

SPACE FOR BUSINESS



ESA'S NEWSLETTER OF THE HUMAN EXPLORATION PROMOTION DIVISION AND THE TECHNOLOGY TRANSFER PROGRAMME OFFICE

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“I AM NOT A TOURIST”

ANOUSHEH ANSARI, THE FIRST-EVER FEMALE ‘SPACEFLIGHT PARTICIPANT’, SPEAKS ABOUT HER FLIGHT, UNEXPECTED FRIENDSHIPS AND HER AVERSION TO BEING CALLED A ‘SPACE TOURIST’.



THE INTERNATIONAL SPACE STATION

How did you get the idea of wanting to go to space?

Space and space exploration has been something that I have been doing since I was young. It started with a fascination — just watching the stars at night and wondering what is out there in the Universe and if there are other people living out there. It was a fascination with the mystery of space. That is something that has stayed with me through my childhood and my adult life, and even though my career did not directly avoid becoming an astronaut, even though I didn't want it to, it became a motivation for me for success in business. So it's been something that I dreamed about and had in my heart for a long time.

Why does the term ‘space tourist’ get on your nerves?

I don't like the term ‘space tourism’ or ‘space

tourist’ because I feel that it doesn't do justice to what we do as ‘spaceflight participants’ or explorers. A ‘tourist’ is someone who decides to go somewhere, buys a ticket, takes their camera, packs a bag and goes. For this experience, I had to train for six months in Star City, perform physical and mental training, learn all the systems of the space station and the Soyuz rocket.

So to me, I had to learn a lot more than a tourist would have to learn about their trip. The closest thing I can compare it to is people who go to exploration trips to Antarctica, or to the Arctic, or people who climb Mount Everest. You would never call them tourists. You would maybe call them ‘expedition member’ or some different terminology, but they

would not like to be called tourists. So that is why I don't like to be called a ‘tourist’.

What was the most unexpected thing you experienced in space?

The most unexpected thing that I experienced I guess was the friendship that I found during the spaceflight. I did not know how well I would be accepted by the astronauts and cosmonauts. Sometimes you think that they may feel you are competing with them in taking a seat on board a spacecraft. So what I found was that they are really an exceptional group of people, very unique. I enjoyed their company and I enjoyed their friendship. I really made friends that I think I will have for life and that was something that I really didn't expect, and it was a very positive aspect of my overall space experience. >>



SPACEFLIGHT PARTICIPANT ANOUSHEH ANSARI IN THE SOYUZ LAUNCH VEHICLE

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» **What was the most annoying thing you experienced in space?**

The annoying part of the space experience was about my body adjusting being in weightlessness, and the motions sickness and the headaches that I got during the first two days being on the Soyuz trying to get to the space station. I wish I could skip that part or if there was a pill I could take it and make my body adjust quickly. That would make the trip perfect.

What was the best part of the experience?

The entire experience completely exceeded my expectation and was something that I always dreamed and imagined and when I finally was able to experience it, every part of it was really wonderful and something that I will never regret doing.

So overall it was an exceptional experience. The most memorable part of it would be the

first time I looked out of the window of the Soyuz. It brought tears to my eyes, because I first of all realised that I was in space and my dream had just come true and that made it a very special moment; and of course just watching Earth from space and seeing the beautiful planet that it is – without borders and signs of trouble – that is the picture that I will cherish forever in my heart and that I will always remember. ■



INCUBATING BUSINESS THROUGH SPACE TECHNOLOGY

URBAN MYTH HAS IT THAT THE MOST USEFUL THINGS BROUGHT FOR PEOPLE ON EARTH BY MAN'S CONQUEST OF SPACE ARE TEFLON-COATED NON-STICK FRYING PANS AND VELCRO FASTENERS.

However, not only is this untrue (the first frying pan was coated with Teflon by a Finnish company in 1960, one year before the first man in space, and Velcro was invented by a Swiss engineer in 1948 who was annoyed by picking burs out of his dog's fur after taking him for a walk in the woods) but this also misleadingly diminishes the

importance that space technology has for our modern life. Little do we realise that space technology has already invaded almost every area of our daily life and is even shaping our economy, because little consideration is given to the fact that space technology aids and encourages innovative business ideas. More progressive entrepreneurs are taking advantage of the knowledge of space-based technologies and services by transferring this expertise to the non-space market. To foster this specific business sector as well as the European economy, ESA set up three 'incubators' in the Netherlands, Germany and Italy, under the coordination

of its Technology Transfer and Programme Office.

An 'incubator' is a team of ESA staff and consultants are helping start-up companies to go from a business idea, which uses space technologies, systems or processes, to actually developing a sustainable and successful commercial organisation – and this requires much more than just a license to use a certain space technology.

