

Periodicities in eta Carinae's light curve during the last 50 years

Augusto Damineli (IAGUSP)

Felipe Navarete (IAGUSP)

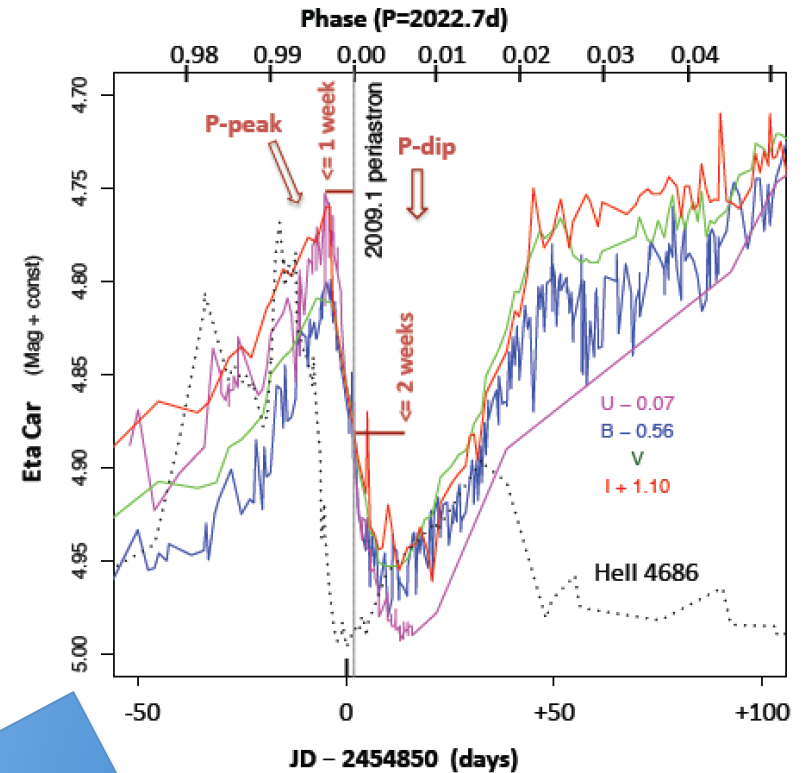
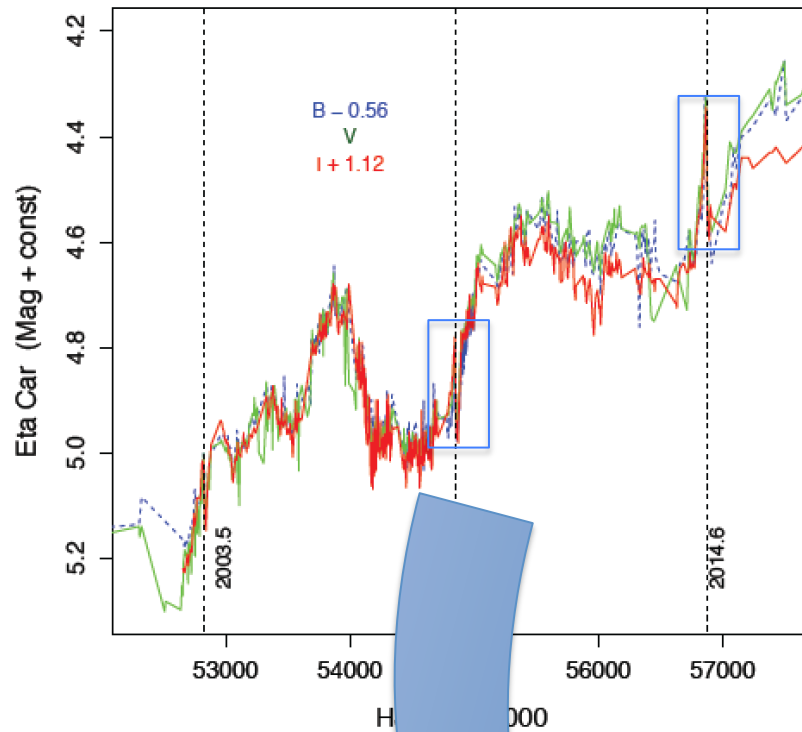
Daniel S.C. Damineli (Cell Biology, U. Maryland)

