

KIC 005115607

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})
005115607-01	OBS	No	1.749342	133.199398	18.3	6.311	7.9	7.6	1.80	6385	0.89	6093.61
005115607-02	OBS	No	10.845025	135.883491	149.1	45.491	8.0	15.8	1.80	6385	4.37	535.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005115607-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
005115607-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—MOD_NONUNIQ_DV

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

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

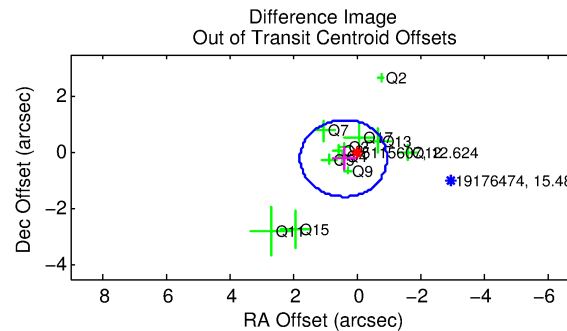
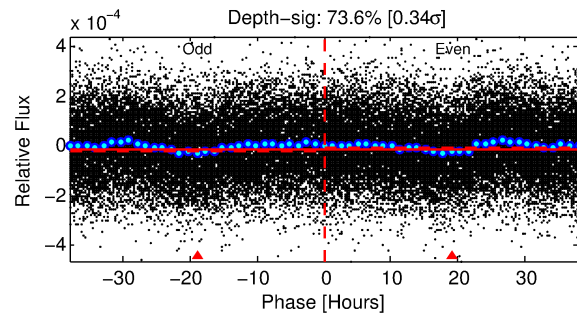
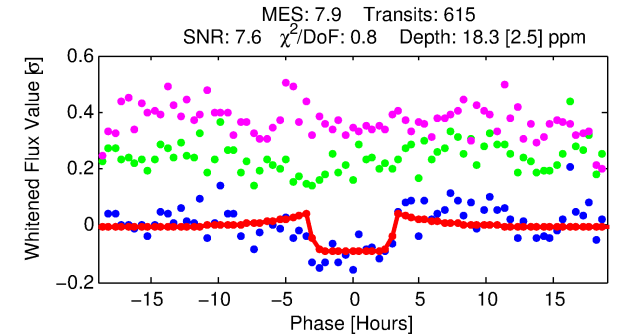
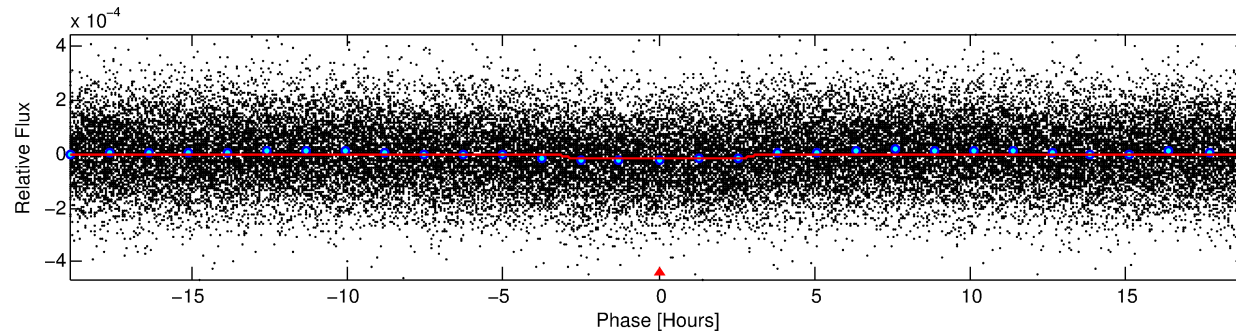
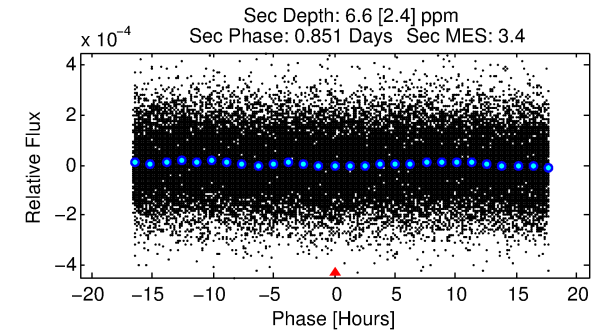
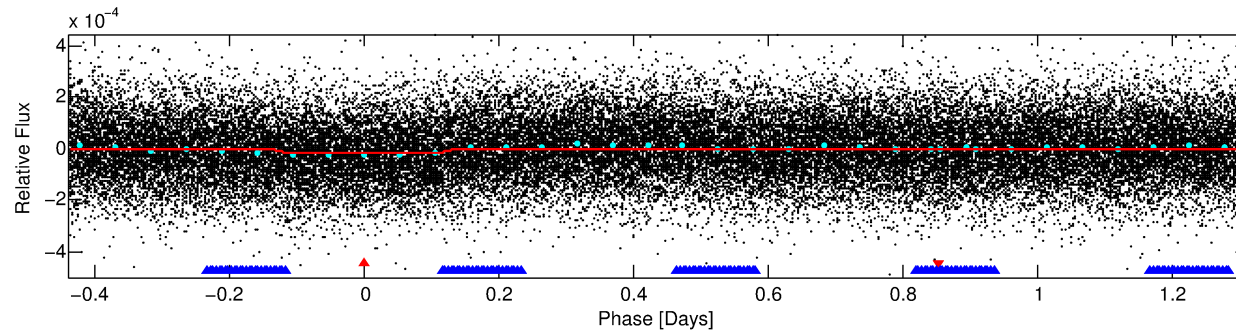
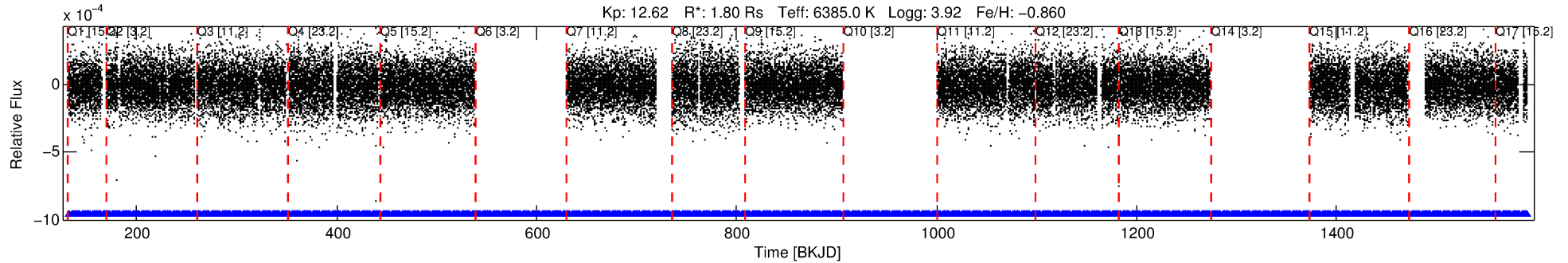
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005115607-01

No Significant Match Found

DV One-Page Summary

KIC: 5115607 Candidate: 1 of 2 Period: 1.749 d



DV Fit Results:

Period = 1.74934 [0.00002] d
Epoch = 133.1994 [0.0053] BKJD
Rp/R* = 0.0045 [0.0012]
a/R* = 1.38 [1.01]
b = 0.88 [0.40]
Seff = 6093.61 [3520.44]
Teq = 2253 [325] K
Rp = 0.89 [0.39] Re
a = 0.0282 [0.0098] AU
Ag = 3.69 [3.21] [0.84σ]
Teffp = 4828 [805] K [2.96σ]

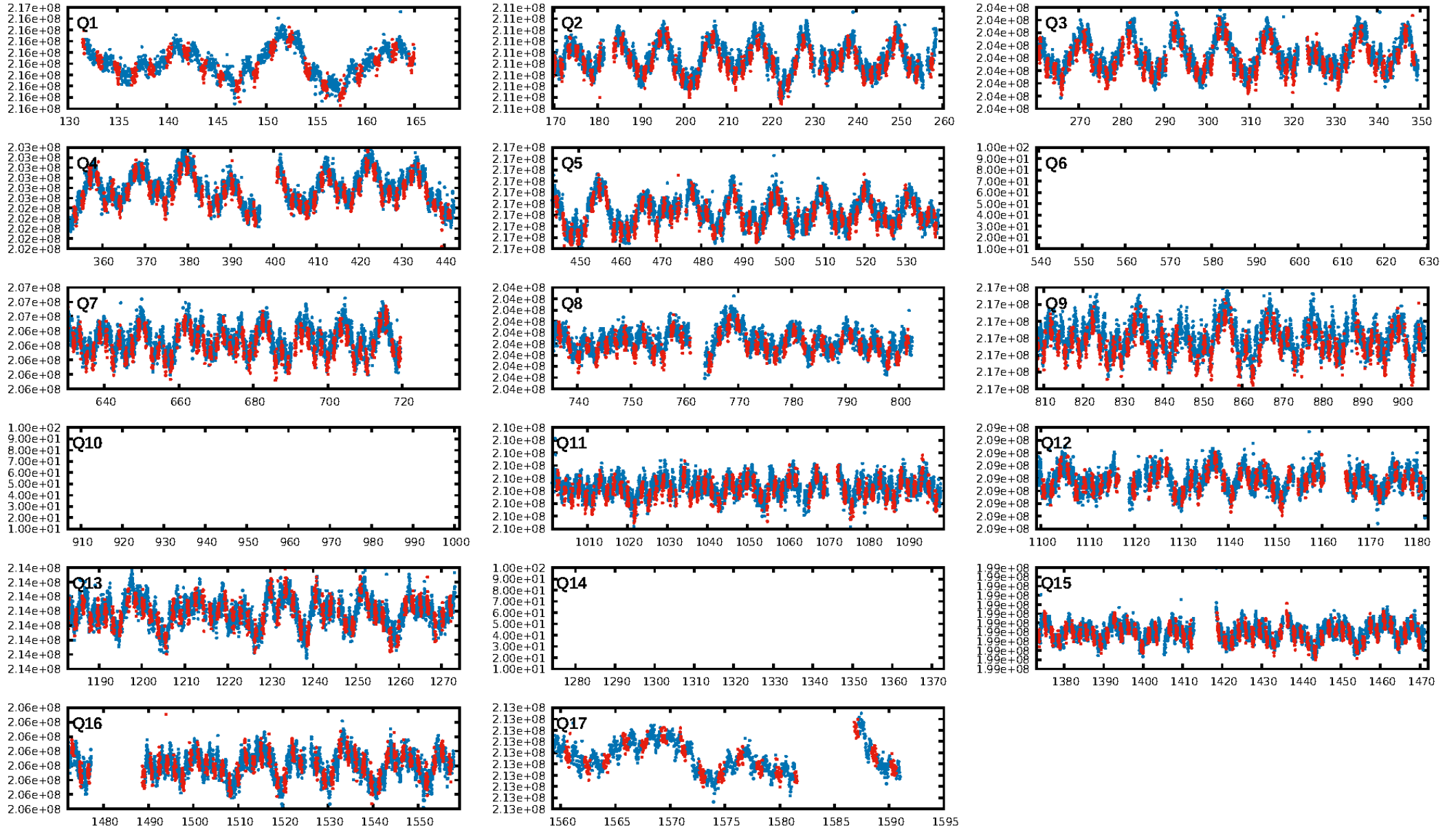
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.75σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.29e-10
RollingBand-fgt: 1.00 [579/579]
GhostDiagnostic-chr: 0.4847
Centroid-sig: 7.4%
Centroid-so: 0.732 arcsec [0.85σ]
OotOffset-rm: 0.453 arcsec [0.99σ]
KicOffset-rm: 0.341 arcsec [1.10σ]
OotOffset-st: 1/4/3/4 [12]
KicOffset-st: 1/4/3/4 [12]
DiffImageQuality-fgm: 0.83 [10/12]
DiffImageOverlap-fno: 1.00 [14/14]

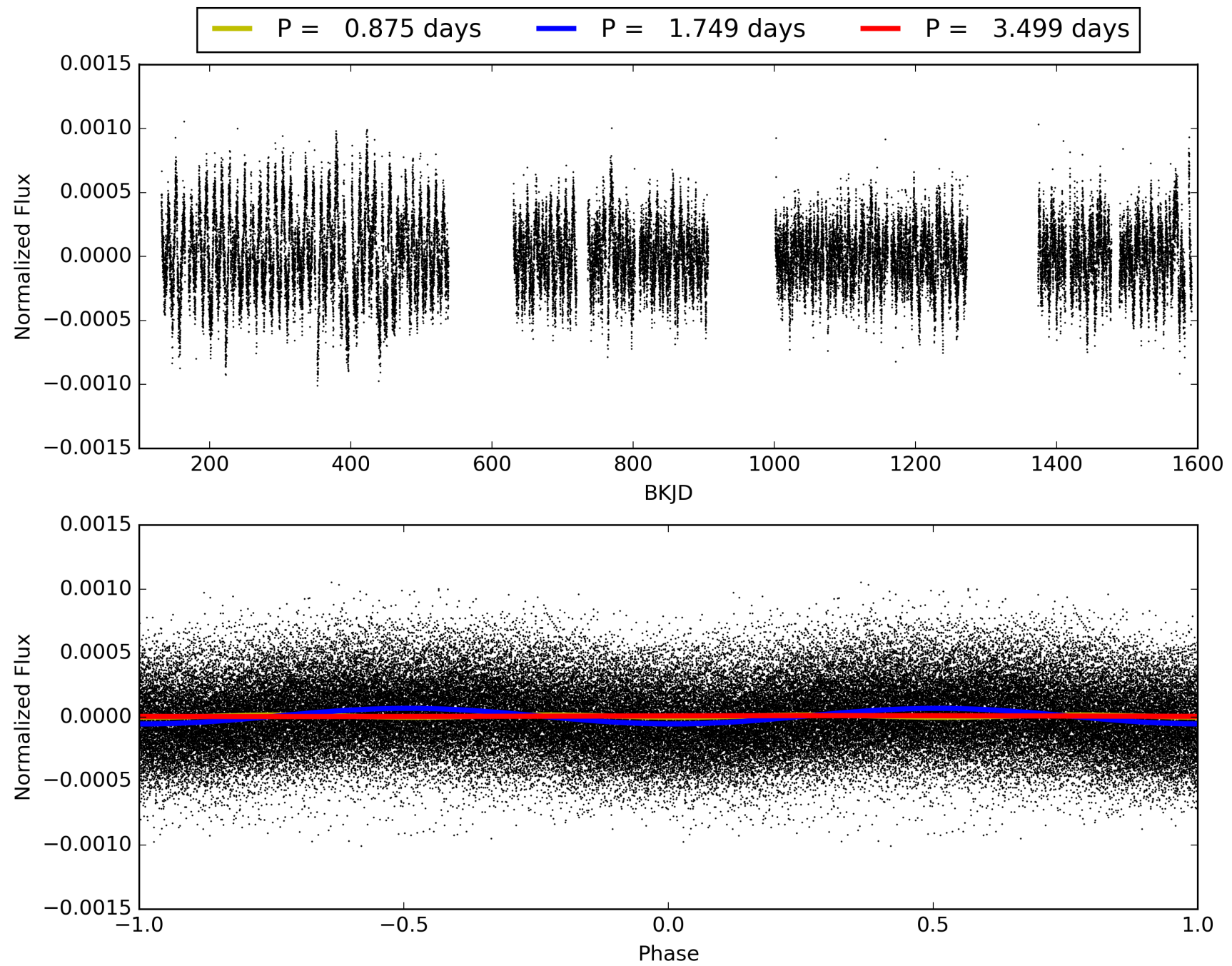
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:53:55 Z

