

# KIC 011620425

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011620425-01	OBS	No	0.606842	131.809906	88.5	4.357	8.5	10.3	0.81	5474	0.75	2861.16
011620425-02	OBS	No	42.183410	138.165083	2000.9	2.719	13.8	10.8	0.81	5474	3.66	10.01
011620425-03	OBS	No	27.294829	139.408389	808.6	4.597	13.5	5.0	0.81	5474	2.98	17.89
011620425-04	OBS	No	22.920823	133.295799	2087.9	1.216	8.9	8.6	0.81	5474	3.79	22.58
011620425-05	OBS	No	16.004742	139.098496	1498.3	1.500	8.8	-1.0	0.81	5474	3.08	36.45
011620425-06	OBS	No	13.598571	141.000149	785.2	15.334	9.0	6.0	0.81	5474	2.25	45.29

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011620425-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
011620425-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV
011620425-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_ALT
011620425-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV
011620425-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_NOFITS
011620425-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—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.

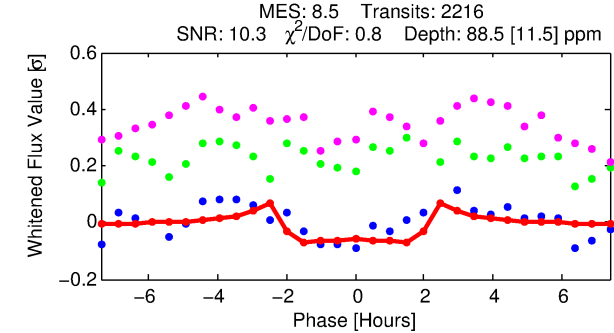
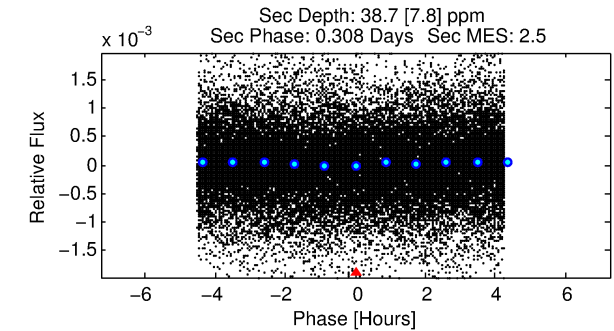
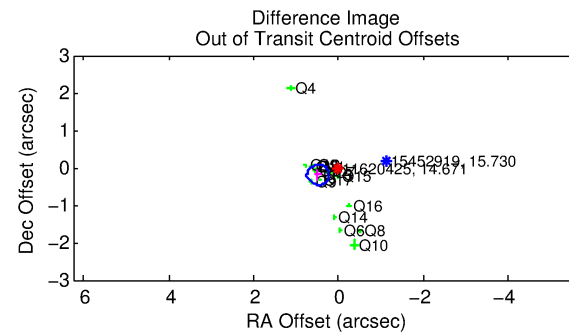
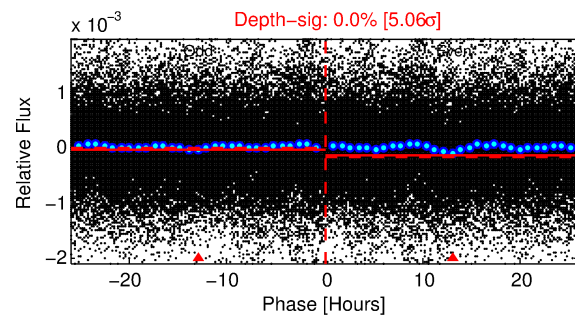
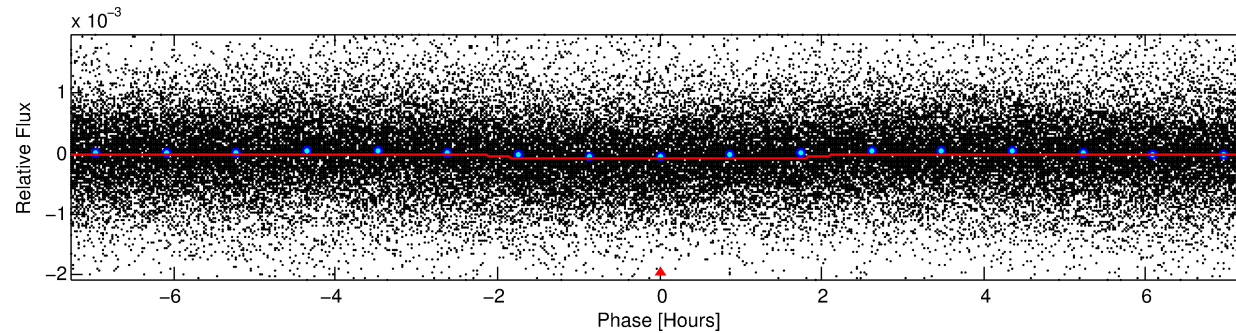
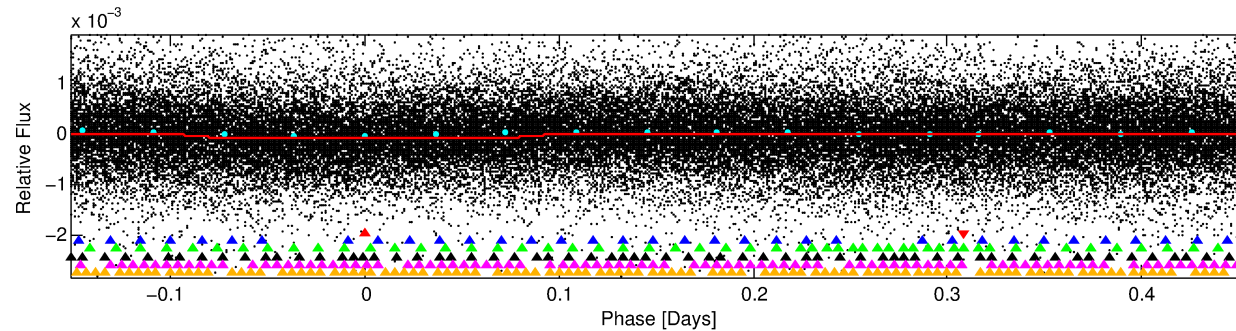
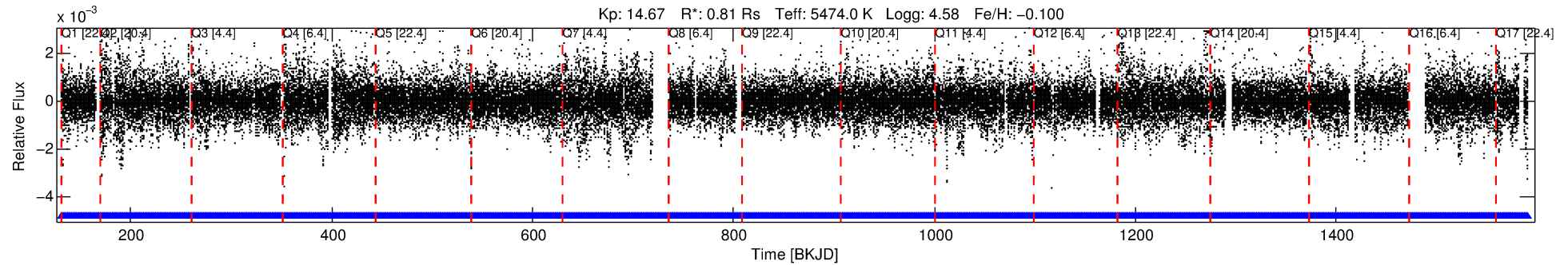
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011620425-01

No Significant Match Found

# DV One-Page Summary

KIC: 11620425 Candidate: 1 of 6 Period: 0.607 d



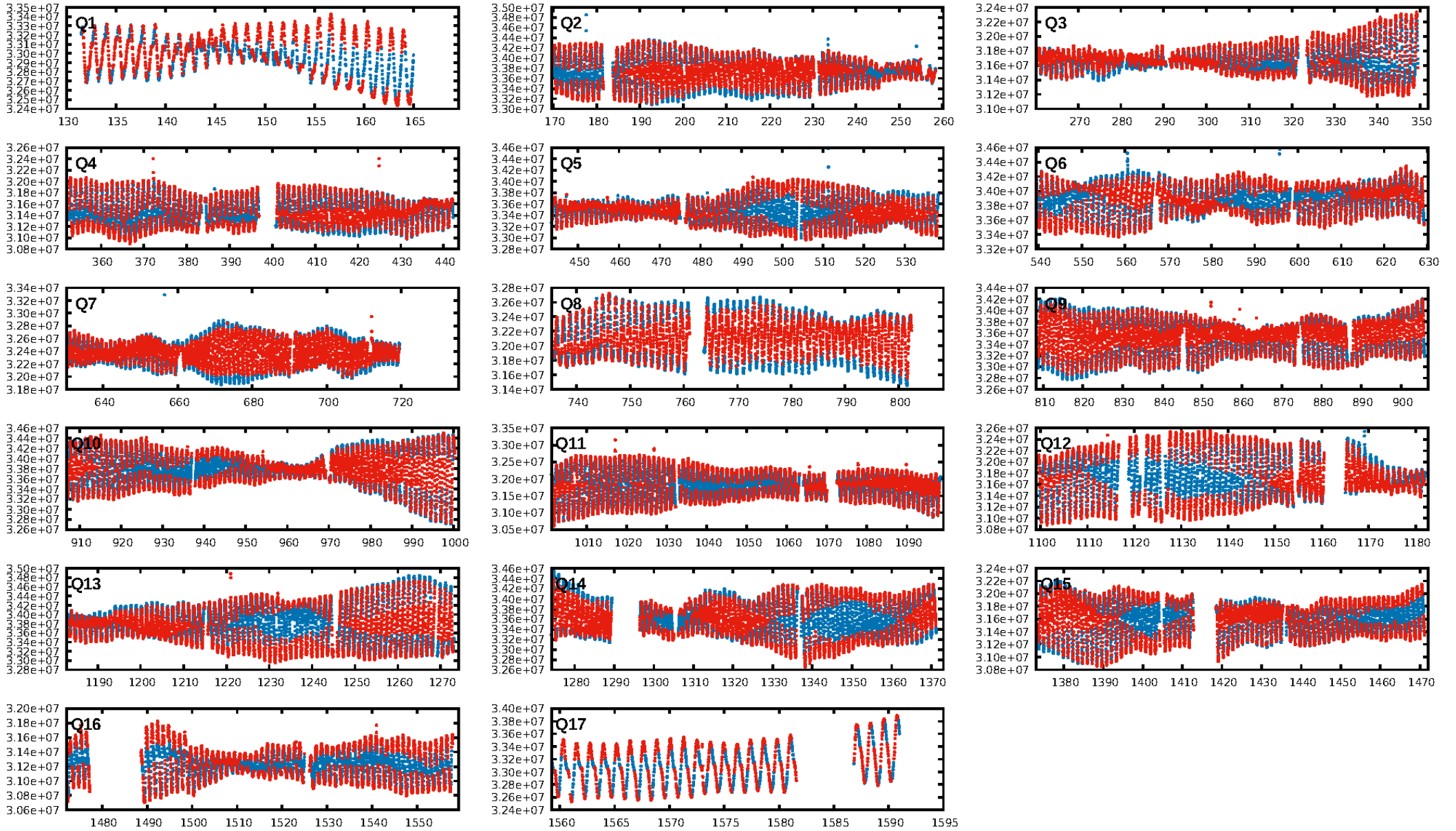
## DV Fit Results:

Period = 0.60684 [0.00001] d  
Epoch = 131.8099 [0.0020] BKJD  
Rp/R\* = 0.0085 [0.0053]  
a/R\* = 1.24 [1.07]  
b = 0.23 [10.29]  
Seff = 2861.17 [902.09]  
Teq = 1865 [147] K  
Rp = 0.75 [0.49] Re  
a = 0.0135 [0.0026] AU  
Ag = 6.90 [8.84] [0.67 $\sigma$ ]  
Teffp = 4674 [1470] K [1.90 $\sigma$ ]

## DV Diagnostic Results:

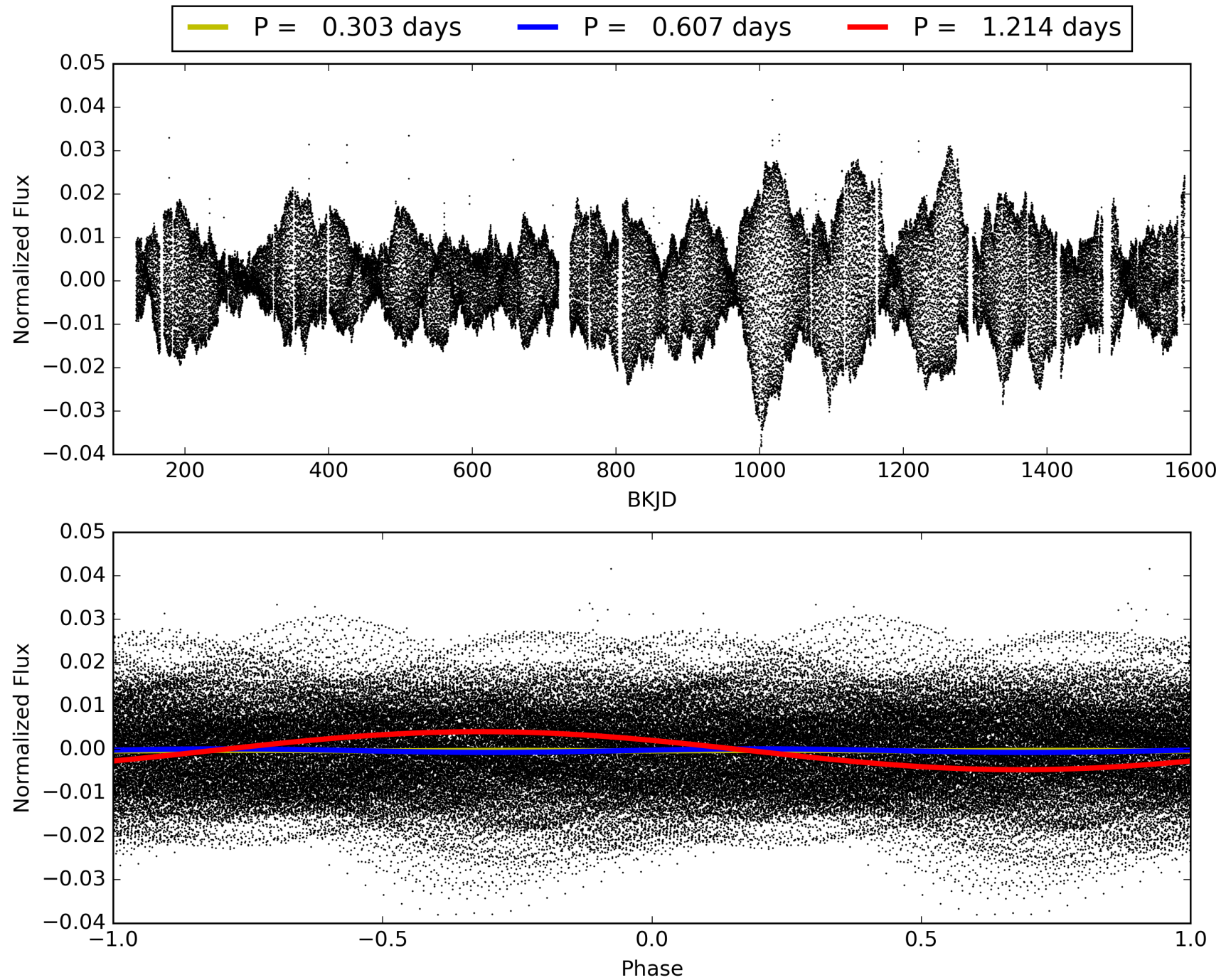
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [19.56 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2117/2117]  
GhostDiagnostic-chr: 3.703  
Centroid-sig: 0.1%  
Centroid-so: 1.190 arcsec [2.08 $\sigma$ ]  
OotOffset-rm: 0.512 arcsec [5.82 $\sigma$ ]  
KicOffset-rm: 0.527 arcsec [5.84 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.41 [7/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 011620425-01, PDC Light Curves





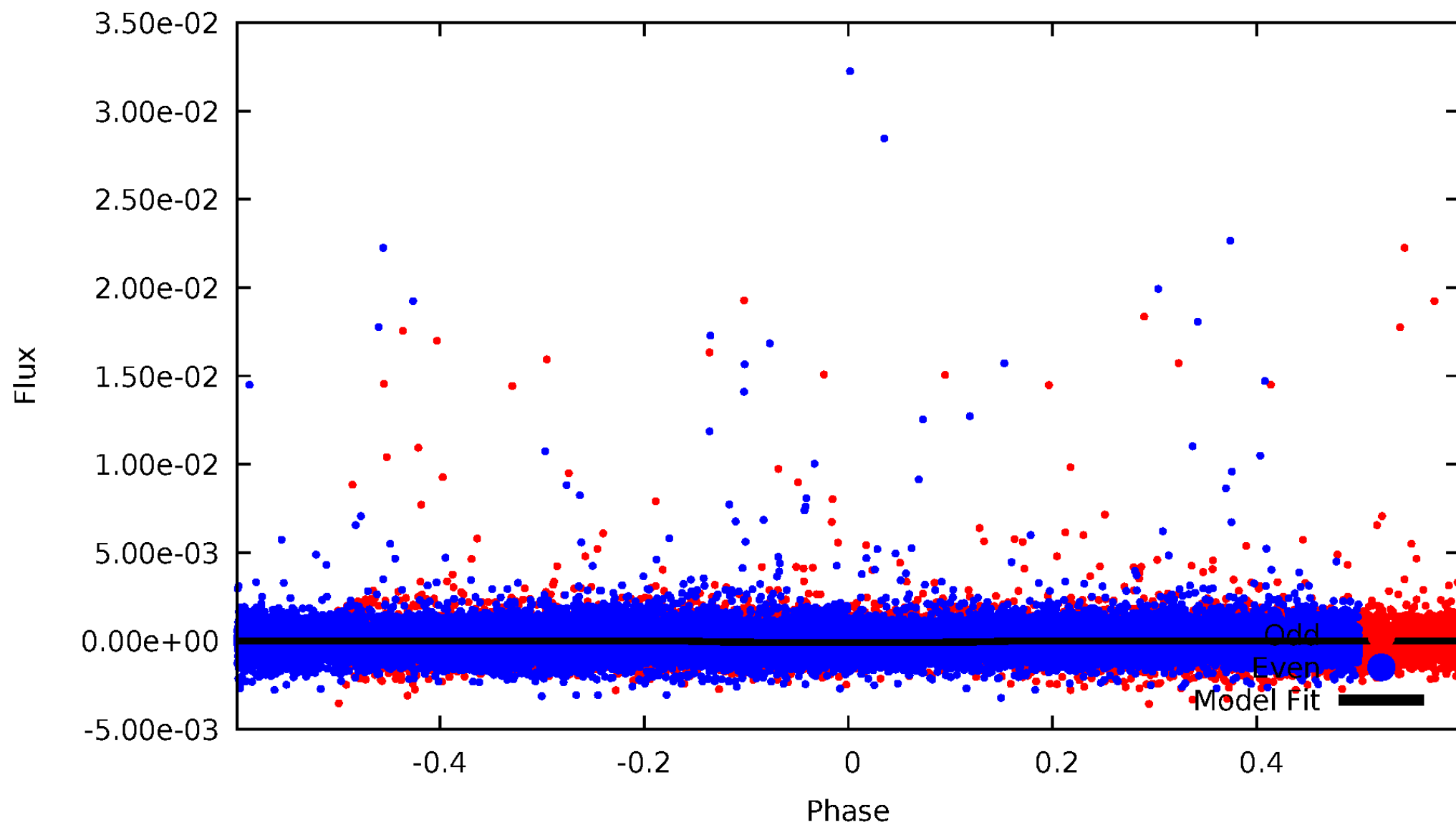
TCE 011620425-01





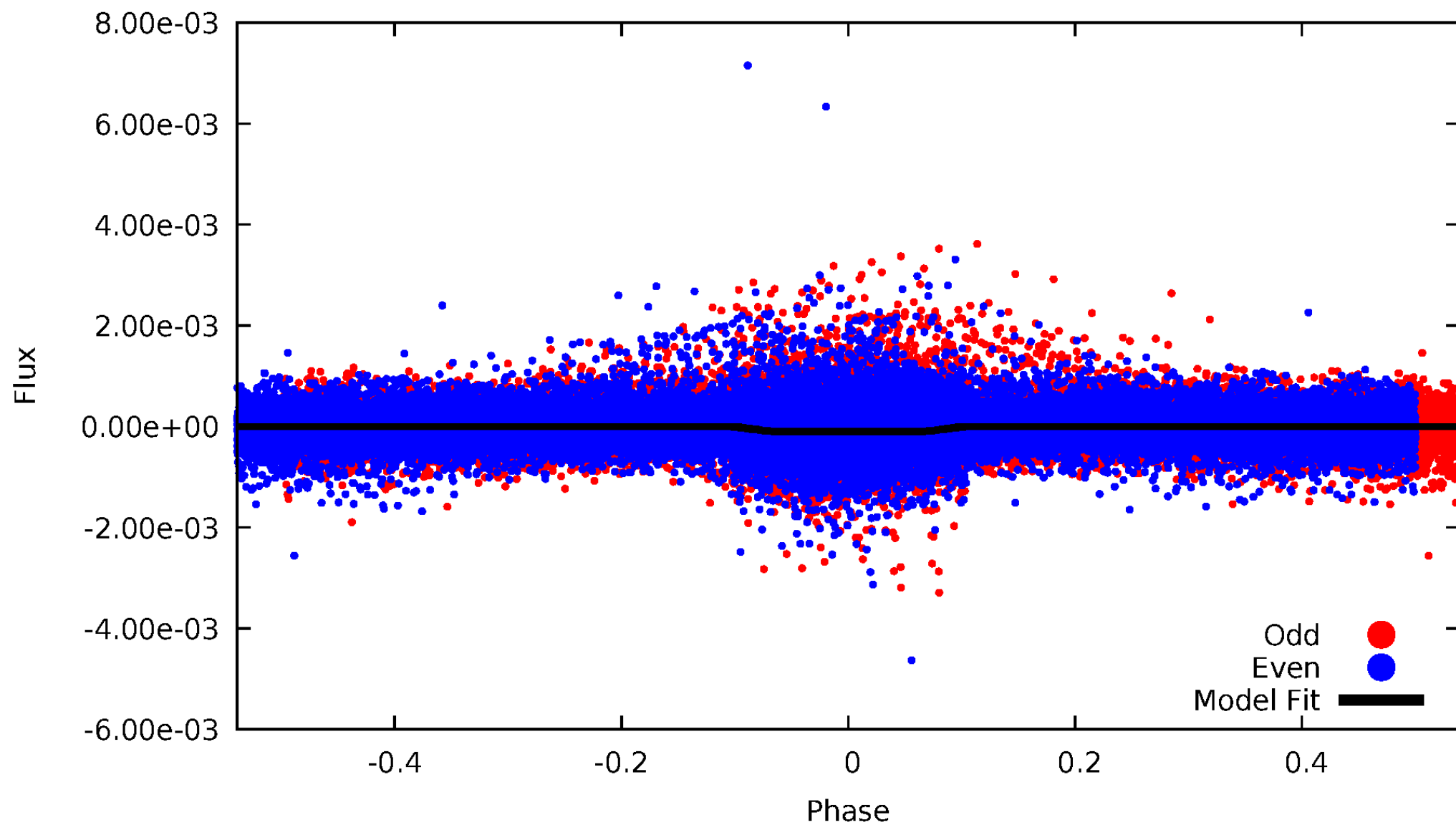
# DV Odd/Even

TCE 011620425-01



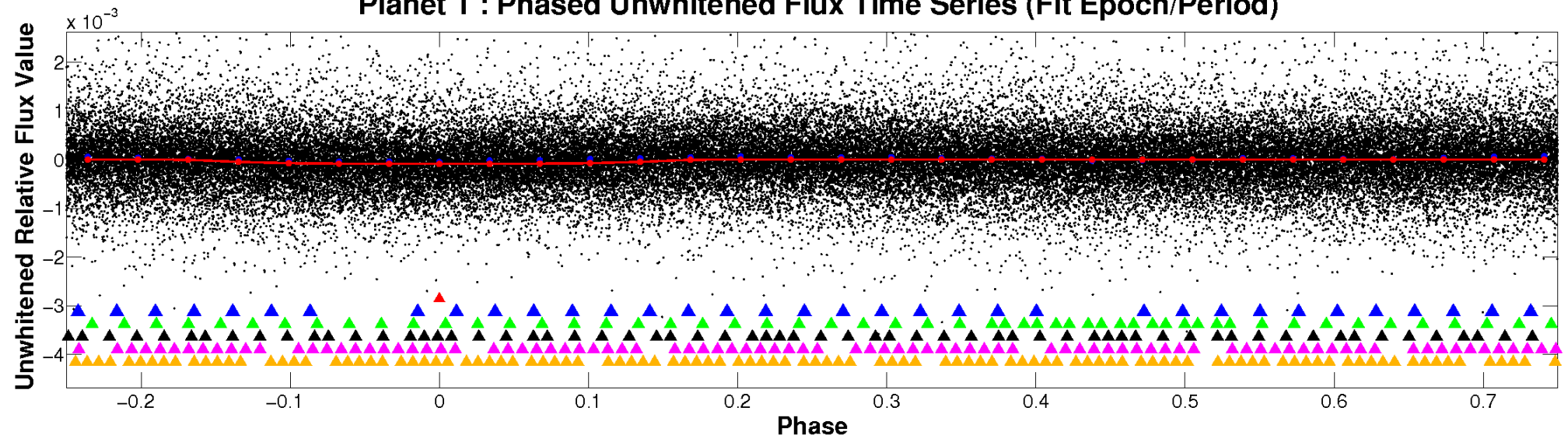
# ALT Odd/Even

TCE 011620425-01

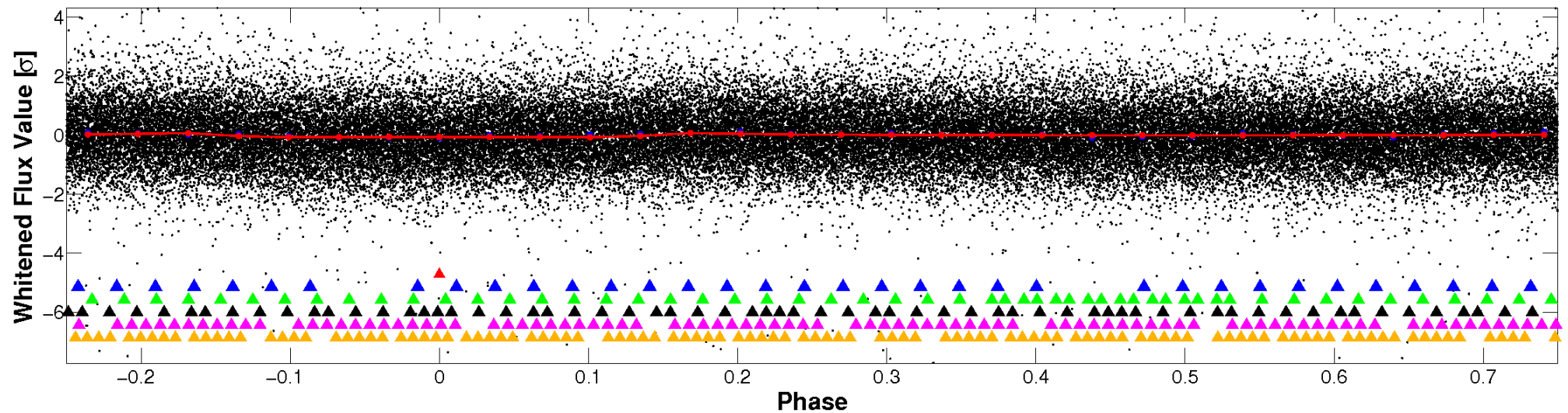


# Non-Whitened Vs. Whitened Light Curve

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



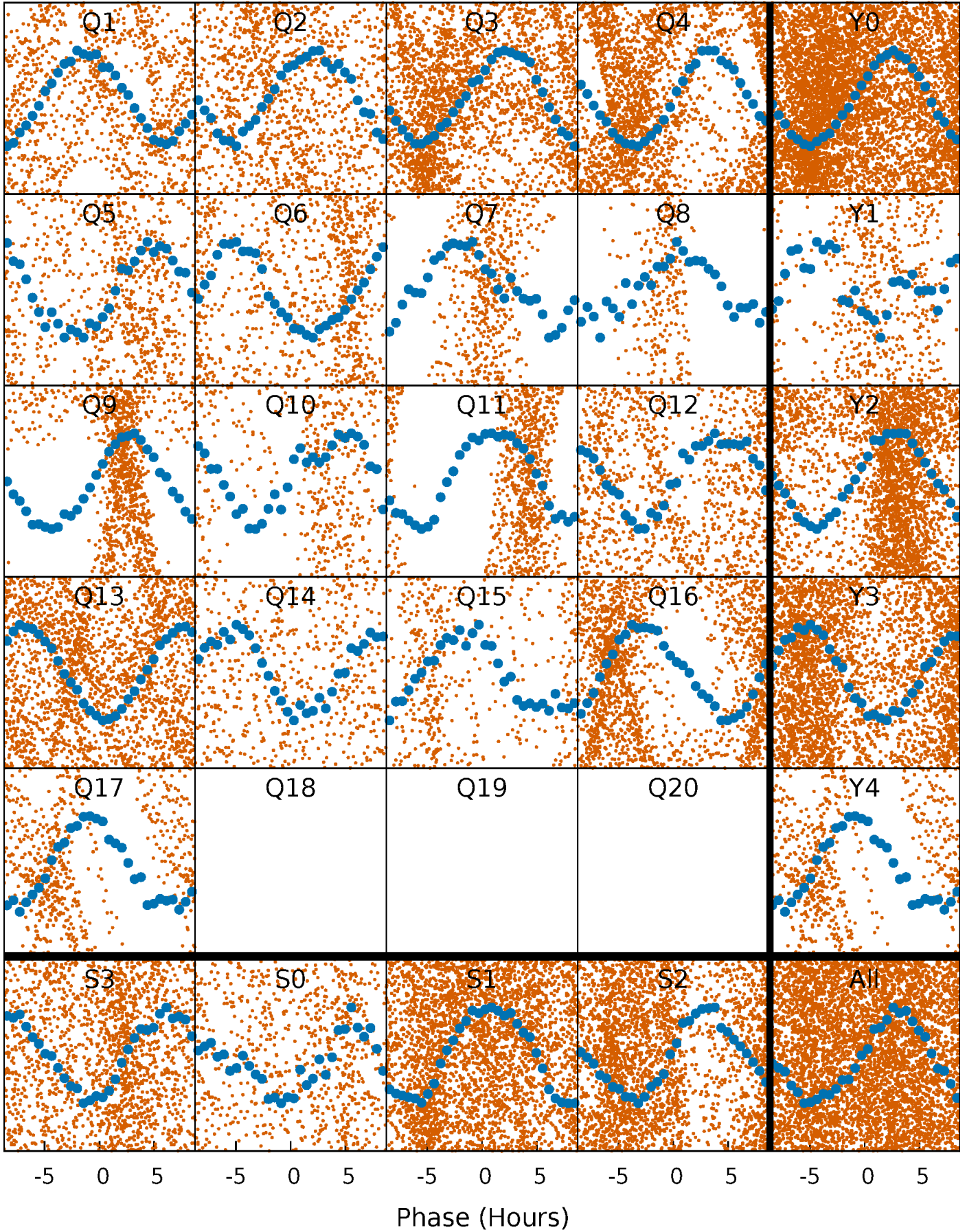
## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





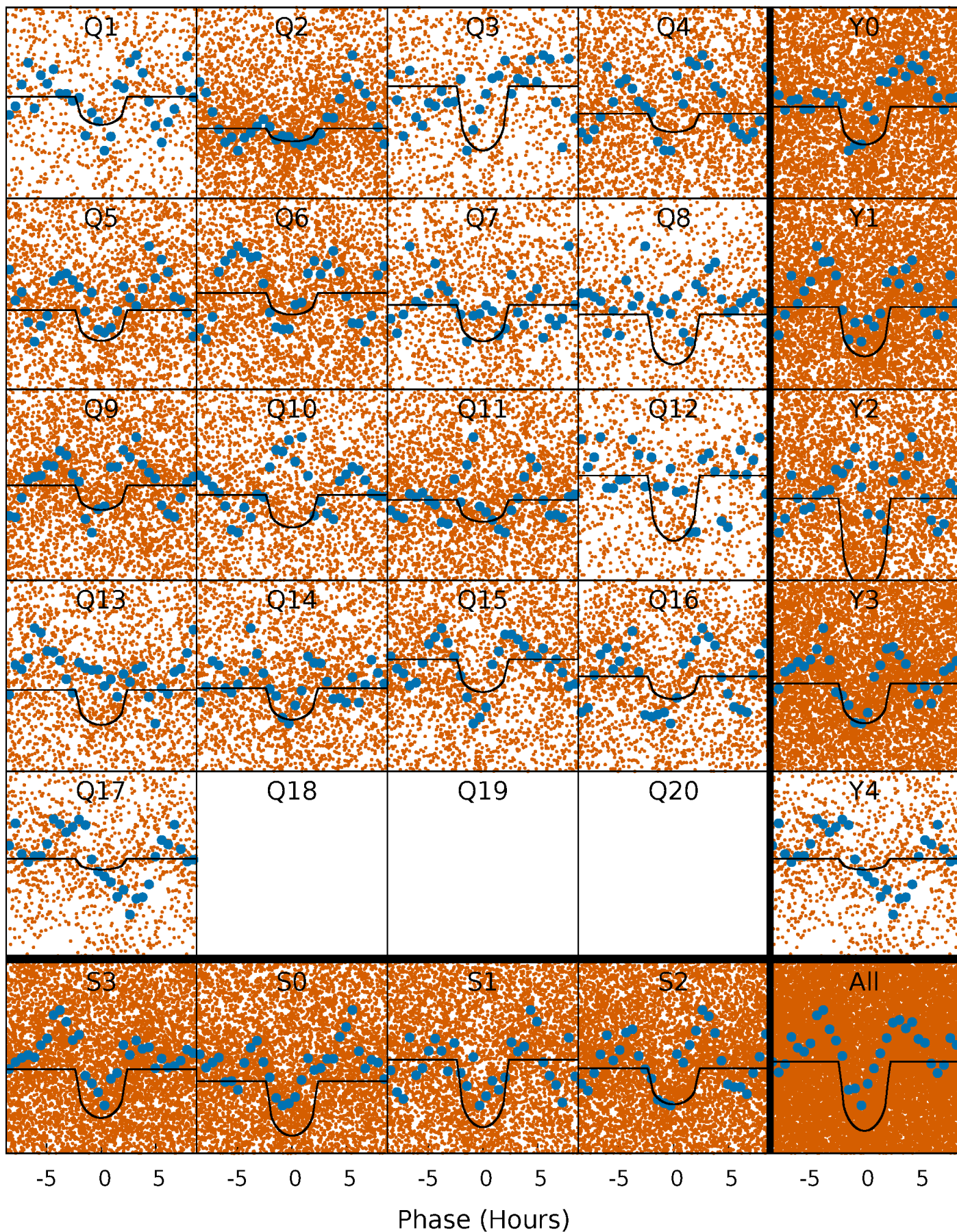
# PDC Quarter-Phased Transit Curves

TCE 011620425-01 P= 0.606842 Days  $T_0=131.809906$  (BKJD)



# DV Quarter-Phased Transit Curves

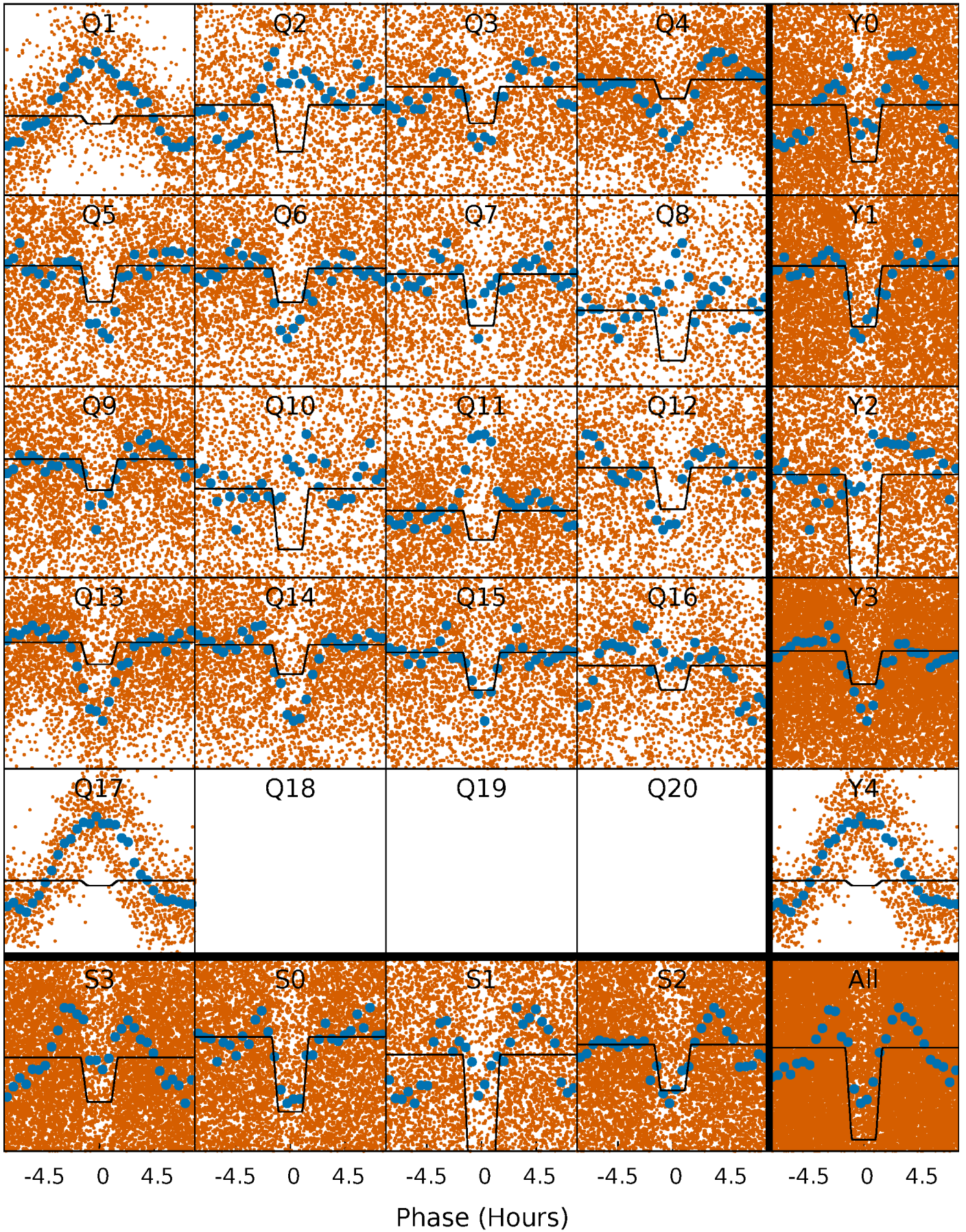
TCE 011620425-01 P= 0.606842 Days  $T_0=131.809906$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 011620425-01 P= 0.606844 Days  $T_0=131.777429$  (BKJD)

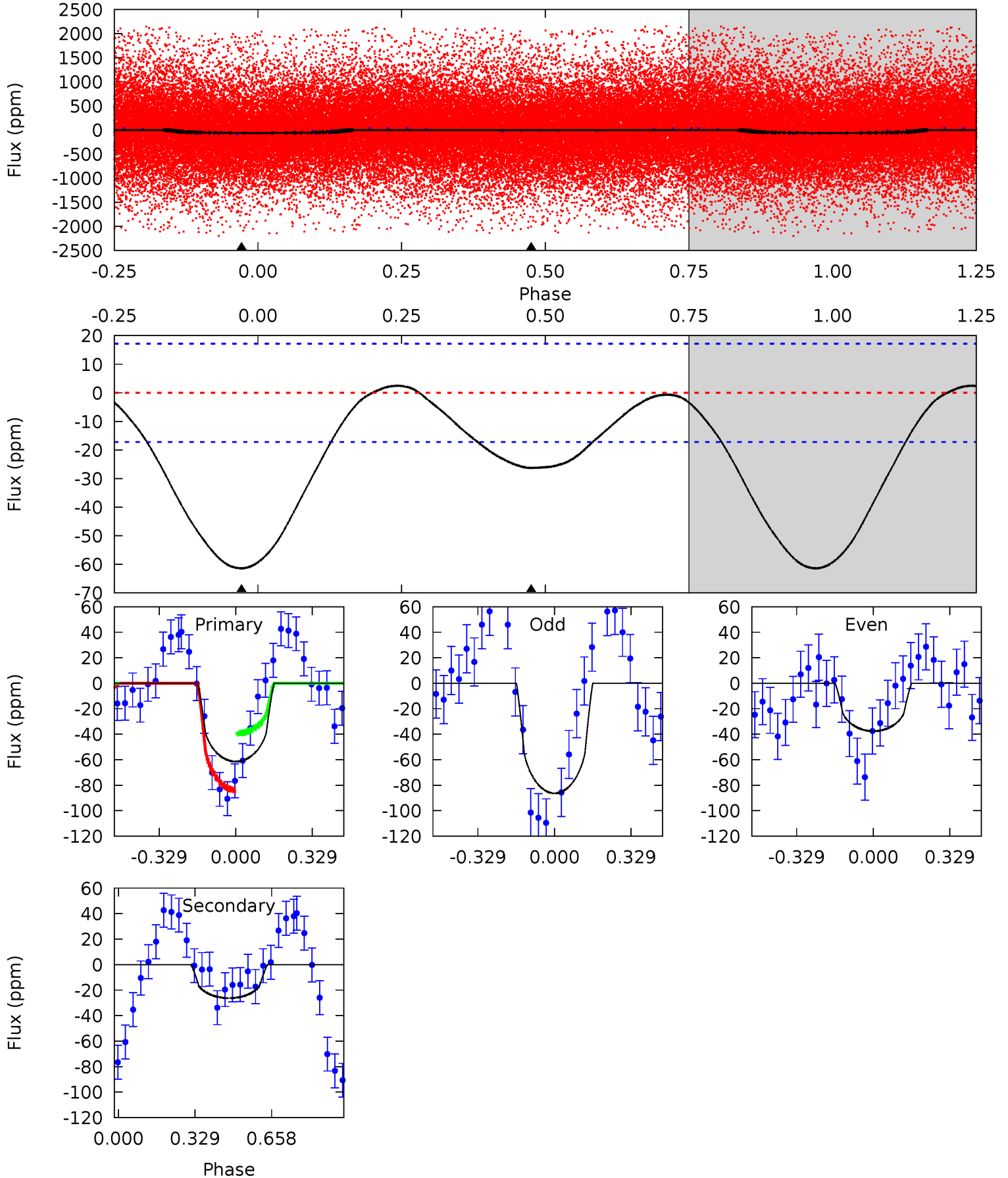




# DV Model-Shift Uniqueness Test

011620425-01, P = 0.606842 Days, E = 131.203064 Days

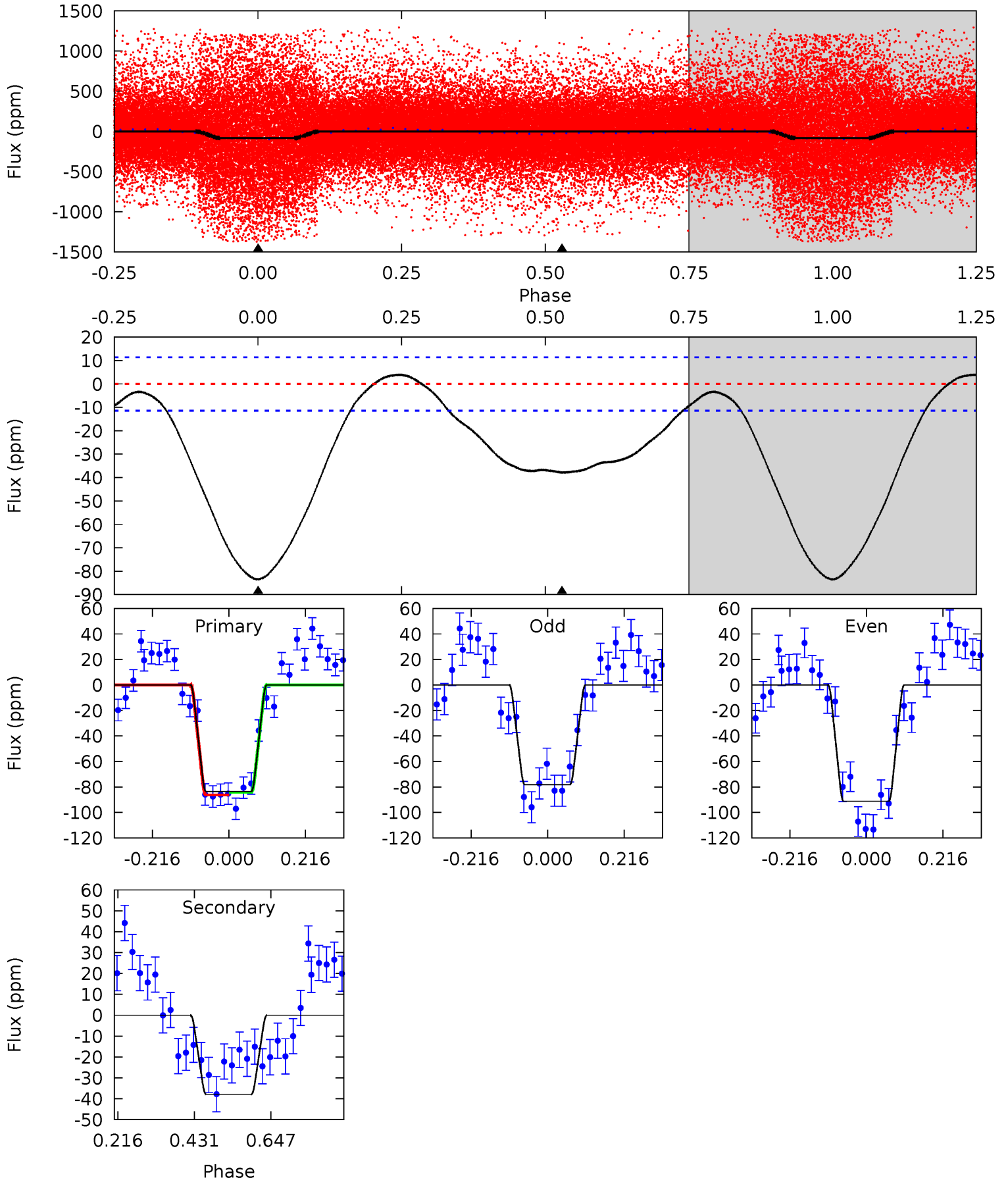
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	6.59	0	0	4.31	0.98	0.40	15.4	15.4	6.59	6.59	6.16	0.44	0.04	5.71



# Alt Model-Shift Uniqueness Test

011620425-01, P = 0.606844 Days, E = 131.170585 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.2	14.6	0	0	4.40	1.24	1.73	32.2	32.2	14.6	14.6	2.52	0.56	0.04	0.42



### Stellar Parameters For KIC 011620425

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5474^{+197}_{-180}$	$4.576^{+0.038}_{-0.152}$	$-0.100^{+0.300}_{-0.300}$	$0.805^{+0.188}_{-0.063}$	$0.896^{+0.082}_{-0.101}$	$2.415^{+0.464}_{-0.985}$
	+4%/-3%	+1%/-3%	+300%/-300%	+23%/-8%	+9%/-11%	+19%/-41%
Source	KIC0	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 011620425-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-26 \pm 4$	$0.80^{+0.48}_{-0.42}$	$2651^{+148}_{-116}$	$4305^{+1708}_{-757}$	$4.113^{+13.624}_{-2.566}$
Alt.	$-38 \pm 3$	$0.94^{+0.45}_{-0.48}$	$2666^{+132}_{-130}$	$4405^{+1608}_{-690}$	$4.190^{+14.094}_{-2.240}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming A=0.3)

$A_{\text{obs}}$  = 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

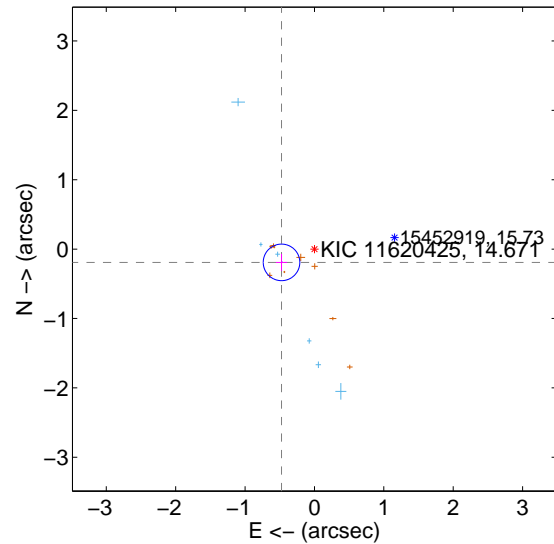
Supplemental centroid analysis for 011620425-01. Kepler magnitude: 14.67. Transit SNR 10.27

There are 7 quarters with good PRF difference image offsets

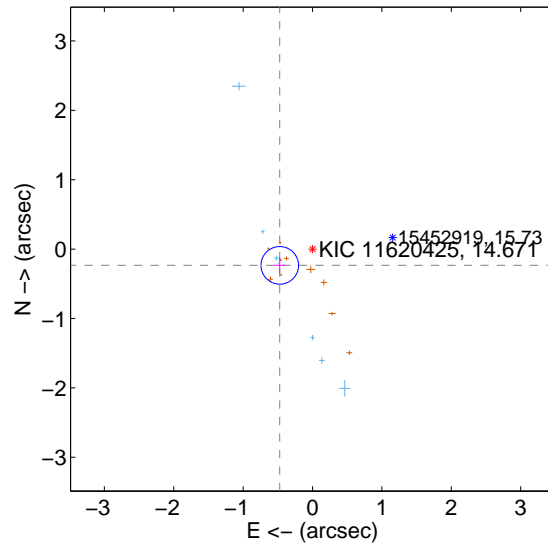
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.512 \pm 0.088$	5.82	$0.475 \pm 0.081$	$-0.192 \pm 0.121$
PRF-fit source offset from KIC position	$0.527 \pm 0.090$	5.84	$0.472 \pm 0.083$	$-0.234 \pm 0.116$
photometric centroid source offset	$1.19 \pm 0.57$	2.08	$-1.02 \pm 0.61$	$0.61 \pm 0.44$

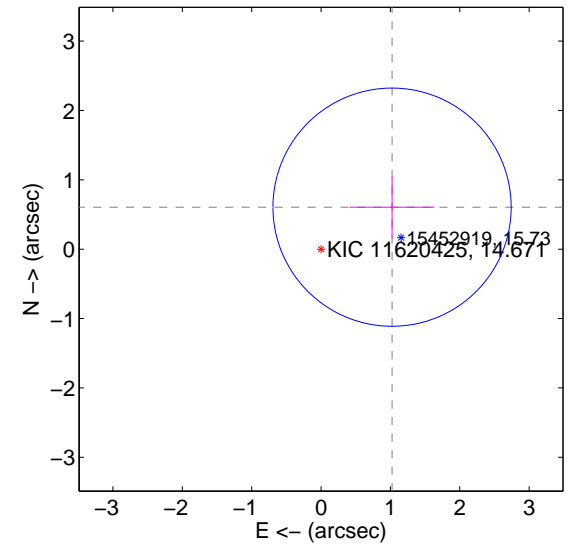
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

