

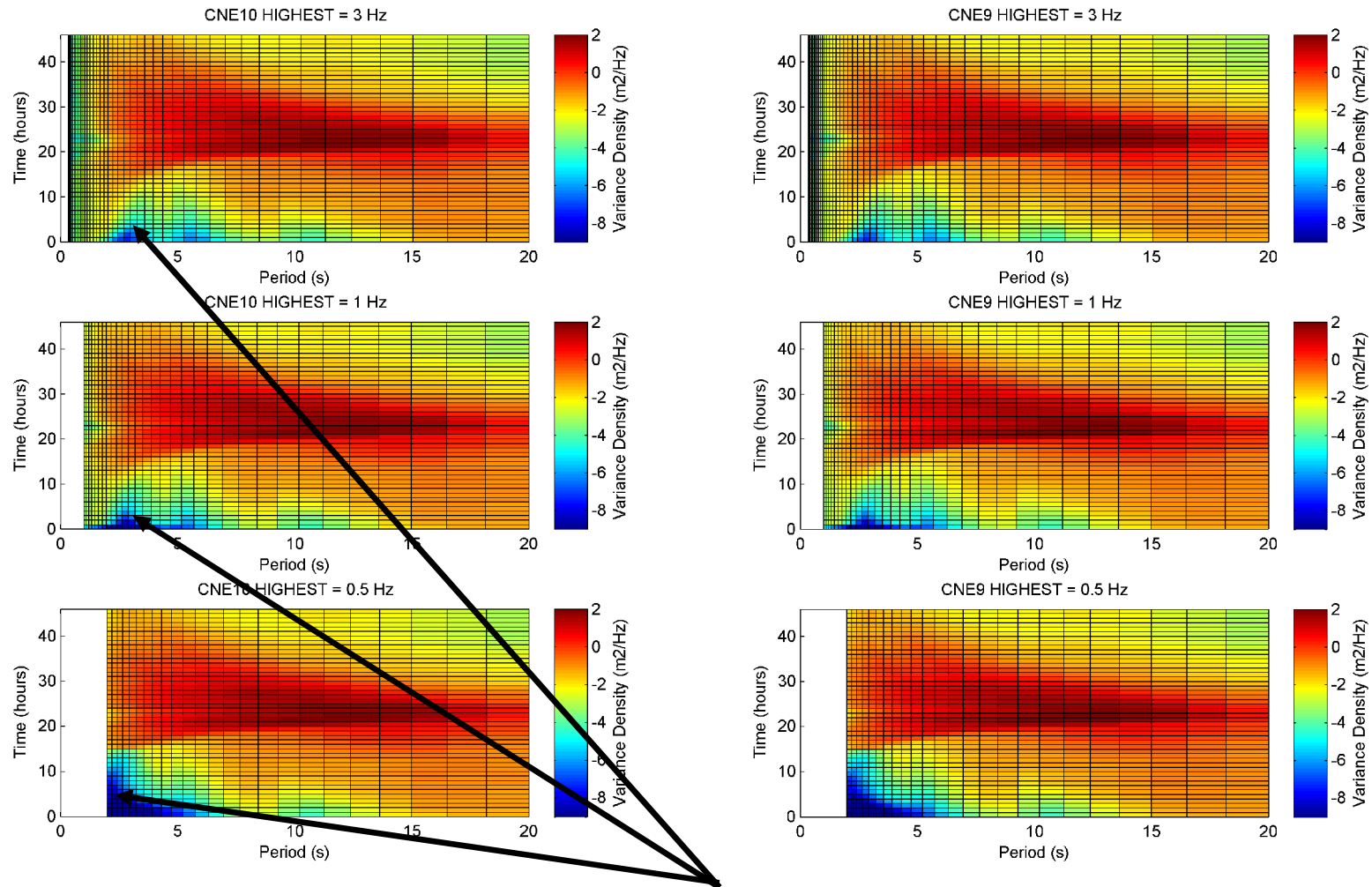
## ERRATA AND ADDENDUM

In the presentation the wave spectrum plots were incorrectly shown without a logarithmic scale, which misled some of the remarks and preliminary conclusions. In the following slides the corrected figures are shown, as well as a corrected analysis and conclusion.

