

Innovations in EO products and services applied to Disaster Resilience supported by ESA Global Development Assistance Program

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Indra

1. GDA context

2. GDA's EO-based innovations

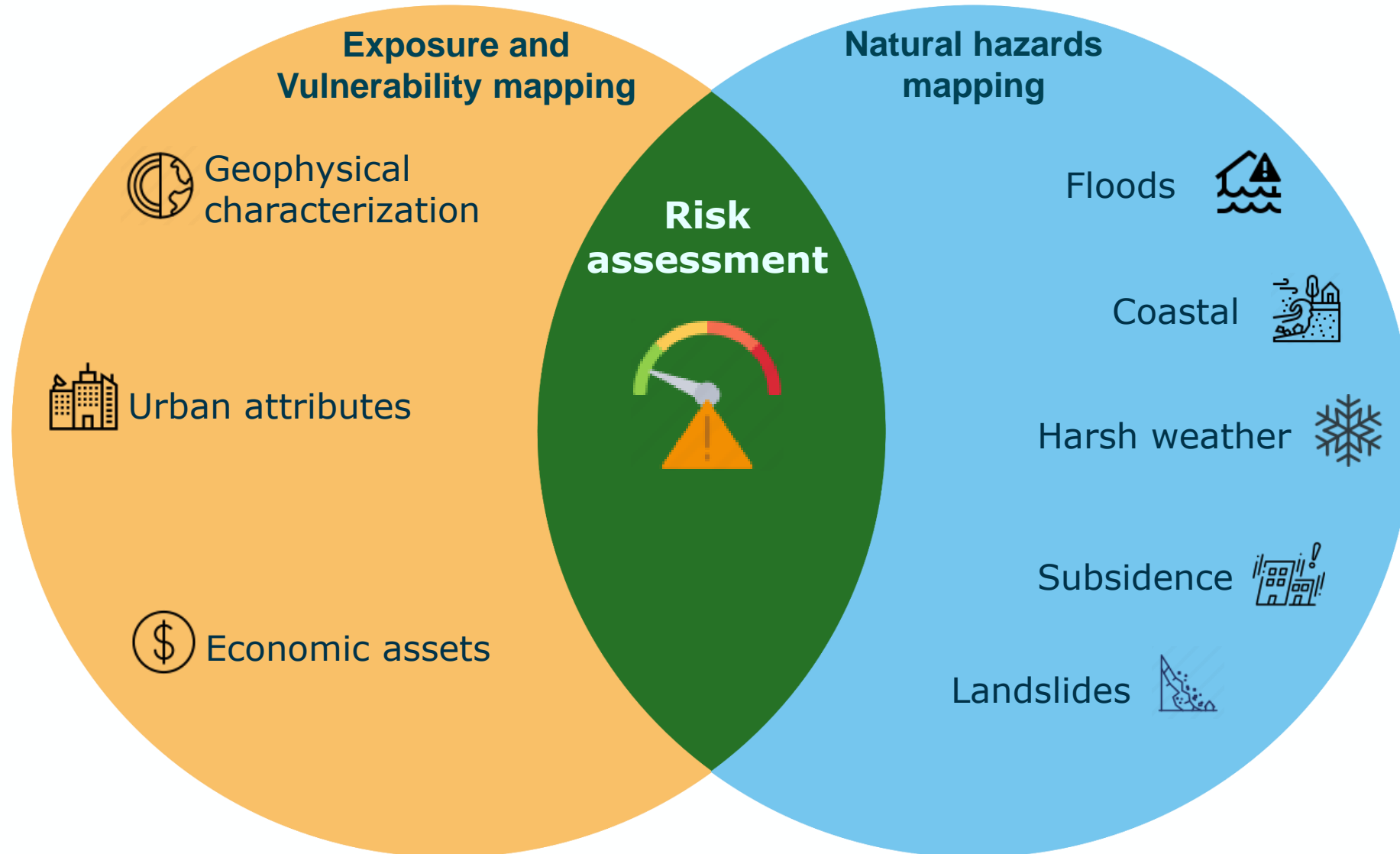
2.1 Exposure mapping

2.2 Hydromet-hazards mapping

2.3 Coastal hazards

2.3 Geo-hazards mapping

3. Remarks



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2.1 Exposure mapping

