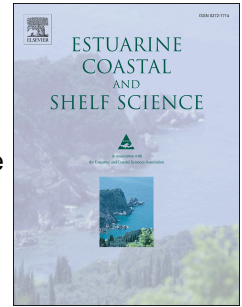


Accepted Manuscript

Differential in surface elevation change across mangrove forests in the intertidal zone

Haifeng Fu, Wenqing Wang, Wei Ma, Mao Wang



PII: S0272-7714(17)30828-4

DOI: [10.1016/j.ecss.2018.03.025](https://doi.org/10.1016/j.ecss.2018.03.025)

Reference: YECSS 5802

To appear in: *Estuarine, Coastal and Shelf Science*

Received Date: 16 August 2017

Revised Date: 22 March 2018

Accepted Date: 29 March 2018

Please cite this article as: Fu, H., Wang, W., Ma, W., Wang, M., Differential in surface elevation change across mangrove forests in the intertidal zone, *Estuarine, Coastal and Shelf Science* (2018), doi: 10.1016/j.ecss.2018.03.025.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Differential in surface elevation change across mangrove forests in the intertidal zone

Haifeng FU, Wenqing WANG, Wei MA, Mao WANG*

Key Laboratory of the Coastal and Wetland Ecosystems (Xiamen University), Ministry of Education; College of the Environment & Ecology, Xiamen University, Xiamen 361102, Fujian, China

Abstract

A better understanding of surface elevation changes in different mangrove forests would improve our predictions of sea-level rise impacts, not only upon mangrove species distributions in the intertidal zone, but also on the functioning of these wetlands. Here, a two-year (2015–2017) dataset derived from 18 RSET-MH (rod surface elevation table-marker horizon) stations at Dongzhaigang Bay, Hainan, China, was analyzed to investigate how surface elevation changes differed across mangrove species zones. The contemporary SET data indicated a rather high rate ($9.6 \text{ mm}\cdot\text{y}^{-1}$, on average) of surface elevation gain that was mostly consistent with that ($8.1 \text{ mm}\cdot\text{y}^{-1}$, on average) inferred from either the ^{137}Cs or ^{210}Pb dating of sediment cores. In addition, these surface elevation changes were sensitive to elevation in the intertidal zone and differed significantly between the two study sites (Sanjiang and Houpai). Mangrove species inhabiting the lower intertidal zone tended to experience greater surface elevation change at Sanjiang, which agrees with the general view that sedimentation and elevation gains are driven by elevation in the intertidal zone (i.e., greater when positioned lower in the intertidal profile). However, at Houpai, both surface elevation change and surface accretion showed the opposite trend (i.e., greater when positioned higher in the intertidal profile). This study's results indicate that the pattern of surface elevation changes across the intertidal profile maybe inconsistent due to intricate biophysical controls. Therefore, instead of using a constant rate, models should presume a topography that evolves at differing rates of surface elevation change in different species zones across the intertidal profile when predicting the impacts of sea-level rise on mangrove distributions.

Keywords: mangroves; surface elevation change; surface accretion; species zonation; variability; Hainan Island

1. Introduction

Download English Version:

<https://daneshyari.com/en/article/8884793>

Download Persian Version:

<https://daneshyari.com/article/8884793>

[Daneshyari.com](https://daneshyari.com)