

KIC 008715589

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})
008715589-01	OBS	5563.01	7.621968	138.660737	132.3	1.913	10.4	12.4	3.16	5222	3.88	967.08
008715589-02	OBS	No	0.544753	131.649468	11.5	2.852	8.9	4.5	3.16	5222	1.09	0.00
008715589-06	OBS	No	458.082496	579.732614	890.9	4.862	12.1	8.8	3.16	5222	9.72	4.11
008715589-07	OBS	No	323.029247	344.393154	798.6	4.661	11.4	9.3	3.16	5222	11.06	6.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008715589-01	OBS	PC	0.65	0	0	0	0	NO_COMMENT
008715589-02	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
008715589-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008715589-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

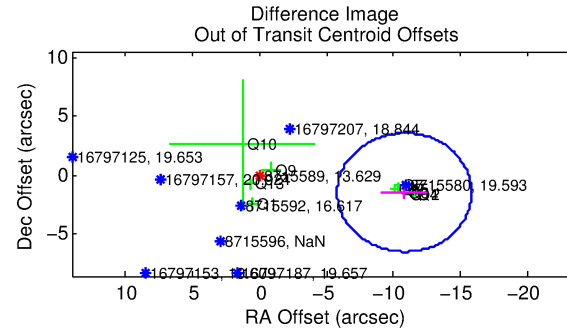
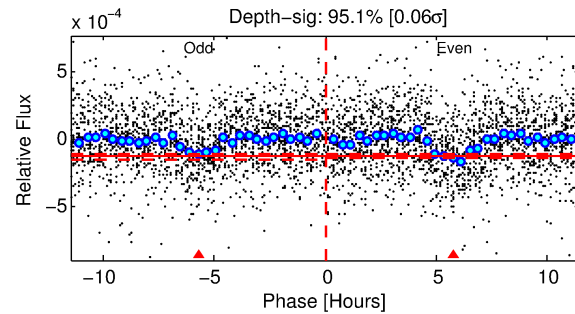
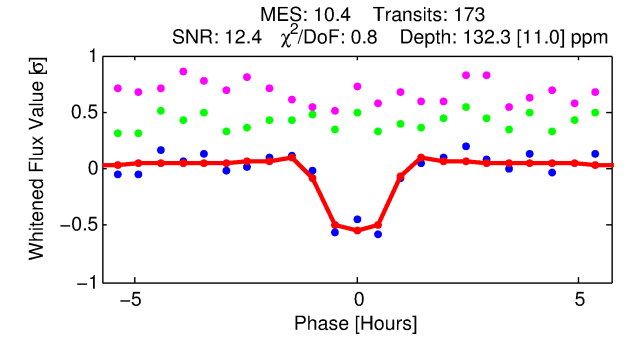
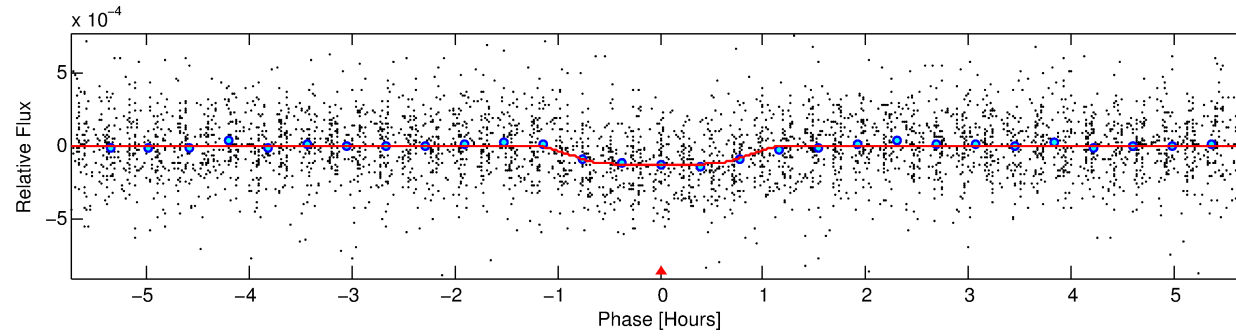
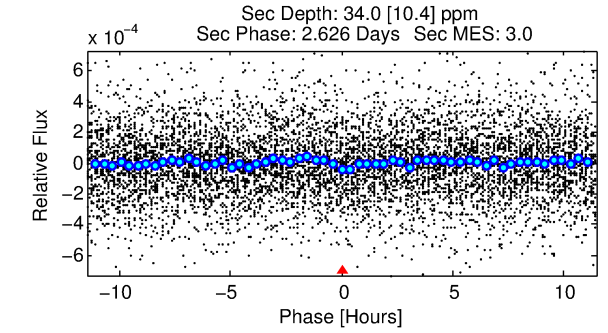
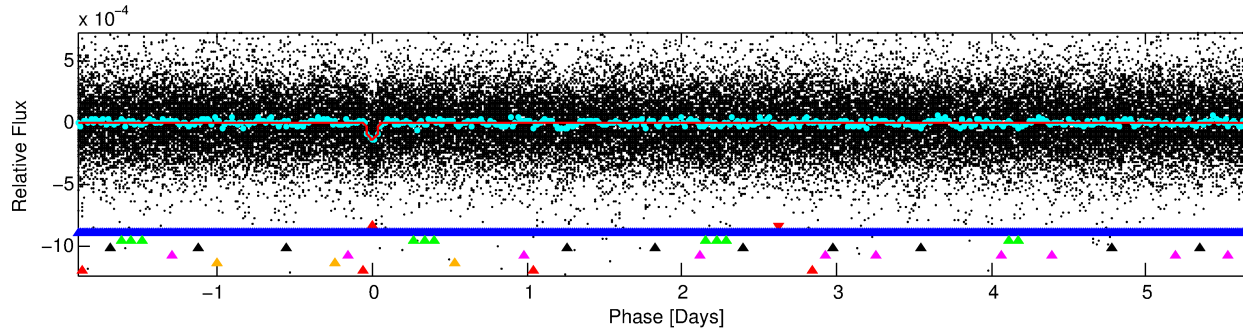
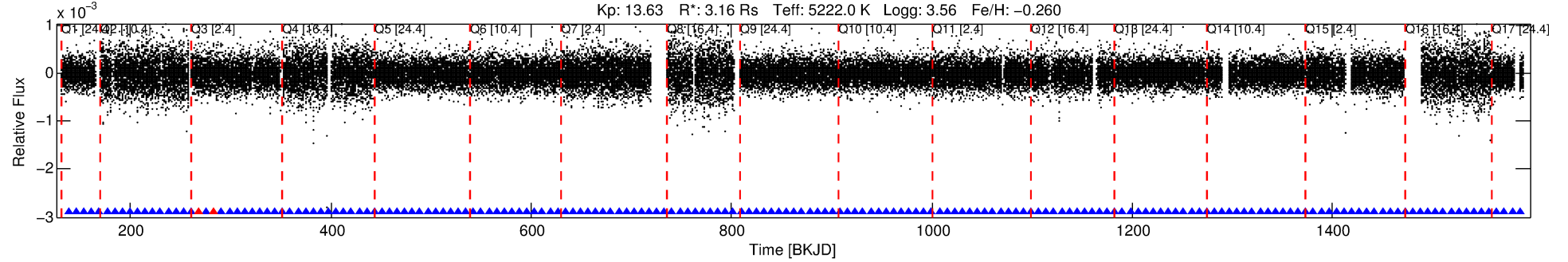
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008715589-01

No Significant Match Found

DV One-Page Summary

KIC: 8715589 Candidate: 1 of 7 Period: 7.622 d
KOI: K05563.01 Corr: 0.946



DV Fit Results:

Period = 7.62197 [0.00003] d
Epoch = 138.6607 [0.0032] BKJD
Rp/R* = 0.0113 [0.0046]
a/R* = 22.34 [35.16]
b = 0.70 [1.19]
Seff = 967.08 [1464.12]
Teq = 1422 [538] K
Rp = 3.88 [3.11] Re
a = 0.0830 [0.0707] AU
Ag = 8.54 [14.88] [0.51σ]
Teffp = 3759 [829] K [2.36σ]

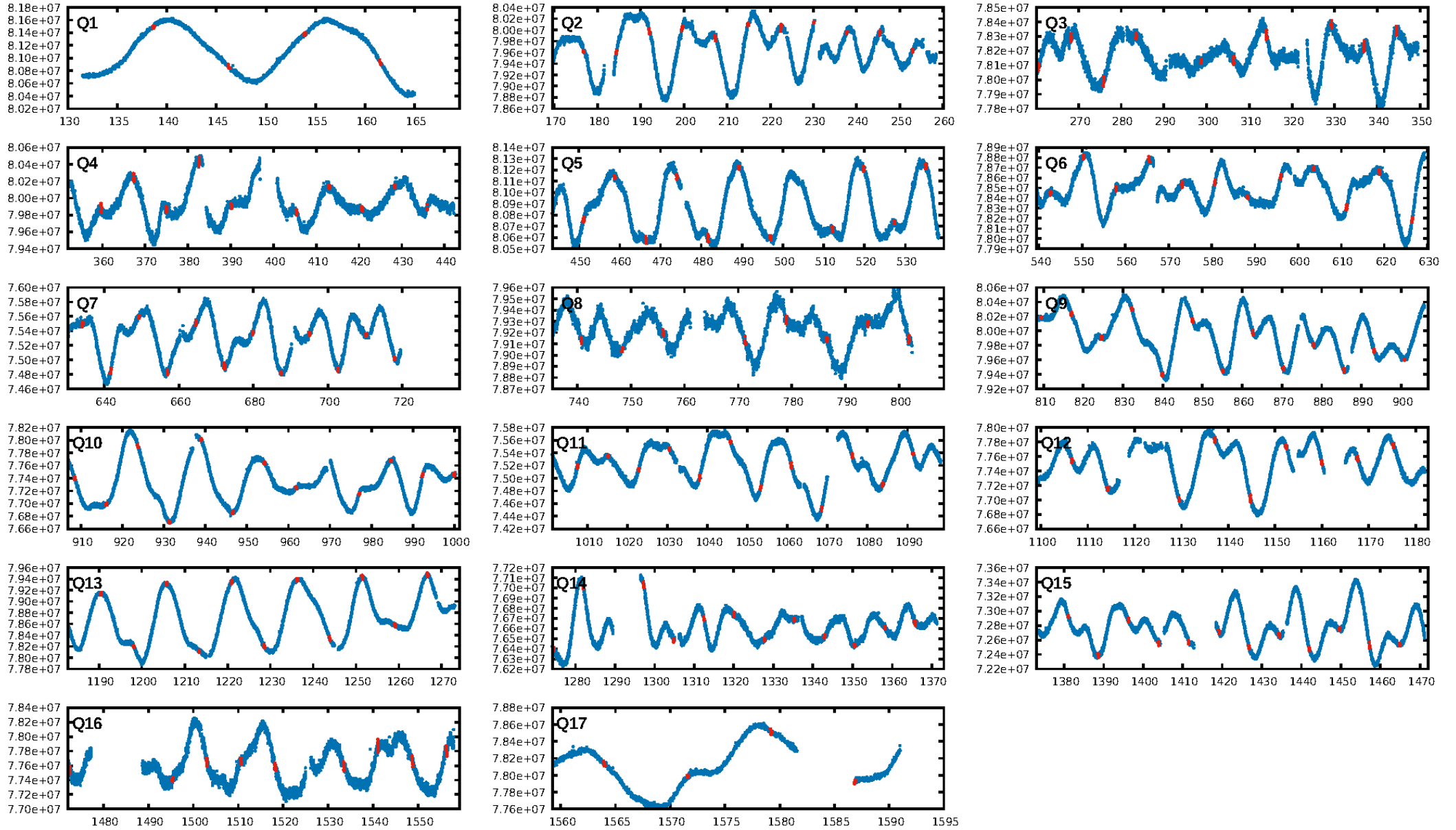
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [49.45σ]
LongPeriod-sig: 100.0% [633.30σ]
ModelChiSquare2-sig: 99.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [163/165]
GhostDiagnostic-chr: -6.782
Centroid-sig: 8.8%
Centroid-so: 0.855 arcsec [1.04σ]
OotOffset-rm: 10.912 arcsec [6.52σ]
KicOffset-rm: 10.929 arcsec [6.31σ]
OotOffset-st: 3/2/2/3 [10]
KicOffset-st: 3/2/2/3 [10]
DiffImageQuality-fgm: 0.70 [7/10]
DiffImageOverlap-fno: 0.00 [0/17]

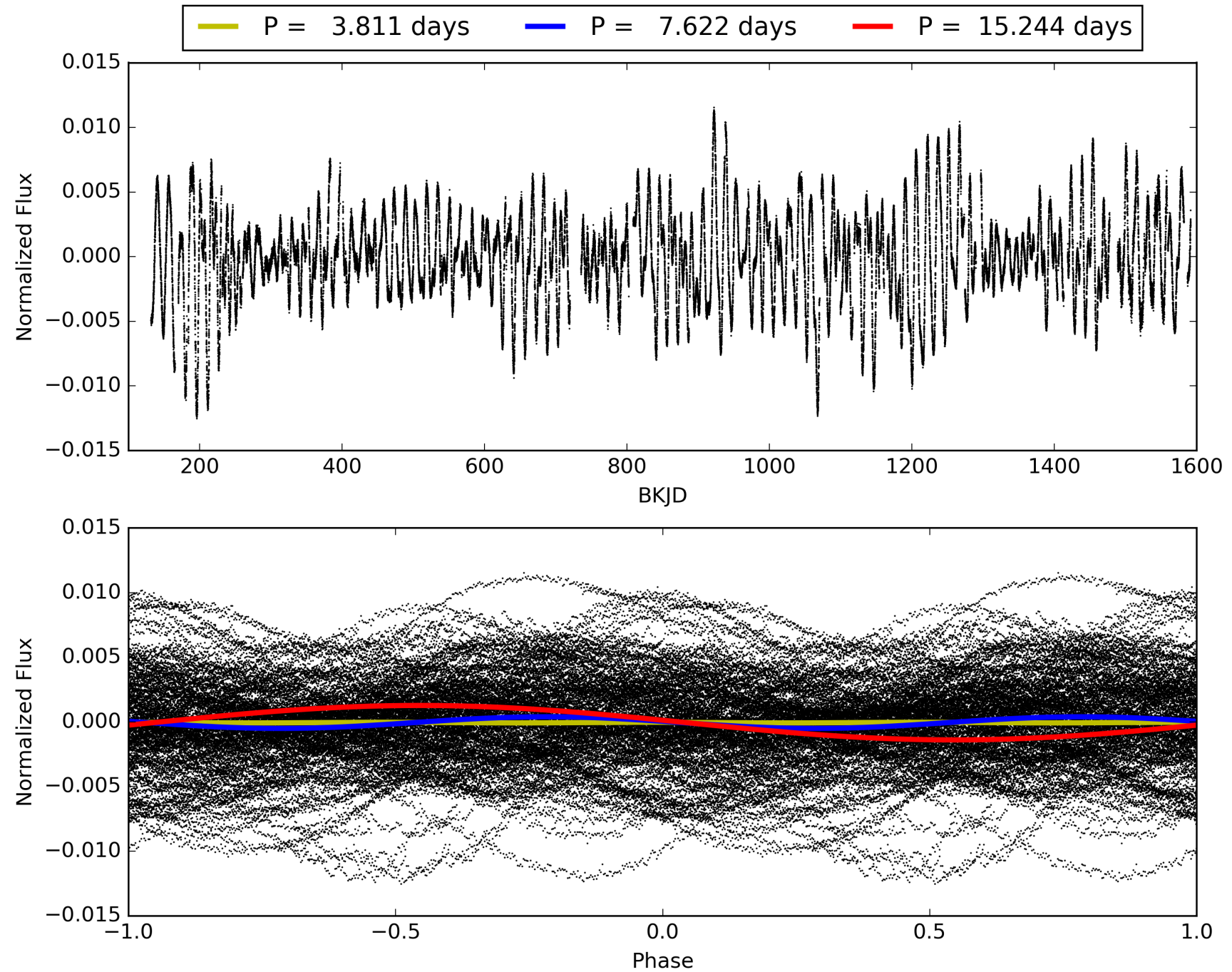
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:58:32 Z

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

TCE 008715589-01, PDC Light Curves

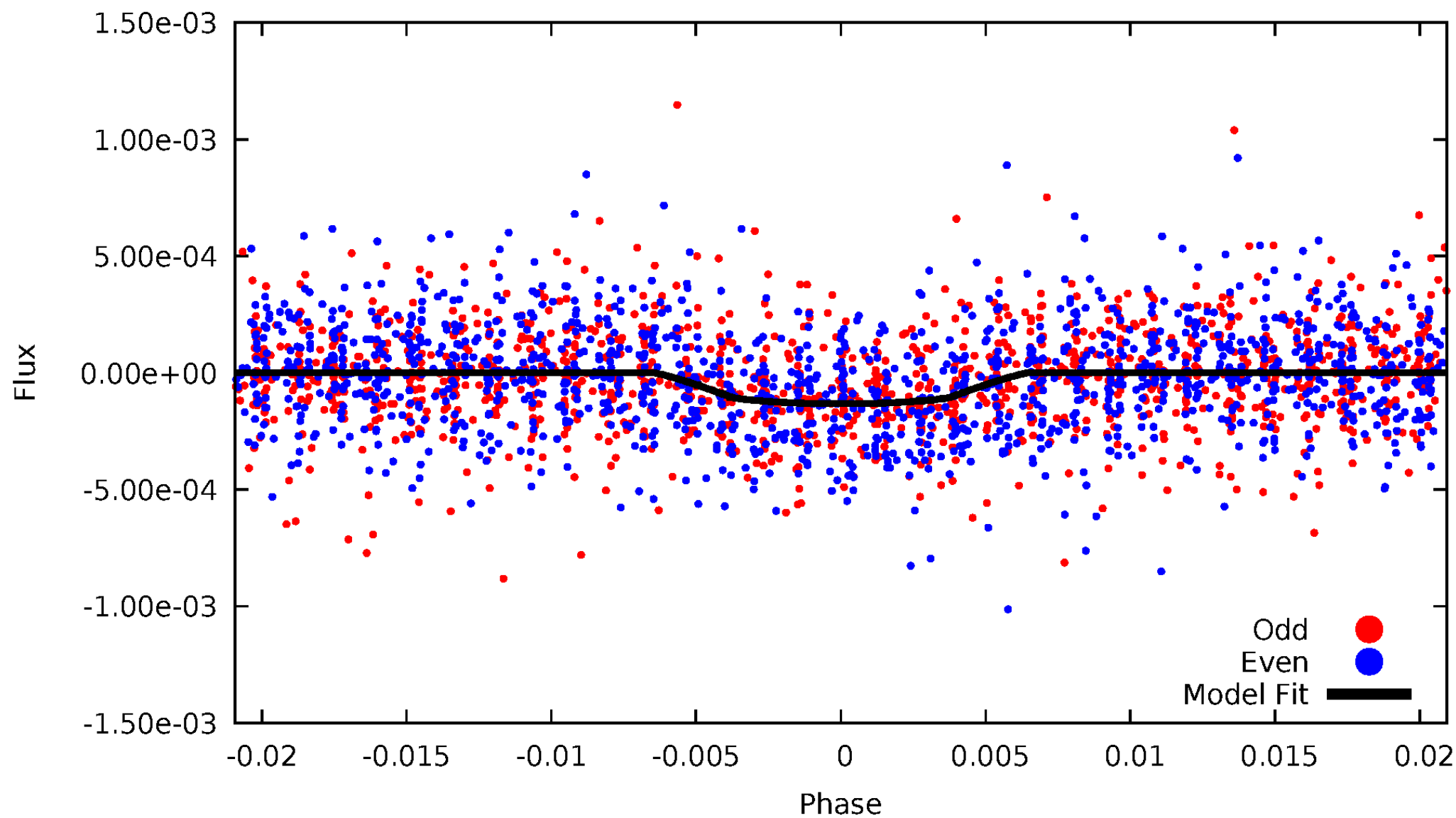


TCE 008715589-01



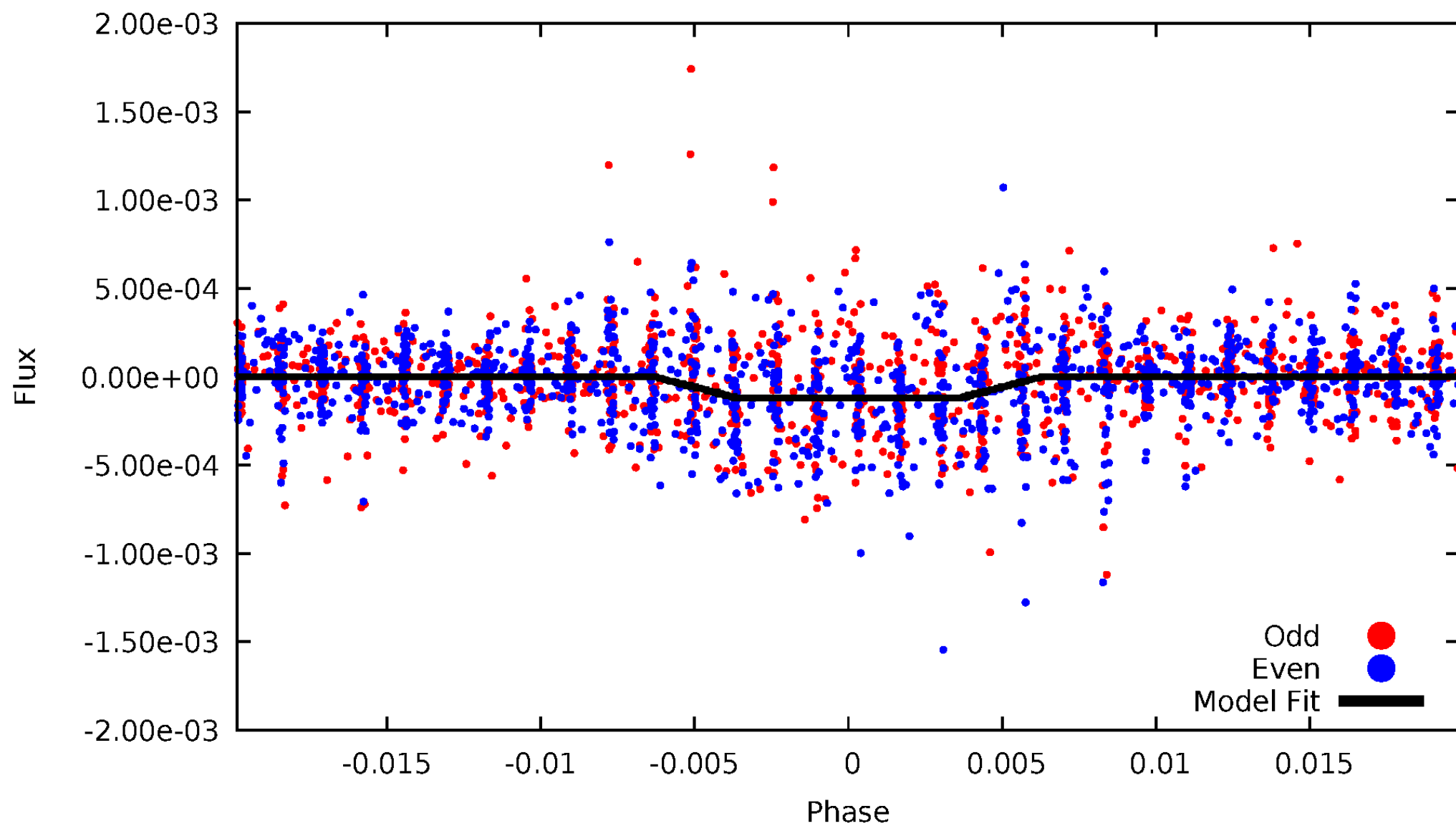
DV Odd/Even

TCE 008715589-01



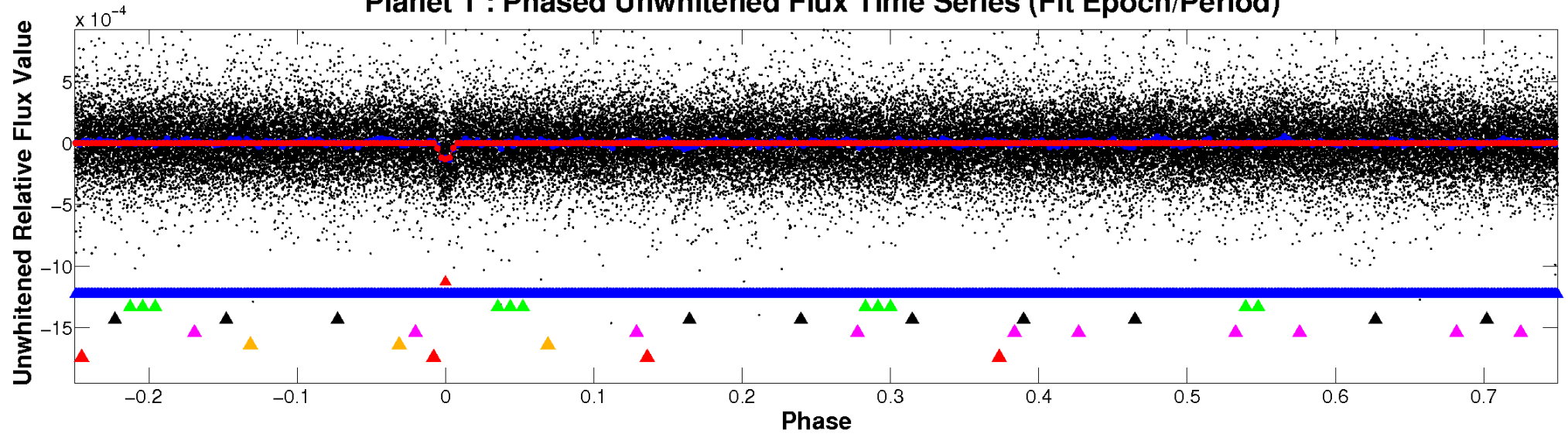
ALT Odd/Even

TCE 008715589-01

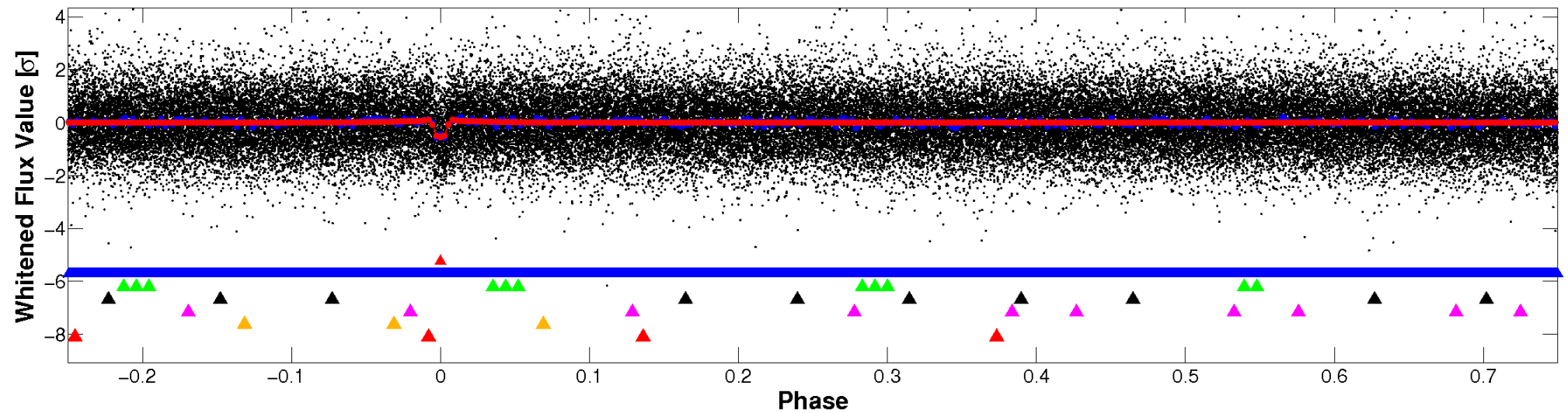


Non-Whitened Vs. Whitened Light Curve

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

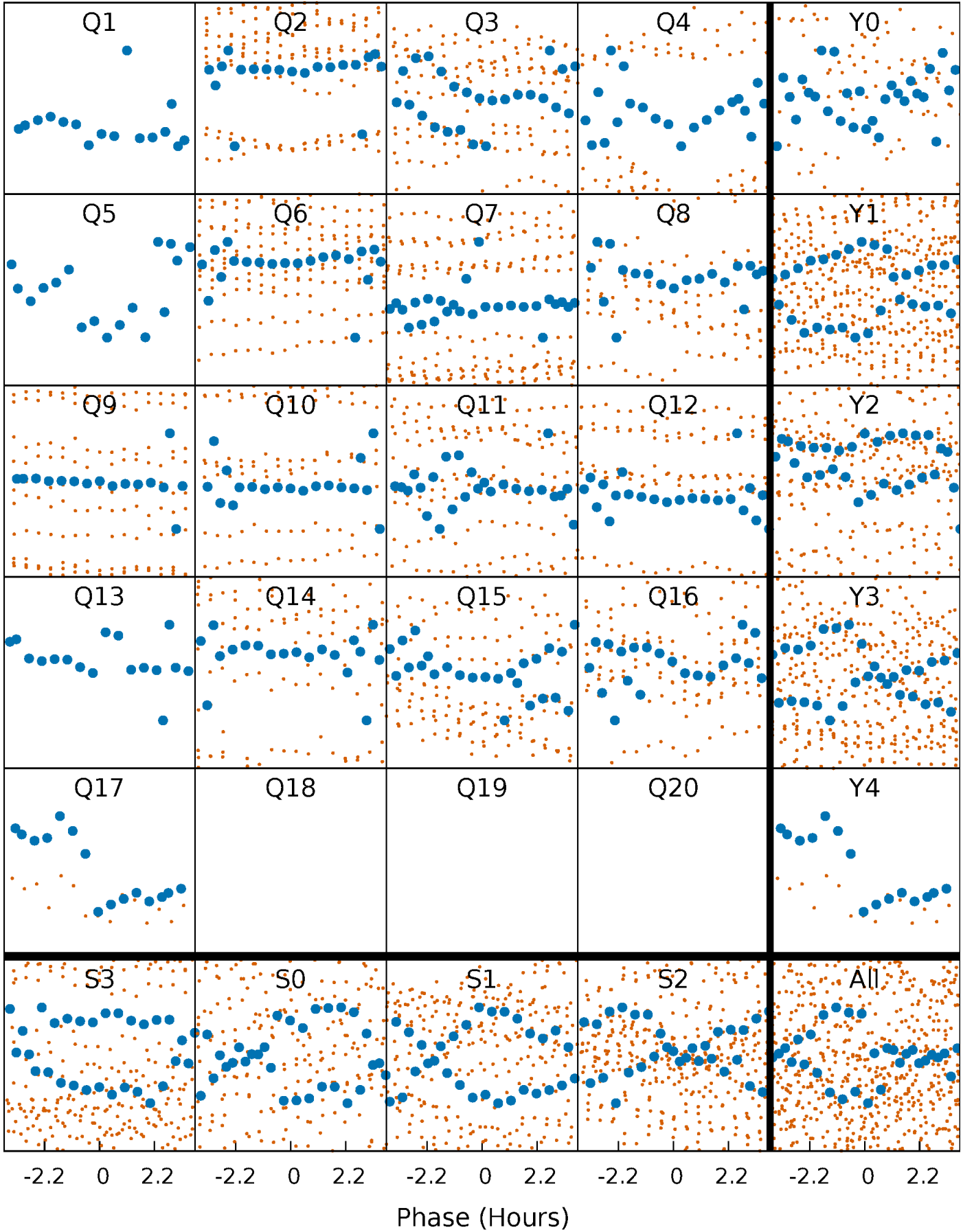


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



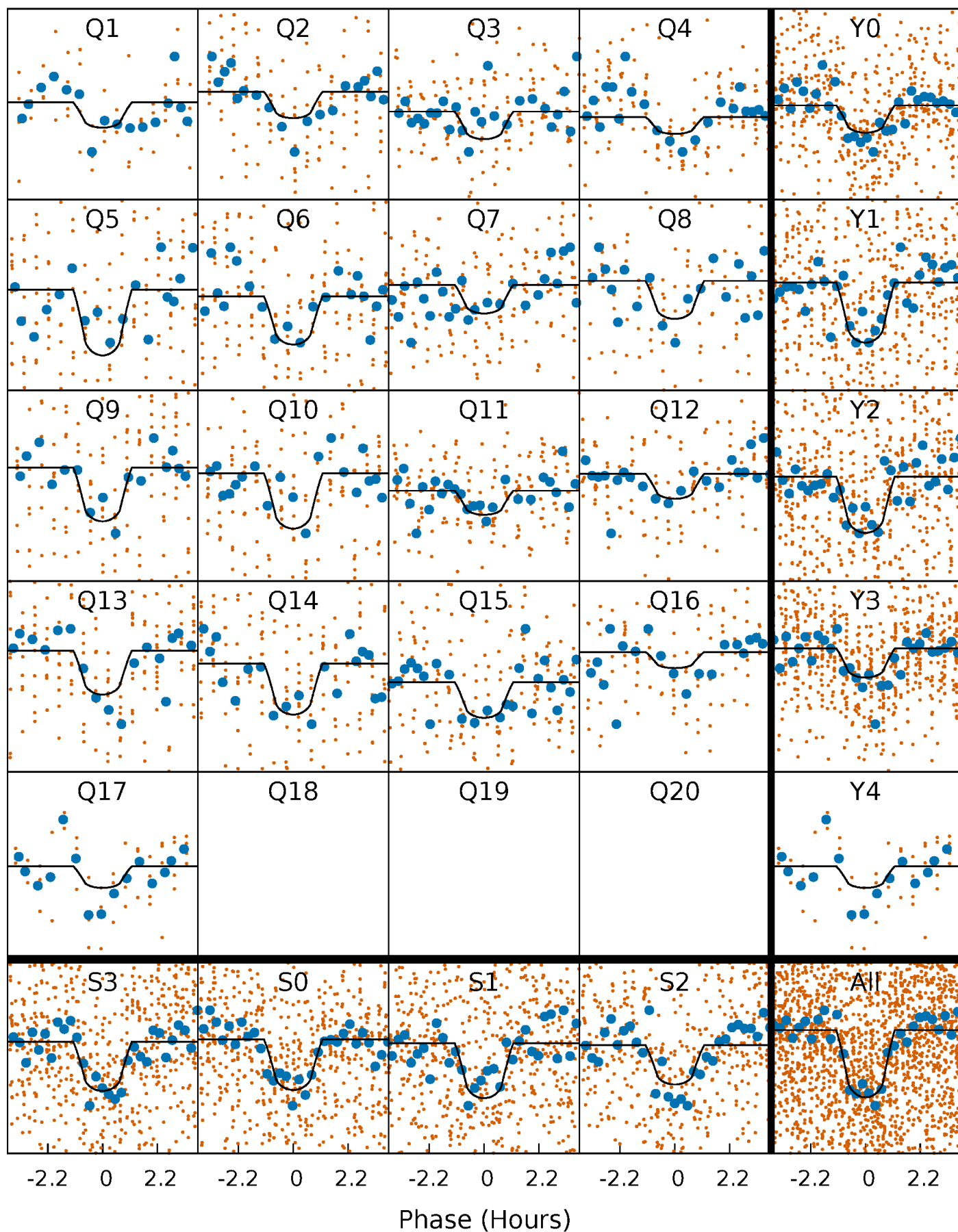
PDC Quarter-Phased Transit Curves

TCE 008715589-01 P= 7.621968 Days $T_0=138.660737$ (BKJD)



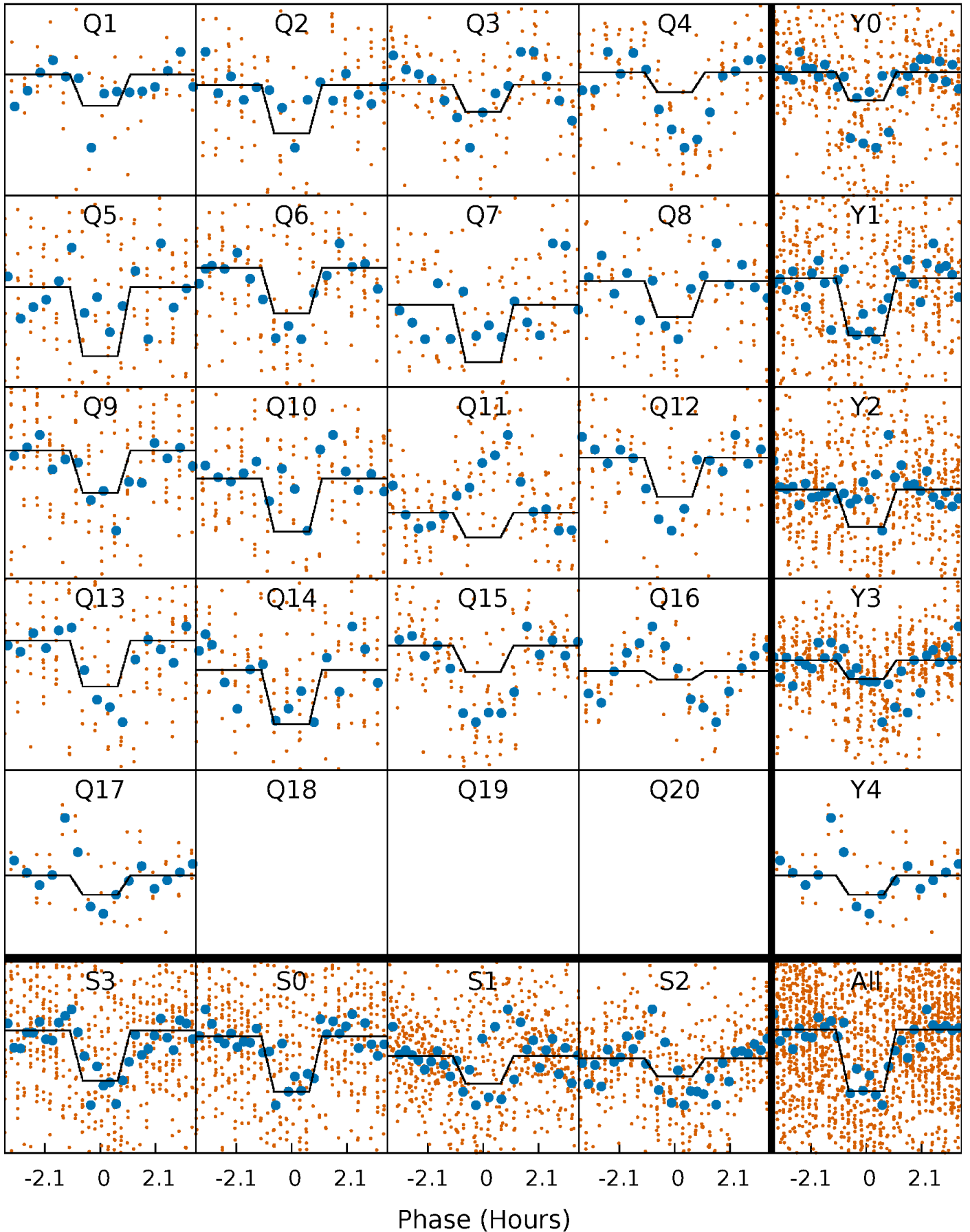
DV Quarter-Phased Transit Curves

TCE 008715589-01 P= 7.621968 Days $T_0=138.660737$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

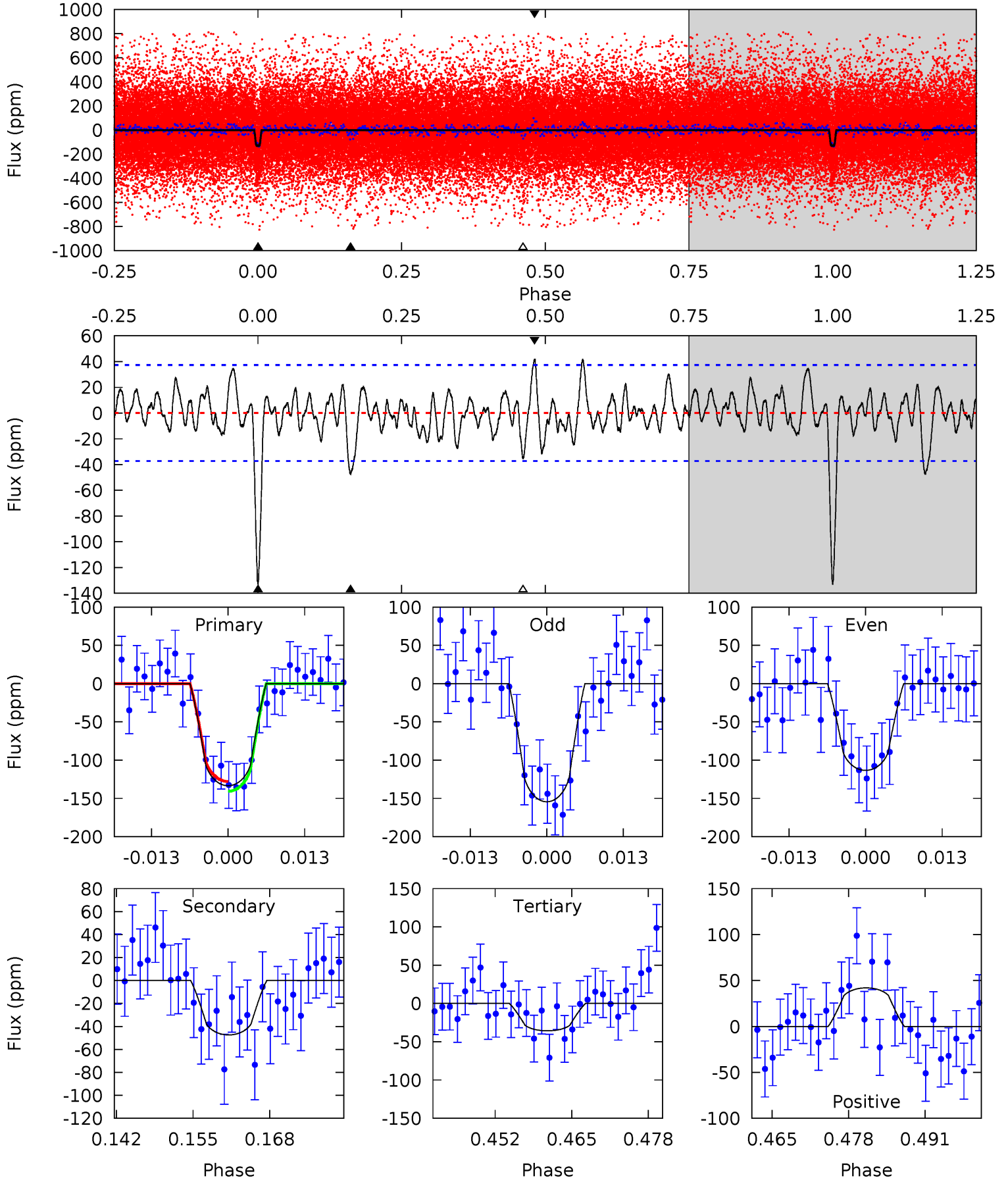
TCE 008715589-01 P= 7.621944 Days $T_0=138.660961$ (BKJD)