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

TCE 005115607-01, PDC Light Curves

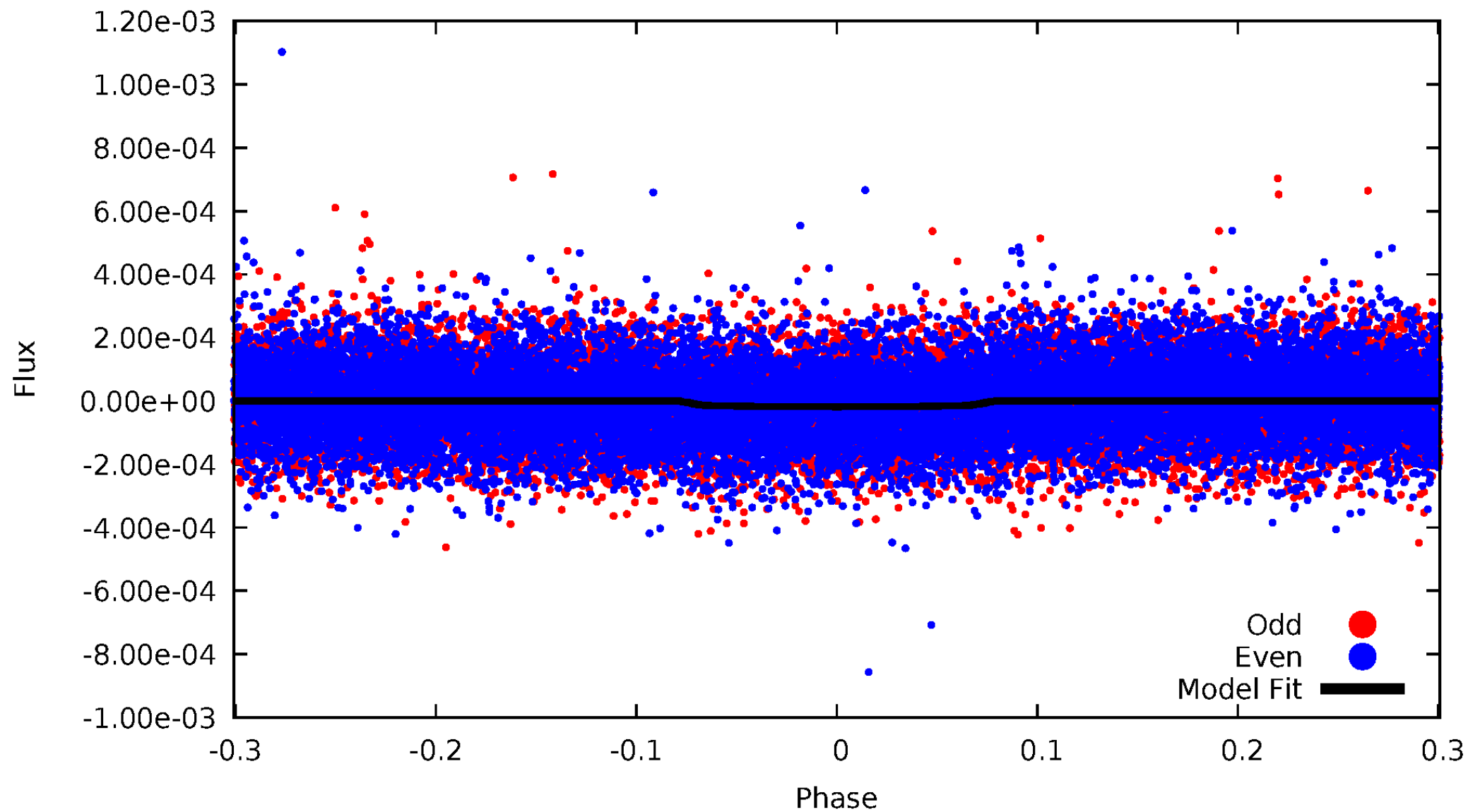


TCE 005115607-01



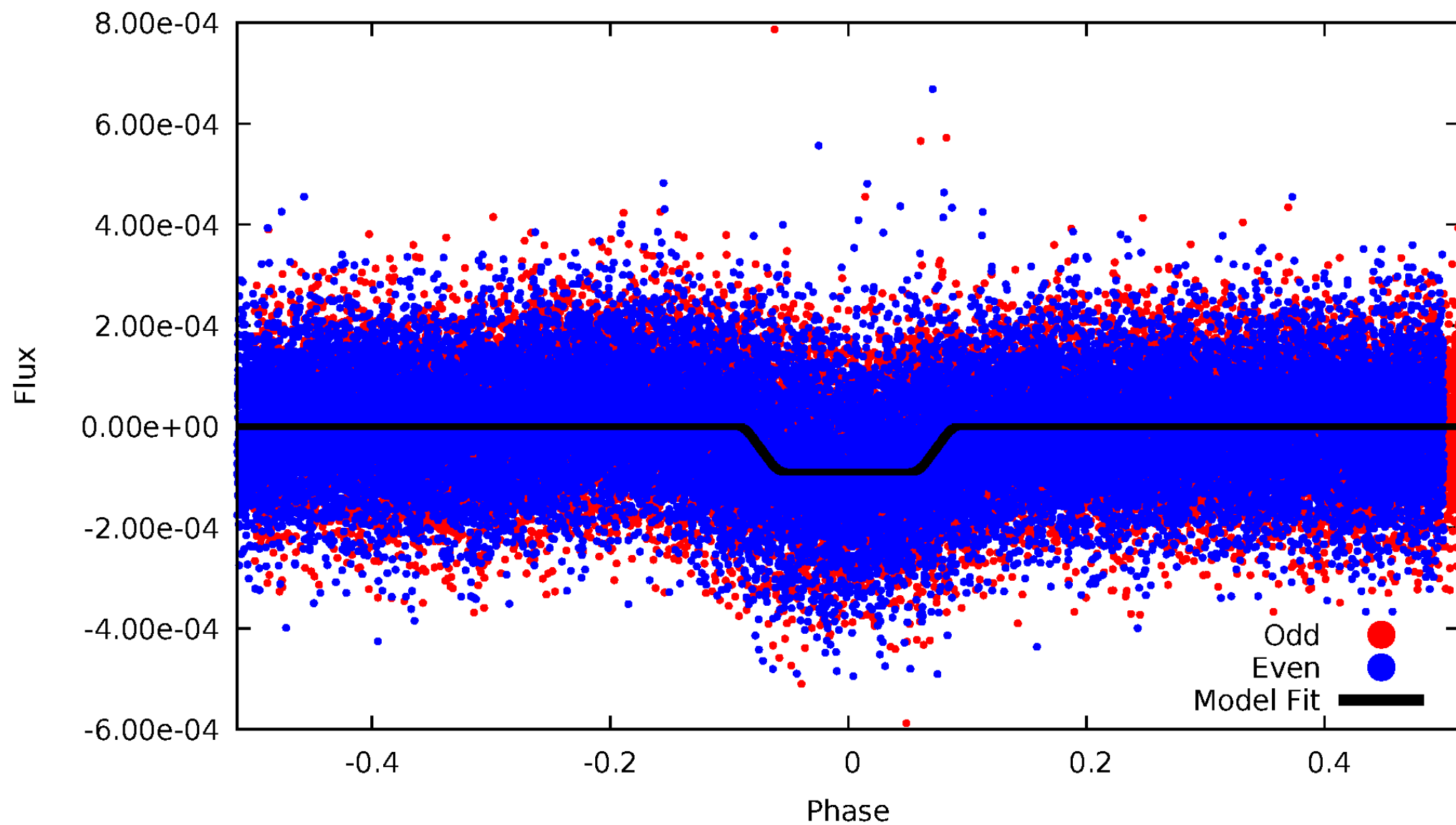
DV Odd/Even

TCE 005115607-01



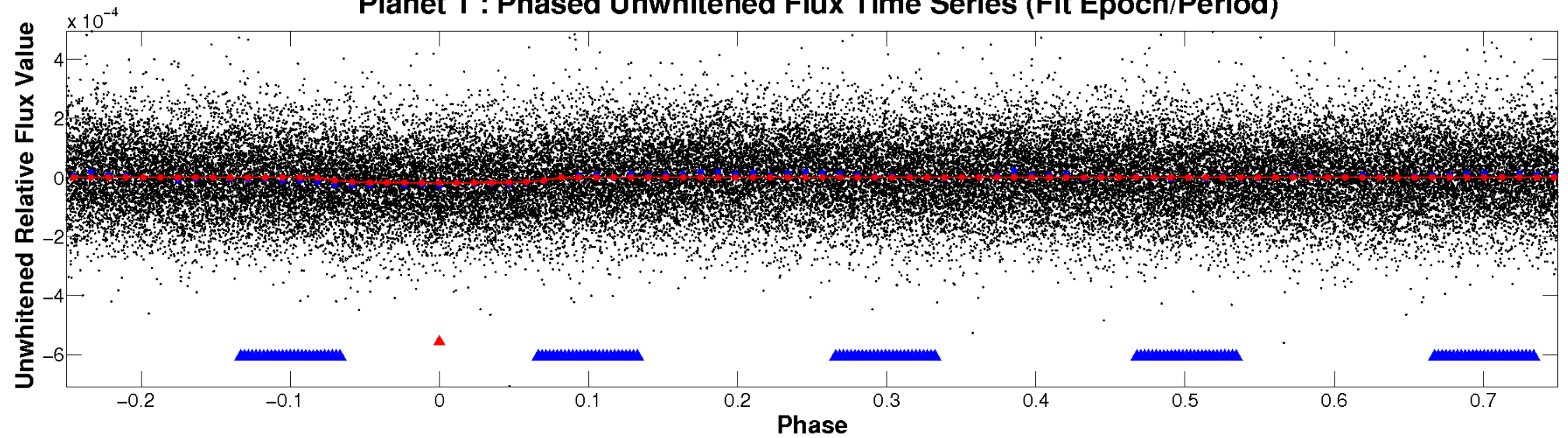
ALT Odd/Even

TCE 005115607-01

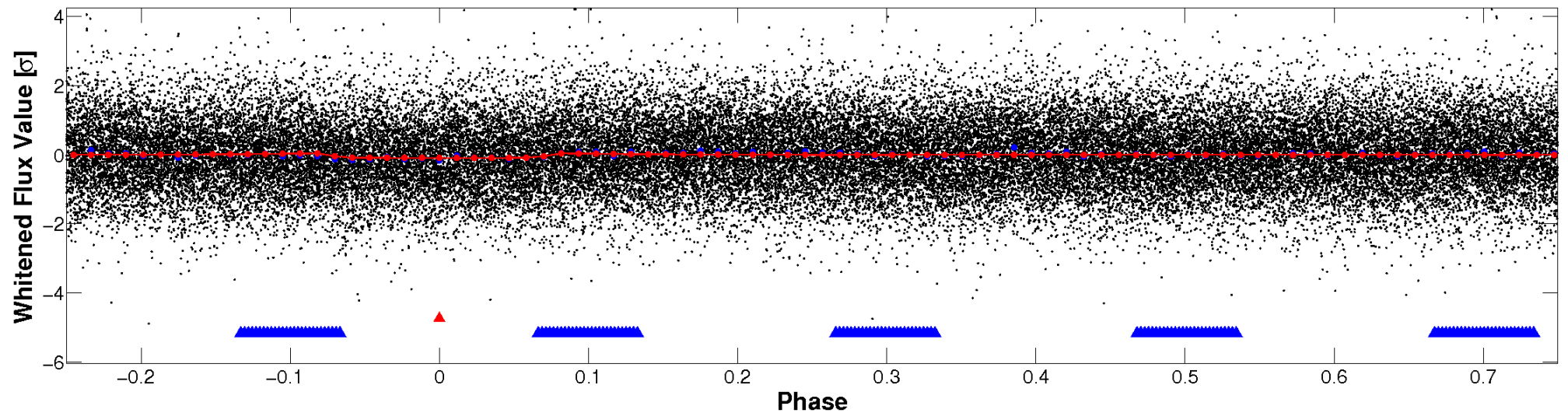


Non-Whitened Vs. Whitened Light Curve

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

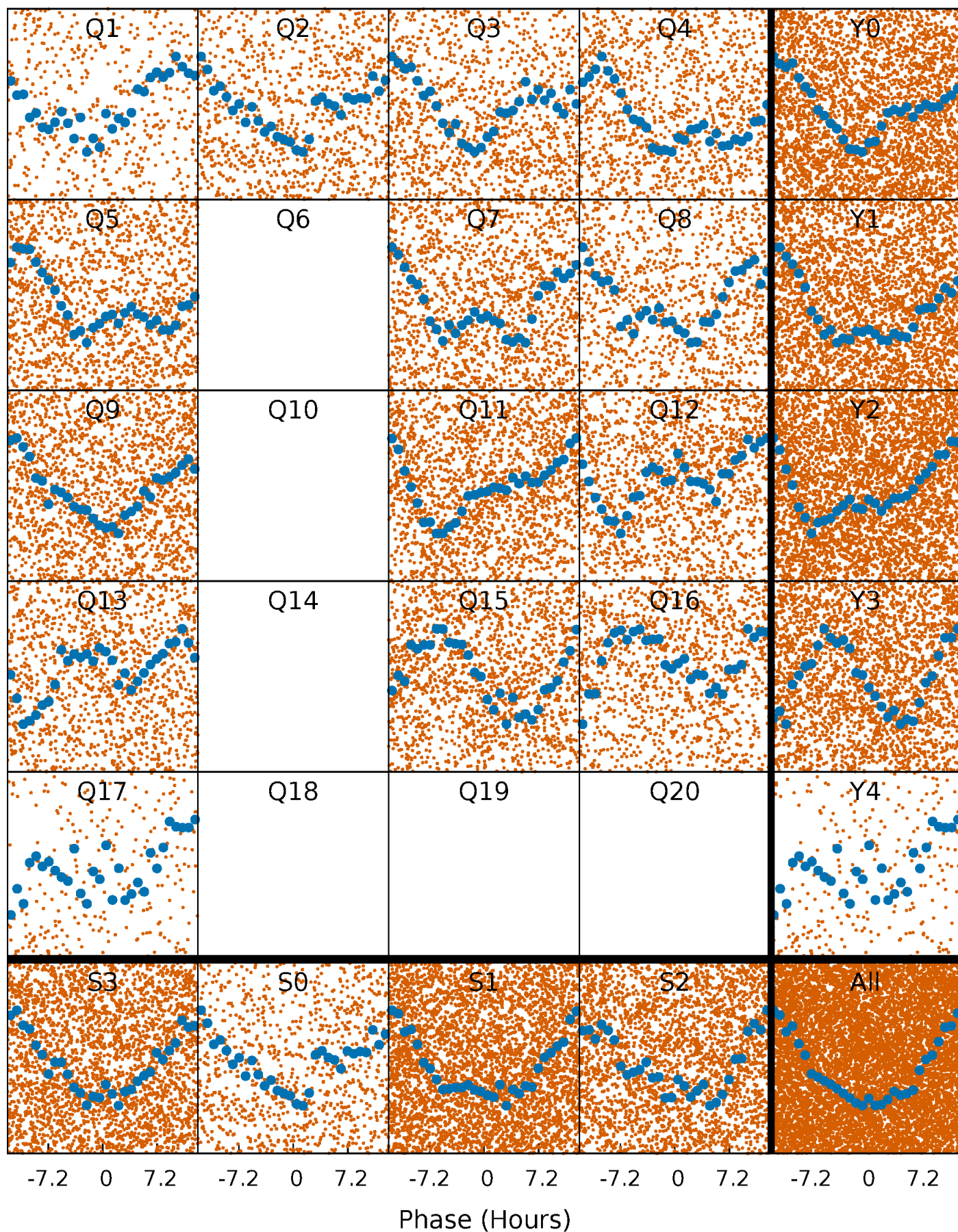


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



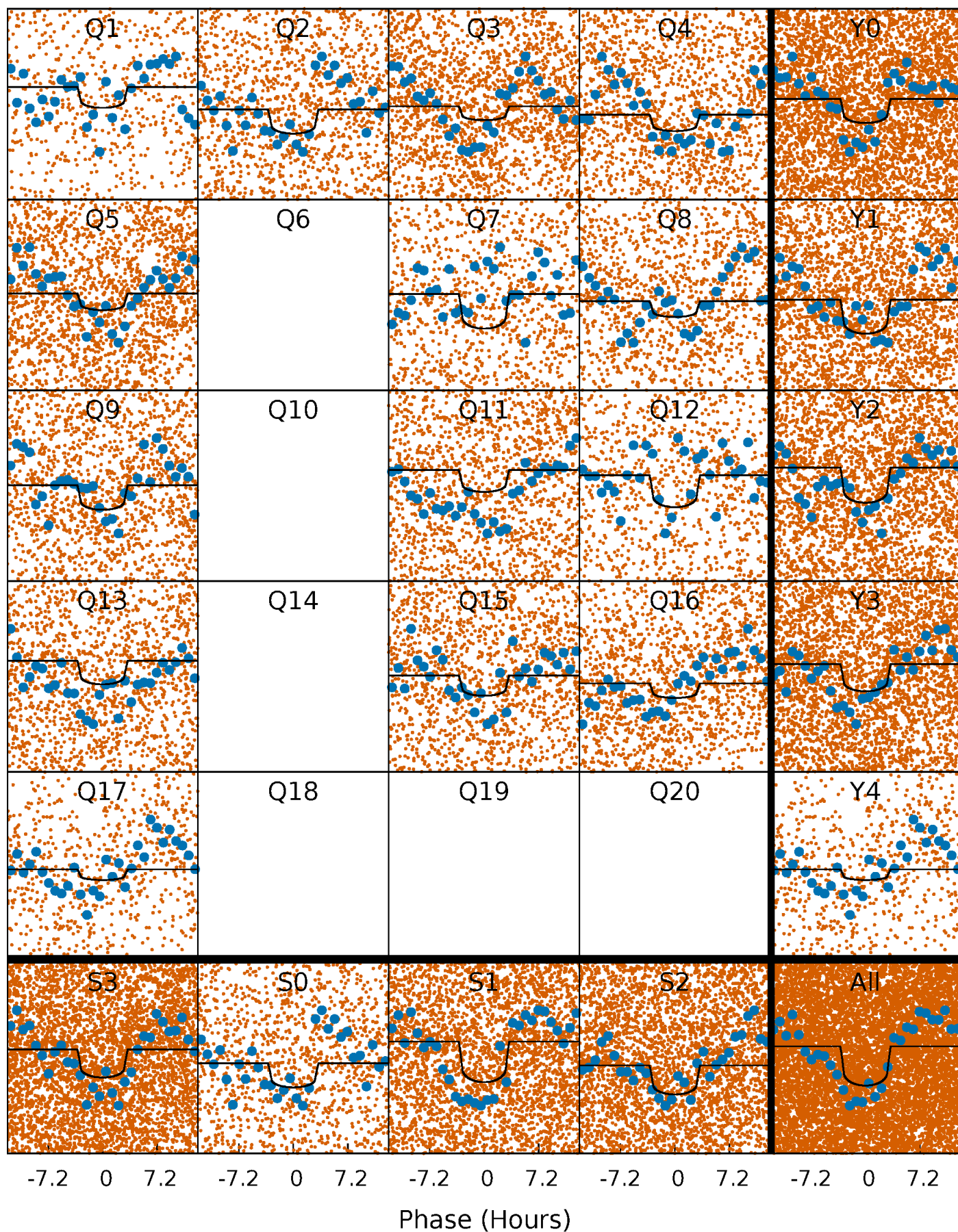
PDC Quarter-Phased Transit Curves

TCE 005115607-01 P= 1.749342 Days $T_0=133.199398$ (BKJD)



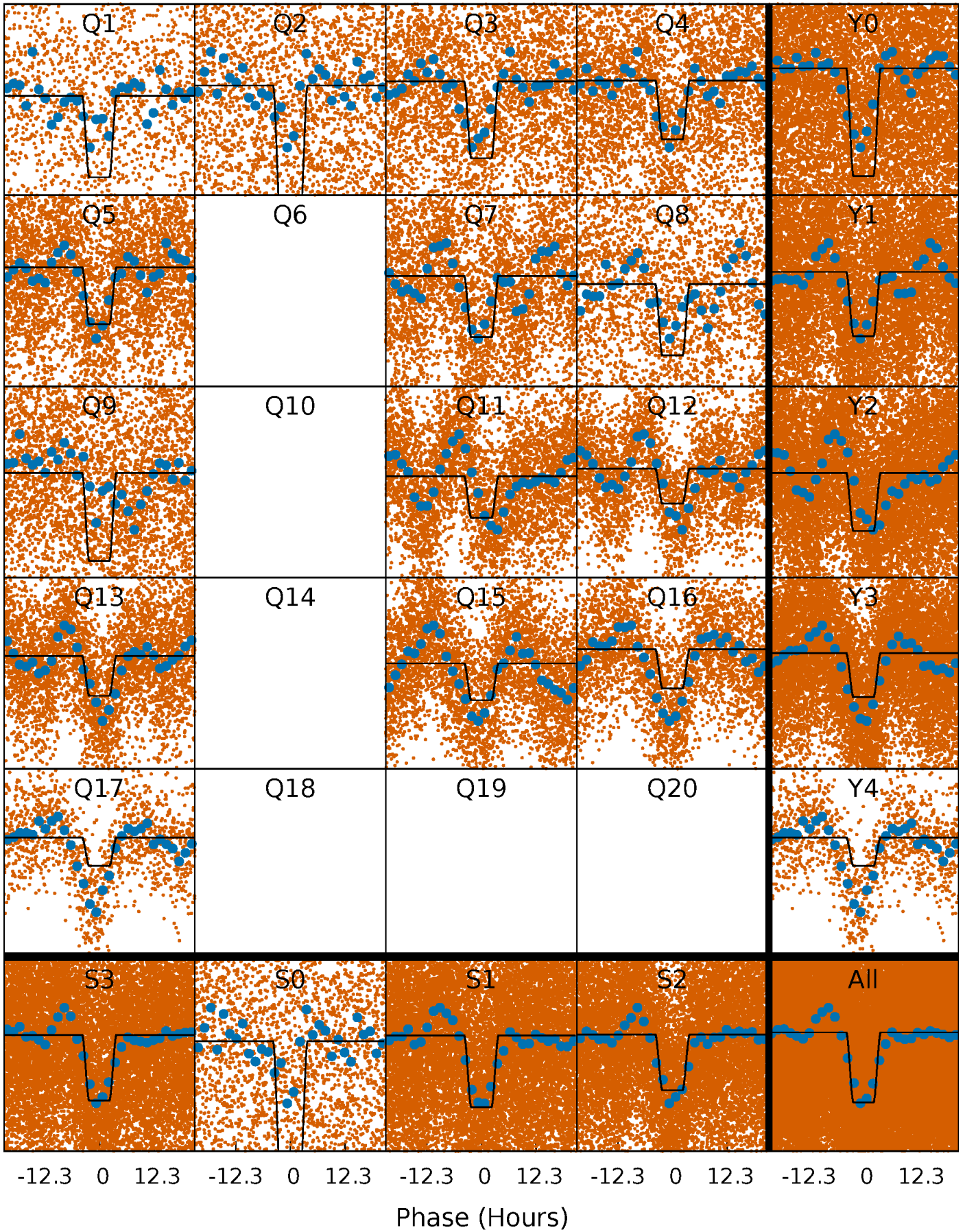
DV Quarter-Phased Transit Curves

TCE 005115607-01 P= 1.749342 Days $T_0=133.199398$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

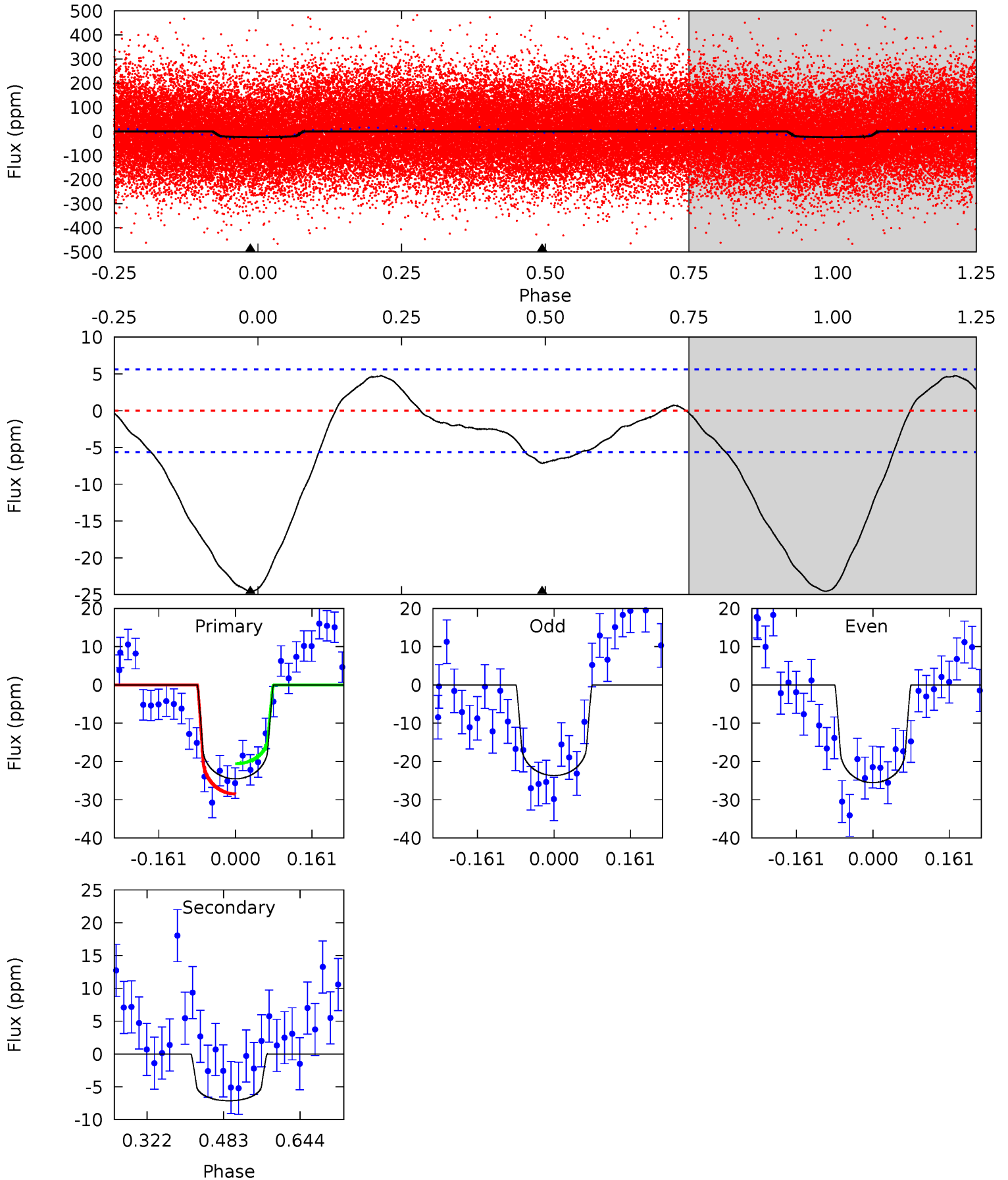
TCE 005115607-01 P= 1.748522 Days $T_0=131.511751$ (BKJD)



