



News-Archiv Transport 2010

Asteroids, train collisions and designer fuels: a look back at the year 2010

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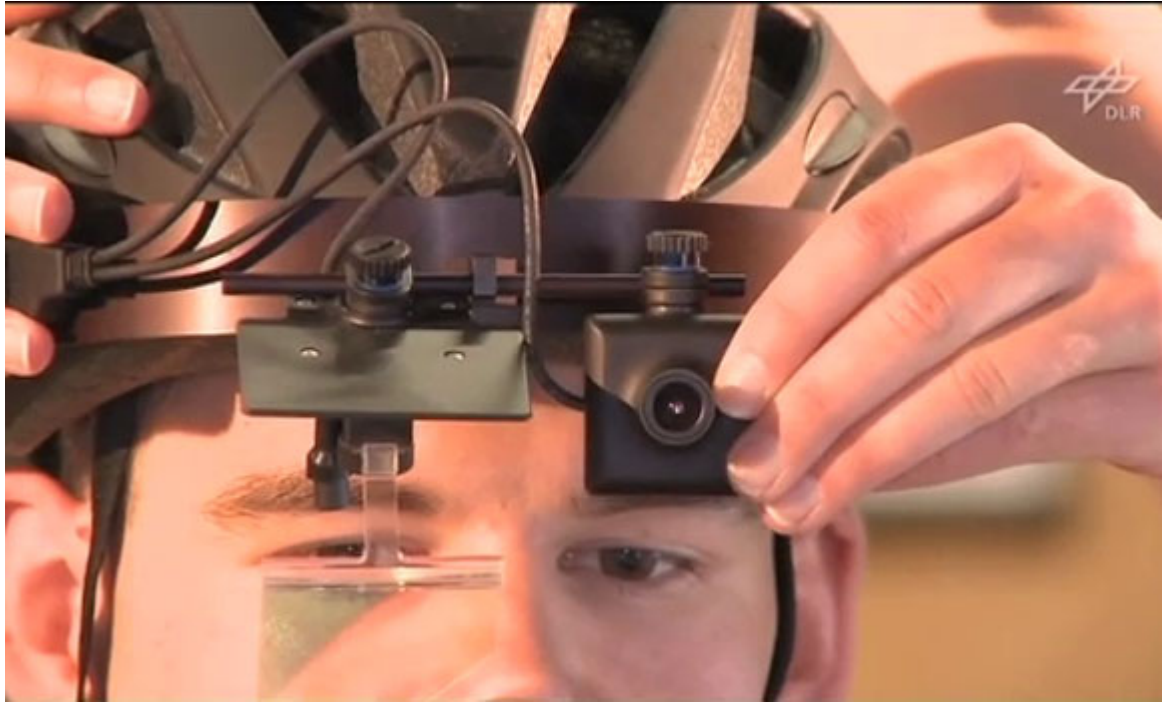
DLR review of the year 2010 in pictures

January: Air traffic controllers under observation at the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR) Tower at Braunschweig: DLR researchers are measuring their eye movements and the focal points of attention while at work. Who is looking, in which direction, and at what time? The Stuttgart-based DLR Institute of Combustion Technology is working on 'designer fuels'. Researchers have come to the conclusion that designer fuels can be developed to have better environmental credentials, and to prove more reliable than kerosene. Synthetic fuels based on coal, natural gas and biomass could well be replacing kerosene by 2030 – a future that researchers believe could become a reality. This could turn aviation into a climate-neutral form of transport.

February: A microgas turbine under trial: at DLR Stuttgart, research is being conducted into the energy supply of the future – combustion processes are being investigated thoroughly on the test bench. DLR researchers come close to conditions of zero gravity in February, conducting their experiments in weightlessness in parabolic flights. One of these experiments involves deploying satellite antennas in space environment conditions.

March: The test strip at the external facility in Lampoldshausen where DLR is testing laser beams measures 130 metres in length – accurately targeted and precise research under real-life environmental conditions. The new Member of the Executive Board responsible for Energy Research at DLR, Ulrich Wagner, views his new activity as one that starts with the energy sector. His dream is 'an end to energy waste'. Several experiments will launch into space in March on board the Rexus 7 and 8 research rockets, launching from the Esrange Space Centre in Kiruna, Sweden. For a short period of time, the rockets will experience weightlessness. After this successful flight, all payload items will be recovered and returned for evaluation to the six student groups involved. DLR planetary researchers discover that CoRoT-9b, an exoplanet the size of Jupiter transiting the field of view of the CoRoT satellite, is surprisingly 'normal'. "It appears to closely reflect the characteristics of planets in the Solar System," says DLR researcher Heike Rauer.