2.2 Hydromet-hazards mapping

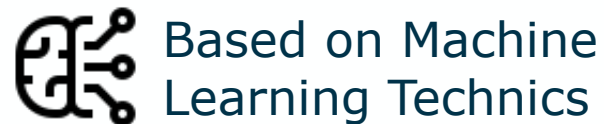
2.3 Coastal hazards

2.3 Geo-hazards mapping

3. Remarks

Exposure mapping

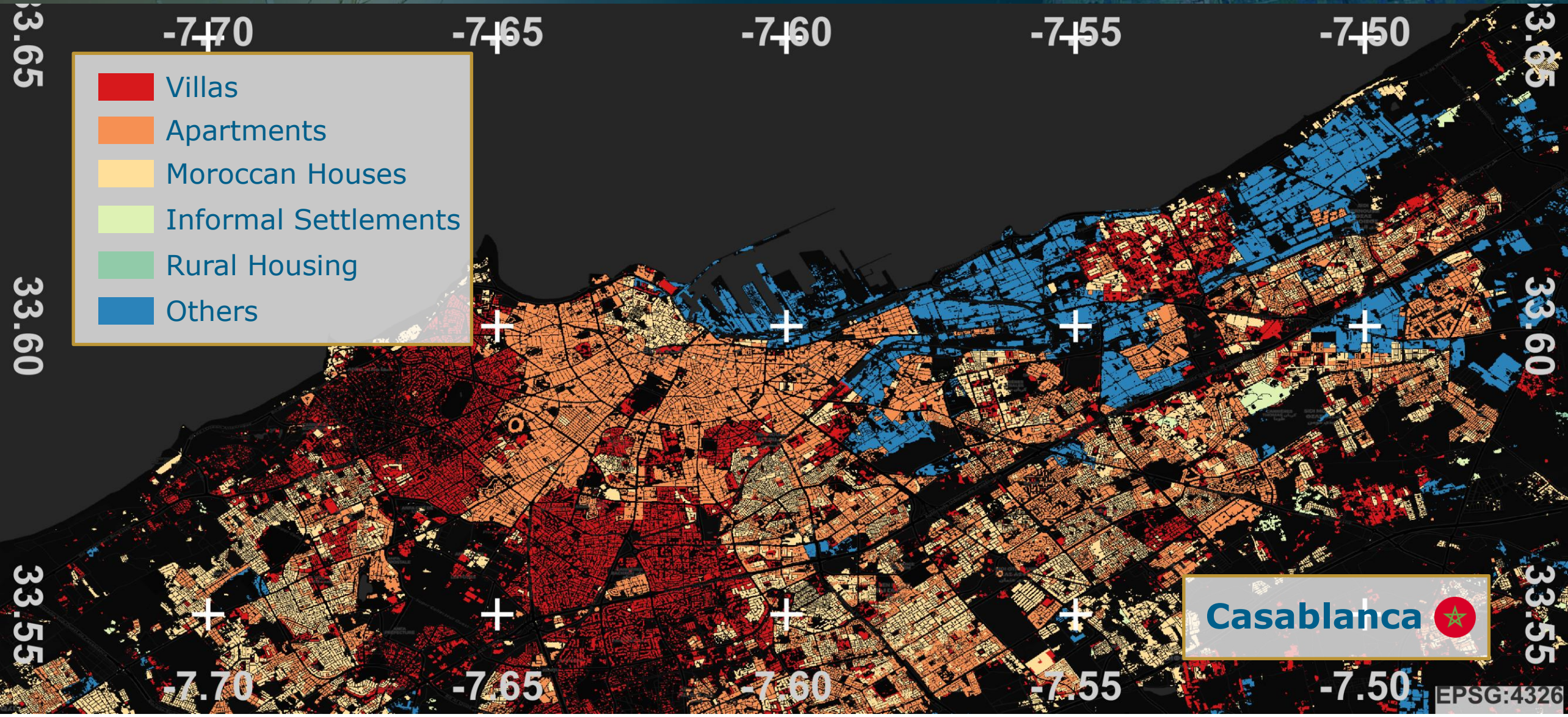
1. Urban Classification
2. Urban Green Infrastructure
3. Land Use Land Cover



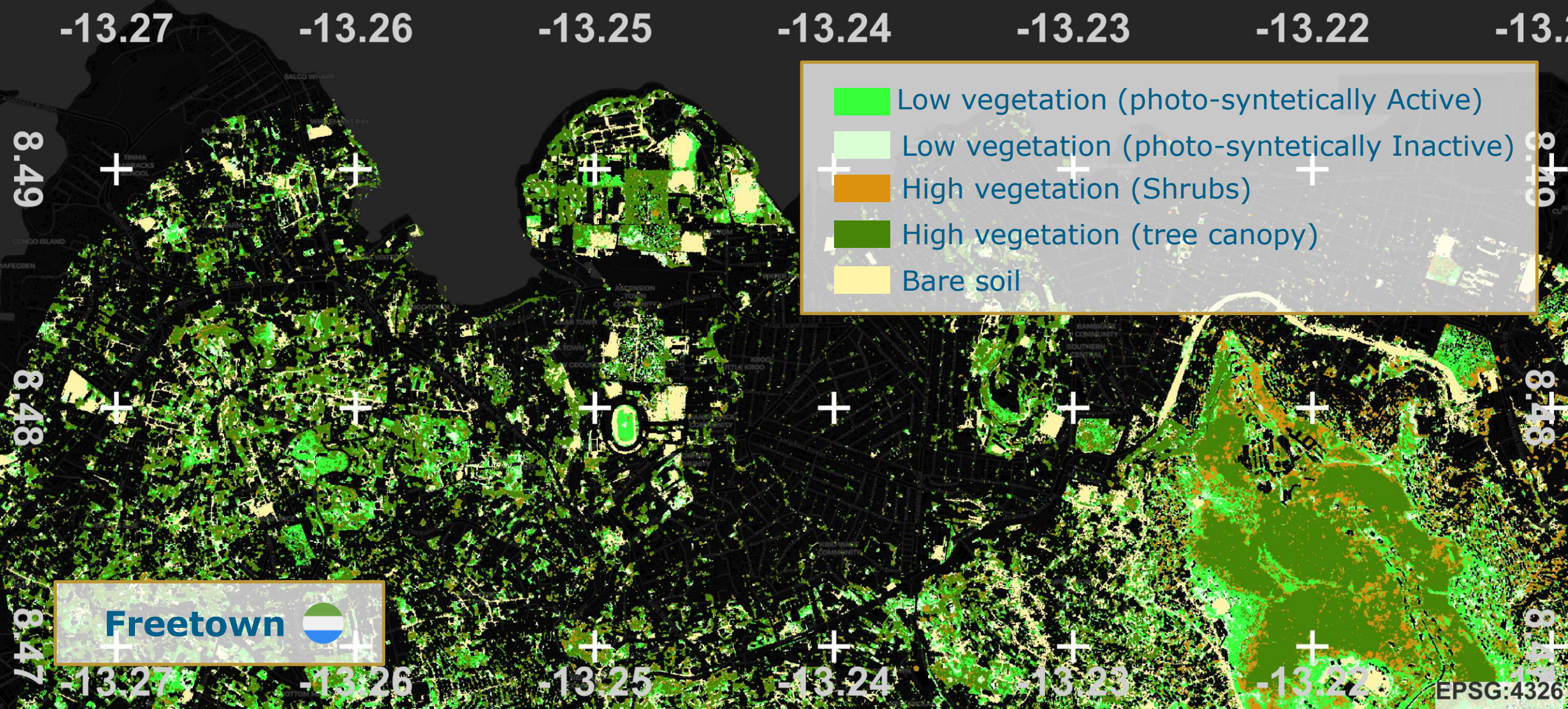
Urban Classification



- Villas
- Apartments
- Moroccan Houses
- Informal Settlements
- Rural Housing
- Others