DV Model-Shift Uniqueness Test

005115607-01, P = 1.749342 Days, E = 131.450056 Days

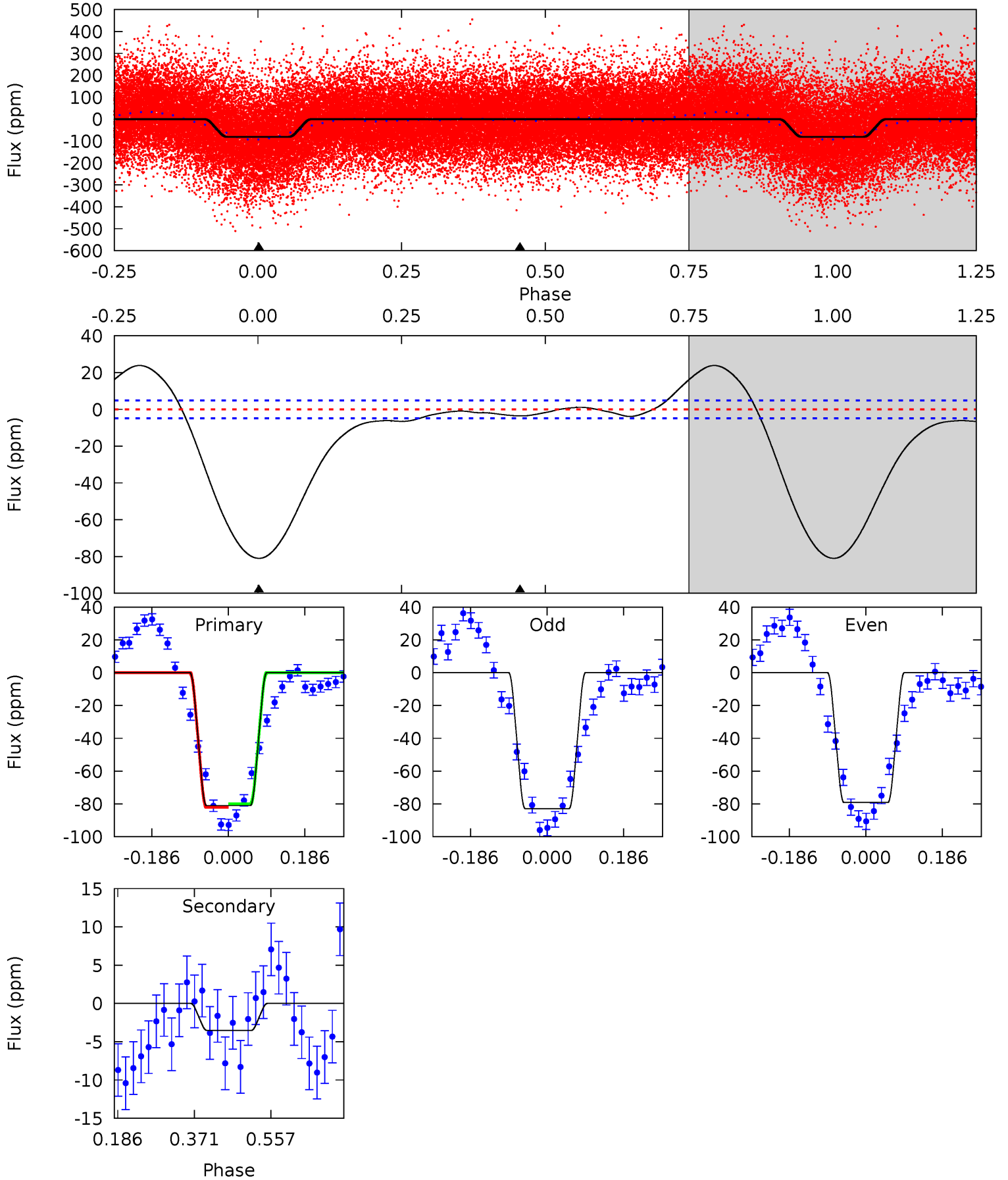
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.5	5.66	0	0	4.46	1.40	2.27	19.5	19.5	5.66	5.66	0.73	1.10	0.16	3.13



Alt Model-Shift Uniqueness Test

005115607-01, P = 1.748522 Days, E = 131.511751 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
73.5	3.21	0	0	4.43	1.32	10.4	73.5	73.5	3.21	3.21	1.68	1.06	0.23	0.90



Stellar Parameters For KIC 005115607

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6385^{+172}_{-172}	$3.915^{+0.338}_{-0.113}$	$-0.860^{+0.350}_{-0.250}$	$1.802^{+0.383}_{-0.622}$	$0.974^{+0.139}_{-0.126}$	$0.234^{+0.503}_{-0.091}$
	+3%/-3%	+9%/-3%	+41%/-29%	+21%/-35%	+14%/-13%	+215%/-39%
Source	PHO1	FLK73	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 005115607-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-7 ± 1	$0.84^{+0.26}_{-0.27}$	3101^{+193}_{-315}	4942^{+816}_{-551}	$4.597^{+5.043}_{-2.075}$
Alt.	-4 ± 1	$1.77^{+0.36}_{-0.39}$	3077^{+227}_{-293}	2903^{+396}_{-5052}	$0.482^{+0.353}_{-0.193}$

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

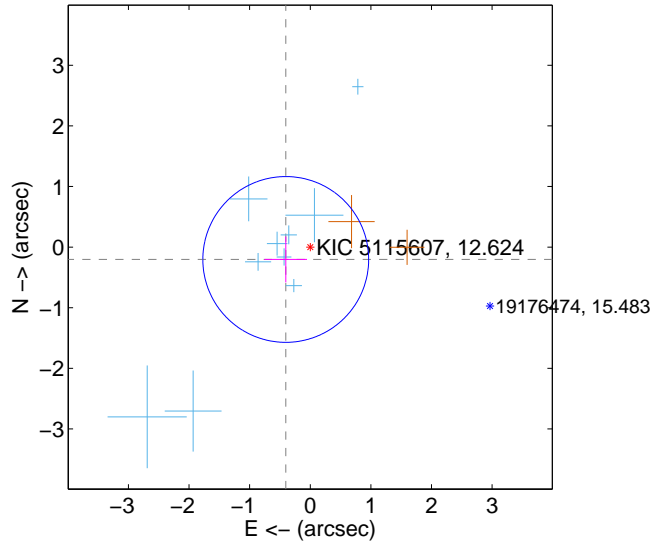
Supplemental centroid analysis for 005115607-01. Kepler magnitude: 12.62. Transit SNR 7.57

There are 10 quarters with good PRF difference image offsets

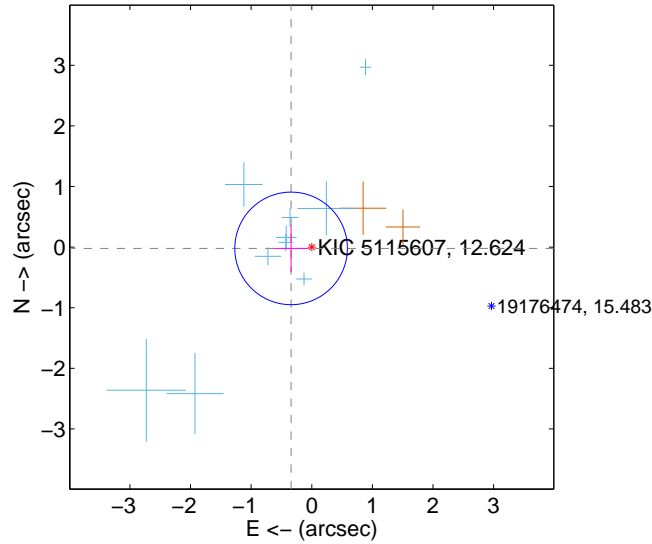
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.453 ± 0.456	0.99	0.404 ± 0.351	-0.204 ± 0.379
PRF-fit source offset from KIC position	0.341 ± 0.310	1.10	0.341 ± 0.293	-0.021 ± 0.389
photometric centroid source offset	0.73 ± 0.87	0.85	0.17 ± 0.91	-0.71 ± 0.86

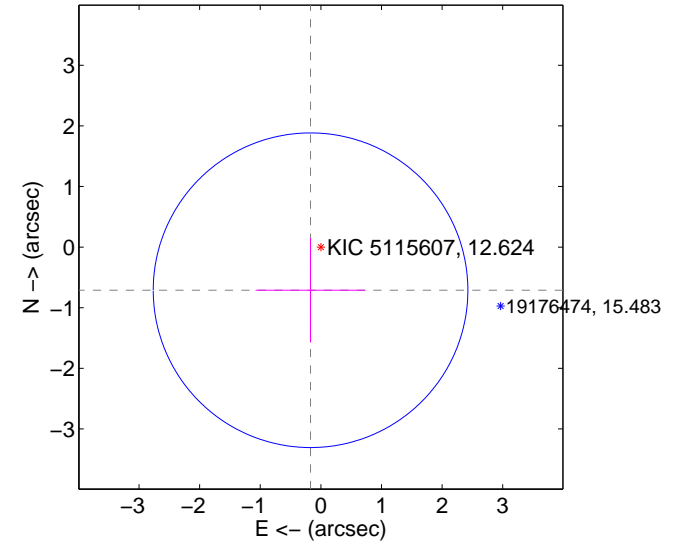
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

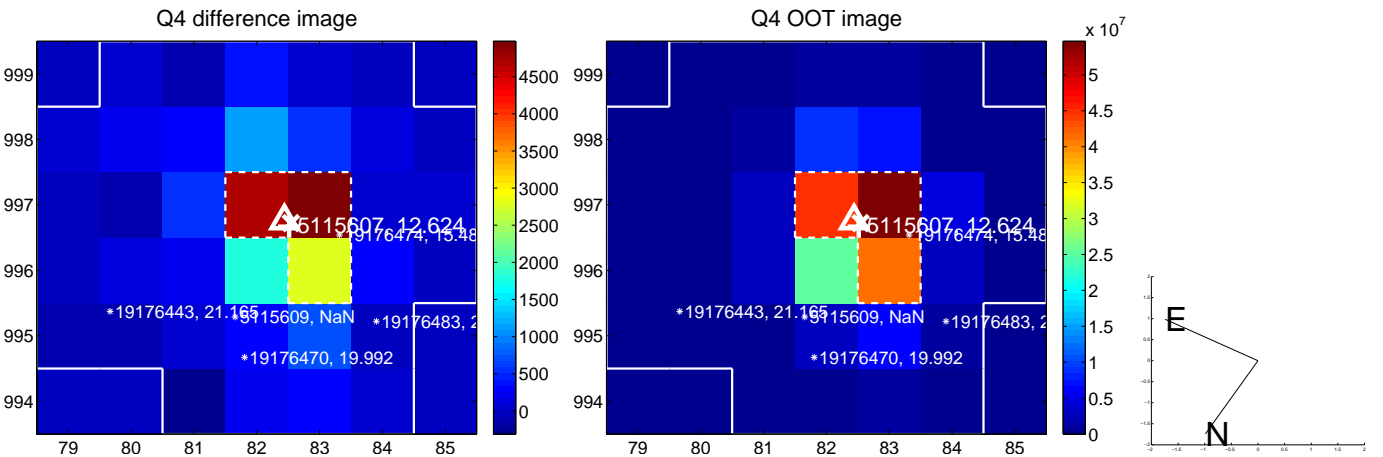
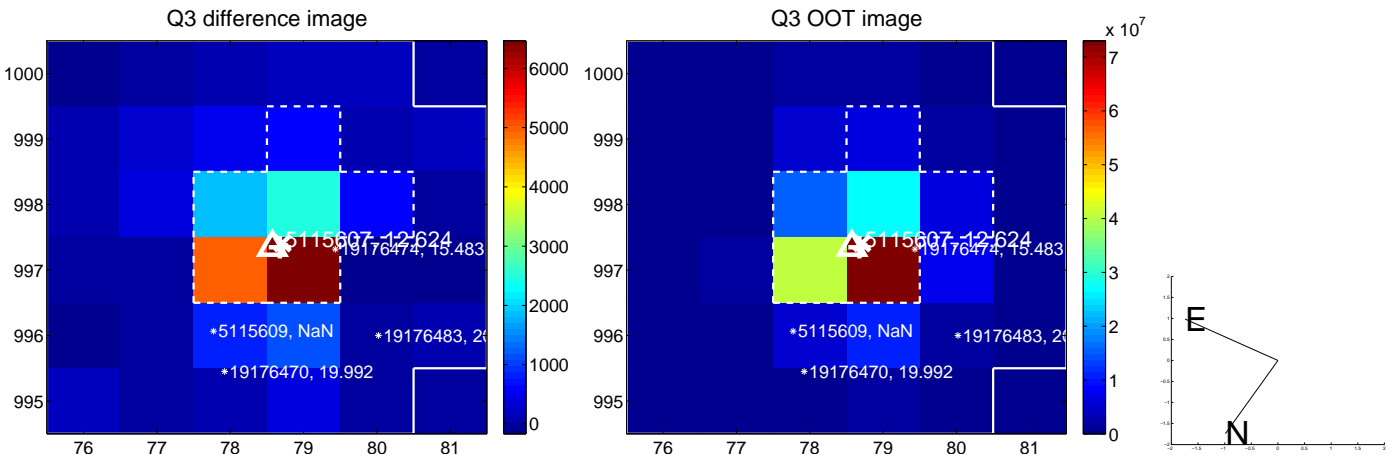
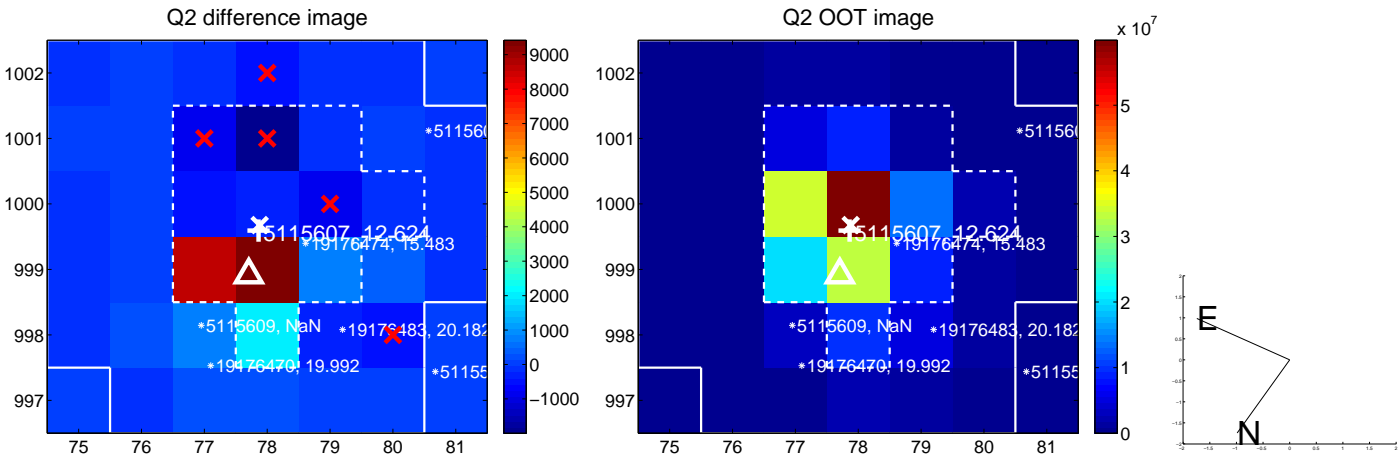
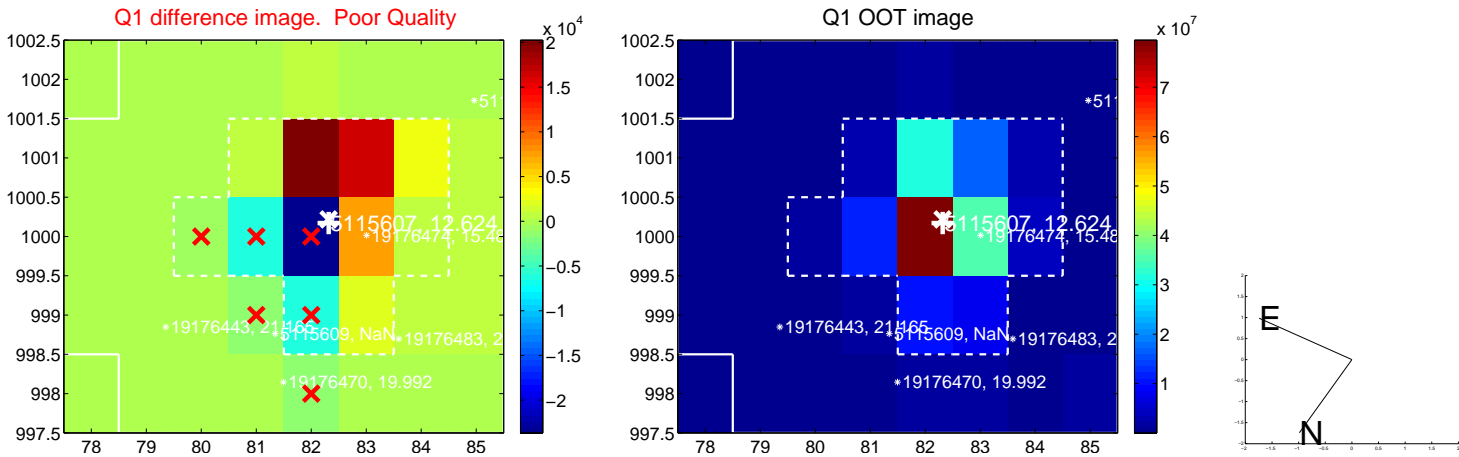


