geosciences

MDPI

Supplementary file

Regional scale sea cliff hazard assessment at Sintra and Cascais counties, western coast of Portugal

Fernando Marques

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1. Supplementary file

The supplementary file to the paper includes:

a) Oblique aerial photographs of selected cliff sectors including localization map.

b) Sea cliff failures examples in vertical aerial photographs with localization map.

c) Maps of cliff failure predisposing factors lithology, toe protection and mean annual wave power, and of the result of the logistic regression model considering all factors.

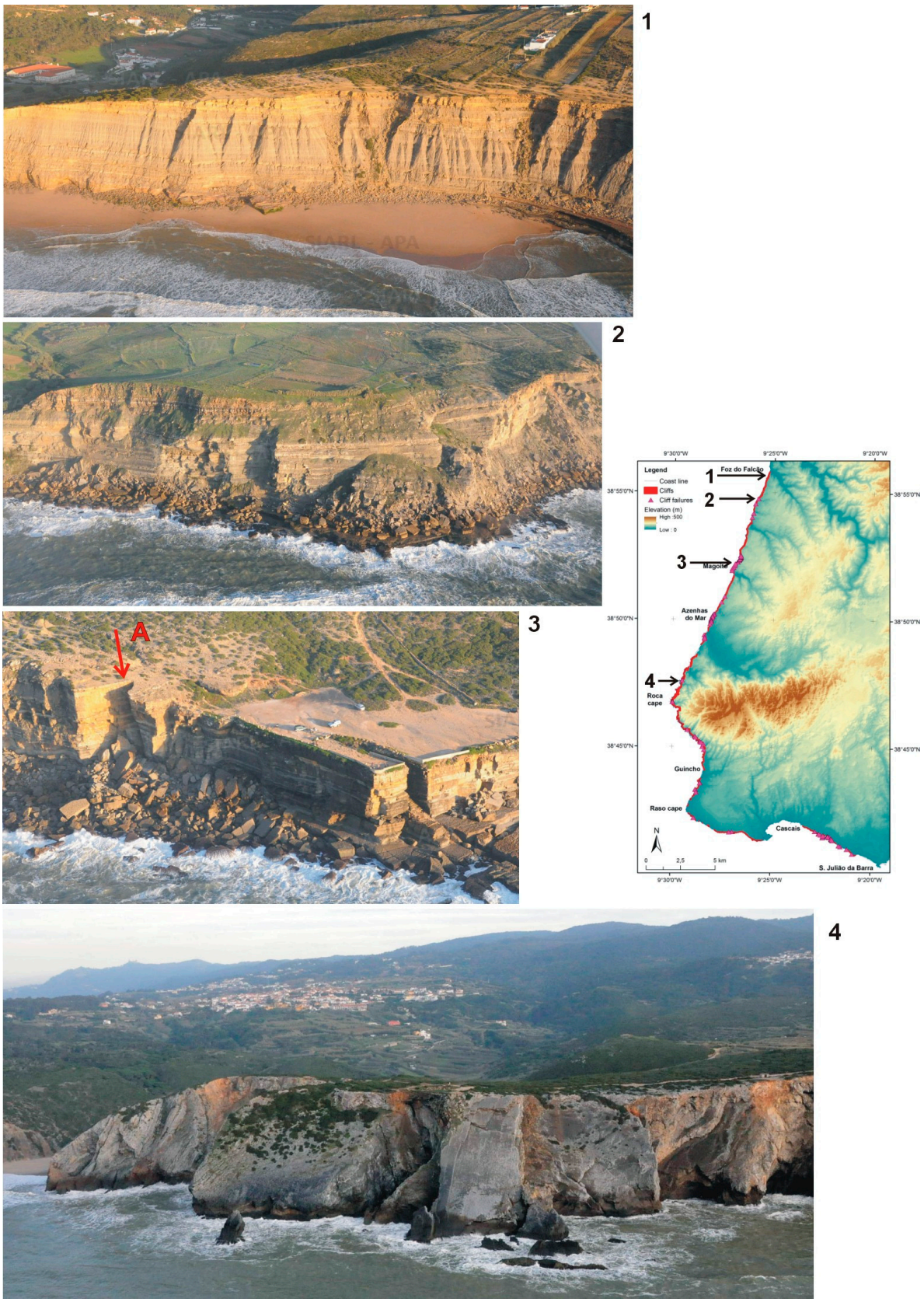


Figure SF1a. Oblique aerial photographs of selected cliff sectors (aerial photographs by Eng. A. Mota Lopes, provided by APA, the Portuguese Environment Agency) including localization map. In photograph 3 the red arrow and letter A indicate the location of cliff failure example in Figure SF2a.