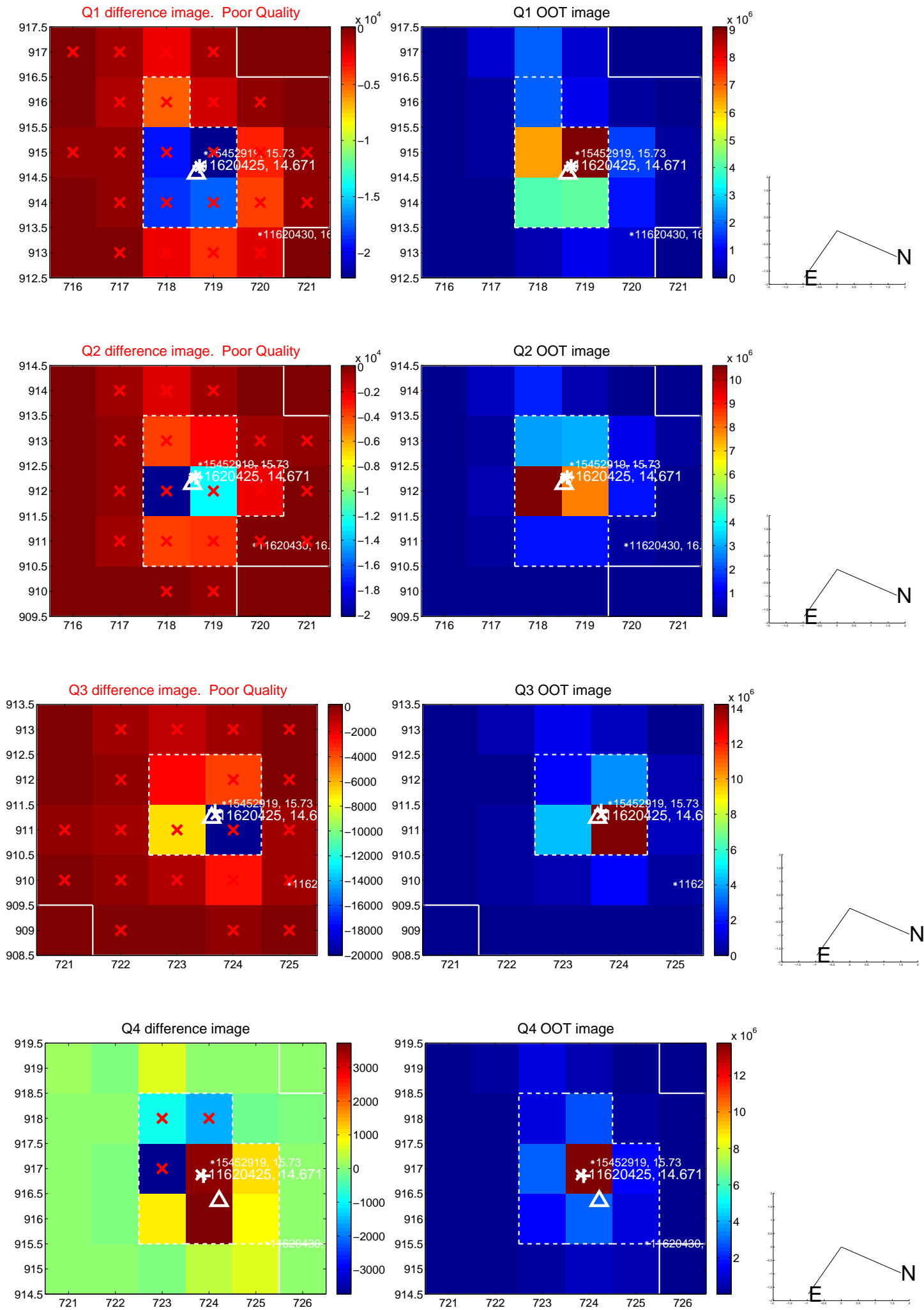


offset from photometric centroids

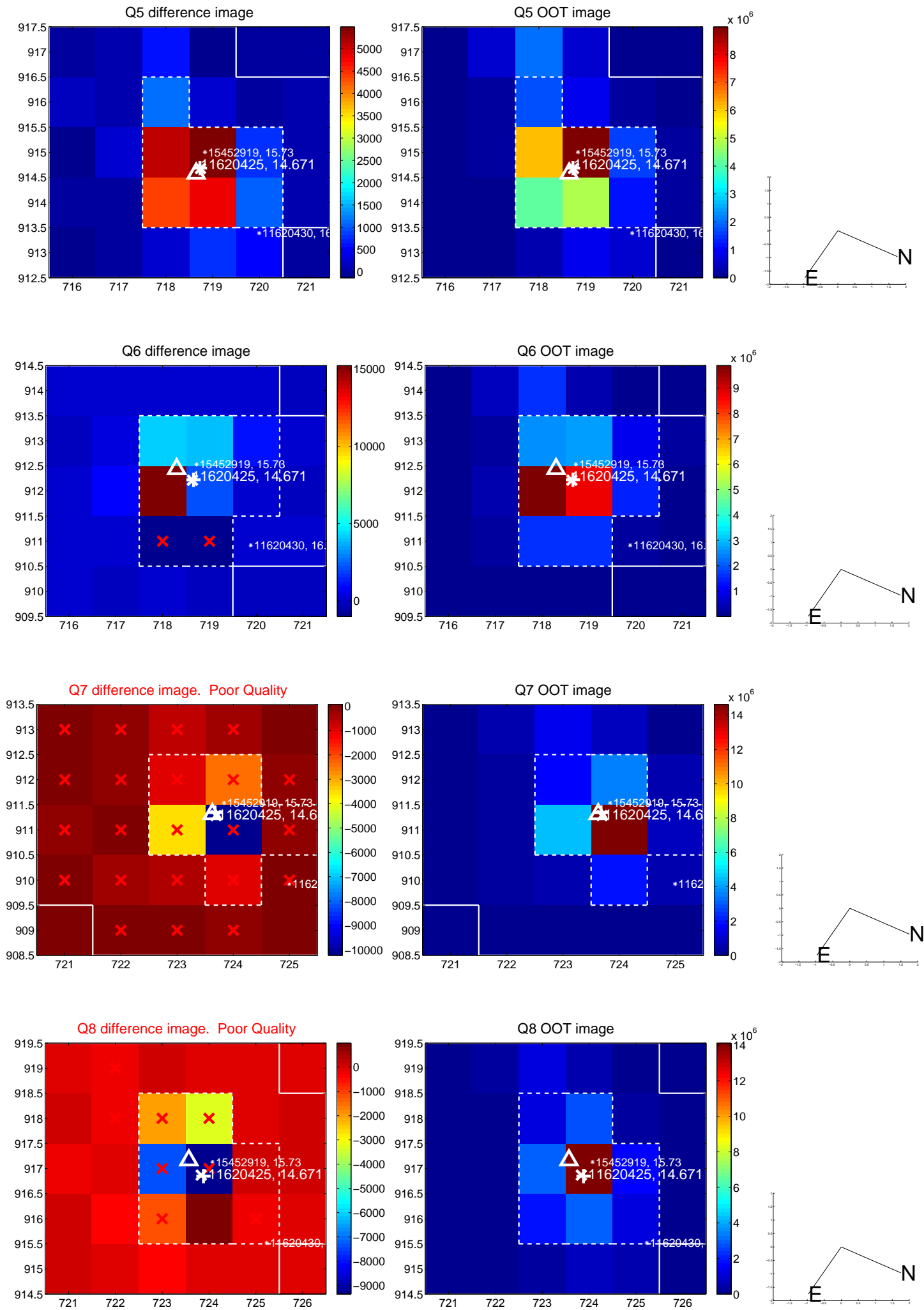


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

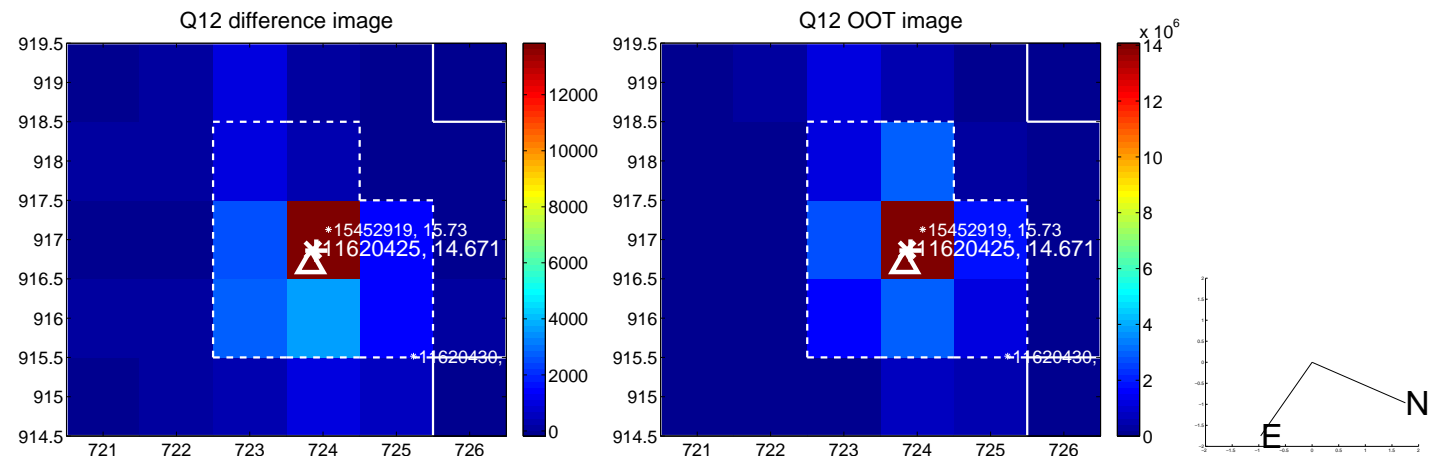
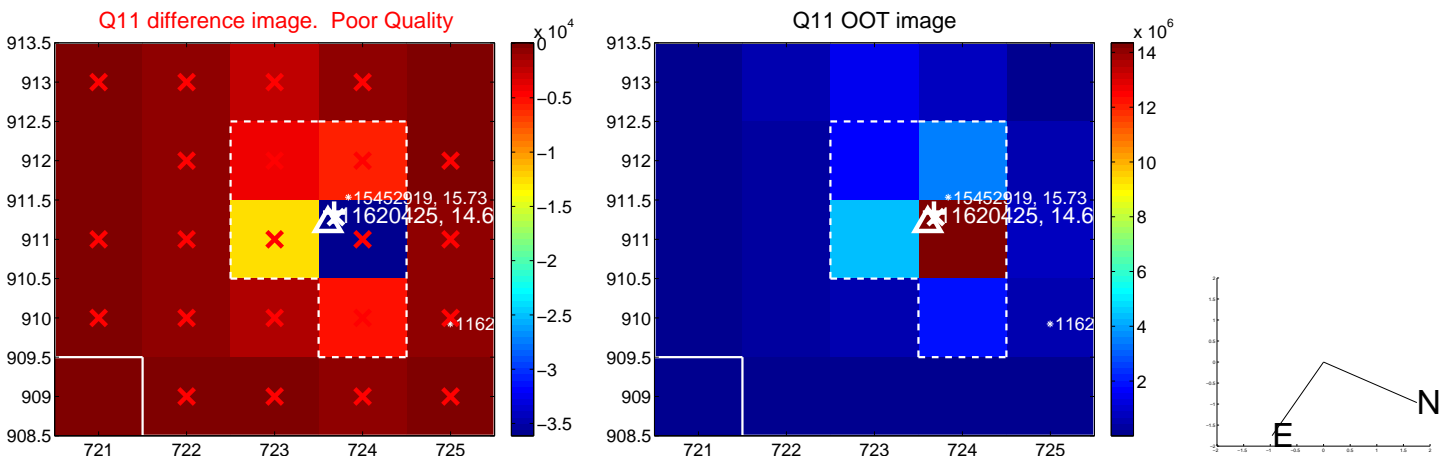
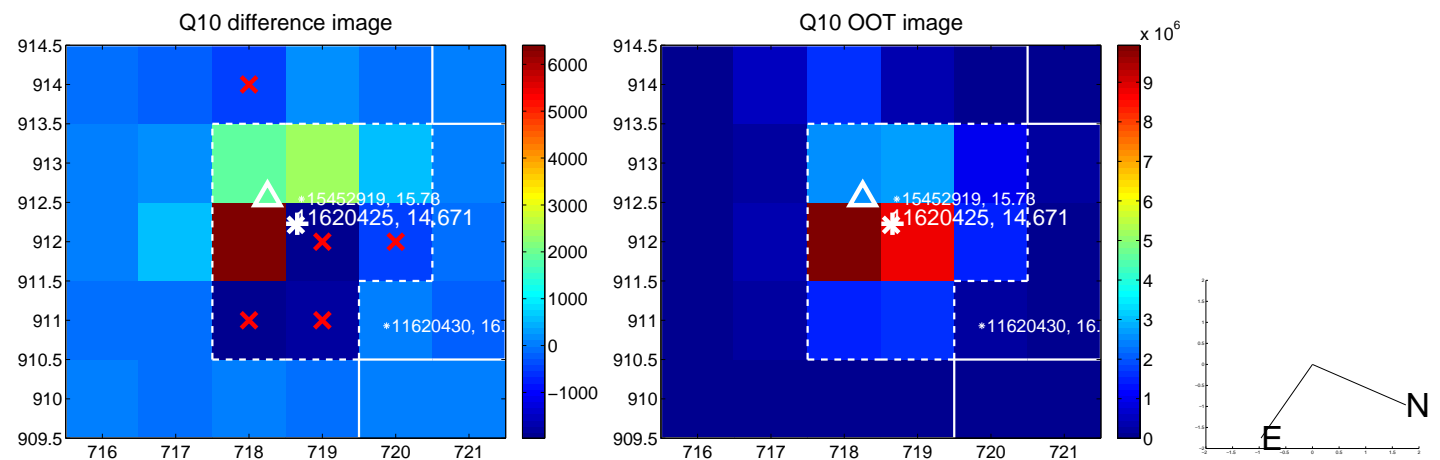
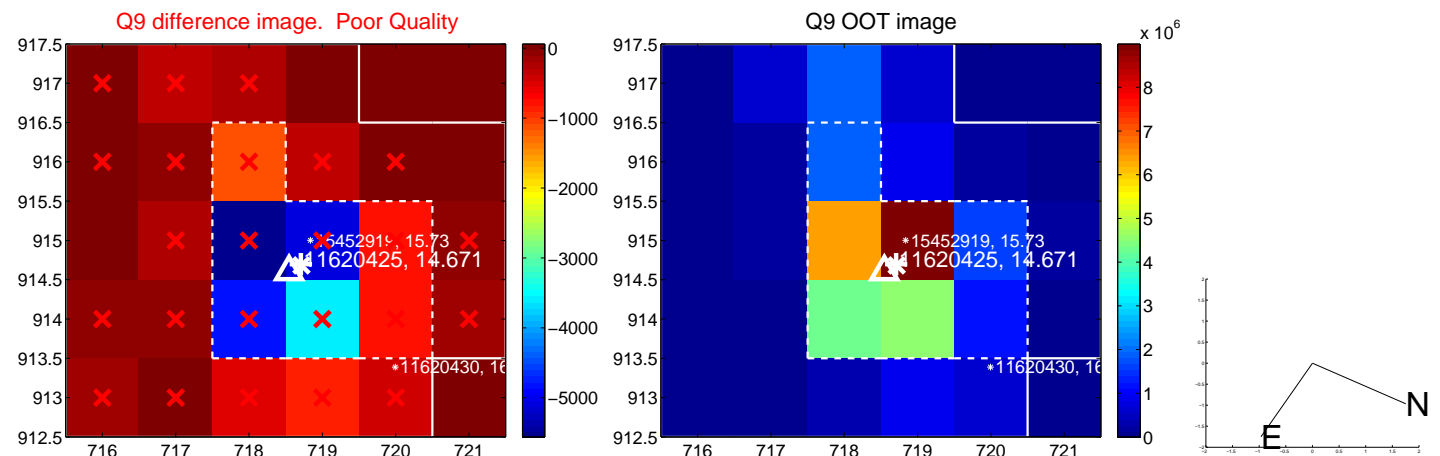


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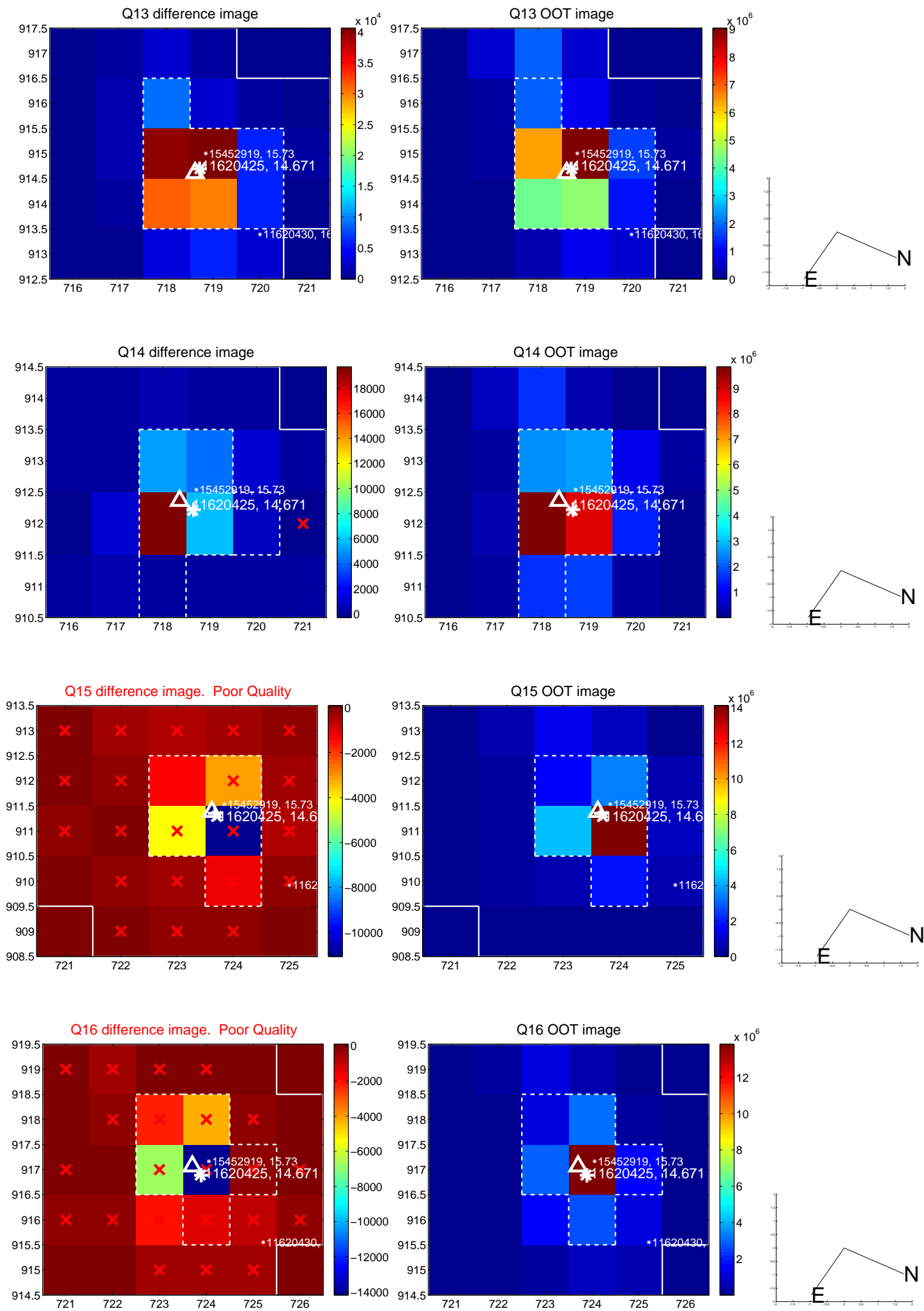




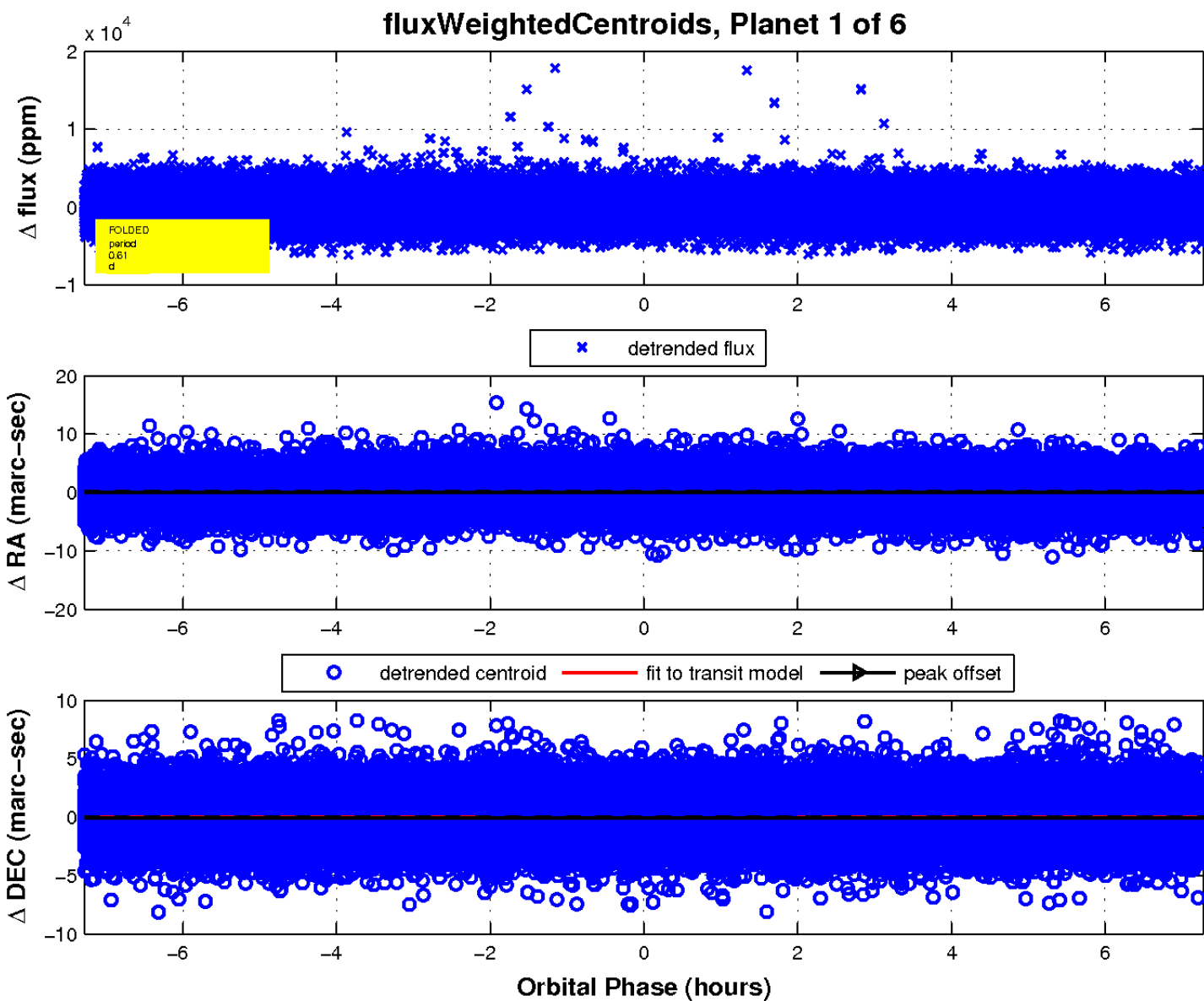
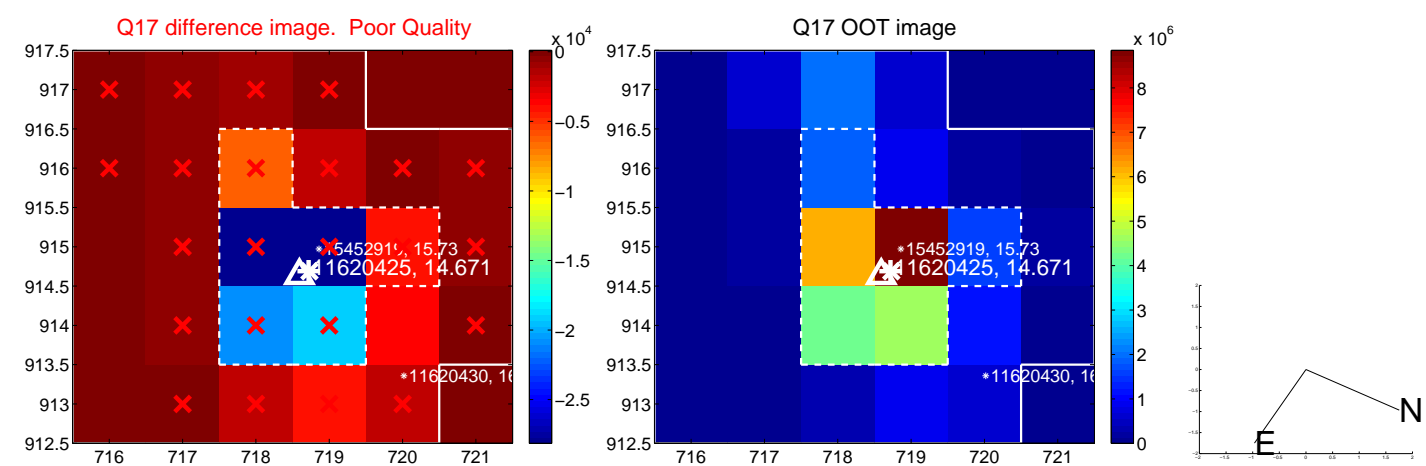
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white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

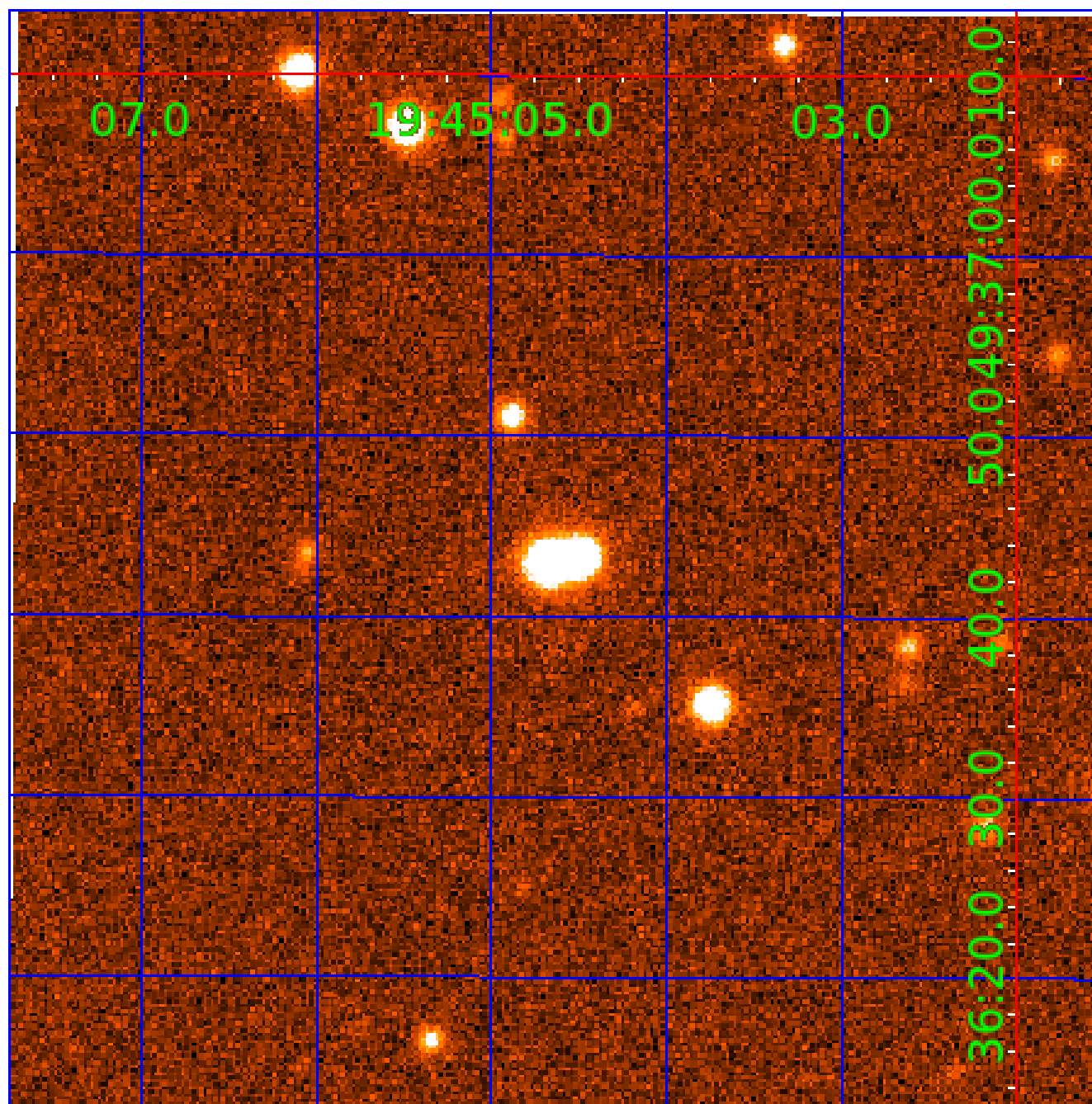


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 011620425

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011620425-01	OBS	No	0.606842	131.809906	88.5	4.357	8.5	10.3	0.81	5474	0.75	2861.16
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011620425-04	OBS	No	22.920823	133.295799	2087.9	1.216	8.9	8.6	0.81	5474	3.79	22.58
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011620425-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
011620425-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV
011620425-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_ALT
011620425-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV
011620425-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_NOFITS
011620425-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

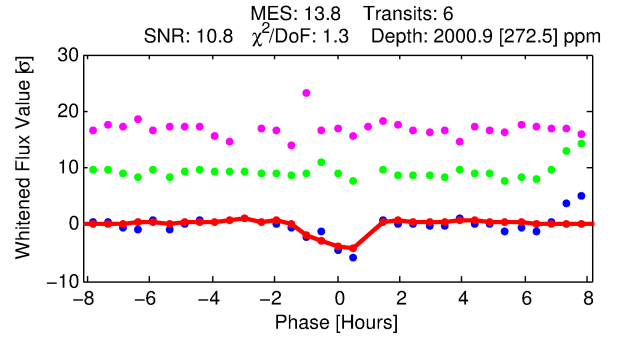
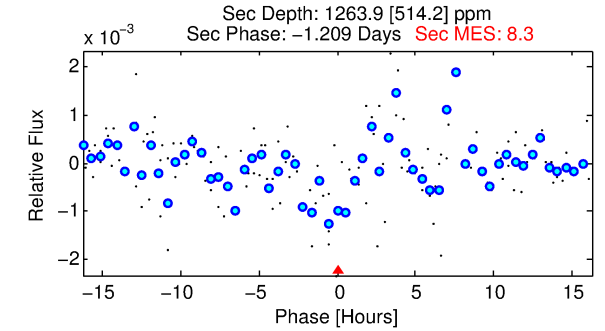
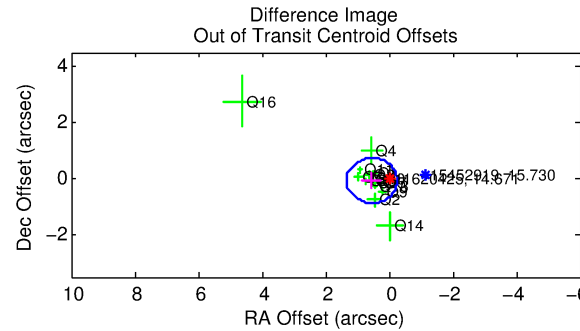
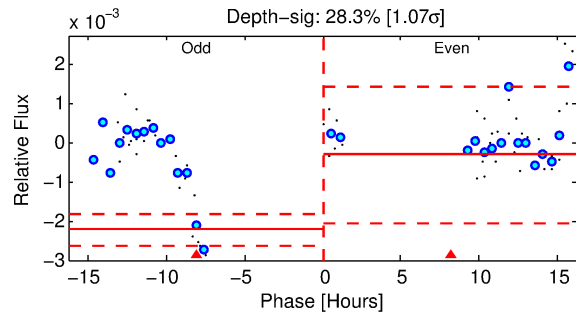
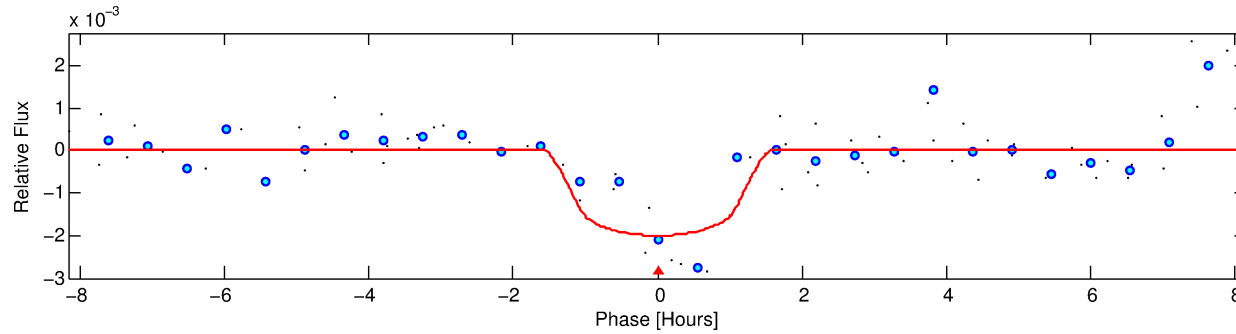
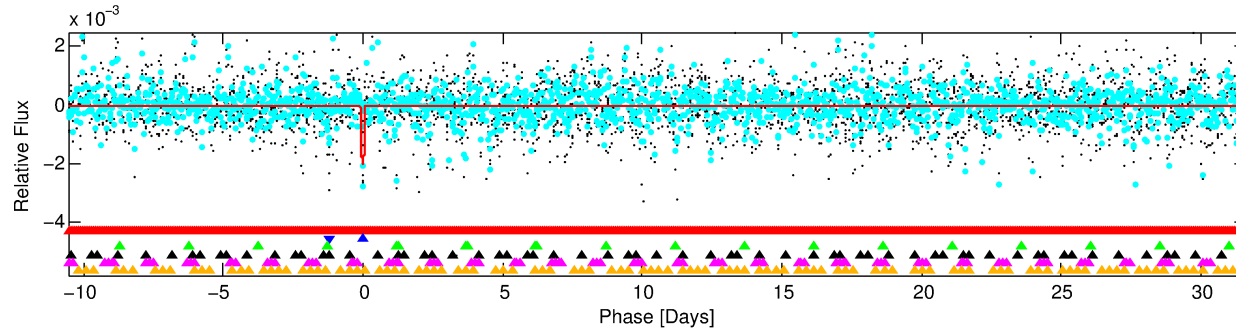
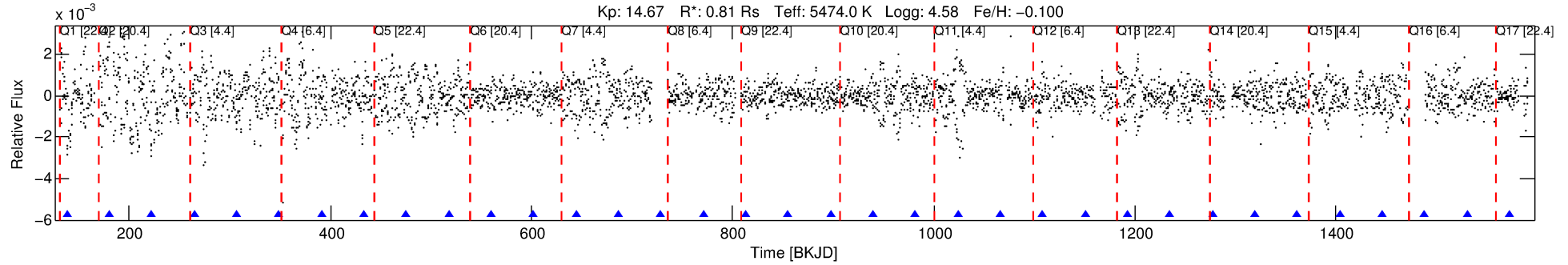
## Ephemeris Match Information For 011620425-02

No Significant Match Found



# DV One-Page Summary

KIC: 11620425 Candidate: 2 of 6 Period: 42.183 d



## DV Fit Results:

Period = 42.18341 [0.00096] d  
Epoch = 138.1651 [0.0181] BKJD  
Rp/R\* = 0.0417 [0.2180]  
a/R\* = 109.30 [2260.25]  
b = 0.48 [33.36]  
Seff = 10.01 [3.16]  
Teq = 454 [36] K  
Rp = 3.66 [19.17] Re  
a = 0.2282 [0.0444] AU  
Ag = 2703.58 [28329.52] [0.10 $\sigma$ ]  
Teffp = 5057 [13243] K [0.35 $\sigma$ ]

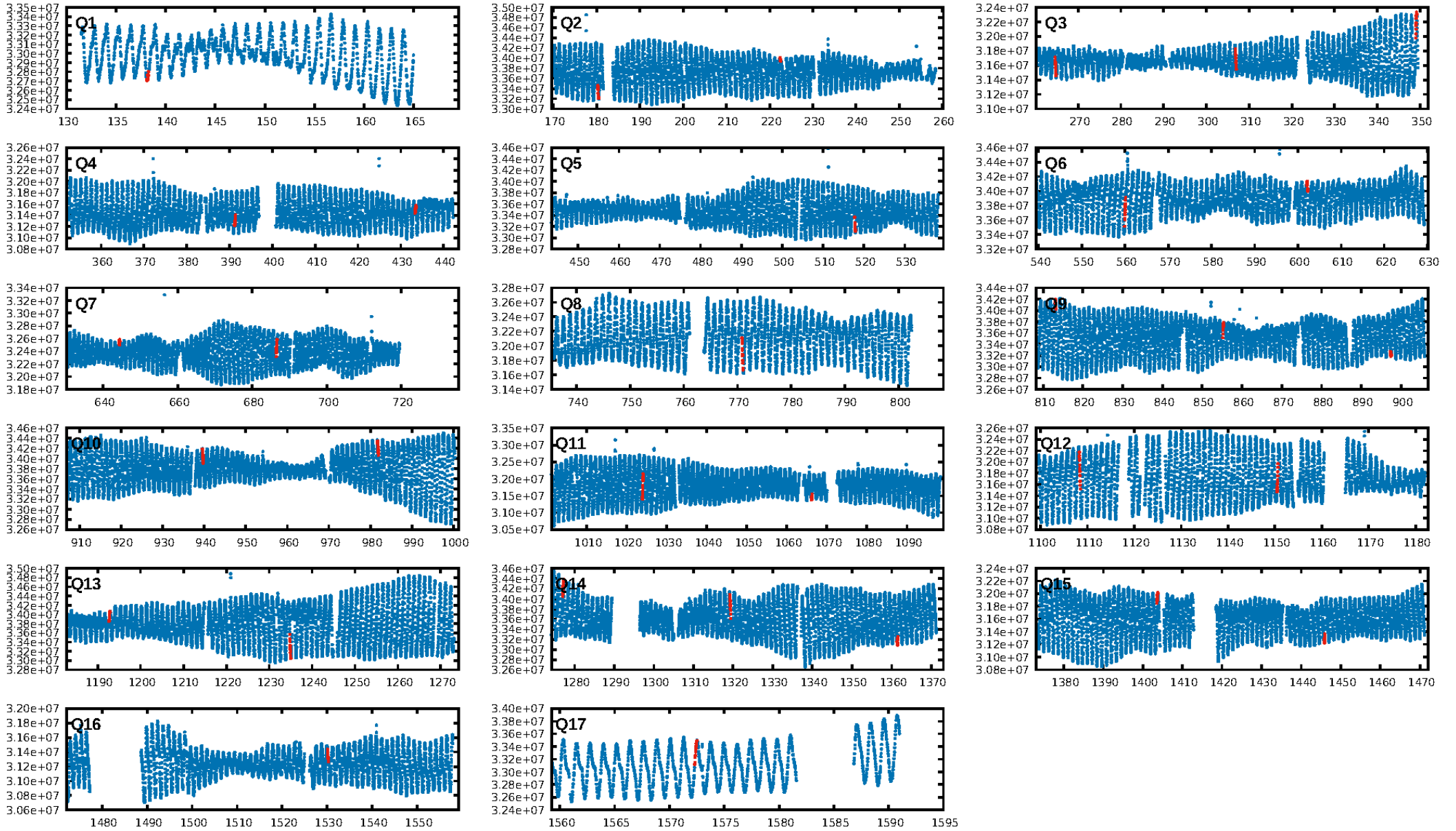
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [66.91 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 12.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
**GhostDiagnostic-chr: 3.114**  
Centroid-sig: 0.1%  
Centroid-so: 0.658 arcsec [3.11 $\sigma$ ]  
OotOffset-rm: 0.552 arcsec [2.07 $\sigma$ ]  
KicOffset-rm: 0.519 arcsec [2.25 $\sigma$ ]  
OotOffset-st: 4/3/3/5 [15]  
KicOffset-st: 4/3/3/5 [15]  
DiffImageQuality-fgm: 0.47 [7/15]  
DiffImageOverlap-fno: 0.00 [0/17]

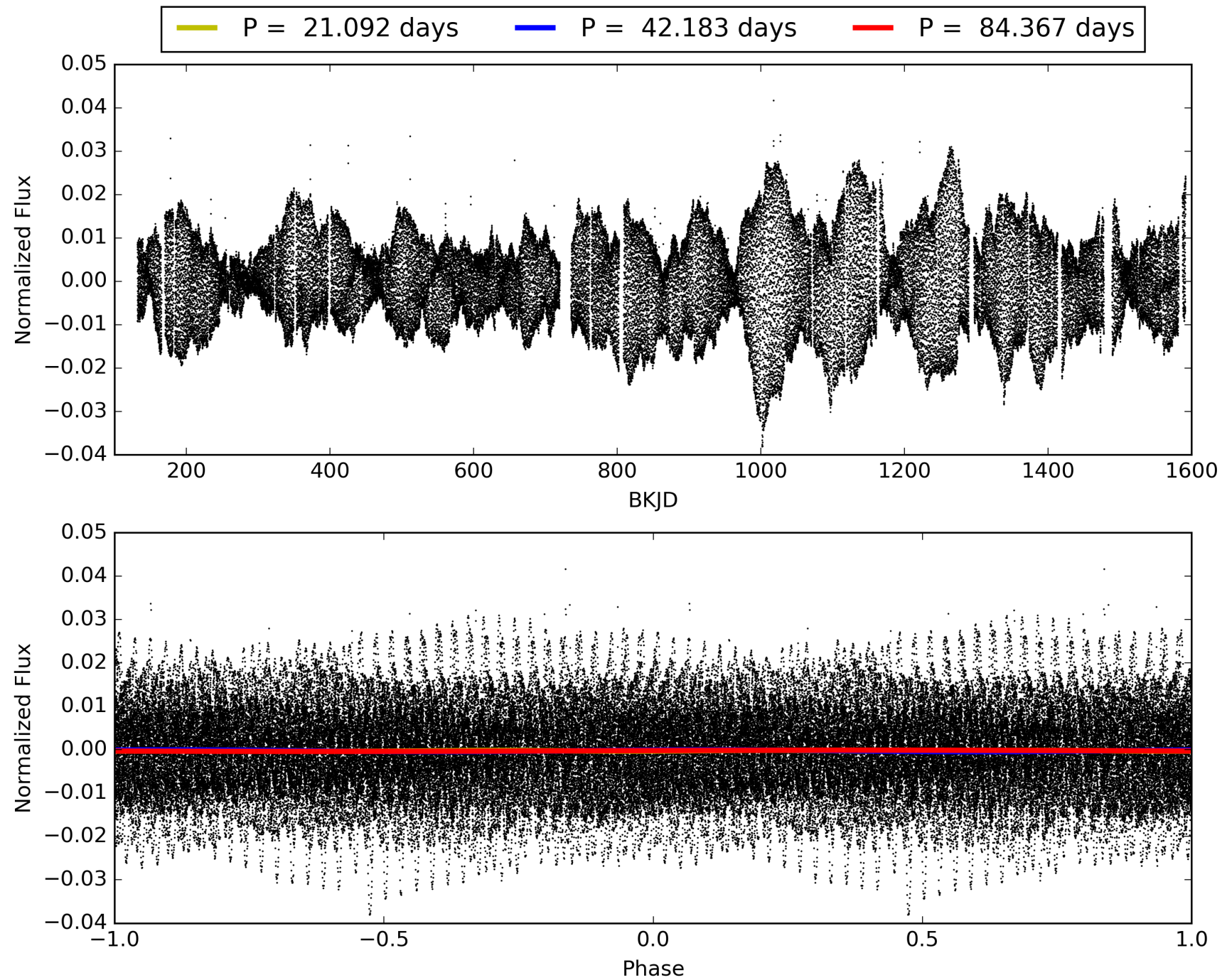
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:21:42 Z

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

# TCE 011620425-02, PDC Light Curves

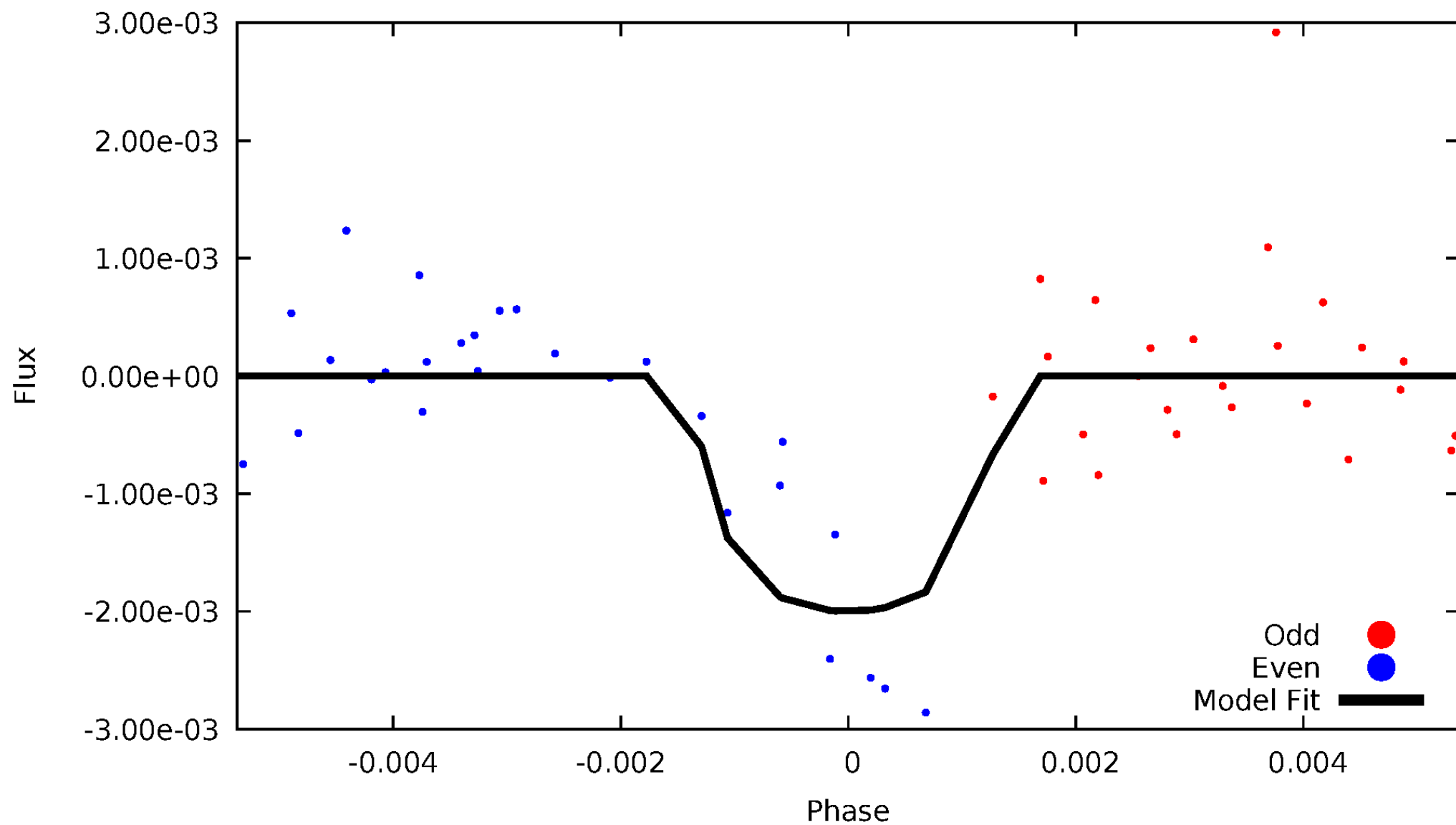


# TCE 011620425-02



# DV Odd/Even

TCE 011620425-02





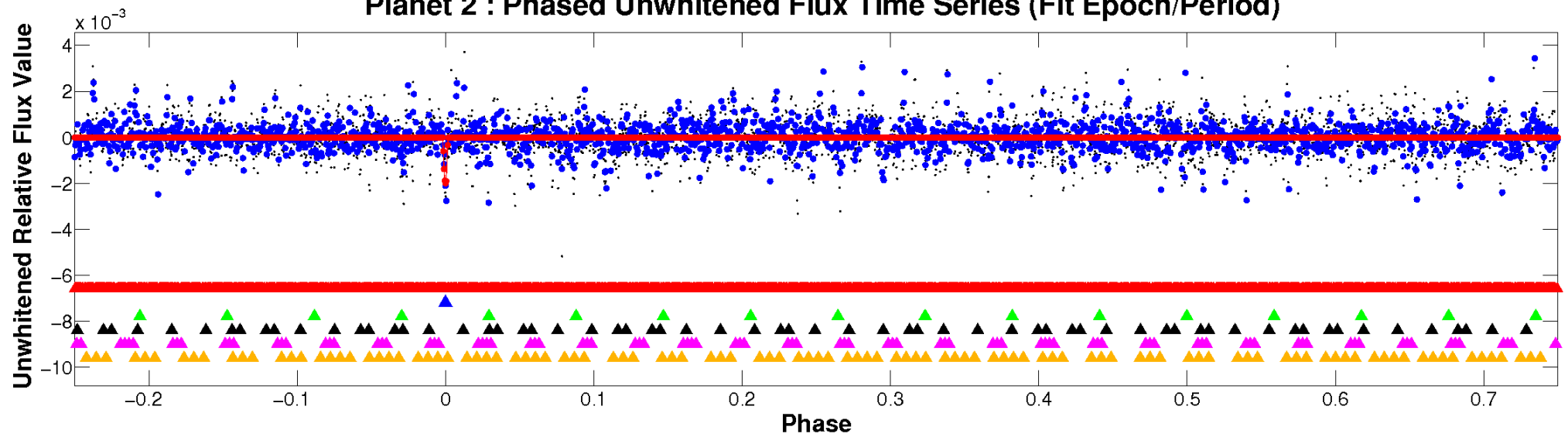
ALT Odd/Even

This plot does not exist for this TCE.