offset from photometric centroids

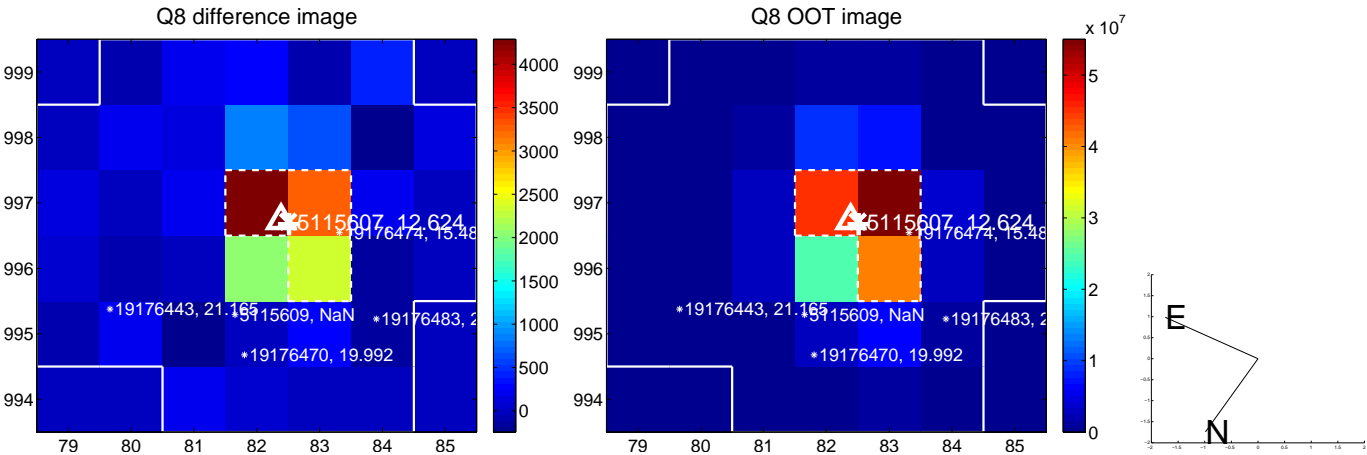
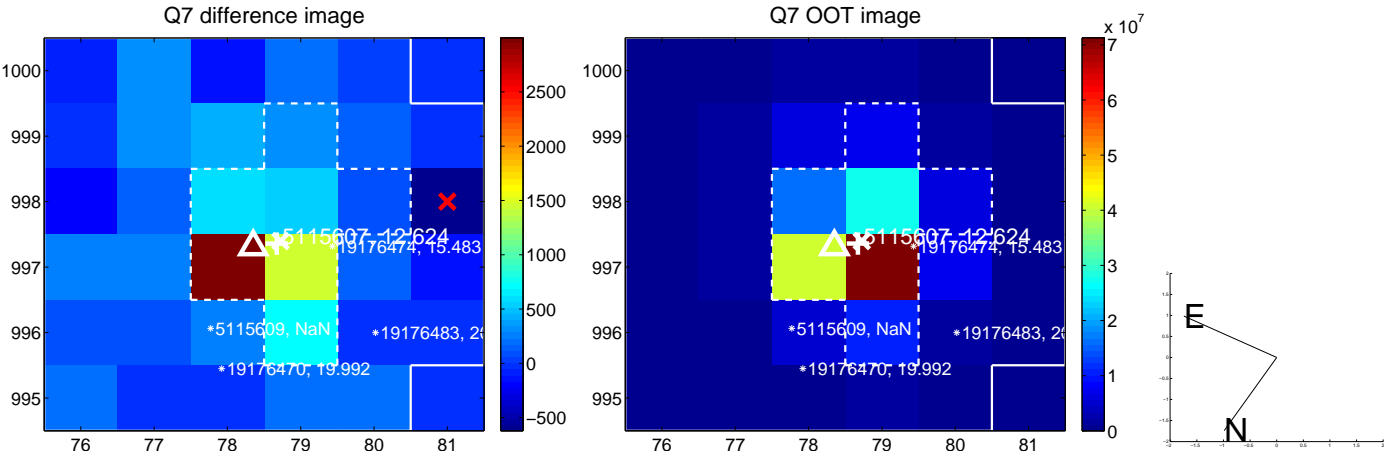
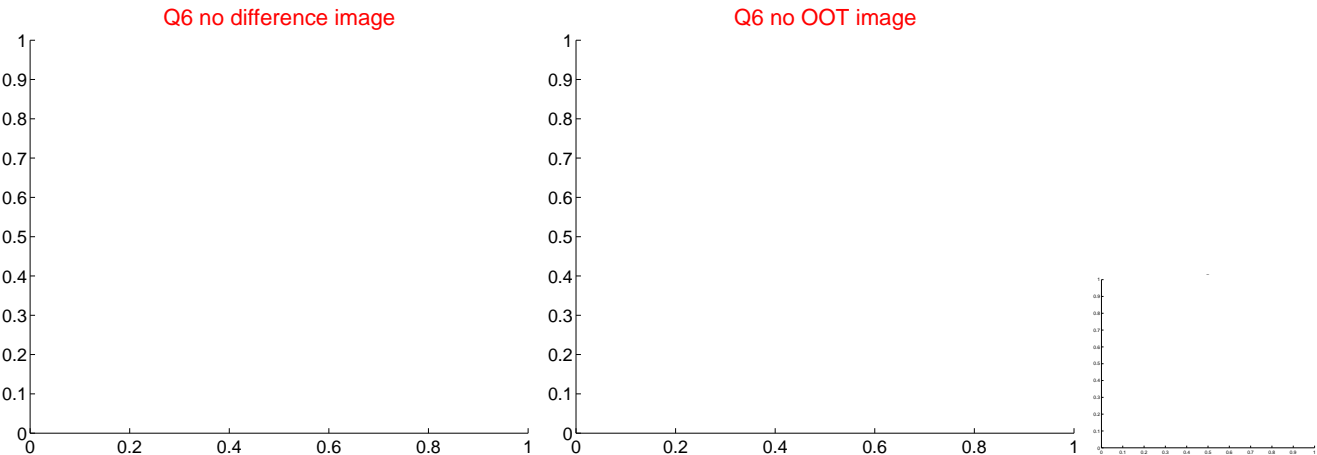
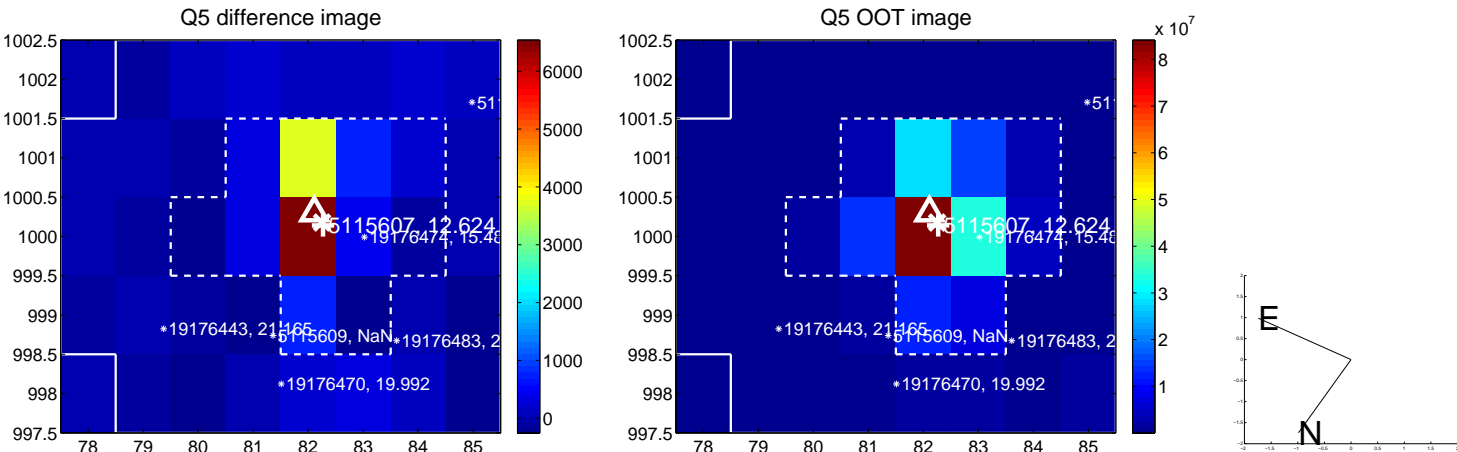


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

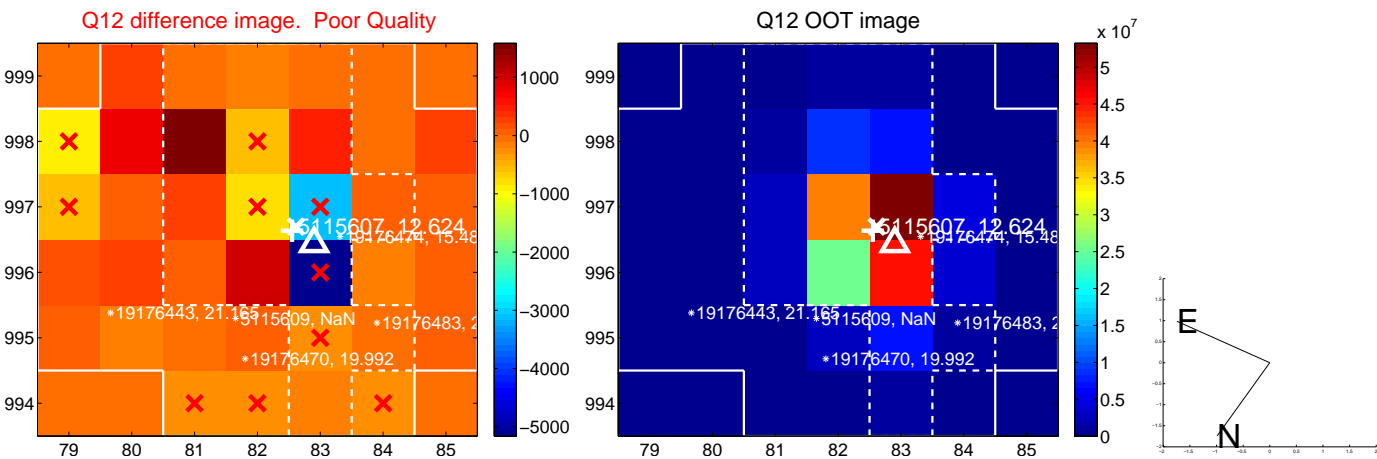
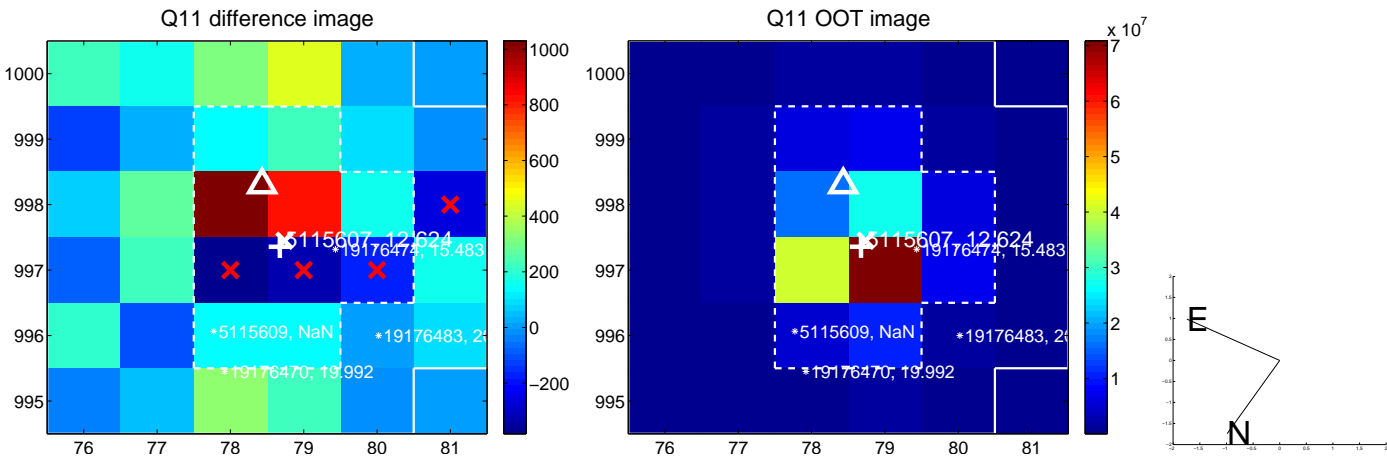
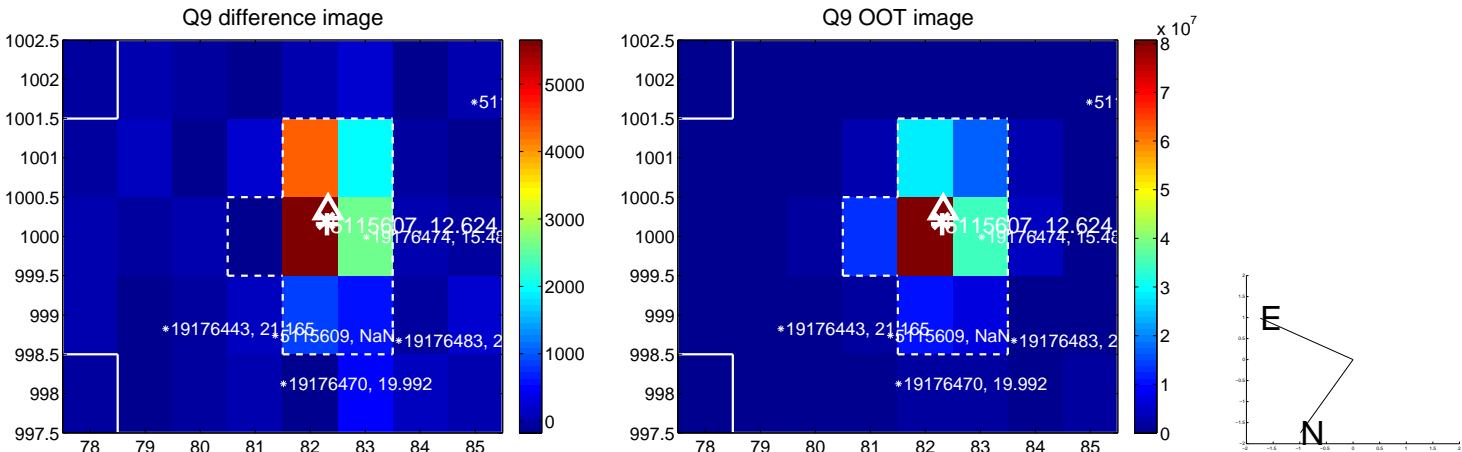
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



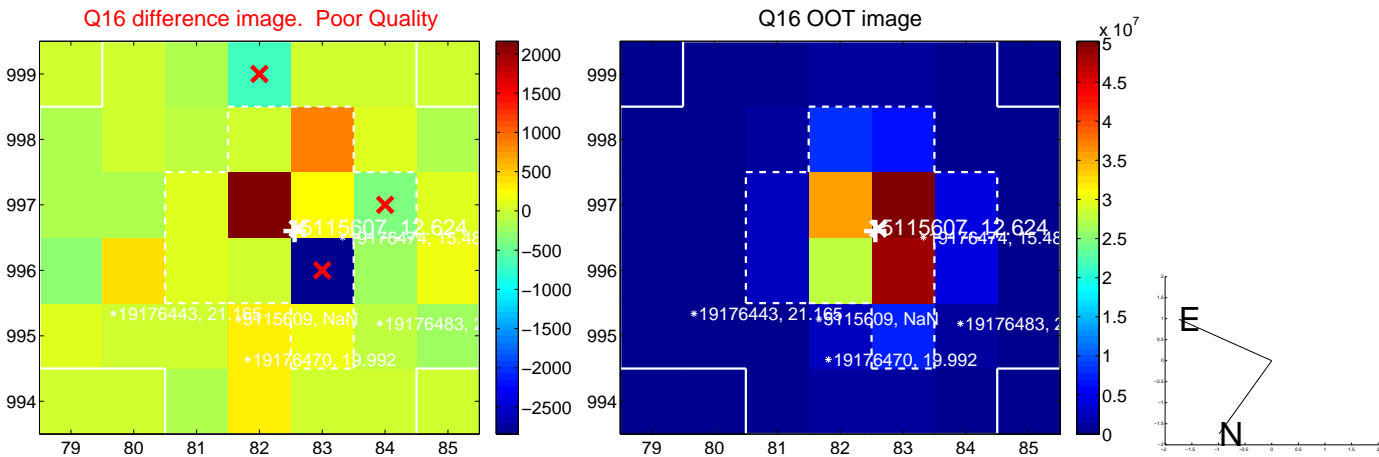
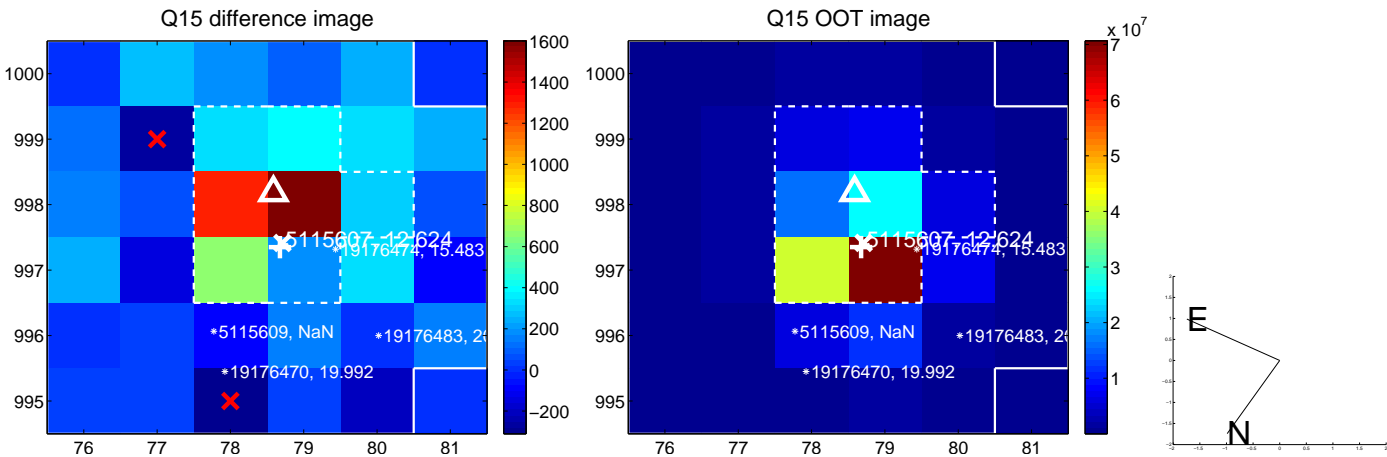
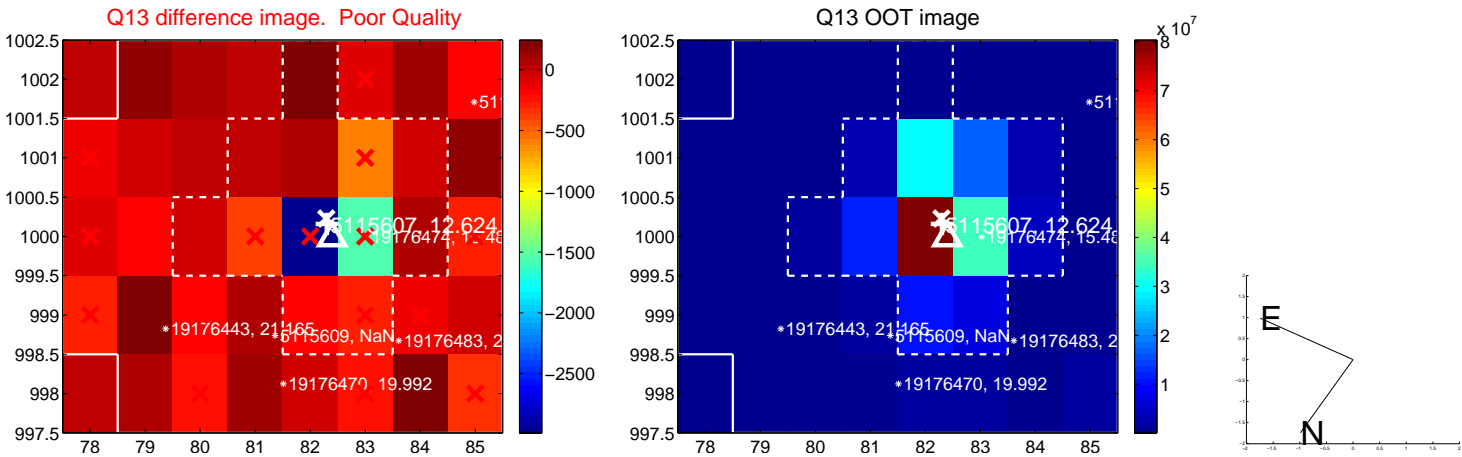
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



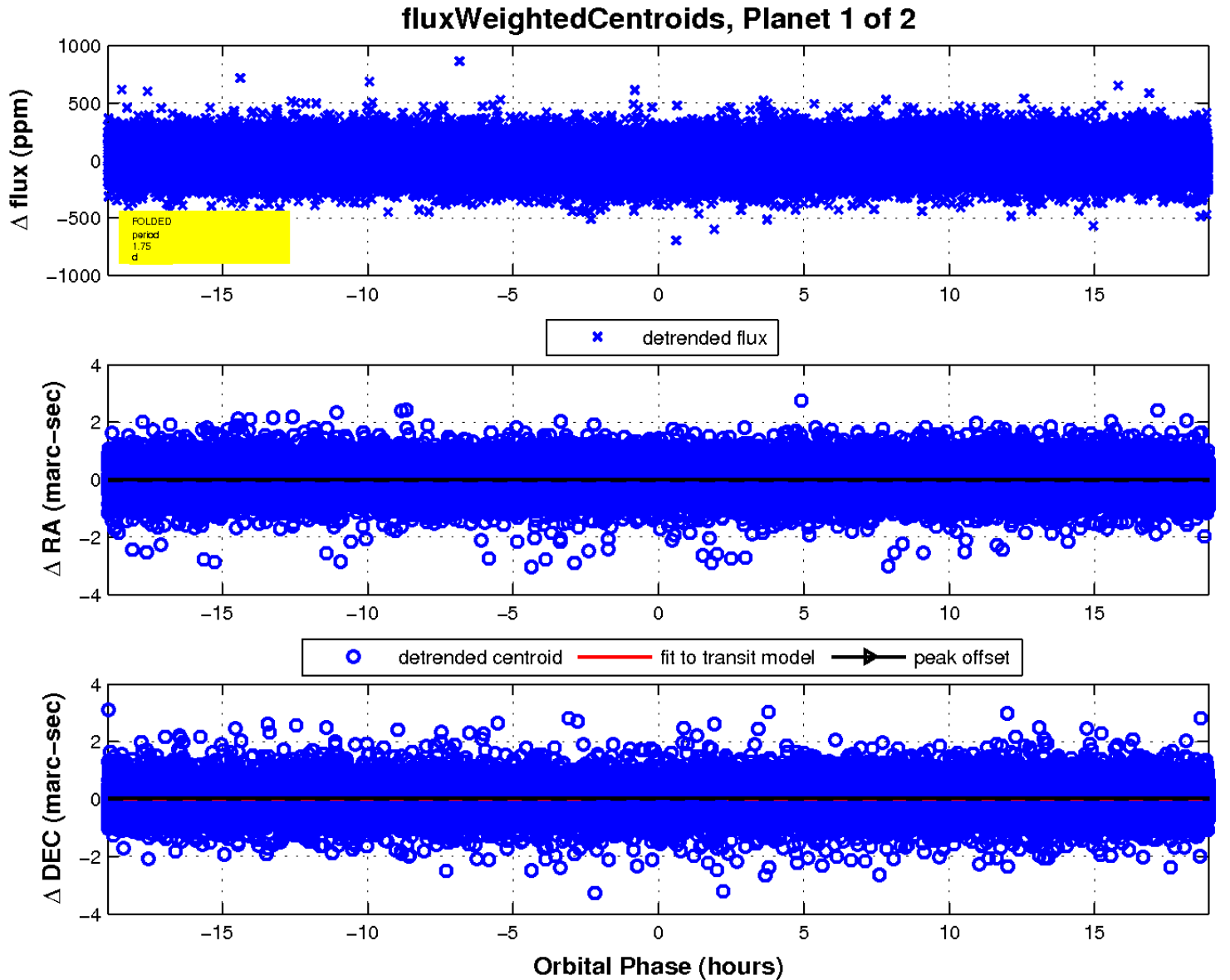
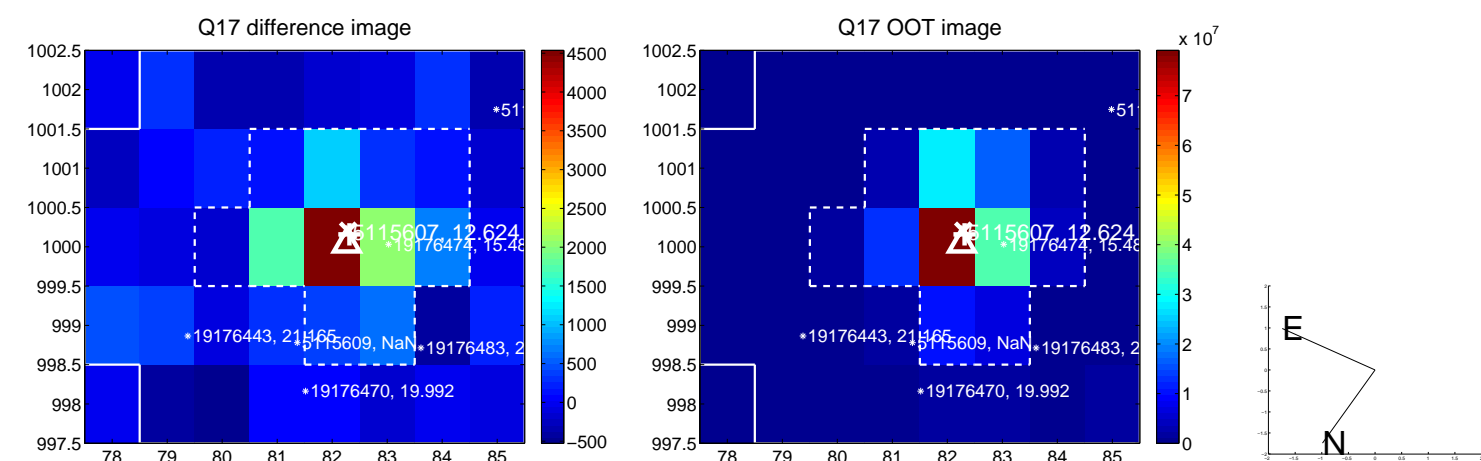
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