## Northeastern Ecological Corridor – Marine Protected Area/Natural Reserve

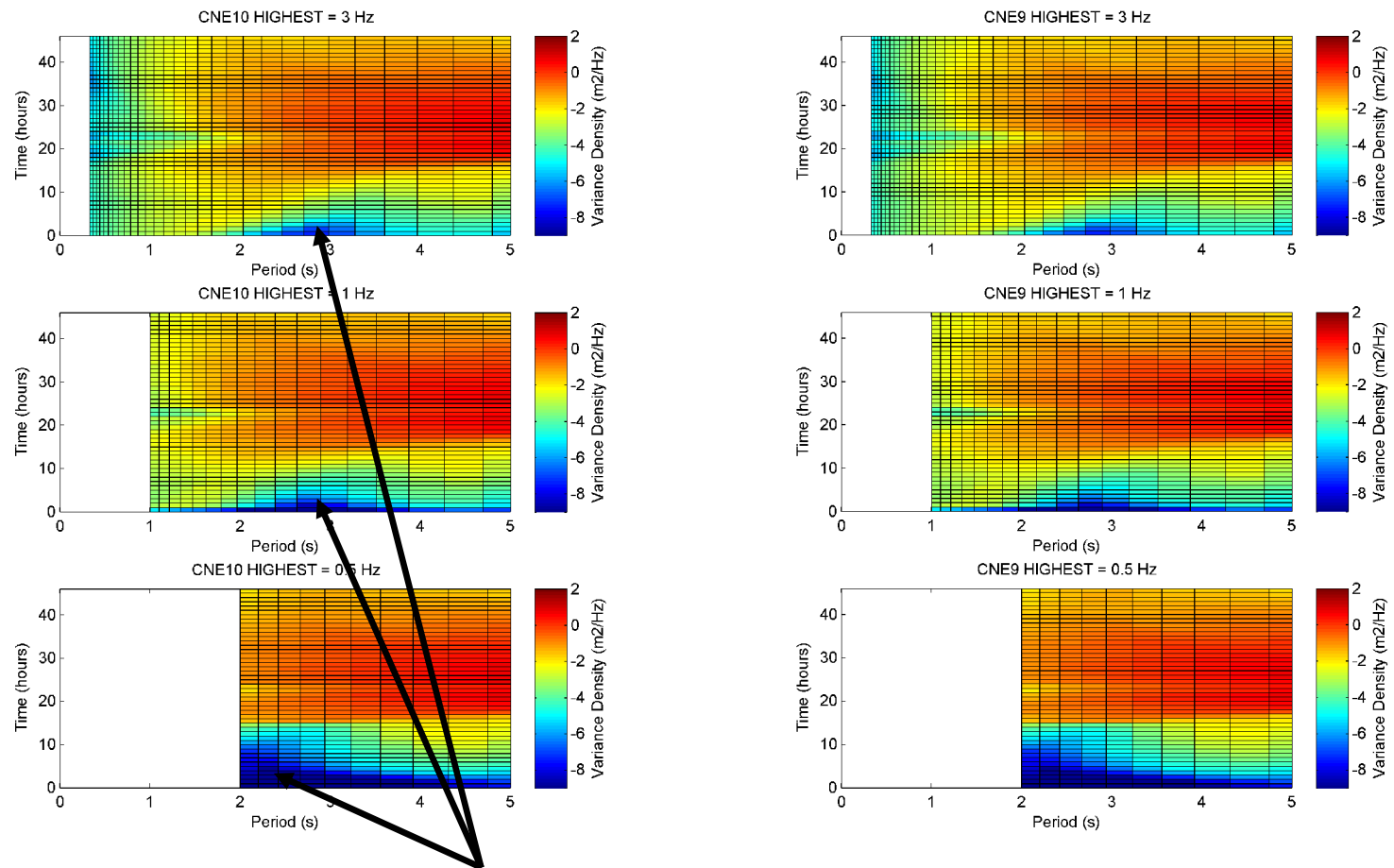


## Effect of SWAN frequency range on computed spectrum (TRIADS ALLOWED)



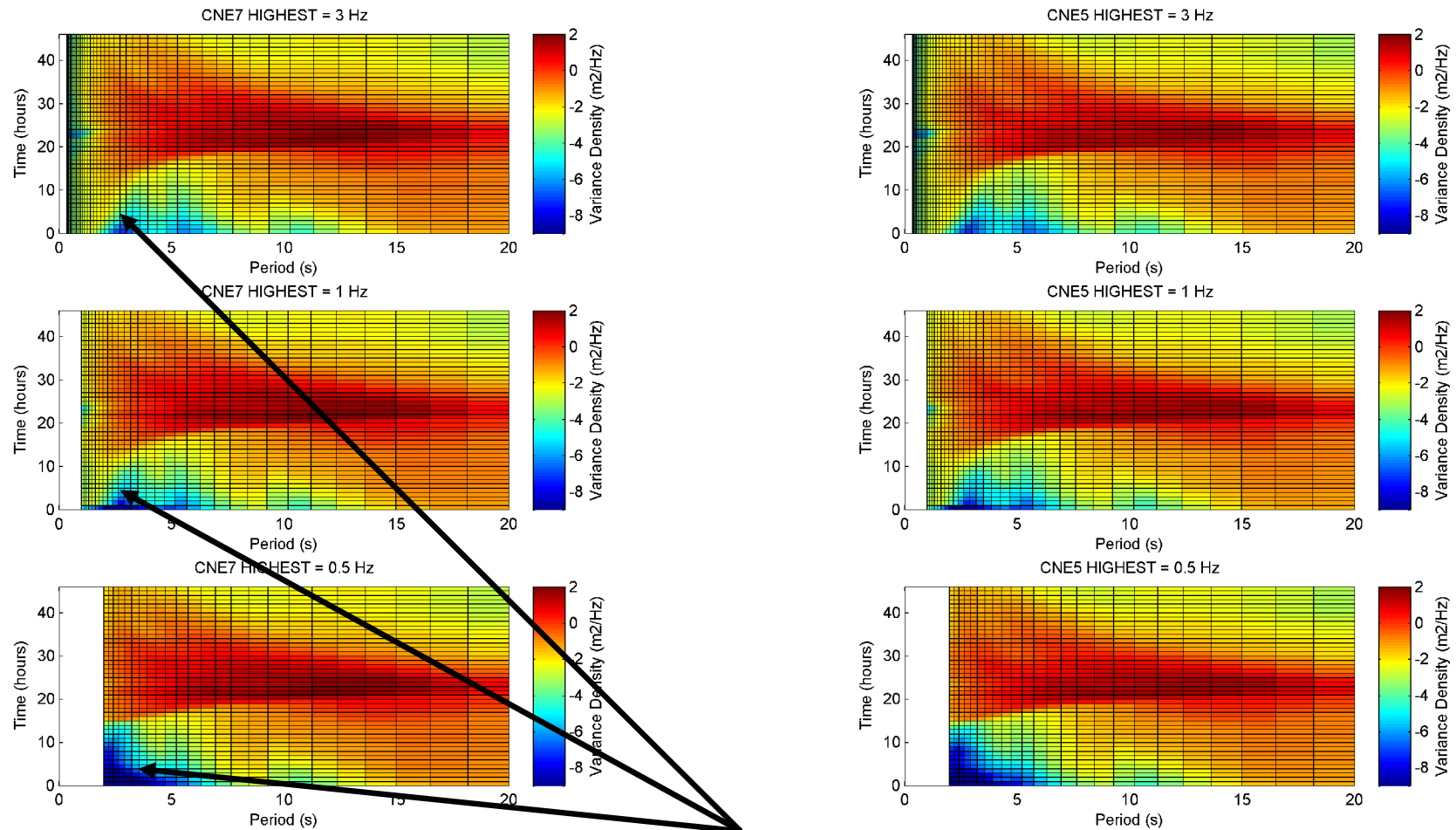
Limiting the frequency range up to 2 seconds limits the initial wave growth (0-10 hours), causing lower energy density

