

Hydrodynamic characterization of a meso-tidal estuary: Inhambane Bay (Mozambique)

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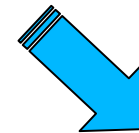
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1. PROJECT FRAMEWORK

Collaboration agreement entre Universiade Save (US) and Universitat Politècnica de Catalunya focused on 4 differentiate tasks in Inhambane Bay (IB):



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Academic
and TIC
support to
US.

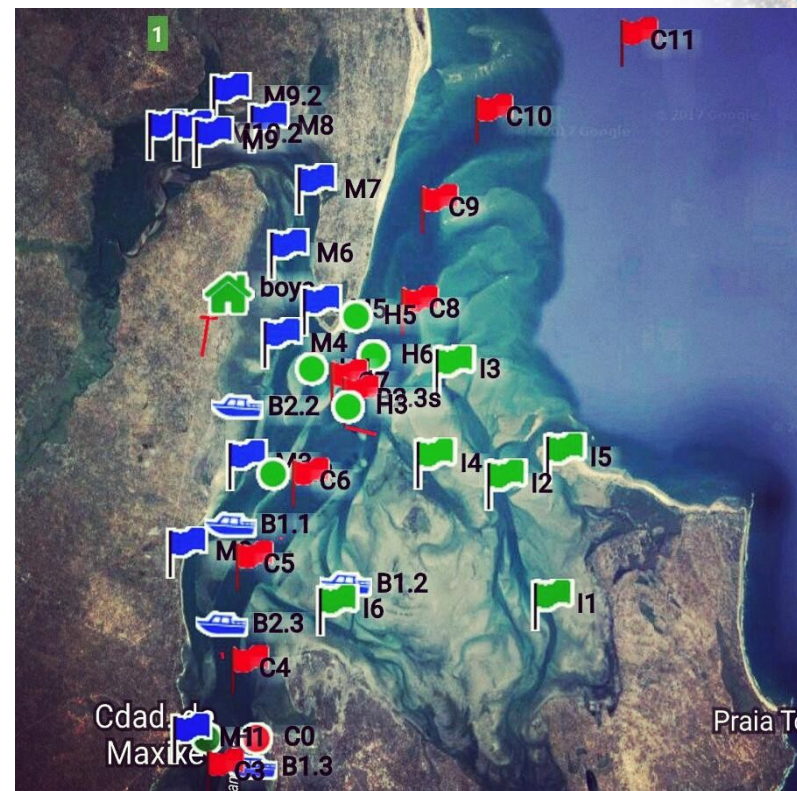
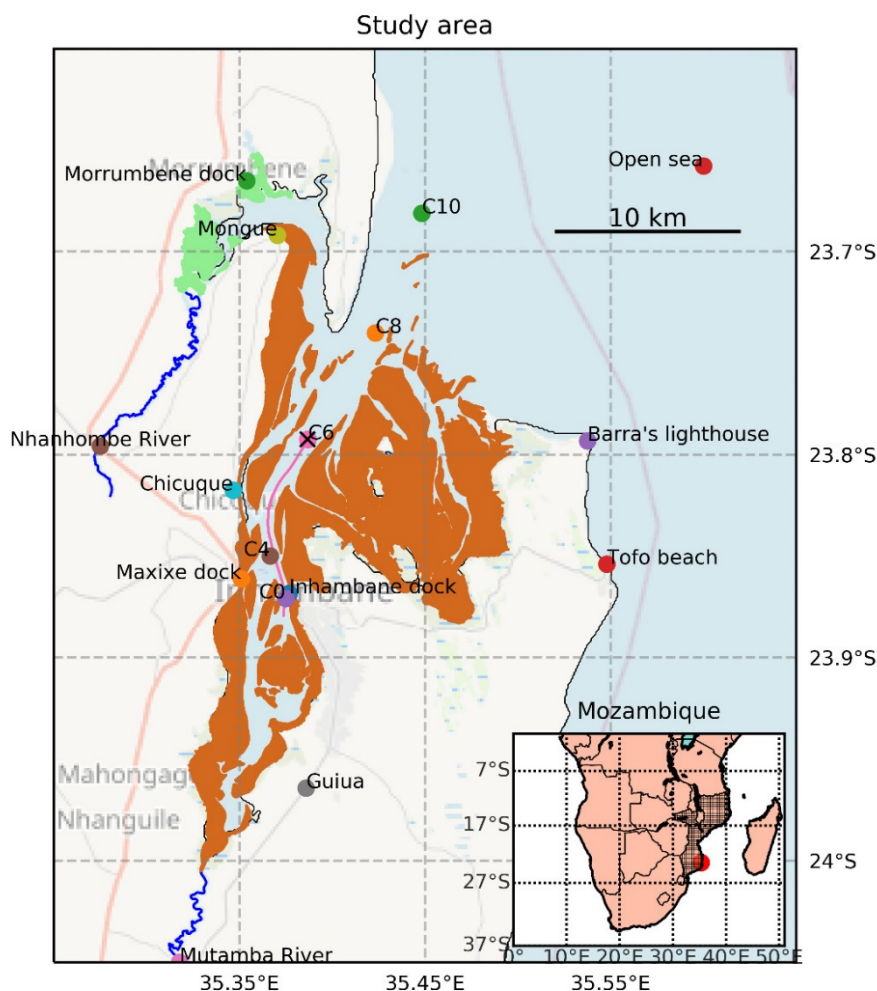
New Research
Lines Developing

Low-cost
environmental
monitoring in IB

Training local
agents in IB

2. LOCATION AND FIELD CAMPAIGNS

Inhambane Bay location and Field Campaigns.



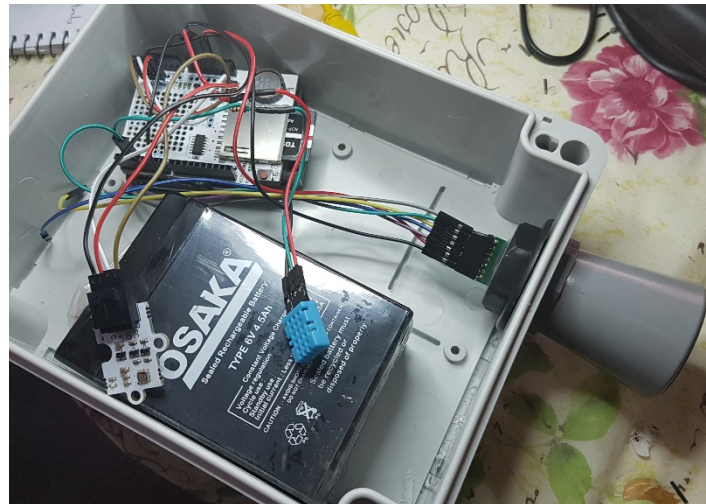
CTD surveys
Wind measurements
ADCP moorings
Sea level gauge
River flow meter

3. SENSORS AND INSTRUMENTATION

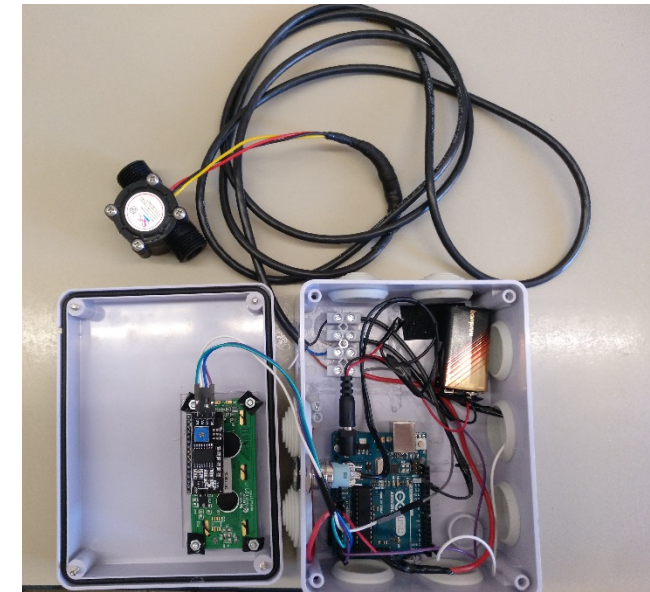
“Low Cost” and “Do it yourself” perspective (Arduino + sensors + shields).
Examples:



Lagrangian Buoy



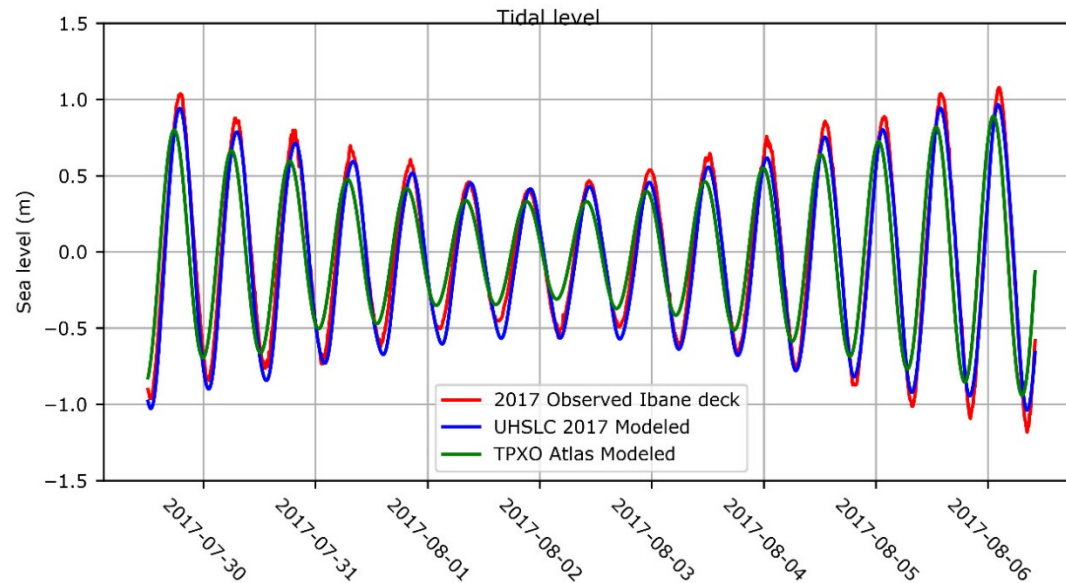
Sea Level gauge



Flow meter

4. ESTUARINE CHARACTERIZATION

Tidal constituents + Form number + Flushing time (1 ~ 3 days).

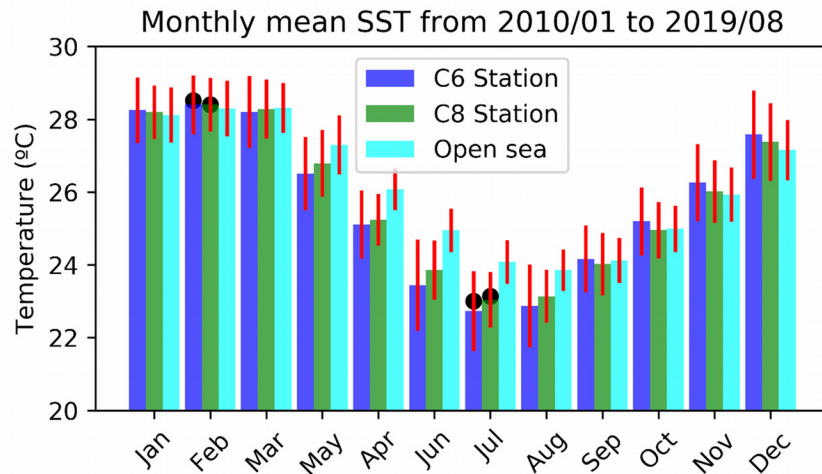


$$Nc = \frac{(K1 + O1)}{(M2 + S2)} = \frac{(0.028 + 0.031)}{(0.912 + 0.440)} = 0.04363$$

