

KIC 005374279

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})
005374279-01	OBS	No	1.144313	131.646704	0.0	5.963	9.5	0.0	4.08	6804	0.01	46919.48
005374279-02	OBS	No	4.843223	135.110139	80.0	4.792	9.6	9.9	4.08	6804	4.25	6853.31
005374279-03	OBS	No	73.335563	195.530354	78.5	3.783	7.6	2.5	4.08	6804	4.23	182.95
005374279-04	OBS	No	102.162867	229.135057	250.8	3.518	8.1	8.1	4.08	6804	7.54	117.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005374279-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT
005374279-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005374279-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005374279-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

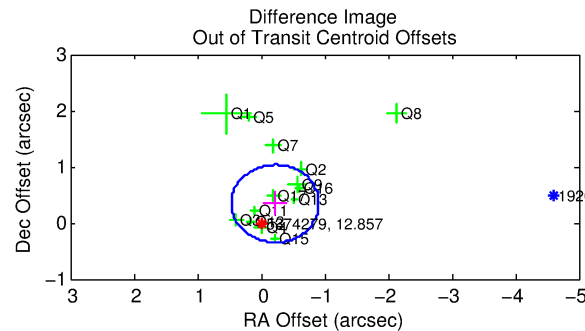
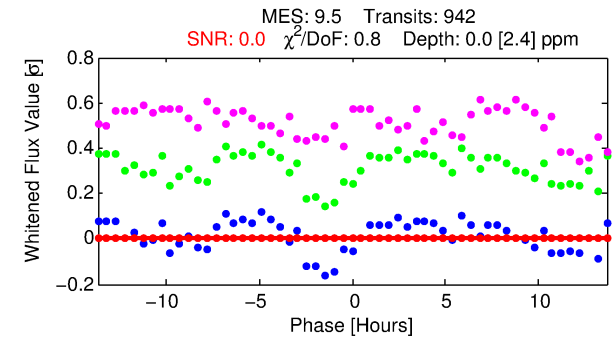
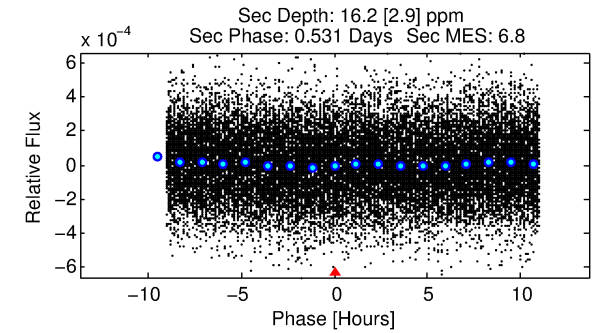
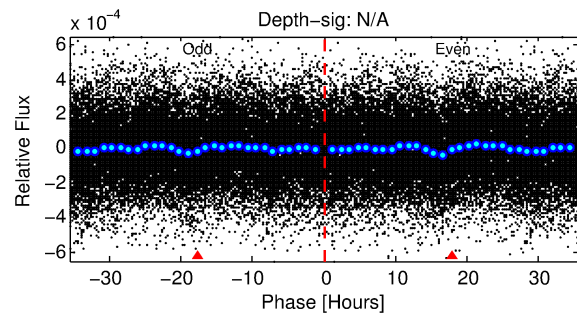
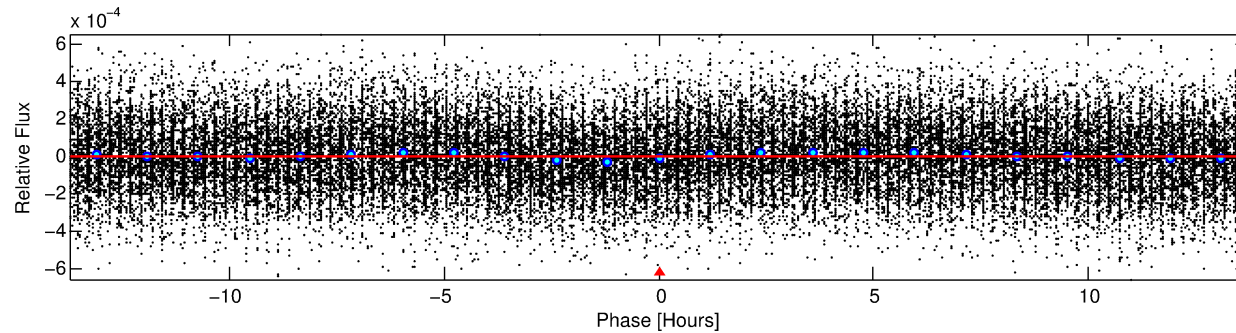
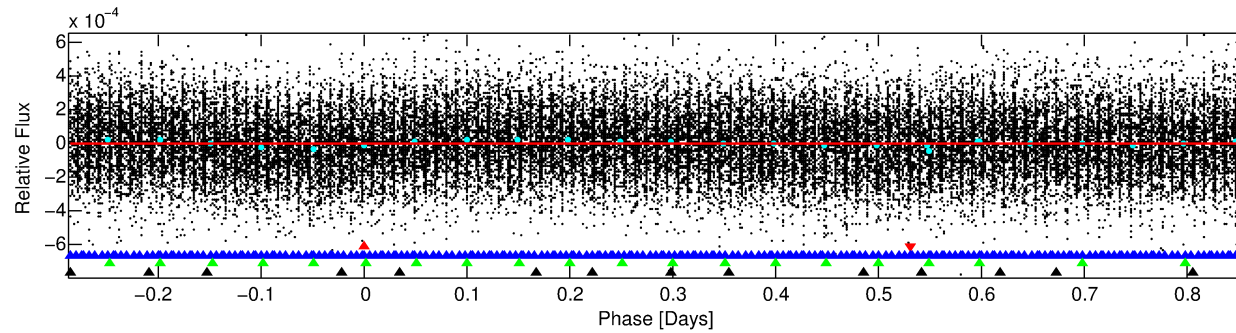
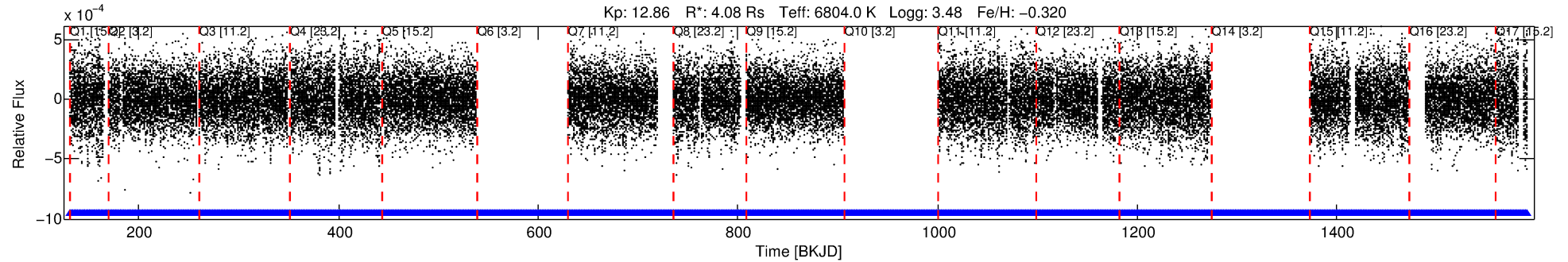
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005374279-01

No Significant Match Found

DV One-Page Summary

KIC: 5374279 Candidate: 1 of 4 Period: 1.144 d



DV Fit Results:

Period = 1.14431 [0.69624] d
Epoch = 131.6467 [177.7357] BKJD
Rp/R* = 0.0000 [0.0555]
a/R* = 1.16 [113.95]
b = 0.87 [202.66]
Seff = 46919.48 [48903.01]
Teff = 3753 [978] K
Rp = 0.01 [24.74] Re
a = 0.0261 [0.0148] AU
Ag = 55542.62 [262749140.19] [0.00σ]
Teffp = 89076 [105351834] K [0.00σ]

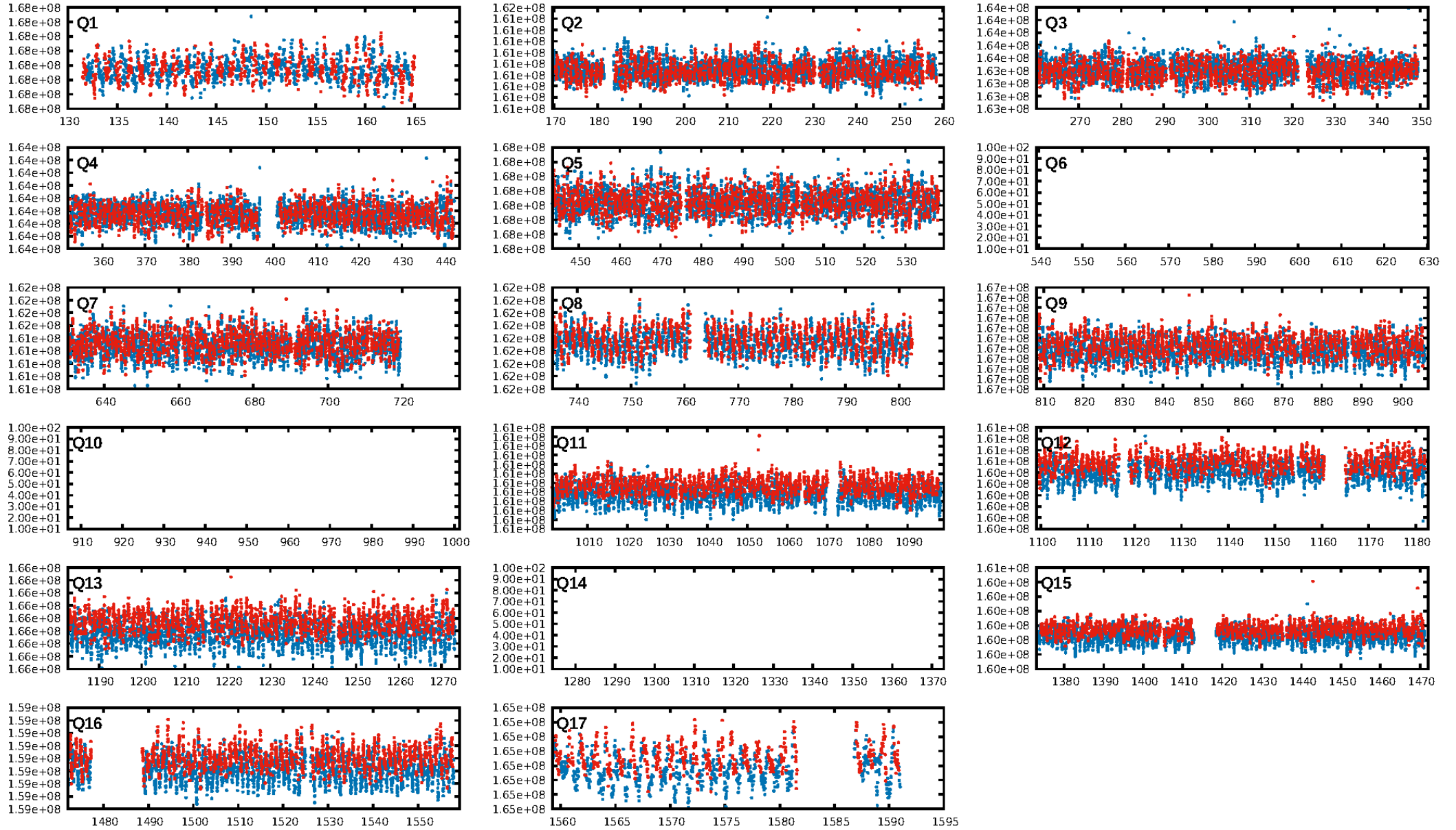
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [11.60σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.13e-14
RollingBand-fgt: 1.00 [888/888]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
QotOffset-rm: 0.408 arcsec [1.77σ]
KicOffset-rm: 0.445 arcsec [1.91σ]
QotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.36 [5/14]
DiffImageOverlap-fno: 1.00 [14/14]

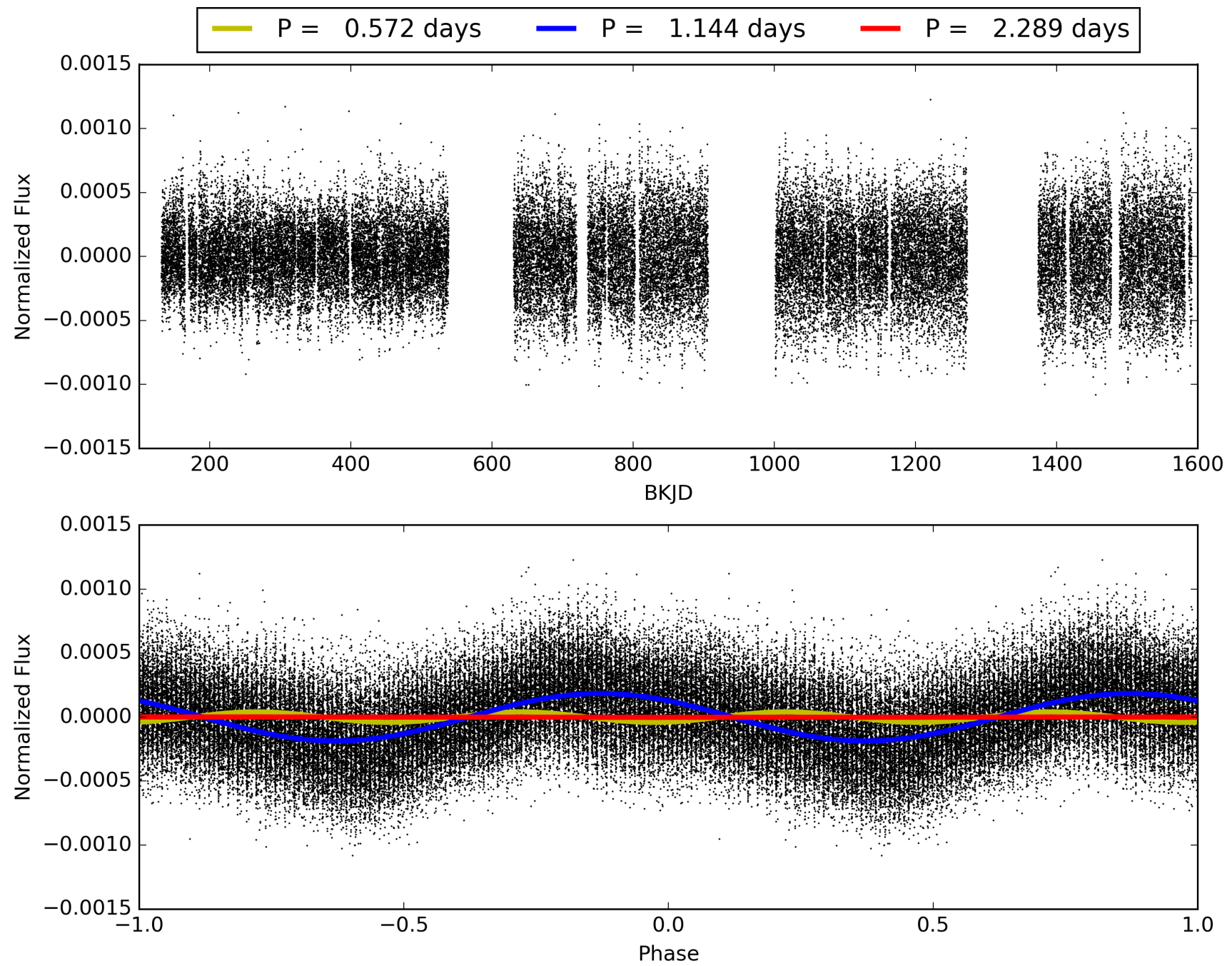
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005374279-01, PDC Light Curves

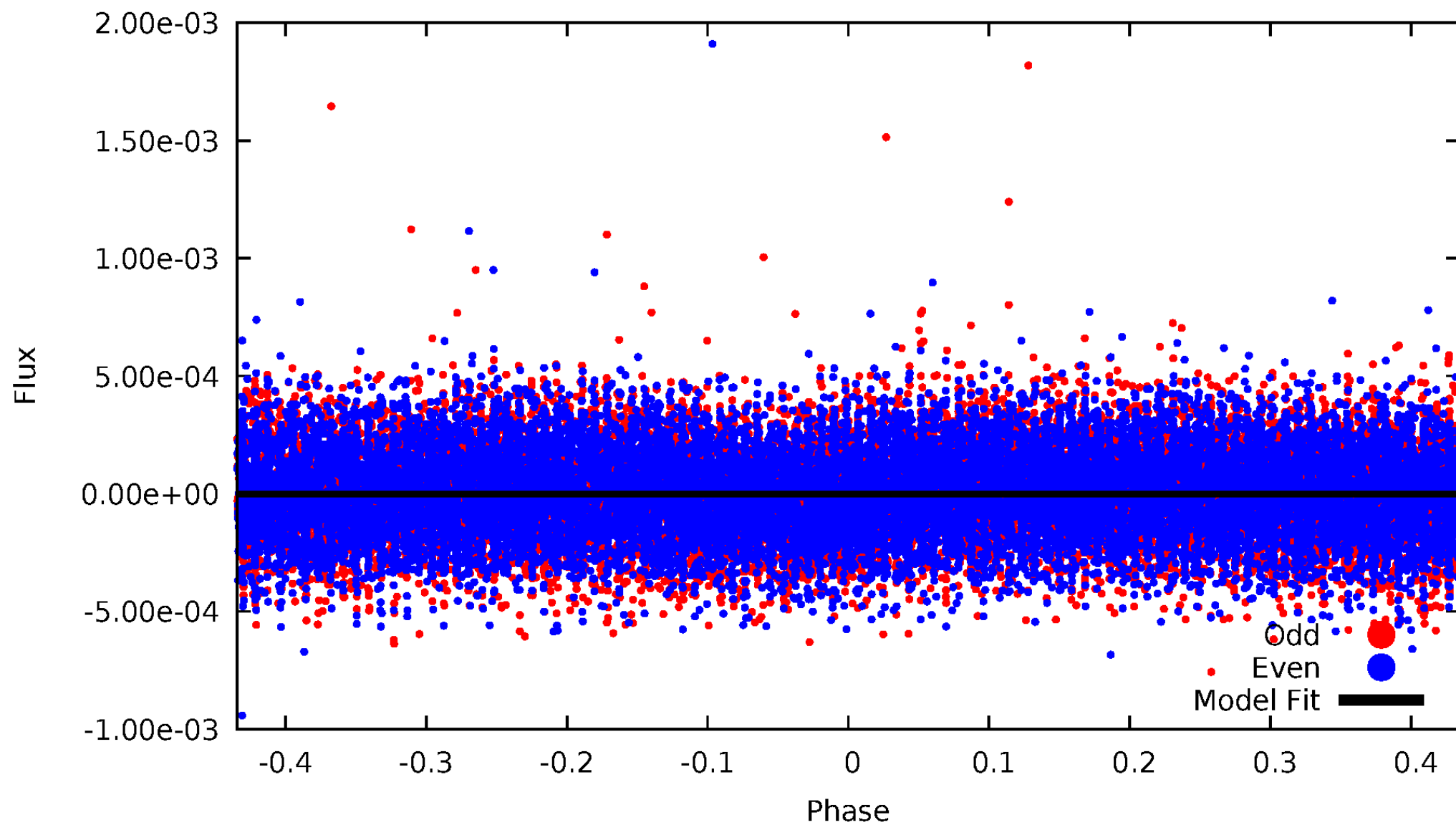


TCE 005374279-01



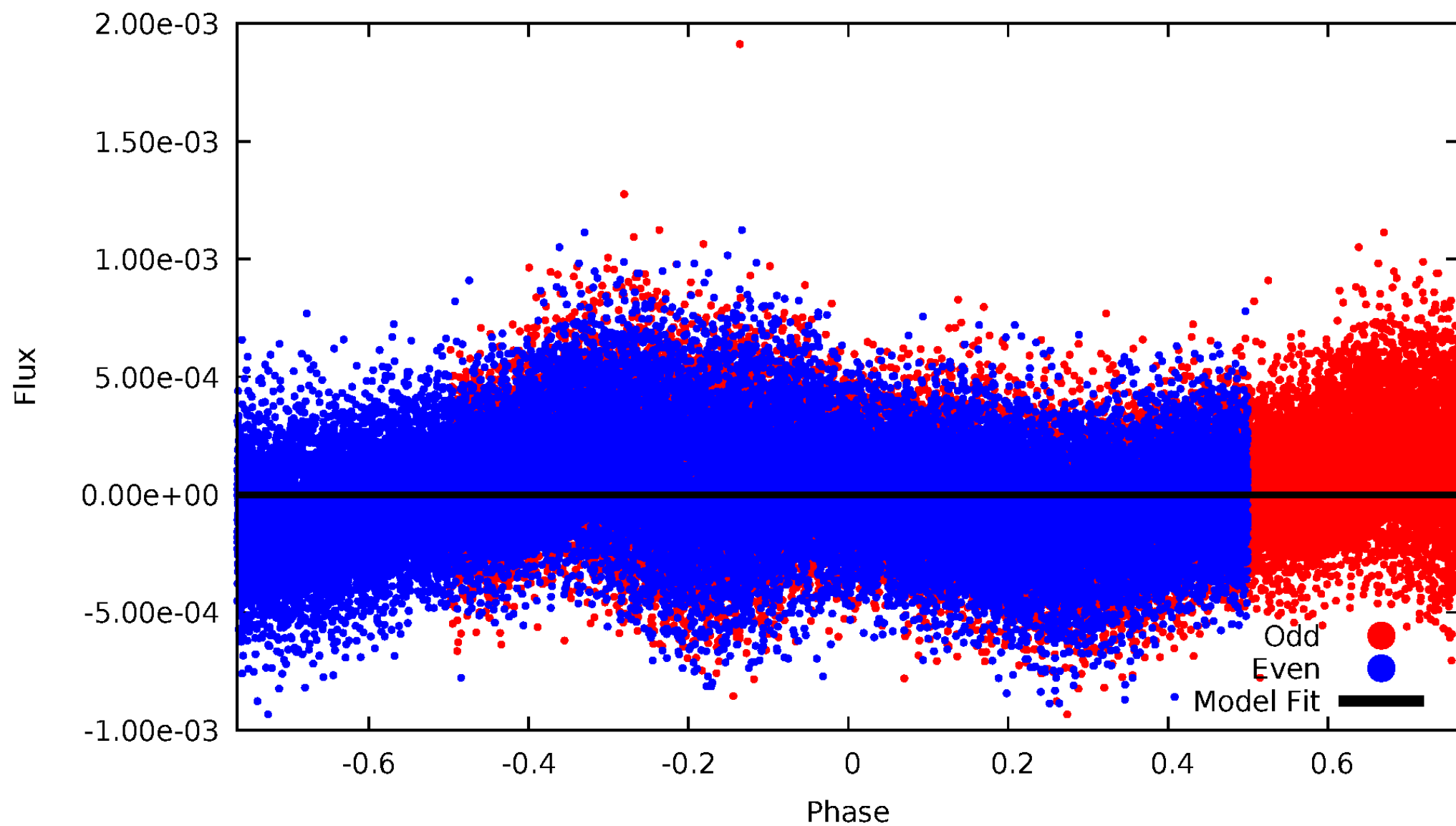
DV Odd/Even

TCE 005374279-01



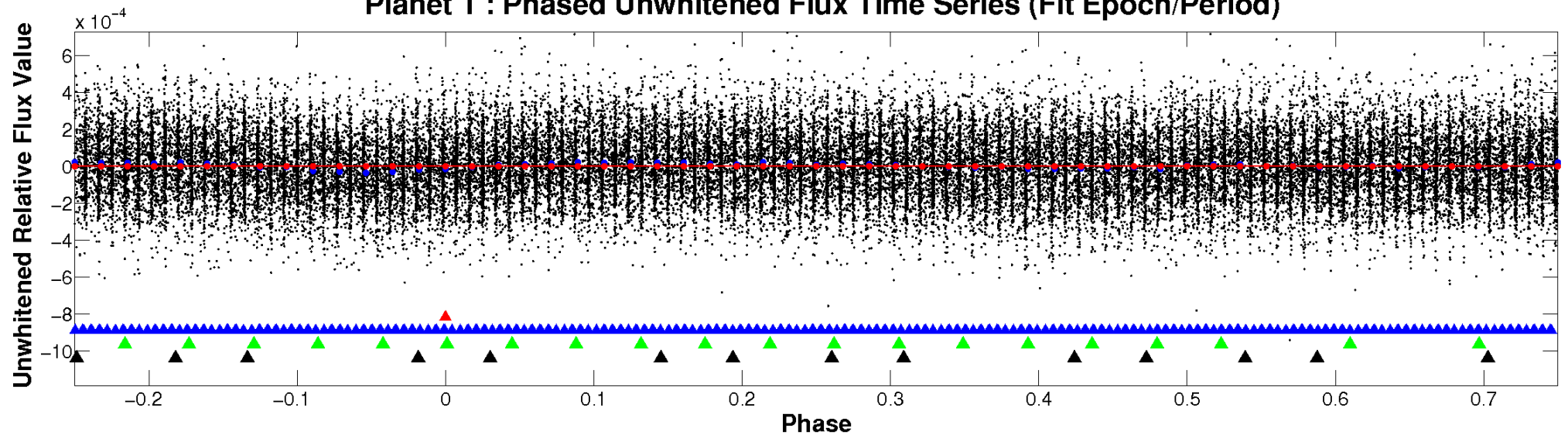
ALT Odd/Even

TCE 005374279-01

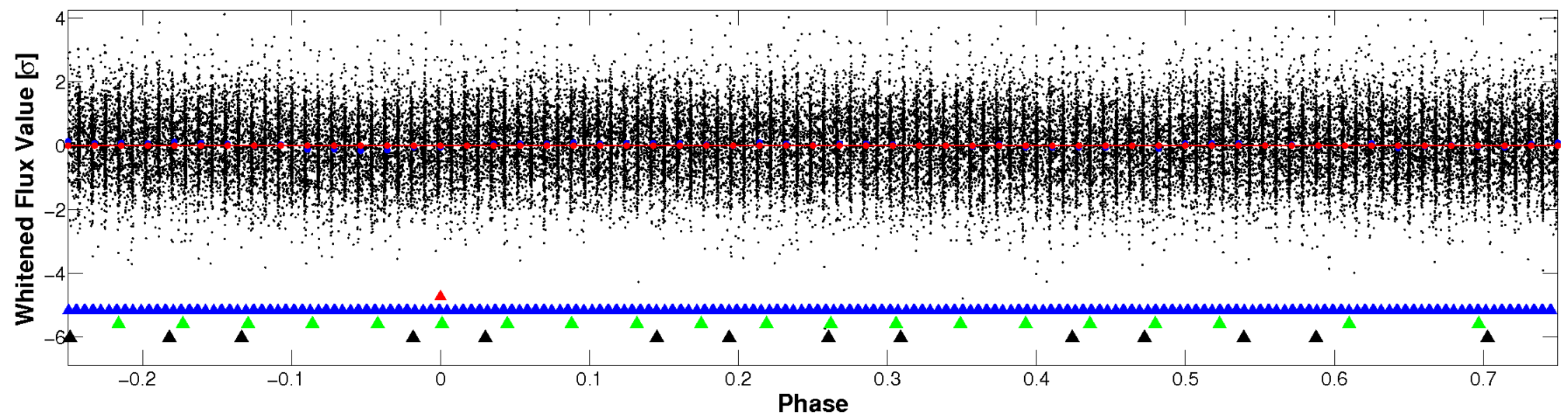


Non-Whitened Vs. Whitened Light Curve

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

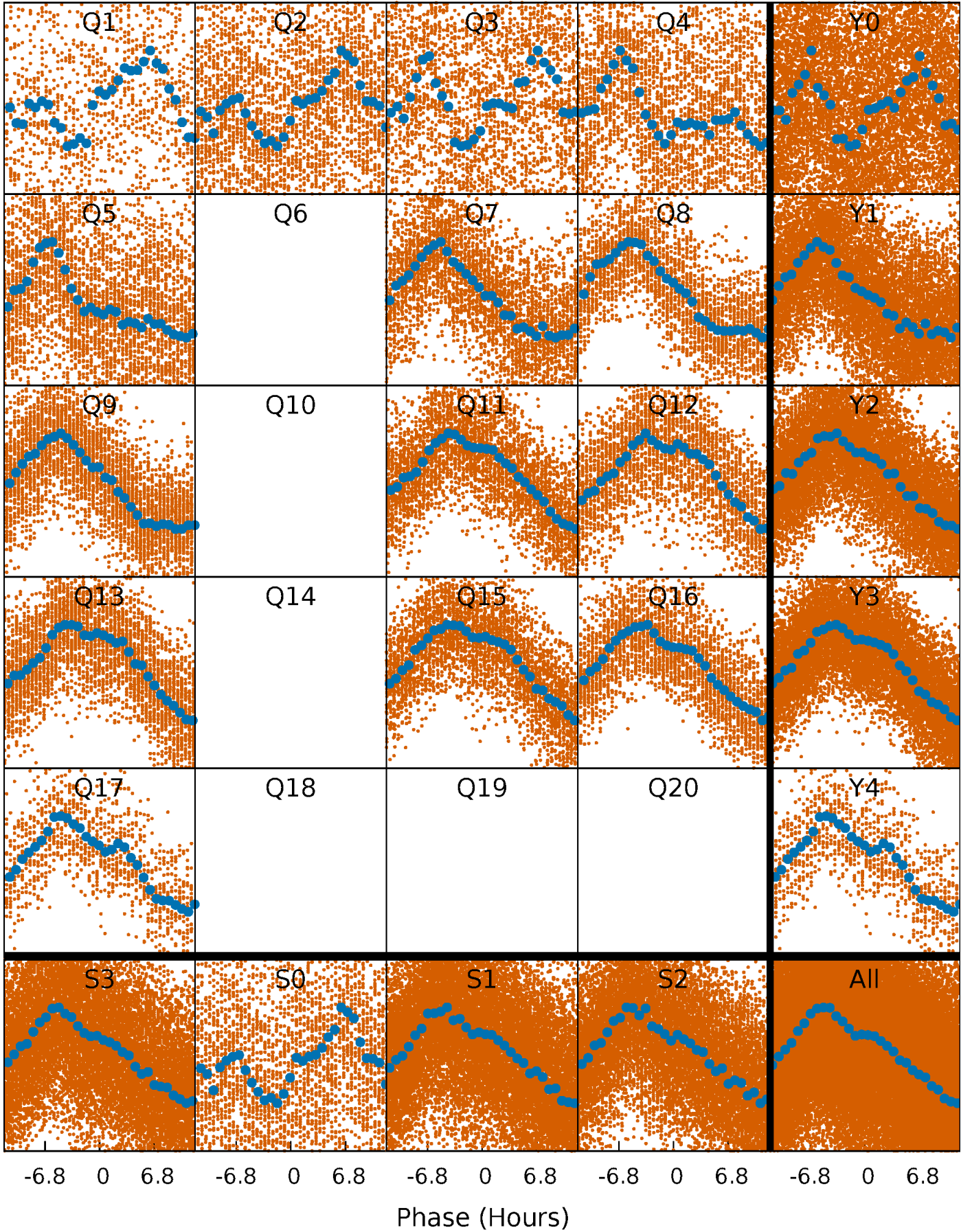


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



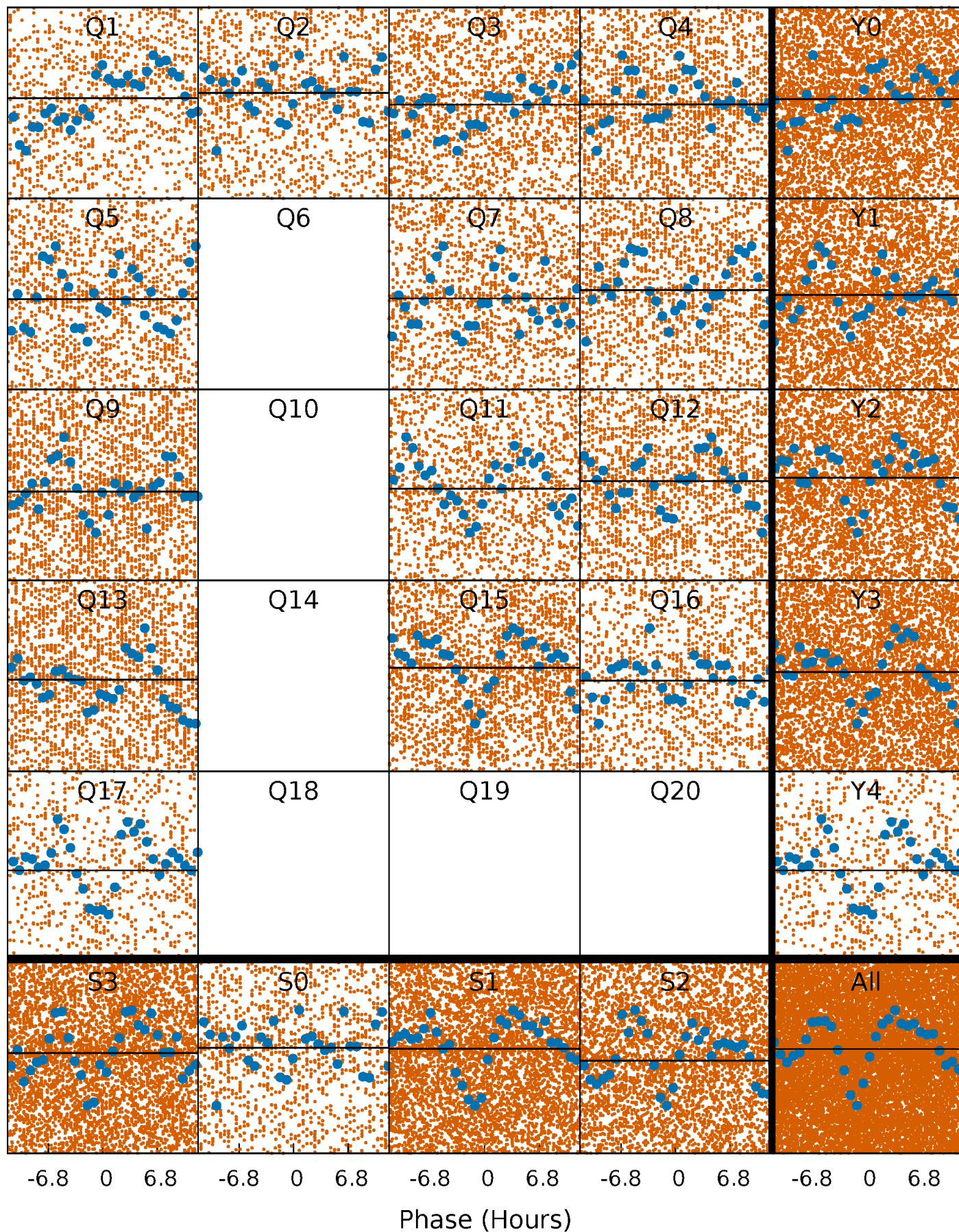
PDC Quarter-Phased Transit Curves

TCE 005374279-01 P= 1.144313 Days $T_0=131.646704$ (BKJD)



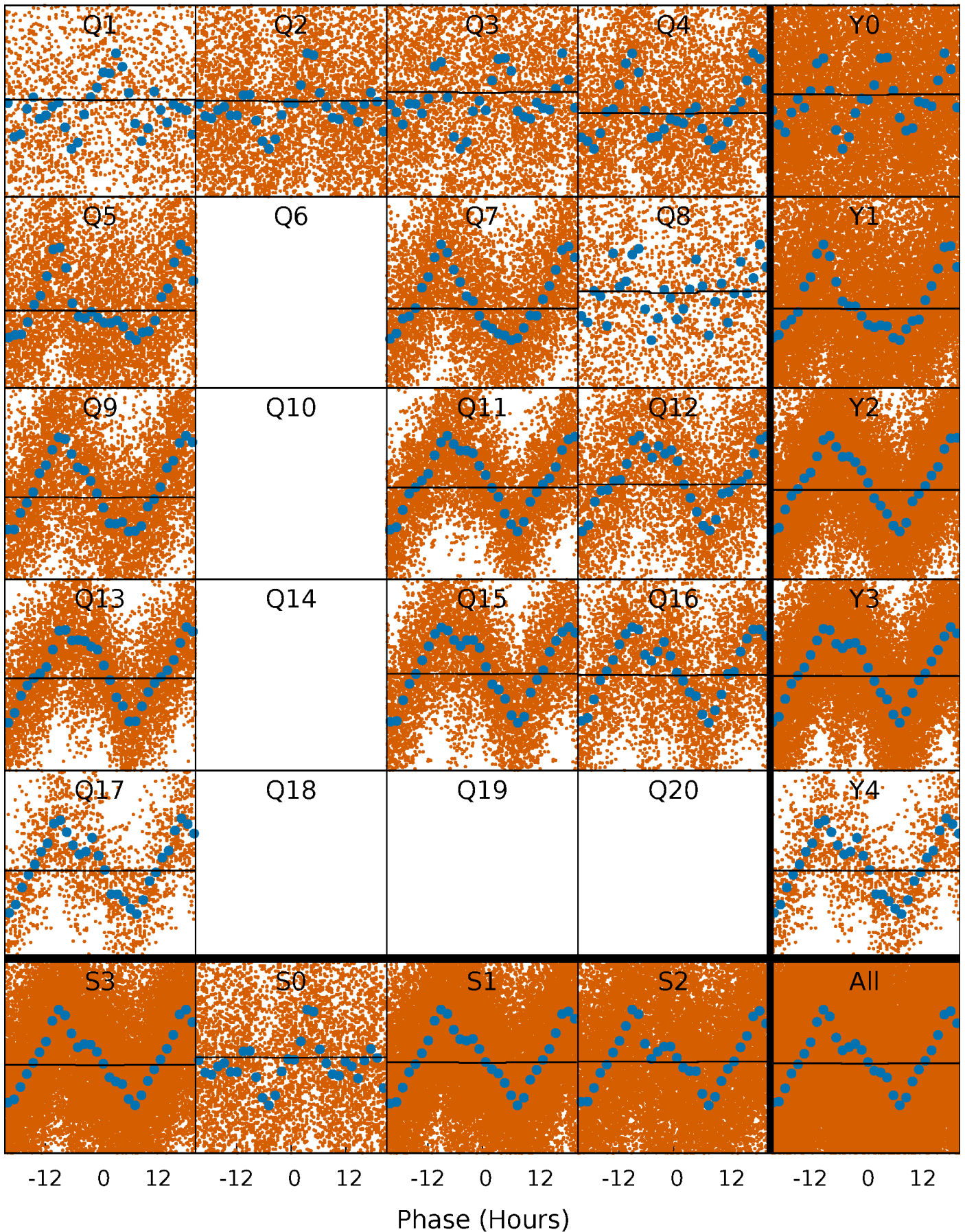
DV Quarter-Phased Transit Curves

TCE 005374279-01 P= 1.144313 Days $T_0=131.646704$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

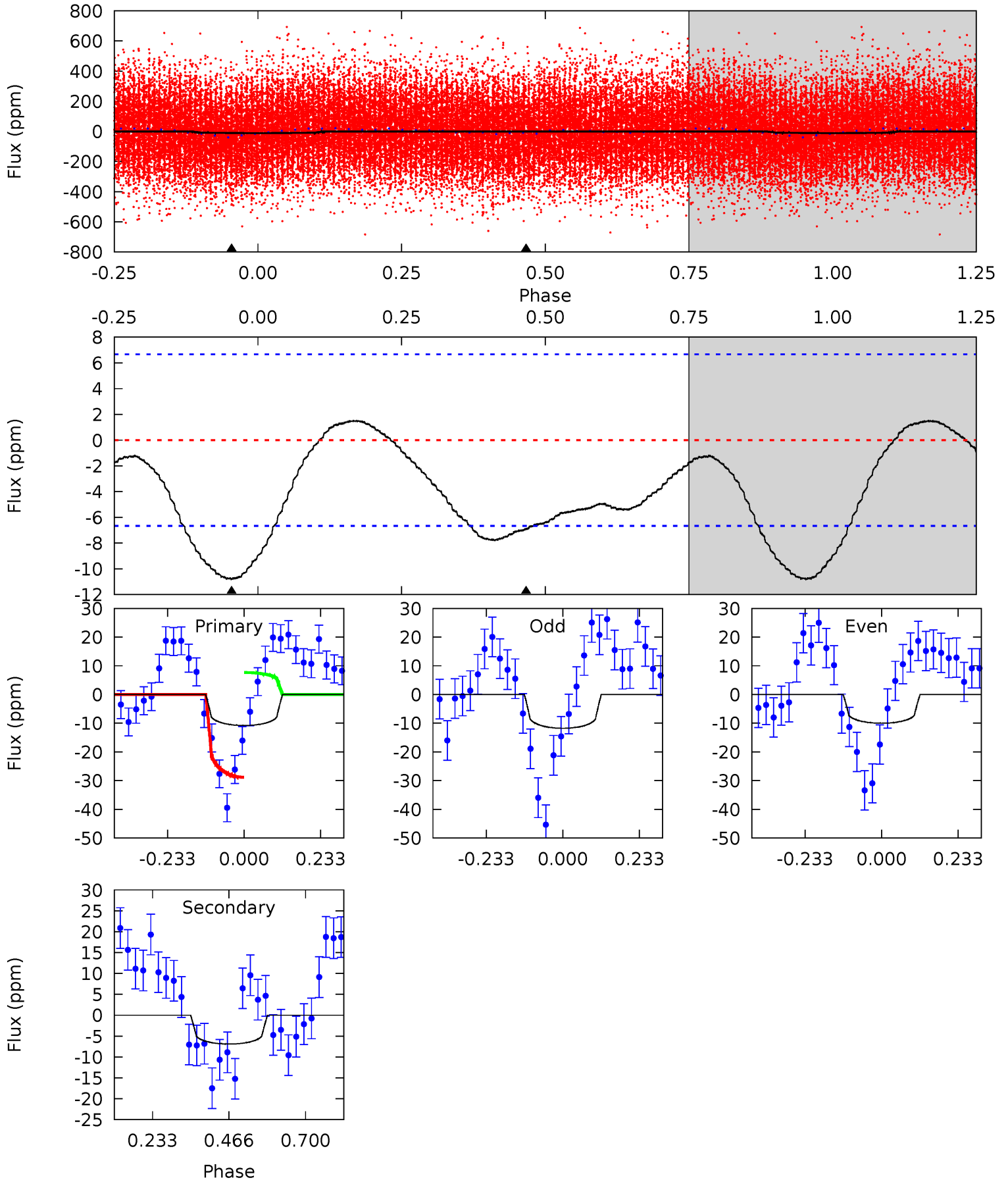
TCE 005374279-01 P= 1.144383 Days $T_0=131.751431$ (BKJD)



DV Model-Shift Uniqueness Test

005374279-01, P = 1.144313 Days, E = 130.502391 Days

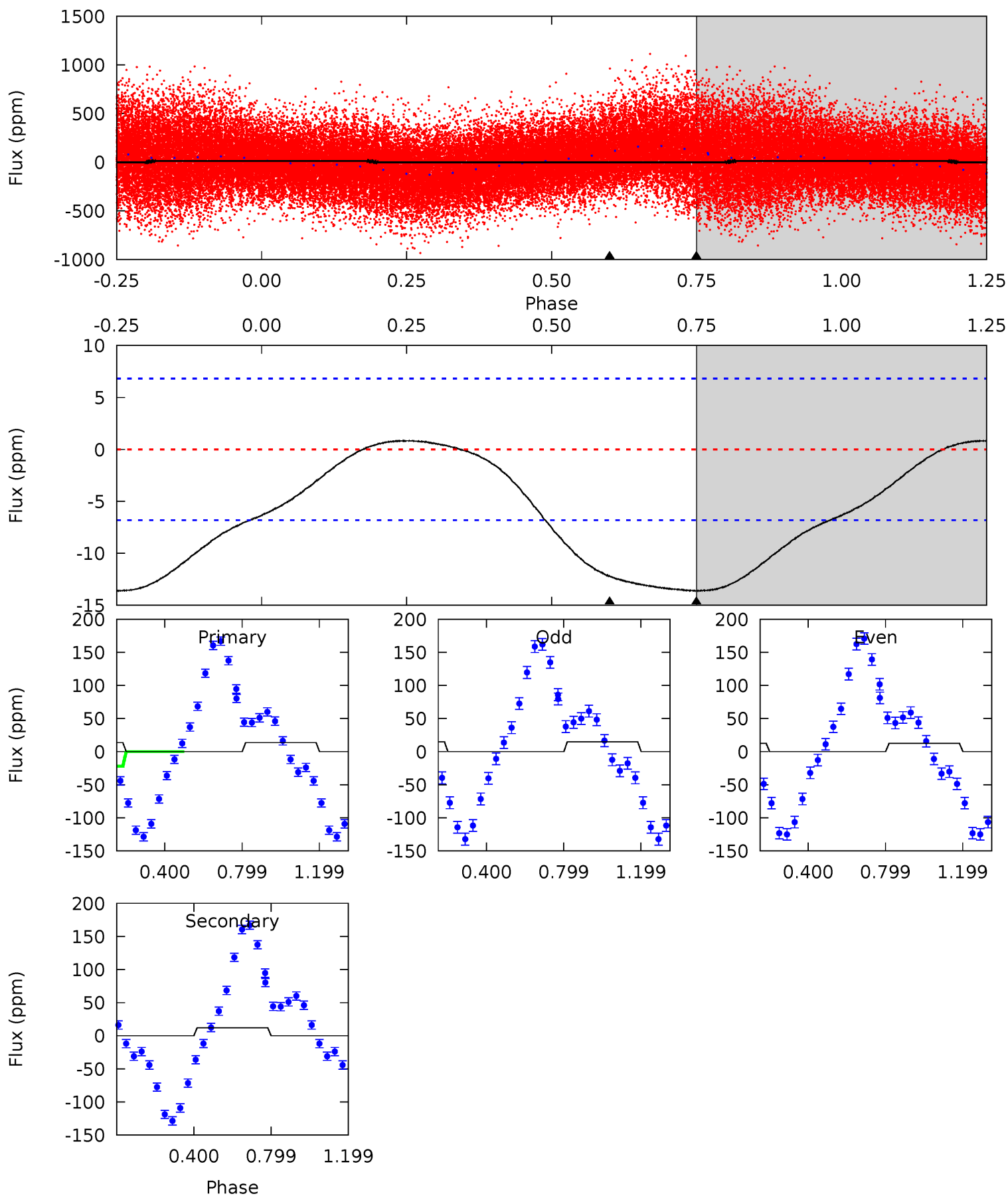
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.11	4.54	0	0	4.38	1.19	1.29	7.11	7.11	4.54	4.54	0.58	0.76	0.12	6.86



Alt Model-Shift Uniqueness Test

005374279-01, P = 1.144383 Days, E = 130.607048 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.52	7.64	0	0	4.27	0.84	0.48	8.52	8.52	7.64	7.64	0.80	1.04	0.06	9.42



Stellar Parameters For KIC 005374279

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6804^{+170}_{-204}	$3.475^{+0.382}_{-0.090}$	$-0.320^{+0.350}_{-0.250}$	$4.085^{+0.540}_{-1.621}$	$1.816^{+0.141}_{-0.395}$	$0.038^{+0.110}_{-0.011}$
	+2%/-3%	+11%/-3%	+109%/-78%	+13%/-40%	+8%/-22%	+292%/-29%
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 005374279-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-7 ± 2	$14.71^{+17.51}_{-10.39}$	5070^{+1333}_{-821}	-4172^{+773}_{-999}	$0.011^{+0.134}_{-0.009}$
Alt.	-12 ± 2	$15.06^{+18.03}_{-10.54}$	5043^{+1575}_{-794}	-4163^{+1020}_{-1177}	$0.017^{+0.202}_{-0.015}$

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 $A_{obs} \gg 1.0$

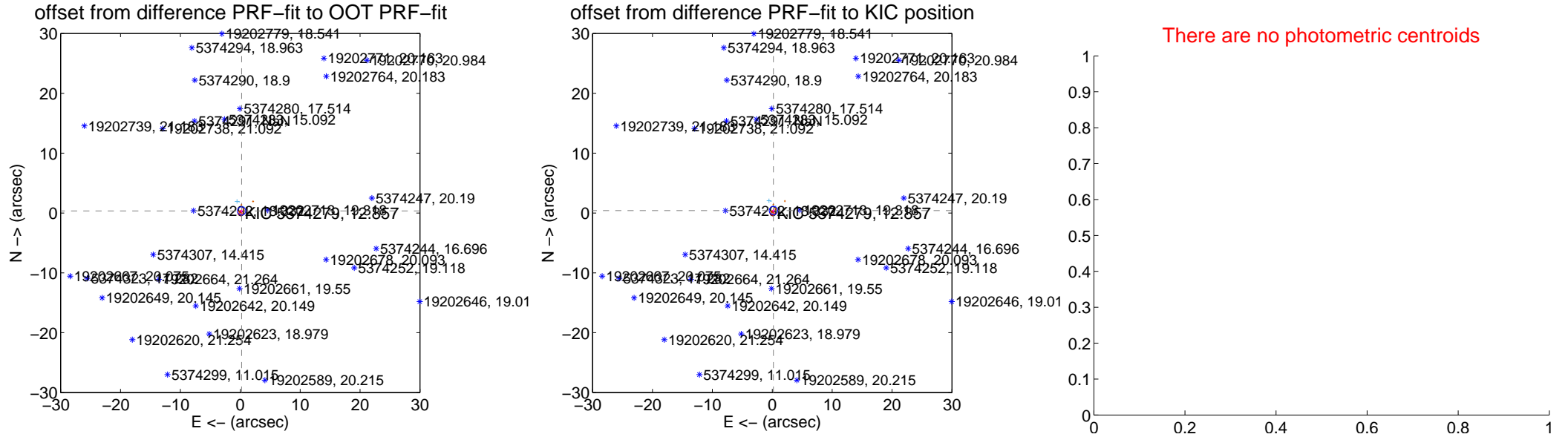
DV Centroid Data

Supplemental centroid analysis for 005374279-01. Kepler magnitude: 12.86. Transit SNR 0.00

There are 5 quarters with good PRF difference image offsets

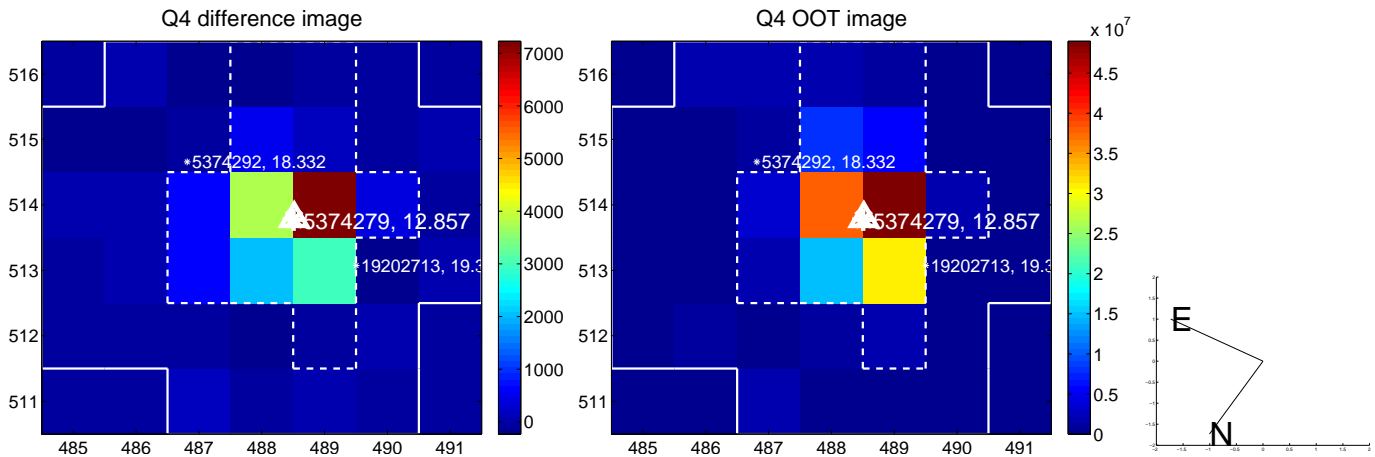
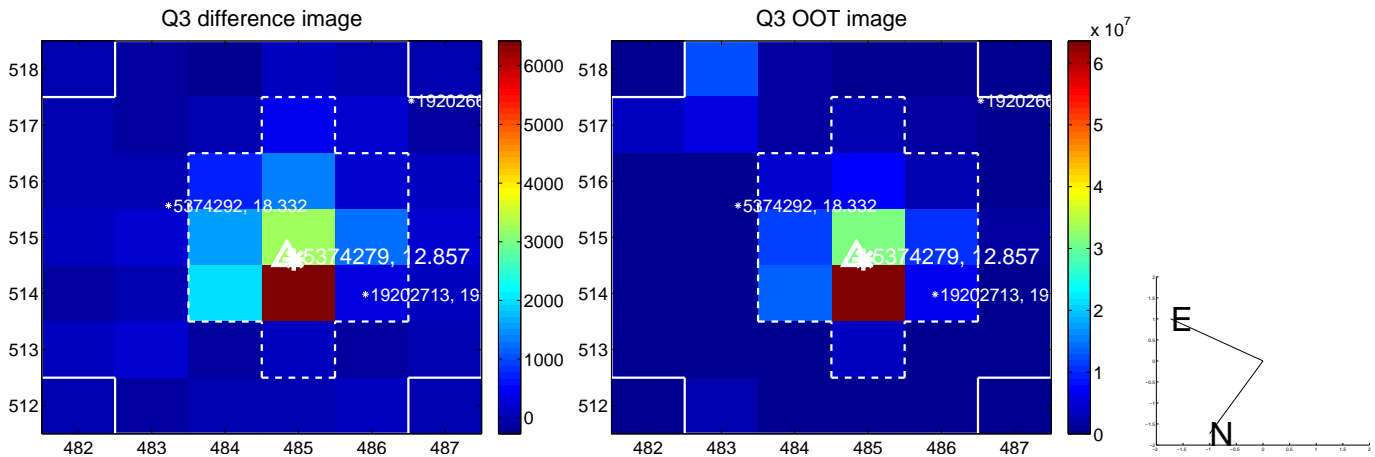
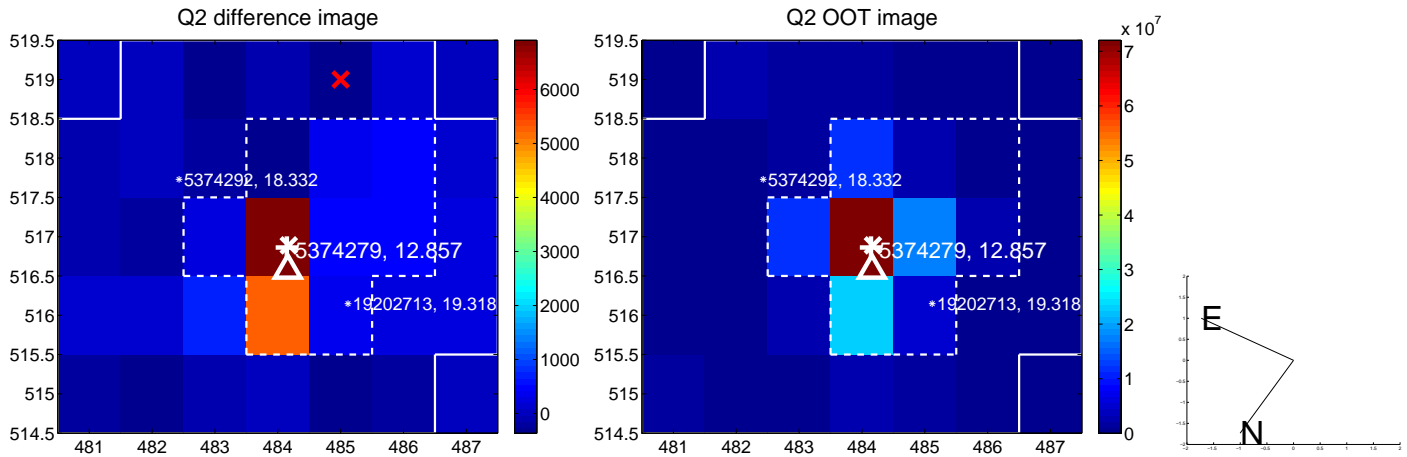
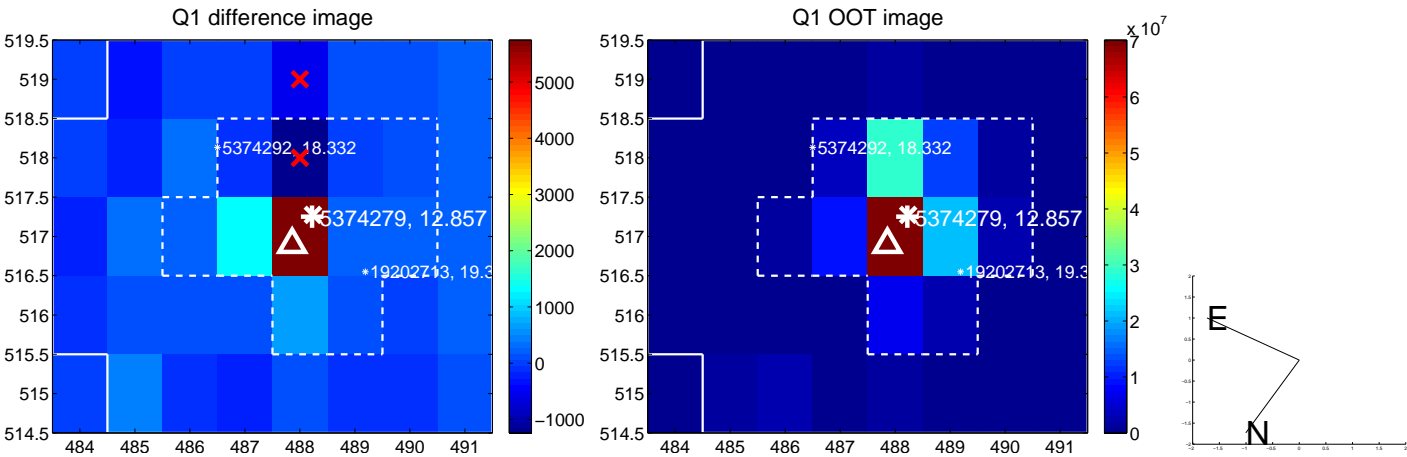
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.408 ± 0.230	1.77	-0.221 ± 0.189	0.343 ± 0.207
PRF-fit source offset from KIC position	0.445 ± 0.233	1.91	-0.196 ± 0.171	0.400 ± 0.226
photometric centroid source offset	—	—	—	—

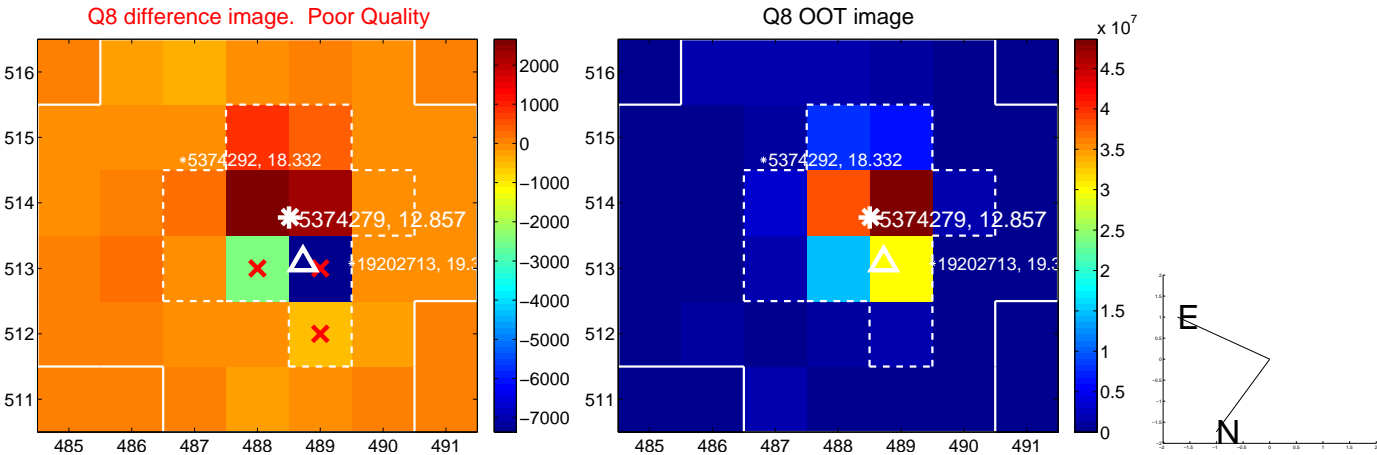
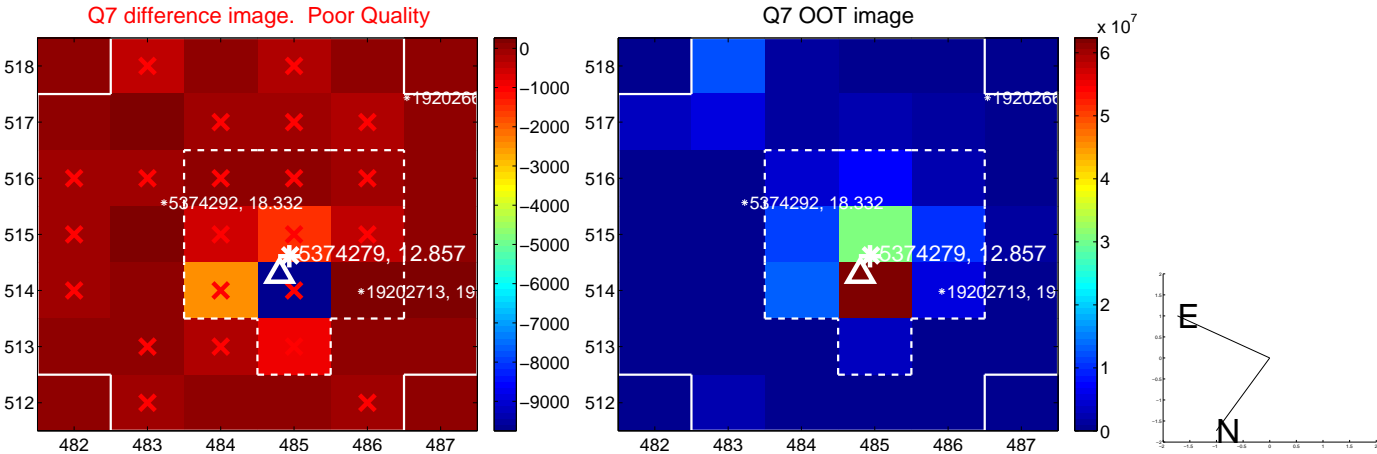
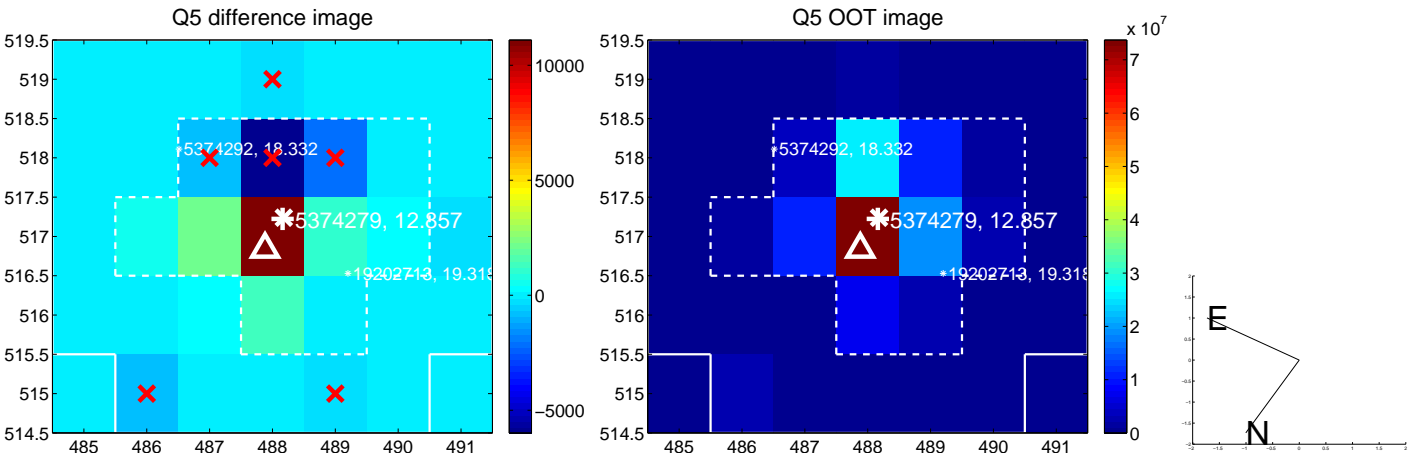


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

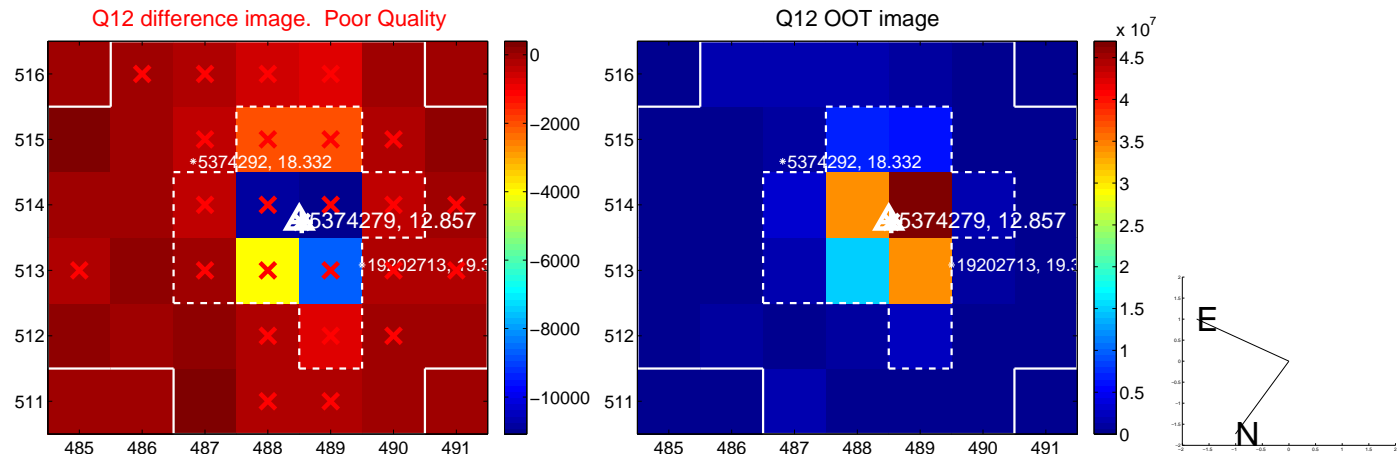
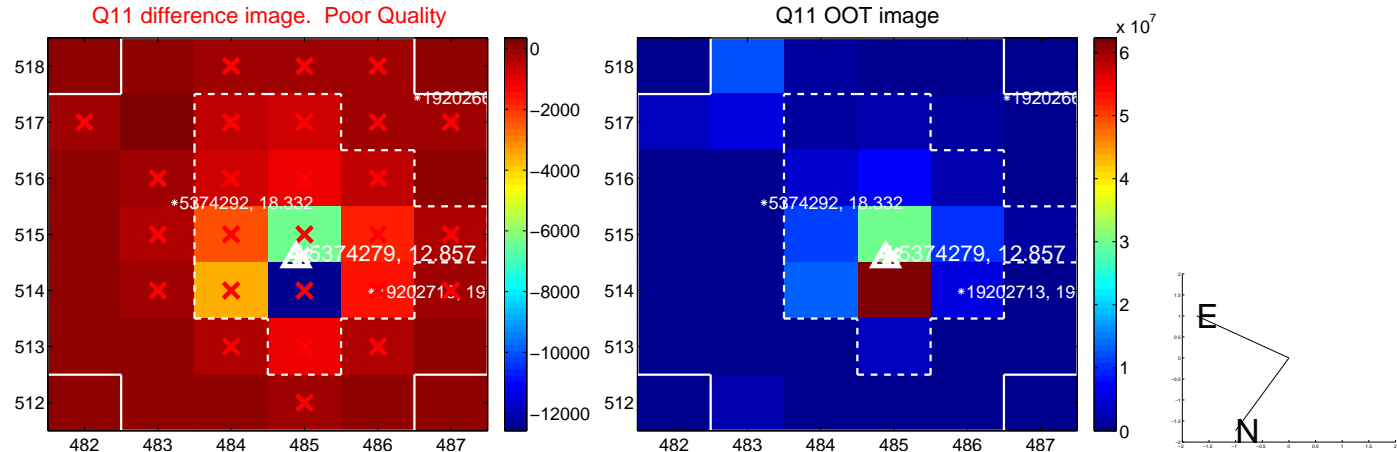
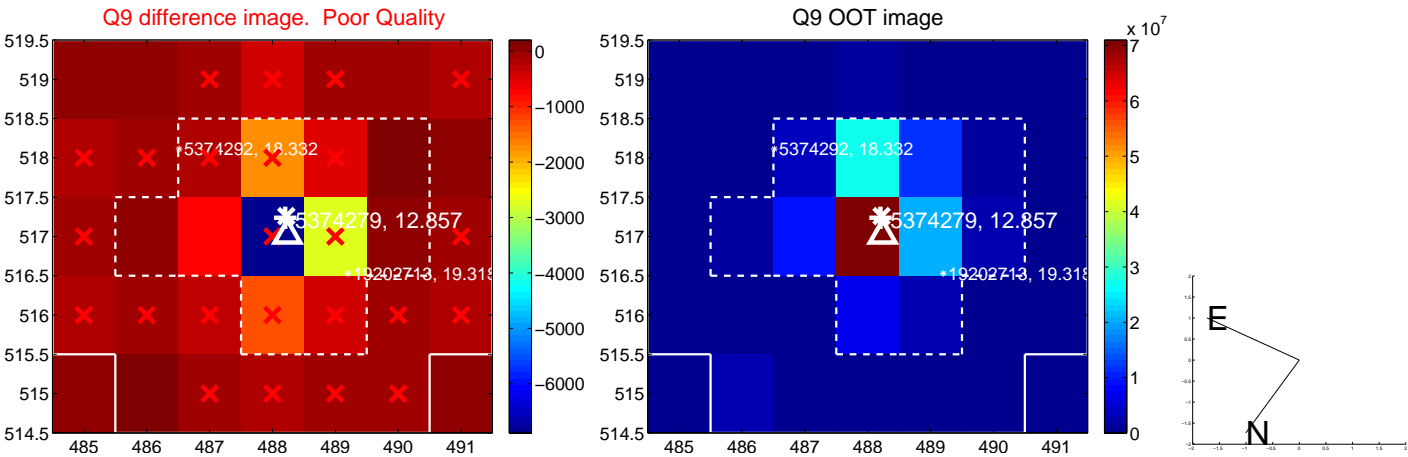
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



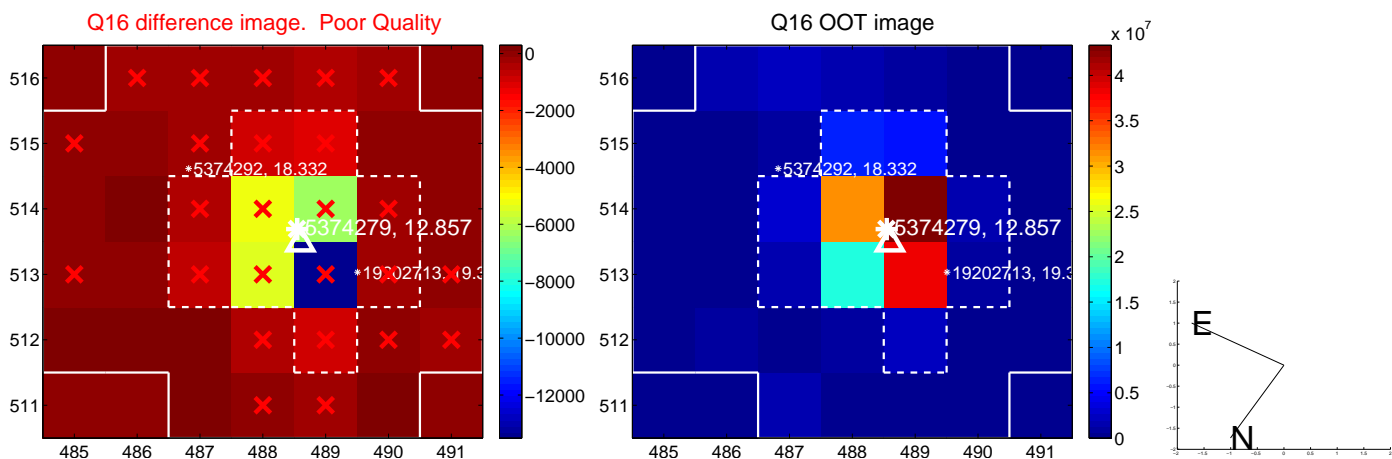
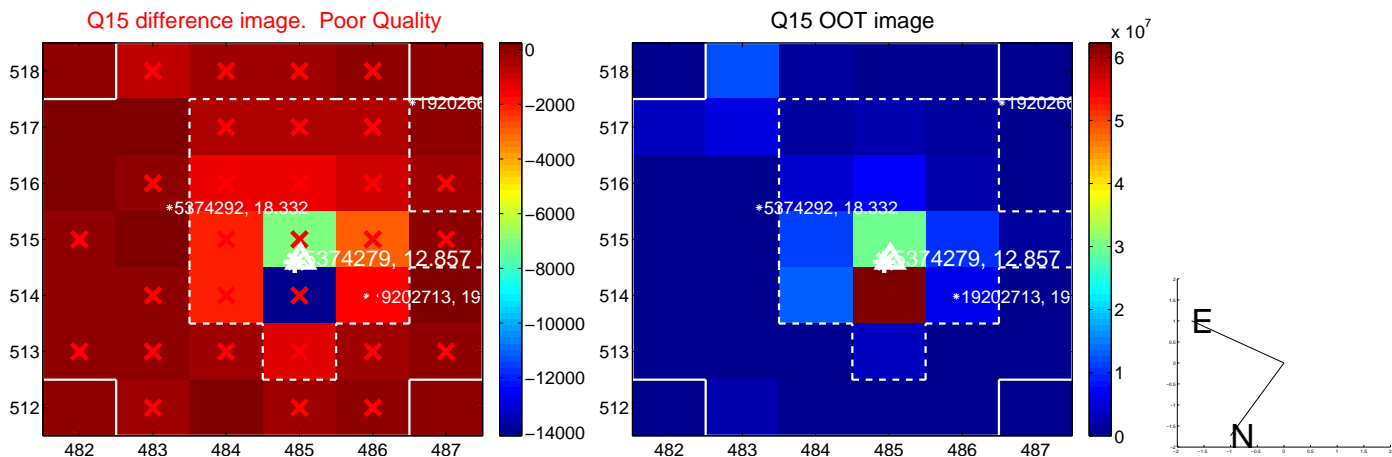
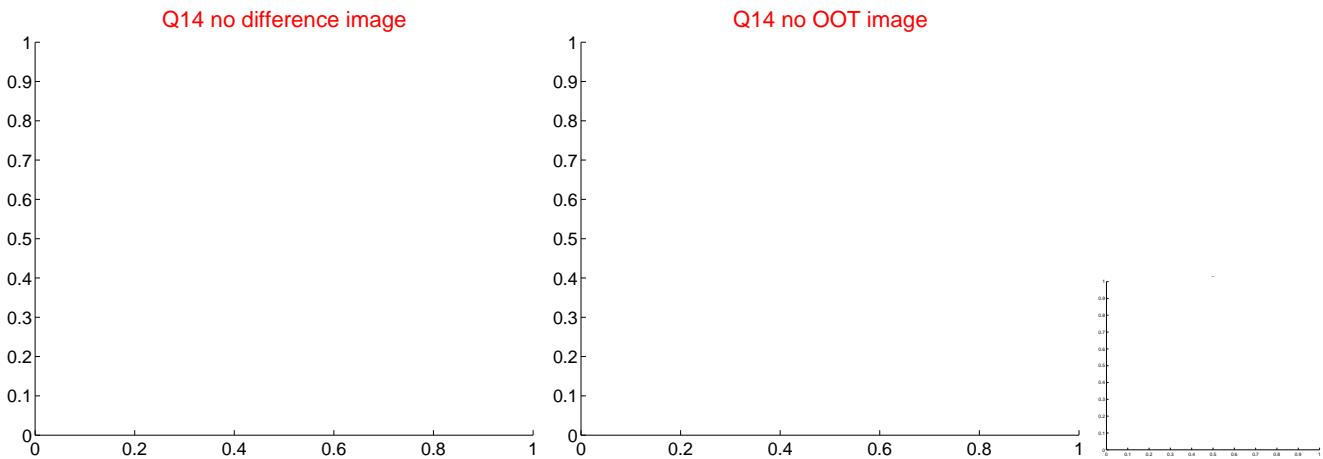
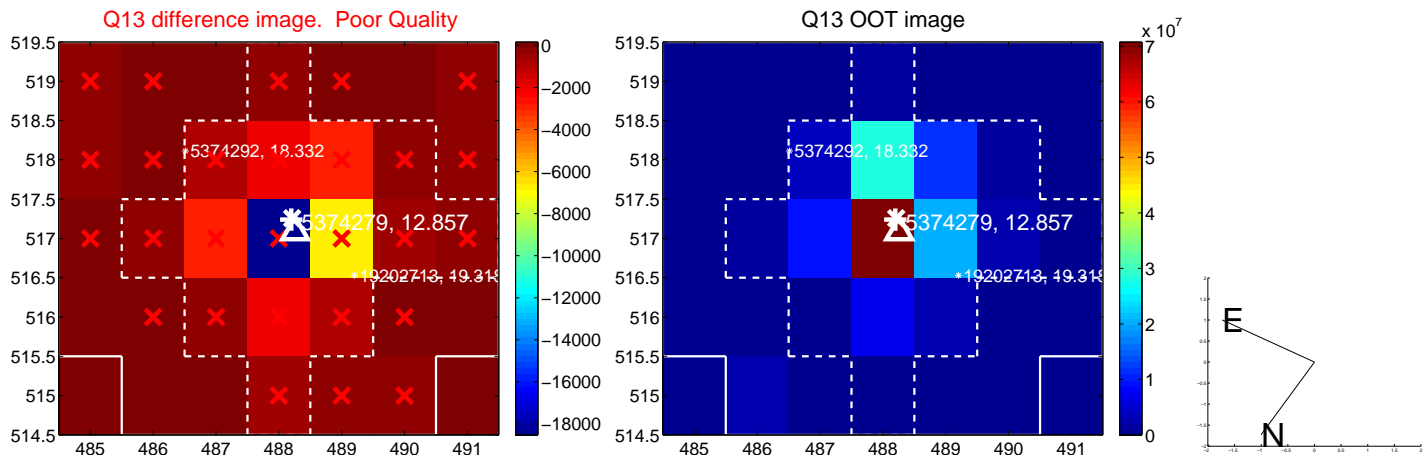
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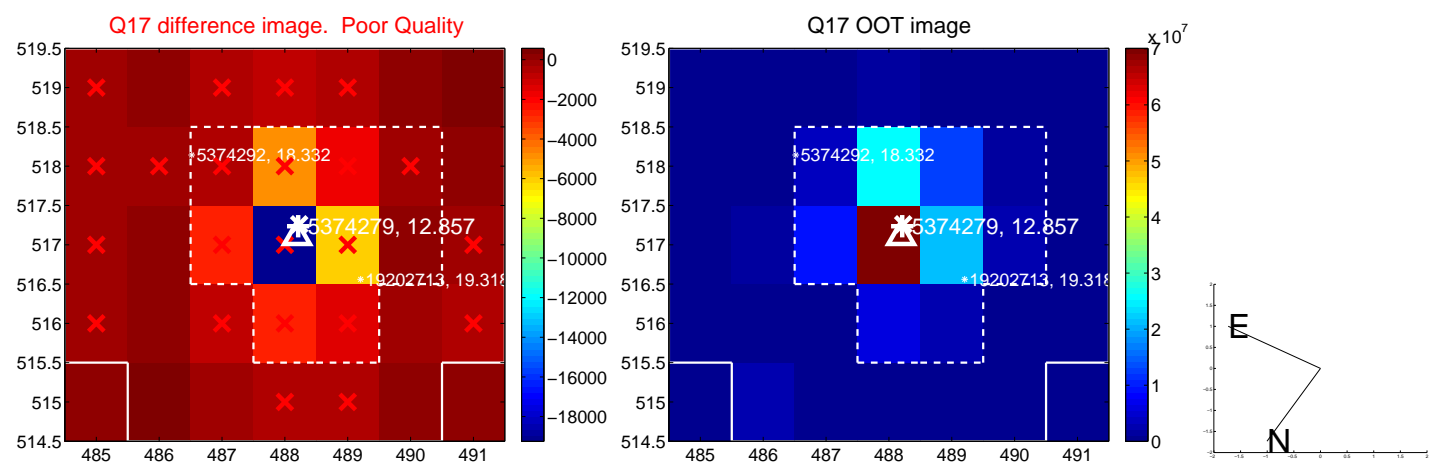
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

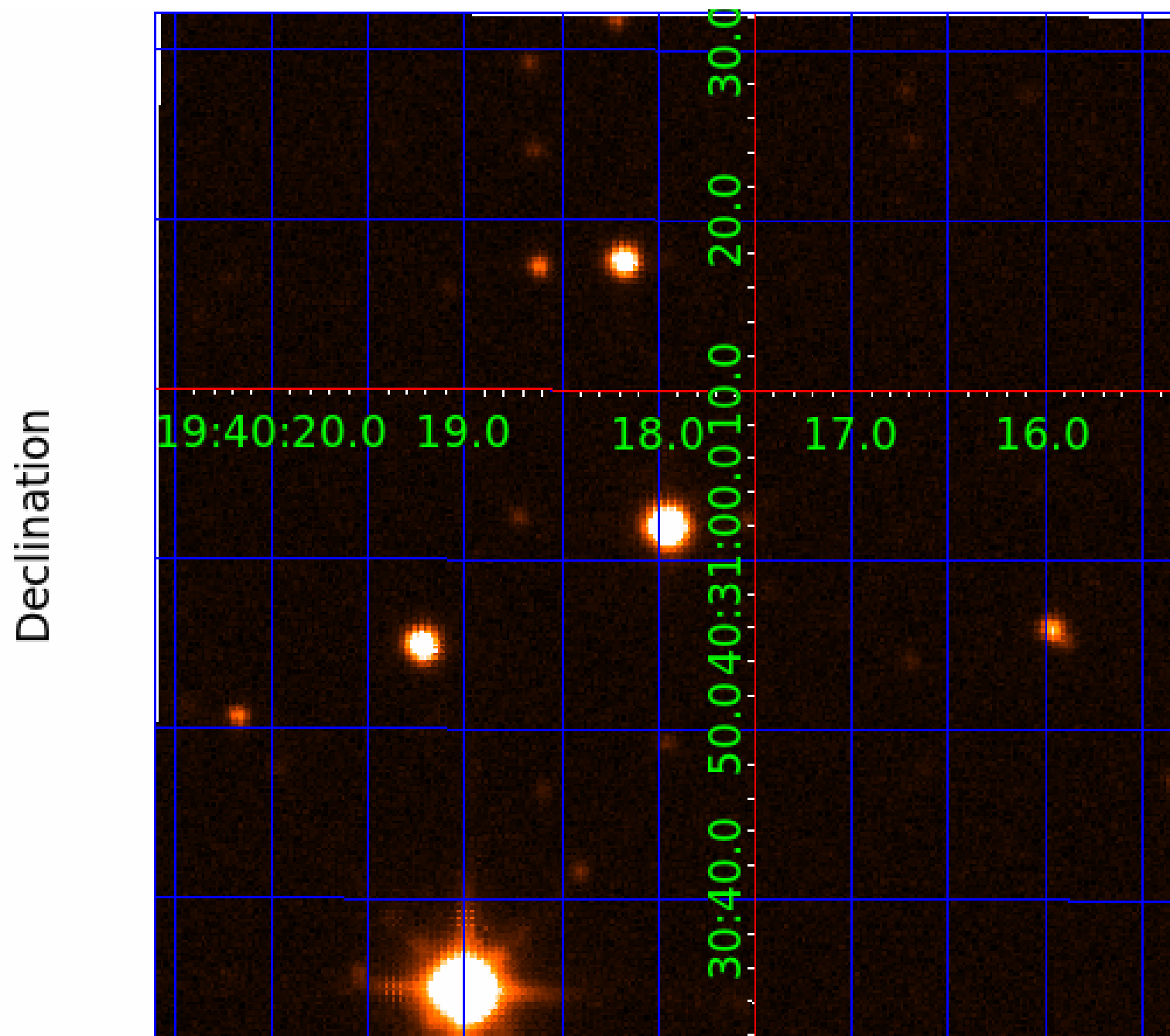


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image



KIC 005374279

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})
005374279-01	OBS	No	1.144313	131.646704	0.0	5.963	9.5	0.0	4.08	6804	0.01	46919.48
005374279-02	OBS	No	4.843223	135.110139	80.0	4.792	9.6	9.9	4.08	6804	4.25	6853.31
005374279-03	OBS	No	73.335563	195.530354	78.5	3.783	7.6	2.5	4.08	6804	4.23	182.95
005374279-04	OBS	No	102.162867	229.135057	250.8	3.518	8.1	8.1	4.08	6804	7.54	117.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005374279-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT
005374279-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005374279-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005374279-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

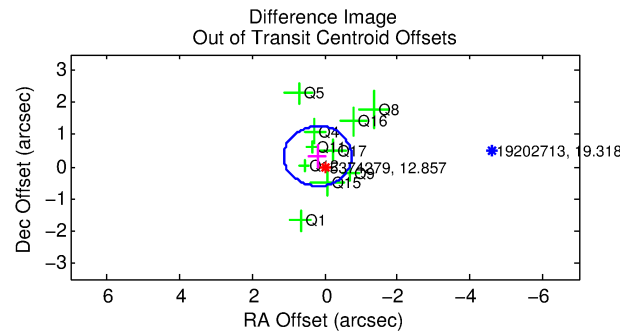
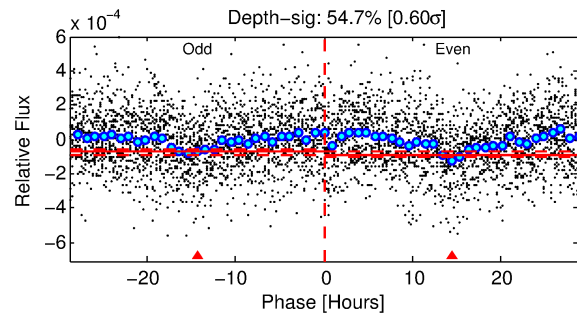
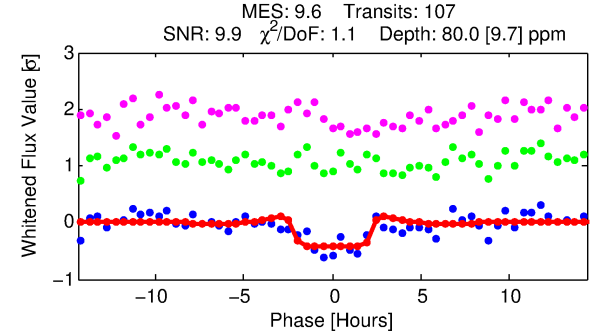
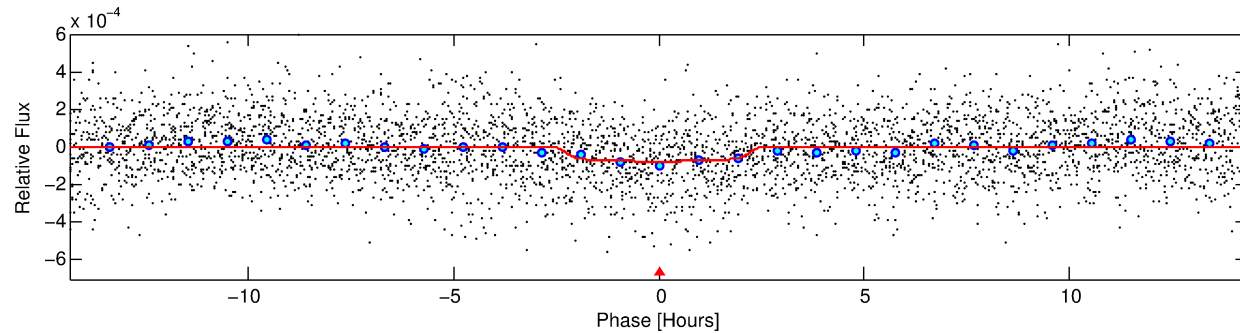
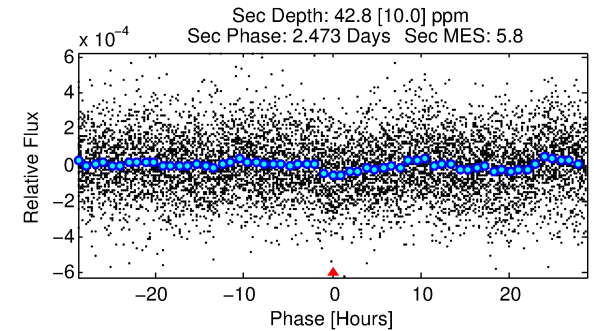
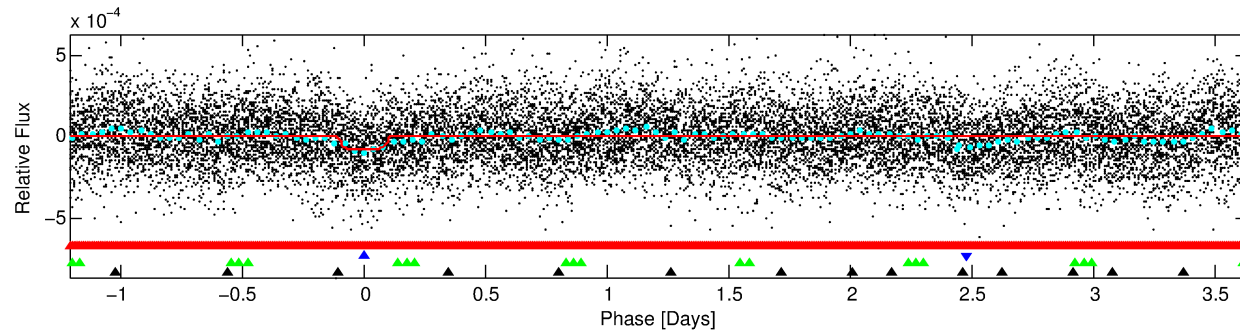
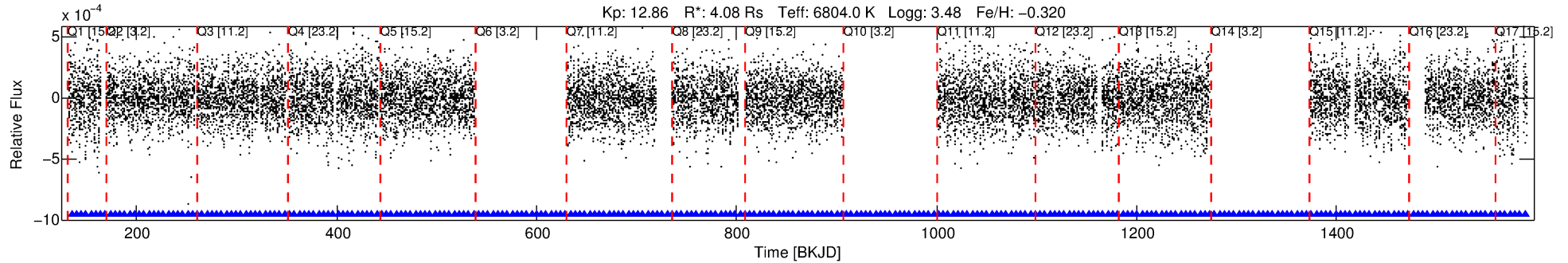
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005374279-02

No Significant Match Found

DV One-Page Summary

KIC: 5374279 Candidate: 2 of 4 Period: 4.843 d



DV Fit Results:

Period = 4.84322 [0.00004] d
Epoch = 135.1101 [0.0054] BKJD
Rp/R* = 0.0095 [0.0029]
a/R* = 3.65 [6.09]
b = 0.90 [0.38]
Seff = 6853.31 [4484.72]
Teq = 2320 [380] K
Rp = 4.25 [2.12] Re
a = 0.0684 [0.0270] AU
Ag = 6.10 [5.58] [0.91σ]
Teffp = 5637 [933] K [3.29σ]

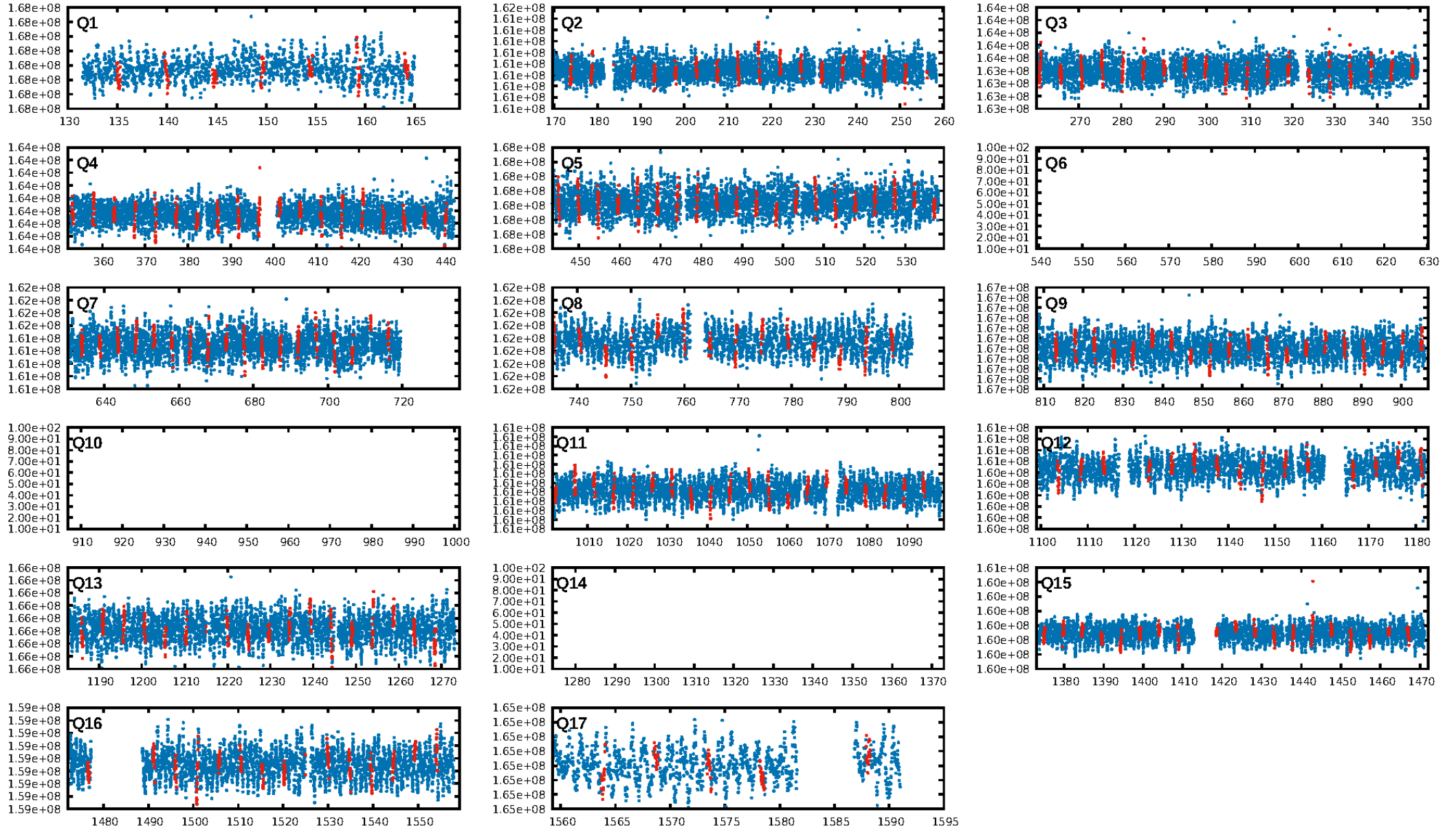
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.60σ]
LongPeriod-sig: 100.0% [269.26σ]
ModelChiSquare2-sig: 43.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.70e-13
RollingBand-fgt: 1.00 [101/101]
GhostDiagnostic-chr: -0.6895
Centroid-sig: 6.1%
Centroid-so: 0.492 arcsec [0.96σ]
OotOffset-rm: 0.381 arcsec [1.23σ]
KicOffset-rm: 0.444 arcsec [1.43σ]
OotOffset-st: 0/2/4/4 [10]
KicOffset-st: 0/2/4/4 [10]
DiffImageQuality-fgm: 1.00 [10/10]
DiffImageOverlap-fno: 0.36 [5/14]

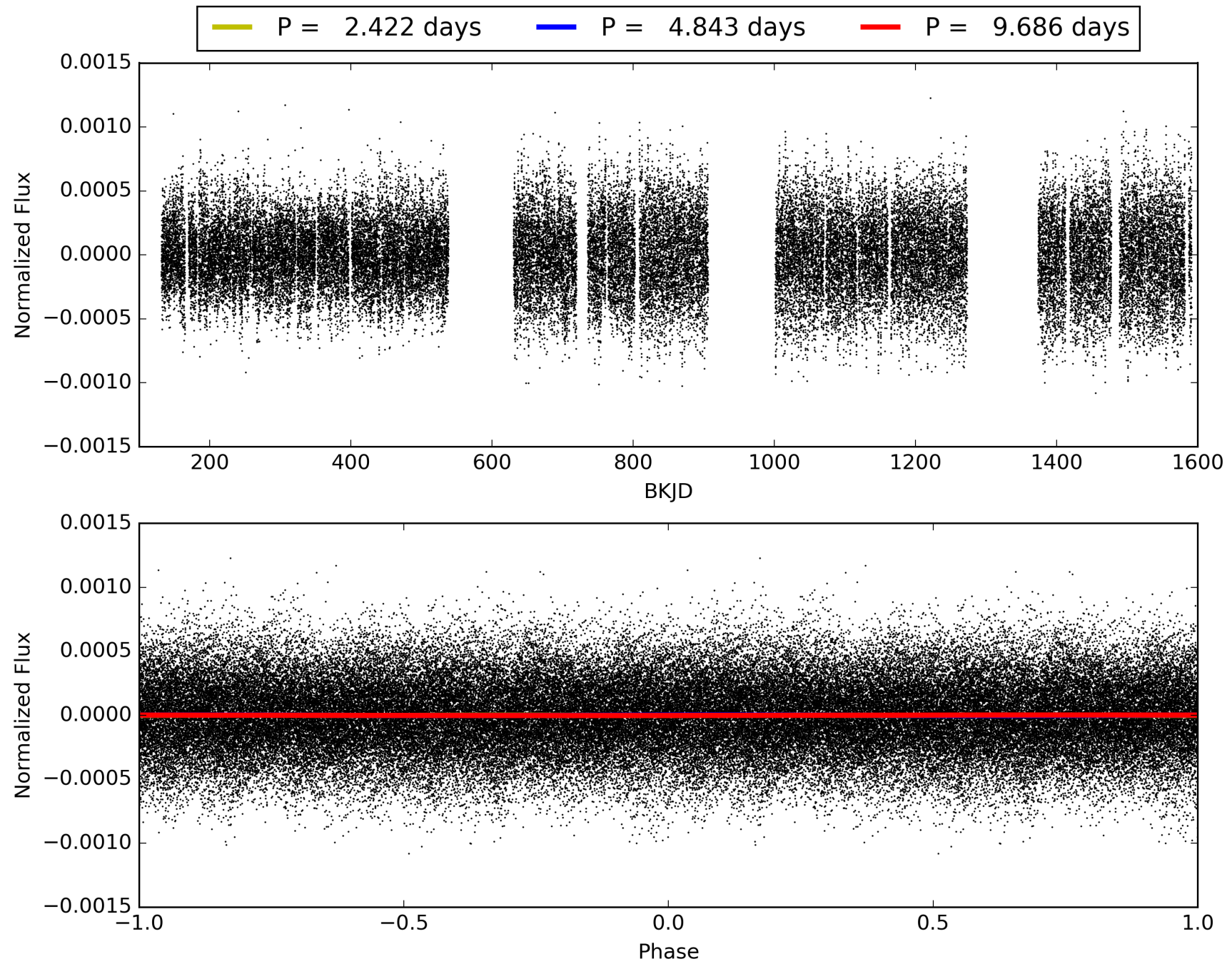
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:03:39 Z

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

TCE 005374279-02, PDC Light Curves

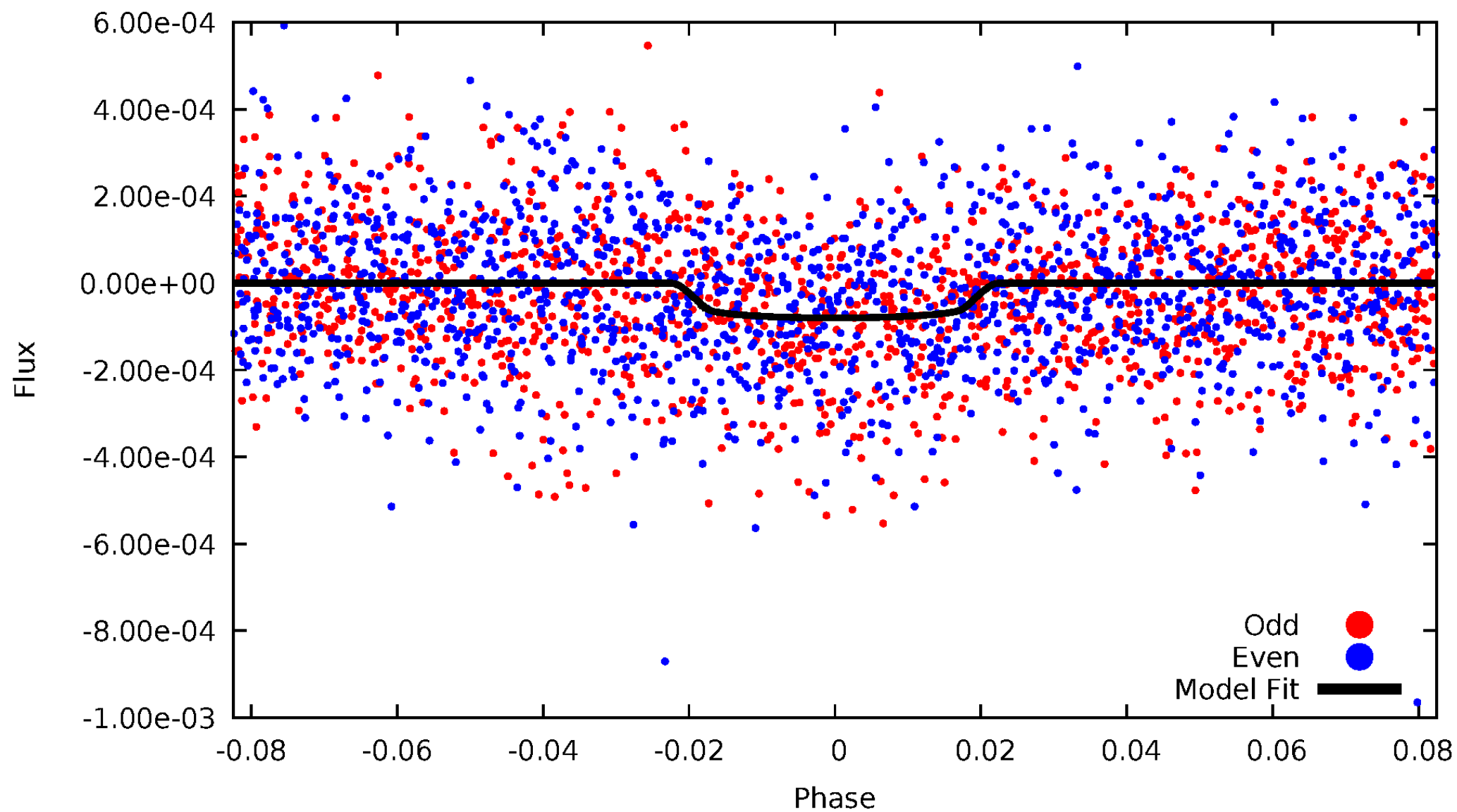


TCE 005374279-02



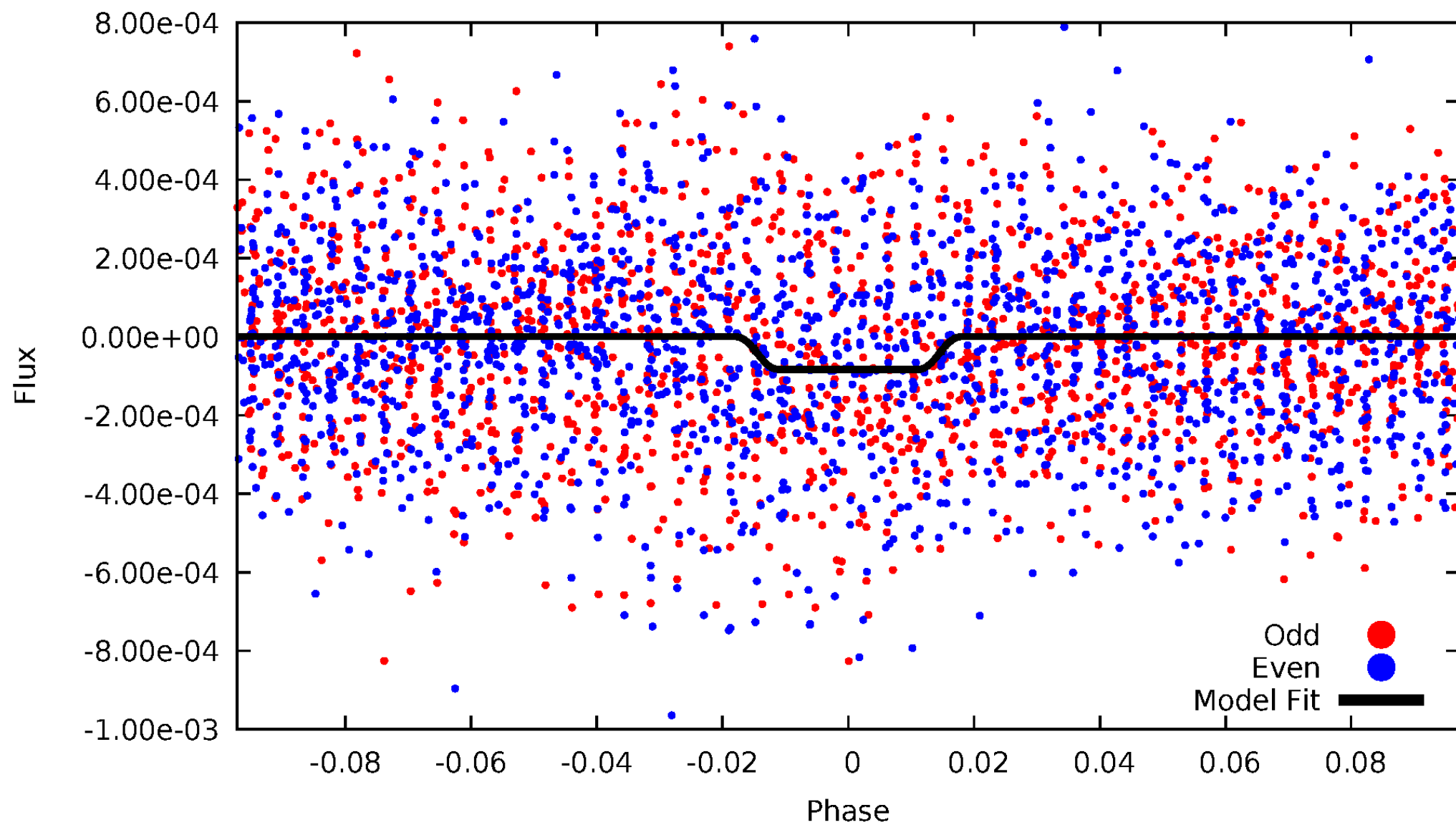
DV Odd/Even

TCE 005374279-02



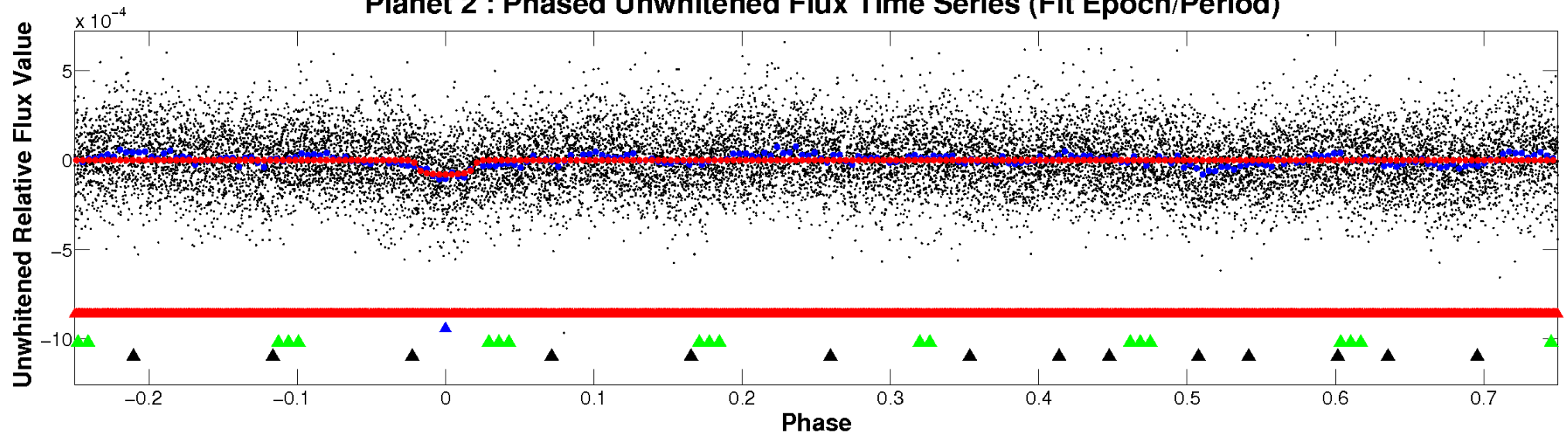
ALT Odd/Even

TCE 005374279-02

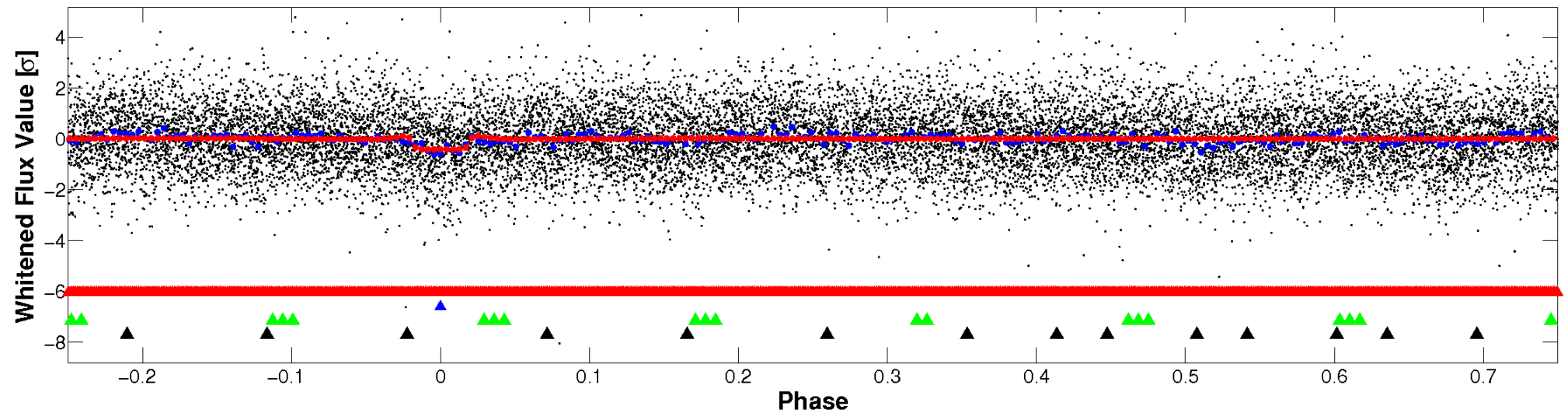


Non-Whitened Vs. Whitened Light Curve

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

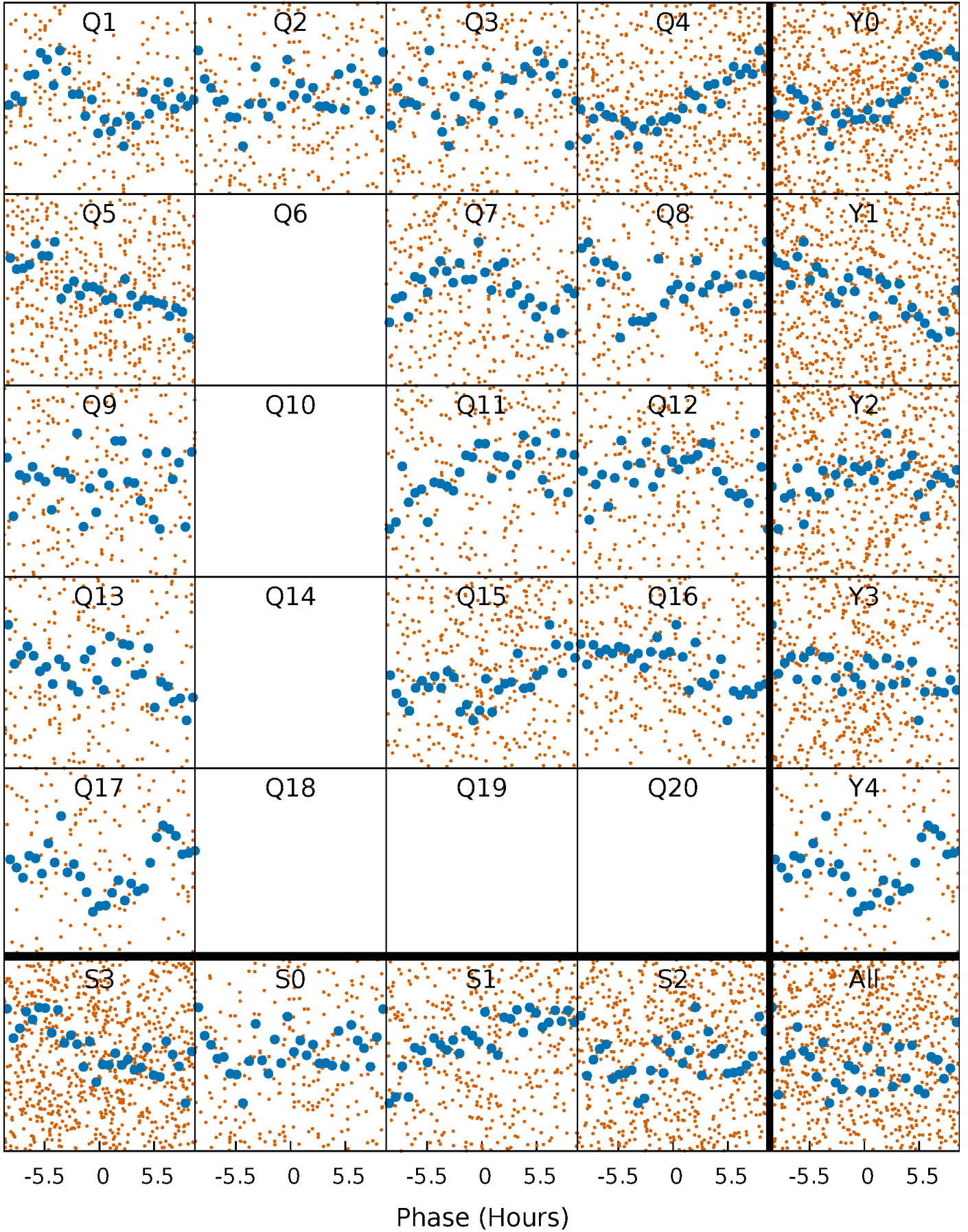


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



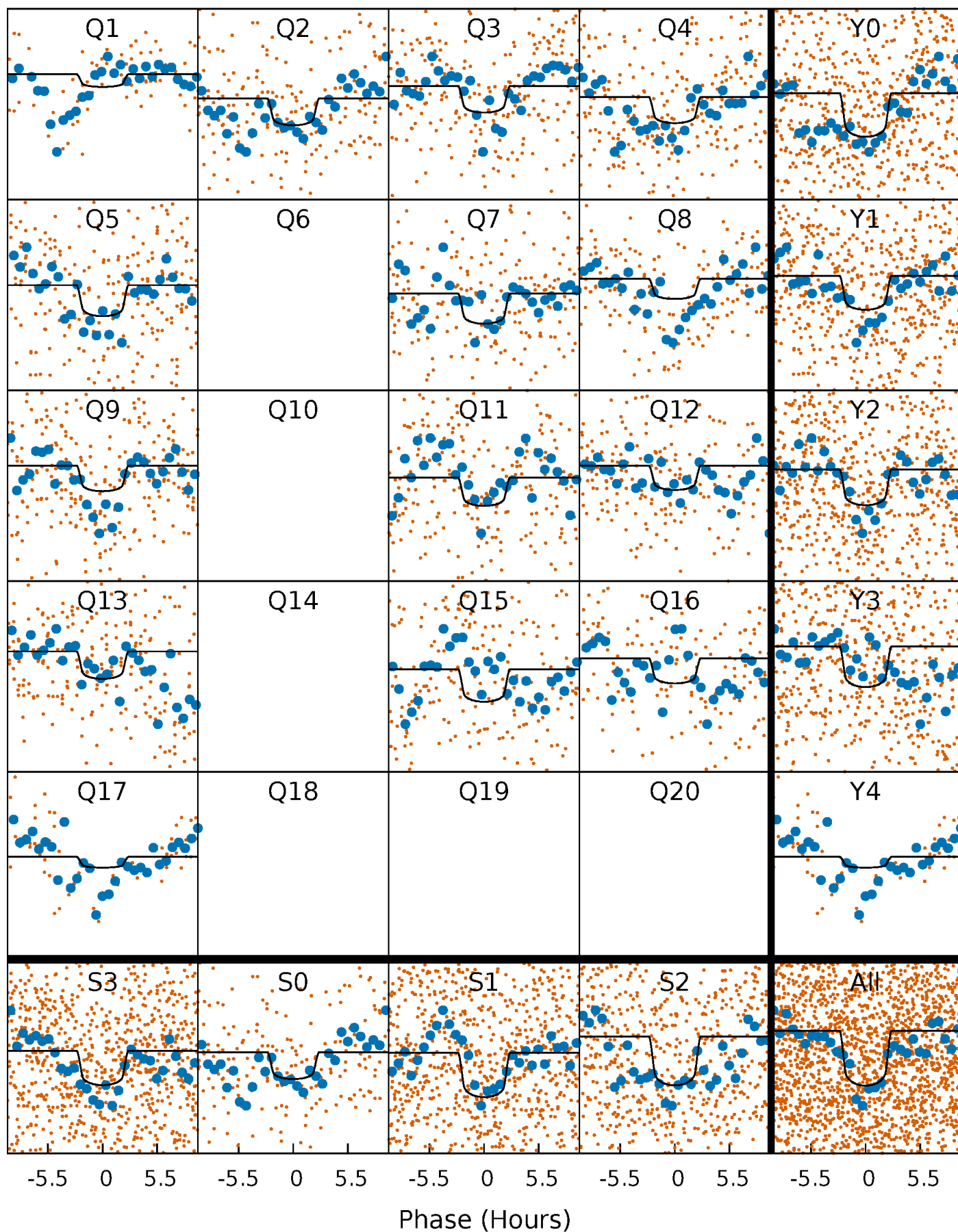
PDC Quarter-Phased Transit Curves

TCE 005374279-02 P= 4.843223 Days $T_0=135.110139$ (BKJD)



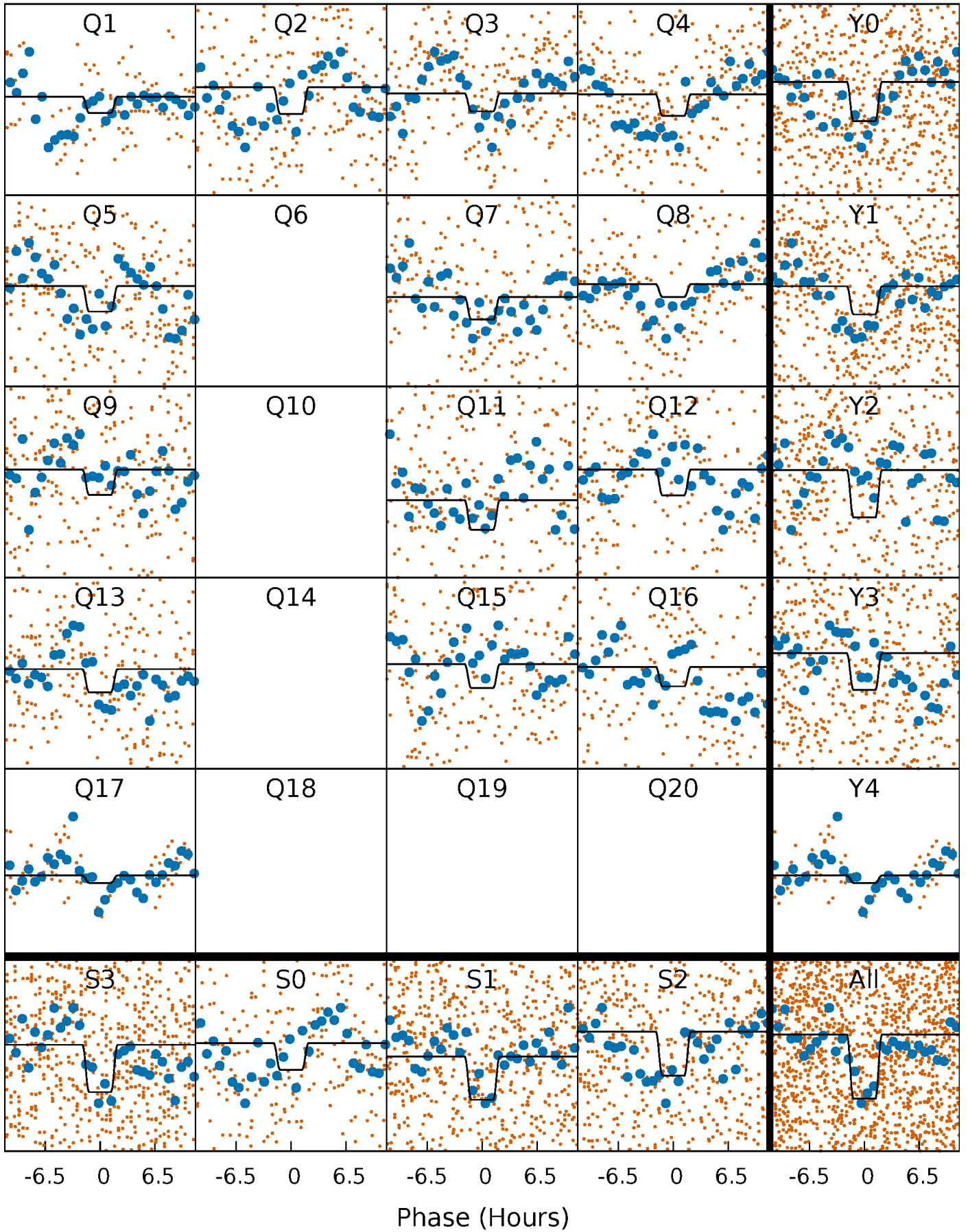
DV Quarter-Phased Transit Curves

TCE 005374279-02 P= 4.843223 Days $T_0=135.110139$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

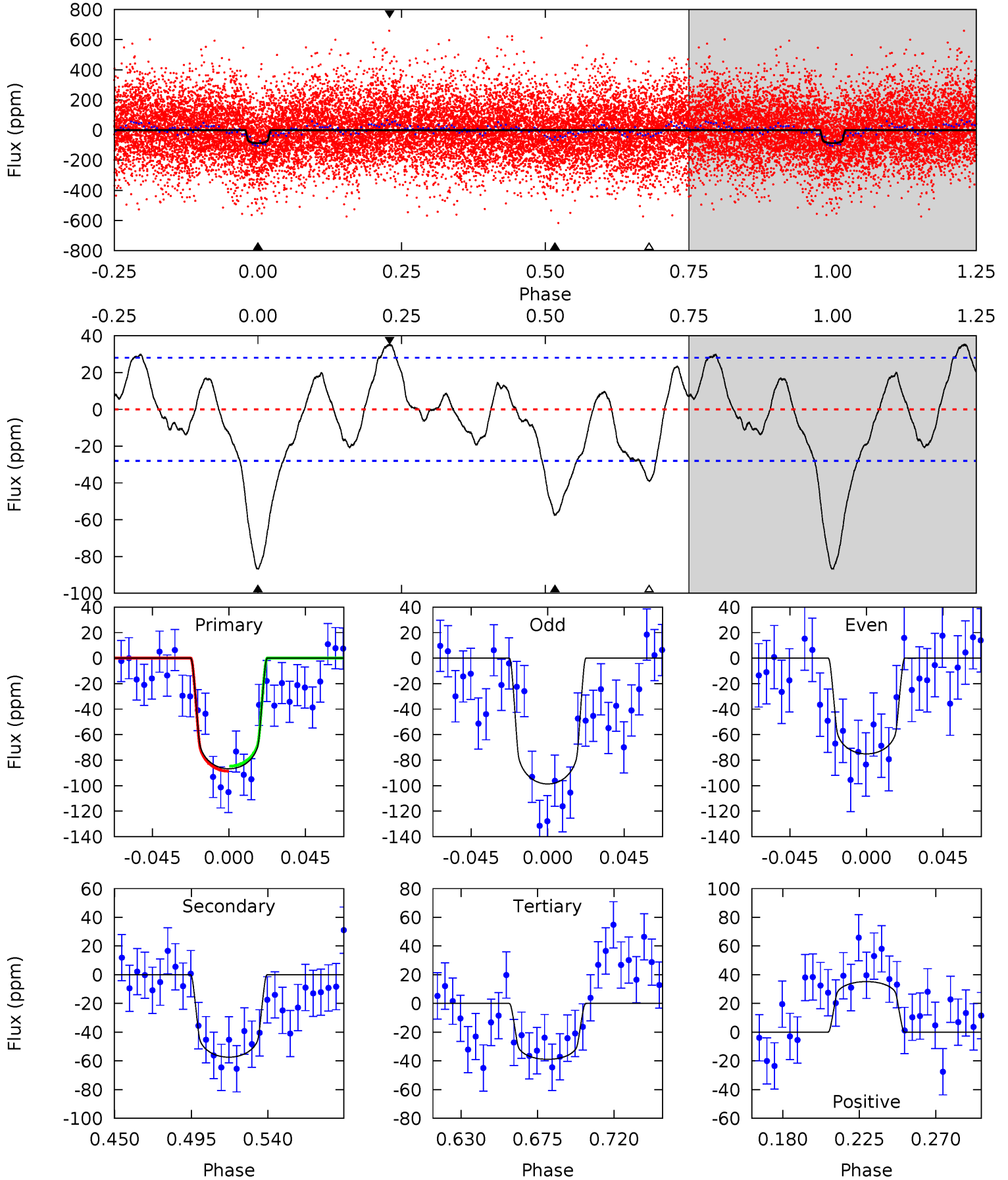
TCE 005374279-02 P= 4.843043 Days $T_0=135.137714$ (BKJD)



DV Model-Shift Uniqueness Test

005374279-02, P = 4.843223 Days, E = 130.266916 Days

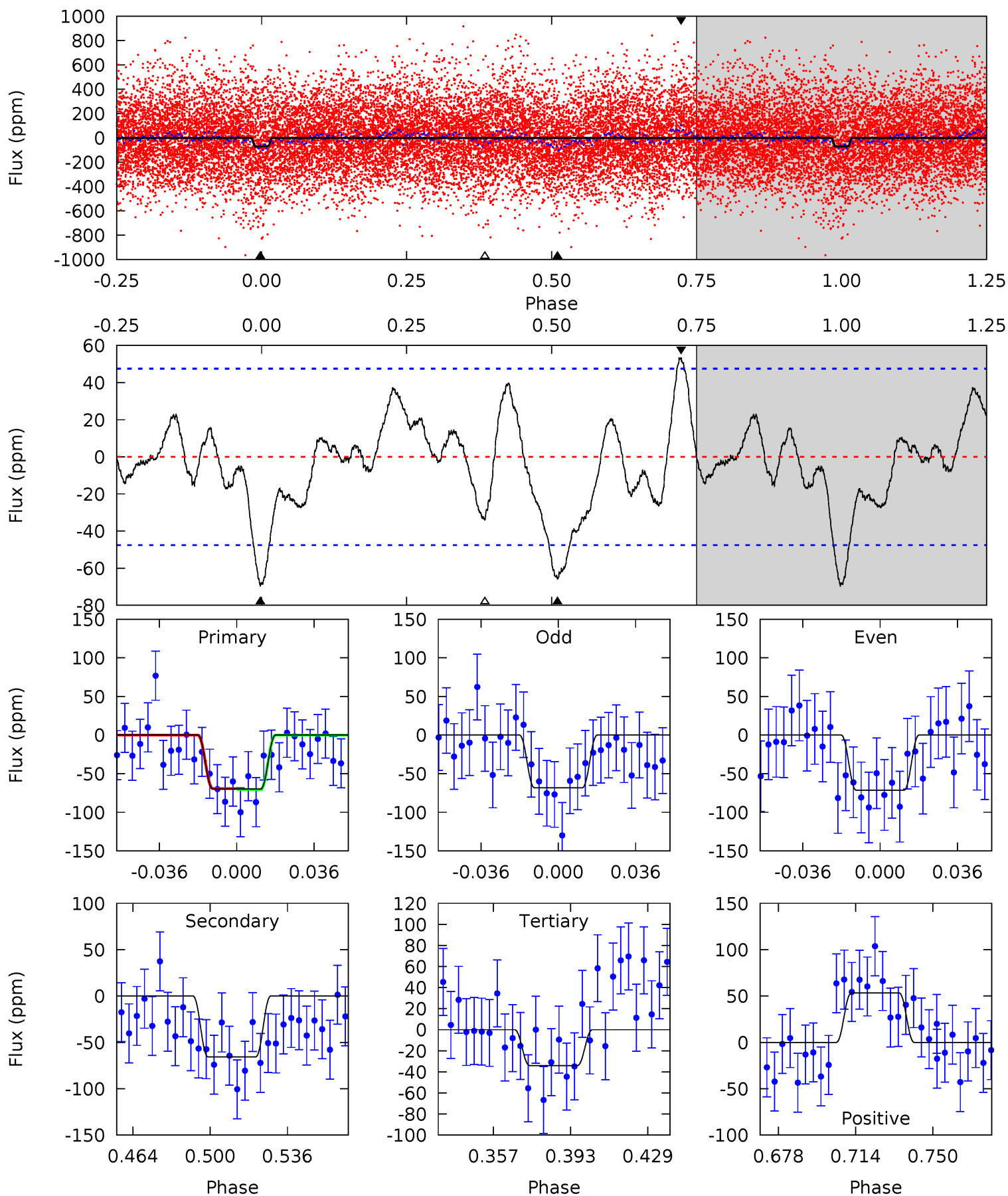
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	9.69	6.57	5.94	4.73	2.00	2.72	8.07	8.69	3.12	3.75	1.99	1.11	0.29	0.33



Alt Model-Shift Uniqueness Test

005374279-02, P = 4.843043 Days, E = 130.294671 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.02	6.60	3.42	5.36	4.78	2.10	1.84	3.60	1.66	3.18	1.24	0.16	0.71	0.43	0.06



Stellar Parameters For KIC 005374279

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6804^{+170}_{-204}	$3.475^{+0.382}_{-0.090}$	$-0.320^{+0.350}_{-0.250}$	$4.085^{+0.540}_{-1.621}$	$1.816^{+0.141}_{-0.395}$	$0.038^{+0.110}_{-0.011}$
	+2%/-3%	+11%/-3%	+109%/-78%	+13%/-40%	+8%/-22%	+292%/-29%
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 005374279-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-57 ± 6	$3.89^{+1.42}_{-1.32}$	3192^{+180}_{-326}	5993^{+1201}_{-778}	$9.559^{+11.364}_{-4.539}$
Alt.	-66 ± 10	$3.65^{+1.47}_{-1.26}$	3177^{+182}_{-334}	6387^{+1663}_{-972}	12^{+17}_{-6}

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

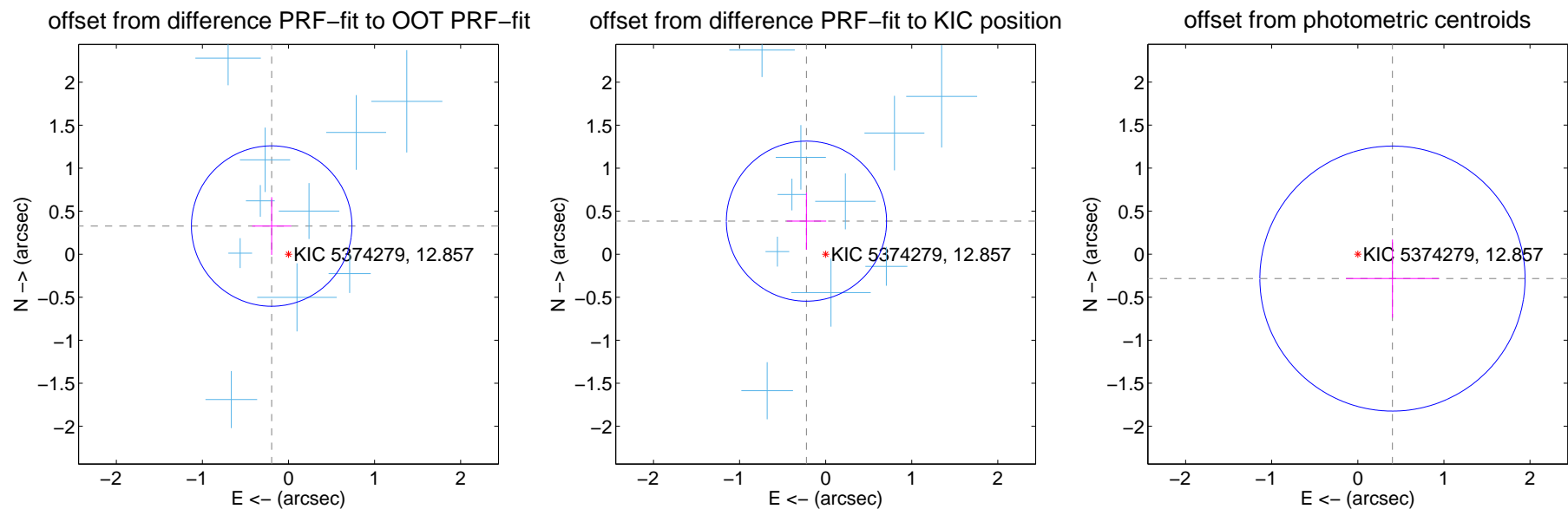
DV Centroid Data

Supplemental centroid analysis for 005374279-02. Kepler magnitude: 12.86. Transit SNR 9.89

There are 10 quarters with good PRF difference image offsets

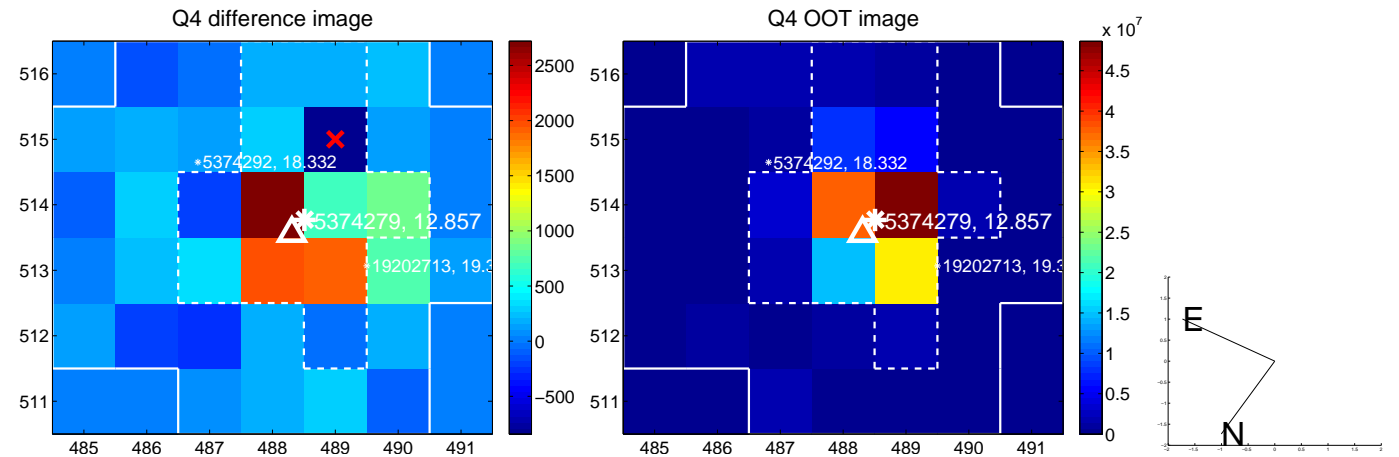
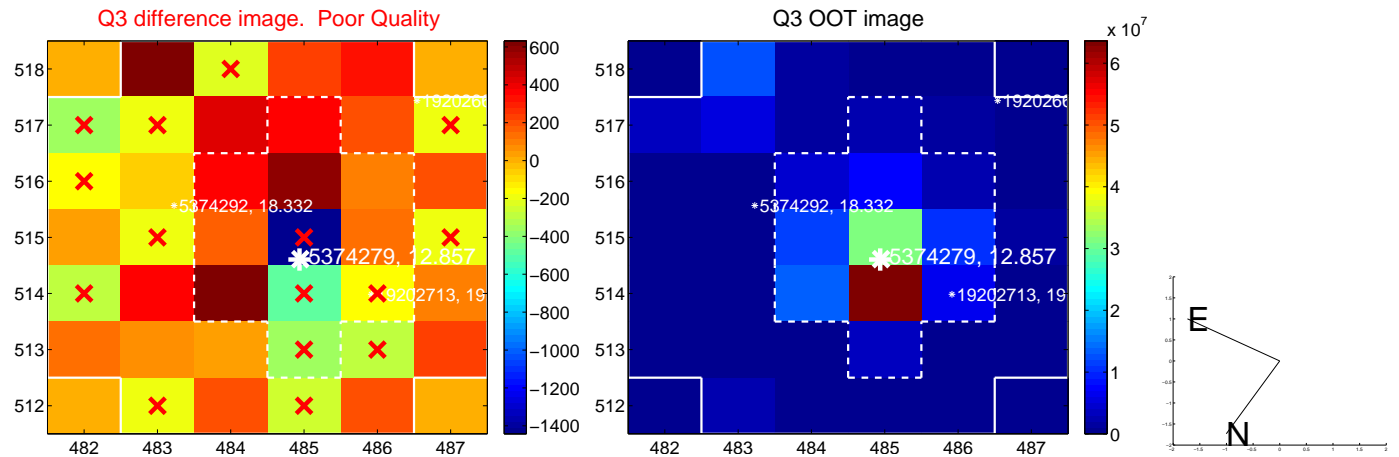
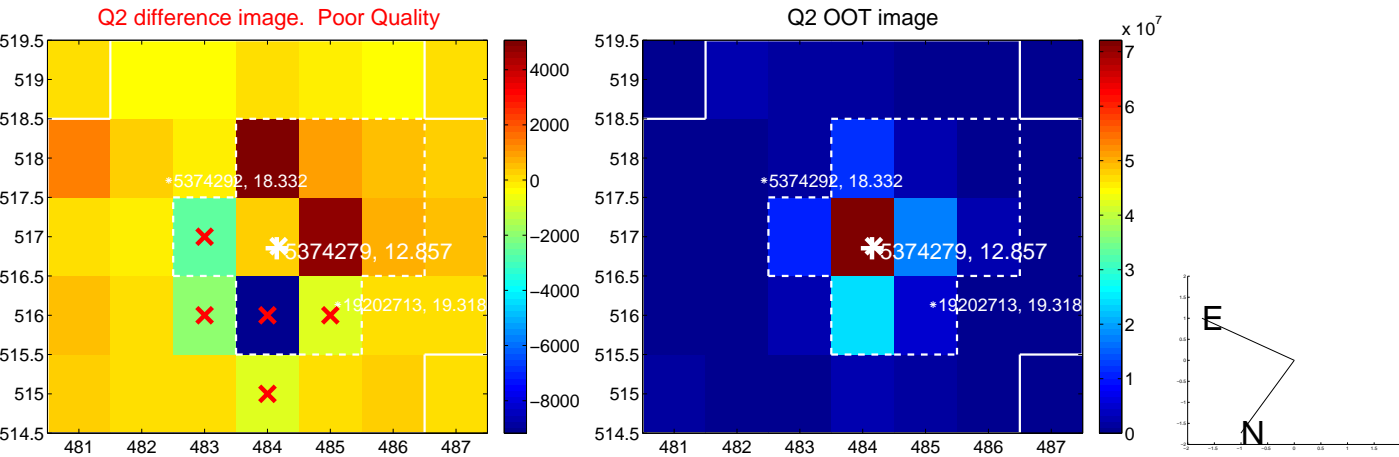
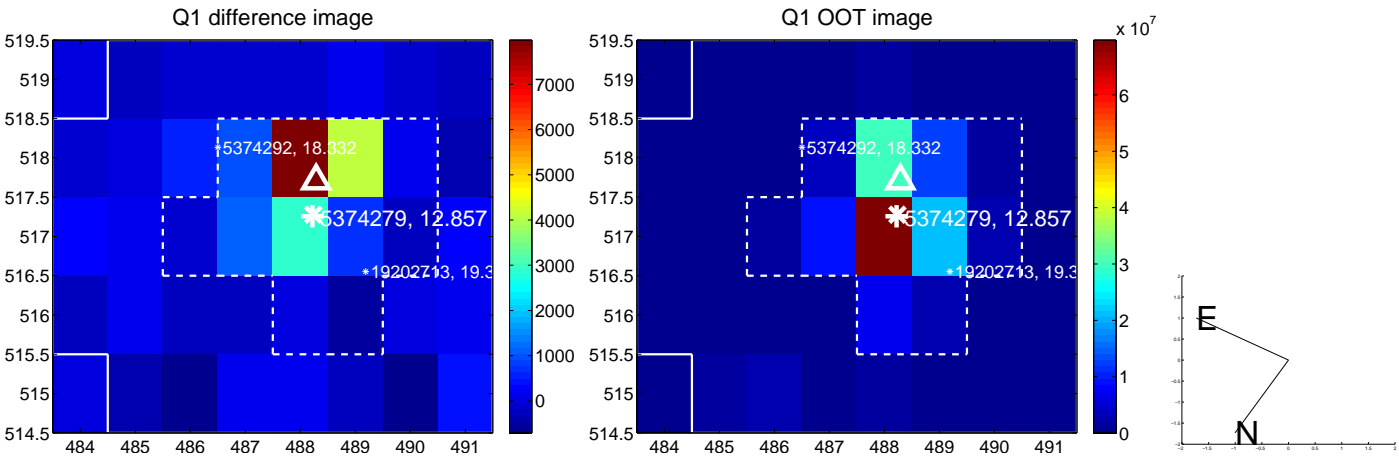
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.381 ± 0.311	1.23	0.195 ± 0.227	0.327 ± 0.336
PRF-fit source offset from KIC position	0.444 ± 0.310	1.43	0.223 ± 0.230	0.384 ± 0.333
photometric centroid source offset	0.49 ± 0.51	0.96	-0.40 ± 0.54	-0.28 ± 0.45

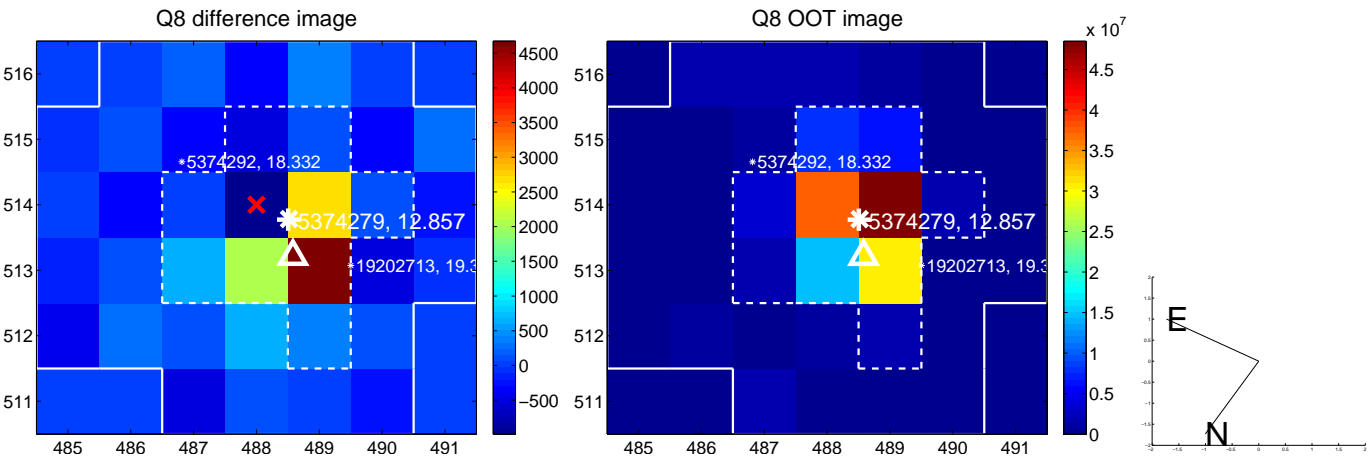
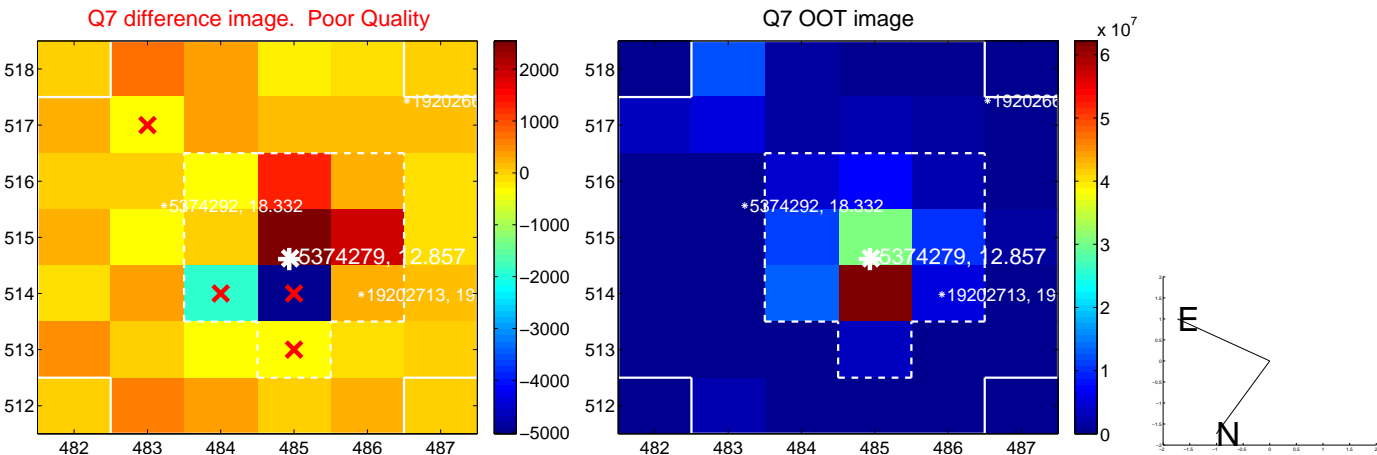
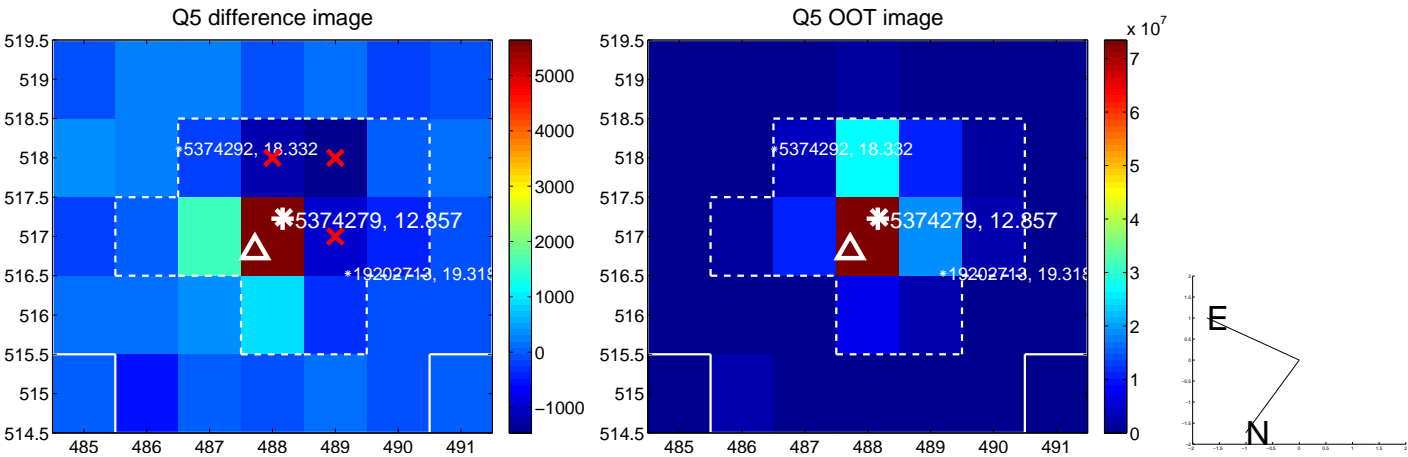


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

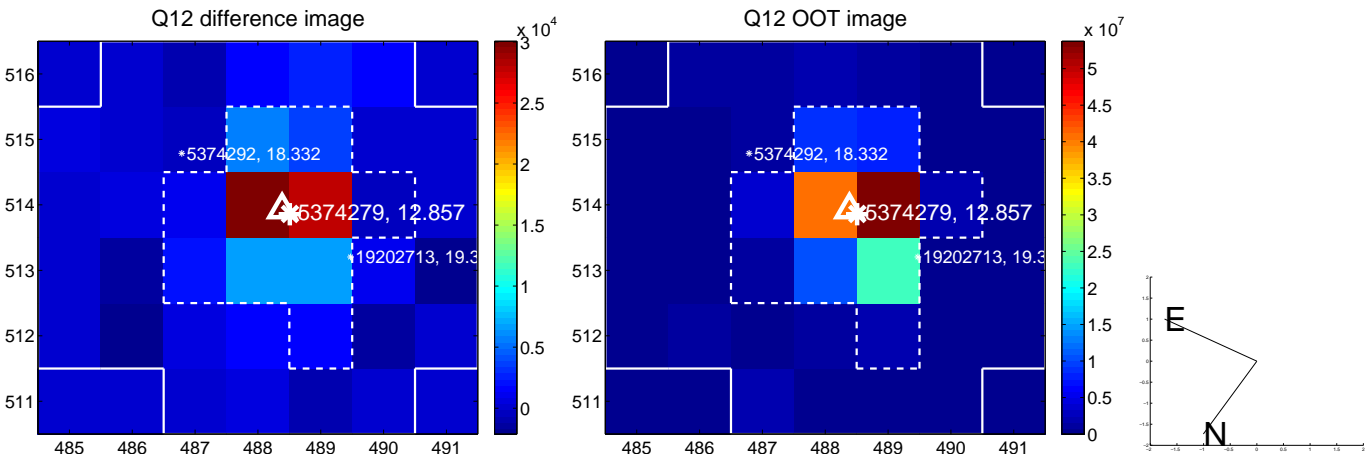
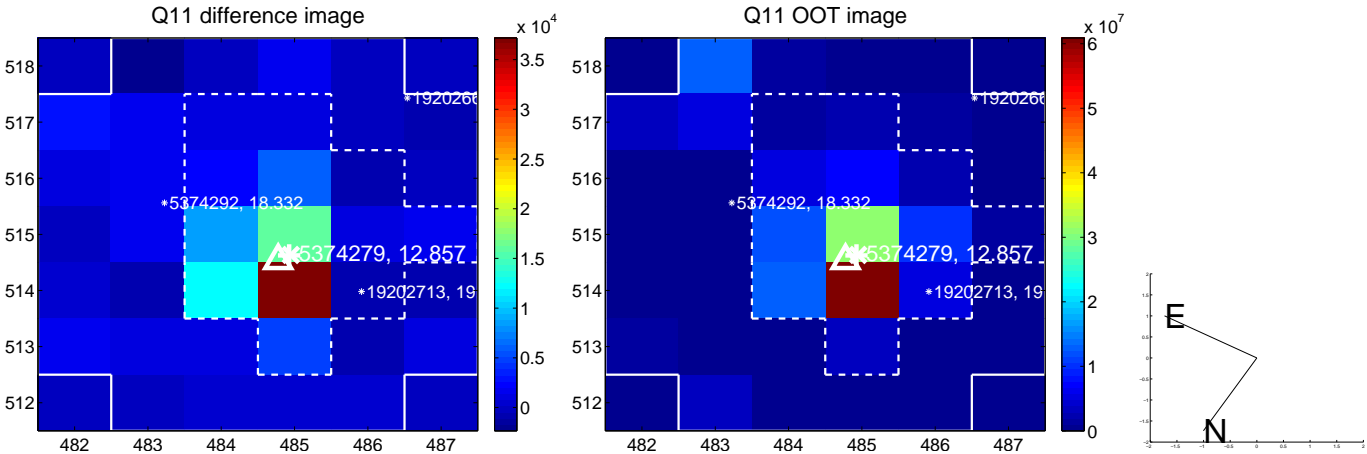
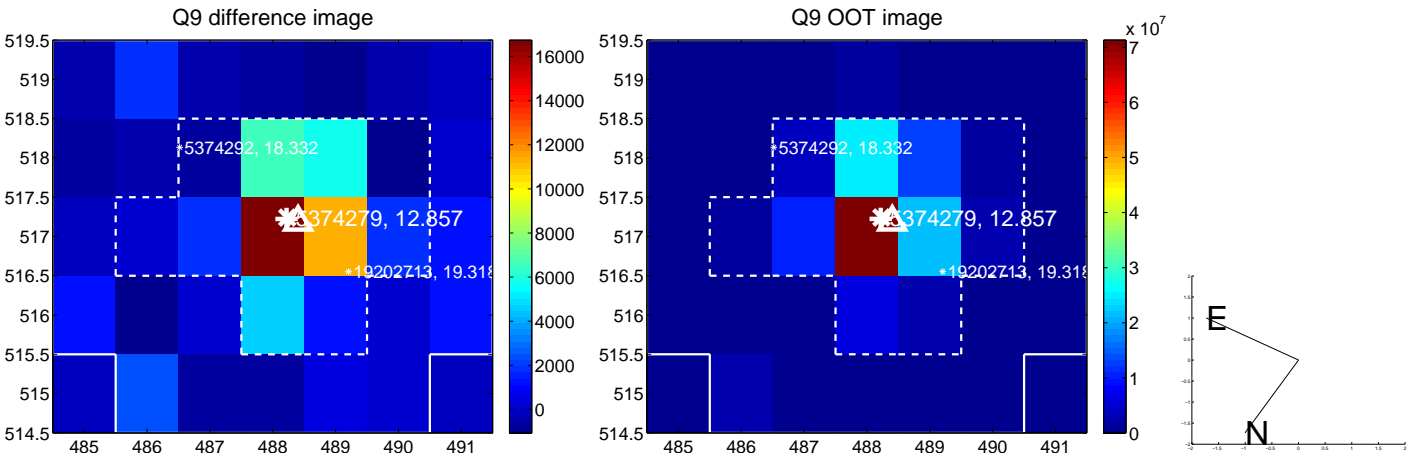
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



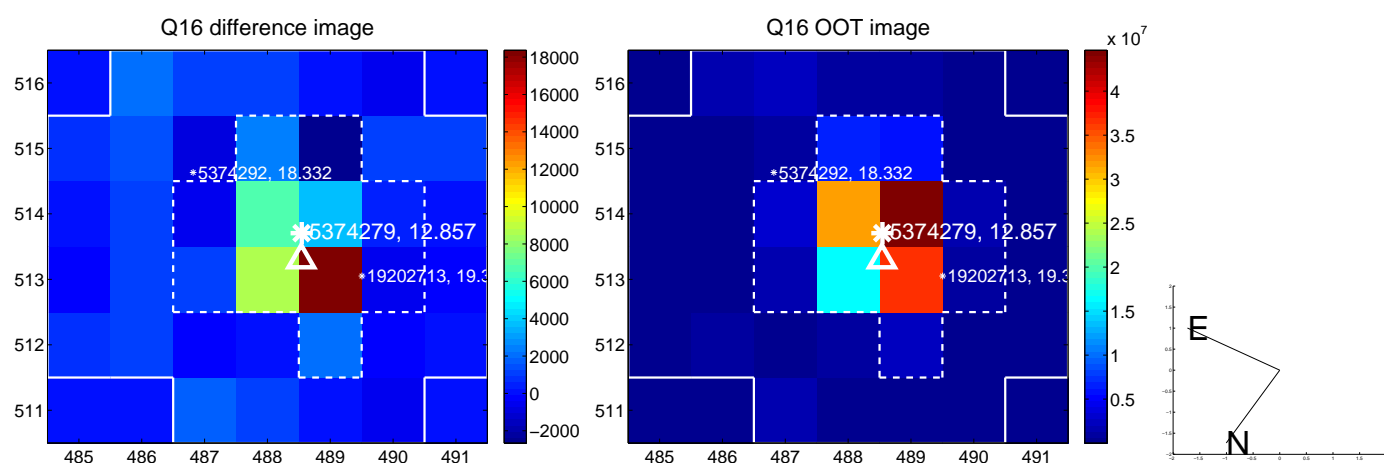
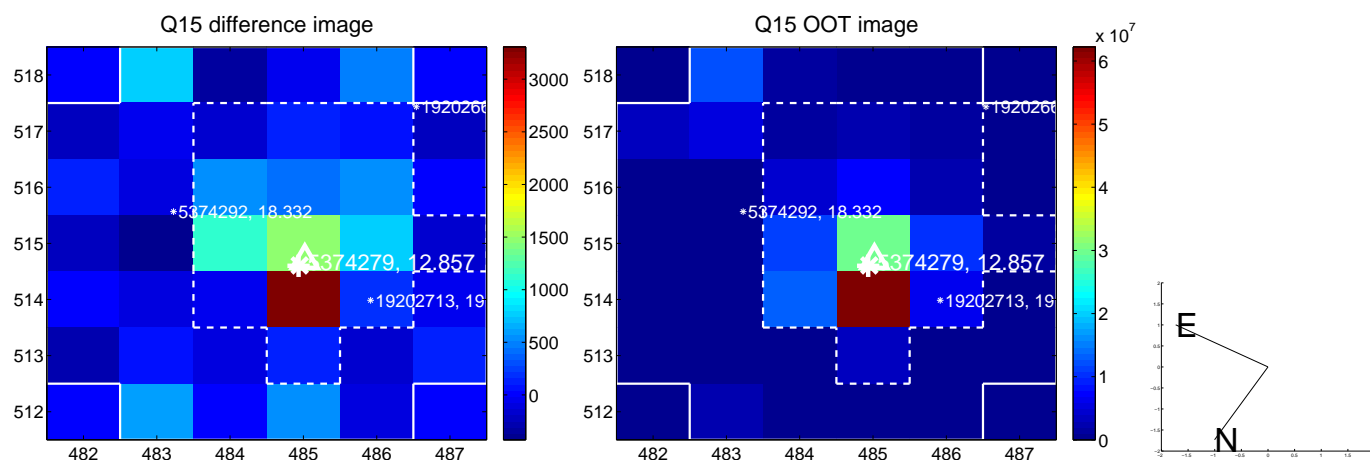
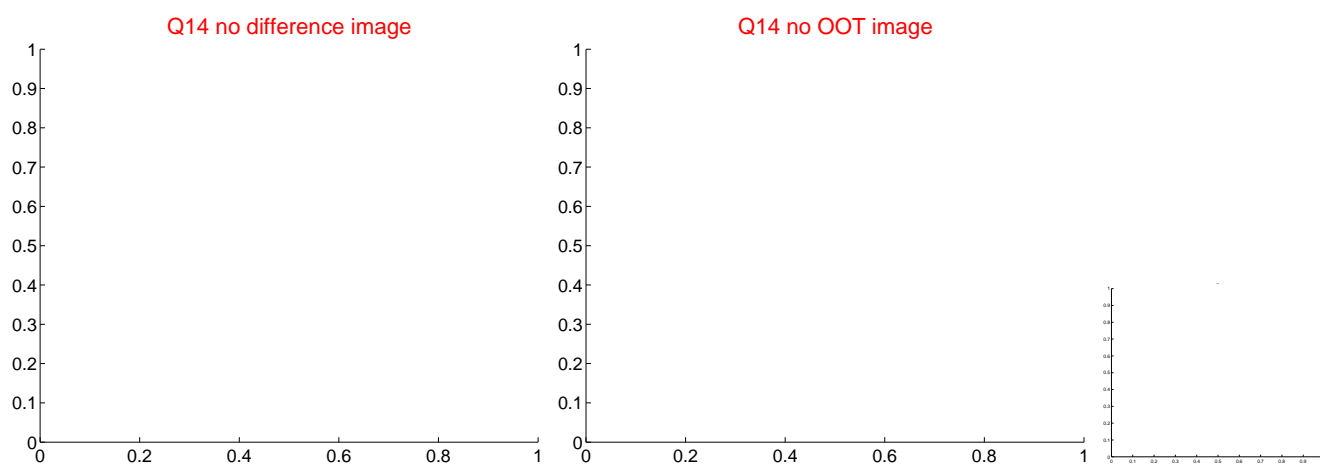
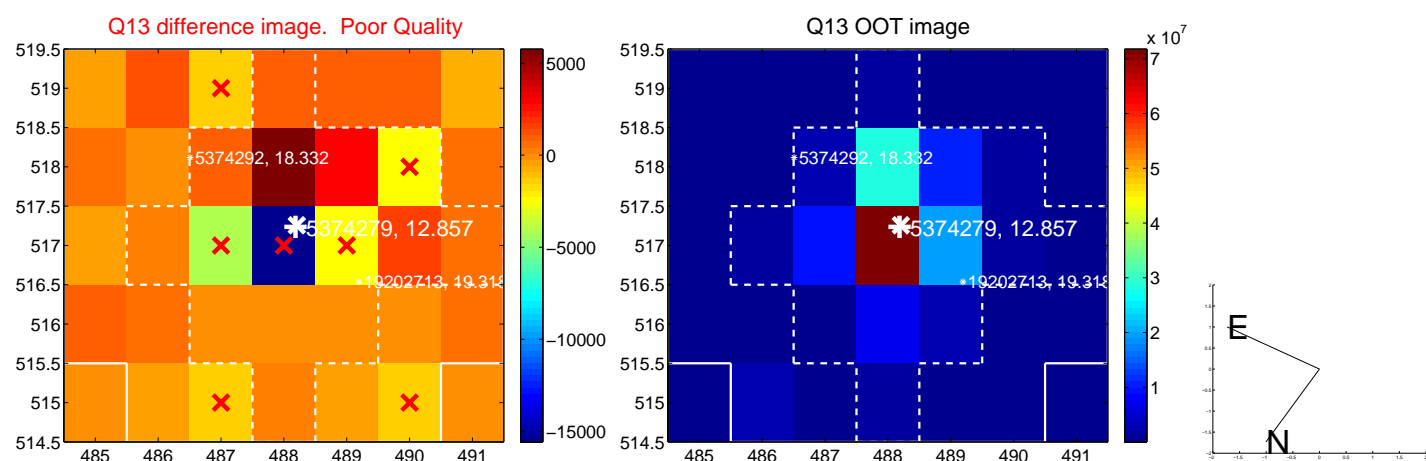
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



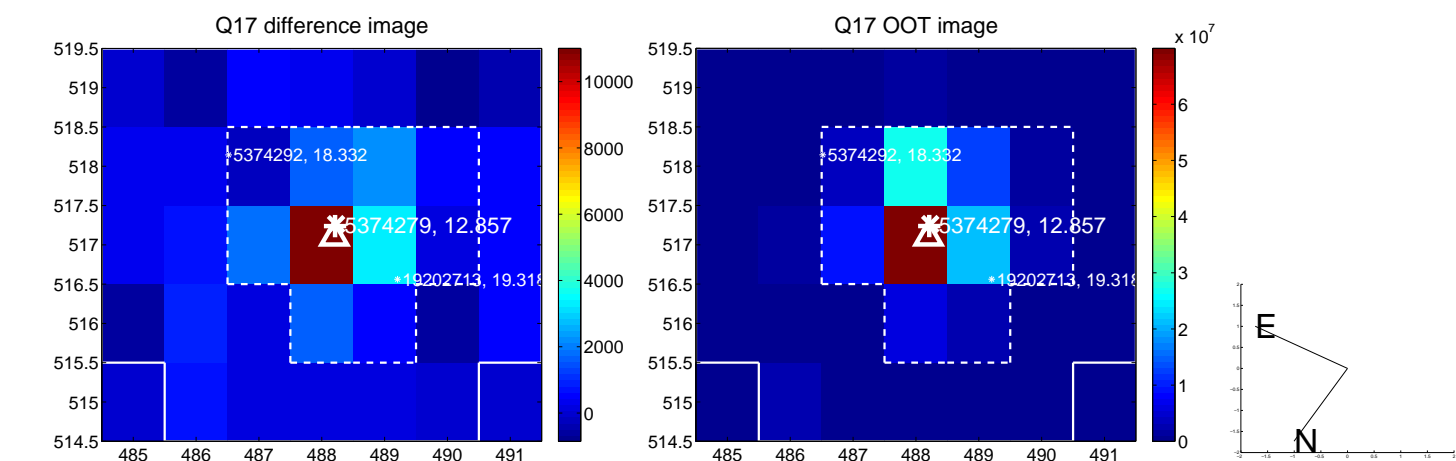
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



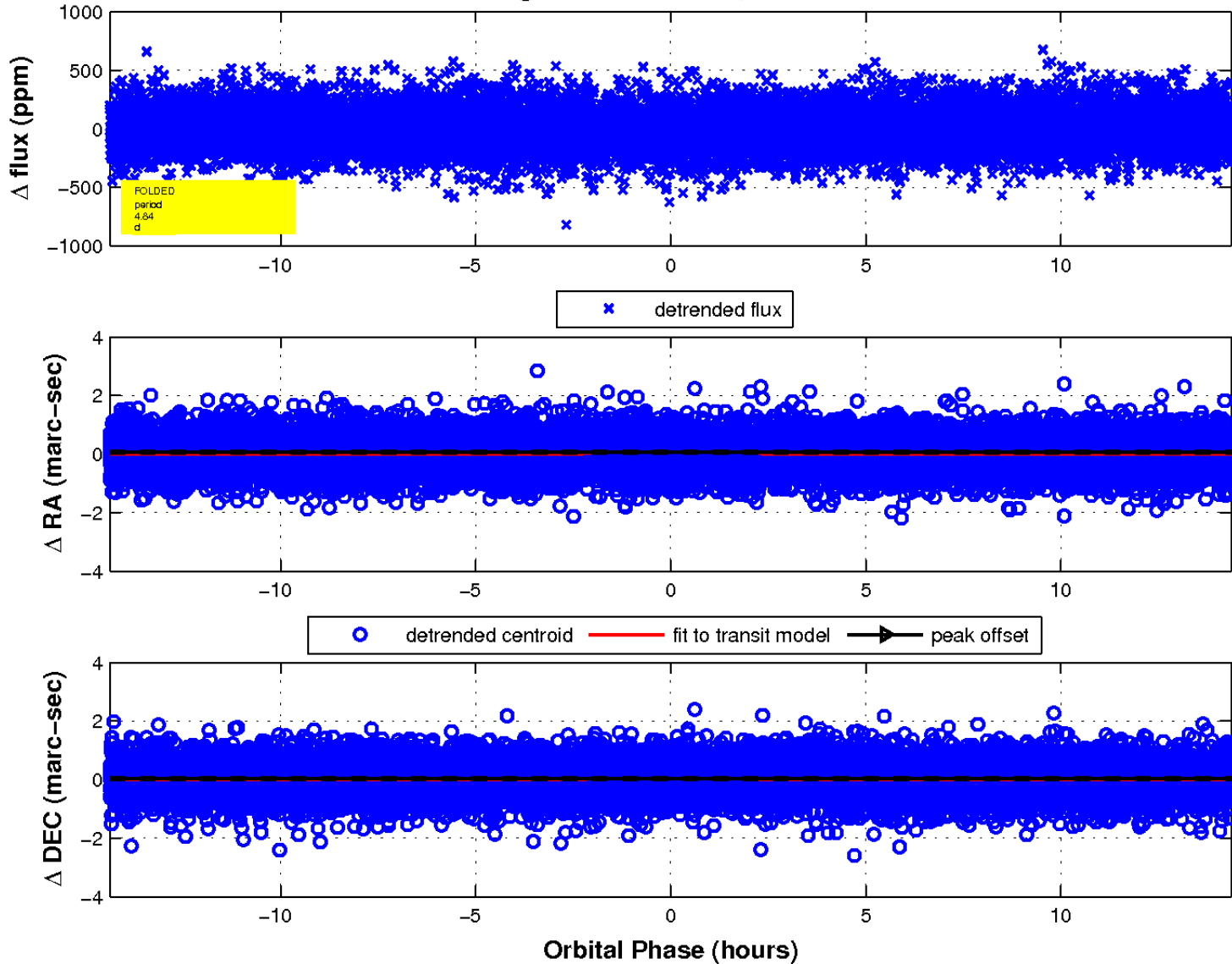
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