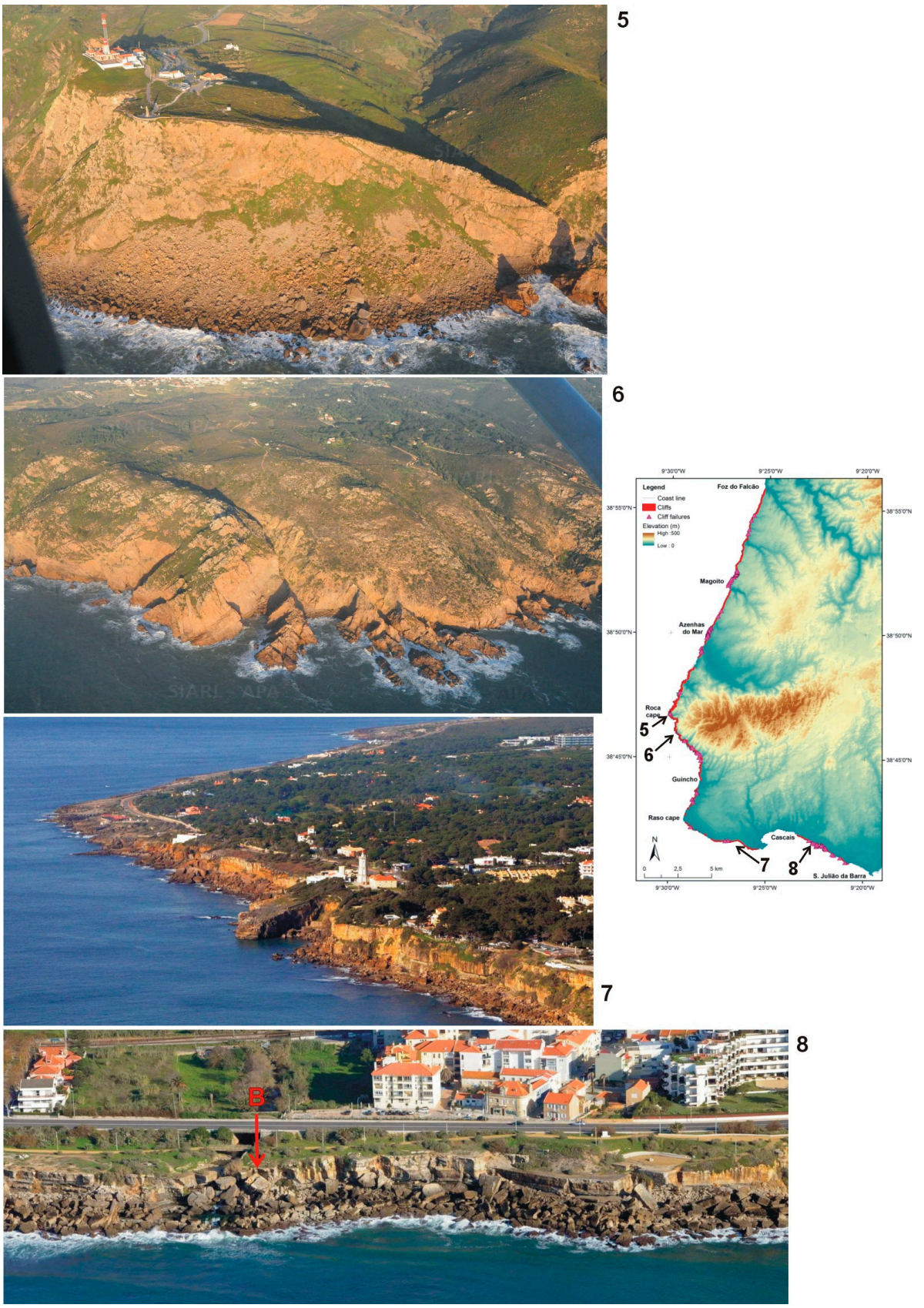


Figure SF1b. Oblique aerial photographs of selected cliff sectors (aerial photographs by Eng. A. Mota Lopes, provided by APA, the Portuguese Environment Agency) including localization map. In photographs 8 the red arrow and letter B indicate the location of cliff failure example in Figure SF2b.

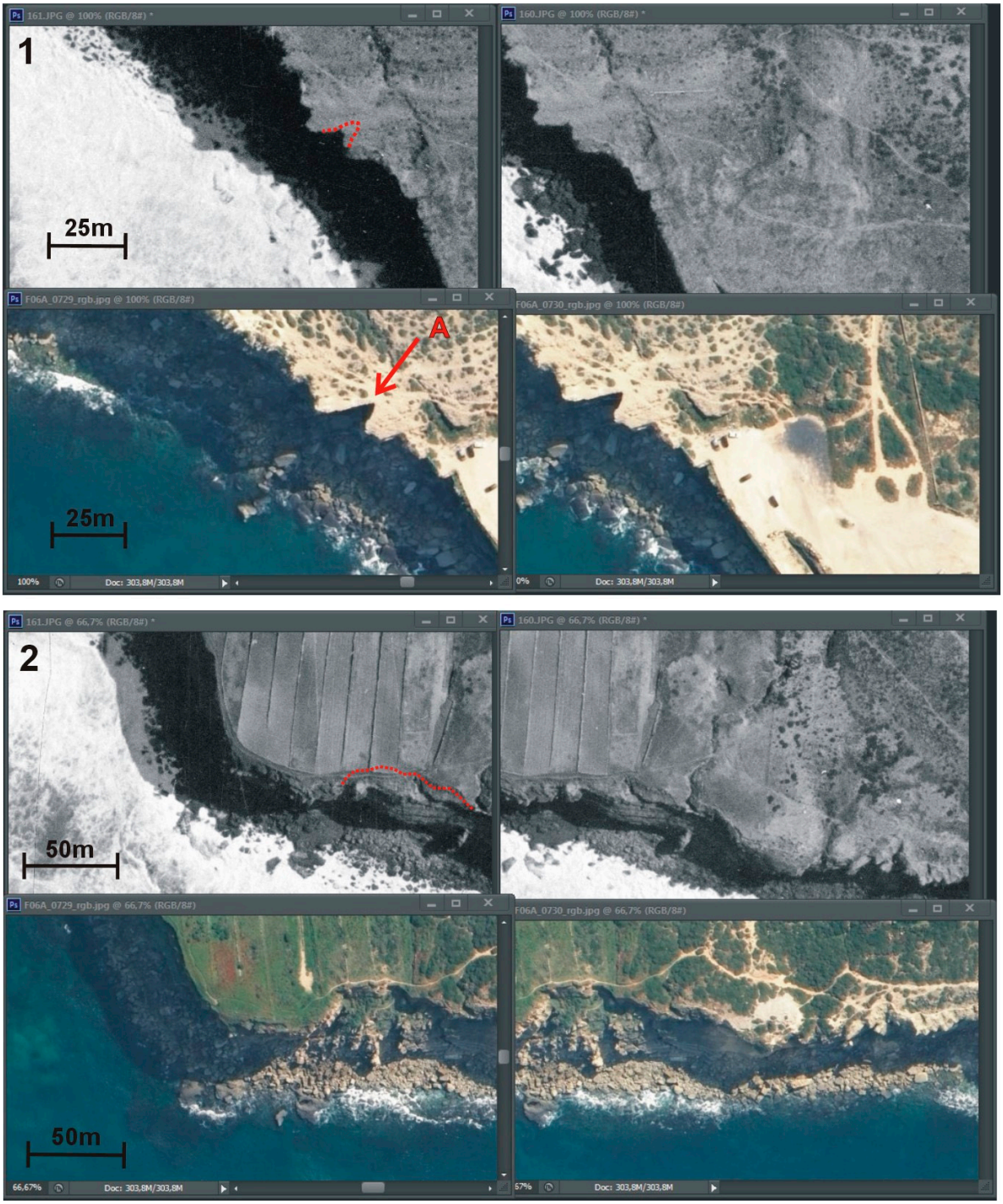


Figure SF2a. Stereoscopic pairs of old (above, black and white, SPLAL flight 1941-1943?) and recent (color, 2010) vertical aerial photos depicting examples of cliff failures included in this study. Localization map in Figure SF2b. The red arrow and letter A indicate the location of the cliff failure pointed out in Figure SF1a, photograph 3.