Urban Green Infrastructure



-13.27

-13.26

-13.25

-13.24

-13.23

-13.22

-13.21

8.49

8.48

8.47

8.49

8.48

8.47

-13.27

-13.26

-13.25

-13.24

-13.23

-13.22

-13.21

EPSG:4326



Land Use Land Cover



91.80

91.85

91.90

91.95

92.00

92.05

92.10

92.15

21.55

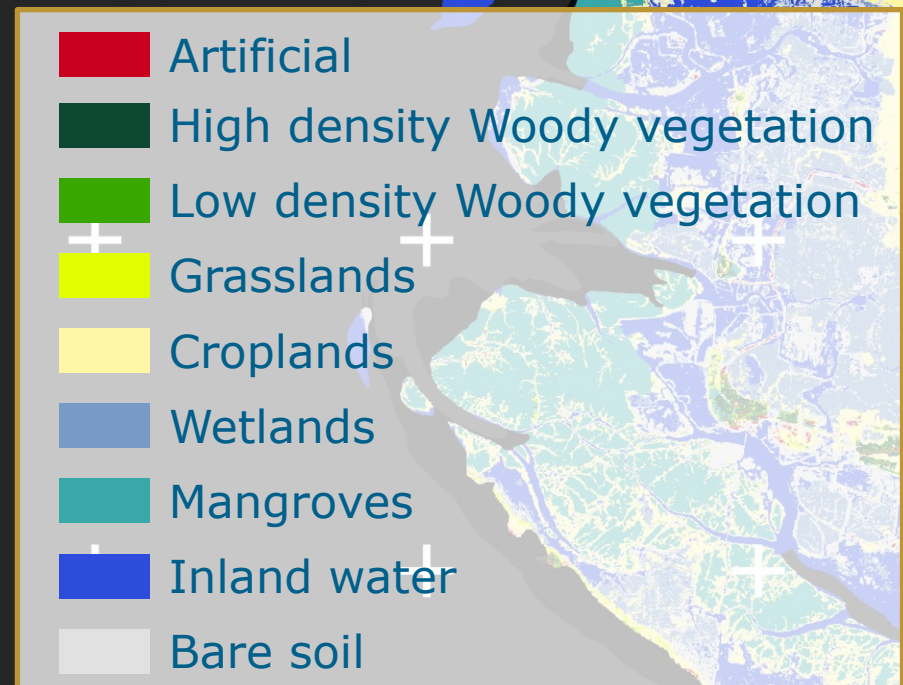
21.50

21.45

21.55

21.50

21.45



Cox's Bazar

91.80

91.85

91.90

91.95

92.00

92.05

92.10

92.15

EPSG:4326



Hydromet-hazards mapping



1. Flood extent mapping
2. Flood depth estimation



Unaffected by cloud cover



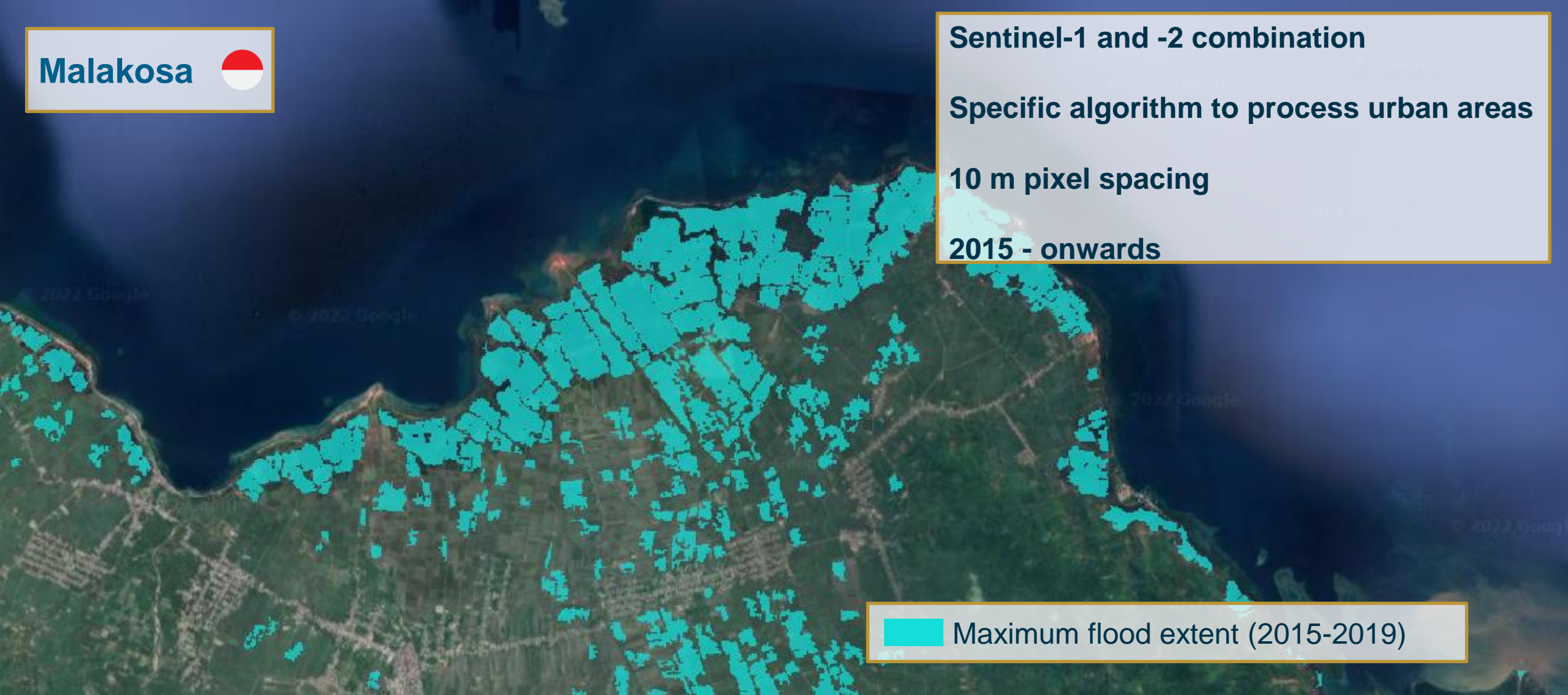
Online platform allows users producing themselves products