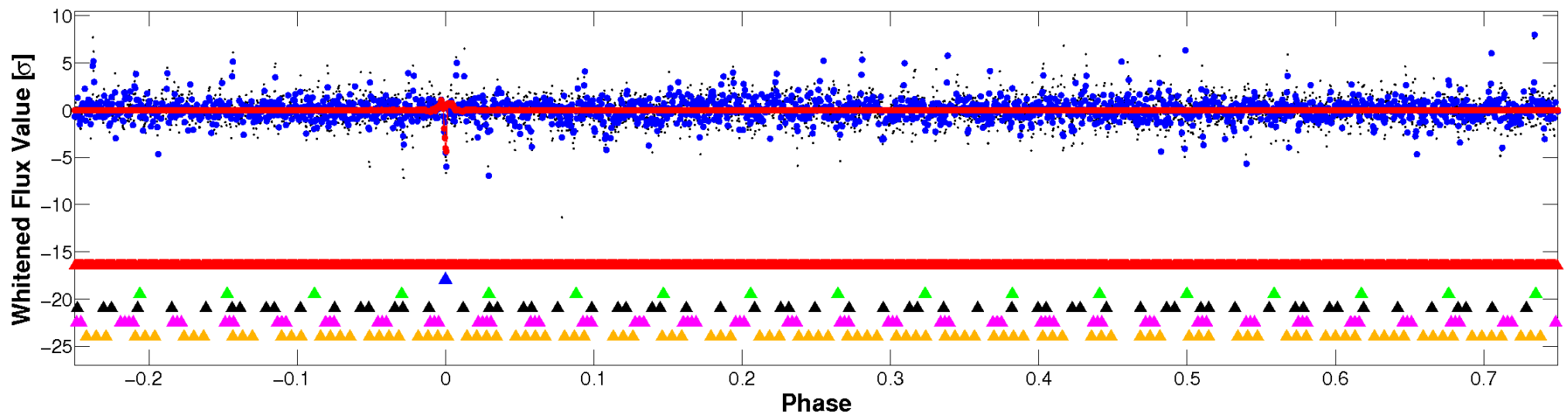


# Non-Whitened Vs. Whitened Light Curve

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

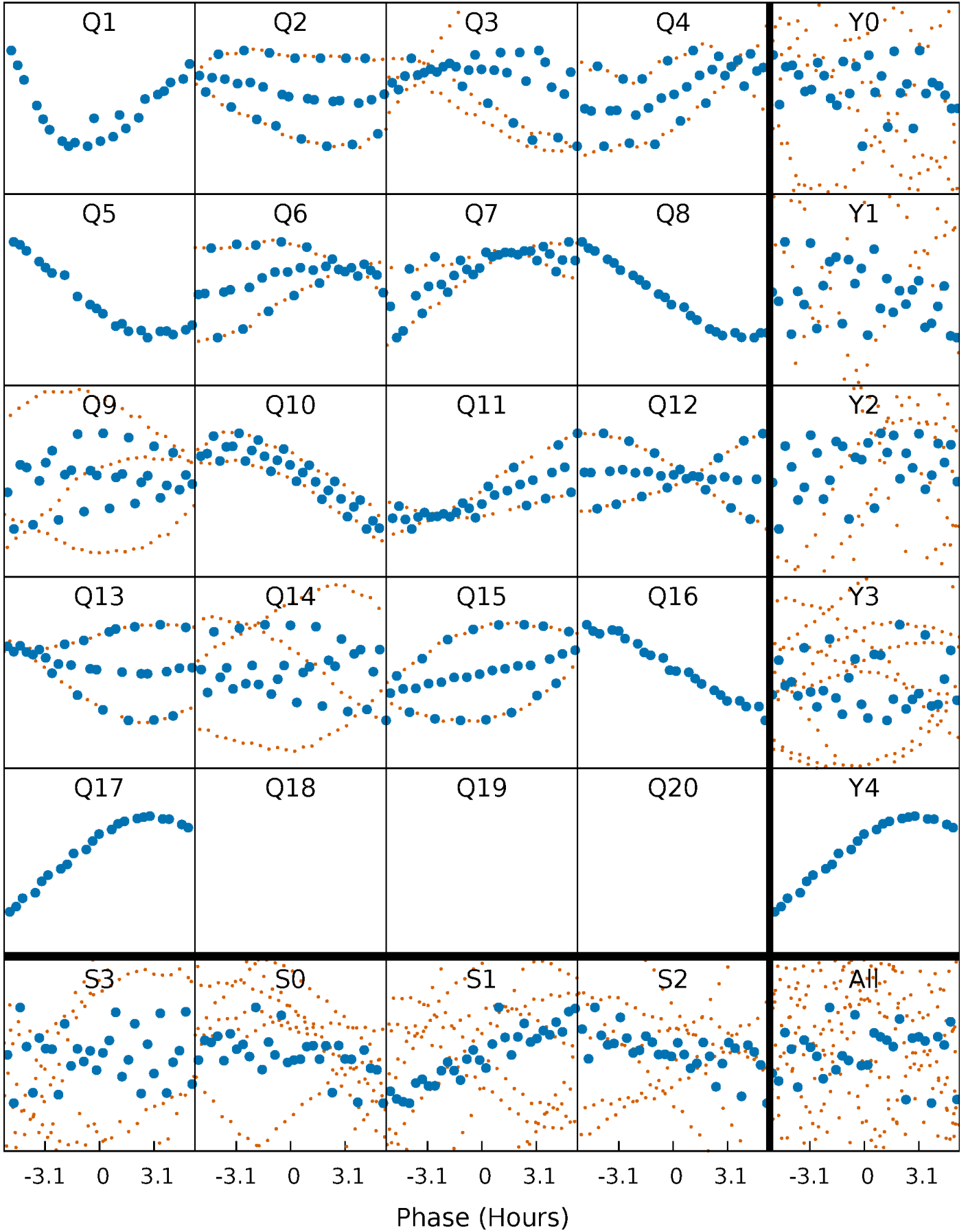


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



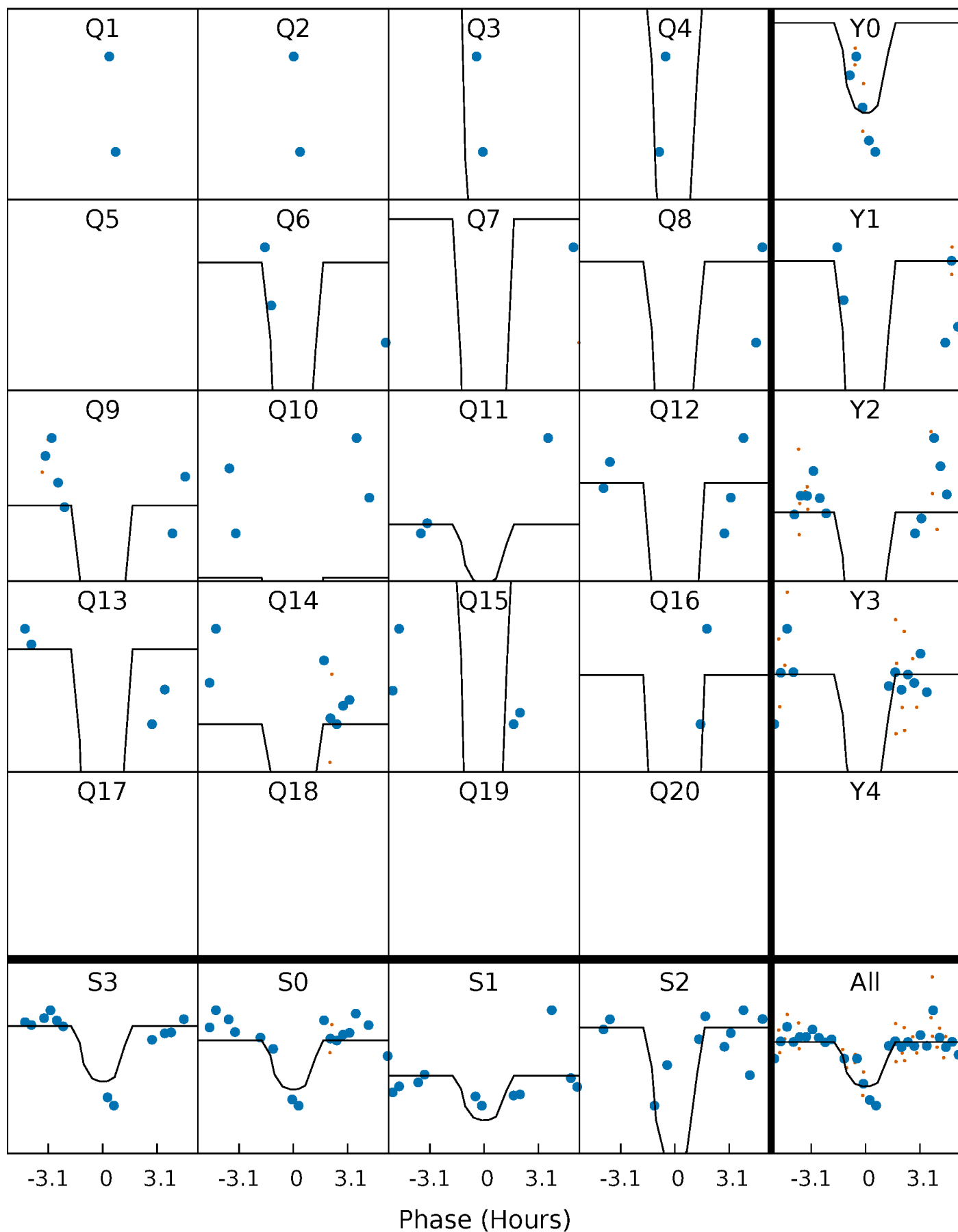
# PDC Quarter-Phased Transit Curves

TCE 011620425-02 P= 42.183410 Days  $T_0=138.165084$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 011620425-02 P= 42.183410 Days  $T_0=138.165084$  (BKJD)

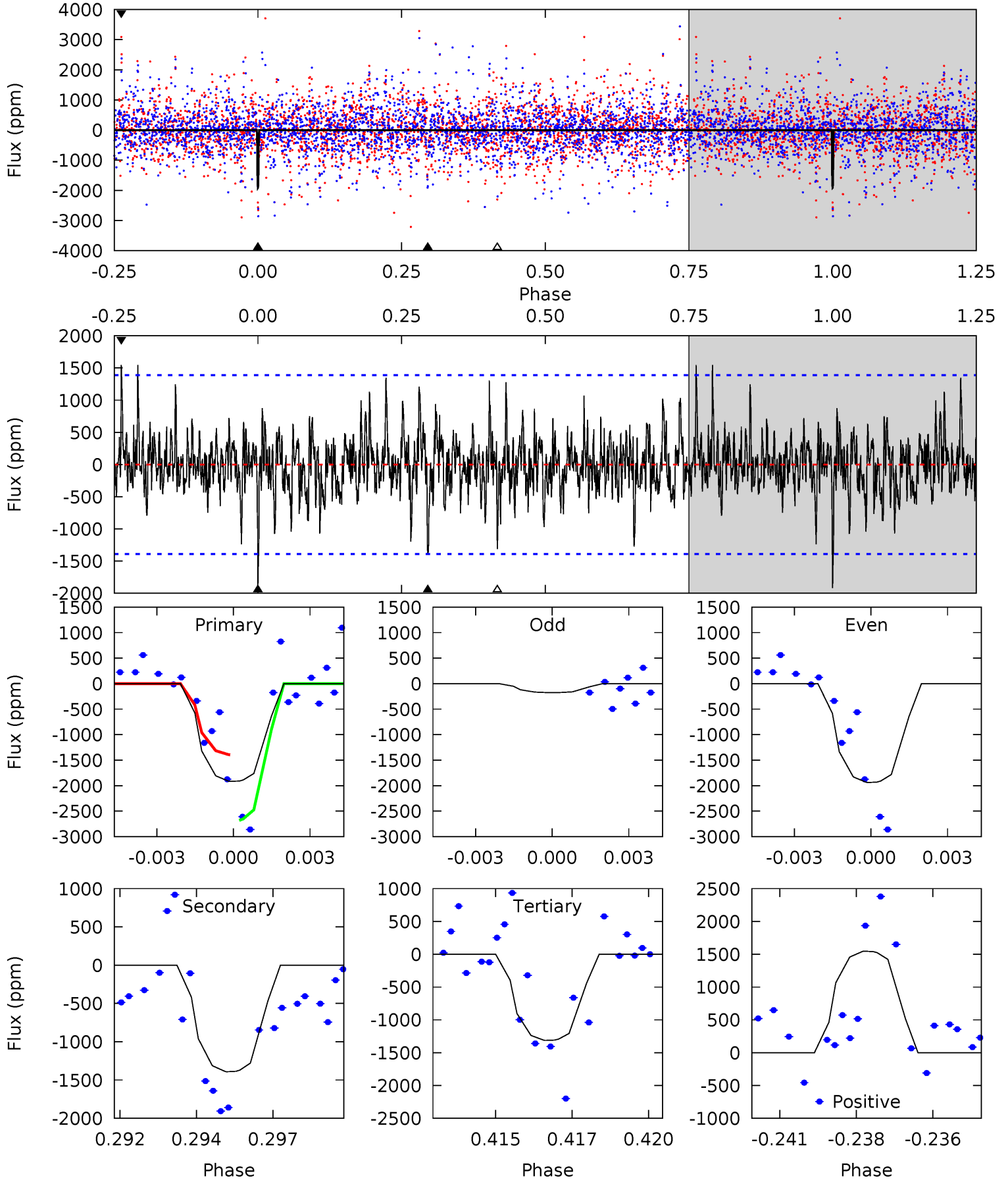


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

011620425-02, P = 42.183410 Days, E = 95.981674 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.29	5.29	4.99	5.88	5.28	3.02	1.35	2.29	1.41	0.30	-0.59	3.46	1.01	0.45	2.37



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.



### Stellar Parameters For KIC 011620425

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5474^{+197}_{-180}$	$4.576^{+0.038}_{-0.152}$	$-0.100^{+0.300}_{-0.300}$	$0.805^{+0.188}_{-0.063}$	$0.896^{+0.082}_{-0.101}$	$2.415^{+0.464}_{-0.985}$
	+4%/-3%	+1%/-3%	+300%/-300%	+23%/-8%	+9%/-11%	+19%/-41%
Source	KIC0	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 011620425-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1392 \pm 263$	$14.59^{+15.92}_{-9.86}$	$647^{+35}_{-31}$	$3201^{+1507}_{-581}$	$184^{+1462}_{-144}$
Alt.	N/A	N/A	N/A	N/A	N/A

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

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

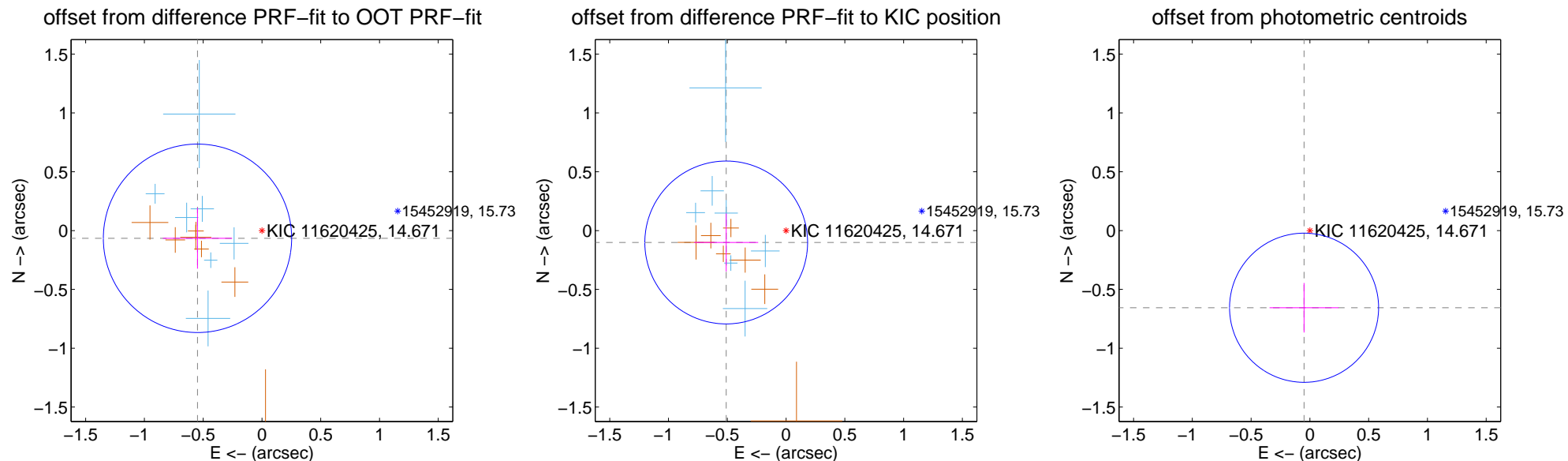
## DV Centroid Data

Supplemental centroid analysis for 011620425-02. Kepler magnitude: 14.67. Transit SNR 10.81

There are 7 quarters with good PRF difference image offsets

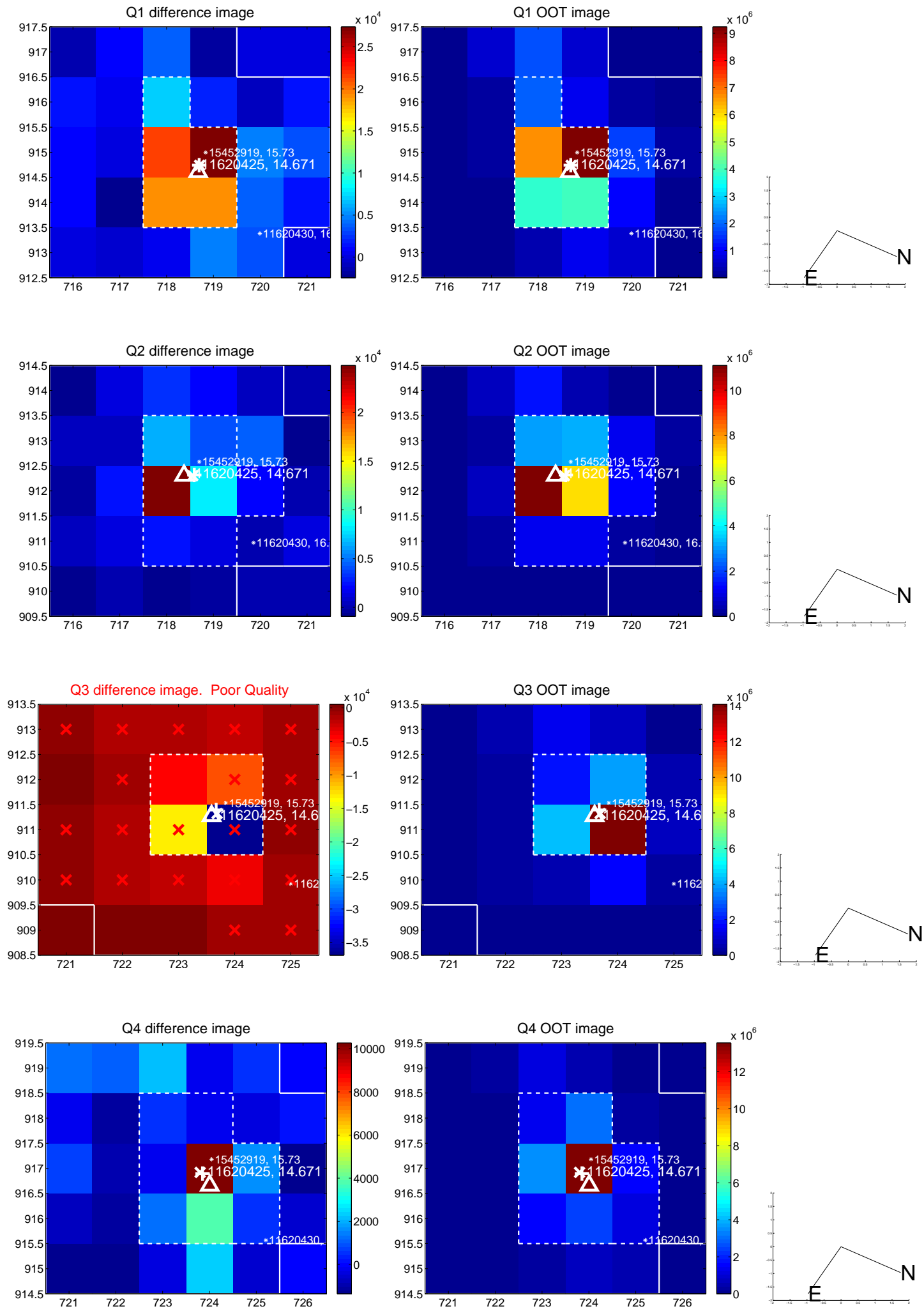
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.552 \pm 0.267$	2.07	$0.548 \pm 0.295$	$-0.066 \pm 0.258$
PRF-fit source offset from KIC position	$0.519 \pm 0.231$	2.25	$0.509 \pm 0.272$	$-0.101 \pm 0.247$
photometric centroid source offset	$0.66 \pm 0.21$	3.11	$0.05 \pm 0.29$	$-0.66 \pm 0.21$

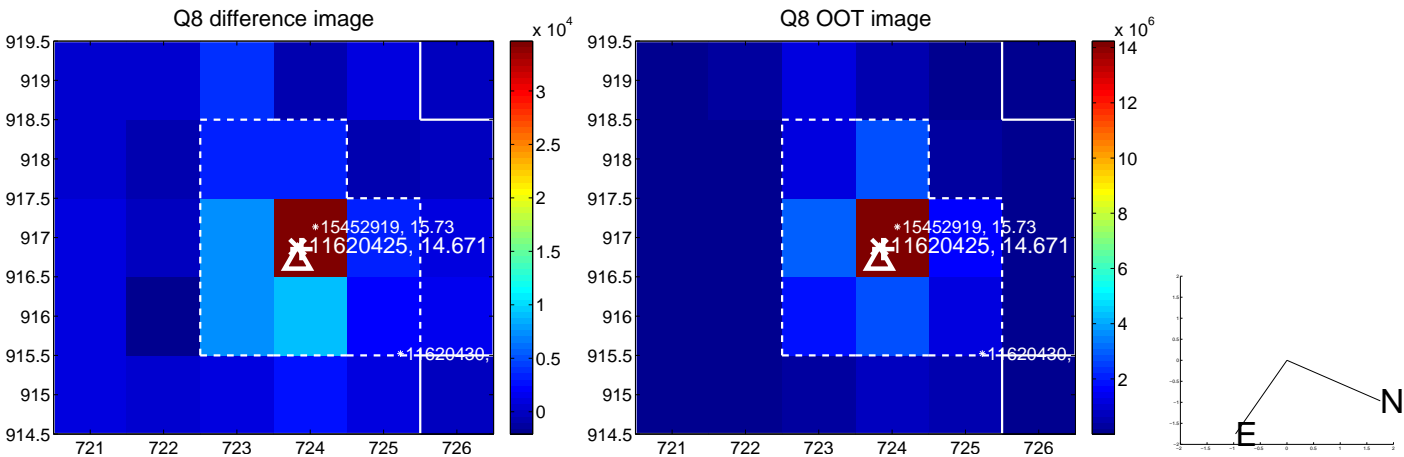
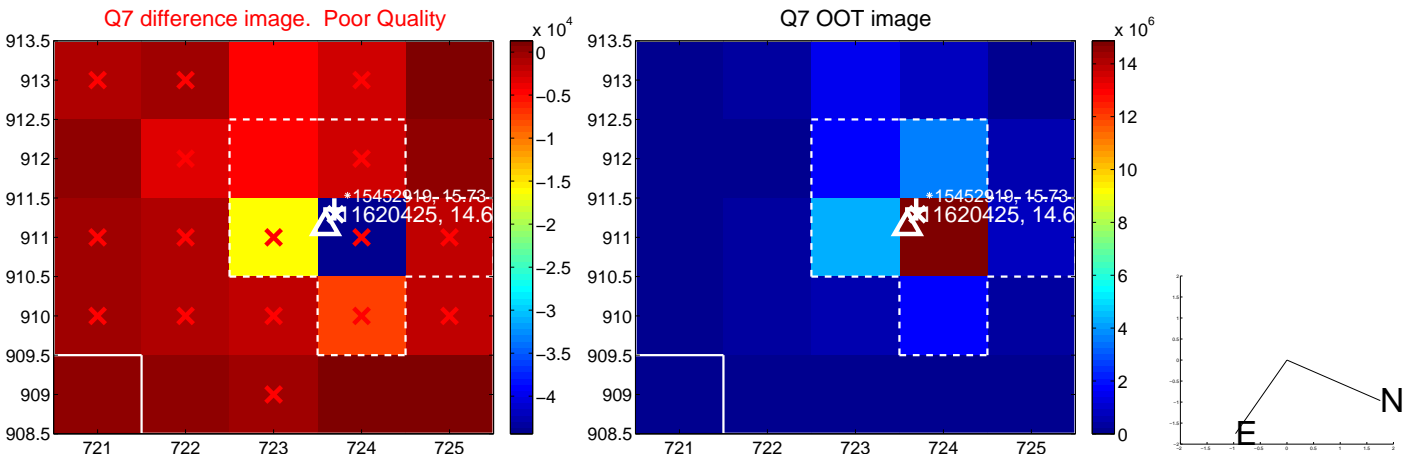
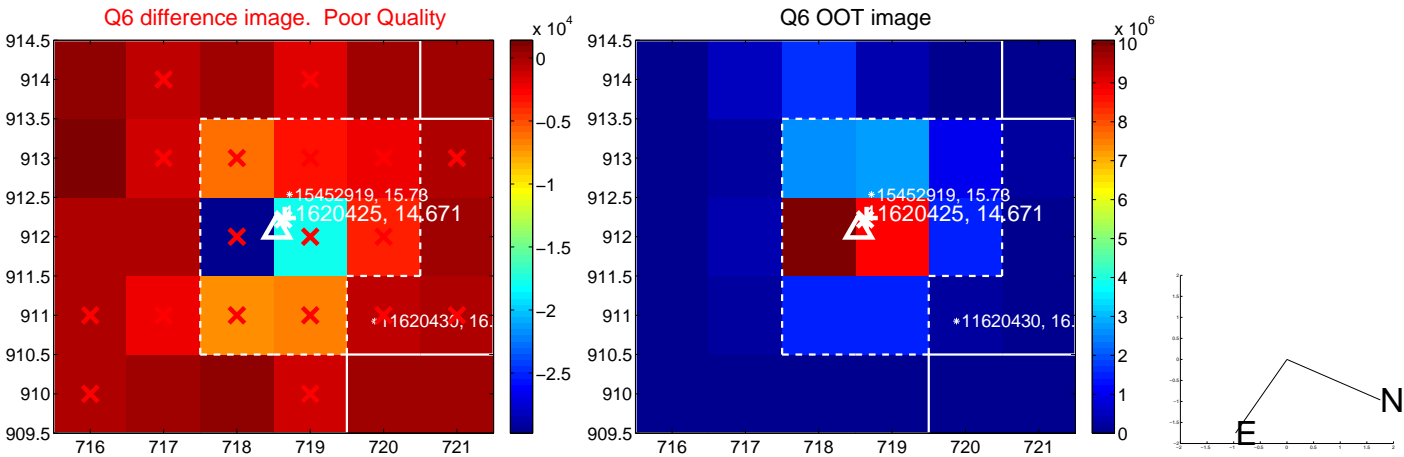
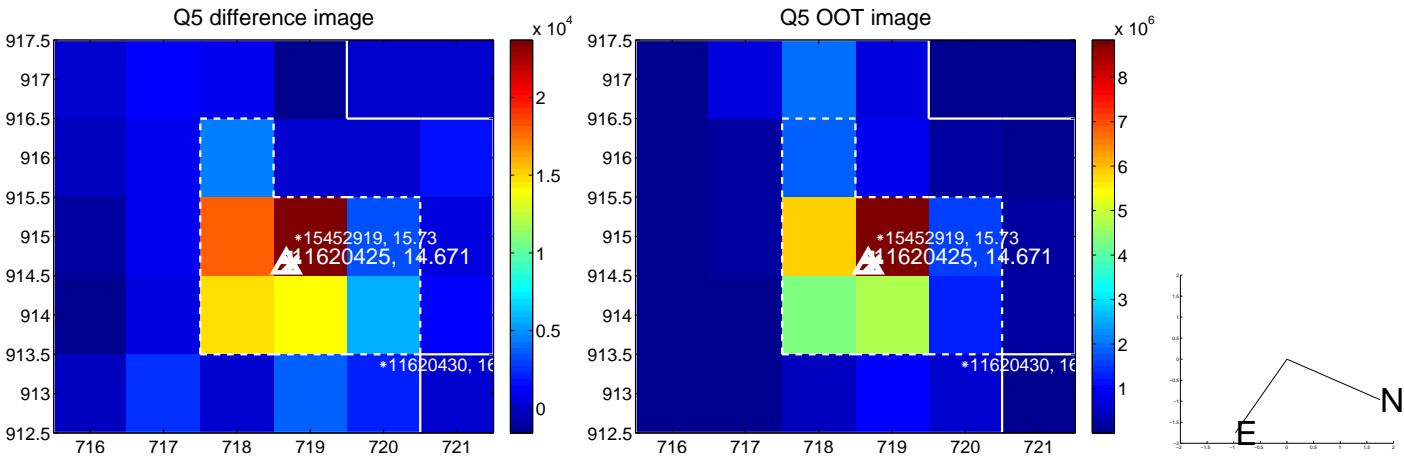


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

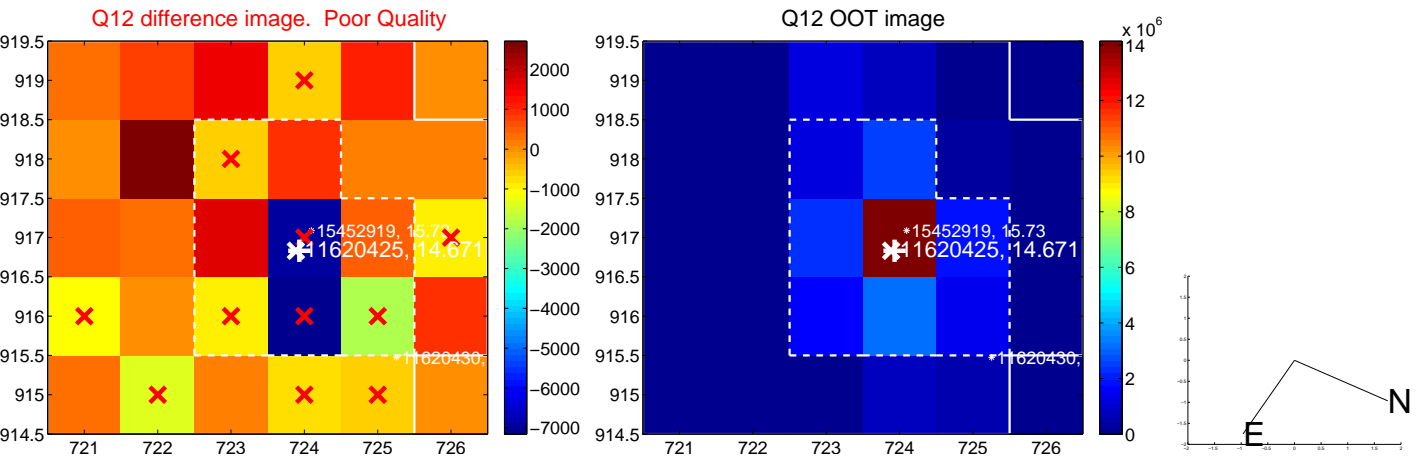
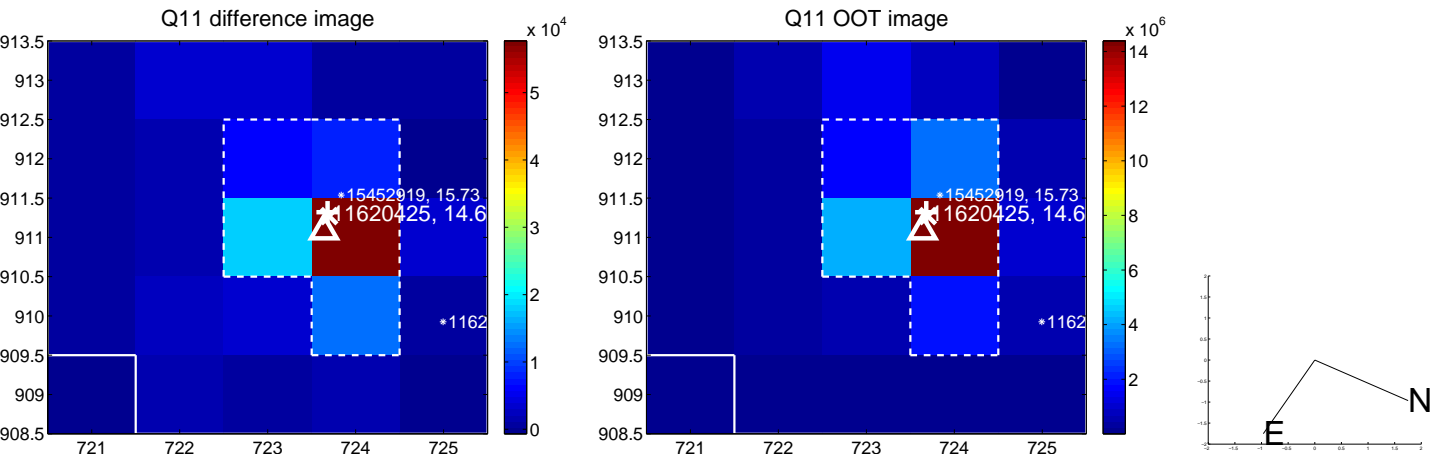
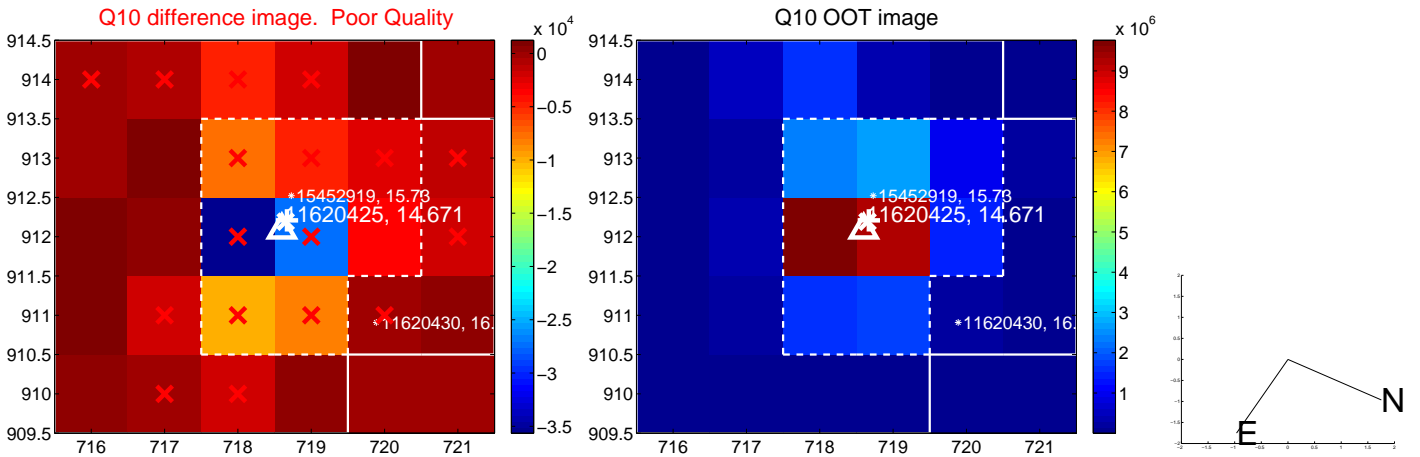
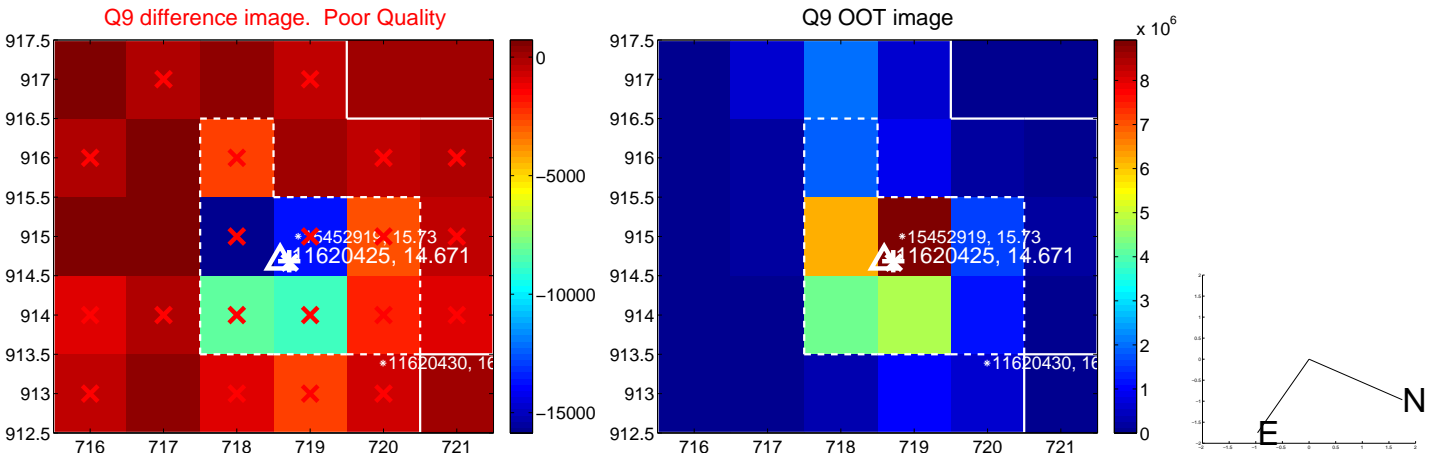


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

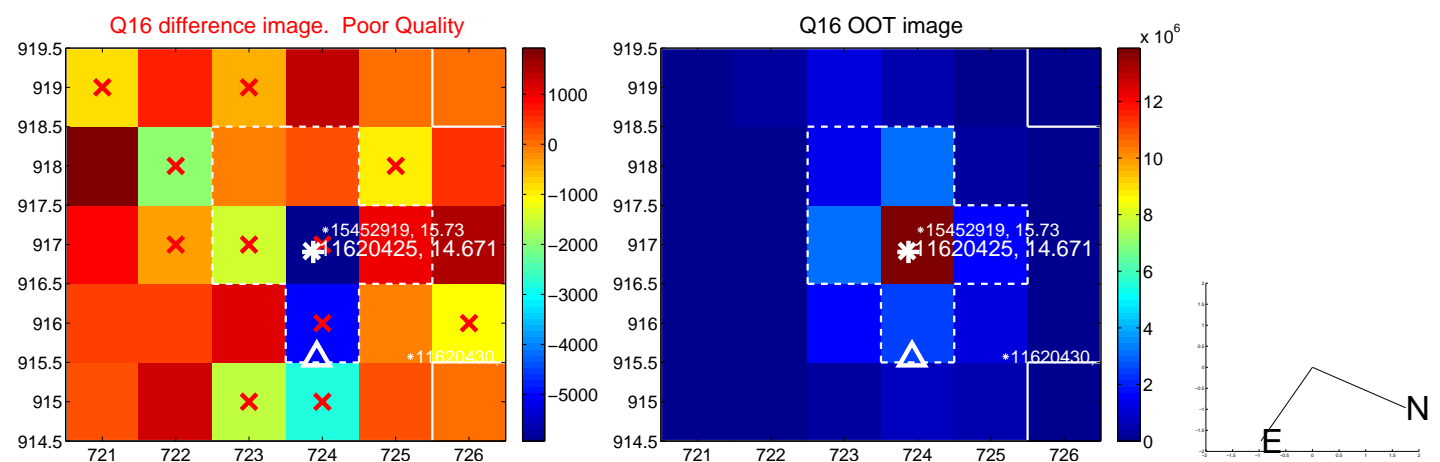
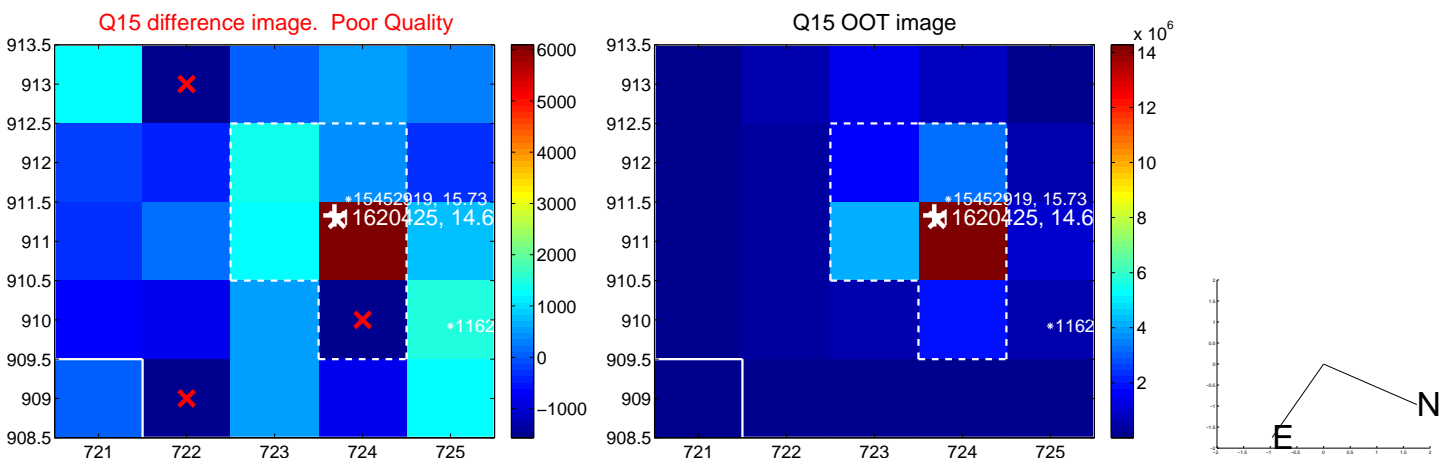
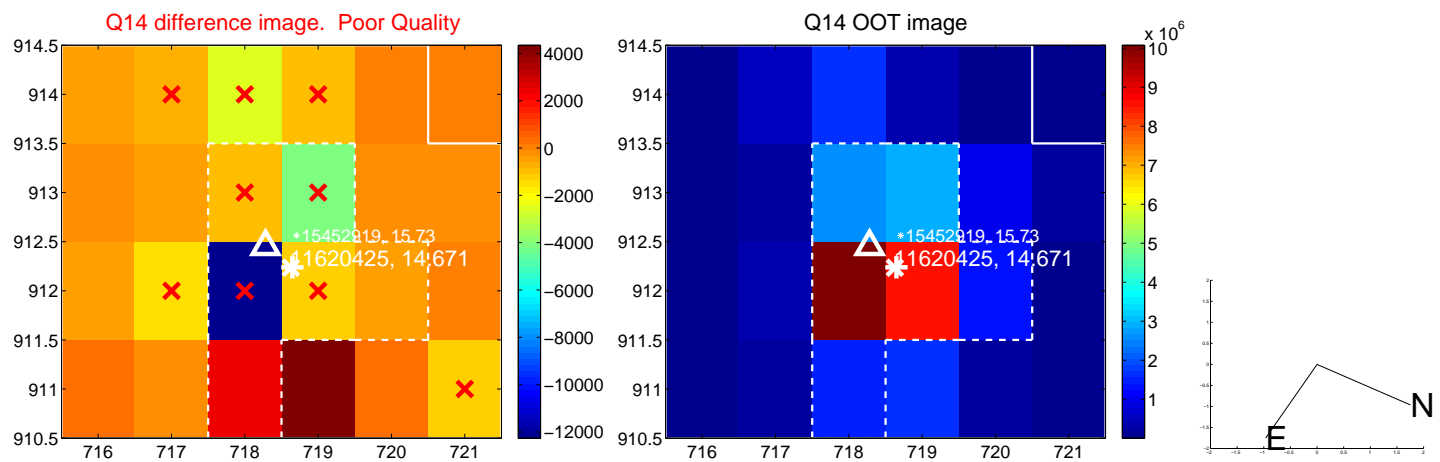
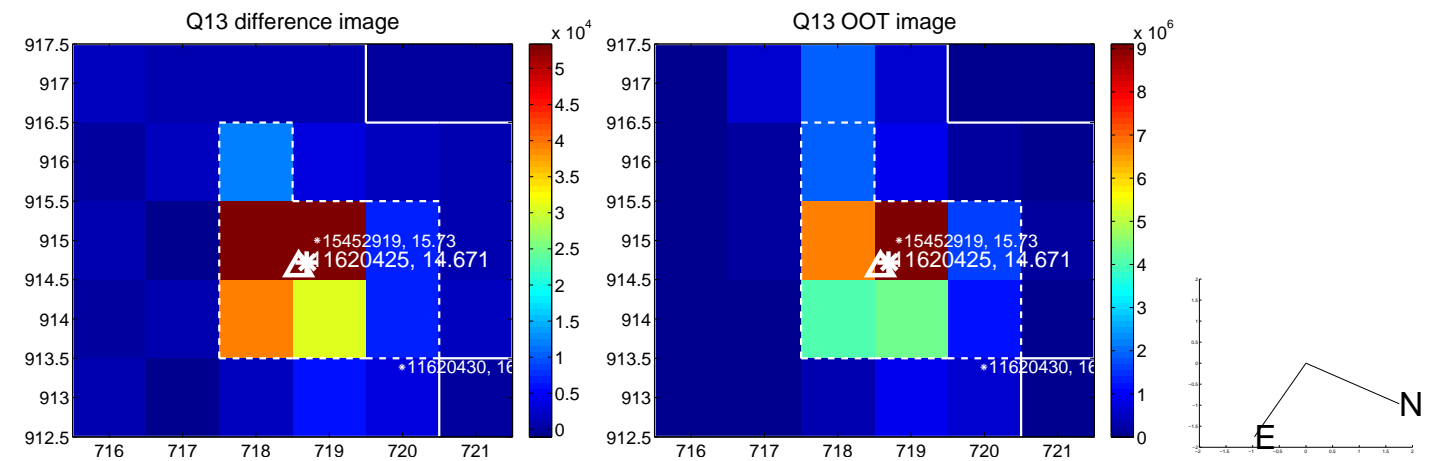




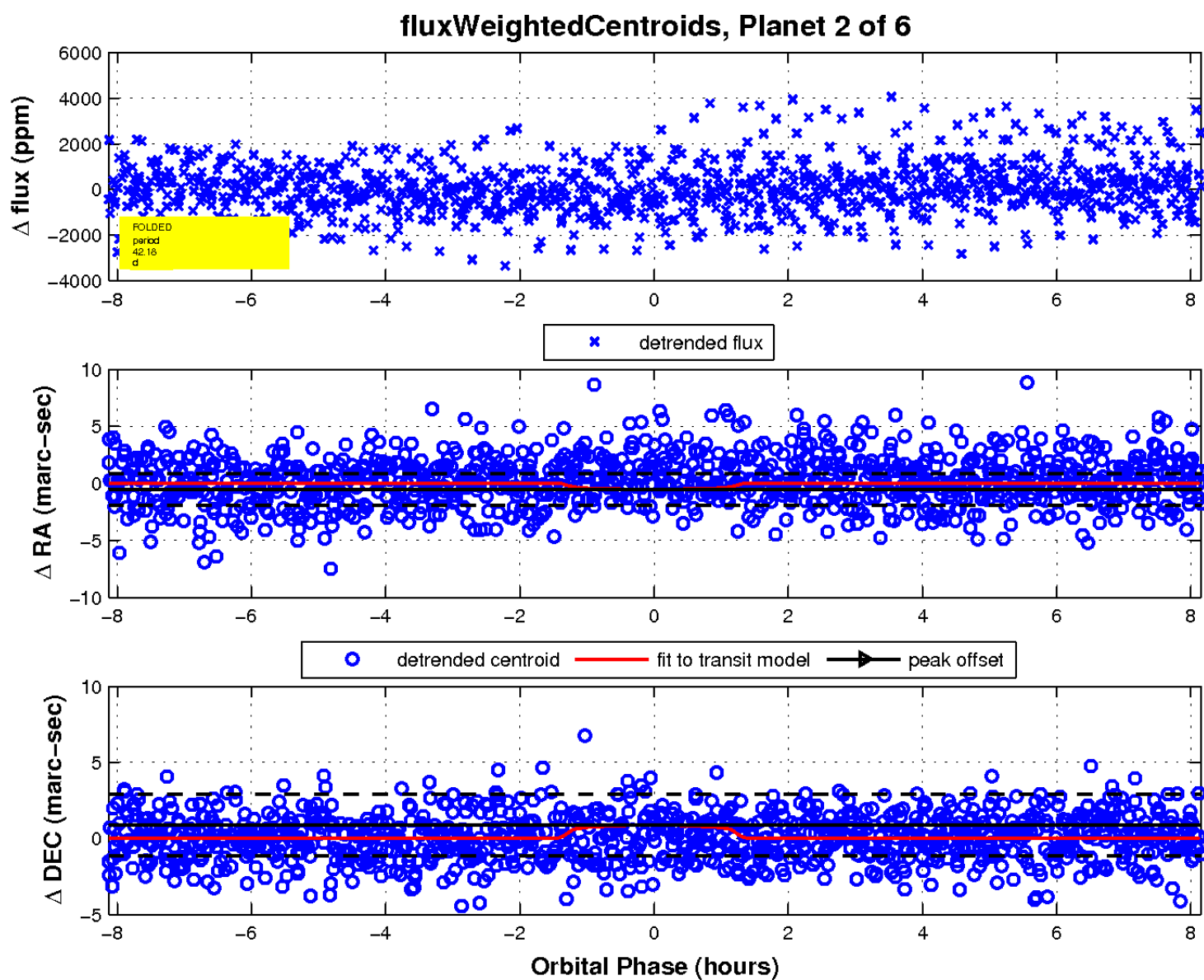
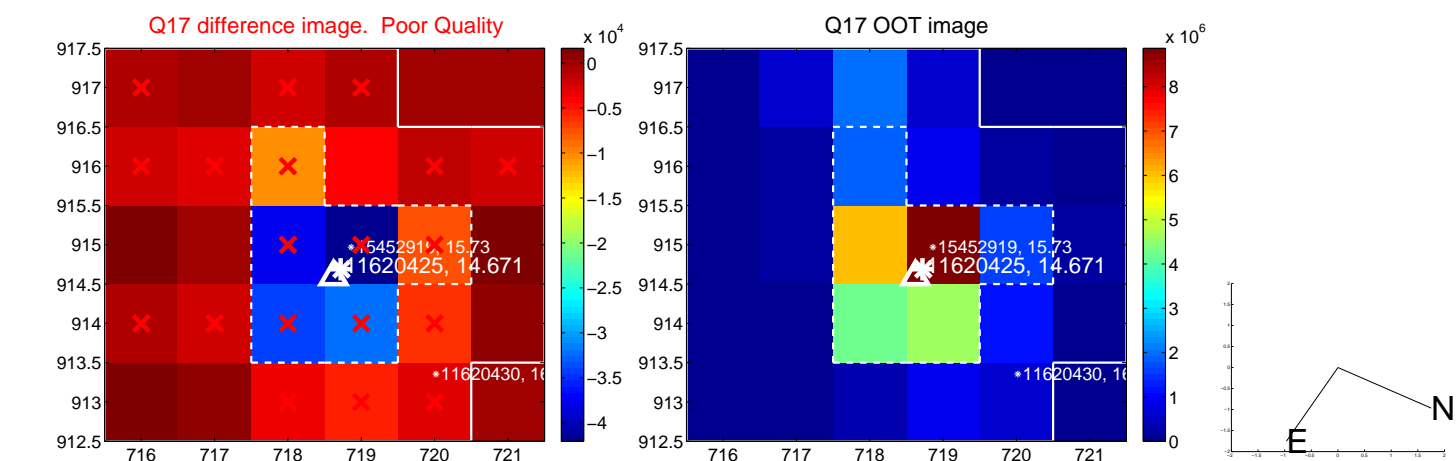
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

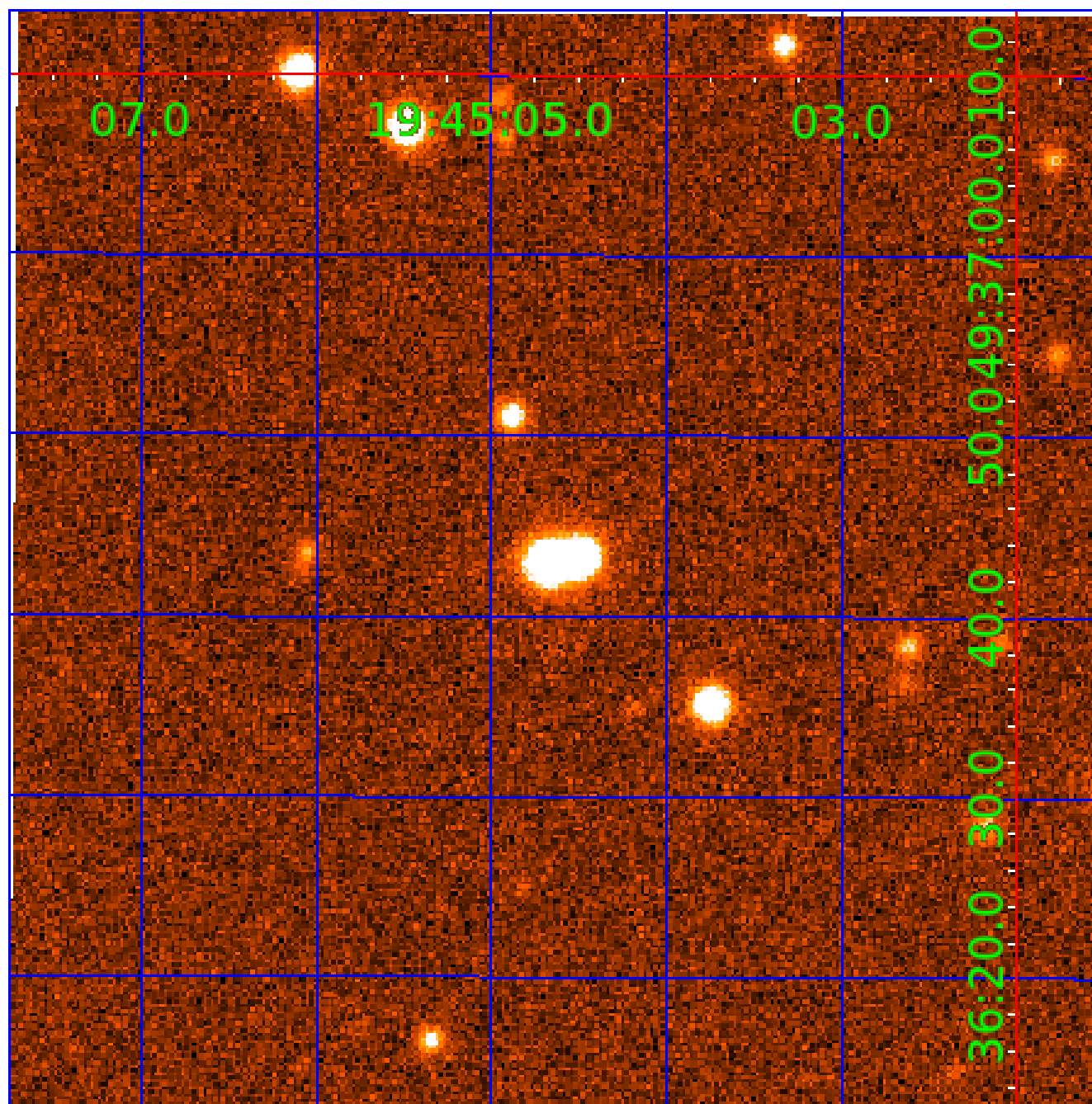


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 011620425

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011620425-01	OBS	No	0.606842	131.809906	88.5	4.357	8.5	10.3	0.81	5474	0.75	2861.16
011620425-02	OBS	No	42.183410	138.165083	2000.9	2.719	13.8	10.8	0.81	5474	3.66	10.01
011620425-03	OBS	No	27.294829	139.408389	808.6	4.597	13.5	5.0	0.81	5474	2.98	17.89
011620425-04	OBS	No	22.920823	133.295799	2087.9	1.216	8.9	8.6	0.81	5474	3.79	22.58
011620425-05	OBS	No	16.004742	139.098496	1498.3	1.500	8.8	-1.0	0.81	5474	3.08	36.45
011620425-06	OBS	No	13.598571	141.000149	785.2	15.334	9.0	6.0	0.81	5474	2.25	45.29

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011620425-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
011620425-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV
011620425-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_ALT
011620425-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV
011620425-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_NOFITS
011620425-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

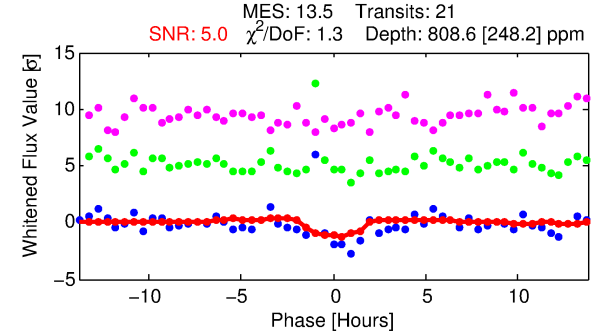
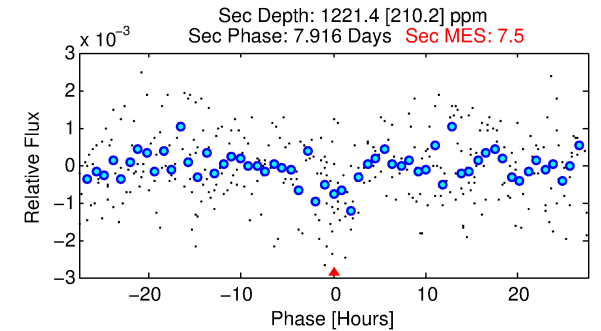
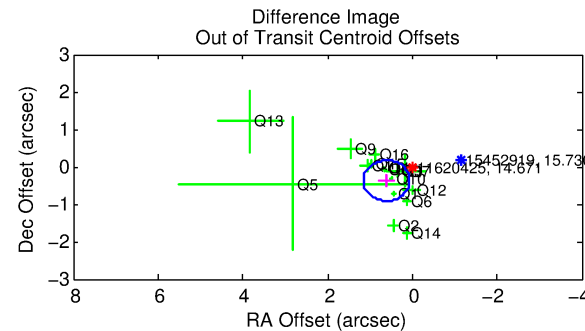
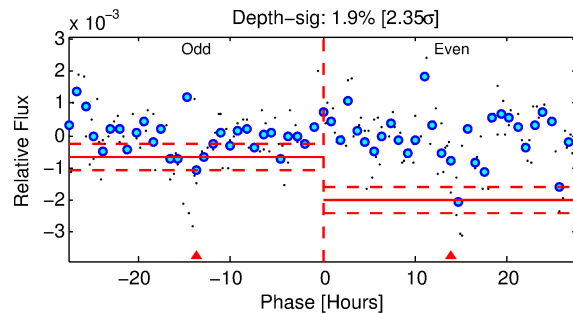
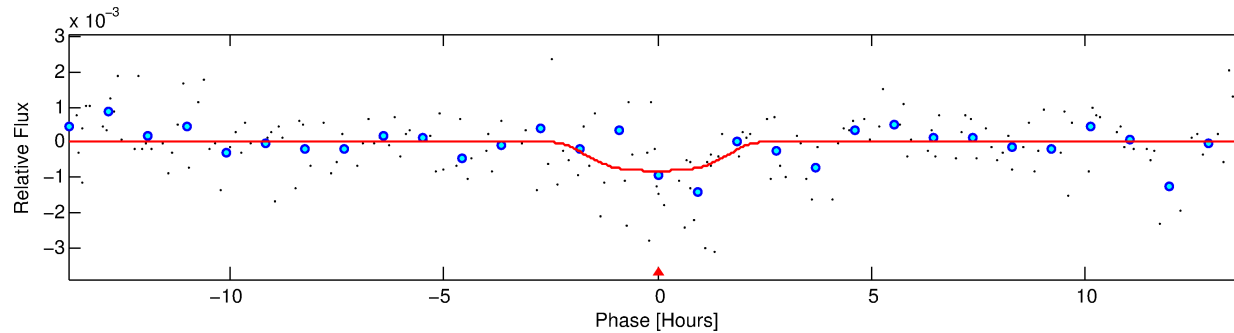
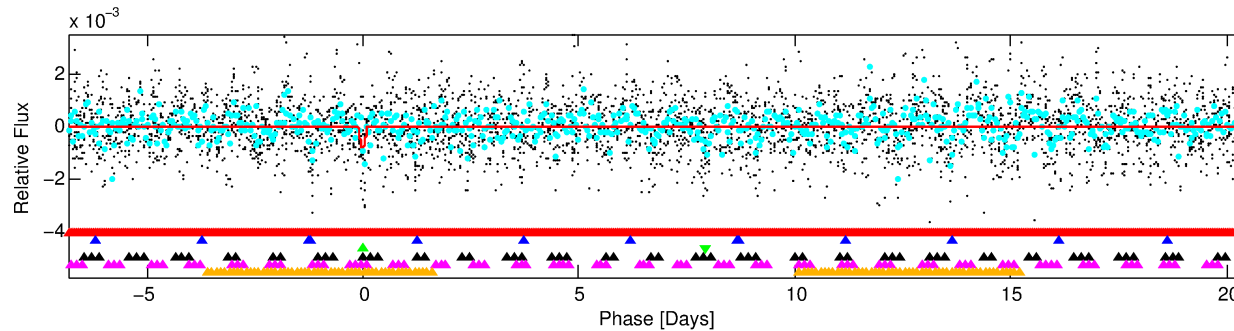
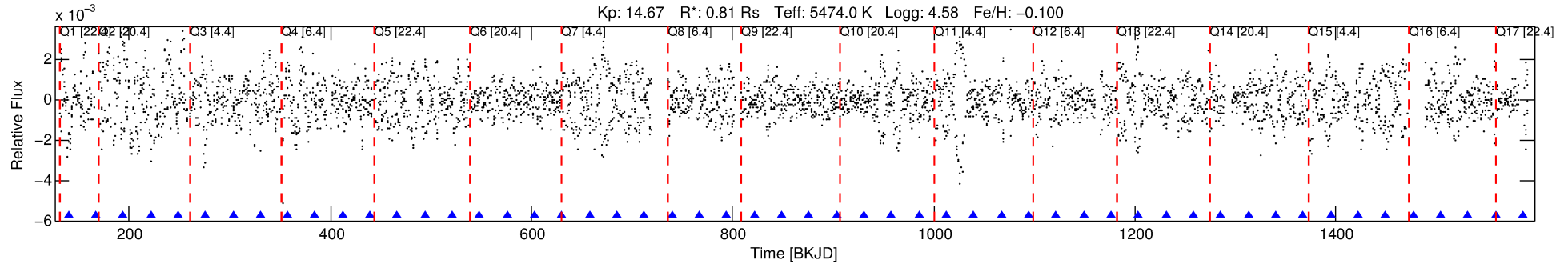
## Ephemeris Match Information For 011620425-03

