

periodicity of bioluminescence

karlijn kruiswijk

Data

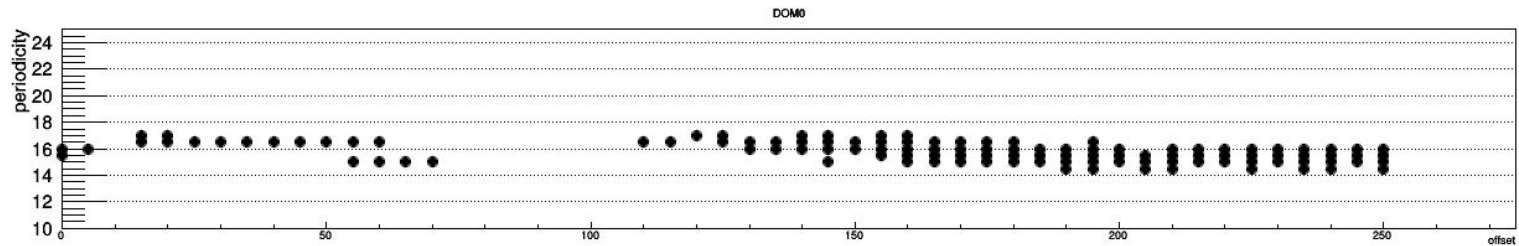
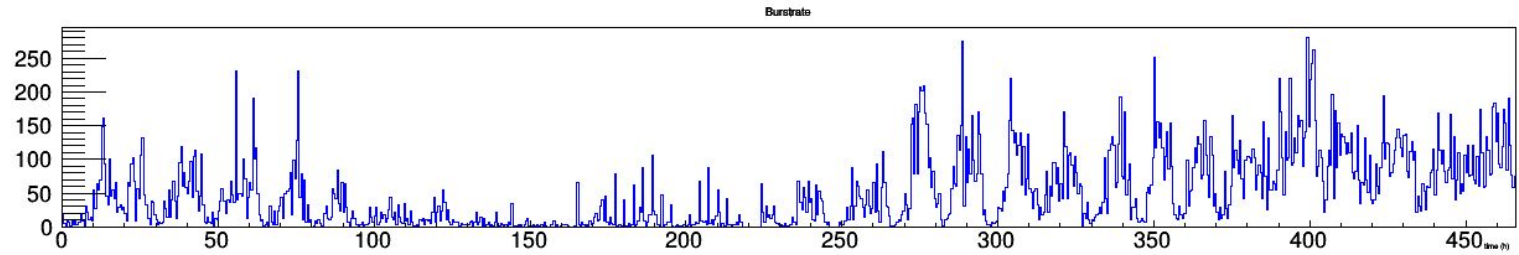
- From 16 oct till 4 nov
- ORCA
- ANTARES
- sea current

