AURELIA - Visualisation of jellyfish swarms using multiple sources of observation and live data

Motivation

The rising of the ocean temperatures leads to an accelerated growth of various sea species, especially plankton and other small plants and algae. As a result, larger species that live off those particles are currently seeing a higher growth rate as well. These changes do not only affect the balance of submarine ecosystems, but in certain cases also hamper human marine activities. This is especially true in the case of jellyfish, whose unique physical texture make them particularly harmful for both humans and technical equipment, when getting caught in e.g. fishing nets, ship motors and propellers, divers' tools or other appliances. Monitoring the movement of larger swarms of jellyfish is therefore a means to preventing both human health risks and technical damage. Through project AURELIA, Munich Innovation Labs has created a web-based monitoring tool based on data from observation studies as well as on live data from the German Maritime and Hydrographic Agency (BSH).

AURELIA jellyfish monitor

Using live current data from the server of the BSH as well as observation data retrieved from the "Jellywatch" app, AURELIA is able to predict (or chronologically reconstruct) the floating pathways of swarms of jellyfish. Further functions of the AURELIA tool include the prediction of algae bloom and the visualisation of tide levels, as the system architecture flexibly allows for the real time integration of these BSH-generated data as well. That way marine operations, including e.g. fishing, tourism, research and power station operations, can be planned accordingly, to minimize jellyfish impact. Over time, the aggregated data also allow to study the spreading and movement patterns of jellyfish populations in the growingly warmer oceans.

Project Details

Program
1st BMVI Data-Run

Project Timeframe
January – July 2016

Project Partners
Munich Innovation Labs
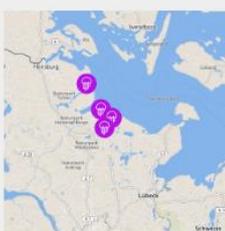German Maritime and Hydrographic Agency (BSH)
German Ministry for Traffic and Infrastructure (BMVI)

Project Coordination

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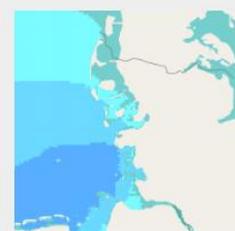
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Quallenschwärme

Jellyfish Swarms

Algenblüten

Algae Bloom

Wasserstände

Tide Elevations