Worldwide Coverage

Malakosa 

Sentinel-1 and -2 combination
Specific algorithm to process urban areas
10 m pixel spacing
2015 - onwards

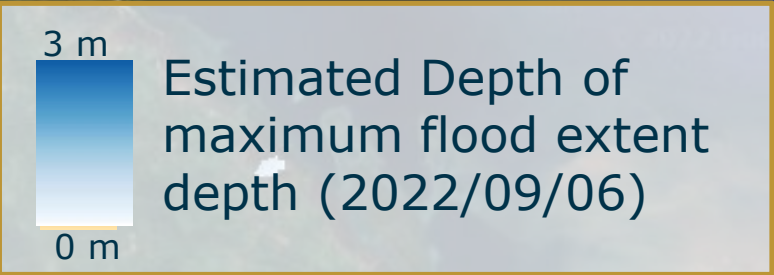
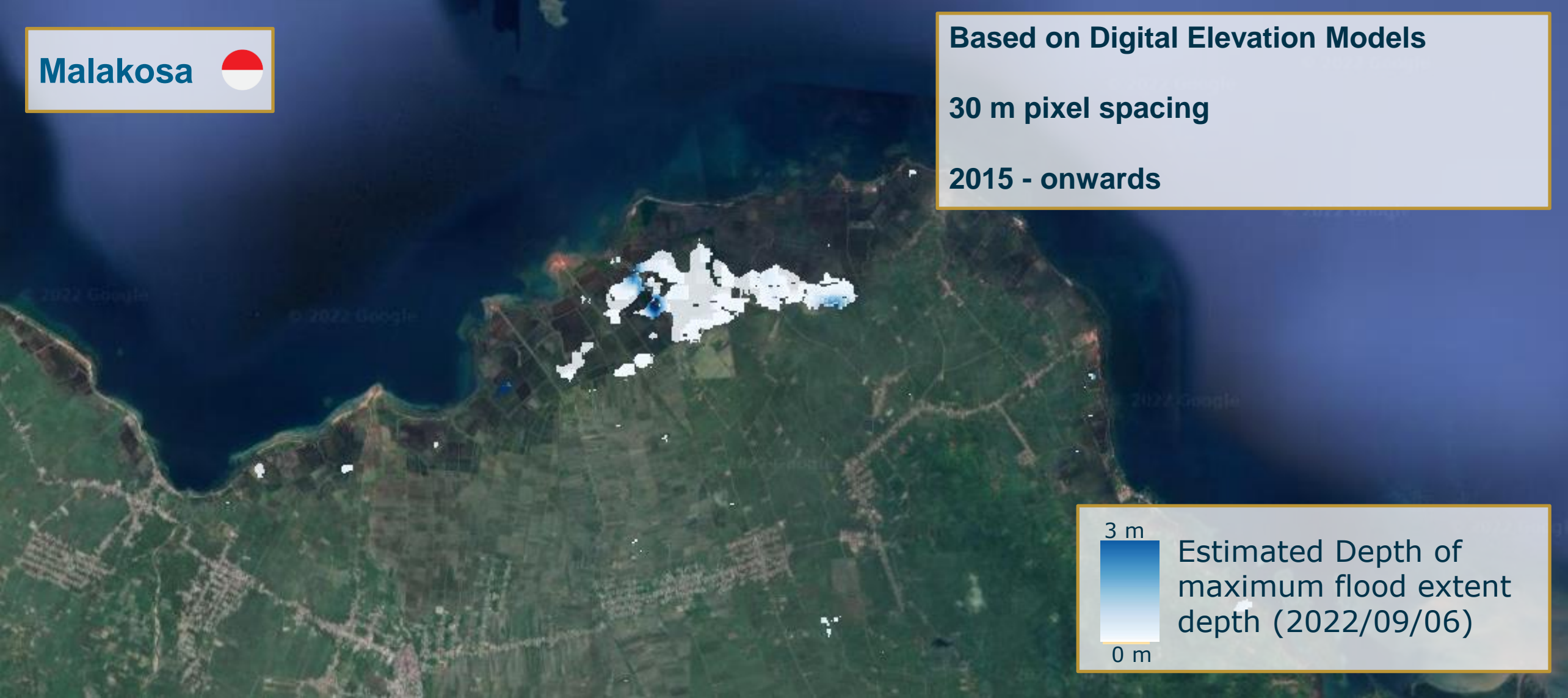


 Maximum flood extent (2015-2019)

Flood Depth Estimation

Malakosa 

Based on Digital Elevation Models
30 m pixel spacing
2015 - onwards



Online Platform: WASDI



KoriyamaJP_46_2019

Products Filter_ [Search] [Print] [Info]