F.J. Jablonski (INPE)



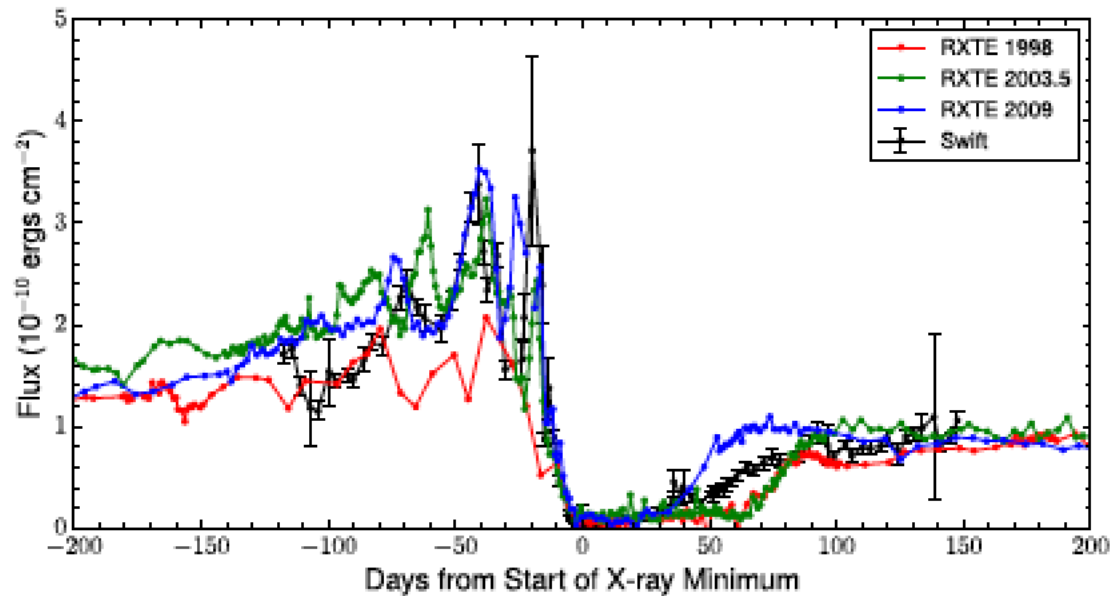
Short lived low excitation events

Duration ~months

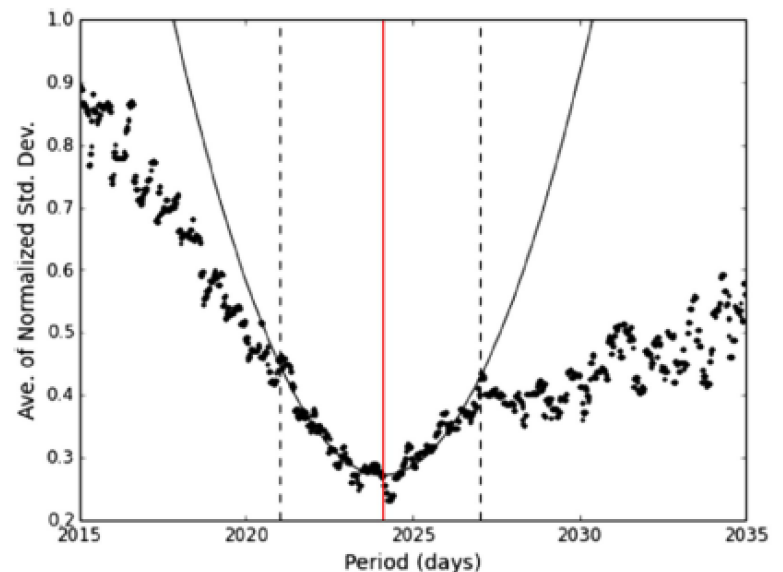


Periodic low excitation events

$P=5.538$



PDM

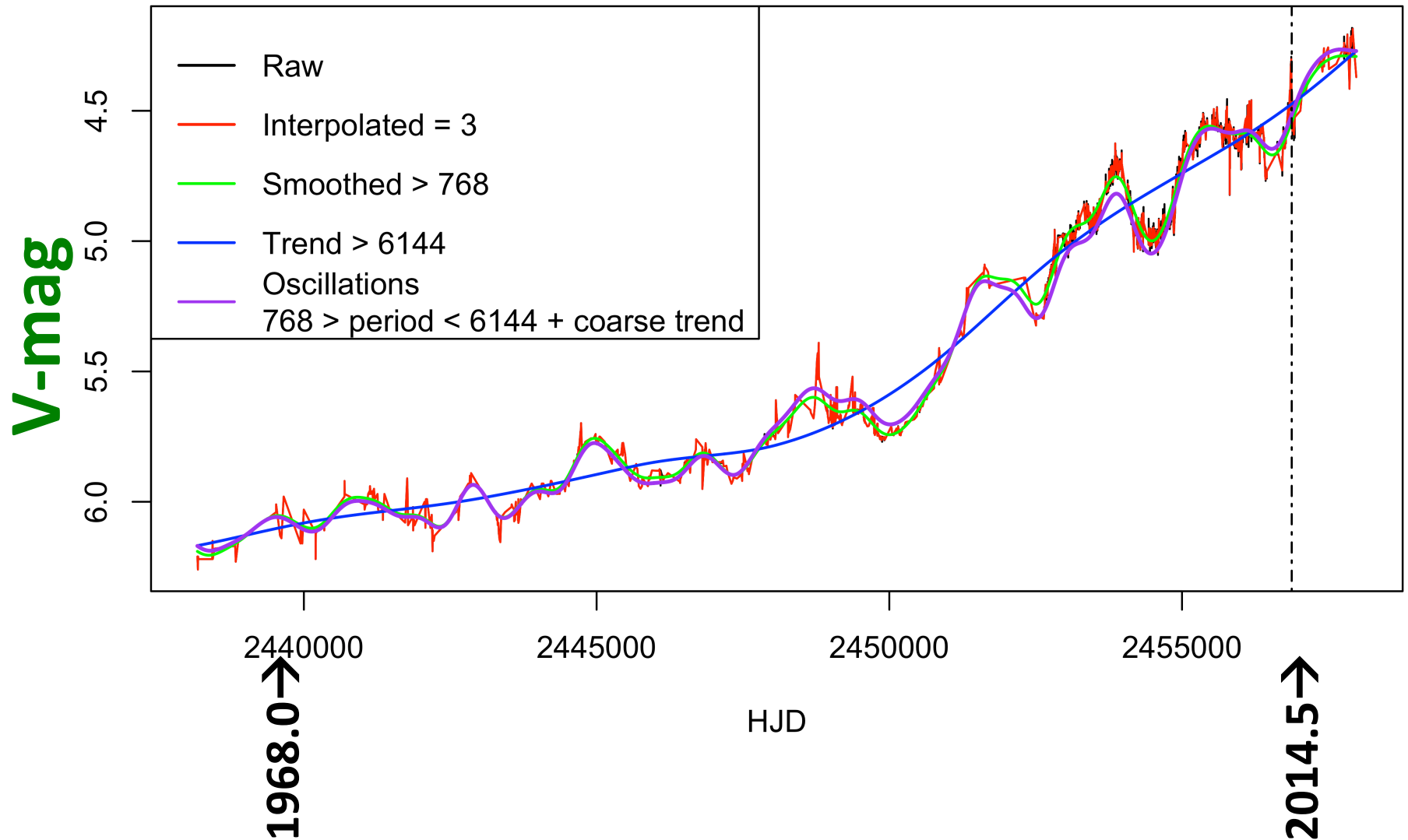