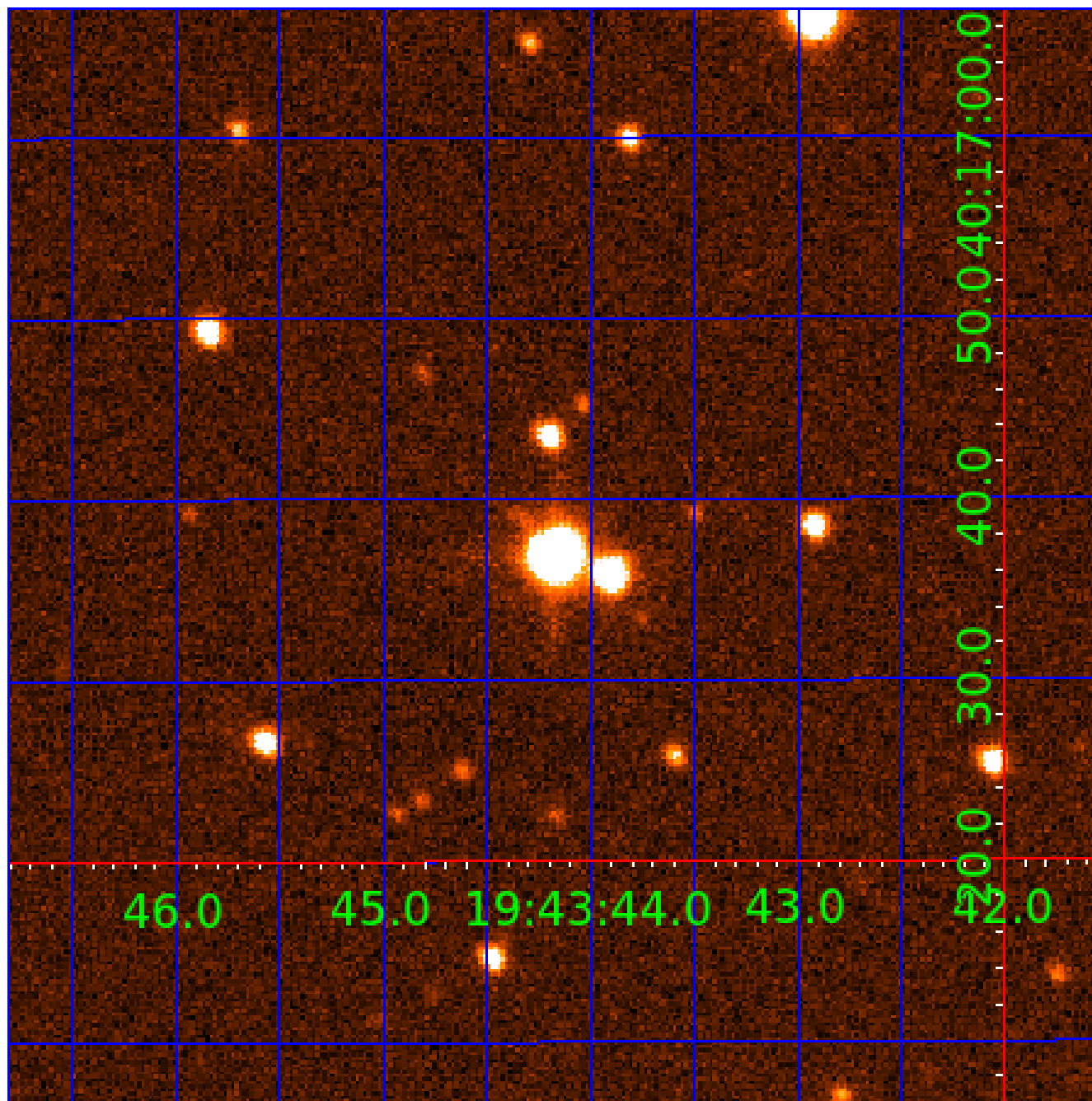


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005115607

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})
005115607-01	OBS	No	1.749342	133.199398	18.3	6.311	7.9	7.6	1.80	6385	0.89	6093.61
005115607-02	OBS	No	10.845025	135.883491	149.1	45.491	8.0	15.8	1.80	6385	4.37	535.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005115607-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
005115607-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—MOD_NONUNIQ_DV

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

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

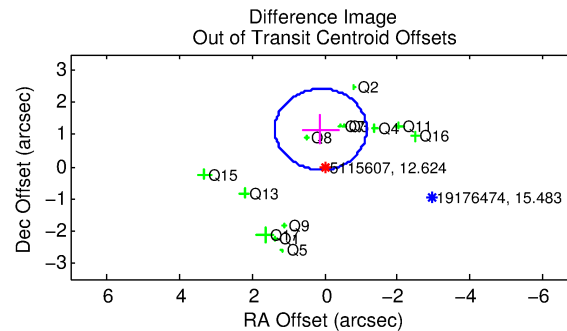
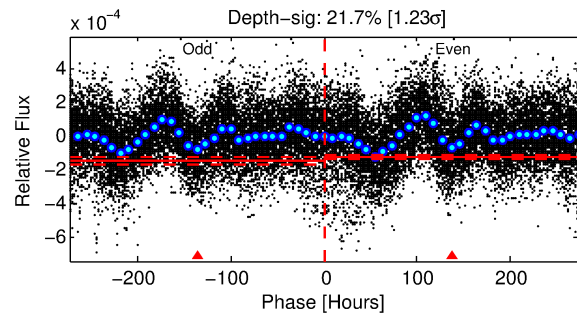
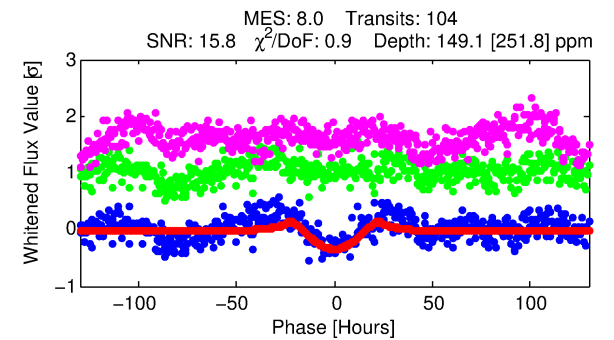
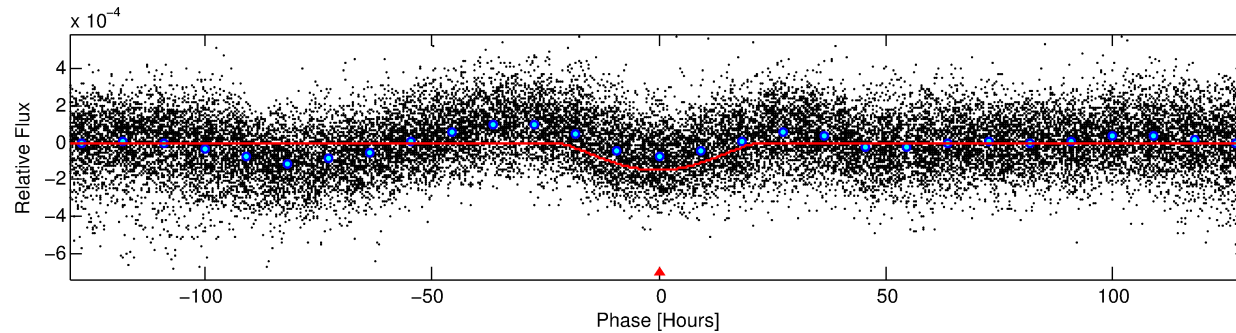
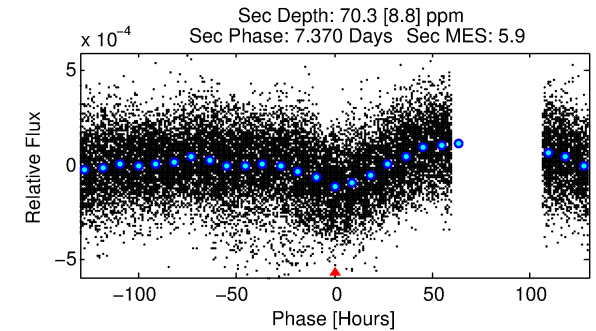
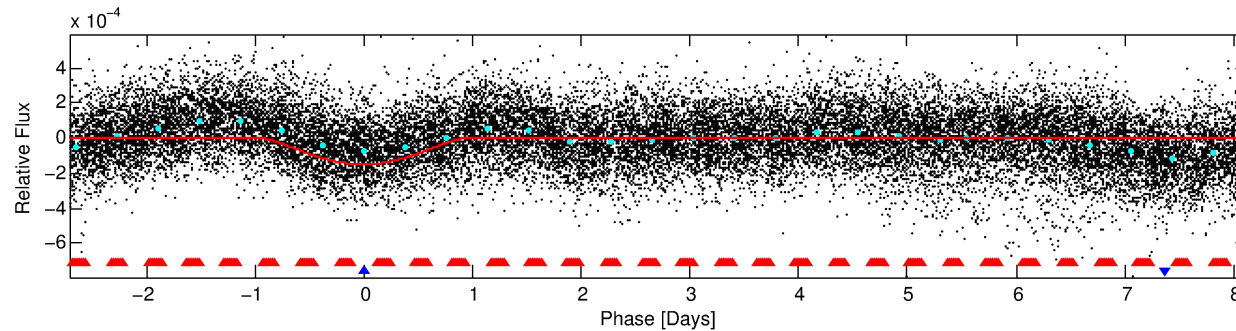
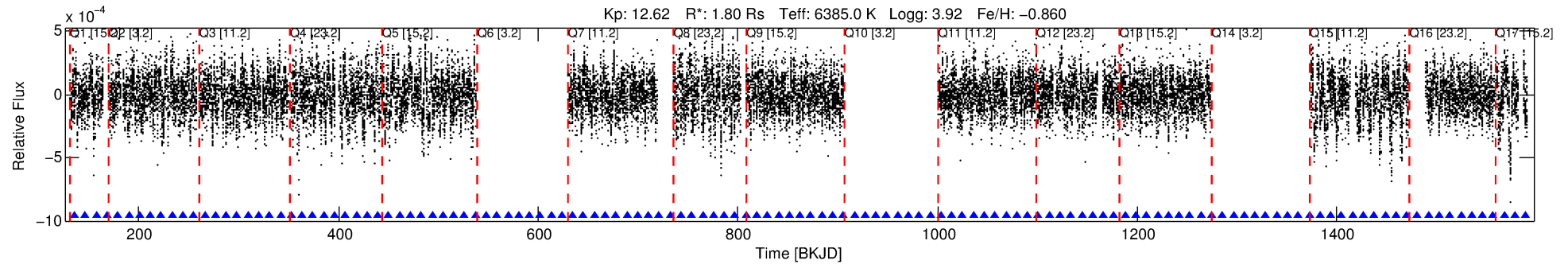
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005115607-02

No Significant Match Found

DV One-Page Summary

KIC: 5115607 Candidate: 2 of 2 Period: 10.845 d



DV Fit Results:

Period = 10.84503 [0.00066] d
Epoch = 135.8835 [0.0503] BKJD
Rp/R* = 0.0222 [0.0220]
a/R* = 1.08 [0.01]
b = 1.00 [0.01]
Seff = 535.06 [309.12]
Teff = 1226 [177] K
Rp = 4.37 [4.58] Re
a = 0.0951 [0.0330] AU
Ag = 18.33 [37.79] [0.46σ]
Teffp = 3923 [1947] K [1.38σ]

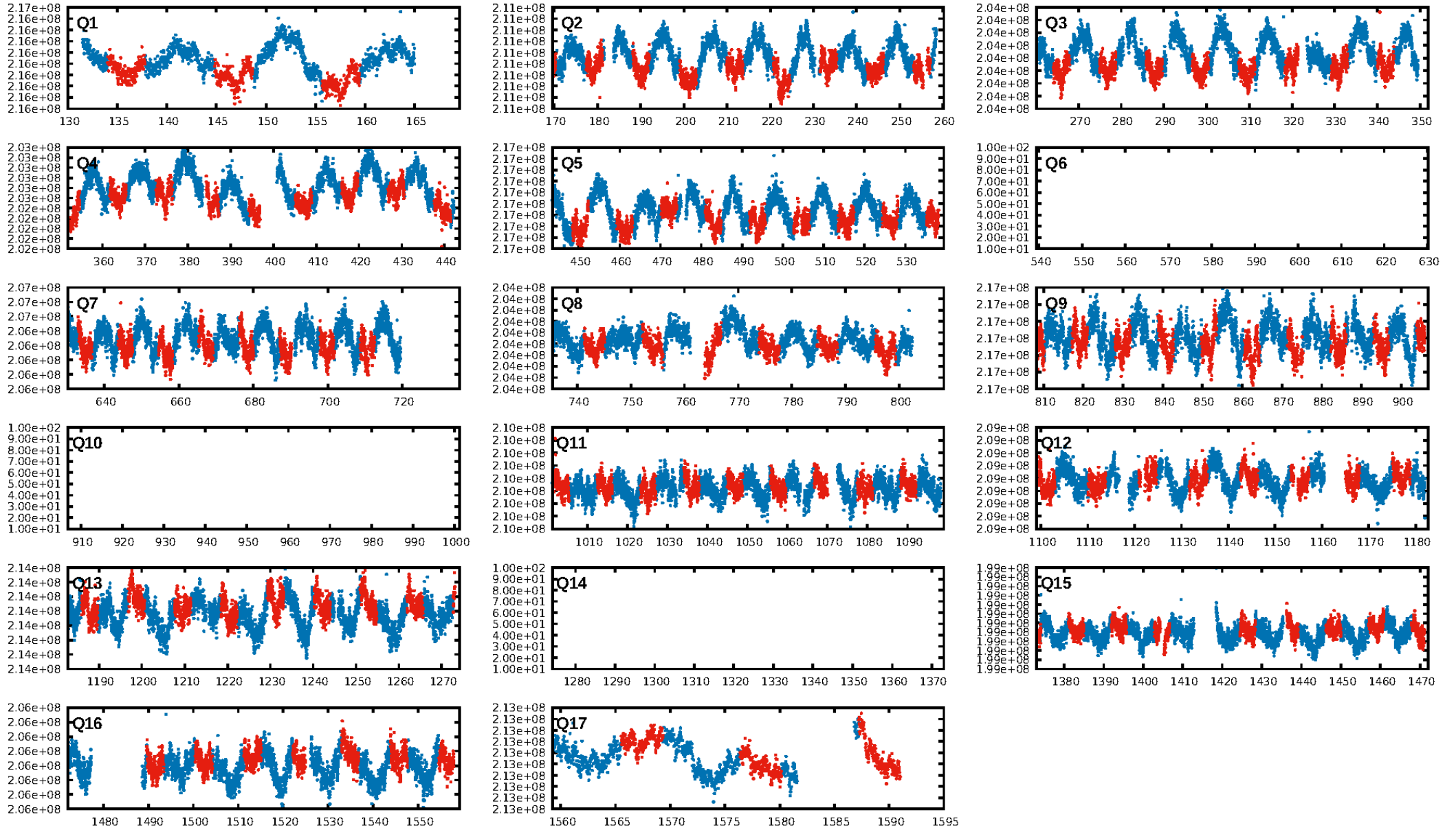
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.75σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 46.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.69e-13
RollingBand-fgt: 1.00 [98/98]
GhostDiagnostic-chr: 1.355
Centroid-sig: 10.5%
Centroid-so: 0.506 arcsec [2.31σ]
OotOffset-rm: 1.168 arcsec [2.78σ]
KicOffset-rm: 1.424 arcsec [3.26σ]
OotOffset-st: 1/4/3/5 [13]
KicOffset-st: 1/4/3/5 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 0.00 [0/14]

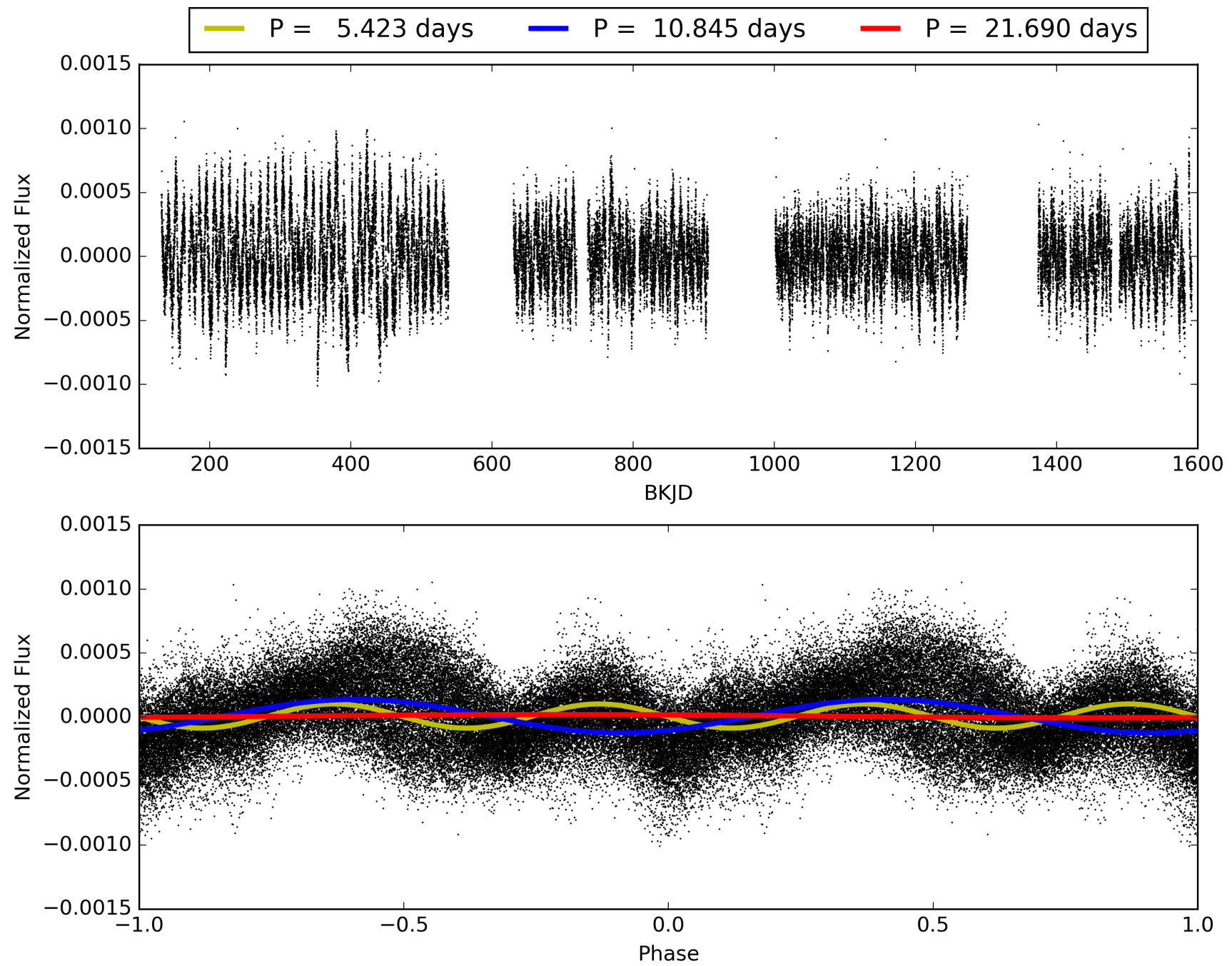
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:54:07 Z

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

TCE 005115607-02, PDC Light Curves

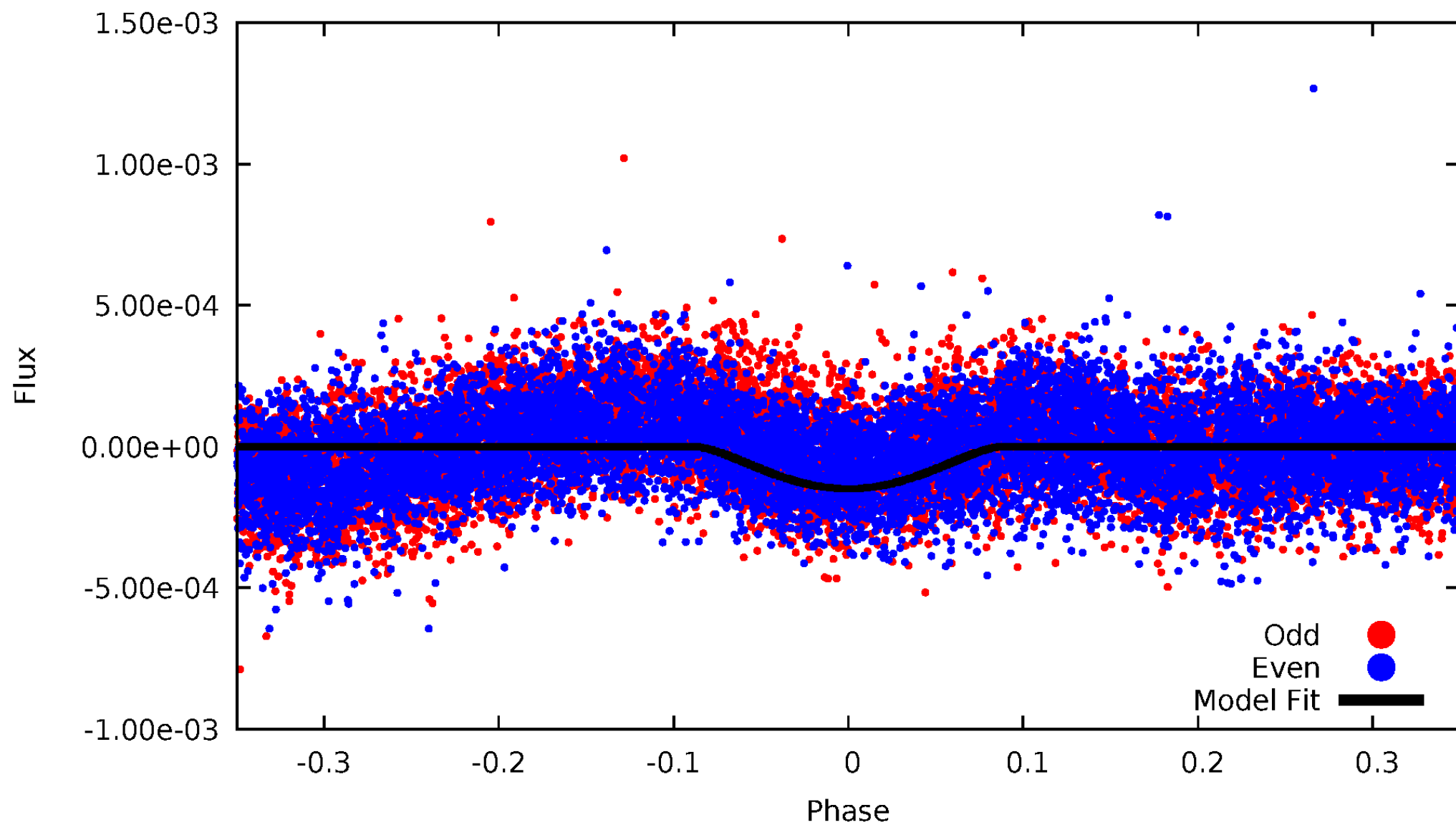


TCE 005115607-02



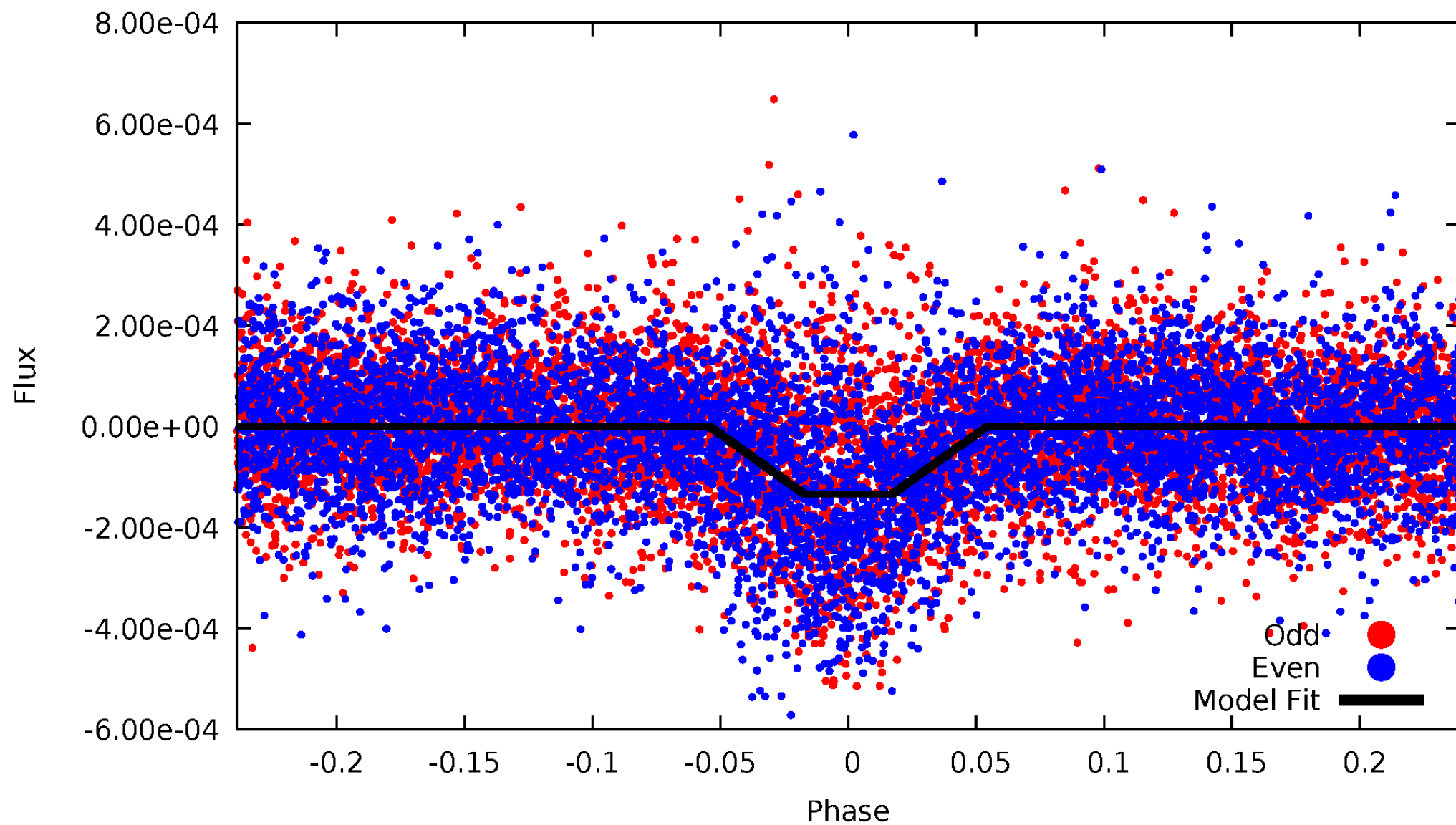
DV Odd/Even

TCE 005115607-02



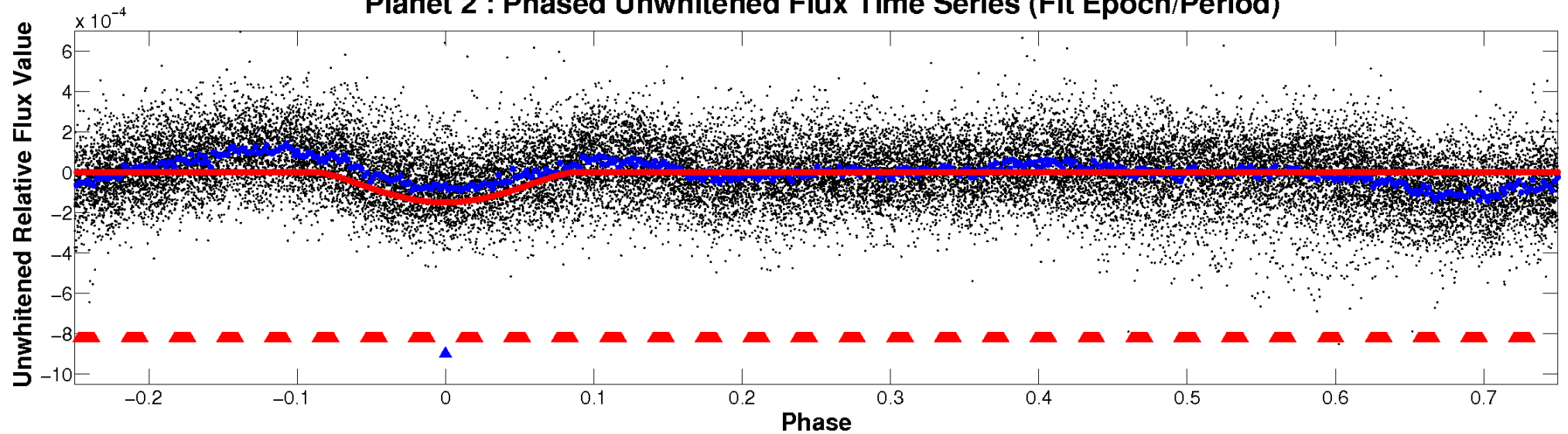
ALT Odd/Even

TCE 005115607-02

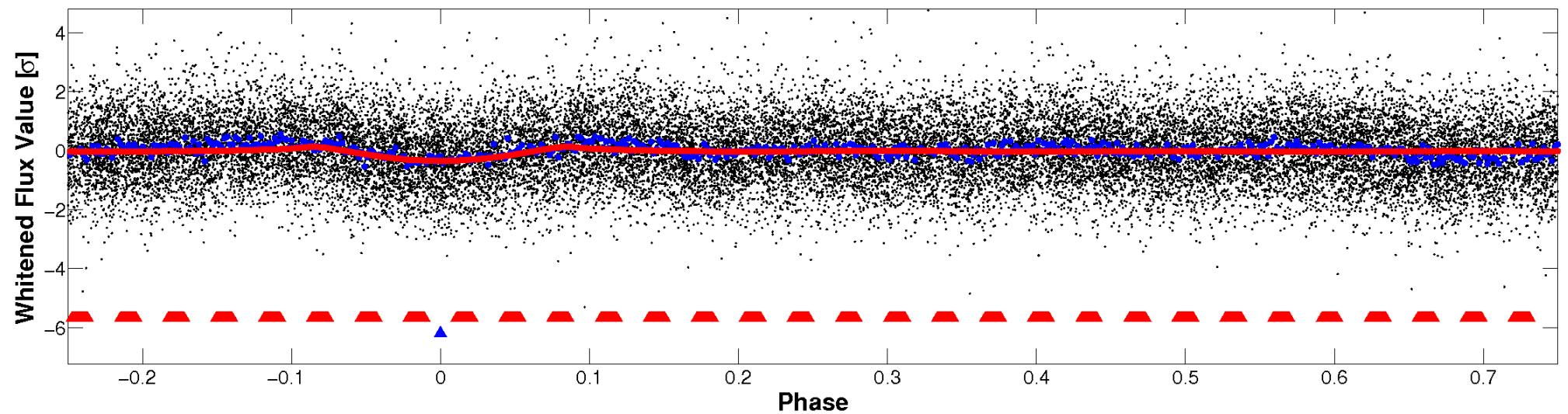


Non-Whitened Vs. Whitened Light Curve

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

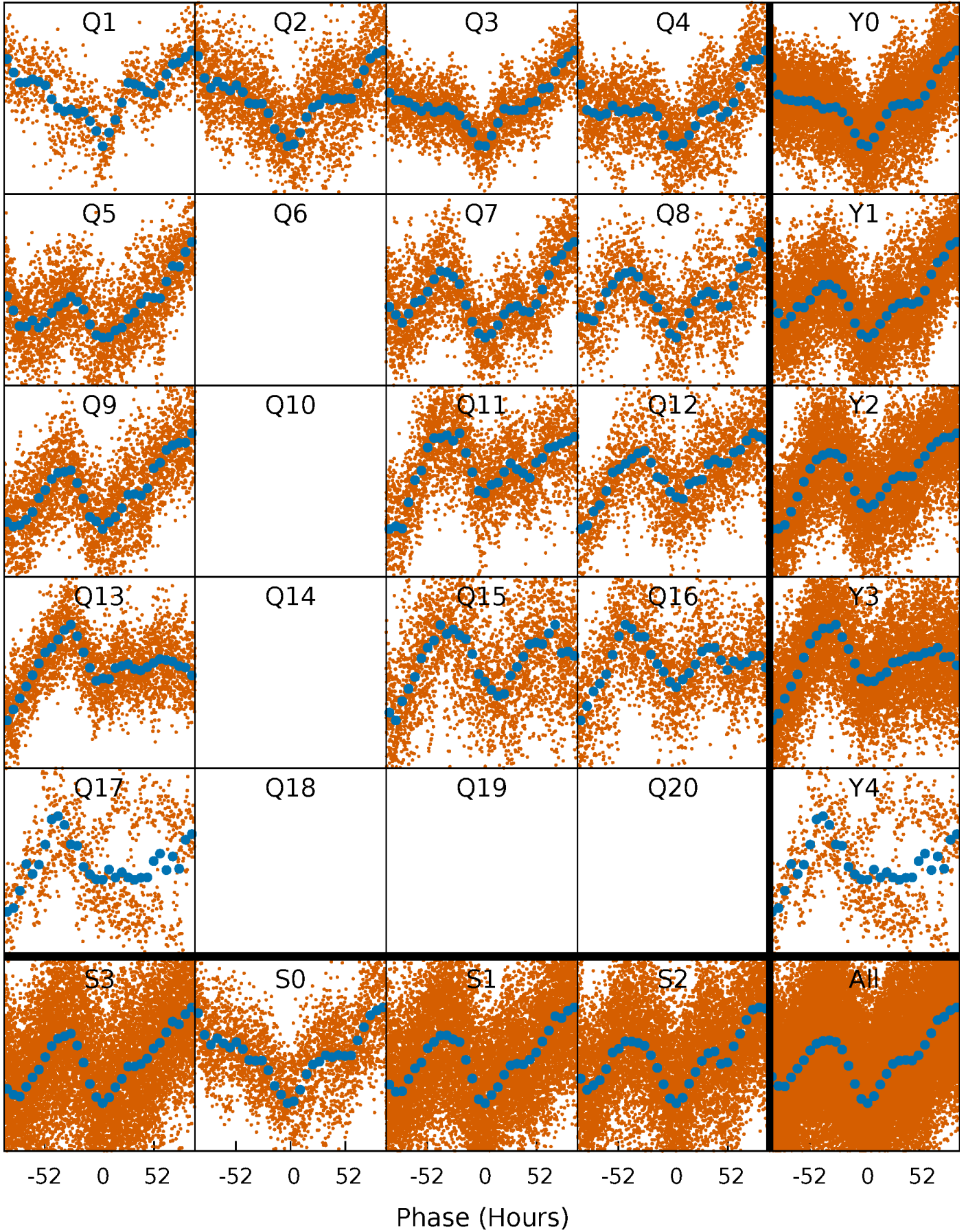


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



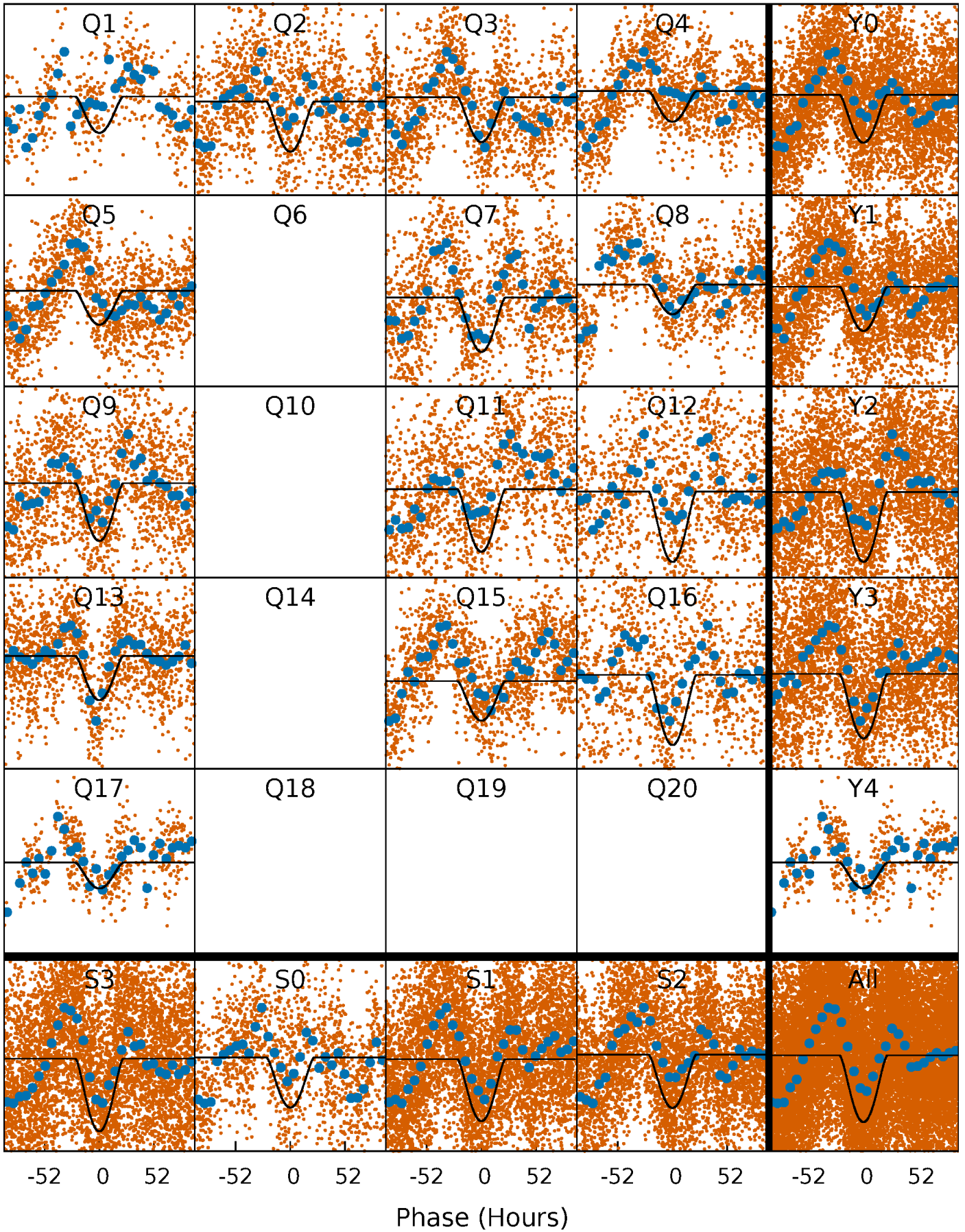
PDC Quarter-Phased Transit Curves

TCE 005115607-02 P= 10.845025 Days $T_0=135.883491$ (BKJD)