No Significant Match Found



# DV One-Page Summary

KIC: 11620425 Candidate: 3 of 6 Period: 27.295 d



## DV Fit Results:

Period = 27.29483 [0.00124] d  
Epoch = 139.4084 [0.0383] BKJD  
Rp/R\* = 0.0339 [0.0077]  
a/R\* = 18.01 [10.67]  
b = 0.95 [0.05]  
Seff = 17.89 [5.64]  
Teq = 524 [41] K  
Rp = 2.98 [0.97] Re  
a = 0.1707 [0.0332] AU  
Ag = 2201.88 [1234.22] [1.78 $\sigma$ ]  
Teffp = 5554 [703] K [7.14 $\sigma$ ]

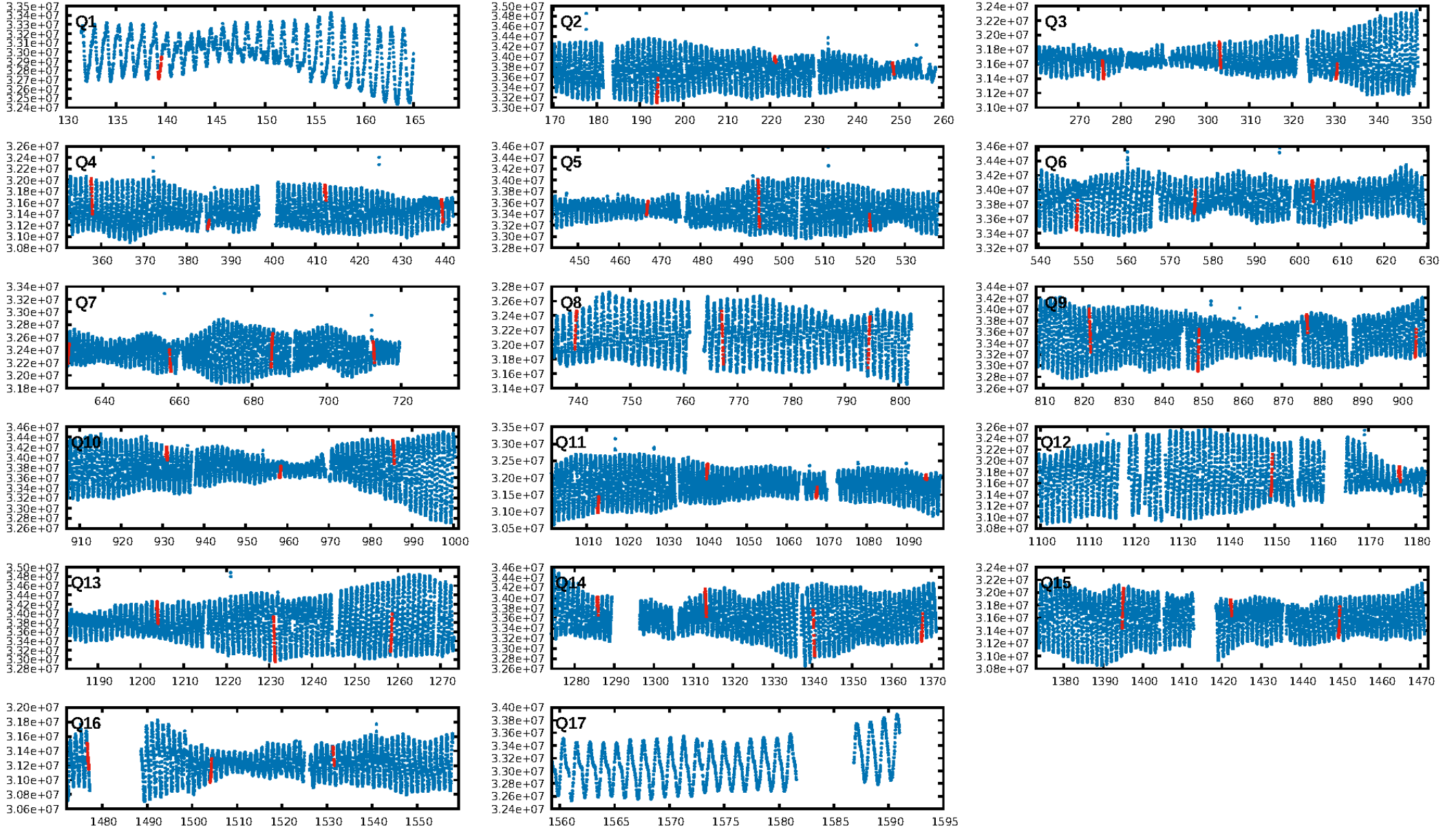
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [22.08 $\sigma$ ]  
LongPeriod-sig: 100.0% [66.91 $\sigma$ ]  
ModelChiSquare2-sig: 0.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [20/20]  
GhostDiagnostic-chr: -1.312  
Centroid-sig: 58.5%  
Centroid-so: 0.329 arcsec [0.57 $\sigma$ ]  
OotOffset-rm: 0.718 arcsec [3.97 $\sigma$ ]  
KicOffset-rm: 0.672 arcsec [3.56 $\sigma$ ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.44 [7/16]  
DiffImageOverlap-fno: 0.00 [0/16]

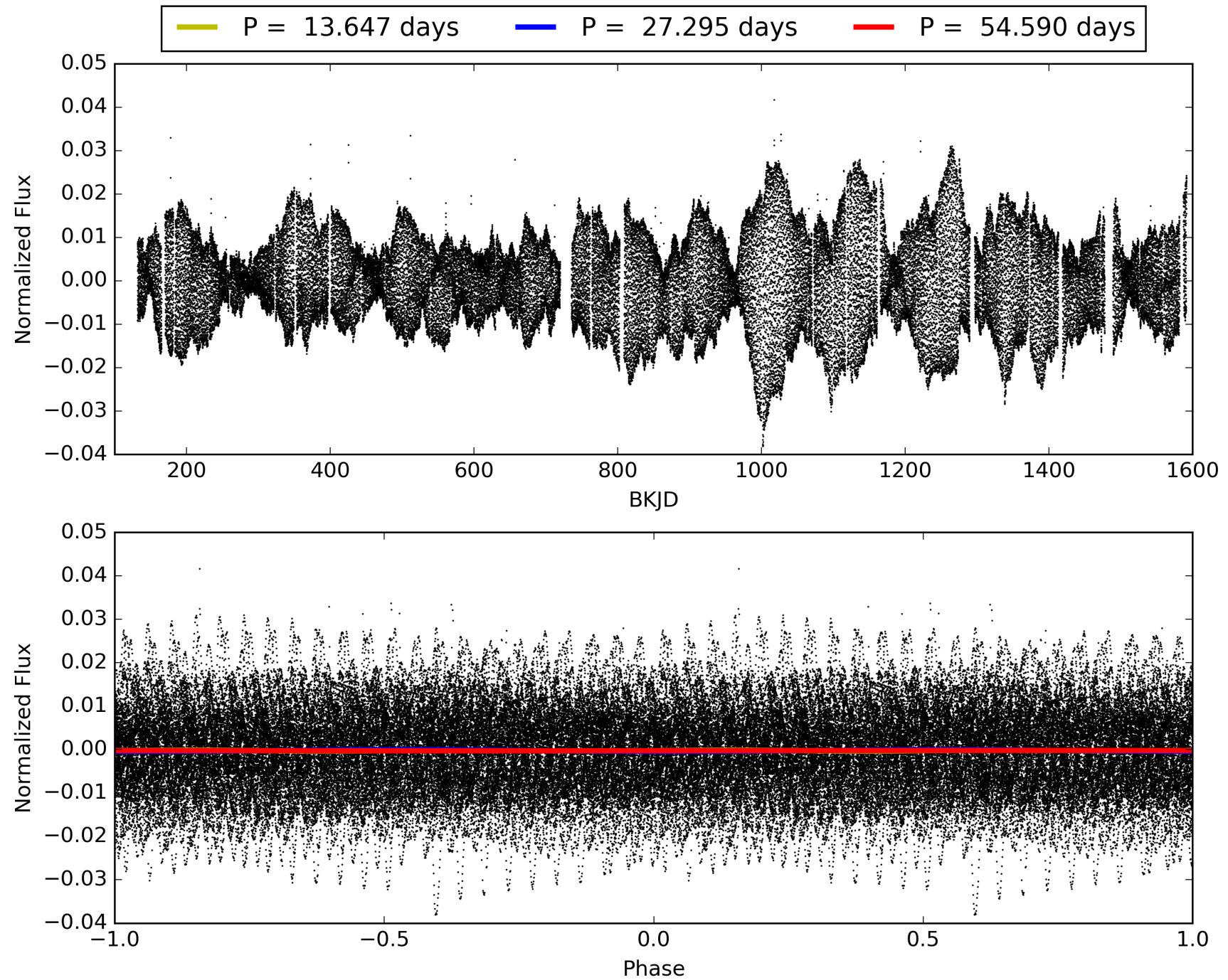
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:21:45 Z

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

# TCE 011620425-03, PDC Light Curves

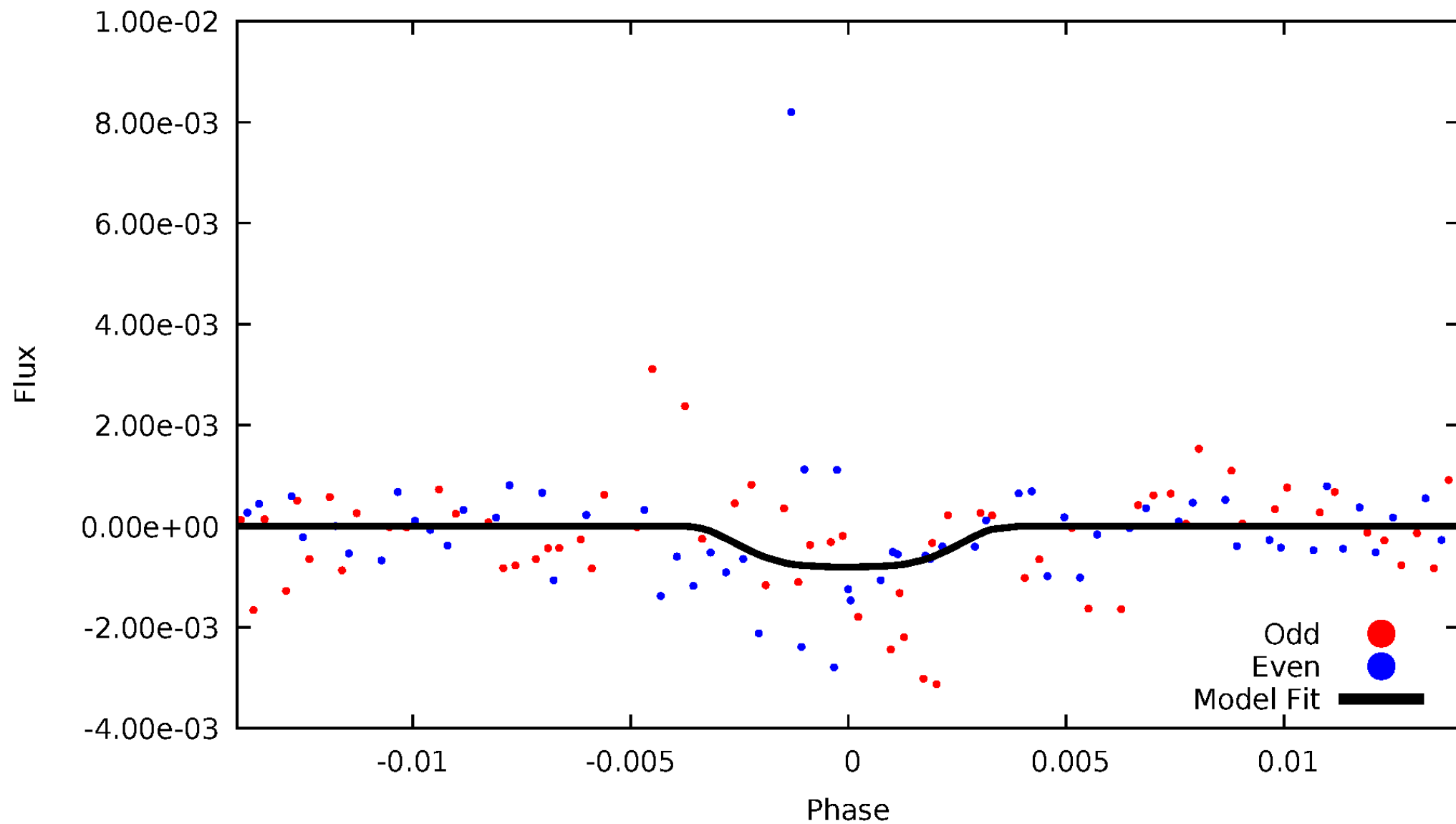


# TCE 011620425-03



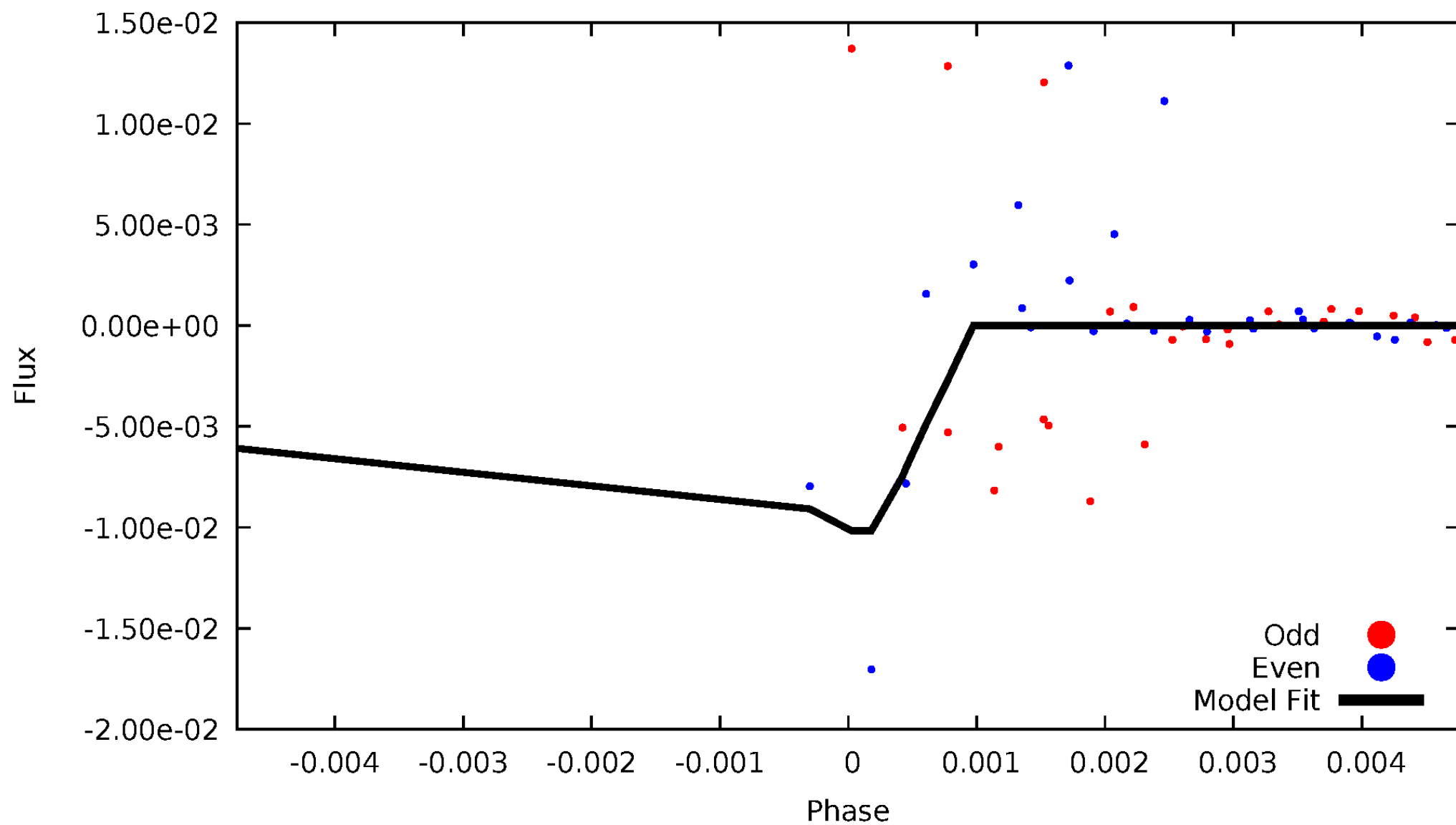
# DV Odd/Even

TCE 011620425-03



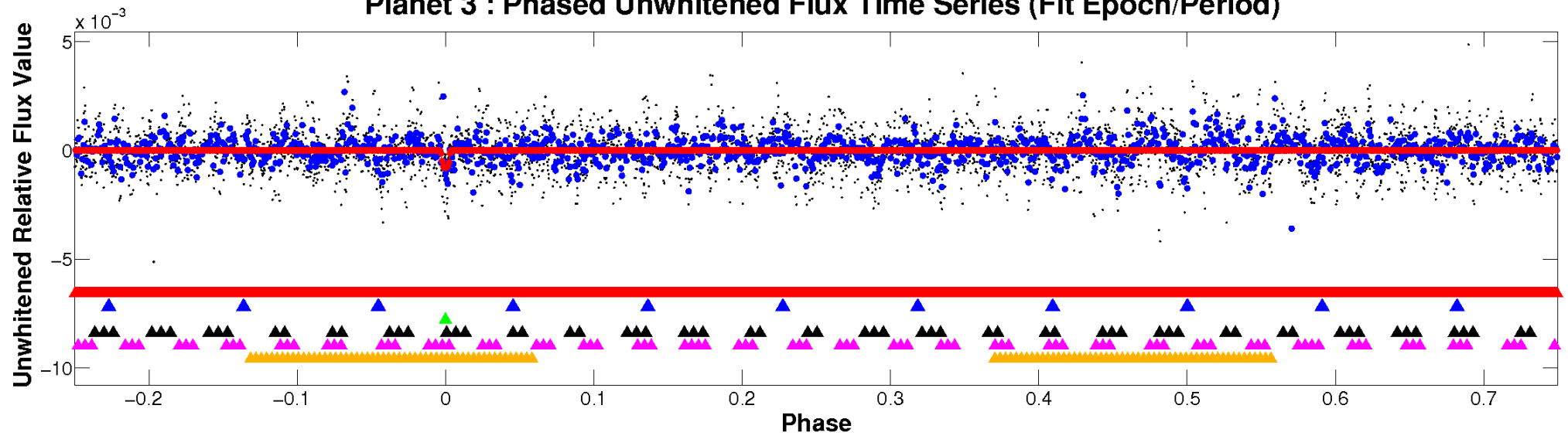
# ALT Odd/Even

TCE 011620425-03

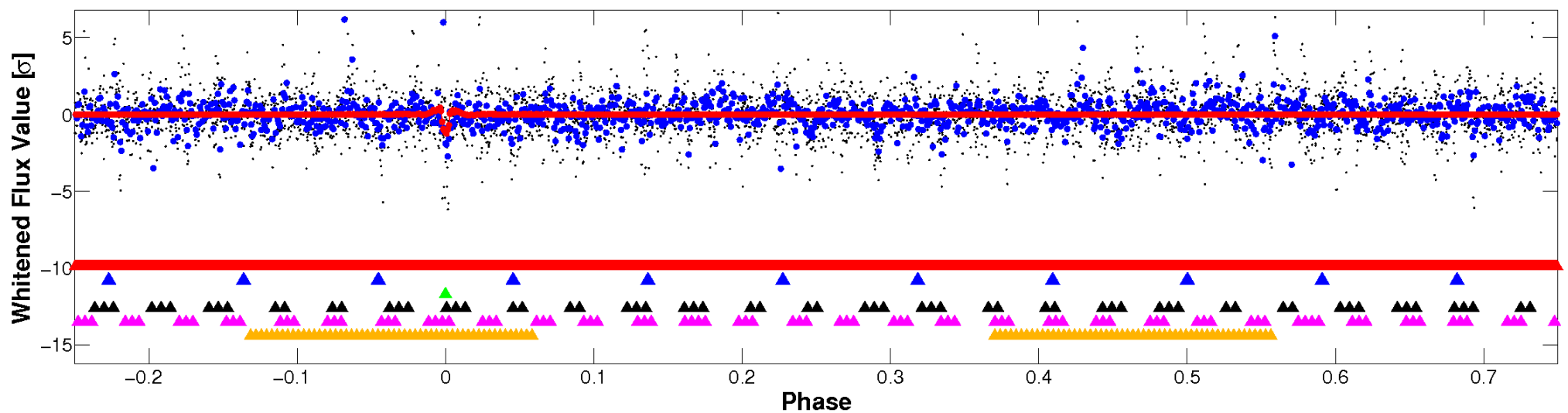


# Non-Whitened Vs. Whitened Light Curve

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



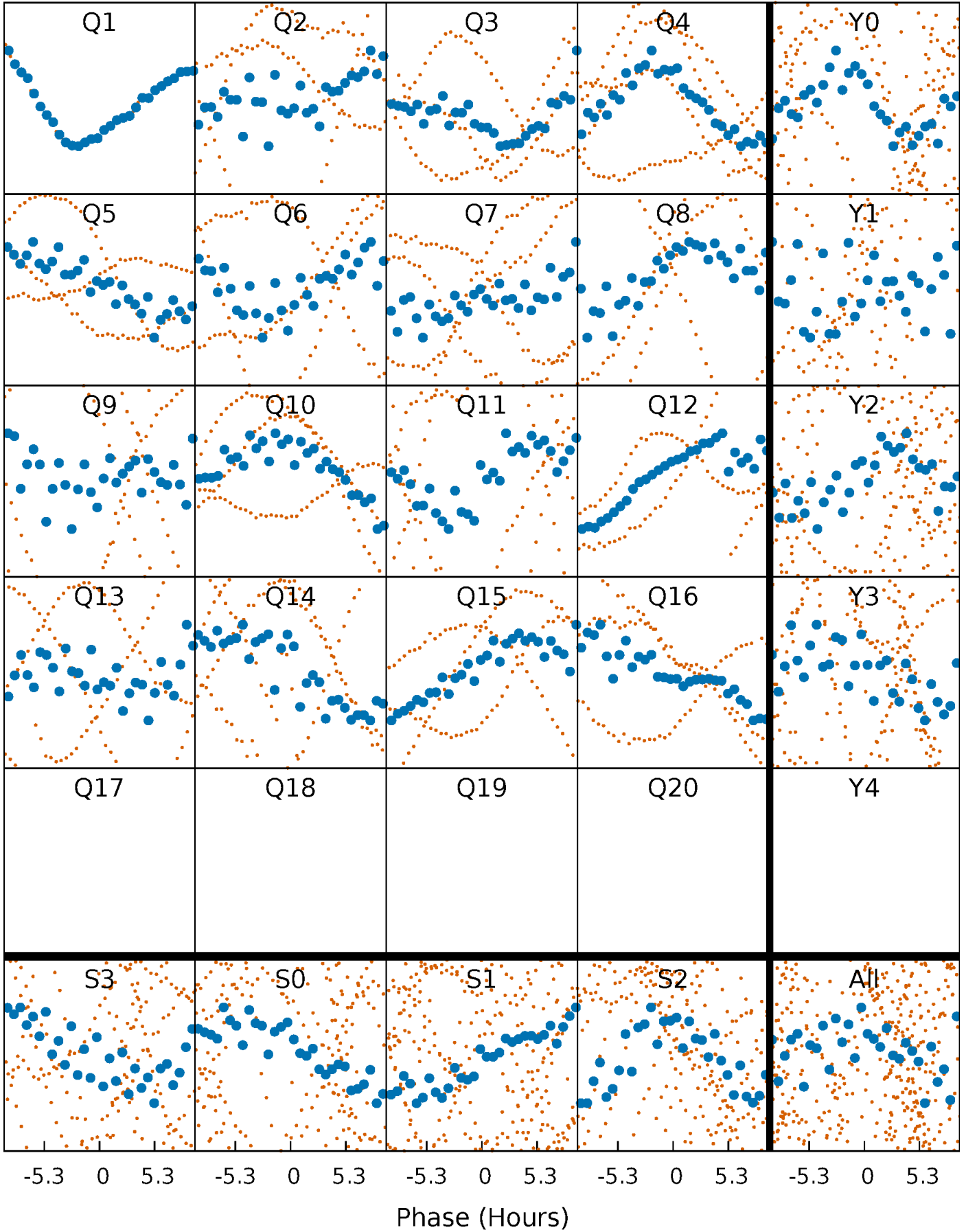
## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





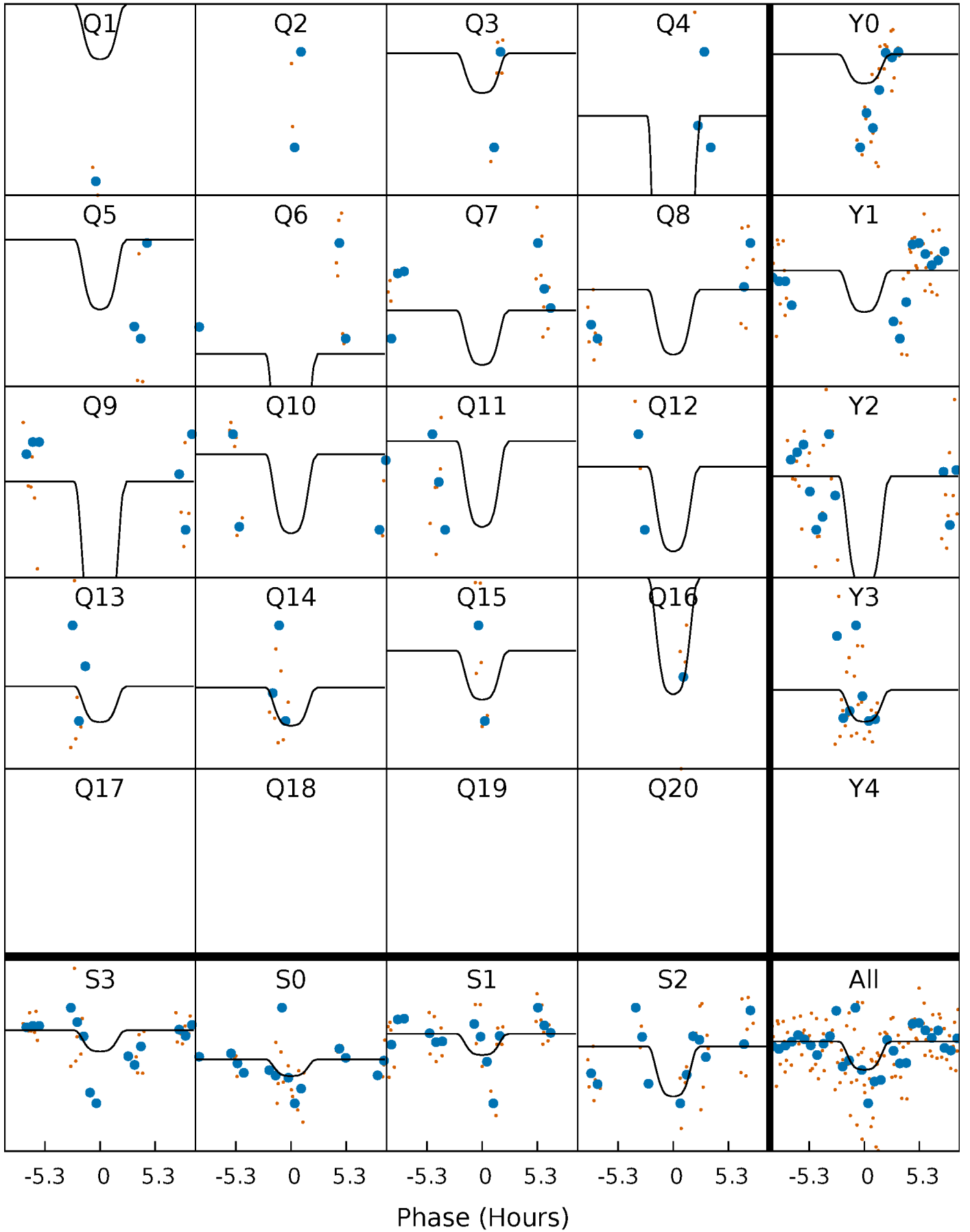
# PDC Quarter-Phased Transit Curves

TCE 011620425-03   P= 27.294829 Days    $T_0=139.408389$  (BKJD)



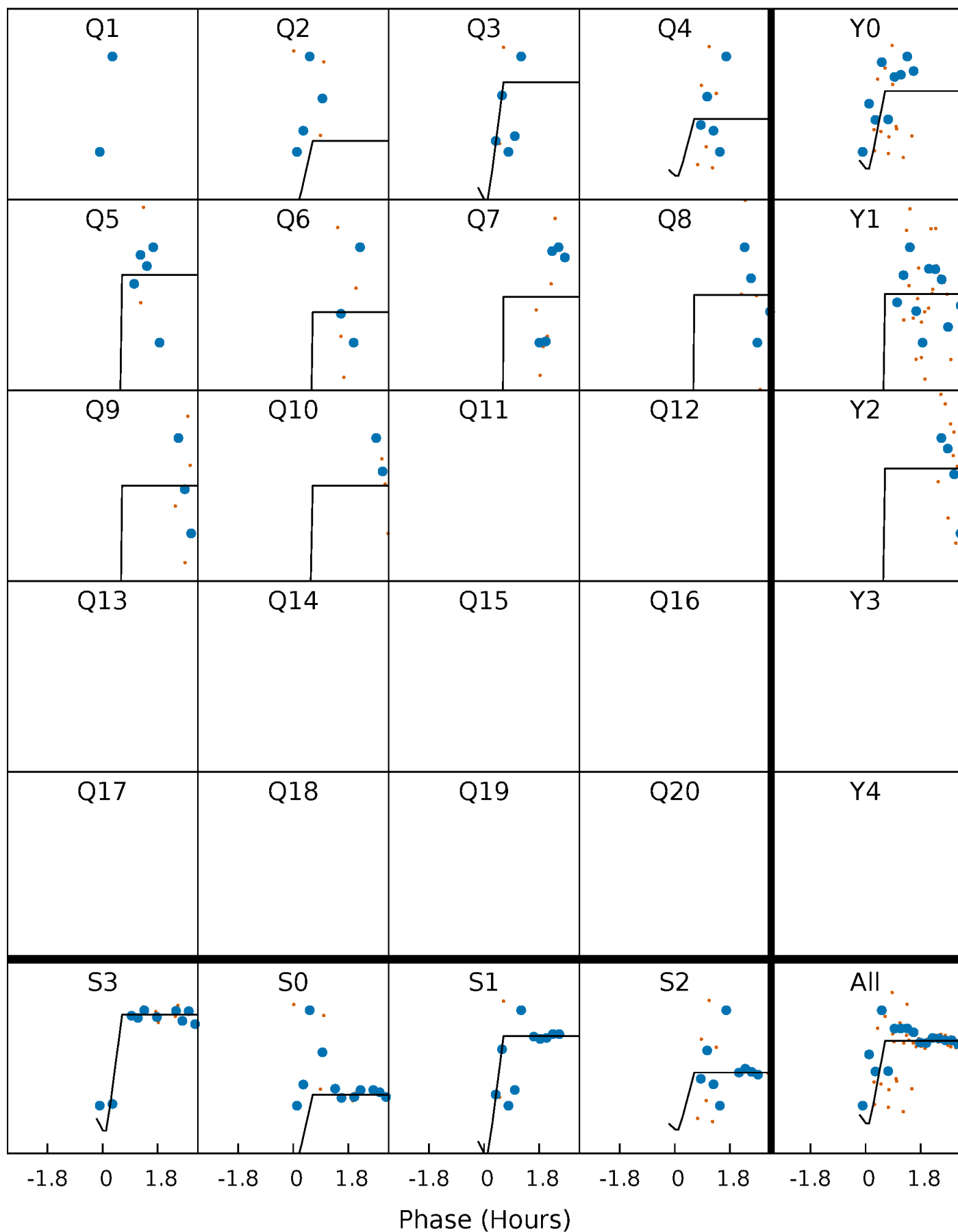
# DV Quarter-Phased Transit Curves

TCE 011620425-03     $P = 27.294829$  Days     $T_0 = 139.408389$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

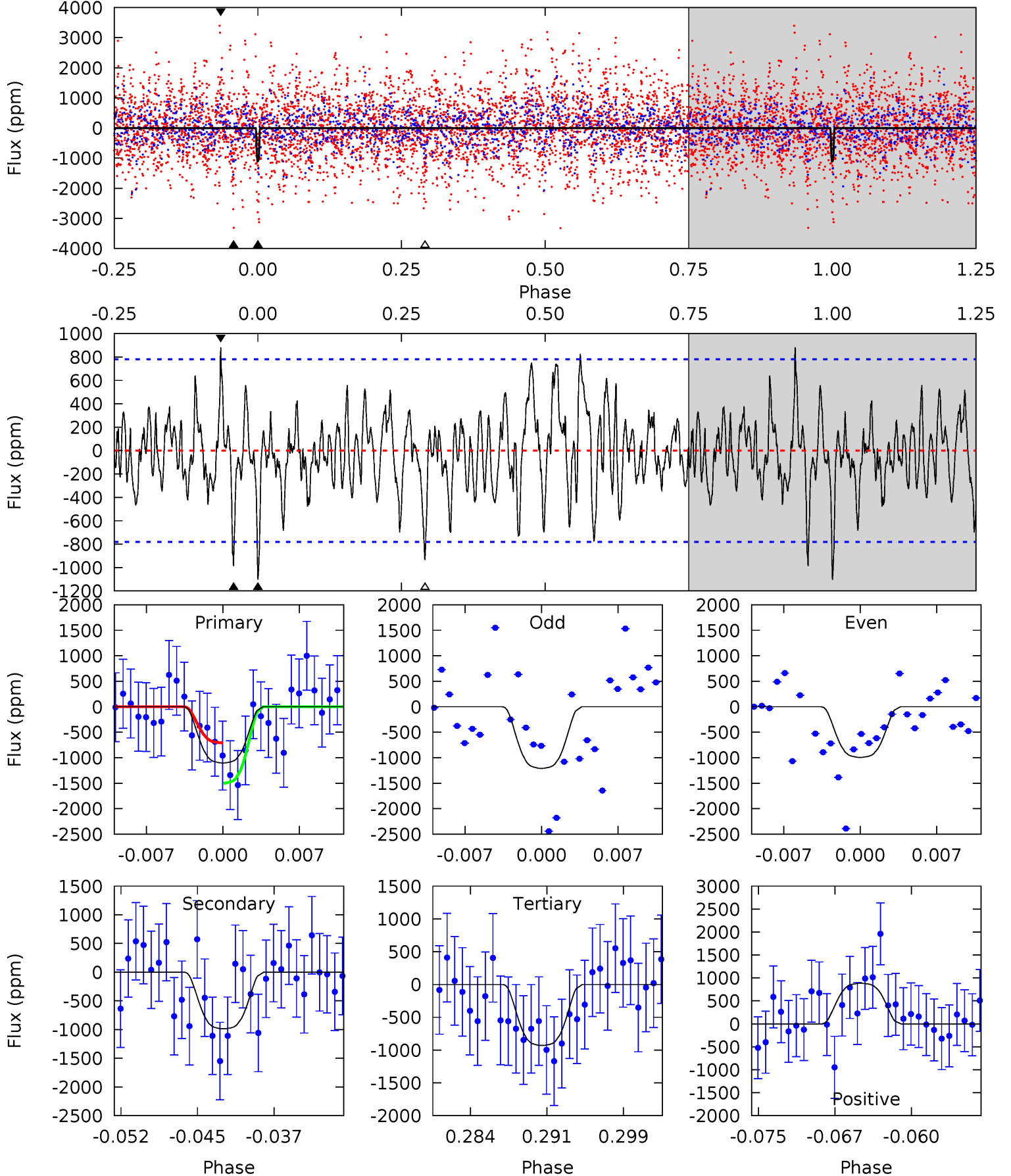
TCE 011620425-03 P= 27.303765 Days  $T_0=139.387123$  (BKJD)



# DV Model-Shift Uniqueness Test

011620425-03, P = 27.294829 Days, E = 112.113560 Days

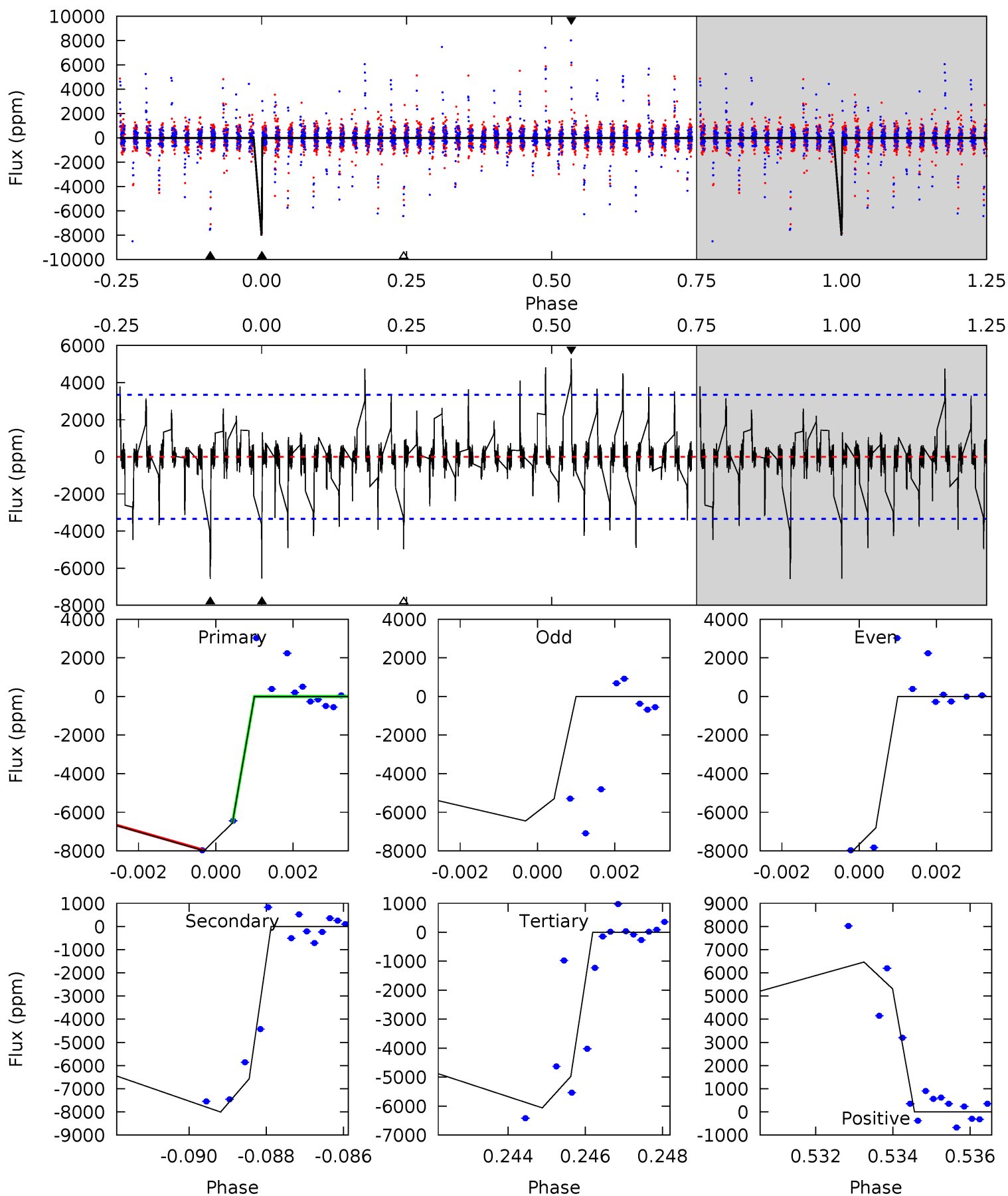
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.18	6.43	6.06	5.75	5.08	2.68	1.89	1.12	1.43	0.37	0.68	0.71	0.83	0.44	2.59



# Alt Model-Shift Uniqueness Test

011620425-03, P = 27.303765 Days, E = 112.083358 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	10.5	7.93	8.46	5.33	3.10	1.20	2.52	1.99	2.55	2.01	0.79	1.00	0.45	1.05



### Stellar Parameters For KIC 011620425

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5474^{+197}_{-180}$	$4.576^{+0.038}_{-0.152}$	$-0.100^{+0.300}_{-0.300}$	$0.805^{+0.188}_{-0.063}$	$0.896^{+0.082}_{-0.101}$	$2.415^{+0.464}_{-0.985}$
	+4%/-3%	+1%/-3%	+300%/-300%	+23%/-8%	+9%/-11%	+19%/-41%
Source	KIC0	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 011620425-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-987 \pm 154$	$3.08^{+0.74}_{-0.74}$	$747^{+45}_{-34}$	$5312^{+713}_{-515}$	$1649^{+1161}_{-636}$
Alt.	$-6570 \pm 627$	$9.03^{+1.30}_{-0.93}$	$746^{+44}_{-35}$	$4999^{+247}_{-251}$	$1262^{+318}_{-277}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

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



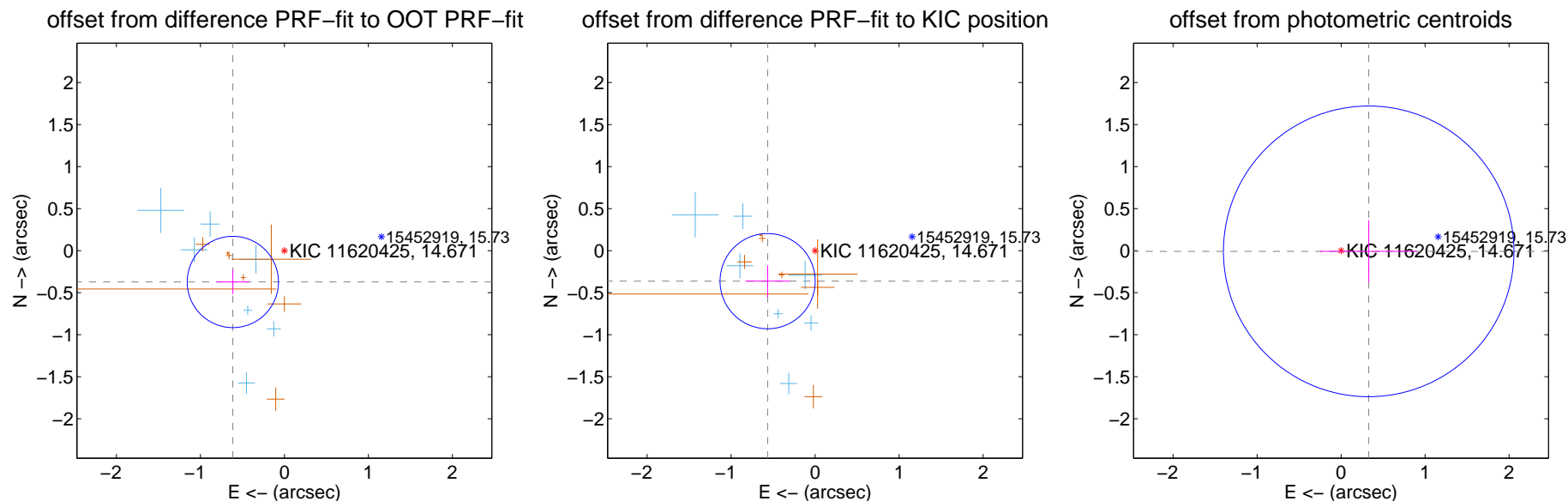
## DV Centroid Data

Supplemental centroid analysis for 011620425-03. Kepler magnitude: 14.67. Transit SNR 5.05

There are 7 quarters with good PRF difference image offsets

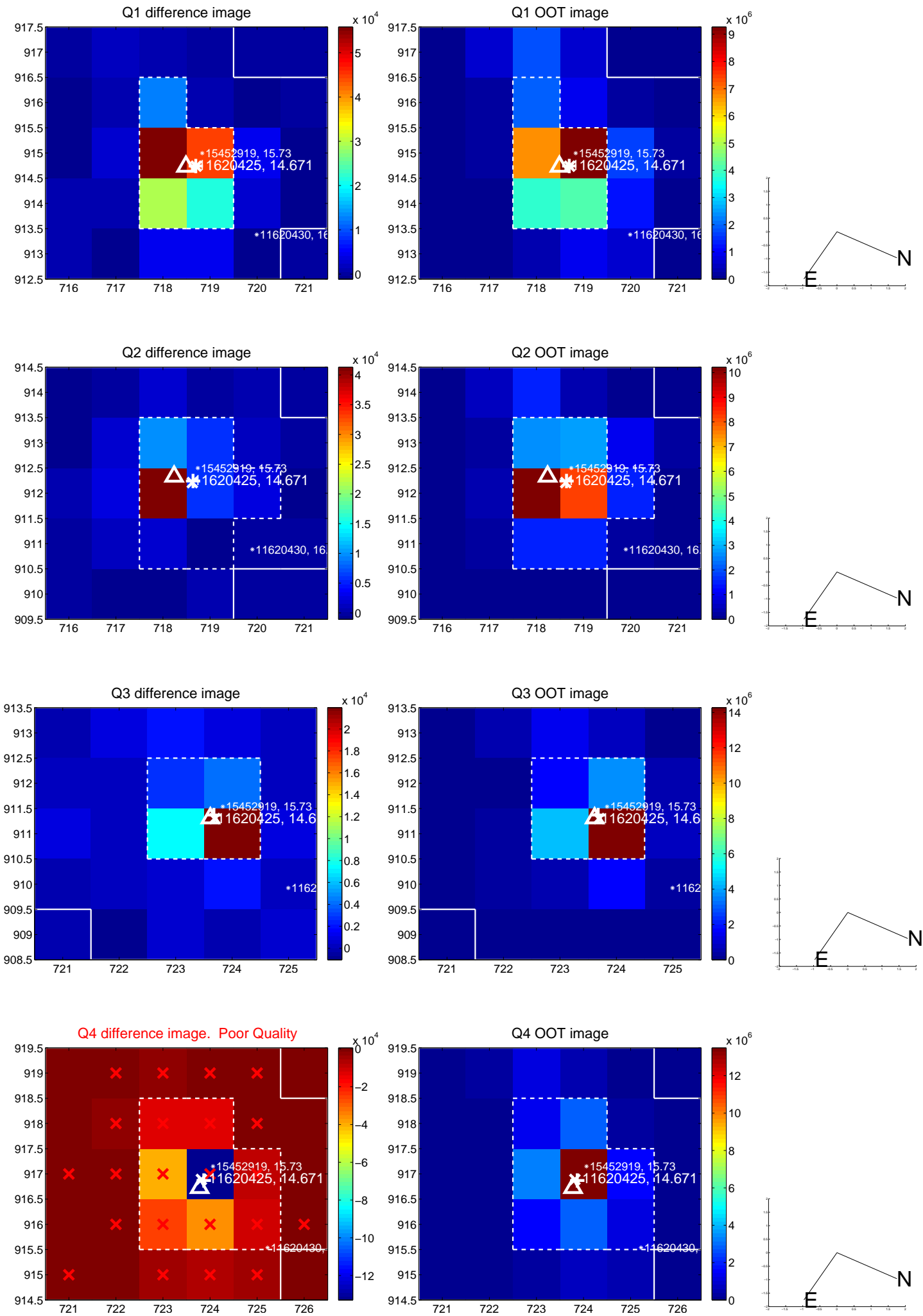
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>0.718 <math>\pm</math> 0.181</b>	<b>3.97</b>	0.614 $\pm$ 0.193	-0.372 $\pm$ 0.144
PRF-fit source offset from KIC position	<b>0.672 <math>\pm</math> 0.189</b>	<b>3.56</b>	0.565 $\pm$ 0.265	-0.363 $\pm$ 0.190
photometric centroid source offset	0.33 $\pm$ 0.58	0.57	-0.33 $\pm$ 0.58	-0.01 $\pm$ 0.37