App Store Workspaces Plan Search Edit Docs

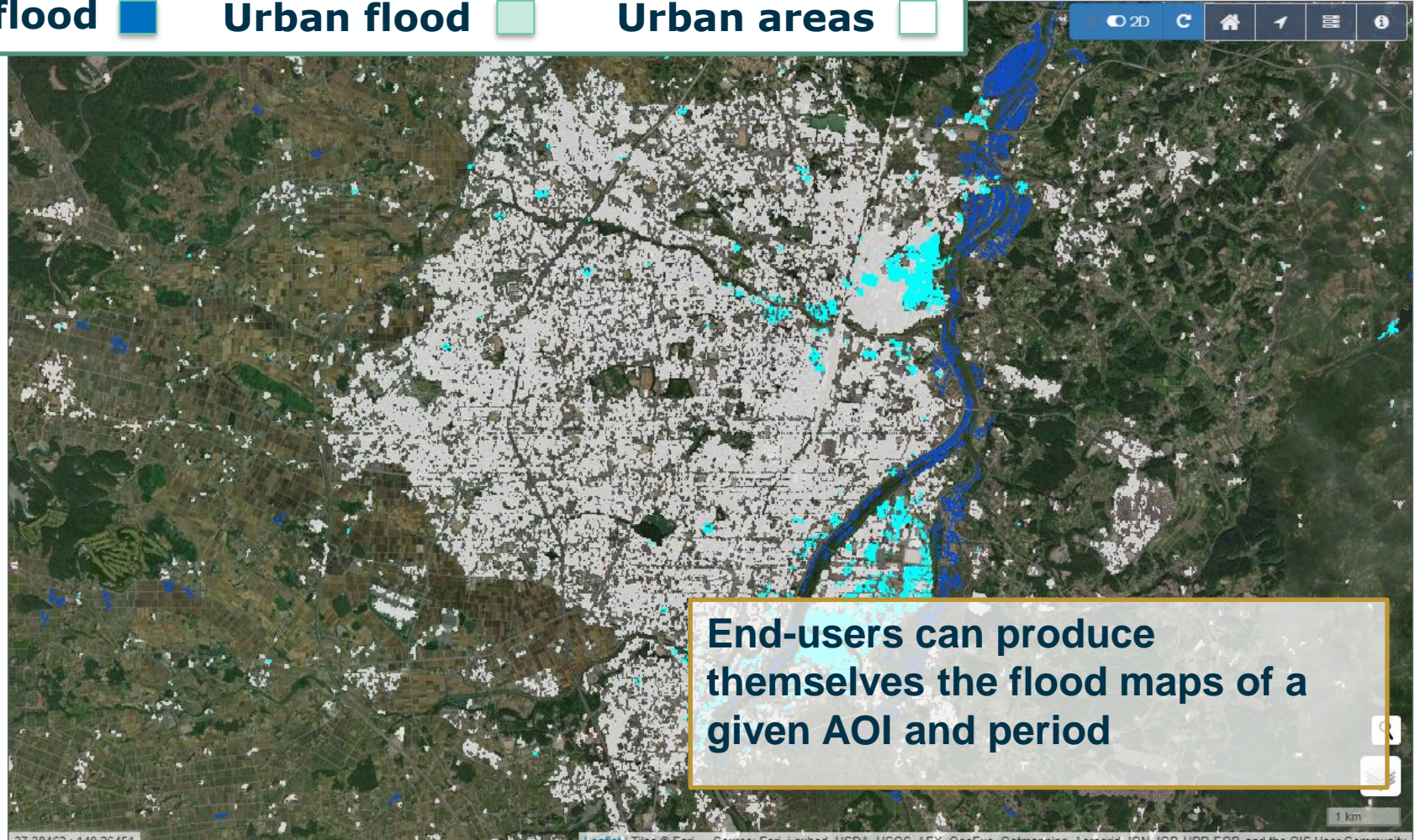
Apps Workflows Import New App Share

Open flood **Urban flood** **Urban areas**

Products 4

- JPN_46_2019-10-10_flood.tif
 - Metadata
 - Bands
 - band_1
- JPN_46_buildings
 - Metadata
 - Bands
 - band_1
- Iwaki_S1B_IW_GRDH_1SDV_20191012_fm.tif
- baresoil_flood_map_japan_iwaki
 - Metadata
 - Bands
 - band_1

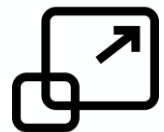
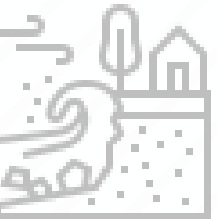
Navigation



End-users can produce themselves the flood maps of a given AOI and period

Coastal hazards

- 1. Coastal change mapping
- 2. Sediment source and transport



Multi scale analysis



Worldwide Coverage



Access to historical information

Coastal Change Mapping



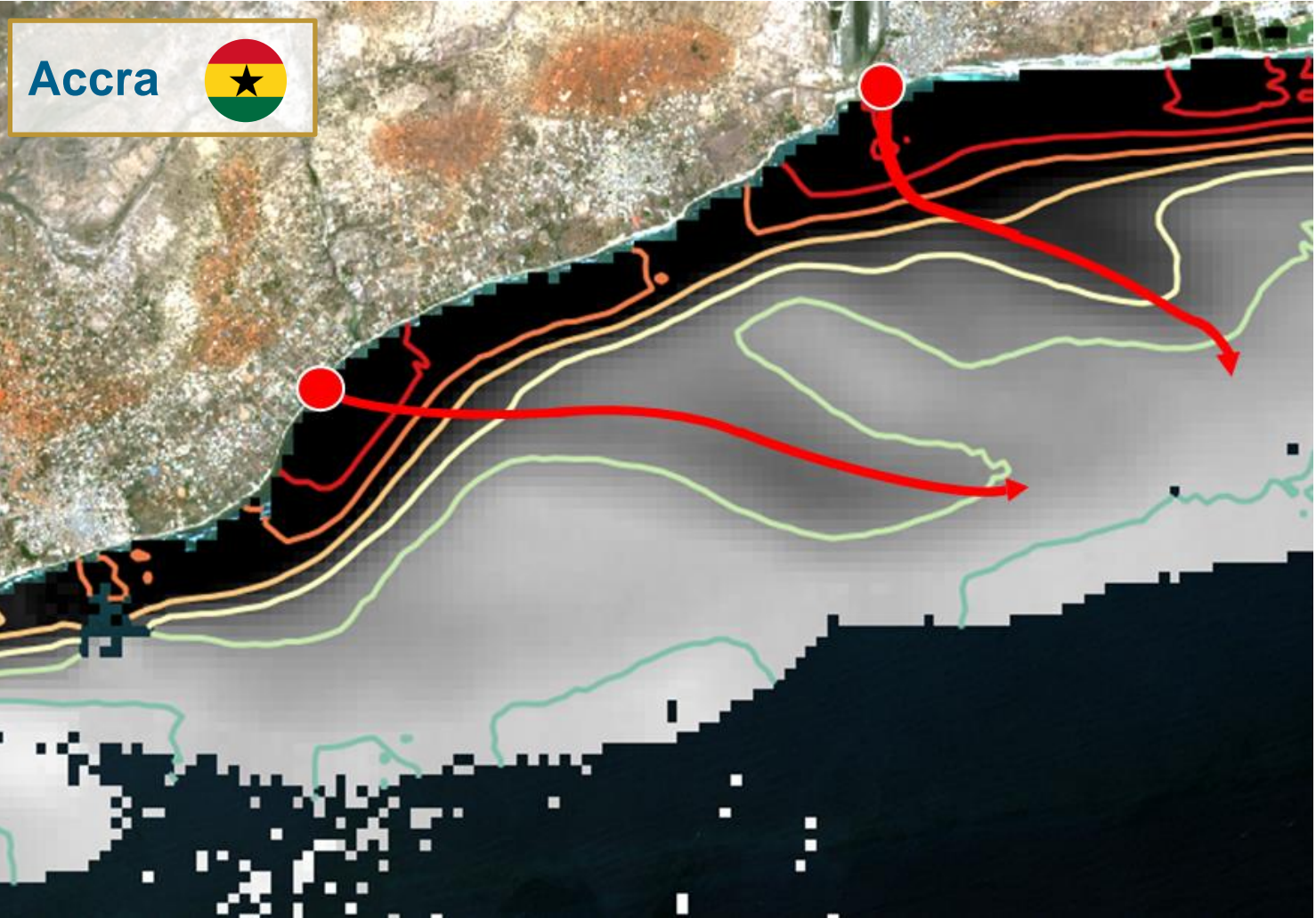
— 2013 MSL Shoreline
— 2022 MSL Shoreline