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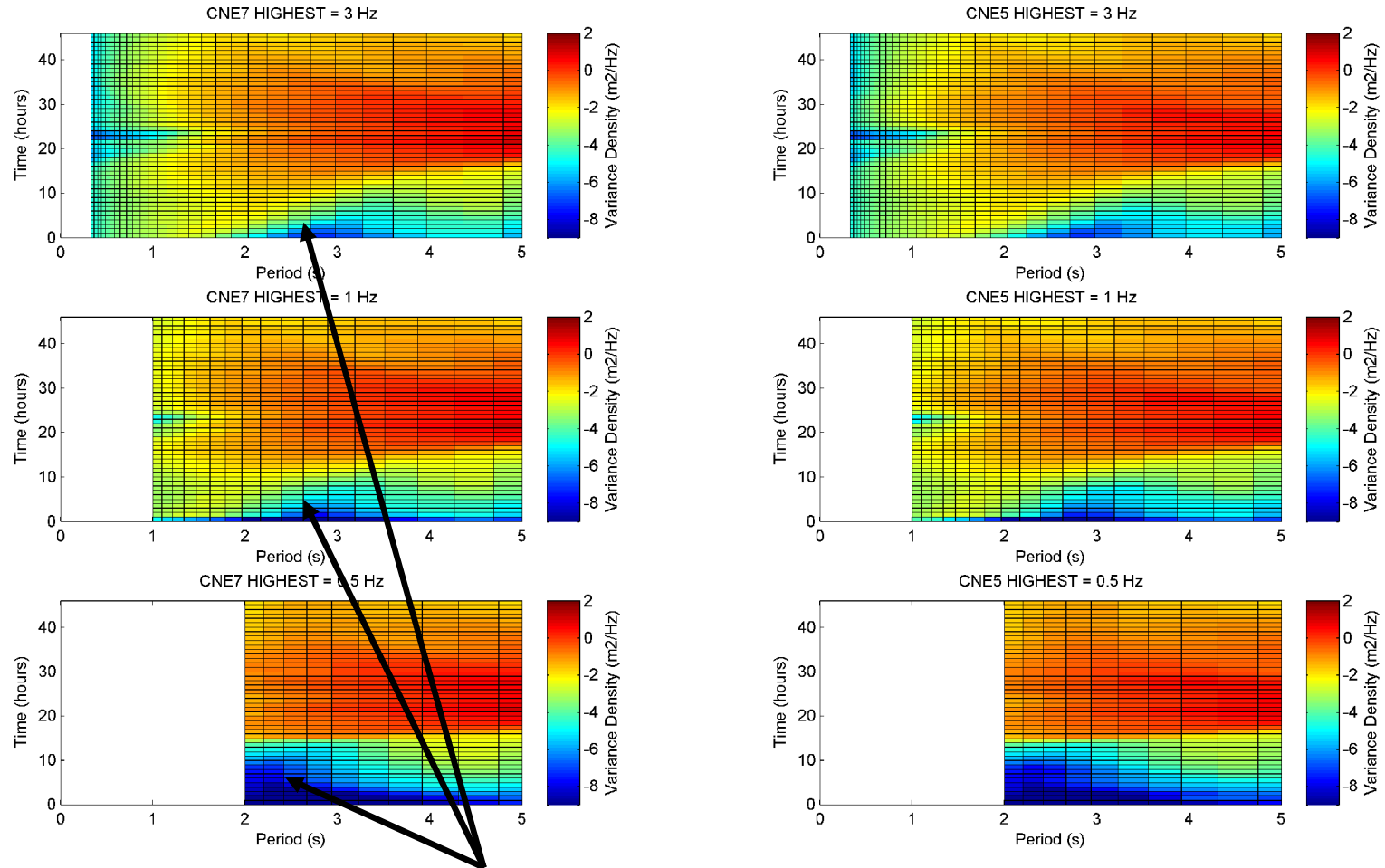
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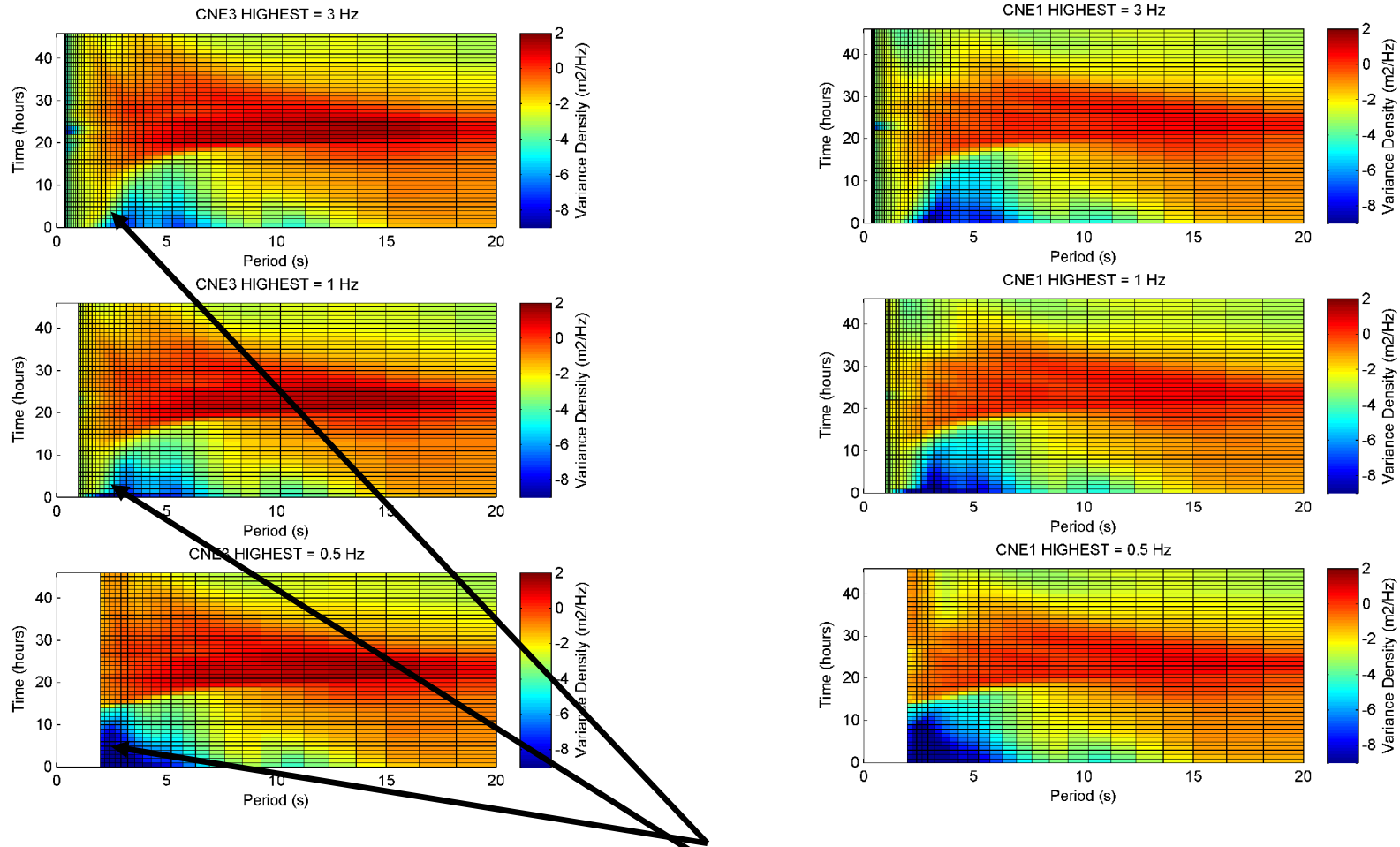
