

Empowering Disaster Risk Management through Earth Observation: The Role of GDA Analytics & Processing Platform

16 September 2026 | ASI Headquarters in Rome, Italy

1: MEEO S.r.l. (Ferrara, Italy) | 2: Beyond-EO (Paris, Italy) | 3: European Space Agency (Frascati, Italy)

Global Development Assistance Overview

The ESA GDA programme (<https://gda.esa.int/>) provides IFIs with domain specific service demonstrations and cross-cutting activities.

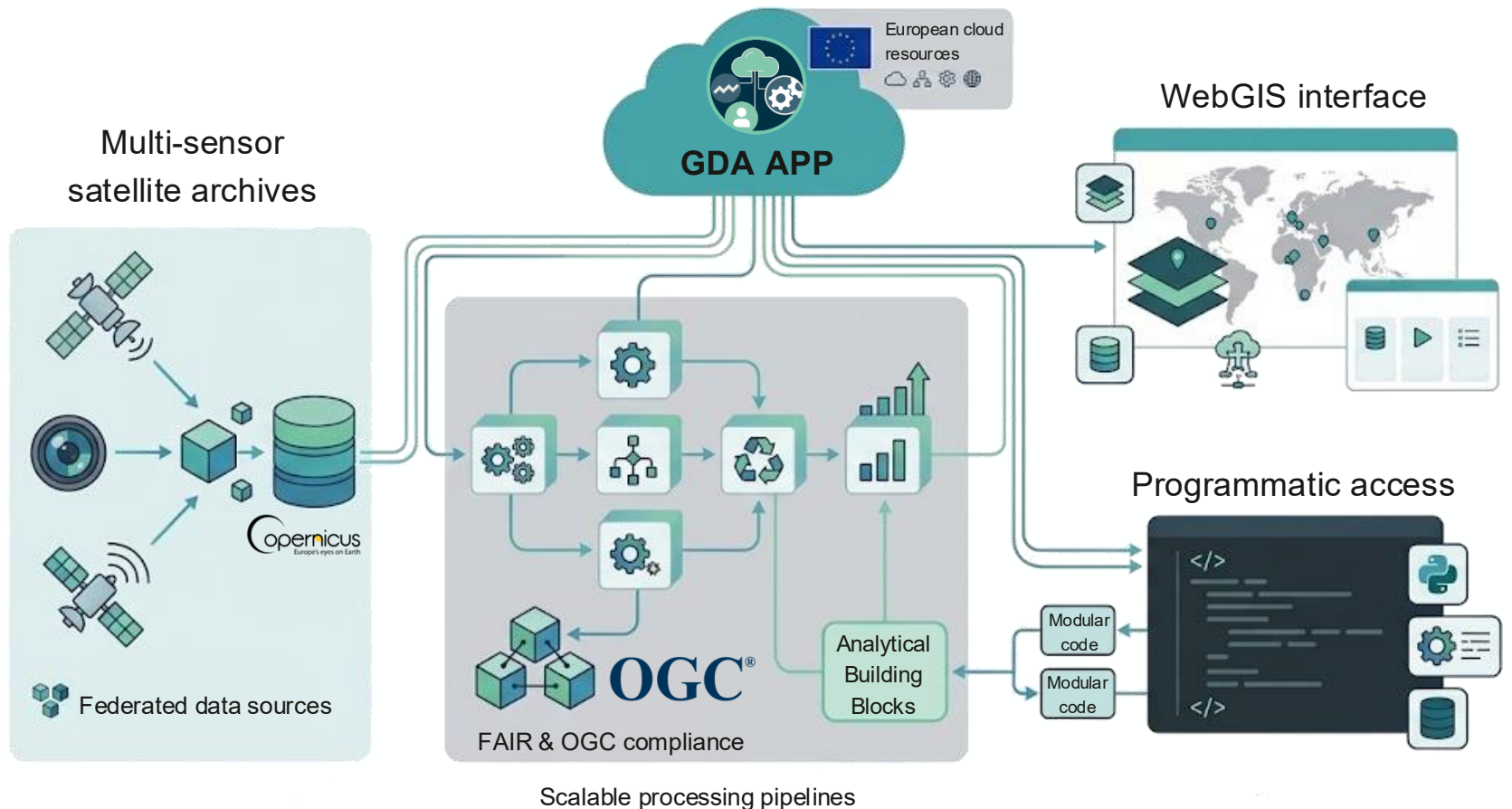
1. User-oriented software and analytical tools development (**GDA APP**),
2. Flexible EO development assistance co-financing (**GDA FFF**),
3. Knowledge management and capacity building (**GDA ABC**), and
4. Programmatic monitoring, evaluation and impact assessment (**GDA M&E**).