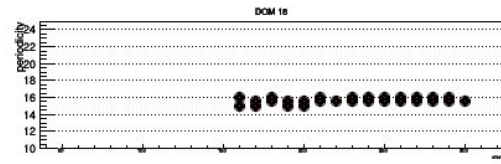
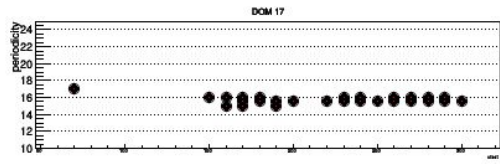
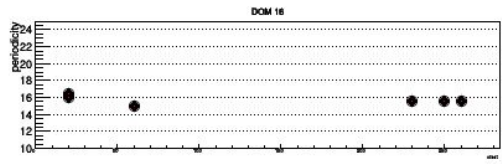
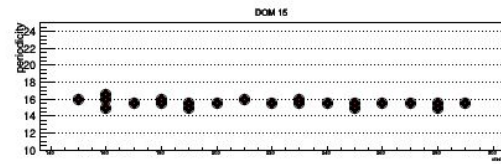
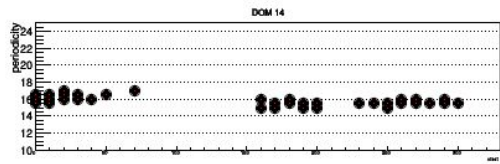
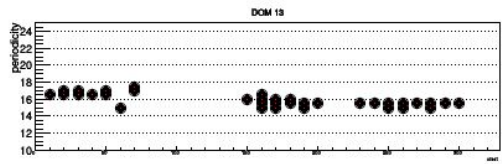
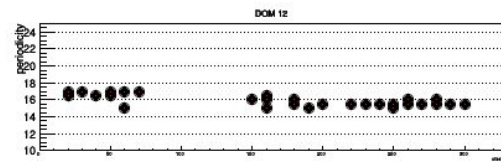
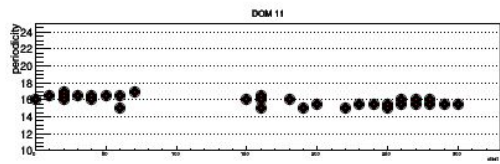
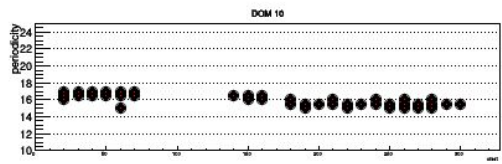
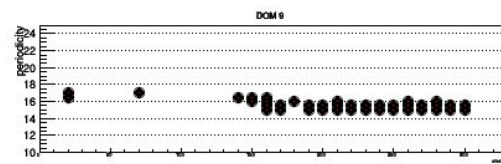
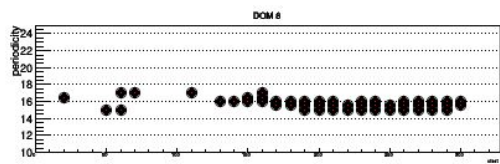
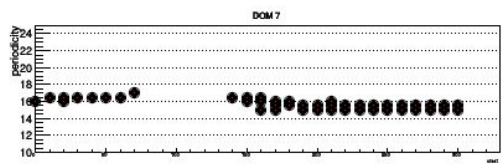
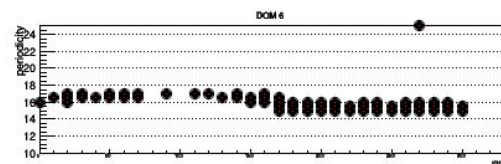
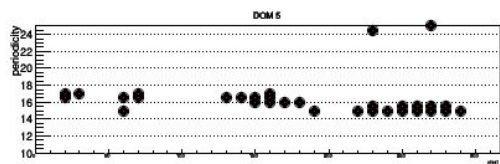
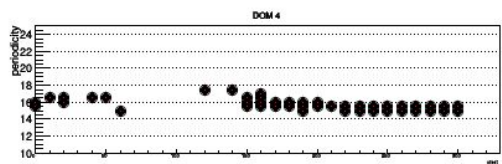
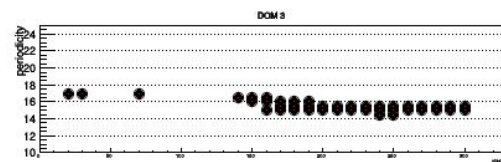
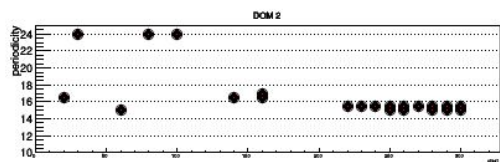
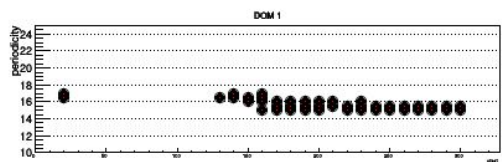
periodogram

