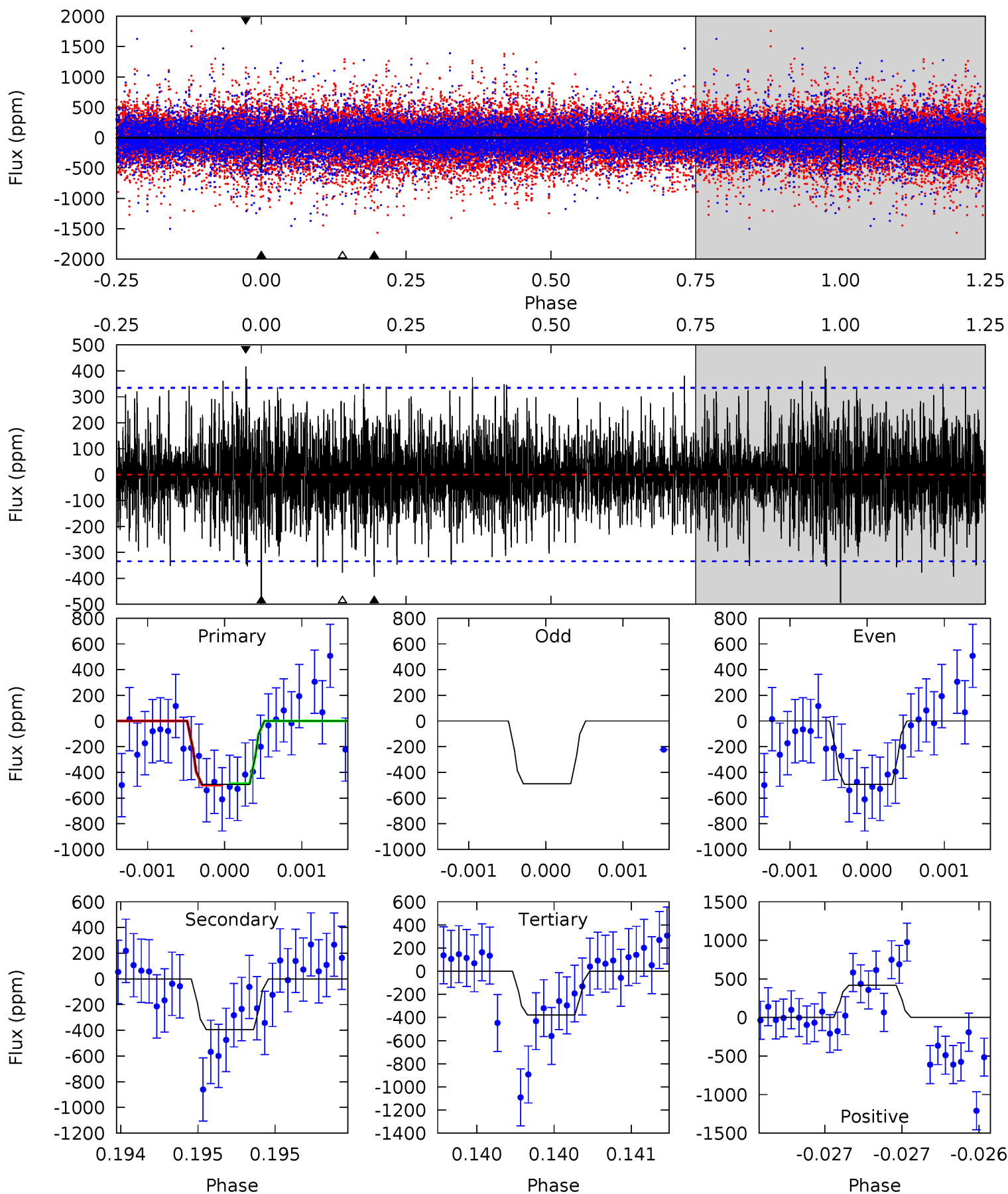
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	6.10	5.92	7.08	5.50	3.37	1.65	4.73	3.57	0.18	-0.98	0.73	0.94	0.40	1.23



Alt Model-Shift Uniqueness Test

006357958-02, P = 266.565663 Days, E = 121.682157 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.16	6.51	6.24	6.88	5.52	3.40	1.82	1.92	1.28	0.27	-0.38	0.05	0.80	0.46	0.09