DV Model-Shift Uniqueness Test

008715589-01, P = 7.621968 Days, E = 131.038769 Days

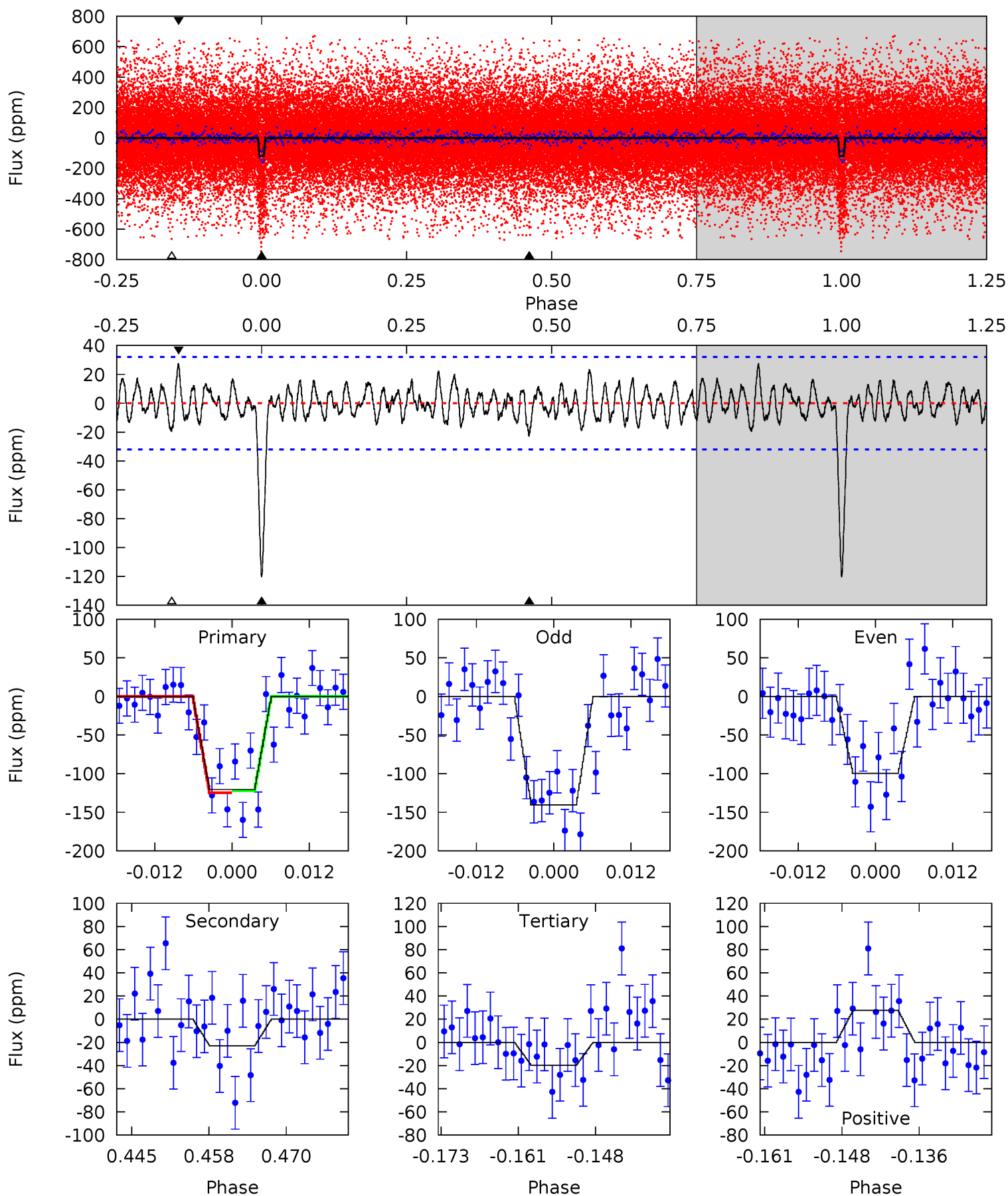
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	6.34	4.78	5.61	4.98	2.49	1.69	13.1	12.2	1.56	0.73	2.76	0.91	0.24	0.86



Alt Model-Shift Uniqueness Test

008715589-01, P = 7.621944 Days, E = 131.039017 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.8	3.59	3.08	4.31	4.99	2.50	1.35	15.7	14.5	0.51	-0.71	3.20	1.01	0.19	0.24



Stellar Parameters For KIC 008715589

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5222^{+173}_{-157}	$3.556^{+0.936}_{-0.234}$	$-0.260^{+0.300}_{-0.250}$	$3.162^{+1.003}_{-2.174}$	$1.312^{+0.173}_{-0.433}$	$0.058^{+1.686}_{-0.033}$
	+3%/-3%	+26%/-7%	+115%/-96%	+32%/-69%	+13%/-33%	+2884%/-57%
Source	PHO1	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 008715589-01 / KOI 5563.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-47 ± 7	$3.50^{+2.09}_{-1.79}$	1951^{+214}_{-369}	4239^{+892}_{-527}	14^{+41}_{-9}
Alt.	-23 ± 6	$3.29^{+2.07}_{-1.65}$	1961^{+201}_{-405}	3784^{+806}_{-500}	$7.834^{+24.222}_{-4.998}$

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 $A_{obs} \gg 1.0$

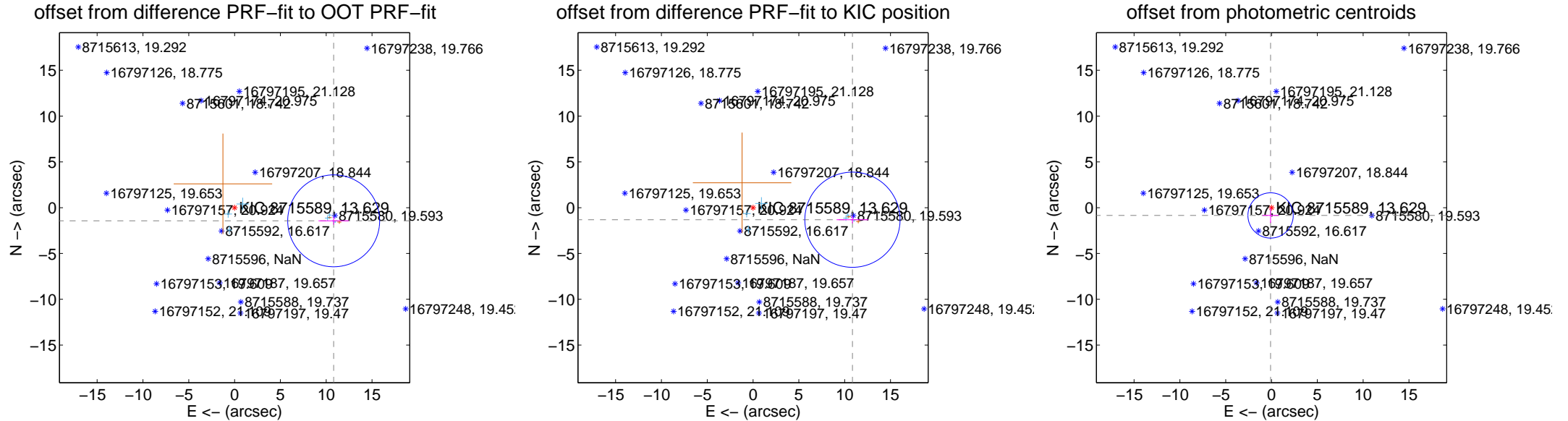
DV Centroid Data

Supplemental centroid analysis for 008715589-01. Kepler magnitude: 13.63. Transit SNR 12.41

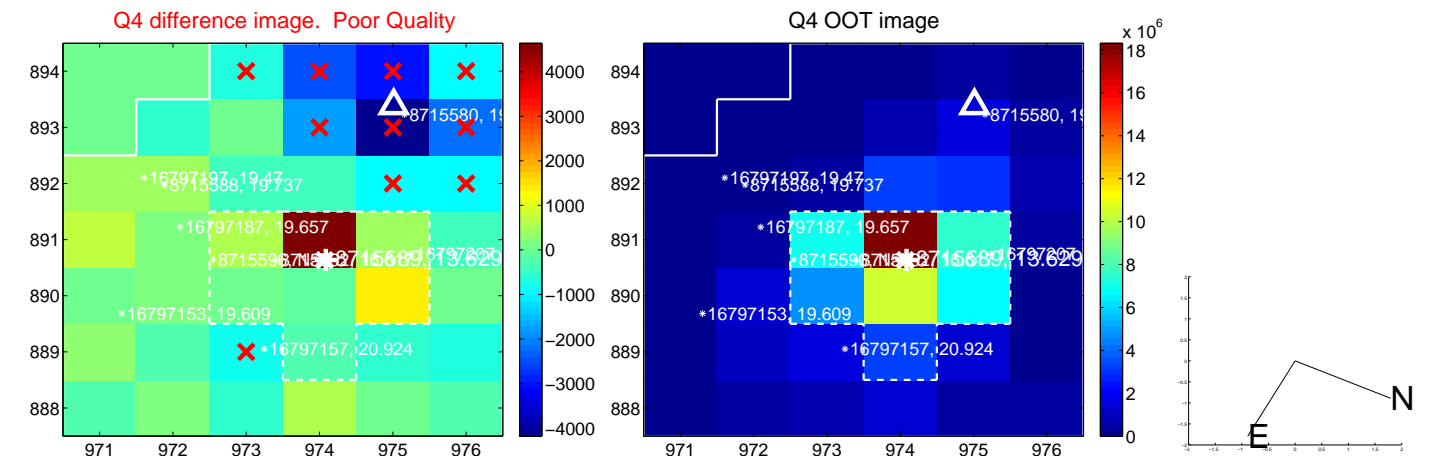
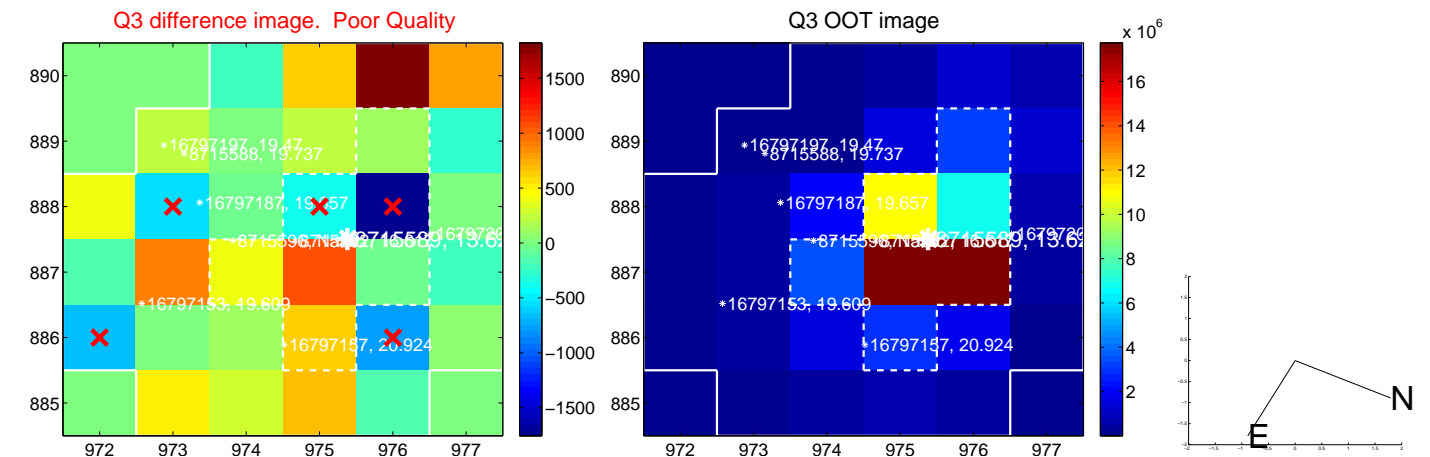
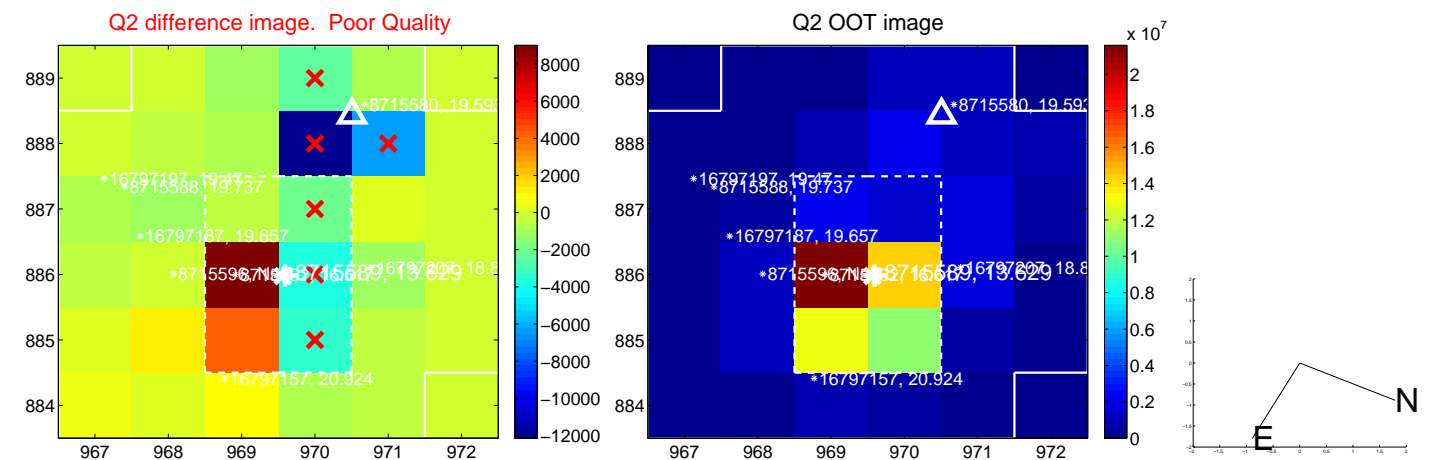
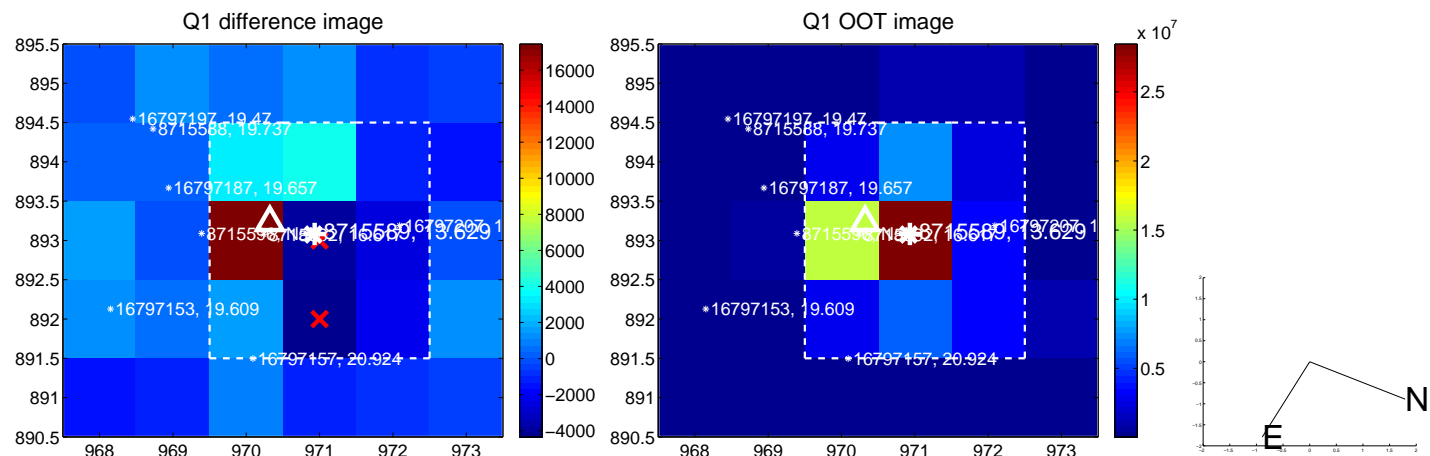
There are 7 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

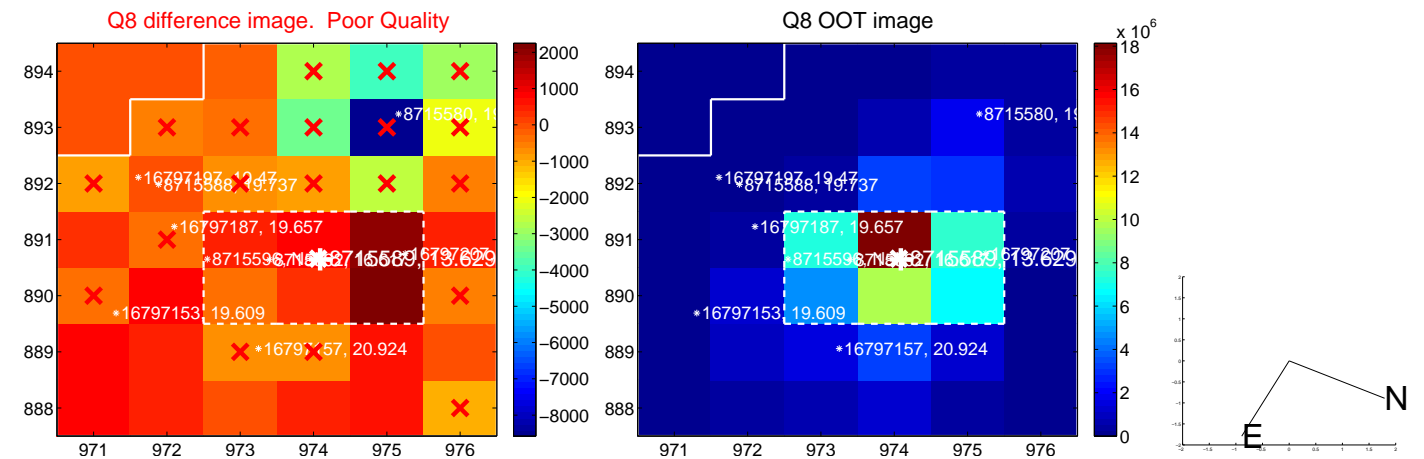
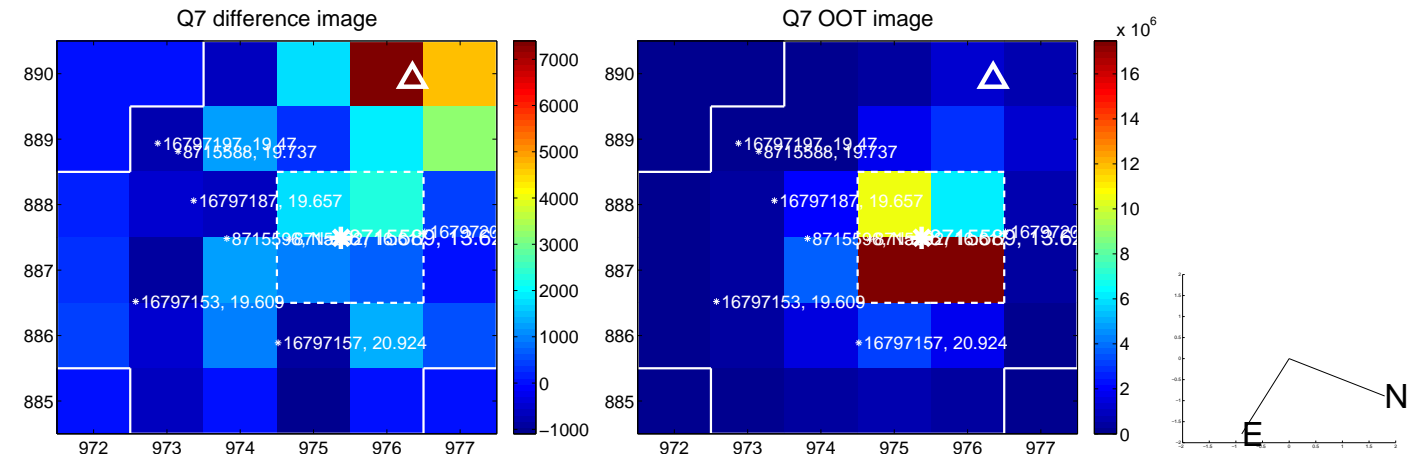
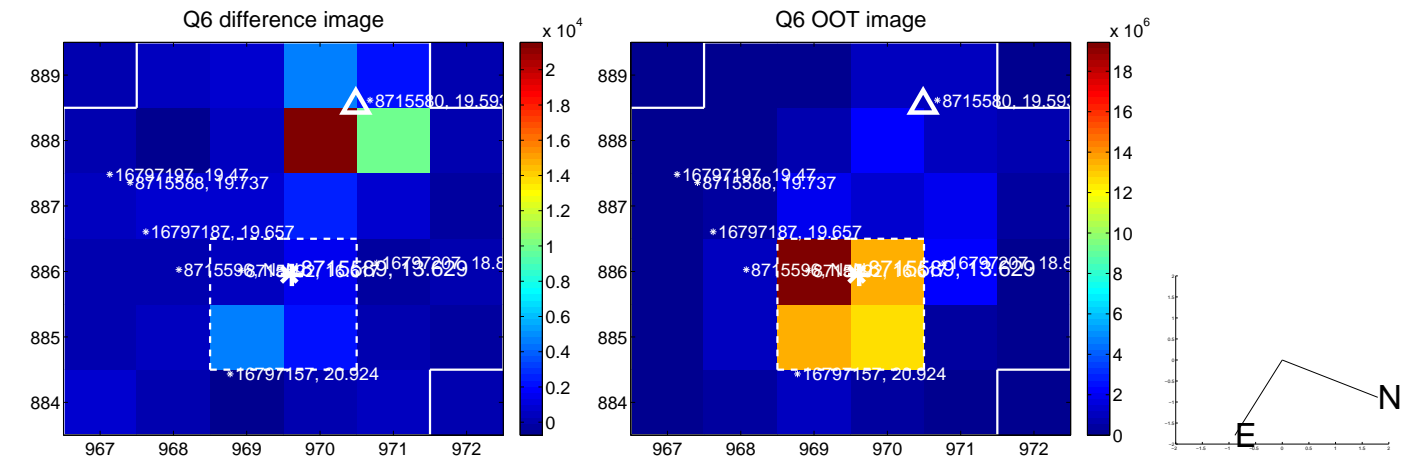
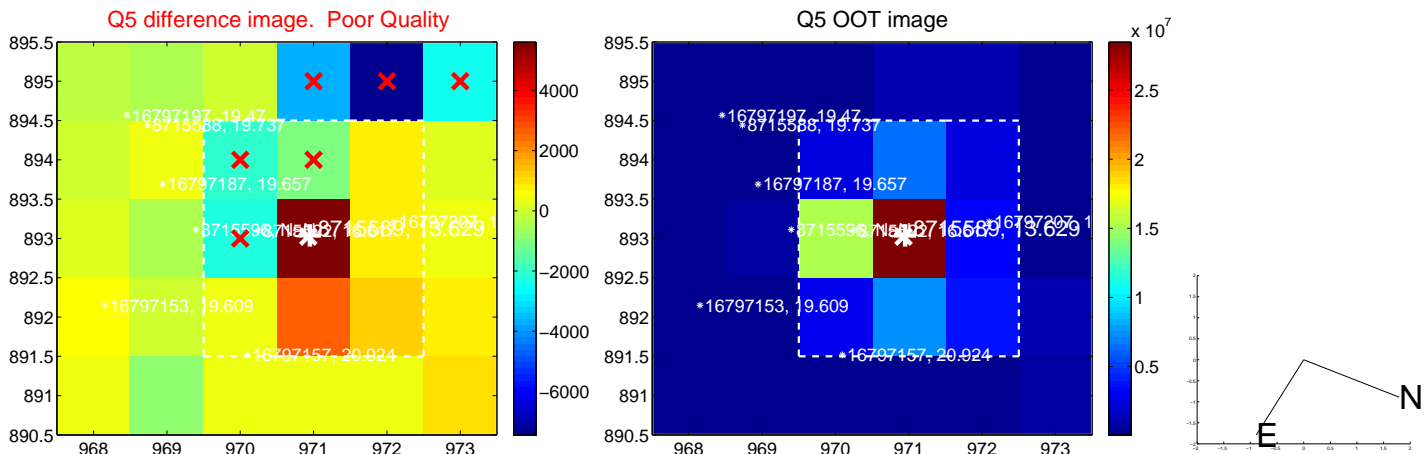
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.912 ± 1.672	6.52	-10.817 ± 1.658	-1.435 ± 0.428
PRF-fit source offset from KIC position	10.929 ± 1.732	6.31	-10.850 ± 1.728	-1.314 ± 0.398
photometric centroid source offset	0.85 ± 0.82	1.04	0.10 ± 0.88	-0.85 ± 0.82



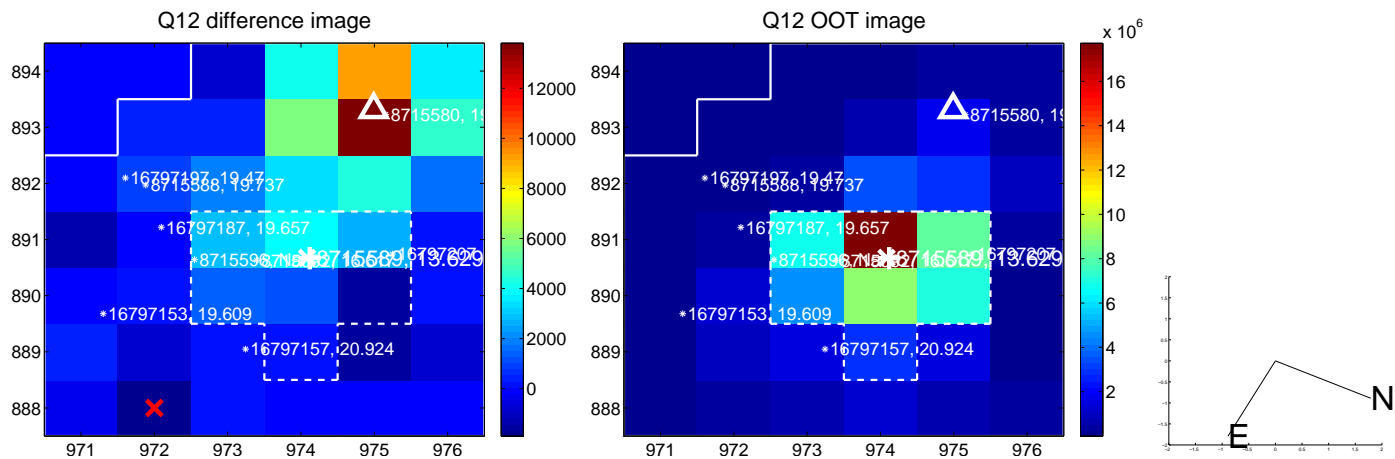
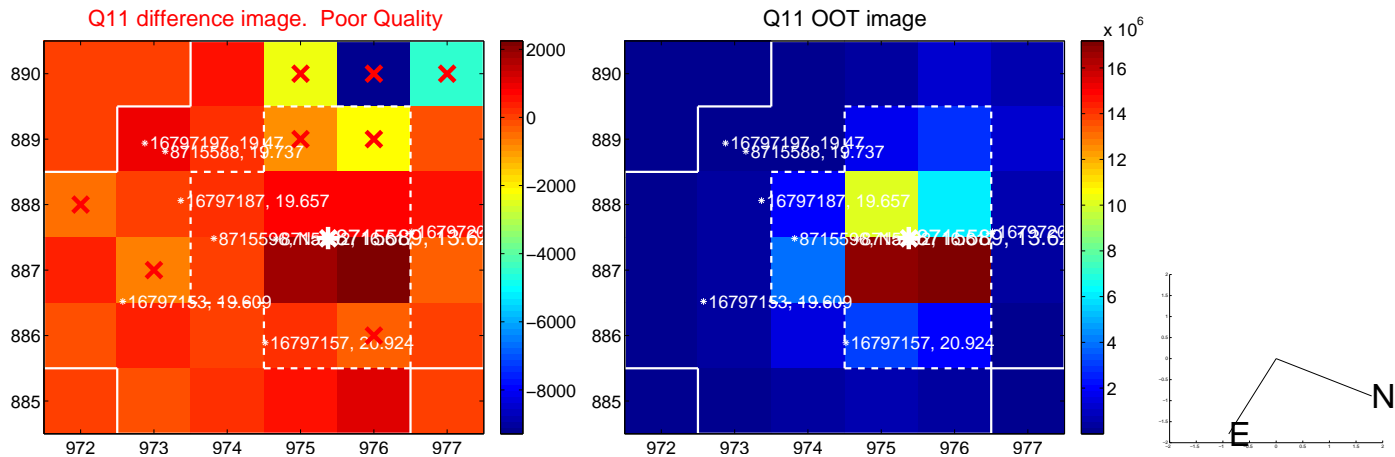
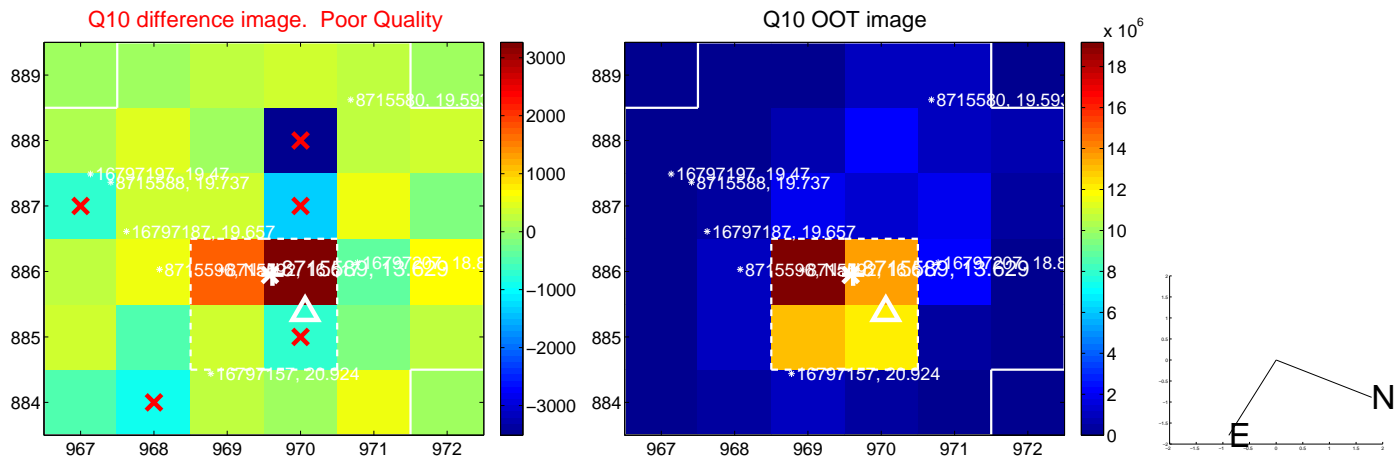
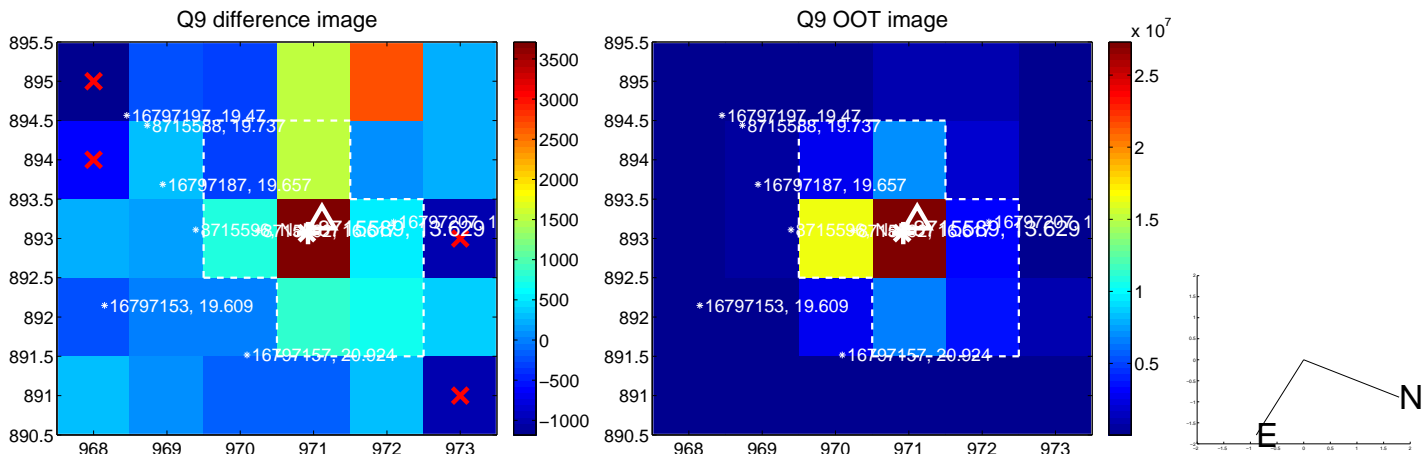
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



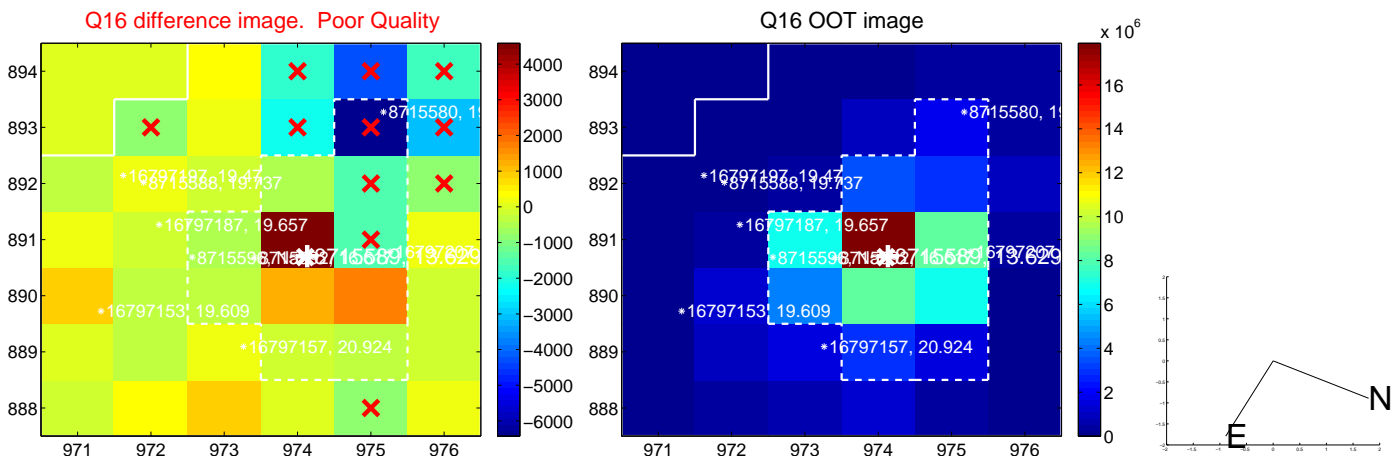
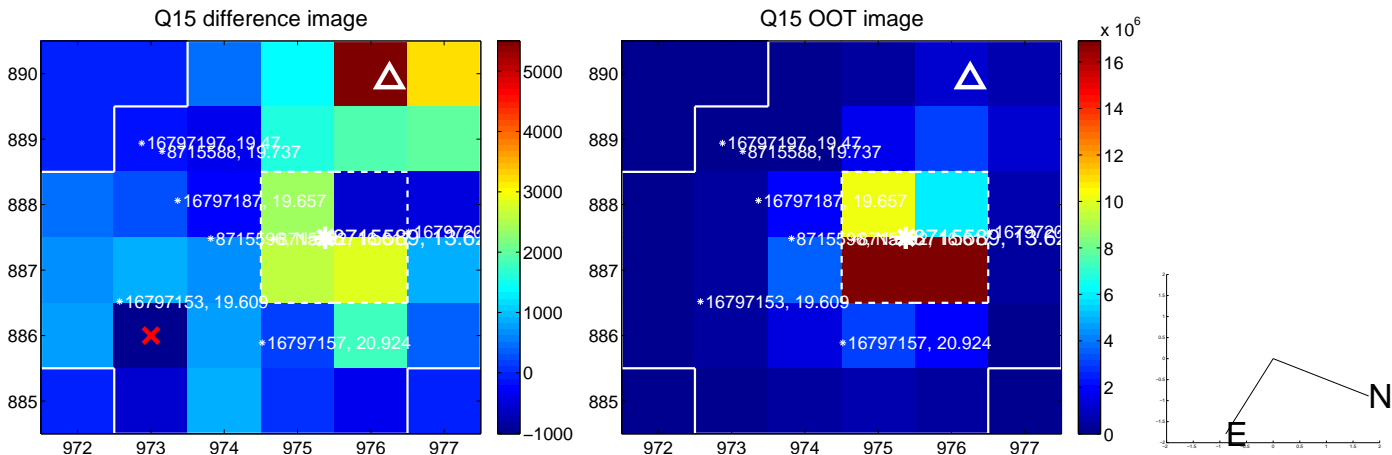
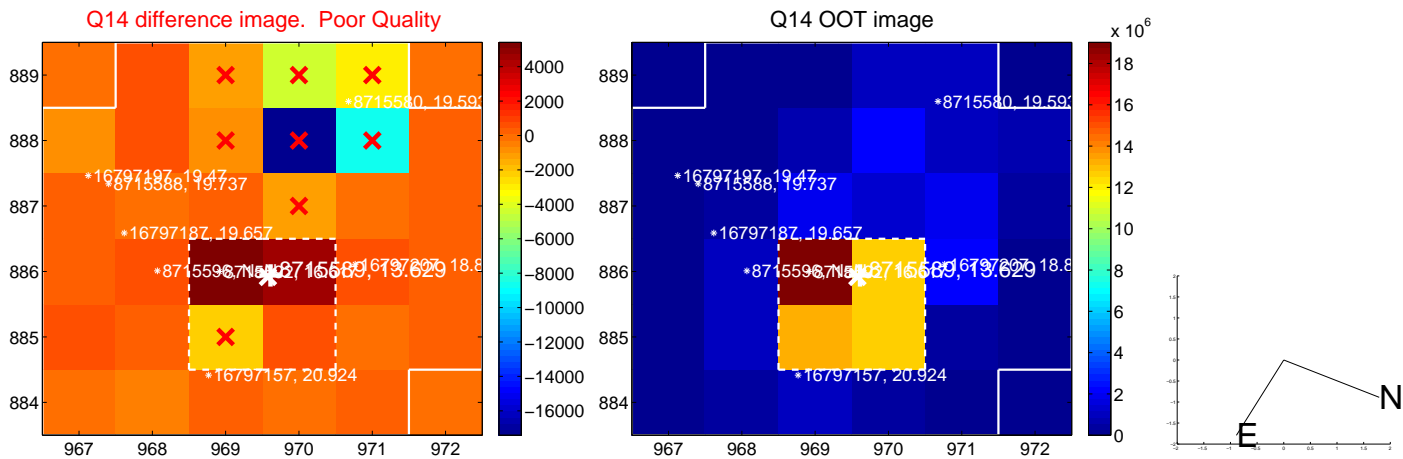
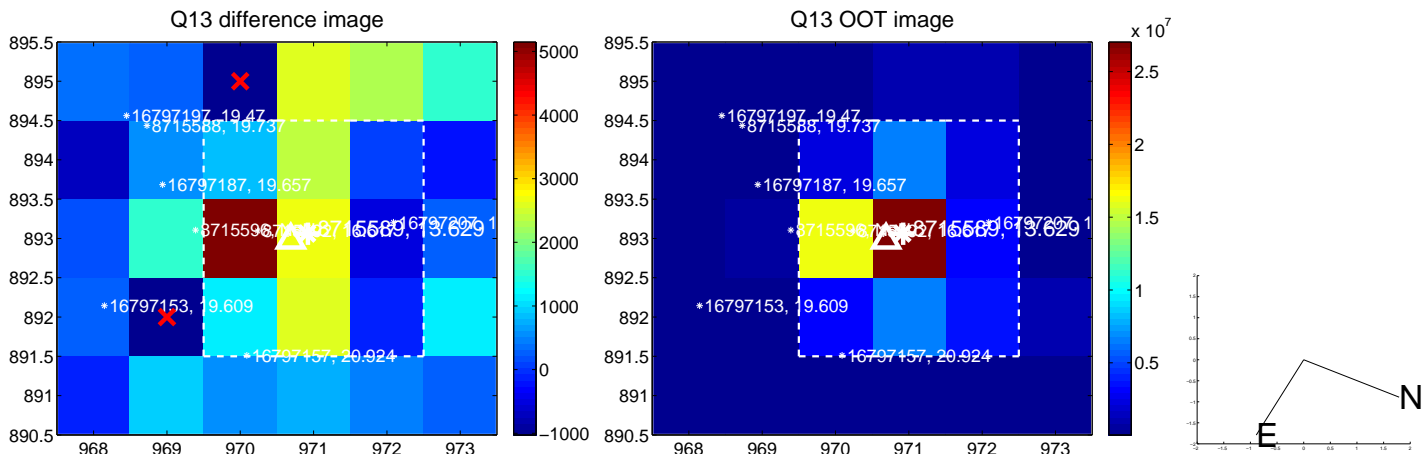
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