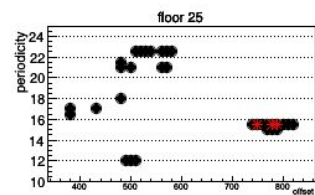
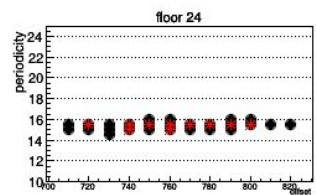
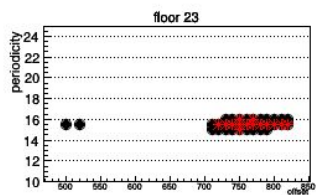
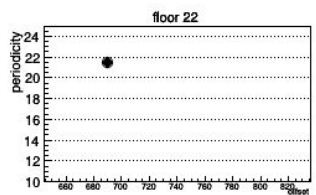
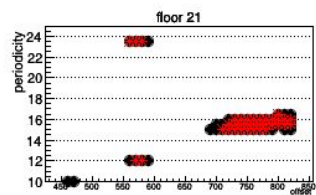
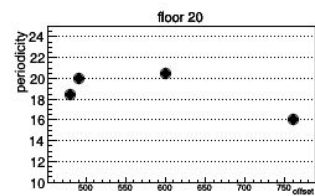
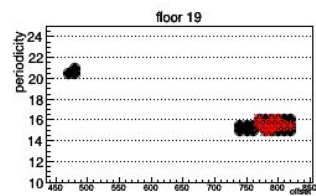
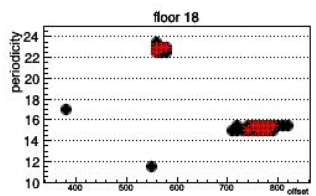
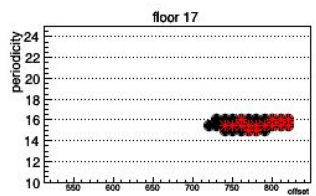
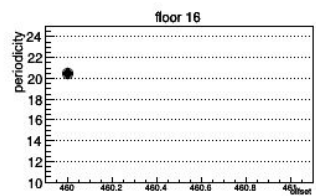
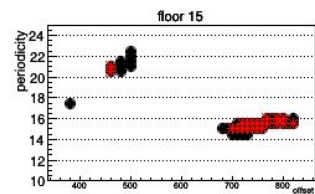
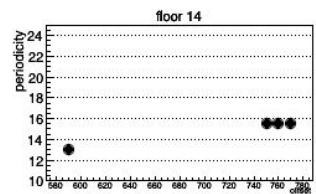
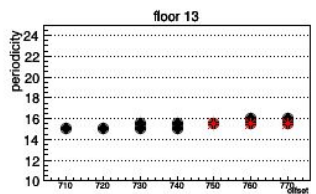
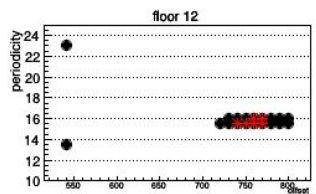
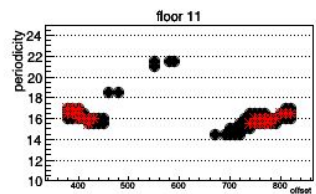
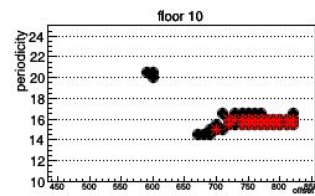
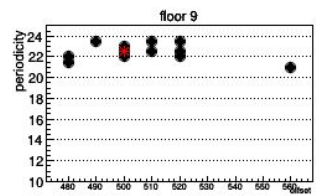
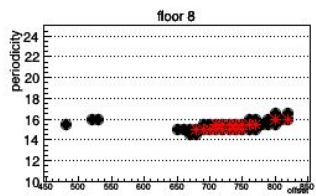
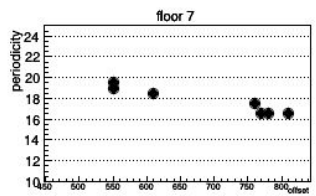
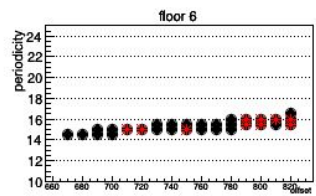
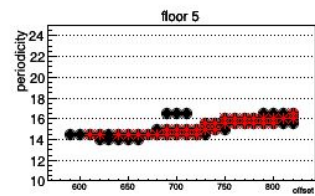
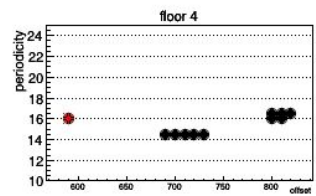
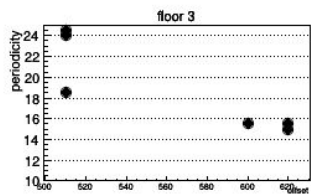
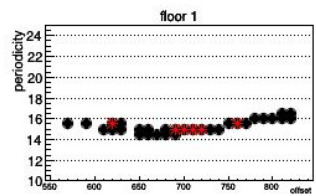
- Looking at the variance of a period
- Compare to χ^2 distribution
- Now with new features!
 - Observe periodicity changes over time
 - Dataperiods of 200h starting at different offsets
 - Compare periodogram to χ^2 distribution
 - Plot peaks

The result

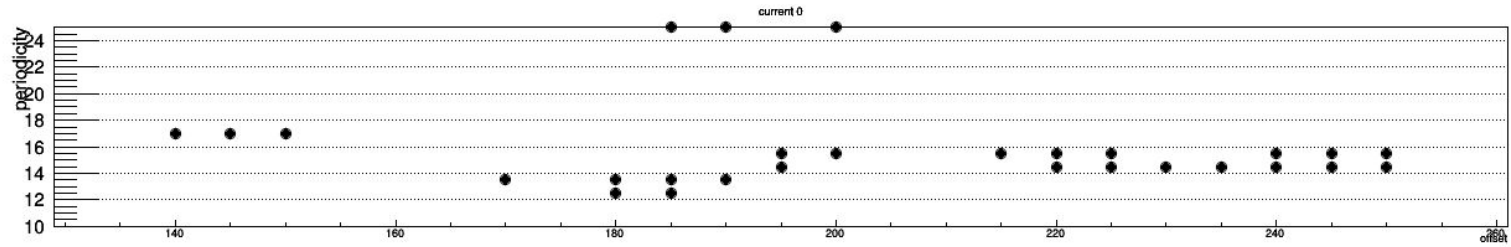
ORCA DOM 1







The horizontal current somewhat agrees



Conclusions

- There is a 16h to 15.5h periodicity in the bioluminescence
- In ORCA and ANTARES
- This periodicity is not static
- Look into:
 - More data
 - Change in periodicity over seasons