

KIC 005716330

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})
005716330-01	OBS	No	3.137333	131.962860	22.5	13.723	8.1	8.8	1.30	5952	0.66	1054.35
005716330-02	OBS	No	133.221945	222.622098	152.9	25.790	18.0	7.1	1.30	5952	1.74	7.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005716330-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005716330-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

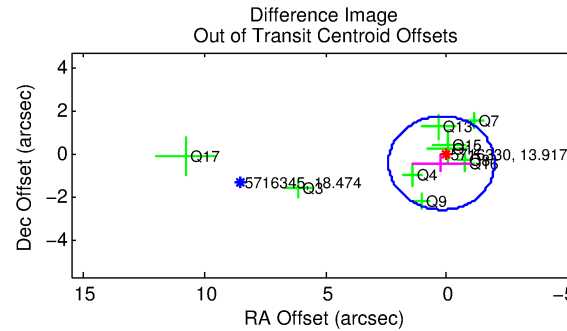
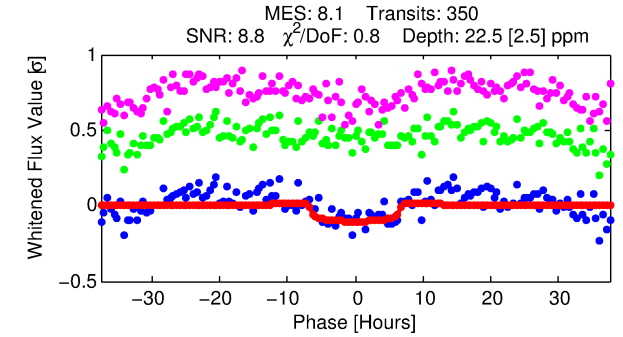
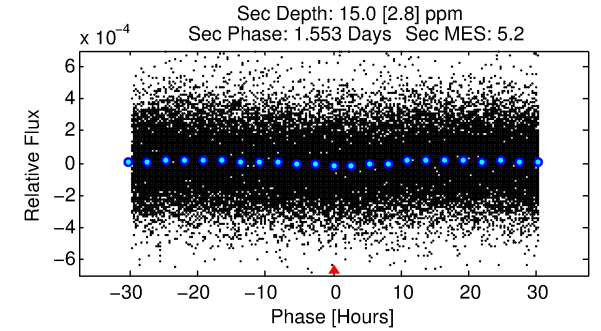
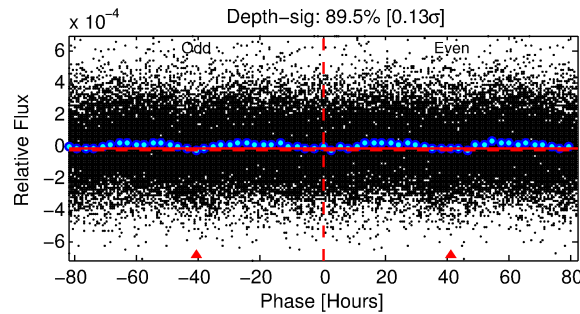
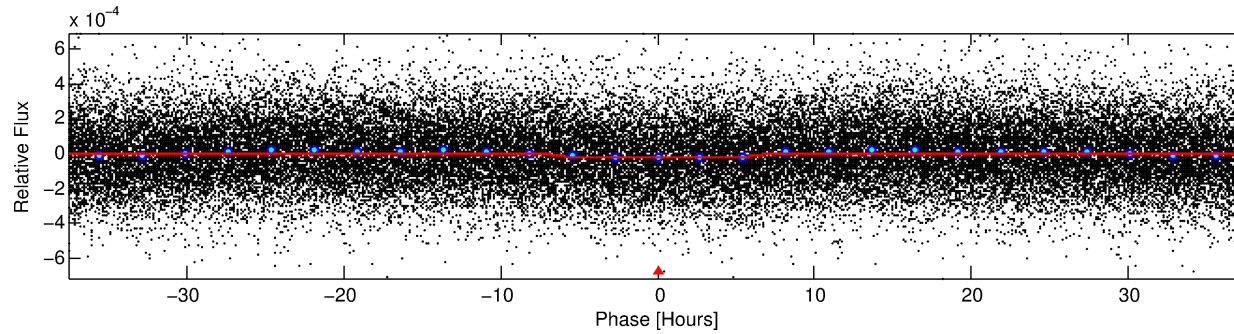
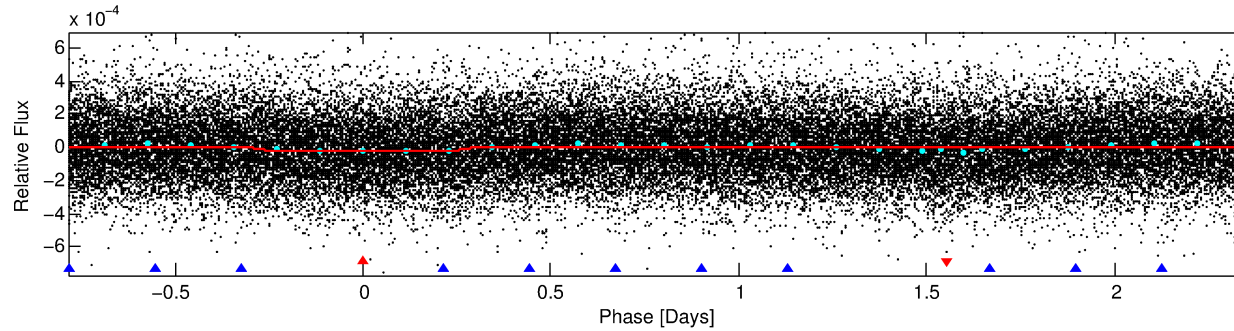
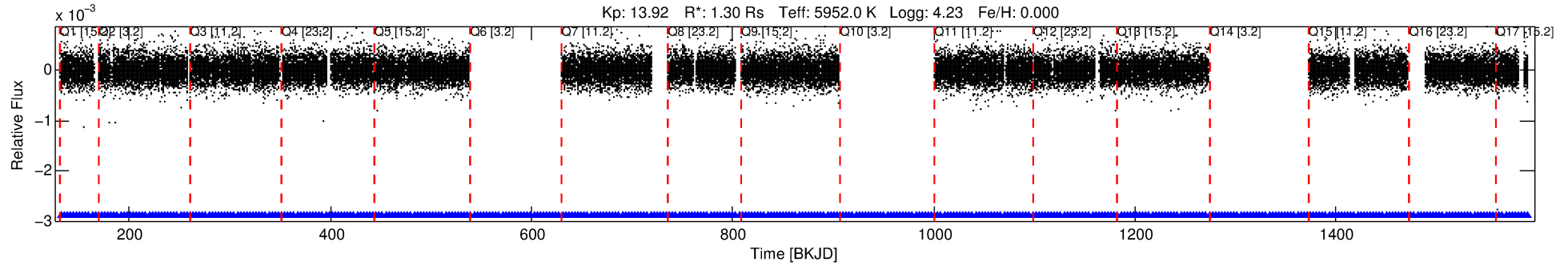
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005716330-01

No Significant Match Found

DV One-Page Summary

KIC: 5716330 Candidate: 1 of 2 Period: 3.137 d



DV Fit Results:

Period = 3.13733 [0.00007] d
Epoch = 131.9629 [0.0136] BKJD
Rp/R* = 0.0046 [0.0022]
a/R* = 1.53 [1.99]
b = 0.67 [1.86]
Seff = 1054.35 [284.96]
Teq = 1453 [98] K
Rp = 0.65 [0.33] Re
a = 0.0426 [0.0070] AU
Ag = 34.93 [35.43] [0.96 σ]
Teffp = 5461 [1339] K [2.99 σ]

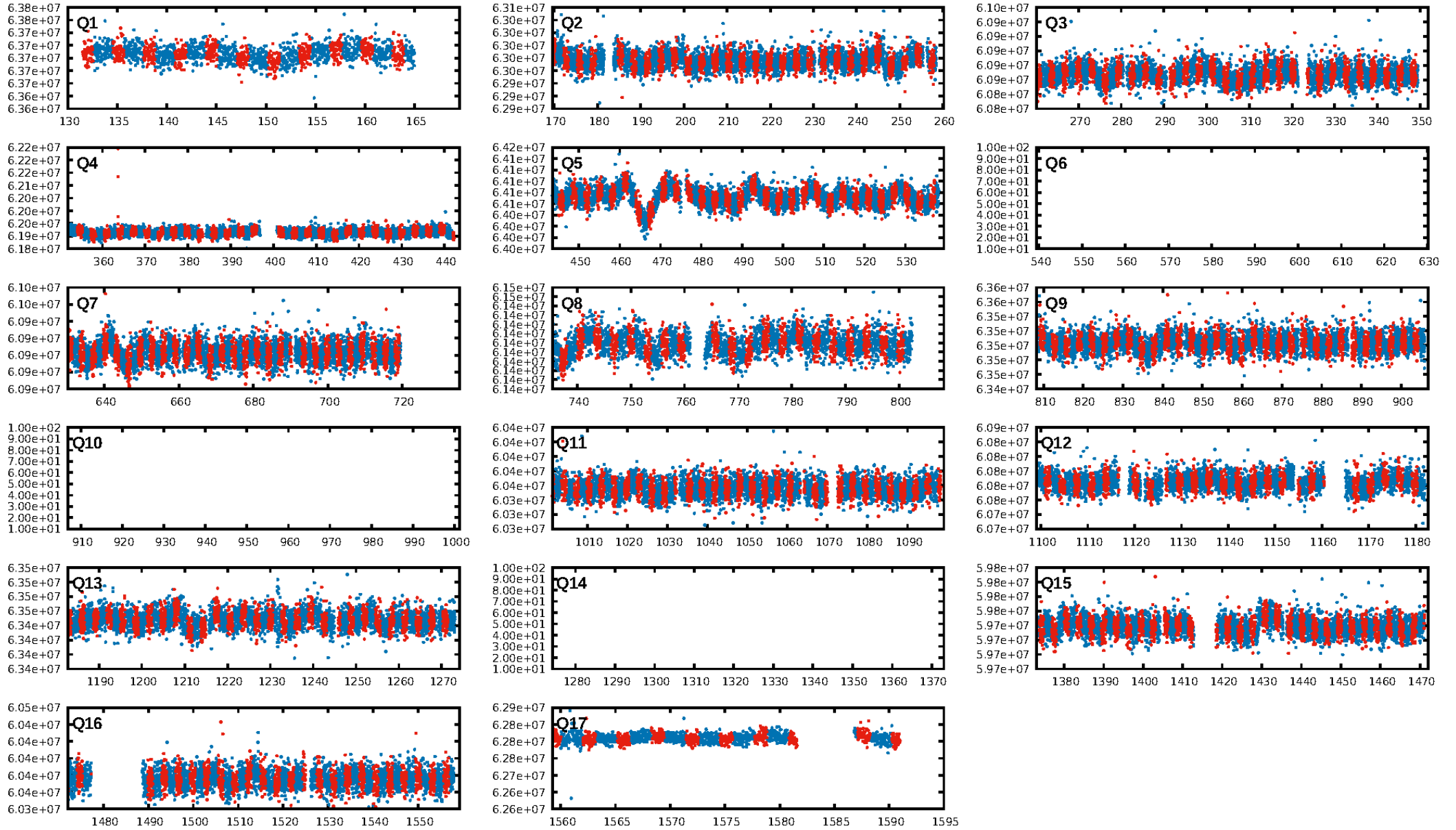
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [106.87 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.93e-12
RollingBand-fgt: 1.00 [329/329]
GhostDiagnostic-chr: 3.468
Centroid-sig: 48.4%
Centroid-so: 1.251 arcsec [0.88 σ]
OotOffset-rm: 0.471 arcsec [0.65 σ]
KicOffset-rm: 0.628 arcsec [0.79 σ]
OotOffset-st: 0/3/4/3 [10]
KicOffset-st: 0/3/4/3 [10]
DiffImageQuality-fgm: 0.80 [8/10]
DiffImageOverlap-fno: 1.00 [14/14]

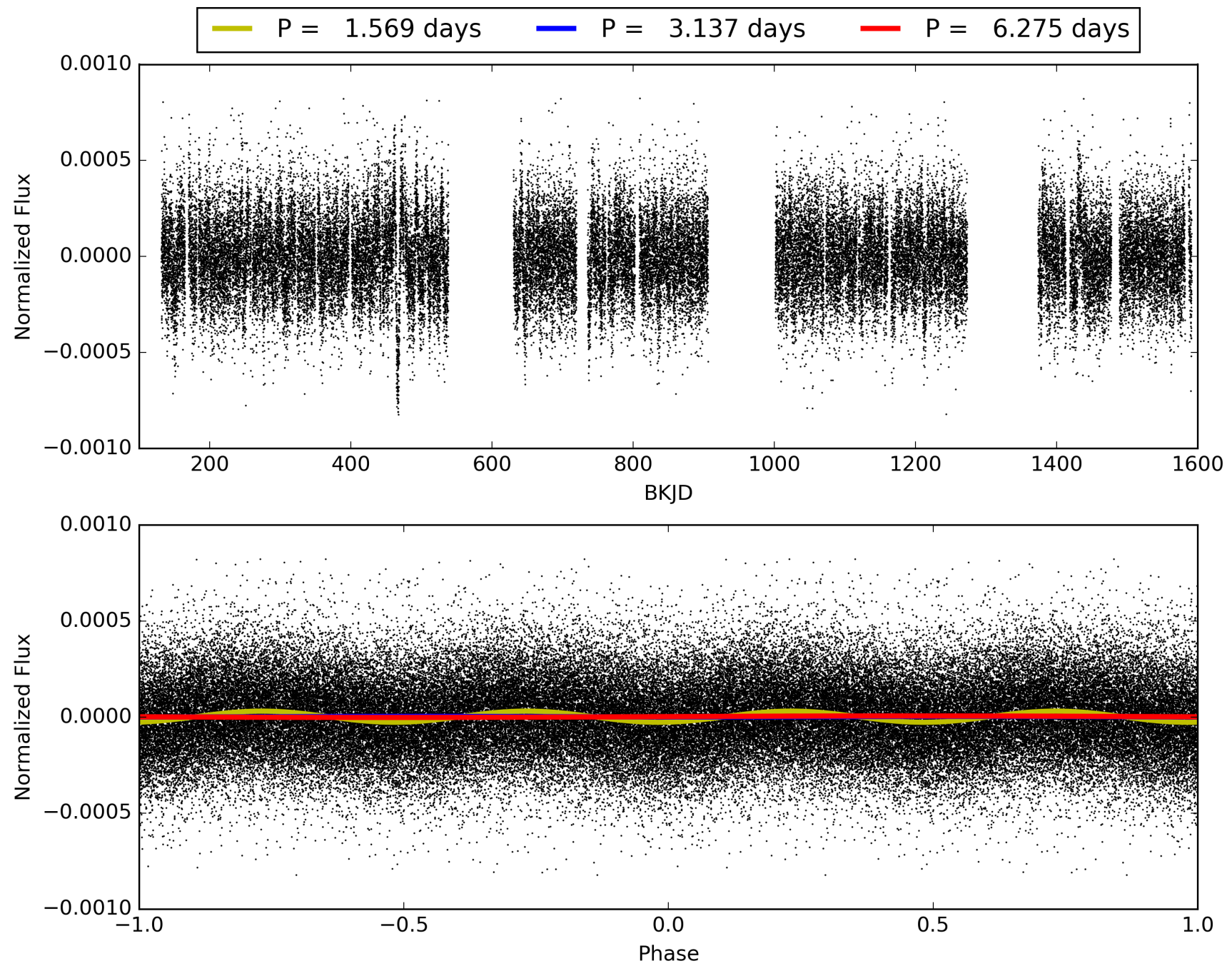
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005716330-01, PDC Light Curves

