

**Review of «Hydrodynamic and hydrological processes within a variety of coral reef lagoons:
Field observations during 6 cyclonic seasons in New Caledonia»
by Bruyère et al.**

Submitted to Earth System Science Data

Reviewed by Damien Sous

This manuscript reports on an extensive in-situ monitoring of lagoon hydrodynamics in New Caledonia, France. The research project is of great interest, well placed in the global effort to document reef-lagoon systems in growing threat context. It appears to be conducted with rigour, in particular considering the remote and harsh access of studied sites. The bibliography is extensive and well replaced in the present context. The manuscript is globally well illustrated. I think this paper may be a reference document for future studies about NC reef-lagoon systems. However, it is not suitable for publication in the present form. My main concerns are (see below) : (i) careful proofreading, (ii) lack of synthesized information about instruments and processed parameters, (iii) absence of method description for several parameters of primary importance (waves, levels).

Main remarks

- I do suggest an extensive proofreading by a native english speaker. I will not go into detailed corrections, but many sentences (while not grammatically false) are heavy and/or blurry.
- l.170 : which plumes ?
- «ocean reef slope » → « forereef », everywhere
- Top and bottom plots in Figure 1 should be separated, with separated captions
- A general instrumentation table is missing, recalling the main informations (type, dates, position, parameters, measurement timing) of all deployments in a given place.
- Similarly, there is a lack for a precise list (table) of processed parameters (sea level, wave height, temperature, etc) with related processing parameters.
- Marotte HS : how the data produced by drag-tilt bottom currentmeters can be interpreted in the presence of strong reef-induced friction and associated bottom boundary layer ? My understanding is the measured data will be ok for clear sandy area, but much less reliable in the presence of coral.
- Sea level : the precise measurement of sea-level is a tricky issue. This is apparently one of the processed parameter, but nothing is said about the sea level reconstruction : vertical positioning of the sensor, compensation of drift, etc
- Wave height : similarly to Sea level, there is a lack of detailed information about the reconstruction of wave features from the measured bottom pressure.

