Modern environment characterization of interdunal lakes in Inhambane province (SE Mozambique) as an analogue to understand past environmental changes



r further information:



Why did we do this study?

- To understand the present-day environments of coastal Mozambique
- To contextualize Quaternary environmental changes and their role in human evolution

Study area





Lake Chivanene



Lake Muangue

How did we carry out this study?

- In 2019 we collected sediment cores from four interdunal lakes in Inhambane (above). These lakes were selected after analysis of geological, hydrographic and tectonic maps, satellite imagery and derived products, and previous research.
- At each lake the vegetation cover and land uses were described in detail and water parameters measured.
- At the lakes with the longest sedimentological records (Muangue and Nyalonzelwe), an unmanned aerial vehicle (UAV) survey was carried out to create high resolution maps and digital elevation models (DEMs).

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Lake Nyambutse



Lake Nyalonzelwe







Nyalonzelwe DEM (C); orthophotomap (D)

	MUAN	CHIV	NHAM	NYAL		MUAN	CHIV	NHAM	NYAL
Temp. (°C)	25.5	26.6	25	22.8	Species	43	34	27	35
Conductivity (µS)	518	379	237	1435	Species Lists	Click <u>here</u>	Click <u>here</u>	Click <u>here</u>	Click <u>here</u>
рН	8.5	7.2	7.3	9.1					

Conclusions

- Interdunal lake environments in Inhambane Province are diverse
- The deepest sediments came from a lake surrounded by the highest dunes
- Aquatic species diversity decrease with water depth
- Nyalonzelwe lake is brackish and presents the highest pH. This may be due to: 1) higher evaporation/precipitation; 2) salts leaching from the surrounding geology; 3) saline intrusion (via aquifers or marine intrusion).

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