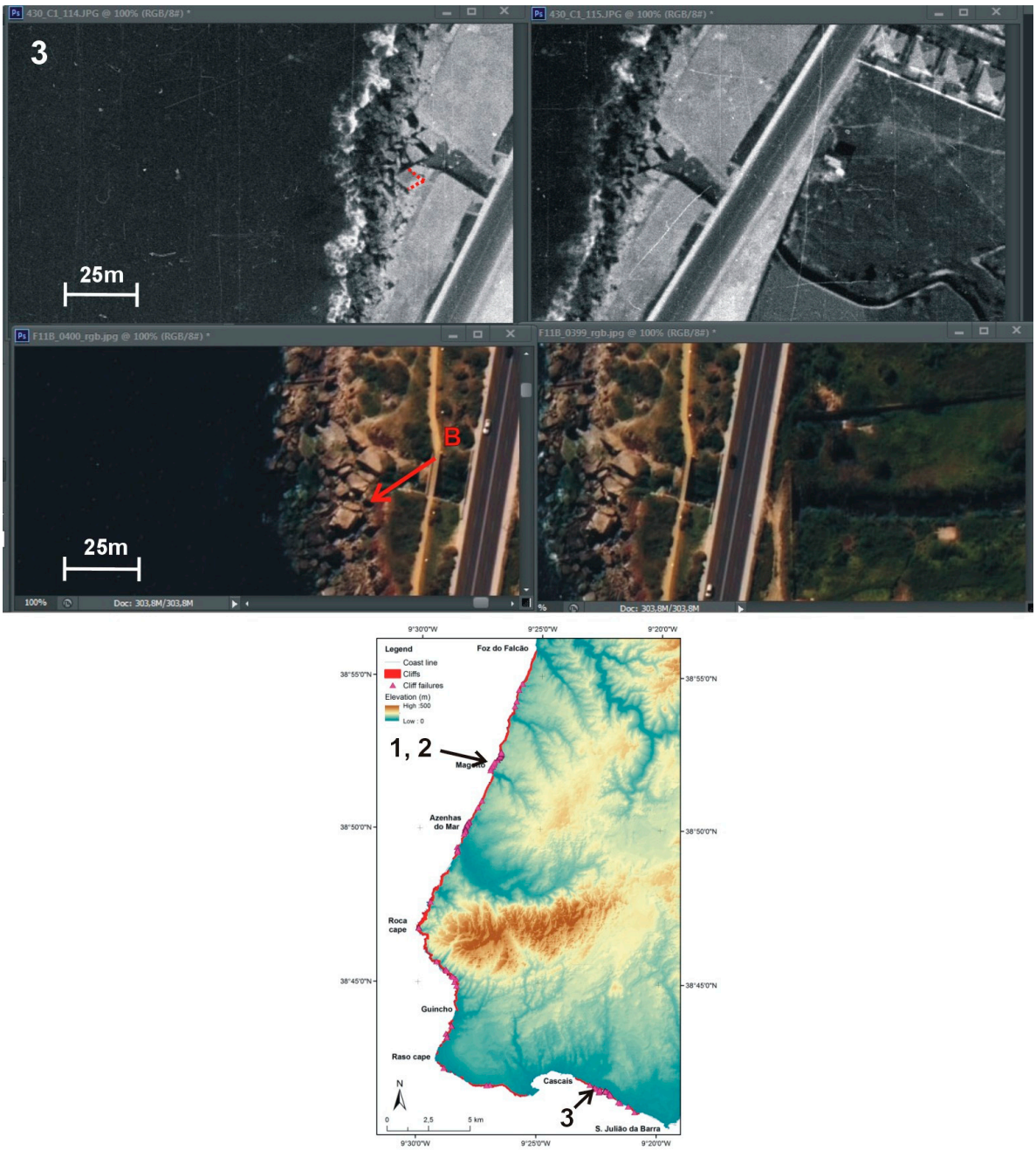
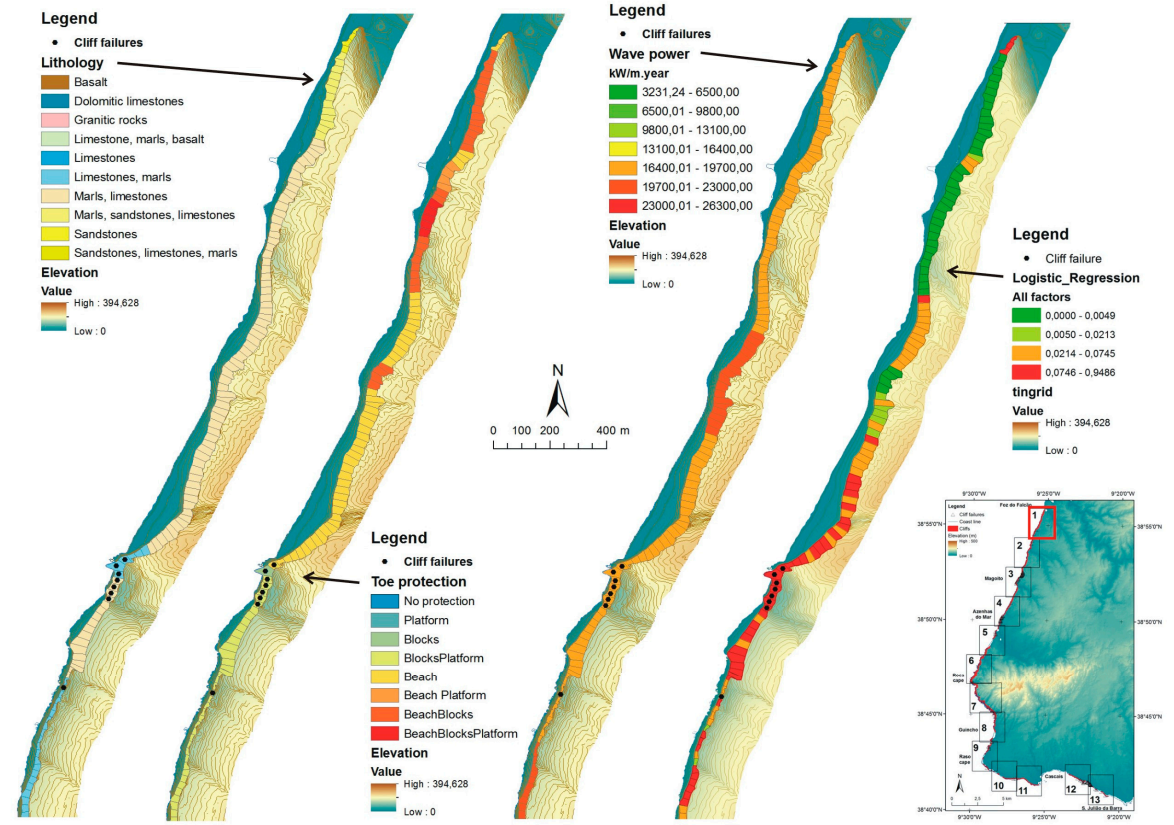


Figure SF2b. Stereoscopic pair of old (above, black and white, SPLAL flight 1941-1943?) and recent (color, 2010) vertical aerial photos depicting example of cliff toppling failure included in this study with localization map. The red arrow and letter B indicate the location of the cliff failure pointed out in Figure SF1b, photograph 8.

