

Comment on **essd-2022-176**

Anonymous Referee #2

Referee comment on "Hydrodynamic and hydrological processes within a variety of coral reef lagoons: field observations during six cyclonic seasons in New Caledonia" by Oriane Bruyère et al., Earth Syst. Sci. Data Discuss.,
<https://doi.org/10.5194/essd-2022-176-RC2>, 2022

The knowledge of lagoon scale hydrodynamics (either from observations or modelling) was essentially limited by poor observations. Especially, during tropical cyclone seasons, strong atmospheric events give rise to strong effects to the changes of coastal and ecosystem processes. This article of "Hydrodynamic and hydrological processes within a variety of coral reef lagoons: Field observations during 6 cyclonic seasons in New Caledonia" highlights at the observations collected during the 6 cyclonic seasons in New Caledonia. Although these datasets are very locally, but in a long term, it will support the requirement to evaluate the climate change on the coastal marine environment. I think it is worthy of publishing this work at ESSD if they can improve or show more significance compare the previous background as the suggestions listed:

- In the Section 6, the overview about the data set describes the high-resolution sections for temperature, salinity and so on. I think this part should be improved more at the current version. Firstly, about the observation errors in these five regions or in the lagoons, could you add more analysis? Secondly, compared to other reference data or climatology, could you show the difference? It will highlight the values of these new observations. Finally, as the title indicated there are related to the 6 cyclonic seasons, could you conclude how far the distance (or the time lag) from the cyclones will lead to the clear impact on the lagoon hydrology? Any one of them will be give more scientific contribution.
- As we known, around New Caledonia there are long history of observations around lagoons as said in Line 54-59. Are all the observation surveys included during the cyclonic seasons around NC, especially between 2014-2021? What are the relationships with the previous surveys? It looks the zone E has a bit overlap with the one at near Noumeïa. So could you add more words to explain why to ignore those observations if existing?
- As they said at Line 460: "All data sets presented herein are freely available on SEANOE in dedicated repositories in NetCDF format." However, based on my checking, the data links for SEARSE and SAR
(<https://doi.org/10.12770/fa99ffe5-83e5-483c-8065-90a79981140>,

<https://doi.org/10.12770/dad19639-c901-4edb-85cd-1fd546aa4cdb>, and <http://dx.doi.org/10.12770/96e4f2ef-e809-4005-b5df-529adc4e3306>) show they are not open access like the rest. So could you clarify it explicitly?

- Figure 1 the letters from A-E at the top panel for the surveys are not followed chronologically as the color bar shown, which will be better for a good consistence.
- Some variables contained in the NC files can be improved for completed information. For example, one CTD profile in Dec. 2014 from SPHYNX surveys named 55275.nc provide very good field, but only one issue found about PAR which unit is not clearly stated.

```
float PAR(depth, station) ;
```

```
PAR:_FillValue = -999.f ;
```

```
PAR:longname = "Irradiance" ;
```

```
PAR:units = "PAR/Irradiance, Biospherical/Licor" ;
```

Other small comments:

Line 22: delete "stake" because the processes presented in this study like temperature and salinity variability also covering the natural variability.

Line 185: missing understanding for "the N/O Alis"