Stellar Parameters For KIC 006357958

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7187^{+200}_{-343}	$4.040^{+0.180}_{-0.180}$	$0.120^{+0.200}_{-0.350}$	$2.044^{+0.611}_{-0.500}$	$1.668^{+0.193}_{-0.290}$	$0.275^{+0.271}_{-0.137}$
	+3%/-5%	+4%/-4%	+167%/-292%	+30%/-24%	+12%/-17%	+98%/-50%
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 006357958-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-207 ± 34	$14.76^{+14.97}_{-10.26}$	642^{+50}_{-46}	3690^{+2214}_{-717}	476^{+4633}_{-359}
Alt.	-394 ± 61	$15.32^{+14.25}_{-10.14}$	641^{+49}_{-49}	4043^{+2455}_{-793}	824^{+6031}_{-609}

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

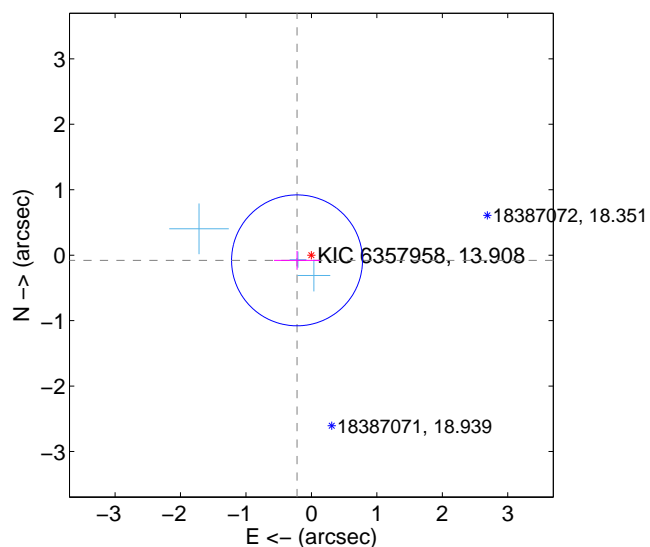
Supplemental centroid analysis for 006357958-02. Kepler magnitude: 13.91. Transit SNR 8.33

There are 3 quarters with good PRF difference image offsets

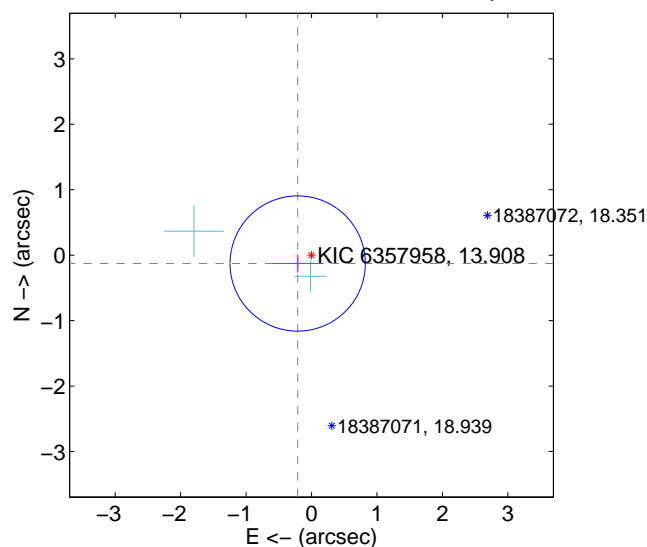
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.234 ± 0.333	0.70	0.220 ± 0.351	-0.079 ± 0.144
PRF-fit source offset from KIC position	0.247 ± 0.344	0.72	0.211 ± 0.393	-0.127 ± 0.142
photometric centroid source offset	0.52 ± 0.85	0.61	-0.04 ± 0.92	-0.52 ± 0.85