Figure SF3. (Following pages) Maps of cliff failure predisposing factors lithology, toe protection and mean annual wave power, and of the result of the logistic regression model considering all factors (13 maps).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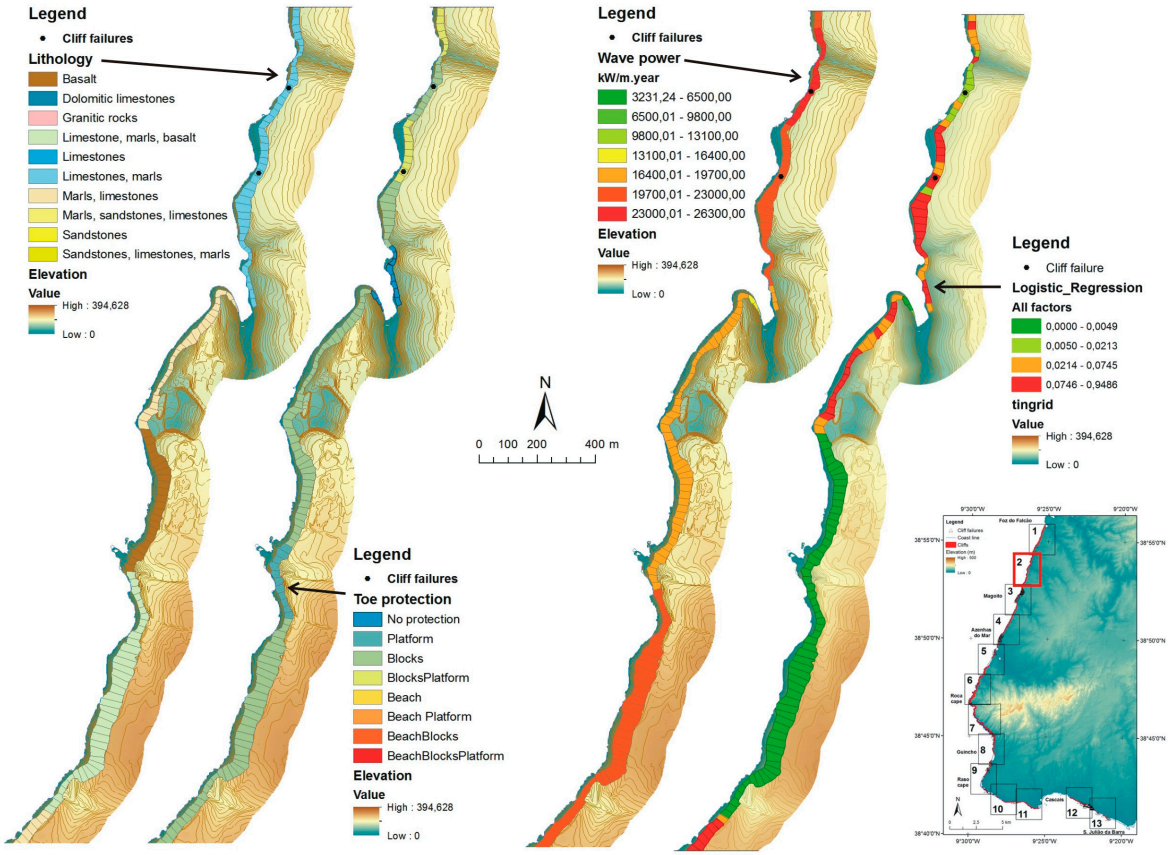