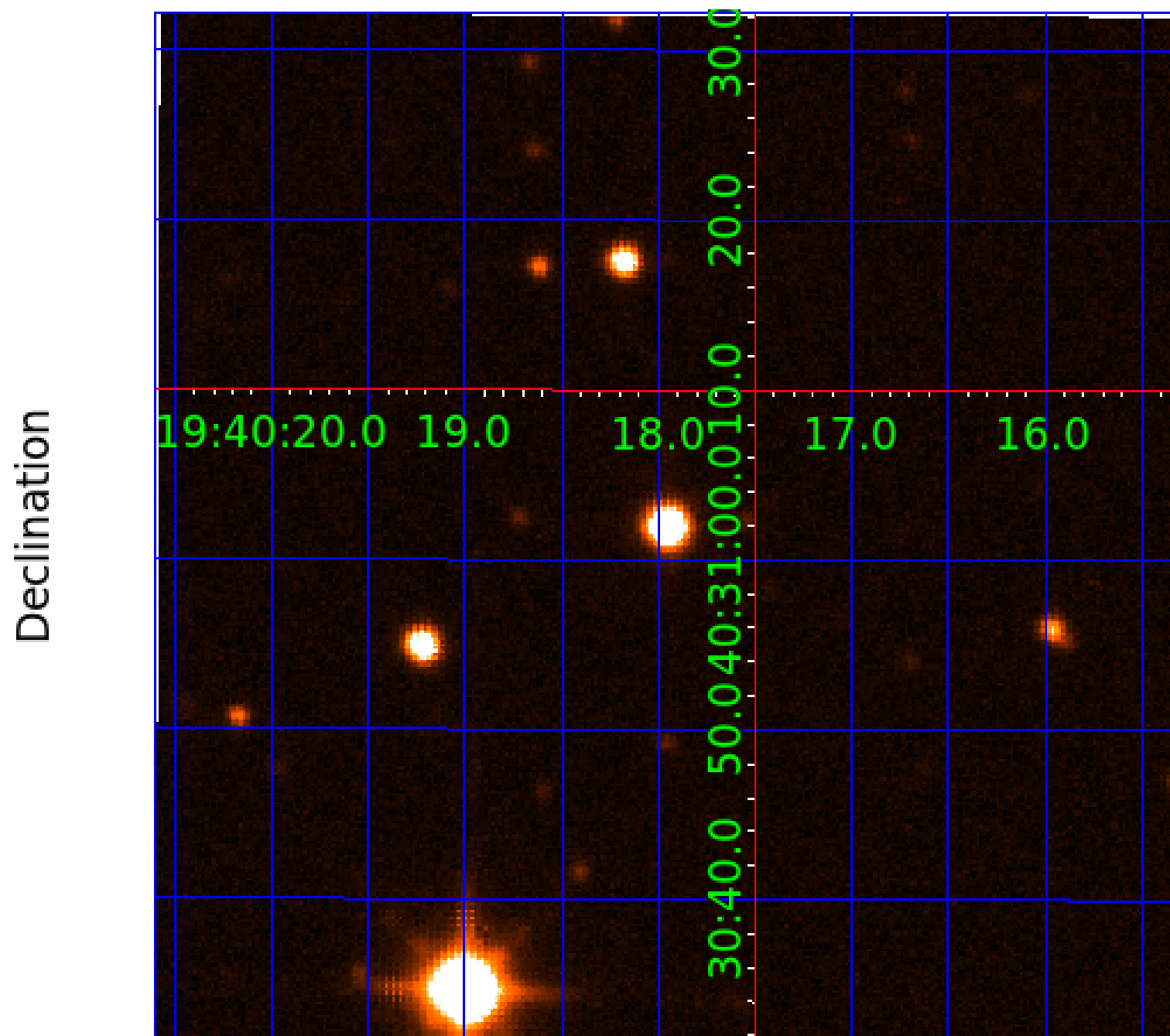
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 4



UKIRT Image



KIC 005374279

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})
005374279-01	OBS	No	1.144313	131.646704	0.0	5.963	9.5	0.0	4.08	6804	0.01	46919.48
005374279-02	OBS	No	4.843223	135.110139	80.0	4.792	9.6	9.9	4.08	6804	4.25	6853.31
005374279-03	OBS	No	73.335563	195.530354	78.5	3.783	7.6	2.5	4.08	6804	4.23	182.95
005374279-04	OBS	No	102.162867	229.135057	250.8	3.518	8.1	8.1	4.08	6804	7.54	117.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005374279-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT
005374279-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005374279-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005374279-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

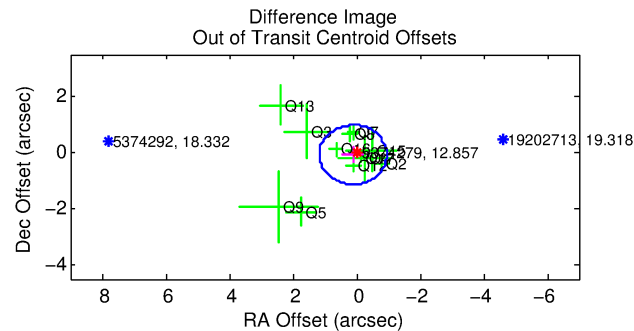
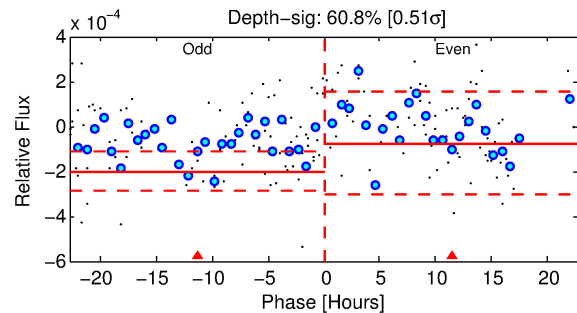
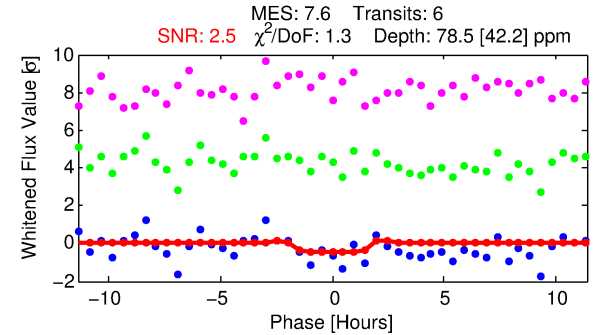
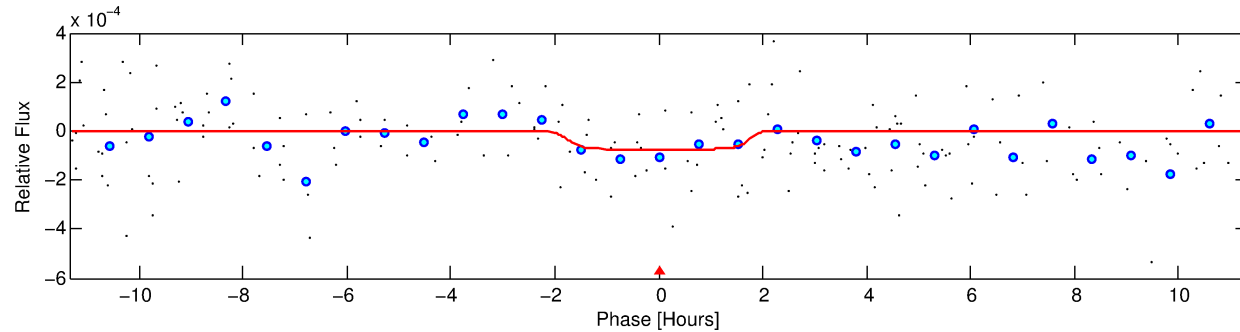
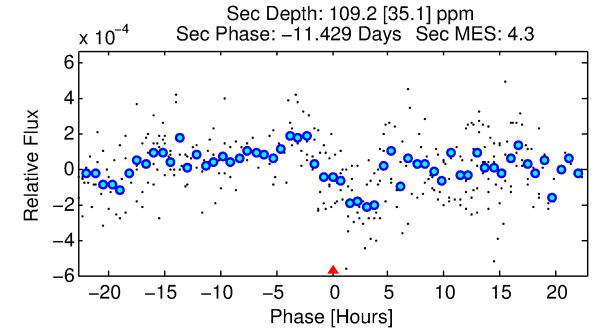
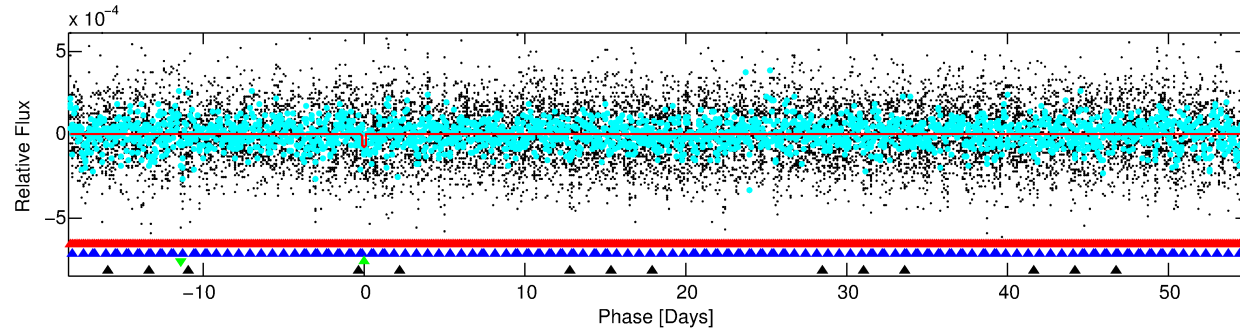
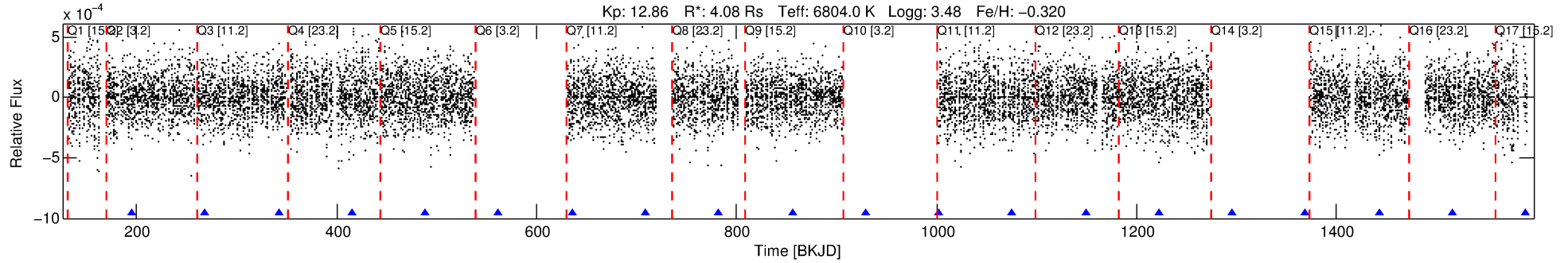
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005374279-03

No Significant Match Found

DV One-Page Summary

KIC: 5374279 Candidate: 3 of 4 Period: 73.336 d



DV Fit Results:

Period = 73.33556 [0.00357] d
Epoch = 195.5304 [0.0448] BKJD
Rp/R* = 0.0095 [0.0189]
a/R* = 65.72 [781.00]
b = 0.91 [2.36]
Seff = 182.95 [119.72]
Teff = 938 [153] K
Rp = 4.23 [8.57] Re
a = 0.4185 [0.1653] AU
Ag = 587.28 [2369.49] [0.25σ]
Teffp = 7138 [7111] K [0.87σ]

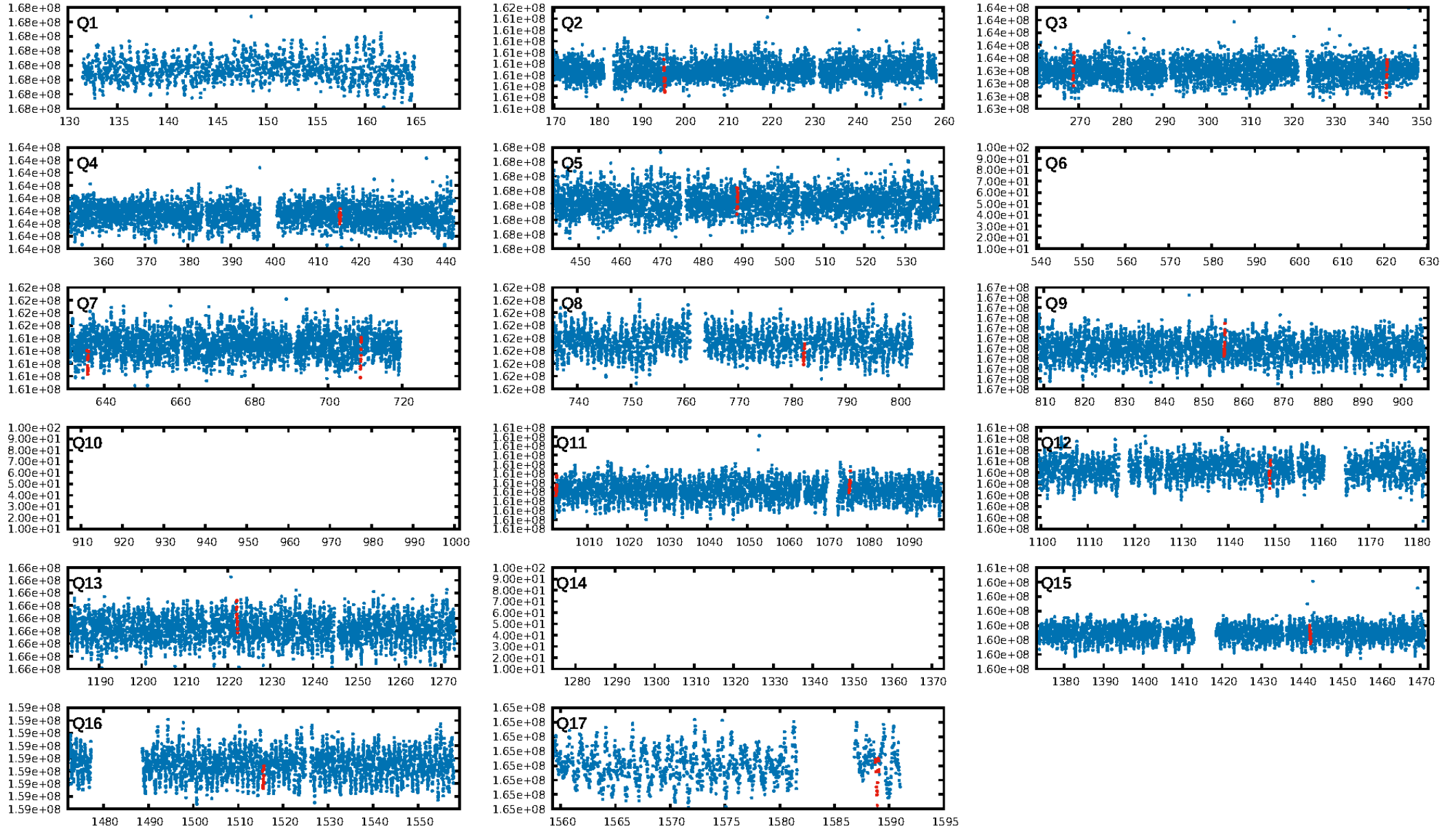
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [269.26σ]
LongPeriod-sig: 100.0% [133.92σ]
ModelChiSquare2-sig: 2.6%
ModelChiSquareGof-sig: 97.0%
Bootstrap-pfa: 4.27e-12
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.2871
Centroid-sig: 1.2%
Centroid-so: 3.870 arcsec [1.87σ]
OotOffset-rm: 0.133 arcsec [0.38σ]
KicOffset-rm: 0.122 arcsec [0.39σ]
OotOffset-st: 1/3/4/4 [12]
KicOffset-st: 1/3/4/4 [12]
DiffImageQuality-fgm: 0.58 [7/12]
DiffImageOverlap-fno: 0.15 [2/13]

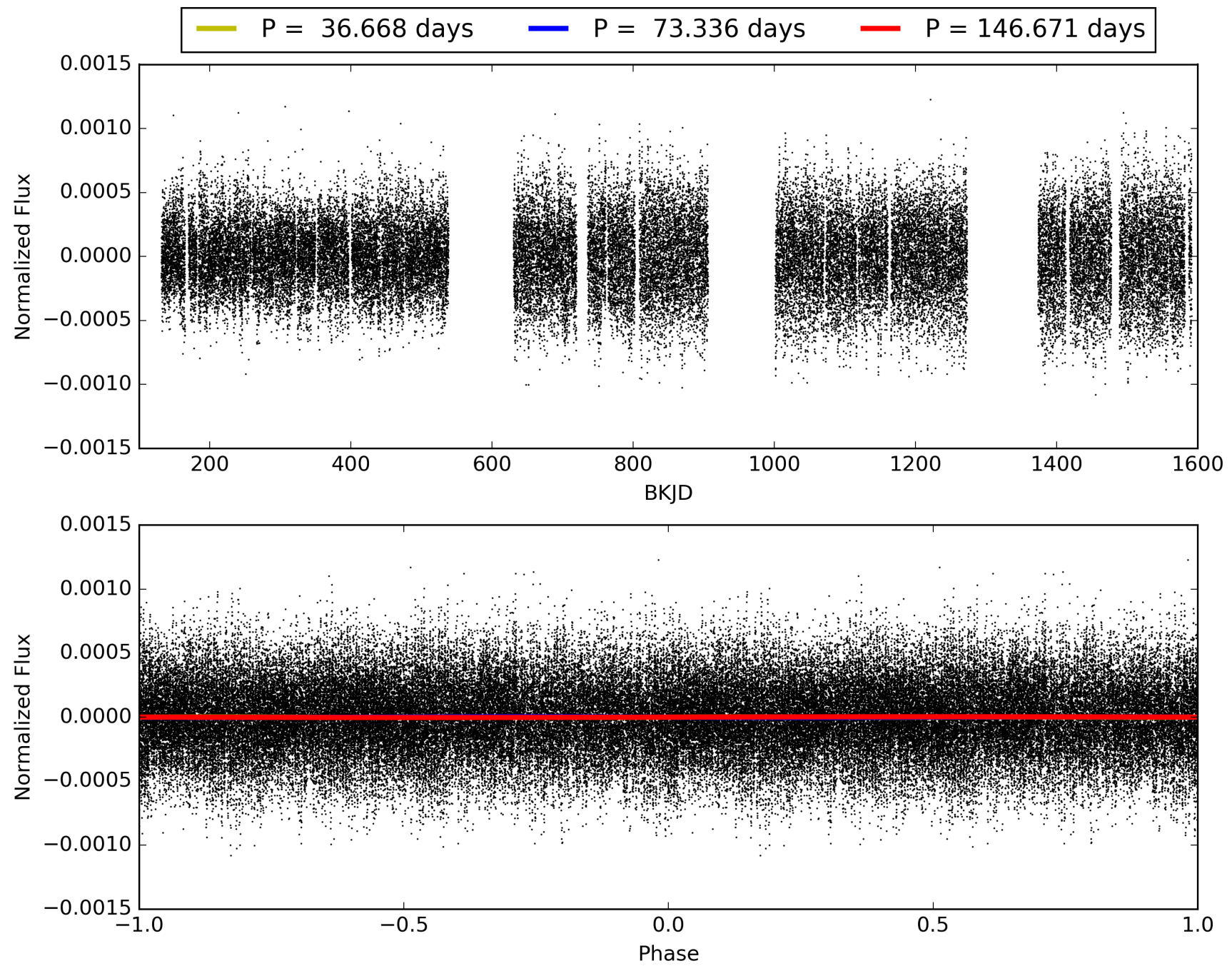
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:03:45 Z

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

TCE 005374279-03, PDC Light Curves

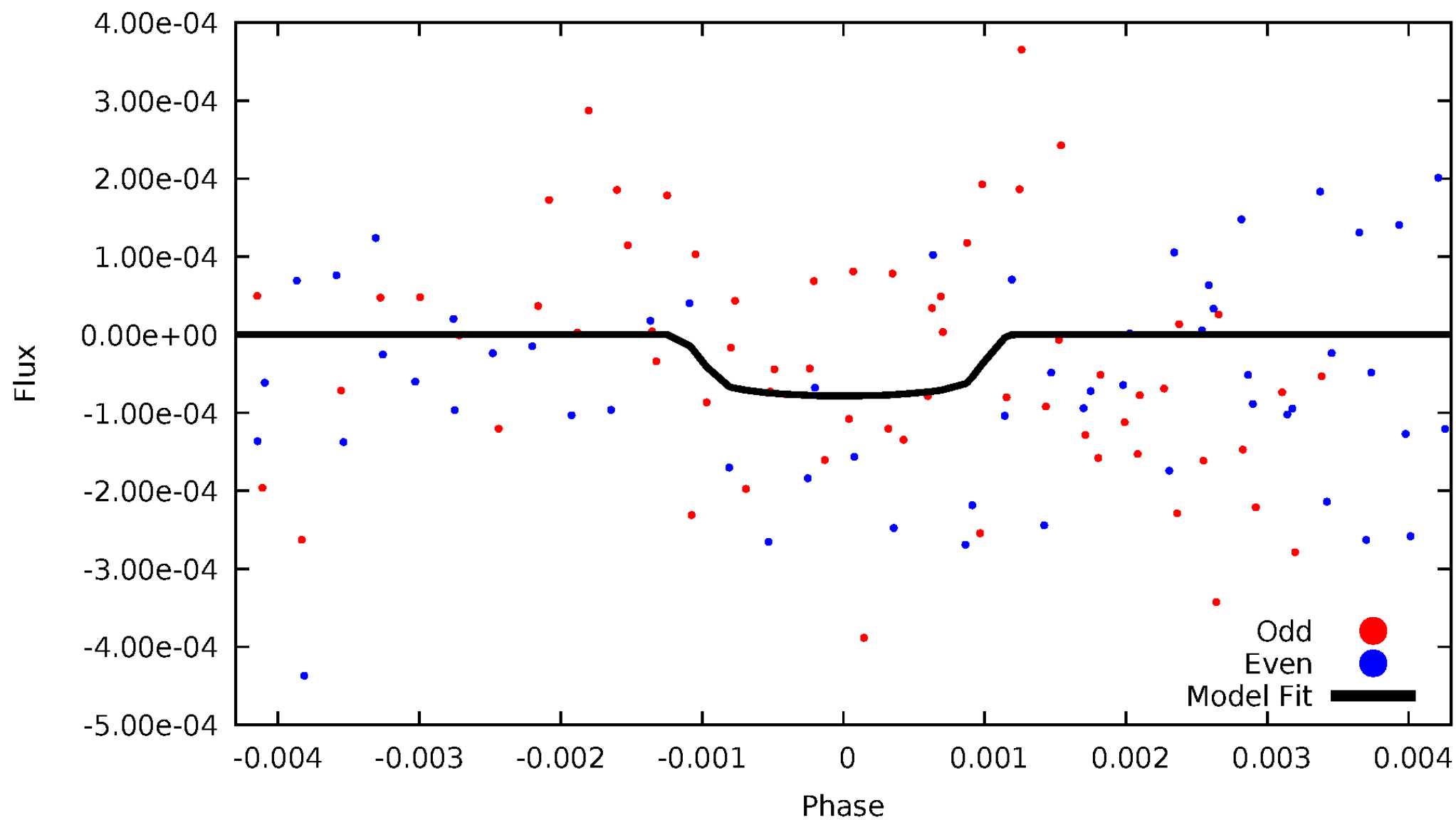


TCE 005374279-03



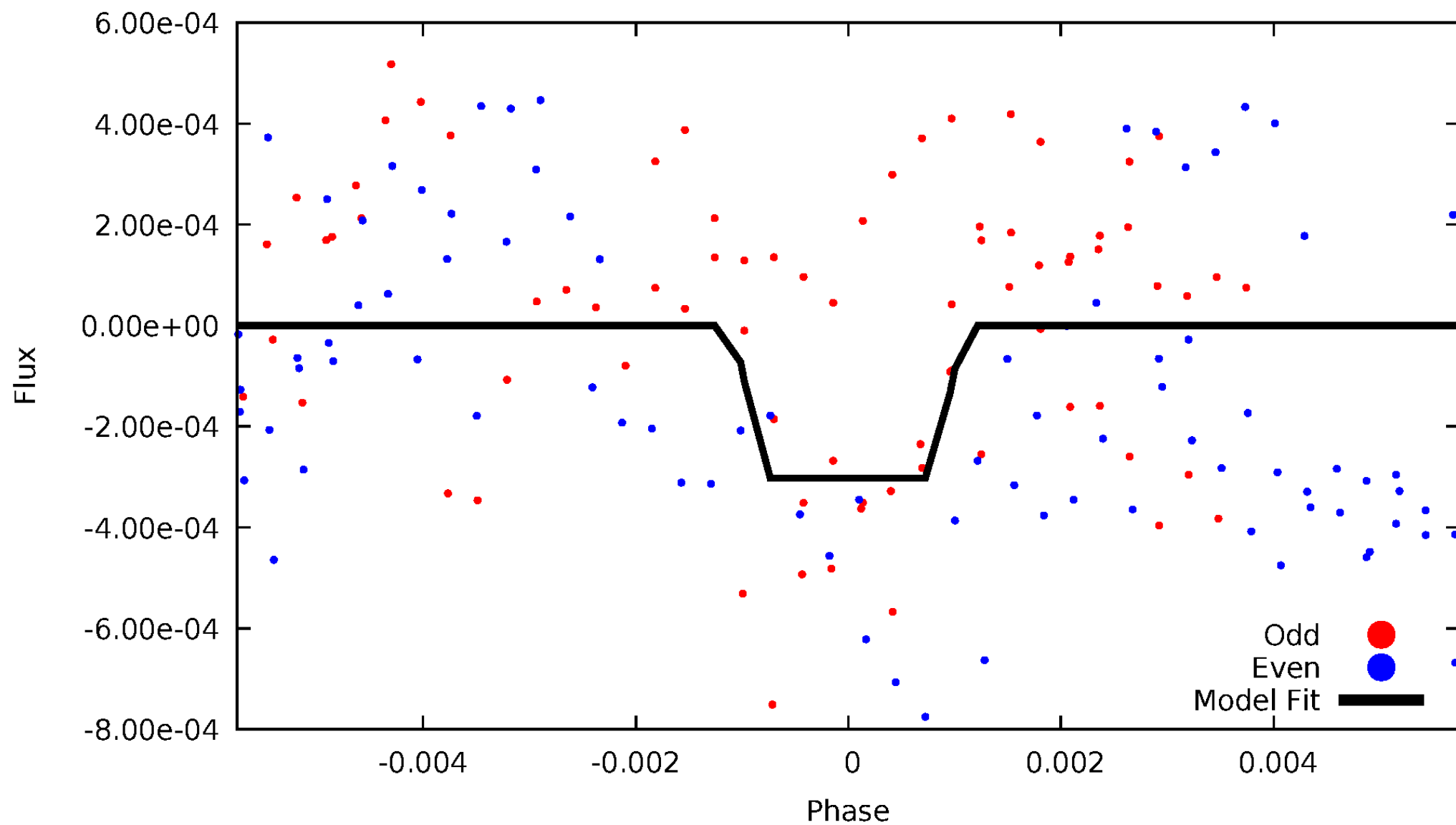
DV Odd/Even

TCE 005374279-03



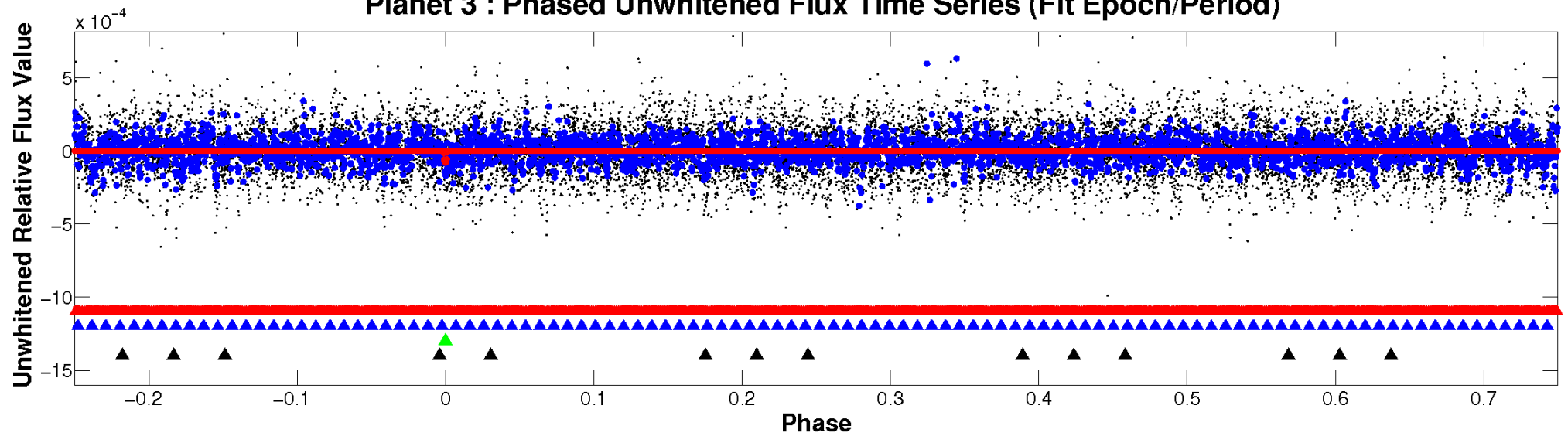
ALT Odd/Even

TCE 005374279-03

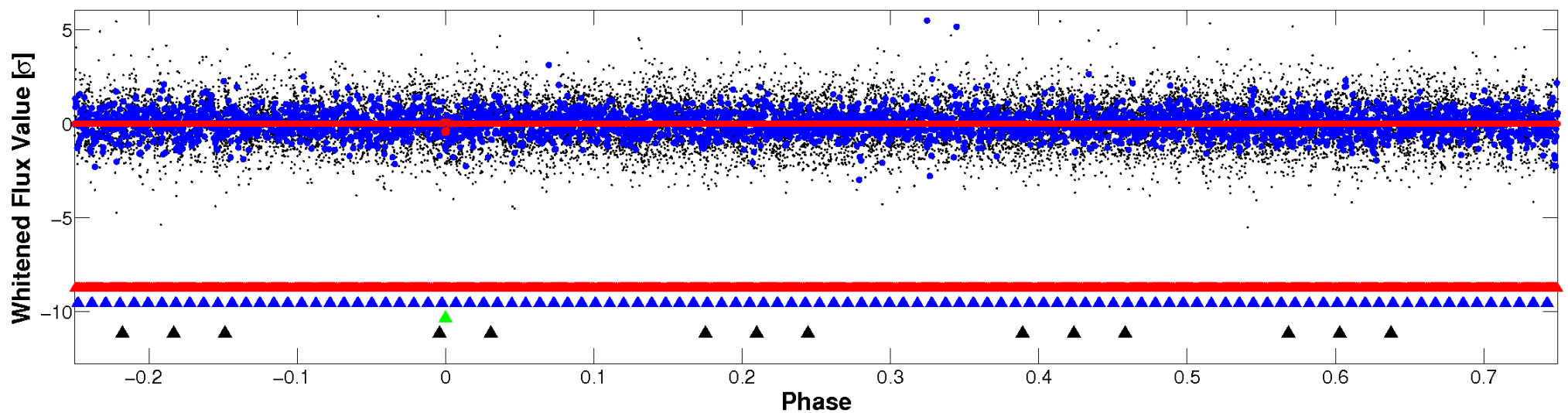


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

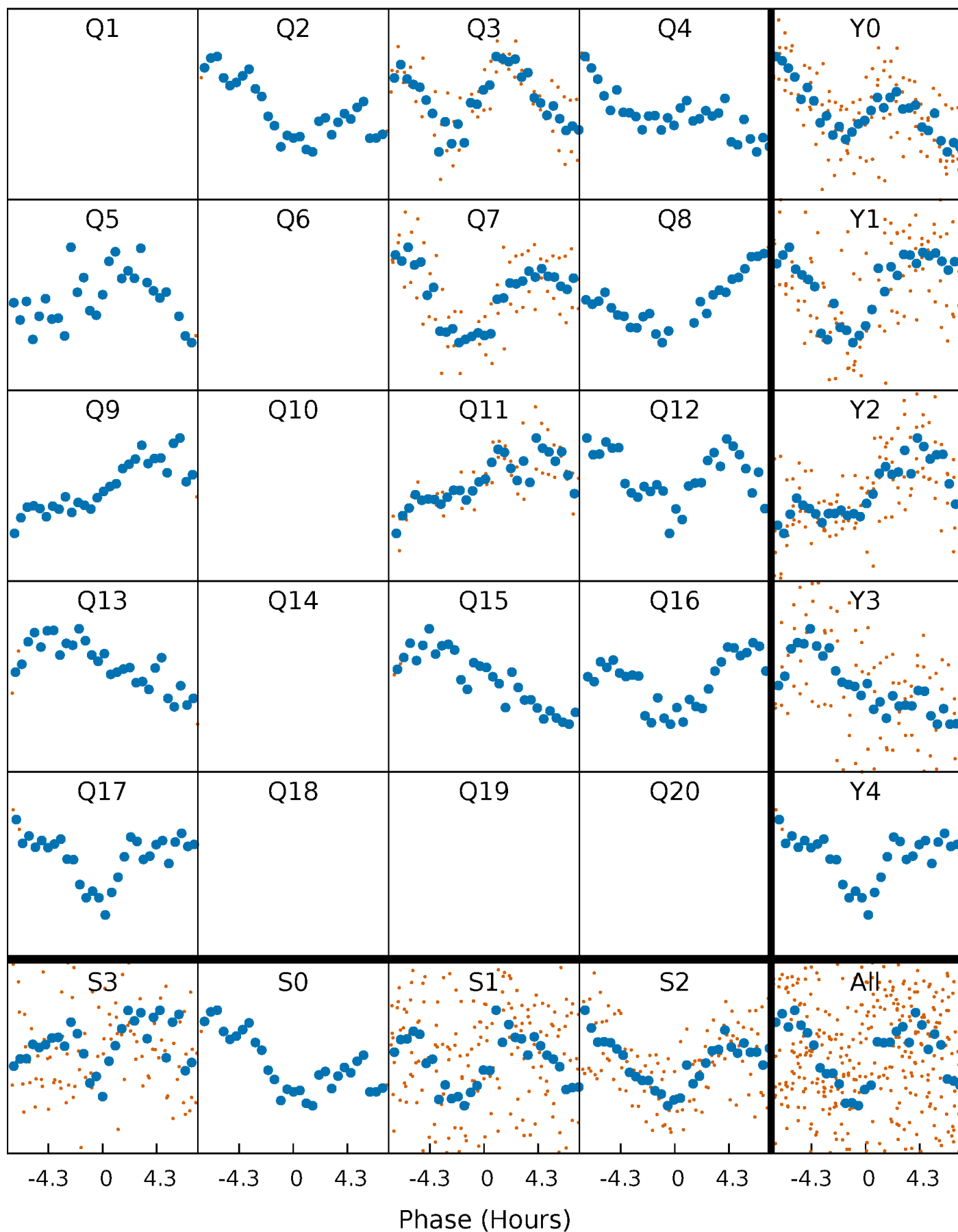


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



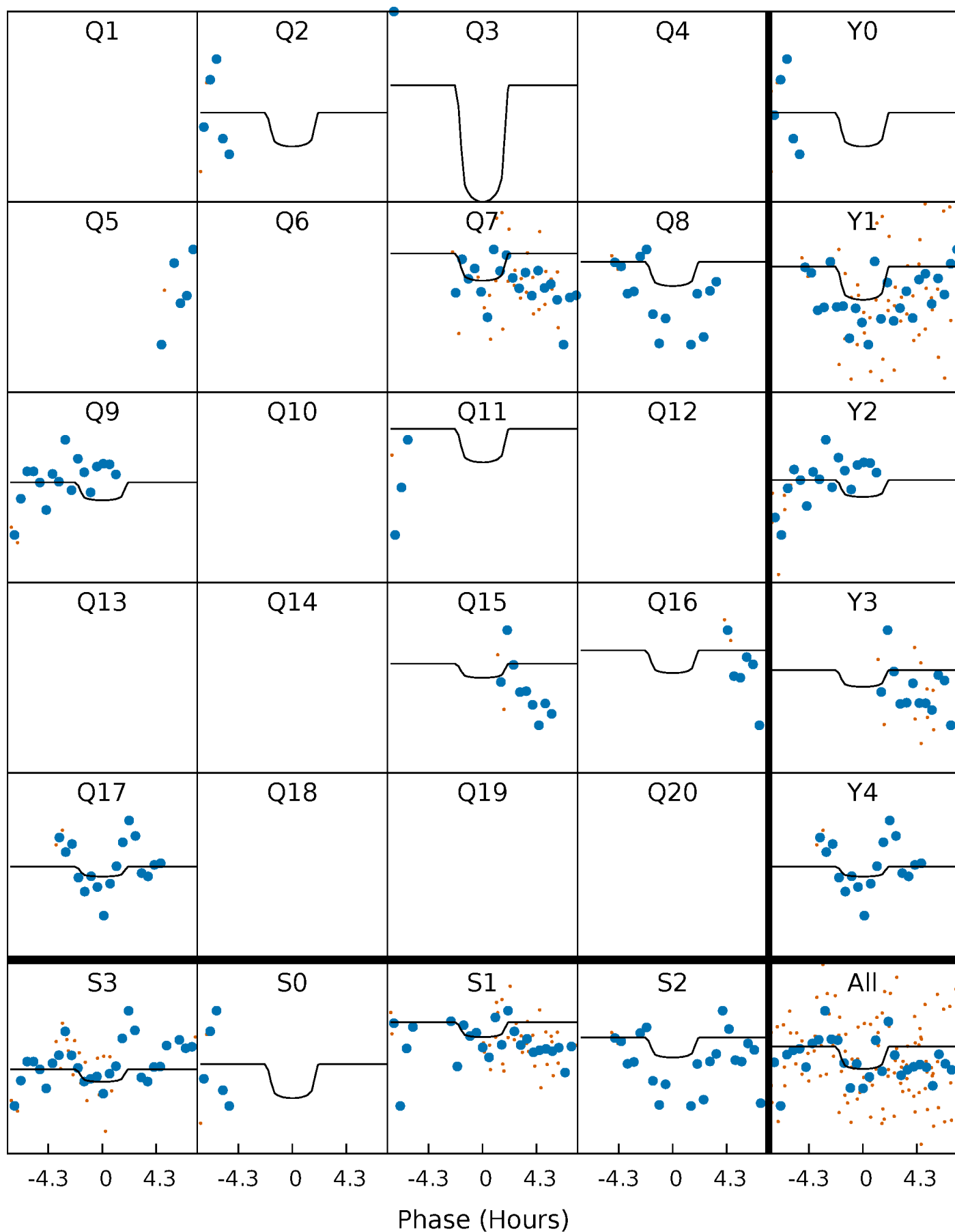
PDC Quarter-Phased Transit Curves

TCE 005374279-03 P= 73.335563 Days $T_0=195.530354$ (BKJD)



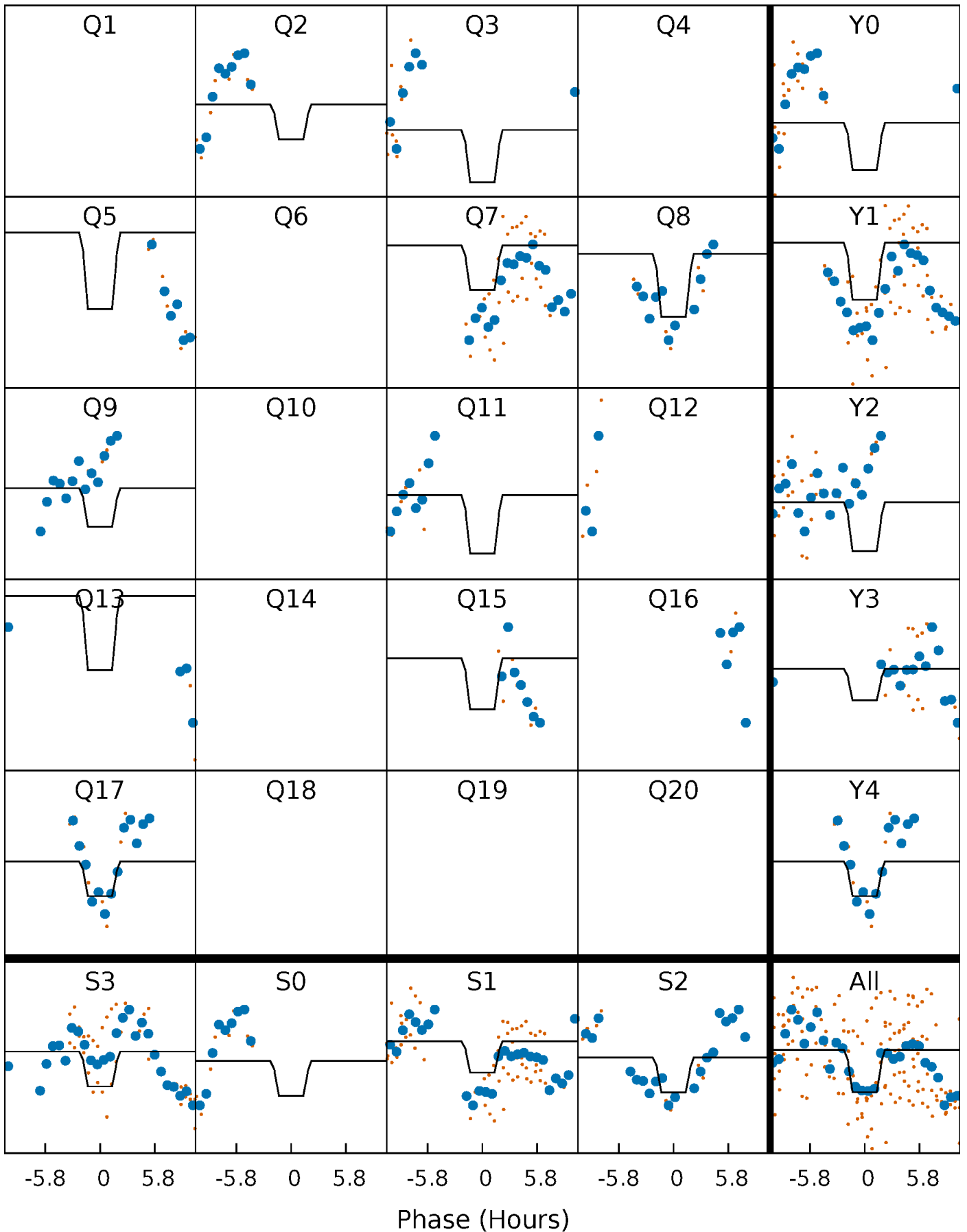
DV Quarter-Phased Transit Curves

TCE 005374279-03 P= 73.335563 Days $T_0=195.530354$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

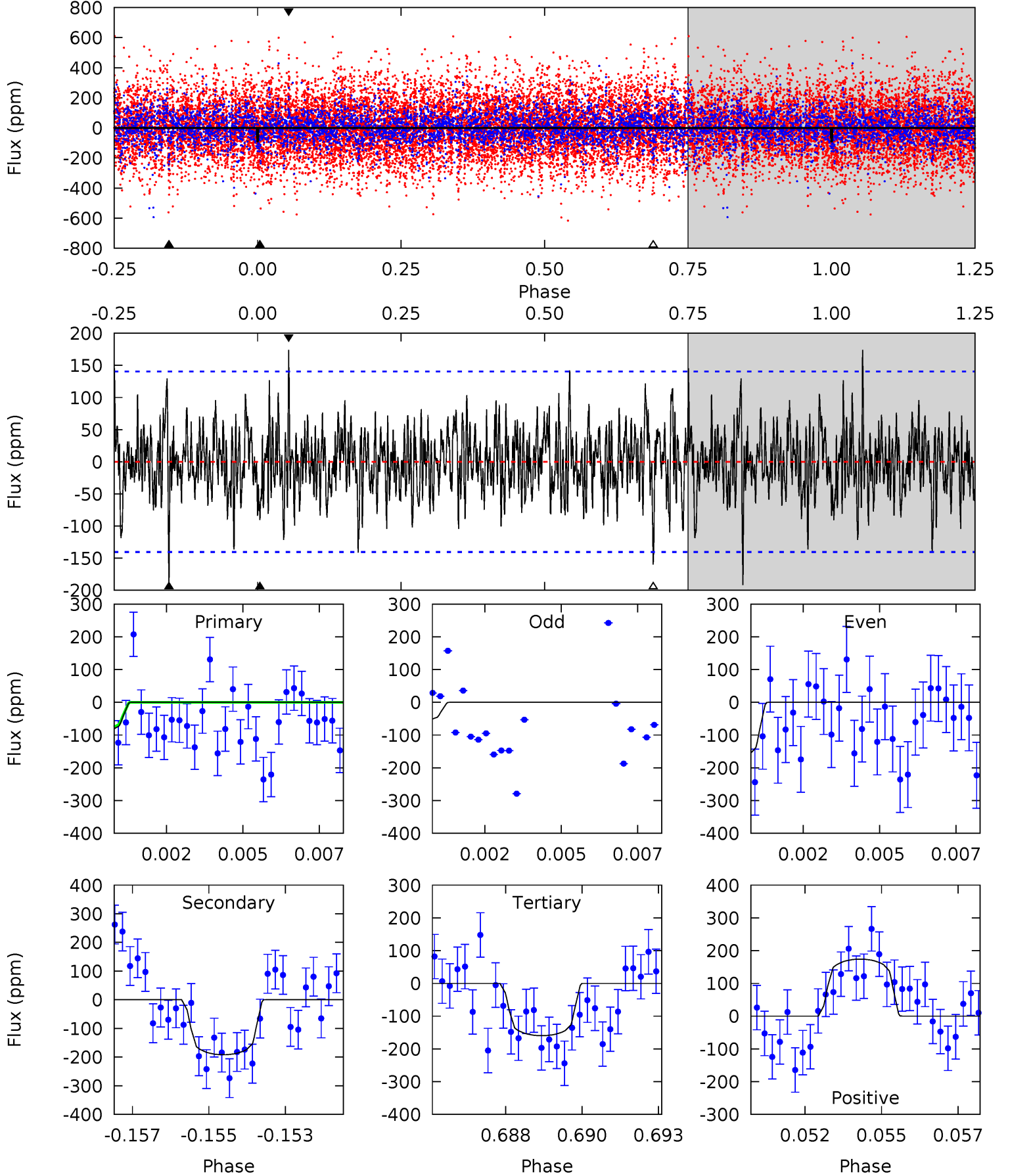
TCE 005374279-03 P= 73.336125 Days $T_0=195.500023$ (BKJD)



DV Model-Shift Uniqueness Test

005374279-03, P = 73.335563 Days, E = 122.194791 Days

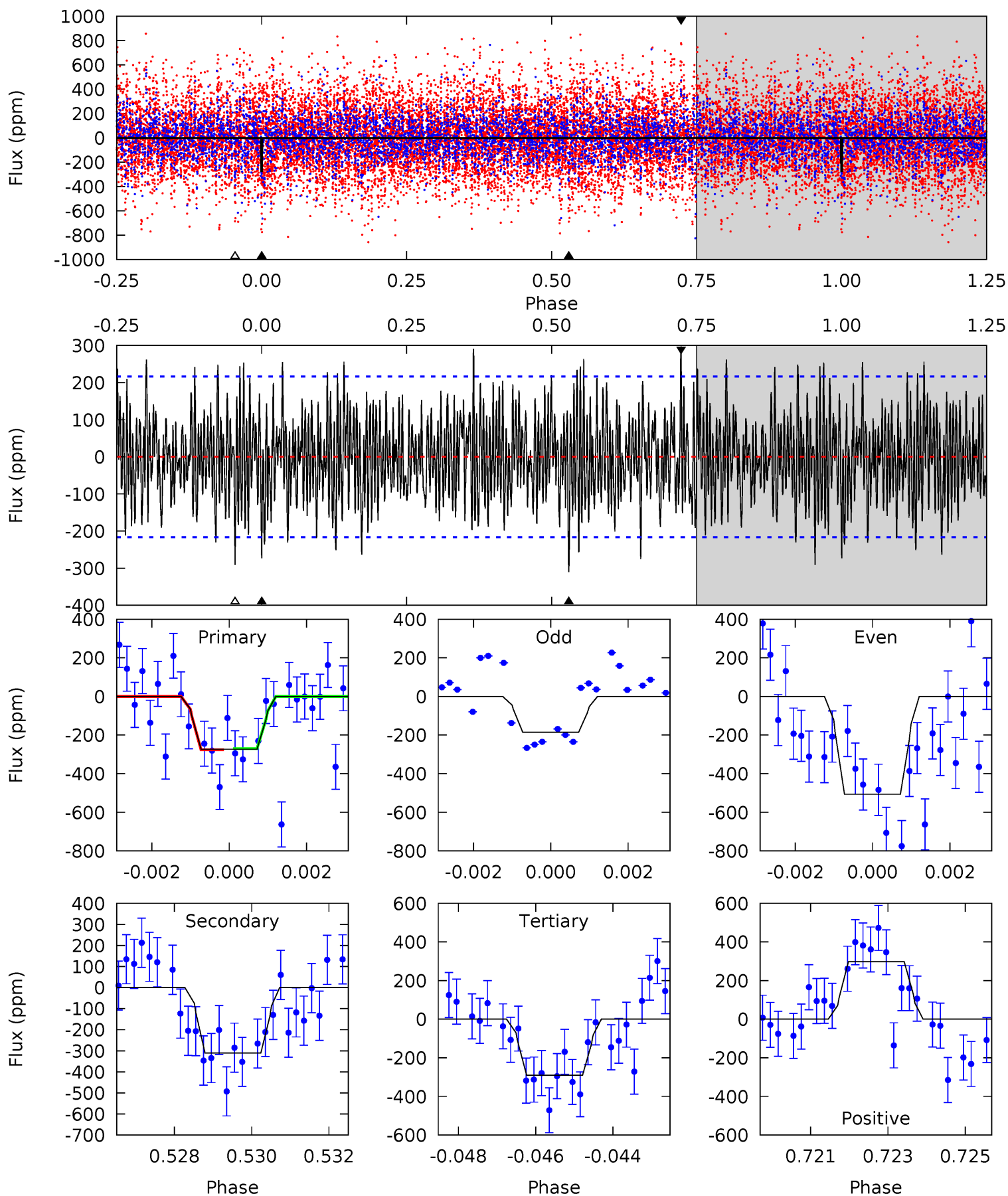
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.42	7.24	6.03	6.57	5.30	3.05	1.62	-2.60	-3.15	1.21	0.67	2.06	0.99	0.48	0.24



Alt Model-Shift Uniqueness Test

005374279-03, P = 73.336125 Days, E = 122.163898 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.72	7.63	7.15	7.30	5.33	3.09	2.37	-0.43	-0.59	0.49	0.33	3.27	0.94	0.49	0.08



Stellar Parameters For KIC 005374279

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6804^{+170}_{-204}	$3.475^{+0.382}_{-0.090}$	$-0.320^{+0.350}_{-0.250}$	$4.085^{+0.540}_{-1.621}$	$1.816^{+0.141}_{-0.395}$	$0.038^{+0.110}_{-0.011}$
	+2%/-3%	+11%/-3%	+109%/-78%	+13%/-40%	+8%/-22%	+292%/-29%
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 005374279-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-192 ± 26	$6.78^{+6.77}_{-4.66}$	1277^{+78}_{-132}	6215^{+5990}_{-1725}	397^{+3700}_{-302}
Alt.	-310 ± 41	$8.67^{+7.32}_{-5.54}$	1275^{+82}_{-153}	6083^{+5467}_{-1413}	392^{+2536}_{-280}

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

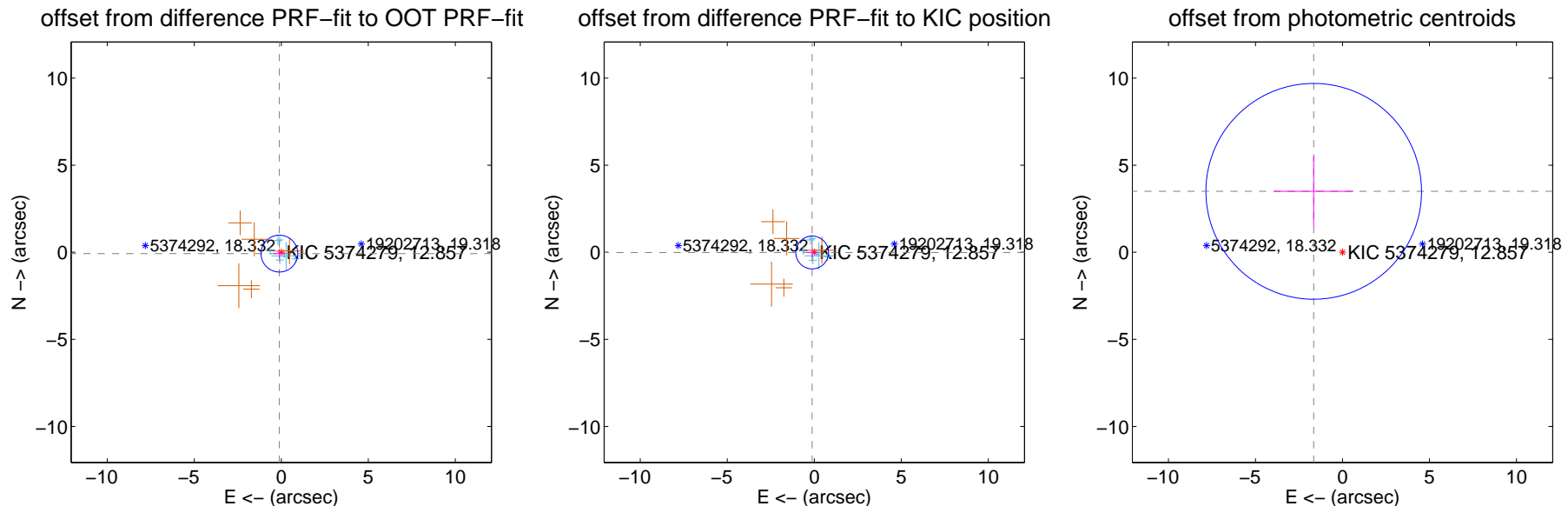
DV Centroid Data

Supplemental centroid analysis for 005374279-03. Kepler magnitude: 12.86. Transit SNR 2.51

There are 7 quarters with good PRF difference image offsets

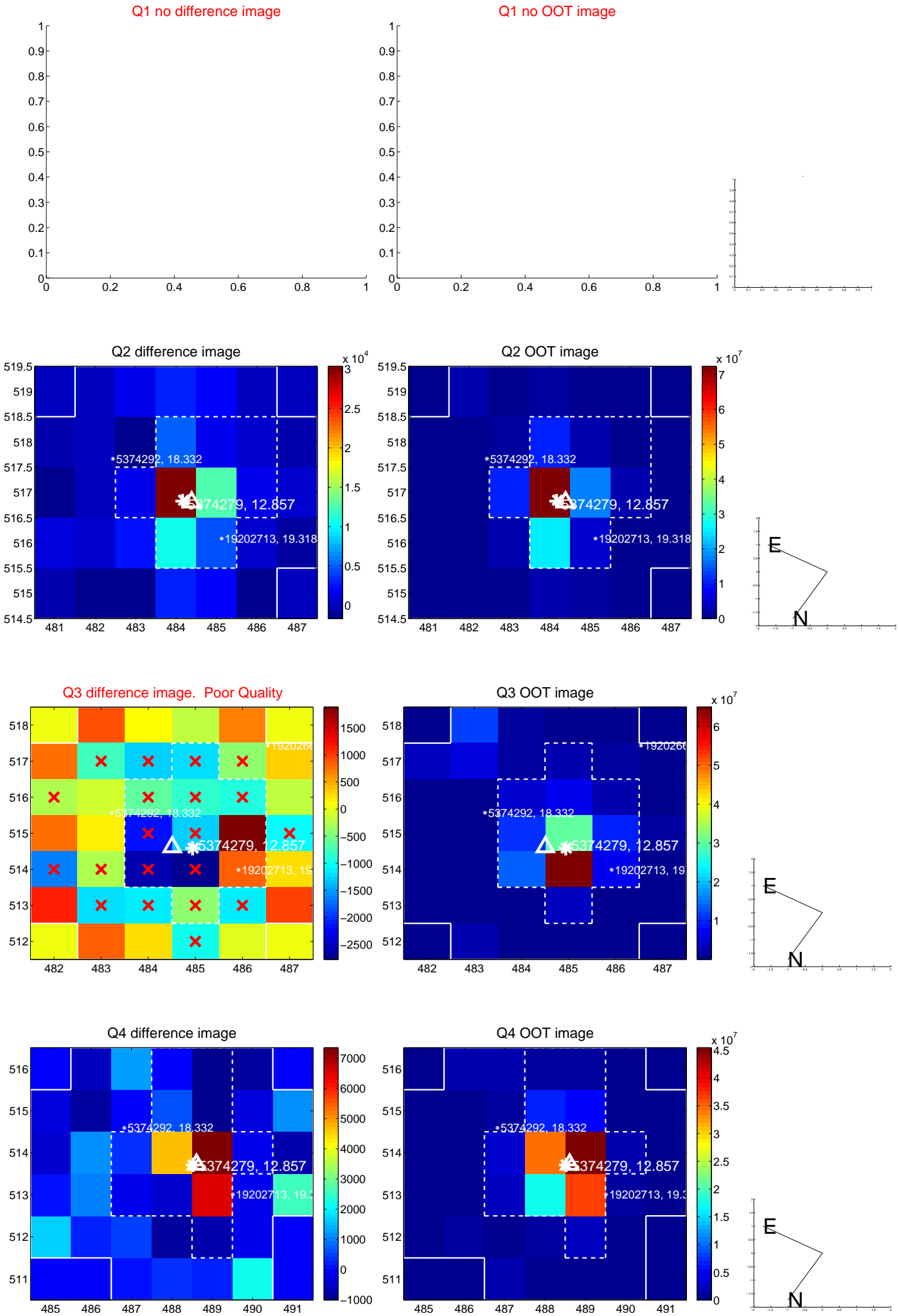
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.133 ± 0.353	0.38	0.109 ± 0.341	-0.075 ± 0.279
PRF-fit source offset from KIC position	0.122 ± 0.314	0.39	0.122 ± 0.311	-0.013 ± 0.300
photometric centroid source offset	3.87 ± 2.06	1.87	1.65 ± 2.28	3.50 ± 2.01

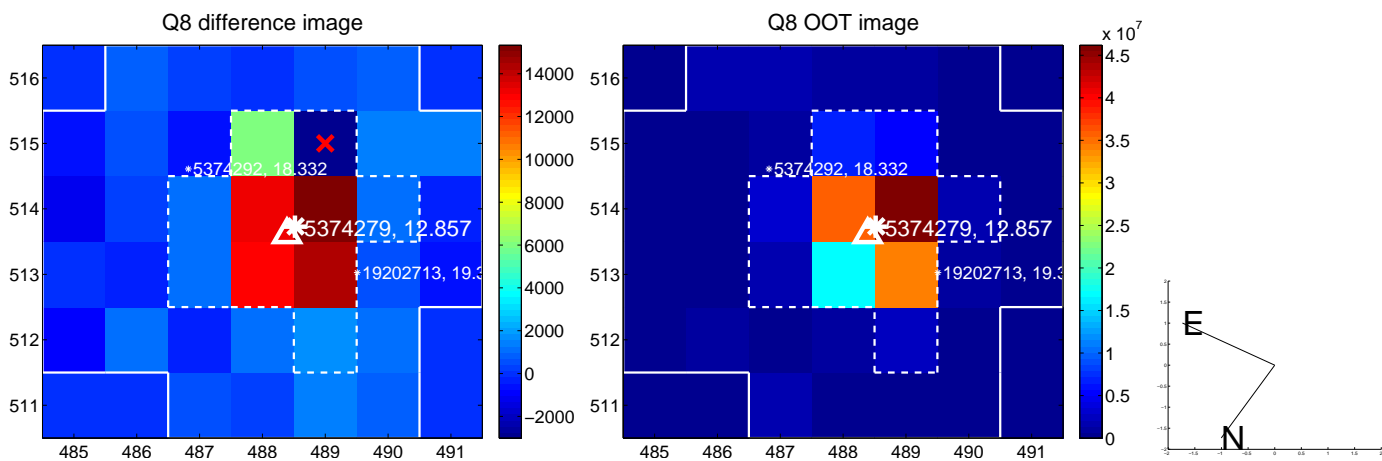
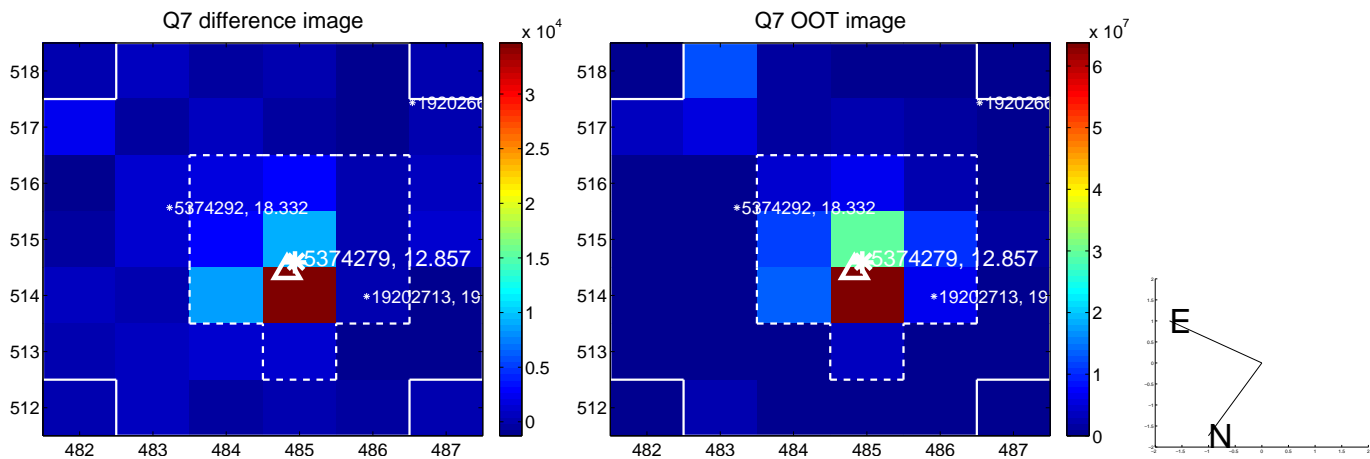
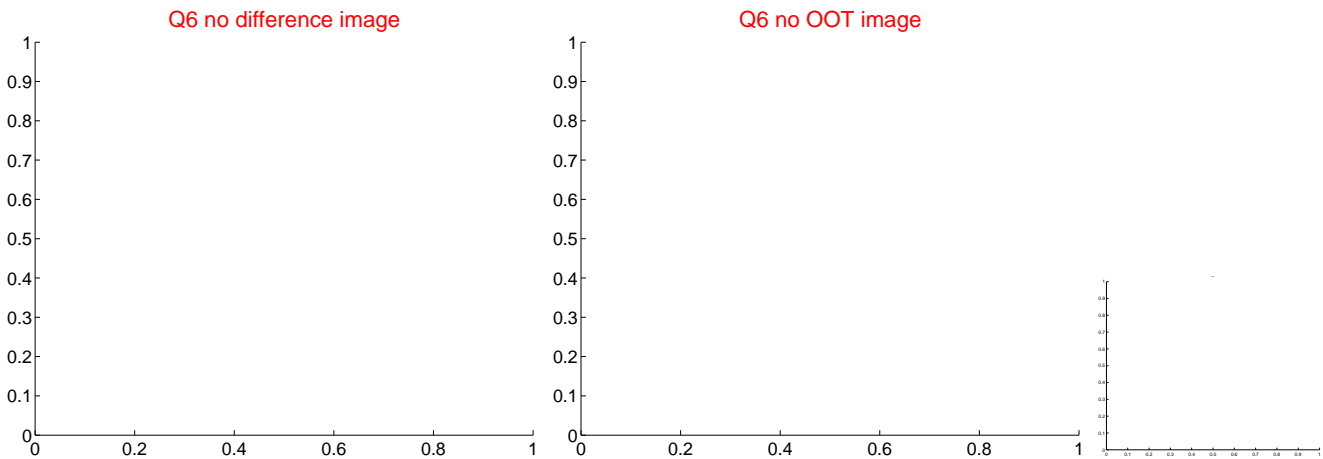
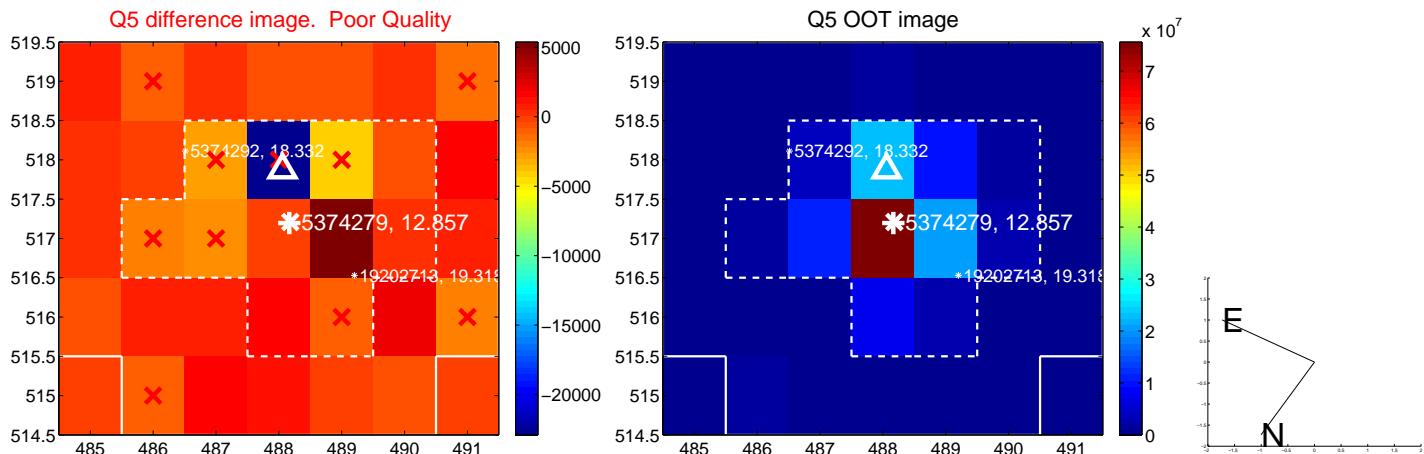


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

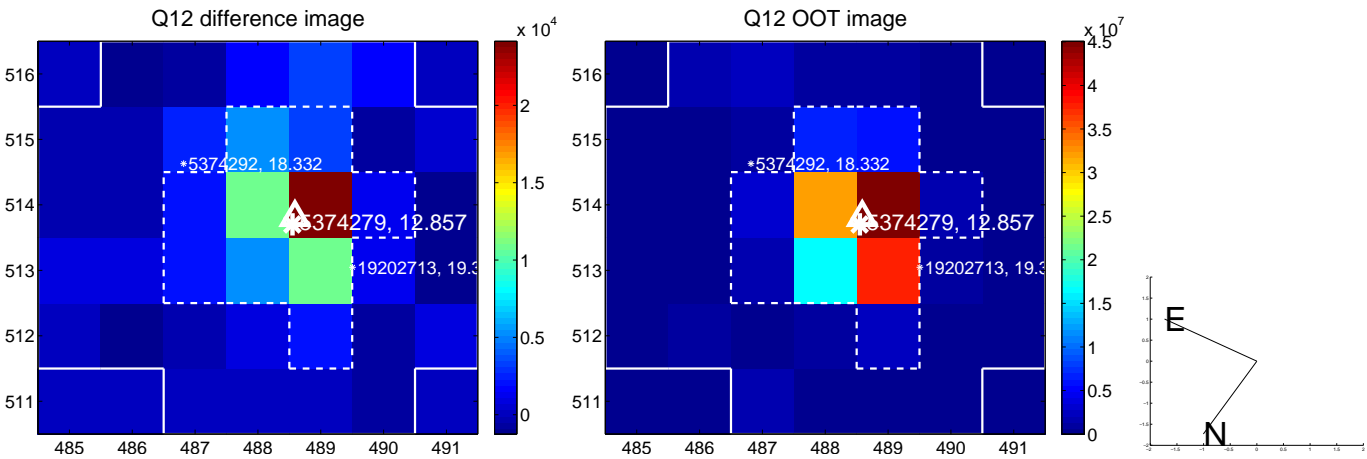
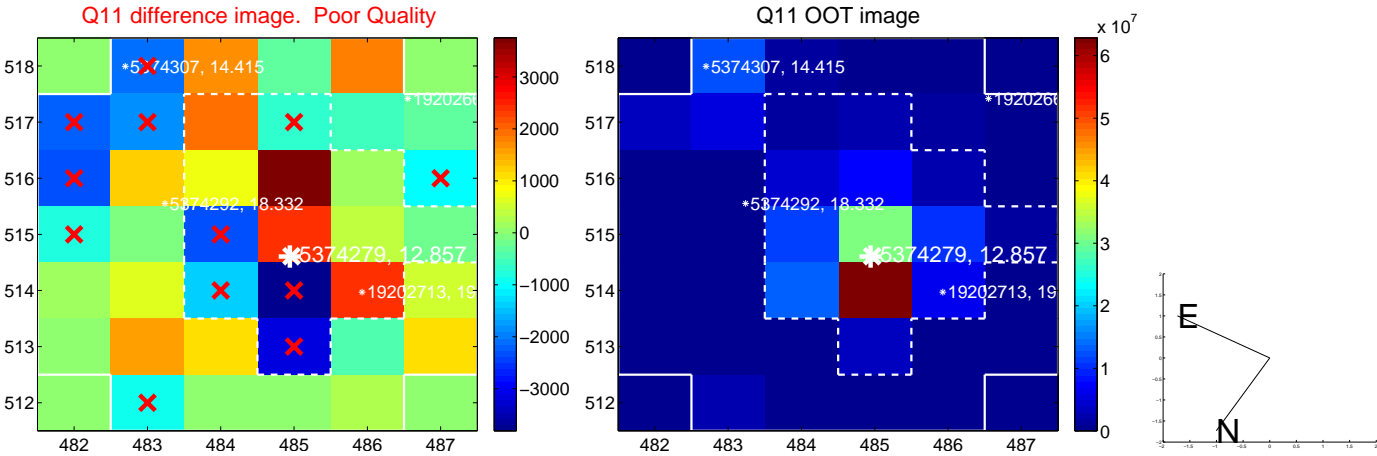
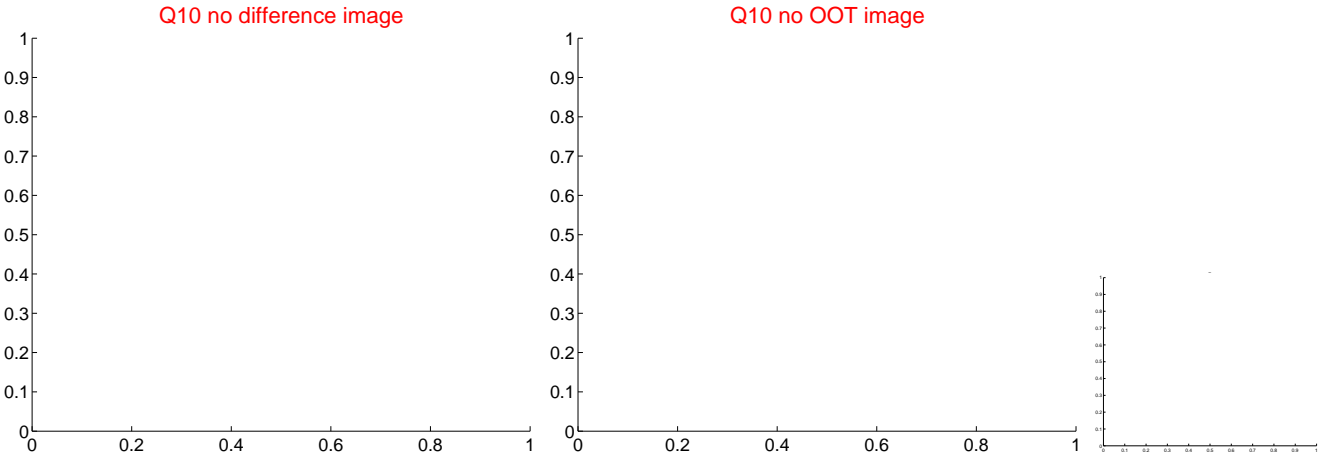
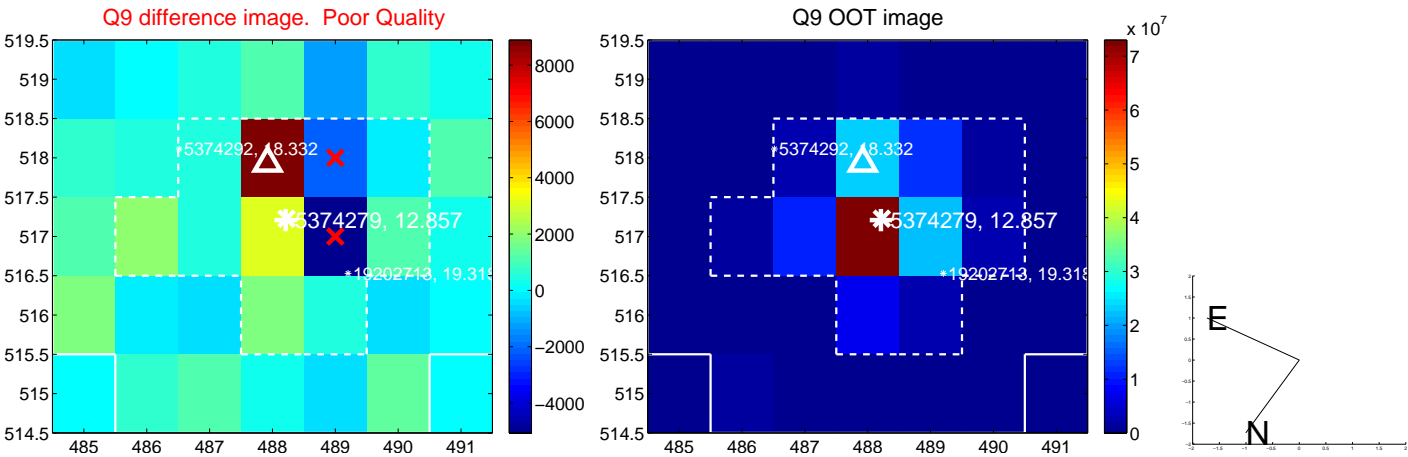
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



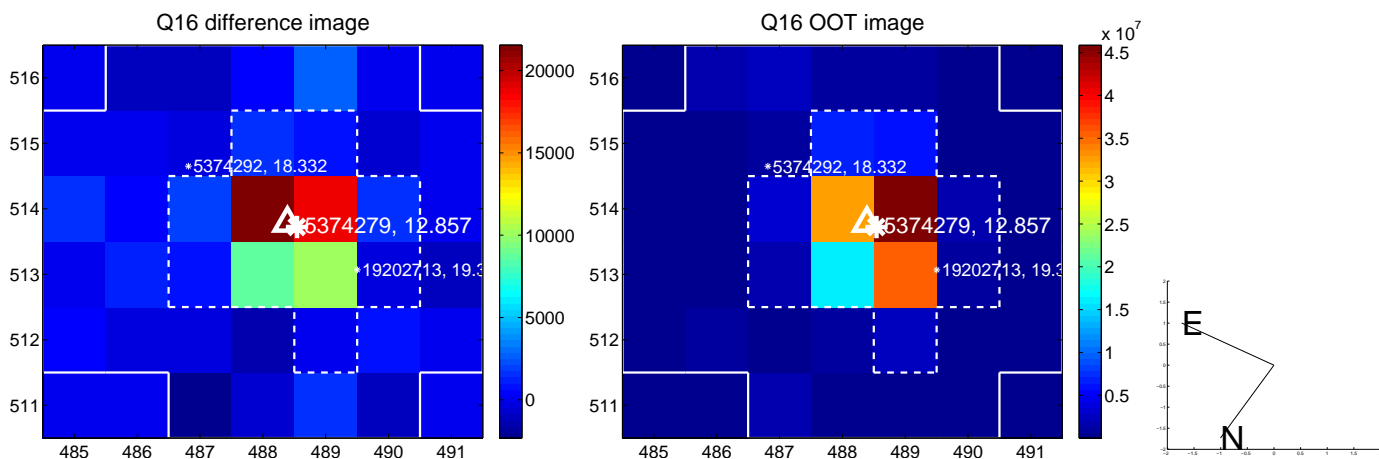
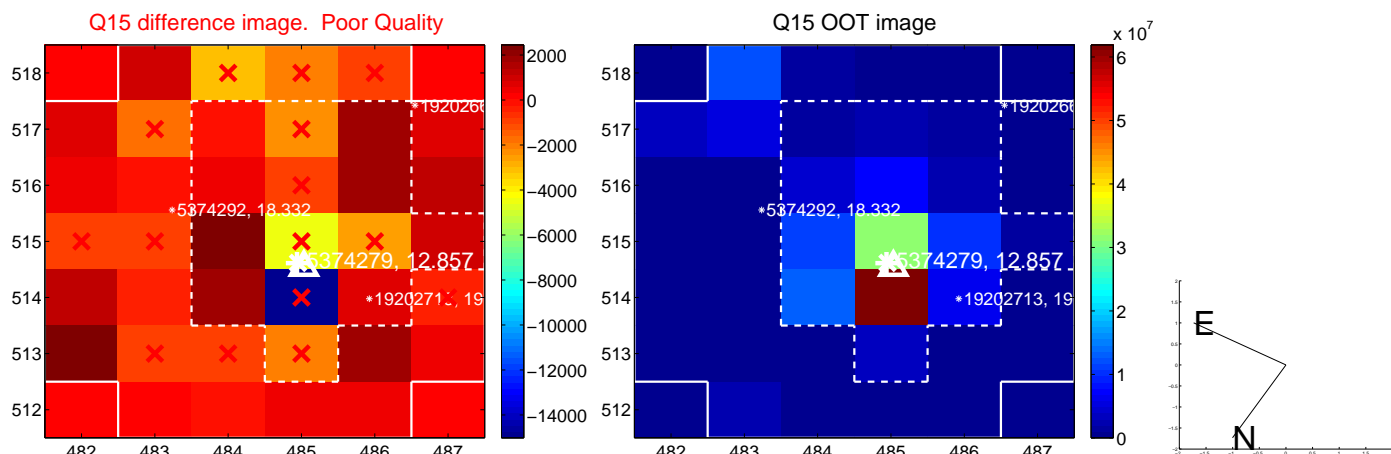
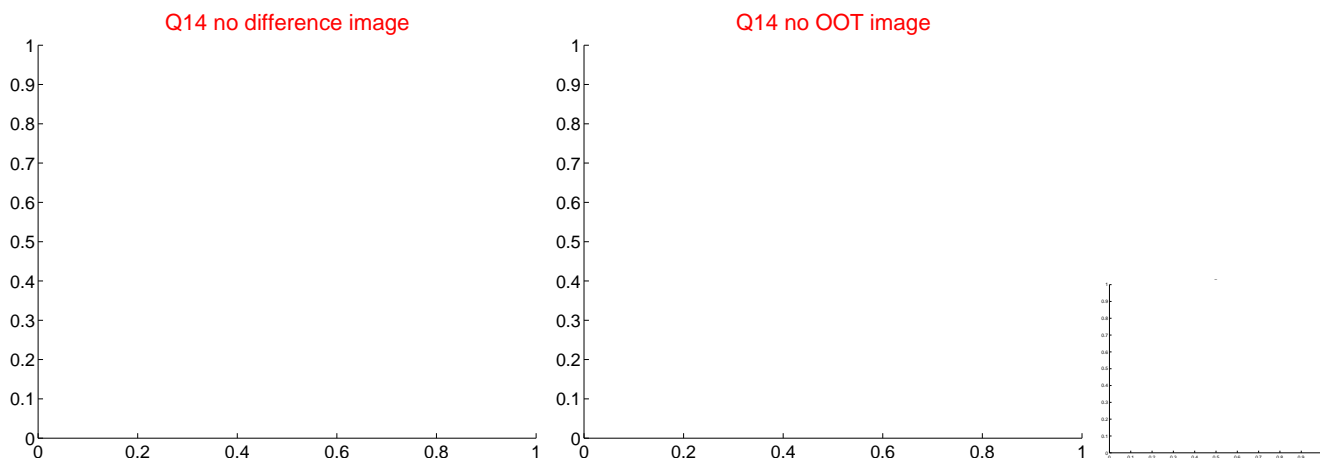
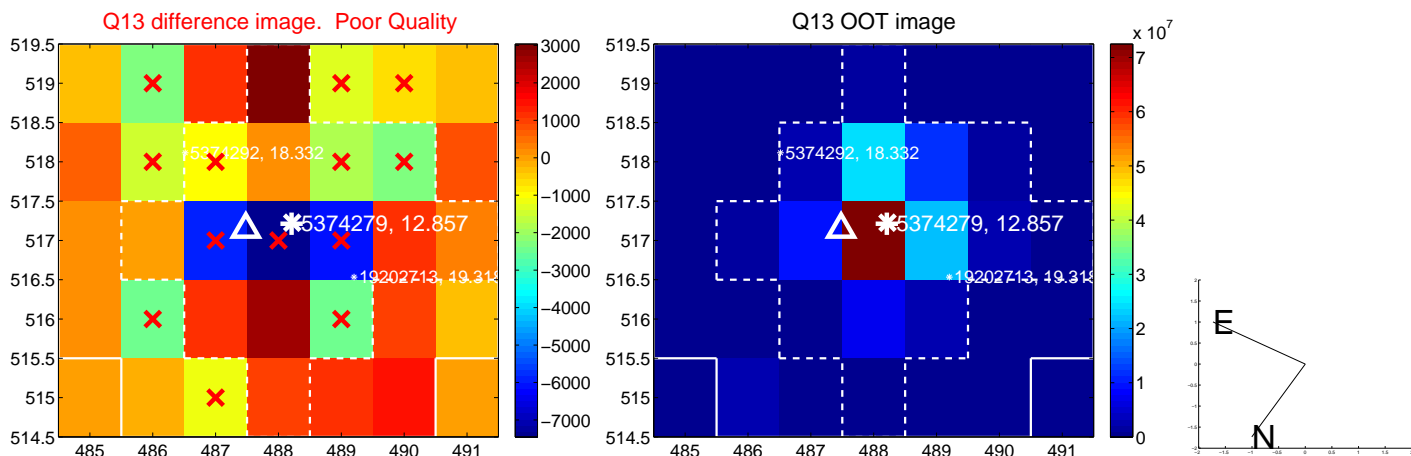
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



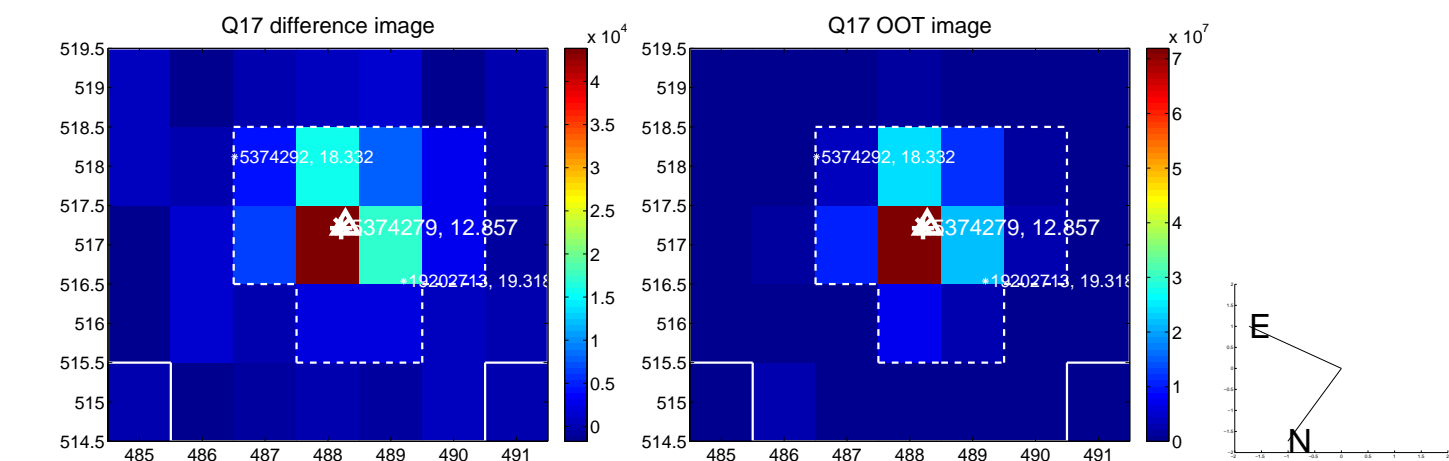
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



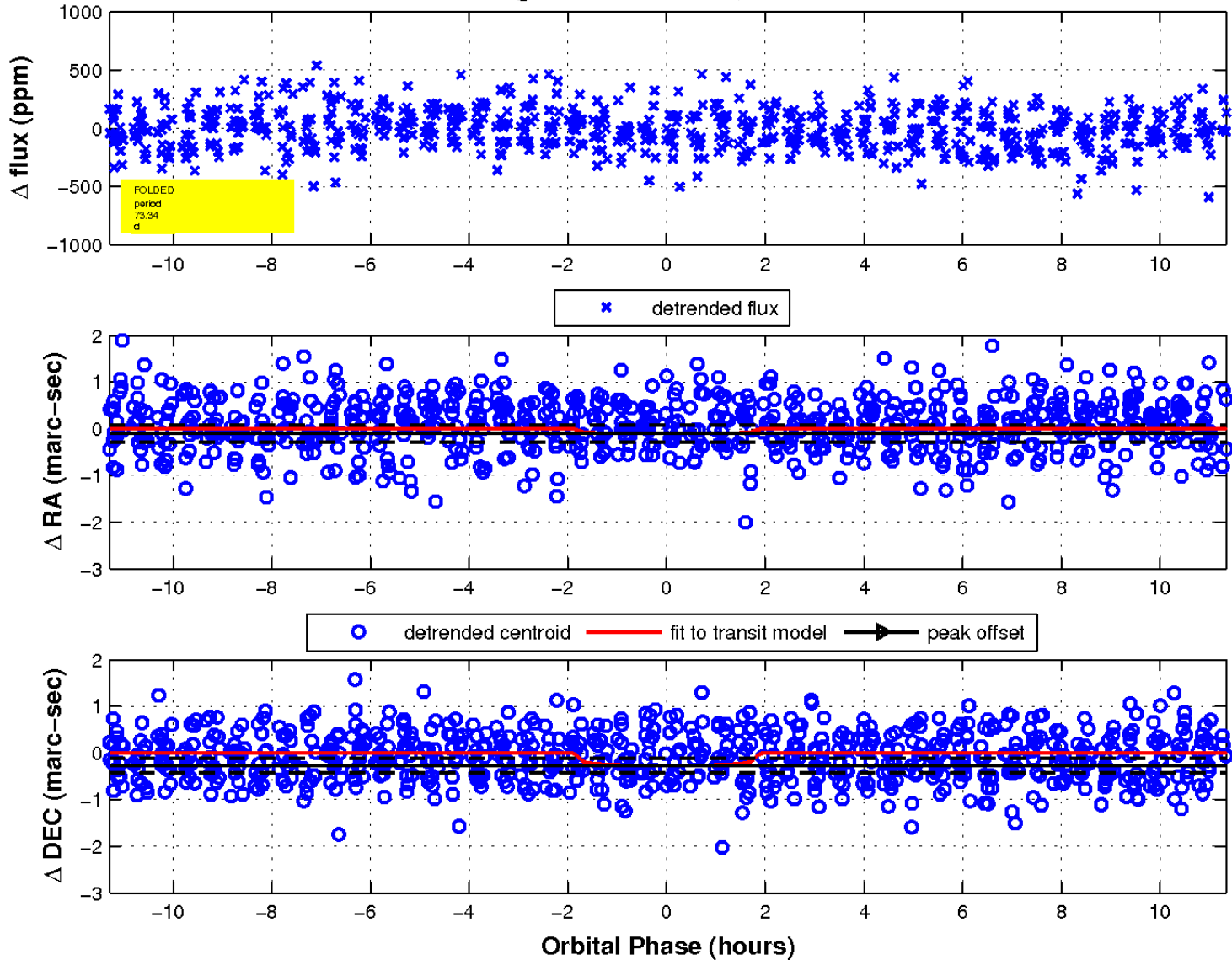
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