GDA Analytics & Processing Platform



A scalable, cloud-native analytical environment designed to support international development operations.



The bottom right corner features the logos of the Global Data Analysis (GDA) and the European Space Agency (ESA). The GDA logo includes a stylized globe with an orange arrow pointing upwards and to the right, and the text 'GDA' below it. The ESA logo consists of a white circular emblem with a dot and the letters 'esa' in white lowercase font.



Multi-temporal shoreline positions (2014-2024) and transect analysis for Santa Maria, Ilha do Sal.



The map illustrates the coastal area of Santa Maria, Azores. Key features include:

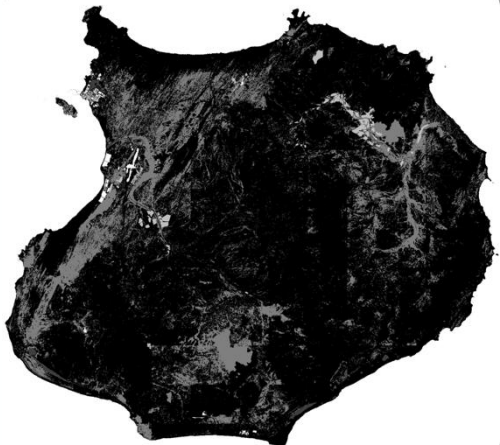
- Coastline and Water:** The coastline is marked with a yellow line. The sea is light blue, and the land is yellowish-brown.
- Urban Layout:** The town of Santa Maria is shown with a grid of streets. Labeled streets include Rua da Moura, Rua do Fogo, Rua Santiago, Rua Cristo, and Rua das Flores.
- Points of Interest:** Various points are marked with colored dots (red, blue, white, orange) along the coast. These include:
 - Porto Antigo:** Marked with a red dot.
 - Porto de Santa Maria:** Marked with a blue dot.
 - Faro Antigo do Sino:** Marked with a white dot.
 - Praia de Santa Maria:** Marked with a blue dot.
 - Avenida das Flores:** A major road running along the coast.
- Other Labels:** 'badlands/terra inculta' is labeled in the upper left. 'Sai' is labeled near the bottom left.
- Legend:** A legend in the top left corner identifies the colored dots: red for 'Pontos de Interesse', blue for 'Pontos de Interesse', white for 'Pontos de Interesse', and orange for 'Pontos de Interesse'.



Rapid urban expansion

High-resolution land classification maps aligned to ESA WorldCover macro-classes for two reference years, 2012 and 2024.