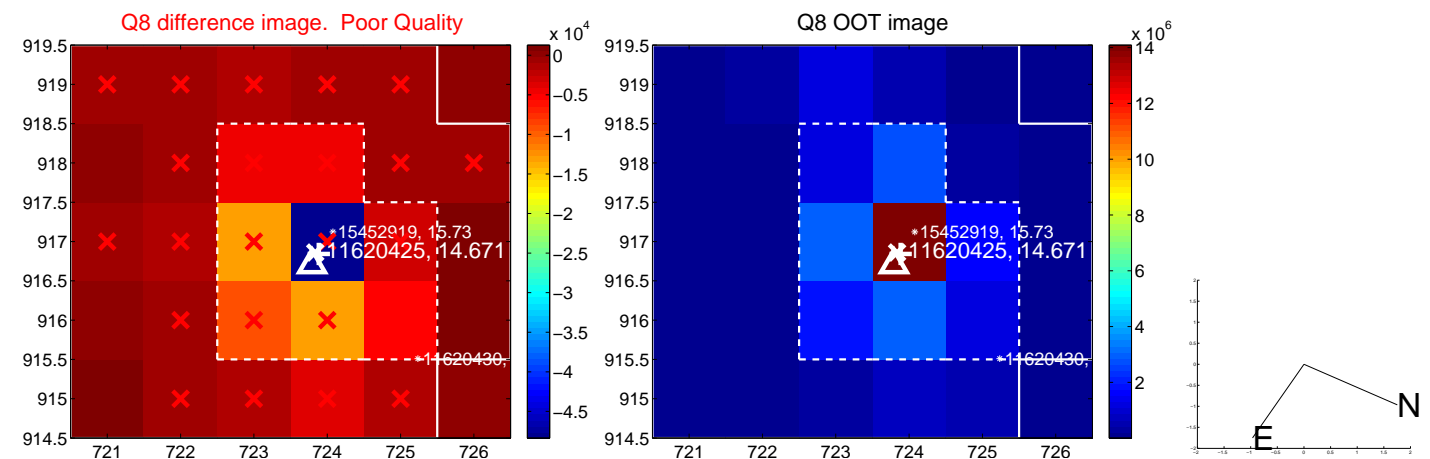
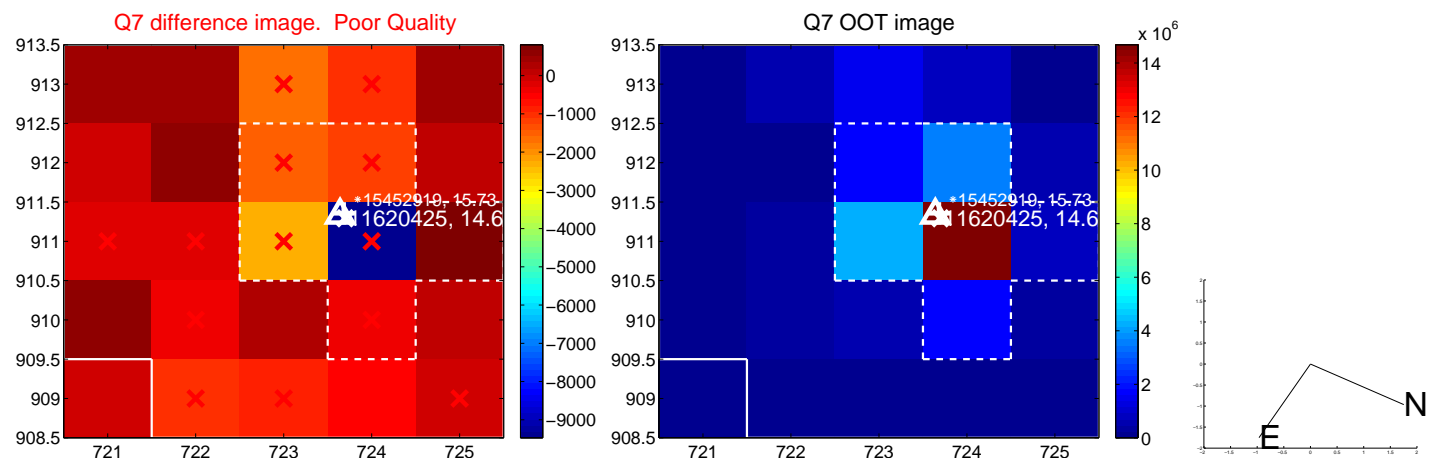
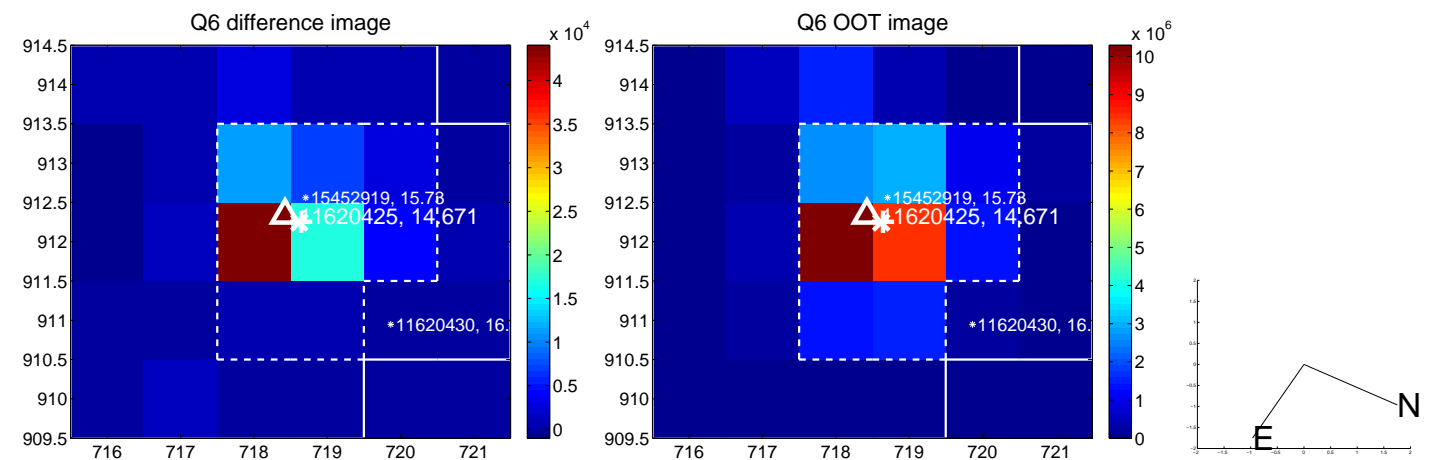
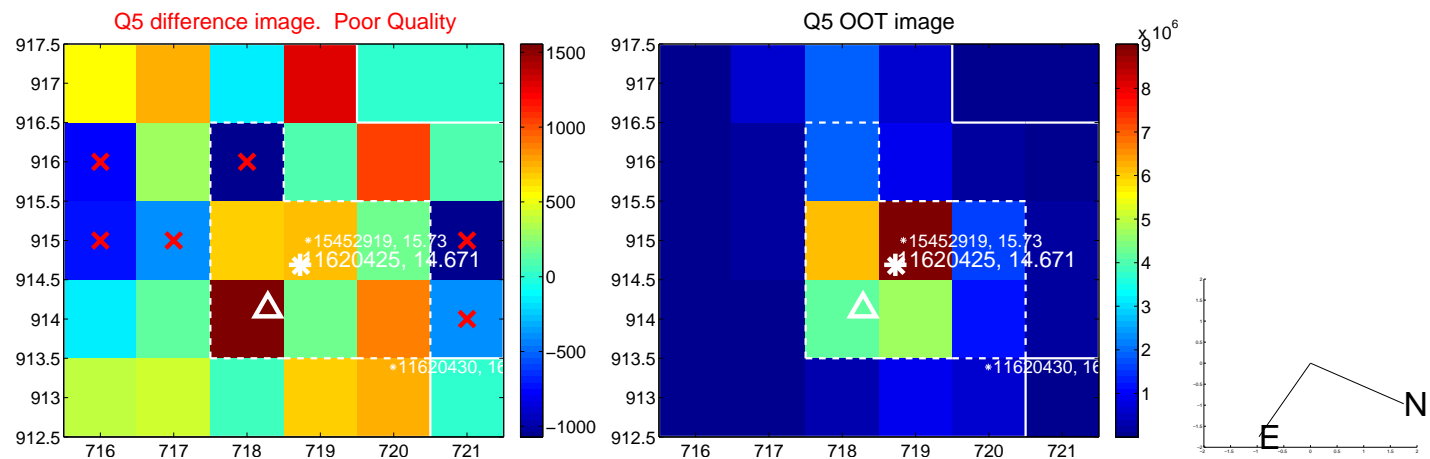


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

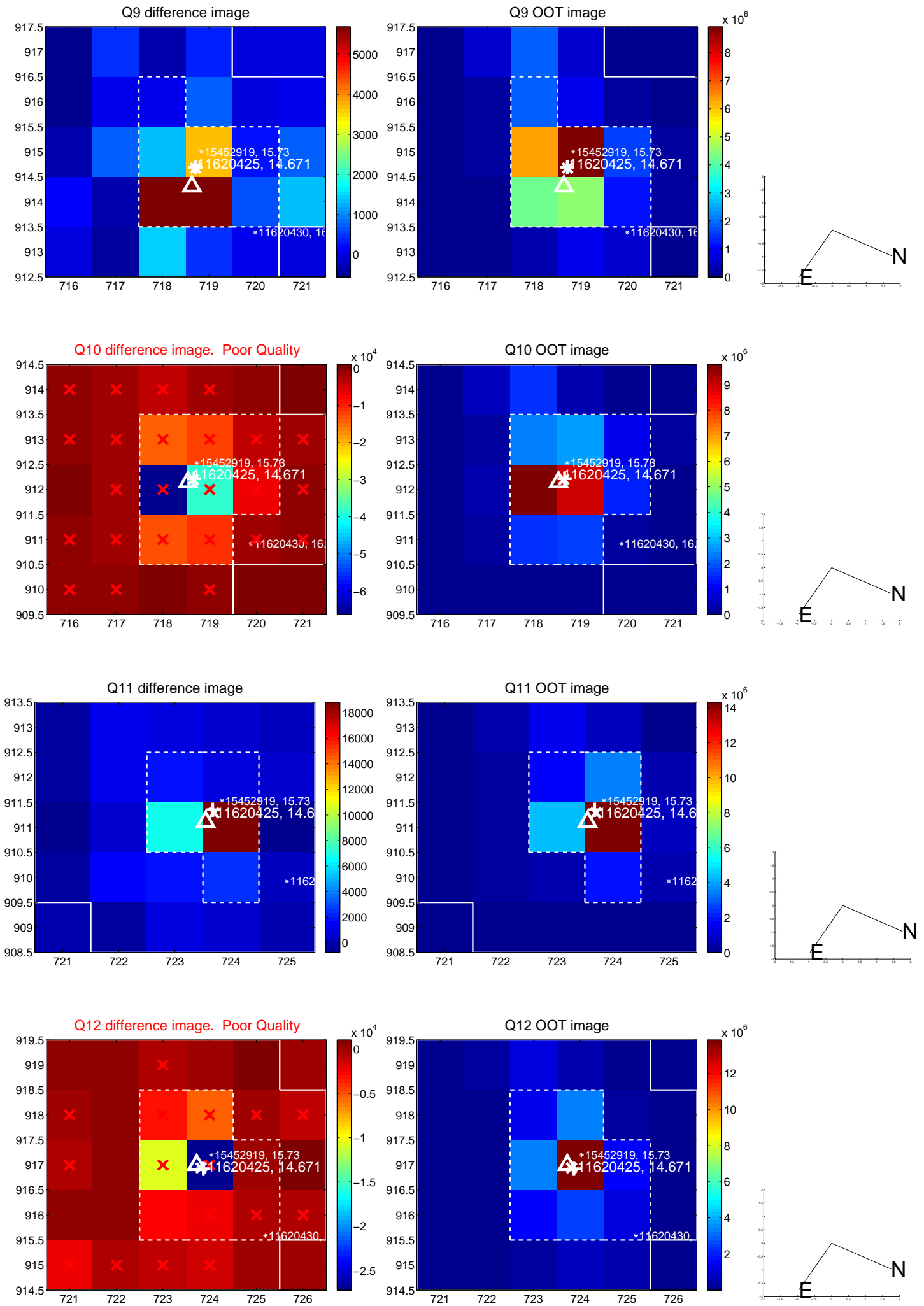
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



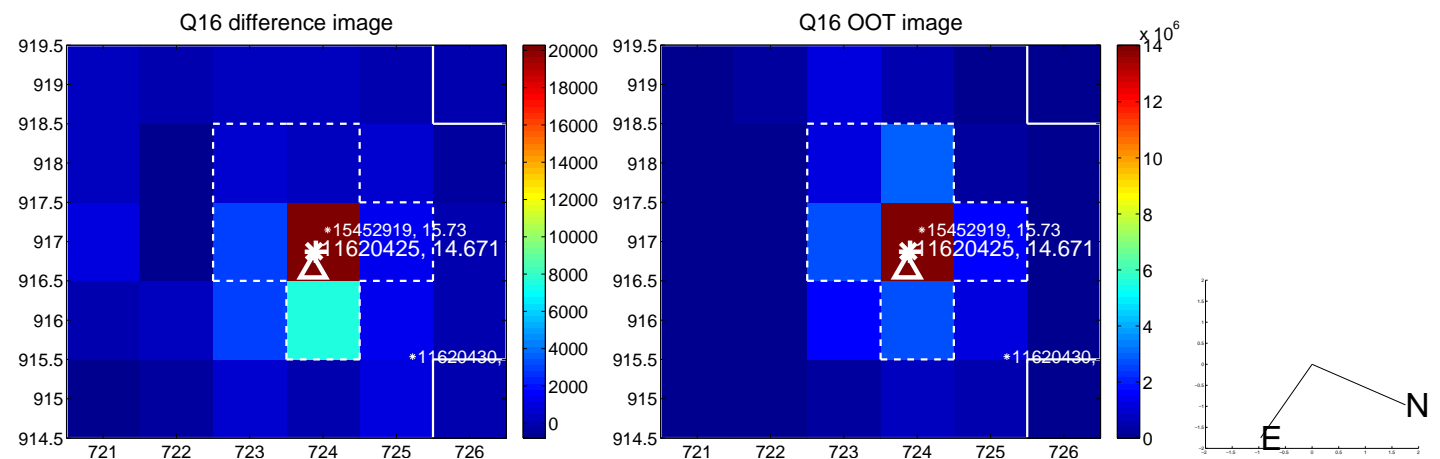
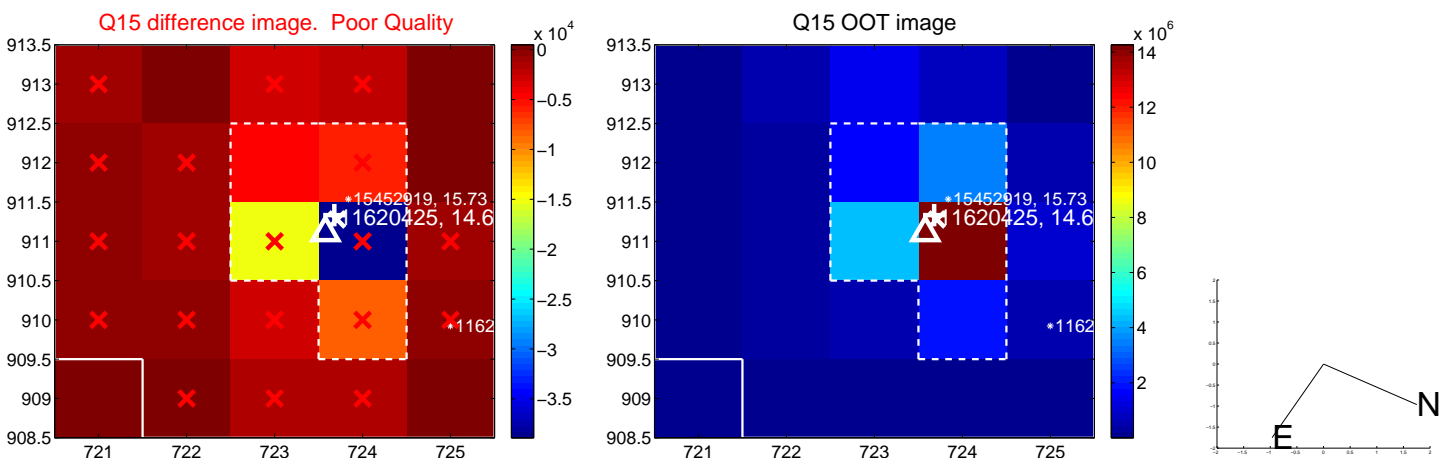
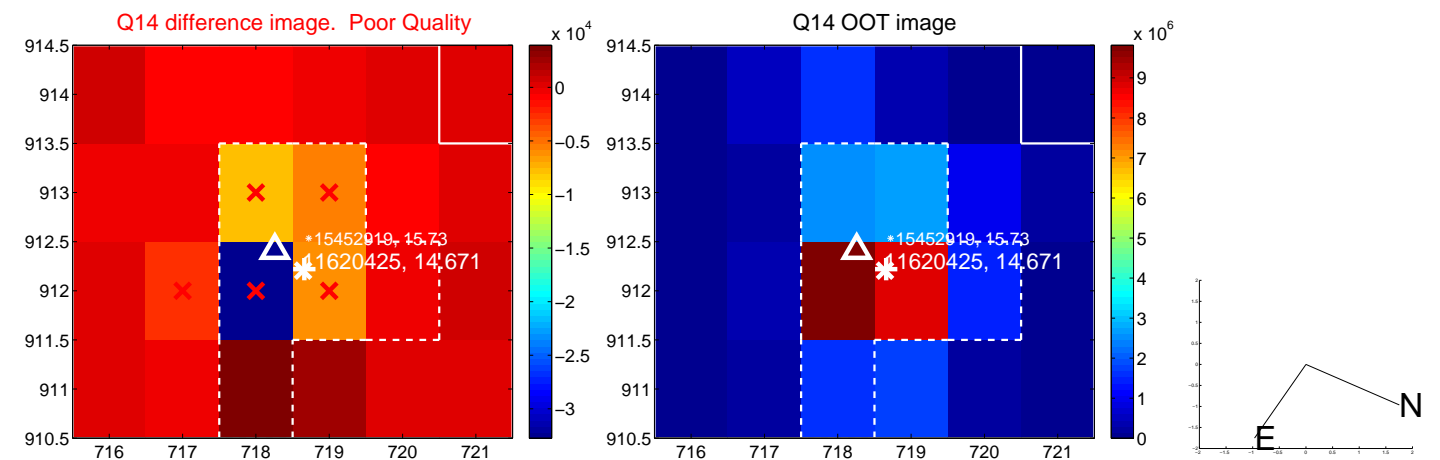
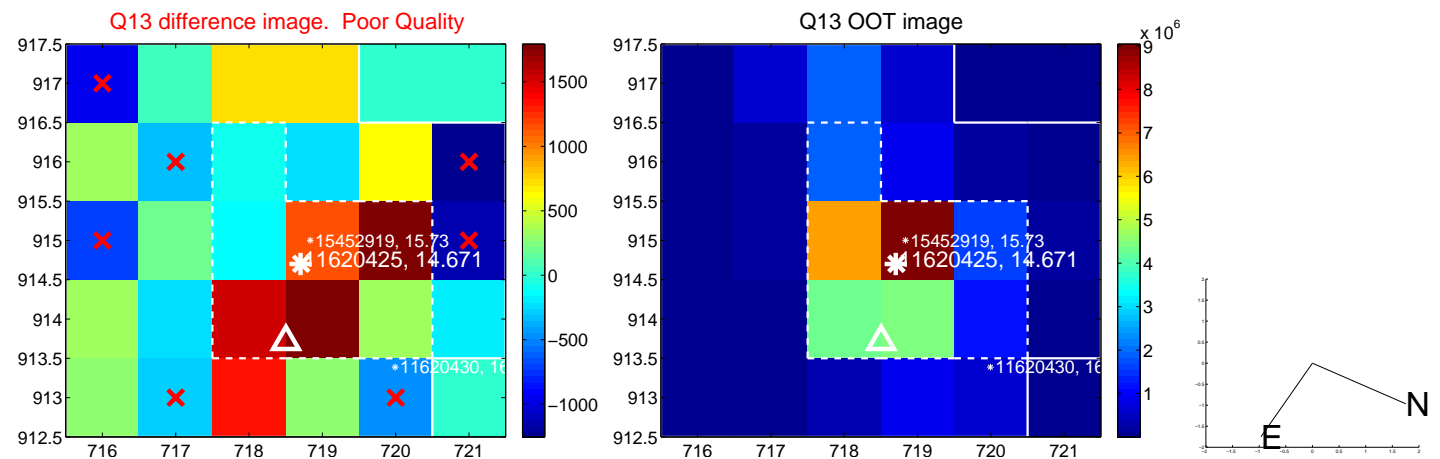
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



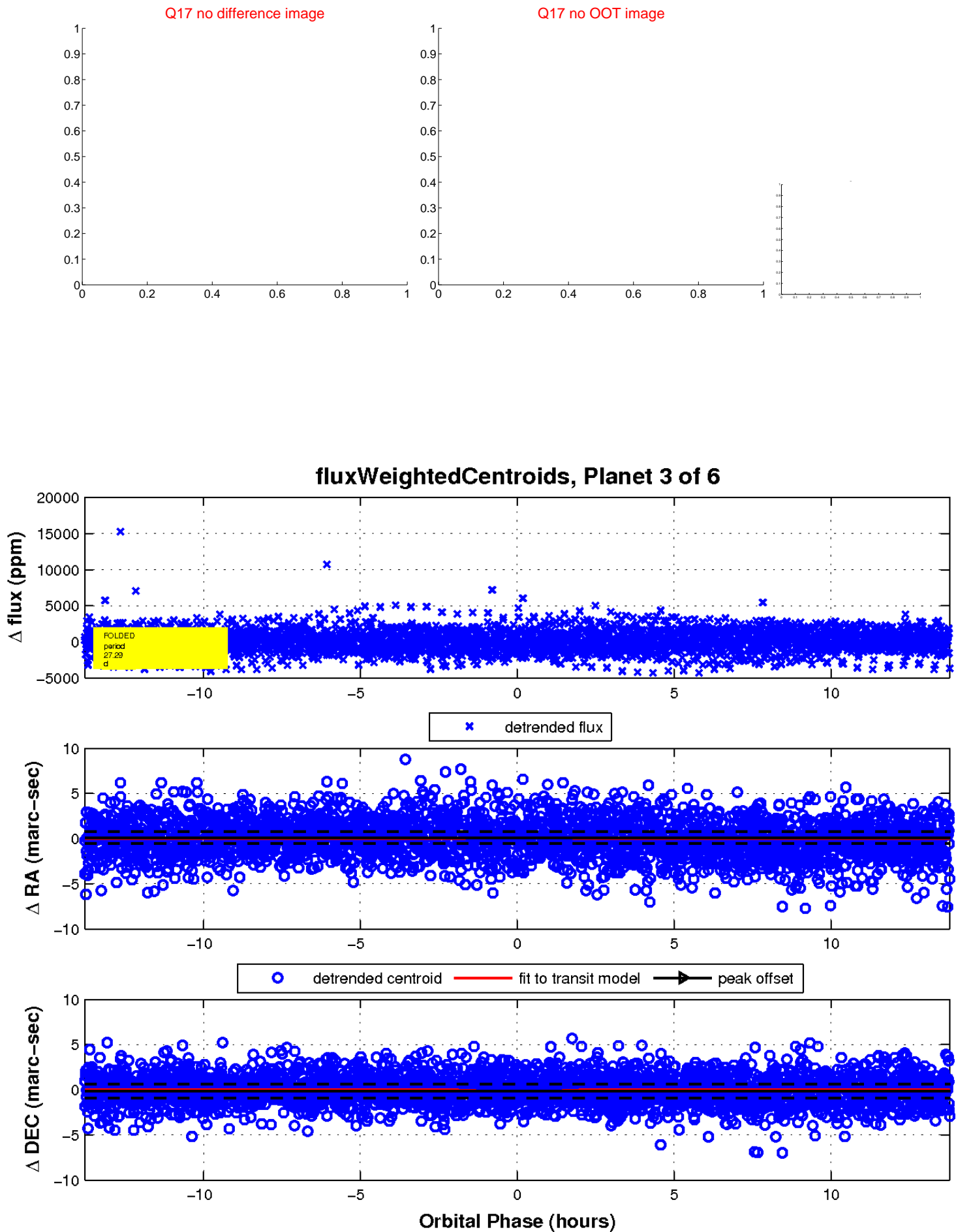
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



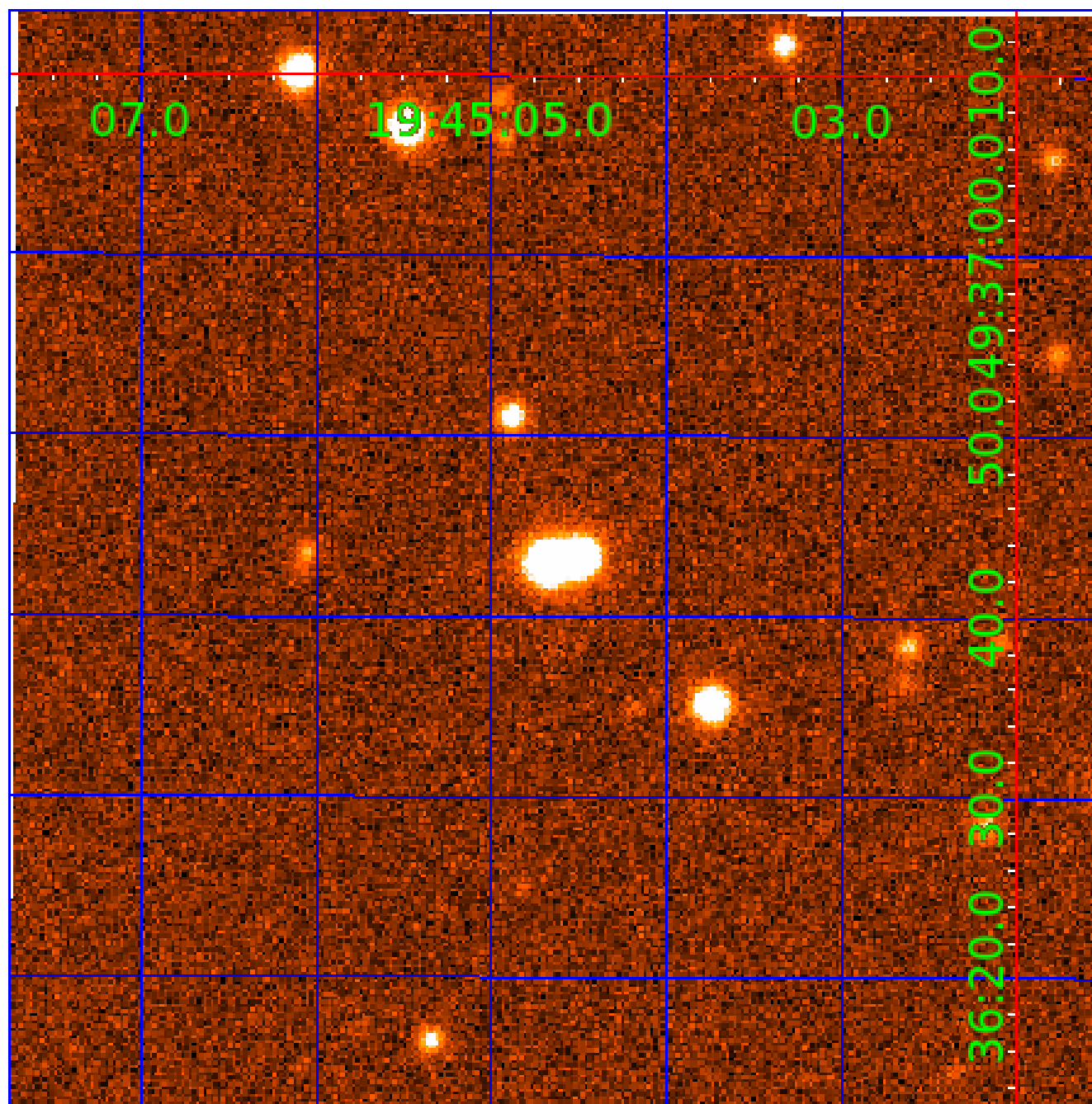
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 011620425

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011620425-01	OBS	No	0.606842	131.809906	88.5	4.357	8.5	10.3	0.81	5474	0.75	2861.16
011620425-02	OBS	No	42.183410	138.165083	2000.9	2.719	13.8	10.8	0.81	5474	3.66	10.01
011620425-03	OBS	No	27.294829	139.408389	808.6	4.597	13.5	5.0	0.81	5474	2.98	17.89
011620425-04	OBS	No	22.920823	133.295799	2087.9	1.216	8.9	8.6	0.81	5474	3.79	22.58
011620425-05	OBS	No	16.004742	139.098496	1498.3	1.500	8.8	-1.0	0.81	5474	3.08	36.45
011620425-06	OBS	No	13.598571	141.000149	785.2	15.334	9.0	6.0	0.81	5474	2.25	45.29

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011620425-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
011620425-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV
011620425-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_ALT
011620425-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV
011620425-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_NOFITS
011620425-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—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.

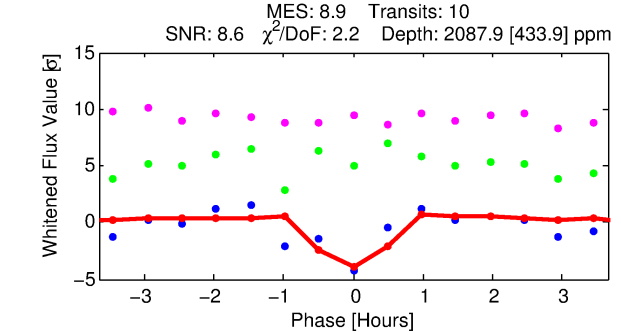
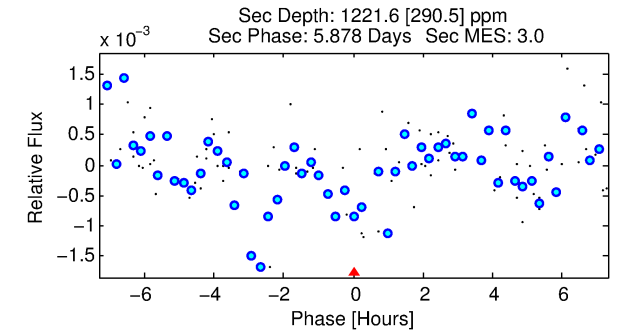
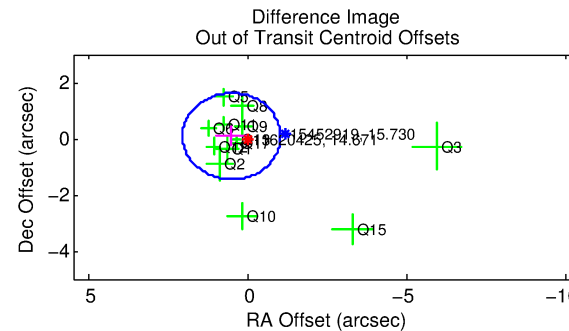
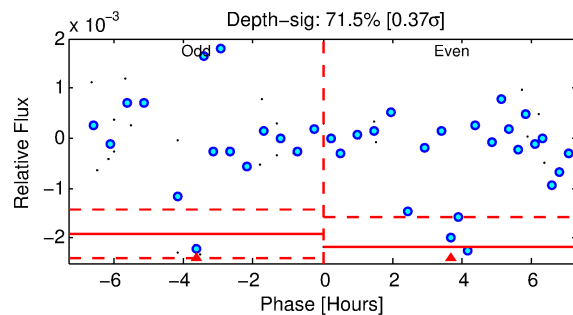
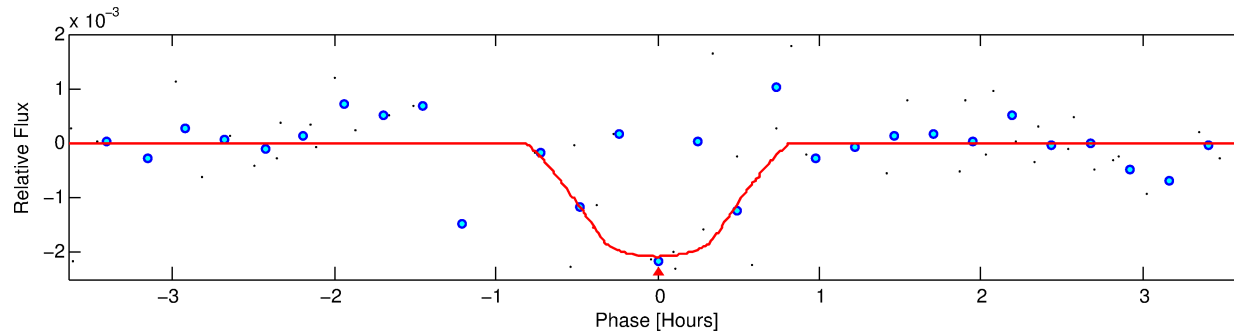
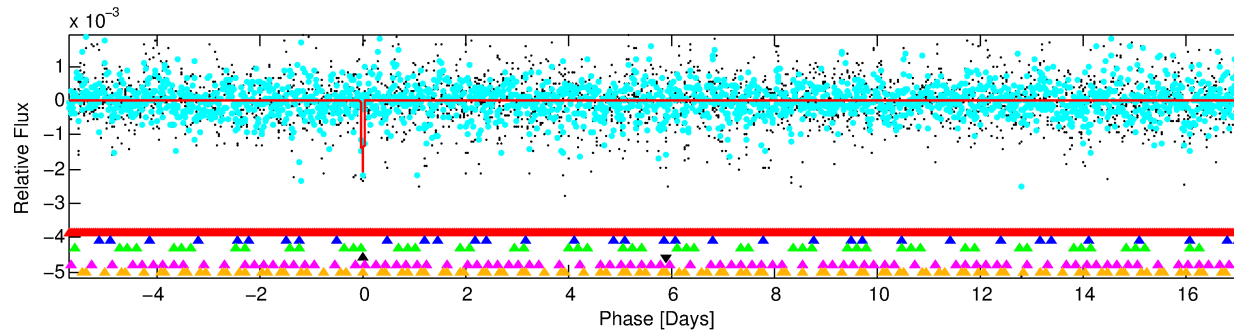
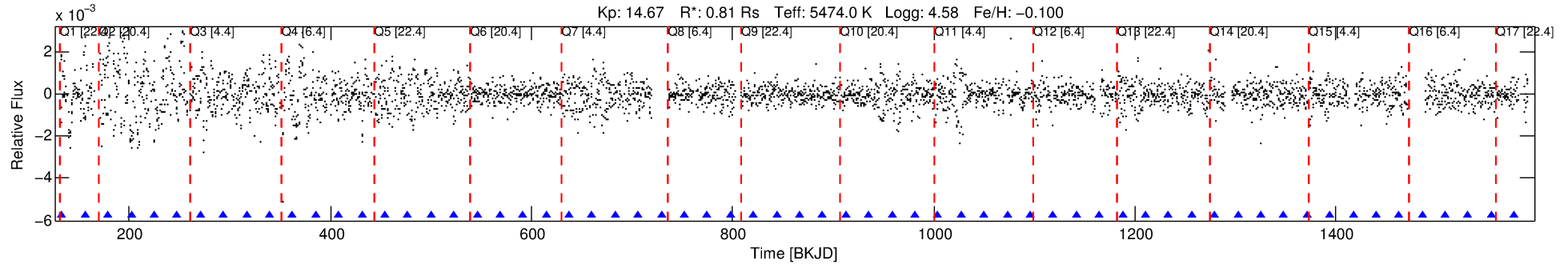
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011620425-04

No Significant Match Found

# DV One-Page Summary

KIC: 11620425 Candidate: 4 of 6 Period: 22.921 d



## DV Fit Results:

Period = 22.92082 [0.00018] d  
Epoch = 133.2958 [0.0055] BKJD  
Rp/R\* = 0.0432 [0.1371]  
a/R\* = 129.48 [1631.33]  
b = 0.53 [17.38]  
Seff = 22.58 [7.12]  
Teq = 556 [44] K  
Rp = 3.79 [12.08] Re  
a = 0.1520 [0.0296] AU  
Ag = 1079.89 [6875.52] [0.16σ]  
Teffp = 4926 [7836] K [0.56σ]

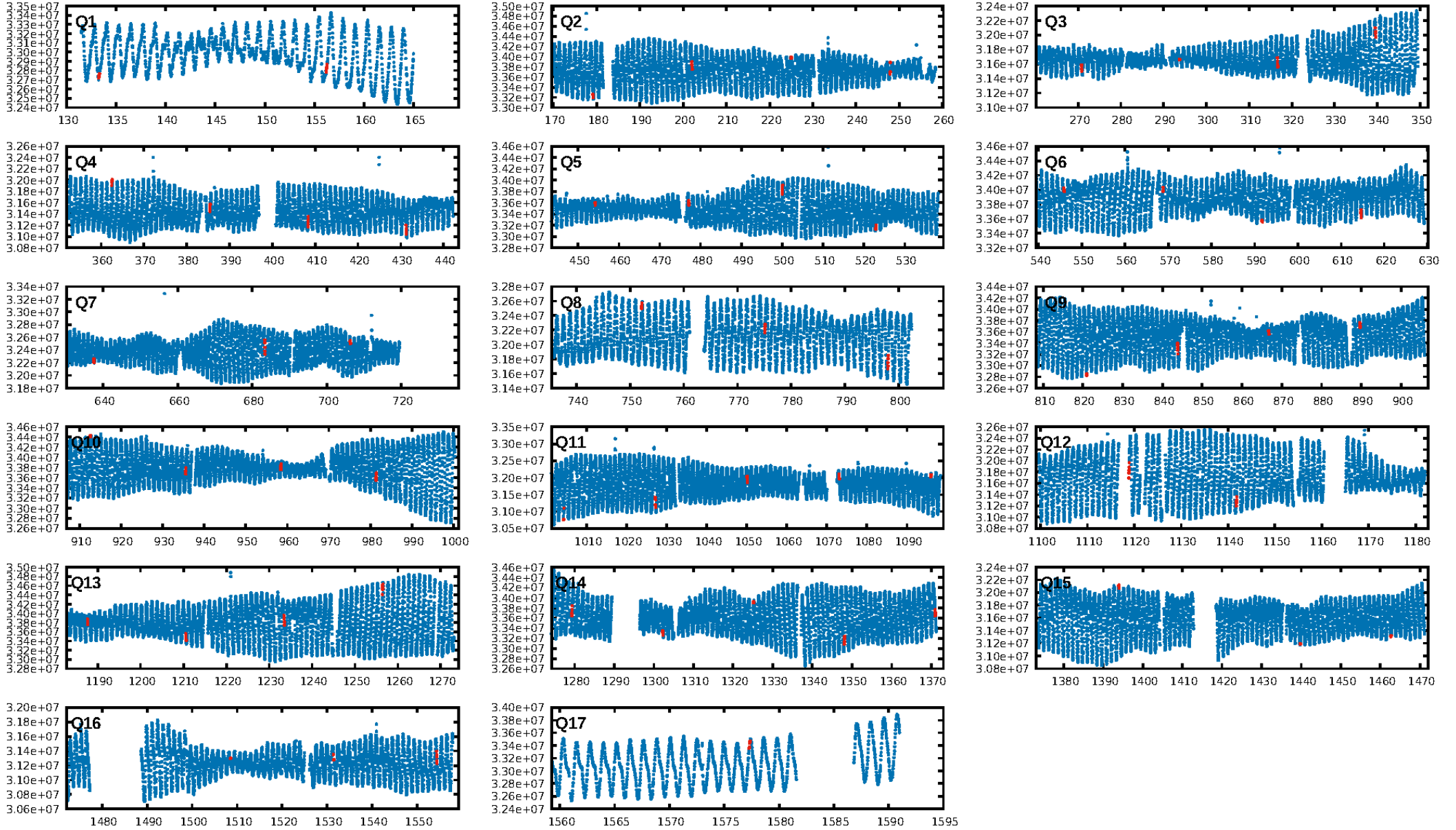
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [85.97σ]  
LongPeriod-sig: 100.0% [22.08σ]  
ModelChiSquare2-sig: 2.4%  
ModelChiSquareGof-sig: 98.3%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [9/9]  
GhostDiagnostic-chr: 0.5249  
Centroid-sig: 4.8%  
Centroid-so: 0.609 arcsec [2.64σ]  
OotOffset-rm: 0.528 arcsec [1.03σ]  
KicOffset-rm: 0.520 arcsec [1.09σ]  
OotOffset-st: 3/3/2/5 [13]  
KicOffset-st: 3/3/2/5 [13]  
DiffImageQuality-fgm: 0.38 [5/13]  
DiffImageOverlap-fno: 0.00 [0/17]

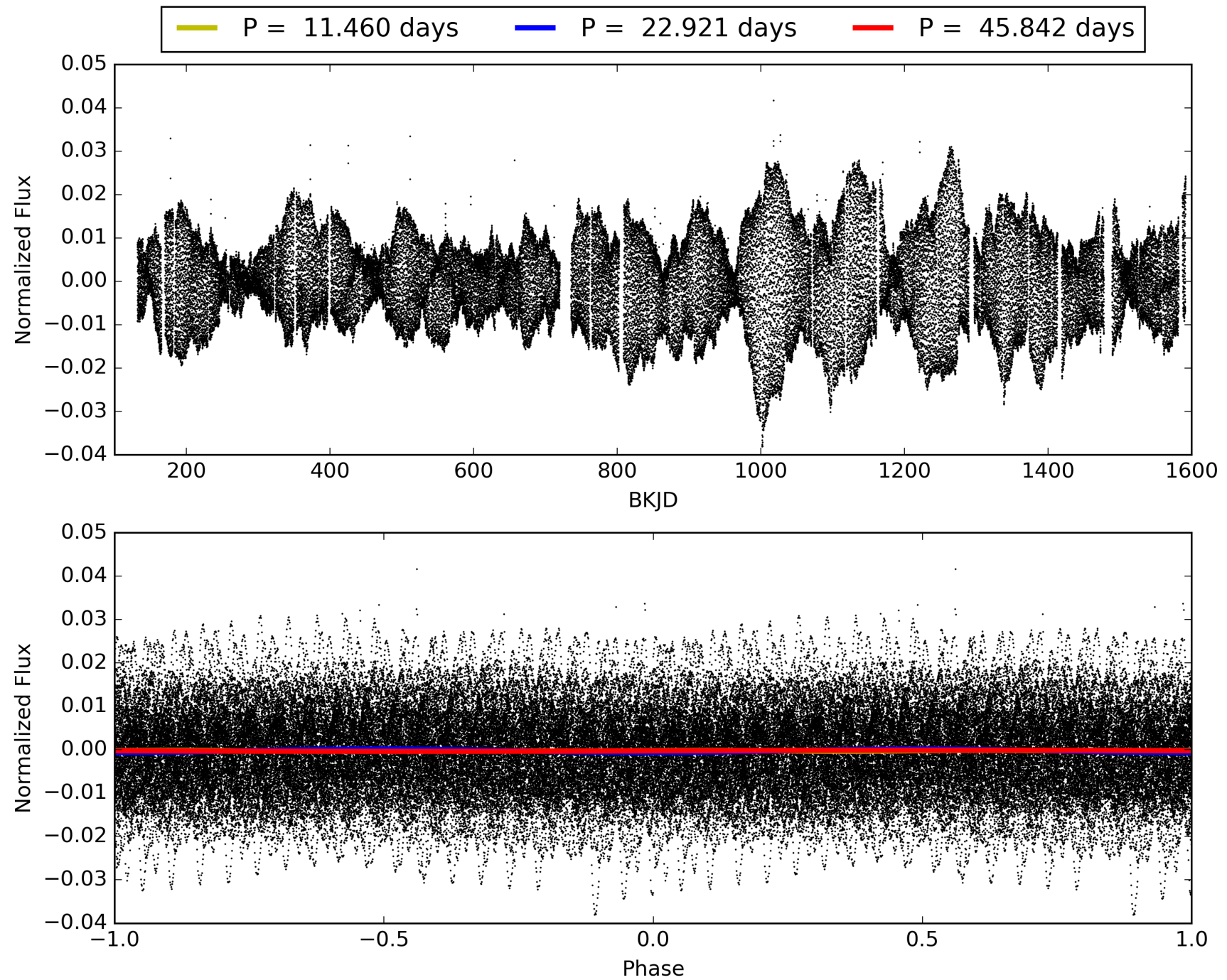
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:21:48 Z

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

# TCE 011620425-04, PDC Light Curves

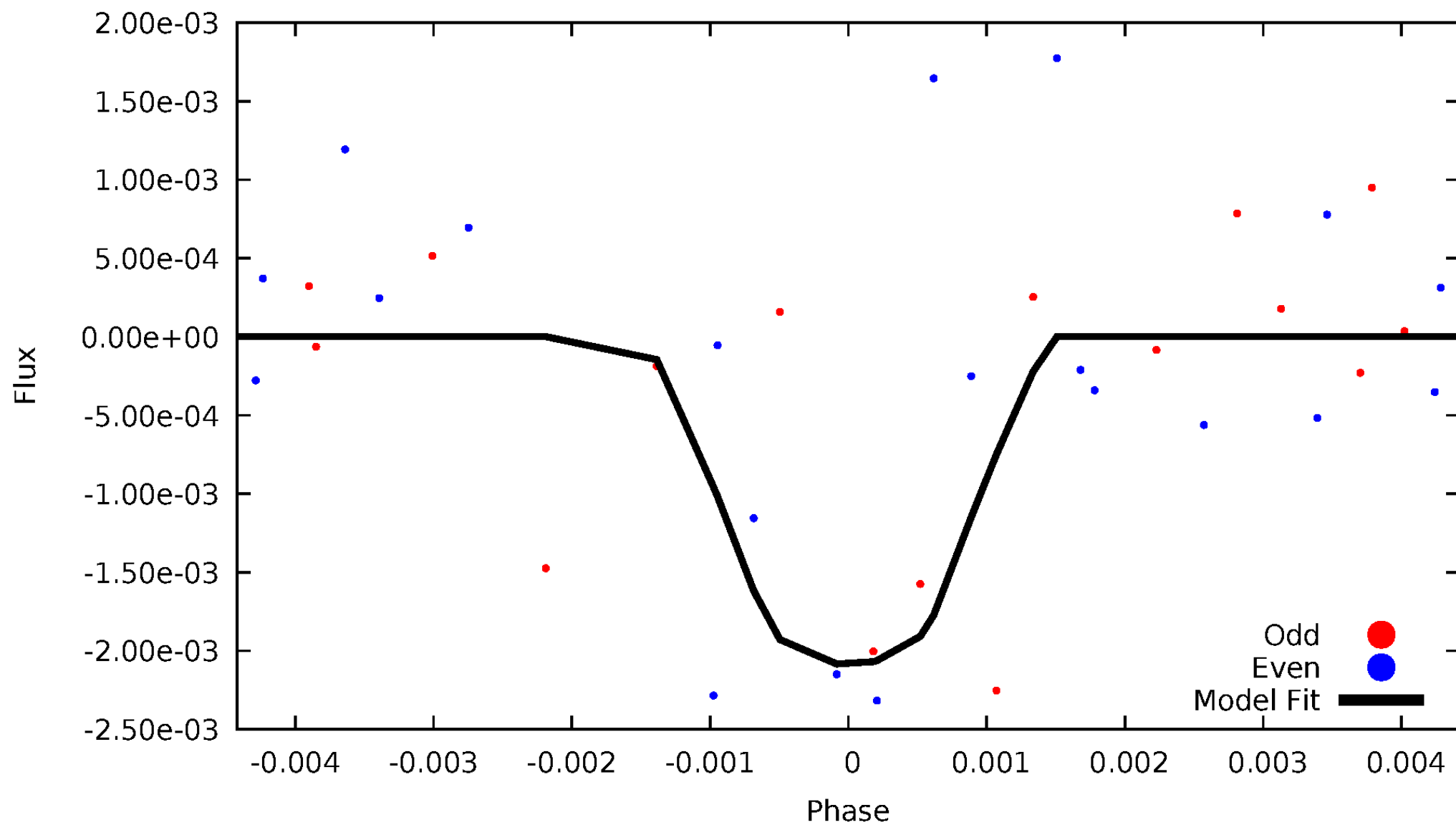


TCE 011620425-04



# DV Odd/Even

TCE 011620425-04





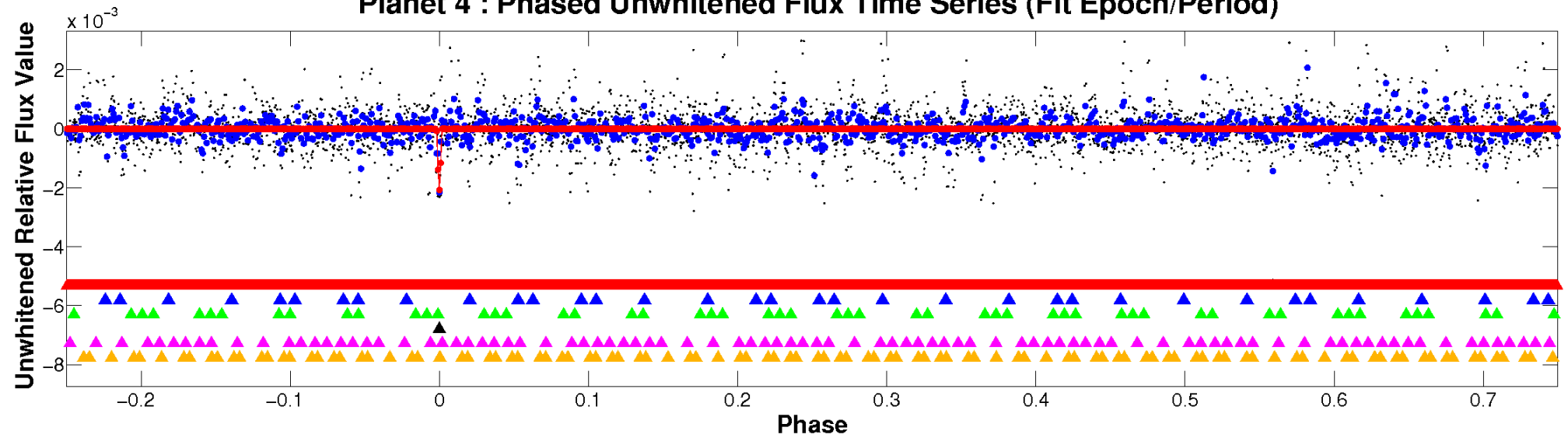


ALT Odd/Even

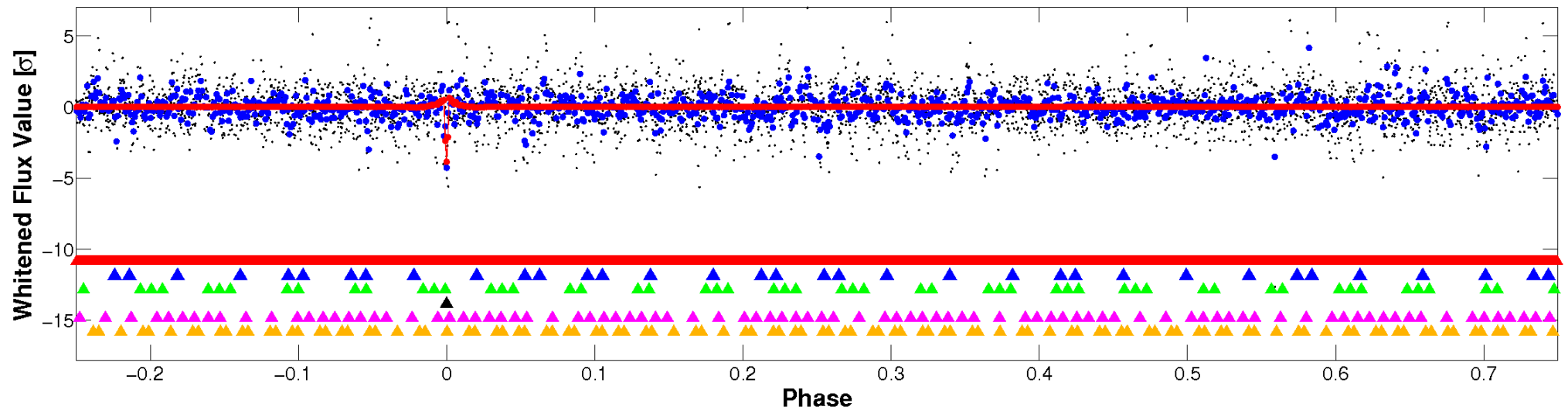
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

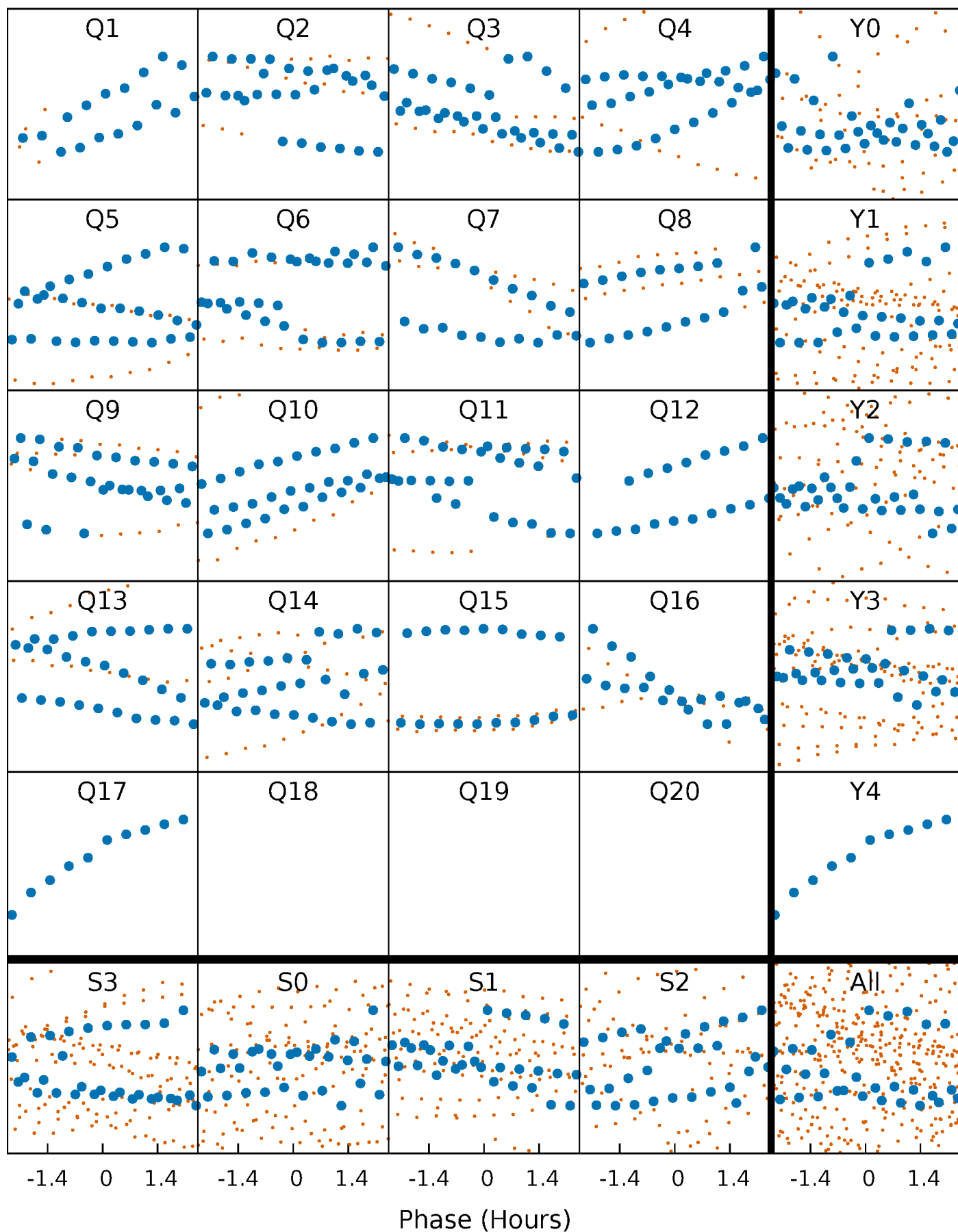


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



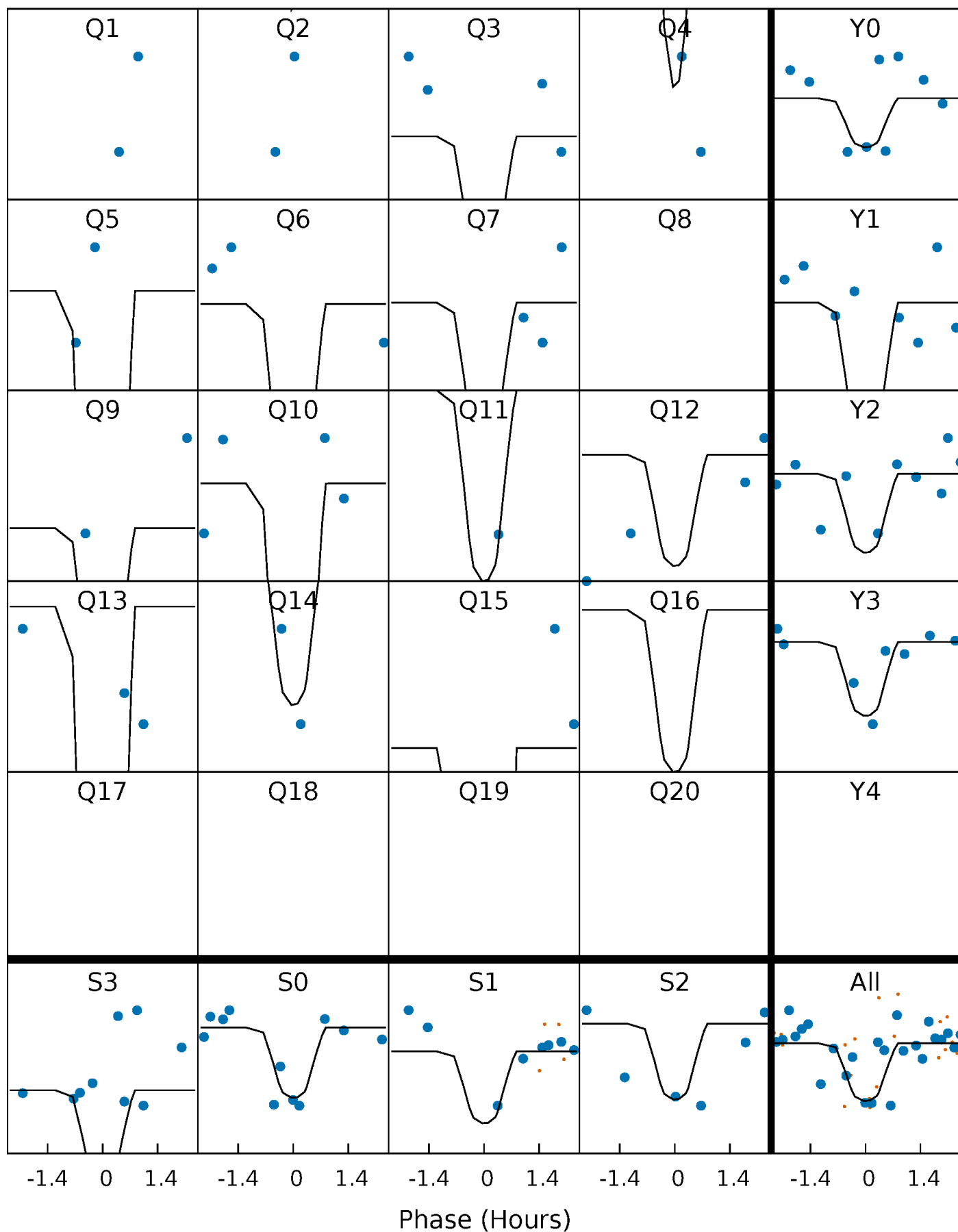
# PDC Quarter-Phased Transit Curves

TCE 011620425-04 P= 22.920823 Days  $T_0=133.295799$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 011620425-04 P= 22.920823 Days  $T_0=133.295799$  (BKJD)

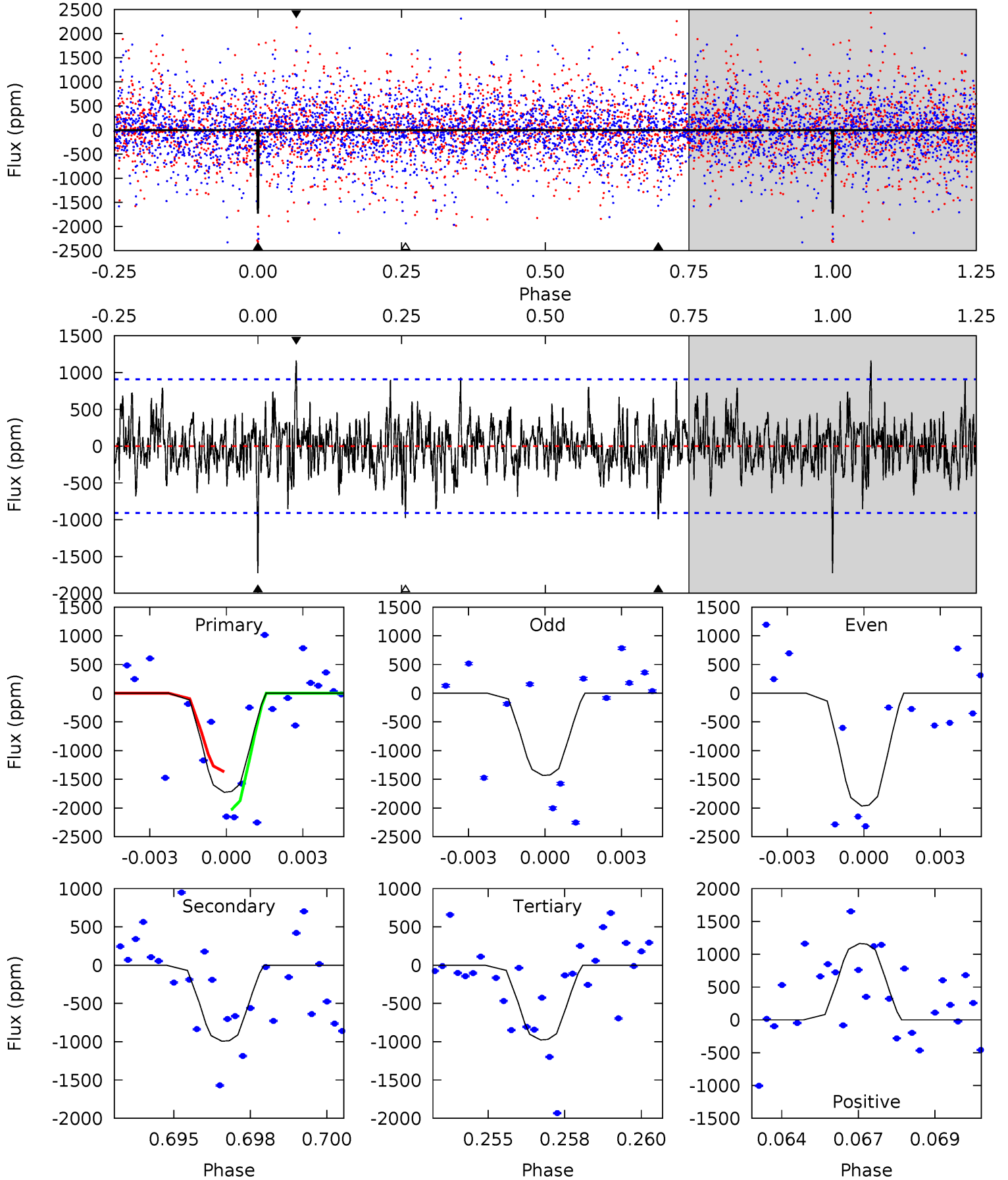


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

011620425-04, P = 22.920823 Days, E = 110.374976 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.00	5.75	5.66	6.73	5.26	2.98	1.57	4.34	3.26	0.10	-0.98	1.50	0.50	0.40	1.94



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.