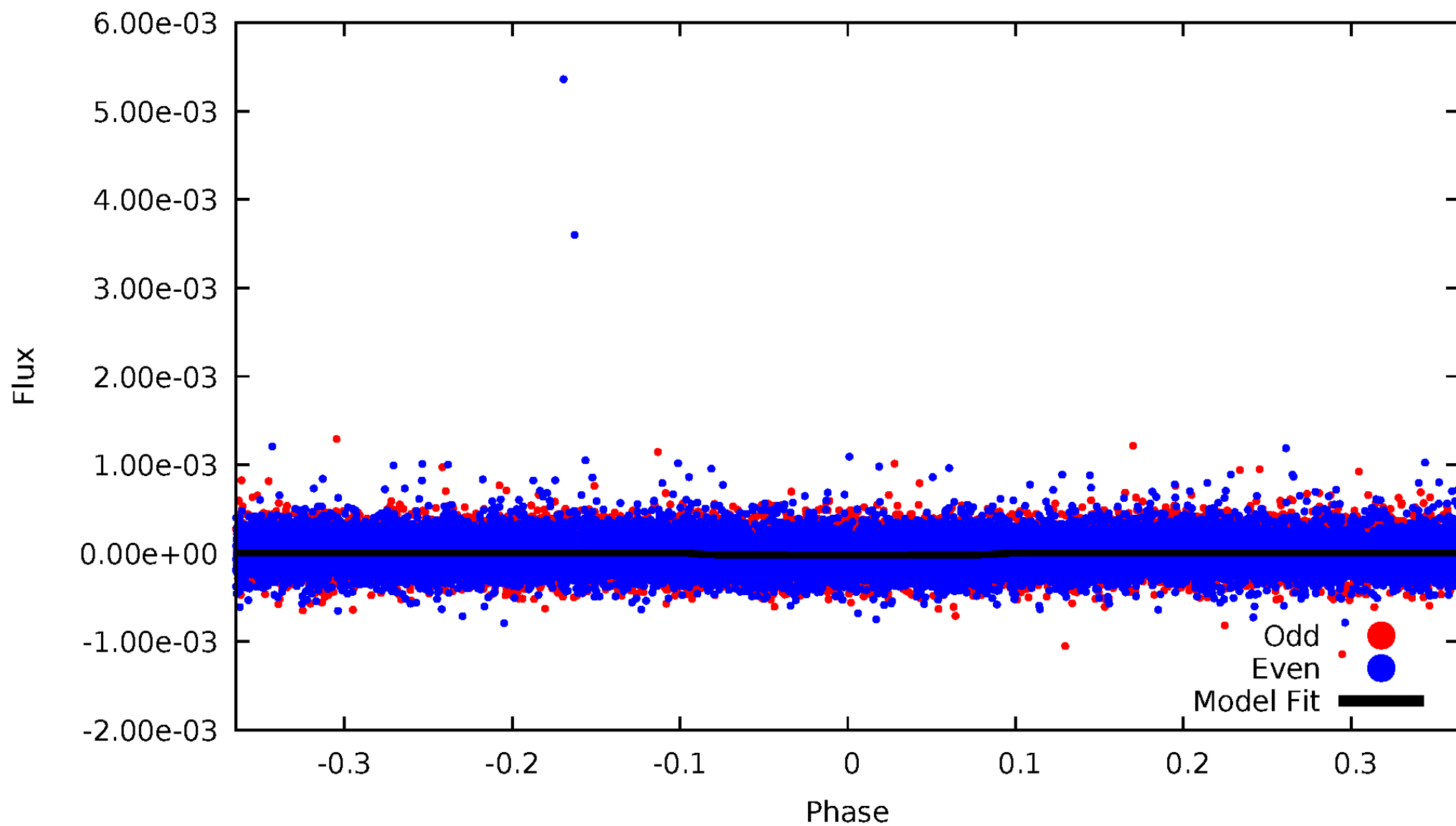


TCE 005716330-01



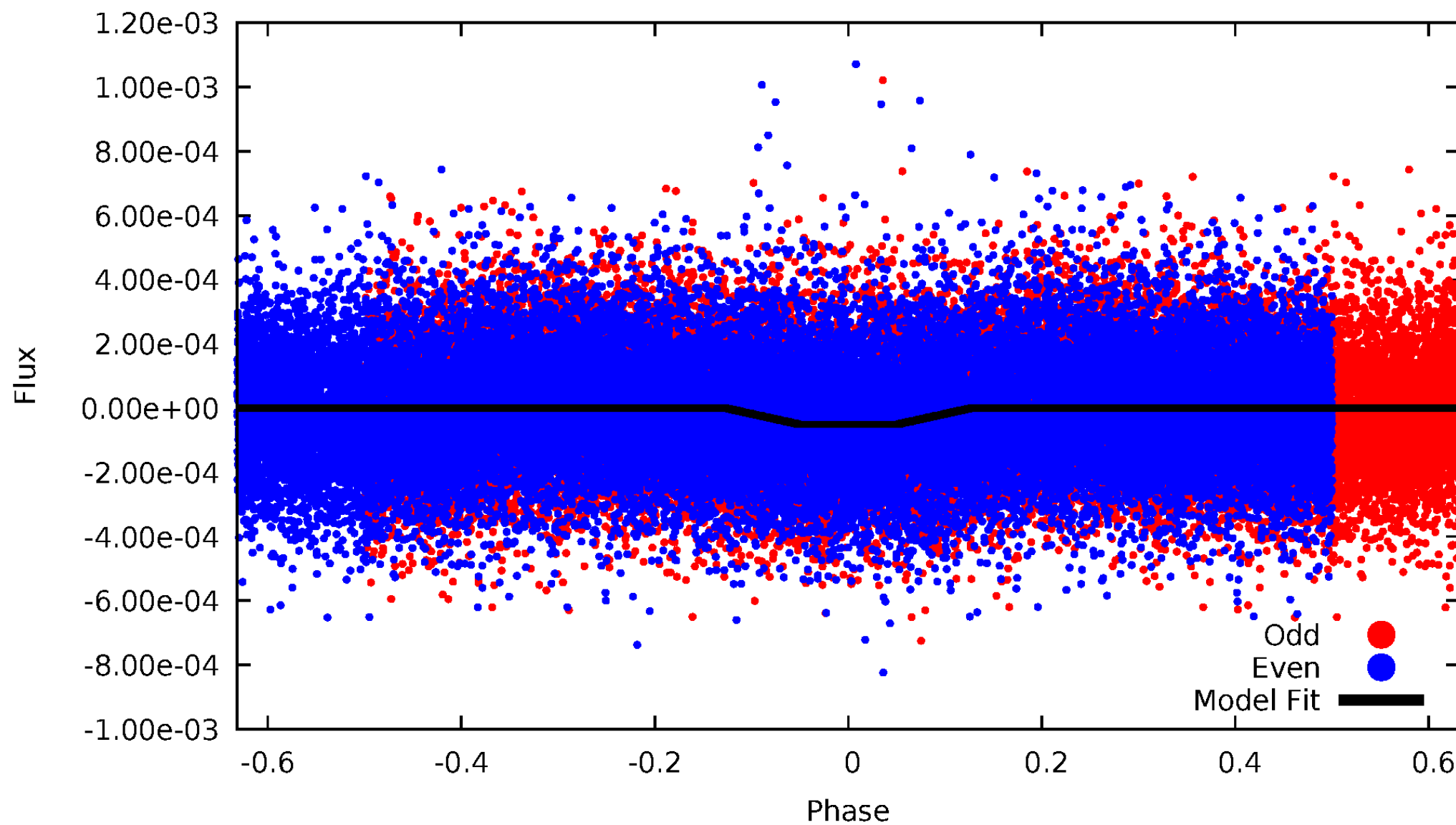
DV Odd/Even

TCE 005716330-01



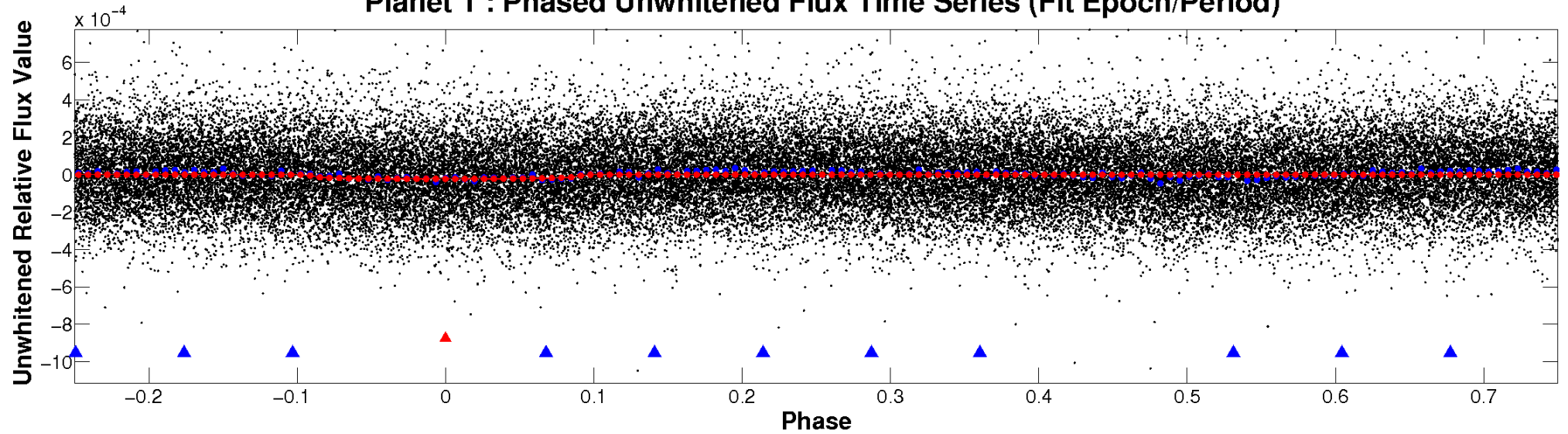
ALT Odd/Even

TCE 005716330-01

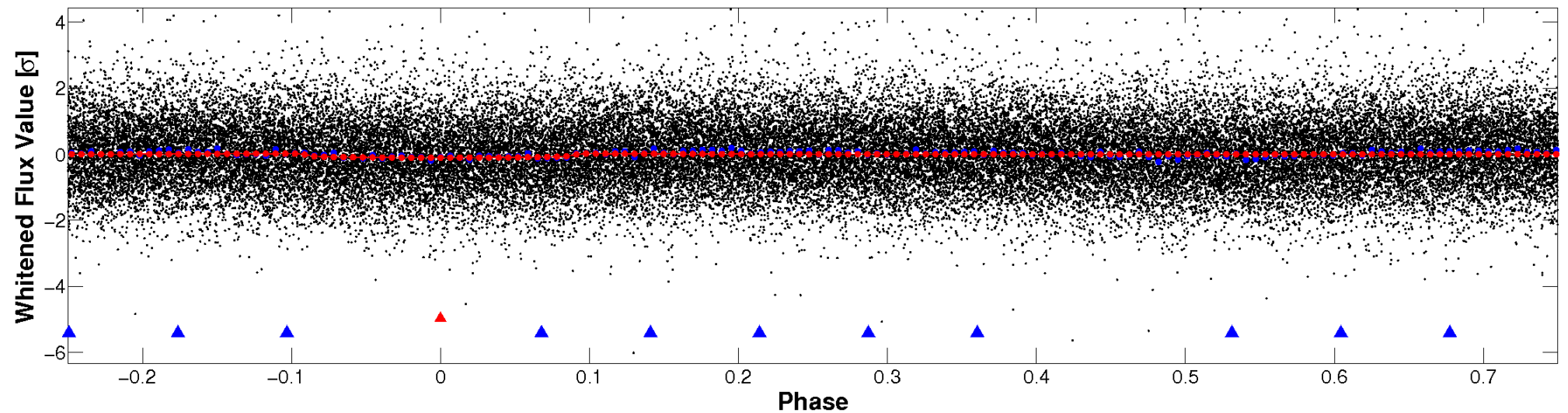


Non-Whitened Vs. Whitened Light Curve

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

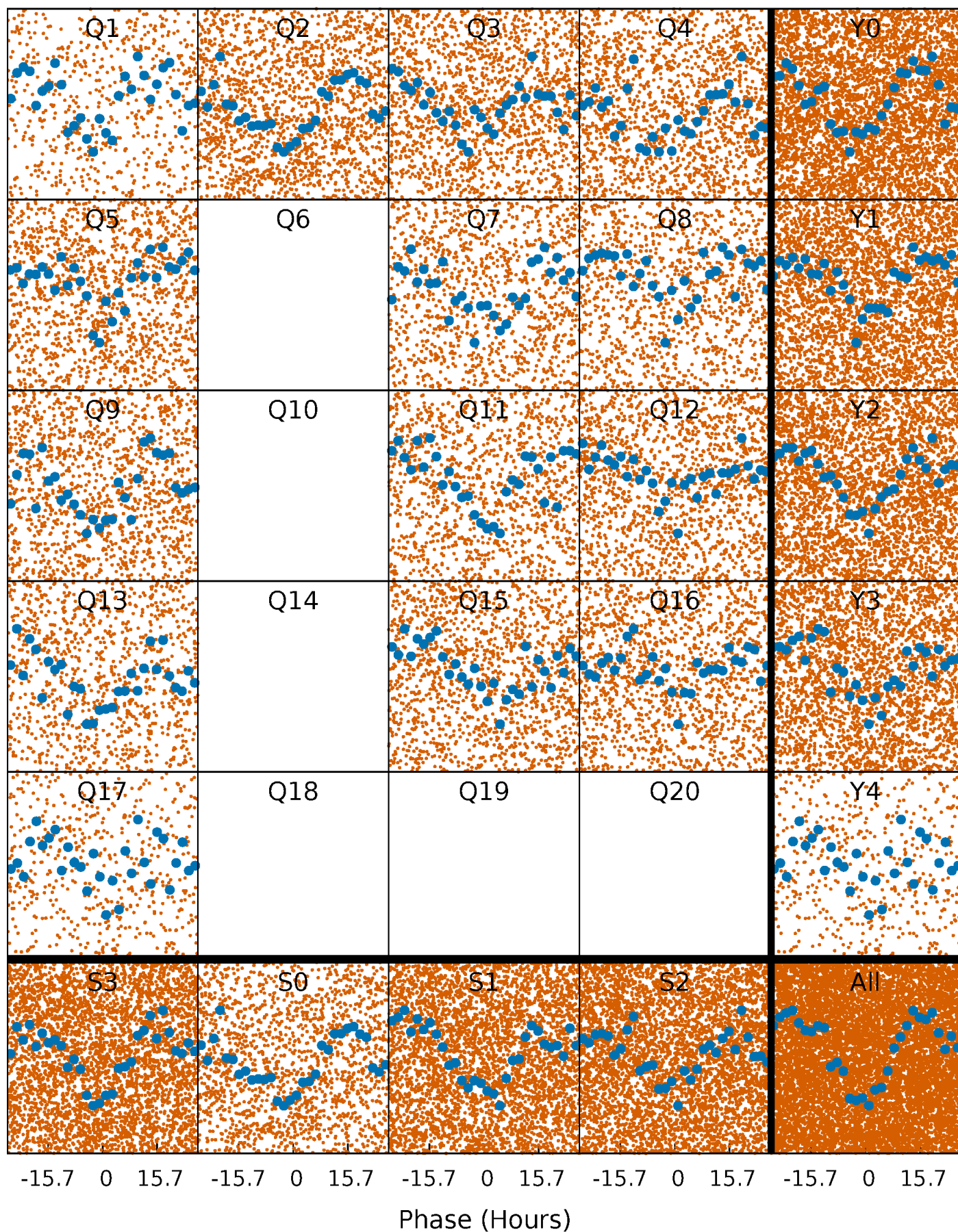


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



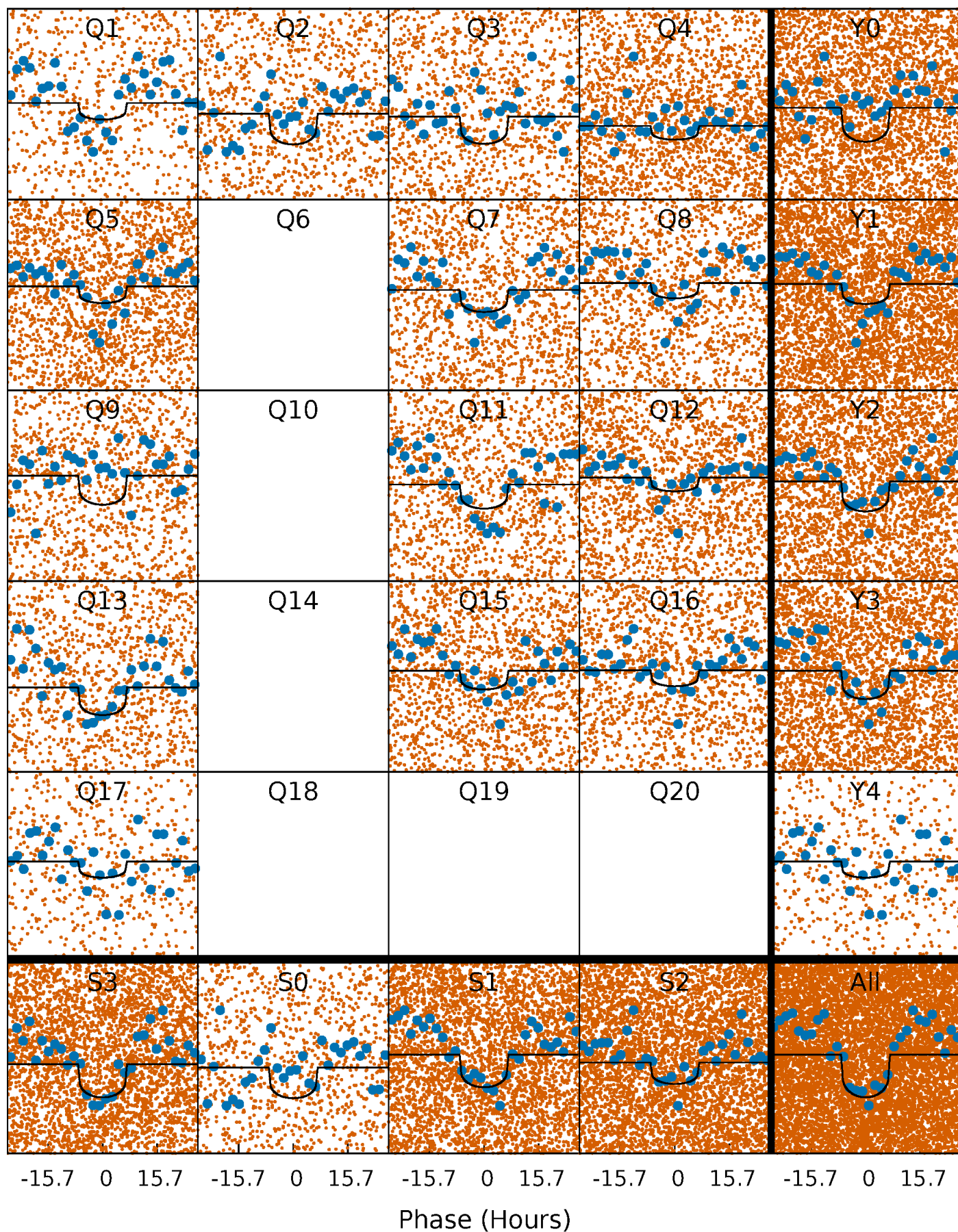
PDC Quarter-Phased Transit Curves

TCE 005716330-01 P= 3.137333 Days $T_0=131.962860$ (BKJD)



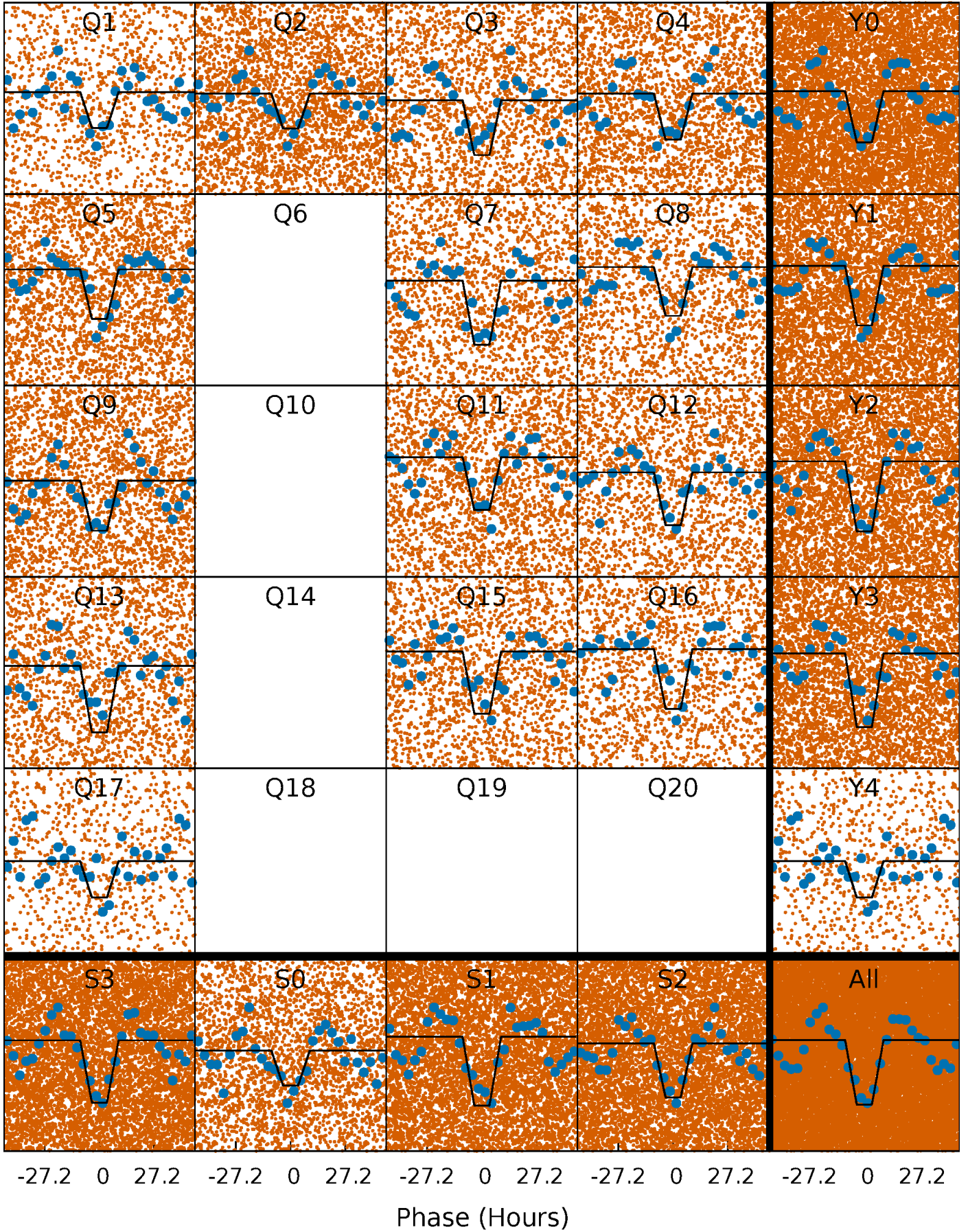
DV Quarter-Phased Transit Curves

TCE 005716330-01 P= 3.137333 Days $T_0=131.962860$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

