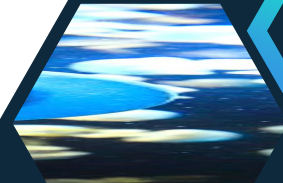
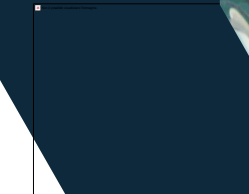
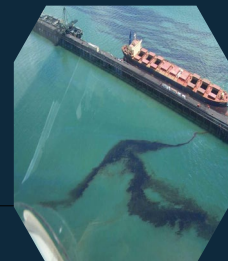
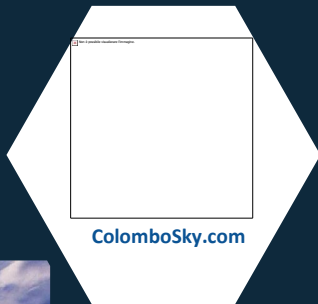


# JellyX

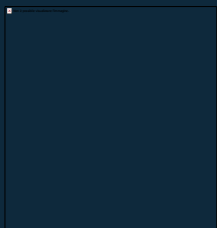
by ColomboSky

A monitoring tool for jellyfish swarms





# ColomboSky

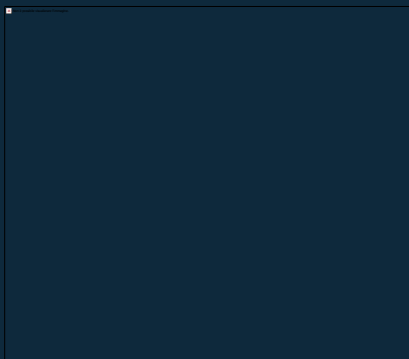


**ColomboSky**

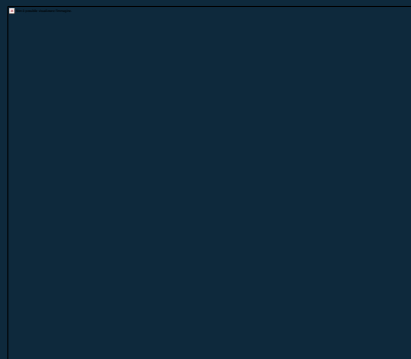
- Private company founded in 2017 and supported by ESA incubation programme.
- Ocean monitoring and environmental protection
- **Multi-disciplinary expertise:** remote sensing, machine learning, marine science, oceanographic modelling



# The mission of ColomboSky



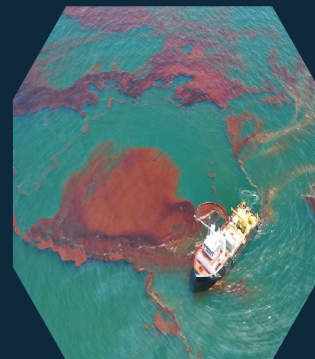
Marine Debris



Harmful Algal Blooms



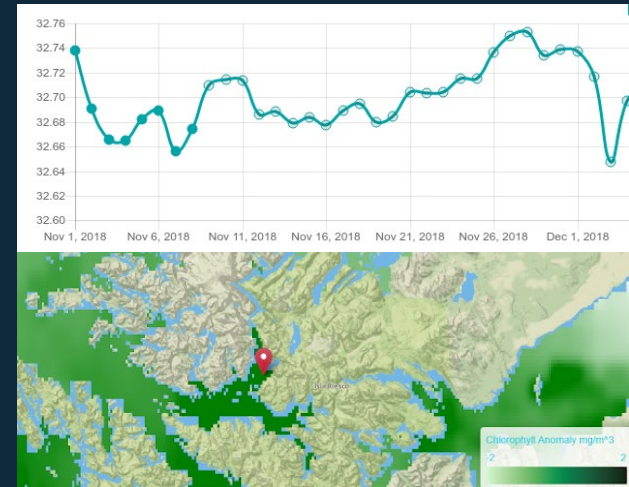
Jellyfish Blooms



Oil Spills

# AQUAX

- Online platform tailored to the aquaculture industry
- Integration of next-generation satellite data with in-situ probes and oceanographic models for water quality monitoring of the whole water body
- Historical and real-time analyses of ocean parameters with global coverage
- Water threats forecasting for effective risk management



# AQUAX

1.

