

**EXPOSED AT THE “ALTAR OF THE NATION” IN ROME, THE ITALIAN LASER THAT FOR THE FIRST TIME IN THE WORLD MEASURED THE OZONE LAYER ABOVE ANTARCTICA**

*Technology which is 100% made in Italy at the service of the international scientific community, which since 1986 monitors the health of Antarctica. It is the Quanta System laser, the first in the world to be installed in the Earth’s coldest continent in order to measure the ozone layer, exposed today at the Vittoriano in an Exhibition that celebrates the 30th anniversary of the Italian South Pole expeditions.*

From the **Padan Plain** to the **Antartic glaciers**: this is the journey of over **15,000 Km** that 30 years ago by the first laser in the world, used in an expedition to build a detailed map of the environmental contamination of a large area of the white continent made. An expedition that allowed to measure the ozone layer above that area and highlight **for the first time the decrease of the lead in the ice**, caused by the introduction of unleaded petrol.

A pioneering expedition set up **to experience and explore more than 14 million square kilometers of ice**, that saw as a protagonist, for the first time ever, **the laser LIDAR (Light Detection and Ranging), created in 1986 by a team of scholars , and developers, led by Eng. Antonio Raspa of Quanta System**, Italian company leader of this pioneering technology. The same laser that today, thirty years after that historical moment, will be on display until November 2 at the Vittoriano in Rome, in the exhibition **“Mission Antarctica. 30 years of Italian research in the extreme continent.”**.

An exhibition that traces the milestones of the **Italian presence at the South Pole**, highlighting the most important scientific results obtained, the difficulties overcome and the future goals. **An achievement that began internationally in the XVIII century, and costed the lives of hundreds of sailors and explorers** that came from all over the world, who gave their lives to contribute **to the safety and the future of humanity**.

The environmental and political importance of these expeditions guided by the Italian flag, **started in 1985 with the first Italian mission in Antarctica**, allowed the involvement of the **major research centers, such as ENEA, the most important experts of the country and the best industries** on the technological innovation field, which **for 30 years worked in synergy** in order to thoroughly study the health of the Planet.

During three decades, **thousands of scientists and researchers, have gone up to that distant region to deepen their studies in different scientific fields**, from climate to biology, glaciology to the study of the atmosphere. It is in this specific area that the **laser** on display at the Vittoriano **represents a true Italian excellence, able to amaze the whole world and to provide key data to the International scientific community**.

“The data collected during the years, and correlated among **the various stations, provided useful information for the understanding of atmospheric dynamics and climate change** – says **Paolo Salvadeo**, CEO of *Quanta System* – But that’s not all. In 1993 **was launched the idea of making similar measurements from the sky** and the proposal was embodied in the creation of a number of automated tools to be installed on board **of the Myasishchev M-55, the former Russian spy plane capable to fly to 22 km altitude, on the edge of the stratosphere.** *Quanta System* picked up this **technological challenge** and developed a unique laser that still **holds the record of the maximum operational altitude for an airborne device.** Today this laser designed and built about 30 years ago has been awakened from hibernation to be **displayed in the exhibition dedicated to the Italian research in Antarctica** in which plays a leading role.”

It all began in **1985**, when the first mission allowed to identify **the most suitable site for the construction of the Italian base**, which was established in Terra Nova Bay, in Southern Antarctica. *Quanta System*, was the first to offer its technological contribution to the Italian expeditions, **it can boast its presence in Antarctica as early as the second Italian expedition, in 1986, with two lasers created for the measurement of ozone**, one was installed in the Italian base of Terra Nova Bay and the other one in the American base of Amundsen-Scott, near the geographic south pole. The one on display at the Vittoriano **is the third device, installed during the third expedition in the US base at McMurdo in 1988.**

Among the important **results** gathered thanks to Italian expeditions to Antarctica, there are **systemic studies on climate change and the ozone hole, made possible by laser sources specially developed by Quanta System to probe the atmosphere from the lower layers to the upper limit of the stratosphere.** The lasers used constituted the transmitter of **Lidar** systems (*Light Detection and Ranging*), a remote sensing technique (**optical radar**) similar to a radar but that uses light instead of radio waves, **analyzing the return signal generated by high intensity laser pulses and based on the data collected, are able to determine the distance and the surface of an object, in addition to determining the concentration of chemical species in the atmosphere and in the water.**

Thanks to these laser it was possible to detect different atmospheric parameters **such as height, stratification and density of the clouds and properties of the particles contained, temperature, pressure, humidity, winds, concentrations of gases such as ozone, methane and nitrous oxide.**

**The data collected allowed to build a detailed map of the environmental contamination of a large area of the white continent**, about different classes of pollutants and heavy metals. Some of the most significant results have revealed aspects of great interest globally, such as the **recent decrease of lead in the ice detected for the first time in Antarctica**, linked to the introduction of unleaded petrol; and the **upward trend of the platinum group and polycyclic aromatic hydrocarbons** in the snow surface, negative evidence of the use of catalytic converters. It was also noted a **decrease of CFCs into the atmosphere**, correlated to the restrictions imposed on an international level to the use of these compounds.

The Exhibit is realized in **collaboration** and **with the contribution** of **ENEA** of Frascati, The Ministry of Education, University and Research (**MIUR**), **the Ceremonial Office of the Victorian** and **Quanta System**. **The inauguration** took place in the presence of the **Minister** and the **executive staff** of the Ministry of Education.

*Quanta System is an Italian company founded in 1985 based in Solbiate Olona (Va), from 2004 belonging to the international group El.En, and a world leader in the production of lasers for three scientific fields: aesthetic medicine, surgery and art. Three divisions united by one principle: to improve the quality of life of patients and taking care of people. Founded as a spin-off of one of the largest research centers in the field of lasers and optics worldwide, Quanta System has taken the first steps in high energy physics, plasma physics, spectroscopy and light interaction -matter. The first laser for the restoration of works of art were developed in 1994, and since 1997 began the activities in the field of medical lasers for dermatology and aesthetic medicine. In 2008 the company developed its first surgical lasers, which have today significant market share internationally. Trusted partner of healthcare facilities, doctors, institutions and organizations engaged in scientific projects, the activities of Quanta System are also aimed at European and international research programs, in collaboration with prestigious universities and research centers around the world.*

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