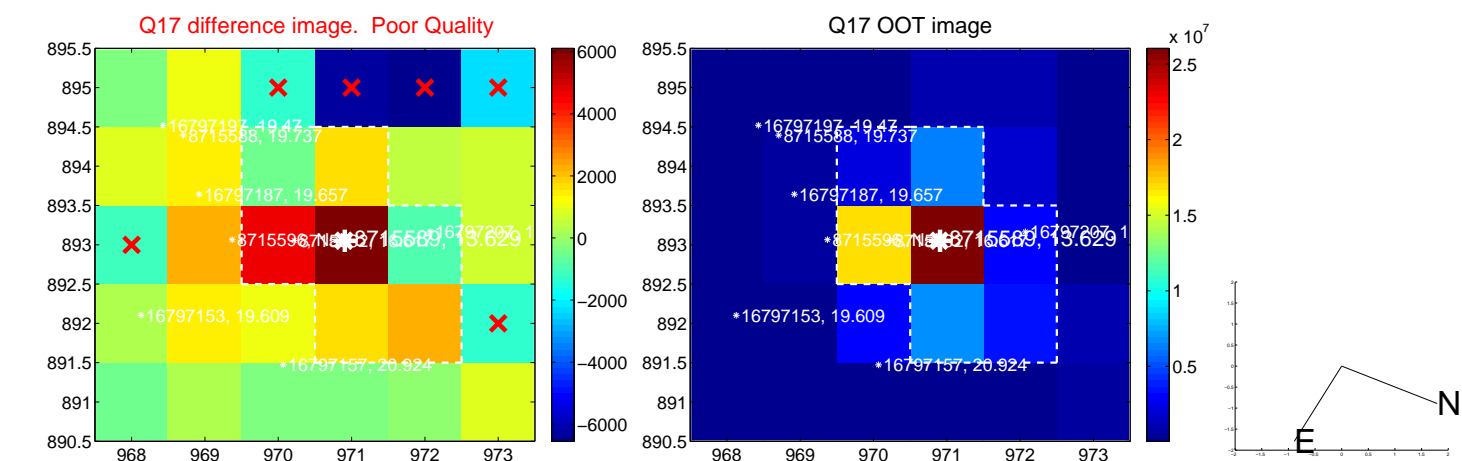
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



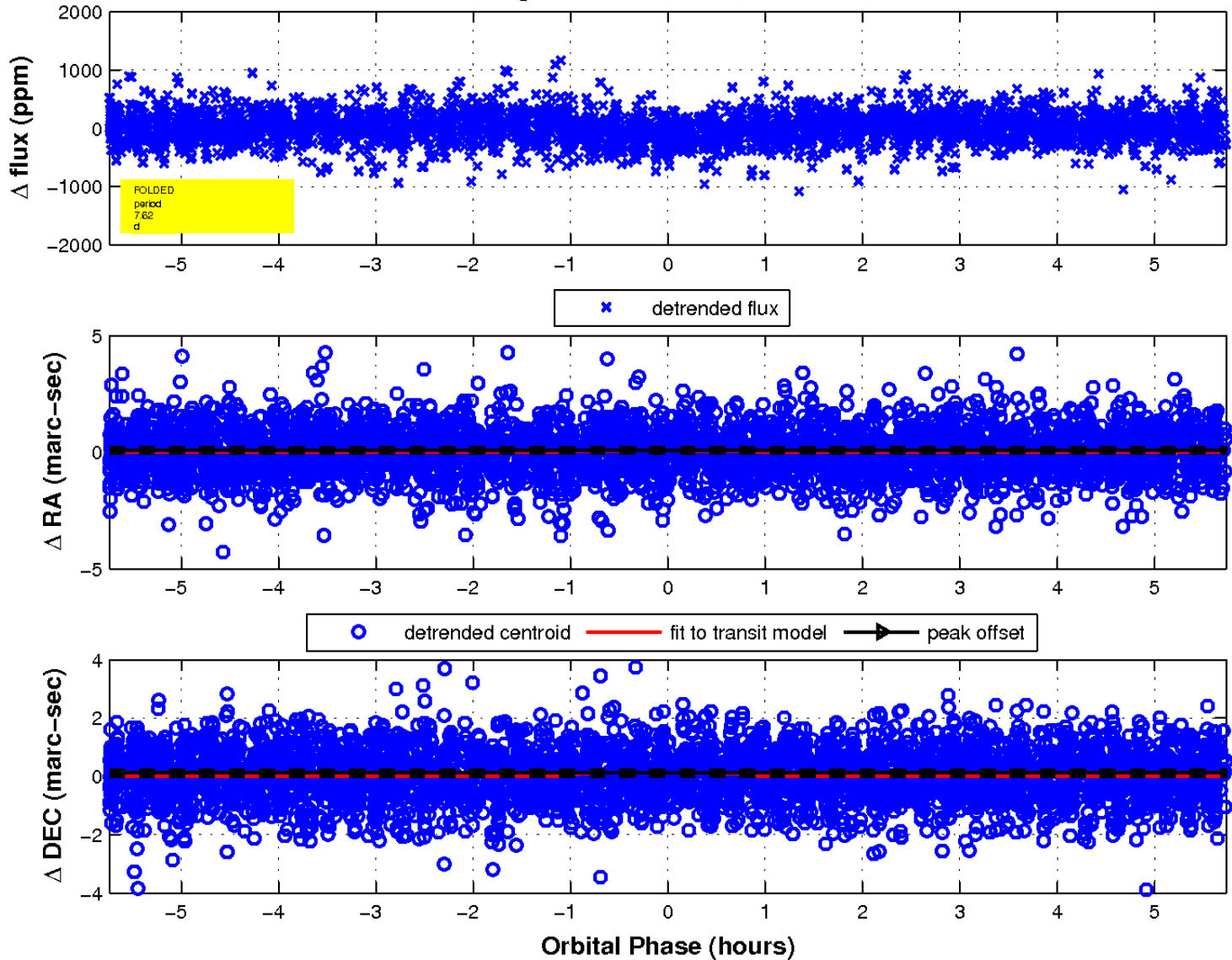
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



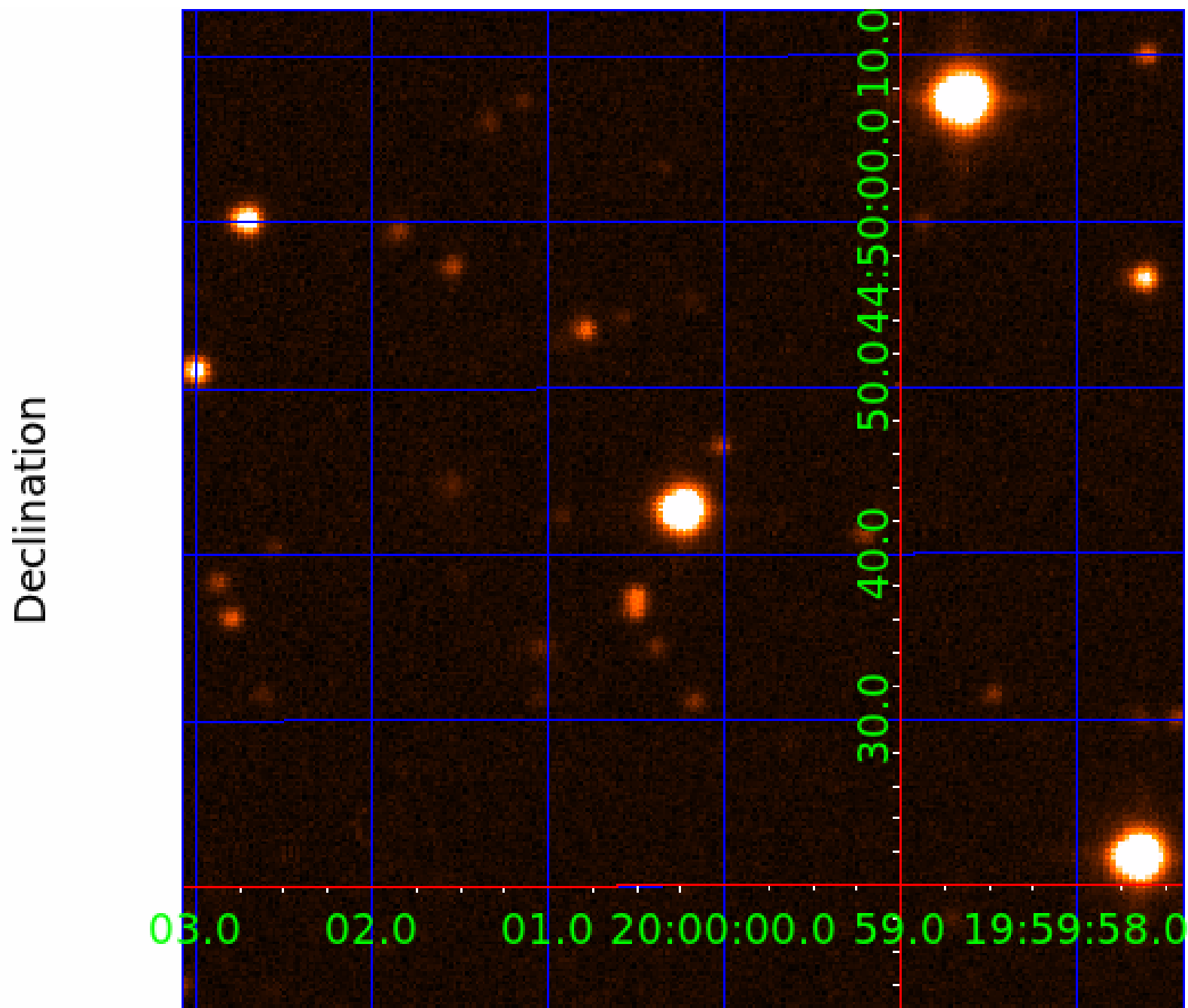
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 7



UKIRT Image



KIC 008715589

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})
008715589-01	OBS	5563.01	7.621968	138.660737	132.3	1.913	10.4	12.4	3.16	5222	3.88	967.08
008715589-02	OBS	No	0.544753	131.649468	11.5	2.852	8.9	4.5	3.16	5222	1.09	0.00
008715589-06	OBS	No	458.082496	579.732614	890.9	4.862	12.1	8.8	3.16	5222	9.72	4.11
008715589-07	OBS	No	323.029247	344.393154	798.6	4.661	11.4	9.3	3.16	5222	11.06	6.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008715589-01	OBS	PC	0.65	0	0	0	0	NO_COMMENT
008715589-02	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
008715589-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008715589-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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.

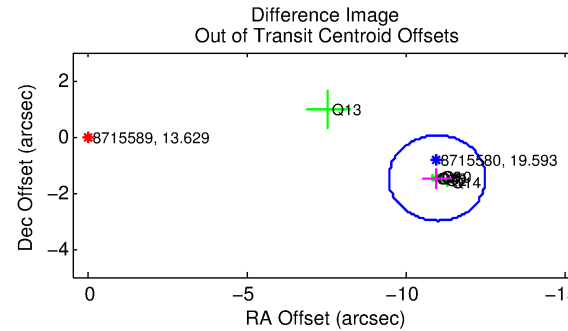
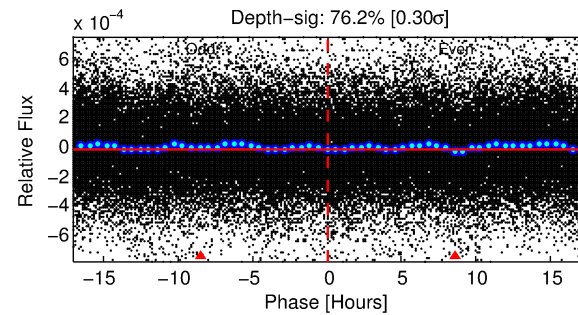
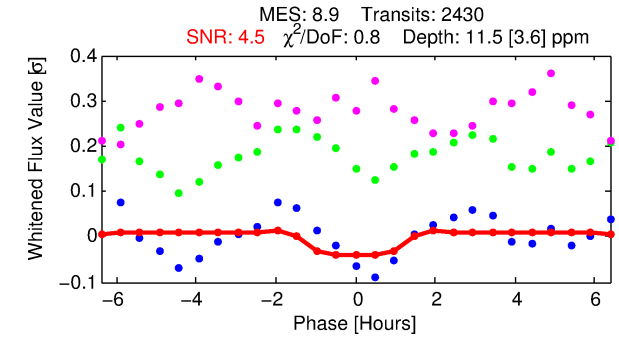
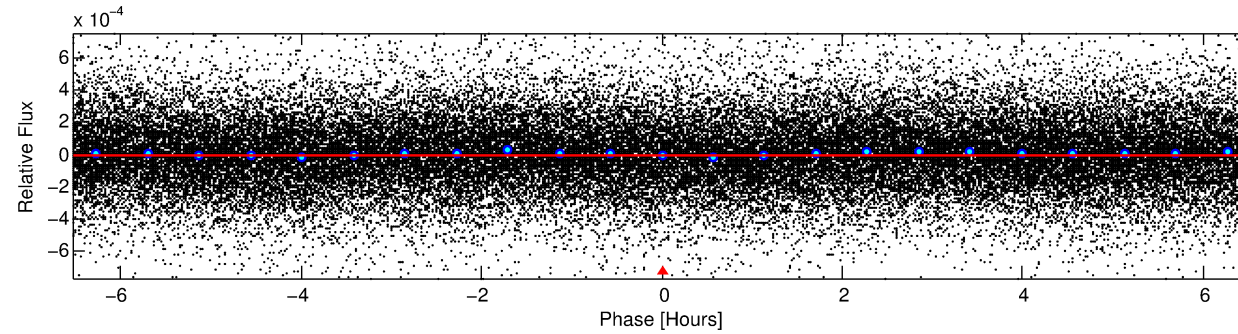
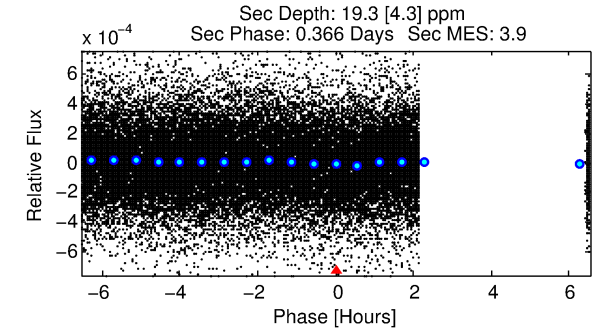
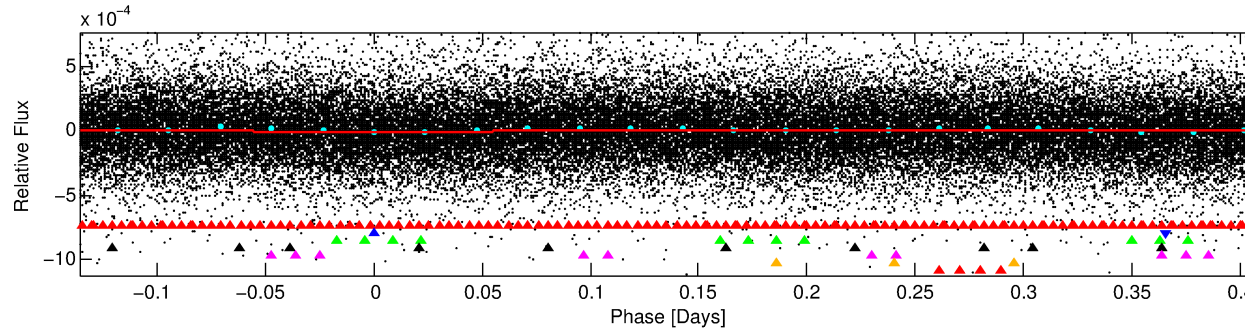
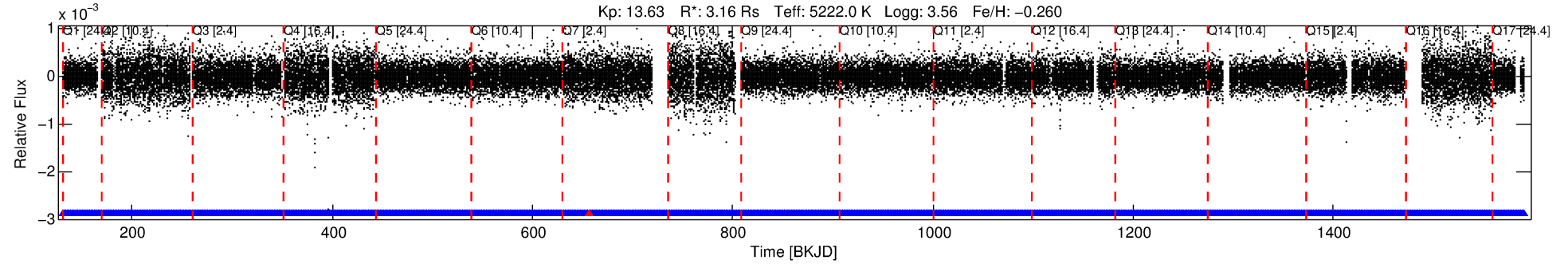
Ephemeris Match Information For 008715589-02

No Significant Match Found

DV One-Page Summary

KIC: 8715589 Candidate: 2 of 7 Period: 0.545 d
KOI: K05563 Corr: No Ephemeris Match

Kp: 13.63 R*: 3.16 Rs Teff: 5222.0 K Logg: 3.56 Fe/H: -0.260



DV Fit Results:

Period = 0.54475 [0.00002] d
Epoch = 131.6495 [0.0064] BKJD
Rp/R* = 0.0032 [0.0029]
a/R* = 1.45 [2.69]
b = 0.52 [4.99]
Seff = N/A
Teq = N/A
Rp = 1.09 [1.26] Re
a = N/A
Ag = N/A
Teff = N/A

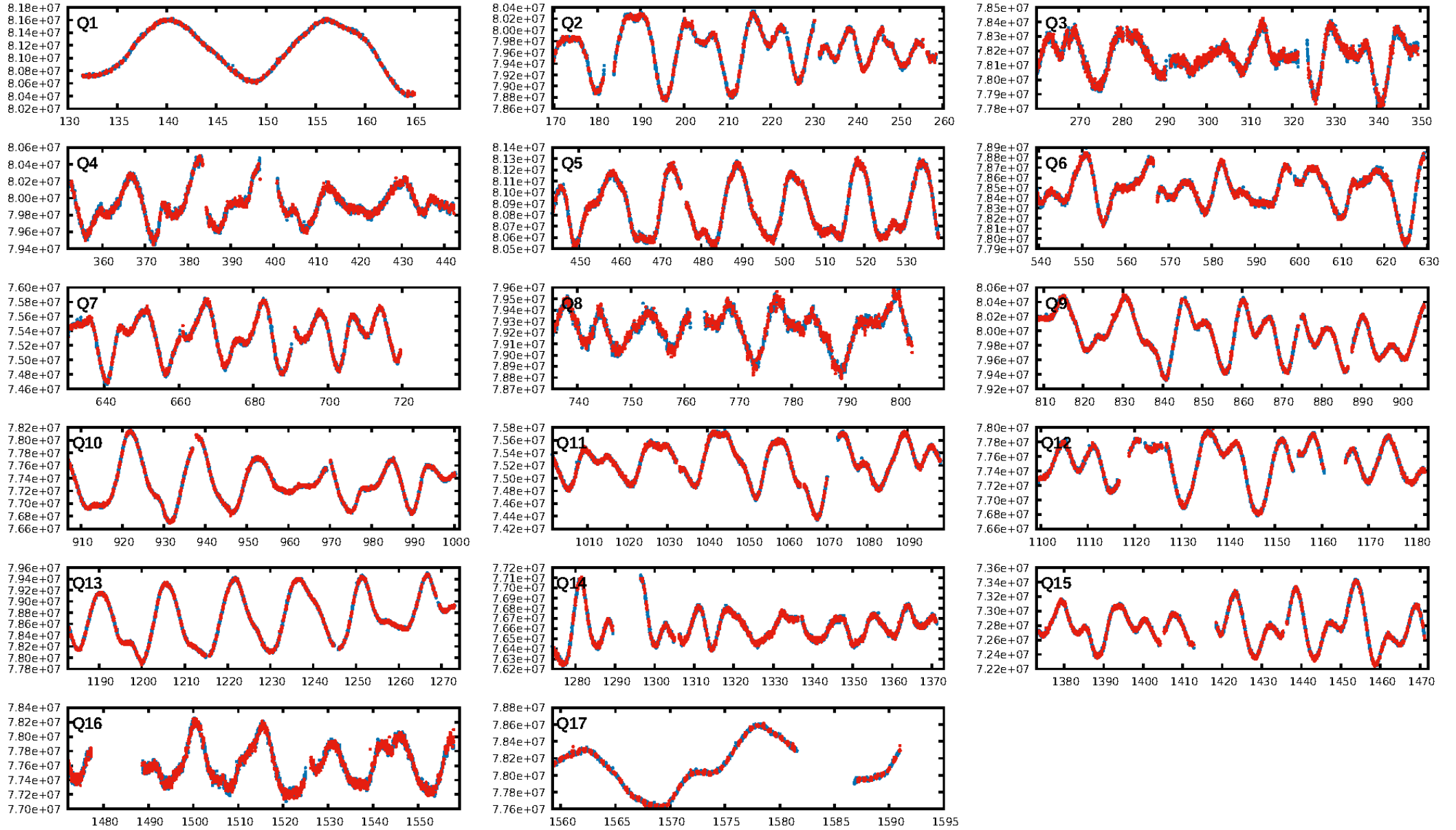
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [49.45σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2320/2321]
GhostDiagnostic-chr: 1.803
Centroid-sig: 0.0%
Centroid-so: 6.111 arcsec [2.92σ]
OotOffset-rm: 11.069 arcsec [21.83σ]
KicOffset-rm: 11.121 arcsec [26.98σ]
OotOffset-st: 4/0/3/1 [8]
KicOffset-st: 4/0/3/1 [8]
DiffImageQuality-fgm: 0.62 [5/8]
DiffImageOverlap-fno: 1.00 [17/17]

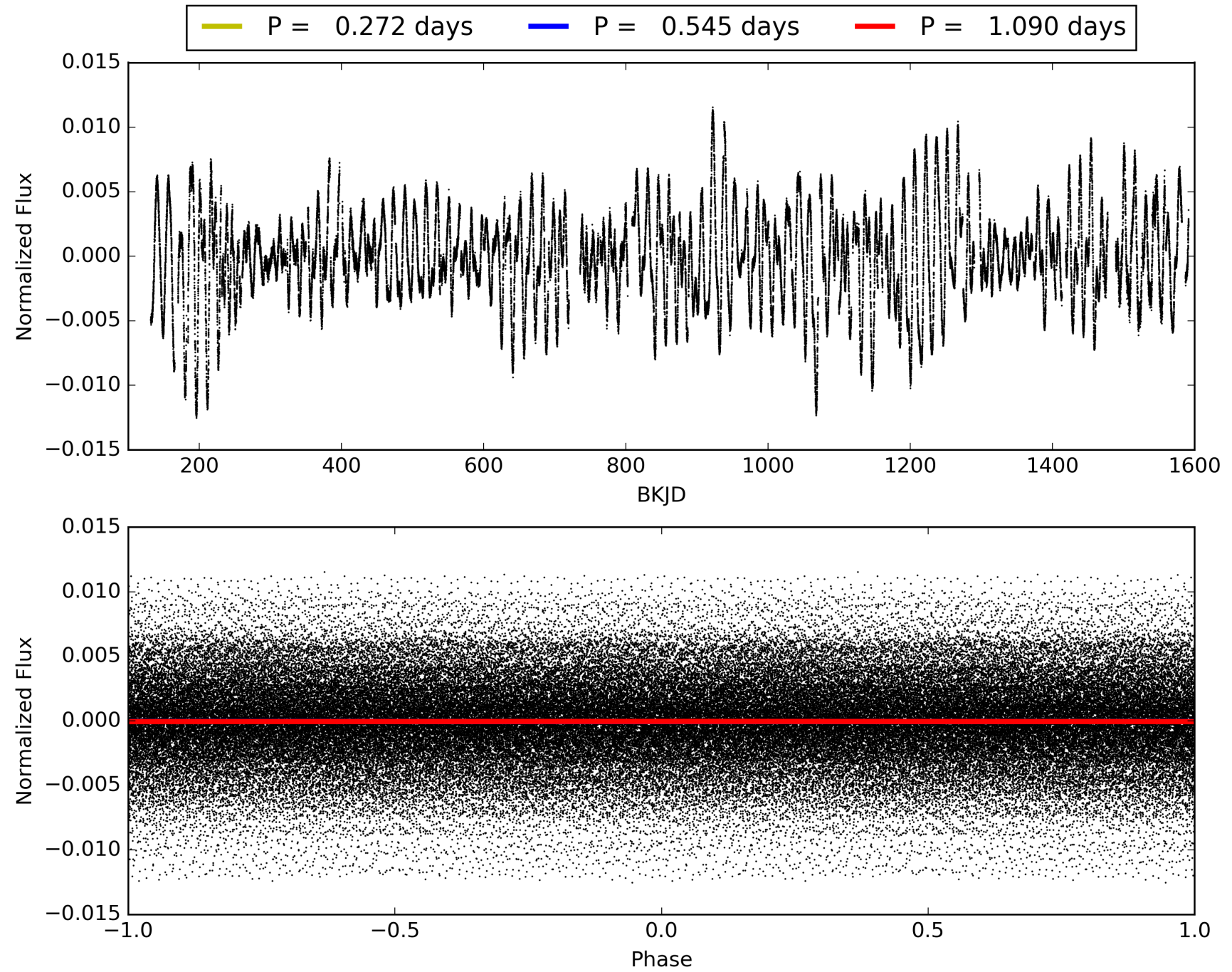
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:58:41 Z

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

TCE 008715589-02, PDC Light Curves

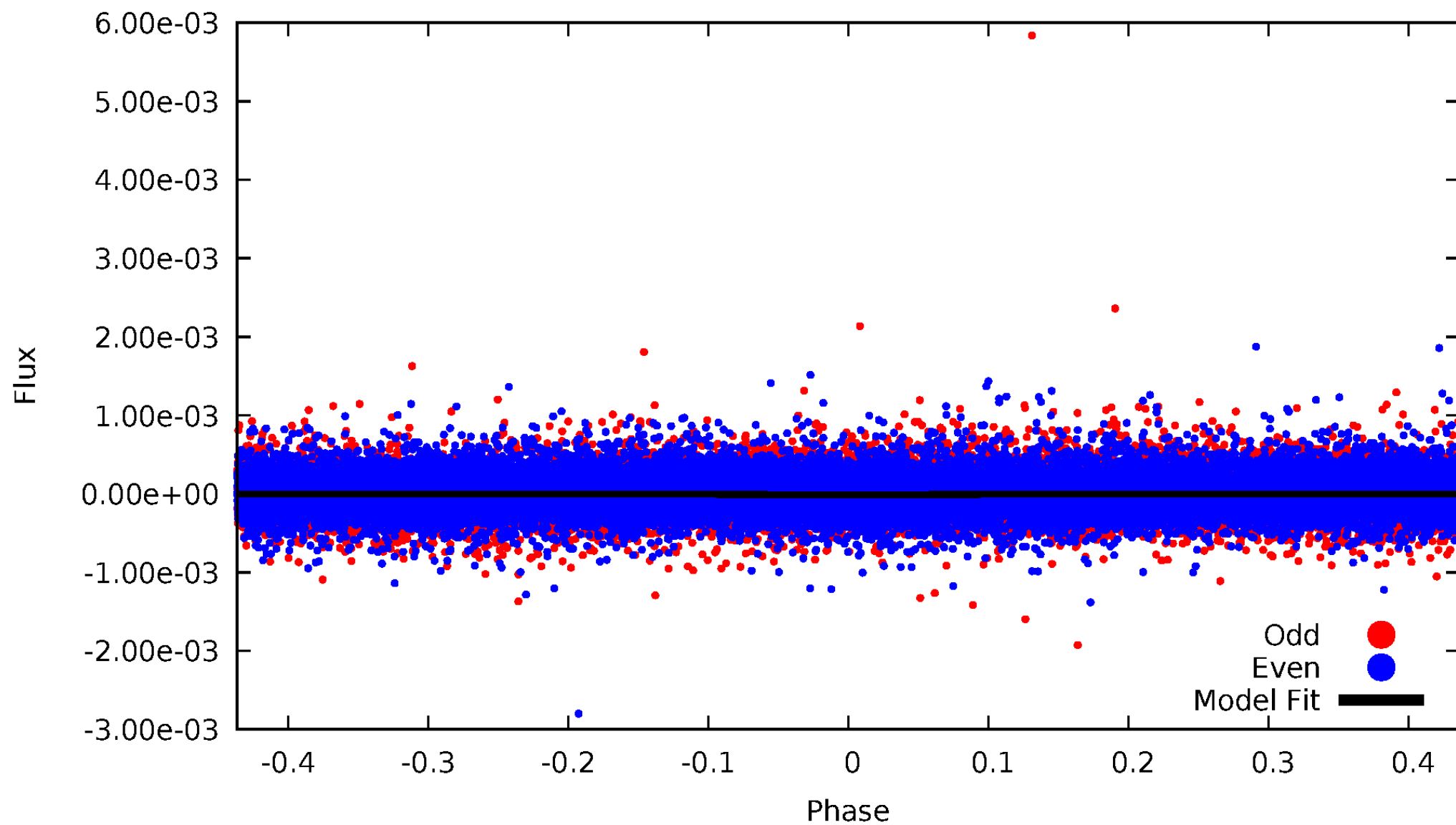


TCE 008715589-02



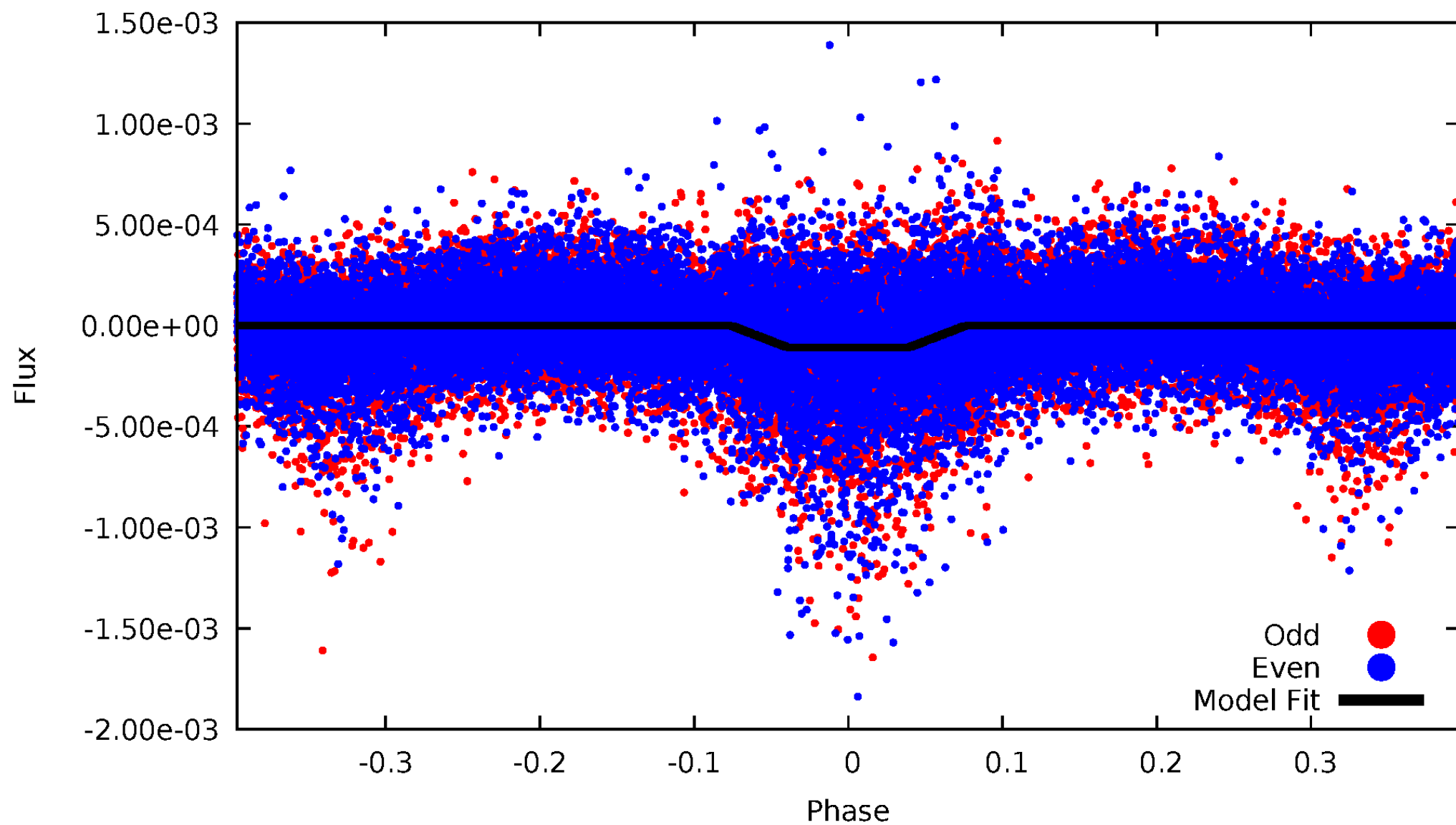
DV Odd/Even

TCE 008715589-02



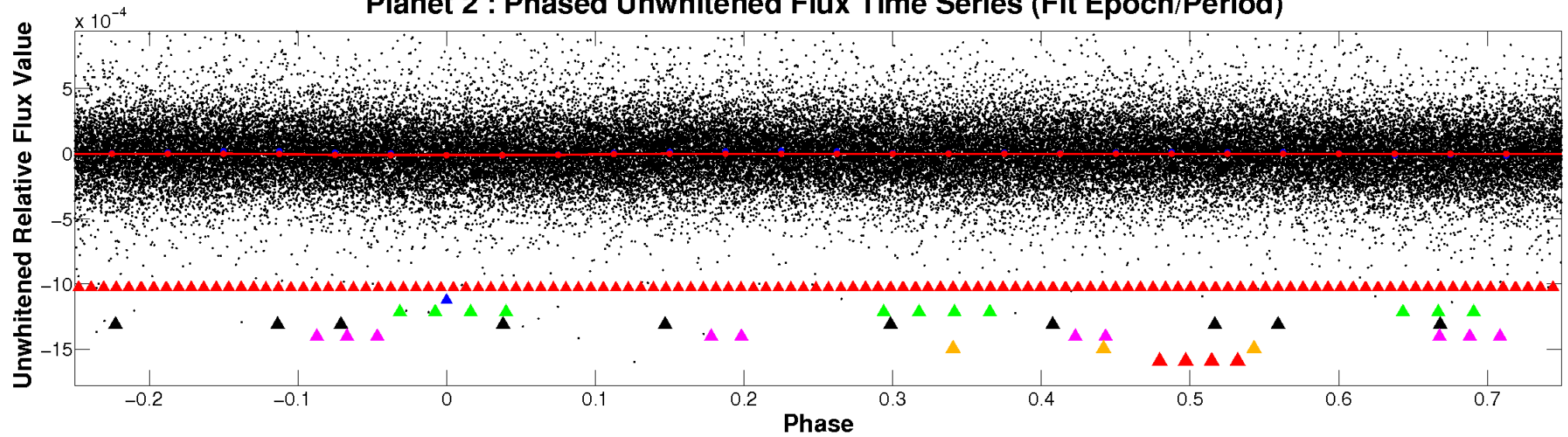
ALT Odd/Even

TCE 008715589-02

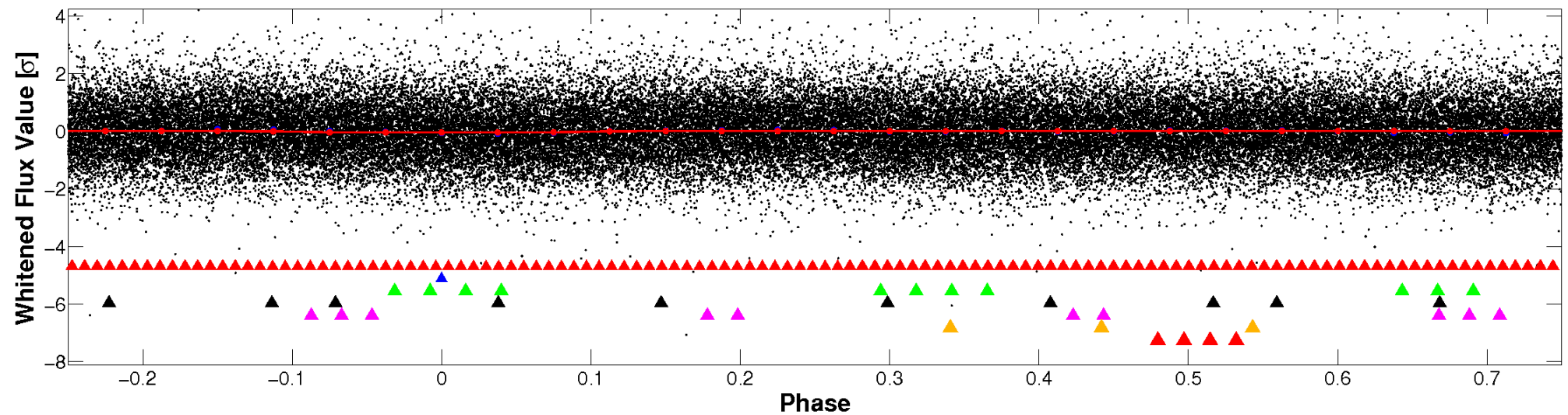


Non-Whitened Vs. Whitened Light Curve

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

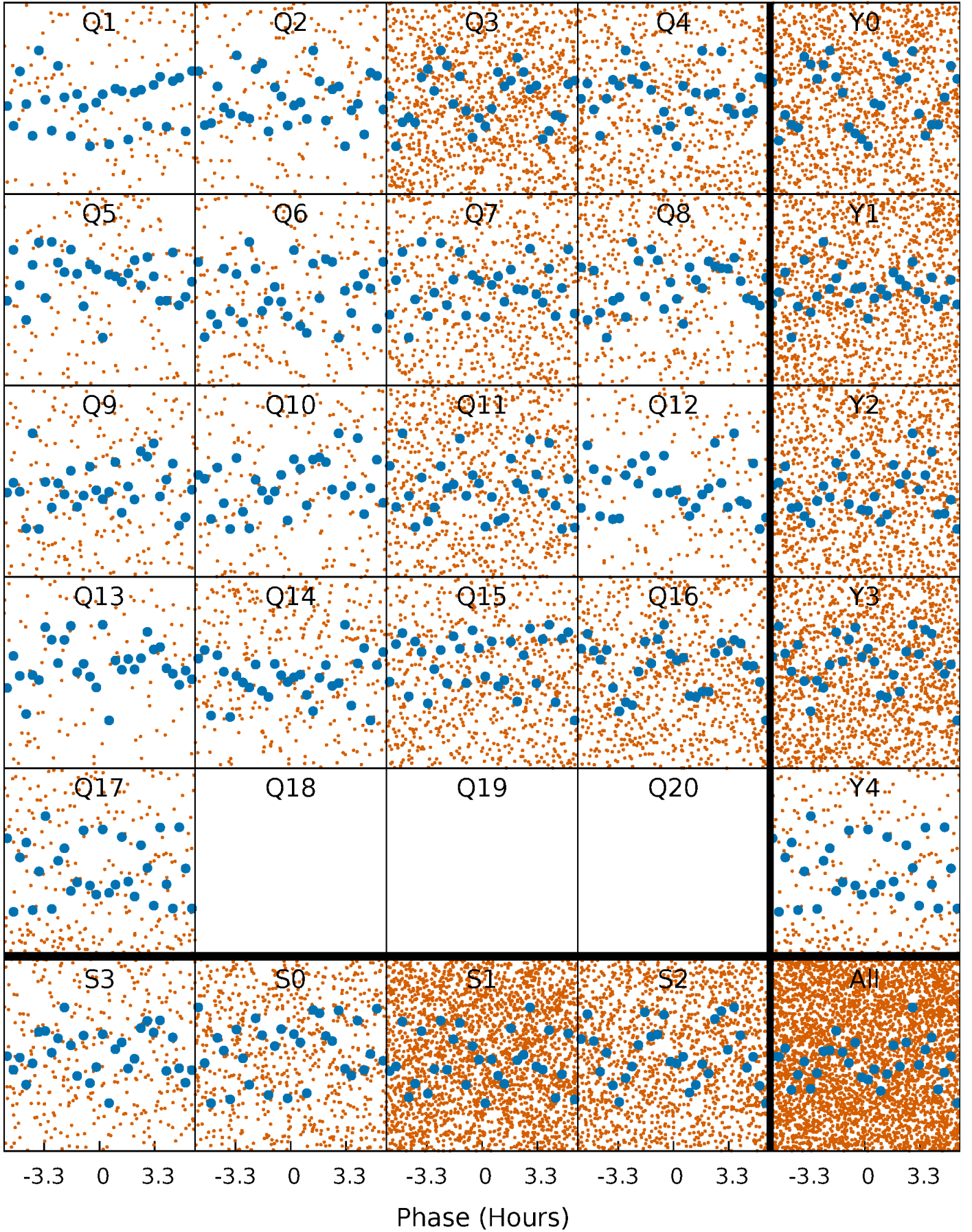


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



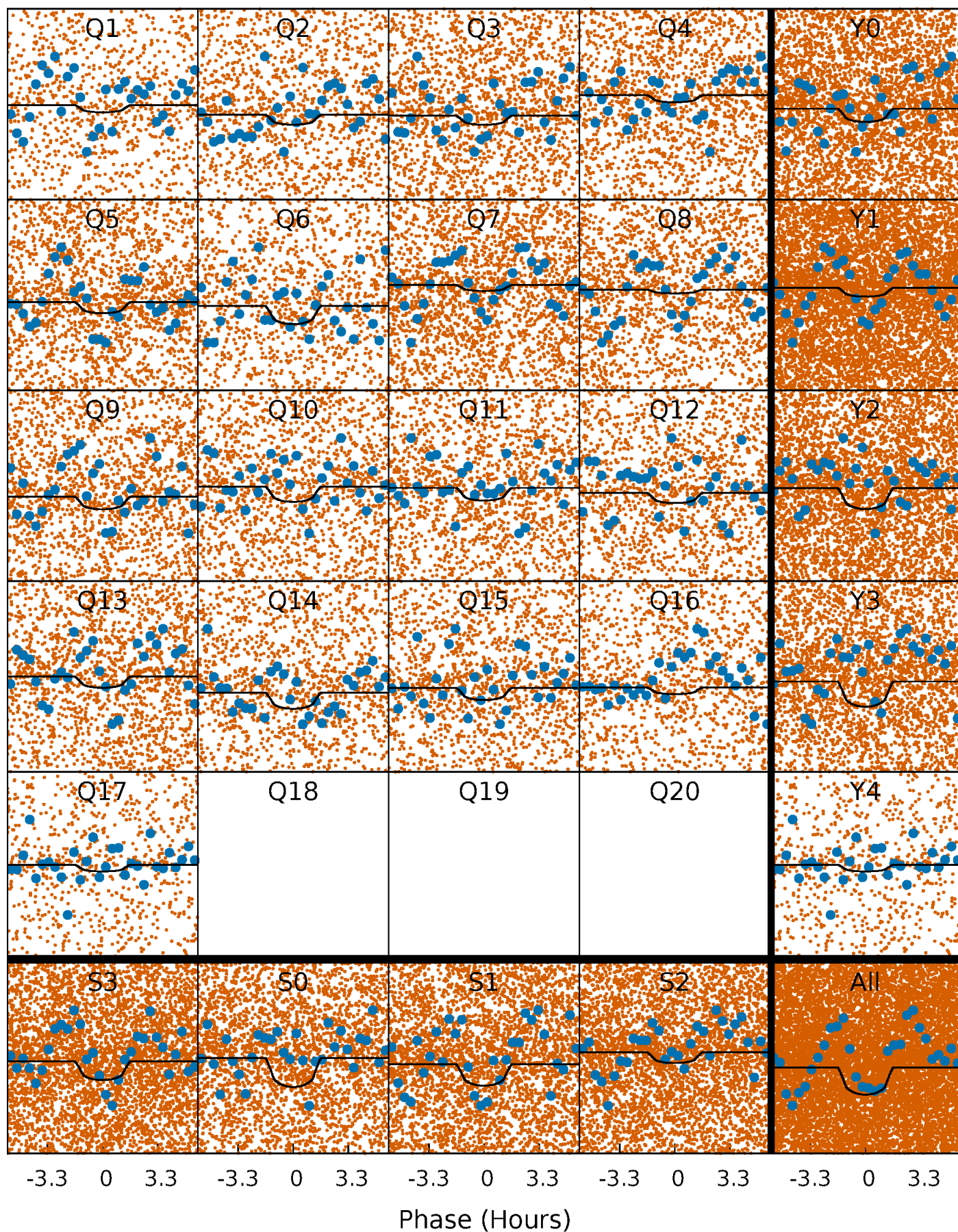
PDC Quarter-Phased Transit Curves

TCE 008715589-02 P= 0.544753 Days $T_0=131.649468$ (BKJD)