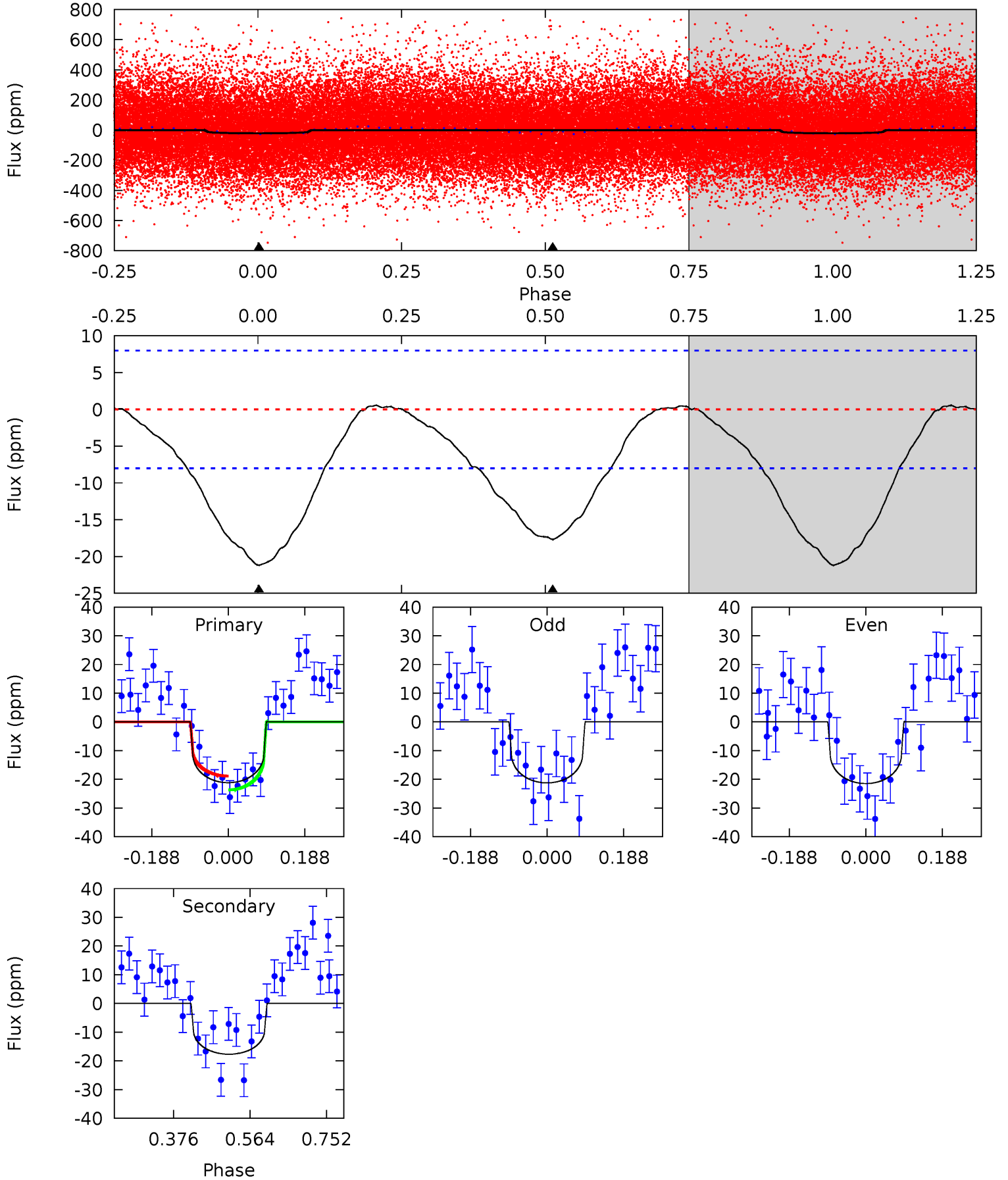
TCE 005716330-01 P= 3.137430 Days $T_0=131.899128$ (BKJD)



DV Model-Shift Uniqueness Test

005716330-01, P = 3.137333 Days, E = 128.825527 Days

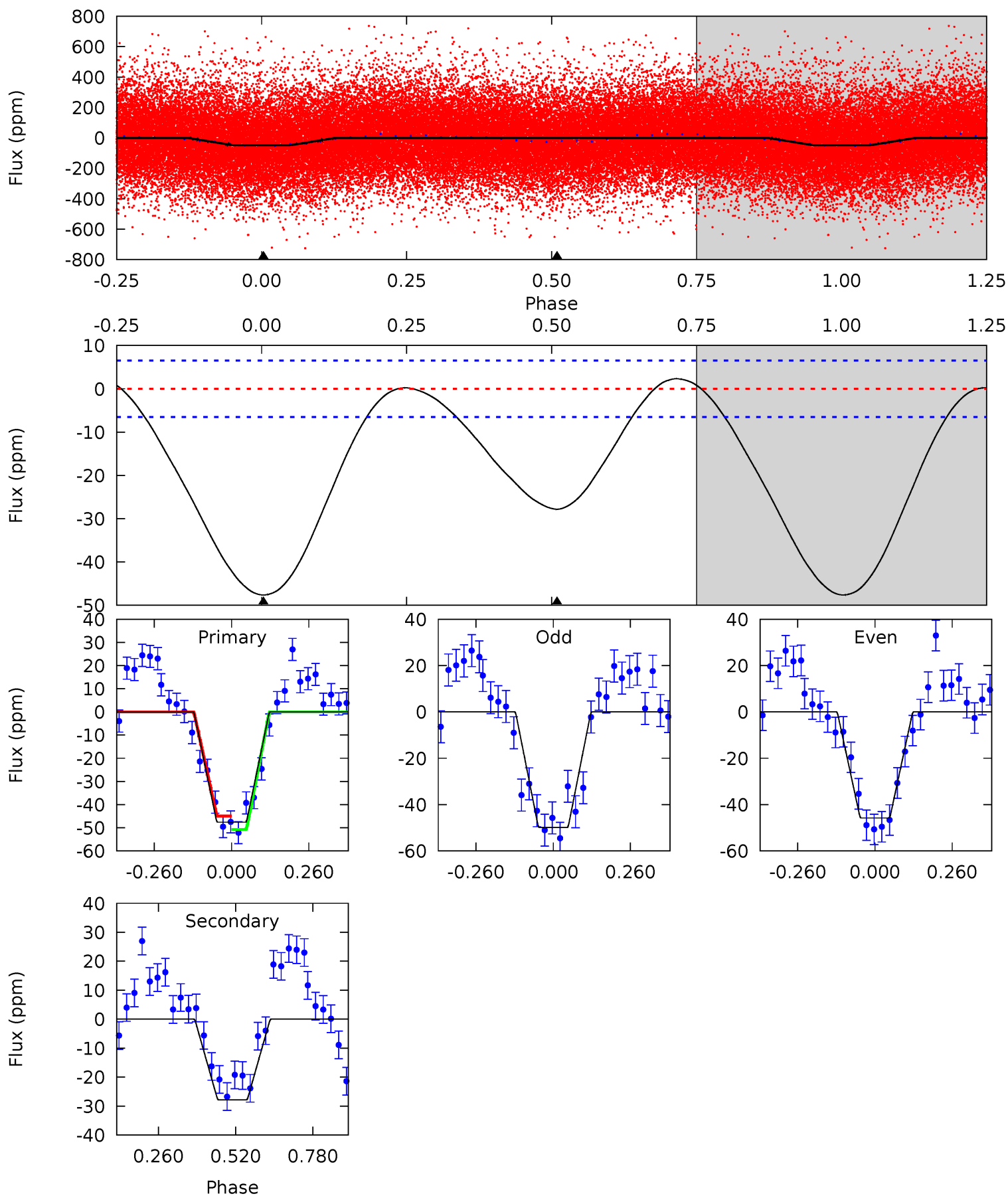
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	9.79	0	0	4.43	1.32	0.67	11.7	11.7	9.79	9.79	0.07	0.99	0.03	1.34



Alt Model-Shift Uniqueness Test

005716330-01, P = 3.137430 Days, E = 128.761698 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.8	18.6	0	0	4.36	1.13	0.64	31.8	31.8	18.6	18.6	1.38	0.88	0.05	1.90



Stellar Parameters For KIC 005716330

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5952^{+79}_{-79}	$4.227^{+0.156}_{-0.117}$	$0.000^{+0.150}_{-0.150}$	$1.304^{+0.222}_{-0.222}$	$1.046^{+0.093}_{-0.069}$	$0.664^{+0.503}_{-0.229}$
	+1%/-1%	+4%/-3%	+inf%/-inf%	+17%/-17%	+9%/-7%	+76%/-34%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 005716330-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-18 ± 2	$0.66^{+0.31}_{-0.30}$	2024^{+101}_{-102}	5676^{+2061}_{-899}	41^{+98}_{-22}
Alt.	-28 ± 1	$1.00^{+0.34}_{-0.33}$	2023^{+96}_{-102}	5169^{+1059}_{-553}	28^{+35}_{-13}

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 $A_{obs} \gg 1.0$

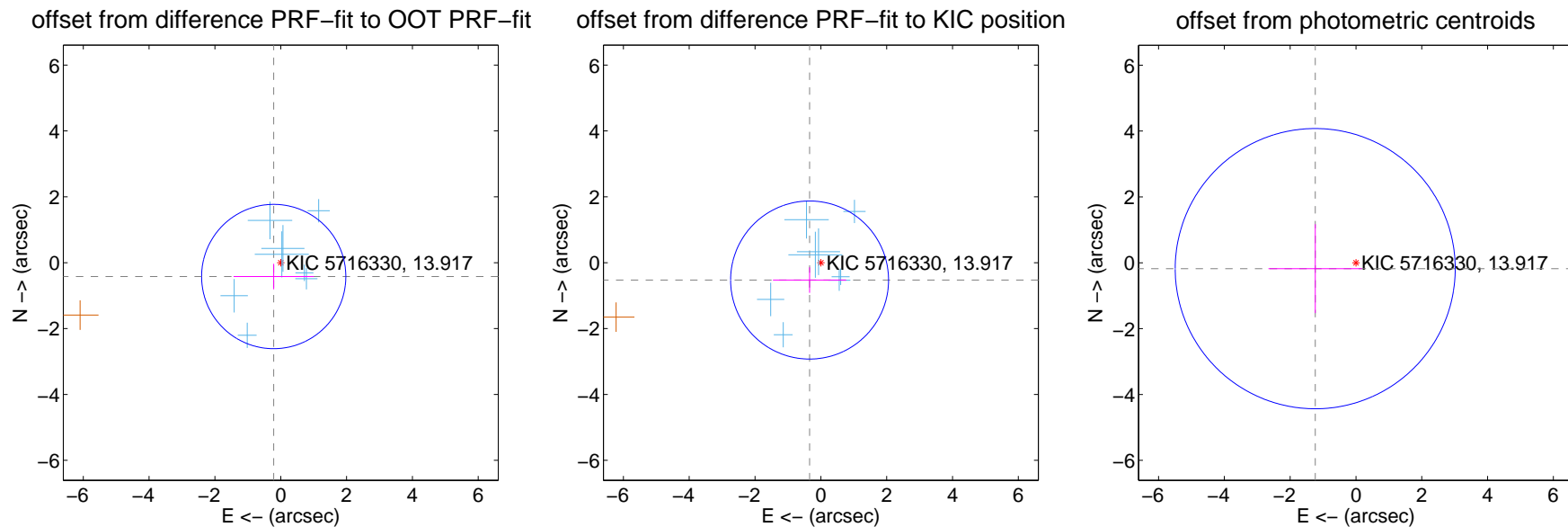
DV Centroid Data

Supplemental centroid analysis for 005716330-01. Kepler magnitude: 13.92. Transit SNR 8.77

There are 8 quarters with good PRF difference image offsets

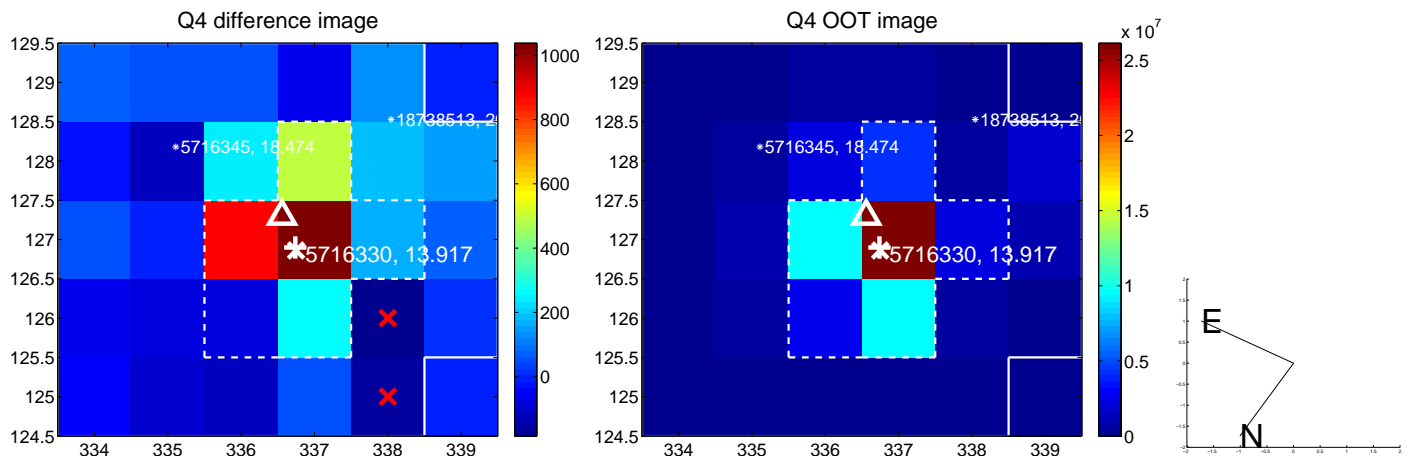
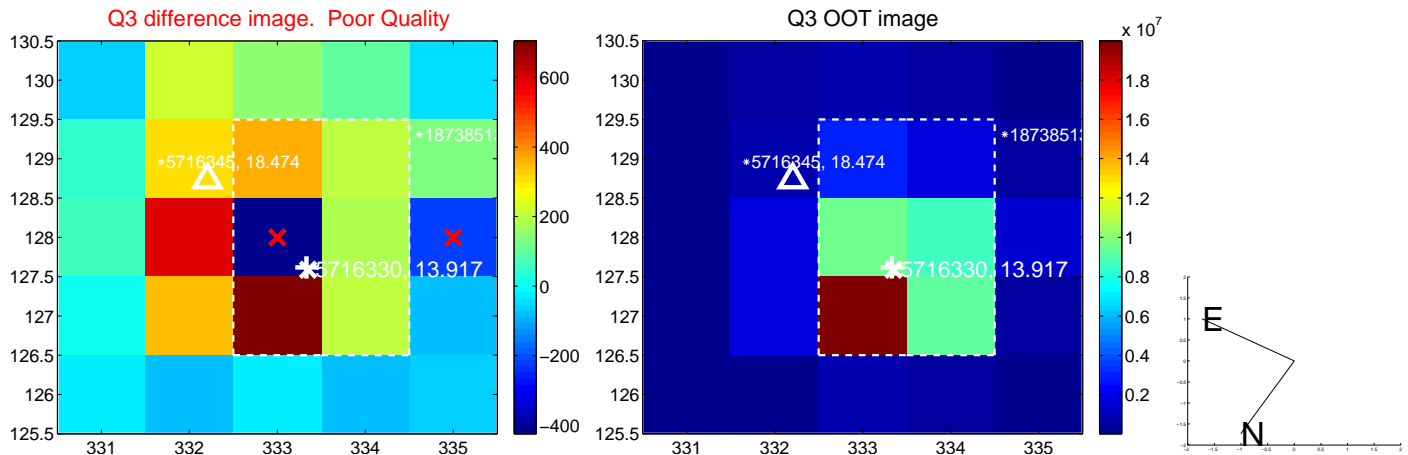
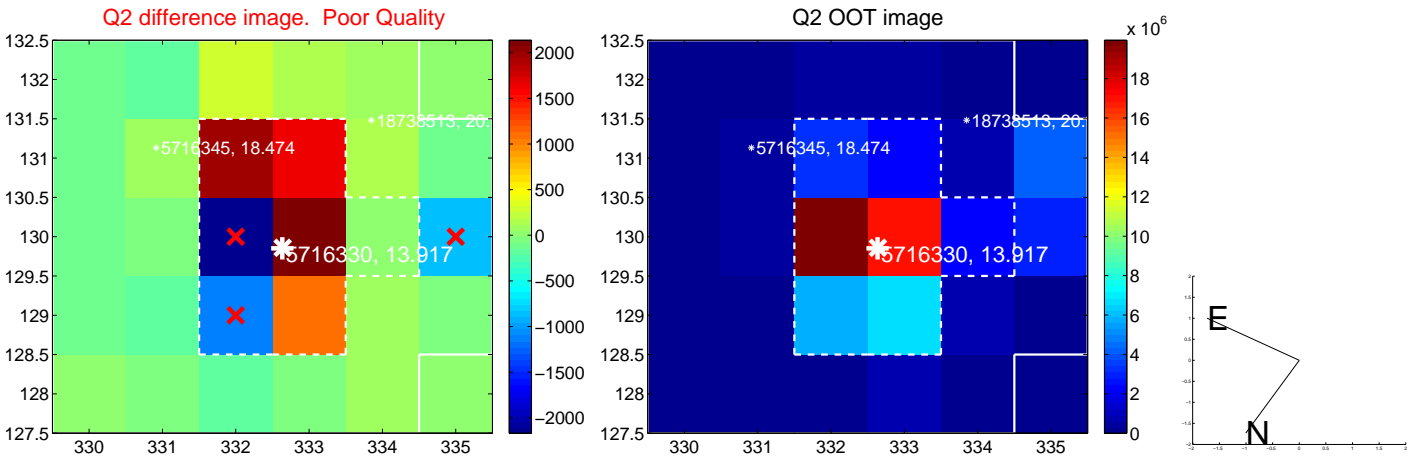
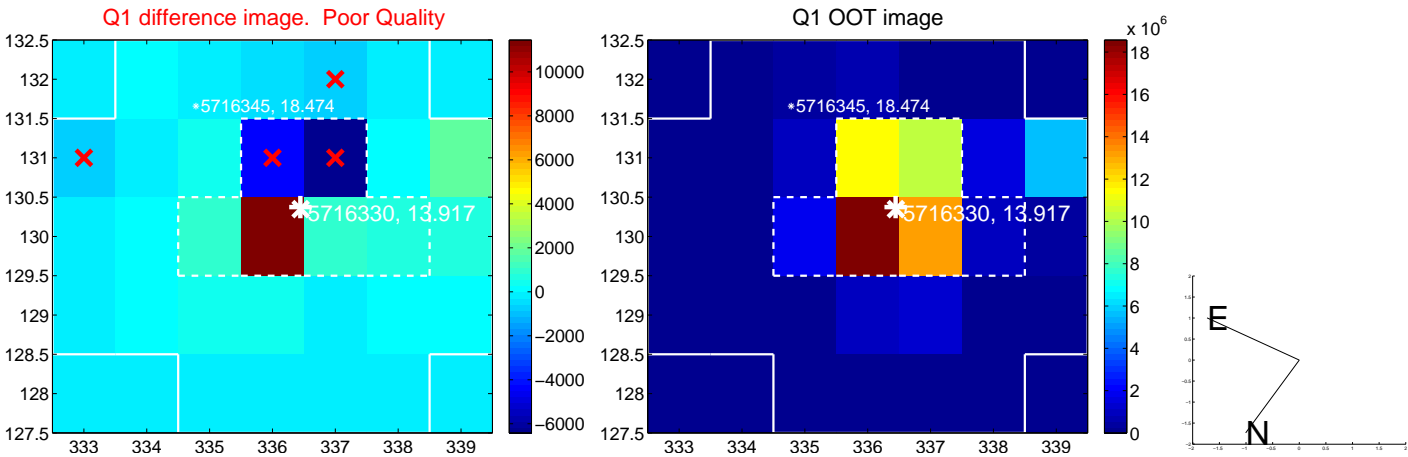
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.471 ± 0.730	0.65	0.214 ± 1.220	-0.420 ± 0.388
PRF-fit source offset from KIC position	0.628 ± 0.800	0.79	0.343 ± 1.112	-0.526 ± 0.388
photometric centroid source offset	1.25 ± 1.42	0.88	1.24 ± 1.42	-0.18 ± 1.35

