

Fishing for the Future High in the Sky

By The reelSMRT Project

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Fishing and spaceflight aren't two things you expect to be related. Not so for nine students who have designed a reel.SMRT "real smart" project. They are producing a low gravity platform for high altitude balloons using a fishing reel and line.

Nine students are flying a standard fishing reel to the edge of space. Challenging convention, they aim to produce a new low gravity balloon-borne platform, as part of the prestigious European Space Agency supported BEXUS program. The experiment is called reel.SMRT ("real smart") and shall be launched from the Arctic on a high altitude balloon at the end of 2009. If successful, this project may offer a commercially viable alternative to the existing weightlessness platforms of parabolic flights and drop towers. This shall allow student teams and researchers more opportunities to test their experiments in low gravity environments, which can enhance the production and development of electronics and equipment for space.

The team has recently completed an important training week at the German Center for Aerospace (DLR) in Oberpfaffenhofen and is preparing for a high altitude balloon flight in Autumn. Design and development has been underway to realise reel.SMRT's vision for low gravity.

The prime objective of the reel.SMRT team is to design, construct and fly a mechanism capable of producing reduced gravity conditions in an attempt to replicate space-like conditions at 30 km altitude. In a novel solution to this issue, reel.SMRT selected to use a fishing reel from which a small capsule, called the FISH, is dropped from a balloon platform. During this drop, the FISH is in freefall which gives low gravity conditions. This capsule is then reeled back using a motor to power the fishing reel. In this way the drop can be repeated many times allowing future scientists to repeat their experiment many times on a single balloon flight.

reel.SMRT foresees a future where experiments can be conducted in low gravity many times on board high-altitude balloons. This will give an alternative to parabolic flights, drop towers and space missions with unique advantages. By scaling up the concept it will be feasible to drop capsules to distances of 5 km and beyond.

The nine students are all part of the European double masters program "SpaceMasters" and are spread across a broad range of necessary fields. The student nationalities are spread all across the world; Mexico, Austria, Australia, Canada, Sweden, the United Kingdom, the Czech Republic, Thailand and Germany. The team is currently based at the Luleå University of Technology's Kiruna Campus, Sweden and supported from Helsinki, Tokyo and Bremen.

The reel.SMRT project shall fly on the BEXUS-9 (Balloon-born Experiments for University Students) from the ESRANGE rocket base, which lies near Kiruna, above the Polar Circle in Sweden. The team are supported by the European Space Agency, the German Aerospace Centre and the Swedish National Space Board, Daiwa Australia and Lulea Tekniska Universitat.

reel.SMRT is a dedicated team looking forward to investigating the feasibility and applications of fishing for low gravity from high altitude balloons in the future.

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International SpaceMaster Student Team, designing a high altitude stratospheric balloon platform for low gravity experiments.

For more information please visit their website: <http://smrt.name/bexus>

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