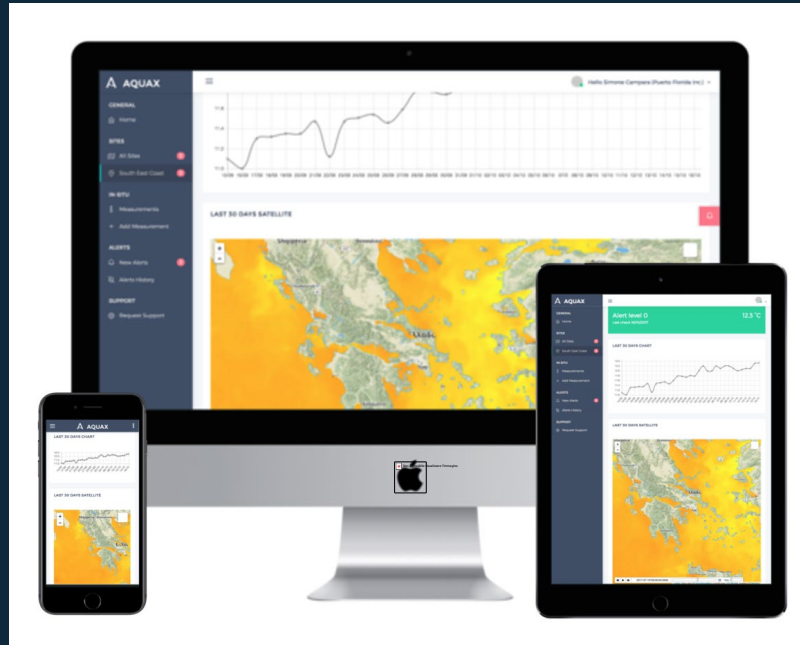
Risk  
Prediction

2.

Alerting  
System

3.

On-site data



## Dashboard

DASHBOARD

SITES [ 3 ]

SENSORS

ADD NEW ALERT

SUPPORT

	FROM CAPRARIA   TODAY 11:30 AM	Lorem ipsum dolor sit amet costructur est	
	FROM BENIDORN   TODAY 08:50 AM	Lorem ipsum dolor sit amet costructur est lorem	
	FROM BENIDORN   TODAY 08:50 AM	Lorem ipsum dolor sit amet costructur est	

[View all alerts](#)



### CAPRARIA FACILITY

Barcaggio 43.06, 9.85

SERENE

Air Temperature: 18.16 °C  
 Humidity: 38 %  
 Pressure: 1019 hPa  
 Wind Speed: 6.7 kn  
 Wind Direction: 30.00° - NNE

	STABLE	
	SENSOR JELLYX	XXX
	SENSOR VEL	0.03
	SENSOR CHL	0.15
	SENSOR CHLA	0.08
	SENSOR S	38.28
	SENSOR SST	-257.05



### BENIDORN FACILITY

Villajoyosa 38.49, -0.19

CHANGEABLE

Air Temperature: 15.02 °C  
 Humidity: 38 %  
 Pressure: 1019 hPa  
 Wind Speed: 6.7 kn  
 Wind Direction: 30.00° - NNE

	STABLE	
	SENSOR JELLYX	XXX
	SENSOR VEL	0.03
	SENSOR CHL	0.15
	SENSOR CHLA	0.08
	SENSOR S	38.28
	SENSOR SST	-257.05



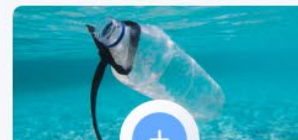
### JELLY FISH BLOOMS

Learn how you can protect your sites from jellyfish blooms.



### OIL SPILL

Learn how AquaX can help you keeping track of oil spills.



### FLOATING DEBRIS

Prevent damages to your sites with debris monitoring.