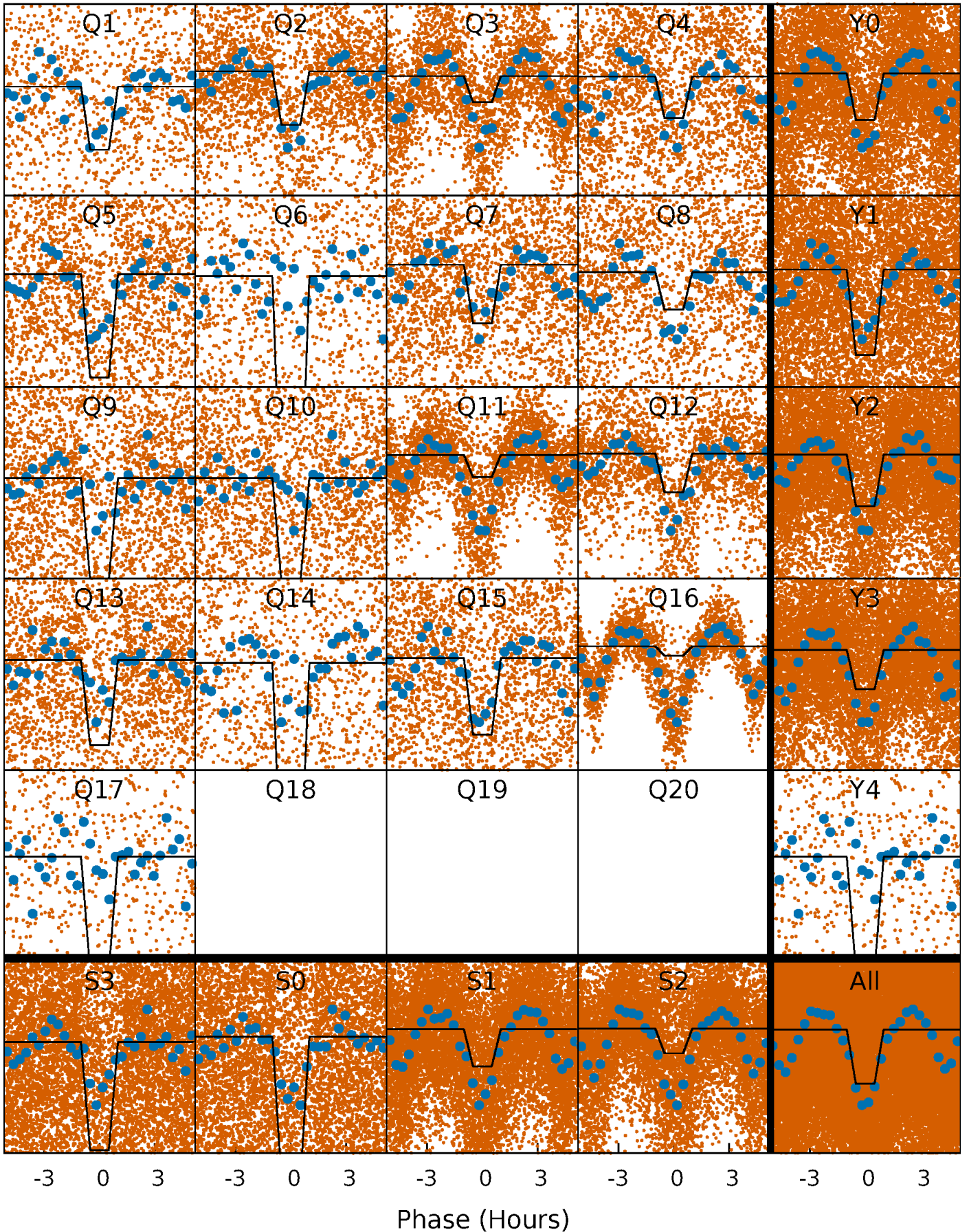
DV Quarter-Phased Transit Curves

TCE 008715589-02 P= 0.544753 Days $T_0=131.649468$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

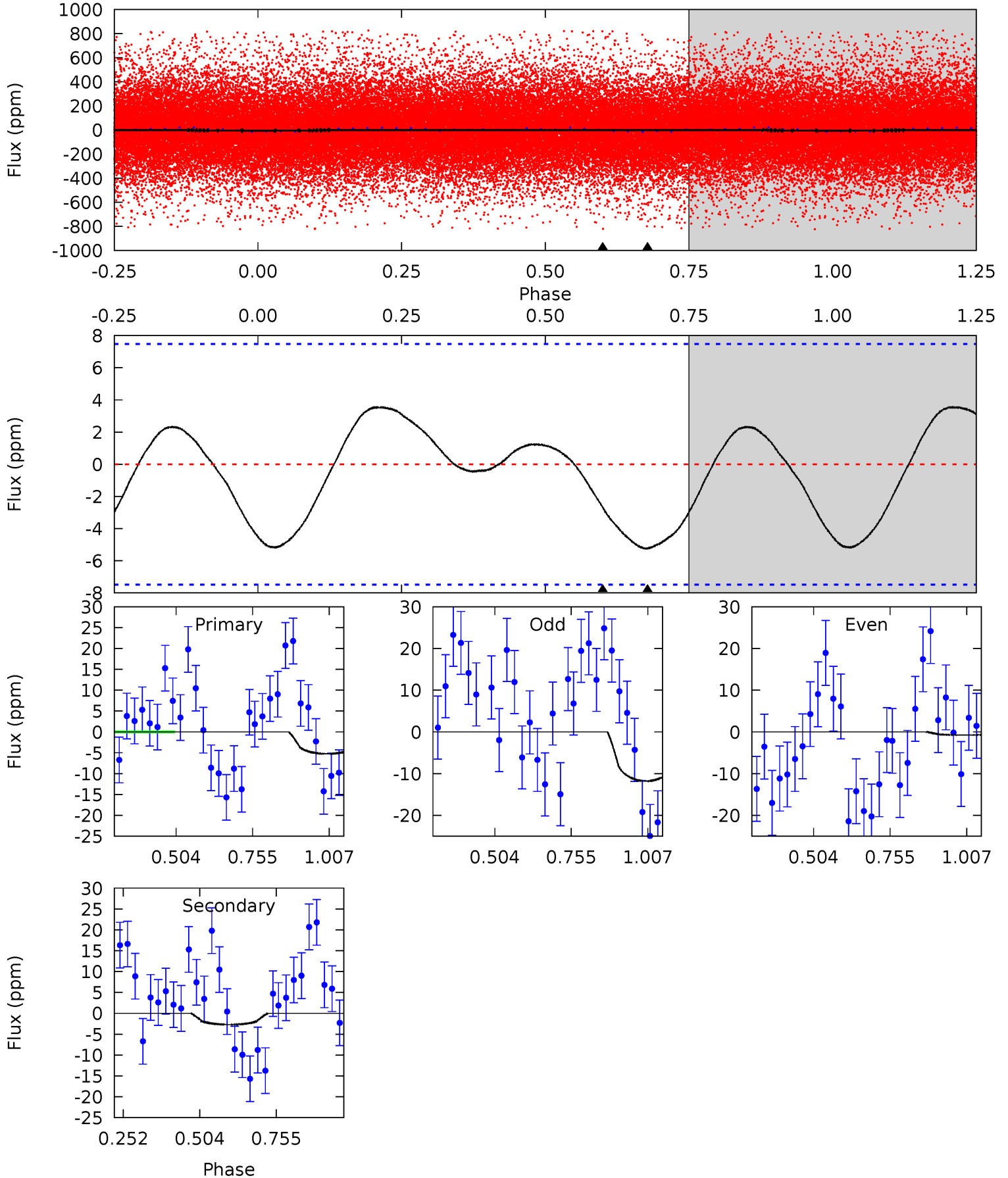
TCE 008715589-02 P= 0.544785 Days $T_0=131.626332$ (BKJD)



DV Model-Shift Uniqueness Test

008715589-02, P = 0.544753 Days, E = 131.104715 Days

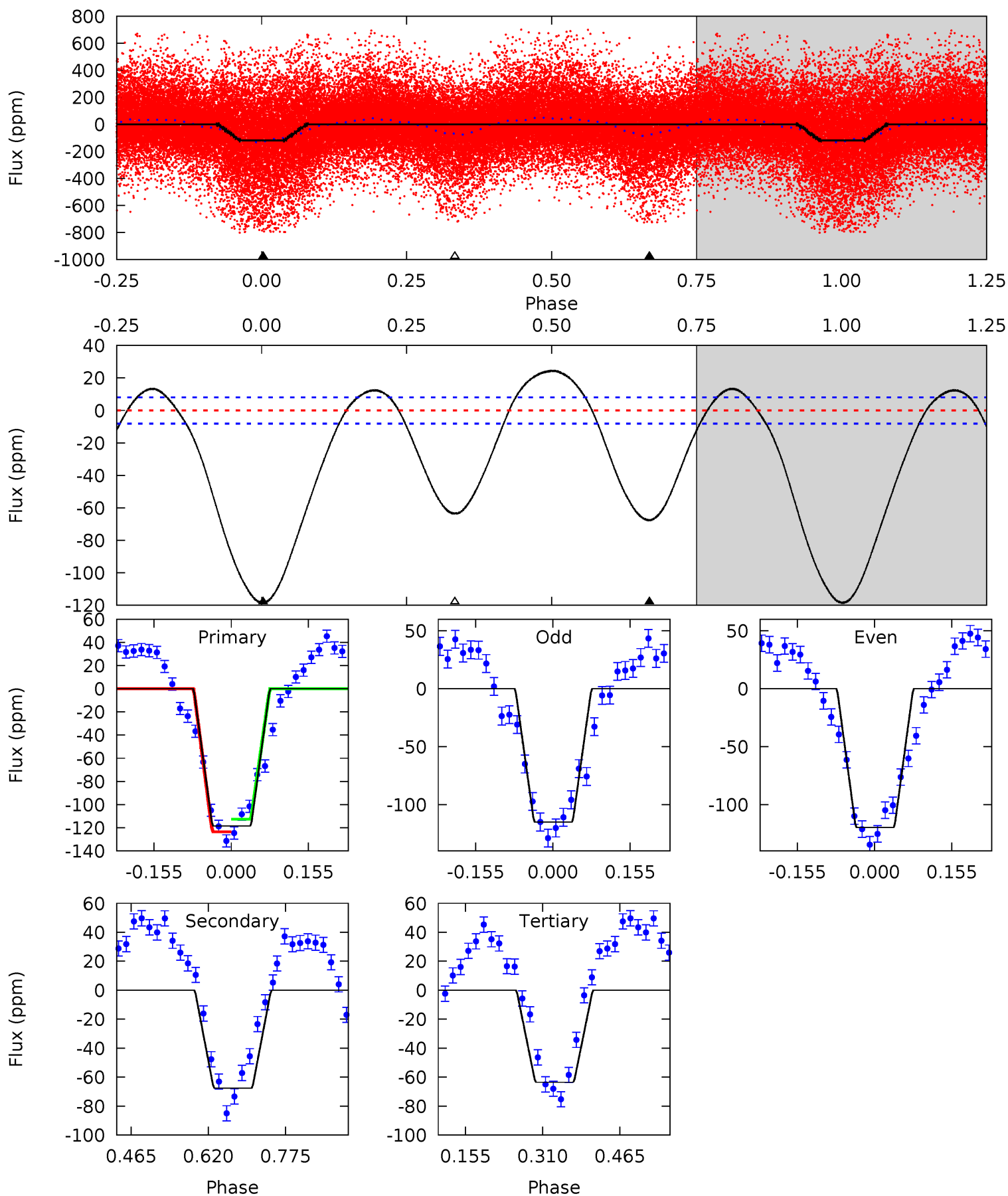
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.07	1.58	0	0	4.37	1.15	1.76	3.07	3.07	1.58	1.58	3.26	0.47	0.40	2.79



Alt Model-Shift Uniqueness Test

008715589-02, P = 0.544785 Days, E = 131.081547 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
65.4	37.3	35.1	0	4.47	1.42	16.3	30.3	65.4	2.26	37.3	1.31	1.34	0.17	3.00



Stellar Parameters For KIC 008715589

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5222^{+173}_{-157}	$3.556^{+0.936}_{-0.234}$	$-0.260^{+0.300}_{-0.250}$	$3.162^{+1.003}_{-2.174}$	$1.312^{+0.173}_{-0.433}$	$0.058^{+1.686}_{-0.033}$
	+3%/-3%	+26%/-7%	+115%/-96%	+32%/-69%	+13%/-33%	+2884%/-57%
Source	PHO1	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 008715589-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3 ± 2	$1.00^{+1.14}_{-0.63}$	4677^{+556}_{-906}	-2859^{+8099}_{-1287}	$0.262^{+1.729}_{-0.218}$
Alt.	-68 ± 2	$3.25^{+1.47}_{-1.32}$	4717^{+548}_{-932}	4225^{+826}_{-1225}	$0.729^{+1.205}_{-0.399}$

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

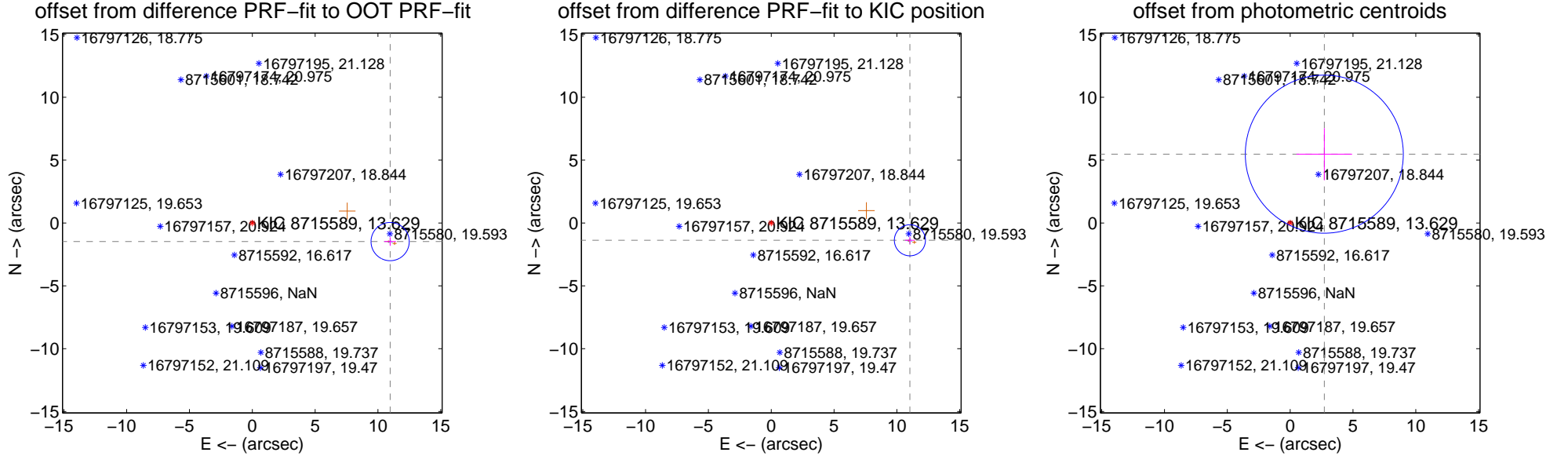
DV Centroid Data

Supplemental centroid analysis for 008715589-02. Kepler magnitude: 13.63. Transit SNR 4.50

There are 5 quarters with good PRF difference image offsets

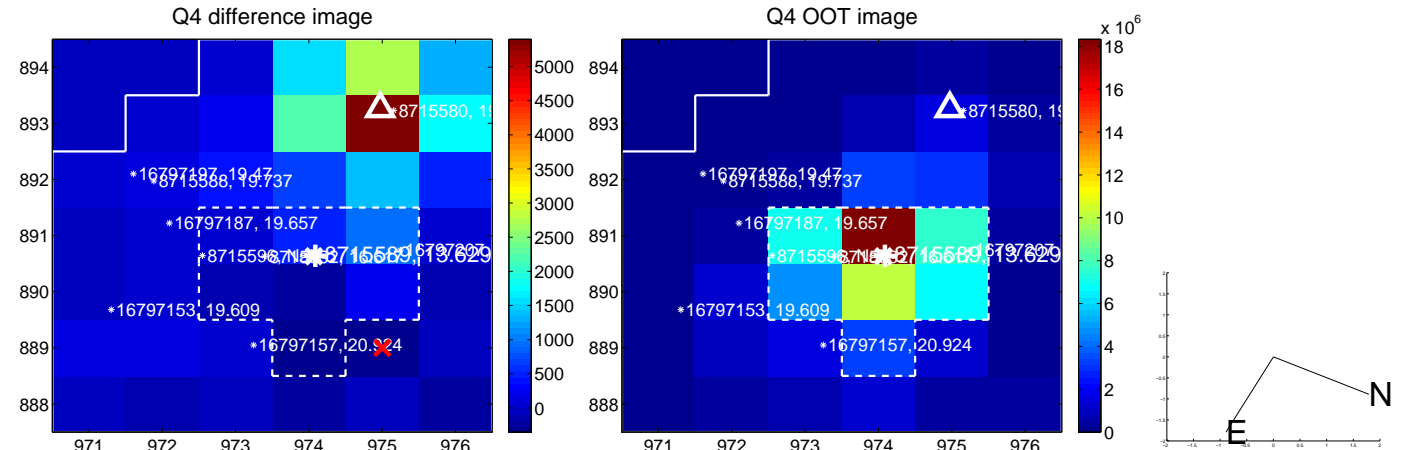
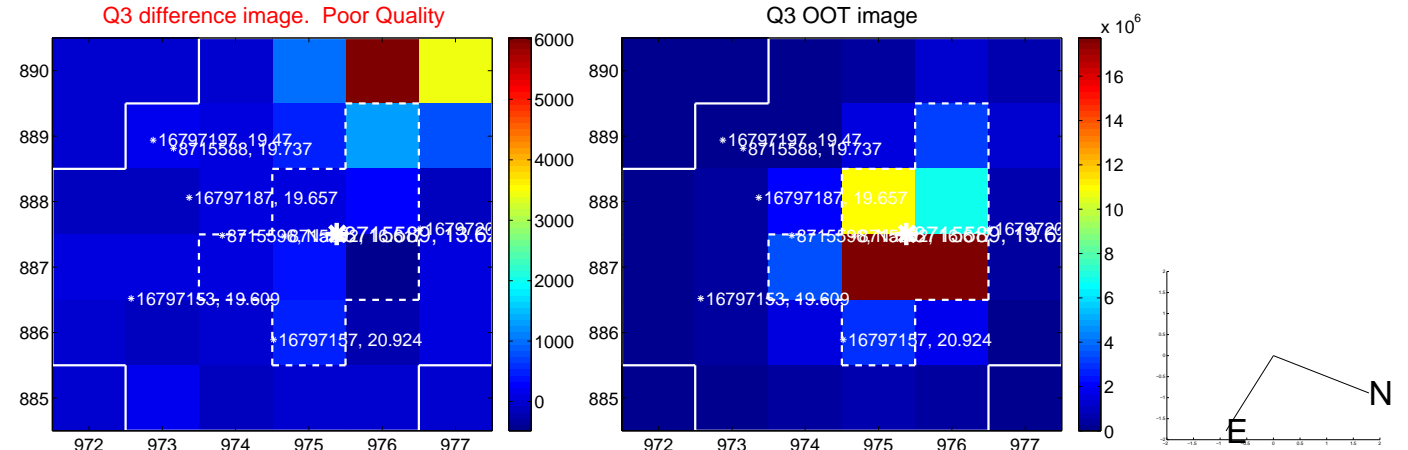
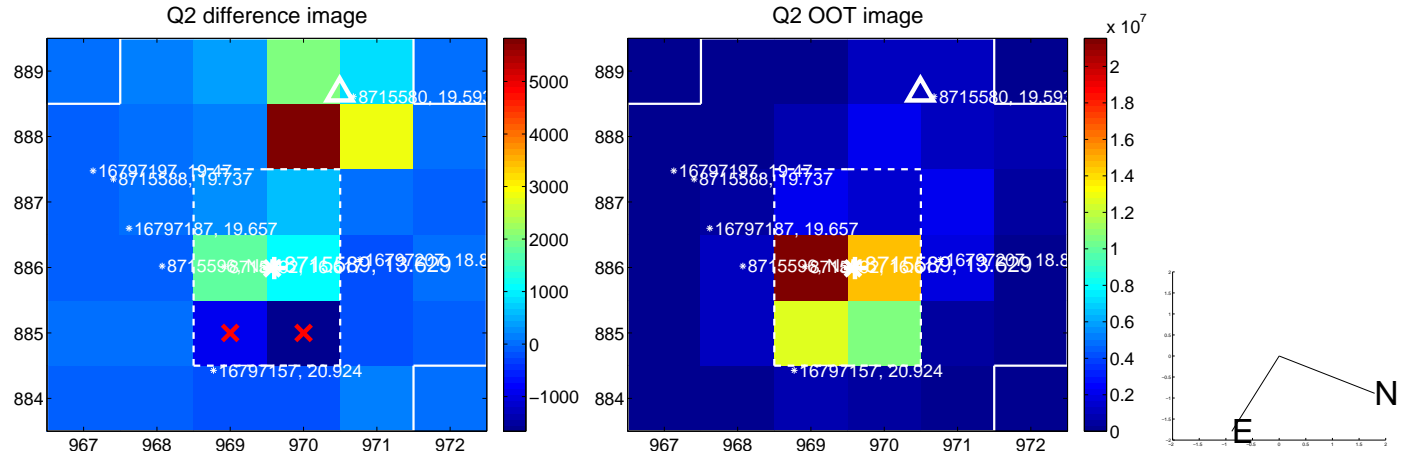
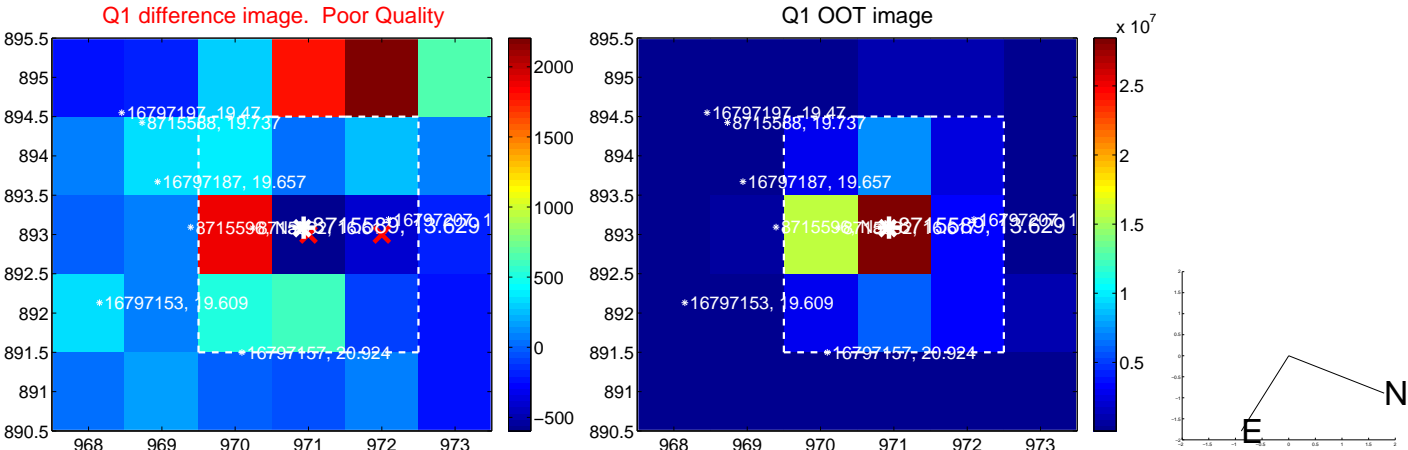
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.069 \pm 0.507	21.83	-10.969 \pm 0.467	-1.480 \pm 0.341
PRF-fit source offset from KIC position	11.121 \pm 0.412	26.98	-11.036 \pm 0.383	-1.376 \pm 0.271
photometric centroid source offset	6.11 \pm 2.10	2.92	-2.72 \pm 2.21	5.47 \pm 2.07

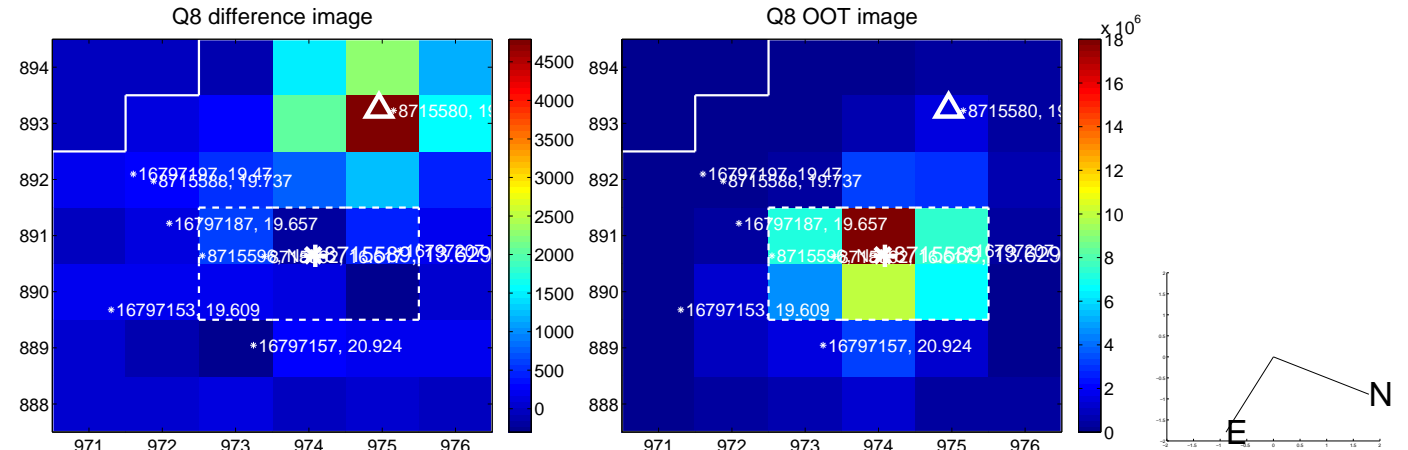
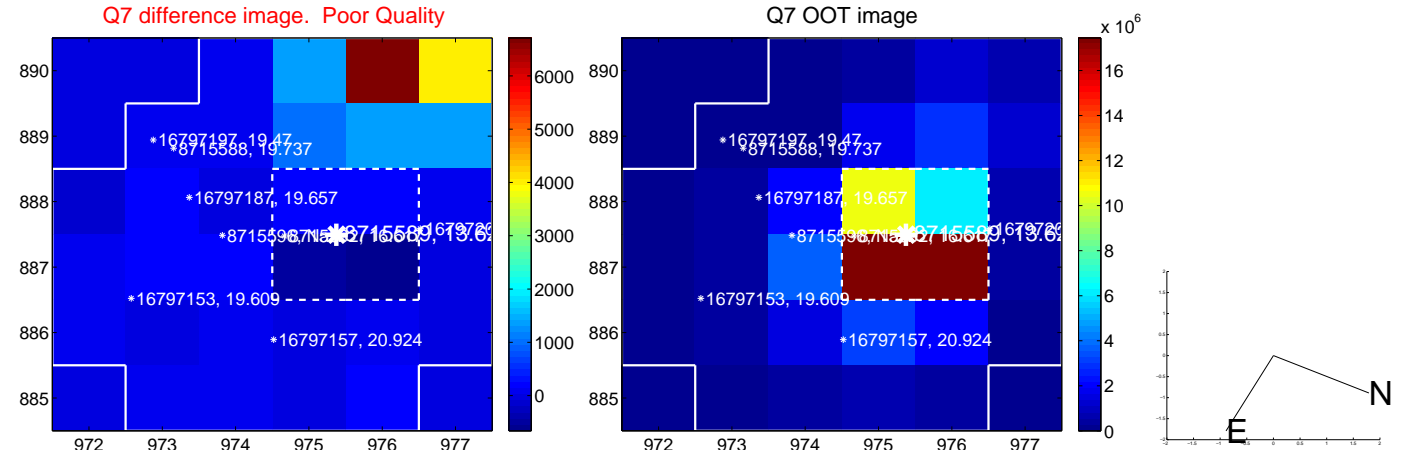
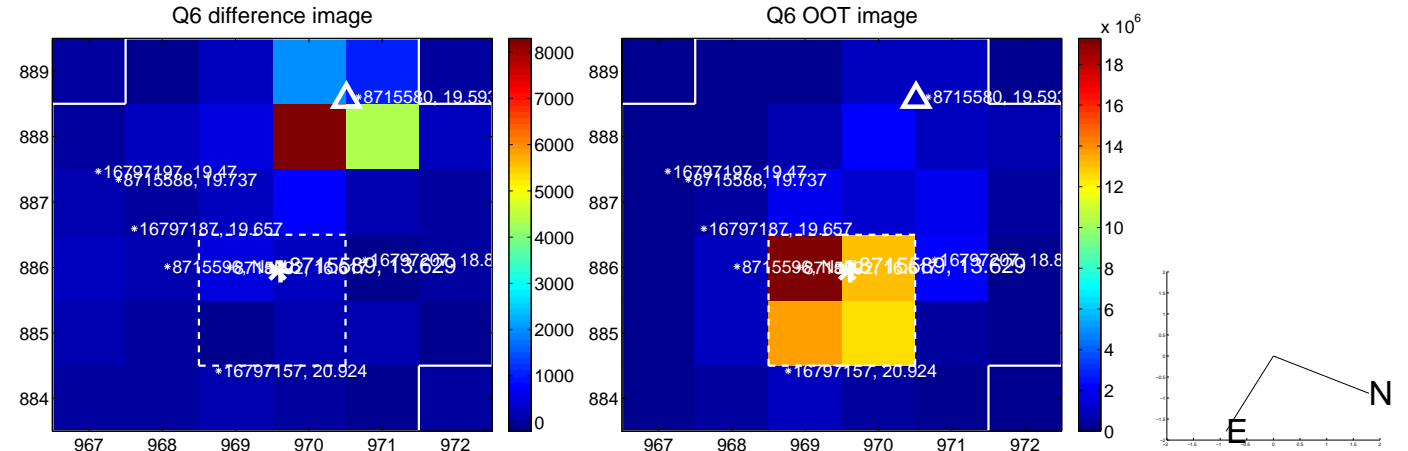
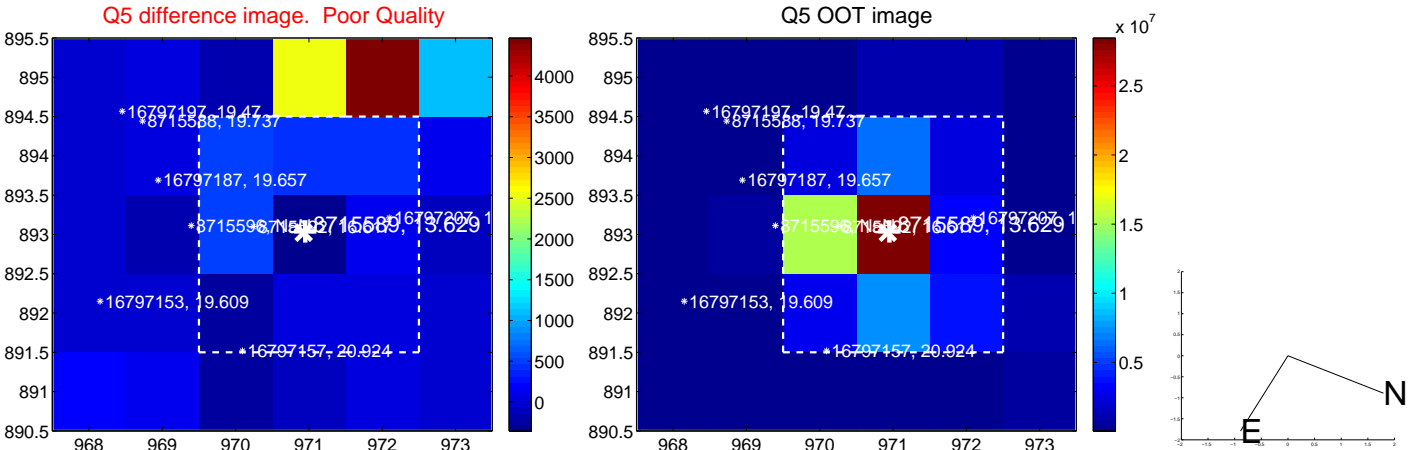


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

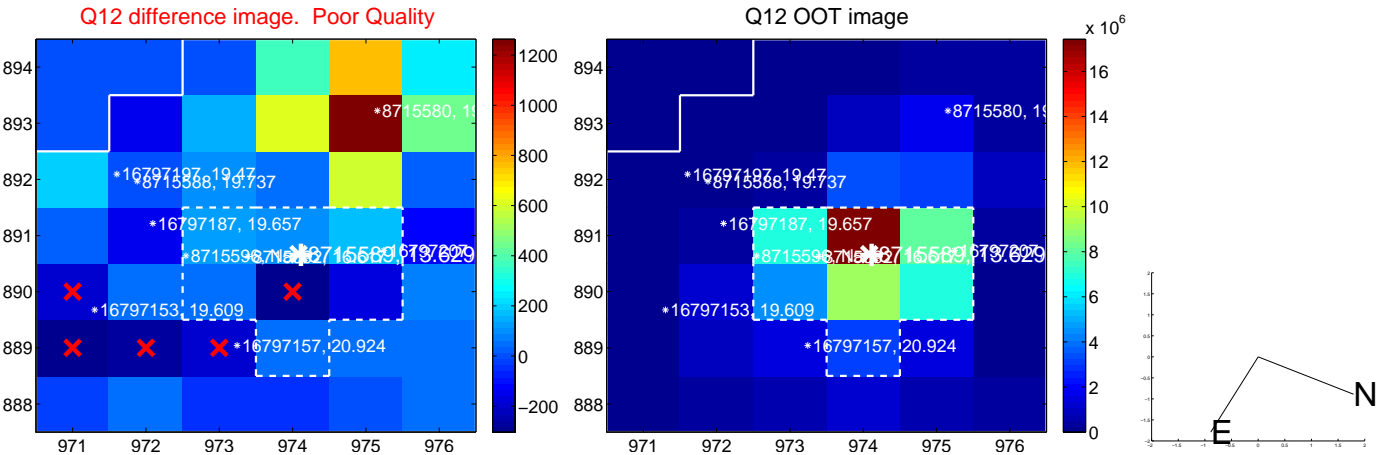
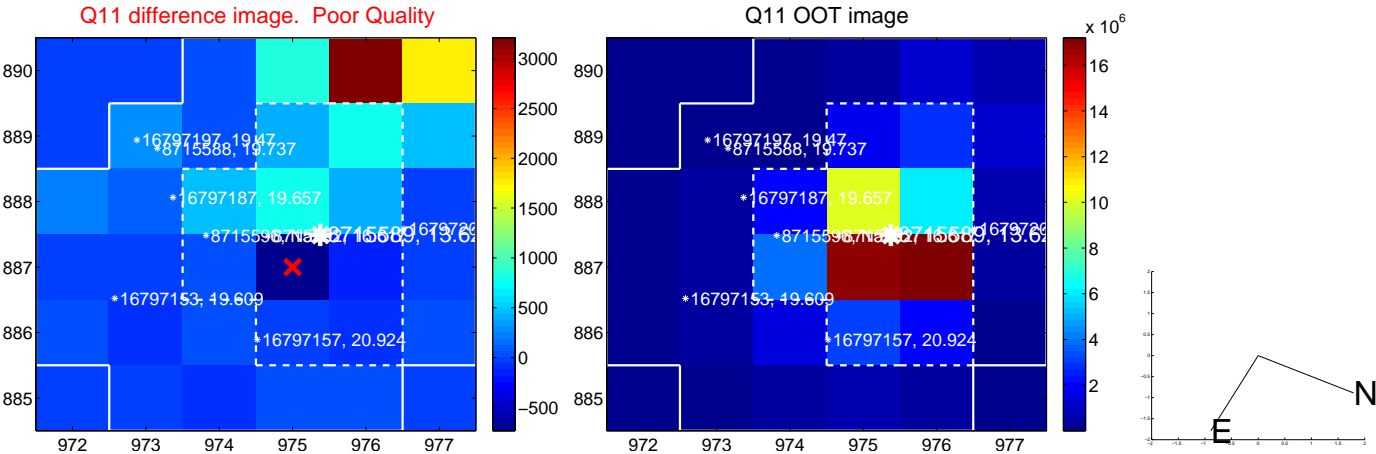
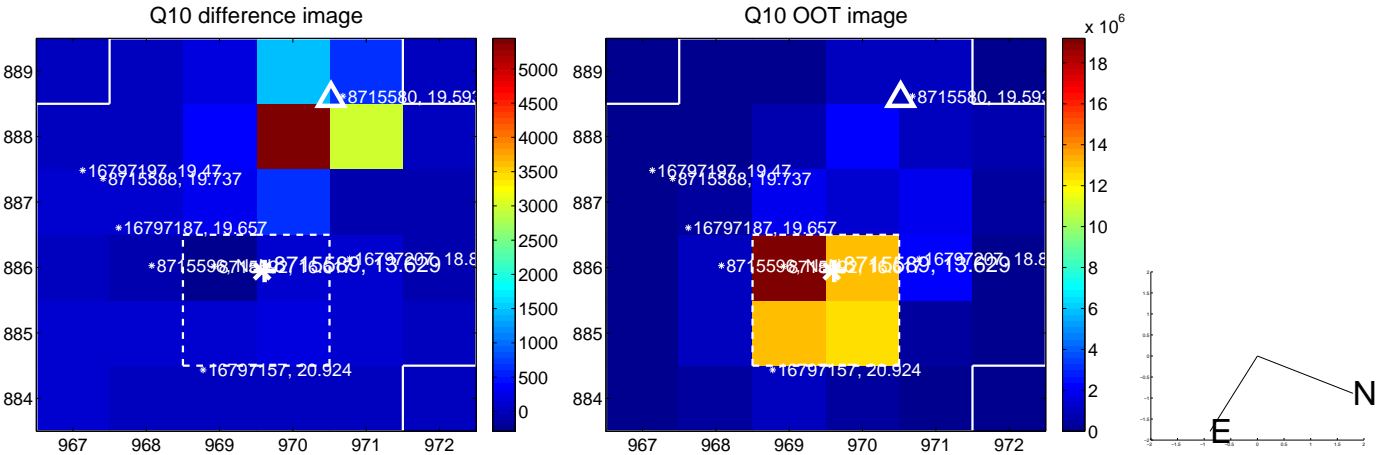
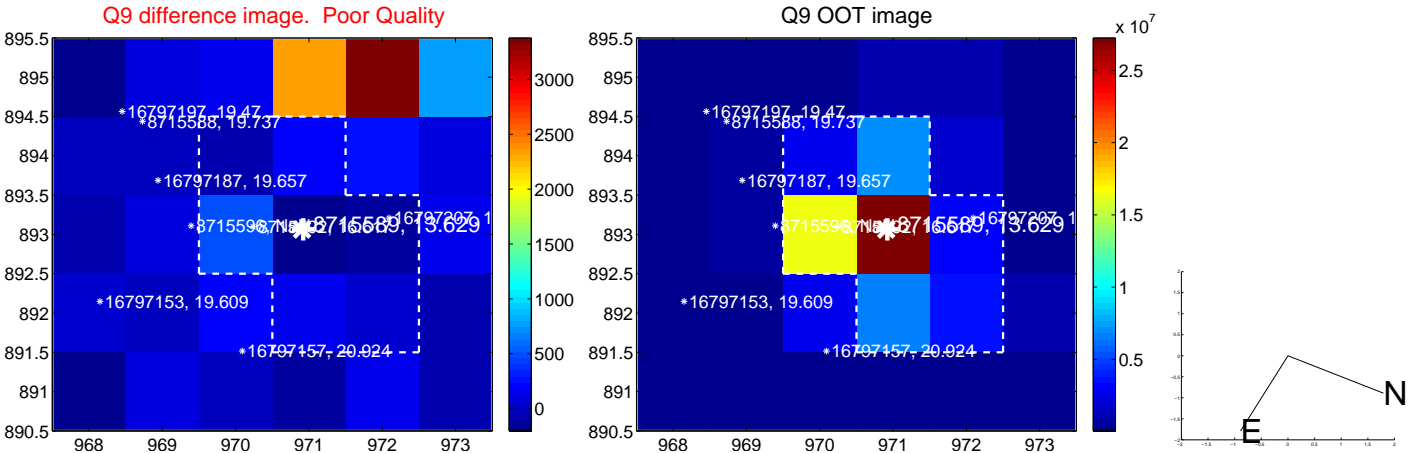
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