FROM IDEA TO IMPLEMENTATION

"We want to assist entrepreneurs with innovative ideas to lift their project off the ground," says Frank M. Salzgeber, acting Head of ESA's Technology Transfer Programme Office (TTP). "We are offering our technical and business development expertise to get their new business going." The first incubator was launched in 2004 at ESA's European Space Technology and Research Centre (ESTEC) in the Netherlands. This incubator was funded half by ESA and half by the Dutch government, and supports the potential start-up companies financially – in cash as well as in kind, by offering them use >>



ENTREPRENEUR ROLAND HAARBRINK FROM MIRAMAP

miramap



MIRAMAP, A FORMER ESTEC INCUBATEE, IS USING SPACE TECHNOLOGY TO MONITOR THE MOISTURE CONTENT OF E.G. THE DUTCH WATER BARRIERS FROM AN AIRPLANE TO DETECT WEAK SPOTS



>> of ESA facilities and expertise. But this 'spark funding' is not the main factor of making business incubation successful.

All ESA incubators combine the knowledge of ESA with lessons learned from former 'incubatees', a well-established connection to regional businesses and an embedding of the incubator within a pan-European business incubator network in order to create an ideal environment for start-up businesses to make use of different sets of skills, and to learn and thrive.

"Bridging the gap from identifying a business opportunity to actual implementation is a long journey," says Salzgeber, as most future entrepreneurs come unprepared. "Lots of firms come with a great, innovative idea, but lack business

development, financial and general management capabilities. We offer a network of professionals that can add the skills the incubatee firm lacks." The ESA incubators guide and support their incubatees for up to two years through the foundation of the company through the early growing stage to prepare them to be able to persist in the rough world of the free market. The concept works – to date, the ESTEC incubator supported 16 incubatees, and helped to create 10 successful companies.

BUSINESS INCUBATORS AT ESA

The model of business incubation at ESA flourished and two more incubators were created: in 2005 at ESA's ESRIN site in Frascati near Rome, and in 2006 at ESOC in Darmstadt, Germany. "The principle of the incubation process stays the same and all three incubation centres share a common approach," explains Alberto Tobias, Head of ESA's Software, Systems and Synthesis Department.

"But the emphasis on the type of businesses incubated differs slightly, depending on the nature of the ESA sites. In ESTEC, ESA's technology hub, we see a large variety of start-ups ranging from satellites applications to technology transfer whereas at ESOC we may anticipate a focus primarily aimed at satellite applications such as Galileo, the new global satellite navigation system operated by Europe which is due to enter service in the 2010 timeframe."

INNOVATIVE BUSINESS WITH SPACE TECHNOLOGY

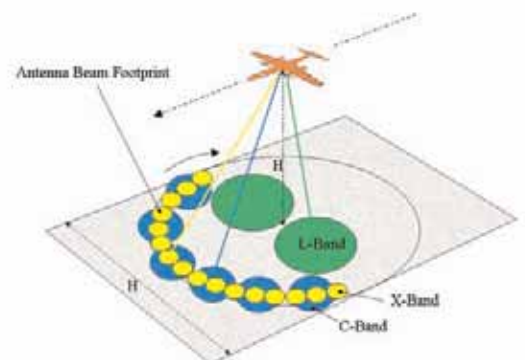
An example of a successful ESA incubated business is MIRAMAP, developed in the ESTEC incubator. The company uses technology that was originally developed to observe certain parameters on Earth from space, in particular monitoring land and water surfaces from a plane. The technology used is called Airborne Passive Microwave Radiometry (APMR). It can produce very detailed, geo-referenced maps showing the soil moisture variation at a surface and the depth of a shallow water table down to several metres.

MIRAMAP won several contracts, among others one with the Dutch Ministry of Traffic and Water Management to monitor the moisture content of Dutch water barriers to detect weak spots on time and thus allow the government to stabilise the dike system.

A currently incubated company is DiSAPS, which wants to use high-end satellite navigation to develop an intricate precision positioning system for the blind and visually impaired. ■

FOR MORE INFORMATION, PLEASE REFER TO THE FOLLOWING WEBSITES:

WWW.MIRAMAP.NL
WWW.SISAPS.COM



MODEL OF THE MIRAMAP PLANE SCANNING SOIL

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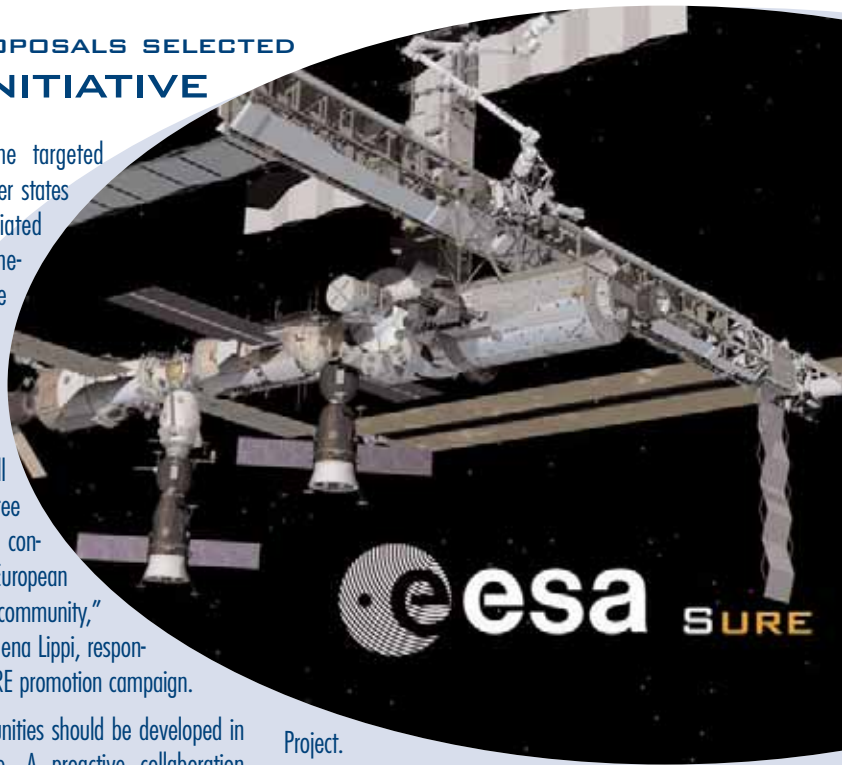
10 SCIENTIFIC AND INDUSTRIAL PROPOSALS SELECTED SUCCESSFUL SURE INITIATIVE

OPPORTUNITIES FOR SCIENTISTS AND SMALL AND MEDIUM-SIZED ENTERPRISES (SMES) OF EU MEMBER STATES AND ASSOCIATED STATES TO DO RESEARCH ON THE ISS HAVE OPENED UP WITH THE SELECTION OF 10 PROPOSALS BY ESA'S SURE PROJECT (ISS: A UNIQUE RESEARCH INFRASTRUCTURE), LAUNCHED IN JANUARY 2006.

Mainly from the new EU member states, the best ten experiment proposals were selected out of an original 32, two of which are industrial proposals from SMEs. This first round of selection has been completed within the allocated EC budget. Seven of the chosen experiments cover Life Sciences and three deal with Physical Science. Bulgaria and Hungary are represented with four experiments, Slovenia and Romania supply one experiment each. "The SURE project is a great initiative – the

response of the targeted 'new EU member states and associated states' was phenomenal. There is a tremendous interest from those countries in space research and all have a high degree of expertise to contribute to the European space research community," explains ESA's Elena Lippi, responsible for the SURE promotion campaign.

"Similar opportunities should be developed in the near future. A proactive collaboration between ESA, the scientists and SMEs has now started, towards the implementation of the selected experiments and we are looking forward to their successful launch," comments Marie Diop, ESA Coordinator of the SURE



Project.

The four-year SURE project is fully funded by the European Commission under the Sixth Framework Programme (FP6). The selected experiments are planned by ESA to be carried out on the ISS by 2009. ■

IMPLEMENTATION OF COMMERCIAL LIFE SCIENCES EXPERIMENT ON STATION SKIN CARE EXPERIMENT ON BOARD THE ISS

A commercial research project, the SkinCare experiment, was performed on board the International Space Station (ISS) to investigate physiological changes of human skin in space.

The aim of this experiment was the systematic examination of the effects of space on human skin, in order to draw general conclu-

sions on the skin ageing processes. It is expected that weightlessness and the particular environment on board the ISS during long-duration missions result in accelerated skin ageing and could finally allow the investigation of skin ageing parameters and corresponding countermeasures in much shorter time than on Earth.

During ESA's Astrolab mission, the physiological parameters of human skin were measured and recorded every two weeks for the duration of three months. The measurements were performed by non-invasive instruments that were technically adapted and qualified for the assignment on board the ISS by the company Kayser-Threde GmbH of Munich, Germany.

"It was the first application of these measurement instruments in space and our expectations were completely fulfilled. The customers and we are very satisfied with the tech-

nical performance of the devices and now looking forward to the results," says Dr Michael Massow, managing director of ISS Lab Ruhr GmbH, ESA's Commercial Agent for Biotechnology, Health, Food and Nutrition. The skin measurement devices will remain on board the ISS and will be available for further experiments. ■

READ MORE ABOUT THE OFFICIAL RESULTS OF THE SKINCARE EXPERIMENT ON THE ISS IN THE NEXT ISSUE OF 'SPACE FOR BUSINESS'

THE COMMERCIAL SKINCARE EXPERIMENT WAS PERFORMED DURING THOMAS REITER'S ASTROLAB MISSION



UPCOMING EVENTS

Wearable Technologies Congress
Munich (D)
9 July 2007

International Paris Airshow
Le Bourget
Paris (F)
18-24 June 2007

Venture Capital Forum
ESTEC/Noordwijk (NL)
24 April 2007

European Business and Innovation Centres Network (EBN) Congress
Canterbury (UK)
20-22 June 2007

BIO 2007
Boston (USA)
6-9 May 2007