PDM minimization applied to all features

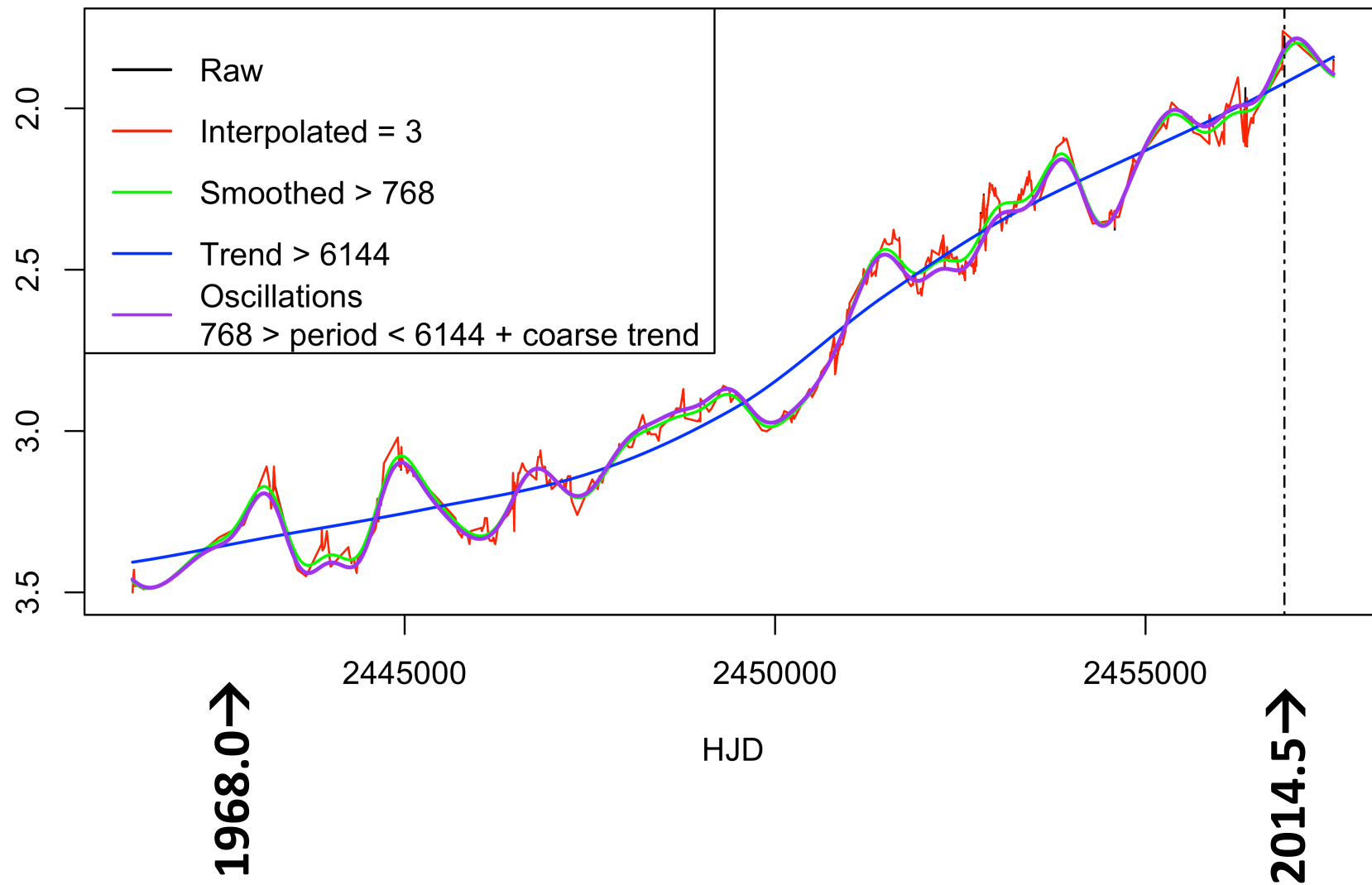
5 cycles

Method	Period ^a (days)
<i>V</i> band	2021 $\pm$ 2
<i>J</i> band	2023 $\pm$ 1
<i>H</i> band	2023 $\pm$ 1
<i>K</i> band	2023 $\pm$ 1
<i>L</i> band	2023 $\pm$ 2