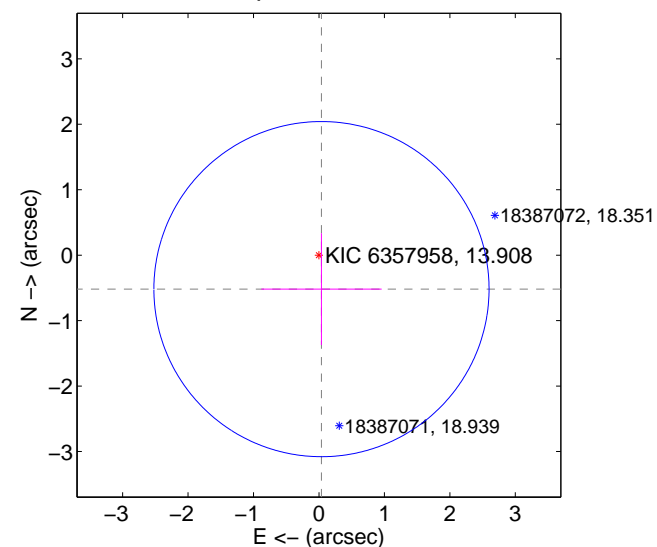
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

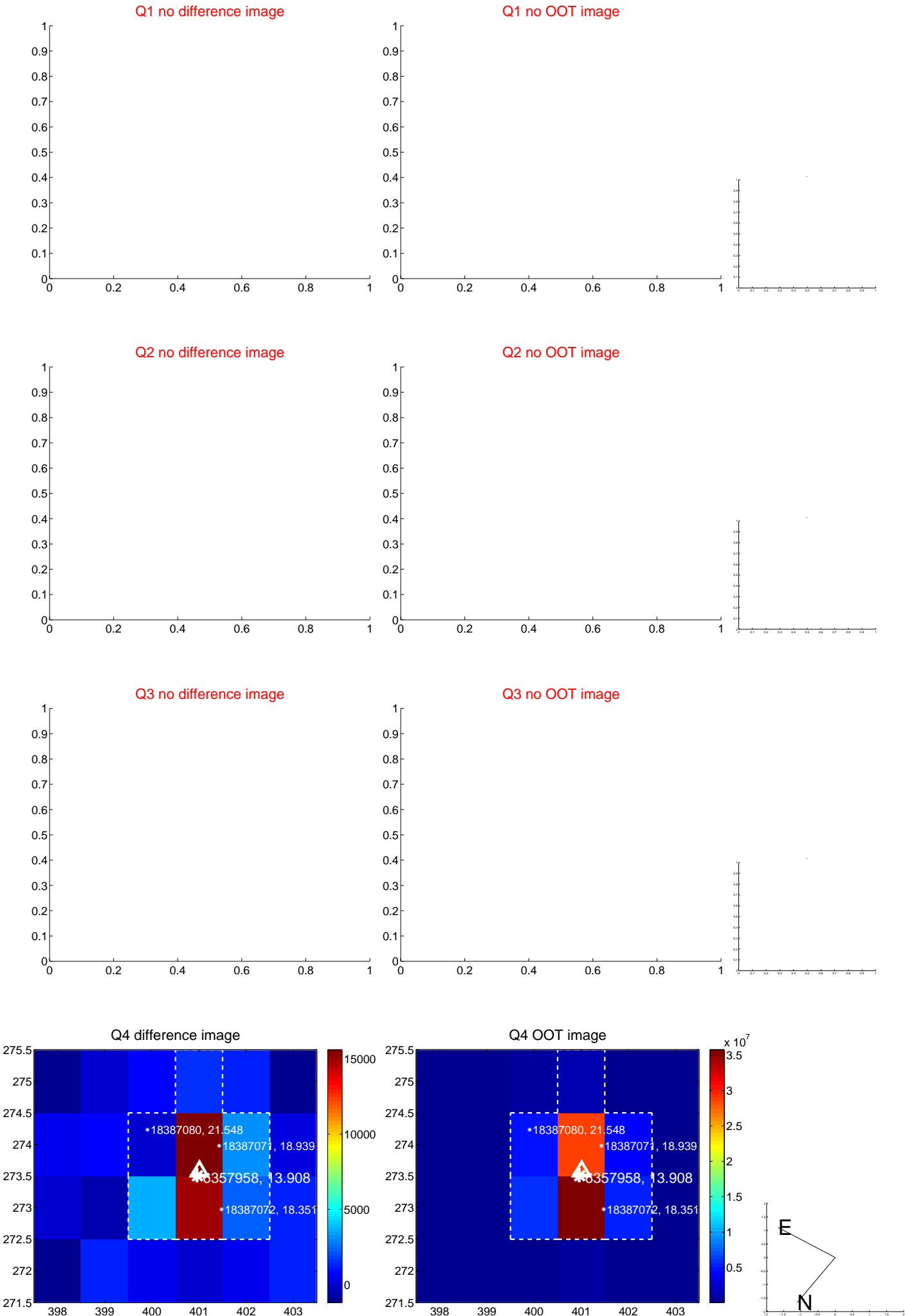


offset from photometric centroids



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.

