Prof.dr.Wubbo J. Ockels (Ph.D)
Detached ESA Scientist Astronaut

**Birthplace and date**

Born in Almelo, The Netherlands, on 28 March 1946, but he considers Groningen, The Netherlands, to be his hometown.

**Nationality**

Dutch

**Marital status**

Married, two children

**Profession**

Physicist, Full professor of Aerospace at Delft University of Technology, chair “ASSET”, Aerospace Sustainable Engineering and Technology

**Education**

Completed University in physics and mathematics on the basis of experimental work at the Nuclear Physics Accelerator Institute (K.V.I) in Groningen in 1973 (Cum Laude).
Received a doctorate degree in physics and mathematics at the University of Groningen in 1978.
Astronaut training and graduation, NASA, Johnson Space Centre, Houston 1980-1981.
Commercial Pilot Licence 1987.

**Organisations**

Member of the American Physical Society, Dutch Physics Society, Mensa, Association for Space Explorers, Association of European Astronauts.

**Experience**

From 1973 to 1978, Dr. Ockels performed experimental investigation at the Nuclear Physics Accelerator Institute in Groningen. His work concerned the gamma-ray decay of nuclear systems directly after formation and the development of a data-handling system involving design of electronics and programming of real-time software. He also contributed to the design and construction of position sensitive charged particle detectors. While at the K.V.I. Institute, Dr. Ockels supervised the practical work of first-year physics students at the University of Groningen.

## **BIOGRAPHICAL DATA-SHEET (cont'd)**

In 1978, he was selected by the European Space Agency (ESA) as one of the three European Payload Specialists to train for the Spacelab-1 mission. Spacelab-1 was a joint NASA/ESA mission. In May 1980, under agreement between ESA and NASA, Dr. Ockels was selected to begin the basic astronaut training for mission specialist together with the U.S. astronaut candidates at the NASA Johnson Space Centre, Texas. He successfully completed his training in August 1981.

Dr. Ockels rejoined the Spacelab-1 crew for training as a back-up Payload Specialist for Spacelab, the reusable, manned research-facility developed by the European Space Agency (ESA). Dr. Ockels worked as ground-communicator and liaison-scientist for the crew on-board during the first Spacelab-flight in Nov/Dec. 1983.

Dr. Ockels made his first Flight in space as European crew member during the Spacelab D-1 mission in 1985. The overall responsibility for the payload of this flight with more than 70 European experiments from 5 different science disciplines was carried by the German Aerospace Research Establishment DLR.
Spacelab D-1 was launched on-board the U.S. Space Shuttle Challenger on 30 October 1985. The duration of the mission was 7 days.

Since 1986 Professor Dr. Ockels was stationed at ESTEC (the technical + scientific research centre of ESA in Noordwijk, The Netherlands) supporting the ESA activities for future manned space flights until 1996. He was particularly involved on the Columbus programme, Europe's contribution to the International Space Station for the preparation of the crew activities and work environment.

In July 1992, the Technical University of Delft, The Netherlands, nominated Dr. Ockels for a part-time professorship in the Faculty of Aerospace Technology. Additionally, he is maintaining his qualification as ESA Scientist astronaut. He was assigned concurrently as Senior Technical Assistant to the Department of Automation and Informatics at ESTEC where he has lead a number of special projects culminating in the “Teamsat” satellite. This was a low cost, fast track project implemented by some 50 students, young engineers and ESA staff, to produce a satellite using second-hand or ‘stock item’ technology. The satellite was launched on Ariane 502 on October 30$^{th}$ 1997 and successfully completed its mission.

In addition, Dr. Ockels, since 1994, participated in preparatory studies for a European Moon programme and in 1996 took the initiative to develop a proposal for a robotic Lunar South Pole expedition in 2001, namely ‘Euromoon’. He led the Euromoon Industrial study until March 1998. The ESA Council was, however, not in the position to provide sufficient funding to continue Euromoon.

## **BIOGRAPHICAL DATA-SHEET (cont'd)**

From 1998 till September 2003 Dr. Ockels has been Head of Office for ESA's new Office for Educational Projects Outreach Activities whose objectives are:
. To reach a significant number of young people and motivate them to enhance their literacy in science and technology in general and Space in particular.
. To stimulate talented youngsters to dedicate their career to Space, favouring a highly skilled workforce for the 21st century.
He has been set-up an Agency wide education programme with amongst several projects such as:
*Physics on Stage*: a festival which will bring together the most exciting teaching methods and European teachers to improve understanding of science and technology (involving 22 countries).
*IAF student programme*: an annual congress, in which several hundreds European students are invited to actively prepare and participate in the building of their future through a better knowledge of (space) technology and sciences.
*Annual Student Parabolic Flight Campaigns*: dedicated for students to have a parabolic flight experience in an Airbus 300 zero-g aircraft.
*SSETI (Student Space and Technology Initiative)*: a new web based society to design and build a micro-satellite with a special emphasis on teachers to stimulate more enthusiastic students.

**Present duties:** Under a special agreement between the European Space Agency and the Delft University of Technology, Dr. Ockels has received a full professorship from 1 September 2003 onward with a new chair called "ASSET" (Aerospace for Sustainable Engineering and Technology). Within this Chair Prof. Ockels continued the activities around solar racing winning the last three editions of the World Solar Challenge (2001, 2003 and 2005).
He further develops new technologies that allow for remotely control of kites. Such fully controllable kites, or "kiteplanes" or "smart kites" will enable a variety of applications, such as pulling large vessels and generating energy. In particular the invention for exploiting wind energy from high altitudes, the Laddermill, will be the subject of research and development. In the framework of this research a dedicated Kite Laboratory has been developed and made operational.
The third research theme is devoted to sustainable public transport. In this research program a new means for fast public transport is being developed, called Superbus. The Superbus is a fast (250 km/h) and sustainable vehicle which makes use of advanced aerospace technology. Currently a full scale demonstrator of the Superbus is being designed and built. This project is supported by the Ministry of Transport and Public Works as well as several companies.

In 2004 Dr. Ockels was also appointed as part time professor at the University of Groningen, Centre for Energy and Environmental Studies (IVEM).

Furthermore, Dr. Ockels assists in setting up several sustainable activities such as the Frisian Solar Challenge (solar boat race) which was very successful in 2006 and 2008.

**Flight experience:**
1500 total hours
1250 PIC SEL
260 Actual Instruments
200 Night Flight
180 MEL Jet Co-Pilot

**Awards:**

NASA:
Public Service Award
Space Flight Medal

European Space Agency:
Long-Service Award 2002
Team Achievement Award Euromir
Team Achievement Award Spacelab 1990
Medal of Confirmed Inventor 2003

University of Delft:
Ritsema van Eck prize for outstanding team Solar race

General C.J.Snijders Gold Medal (highest aviation award in Netherlands)

World Solar Challenge winner 2001; 2003; 2005; 2007 (Australia)

Wubbo Ockels Prize City of Groningen

Germany:
1st Klasse Verdienst Kreuz

Royal family:
Officer in Orde of  Oranje-Nassau