April: The problems that the Icelandic Eyjafjalla volcano can cause have already become reality. Its latest eruption spreads a giant cloud of ash, paralysing air traffic. In Oberpfaffenhofen, atmospheric researchers prepared their Falcon research aircraft to conduct measurement flights inside the volcanic ash cloud over Germany and Iceland. Also in Oberpfaffenhofen, robots learn to walk, and virtual flights are conducted on the Robot Motion Simulator.

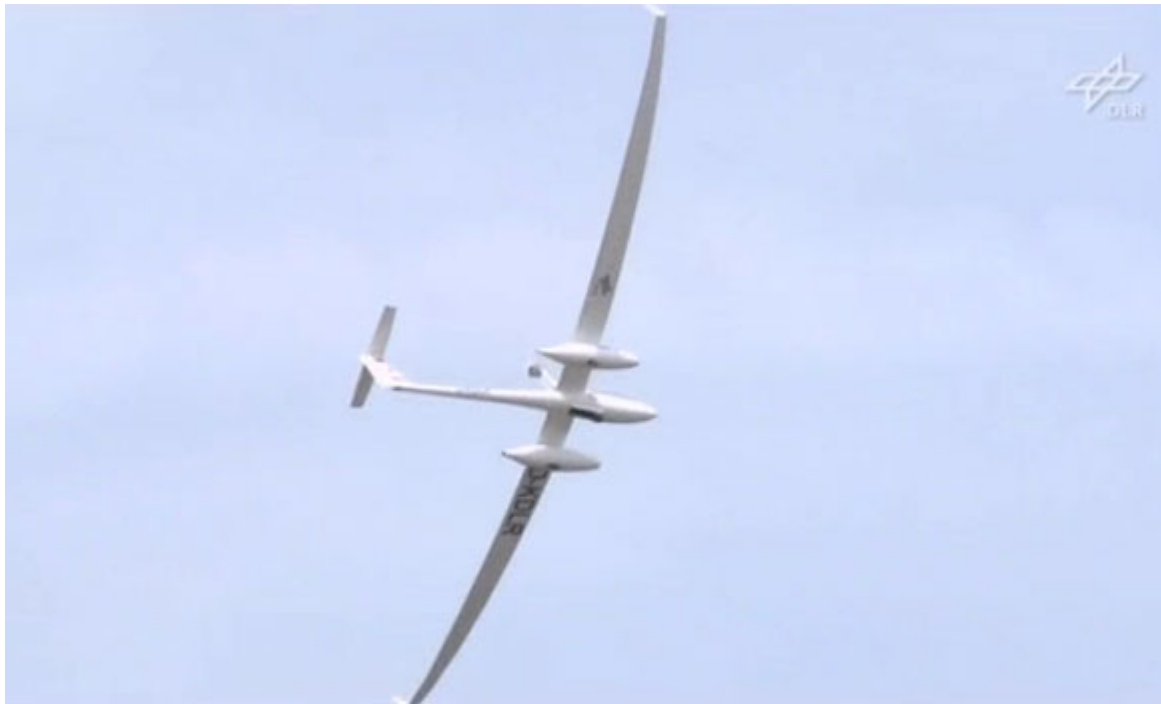


May: DLR scientists demonstrate the success of their research at a test track near Aachen: the innovative RCAS anti-collision system with direct train-to-train communication warns train drivers well in advance of potential collisions on the track. The German Federal State of North-Rhine Westfalia (NRW) presents DLR with a € 27 million financial assistance package to help set up a Solar Research Institute. Scientists are to carry out research into solar thermal power stations — one way of obtaining electricity with zero carbon dioxide emissions.

June: At ILA 2010 in Berlin, DLR's high-tech exhibits from the world of aerospace research include its research aircraft fleet, the hydrogen fuel cell-powered aircraft Antares and a prototype of the Mars Rover. Contracts are signed with Russia, Kazakhstan and ESA. A celebration for the DLR School_Labs: 10 years ago, the DLR_School_Lab in Göttingen came onto the scene and attracted new talent to the fascinating world of scientific research. Now school pupils are able to learn about the work of scientists at a total of nine such laboratories at different DLR locations. With the launch of the TanDEM-X radar satellite, DLR is setting out on a great mission: flying in formation, two satellites are delivering data for a three-dimensional digital elevation model of Earth.

July: The TET satellite undergoes preparations for its mission: as a technology demonstrator platform, it will transport devices into space that are intended for use in satellites of the future. Any device that passes the test has cleared the first hurdle for practical operation at a later date.