Q5 no difference image



Q5 no OOT image



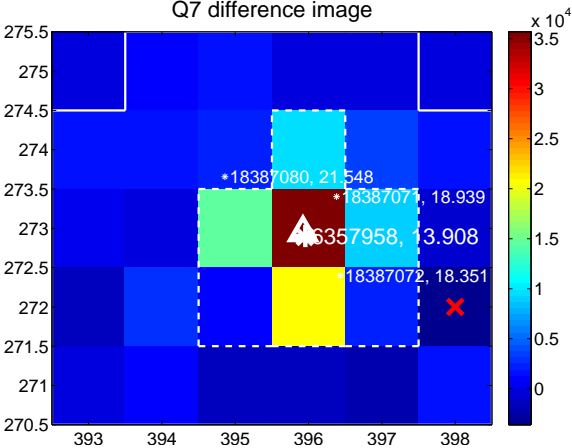
Q6 no difference image



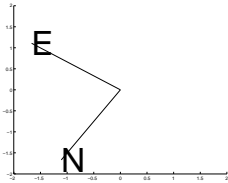
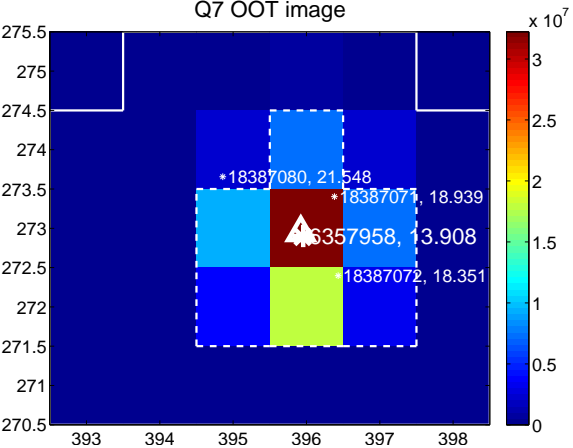
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image



