HCTECH

Innovation in Coastal Water Monitoring

HCTECH is a technology-based company that started as a spin-off of CIS (Centro de Investigaciones Submarinas SL) in Santiago de Compostela (NW Spain). It was founded to improve the management and to further develop the technical know-how gathered during 10 years of R & D in CIS. The company is dedicated to the designing and manufacturing of water quality monitoring systems and other marine technologies.

CIS (Centre for Submarine Investigations), founded in 1987, is an environmental consulting company, specialised in the marine environment. For over a decade, CIS maintained a research, development and innovation department that generated techniques to prospect and investigate marine ecosystems. As part of a second line of business, the company entered the coastal signage market (beacon buoys and lanterns).

Since 2009, the company has focused on the development of a system for monitoring water quality and oceanographic parameters, directly linked to the environmental impact studies CIS used to work in. The company started to offer services to monitor the water quality upwards and downwards of the entire water column using buoys: turbidity, pH, temperature and dissolved oxygen. The monitoring is carried out in areas affected by marine civil works, thus assessing the impact of these activities real time.

The company also integrated sensors for monitoring meteorological and oceanographic parameters using these buoys. These parameters, such as current direction and speed, wave frequency and height and wind speed and direction, are of the highest interest for port authorities and civil engineering enterprises.

In 2011, the CIS partners valued the technology product portfolio as an asset that deserved to be managed by an independent and autonomous company. Thus the R & D department was separated from CIS and continued as HCTECH.

HCTECH is a spin-off created for better management, operation and further development of the technological achievements made by CIS. These technological achievements are the result of collaborative projects with universities and technology centres, aimed at the better protection of the seas and marine ecosystems. HCTECH is convinced that the best way to preserve water quality is through knowledge and through reliable environmental data, which is precisely what our technologies are looking for. We are designers, manufacturers and marketers of technological products capable of real-time measurement of the physical-chemical characteristics of water and the physical oceanographic conditions. We transmit this information to a control centre via radio, GPRS or satellite. The main competitive characteristics of our system are the protection of the sensors against corrosion (antifouling) and monitoring of the entire water column.

HCTECH remains commercially linked to CIS, with three partners: Carlos Duran, principal promoter, Manuel D. Lago, former head of R & D at CIS, and Xulio Fernández Hermida, co-inventor of HidroBoya (autonomous sampling system for water quality monitoring).

The participation of three partners in the project provides multiple disciplines and skills. The main promoter is Carlos Duran, graduate in Biology at the University of Santiago de Compostela (USC), with 30 years experience as business promoter, commercial agent and innovator. Manuel D. Lago, telecommunications engineer, was primarily responsible for the development of HidroBoya and other equipment and software in CIS. Xulio Fernandez has a telecommunications degree from the School of Telecommunications Engineering of Barcelona and a PhD in Telecommunications Engineering from the University of Vigo.

The company's main market is the geo-referenced monitoring of water and coastal areas by automatic reading and data transmission in real time. Our project is especially focused on compliance with the Water Framework Directive (WFD). This requires managers and water administrations across Europe to have a network of this type of monitoring systems in each Hydrographic Department. Compliance with the Framework Directive on European Marine Strategy and the MARPOL/OSPAR conventions, which apply to seaports, are also business

areas of interest for our technologies. There is far more interest in security issues rather than purely environmental concerns, and therefore we are working on the integration of image recording, processing and transmitting.

The strategic agendas from the water sector technology platforms have established real-time monitoring and development of sensors for remote monitoring of water quality as one of the priorities for action for 2020. Between the technical and market objectives of the cluster Aqueau Blue Book II a roadmap can be found, and it includes a specific demand for water management that comprises our activities.

Based on its Blue Growth Study, the European Commission has established a comprehensive picture of the economic size and employment of marine and maritime sectors in Europe and is looking at the direction in which these sectors could realistically be heading in the coming years, focussing at particular potential for innovation. The coastal and maritime tourism is the biggest maritime sector in terms of gross value added and employment, expected to grow by 2 to 3% towards 2020. As the worldwide ocean energy installed capacity is expected to double yearly in the near future, the commercialisation of wave and tidal technologies will be enhanced through a reduction in technology costs. HCTECH services and technologies are directly linked to these business sectors, as we provide information critical for decision making.

We feel confident about our growth perspectives as we are working in a market continually in need of new developments and innovations. Though our core business area is mainly comprised of water quality monitoring, HCTECH was created as an intensive R&D dedicated company, offering services to develop tailor-made devices for hydrological studies or monitoring. We also are in the course of integrating or adapting existing hydrology technologies to new services. The near future for HCTECH is quite promising from this point of view, as we are starting new projects in Chile for a tsunami alert system, measuring wave height and frequency. In Portugal we will start aquaculture surveillance, including video recording and image processing. All of these needs demand the know-how and technologies that we have already developed for other markets. Sea level rise, extreme meteorological events, and other coastal threats are leading the market for coastal security and surveillance of littoral environmental conditions.

HCTECH currently participates in R&D projects aimed at improving the environmental performance of harbour dredging (Ecodraga Project, www.ecodraga.es), in co-operation with another three companies and four R&D public centres. HCTECH participates by integrating its monitoring systems in the dredging vessel. The aim of the project is to achieve a vessel design that minimises the dispersion of pollutants in the water column during dredging and depositing of the dredged material. Our company focuses on monitoring the turbidity real time, and on integrating a broad hardware-software system on board. This system will offer real-time, on-line, geo-referenced information about the sea bottom topography during the dredging process, based on interferometry. The objective is to increase the efficiency of the dredging process by making the sediment volume calculations and the dredged area information available quickly and accurately.

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https://www.hydro-international.com/content/article/innovation-in-coastal-water-monitoring