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Using remote sensing to assess the role of coastal ecosystems in the protection against erosion in the Caribbean

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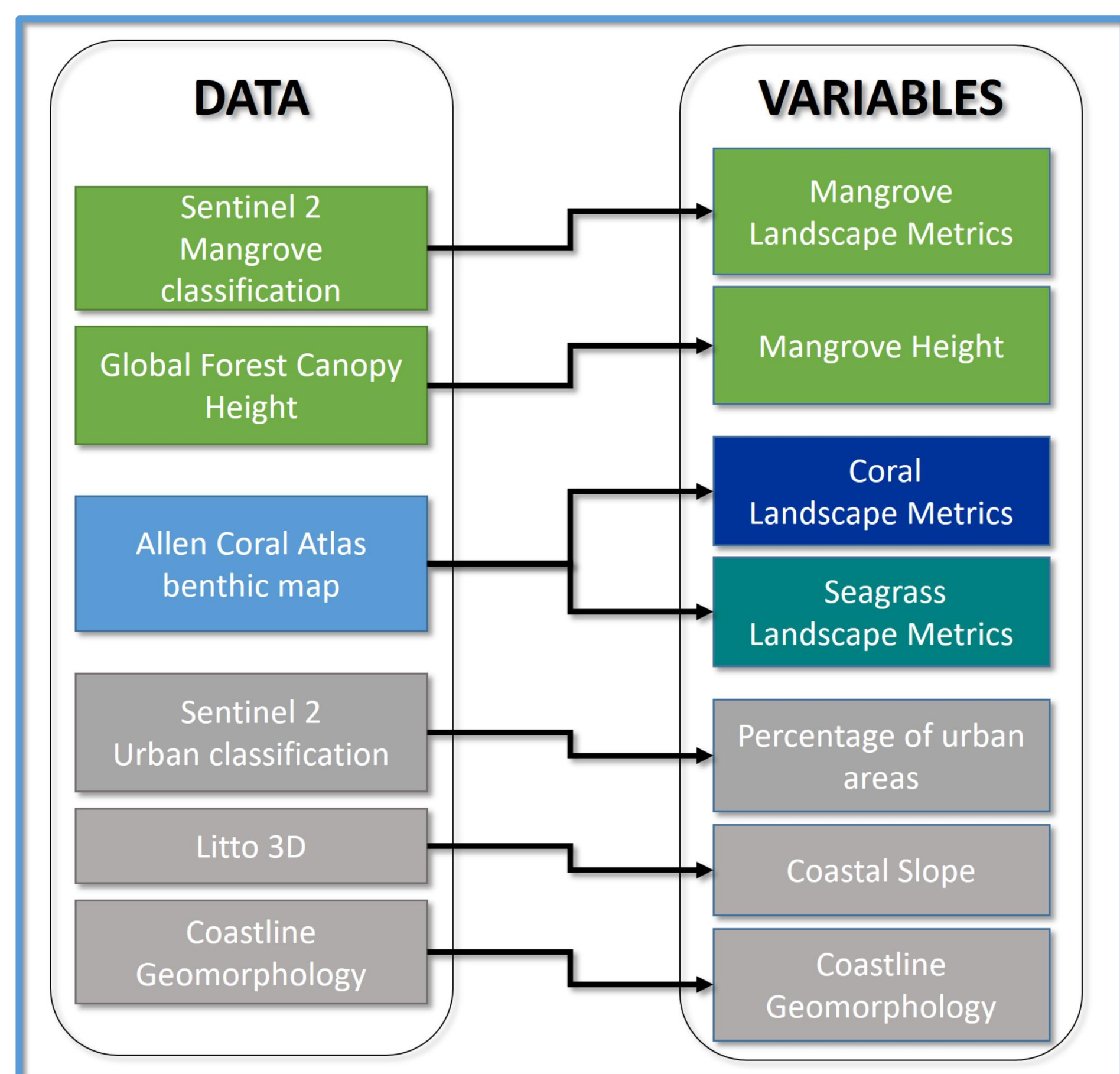
CONTEXT AND OBJECTIVES

CARIB-COAST is an international project led by BRGM.

