Space for Shore consortium

esa Coastal Erosion Project

European Space Agency

Arctic Regions and local early adopters

Manon Tranchand-Besset, i-Sea

Jörg Haarpaintner, NORCE

i-Sea LITTORAL

NORCE

Key objectives

- Develop digital tools to extract coastal morphometric indicators via satellite imagery (in particular data from Copernicus Programme).
- Assess coastal erosion hazards and the seasonal-to-decadal sustainability facing climate change and human activities.
- Provide practical and operational solutions to the needs of coastal management stakeholders.

Main challenges

Automate

Generalise

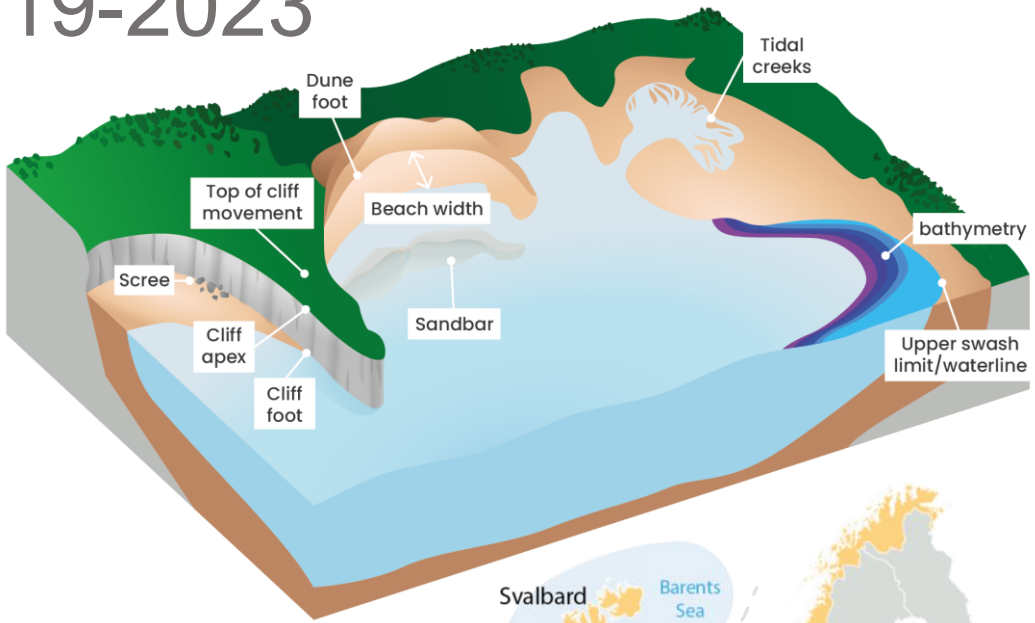
Upscale

Reach inaccessible areas

Support managers in the intelligent use of the products

Space for Shore Consortium 2019-2023

6 COUNTRIES



Optical remote sensing experts

SAR remote sensing experts

Service development

spaceforshore.eu

- ~4000 km of coastline
- 25 years of retrospective
- Thousands of satellite images
- ~10 algorithms developed
- > 50 end-users and experts involved

Space for Shore Consortium 2024

FOCUS IN NORWAY

Optical remote sensing experts

SAR remote sensing experts

Coastal experts

i-Sea LITTORAL

NORCE

UNIS The University Centre in Svalbard

LETG

NEW OBJECTIVES:

~1200 km of coastline

25 years of retrospective

Svalbard Archipelago + Norwegian Mainland

- WHERE ?
- WHY ?
- WHEN ?

➡ Stakeholders' expectations

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- WHERE ?
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➡ Stakeholders' expectations

NORWEGIAN MAINLAND

Interviewed

Finnmark fylkeskommune
Finnmárkku fylkkagielda
Finmarkun fylkinkomuuni

Contacted/ informed

Troms fylkeskommune
Romssa fylkkasuohkan
Tromssan fylkinkomuuni

Tromsø kommune

SVALBARD REGION

Interviewed

SYSSELMANNEN SVALBARD

Contacted/ informed

Store Norske Spitsbergen Grubekompani AKTIESELSKAP

NORWEGIAN MAINLAND AND SVALBARD REGION

Interviewed

Kartverket

NVE

GEOLOGICAL SURVEY OF NORWAY - NGU -

Norsk Romsenter
Norwegian Space Agency

Norwegian Environment Agency

Bathymetry

Intertidal area

Coastline (Vegetation)

