

KIC 005474427

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})
005474427-01	OBS	No	0.920144	132.220875	136.6	2.983	15.5	14.5	1.72	7201	2.31	16008.46
005474427-02	OBS	No	1.215419	132.143661	199.6	14.585	10.1	17.8	1.72	7201	3.15	11045.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005474427-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
005474427-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—CENT_SATURATED

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

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

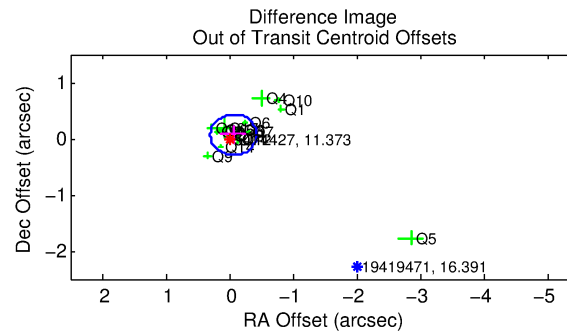
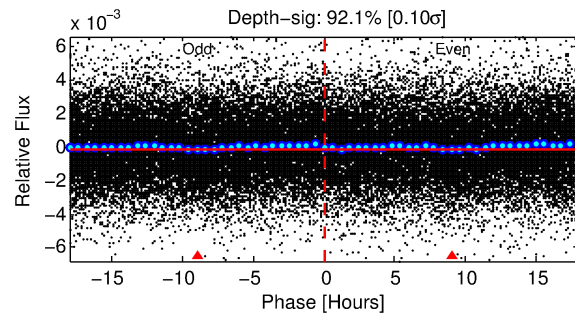
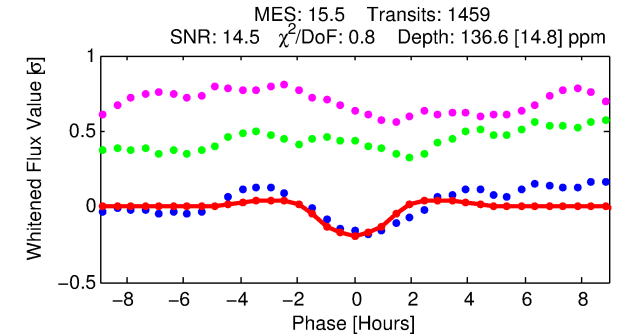
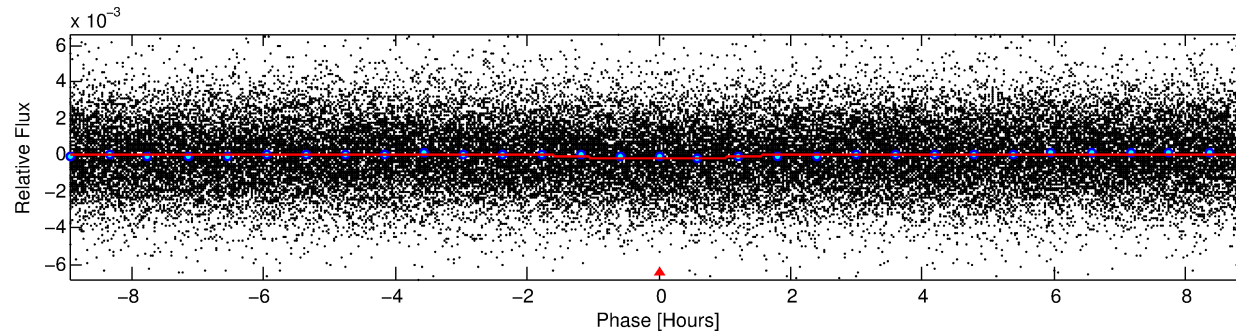
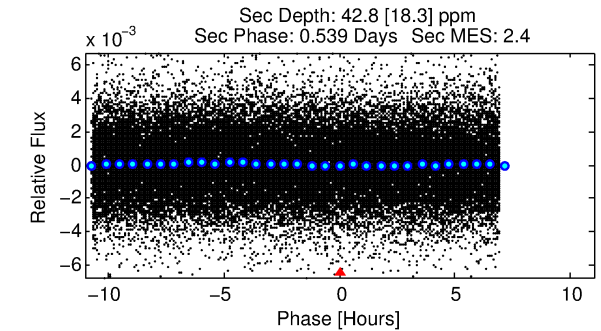
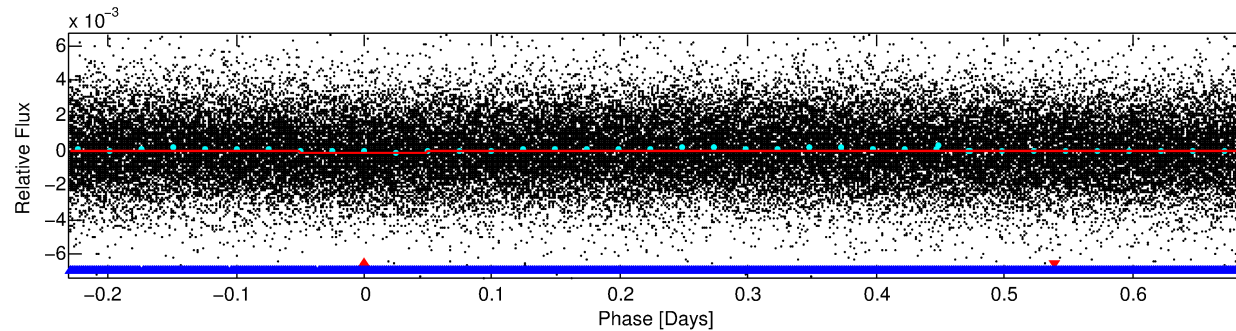
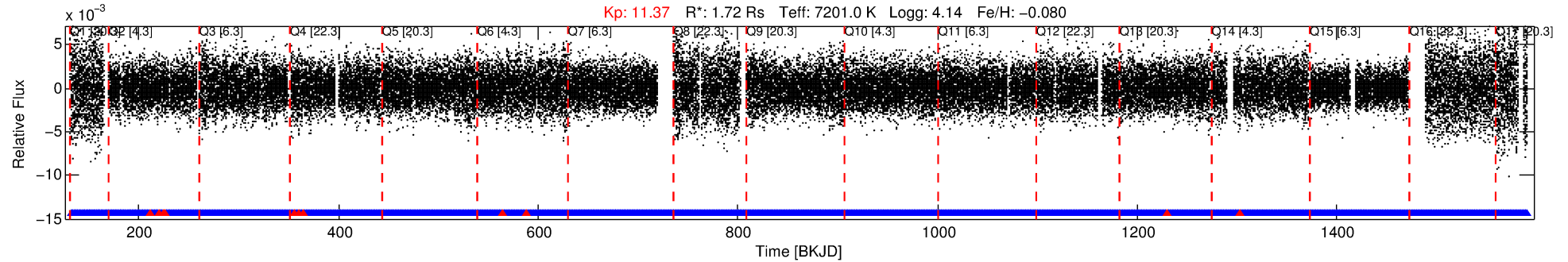
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005474427-01

No Significant Match Found

DV One-Page Summary

KIC: 5474427 Candidate: 1 of 2 Period: 0.920 d



DV Fit Results:

Period = 0.92014 [0.00001] d
Epoch = 132.2209 [0.0032] BKJD
Rp/R* = 0.0123 [0.0093]
a/R* = 1.50 [3.92]
b = 0.88 [1.21]
Seff = 16008.46 [6201.53]
Teq = 2868 [278] K
Rp = 2.31 [1.89] Re
a = 0.0211 [0.0054] AU
Ag = 1.98 [3.19] [0.31σ]
Teffp = 5260 [2075] K [1.14σ]

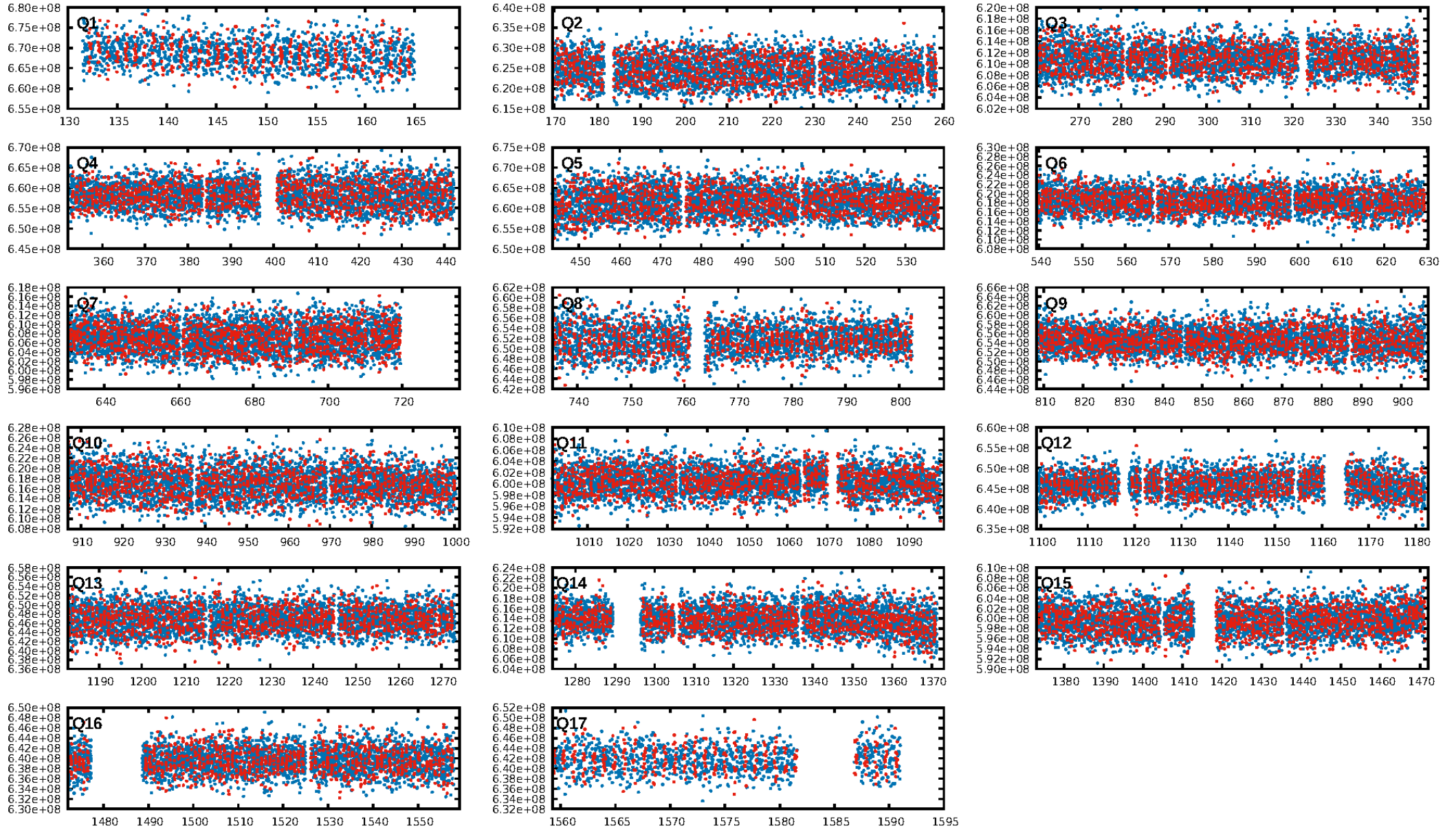
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 36.6% [0.48σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [1382/1393]
GhostDiagnostic-chr: 1.744
Centroid-sig: 0.0%
Centroid-so: 0.279 arcsec [3.32σ]
OotOffset-rm: 0.094 arcsec [0.78σ]
KicOffset-rm: 0.153 arcsec [1.31σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 0.00 [0/17]

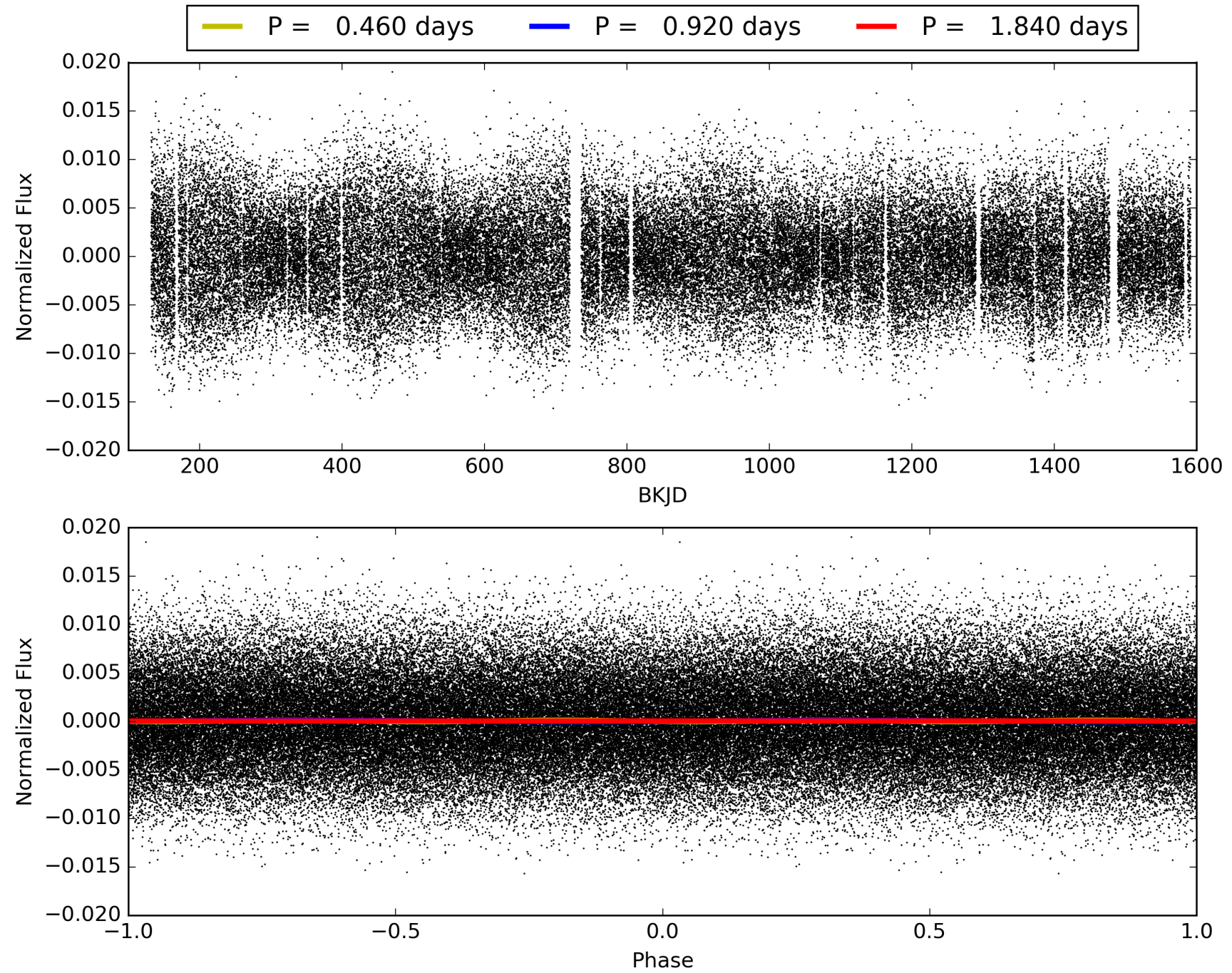
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:48:45 Z