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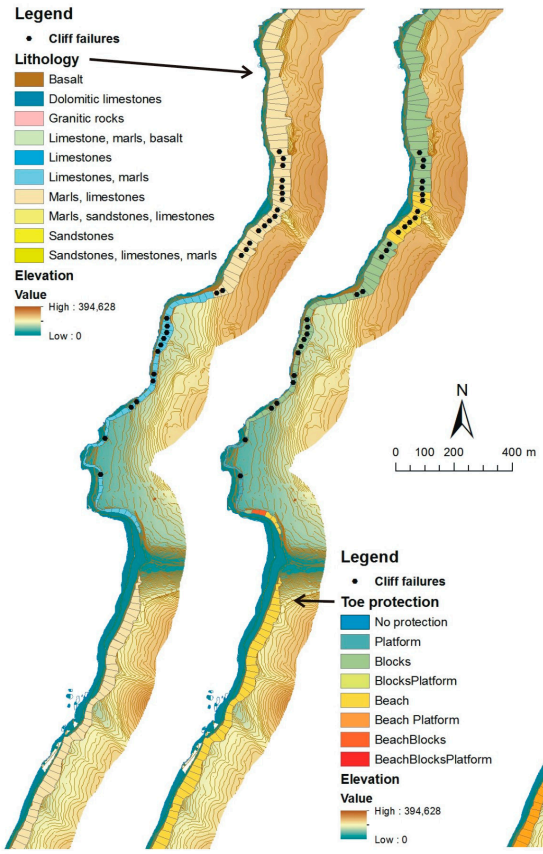
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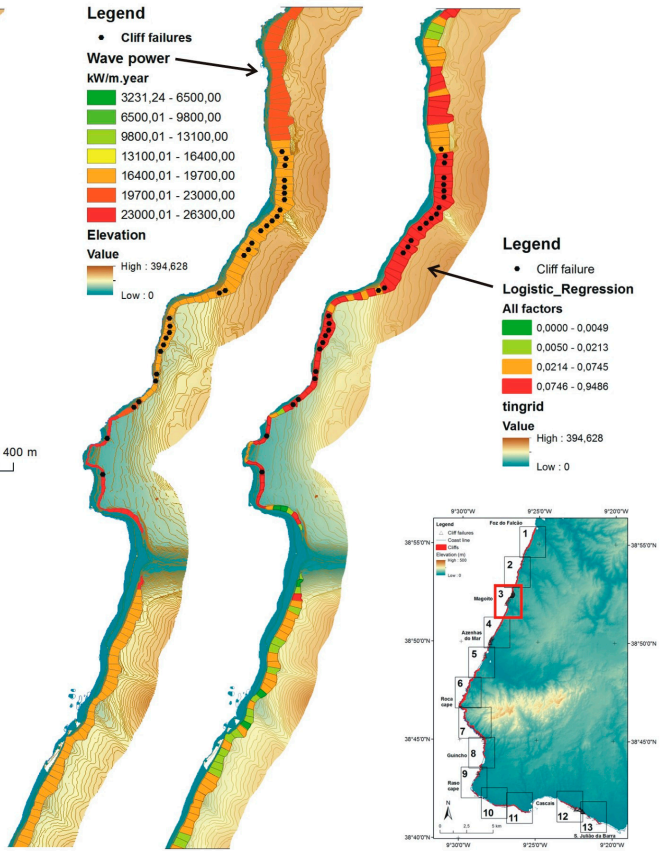
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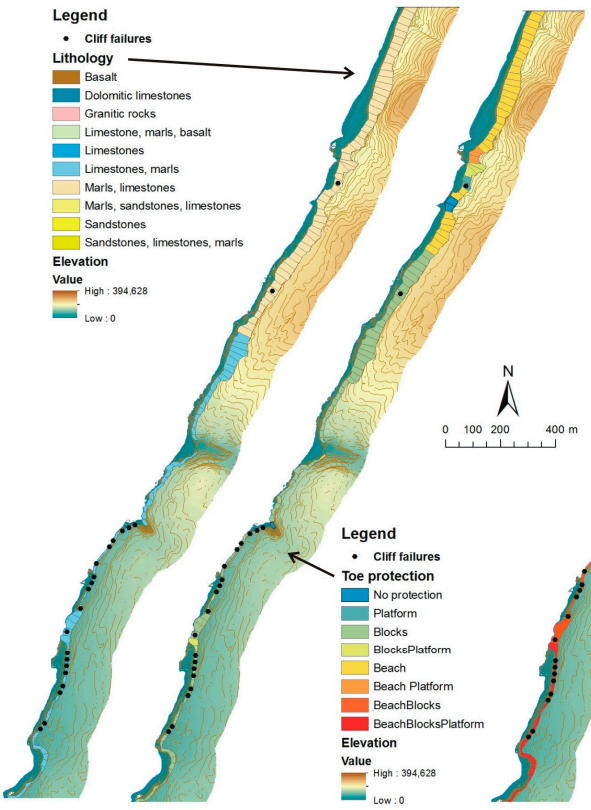