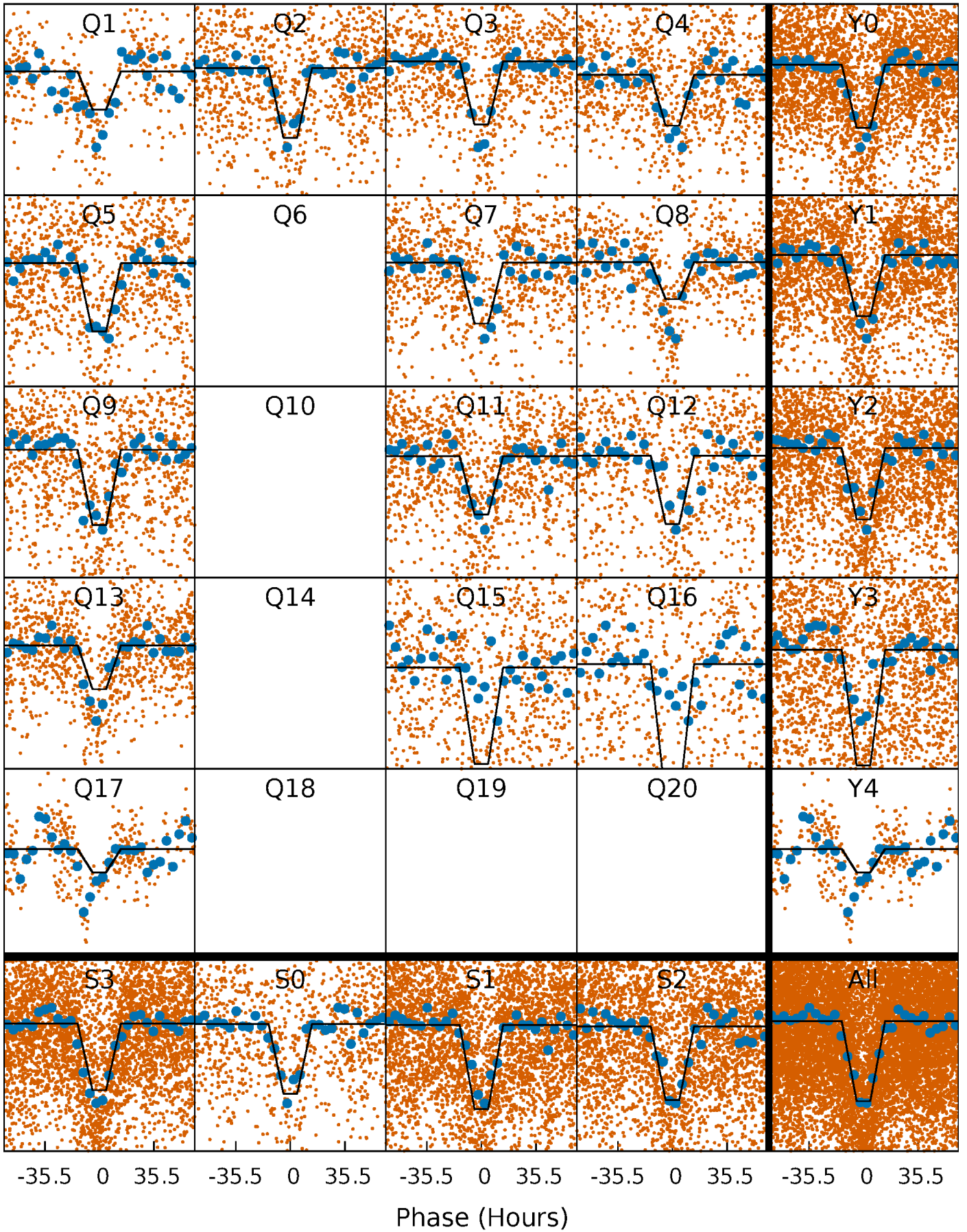
DV Quarter-Phased Transit Curves

TCE 005115607-02 P= 10.845025 Days $T_0=135.883491$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

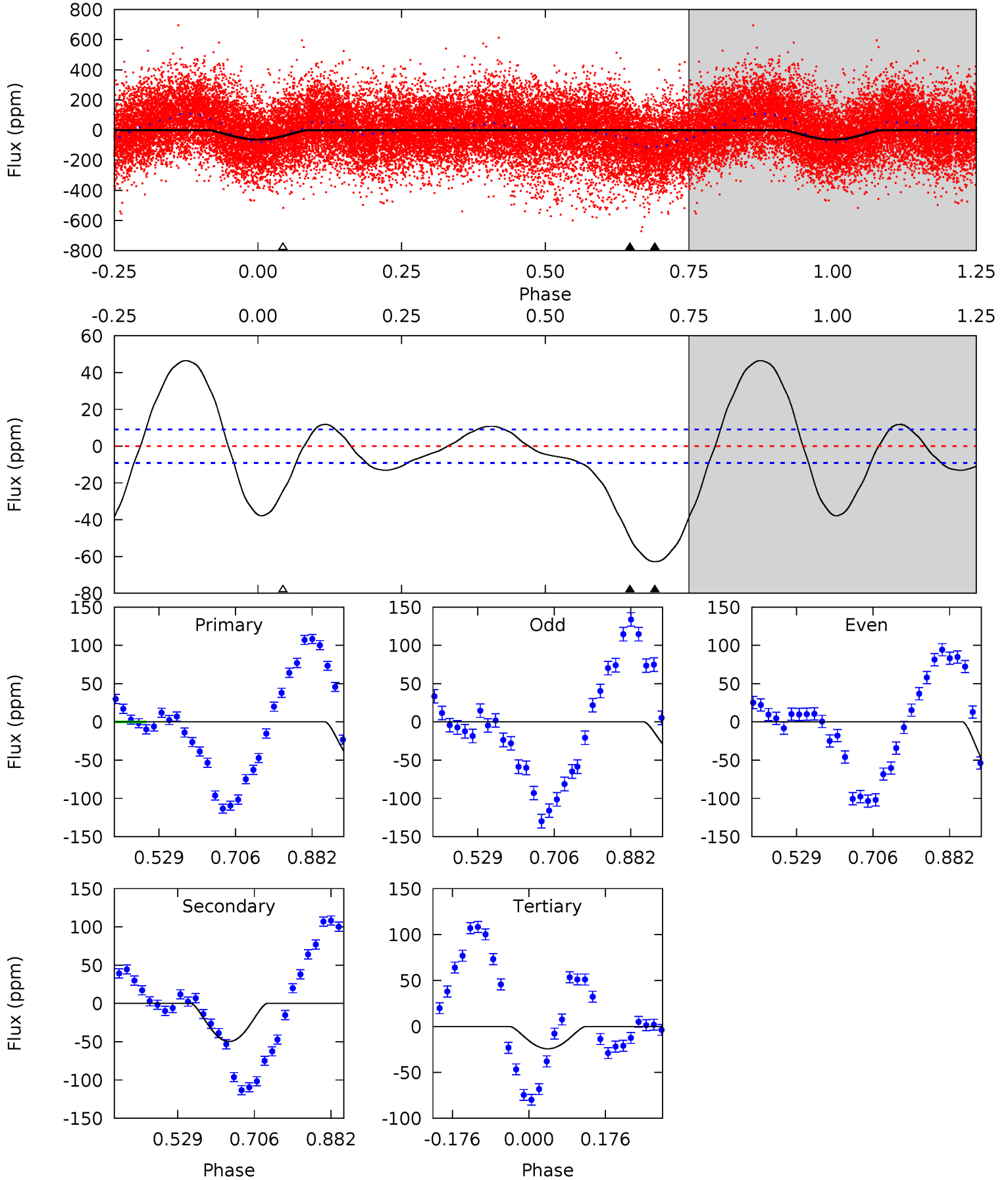
TCE 005115607-02 P= 10.844103 Days $T_0=135.963059$ (BKJD)



DV Model-Shift Uniqueness Test

005115607-02, P = 10.845025 Days, E = 125.038466 Days

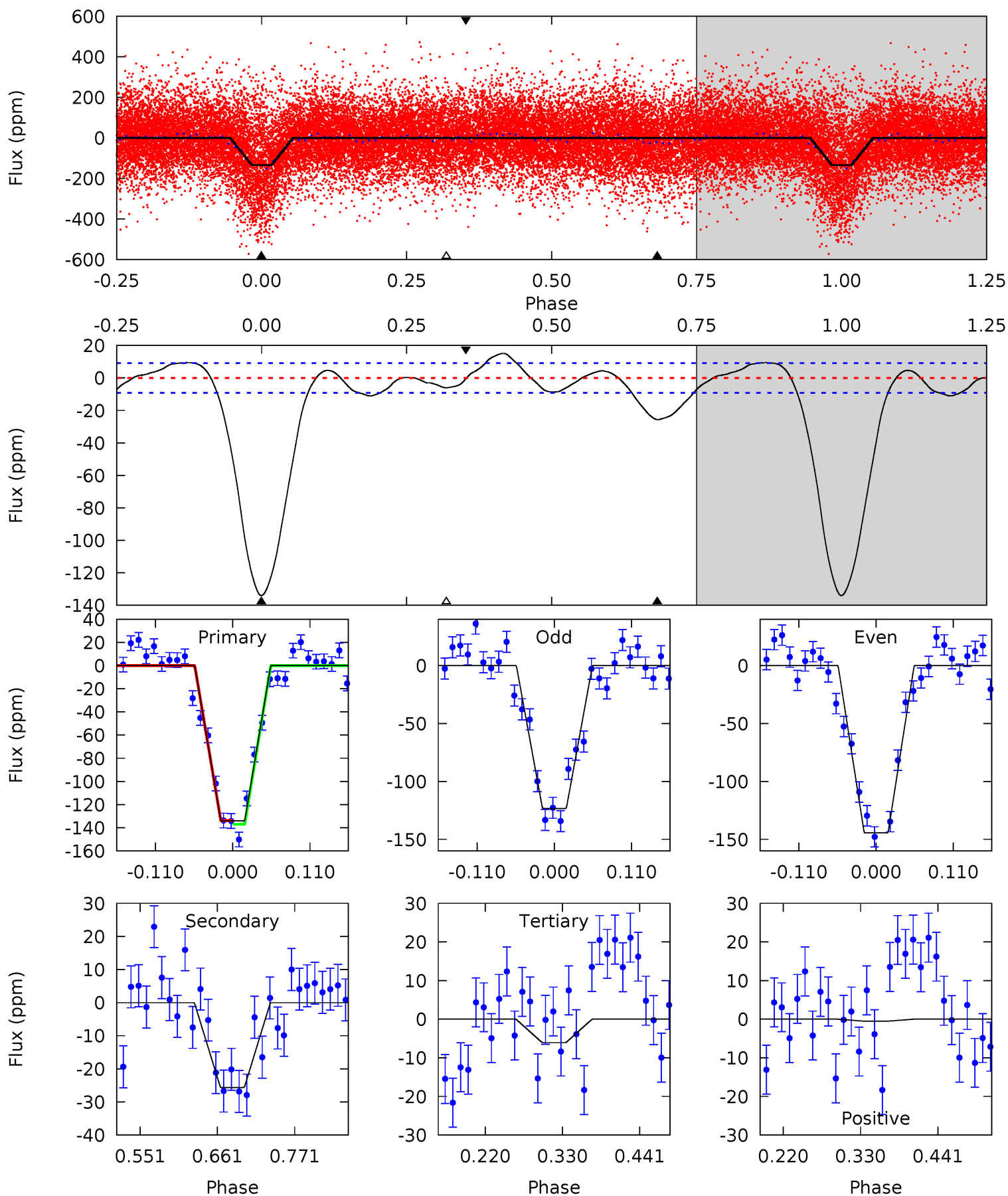
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.7	24.3	11.9	0	4.44	1.35	9.25	18.8	30.7	12.4	24.3	7.67	1.08	0.43	4.03



Alt Model-Shift Uniqueness Test

005115607-02, P = 10.844103 Days, E = 125.118956 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
66.5	12.7	3.01	-0.25	4.54	1.60	3.42	63.5	66.8	9.71	13.0	5.24	0.87	0.10	0.80



Stellar Parameters For KIC 005115607

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6385^{+172}_{-172}	$3.915^{+0.338}_{-0.113}$	$-0.860^{+0.350}_{-0.250}$	$1.802^{+0.383}_{-0.622}$	$0.974^{+0.139}_{-0.126}$	$0.234^{+0.503}_{-0.091}$
	+3%/-3%	+9%/-3%	+41%/-29%	+21%/-35%	+14%/-13%	+215%/-39%
Source	PHO1	FLK73	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 005115607-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-50 ± 2	$4.70^{+3.88}_{-2.89}$	1685^{+104}_{-174}	3722^{+1639}_{-656}	11^{+63}_{-8}
Alt.	-26 ± 2	$3.72^{+3.80}_{-2.46}$	1675^{+119}_{-150}	3605^{+2123}_{-691}	$8.898^{+82.599}_{-6.620}$

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 $A_{obs} \gg 1.0$

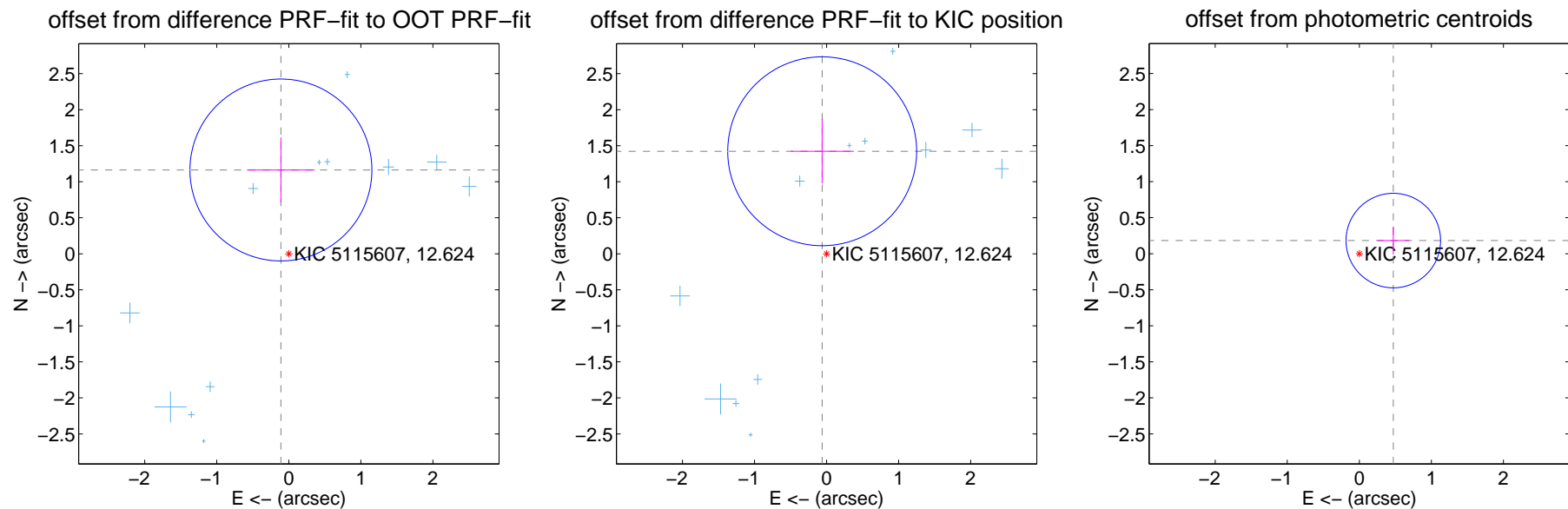
DV Centroid Data

Supplemental centroid analysis for 005115607-02. Kepler magnitude: 12.62. Transit SNR 15.76

There are 12 quarters with good PRF difference image offsets

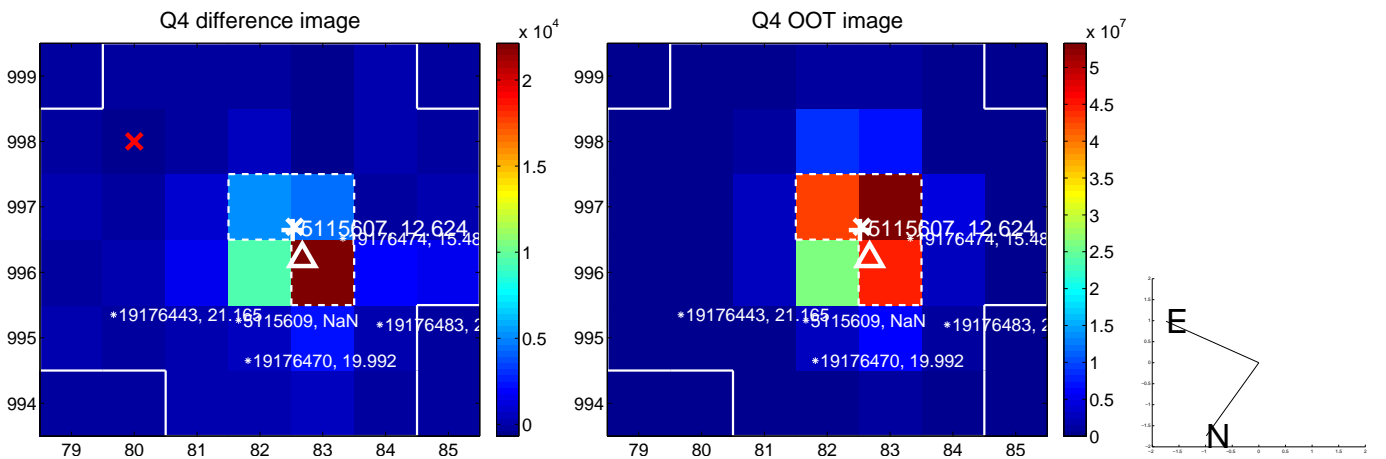
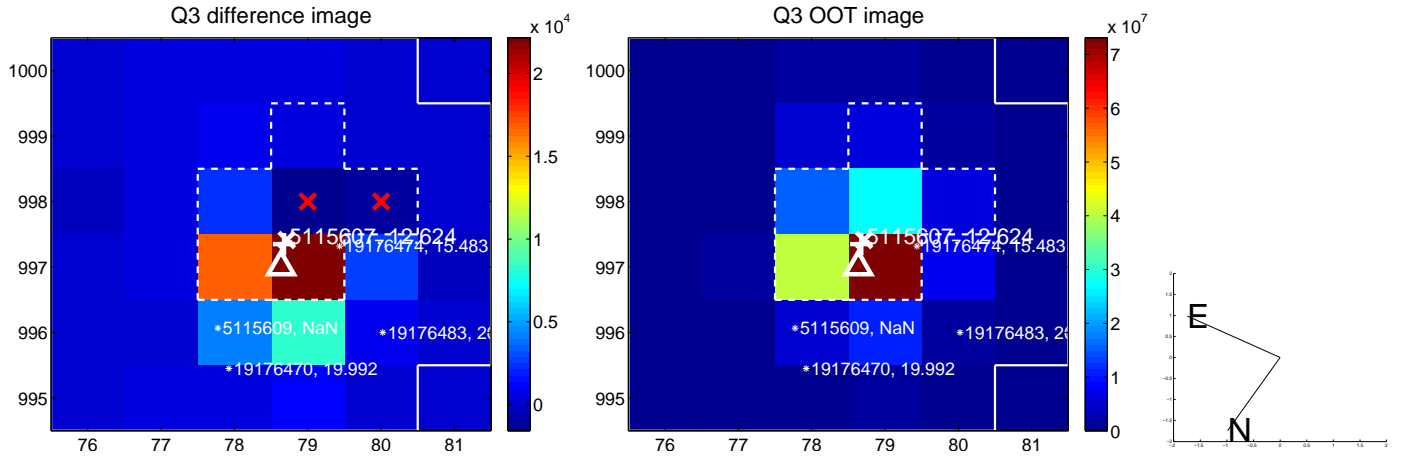
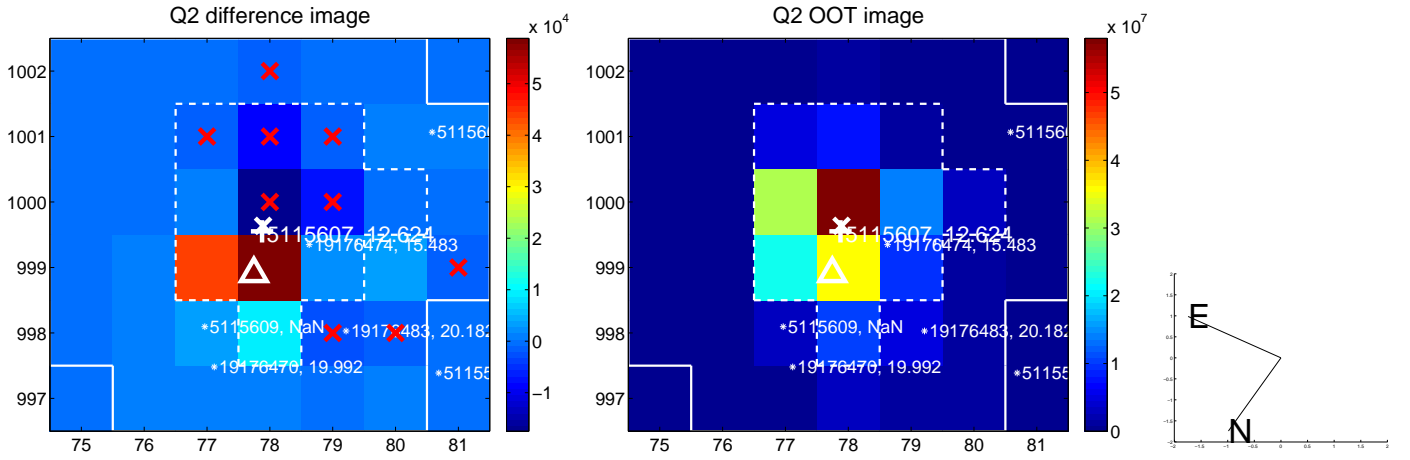
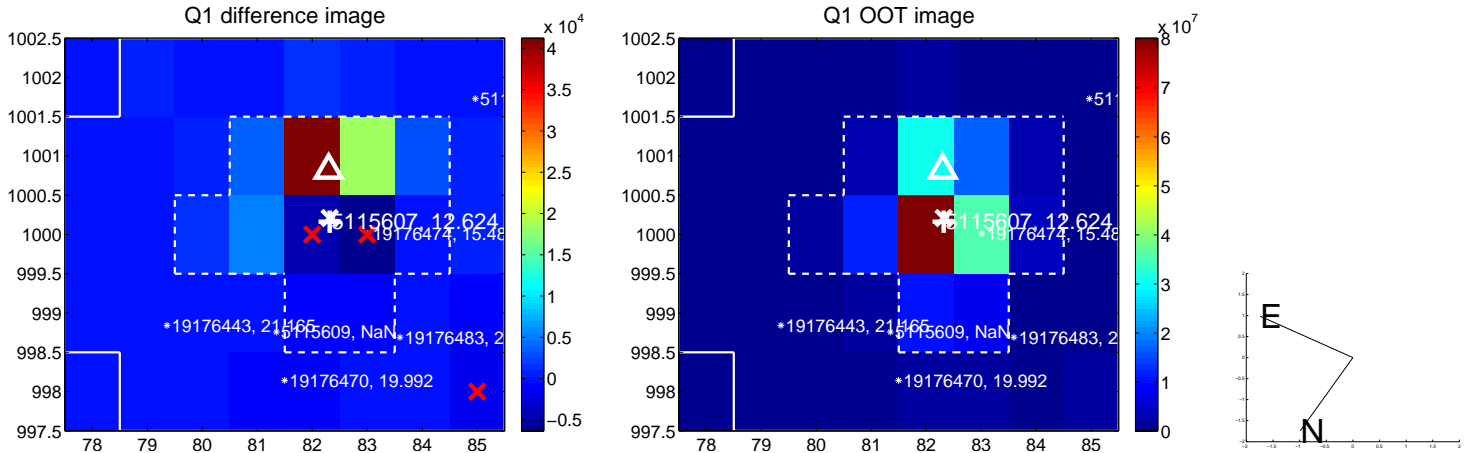
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.168 ± 0.421	2.78	0.110 ± 0.470	1.163 ± 0.451
PRF-fit source offset from KIC position	1.424 ± 0.437	3.26	0.061 ± 0.438	1.423 ± 0.448
photometric centroid source offset	0.51 ± 0.22	2.31	-0.47 ± 0.22	0.18 ± 0.19