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

TCE 005474427-01, PDC Light Curves

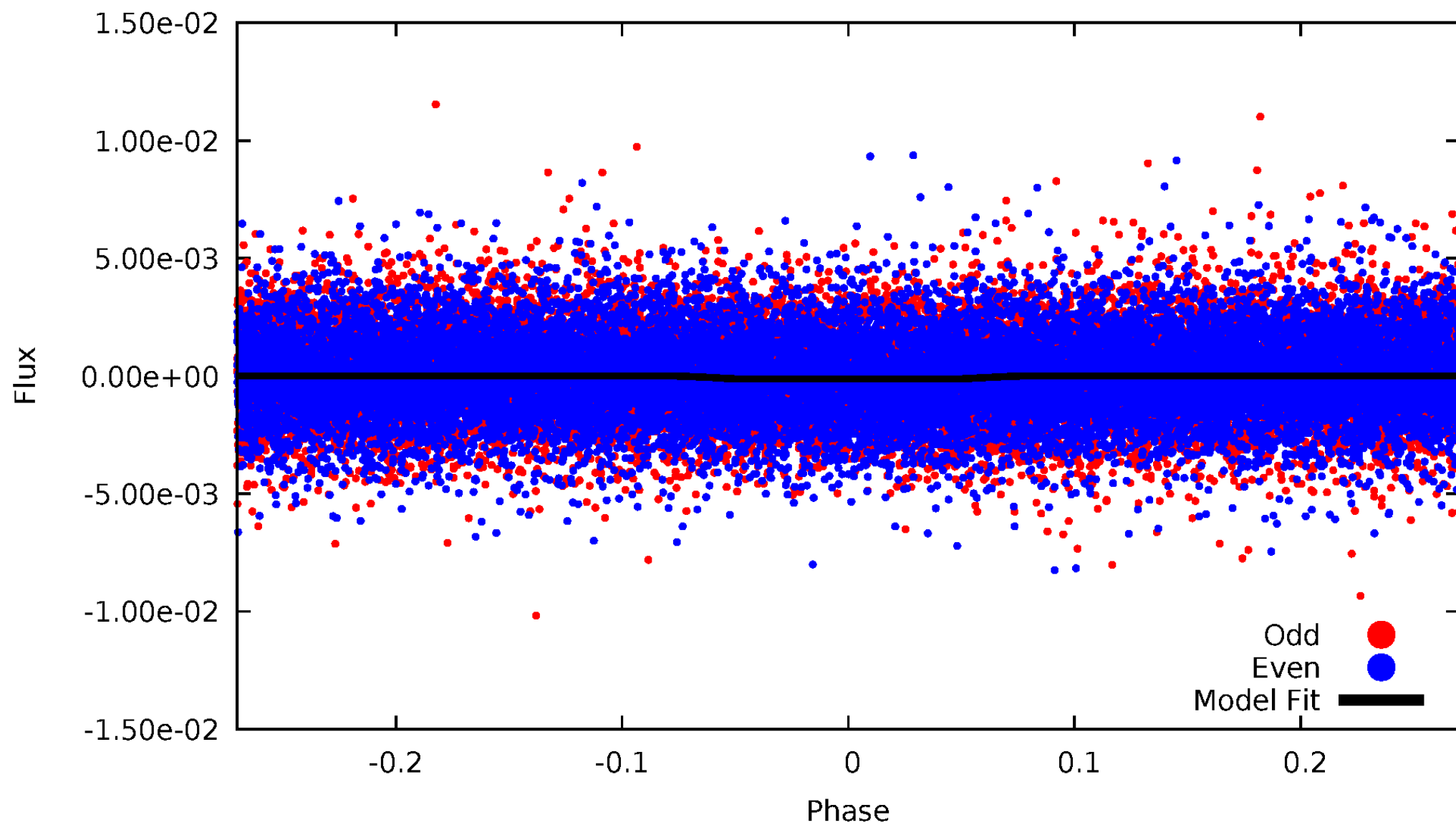


TCE 005474427-01



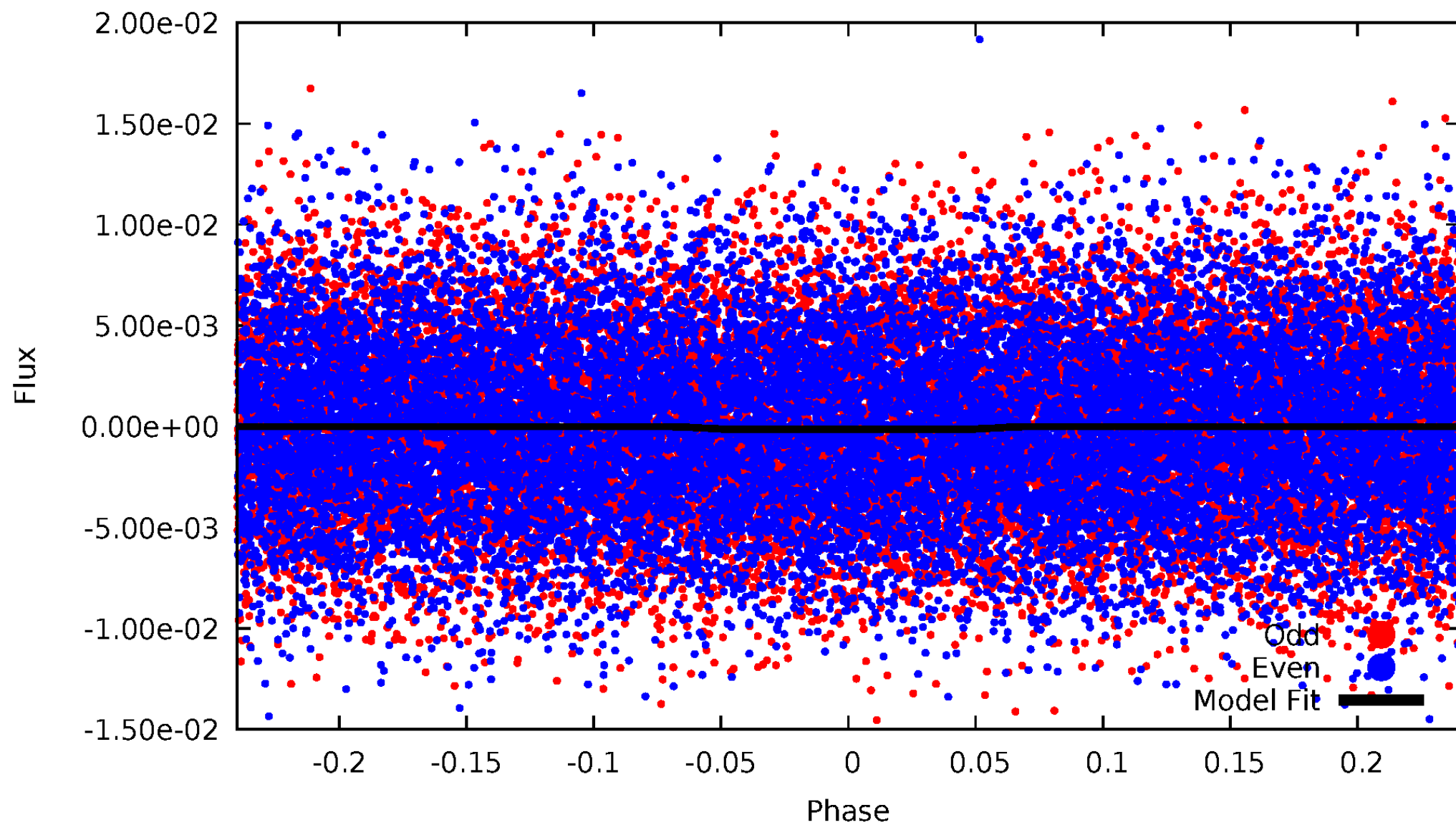
DV Odd/Even

TCE 005474427-01



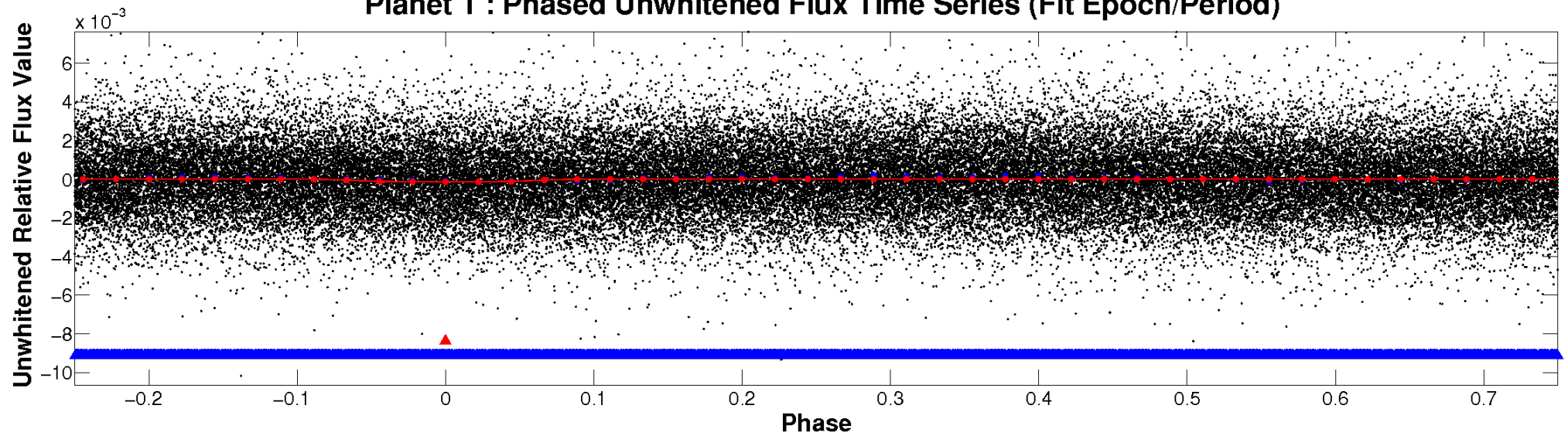
ALT Odd/Even

TCE 005474427-01

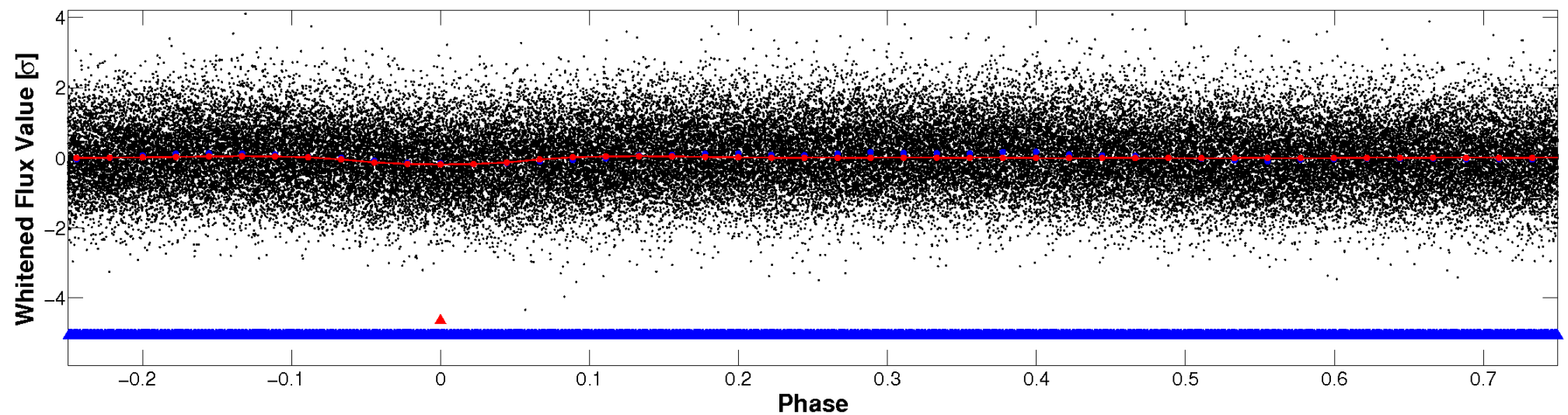


Non-Whitened Vs. Whitened Light Curve

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

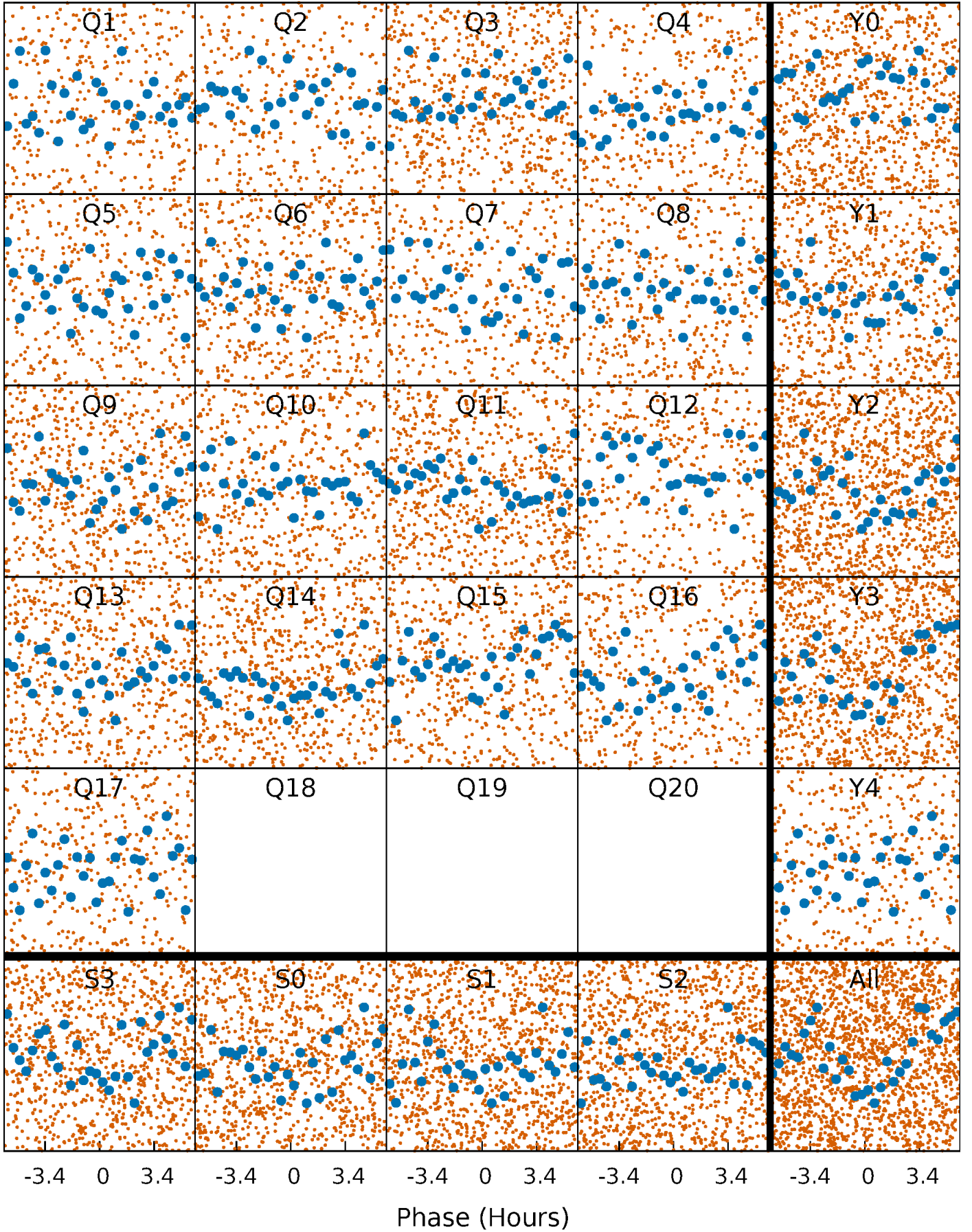


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



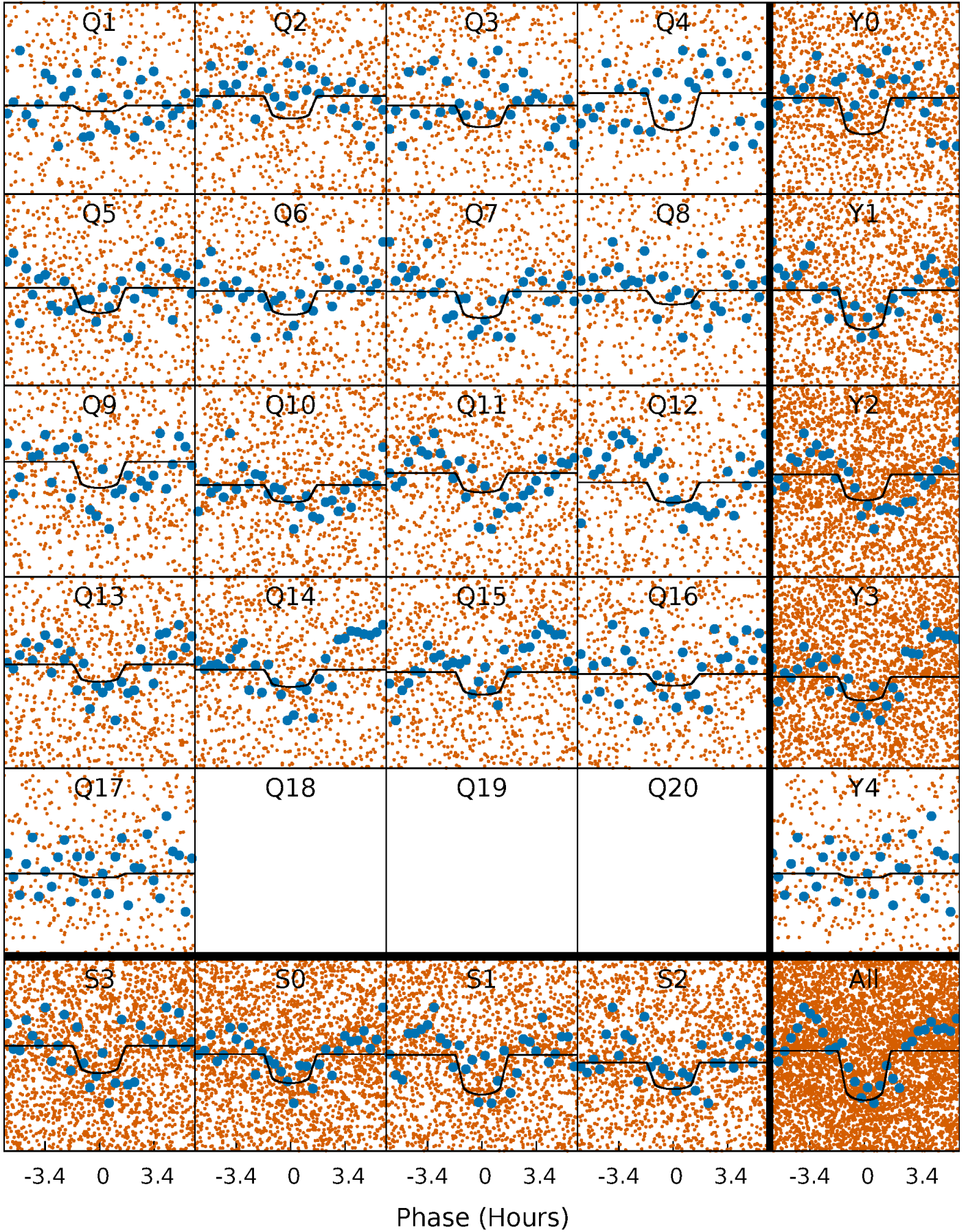
PDC Quarter-Phased Transit Curves

TCE 005474427-01 P= 0.920144 Days $T_0=132.220876$ (BKJD)



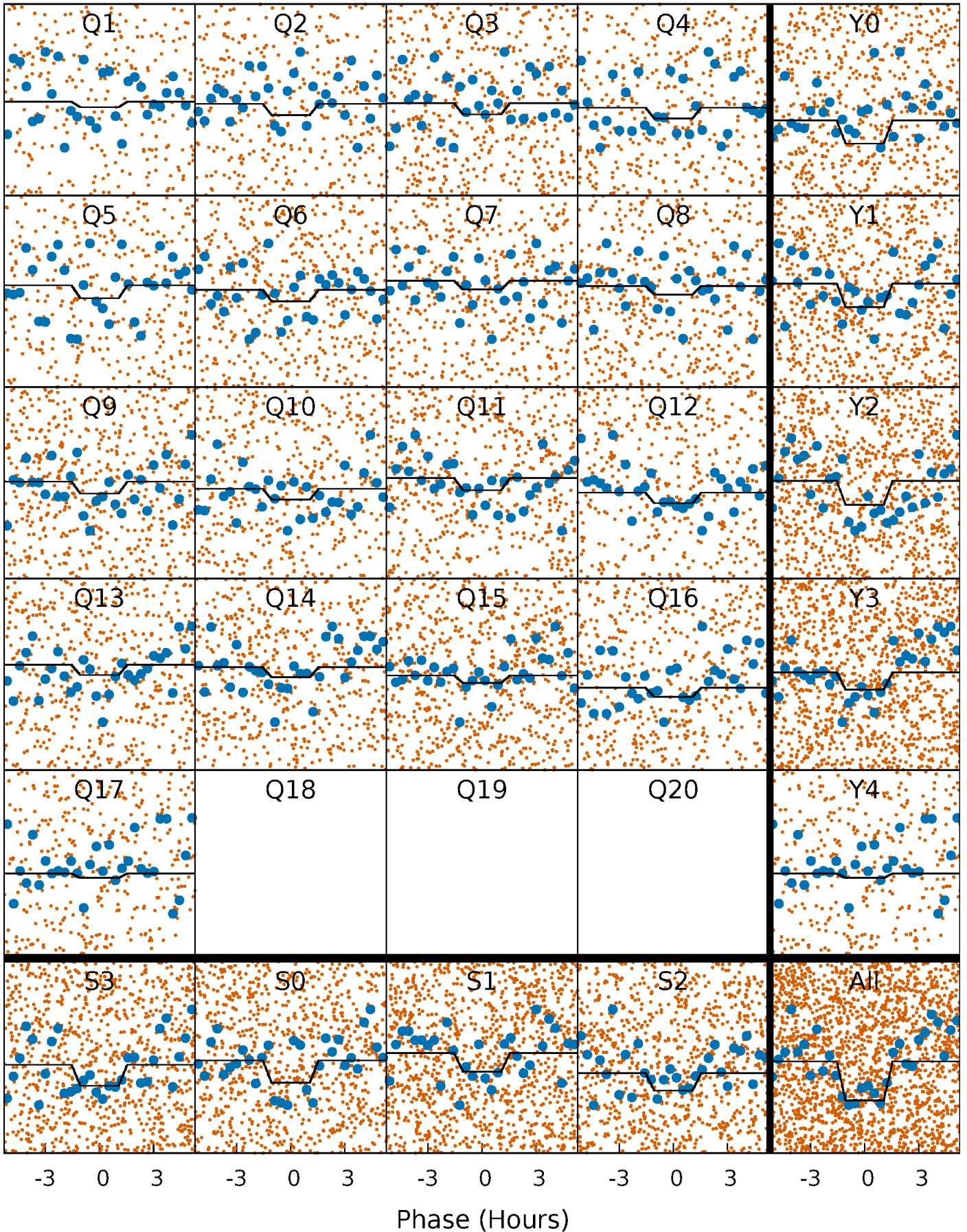
DV Quarter-Phased Transit Curves

TCE 005474427-01 P= 0.920144 Days $T_0=132.220876$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

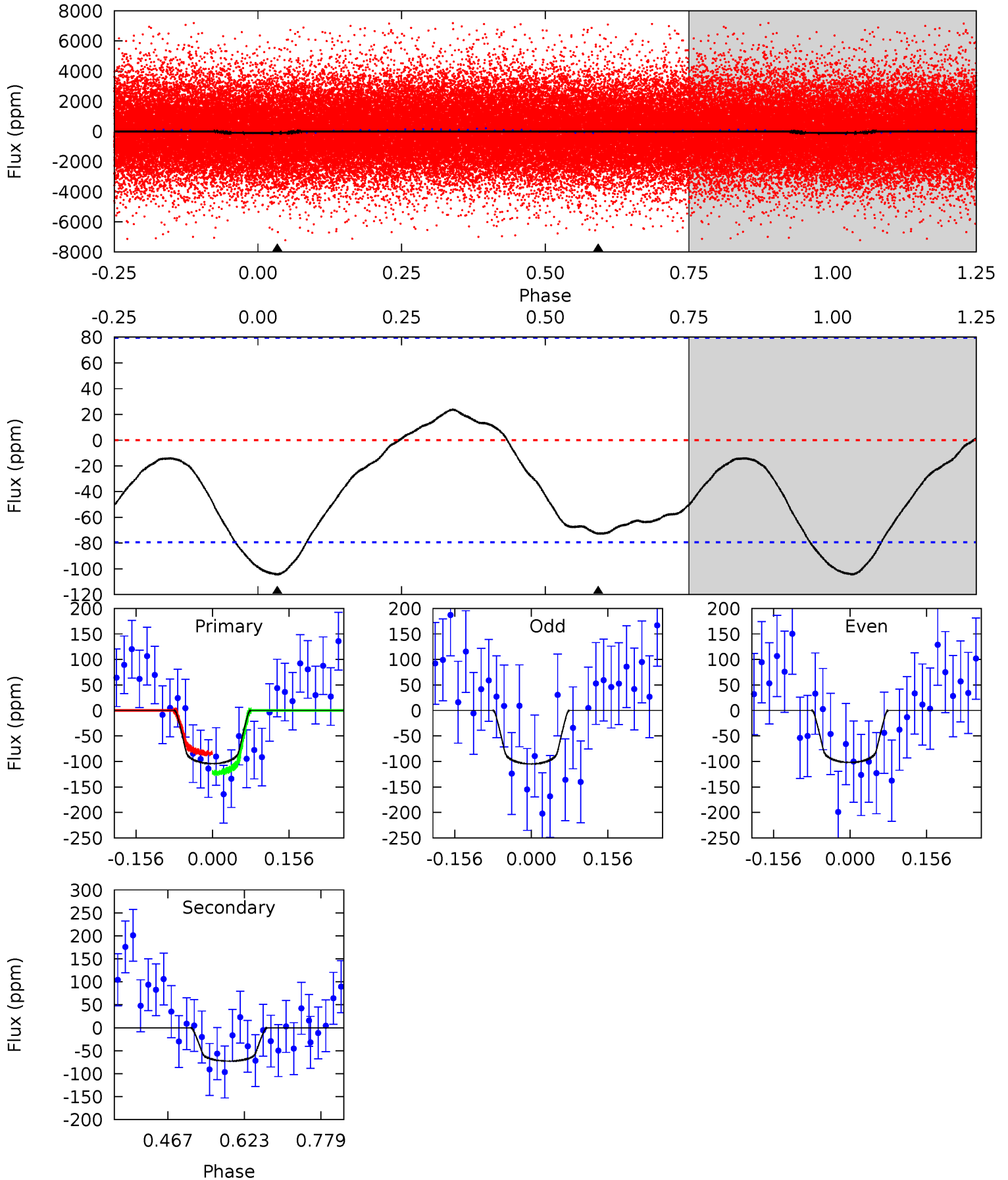
TCE 005474427-01 P= 0.920185 Days $T_0=132.197407$ (BKJD)