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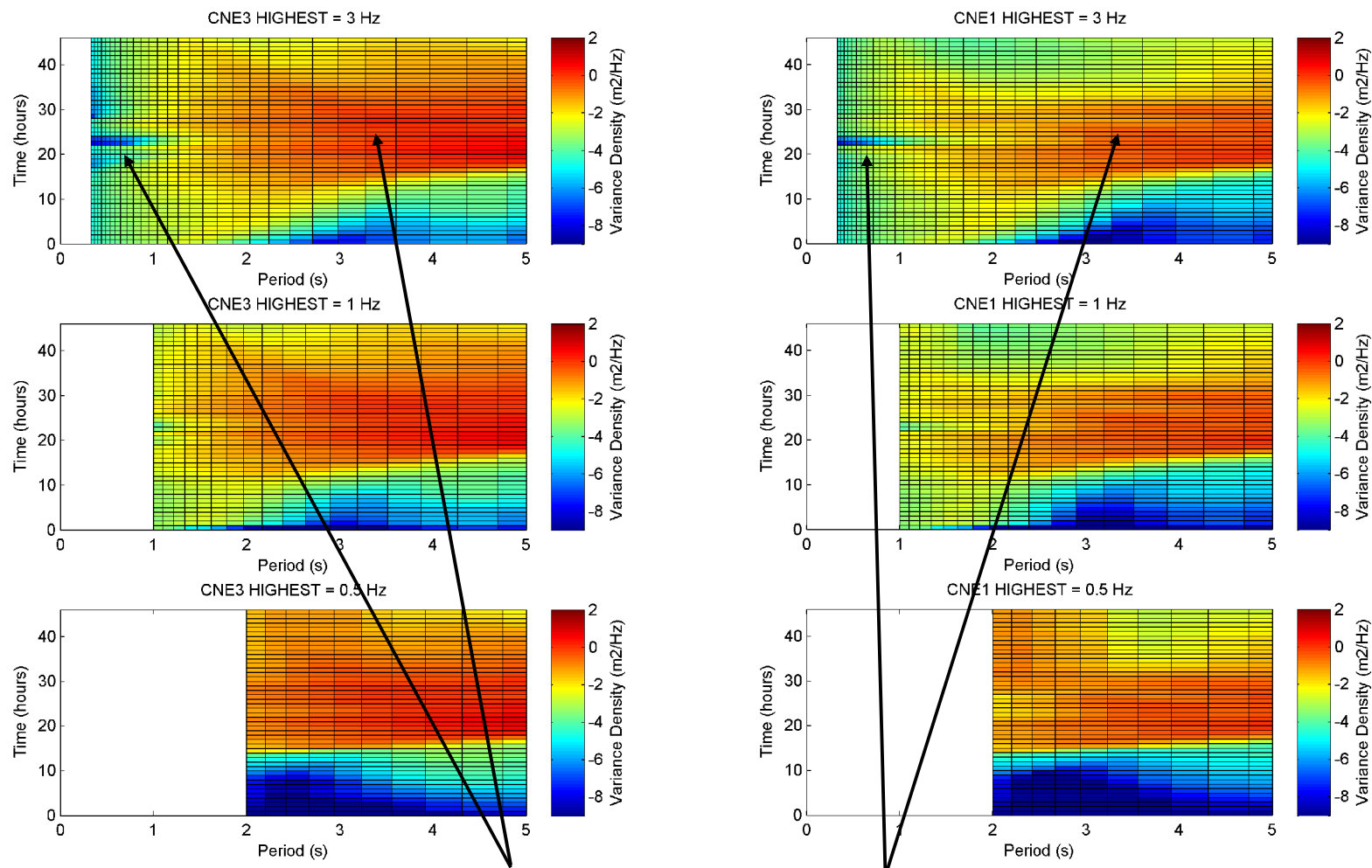
Limiting the frequency range up to 2 seconds limits the initial wave growth (0-10 hours), causing lower energy density