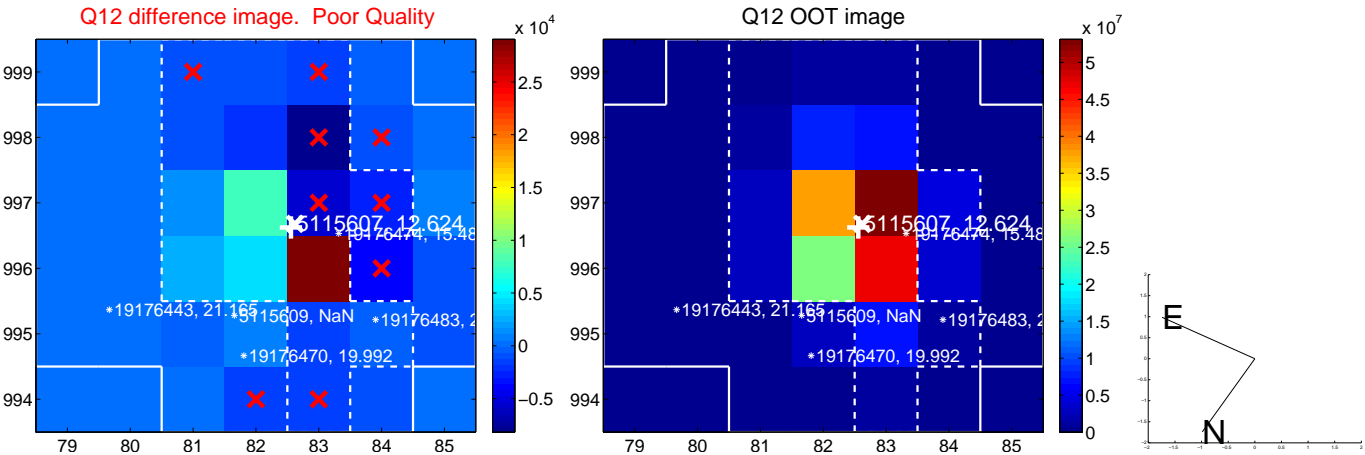
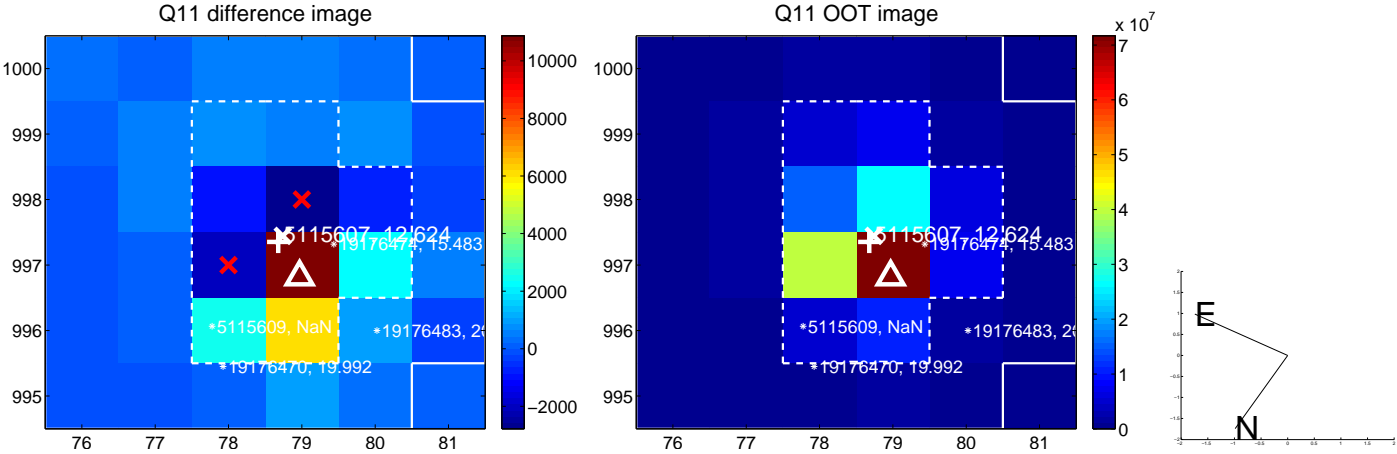
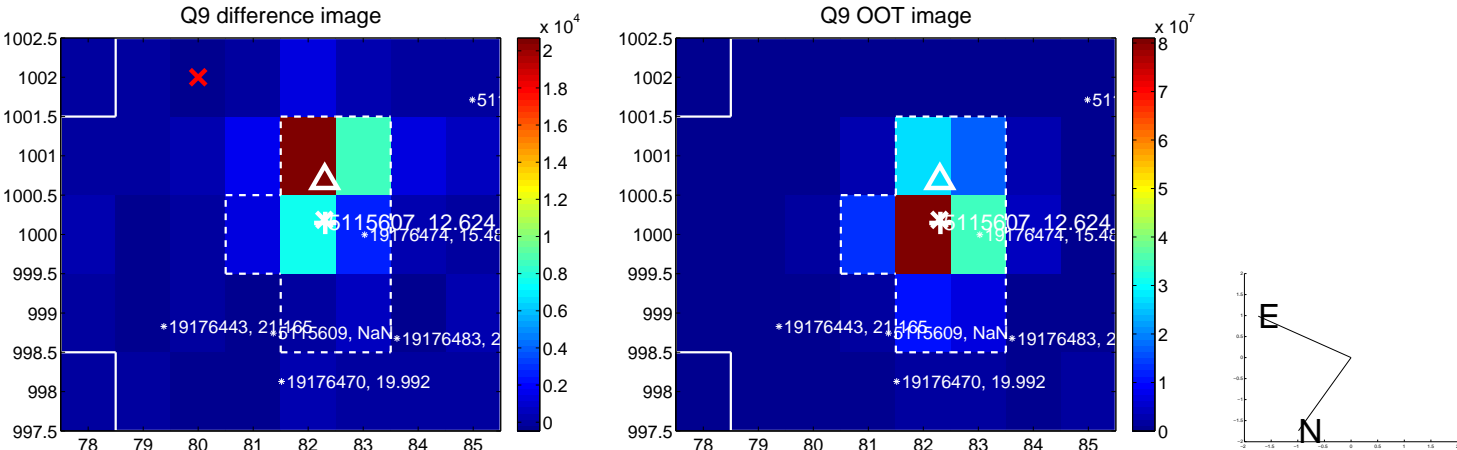


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

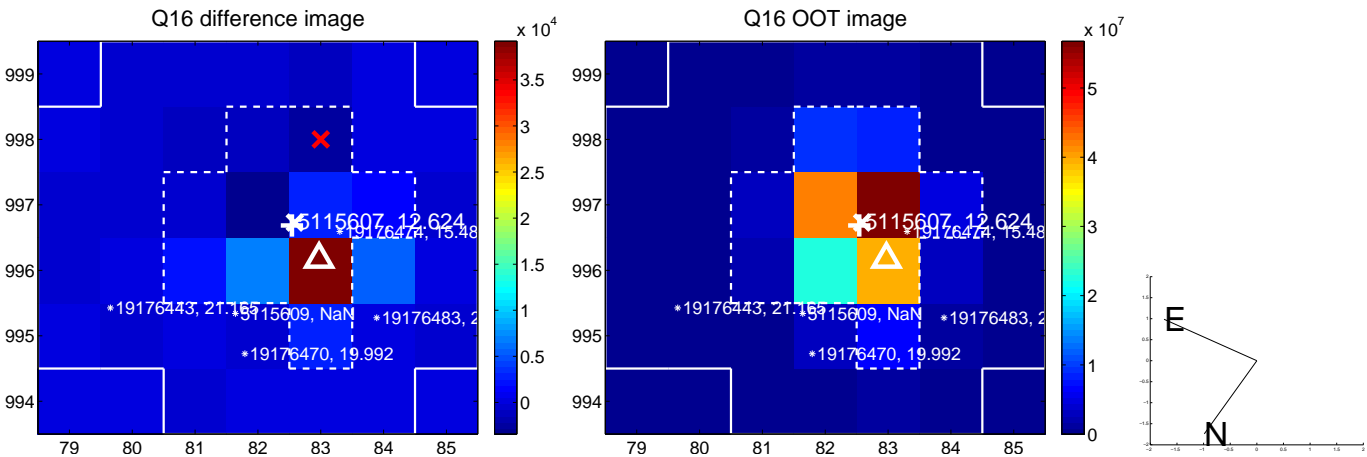
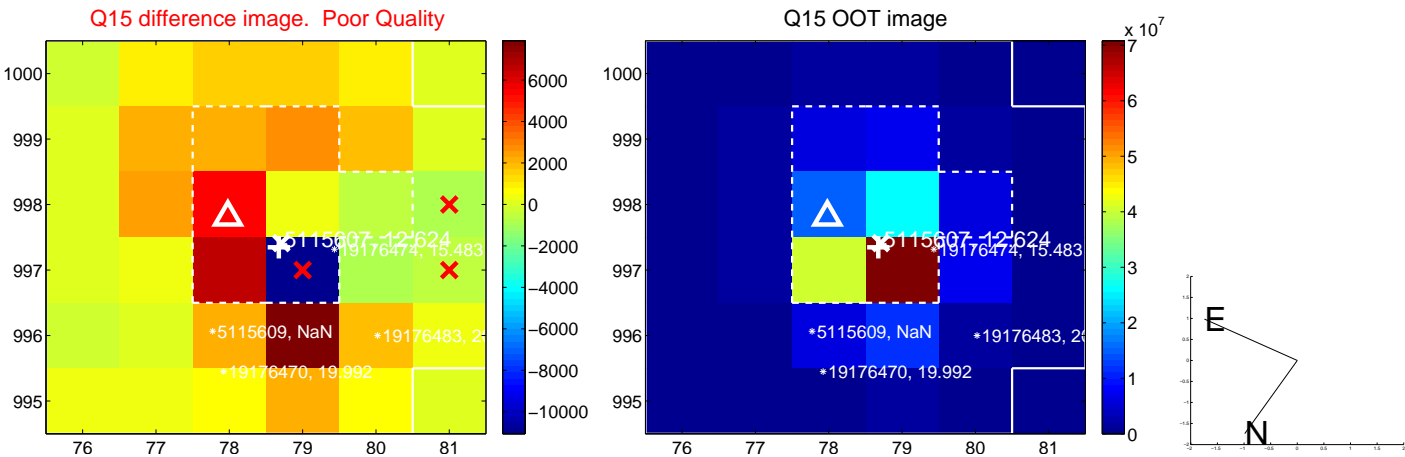
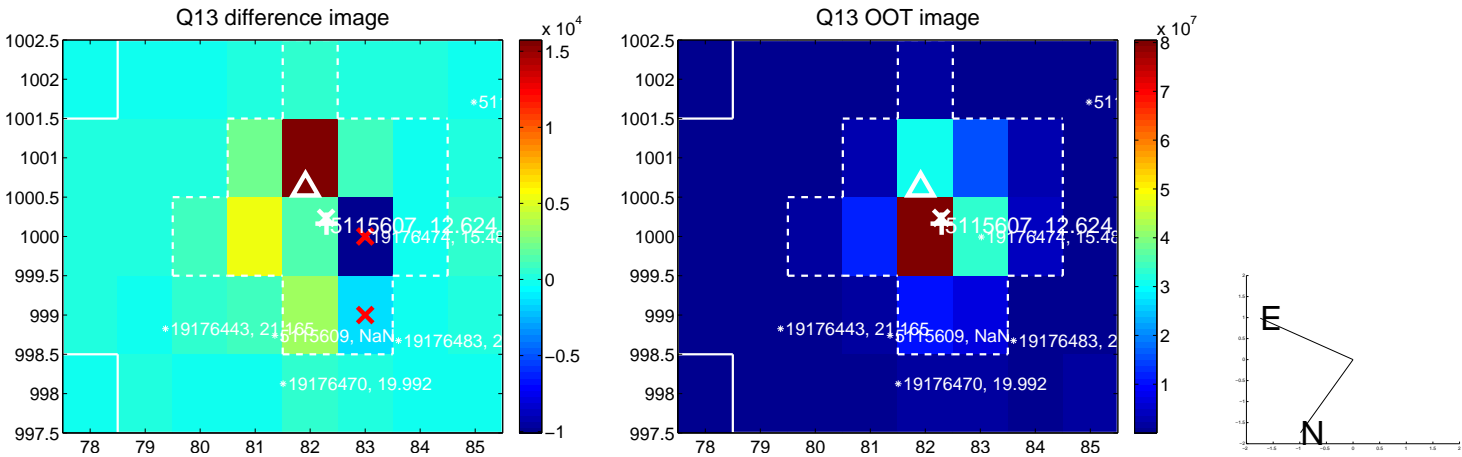
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



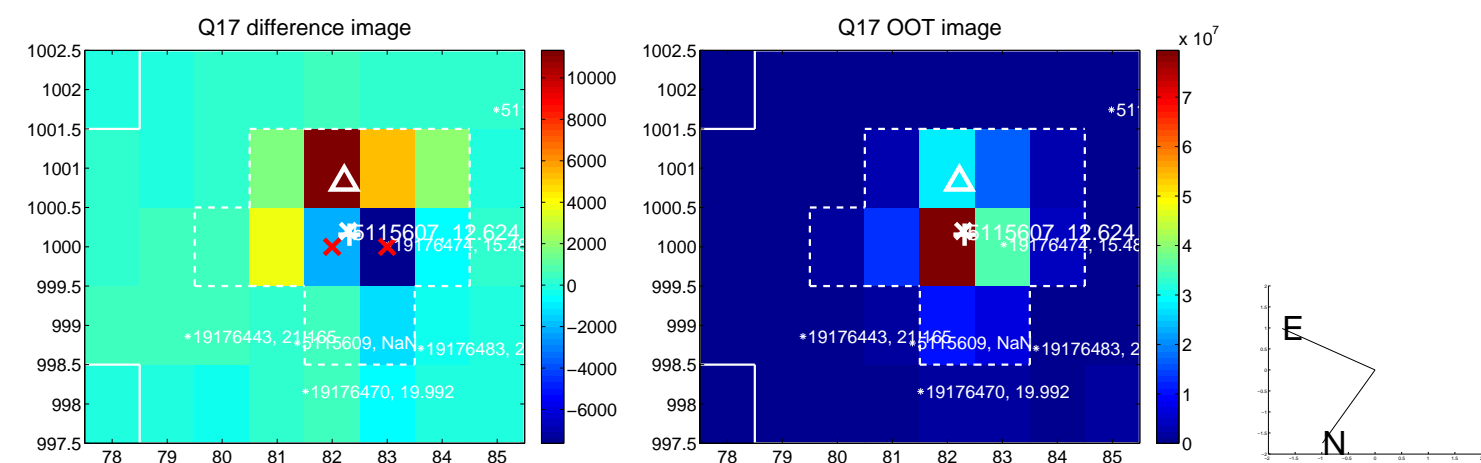
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



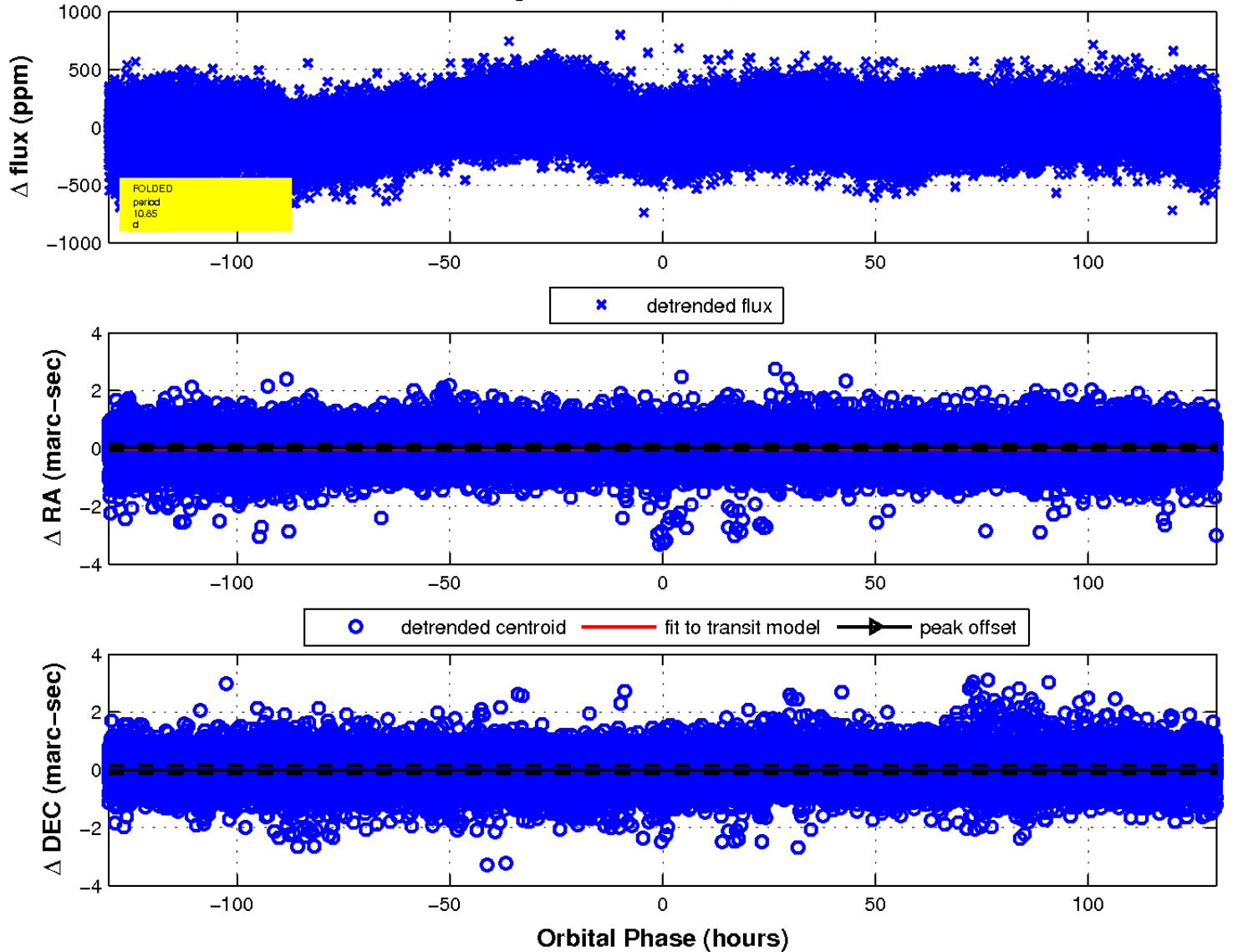
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