Fe II λ 6455 P Cyg radial velocity	2022 $\pm$ 2
He I λ 6678 broad comp. radial velocity	2022 $\pm$ 1
Si II λ 6347 EW	2022 $\pm$ 1
Fe II λ 6455 P Cyg EW	2021 $\pm$ 2
He I λ 6678 narrow comp. EW	2026 $\pm$ 2
He I λ 10830 EW	2022 $\pm$ 1
X-ray light curve (1992–2014)	2023.5 $\pm$ 0.7
He II λ 4686 EW (1992–2014)	2022.9 $\pm$ 1.6
Weighted mean $\pm$ standard error	2022.7 $\pm$ 0.3

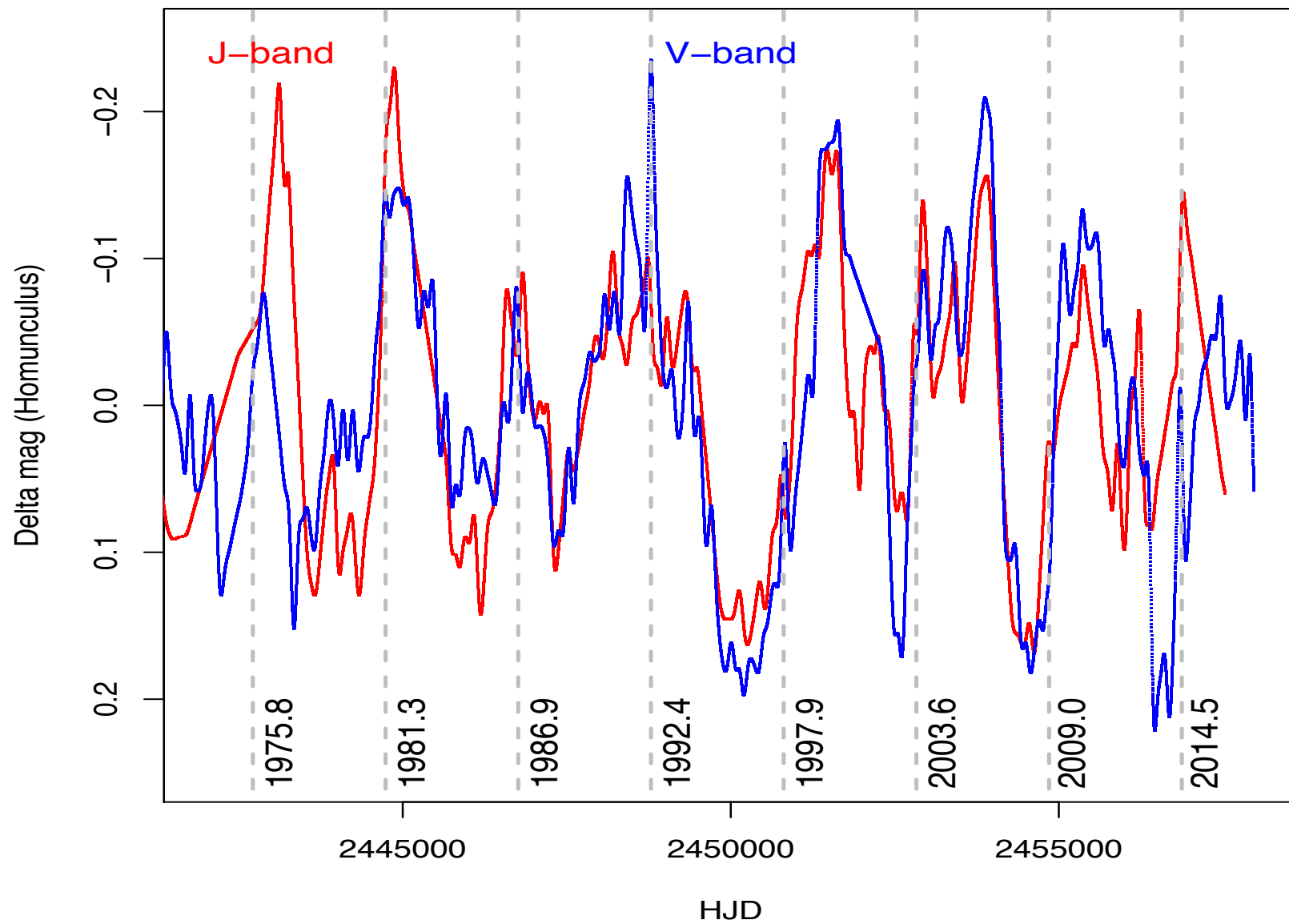
Question: is there a periodicity modulating the entire light-curve?