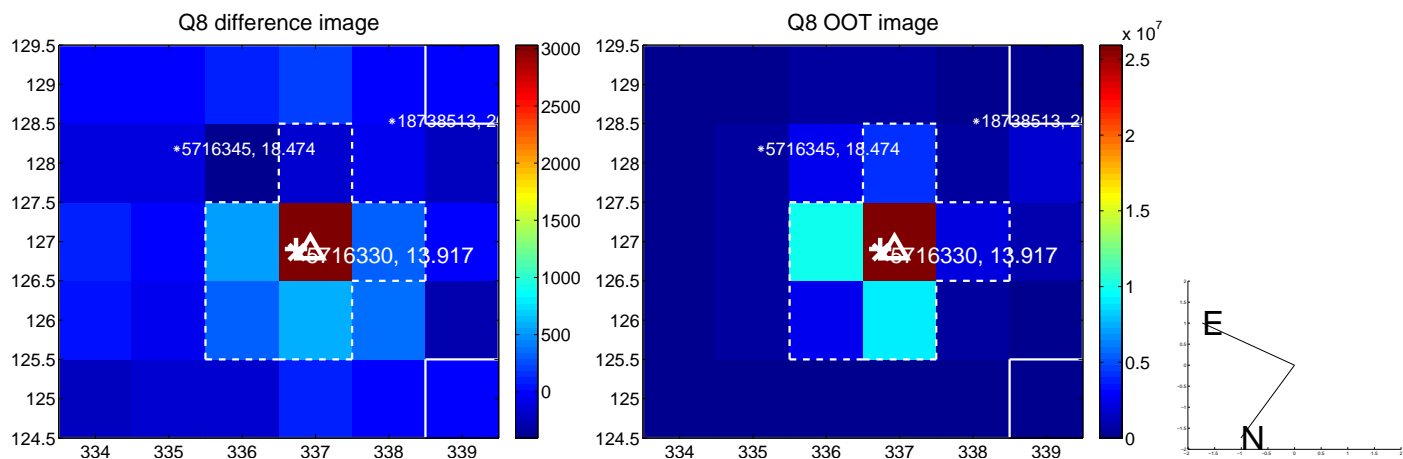
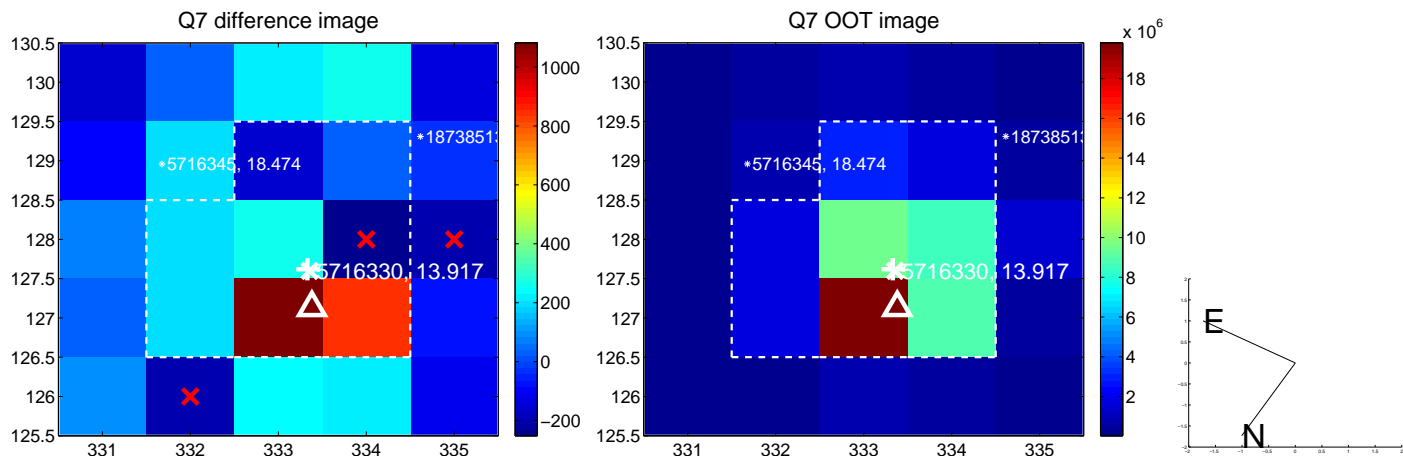
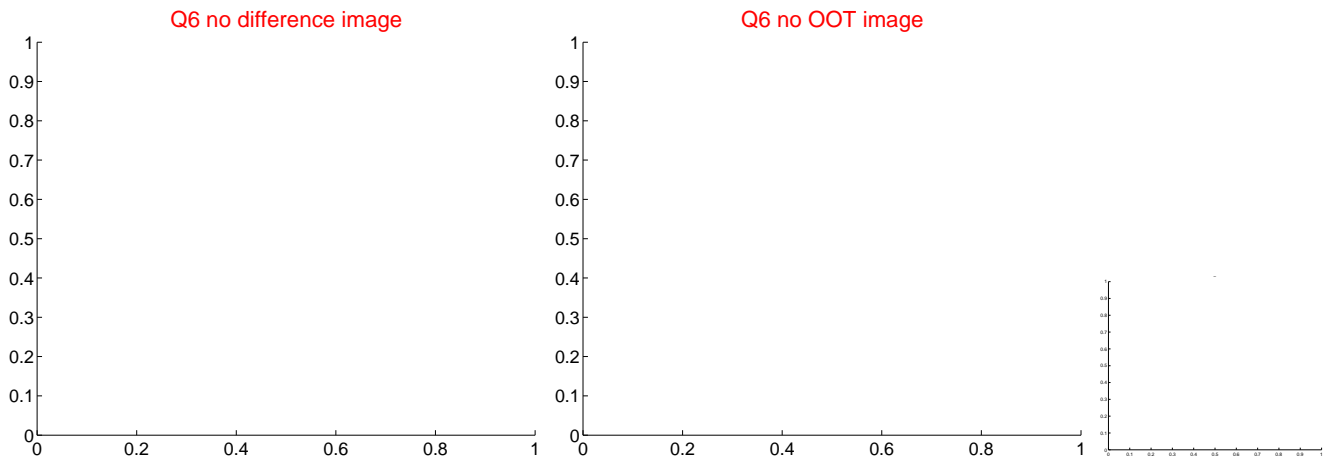
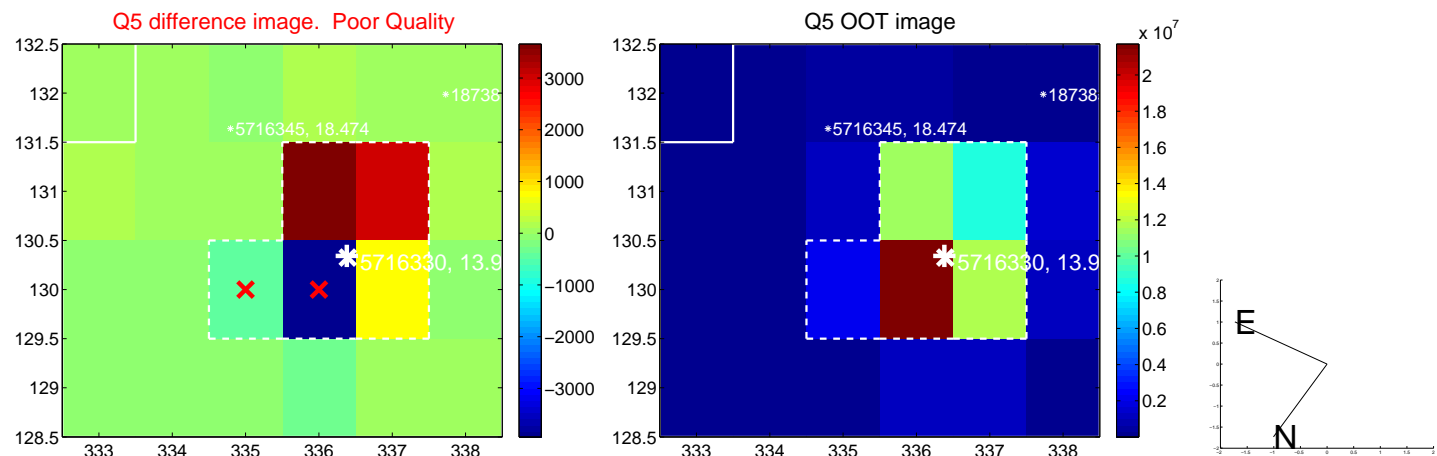


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

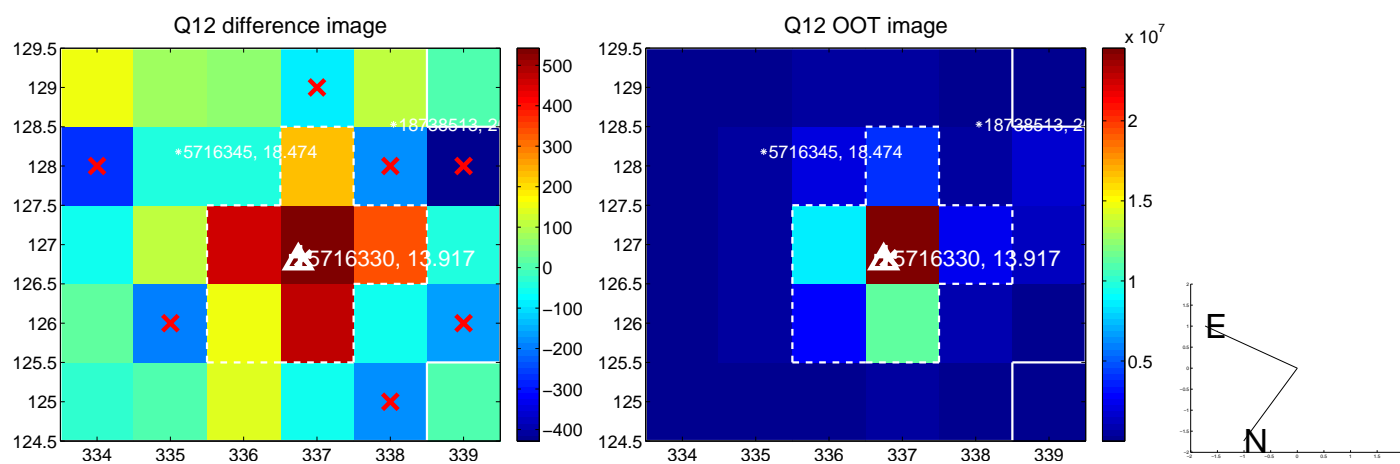
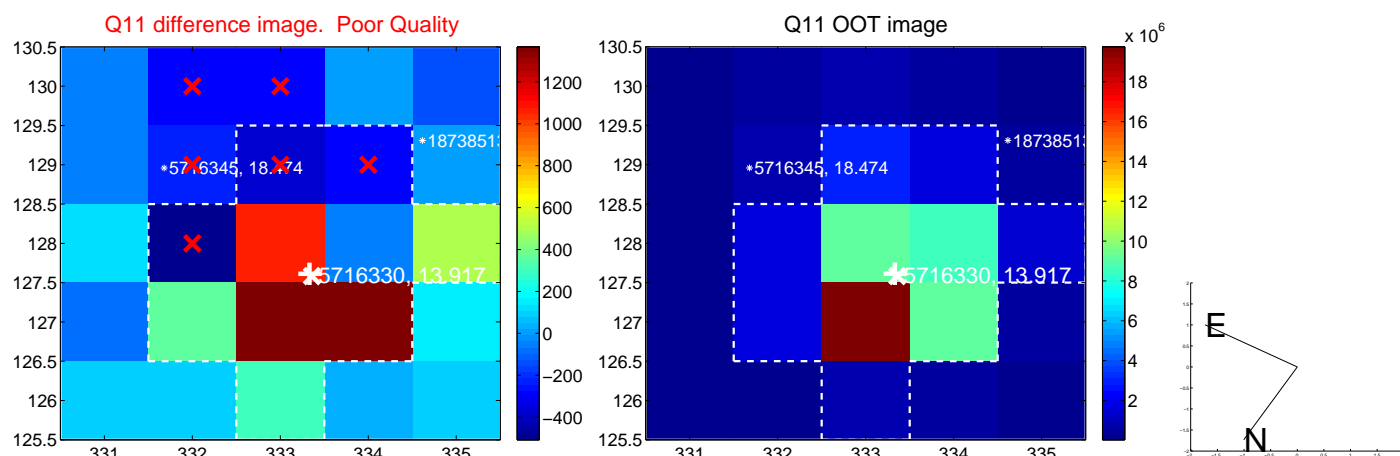
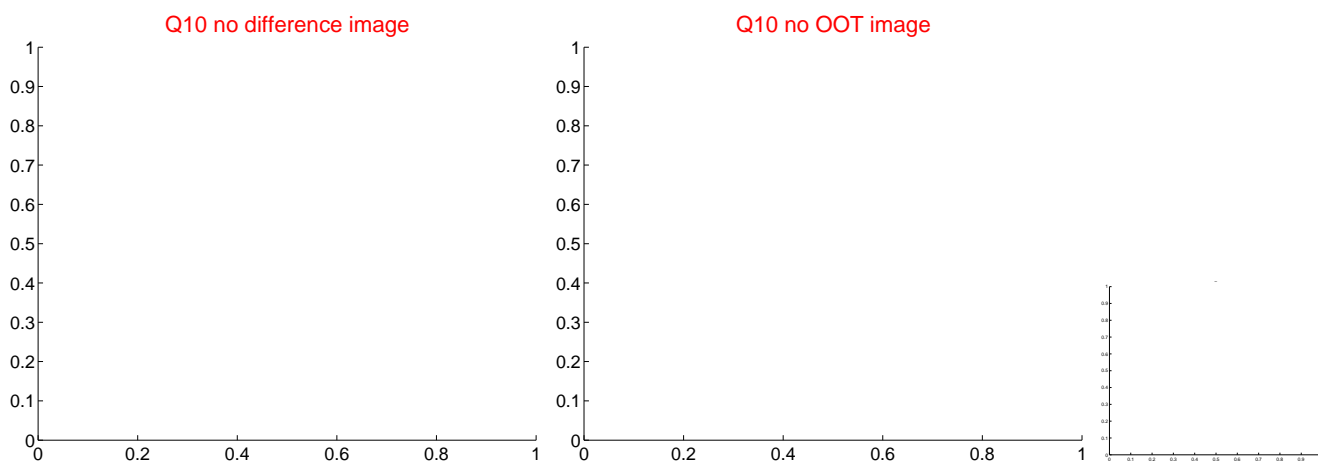
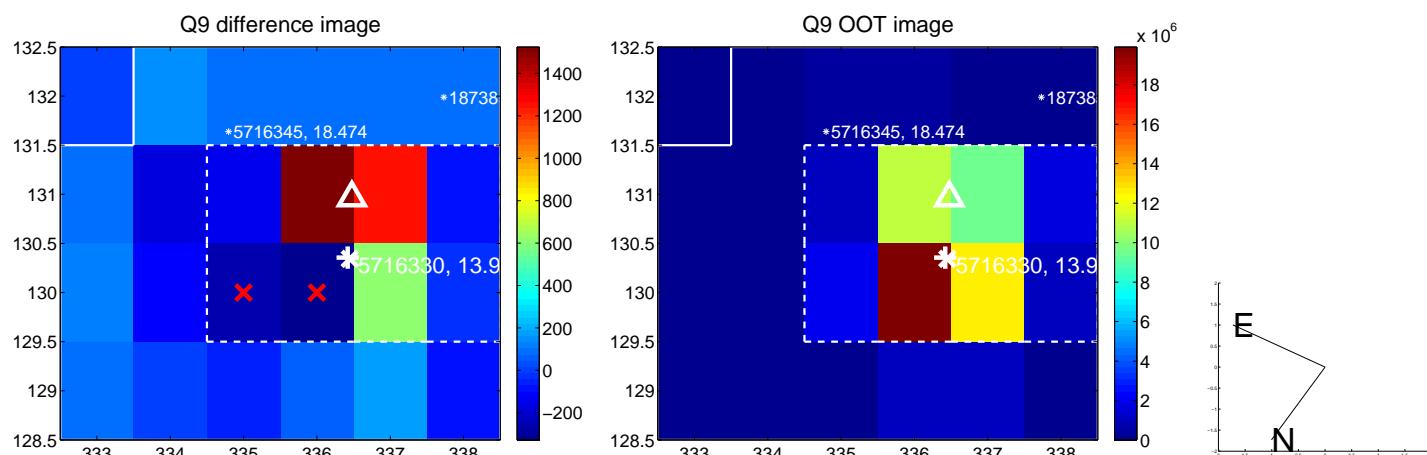
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



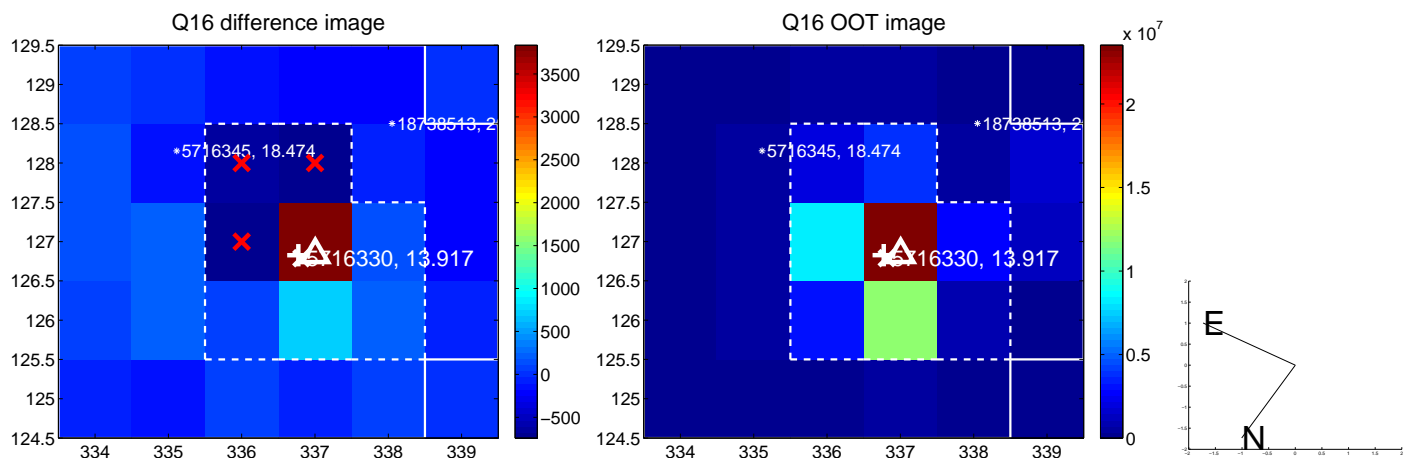
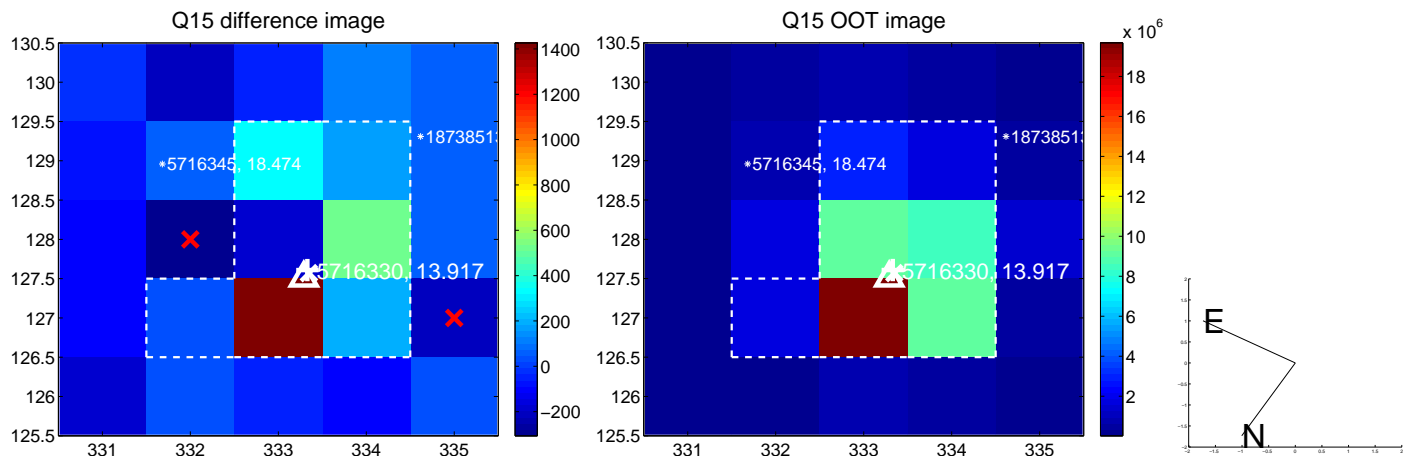
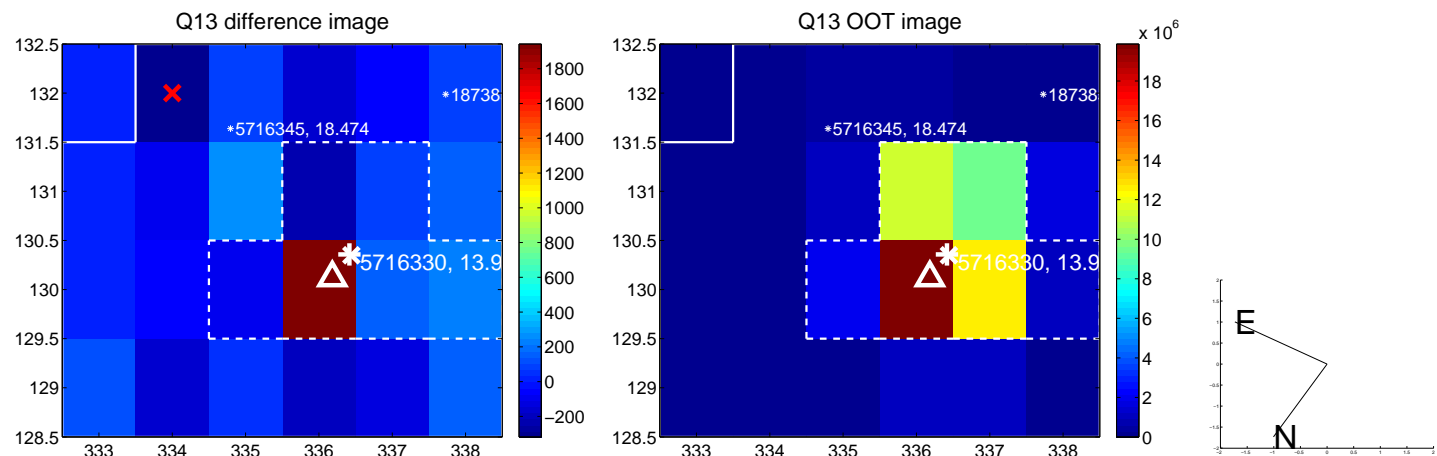
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