■ Erosion

End-users can request time series map for any time range and spatial scale

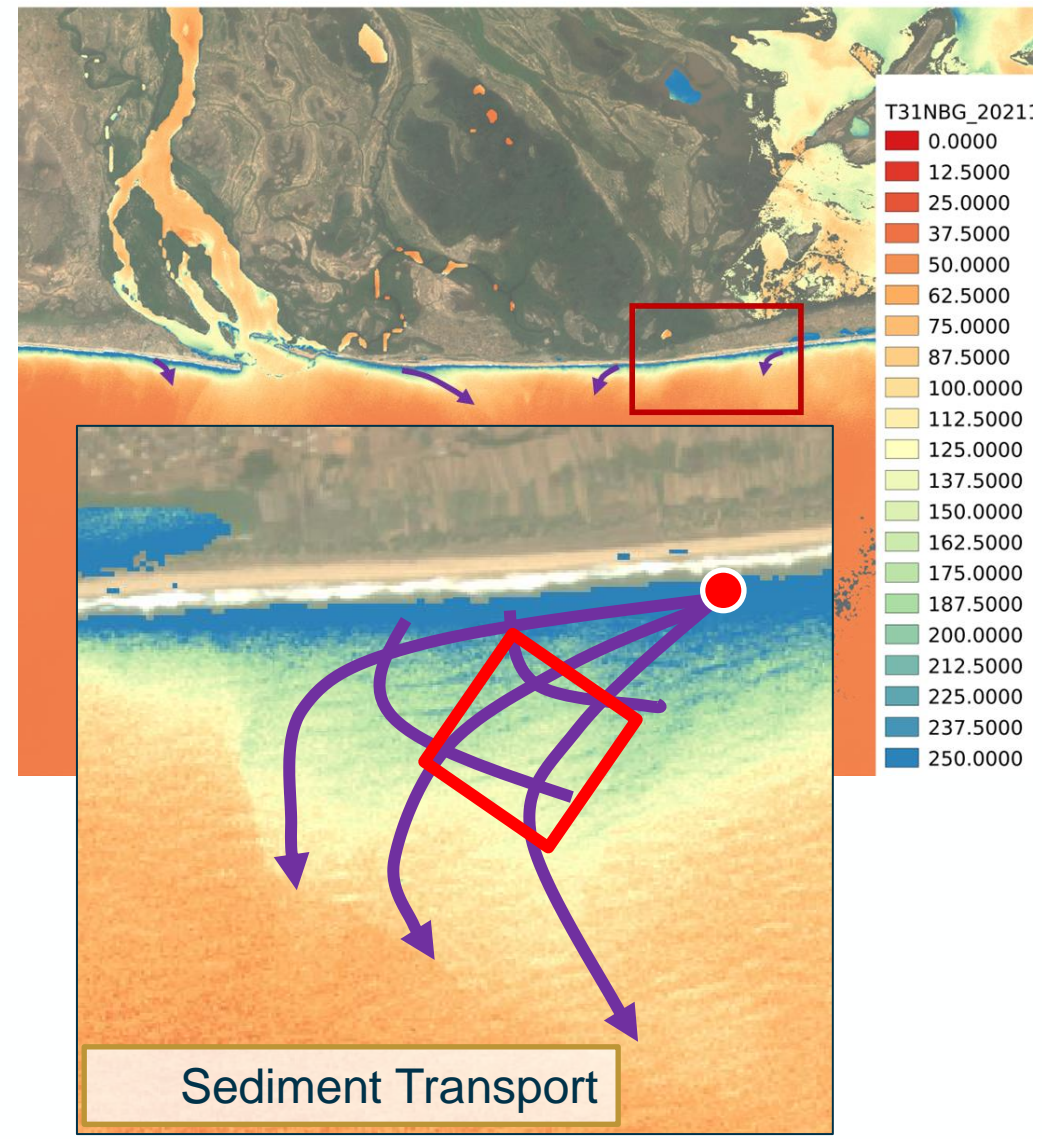


Sediment Source and Transport



Accra

Concentration lines Sediment source



Sediment Transport

Geo-hazards mapping



1. Large Scale Ground Motion Mapping
2. Full Scale Ground Motion Mapping



geohazards
tep

Online platform allows users producing large-scale products

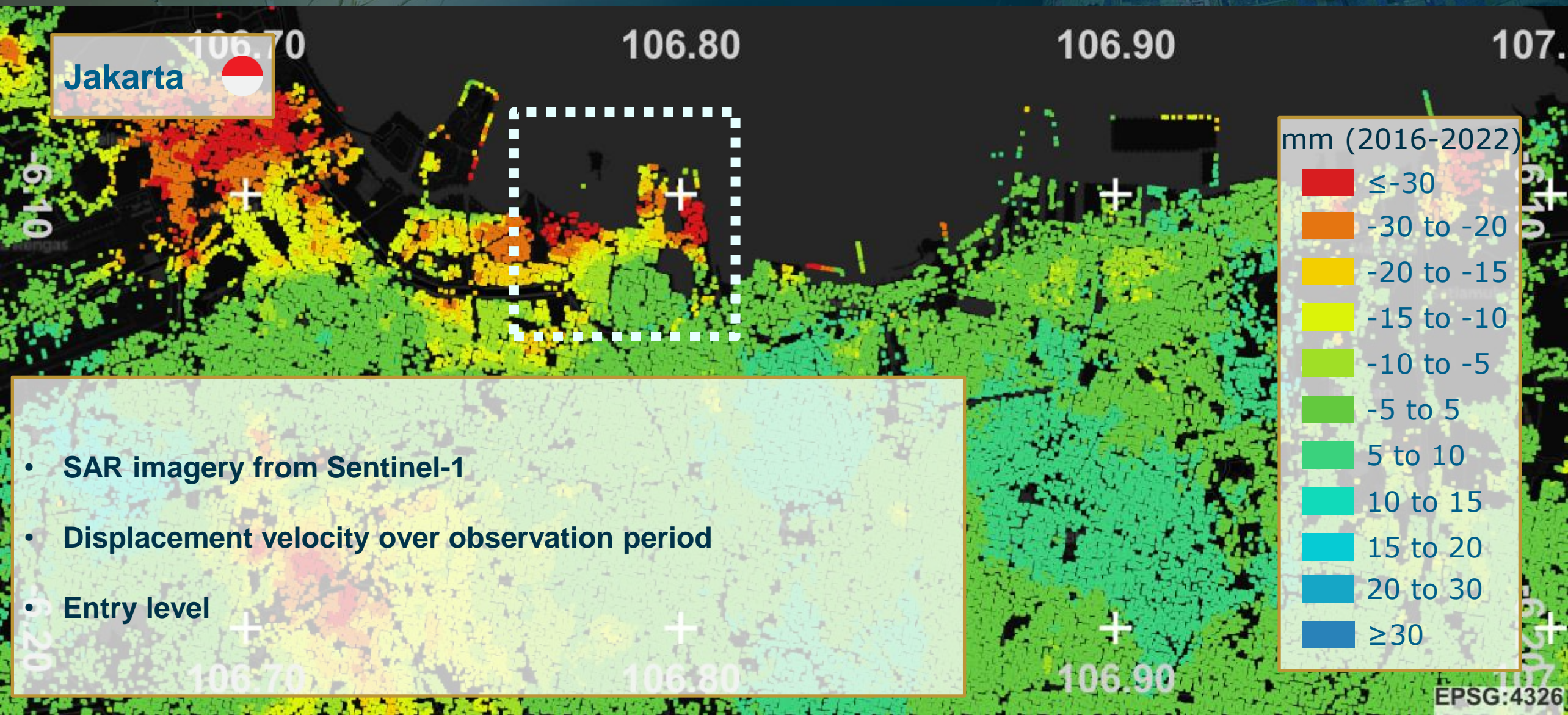


Worldwide Coverage



Unaffected by cloud cover

Large Scale Ground Motion Mapping



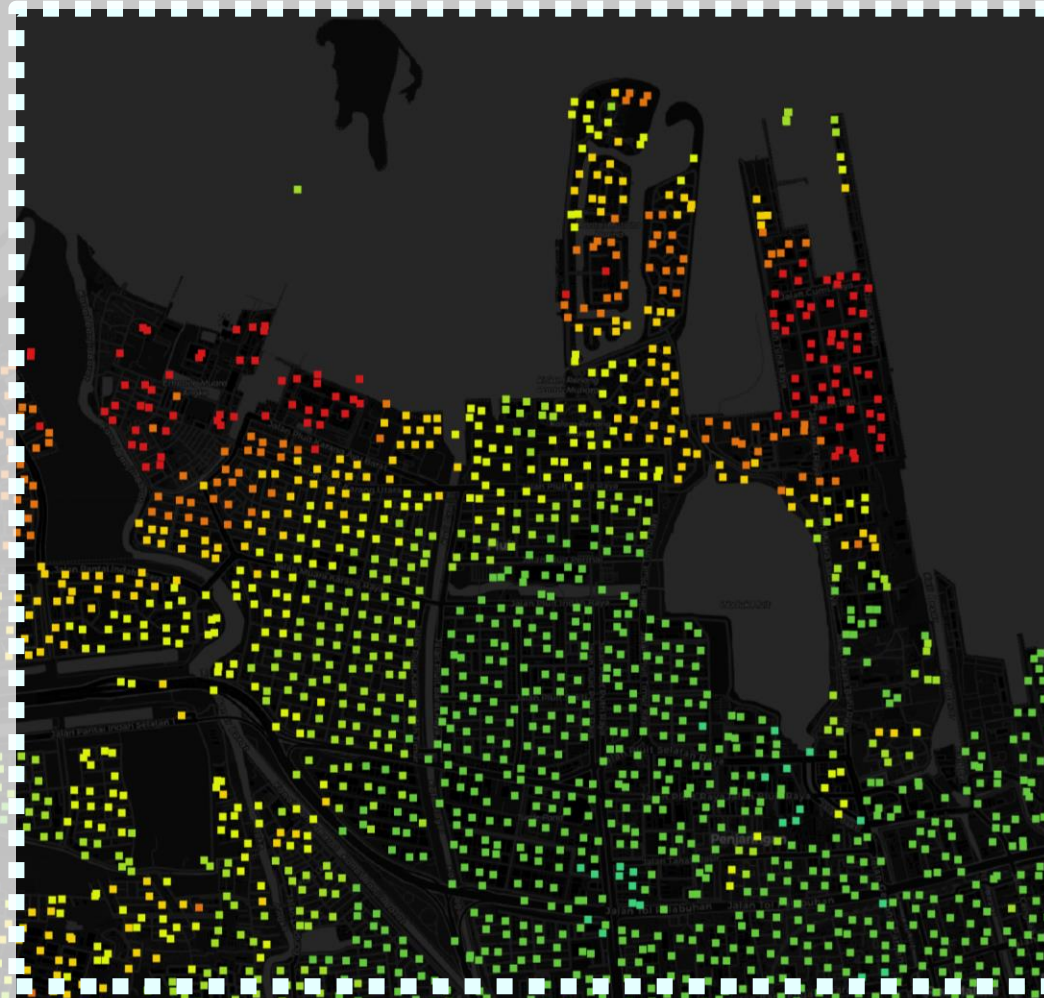
Full Scale Ground Motion Mapping



Jakarta



- Focusing in detail on specific areas