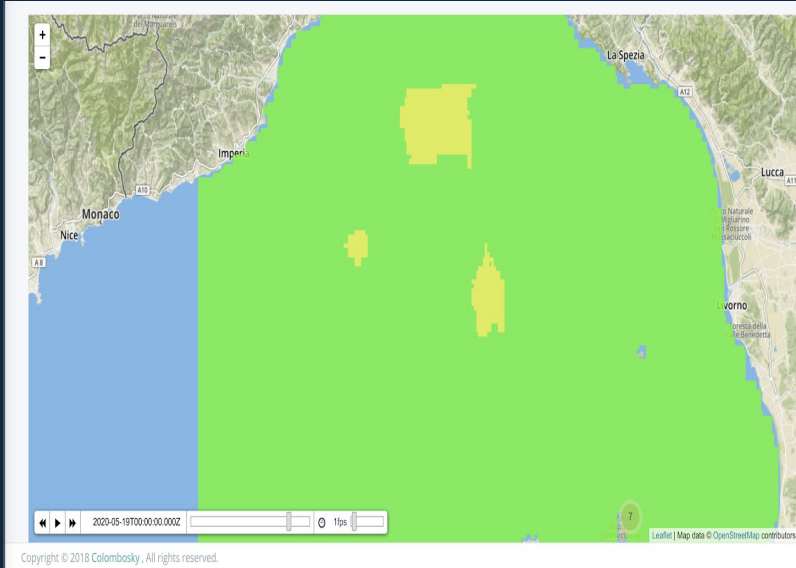
# The impact of jellyfish outbreaks on ocean industries

- Collapse of fisheries
- Clogging of cooling systems of power plants
- Farmed fish kills
- Several cases of tourists injured (up to 15,000 cases/year) and killed





# JellyX: Jellyfish monitoring



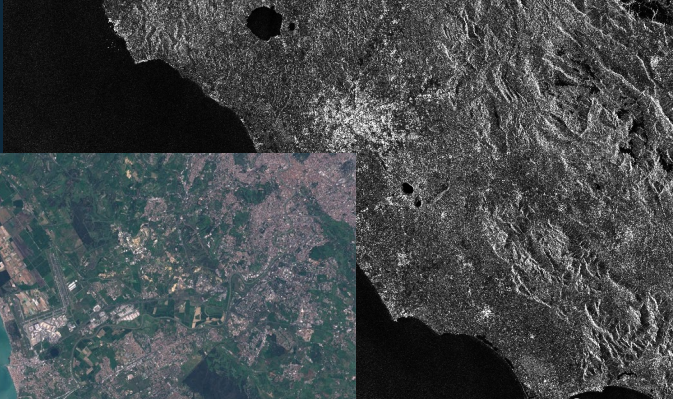
- Jellyfish monitoring and forecasting service integrated into AquaX platform
- Detection and mapping the risk of jellyfish outbreaks
- Prediction of jellyfish outbreaks by modelling their drift
- Alerting service based on forecasted environmental parameters that favour jellyfish blooms