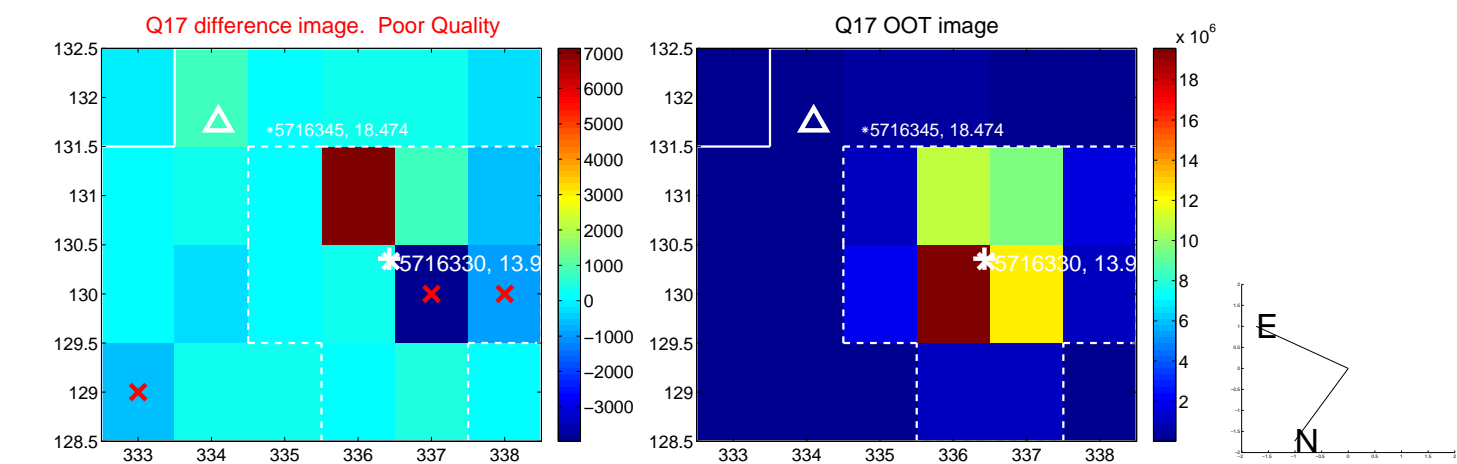
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



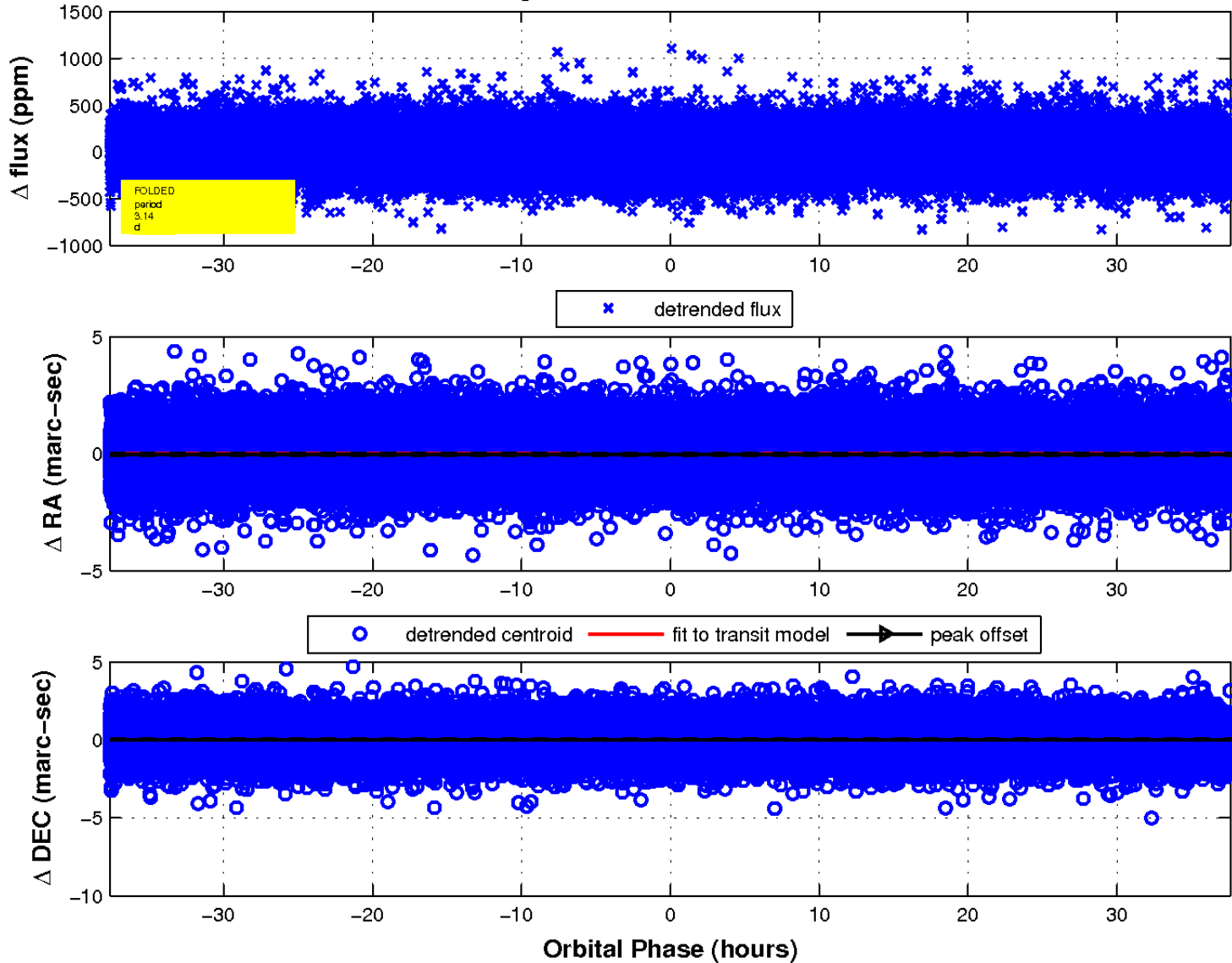
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

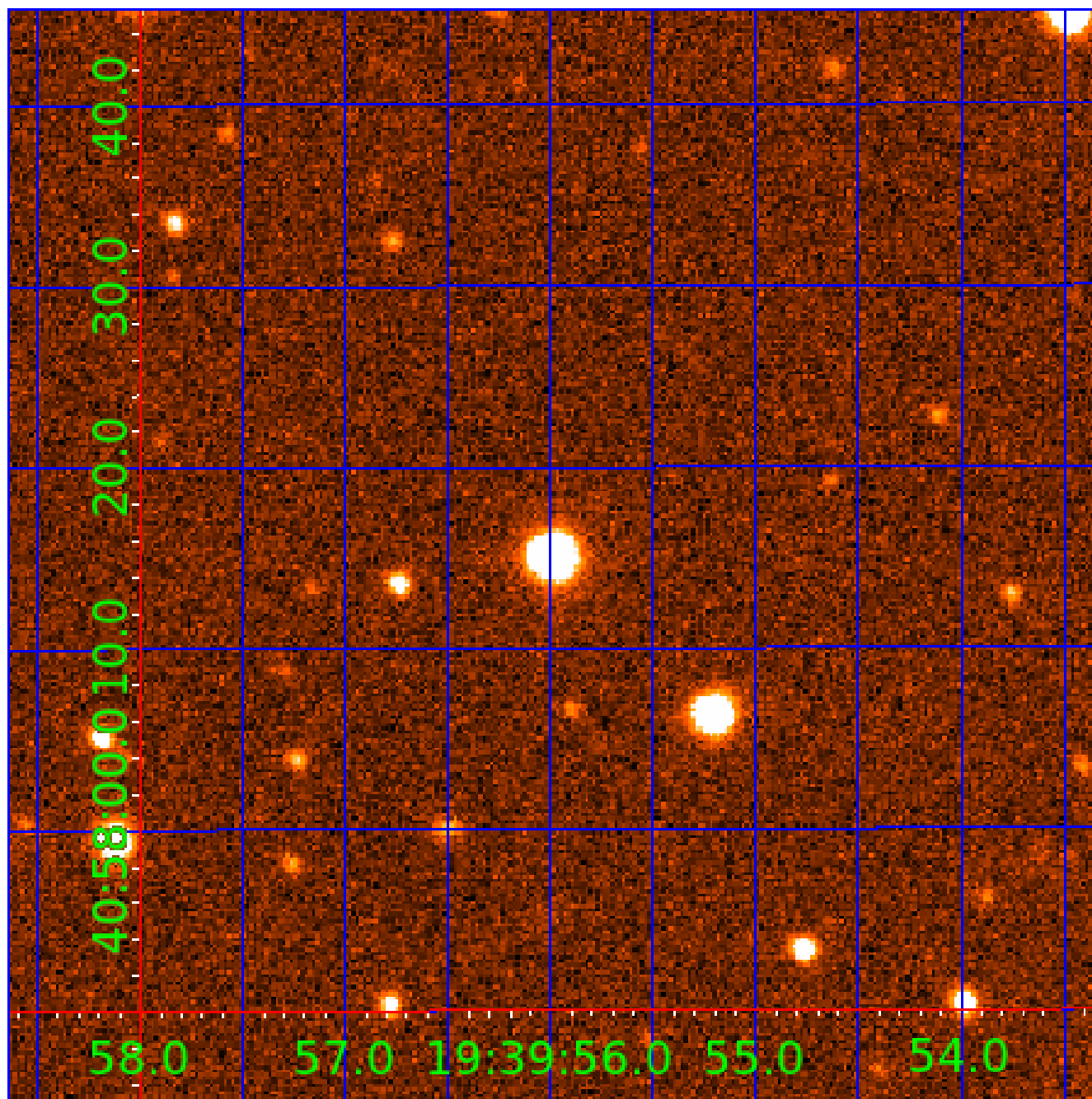


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005716330

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})
005716330-01	OBS	No	3.137333	131.962860	22.5	13.723	8.1	8.8	1.30	5952	0.66	1054.35
005716330-02	OBS	No	133.221945	222.622098	152.9	25.790	18.0	7.1	1.30	5952	1.74	7.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005716330-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005716330-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

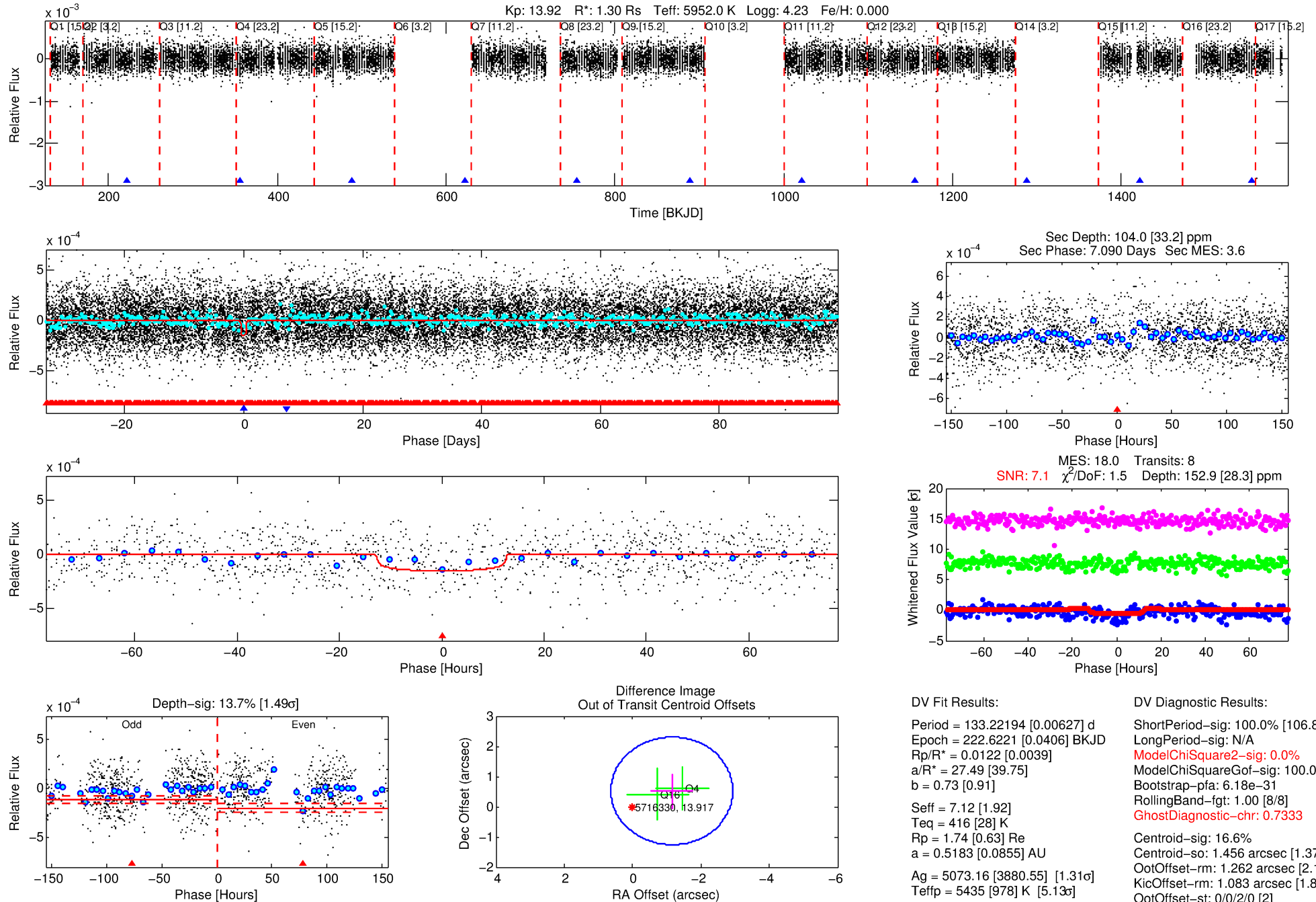
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005716330-02

No Significant Match Found

DV One-Page Summary

KIC: 5716330 Candidate: 2 of 2 Period: 133.222 d



DV Fit Results:

Period = 133.22194 [0.00627] d
Epoch = 222.6221 [0.0406] BKJD
Rp/R* = 0.0122 [0.0039]
a/R* = 27.49 [39.75]
b = 0.73 [0.91]
Seff = 7.12 [1.92]
Teq = 416 [28] K
Rp = 1.74 [0.63] Re
a = 0.5183 [0.0855] AU
Ag = 5073.16 [3880.55] [1.31σ]
Teffp = 5435 [978] K [5.13σ]

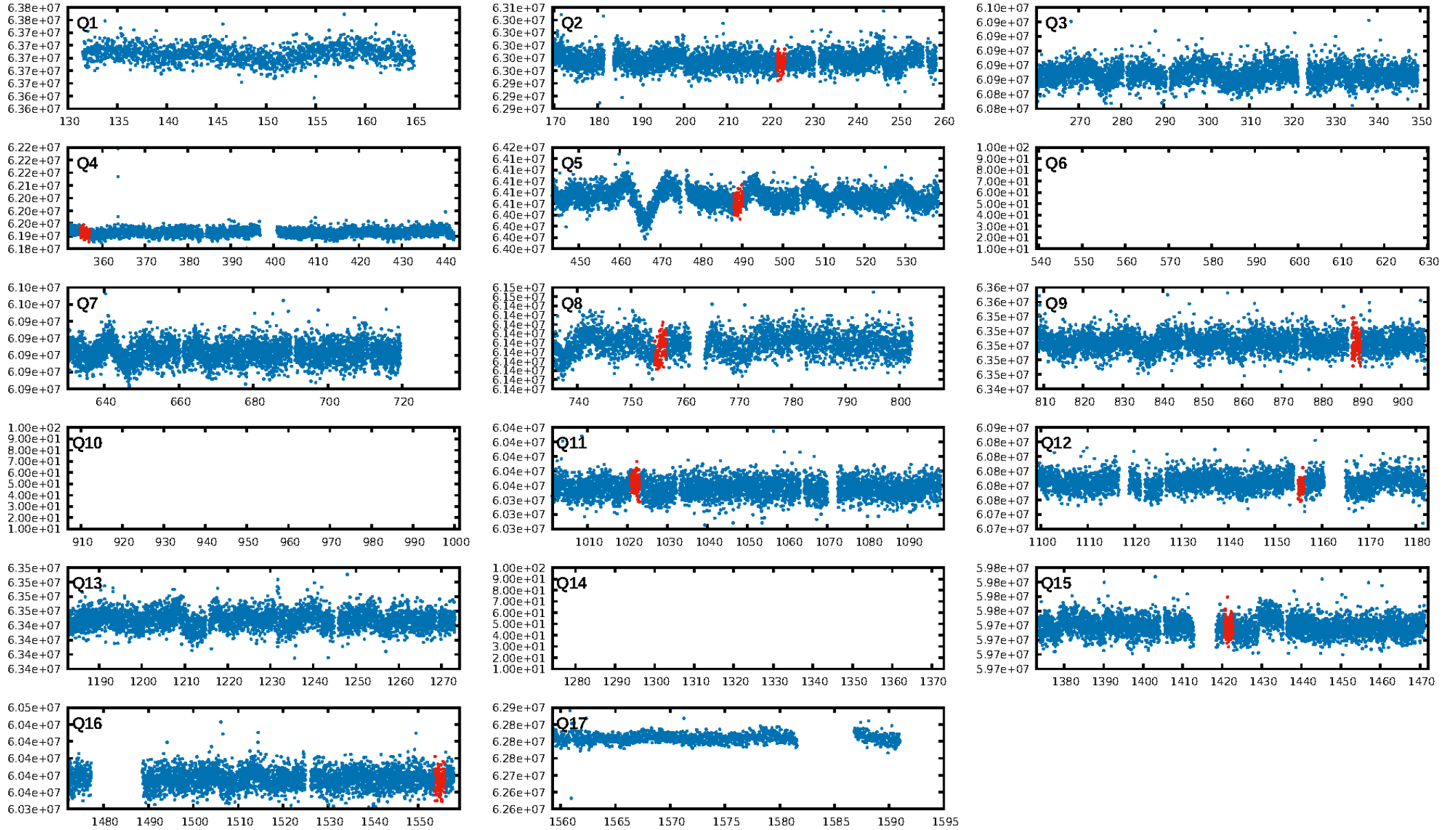
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [106.87σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.18e-31
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 0.7333
Centroid-sig: 16.6%
Centroid-so: 1.456 arcsec [1.37σ]
OotOffset-rm: 1.262 arcsec [2.12σ]
KicOffset-rm: 1.083 arcsec [1.82σ]
OotOffset-st: 0/0/2/0 [2]
KicOffset-st: 0/0/2/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/5]