Its ambition is to pool, co-construct and disseminate approaches to monitoring, coastal risk prevention and adaptation to climate change, focusing on 6 islands in the **Caribbean** : Guadeloupe, Martinique, Puerto Rico, Jamaica, St Martin, Trinidad and Tobago.

The study aims at characterizing coastal vulnerability to erosion thanks to a **Coastal Vulnerability Index**, integrating mainly metrics on **coastal ecosystems** (mangroves, corals and seagrass).

METHODOLOGY



Multiple data has been used to create the final EBCVI :

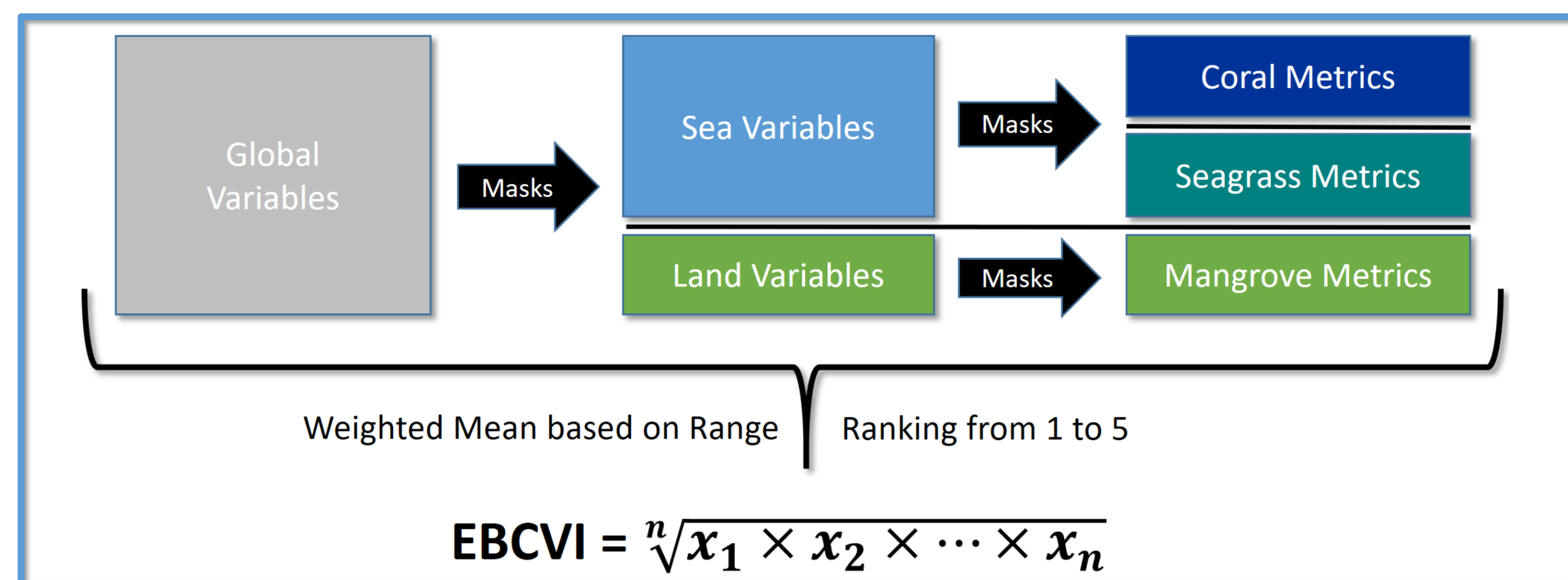
- **Satellite imagery**
- **MNT**
- **External geodatabases**

For each ecosystem, four **Landscape Metrics** were processed with **Pylandstats** module :

- **Proportion of landscape**
- **Patch density**
- **Fractal dimension**
- **Landscape shape index**

