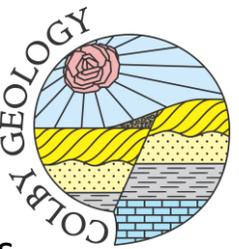


# Analyzing motu morphometrics on coral atolls in the context of local wave climate

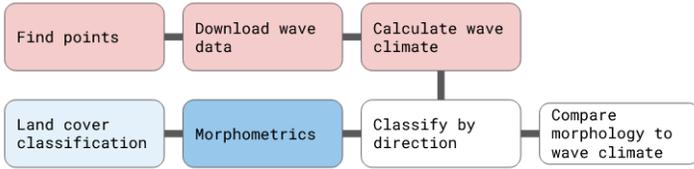
Bentley Meyer, Colby College Waterville Maine, United States.

Faith M. Johnson, Civil, Construction, and Environmental Engineering Department, North Carolina State University Raleigh North Carolina, United States.

Alejandra C. Ortiz, Geology Department, Colby College Waterville Maine, United States.



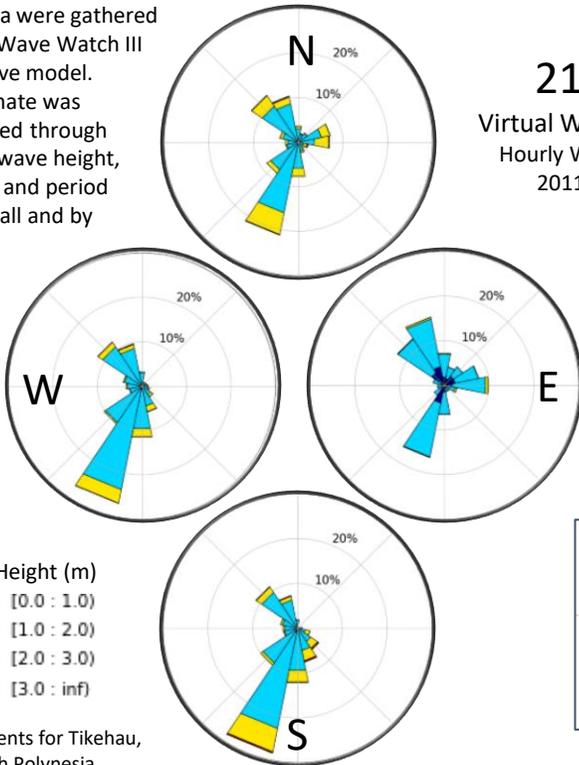
## Methods



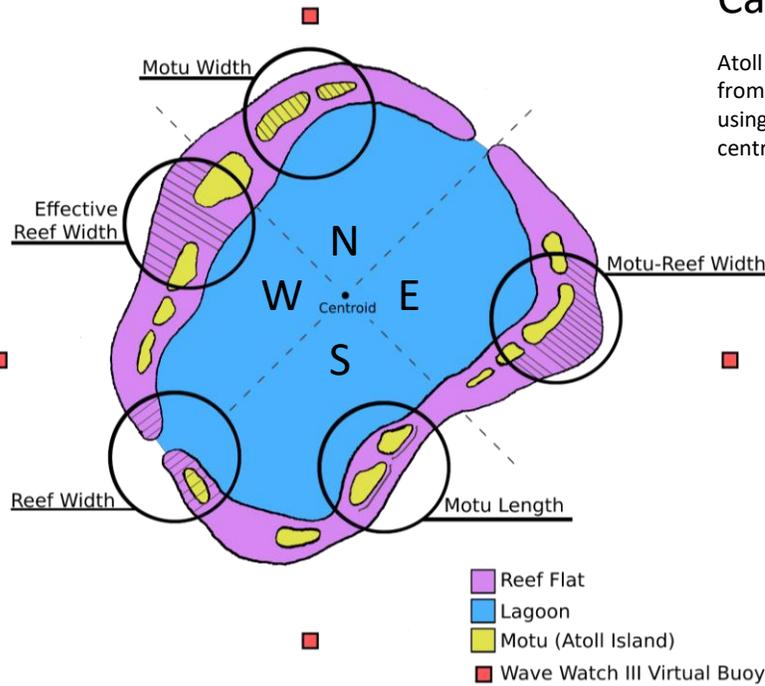
## Calculating Wave Climate

Wave Data were gathered from the Wave Watch III global wave model. Wave climate was represented through trends in wave height, direction, and period both overall and by season.

2103 Virtual Wave Buoys  
Hourly WWIII data  
2011-2019



Measurements for Tikehau, French Polynesia



Wave climate analyzed at  
**446 sites**  
41 metrics per virtual buoy

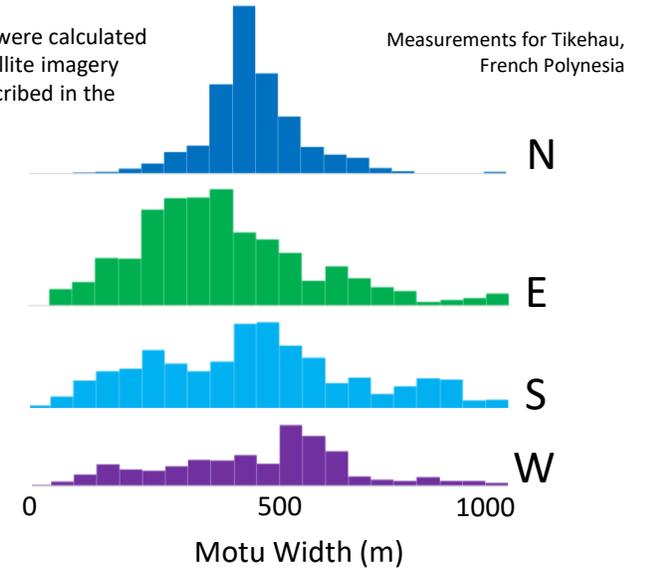
Morphometrics calculated at  
**87 atolls**  
Up to 72 metrics per atoll



Atoll Database. Yellow: No Data, Green: Wave Data, Blue: Wave Data and Morphometric Data

## Calculating Atoll Morphometrics

Atoll morphometrics were calculated from categorized satellite imagery using the metrics described in the central figure.



## Comparing Morph. to Wave Climate