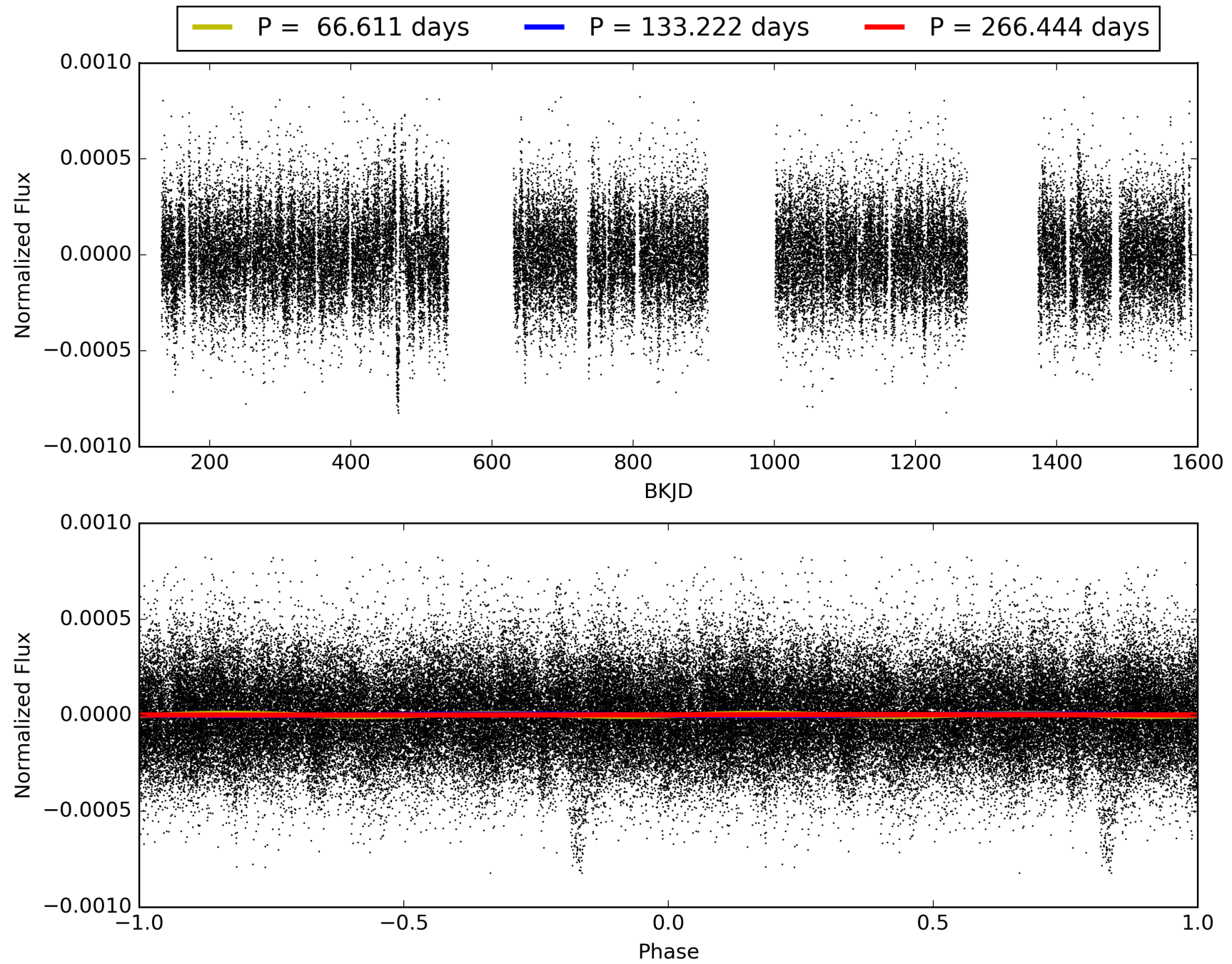
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:36:32 Z

