AIR, WATER, EARTH, FIRE

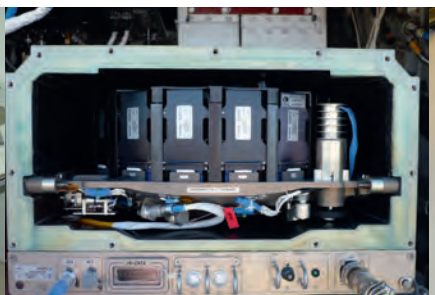
TUSCAN ENGINEERING IN THE SERVICE OF TRANSPORT AND INFRASTRUCTURES. TXT TELLS THE STORIES OF OUTSTANDING PEOPLE LOOKING TO THE WORLD AND WORKING IN AEROSPACE TECHNOLOGIES AND PRECISION MECHANICS

THE CONTRIBUTION OF TUSCANY IN DISCOVERING SPACE

Valfredo Zolesi, a Tuscan from Monte Argentario (GR), graduated in Electronic Engineering from University of Pisa, to later obtain specific specializations in the United States where he comes into contact with some american aerospace firms. The space will be, in fact, the field towards which he will orient the activities of Kayser, a company established in 1986. From then on, the company has aimed to deal with and develop a niche sector such as the space one, where multidisciplinary skills (electronic and aerospace engineering, computer science, physics, optics, biology) and major investments are required, targeting at high level challenges, entailing, as a consequence, the acquisition of new technologies, a continual training and the necessity for applied research.

KAYSER HAS A CHIEFLY GRADUATED TEAM OF 40 PEOPLE AND IT IS AMONG THE TOP SME OF THE FIELD.
SINCE 1988, IT HAS PARTICIPATED, WITH ITS EXPERIMENTS AND DEVICES TO 47 SPACE MISSIONS, WITH EUROPEAN, RUSSIAN AND AMERICAN LAUNCHING SYSTEMS, COLLABORATING WITH ASI (ITALIAN SPACE AGENCY), WITH ESA (EUROPEAN SPACE AGENCY) AND WITH THE AMERICAN (NASA) AND RUSSIAN (RFA) AGENCIES.






1. ENG. ZOLESI, YOU HAVE BEEN DEFINED AS A "PIONEER" IN THE RELATIONSHIPS WITH RUSSIANS, ONE OF THE FIRST WESTERNER TO BE INVITED AT LAUNCH SITES AND SPACE INDUSTRIES OF THE FORMER SOVIET UNION. COULD YOU TELL US THE VALUE OF THAT EXPERIENCE?
In 1988, we started to work with the Russians, according to the contract of the European Space Agency. We worked especially on the interfaces to the satellite, and of the procedures before, during and after the flight. This allowed us to deeply experience their "system" and qualified us as the european "experts" for russian capsules. The result was that we were present on board for almost every experiment that took place during the years, until 2007 (last FOTON mission), resulting in a remarkable competitive asset.

2. WITH KAYSER, YOU CARRIED OUT SIGNIFICANT EXPERIMENTS FOR THE STUDY OF THE EFFECTS OF WEIGHTLESSNESS AND ABSENCE OF RADIATIONS, ALL CONSEQUENCES OF LONG INTERPLANETARY SPACEFLIGHTS. COULD YOU DESCRIBE YOUR LATEST PROJECTS?
The weightlessness and the high level of radiations cause damages of different nature on living organisms, specifically muscle atrophy and loss of calcium (osteoporosis). Therefore we concentrated our participation to Life Sciences in Space, becoming european leaders in this sector. Our instruments for the study of posture (ELITE S2) and of decrease in muscle tone (HPA), of the effects on algae (PHOTO) or on cells or insects led the way to new perspectives for the life of astronauts during longer missions and for the installation of countermeasures on earth for long-term patients. Currently we are preparing a flight with the Chinese (end of October) and another with the Soyuz (end of December), for studies of cell and molecular biology.

3. YOUR COMPANY WORKS FOR MANY FOREING COUNTRIES. COULD YOU TELL US MORE ABOUT THEM?
Our customers are space agencies, the european and the italian ones. This led us to work with the USA, Russia, China and Japan. The next launch with China is especially important, because, as the first in Europe, we will fly an experiment on the Shen-zu capsule. Our presence at the bases (Cape Kennedy, Plesetzk, Baykonur, Gobi) is really appreciated for the technical and relational ability.

4. HOW REVELANT ARE, FOR YOUR EXPERIENCE AND FOR WORKING OUT OF THE COUNTRY, YOUR TUSCAN ORIGINS? HOW, AND HOW MUCH, IS OUR REGION CONSIDERED ABROAD?
When I am asked to say where we are based, I indicate the world-renowned Florence and Pisa. The education of our technicians, coming mostly from the University of Pisa, usually amazes for the multidisciplary flair (electronics, softwares, thermodynamics, mechanics, optics). We know very well how to combine the advanced specialization with the system's expertise.

5. KAYSER WORKED IN THE FIELD OF "INTELLIGENT" MATERIALS AND FABRICS, OF ENERGY, OF COMMUNICATIONS, OF NAVIGATION SYSTEMS. WHAT WILL THE FUTURE BRING FOR KAYSER? WHICH IS THE NEXT CHALLENGE?
Our future challenges are in the micro-mechatronics and nanotechnologies, in biological analyzers, in structures for systems not only habitable in orbit, but also on other heavenly bodies.

6. FINALLY, OUT OF CURIOSITY: LIFE IN SPACE IS YOUR AREA OF RESEARCH AND YOU ARE A MEMBER OF THE AMERICAN INSTITUTE OF AERONAUTICS AND ASTRONAUTICS, WHAT ARE THE ACTUAL POSSIBILITIES OF A LANDING ON MARS BY 2030, AS SOUGHT BY PRESIDENT OBAMA?
It is necessary to keep the exploration dream going; visiting the Moon? We know how to make it. Visiting Mars? We have the needed technology. But to do so, we require substantial resources and researches that could allow us to grasp completely the issues of longer journeys, that could make the stay on Mars difficult. At the present time, we are working on an instrument that could allow us to understand if, on the red planet, there was, or is, life.
Perhaps 2030 is coming too soon, but surely the child that will walk on Mars is already born.