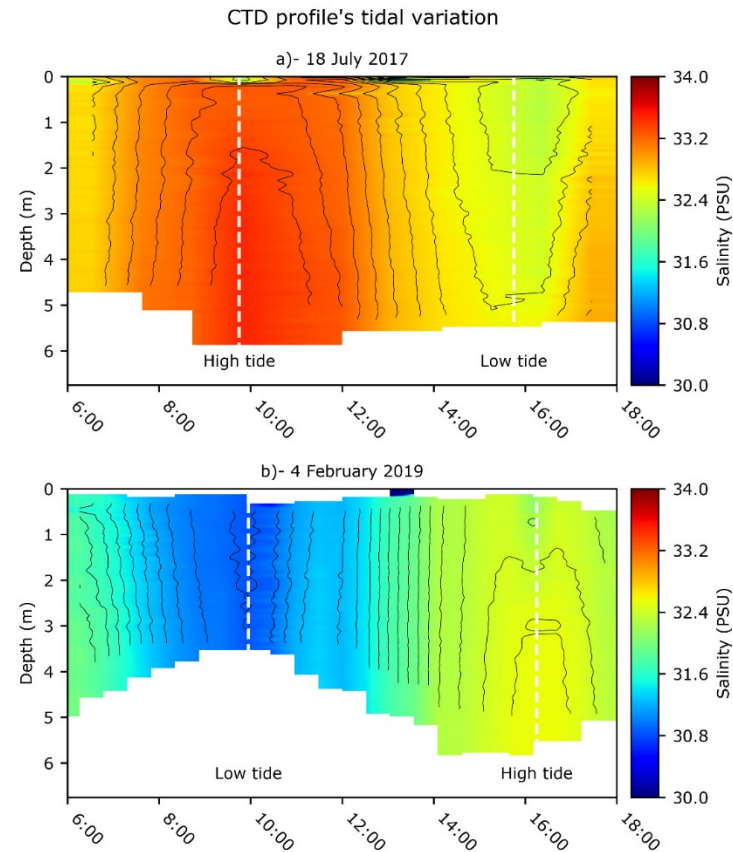
Constituent		2017 Observed Dataset	
Name	Period (h)	Amplitude (m)	Phase (deg)
M2	12.42	0.912	82.87
S2	12.00	0.440	132.33
N2	12.66	0.099	149.23
O1	25.82	0.031	0.03
K1	23.90	0.028	119.89

4. ESTUARINE CHARACTERIZATION

Monthly SST from GHRSSST + CTD profiles + Estuarine Richardson Number

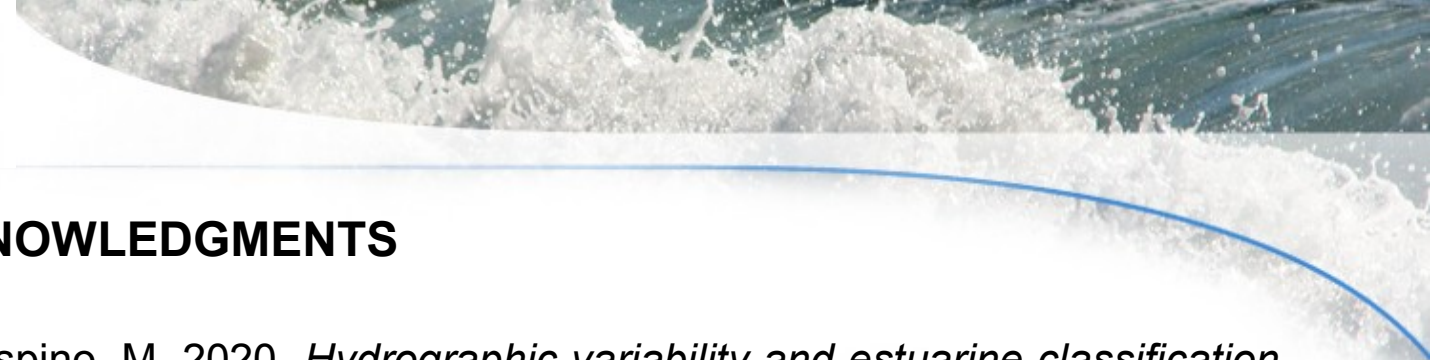


Substantial consistency
between GHRSSST and
SST measurements



$$Ri_E = 0.0008$$

Well-mixed



5. REFERENCES AND ACKNOWLEDGMENTS

Solana, G.; Grifoll, M., and Espino, M., 2020. *Hydrographic variability and estuarine classification of Inhambane Bay (Mozambique)*, Journal of Coastal Research, 95, pp. 649–653. DOI: 10.2112/SI95-126.1

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Agència Catalana
de Cooperació
al Desenvolupament



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Thanks!



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