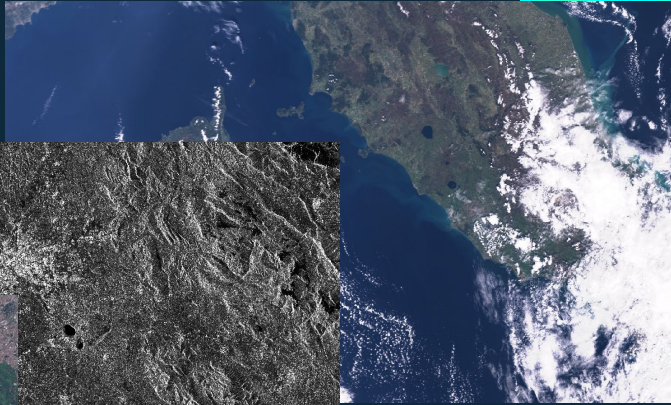
# Technology: Data sources



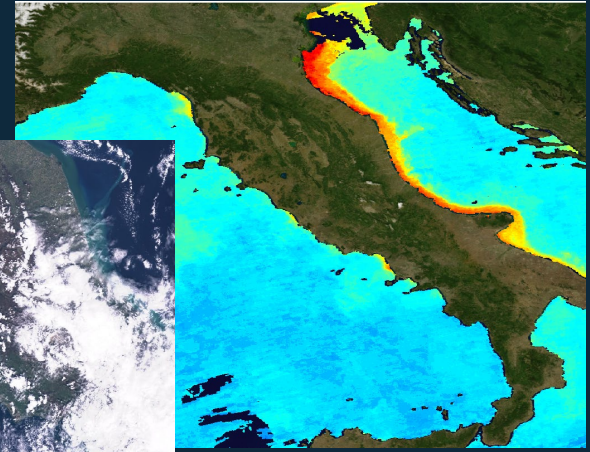
Sentinel 2



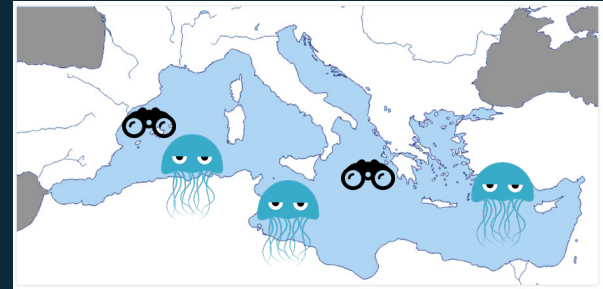
Sentinel 1



Sentinel 3



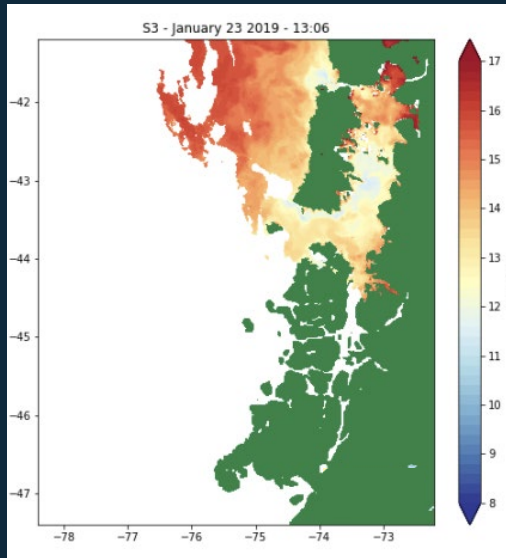
Oceanographic Models



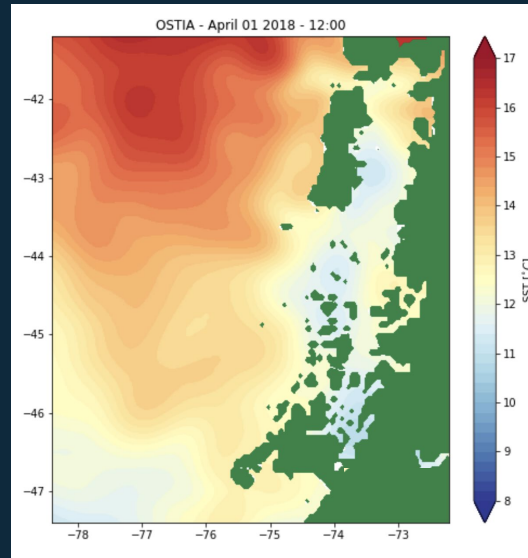
In-situ data for accurate and localized information