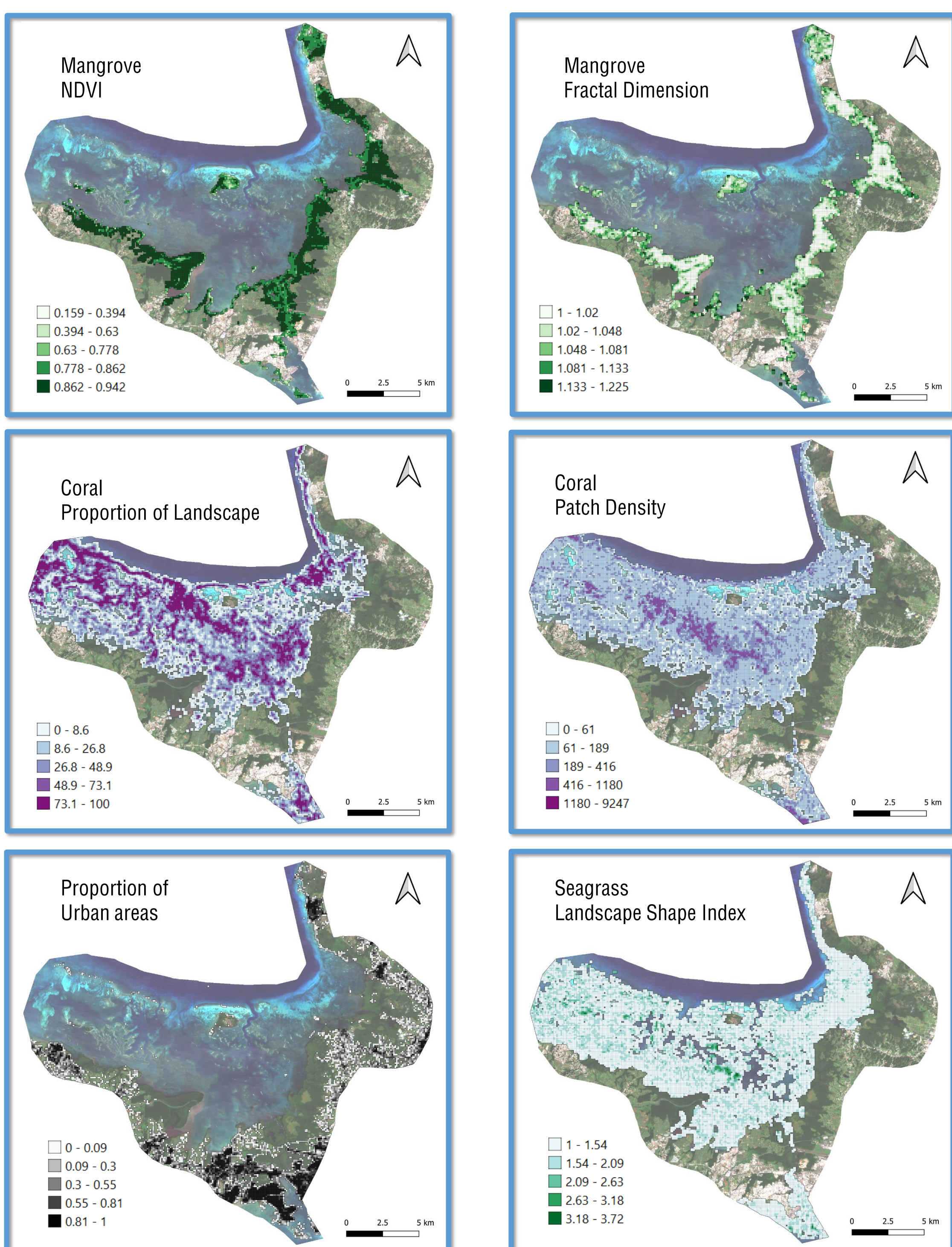
All variables are averaged over a **grid with 100m cells** (due to the metrics requirements).

Then, to obtain the Coastal Index value, the values of the variables in the cells surrounding each coastal pixel are averaged with a **weight decreasing with distance**. Finally, each averaged value is given a vulnerability rank from 1 to 5 which is used to compute the EBCVI.



RESULTS

Variables



EBCVI