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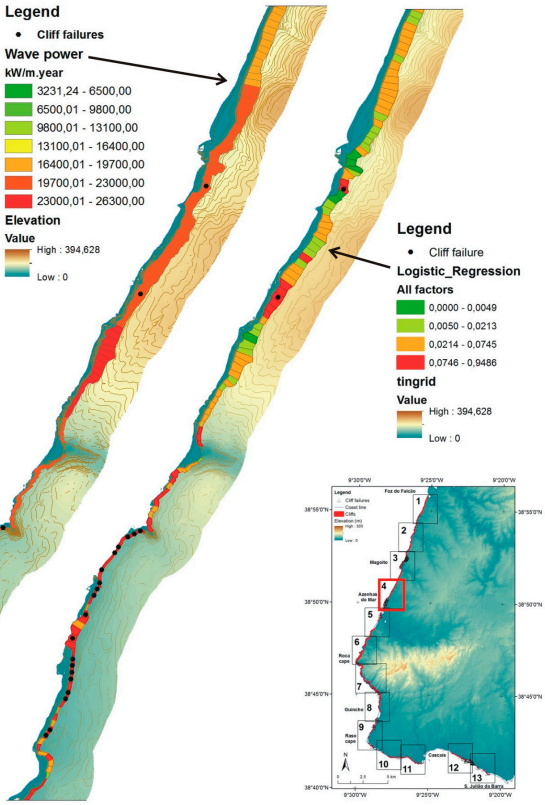
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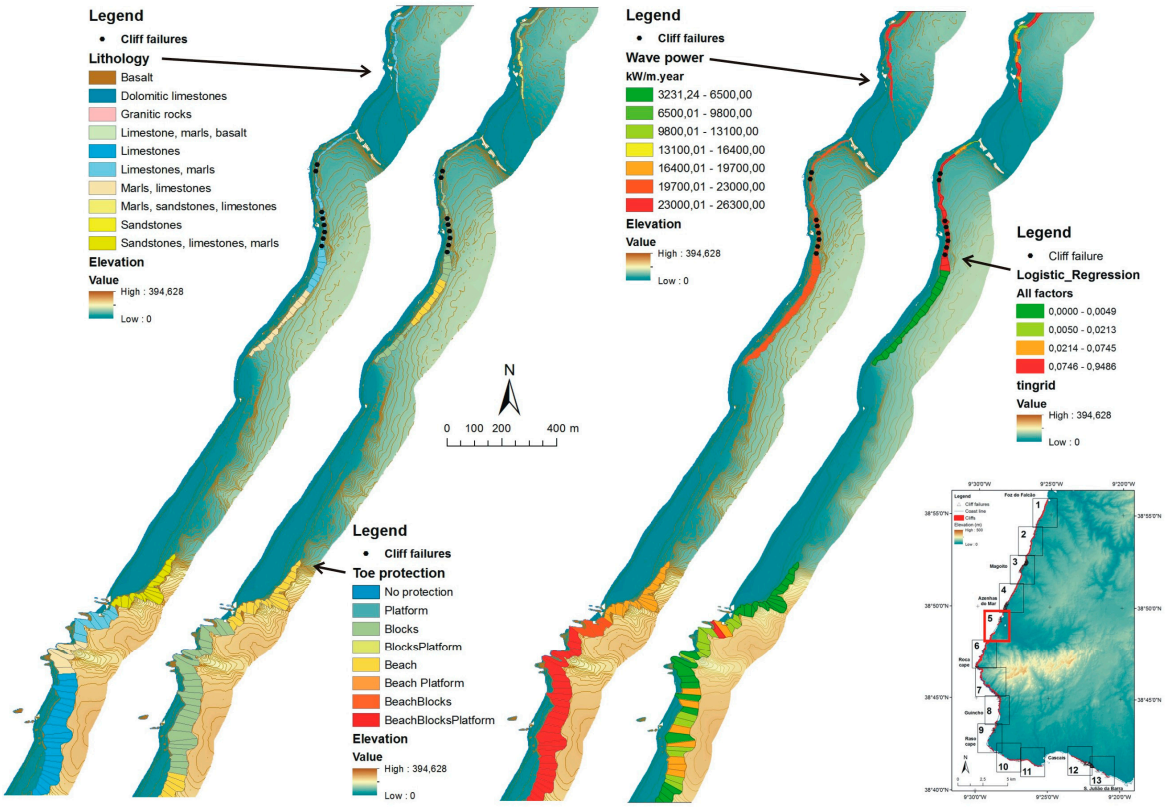
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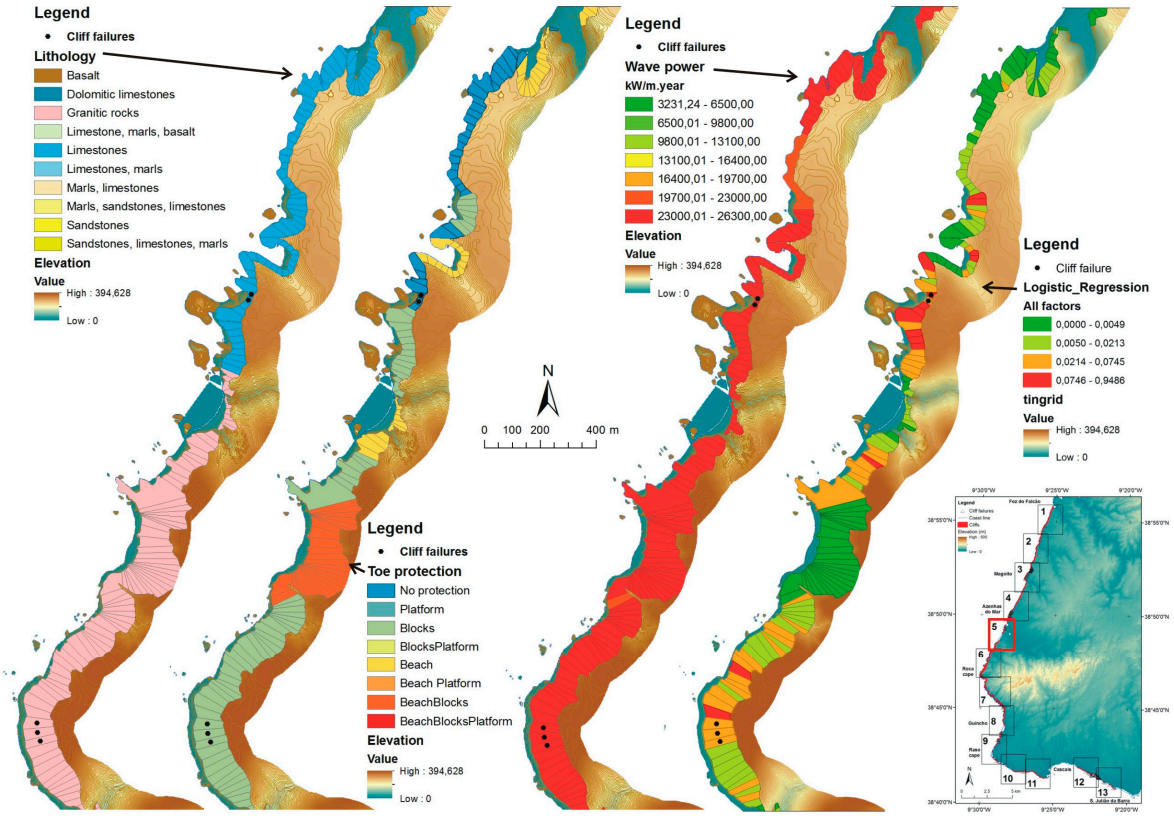