### Stellar Parameters For KIC 011620425

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5474^{+197}_{-180}$	$4.576^{+0.038}_{-0.152}$	$-0.100^{+0.300}_{-0.300}$	$0.805^{+0.188}_{-0.063}$	$0.896^{+0.082}_{-0.101}$	$2.415^{+0.464}_{-0.985}$
	+4%/-3%	+1%/-3%	+300%/-300%	+23%/-8%	+9%/-11%	+19%/-41%
Source	KIC0	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 011620425-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-994 \pm 173$	$10.03^{+9.89}_{-6.86}$	$791^{+49}_{-38}$	$3415^{+1883}_{-604}$	$123^{+1091}_{-92}$
Alt.	N/A	N/A	N/A	N/A	N/A

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

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

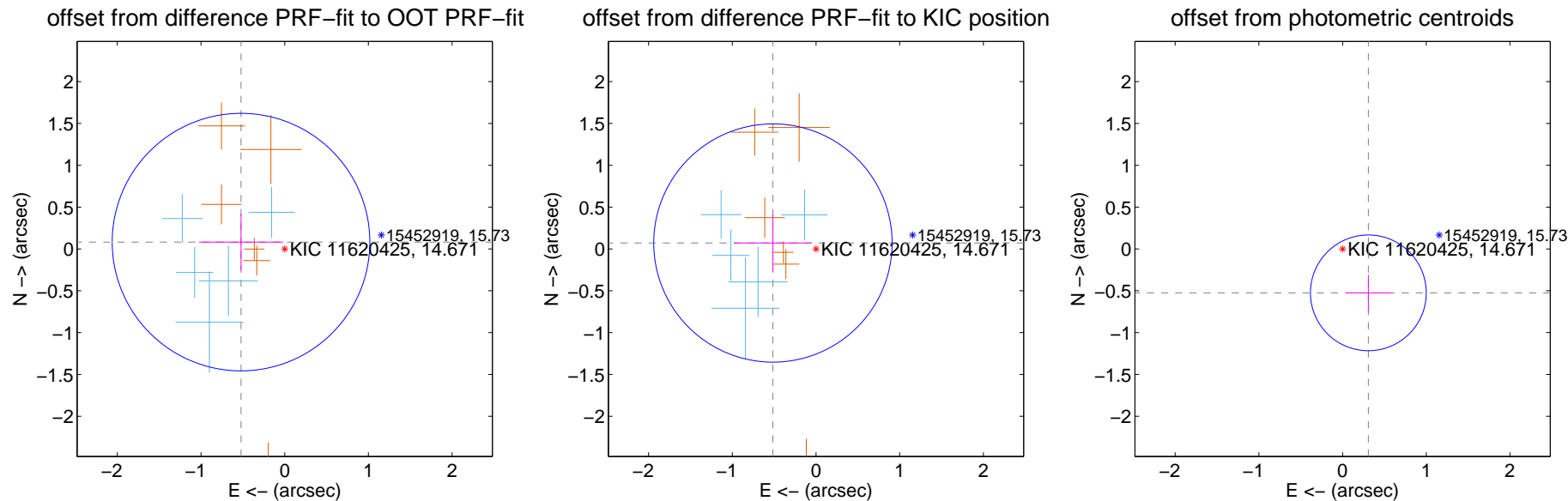
## DV Centroid Data

Supplemental centroid analysis for 011620425-04. Kepler magnitude: 14.67. Transit SNR 8.59

There are 5 quarters with good PRF difference image offsets

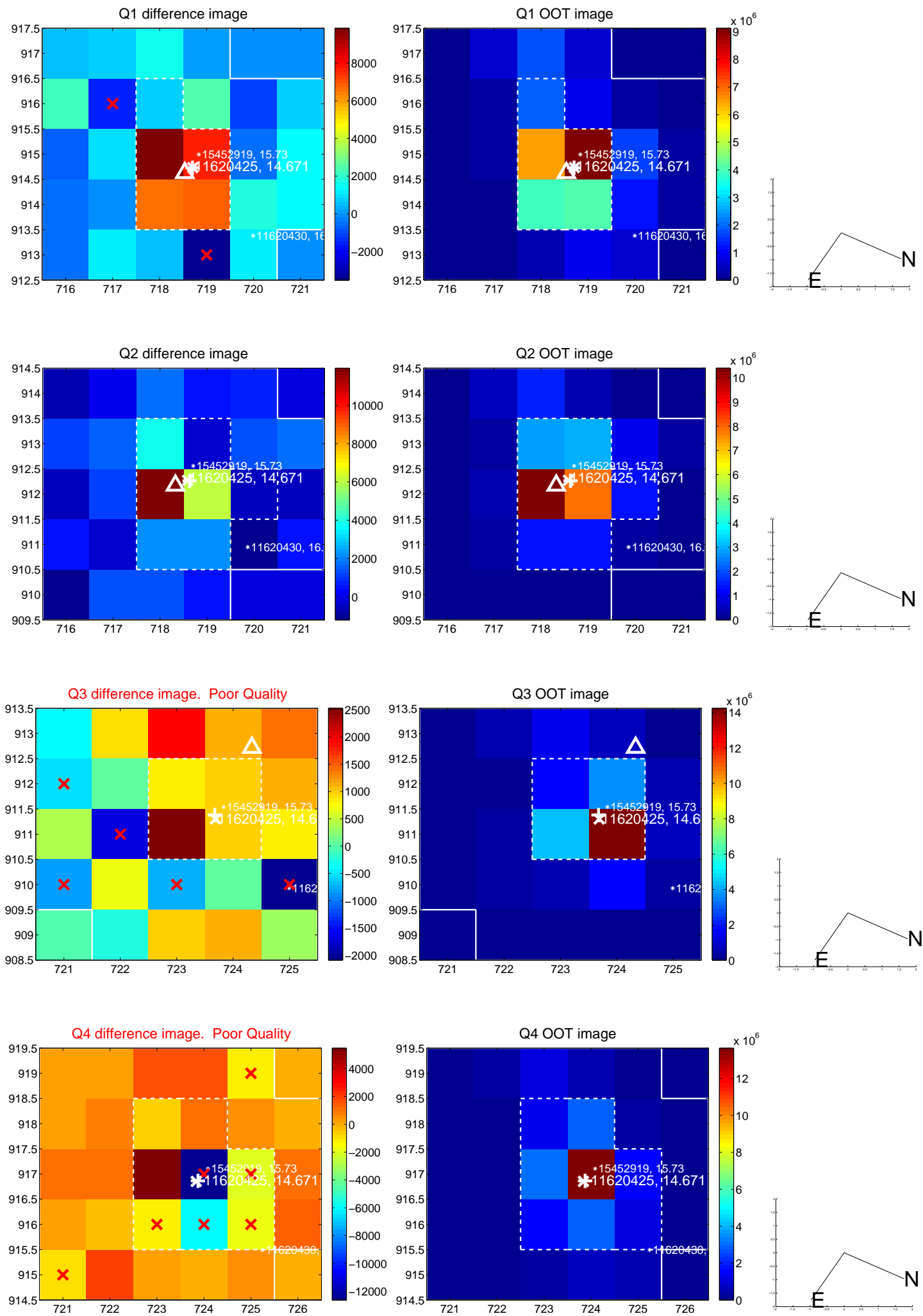
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.528 \pm 0.513$	1.03	$0.522 \pm 0.501$	$0.082 \pm 0.340$
PRF-fit source offset from KIC position	$0.520 \pm 0.475$	1.09	$0.515 \pm 0.465$	$0.071 \pm 0.342$
photometric centroid source offset	$0.61 \pm 0.23$	2.64	$-0.31 \pm 0.27$	$-0.52 \pm 0.22$

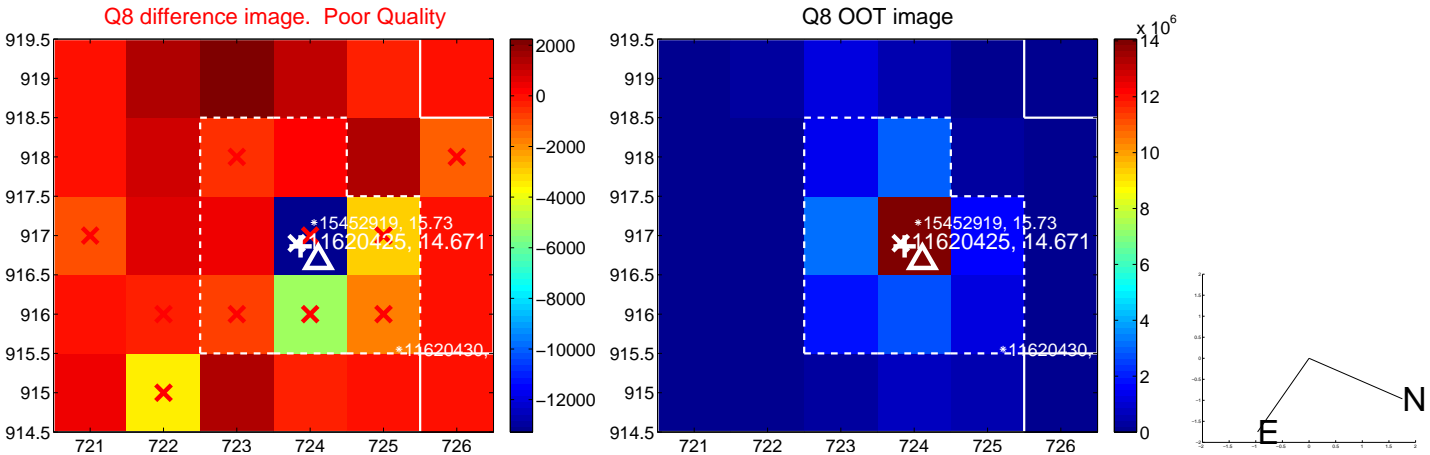
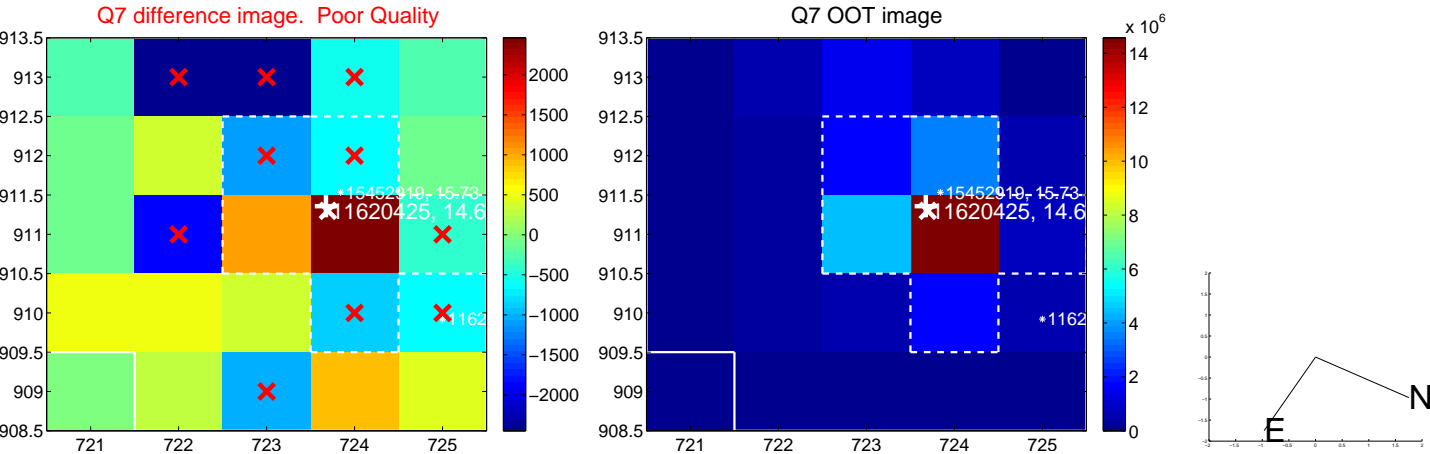
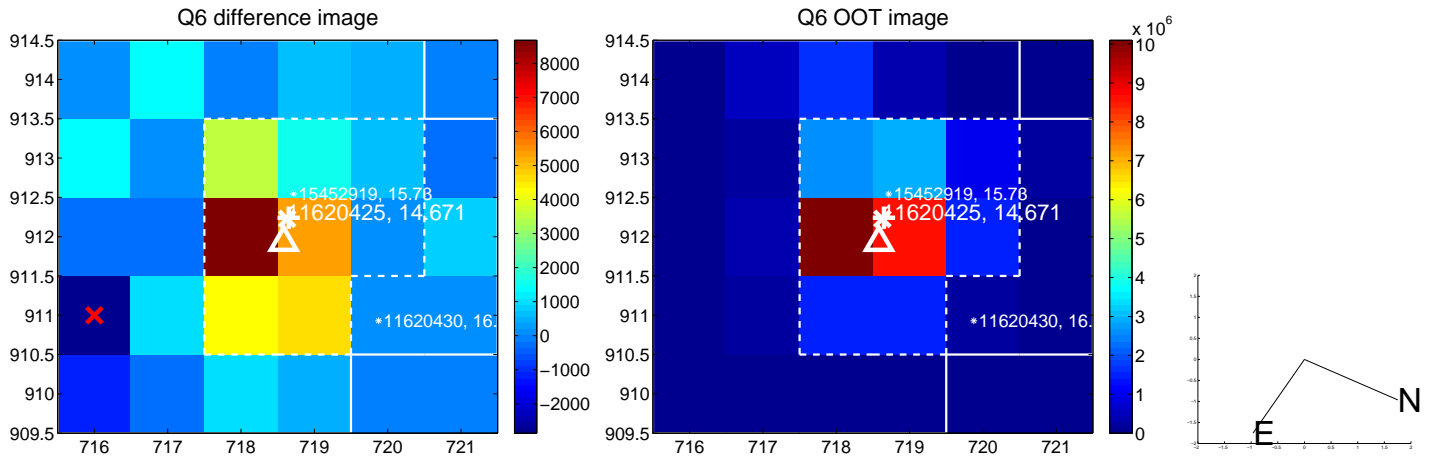
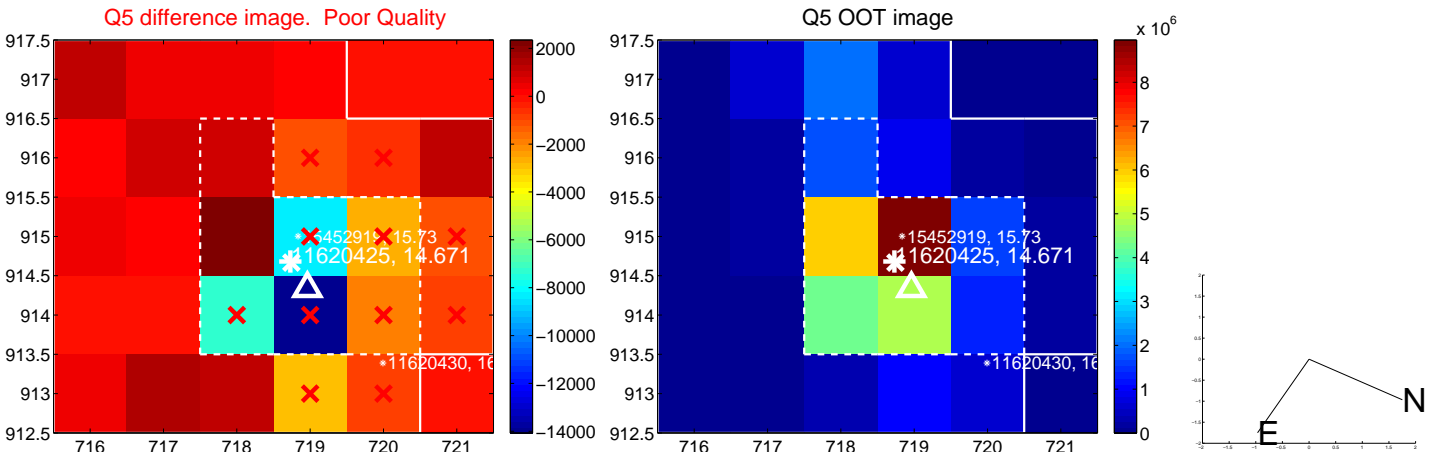


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

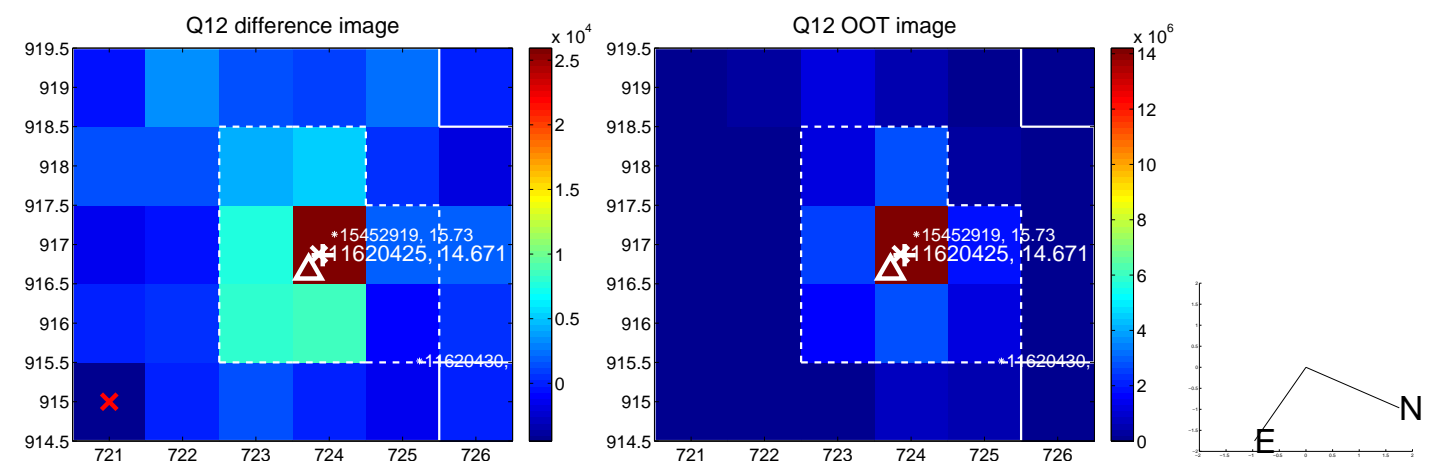
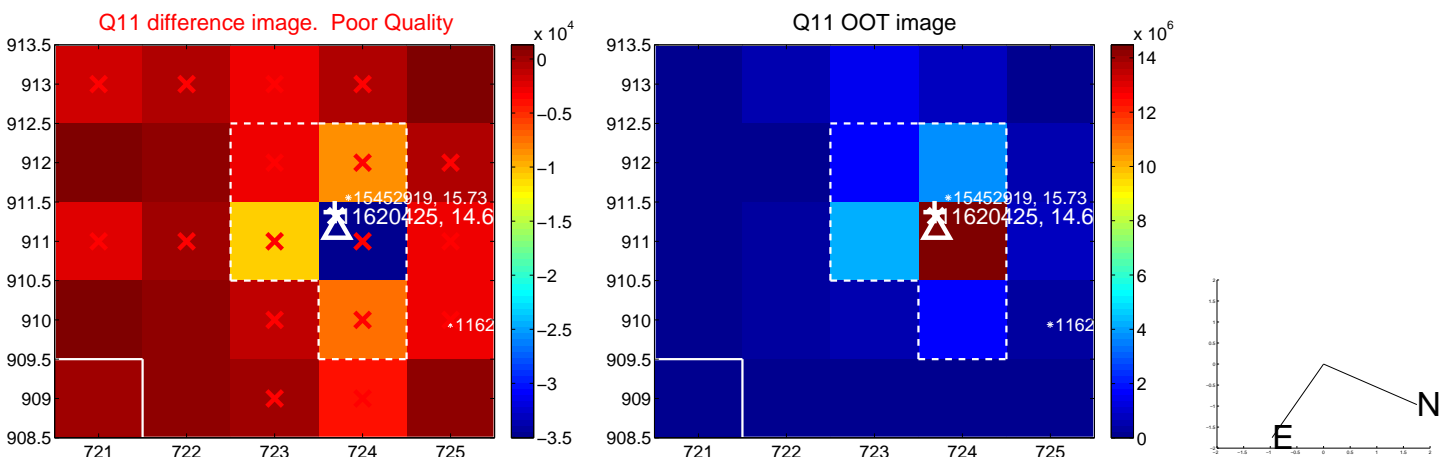
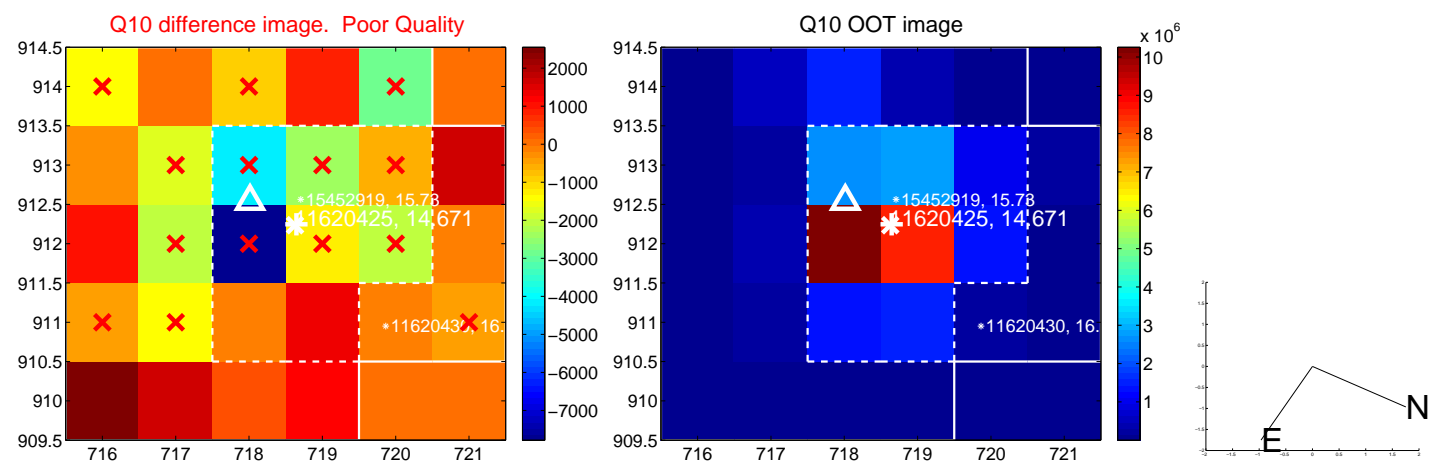
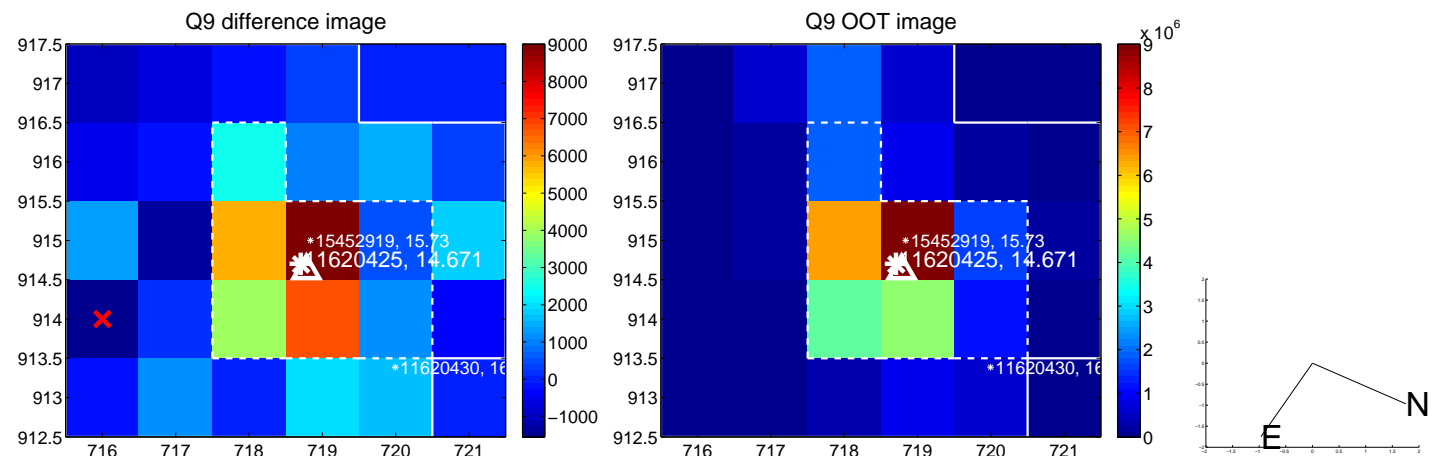
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



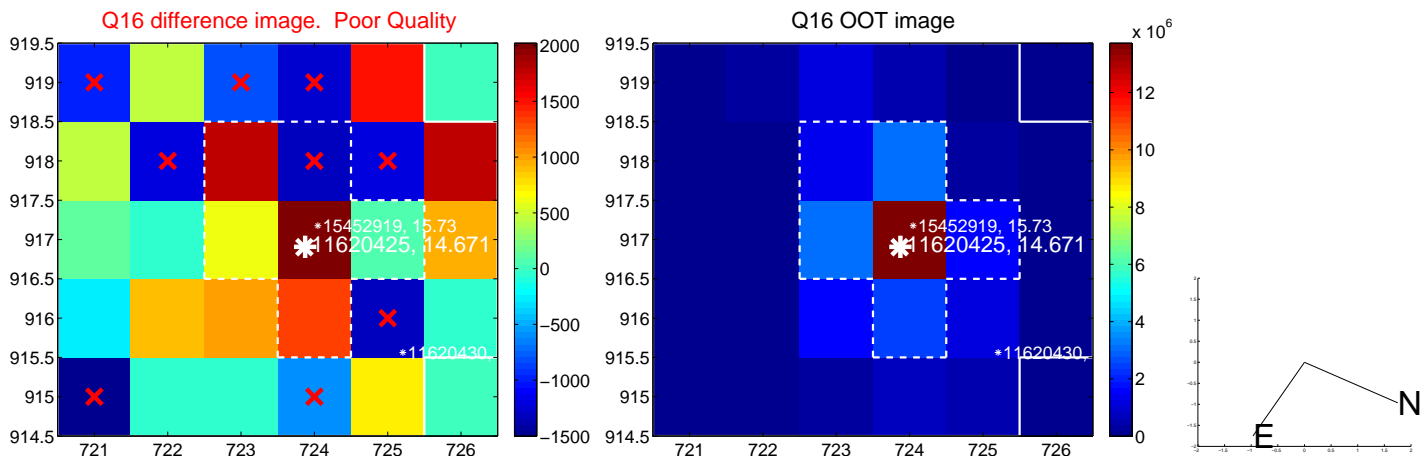
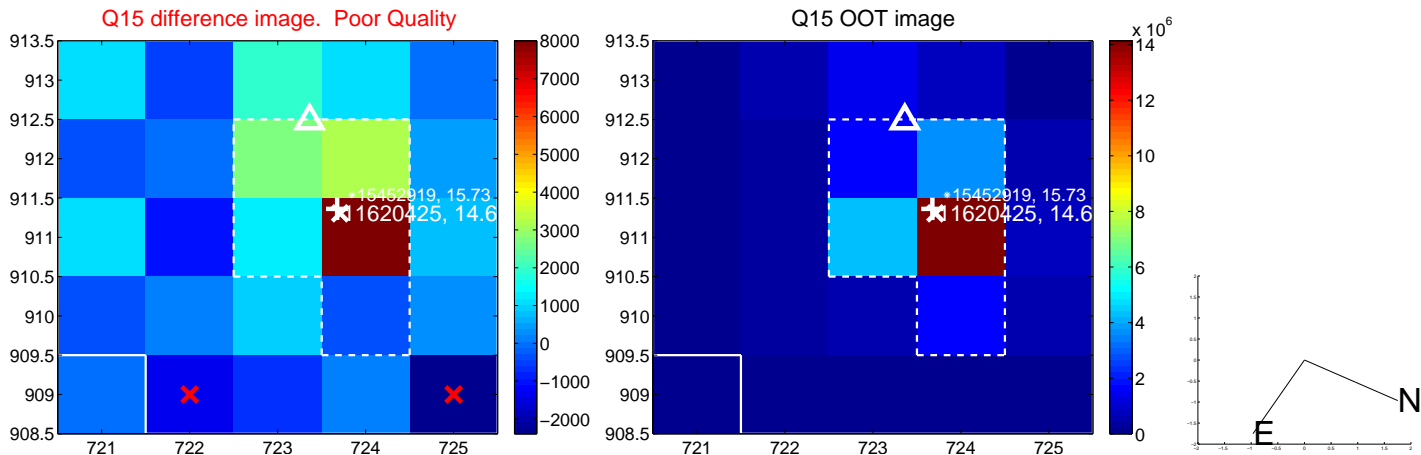
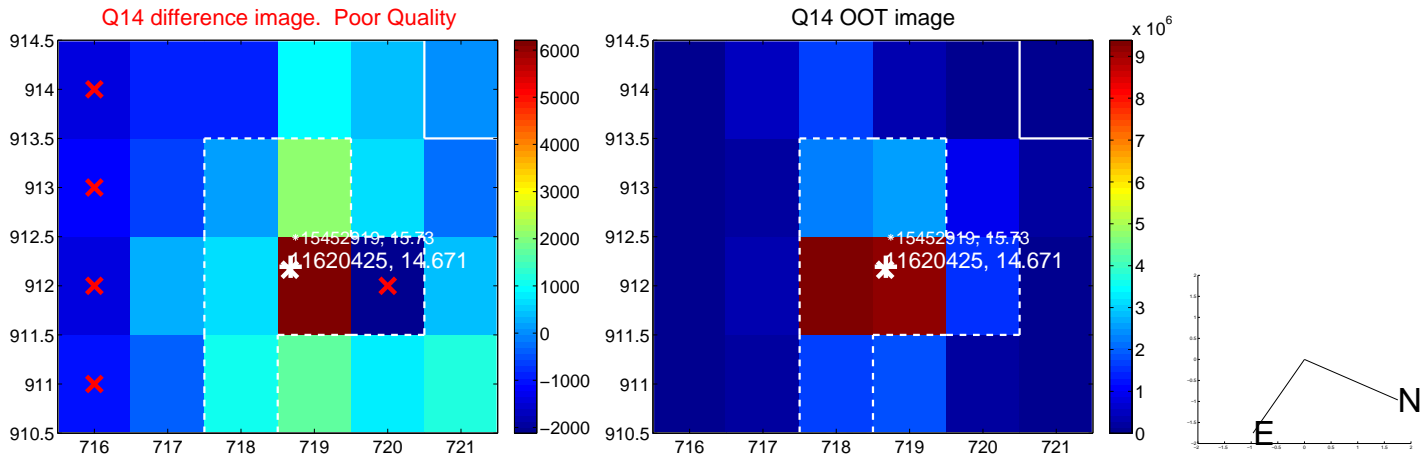
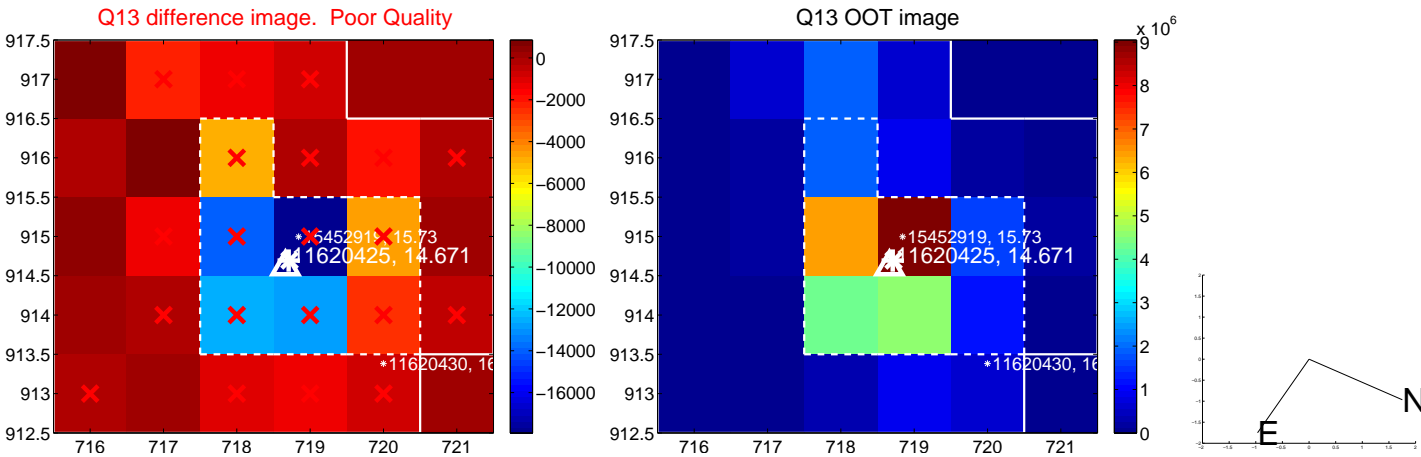
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



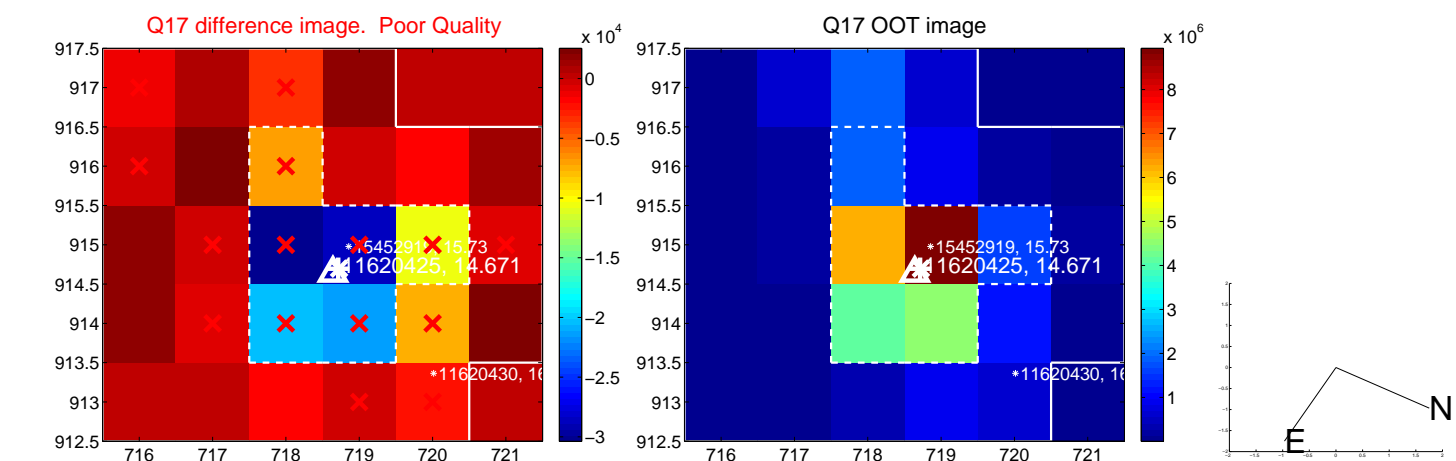
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



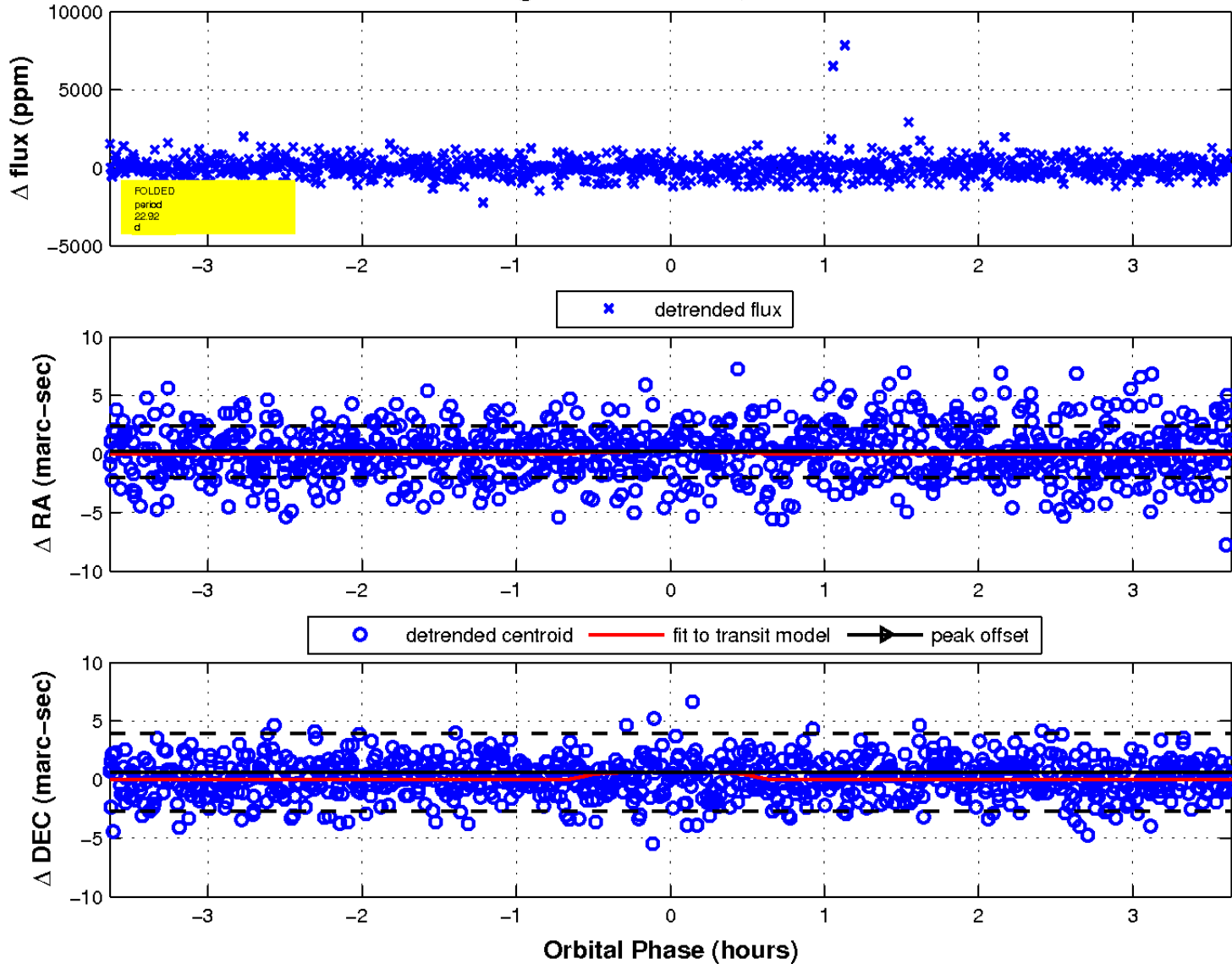
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



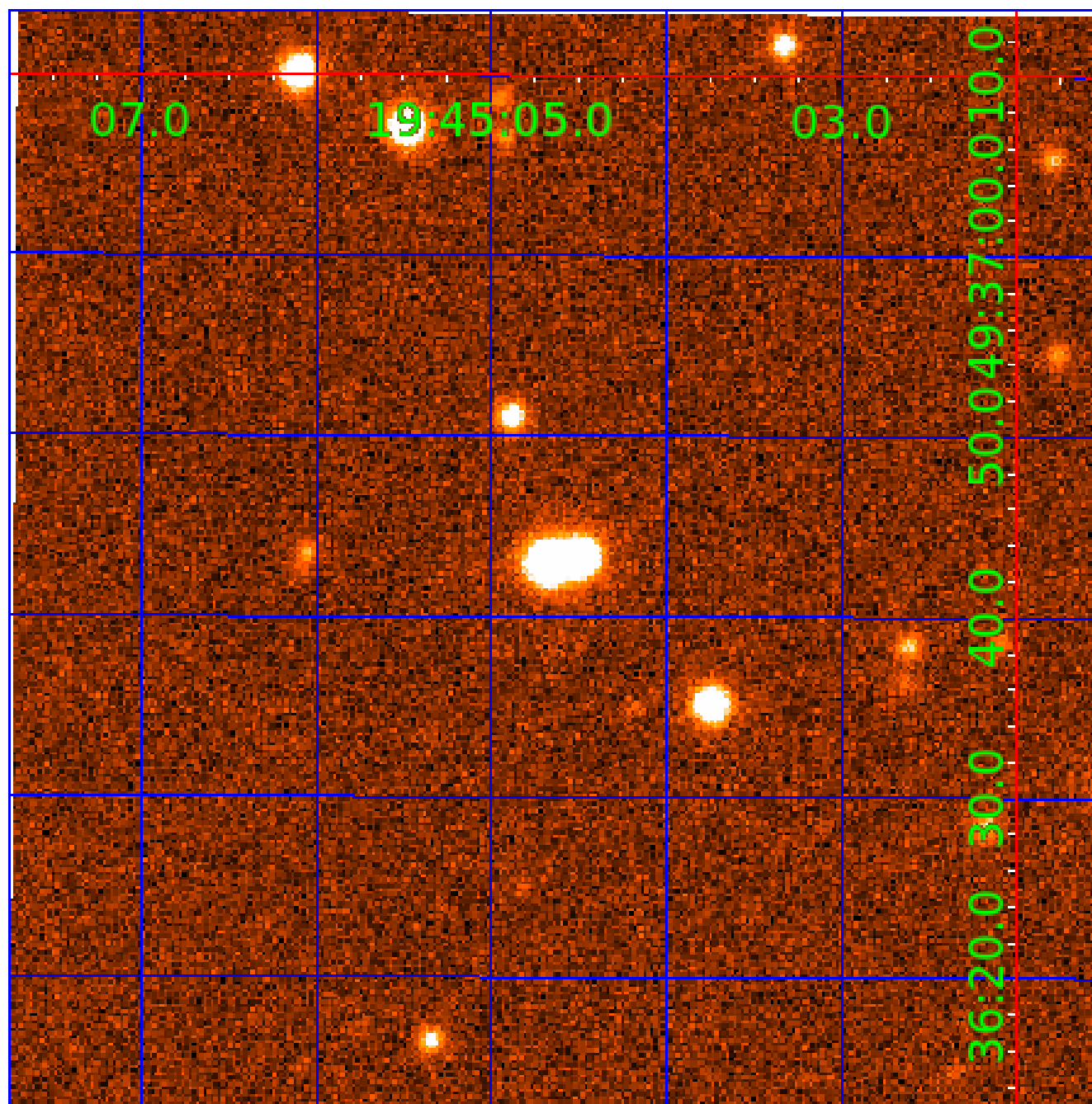
fluxWeightedCentroids, Planet 4 of 6





UKIRT Image

Declination



# KIC 011620425

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011620425-01	OBS	No	0.606842	131.809906	88.5	4.357	8.5	10.3	0.81	5474	0.75	2861.16
011620425-02	OBS	No	42.183410	138.165083	2000.9	2.719	13.8	10.8	0.81	5474	3.66	10.01
011620425-03	OBS	No	27.294829	139.408389	808.6	4.597	13.5	5.0	0.81	5474	2.98	17.89
011620425-04	OBS	No	22.920823	133.295799	2087.9	1.216	8.9	8.6	0.81	5474	3.79	22.58
011620425-05	OBS	No	16.004742	139.098496	1498.3	1.500	8.8	-1.0	0.81	5474	3.08	36.45
011620425-06	OBS	No	13.598571	141.000149	785.2	15.334	9.0	6.0	0.81	5474	2.25	45.29

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011620425-01	OBS	FP	0.00	1	0	0	0	<del>SWEET_NTL</del> — <del>LPP_DV</del>
011620425-02	OBS	FP	0.00	1	0	0	0	<del>INDIV_TRANS_RUBBLE</del> — <del>TRANS_GAPPED</del> — <del>LPP_DV</del>
011620425-03	OBS	FP	0.00	1	0	0	0	<del>INDIV_TRANS_RUBBLE</del> — <del>TRANS_GAPPED</del> — <del>LPP_DV</del> — <del>LPP_ALT</del> — <del>MOD_NONUNIQ_DV</del> — <del>MOD_POS_ALT</del>
011620425-04	OBS	FP	0.00	1	0	0	0	<del>INDIV_TRANS_RUBBLE</del> — <del>TRANS_GAPPED</del> — <del>LPP_DV</del>
011620425-05	OBS	FP	0.00	1	0	0	0	<del>INDIV_TRANS_RUBBLE</del> — <del>TRANS_GAPPED</del> — <del>LPP_DV</del> — <del>NO_FITS</del> — <del>CENT_NOFITS</del>
011620425-06	OBS	FP	0.00	1	0	0	0	<del>INDIV_TRANS_RUBBLE</del> — <del>TRANS_GAPPED</del> — <del>LPP_DV</del> — <del>LPP_ALT</del> — <del>MOD_NONUNIQ_DV</del> — <del>MOD_NONUNIQ_ALT</del> — <del>MOD_TER_ALT</del> — <del>MOD_POS_ALT</del>

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

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

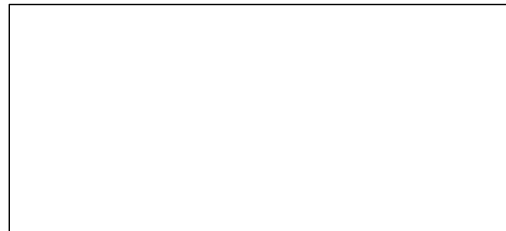
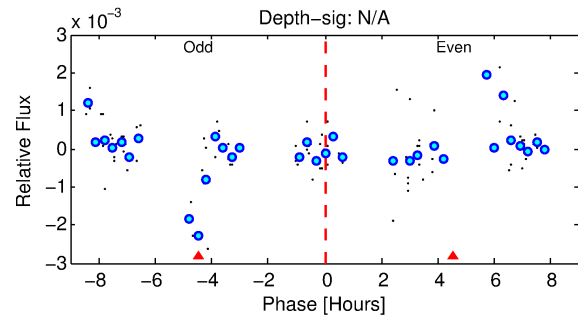
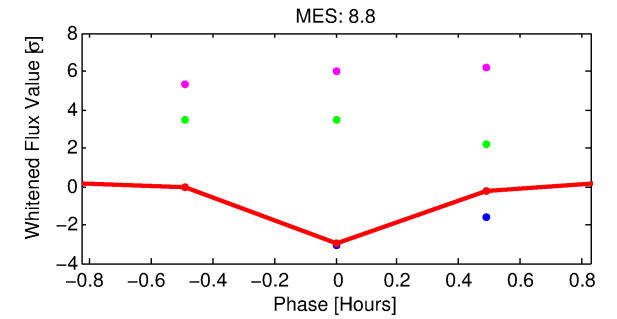
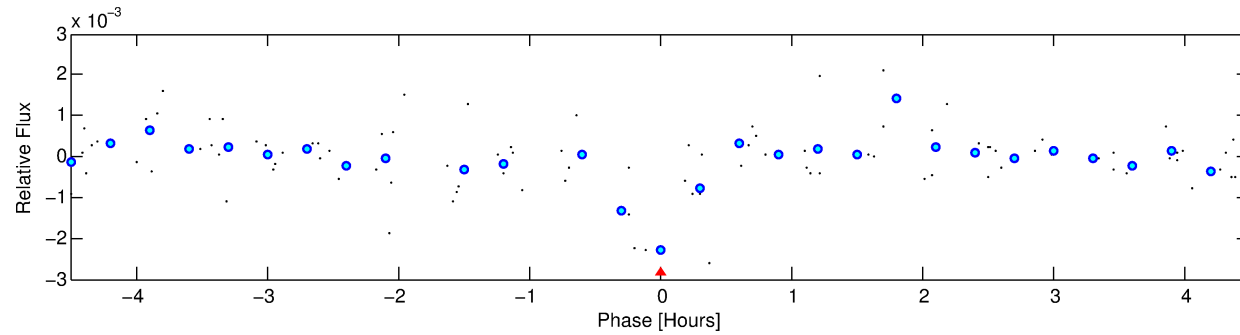
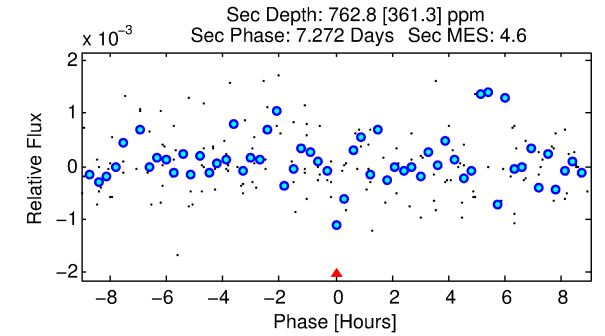
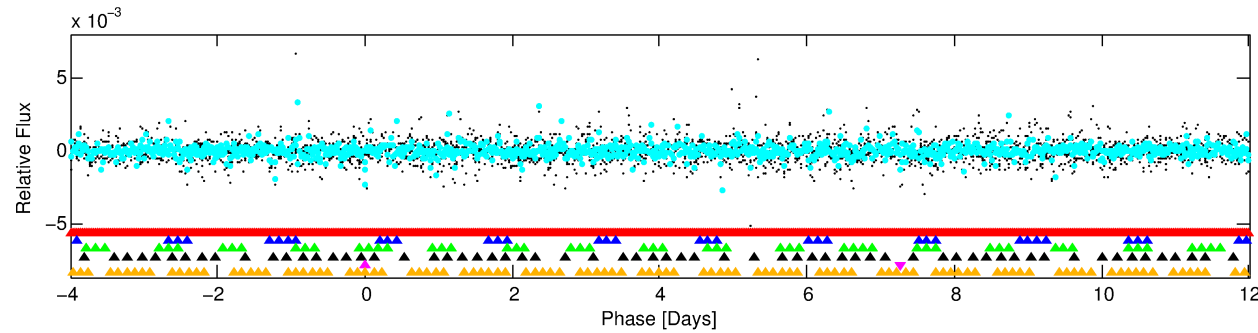
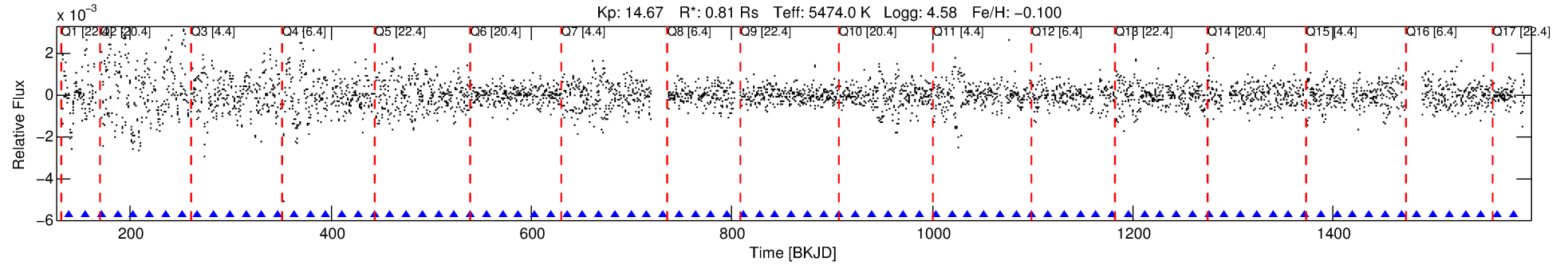
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011620425-05

No Significant Match Found

# DV One-Page Summary

KIC: 11620425 Candidate: 5 of 6 Period: 16.005 d



## TPS TCE Results:

Period = 16.00474 d  
Epoch = 139.0985 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

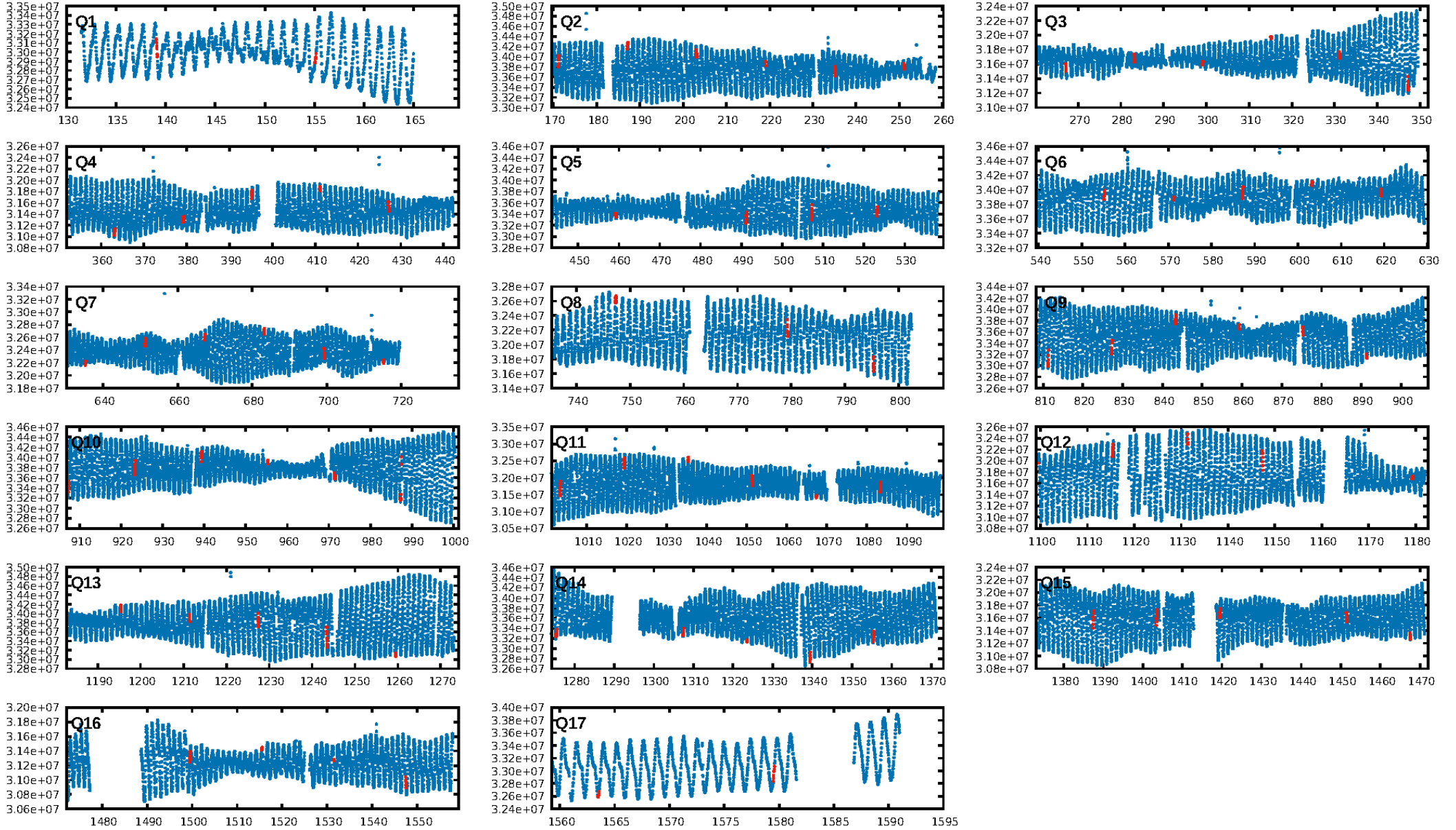
ShortPeriod-sig: 100.0% [3.75σ]  
LongPeriod-sig: 100.0% [85.97σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: N/A  
GhostDiagnostic-chr: N/A

Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: N/A

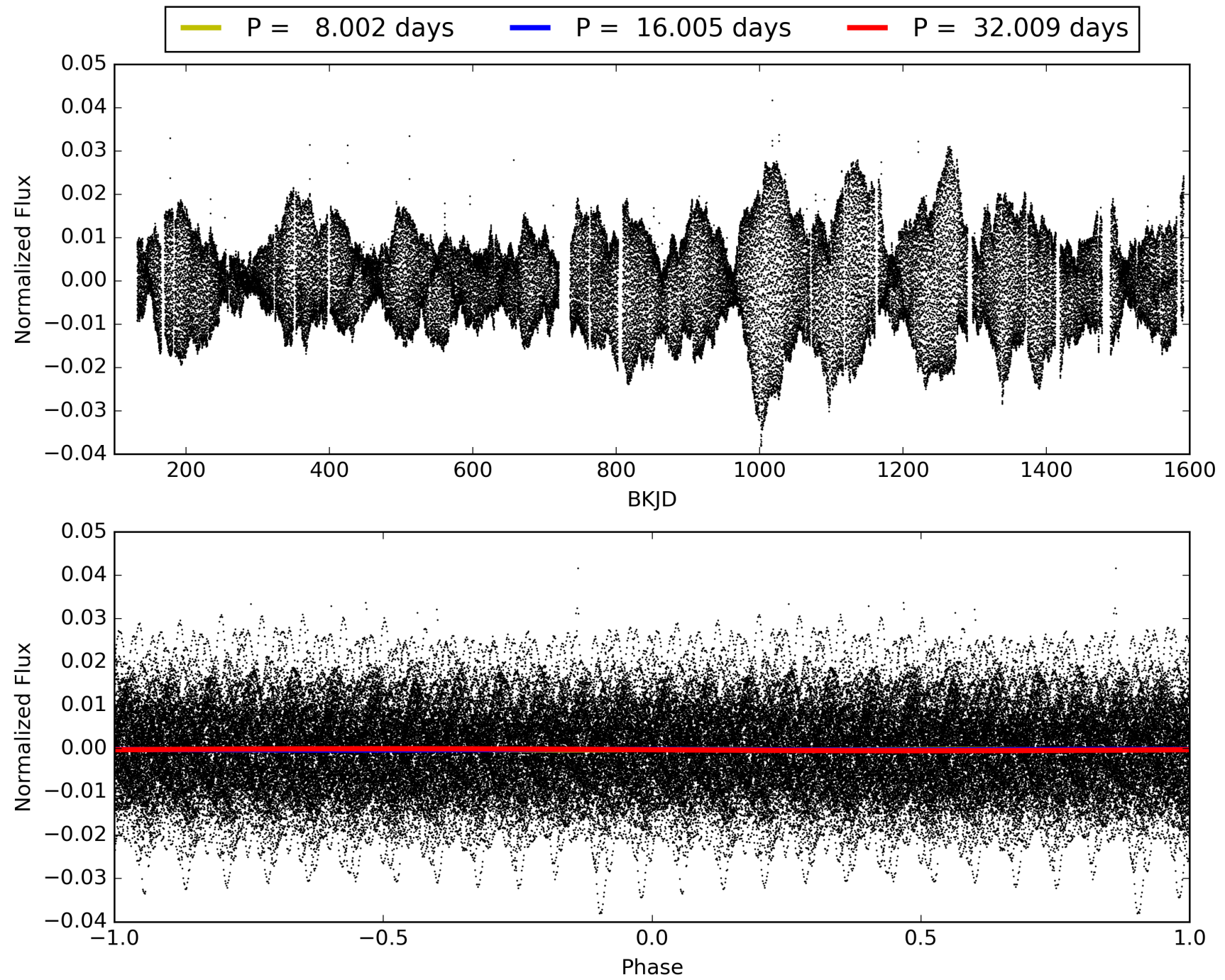
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:21:51 Z

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

# TCE 011620425-05, PDC Light Curves

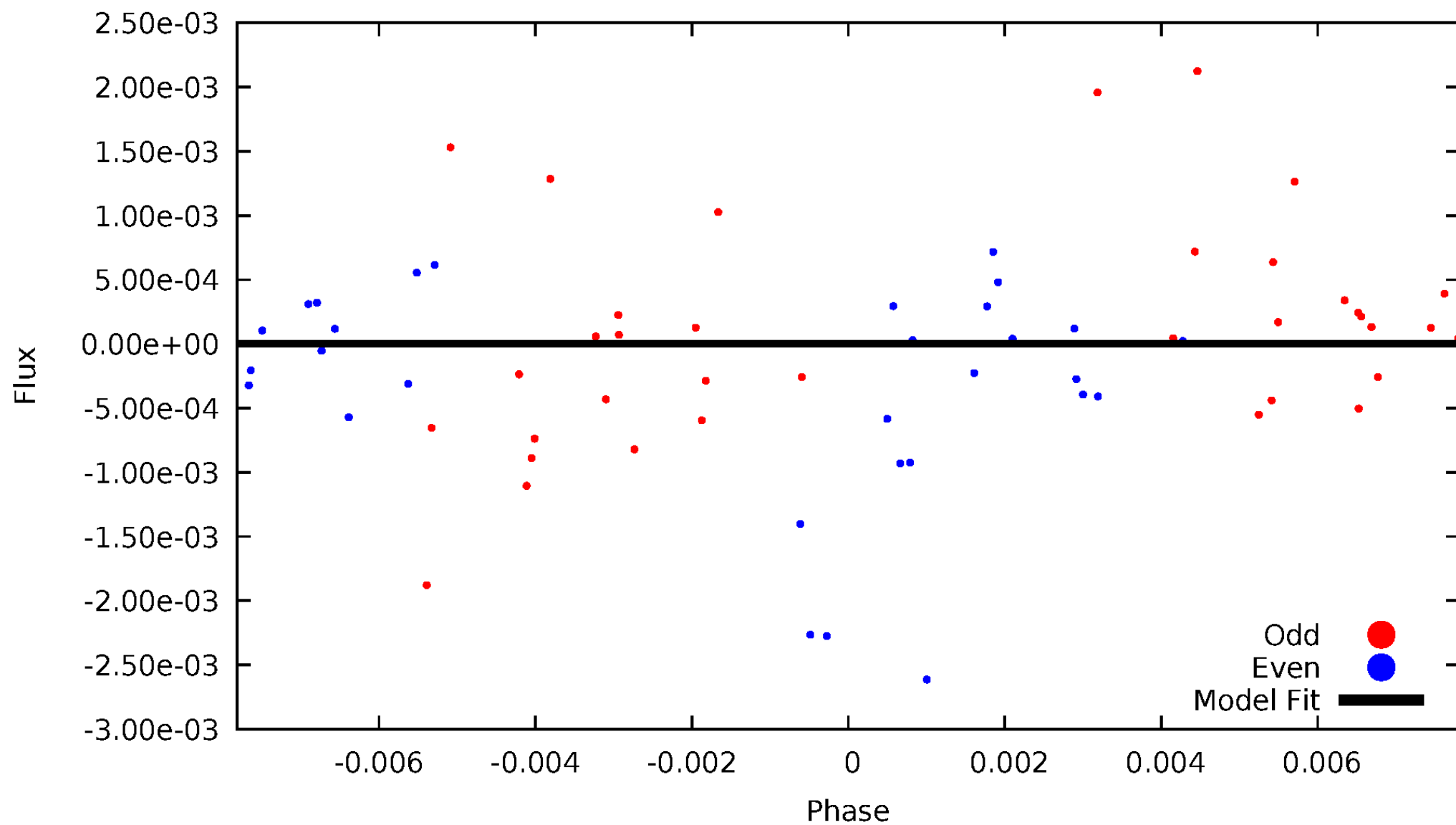


TCE 011620425-05



# DV Odd/Even

TCE 011620425-05





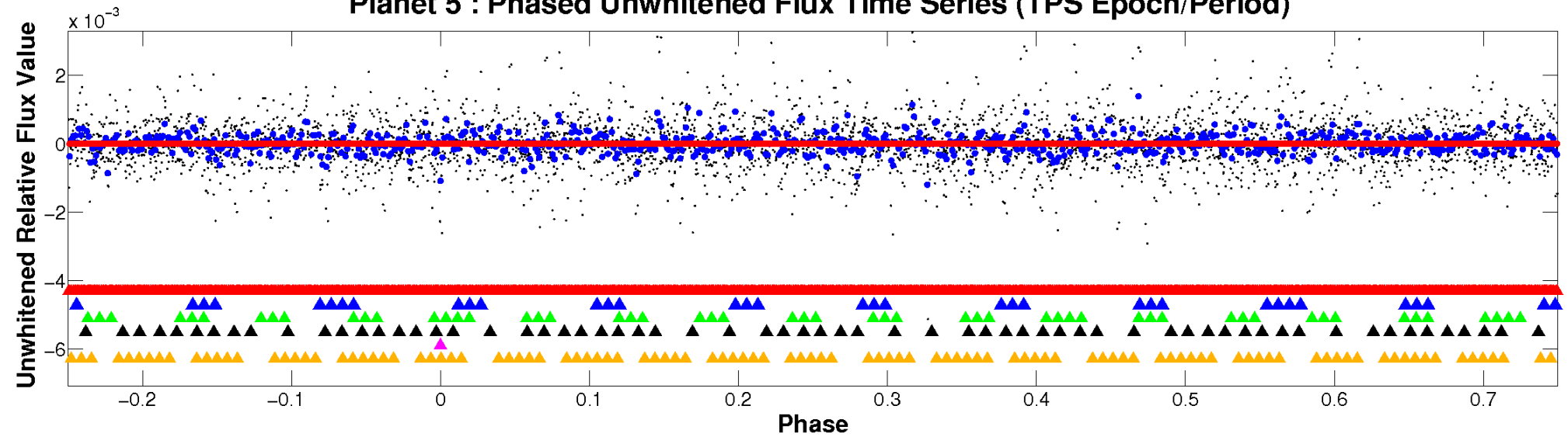


ALT Odd/Even

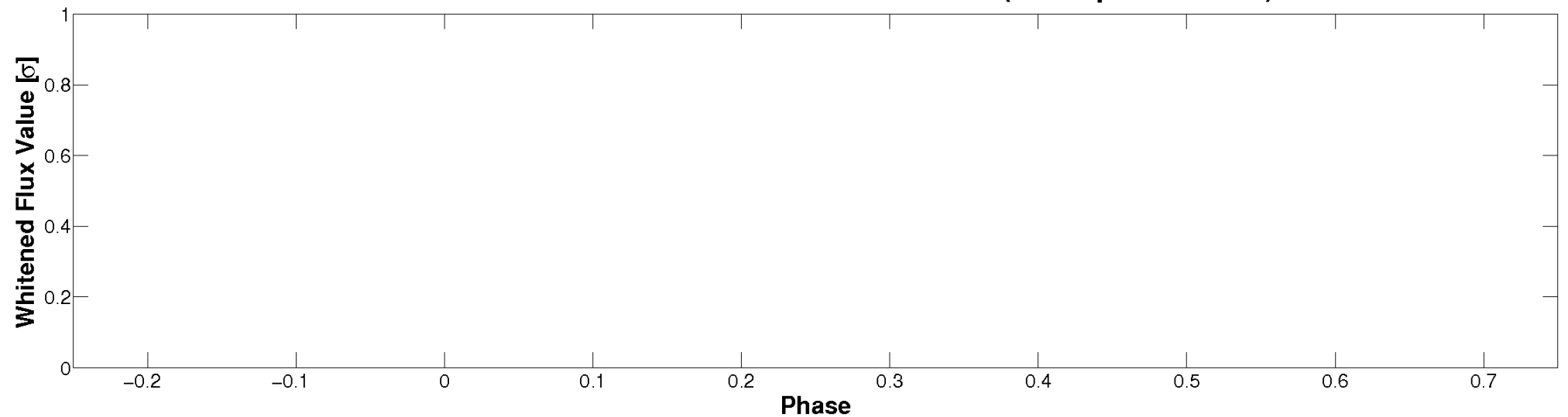
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

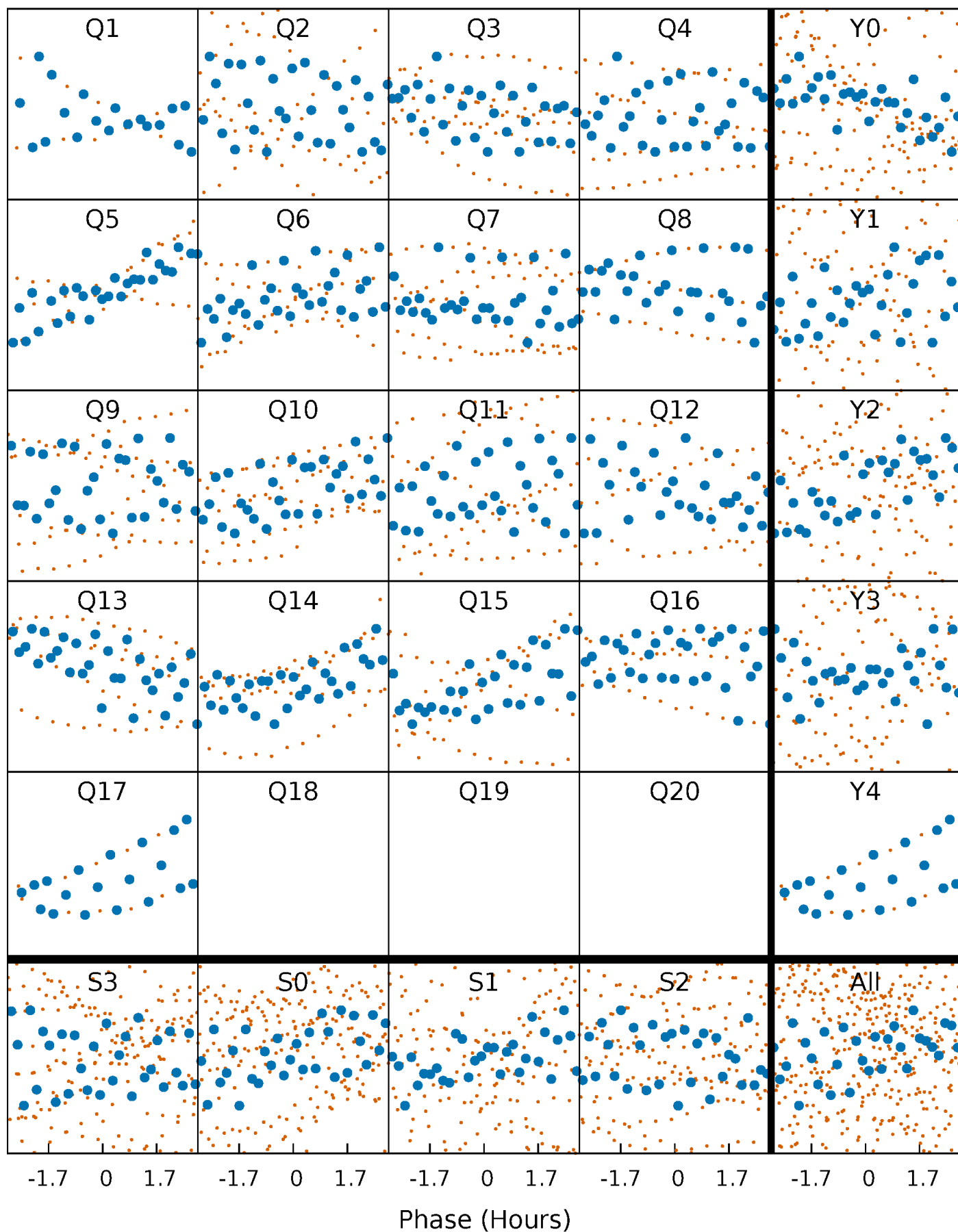


Planet 5 : Phased Whitened Flux Time Series (TPS Epoch/Period)



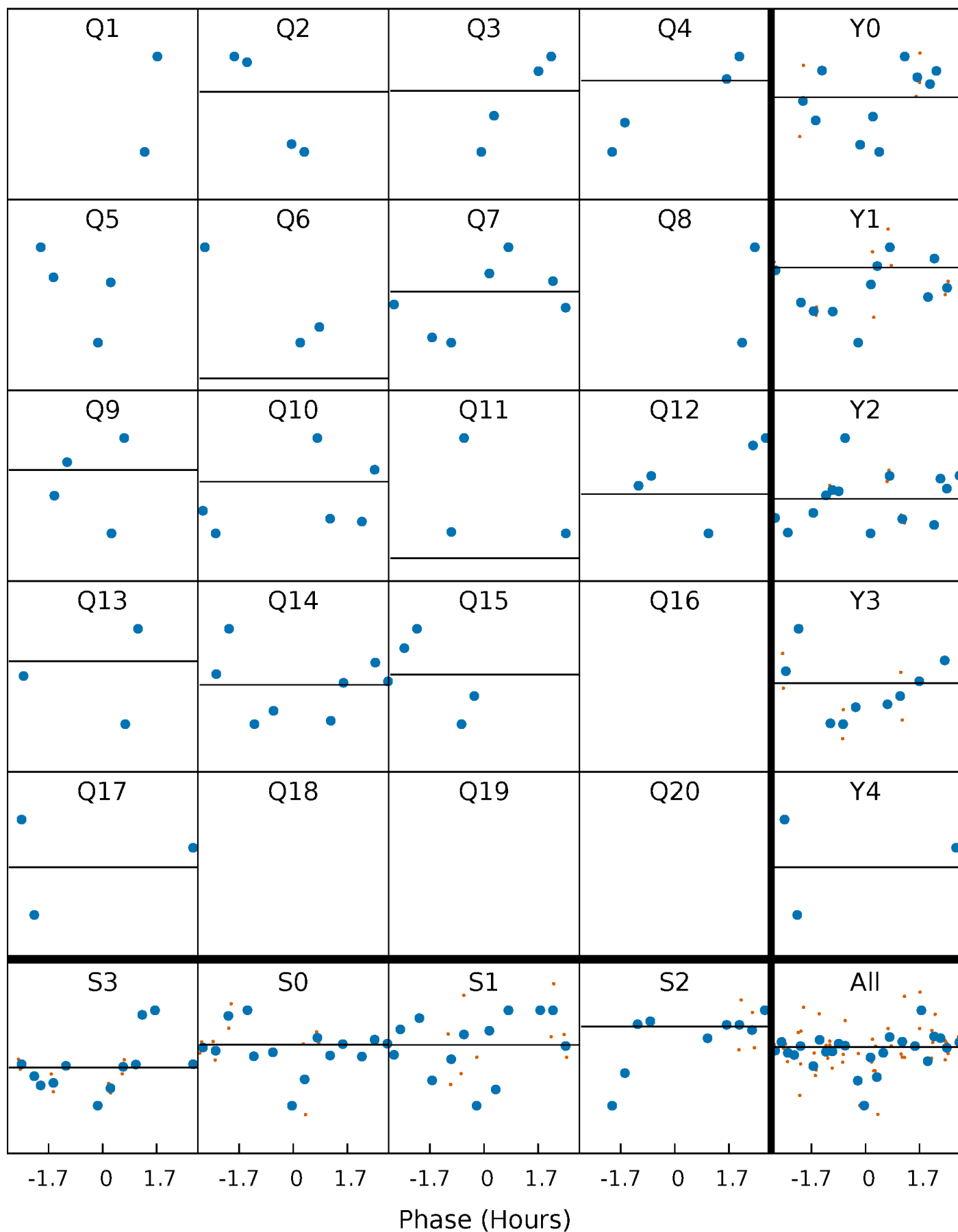
# PDC Quarter-Phased Transit Curves

TCE 011620425-05   P= 16.004742 Days    $T_0=139.098496$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 011620425-05   P= 16.004742 Days    $T_0=139.098496$  (BKJD)

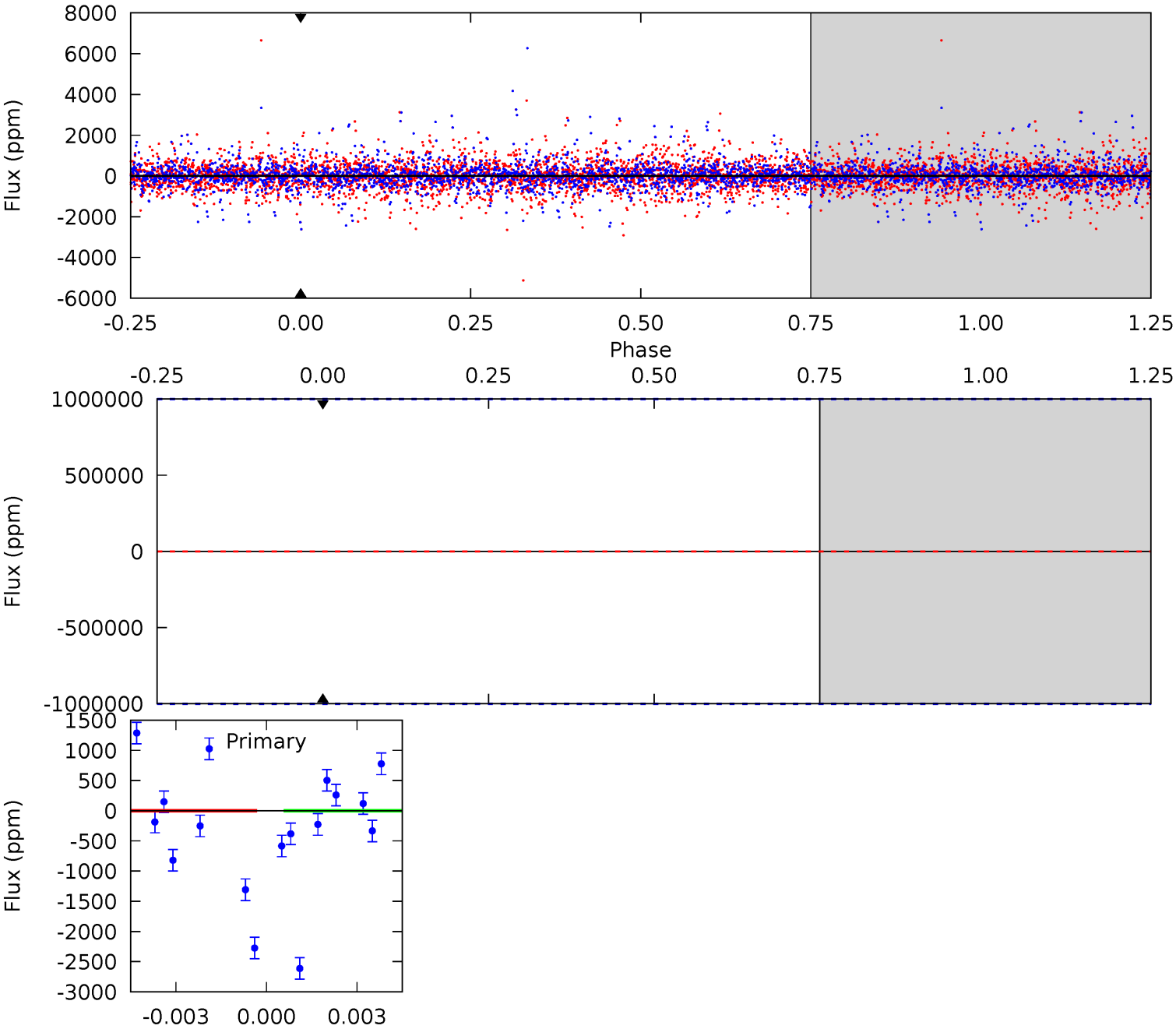


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

011620425-05, P = 16.004742 Days, E = 123.093754 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.



### Stellar Parameters For KIC 011620425

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5474^{+197}_{-180}$	$4.576^{+0.038}_{-0.152}$	$-0.100^{+0.300}_{-0.300}$	$0.805^{+0.188}_{-0.063}$	$0.896^{+0.082}_{-0.101}$	$2.415^{+0.464}_{-0.985}$
	+4%/-3%	+1%/-3%	+300%/-300%	+23%/-8%	+9%/-11%	+19%/-41%
Source	KIC0	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 011620425-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$7.16^{+7.46}_{-4.99}$	$893^{+48}_{-38}$	$3964^{+13194}_{-21231}$	$213^{+26668}_{-24356}$
Alt.	N/A	N/A	N/A	N/A	N/A

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

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

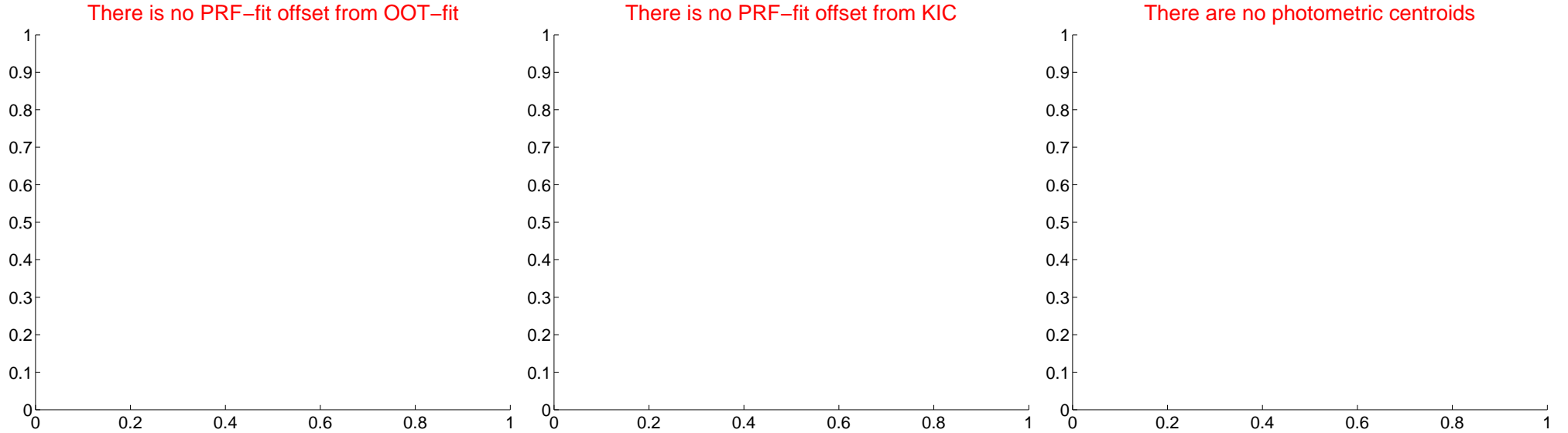
## DV Centroid Data

Supplemental centroid analysis for 011620425-05. Kepler magnitude: 14.67. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
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- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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.



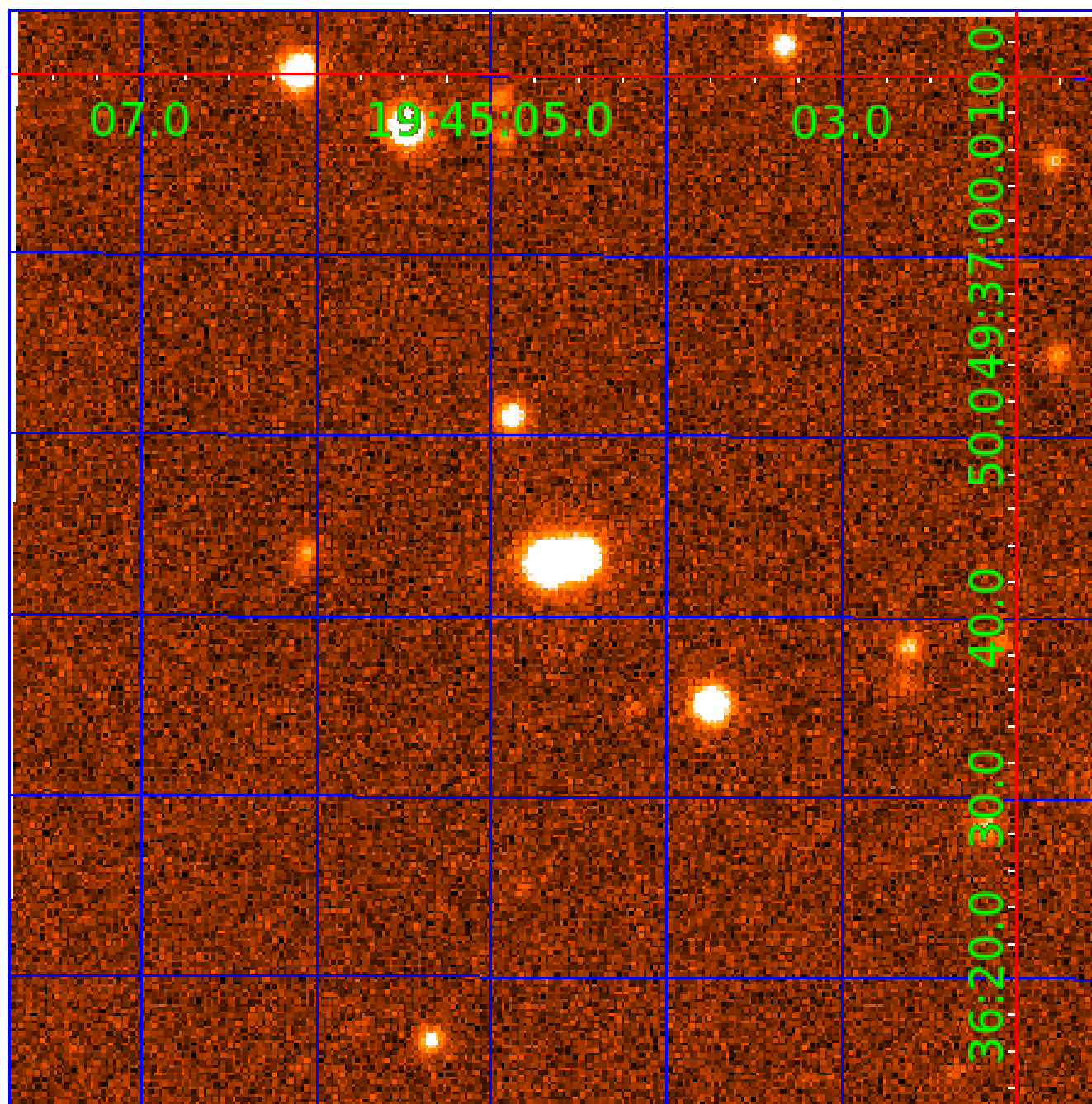
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination





# KIC 011620425

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011620425-01	OBS	No	0.606842	131.809906	88.5	4.357	8.5	10.3	0.81	5474	0.75	2861.16
011620425-02	OBS	No	42.183410	138.165083	2000.9	2.719	13.8	10.8	0.81	5474	3.66	10.01
011620425-03	OBS	No	27.294829	139.408389	808.6	4.597	13.5	5.0	0.81	5474	2.98	17.89
011620425-04	OBS	No	22.920823	133.295799	2087.9	1.216	8.9	8.6	0.81	5474	3.79	22.58
011620425-05	OBS	No	16.004742	139.098496	1498.3	1.500	8.8	-1.0	0.81	5474	3.08	36.45
011620425-06	OBS	No	13.598571	141.000149	785.2	15.334	9.0	6.0	0.81	5474	2.25	45.29

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011620425-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
011620425-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV
011620425-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_ALT
011620425-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV
011620425-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_NOFITS
011620425-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—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.

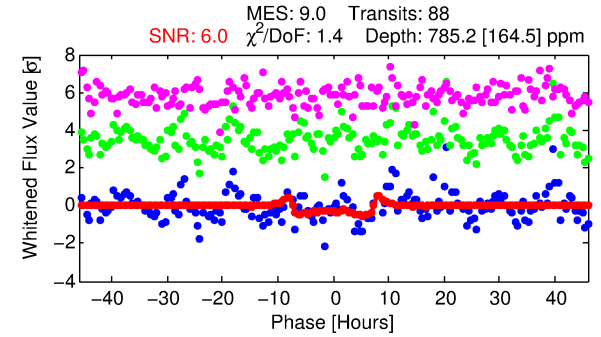
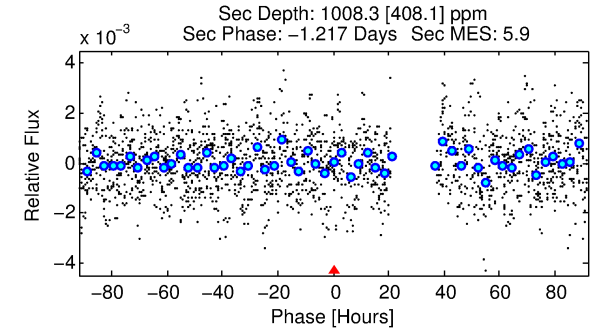
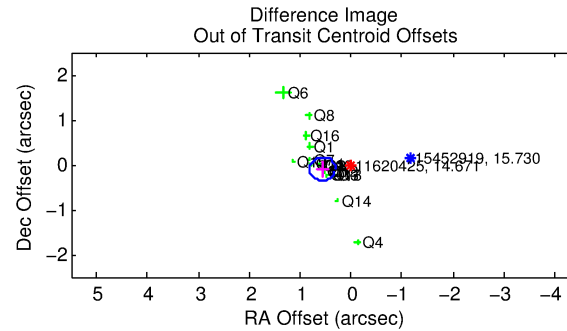
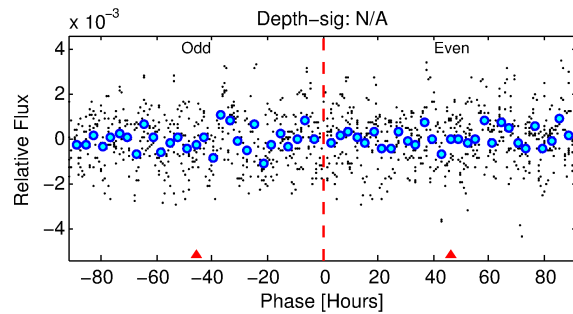
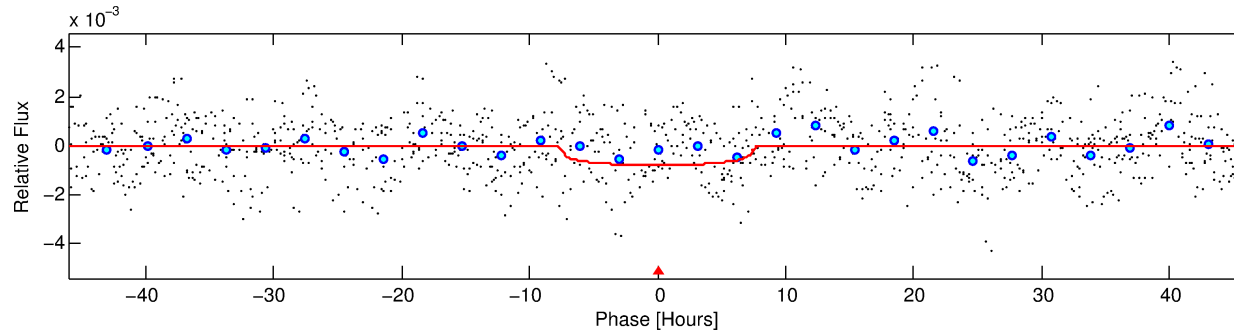
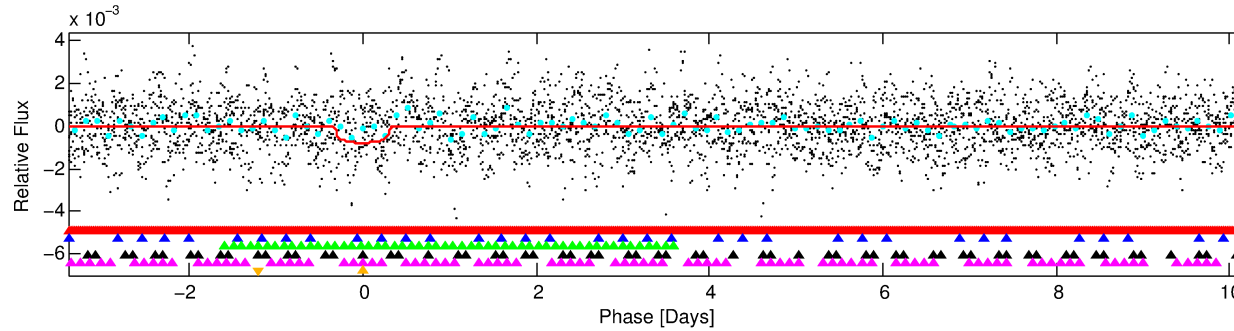
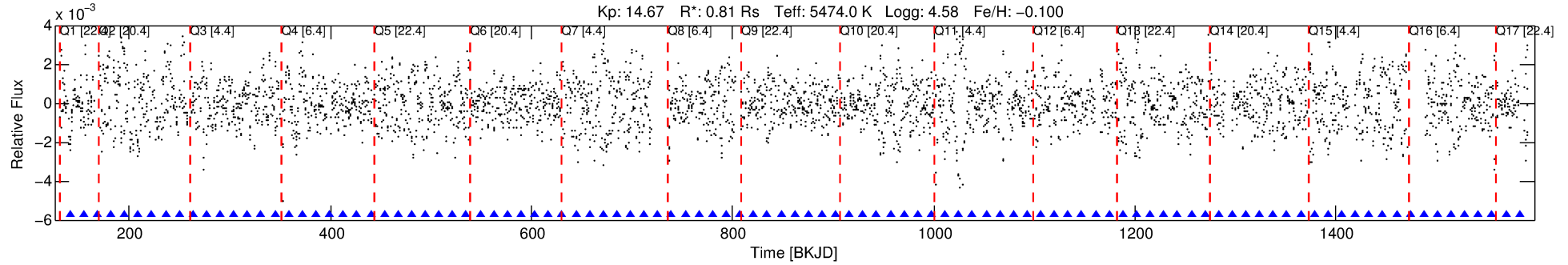
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011620425-06

No Significant Match Found

# DV One-Page Summary

KIC: 11620425 Candidate: 6 of 6 Period: 13.599 d



## DV Fit Results:

Period = 13.59857 [0.00030] d  
Epoch = 141.0001 [0.0171] BKJD  
Rp/R\* = 0.0256 [0.0163]  
a/R\* = 6.60 [16.18]  
b = 0.33 [6.73]  
Seff = 45.29 [14.28]  
Teq = 661 [52] K  
Rp = 2.25 [1.52] Re  
a = 0.1073 [0.0209] AU  
Ag = 1264.27 [1723.76] [0.73σ]  
Teffp = 6098 [2046] K [2.66σ]

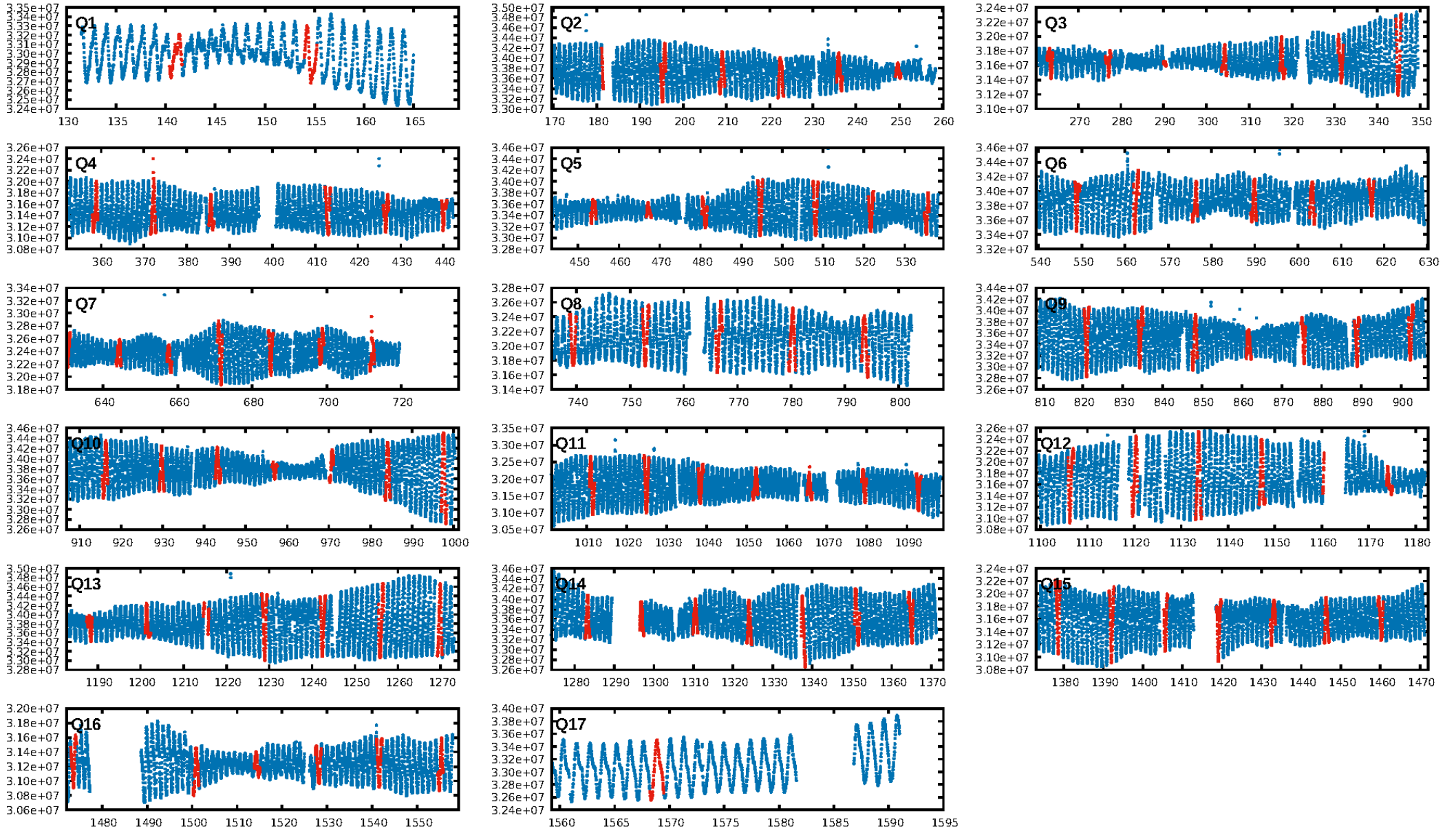
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [19.56σ]  
LongPeriod-sig: 100.0% [3.75σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [85/85]  
GhostDiagnostic-chr: -2.852  
Centroid-sig: 34.2%  
Centroid-so: 0.479 arcsec [1.65σ]  
OotOffset-rm: 0.571 arcsec [6.65σ]  
KicOffset-rm: 0.536 arcsec [6.84σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.59 [10/17]  
DiffImageOverlap-fno: 0.00 [0/17]

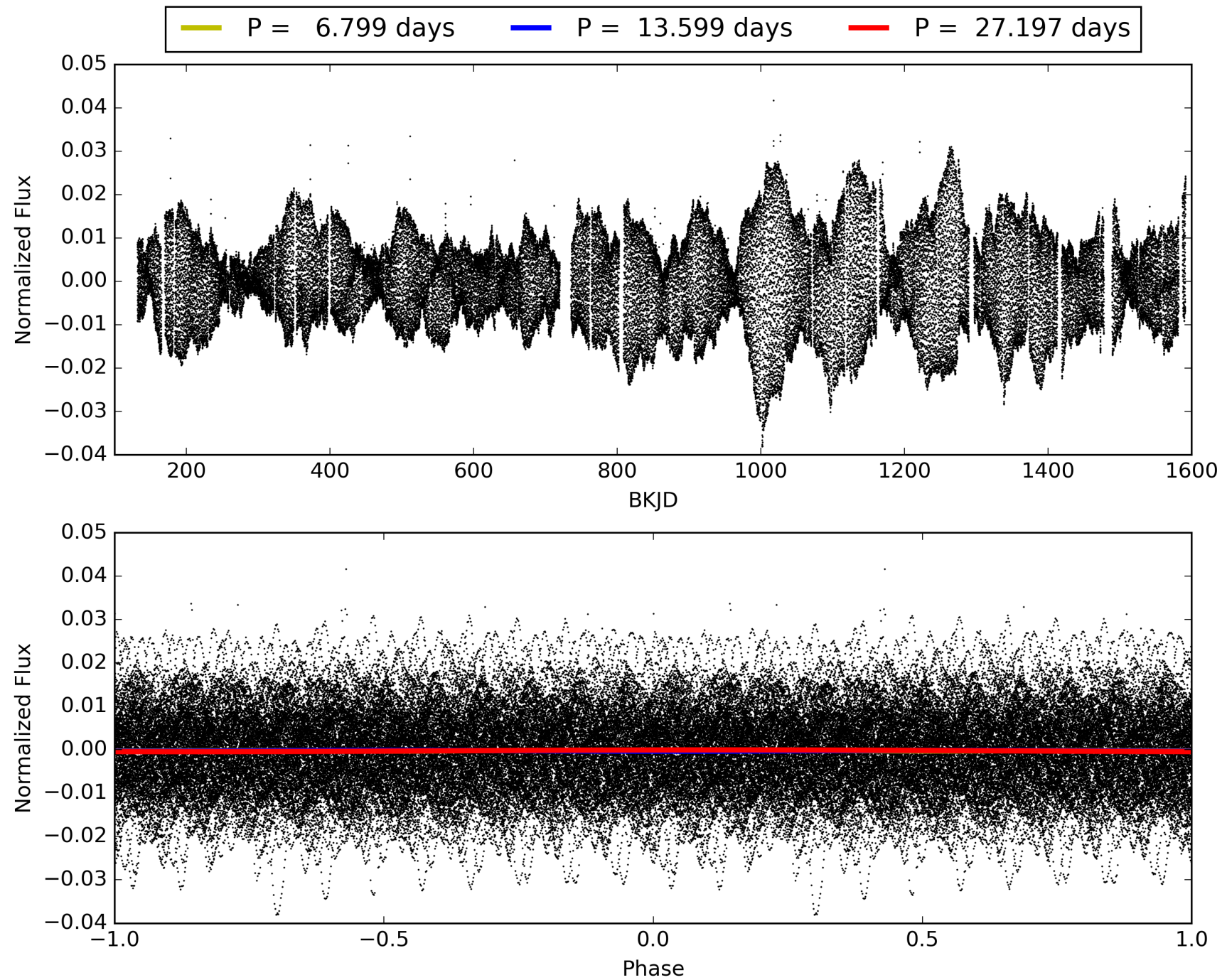
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:21:55 Z