DV Model-Shift Uniqueness Test

005474427-01, P = 0.920144 Days, E = 131.300732 Days

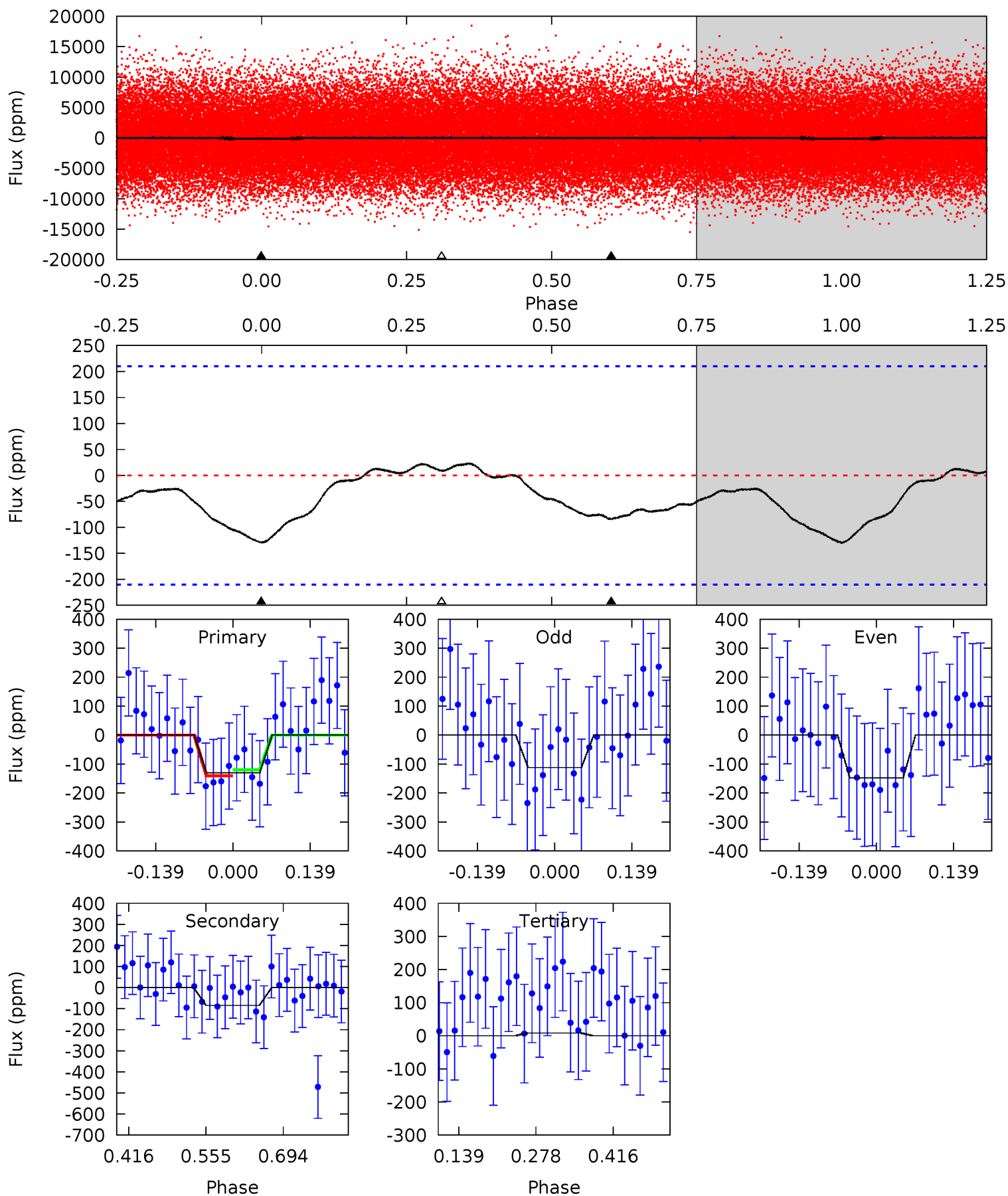
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.88	4.09	0	0	4.47	1.42	1.09	5.88	5.88	4.09	4.09	0.08	0.88	0.19	1.09



Alt Model-Shift Uniqueness Test

005474427-01, P = 0.920185 Days, E = 131.277222 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.78	1.81	-0.17	0	4.50	1.48	0.44	2.96	2.78	1.98	1.81	0.38	0.85	0.15	0.22



Stellar Parameters For KIC 005474427

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7201^{+201}_{-251}	$4.138^{+0.128}_{-0.192}$	$-0.080^{+0.200}_{-0.350}$	$1.724^{+0.541}_{-0.316}$	$1.488^{+0.221}_{-0.243}$	$0.409^{+0.271}_{-0.208}$
	+3%/-3%	+3%/-5%	+250%/-438%	+31%/-18%	+15%/-16%	+66%/-51%
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 005474427-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-73 ± 18	$2.57^{+1.76}_{-1.53}$	4032^{+339}_{-264}	5481^{+3906}_{-1313}	$2.665^{+13.562}_{-1.783}$
Alt.	-85 ± 47	$2.49^{+1.80}_{-1.52}$	4022^{+330}_{-261}	5707^{+4431}_{-1713}	$3.089^{+17.520}_{-2.367}$

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

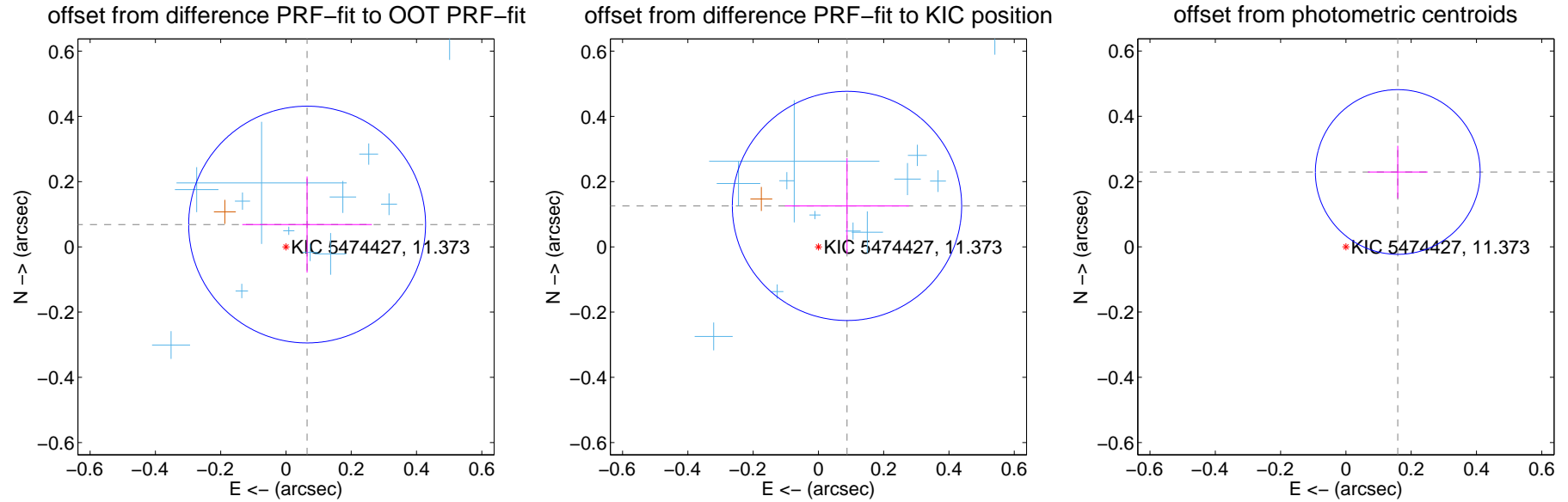
DV Centroid Data

Supplemental centroid analysis for 005474427-01. **Kepler magnitude: 11.37.** Transit SNR 14.47

There are 15 quarters with good PRF difference image offsets

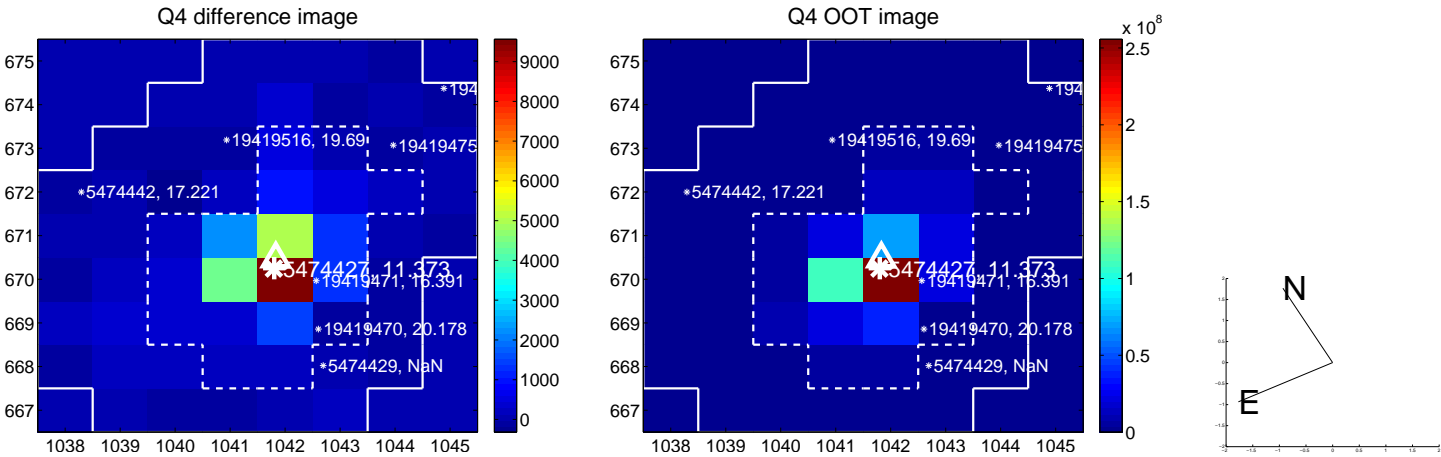
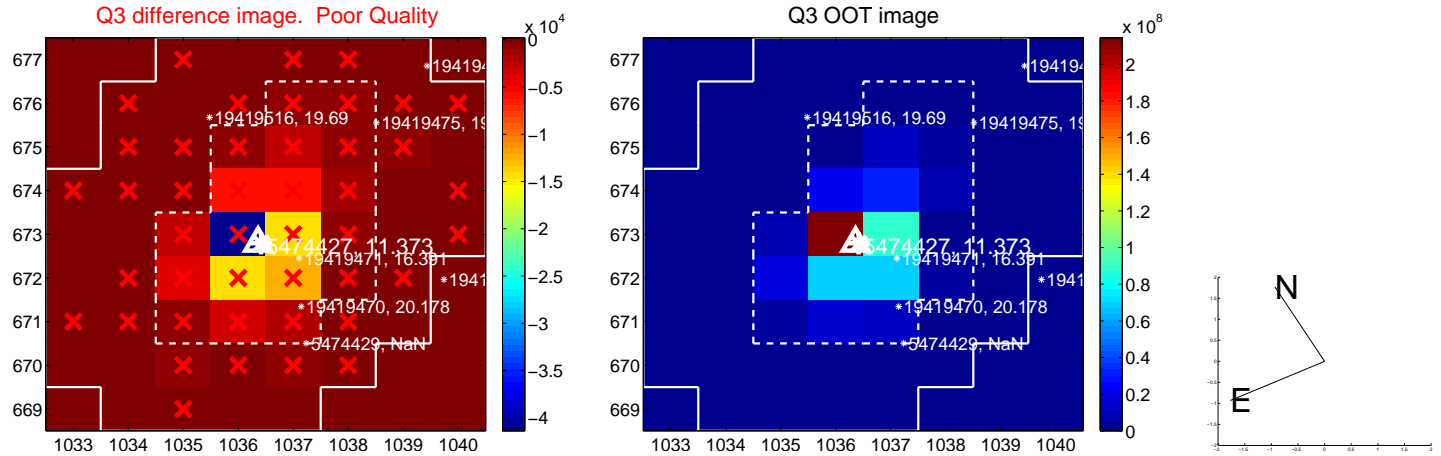
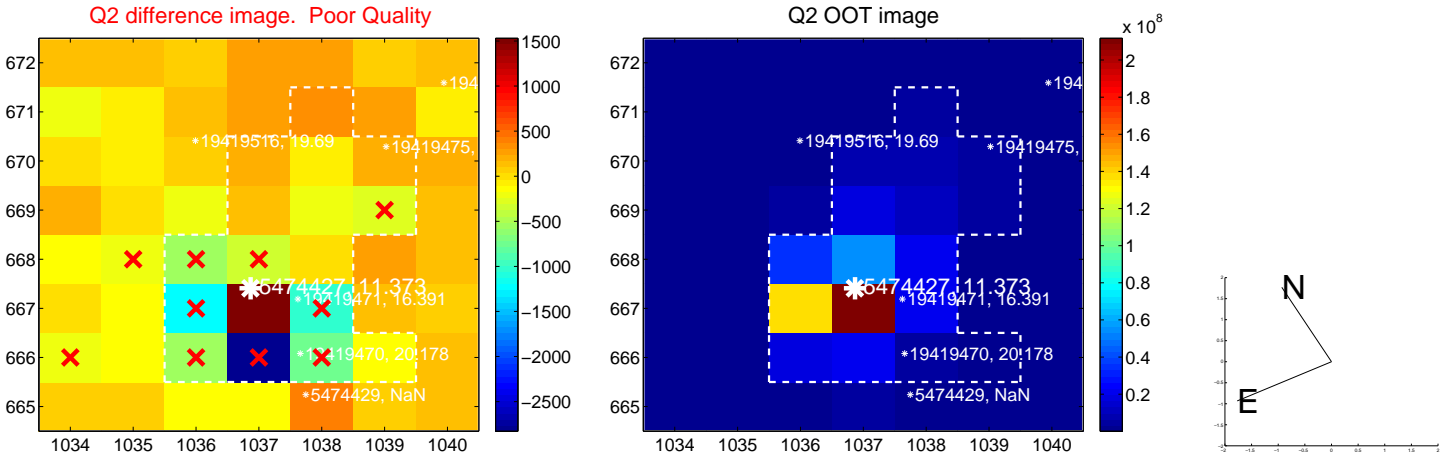
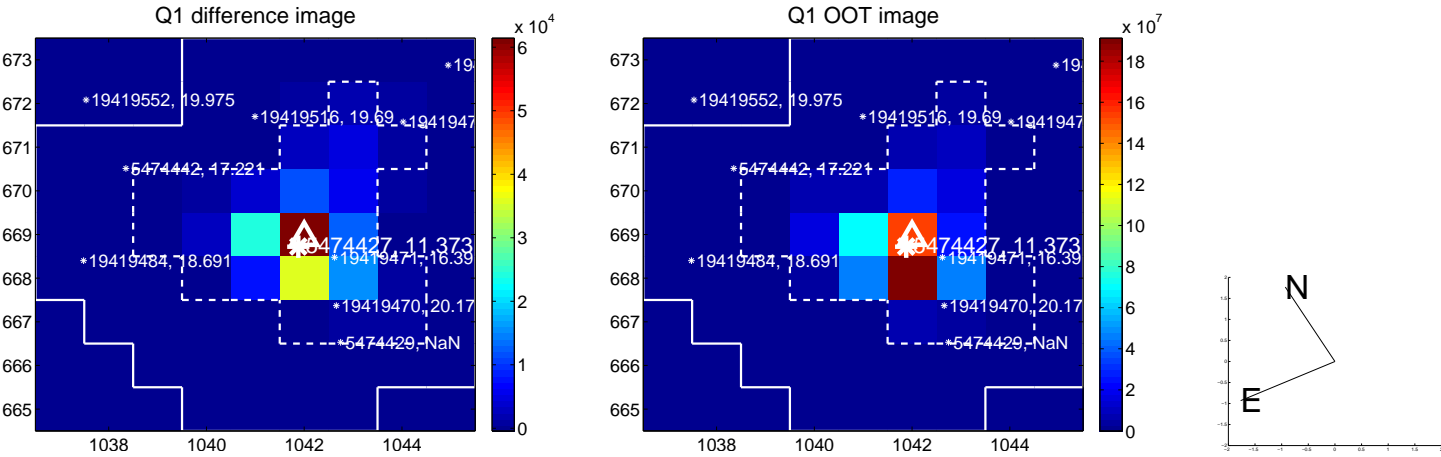
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.094 ± 0.121	0.78	-0.065 ± 0.199	0.068 ± 0.147
PRF-fit source offset from KIC position	0.153 ± 0.117	1.31	-0.088 ± 0.190	0.125 ± 0.146
photometric centroid source offset	0.28 ± 0.08	3.32	-0.16 ± 0.09	0.23 ± 0.08

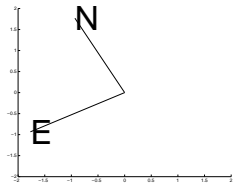
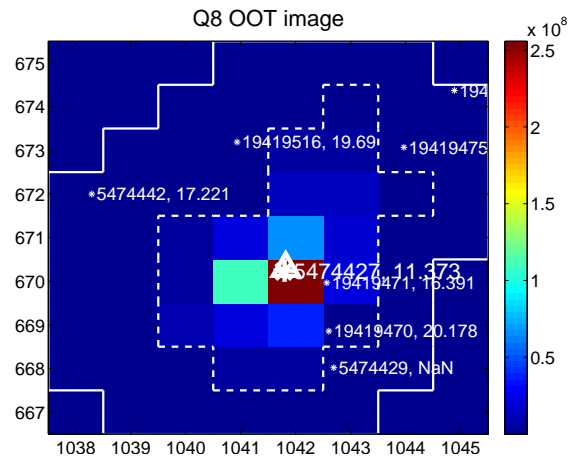
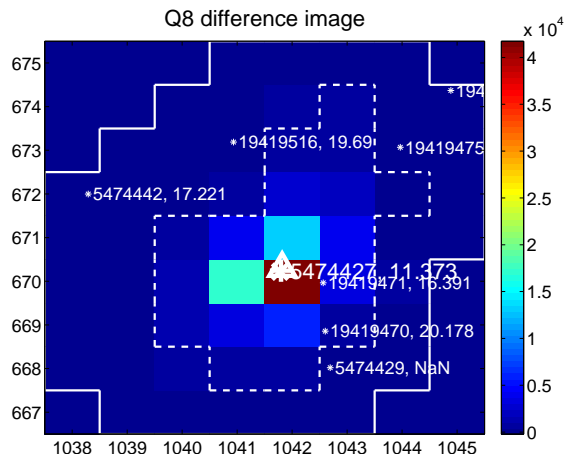
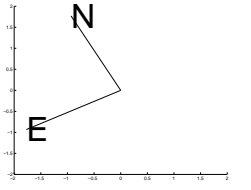
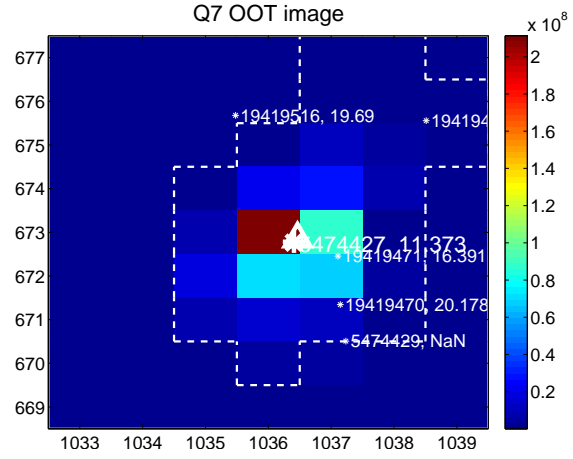
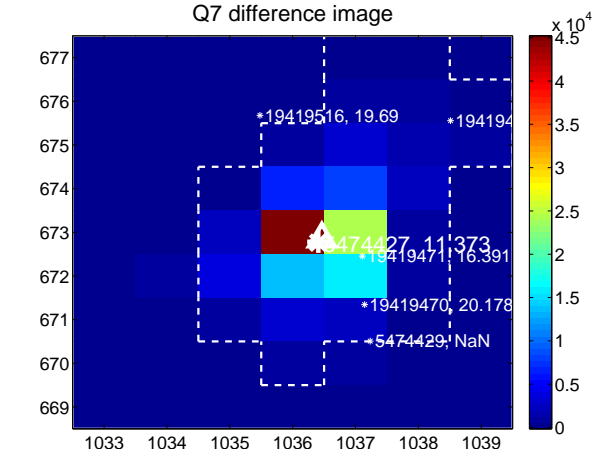
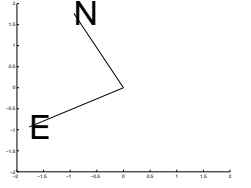
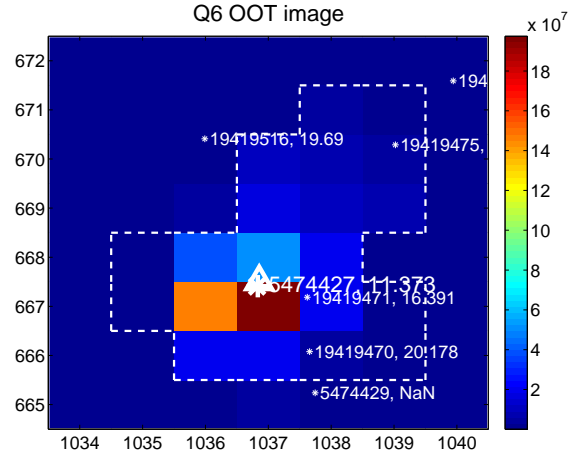
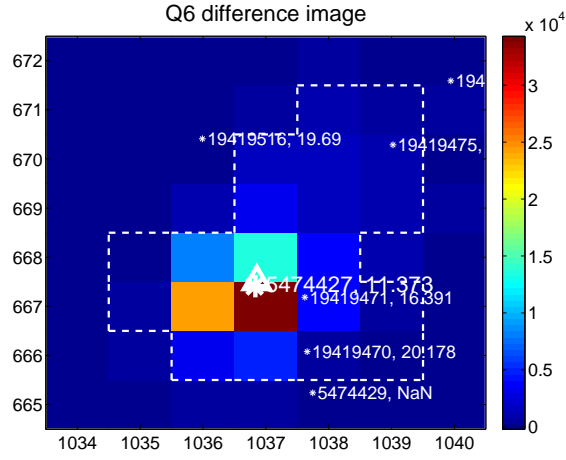
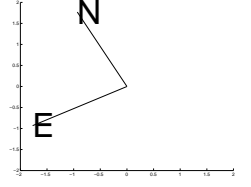
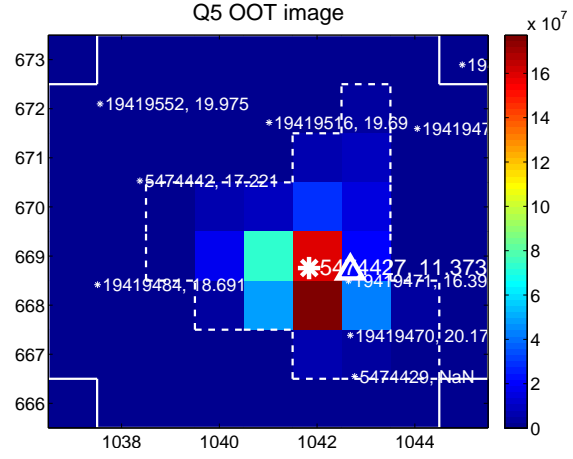
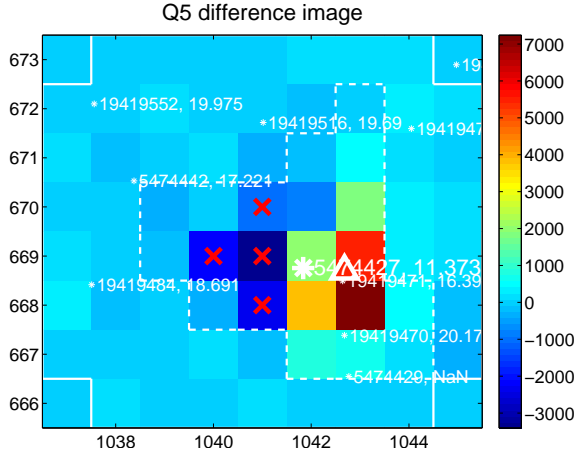