# Technology: Oceanographic Models

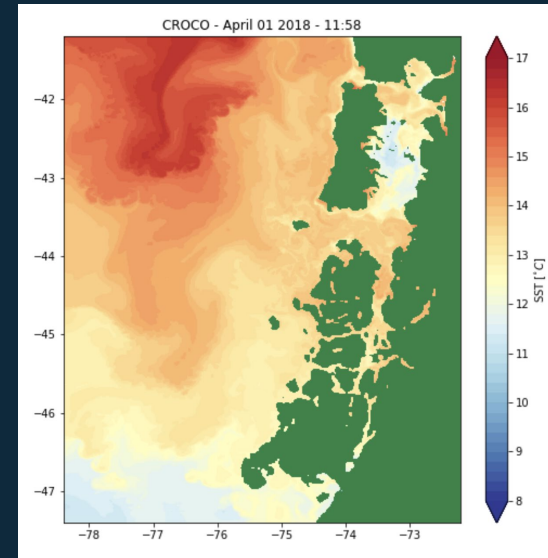
Satellite Data



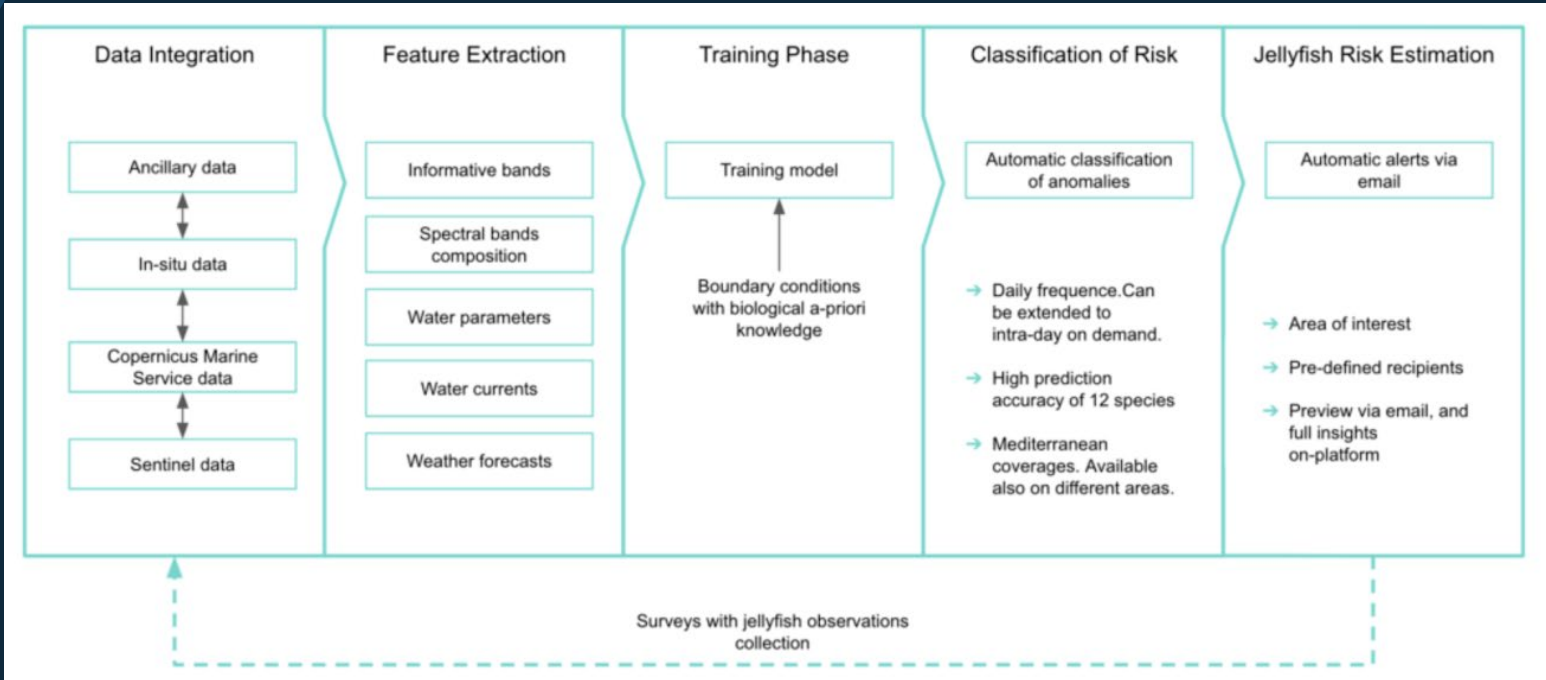
Global modelling



ColomboSky high resolution modelling



# Technology: Workflow



# JellyX: Accurate results

- Average jellyfish abundance estimation accuracy of > **75%**
- Risk prediction for **12 jellyfish species** (*scyphozoans, cubozoans, siphonophora, salps, comb jellyfish*)



<b>0: Low risk/Absence</b>	0 individuals/10 m <sup>2</sup>
<b>1: Medium risk/Presence</b>	1 - 10 individuals/10 m <sup>2</sup>
<b>2: High risk/Bloom</b>	> 10 individuals/10 m <sup>2</sup>

# JellyX: Alerting service

- The platform sends automatic alerts whenever a custom threshold risk is exceeded
- Reliable automatic monitoring and alerting email system
- Reduced time-to-action and focused mitigation actions

The screenshot displays the AQUAX web interface for configuring the JellyX alerting service. The left sidebar contains navigation menus for GENERAL, SITES, ALERTS, SENSORS, NEW ALERTS/MONITORS, and SUPPORT. The main content area features a map of the Capraia Island area with a red location pin and a large purple circular alert radius. Below the map, the configuration form includes fields for Name (jellyx), Description (Alarms for jellyx), Latitude (43.03582226584729), and Longitude (9.854404235910115). A slider control is used to set the Radius (Km), with a scale from 0 to 50. The top right of the interface shows the user name 'Hello Demo User CMEMS'.