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

# TCE 011620425-06, PDC Light Curves

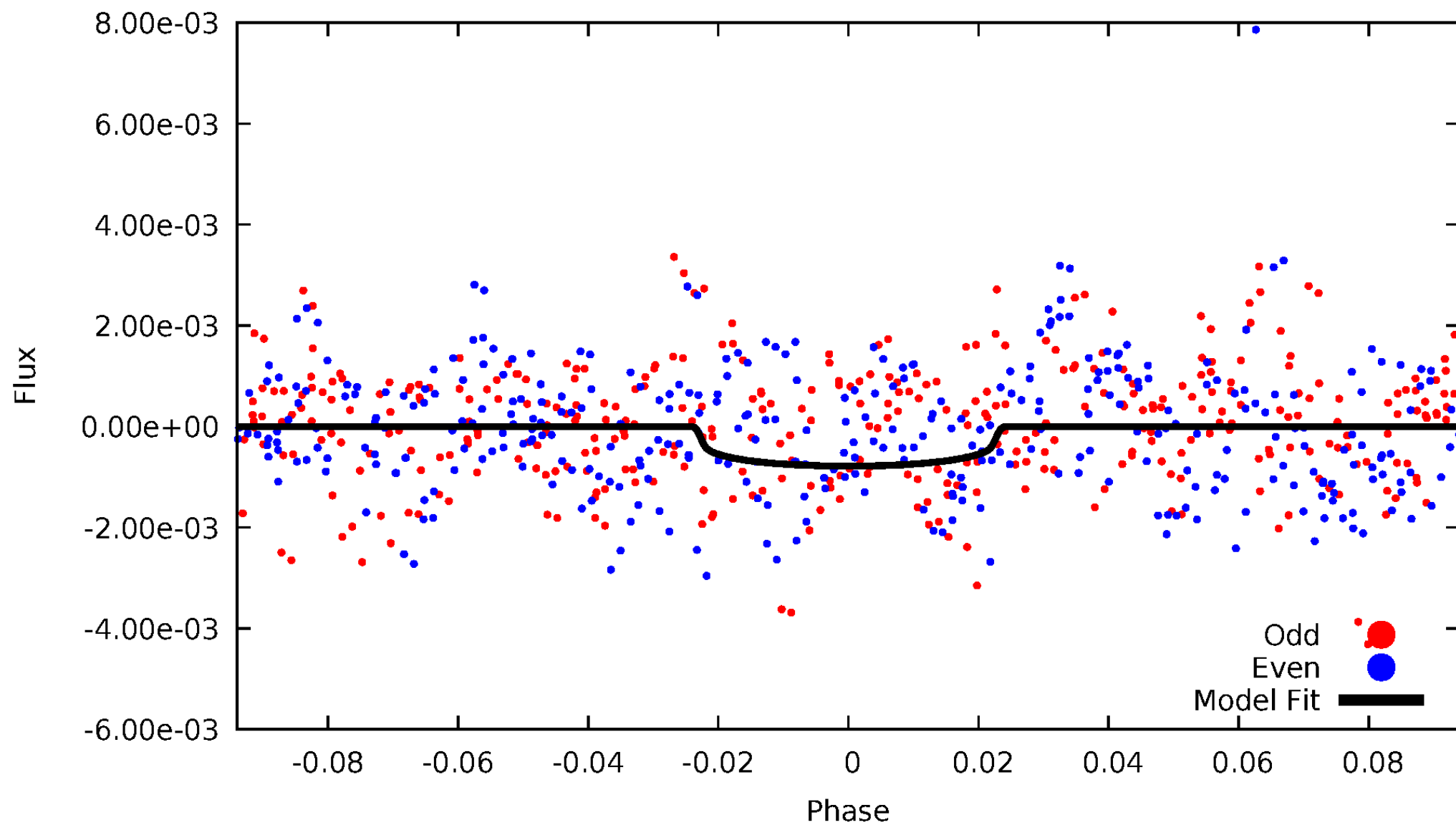


# TCE 011620425-06



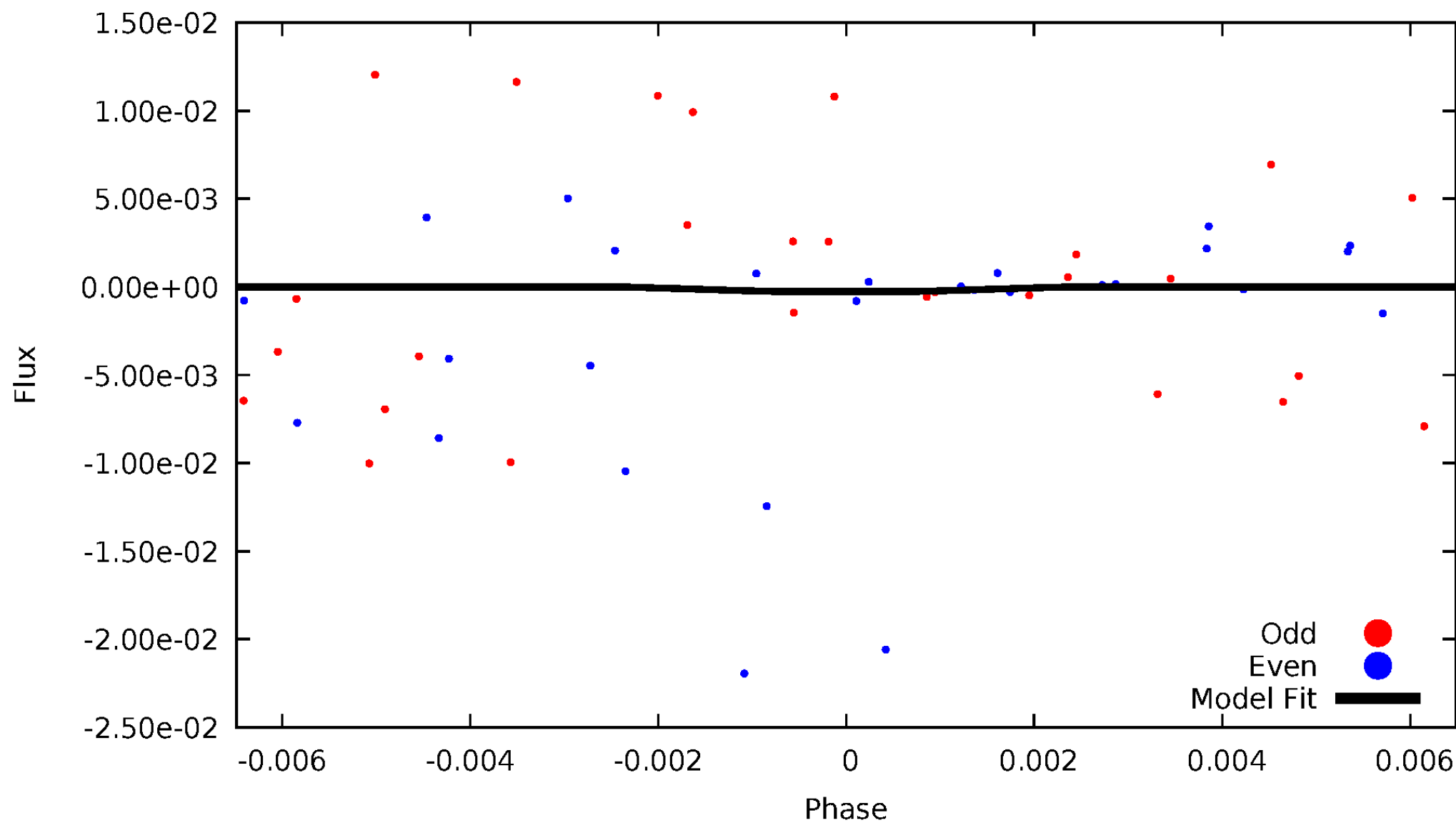
# DV Odd/Even

TCE 011620425-06



# ALT Odd/Even

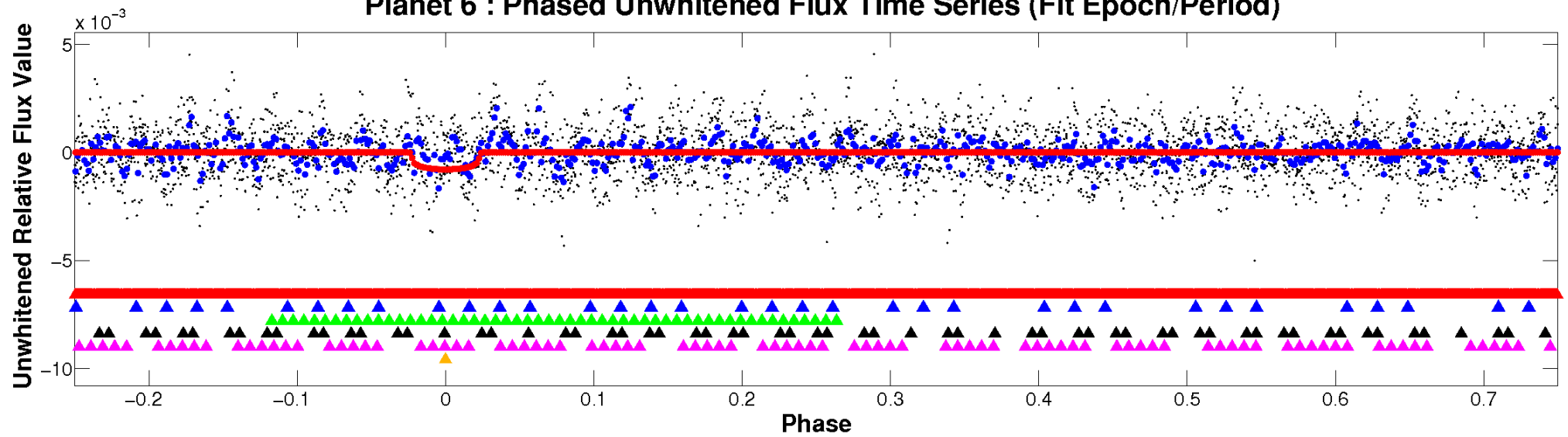
TCE 011620425-06



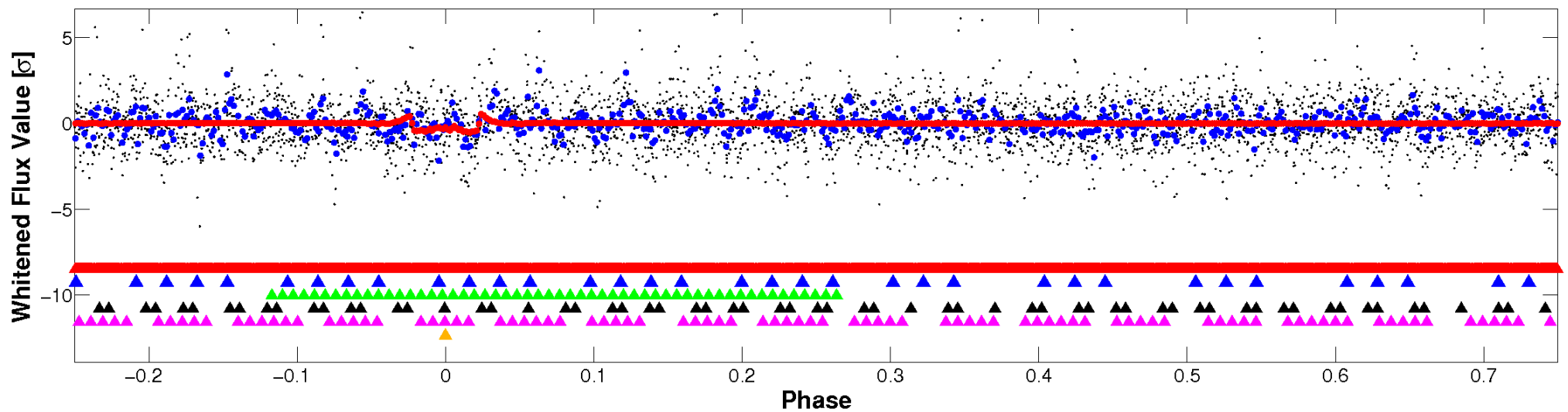


# Non-Whitened Vs. Whitened Light Curve

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

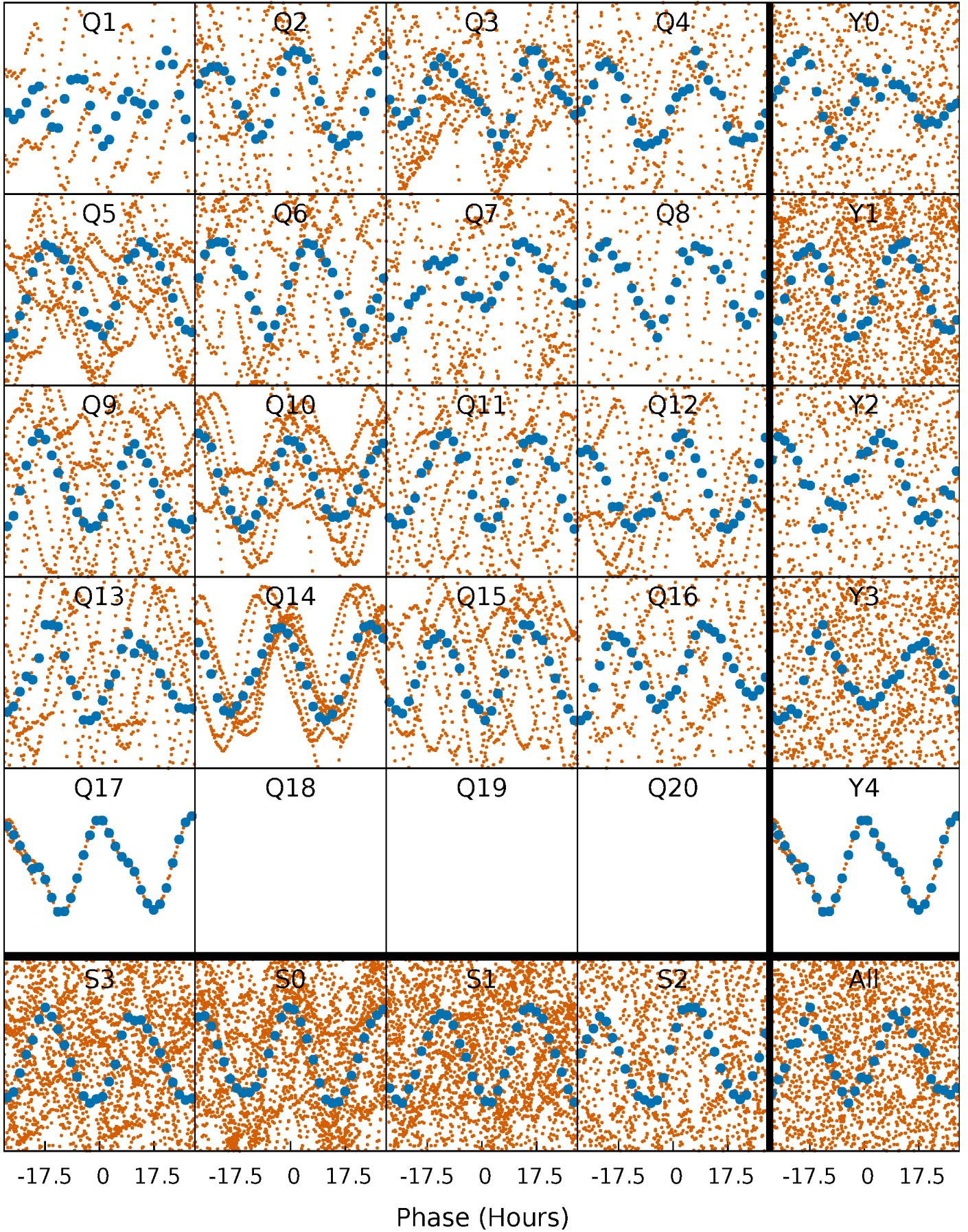


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

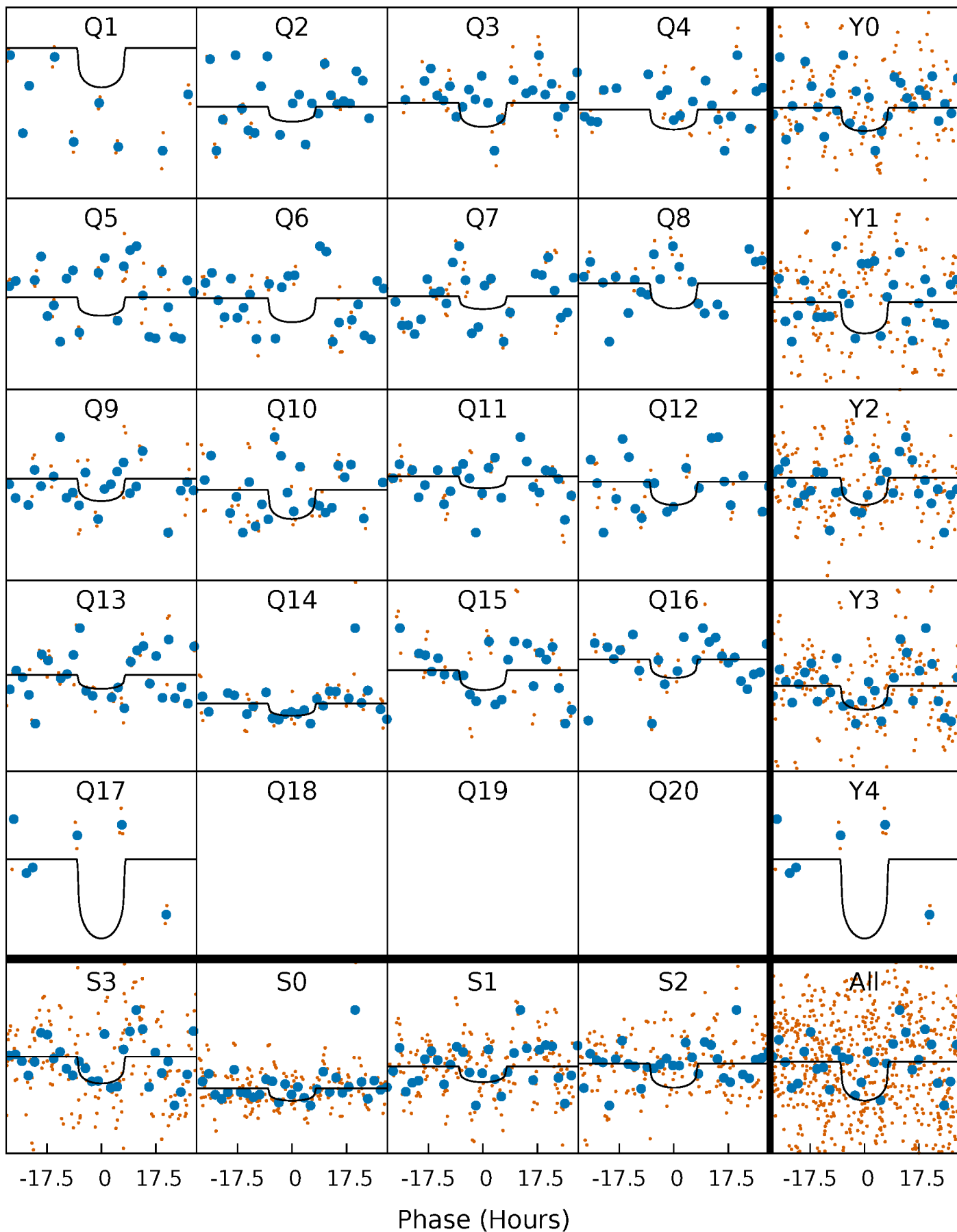
TCE 011620425-06 P= 13.598571 Days  $T_0=141.000149$  (BKJD)





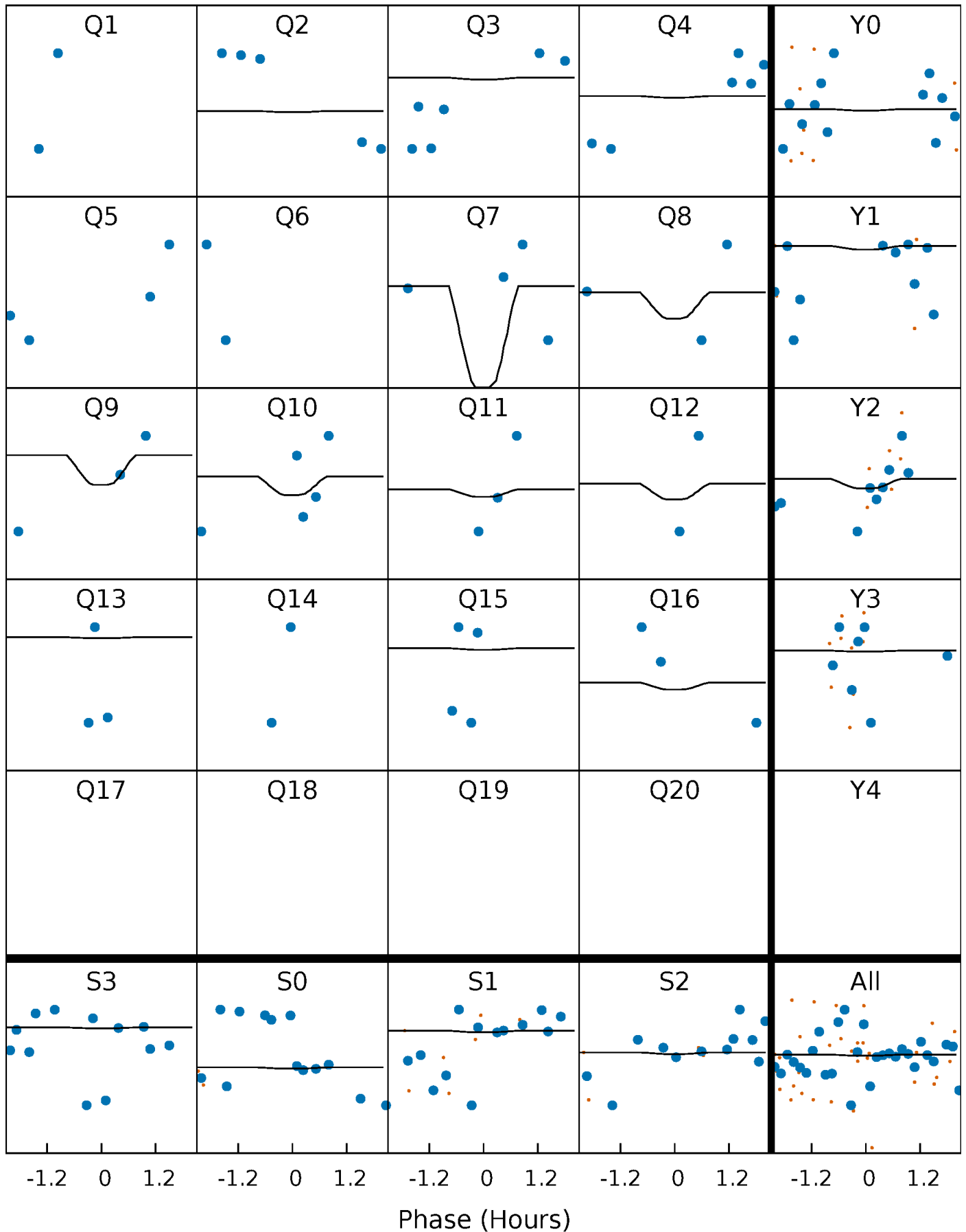
# DV Quarter-Phased Transit Curves

TCE 011620425-06 P= 13.598571 Days  $T_0=141.000149$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

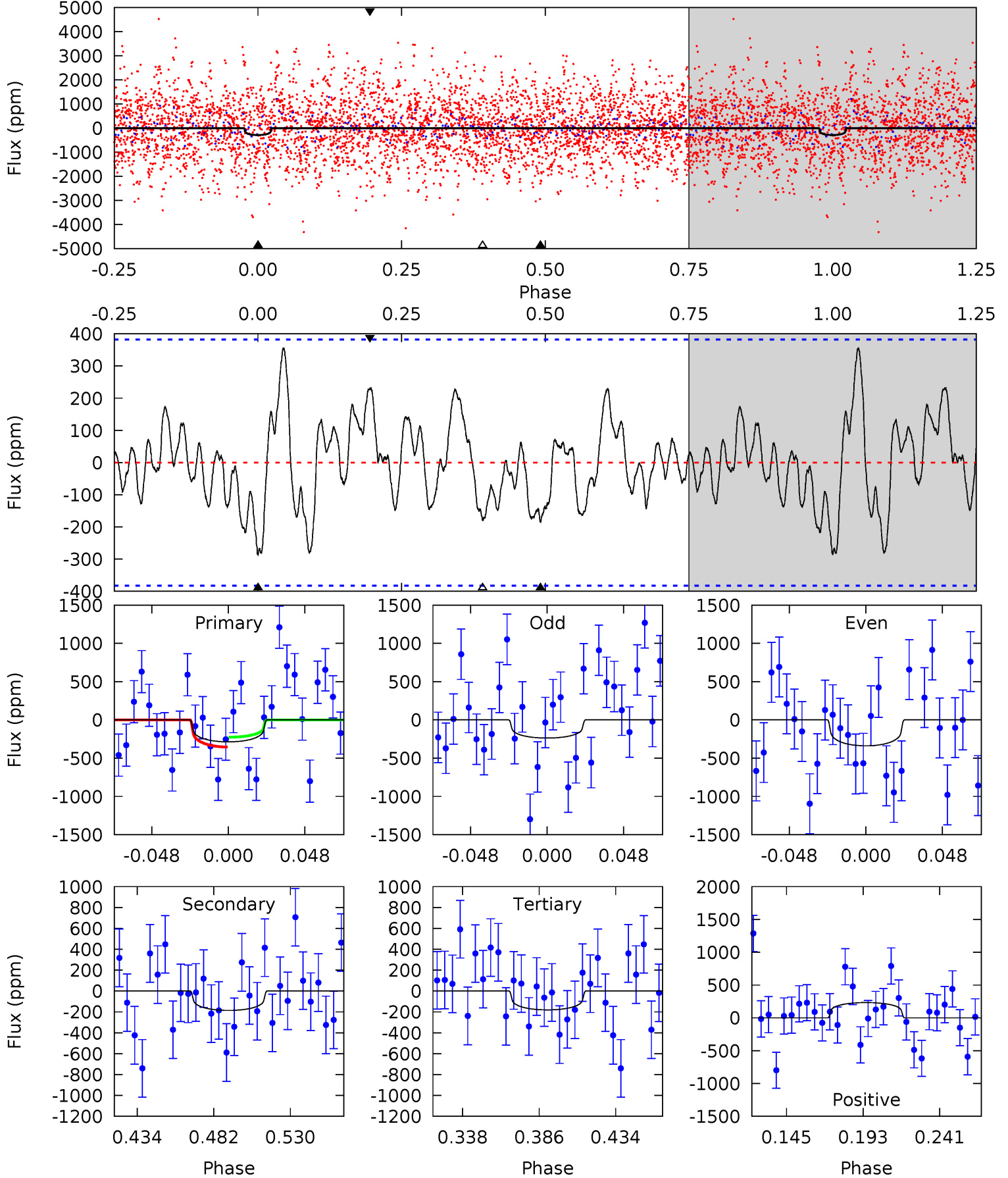
TCE 011620425-06 P= 13.594262 Days  $T_0=141.258302$  (BKJD)



# DV Model-Shift Uniqueness Test

011620425-06, P = 13.598571 Days, E = 127.401578 Days

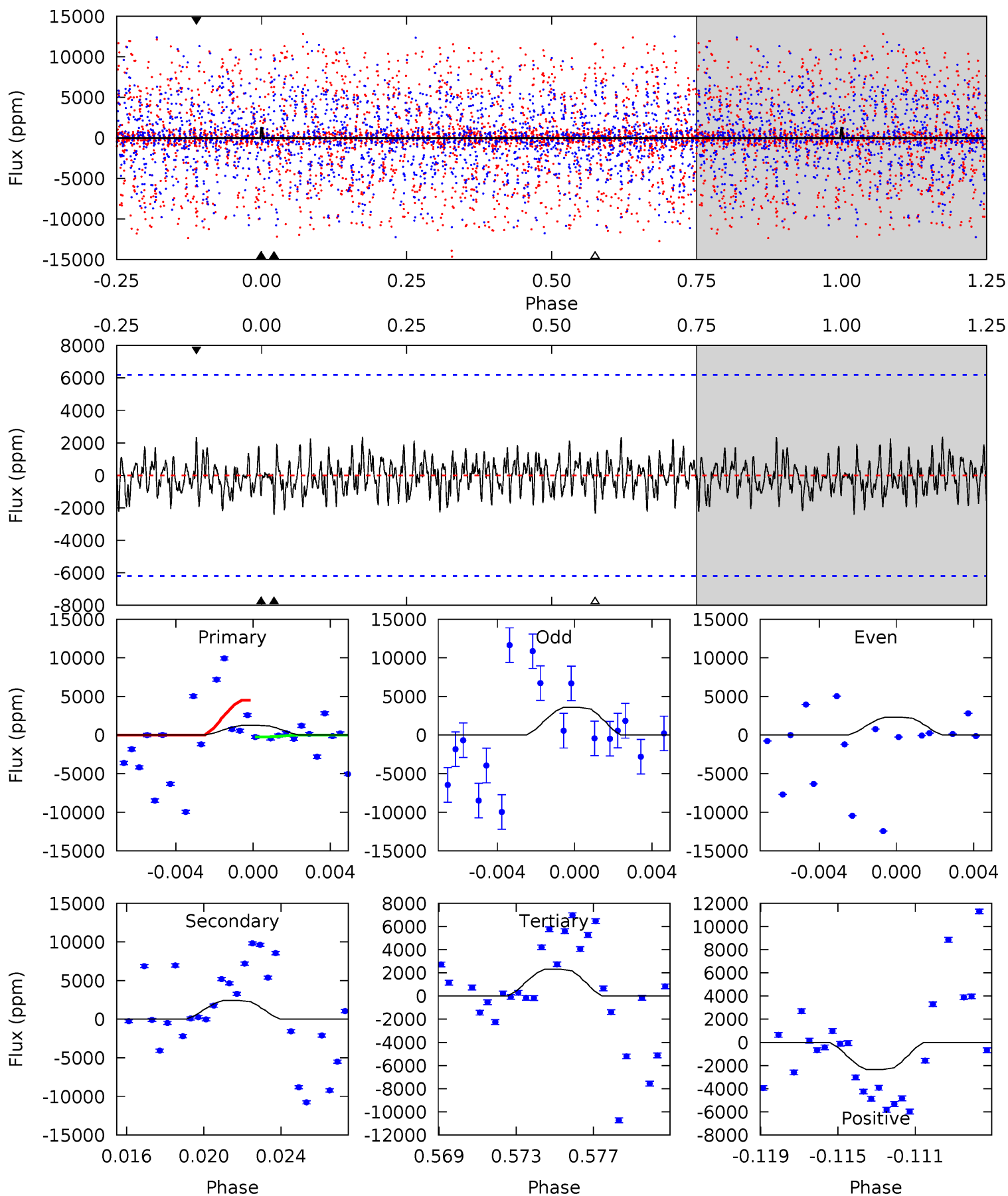
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.53	2.29	2.23	2.87	4.72	1.98	1.27	1.31	0.66	0.06	-0.58	0.63	0.94	0.55	0.79



# Alt Model-Shift Uniqueness Test

011620425-06, P = 13.594262 Days, E = 127.664040 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.05	2.03	1.94	1.97	5.20	2.88	0.72	-0.89	-0.92	0.09	0.06	0.54	15.6	0.49	1.92



### Stellar Parameters For KIC 011620425

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5474^{+197}_{-180}$	$4.576^{+0.038}_{-0.152}$	$-0.100^{+0.300}_{-0.300}$	$0.805^{+0.188}_{-0.063}$	$0.896^{+0.082}_{-0.101}$	$2.415^{+0.464}_{-0.985}$
	+4%/-3%	+1%/-3%	+300%/-300%	+23%/-8%	+9%/-11%	+19%/-41%
Source	KIC0	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 011620425-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-186 \pm 81$	$2.47^{+1.45}_{-1.25}$	$941^{+50}_{-42}$	$4051^{+1628}_{-645}$	$180^{+642}_{-122}$
Alt.	$-2417 \pm 1191$	$1.76^{+1.42}_{-1.03}$	$942^{+55}_{-44}$	$8945^{+9856}_{-2949}$	$4423^{+22178}_{-3343}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

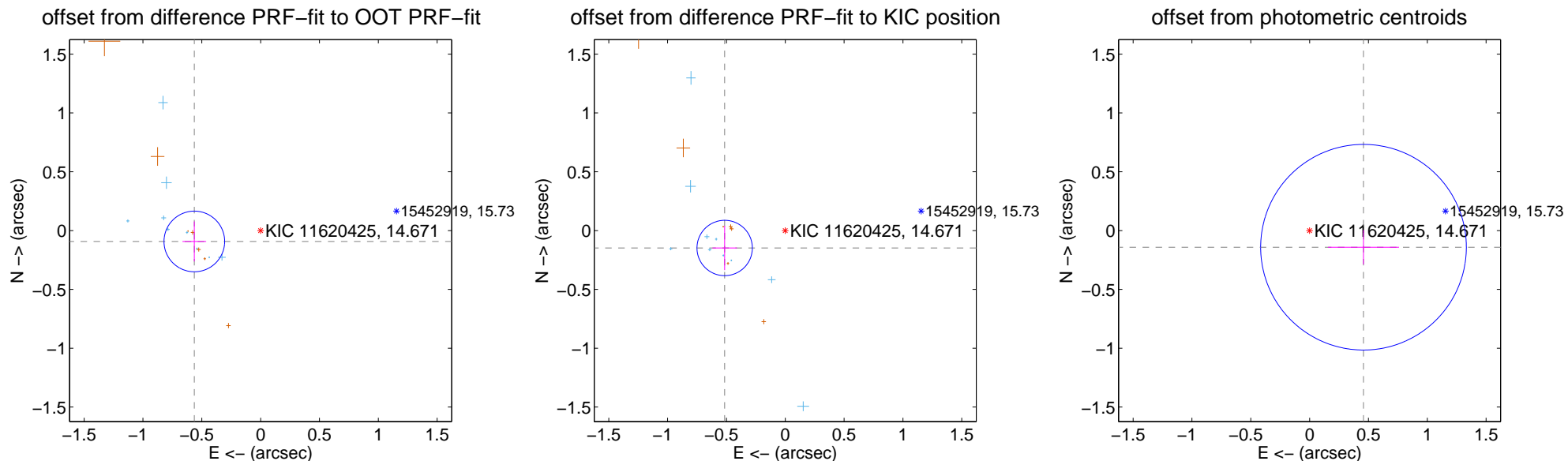
## DV Centroid Data

Supplemental centroid analysis for 011620425-06. Kepler magnitude: 14.67. Transit SNR 6.00

There are 10 quarters with good PRF difference image offsets

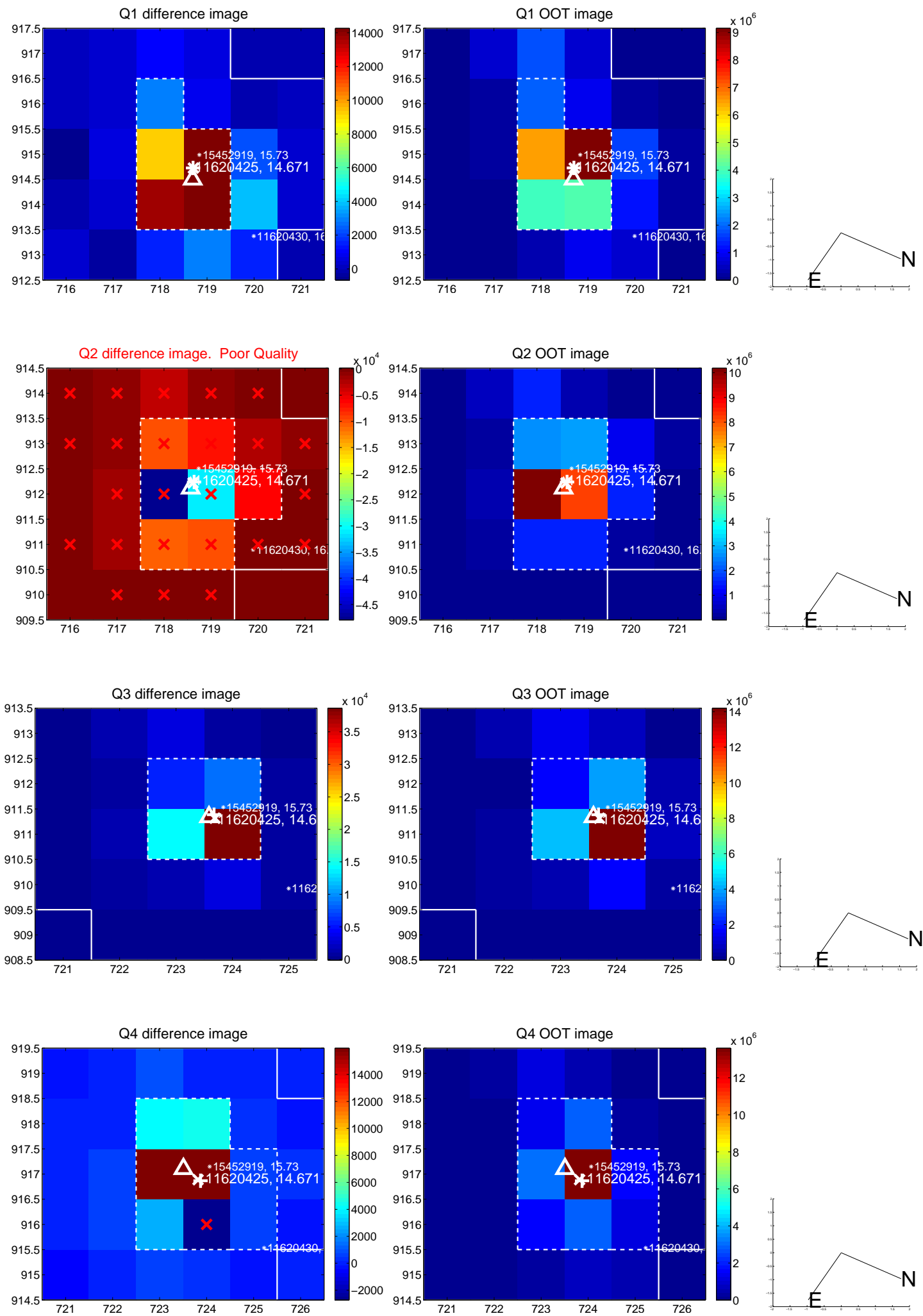
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.571 \pm 0.086$	<b>6.65</b>	$0.564 \pm 0.100$	$-0.092 \pm 0.170$
PRF-fit source offset from KIC position	$0.536 \pm 0.078$	<b>6.84</b>	$0.515 \pm 0.104$	$-0.148 \pm 0.188$
photometric centroid source offset	$0.48 \pm 0.29$	1.65	$-0.46 \pm 0.30$	$-0.14 \pm 0.15$

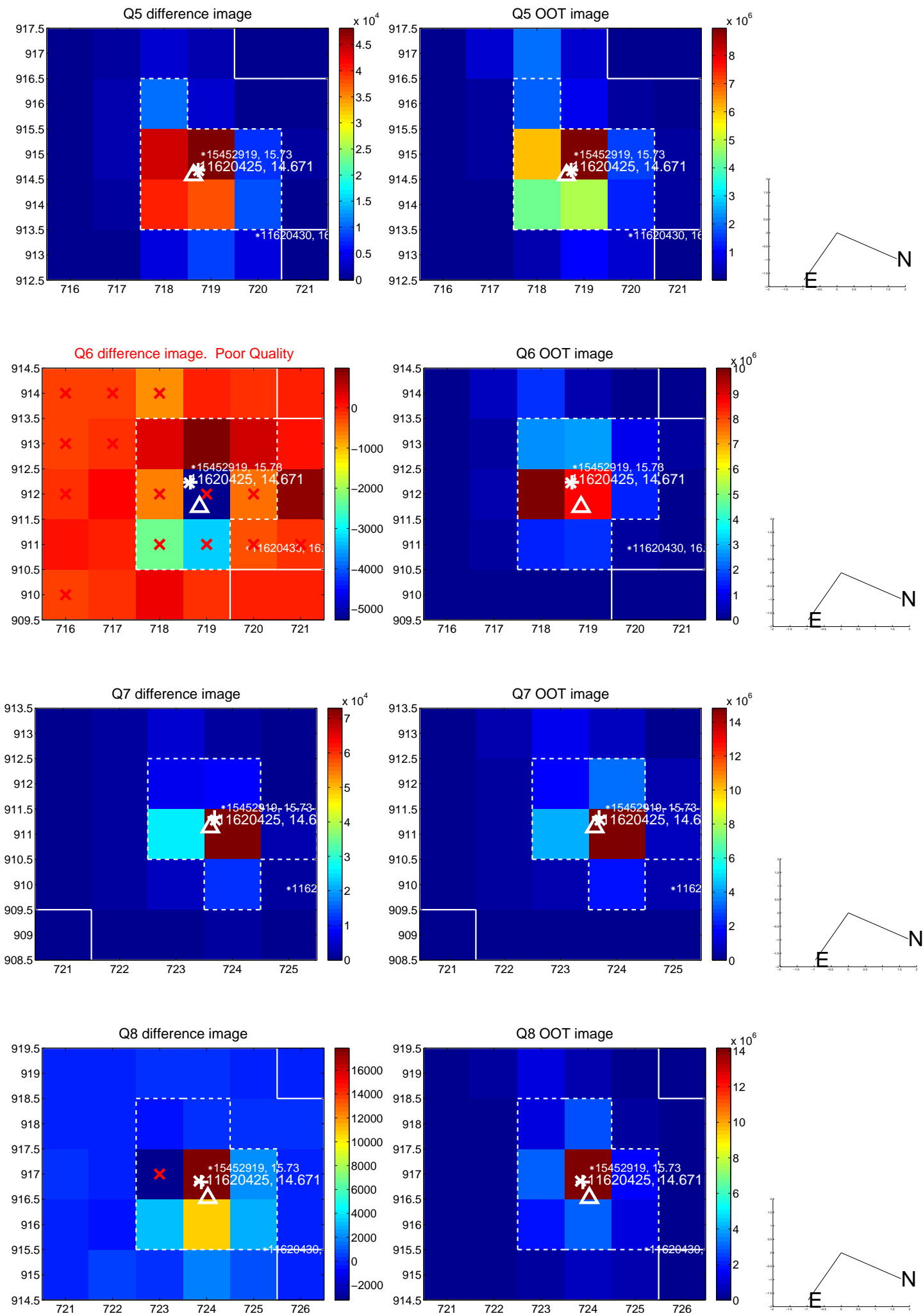


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

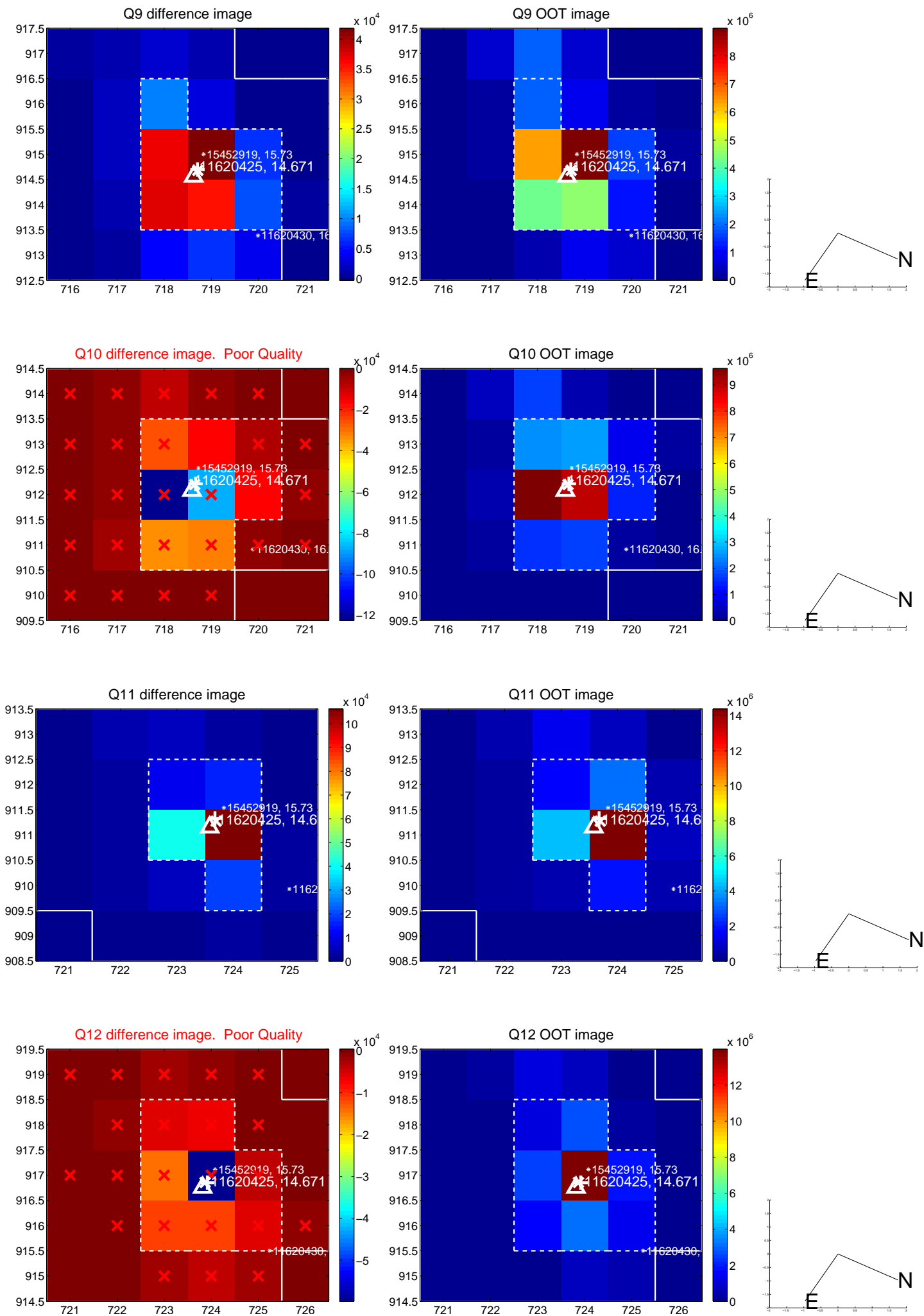


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

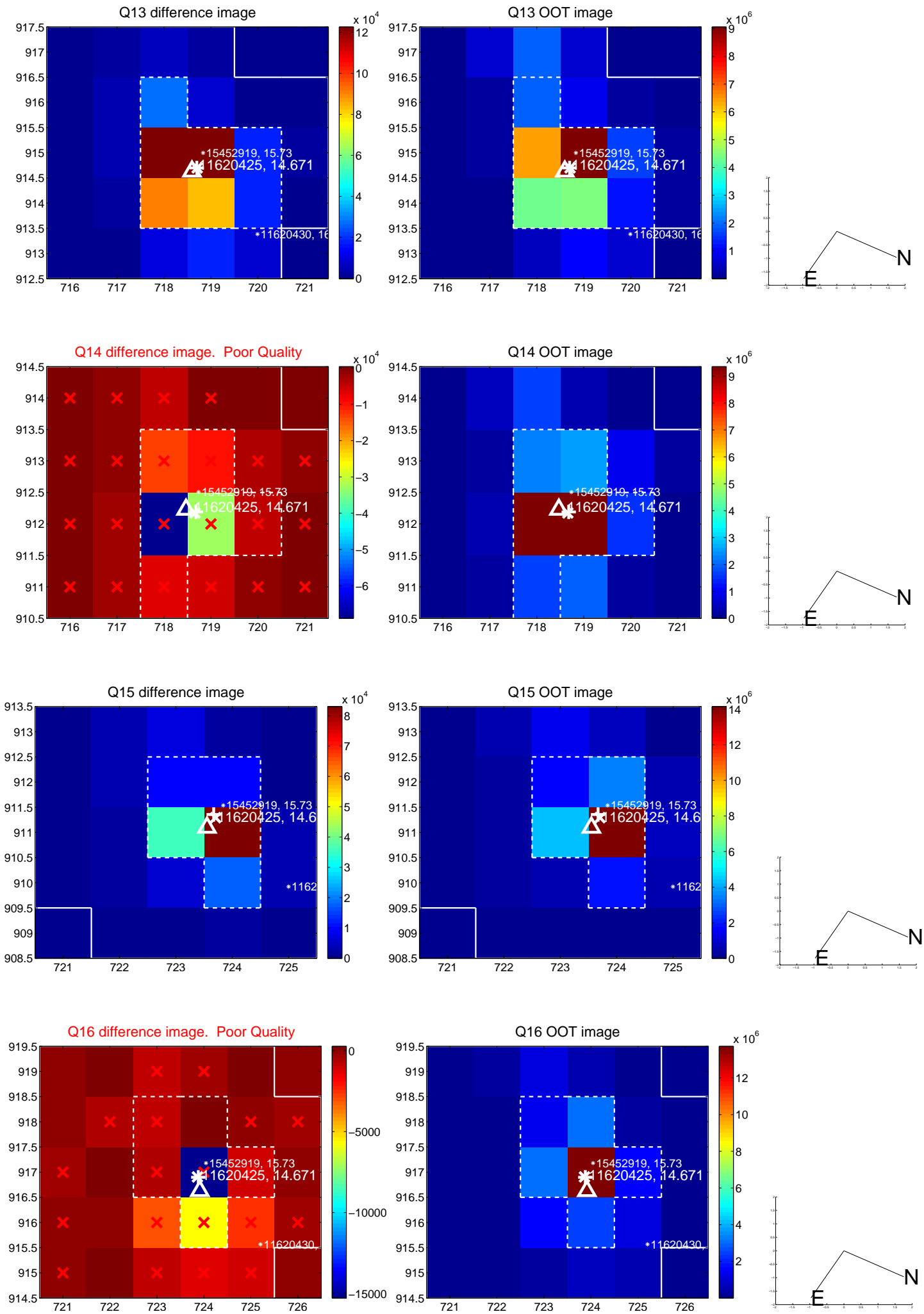




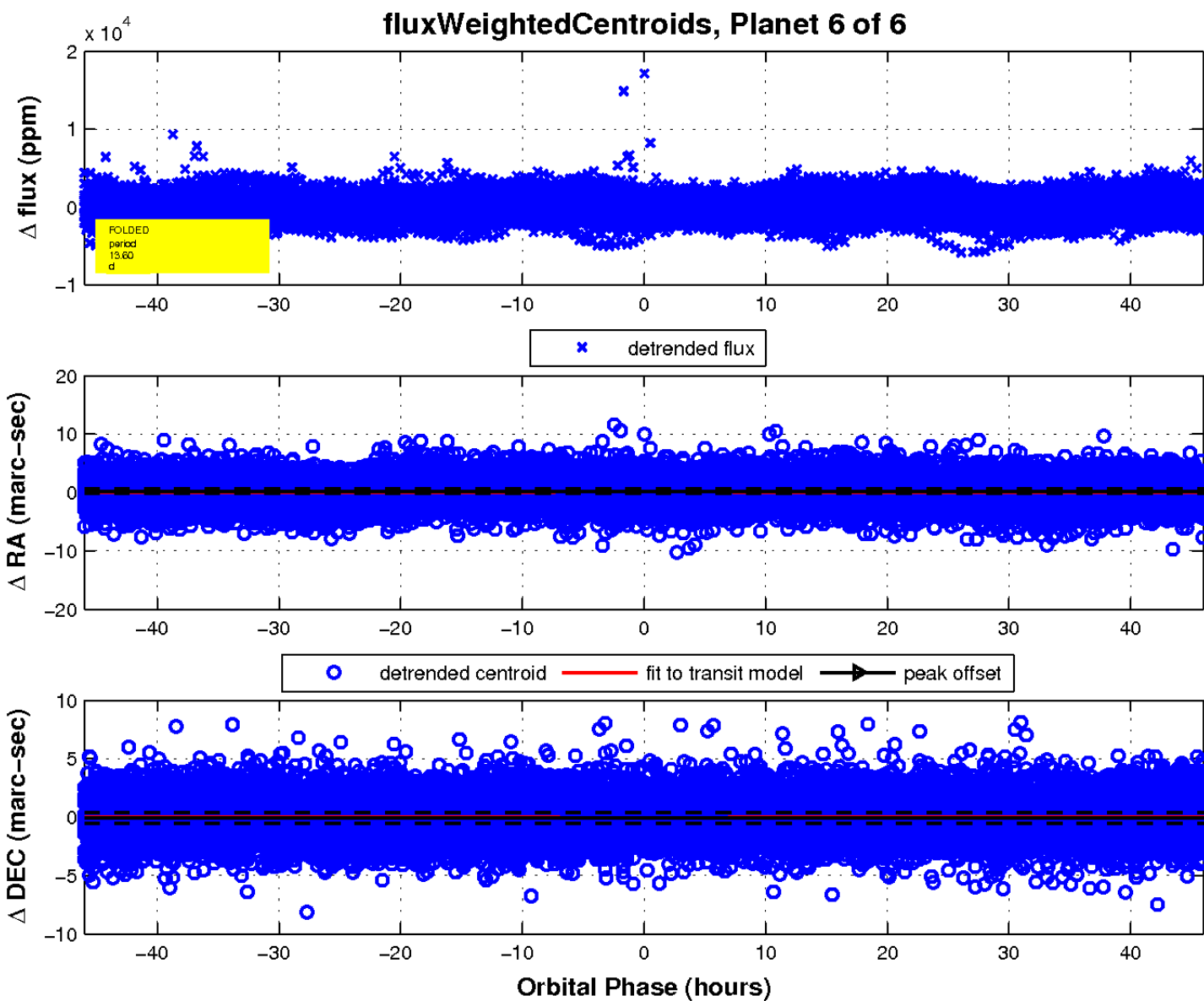
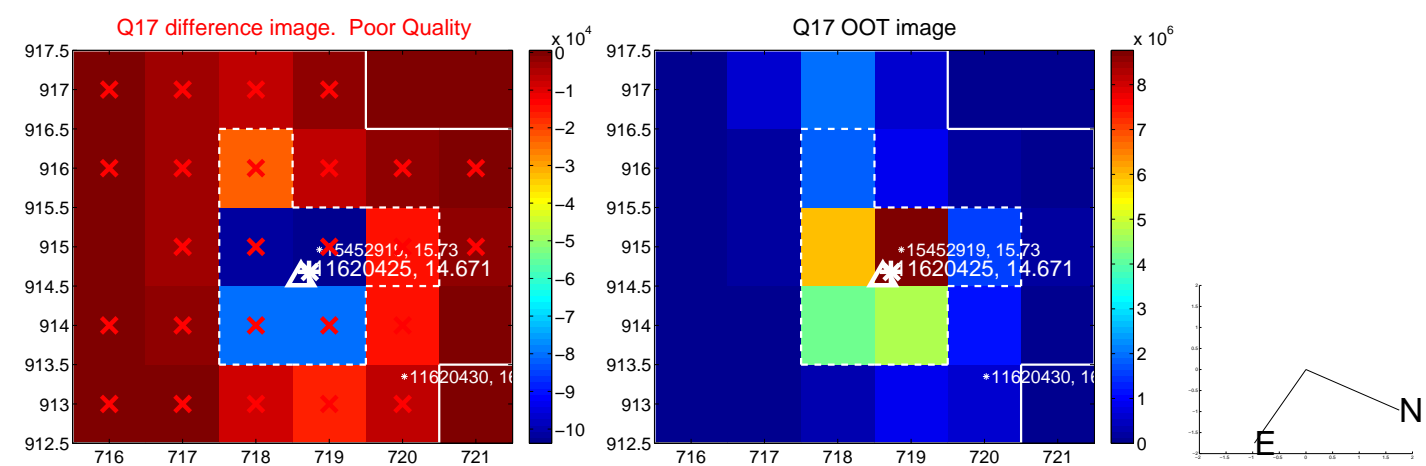
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

