Accepted Manuscript

Nearshore hydrodynamics at pocket beaches with contrasting wave exposure in southern Portugal

João Horta, Sónia Oliveira, Delminda Moura, Óscar Ferreira

PII: S0272-7714(17)30478-X

DOI: 10.1016/j.ecss.2018.02.018

Reference: YECSS 5760

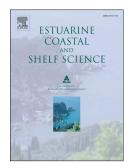
To appear in: Estuarine, Coastal and Shelf Science

Received Date: 3 May 2017

Revised Date: 9 February 2018
Accepted Date: 15 February 2018

Please cite this article as: Horta, Joã., Oliveira, Só., Moura, D., Ferreira, Ó., Nearshore hydrodynamics at pocket beaches with contrasting wave exposure in southern Portugal, *Estuarine, Coastal and Shelf Science* (2018), doi: 10.1016/j.ecss.2018.02.018.

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.



ACCEPTED MANUSCRIPT

Nearshore hydrodynamics at pocket beaches with contrasting wave exposure in southern Portugal

João Horta*, Sónia Oliveira, Delminda Moura and Óscar Ferreira

CIMA/Universidade do Algarve, Edifício 7, Campus de Gambelas Faro, 8005-139, Portugal, jphorta@ualg.pt, saoliveira@ualg.pt, dmoura@ualg.pt and oferreir@ualg.pt.

Abstract

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

Pocket beaches on rocky coasts with headlands that control hydro-sedimentary processes are considered to be constrained sedimentary systems, generally with limited sediment inputs. Pocket beaches face severe changes over time. Under worstcase scenarios, these changes can result in the loss of the beach, causing waves to directly attack adjacent cliffs. Studies of nearshore hydrodynamics can help to understand such changes and optimise sediment nourishment procedures. The present work contributes to the knowledge of hydrodynamic forcing mechanisms at pocket beaches by providing a comprehensive description of the nearshore circulation at two beaches with contrasting wave exposures. Two pocket beaches in southern Portugal were studied by combining field measurements of waves and currents with numerical models (STWAVE and BOUSS-2D). The aim of this analysis was to evaluate nearshore hydrodynamics under different wave exposure forcing conditions (e.g. variable wave heights/directions and different tidal levels). The results show that the beach circulation can rapidly shift from longshore- to ripdominated depending on changes in both the offshore wave direction and tidal levels. Waves with higher obliquity (for both low and moderate wave energy conditions) tend to generate longshore circulation in all considered tidal stages, while waves with lower obliquity tend to produce rip flow with higher-velocity rip currents during low to intermediate tidal stages. The results indicate that the location and intensity of rip currents strongly depend on geomorphological constraints, that is, the control exerted by shore platforms. A larger morphological control is observed at mean sea level because most platforms are submerged/exposed during high/low tide and therefore exert less control on nearshore circulation.

Keywords: Pocket beach; rip current; nearshore circulation; numerical modelling

31

32

33

دريافت فورى ب متن كامل مقاله

ISIArticles مرجع مقالات تخصصی ایران

- ✔ امكان دانلود نسخه تمام متن مقالات انگليسي
 - ✓ امكان دانلود نسخه ترجمه شده مقالات
 - ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
 - ✓ امكان دانلود رايگان ۲ صفحه اول هر مقاله
 - ✔ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
 - ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات