

Metadata for: *A numerical study of wave-driven mean flow and setup dynamics over a fringing coral reef*

Rijnsdorp et al., submitted to JGR-Oceans

1 - General information

Title dataset	Wave-driven mean flow and setup dynamics over a fringing coral reef
License	This data will become publicly available and free to use. It will be placed on the publicly available University of Western Australia research repository (https://research-repository.uwa.edu.au/) after acceptance of the manuscript.
Geographic location	The field data was collected at a reef section of the Ningaloo Reef (Western Australia), located at 21°52'9.66"S, 113°59'26.95"E.
General study design	A combined field and numerical study to investigate wave-driven mean flow and setup dynamics over a fringing coral reef.
Methods description	Refer to the methods description in the manuscript

2 - Experimental data

Dataset filename	Description
FieldData.mat	Matlab file with processed bulk wave and flow parameters that was used to generate Figure 3-5 in the manuscript. The next table provides a list of the parameters in the file.

Variable name	Description	Units
Burst	Burst number	
Date	Time stamp	DD-MM-YY HH:MM:SS
ID	Sensor ID	-
x	x-coordinate of sensor in local coordinate system	m
y	y-coordinate of sensor in local coordinate system	m
Hss	Significant sea-swell wave height	m
Hig	Significant infragravity wave height	m
Setup	Mean water level	m
Tide	Tidal level	m
U	x-velocity component in model coordinate system	m/s

V	y-velocity component in model coordinate system	m/s
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3 - Numerical model data

Numerical simulations in this study were performed with an adapted version of the open-source SWASH model (version 6.01). In this adapted version, a circulating pump system and additional outputting facilities were implemented that allowed for the internal computation of the mean-momentum balance (see Section 2.5 of the manuscript). The mean-momentum technique is described in a separate paper.

Model input files are provided for all simulations. An executable of the adapted SWASH model (compiled using intel fortran and the mpich library on a windows system) required to run the simulations is included in a separate zip file. The methodology to output the mean-momentum terms will be included in a future release of the SWASH software package (<http://swash.sourceforge.net/>).

Dataset filename	Description
Lagoon_Simulations.zip	This zip-file contains all model input files for the lagoon-scale simulations (described in Section 2.3).
2DV_Simulations.zip	This zip-file contains all model input files for the 2DV simulations (described in Section 5.1.1)
swash.zip	Executable of the adapted SWASH model (compiled on windows)