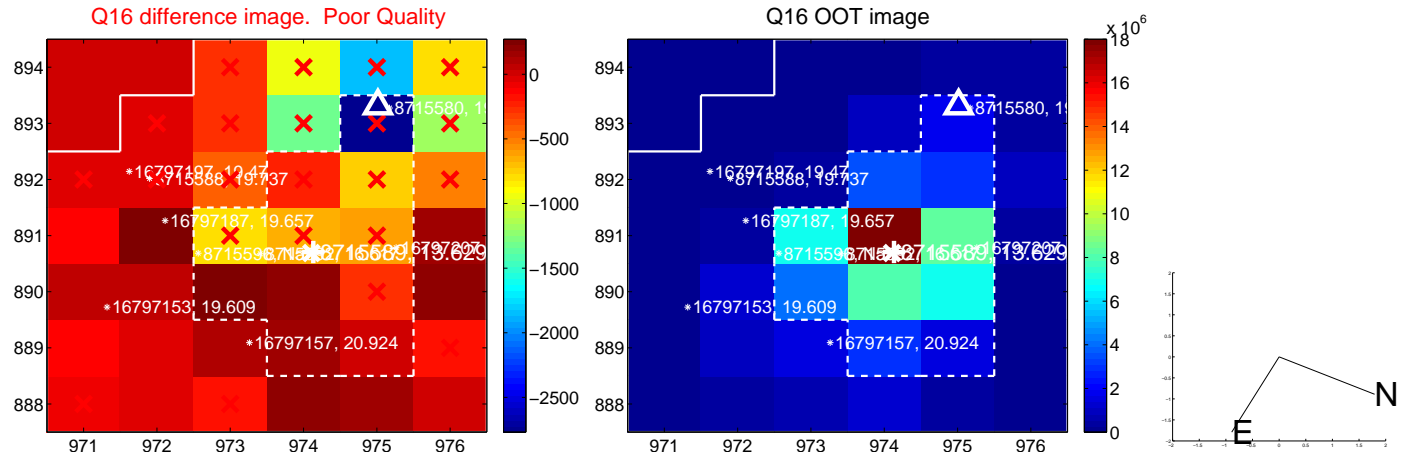
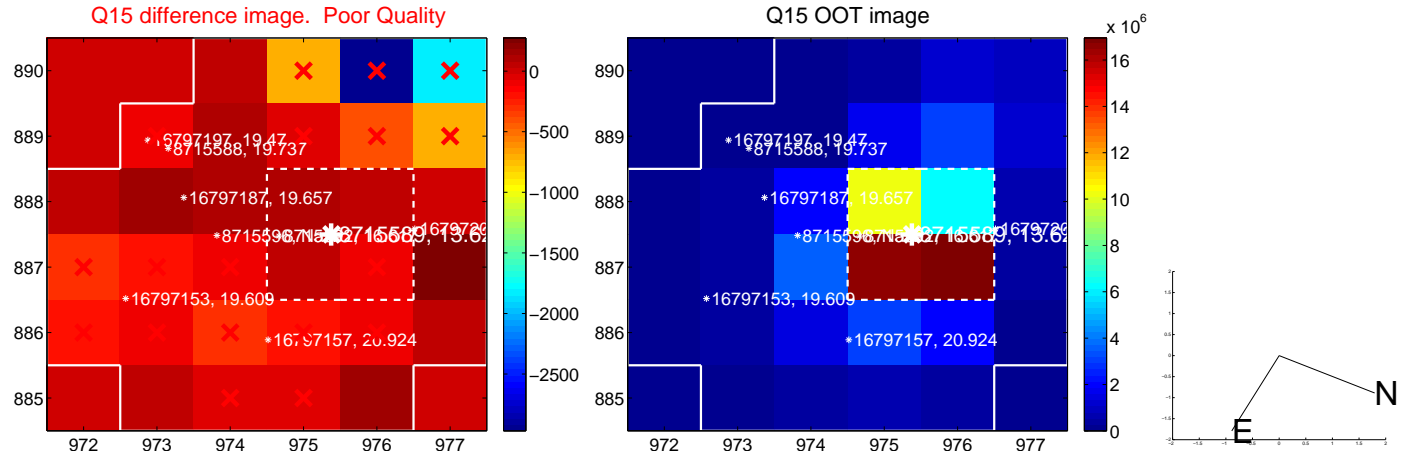
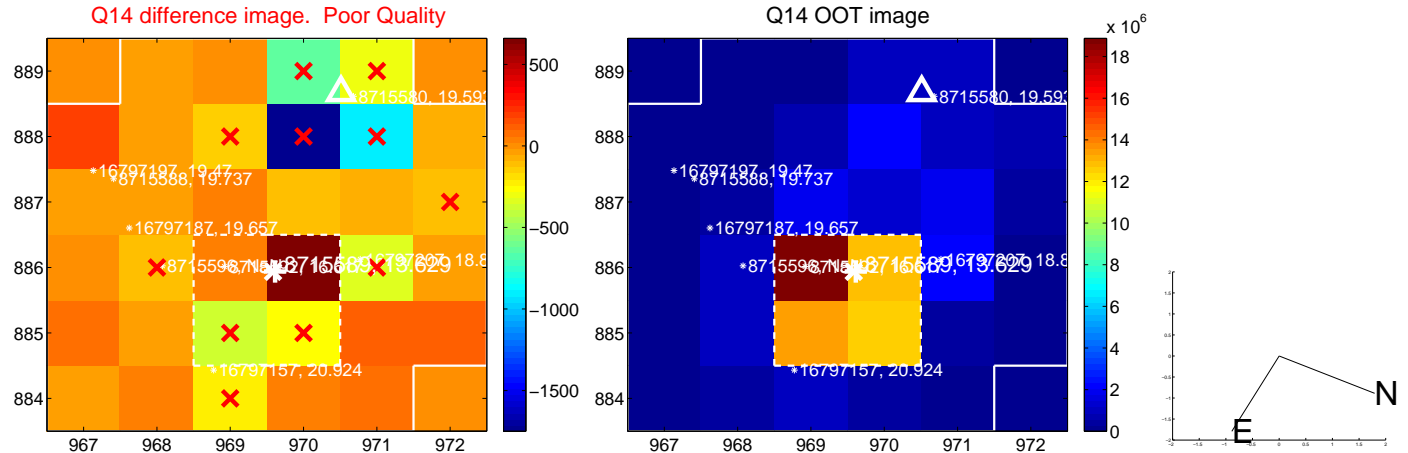
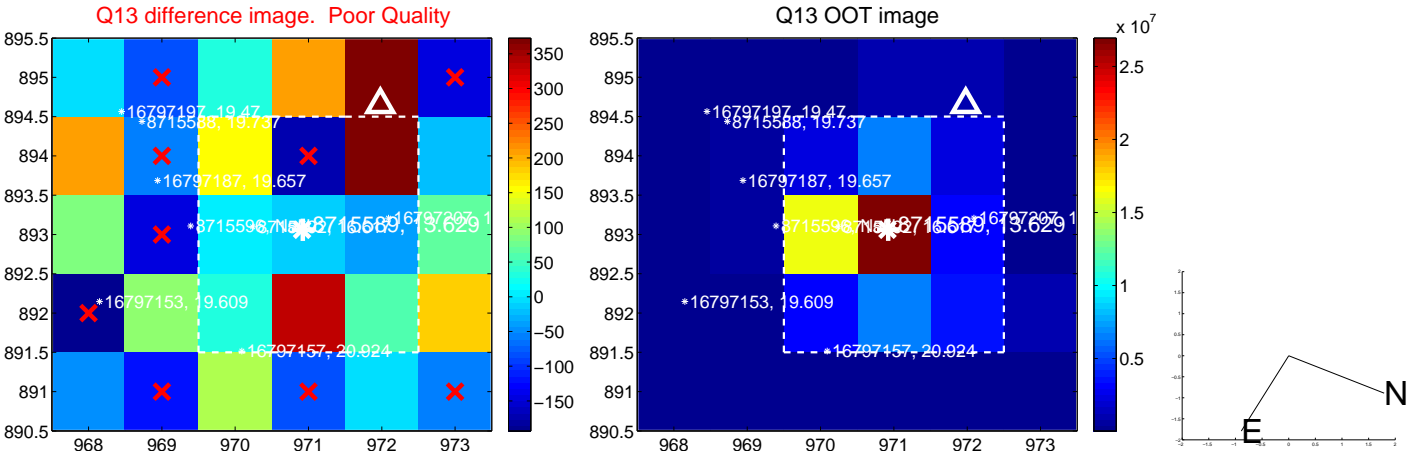
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



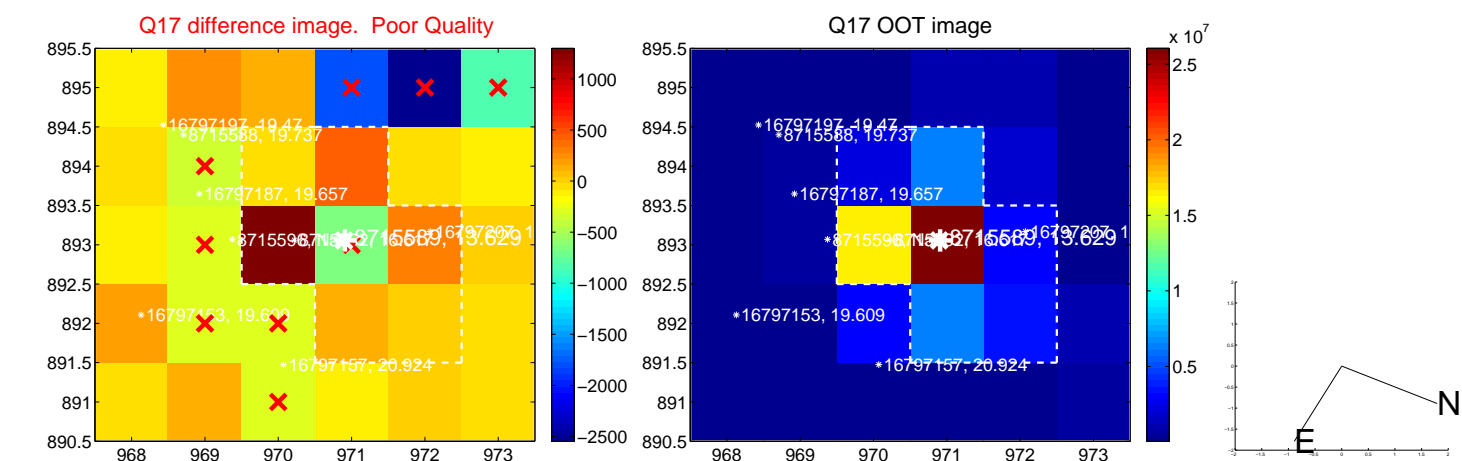
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



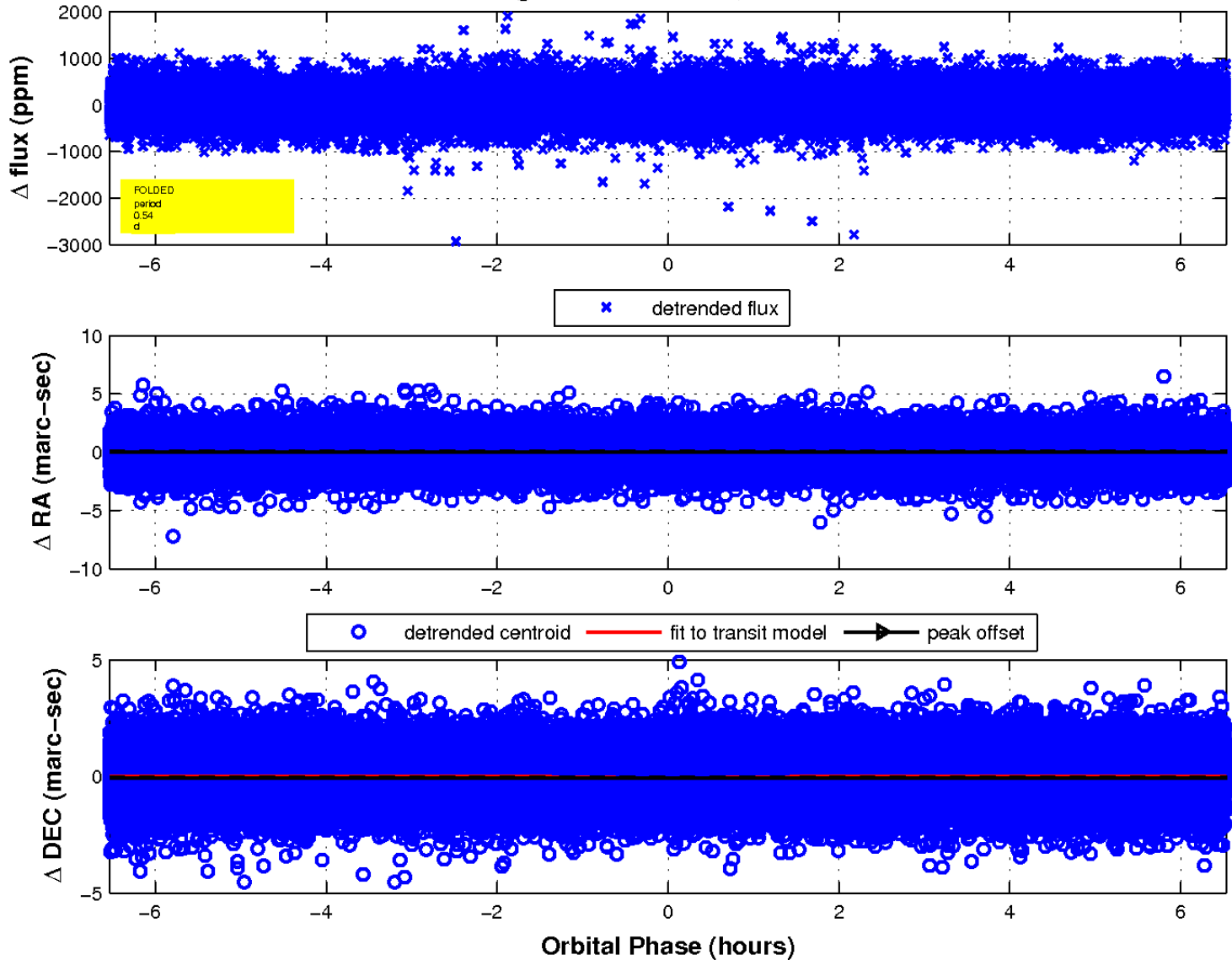
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



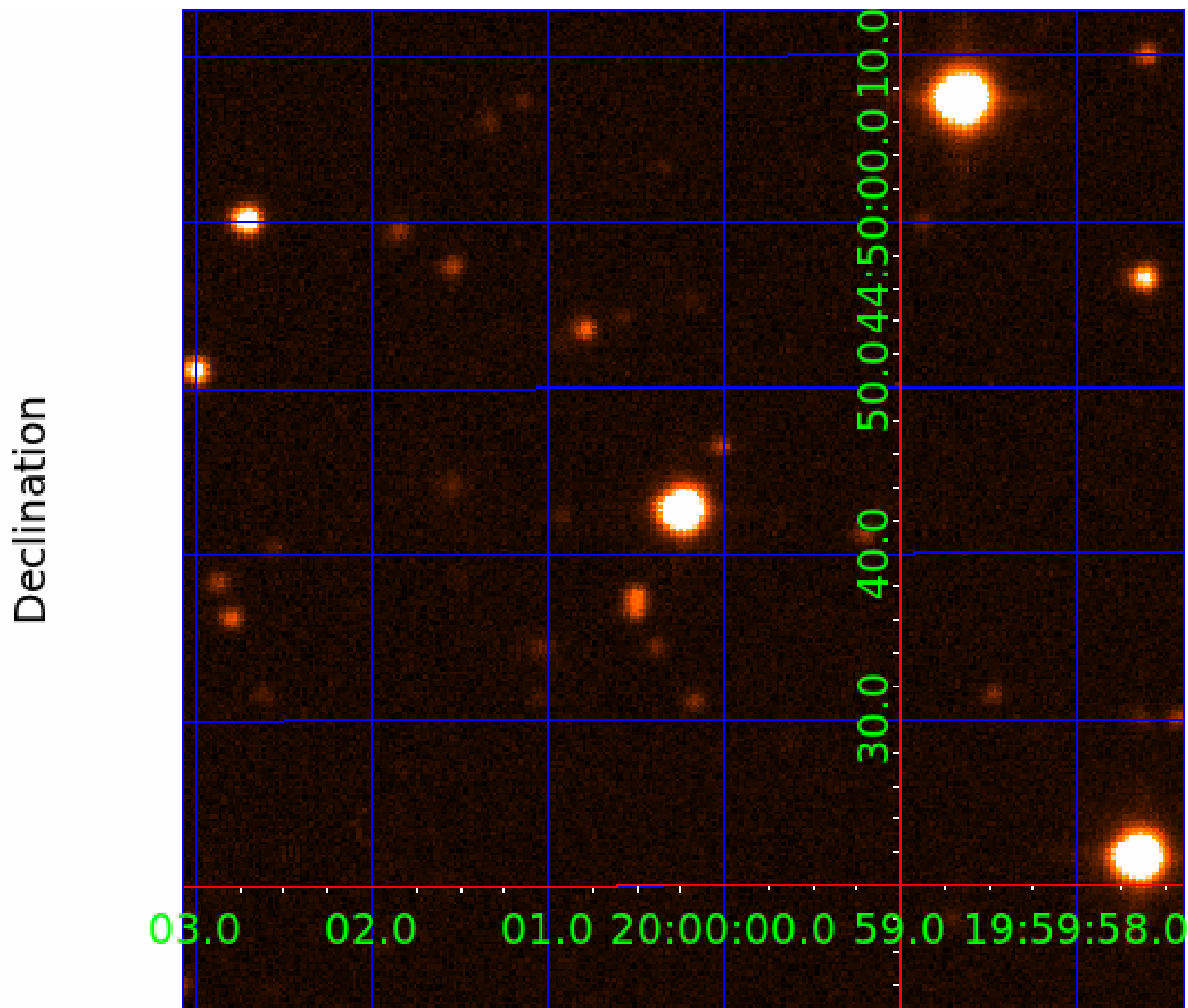
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 7



UKIRT Image



KIC 008715589

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})
008715589-01	OBS	5563.01	7.621968	138.660737	132.3	1.913	10.4	12.4	3.16	5222	3.88	967.08
008715589-02	OBS	No	0.544753	131.649468	11.5	2.852	8.9	4.5	3.16	5222	1.09	0.00
008715589-06	OBS	No	458.082496	579.732614	890.9	4.862	12.1	8.8	3.16	5222	9.72	4.11
008715589-07	OBS	No	323.029247	344.393154	798.6	4.661	11.4	9.3	3.16	5222	11.06	6.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008715589-01	OBS	PC	0.65	0	0	0	0	NO_COMMENT
008715589-02	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
008715589-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008715589-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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.

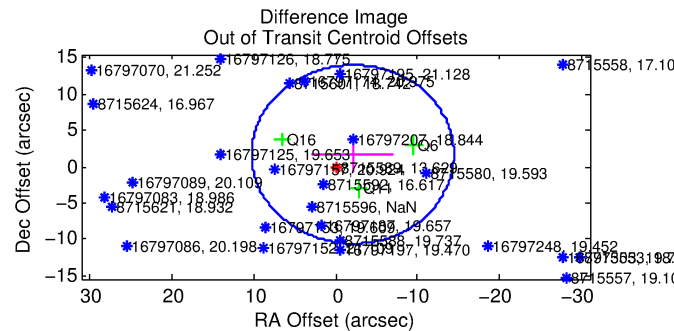
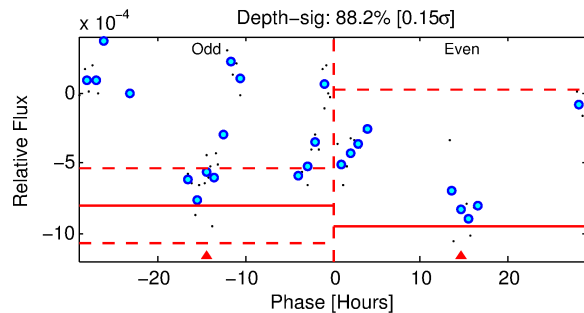
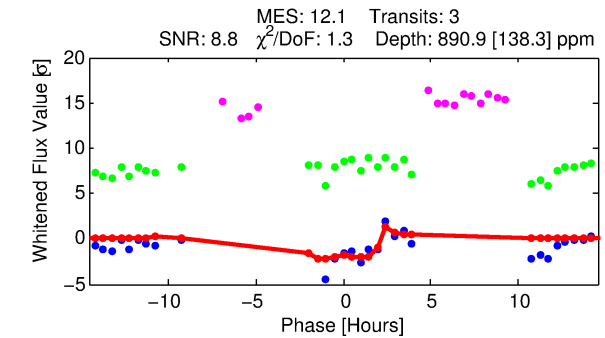
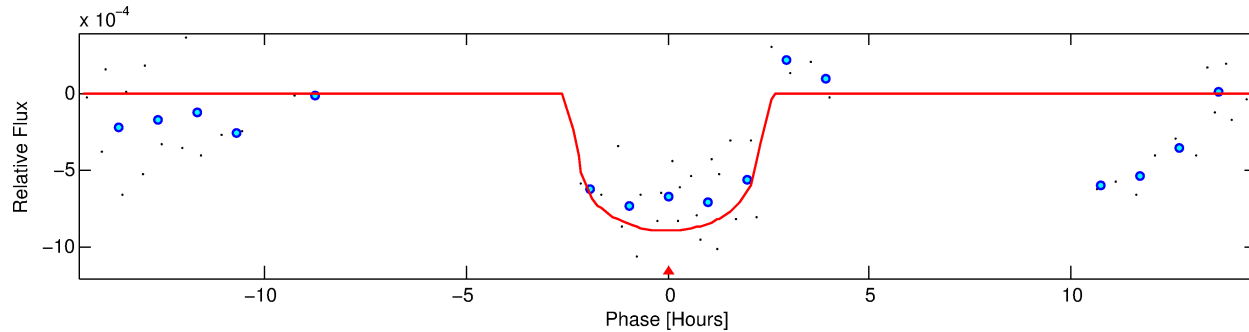
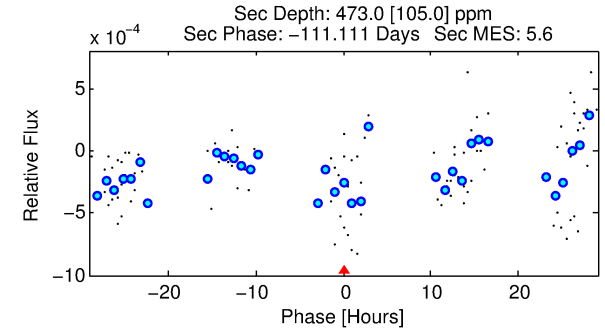
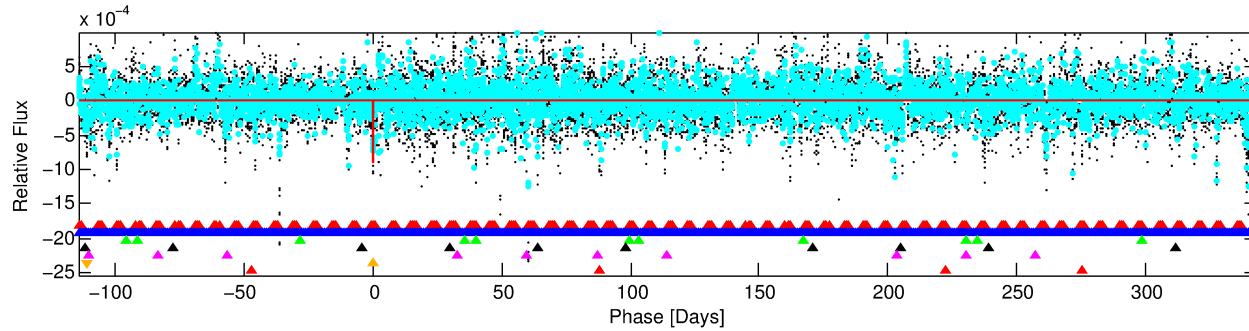
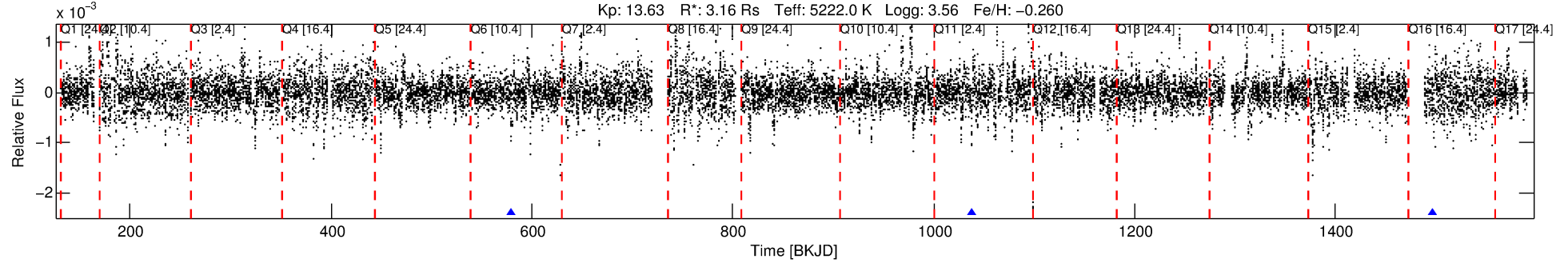
Ephemeris Match Information For 008715589-06

No Significant Match Found

DV One-Page Summary

KIC: 8715589 Candidate: 6 of 7 Period: 458.082 d
KOI: K05563 Corr: No Ephemeris Match

Kp: 13.63 R*: 3.16 Rs Teff: 5222.0 K Logg: 3.56 Fe/H: -0.260



DV Fit Results:

Period = 458.08250 [0.01523] d
Epoch = 579.7326 [0.0104] BKJD
Rp/R* = 0.0282 [0.0307]
a/R* = 613.34 [2532.86]
b = 0.58 [4.90]
Seff = 4.11 [6.22]
Teq = 363 [137] K
Rp = 9.73 [12.54] Re
a/R* = 1.2734 [1.0852] AU
Ag = 4461.58 [11870.35] [0.38σ]
Teffp = 4587 [2518] K [1.67σ]

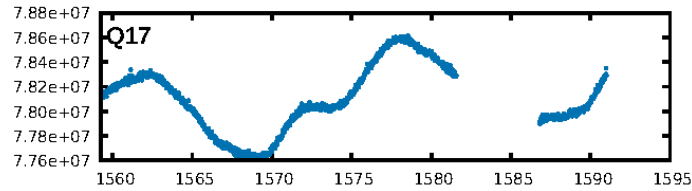
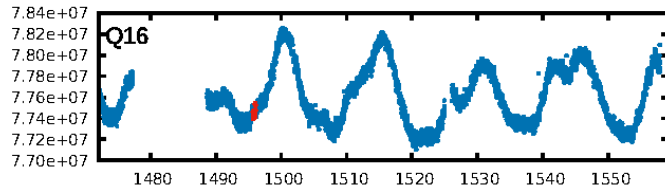
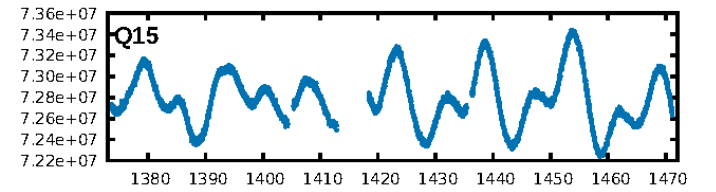
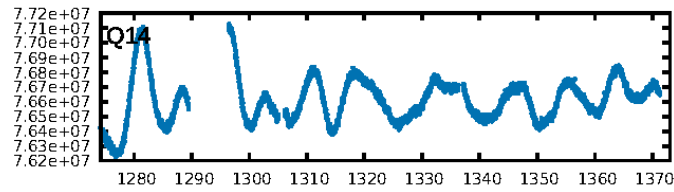
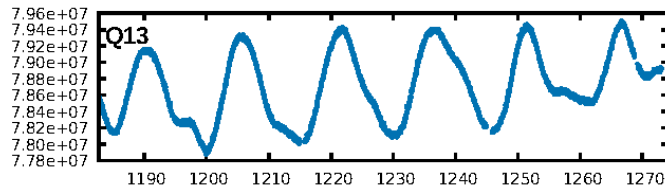
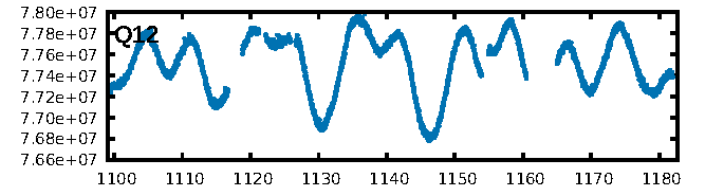
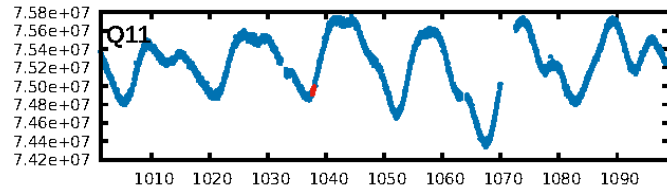
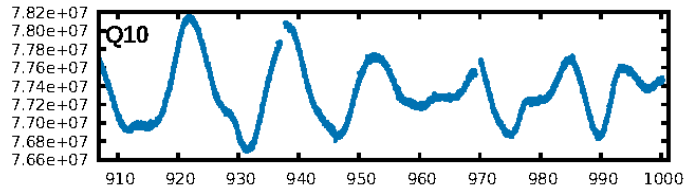
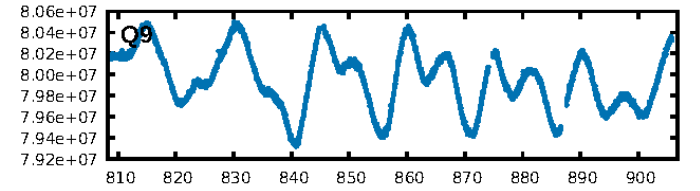
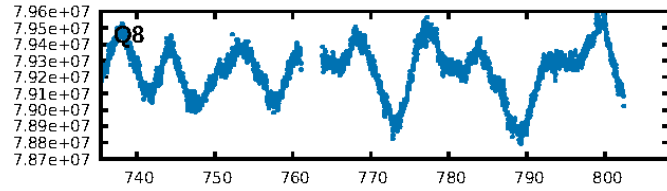
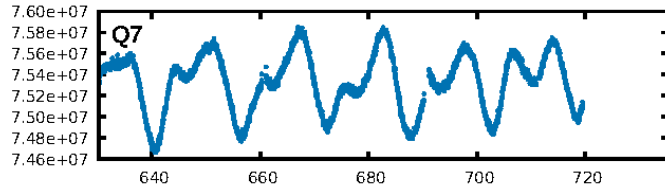
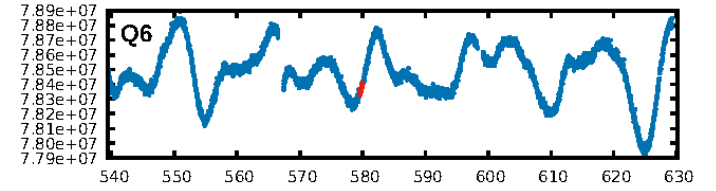
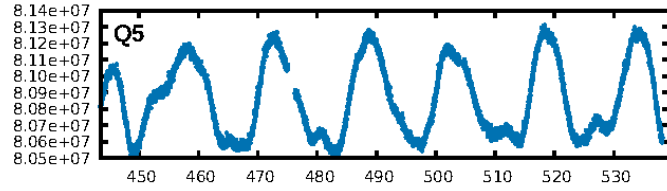
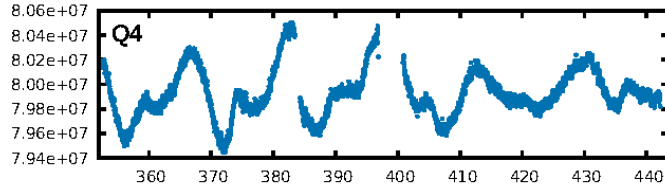
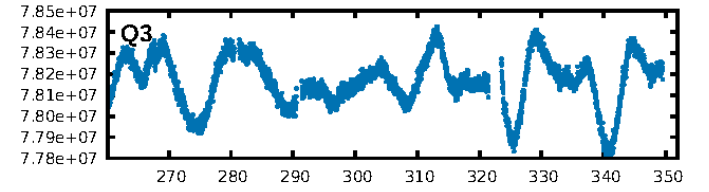
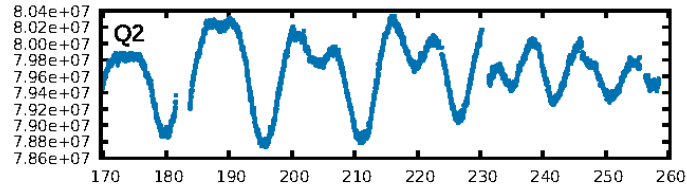
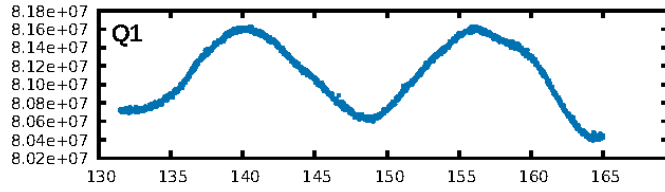
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [481.21σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 64.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.318
Centroid-sig: 10.9%
Centroid-so: 0.630 arcsec [0.93σ]
OotOffset-rm: 2.693 arcsec [0.66σ]
KicOffset-rm: 2.778 arcsec [0.68σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.00 [0/3]

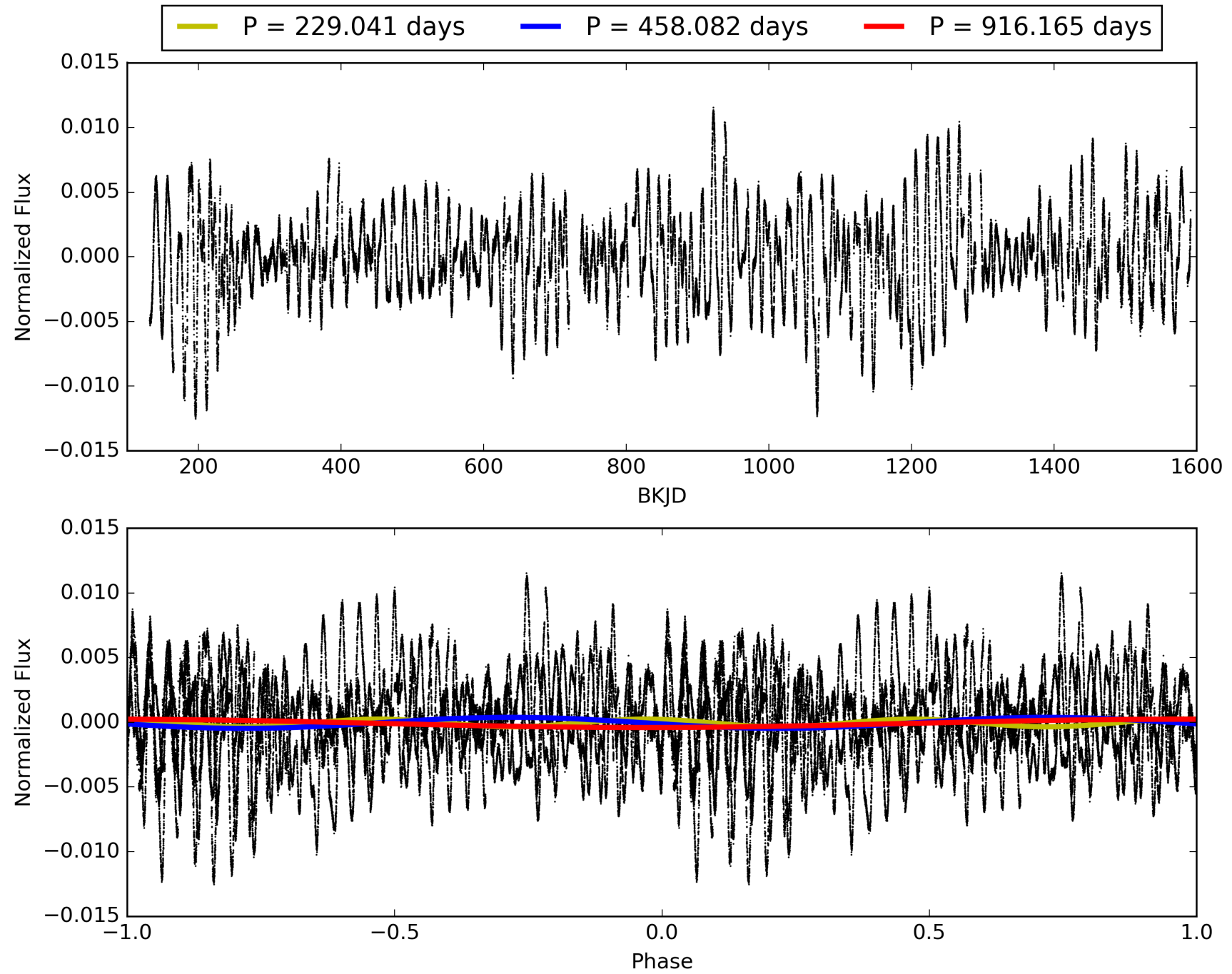
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:59:09 Z