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

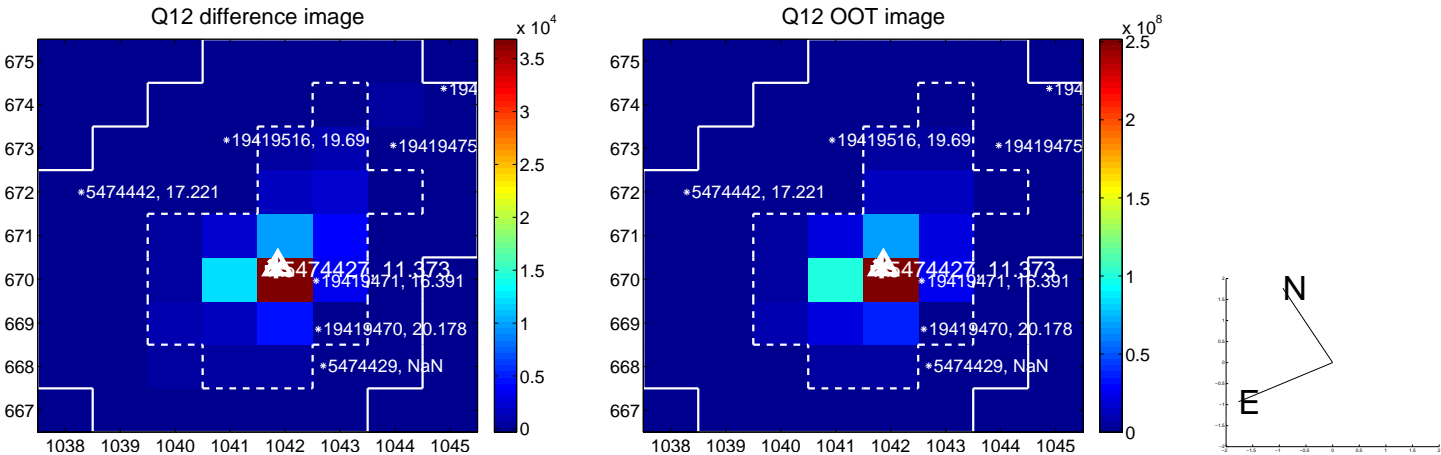
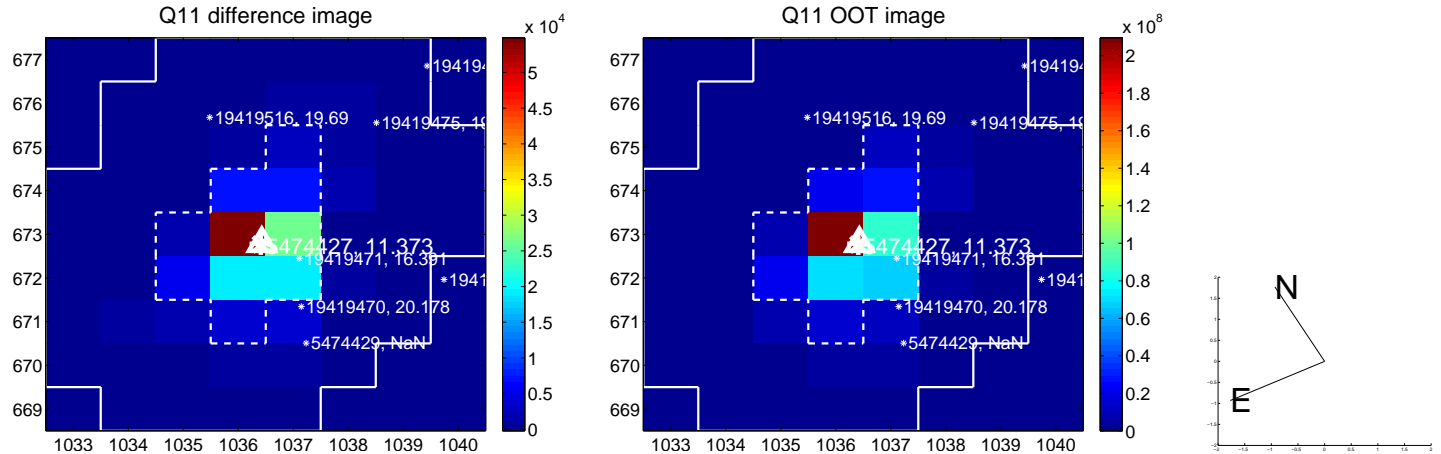
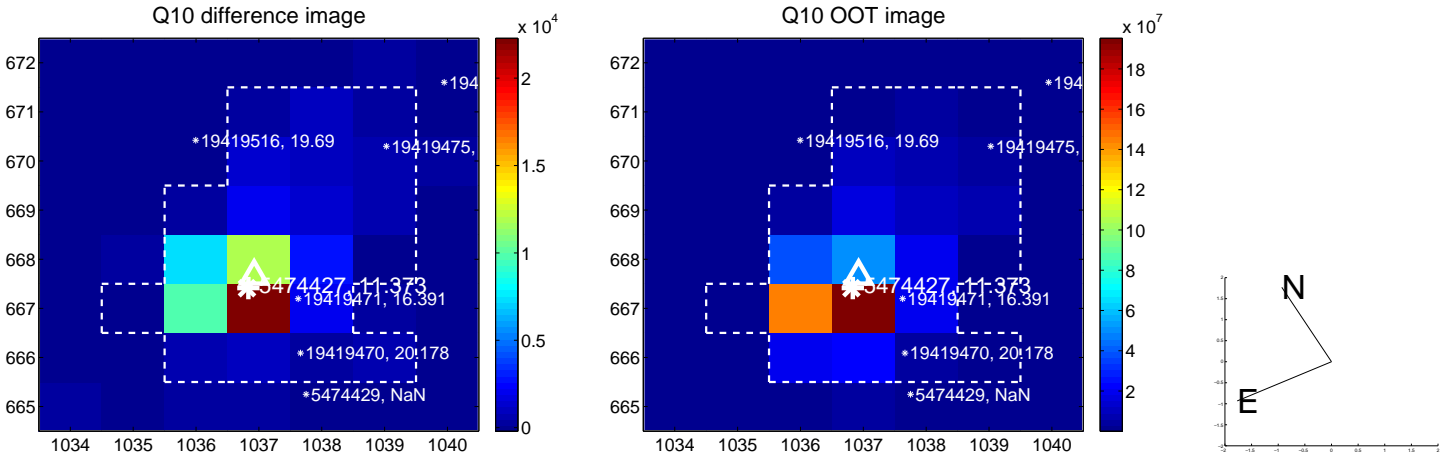
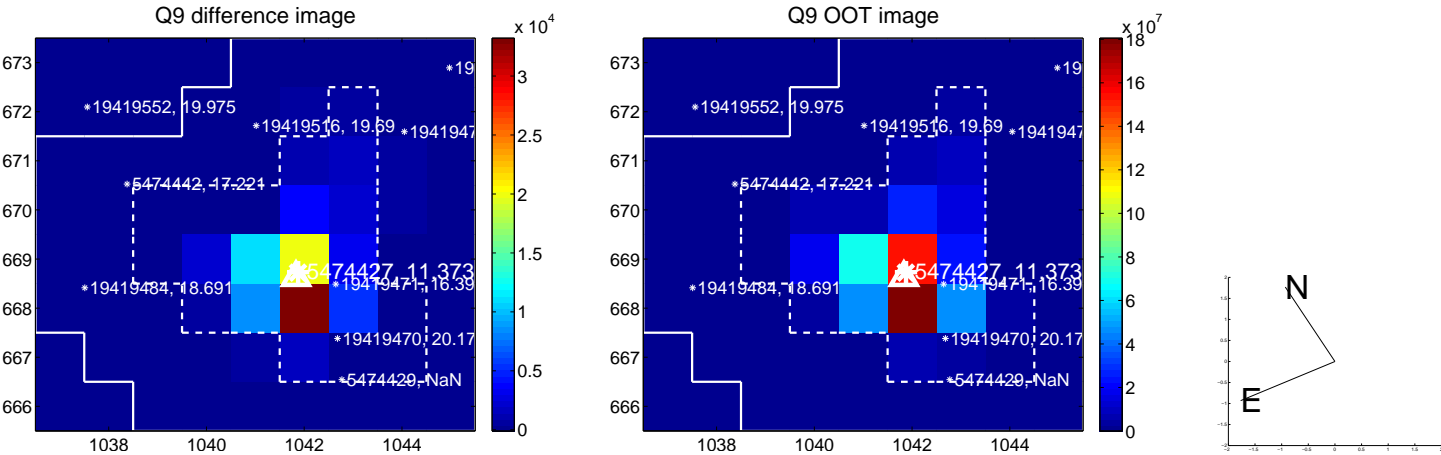
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



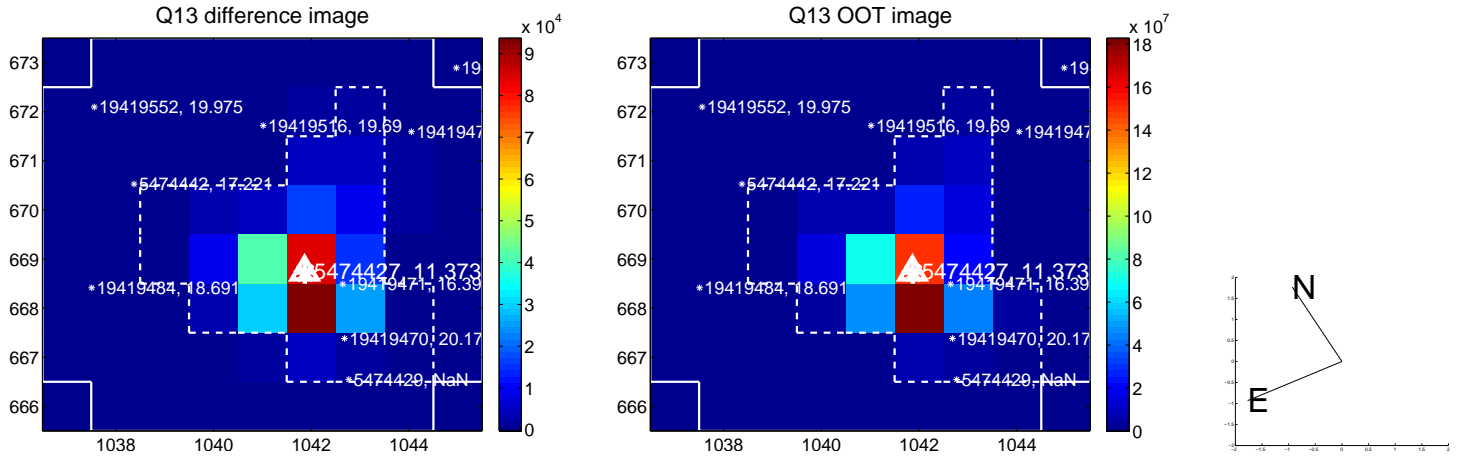
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



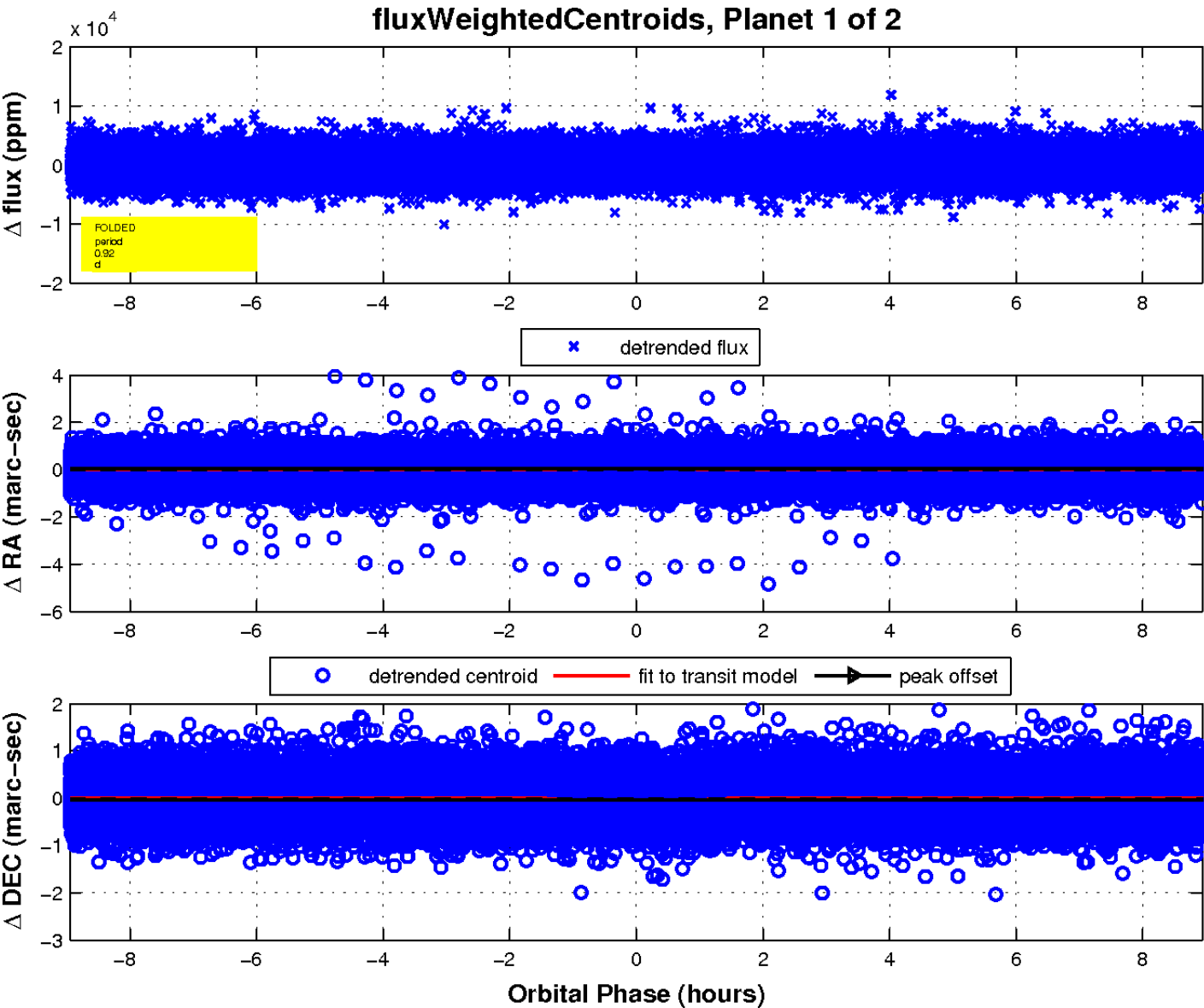
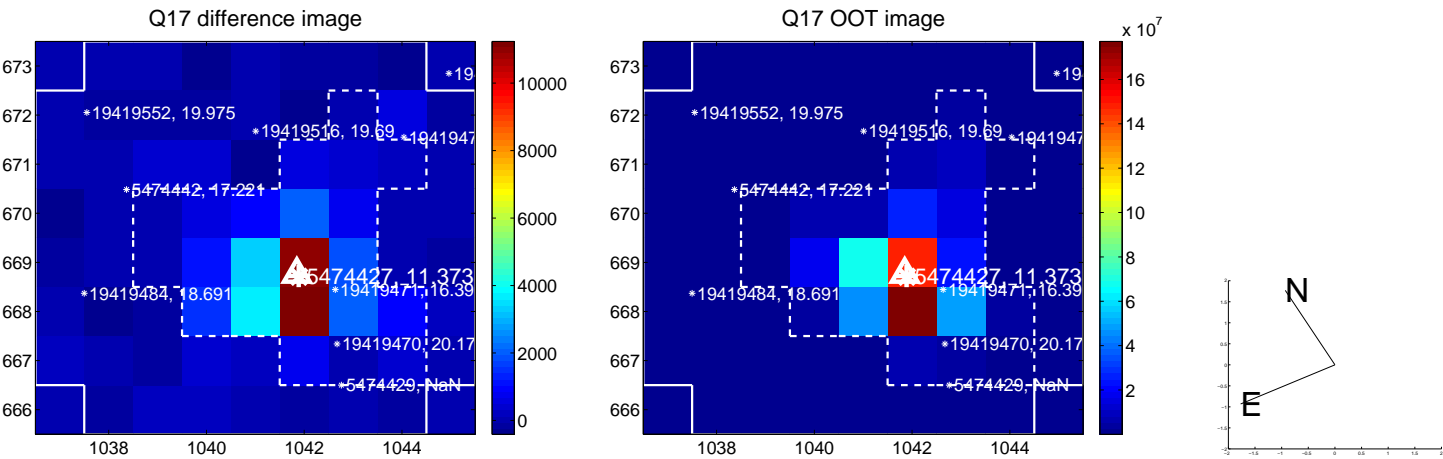
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



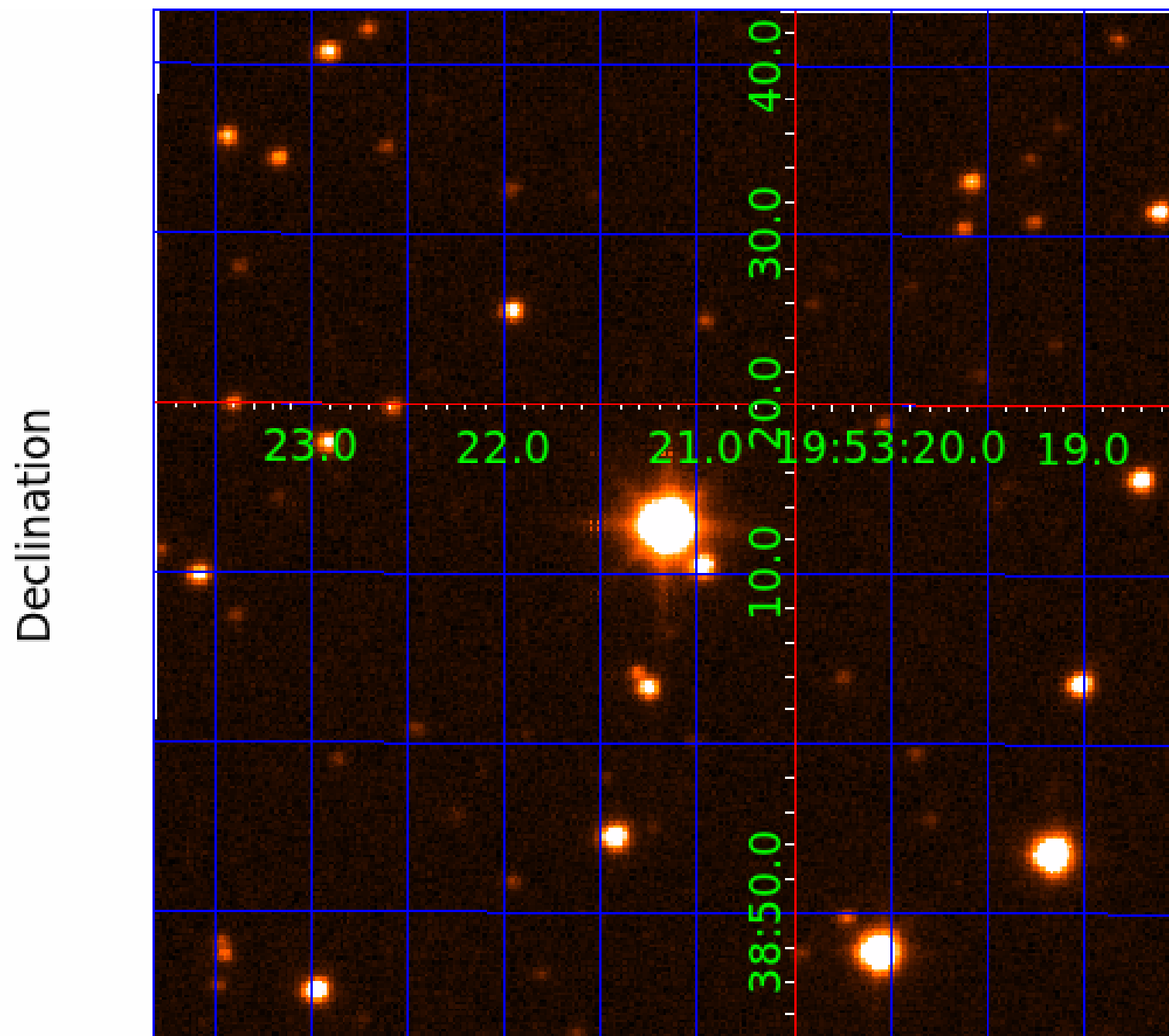
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005474427