**AQUAX**

GENERAL

- Home

SITES 2

- Capraia demo facility
- Benidorm demo facility

ALERTS

- Alerts

SENSORS

- Sensors Setup

NEW ALERTS/MONITORS

- Alerts/Monitors

SUPPORT

- Request Support

HELLO DEMO USER CMEMS

Map showing location of Capraia demo facility with a large purple alert radius.

Name: jellyx

Related site: Capraia demo facility

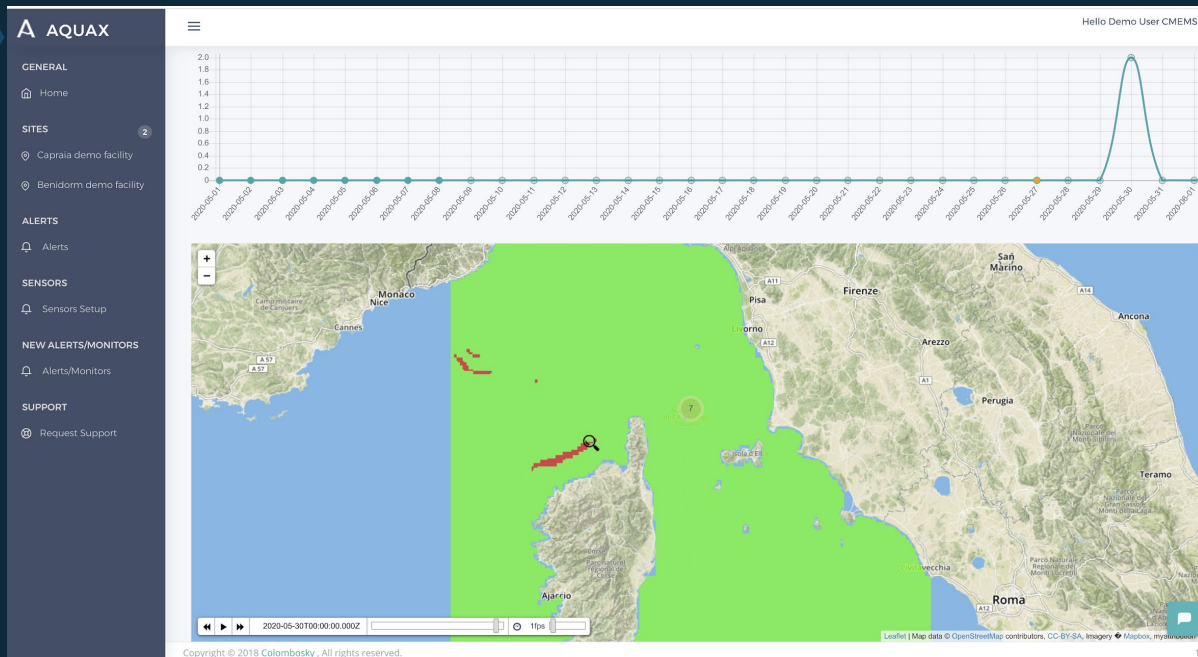
Description: Alarms for jellyx

Latitude: 43.03582226584729

Longitude: 9.854404235910115

Radius (Km): [Slider control]

# JellyX: Monitoring



0: Low risk/Absence	0 individuals/10 m <sup>2</sup>
1: Medium risk/Presence	1 - 10 individuals/10 m <sup>2</sup>
2: High risk/Bloom	>10 individuals/10 m <sup>2</sup>

High risk of outbreak identified. Alert automatically sent to the user.





# JellyX : Benefits

- Large scale daily monitoring
- Forecasts capability
- Provision of easily interpretable data to monitor, manage and prevent the impact of jellyfish outbreaks
- Prevention of major damages to local economy
- Early detection of public health hazards and economic risk

*Lowering risk, protecting profits, improving sustainability*





**Further enquiries:**

[thomas@colombosky.com](mailto:thomas@colombosky.com)

[aquaexploration.com](http://aquaexploration.com)