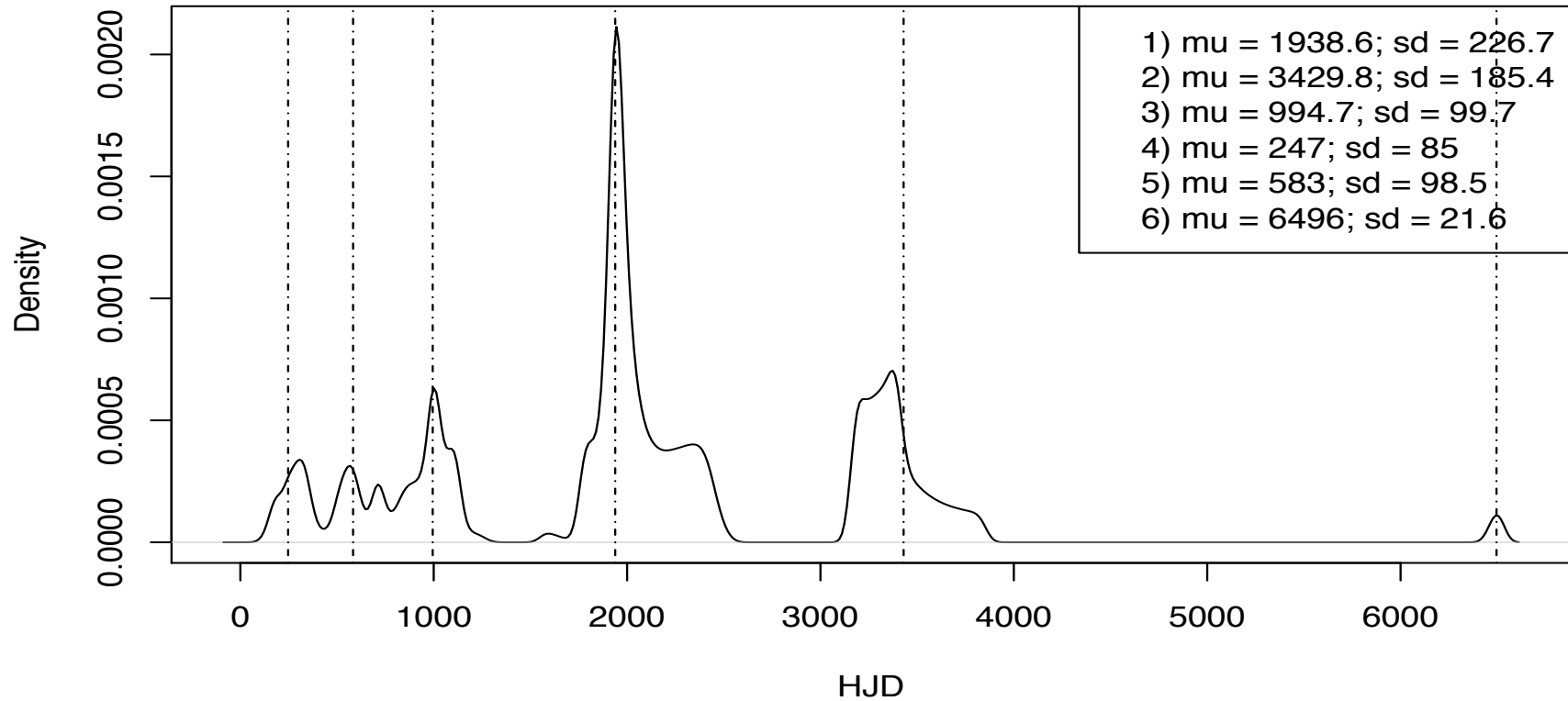
J-band



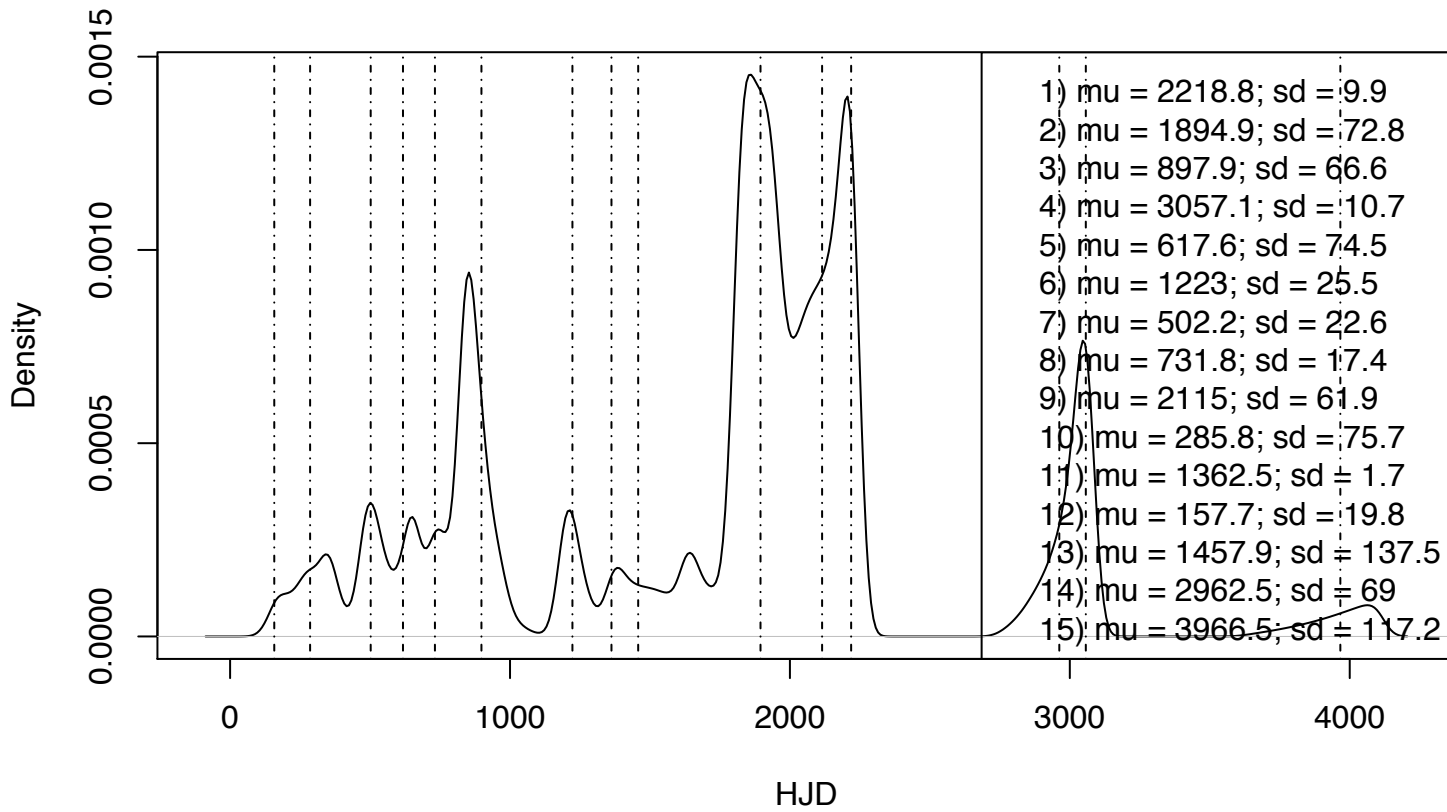
Detrended light-curves



Fourier transform V-band



Fourier transform J-band



Joint wavelet V+J bands

CHUCKNORRIS package