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})
005474427-01	OBS	No	0.920144	132.220875	136.6	2.983	15.5	14.5	1.72	7201	2.31	16008.46
005474427-02	OBS	No	1.215419	132.143661	199.6	14.585	10.1	17.8	1.72	7201	3.15	11045.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005474427-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
005474427-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—CENT_SATURATED

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

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

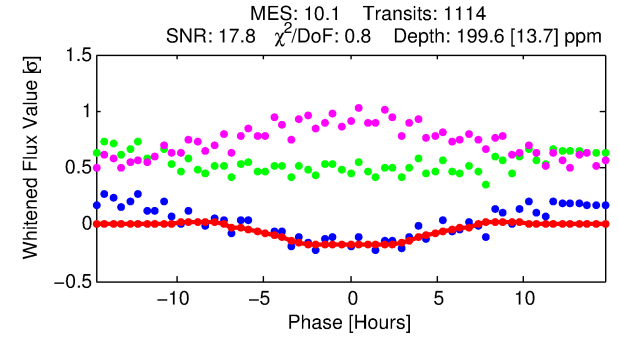
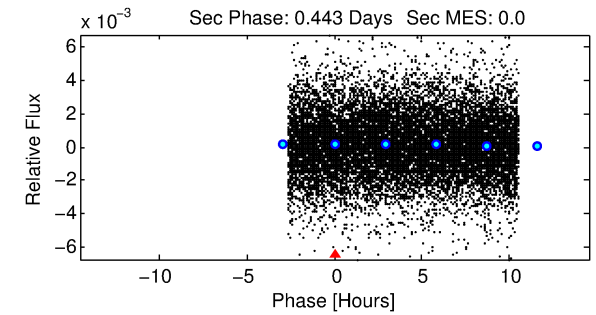
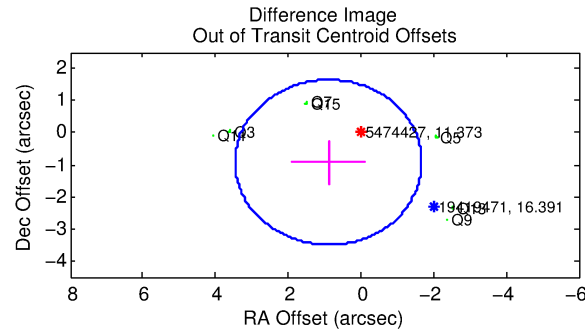
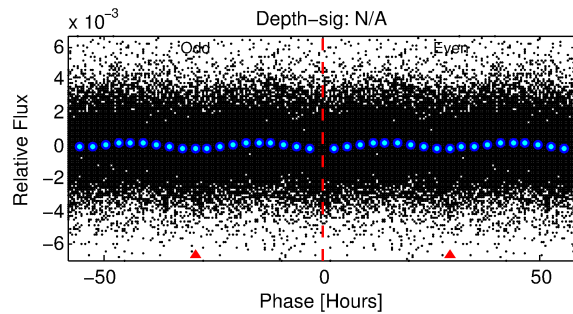
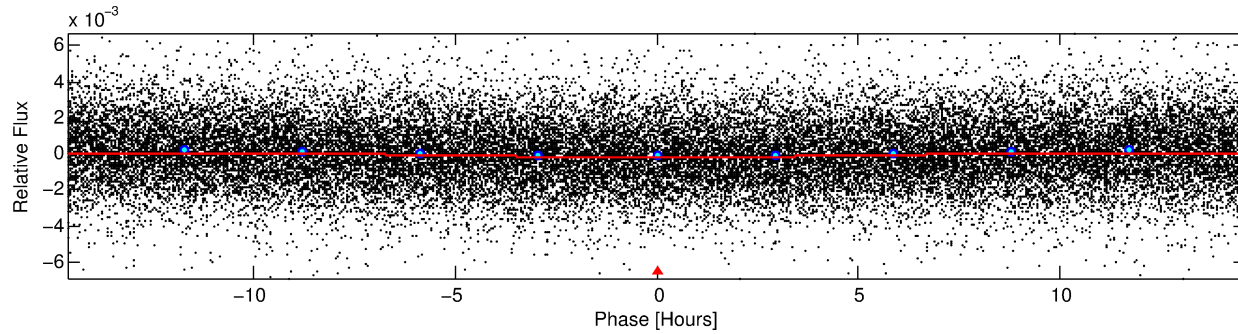
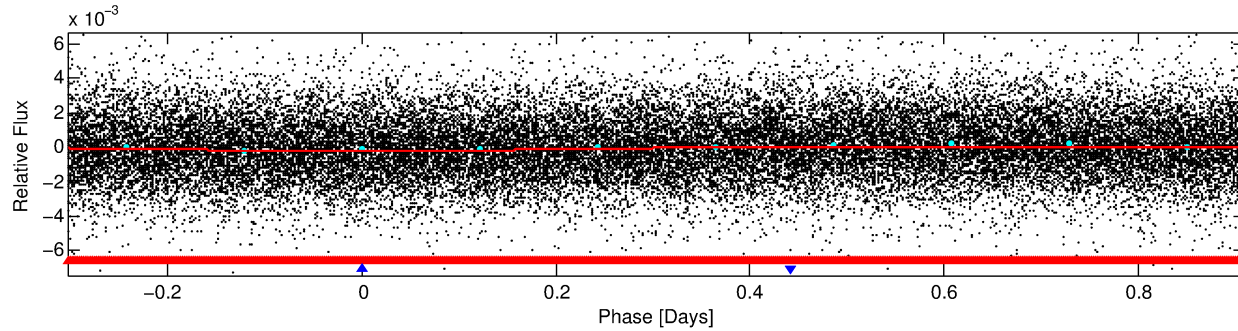
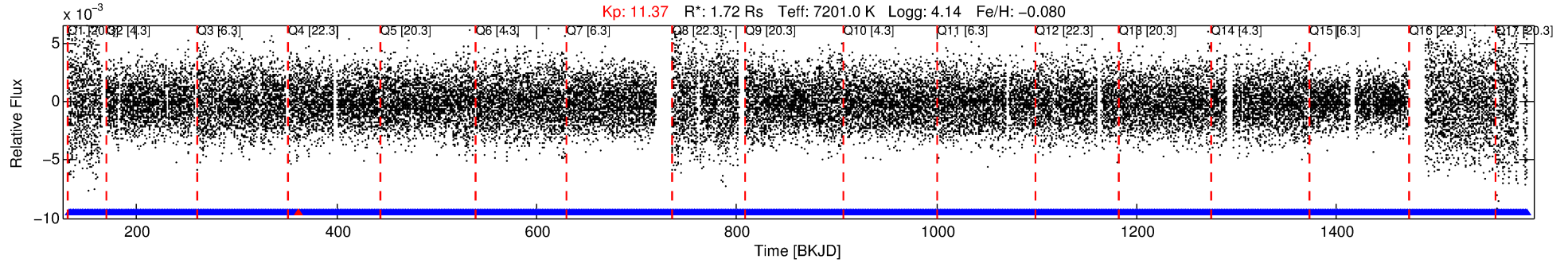
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005474427-02

No Significant Match Found

DV One-Page Summary

KIC: 5474427 Candidate: 2 of 2 Period: 1.215 d



DV Fit Results:

Period = 1.21542 [0.00002] d
Epoch = 132.1437 [0.0144] BKJD
Rp/R* = 0.0167 [0.0007]
a/R* = 1.01 [0.00]
b = 0.98 [0.01]
Seff = 11045.59 [4278.96]
Teq = 2614 [253] K
Rp = 3.15 [1.00] Re
a = 0.0255 [0.0065] AU
Ag = N/A
Teffp = N/A

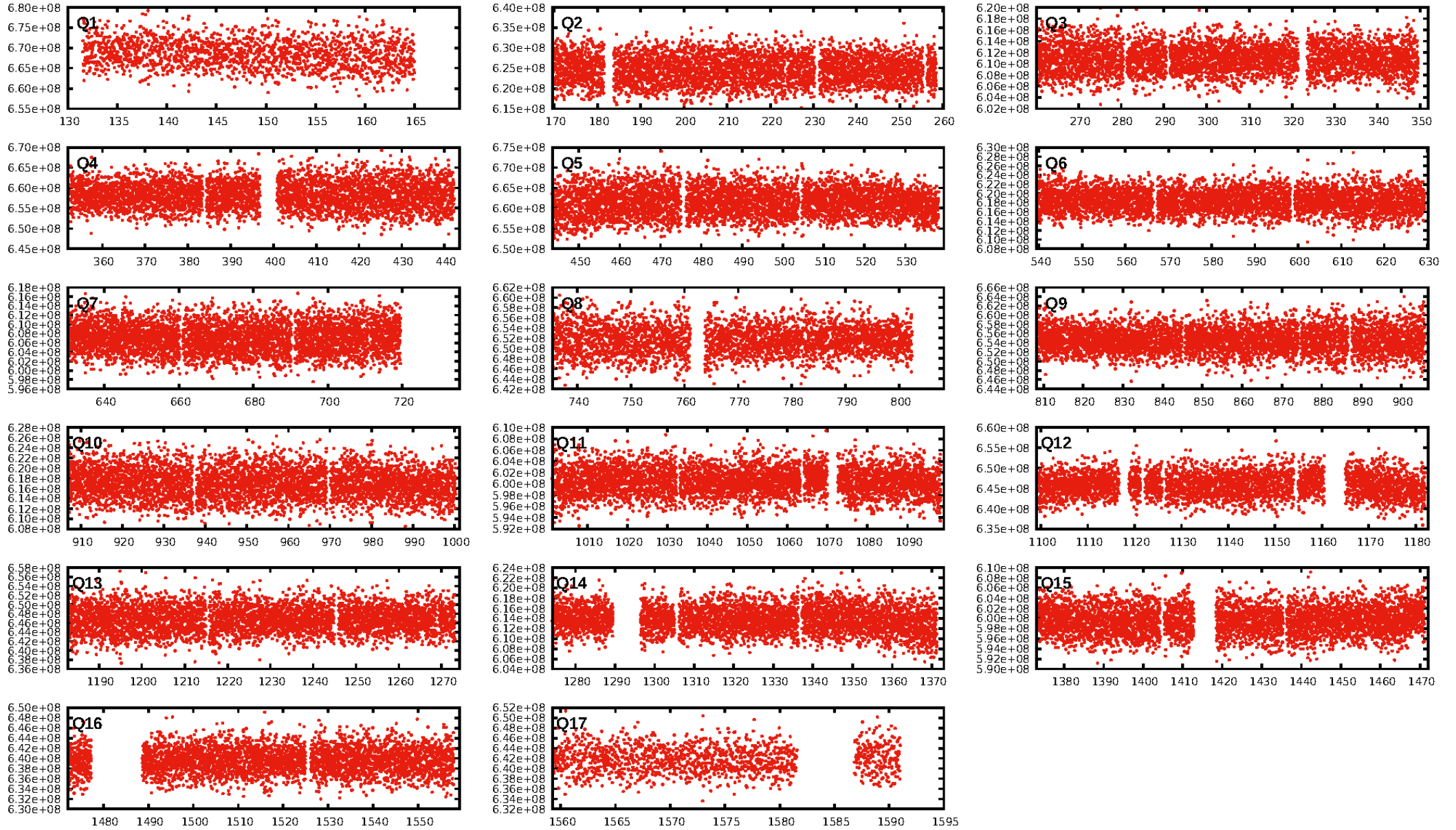
DV Diagnostic Results:

ShortPeriod-sig: 36.6% [0.48σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1063/1064]
GhostDiagnostic-chr: 1.429
Centroid-sig: 0.0%
Centroid-so: 0.221 arcsec [5.20σ]
OotOffset-rm: 1.289 arcsec [1.50σ]
KicOffset-rm: 1.246 arcsec [1.45σ]
OotOffset-st: 0/4/0/3 [7]
KicOffset-st: 0/4/0/3 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 0.00 [0/17]

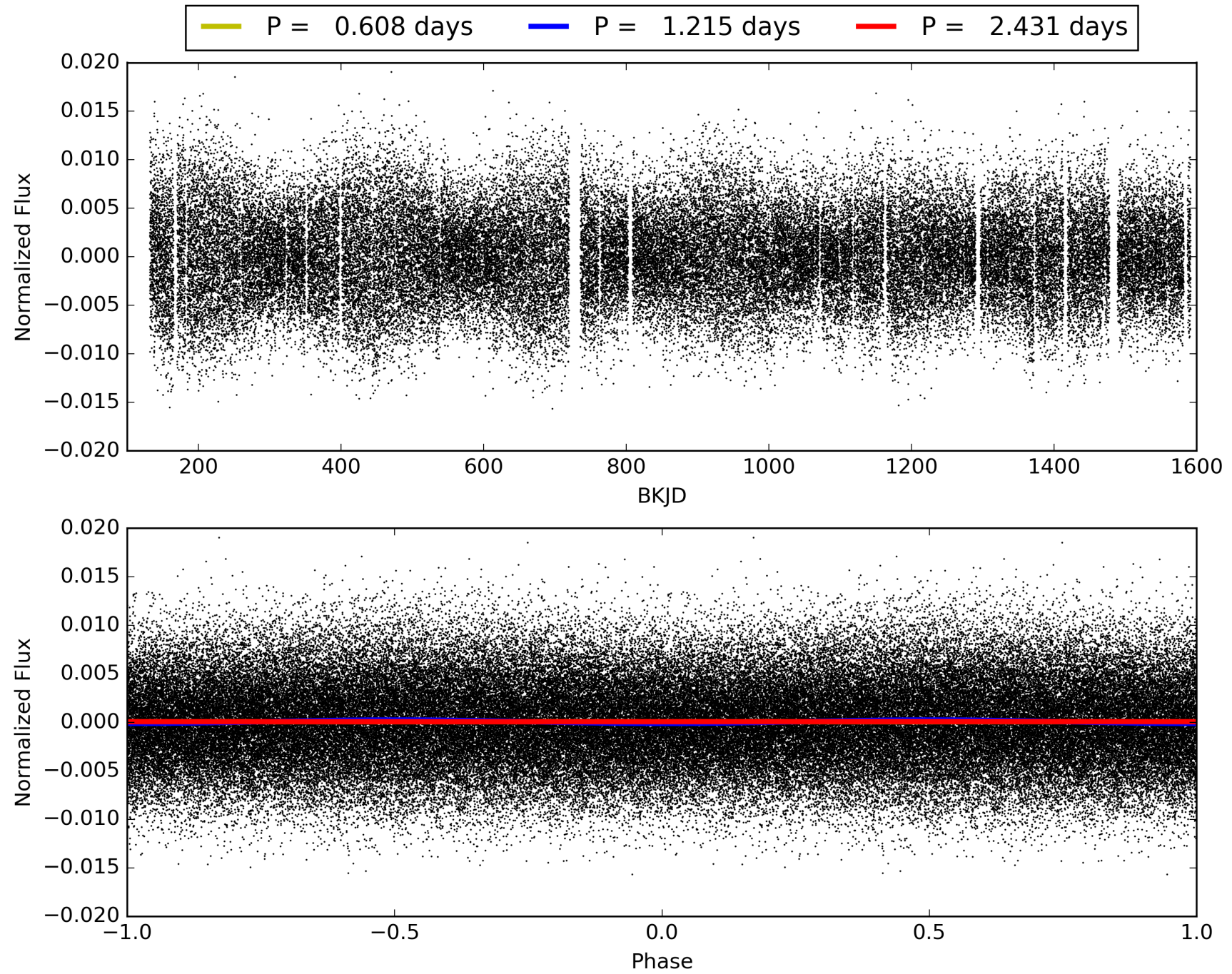
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:49:01 Z

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

TCE 005474427-02, PDC Light Curves

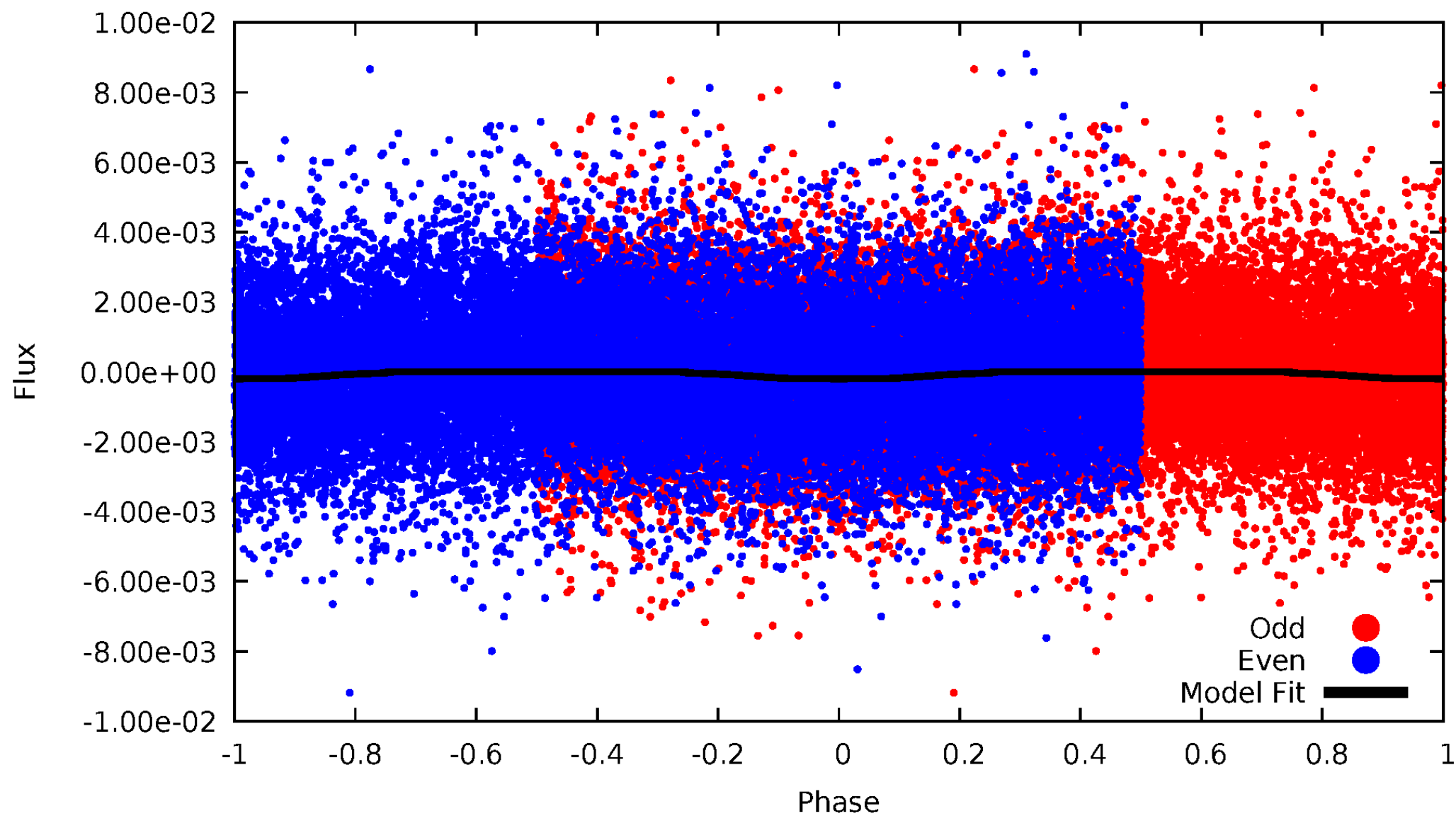


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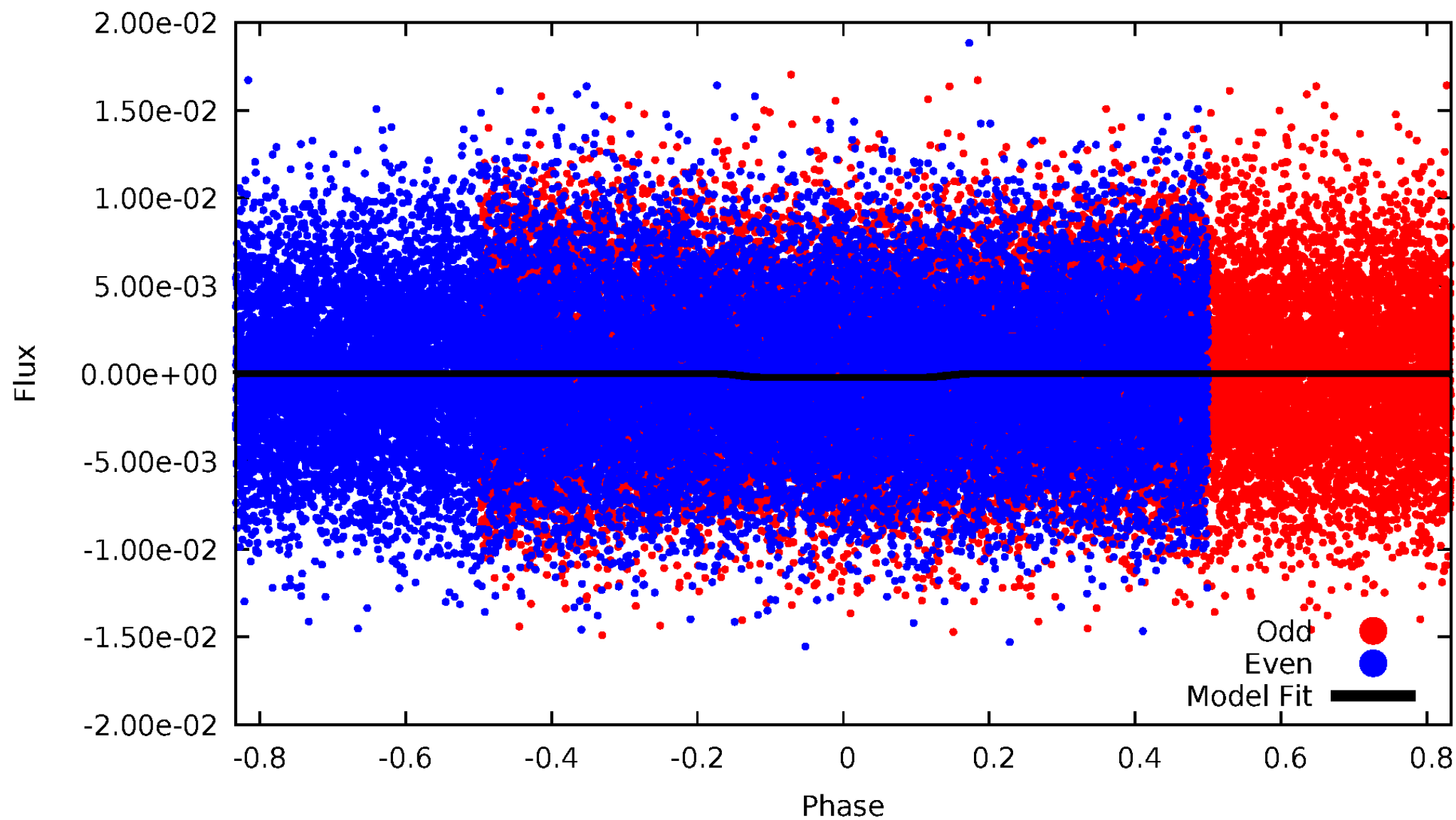
DV Odd/Even