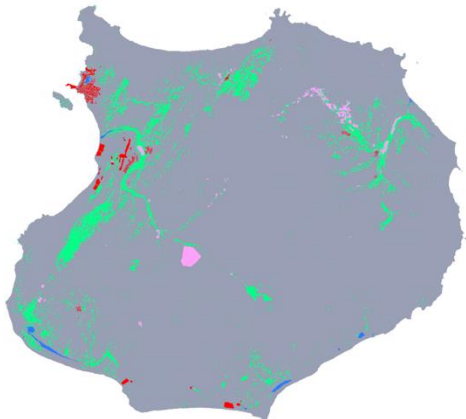
Land cover comparison for Boa Vista



2012 RapidEye
imagery



2024 super-resolved
Sentinel-2 imagery



Land cover classification
for 2012



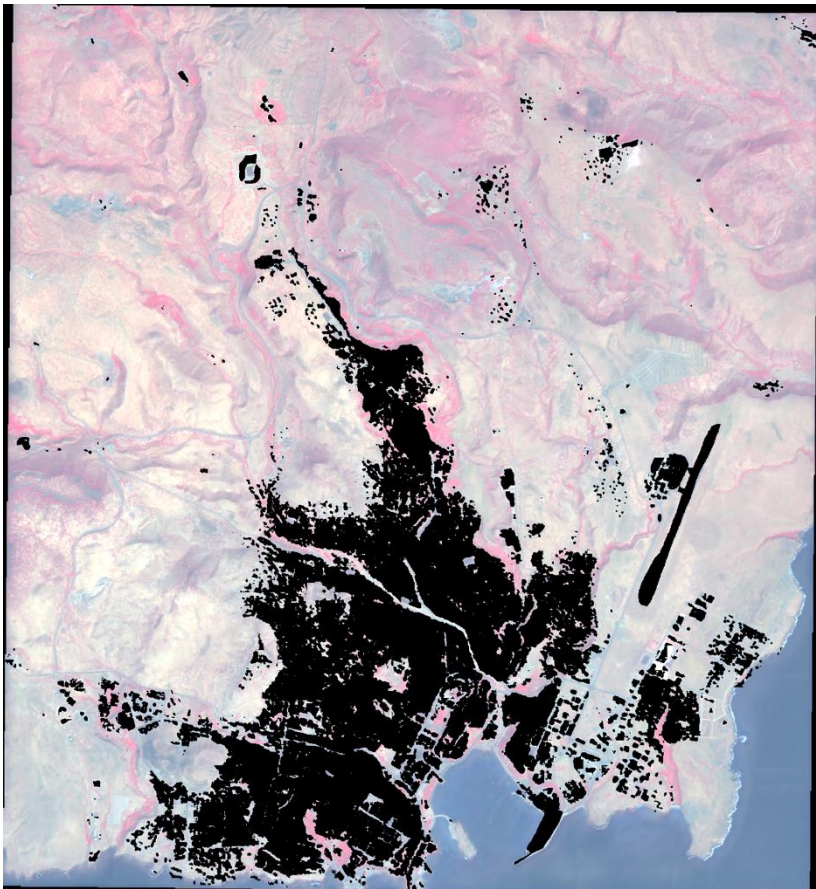
Land cover classification
for 2024

Legend

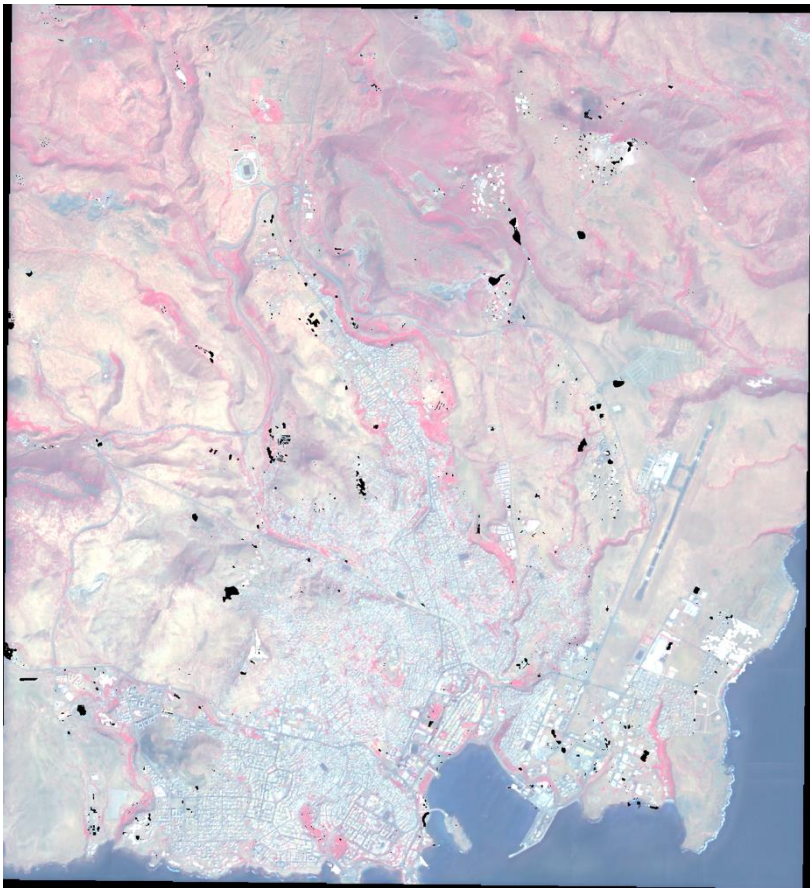
- Background
- Urban
- Farmland
- Vegetation
- Waterbody
- Bareland

Rapid urban expansion

Monthly built-up area delineation and semi-annual change detection analysis for six administrative centres.