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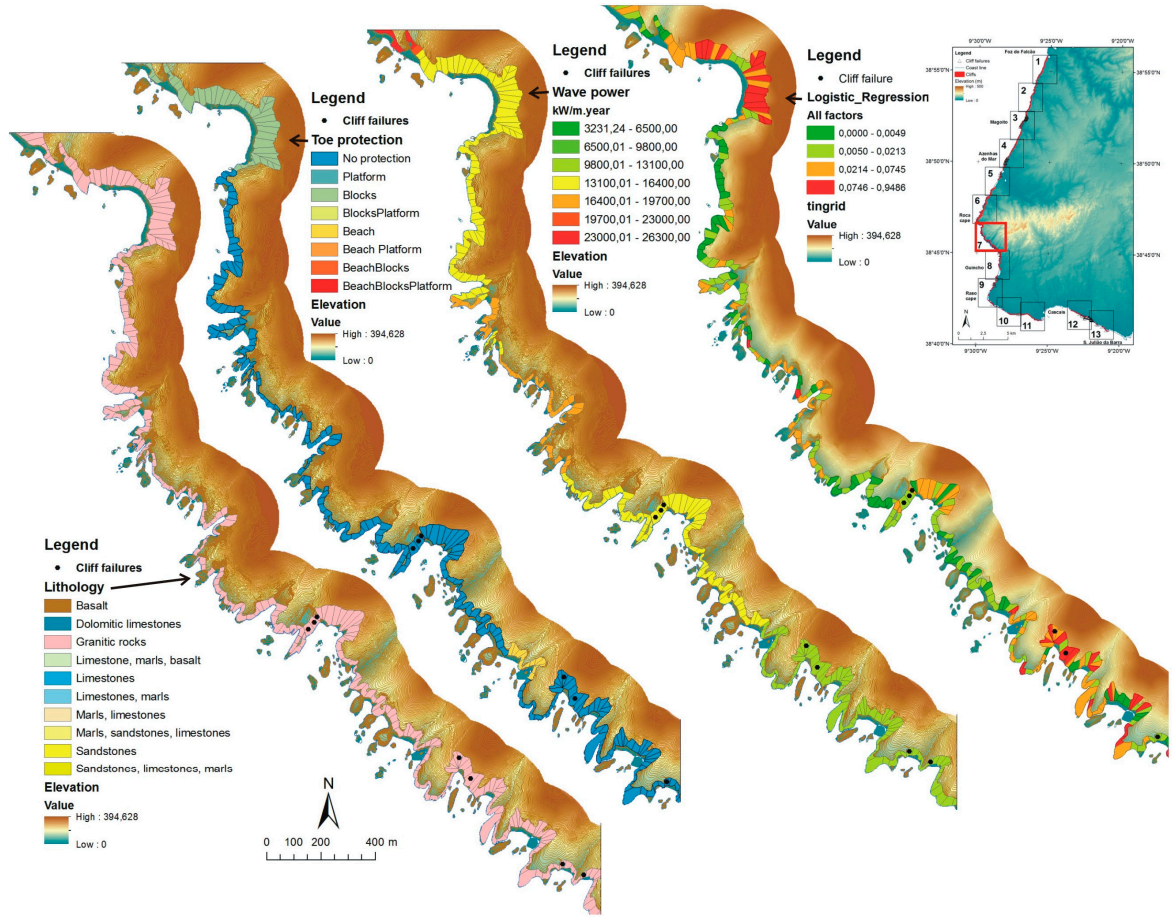
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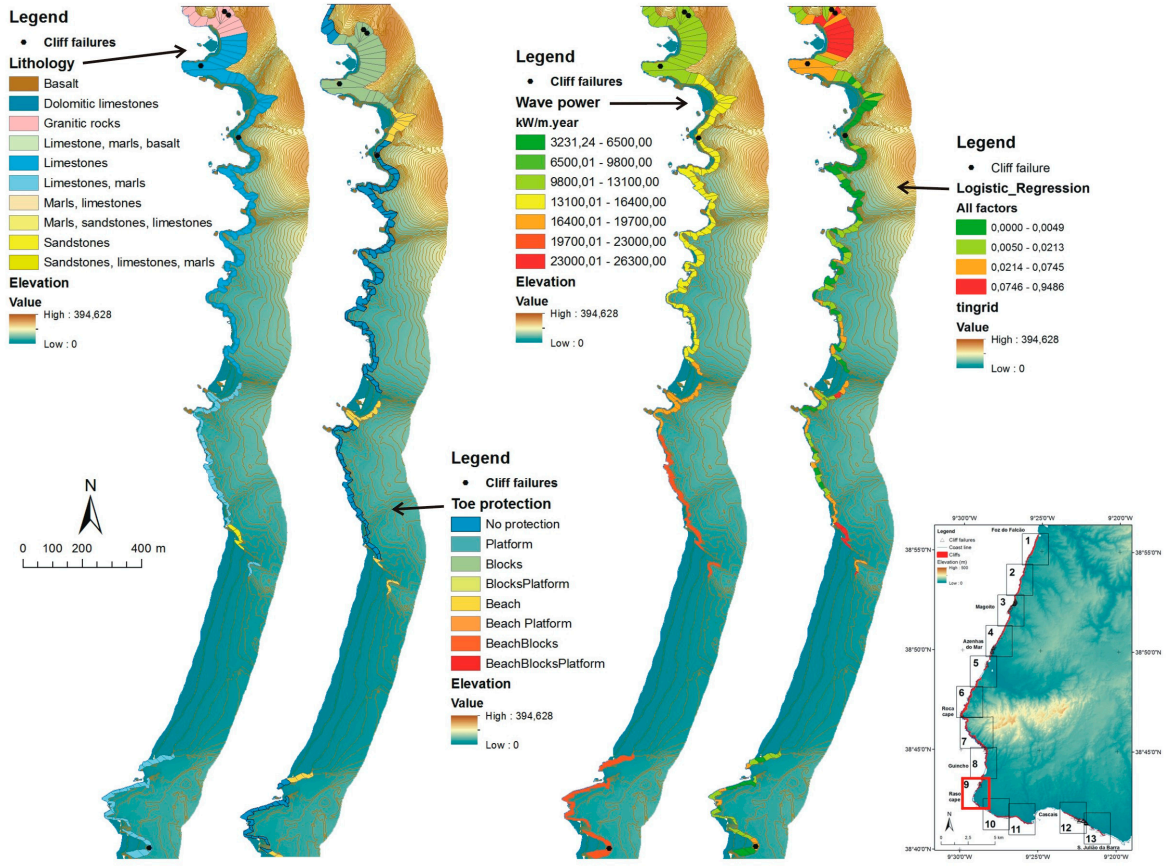
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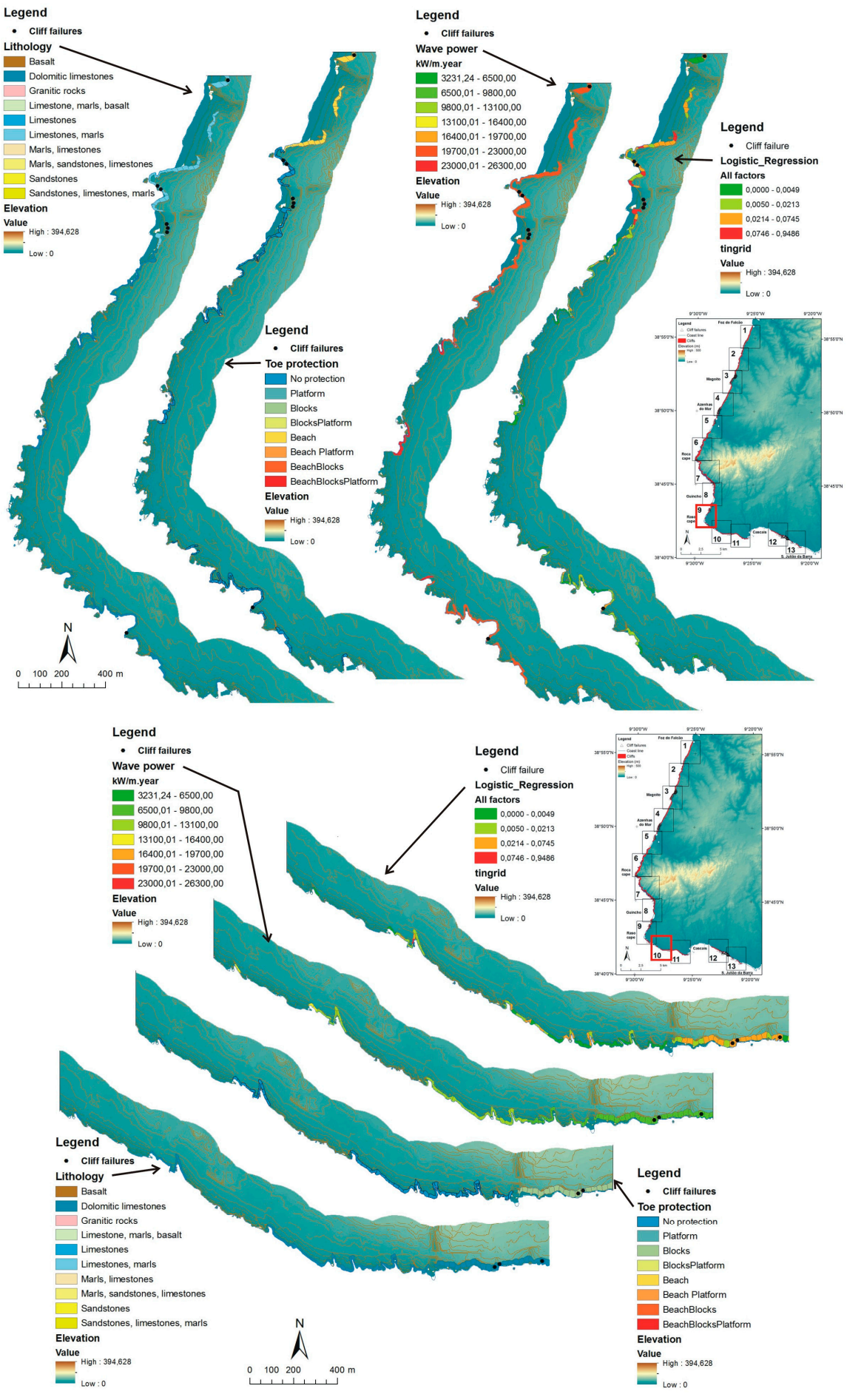