TCE 005474427-02



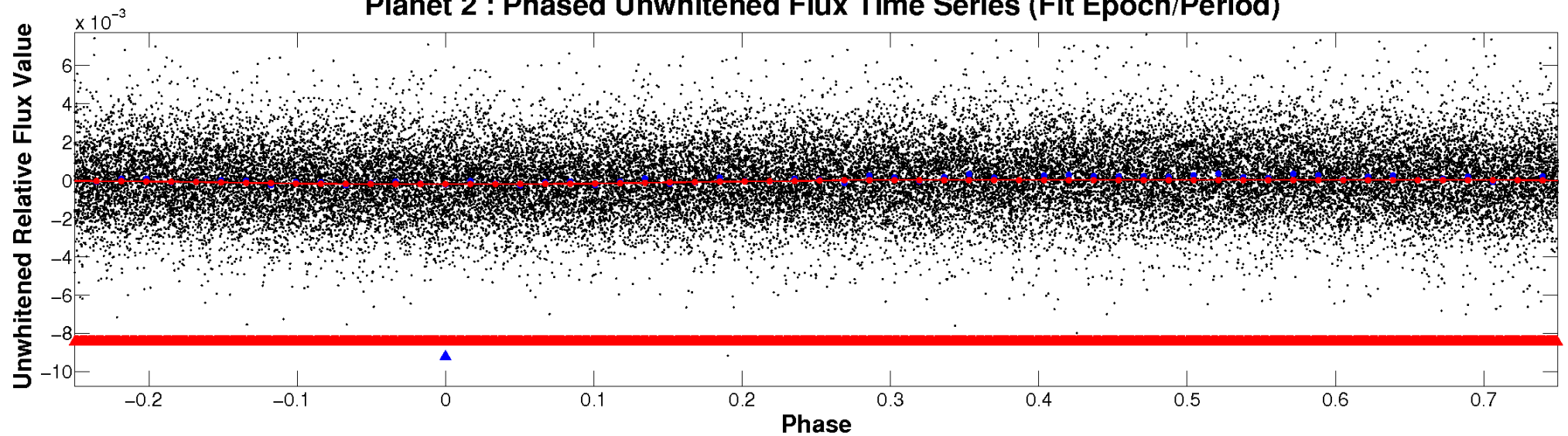
ALT Odd/Even

TCE 005474427-02

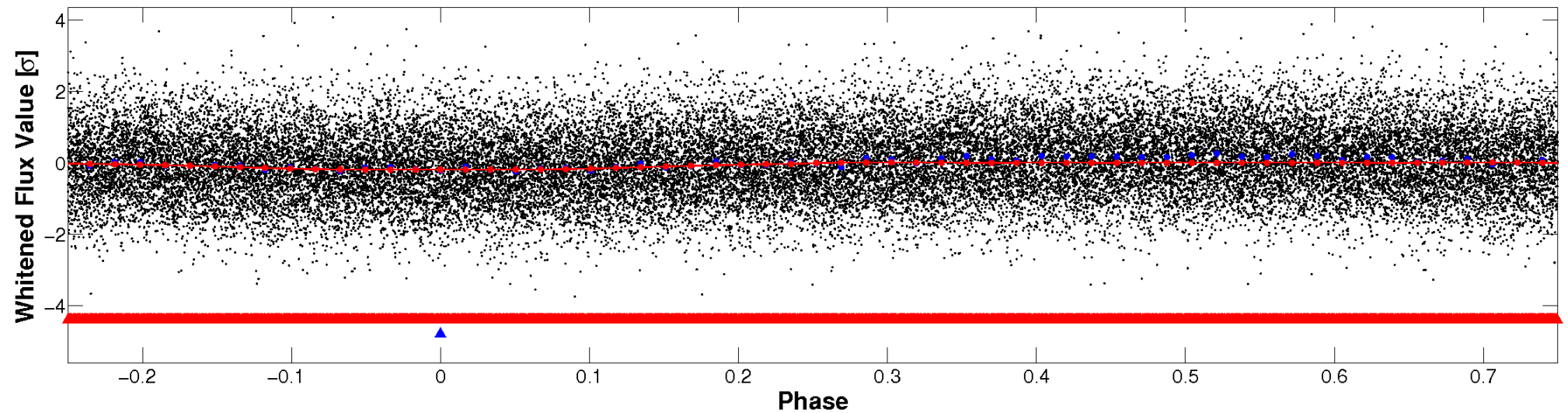


Non-Whitened Vs. Whitened Light Curve

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

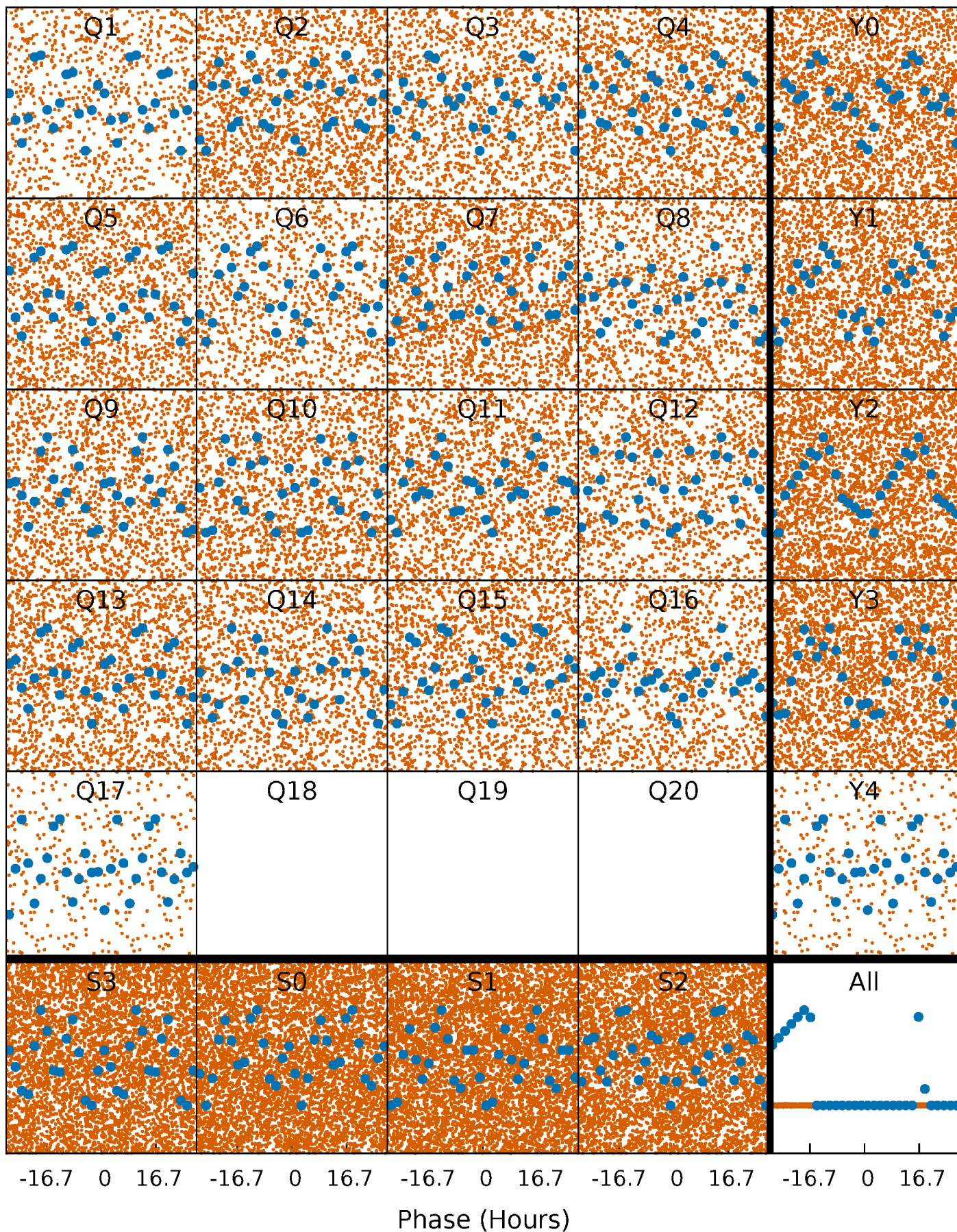


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



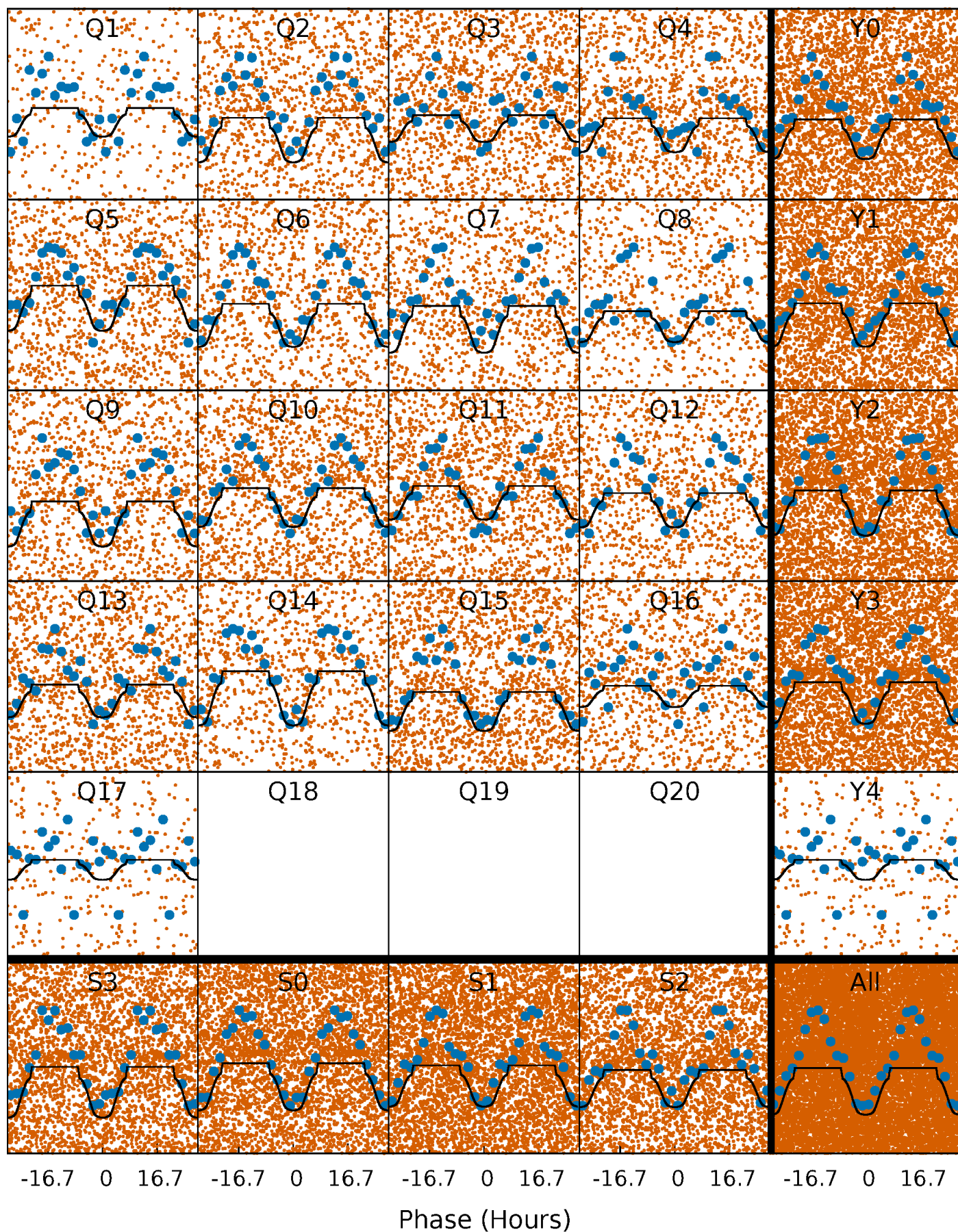
PDC Quarter-Phased Transit Curves

TCE 005474427-02 P= 1.215419 Days $T_0=132.143661$ (BKJD)



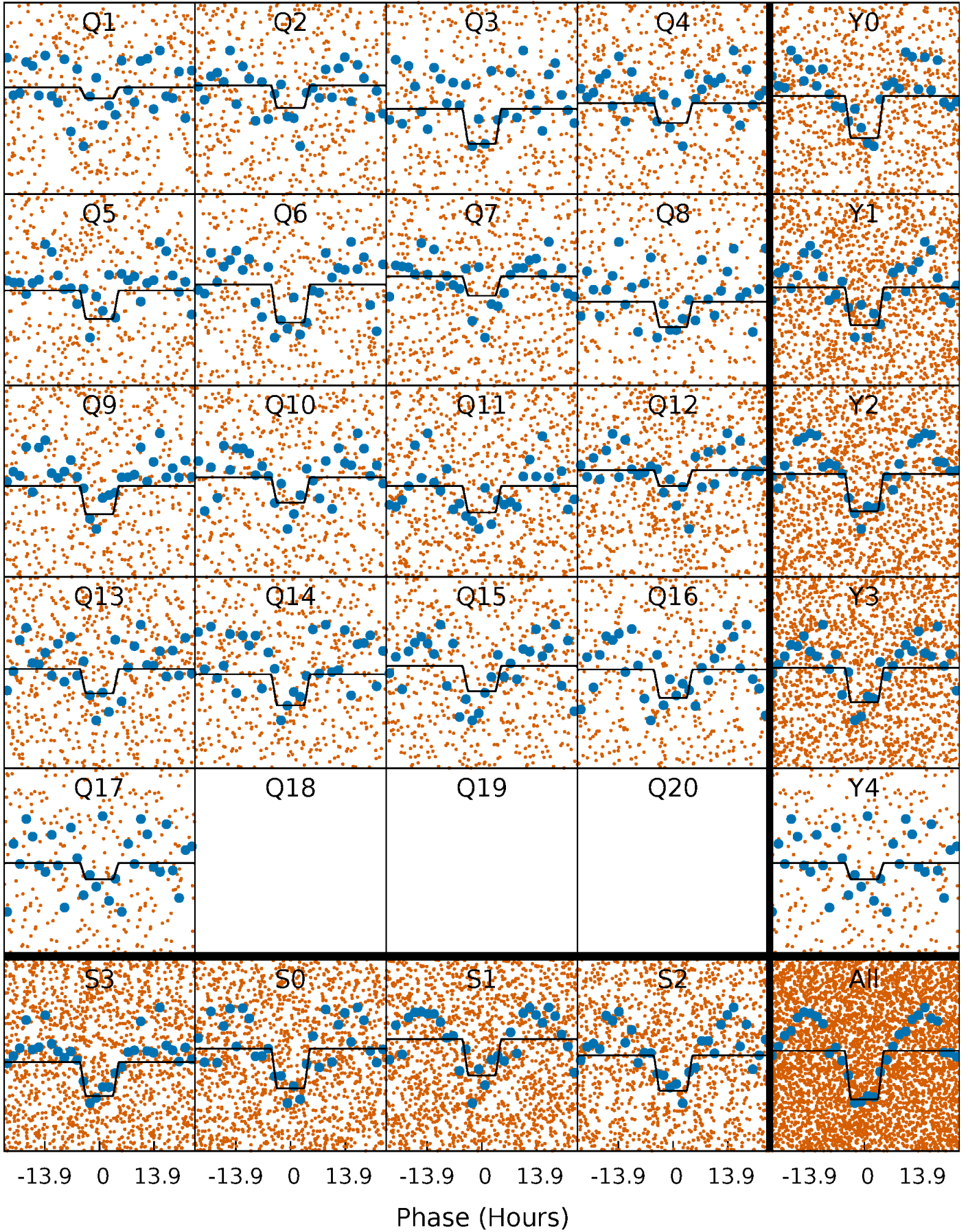
DV Quarter-Phased Transit Curves

TCE 005474427-02 P= 1.215419 Days $T_0=132.143661$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

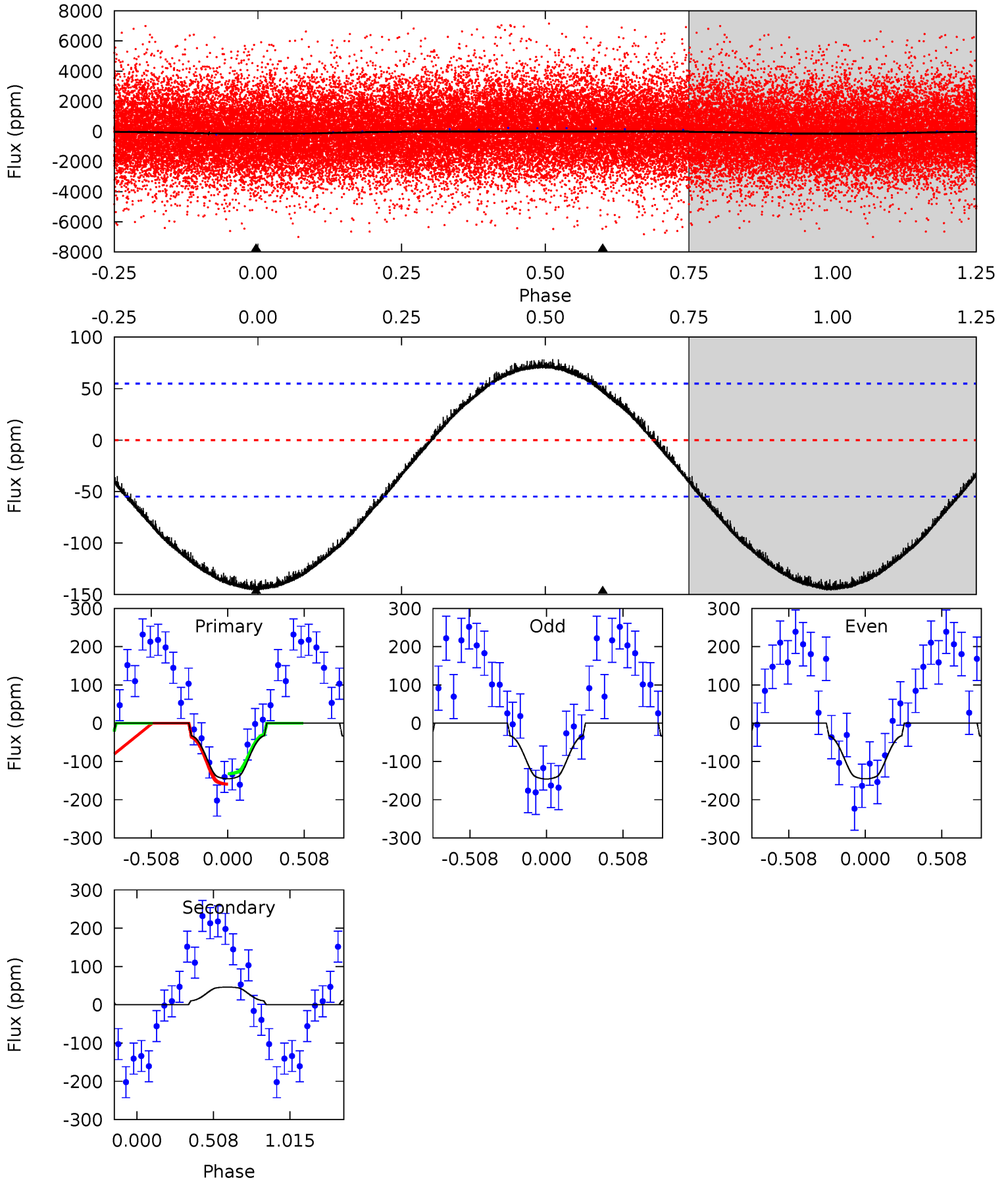
TCE 005474427-02 P= 1.215402 Days $T_0=132.147054$ (BKJD)