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

TCE 008715589-06, PDC Light Curves

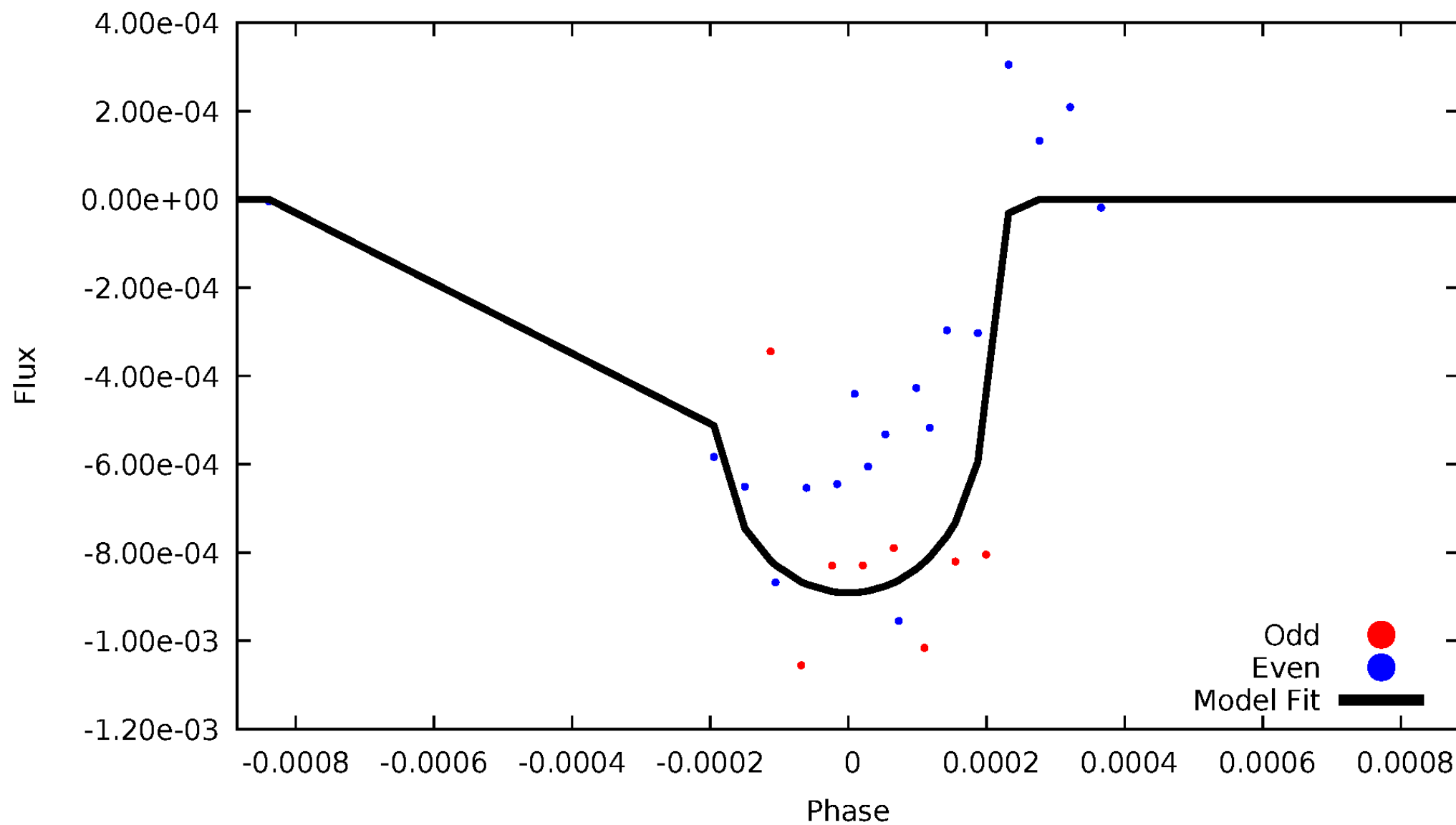


TCE 008715589-06



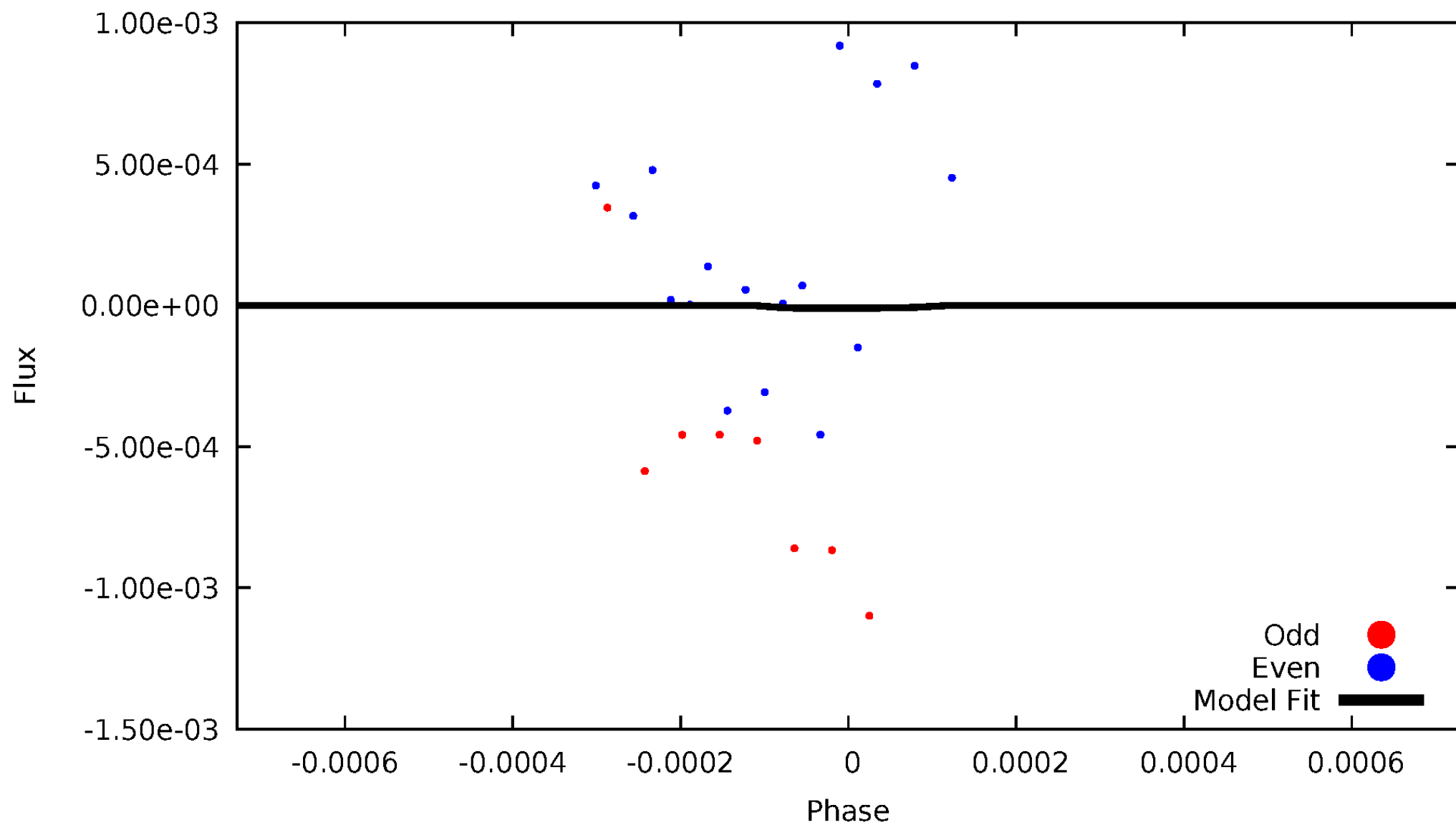
DV Odd/Even

TCE 008715589-06



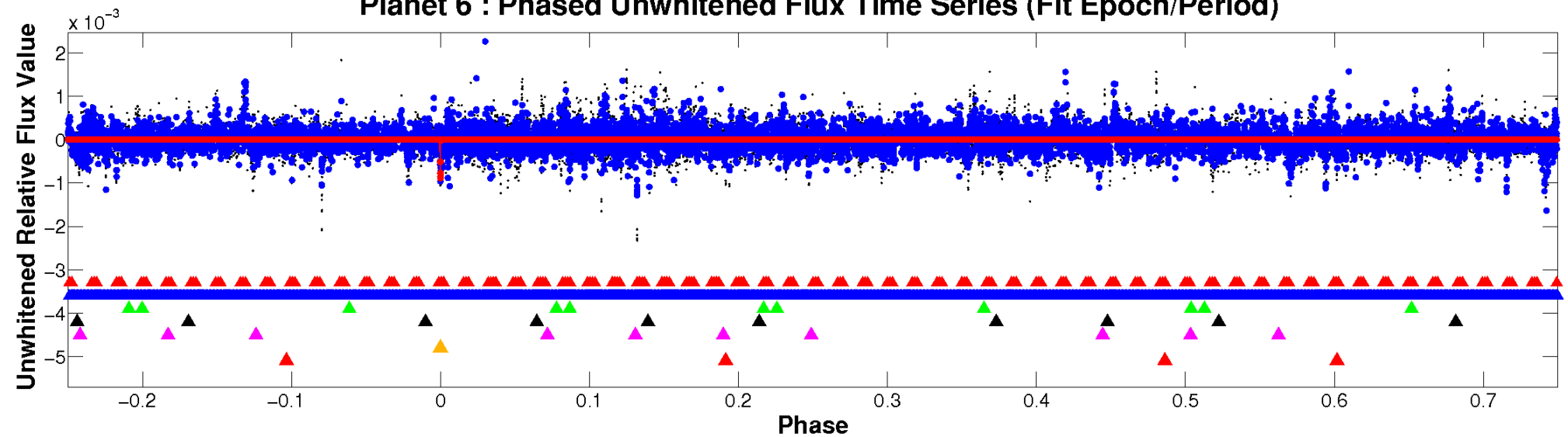
ALT Odd/Even

TCE 008715589-06

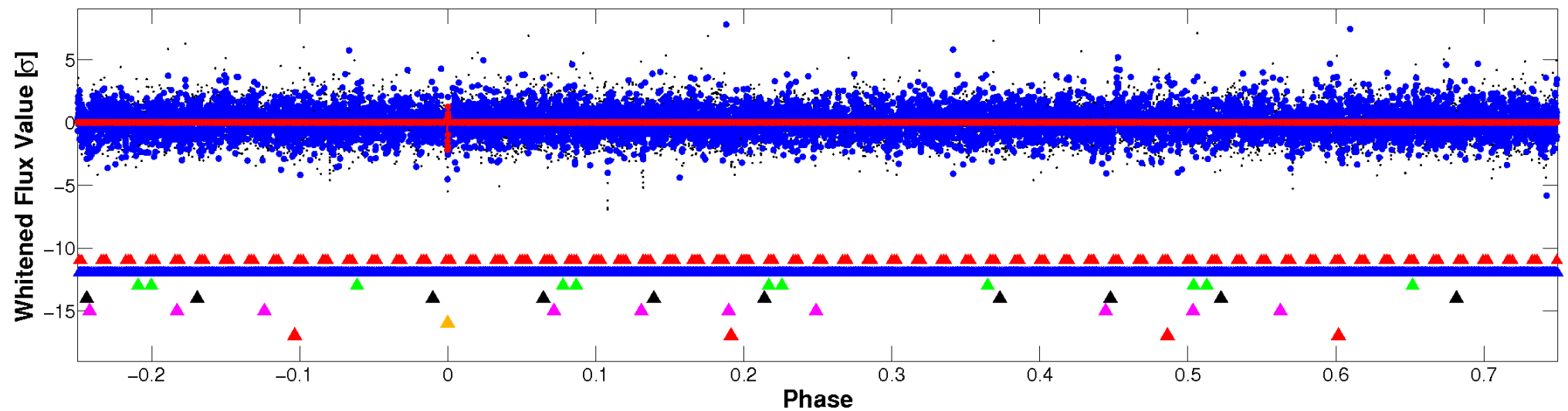


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

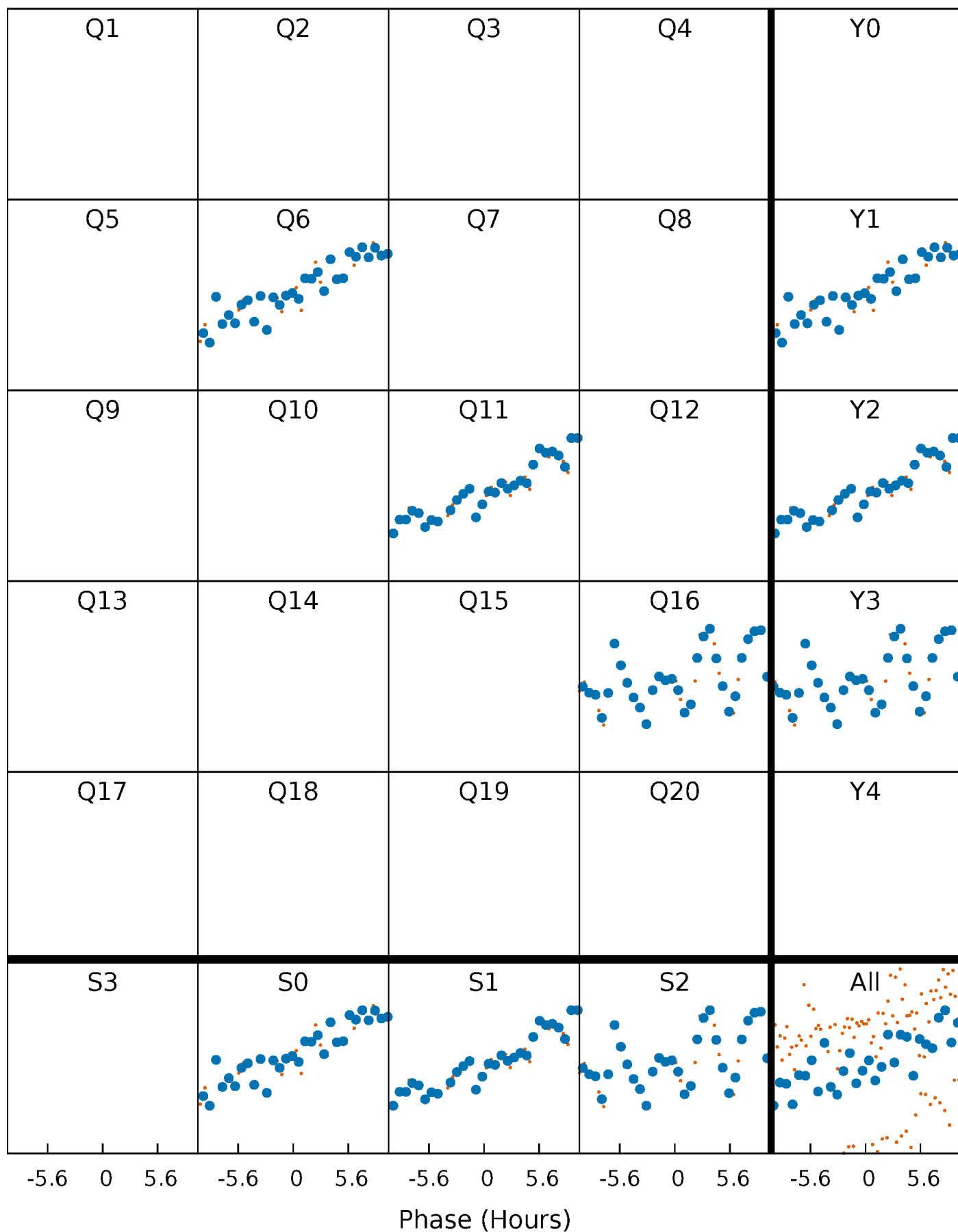


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



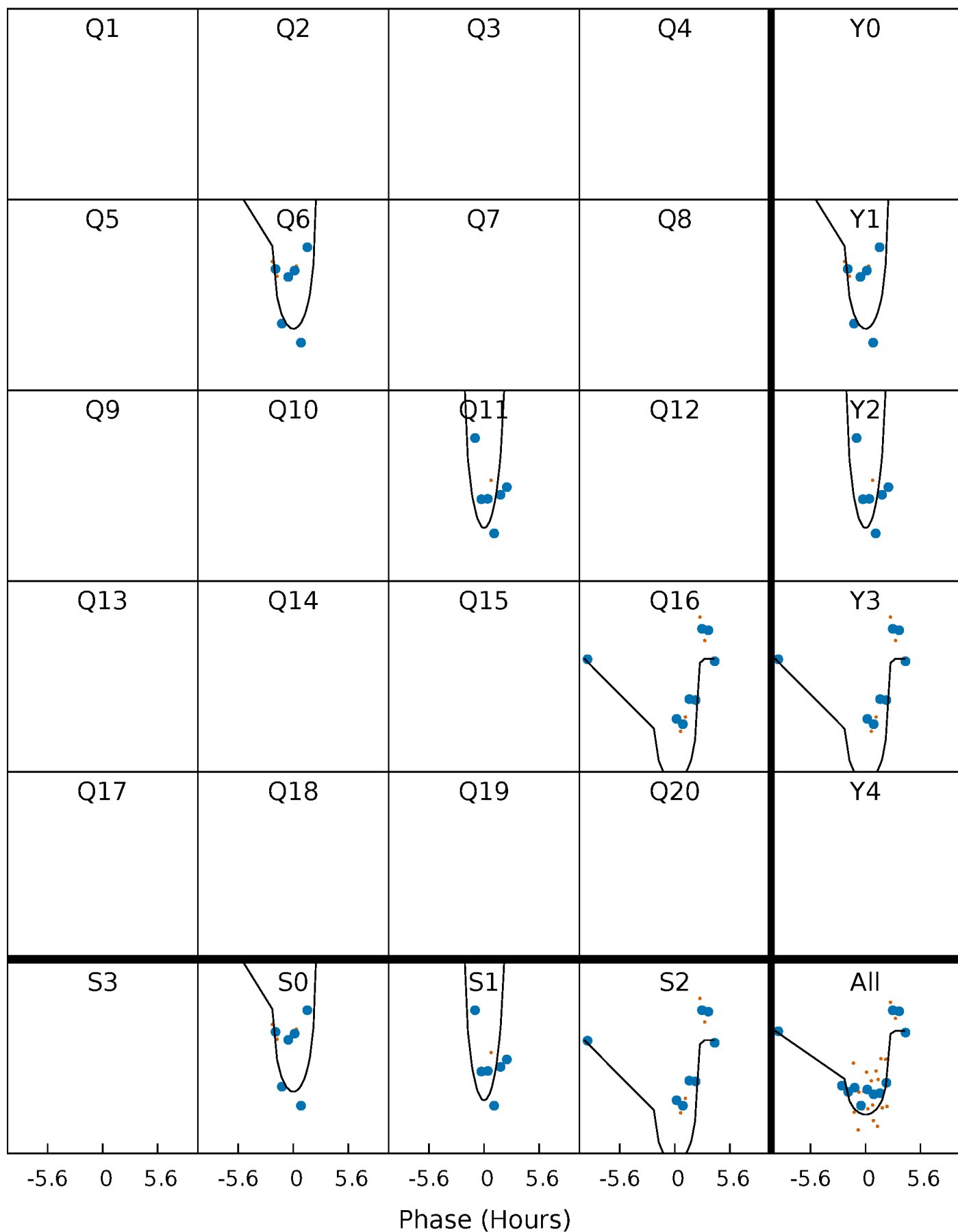
PDC Quarter-Phased Transit Curves

TCE 008715589-06 P=458.082496 Days $T_0=579.732614$ (BKJD)



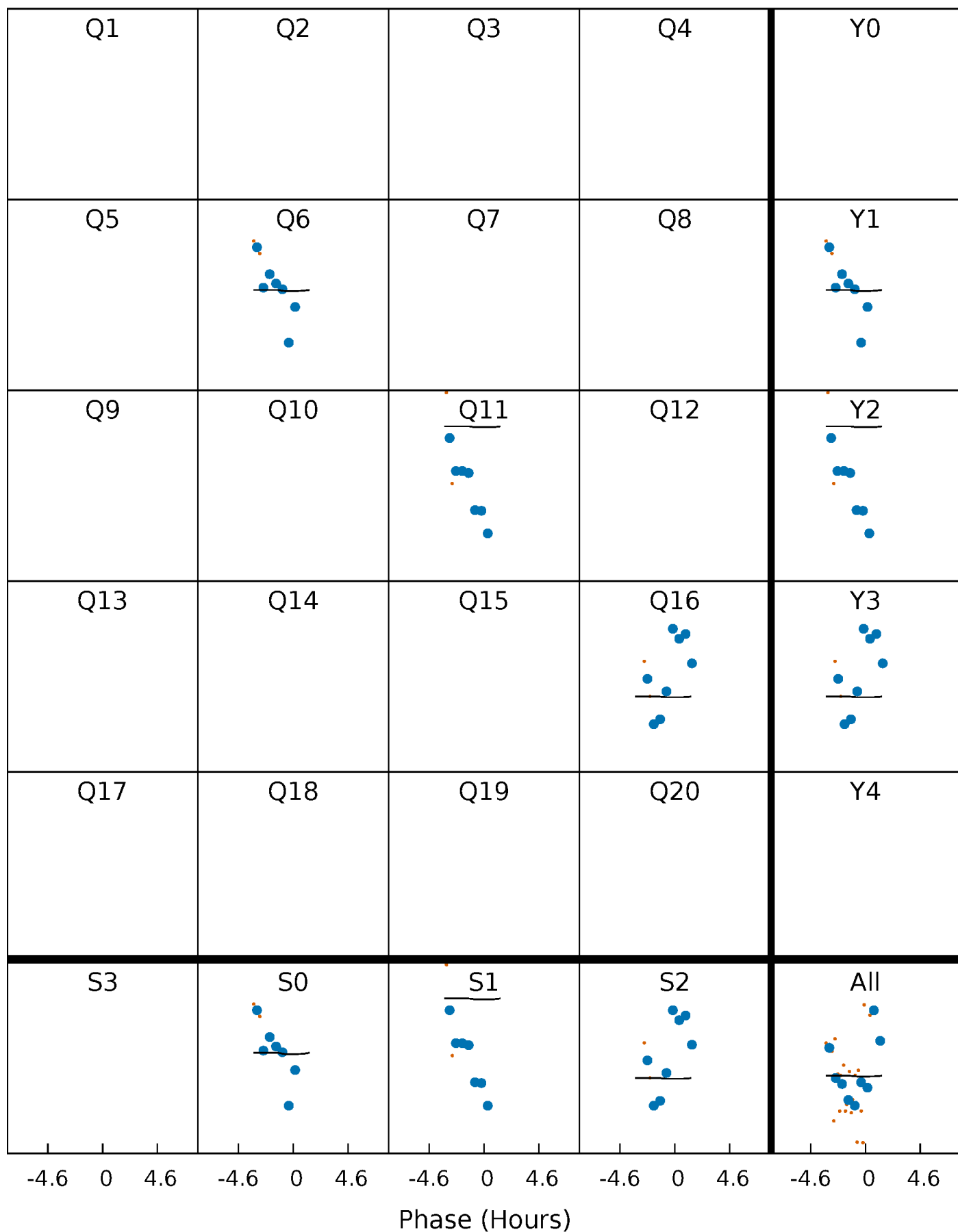
DV Quarter-Phased Transit Curves

TCE 008715589-06 P=458.082496 Days $T_0=579.732614$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

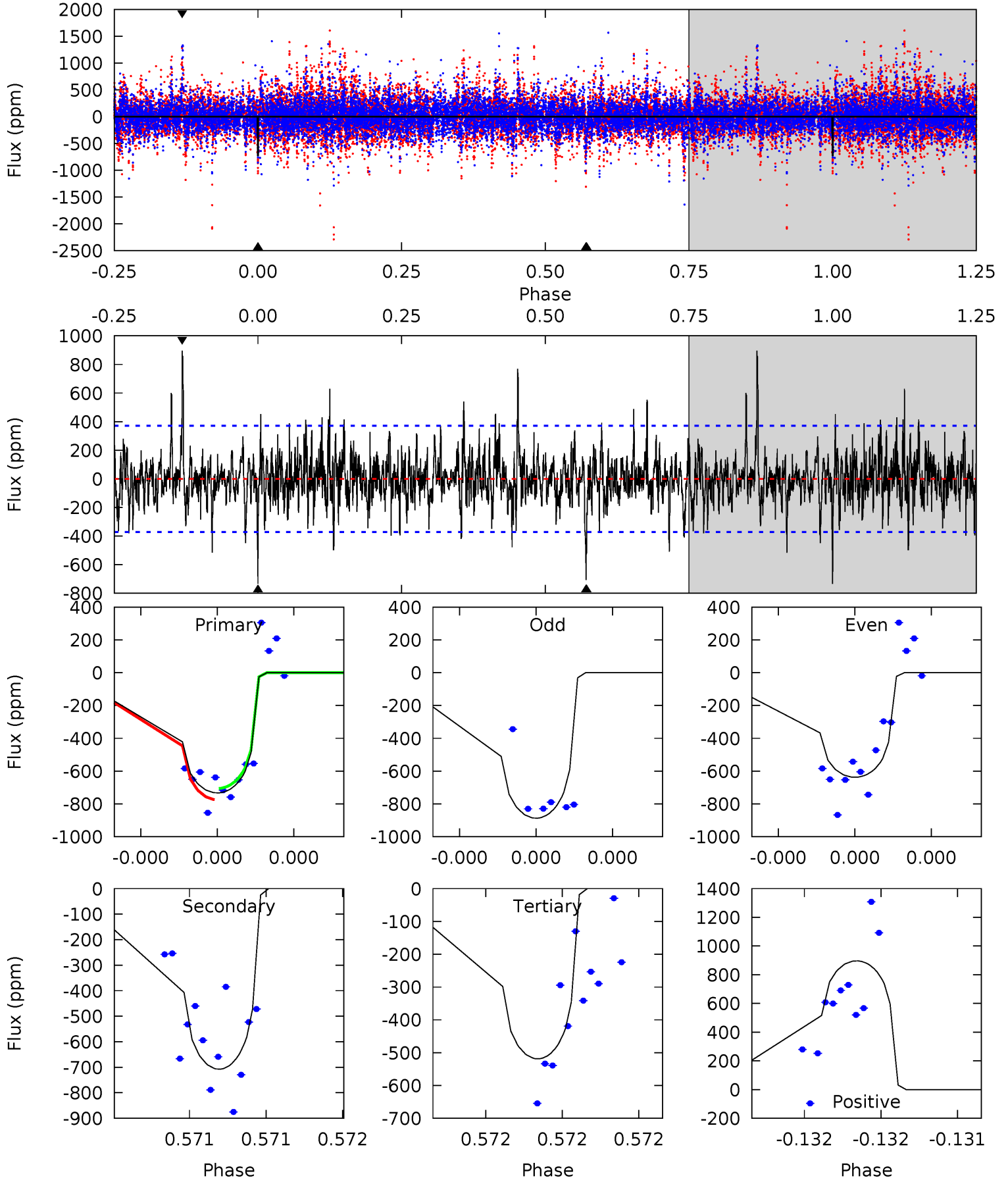
TCE 008715589-06 P=458.113604 Days $T_0=579.781402$ (BKJD)



DV Model-Shift Uniqueness Test

008715589-06, P = 458.082496 Days, E = 121.650118 Days

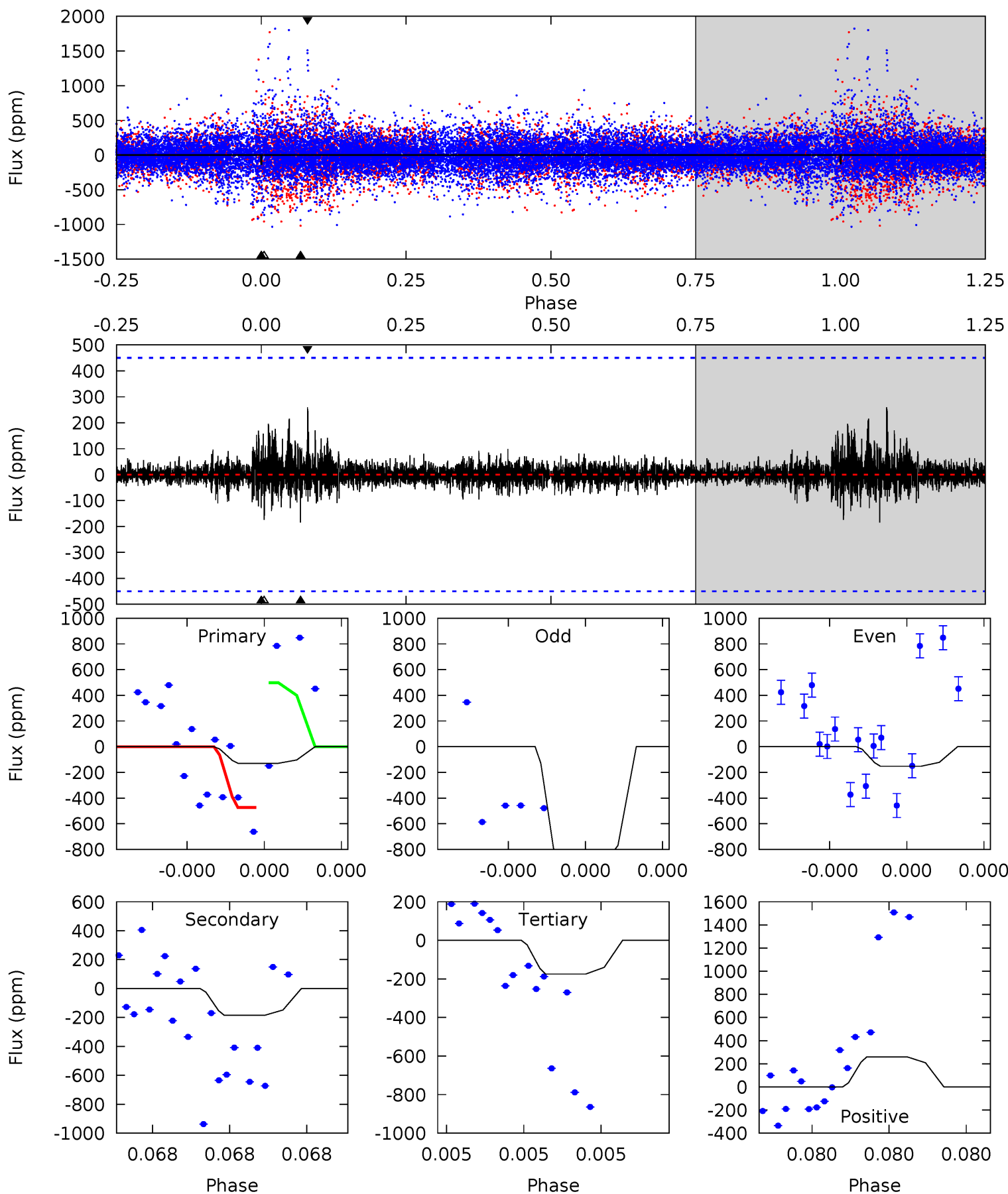
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	10.7	7.83	13.5	5.60	3.52	2.10	3.23	-2.47	2.85	-2.86	1.83	0.93	0.55	0.50



Alt Model-Shift Uniqueness Test

008715589-06, P = 458.113604 Days, E = 121.667798 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.65	2.36	2.23	3.31	5.74	3.74	0.40	-0.58	-1.67	0.13	-0.95	5.21	0.83	0.58	0



Stellar Parameters For KIC 008715589

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5222^{+173}_{-157}	$3.556^{+0.936}_{-0.234}$	$-0.260^{+0.300}_{-0.250}$	$3.162^{+1.003}_{-2.174}$	$1.312^{+0.173}_{-0.433}$	$0.058^{+1.686}_{-0.033}$
	$+3\%/-3\%$	$+26\%/-7\%$	$+115\%/-96\%$	$+32\%/-69\%$	$+13\%/-33\%$	$+2884\%/-57\%$
Source	PHO1	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 008715589-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-707 ± 66	$10.27^{+10.87}_{-6.36}$	493^{+61}_{-97}	4622^{+2613}_{-933}	5838^{+33827}_{-4479}
Alt.	-185 ± 78	$6.01^{+7.85}_{-4.21}$	499^{+57}_{-101}	4334^{+3177}_{-1034}	3737^{+40177}_{-3058}

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 $A_{obs} \gg 1.0$

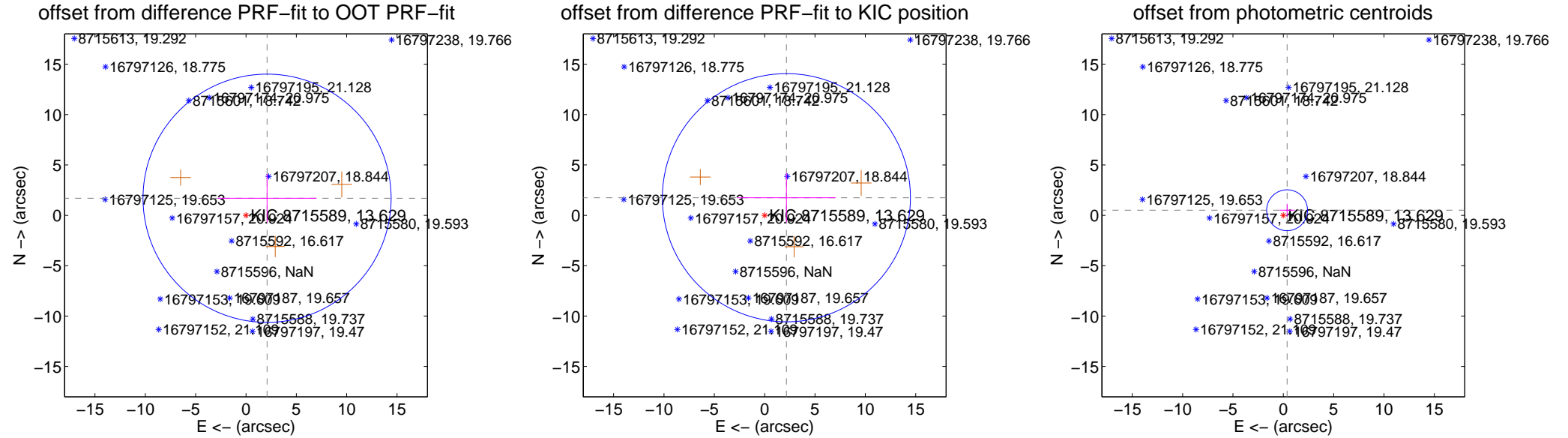
DV Centroid Data

Supplemental centroid analysis for 008715589-06. Kepler magnitude: 13.63. Transit SNR 8.79

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.693 ± 4.108	0.66	-2.093 ± 4.911	1.694 ± 2.408
PRF-fit source offset from KIC position	2.778 ± 4.107	0.68	-2.160 ± 4.896	1.746 ± 2.448
photometric centroid source offset	0.63 ± 0.68	0.93	-0.38 ± 0.74	0.50 ± 0.64

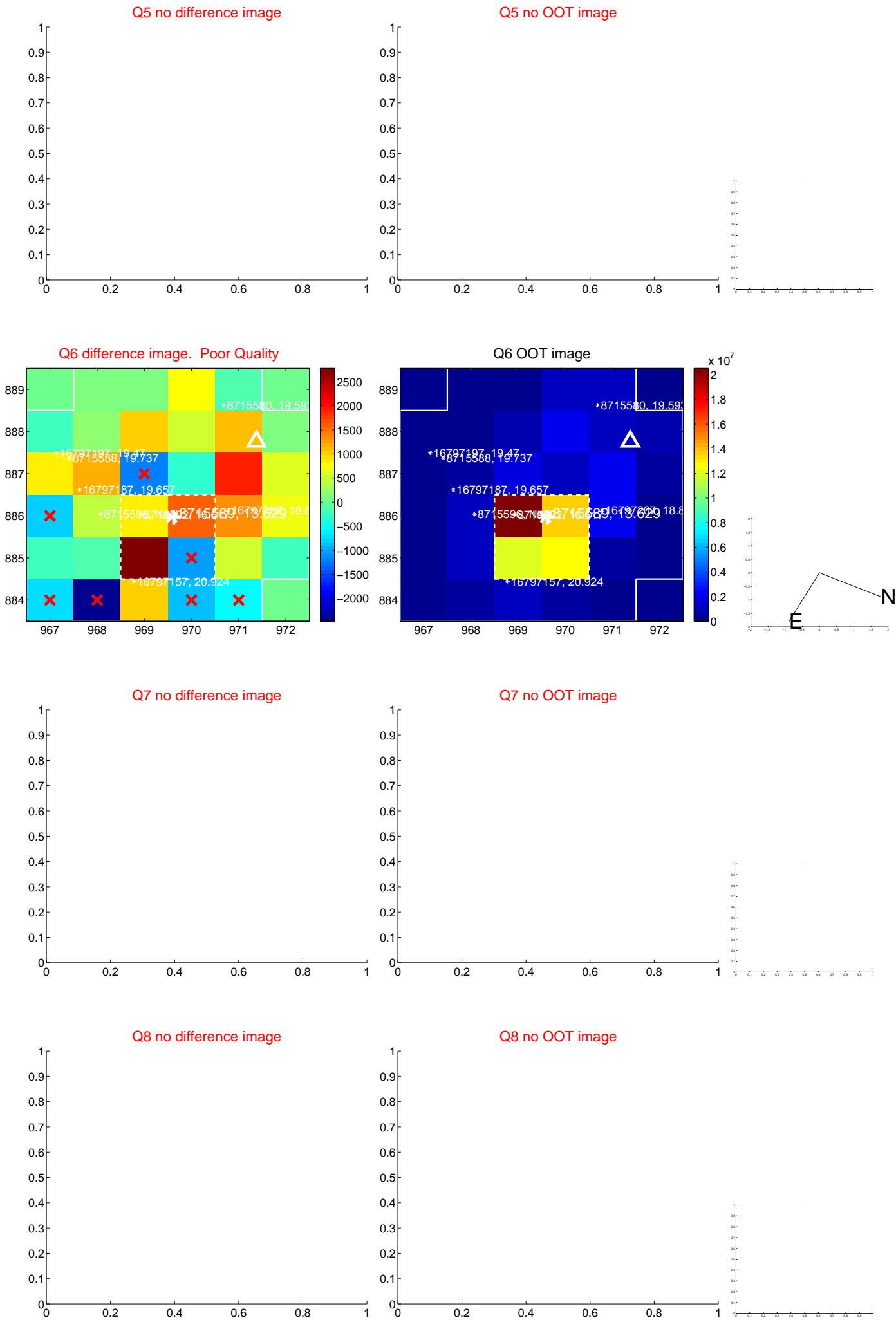


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

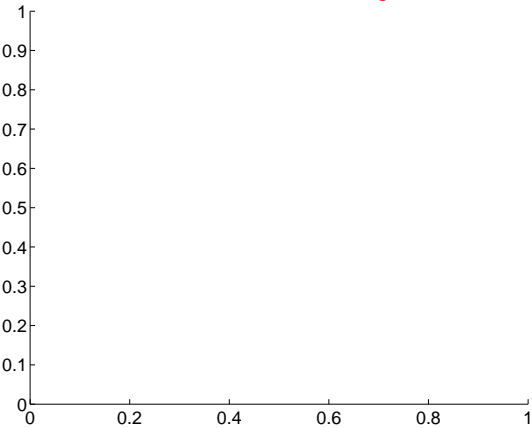
Q9 no difference image



Q9 no OOT image



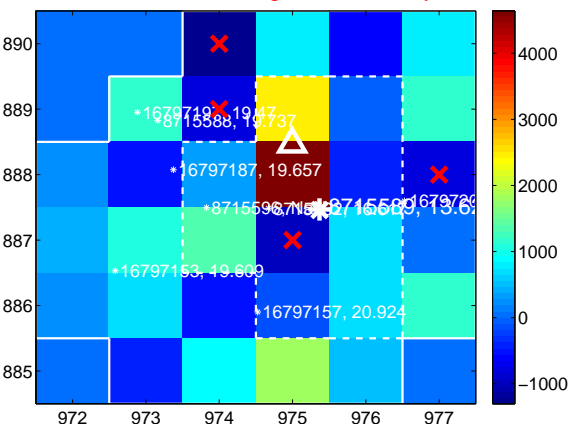
Q10 no difference image



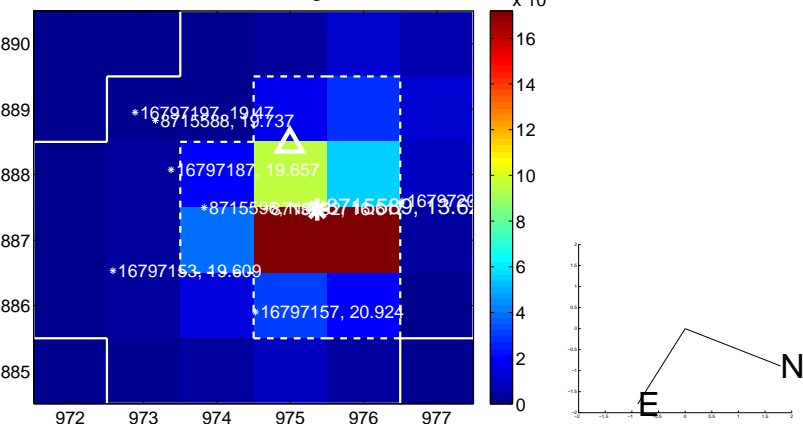
Q10 no OOT image



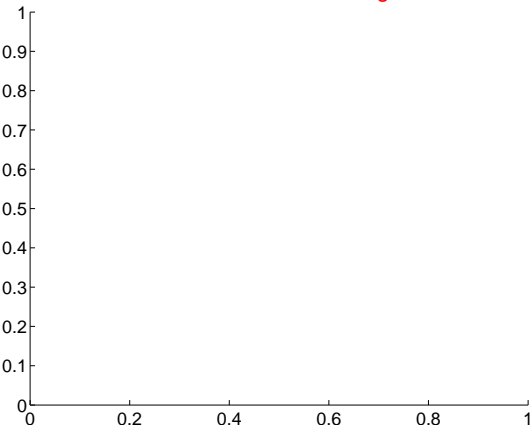
Q11 difference image. Poor Quality



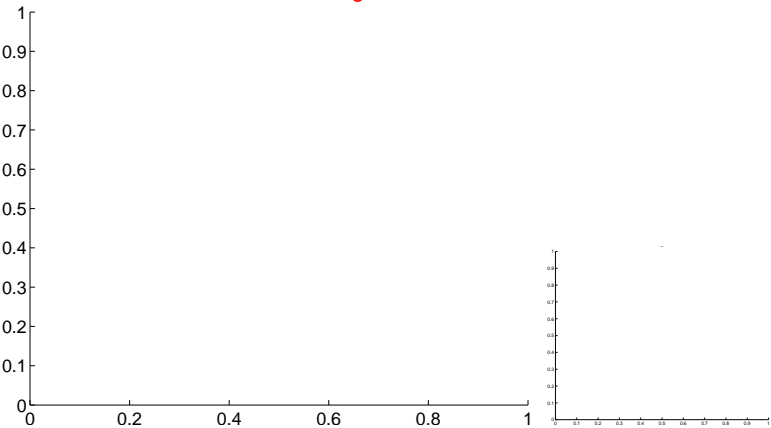
Q11 OOT image



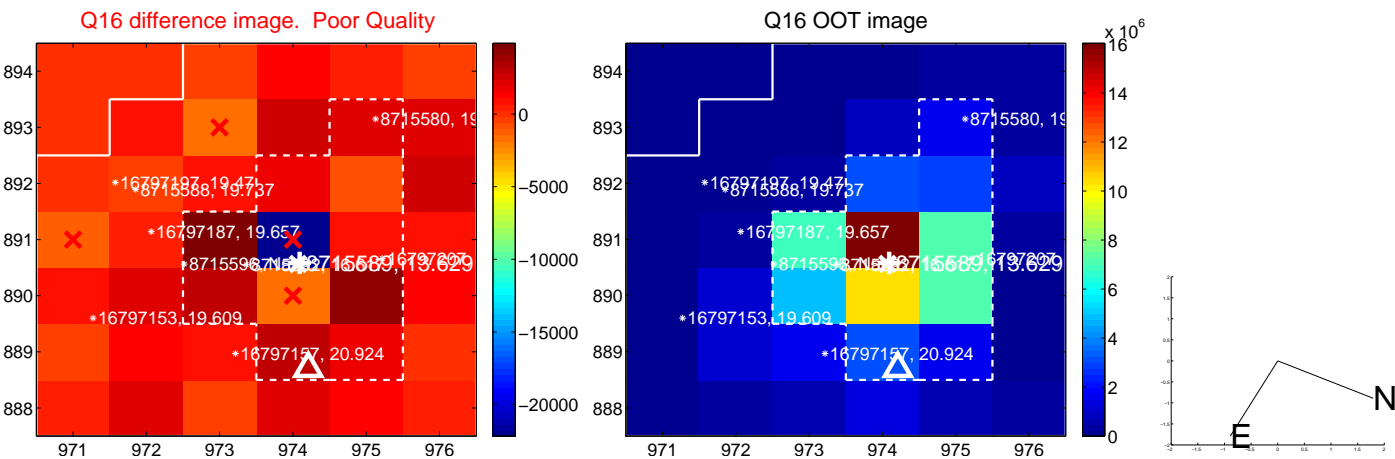
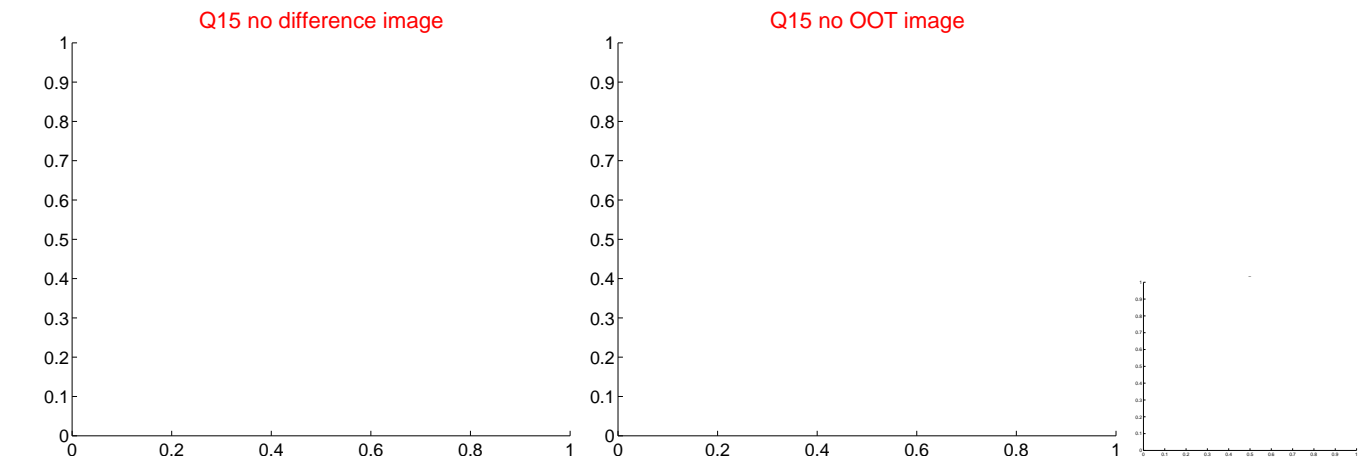
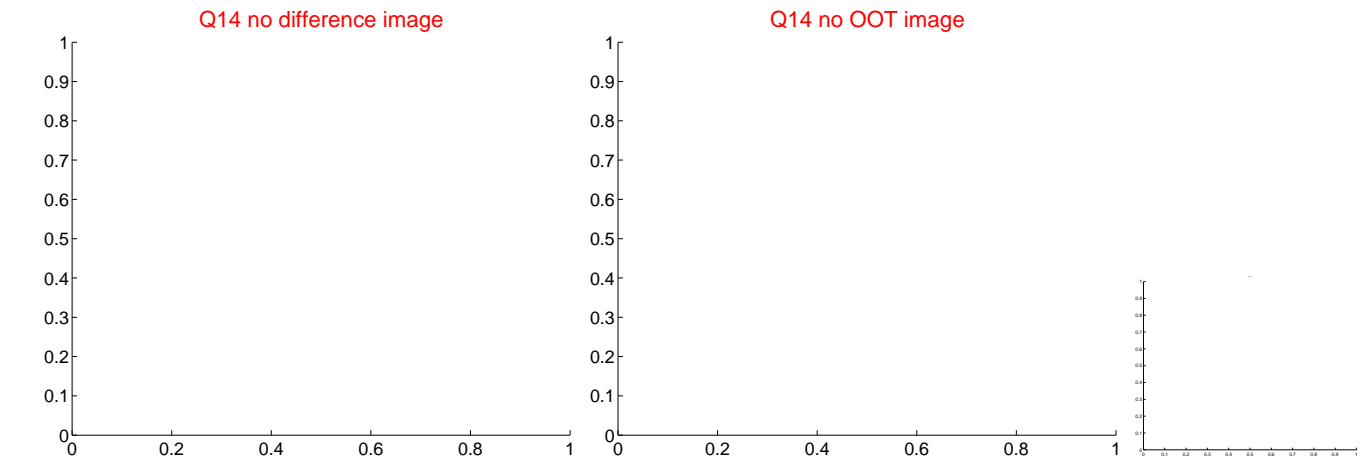
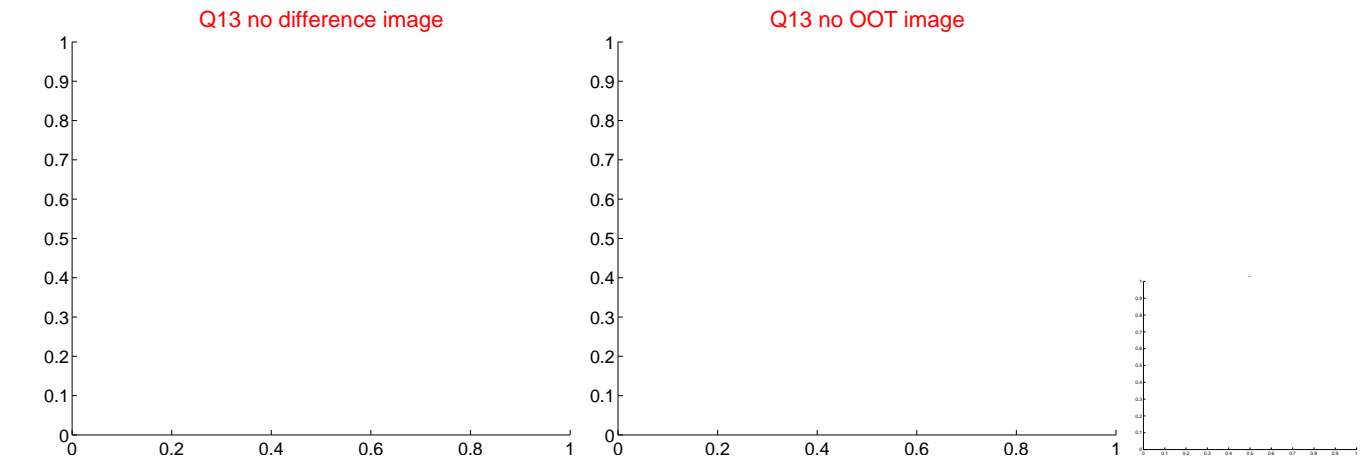
Q12 no difference image



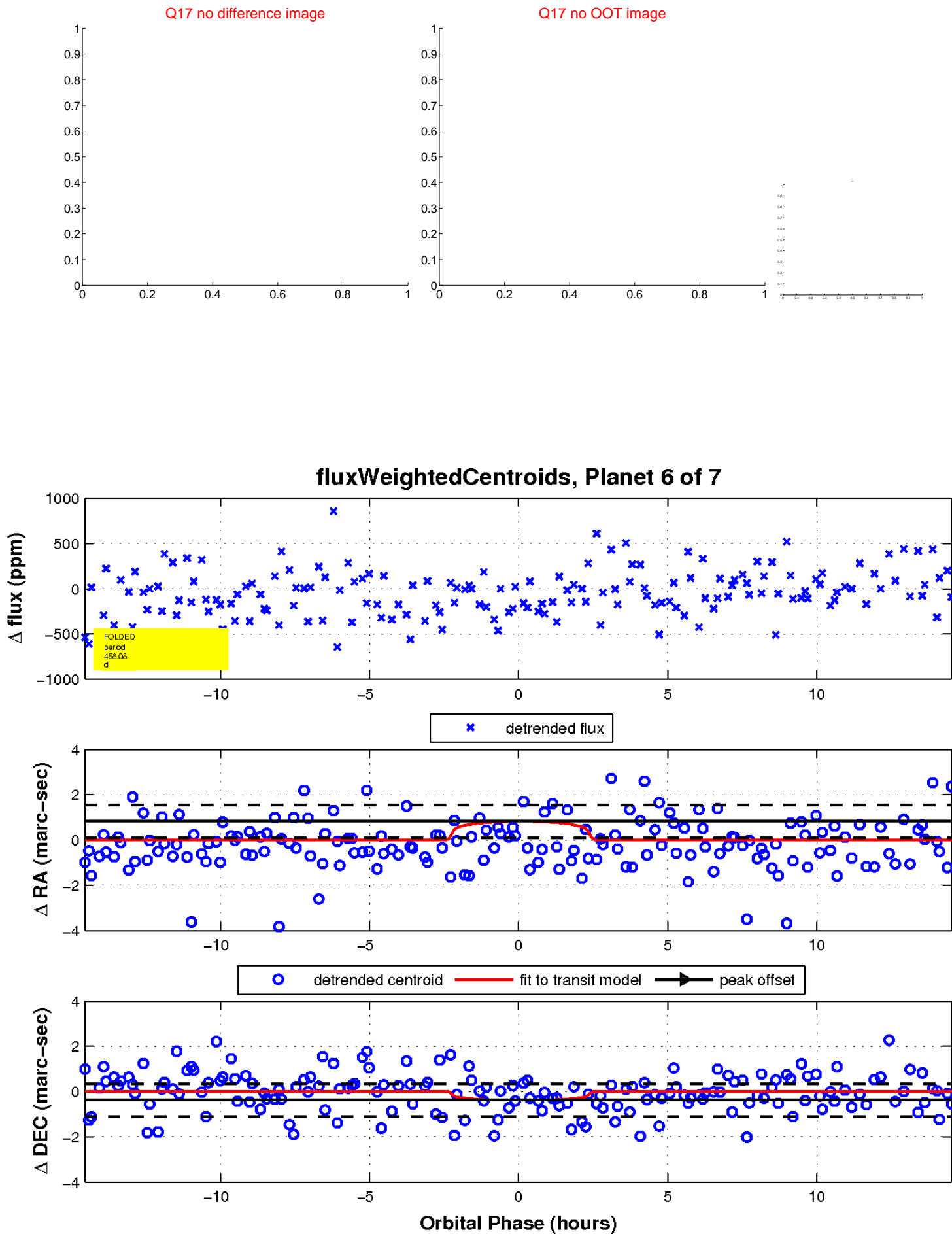
Q12 no OOT image



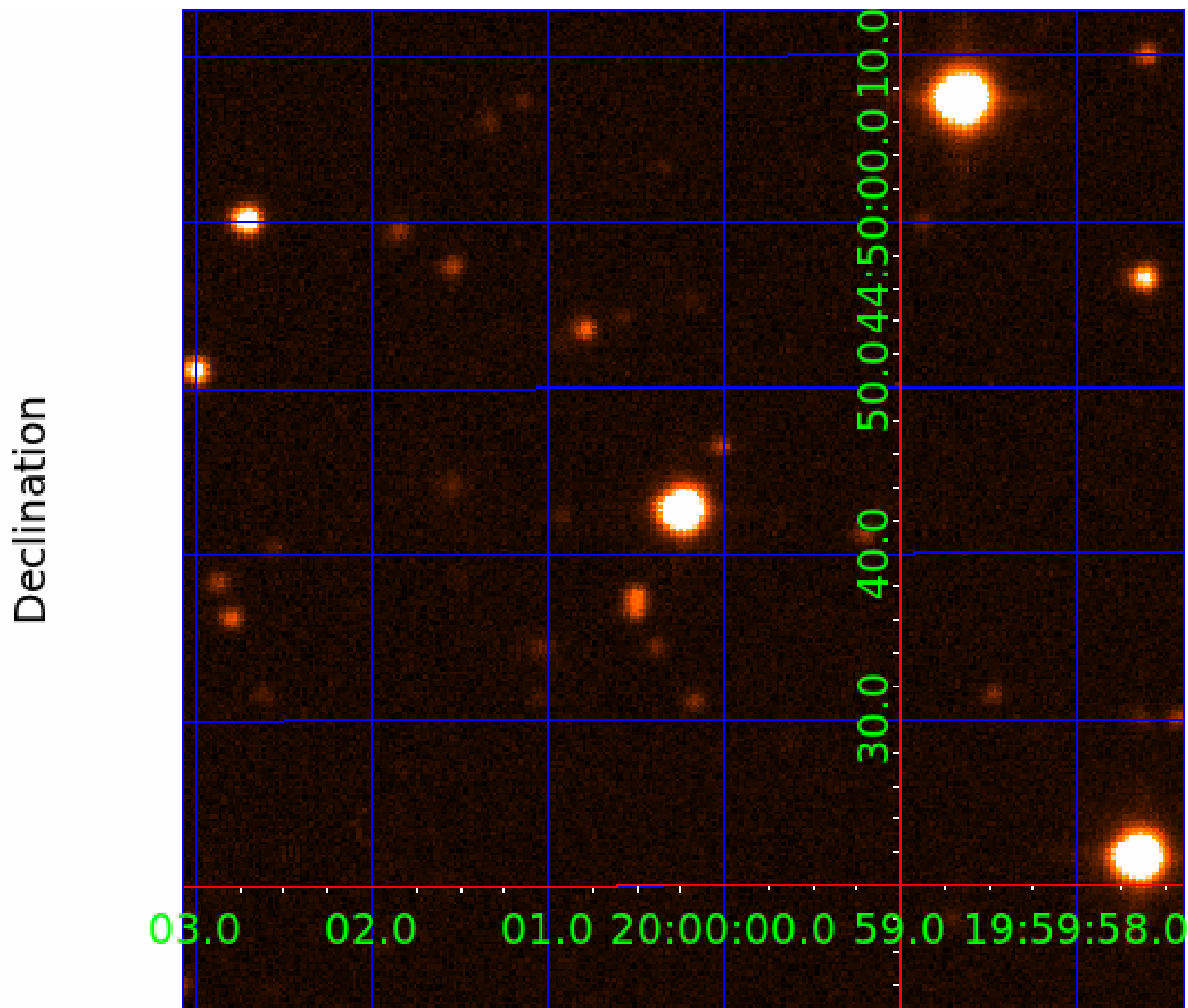
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008715589

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})
008715589-01	OBS	5563.01	7.621968	138.660737	132.3	1.913	10.4	12.4	3.16	5222	3.88	967.08
008715589-02	OBS	No	0.544753	131.649468	11.5	2.852	8.9	4.5	3.16	5222	1.09	0.00
008715589-06	OBS	No	458.082496	579.732614	890.9	4.862	12.1	8.8	3.16	5222	9.72	4.11
008715589-07	OBS	No	323.029247	344.393154	798.6	4.661	11.4	9.3	3.16	5222	11.06	6.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008715589-01	OBS	PC	0.65	0	0	0	0	NO_COMMENT
008715589-02	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
008715589-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008715589-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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 008715589-07

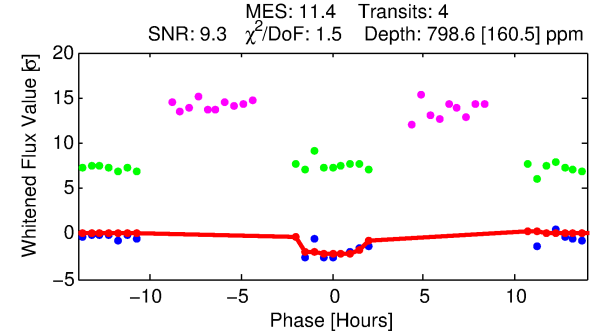
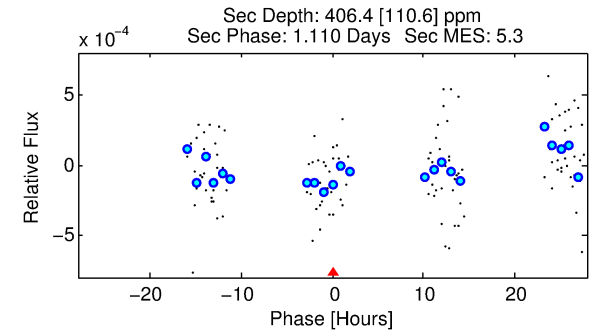
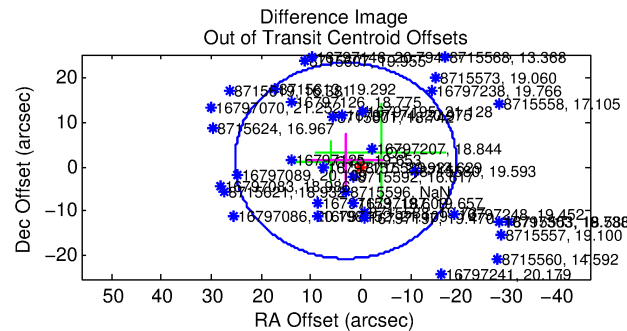
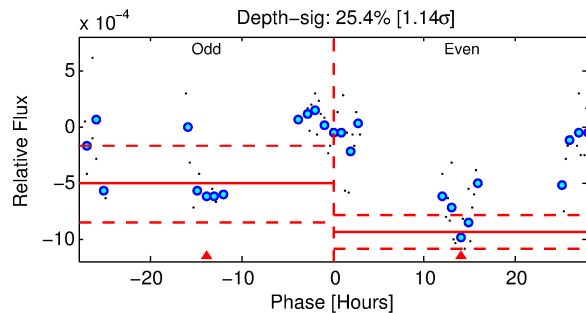
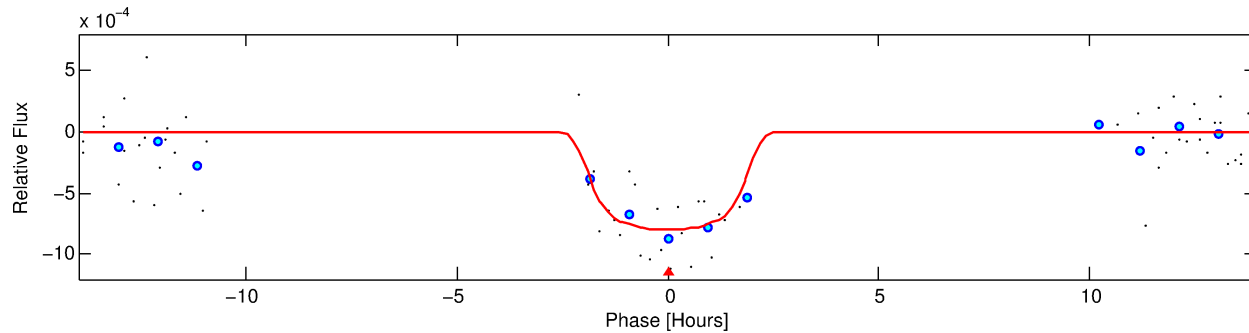
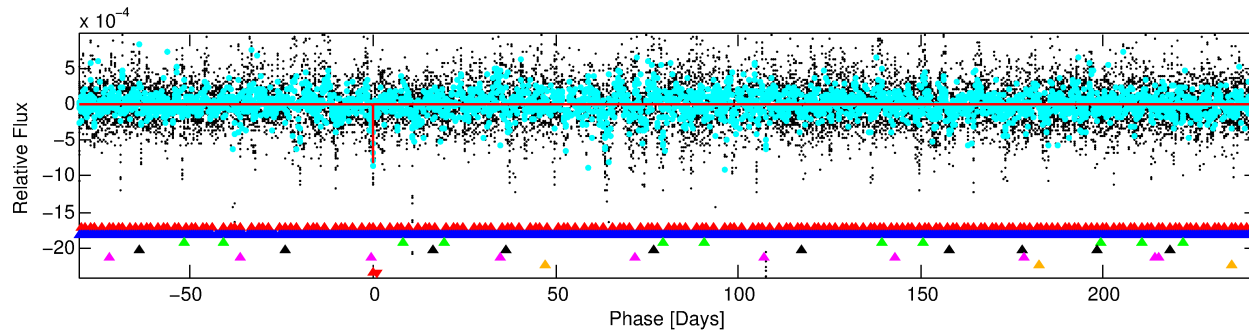
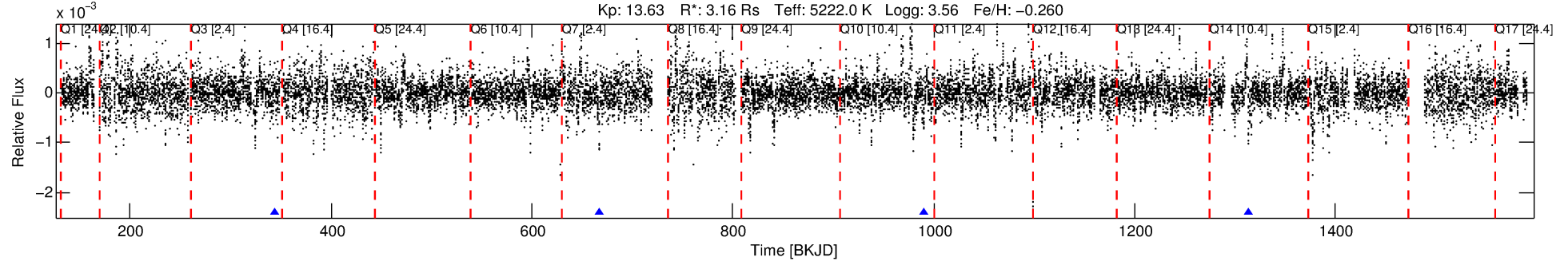
No Significant Match Found

DV One-Page Summary

KIC: 8715589 Candidate: 7 of 7 Period: 323.029 d

KOI: K05563 Corr: No Ephemeris Match

Kp: 13.63 R*: 3.16 Rs Teff: 5222.0 K Logg: 3.56 Fe/H: -0.260



DV Fit Results:

Period = 323.02925 [0.01591] d
Epoch = 344.3932 [0.0352] BKJD
Rp/R* = 0.0321 [0.0093]
a/R* = 245.24 [288.76]
b = 0.92 [0.16]
Seff = 6.54 [9.91]
Teq = 408 [154] K
Rp = 11.06 [8.26] Re
a = 1.0089 [0.8597] AU
Ag = 1860.27 [3049.66] [0.61σ]
Teffp = 4141 [679] K [5.36σ]

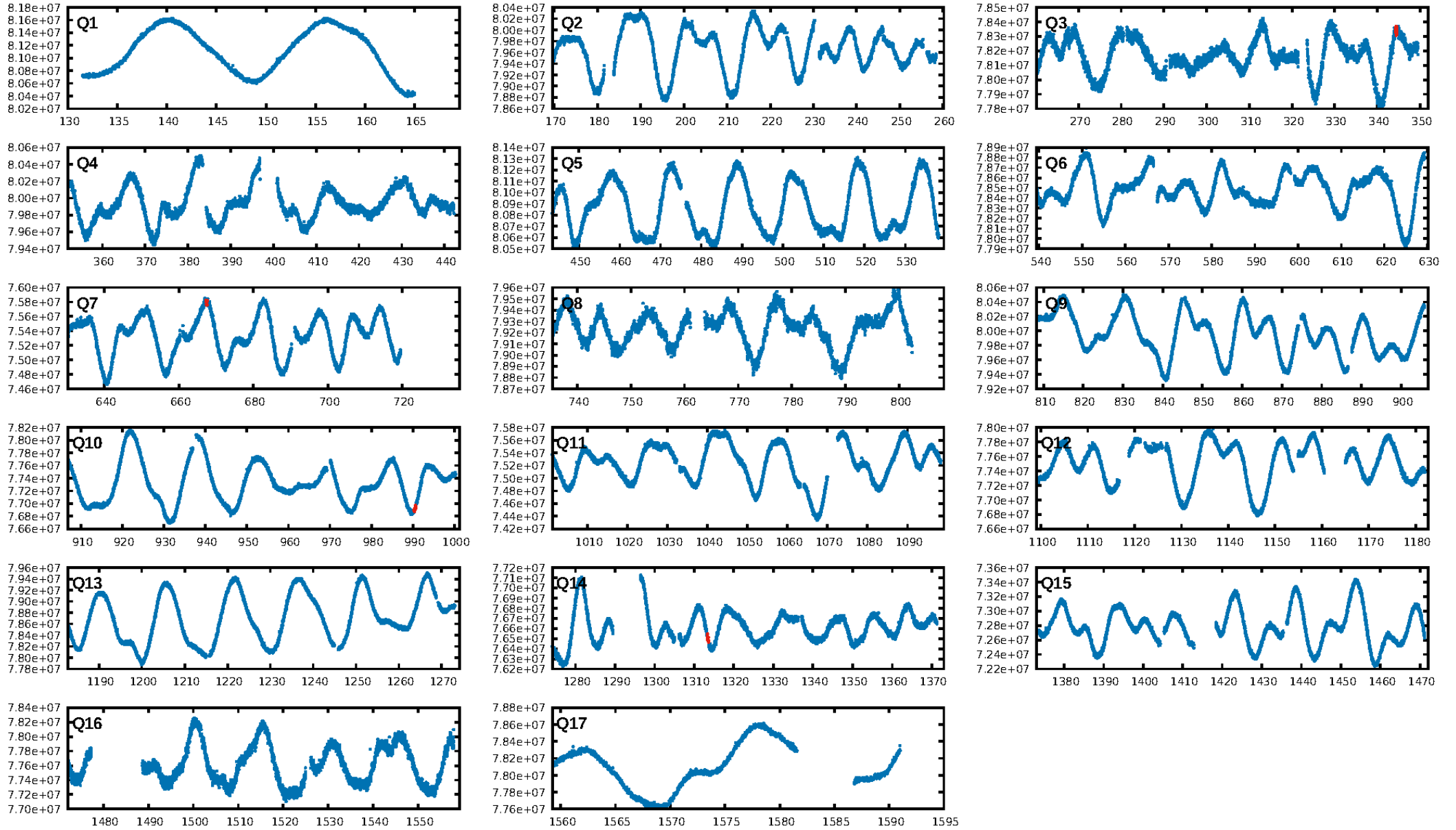
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [793.42σ]
LongPeriod-sig: 100.0% [481.21σ]
ModelChiSquare2-sig: 3.6%
ModelChiSquareGof-sig: 98.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.025
Centroid-sig: 82.3%
Centroid-so: 0.721 arcsec [1.13σ]
OotOffset-rm: 3.295 arcsec [0.44σ]
KicOffset-rm: 3.258 arcsec [0.44σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/4]

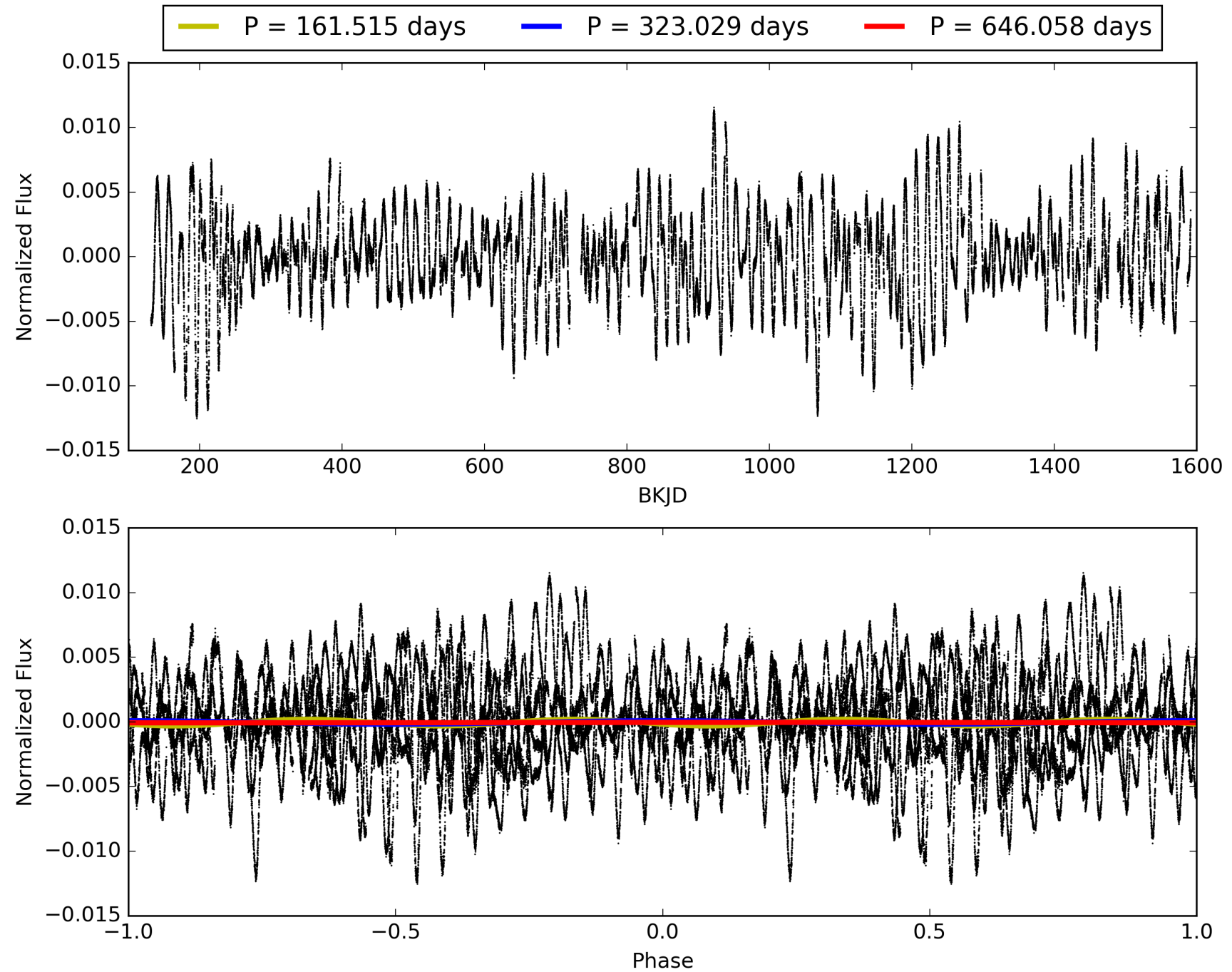
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:59:16 Z