Q8 no OOT image



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

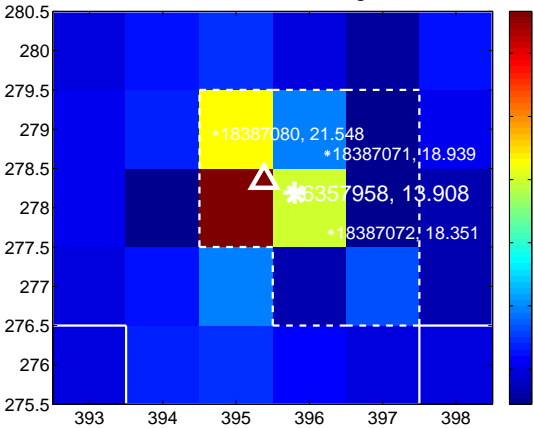
Q9 no difference image



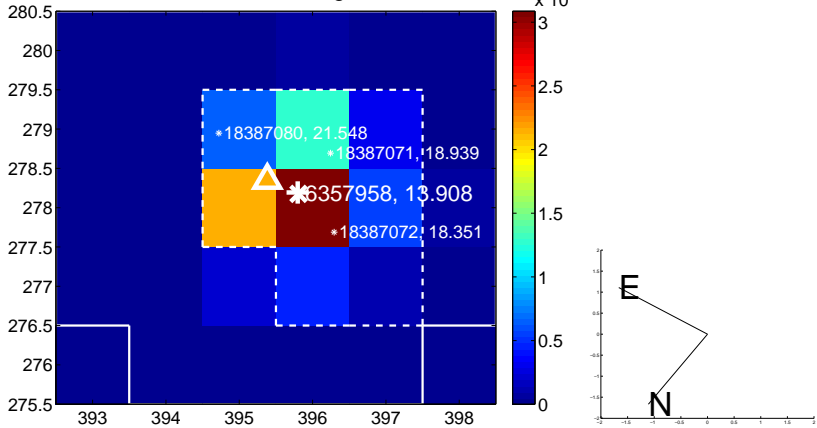
Q9 no OOT image



Q10 difference image



Q10 OOT image