Assess effects of climate change (eg. vegetalisation)

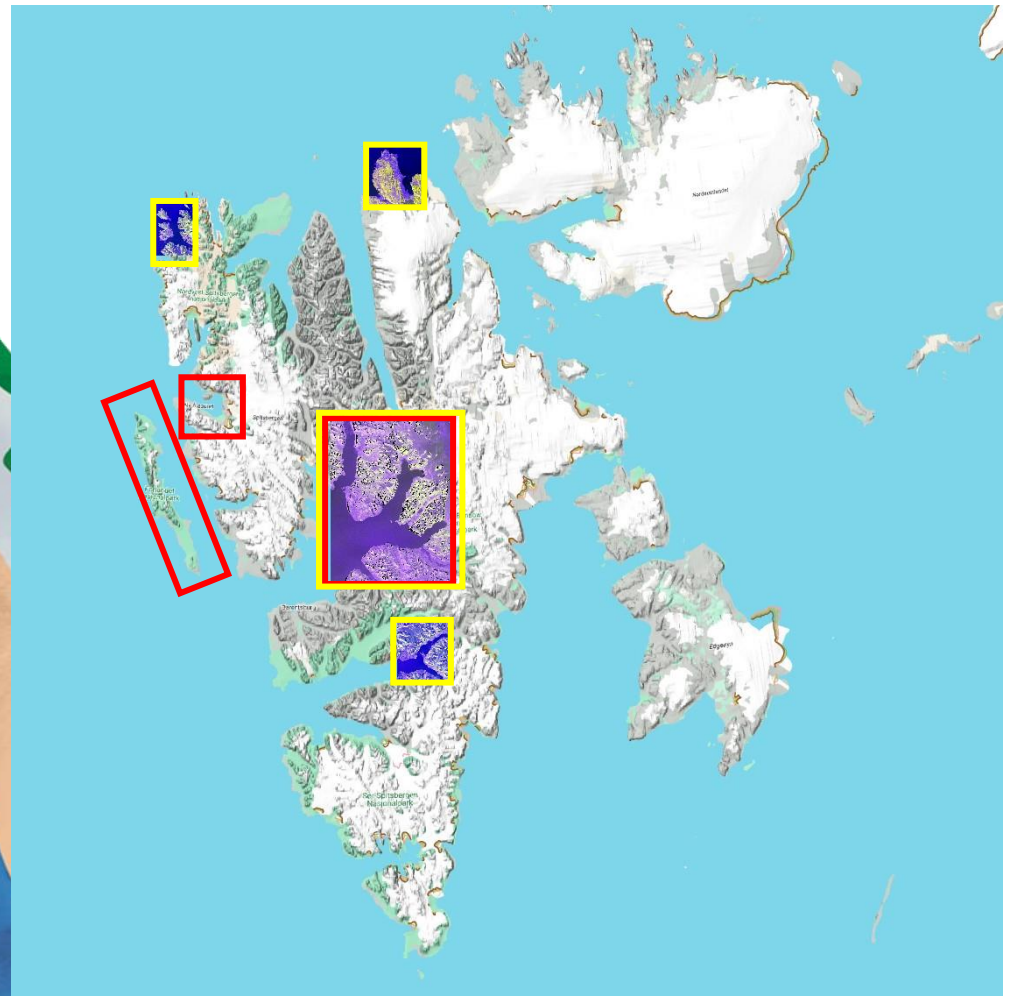
Data in nearshore shallow waters