## Effect of SWAN frequency range on computed spectrum (TRIADS ALLOWED)



On shallower locations limiting the frequency range up to 2 seconds has less of an effect during the initial wave spectrum generation

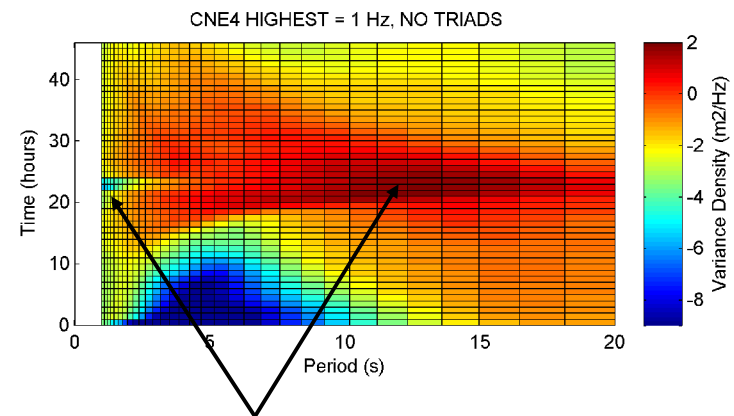
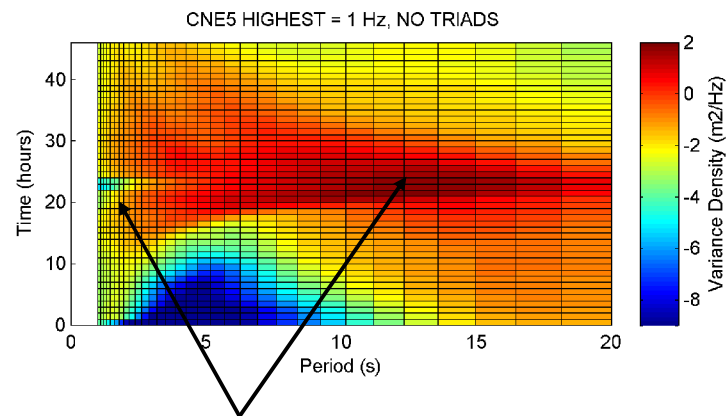
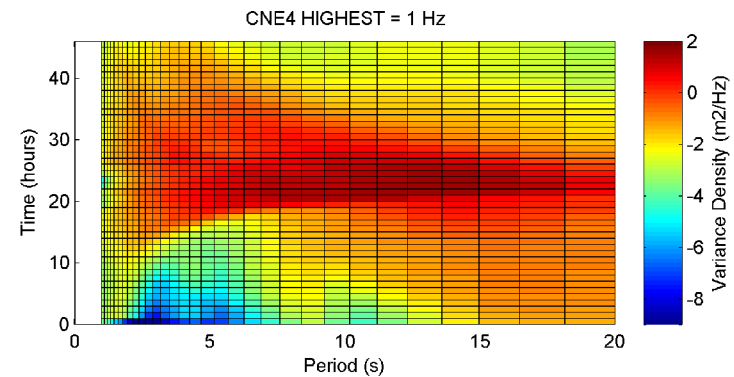
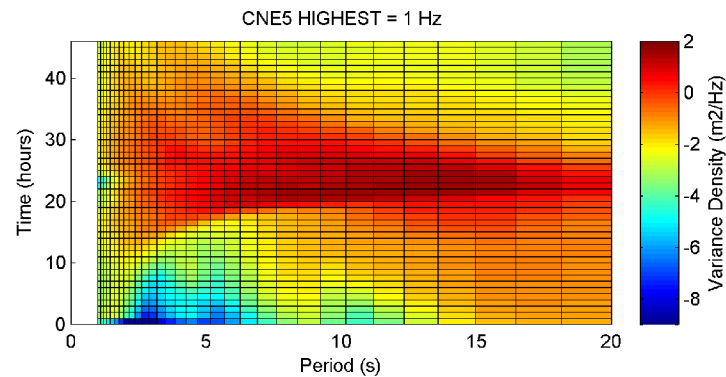
## Effect of SWAN frequency range on computed spectrum (TRIADS ALLOWED)