August: The traffic tower at Berlin-Adlershof starts using taxis to report on traffic congestion. With the data they supply, DLR researchers can analyse the situation on the roads. DLR's new ground station in Inuvik, in northern Canada, starts receiving data from space - the first such location inside the Arctic Circle - facilitating the reception of TanDEM-X data.

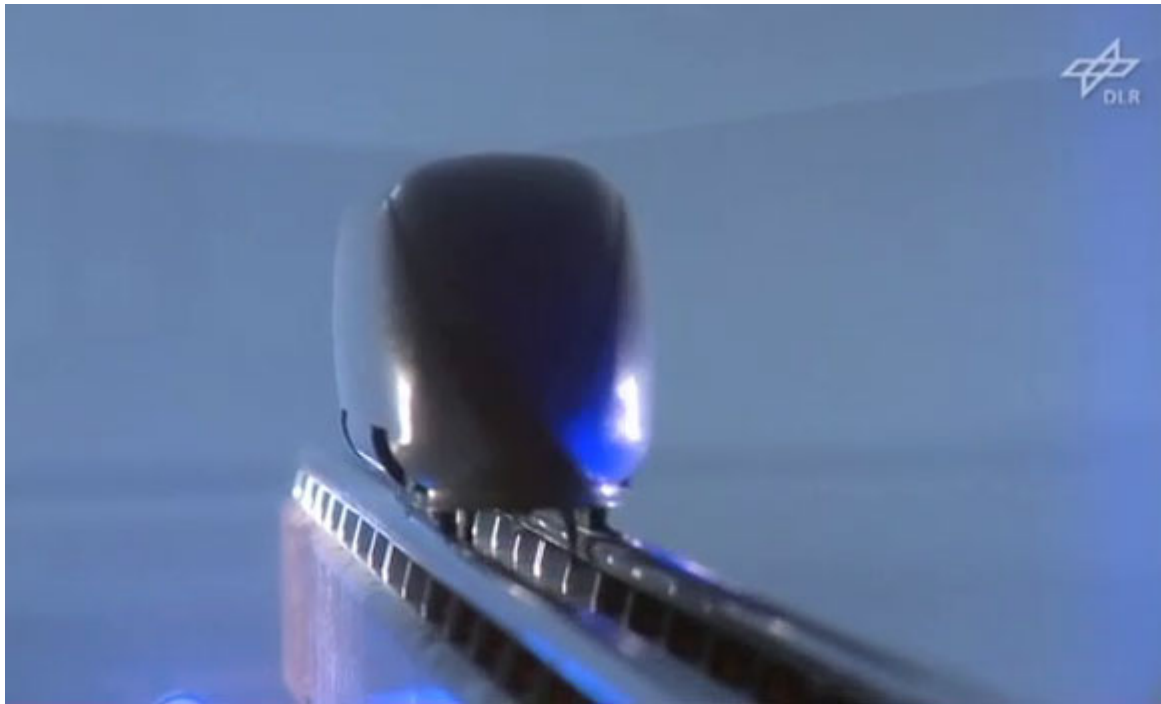


September: Several DLR Institutes cooperate on Shefex II. This sharp-edged spacecraft is scheduled to launch in Australia in 2011 and re-enter Earth's atmosphere safely. The catapult in the Göttingen tunnel simulation facility gets trains moving at top speed by accelerating model trains up to speeds of 400 kilometres an hour. In this unique facility, it is possible to simulate scenarios such as the point where high-speed trains enter a tunnel. DLR scientists in Braunschweig are conducting trials into quieter final approaches for aircraft. This involves measuring noise emissions on the ground. The objective is to find ways to cut the noise emissions of aircraft on final approach.

October: The EOC Service Lab is about to start its operations. Scientists bundle data on atmospheric observation, environment monitoring and crisis-specific information, and use this information to assist disaster relief missions worldwide. These researchers are also developing and testing early-warning systems.

November: "Caution! One-minute warning at test bench P4!" The upper stage propulsion unit for the Ariane 5 rocket is being tested in Lampoldshausen. Relief all round when everything runs seamlessly on the test bench. At a later date, out in space, the same propulsion unit will have to ignite perfectly, several times in succession.

December: NASA and DLR sign a framework agreement. Cooperation between the agencies is set to intensify in the future. The partners also sign the Lunar Science Institute Agreement for collaboration in lunar research. In Oberhausen, the 'Out of this world' (Sternstunden) exhibition comes to an end. Since it opened in April 2009, 950,000 visitors have been able to view the biggest Moon on Earth, historical instruments and fascinating imagery from outer space.



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