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

TCE 005716330-02, PDC Light Curves

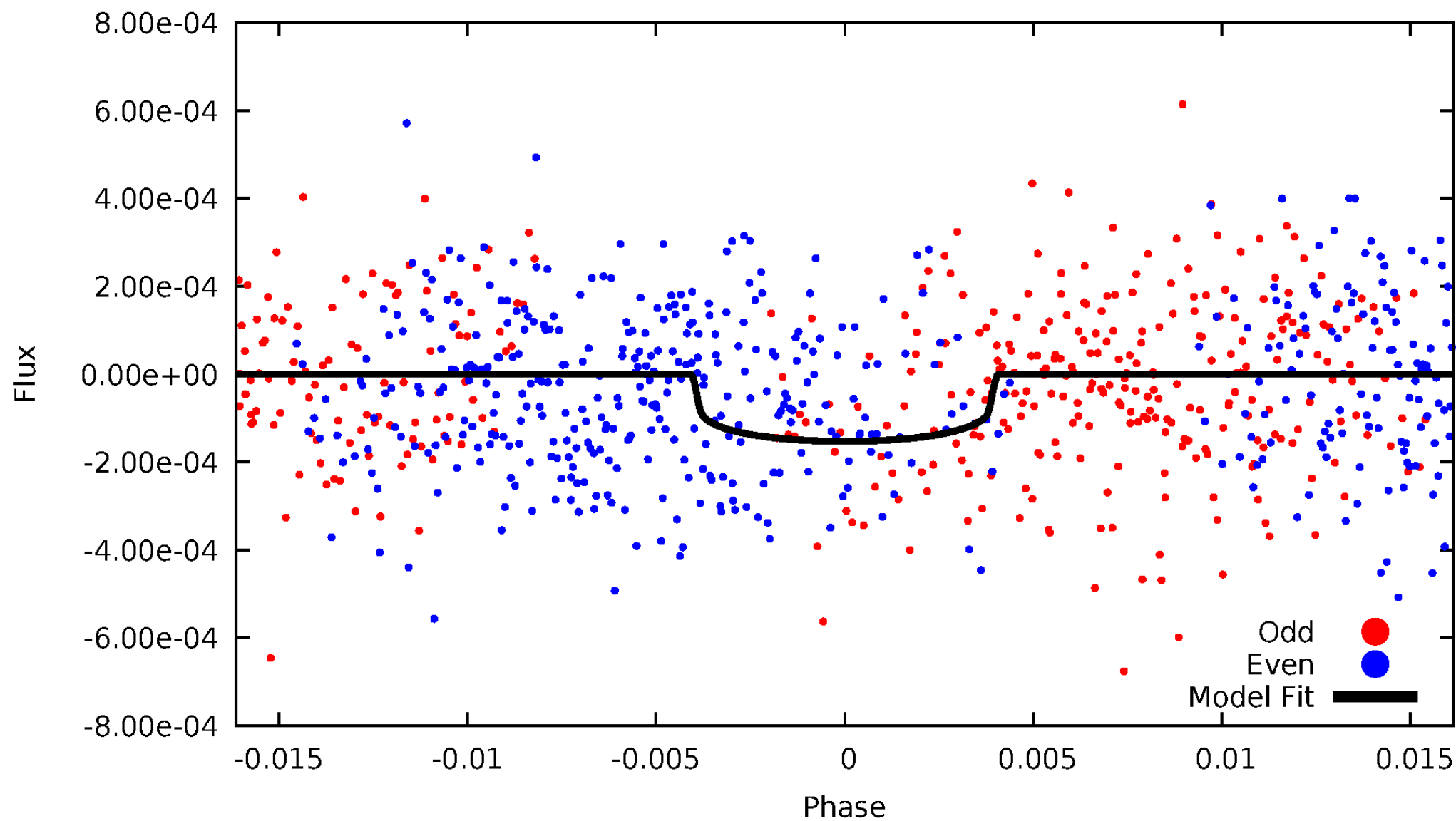


TCE 005716330-02



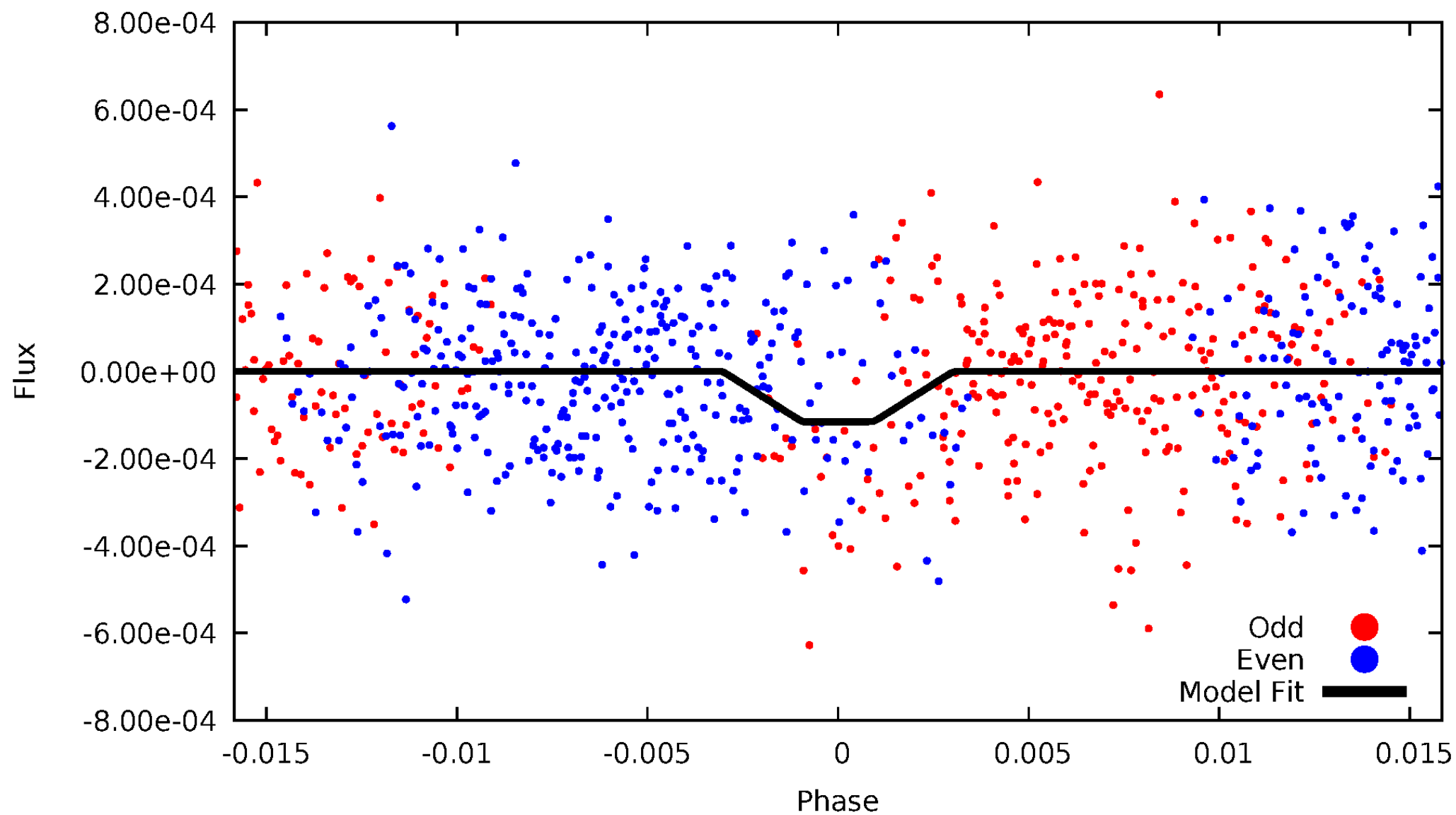
DV Odd/Even

TCE 005716330-02



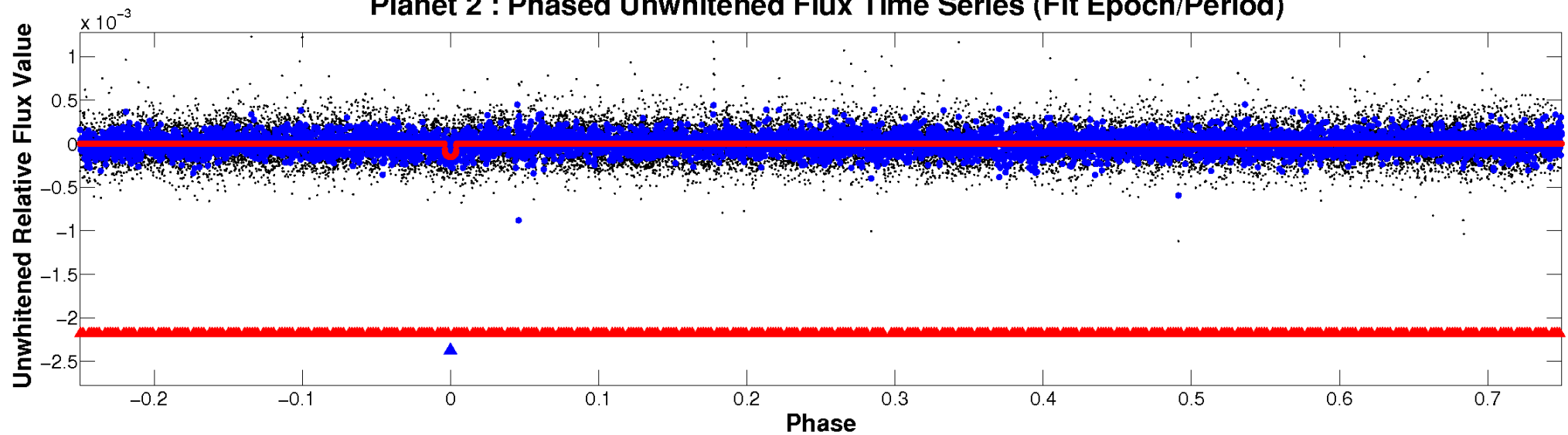
ALT Odd/Even

TCE 005716330-02

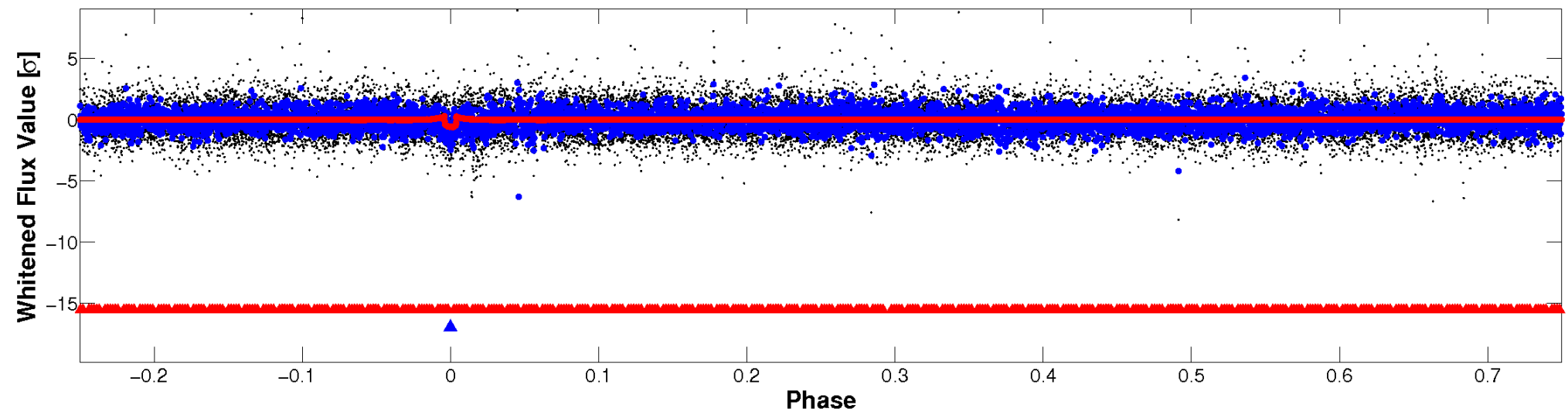


Non-Whitened Vs. Whitened Light Curve

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

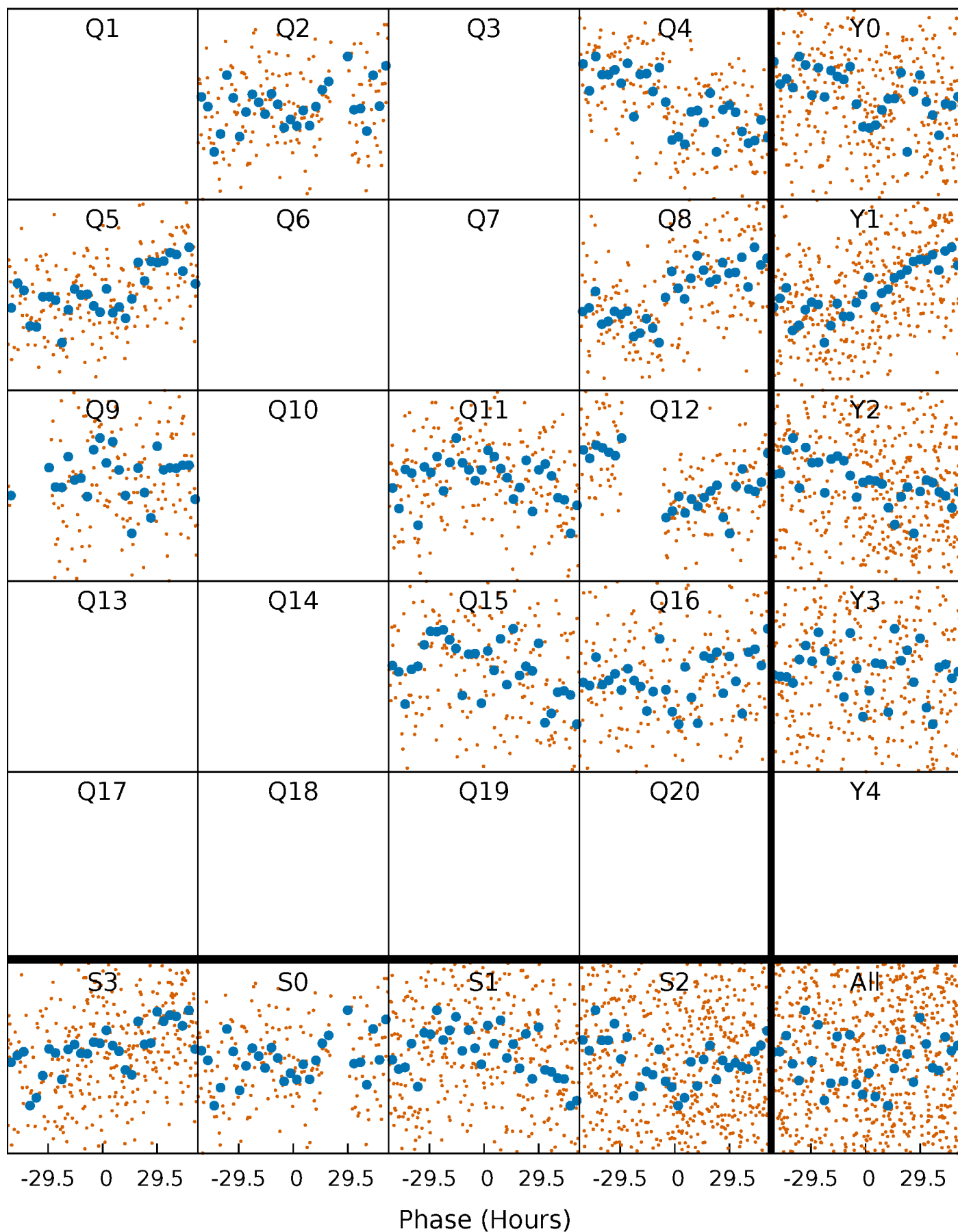


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



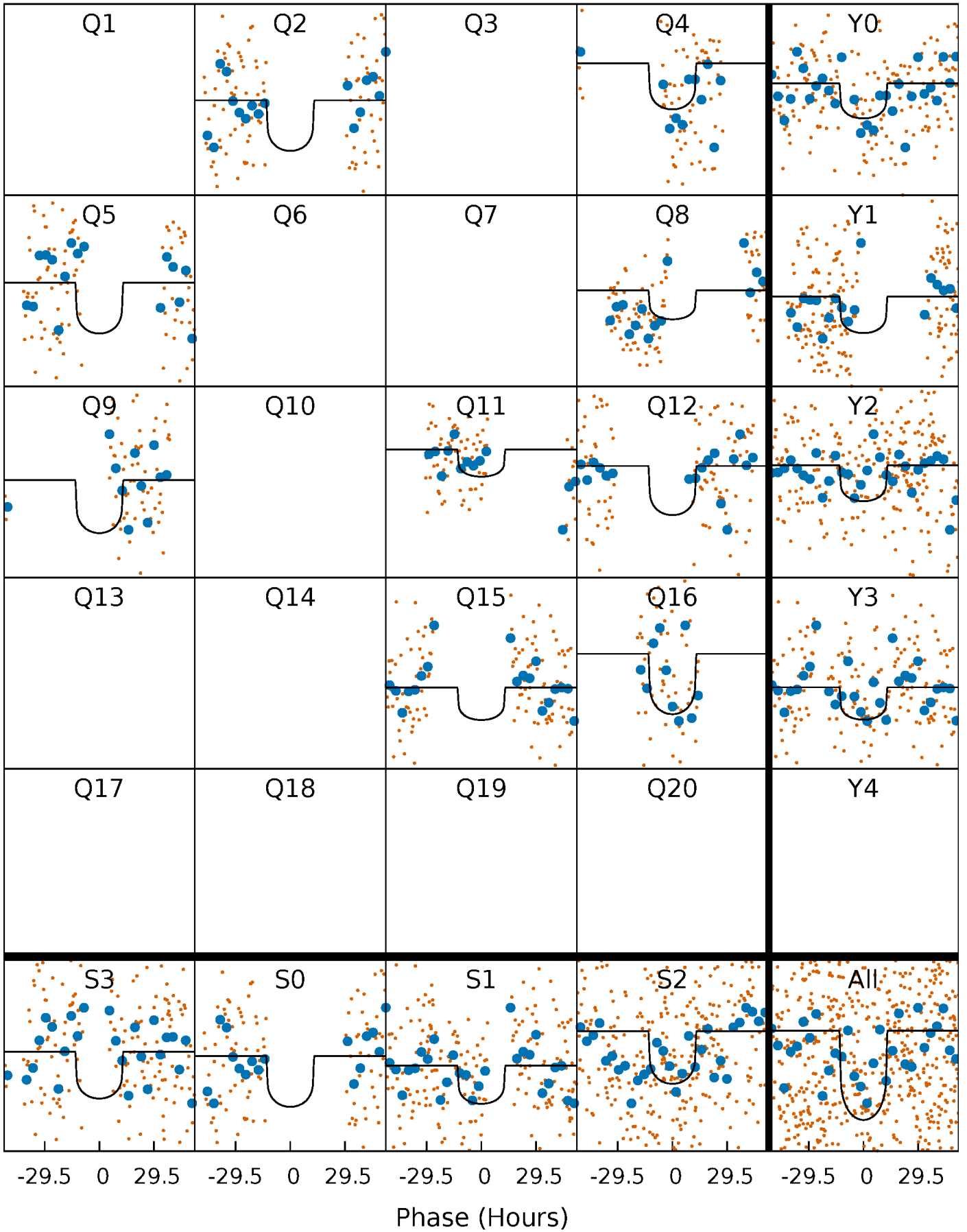
PDC Quarter-Phased Transit Curves

TCE 005716330-02 P=133.221945 Days $T_0=222.622098$ (BKJD)



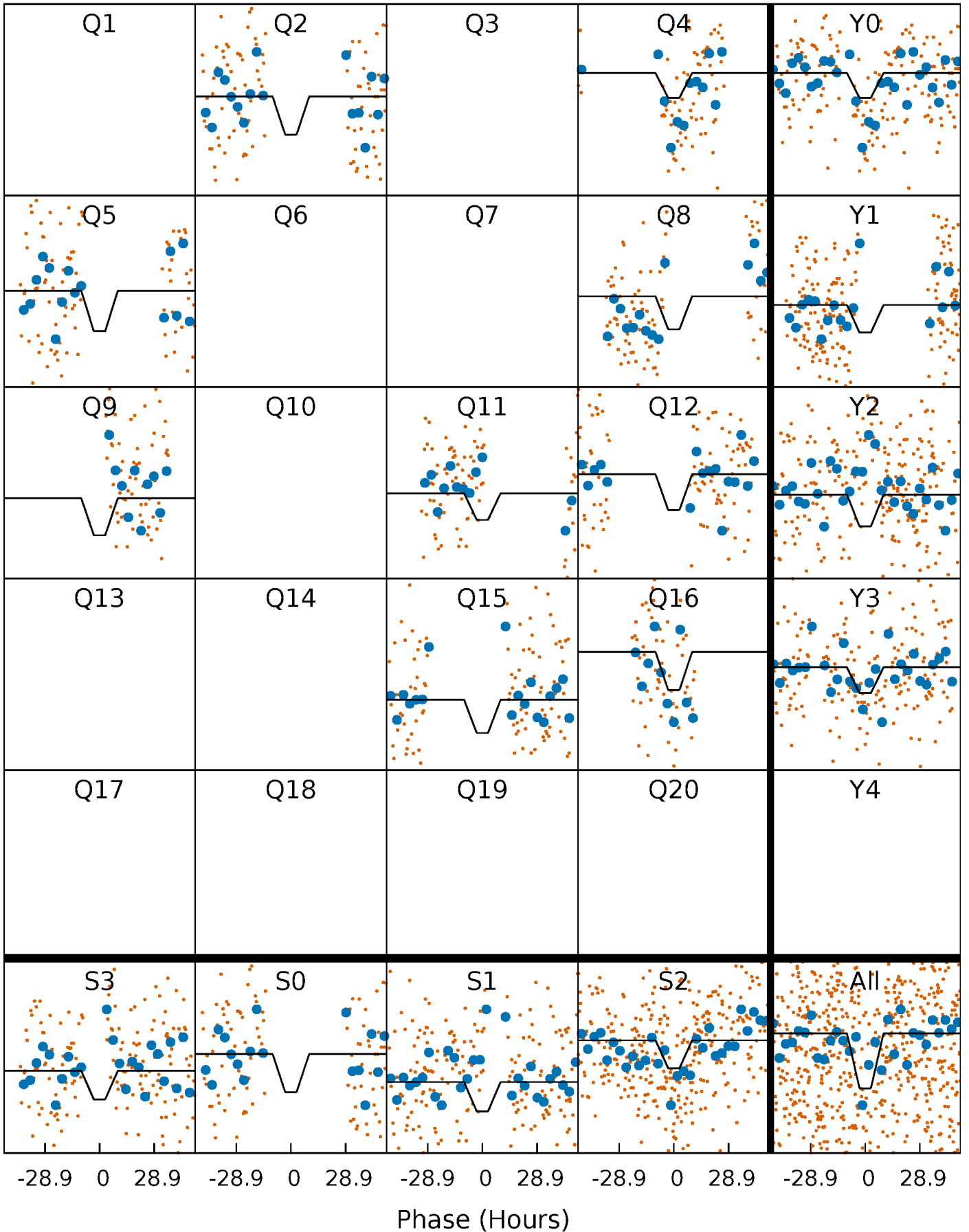
DV Quarter-Phased Transit Curves

TCE 005716330-02 P=133.221945 Days $T_0=222.622098$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

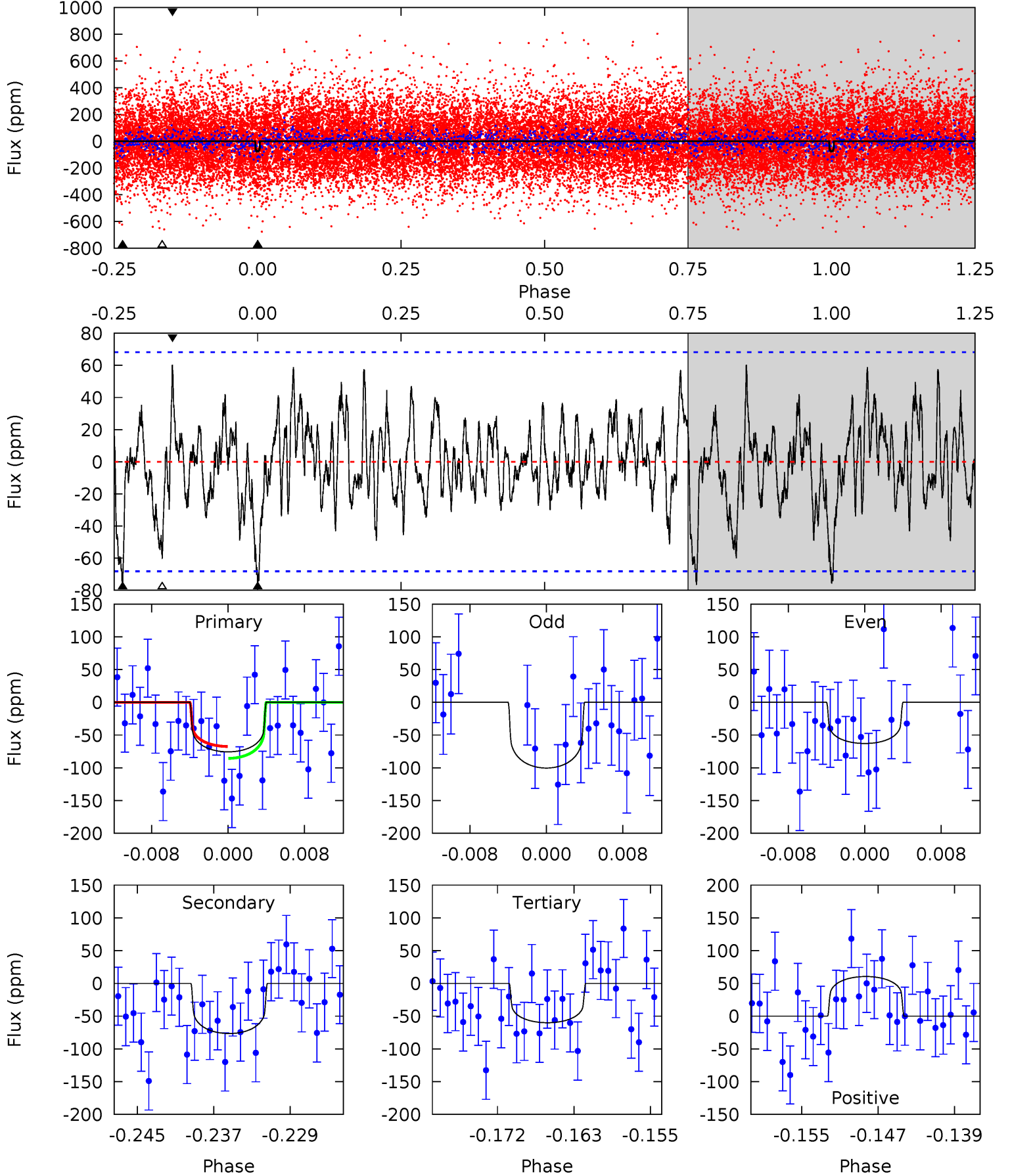
TCE 005716330-02 P=133.233622 Days $T_0=222.635143$ (BKJD)



DV Model-Shift Uniqueness Test

005716330-02, P = 133.221945 Days, E = 89.400153 Days

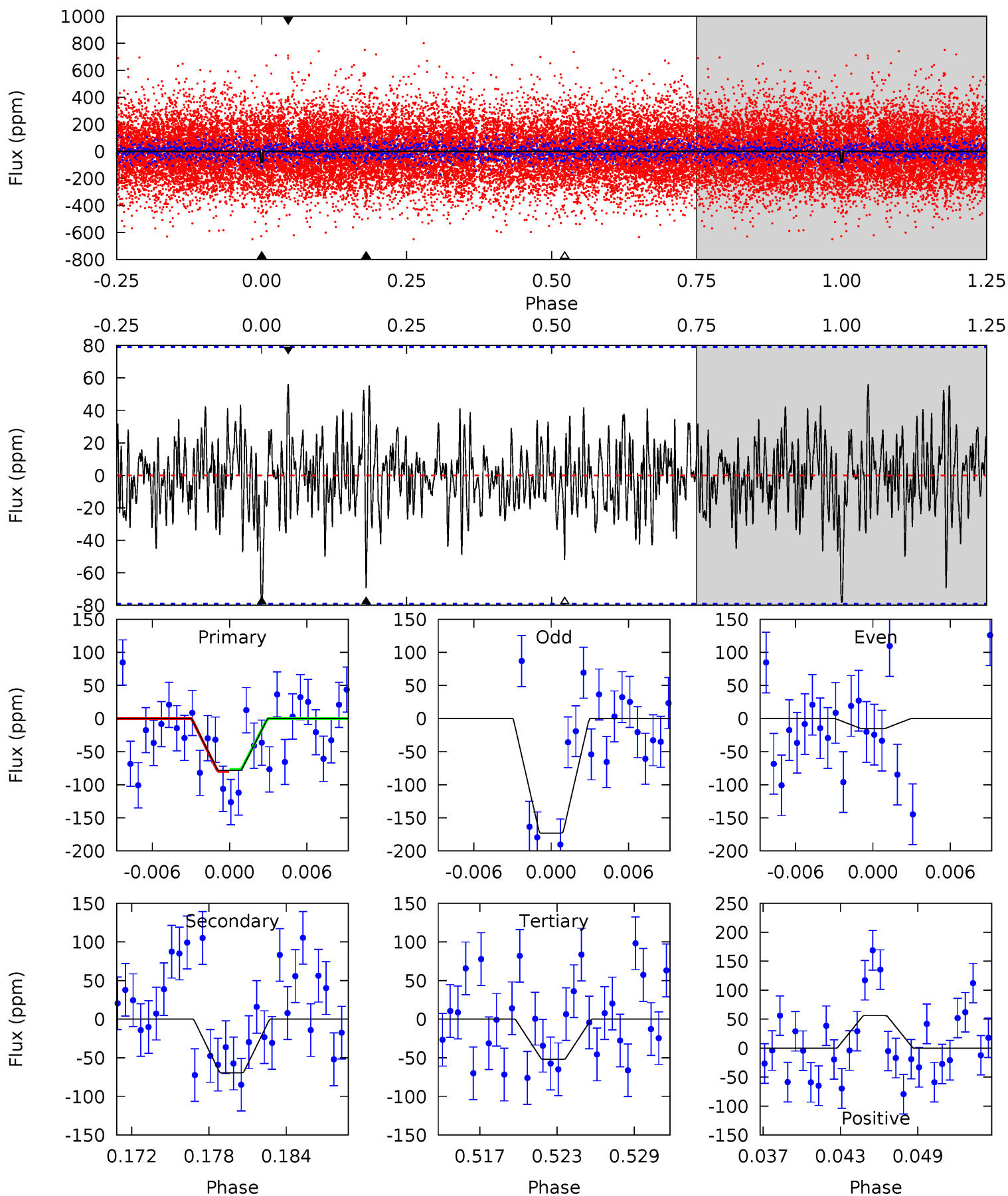
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.62	5.69	4.46	4.49	5.06	2.65	1.53	1.16	1.13	1.23	1.20	1.33	0.68	0.44	0.67



Alt Model-Shift Uniqueness Test

005716330-02, P = 133.233622 Days, E = 89.401521 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	4.50	3.36	3.64	5.12	2.74	1.10	1.71	1.43	1.13	0.85	5.04	2.21	0.42	0.10



Stellar Parameters For KIC 005716330

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5952^{+79}_{-79}	$4.227^{+0.156}_{-0.117}$	$0.000^{+0.150}_{-0.150}$	$1.304^{+0.222}_{-0.222}$	$1.046^{+0.093}_{-0.069}$	$0.664^{+0.503}_{-0.229}$
	+1%/-1%	+4%/-3%	+inf%/-inf%	+17%/-17%	+9%/-7%	+76%/-34%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 005716330-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-77 ± 13	$1.72^{+0.60}_{-0.60}$	580^{+27}_{-27}	5098^{+1065}_{-582}	3866^{+5016}_{-1842}
Alt.	-69 ± 15	$1.53^{+0.59}_{-0.57}$	578^{+28}_{-29}	5233^{+1230}_{-672}	4347^{+6507}_{-2140}

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 $A_{obs} \gg 1.0$

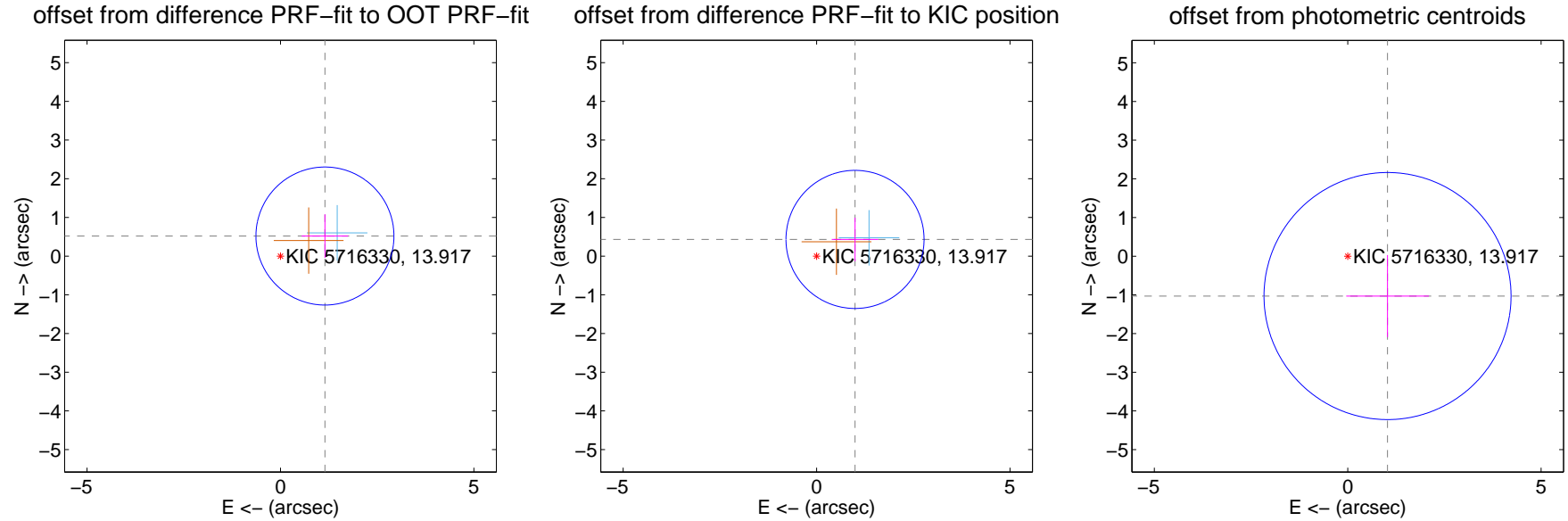
DV Centroid Data

Supplemental centroid analysis for 005716330-02. Kepler magnitude: 13.92. Transit SNR 7.10