Super-resolved Sentinel-2 imagery with the derived urban mask of Praia, Santiago



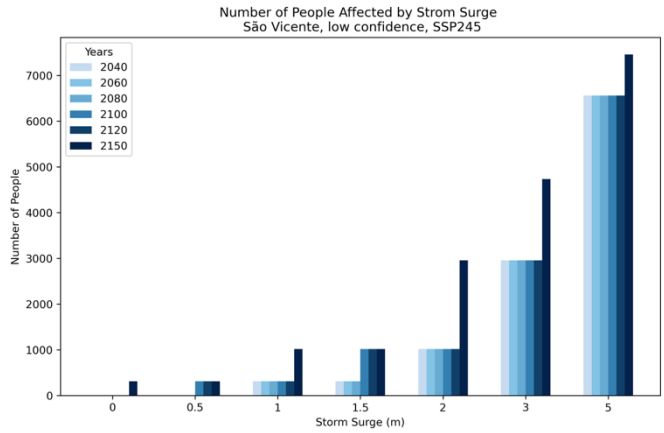
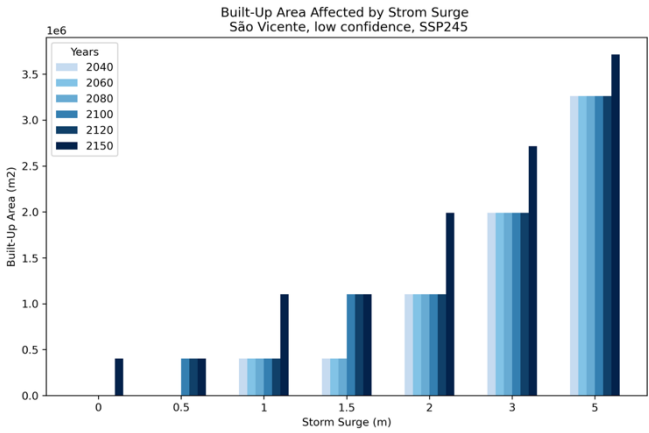
Super-resolved Sentinel-2 imagery with the derived change detection mask (January to June 2025) of Praia, Santiago

Climate-related vulnerabilities

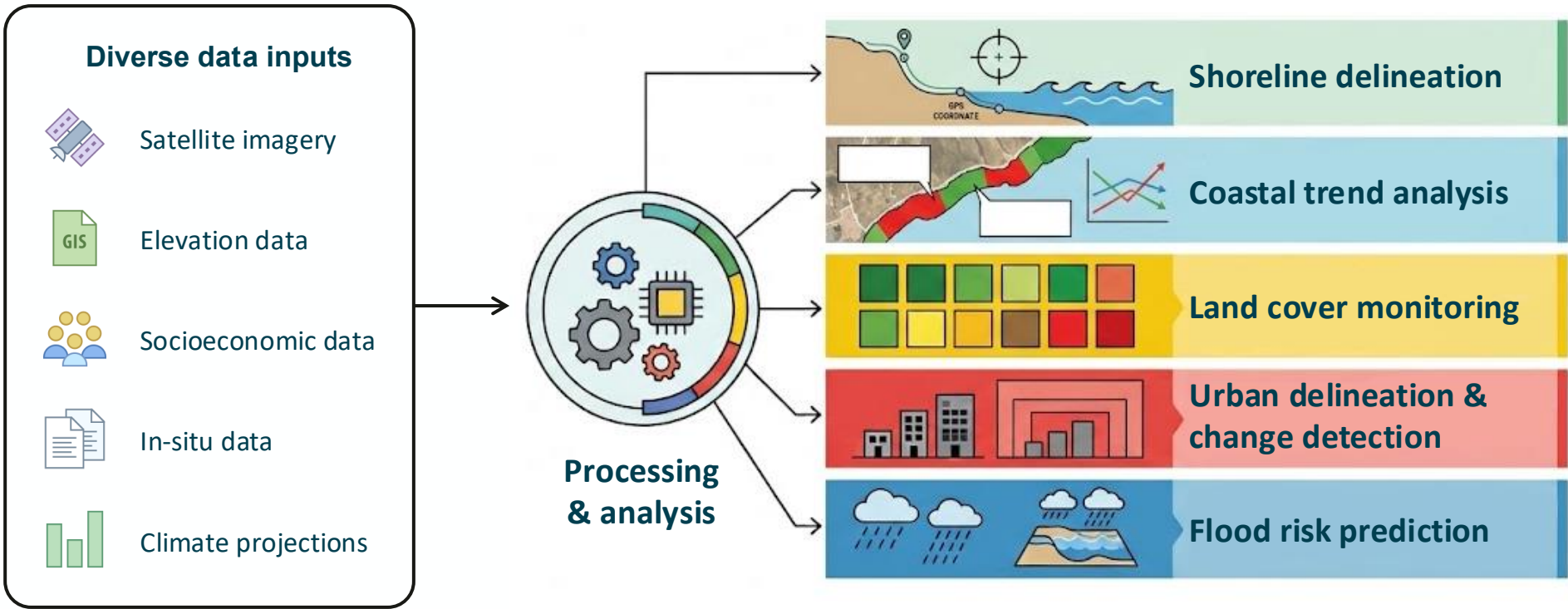


Flood risk simulations across 5 SSP pathways (SSP1-1.9 to SSP5-8.5), 7 storm-surge heights (0–5 m), 2 confidence levels, and 6 time horizons from 2040 to 2150.

Low-confidence flood hazard maps for Sao Vicente for year 2080 under SSP2-4.5, including aggregate charts of urban areas and population affected by year and storm intensity based on JRC GHS-POP and GHS-BUILT-S data.



Transformation of data into interoperable insights for Disaster Risk Management



Thank you for your attention

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