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

TCE 008715589-07, PDC Light Curves

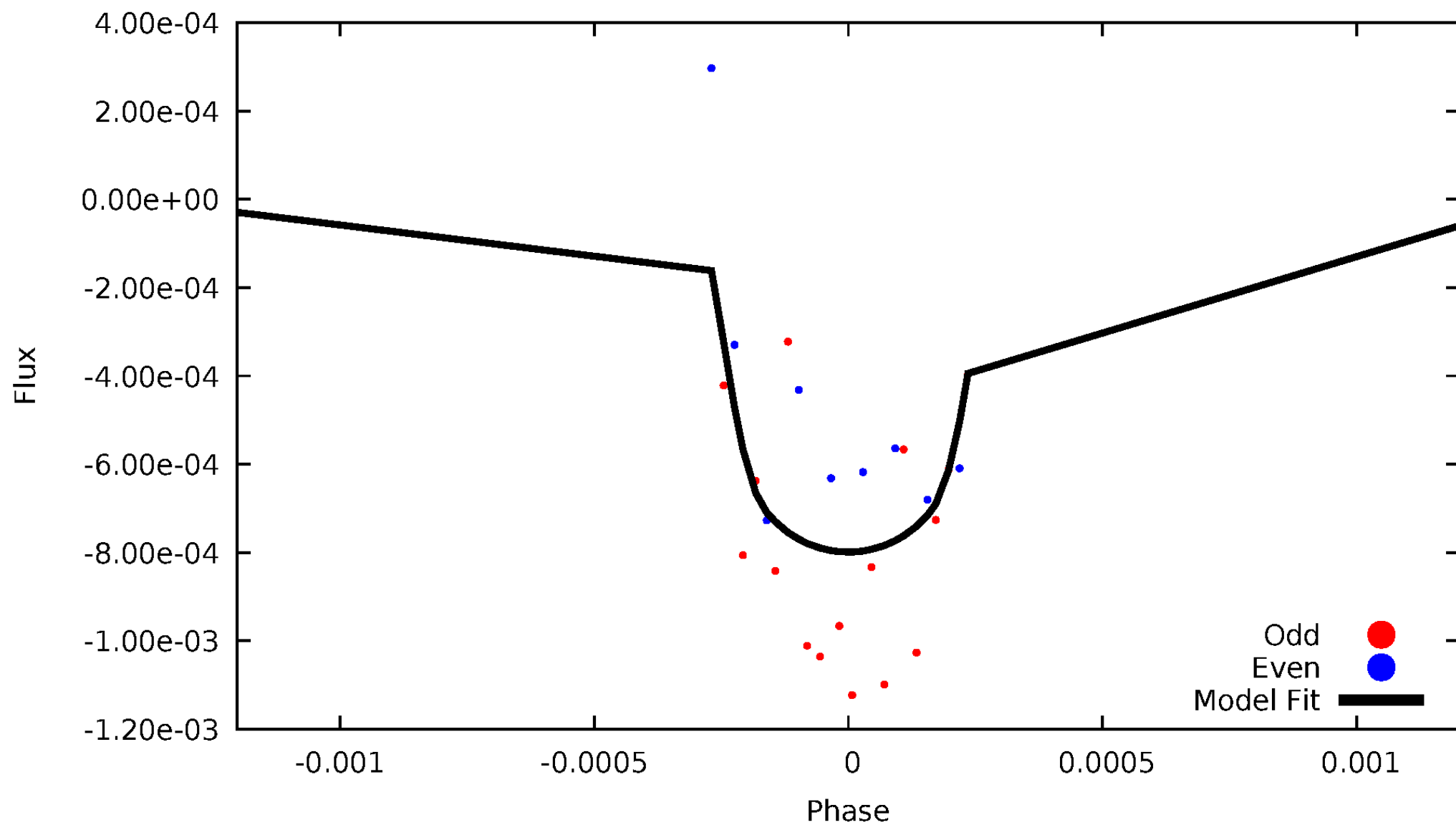


TCE 008715589-07



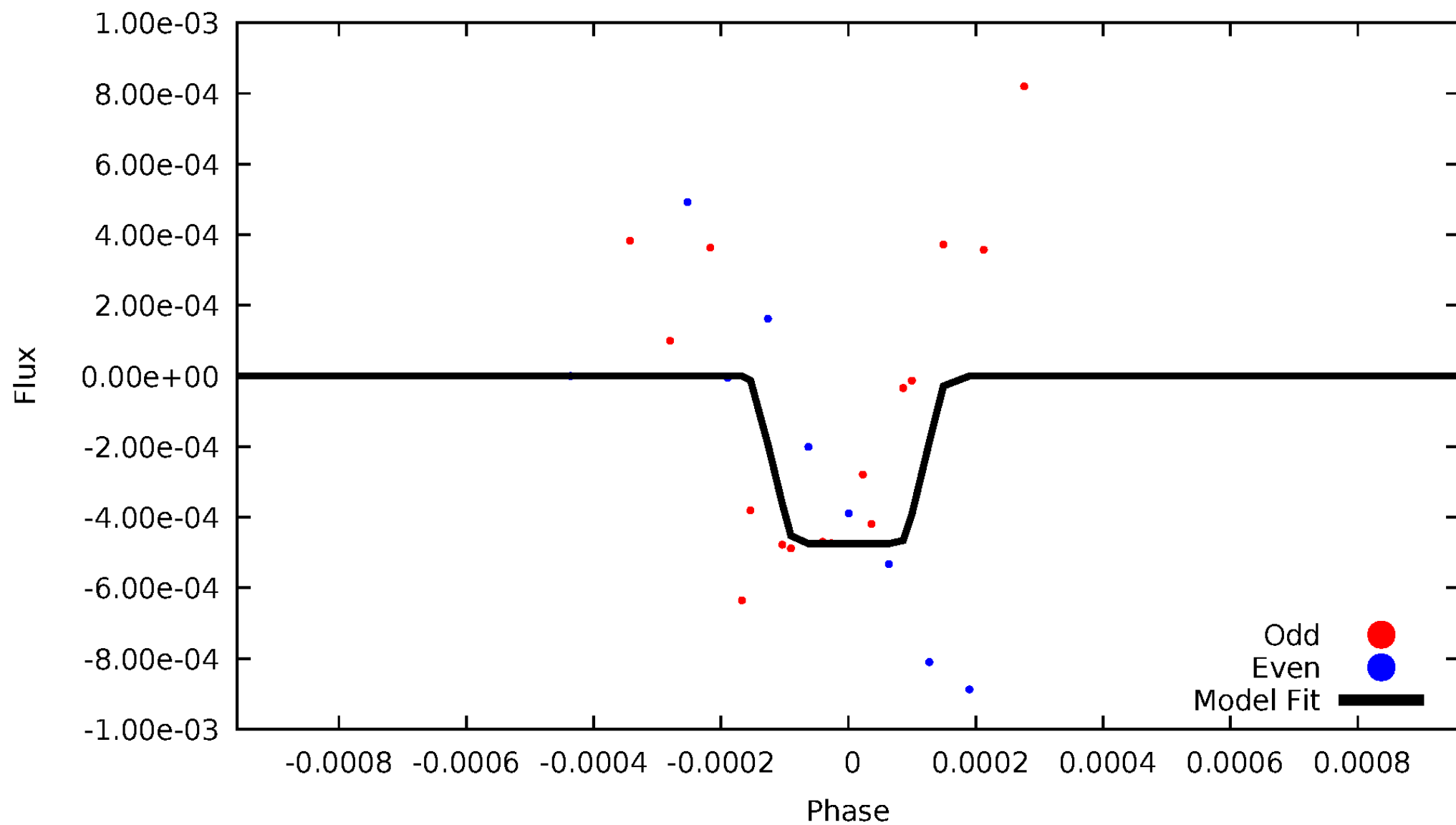
DV Odd/Even

TCE 008715589-07



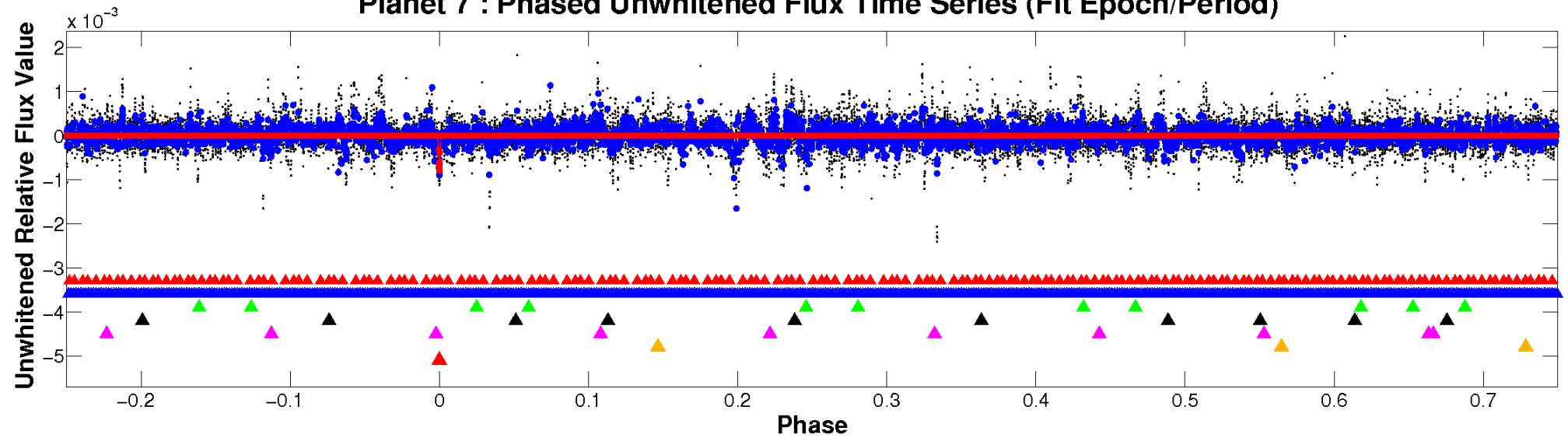
ALT Odd/Even

TCE 008715589-07

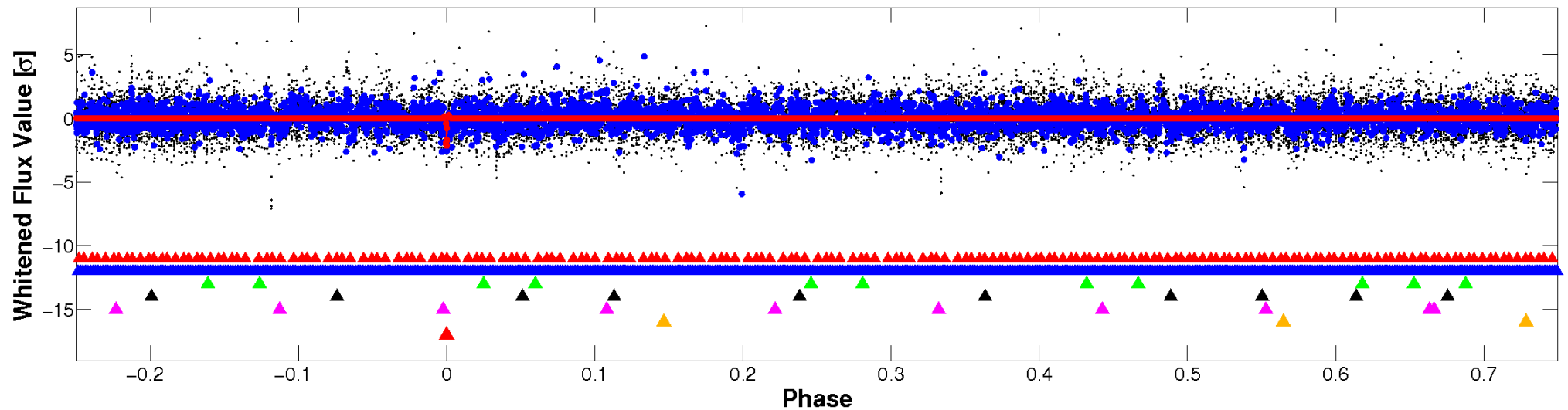


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

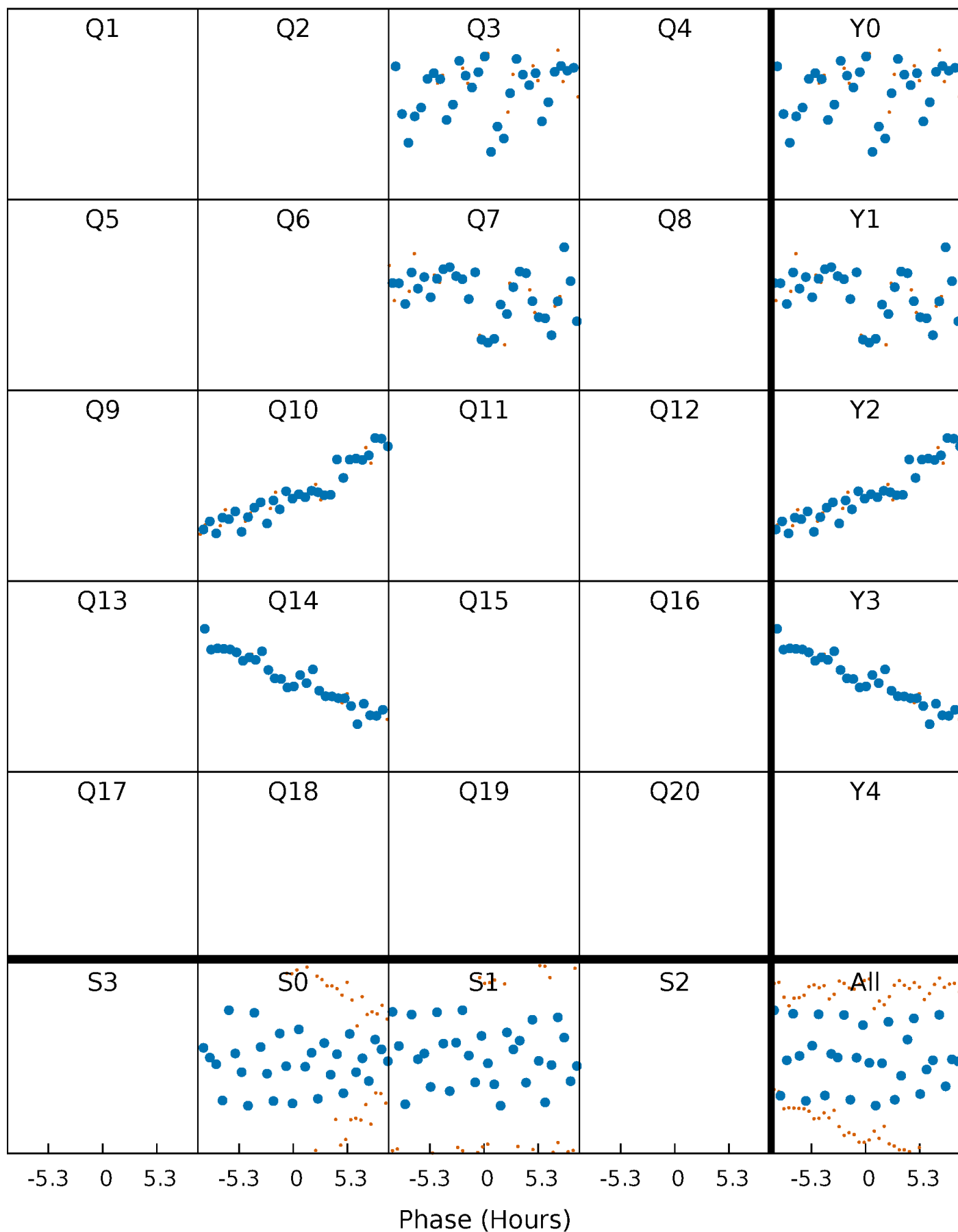


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



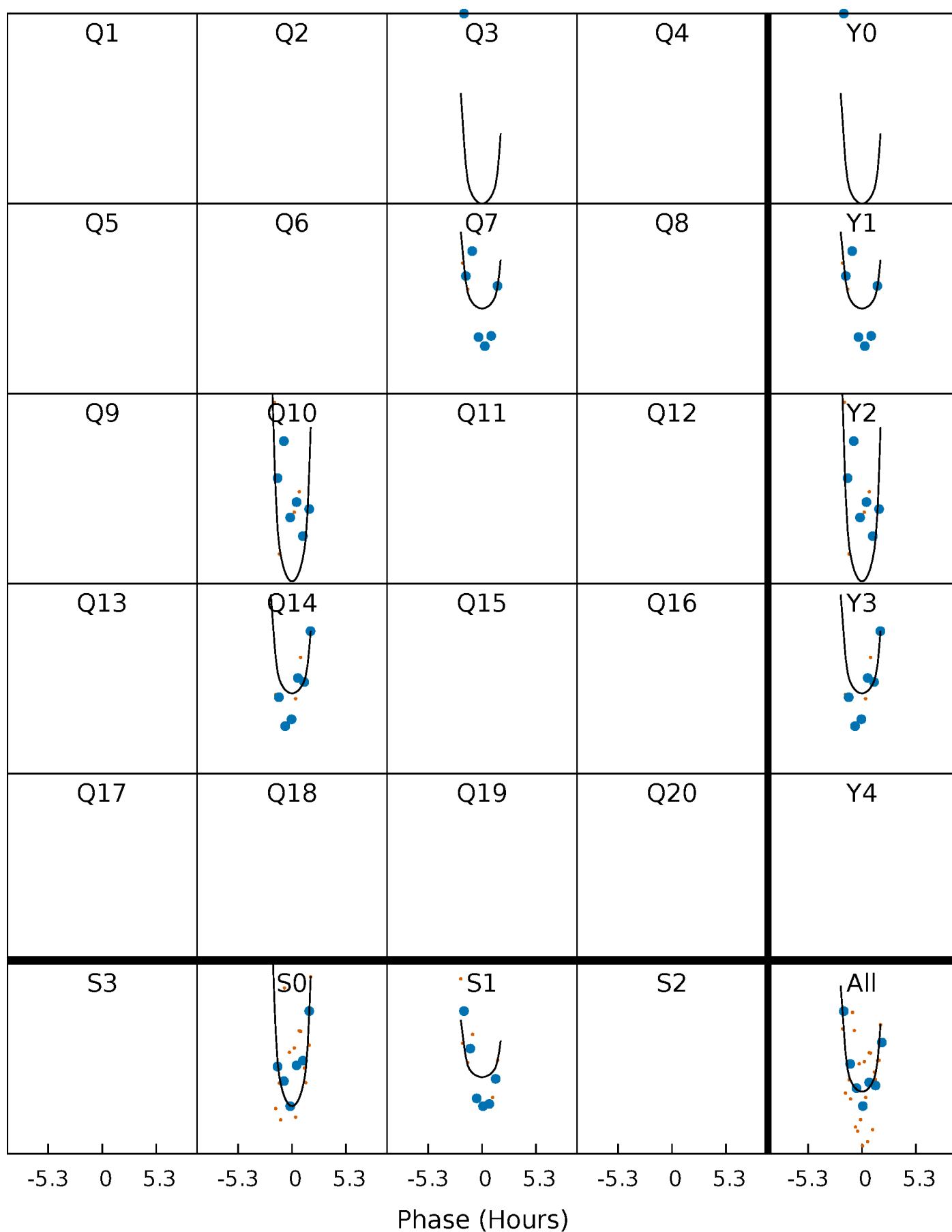
PDC Quarter-Phased Transit Curves

TCE 008715589-07 P=323.029247 Days $T_0=344.393154$ (BKJD)



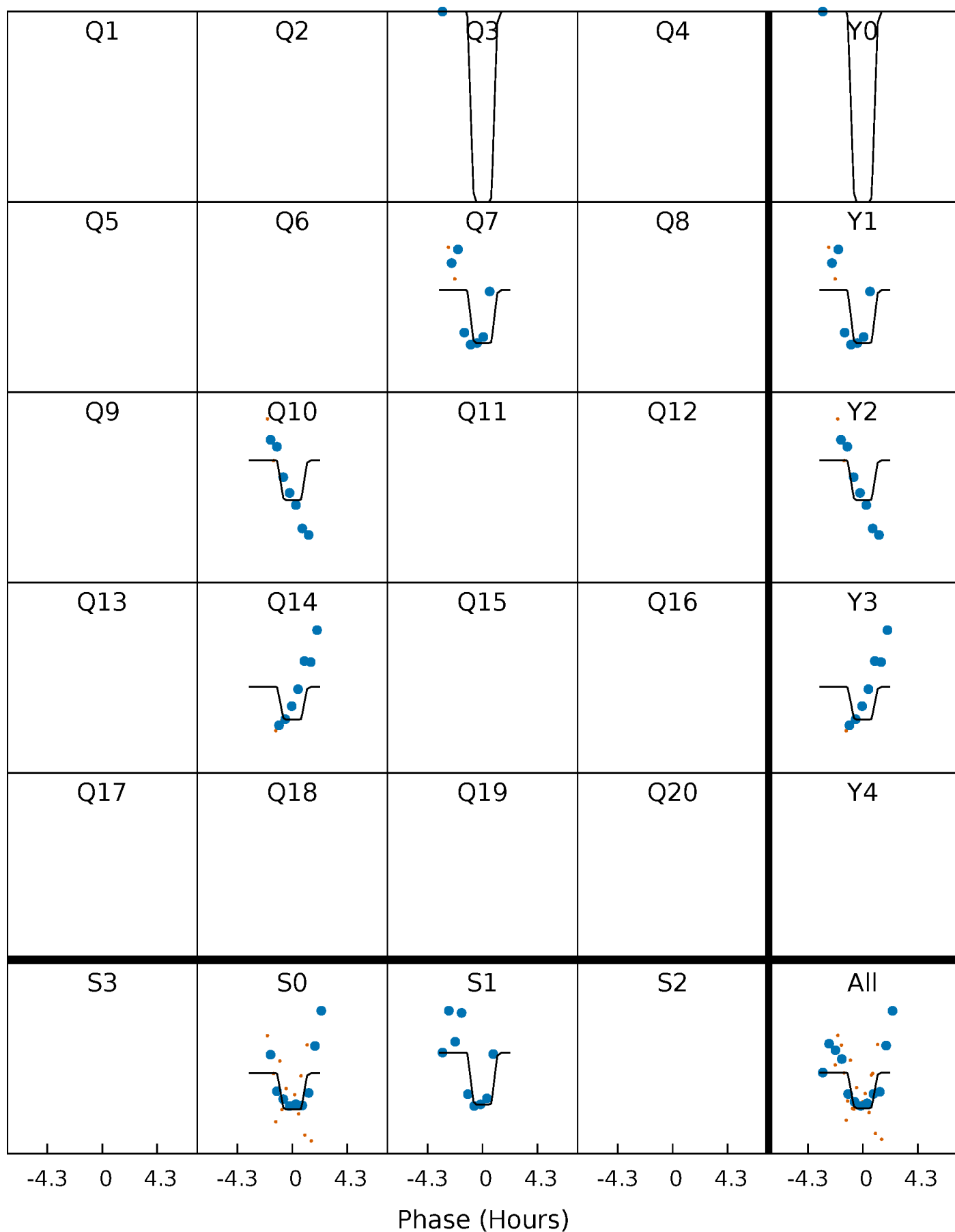
DV Quarter-Phased Transit Curves

TCE 008715589-07 P=323.029247 Days $T_0=344.393154$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

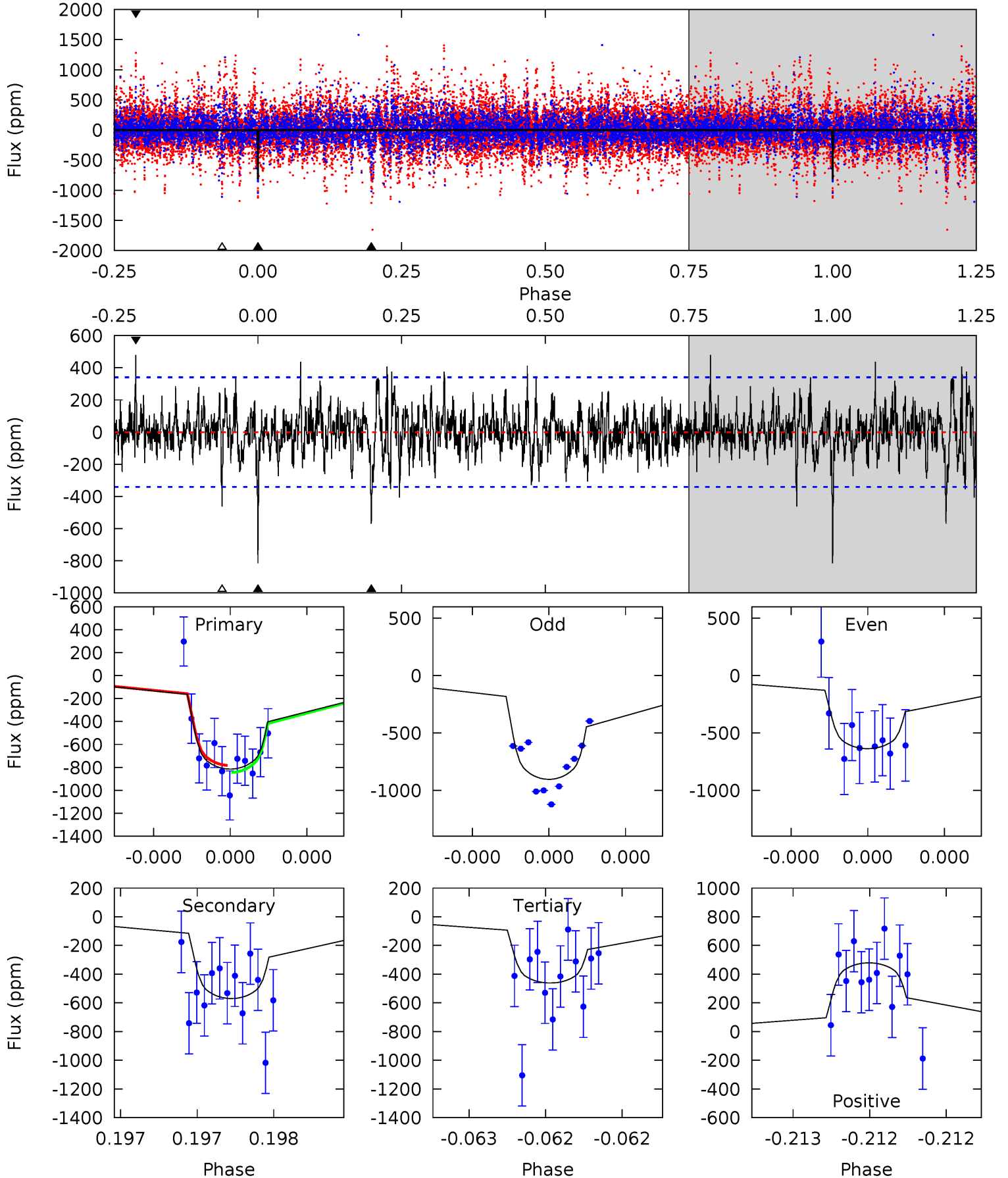
TCE 008715589-07 P=323.006905 Days $T_0=344.447081$ (BKJD)



DV Model-Shift Uniqueness Test

008715589-07, $P = 323.029247$ Days, $E = 21.363907$ Days

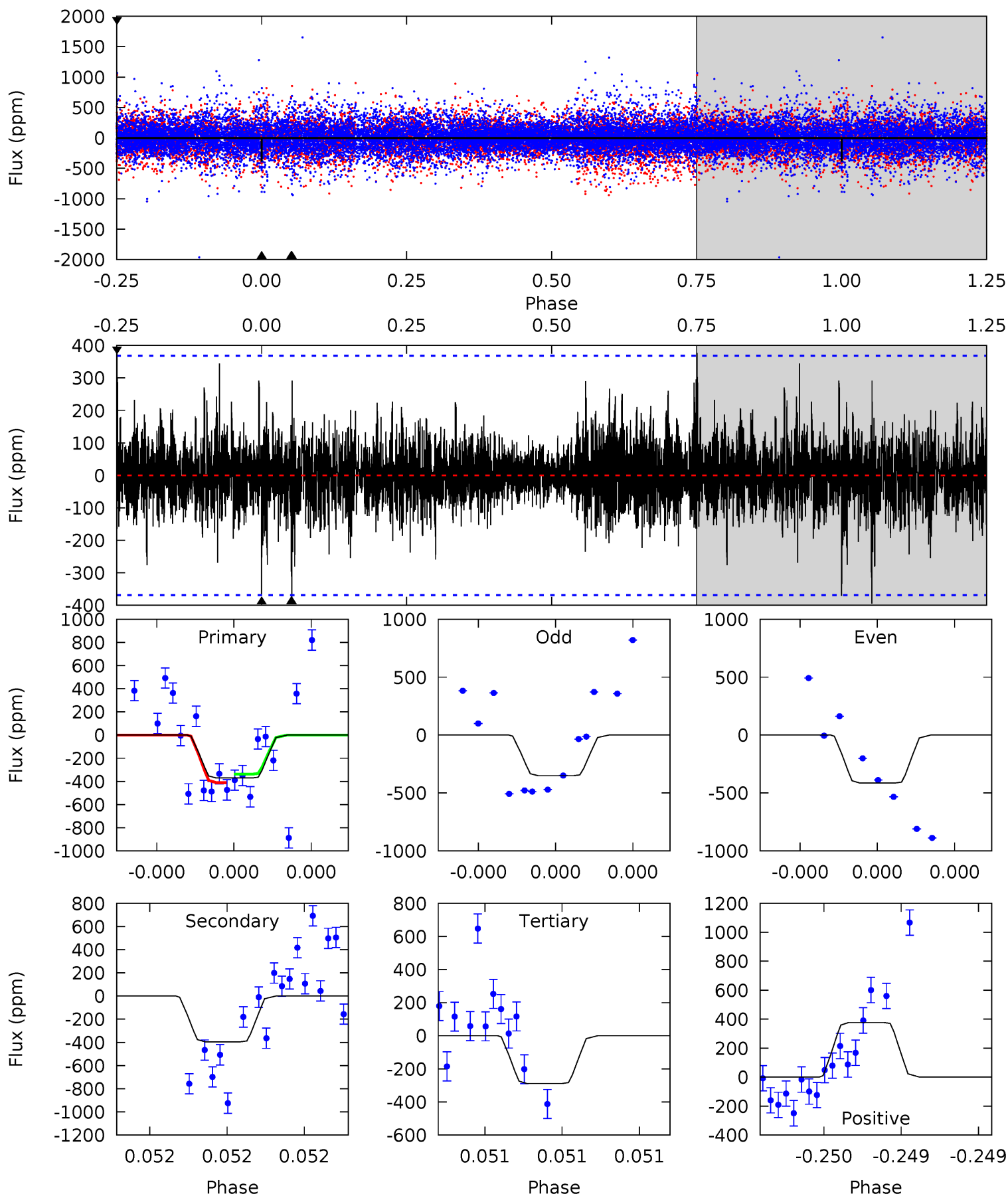
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	9.32	7.55	7.84	5.58	3.49	1.81	5.79	5.50	1.77	1.49	2.03	0.92	0.37	0.50



Alt Model-Shift Uniqueness Test

008715589-07, P = 323.006905 Days, E = 21.440176 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.71	6.08	4.44	5.81	5.68	3.64	1.13	1.27	-0.10	1.64	0.27	0.45	0.97	0.49	0.56



Stellar Parameters For KIC 008715589

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5222^{+173}_{-157}	$3.556^{+0.936}_{-0.234}$	$-0.260^{+0.300}_{-0.250}$	$3.162^{+1.003}_{-2.174}$	$1.312^{+0.173}_{-0.433}$	$0.058^{+1.686}_{-0.033}$
	+3%/-3%	+26%/-7%	+115%/-96%	+32%/-69%	+13%/-33%	+2884%/-57%
Source	PHO1	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 008715589-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-570 ± 61	$9.83^{+4.77}_{-4.30}$	555^{+66}_{-102}	4594^{+765}_{-427}	3175^{+6511}_{-1719}
Alt.	-395 ± 65	$6.67^{+3.80}_{-3.65}$	559^{+61}_{-110}	4946^{+1528}_{-641}	4910^{+16842}_{-3042}

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 $A_{obs} \gg 1.0$

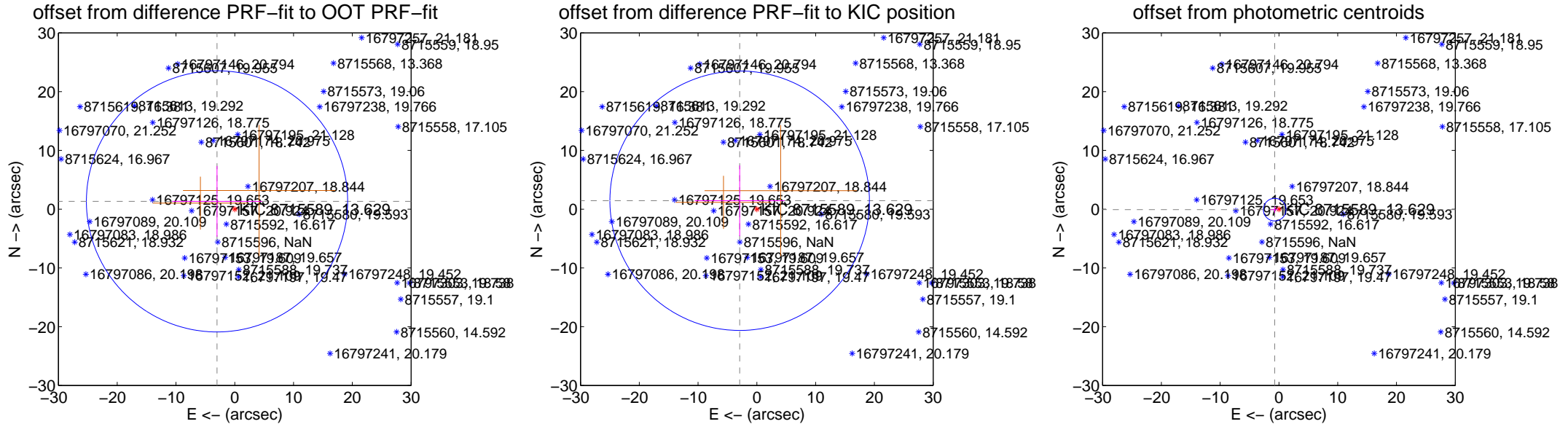
DV Centroid Data

Supplemental centroid analysis for 008715589-07. Kepler magnitude: 13.63. Transit SNR 9.25

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.295 ± 7.407	0.44	3.016 ± 7.647	1.327 ± 6.015
PRF-fit source offset from KIC position	3.258 ± 7.358	0.44	2.923 ± 7.647	1.438 ± 6.015
photometric centroid source offset	0.72 ± 0.64	1.13	0.72 ± 0.64	-0.08 ± 0.56



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.

Q1 no difference image



Q1 no OOT image



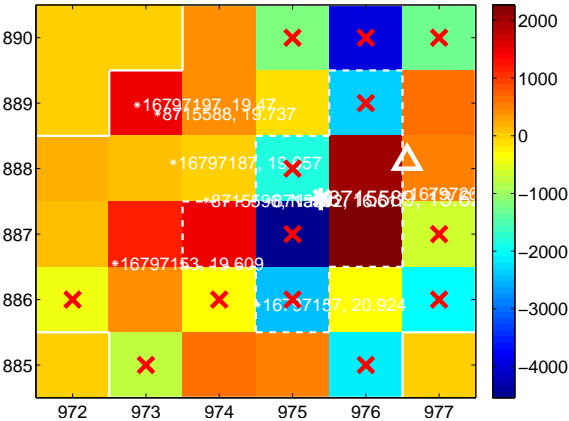
Q2 no difference image



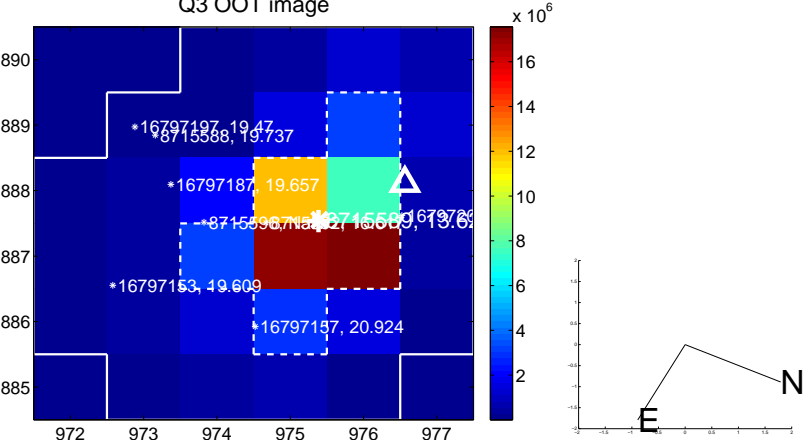
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



Q4 no OOT image



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

Q5 no difference image



Q5 no OOT image



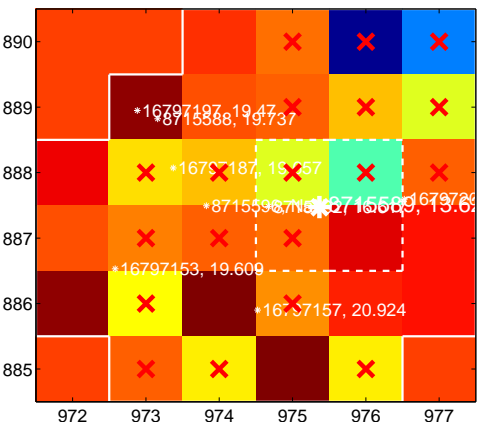
Q6 no difference image



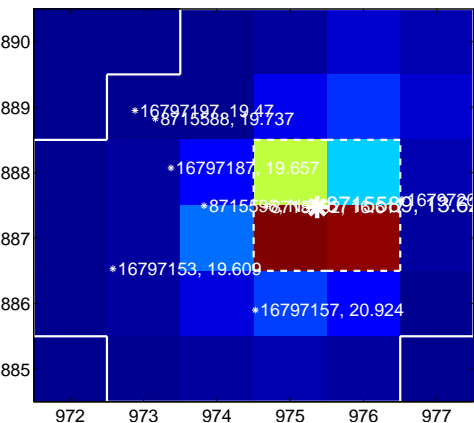
Q6 no OOT image



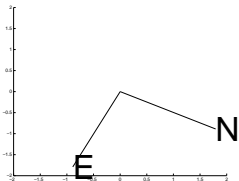
Q7 difference image. Poor Quality



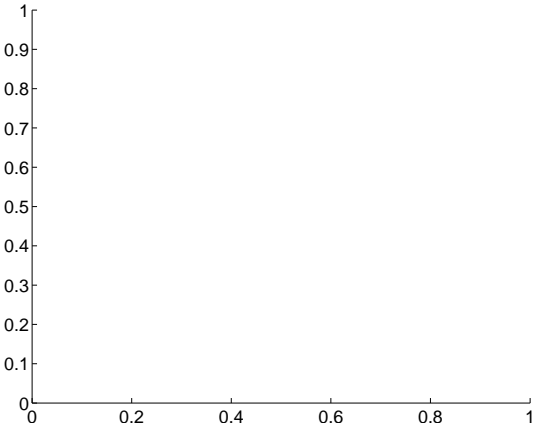
Q7 OOT image



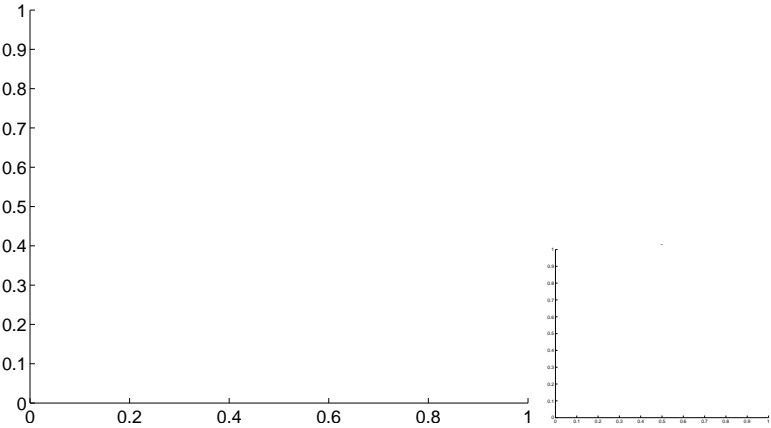
x 10⁶



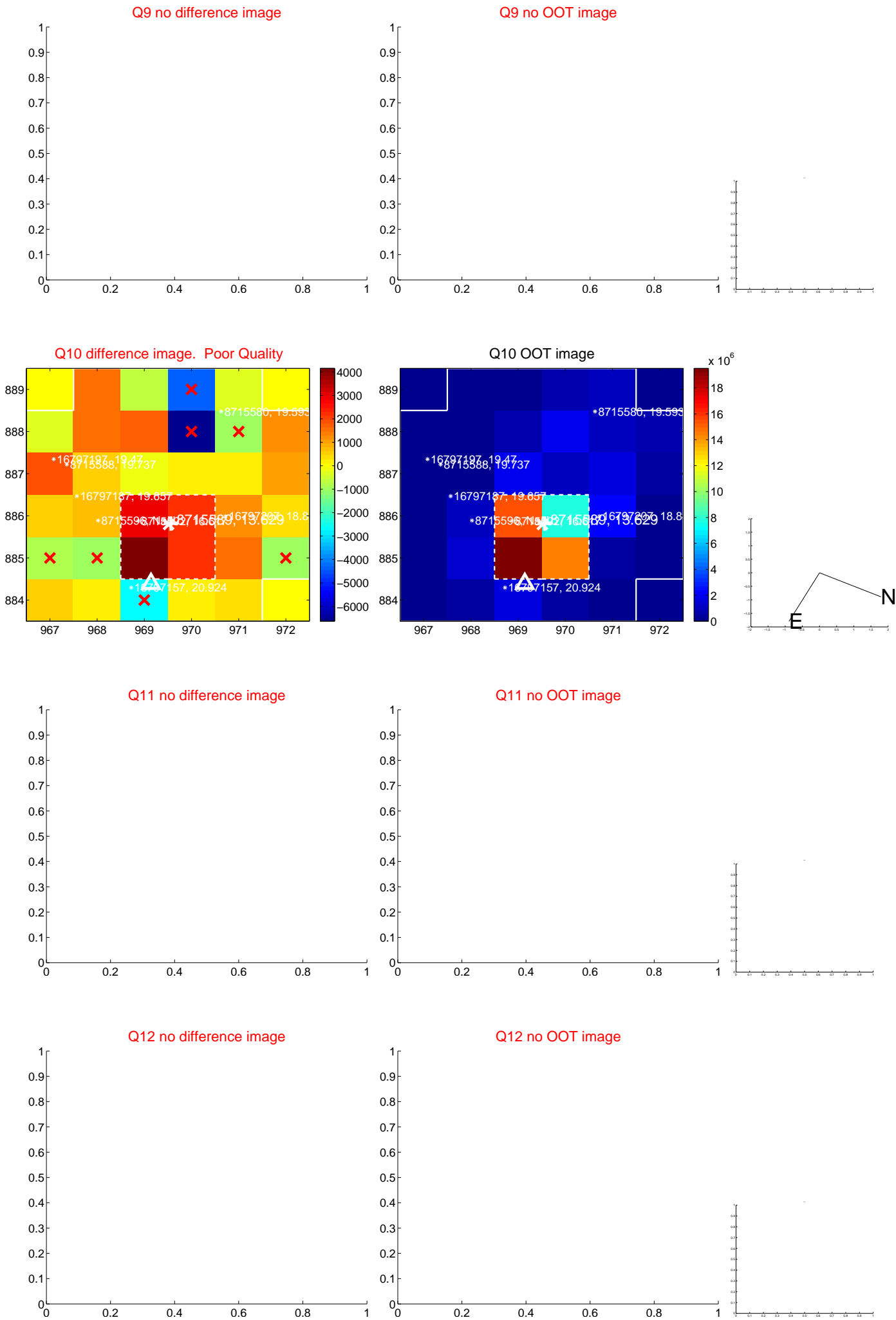
Q8 no difference image



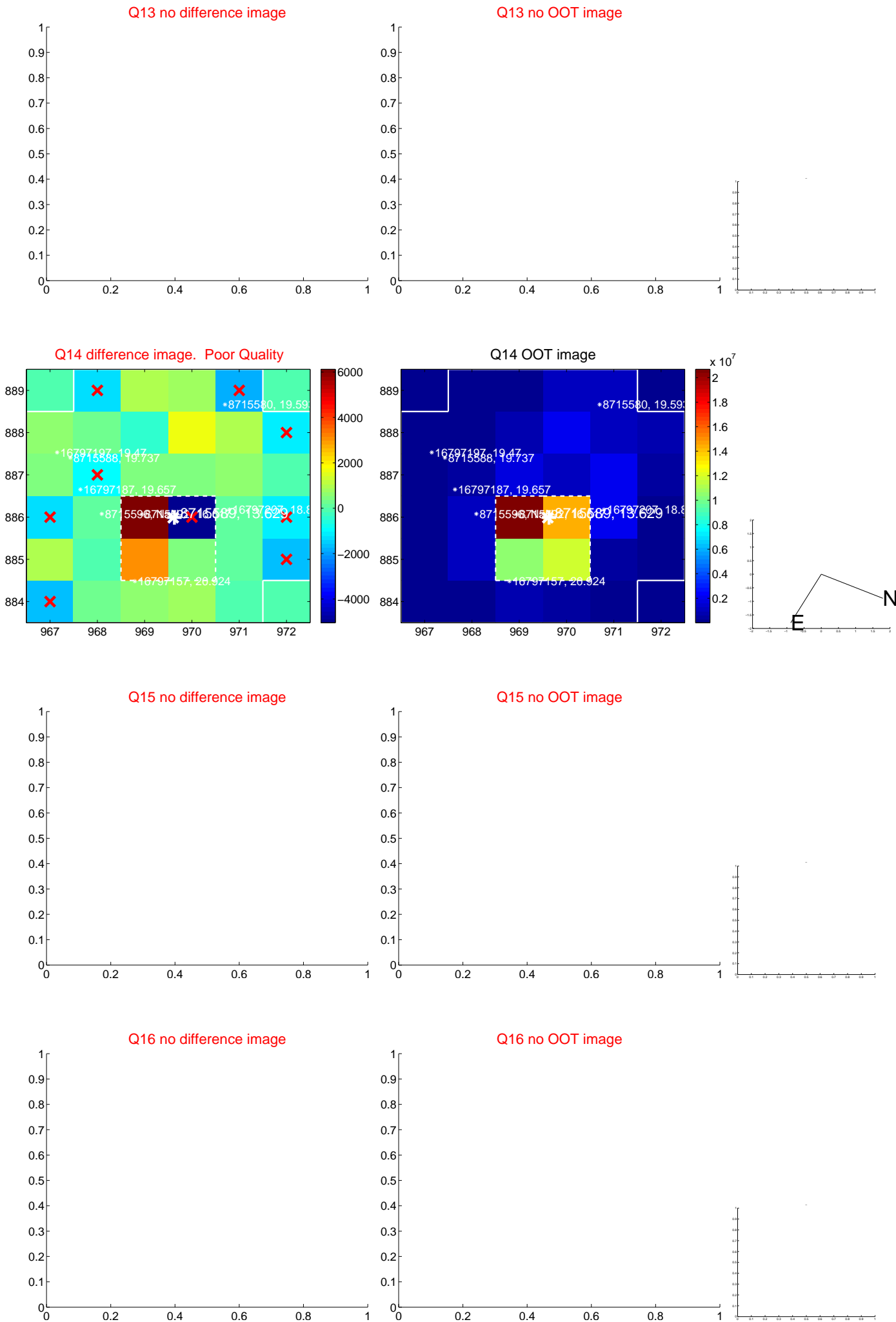
Q8 no OOT image



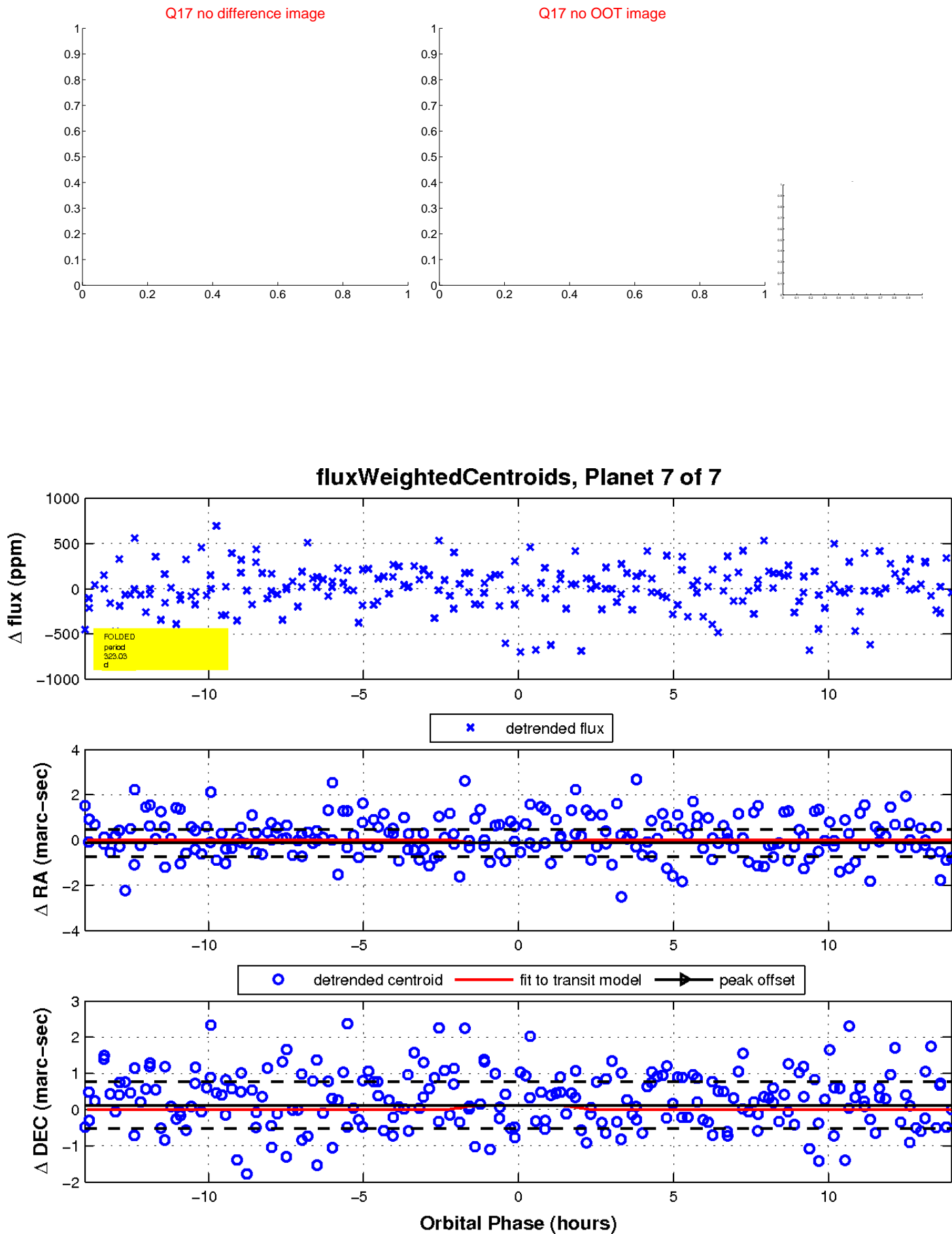
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