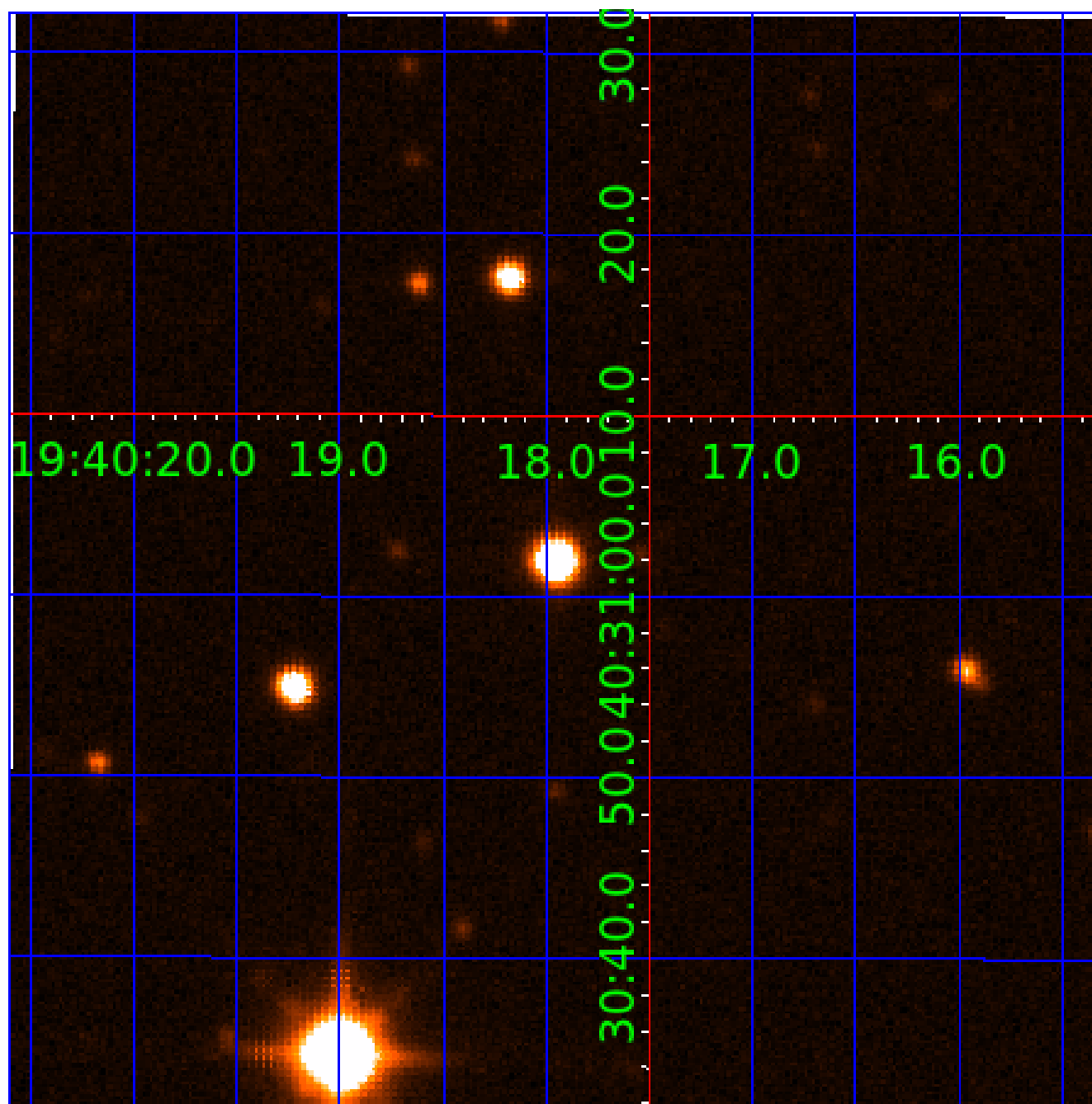


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 005374279

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})
005374279-01	OBS	No	1.144313	131.646704	0.0	5.963	9.5	0.0	4.08	6804	0.01	46919.48
005374279-02	OBS	No	4.843223	135.110139	80.0	4.792	9.6	9.9	4.08	6804	4.25	6853.31
005374279-03	OBS	No	73.335563	195.530354	78.5	3.783	7.6	2.5	4.08	6804	4.23	182.95
005374279-04	OBS	No	102.162867	229.135057	250.8	3.518	8.1	8.1	4.08	6804	7.54	117.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005374279-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT
005374279-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005374279-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005374279-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

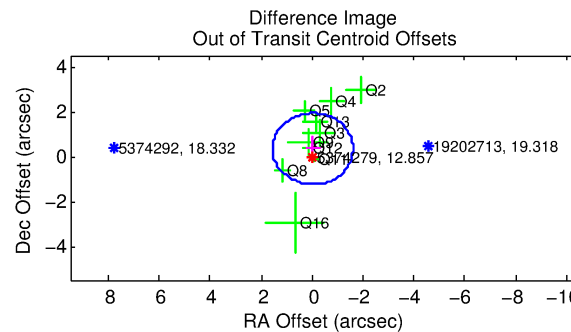
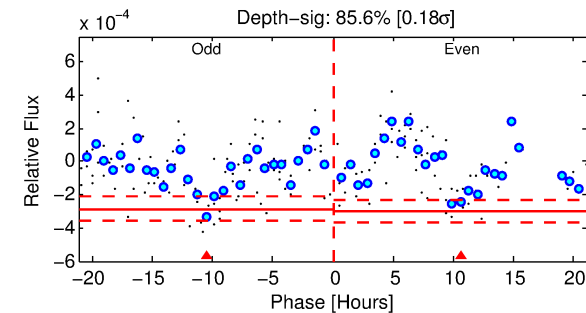
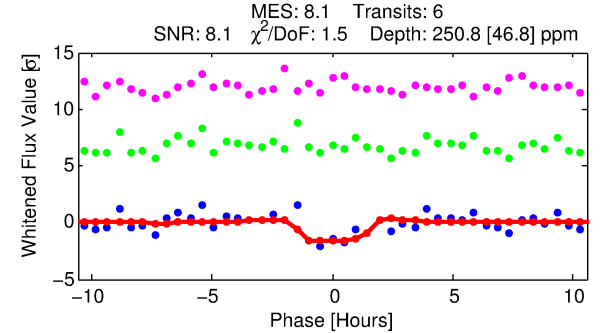
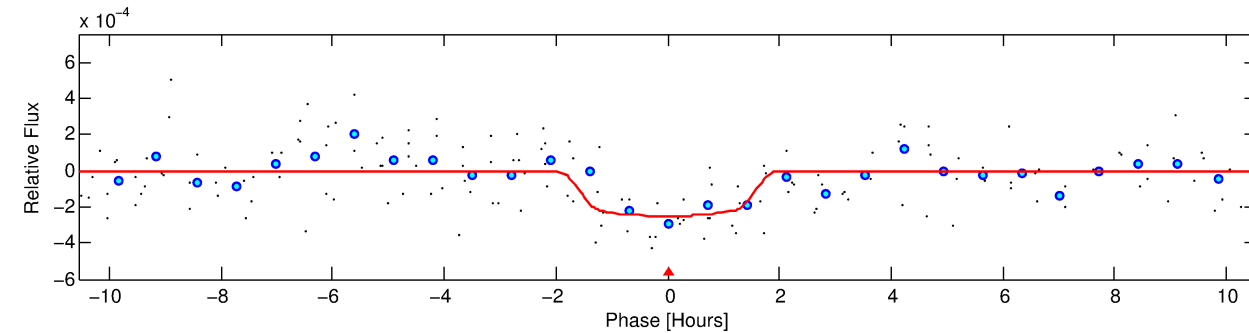
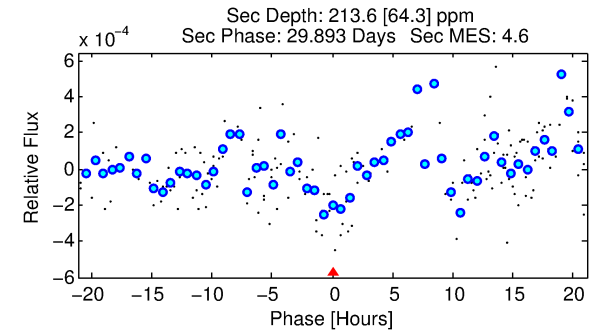
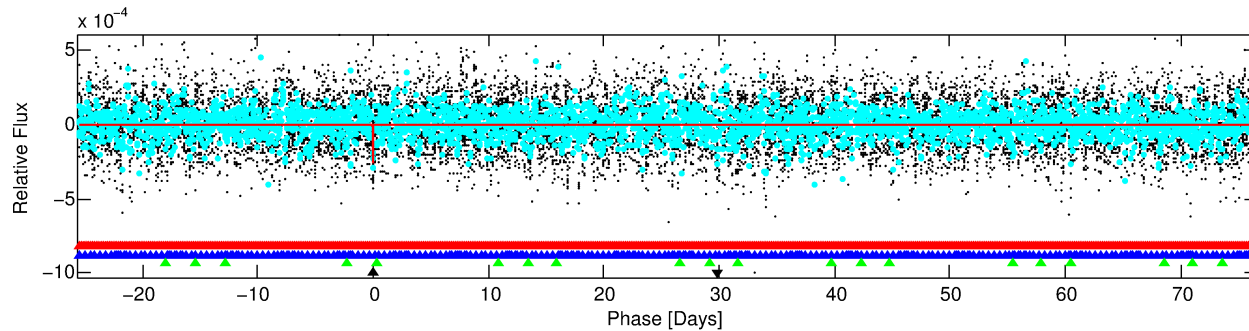
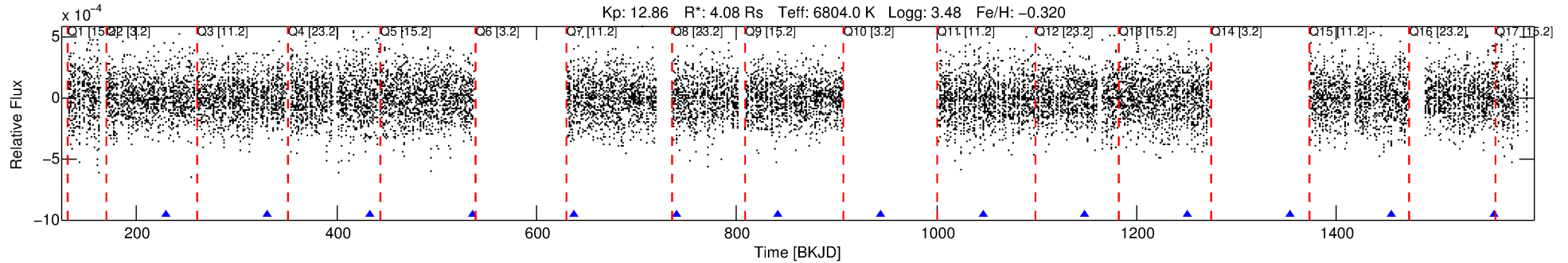
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005374279-04

No Significant Match Found

DV One-Page Summary

KIC: 5374279 Candidate: 4 of 4 Period: 102.163 d



DV Fit Results:

Period = 102.16287 [0.00135] d
Epoch = 229.1351 [0.0093] BKJD
Rp/R* = 0.0169 [0.0110]
a/R* = 104.35 [393.68]
b = 0.90 [0.80]
Seff = 117.59 [76.95]
Teq = 840 [137] K
Rp = 7.54 [5.73] Re
a = 0.5220 [0.2061] AU
Ag = 563.97 [833.44] [0.68σ]
Teffp = 6327 [2113] K [2.59σ]

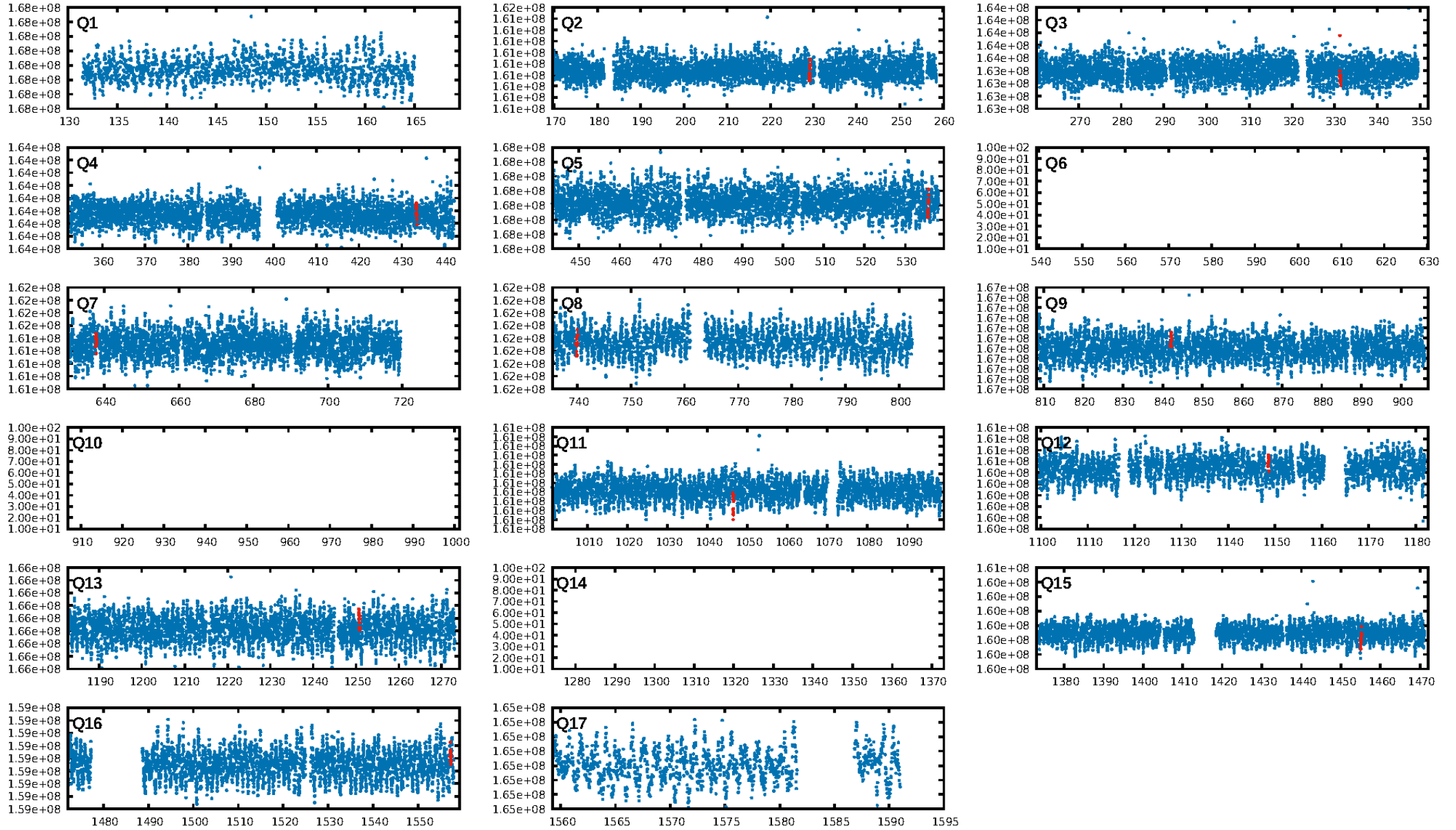
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [133.92σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 32.3%
ModelChiSquareGof-sig: 89.4%
Bootstrap-pfa: 1.84e-09
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 0.3263
Centroid-sig: 29.4%
Centroid-so: 1.040 arcsec [1.27σ]
OotOffset-rm: 0.338 arcsec [0.64σ]
KicOffset-rm: 0.385 arcsec [0.83σ]
OotOffset-st: 1/2/4/3 [10]
KicOffset-st: 1/2/4/3 [10]
DiffImageQuality-fgm: 0.60 [6/10]
DiffImageOverlap-fno: 0.25 [3/12]

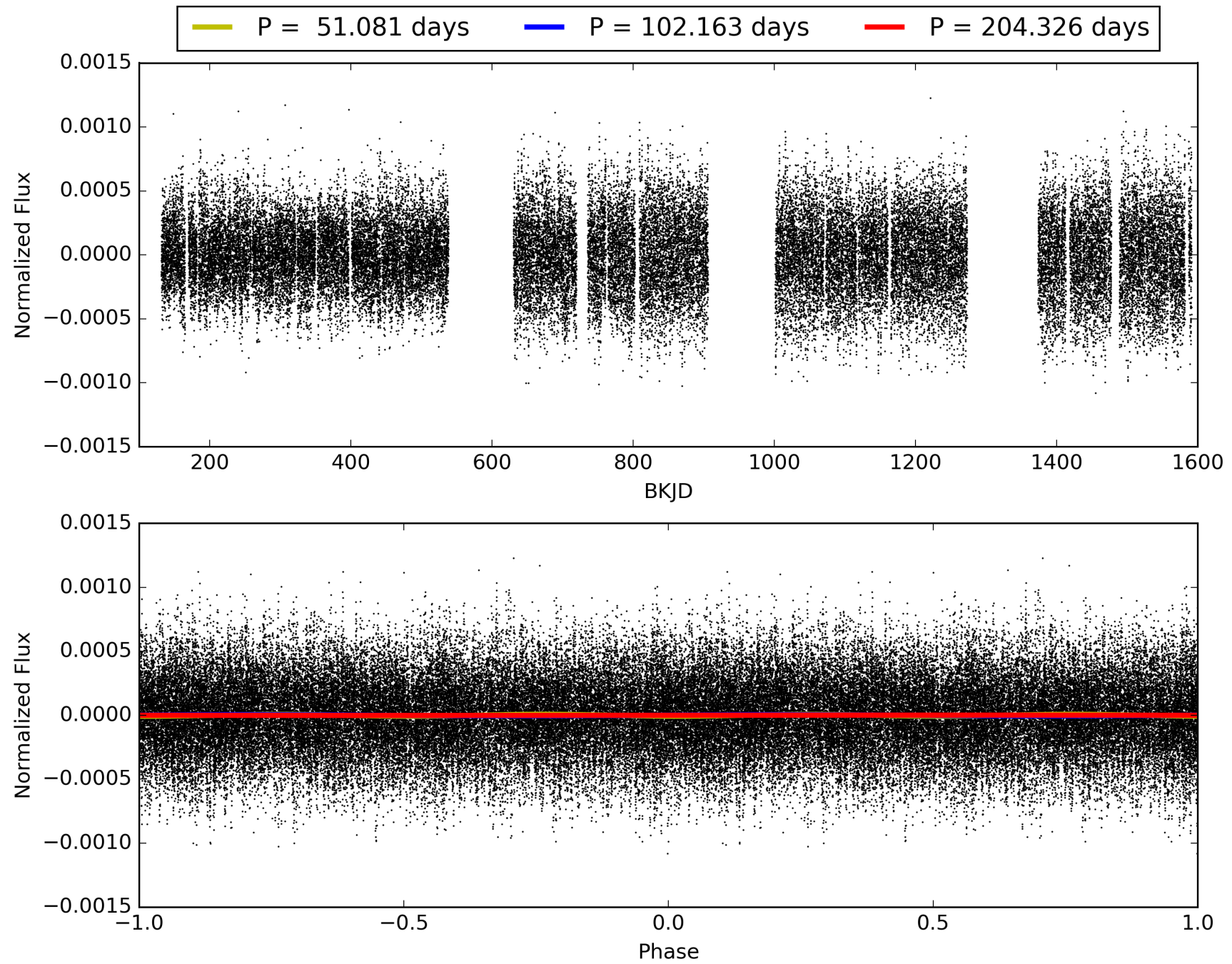
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:03:52 Z

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

TCE 005374279-04, PDC Light Curves

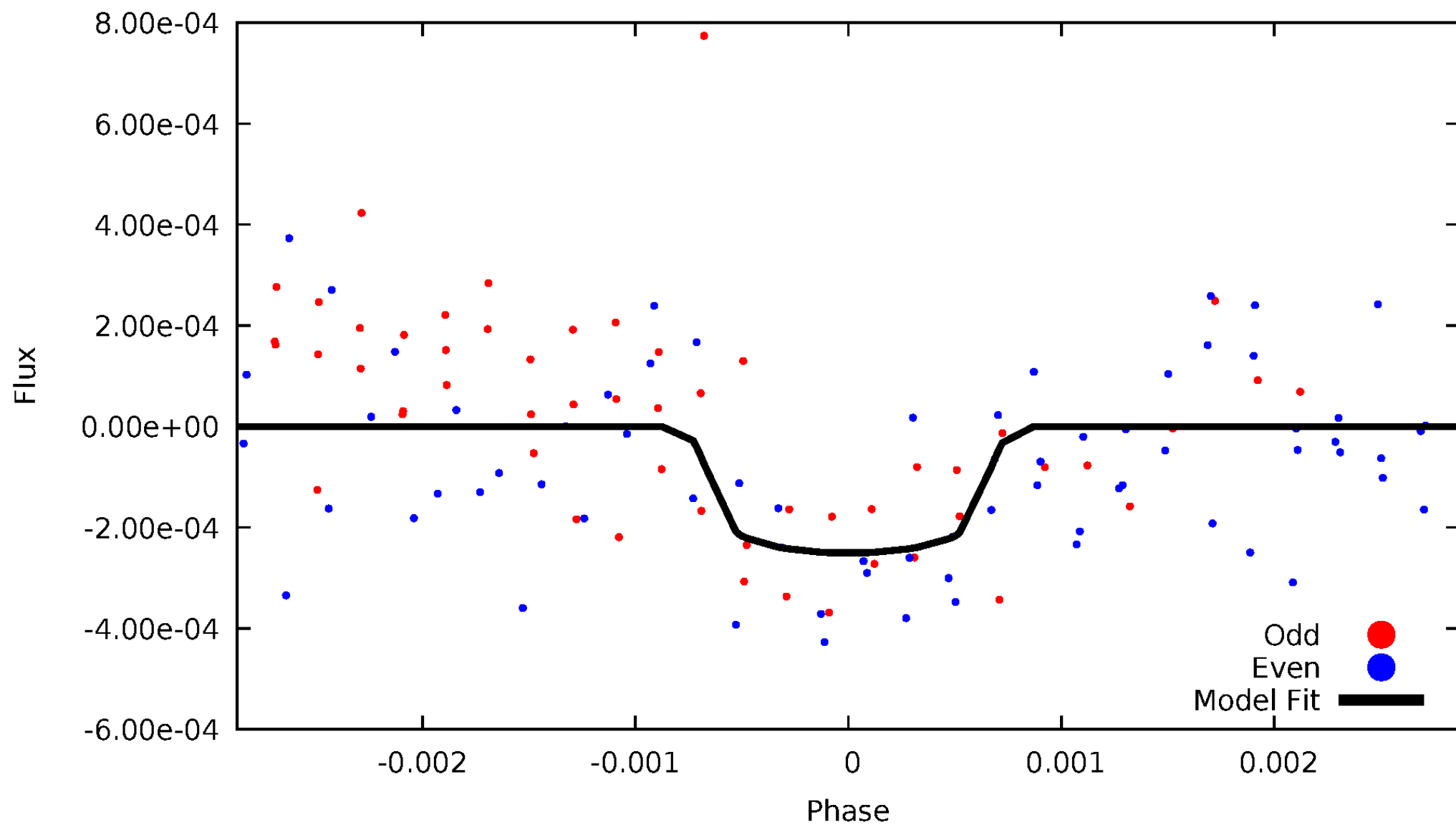


TCE 005374279-04



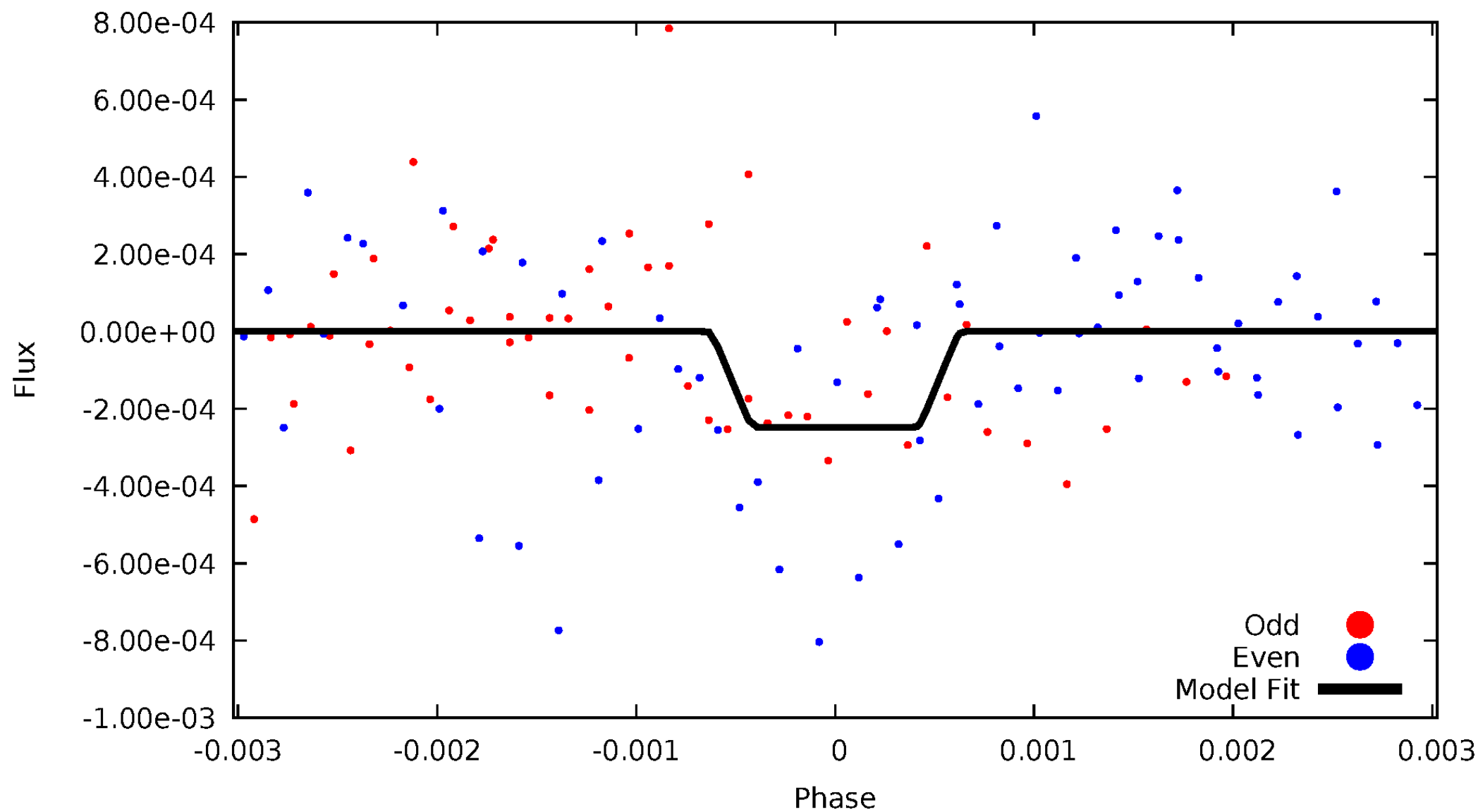
DV Odd/Even

TCE 005374279-04



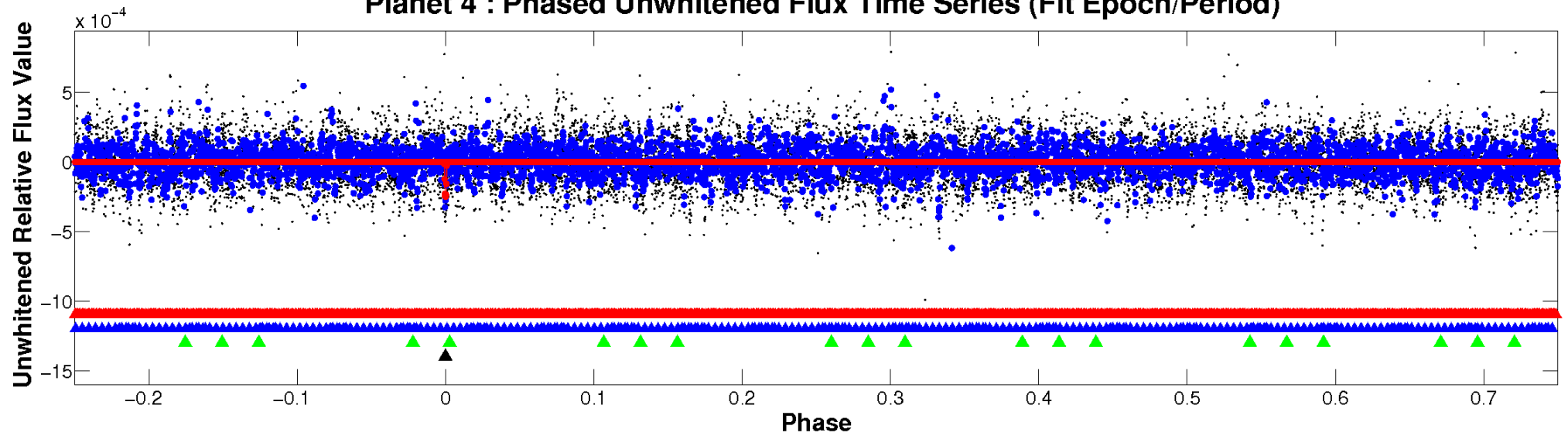
ALT Odd/Even

TCE 005374279-04

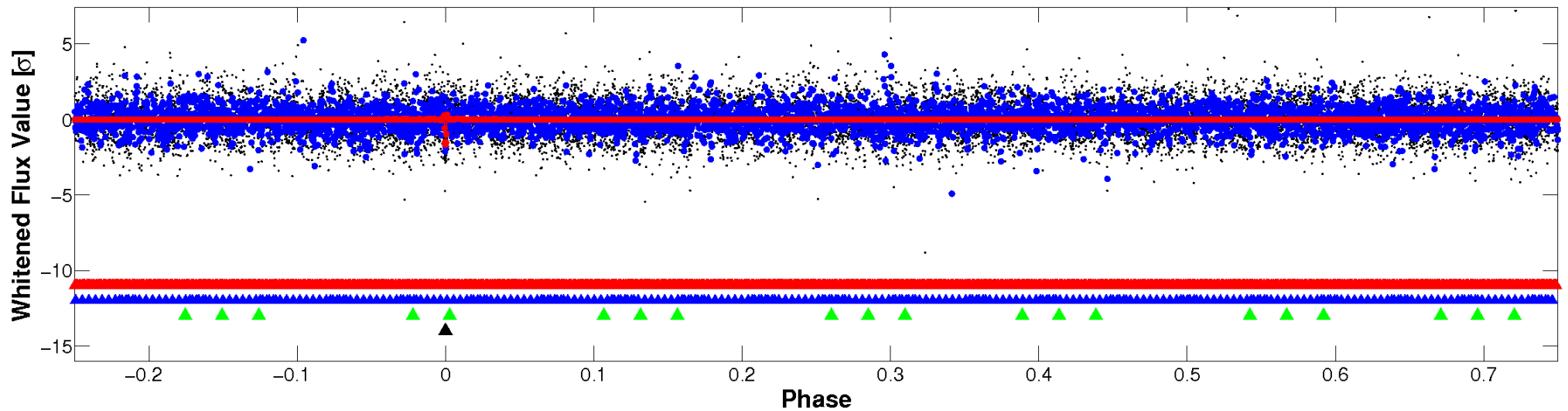


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

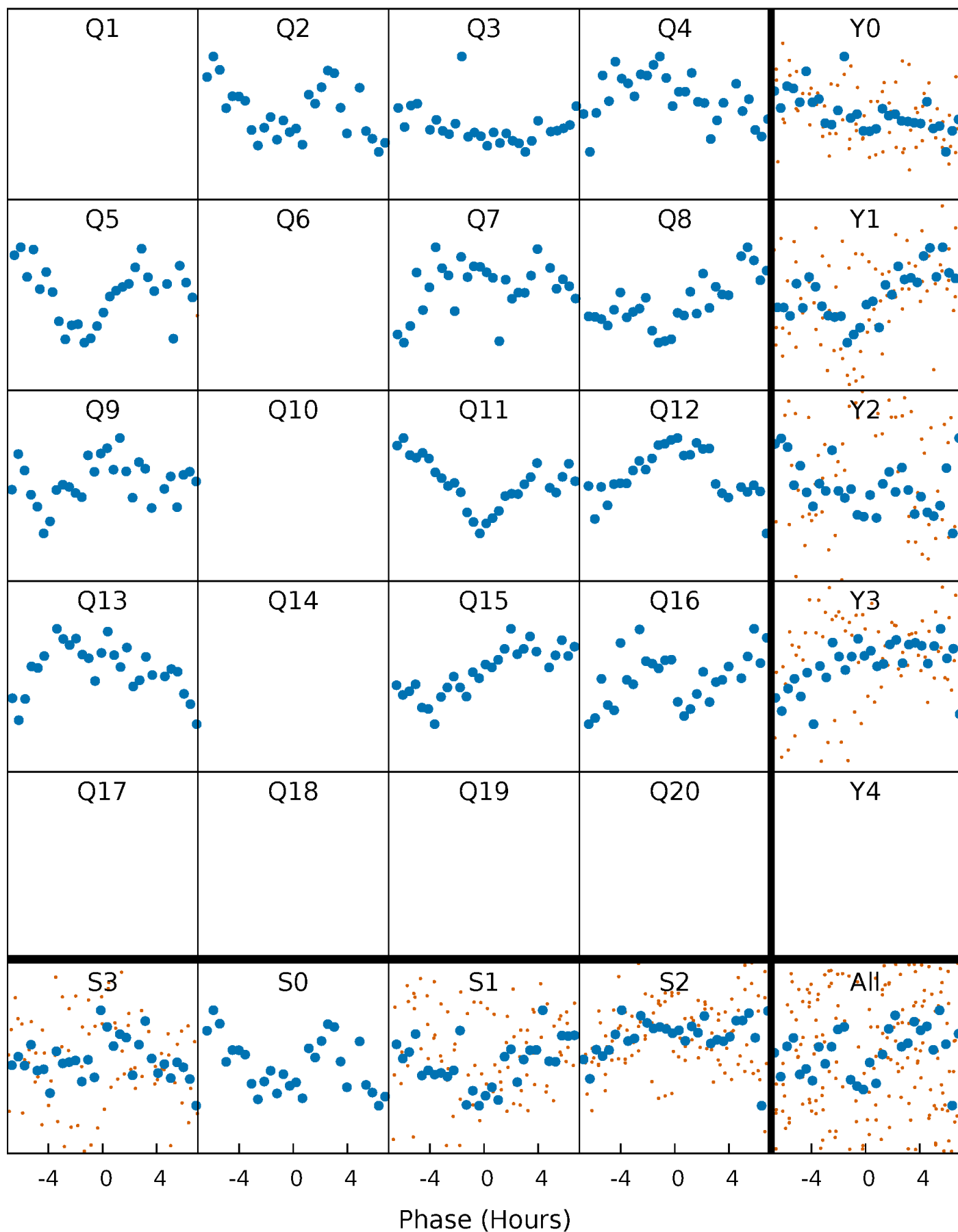


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



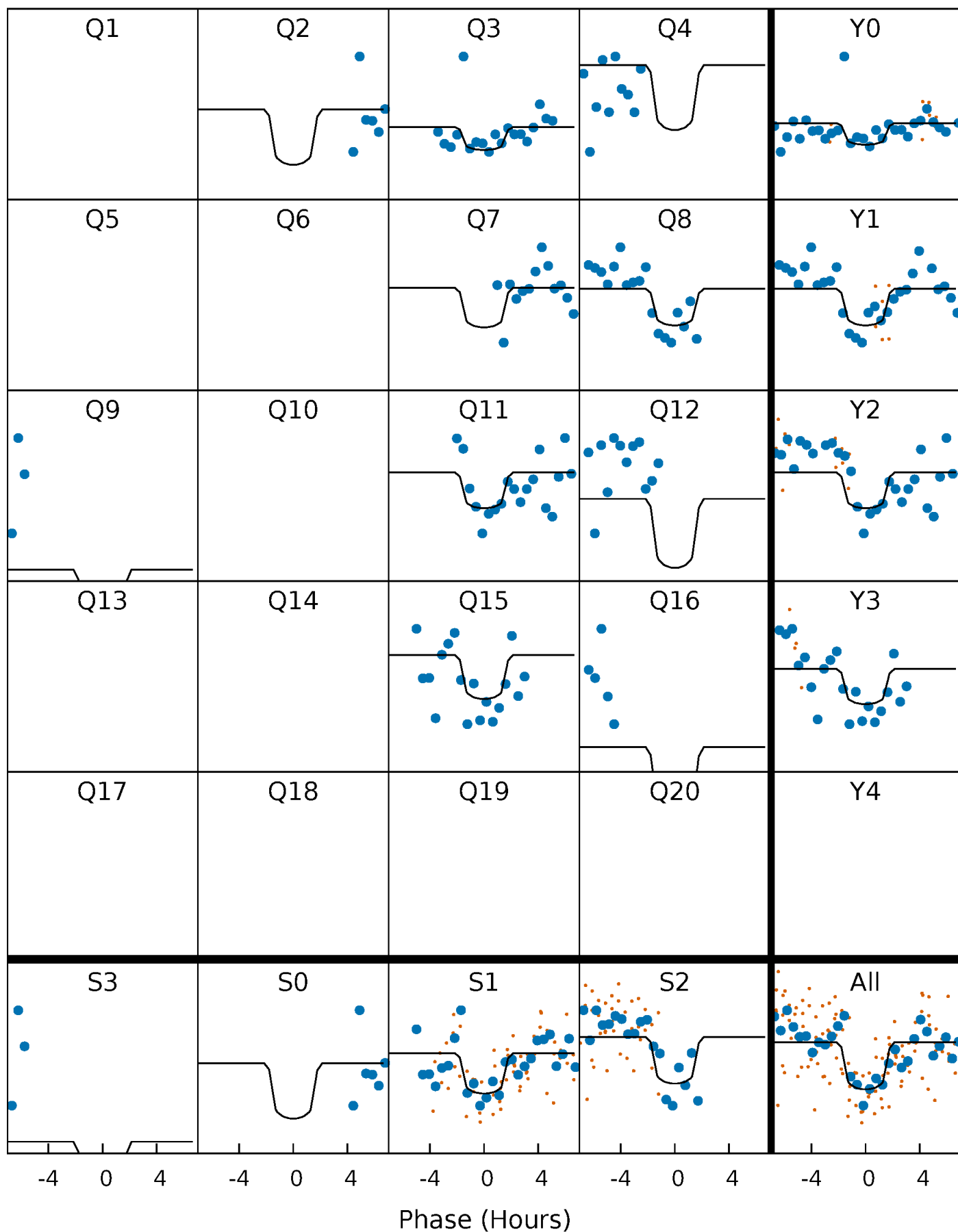
PDC Quarter-Phased Transit Curves

TCE 005374279-04 P=102.162867 Days $T_0=229.135057$ (BKJD)



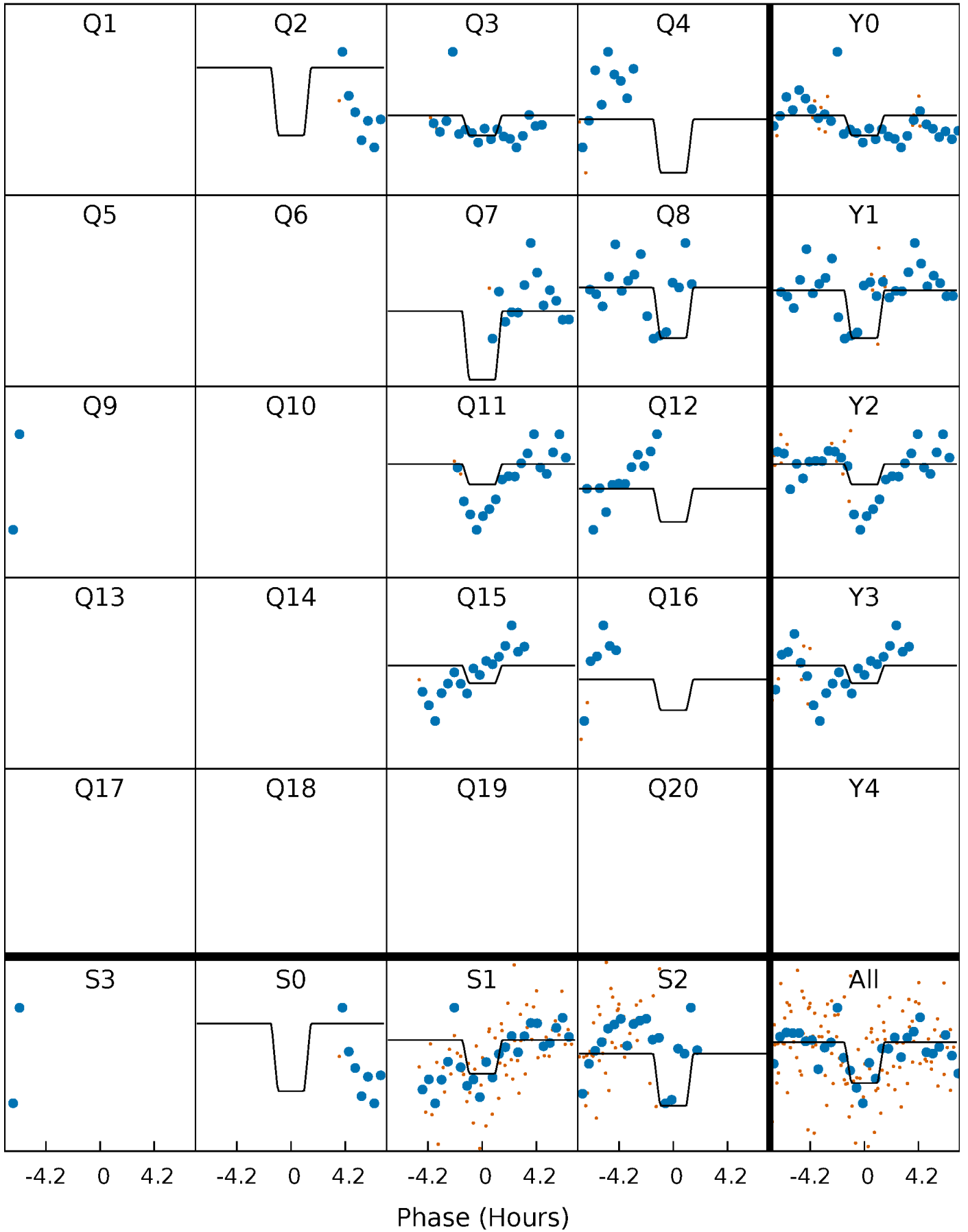
DV Quarter-Phased Transit Curves

TCE 005374279-04 P=102.162867 Days $T_0=229.135057$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