**BUT on these shallower locations frequency range becomes important for the transformation of the wave spectrum**

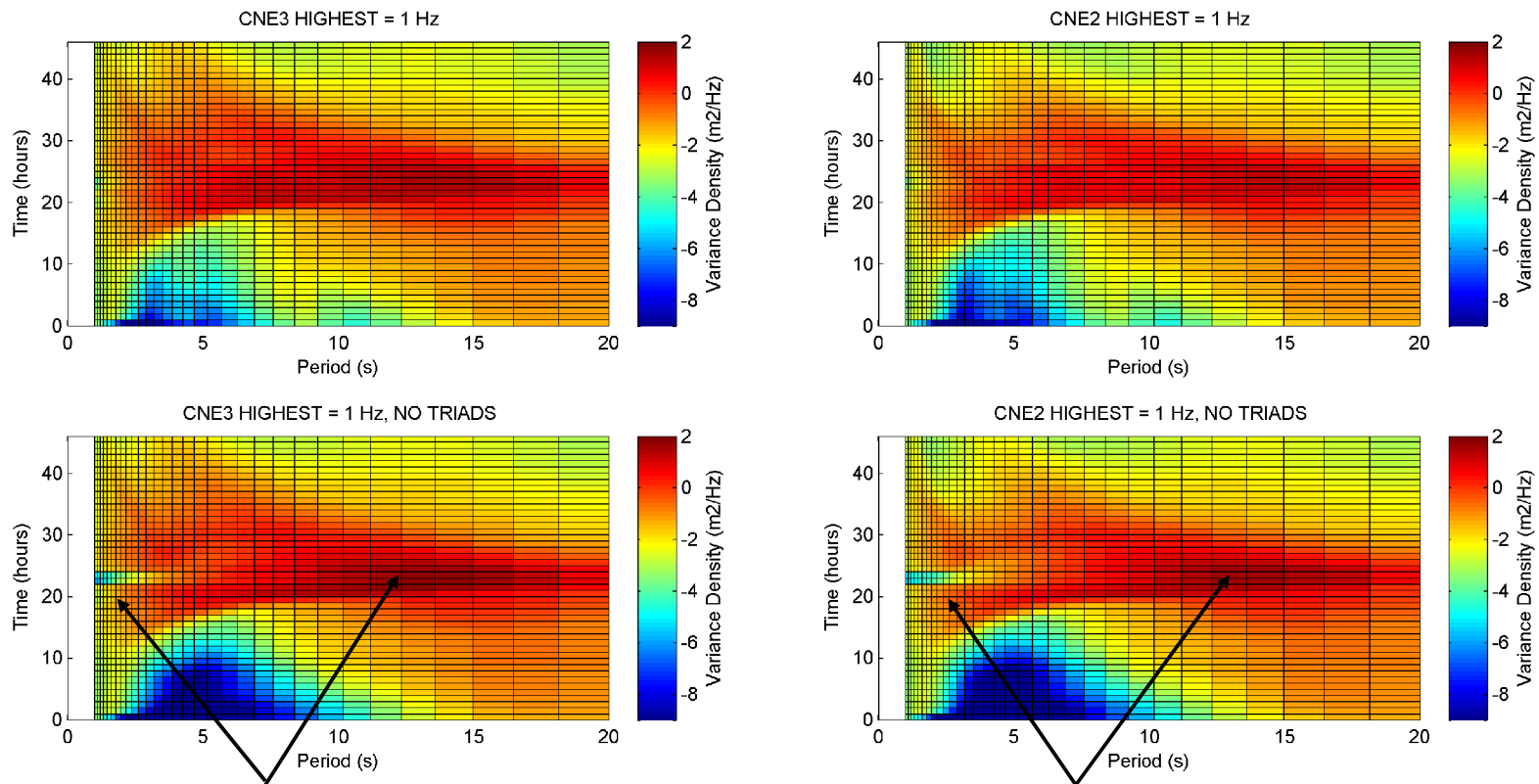


## Effect of SWAN triad interactions on computed spectrum



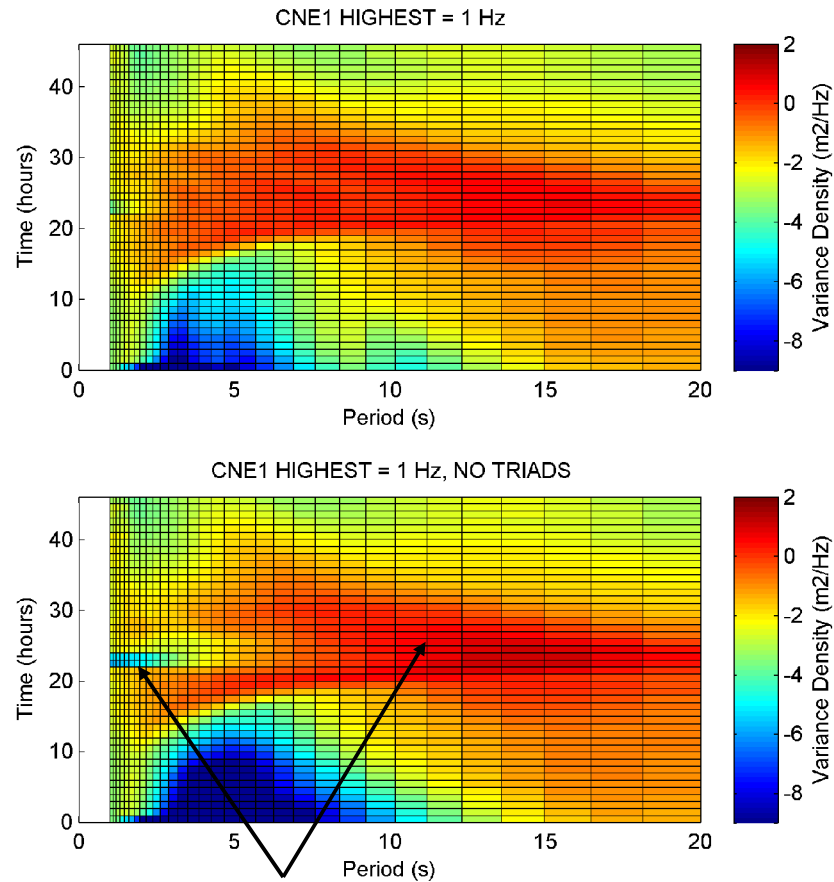
On the shallow locations not allowing triad interactions further limits the transformation of the wave spectrum, even when using a full range frequency domain. This also showcases the importance of reefs and shallow features on generating these nonlinear transformations as it was shown previously that the main differences in regards triad interactions occur over the reefs and shallow banks areas.

## Effect of SWAN triad interactions on computed spectrum



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## Conclusions

- SWAN frequency range has a significant impact on the total computation time (computational speedup of 1.60), but limiting the frequency range has a twofold effect on the wave field: it limits the initial spectral wave growth in both deep and shallow waters, and it heavily limits the spectrum transformation and energy redistribution towards high frequencies, which becomes even more important for triad interactions.
- Triad interactions have a significant impact on the computed wave heights and spectra, with maximum impact on reef, shallow banks, and shelf break areas
  - Differences of  $> 0.5$  m at some locations
  - Excluding triad interactions eliminates most energy distribution towards wave periods  $< 10$  s
- Illustrates the effect of reefs in redistributing the wave energy