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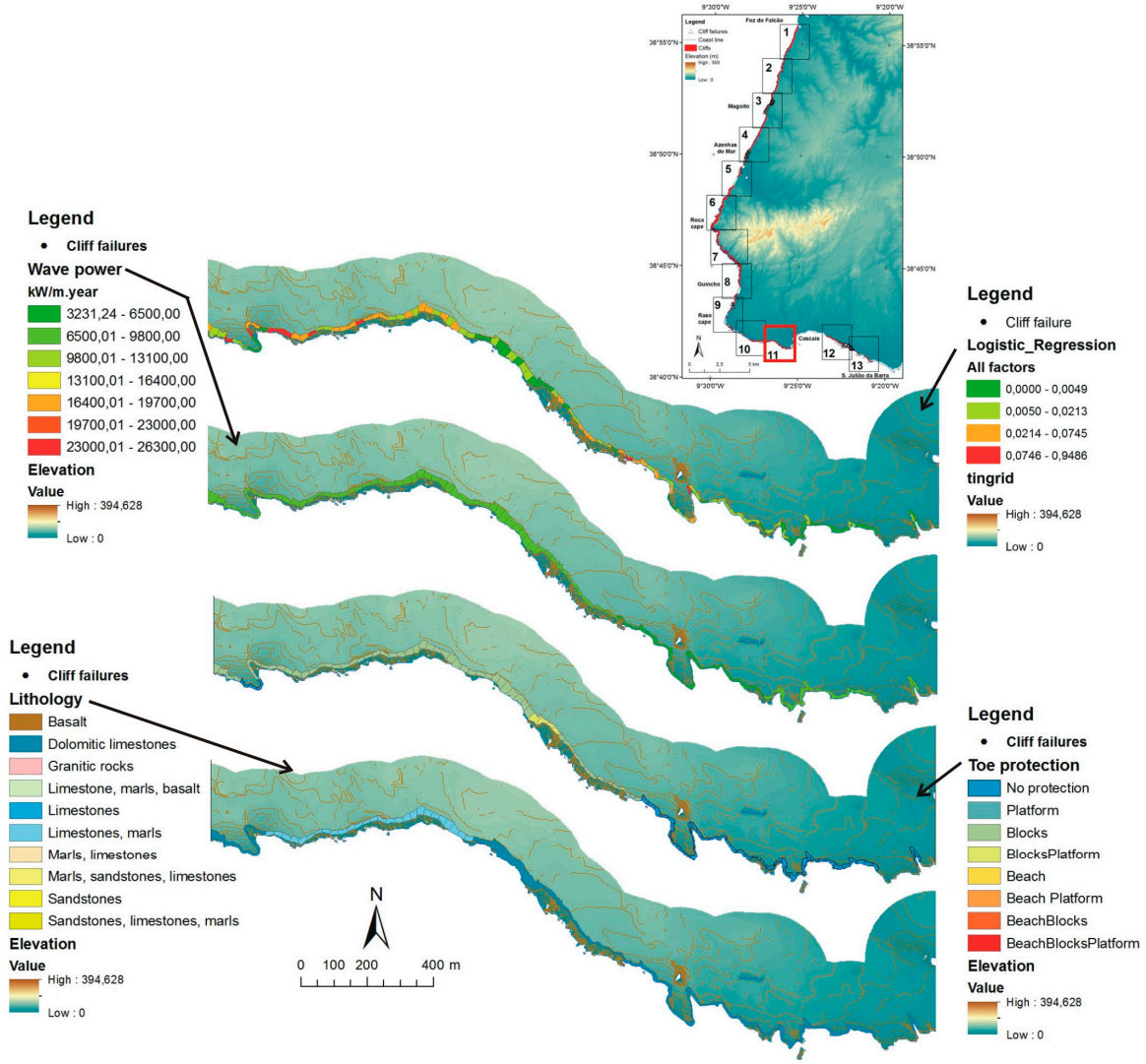
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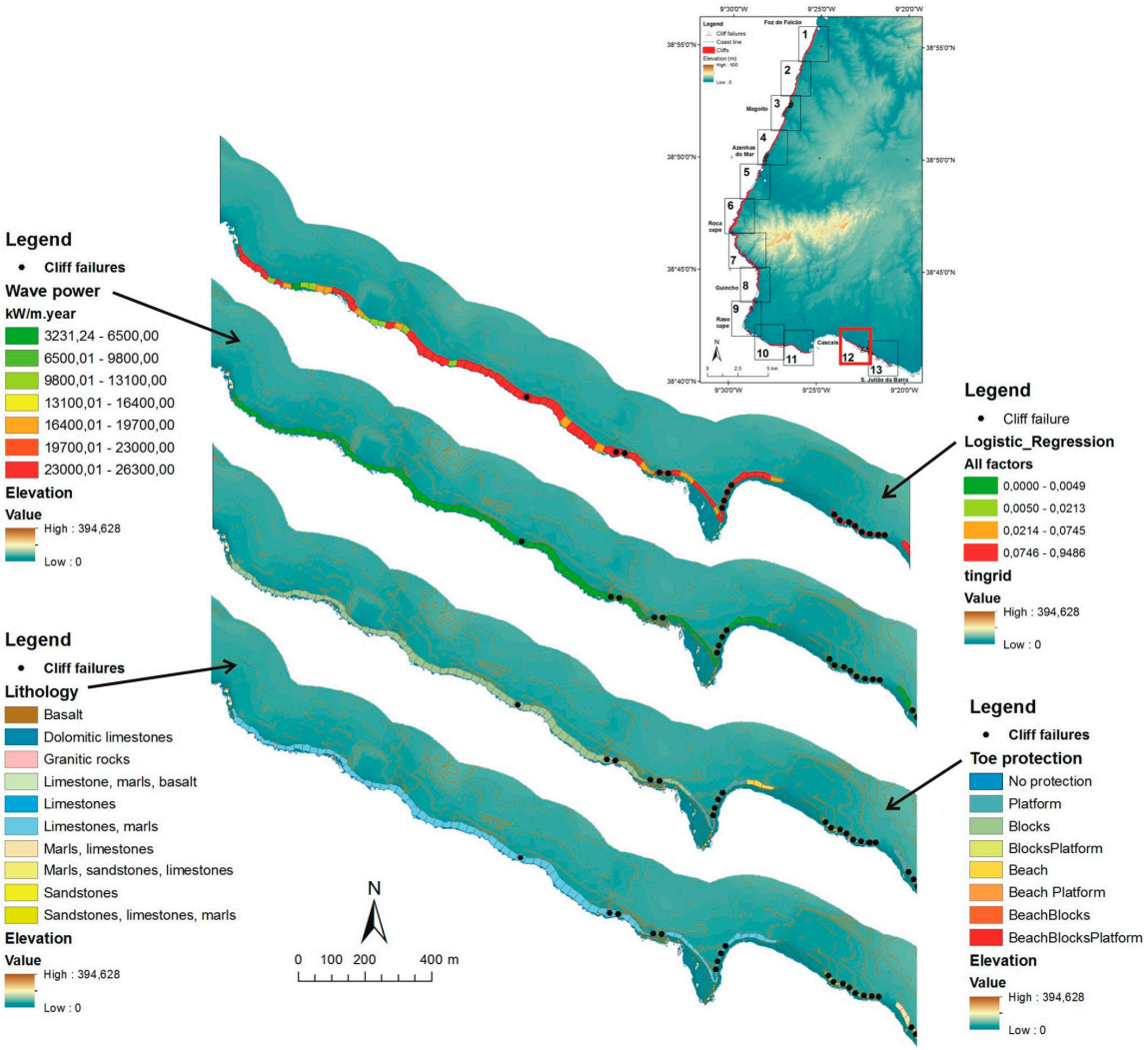
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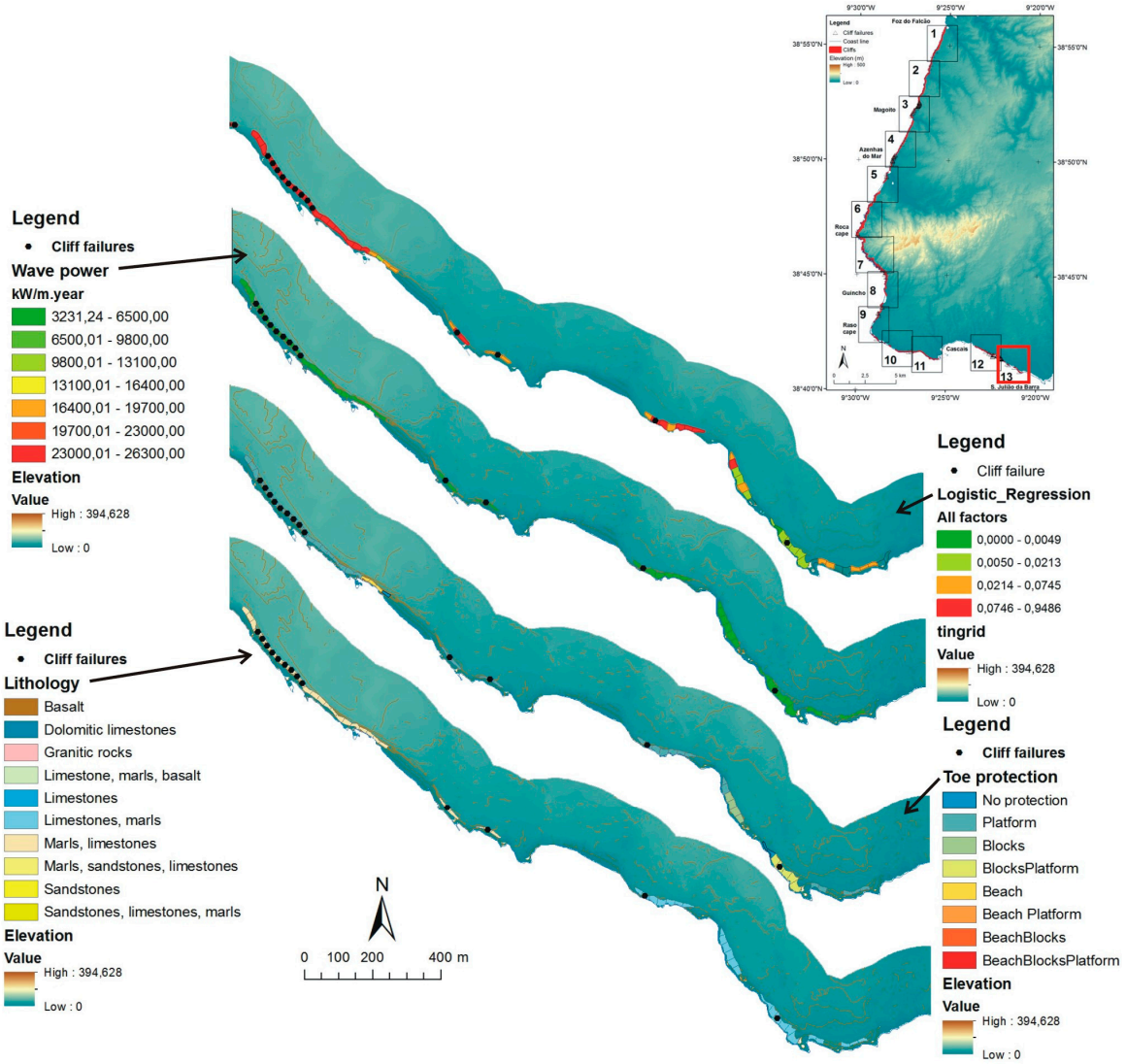

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