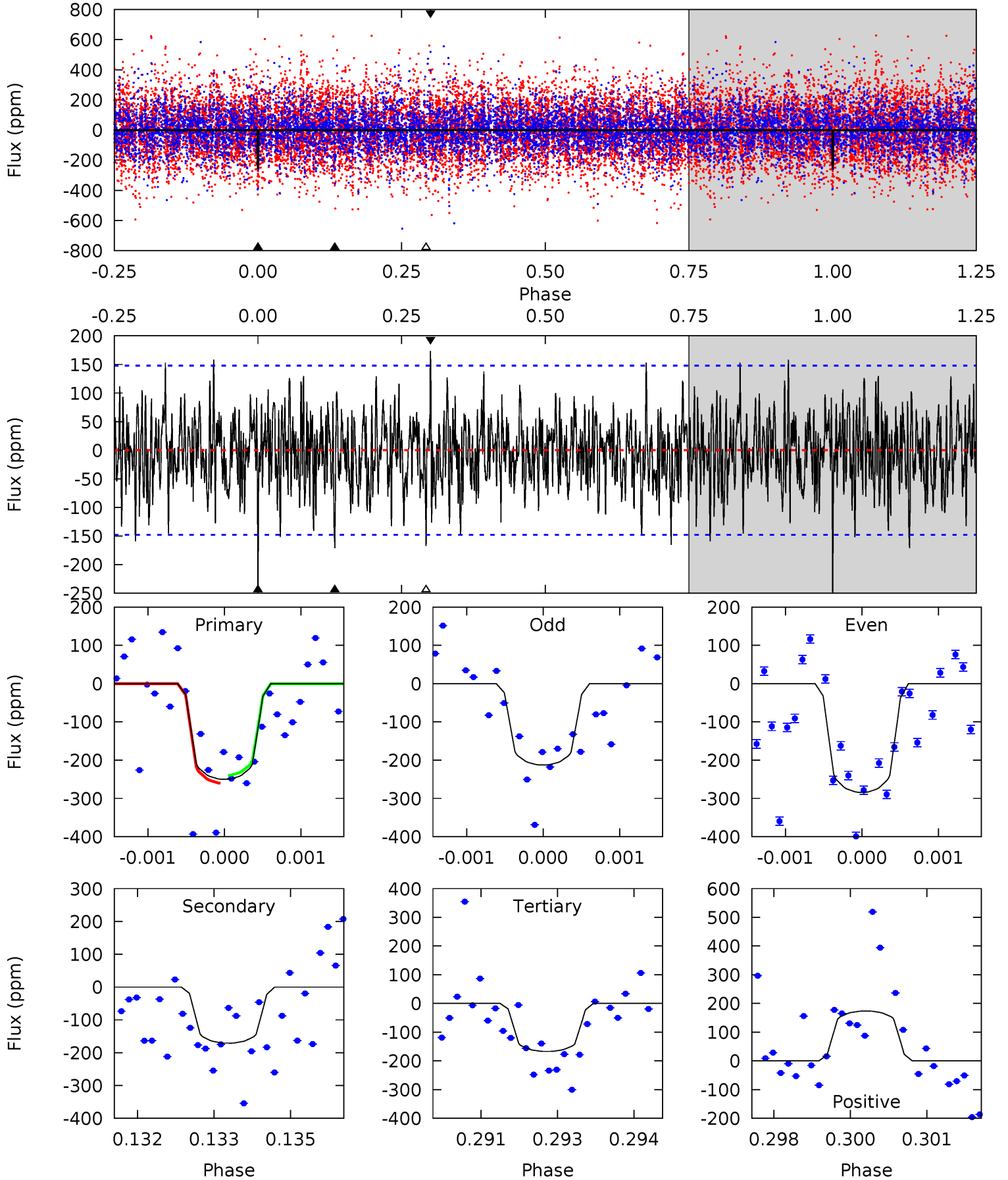
TCE 005374279-04 P=102.160101 Days $T_0=229.154022$ (BKJD)



DV Model-Shift Uniqueness Test

005374279-04, P = 102.162867 Days, E = 126.972190 Days

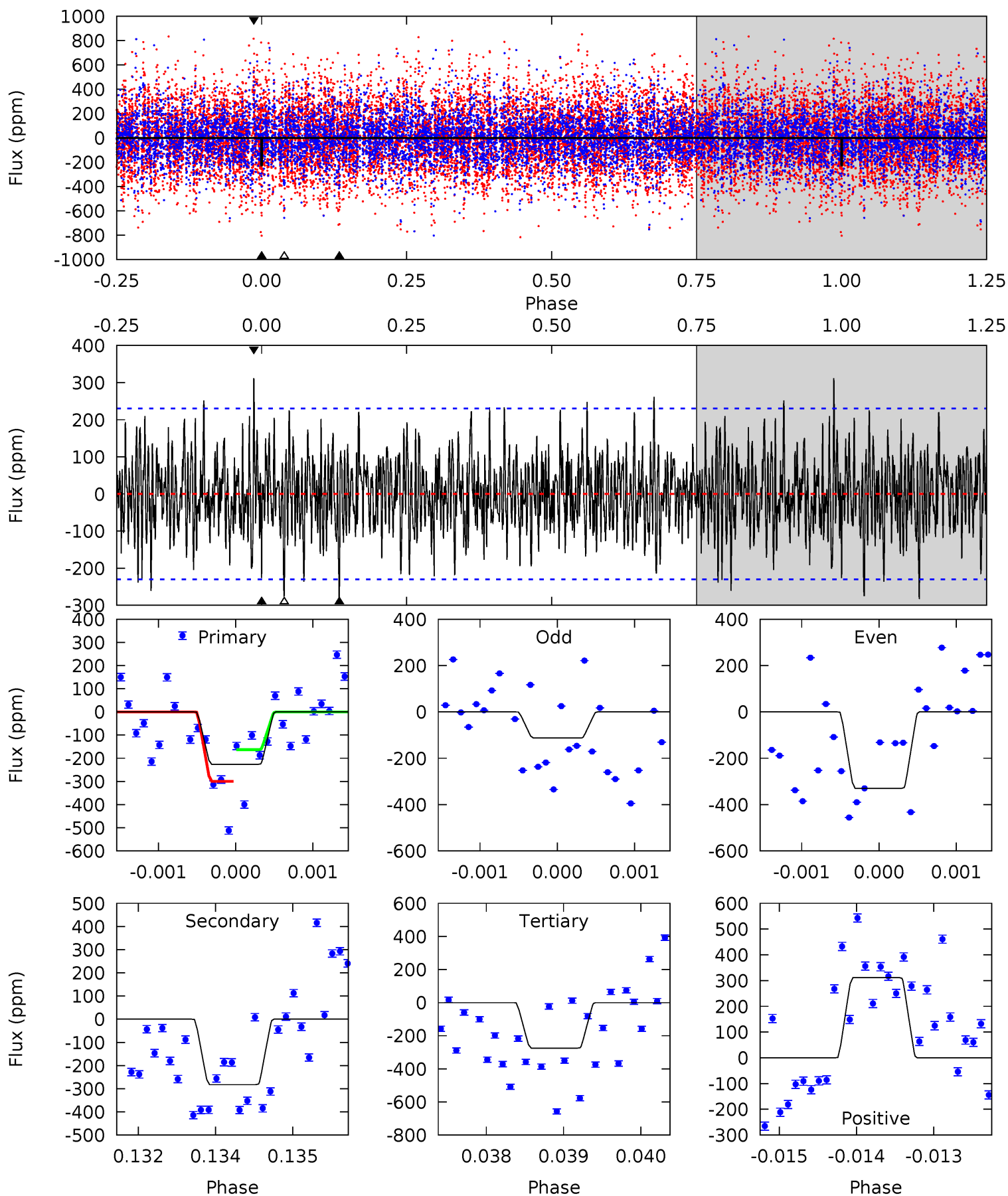
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.10	6.23	6.09	6.32	5.39	3.19	1.84	3.01	2.78	0.14	-0.10	1.31	0.80	0.41	0.37



Alt Model-Shift Uniqueness Test

005374279-04, P = 102.160101 Days, E = 126.993921 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.32	6.64	6.46	7.32	5.41	3.22	1.94	-1.13	-2.00	0.18	-0.69	2.59	1.23	0.52	1.60



Stellar Parameters For KIC 005374279

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6804^{+170}_{-204}	$3.475^{+0.382}_{-0.090}$	$-0.320^{+0.350}_{-0.250}$	$4.085^{+0.540}_{-1.621}$	$1.816^{+0.141}_{-0.395}$	$0.038^{+0.110}_{-0.011}$
	+2%/-3%	+11%/-3%	+109%/-78%	+13%/-40%	+8%/-22%	+292%/-29%
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 005374279-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-171 ± 27	$6.99^{+5.04}_{-4.15}$	1151^{+64}_{-128}	5913^{+3821}_{-1213}	511^{+2545}_{-341}
Alt.	-283 ± 43	$6.79^{+4.73}_{-3.76}$	1148^{+71}_{-122}	6821^{+4381}_{-1506}	902^{+3569}_{-578}

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

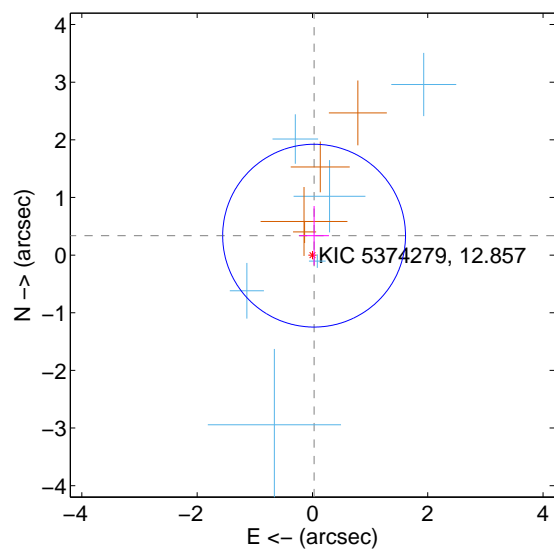
Supplemental centroid analysis for 005374279-04. Kepler magnitude: 12.86. Transit SNR 8.07

There are 6 quarters with good PRF difference image offsets

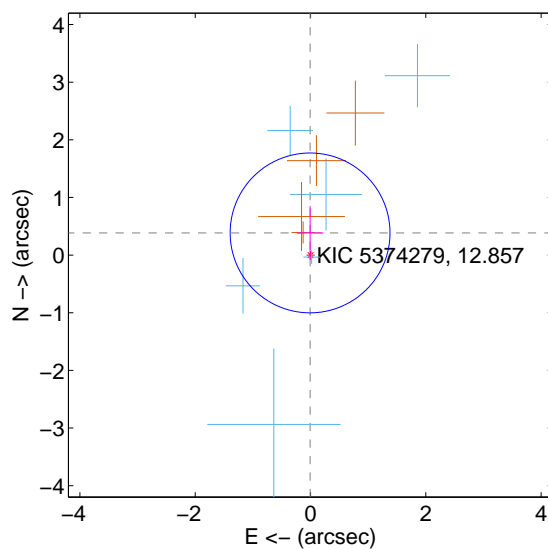
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.338 ± 0.529	0.64	-0.029 ± 0.259	0.337 ± 0.514
PRF-fit source offset from KIC position	0.385 ± 0.462	0.83	0.008 ± 0.232	0.385 ± 0.465
photometric centroid source offset	1.04 ± 0.82	1.27	0.89 ± 0.84	0.54 ± 0.75

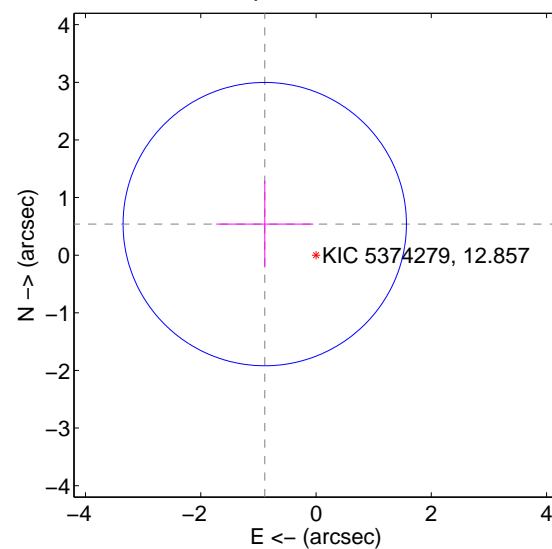
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

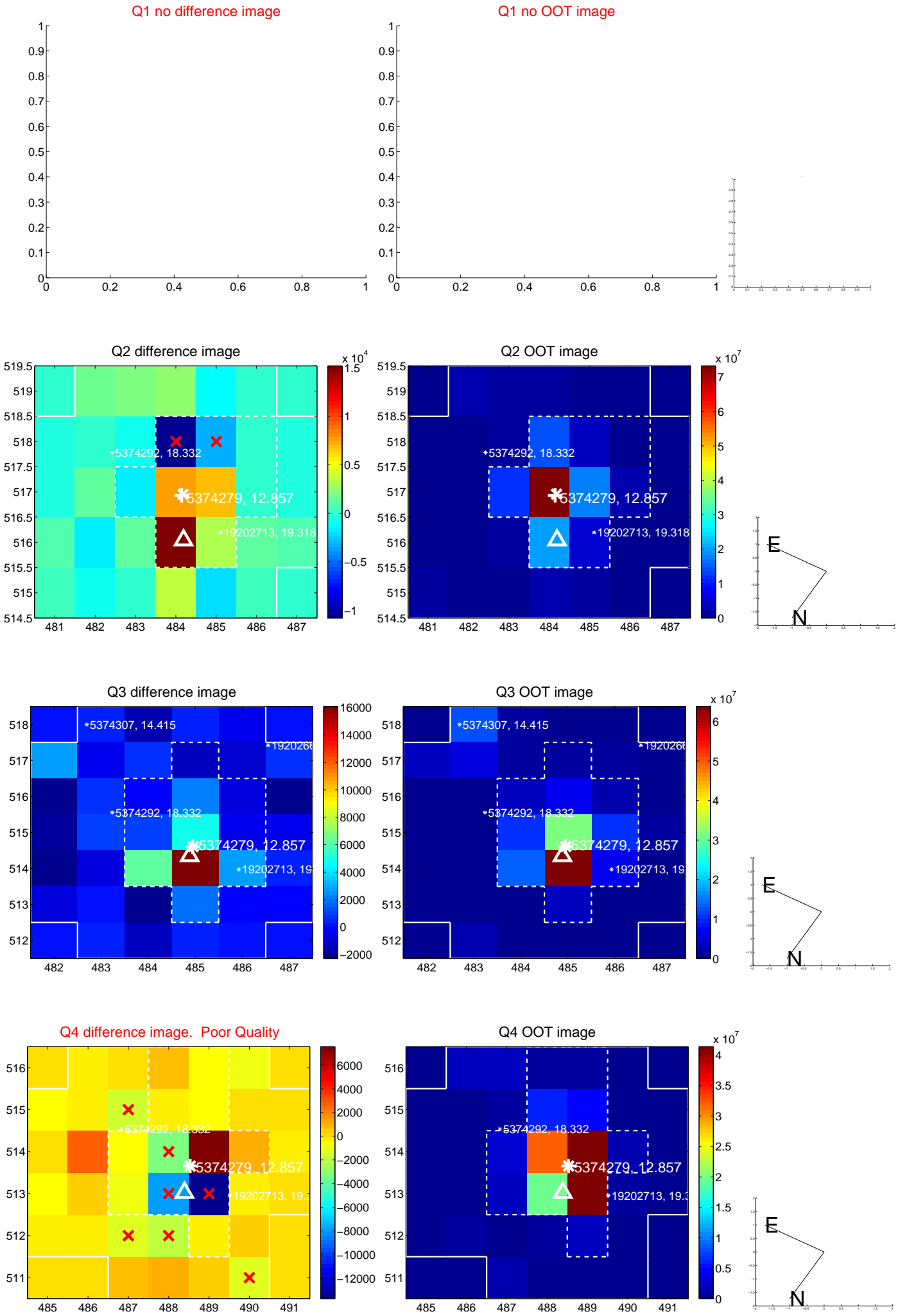


offset from photometric centroids

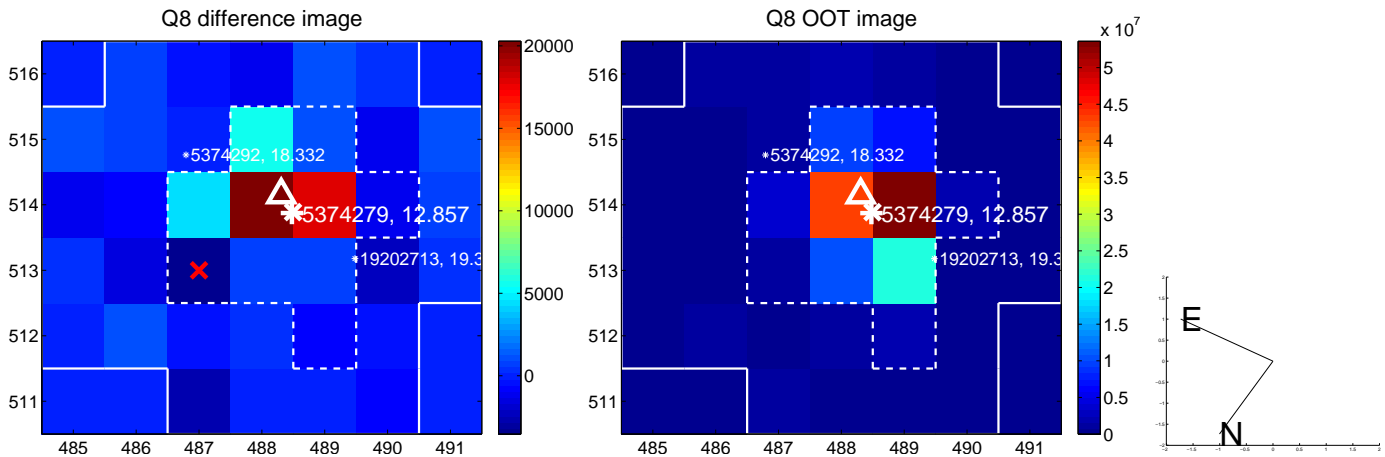
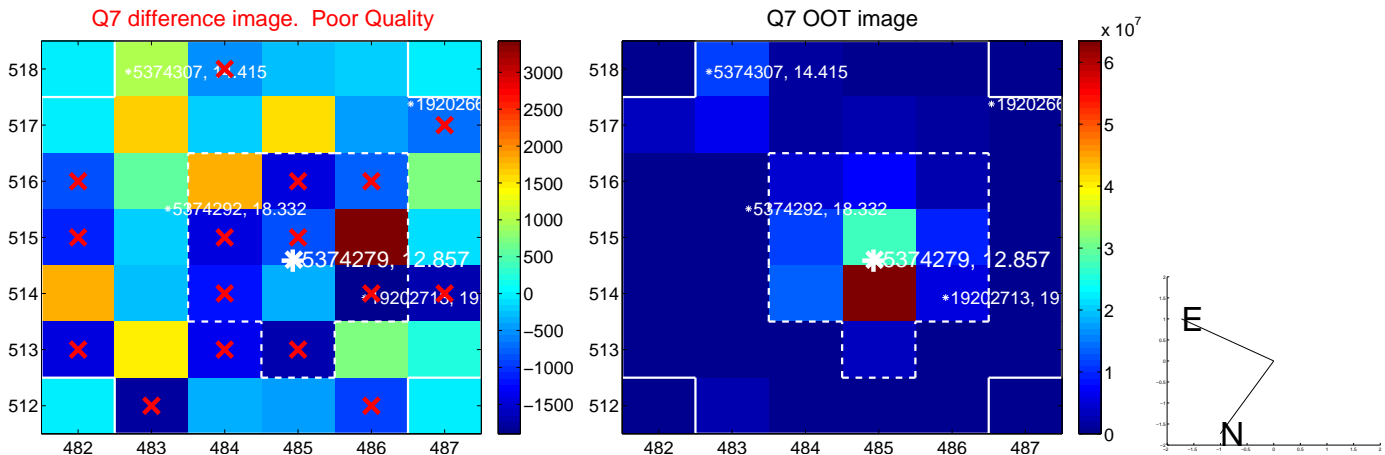
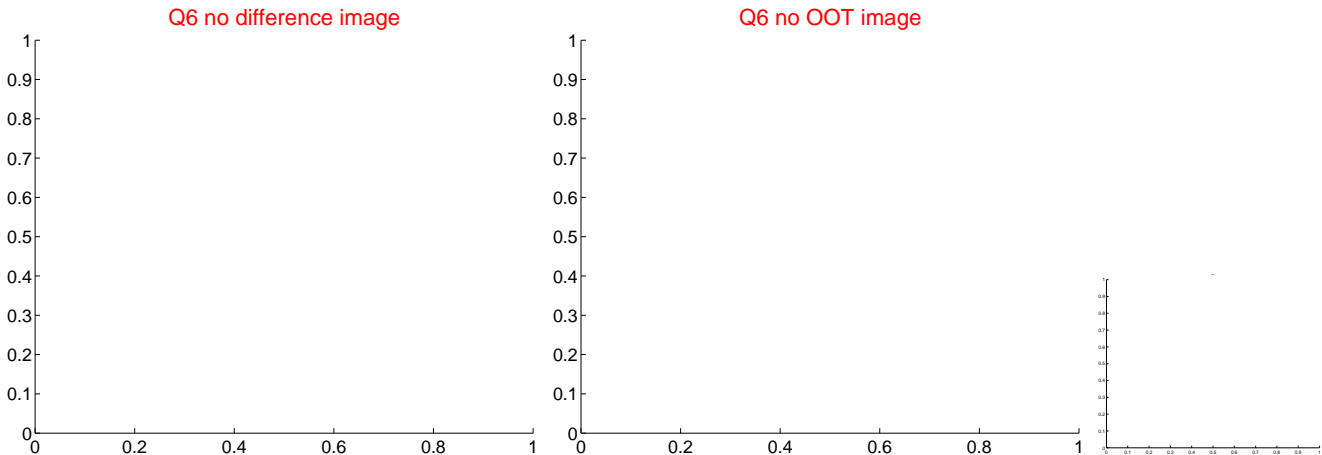
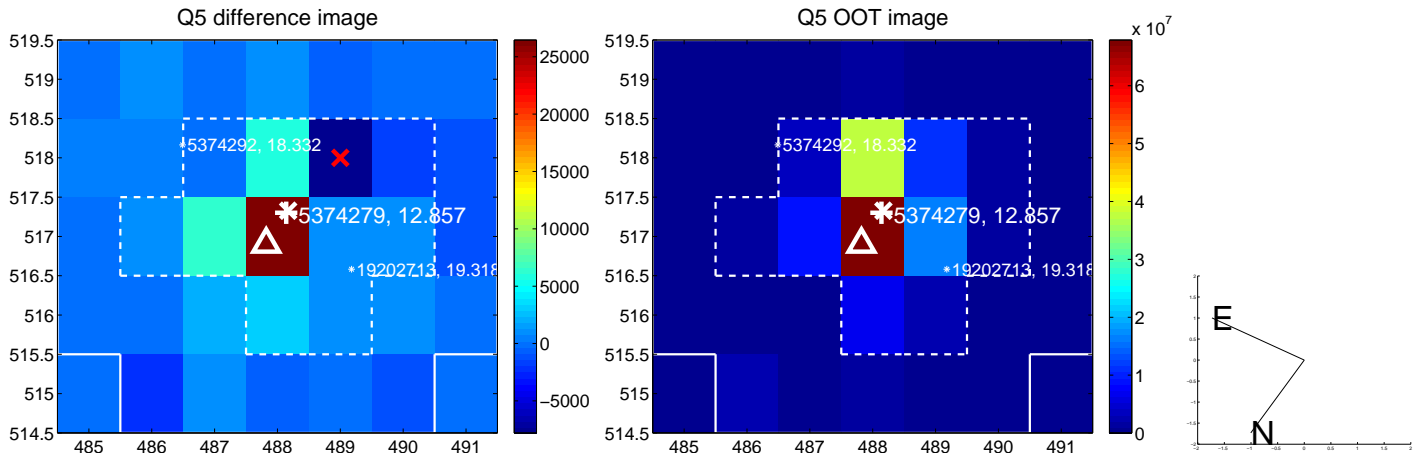


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

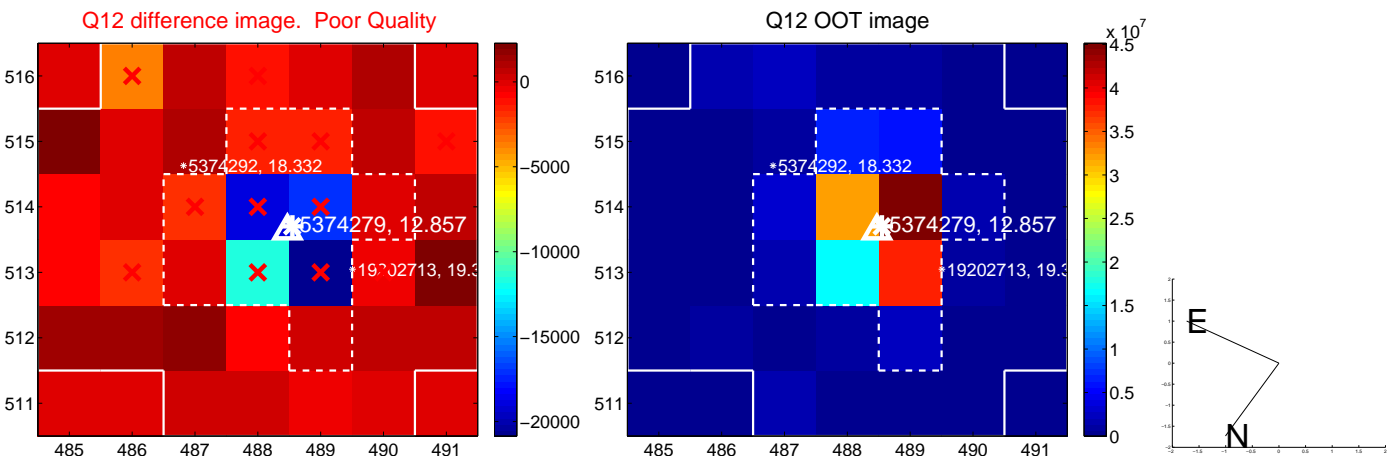
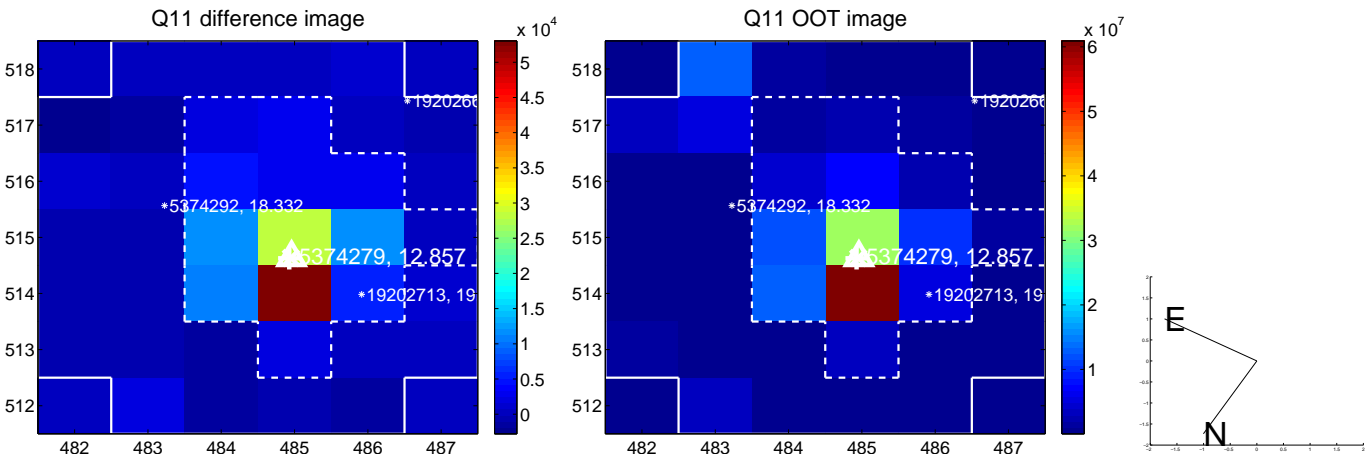
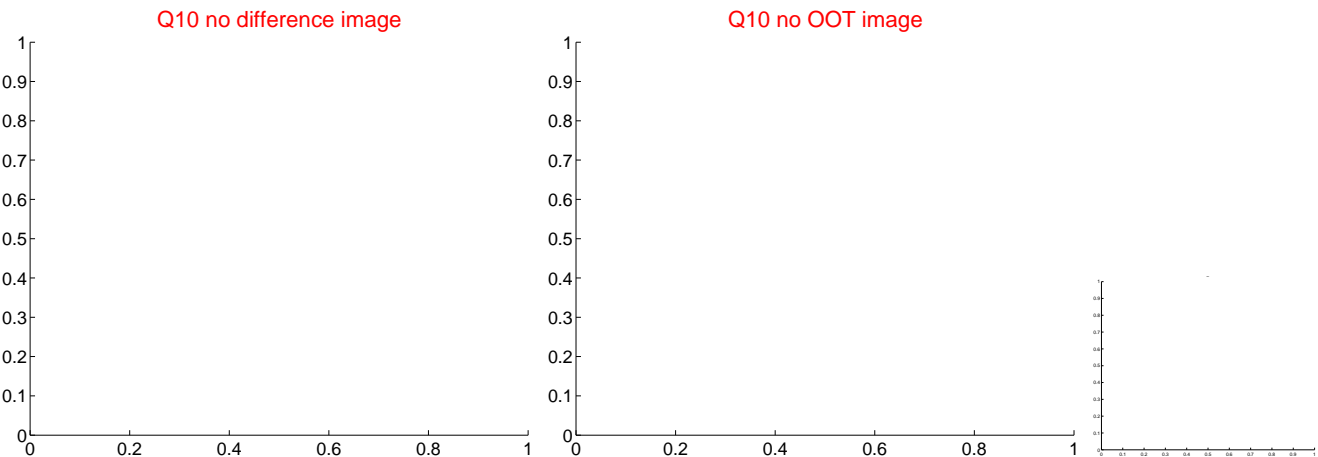
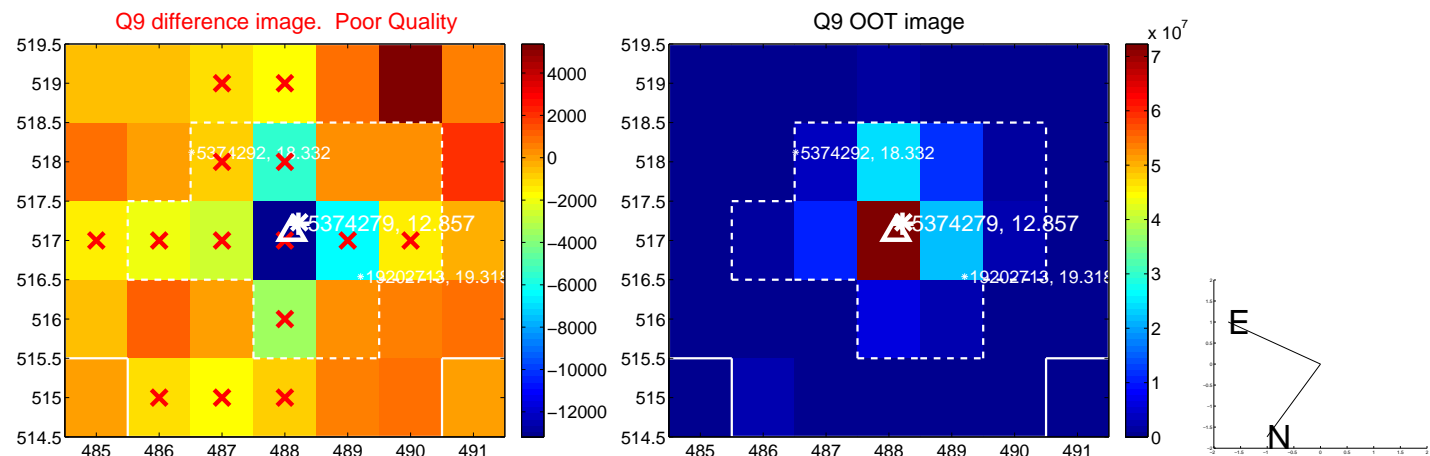
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



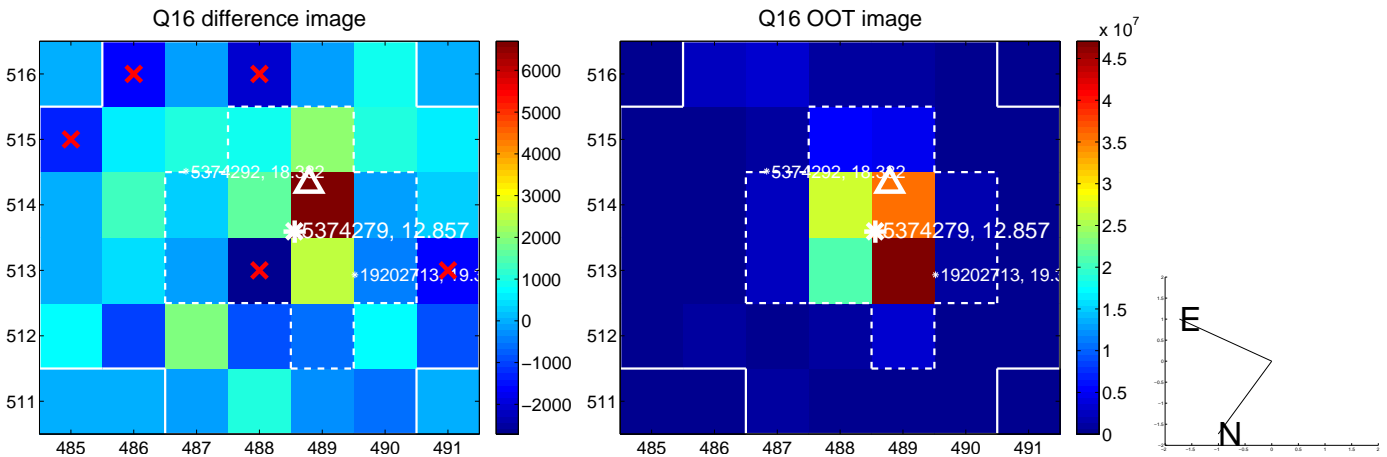
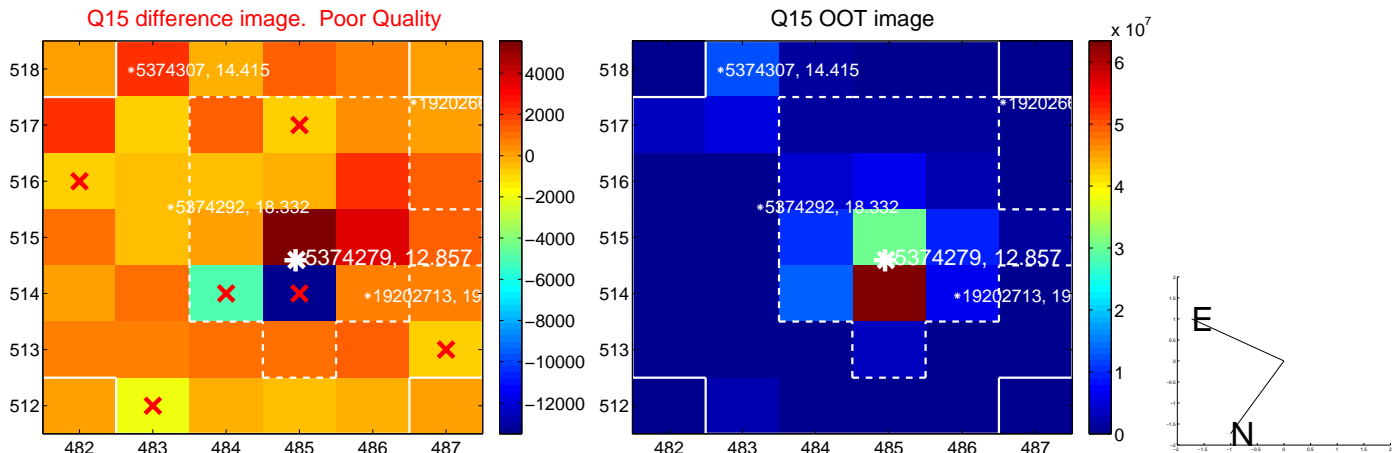
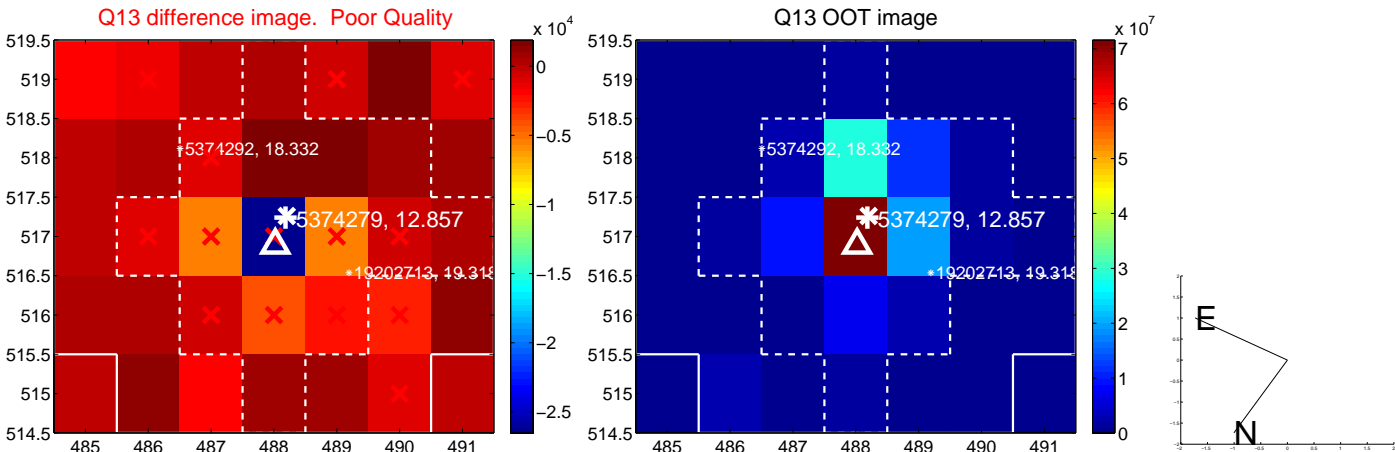
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



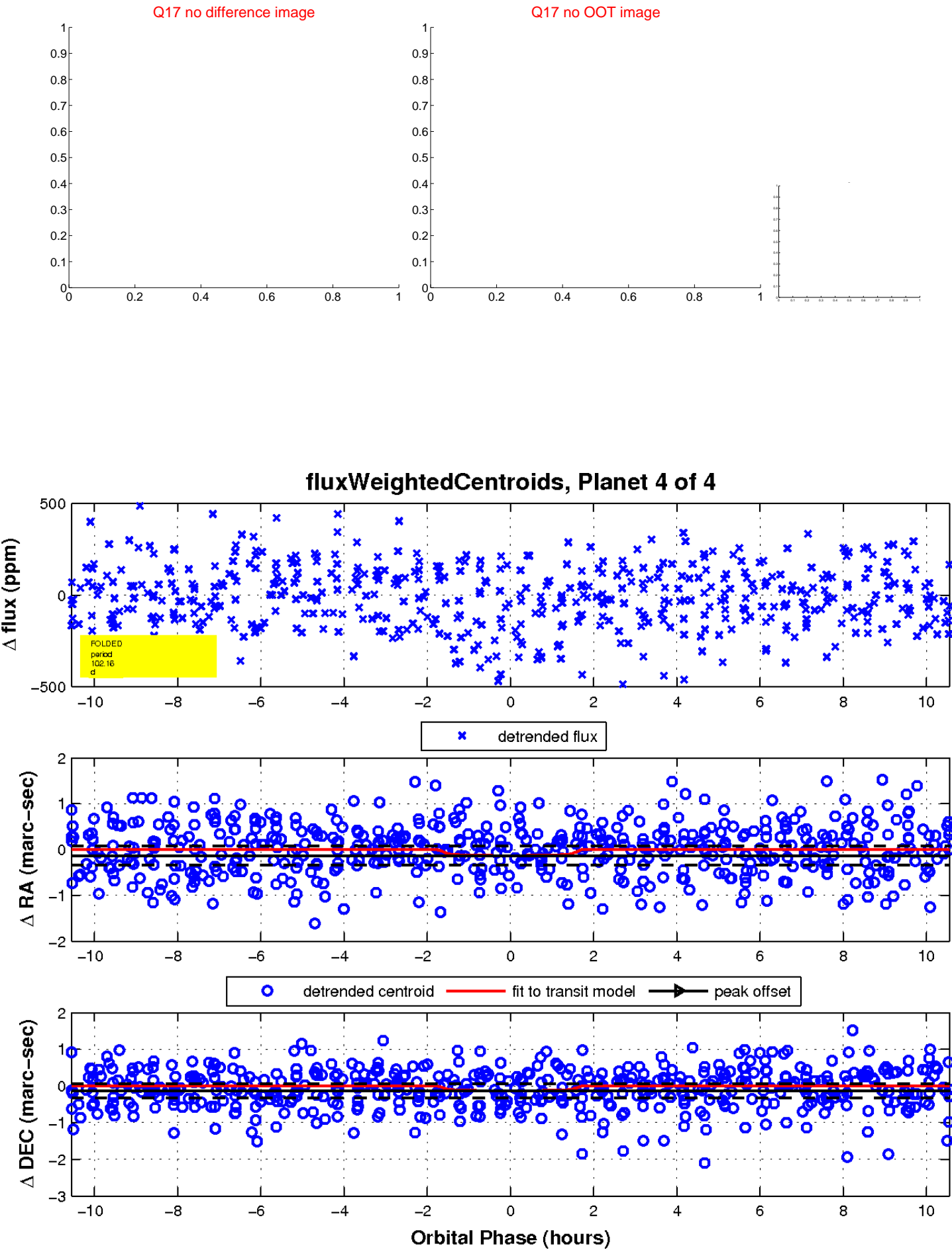
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