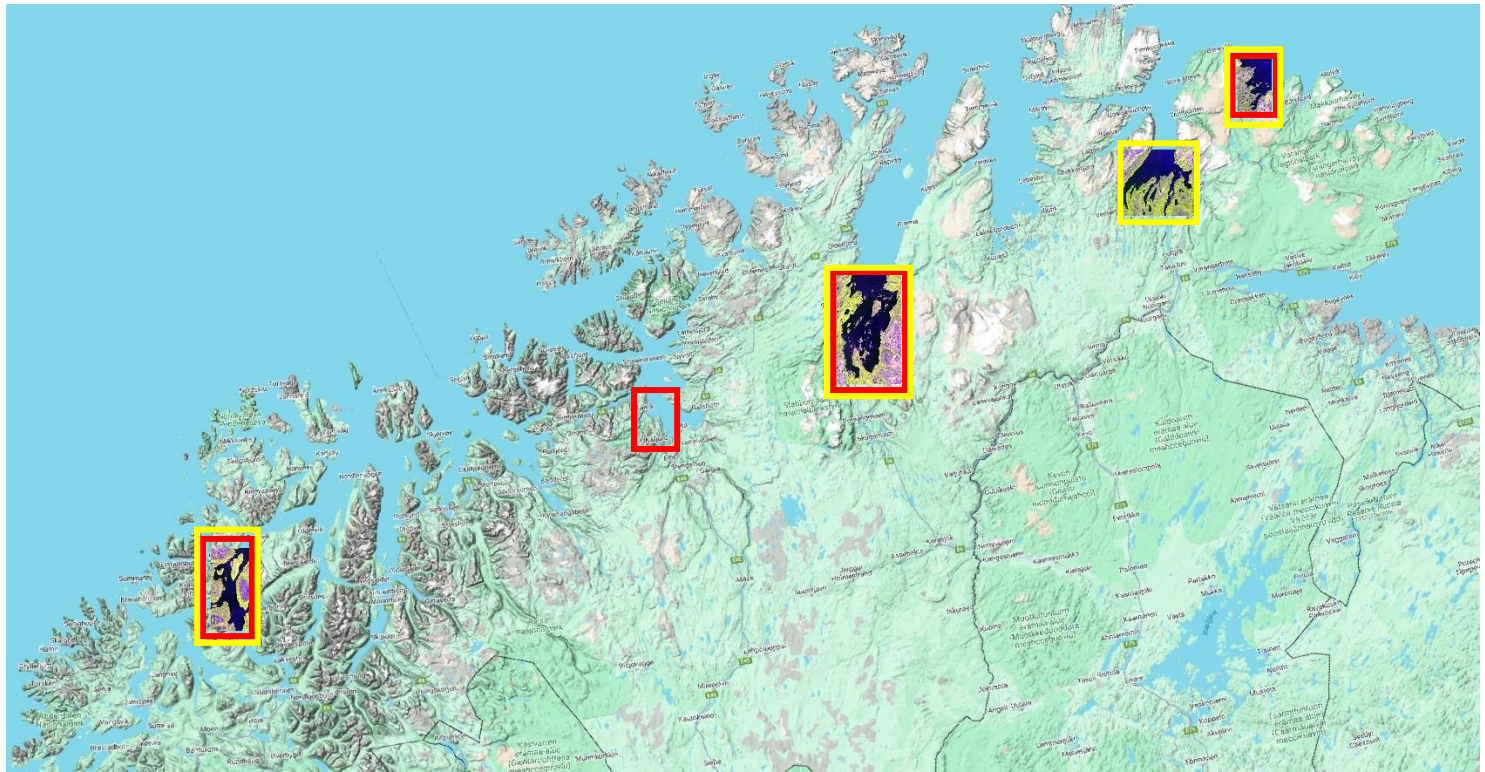
Land-use changes (eg. Svea Coal Mining)

Cultural heritage (eg. sunken ships)