mm (2016-2022)



EPSG:4326



Geohazard Exploitation Platform (GEP)



geohazards tep Access to Publicly available data, products and more

EO Data EO-based products Community Sign in Register Contact

Free Text Search time

To improve the performance, some tiled layers are hidden.

Details

Jakarta Displacement PS Desc IW1 2015-2021

Layer styling

Measurement start
2015-04-18 22:33:20

Measurement end
2021-05-16 22:33:31

Mode
IW

Polarization
VV

Antenna side
Right

Date of production
2021-07-30 15:13:16

Sensor
S1

Orbit direction
Descending

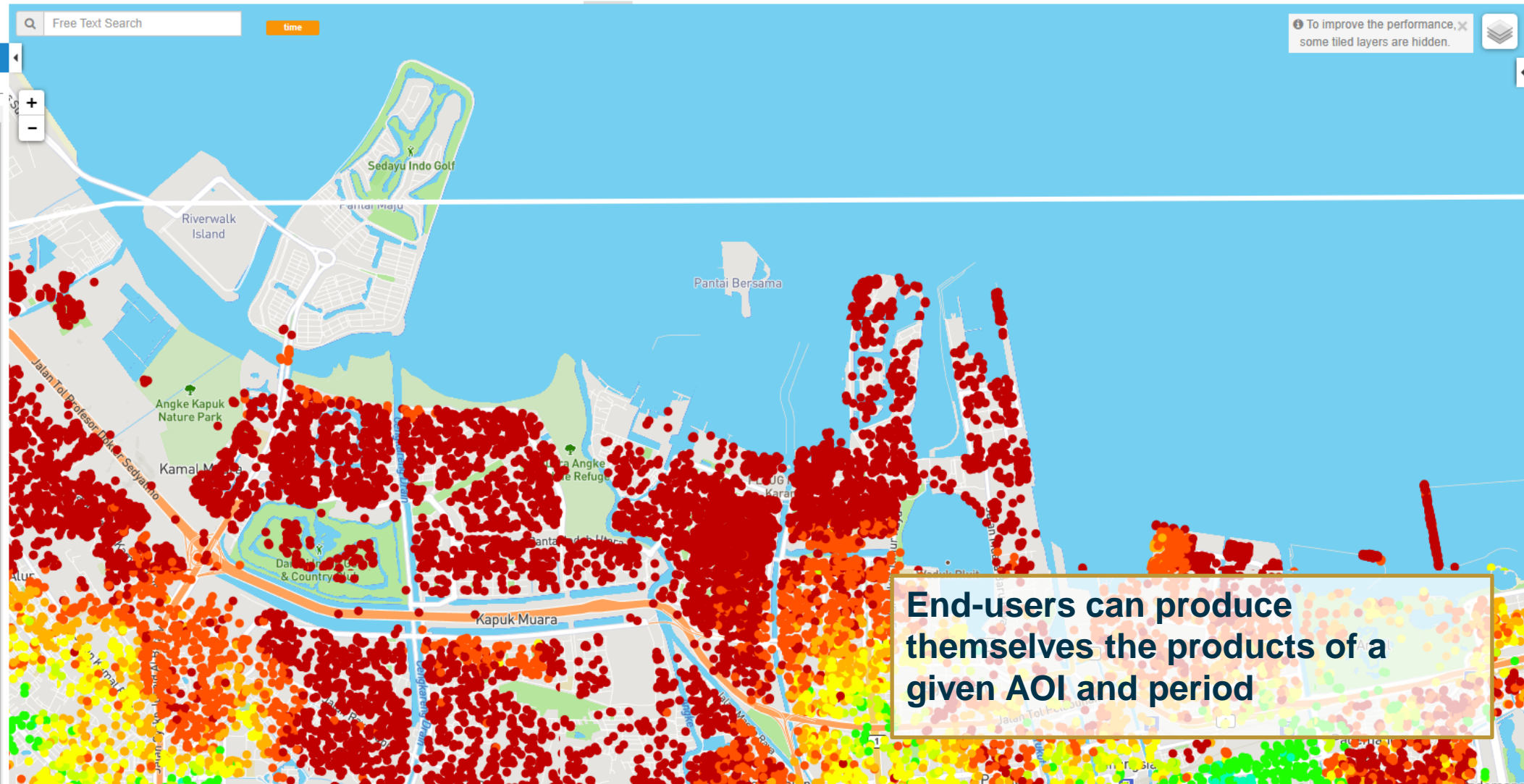
Service used for generation
Rheticus Displacement

Relative orbit number
047

Wavelength
0.0554660

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The consortium is providing at no cost IFI initiatives with innovative and mature solutions that leverage Earth observation data



Data processing relies on cutting-edge methods of the state-of-the-art of remote sensing



The services are scalable and customizable to achieve specific requirements of users



Users can produce on-demand most of offered services through online platforms

Thank you

Contact:

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Disaster Resilience

GDA

Global Development Assistance

GDA AID

Agile EO Information Development