There are 1 quarters with good PRF difference image offsets

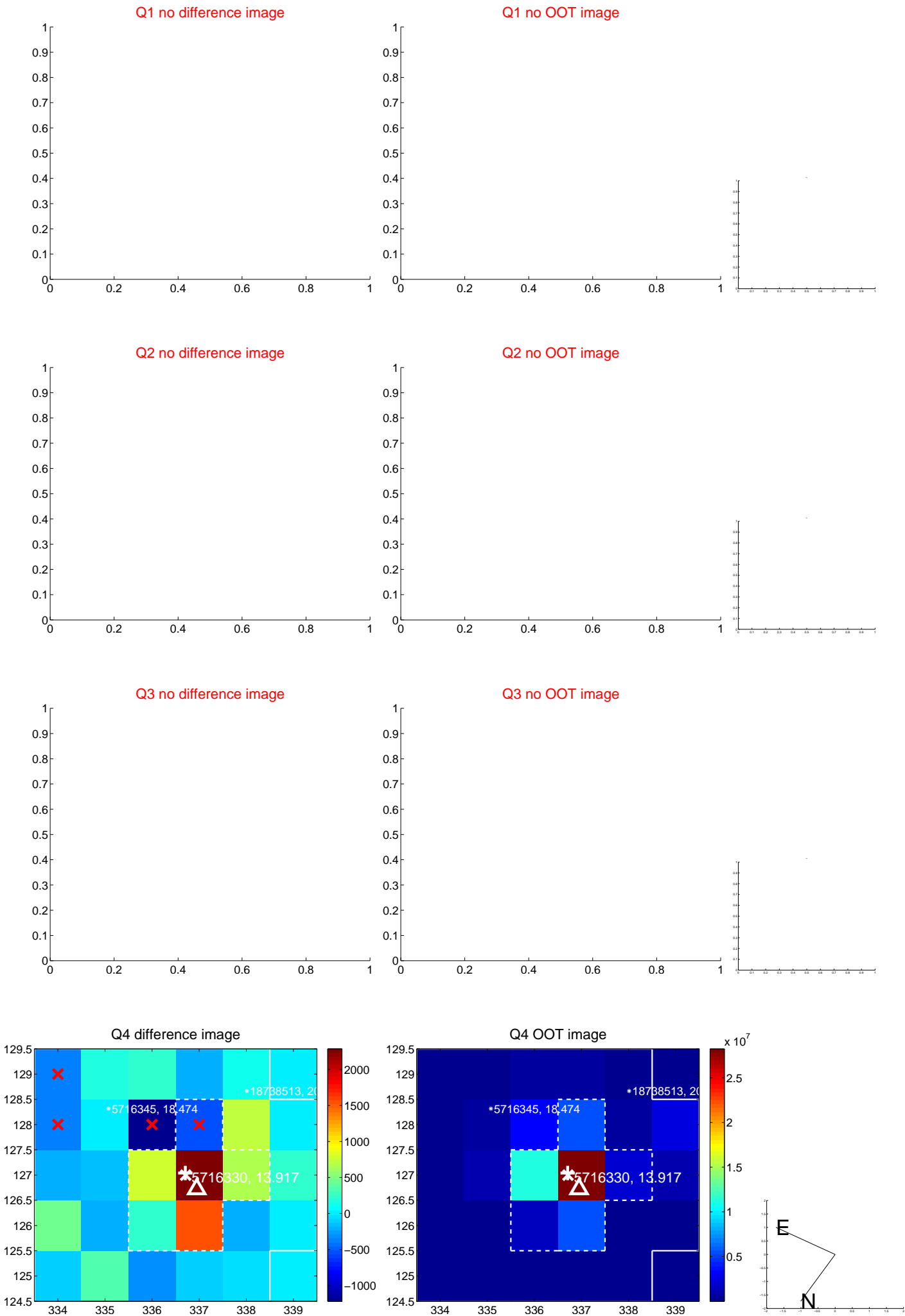
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.262 ± 0.594	2.12	-1.150 ± 0.601	0.520 ± 0.563
PRF-fit source offset from KIC position	1.083 ± 0.595	1.82	-0.994 ± 0.601	0.432 ± 0.563
photometric centroid source offset	1.46 ± 1.06	1.37	-1.03 ± 1.07	-1.03 ± 1.06

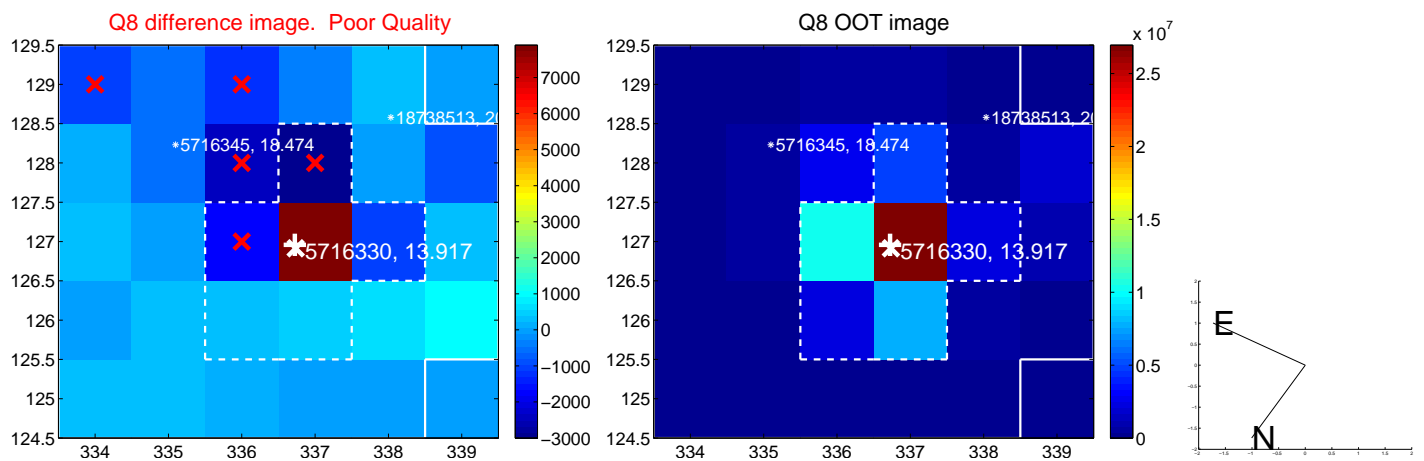
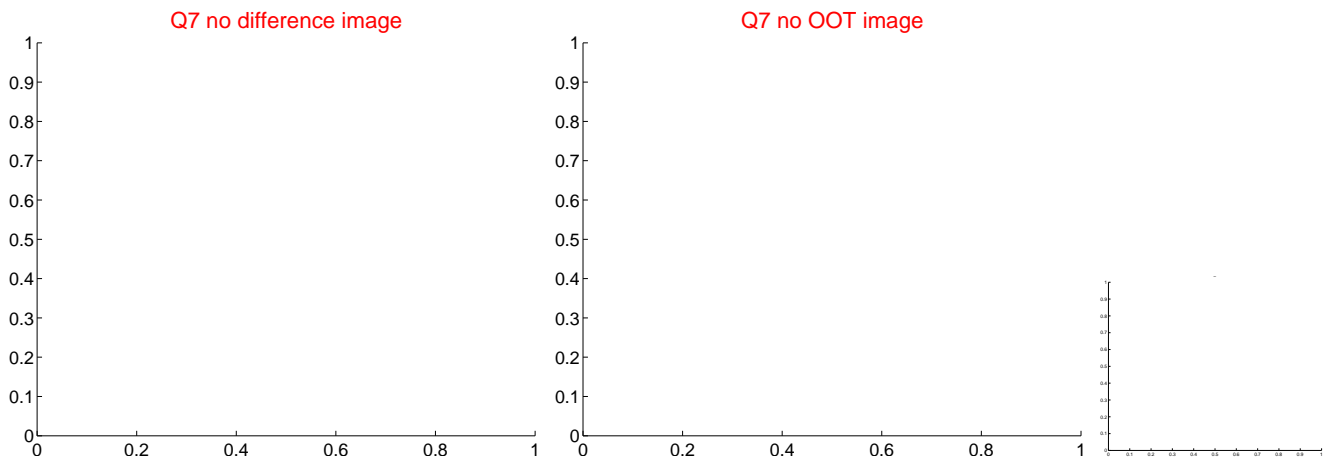
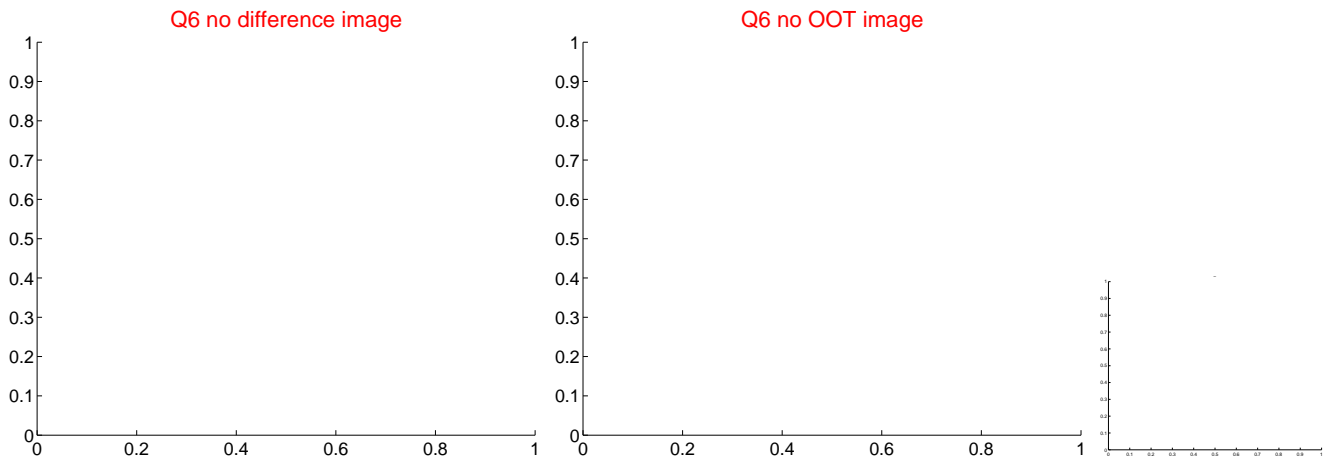
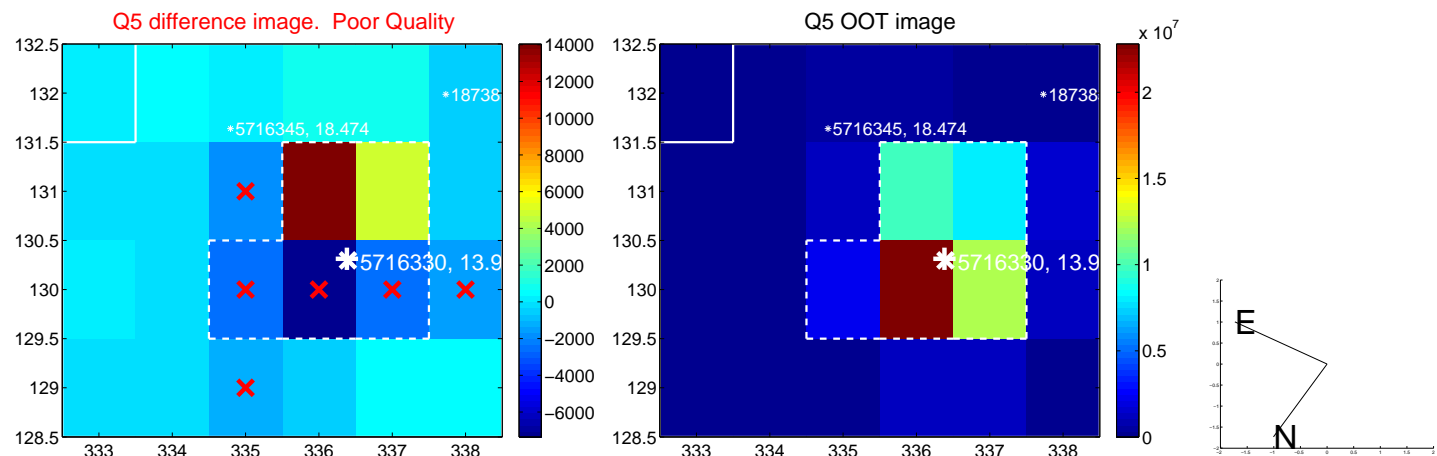


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



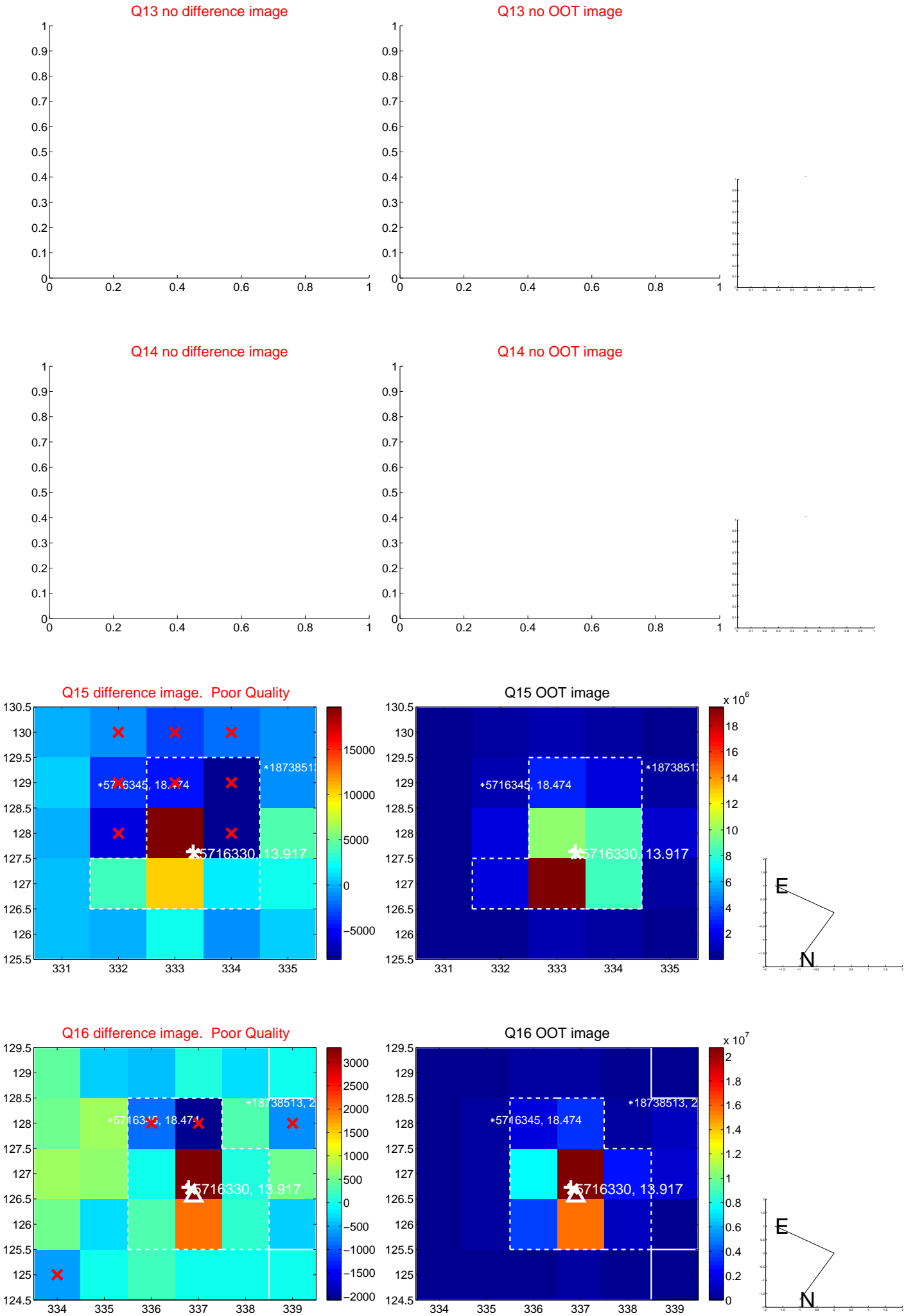
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



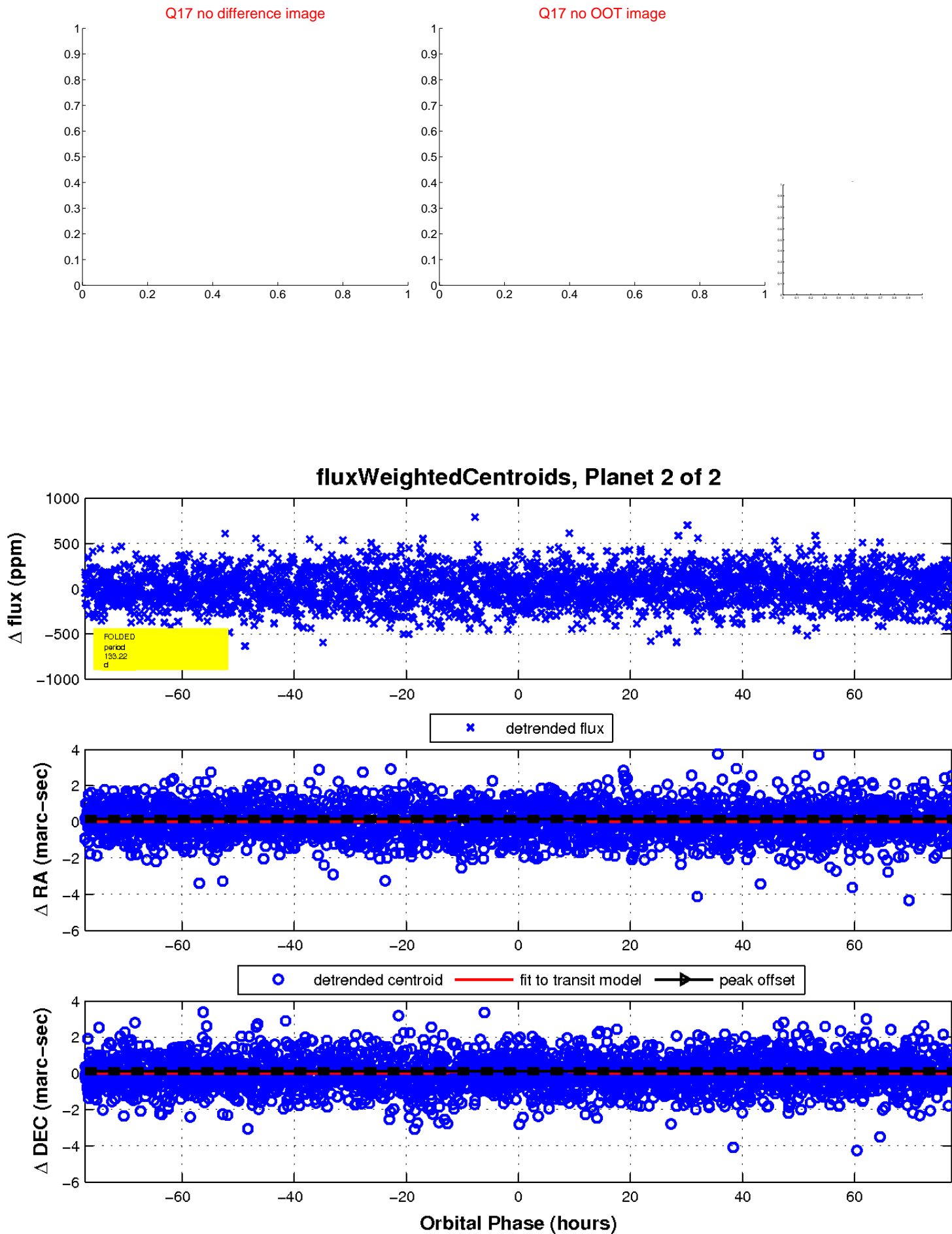
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UKIRT Image

Declination