Effects of aquaculture on coastlines

Data from extreme events such as landslides



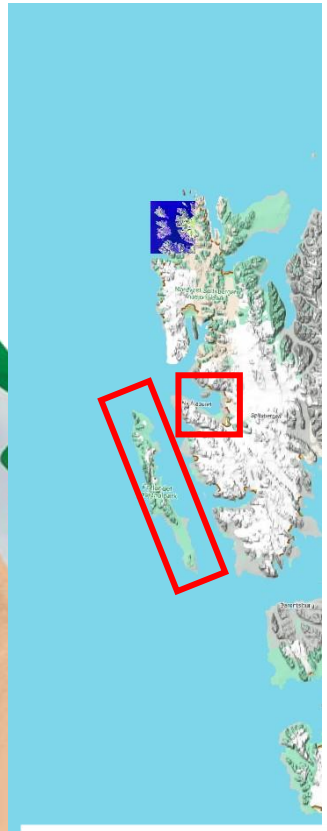


Intertidal area

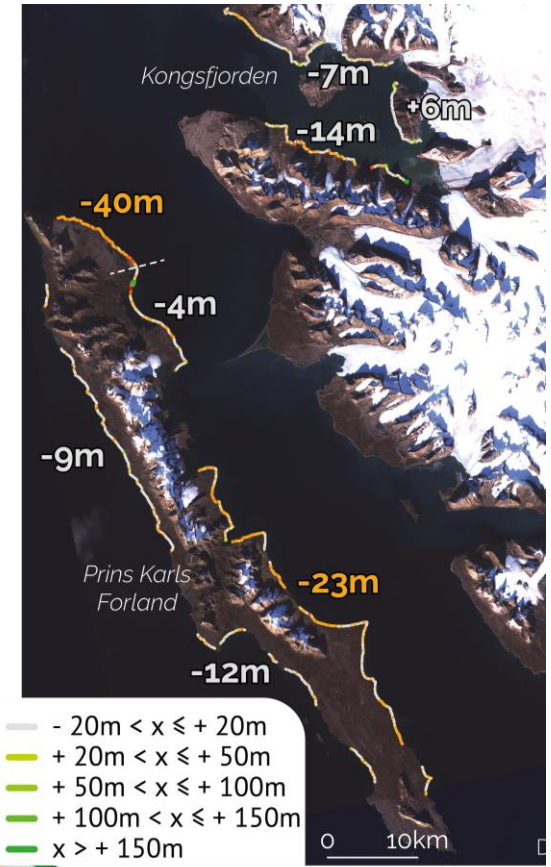
Bathymetry

Coastline (Vegetation)

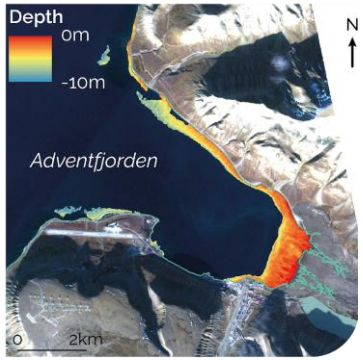
- Assess effects of climate change (eg. vegetalisation)
- Data in shallow water
- Land-use changes (eg. Svea Coal Mining)
- Cultural heritage (eg. sunken ships)
- Effects of aquaculture on coastlines
- Data from extreme events such as landslides

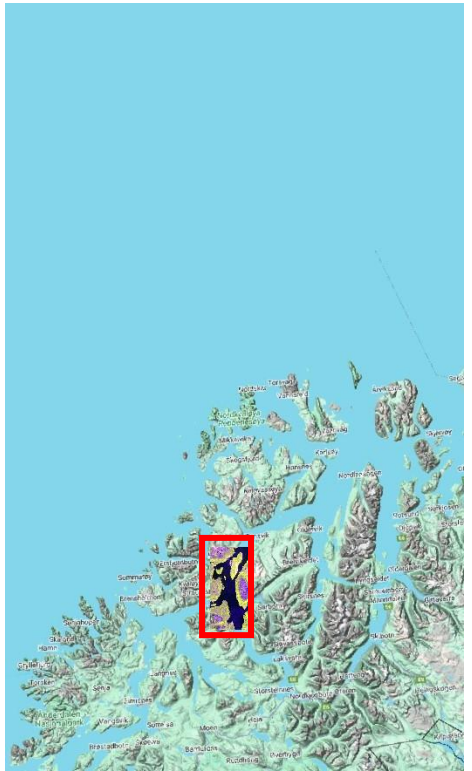


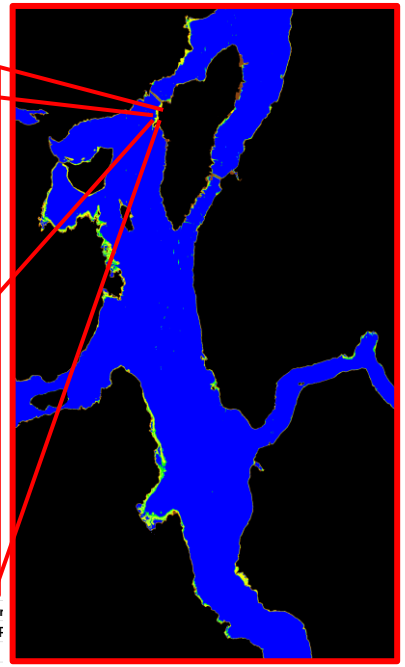
Coastline change
1995 - 2022



Bathymetry
2021







ITZ - Atmospheric Exposure (Tørreleggingsvar

Class	Color Code	F
No data	(255,255,255)	
Land (DEM >50cm)	(0,0,0)	
Land (mask from S1)	(139,69,19)	
> 95%	(255,0,0)	
75-95%	(218,165,32)	
50-75%	(255,255,0)	
25-50%	(173,255,47)	
5-25%	(0,255,0)	
<5%	(0,255,255)	
Water	(0,0,255)	

Intertidal area
07/26/2024