DV Model-Shift Uniqueness Test

005474427-02, P = 1.215419 Days, E = 130.928242 Days

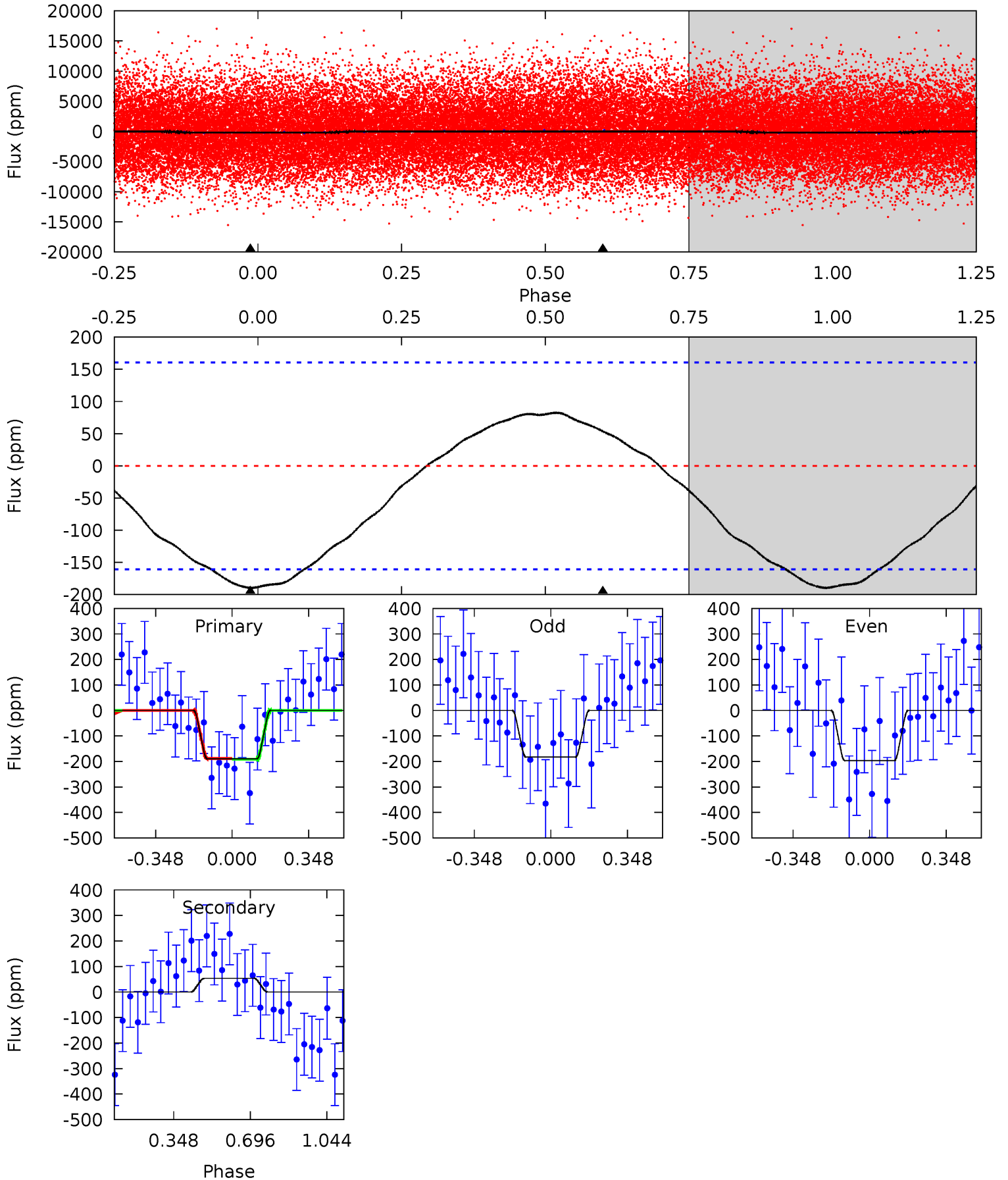
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	-3.55	0	0	4.21	0.66	1.49	11.1	11.1	-3.55	-3.55	0.02	0.92	0.35	1.05



Alt Model-Shift Uniqueness Test

005474427-02, P = 1.215402 Days, E = 130.931652 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.07	-1.43	0	0	4.30	0.94	0.52	5.07	5.07	-1.43	-1.43	0.18	3.02	0.30	0.04



Stellar Parameters For KIC 005474427

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7201^{+201}_{-251}	$4.138^{+0.128}_{-0.192}$	$-0.080^{+0.200}_{-0.350}$	$1.724^{+0.541}_{-0.316}$	$1.488^{+0.221}_{-0.243}$	$0.409^{+0.271}_{-0.208}$
	+3%/-3%	+3%/-5%	+250%/-438%	+31%/-18%	+15%/-16%	+66%/-51%
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 005474427-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	46 ± 13	$3.16^{+0.52}_{-0.35}$	3679^{+292}_{-236}	-4862^{+296}_{-248}	$-1.579^{+0.563}_{-0.719}$
Alt.	54 ± 37	$2.72^{+0.45}_{-0.36}$	3672^{+283}_{-242}	-5301^{+968}_{-661}	$-2.514^{+1.758}_{-1.912}$

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

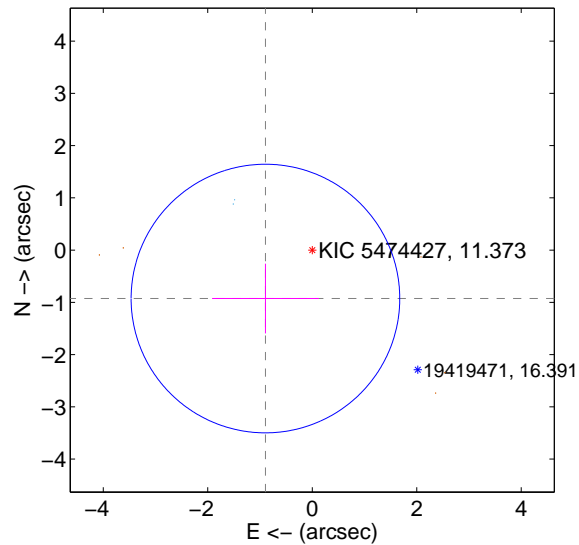
Supplemental centroid analysis for 005474427-02. **Kepler magnitude: 11.37.** Transit SNR 17.79

There are 2 quarters with good PRF difference image offsets

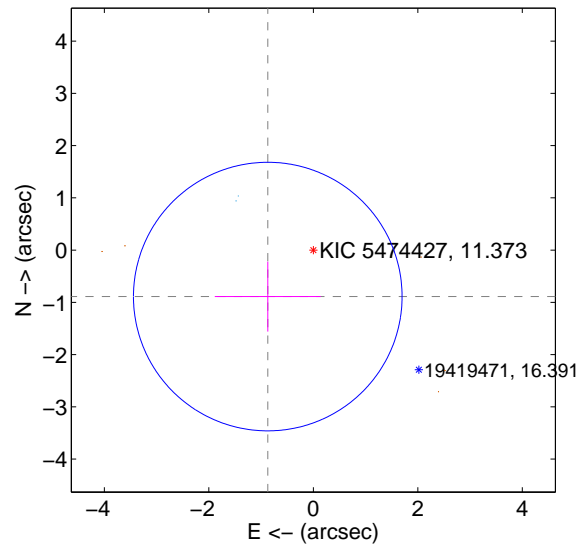
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.289 ± 0.857	1.50	0.896 ± 1.022	-0.927 ± 0.667
PRF-fit source offset from KIC position	1.246 ± 0.857	1.45	0.872 ± 1.015	-0.890 ± 0.670
photometric centroid source offset	0.22 ± 0.04	5.20	-0.11 ± 0.05	0.19 ± 0.04

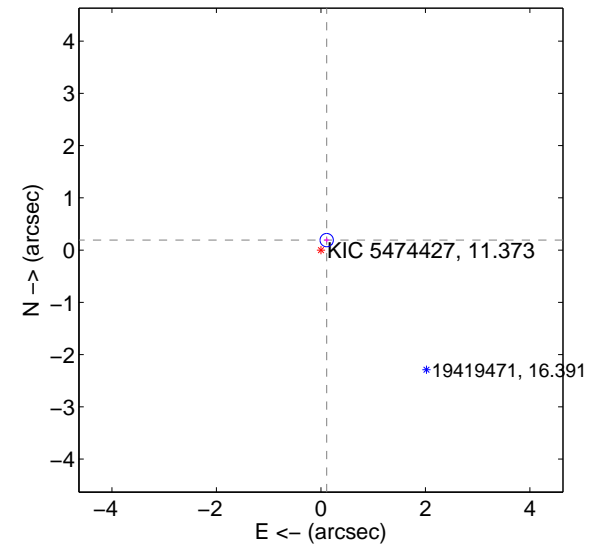
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

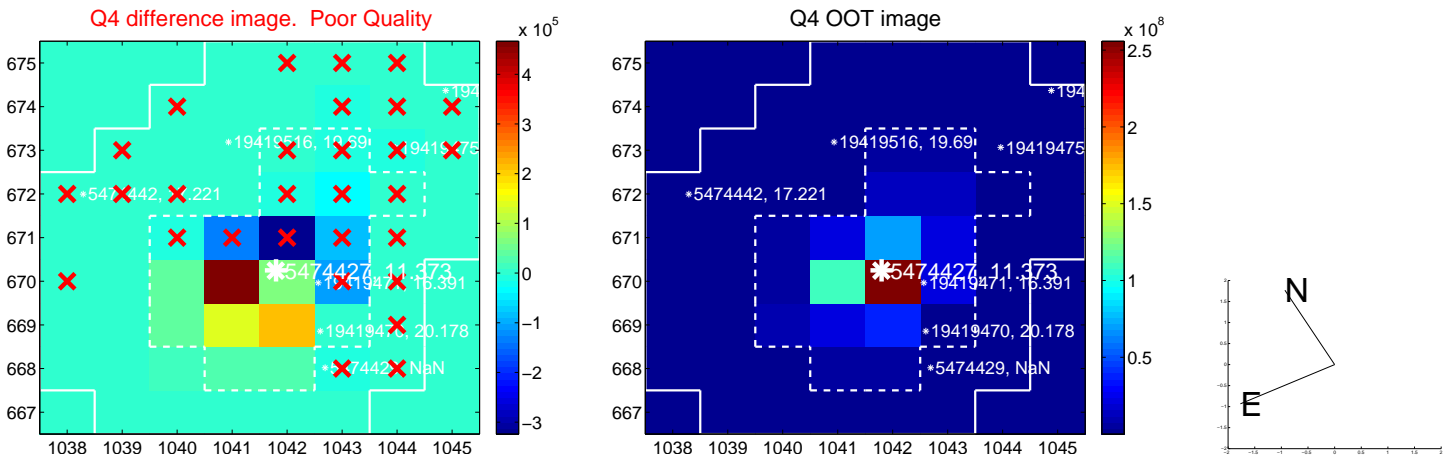
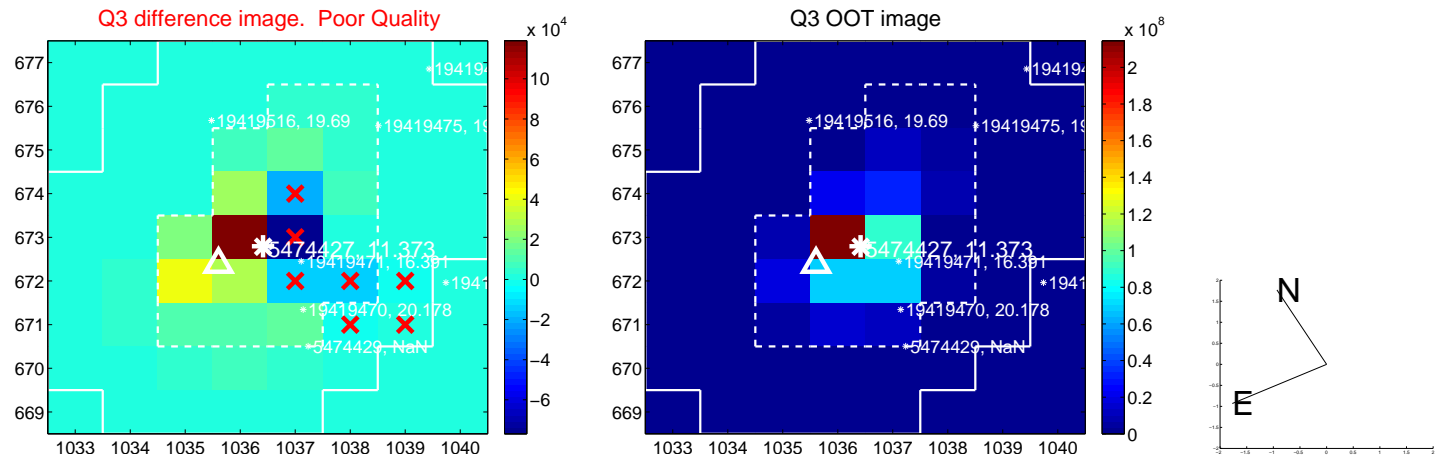
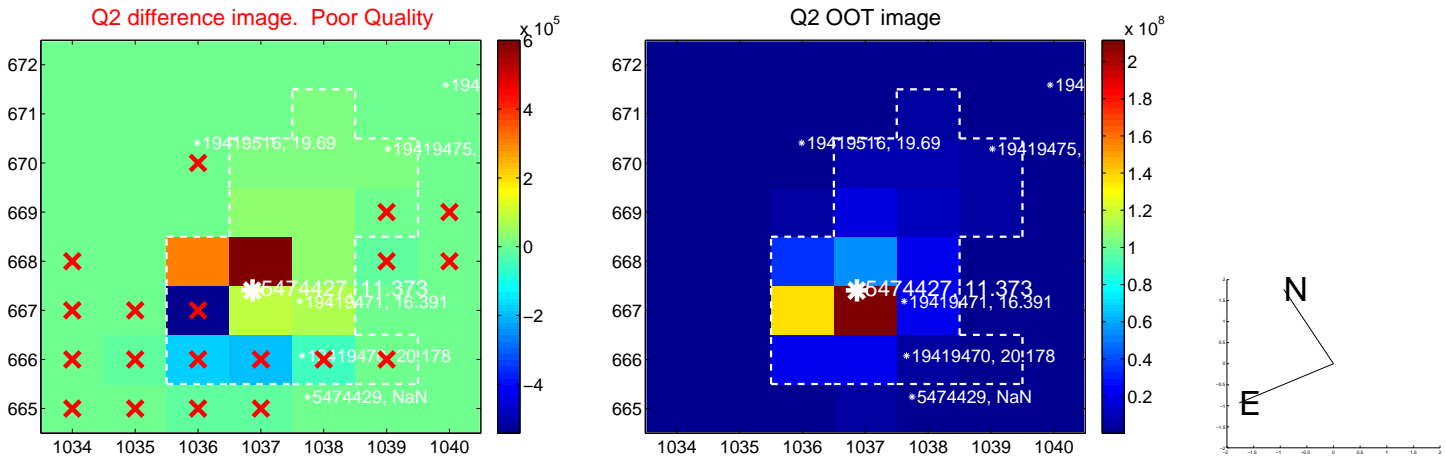
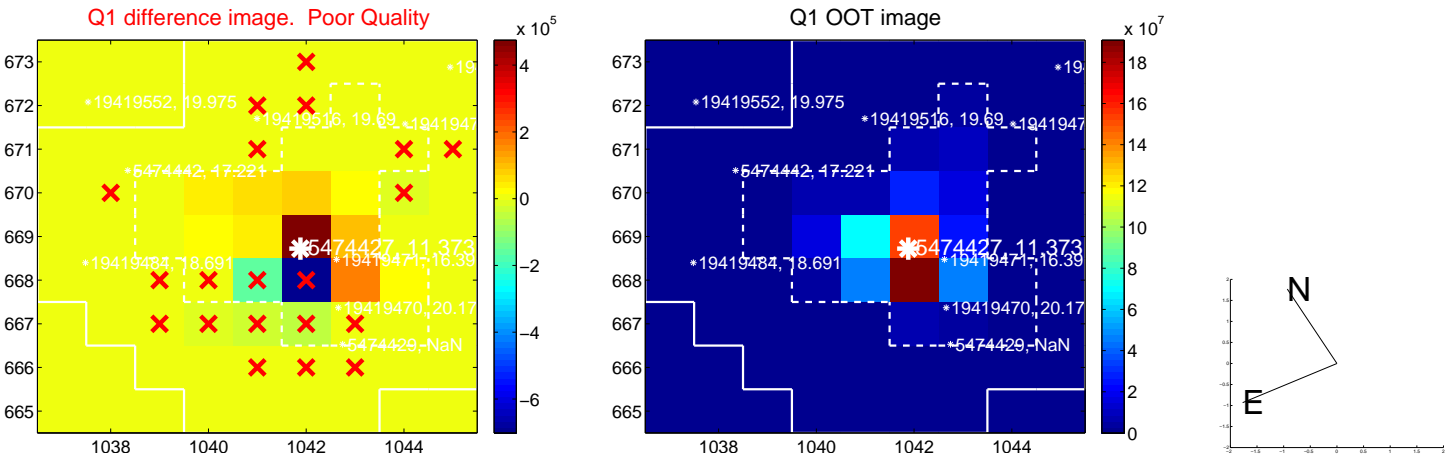