Q11 no difference image



Q11 no OOT image



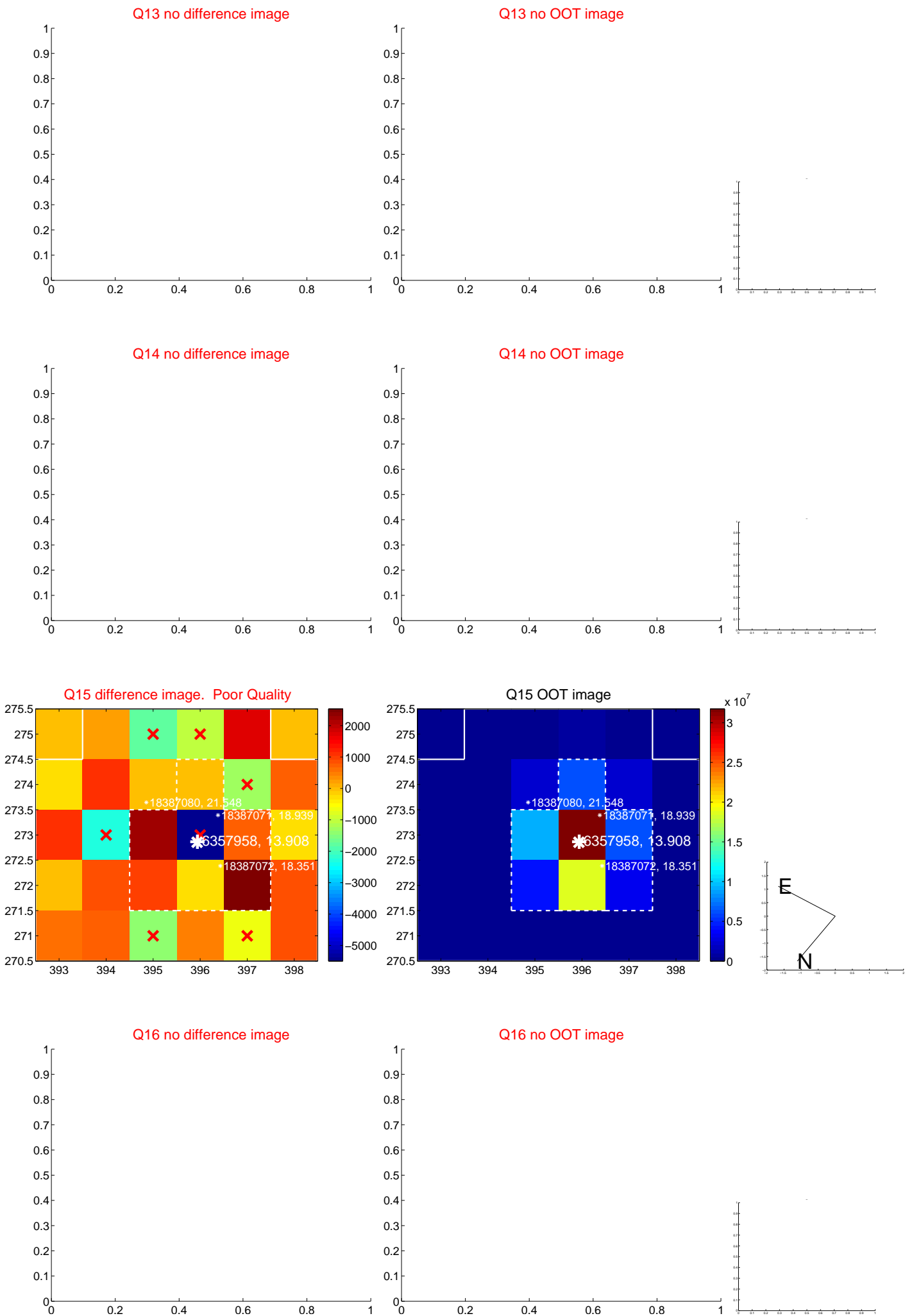
Q12 no difference image



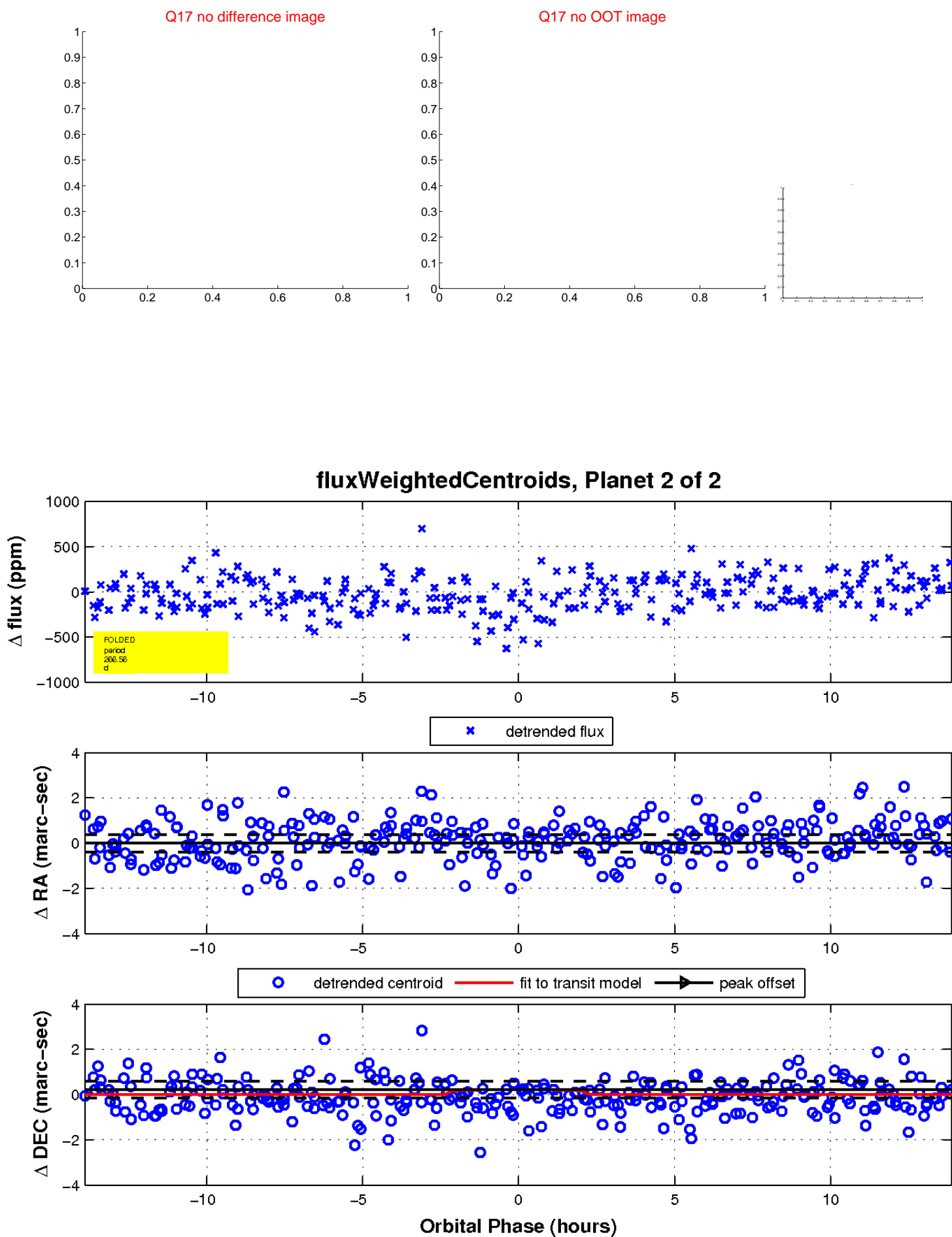
Q12 no OOT image



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