offset from photometric centroids

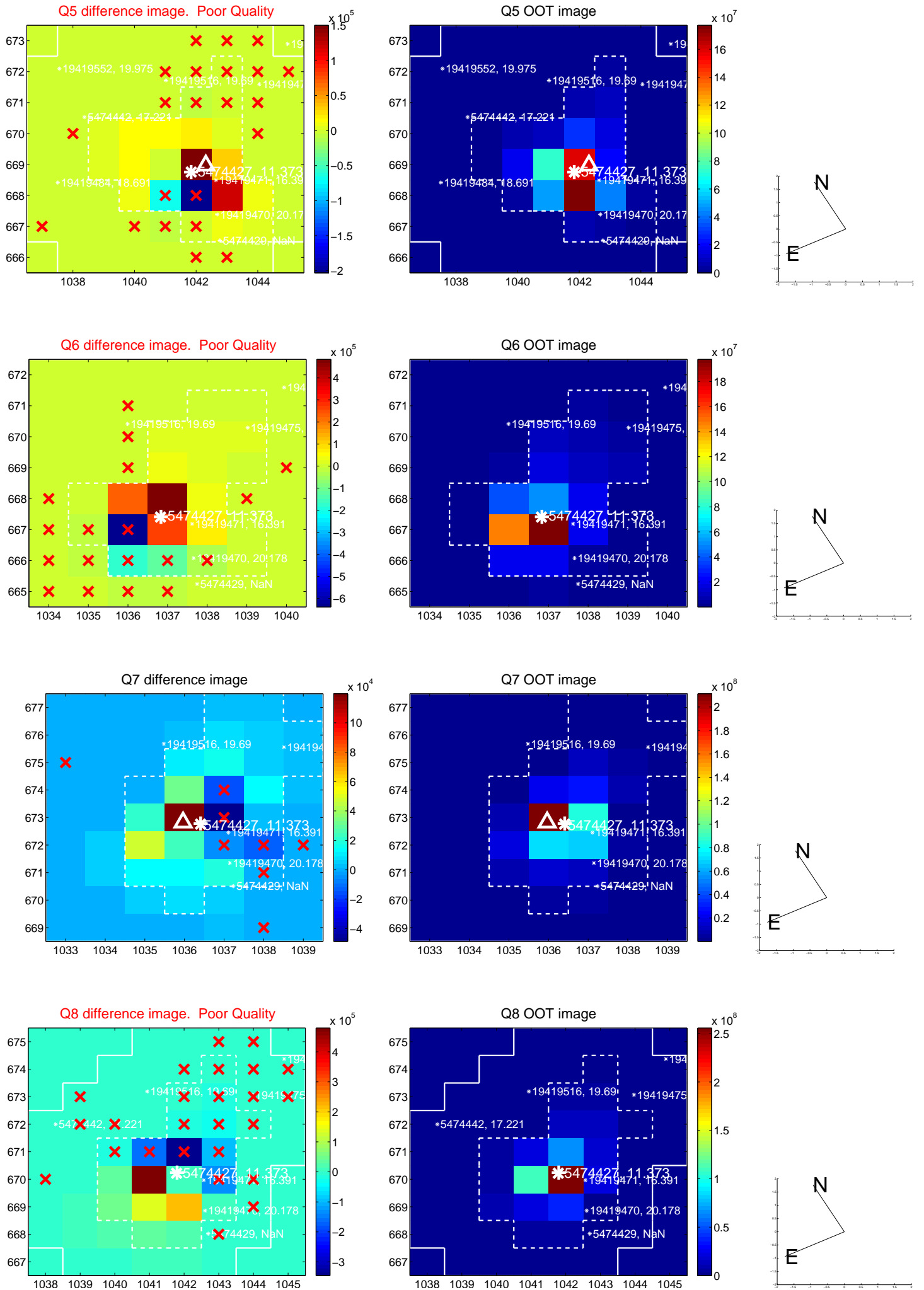


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

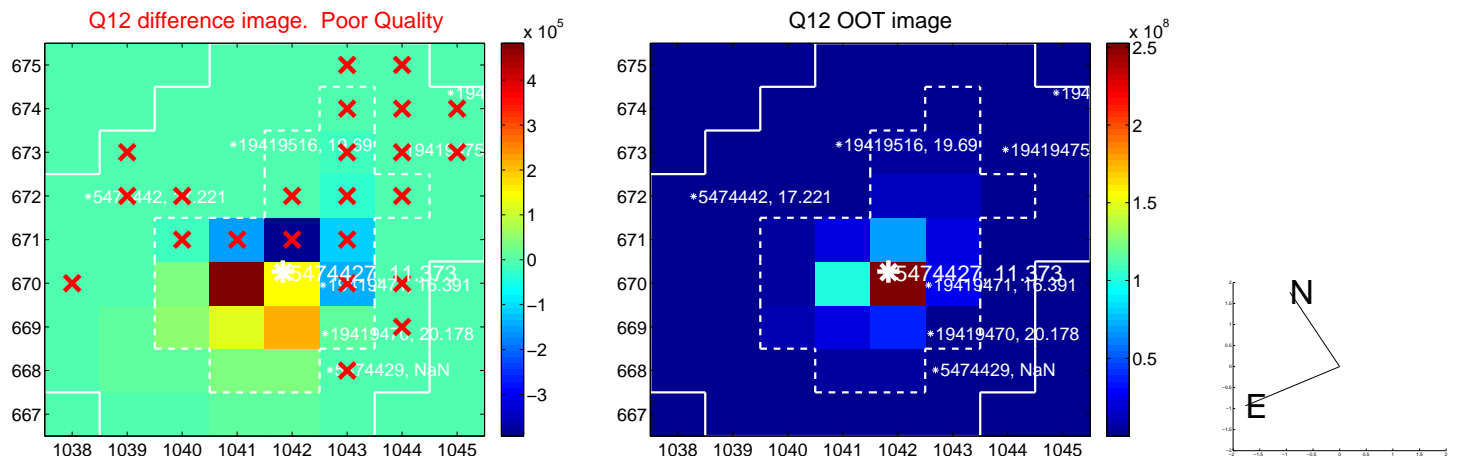
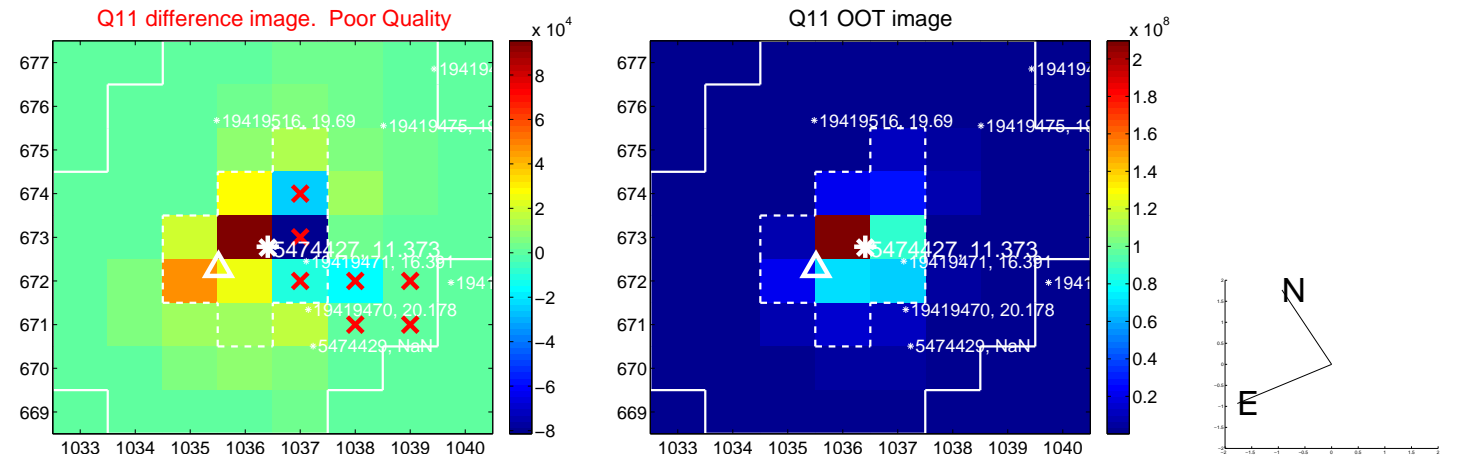
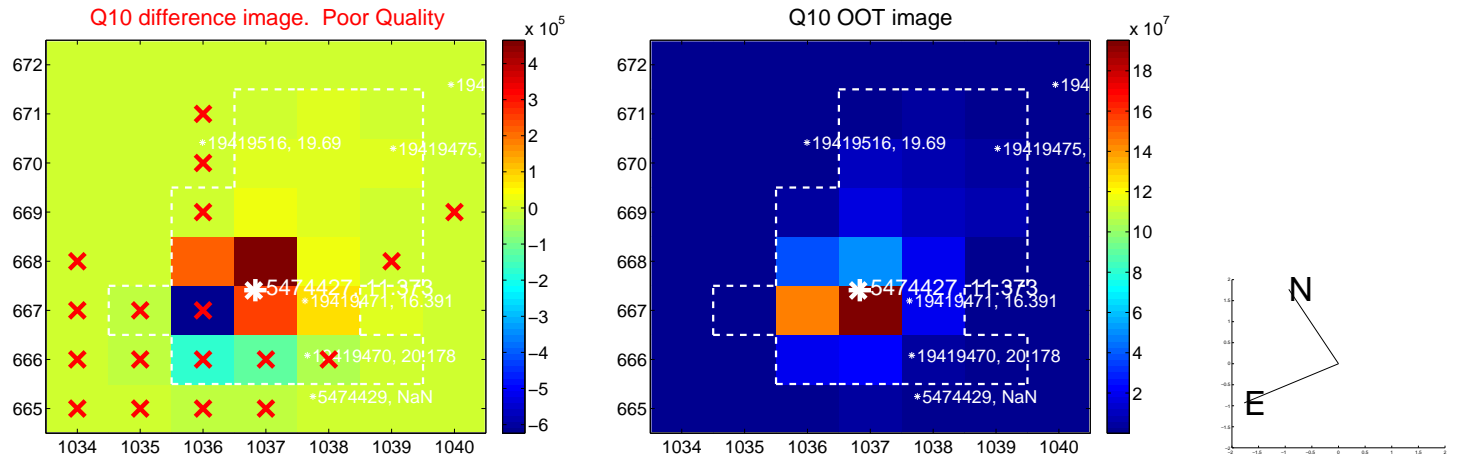
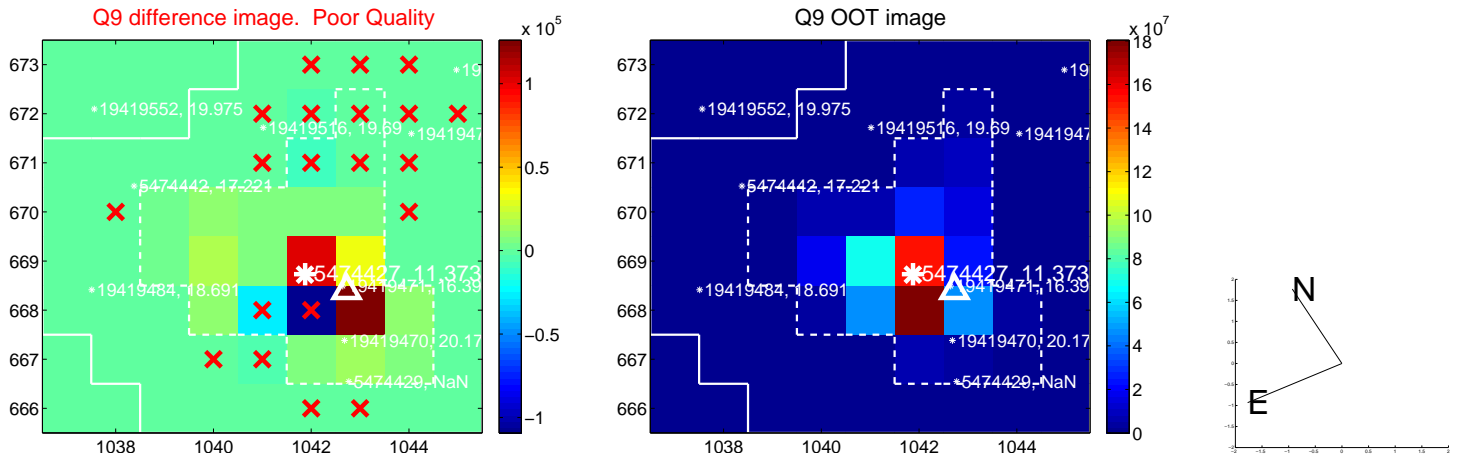
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



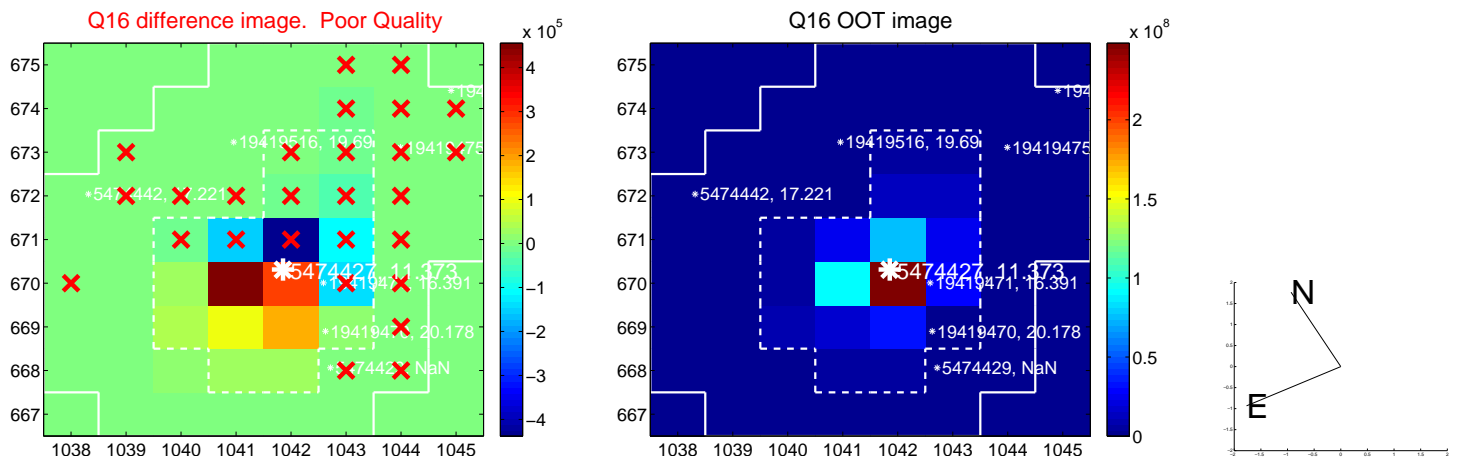
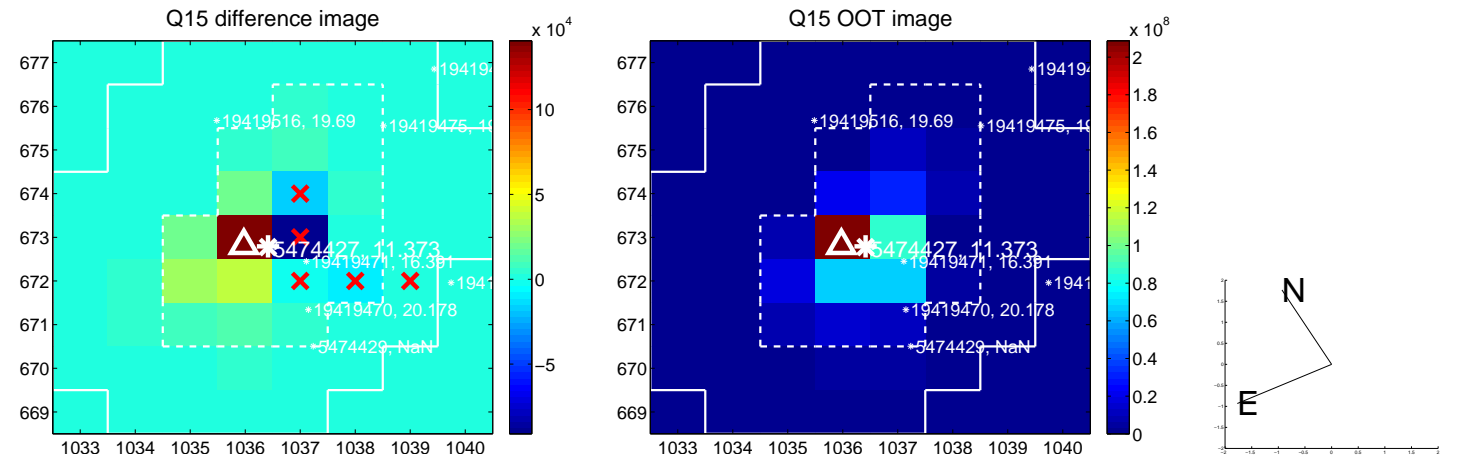
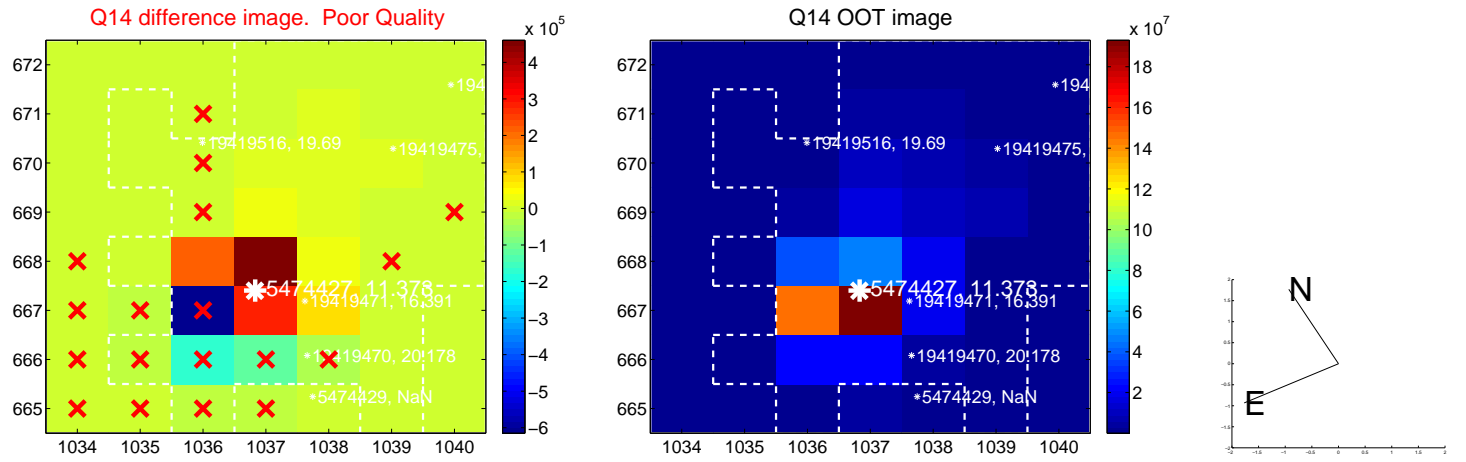
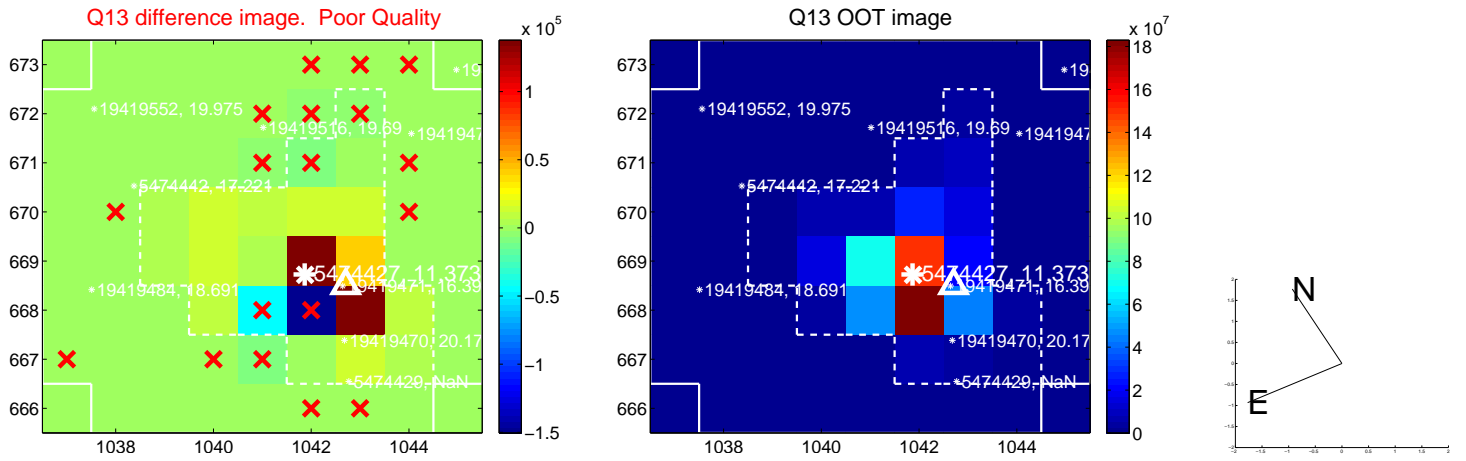
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



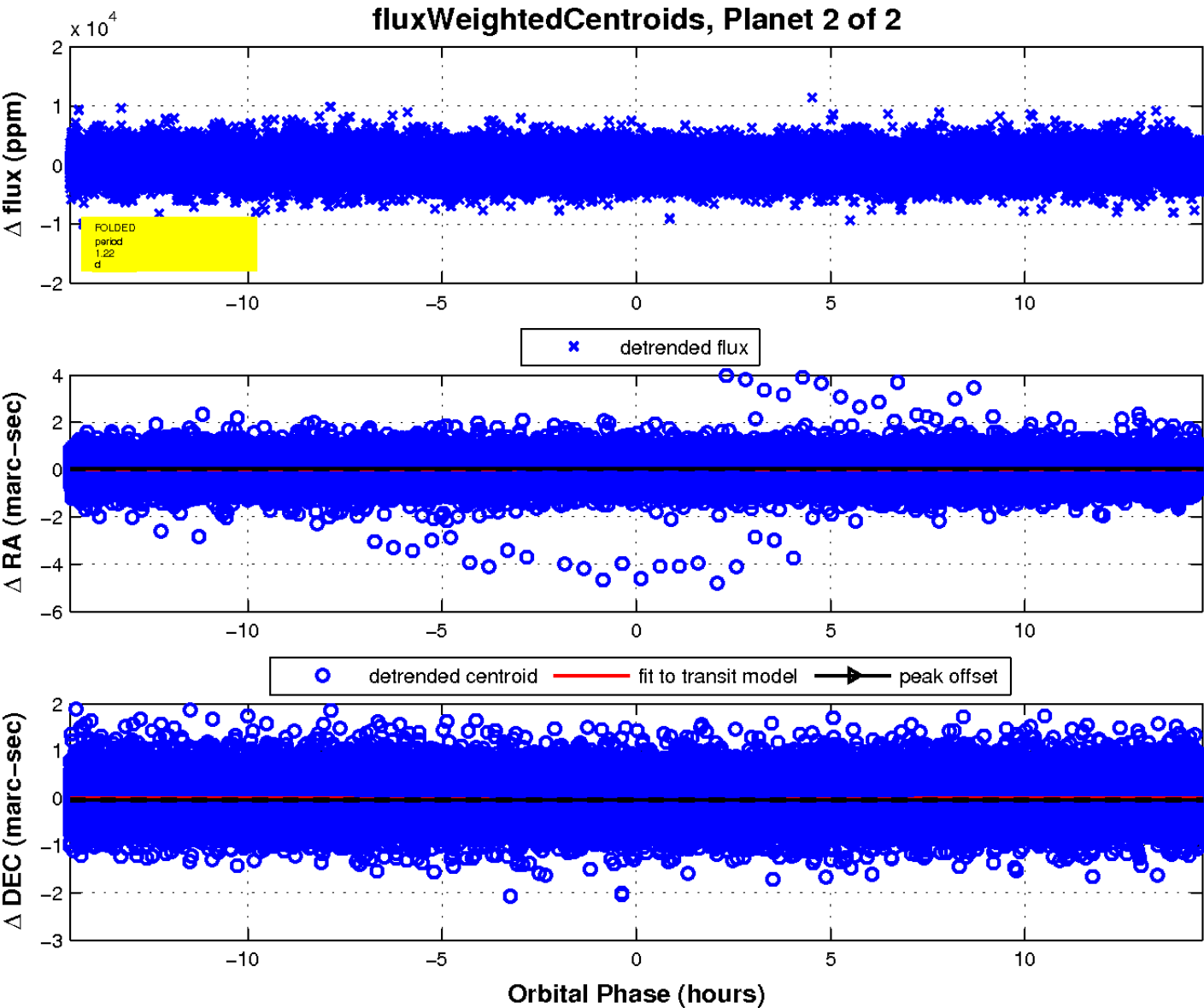
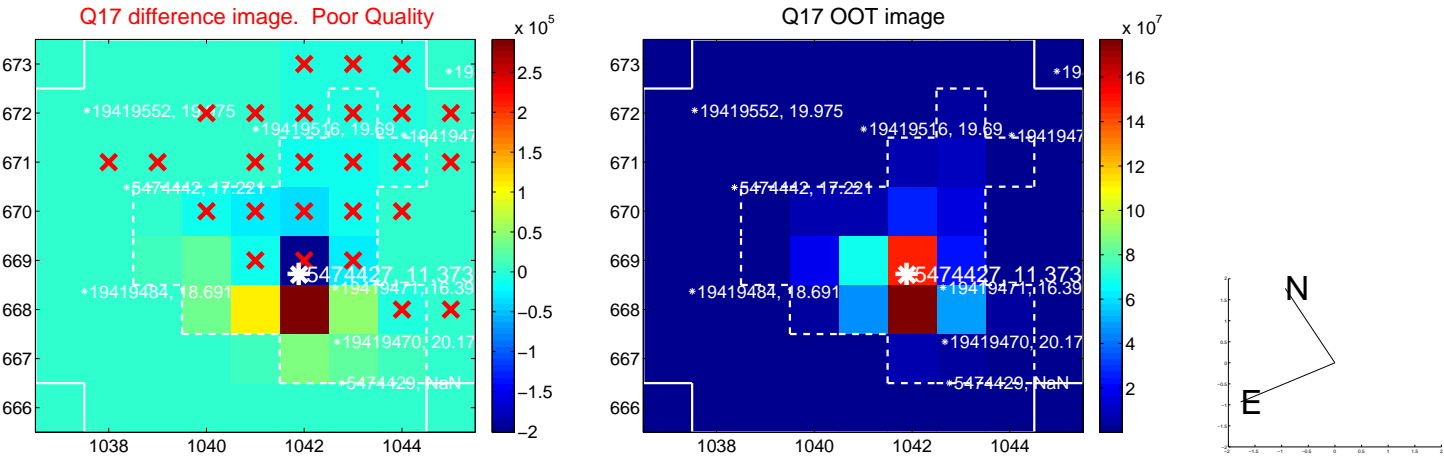
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UKIRT Image

